The Tunnel Water Company
P.O. Box 2017
Fort Collins, CO 80522-2017

February 7, 2018

TRANSMITTED BY EMAIL THIS DATE

Jonathan Hernandez, P.E.
Project Manager
Finance Section
Colorado Water Conservation Board
Dept. of Natural Resources
1313 Sherman St., Rm. 718
Denver, CO 80203

Re: CWCB CONTRACT: Loan/Private CMS: 83655/CORE: CT2016-2001

Dear Jonathan:

As we discussed about a month ago, our plans for the rehabilitation of the attenuation structure at the East Portal of the Laramie-Poudre Tunnel have been delayed. In addition we have had to redesign and relocate the access road to the site. Accordingly, we are requesting that the Board approve an amendment to the loan we were awarded in October 2015.

The original loan application provided for the rehabilitation of both the east and west portals of the tunnel. The construction of the west portal improvements, including the excavation and demolition of approximately 80' of the existing tunnel which was overly steep and too small in cross section to permit access for maintenance in the future, was completed in the fall of 2015, except for the installation of the trash rack over the inlet and revegetation of the area disturbed during the construction in the fall of 2016.

Our original plan was to remove and replace the energy attenuation structure at the East Portal in the fall/winter of 2016-17, however we had to revise the plan when the contractors we contacted both declined to bid due to issues with access to the site. The profile of the access road at the top, where it traverses the original muck pile at and just below the east portal was very steep. At about a 30% grade, it was

not a safe route to bring in heavy equipment and the construction materials required, including about 200 cubic yards of concrete.

The contractors considered options, for example, pumping concrete to the site from a small parking area near the highway below, however the elevation difference of about 300 feet and slope distance of 1,200 feet were just too large to make that a manageable approach. In fact, they determined that a full truck of concrete would be necessary to just fill the pipe before the first yard of concrete emerged from the outlet of the pipe above and, in addition, there simply was not enough pipe available in Colorado for a pipe run that long.

As a result, we stopped the attempts to secure a bid, deferred the project until next fall/winter and had a new topographical survey prepared of the muck pile, the east portal site and the surrounds. Our consulting engineer, Dr. John Andrew, then designed a new access around and to the west of the muck pile, about 250 feet in length, which lengthens that portion of the road and drops the profile from about 30% to about 18%.

Of course, that required him to also take another look at the financial aspects of the plan, including the estimated cost of construction. He has prepared a revised budget for the East Portal, a copy of which is attached, along with his letter of explanation.

Our original temporary construction permit secured from the USDA Forest Service, did not require anything other than a brief survey by two experts on their staff as the work site did not extend beyond the historical disturbed area at the East Portal and the existing access road. When we redesigned the road access, the temporary construction permit had expired by the passage of time and the new disturbed area, including the construction of a short section of new road causes the District Ranger to require an environmental assessment to comply with NEPA. Further complicating the matter, the Forest Service is "short-handed" and unable to do the assessment timely, so suggested we retain a consultant to work under their direction to prepare the application and assessment documentation. We have retained an experienced consulting firm, Telesto, Inc. to provide that support and assistance.

Our current timeline is to have the environmental process completed in six months or thereabouts and begin construction as soon as possible after we conclude diversions in late August or September.

Comparing the original loan, the amount drawn to date and the revised budget, see the attachment with this letter, we are requesting an increase in the original loan approval from $1,111,000 to $1,700,000 plus loan service fees and interest accruing during the time from loan approval to the first payment due about 1 year after substantial construction. That sum includes a construction contingency. If the revised loan is approved, we will go to bid shortly and hope to have the contractor selected and poised to mobilize as soon as we conclude summer diversions in the fall of 2018.

We expect the Board of Directors to approve a resolution to approve this loan amendment at its meeting tomorrow morning. I will forward it to you under separate cover after the meeting. I will also overnight to you a set of photos of the West Portal construction and the existing East Portal energy attenuation structure in need of replacement.

Please contact me at your convenience with questions or comments.

Sincerely,

Dennis J. Harmon
General Manager

Attachments:

Final plans by Golder Associates
John Andrew, PhD., P.E. letter of 12-19-17
J Andrew - Revised budget – 1/19/18
Access Road plans
Access Road profile

LARAMIE TUNNEL EAST PORTAL
OUTLET STRUCTURE REHABILITATION

PREPARED FOR

WATER SUPPLY AND STORAGE COMPANY

PREPARED BY

Golder Associates

LOCATION MAP

NOT TO SCALE

INDEX OF DRAWINGS

SHEET NO	REVISION NO.	DRAWING NAME
1	A	GENERAL INFORMATION AND SPECIFICATIONS
2	A	PLAN AND PROFILE
3	A	SECTIONS
4	A	TYPICAL SECTIONS AND DETAILS
5	A	STRUCTURAL NOTES
6	A	REMOVABLE WALL SECTION DETAILS

FOR DISCUSSION ONLY

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
A	2016-09-29	ISSUED FOR DISCUSSION	CPB	MTM	CPB	SWR

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FORT COLLINS, COLORADO

CONSULTANT

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www.golder.com

PROJECT
LARAMIE TUNNEL EAST PORTAL
OUTLET STRUCTURE REHABILITATION

TITLE
GENERAL INFORMATION AND SPECIFICATIONS

PROJECT NO. 1653155 | REV. A | of | DRAWING 1

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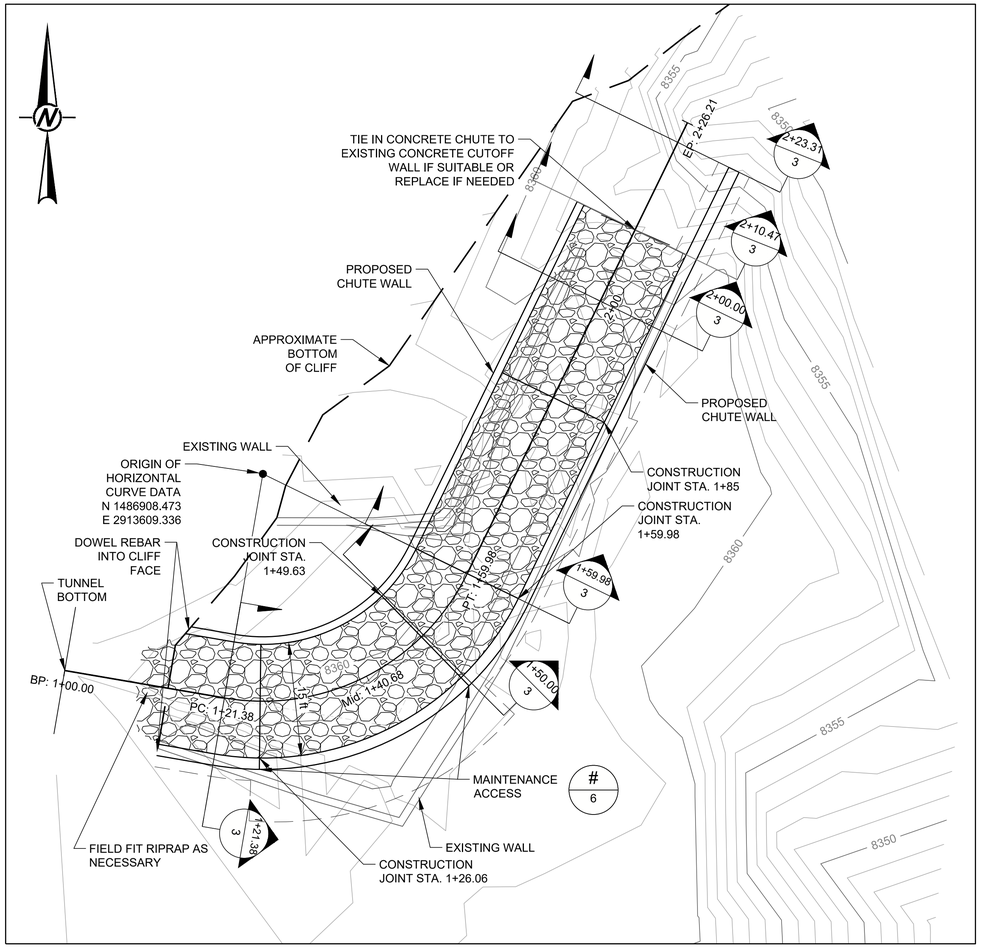
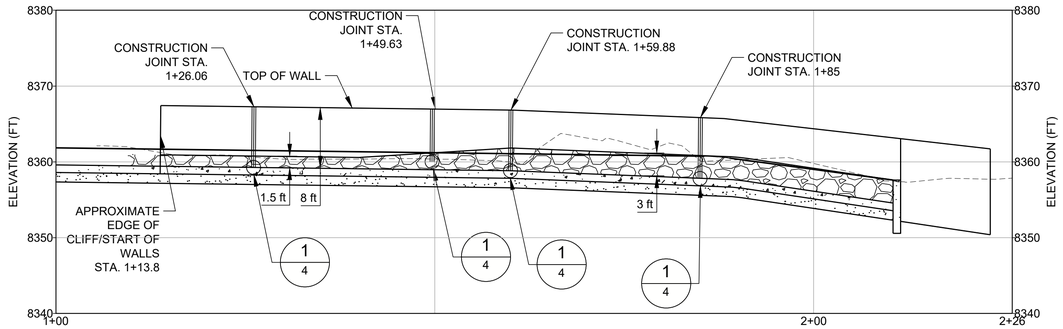


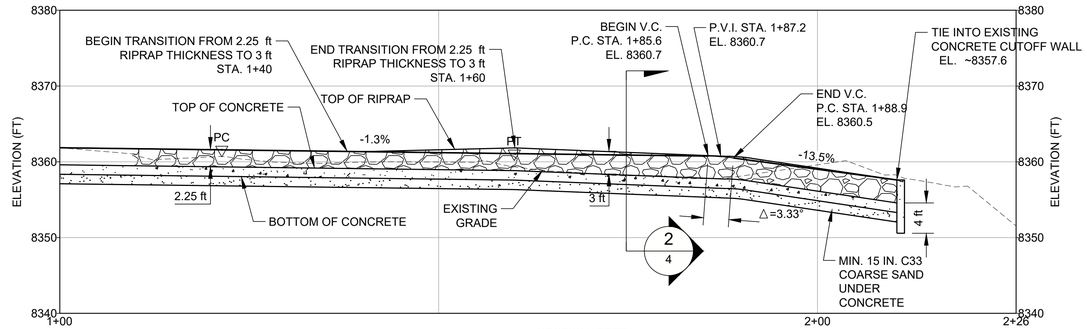
HORIZONTAL CURVE DATA
△= 73.7°
R = 2' 6"
L = 38.599'

PLAN VIEW
SCALE 1" = 10'

0 10 20
1" = 10' FEET



LEFT WALL
SCALE 1" = 10'



SECTION (FEET)

CENTERLINE
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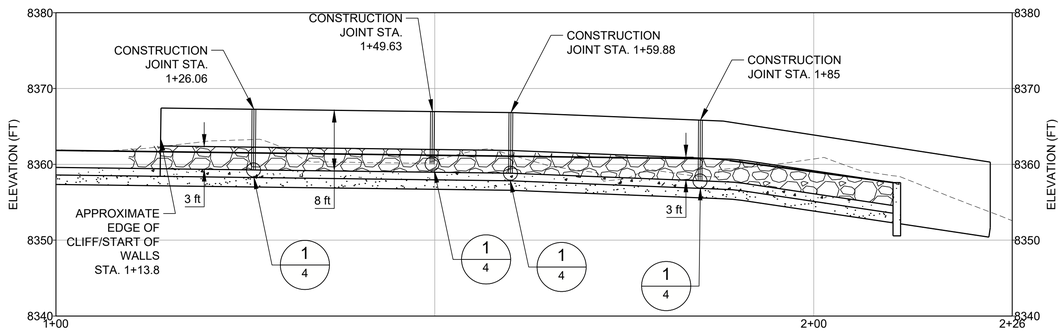

RIGHT WALL
SCALE 1" = 10'

0 10 20
1" = 10' FEET

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PROJECT
LARAMIE TUNNEL EAST PORTAL
OUTLET STRUCTURE REHABILITATION

TITLE
PLAN AND PLOTS

PROJECT NO. 1653155
REV. A
of
DRAWING 2

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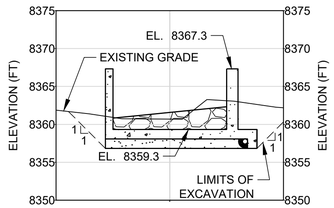

ALIGNMENT: Option 1 (2)
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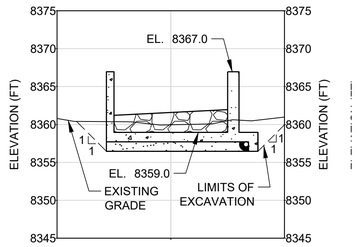
VERTICAL SCALE - 1:10
VERTICAL SCALE EXAGGERATED 1x

SECTION STATION 1+21.38
SCALE 1" = 10'



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SECTION STATION 1+50.00
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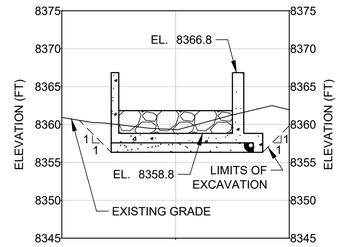

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VERTICAL SCALE - 1:10
VERTICAL SCALE EXAGGERATED 1x

SECTION STATION 1+59.98
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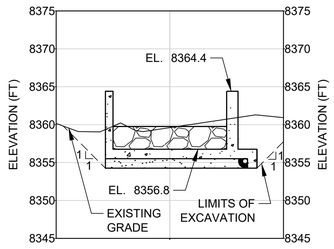

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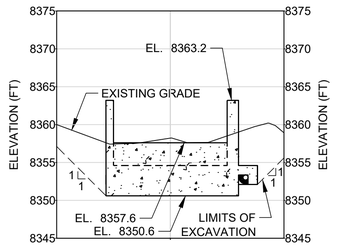

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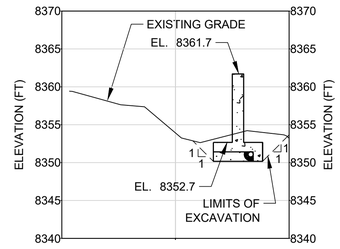
VERTICAL SCALE EXAGGERATED 1x

SECTION STATION 2+10.47
SCALE 1" = 10'



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VERTICAL SCALE - 1:10
VERTICAL SCALE EXAGGERATED 1x

SECTION STATION 2+23.31
SCALE 1" = 10'

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PROJECT
LARAMIE TUNNEL EAST PORTAL
OUTLET STRUCTURE REHABILITATION

TITLE
SECTIONS

PROJECT NO. 1653155 | REV. A | DRAWING 3 of

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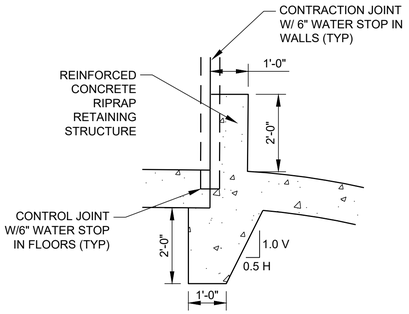
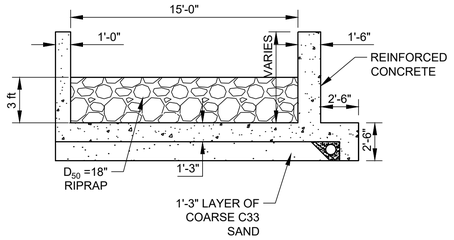
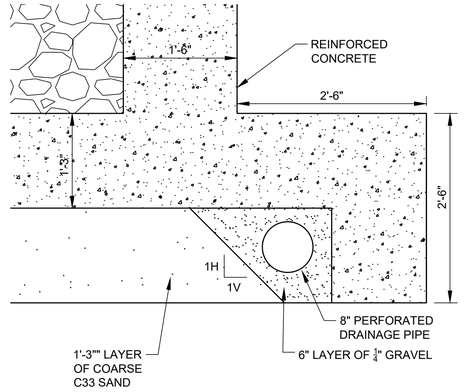


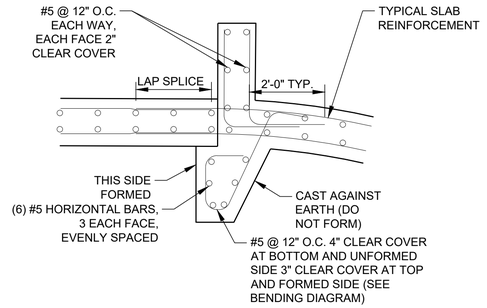
SCALE 1" = 2' 1/4 TYPICAL JOINT ON SLOPE DETAIL

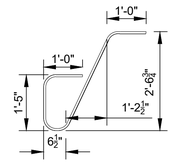


SCALE 1" = 5' 2/4 TYPICAL CHUTE SECTION

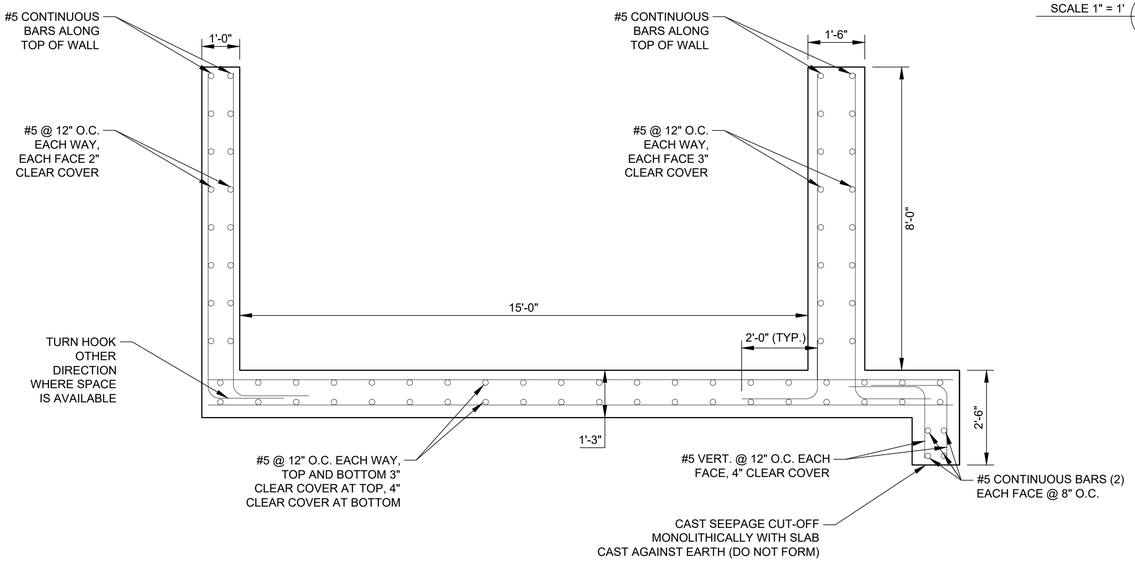


SCALE 1" = 1' 3/4 SEEPAGE DRAIN DETAIL





SCALE 1" = 2' 4/4 JOINT ON SLOPE REINFORCEMENT



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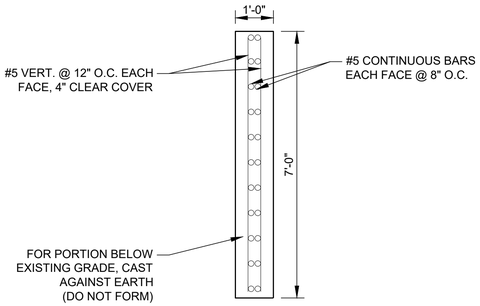

SCALE 1" = 2' 6/4 CUTOFF WALL REINFORCEMENT

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PROJECT
LARAMIE TUNNEL EAST PORTAL
OUTLET STRUCTURE REHABILITATION

TITLE
TYPICAL SECTIONS AND DETAILS

PROJECT NO. 1653155 | REV. A | of | DRAWING 4

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GENERAL NOTES

UNLESS OTHERWISE SHOWN ON THE REINFORCEMENT DESIGN DRAWINGS, THE DETAILS AND NOTES SHOWN ARE TYPICAL FOR ALL REINFORCEMENT DRAWINGS.

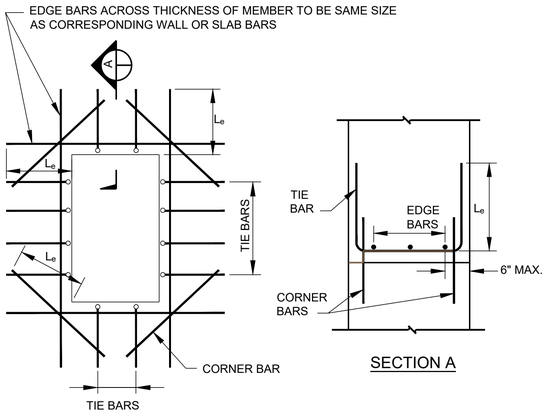


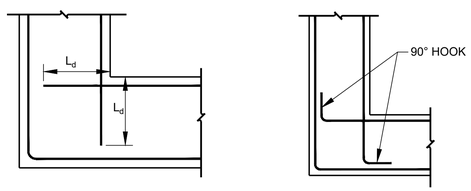
TABLE FOR REINFORCEMENT AROUND OPENINGS			
MEMBER THICKNESS	TIE BAR	EDGE BARS	CORNER BARS
LESS THAN 10"	NONE	1-CTR.	1-#4 CTR.
10" THRU 1'-6"	NONE	2-(1-EF)	2-#4 (1EF)
1'-7" THRU 3'-0"	#4 @1'-0"	3-EQ. SPC.	2-#6 (1EF)
OVER 3'-0"	#6 @1'-0"	SPC.@1'-0"	2-#8 (1EF)

OMIT EDGE AND TIE BARS ALONG SIDES OF OPENINGS WHERE DIMENSION IS LESS THAN 18"

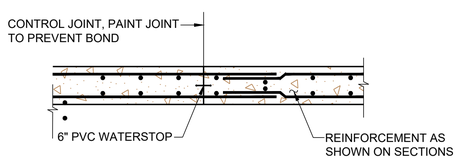
OMIT CORNER BARS AT SIDES OF OPENINGS ADJACENT TO FLOORS, WALLS, OR BEAMS

CORNER BARS REQUIRED IF EITHER DIMENSION OF OPENING IS GREATER THAN 18"

USE CORNER BARS IN FACE OF RECESSES DEEPER THAN 4" IF EITHER DIMENSION OF RECESS IS GREATER THAN 18"



TYPICAL CORNER DETAILS



TYPICAL CONTROL JOINT DETAIL

ABBREVIATIONS

BF = BOTTOM FACE
TF = TOP FACE
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
IF = INSIDE FACE
OF = OUTSIDE FACE
CJ = CONSTRUCTION JOINT
OCJ = OPTIONAL CONSTRUCTION JOINT
CTJ = CONTROL JOINT

CRJ = CONTRACTION JOINT
EJ = EXPANSION JOINT
BR = BOTTOM ROW
TR = TOP ROW
NR = NEAR ROW
FR = FAR ROW
ER = EACH ROW
IR = INSIDE ROW
OR = OUTSIDE ROW
MR = MIDDLE ROW

BL = BOTTOM LAYER
TL = TOP LAYER
ML = MIDDLE LAYER
NS = NEAR SIDE
FS = FAR SIDE
ES = EACH SIDE
EW = EACH WAY
EC = EACH CORNER
L_d = DEVELOPMENT LENGTH
d_b = NOMINAL DIAMETER OF REINFORCING BAR

SPC. = SPACE OR SPACES
EQ. SPC. = EQUALLY SPACED, EQUAL SPACES
UV = UNIFORMLY VARYING LENGTHS OF BARS BETWEEN LENGTHS SHOWN
CL. = CLEAR
CTR. = CENTER OR CENTERS

SYMBOLS

AN OPEN CIRCLE AT THE END OF A BAR INDICATES A BEND WITH THE BAR TURNED AWAY FROM THE OBSERVER.

A CLOSED CIRCLE AT THE END OF A BAR INDICATES A BEND WITH THE BAR TURNED TOWARDS THE OBSERVER.

SPLICES SHOWN THUS INDICATE A LAPPED SPLICE, NOT A BEND IN THE BAR.

DIMENSIONS

DIMENSIONS BETWEEN BARS ARE TO THE CENTERLINE OF THE BARS UNLESS OTHERWISE SHOWN. CLEAR COVER DIMENSIONS ARE MARKED "CL".

COVER

PLACE THE REINFORCEMENT SO THAT THE CLEAR DISTANCE BETWEEN FACE OF CONCRETE AND NEAREST REINFORCEMENT IS AS NOTED ON THE DRAWINGS.

BENT BARS:

UNLESS OTHER RADIUS BENDS ARE INDICATED ON THE DRAWINGS, ALL REINFORCEMENT REQUIRING BENDING SHALL BE BENT AROUND A PIN HAVING THE FOLLOWING DIAMETER:

TABLE 1

PIN DIAMETER IN INCHES

BAR NO.	3	4	5	6	7	8	9	10	11
STANDARD BENDS	2 1/4	3	3 3/4	4 1/2	5 1/4	6	9	10	11
STIRRUP AND TIE BENDS	1 1/2	2	2 1/2	4 1/2	5 1/4	6	-	-	-

REINFORCEMENT DOWELS:

DOWELS INDICATED ON THE DRAWING, SUCH AS #8 (d), SHALL BE EMBEDDED A LENGTH EQUAL TO L_d AND SHALL HAVE A PROJECTION EQUAL TO THAT REQUIRED FOR TOP SPLICING TO A BAR OF THE SAME DIAMETER.

ACCESSORIES:

BAR SUPPORTS, SPACERS, AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DRAWINGS. THE RECOMMENDATIONS OF THE ACI SP-66 (ACI DETAILING MANUAL), OR OTHER APPROVED SUPPORTING SYSTEM MAY BE USED.

REFERENCE CODE:

UNLESS OTHERWISE SHOWN FOLLOW THE RECOMMENDATIONS ESTABLISHED BY THE AMERICAN CONCRETE INSTITUTE'S "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, ACI 315".

NOTES TO DETAILERS:

SPLICE LENGTHS SHOWN ON THE TABLE ON THIS DRAWING ARE FOR CLASS B SPLICES IN ACCORDANCE WITH ACI 318. LENGTH OF CLASS A LAP SPICES SHALL BE EQUAL TO THE DEVELOPMENT LENGTH. SPLICES OR DEVELOPMENT LENGTHS OTHER THAN THOSE SHOWN IN THE TABLES MUST BE DETAILED ON THE REINFORCEMENT DESIGN DRAWINGS.

SPLICES:

THE MINIMUM LENGTH OF LAP FOR SPLICING PARALLEL BARS SHALL BE GIVEN IN THE APPLICABLE TABLE (REINFORCEMENT TABLE). SPLICES SHALL BE STAGGERED TO GIVE 24 INCHES CLEAR BETWEEN ENDS OF ADJACENT SPLICES. BARS SPLICED BY NONCONTACT LAP SPLICES SHALL NOT BE SPACED TRANSVERSELY FARTHER APART THAN ONE-FIFTH THE REQUIRED LAP SPLICE LENGTH, NOR 6 IN. WHEN REINFORCING BARS OF DIFFERENT SIZE ARE TO BE SPLICED, THE LENGTHS OF LAP SHALL BE GOVERNED BY THE SMALLER DIAMETER BAR. SPLICES ARE TO BE MADE SO THAT THE REQUIRED CLEAR DISTANCES TO FACE OF CONCRETE CONCRETE WILL BE MAINTAINED.

PLACING:

REINFORCEMENT AT SMALL OPENINGS (MAX. 1'-5") IN WALLS AND SLABS MAY BE SPREAD APART NOT MORE THAN 1.5 TIMES THE BAR SPACING. REINFORCEMENT MAY BE ADJUSTED LATERALLY TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1" BETWEEN THE REINFORCEMENT AND KEYS, WATERSTOPS, ANCHOR BOLTS, FORM TIES, CONDUITS AND OTHER EMBEDDED MATERIALS. IN HEAVILY REINFORCED AREAS, RELOCATION OF THE EMBEDDED MATERIAL MUST BE CONSIDERED. WHEN BARS ARE BENT DUE TO OFFSETS LESS THAN 3" DEEP, THE SLOPE OF THE INCLINED PORTION MUST NOT EXCEED 6 TO 1. REINFORCEMENT PARALLEL TO ANCHOR BOLTS OR OTHER EMBEDDED MATERIAL SHALL BE PLACED TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1.33 TIMES THE MAXIMUM SIZE AGGREGATES.

SPACING:

THE FIRST AND LAST BARS IN WALLS AND SLABS, STIRRUPS IN BEAMS, AND TIES IN COLUMNS ARE TO START AND END AT A MAXIMUM OF ONE HALF OF THE ADJACENT BAR SPACING. A MINIMUM OF 2.5d CLEAR FROM THE EDGE IS REQUIRED FOR #9, #10, AND #11 BARS IF SPLICE LENGTHS OR REDUCED DEVELOPMENT LENGTHS GIVEN IN TABLES 3-60 AND 4-60 ARE TO BE USED.

STANDARD HOOKS:

HOOKS SHALL HAVE 180° BENDS AND EXTENSIONS OF 4-BAR DIAMETERS BUT NOT LESS THAN 2-1/2" PARALLEL TO THE MAIN LEG OF THE BAR, OR 90° BENDS AND EXTENSIONS OF AT LEAST 12-BAR DIAMETERS. HOOKS FOR STIRRUP AND TIE ANCHORAGE ONLY SHALL HAVE EITHER A 90° OR 135° BEND PLUS AN EXTENSION OF AT LEAST 6-BAR DIAMETERS BUT NOT LESS THAN 2-1/2" AT THE FREE END OF THE BAR. RADIUS OF BEND TO BE AS SPECIFIED IN THE TABLE OF PIN DIAMETERS.

SPECIFICATION FOR CAST-IN-PLACE CONCRETE:

WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE, EXCEPT AS MODIFIED BY THESE CONTRACT DOCUMENTS. UNLESS NOTED OTHERWISE, COMPATIBLE PROVISIONS FROM ACI 301 AND THESE CONTRACT DOCUMENTS SHALL ALL APPLY. ACI 301 INCLUDES, BUT IS NOT LIMITED TO, REQUIREMENTS FOR FORM WORK, REINFORCEMENT, CONCRETE MIXTURES, HANDLING, PLACING, FINISHING, AND CURING.

REINFORCING STEEL:

REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60 AND SHALL BE UNCOATED.

CONCRETE MIX:

CONCRETE SHALL HAVE 28-DAY COMPRESSIVE STRENGTH OF AT LEAST 4,000 PSI. IN ADDITION TO THE REQUIREMENTS OF ACI 301, MAXIMUM SIZE OF AGGREGATE SHALL NOT EXCEED 1.5 INCHES AND SHALL NOT CONTAIN MATERIALS DELETERIOUSLY REACTIVE WITH ALKALIS IN THE CEMENT. MIX DESIGN SHALL MEET THE REQUIREMENTS FOR EXPOSURE CATEGORIES F2 (EXCEPT FOR COMPRESSIVE STRENGTH), S0, P1, AND C1.

CONSTRUCTION JOINTS:

UNLESS NOTED OTHERWISE, A BONDING AGENT SHALL BE APPLIED TO HARDENED CONCRETE SURFACES THAT WILL BE JOINED WITH FRESH CONCRETE.

TABLE 2
REINFORCEMENT TABLE

f'_c = 4000 psi f_y = 60,000 psi

BAR SIZE #	MINIMUM ℄ TO ℄ BAR SPACING (INCHES)	DEVELOPMENT LENGTH (Ld) (INCHES)		LENGTH OF LAPPED SPLICE (INCHES)	
		OTHER BARS	TOP BARS*	OTHER BARS	TOP BARS*
3	3	12	12	16	16
4	3	12	15	16	20
5	4	15	19	19	24
6	5	18	23	23	29
7	5	25	33	33	43
8	6	29	37	37	49
9	7	36	46	46	60
10	8	44	57	57	74
11	9	53	68	68	89

* TOP BARS ARE HORIZONTAL BARS IN BEAMS AND SLABS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

FOR DISCUSSION ONLY

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
A	2016-09-29	ISSUED FOR DISCUSSION	CPB	MTM	CPB	SWR

CLIENT
WATER SUPPLY AND STORAGE COMPANY
FORT COLLINS, COLORADO

CONSULTANT
Golder Associates
DENVER OFFICE
44 UNION BLVD., SUITE 300
LAKEWOOD, COLORADO
USA
[+1] (303) 980-0540
www.golder.com

PROJECT
LARAMIE TUNNEL EAST PORTAL
OUTLET STRUCTURE REHABILITATION

TITLE
STRUCTURAL NOTES

PROJECT NO. 1653155 | REV. A | of | DRAWING 5

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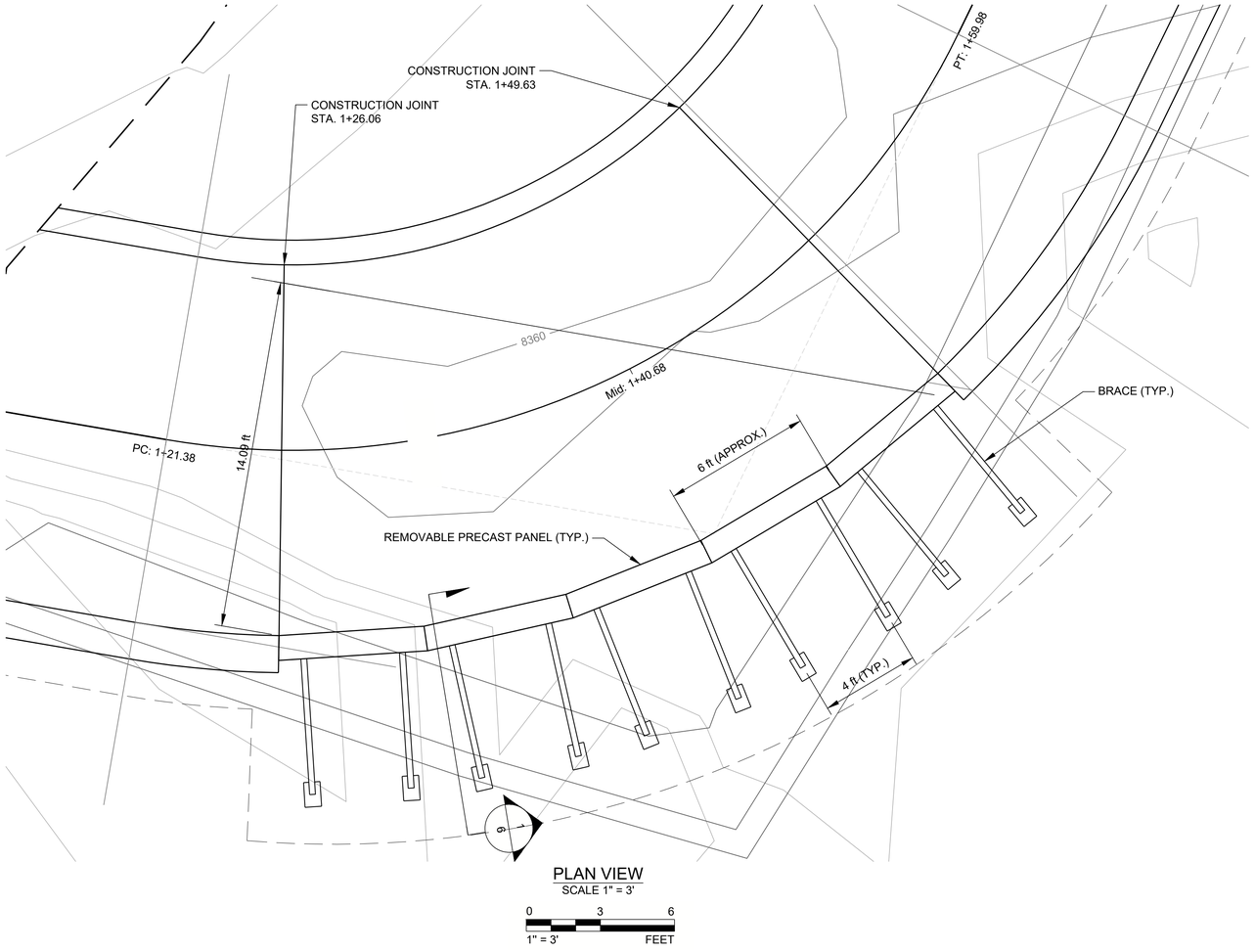
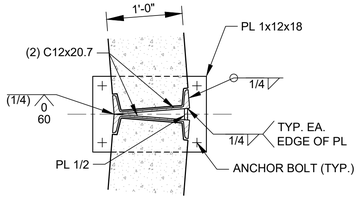
0 1 in

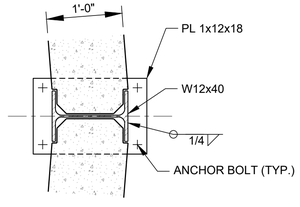


PLAN VIEW
SCALE 1" = 3'

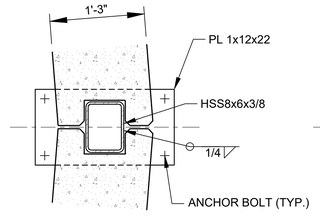
0 3 6
1" = 3' FEET



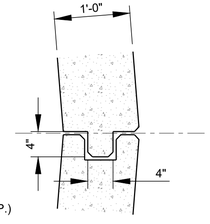
OPTION "2C"
SCALE 1" = 1'



OPTION "W"
SCALE 1" = 1'



OPTION "HSS"
SCALE 1" = 1'



OPTION "NO STEEL"
SCALE 1" = 1'

STRUCTURAL STEEL SPECIFICATION:

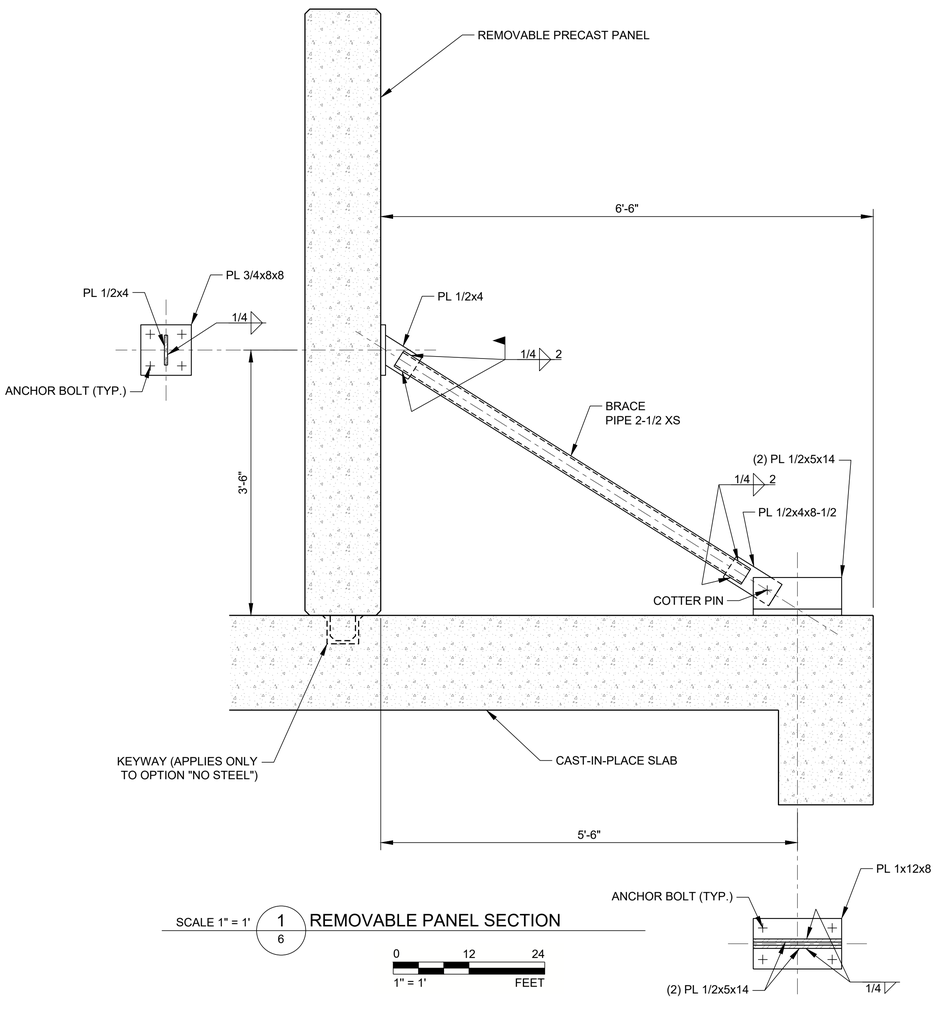
STRUCTURAL STEEL FABRICATION AND ERECTION SHALL CONFORM TO AISC 303 CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
- STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO THE FOLLOWING STANDARDS
  - WIDE FLANGE (W) SHAPES: ASTM A992
  - CHANNEL (C OR MC) SHAPES: ASTM A36
  - HOLLOW STRUCTURAL SECTIONS (HSS): ASTM A500 GRADE B
  - PIPE: ASTM A53 GRADE B

FASTENERS:

FASTENERS SHALL CONFORM TO THE FOLLOWING STANDARDS, UNLESS NOTED OTHERWISE
- PLAIN STEEL OR ALLOY STEEL BOLTING COMPONENTS:
  - BOLTS: ASTM F3125 GRADE A325
  - ANCHOR RODS: NOT PERMITTED
  - NUTS: ASTM A563
  - WASHERS: ASTM F436
- STAINLESS STEEL (ALLOY 304) BOLTING COMPONENTS:
  - BOLTS: NOT PERMITTED
  - ANCHOR RODS: ASTM F593 GROUP 1
  - NUTS: ASTM F594 GROUP 1
  - WASHERS: MATERIAL MEETING ASTM A240
  - USE A LOCK WASHER BENEATH EACH NUT.
- UNLESS OTHERWISE NOTED, CONNECTIONS SHALL BE SNUG-TIGHTENED.

WELDING:

WELDING SHALL CONFORM TO AWS D1.1. ELECTRODES SHALL BE E70. WELDING SHALL BE PERFORMED BY A WABO-CERTIFIED WELDER.



SCALE 1" = 1' 1/6 REMOVABLE PANEL SECTION

0 12 24
1" = 1' FEET

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
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PROJECT
LARAMIE TUNNEL EAST PORTAL
OUTLET STRUCTURE REHABILITATION

TITLE
REMOVABLE WALL SECTION DETAILS

PROJECT NO. 1653155 | REV. ---- | DRAWING 6 of

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ANDEK Consulting LLC
612 Meadowbrook Circle
Steamboat Springs
CO 80487

December 19, 2017

Mr. Dennis J. Harmon
General Manager
Tunnel Water Co.
P.O. Box 2017
Fort Collins
CO 80522-2017

Re': Laramie River Tunnel – East Portal

Dear Dennis,

Following completion of the Laramie River Tunnel-West Portal in 2016, Golder Associates and I prepared a conceptual plan for the rehabilitation of the East Portal. The Portal has had extensive repair work done to it over the last 75+ years and is in need of total reconstruction. The work involves the total removal of the existing outlet portal, reconstruction of the outlet channel, a new connection to the outlet cut-off wall at the existing creek, and reclamation of the site and any disturbed lay-down areas. The proposed plans for this work as prepared by Golder on the 29th of September 2016 are attached. (Please note that following our discussions last year, the maintenance access wall on drawing No.6 has been removed and replaced with a poured-in-place semi-circular wall.)

Using the conceptual plans produced, we approached potential contractors to provide bids to execute the work. However, in all cases, the contractors were hesitant to use the existing access road due to its steep grade, and we had a survey conducted of the access road, muck pile and area to the west of the muck pile to determine if an alternative access corridor was available. From this survey I have prepared a conceptual plan for the construction of a new access road around the western side of the muck pile, which would also involve the removal of the existing access road and Jersey barriers. Following a meeting with the US Forest Service personnel on the 20th of June 2017, we were informed that an environmental assessment would be required to construct the 650 foot long road, and I believe that you are currently having this conducted.

I have prepared a cost estimate for the reconstruction of the portal and the access road construction which is attached. Please give me a call if you have any questions regarding the above.

Yours Sincerely,

John W. Andrew Ph.D. P.E.
President

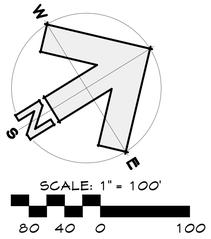
19 JAN 2018

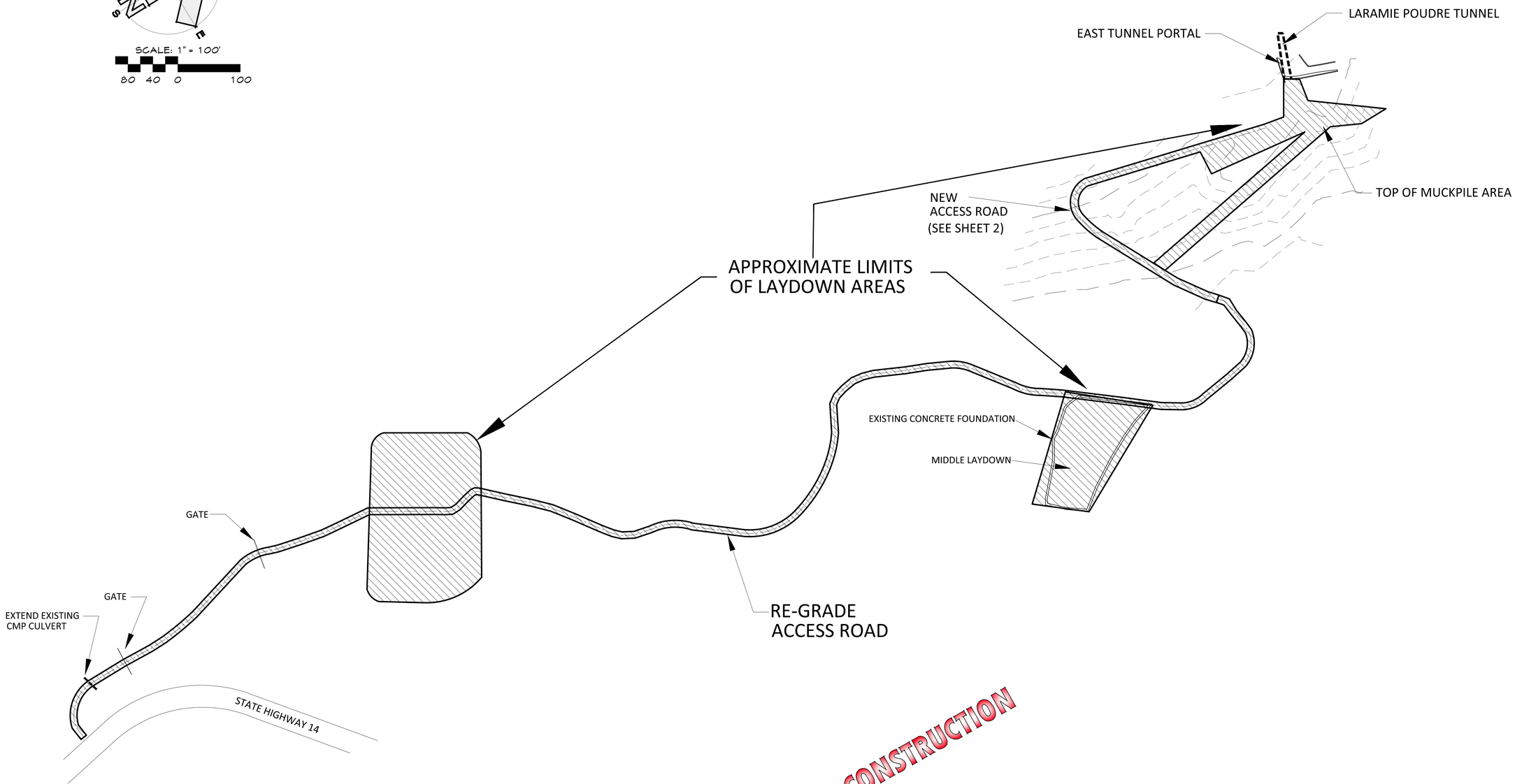
TUNNEL - EAST PORTAL
REPLACEMENT
(NEW ACCESS ROAD AND POURED-IN-PLACE CONCRETE)
(No removeable wall)

ITEM No.	ITEM DESCRIPTION	Quantitiy	UNIT	UNIT COST ($)	TOTAL COST
1.00	**Mobilization/Demobilization**	1	LS	90,000	90,000
2.00	**New Access Road**				
	2.1 Excavate/fill	2,000	yds^3	50	100,000
	2.2 Drainage Pipe	40	ft	75	3,000
	2.3 Detention Ponds	40	yds^3	50	2,000
	2.4 Jersey Barrier Removal/Burial	300	ft	50	15,000
	2.5 Reclaim/Re-seed	4	acres	10,000	40,000
3.00	**Dewatering/Diversion**	1	LS	15,000	15,000
4.00	**Demolition and Disposal**	180	yds^3	80.00	14,400
5.00	**Foundation Prep**	200	yds^3	80.00	16,000
6.00	**Drainage Pipe**	110	ft	75.00	8,250
7.00	**Sand Bedding**	20	yds^3	50.00	1,000
8.00	**Concrete Outlet**	180	yds^3	2,000	360,000
9.00	**Dental Concrete**	10	yds^3	600.00	6,000
10.00	**Rip-Rap (internal)**	200	yds^3	110.00	22,000
11.00	**Backfill**	75	yds^3	35.00	2,625
12.00	**Reclamation and Seeding**	1	acre	10,000	10,000
				Subtotal	$705,275
				Contingency (20%)	141,055
				Engineering (Final)	8,000
				Construction Oversight/Testing	25,000
				As-built Survey	8,000
				TOTAL ESTIMATE	$887,330

[Estimates are very dependant upon the cost of concrete delivered on-site]

[Permitting costs are not included.]





NOT FOR CONSTRUCTION

DRAFTING SERVICE, INC.
P.O. BOX 774121
426 OAK STREET
STEAMBOAT SPRINGS, COLORADO
970.879.7929
FAX 970.879.8709
JAKES@SPRINGSIPS.COM

jake's

"STRUCTURE ONLY"

DETAILS FOR
TUNNEL WATER COMPANY
EAST PORTAL
LARIMER COUNTY, COLORADO
ANDEK CONSULTING LLC (970) 227-2657

Job # 17.057
File 17057C10
Date20 NOV 17
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Rev'd

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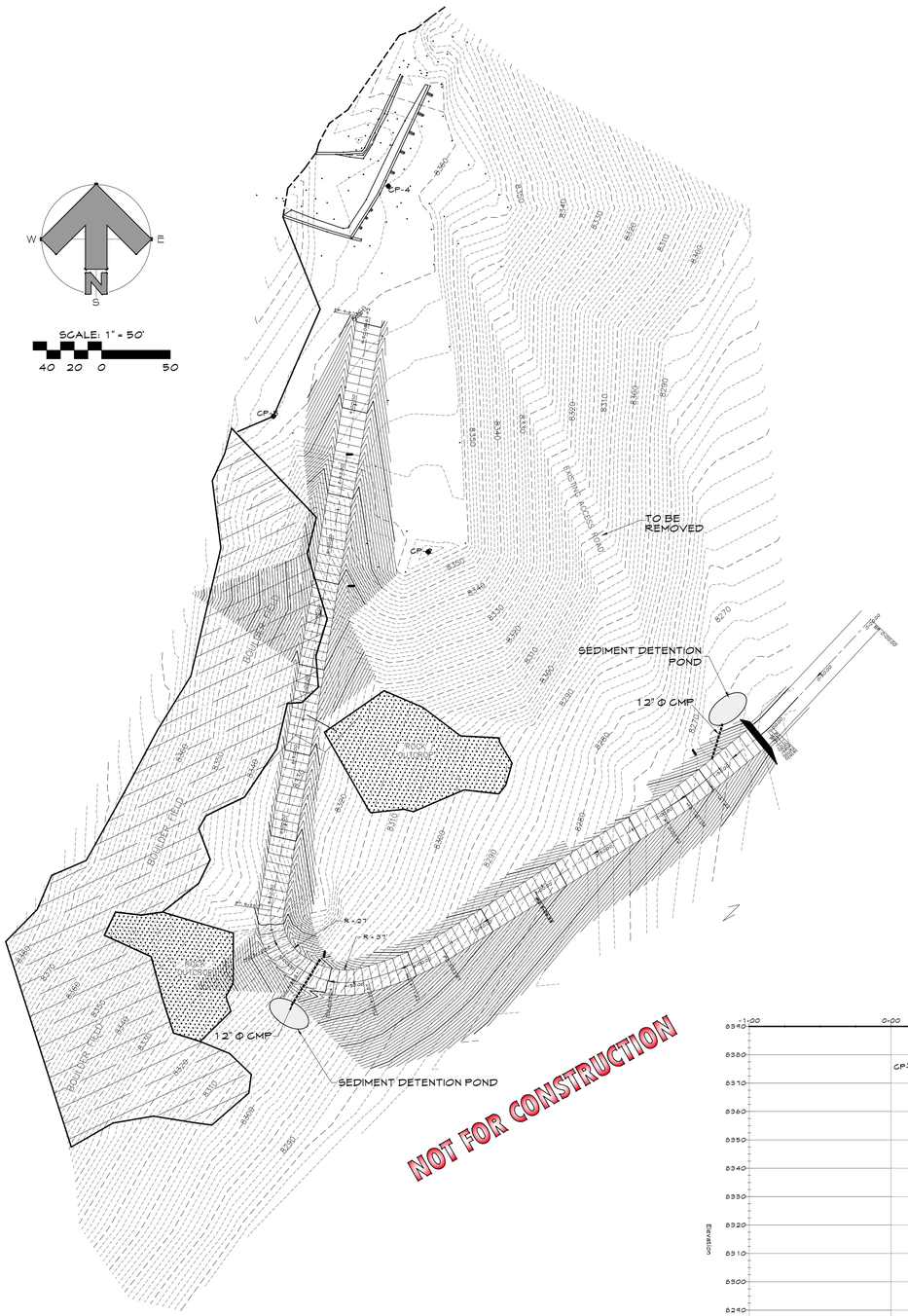
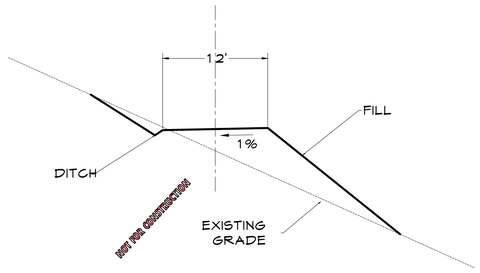
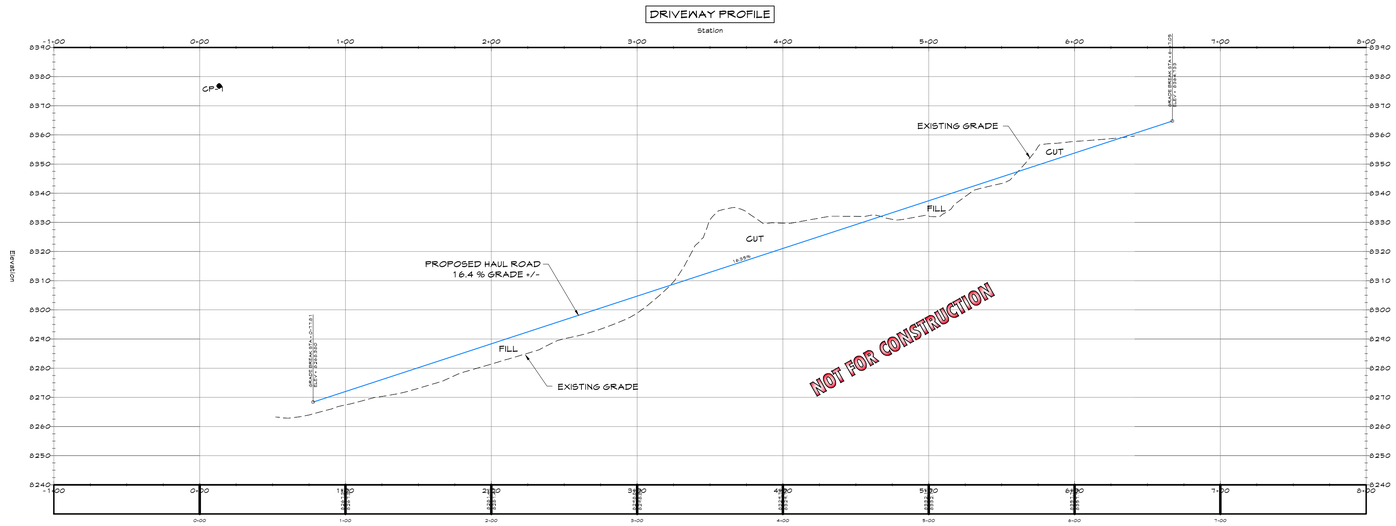
SHEET 1 OF 2



ACCESS ROAD PLAN VIEW



"TYPICAL" ACCESS ROAD CROSS SECTION



ACCESS ROAD PROFILE

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SHEET 2 OF 2