



Civil Engineer
Stormwater Best Management Practice (permanent) Certification Letter

January 18, 2024

El Paso County
Department of Public Works – Stormwater Section
3275 Akers Drive
Colorado Springs, CO 80922

Attn.: Glenn Reese, P.E., Stormwater Inspector III

RE: **Flying Horse North Filing No. 1**

The permanent stormwater Best Management Practices (BMPs) for **Flying Horse North Filing No. 1** consists of a four individual Private Full Spectrum Extended Detention Basins and one Private Full Spectrum Retention Pond. These facilities are described by the following:

- Pond 1 within Tract B
- Pond 4 within Tract F
- Pond 8 within Tract I
- Pond 12 within Tract E
- Golf Course Irrigation Reservoir (Jurisdictional Facility) within Tract L

Based upon this information and information gathered during periodic site visits to the project during significant/key phases of the stormwater BMP installation, Classic Consulting Engineers & Surveyors, LLC is of the opinion that the stormwater BMPs have been constructed in general compliance with the approved Construction Plans, and Specifications as filed with El Paso County and the State Engineer. These facilities provide the required storage volume and will meet the required release rates, stage areas, elevations and outlet dimensions as documented by the attached UDFCD design forms. The jurisdictional facility mentioned above was approved by the State Engineer for construction on September 17, 2018 and acceptance of construction was given on February 12, 2020.
(See attached documents)

This site and adjacent properties, as affected by work performed under the associated County permits, remain stable with respect to settlement of disturbed areas, revegetation and the site improvements meet or exceed the minimum design requirements.

Statement Of Engineer In Responsible Charge:

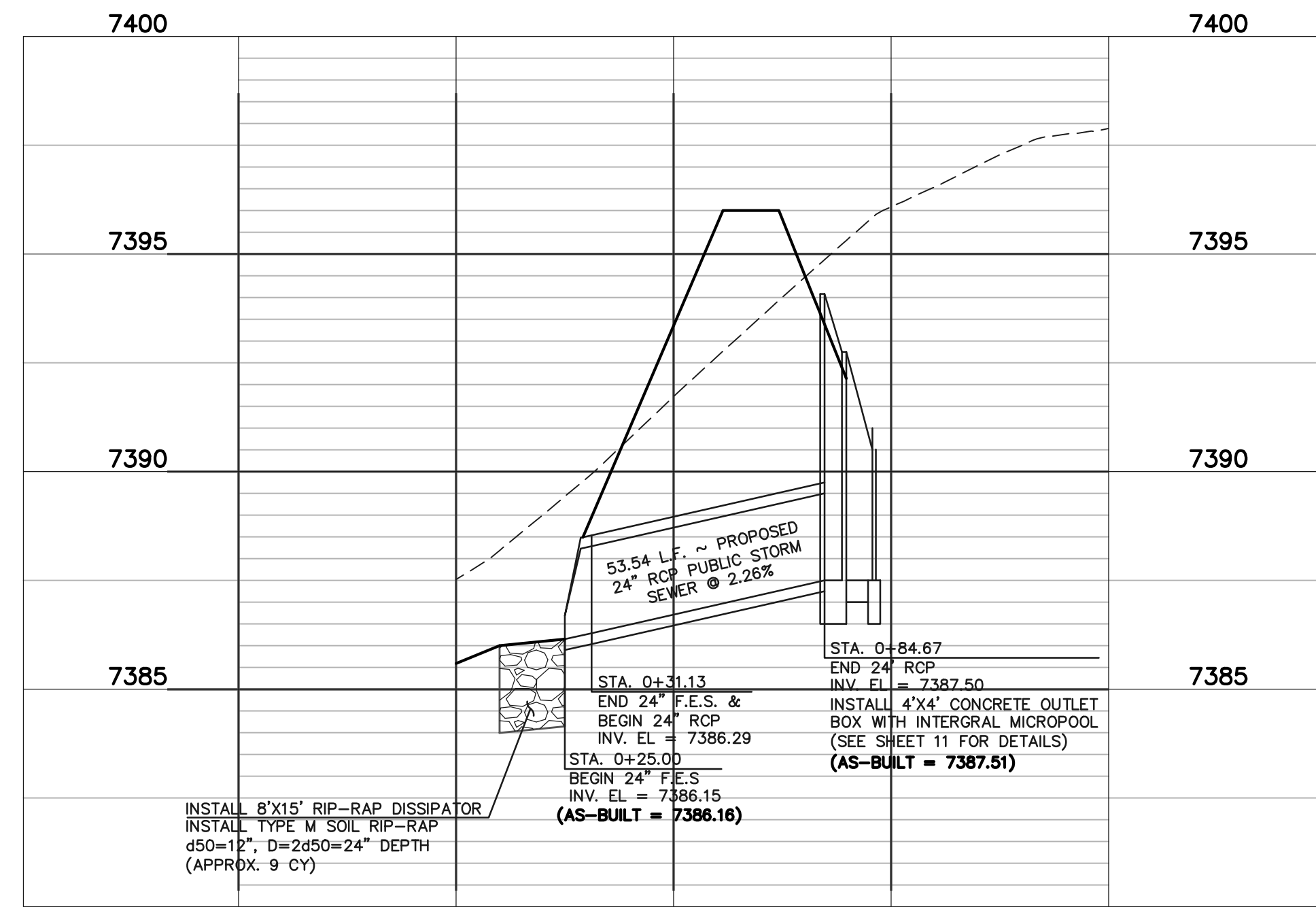
I, Marc A. Whorton, a registered Professional Engineer in the State of Colorado, in accordance with Sections 5.2 and 5.3 of the Bylaws and Rules of the State Board of Registration for Professional Engineers and Professional Land Surveyors, do hereby certify that I or a person under my responsible charge periodically observed the construction of the above-mentioned project. Based on the on-site field observations and review of pertinent as-built documentation, it is my professional opinion that the required permanent BMPs have been installed and are in general compliance with the approved Construction Plans, and Specifications as filed with El Paso County and the State Engineer. For BMPs with a Water Quality Capture Volume (WQCV), I have attached the post-construction As-Built drawings. The As-Built drawings accurately depict the final installation of the stormwater BMPs.



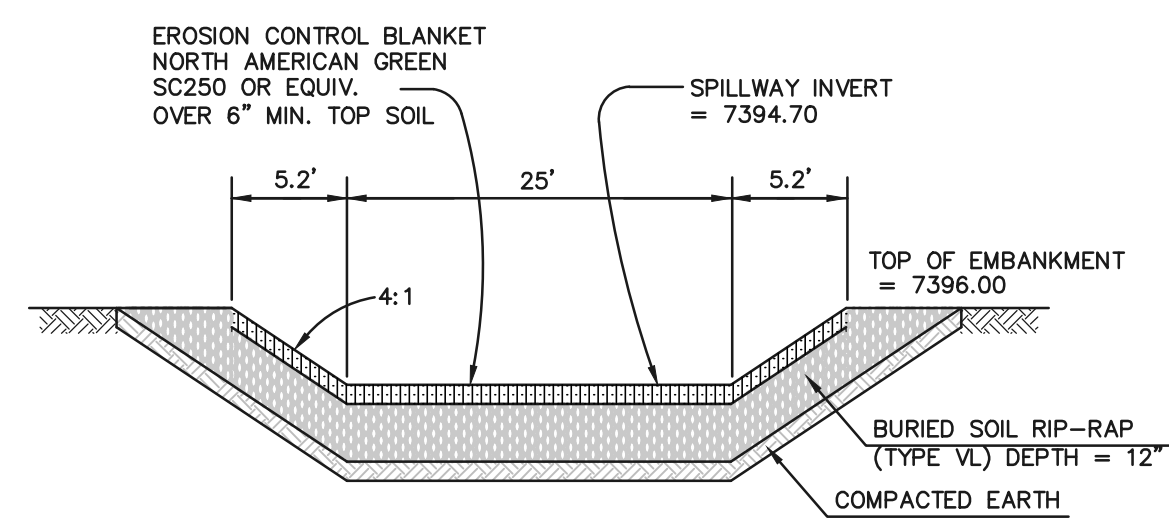
Marc A. Whorton, P.E.
Colorado No. 37155



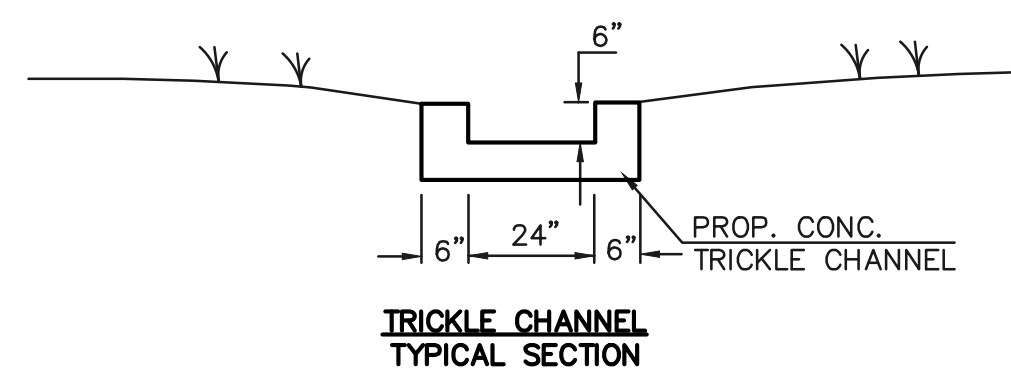
Seal & Signature of P.E. Goes Here



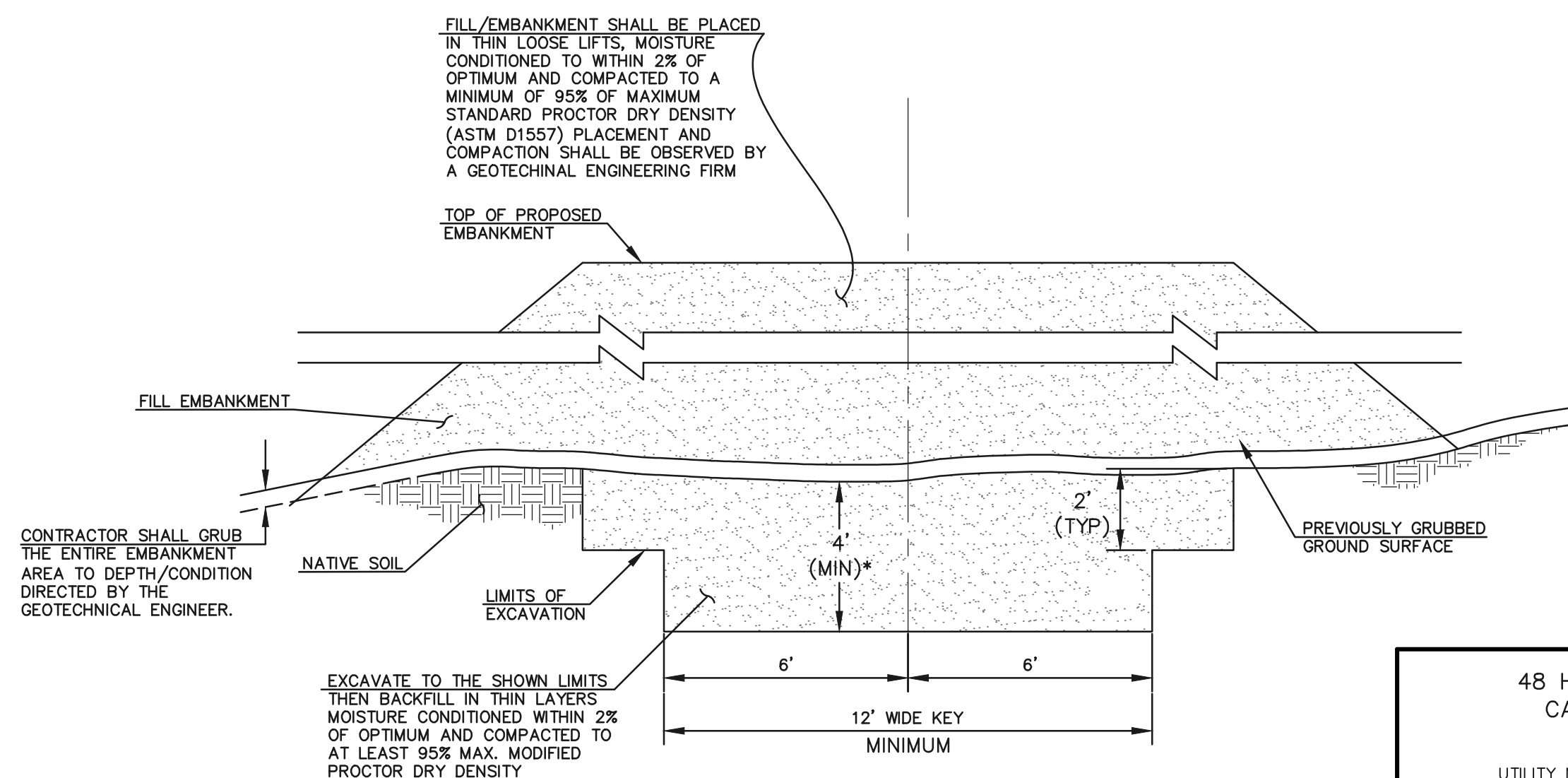
**DETENTION FACILITY NO. 1
POND OUTLET PROFILE**
SCALE: HORIZONTAL 1"=30'
VERTICAL 1"=3'



**EMERGENCY SPILLWAY
CROSS SECTION**
SCALE: N.T.S.

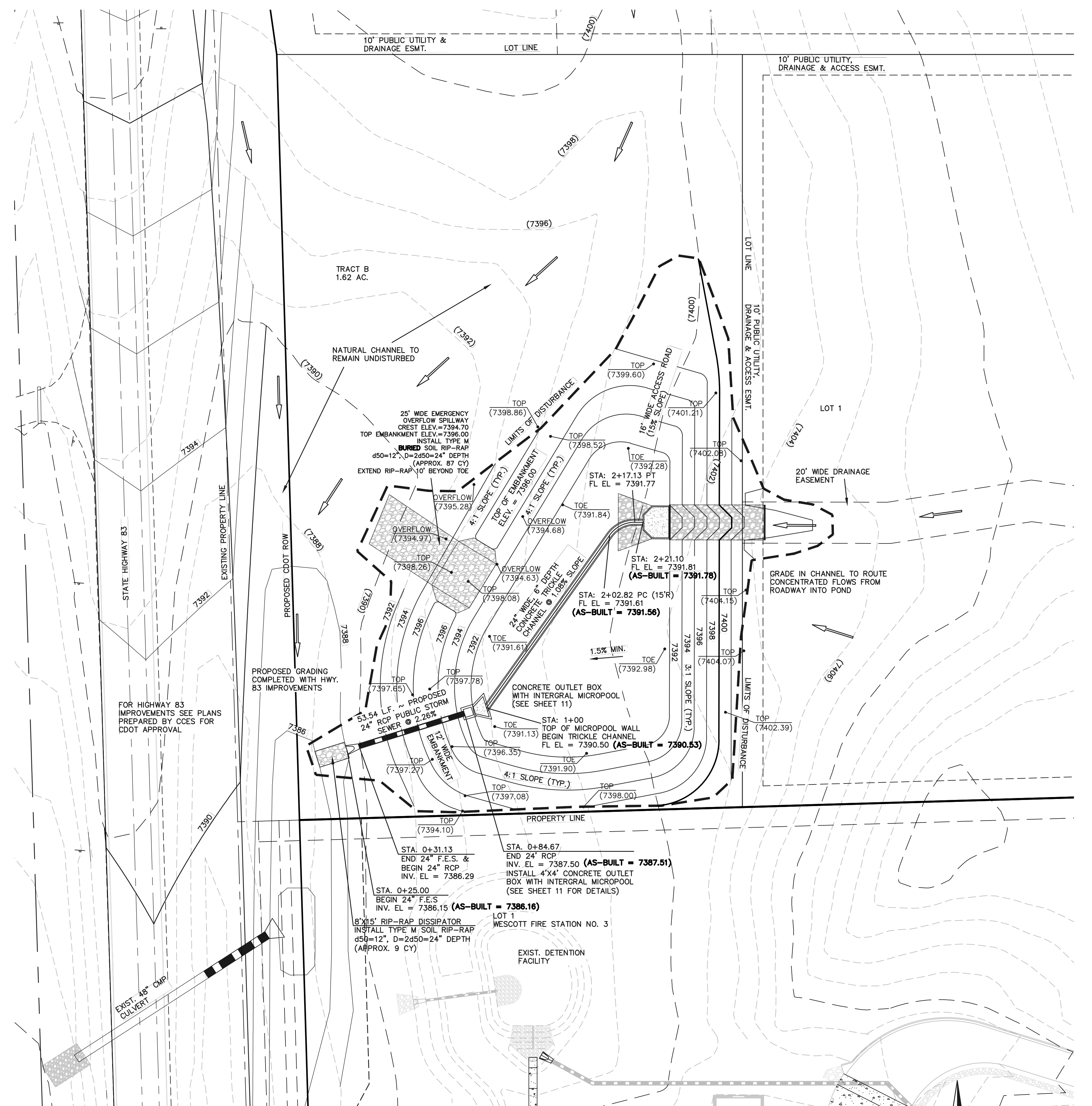


**TRICKLE CHANNEL
TYPICAL SECTION**



**SECTION A
TYPICAL EMBANKMENT
WITH SOIL KEYWAY**
SCALE: N.T.S.

* UPON GRUBBING EXISTING SOILS IN EMBANKMENT AREA, ENGINEER SHALL BE CONTACTED TO DETERMINE SOIL QUALITY. IF POOR PERMEABILITY IS FOUND (I.E. SANDY-SILT) ONLY TOP 2' X 14' PORTION OF EMBANKMENT KEY IS REQUIRED FOR CONSTRUCTION.

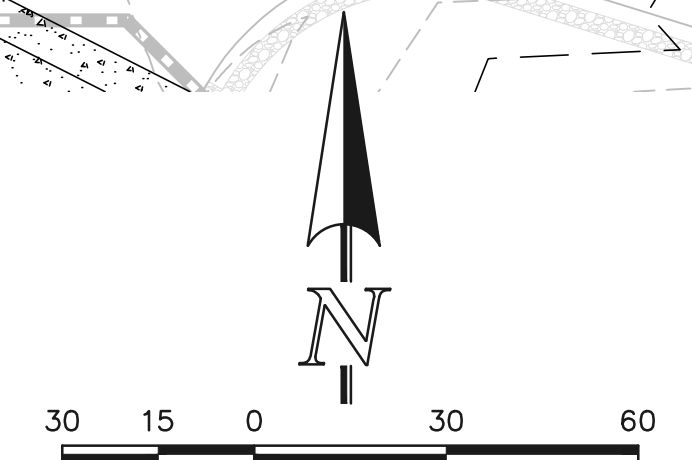


DETENTION FACILITY NO. 1

AS-BUILT

STRUCTURE AS-BUILTS TAKEN
7/3/19
TOPO. AS-BUILTS TAKEN
9/26/19

SEE FLYING HORSE NORTH EARLY GRADING AND EROSION CONTROL PLAN (GOLF COURSE AND PRIVATE ACCESS ROADS ONLY) FOR EROSION CONTROL DETAILS. APPROVED OCTOBER 2016



48 HOURS BEFORE YOU DIG,
CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE
1	REVISED PER COUNTY COMMENTS	4-4-18
2	UPDATED DESIGN BASED ON HWY 83 DESIGN	4-26-18

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC
MARC A. WILGROEN, COLORADO P.E. #37155
DATE 10/16/2020

CLASSIC
CONSULTING ENGINEERS & SURVEYORS
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719) 785-0790
(719) 785-0799 (fax)

FLYING HORSE NORTH FILING NO. 1 DRAINAGE IMPROVEMENT PLANS DETENTION FACILITY NO. 1 POND PLAN			
DESIGNED BY	MAW	SCALE	DATE 06-13-18
DRAWN BY	MAW	(H) 1"= 30'	SHEET 10 OF 22
CHECKED BY		(V) 1"= 3'	JOB NO. 1096.11

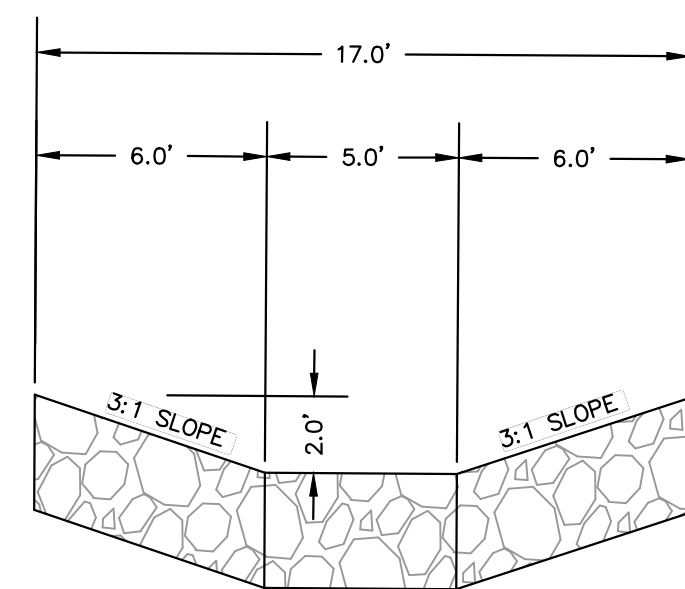
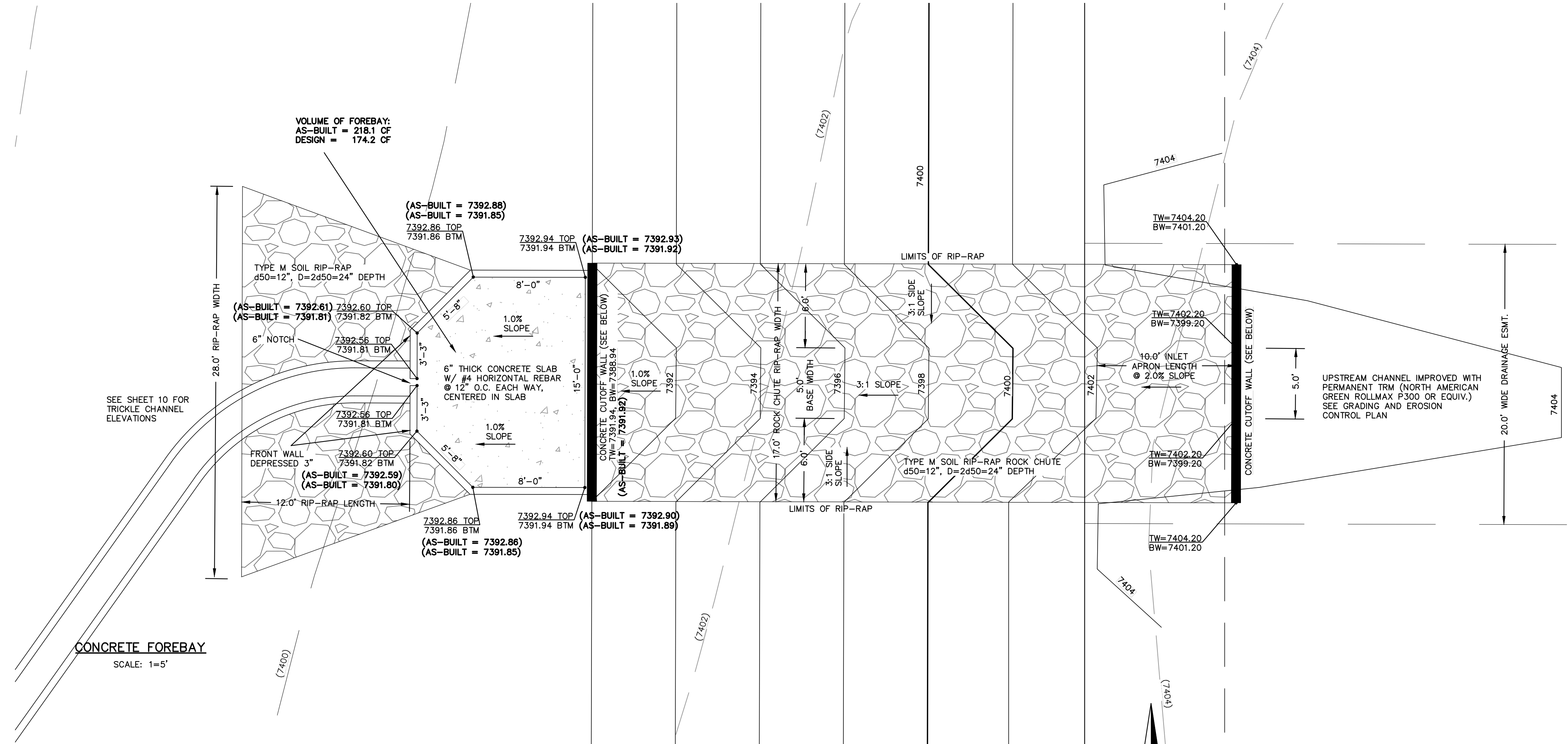


EXCERPT FROM FLYING HORSE
NORTH FILING NO. 1 FDR,
APPROVED 9/25/2018

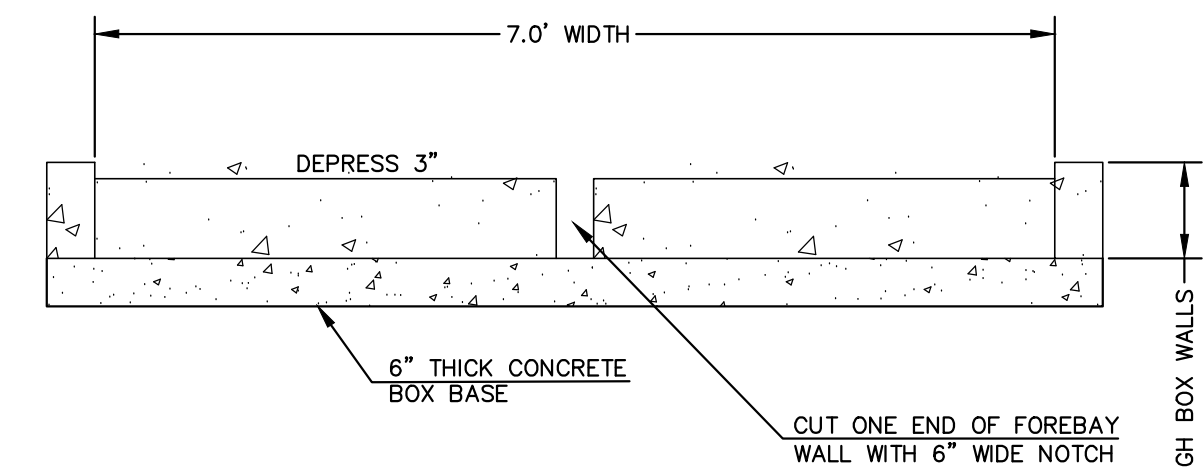
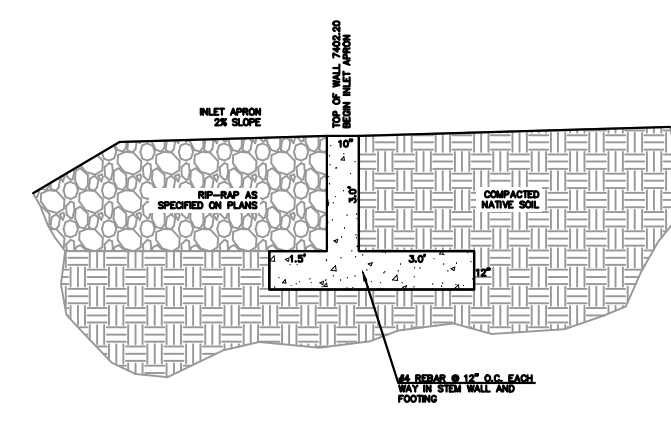
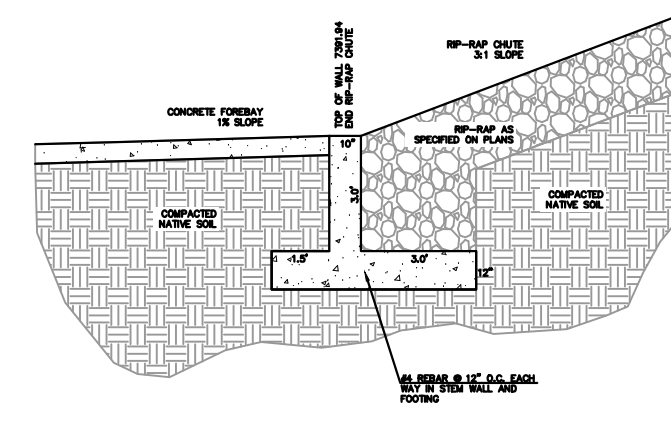
Design Procedure Form: Extended Detention Basin (EDB)	
Sheet 2 of 4	
Designer: Marc A. Whorton, P.E.	
Company: Classic Consulting	
Date: November 27, 2017	
Project: Flying Horse North Filing No. 1	
Location: Pond 1	
<p>5. Forebay</p> <p>A) Minimum Forebay Volume (V_{min} = 2% of the WQCV) V_{min} = 0.004 ac-ft</p> <p>B) Actual Forebay Volume V_a = 0.005 ac-ft</p> <p>C) Forebay Depth (D_f = 18 inch maximum) D_f = 12.0 in</p> <p>D) Forebay Discharge</p> <p> i) Undisturbed 100-year Peak Discharge Q_{un} = 36.00 cfs</p> <p> ii) Forebay Discharge Design Flow (Q_d = 0.62 * Q_{un}) Q_d = 0.76 cfs</p> <p>E) Forebay Discharge Design</p> <p> Choose One: <input type="radio"/> Berm with Pipe (flow too small for berm w/ pipe)</p> <p> <input checked="" type="radio"/> Wall with Rect. Notch</p> <p> <input type="radio"/> Notch with V-notch weir</p> <p>F) Discharge Pipe Size (minimum 8 inches) Calculated D_p = 5.1 in</p> <p>G) Rectangular Notch Width Calculated W_n = 5.1 in</p> <p>6. Trickle Channel</p> <p>A) Type of Trickle Channel <input checked="" type="radio"/> Concrete PROVIDE A CONSISTENT LONGITUDINAL SLOPE FROM FOREBAY TO MICROPOOL WITH NO MEANDERING. RIP-RAP AND BOX RIP-RAP LINED CHANNELS ARE NOT RECOMMENDED. MINIMUM DEPTH OF 1.5 FEET</p> <p> <input type="radio"/> Soft Bottom</p> <p>F) Slope of Trickle Channel S = 0.0100 ft/ft</p> <p>7. Micropool and Outlet Structure</p> <p>A) Depth of Micropool (2.5-foot minimum) D_m = 2.5 ft</p> <p>B) Surface Area of Micropool (10 ft² minimum) A_m = 50 sq ft</p> <p>C) Outlet Type</p> <p> Choose One: <input checked="" type="radio"/> Orifice Flow</p> <p> <input type="radio"/> Other (describe):</p> <p>D) Smallest Dimension of Orifice Opening Based on Hydrograph Routing (Use LD-Coefficient) D_{or} = 1.13 inches</p> <p>E) Total Outlet Area A_o = 5.16 square inches</p>	

UD-BMP_v3.06 FILING 1 - Pond 1.dwg, EDB

11/27/2017, 8:30 AM

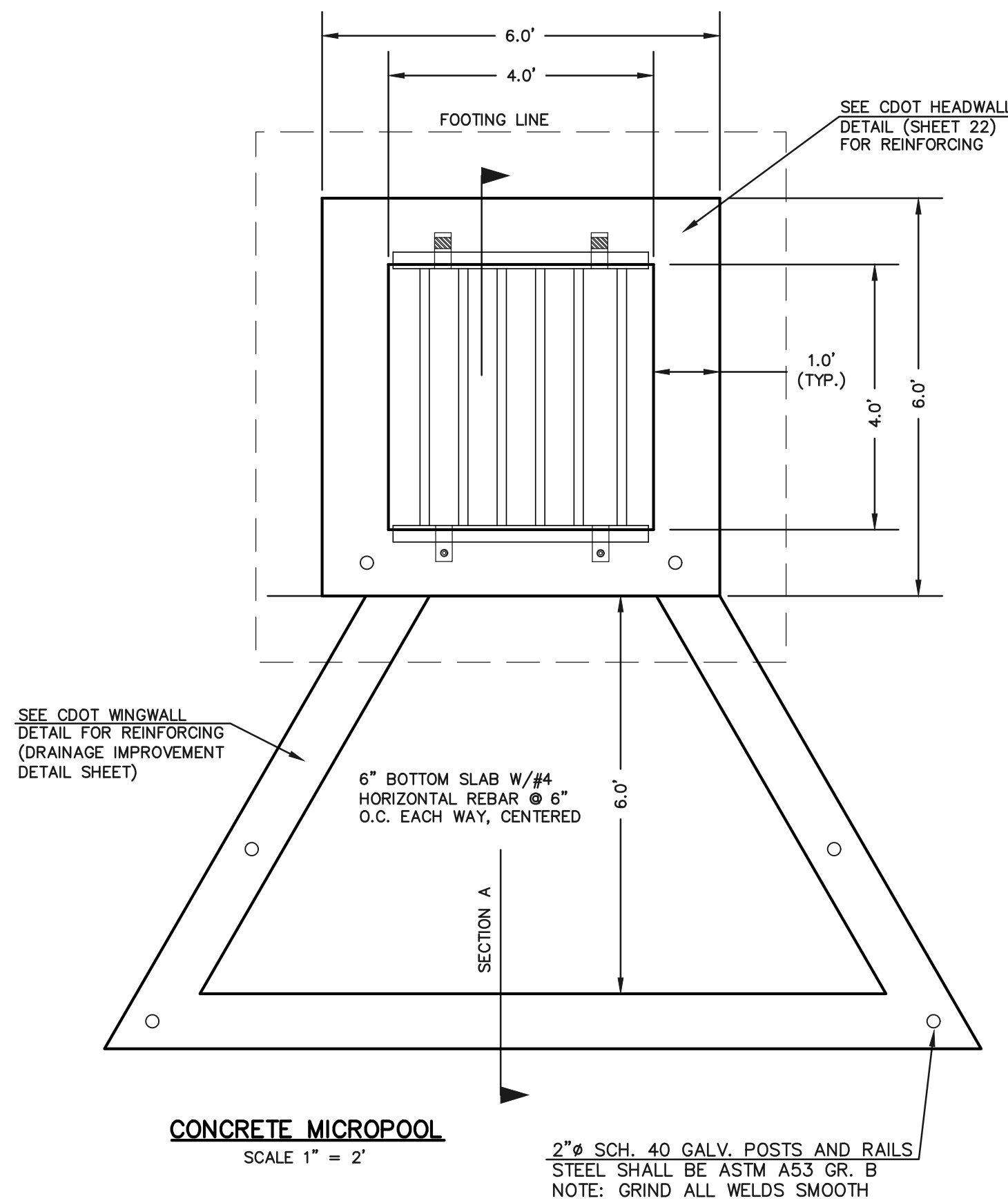


5' WIDE ROCK CHUTE SECTION
SCALE: 1=5'



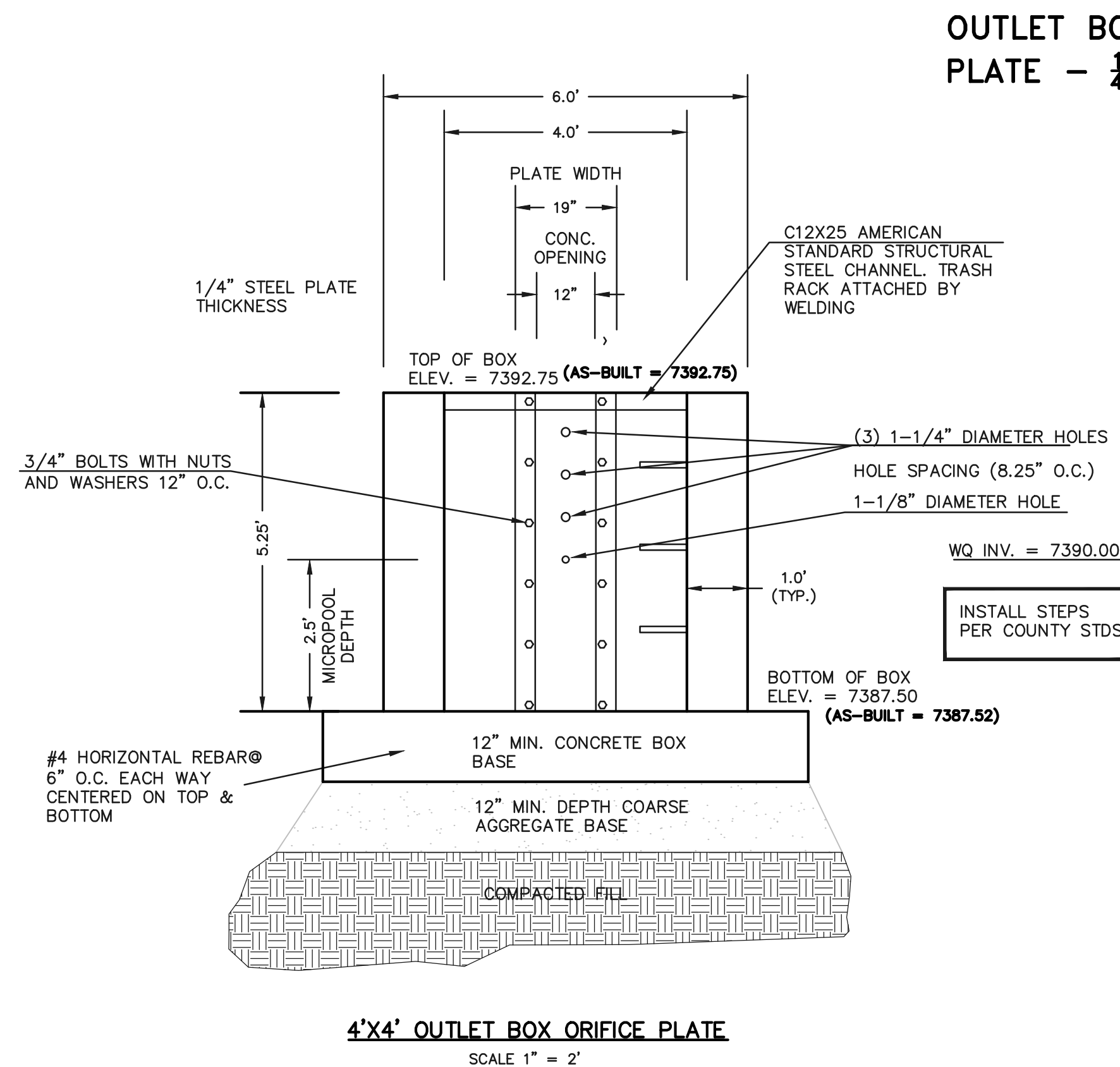
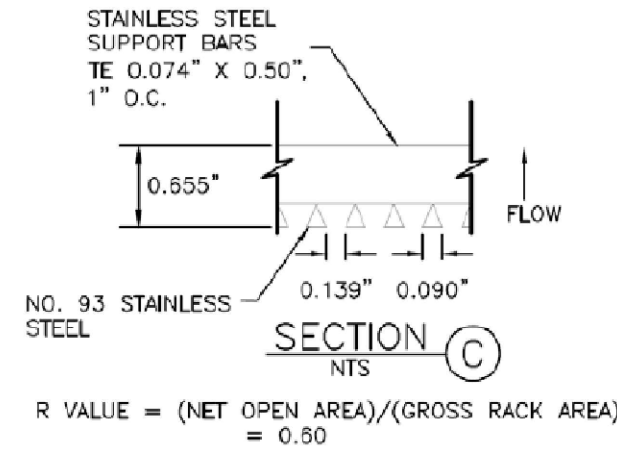
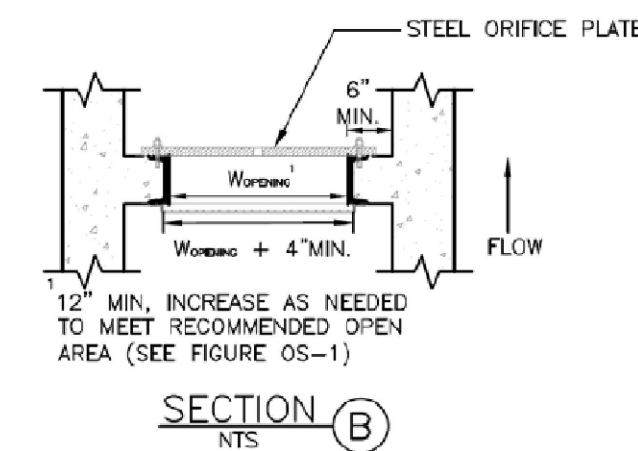
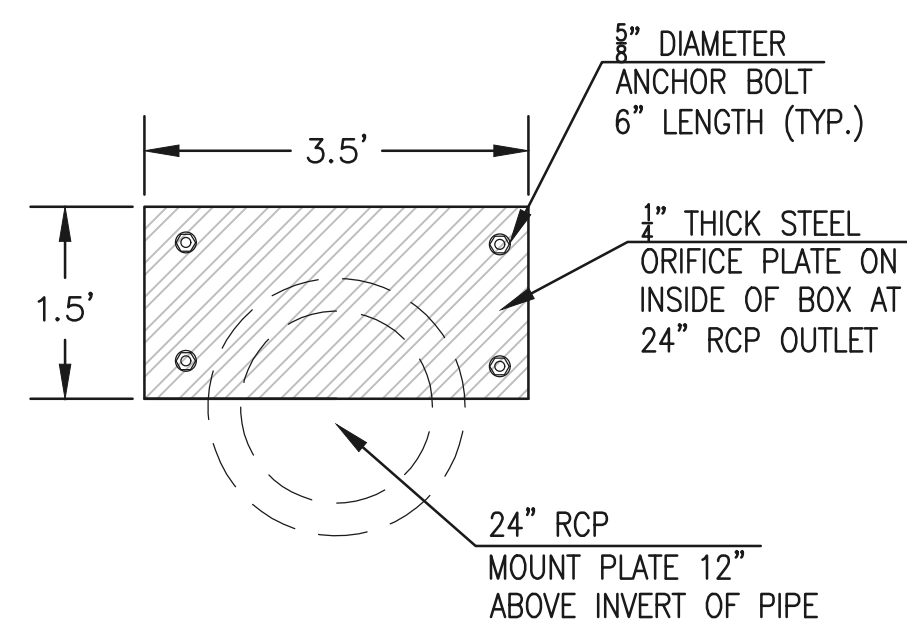
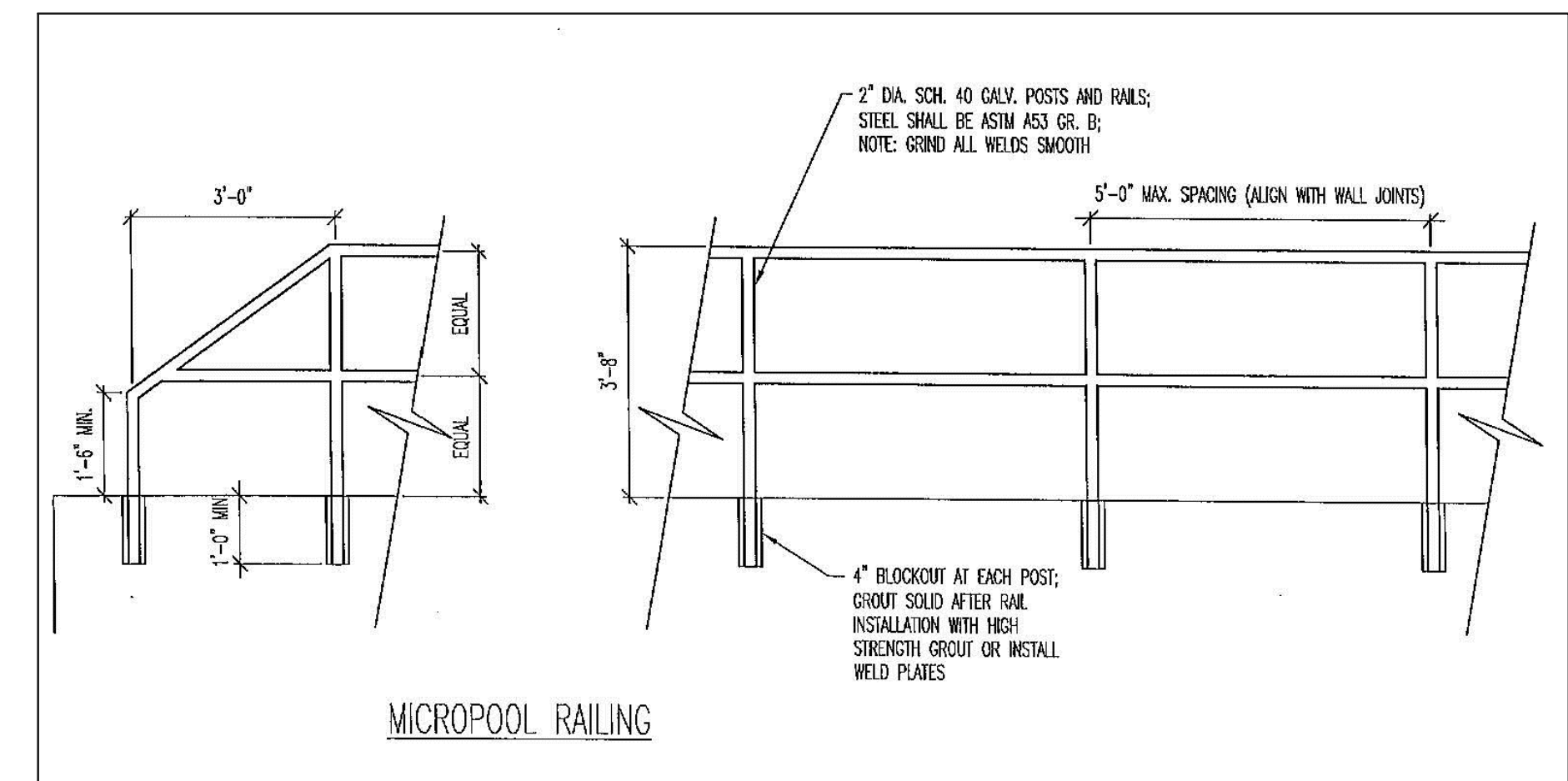
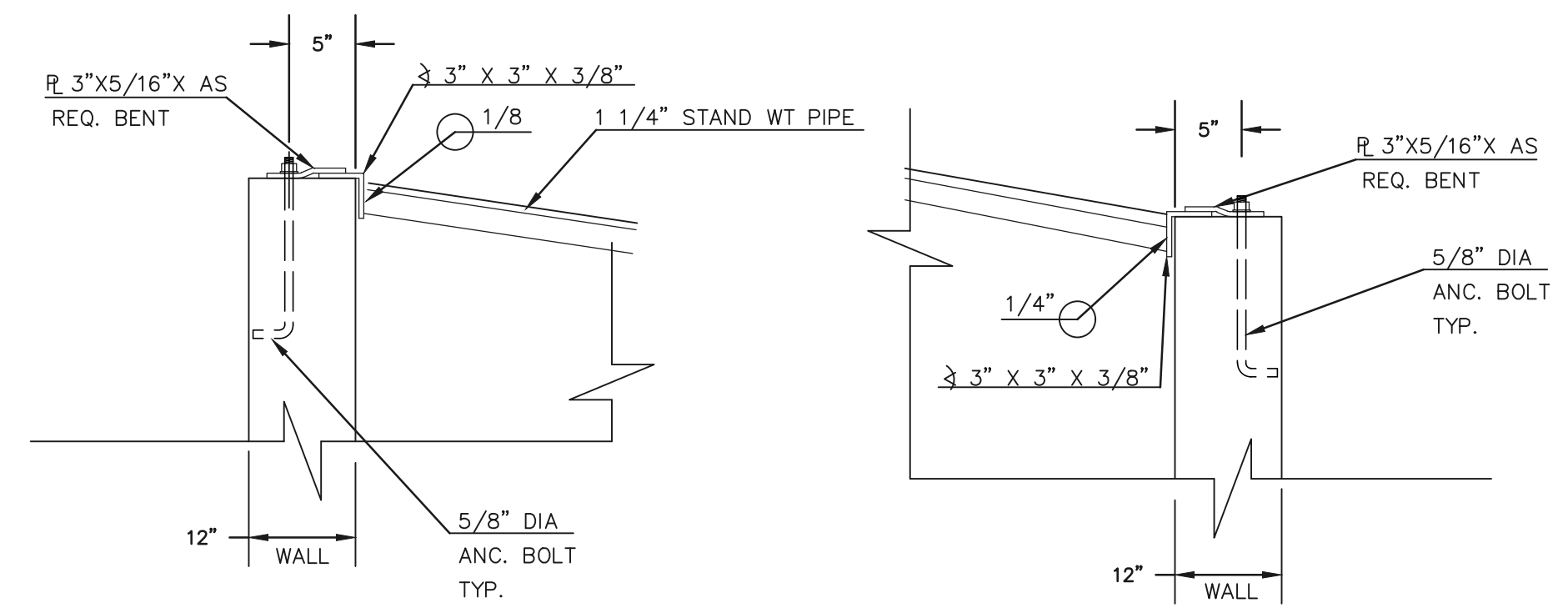
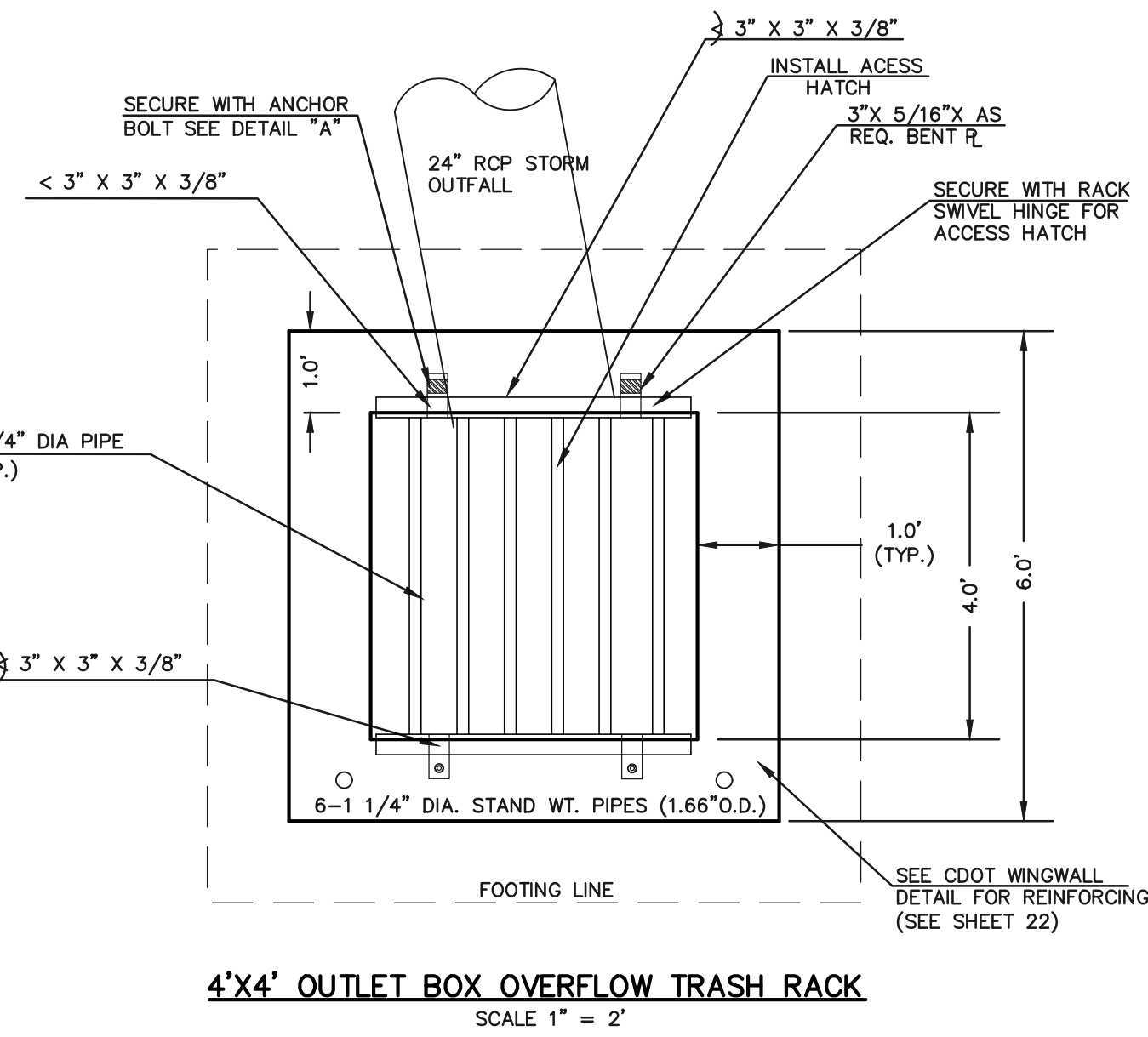
AS-BUILT STRUCTURE AS-BUILTS TAKEN 7/3/19
TOPO. AS-BUILTS TAKEN 9/26/19

<p>48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS 811 UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW</p> <p>THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.</p>	<p>NO. REVISION</p> <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>																					<p>DATE</p>	<p>REVIEW:</p> <p>PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS, LLC</p> <p>MARC A. WHORTON, P.E. #37155</p>	<p>1/18/2024</p>	<p>619 N. Cascade Avenue, Suite 200 Colorado Springs, Colorado 80903 (719)785-0790 (719)785-0799(fax)</p>	<p>FLYING HORSE NORTH FILING NO. 1 DRAINAGE IMPROVEMENT PLANS DETENTION FACILITY NO. 1 ROCK CHUTE / FOREBAY</p> <table border="1"> <tr> <td>DESIGNED BY</td> <td>MAW</td> <td>SCALE</td> <td>DATE</td> <td>06-13-18</td> </tr> <tr> <td>DRAWN BY</td> <td>MAW</td> <td>(H) 1"= 2'</td> <td>SHEET</td> <td>10A OF 22</td> </tr> <tr> <td>CHECKED BY</td> <td>(V) 1"= N/A</td> <td>JOB NO.</td> <td colspan="2">1096.11</td> </tr> </table>	DESIGNED BY	MAW	SCALE	DATE	06-13-18	DRAWN BY	MAW	(H) 1"= 2'	SHEET	10A OF 22	CHECKED BY	(V) 1"= N/A	JOB NO.	1096.11	
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NOTES:

1. WELD PLATES MAY BE SUBSTITUTED FOR PIPE EMBEDMENT. DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH AASHTO STANDARDS.
2. HANDRAIL DESIGN SHALL BE COMPATIBLE WITH THE DESIGN OF THE WINGWALLS AND HEADWALLS.
3. RAILING POSTS SHALL BE SET TO NORMAL TO GRADE. RAILS SHALL RUN PARALLEL TO THE SLOPES OF TOPS OF THE WALLS.
4. ALL RAILS SHALL HAVE EXPANSION JOINTS SPACED AT 40'-0" MAX. JOINT ENDS SHALL BE FREE OF ANY SHARP EDGES OR CORNERS.



(ALL MATERIALS PER EL PASO COUNTY SPECIFICATIONS)

ORIFICE PLATE NOTES:

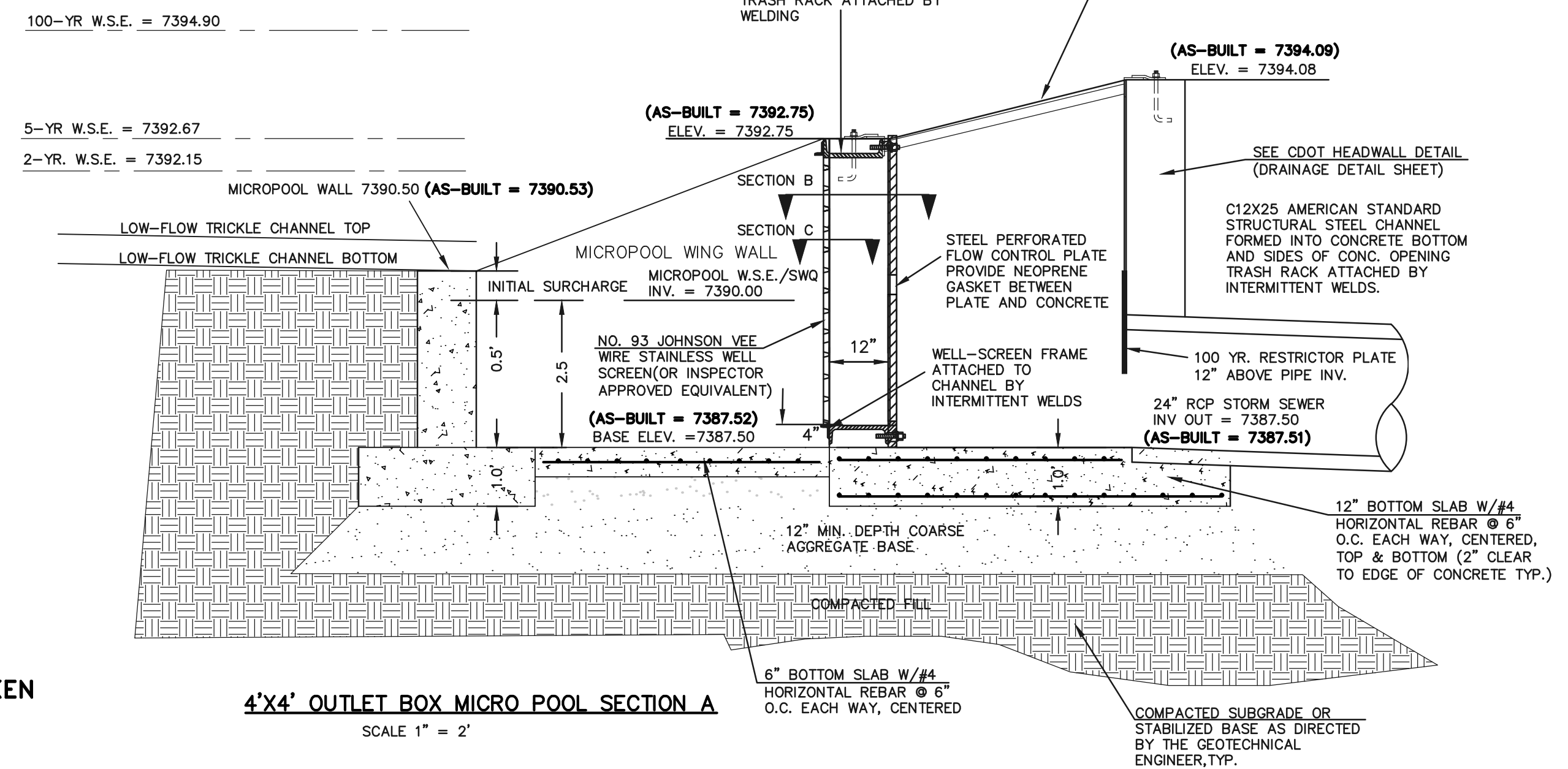
1. INSTALL HOLES AS SHOWN ON DETAIL TO LEFT.
2. PROVIDE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE

EURV AND WQCV TRASH RACKS:

3. WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
4. BAR GRATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
5. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF RACK

OVERFLOW TRASH RACKS:

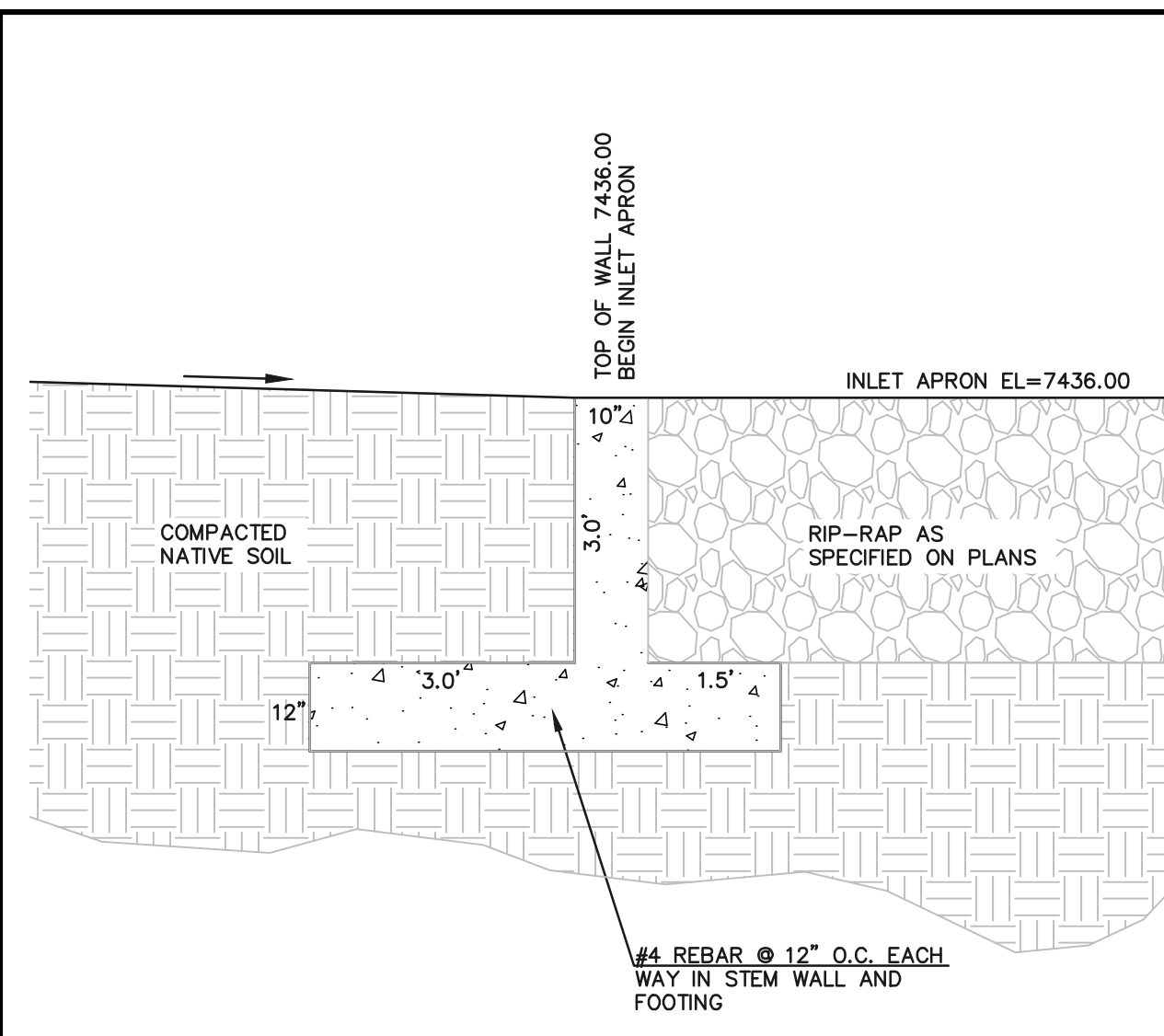
1. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS
2. TRASH RACKS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
3. TRASH RACKS SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF THE TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.



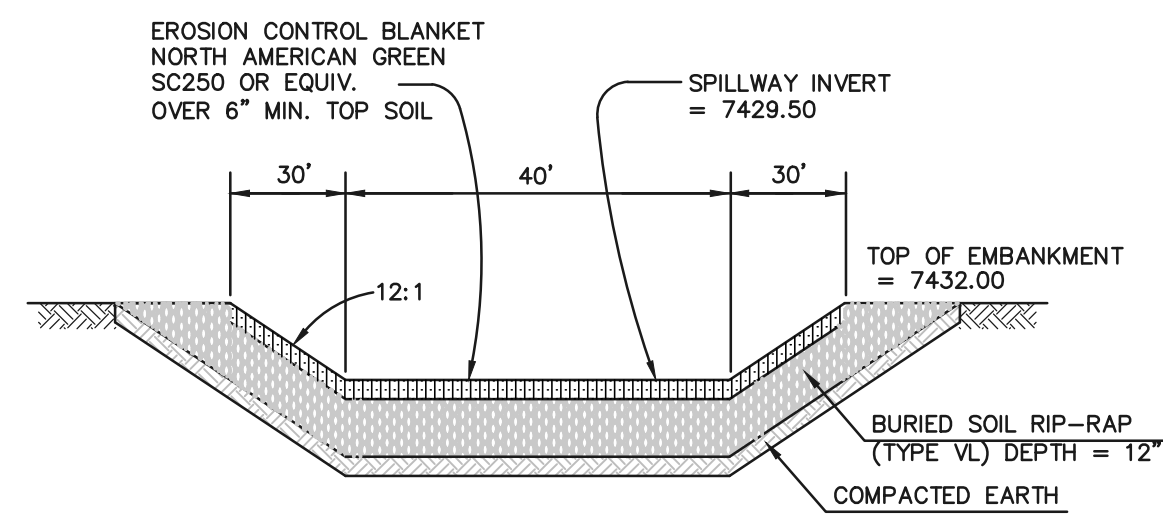
AS-BUILT SURVEY AS-BUILTS TAKEN 7/3/19

<p>48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS</p> <p>811</p> <p>UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW</p> <p>THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.</p>	<p>NO. REVISION</p> <p>1 REVISED PER COUNTY COMMENTS 4-4-18</p> <p>2 UPDATED PER HWY. 83 IMPROVEMENTS 4-26-18</p>	<p>DATE</p> <p>4-4-18</p> <p>4-26-18</p>	<p>REVIEW:</p> <p>PREPARED UNDER THE DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC</p> <p>MARC A. WHORTON, COLORADO P.E. #37155</p>	<p>CLASSIC CONSULTING ENGINEERS & SURVEYORS</p> <p>619 N. Cascade Avenue, Suite 200 Colorado Springs, Colorado 80903 (719)785-0790 (719)785-0799(fax)</p>	<p>FLYING HORSE NORTH FILING NO. 1 DRAINAGE IMPROVEMENT PLANS DETENTION FACILITY NO. 1 OUTLET BOX DETAILS</p> <p>DESIGNED BY MAW SCALE DATE 06-13-18</p> <p>DRAWN BY MAW (H) 1"= N/A SHEET 11 OF 22</p> <p>CHECKED BY (V) 1"= N/A JOB NO. 1096.11</p>
	<p>DATE 10/16/2020</p>			<p>DATE 10/16/2020</p>	<p>DATE 06-13-18</p>

N:\PROJECTS\DRAWINGS\CONSTRUCTION\Drawings\AS-BUILT\AS-BUILT.dwg, 10/14/2020, 11:43:10 AM, 1:1

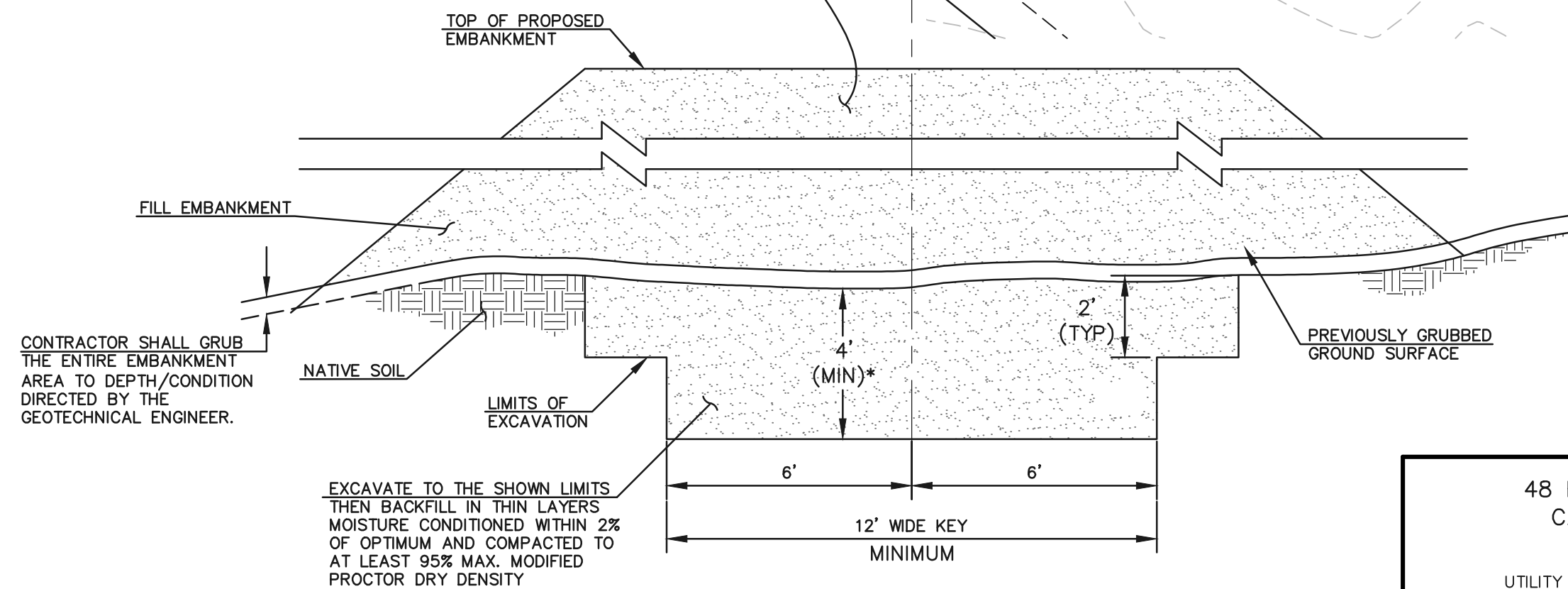


**ROCK CHUTE
CONCRETE CUTOFF WALL**
SCALE: 1"=2'



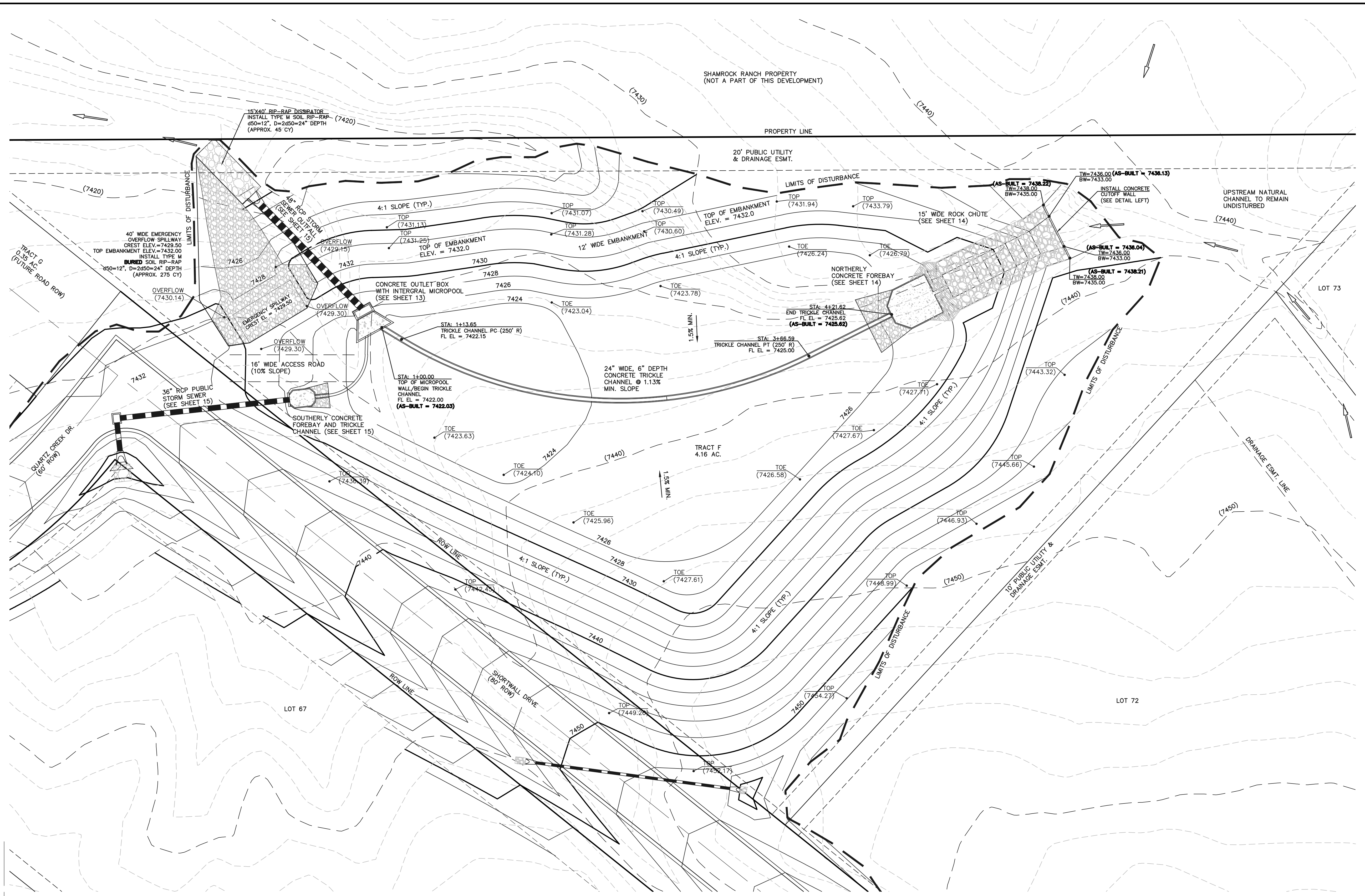
**EMERGENCY SPILLWAY
CROSS SECTION**
SCALE: N.T.S.

FILL/EMBANKMENT SHALL BE PLACED IN THIN LOOSE LIFTS, MOISTURE CONDITIONED TO WITHIN 2% OF OPTIMUM AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D1557). PLACEMENT AND COMPACTION SHALL BE OBSERVED BY A GEOTECHNICAL ENGINEERING FIRM.



**SECTION A
TYPICAL EMBANKMENT
WITH SOIL KEYWAY**
SCALE: N.T.S.

* UPON GRUBBING EXISTING SOILS IN EMBANKMENT AREA, ENGINEER SHALL BE CONTACTED TO DETERMINE SOIL QUALITY. IF POOR PERMEABILITY IS FOUND (I.E. SANDY-SILT) ONLY TOP 2' X 14' PORTION OF EMBANKMENT KEY IS REQUIRED FOR CONSTRUCTION.



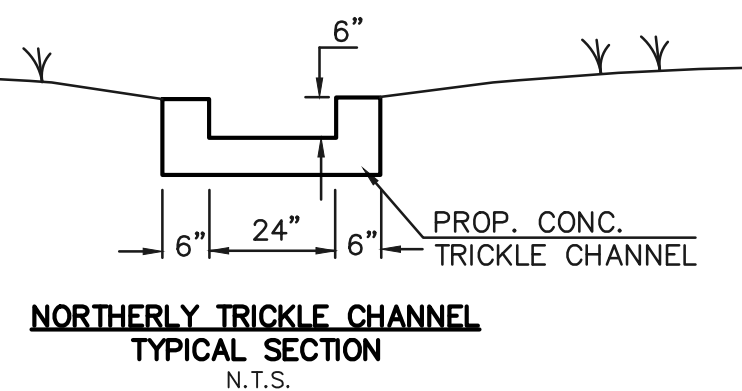
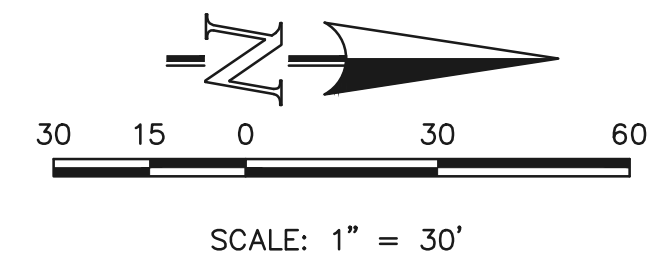
DETENTION FACILITY NO. 4

AS-BUILT

STRUCTURE AS-BUILTS TAKEN
7/3/19

TOPO. AS-BUILTS TAKEN
9/26/19 & 10/15/20

SEE FLYING HORSE NORTH EARLY GRADING AND EROSION CONTROL PLAN (GOLF COURSE AND PRIVATE ACCESS ROADS ONLY) FOR EROSION CONTROL DETAILS. APPROVED OCTOBER 2016



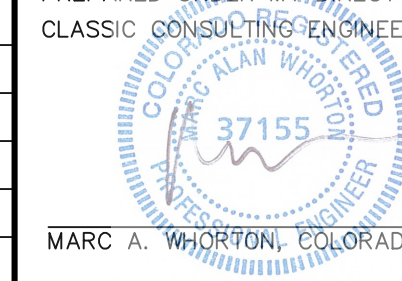
**NORTHERLY TRICKLE CHANNEL
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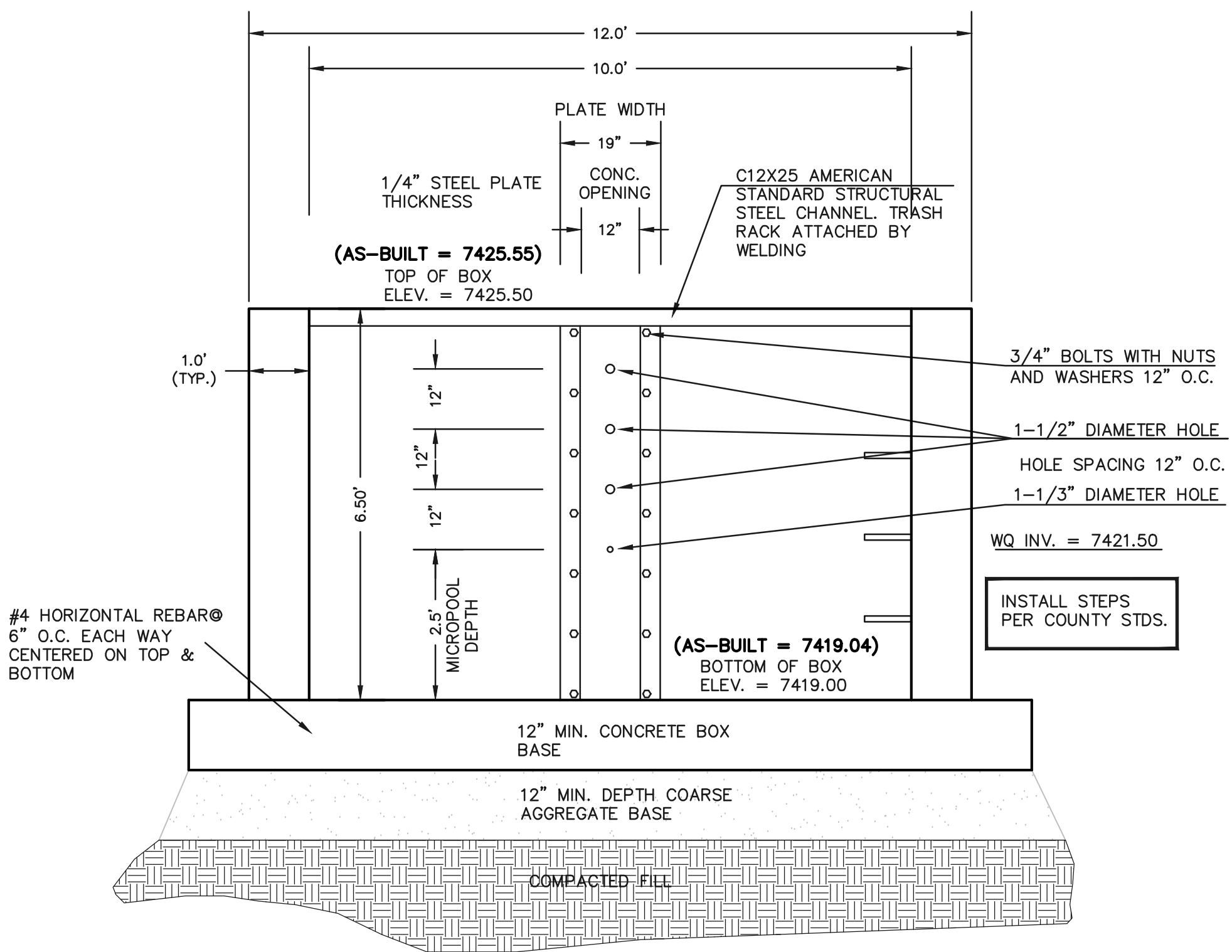
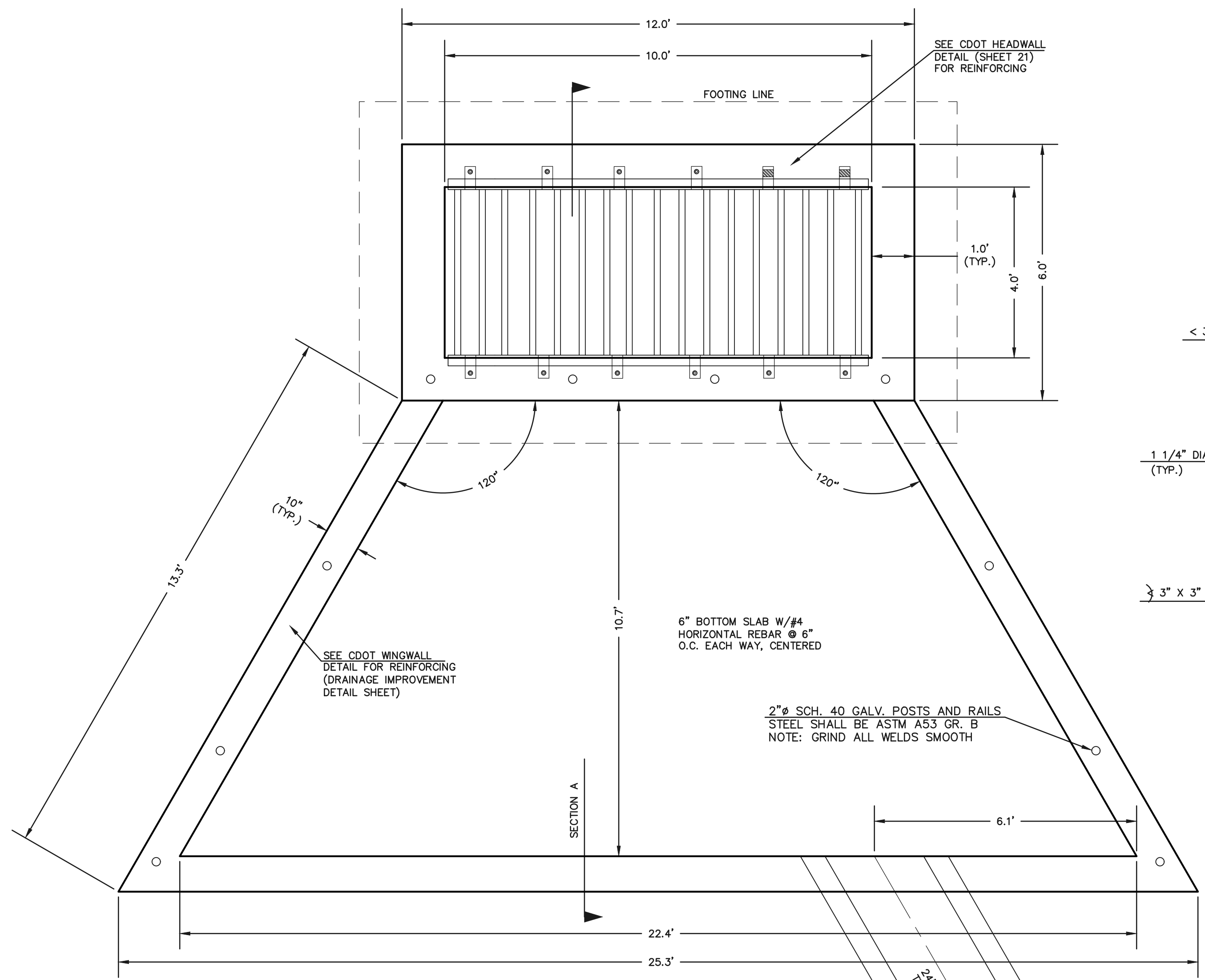
MARC A. WHORTON, COLORADO P.E. #37155 DATE 10/16/2020



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Colorado Springs, Colorado 80903
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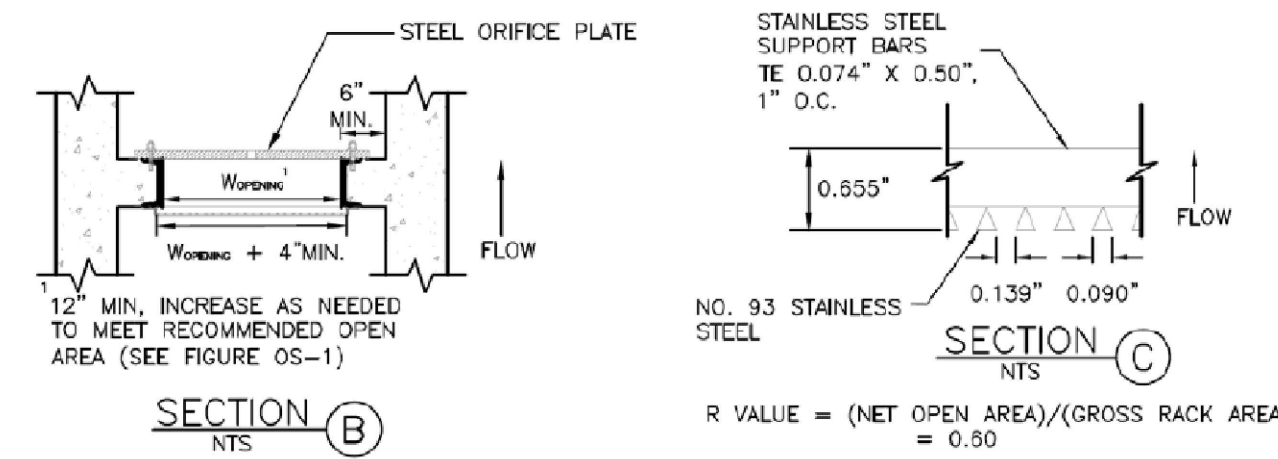
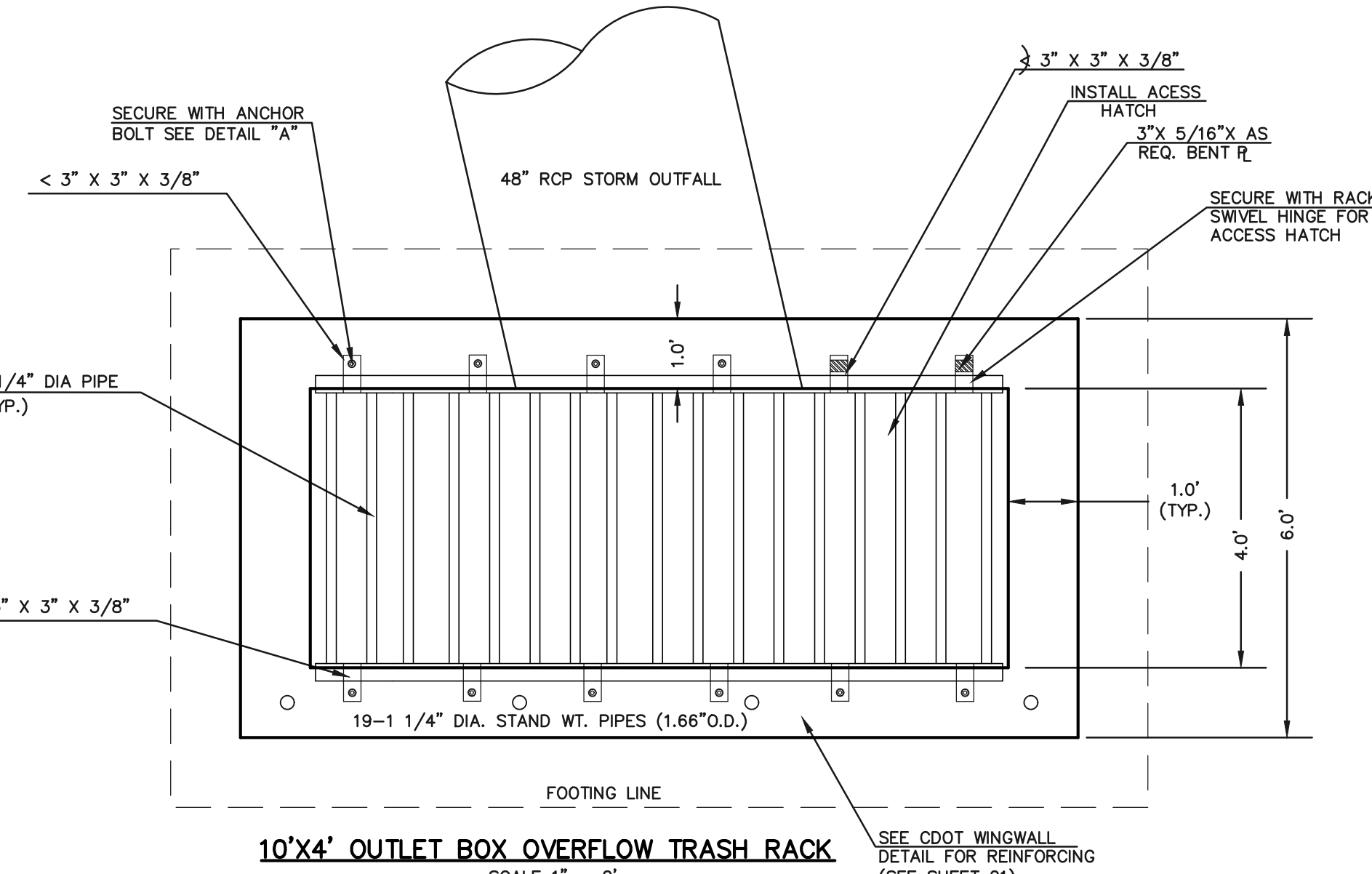
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DRAWN BY	MAW	(H) 1"= 30'	SHEET 12 OF 22
CHECKED BY		(V) 1"= N/A	JOB NO. 1096.11





AS-BUILT SURVEY AS-BUILTS TAKEN 7/3/19

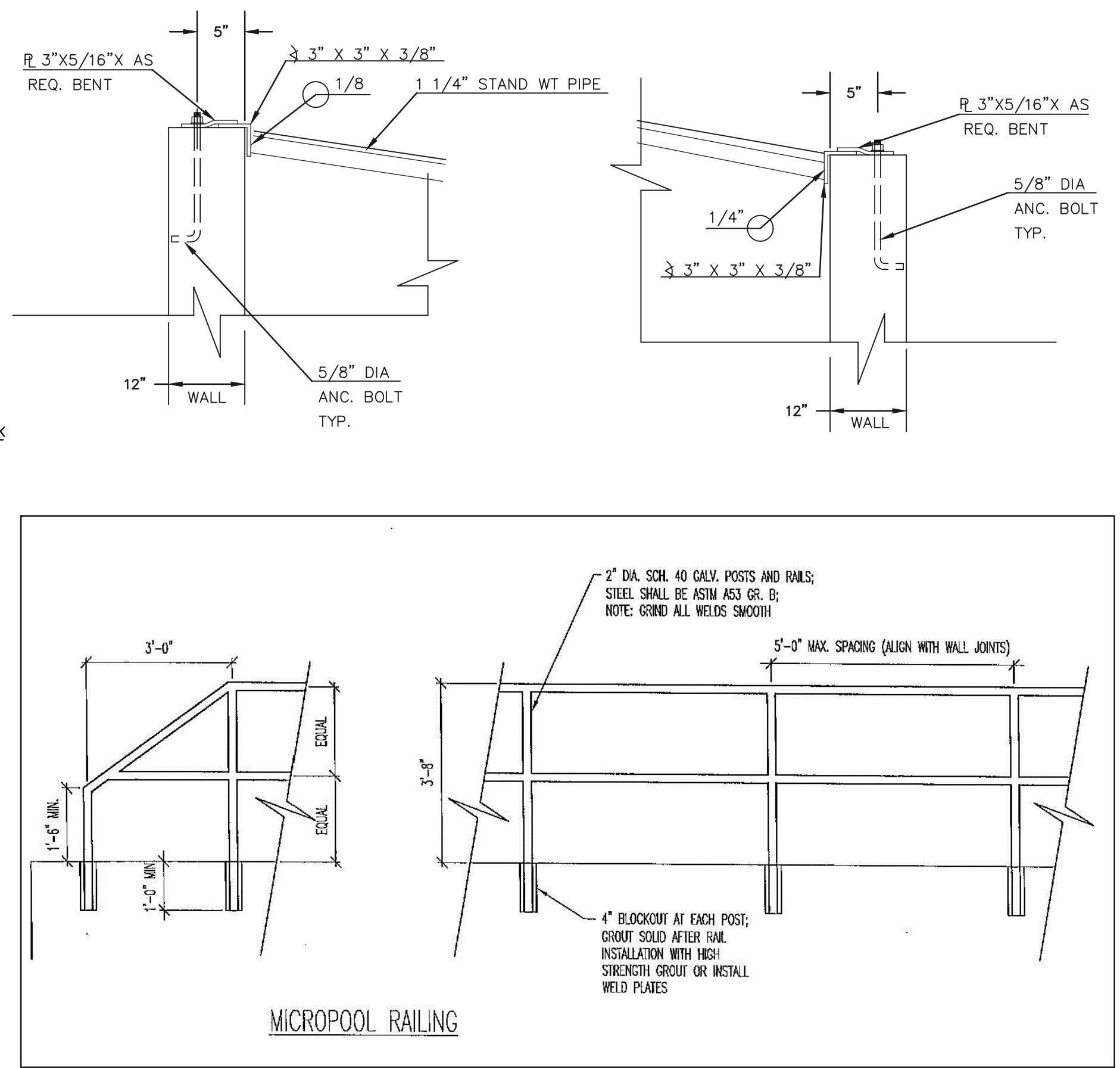
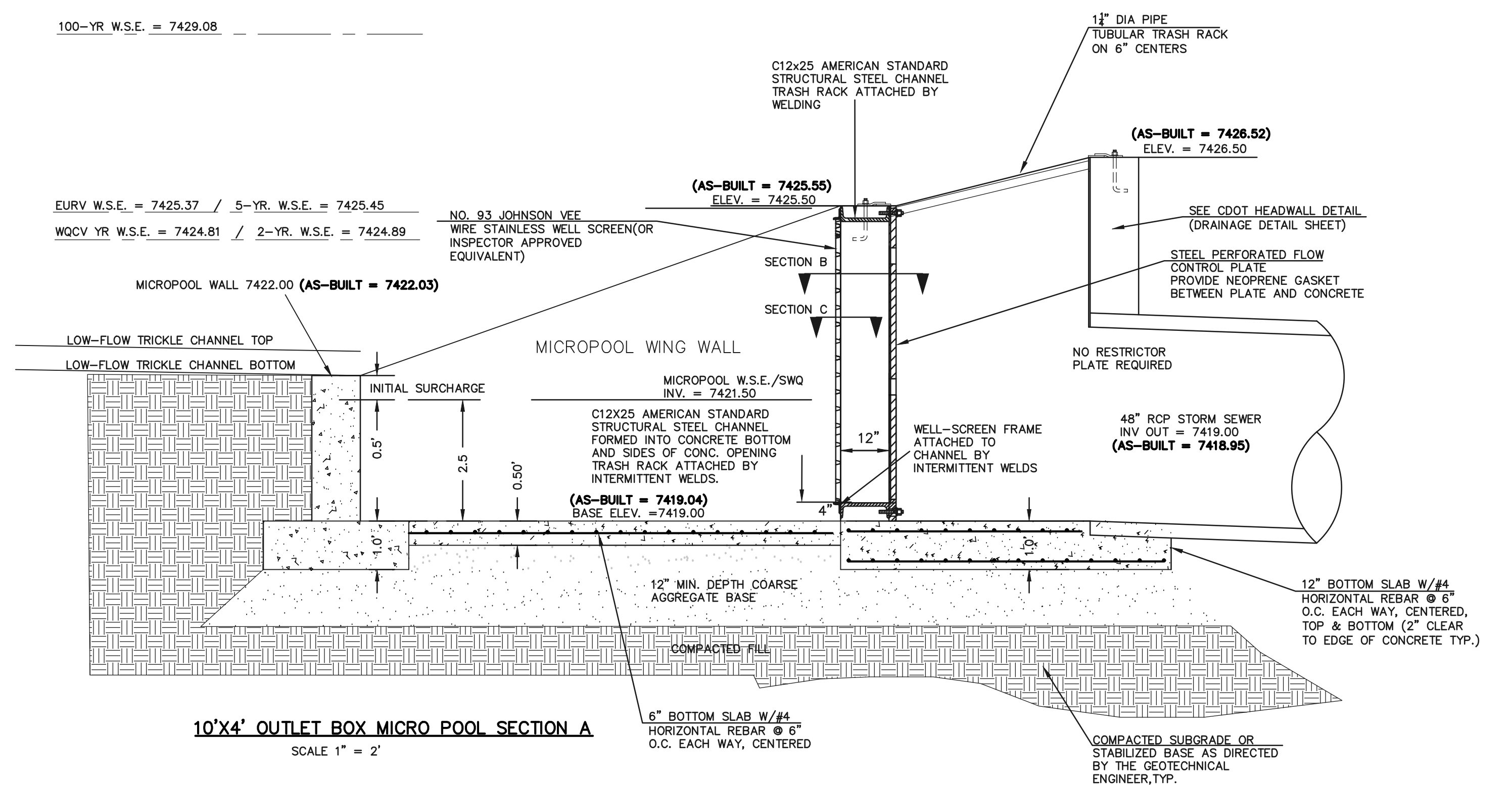
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100-YR W.S.E. = 7429.08

EURV W.S.E. = 7425.37 / 5-YR W.S.E. = 7425.45
WQCV YR W.S.E. = 7424.81 / 2-YR W.S.E. = 7424.89

- (ALL MATERIALS PER EL PASO COUNTY SPECIFICATIONS)
- ORIFICE PLATE NOTES:
- INSTALL HOLES AS SHOWN ON DETAIL TO LEFT.
 - PROVIDE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE
- EURV AND WQCV TRASH RACKS:
- WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
 - BAR GRATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
 - STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF RACK
- OVERFLOW TRASH RACKS:
- ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS
 - TRASH RACKS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
 - TRASH RACKS SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
 - STRUCTURAL DESIGN OF THE TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.



REVIEW: PREPARED UNDER DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155 DATE 10/16/2020

CLASSIC CONSULTING ENGINEERS & SURVEYORS

FLYING HORSE NORTH FILING NO. 1
DRAINAGE IMPROVEMENT PLANS
DETENTION FACILITY NO. 4
OUTLET BOX DETAILS

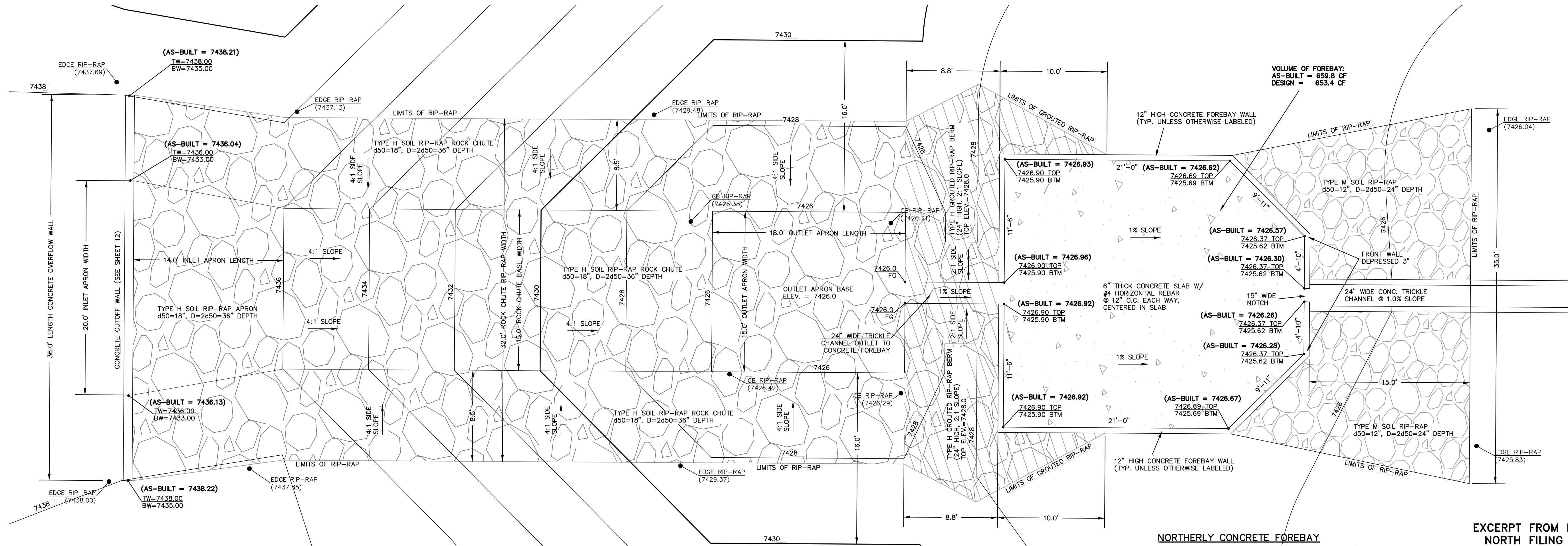
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CHECKED BY (V) 1" = N/A JOB NO. 1096.11

NO.	REVISION	DATE
1	REVISED PER COUNTY COMMENTS	4-4-18

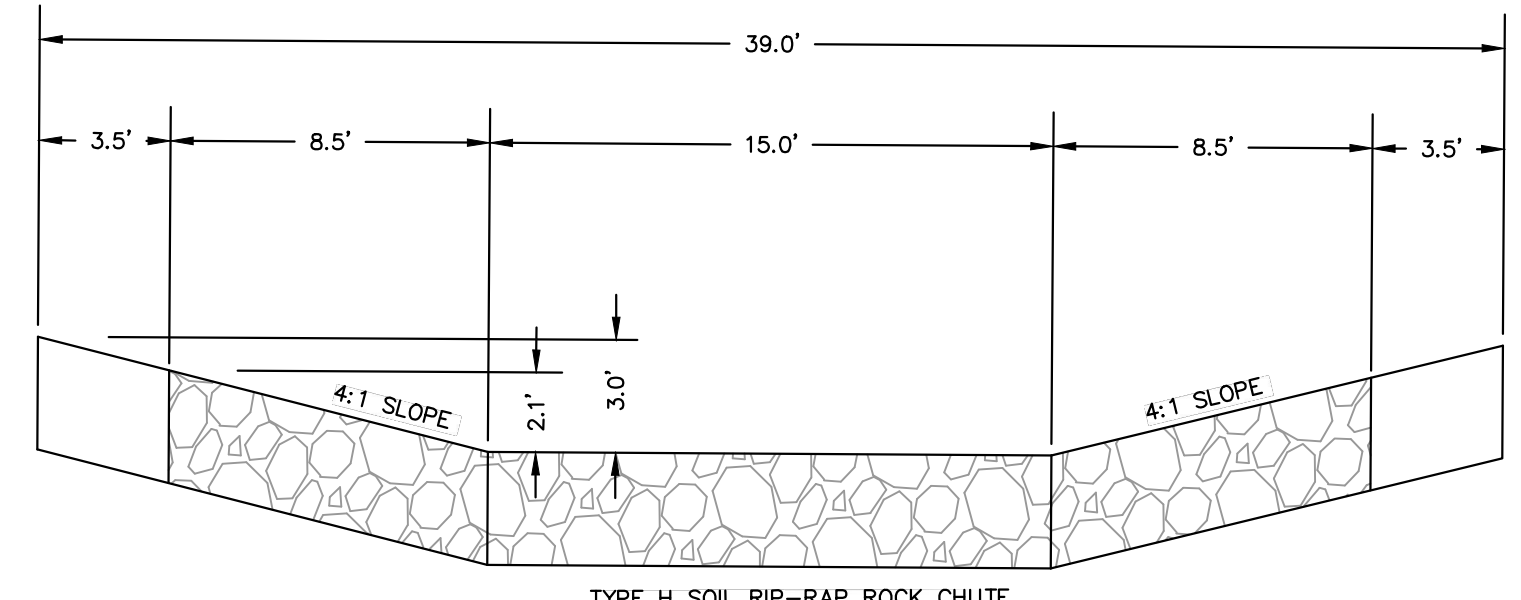
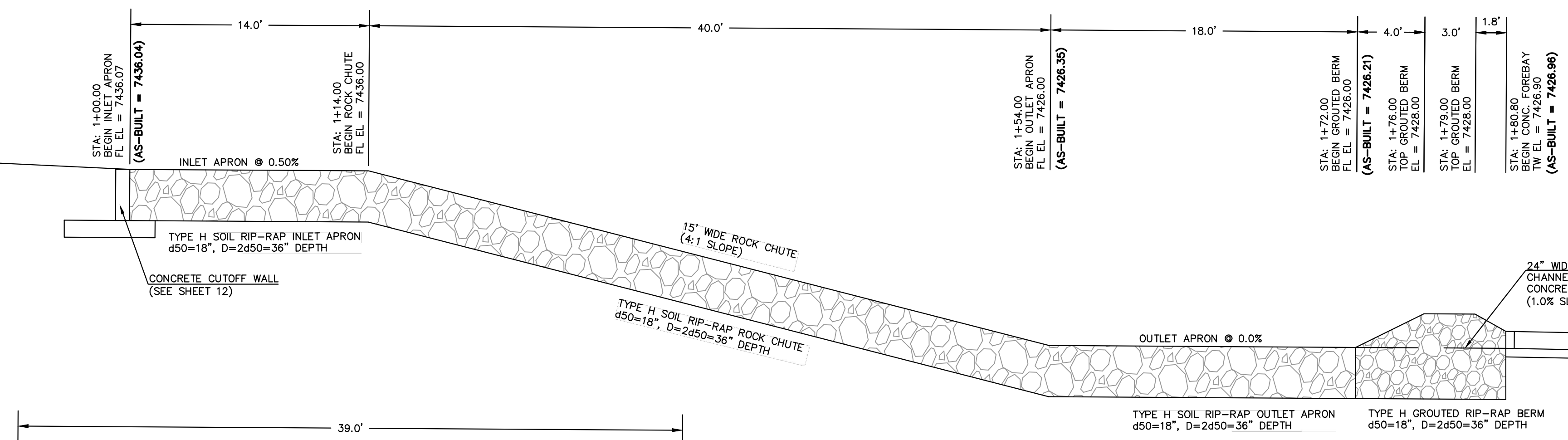
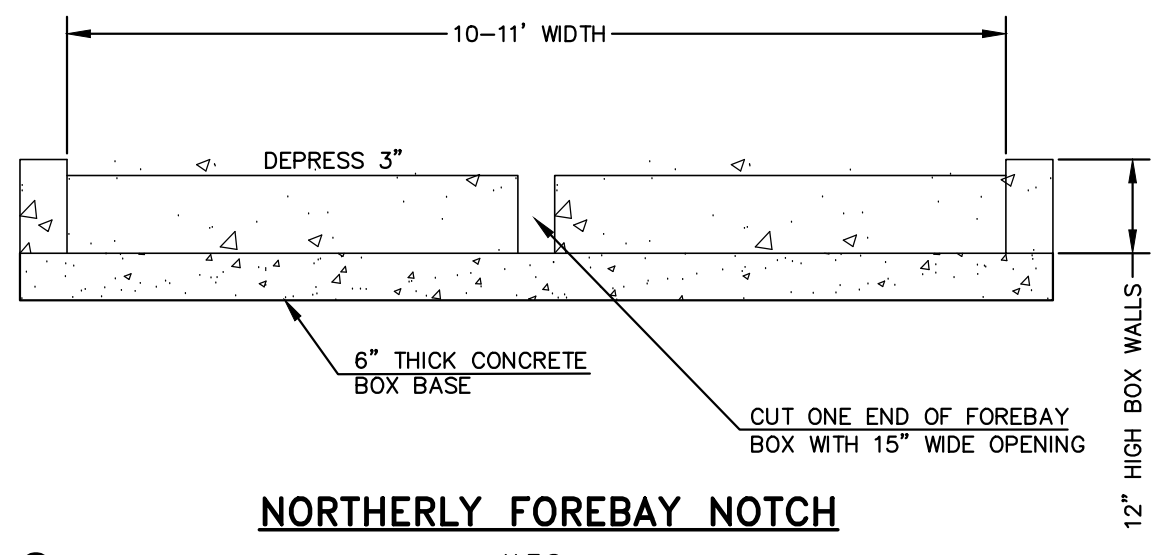
48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

N:\109611\DRAWINGS\CONSTRUCTION\Plan Plans\13-FOUND_4_OUTLET_DETAILS_AS-BUILTS.dwg, 10/16/2020 10:56:42 AM, 1:1



15' WIDE ROCK CHUTE PLAN
SCALE: 1=5'



15' WIDE ROCK CHUTE SECTION
SCALE: 1=5'

NORTHERLY CONCRETE FOREBAY
SCALE: 1=5'

EXCERPT FROM FLYING HORSE NORTH FILING NO. 1 FDR, APPROVED 9/25/2018

Design Procedure Form: Extended Detention Basin (EDB)		Sheet 2 of 4
Designer: Marc A. Whorton Company: Classic Consulting Date: November 30, 2017 Project: Flying Horse North Filing 1 (Pool 4 - North Forebay Design) Location: Black Forest, CO		
S. Forebay	A) Minimum Forebay Volume $V_{min} = 0.25$ of the WQV)	$V_{min} = 0.015$ ac-ft
	B) Actual Forebay Volume	$V_a = 0.015$ ac-ft
	C) Forebay Depth ($D_b = 18$ inch maximum)	$D_b = 12.0$ ft
	D) Forebay Discharge	$Q_{des} = 170.00$ cfs
	i) Unstabilized 100-year Peak Discharge ii) Final Design Discharge Flow $(Q_d = 0.02 \cdot Q_{100})$	$Q_{des} = 3.40$ cfs
	E) Forebay Discharge Design	<input checked="" type="checkbox"/> Berm with Pipe <input checked="" type="checkbox"/> Berm with Rock Wall <input checked="" type="checkbox"/> Berm with V-notch Wall (How too small for berm w/ pipe)
	F) Discharge Pipe Size (minimum 8-inches)	Calculated $D_p = 14.7$ in
	G) Rectangular Notch Width	Calculated $W_n = 14.7$ ft
H. Trickle Channel	A) Type of Trickle Channel	<input checked="" type="checkbox"/> Concrete
	B) Slope of Trickle Channel	$S = 0.0100$ ft/ft
I. Micropond and Outlet Structure	A) Depth of Micropond (2.5-foot minimum)	$D_{mp} = 2.5$ ft
	B) Surface Area of Micropond (10 ft ² minimum)	$A_{mp} = 150$ sq ft
	C) Outlet Type	<input checked="" type="checkbox"/> Orifice Pipe <input type="checkbox"/> Other (describe)
	D) Smallest Dimension of Orifice Opening Based on Hydrograph Routing (Use US Determination)	$D_{min} = 1.88$ inches
	E) Total Outlet Area	$A_{out} = 8.95$ square inches

UD-BMP_v3.08 Pool 4 North Forebay Design.dwg, EDB

11/30/2017, 7:08 AM

AS-BUILT SURVEY AS-BUILTS TAKEN 7/3/19 & 10/15/20

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NO.	REVISION	DATE

REVIEW: PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS, LLC

MARC A. WHORTON, COLORADO PROFESSIONAL SURVEYOR #37155
DATE: 1/18/2024

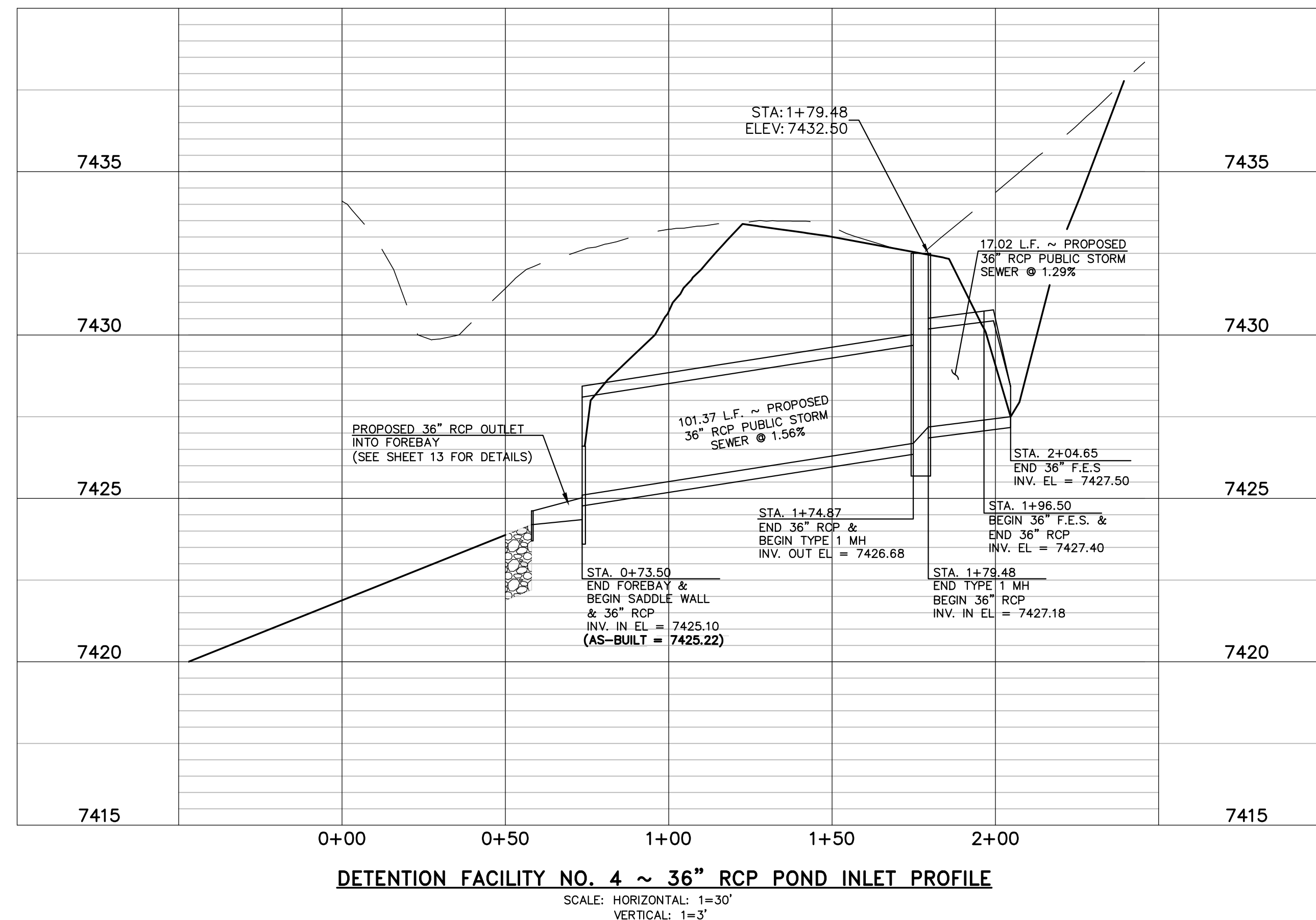
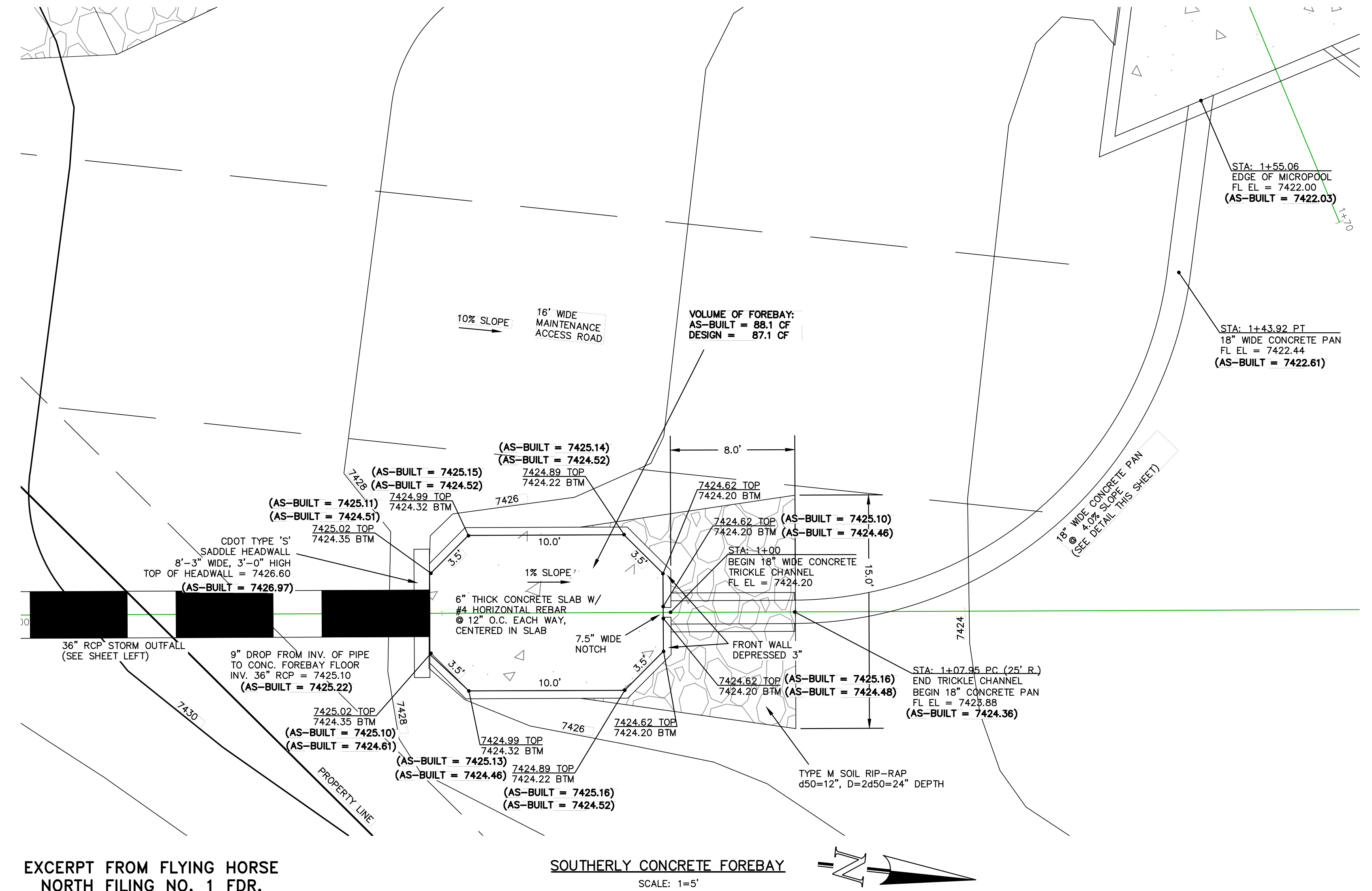
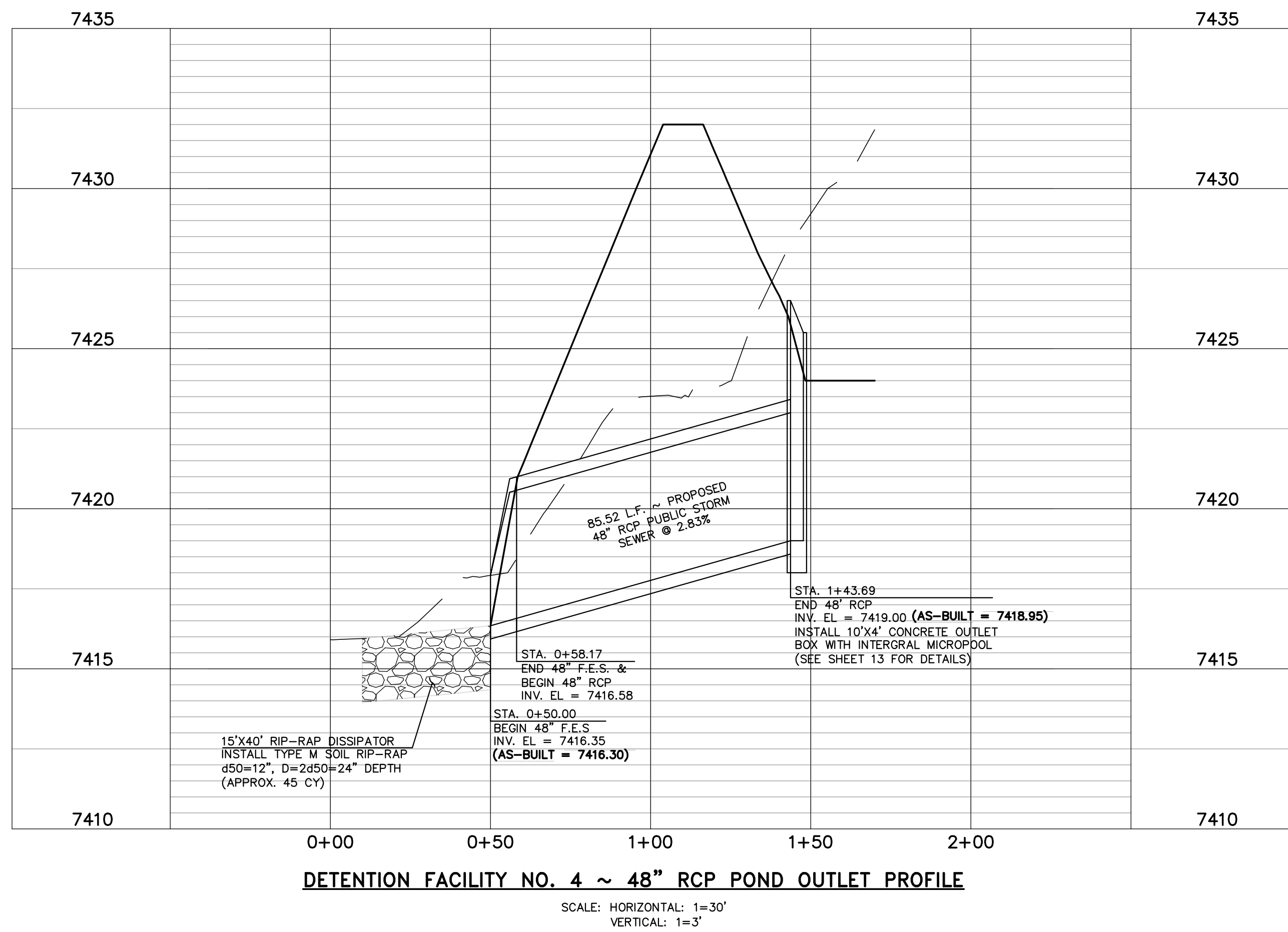
CLASSIC CONSULTING ENGINEERS & SURVEYORS

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719) 785-0790
(719) 785-0799 (Fax)

DESIGNED BY	SCALE	DATE
MAW	SCALE	06-13-18
DRAWN BY	SHEET	OF
MAW	(H) 1" = 2'	14 OF 22
CHECKED BY	JOB NO.	DATE
(V) 1" = N/A	1096.11	1096.11

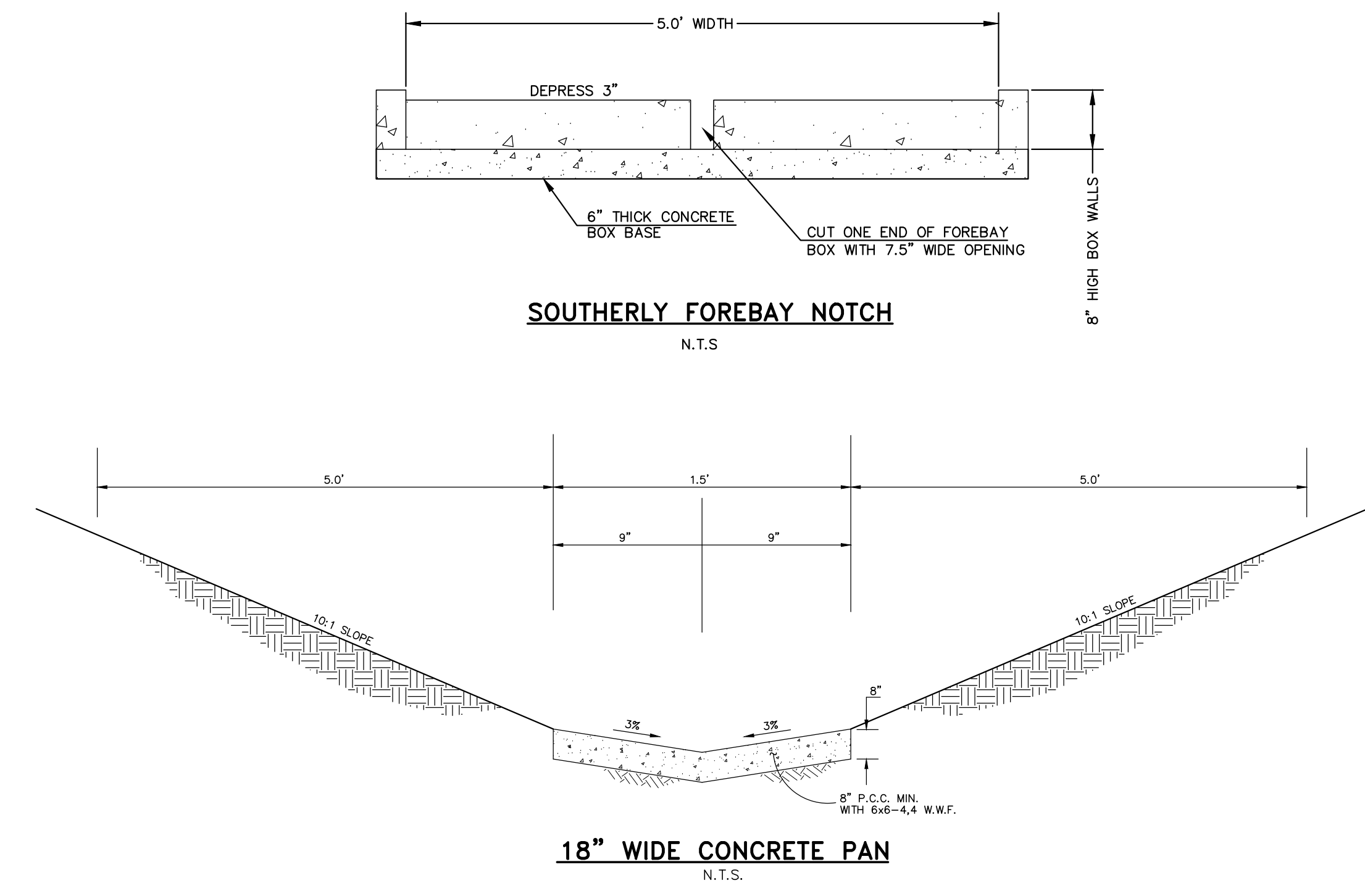


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EXCERPT FROM FLYING HORSE NORTH FILING NO. 1 FDR, APPROVED 9/25/2018

Design Procedure Form: Extended Detention Basin (EDB)		Sheet 2 of 4
Designer: Marc A. Whorton Company: Classic Consulting Date: November 30, 2017 Project: Flying Horse North Filing 1 (Pond 4 - South Forebay Design) Location: Black Forest, CO		
I. Forebay A) Minimum Forebay Volume (V _{min} = 2% of the WQV) B) Actual Forebay Volume C) Forebay Depth (D _f = 18 inch maximum) D) Forebay Discharge (I) Undersized 100-year Peak Discharge (II) Forebay Discharge Design Flow (Q _d = 1.58 cfs) E) Forebay Discharge Design (I) Discharge Flow Size (Minimum 8 inches) (II) Rectangular Notch Width Calculated V _d = 9.5 in		V _{min} = 0.002 ac-ft V _a = 0.002 ac-ft D _f = 8.0 in Q _{un} = 56.00 cfs Q _d = 1.52 cfs Discharge Flow Size: 8" (See too small for basin or pipe) Calculated V _d = 9.5 in
II. Trickle Channel A) Type of Trickle Channel B) Slope of Trickle Channel S = 0.0200 = 0.1%		Discharge Flow Size: 8" (See too small for basin or pipe) Calculated V _d = 9.5 in
III. Micropond and Outlet Structure A) Depth of Micropond (2-foot minimum) B) Surface Area of Micropond (10 ft ² minimum) C) Outlet Type D) Stalled Dimension of Outlet Opening Based on Hydrograph Routing (See C-2-Comment) E) Total Outlet Area		Discharge Flow Size: 8" (See too small for basin or pipe) Calculated V _d = 9.5 in D _{mp} = 1.88 inches A _{mp} = 8.58 square inches



AS-BUILT SURVEY AS-BUILTS TAKEN 7/3/19 & 10/15/20

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS **811**
 UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW
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NO.	REVISION	DATE

REVIEW: PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING, INC. AND SURVEYORS, LLC

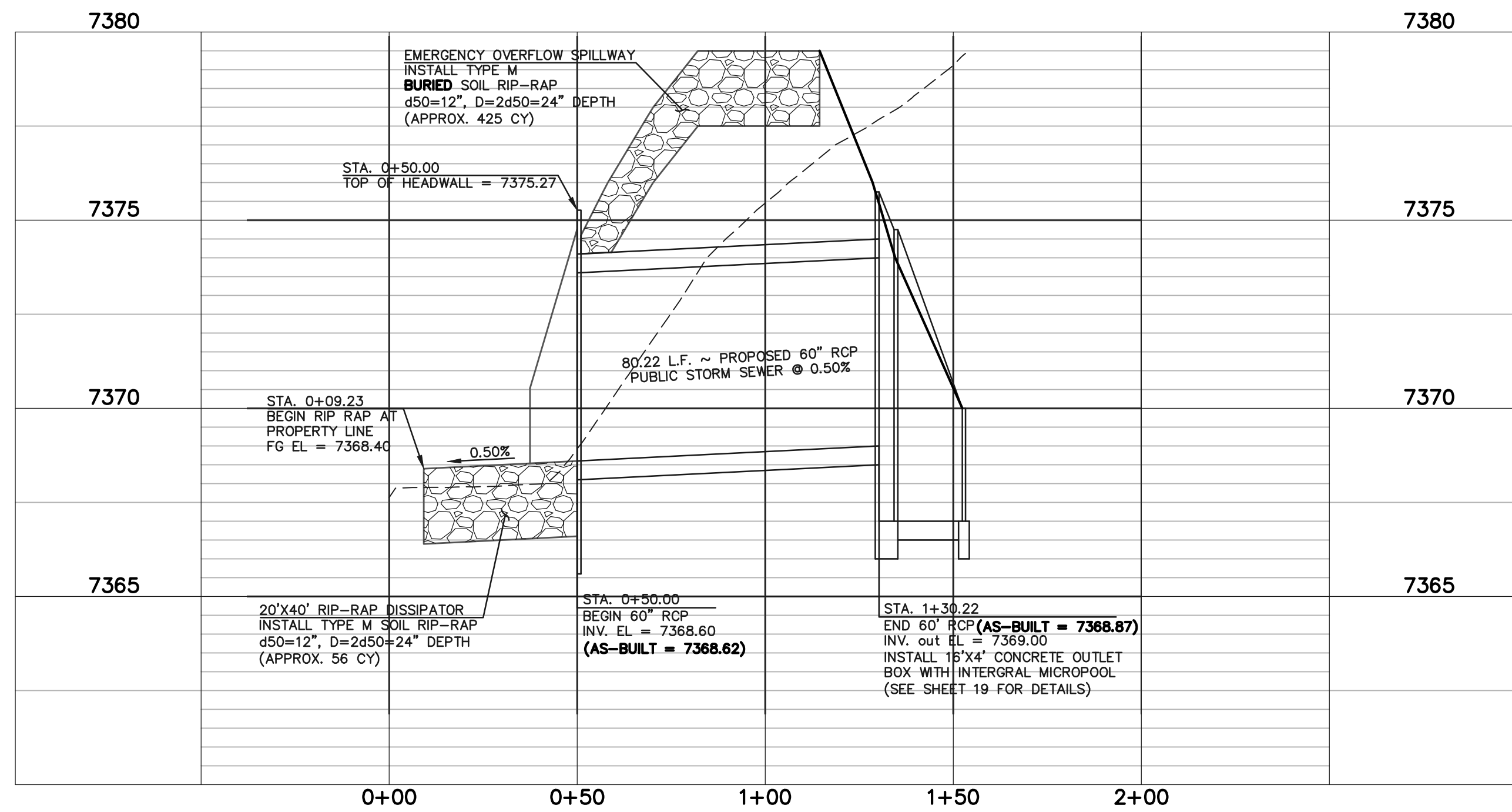
MARC A. WHORTON, PROFESSIONAL ENGINEER #37155
 DATE: 1/18/2024

CLASSIC CONSULTING ENGINEERS & SURVEYORS
 619 N. Cascade Avenue, Suite 200
 Colorado Springs, Colorado 80903
 (719)785-0790
 (719)785-0799(fax)

FLYING HORSE NORTH FILING NO. 1 DRAINAGE IMPROVEMENT PLANS
 DETENTION FACILITY NO. 4
 OUTLET PROFILE / SOUTHERLY FOREBAY

DESIGNED BY	MAW	SCALE	DATE	06-13-18
DRAWN BY	MAW	(H) 1"=VARIES	SHEET	15 OF 22
CHECKED BY	(V) 1"=VARIES	DATE	JOB NO. 1096.11	

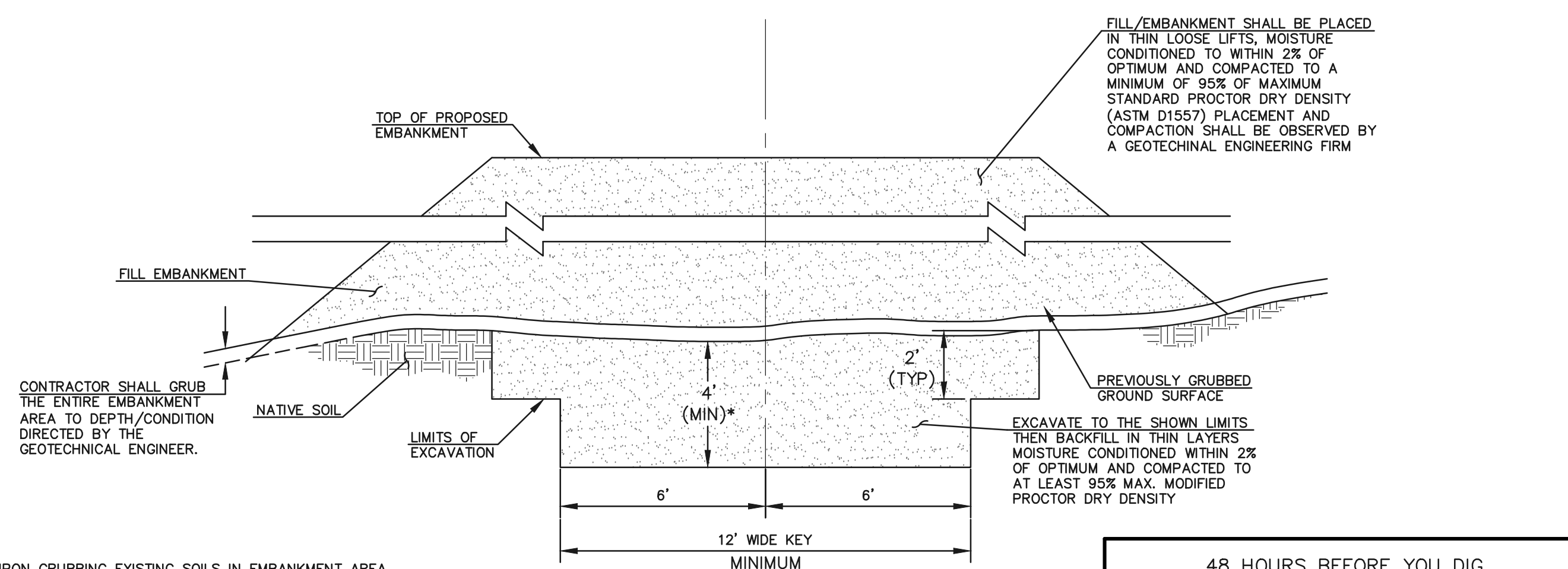
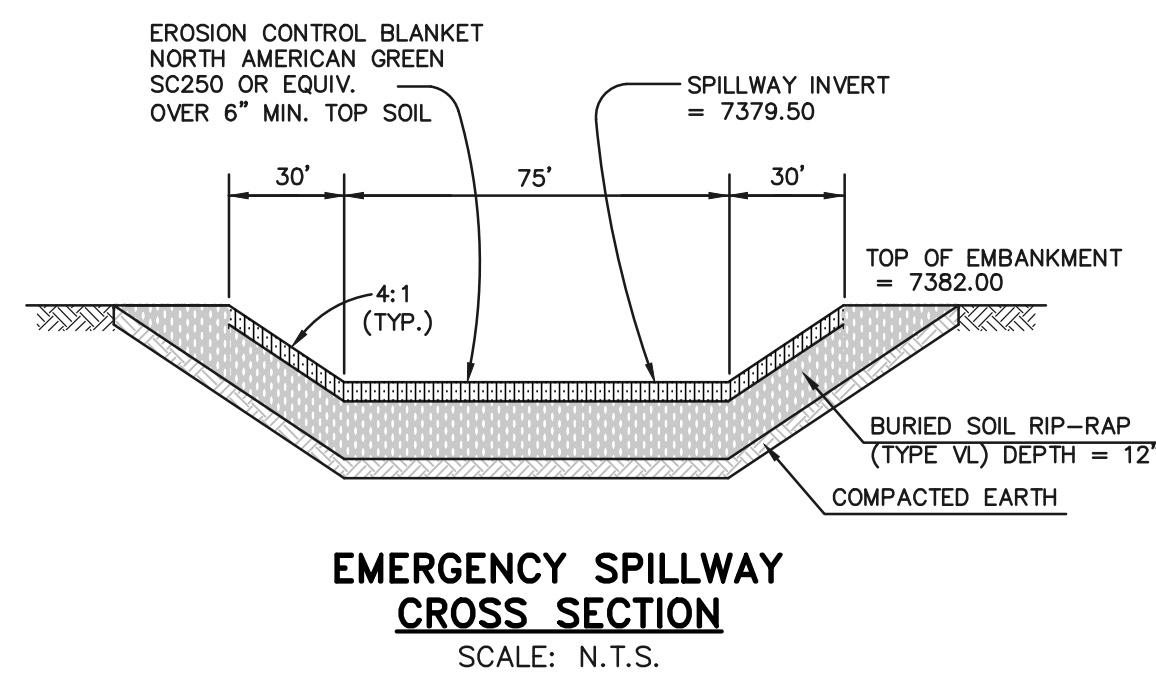
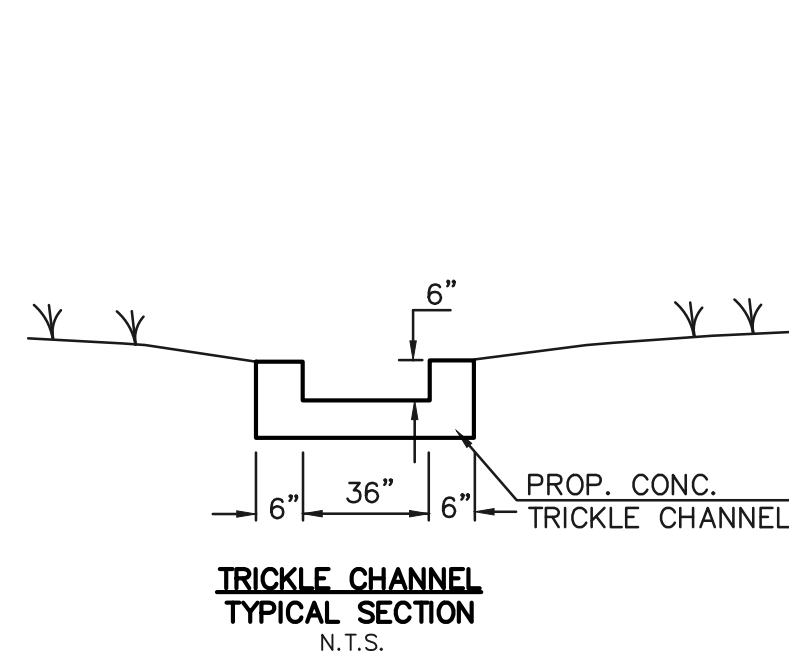
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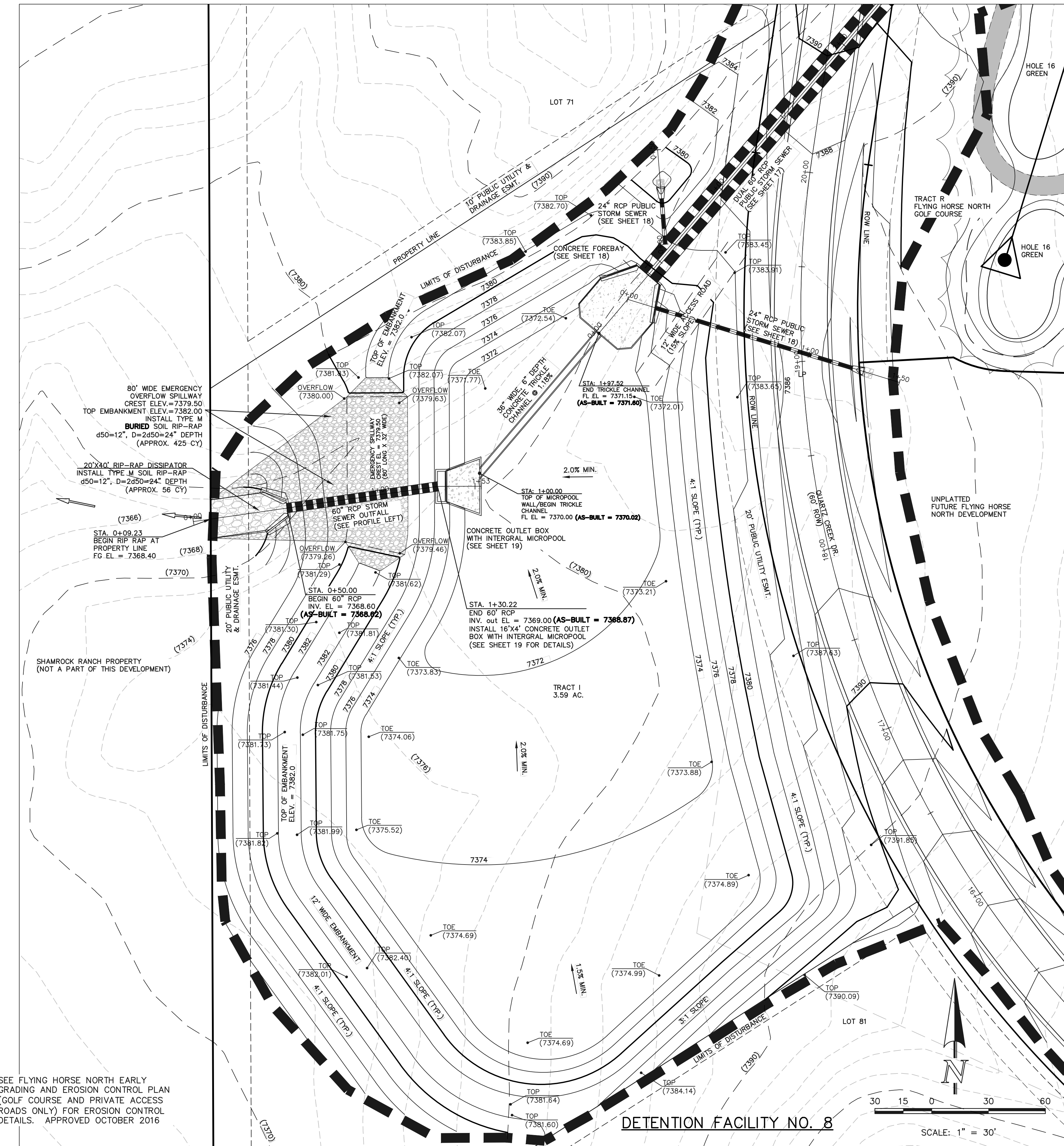
**DETENTION FACILITY NO. 8
POND OUTLET PROFILE**
SCALE: HORIZONTAL 1"=30'
VERTICAL 1"=3'

AS-BUILT

STRUCTURE AS-BUILTS TAKEN
11/26/18
TOPO. AS-BUILTS TAKEN
9/25/19 & 11/24/19



**SECTION A
TYPICAL EMBANKMENT
WITH SOIL KEYWAY**
SCALE: N.T.S.



DETENTION FACILITY NO. 8
SCALE: 1" = 30'

SEE FLYING HORSE NORTH EARLY GRADING AND EROSION CONTROL PLAN (GOLF COURSE AND PRIVATE ACCESS ROADS ONLY) FOR EROSION CONTROL DETAILS. APPROVED OCTOBER 2016

* UPON GRUBBING EXISTING SOILS IN EMBANKMENT AREA, ENGINEER SHALL BE CONTACTED TO DETERMINE SOIL QUALITY. IF POOR PERMEABILITY IS FOUND (I.E. SANDY-SILT) ONLY TOP 2' X 14" PORTION OF EMBANKMENT KEY IS REQUIRED FOR CONSTRUCTION.

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NO.	REVISION	DATE
1	REVISED PER COUNTY COMMENTS	4-4-18

REVIEW:
PREPARED UNDER THE DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHITTON, COLORADO P.E. #37155
DATE: 10/16/2020

CLASSIC
CONSULTING ENGINEERS & SURVEYORS

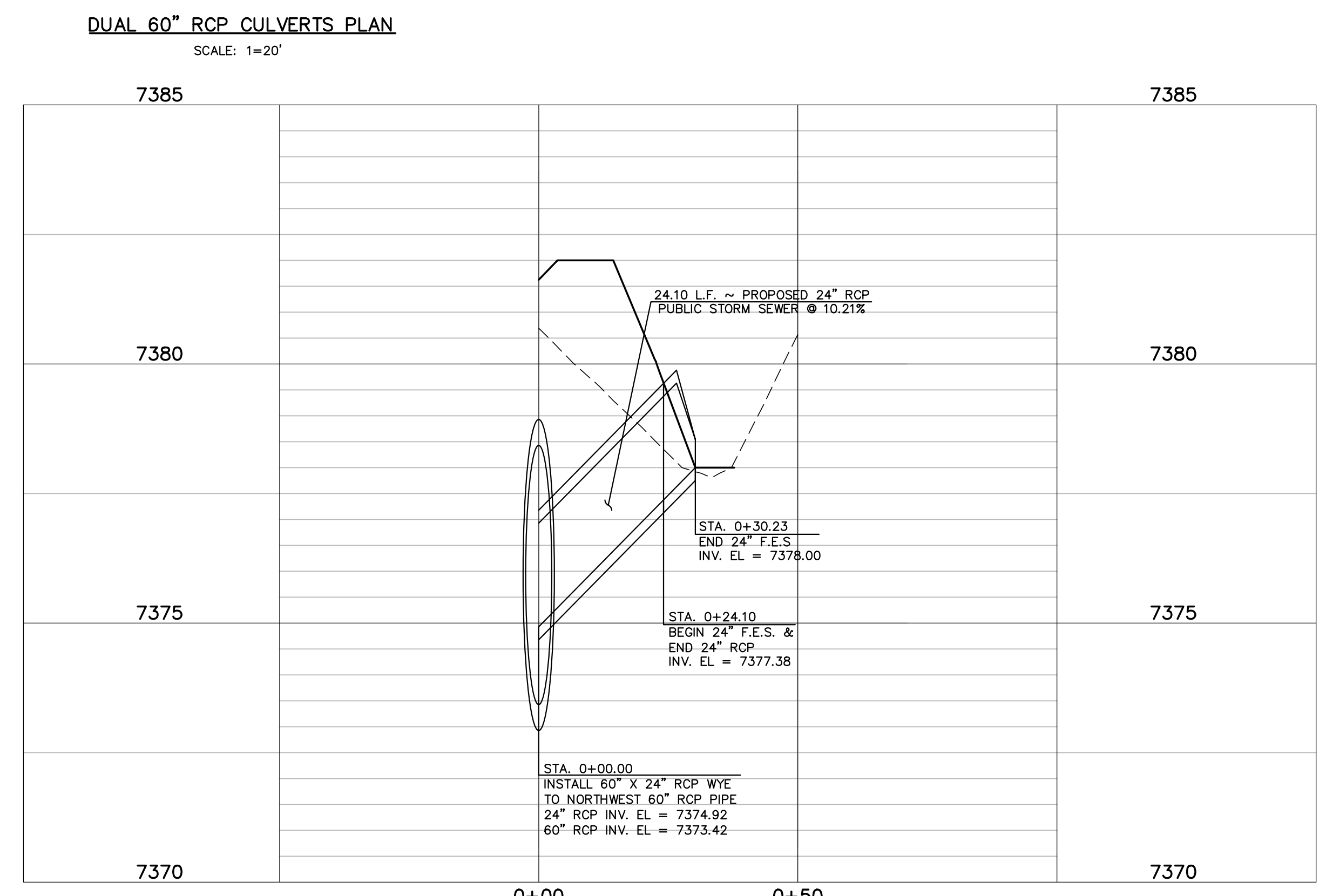
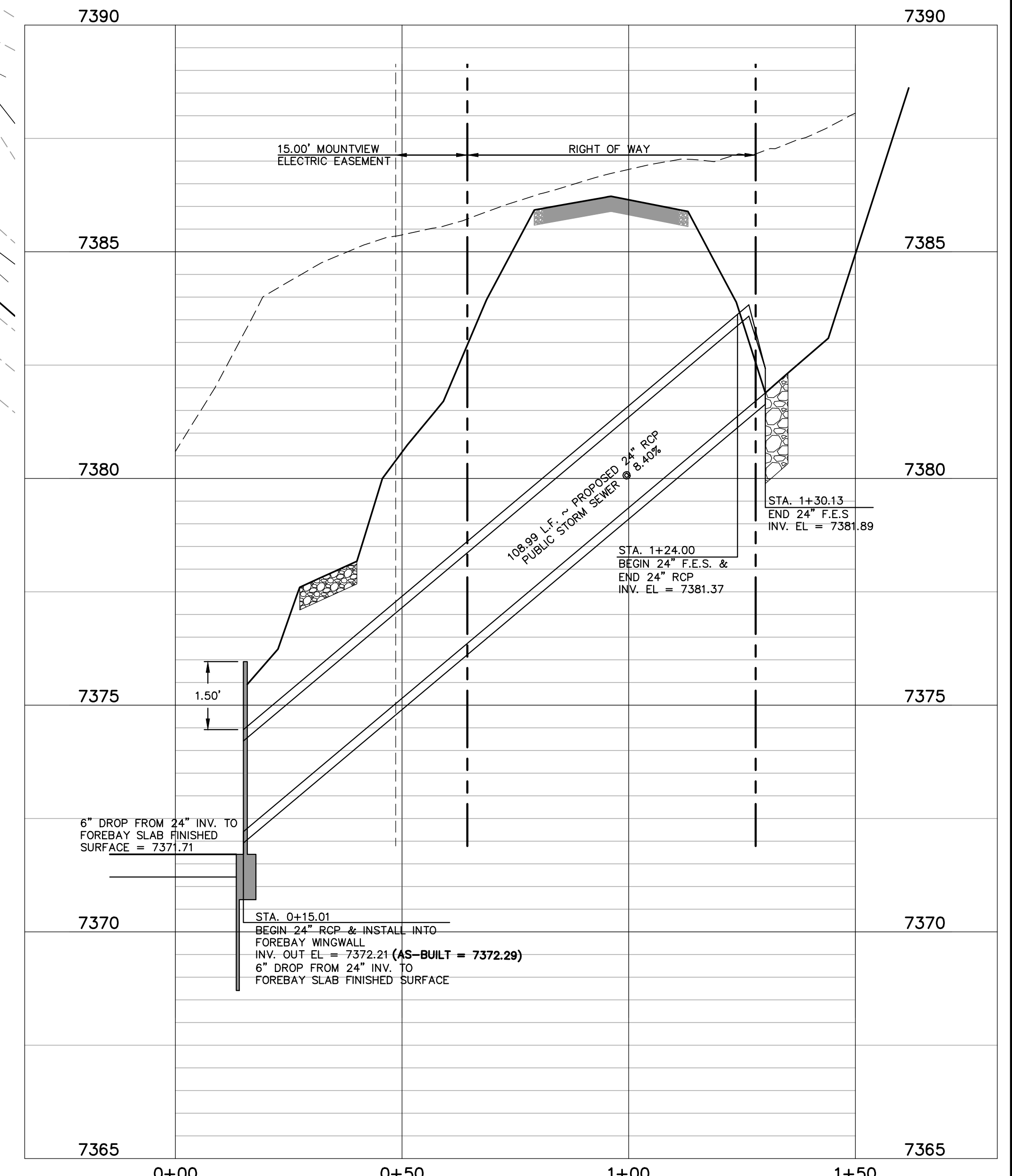
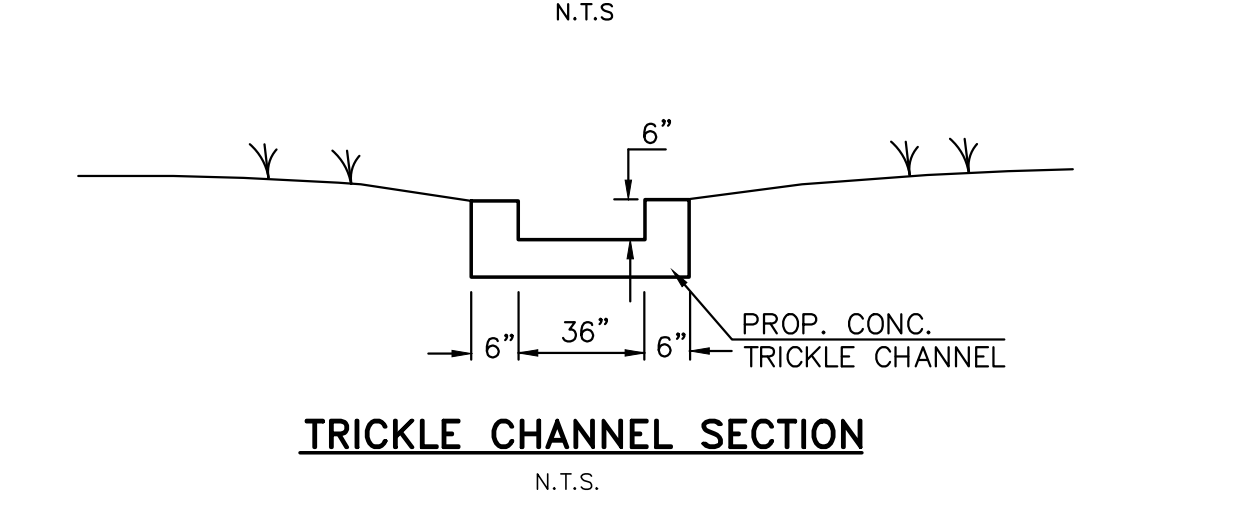
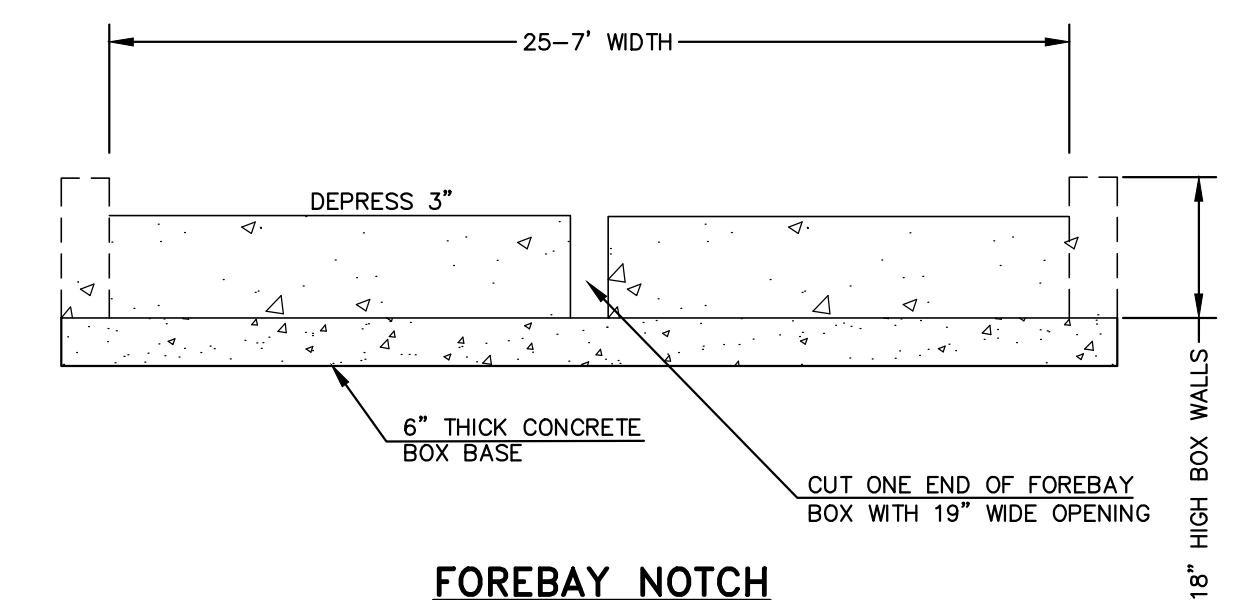
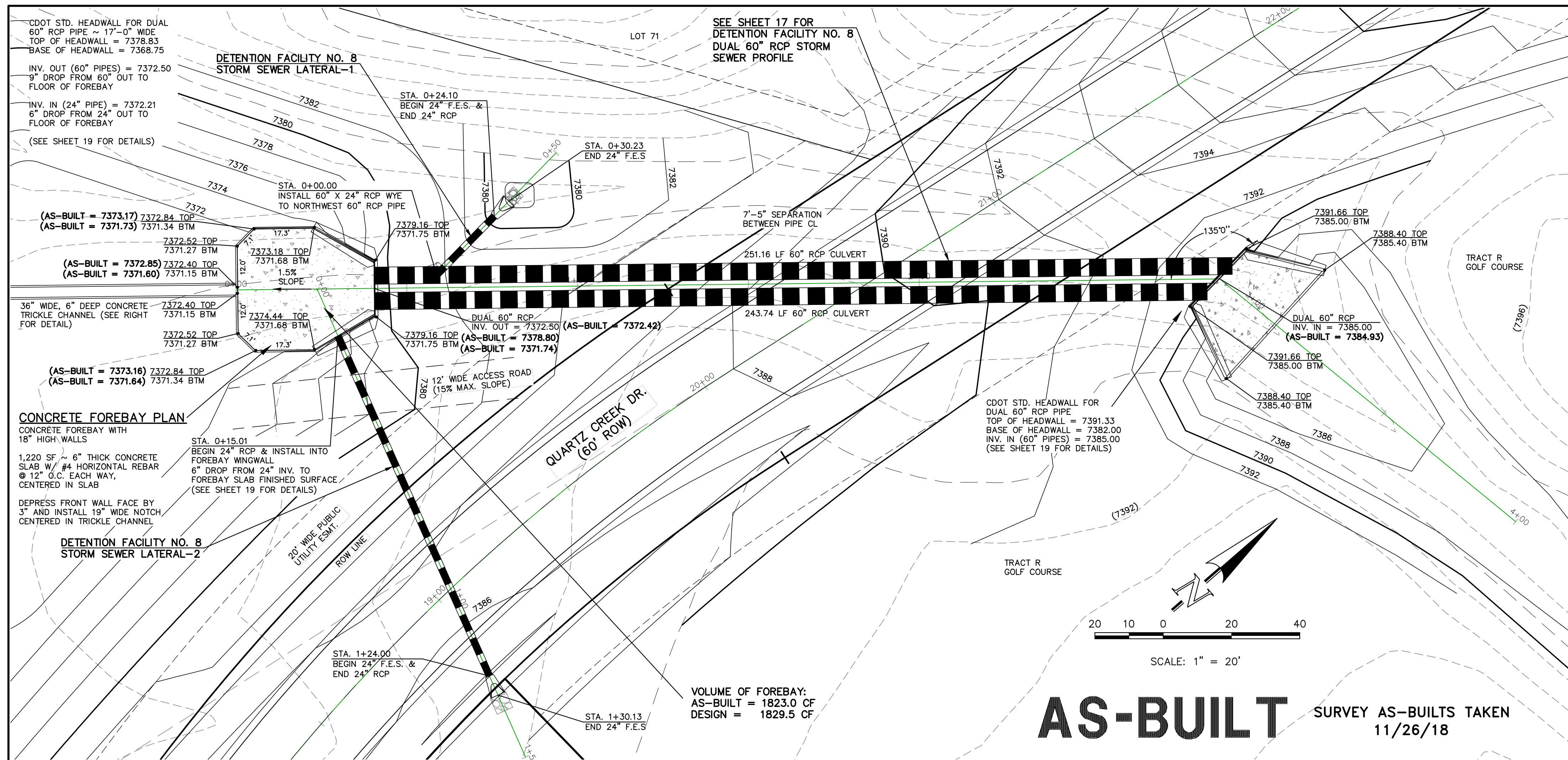
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719) 785-0790
(719) 785-0799 (Fax)

FLYING HORSE NORTH FILING NO. 1
DRAINAGE IMPROVEMENT PLANS
DETENTION FACILITY NO. 8
POND PLAN

DESIGNED BY	MAW	SCALE	DATE	06-13-18
DRAWN BY	MAW	(H) 1" = 30'	SHEET	16 OF 22
CHECKED BY	(V)	1" = N/A	JOB NO.	1096.11



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EXCERPT FROM FLYING HORSE NORTH FILING NO. 1 FDR, APPROVED 9/25/2018

Design Procedure Form: Extended Detention Basin (EDB)	
Designer: Marc A. Whorton	Sheet 2 of 4
Company: Classic Consulting	
Date: November 26, 2017	
Project: Flying Horse North Filing 1 (Pond B) (Ultimate Build-out)	
Location: Black Forest, CO	
5. Forebay	
A) Minimum Forebay Volume (V _{min} = 2% of the WQCV)	V _{min} = 0.042 ac-ft
B) Actual Forebay Volume	V _a = 0.042 ac-ft
C) Forebay Depth (D _f = 30 inch maximum)	D _f = 18.0 in
D) Forebay Discharge	
i) Undisturbed 100-year Peak Discharge	Q _{up} = 390.00 cfs
ii) Forebay Discharge Design Flow (Q _d = 0.02 * Q _{up})	Q _d = 7.80 cfs
E) Forebay Discharge Design	
Choose One:	
<input type="radio"/> Barn With Floor	
<input checked="" type="radio"/> Wall with Rect. Notch	
<input type="radio"/> Wall with V-Notch Weir	
F) Discharge Pipe Size (minimum 8-inches)	Calculated D _p = 15.9 in
G) Rectangular Notch Width	Calculated W _n = 15.9 in
6. Trickle Channel	
A) Type of Trickle Channel	Choose One:
<input checked="" type="radio"/> Concrete	
<input type="radio"/> Soft Bottom	
F) Slope of Trickle Channel	S = 0.0100 ft/ft
7. Micropool and Outlet Structure	
A) Depth of Micropool (2.5-foot minimum)	D _m = 2.5 ft
B) Surface Area of Micropool (10 ft ² minimum)	A _m = 384 sq ft
C) Outlet Type	Choose One:
<input checked="" type="radio"/> Orifice Plate	
<input type="radio"/> Other (describe):	
D) Smallest Dimension of Orifice Opening Based on Hydrograph Routing (Use UD-Detention)	D _{min} = 2.81 inches
E) Total Outlet Area	A _o = 16.08 square inches

UD-BMP-v3.06 Pond & Storm EDB 11/30/2017, 7:11 AM

DETENTION FACILITY NO. 8 STORM SEWER LATERAL-1 PROFILE SCALE: HORIZONTAL 1"=20' VERTICAL 1"=2'

DETENTION FACILITY NO. 8 STORM SEWER LATERAL-2 PROFILE SCALE: HORIZONTAL 1"=20' VERTICAL 1"=2'

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS 811 UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW	NO. REVISION	DATE
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.	REVIEW:	
	PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING, INC. LICENSED SURVEYORS, LLC	

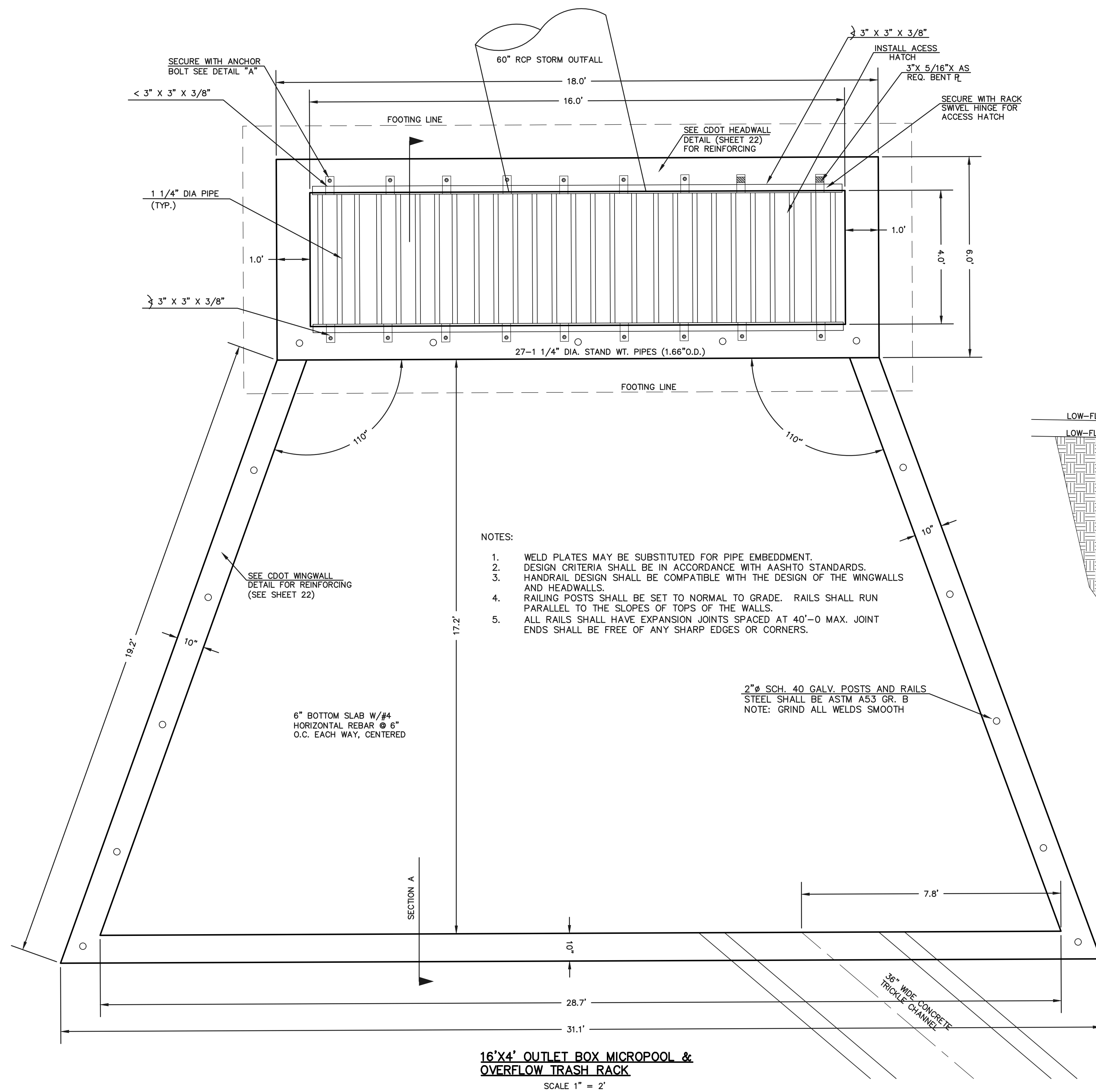
1/18/2024
DATE
MARC A. WHORTON, P.E. #37155
CLASSIC CONSULTING ENGINEERS & SURVEYORS



FLYING HORSE NORTH FILING NO. 1 DRAINAGE IMPROVEMENT PLANS
DETENTION FACILITY NO. 8
DUAL 60" RCP CULVERTS / FOREBAY DESIGN

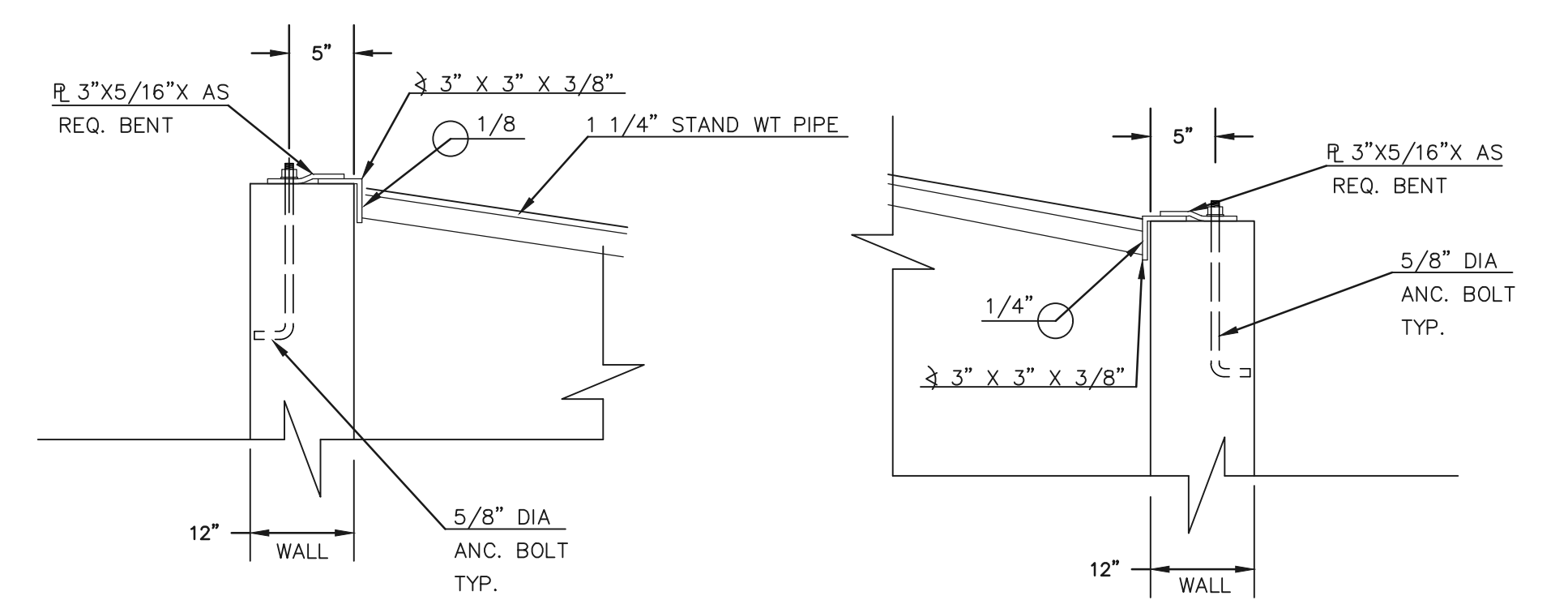
DESIGNED BY	MAW	SCALE	DATE	06-13-18
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CHECKED BY	(V) 1"= 2'	JOB NO.	1096.11	

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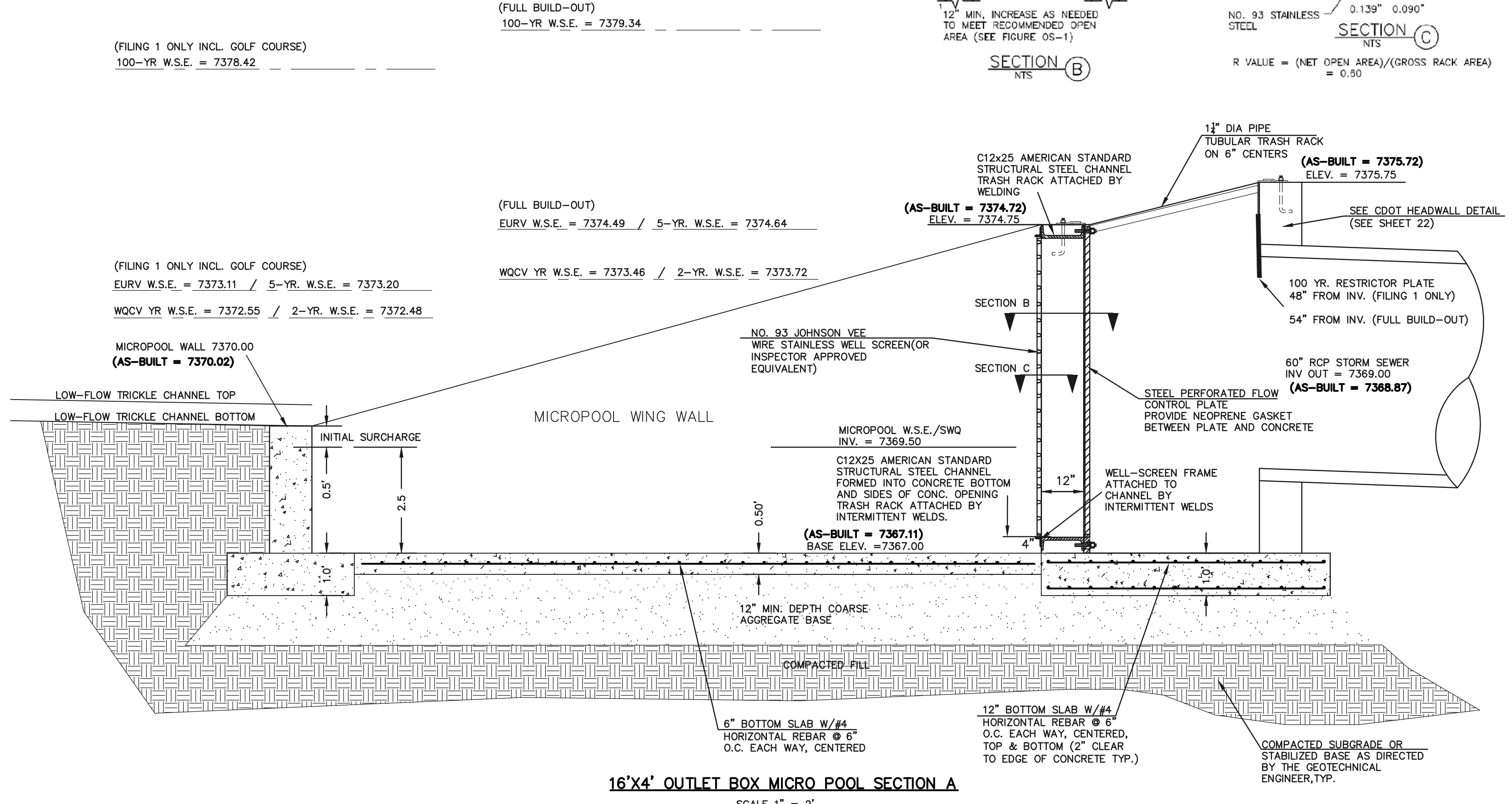


- NOTES:
1. WELD PLATES MAY BE SUBSTITUTED FOR PIPE EMBEDMENT. DESIGN CRITERIA SHALL BE IN ACCORDANCE WITH AASHTO STANDARDS.
 2. HANDRAIL DESIGN SHALL BE COMPATIBLE WITH THE DESIGN OF THE WINGWALLS AND HEADWALLS.
 3. RAILING POSTS SHALL BE SET TO NORMAL TO GRADE. RAILS SHALL RUN PARALLEL TO THE SLOPES OF TOPS OF THE WALLS.
 4. ALL RAILS SHALL HAVE EXPANSION JOINTS SPACED AT 40'-0\"/>

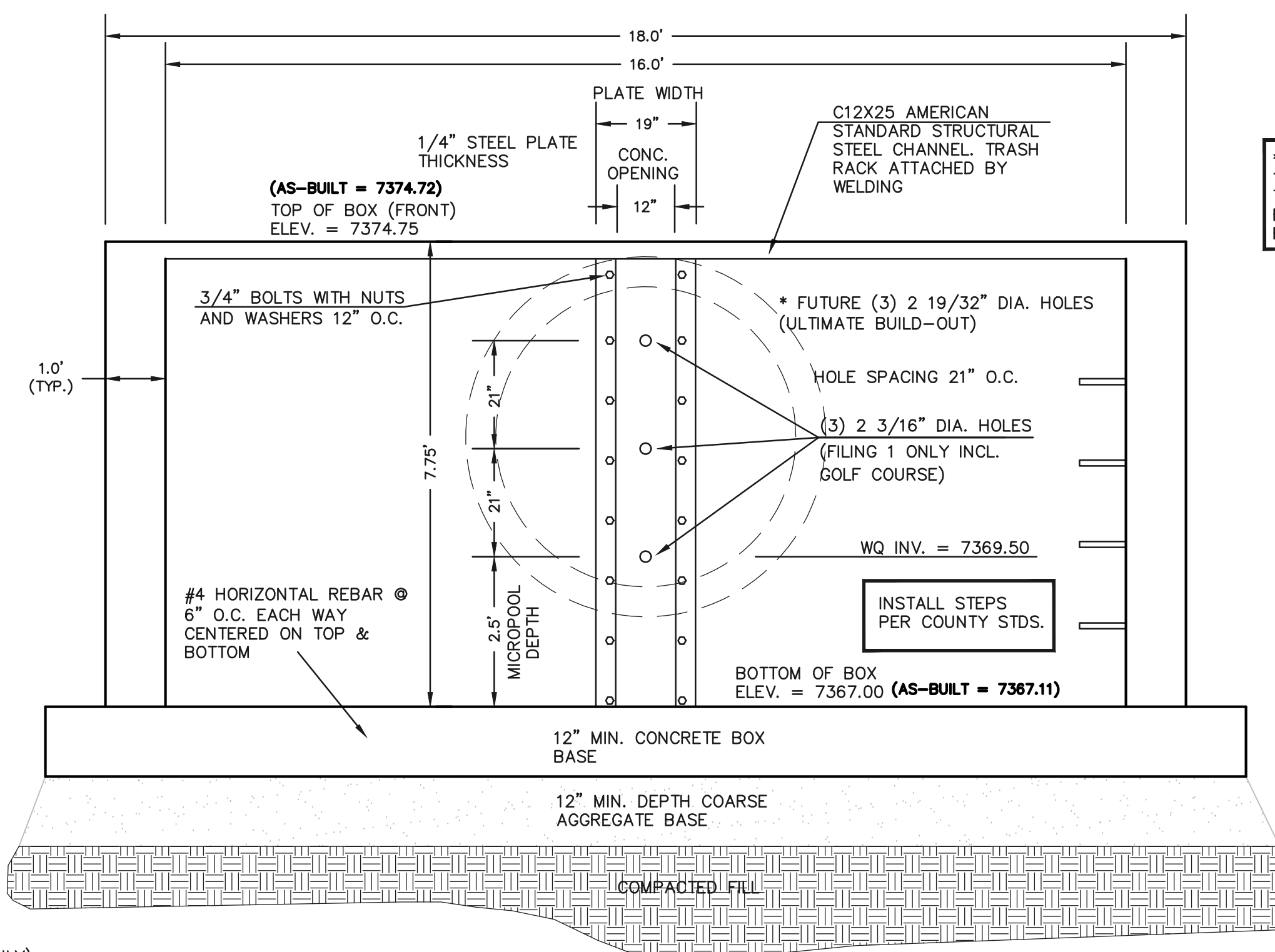
AS-BUILT SURVEY AS-BUILTS TAKEN 11/26/18



OUTLET BOX ORIFICE PLATE - 1/2\"/>



16'x4' OUTLET BOX MICRO POOL SECTION A
SCALE 1\"/>



16'x4' OUTLET BOX ORIFICE PLATE
SCALE 1\"/>

* STEEL ORIFICE PLATE AND 100 YR. RESTRICTOR PLATE TO BE REPLACED WITH FULL BUILD-OUT DESIGN UPON FILING 2 DEVELOPMENT.

- (ALL MATERIALS PER EL PASO COUNTY SPECIFICATIONS)
- ORIFICE PLATE NOTES:
1. INSTALL HOLES AS SHOWN ON DETAIL TO LEFT.
 2. PROVIDE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE

- EURV AND WQCV TRASH RACKS:
3. WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
 4. BAR GRATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
 5. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF RACK

- OVERFLOW TRASH RACKS:
1. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS
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REVIEW:

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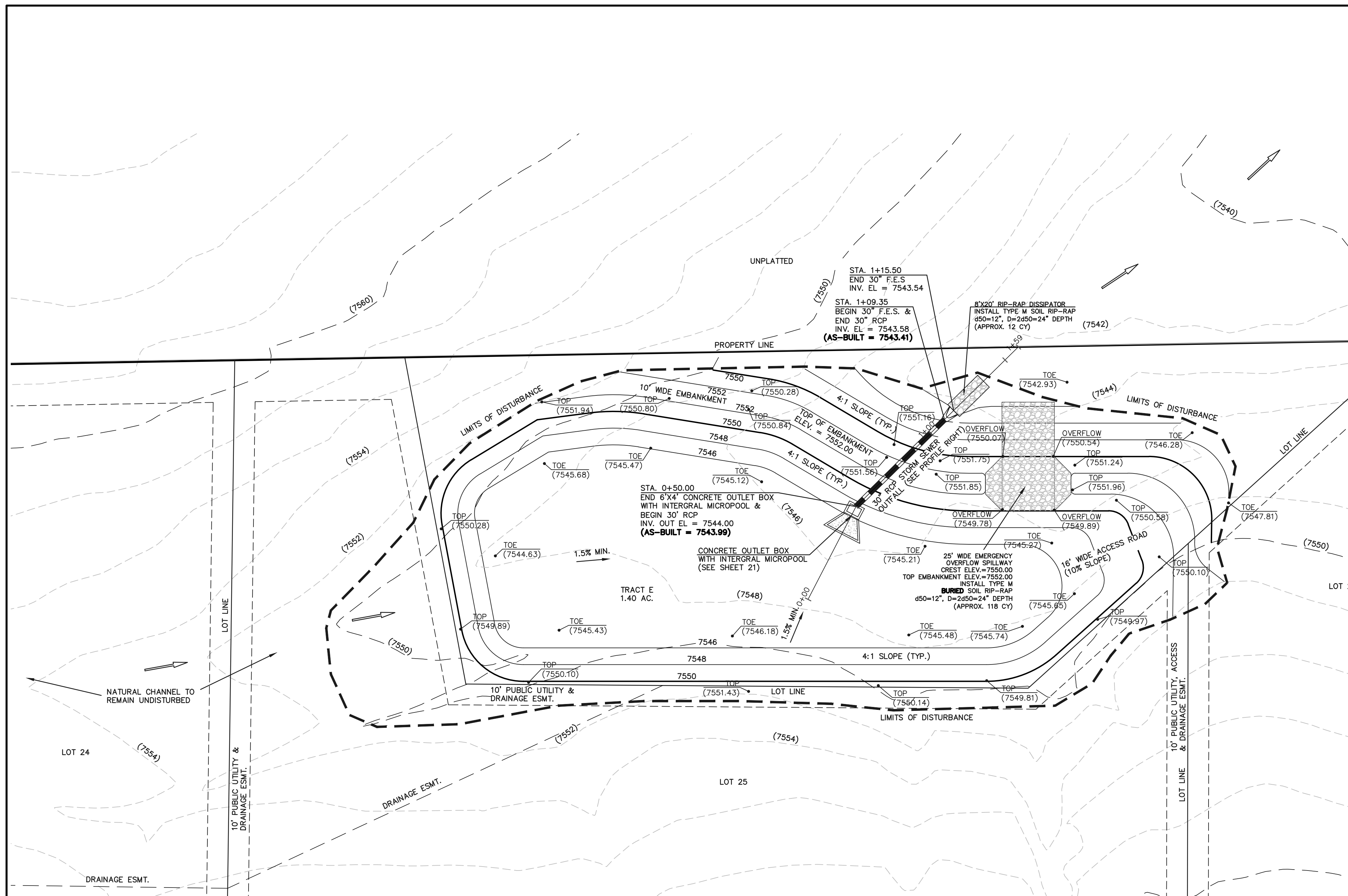
MARC A. WHORTON, COLORADO P.E. #37155

DATE: 10/16/2020

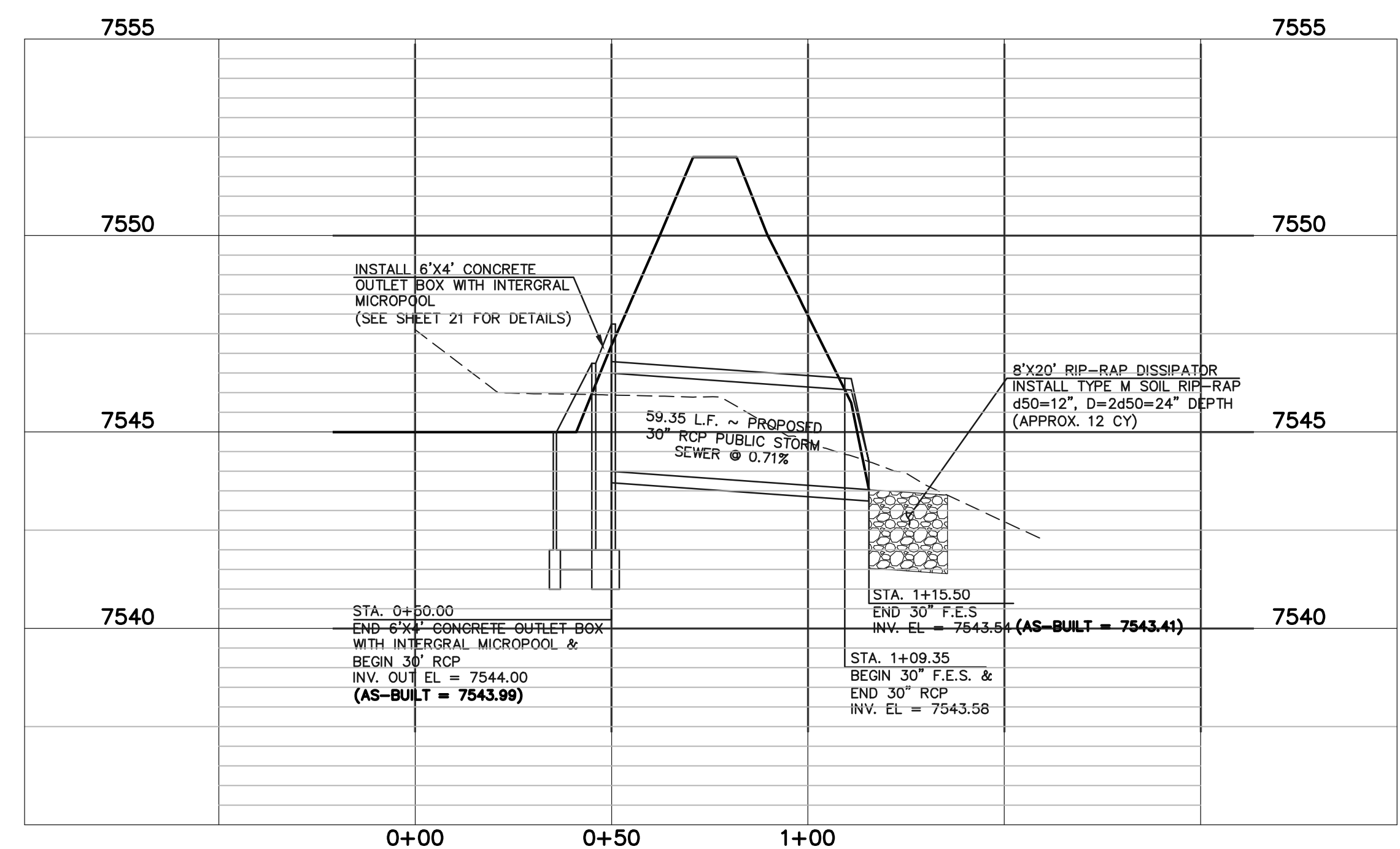
FLYING HORSE NORTH FILING NO. 1
DRAINAGE IMPROVEMENT PLANS
DETENTION FACILITY NO. 8
OUTLET BOX DETAILS

DESIGNED BY	MAW	SCALE	DATE	06-13-18
DRAWN BY	MAW	(H) 1" = N/A	SHEET	19 OF 22
CHECKED BY	(V) 1" = N/A	JOB NO.	1096.11	

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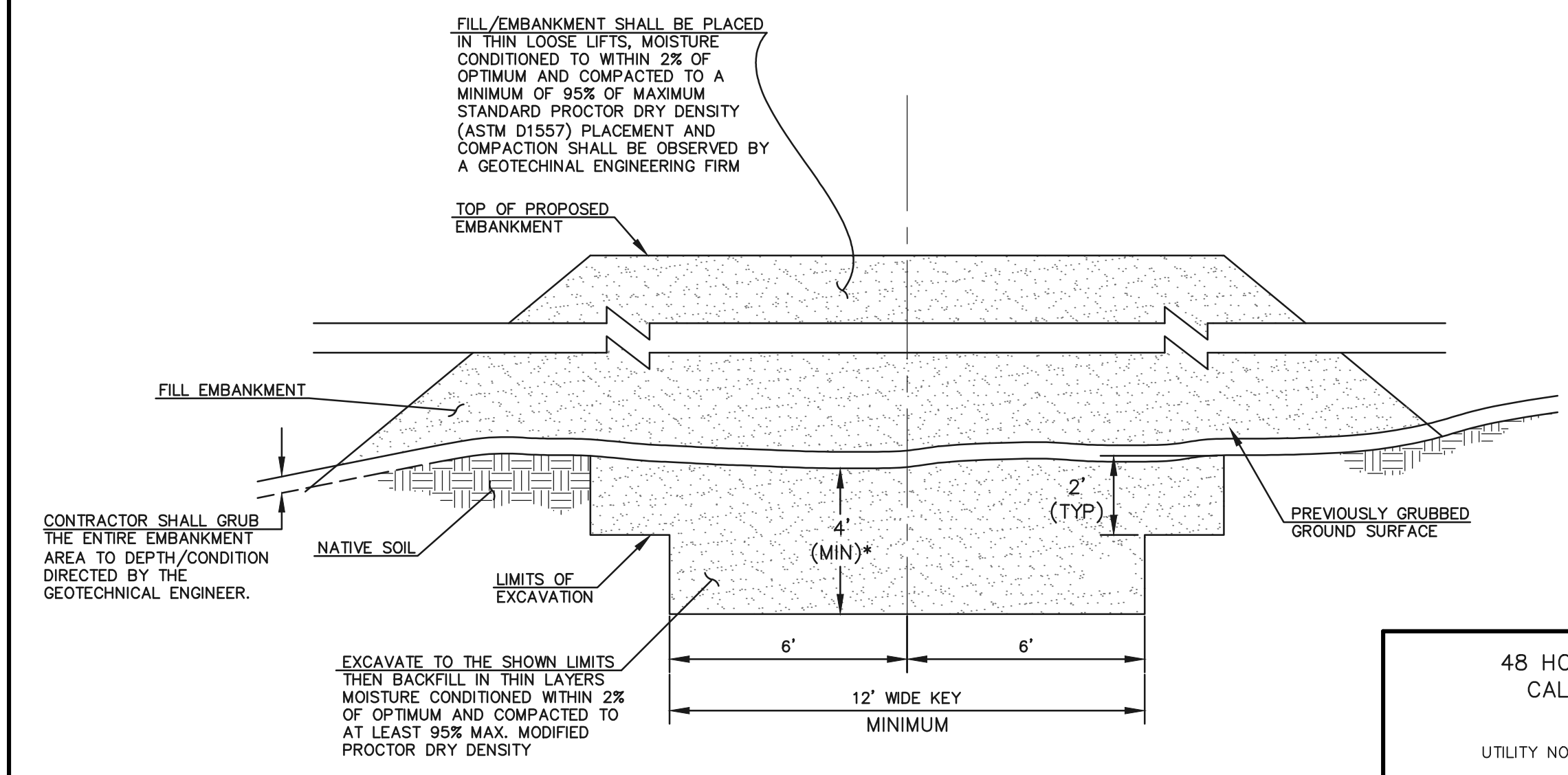


DETENTION FACILITY NO. 12

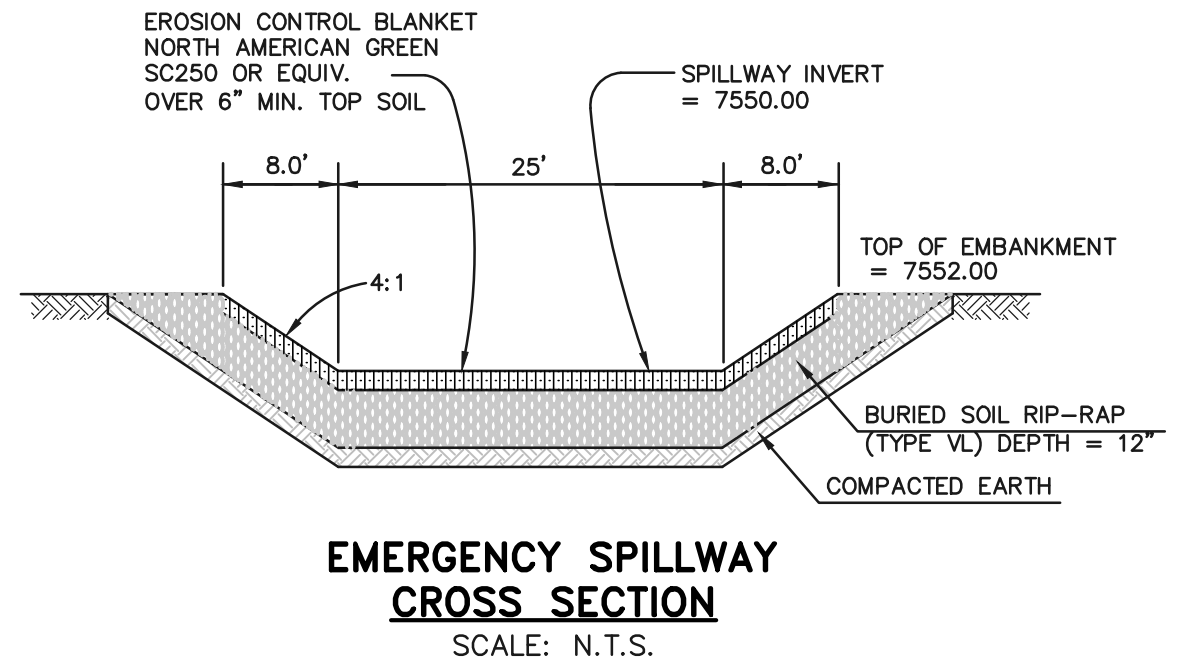


DETENTION FACILITY NO. 12 ~ 30" RCP POND OUTLET PROFILE

SCALE: HORIZONTAL 1"=30'
VERTICAL 1"=3'



SECTION A
TYPICAL EMBANKMENT
WITH SOIL KEYWAY
SCALE: N.T.S.

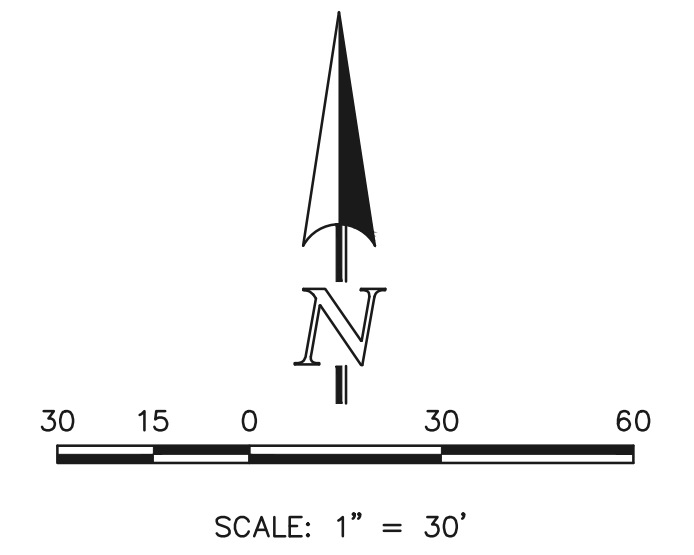


EMERGENCY SPILLWAY
CROSS SECTION
SCALE: N.T.S.

AS-BUILT

STRUCTURE AS-BUILTS TAKEN
7/3/19
TOPO. AS-BUILTS TAKEN
9/25/19 & 11/24/19

SEE FLYING HORSE NORTH EARLY
GRADING AND EROSION CONTROL PLAN
(GOLF COURSE AND PRIVATE ACCESS
ROADS ONLY) FOR EROSION CONTROL
DETAILS. APPROVED OCTOBER 2016



48 HOURS BEFORE YOU DIG,
CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE
1	REVISED PER COUNTY COMMENTS	4-4-18

REVIEW:
PREPARED UNDER THE DIRECT SUPERVISION FOR AND ON BEHALF OF
CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

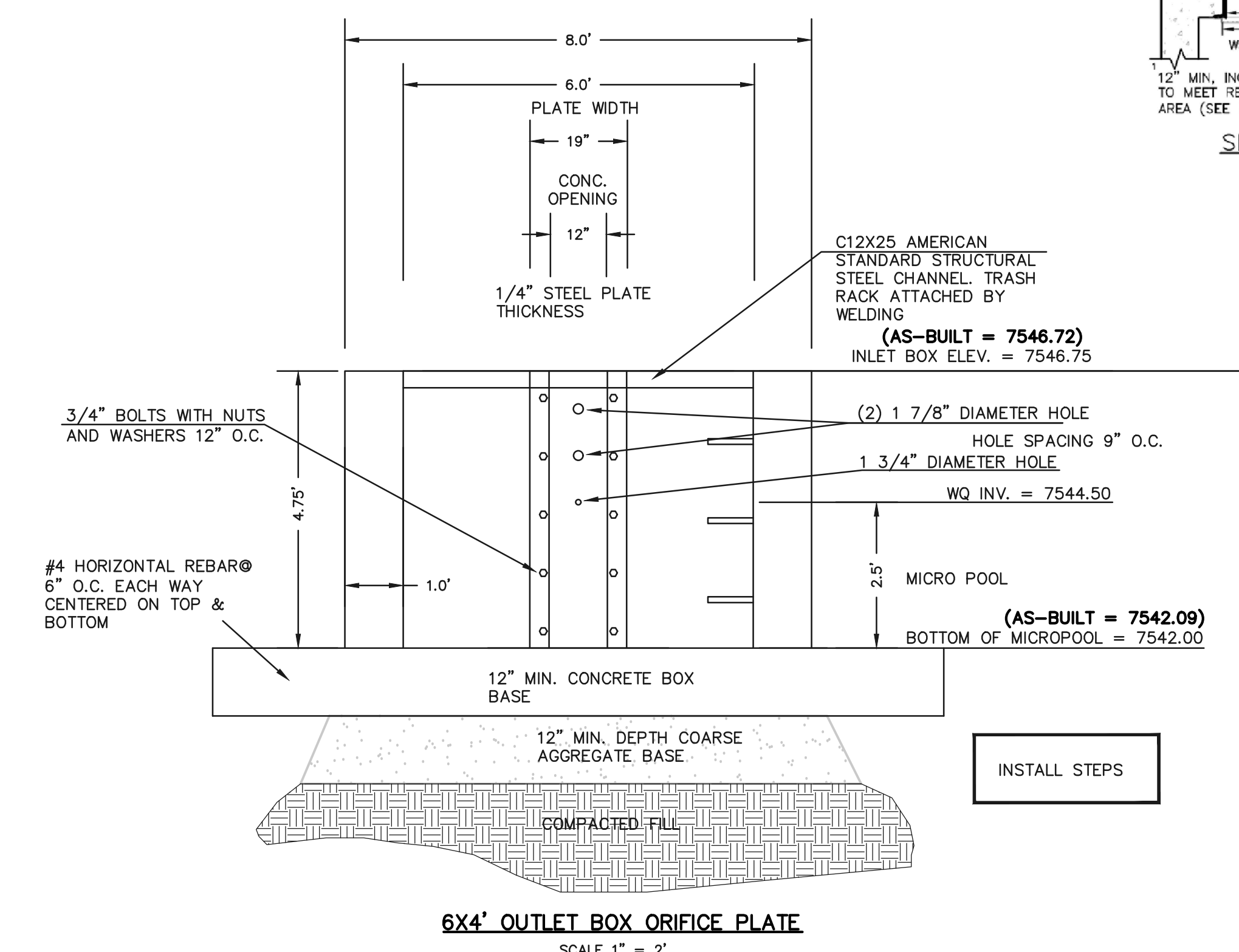
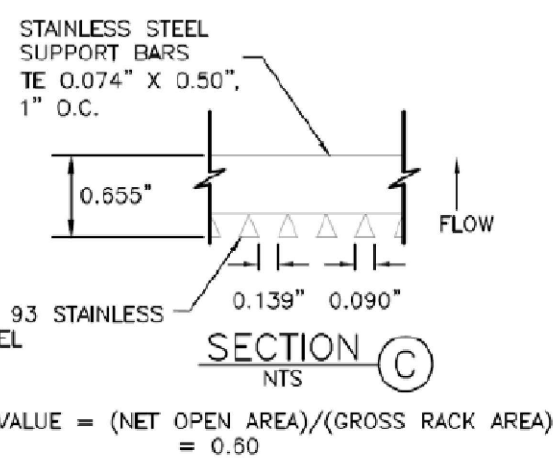
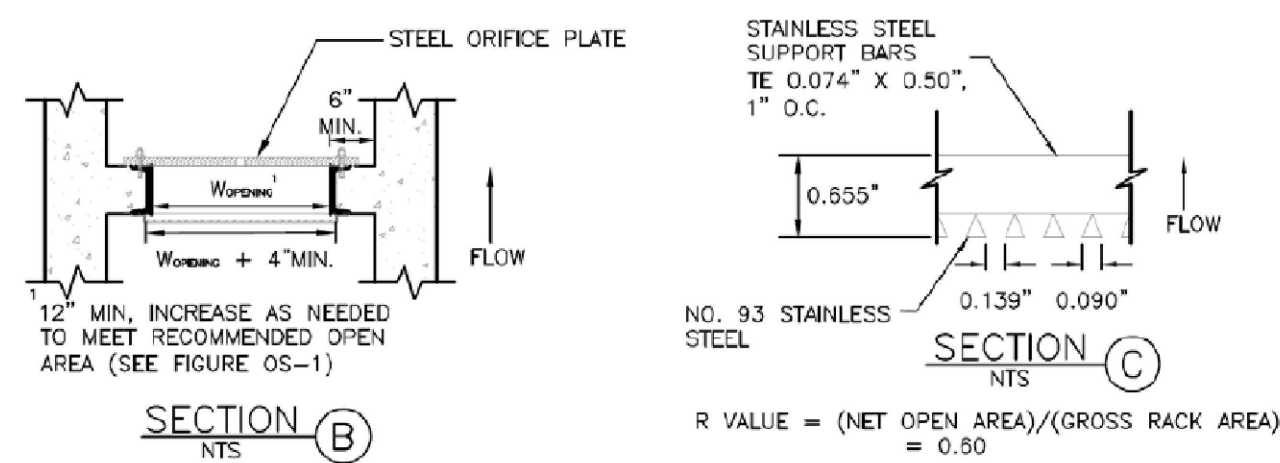
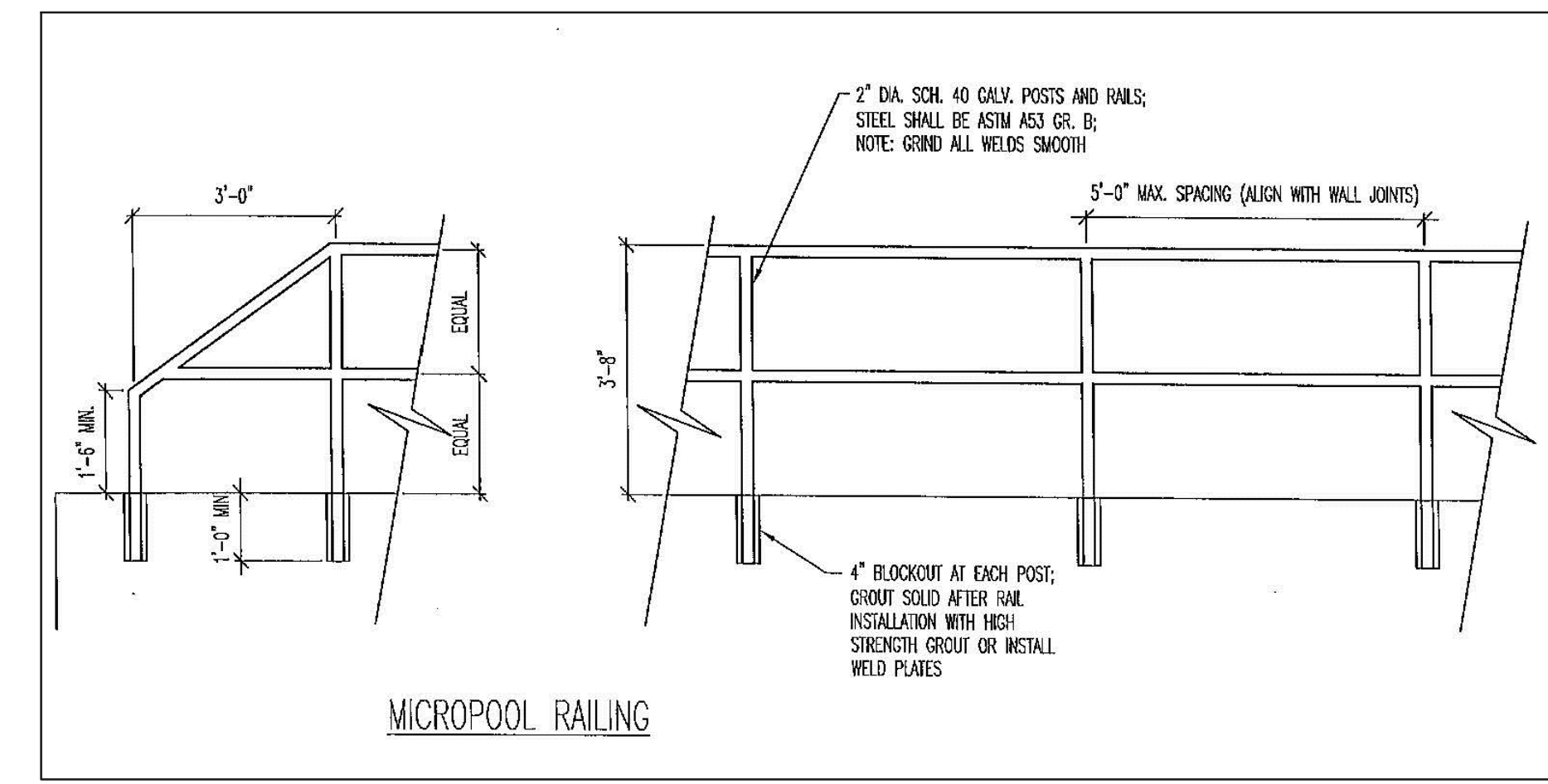
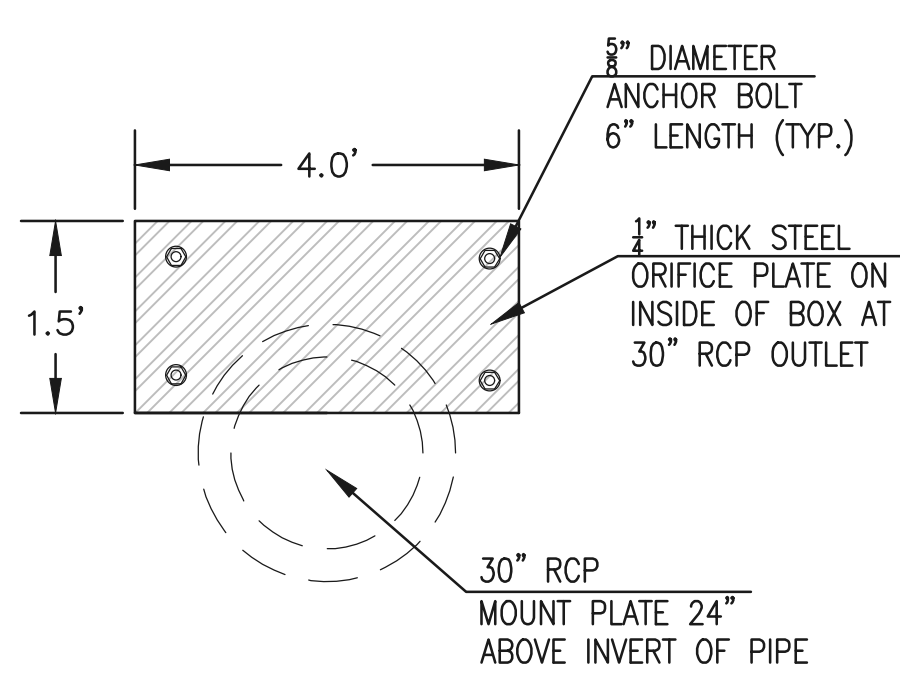
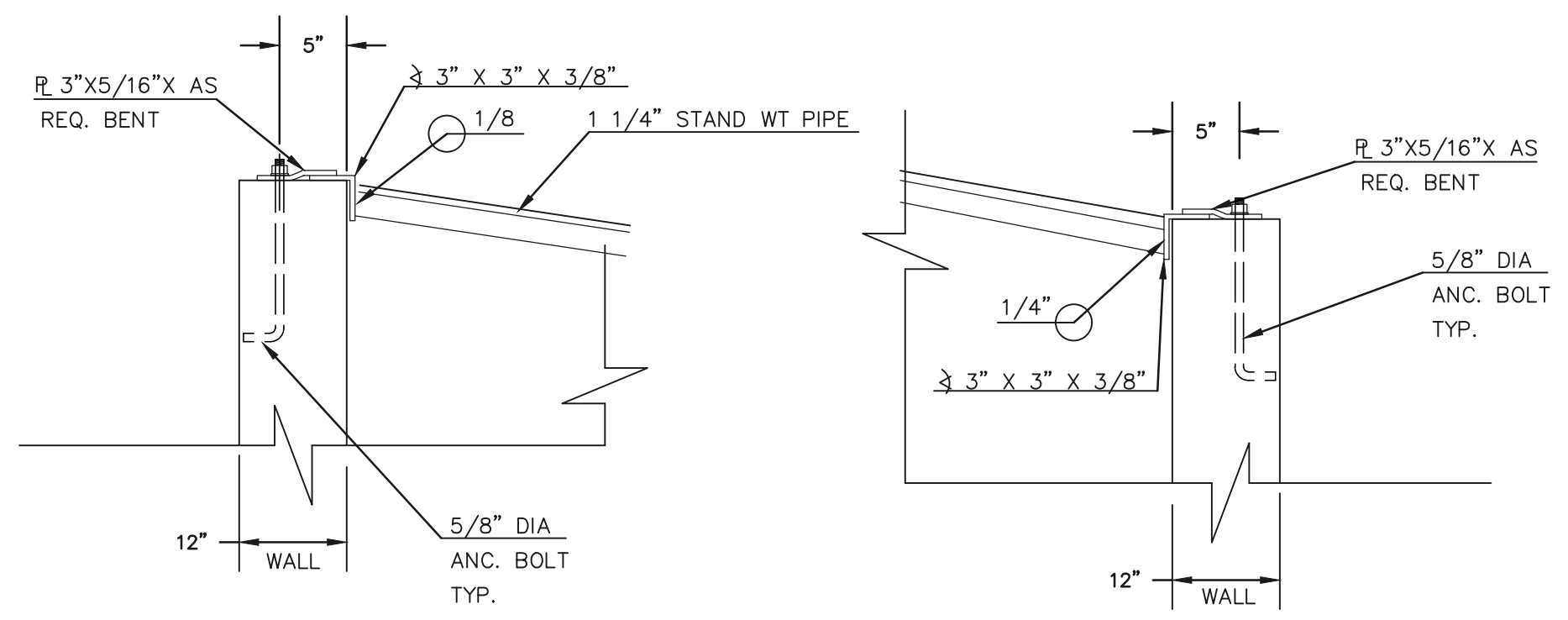
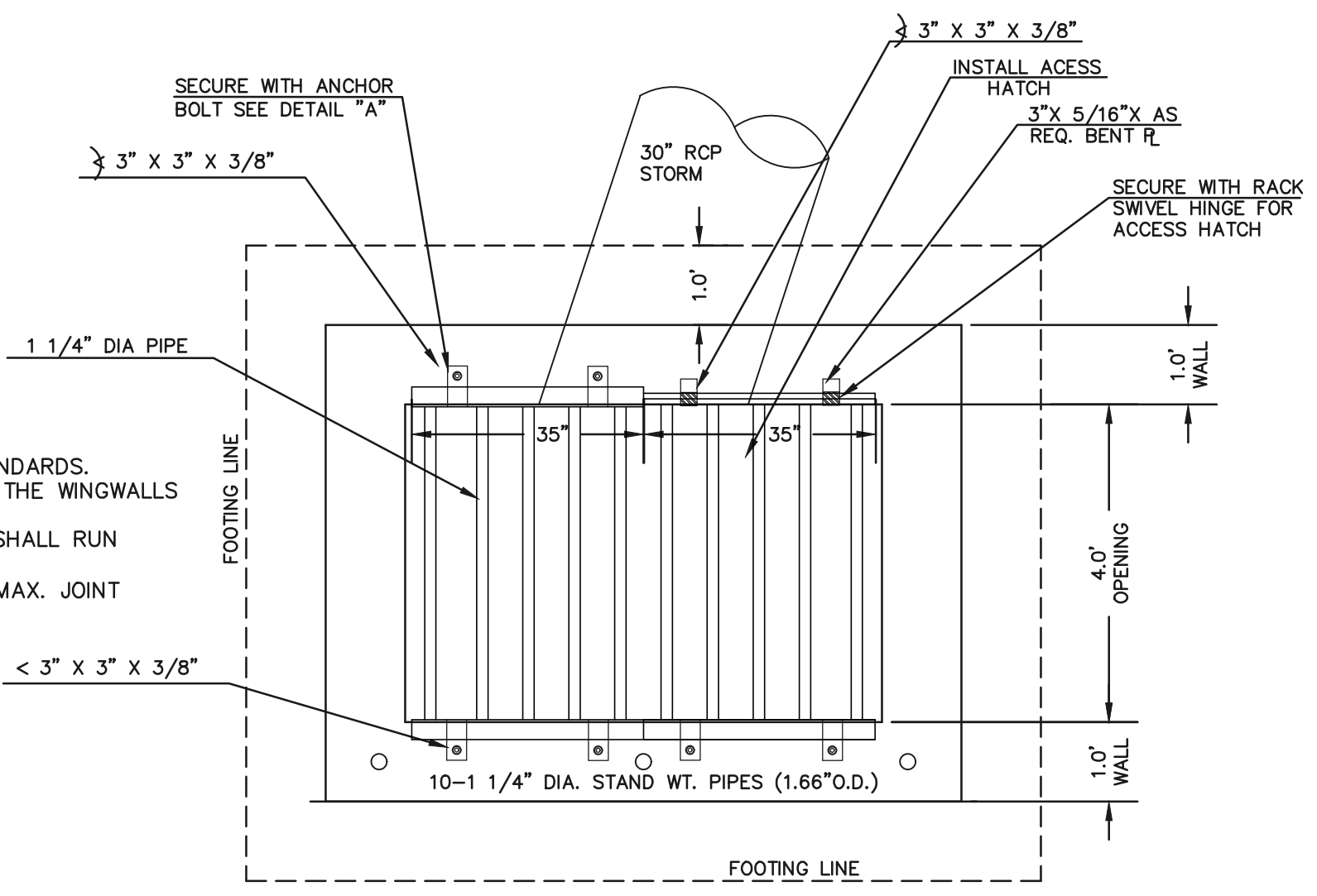
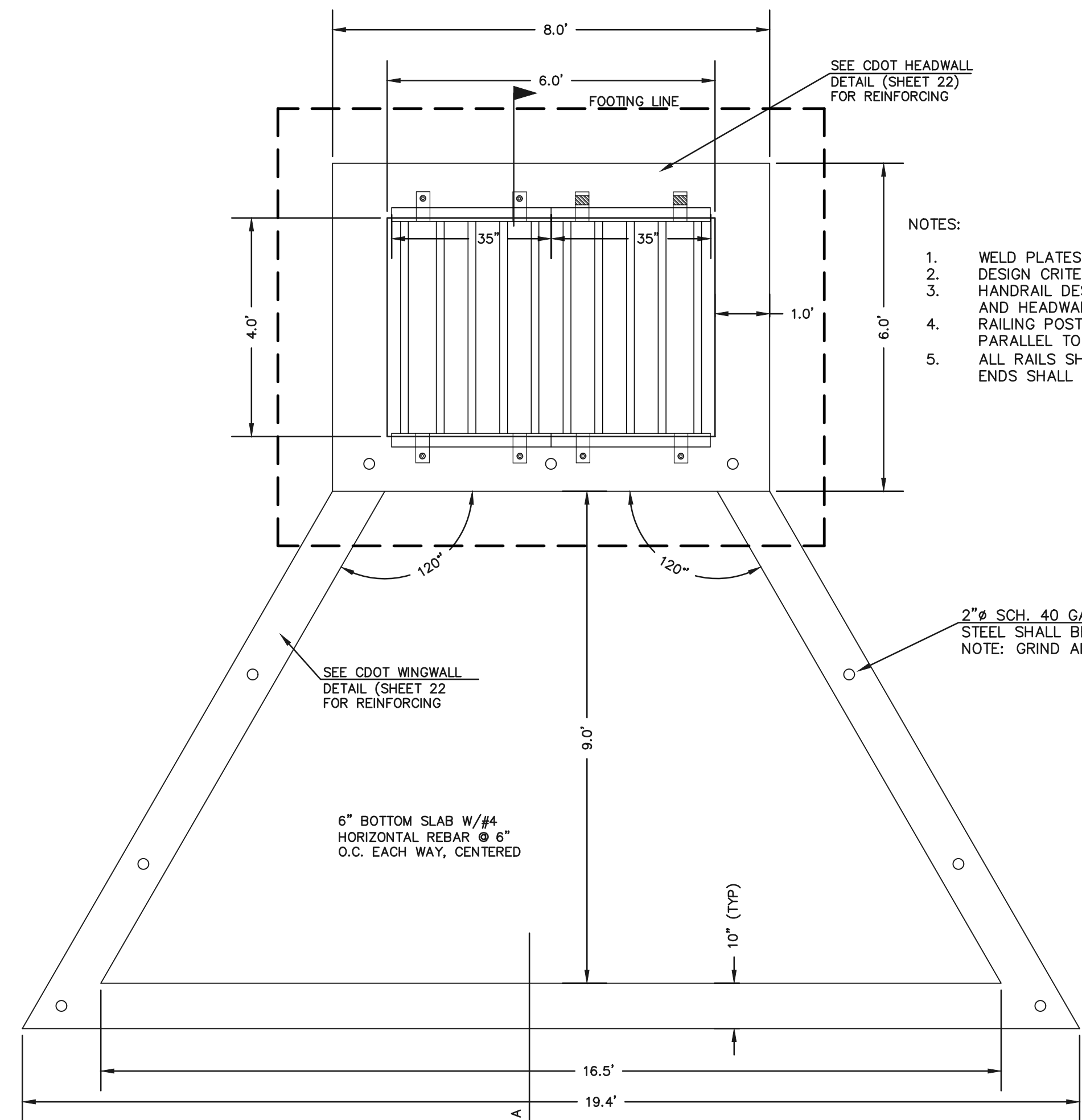
MARC A. WHORTON, COLORADO P.E. #37155 DATE 10/16/2020

CLASSIC CONSULTING ENGINEERS & SURVEYORS

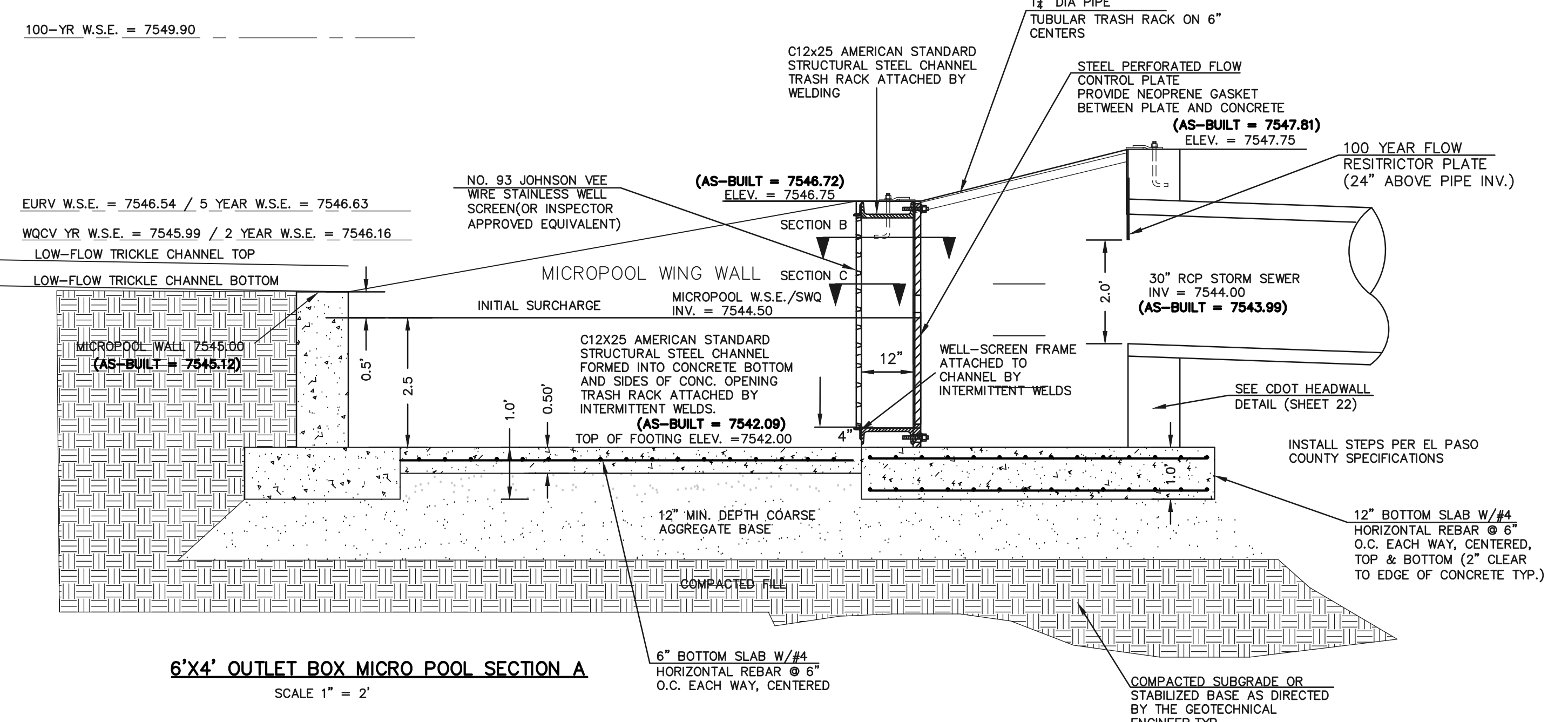
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799(Fax)

FLYING HORSE NORTH FILING NO. 1 DRAINAGE IMPROVEMENT PLANS DETENTION FACILITY NO. 12 POND PLAN			
DESIGNED BY	MAW	SCALE	DATE 06-13-18
DRAWN BY	MAW	(H) 1"= 30'	SHEET 20 OF 22
CHECKED BY		(V) 1"= N/A	JOB NO. 1096.11

N:\PROJECTS\DRAWINGS\CONSTRUCTION\Final Plans\AS-BUILT.dwg, 10/16/2020 8:29:30 AM, 1:1



- (ALL MATERIALS PER EL PASO COUNTY SPECIFICATIONS)
- ORIFICE PLATE NOTES:
1. INSTALL HOLES AS SHOWN ON DETAIL TO RIGHT.
2. PROVIDE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE
- EURV AND WQCV TRASH RACKS:
3. WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
4. BAR GRATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
5. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK
- OVERFLOW TRASH RACKS:
1. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS
2. TRASH RACKS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
3. TRASH RACKS SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF THE TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.



AS-BUILT STRUCTURE AS-BUILTS TAKEN 7/3/19

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION CENTER OF COLORADO
IT'S THE LAW

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE
1	REVISED PER COUNTY COMMENTS	4-4-18

REVIEW:
PREPARED UNDER DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORLEN, COLORADO P.E. #37155
DATE 10/16/2020



FLYING HORSE NORTH FILING NO. 1
DRAINAGE IMPROVEMENT PLANS
DETENTION FACILITY NO. 12
OUTLET BOX DETAILS

DESIGNED BY	MAW	SCALE	DATE	06-13-18
DRAWN BY	MAW	(H) 1" = N/A	SHEET	21 OF 22
CHECKED BY	(V) 1" = N/A	JOB NO.	1096.11	

N:\109611\DRAWINGS\CONSTRUCTION\Final Plans\21-FPOND 12 OUTLET DETAILS AS-BUILT.dwg, 10/16/2020, 8:36:44 AM, 1:1



COLORADO
Division of Water Resources
Department of Natural Resources
Dam Safety Branch

February 12, 2020

Mr. Dan Hawkins
Superintendent
Flying Horse Club Golf Course
1880 Weiskopf Point
Colorado Springs, CO 80921
via email: dhawkins@flyinghorseclub.com

When replying, please refer to:
FLYING HORSE NORTH DAM, DAMID 080459
Water Division 1, Water District 8
Construction File No. C-2085

SUBJECT: Acceptance of Construction

Dear Mr. Hawkins,

John Hunyadi of the Colorado Dam Safety Branch conducted a final construction inspection at the referenced dam on September 17, 2019. The purpose of the inspection was to confirm this project was constructed as approved. On January 22, 2020, we received acceptable final construction documents in accordance with Rule 8.3 of the state of Colorado Rules and Regulations for Dam Safety and Dam Construction (2-CCR 402-1; January, 2020).

The newly completed jurisdictional size, Low Hazard dam has a jurisdictional height of 23 feet and a crest length of 450 feet. The reservoir created by the dam covers approximately 7.8 acres and has a normal storage capacity of 109.9 acre-feet.

Based on observations during the final construction inspection and our review of the above mentioned documents, we believe the project has been satisfactorily completed in general accordance with the approved plans and specifications. **Therefore, newly constructed facility is accepted for full use when water is legally and physically available.**

The State Engineer, by providing this construction acceptance does not assume responsibility for any unsafe condition of the subject dam. The sole responsibility for the safety of this dam rests with the reservoir owner and operator, who should take every step necessary to prevent damages caused by leakage or overflow of waters from the reservoir or floods resulting from a failure of the dam. Therefore, it is in the owner's best interest to operate and maintain the facility in a manner such that the safety of the dam and the general public are not jeopardized.

We are enclosing a copy of Rules 11 and 13 of the Rules and Regulations for your reference and use. These rules pertain to general maintenance items and the owner's responsibilities, respectively.

If you have any questions, please do not hesitate to contact me, or John Hunyadi in our Colorado Springs Office at 719-227-5294.



Mr. Dan Hawkins
Flying Horse North Dam Construction Acceptance
DAMID 080459, Construction File No. C-2085
February 12, 2020
Page 2 of 2

Sincerely,

A handwritten signature in blue ink, appearing to read 'W. T. McCormick, III', with a stylized flourish at the end.

William T. McCormick, III, P.E., P.G.
Chief, Dam Safety Branch

Enc: Copies of Rule 9 and 10 of the "Rules and Regulations for Dam Safety and Dam Construction"

ec: Corey DeAngelis, Division Engineer, Water Division 2
Sydney Alexander, WD 8 Water Commissioner
Doug Hollister, WD 10 Water Commissioner
John Hunyadi, Dam Safety Engineer
Jeremy Franz, Design Review Engineer
Marc Whorton, Classic Consulting, mwhorton@classicconsulting.net
Austin Lenz, Classic Homes, alenz@classichomes.com

FLYING HORSE NORTH COUNTY OF EL PASO, STATE OF COLORADO IRRIGATION RESERVOIR EMBANKMENT

SECTION 31, TOWNSHIP 11 SOUTH, RANGE 65 WEST OF 6TH PRINCIPAL MERIDIAN
WATER DIVISION 1, WATER DISTRICT 8

CONTACT INFORMATION:

PROPERTY OWNER/DEVELOPER: PRI #2 LLC
6385 CORPORATE DRIVE, SUITE 200
COLORADO SPRINGS, CO 80919
MR. DREW BALSICK, (719) 592-9333

CIVIL ENGINEER: CLASSIC CONSULTING ENGINEERS & SURVEYORS
505 ELKTON DRIVE
619 N. CASCADE, SUITE 200
COLORADO SPRINGS, CO 80903
MR. MARC A. WHORTON, P.E. (719) 785-2802

GEOTECHNICAL ENGINEER: ENTECH ENGINEERING LLC
505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
MR. JOE GOODE, P.E. (719) 531-5599

DAM SAFETY ENGINEER: COLORADO DIVISION OF WATER RESOURCES
4255 SINTON ROAD
COLORADO SPRINGS, CO 80907
MR. JOHN HUNYADI, P.E. (719) 227-5294

COUNTY ENGINEERING: EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT
2880 INTERNATIONAL CIRCLE, SUITE 110
COLORADO SPRINGS, COLORADO 80903
MR. GILBERT LAFORCE, (719) 520-7945

OWNER/DEVELOPER'S STATEMENT:

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

Drew Balsick
MR. DREW BALSICK
PRI #2

9-18-18
DATE

DESIGN ENGINEER'S STATEMENT:

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

APPROVED: 9/17/18
MARC A. WHORTON, COLORADO P.E. #37155
FOR AND ON THE BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS

EL PASO COUNTY:

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

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

IN ACCORDANCE WITH WITH ECOM SECTION 1.1.2, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.

APPROVED: 09/25/2018 2:39:57 PM
JENNIFER IRVINE, P.E.
COUNTY ENGINEER / ECM ADMINISTRATOR

DATE

STATE ENGINEER APPROVAL:

APPROVED ON THE 17th DAY OF SEPTEMBER, 2018

KEVIN G. REIN
STATE ENGINEER

BY: *Kevin G. Rein*

William T. McCormick III
Chief, Colorado Dam Safety, CO PE 29127



THESE PLANS REPRESENT THE AS-CONSTRUCTED CONDITIONS OF THE FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT TO THE BEST OF OUR KNOWLEDGE AND JUDGEMENT, BASED IN PART ON INFORMATION FURNISHED BY OTHERS. AS OF THE DATE OF THIS STATEMENT: 09/25/2018

FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC
MARC A. WHORTON, P.E. #37155

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

GENERAL CONSTRUCTION NOTES:

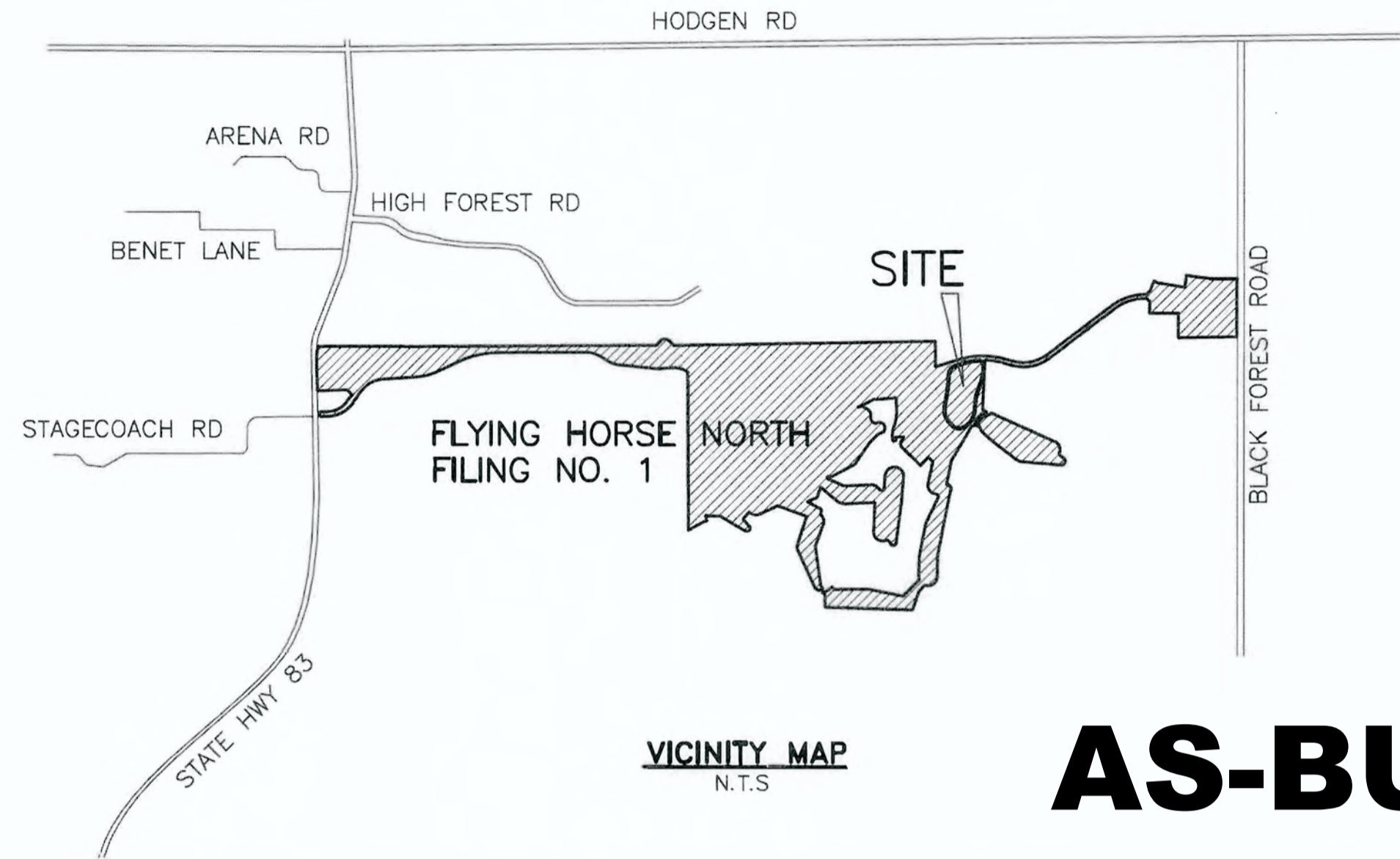
- THE LOCATION OF EXISTING UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND MAY NOT INCLUDE ALL UTILITIES. THE EXCAVATION CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.
- BEFORE COMMENCING ANY EXCAVATION, CALL 1-800-922-1987 FOR EXISTING UTILITY LOCATIONS.
- THE CONTRACTOR WILL TAKE THE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES FROM DAMAGE DUE TO THIS OPERATION. ANY DAMAGE TO THE UTILITIES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, AND ANY SERVICE DISRUPTION WILL BE SETTLED BY THE CONTRACTOR.
- ALL BACKFILL, SUB-BASE AND/OR BASE COURSE (CLASS 6) MATERIAL SHALL BE COMPACTED TO THE SOILS ENGINEER'S RECOMMENDATIONS, AND APPROVED BY EL PASO COUNTY DEVELOPMENT SERVICES ENGINEERING DIVISION.
- ALL STATIONING IS CENTERLINE UNLESS OTHERWISE INDICATED. ALL ELEVATIONS ARE CENTERLINE UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL REVEGETATE ALL DISTURBED AREAS AS SOON AS POSSIBLE AND EROSION CONTROL SHALL BE INSTALLED AND MAINTAINED IN A FUNCTIONAL MANNER AT ALL TIMES. DEVELOPER RESPONSIBLE FOR MAINTAINING DISTURBED AREAS UNTIL REVEGETATION IS COMPLETE.
- ALL DISTURBED PAVEMENT EDGES SHALL BE CUT TO NEAT LINES. REPAIR SHALL CONFORM TO THE EPC EOM APPENDIX K - 1.2C.
- ADDITIONAL EROSION CONTROL STRUCTURES MAY BE REQUIRED AT THE TIME OF CONSTRUCTION.
- BUILDING CONTRACTORS WILL BE RESPONSIBLE FOR CONSTRUCTING POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES.
- ASPHALT THICKNESS AND BASE COURSE THICKNESS (COMPACTED) FOR ROADS SHALL BE PER DESIGN REPORT BY OWNER'S GEOTECHNICAL ENGINEER. OWNER'S GEOTECHNICAL ENGINEER TO BE ON SITE AT TIME OF ROAD CONSTRUCTION TO EVALUATE SOIL CONDITIONS AND DETERMINE IF ADDITIONAL MEASURES ARE NECESSARY TO ASSURE STABILITY OF THE NEW ROADS. PAVEMENT DESIGN SHALL BE APPROVED BY DEVELOPMENT SERVICES DEPARTMENT PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL REVEGETATE ALL DISTURBED AREAS WITHIN 21 DAYS OF SUBSTANTIAL GRADING COMPLETION. EROSION CONTROL SHALL BE INSTALLED AND MAINTAINED IN A FUNCTIONAL MANNER AT ALL TIMES. DEVELOPER IS RESPONSIBLE FOR MAINTAINING DISTURBED AREAS UNTIL REVEGETATION IS COMPLETE.
- TYPE M RIP-RAP WITH 4" OF TYPE II GRANULAR BEDDING AND MIRAFI 180N OR EQUAL MAY BE SUBSTITUTED WHERE TYPE L RIP-RAP WITH MIRAFI FW 700 OR EQUAL IS SPECIFIED.
- ALL MATERIALS AND INSTALLATION PROCEDURES SHALL BE IN COMPLIANCE WITH ANY AND ALL APPLICABLE EL PASO COUNTY STANDARDS.

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS:

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
 - CDOT M & S STANDARDS
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND DSD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY DSD.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY DSD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA.
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DOT, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

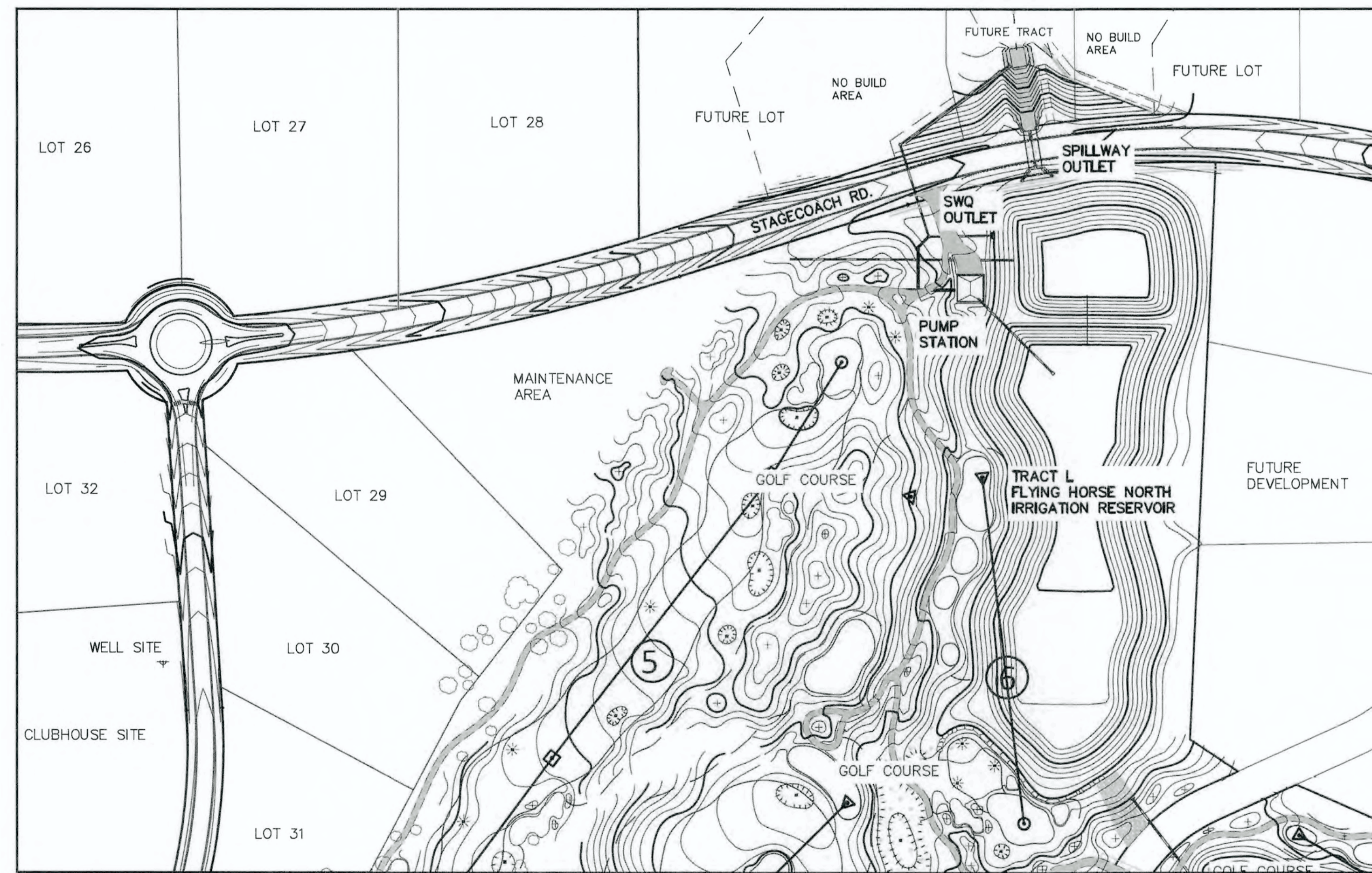
SIGNING AND STRIPING NOTES:

- ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.
- ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
- ALL SIGNS SHOWN ON THE SIGNING AND STRIPING PLAN SHALL BE NEW SIGNS. EXISTING SIGNS MAY REMAIN OR BE REUSED IF THEY MEET CURRENT EL PASO COUNTY AND MUTCD STANDARDS.
- STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.
- ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
- ALL STREET NAME SIGNS SHALL HAVE "D" SERIES LETTERS, WITH LOCAL ROADWAY SIGNS BEING 4" UPPER-LOWER CASE LETTERING ON 8" BLANK AND NON-LOCAL ROADWAY SIGNS BEING 6" LETTERING, UPPER-LOWER CASE ON 12" BLANK, WITH A WHITE BORDER THAT IS NOT RECESSED. MULTI-LANE ROADWAYS WITH SPEED LIMITS OF 40 MPH OR HIGHER SHALL HAVE 8" UPPER-LOWER CASE LETTERING ON 18" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. THE WIDTH OF THE NON-RECESSED WHITE BORDERS SHALL MATCH PAGE 255 OF THE 2012 MUTCD "STANDARD HIGHWAY SIGNS."
- ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.
- ALL LOCAL RESIDENTIAL STREET SIGNS SHALL BE MOUNTED ON A 1.75" X 1.75" SQUARE TUBE SIGN POST AND STUB POST BASE. FOR OTHER APPLICATIONS, REFER TO THE CDOT STANDARD S-614-8 REGARDING USE OF THE P2 TUBULAR STEEL POST SUBBASE DESIGN.
- ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.100" MINIMUM THICKNESS.
- ALL LIMIT LINES/STOP LINES, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 125 MIL THICKNESS PREFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH TAPERED LEADING EDGES PER CDOT STANDARD S-627-1. WORD AND SYMBOL MARKINGS SHALL BE THE NARROW TYPE. STOP BARS SHALL BE 24" IN WIDTH. CROSSWALKS LINES SHALL BE 12" WIDE AND 8' LONG PER CDOT S-627-1.
- ALL LONGITUDINAL LINES SHALL BE A MINIMUM 15MIL THICKNESS EPOXY PAINT. ALL NON-LOCAL RESIDENTIAL ROADWAYS SHALL INCLUDE BOTH RIGHT AND LEFT EDGE LINE STRIPING AND ANY ADDITIONAL STRIPING AS REQUIRED BY CDOT S-627-1.
- THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY DEVELOPMENT SERVICES (719) 520-6819 PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
- THE CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT FROM THE EL PASO COUNTY PUBLIC SERVICES DEPARTMENT (PSD) PRIOR TO ANY SIGNAGE OR STRIPING WORK WITHIN AN EXISTING EL PASO COUNTY ROADWAY.



VICINITY MAP
N.T.S.

AS-BUILT PLANS



KEY MAP
N.T.S.

DESIGN ENGINEER SIGNATURE:

REVIEW: PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, P.E. #37155
DATE: 9/17/18

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IT'S THE LAW

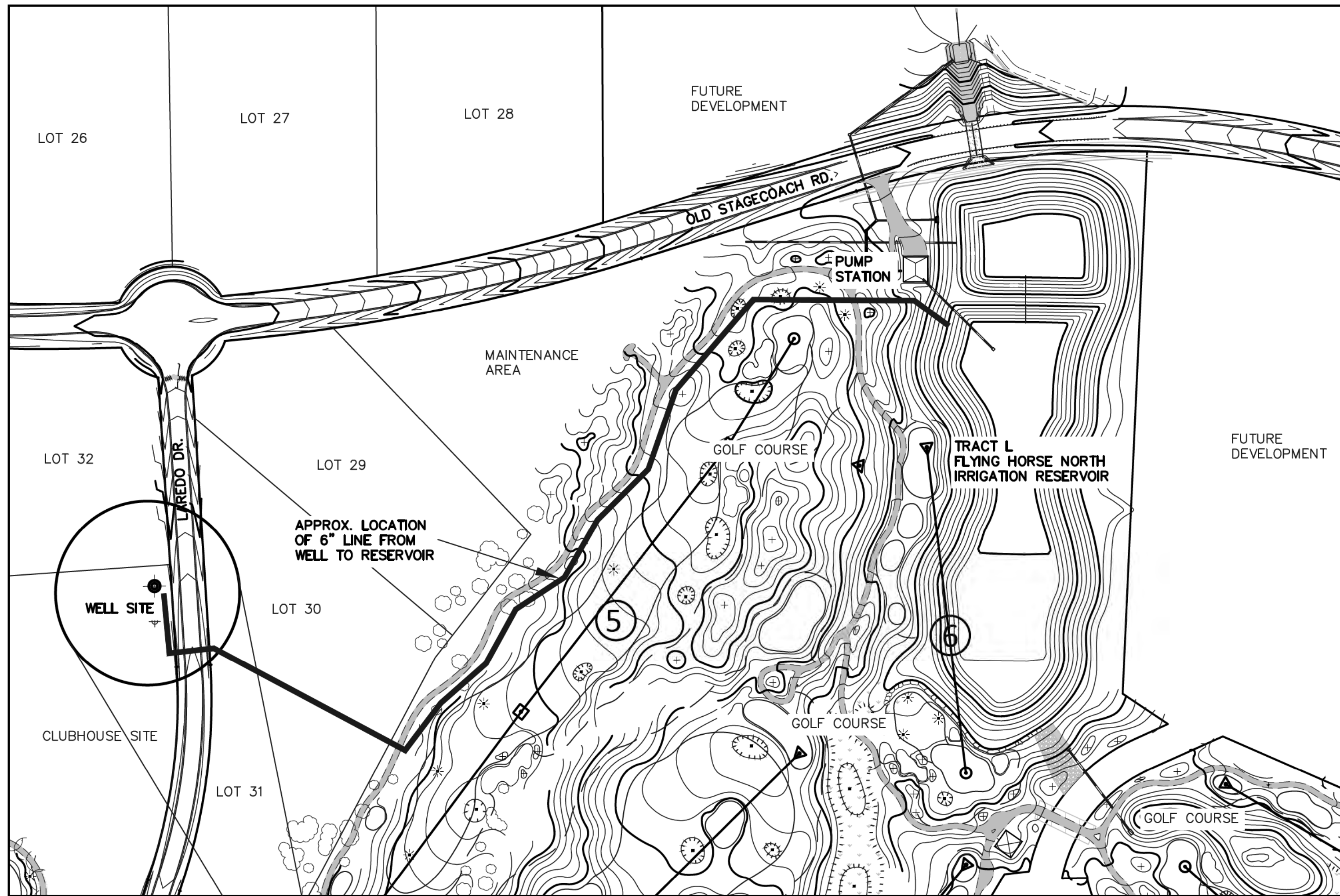
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE
1	REVISED PER STATE COMMENTS	4-3-18
2	REVISED PER COUNTY COMMENTS	7-31-18

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719) 785-0790
(719) 785-0799 (Fax)

FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT			
TITLE SHEET			
DAM ID - 080459			
DESIGNED BY	MAW	SCALE	DATE 1-4-18
DRAWN BY	MAW	(H) 1" = N/A	SHEET 1 OF 14
CHECKED BY	(V) 1" = N/A	JOB NO. 1096.11	

N:\UPH\DRAWINGS\CONSTRUCTION\asbuilt\plan\11-11-18\11-11-18-018-1-40-16 PM.11



KEY MAP
N.T.S.

WELL INFORMATION:

WELL NAME: FLYING HORSE NORTH A-1
 LOCATION: SEC. 36, T 11 SOUTH, R 66 WEST, 6TH P.M.
 NORTHING: 1445275.0
 EASTING: 3220345.0
 (STATE PLANE)
 PERMIT # 81145-F
 ISSUE DATE: 7/24/17
 WATER DIVISION 1
 WATER DISTRICT 8
 ARAPAHOE AQUIFER
 TOTAL DEPTH 2400 FT.

Layne Western, a Division of Layne Christensen Company
 17802 EHR 22nd Avenue
 Aurora, CO 80013
 Phone: 303.755.1281, FAX: 303.755.1288, E-Mail: 1031@laynecristensen.com

WELL TEST ENGINE

WELL # 47170 Date 12/1/2017
 Well Type (See Column 10) COPT
 Well Depth (ft) 2777
 Well Diameter (in) 10
 Well Screen Length (ft) 1812.28
 Transducer Setting Depth (ft) 1812.28
 Flow Meter Type (See Note 1) 277FT
 Flow Meter Size (in) 3
 Flow Meter Range (gpm) 0-1000
 Pump Model 500PSI DYNOTEC

Time of Day (hh:mm)	Flow Rate (gpm)	Pressure (psi)	Water Level (ft)	Water Temp (°F)	Water Quality (See Note 2)	Remarks (See Note 3)						
08:00	0	0	2777	0	0	ROUGH PUMP						
08:05	17	196	109	234.13	1576.15	44.15	1.0	1206				
08:10	19	184	107	231	1581.28	47.28	X	X	14	0.81	1652	
08:15	21	189	105	229	1583.28	49.28	X	X	12	0.71	2034	
08:20	23	188	105	225	1587.28	53.28	X	X	12	-	2492	
08:25	25	183	105	223.91	1588.37	54.37	X	X	12	0.71	2882	
08:30	27	186	104	221	1591.28	57.28	355	317	47	-	3137	
08:35	29	181	101	223.5	1588.78	54.78	X	X	14	0.7	3607	
08:40	31	187	101	221.2	1591.08	57.08	X	X	14	0.7	3931	
08:45	35	202	100	219.83	1592.65	58.65	X	X	12	0.7	4654	
08:50	37	196	101	215.8	1596.48	62.48	X	X	10	0.7	4992	
08:55	42	203	100	215.03	1597.28	63.28	X	X	10	0.7	6008	
09:00	47	195	99	212.02	1600.28	66.28	X	X	10	0.7	6960	
10:00A	52	209	99	209	1603.28	69.28	X	X	10	0.7	7893	
10:05A	60	194	98	209.94	1603.34	69.34	X	X	10	0.7	8521	
10:10A	70	202	98	211.69	1600.59	68.59	X	X	10	0.7	11486	
10:15A	80	195	95	207.46	1604.82	70.82	X	X	10	0.7	13384	
10:20A	90	203	95	207.29	1604.99	70.99	X	X	10	0.7	15413	
10:25A	100	191	94	206.28	1606	72	X	X	10	0.7	17321	
10:30A	110	192	94	204.36	1607.92	73.92	356	318	47	10	0.7	19135
10:35A	120	185	94	202.2	1610.08	76.08	X	X	10	0.7	20961	
11:00A	122	209	90	198.28	1626	92	415	412	51.9	15	0.7	21629
11:10A	124	300	86	180.91	1631.38	97.38	X	X	15	0.7	22145	
11:14A	126	302	84	177.36	1634.88	100.88	X	X	15	0.7	22737	
11:18	128	302	84	175.04	1637.24	103.24	X	X	15	0.7	23444	
11:22	130	299	82	173.74	1639.54	104.54	X	X	15	0.7	23947	
11:26A	132	300	82	172.39	1639.89	105.89	X	X	15	0.7	24462	
11:30A	134	299	81	171.25	1641.03	107.03	X	X	15	0.7	24963	
11:34A	136	300	81	170.27	1642.01	108.01	X	X	15	0.7	25464	
11:38A	138	298	81	170.03	1642.25	108.25	X	X	15	0.7	25972	
11:42A	140	299	80	169.54	1642.74	108.74	X	X	15	0.7	26474	
11:46A	142	300	80	168.2	1644.08	110.08	X	X	15	0.7	26976	
11:50A	147	297	80	166.77	1645.51	111.51	X	X	15	0.7	27478	

47170 FLYING HORSE GOLF PUMP TEST.XLS Page # 1 of 3

Time of Day (hh:mm)	Flow Rate (gpm)	Pressure (psi)	Water Level (ft)	Water Temp (°F)	Water Quality (See Note 2)	Remarks (See Note 3)						
1800	532	445	40	78.03	1734.35	200.25	X	X	X	9.5	0.5	188374
1830	562	445	40	76.32	1735.95	201.95	X	X	X	9.5	0.5	191707
1900	592	445	40	75.22	1737.06	203.06	X	X	X	9.5	0.5	213059
2000	652	448	39	72.98	1739.31	205.31	X	X	X	9.5	0.5	239484
2100	712	445	37	71.21	1741.01	207.01	X	X	X	9.5	0.5	265909
2200	772	445	37	69.03	1743.25	209.25	X	X	X	9.5	0.5	292334
2300	832	442	35	67.93	1744.35	210.35	511	471	59.8	9.5	0.9	318759
2400	892	448	35	66.79	1745.49	211.49	X	X	X	10	0.6	345184
1004	952	448	34	65.59	1746.59	212.59	X	X	X	10	0.6	371609
2004	1012	445	34	63.41	1748.87	214.87	X	X	X	10	0.6	398034
3004	1072	447	33	62.84	1749.44	215.44	X	X	X	10	0.6	424459
4004	1132	443	33	61.17	1751.11	217.11	513	470	59.8	10	0.6	450884
5004	1192	448	30	58.69	1755.67	221.67	X	X	X	10	0.6	477309
6004	1252	448	29	54.98	1757.31	223.31	X	X	X	10	0.6	503734
7004	1312	448	29	53.88	1759.4	224.4	X	X	X	10	0.6	530159
8004	1372	447	27	52.85	1759.83	225.83	513	471	59.8	8.5	0.6	556584
9004	1432	449	26	51.23	1761.05	227.05	513	471	59.8	8.5	0.6	583009
918A	1450	449	26	50.92	1761.46	227.46	514	472	59.8	8.1	0.6	591533
928A	X	X	X	50.59	1762.72	228.72	X	X	X	X	X	X
938A	X	X	X	50.26	1764.03	230.03	X	X	X	X	X	X
1027A	X	X	X	201.23	1611.05	177.95	X	X	X	X	X	X
1101A	X	X	X	208.84	1605.44	69.44	X	X	X	X	X	X

47170 FLYING HORSE GOLF PUMP TEST.XLS Page # 2 of 3

Time of Day (hh:mm)	Flow Rate (gpm)	Pressure (psi)	Water Level (ft)	Water Temp (°F)	Water Quality (See Note 2)	Remarks (See Note 3)						
1140A	512	299	82	165.27	1647.06	173.06	X	X	X	15	0.7	30583
1145A	517	-	-	-	-	-	X	X	X	X	X	X
1150A	562	297	79	163.88	1648.6	174.6	X	X	X	15	0.7	32447
1155A	587	296	79	163.02	1649.26	175.26	415	414	52	15	0.7	34388
1200P	572	299	77	161.8	1650.48	176.48	X	X	X	15	0.7	36329
1205P	577	300	77	160.93	1651.17	177.17	415	414	52	15	0.7	38270
1210P	582	300	76	160.01	1652.27	178.27	X	X	X	15	0.7	40211
1220P	592	297	76	159.2	1653.08	179.08	415	414	52	15	0.7	42152
1230P	602	300	76	157.77	1654.31	180.31	415	414	52	15	0.7	44093
1240P	612	299	75	157.36	1654.92	180.92	X	X	X	15	0.7	46034
1250P	622	299	75	156.06	1656.22	182.22	415	414	52	15	0.7	47975
1300	632	299	75	155.29	1656.99	182.99	415	414	52	14	0.7	49916
1305	640	298	75	153.88	1658.42	184.42	415	414	52	14	0.7	51857
1310	647	438	X	X	X	X	X	X	X	X	X	X
1315	644	450	62	123.93	1659.35	154.35	X	X	X	9.5	0.5	53798
1314	646	448	59	118.27	1664.01	160.01	X	X	X	9.5	0.5	55739
1316	648	448	59	116.03	1666.25	162.25	X	X	X	10	0.7	57680
1318	650	448	57	114.48	1667.8	163.8	X	X	X	10	0.7	59621
1320	652	448	56	112.87	1669.31	165.31	509	467	75.9	10	0.7	61562
1322	654	447	55	112.73	1670.45	167.45	X	X	X	10	0.7	63503
1324	656	448	55	110	1702.28	169.28	X	X	X	10	0.7	65444
1328	658	448	55	109.16	1703.59	169.59	X	X	X	10	0.7	67385
1328	660	447	54	107.76	1704.82	170.82	X	X	X	10	0.7	69326
1330	662	445	54	107.21	1705.87	171.87	X	X	X	9.5	0.2	71267
1335	667	450	52	104.58	1707.7	173.7	X	X	X	9.5	0.2	73208
1340	672	453	52	102.79	1709.45	175.45	X	X	X	9.5	0.2	75149
1345	677	448	51	101.7	1710.58	176.58	X	X	X	9.5	0.2	77090
1350	682	448	51	100.31	1711.77	177.77	X	X	X	9.5	0.2	79031
1355	687	450	50	99.45	1712.83	178.83	509	467	75.9	9.5	0.3	80972
1400	692	449	50	98.57	1713.81	179.81	X	X	X	9.5	0.3	82913
1410	697	450	50	97.69	1714.71	180.71	X	X	X	9.5	0.3	84854
1420	702	449	50	96.8	1715.64	181.64	X	X	X	9.5	0.3	86795
1430	707	448	49	94.84	1717.64	183.64	X	X	X	9.5	0.3	88736
1440	712	447	48	92.52	1719.76	185.76	X	X	X	9.5	0.3	90677
1450	717	450	47	91.71	1720.87	186.87	X	X	X	9.5	0.3	92618
1500	722	450	46	90.41	1721.87	187.87	X	X	X	9.5	0.3	94559
1515	727	449	45	89.49	1722.81	188.81	X	X	X	9.5	0.4	96500
1530	732	447	45	88.17	1724.11	190.11	X	X	X	9.5	0.4	98441
1545	737	449	45	86.66	1725.62	191.62	512	472	59.4	9.5	0.4	100382
1600	742	449	45	85.01	1726.27	192.27	X	X	X	9.5	0.4	102323
1615	747	448	42	84.54	1727.74	193.74	X	X	X	9.5	0.4	104264
1630	742	448	42	84.79	1727.49	193.49	X	X	X	9.5	0.4	106205
1645	747	447	42	82.78	1729.49	195.49	X	X	X	9.5	0.4	108146
1700	752	449	42	81.53	1730.45	196.45	X	X	X	9.5	0.4	110087
1730	757	449	41	80.38	1731.89	197.89	512	475	59.4	9.5	0.45	112028

47170 FLYING HORSE GOLF PUMP TEST.XLS Page # 2 of 3

WELL CONSTRUCTION AND YIELD ESTIMATE REPORT
 State of Colorado, Office of the State Engineer
 1313 Sherman St., Room 821, Denver, CO 80203 303.866.3581
www.water.state.co.us and dwrpermitsonline@state.co.us

Form No. GWS-31
02/2017

1. Well Permit Number: 8114

PUMP STATION SPECIFICATIONS:
 NAME: FLYING HORSE RANCH
 STATION MODEL:
 VTV-1-75x3(75)/5ST-480-3-2250(3000)-110

STATION TOTAL PERFORMANCE:
 2250GPM @ 110PSI
 3000GPM @ 110PSI (FUTURE)

PUMP HORSEPOWER:
 SUSTAIN PUMP: 5HP
 PUMP NO. 1-3: 75HP
 PUMP NO. 4: 75HP (FUTURE PUMP/MOTOR)

WET WELL DIMS: Ø96"
WET WELL DEPTH: 25'-0"

MAIN LINE CONNECTION: 16" FLANGED
NOMINAL PIPE SIZE: NA

DROP PIPE COVER: 48"
INTAKE FLUME PIPE SIZE: 30"
INTAKE FLUME MATERIAL:.....SDR35 PVC
OD32"

CHECK VALVE SIZE:
 SUSTAIN: BUILT IN
 PUMP NO. 1-2: 6"

ISOLATION VALVE SIZES:
 SUSTAIN PUMP: 2"
 PUMP NO. 1-2: 5" (EBV)

DISCHARGE ISOLATION VALVE: 10"
 RELIEF VALVE SIZE: 6"

PLEASE VERIFY ALL INFO WITH YOUR INITIALS AND DATE

PLEASE INDICATE POWER SUPPLY CONDITION BELOW FOR FCC COMPLIANCE. REFER TO WATERTRONICS DRAWING # FCC-1 FOR ADDITIONAL INFORMATION

A: CONNECTED THROUGH A COMMERCIAL BUILDING
 B: CONNECTED THROUGH A DEDICATED TRANSFORMER
 C: CONNECTED THROUGH A PAD TRANSFORMER SHARED WITH OTHER NON-RESIDENTIAL EQUIPMENT.
 D: CONNECTED TO A POLE TRANSFORMER ON A RESIDENTIAL POWER GRID.
 E: CONNECTED TO A PAD TRANSFORMER SHARED WITH RESIDENTIAL DWELLINGS.

PUMP STATION DISCONNECT: 600 AMP
POWER REQUIREMENTS:
 480V, 60 HZ, 3 PZ, 3Ø6 FLA
EXHAUST FAN REQ'D FOR BUILDING:
 5400 CFM

PLEASE USE THE SPACE BELOW FOR ANY ADDITIONAL COMMENTS:
 1. MIN. WATER LEVEL IN THE WET WELL 56" FROM THE BOTTOM
 2. NORMAL WATER LEVEL AT THE WET WELL ??
 3. MAX/HIGH WATER LEVEL IN THE WET WELL ??
 4. TO DRAIN THE BOND COMPLETELY THE BOTTOM OF THE BOND NEED TO BE LOWER THAN THE BOTTOM OF WET WELL 1

APPROVED AS SUBMITTED
 APPROVED AS NOTED
 REVISE AND RESUBMIT

REVIEWED BY: _____
 NAME: _____
 DATE: _____

DIMENSIONS AND SIZES OF EXISTING STRUCTURES, AND/OR COMPONENTS MUST BE VERIFIED TO WATERTRONICS BEFORE STATION CONSTRUCTION BEGINS.

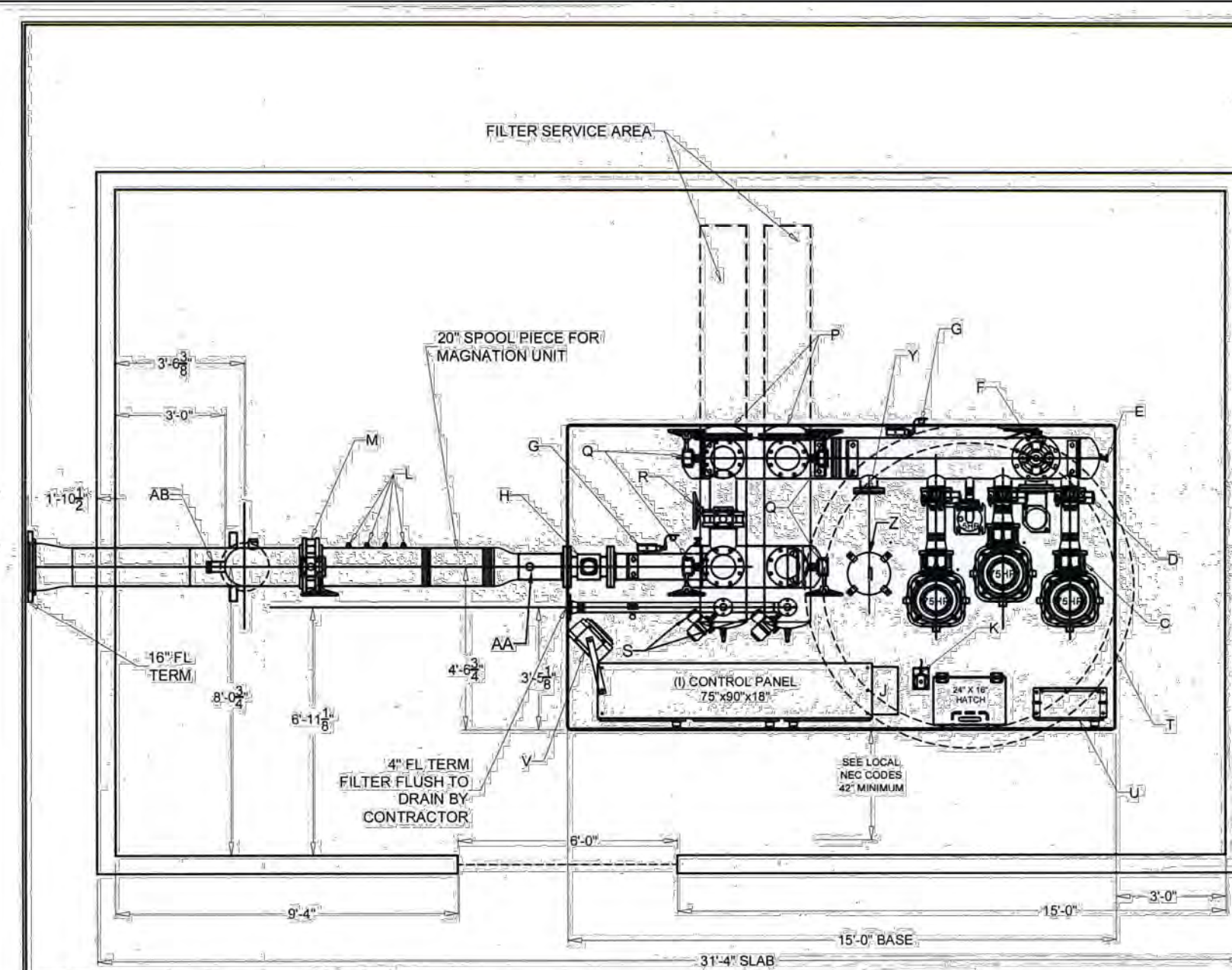
UNLESS SPECIFIED BY THE CUSTOMER, PUMP HOUSE/CONCRETE SLAB DIMENSIONS ARE RECOMMENDED MINIMUMS FOR NEC AND SERVICE CLEARANCE, AND ARE FOR ILLUSTRATION PURPOSES ONLY. PROJECT MANAGER SHALL BE CONSULTED ON FINAL DESIGN.

THE PUMP STATION PROPOSED HEREIN IS DESIGNED TO BE PLACED IN A PUMP HOUSE FOR PROTECTION FROM THE ENVIRONMENT. IF A PUMP HOUSE IS NOT USED, WATERTRONICS MUST BE NOTIFIED AT TIME OF QUOTATION SO SPECIAL PROVISIONS CAN BE MADE.



PHONE: 1-262-367-5000
 FAX: 1-262-367-5551

SHEET 1 OF 4 SHEETS
 DRAWING NO. PRVT12023 09/15/2016

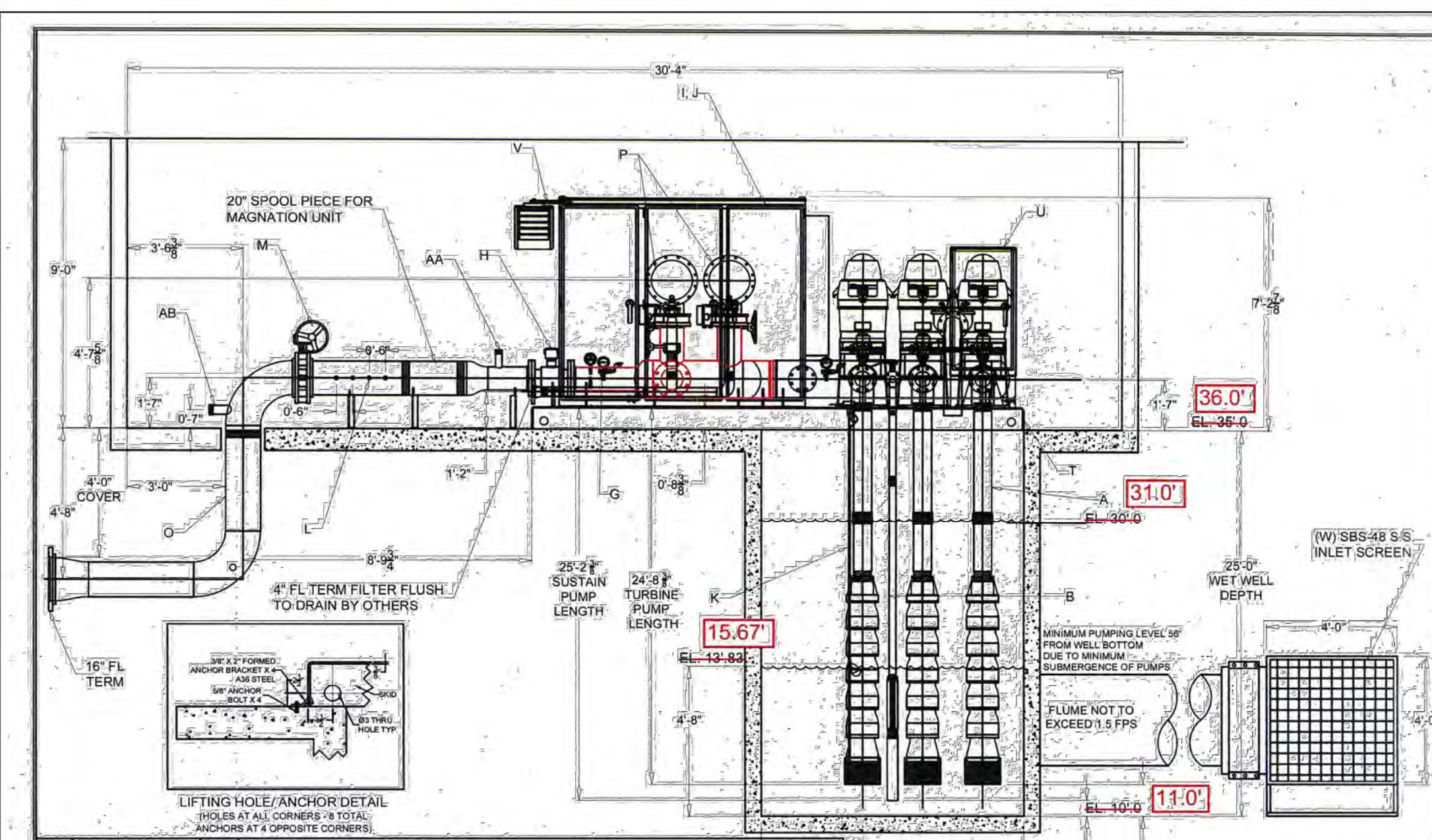


STATION COMPONENTS:
 A: 75HP PUMP AND MOTOR
 B: 5HP SUBMERSIBLE PUMP AND MOTOR
 C: 8" CHECK VALVE
 D: 5" PUMP ISO VALVE W/ EBV CONTROL
 E: BOILER DRAIN 3/4"
 F: PRESSURE RELIEF VALVE
 G: PRESSURE TRANSDUCER W/ GAUGE
 H: 8" MAGNETIC FLOW METER
 I: CONTROL CABINET
 J: HEAT EXCHANGER
 K: LEVEL SENSOR W/ ALARM FLOAT
 L: T-LETS 3/4" W/ PLUG (X4)-SPACED C 6"
 M: STATION ISOLATION VALVE 12"
 N: BLOW OUT FITTING 2" W/ PLUG
 O: 12" X 12" DROP PIPE AND 12" X 16" ECCENTRIC WITH 16" FL
 P: 8" VAF1500 FILTER W/ 300 MICRON SCREEN (X2)
 Q: 8" FILTER ISOLATION VALVE
 R: 8" FILTER BY-PASS VALVE
 S: FILTER FLUSH W/ EBV CONTROL
 T: PAINTED STEEL BASE (SANDSTONE)
 U: 3KVA REGULATED POWER SUPPLY (4X15CB)
 V: 5KW ELECTRIC HEATER
 W: SFS-48 INLET STAINLESS STEEL SCREEN
 X: NA
 Y: 5" BLIND FLANGE FOR FUTURE PUMP
 Z: 14" Ø HATCH FOR FUTURE 75HP PUMP
 AA: 2" TOL INJECTION PORT-TOP OF PIPE
 AB: 3" TOL INJECTION PORT

NO.	DATE	BY	DESCRIPTION
12	11/13/2017	MJH	REVISED ELEVATION
11	10/24/2017	MJH	REVISED SIZE OF THE MAGNATION UNIT PIPE SPOOL FROM 10" TO 12"
10	10/18/2017	MJH	REVISED LOCATION OF AA AND AB FITTING INJECTION PORTS. WILL SHALL 10/18/2017
9	10/17/2017	MJH	REVISED LOCATION OF MAGNATION SPOOL PIPE, ISO VALVE, DISCHARGE ELBOW, BLDG DIM.
8	08/07/2017	MJH	REVISED WET WELL DEPTH FROM 19'-0" TO 25'-0"
7	07/14/2017	MJH	REVISED WET WELL DEPTH FROM 12'-0" TO 19'-0"
6	03/29/2017	MJH	ADDED 20" SPOOL PIECE FOR MAGNATION UNIT
5	03/24/2017	MJH	REVISED DROP PIPE TERMINATION TO 16" FL
4	03/23/2017	MJH	ADD 3KVA REGULATED POWER SUPPLY
3	03/02/2017	MJH	DELETED FERTIGATION, 3KVA REGULATED AND RELOCATED 2" O LET TO TOP
2	02/08/2017	MJH	LOCATED 3/4" TOL, ADDING 2" & 3" TOL TO OTHER SIDE OF THE PIPE
1	10/10/2016	MJH	REVISED WET WELL DEPTH TO 12'-0" & ADDING 2" TOL

PLAN VIEW

DRAWN BY: MJH DATE: 09/15/2016 TITLE: FLYING HORSE RANCH
 CHECKED BY: RJLS DATE: 08/07/17 VTV-1-75x3(75)/5ST-480-3-2250(3000)-110
 WATERTRONICS A LINDSAY COMPANY
 SCALE: NTS SHEET 2 OF 4 SHEETS
 JOB NO. DRAWING NO. PRVT12023

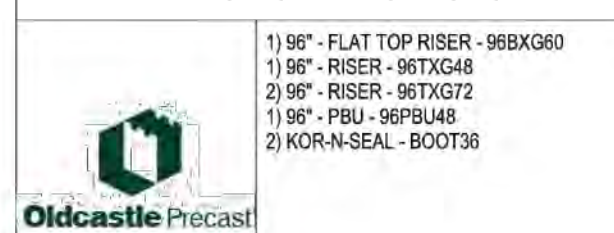


NO.	DATE	BY	DESCRIPTION
12	11/13/2017	MJH	REVISED ELEVATION
11	10/24/2017	MJH	REVISED SIZE OF THE MAGNATION UNIT PIPE SPOOL FROM 10" TO 12"
10	10/18/2017	MJH	REVISED LOCATION OF AA AND AB FITTING INJECTION PORTS. WILL SHALL 10/18/2017
9	10/17/2017	MJH	REVISED LOCATION OF MAGNATION SPOOL PIPE, ISO VALVE, DISCHARGE ELBOW, BLDG DIM.
8	08/07/2017	MJH	REVISED WET WELL DEPTH FROM 19'-0" TO 25'-0"
7	07/14/2017	MJH	REVISED WET WELL DEPTH FROM 12'-0" TO 19'-0"
6	03/29/2017	MJH	ADDED 20" SPOOL PIECE FOR MAGNATION UNIT
5	03/24/2017	MJH	REVISED DROP PIPE TERMINATION TO 16" FL
4	03/23/2017	MJH	ADD 3KVA REGULATED POWER SUPPLY
3	03/02/2017	MJH	DELETED FERTIGATION, 3KVA REGULATED AND RELOCATED 2" O LET TO TOP
2	02/08/2017	MJH	LOCATED 3/4" TOL, ADDING 2" & 3" TOL TO OTHER SIDE OF THE PIPE
1	10/10/2016	MJH	REVISED WET WELL DEPTH TO 12'-0" & ADDING 2" TOL

ELEVATION VIEW

DRAWN BY: MJH DATE: 09/15/2016 TITLE: FLYING HORSE RANCH
 CHECKED BY: RJLS DATE: 08/07/17 VTV-1-75x3(75)/5ST-480-3-2250(3000)-110
 WATERTRONICS A LINDSAY COMPANY
 SCALE: NTS SHEET 3 OF 4 SHEETS
 JOB NO. DRAWING NO. PRVT12023

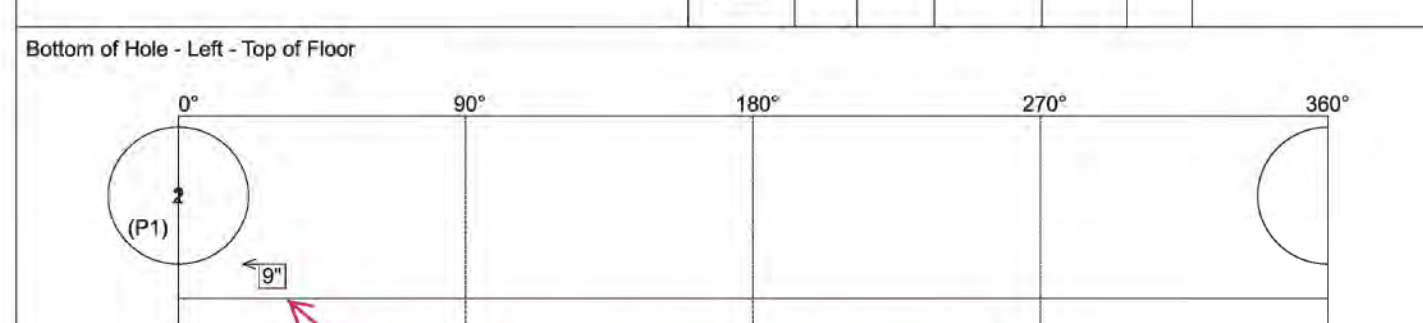
Job Name: Flying Horse Ranch Wet Well
 Frontier Environmental



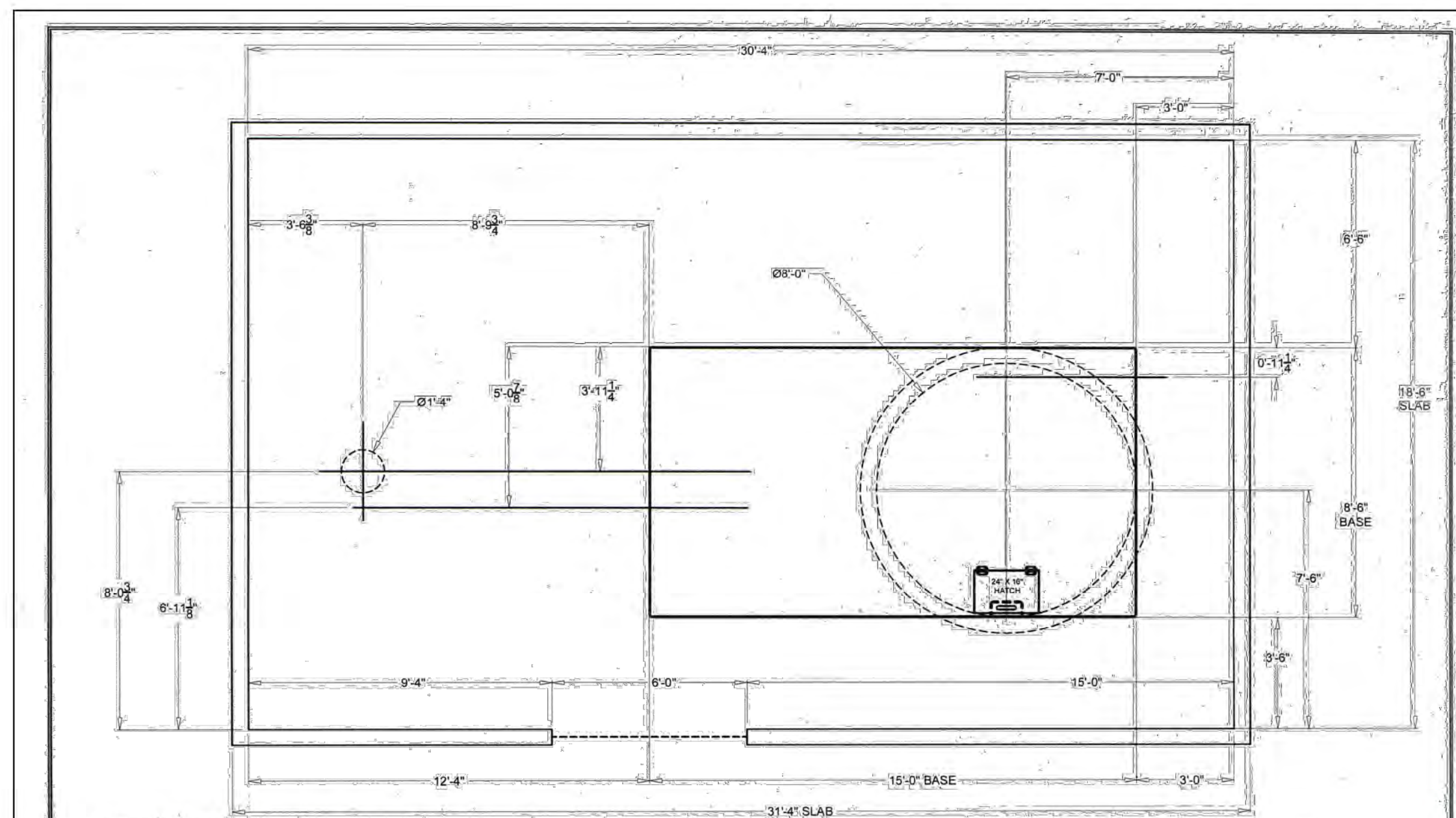
Structure ID: Wet Well Size: 96"
 Rim to Invert: 24'
 Precast Height: 25'
 Step Position:

NOTE: The invert elevation of the 30" PVC is not indicated on the detail drawing. To be confirmed by contractor.

Position	Elev	Angle	Pipe	UP L	Hole	Connector
Rim	25'					
Reducer						
Invert 1	1'	0°	30" PVC	9'	36"	KOR-SEAL BOOT38
Invert 2	1'	0°	30" PVC	9'	36"	KOR-SEAL BOOT38
Invert 3						
Invert 4						
Invert 5						
Invert 6						
Invert 7						
Invert 8						



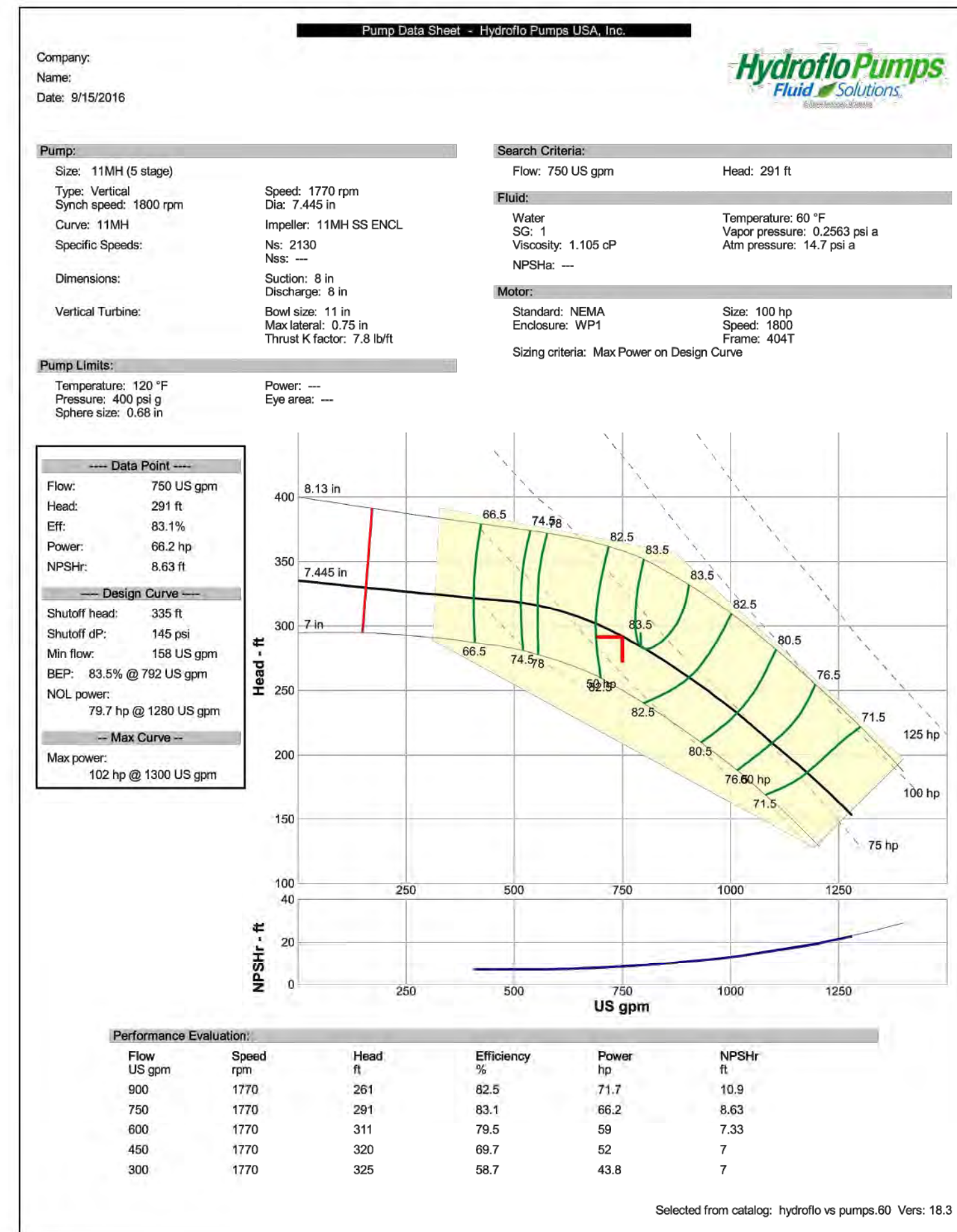
Oldcastle Precast / Mark H. Approved for production Quote ID: 2017090089 9/22/2017 Page: 1 of 1



NO.	DATE	BY	DESCRIPTION
12	11/13/2017	MJH	REVISED ELEVATION
11	10/24/2017	MJH	REVISED SIZE OF THE MAGNATION UNIT PIPE SPOOL FROM 10" TO 12"
10	10/17/2017	MJH	REVISED LOCATION OF AA AND AB FITTING INJECTION PORTS. WILL SHALL 10/18/2017
9	10/17/2017	MJH	REVISED LOCATION OF MAGNATION SPOOL PIPE, ISO VALVE, DISCHARGE ELBOW, BLDG DIM.
8	08/07/2017	MJH	REVISED WET WELL DEPTH FROM 19'-0" TO 25'-0"
7	07/14/2017	MJH	REVISED WET WELL DEPTH FROM 12'-0" TO 19'-0"
6	03/29/2017	MJH	ADDED 20" SPOOL PIECE FOR MAGNATION UNIT
5	03/24/2017	MJH	REVISED DROP PIPE TERMINATION TO 16" FL
4	03/23/2017	MJH	ADD 3KVA REGULATED POWER SUPPLY
3	03/02/2017	MJH	DELETED FERTIGATION, 3KVA REGULATED AND RELOCATED 2" O LET TO TOP
2	02/08/2017	MJH	LOCATED 3/4" TOL, ADDING 2" & 3" TOL TO OTHER SIDE OF THE PIPE
1	10/10/2016	MJH	REVISED WET WELL DEPTH TO 12'-0" & ADDING 2" TOL

SLAB VIEW

DRAWN BY: MJH DATE: 09/15/2016 TITLE: FLYING HORSE RANCH
 CHECKED BY: RJLS DATE: 08/07/17 VTV-1-75x3(75)/5ST-480-3-2250(3000)-110
 WATERTRONICS A LINDSAY COMPANY
 SCALE: NTS SHEET 4 OF 4 SHEETS
 JOB NO. DRAWING NO. PRVT12023



48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
811
 UTILITY NOTIFICATION CENTER OF COLORADO
 IT'S THE LAW

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NO.	REVISION	DATE
1	REVISED PER STATE COMMENTS	4-2-18

REVIEW: PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHITTON, P.E. 37155
 DATE: 9/17/18



FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT
 PUMP STATION PLAN / DETAILS
 DAM ID - 080459 EPC 9/25/18

DESIGNED BY MAW SCALE DATE 1-4-18
 DRAWN BY MAW (H) 1"= N/A SHEET 3 OF 14
 CHECKED BY (V) 1"= N/A JOB NO. 1096.11



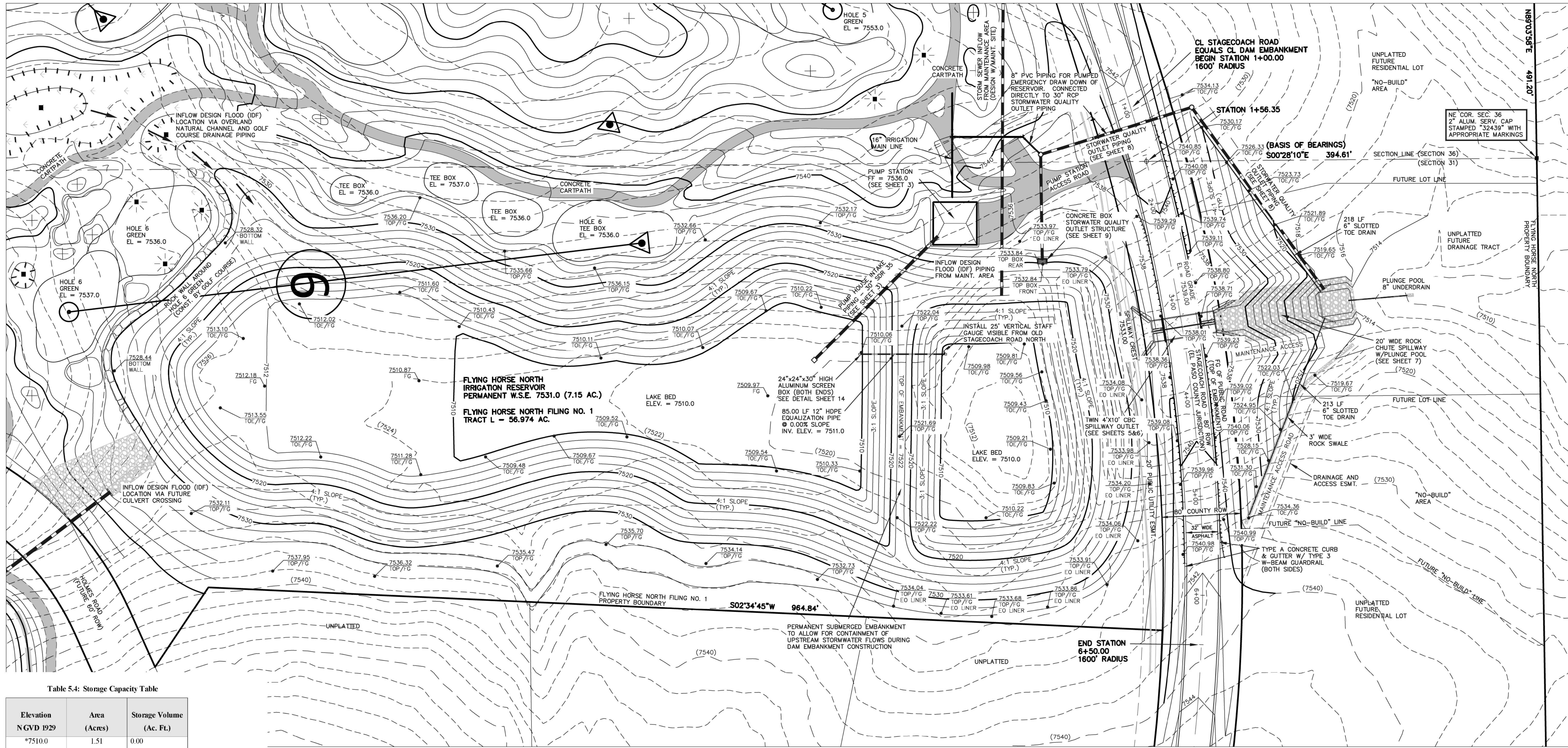


Table 5.4: Storage Capacity Table

Elevation NGVD 1929	Area (Acres)	Storage Volume (Ac. Ft.)
*7510.0	1.51	0.00
*7511.0	1.99	1.74
*7512.0	2.52	3.99
*7513.0	2.85	6.68
*7514.0	3.05	9.63
*7515.0	3.26	12.78
7516.0	3.48	16.15
7517.0	3.70	19.74
7518.0	3.93	23.56
7519.0	4.16	27.60
7520.0	4.40	31.88
7521.0	4.64	36.40
7522.0	4.88	41.16
7523.0	5.14	46.17
7524.0	5.36	51.42
7525.0	5.59	56.89
7526.0	5.84	62.61
7527.0	6.08	68.57
7528.0	6.33	74.77
7529.0	6.57	81.22
7530.0	6.81	87.91
7531.0	7.15	94.89
7532.0	7.52	102.22
7533.0	7.83	109.90
7534.0	8.37	118.00
7535.0	8.77	126.57
7536.0	9.17	135.53

*Indicates dead storage below pumping ability

Table 5.5: Reservoir Discharge Table

Elevation	Discharge (cfs) (SWQ Outlet Box)	Discharge (cfs) (Twin CBC Spillway)	Discharge (cfs) (Total)
7531.0	0.0	0.0	0.0
7532.0	13.89	0.0	13.89
7533.0	27.77	0.0	27.77
7534.0	51.31	49.05	100.36
7535.0	69.52	138.56	208.08
7536.0	74.61	254.72	329.33

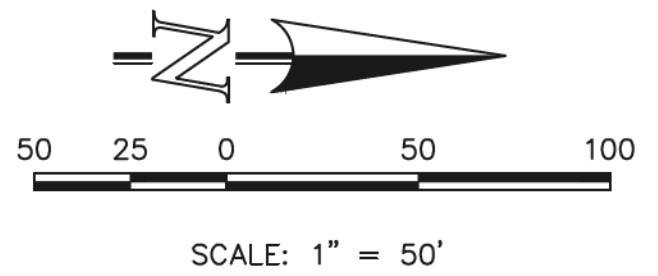
Permanent WSE = 7531.0
 Top of SWQ Outlet box = 7533.0
 Spillway elevation = 7533.0

NOTES:

- TOPOGRAPHIC BASE MAPPING PRODUCED FROM AERIAL PHOTOGRAPHY PROVIDED BY NORTH AMERICAN MAPPING IN 2009. HORIZONTAL CONTROL IS BASED ON LOCAL CALIBRATION TIED TO SECTION CORNER AND VERTICAL CONTROL IS BASED ON NGVD 1929 DATUM.
- PERMANENT WSE = 7531.0
- RESERVOIR LINER INSTALLED UP TO ELEVATION 7534.0

STAFF GAUGE DETAILS:

- 12"x25"x1/2" PVC
- LASER CUT ACRYLIC NUMBERS AND HATCH MARKS LIQUID WELDED TO PVC ON 1 FT. INCREMENTS
- MOUNTED ON ALUMINUM FRAME WITH CROSS BRACKETS ANCHORED INTO SLOPE
- BASE FASTENED TO 12" PIPE
- ELEVATION DISPLAY RANGE: 7512-7535



AS-BUILT
 SURVEY AS-BUILTS PROVIDED
 BY CLASSIC CONSULTING
 DATED 9/26/19

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

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 IT'S THE LAW

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NO.	REVISION	DATE
1	REVISED PER STATE COMMENTS	5-14-18
2	REVISED PER COUNTY COMMENTS	7-31-18
3	INCLUDE AS-BUILT SURVEY SHOTS	11-11-19

REVIEW:
 PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155

1/22/20

CLASSIC
 CONSULTING
 ENGINEERS & SURVEYORS

619 N. Cascade Avenue, Suite 200
 Colorado Springs, Colorado 80903

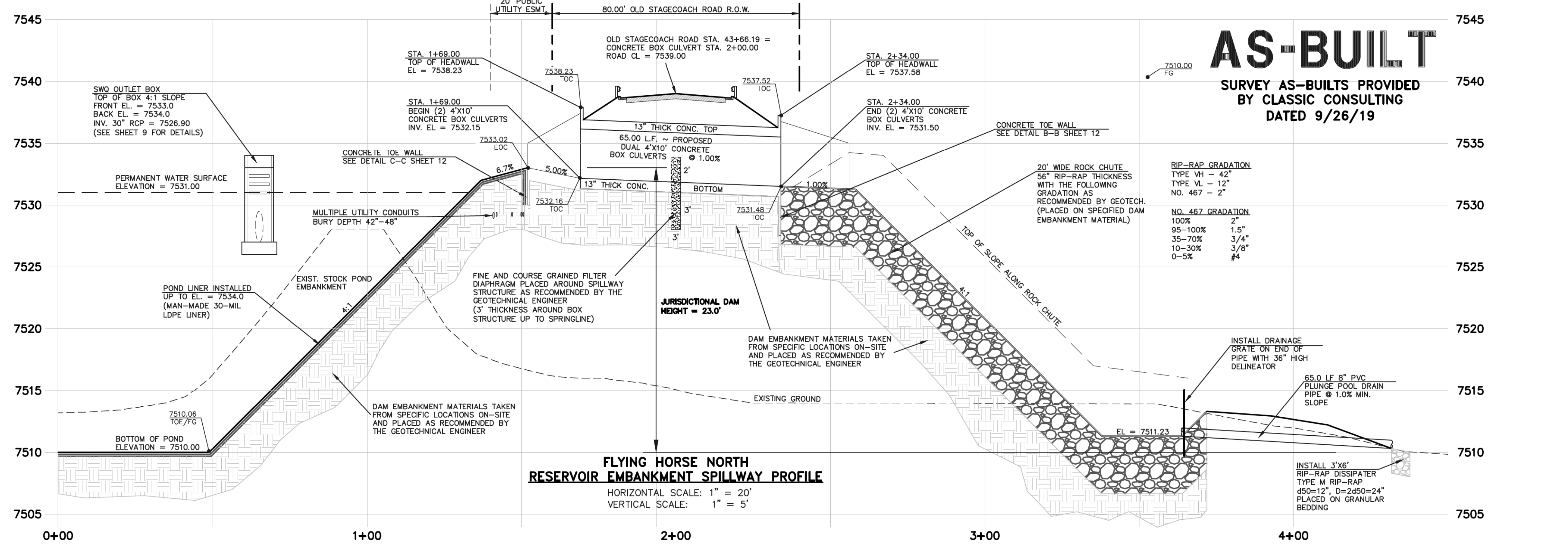
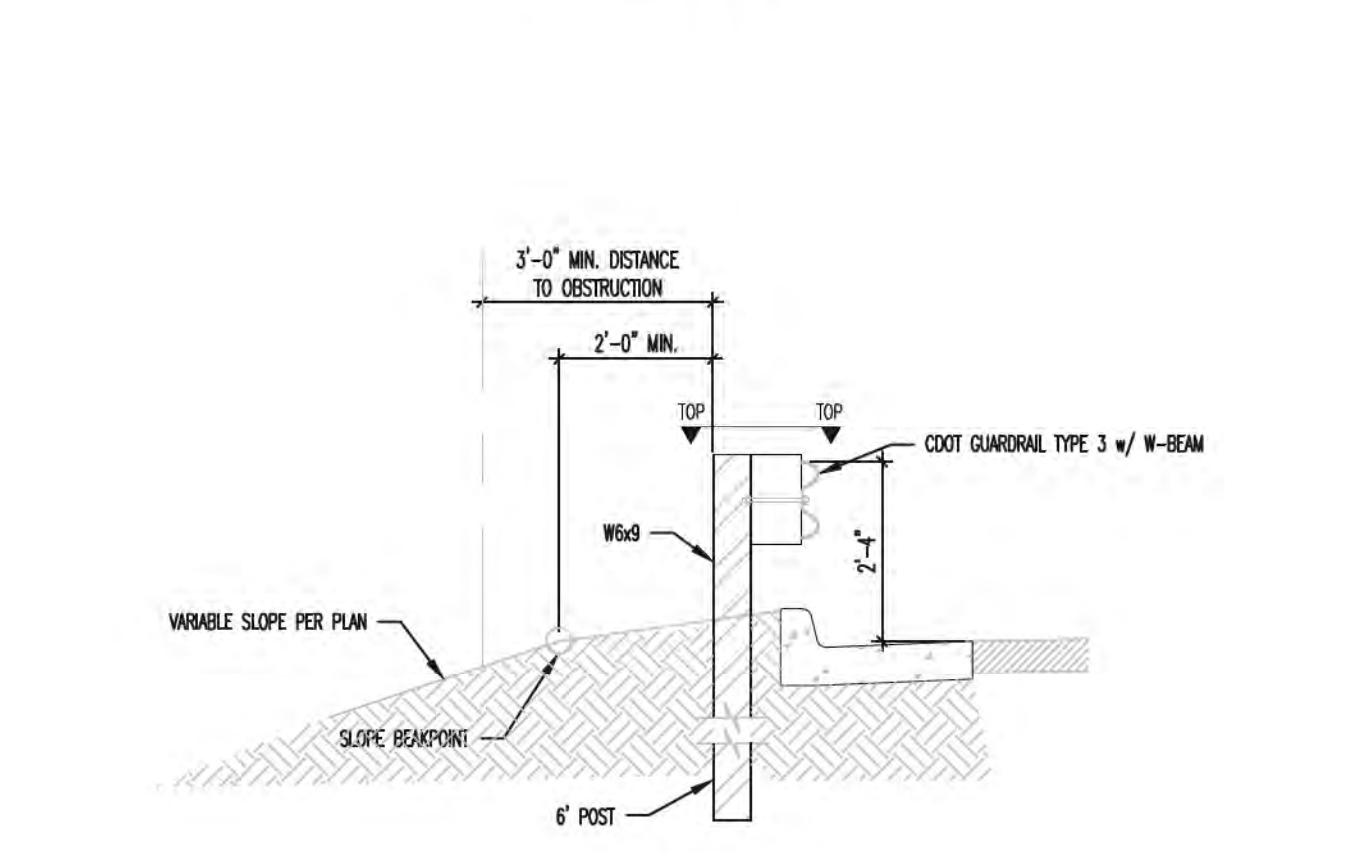
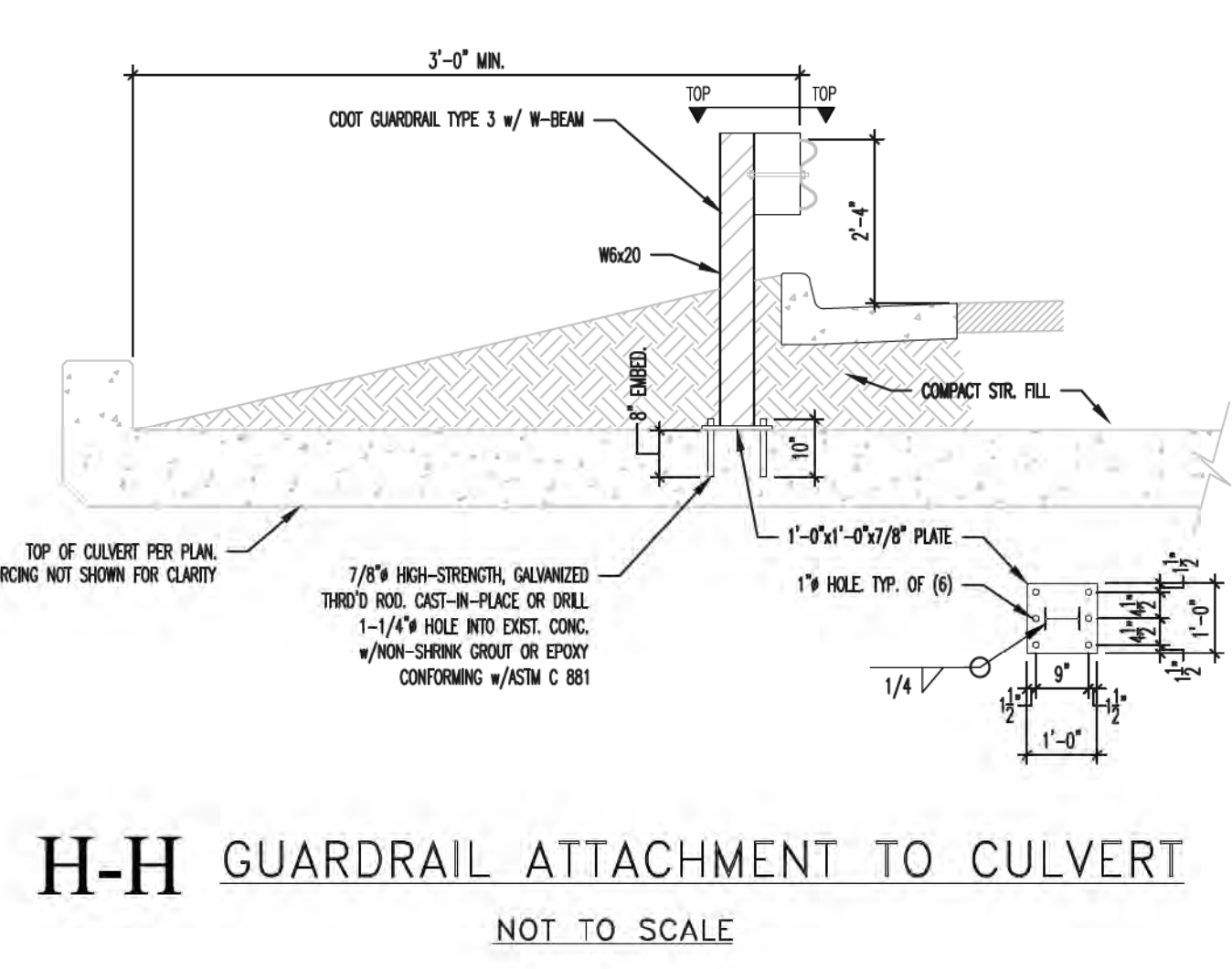
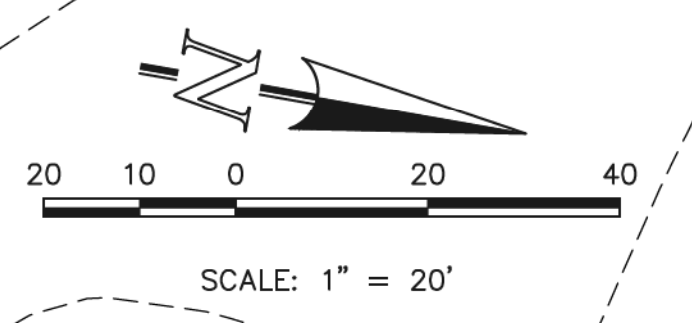
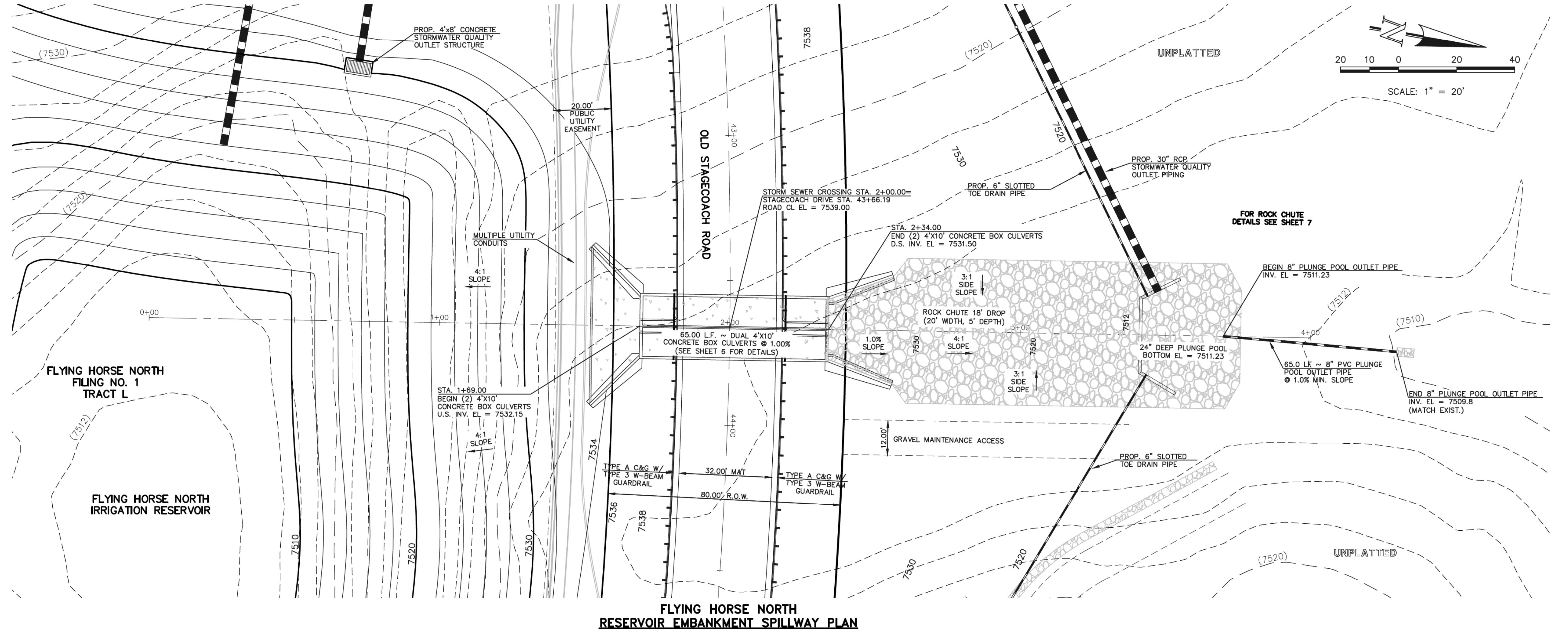
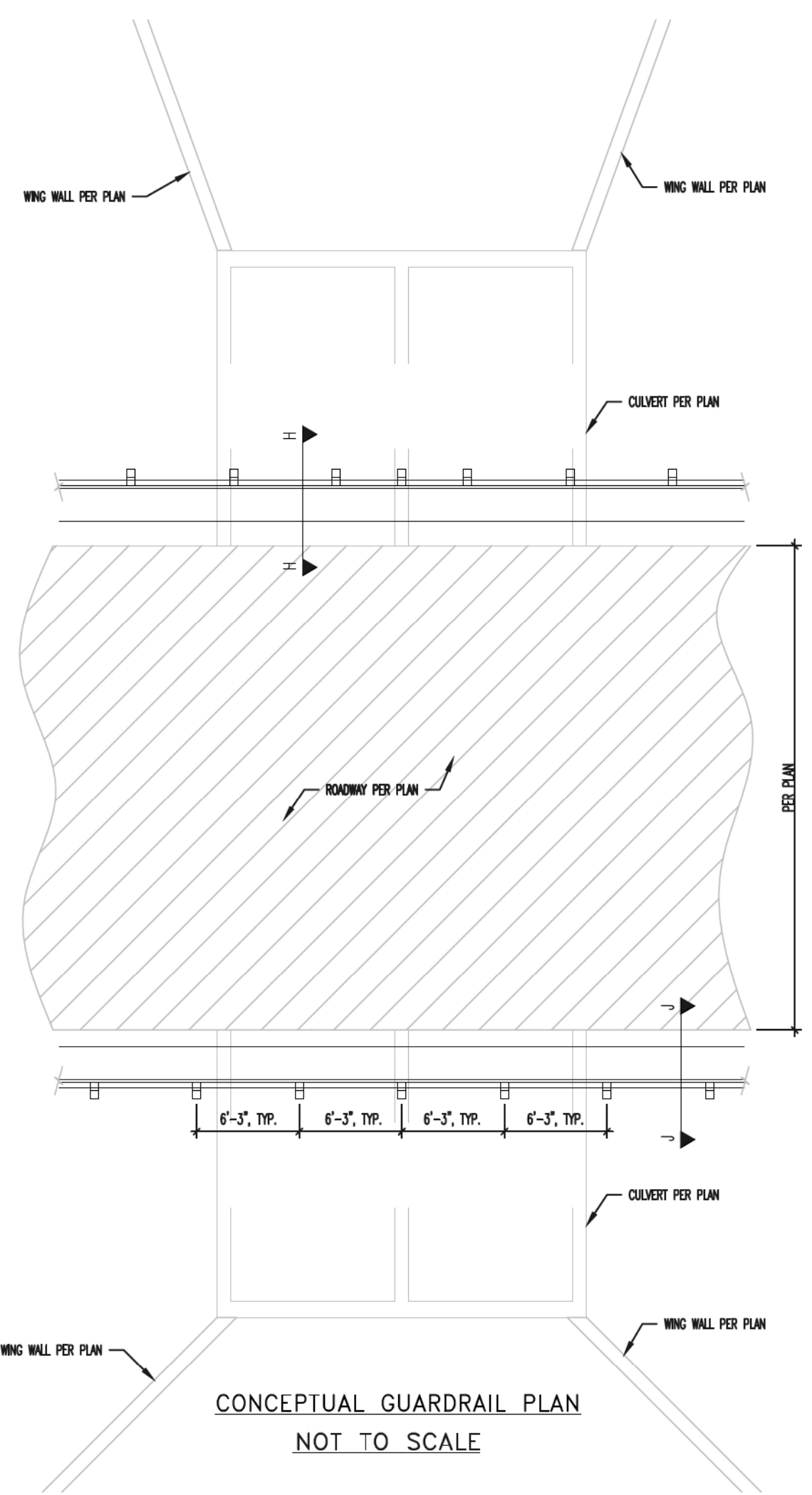
(719)785-0790
 (719)785-0799(Fax)

FLYING HORSE NORTH
 IRRIGATION RESERVOIR EMBANKMENT

SITE LAYOUT WITH GRADING
 DAM ID - 080459

DESIGNED BY	MAW	SCALE	DATE	1-4-18
DRAWN BY	MAW	(H) 1" = 50'	SHEET	4 OF 14
CHECKED BY	(V) 1" = N/A	JOB NO.	1096.11	





AS-BUILT
 SURVEY AS-BUILTS PROVIDED
 BY CLASSIC CONSULTING
 DATED 9/26/19

RIP-RAP GRADATION

100%	2"
95-100%	1.5"
35-70%	3/4"
10-30%	3/8"
0-5%	#4

NO. 467 GRADATION

100%	2"
95-100%	1.5"
35-70%	3/4"
10-30%	3/8"
0-5%	#4

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS 811 UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW	NO. REVISION	DATE
	1 REVISED PER STATE COMMENTS	4-2-18
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.	2 REVISED PER COUNTY COMMENTS	7-31-18

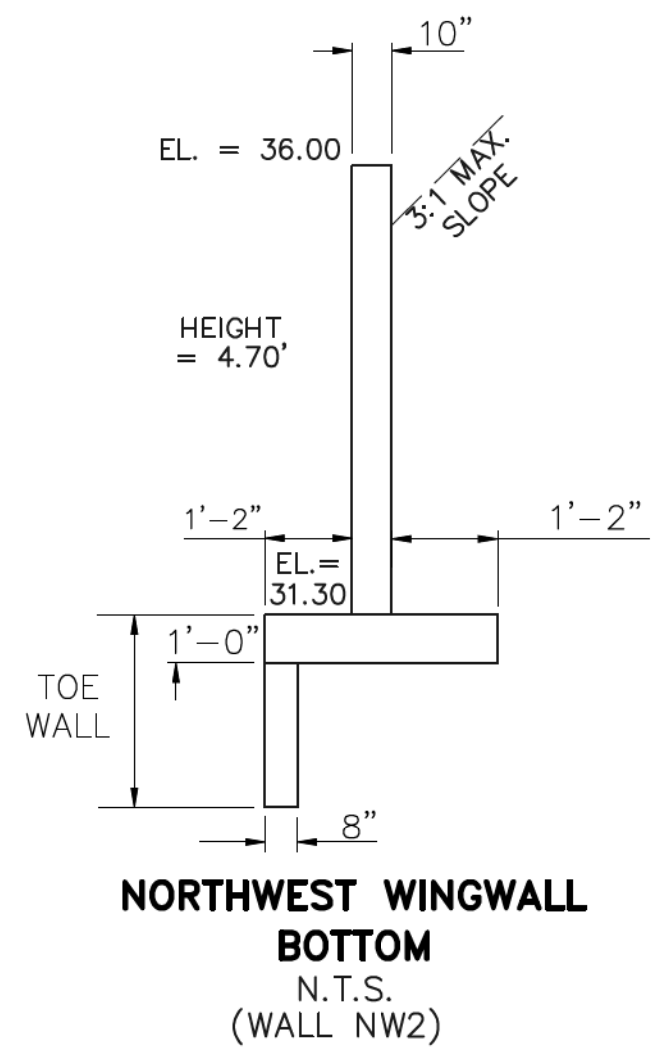
REVIEW:
 PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC
 MARC A. WHORSON, COLORADO P.E. #37155
 DATE: 1/22/20



STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

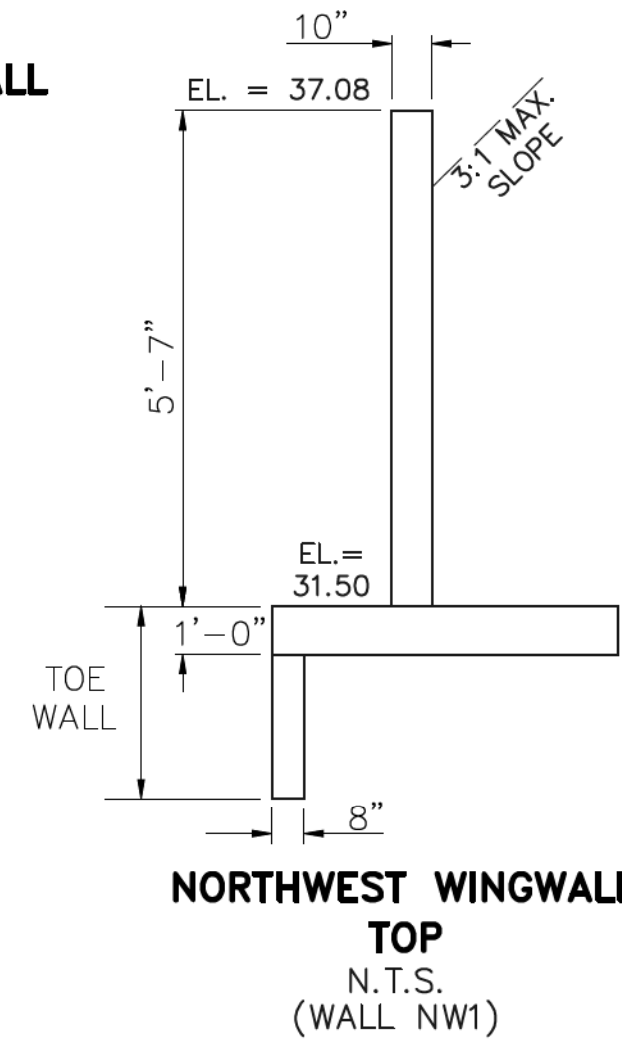
FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT EMBANKMENT SPILLWAY PLAN DAM ID - 080459			
DESIGNED BY	MAW	SCALE	DATE
DRAWN BY	MAW	(H) 1" = 20'	SHEET 5 OF 14
CHECKED BY	(V) 1" = 5'	JOB NO.	1096.11

M:\080459\080459\CONSTRUCTION\Jurisdictional Plans\8-10 80459 - Spillway Profile AS-BUILT.dwg, 1/22/2020 12:46:50 PM, 1:1

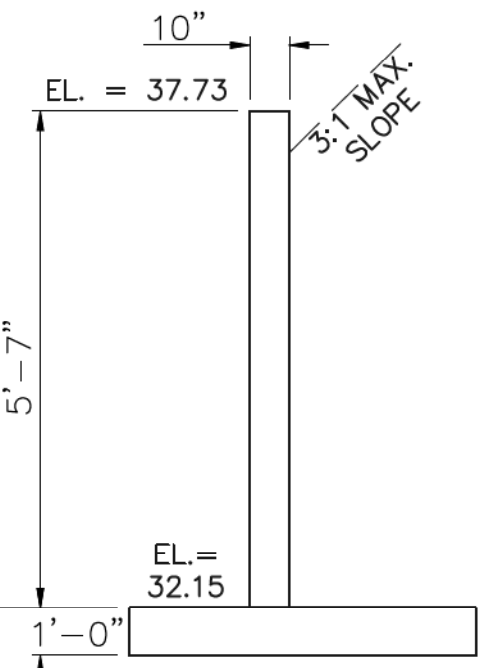


NORTHWEST WINGWALLS
CBC INV. EL = 7531.50
EL AT TOP OF CBC = 7537.58

FOR WINGWALL STRUCTURAL DETAILS
SEE DETAIL E-E SHEET 13

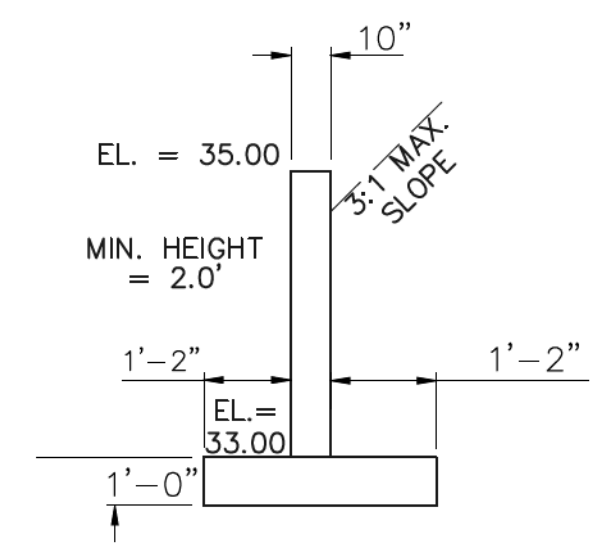


NORTHWEST WINGWALL TOP
N.T.S.
(WALL NW1)

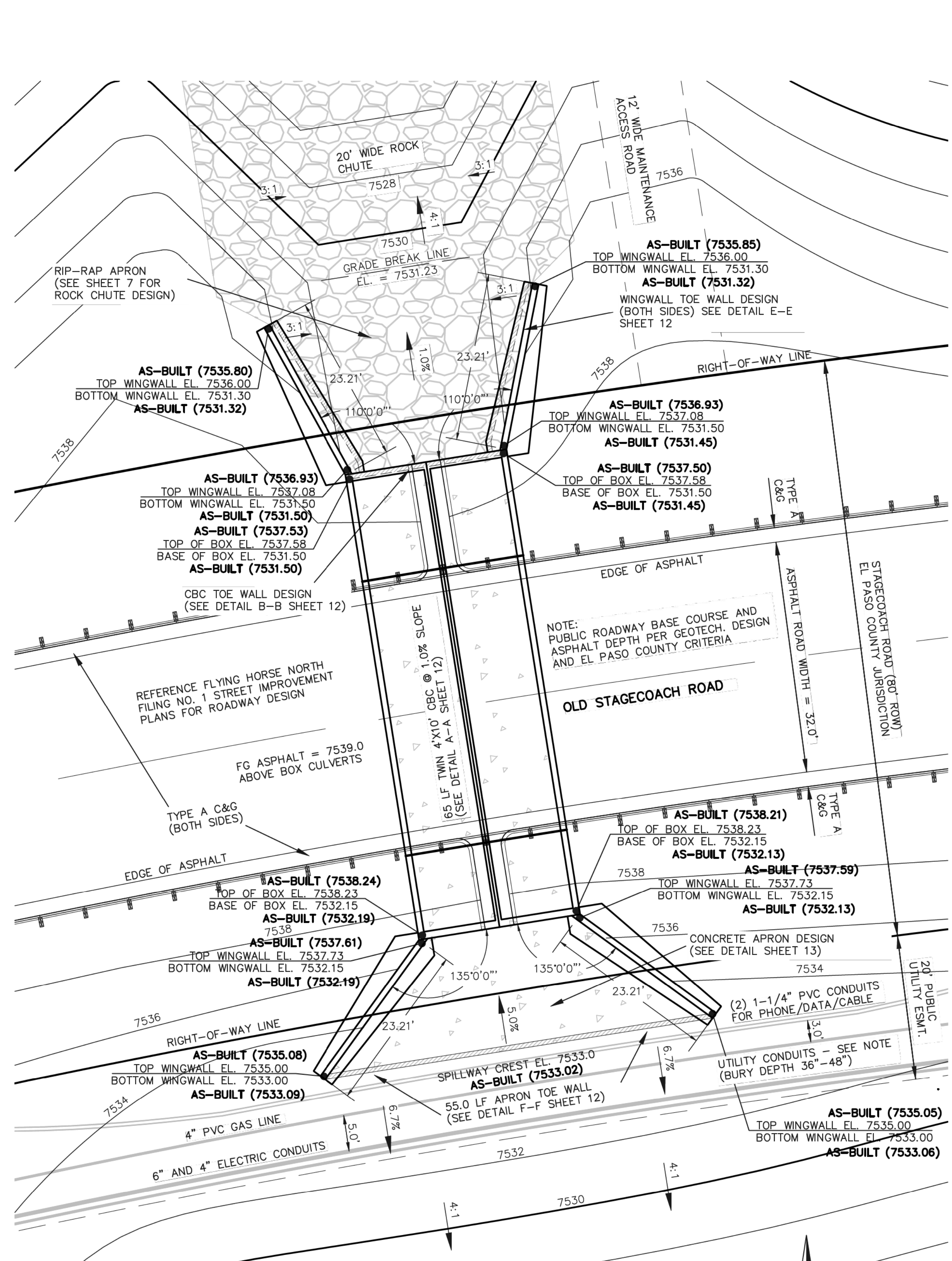


SOUTHWEST WINGWALLS
CBC INV. EL = 7532.15
EL AT TOP OF CBC = 7538.23

FOR WINGWALL STRUCTURAL DETAILS
SEE DETAIL D-D SHEET 13

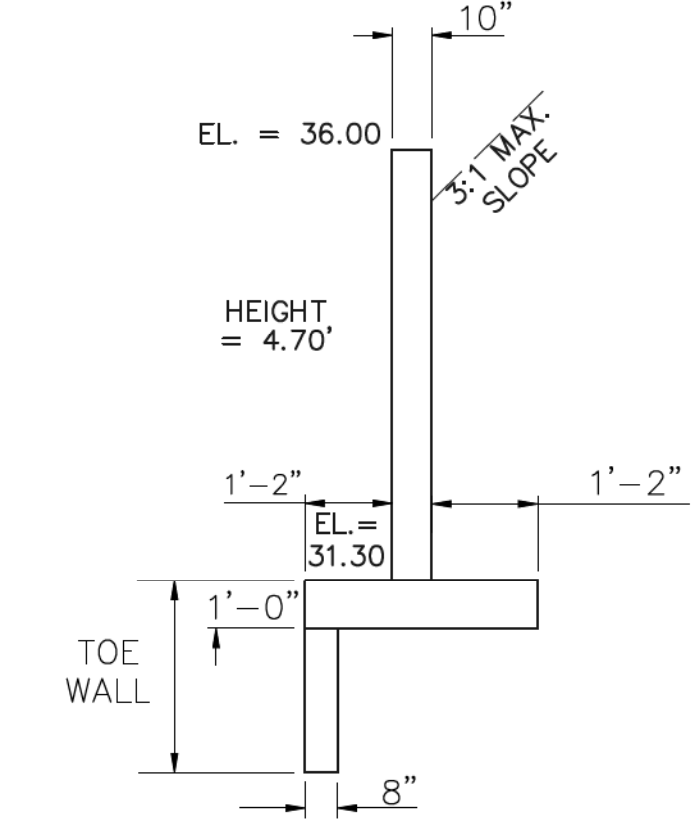
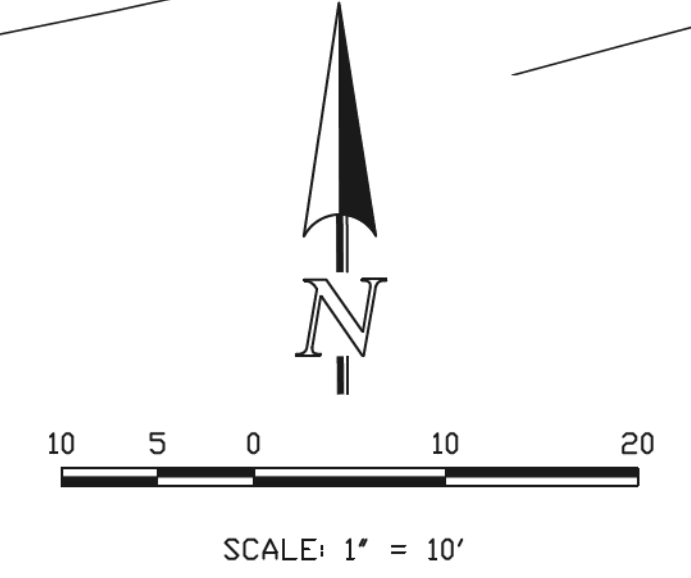


SOUTHWEST WINGWALL BOTTOM
N.T.S.
(WALL SW2)



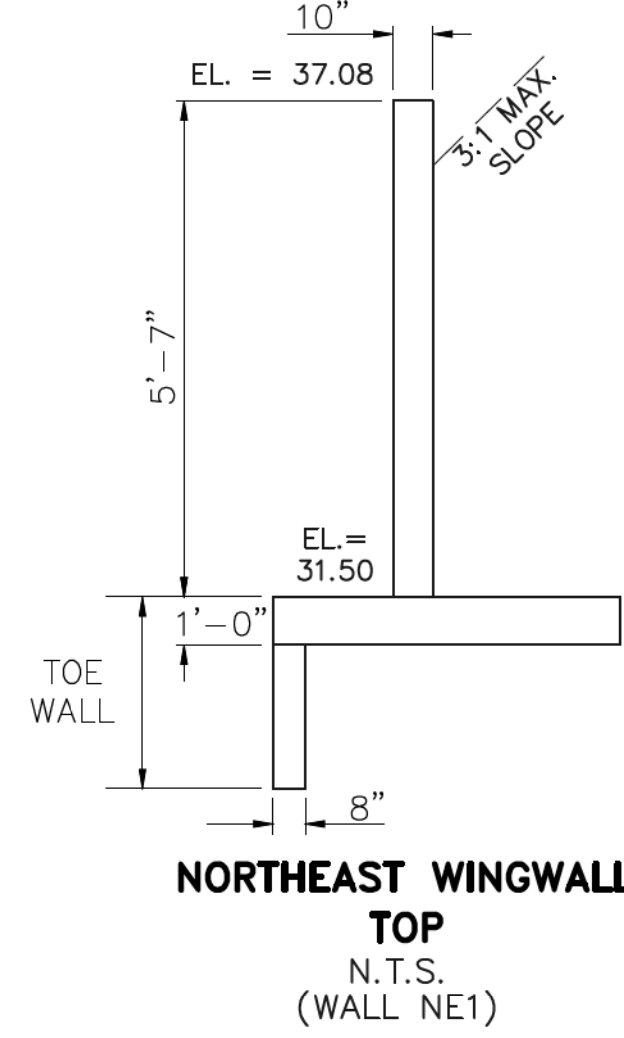
EMBANKMENT SPILLWAY DESIGN

AS-BUILT
SURVEY AS-BUILTS PROVIDED
BY CLASSIC CONSULTING
DATED 7/19/19



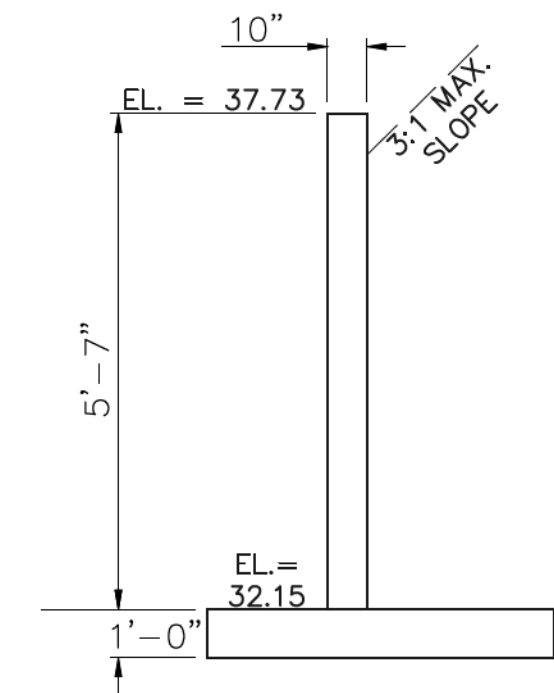
NORTHEAST WINGWALLS
CBC INV. IN EL = 7531.50
EL AT TOP OF CBC = 7537.58

FOR WINGWALL STRUCTURAL DETAILS
SEE DETAIL E-E SHEET 13



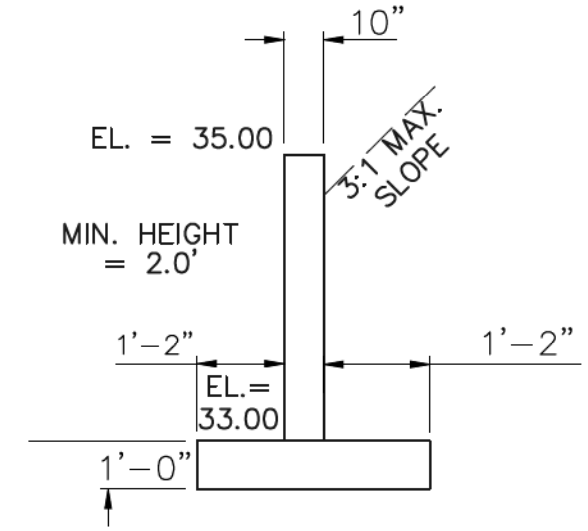
UTILITY CONDUIT NOTE:
BURIED CONDUITS WITHIN THE 20' PUBLIC UTILITY ESMT.
INCLUDE THE FOLLOWING:

- (1) 6" SCHEDULE 40 PVC FOR 3 PHASE ELECTRIC
- (1) 4" PVC FOR SINGLE PHASE ELECTRIC
- (1) 4" PVC NATURAL GAS LINE
- (2) 1-1/4" PVC CONDUIT FOR PHONE/DATA/CABLE



SOUTHEAST WINGWALLS
CBC INV. IN EL = 7532.15
EL AT TOP OF CBC = 7538.23

FOR WINGWALL STRUCTURAL DETAILS
SEE DETAIL D-D SHEET 13



SOUTHEAST WINGWALL BOTTOM
N.T.S.
(WALL SE2)

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

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NO.	REVISION	DATE
1	REVISED PER STATE COMMENTS	5-2-18

REVIEW:
PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155

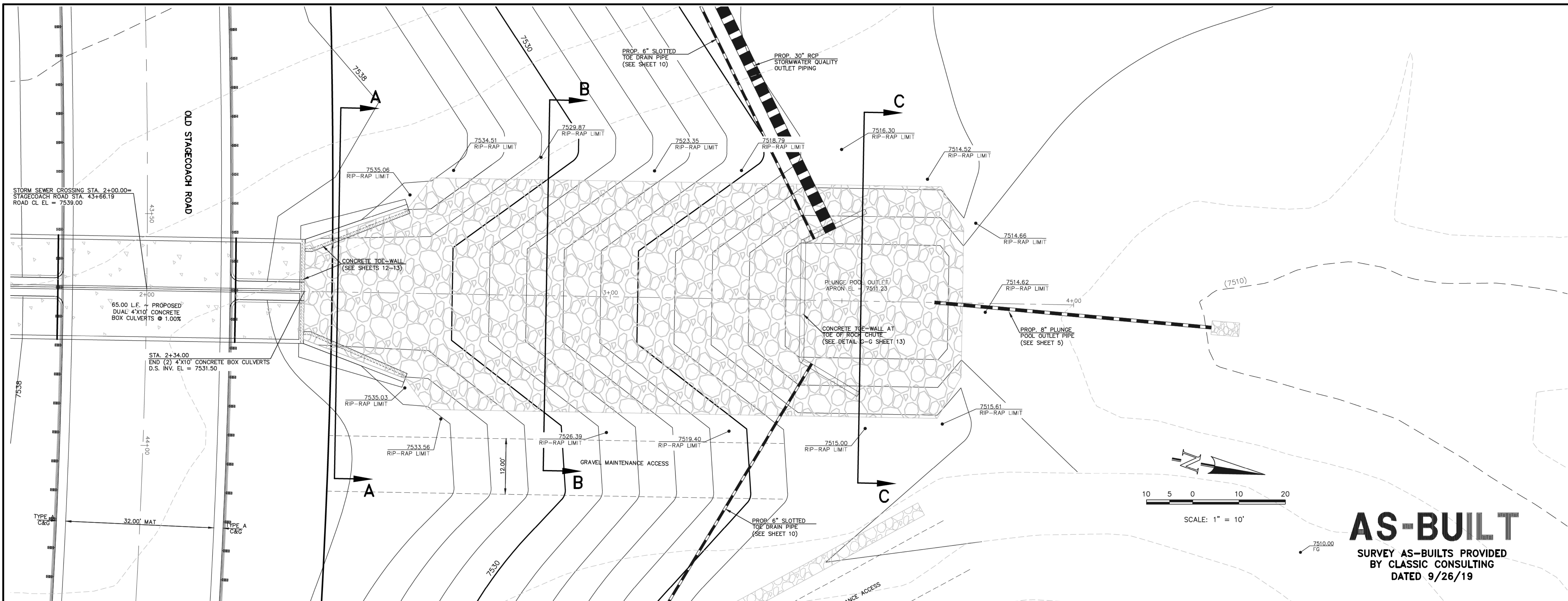
DATE: 1/22/20

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

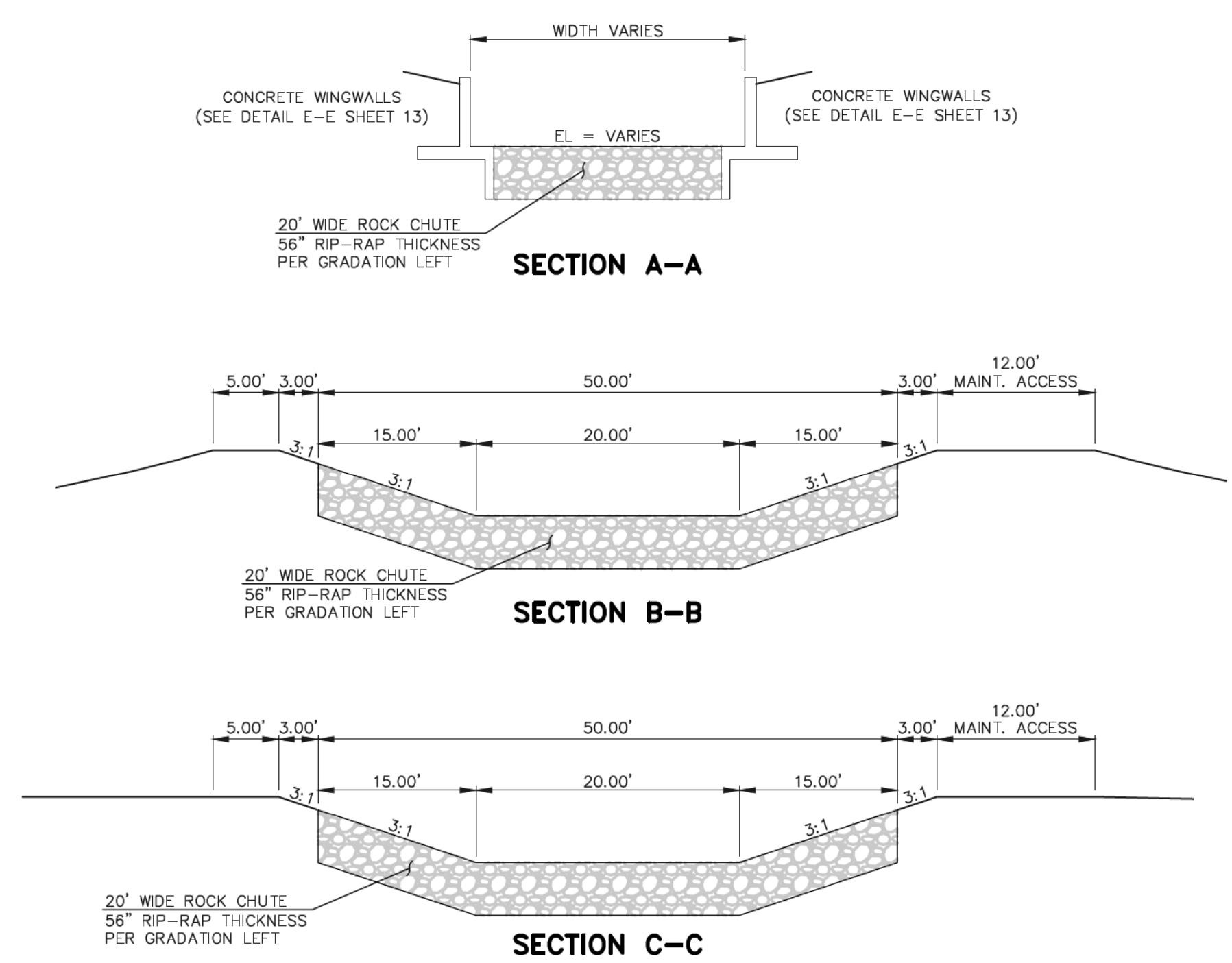
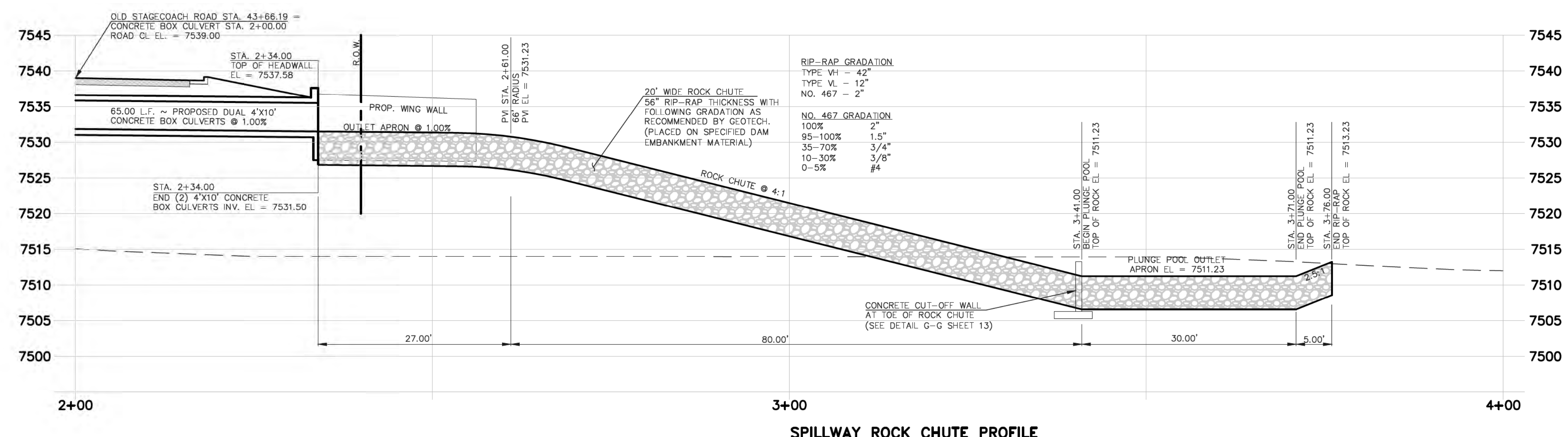
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903

(719) 785-0790
(719) 785-0799 (Fax)

FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT			
EMBANKMENT SPILLWAY DETAILS			
DAM ID - 080459			
DESIGNED BY	SCALE	DATE	1-4-18
MAW	(H) 1" = 20'		SHEET 6 OF 14
CHECKED BY	SCALE	JOB NO.	1096.11
MAW	(V) 1" = N/A		



AS-BUILT
 SURVEY AS-BUILTS PROVIDED
 BY CLASSIC CONSULTING
 DATED 9/26/19



<p>48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS 811 UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW</p> <p>THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.</p>	NO. REVISION	DATE	REVIEW:
	<p>1 REVISED PER STATE COMMENTS</p> <p>2 INCLUDE AS-BUILT SURVEY SHOTS</p>	<p>5-4-18</p> <p>11-11-19</p>	<p>MARC A. WHORTON, COLORADO P.E. #37155</p>

REVIEW: PREPARED UNDER THE SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155

DATE: 1/22/20

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

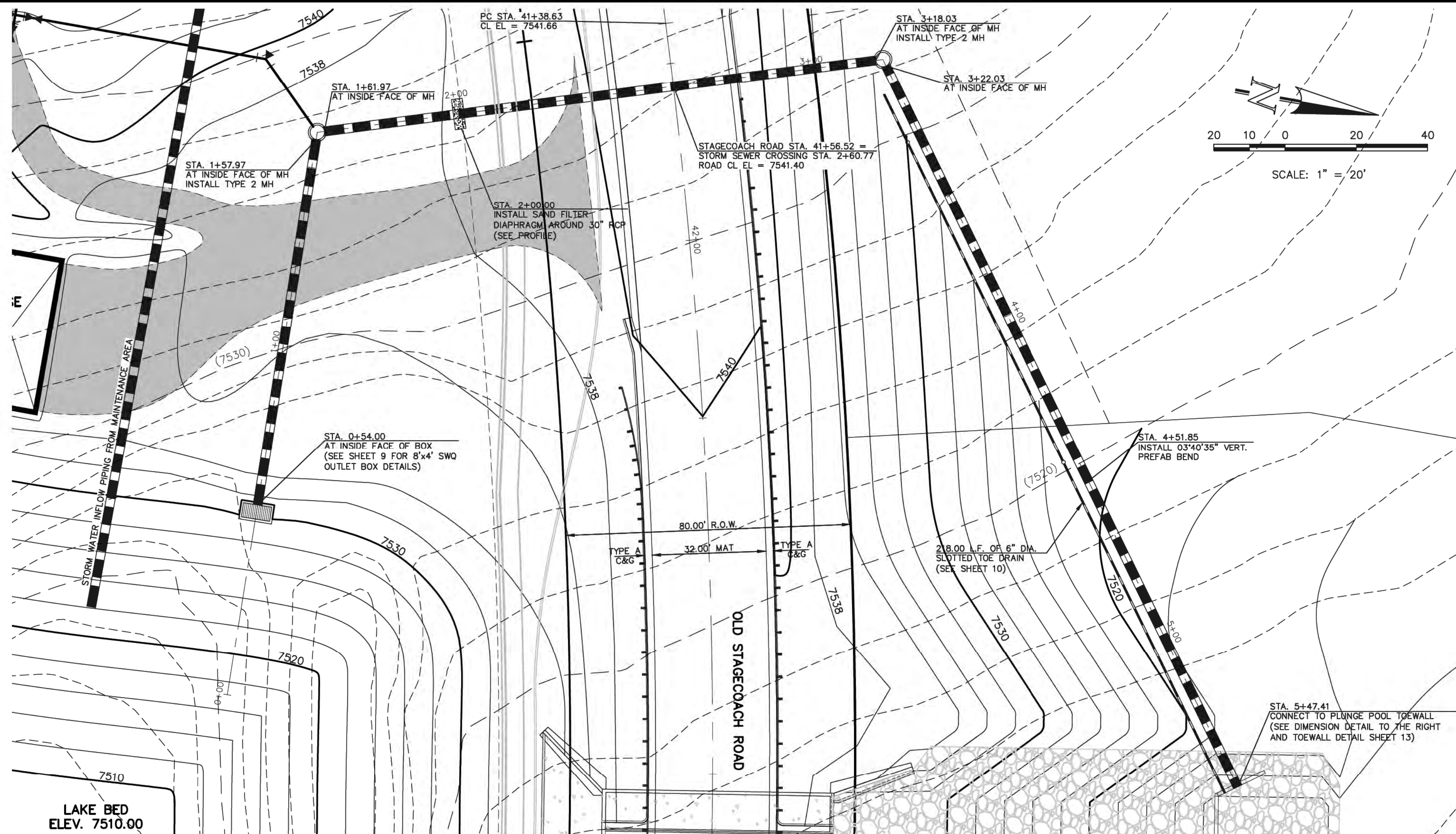
CLASSIC CONSULTING ENGINEERS & SURVEYORS

619 N. Cascade Avenue, Suite 200
 Colorado Springs, Colorado 80903
 (719) 785-0790
 (719) 785-0799 (Fax)

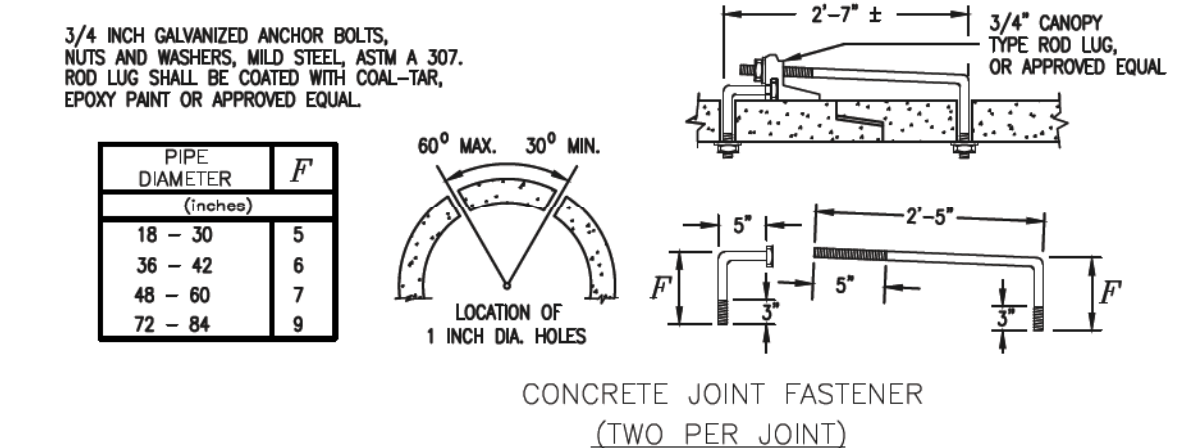
FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT
 SPILLWAY ROCK CHUTE DESIGN
 DAM ID - 080459

DESIGNED BY	MAW	SCALE	DATE	1-4-18
DRAWN BY	MAW	(H) 1" = 10'	SHEET	7 OF 14
CHECKED BY	(V) 1" = 1'	JOB NO.	1096.11	

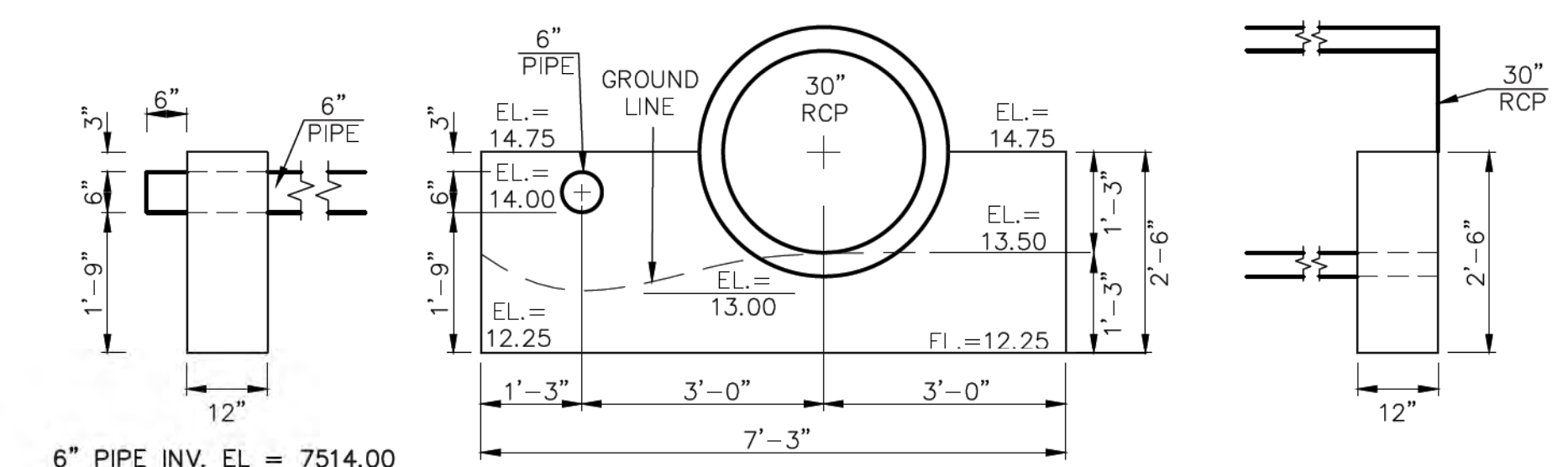
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SWQ OUTFALL PLAN

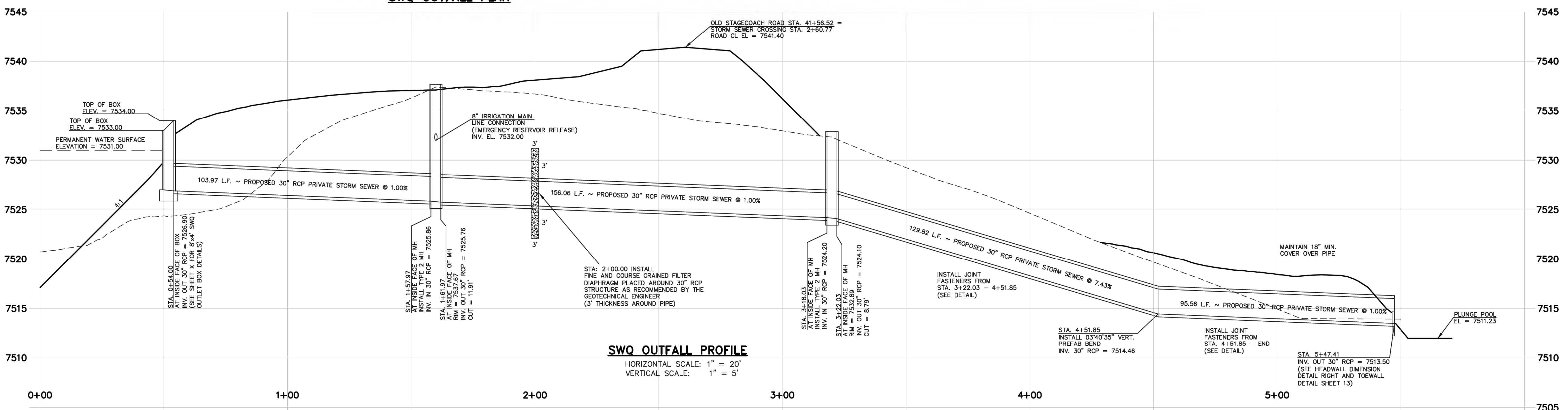


CONCRETE JOINT FASTENER
(TWO PER JOINT)



WESTERLY OUTLET HEADWALL

6" PIPE INV. OUT EL = 7514.00
 30" RCP INV. OUT EL = 7513.50
 EL AT TOP OF SADDLEWALL = 7514.75
 EL AT BOTTOM SADDLEWALL = 7512.25



SWQ OUTFALL PROFILE

HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 5'

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NO.	REVISION	DATE
1	REVISED PER STATE COMMENTS	5-8-18
2	REVISED PER COUNTY COMMENTS	7-31-18

REVIEW:
 PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155

9/17/18 DATE

CLASSIC
 CONSULTING ENGINEERS & SURVEYORS

619 N. Cascade Avenue, Suite 200
 Colorado Springs, Colorado 80903
 (719) 785-0790
 (719) 785-0799 (fax)

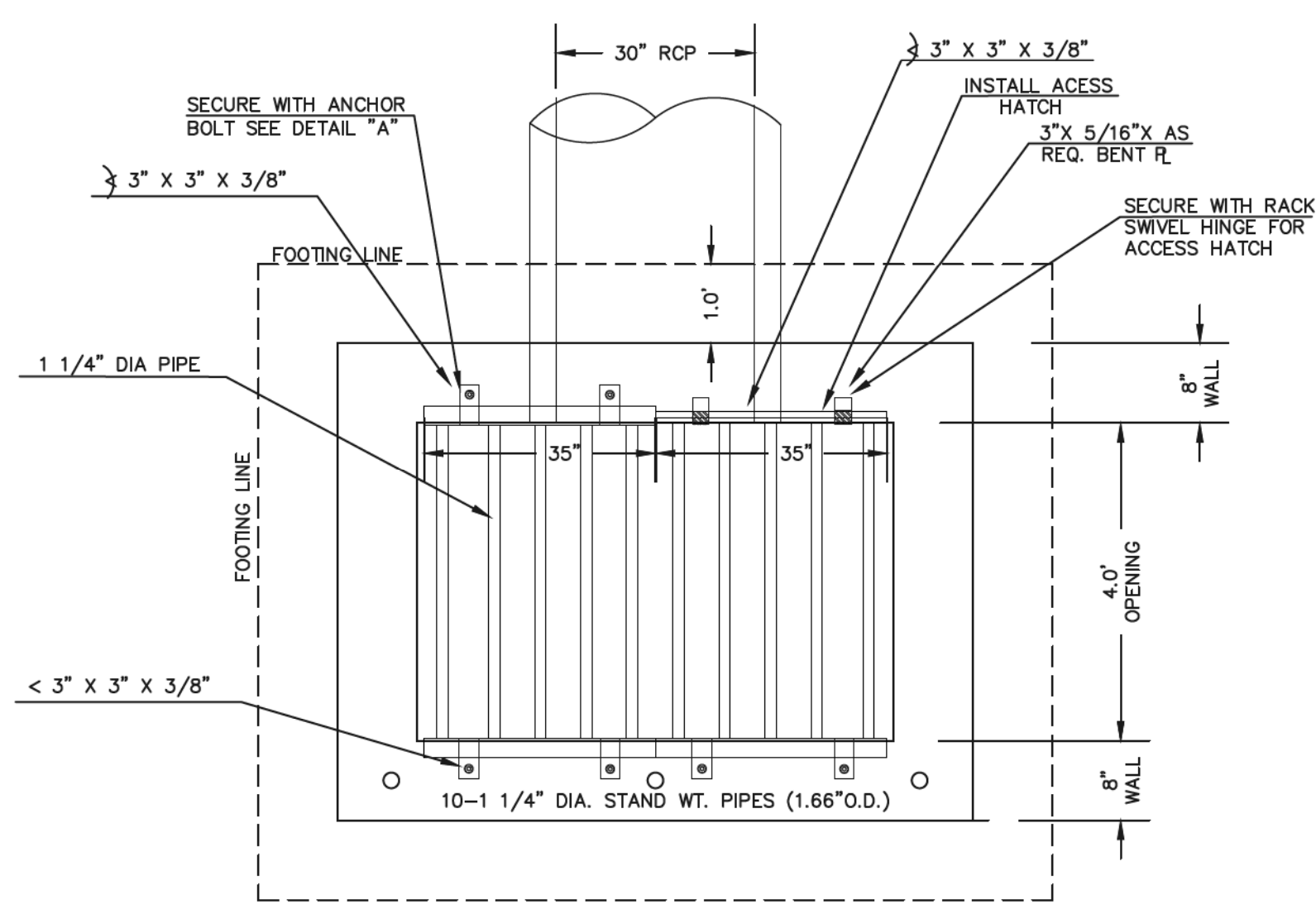
STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT
 SWQ OUTFALL PLAN & PROFILE
 DAM ID - 080459

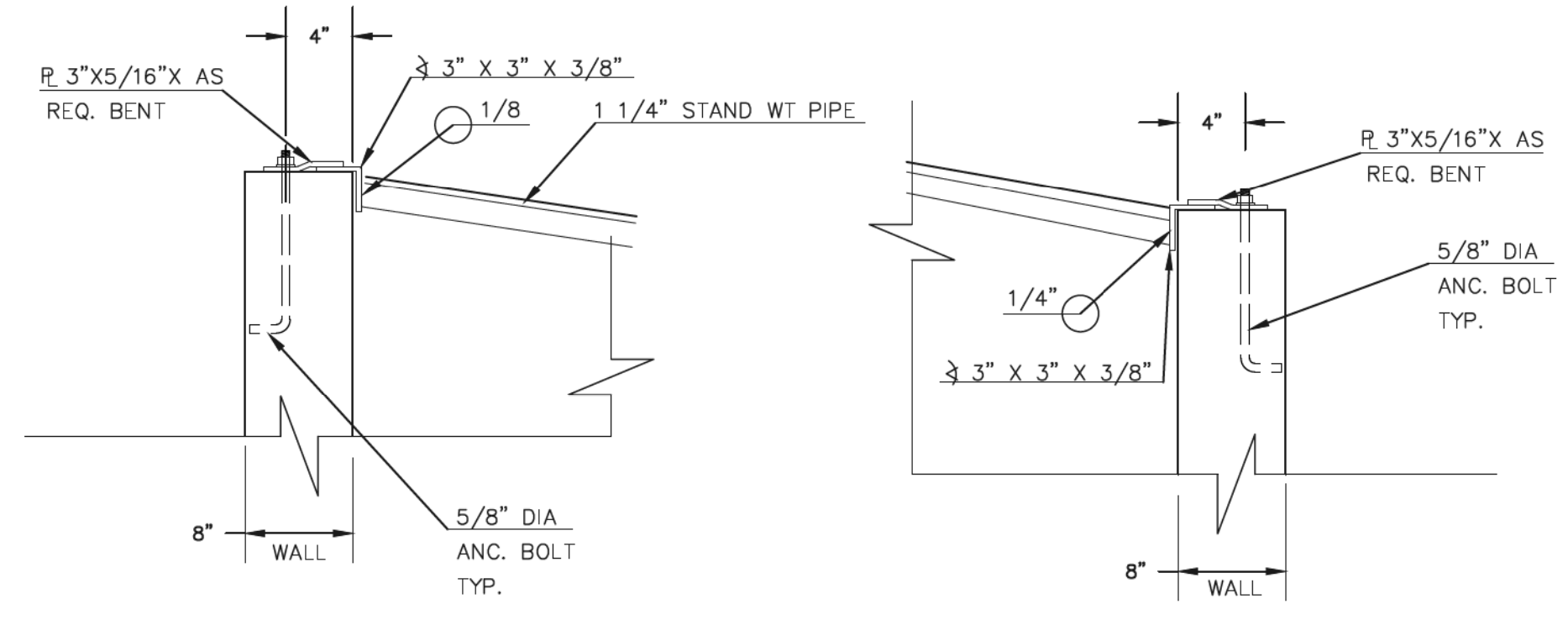
DESIGNED BY: MAW SCALE: DATE: 1-4-18
 DRAWN BY: MAW (H) 1" = 20' SHEET 8 OF 14
 CHECKED BY: (V) 1" = 5' JOB NO. 1096.11



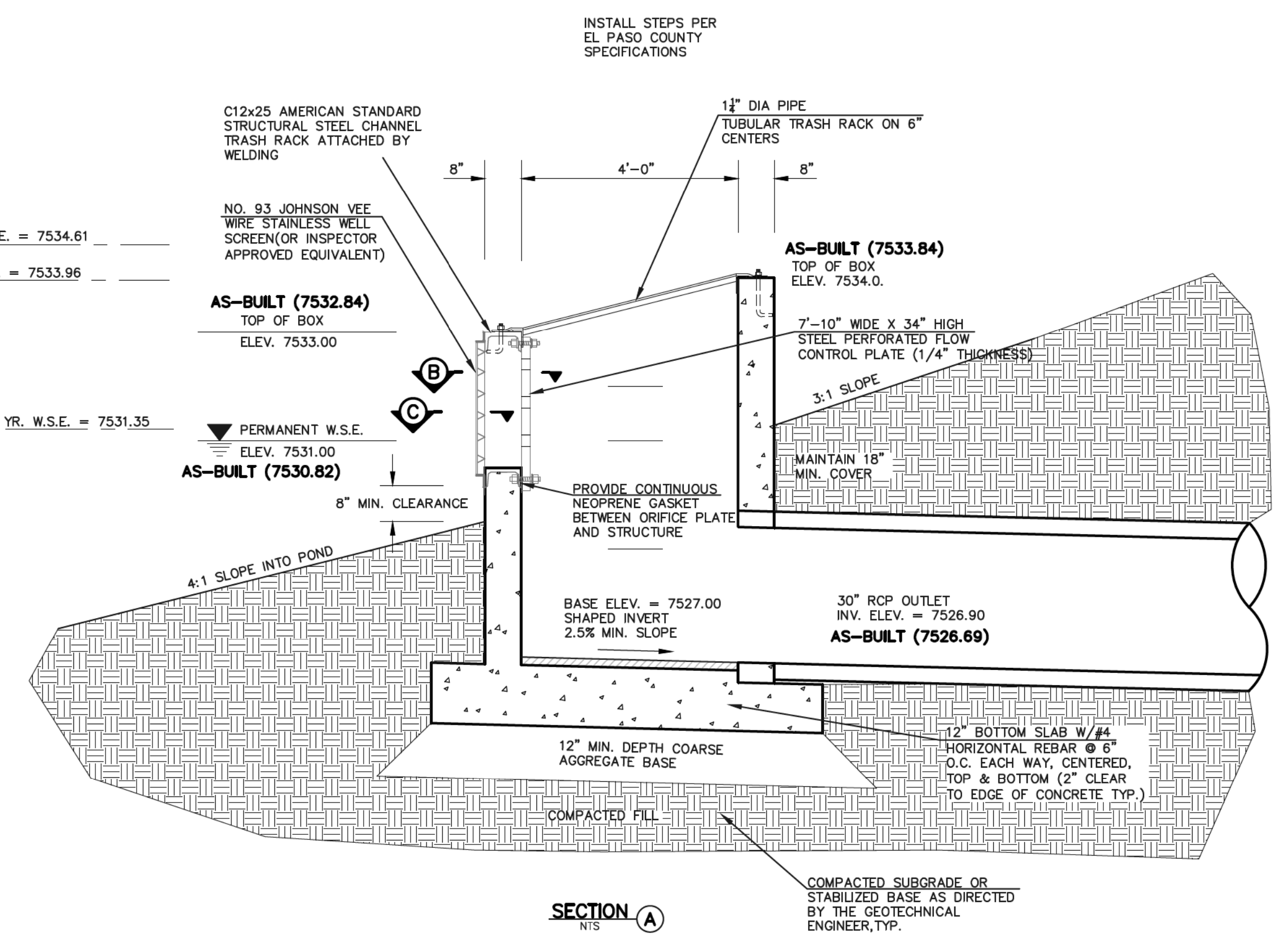
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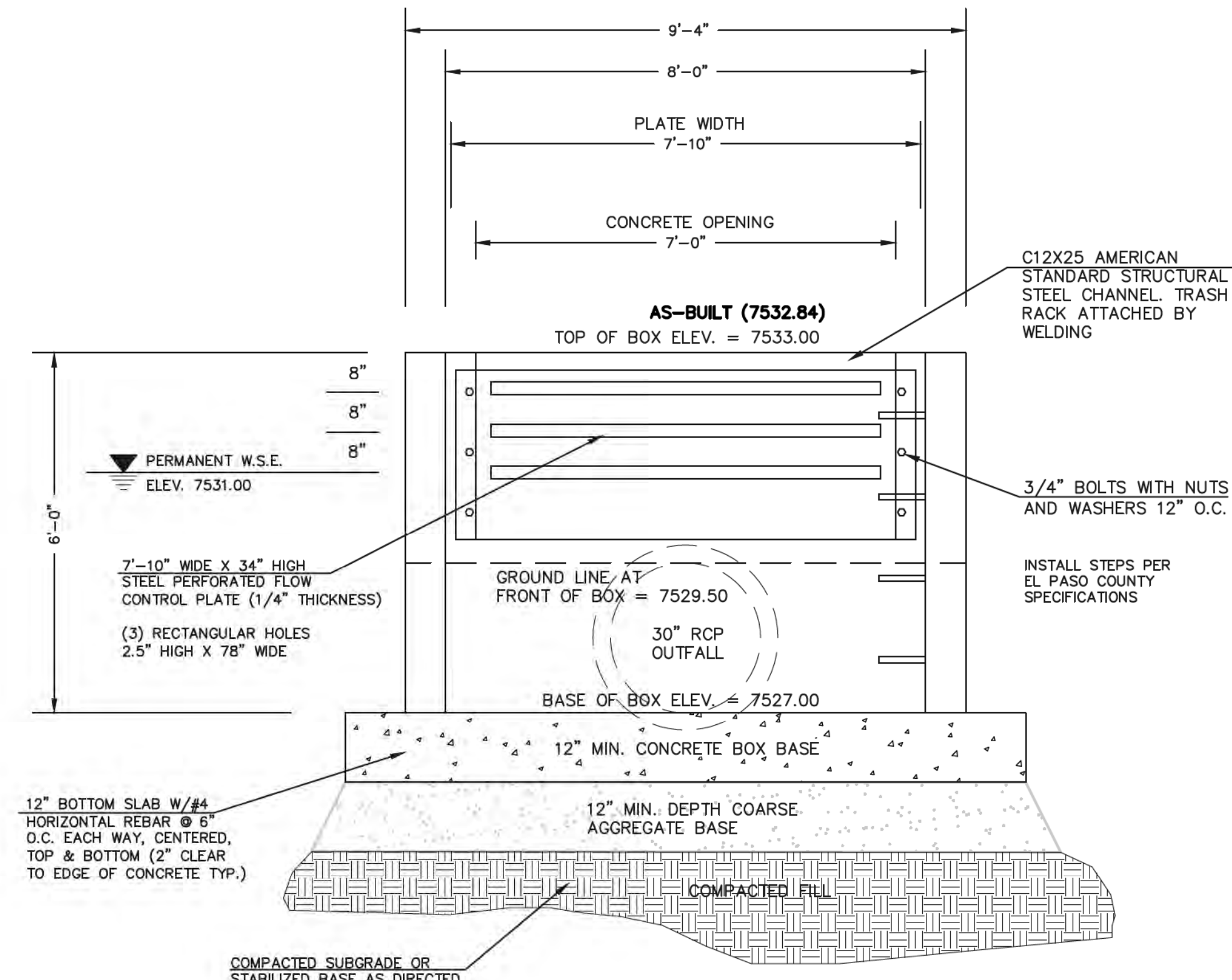
TRASH RACK
ALL WELDED CONSTRUCTION
N.T.S.



100 YR. W.S.E. = 7534.61
50 YR. W.S.E. = 7533.96
2 YR. W.S.E. = 7531.22 / 5 YR. W.S.E. = 7531.35



8'x4' SWQ OUTLET BOX WITH FLOW CONTROL PLATE
SCALE: 1"=2'



8'x4' SWQ OUTLET BOX WITH FLOW CONTROL PLATE
SCALE: 1"=2'

(ALL MATERIALS PER EL PASO COUNTY SPECIFICATIONS)

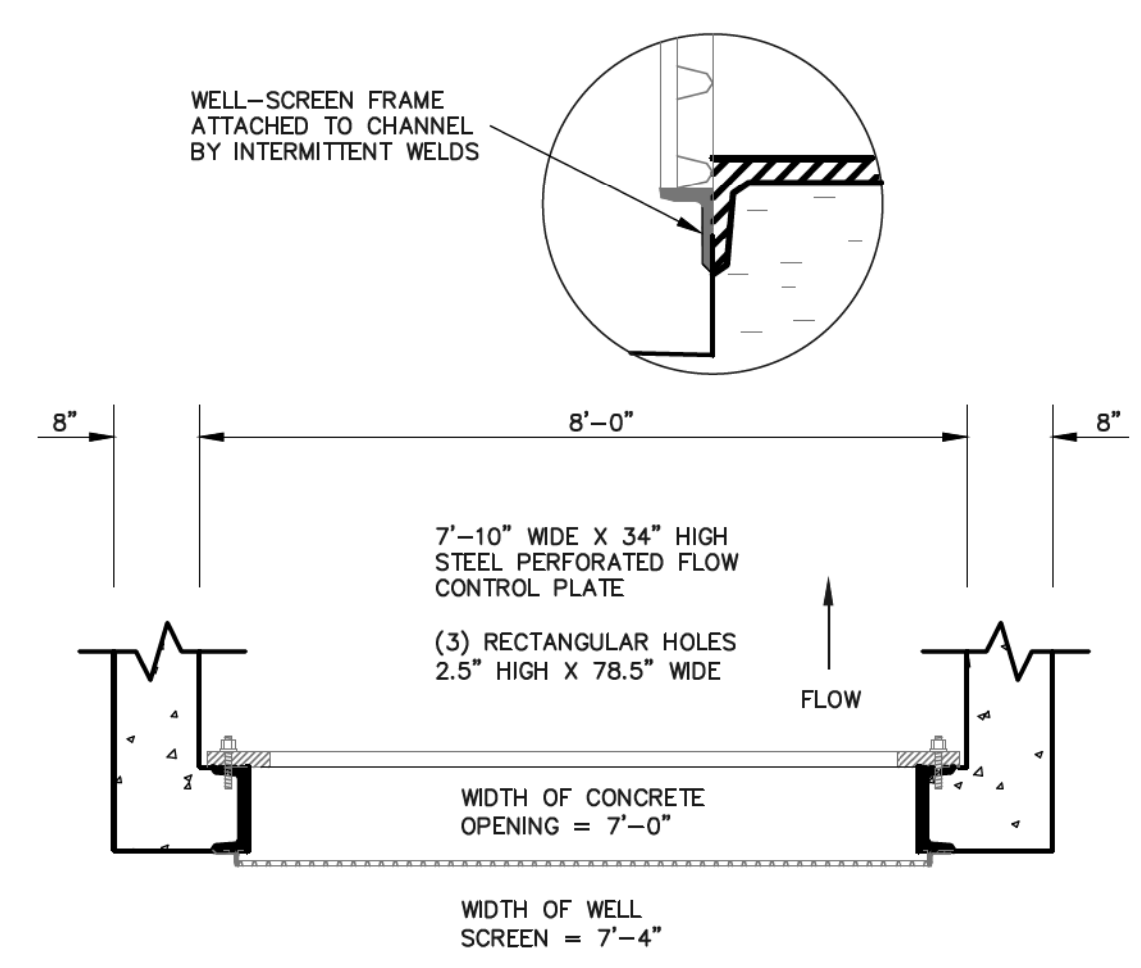
- ORIFICE PLATE NOTES:
1. INSTALL HOLES AS SHOWN ON DETAIL TO RIGHT.
 2. PROVIDE GASKET MATERIAL BETWEEN THE ORIFICE PLATE AND CONCRETE.

EURV AND WQCV TRASH RACKS:

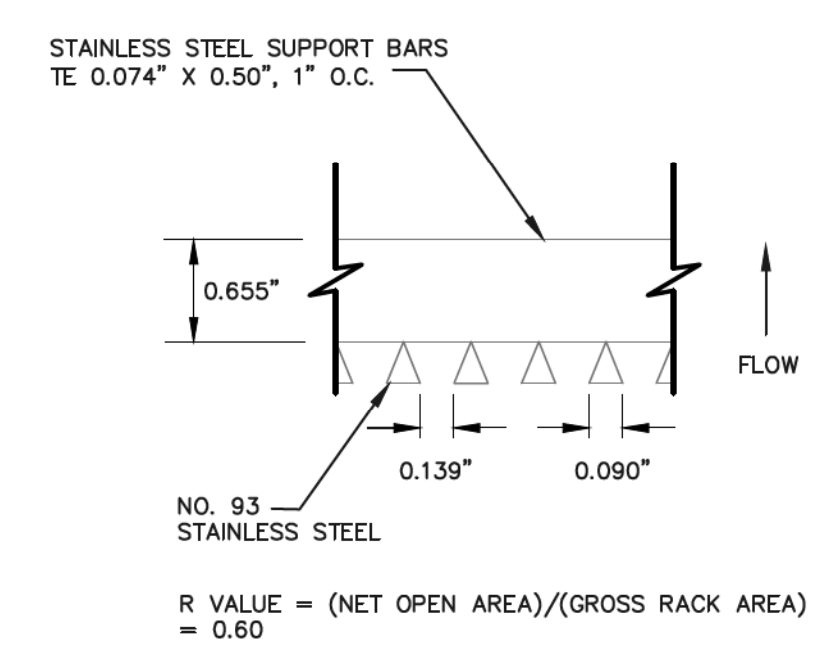
3. WELL-SCREEN TRASH RACKS SHALL BE STAINLESS STEEL AND SHALL BE ATTACHED BY INTERMITTENT WELDS ALONG THE EDGE OF THE MOUNTING FRAME.
4. BAR GRATE TRASH RACKS SHALL BE ALUMINUM AND SHALL BE BOLTED USING STAINLESS STEEL HARDWARE.
5. STRUCTURAL DESIGN OF TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF RACK.

OVERFLOW TRASH RACKS:

1. ALL TRASH RACKS SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS.
2. TRASH RACKS SHALL BE STAINLESS STEEL, ALUMINUM, OR STEEL. STEEL TRASH RACKS SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER COATED AFTER GALVANIZING.
3. TRASH RACKS SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF THE TRASH RACKS SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF THE RACK.



SECTION B



SECTION C

AS-BUILT
SURVEY AS-BUILTS PROVIDED
BY CLASSIC CONSULTING
DATED 7/19/19

AS-BUILT (7510.00)

48 HOURS BEFORE YOU DIG,
CALL UTILITY LOCATORS
811
UTILITY NOTIFICATION OF COLORADO
IT'S THE LAW
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

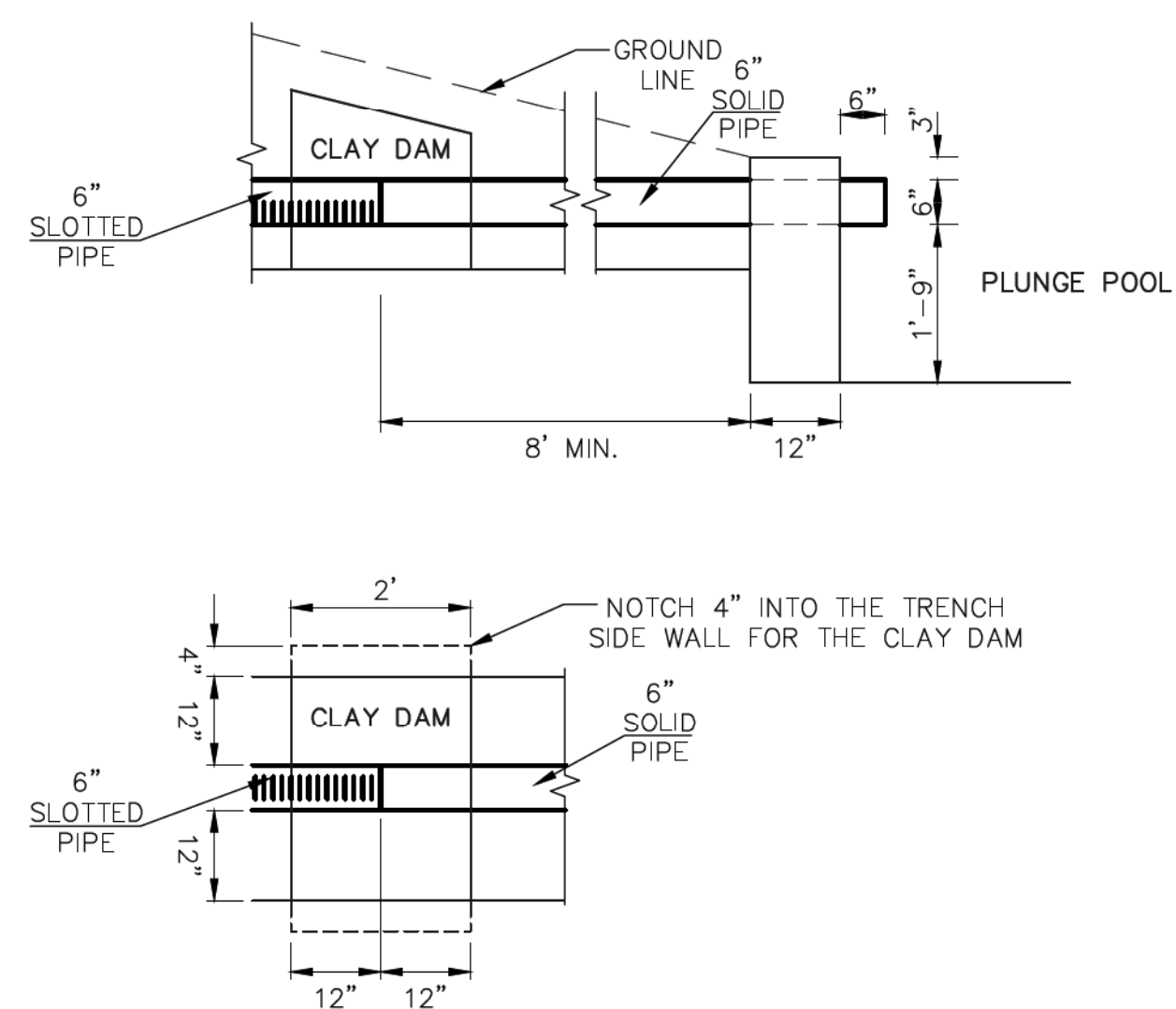
NO.	REVISION	DATE
1	REVISED PER COUNTY COMMENTS	7-31-18

REVIEW:
PREPARED UNDER SUPERVISION FOR AND ON BEHALF OF
CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC
MARC A WHORTON, COLORADO P.E. #37155
DATE: 1/22/20

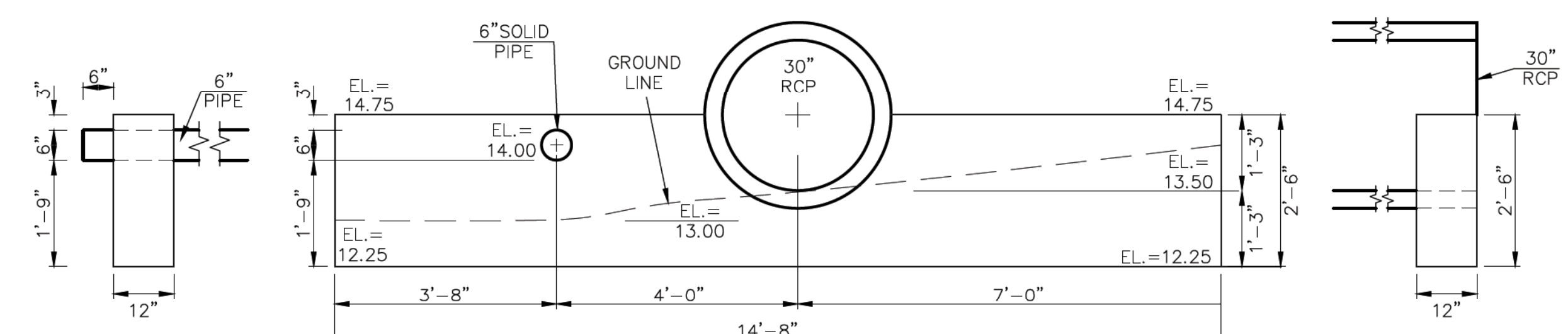
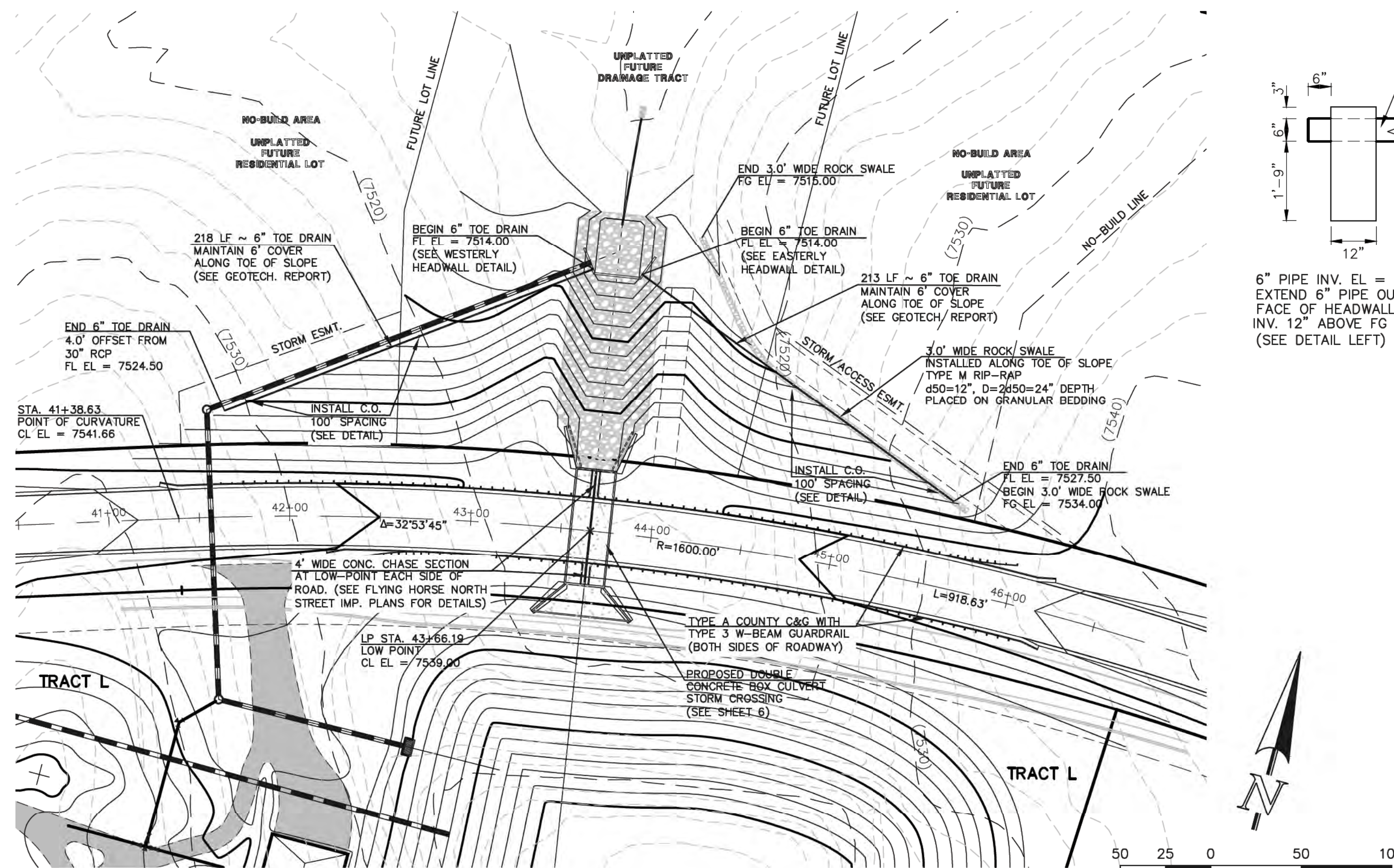
CLASSIC
CONSULTING ENGINEERS & SURVEYORS
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719) 785-0790
(719) 785-0799 (Fax)

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085
FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT
DETENTION/SWQ OUTLET BOX DESIGN
DAM ID - 080459
DESIGNED BY: MAW
DRAWN BY: MAW
CHECKED BY:
SCALE: (H) 1"= 2'
(V) 1"= 2'
DATE: 1-4-18
SHEET 9 OF 14
JOB NO. 1096.11

C:\Users\j\Documents\CONSTRUCT\TRN\Jurisdictional\Plan\9-10\9010-1-SWG\util\Details\AS-Built\Flowing\1/22/2020\11-431016.dwg
 1/22/2020 11:43:06 AM

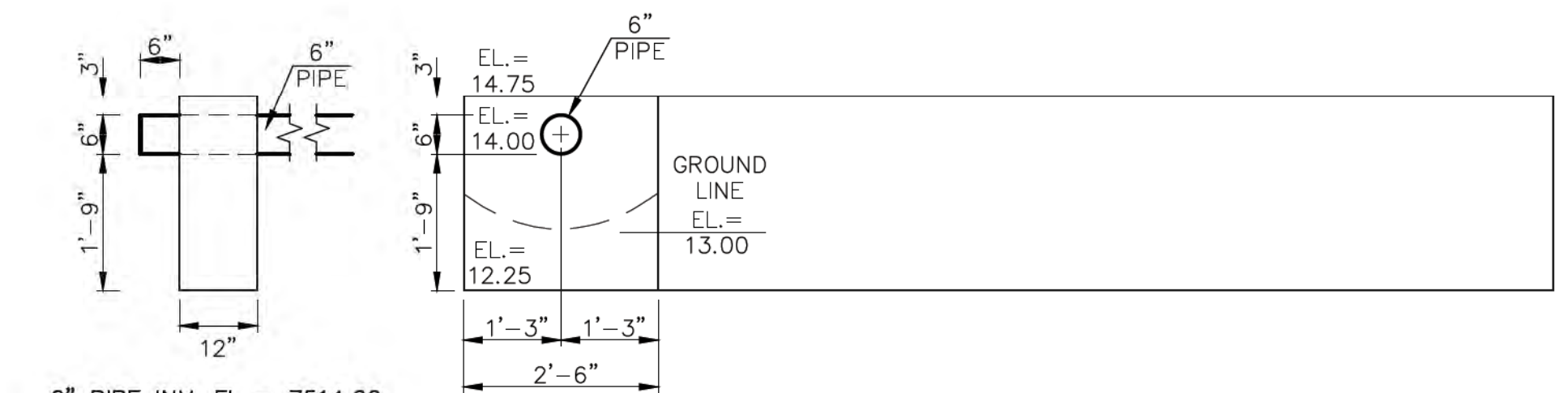


NOTE:
 CONSTRUCT CLAY DAM A MINIMUM OF 10 FEET UPGRADIENT OF TIE-IN TO PLUNGE POOL TOE WALL. THE CLAY DAM SHALL EXTEND ONE FOOT BEYOND THE DRAIN PIPE CONNECTION TO SOLID PIPE, IN BOTH DIRECTIONS. THE CLAY DAM SHALL EXTEND TO WITHIN ONE FOOT OF THE BLANKET DRAIN OR DOWNSTREAM DAM SURFACE. THE CLAY DAM SHALL BE NOTCHED INTO THE SIDEWALLS OF THE PIPE TRENCH A MINIMUM OF 4 INCHES. THE CLAY SOILS SHALL HAVE A MINIMUM PI OF 25 AND COMPACTED TO THE REQUIREMENTS OF STRUCTURAL FILL.



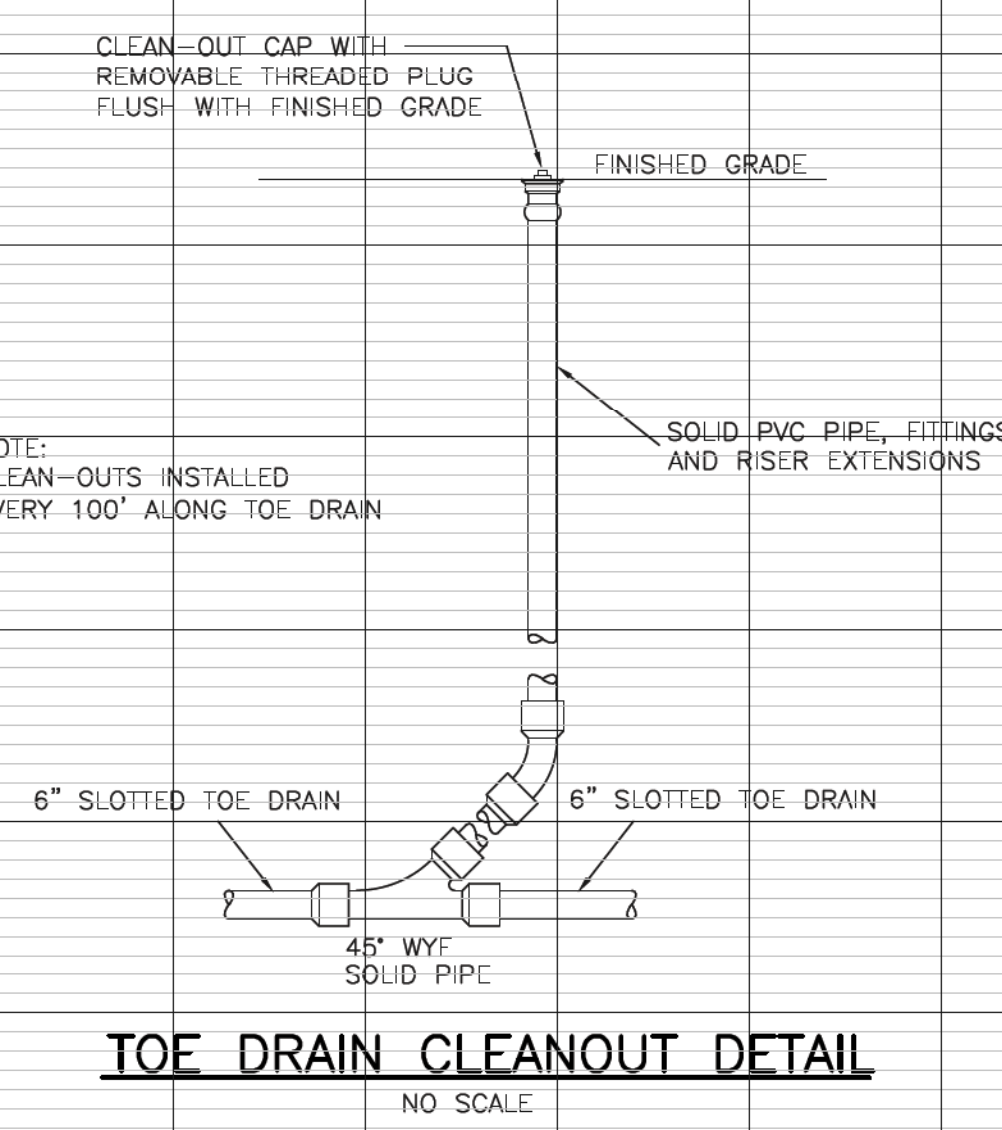
WESTERLY OUTLET HEADWALL

6" PIPE INV. OUT EL = 7514.00
 30" RCP INV. OUT EL = 7513.50
 EL AT TOP OF SADDLEWALL = 7514.75
 EL AT BOTTOM SADDLEWALL = 7512.25

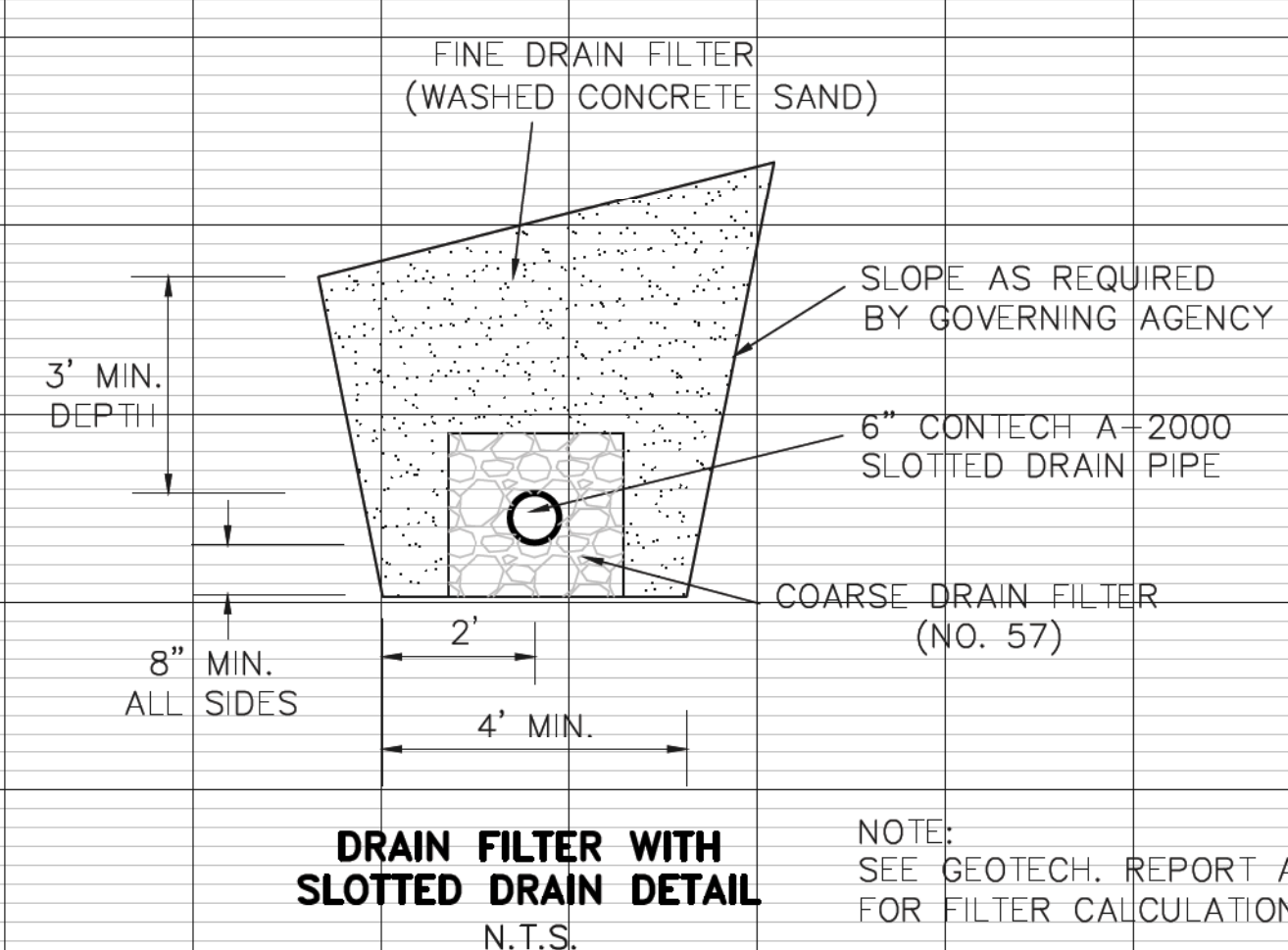
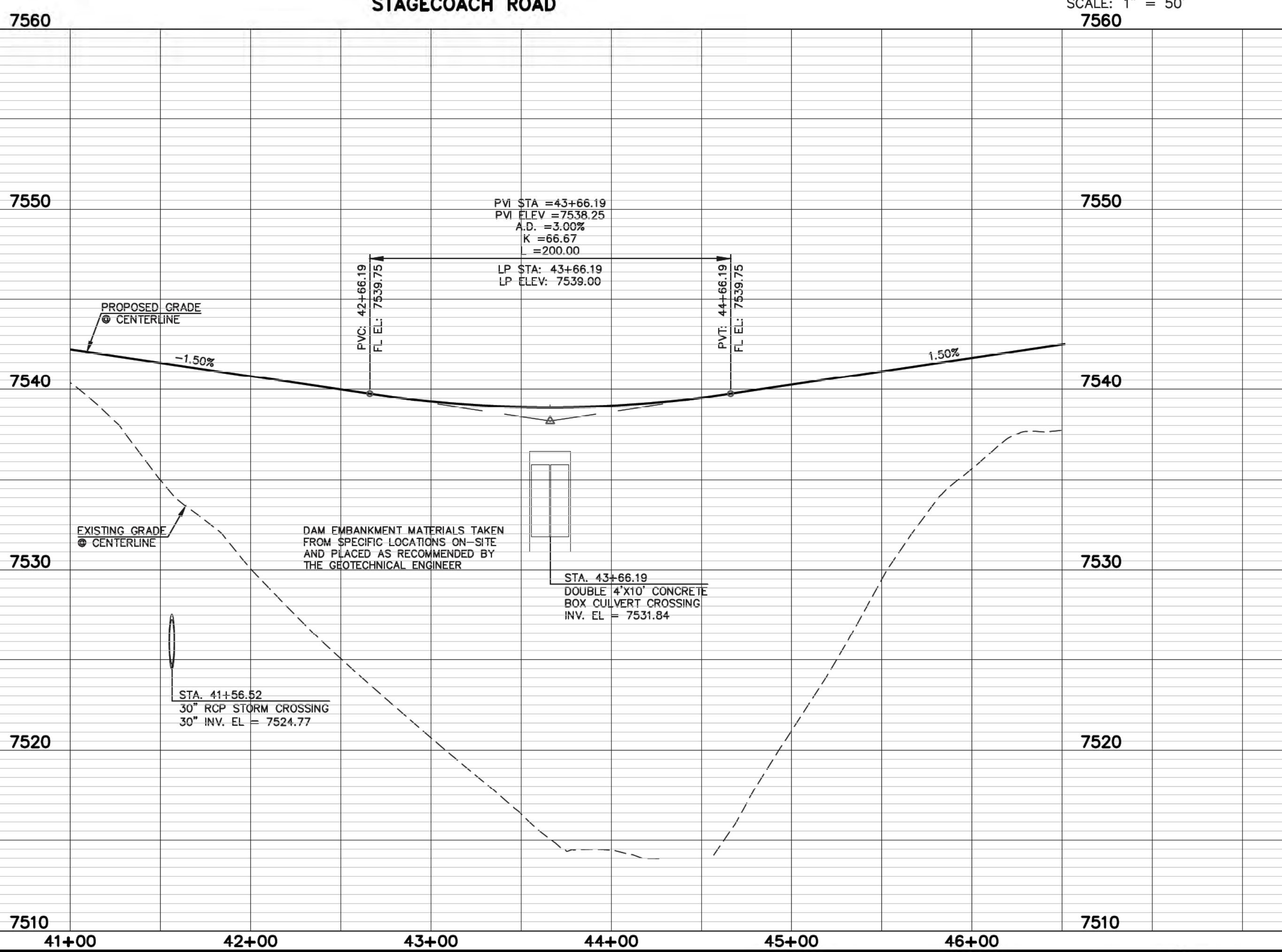


EASTERLY OUTLET HEADWALL

6" PIPE INV. OUT EL = 7514.00
 EL AT TOP OF SADDLEWALL = 7514.75
 EL AT BOTTOM SADDLEWALL = 7512.25



TOE DRAIN CLEANOUT DETAIL
 NO SCALE



DRAIN FILTER WITH SLOTTED DRAIN DETAIL
 N.T.S.

NOTE:
 SEE GEOTECH. REPORT APPENDIX D FOR FILTER CALCULATIONS/DETAILS.

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS 811 UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW		NO. REVISION	DATE
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.		1	REVISED PER STATE COMMENTS 5-14-18
		2	REVISED PER COUNTY COMMENTS 7-31-18

REVIEW:
 PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

 MARC A. WHORTON / COLORADO P.E. #37155
 DATE: 9/17/18

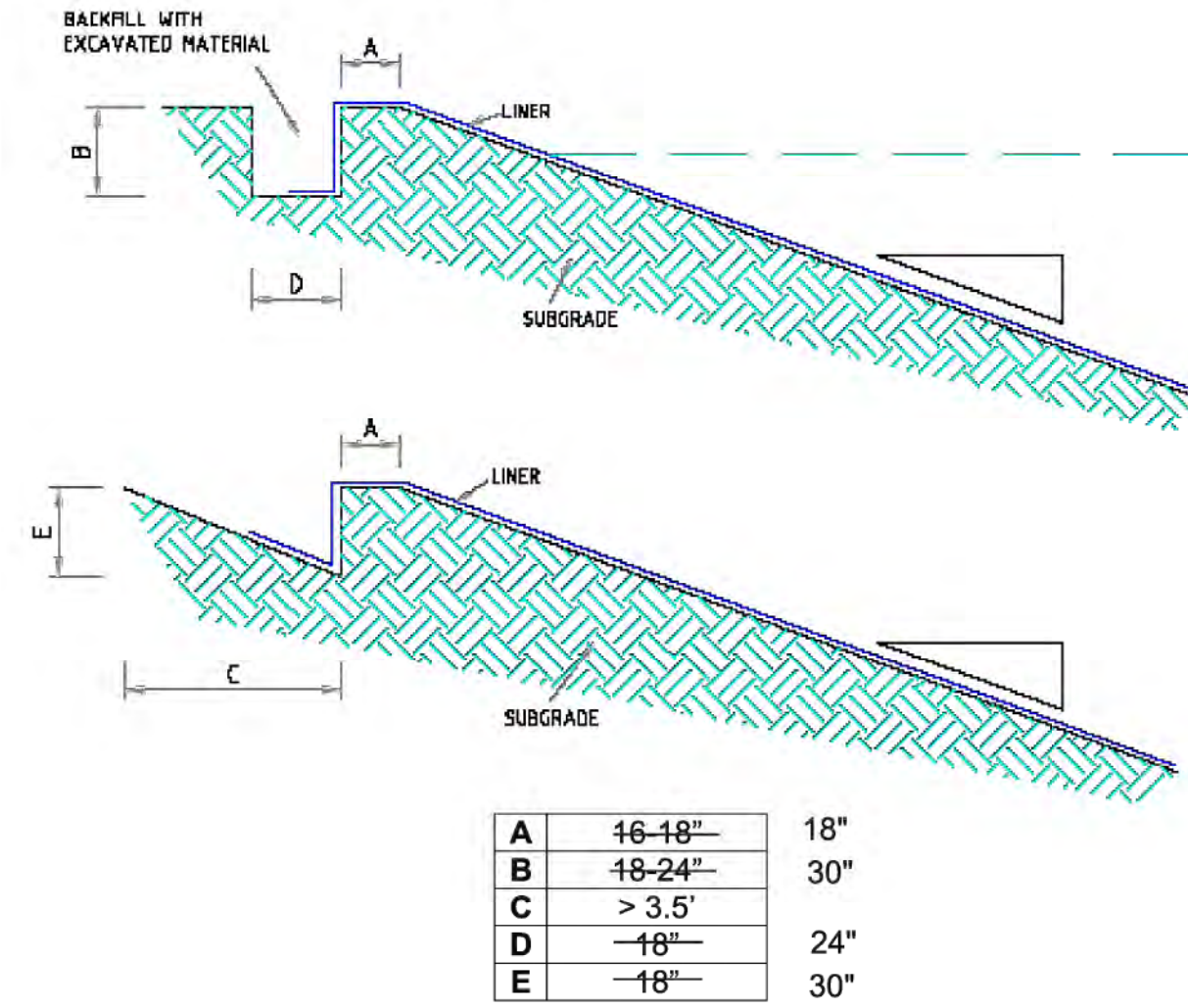
CLASSIC CONSULTING ENGINEERS & SURVEYORS
 619 N. Cascade Avenue, Suite 200
 Colorado Springs, Colorado 80903
 (719) 785-0790
 (719) 785-0799 (fax)

FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT
 ROAD EMBANKMENT / TOE DRAIN DESIGN
 DAM ID - 080459

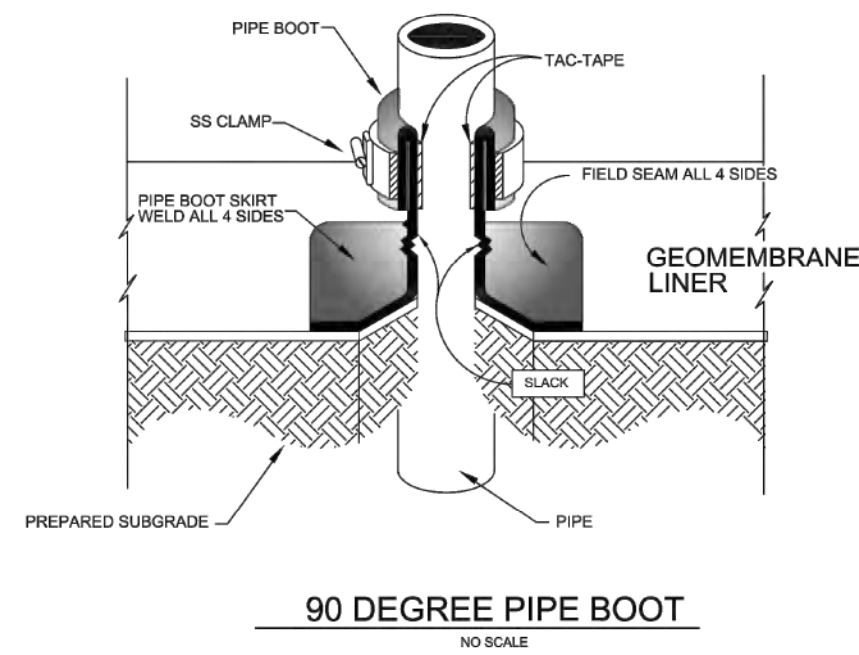
DESIGNED BY	MAW	SCALE	DATE	1-4-18
DRAWN BY	MAW	(H) 1" = 50'	SHEET	10 OF 14
CHECKED BY	(V) 1" = 5'	JOB NO.	1096.11	

N:\090611\DRAWINGS\CONSTRUCTION\Jurisdictional Plans\10-40_POND - Embankment Profiles - Toe Drain REV.dwg, 8/22/2018 1:25:11 PM, 1:1

14 Appendix C – Anchor Trench examples



LINER ANCHOR TRENCH DETAIL



MATERIALS AND DIMENSIONS SHOWN ARE FOR GENERAL INFORMATION ONLY, AND SHOULD BE DETERMINED BY SITE SPECIFIC DESIGN.

Drawing Title: **STANDARD DETAIL 90 DEGREE PIPE BOOT**
 Date: 11/26/11
 Scale: 4" = 9'
 Revision: 15 SHOWN

Consolidated Divisions Inc.
 5585 W. Airport Road
 Suite 100
 Skidmore, CO 80135
 Phone: 303-471-1522
 Fax: 303-470-3197

Watersaver Company
 5870 E. 56th Ave.
 Commerce City, CO 80022
 Phone: 303-289-1818
 Fax: 303-287-3136

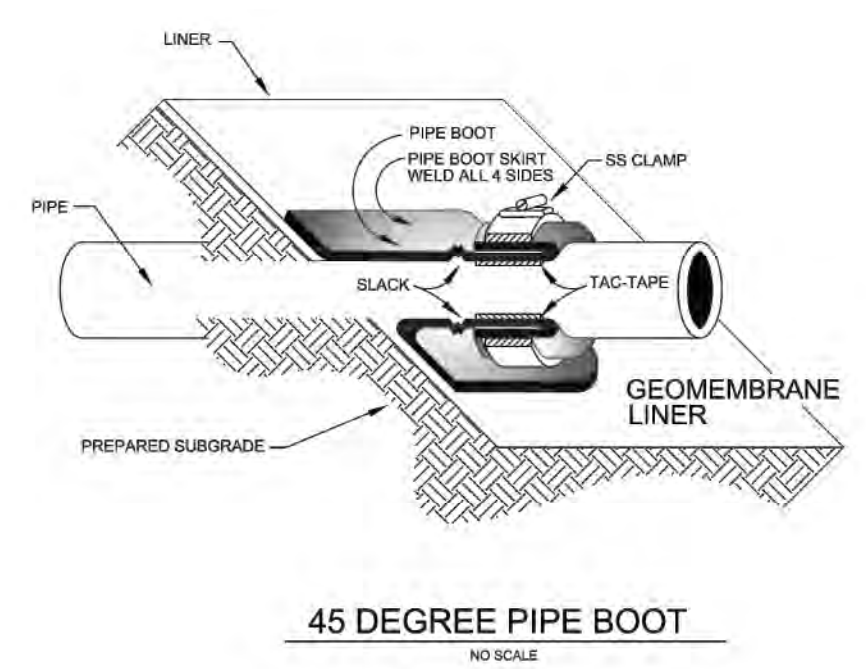
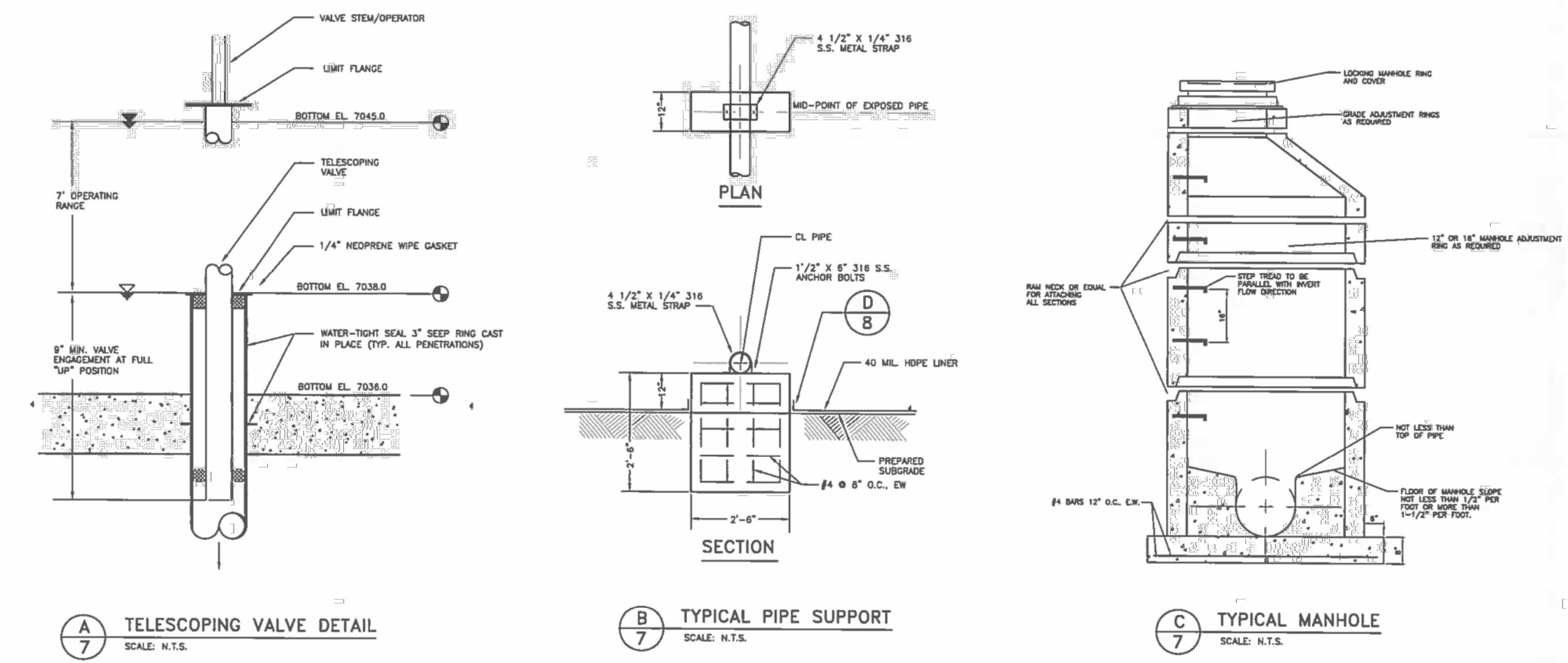
SOLMAX TECHNICAL DATA SHEET
 LLDPE 7000 Series, 30 mils
 Black, Smooth
 Solmax, 2901 Blvd. Marie-Victorie, Vancouver, Qc, Canada, J3X 1P7
 Tel: (450) 929-1234 Fax: (450) 929-2559 www.solmax.com

PROPERTY	TEST METHOD	FREQUENCY ⁽¹⁾	UNIT	1020269
SPECIFICATIONS				
Thickness (Nominal ±10%) (11)	ASTM D-5199	Every roll	mils	30.0
Resin Density	ASTM D-1505	Certified	g/cc	< 0.926
Melt Index - 190/2.16 (max.)	ASTM D-1238	Certified	g/10 min	1.0
Sheet Density (8)	ASTM D-792	1/Batch	g/cc	≤ 0.939
Carbon Black Content (9)	ASTM D-4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D-5596	Every 10 rolls	Category	Cat. 1 & Cat. 2
OIT - standard (avg.)	ASTM D-3895	Per formulation	min	100
Tensile Properties (min. avg.) (2)				
Strength at Break	ASTM D-6693	Every 5 rolls	ppi	114
Elongation at Break			%	800
2% Modulus (max.)	ASTM D-5323	Per formulation	ppi	1,800
Tear Resistance (min. avg.)	ASTM D-1004	Every 10 rolls	lbf	15
Puncture Resistance (min. avg.)	ASTM D-4833	Every 10 rolls	lbf	42
Dimensional Stability	ASTM D-1204	Certified	%	± 2
Multi-Axial Tensile (min.)	ASTM D-5617	Per formulation	%	30
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation	%	35
STD OIT (min. avg.)	ASTM D-3895		%	60
HP OIT (min. avg.)	ASTM D-5885		%	60
UV Resistance - % retained after 1600 hr	GRI-GM-11	Per formulation	%	35
HP-OIT (min. avg.)	ASTM D-5885		%	35
SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)				
Roll Dimension - Width	-	-	ft	22.3
Roll Dimension - Length	-	-	ft	1,000
Area (Surface/Roll)	-	-	sf	22,300

NOTES
 1. Testing frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar).
 2. Machine Direction (MD) and Cross Machine Direction (CMD or TD) average values should be on the basis of 5 specimens each direction.
 3. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
 4. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.
 5. The minimum average thickness is ± 10% of the nominal value.
 * All values are nominal test results, except when specified as minimum or maximum.
 * The information contained herein is provided for reference purposes only and is not intended as a warranty or guarantee. Final determination of suitability for use contemplated is the sole responsibility of the user. SOLMAX assumes no liability in connection with the use of this information.
 Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

MF-CQ-34 (Rev. 03 / 2016-07-28) Revision Date: 2016-03-02

LAKE LINER SPECIFICATION



MATERIALS AND DIMENSIONS SHOWN ARE FOR GENERAL INFORMATION ONLY, AND SHOULD BE DETERMINED BY SITE SPECIFIC DESIGN.

Drawing Title: **STANDARD DETAIL 45 DEGREE PIPE BOOT**
 Date: 11/26/11
 Scale: 7" = 9'
 Revision: 15 SHOWN

Consolidated Divisions Inc.
 5585 W. Airport Road
 Suite 100
 Skidmore, CO 80135
 Phone: 303-471-1522
 Fax: 303-470-3197

Watersaver Company
 5870 E. 56th Ave.
 Commerce City, CO 80022
 Phone: 303-289-1818
 Fax: 303-287-3136

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 UTILITY NOTIFICATION CENTER OF COLORADO
 IT'S THE LAW

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NO.	REVISION	DATE
1	REVISED PER STATE COMMENTS	5-4-18

REVIEW: PREPARED UNDER THE DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORON, COLORADO P.E. #37155
 DATE: 9/17/18

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

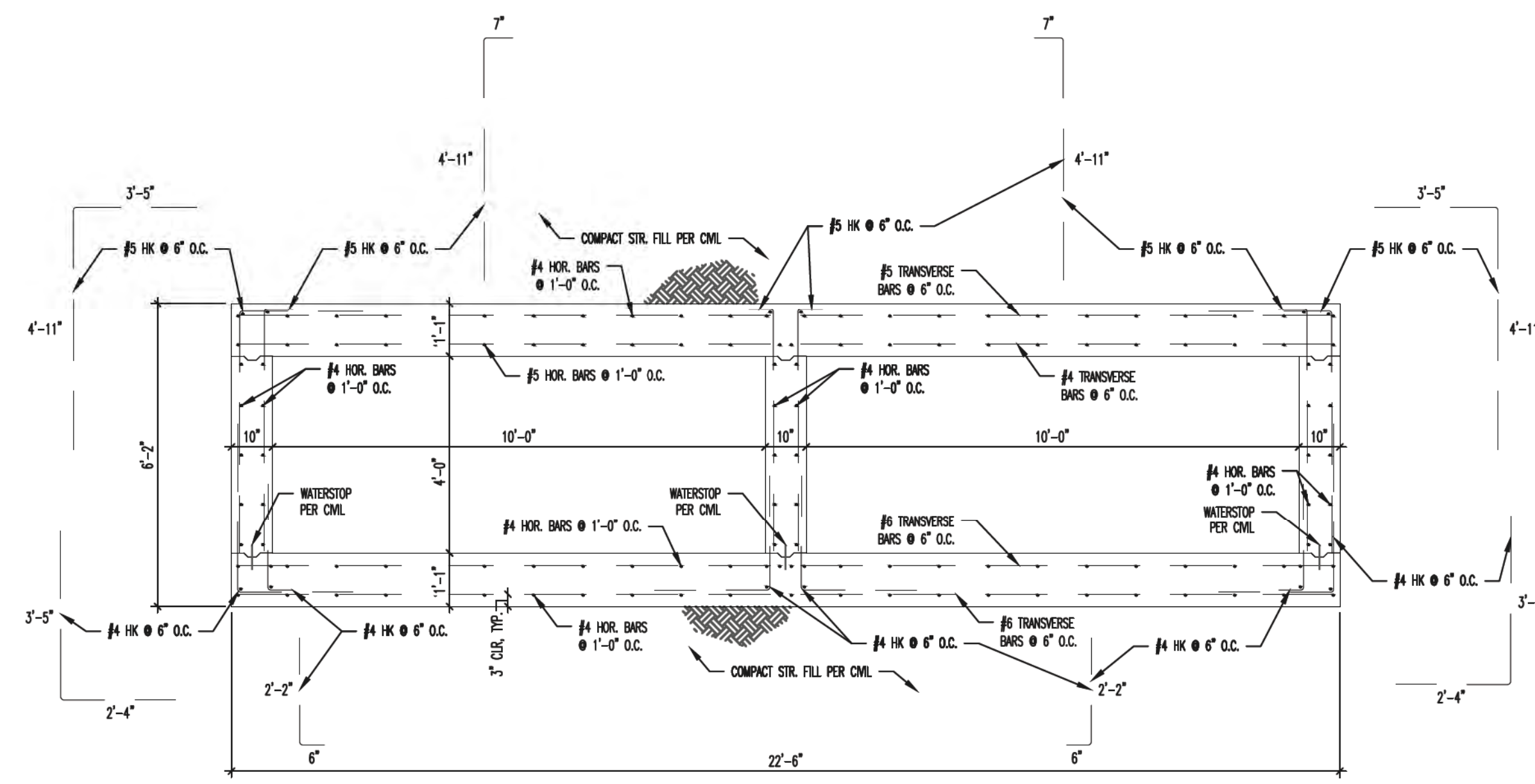
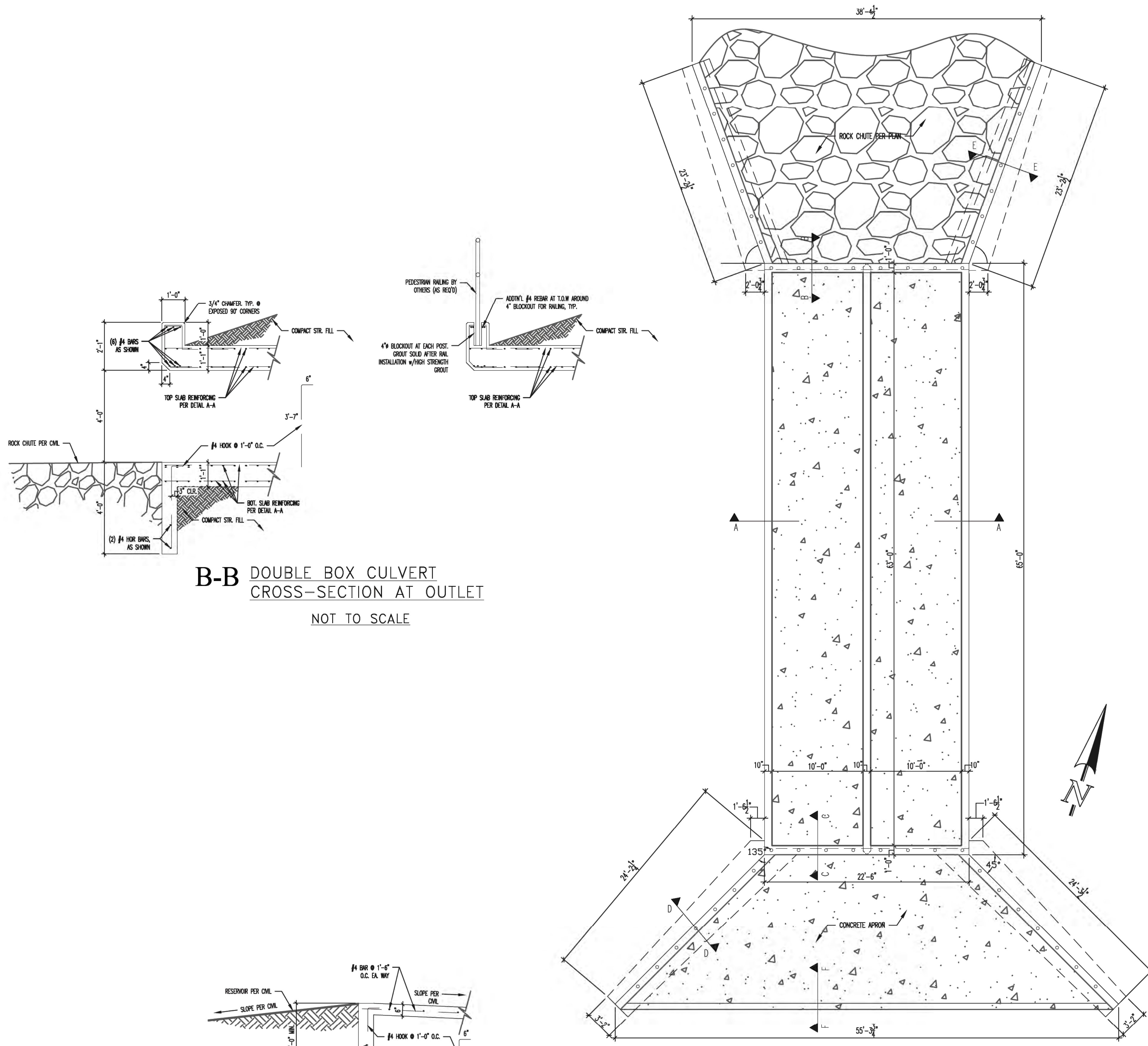
FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT
 LAKE LINER DETAIL SHEET
 DAM ID - 080459

CLASSIC CONSULTING ENGINEERS & SURVEYORS
 619 N. Cascade Avenue, Suite 200
 Colorado Springs, Colorado 80903
 (719) 785-0790
 (719) 785-0799 (Fax)

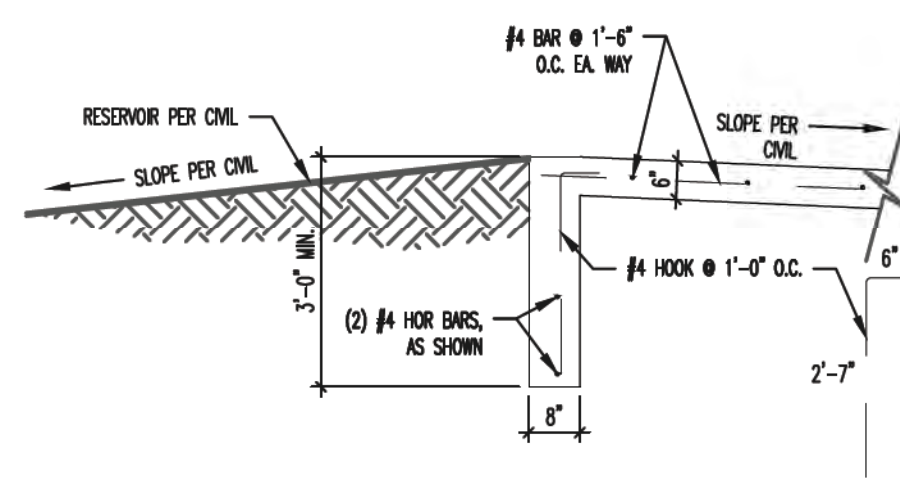
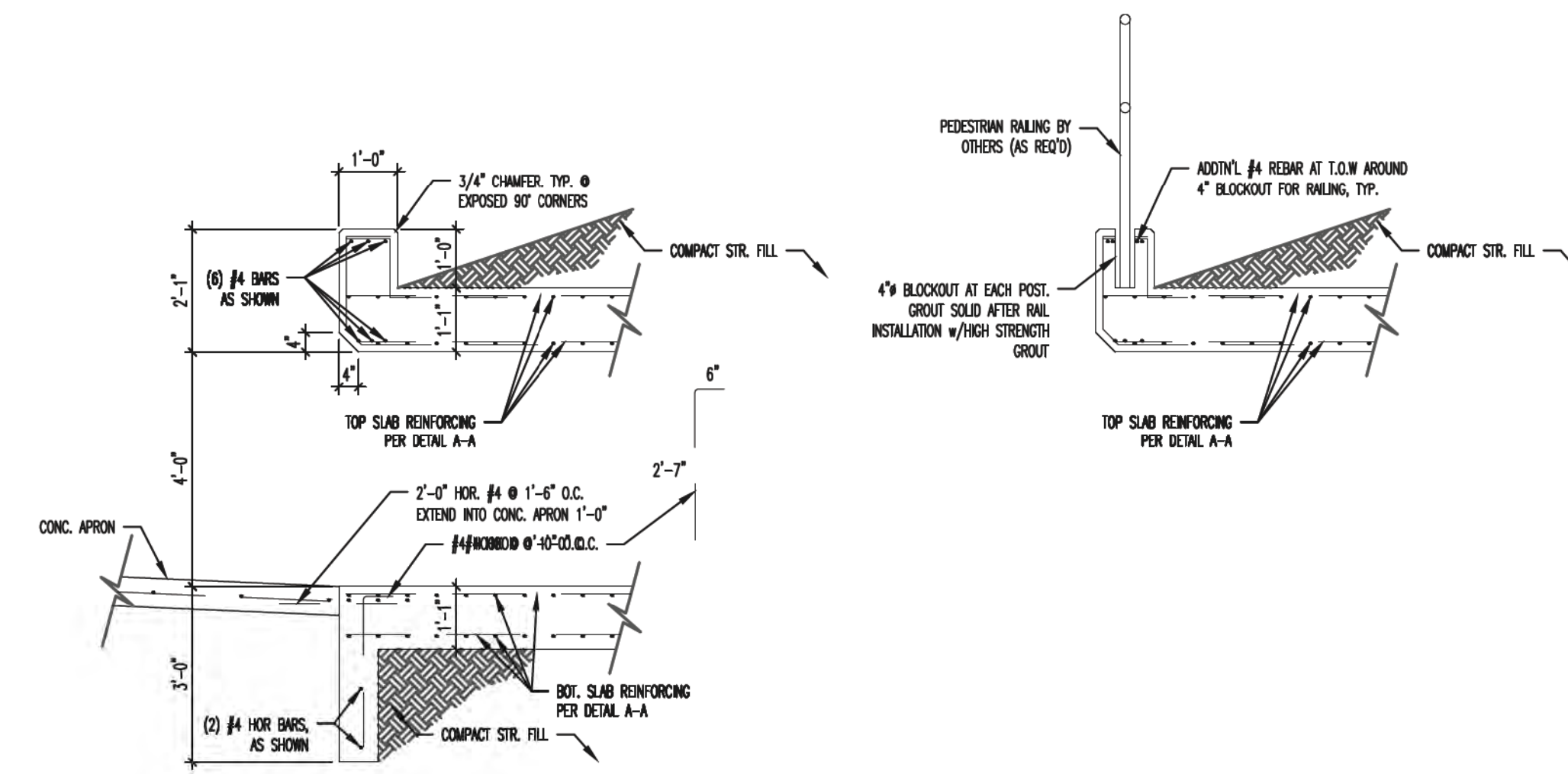
DESIGNED BY: MAW
 DRAWN BY: MAW
 CHECKED BY: (V)

SCALE: (H) 1" = N/A
 SCALE: (V) 1" = N/A

DATE: 1-4-18
 SHEET 11 OF 14
 JOB NO. 1096.11



B-B DOUBLE BOX CULVERT CROSS-SECTION AT OUTLET
NOT TO SCALE



F-F CONCRETE APRON TOE WALL AT INLET
NOT TO SCALE

DOUBLE BOX CULVERT PLAN
NOT TO SCALE

ALL STRUCTURAL DETAILS SHOWN HEREON PROVIDED BY:
ENTECH ENGINEERING, INC.
 505 ELKTON DRIVE
 COLORADO SPRINGS, CO 80907
 719-531-5599

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

<p>48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS 811 UTILITY NOTIFICATION OF COLORADO IT'S THE LAW</p> <p>THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.</p>	NO. REVISION	DATE	REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WILSON, COLORADO P.E. #37155

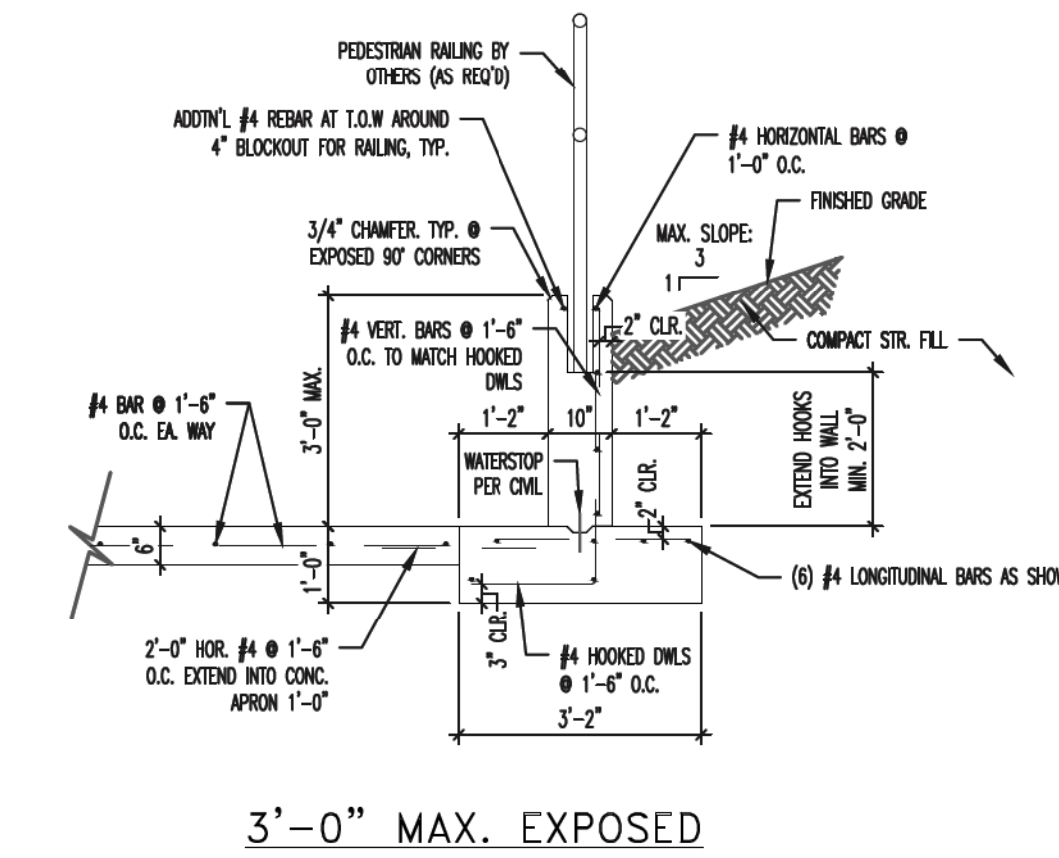
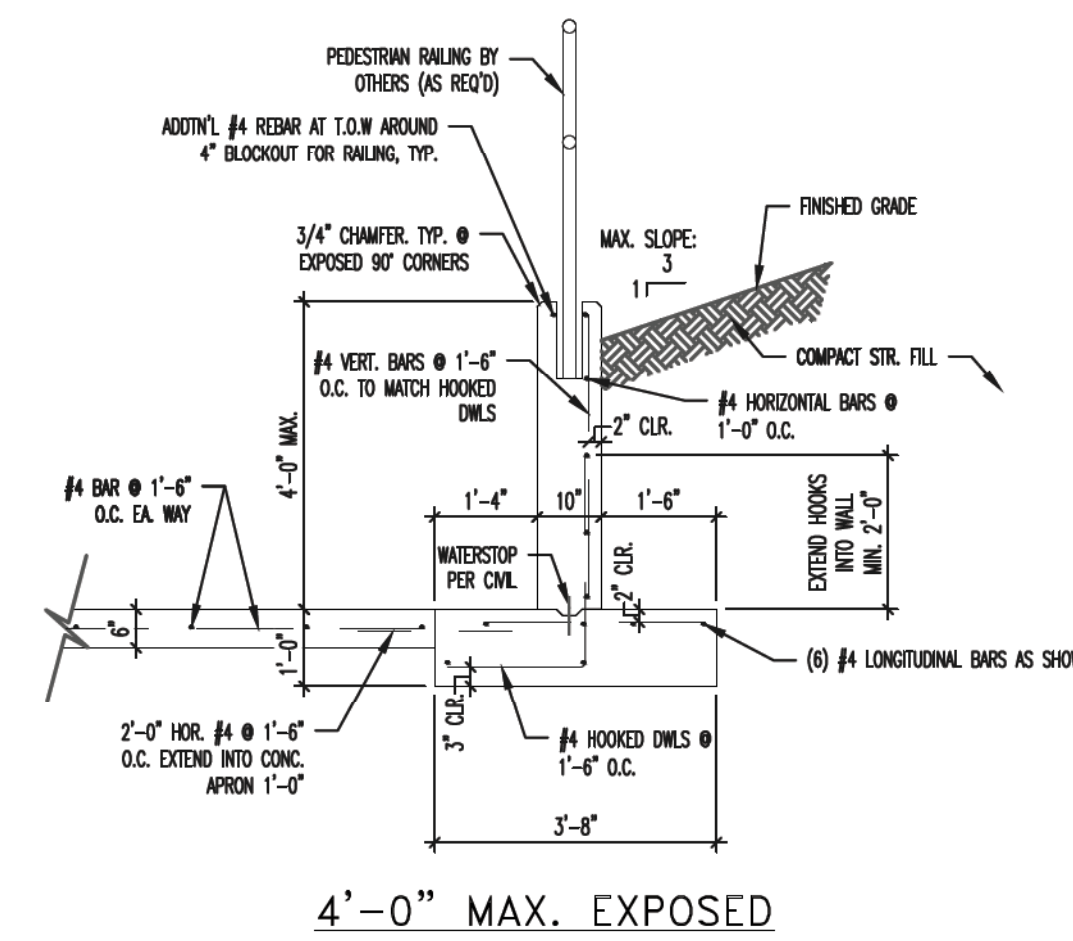
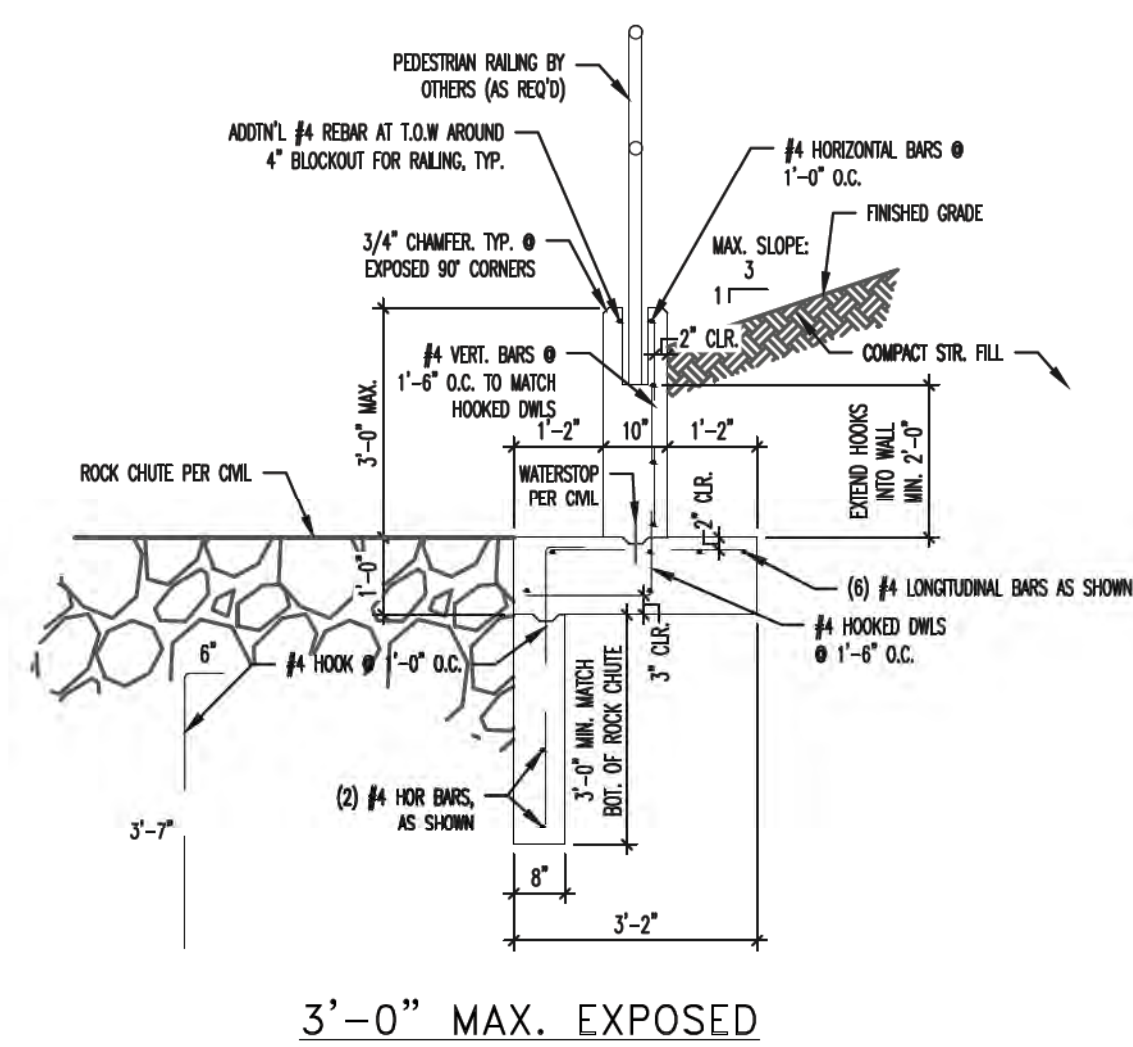
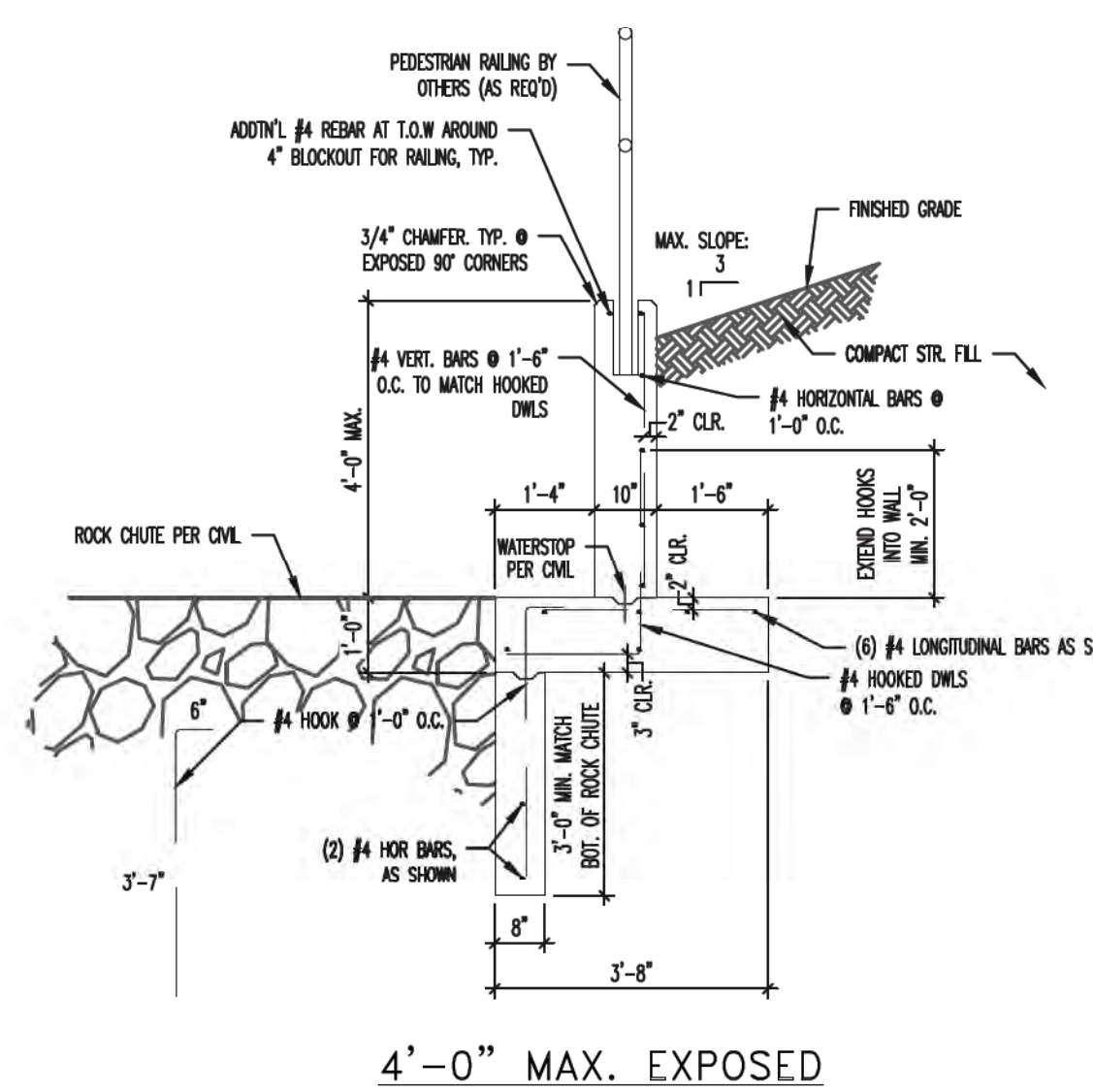
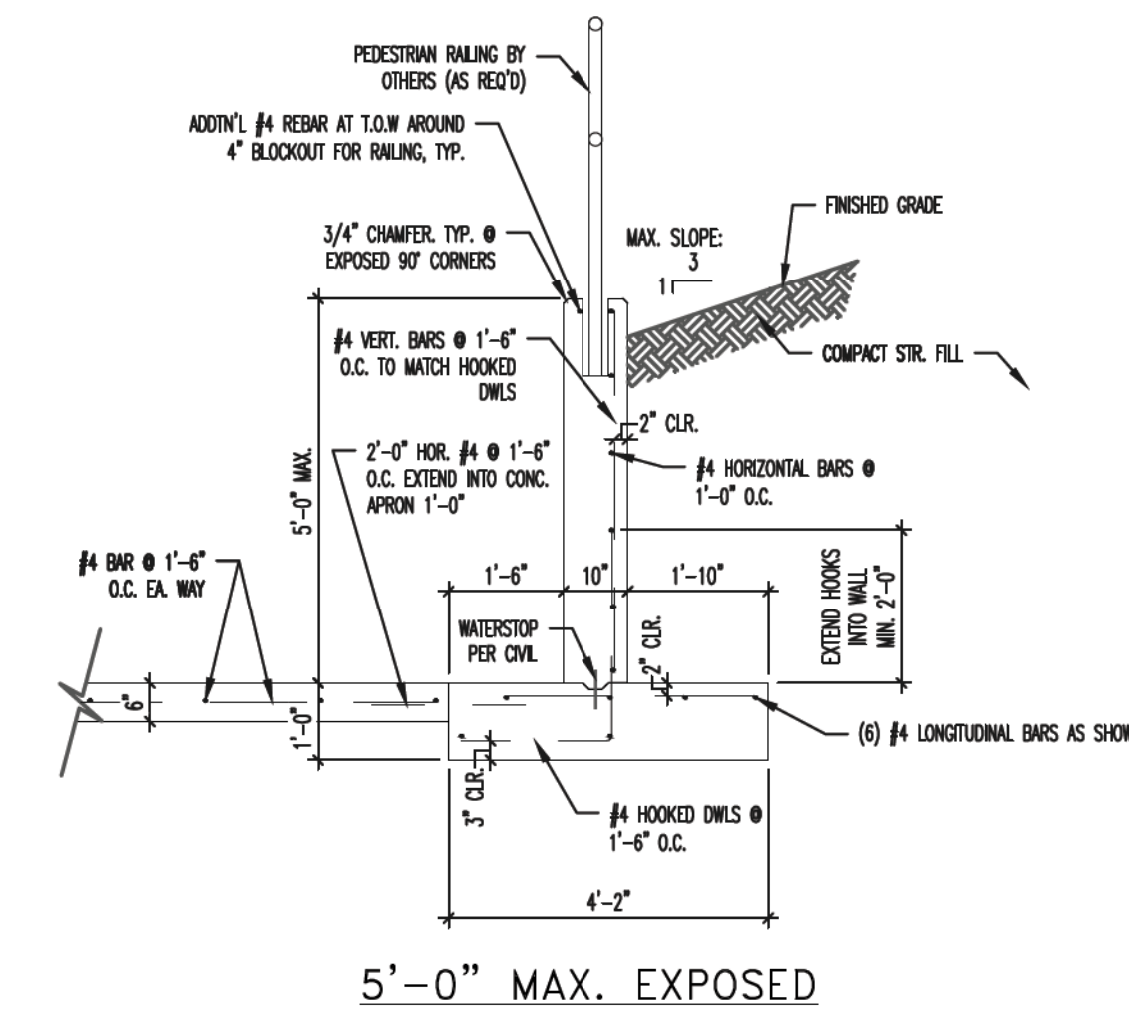
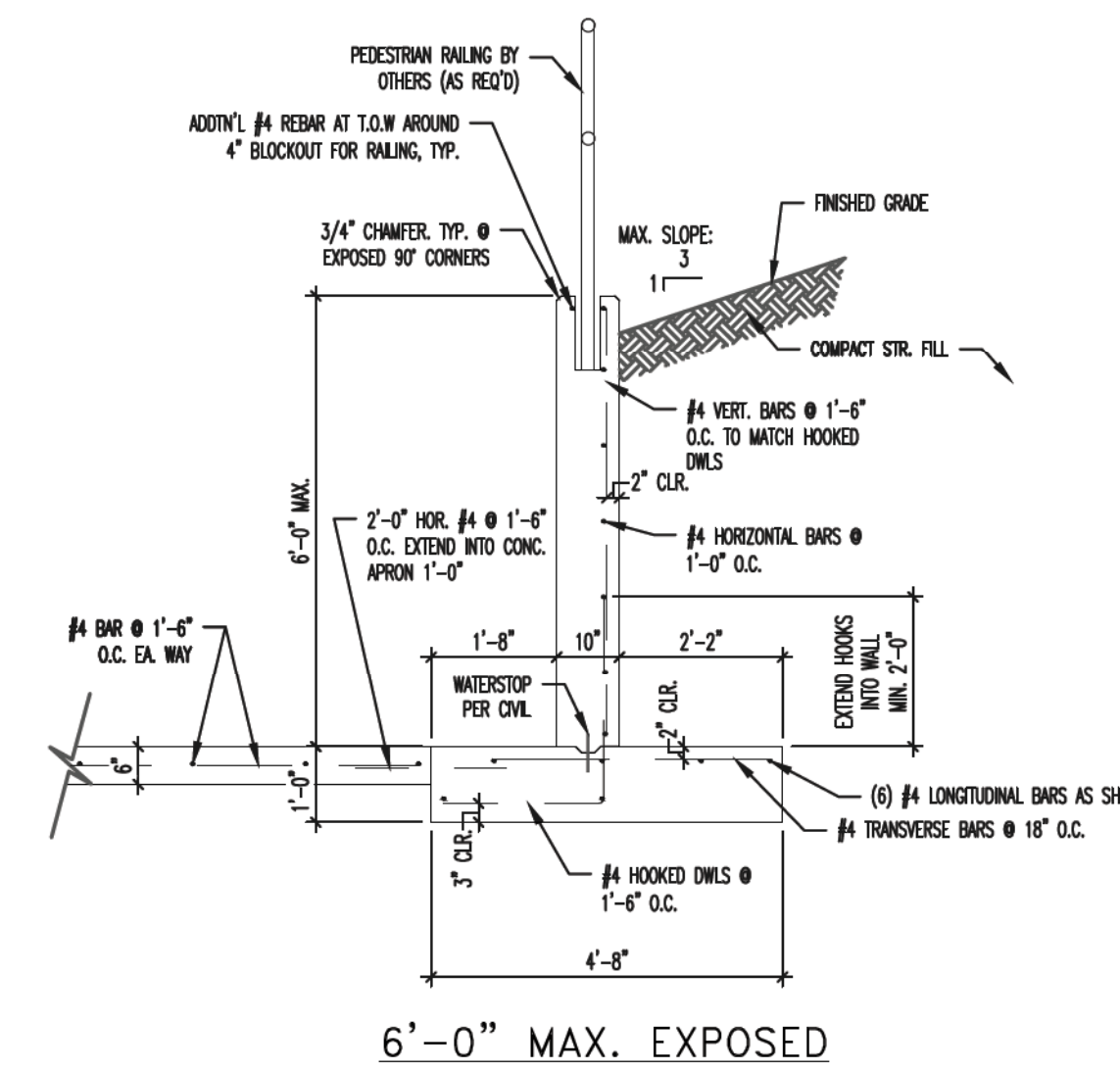
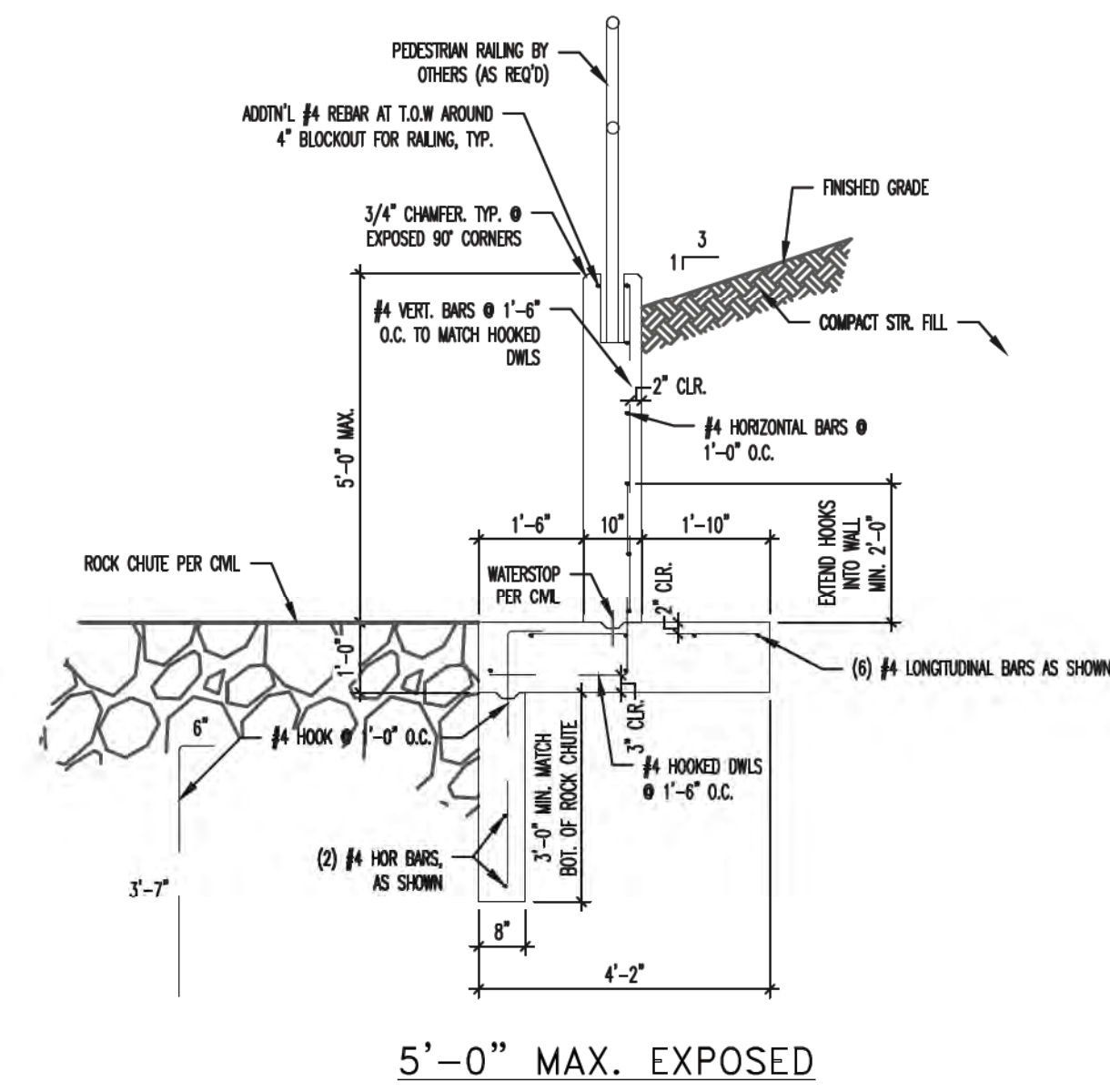
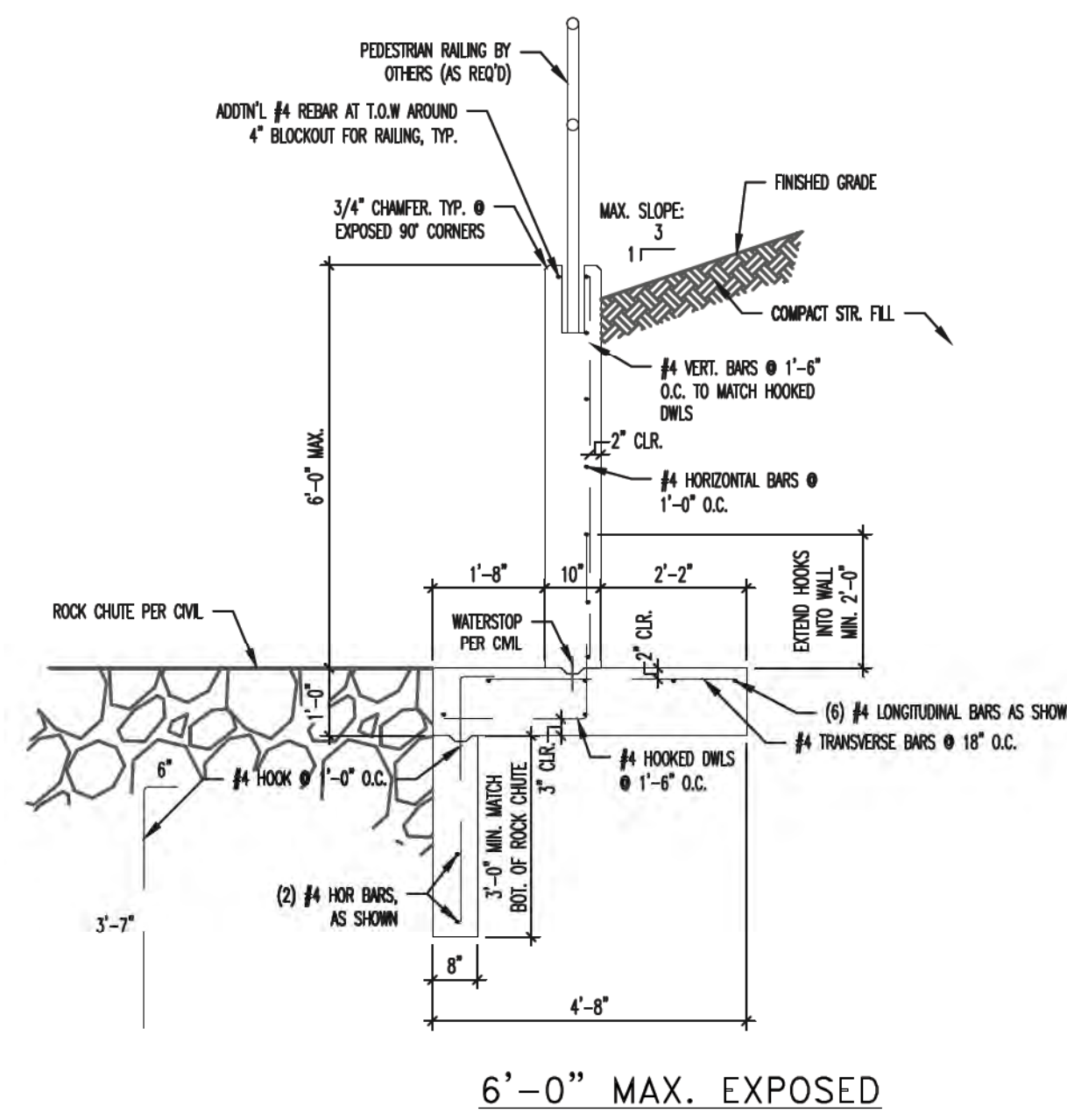
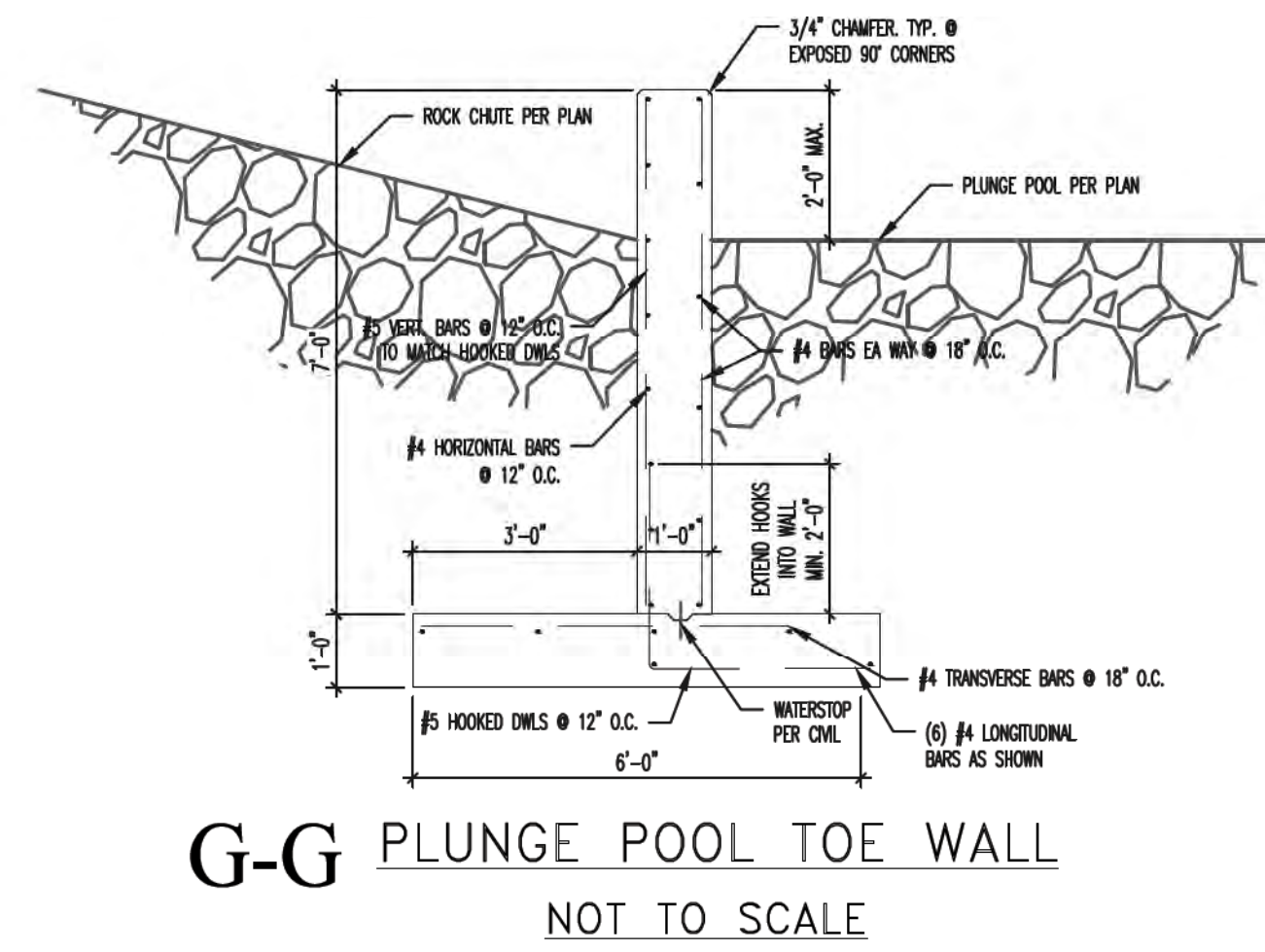
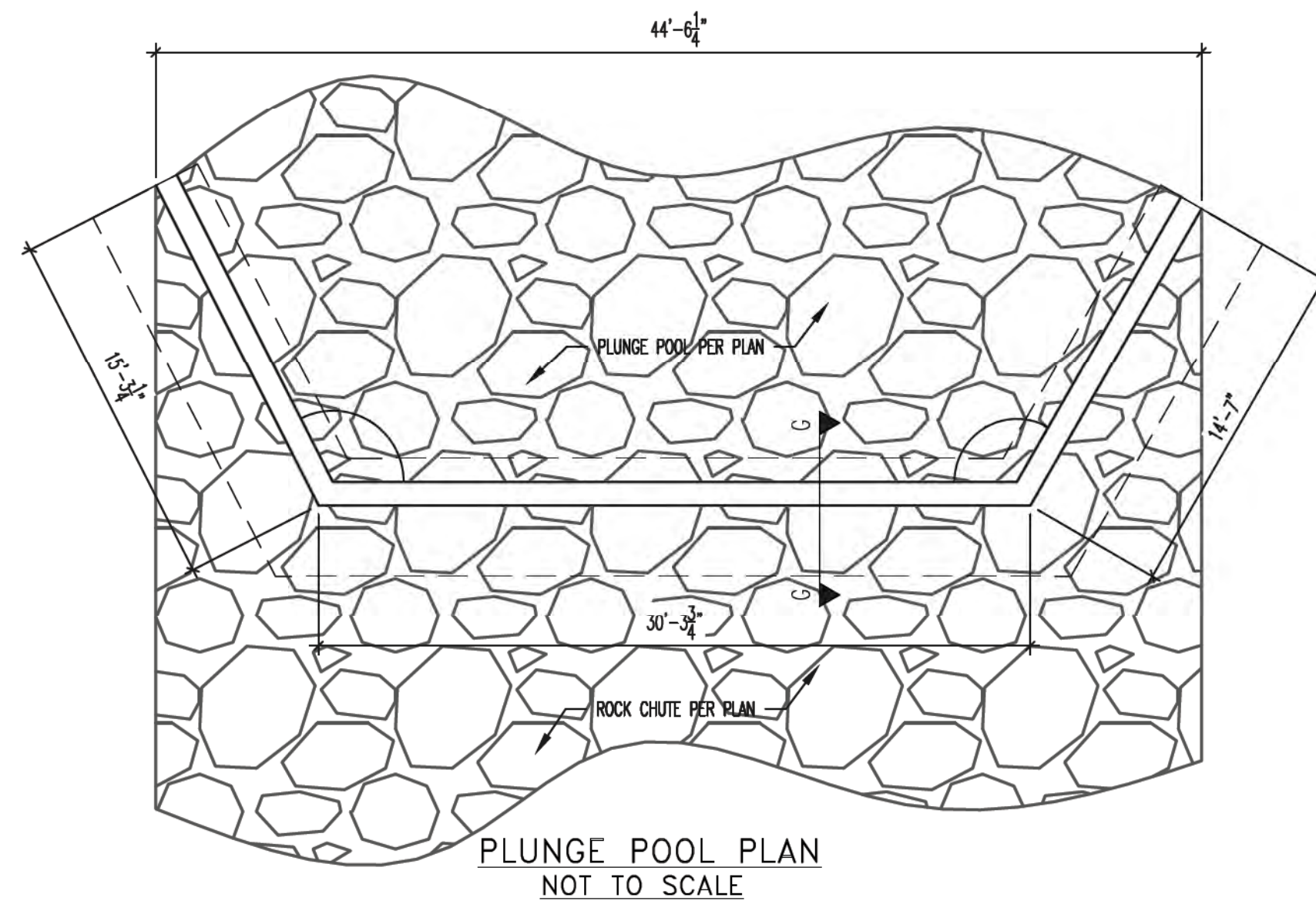
9/17/18 DATE

CLASSIC
CONSULTING ENGINEERS & SURVEYORS

619 N. Cascade Avenue, Suite 200
 Colorado Springs, Colorado 80903
 (719) 785-0790
 (719) 785-0799 (Fax)

FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT			
EMBANKMENT SPILLWAY STRUCTURAL DETAILS			
DAM ID - 080459			
DESIGNED BY	MAW	SCALE	DATE 1-4-18
DRAWN BY	MAW	(H) 1" = N/A	SHEET 12 OF 14
CHECKED BY	(V) 1" = N/A	JOB NO.	1096.11





E-E WING WALL CROSS-SECTIONS AT OUTLET
NOT TO SCALE

D-D WING WALL CROSS-SECTIONS AT INLET
NOT TO SCALE

ALL STRUCTURAL DETAILS SHOWN HEREON PROVIDED BY:
ENTECH ENGINEERING, INC.
505 ELKTON DRIVE
COLORADO SPRINGS, CO 80907
719-531-5599

STATE ENGINEER'S CONSTRUCTION FILE NUMBER: C-2085

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NO. REVISION	DATE

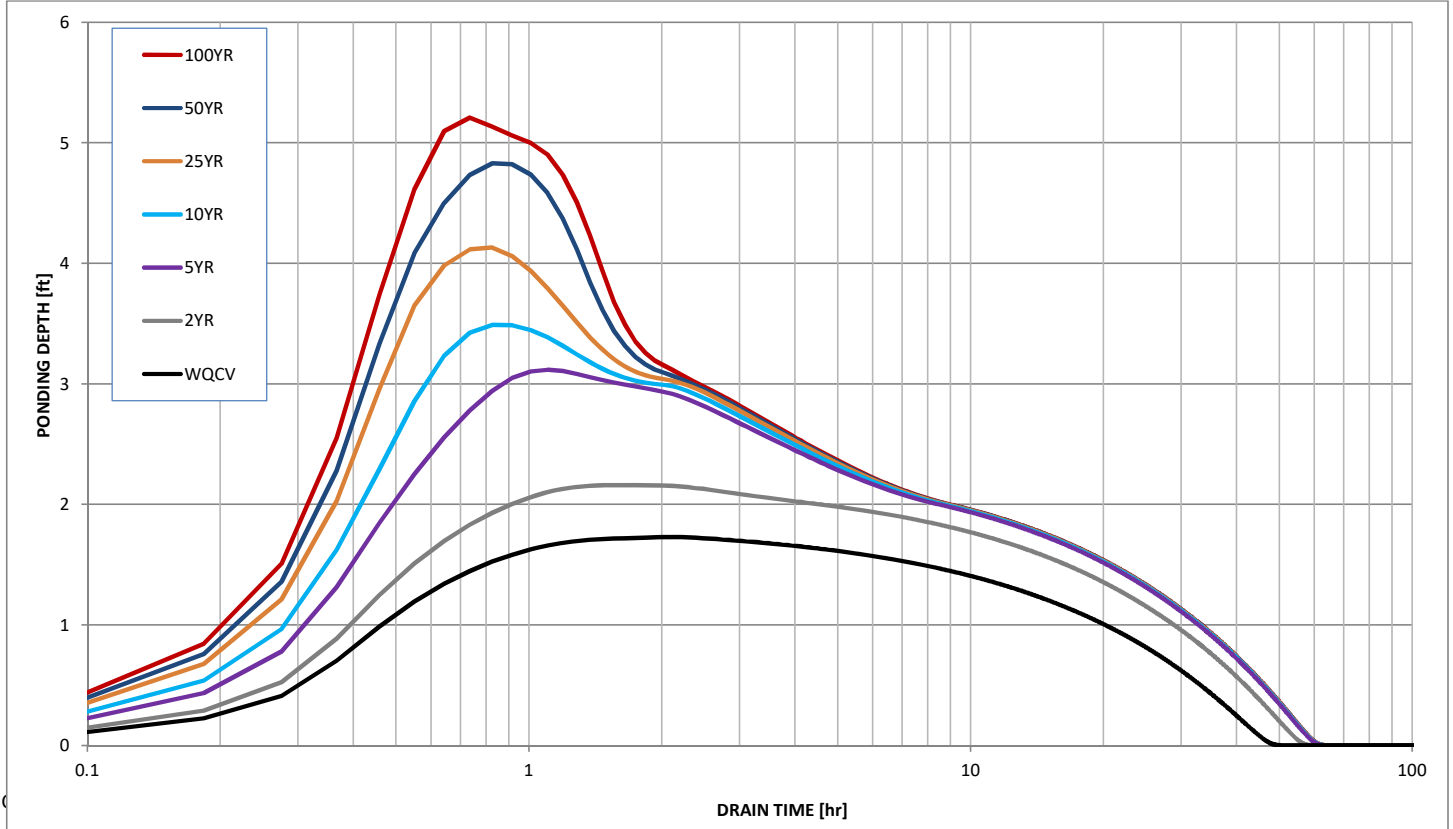
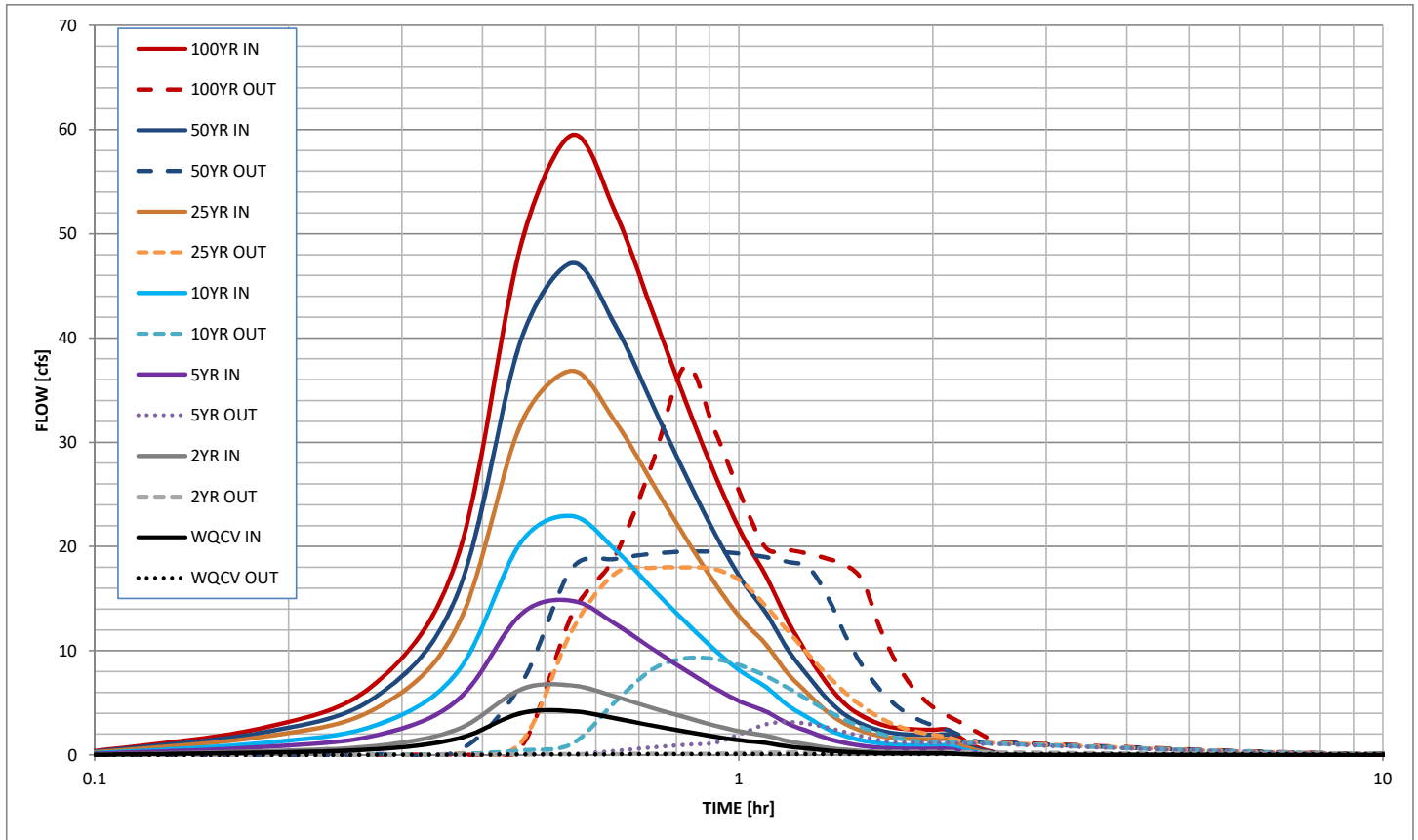
REVIEW:
PREPARED UNDER DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC
MARC A. WHORTON, COLORADO P.E. #37155
DATE: 9/17/18

CLASSIC
CONSULTING ENGINEERS & SURVEYORS
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719) 785-0790
(719) 785-0799 (fax)

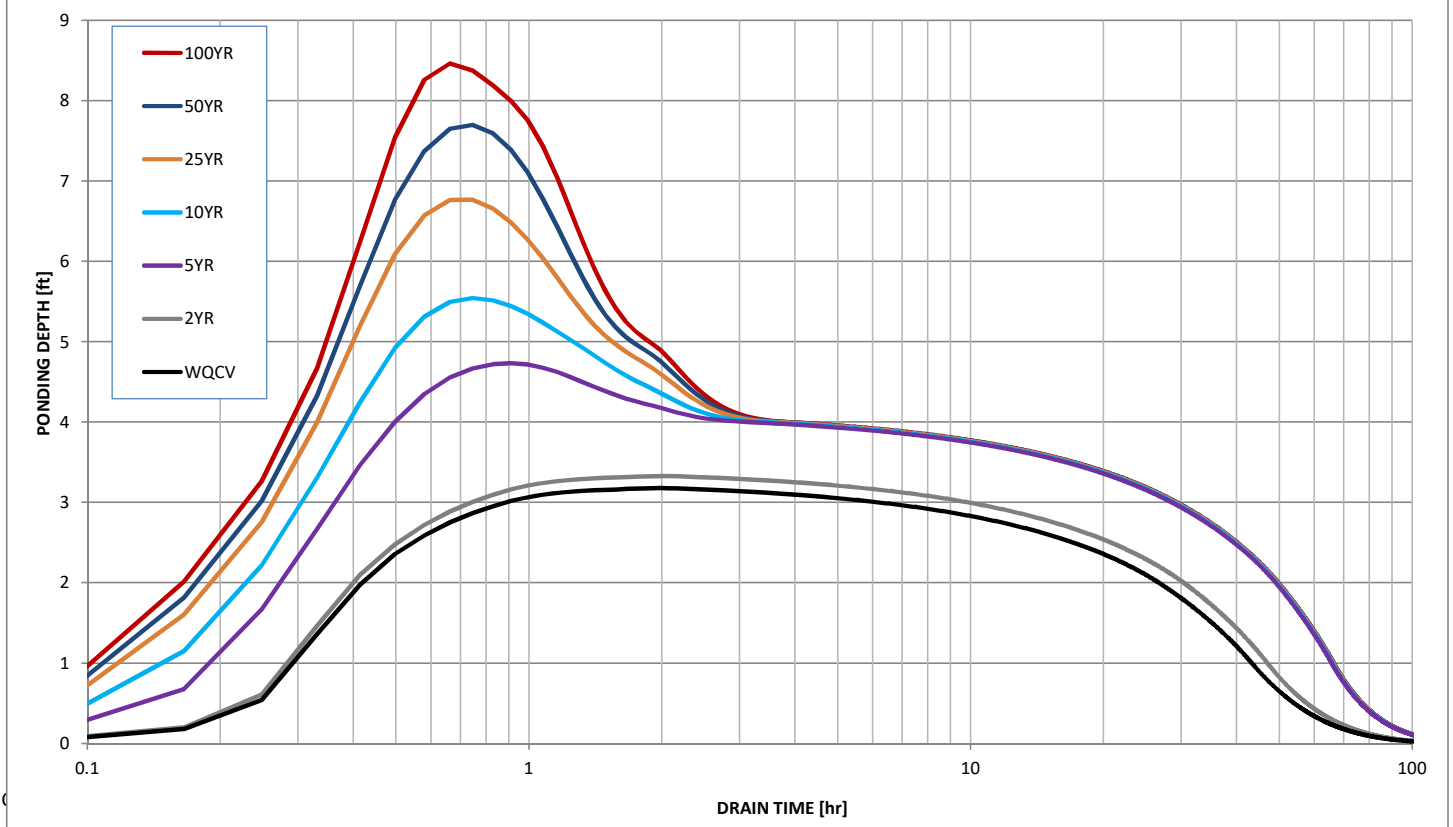
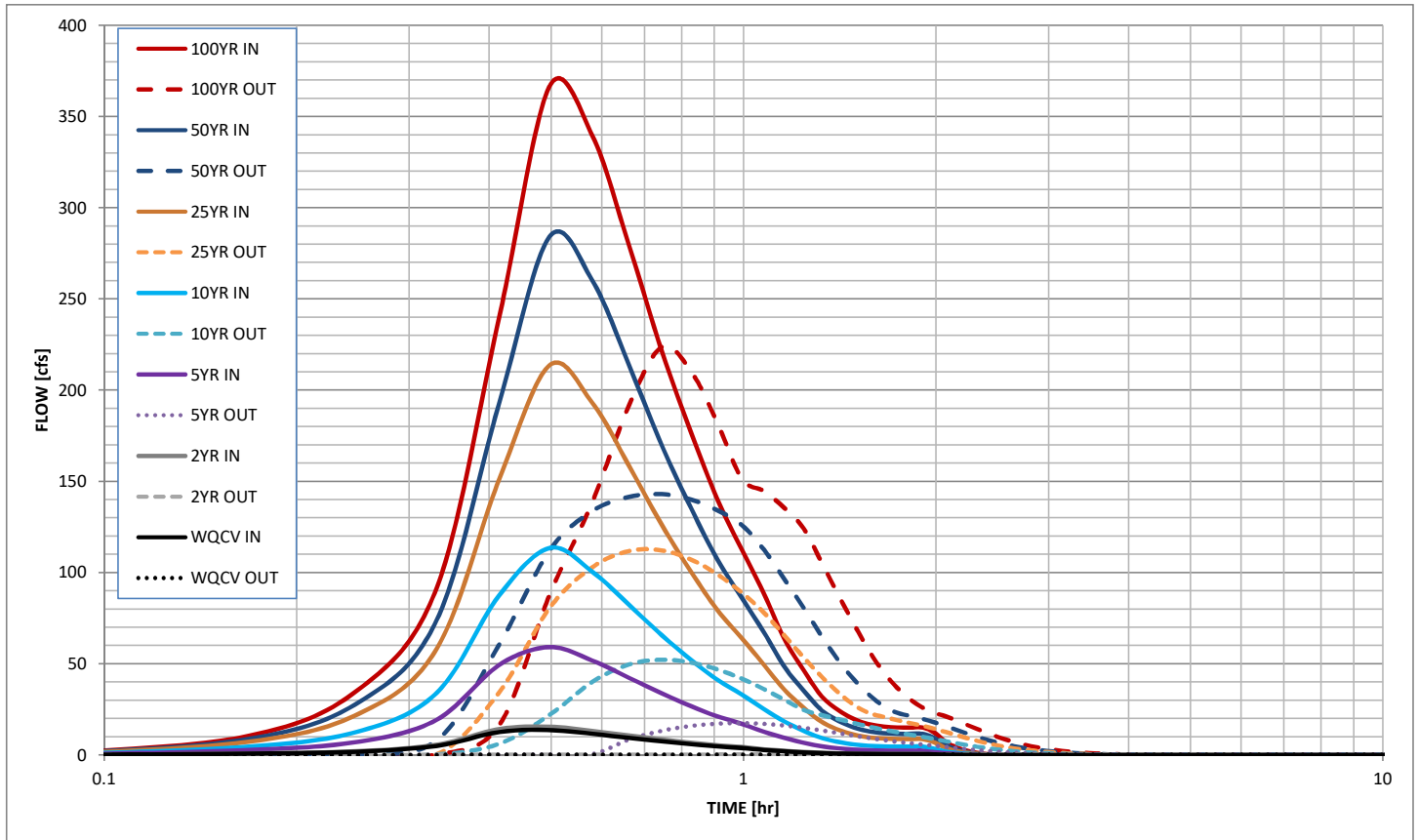
FLYING HORSE NORTH IRRIGATION RESERVOIR EMBANKMENT			
EMBANKMENT SPILLWAY STRUCTURAL DETAILS			
DAM ID - 080459 EPC 9/25/18			
DESIGNED BY	SCALE	DATE	1-4-18
MAW	(H) 1" = N/A	SHEET 13 OF 14	
CHECKED BY	SCALE	JOB NO.	1096.11
MAW	(V) 1" = N/A		

CLASSIC ENGINEERS & SURVEYORS

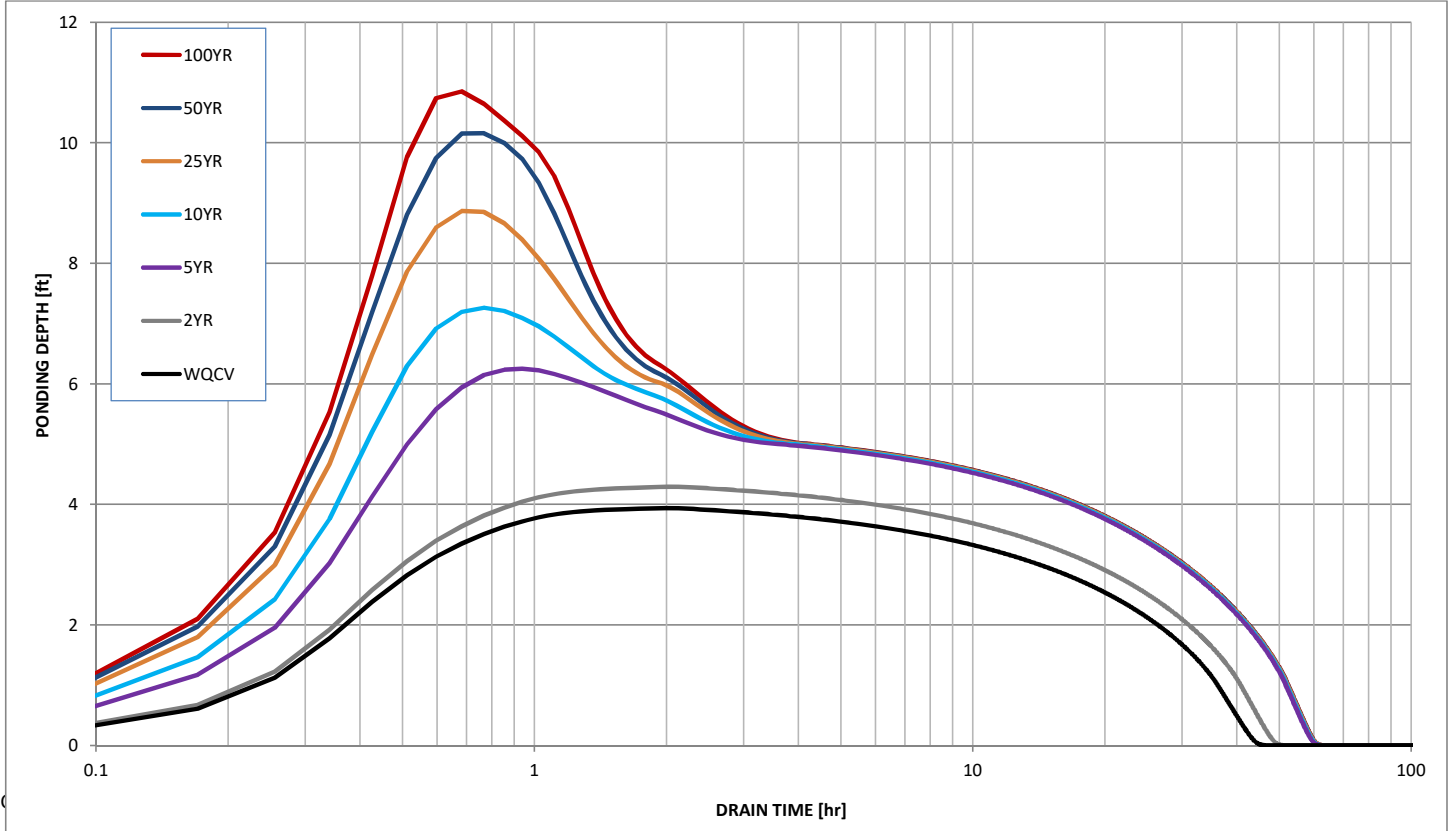
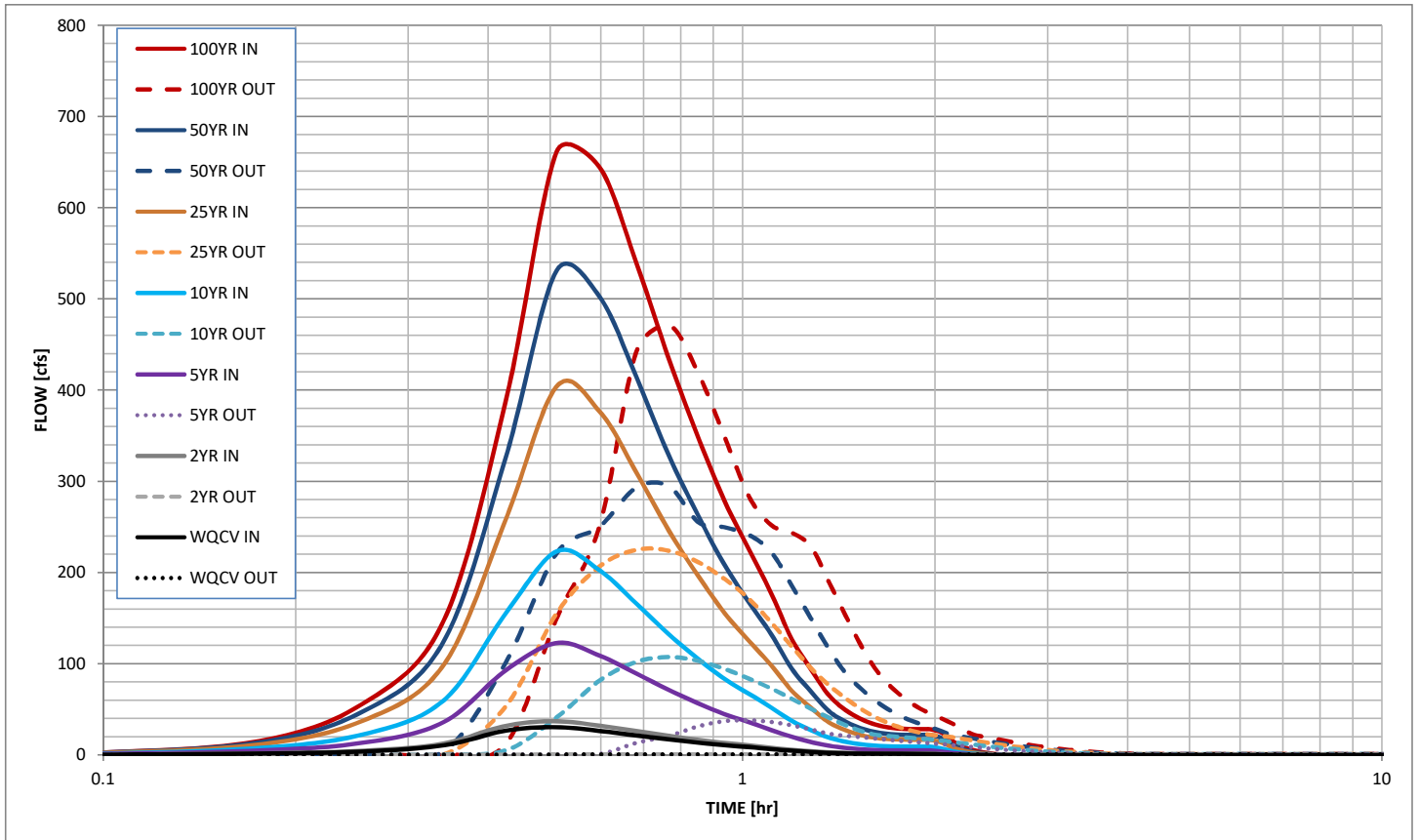
Stormwater Detention and Infiltration Design Data Sheet



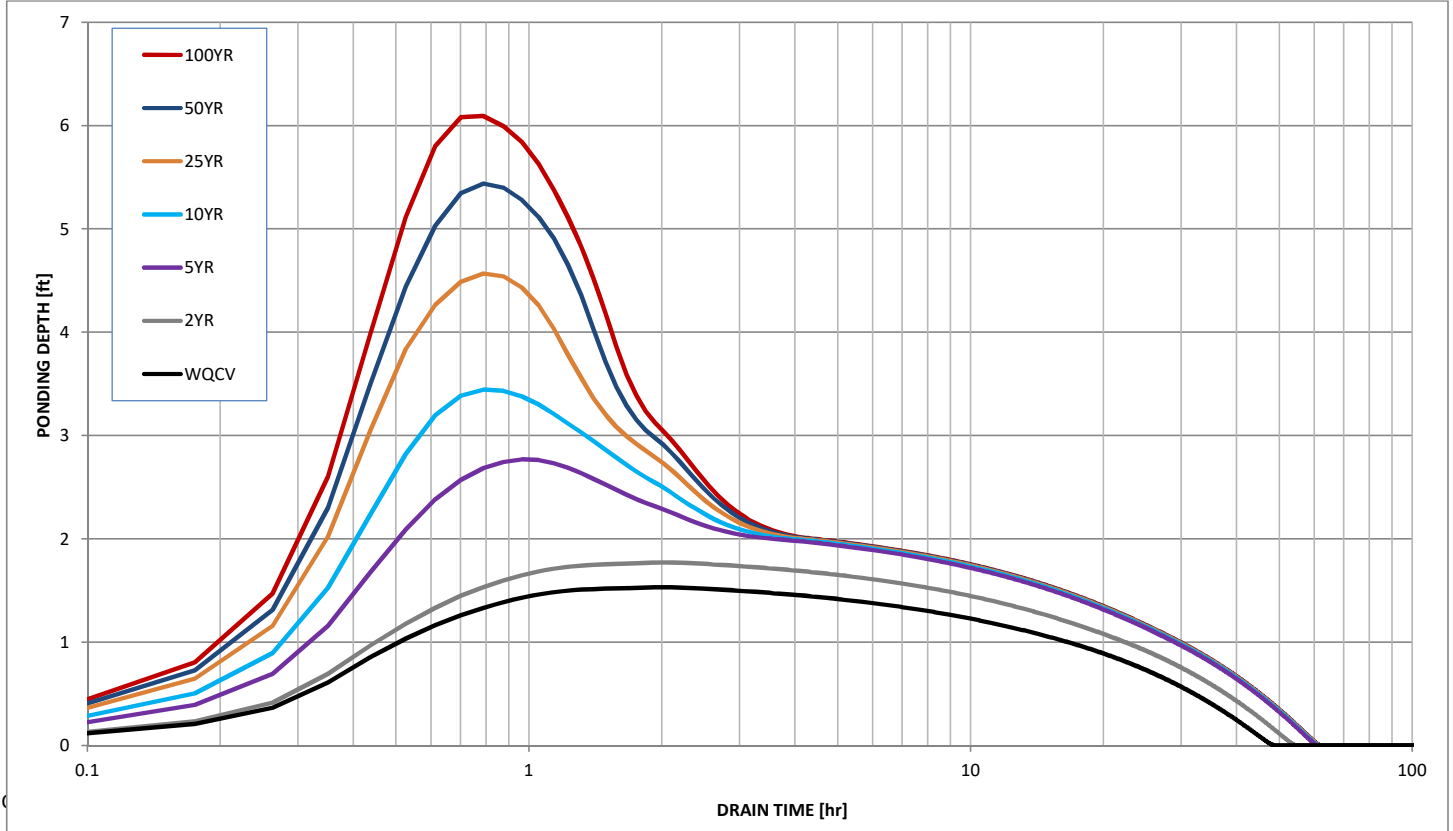
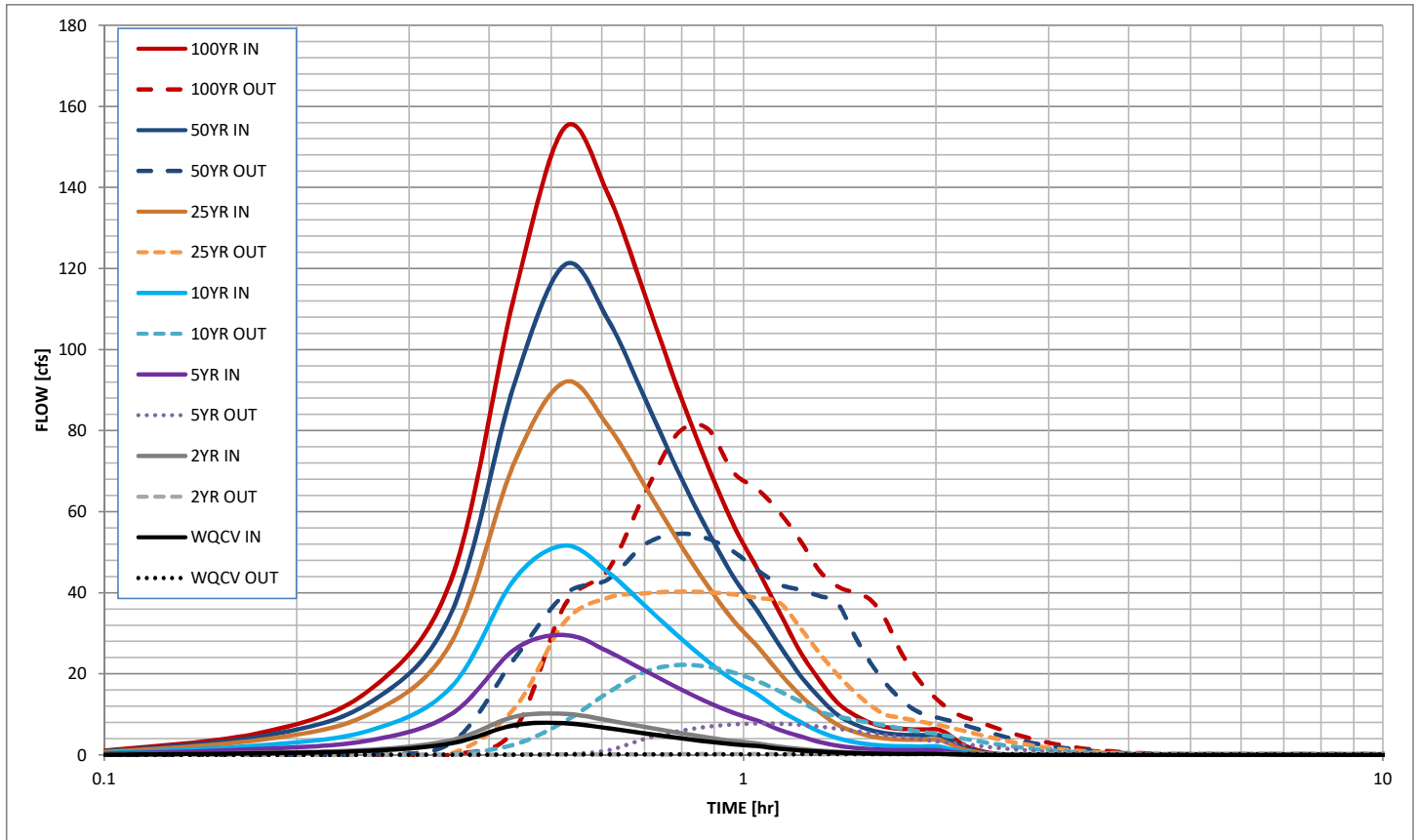
Stormwater Detention and Infiltration Design Data Sheet



Stormwater Detention and Infiltration Design Data Sheet



Stormwater Detention and Infiltration Design Data Sheet



Stormwater Detention and Infiltration Design Data Sheet

