



819 SE Morrison Street
 Suite 310
 Portland, OR 97214
 503.274.2010 *phone*
 503.274.2024 *fax*

www.esassoc.com

SUBMITTAL RESPONSE FORM

Project Name: Langlois Creek Culvert Replacements	Submittal Number: 2
Project Number: D201901001	Item Name: Upstream Culvert Reissue
Client/Owner: Snoqualmie Valley Watershed Improvement District	

RESPONSE:

No Exceptions Taken Revise and Resubmit Not in Conformance
 Make Corrections Noted Reviewed

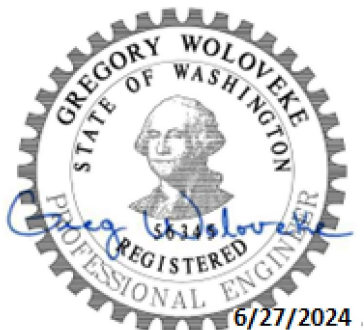
Note: The designer’s review of this submittal is for general compliance with the contract documents only. The Contractor is responsible for confirming and correlating all quantities, dimensions, materials, selecting fabrication processes and techniques of construction, coordinating its work with that of all other trades, and performing work in a safe and satisfactory manner.

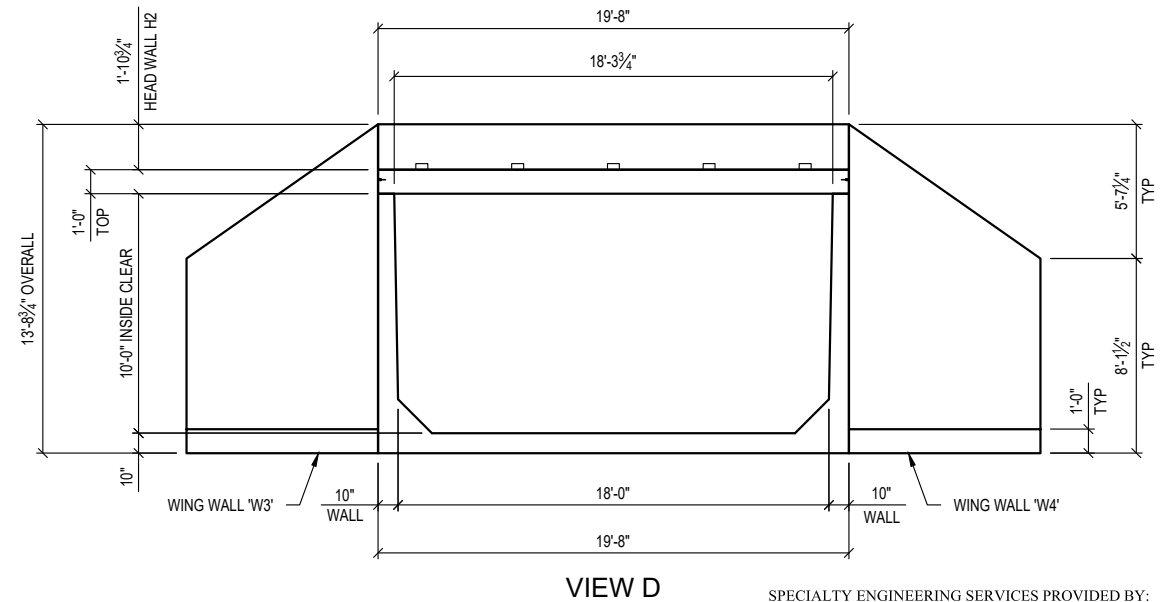
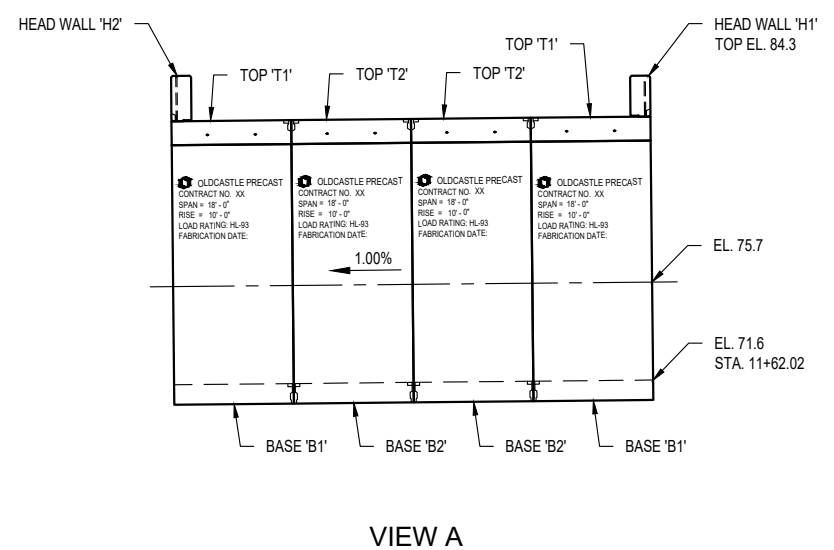
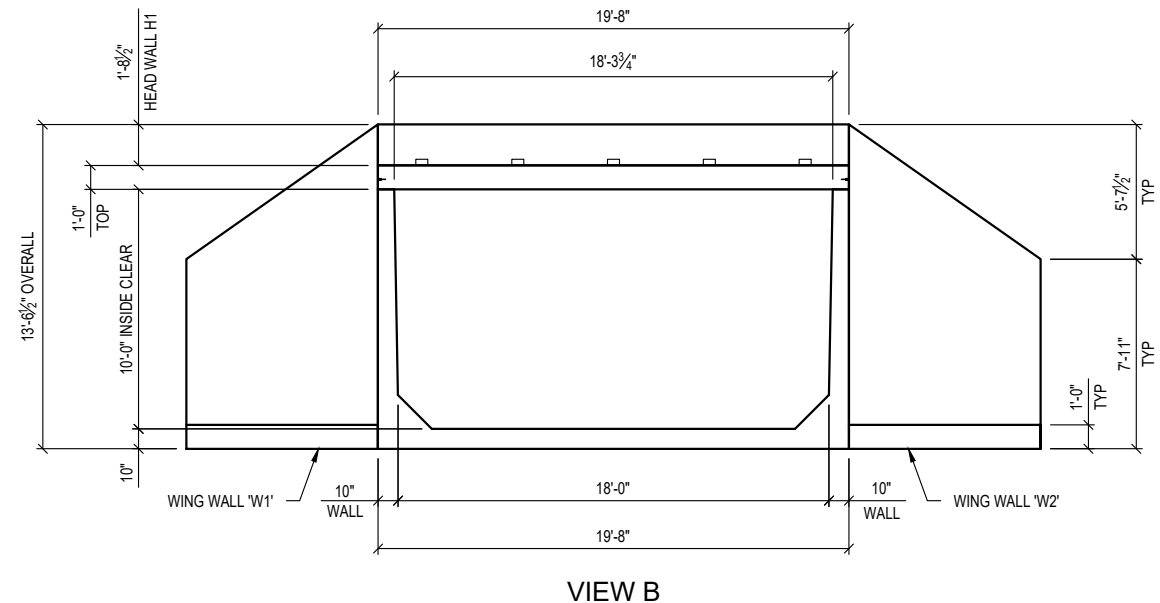
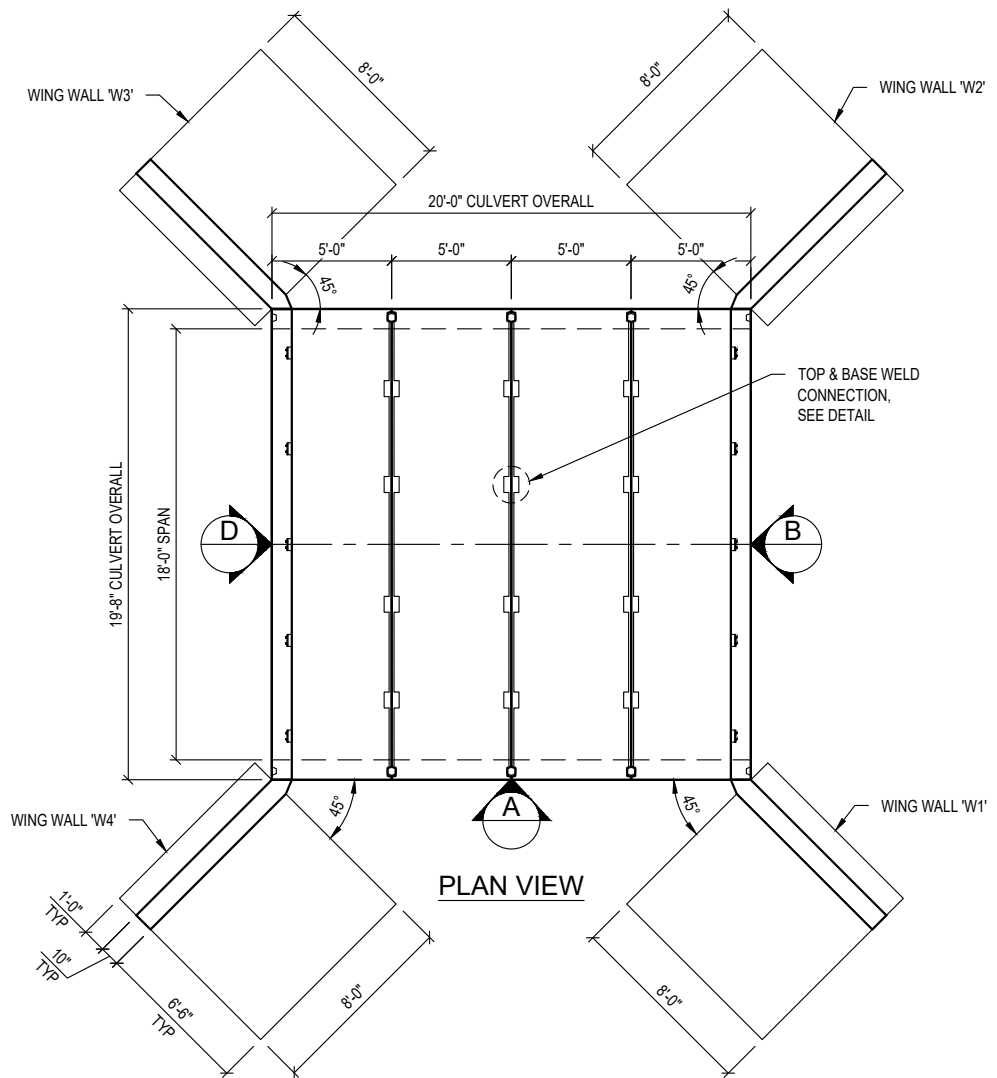
COMMENTS:

No exceptions taken on the submitted materials.

Reviewed By: Greg Woloveke, PE

Date: June 24th, 2024





- STRUCTURAL NOTES**
- CONCRETE: 28 DAY COMPRESSIVE STRENGTH $f_c = 6,000$ psi
 - REBAR: ASTM A-615/A-706 GRADE 60
 - WWF: ASTM A-1064 GRADE 65
 - STEEL SHAPES: ASTM A-36
 - DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS - NINTH EDITION
 - LOADS: LOAD AND LOAD DISTRIBUTION PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS - NINTH EDITION
DESIGN LOAD HL-93
IMPACT PER AASHTO 3.6.2.2
145 pcf MAX. SOIL/ASPHALT DENSITY - FOR CULVERT
125 pcf SOIL DENSITY - FOR WING WALL
30 pcf MIN. E.F.P. LATERAL SOIL PRESSURE
60 pcf MAX. E.F.P. LATERAL SOIL PRESSURE
LIVE LOAD SURCHARGE PER AASHTO 3.11.6.4
4" WEARING SURFACE
4'-6" MAXIMUM SOIL COVER (INCLUDING WEARING SURFACE)
2'-6" MINIMUM SOIL COVER (INCLUDING WEARING SURFACE)
SOIL BEARING PRESSURE = 2,500 psf ALLOWABLE BEARING
 - TOLERANCES: PCI MNL 116-99 MANUAL FOR QUALITY CONTROL

- GENERAL NOTES**
- CUSTOMER TO:
VERIFY SIZES & FEATURES OF PROPOSED CULVERT
SUPPLY CRANE & CREW TO SET CULVERT
DO ALL GROUTING (GROUT SHALL BE 5,000 psi NON-SHRINK)
SUPPLY FLAT BAR FOR WELD CONNECTIONS
WELDING, PAINTING OF EXPOSED METAL SURFACES, GROUTING OF KEYWAYS & WRAPING OF JOINTS SHALL BE IN COMPLIANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 6-20.3(8)A
INSTALL GUARD RAIL
SUPPLY PREFORMED JOINT FILLER & FILTER FABRIC FOR CULVERT & WING WALL JOINT
 - BACKFILL IN EQUAL LIFTS OF 18" ON BOTH SIDES OF WALLS
 - OLDCASTLE PRECAST TO:
PROVIDE PRECAST TOPS, BASES & WING WALLS
SUPPLY CONNECTION BRACKETS
MARK THE FOLLOWING ON THE INSIDE WALL OF EACH BASE SECTIONS 6" FROM THE BOTTOM OF THE TOP :
OLDCASTLE PRECAST
CONTRACT NO. XX
SPAN = 18' - 0"
RISE = 10' - 0"
LOAD RATING: HL-93
FABRICATION DATE:

- PIECE DETAILS**
- (4) TOPS: (2) 'T1' 14,573 lbs (2) 'T2' 14,397 lbs
 - (4) BASES: (2) 'B1' 24,949 lbs (2) 'B2' 24,949 lbs
 - (4) WING WALLS: (1) 'W1' 20,434 lbs (1) 'W2' 20,434 lbs (1) 'W3' 20,643 lbs (1) 'W4' 20,643 lbs
 - (2) HEAD WALLS: (1) 'H1' 4,199 lbs (1) 'H2' 4,660 lbs
 - (14) PIECES TOTAL



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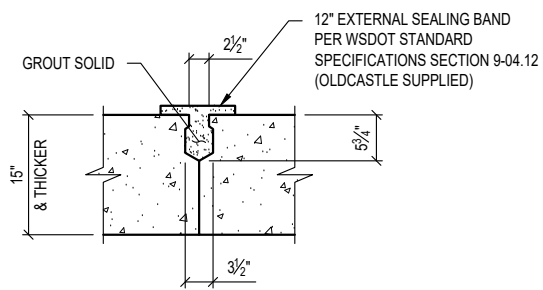
18'W x 10'T x 20'L SPLIT CULVERT D (ID 933063)
3 SIDED CULVERT: 18'W x 10'T x 20'L (INSIDE)
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER SNOQUALMIE VALLEY WATERSHED IMP. DIST					
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---		S202473
DRAWING NUMBER 010-S202473-002 (Revised)					REVISION A REV DATE 6/27/24
					SHEET 1 OF 20

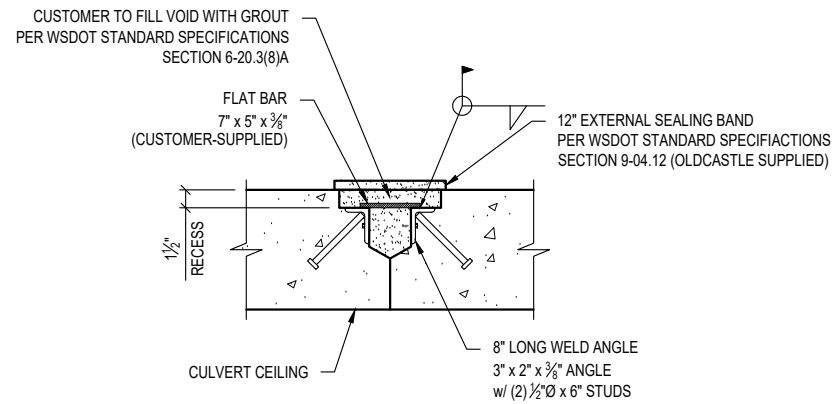


SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081 FAX: 570-868-2082
6/27/24

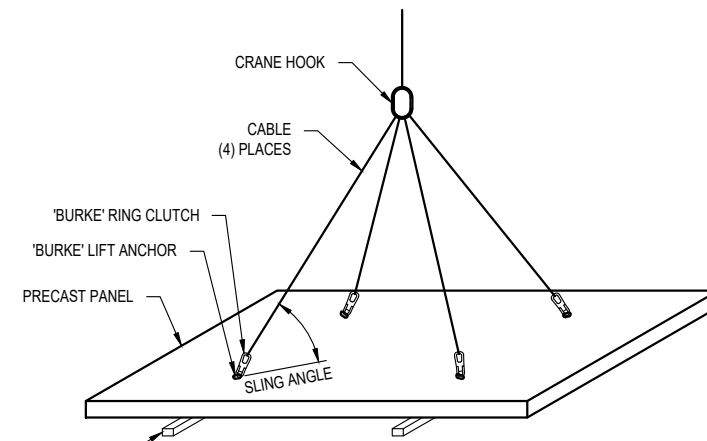
A	REVISED TO 5' PIECES	STJ
REVISION	DESCRIPTION	BY



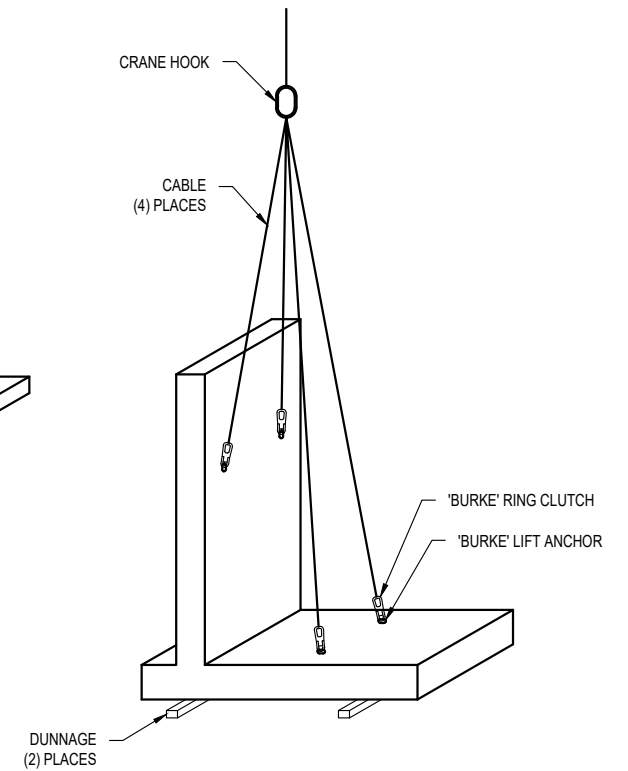
TOP GROUT & SEAL DETAIL



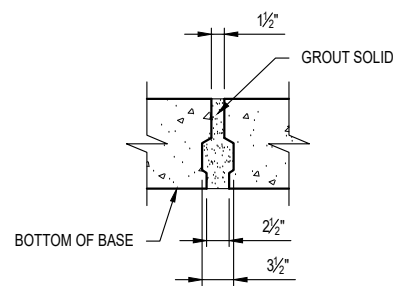
TOP WELD CONNECTION DETAIL



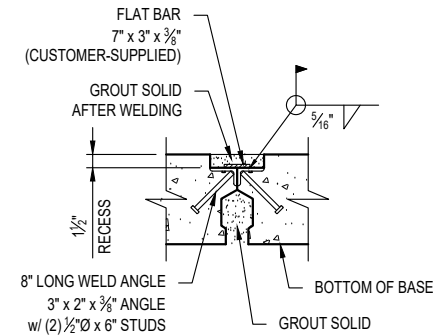
TOP LIFTING DETAIL
SLING ANGLE MUST BE AT LEAST 60°



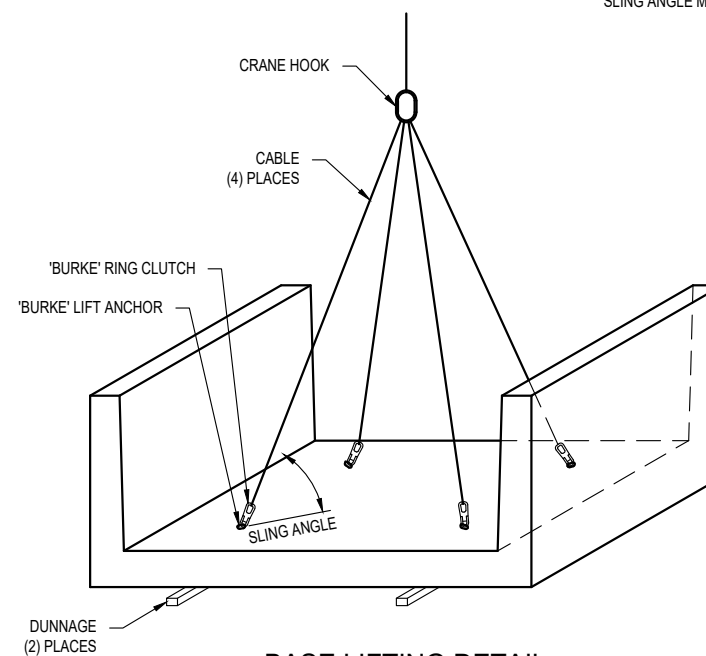
WING WALL LIFTING DETAIL



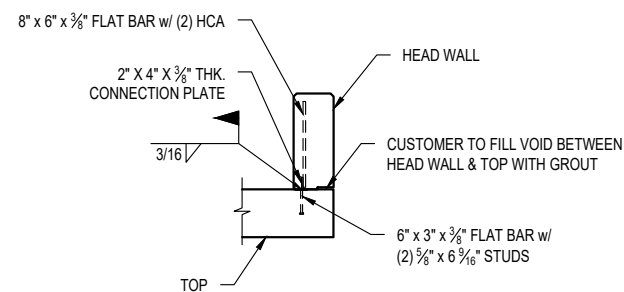
BASE GROUT DETAIL



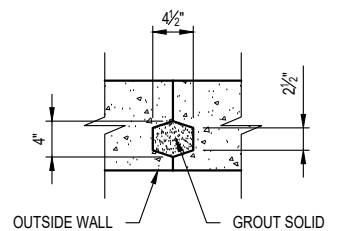
BASE WELD CONNECTION DETAIL



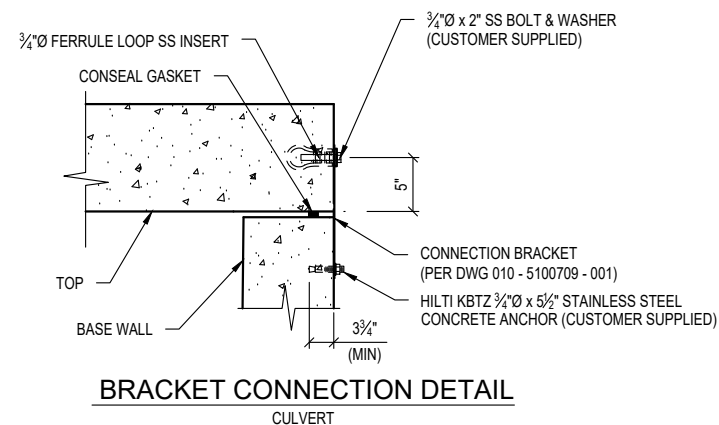
BASE LIFTING DETAIL
SLING ANGLE MUST BE AT LEAST 60°



HEAD WALL WELD CONNECTION DETAIL



WALL GROUT DETAIL
APPROX. GROUT VOLUME = 180 cu-in PER LINEAR FOOT



BRACKET CONNECTION DETAIL

BILL OF MATERIALS			
#	QUANTITY	DESCRIPTION	ITEM #
1	4 ea	CLUTCHES - BURKE 8-TON EACH	8030020
	16 ea	CONNECTION PLATE	5100709
	3 ea	CONSEAL 3/4" x 14.5' (CS-102)	5130008
	12 ea	WELD PLATE-7" x 5" x 3/8"	
	12 ea	WELD PLATE-7" x 3" x 3/8"	
	10 ea	2" X 4" X 3/8" CONNECTION PL. HEAD WALL	
	7 rl	JOINT WRAP	



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18"W x 10'T x 20'L SPLIT CULVERT D (ID 933063)
INSTALLATION
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---		S202473
DRAWING NUMBER					SHEET
010-S202473-002 (Revised)					2 OF 20



SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081 FAX: 570-868-2082

6/27/24

REVISION	DESCRIPTION	BY
A	REVISED TO 5' PIECES	STJ

PRODUCTION QUANTITY

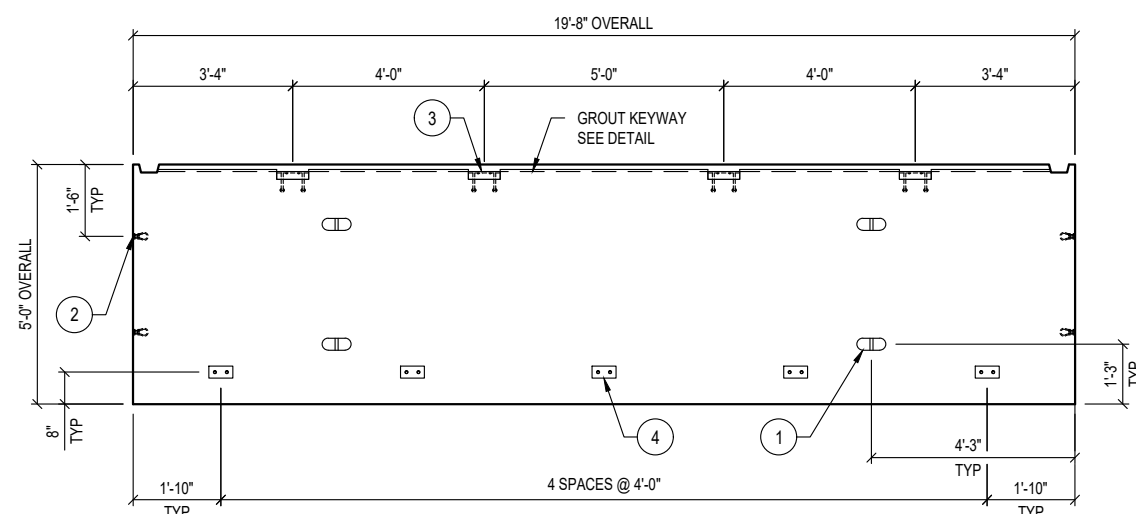
(2) TOP 'T1'

PRODUCT WEIGHT

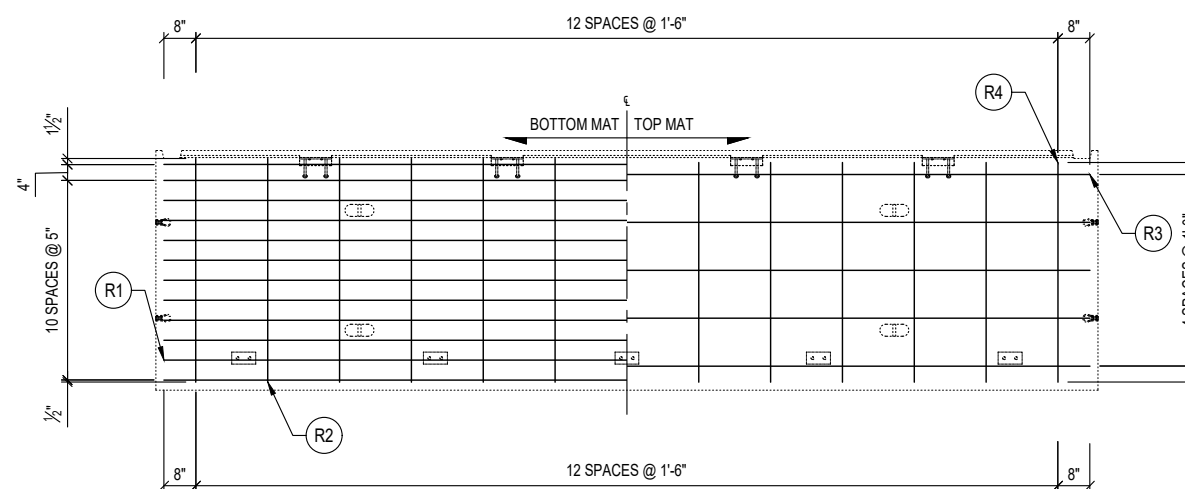
14,573 LBS

SHOP NOTES

- FORM DIAGONAL DISTANCE: 20'-3 1/2"
- CONCRETE FINISH: FLAT FLOAT FINISH WITH MACHINED EDGES



A PLAN VIEW
LAYOUT (SHOWN AS POURED)

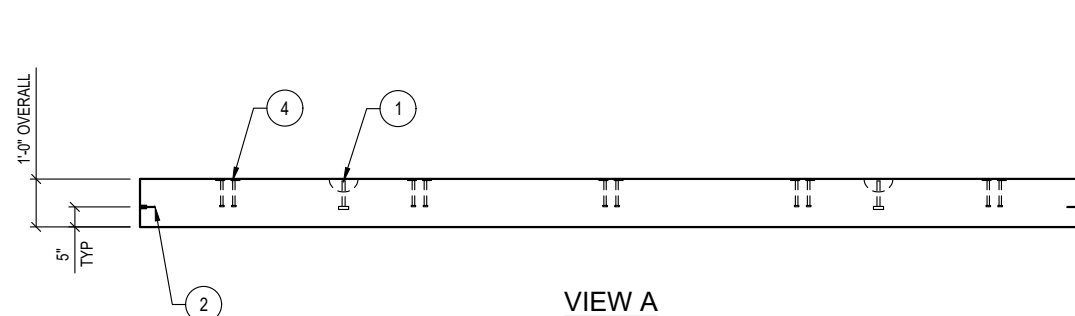


B PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)

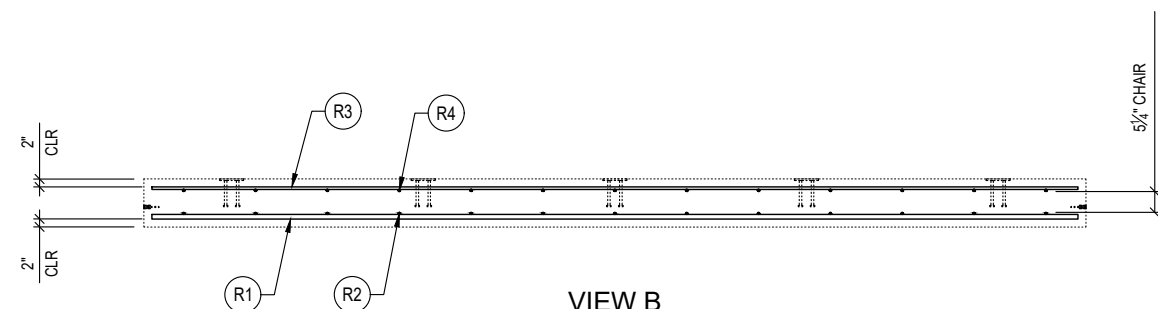
BILL OF MATERIALS			
#	QUANTITY	DESCRIPTION	ITEM #
1	4 ea	ANCHOR 8-TON PLATE (Galv)	5100525
2	4 ea	INSERT LOOP FERR 3/4" - STAINLESS	5100480
3	4 ea	WELD ANGLE 2" x 3" x 3" w/ ANGLED STUD	2290620
4	5 ea	3" X 6" WELD PLATE w/ STUD (SIS)	5700045
	3.59 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	0.80 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.01 cwt	#5 REBAR A615/A706/GR60	725A0075
	1 ea	SIS REBAR/MESH - (see cut list)	5700030
	32.31 sqf	MESH CHAIR	5500000

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R2	13	#4 REBAR A615/A706/GR60	4'- 8"	STR
R3	5	#5 REBAR A615/A706/GR60	19'- 4"	STR
R4	13	#4 REBAR A615/A706/GR60	4'- 7"	STR

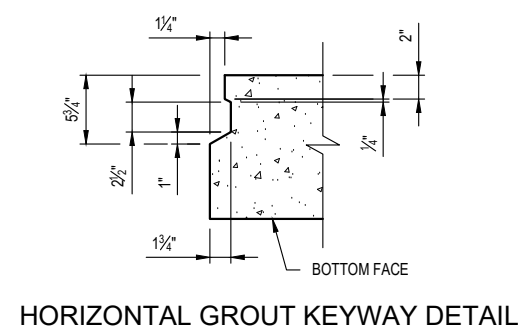
SIS REBAR / MESH CUT LIST (SPECIAL PURCHASED ITEMS)				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	12	#9 REBAR A615/A706/GR60	19'- 4"	STR



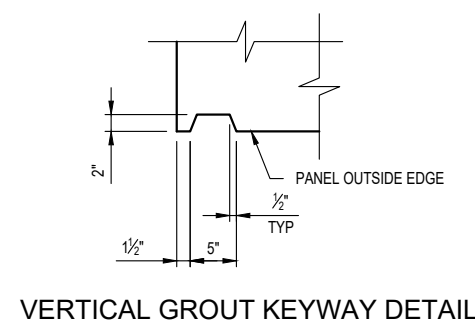
VIEW A



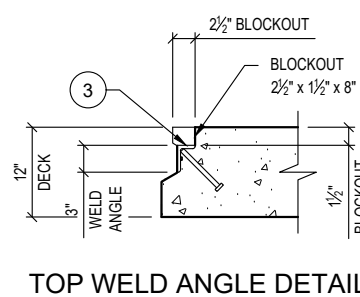
VIEW B



HORIZONTAL GROUT KEYWAY DETAIL



VERTICAL GROUT KEYWAY DETAIL



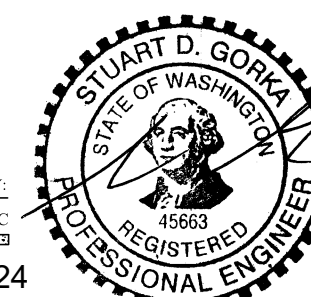
TOP WELD ANGLE DETAIL



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
TOP 'T1': LAYOUT & REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

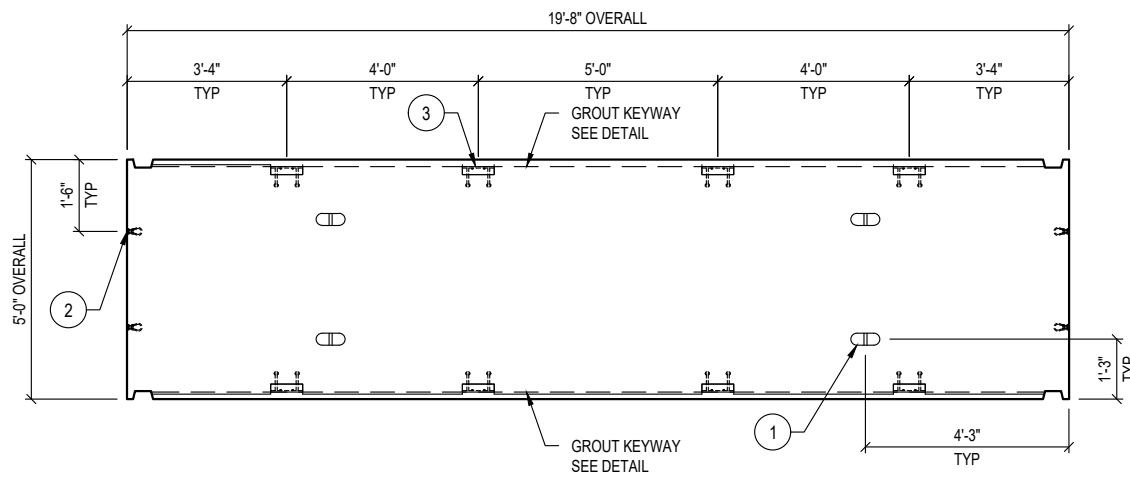
CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST



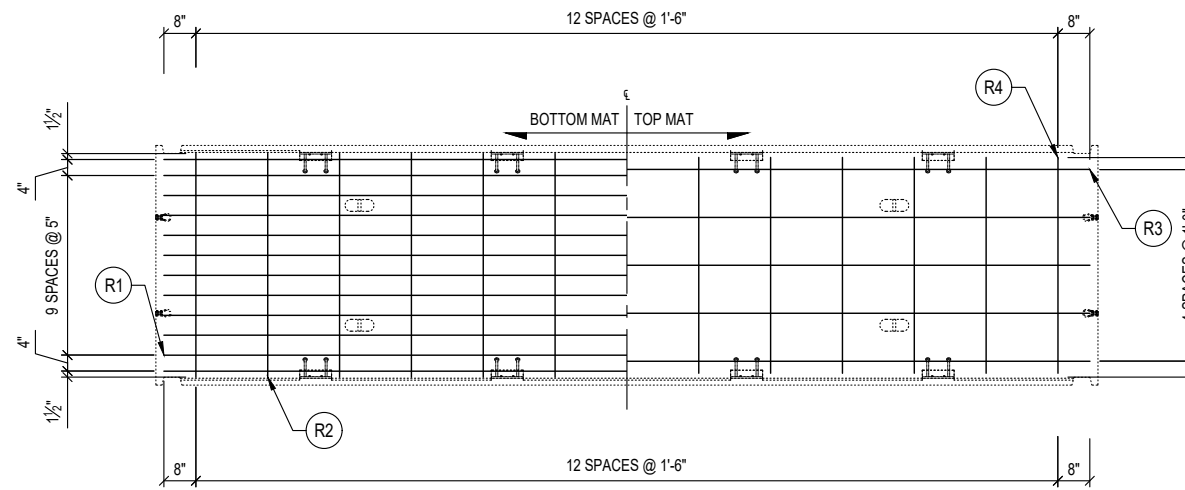
SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081 FAX: 570-868-2082
6/27/24

REVISION	DESCRIPTION	BY
A	REVISED TO 5' PIECES	STJ

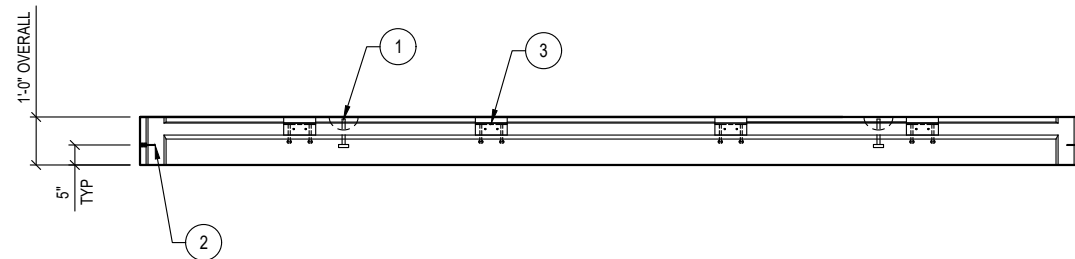
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				A	3 OF 20
				REV DATE	
				6/27/24	



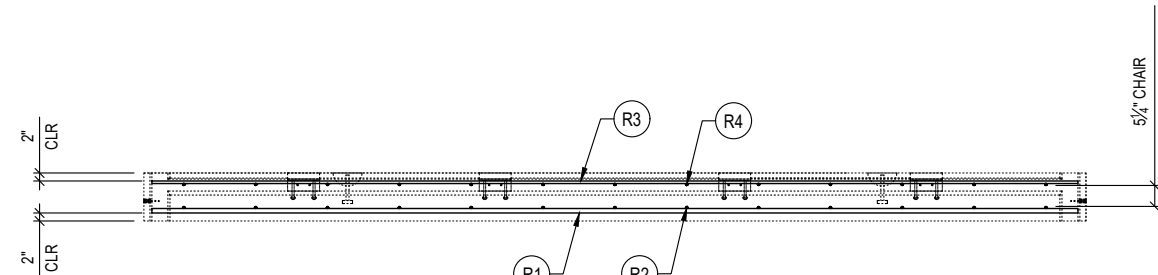
A PLAN VIEW
LAYOUT (SHOWN AS Poured)



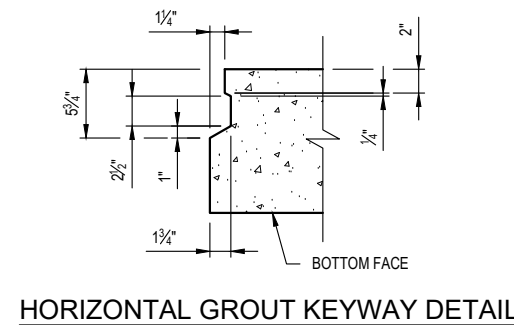
B PLAN VIEW
REINFORCEMENT (SHOWN AS Poured)



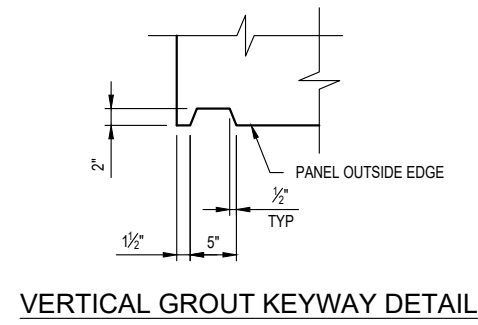
VIEW A



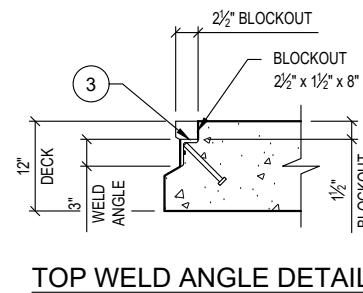
VIEW B



HORIZONTAL GROUT KEYWAY DETAIL



VERTICAL GROUT KEYWAY DETAIL



TOP WELD ANGLE DETAIL

PRODUCTION QUANTITY

(2) TOP 'T2'

PRODUCT WEIGHT

14,397 LBS

SHOP NOTES

- FORM DIAGONAL DISTANCE: 20'-3/4"
- CONCRETE FINISH: FLAT FLOAT FINISH WITH MACHINED EDGES

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
1	4 ea	ANCHOR 8-TON PLATE (Galv)	5100525
2	4 ea	INSERT LOOP FERR 3/4" - STAINLESS	5100480
3	8 ea	WELD ANGLE 2" x 3" x 8" w/ANGLED STUD	2290620
	3.55 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	0.80 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.01 cwt	#5 REBAR A615/A706/GR60	725A0075
	1 ea	SIS REBAR/MESH - (see cut list)	5700030
	31.95 sqf	MESH CHAIR	5500000

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R2	13	#4 REBAR A615/A706/GR60	4'- 8"	STR
R3	5	#5 REBAR A615/A706/GR60	19'- 4"	STR
R4	13	#4 REBAR A615/A706/GR60	4'- 6"	STR

SIS REBAR / MESH CUT LIST
(SPECIAL PURCHASED ITEMS)

#	QTY	MATERIAL	LENGTH	SHAPE
R1	12	#9 REBAR A615/A706/GR60	19'- 4"	STR

Oldcastle Infrastructure™
A CRH COMPANY
P.O. BOX 588 AUBURN, WA 98071-0588
PHONE: 800-892-1538 FAX: 253-735-4201

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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

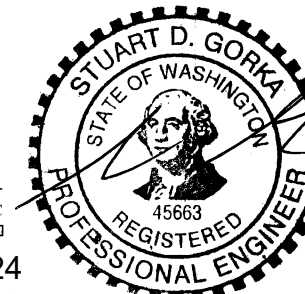
TOP 'T2' : LAYOUT & REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

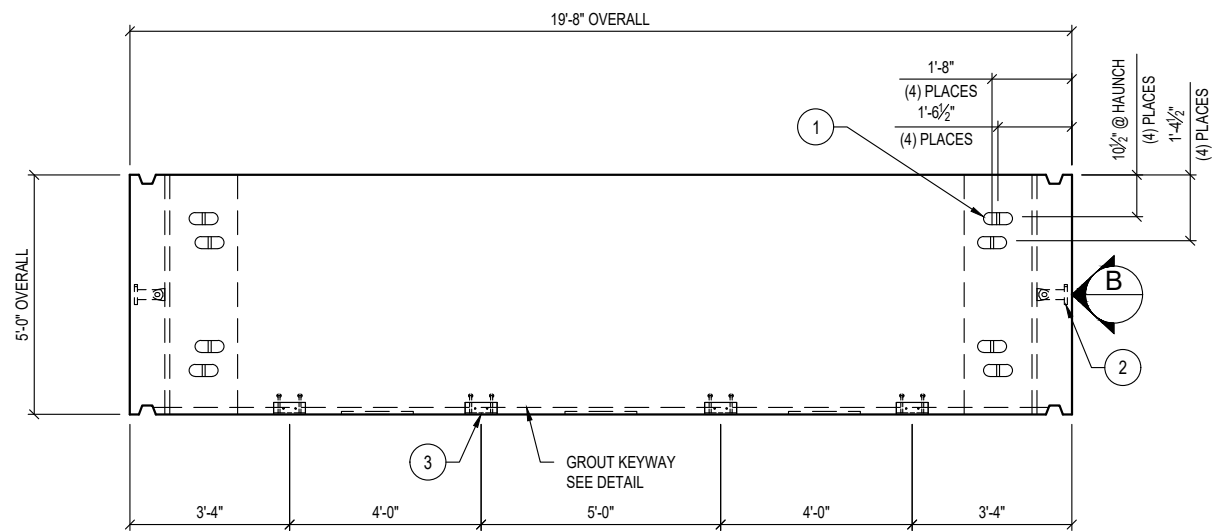
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6/27/24	DM	FMT	---	---	S202473
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010-S202473-002 (Revised)					A REV DATE 6/27/24
					SHEET 4 OF 20

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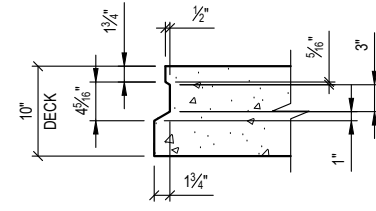
6/27/24



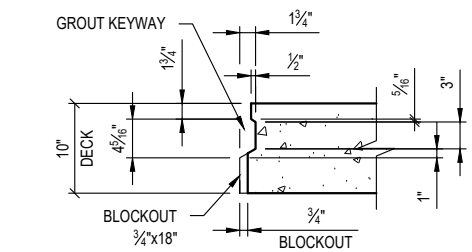
REVISION	DESCRIPTION	BY
A	REVISED TO 5' PIECES	STJ



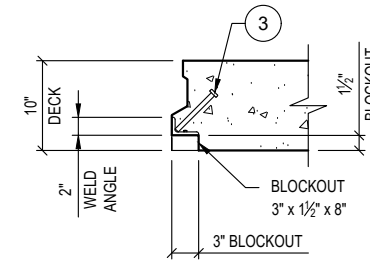
PLAN VIEW
LAYOUT (SHOWN AS POURED)



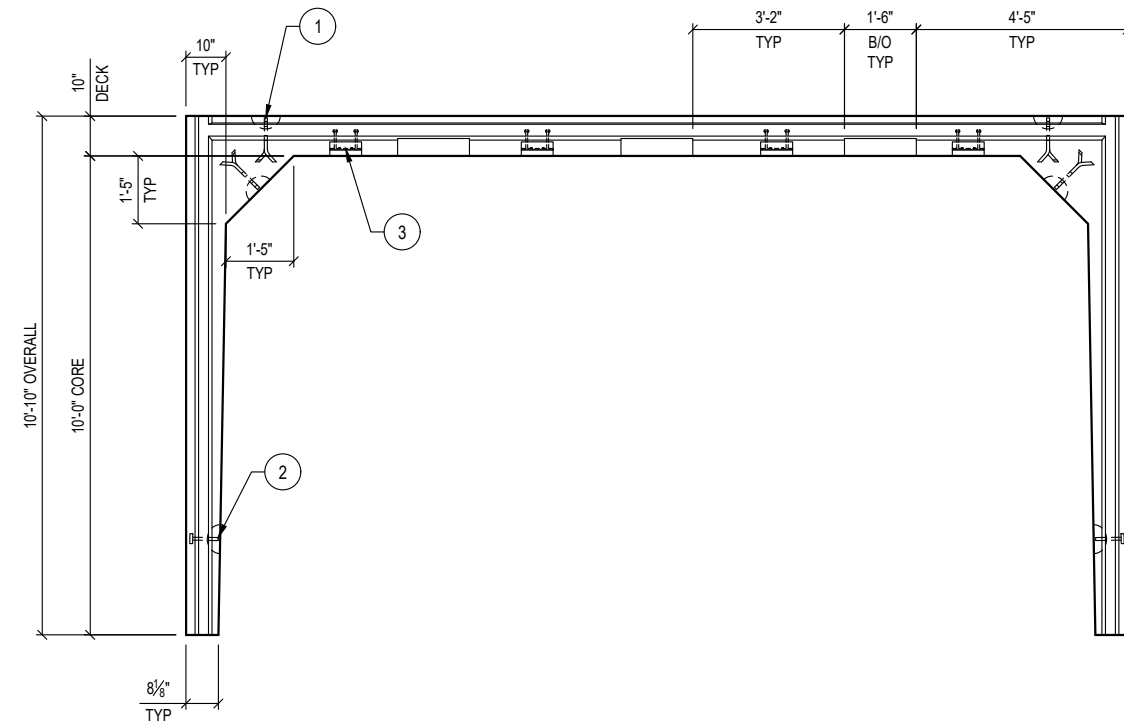
DECK GROUT KEYWAY DETAIL



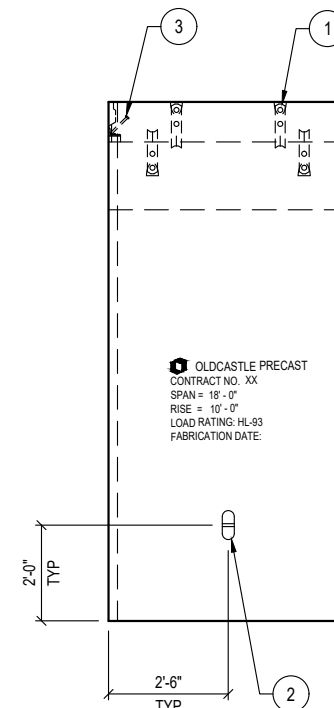
DECK GROUT KEYWAY & BLOCKOUT DETAIL



DECK WELD ANGLE DETAIL



VIEW A



VIEW B

PRODUCTION QUANTITY

(2) BASE 'B1'

PRODUCT WEIGHT

24,949 LBS

SHOP NOTES

- FORM DIAGONAL DISTANCE: 20'-3 1/2"
- CONCRETE FINISH: FLAT FLOAT FINISH WITH MACHINED EDGES
- FLIP METHOD: ANCHOR IN WALLS
- MARK (WITH WATER PROOF PAINT) ON THE INSIDE VERTICAL FACE OF WALL 6" FROM THE TOP AFTER FLIPPING AS FOLLOWS:

OLDCASTLE PRECAST
CONTRACT NO. XX
SPAN = 18' - 0"
RISE = 10' - 0"
LOAD RATING: HL-93
FABRICATION DATE:

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
1	8 ea	ANCHOR 8-TON SPREAD (Galv)	5100530
2	2 ea	ANCHOR 8-TON PLATE (Galv)	5100525
3	4 ea	WELD ANGLE 2" x 3" x 8" w/ANGLED STUD	2290620
	6.16 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	1.76 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.08 cwt	#5 REBAR A615/A706/GR60	725A0075
	1.74 cwt	#6 REBAR A615/A706/GR60	725A0076
	1 ea	SIS REBAR/MESH - (see cut list)	5700030
	55.44 sqf	MESH CHAIR	5500000

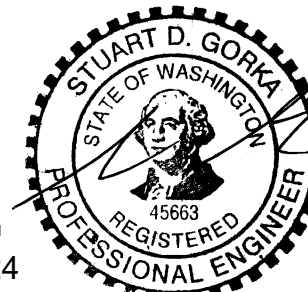
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A	REVISED TO 5' PIECES	STJ

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PHONE: 570-868-2081
FAX: 570-868-2082

6/27/24



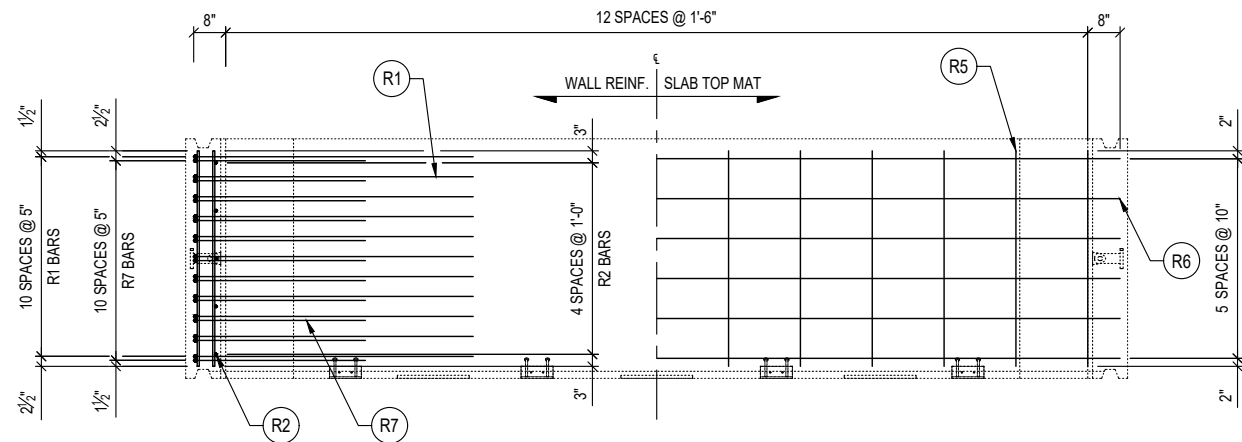
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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

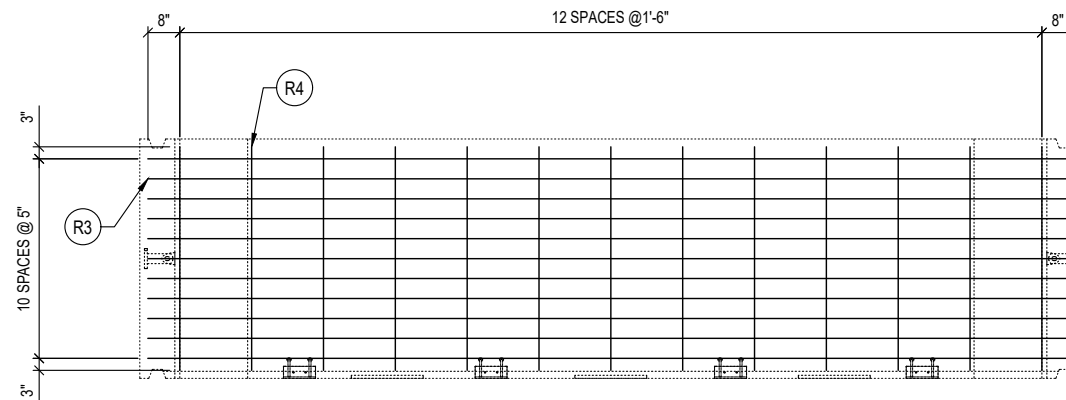
BASE 'B1': LAYOUT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER					SHEET
010-S202473-002 (Revised)					5 OF 20



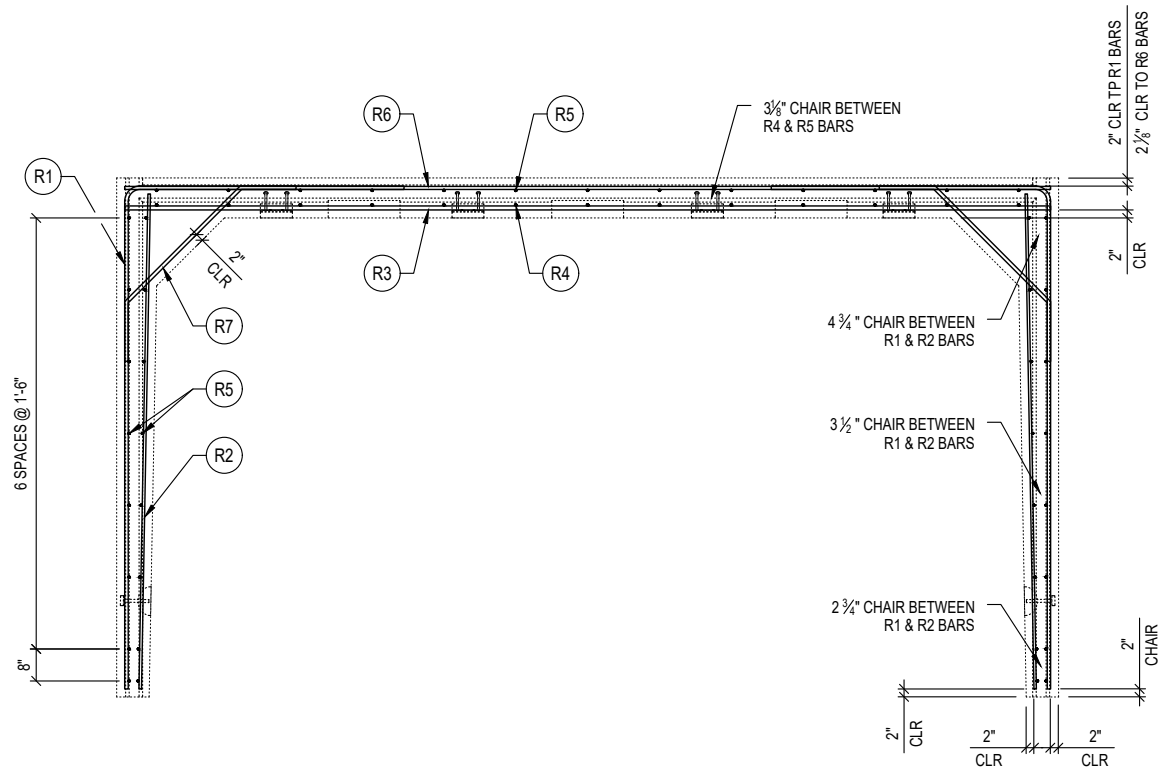
A PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)



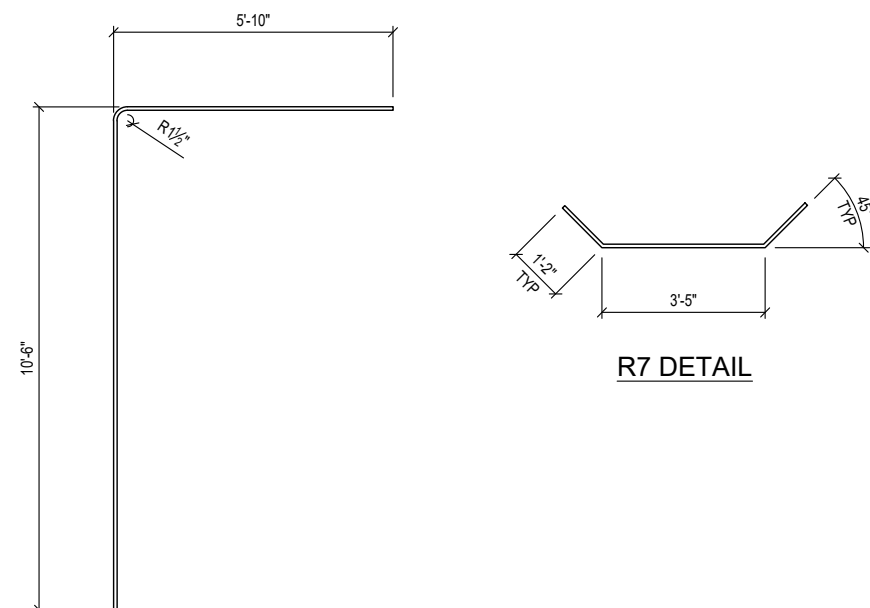
A PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
SLAB BOTTOM MAT

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R2	10	#5 REBAR A615/A706/GR60	10'- 4"	STR
R4	13	#4 REBAR A615/A706/GR60	4'- 8"	STR
R5	45	#4 REBAR A615/A706/GR60	4'- 6"	STR
R6	6	#6 REBAR A615/A706/GR60	19'- 4"	STR

SIS REBAR / MESH CUT LIST (SPECIAL PURCHASED ITEMS)				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	22	#7 REBAR A615/A706/GR60	16'- 2"	BENT
R3	11	#8 REBAR A615/A706/GR60	19'- 4"	STR
R7	22	#7 REBAR A615/A706/GR60	5'- 9"	BENT



VIEW A



R1 DETAIL



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
BASE 'B1': REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

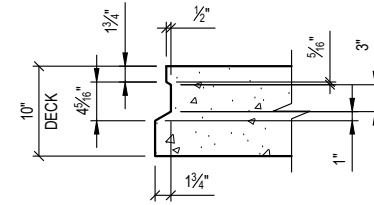
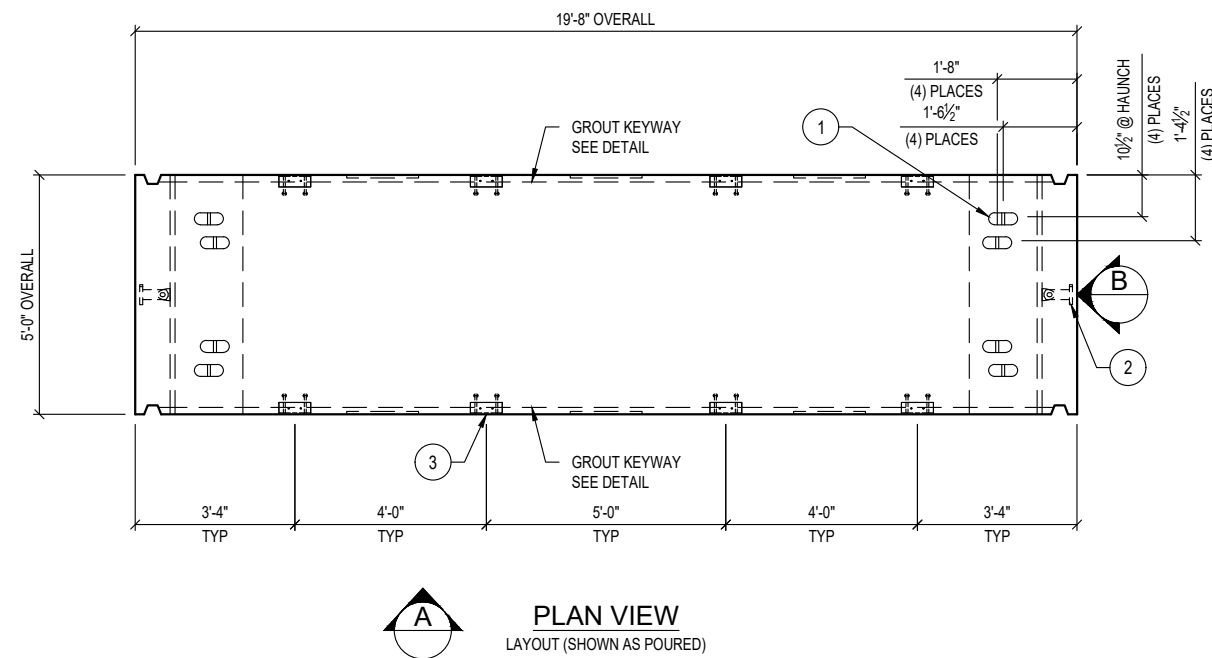
CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC

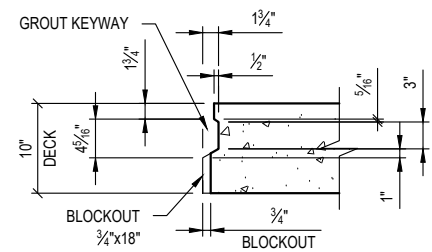
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082
6/27/24

REVISION	DESCRIPTION	BY
A	REVISED TO 5' PIECES	STJ

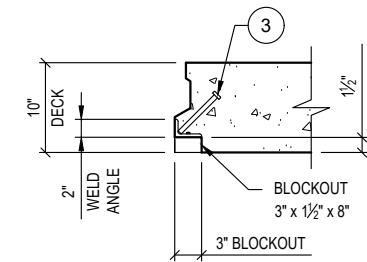
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER					SHEET
010-S202473-002 (Revised)					6 OF 20



DECK GROUT KEYWAY DETAIL



DECK GROUT KEYWAY & BLOCKOUT DETAIL



DECK WELD ANGLE DETAIL

PRODUCTION QUANTITY

(2) BASE 'B1'

PRODUCT WEIGHT

24,949 LBS

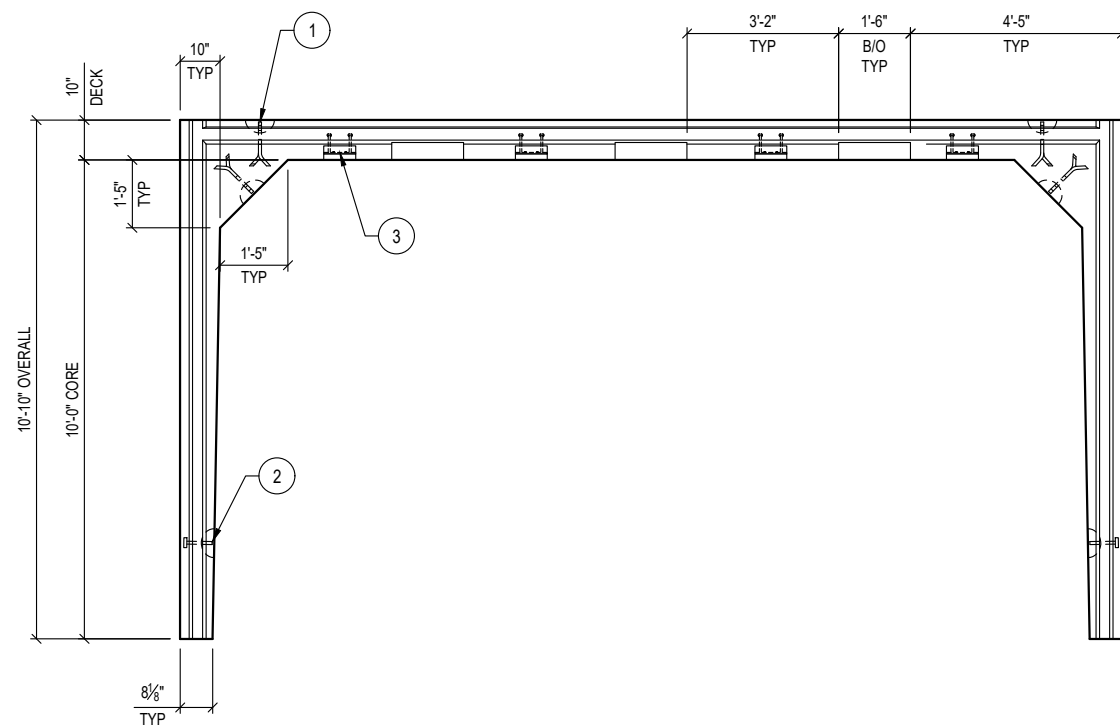
SHOP NOTES

1. FORM DIAGONAL DISTANCE: 20'-3 1/2"
2. CONCRETE FINISH: FLAT FLOAT FINISH WITH MACHINED EDGES
3. FLIP METHOD: ANCHOR IN WALLS
4. MARK (WITH WATER PROOF PAINT) ON THE INSIDE VERTICAL FACE OF WALL 6" FROM THE TOP AFTER FLIPPING AS FOLLOWS:

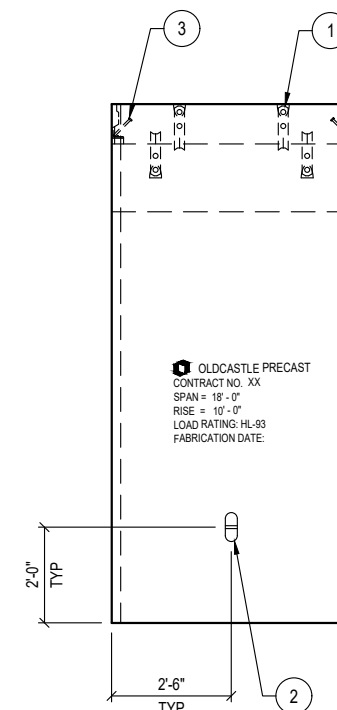
OLDCASTLE PRECAST
 CONTRACT NO. XX
 SPAN = 18' - 0"
 RISE = 10' - 0"
 LOAD RATING: HL-93
 FABRICATION DATE:

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
1	8 ea	ANCHOR 8-TON SPREAD (Galv)	5100530
2	2 ea	ANCHOR 8-TON PLATE (Galv)	5100525
3	8 ea	WELD ANGLE 2" x 3" x 8" w/ANGLED STUD	2290620
	6.16 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	1.76 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.08 cwt	#5 REBAR A615/A706/GR60	725A0075
	1.74 cwt	#6 REBAR A615/A706/GR60	725A0076
	1 ea	SIS REBAR/MESH - (see cut list)	5700030
	55.44 sqf	MESH CHAIR	5500000



VIEW A



VIEW B

OLDCASTLE PRECAST
 CONTRACT NO. XX
 SPAN = 18' - 0"
 RISE = 10' - 0"
 LOAD RATING: HL-93
 FABRICATION DATE:



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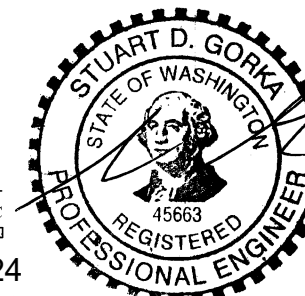
18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

BASE 'B2': LAYOUT DETAILS
 SNOQUALMIE VALLEY WATERSHED IMP. DIST
 WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

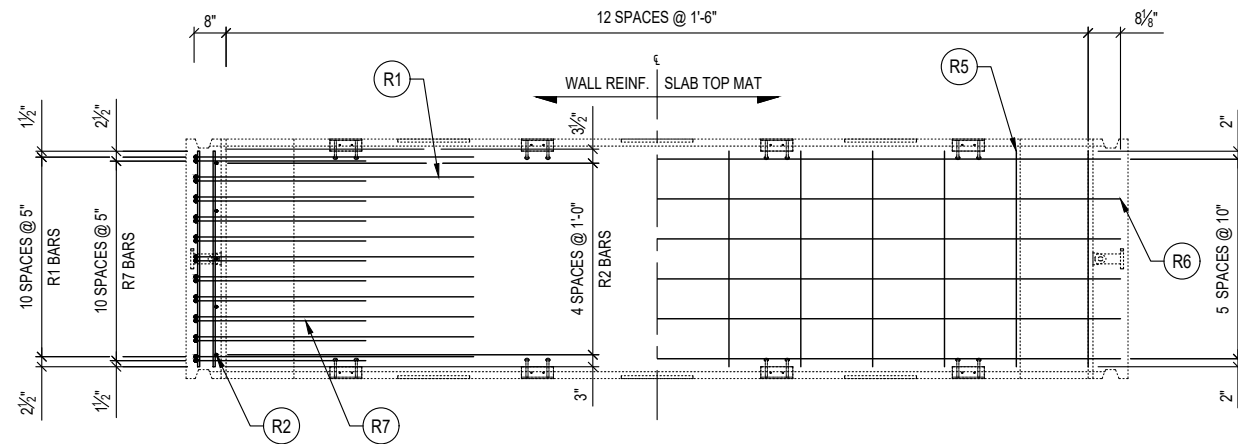
SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC

101 PINEVIEW ESTATES
 MOUNTAIN TOP, PA 18707
 PHONE: 570-868-2081
 FAX: 570-868-2082
6/27/24

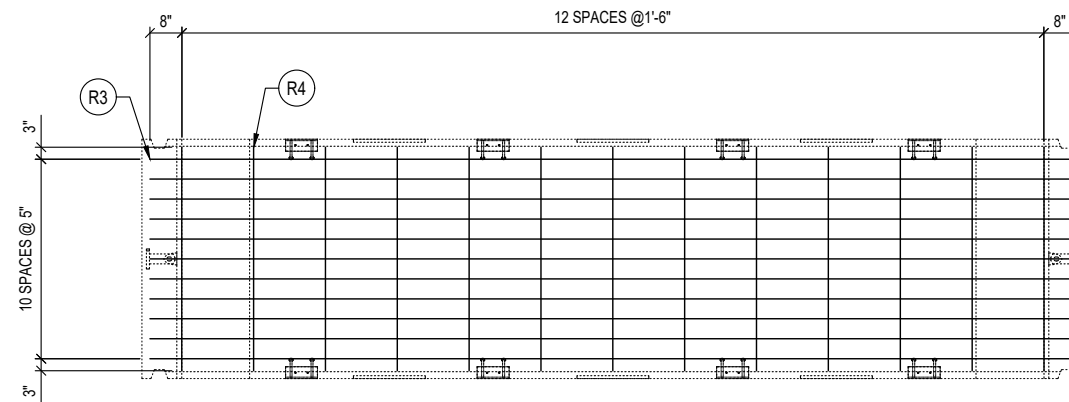


REVISION	DESCRIPTION	BY
A	REVISED TO 5' PIECES	STJ

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER					SHEET
010-S202473-002 (Revised)					7 OF 20



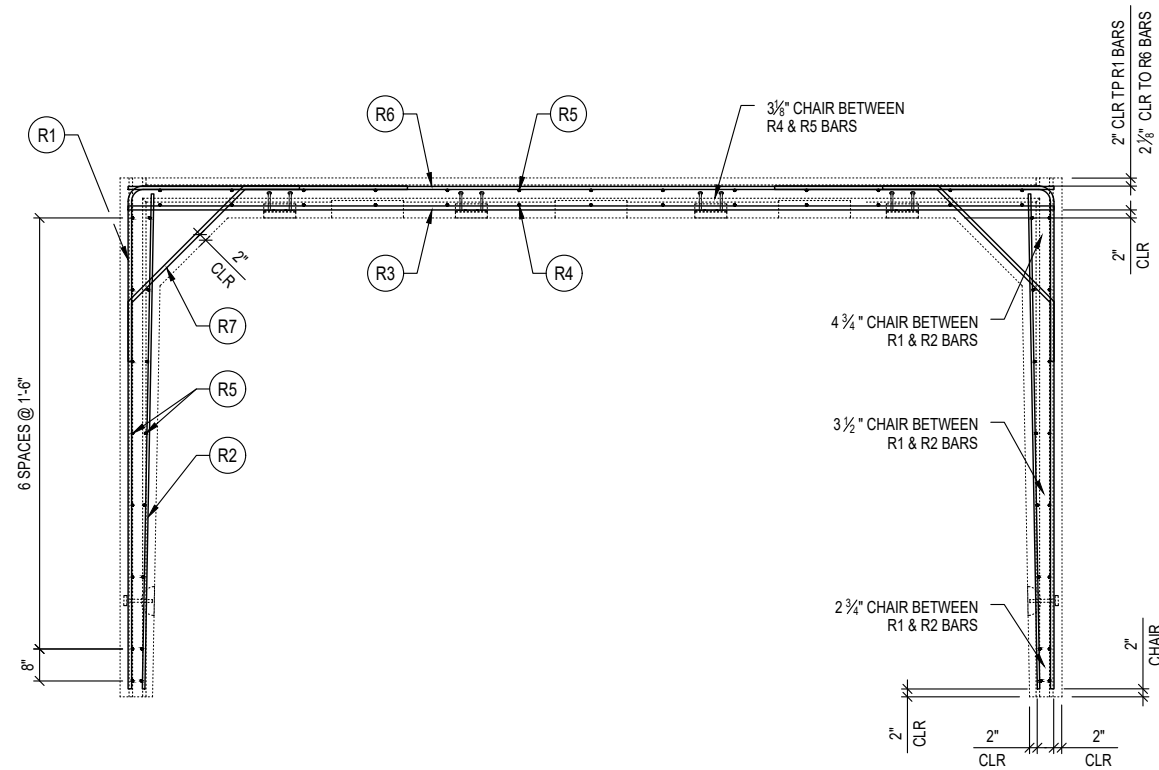
PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)



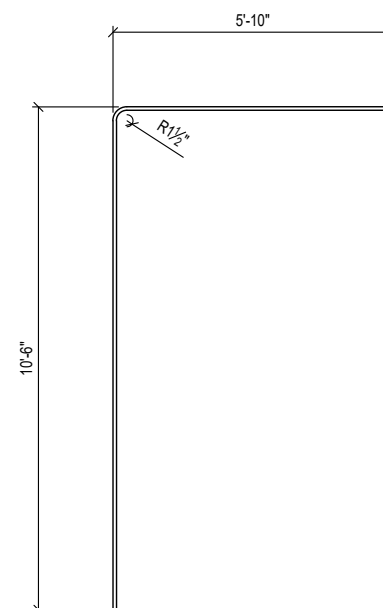
PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
SLAB BOTTOM MAT

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R2	10	#5 REBAR A615/A706/GR60	10'- 4"	STR
R4	13	#4 REBAR A615/A706/GR60	4'- 8"	STR
R5	45	#4 REBAR A615/A706/GR60	4'- 6"	STR
R6	6	#6 REBAR A615/A706/GR60	19'- 4"	STR

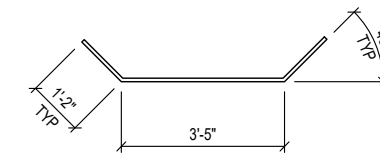
SIS REBAR / MESH CUT LIST (SPECIAL PURCHASED ITEMS)				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	22	#7 REBAR A615/A706/GR60	16'- 2"	BENT
R3	11	#8 REBAR A615/A706/GR60	19'- 4"	STR
R7	22	#7 REBAR A615/A706/GR60	5'- 9"	BENT



VIEW A



R1 DETAIL



R7 DETAIL



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

BASE 'B2': REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FGT	---	---	S202473
DRAWING NUMBER					REVISION
010-S202473-002 (Revised)					A
REV DATE					SHEET
6/27/24					8 OF 20

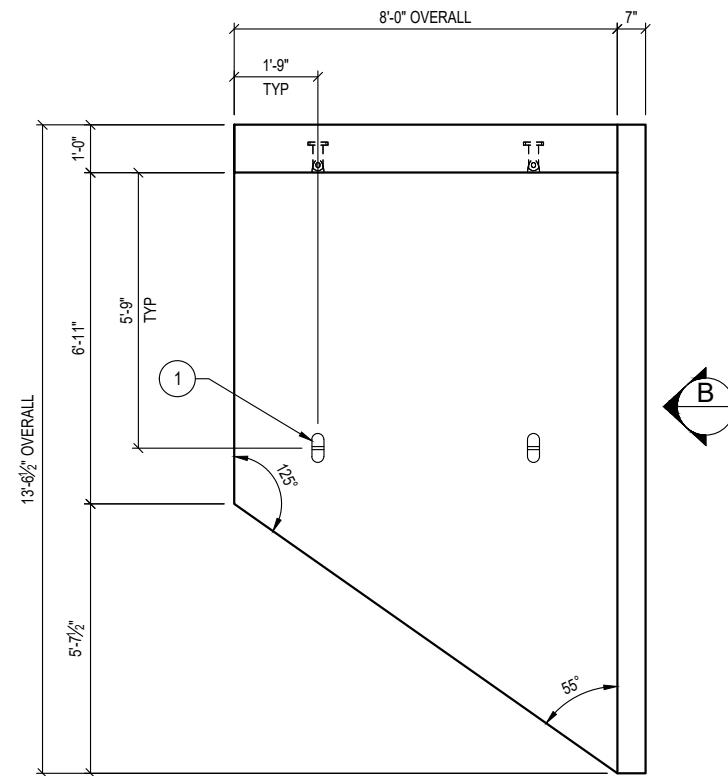
SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC

101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

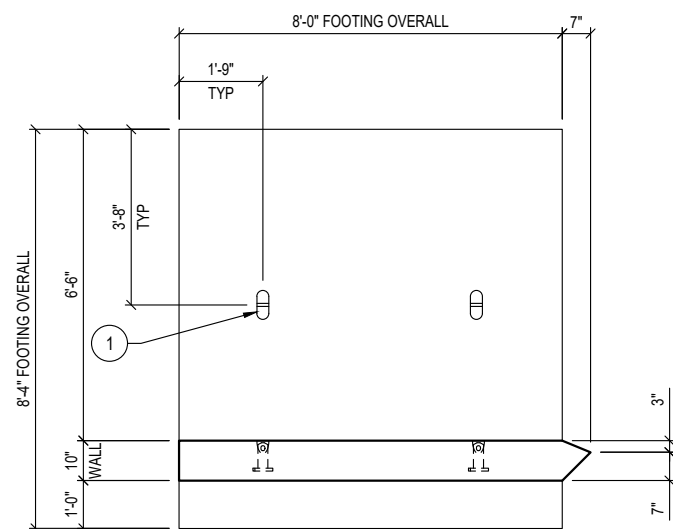
6/27/24



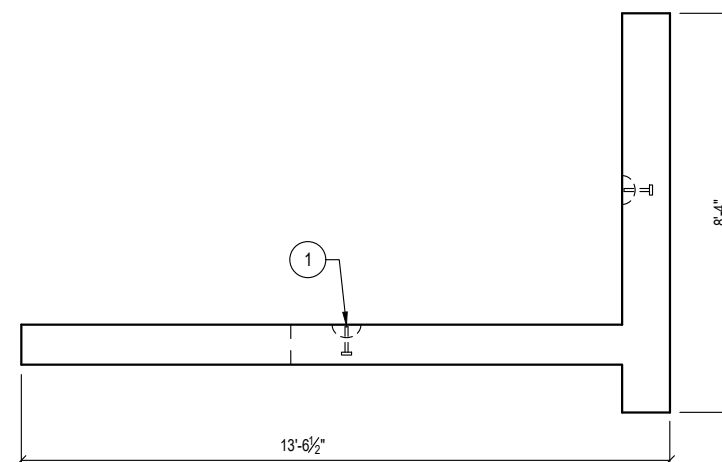
REVISION	DESCRIPTION	BY
A	REVISED TO 5' PIECES	STJ



PLAN VIEW
LAYOUT (SHOWN AS POURED)



VIEW A



VIEW B

PRODUCTION QUANTITY

(1) WING WALL 'W1'

PRODUCT WEIGHT

20,434 LBS

SHOP NOTES

1. CONCRETE FINISH: FLAT FLOAT FINISH
2. DO NOT ROTATE WING WALL TO UPRIGHT POSITION (IT WILL BE ROTATED AT THE JOBSITE)
3. EXTEND FOOTING FORM BY 4" FOR A 8'-4" OVERALL

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
1	4 ea	ANCHOR 8-TON SPREAD (Galv)	5100530
	5.04 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	3.29 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.80 cwt	#5 REBAR A615/A706/GR60	725A0075
	1.68 cwt	#6 REBAR A615/A706/GR60	725A0076
	43.83 sqf	MESH CHAIR	5500000



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

WING WALL 'W1': LAYOUT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

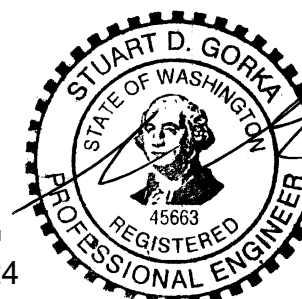
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---		S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	9 OF 20

SPECIALTY ENGINEERING SERVICES PROVIDED BY:

CONCRETE ENGINEERING SOLUTIONS, LLC

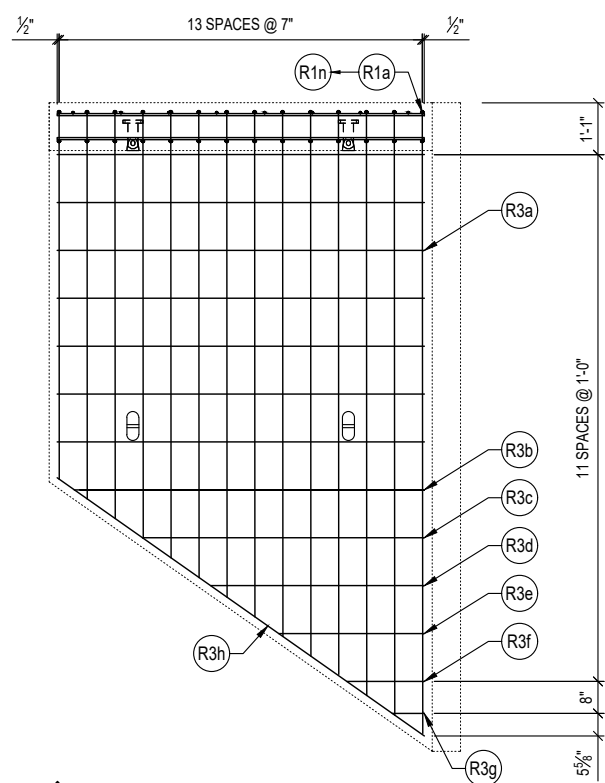
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

6/27/24

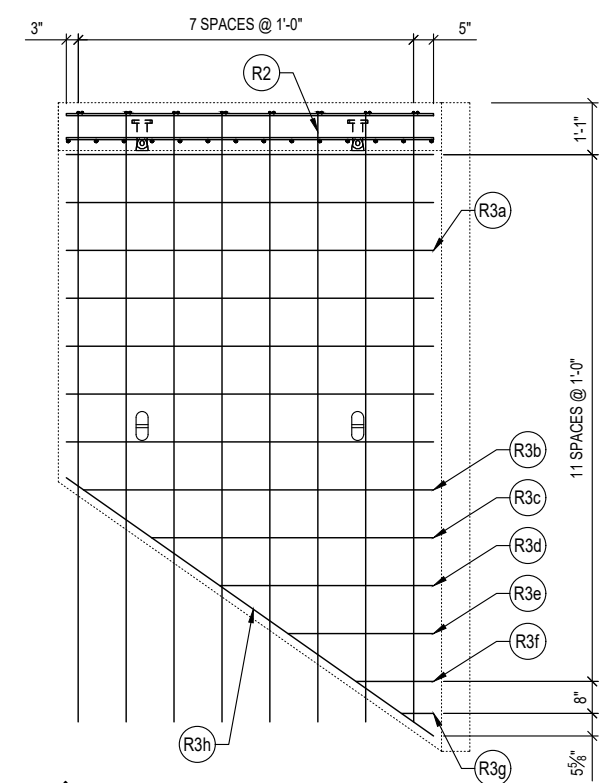


REVISION	DESCRIPTION	BY

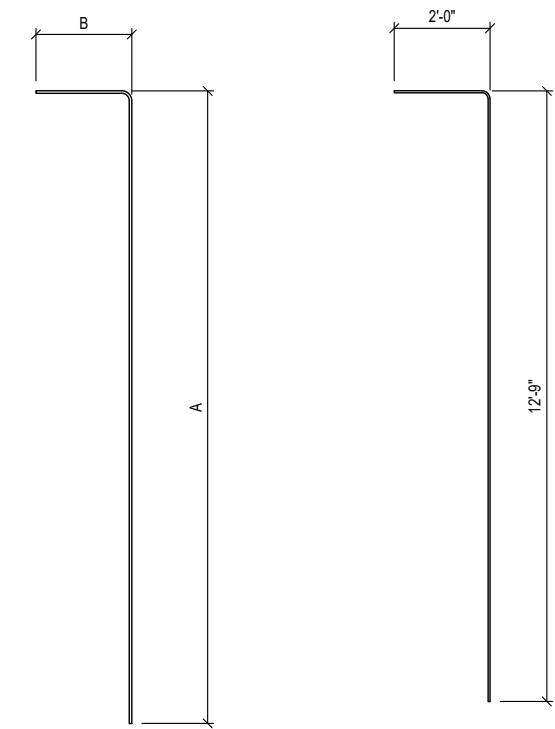
SHOP NOTES
 1. TRIM R2 BARS 2" AWAY FROM THE SLOPE EDGE OF THE WALL



PLAN VIEW
 REINFORCEMENT (SHOWN AS POURED)
 WALL TOP MAT

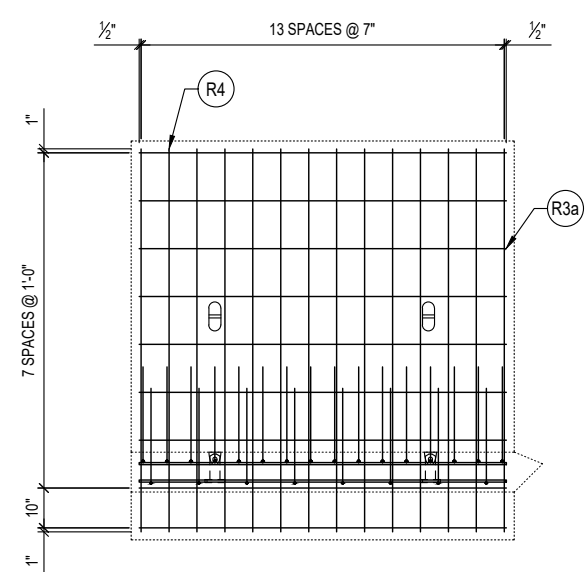


PLAN VIEW
 REINFORCEMENT (SHOWN AS POURED)
 WALL BOTTOM MAT

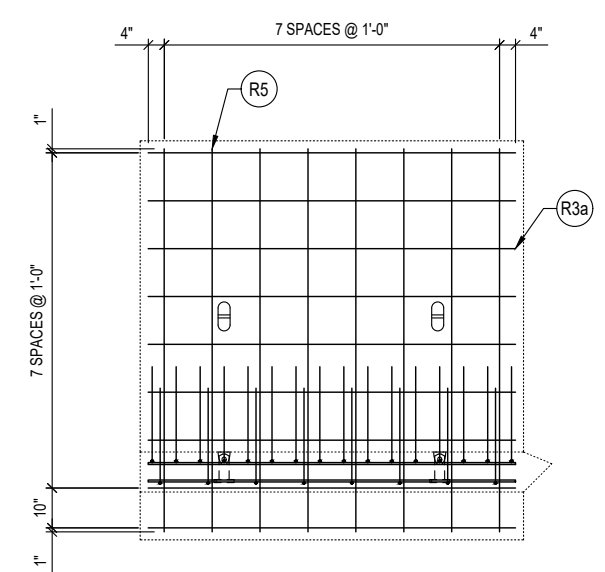


R1 DETAIL

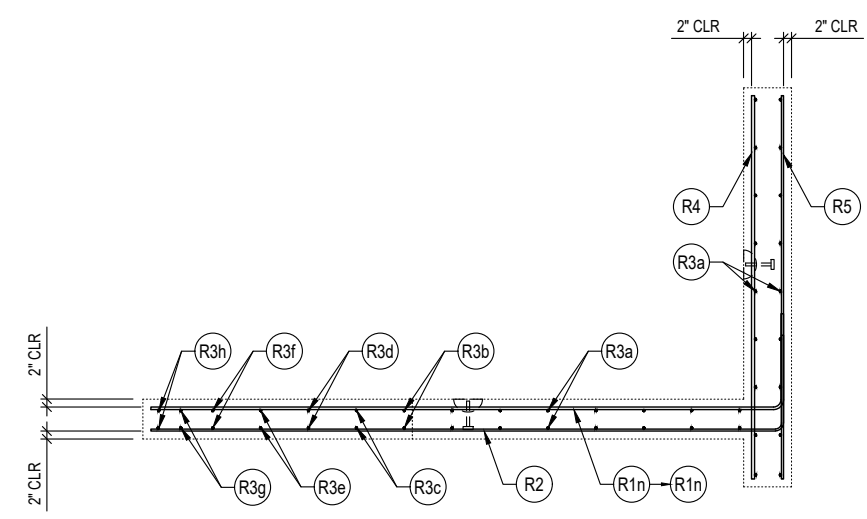
R2 DETAIL



VIEW A
 FOOTING REINF. (NEAR REINF.)



VIEW A
 FOOTING REINF. (FAR REINF.)



VIEW B

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1a	1	#5 REBAR A615/A706/GR60	15'- 0"	BENT
R1b	1	#5 REBAR A615/A706/GR60	14'- 7"	BENT
R1c	1	#5 REBAR A615/A706/GR60	14'- 2"	BENT
R1d	1	#5 REBAR A615/A706/GR60	13'- 9"	BENT
R1e	1	#5 REBAR A615/A706/GR60	13'- 4"	BENT
R1f	1	#5 REBAR A615/A706/GR60	12'- 11"	BENT
R1g	1	#5 REBAR A615/A706/GR60	12'- 7"	BENT
R1h	1	#5 REBAR A615/A706/GR60	12'- 2"	BENT
R1i	1	#5 REBAR A615/A706/GR60	11'- 9"	BENT
R1j	1	#5 REBAR A615/A706/GR60	11'- 4"	BENT
R1k	1	#5 REBAR A615/A706/GR60	10'- 11"	BENT
R1l	1	#5 REBAR A615/A706/GR60	10'- 6"	BENT
R1m	1	#5 REBAR A615/A706/GR60	10'- 1"	BENT
R1n	1	#5 REBAR A615/A706/GR60	9'- 8"	BENT
R2	8	#4 REBAR A615/A706/GR60	14'- 9"	BENT
R3a	32	#4 REBAR A615/A706/GR60	7'- 8"	STR
R3b	2	#4 REBAR A615/A706/GR60	7'- 4"	STR
R3c	2	#4 REBAR A615/A706/GR60	5'- 11"	STR
R3d	2	#4 REBAR A615/A706/GR60	4'- 6"	STR
R3e	2	#4 REBAR A615/A706/GR60	3'- 1"	STR
R3f	2	#4 REBAR A615/A706/GR60	1'- 8"	STR
R3g	2	#4 REBAR A615/A706/GR60	0'- 8"	STR
R3h	2	#4 REBAR A615/A706/GR60	9'- 5"	STR
R4	14	#6 REBAR A615/A706/GR60	8'- 0"	STR
R5	8	#4 REBAR A615/A706/GR60	8'- 0"	STR

R1 BARS			
BARS	A	B	LENGTH
R1a	13' - 0"	2'-0"	15' - 0"
R1b	12' - 7"	2'-0"	14' - 7"
R1c	12' - 2"	2'-0"	14' - 2"
R1d	11' - 9"	2'-0"	13' - 9"
R1e	11' - 4"	2'-0"	13' - 4"
R1f	10' - 11"	2'-0"	12' - 11"
R1g	10' - 7"	2'-0"	12' - 7"
R1h	10' - 2"	2'-0"	12' - 2"
R1i	9' - 9"	2'-0"	11' - 9"
R1j	9' - 4"	2'-0"	11' - 4"
R1k	8' - 11"	2'-0"	10' - 11"
R1l	8' - 6"	2'-0"	10' - 6"
R1m	8' - 1"	2'-0"	10' - 1"
R1n	7' - 8"	2'-0"	9' - 8"
TOTAL			172' - 9"

Oldcastle Infrastructure
 A CRH COMPANY
 P.O. BOX 588 AUBURN, WA 98071-0588
 PHONE: 800-892-1538 FAX: 253-735-4201

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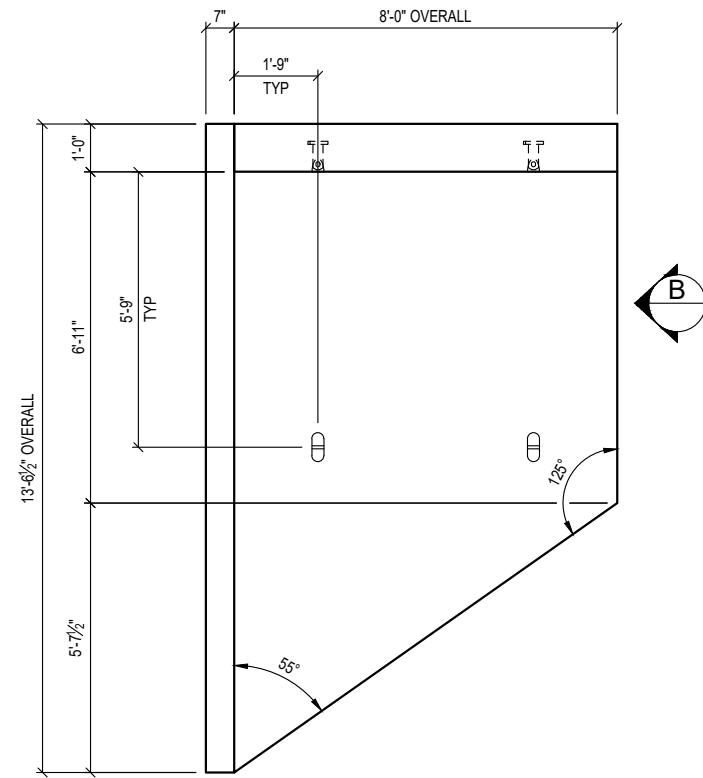
18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
 WING WALL 'W1': REINFORCEMENT DETAILS
 SNOQUALMIE VALLEY WATERSHED IMP. DIST
 WA

CUSTOMER SNOQUALMIE VALLEY WATERSHED IMP. DIST					
DATE 6/27/24	SALES DM	DRAWN FMT	ENGINEER ---	CHECKED	SALES ORDER S202473
DRAWING NUMBER 010-S202473-002 (Revised)				REVISION REV DATE	SHEET 10 OF 20

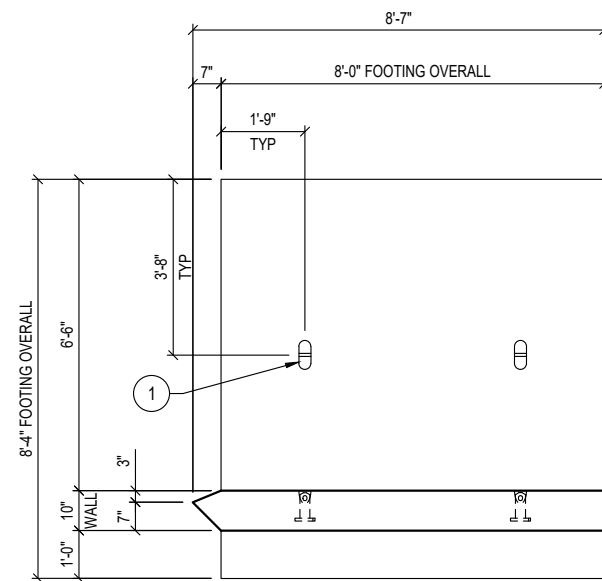
SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
 101 PINEVIEW ESTATES
 MOUNTAIN TOP, PA 18707
 PHONE: 570-868-2081
 FAX: 570-868-2082
6/27/24



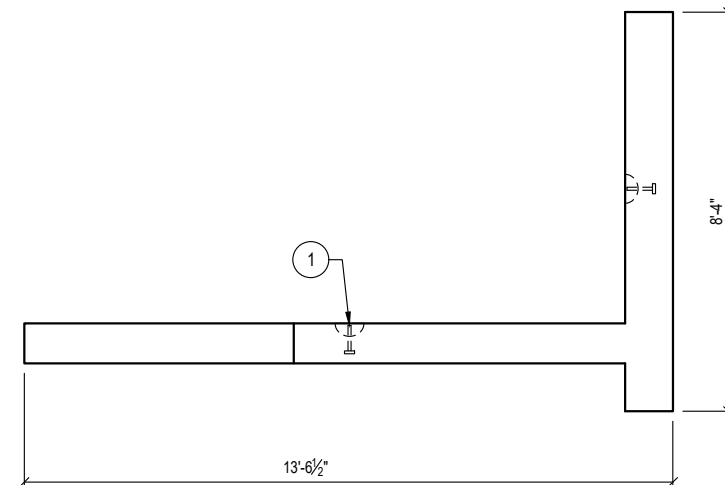
REVISION	DESCRIPTION	BY



PLAN VIEW
LAYOUT (SHOWN AS POURED)



VIEW A



VIEW B

PRODUCTION QUANTITY

(1) WING WALL 'W2'

PRODUCT WEIGHT

20,434 LBS

SHOP NOTES

1. CONCRETE FINISH: FLAT FLOAT FINISH
2. DO NOT ROTATE WING WALL TO UPRIGHT POSITION (IT WILL BE ROTATED AT THE JOBSITE)
3. EXTEND FOOTING FORM BY 4" FOR A 8'-4" OVERALL

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
1	4 ea	ANCHOR 8-TON SPREAD (Galv)	5100530
	5.04 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	3.29 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.80 cwt	#5 REBAR A615/A706/GR60	725A0075
	1.68 cwt	#6 REBAR A615/A706/GR60	725A0076
	43.83 sqf	MESH CHAIR	5500000

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ACRIL COMPANY
P.O. BOX 588 AUBURN, WA 98071-0588
PHONE: 800-892-1538 FAX: 253-735-4201

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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

WING WALL 'W2': LAYOUT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

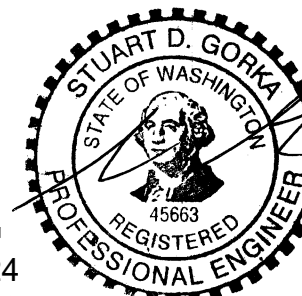
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---		S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	11 OF 20

SPECIALTY ENGINEERING SERVICES PROVIDED BY:

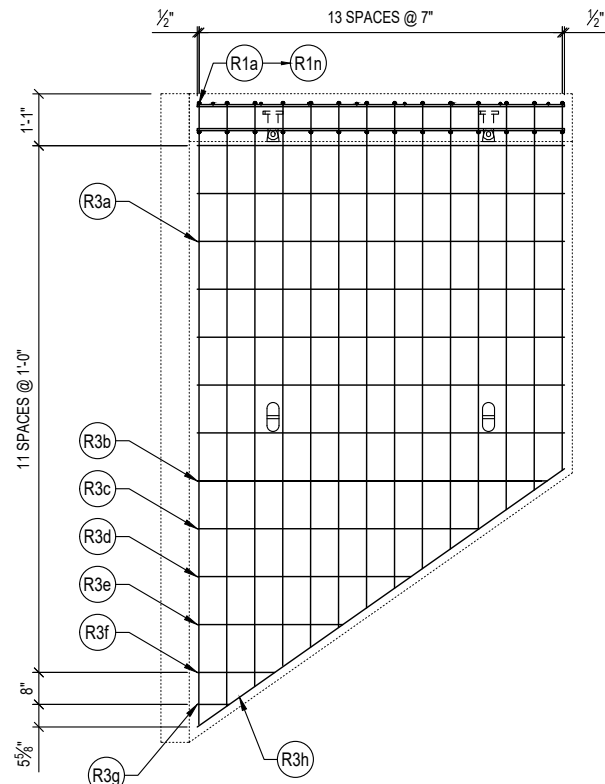
CONCRETE ENGINEERING SOLUTIONS, LLC

101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

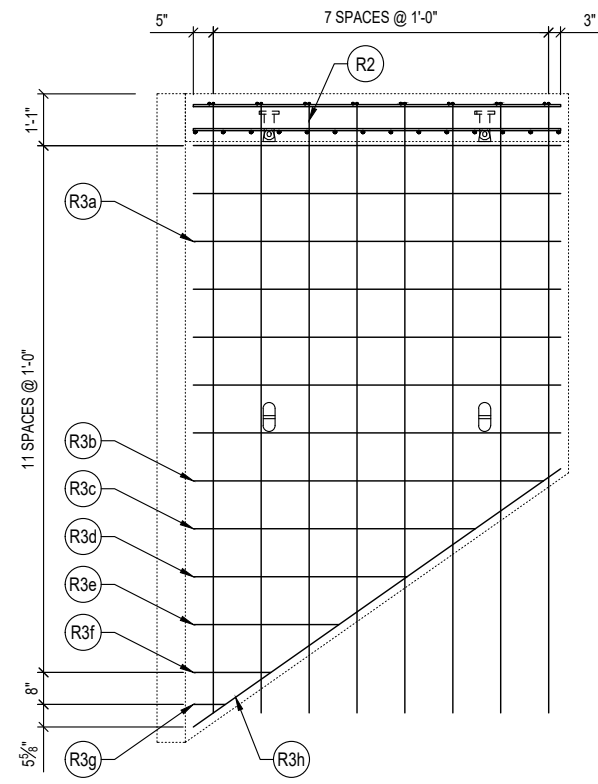
6/27/24



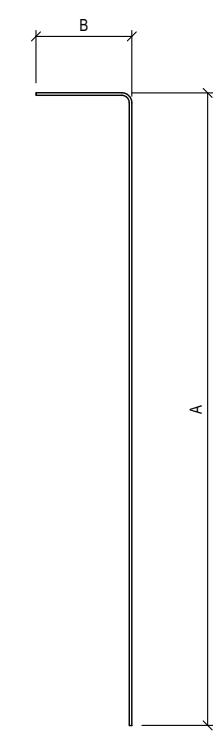
REVISION	DESCRIPTION	BY



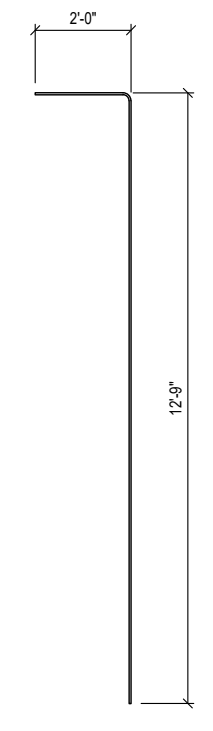
PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
WALL TOP MAT



PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
WALL BOTTOM MAT



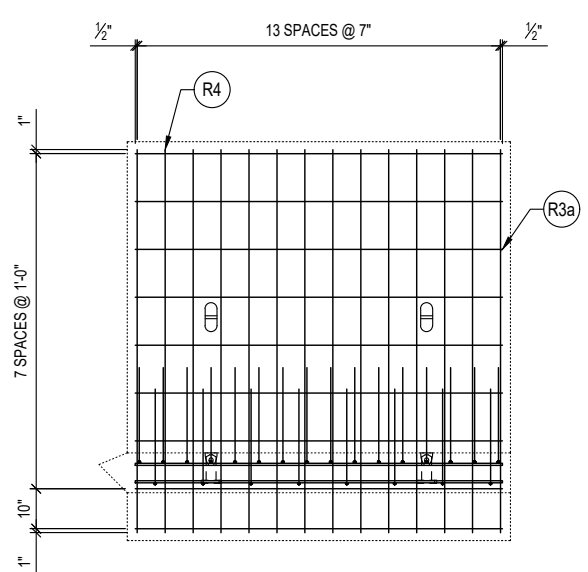
R1 DETAIL



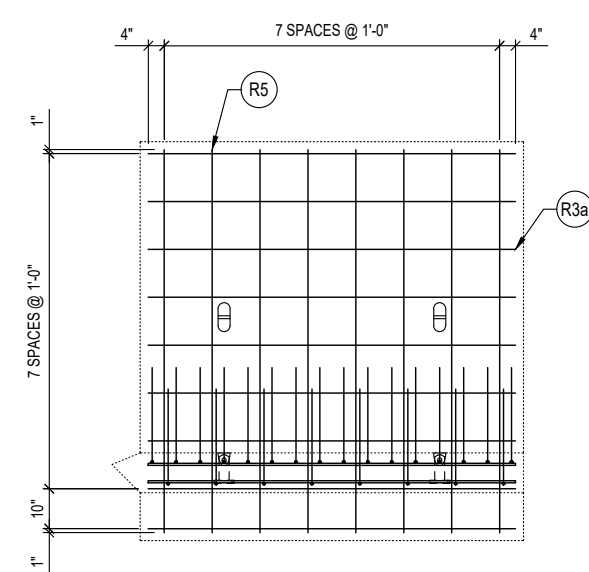
R2 DETAIL

SHOP NOTES
1. TRIM R2 BARS 2" AWAY FROM THE SLOPE EDGE OF THE WALL

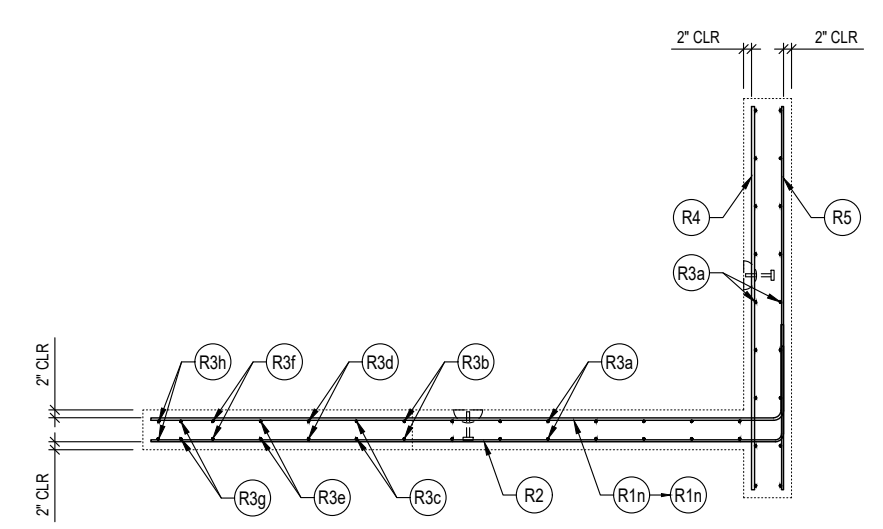
REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1a	1	#5 REBAR A615/A706/GR60	15'- 0"	BENT
R1b	1	#5 REBAR A615/A706/GR60	14'- 7"	BENT
R1c	1	#5 REBAR A615/A706/GR60	14'- 2"	BENT
R1d	1	#5 REBAR A615/A706/GR60	13'- 9"	BENT
R1e	1	#5 REBAR A615/A706/GR60	13'- 4"	BENT
R1f	1	#5 REBAR A615/A706/GR60	12'- 11"	BENT
R1g	1	#5 REBAR A615/A706/GR60	12'- 7"	BENT
R1h	1	#5 REBAR A615/A706/GR60	12'- 2"	BENT
R1i	1	#5 REBAR A615/A706/GR60	11'- 9"	BENT
R1j	1	#5 REBAR A615/A706/GR60	11'- 4"	BENT
R1k	1	#5 REBAR A615/A706/GR60	10'- 11"	BENT
R1l	1	#5 REBAR A615/A706/GR60	10'- 6"	BENT
R1m	1	#5 REBAR A615/A706/GR60	10'- 1"	BENT
R1n	1	#5 REBAR A615/A706/GR60	9'- 8"	BENT
R2	8	#4 REBAR A615/A706/GR60	14'- 9"	BENT
R3a	32	#4 REBAR A615/A706/GR60	7'- 8"	STR
R3b	2	#4 REBAR A615/A706/GR60	7'- 4"	STR
R3c	2	#4 REBAR A615/A706/GR60	5'- 11"	STR
R3d	2	#4 REBAR A615/A706/GR60	4'- 6"	STR
R3e	2	#4 REBAR A615/A706/GR60	3'- 1"	STR
R3f	2	#4 REBAR A615/A706/GR60	1'- 8"	STR
R3g	2	#4 REBAR A615/A706/GR60	0'- 8"	STR
R3h	2	#4 REBAR A615/A706/GR60	9'- 5"	STR
R4	14	#6 REBAR A615/A706/GR60	8'- 0"	STR
R5	8	#4 REBAR A615/A706/GR60	8'- 0"	STR



VIEW A
FOOTING REIN. (NEAR REIN.)



VIEW A
FOOTING REIN. (FAR REIN.)



VIEW B

R1 BARS			
BARS	A	B	LENGTH
R1a	13' - 0"	2'-0"	15' - 0"
R1b	12' - 7"	2'-0"	14' - 7"
R1c	12' - 2"	2'-0"	14' - 2"
R1d	11' - 9"	2'-0"	13' - 9"
R1e	11' - 4"	2'-0"	13' - 4"
R1f	10' - 11"	2'-0"	12' - 11"
R1g	10' - 7"	2'-0"	12' - 7"
R1h	10' - 2"	2'-0"	12' - 2"
R1i	9' - 9"	2'-0"	11' - 9"
R1j	9' - 4"	2'-0"	11' - 4"
R1k	8' - 11"	2'-0"	10' - 11"
R1l	8' - 6"	2'-0"	10' - 6"
R1m	8' - 1"	2'-0"	10' - 1"
R1n	7' - 8"	2'-0"	9' - 8"
TOTAL			172' - 9"

Oldcastle Infrastructure™
A CRH COMPANY
P.O. BOX 588 AUBURN, WA 98071-0588
PHONE: 800-892-1538 FAX: 253-735-4201

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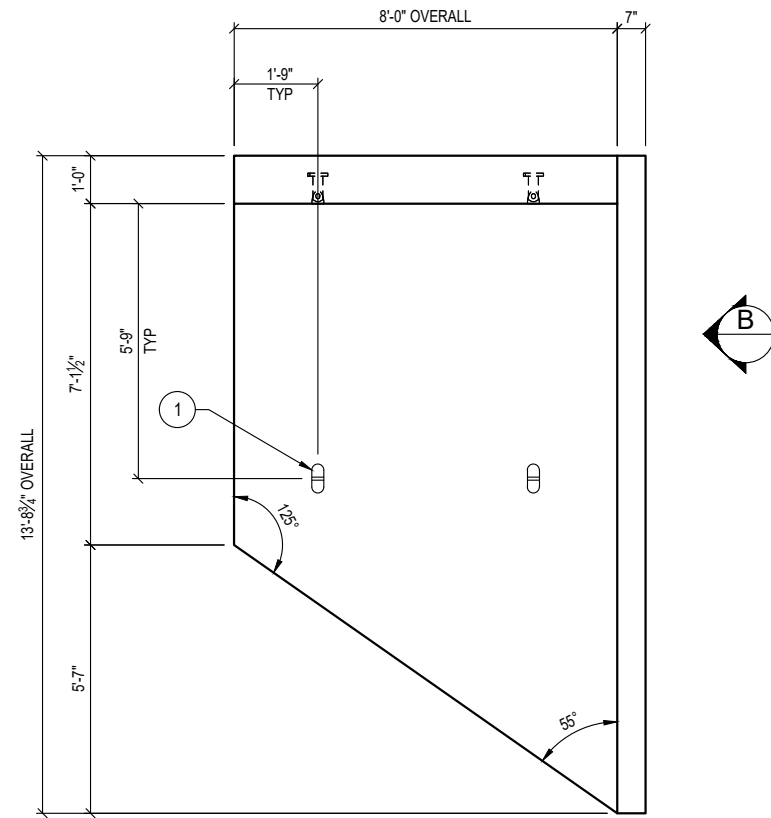
18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
WING WALL 'W2': REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER SNOQUALMIE VALLEY WATERSHED IMP. DIST					
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	12 OF 20

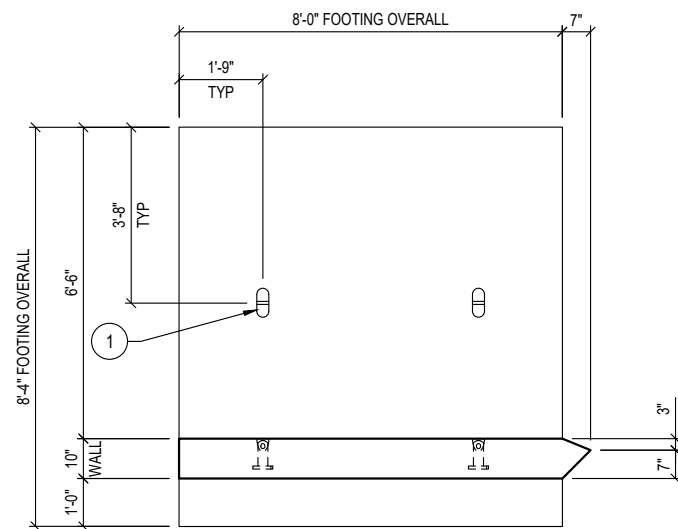
SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082
6/27/24



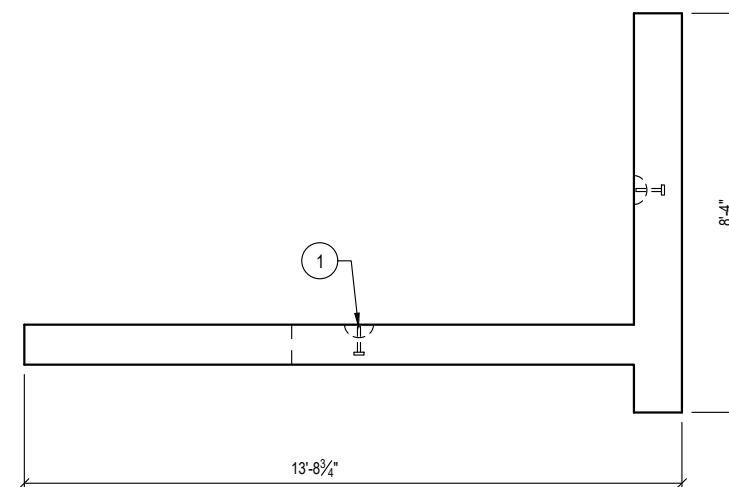
REVISION	DESCRIPTION	BY



PLAN VIEW
LAYOUT (SHOWN AS POURED)



VIEW A



VIEW B

PRODUCTION QUANTITY

(1) WING WALL 'W3'

PRODUCT WEIGHT

20,643 LBS

SHOP NOTES

1. CONCRETE FINISH: FLAT FLOAT FINISH
2. DO NOT ROTATE WING WALL TO UPRIGHT POSITION (IT WILL BE ROTATED AT THE JOBSITE)
3. EXTEND FOOTING FORM BY 4" FOR A 8'-4" OVERALL

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
1	4 ea	ANCHOR 8-TON SPREAD (Galv)	5100530
	5.09 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	3.21 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.83 cwt	#5 REBAR A615/A706/GR60	725A0075
	1.68 cwt	#6 REBAR A615/A706/GR60	725A0076
	44.28 sqf	MESH CHAIR	5500000



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

WING WALL 'W3': LAYOUT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---		S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	13 OF 20

SPECIALTY ENGINEERING SERVICES PROVIDED BY:

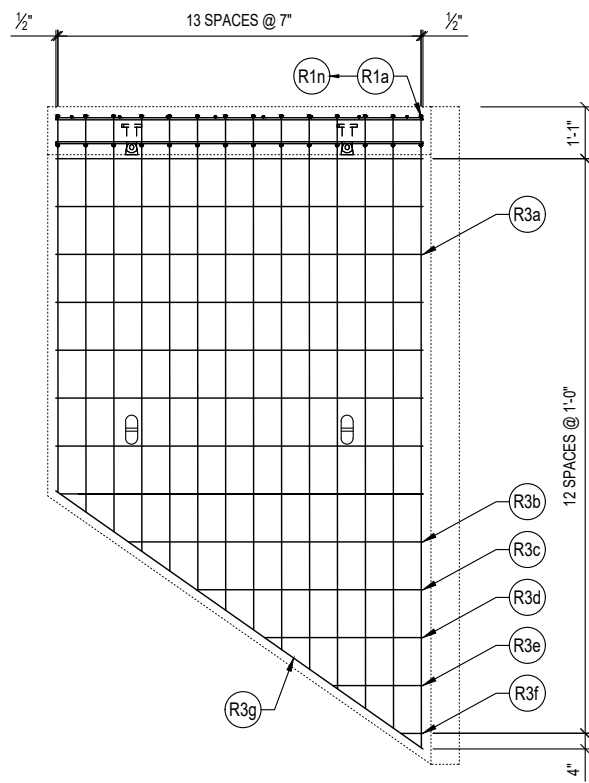
CONCRETE ENGINEERING SOLUTIONS, LLC

101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

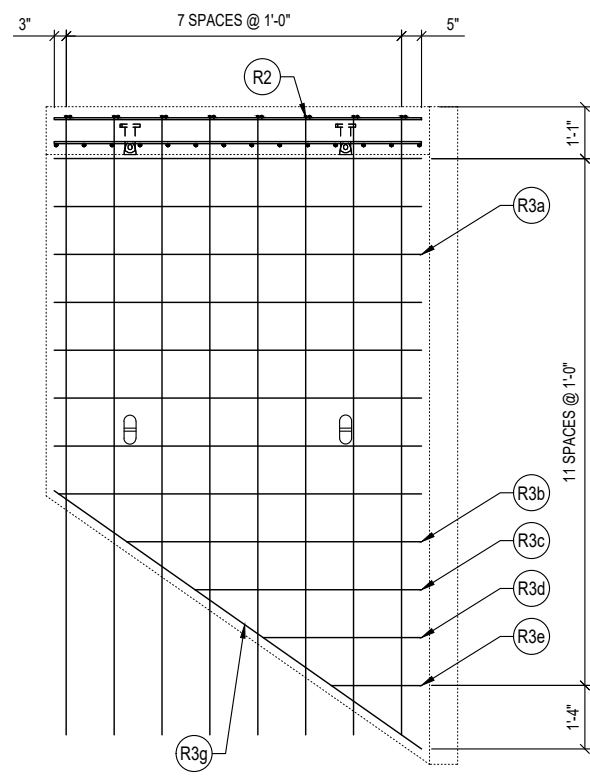
6/27/24



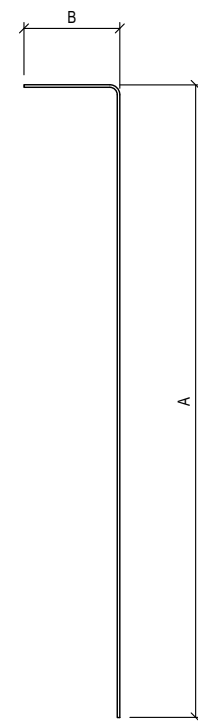
REVISION	DESCRIPTION	BY



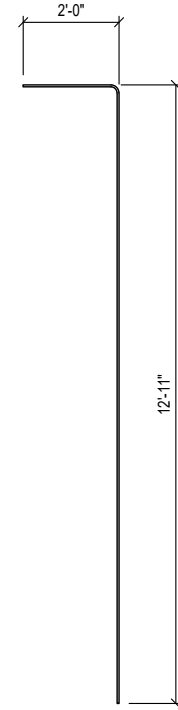
PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
WALL TOP MAT



PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
WALL BOTTOM MAT



R1 DETAIL



R2 DETAIL

SHOP NOTES

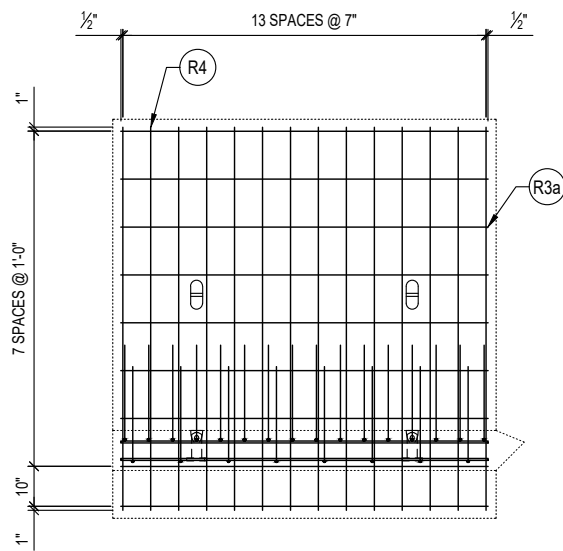
- TRIM R2 BARS 2" AWAY FROM THE SLOPE EDGE OF THE WALL

REINFORCEMENT CUT LIST

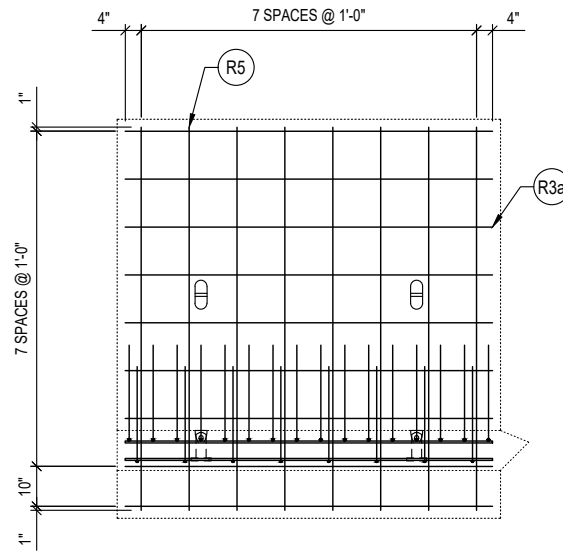
#	QTY	MATERIAL	LENGTH	SHAPE
R1a	1	#5 REBAR A615/A706/GR60	15'- 2"	BENT
R1b	1	#5 REBAR A615/A706/GR60	14'- 9"	BENT
R1c	1	#5 REBAR A615/A706/GR60	14'- 4"	BENT
R1d	1	#5 REBAR A615/A706/GR60	14'- 0"	BENT
R1e	1	#5 REBAR A615/A706/GR60	13'- 7"	BENT
R1f	1	#5 REBAR A615/A706/GR60	13'- 2"	BENT
R1g	1	#5 REBAR A615/A706/GR60	12'- 9"	BENT
R1h	1	#5 REBAR A615/A706/GR60	12'- 4"	BENT
R1i	1	#5 REBAR A615/A706/GR60	11'- 11"	BENT
R1j	1	#5 REBAR A615/A706/GR60	11'- 6"	BENT
R1k	1	#5 REBAR A615/A706/GR60	11'- 1"	BENT
R1l	1	#5 REBAR A615/A706/GR60	10'- 8"	BENT
R1m	1	#5 REBAR A615/A706/GR60	10'- 3"	BENT
R1n	1	#5 REBAR A615/A706/GR60	9'- 10"	BENT
R2	8	#4 REBAR A615/A706/GR60	14'- 11"	BENT
R3a	32	#4 REBAR A615/A706/GR60	7'- 8"	STR
R3b	2	#4 REBAR A615/A706/GR60	6'- 2"	STR
R3c	2	#4 REBAR A615/A706/GR60	4'- 9"	STR
R3d	2	#4 REBAR A615/A706/GR60	3'- 4"	STR
R3e	2	#4 REBAR A615/A706/GR60	1'- 11"	STR
R3f	1	#4 REBAR A615/A706/GR60	0'- 6"	STR
R3g	2	#4 REBAR A615/A706/GR60	9'- 5"	STR
R4	14	#6 REBAR A615/A706/GR60	8'- 0"	STR
R5	8	#4 REBAR A615/A706/GR60	8'- 0"	STR

R1 BARS

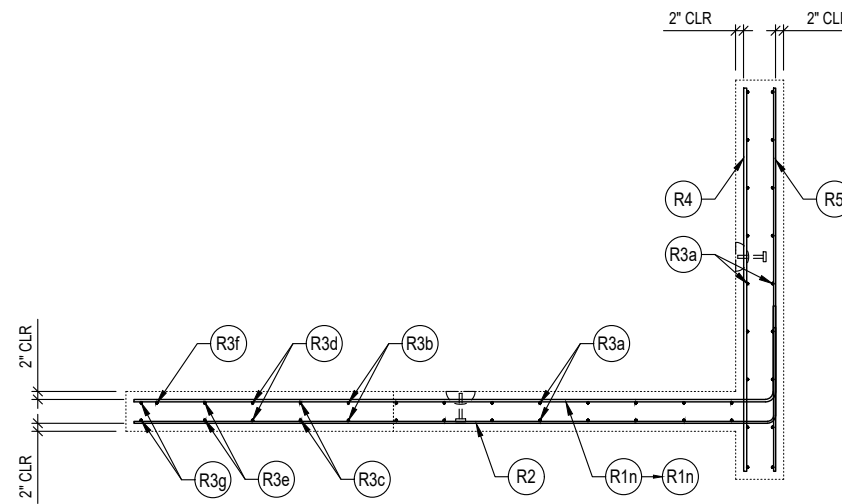
BARS	A	B	LENGTH
R1a	13' - 2"	2'-0"	15' - 2"
R1b	12' - 9"	2'-0"	14' - 9"
R1c	12' - 4"	2'-0"	14' - 4"
R1d	12' - 0"	2'-0"	14' - 0"
R1e	11' - 7"	2'-0"	13' - 7"
R1f	11' - 2"	2'-0"	13' - 2"
R1g	10' - 9"	2'-0"	12' - 9"
R1h	10' - 4"	2'-0"	12' - 4"
R1i	9' - 11"	2'-0"	11' - 11"
R1j	9' - 6"	2'-0"	11' - 6"
R1k	9' - 1"	2'-0"	11' - 1"
R1l	8' - 8"	2'-0"	10' - 8"
R1m	8' - 3"	2'-0"	10' - 3"
R1n	7' - 10"	2'-0"	9' - 10"
TOTAL			174' - 4"



VIEW A
FOOTING REINF. (NEAR REINF.)



VIEW A
FOOTING REINF. (FAR REINF.)



VIEW B

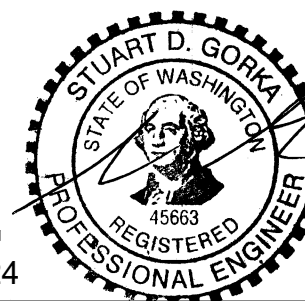
Oldcastle Infrastructure
A CRH COMPANY
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PHONE: 800-892-1538 FAX: 253-735-4201

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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
WING WALL 'W3': REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

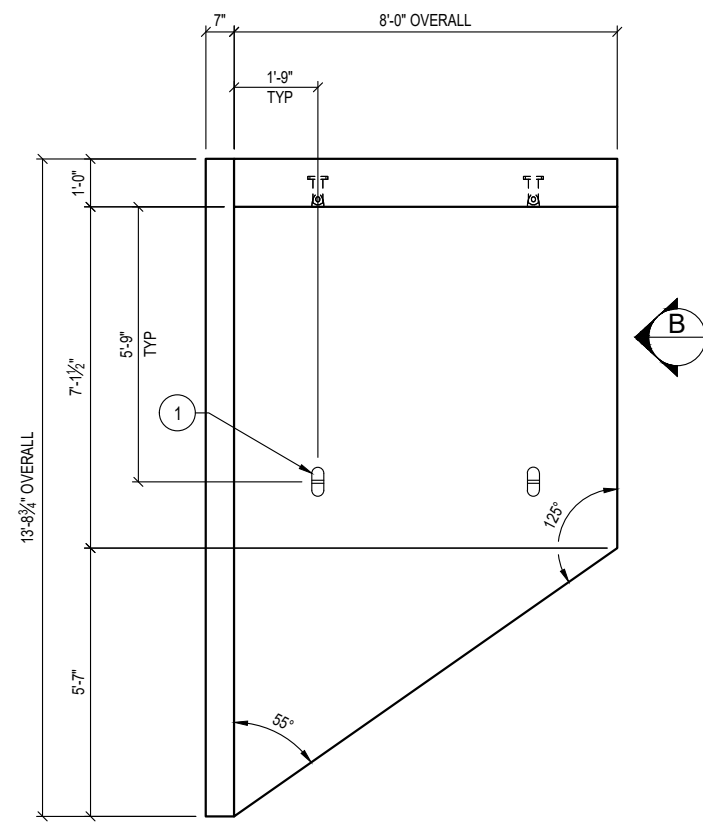
CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	14 OF 20

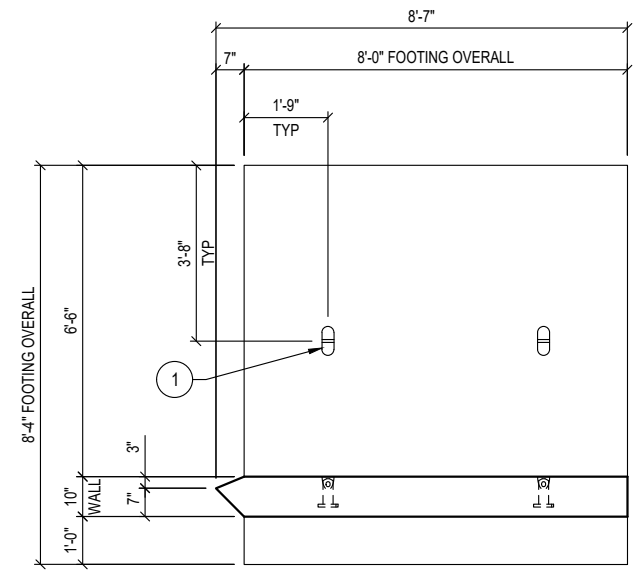


SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082
6/27/24

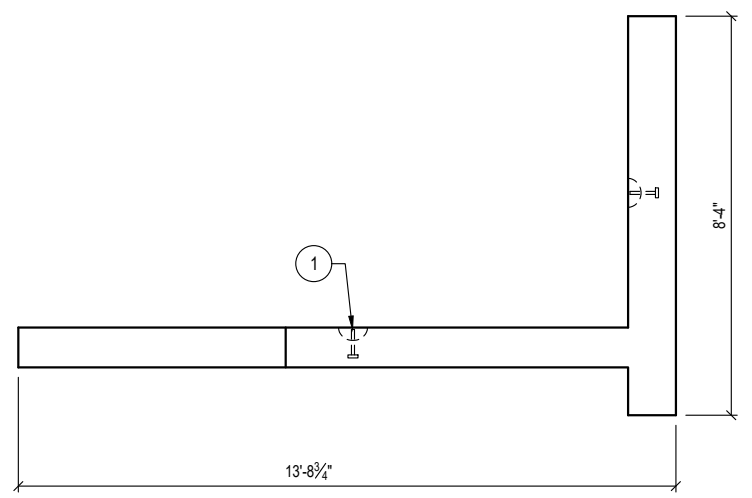
REVISION	DESCRIPTION	BY



PLAN VIEW
LAYOUT (SHOWN AS POURED)



VIEW A



VIEW B

PRODUCTION QUANTITY

(1) WING WALL 'W4'

PRODUCT WEIGHT

20,643 LBS

SHOP NOTES

1. CONCRETE FINISH: FLAT FLOAT FINISH
2. DO NOT ROTATE WING WALL TO UPRIGHT POSITION (IT WILL BE ROTATED AT THE JOBSITE)
3. EXTEND FOOTING FORM BY 4" FOR A 8'-4" OVERALL

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
1	4 ea	ANCHOR 8-TON SPREAD (Galv)	5100530
	5.09 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	3.21 cwt	#4 REBAR A615/A706/GR60	725A0074
	1.83 cwt	#5 REBAR A615/A706/GR60	725A0075
	1.68 cwt	#6 REBAR A615/A706/GR60	725A0076
	44.28 sqf	MESH CHAIR	5500000



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
WING WALL 'W4': LAYOUT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

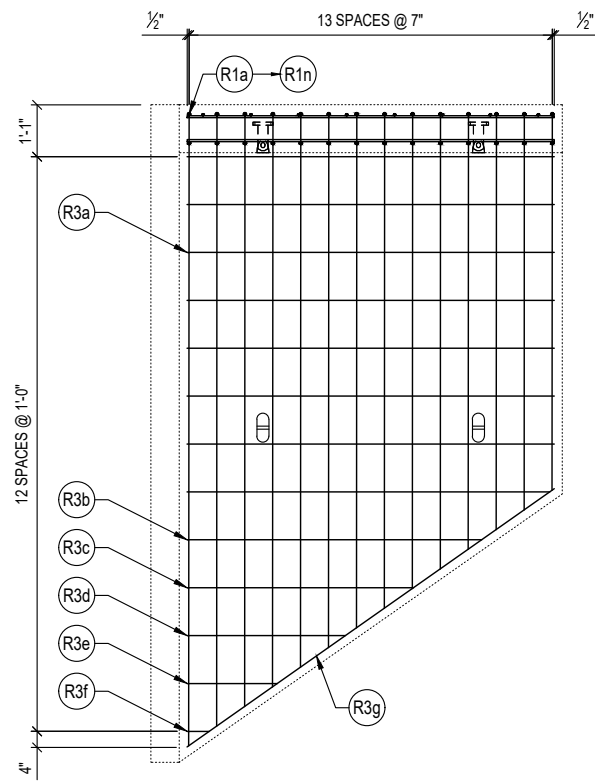
CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST



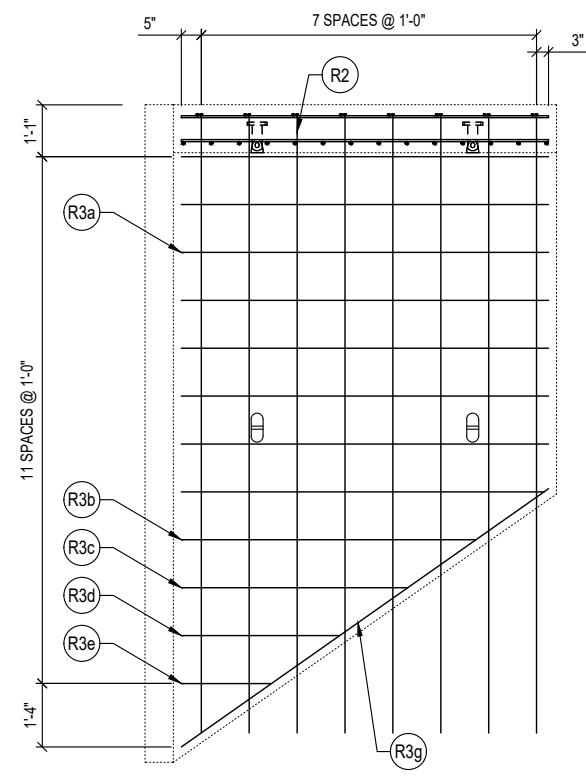
SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082
6/27/24

REVISION	DESCRIPTION	BY

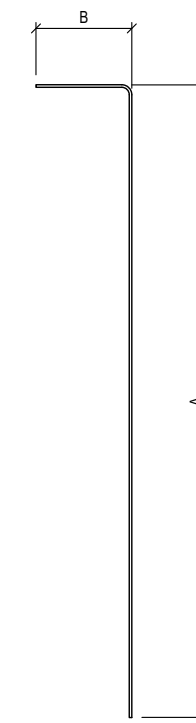
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	15 OF 20



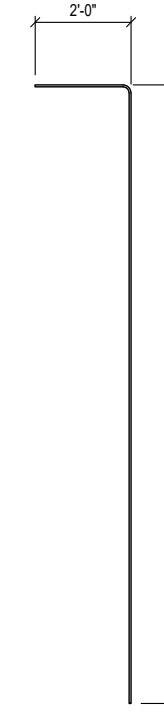
PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
WALL TOP MAT



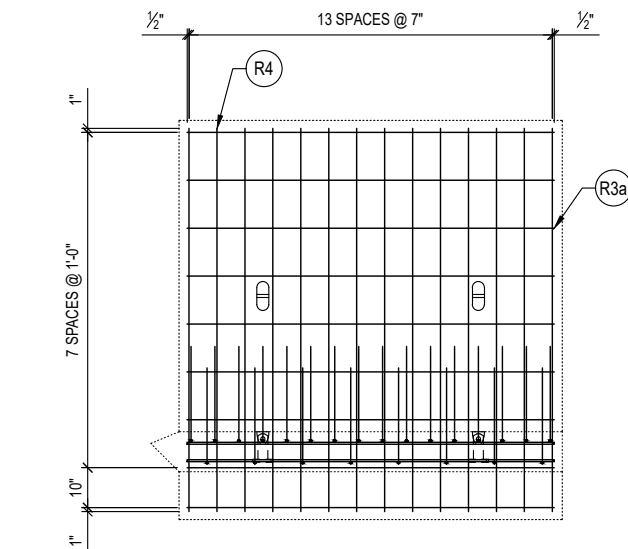
PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)
WALL BOTTOM MAT



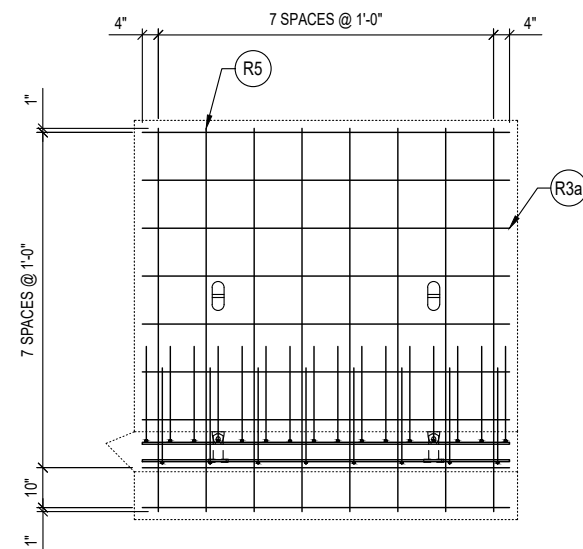
R1 DETAIL



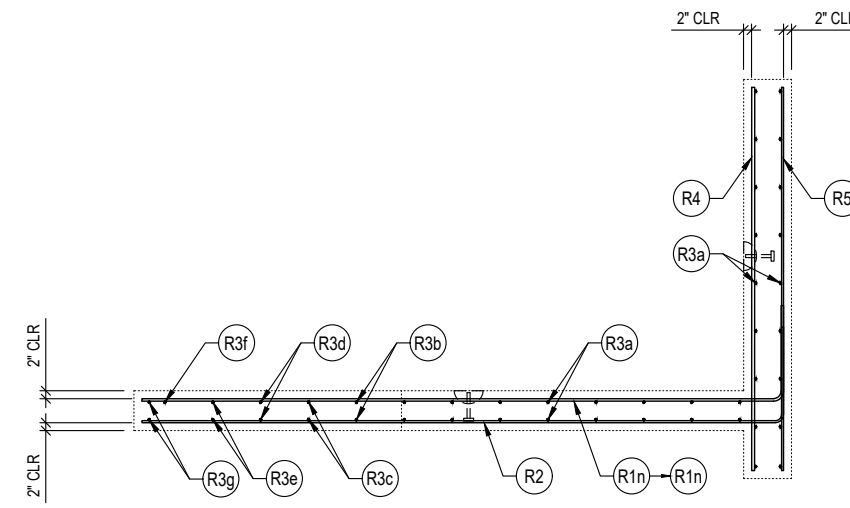
R2 DETAIL



VIEW A
FOOTING REINF. (NEAR REINF.)



VIEW A
FOOTING REINF. (FAR REINF.)



VIEW B

SHOP NOTES

- TRIM R2 BARS 2" AWAY FROM THE SLOPE EDGE OF THE WALL

REINFORCEMENT CUT LIST

#	QTY	MATERIAL	LENGTH	SHAPE
R1a	1	#5 REBAR A615/A706/GR60	15'- 2"	BENT
R1b	1	#5 REBAR A615/A706/GR60	14'- 9"	BENT
R1c	1	#5 REBAR A615/A706/GR60	14'- 4"	BENT
R1d	1	#5 REBAR A615/A706/GR60	14'- 0"	BENT
R1e	1	#5 REBAR A615/A706/GR60	13'- 7"	BENT
R1f	1	#5 REBAR A615/A706/GR60	13'- 2"	BENT
R1g	1	#5 REBAR A615/A706/GR60	12'- 9"	BENT
R1h	1	#5 REBAR A615/A706/GR60	12'- 4"	BENT
R1i	1	#5 REBAR A615/A706/GR60	11'- 11"	BENT
R1j	1	#5 REBAR A615/A706/GR60	11'- 6"	BENT
R1k	1	#5 REBAR A615/A706/GR60	11'- 1"	BENT
R1l	1	#5 REBAR A615/A706/GR60	10'- 8"	BENT
R1m	1	#5 REBAR A615/A706/GR60	10'- 3"	BENT
R1n	1	#5 REBAR A615/A706/GR60	9'- 10"	BENT
R2	8	#4 REBAR A615/A706/GR60	14'- 11"	BENT
R3a	32	#4 REBAR A615/A706/GR60	7'- 8"	STR
R3b	2	#4 REBAR A615/A706/GR60	6'- 2"	STR
R3c	2	#4 REBAR A615/A706/GR60	4'- 9"	STR
R3d	2	#4 REBAR A615/A706/GR60	3'- 4"	STR
R3e	2	#4 REBAR A615/A706/GR60	1'- 11"	STR
R3f	1	#4 REBAR A615/A706/GR60	0'- 6"	STR
R3g	2	#4 REBAR A615/A706/GR60	9'- 5"	STR
R4	14	#6 REBAR A615/A706/GR60	8'- 0"	STR
R5	8	#4 REBAR A615/A706/GR60	8'- 0"	STR

R1 BARS

BARS	A	B	LENGTH
R1a	13' - 2"	2'-0"	15' - 2"
R1b	12' - 9"	2'-0"	14' - 9"
R1c	12' - 4"	2'-0"	14' - 4"
R1d	12' - 0"	2'-0"	14' - 0"
R1e	11' - 7"	2'-0"	13' - 7"
R1f	11' - 2"	2'-0"	13' - 2"
R1g	10' - 9"	2'-0"	12' - 9"
R1h	10' - 4"	2'-0"	12' - 4"
R1i	9' - 11"	2'-0"	11' - 11"
R1j	9' - 6"	2'-0"	11' - 6"
R1k	9' - 1"	2'-0"	11' - 1"
R1l	8' - 8"	2'-0"	10' - 8"
R1m	8' - 3"	2'-0"	10' - 3"
R1n	7' - 10"	2'-0"	9' - 10"
TOTAL			174' - 4"



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)

WING WALL 'W4': REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

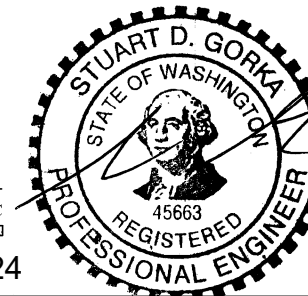
CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	17 OF 20

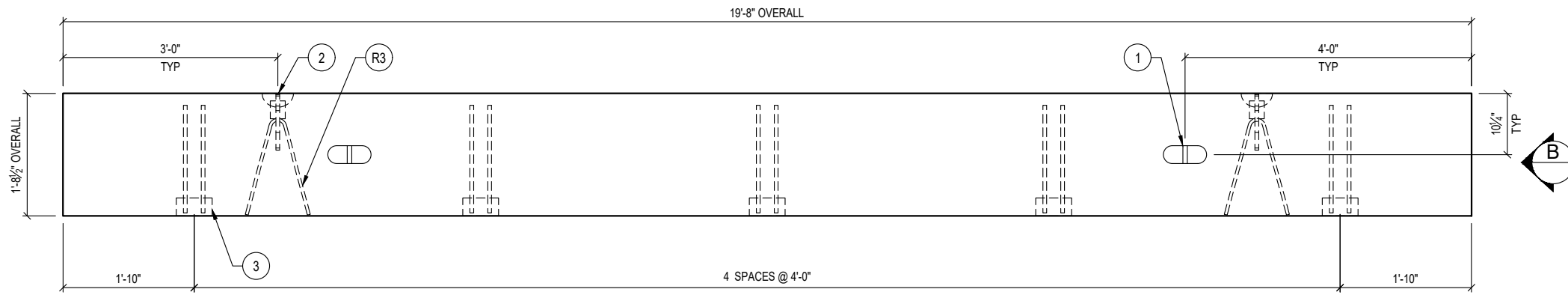
SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC

101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

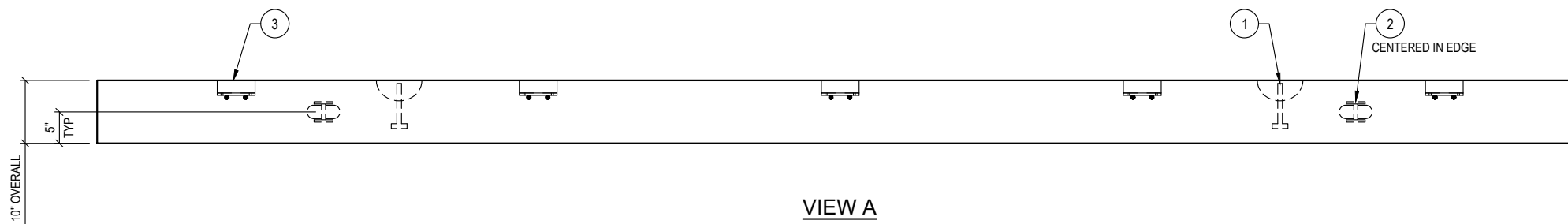
6/27/24



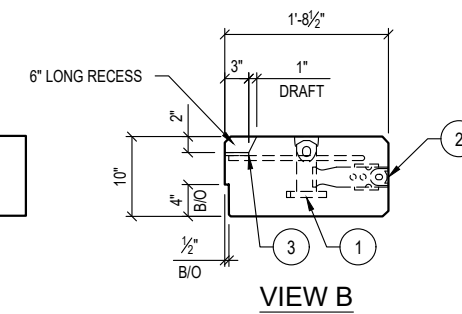
REVISION	DESCRIPTION	BY



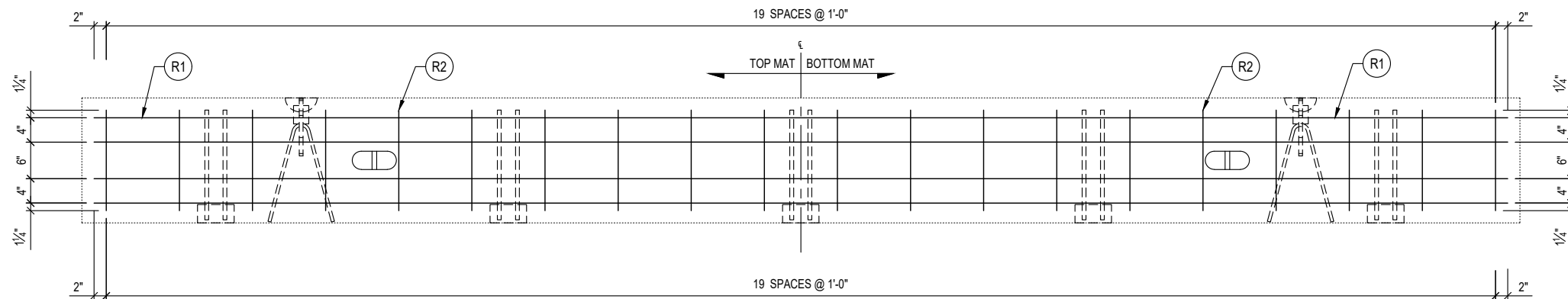
A PLAN VIEW
LAYOUT (SHOWN AS POURED)



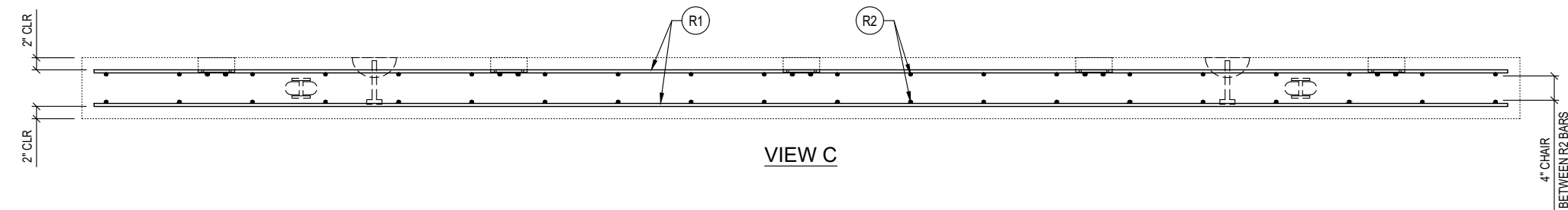
VIEW A



VIEW B



C PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)



VIEW C

PRODUCTION QUANTITY
(1) HEAD WALL 'H1'

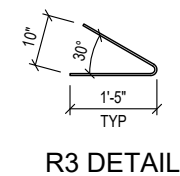
PRODUCT WEIGHT
4,199 LBS

SHOP NOTES

- NO STEEL FORM EXISTS; USE WOOD FORM FOR ALL FEATURES
- FORM DIAGONAL DISTANCE: 19'-8⁷/₈"
- CONCRETE FINISH: FLAT FLOAT FINISH WITH 3/4" CHAMFERED EDGES

BILL OF MATERIALS			
#	QUANTITY	DESCRIPTION	ITEM #
1	2 ea	ANCHOR 8-TON PLATE (Galv)	5100525
2	2 ea	ANCHOR 8-TON ERECTION DSP (Galv)	5100535
3	5 ea	HEAD WALL WELD PLATE (SIS)	2300500
	1.03 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	1.45 cwt	#4 REBAR A615/A706/GR60	725A0074
	9.27 sqf	MESH CHAIR	5500000

REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	8	#4 REBAR A615/A706/GR60	19'- 4"	STR
R2	40	#4 REBAR A615/A706/GR60	1'- 4.5"	STR
R3	2	#4 REBAR A615/A706/GR60	2'- 10"	BENT



R3 DETAIL

SPECIALTY ENGINEERING SERVICES PROVIDED BY:

CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

6/27/24



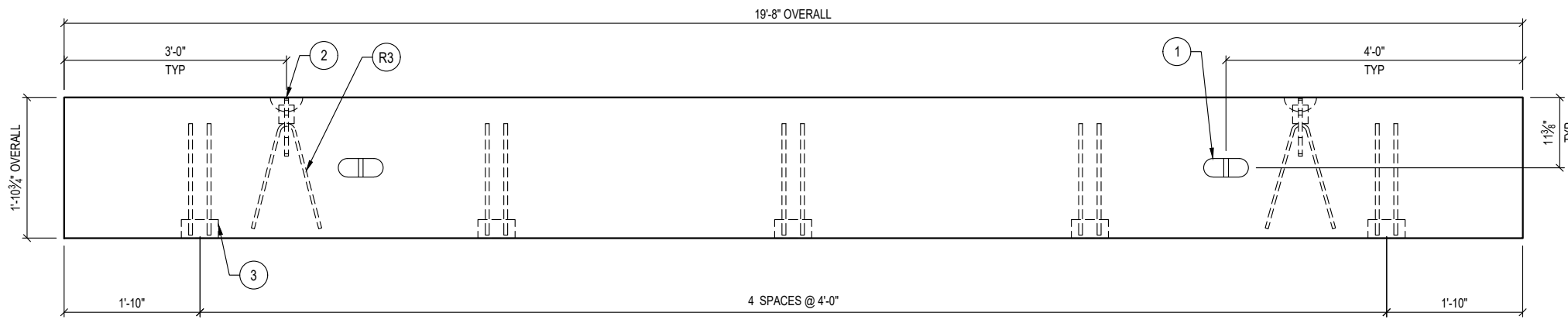
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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
HEADWALL 'H1': LAYOUT & REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---		S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	17 OF 20

REVISION	DESCRIPTION	BY



A PLAN VIEW
LAYOUT (SHOWN AS POURED)



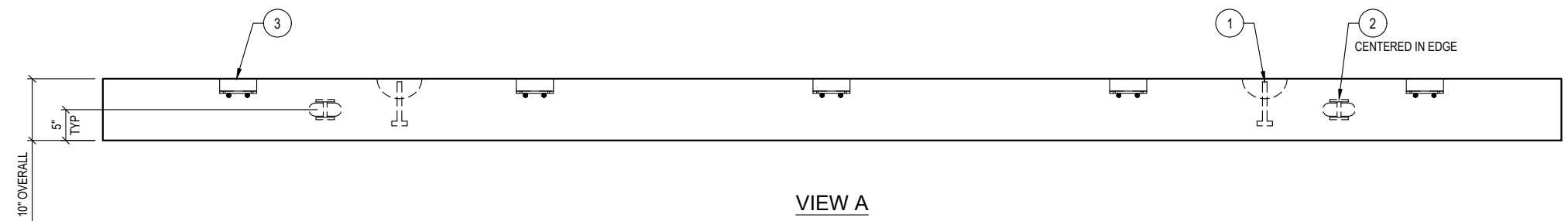
PRODUCTION QUANTITY
(1) HEAD WALL 'H2'

PRODUCT WEIGHT
4,660 LBS

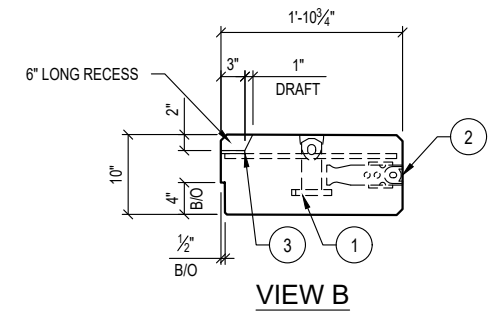
SHOP NOTES

- NO STEEL FORM EXISTS; USE WOOD FORM FOR ALL FEATURES
- FORM DIAGONAL DISTANCE: 19'-9 1/8"
- CONCRETE FINISH: FLAT FLOAT FINISH WITH 3/4" CHAMFERED EDGES

BILL OF MATERIALS			
#	QUANTITY	DESCRIPTION	ITEM #
1	2 ea	ANCHOR 8-TON PLATE (Galv)	5100525
2	2 ea	ANCHOR 8-TON ERECTION DSP (Galv)	5100535
3	5 ea	HEAD WALL WELD PLATE (SIS)	2300500
	1.15 yds	CONCRETE MIX 71 - SCC (WSDOT)	5010075
	1.50 cwt	#4 REBAR A615/A706/GR60	725A0074
	10.35 sqf	MESH CHAIR	5500000

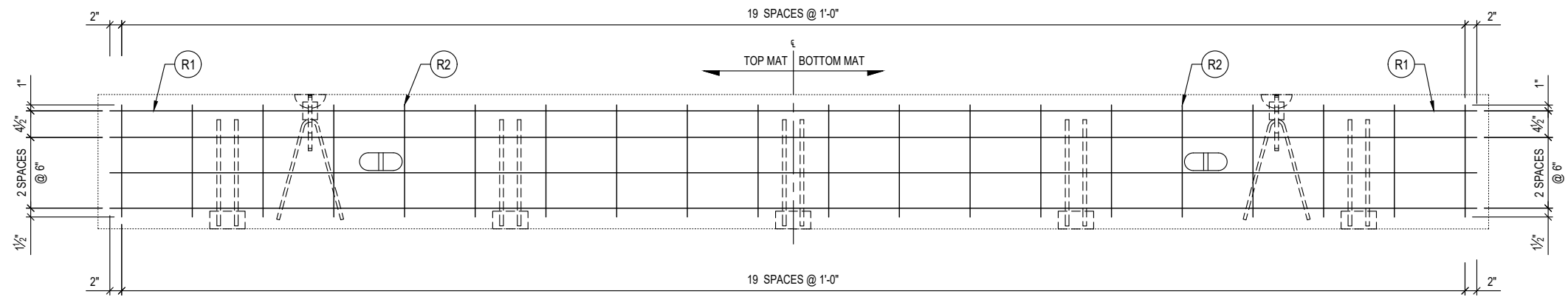


VIEW A

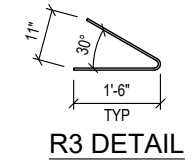


VIEW B

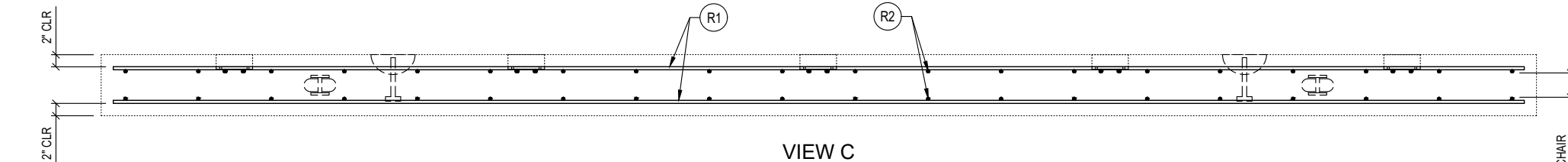
REINFORCEMENT CUT LIST				
#	QTY	MATERIAL	LENGTH	SHAPE
R1	8	#4 REBAR A615/A706/GR60	19'- 4"	STR
R2	40	#4 REBAR A615/A706/GR60	1'- 7"	STR
R3	2	#4 REBAR A615/A706/GR60	3'- 0"	BENT



C PLAN VIEW
REINFORCEMENT (SHOWN AS POURED)



R3 DETAIL



VIEW C

4\"/>

REVISION	DESCRIPTION	BY

SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

6/27/24



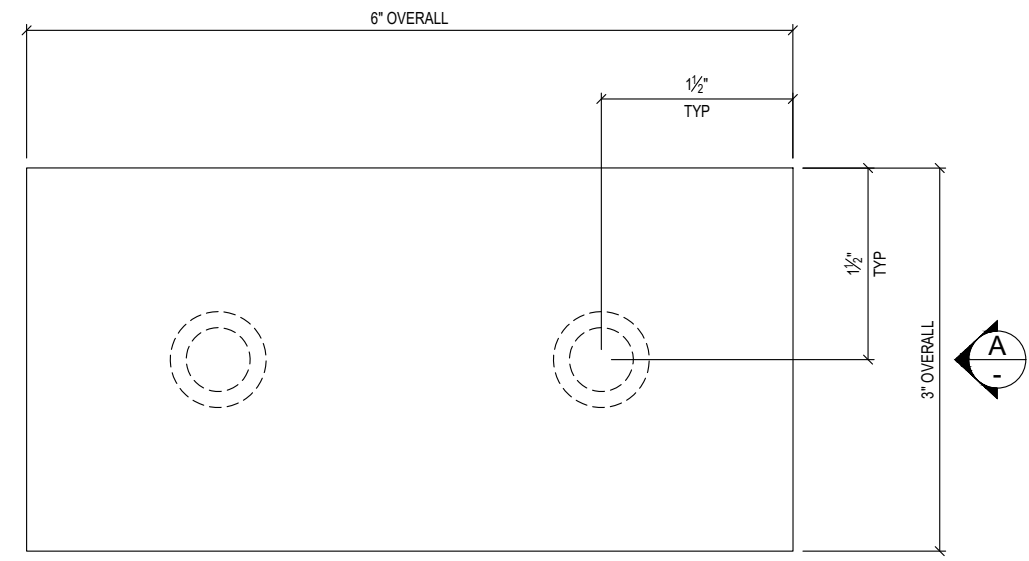
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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
HEADWALL 'H2' : LAYOUT & REINFORCEMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA
CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

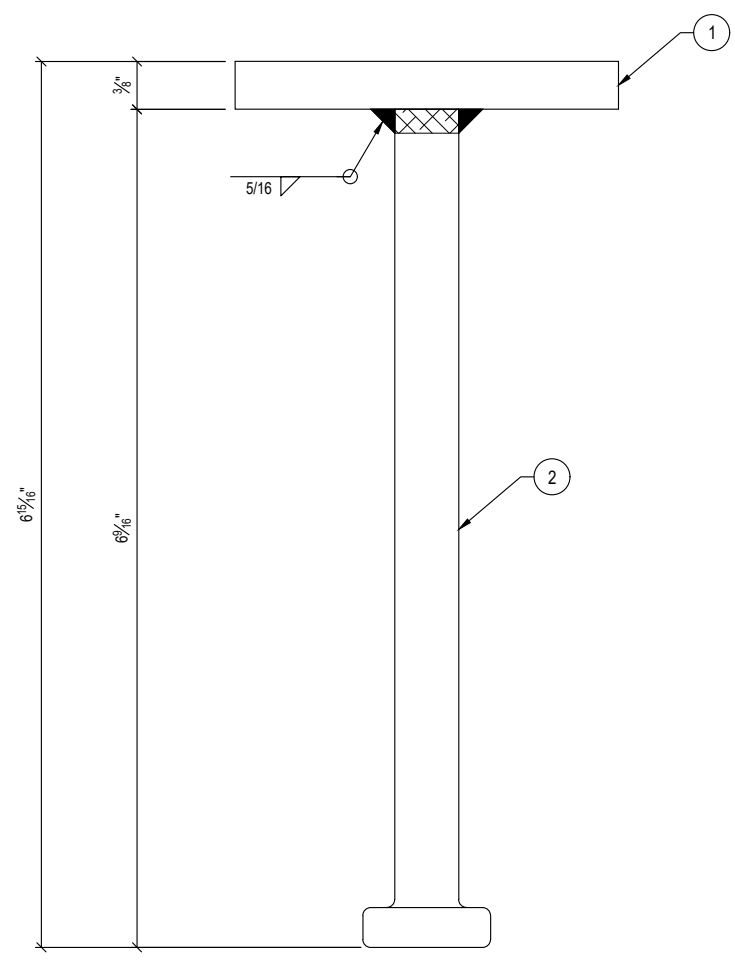
DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---	---	S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	18 OF 20

- SHOP NOTES
- OVERALL DIMENSIONS HAVE A TOLERANCE OF $\pm \frac{1}{16}$ "
 - GRIND ALL SHARP EDGES

PRODUCTION QUANTITY
(10) WELD PLATES



PLAN VIEW



VIEW A

BILL OF MATERIALS			
#	QUANTITY	DESCRIPTION	ITEM #
1	1.91 lbs	FLATBAR 3/8" x 6"	
2	2 ea	STUD 5/8" X 6-9/16"	5910475

LAYOUT CUT LIST			
#	QUANTITY	DESCRIPTION	SIZE
2	1 ea	FLATBAR 3/8" X 3"	6"

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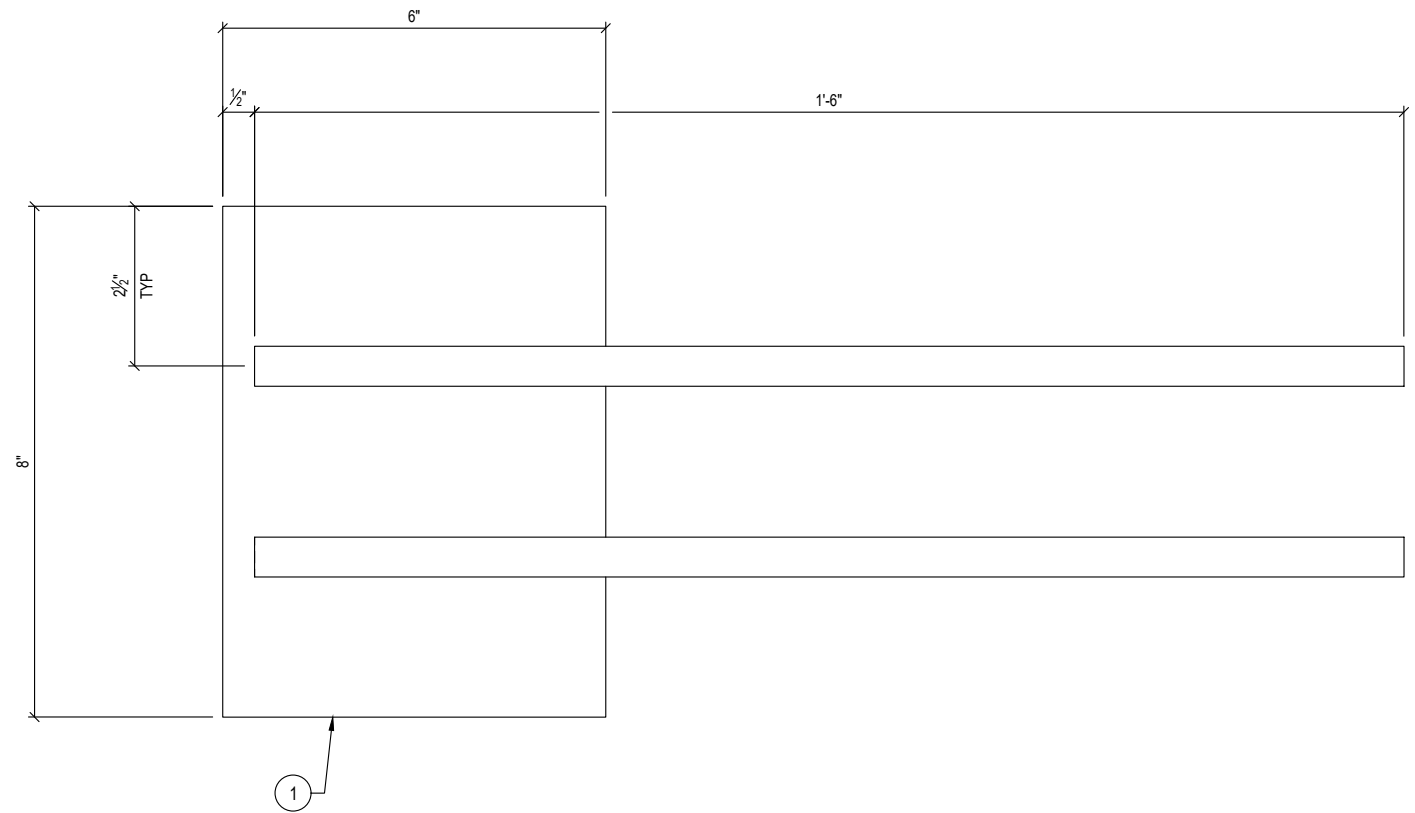
18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
19
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA
CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

SPECIALTY ENGINEERING SERVICES PROVIDED BY:
CONCRETE ENGINEERING SOLUTIONS, LLC
101 PINEVIEW ESTATES
MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082
6/27/24

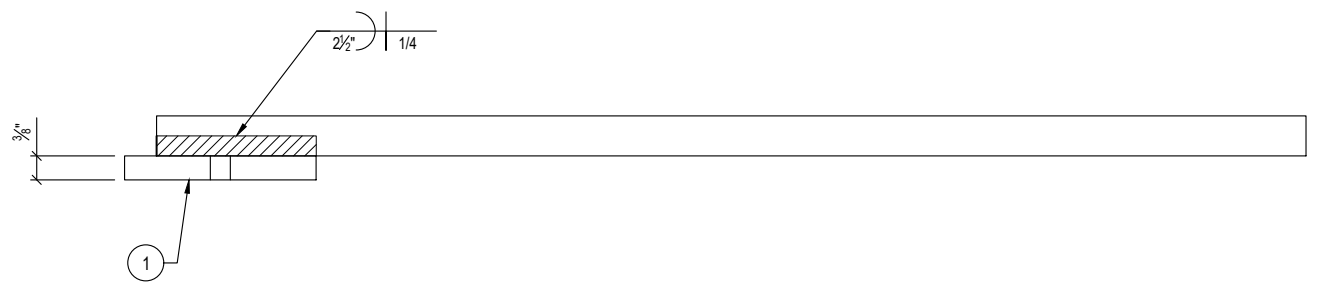


REVISION	DESCRIPTION	BY

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
6/27/24	DM	FMT	---		S202473
DRAWING NUMBER				REVISION	SHEET
010-S202473-002 (Revised)				REV DATE	16 OF 20



A
PLAN VIEW



VIEW A

SHOP NOTES

- OVERALL DIMENSIONS HAVE A TOLERANCE OF $\pm \frac{1}{16}$ "
- ALL WELDS ARE $\frac{3}{16}$ " FILLET UNLESS OTHERWISE NOTED
- GRIND ALL SHARP EDGES

PRODUCTION QUANTITY

(10) WELD PLATES

BILL OF MATERIALS

#	QUANTITY	DESCRIPTION	ITEM #
	5.08 lbs	FLATBAR $\frac{3}{8}$ " x 6"	

LAYOUT CUT LIST

#	QUANTITY	DESCRIPTION	SIZE
1	1 ea	FLATBAR 3/8" X 6" W/ (2) HCA	8"



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18"W x10'Tx20'L SPLIT CULVERT D (ID 933063)
HEADWALL WELD PLATE LAYOUT & WELDMENT DETAILS
SNOQUALMIE VALLEY WATERSHED IMP. DIST
WA

CUSTOMER
SNOQUALMIE VALLEY WATERSHED IMP. DIST

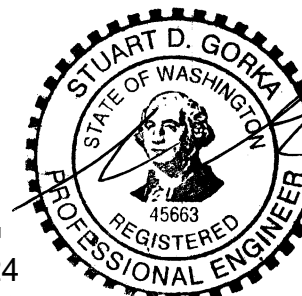
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DRAWING NUMBER				REVISION	SHEET
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MOUNTAIN TOP, PA 18707
PHONE: 570-868-2081
FAX: 570-868-2082

6/27/24



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