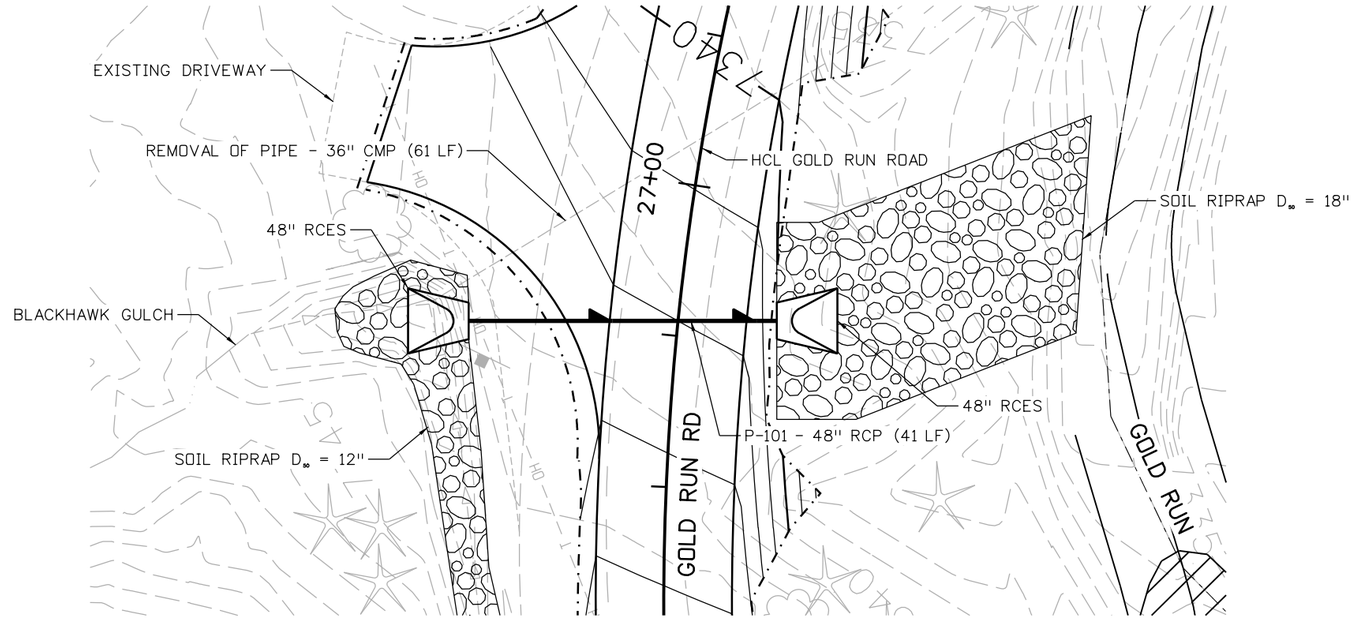
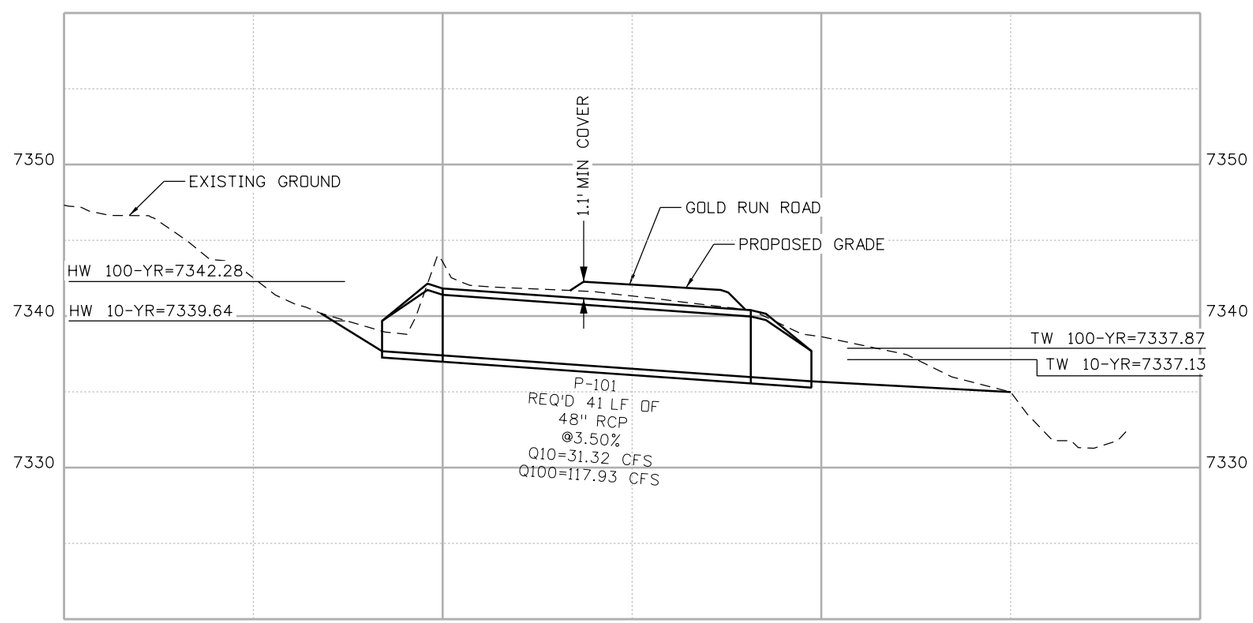


P-101



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

Michael Baker INTERNATIONAL

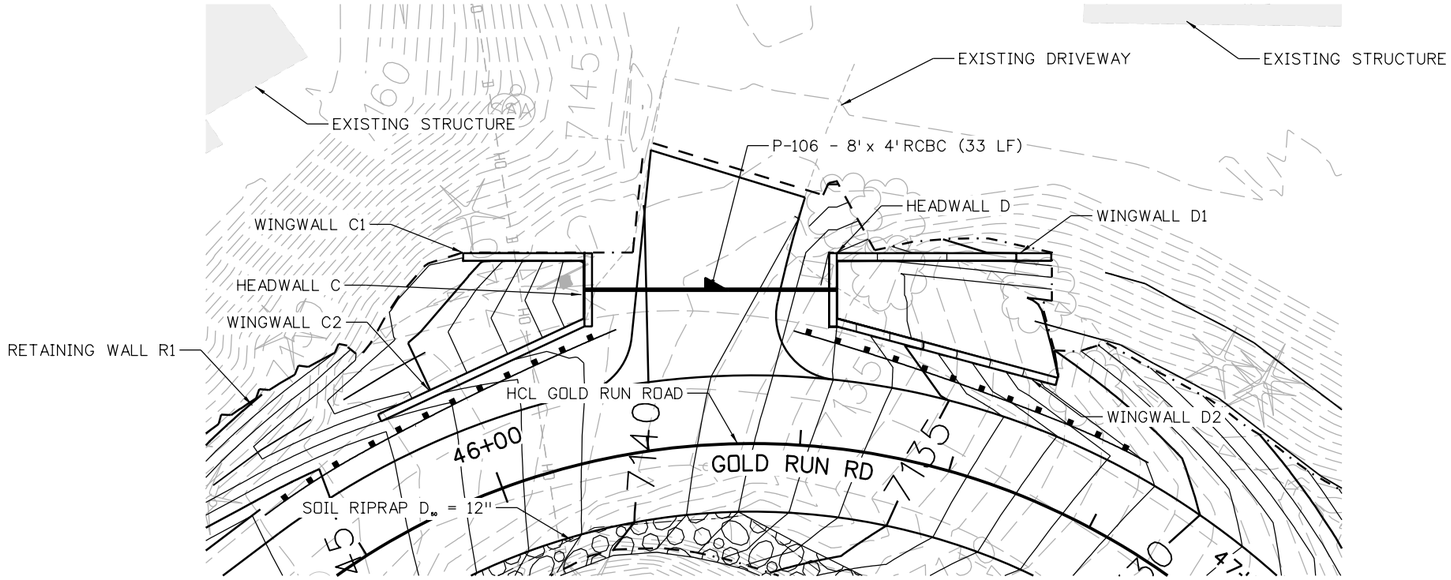
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

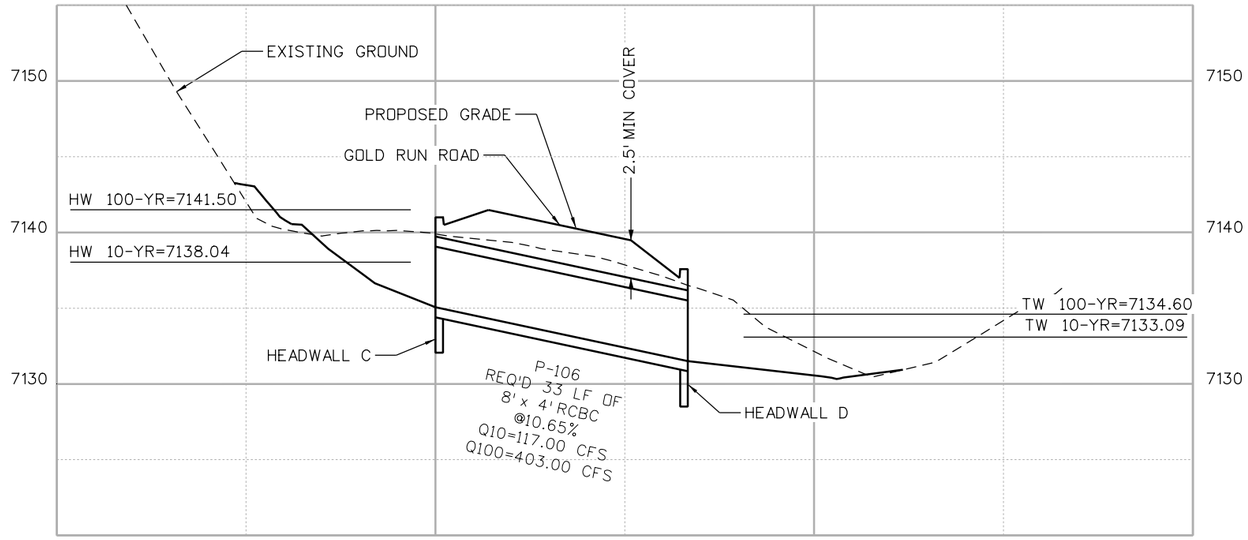
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-101

PROJECT NO: 4043.SEPT12C38 SHEET NO: 71

susan.pomerleau 5:04:30 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\TO2\08_Sheet_Files\02_Hydraulics\DGN\DPP-01.dgn



P-106



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County
Michael Baker INTERNATIONAL

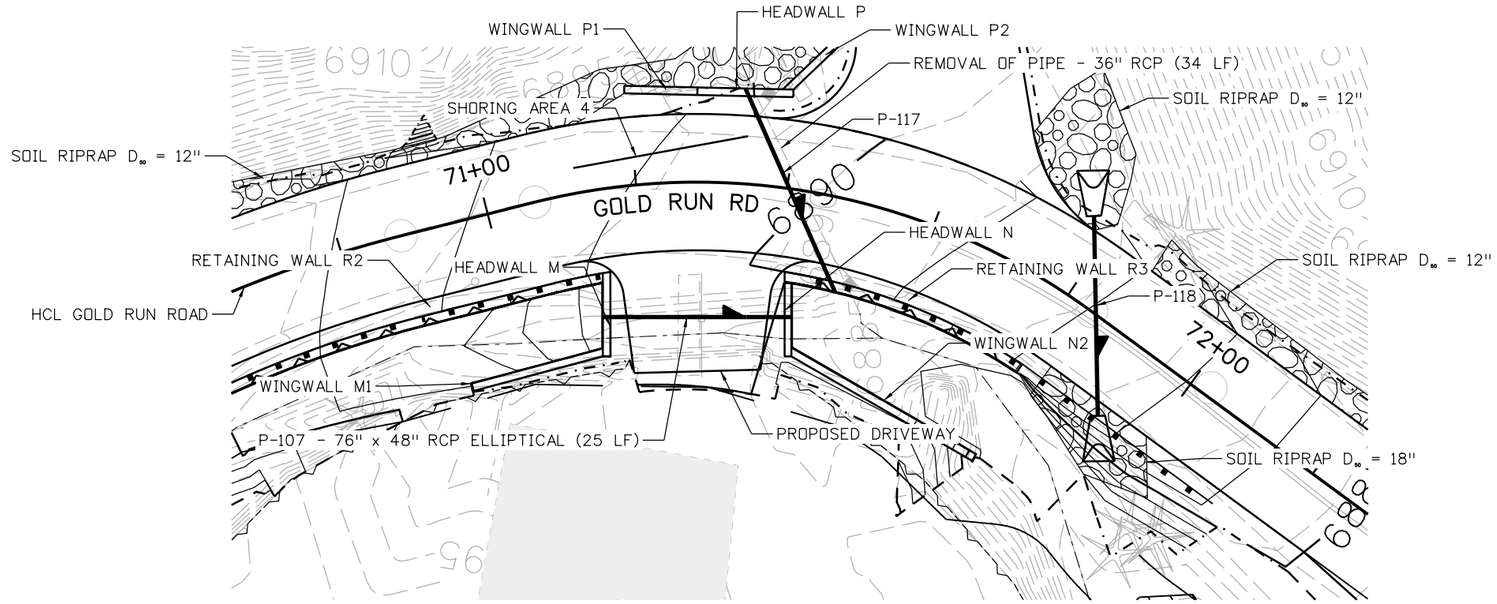
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

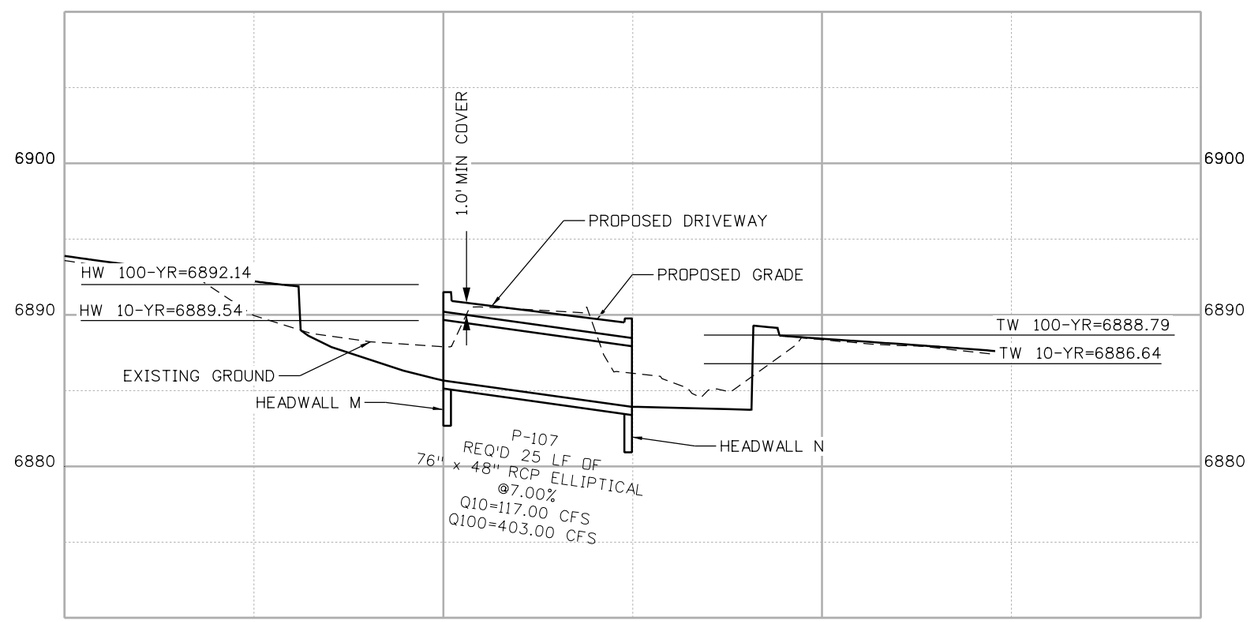
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-106

PROJECT NO: 4043.SEPT12C38 SHEET NO: 72

susan.pomerleau 5:04:58 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-02.dgn



P-107



N

10 0 10 20 FT

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

Michael Baker INTERNATIONAL

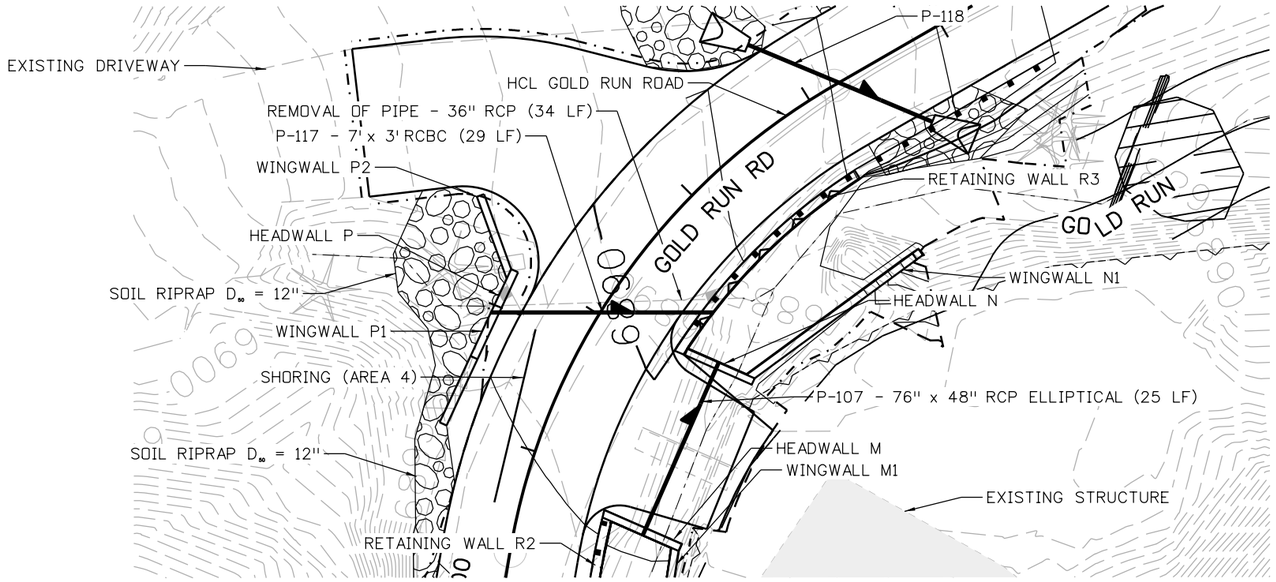
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

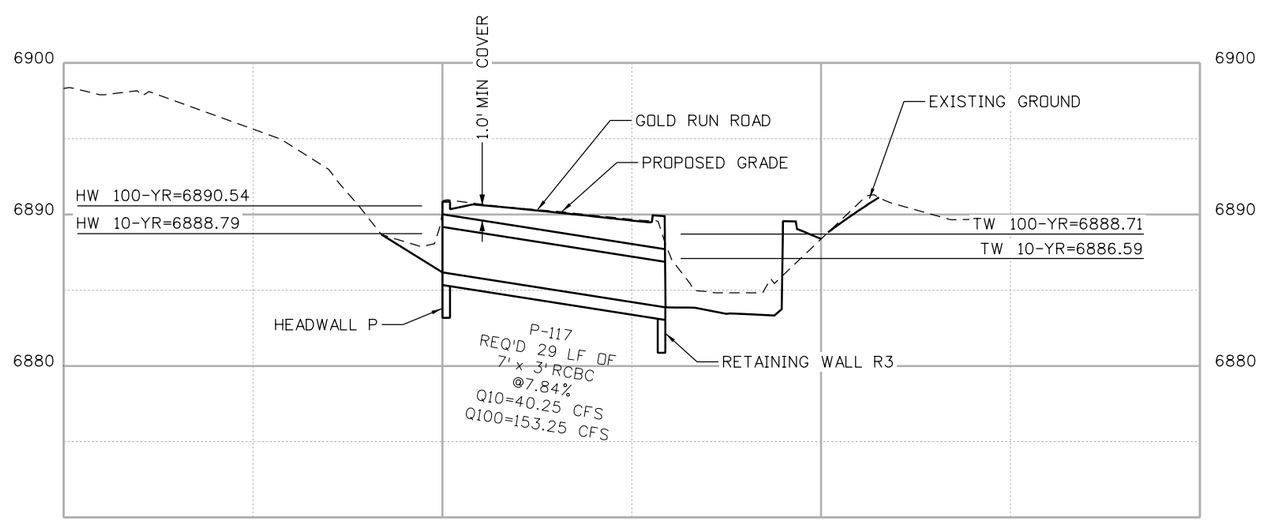
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-107

PROJECT NO: 4043.SEPT12C38 SHEET NO: 73

susan.pomerleau 5:05:30 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-03.dgn



P-117



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS: NO.	DATE	REVISION DESCRIPTION:

Boulder County

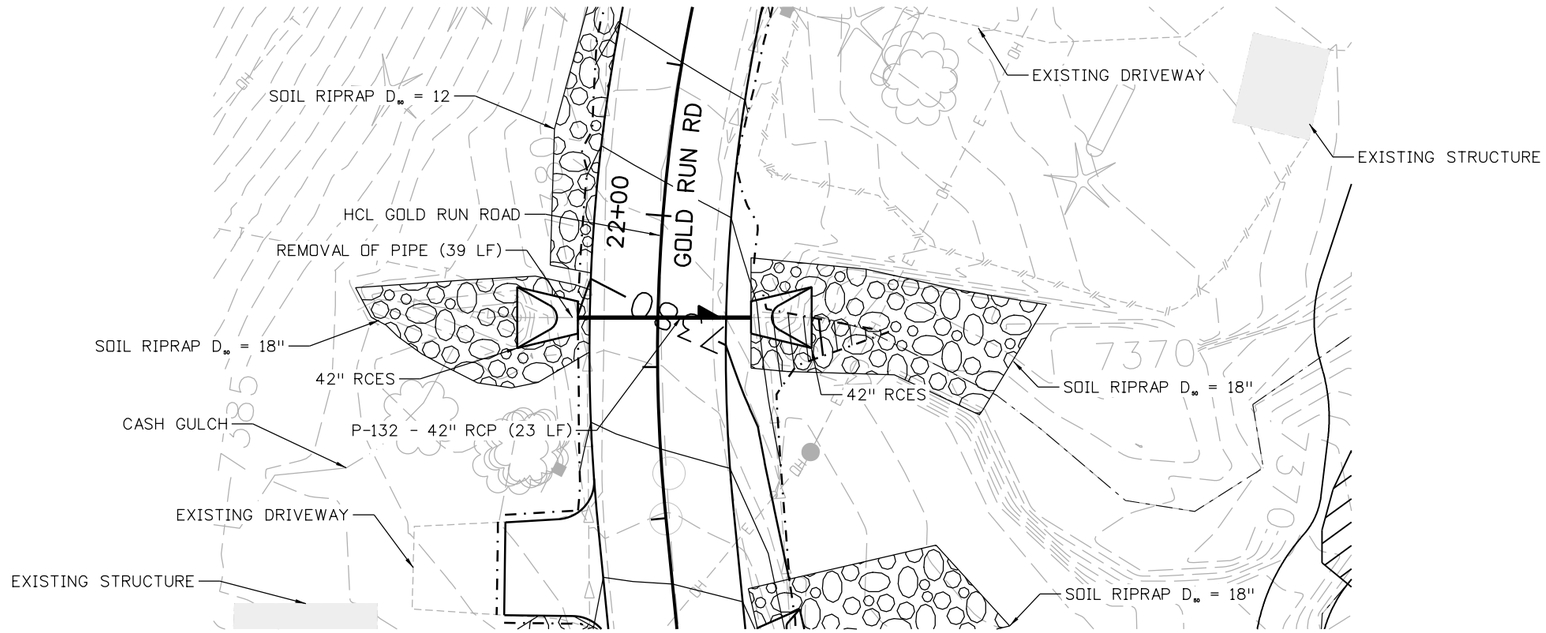
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

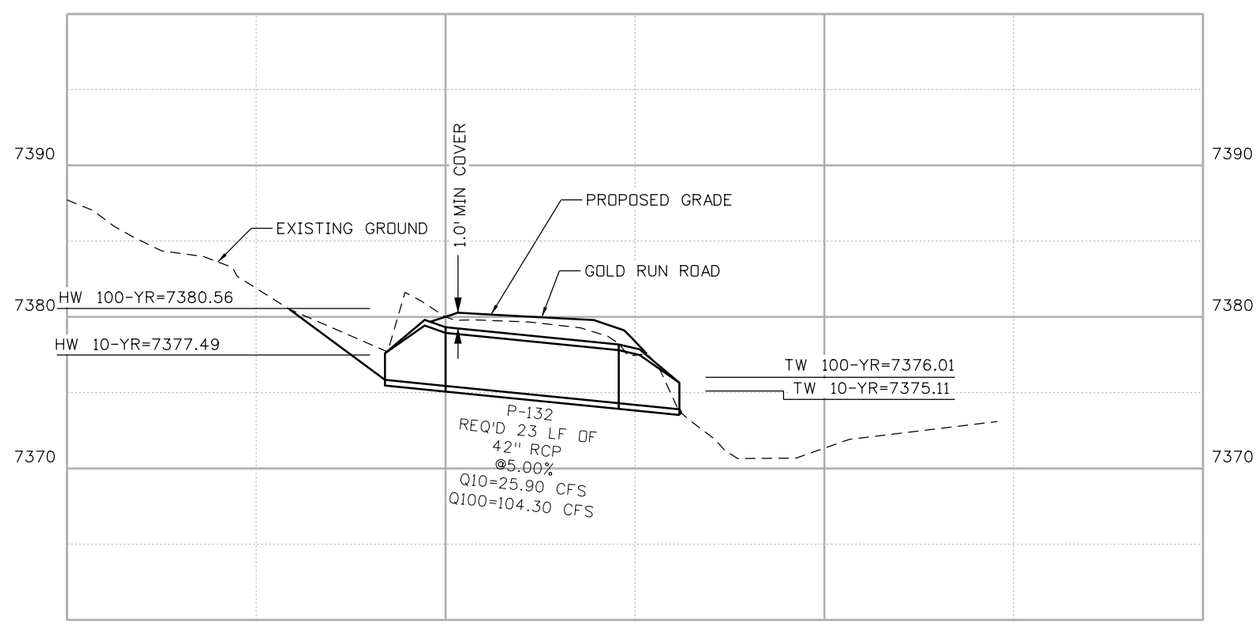
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-117

PROJECT NO: 4043.SEPT12C38 SHEET NO: 74

susan.pomerleau 5:05:57 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\TO2\08_Sheet_Files\02_Hydraulics\DGN\DPP-04.dgn



P-132



N

10 0 10 20 FT

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

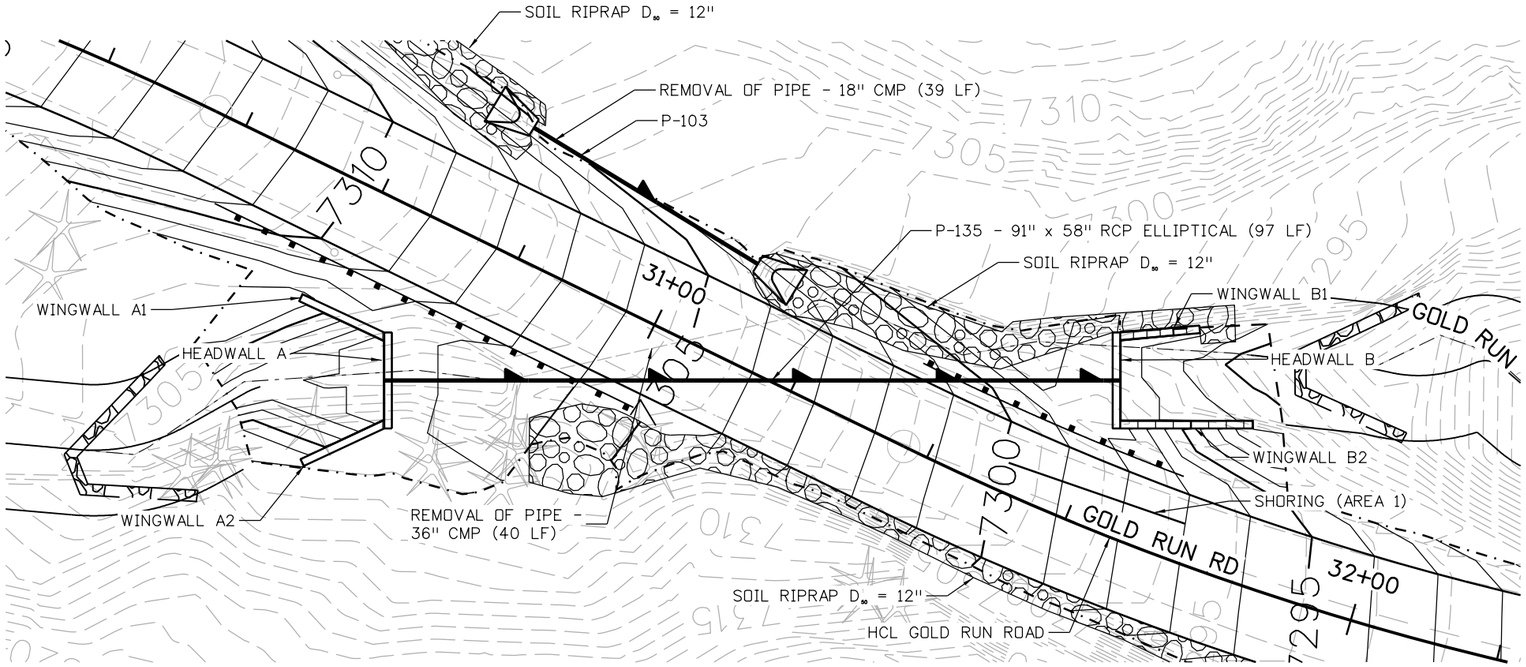
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

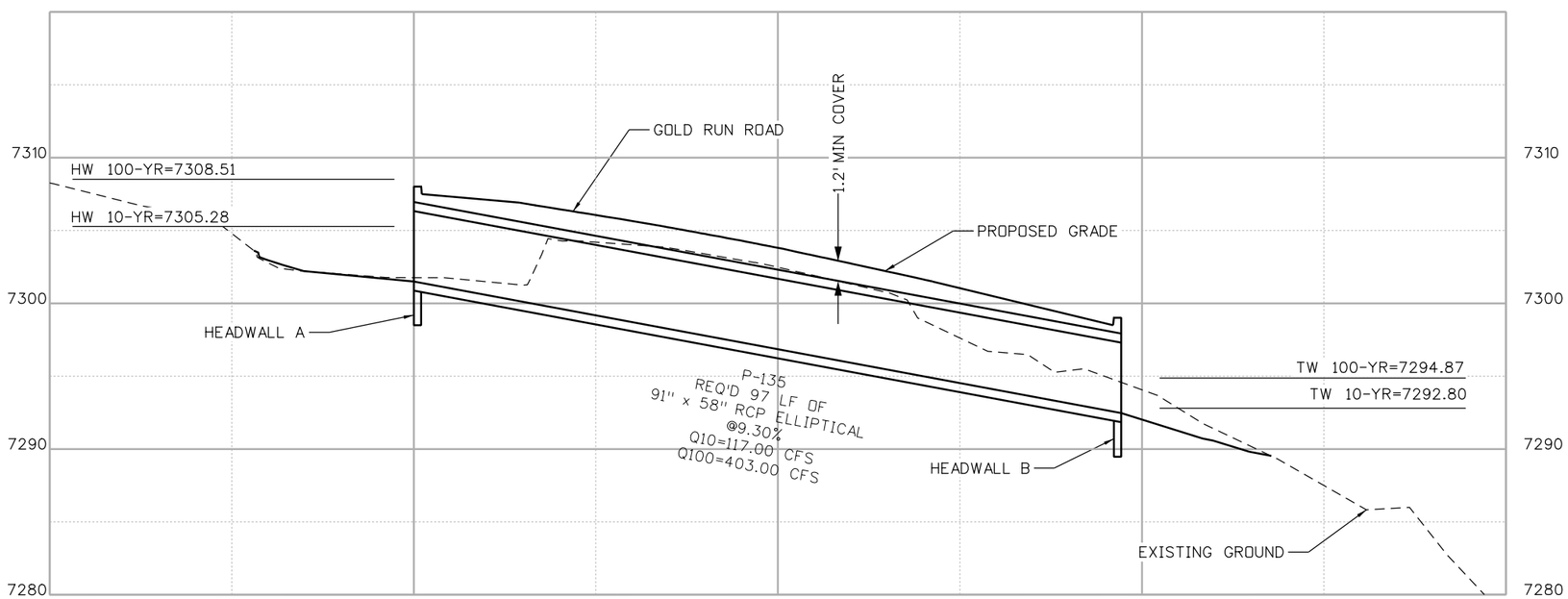
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-132

PROJECT NO: 4043.SEPT12C38 SHEET NO: 75

susan.pomerleau 5:06:24 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-05.dgn



P-135



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County
Michael Baker INTERNATIONAL

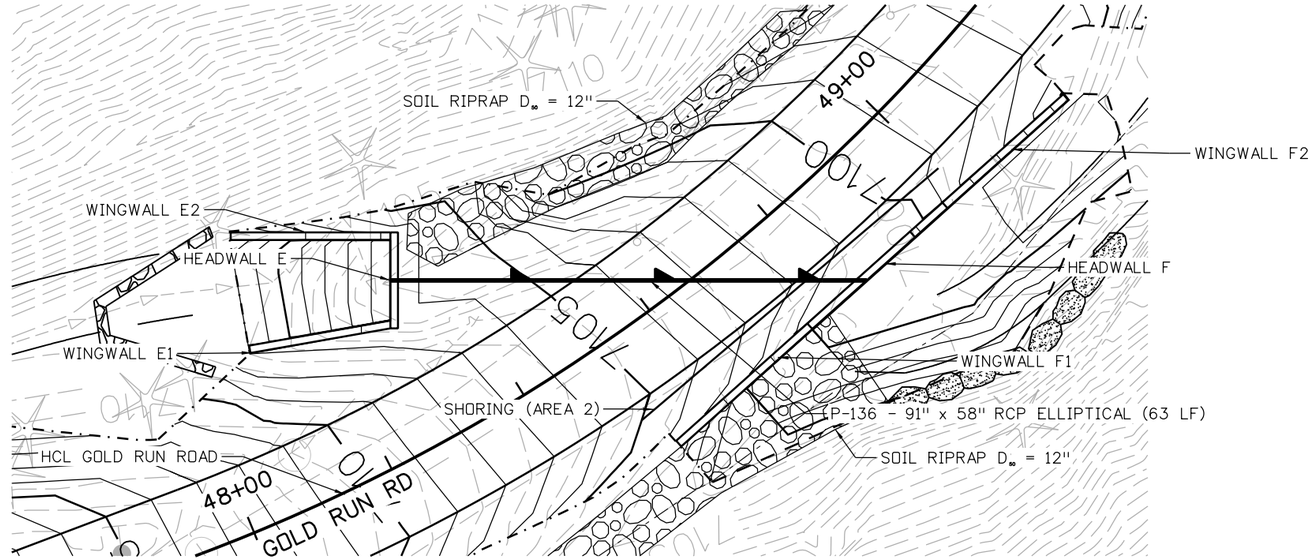
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

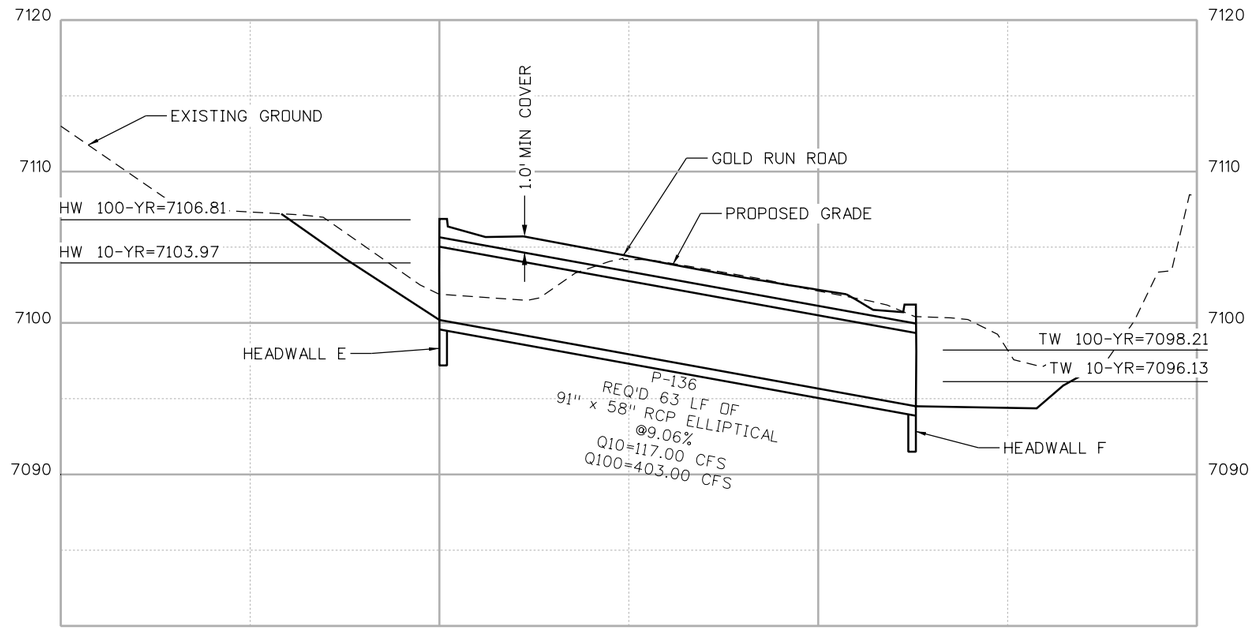
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-135

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 76

susan.pomerleau 5:06:52 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-06.dgn



P-136



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS: NO.	DATE	REVISION DESCRIPTION:

Boulder County

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

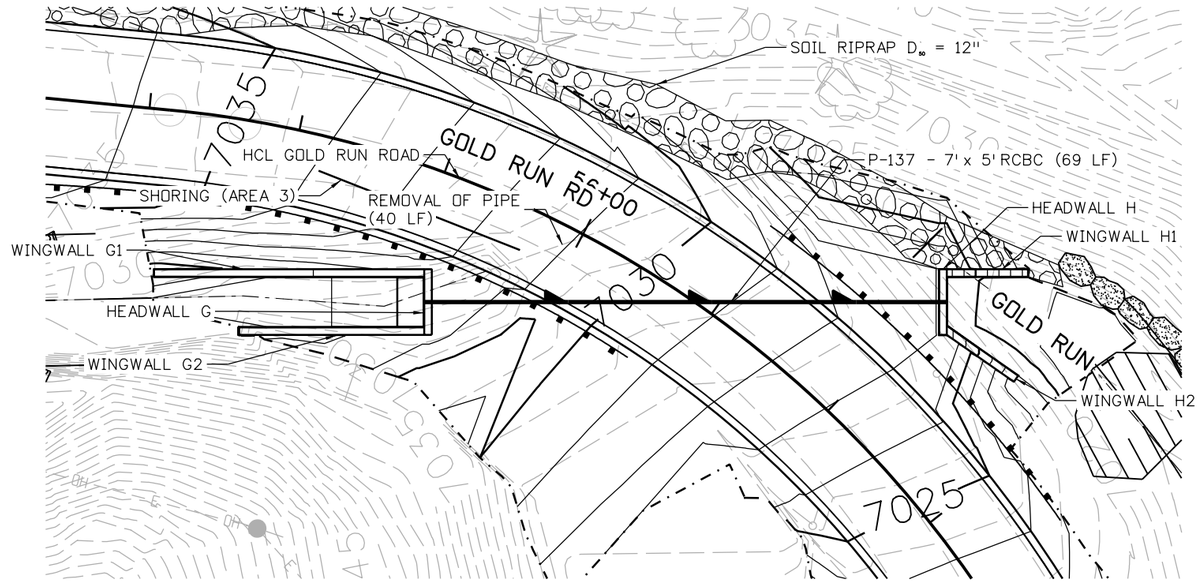
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

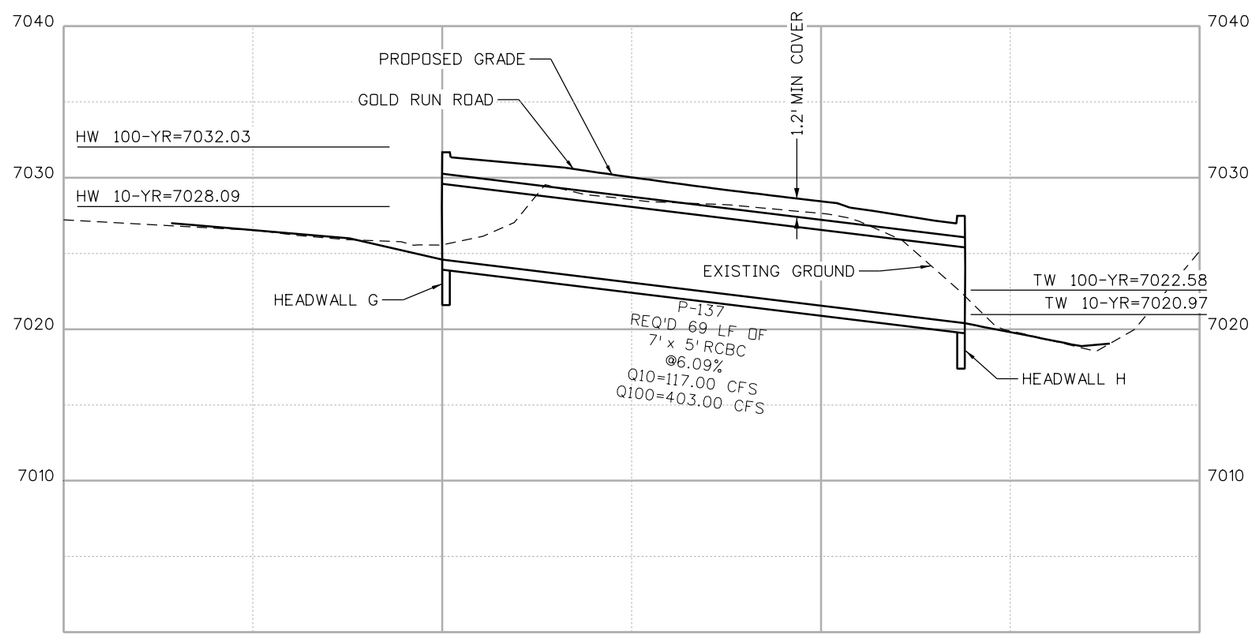
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-136

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 77

susan.pomerleau 5:07:21 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-07.dgn



P-137



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

Michael Baker INTERNATIONAL

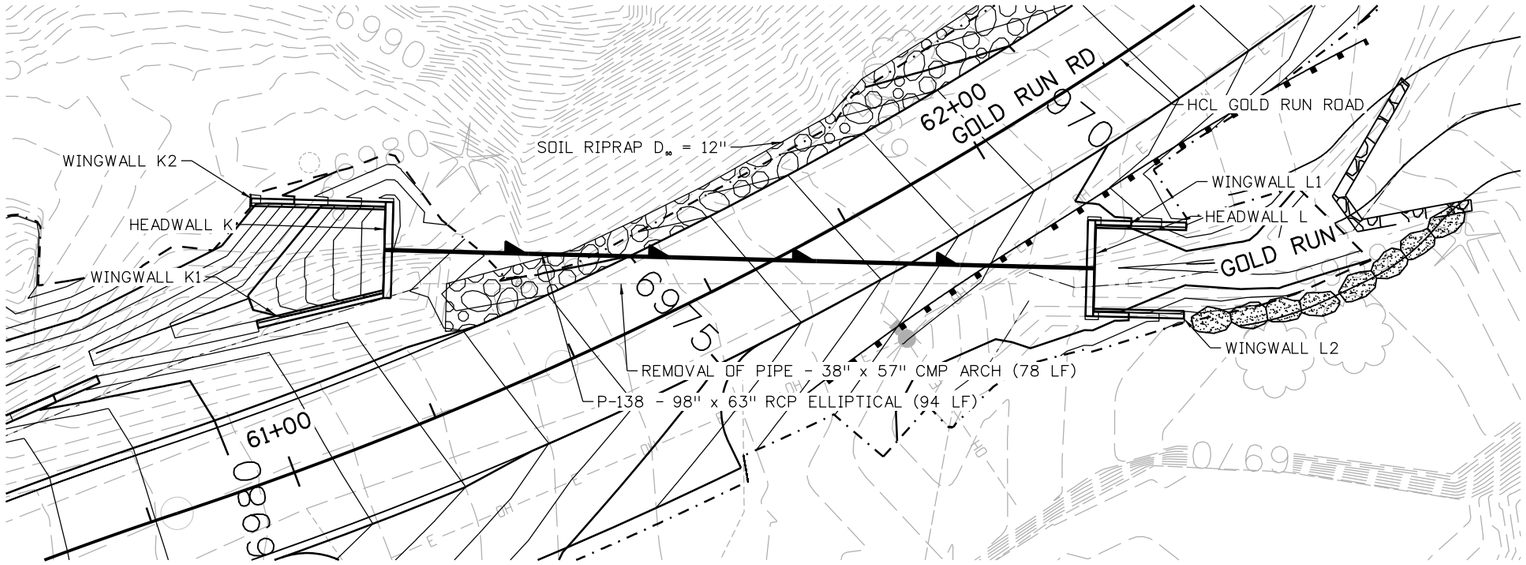
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

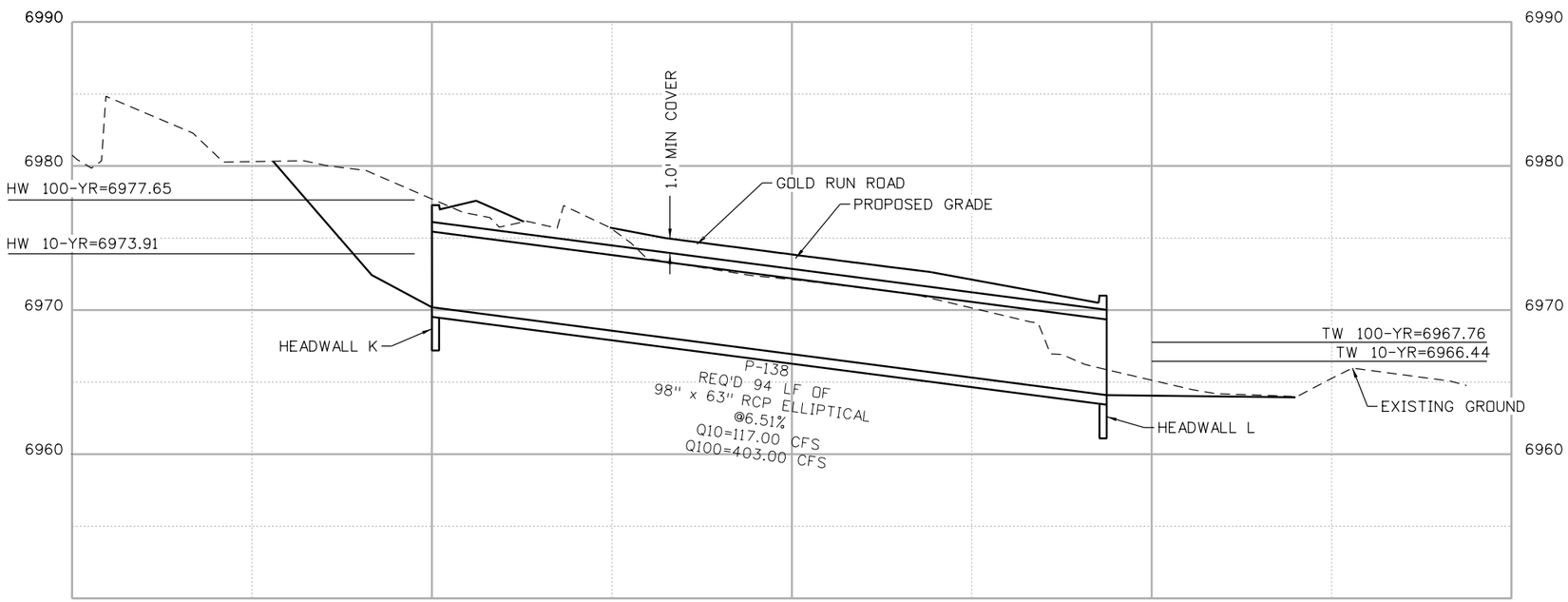
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-137

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 78

susan.pomerleau 5:07:48 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-08.dgn



P-138



N

10 0 10 20 FT

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

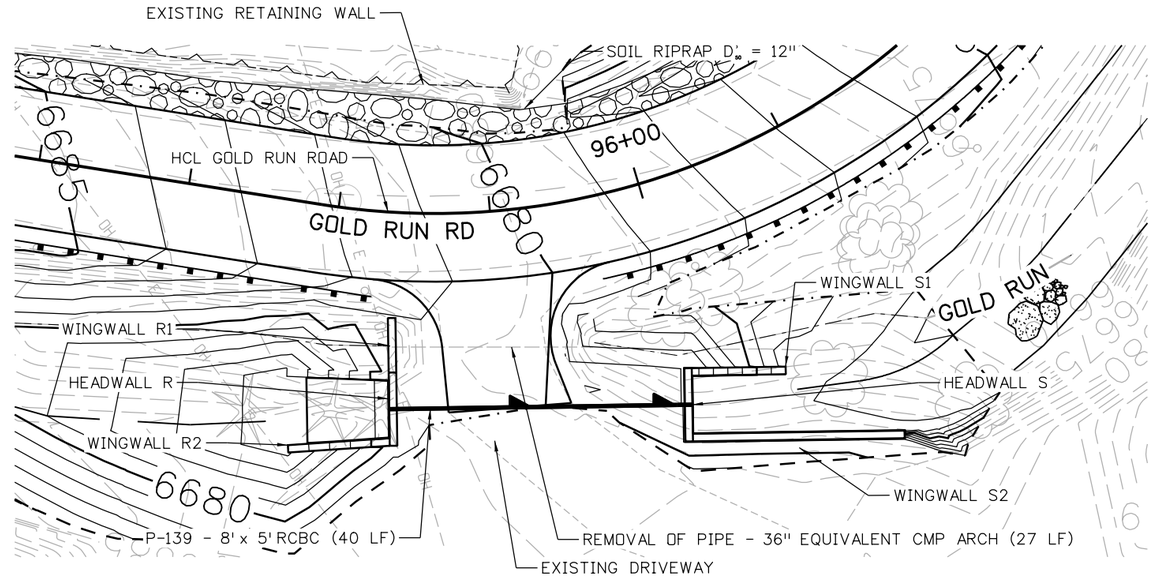
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

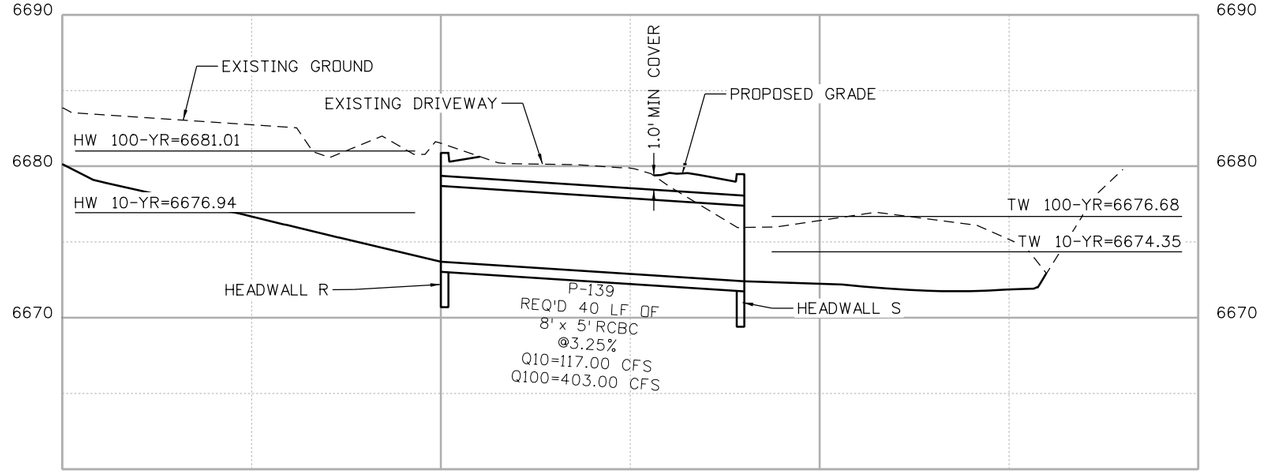
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-138

PROJECT NO: 4043.SEPT12C38 SHEET NO: 79

susan.pomerleau 5:08:15 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-09.dgn



P-139



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

Michael Baker INTERNATIONAL

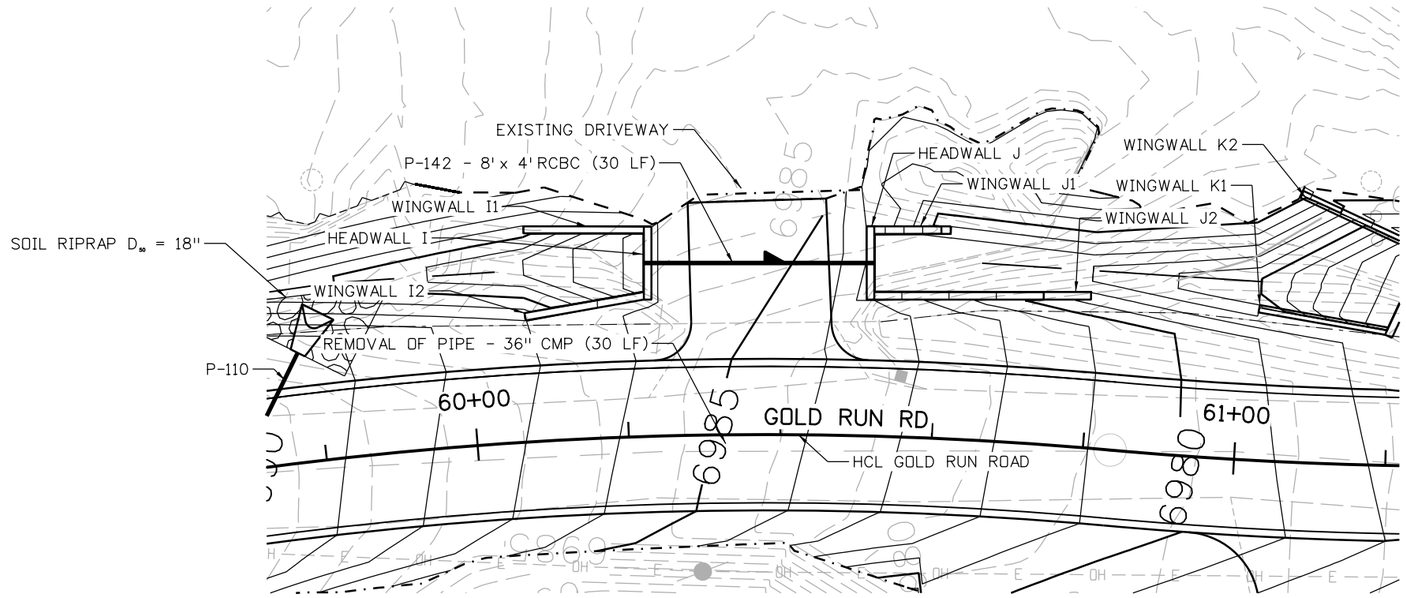
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

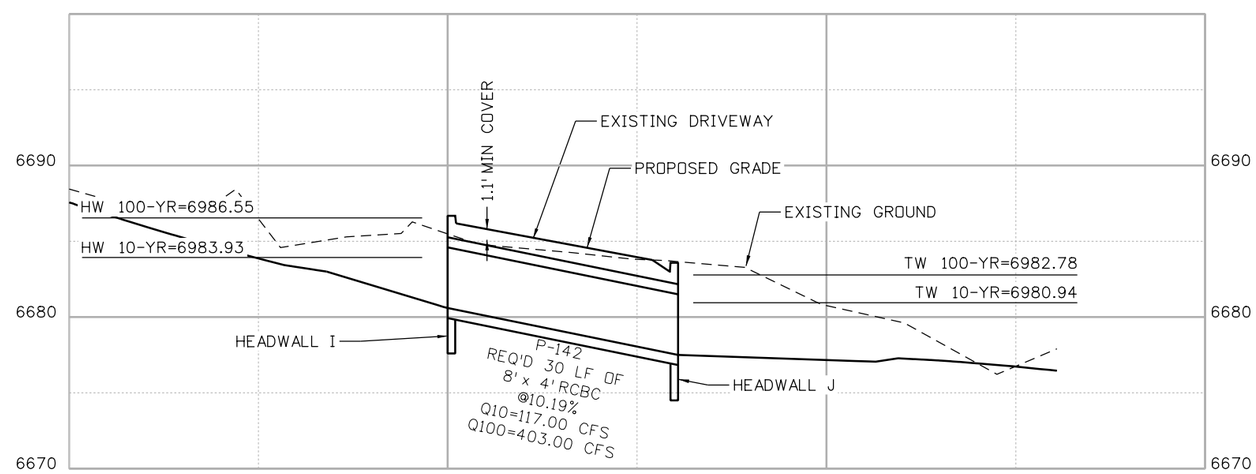
GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-139

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 80

susan.pomerleau 5:08:42 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-10.dgn



P-142



N

10 0 10 20 FT
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

Michael Baker INTERNATIONAL

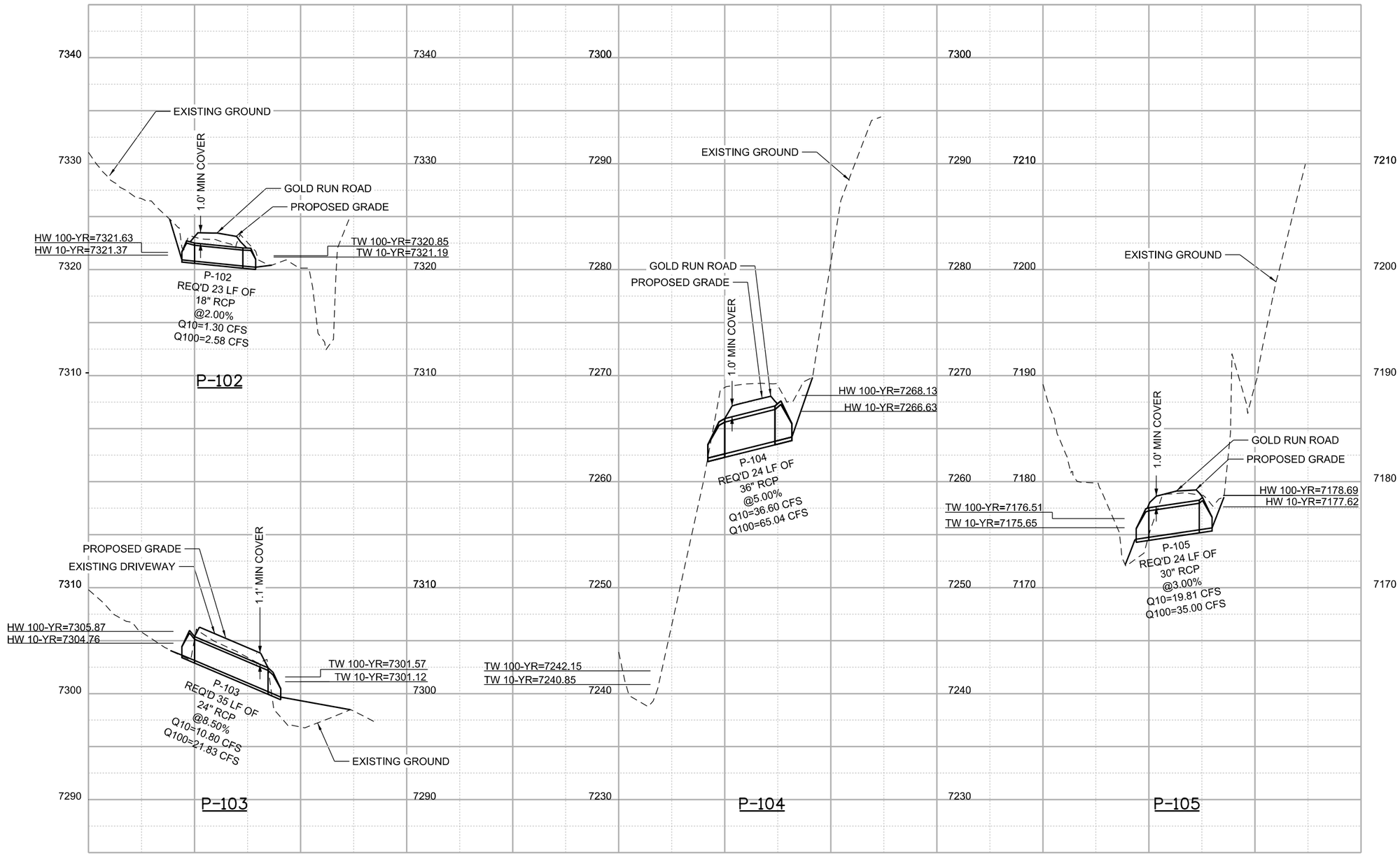
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

GOLD RUN ROAD
DRAINAGE PLAN AND PROFILE
P-142

PROJECT NO: 4043.SEPT12C38 SHEET NO: 81

susan.pomerleau 5:09:08 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DPP-11.dgn



25 0 25 50 FT
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

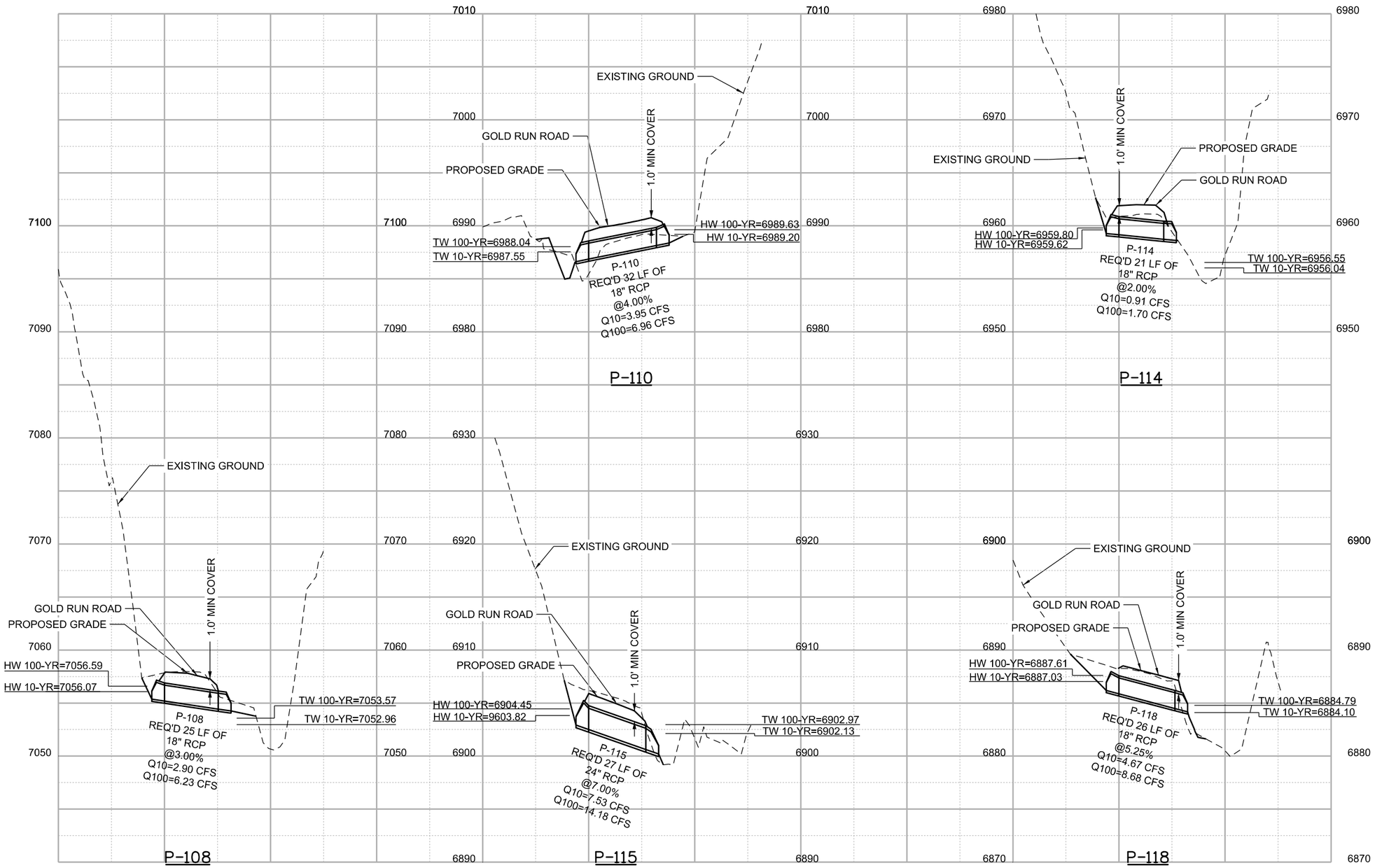
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
Boulder County
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

GOLD RUN ROAD
DRAINAGE PROFILES (1 OF 4)

PROJECT NO: 4043.SEPT12C38 SHEET NO: 82

JShintaku 5:30:39 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DP-01.dgn



25 0 25 50 FT
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County
Michael Baker INTERNATIONAL

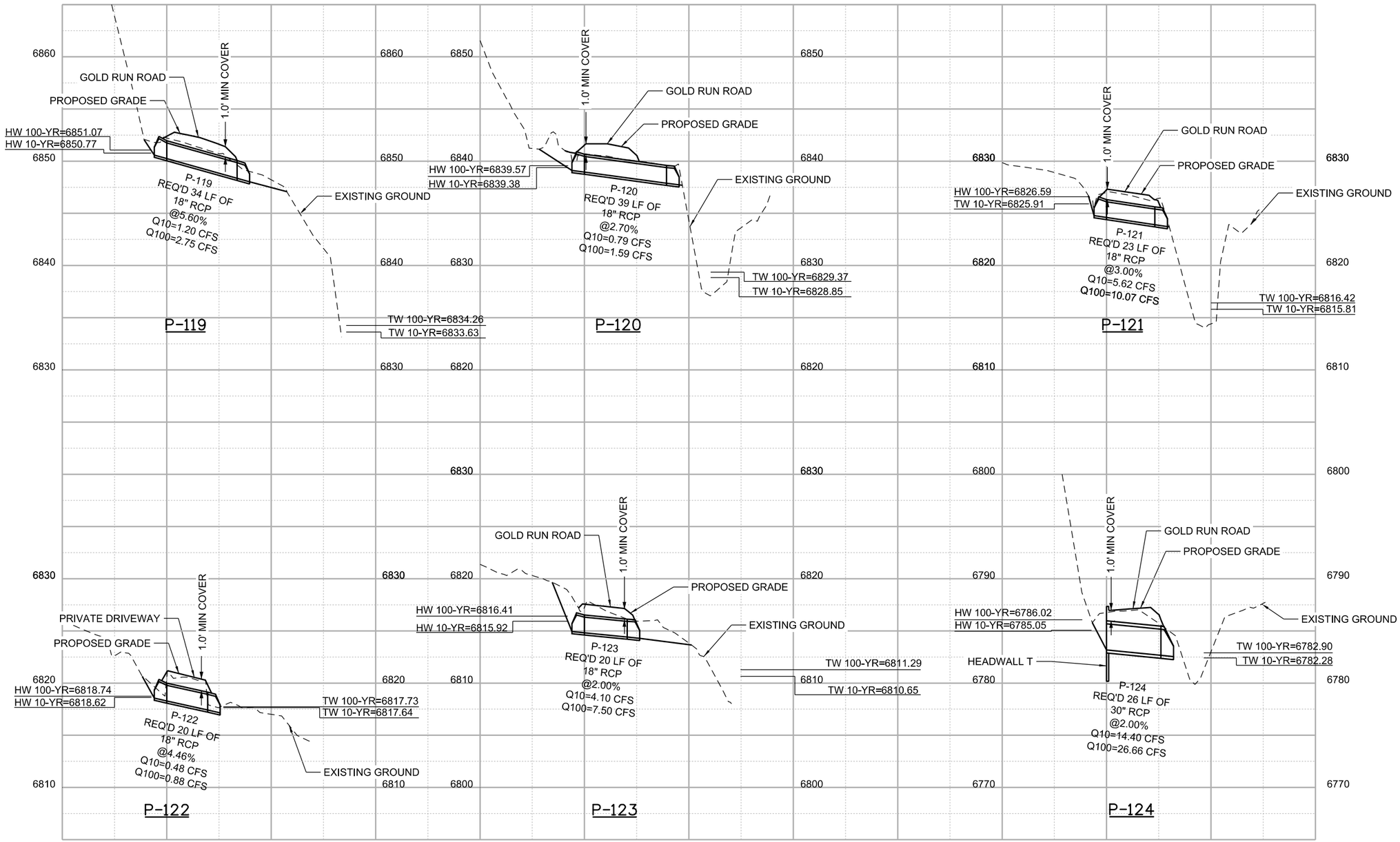
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

GOLD RUN ROAD
DRAINAGE PROFILES
(2 OF 4)

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 83

JShintoku 5:30:58 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DP-02.dgn



25 0 25 50 FT
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

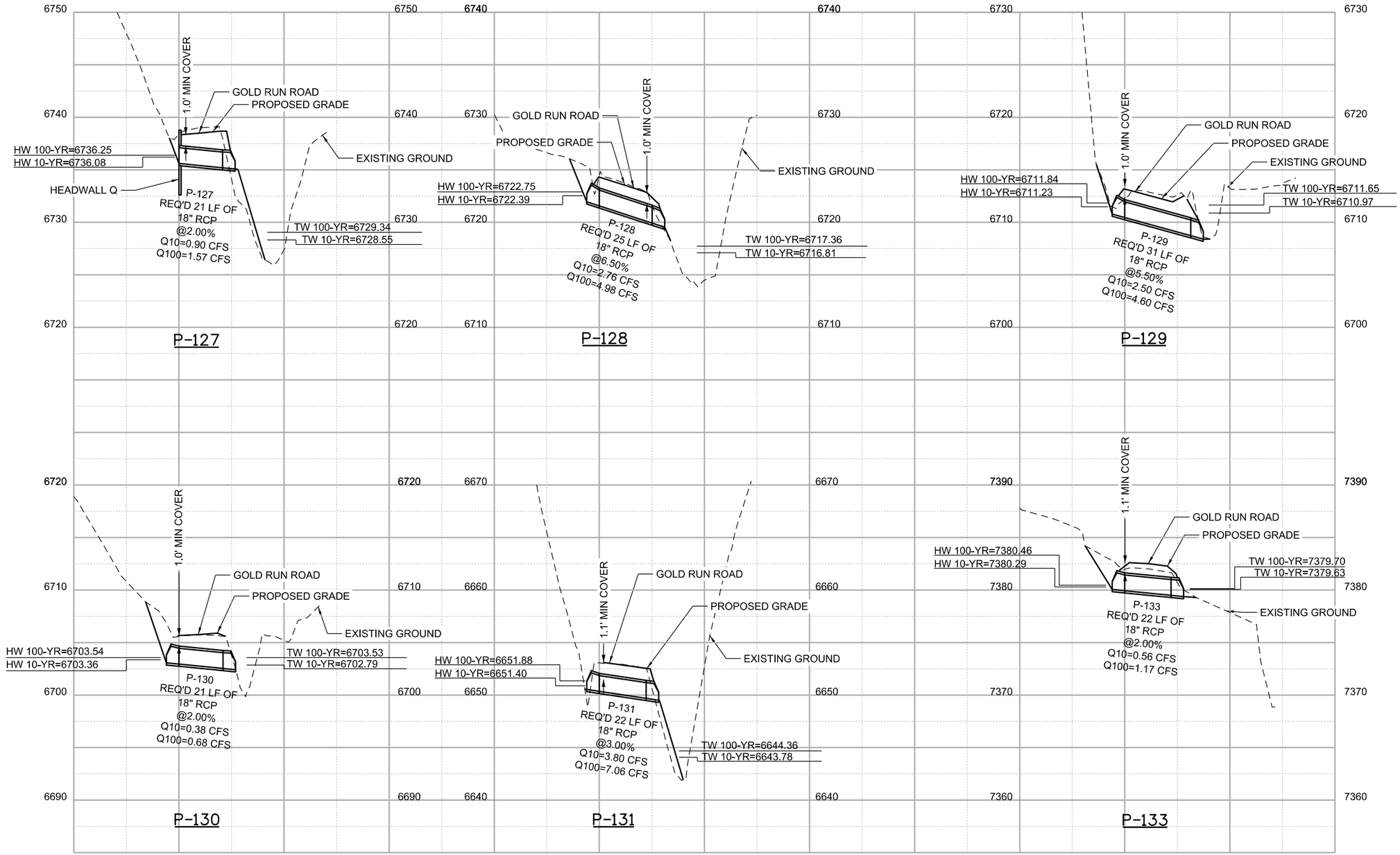
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

GOLD RUN ROAD
DRAINAGE PROFILES
(3 OF 4)

PROJECT NO: 4043.SEPT12C38 SHEET NO: 84

JShintaku 5:31:17 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DP-03.dgn



25 0 25 50 FT
HORIZONTAL SCALE: 1"=50'
VERTICAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

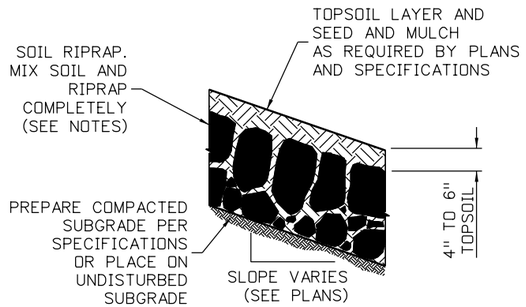
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

GOLD RUN ROAD
DRAINAGE PROFILES
(4 OF 4)

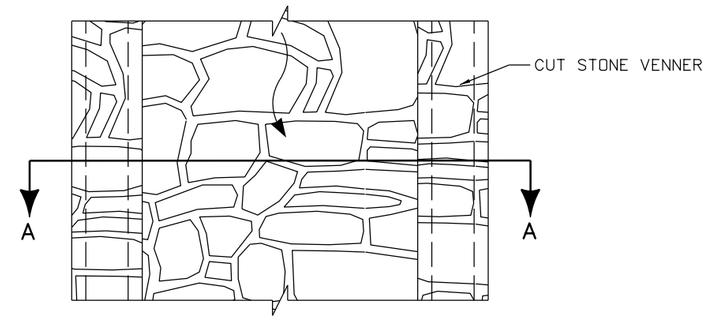
PROJECT NO: 4043.SEPT12C38 SHEET NO: 85

JShintaku 5:31:36 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\02_Hydraulics\DGN\DP-04.dgn



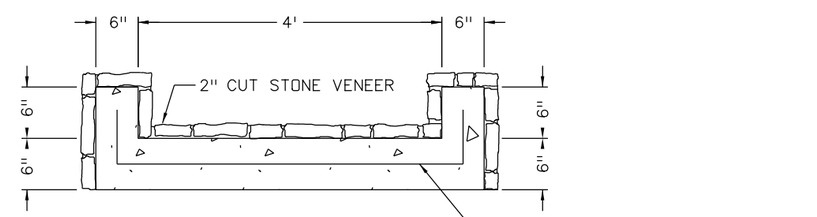
TYPICAL SECTION SOIL RIPRAP WITH MULCH FOR CHANNEL

NTS



GUTTER (SPECIAL) PLAN VIEW

NTS



SECTION A-A

NTS

NOTES:

1. SOIL RIPRAP DETAILS ARE APPLICABLE TO SLOPED AREAS. REFER TO THE DRAINAGE PLANS FOR ACTUAL LOCATIONS AND LIMITS.
2. MIX UNIFORMLY 65% RIPRAP BY VOLUME WITH 35% OF APPROVED SOIL BY VOLUME PRIOR TO PLACEMENT.
3. PLACE RIPRAP-SOIL MIX TO RESULT IN SECURELY INTERLOCKED ROCK AT THE DESIGN THICKNESS AND GRADE. COMPACT AND LEVEL TO ELIMINATE ALL VOIDS AND ROCKS PROJECTING ABOVE DESIGN RIPRAP TOP GRADE.
4. CRIMP OR TACKIFY MULCH OR AS CALLED FOR IN THE PLANS AND SPECIFICATIONS.
5. SEE STORMWATER MANAGEMENT PLAN 2 FOR SEEDING MIXTURE AND DETAILS.
6. BENCH RIPRAP AS NECESSARY TO MATCH EXISTING GRADE AND PLACE STONE-SOIL MIX TO RESULT IN SECURELY INTERLOCKED ROCK AT THE DESIGN THICKNESS AND GRADE. COMPACT AND LEVEL TO ELIMINATE ALL VOIDS AND ROCKS PROJECTING ABOVE FINISHED GRADE.

jSbintoku 5:31:56 PM pw:\\DCPW\PP1.bkr.mbakercorp.com:pwpro3\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\10_General Sheets\DGN\DD-01

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS: NO.	DATE	REVISION DESCRIPTION:

Boulder County

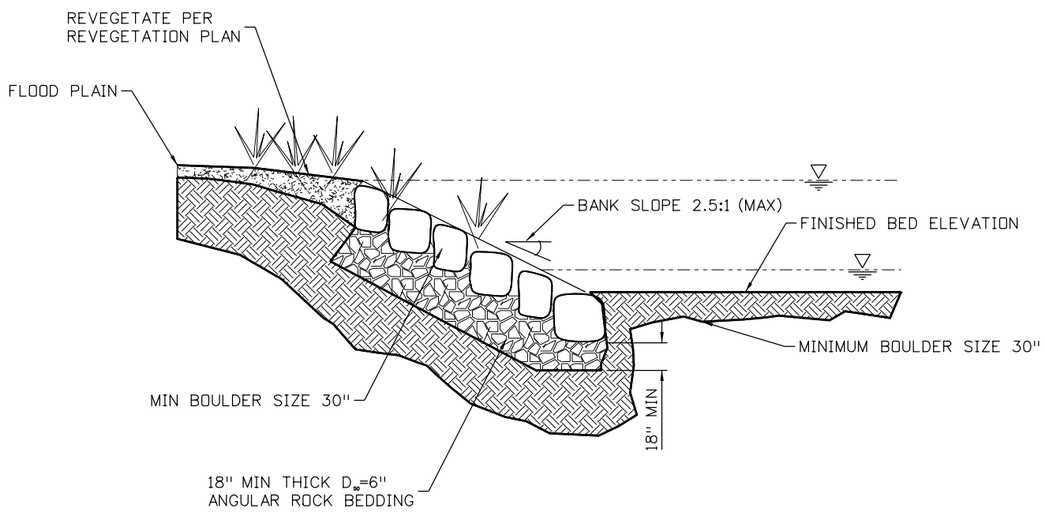
Michael Baker INTERNATIONAL

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

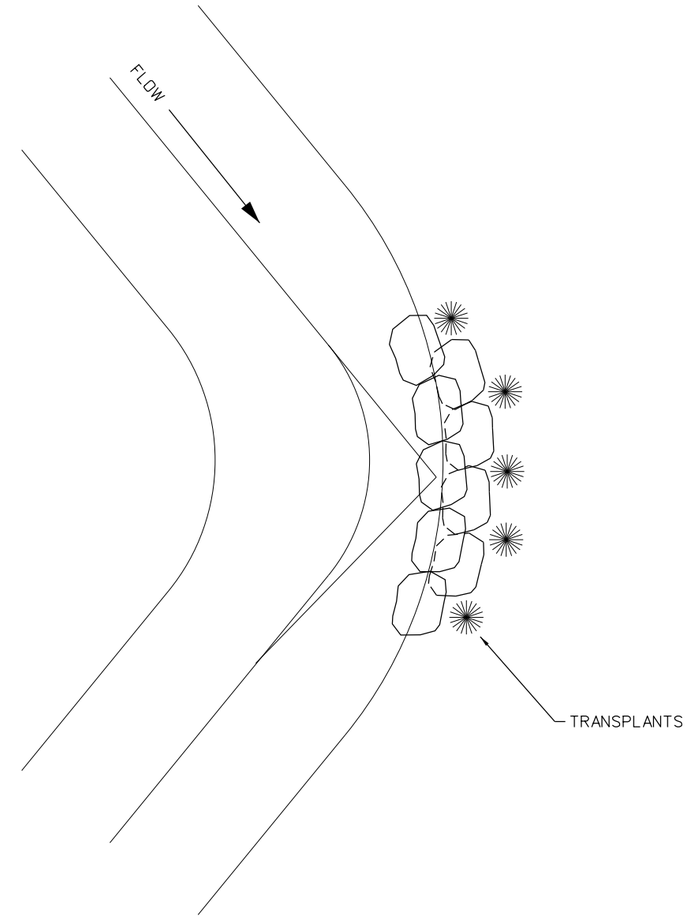
DESIGNED:	CAD:	CHECKED:	DATE:
JRS	EMR	BCA	11/10/15

GOLD RUN ROAD
DRAINAGE DETAILS (SHEET 1 OF 1)

PROJECT NO: 4011.SEPT12C38 | SHEET NO: 86



STACKED BOULDER BANK PROTECTION W/ PLANTINGS INCORPORATED



BOULDER BANK PROTECTION

PLAN VIEW
NTS

LEGEND ITEMS

POOL - REACH 3E & EF, 14.9 LENGTH, 18.2 WIDTH

POOL - REACH 3G. 24.2 LENGTH, 16.6 WIDTH

BOULDER CLUSTER

LOG VEIN

ROCK CROSS VEIN

TOE WOOD BANK PROTECTION

LOG AND ROCK STEP / POOL

BOULDER BANK PROTECTION

NOTES:

1. TRENCHING METHOD:
IF THE CLASS 2 CANNOT BE DRIVEN INTO THE BANK OR THE BANK NEEDS TO BE RECONSTRUCTED, THE TRENCHING METHOD SHOULD BE USED. THIS METHOD REQUIRES THAT A TRENCH BE EXCAVATED FOR THE CLASS 2. ONE-THIRD OF THE CLASS 2 SHOULD REMAIN BELOW NORMAL BASE FLOW CONDITIONS.

2. DRIVEN METHOD:
CLASS 2 SHOULD BE LAIN IN THE STREAMBED AND THEN DRIVEN INTO THE BANK WITH A HORIZONTAL AND DOWNWARD FORCE.

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS: NO.	DATE	REVISION DESCRIPTION:

Boulder County
Michael Baker INTERNATIONAL

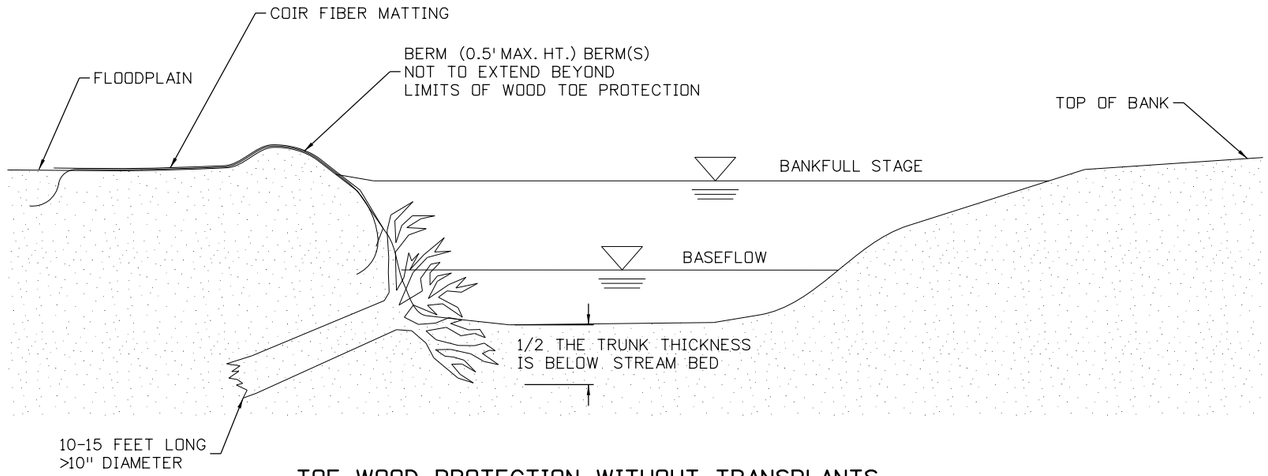
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
LB	JRS	KPD	11/10/15

GOLD RUN ROAD
HABITAT RESTORATION DTLS
(SHEET 1 OF 6)

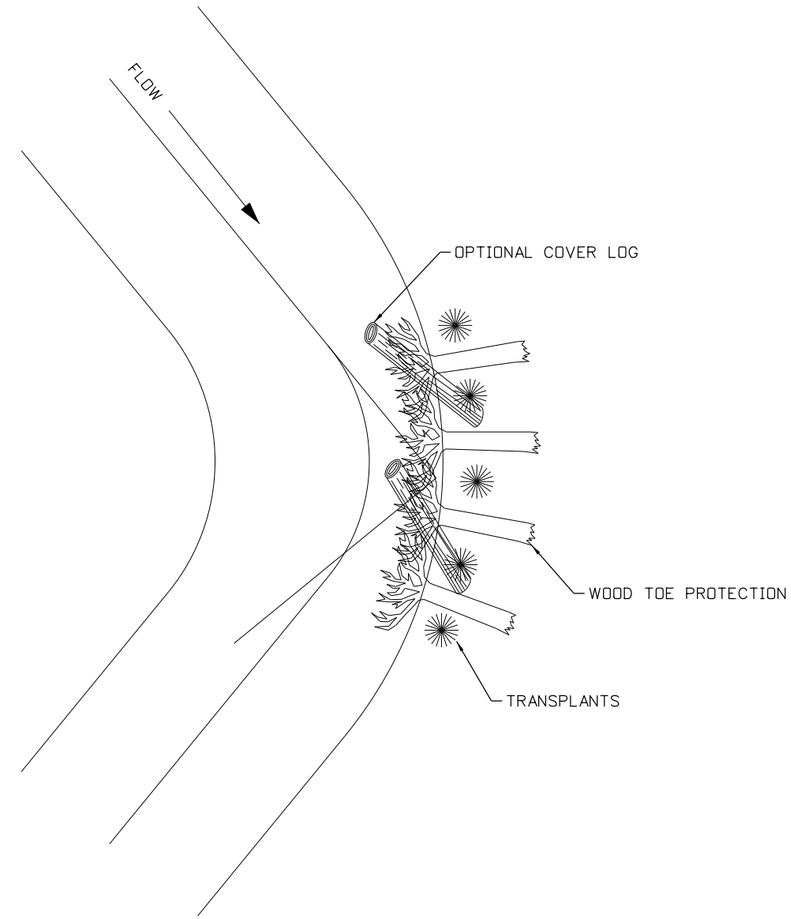
PROJECT NO: 4043.SEPT12C38 | SHEET NO: 87

JShintoku 5:32:13 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\10_General Sheets\DGN\SRD-01



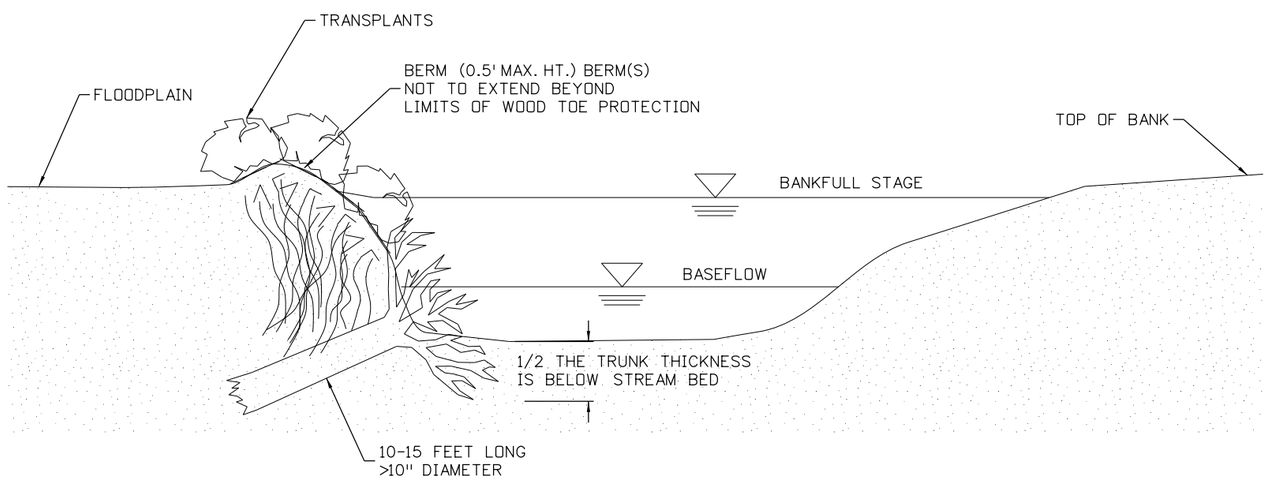
TOE WOOD PROTECTION WITHOUT TRANSPLANTS

CROSS SECTION VIEW
NTS



TOE WOOD PROTECTION

PLAN VIEW
NTS



TOE WOOD PROTECTION WITH TRANSPLANTS

CROSS SECTION VIEW
NTS

NOTES:

1. TRENCHING METHOD:
IF THE ROOT WAD CANNOT BE DRIVEN INTO THE BANK OR THE BANK NEEDS TO BE RECONSTRUCTED, THE TRENCHING METHOD SHOULD BE USED. THIS METHOD REQUIRES THAT A TRENCH BE EXCAVATED FOR THE LOG PORTION OF THE ROOT WAD. IN THIS CASE, A FOOTER LOG SHOULD BE INSTALLED UNDERNEATH THE ROOT WAD IN A TRENCH EXCAVATED PARALLEL TO THE BANK AND WELL BELOW THE STREAMBED. ONE-THIRD OF THE ROOT WAD SHOULD REMAIN BELOW NORMAL BASE FLOW CONDITIONS.

2. DRIVE POINT METHOD:
SHARPEN THE END OF THE LOG WITH A CHAINSAW BEFORE "DRIVING" IT INTO THE BANK. ORIENT ROOT WADS UPSTREAM SO THAT THE STREAM FLOW MEETS THE ROOT WAD AT A 90-DEGREE ANGLE, DEFLECTING THE WATER AWAY FROM THE BANK. A TRANSPLANT SHOULD BE PLACED ON THE DOWNSTREAM SIDE OF THE ROOT WAD IF A BACK EDDY IS FORMED BY THE ROOT WAD.

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

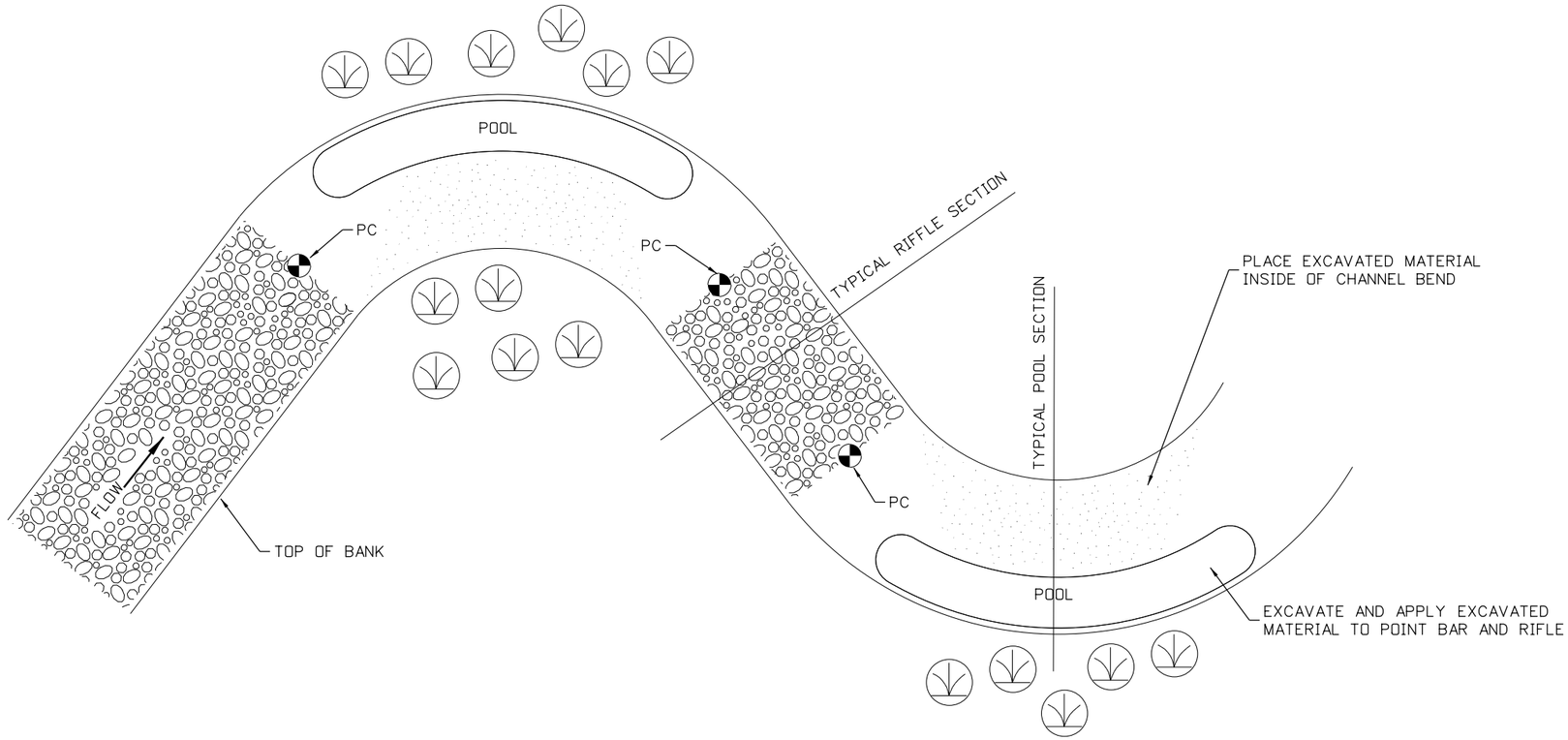
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
Boulder County
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
LB	JRS	KPD	11/10/15

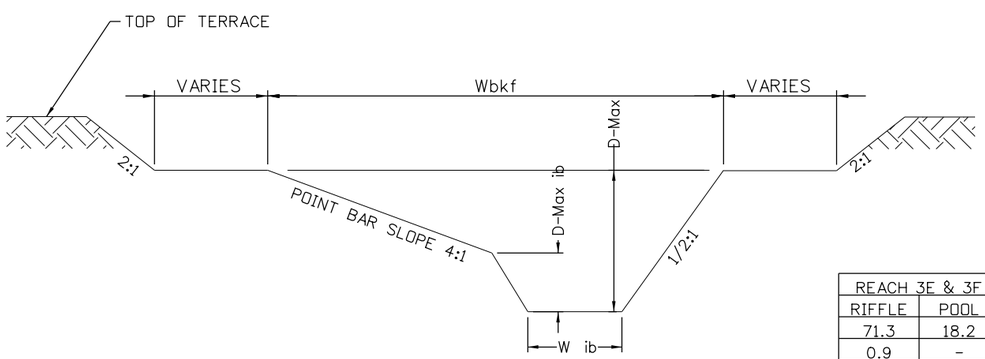
GOLD RUN ROAD
HABITAT RESTORATION DTLS
(SHEET 2 OF 6)

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 88

JShintaku 5:32:30 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\10_General Sheets\DGN\SRD-02

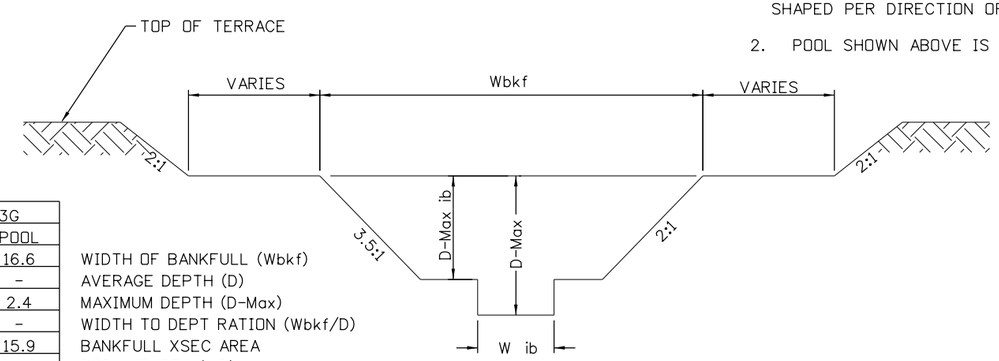


CONSTRUCTED POOL AND POINT BAR



POOL

REACH 3E & 3F		REACH 3G		
RIFFLE	POOL	RIFFLE	POOL	
71.3	18.2	19.4	16.6	WIDTH OF BANKFULL (Wbkf)
0.9	-	1.1	-	AVERAGE DEPTH (D)
1.6	1.7	1.6	2.4	MAXIMUM DEPTH (D-Max)
20	-	16.9	-	WIDTH TO DEPT RATION (Wbkf/D)
14.8	16.3	14.4	15.9	BANKFULL XSEC AREA
-	14.9	-	24.2	POOL LENGTH (WP)
-	61.8	-	124.7	POOL TO POOL SPACING



RIFFLE

NOTES:

1. DURING CONSTRUCTION CORNERS OF DESIGN CHANNEL WILL BE ROUNDED AND THALWEG WILL BE SHAPED PER DIRECTION OF THE ENGINEER.
2. POOL SHOWN ABOVE IS RIGHT BANK POOL ONLY.

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

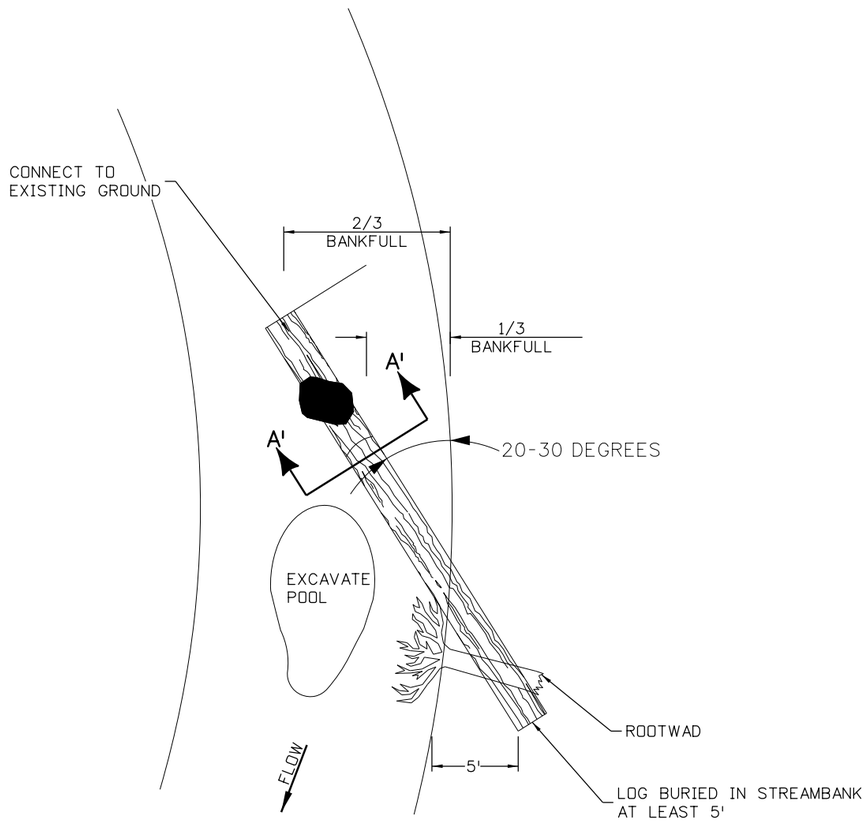
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
Boulder County
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
LB	EMR	KPD	11/10/15

GOLD RUN ROAD
HABITAT RESTORATION DTLS
(SHEET 3 OF 6)

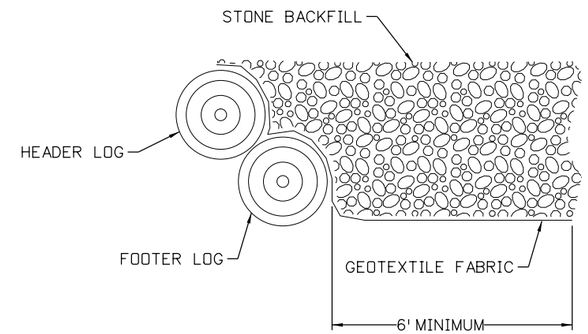
PROJECT NO: 4011.SEPT12C38 | SHEET NO: 89

JShintaku 5:44:00 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\10_General Sheets\DGN\SRD-03



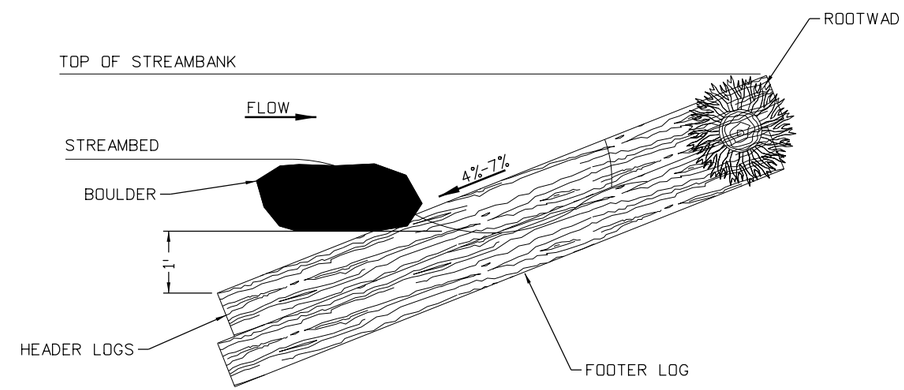
PLAN VIEW

NTS



SECTION A'-A'

NTS



PROFILE VIEW

NTS

NOTES:

1. LOGS SHOULD BE AT LEAST 10" IN DIAMATER, RELATIVELY STRAIGHT, HARDWOOD, AND RECENTLY HARVESTED.
2. BOULDERS MUST BE OF SUFFICENT SIZE TO ANCHOR LOGS
3. SOIL SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOGS.
4. ROOTWADS SHOULD BE PLACED BENEATH THE HEADER LOG AND PLACED SO THAT IT LOCKS THE HEADER LOG INTO THE BANK. SEE ROOTWAD DETAIL.
5. BOULDER SHOULD BE PLACED ON TOP OF HEADER LOG FOR ANCHORING.
6. GEOTEXTILE FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BACKFILL.
7. TRANSPLANTS CAN BE USED INSTEAD OF ROOTWADS, PER DIRECTION OF THE ENGINEER.

LOG VANE

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

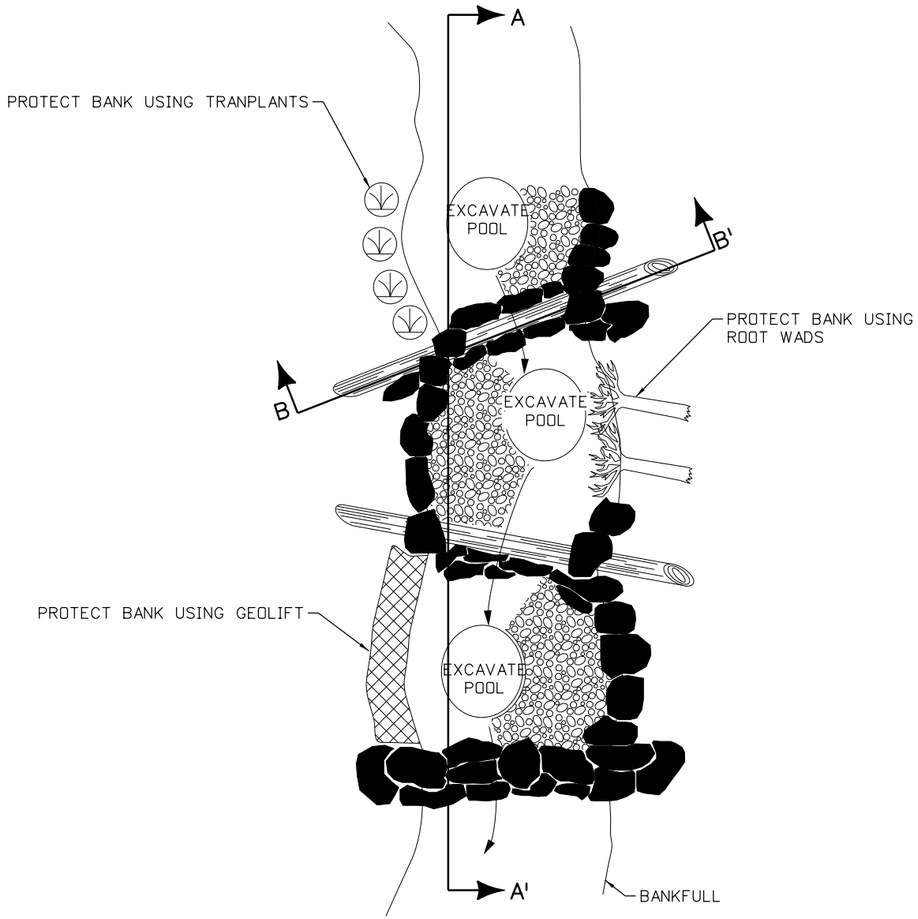
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
LB	EMR	KPD	11/10/15

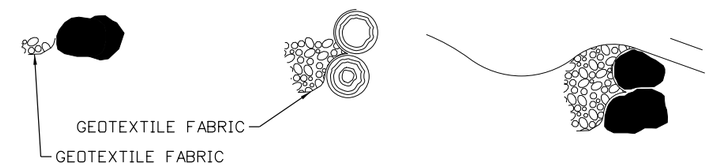
GOLD RUN ROAD
HABITAT RESTORATION DTLS
(SHEET 4 OF 6)

PROJECT NO: 4011.SEPT12C38 | SHEET NO: 90

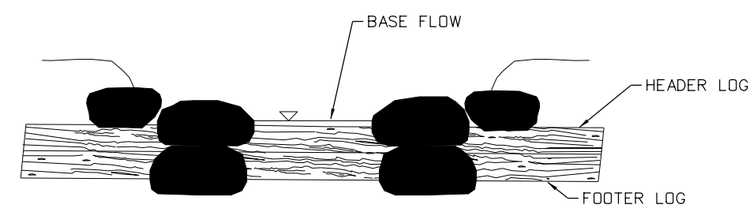
JShintaku 5:33:05 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\10_General Sheets\DGN\SRD-04



PLAN VIEW



SECTION A-A'



SECTION B-B'

NOTES:

1. LOGS SHOULD BE ATLEAST 10" IN DIAMAETER, REALITVELY STRAIGHT, AND RECENLTY HARVESTED AND EXTENDING INTO THE BANK 5' ON EACH SIDE.
2. SOILD SHOULD BE COMPACTED WELL AROUND BURIED PORTIONS OF LOG.
3. GEOTEXTILE FABRIC SHOULD BE NAILED TO THE LOG BELOW THE BAKFILL.
4. BOULDERS SHOULD BE 3' X 2' X 2' AND PLACED ON TOP OF HEADER LOG FOR ANCHORING.

LOG AND ROCK STEP / POOL

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS: NO.	DATE	REVISION DESCRIPTION:

Boulder County

Michael Baker INTERNATIONAL

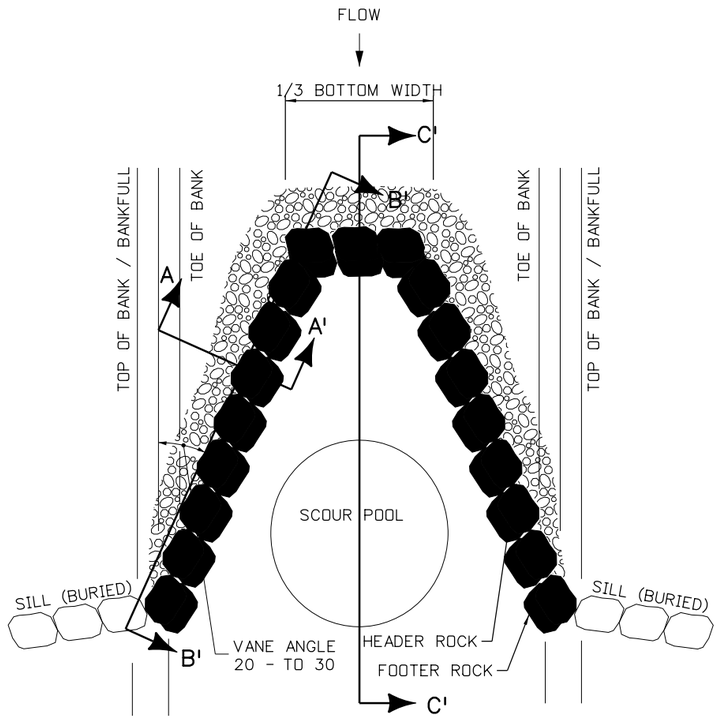
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
LB	EMR	KPD	11/10/15

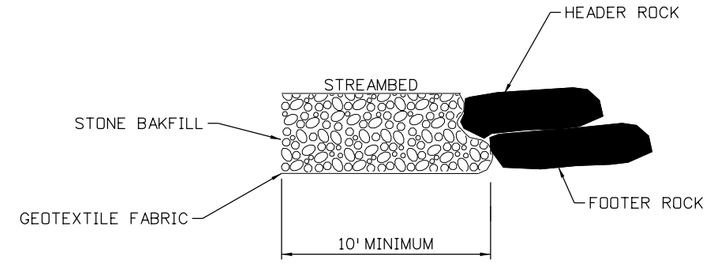
GOLD RUN ROAD
HABITAT RESTORATION DTLS
(SHEEET 5 OF 6)

PROJECT NO: 4011.SEPT12C38 | SHEET NO: 91

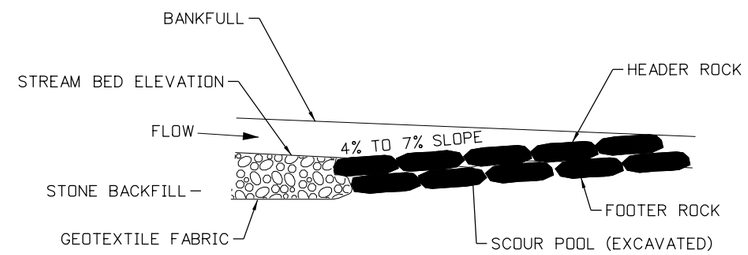
JShintoku 5:33:23 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\10_General Sheets\DGN\SRD-05



PLANE STRUCTURE

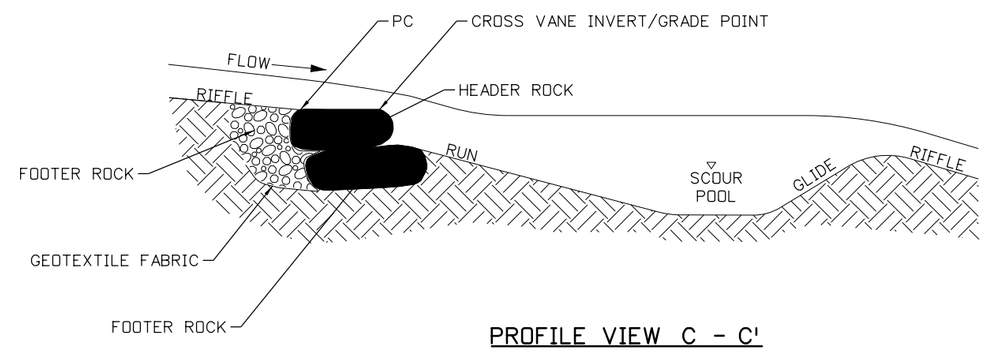


SECTION A-A'



PROFILE VIEW B - B'

VANE ARM



PROFILE VIEW C - C'

NOTES FOR ALL VANE STRUCTURES:

1. INSTALL BEGINNING AT THE TOP OF THE HEADER ROCKS AND EXTEND DOWNWARD TO THE DEPTH OF THE BOTTOM FOOTER ROCK, AND THEN UPSTREAM TO A MINIMUM OF TEN FEET.
2. DIG A TRENCH BELOW THE BED FOR FOOTER ROCKS AND PLACE FILL ON UPSTREAM OF VANE ARM, BETWEEN THE ARM AND STREAMBANK.
3. START AT BANK AND PLACE FOOTER ROCKS FIRST AND THEN HEADER (TOP) ROCK.
4. CONTINUE WITH STRUCTURE, FOLLOWING ANGLE AND SLOPE SPECIFICATIONS.
5. AN EXTRA ROCK CAN BE PLACED IN SCOUR POOL FOR HABIT AT IMPROVEMNT.
6. USE HAND PLACED STONE TO FILL GAPS ON UPSTREAM SIDE HEADER AND FOOTER ROCKS
7. AFTER ALL STONE BACKFILL HAS BEEN PLACED, FILL IN THE UPSTREAM SIDE OF THE STRUCTURE WITH ON-SITE ALLUVIUM TO THE ELEVATION OF THE TOP OF THE HEADER ROCK.

ROCK CROSS VANE

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

Michael Baker INTERNATIONAL

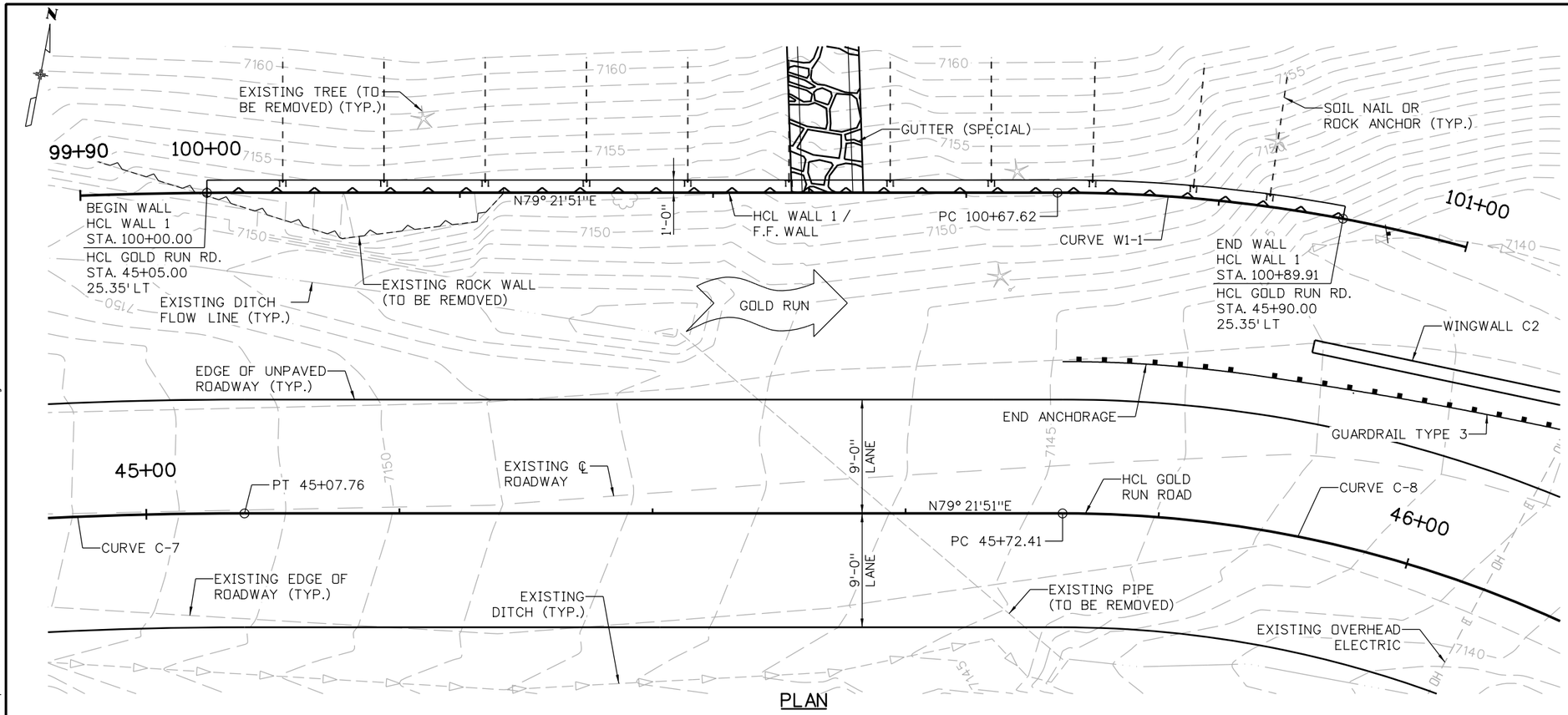
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
LB	EMR	KPD	11/10/15

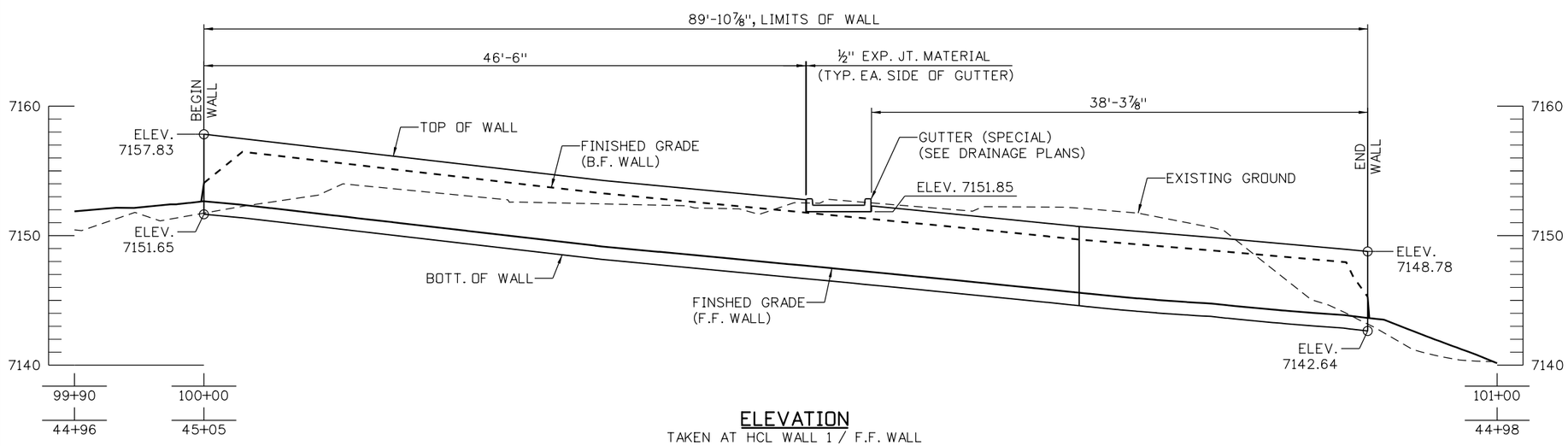
GOLD RUN ROAD
HABITAT RESTORATION DTLS
(SHEET 6 OF 6)

PROJECT NO: 4011.SEPT12C38 | SHEET NO: 92

jShintaku 5:33:40 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\10_General Sheets\DGN\SRD-06



PLAN



ELEVATION

TAKEN AT HCL WALL 1 / F.F. WALL

NOTES:

1. FOR FINISHED GRADING, REMOVAL OF PIPE, GUTTER (SPECIAL), AND WINGWALL DETAILS, REFER TO DRAINAGE PLANS.
2. FOR REMOVALS, UTILITY, AND GUARDRAIL INFORMATION, REFER TO ROADWAY PLANS.
3. FOR ROADWAY GEOMETRICS, REFER TO ROADWAY PLANS.
4. FOR WALL HEIGHTS, REFER TO TYPICAL SECTION SHEET.
5. A GEOTECHNICAL REPORT HAS NOT BEEN COMPLETED AT THIS TIME.

CURVE W1-1 DATA

Δ = 15° 22'12" RT
R = 120.35'
L = 32.28'
T = 16.24'
PI = 100+83.86
N = 263834.97
E = 32659.01

5 0 5 10 FT
HORIZONTAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County
Michael Baker INTERNATIONAL

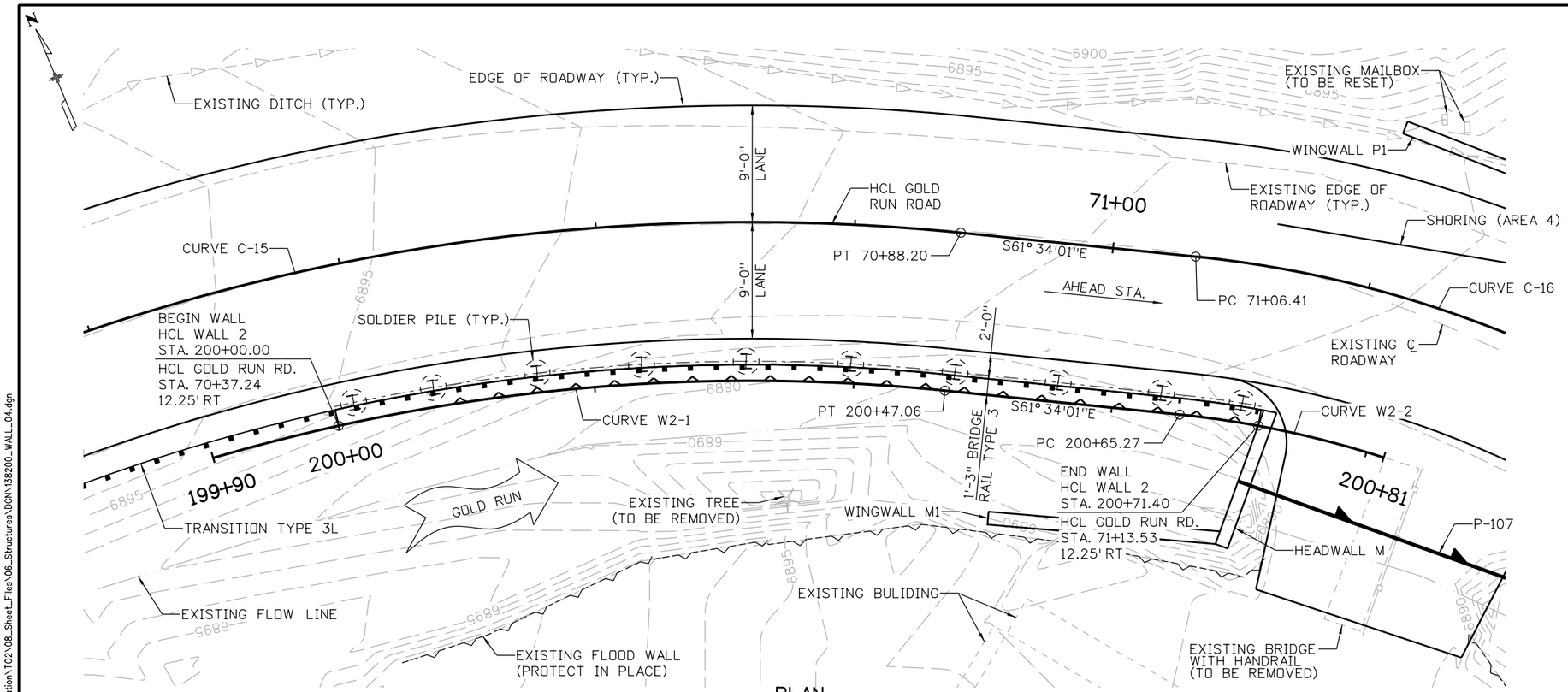
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
DLT	BMT		11/10/2015

GOLD RUN ROAD
RETAINING WALL 1
GENERAL LAYOUT

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 93

brett.terrell 4:44:33 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\06_Structures\DGN\138200_WALL_03.dgn



PLAN

NOTES:

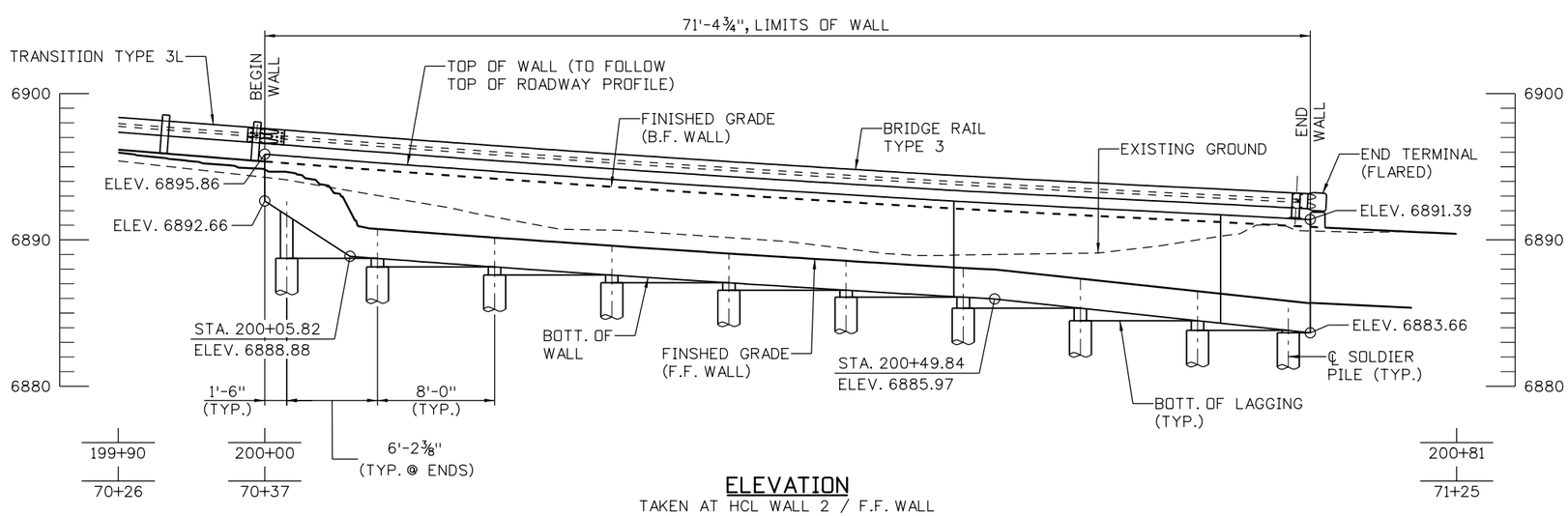
1. FOR FINISHED GRADING, REMOVAL OF PIPE, PIPE, HEADWALL, AND WINGWALL DETAILS, REFER TO DRAINAGE PLANS.
2. FOR REMOVALS, RESETS, UTILITY, AND GUARDRAIL INFORMATION, REFER TO ROADWAY PLANS.
3. FOR ROADWAY GEOMETRICS, REFER TO ROADWAY PLANS.
4. FOR WALL HEIGHTS, REFER TO TYPICAL SECTION SHEET.
5. FOR SHORING (AREA 4), REFER TO DRAINAGE PLANS.
6. A GEOTECHNICAL REPORT HAS NOT BEEN COMPLETED AT THIS TIME.

CURVE W2-1 DATA

Δ = 22° 07'37" RT
R = 147.75'
L = 57.06'
T = 28.89'
PI = 200+18.89
N = 263363.97
E = 34796.46

CURVE W2-2 DATA

Δ = 12° 11'37" RT
R = 75.75'
L = 16.12'
T = 8.09'
PI = 200+73.36
N = 263337.69
E = 34844.99



ELEVATION

TAKEN AT HCL WALL 2 / F.F. WALL

5 0 5 10 FT
HORIZONTAL SCALE: 1"=10'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

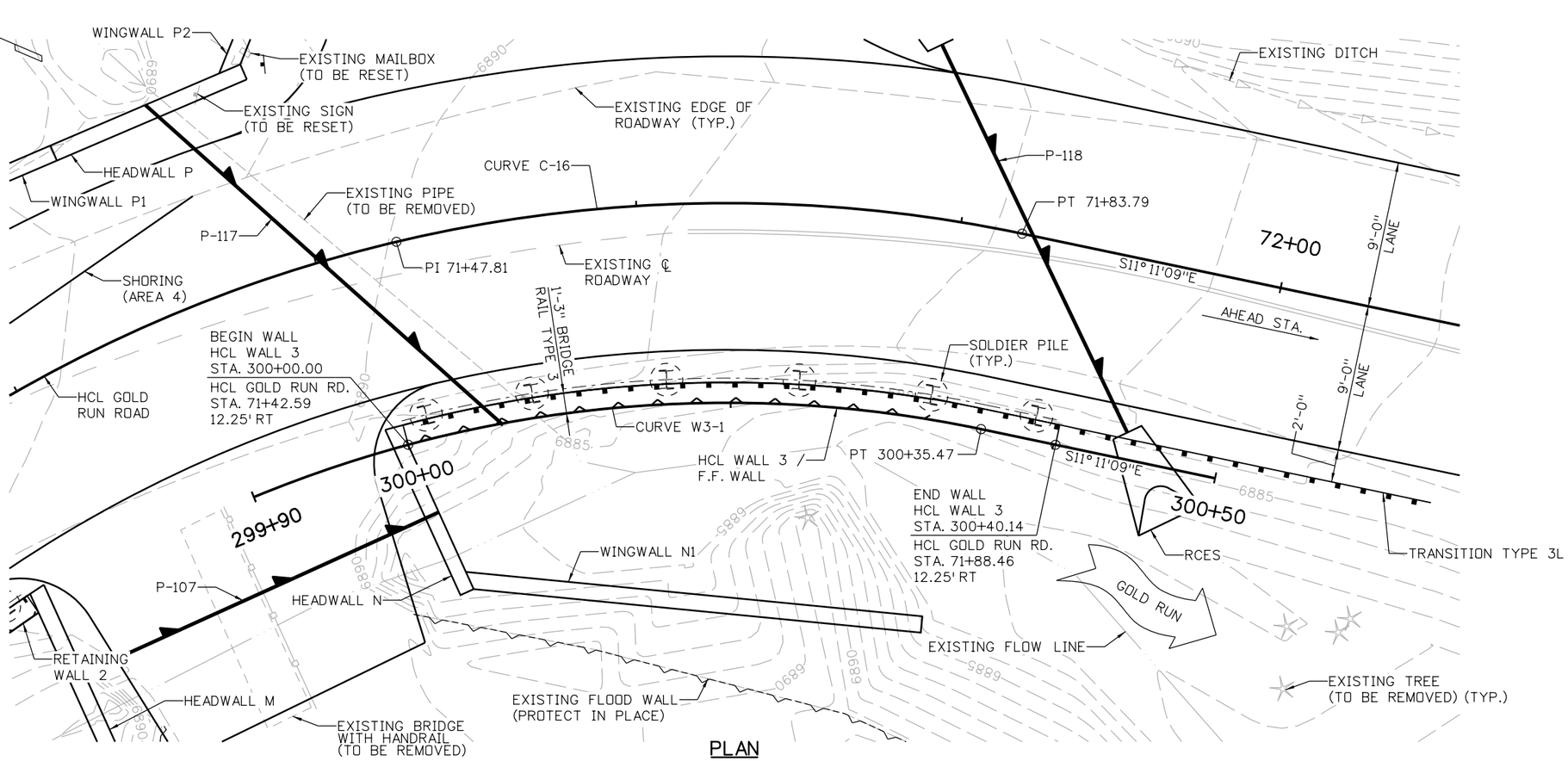
Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
DLT	BMT		11/10/2015

GOLD RUN ROAD
RETAINING WALL 2
GENERAL LAYOUT

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 94

brett.terrell 4:44:49 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\06_Structures\DGN\138200_WALL_04.dgn



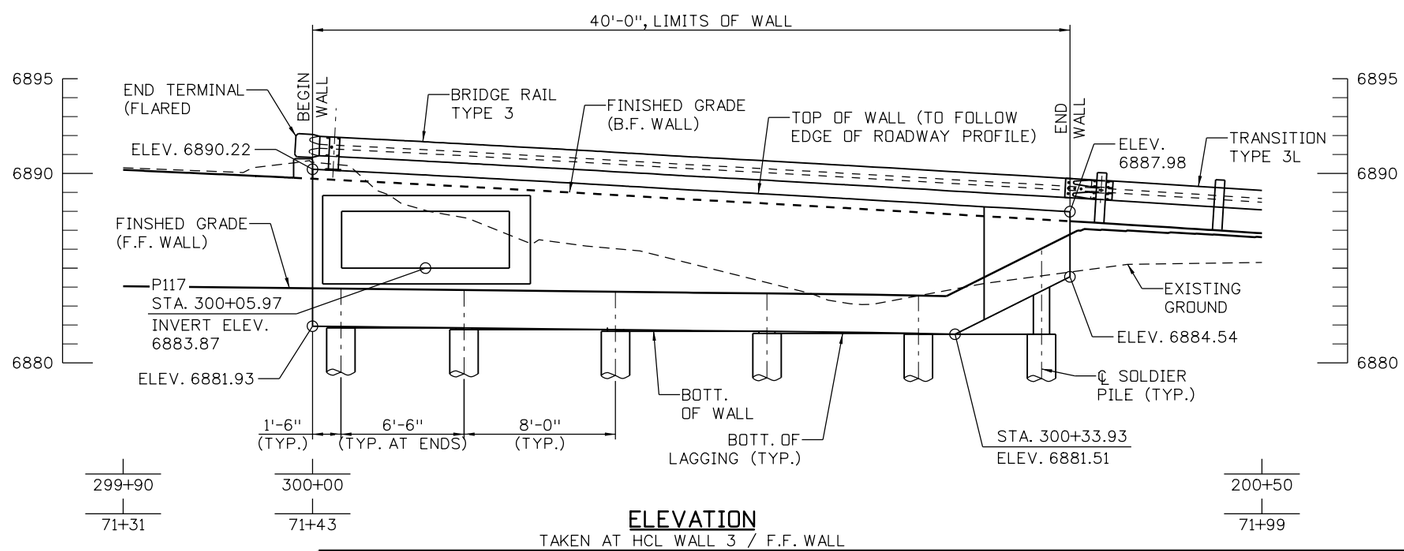
PLAN

NOTES:

1. FOR FINISHED GRADING, REMOVAL OF PIPE, PIPE, HEADWALL, AND WINGWALL DETAILS, REFER TO DRAINAGE PLANS.
2. FOR REMOVALS, RESETS, UTILITY, AND GUARDRAIL INFORMATION, REFER TO ROADWAY PLANS.
3. FOR ROADWAY GEOMETRICS, REFER TO ROADWAY PLANS.
4. FOR WALL HEIGHTS, REFER TO TYPICAL SECTION SHEET.
5. FOR SHORING (AREA 4), REFER TO DRAINAGE PLANS.
6. A GEOTECHNICAL REPORT HAS NOT BEEN COMPLETED AT THIS TIME.

CURVE W3-1 DATA

Δ = 34° 23'40" RT
R = 75.75'
L = 45.47'
T = 23.44'
PI = 300+13.44
N = 263312.62
E = 34871.57



ELEVATION

TAKEN AT HCL WALL 3 / F.F. WALL

4 0 4 8
HORIZONTAL SCALE: 1"=8'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County
Michael Baker INTERNATIONAL

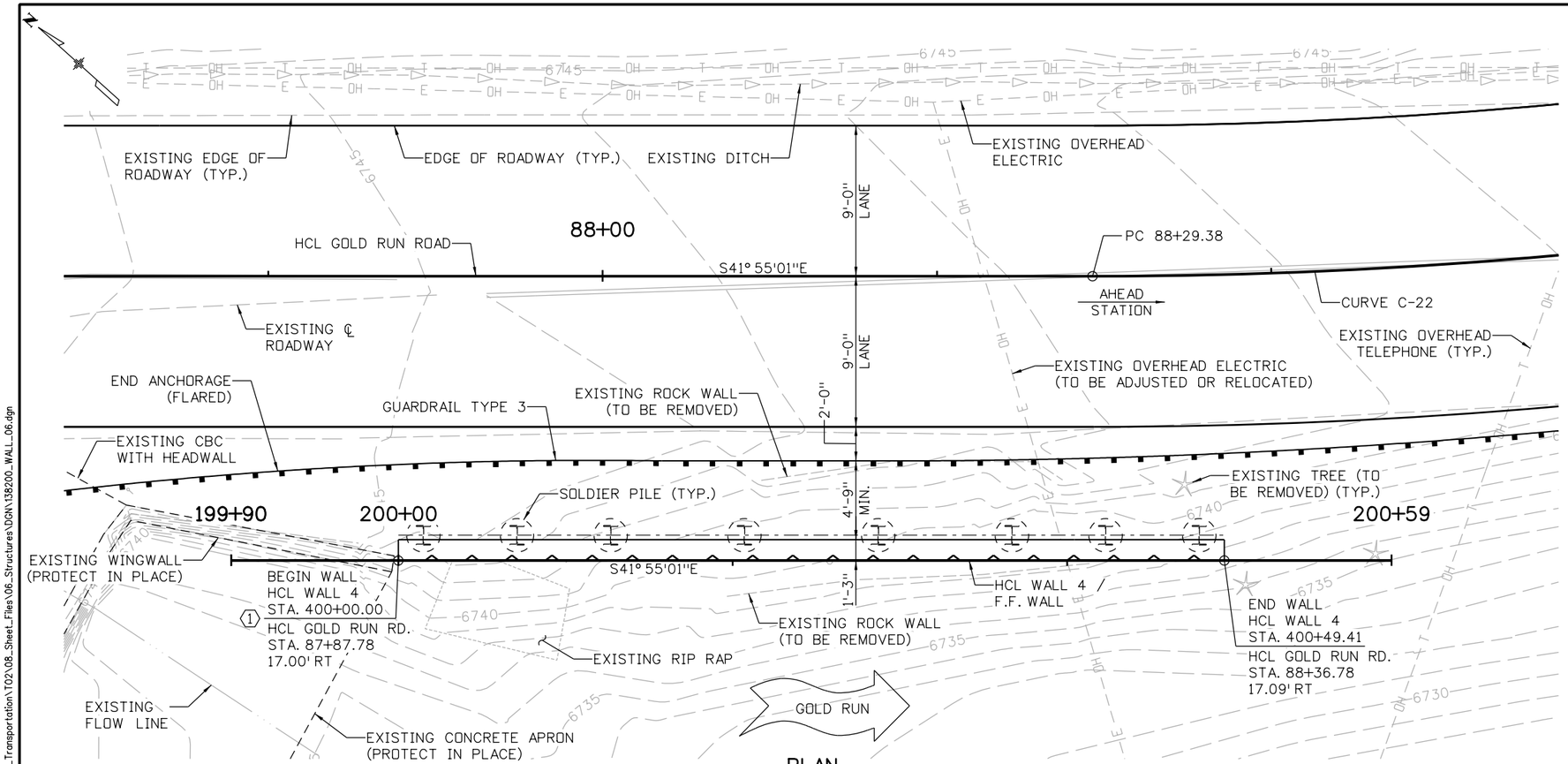
BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
DLT	BMT		11/10/2015

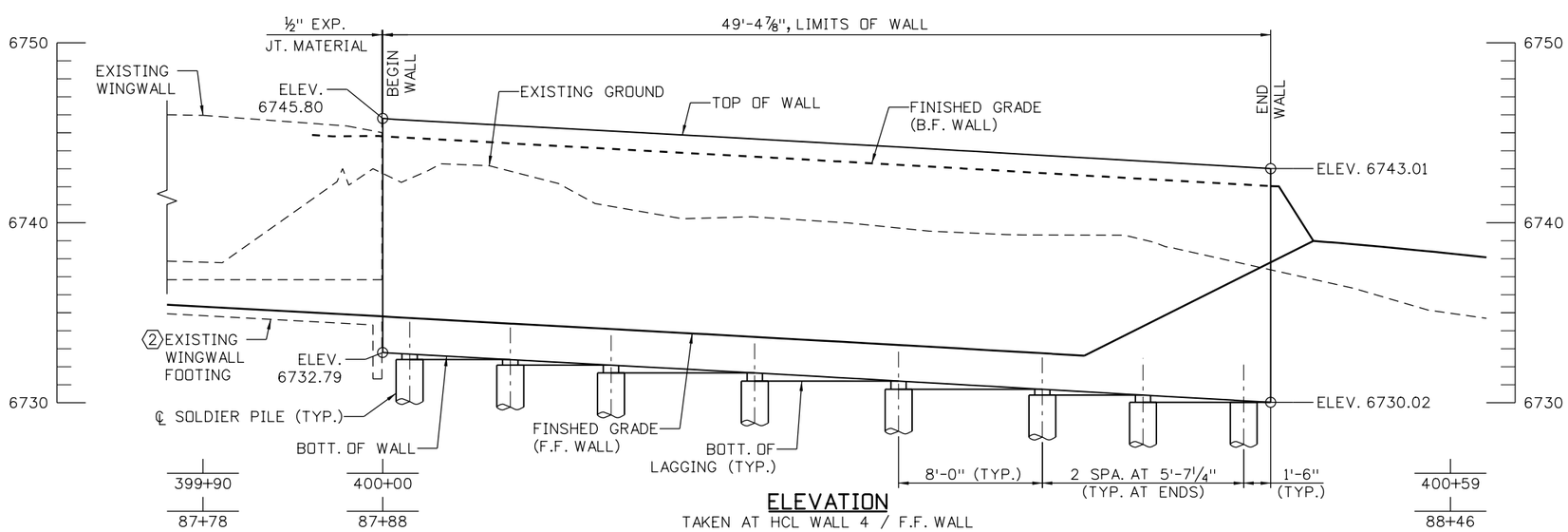
GOLD RUN ROAD
RETAINING WALL 3
GENERAL LAYOUT

PROJECT NO: 4043.SEPT12C38 | SHEET NO: 95

brett.terrell 4:45:05 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\06_Structures\DGN\138200_WALL_05.dgn



PLAN



ELEVATION

TAKEN AT HCL WALL 4 / F.F. WALL

NOTES:

1. FOR FINISHED GRADING, REFER TO DRAINAGE PLANS.
2. FOR REMOVALS, UTILITY, AND GUARDRAIL INFORMATION, REFER TO ROADWAY PLANS.
3. FOR ROADWAY GEOMETRICS, REFER TO ROADWAY PLANS.
4. FOR WALL HEIGHTS, REFER TO TYPICAL SECTION SHEET.
5. A GEOTECHNICAL REPORT HAS NOT BEEN COMPLETED AT THIS TIME.

KEYNOTES:

1. THE CONTRACTOR SHALL VERIFY THE LOCATION FOR THE END OF EXISTING WINGWALL AND ADJUST THE BEGIN WALL TO MATCH INTO THE EXISTING CONDITIONS.
2. THE FOUNDATION TYPE AND LIMITS FOR THE EXISTING STRUCTURE ARE NOT SHOWN.

4 0 4 8 FT
HORIZONTAL SCALE: 1"=8'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County
Michael Baker INTERNATIONAL

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

DESIGNED:	CAD:	CHECKED:	DATE:
DLT	BMT		11/10/2015

GOLD RUN ROAD
RETAINING WALL 4
GENERAL LAYOUT

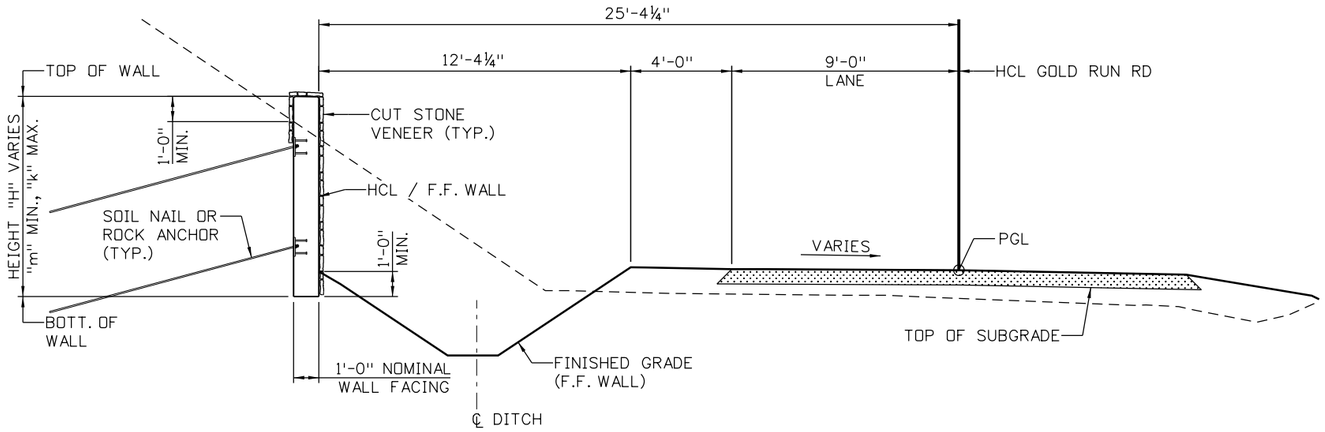
PROJECT NO: 4043.SEPT12C38 | SHEET NO: 96

brett.terrell 4:45:22 PM pw:\\DCPWAPP1bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\06_Structures\DGN\138200_WALL_06.dgn

NOTES:

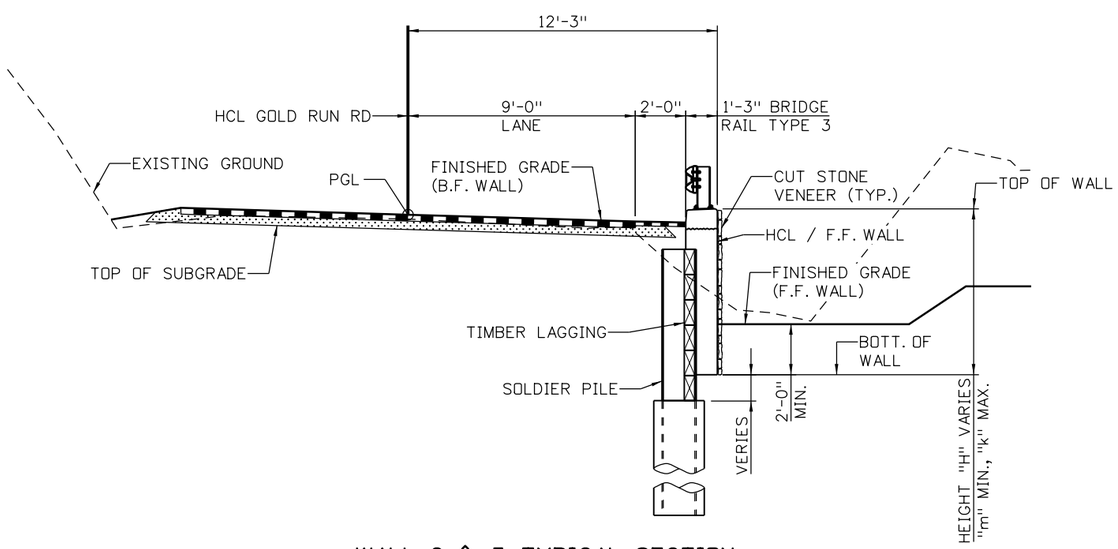
1. FOR FINISHED GRADING REFER TO DRAINAGE PLANS.

WALL LAYOUT TABLE		
WALL	"m"	"k"
1	6'-1"	6'-3"
2	3'-2"	7'-9"
3	3'-5"	8'-4"
4	12'-11"	13'-1"



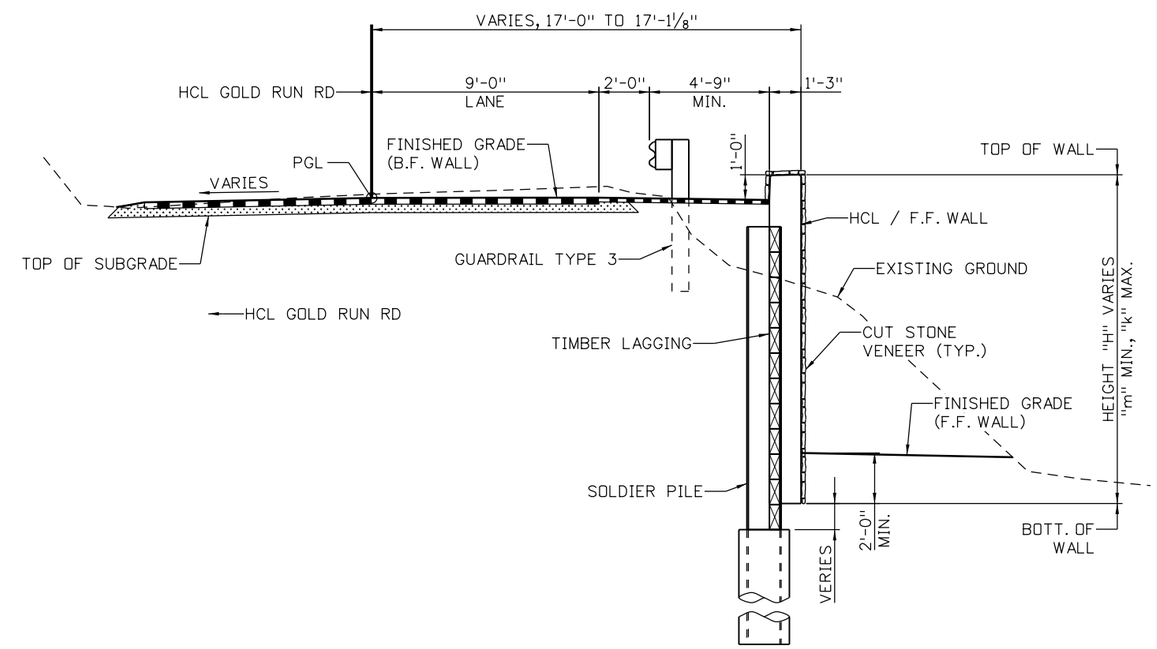
WALL 1 TYPICAL SECTION

LOOKING AHEAD ROADWAY STATION



WALL 2 & 3 TYPICAL SECTION

LOOKING AHEAD ROADWAY STATION



WALL 4 TYPICAL SECTION

LOOKING AHEAD ROADWAY STATION

3 0 3 6 FT
HORIZONTAL SCALE: 1"=6'

30% SET

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

Boulder County

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

Michael Baker INTERNATIONAL

DESIGNED:	CAD:	CHECKED:	DATE:
DLT	BMT		11/10/2015

GENERAL LAYOUT
RETAINING WALL
TYPICAL SECTIONS

PROJECT NO: 4043.SEPT12C34 | SHEET NO: 97

brett.terrell 4:45:37 PM pw:\\DCPWAPP1.bkr.mbakercorp.com:pwprod\Documents\Projects\Lakewood_Office\Boulder_County_Emergency_Transportation\T02\08_Sheet_Files\06_Structures\DGN\138200_WALL_xx.dgn