

BOULDER COUNTY TRANSPORTATION DEPARTMENT

ENGINEERING DIVISION

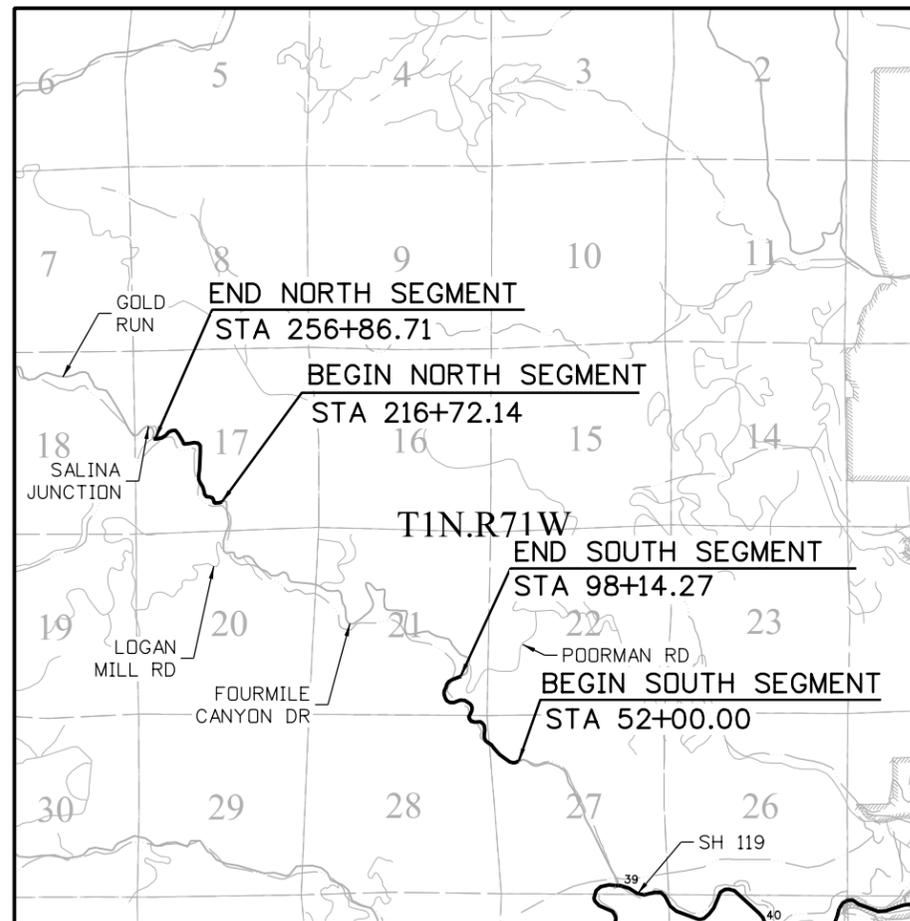
90% PLANS OF PROPOSED FOURMILE CANYON DRIVE CONSTRUCTION BOULDER CANYON DRIVE TO SALINA JUNCTION BOULDER COUNTY BOULDER COUNTY PROJECT NO. 4043.SEPT12C36 RD-118-001

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TABULATION OF LENGTH & DESIGN DATA		
STATION	FEET	
	ROADWAY	STRUCTURE
BEGIN SOUTH SEGMENT FOURMILE CANYON DR STA 52+00.00 (HCL S FOURMILE)	4,614.27	
END SOUTH SEGMENT FOURMILE CANYON DR STA 98+14.27 (HCL S FOURMILE)		
BEGIN NORTH SEGMENT FOURMILE CANYON DR STA 216+72.14 (HCL N FOURMILE)	4,014.57	
END NORTH SEGMENT FOURMILE CANYON DR STA 256+86.71 (HCL N FOURMILE)		
TOTAL	8,628.84	
SUMMARY OF PROJECT LENGTH	FEET	MILES
ROADWAY (NET LENGTH)	8,628.84	1.63
MAJOR STRUCTURE (NET LENGTH)	0.00	0.00
PROJECT GROSS LENGTH	8,628.84	1.63

DESIGN DATA	HCL S FOURMILE	HCL N FOURMILE
ROADWAY CLASSIFICATION	LOCAL/COLLECTOR	LOCAL/COLLECTOR
EXISTING SURFACE TYPE	PAVED	PAVED
MINIMUM RADIUS OF CURVE	90.00'	80.00'
MAXIMUM GRADE	8.06%	7.98%
MINIMUM S.S.D. HORIZONTAL	81'	81'
MINIMUM S.S.D. VERTICAL	196'	325'
DESIGN SPEED	25 MPH	25 MPH
CLEAR ZONE DISTANCE	7' TO 10'	7' TO 10'
MAXIMUM SUPERELEVATION (emax)	6%	6%



PROJECT LOCATION MAP

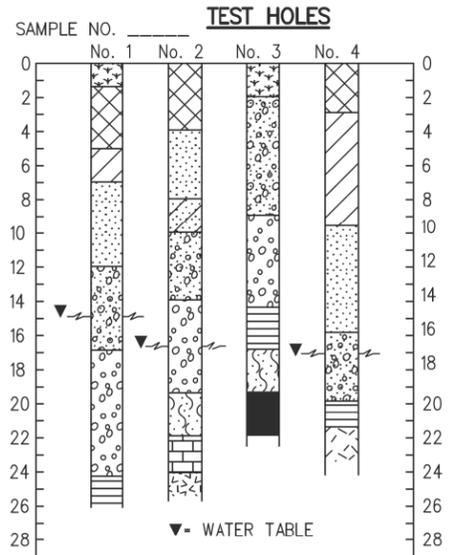


90% SET	 CALL UTILITY NOTIFICATION CENTER OF COLORADO CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES	REVISIONS: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 10%;">DATE</th> <th style="width: 85%;">REVISION DESCRIPTION:</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	REVISION DESCRIPTION:										 BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION Michael Baker INTERNATIONAL	DESIGNED: EAV CAD: EAV CHECKED: DTW DATE: 12/20/16	FOURMILE CANYON DR TITLE SHEET PROJECT NO: 4043.SEPT12C36 SHEET NO: 1
NO.	DATE	REVISION DESCRIPTION:															

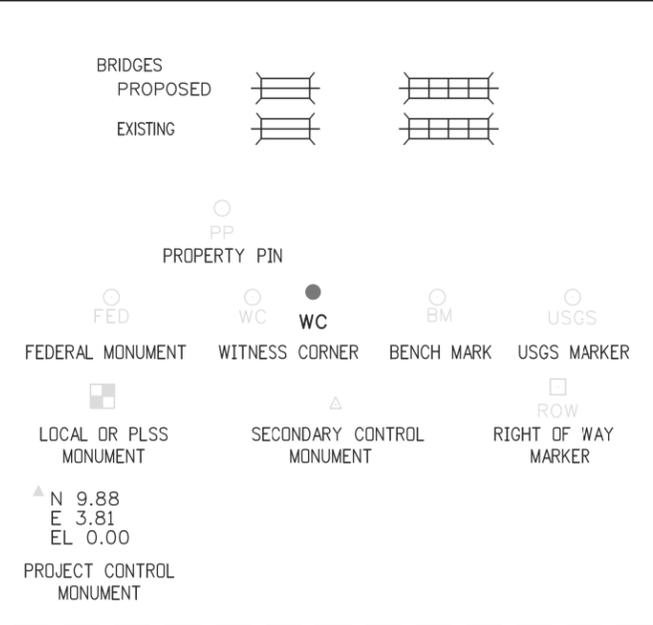
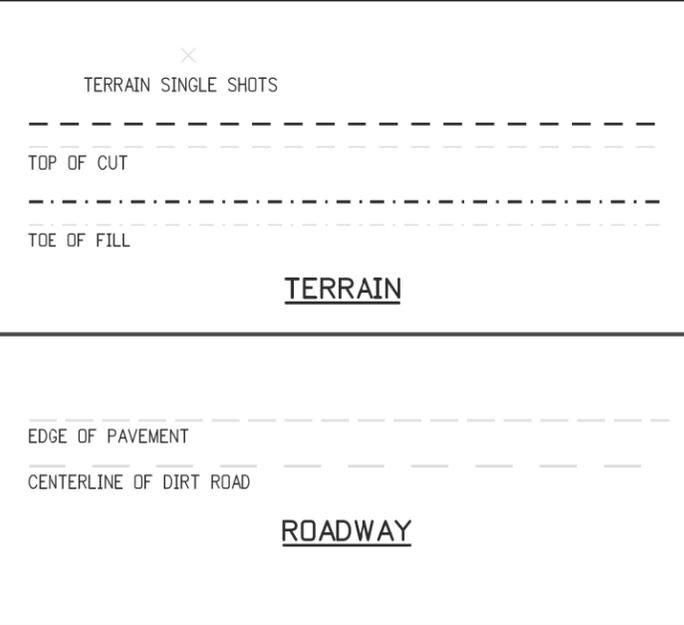
mary.monks 10:16:45 PM \\VDC\PI\P\APP\libr.mbakercorp.com\prod\Documents\Projects\Lakewood\Office\Boulder\County\Emergency_Transportation\T03\08_Sheet_1\Files\10_General_Sheets\UGN\Fourmile Title Sheet.dgn

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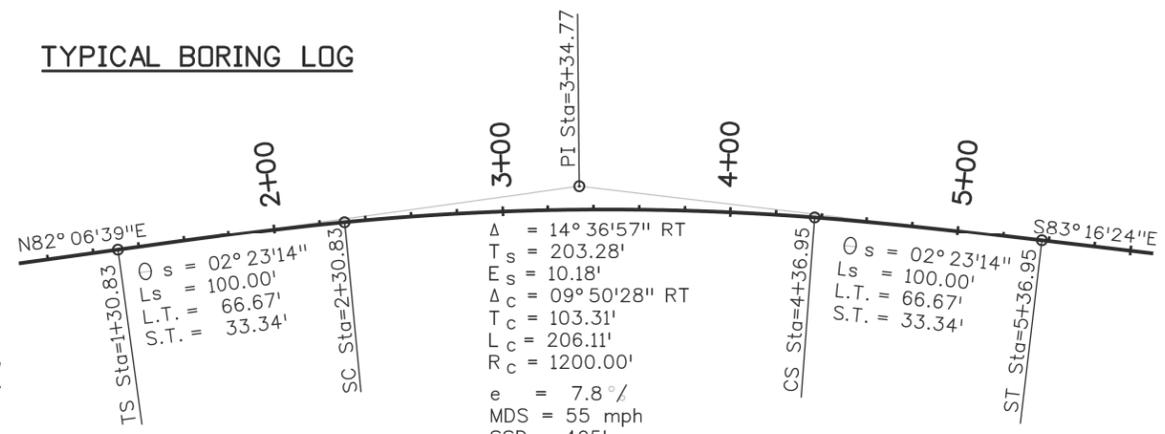
- LEGEND**
- TOPSOIL
 - OVERBURDEN
 - CLAY
 - SILT
 - SAND
 - GRAVEL
 - SHALE
 - LIMESTONE
 - SANDSTONE
 - SOLID ROCK (IGNEOUS)
 - SOLID ROCK (METAMORPHIC)
 - COAL
 - SANDY CLAY
- COMPOSITE MATERIALS ARE REPRESENTED BY COMBINATIONS OF THE ABOVE SYMBOLS, SUCH AS:



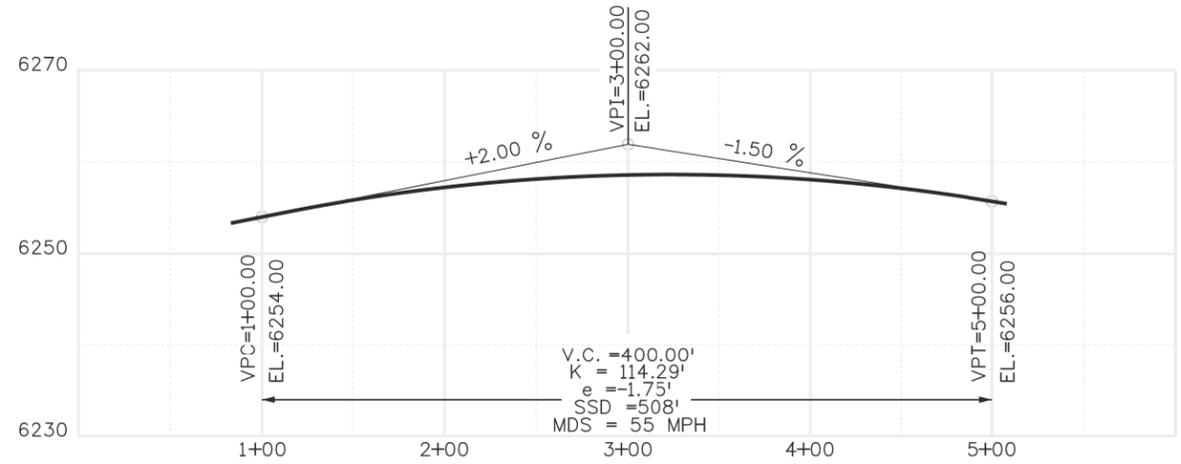
TYPICAL BORING LOG



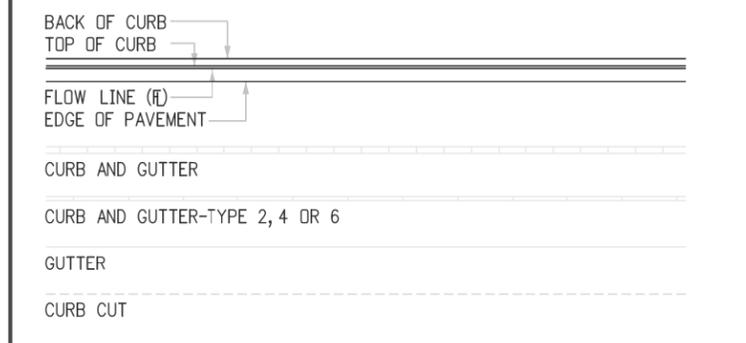
- GENERAL NOTES**
- EXISTING FEATURES SHOWN AS SCREENED WEIGHT (LIGHT GRAY SCALE), EXCEPT AS NOTED WITH THE WORD (EXISTING). PROPOSED OR NEW FEATURES SHOWN AS FULL WEIGHT WITHOUT SCREENING, EXCEPT AS NOTED WITH THE WORD (PROPOSED).
 - THESE SYMBOLS ARE INTENDED TO EXPLAIN THE VARIOUS TOPOGRAPHIC FEATURES INVOLVED ON THE DESIGN PLAN SHEETS WHICH ARE PREPARED AT VARIOUS SCALES. NOTES ARE ADDED WHERE NECESSARY TO CLARIFY THE SYMBOL. A LEGEND IS PROVIDED IN THE PLANS FOR SYMBOLS NOT SHOWN ON THE STANDARD SYMBOLS SHEETS.
 - GUARDRAIL, CURB AND GUTTER, ETC., ARE REPRESENTED BY A SYMBOL WITH TYPE GIVEN BY NOTE.



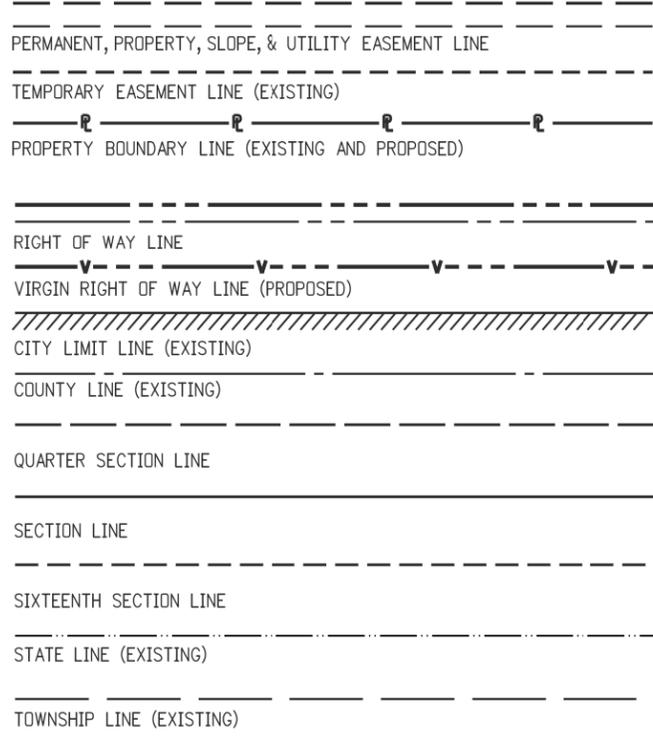
TYPICAL HORIZONTAL CURVE



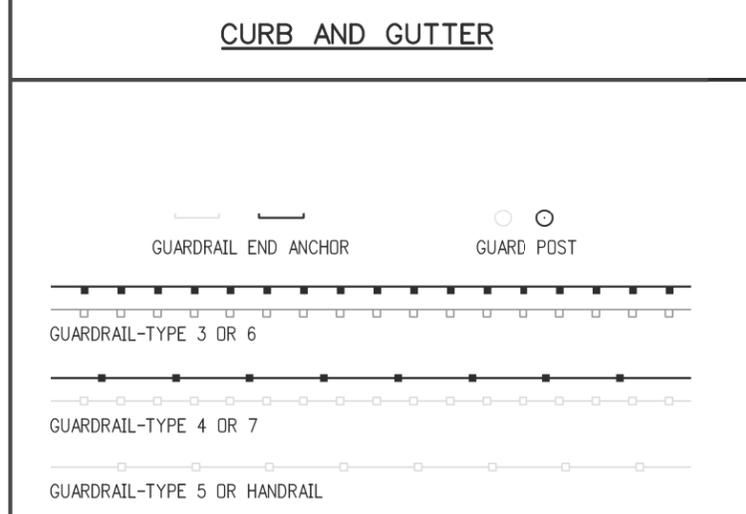
TYPICAL VERTICAL CURVE



CURB AND GUTTER



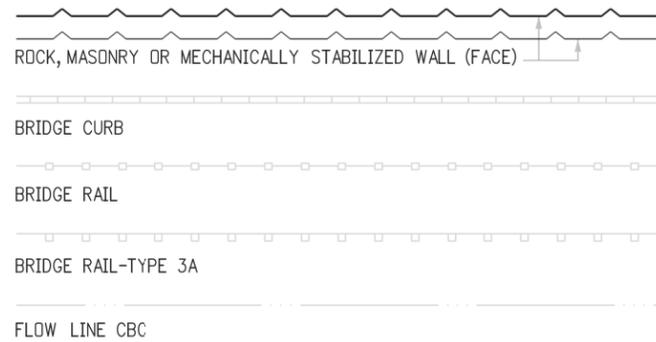
SURVEY/ROW



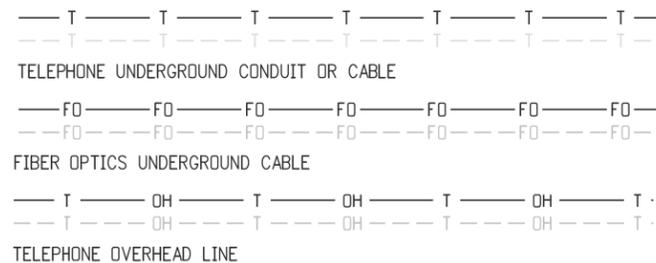
GUARDRAIL

90% SET	<p>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</p>	REVISIONS:	NO.	DATE	REVISION DESCRIPTION:	<p>BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION</p> <p>Michael Baker INTERNATIONAL</p>	DESIGNED:	CAD:	CHECKED:	DATE:	<p>FOURMILE CANYON DR STANDARD SYMBOLS (1 OF 2)</p> <p>PROJECT NO: 4043.SEPT12C36 SHEET NO: 3</p>
							MEM	EAV	DTW	12/20/16	

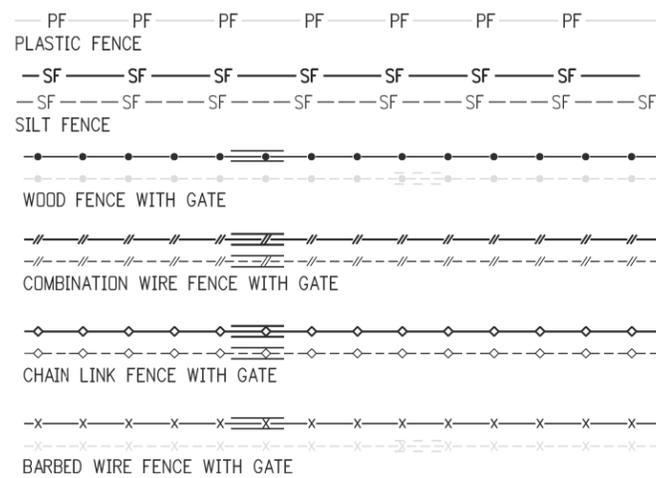
Mary_Monks 12/18/2016 PM 12:11:49 PM \\DCP\WP\libr.mbakercorp.com\p\prod\Documents\Projects\Lakewood\Office\Boulder_County\Emergency_Transportation\T03\08_Sheet_1\Files\10_General_Sheets\UGM\Standard_Symbols-2.dgn



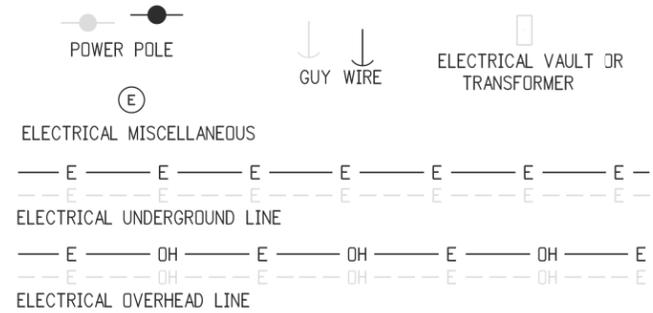
STRUCTURE



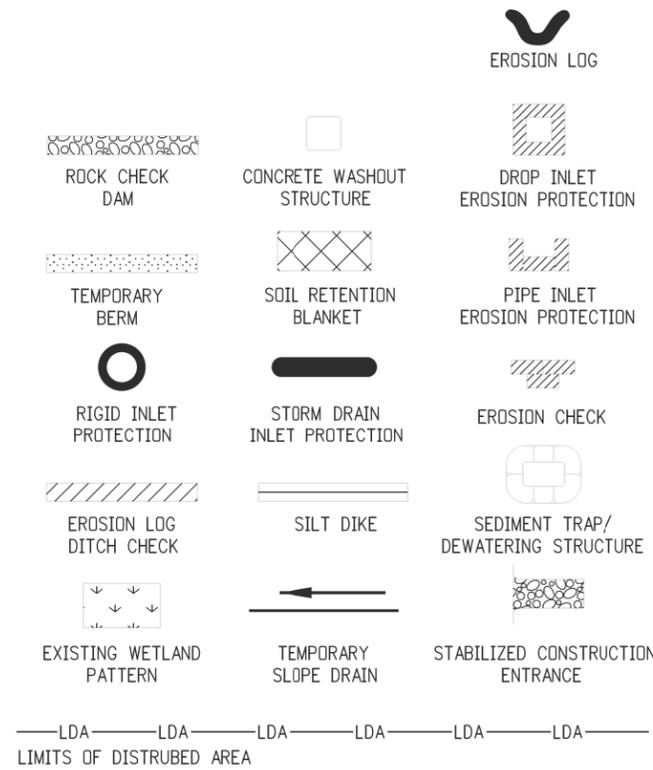
TELEPHONE



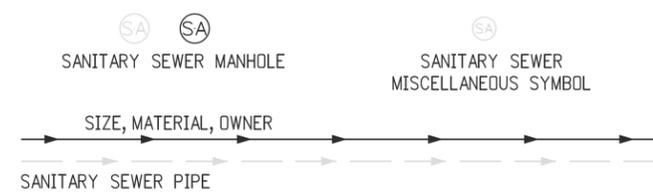
FENCE



ELECTRICAL



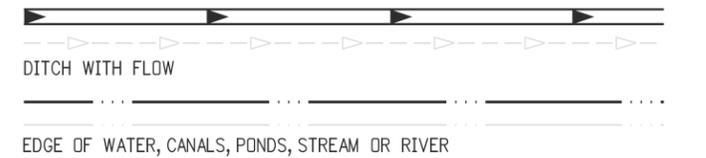
SANITARY SEWER



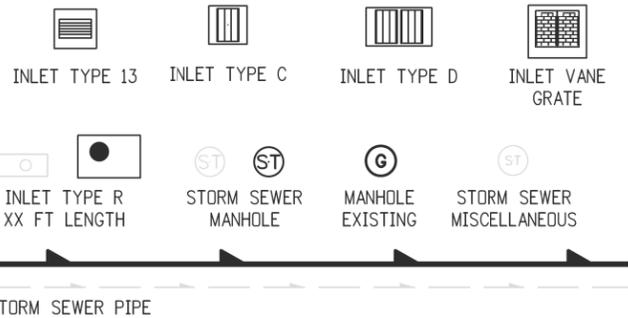
PIPES



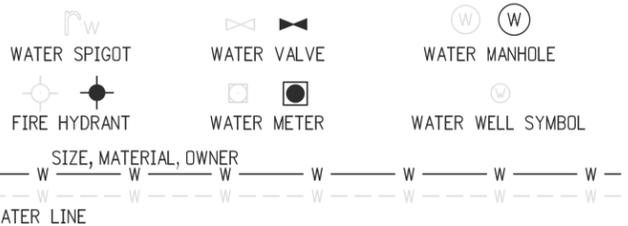
TRAFFIC CONTROL



DITCHES AND WATERWAY



STORM SEWER

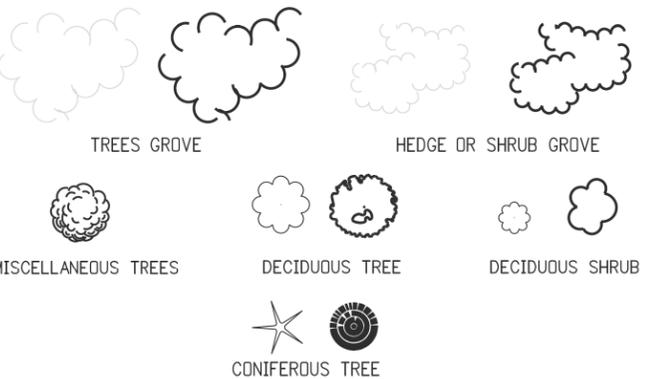


WATER



LIGHTING

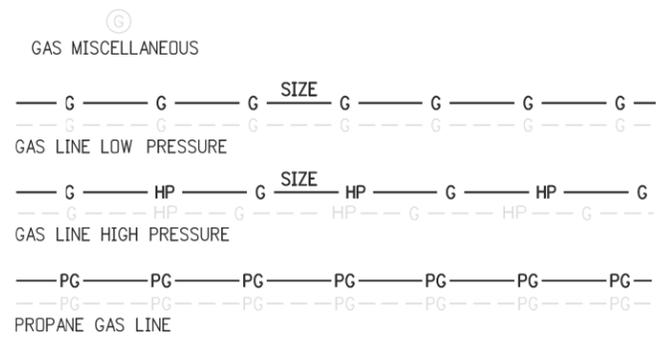
BUILDING STRUCTURES



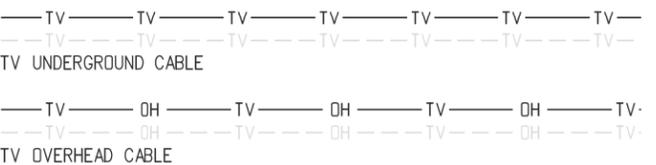
LANDSCAPING



TRAFFIC STRIPING



GAS



TELEVISION

90% 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
Michael Baker INTERNATIONAL
 DESIGNED: MEM CAD: EAV CHECKED: DTW DATE: 12/20/16

FOURMILE CANYON DR
STANDARD SYMBOLS
(2 OF 2)
 PROJECT NO: 4043.SEPT12C36 SHEET NO: 4

GENERAL NOTES:

1. THE INTENT OF THIS CONTRACT IS TO RESTORE THE AREA AFFECTED BY THE 2013 FLOOD TO PRE- FLOOD CONDITIONS AND AS MODIFIED BY THESE PLANS.
2. PROJECT BENCHMARK: ALL ELEVATIONS SHOWN ON THESE PLANS ARE REFERENCED TO THE PROJECT BENCHMARKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING THE PROJECT BENCHMARKS AND OTHER SURVEY MONUMENTS. DAMAGED MONUMENTS SHALL BE REESTABLISHED AND REPLACED BY THE LICENSED LAND SURVEYOR AT THE EXPENSE OF THE PARTY RESPONSIBLE FOR THE DAMAGE.
3. GEOTECHNICAL INFORMATION FOR THIS PROJECT IS BASED UPON THE GEOTECHNICAL INVESTIGATION REPORT BY YEH AND ASSOCIATES, DATED JULY 8, 2014. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS.
4. FOR PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:
 HOT MIX ASPHALT.....@ 110 LBS./SQ.YD./INCH
 AGGREGATE BASE COURSE CLASS 6.....@ 133 LBS./CU.FT.
 TACK COAT DILUTED EMULSIFIED ASPHALT.....@ 0.10 GALS/SQ.YD. (DILUTED)
5. BOULDER COUNTY SHALL OBTAIN THE BOULDER COUNTY FLOODPLAIN DEVELOPMENT PERMIT. THE CONTRACTOR SHALL OBTAIN, AT THEIR EXPENSE, ALL OTHER PERMITS REQUIRED TO PERFORM THE PROPOSED WORK PRIOR TO CONSTRUCTION.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2011; AND AS SUBSEQUENTLY REVISED; THE CDDT STANDARD PLANS M&S STANDARDS DATED JULY, 2012 AND REVISED; AND THE BOULDER COUNTY MULTI-MODAL TRANSPORTATION STANDARDS; AND THE BOULDER COUNTY STORM DRAINAGE CRITERIA MANUAL.
7. THE CONTRACTOR SHALL HAVE: ONE (1) SIGNED COPY OF THE PLANS ACCEPTED BY THE BOULDER COUNTY ENGINEER, ONE (1) COPY OF THE CONSTRUCTION SPECIFICATIONS FOR THE PROJECT, ONE (1) COPY OF THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD PLANS (M&S STANDARDS), AND ONE (1) COPY OF THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AT THE JOB SITE AT ALL TIMES.
8. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH BOULDER COUNTY AT LEAST 2 WEEKS PRIOR TO START OF CONSTRUCTION. THOSE IN ATTENDANCE SHALL INCLUDE ENGINEER, CONTRACTOR AND ANY OTHER AFFECTED AGENCIES. CONSTRUCTION PLANS WILL BE DISTRIBUTED AT THE PRE-CONSTRUCTION MEETING.
9. CONTRACTORS NEED TO USE THE DESIGN PLANS IN CONJUNCTION WITH THE DIGITAL TERRAIN MODEL (DTM). IN THE EVENT OF A CONFLICT, DESIGN PLANS SHALL ALWAYS GOVERN OVER DATA FROM THE DTM.
10. IN THE EVENT THE CONTRACTOR ALLOWS, AUTHORIZES, APPROVES OR CONSTRUCTS ITEMS THAT DIFFER FROM THE APPROVED PLANS, SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, WITHOUT WRITTEN APPROVAL BY THE ENGINEER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY LIABILITY ARISING FROM SUCH CHANGES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, AND ANY OTHER NEEDED ACTION TO PROTECT THE LIFE, HEALTH AND SAFETY OF THE PUBLIC AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE JOB SITE CONDITIONS THROUGHOUT THE DURATION OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROTECTION OF PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED ONLY TO WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER, THE ENGINEER AND BOULDER COUNTY HARMLESS FOR ANY AND ALL LIABILITY, IN CONNECTION WITH THE PERFORMANCE OF WORK, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER, THE ENGINEER OR BOULDER COUNTY.
13. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING IN THE EVENT OF A DISCREPANCY BETWEEN CRITERIA PRIOR TO CONSTRUCTION.

GENERAL NOTES CONT'D:

14. UNLESS OTHERWISE DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL CONTAIN ALL WORK WITHIN THE RIGHT OF WAY AND TEMPORARY OR PERMANENT EASEMENTS AS SHOWN ON THE PLANS AND CROSS SECTIONS (ROW SHOWN ON PLANS IS APPROXIMATE AND SHOULD BE VERIFIED IN THE FIELD). ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR AT CONTRACTOR'S OWN EXPENSE. CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL CONSTRUCTION SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS.
15. UNLESS OTHERWISE INDICATED ON THE PLANS, THE DECISION TO BRACE, SHORE AND/OR SHEET PILE FOR STRUCTURE EXCAVATION SHALL BE ENTIRELY THE CONTRACTOR'S RESPONSIBILITY AND WILL BE INCLUDED IN THE COST OF LABOR. HOWEVER, IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT THE TRENCH WALLS ARE NOT PROPERLY SUPPORTED; THE ENGINEER MAY ORDER THE PLACEMENT OF ADDITIONAL SUPPORTS BY AND AT THE EXPENSE OF THE CONTRACTOR. COMPLIANCE WITH SUCH ORDER SHALL NOT RELIEVE OR RELEASE THE CONTRACTOR FROM RESPONSIBILITIES FOR THE SAFETY OF THE WORK. ALL WORK SHALL BE IN ACCORDANCE WITH ALL STATE AND FEDERAL OSHA REGULATIONS. THE CONTRACTOR SHALL TAKE NOTE THAT EXISTING UTILITIES NEAR THE PROPOSED EXCAVATION SHALL BE PROTECTED DURING CONSTRUCTION. TEMPORARY SHORING IS RECOMMENDED TO LIMIT TRENCH WIDTH AND POTENTIAL DAMAGE TO EXISTING UTILITIES.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF ALL SURFACE AND SUBSURFACE DRAINAGE AND GROUNDWATER ENTERING THE PROJECT AREA. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING DEWATERING IF NEEDED AT NO ADDITIONAL COSTS TO THE PROJECT. DEWATERING METHODS SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION DEWATERING PERMIT FOR ALL CONSTRUCTION ACTIVITIES.
17. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT (1-800-922-1987) OR 811 FOR LOCATION OF UNDERGROUND UTILITIES AT LEAST 48 HOURS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL NOTIFY OTHER APPLICABLE UTILITY COMPANIES AS WELL TO OBTAIN FIELD LOCATES OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
18. LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN ON THE PLANS WERE TAKEN FROM THE RECORDS OF THE CONTROLLING AGENCIES OR FROM AGENCY MARKINGS IN THE FIELD. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR COMPLETENESS OR ACCURACY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND/OR LOCATION OF ALL UNDERGROUND UTILITIES AND PARTICIPATE IN THE RESOLUTION OF ANY CONFLICTS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
19. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES BY USING EVERY REASONABLE MEANS, INCLUDING FIELD LOCATION OF THE UTILITY. REPAIR OF DAMAGE TO THE EXISTING UTILITIES DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL DOCUMENT THE CONDITION OF EXISTING UTILITIES (VISIBLE FACILITIES) WITH THE ENGINEER AND UTILITY REPRESENTATIVES PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR MUST KEEP ALL EQUIPMENT OPERATION A MINIMUM OF 10 FEET FROM EXISTING OVERHEAD ELECTRIC LINES. IF THIS IS NOT FEASIBLE, OR CONDITIONS WARRANT ADDITIONAL PROTECTION OR POLE STABILIZATION, THE CONTRACTOR MUST CONTACT THE UTILITY OWNER TO ARRANGE PROTECTIVE COVERING AND POLE STABILIZATION. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
21. ALL EXISTING UTILITY FACILITIES TO REMAIN IN PLACE WITHIN THE CONSTRUCTION LIMITS SHALL BE PROTECTED BY THE CONTRACTOR.
22. THE SULFATE EXPOSURE CLASS FOR THIS PROJECT IS CLASS 0. SEE SECTION 601 - STRUCTURAL CONCRETE.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING NEARBY PUBLIC OR PRIVATE STREETS OF MUD AND DEBRIS, DUE TO CONSTRUCTION ACTIVITIES, ON A DAILY BASIS OR AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF OTHER WORK.
24. IT IS ANTICIPATED THAT ONE (1) LUMP SUM (LS) ITEM 625 CONSTRUCTION SURVEYING SHALL BE REQUIRED FOR THIS PROJECT IN ACCORDANCE WITH SPECIFICATIONS 625 AND 629. ALONG WITH OTHER DUTIES SPECIFIED IN THE PLANS AND SPECIFICATIONS, THE SURVEYOR SHALL STAKE ALL EASEMENTS AND BOULDER COUNTY RIGHT OF WAY FIRST.

GENERAL NOTES CONT'D:

25. STATIONING LATH WILL BE REMOVED AS DIRECTED AND AT NO ADDITIONAL COST TO THE PROJECT.
26. IT IS ANTICIPATED THAT PUBLIC INFORMATION SERVICES WILL BE REQUIRED FOR THIS PROJECT, AND WILL BE PROVIDED BY BOTH THE CONTRACTOR AND THE COUNTY.
27. THE FOLLOWING ITEMS ARE REQUIRED:
 ITEM NO. 201-00000 CLEARING AND GRUBBING 1 (LUMP SUM)
 ITEM NO. 203-01100 PROOF ROLLING 20 (HOUR)
 ITEM NO. 203-01597 POTHOLING 10 (HOUR)
 ITEM NO. 217-00020 HERBICIDE TREATMENT 16 (HOUR)
 ITEM NO. 240-00000 WILDLIFE BIOLOGIST 10 (HOUR)
 ITEM NO. 240-00010 REMOVAL OF NESTS 20 (HOUR)
 ITEM NO. 620-00002 FIELD OFFICE (CLASS 2) 1 (EACH)
 ITEM NO. 620-00020 SANITARY FACILITY 1 (EACH)
 ITEM NO. 626-00000 MOBILIZATION 1 (LUMP SUM)
 ITEM NO. 626-01000 PUBLIC INFORMATION SERVICES 1 (LUMP SUM)

 MAINTENANCE OF THE SANITARY FACILITY SHALL INCLUDE CLEANING AT LEAST TWICE A WEEK.
- NOTE: ALL ITEMS LISTED AND DESCRIBED HEREIN AS REQUIRED FOR THE COMPLETION OF THE PROJECT SHALL BE PLACED AS DIRECTED BY THE PROJECT ENGINEER.
28. THE CONTRACTOR SHALL REMOVE DEBRIS AS NEEDED FOR CONSTRUCTION OF THE PROJECT. ALL WORK ASSOCIATED WITH THIS CONSTRUCTION ACTIVITY WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE CLEARING AND GRUBBING IN ITEM 201.
29. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT THE EXISTING VEGETATION INSIDE AND OUTSIDE THE PROJECT LIMITS. THE CONTRACTOR SHALL FENCE ALL VEGETATION TO BE UNDISTURBED PRIOR TO COMMENCING WORK. ANY COST INCURRED FOR DAMAGE OF SUCH MATERIAL DUE TO CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

PAVEMENT CONSTRUCTION NOTES:

1. DILUTED EMULSIFIED ASPHALT FOR THE TACK COAT SHALL CONSIST OF 1 PART WATER AND 1 PART EMULSIFIED ASPHALT. RATES OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION. TACK COAT SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
2. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER. THIS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF CONSTRUCTION.
3. ANY LAYER OF HOT MIX ASPHALT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.
4. ASPHALT JOINTS SHALL FALL ON LANE LINES, SHOULDER LINES OR MEDIAN LINES, EXCEPT WHERE STATED IN THE PLANS.
5. PRIOR TO PLACING HOT MIX ASPHALT, THE PAVED SURFACE SHALL BE SWEEPED AND CLEANED. THIS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE HOT MIX ASPHALT PAVEMENT ITEMS.
6. THE CONTRACTOR MAY USE AN EXPOSED LONGITUDINAL JOINT FOR A MAXIMUM OF 1 DAY. THE JOINT SHALL CONSIST OF A VERTICAL FACE 1 INCH DEEP, AND AT THE BOTTOM OF THE VERTICAL FACE, A 3:1 SLOPE TO EXISTING PAVEMENT (OR SUBGRADE). THE MAXIMUM DEPTH OF THE 3:1 SLOPE SHALL BE 2 INCHES. AT THE END OF THE FOLLOWING DAY, PLACEMENT OF THE HMA ON THE ADJACENT LANE IS REQUIRED.
7. THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAVER:
 A. A SKI TYPE DEVICE AT LEAST 30 FEET IN LENGTH
 B. SHORT SKI OR SHOE
 C. 1500 FEET OF CONTROL LINE AND STAKES
8. EMULSIFIED ASPHALT, IF REQUIRED, WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

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90% 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: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 5%;">DATE</th> <th style="width: 90%;">REVISION DESCRIPTION:</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	REVISION DESCRIPTION:											BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION 	DESIGNED: MEM CAD: EAV CHECKED: DTW DATE: 12/20/16	FOURMILE CANYON DR GENERAL NOTES (1 OF 3) PROJECT NO: 4043.SEPT12C36 SHEET NO: 5
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EARTHWORK/GRADING NOTES:

- DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:
BASES OF CUTS AND FILLS - 1 FOOT
FULL DEPTH OF ALL EMBANKMENTS ON THIS PROJECT.
- EXCAVATION REQUIRED FOR COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED AS SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.
- GRADING WILL BE INSPECTED BY AN OWNER'S REPRESENTATIVE DURING ALL EXCAVATIONS TO EVALUATE CHANGING CONDITIONS.
- TYPE OF COMPACTION FOR THIS PROJECT WILL BE AASHTO T-180. WATER FOR COMPACTION WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

DRAINAGE NOTES:

- ALL PIPE LENGTHS ARE GIVEN AND PAID FOR IN THE HORIZONTAL DIMENSION, AND HAVE BEEN ROUNDED TO THE NEAREST FOOT. THE CONTRACTOR SHALL SUPPLY THE ADDITIONAL LENGTH OF PIPE TO ACCOUNT FOR SLOPES AND INCLUDED IN THE COST OF THE WORK. THE PIPE LENGTHS PROVIDED DO NOT INCLUDE THE LENGTH OF FLARED END SECTIONS.
- ALL DOWNSTREAM CONCRETE FLARED END SECTIONS MUST BE INSTALLED WITH JOINT FASTENERS. IN ADDITION, JOINT FASTENERS SHALL BE INSTALLED ON ALL PIPE JOINTS WITHIN 15-FEET OF THE DOWNSTREAM END OF ALL CULVERTS.
- ALL PIPE MATERIAL SHALL BE REINFORCED CONCRETE PIPE (RCP) UNLESS OTHERWISE SPECIFIED. STRENGTH CLASS OF ALL RCP SHALL BE IN ACCORDANCE WITH CDDT M-603-2 AND SECTION 706.02 OF THE STANDARD SPECIFICATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING AND DIVERSION INCLUDING, BUT NOT LIMITED TO, LIVE STREAM FLOW AND GROUNDWATER. THE CONTRACTOR SHALL OBTAIN THE APPLICABLE DEWATERING PERMIT FOR CONSTRUCTION AT THE SITE. THIS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK. THE CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS.
- THE CONTRACTOR IS REQUIRED TO KEEP EXISTING CULVERTS FUNCTIONAL AND MAINTAIN PROPER STORMWATER CONVEYANCE UNTIL THE PROPOSED DRAINAGE FACILITIES ARE CONSTRUCTED AND FUNCTIONING PROPERLY. EXISTING CULVERT LOCATIONS FOR REMOVAL AND/OR ABANDONMENT ARE CALLED OUT ON THE PLANS. EXISTING DRAINAGE FACILITIES TO REMAIN SHALL BE PROTECTED IN PLACE, UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL PROVIDE SIGNED AND SEALED SHOP DRAWINGS FOR ALL NON CDDT/BOULDER COUNTY STANDARD DRAINAGE STRUCTURES FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE STRUCTURE.
- THE INFORMATION PROVIDED ON THE DRAINAGE PLAN SET REPRESENTS THE FINAL STORM DRAIN SYSTEM AND CULVERTS.
- OTHER UTILITIES MAY BE CROSSED OR OTHERWISE IMPACT DRAINAGE CONSTRUCTION. CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN PLACE. UNLESS NOTED OTHERWISE, PROTECTION OF EXISTING UTILITIES, INCLUDING INCIDENTAL SHORING, WILL NOT BE MEASURED OR PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- CONCRETE TOE WALLS SHALL BE REQUIRED AS INDICATED IN THE PLANS. TOE WALLS WILL NOT BE MEASURED OR PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING PIPE SIZES, LENGTHS AND LOCATIONS PRIOR TO ORDERING AND DELIVERY OF THE PIPE MATERIAL TO THE SITE.

SIGNING AND PAVEMENT MARKING NOTES:

POSTS:

- SIGN POSTS SHALL BE 2"x2"x10" (14 GAUGE) GALVANIZED PERFORATED SQUARE STEEL TUBING. SIGN POST BASES SHALL BE 2 1/4" x 2 1/4" (12 GAUGE, 3' IN LENGTH) GALVANIZED PERFORATED SQUARE STEEL TUBING.
- SIGN POST BASES SHALL BE 2 1/4" x 2 1/4" (12 GAUGE, 3' IN LENGTH) GALVANIZED PERFORATED SQUARE STEEL TUBING.
- BASES SHALL BE INCLUDED IN THE COST FOR SIGN POSTS. TOP OF BASES SHALL BE 3"± ABOVE FINISHED GRADE. THE SIGN POST SHALL BE INSTALLED 4" IN TO THE BASE AND BOLTED BOTH WAYS.

SIGNING & PAVEMENT MARKING NOTES CONT'D:

- SIGN POST LOCATIONS SHALL BE APPROVED BY THE ENGINEER AND ROAD MAINTENANCE SIGN SHOP REPRESENTATIVE PRIOR TO INSTALLATION.
- POST LOCATIONS IN CONCRETE MEDIAN OR ISLANDS SHALL HAVE 6" PVC INSTALLED PRIOR TO POURING CONCRETE.

SIGNS:

- THICKNESS OF ALL SIGN PANELS SHALL BE 0.100".

PAVEMENT MARKINGS:

- FINAL PAVEMENT STRIPING SHALL BE EPOXY PER CDDT STANDARD SPECIFICATIONS.
- ALL STOP LINES, CROSSWALKS AND PAVEMENT MARKING SYMBOLS SHALL BE WHITE, PREFORMED THERMOPLASTIC, PREMARK OR EQUIVALENT.
- STOP LINES SHALL BE 2' WIDE; CROSSWALKS SHALL BE 2' x 9', UNLESS OTHERWISE NOTED.
- PAVEMENT MARKING ARROWS SHALL BE ELONGATED.
- BICYCLE DETECTOR PAVEMENT MARKINGS SHALL BE PER MUTCD FIG. 9C-7 B WITH HELMETED BICYCLE SYMBOL.
- PAVEMENT MARKINGS FOR BIKE LANES SHALL BE PER MUTCD FIG. 9C-3 B WITH HELMETED BICYCLE SYMBOL.
- PREFORMED THERMOPLASTIC INSTALLATION ON CONCRETE SHALL HAVE THE CONCRETE CURE REMOVED PRIOR TO INSTALLATION OR A BONDING AGENT APPLIED TO THE CONCRETE BEFORE INSTALLATION. INSTALLATION SHALL FOLLOW THE MANUFACTURER'S SPECIFICATIONS.

ENVIRONMENTAL NOTES:

- THE CONTRACTOR SHALL COMPLY WITH THE MIGRATORY BIRD TREATY ACT (MBTA) AND THE BALD AND GOLDEN EAGLE PROTECTION ACT (BGEPA), AT ALL TIMES, INCLUDING CONDUCTING PRE-CONSTRUCTION SURVEYS FOR NESTING BIRDS SET FORTH BY U.S. FISH AND WILDLIFE SERVICE (USFWS). THE CONTRACTOR SHALL SCHEDULE WORK TO AVOID TAKING (PURSUE, HUNT, TAKE, CAPTURE OR KILL; ATTEMPT TO TAKE, CAPTURE, KILL OR POSSESS) MIGRATORY BIRDS PROTECTED BY THE MBTA AND BGEPA. THE INCIDENTAL TAKING OF A MIGRATORY BIRD SHALL BE REPORTED TO USFWS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PENALTIES LEVIED BY THE USFWS FOR THE TAKING OF A MIGRATORY BIRD. THE CONTRACTOR SHALL RETAIN A QUALIFIED WILDLIFE BIOLOGIST, WITH A MINIMUM OF THREE YEARS^{5/32} EXPERIENCE CONDUCTING MIGRATORY BIRD SURVEYS, TO IMPLEMENT THE REQUIREMENTS OF THE MBTA AND BGEPA. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION OF THE BIOLOGIST'S EDUCATION AND EXPERIENCE TO THE ENGINEER FOR ACCEPTANCE PRIOR TO COMMENCEMENT OF ANY ASSOCIATED WORK. A BIOLOGIST WITH LESS EXPERIENCE MAY BE USED BY THE CONTRACTOR SUBJECT TO THE ACCEPTANCE OF THE ENGINEER BASED ON REVIEW OF THE BIOLOGIST'S QUALIFICATIONS. DOCUMENTATION OF THE NEST SURVEYS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- THE WILDLIFE BIOLOGIST RETAINED BY THE CONTRACTOR SHALL COMPLETE RAPTOR NEST SURVEYS TO EVALUATE THE PRESENCE OF ACTIVE RAPTOR NESTS WITHIN THE STUDY AREA. IF AN ACTIVE NEST IS LOCATED IN OR NEAR THE STUDY AREA, THE USFWS AND CPW SHALL BE CONTACTED REGARDING USE OF SEASONAL BUFFERS TO PREVENT DISTURBANCE TO NESTING BIRDS DURING CONSTRUCTION.
- TREE TRIMMING AND/OR REMOVAL ACTIVITIES SHALL BE TIMED TO AVOID THE BREEDING SEASON AND TO AVOID IMPACTS TO ACTIVE BIRD NESTS. IF REQUIRED, TREES SHALL BE CLEARED PRIOR TO FEBRUARY 15 OR AFTER AUGUST 31 TO PREVENT RAPTORS (AND OTHER BIRDS) FROM NESTING ON-SITE AND TO AVOID THE TAKING OF, OR DISTURBANCE TO, ACTIVE NESTS DURING THE BREEDING SEASON. WHERE WORK IS TO BE COMPLETED DURING THE NESTING SEASON, MIGRATORY BIRD SURVEYS WILL BE REQUIRED.
- CLEARING AND GRUBBING OF VEGETATION THAT MAY DISTURB GROUND NESTING BIRDS SHALL BE COMPLETED BEFORE BIRDS BEGIN TO NEST OR AFTER THE YOUNG HAVE FLEDGED. IF WORK ACTIVITIES ARE PLANNED BETWEEN APRIL 1 AND AUGUST 3, VEGETATION SHALL BE REMOVED AND/OR TRIMMED TO A HEIGHT OF SIX (6) INCHES OR LESS PRIOR TO APRIL 1. ONCE VEGETATION HAS BEEN REMOVED AND/OR TRIMMED, APPROPRIATE MEASURES, I.E., REPEATED MOWING/TRIMMING, SHALL BE IMPLEMENTED TO ASSURE VEGETATION DOES NOT GROW TO MORE THAN SIX (6) INCHES. FAILURE TO MAINTAIN VEGETATION HEIGHT OF SIX (6) INCHES OR LESS MAY POSTPONE PROJECT CONSTRUCTION.
- THE FOLLOWING WEED MANAGEMENT STRATEGIES WILL BE IMPLEMENTED:
 - VEHICLES SHALL BE INSPECTED BEFORE THEY ARE USED FOR CONSTRUCTION TO ENSURE THAT THEY ARE FREE OF SOIL AND DEBRIS CAPABLE OF TRANSPORTING NOXIOUS WEED SEEDS OR ROOTS. HEAVY CONSTRUCTION EQUIPMENT SHALL BE CLEANED AND POWER WASHED PRIOR TO USE ON THE PROJECT SITE AND BEFORE LEAVING THE SITE.

ENVIRONMENTAL NOTES CONT'D:

- MATERIAL FOR EROSION BALES, MULCHING, OR COMPOST SHALL CONSIST OF CERTIFIED WEED-FREE MATERIAL. COLORADO CERTIFIED WEED-FREE STRAW IS IDENTIFIED BY BLUE AND ORANGE TWINE BINDING THE BALES (CDDT STANDARD SPECIFICATIONS, PAGE 190). MATERIALS FOR MULCHING SHALL CONSIST OF CERTIFIED WEED-FREE STRAW OF OATS, BARLEY, WHEAT OR TRITICALE CERTIFIED UNDER THE CDA WEED-FREE FORAGE CERTIFICATION PROGRAM (CDDT STANDARD SPECIFICATIONS, PAGE 231). IN ADDITION, CERTIFIED WEED-FREE STRAW SHALL BE FREE OF CHEATGRASS.
 - FERTILIZER WILL NOT BE USED IN SEEDED AREAS BECAUSE IT CAN ENHANCE THE GROWTH OF NOXIOUS WEEDS AT THE EXPENSE OF DESIRED VEGETATION.
 - ONLY CERTIFIED WEED FREE TOPSOIL WILL BE IMPORTED DUE TO THE POTENTIAL FOR SPREAD OF NOXIOUS WEEDS.
 - ADDITIONALLY THE PROJECT PROPONENT SHALL WORK WITH THE COUNTY WEED COORDINATOR (STEVE SAUER 303-678-6110) TO DEVELOP A LONG TERM PLAN FOR SUPPRESSING NOXIOUS WEEDS THAT MAY SPROUT AT THE CONSTRUCTION SITE.
- AQUATIC INVASIVE SPECIES MAY BE SPREAD BY CONSTRUCTION EQUIPMENT. SPECIFIC BMPs DEVELOPED BY CPW SHALL BE OBSERVED WHERE PRACTICABLE TO MINIMIZE THE RISK OF SPREADING OF NEW ZEALAND MUD SNAILS, ZEBRA MUSSELS, QUAGGA MUSSELS, WHIRLING DISEASE, AND ANY OTHER AQUATIC INVASIVE SPECIES. SPECIFICALLY, IF HEAVY EQUIPMENT IS USED THAT WAS PREVIOUSLY WORKING IN ANOTHER STREAM, RIVER, LAKE, POND, OR WETLAND ONE OF THE FOLLOWING PROCEDURES WILL BE NECESSARY:
 - REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND SPRAY/SOAK EQUIPMENT WITH A SOLUTION OF COMMERCIAL GRADE QUATERNARY AMMONIUM DISINFECTANT COMPOUND CONTAINING AT LEAST 8.0% ACTIVE INGREDIENT DILUTED IN SOLUTION TO ACHIEVE AT LEAST 0.8% CONCENTRATION (ROUGHLY 12 OUNCES OF PRODUCT PER GALLON OF WATER). SPECIFICALLY, A 1:15 SOLUTION OF QUAT 4 OR SUPER HDQ NEUTRAL INSTITUTIONAL CLEANER AND WATER CAN BE USED FOR EFFECTIVE TREATMENT. TREATED EQUIPMENT SHOULD BE KEPT MOIST FOR AT LEAST 10 MINUTES, MANAGING RINSATE AS A SOLID WASTE IN ACCORDANCE WITH LOCAL, COUNTY, STATE, OR FEDERAL REGULATIONS, OR
 - REMOVE ALL MUD AND DEBRIS FROM EQUIPMENT (TRACKS, TURRETS, BUCKETS, DRAGS, TEETH, ETC.) AND SPRAY/SOAK EQUIPMENT WITH WATER HOTTER THAN 140 DEGREES FAHRENHEIT FOR AT LEAST 10 MINUTES.
 - CLEAN HAND TOOLS, BOOTS, AND ANY OTHER EQUIPMENT THAT WILL BE USED IN THE WATER WITH ONE OF THE ABOVE OPTIONS AS WELL. DO NOT MOVE WATER FROM ONE WATER BODY TO ANOTHER. BE SURE EQUIPMENT IS DRY BEFORE USE.
 - IN ORDER TO COMPLY WITH THE ENDANGERED SPECIES ACT (ESA), THE FOLLOWING CONSERVATION MEASURES SHALL BE IMPLEMENTED FOR THE DURATION OF THE PROJECT TO PREVENT AND OFFSET ANY AFFECTS THE PROPOSED ACTION MAY HAVE ON FEDERALLY LISTED PREBLE^{5/32}S MEADOW JUMPING MOUSE, UTE LADIES^{5/32}-TRESSES, COLORADO BUTTERFLY PLANT, AND OTHER BIOLOGICAL RESOURCES.
 - THE USFWS WILL BE CONTACTED BY TELEPHONE AT (303) 236-4773, IF ANY LISTED SPECIES ARE ENCOUNTERED DURING CONSTRUCTION.
 - VEGETATION WILL NOT BE REMOVED OR DISTURBED DURING THIS PROJECT, EXCEPT FOR AREAS WITHIN THE PLANNED LIMITS OF DISTURBANCE. THESE AREAS SHALL BE RESEEDING IN ACCORDANCE WITH THE STORMWATER MANAGEMENT PLAN (SWMP).
 - EQUIPMENT WILL BE OPERATED AND MAINTAINED WITHIN PLANNED LIMITS OF DISTURBANCE. THE STAGING AREA SHALL BE LOCATED WITHIN AREAS WHICH HAVE BEEN SEVERELY DISTURBED BY THE FLOODING. AT THE END OF THE PROJECT, GROUND WITHIN THE CONSTRUCTION FOOTPRINT SHALL BE PREPARED, COVERED WITH TOPSOIL, AND RESEEDING.
 - WASTE SHALL BE PROMPTLY REMOVED IN ACCORDANCE WITH CDDT STANDARD SPECIFICATIONS TO MINIMIZE SITE DISTURBANCE AND AVOID ATTRACTING PREDATORS. THE CONTRACTOR SHALL COVER EXPOSED HOLES OR PILES OF LOOSE DIRT WITH BOARDS, TARPS, OR OTHER MATERIALS TO PREVENT ENTRAPMENT.

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CALL UTILITY NOTIFICATION CENTER OF COLORADO
CALL 2-BUSINESS DAYS IN
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OR EXCAVATE FOR THE MARKING
OF UNDERGROUND MEMBER
UTILITIES

REVISIONS:

NO.

DATE

REVISION DESCRIPTION:



BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
Michael Baker
INTERNATIONAL

DESIGNED: **MEM** CAD: **EAV** CHECKED: **DTW** DATE: **12/20/16**

FOURMILE CANYON DR
GENERAL NOTES
(2 OF 3)

PROJECT NO: 4043.SEPT12C36 SHEET NO: 6

ENVIRONMENTAL NOTES CONT'D:

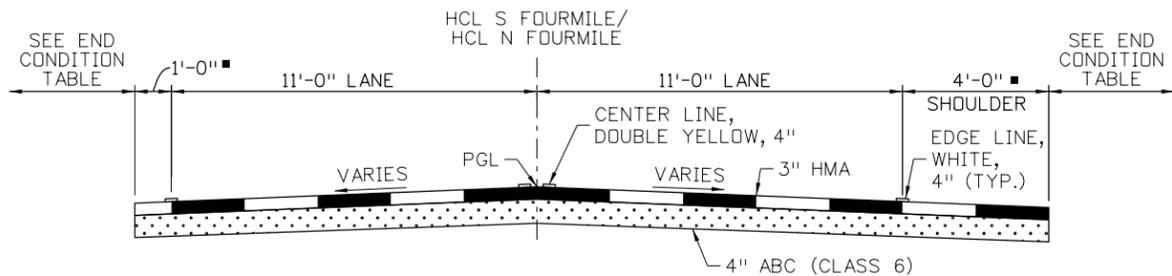
- E. THE CONTRACTOR SHALL USE THE NATIVE SEED MIX PROVIDED BY BOULDER COUNTY AND USE ONLY WEED FREE CERTIFIED MATERIALS, INCLUDING GRAVEL, SAND, TOP SOIL, SEED AND MULCH. CONSTRUCTION SHALL BE COMPLETED BEFORE ANY RESTORATION/SEEDING EFFORTS BEGIN. RIPRAP BEING INSTALLED TO PROTECT THE CREEK SHALL BE COVERED WITH SOIL AND REVEGETATED WITH A NATIVE SEED MIX TO IMPROVE THE RIPARIAN HABITAT.
- 8. WATER-RELATED ACTIVITIES/USE IN THE SOUTH PLATTE RIVER BASIN MAY AFFECT LISTED SPECIES IN NEBRASKA AND THESE ACTIVITIES/USES ARE SUBJECT TO THE PROVISIONS OF THE ESA. THEREFORE, THE CONTRACTOR SHALL NOT USE ON-SITE SOURCES OF WATER FOR ANY CONSTRUCTION ACTIVITY, INCLUDING STORING OR USING ONSITE WATER FOR DUST ABATEMENT, SOIL COMPACTION, CONCRETE MIXING, OR OTHER ACTIVITIES.
- 9. THE CONTRACTOR SHALL ENSURE THAT NO MATERIALS, EQUIPMENT, OR VEHICLES ARE STAGED OR PARKED NEAR WETLANDS OR DRAINAGE AREAS, UNLESS SPECIFICALLY ALLOWED AS NOTED IN THE PLANS.
- 10. THE CONTRACTOR SHALL NOT PARK ANY VEHICLES OR EQUIPMENT IN, OR DISTURB ANY AREAS NOT APPROVED BY THE ENGINEER; THE CONTRACTOR SHALL ADHERE TO THE CONSTRUCTION LIMITS AS NOTED IN THE PLANS AND DEMARCAT THE WORK AREA TO PREVENT GROUND DISTURBANCE OUTSIDE THOSE PRESCRIBED AREAS.
- 11. THE CONTRACTOR SHALL REMOVE IN A TIMELY MANNER ALL SEDIMENT, MUD, DEBRIS, OR OTHER POTENTIAL POLLUTANTS WHICH MAY BE DISCHARGED TO, OR ACCUMULATE IN, THE FLOW LINES AND PUBLIC RIGHT-OF-WAYS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT.
- 12. ALL EROSION/SEDIMENT CONTROL AND STORMWATER RESPONSIBILITIES SHALL BE IMPLEMENTED AS STATED IN THE SWMP. BIODEGRADABLE HYDRAULIC FLUID SHALL BE USED WHEN WORKING IN OR ADJACENT TO SURFACE WATER AS SPECIFIED BY THE BOULDER COUNTY STORMWATER DRAINAGE CRITERIA.
- 13. ORANGE PLASTIC FENCING WILL BE USED TO DEFINE NO-WORK AREAS TO PROTECT ADJACENT RIPARIAN AREAS AND ENVIRONMENTAL AREAS OF CONCERN.
- 14. CONTAMINATED MATERIAL, INCLUDING ASBESTOS-CONTAINING SOIL AND PETROLEUM-IMPACTED SOIL AND/OR GROUNDWATER MAY BE ENCOUNTERED DURING PROJECT ACTIVITIES IN THIS AREA. WORKERS SHALL BE ALERT DURING EXCAVATIONS FOR VISUAL AND OLFACTORY SIGNS OF PETROLEUM CONTAMINATION. IF SOIL AND/OR GROUNDWATER CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION, WORK WILL STOP IMMEDIATELY AND THE PROCEDURES OUTLINED IN THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) SPECIFICATION 250 AND SUBSECTION 107.25 SHALL BE FOLLOWED. IN THE EVENT THAT SUSPECT ACMS ARE ENCOUNTERED (I.E., DEBRIS WITH BUILDING MATERIALS), WORKERS MUST FOLLOW CDOT SPECIFICATION 1. 250.07 ASBESTOS CONTAINING MATERIAL MANAGEMENT AND THE CDOT ASBESTOS-CONTAMINATED SOIL MANAGEMENT STANDARD OPERATING PROCEDURE.
- 15. MINE TAILINGS EXIST THROUGHOUT THE PROJECT SITE. IN THE EVENT THAT MINE TAILINGS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY BOULDER COUNTY AND REFERENCE COLORADO DIVISION OF MINING RECLAMATION AND SAFETY PROCEDURES FOR MANAGING HAZARDOUS MATERIALS.
- 16. IF PALEONTOLOGICAL (E.G., ANIMAL BONES OR FOSSILS) RESOURCES ARE DISCOVERED OR UNCOVERED DURING CONSTRUCTION, WORK WILL STOP IMMEDIATELY AND THE ENGINEER NOTIFIED SO FURTHER ACTIONS MAY BE TAKEN, INCLUDING RETAINING A CERTIFIED PALEONTOLOGIST.
- 17. IF ANY ARCHAEOLOGICAL RESOURCES ARE FOUND (E.G., ARTIFACTS SUCH AS, BUT NOT LIMITED TO, HISTORIC TRASH LIKE BOTTLES, DISHWARE, HOUSEHOLD OR MINING ITEMS, ETC.; PREHISTORIC STONE TOOLS SUCH AS PROJECTILE POINTS OR OTHER FLAKED STONE ITEMS; OR FEATURES SUCH AS BUILDING FOUNDATIONS, TRAILS, WAGON ROADS, RAILROAD GRADES, STONE WALL REMAINS, MINE ADITS, OR PROSPECT PITS; OR PREHISTORIC FEATURES LIKE HEARTHS, ETC.), WORK WILL BE IMMEDIATELY HALTED IN THE VICINITY OF THE FIND, THE ENGINEER NOTIFIED, AND A CERTIFIED ARCHEOLOGIST WILL BE PROMPTLY NOTIFIED.

ENVIRONMENTAL NOTES CONT'D:

- 18. IF BONES OF POTENTIAL HUMAN ORIGIN ARE DISCOVERED DURING CONSTRUCTION, GROUND-DISTURBING WORK MUST BE STOPPED IN THE VICINITY OF THE DISCOVERY, AND THE COUNTY CORONER, THE COUNTY SHERIFF, THE COLORADO STATE HISTORIC PRESERVATION OFFICER (SHPO), AND THE COLORADO STATE ARCHAEOLOGIST WILL BE PROMPTLY NOTIFIED. WORK CANNOT RESUME IN THE VICINITY OF THE FIND UNTIL CLEARANCE IS GRANTED.
- 19. ALL EQUIPMENT SHALL BE CLEANED AND FREE OF CONTAMINANTS PRIOR TO WORK IN AND ADJACENT TO ANY SURFACE WATER WITHIN THE PROJECT AREA.
- 20. IN ORDER TO COMPLY WITH SENATE BILL 40 (SB40), THE FOLLOWING CONSERVATION MEASURES SHALL BE IMPLEMENTED FOR THE DURATION OF THE PROJECT TO PREVENT AND OFFSET ANY AFFECTS THE PROPOSED ACTION MAY HAVE ON FISH AND WILDLIFE AND THEIR HABITATS.
 - A. TREES REMOVE DURING CONSTRUCTION WITHIN THE RIPARIAN AREA SHALL BE REPLACED AT A 1:1 RATIO BASED ON A STEM COUNT OF ALL TREES WITH A DBH OF TWO INCHES OR GREATER. SHRUBS REMOVED DURING CONSTRUCTION WITHIN THE RIPARIAN AREA SHALL BE REPLACED BASED ON THEIR PRE-CONSTRUCTION AREAL COVERAGE.
 - B. TREE BOLES WITH 12 INCH OR GREATER DIAMETER DBH SHOULD, WHENEVER POSSIBLE, BE RETAINED AND USED IN STREAM BANK RESTORATION WORK AND MAINTAINING RIPARIAN HETEROGENEITY. BY EXCAVATING, ARMORING AND BACKFILLING TREE TRUNKS SHOULD BE TIED BACK INTO THE BANK WITH PORTIONS OF THE BOLE PLACED AT OR BELOW NORMAL HIGH-WATER SO THAT THE BOLE REMAINS WETTED THROUGHOUT THE YEAR. TREE BOLES SHOULD BE LEFT IN THE RIPARIAN ZONE TO ADD ROUGHNESS WHEN POSSIBLE. THE BOLE CAN BE BUCKED INTO SHORT THREE TO FOUR FOOT SECTIONS LEFT END TO END IN ORDER TO CONTINUE TO LOOK WHOLE, WHICH WILL PROVIDE HABITAT BENEFITS OF AN INTACT DOWNED TREE, BUT IN A FLOOD WILL BREAK INTO SHORT LOGS, FACILITATING DOWNSTREAM MOVEMENT WITH LESS TOTAL ENERGY AND LESS LIKELY TO BLOCK AND CLOG THE FLOW.
 - C. STREAM CROSSING STRUCTURES, INCLUDING ROCK VEINS, SHALL NOT DEGRADE THE STREAM OR FISH HABITAT OR BLOCK FISH MOVEMENT, INCLUDING CONSTRICTING STREAM FLOWS THAT INCREASE WATER VELOCITIES, NOR SHALL SUCH STRUCTURES UNNECESSARILY WIDEN STREAMS AND THEREBY DECREASE WATER VELOCITIES AND INCREASE SEDIMENT DEPOSITION. PLACEMENT OF ROCK VEIN BOULDERS WITHOUT INTERSTITIAL SPACE OR GAPS CONSTITUTES A BARRIER TO JUVENILE SALMONID/TROUT MIGRATION SO GAPS OF 3 INCHES OR GREATER SHOULD BE LEFT BETWEEN ADJACENT BOULDERS.
 - D. INSTALL CULVERT SYSTEMS THAT DO NOT IMPEDE SALMONID/TROUT MIGRATIONS. TO PRESERVE STREAM LONGITUDINAL CONNECTIVITY CULVERTS WITH ANY ASSOCIATED DROP FEATURES MUST NOT EXCEED 12 INCHES (6 INCHES IS OPTIMAL; 12 INCHES IS THE MAXIMUM ALLOWED DROP).
 - E. RIPRAP ABOVE THE ORDINARY HIGH WATER MARK (OHWM) SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN TOPSOIL AND REVEGETATED AS SPECIFIED BY THE APPROVED PROJECT DESIGN PLAN. WHERE APPROPRIATE, STREAMSIDE AREAS AT THE OHWM SHOULD BE REVEGETATED WITH BRUSH LAYER CUTTINGS AND/OR CONTAINERIZED PLANTINGS OR OTHER ACCEPTABLE BIOENGINEERING METHOD OF PLANTING NATIVE RIPARIAN SPECIES. SUPPLEMENTAL WATERING MAY BE NEEDED UNTIL THE PLANTINGS HAVE BECOME ESTABLISHED.
 - F. WASTE CONCRETE IS NOT ACCEPTABLE FOR ANY PROJECT, AND SHALL NOT BE USED TO STABILIZE CHANNEL BANKS FOR NEW CONSTRUCTION. SUCH MATERIAL DOES NOT MEET CURRENT SPECIFICATIONS FOR RIPRAP MATERIAL AND IT MAY CAUSE WATER QUALITY PROBLEMS. PREFERENCE SHALL BE GIVEN TO BIOENGINEERING SOLUTIONS FOR STREAM STABILIZATION PROJECTS AND FOR IMPROVING STREAM AND RIPARIAN HABITAT VALUES.
 - G. RIPRAP MATERIALS USED BELOW THE OHWM SHALL BE DURABLE ANGULAR ROCK FREE OF ORGANIC MATERIAL, POLLUTION, AND ERODIBLE MATERIAL SUCH AS DIRT AND GRAVEL. ROUNDED RIVER COBBLE OR STONE IS NOT ACCEPTABLE AS RIPRAP. USE OF GROUTED RIPRAP IS DISCOURAGED EXCEPT WHERE NO OTHER PRACTICABLE SOLUTION EXISTS TO ADDRESS THE PROBLEM.

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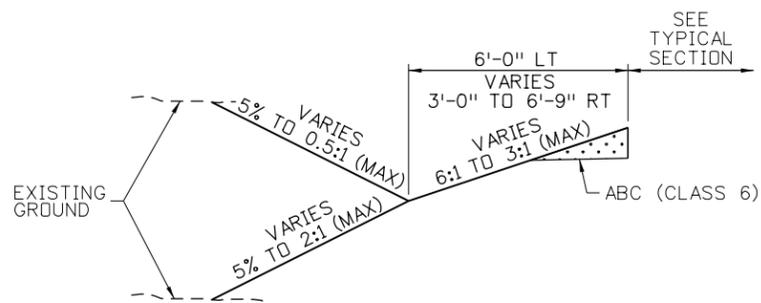
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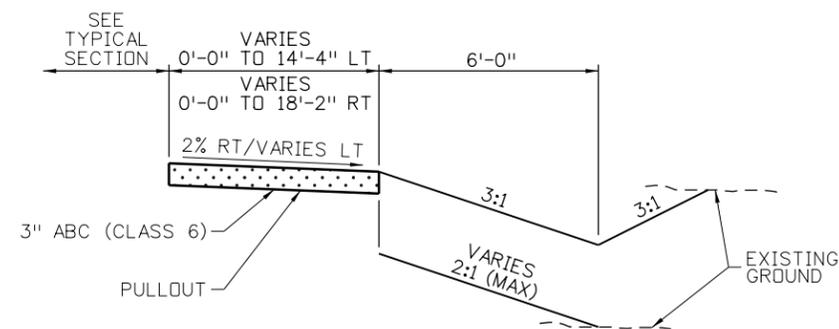
TYPICAL SECTION - FOURMILE CANYON DR

NTS
 STA 52+00 TO STA 89+15 - S FOURMILE
 STA 216+72 TO STA 256+87 - N FOURMILE

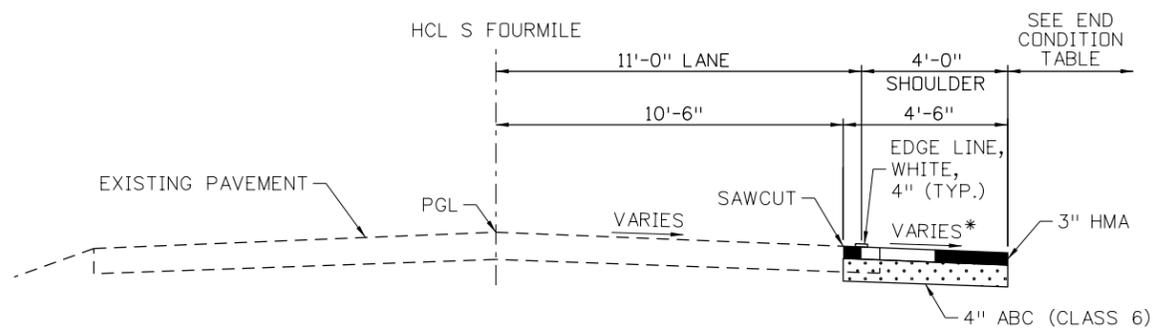
■ VARIES AT PROJECT LIMITS TO MATCH EXISTING PAVEMENT



DETAIL A



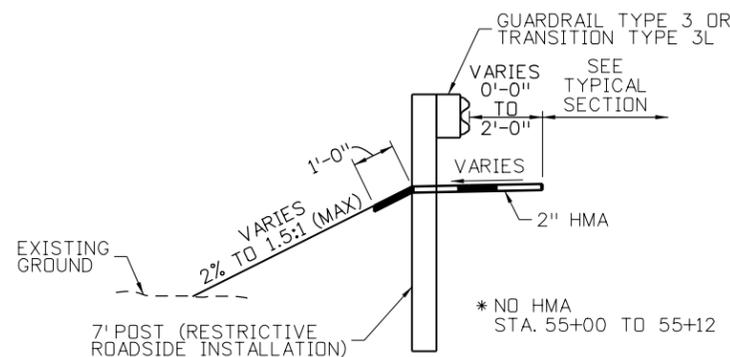
DETAIL B



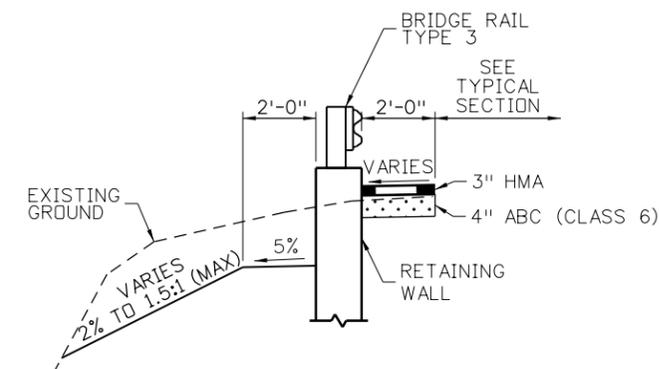
TYPICAL SECTION - FOURMILE CANYON DR

NTS
 STA 89+15 TO STA 98+11 - S FOURMILE

* MATCH CROSS SLOPE OF ADJACENT LANE



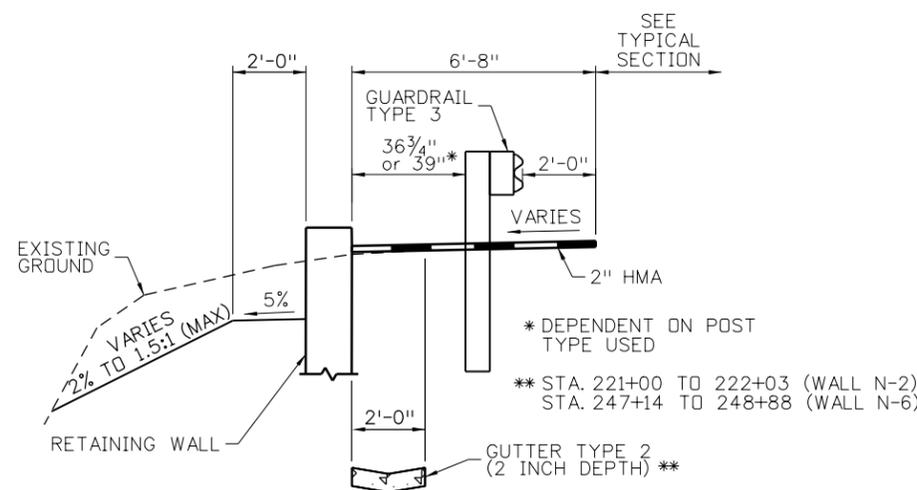
DETAIL C



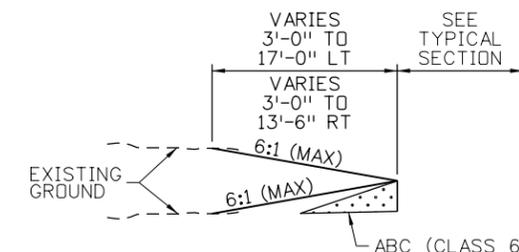
DETAIL D



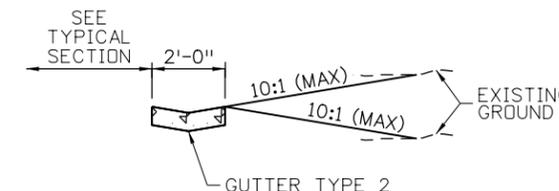
PAVEMENT DETAIL



DETAIL E



DETAIL F



DETAIL G

NOTES:

- ROADWAY SUPERELEVATION VARIES, SEE PROFILE SHEETS.
- END CONDITION DETAILS MAY APPLY TO EITHER SIDE. THEY ARE TO BE MIRRORED AS APPROPRIATE.
- SEE END CONDITION TABLES ON SHEET 2 OF 2 FOR DETAIL STATION LIMITS.
- DRIVEWAYS CONNECTING TO EXISTING BRIDGES SHALL BE SURFACED WITH 3" HMA UP TO THE BRIDGE DECK. ALL OTHER DRIVEWAYS SHALL BE SURFACED WITH 3" ABC (CLASS 6) OR 3" HMA AS SHOWN ON THE PLANS AND DETAILS.
- PULLOUTS SHALL BE SURFACED WITH 3" ABC (CLASS 6).
- ALL DETAILS SHOWN ARE NOT TO SCALE.
- SEE STRUCTURAL PLANS FOR RETAINING WALL DETAILS.

90% 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	NO.	DATE	REVISION DESCRIPTION:	BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION Michael Baker INTERNATIONAL	DESIGNED:	CAD:	CHECKED:	DATE:	FOURMILE CANYON DR TYPICAL SECTIONS PROJECT NO: 4043.SEPT12C36 SHEET NO: 8
		MEM	EAV	DTW		12/20/16				

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END CONDITION TABLE - SOUTH

HCL	STATION		SIDE	DETAIL
	FROM	TO		
S FOURMILE	52+00	53+59	RT	B
S FOURMILE	52+00	53+46	LT	F
S FOURMILE	53+46	53+70	LT	C
S FOURMILE	53+59	54+60	RT	A
S FOURMILE	53+70	54+79	LT	D
S FOURMILE	54+60	55+80	RT	F
S FOURMILE	55+00	55+11	LT	C
S FOURMILE	55+11	56+10	LT	D
S FOURMILE	55+80	71+90	RT	A
S FOURMILE	56+34	56+70	LT	F
S FOURMILE	56+70	58+30	LT	B
S FOURMILE	58+30	58+81	LT	F
S FOURMILE	59+09	60+00	LT	D
S FOURMILE	60+00	61+24	LT	C
S FOURMILE	61+24	62+20	LT	F
S FOURMILE	62+20	62+56	LT	C
S FOURMILE	62+88	63+70	LT	F
S FOURMILE	63+70	65+91	LT	A
S FOURMILE	65+91	66+57	LT	F
S FOURMILE	66+57	67+17	LT	A
S FOURMILE	67+65	67+88	LT	F
S FOURMILE	67+88	69+21	LT	A
S FOURMILE	69+21	70+43	LT	F
S FOURMILE	70+43	72+25	LT	A
S FOURMILE	71+90	72+65	RT	F
S FOURMILE	72+25	80+08	LT	F
S FOURMILE	72+65	76+00	RT	A
S FOURMILE	76+00	77+10	RT	F
S FOURMILE	77+10	91+24	RT	A
S FOURMILE	80+08	80+35	LT	C
S FOURMILE	80+35	82+43	LT	D
S FOURMILE	82+43	83+62	LT	C
S FOURMILE	83+62	84+51	LT	A
S FOURMILE	84+51	84+75	LT	C
S FOURMILE	84+75	87+04	LT	D
S FOURMILE	87+04	88+22	LT	C
S FOURMILE	88+22	89+00	LT	A
S FOURMILE	89+00	89+15	LT	F
S FOURMILE	91+42	91+84	RT	A
S FOURMILE	91+84	91+87	RT	F
S FOURMILE	91+87	93+52	RT	G
S FOURMILE	93+52	95+12	RT	F
S FOURMILE	95+64	98+11	RT	A

END CONDITION TABLE - NORTH

HCL	STATION		SIDE	DETAIL
	FROM	TO		
N FOURMILE	216+72	220+00	RT	A
N FOURMILE	216+72	219+57	LT	D
N FOURMILE	219+57	220+75	LT	C
N FOURMILE	220+00	220+22	RT	F
N FOURMILE	220+22	221+64	RT	A
N FOURMILE	220+75	221+00	LT	F
N FOURMILE	221+00	222+03	LT	E
N FOURMILE	221+64	223+80	RT	B
N FOURMILE	222+03	222+72	LT	C
N FOURMILE	222+72	224+59	LT	E
N FOURMILE	223+80	225+00	RT	A
N FOURMILE	224+59	225+54	LT	C
N FOURMILE	225+00	227+50	RT	F
N FOURMILE	225+54	225+61	LT	F
N FOURMILE	225+61	225+91	LT	A
N FOURMILE	225+91	226+20	LT	F
N FOURMILE	226+20	227+89	LT	A
N FOURMILE	227+50	235+09	RT	A
N FOURMILE	227+89	228+35	LT	F
N FOURMILE	228+35	229+45	LT	A
N FOURMILE	229+45	231+35	LT	E
N FOURMILE	231+69	233+69	LT	F
N FOURMILE	233+69	234+53	LT	A
N FOURMILE	234+53	235+61	LT	F
N FOURMILE	235+74	236+84	RT	A
N FOURMILE	236+41	238+05	LT	F
N FOURMILE	237+41	242+51	RT	A
N FOURMILE	239+39	241+00	LT	A
N FOURMILE	241+00	243+10	LT	F
N FOURMILE	242+93	245+60	RT	A
N FOURMILE	243+10	246+49	LT	E
N FOURMILE	245+60	246+10	RT	F
N FOURMILE	246+10	250+53	RT	A
N FOURMILE	246+49	247+14	LT	C
N FOURMILE	247+14	248+88	LT	E
N FOURMILE	248+88	249+91	LT	C
N FOURMILE	249+91	253+86	LT	A
N FOURMILE	250+88	256+87	RT	A
N FOURMILE	254+83	255+70	LT	A
N FOURMILE	255+70	256+70	LT	E
N FOURMILE	256+70	256+87	LT	C

NOTES:

1. STA 93+21 TO 93+52 - FIRE STATION DRIVEWAY (CONCRETE PAVEMENT 6 INCH).
2. GAPS IN STATIONING REPRESENT DRIVEWAY OPENINGS.

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90% 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:	FOURMILE CANYON DR TYPICAL SECTIONS PROJECT NO: 4043.SEPT12C36 SHEET NO: 9
							MEM	EAV	DTW	12/20/16	

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CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY		DRAINAGE		STRUCTURES		SWMP		STREAM RESTORATION		PROJECT TOTALS	
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
201-00000	Clearing and Grubbing	LS	1										1	
202-00001	Removal of Structure	EACH	1										1	
202-00010	Removal of Tree	EACH	595										595	
202-00035	Removal of Pipe	LF			258								258	
202-00090	Removal of Delineator	EACH	36										36	
202-00210	Removal of Concrete Pavement	SY	58										58	
202-00220	Removal of Asphalt Mat	SY	21,034										21,034	
202-00810	Removal of Ground Sign	EACH	8										8	
202-01130	Removal of Guardrail Type 3	LF	819										819	
202-01170	Removal of Guardrail Type 7	LF	330										330	
202-01300	Removal of End Anchorage	EACH	8										8	
202-04001	Plug Culvert	EACH			1								1	
202-04002	Clean Culvert	EACH			3								3	
203-00010	Unclassified Excavation (Complete In Place)	CY	7,774		8,907								16,681	
203-00100	Muck Excavation	CY	500							1,127			1,627	
203-01100	Proof Rolling	HOUR	20										20	
203-01500	Blading	HOUR							30				30	
203-01510	Backhoe	HOUR							10				10	
203-01550	Dozing	HOUR							20				20	
203-01594	Combination Loader	HOUR							20				20	
203-01597	Potholing	HOUR	10										10	
203-02330	Laborer	HOUR							20				20	
206-00000	Structure Excavation	CY			584		4,728						5,312	
206-00100	Structure Backfill (Class 1)	CY			182		4,844						5,026	
206-00510	Filter Material (Class A)	CY			1,716								1,716	
206-01781	Shoring (Area 1)	LS	1										1	
207-00205	Topsoil	CY							1,435				1,435	
207-00210	Stockpile Topsoil	CY							1,250				1,250	
208-00002	Erosion Log Type 1 (12 Inch)	LF							6,000				6,000	
208-00020	Silt Fence	LF							1,585				1,585	
208-00035	Aggregate Bag	LF							95				95	
208-00041	Rock Check Dam	EACH							6				6	
208-00045	Concrete Washout Structure	EACH							6				6	
208-00070	Vehicle Tracking Pad	EACH							6				6	
208-00106	Sweeping (Sediment Removal)	HOUR							20				20	
208-00107	Removal of Trash	HOUR							10				10	
208-00207	Erosion Control Management	DAY							60				60	
208-00301	Temporary Diversion	LF							1,250				1,250	
210-00010	Reset Mailbox Structure	EACH	20										20	
210-00090	Reset Delineator	EACH	67										67	

90% 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:	FOURMILE CANYON DR SUMMARY OF QUANTITIES (1 OF 4)	PROJECT NO: 4043.SEPT12C36	SHEET NO: 10
								MEM	EAV	DTW	12/20/16			

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CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY		DRAINAGE		STRUCTURES		SWMP		STREAM RESTORATION		PROJECT TOTALS	
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
210-00510	Rebuild Portions of Present Structure	LS	1										1	
210-00810	Reset Ground Sign	EACH	19										19	
210-00815	Reset Sign Panel	EACH	1										1	
210-01000	Reset Fence	LF	176										176	
210-01011	Reset Gate	EACH	1										1	
212-00006	Seeding (Native)	ACRE							5.1				5.1	
212-00009	Seeding (Temporary)	ACRE							0.5				0.5	
212-00032	Soil Conditioning	ACRE							5.1				5.1	
213-00004	Mulching (Weed Free Straw)	ACRE							5.1				5.1	
213-00012	Spray-on Mulch Blanket	ACRE							0.7				0.7	
213-00061	Mulch Tackifier	LB							1,020				1,020	
213-00700	Landscape Boulder	EACH			14								14	
214-00225	Deciduous Tree (2.5 Inch Caliper)	EACH	322										322	
214-00506	Evergreen Tree (6 Foot) (Ball and Burlap)	EACH	173										173	
216-00201	Soil Retention Blanket (Straw-Coconut) (Biodegradable Class 1)	SY							5,105				5,105	
216-00301	Turf Reinforcement Mat (Class 1)	SY							300				300	
217-00000	Herbicide Treatment	SY							3,000				3,000	
240-00000	Wildlife Biologist	HOUR	10										10	
240-00010	Removal of Nests	HOUR	20										20	
304-06007	Aggregate Base Course (Class 6)	CY	3,187										3,187	
403-00720	Hot Mix Asphalt (Patching) (Asphalt)	TON	216										216	
403-34721	Hot Mix Asphalt (Grading SX) (75) (PG 58-28)	TON	3,899										3,899	
412-00600	Concrete Pavement (6 Inch)	SY	40										40	
420-00112	Geotextile (Drainage) (Class 1)	SY			5,240								5,240	
503-00024	Drilled Caisson (24 Inch)	LF					1,960						1,960	
506-00209	Riprap (9 Inch)	CY			116								116	
506-00409	Soil Riprap (9 Inch)	CY			2,669								2,669	
506-00418	Soil Riprap (18 Inch)	CY			2,052								2,052	
506-00424	Soil Riprap (24 Inch)	CY			3,287								3,287	
507-00000	Concrete Slope and Ditch Paving	CY			4								4	
509-00000	Structural Steel	LB					219,464						219,464	
601-03000	Concrete Class D	CY			65								65	
601-03050	Concrete Class D (Wall)	CY					1,643						1,643	
601-40005	Cut Stone Veneer	SF			672		13,128						13,800	
601-40301	Structural Concrete Coating	SF					7,641						7,641	
601-40302	Structural Concrete Coating (Anti-Graffiti)	SF					7,641						7,641	
602-00000	Reinforcing Steel	LB			7,270		249,963						257,233	
603-01185	18 Inch Reinforced Concrete Pipe (Complete In Place)	LF			188								188	
603-01245	24 Inch Reinforced Concrete Pipe (Complete In Place)	LF			268								268	
603-01305	30 Inch Reinforced Concrete Pipe (Complete In Place)	LF			194								194	

90% 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:	FOURMILE CANYON DR SUMMARY OF QUANTITIES (2 OF 4) PROJECT NO: 4043.SEPT12C36 SHEET NO: 11
							MEM	EAV	DTW	12/20/16	

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CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY		DRAINAGE		STRUCTURES		SWMP		STREAM RESTORATION		PROJECT TOTALS	
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
603-01365	36 Inch Reinforced Concrete Pipe (Complete In Place)	LF			40								40	
603-01425	42 Inch Reinforced Concrete Pipe (Complete In Place)	LF			35								35	
603-02185	23x14 Inch Reinforced Concrete Pipe (Complete In Place)	LF			124								124	
603-02245	30x19 Inch Reinforced Concrete Pipe Elliptical (Complete In Place)	LF			111								111	
603-02305	38x24 Inch Reinforced Concrete Pipe Elliptical (Complete In Place)	LF			161								161	
603-05018	18 Inch Reinforced Concrete End Section	EACH			5								5	
603-05024	24 Inch Reinforced Concrete End Section	EACH			8								8	
603-05036	36 Inch Reinforced Concrete End Section	EACH			1								1	
603-05118	23x14 Inch Reinforced Concrete End Section Elliptical	EACH			3								3	
603-05124	30x19 Inch Reinforced Concrete End Section Elliptical	EACH			5								5	
603-05130	38x24 Inch Reinforced Concrete End Section Elliptical	EACH			1								1	
603-70805	8x5 Foot Concrete Box Culvert (Precast)	LF			41								41	
604-00305	Inlet Type C (5 Foot)	EACH			3								3	
604-00310	Inlet Type C (10 Foot)	EACH			1								1	
604-30010	Manhole Slab Base (10 Foot)	EACH			2								2	
604-30020	Manhole Slab Base (20 Foot)	EACH			1								1	
606-00301	Guardrail Type 3 (6-3 Post Spacing)	LF	1,125										1,125	
606-01340	End Anchorage Type 3D	EACH	7										7	
606-01390	End Anchorage Type 3K	EACH	1										1	
606-01395	Transition Type 3L	EACH	9										9	
606-02003	End Anchorage (Nonflared)	EACH	1										1	
606-02005	End Anchorage (Flared)	EACH	5										5	
606-10300	Bridge Rail Type 3	LF					1,223						1,223	
607-11525	Fence (Plastic)	LF							375				375	
609-24002	Gutter Type 2 (2 Foot)	LF	447										447	
612-00001	Delineator (Type I)	EACH	409										409	
612-00003	Delineator (Type III)	EACH	45										45	
614-00011	Sign Panel (Class I)	SF	115										115	
614-00012	Sign Panel (Class II)	SF	8										8	
614-00216	Steel Sign Post (2x2 Inch Tubing)	LF	240										240	
620-00002	Field Office (Class 2)	EACH	1										1	
620-00020	Sanitary Facility	EACH	1										1	
621-00450	Detour Pavement	SY	1,000										1,000	
625-00000	Construction Surveying	LS	1										1	
626-00000	Mobilization	LS	1										1	
626-01000	Public Information Services	LS	1										1	
627-00005	Epoxy Pavement Marking	GAL	111										111	
630-XXXX	Traffic Control	LS	1										1	
630-00000	Flagging	HOUR	2,000										2,000	
630-00007	Traffic Control Inspection	DAY	130										130	

90% 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:	FOURMILE CANYON DR SUMMARY OF QUANTITIES (3 OF 4) PROJECT NO: 4043.SEPT12C36 SHEET NO: 12
							MEM	EAV	DTW	12/20/16	

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CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY		DRAINAGE		STRUCTURES		SWMP		STREAM RESTORATION		PROJECT TOTALS	
			PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.		
630-00012	Traffic Control Management	DAY	260										260	
630-80355	Portable Message Sign Panel	EACH	4										4	
630-80370	Concrete Barrier (Temporary)	LF	1,940										1,940	
700-XXXX	F/A Mine Waste Management	FA	1										1	
700-XXXX	F/A Uniformed Traffic Control	FA	1										1	
700-70010	F/A Minor Contract Revisions	FA	1										1	
700-70011	F/A Partnering	FA	1										1	
700-70380	F/A Erosion Control	FA	1										1	
XXX-XXXX	Stream Restoration	LF								10,700			10,700	

90% SET	 <p>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</p>	REVISIONS:		REVISION DESCRIPTION:		 <p>BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION</p>					<p>DESIGNED: MEM CAD: EAV CHECKED: DTW DATE: 12/20/16</p>				<p>FOURMILE CANYON DR SUMMARY OF QUANTITIES (4 OF 4)</p>	
											<p>PROJECT NO: 4043.SEPT12C36 SHEET NO: 13</p>					

SUMMARY OF EARTHWORK

		CUBIC YARDS
UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)		
S FOURMILE CANYON DRIVE (FROM CROSS-SECTIONS)		2,476
N FOURMILE CANYON DRIVE (FROM CROSS-SECTIONS)		3,722
S FOURMILE CANYON DRIVE DRIVEWAYS		35
N FOURMILE CANYON DRIVE DRIVEWAYS		181
OVER EXCAVATION STA 239+40 TO STA 241+10		1,360
OVER EXCAVATION FOR RIPRAP		8,907
TOTAL FOR PAY QUANTITY		16,681
MUCK EXCAVATION		
UNDESIGNATED		500
FOURMILE CREEK REGRADING		1,127
TOTAL FOR PAY QUANTITY		1,627
STRUCTURE EXCAVATION		
RETAINING WALLS (FROM TAB)		4,728
DRAINAGE STRUCTURES (FROM TAB)		593
TOTAL FOR PAY QUANTITY		5,321
FOR INFORMATION ONLY		
		CUBIC YARDS
EMBANKMENT MATERIAL (COMPLETE IN PLACE)		
S FOURMILE CANYON DRIVE (FROM CROSS-SECTIONS)		2,564
N FOURMILE CANYON DRIVE (FROM CROSS-SECTIONS)		2,512
S FOURMILE CANYON DRIVE DRIVEWAYS		23
N FOURMILE CANYON DRIVE DRIVEWAYS		410
EMBANKMENT MATERIAL STA 239+40 TO STA 241+10		732
FOURMILE CREEK REGRADING		3
TOTAL		6,244
STRUCTURE BACKFILL		
RETAINING WALLS (FROM TAB)		4,844
DRAINAGE STRUCTURES (FROM TAB)		190
TOTAL		5,034
ROADWAY QUANTITIES BALANCE:		CUBIC YARDS
EMBANKMENT MATERIAL (COMPACTION FACTOR) =	1.15	7,181
UNCLASSIFIED EXCAVATION		16,681
APPROXIMATE EXCESS MATERIAL		9,500

NOTES:

- UNCLASSIFIED EXCAVATION VOLUMES INCLUDE THE EXISTING PAVEMENT.
- ROADWAY QUANTITIES BALANCE DOES NOT REFLECT THE EARTHWORK REQUIRED IN EACH CONSTRUCTION PHASE. THE PROJECT MAY REQUIRE ADDITIONAL EMBANKMENT OR EXCAVATION PER PHASE. THE COST OF ADDITIONAL EMBANKMENT, EXCAVATION, HAULING, AND HANDLING WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE ORIGINAL PLAN QUANTITIES.

TABULATION OF SURFACING

LOCATION	403-34721	403-00720	412-00600	304-06007
	Hot Mix Asphalt (Grading SX) (75) (PG 58-28)	Hot Mix Asphalt (Patching) (Asphalt)	Concrete Pavement (6 Inch)	Aggregate Base Course (Class 6)
	TON	TON	SY	CY
S FOURMILE CANYON DRIVE				
52+00.00 TO 89+15.00	1,833	32		1,436
89+15.00 TO 98+14.27		78		61
PULLOUTS				46
DRIVEWAYS	17		40	28
SUBTOTALS	1,850	110	40	1,571
N FOURMILE CANYON DRIVE				
216+72.14 TO 256+86.71	2,003	106		1,490
PULLOUTS				44
DRIVEWAYS	46			82
SUBTOTALS	2,049	106	0	1,616
TOTALS	3,899	216	40	3,187

NOTE:

- SURFACING QUANTITIES INCLUDE DRIVEWAYS, PULLOUTS, AND GUARDRAIL WIDENING.

TABULATION OF GUTTER

LOCATION	SIDE	609-24002	REMARKS
		Gutter Type 2 (2 Foot)	
		LF	
S FOURMILE CANYON DRIVE			
91+82.00 TO 93+51.63	RT	170	
N FOURMILE CANYON DRIVE			
221+00.00 TO 222+02.71	LT	103	2 INCH DEPTH
247+14.12 TO 248+88.11	LT	174	2 INCH DEPTH
TOTALS		447	

90% SET	 <p>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</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION DESCRIPTION:</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	REVISION DESCRIPTION:				 <p>BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION Michael Baker INTERNATIONAL</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DESIGNED: MEM</td> <td>CAD: EAV</td> <td>CHECKED: DTW</td> <td>DATE: 12/20/16</td> </tr> </table>	DESIGNED: MEM	CAD: EAV	CHECKED: DTW	DATE: 12/20/16	<p>FOURMILE CANYON DR ROADWAY TABULATIONS (1 OF 7)</p> <p>PROJECT NO: 4043.SEPT12C36 SHEET NO: 14</p>
NO.	DATE	REVISION DESCRIPTION:													
DESIGNED: MEM	CAD: EAV	CHECKED: DTW	DATE: 12/20/16												

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TABULATION OF ROADWAY REMOVALS AND RESETS

LOCATION	SIDE	202-00001	202-00210	202-00220	202-01130	202-01170	202-01300	210-00010	210-01000	210-01011	REMARKS
		Removal of Structure EACH	Removal of Concrete Pavement SY	Removal of Asphalt Mat SY	Removal of Guardrail Type 3 LF	Removal of Guardrail Type 7 LF	Removal of End Anchorage EACH	Reset Mailbox Structure EACH	Reset Fence LF	Reset Gate EACH	
S FOURMILE CANYON DRIVE											
52+00 TO 89+15	LT/RT			9,969							
52+40 TO 53+99	RT							176			WIRE FENCE
56+50 TO 56+57	RT							5			
62+50 TO 63+62	RT							1			
84+16 TO 84+16	LT						1				
84+29 TO 87+82	LT				365						
84+79 TO 84+79	LT	1									PINE BROOK WATER DISTRICT STREAM GAUGE
87+82 TO 87+82	LT						1				
89+15 TO 97+60	RT			192							
90+70 TO 90+77	RT							4			
92+22 TO 92+26	RT							2			
93+21 TO 93+52	RT		58								
97+85 TO 98+12	RT			2							
SUBTOTALS		1	58	10,163	365	0	2	15	176	0	
N FOURMILE CANYON DRIVE											
216+72 TO 256+87	LT/RT			10,871							
219+56 TO 219+56	LT						1				
219+93 TO 220+63	LT				95						
221+00 TO 221+00	LT						1				
221+01 TO 224+32	LT					330					TEMPORARY
224+10 TO 224+10	LT						1				
224+30 TO 225+49	LT				142						
225+86 TO 225+86	LT						1				
231+17 TO 231+21	RT							2			
236+66 TO 236+66	RT							1			
242+63 TO 242+63	RT							1			
244+62 TO 244+62	LT						1				
244+96 TO 246+94	LT				217						
246+94 TO 246+94	LT						1				
250+96 TO 250+96	RT							1			
253+90 TO 253+90	LT									1	CHAIN WITH WOOD POSTS
SUBTOTALS		0	0	10,871	454	330	6	5	0	1	
TOTALS		1	58	21,034	819	330	8	20	176	1	

NOTES:

- SEE DRAINAGE TABULATIONS FOR DRAINAGE RELATED REMOVALS AND RESETS.
- SEE TABULATION OF SIGNS FOR SIGN REMOVAL AND RESET QUANTITIES.
- SEE TABULATION OF DELINEATORS FOR DELINEATOR REMOVAL AND RESET QUANTITIES.
- SEE TREE INVENTORY PLANS FOR THE TREE REMOVAL TABULATIONS.

90% 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:	FOURMILE CANYON DR ROADWAY TABULATIONS (2 OF 7) PROJECT NO: 4043.SEPT12C36 SHEET NO: 15
							MEM	EAV	DTW	12/20/16	

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TABULATION OF GUARDRAIL

LOCATION	SIDE	606-00301	606-01340	606-01390	606-01395	606-02003	606-02005	REMARKS
		Guardrail Type 3 (6-3 Post Spacing) LF	End Anchorage Type 3D EACH	End Anchorage Type 3K EACH	Transition Type 3L EACH	End Anchorage (Nonflared) EACH	End Anchorage (Flared) EACH	
S FOURMILE CANYON DRIVE								
53+46.70	LT		1					
53+46.70 TO 53+71.70	LT				1			
54+76.86 TO 54+84.60	LT				1			CURVED, TRUNCATED
54+94.71 TO 55+12.31	LT				1			CURVED, TRUNCATED
59+99.15 TO 60+24.15	LT				1			
60+24.15	LT					1		
62+20.08	LT		1					
62+20.08 TO 62+63.70	LT	50.00						
80+08.83	LT		1					
80+08.83 TO 80+35.72	LT				1			
82+42.20 TO 82+65.77	LT				1			
82+65.77	LT						1	
84+51.79	LT		1					
84+51.79 TO 84+75.97	LT				1			
87+03.23 TO 87+26.59	LT				1			
87+26.59	LT						1	
SUBTOTALS		50.00	4	0	8	1	2	
N FOURMILE CANYON DRIVE								
219+55.79 TO 219+80.66	LT				1			
219+80.66	LT						1	
221+01.00	LT		1					
221+01.00 TO 224+60.85	LT	362.50						
224+60.85	LT						1	
243+11.00	LT		1					
243+11.00 TO 248+89.66	LT	600.00						
248+89.66	LT						1	
255+71.00	LT		1					
255+71.00 TO 256+72.56	LT	112.50						
256+72.56	LT			1				
SUBTOTALS		1,075.00	3	1	1	0	3	
TOTALS		1,125.00	7	1	9	1	5	

NOTES:

1. TRANSITION TYPE 3L MAY BE SHORTER THAN STANDARD LENGTH (TRUNCATED) BASED ON SITE CONDITIONS (SEE DRIVEWAY DETAILS).
2. SEE STRUCTURES TABULATION FOR BRIDGE RAIL TYPE 3.

90% 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 	DESIGNED:	CAD:	CHECKED:	DATE:	FOURMILE CANYON DR ROADWAY TABULATIONS (3 OF 7) PROJECT NO: 4043.SEPT12C36 SHEET NO: 16
							MEM	EAV	DTW	12/20/16	

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TABULATION OF PAVEMENT MARKINGS

LOCATION			MARKING TYPE	627-00005 EPOXY PAVEMENT MARKING			
				DOUBLE YELLOW SOLID 4 INCH		WHITE SOLID 4 INCH	
				LF	GAL	LF	GAL
S FOURMILE CANYON DRIVE							
52+00	TO	89+15	CENTER LINES	3,715	26		
52+00	TO	98+11	EDGE LINES			8,334	29
N FOURMILE CANYON DRIVE							
216+72	TO	256+87	CENTER LINES	4,015	28		
216+72	TO	256+87	EDGE LINES			8,029	28
SUBTOTALS					54		57
TOTALS							111

TABULATION OF SIGNING

LOCATION	SIDE	202-00810	210-00810	210-00815	SIGN CODE	SIGN PANEL SIZE IN x IN	614-00011	614-00012	614-00216	REMARKS
		Removal of Ground Sign	Reset Ground Sign	Reset Sign Panel			Sign Panel (Class I)	Sign Panel (Class II)	Steel Sign Post (2x2 Inch Tubing)	
		EACH	EACH	EACH			SF	SF	LF	
S FOURMILE CANYON DRIVE										
50+50	RT		1							RESET FROM STA 237+75 RT (NORTH)
54+79	LT		1							ADDRESS
54+82	LT				OM3-R	12 x 36	3		7	
55+22	LT	1								
56+05	LT		1							RESET FROM STA 57+26 LT
56+11	LT				OM3-R	12 x 36	3		7	
56+29	LT		1							ADDRESS
57+49	LT				R5-11	30 x 24	5		10	
60+25	RT		1							RESET FROM STA 78+83 LT
58+90	LT		1							ADDRESS
62+45	RT				OM3-R	12 x 36	3		7	
62+55	LT				OM3-R	12 x 36	3		7	
62+80	LT		1							ADDRESS
66+28	RT				OM3-R	12 x 36	3		7	
67+23	LT		1							ADDRESS
68+69	RT				OM3-R	12 x 36	3		7	
79+36	RT	1								
89+20	LT		1							RESET FROM 68+75 LT
96+03	RT	1								REMOVE SIGN PANEL ONLY, POST TO REMAIN
96+03	RT		1		SPECIAL	24 x 30	5		-	MATCH EXISTING SIGN LEGEND
97+10	RT				W8-25	30 x 30	6.25		11.00	
SUBTOTALS		3	10	0			34.25	0	63.00	

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							MEM	EAV	DTW	12/20/16	

TABULATION OF SIGNING (CONTINUED)

LOCATION	SIDE	202-00810	210-00810	210-00815	SIGN CODE	SIGN PANEL SIZE		614-00011	614-00012	614-00216	REMARKS	
		Removal of Ground Sign	Reset Ground Sign	Reset Sign Panel		IN	x	IN	Sign Panel (Class I)	Sign Panel (Class II)		Steel Sign Post (2x2 Inch Tubing)
		EACH	EACH	EACH					SF	SF		LF
N FOURMILE CANYON DRIVE												
215+25	RT				W1-5L	30	x	30	6.25		13	20 MPH
					W13-1P	18	x	18	2.25			
217+14	RT				OM3-R	12	x	36	3		7	
222+62	LT	1										
222+72	RT				R5-11	30	x	24	5		10	
222+85	RT	1										
223+83	RT				OM3-R	12	x	36	3		7	
224+95	LT				W1-6R	48	x	24		8	10	
225+35	LT		1									RESET FROM STA 225+09 LT
227+02	LT	1										
228+96	RT				OM3-R	12	x	36	3		7	
231+66	LT		1									ADDRESS
232+73	RT				OM3-R	12	x	36	3		7	
232+81	LT				OM3-R	12	x	36	3		7	
235+08	RT		1									ADDRESS
235+45	LT		1									ADDRESS
235+77	RT				OM3-R	12	x	36	3		7	
237+35	RT				OM3-R	12	x	36	3		7	
238+53	LT				R5-11	30	x	24	5		10	
238+99	LT			1							10	RESET EXISTING PANEL ON NEW SIGN POST
241+74	RT				OM3-R	12	x	36	3		7	
242+63	RT		1									ADDRESS/RESET ON MAILBOX STRUCTURE
248+20	LT	1										
250+42	RT				OM3-R	12	x	36	3		7	
250+57	LT				OM3-R	12	x	36	3		7	
250+96	RT		1									ADDRESS/RESET ON MAILBOX STRUCTURE
252+96	RT				OM3-R	12	x	36	3		7	
254+20	RT	1										
254+27	LT				R5-11	30	x	24	5		10	
254+83	LT				W11-3	30	x	30	6.25		13	NEXT 2 MILES
					W7-3aP	24	x	18	3			
255+05	RT				W8-25	30	x	30	6.25		11	
255+49	LT		1									
256+41	RT		1									
256+80	LT				W1-5L	30	x	30	6.25		13	20 MPH
					W13-1P	18	x	18	2.25			
256+82	RT		1									
SUBTOTALS		5	9	1					80.50	8	177.00	
TOTALS		8	19	1					114.75	8	240.00	

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							MEM	EAV	DTW	12/20/16	

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TABULATION OF DELINEATORS

LOCATION	SIDE	202-00090	210-00090	612-00001			612-00003		REMARKS
		Removal of Delineator	Reset Delineator	Delineator (Type I)			Delineator (Type III)		
		EACH	EACH	CRYSTAL EACH	GREEN EACH	BLUE EACH	YELLOW EACH	GREEN EACH	
S FOURMILE CANYON DRIVE									
48+91	LT / RT			2					
50+01	LT / RT			2					
51+00 TO 98+11	LT / RT	12	33						
51+00	LT / RT			2					
51+40 TO 53+35	LT / RT			12					37' MAX SPACING
52+52	LT / RT						2		
53+50	LT				1				
53+83	LT / RT			2					
54+31 TO 55+88	LT / RT			13					25' MAX SPACING
54+82	LT							1	
55+02	LT				1				
56+11	LT							1	
56+22	RT			1					
56+33	LT			1					
56+44 TO 58+96	RT			5					
56+48	LT						1		
56+58	RT						1		
56+71	LT			1					
58+33	LT			1					
58+58	LT			1					
58+82 TO 58+92	LT			3					7' MAX SPACING
59+08	LT				1				
59+96	LT / RT			2					
60+73 TO 62+81	LT / RT			10					45' MAX SPACING
60+85	LT							1	
63+21	LT / RT			2					
63+61 TO 64+91	LT / RT			8					37' MAX SPACING
65+39	LT / RT			2					
65+87 TO 66+66	LT / RT			8					19' MAX SPACING
66+27	LT						1		
66+74	LT / RT			2					
66+81 TO 67+79	LT / RT			8					25' MAX SPACING
68+30	LT / RT			2					
68+65	LT						1		
68+81 TO 71+55	LT / RT			14					40' MAX SPACING
71+55 TO 72+74	LT / RT			4					33' MAX SPACING
72+31	LT						1		
72+33	RT						1		
72+74 TO 73+83	LT / RT			8					38' MAX SPACING
SUBTOTALS		12	33	116	3	0	8	3	

TABULATION OF DELINEATORS (CONTINUED)

LOCATION	SIDE	202-00090	210-00090	612-00001			612-00003		REMARKS
		Removal of Delineator	Reset Delineator	Delineator (Type I)			Delineator (Type III)		
		EACH	EACH	CRYSTAL EACH	GREEN EACH	BLUE EACH	YELLOW EACH	GREEN EACH	
73+83 TO 76+14	LT / RT			12					33' MAX SPACING
76+14 TO 78+24	LT / RT			14					34' MAX SPACING
76+30	LT						1		
76+35	RT						1		
78+61	LT / RT			2					
78+98 TO 81+08	LT / RT			12					37' MAX SPACING
79+74	LT						1		
79+94	RT						1		
80+02	LT				1				
81+67 TO 84+10	LT / RT			14					40' MAX SPACING
83+09	LT							1	
84+10 TO 86+44	LT / RT			6					57' MAX SPACING
84+46	LT				1				
86+44 TO 88+70	LT / RT			14					37' MAX SPACING
87+67	LT							1	
89+43	LT / RT			2					
90+08	LT						1		
90+53	LT / RT			2					
90+60	RT						1		
91+23	RT						1		
91+43	RT						1		
91+83	RT						1		
93+16	RT			1					
93+56	RT						1		
93+97	RT			1					
94+63	RT			1					
95+15	RT			1			1		
95+68 TO 96+66	RT			4					29' MAX SPACING
95+70	RT						1		
97+13	RT			1					
97+95	RT			1					
SUBTOTALS		0	0	88	2	0	12	2	

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90% 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: MEM	CAD: EAV	CHECKED: DTW	DATE: 12/20/16	FOURMILE CANYON DR ROADWAY TABULATIONS (6 OF 7) PROJECT NO: 4043.SEPT12C36 SHEET NO: 19

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TABULATION OF DELINEATORS (CONTINUED)

LOCATION	SIDE	202-00090	210-00090	612-00001			612-00003		REMARKS
		Removal of Delineator	Reset Delineator	Delineator (Type I)			Delineator (Type III)		
		EACH	EACH	CRYSTAL EACH	GREEN EACH	BLUE EACH	YELLOW EACH	GREEN EACH	
N FOURMILE CANYON DRIVE									
213+09	LT / RT			2					
214+68	LT / RT			2					
215+74 TO 216+72	LT / RT			6					53' MAX SPACING
216+71	LT				1				
216+72 TO 256+87	LT / RT	23	34						
216+72 TO 219+24	LT / RT			12					37' MAX SPACING
219+79 TO 221+31	LT / RT			12					29' MAX SPACING
220+23	LT							1	
220+96	LT				1				
221+31 TO 224+16	LT / RT			6					67' MAX SPACING
224+16 TO 225+83	LT / RT			16					21' MAX SPACING
225+02	LT							1	
226+75	LT / RT			2					
227+38	LT / RT			2					
228+09 TO 229+59	LT / RT			10					43' MAX SPACING
228+90	LT						1		
229+28	LT				1				
229+59 TO 231+78	LT / RT			10					45' MAX SPACING
231+35	LT							1	
232+08 TO 234+02	LT / RT			14					30' MAX SPACING
232+73	LT						1		
232+81	LT	1							ADDRESS SIGN
234+73	LT / RT			2					
235+20	RT			1					
235+43	LT			1					
235+65	LT						1		
236+74	RT						1		
237+44	RT						1		
237+64 TO 238+94	LT / RT			4					92' MAX SPACING
238+26	LT					1			
238+42	LT					1			
238+94 TO 243+33	LT / RT			26					35' MAX SPACING
SUBTOTALS		24	34	128	3	2	5	3	

TABULATION OF DELINEATORS (CONTINUED)

LOCATION	SIDE	202-00090	210-00090	612-00001			612-00003		REMARKS
		Removal of Delineator	Reset Delineator	Delineator (Type I)			Delineator (Type III)		
		EACH	EACH	CRYSTAL EACH	GREEN EACH	BLUE EACH	YELLOW EACH	GREEN EACH	
240+60	LT							1	
240+65	RT							1	
241+79	LT							1	
242+52	RT							1	
242+93	RT							1	
243+05	LT					1			
244+05	LT / RT			2					
244+77 TO 247+73	LT / RT			22					29' MAX SPACING
247+73 TO 249+39	LT / RT			6					45' MAX SPACING
249+40	LT							1	
249+75 TO 251+80	LT / RT			12					35' MAX SPACING
250+58	RT							1	
250+88	RT							1	
251+80 TO 253+72	LT / RT			8					41' MAX SPACING
252+17	LT / RT							2	
252+91	LT							1	
254+41	RT			1					
255+11 TO 256+80	LT / RT			14					27' MAX SPACING
255+65	LT					1			
256+90	LT							1	
SUBTOTALS		0	0	65	2	0	10	2	
TOTALS		36	67	409			45		

90% 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 	DESIGNED:	CAD:	CHECKED:	DATE:	FOURMILE CANYON DR ROADWAY TABULATIONS (7 OF 7) PROJECT NO: 4043.SEPT12C36 SHEET NO: 20
							MEM	EAV	DTW	12/20/16	

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TABULATION OF DRAINAGE STRUCTURES

ID	LOCATION	STATION-OFFSET	LINE		PIPE INVERT ELEVATIONS		GRADE (%)	REMOVAL OF PIPE	PLUG CULVERT	CLEAN CULVERT	UNCLASSIFIED EXCAVATION	STRUCTURE EXCAVATION	STRUCTURE BACKFILL (CLASS 1)	FILTER MATERIAL (CLASS A)	LANDSCAPE BOULDER	GEOTEXTILE (DRAINAGE) (CLASS 1)	RIPRAP (9 INCH)	SOIL RIPRAP (9 INCH)	SOIL RIPRAP (18 INCH)	SOIL RIPRAP (24 INCH)	CONCRETE SLOPE AND DITCH PAVING	CONCRETE CLASS D	CUT STONE VENEER	REINFORCING STEEL	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	30 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	36 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	42 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	23X14 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	30X19 INCH REINFORCED CONCRETE PIPE ELLIPTICAL (COMPLETE IN PLACE)	DESCRIPTION						
			FROM UPPER	TO LOWER	UPPER	LOWER		LF	EA	EA	CY	CY	CY	CY	EA	SY	CY	CY	CY	CY	CY	CY	CY	SF	LB	LF	LF	LF	LF	LF	LF		LF					
P-S-100	S FOURMILE	52+75.00, 34.69' TO 56+46.29, 23.27' RT	24" RCES	24" RCES	5866.36	5865.35	1.76%																															
P-S-101	S FOURMILE	56+52.60, 0.00'	30" x 19" RCES	30" x 19" RCES	5877.75	5877.50	0.64%																												39			
P-S-104	S FOURMILE	62+50.72, 0.00'	HEADWALL S-A	HEADWALL S-B	5896.19	5895.88	0.92%				6	22	10	2			4						6	74	622										35			
P-S-106	S FOURMILE	66+25.61, 0.00'	IN-S-106	18" RCES	5918.10	5917.50	1.04%				6			2			4					1			58													
P-S-107	S FOURMILE	68+70.06, 0.00'	HEADWALL S-C	30" x 19" RCES	5931.14	5930.04	3.03%				8	6	5	2			6						3	37	311										37			
P-S-108	S FOURMILE	72+32.09, 0.00'	30" RCES	30" RCES	5939.75	5938.32	3.57%	81			14			4			10											41										
P-S-110	S FOURMILE	79+84.16, 0.00'	24" RCES	24" RCES	5971.29	5968.84	5.07%				7			2			5									49												
P-S-113	S FOURMILE	90+37.57, 0.00'	23" x 19" RCES	23" x 19" RCES	6003.40	6000.00	4.79%				7			2			5																			72		
RP-S-80	S FOURMILE	80+26.22, 14.00' LT																																				
CH-S-100	S FOURMILE	52+75.00, 34.69' TO 56+46.29, 23.27' RT									70			35		206		103																				
CH-S-101	S FOURMILE	56+90.00, 21.40' TO 62+37.25, 22.34' RT									164			82		490		245																				
CH-S-104	S FOURMILE	62+59.46, 22.05' TO 66+31.27, 21.81' RT									72			36		214		107																				
CH-S-106	S FOURMILE	66+44.29, 19.82' TO 68+69.76, 27.08' RT									44			22		132		66																				
CH-S-107	S FOURMILE	68+85.00, 22.23' TO 72+25.21, 25.93' RT									78			39		232		116																				
CH-S-108	S FOURMILE	72+55.02, 19.88' TO 76+35.70, 21.60' RT									78			39		230		115																				
CH-S-109	S FOURMILE	76+35.70, 21.60' TO 79+85.06, 22.90' RT												1	82		41	241	121																			
CH-S-110	S FOURMILE	80+15.45, 18.17' TO 90+44.03, 21.91' RT														258		129	769	385																		
CH-S-113	S FOURMILE	90+90.00, 21.87' TO 98+14.27, 18.00' RT														2	80		40	234	118																	
WALL S-1	S FOURMILE																																					
WALL S-2	S FOURMILE																																					
WALL S-3	S FOURMILE																																					
WALL S-4	S FOURMILE																																					
WALL S-5	S FOURMILE																																					
P-N-100	N FOURMILE	217+25.19, 0.00'	HEADWALL N-A	WALLN-1	6408.75	6405.65	9.02%				15	22	9	4			11						6	78	693												35	
P-N-103	N FOURMILE	223+85.64, 0.00'	IN-N-103	WALLN-3	6437.13	6436.20	2.09%				4			1			3				1				45													
P-N-104	N FOURMILE	228+94.51, 0.00'	IN-N-104	24" RCES	6456.73	6454.31	5.18%				7			2			5				1				47													
P-N-106	N FOURMILE	232+75.91, 0.00'	HEADWALL N-B	HEADWALL S-C	6478.52	6477.74	1.81%				2	7	4	1			1						6	68	542		44											
P-N-107	N FOURMILE	235+84.74, 0.00'	IN-N-107	MH-N-108C	6492.68	6492.65	0.50%																		9													
P-N-108A	N FOURMILE	238+07.88, 102.70' RT	HEADWALL N-D	MH-N-108A	6489.40	6488.67	1.98%	33	1		121	17		17	14			43					4	58	462												40	
P-N-108B	N FOURMILE	237+69.17, 52.58' RT	MH-N-108A	MH-N-108B	6496.78	6489.90	4.65%																			153												
P-N-108C	N FOURMILE	236+61.22, 7.87' RT	MH-N-108B	MH-N-108C	6504.50	6499.33	5.00%																															
P-N-108D	N FOURMILE	235+74.13, 8.43' LT	MH-N-108C	36" RCES	6521.66	6521.18	4.91%				6			6			18																					
P-N-109	N FOURMILE	237+53.09, 0.00'	HEADWALL N-I	23" x 19" RCES	6501.85	6500.07	3.50%	31				9	4									2	27	209													52	
P-N-110	N FOURMILE	240+62.38, 0.00'	18" RCES	18" RCES	6516.53	6513.98	6.41%				4			1			3								40													
P-N-111	N FOURMILE	241+79.63, 0.00'	HEADWALL N-E	38" x 24" RCES	6521.00	6518.84	5.63%				14	10	5	4			10						3	41	320													
SUBTOTAL								145	1	3	2,779	93	37	719	14	2,748	85	1,419	1,223	0	3	30	383	3,159	152	198	194	40	35	124	111							

90% 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

NO.	DATE	REVISION DESCRIPTION:

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION

Michael Baker INTERNATIONAL

DESIGNED: JAM	CAD: EMR	CHECKED: JAM	DATE: 12/20/16
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FOURMILE CANYON DR
DRAINAGE TABULATIONS (1 OF 4)

PROJECT NO: 4043.SEPT12C36 SHEET NO: 21

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TABULATION OF DRAINAGE STRUCTURES																				
ID	LOCATION	STATION-OFFSET	LINE		PIPE INVERT ELEVATIONS		GRADE (%)	PIPE TYPES										DESCRIPTION		
			FROM UPPER	TO LOWER	UPPER	LOWER		38X24 INCH REINFORCED CONCRETE PIPE ELLIPTICAL (COMPLETE IN PLACE)	18 INCH REINFORCED CONCRETE END SECTION	24 INCH REINFORCED CONCRETE END SECTION	36 INCH REINFORCED CONCRETE END SECTION	23X14 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	30X19 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	38X24 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	8X5 FOOT CONCRETE BOX CULVERT (PRECAST)	INLET TYPE C (5 FOOT)	INLET TYPE C (10 FOOT)		MANHOLE SLAB BASE (10 FOOT)	MANHOLE SLAB BASE (20 FOOT)
								LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
P-S-100	S FOURMILE	52+75.00, 34.69' TO 56+46.29, 23.27' RT	24" RCES	24" RCES	5866.36	5865.35	1.76%			2										
P-S-101	S FOURMILE	56+52.60, 0.00'	30" x 19" RCES	30" x 19" RCES	5877.75	5877.50	0.64%						2							
P-S-104	S FOURMILE	62+50.72, 0.00'	HEADWALL S-A	HEADWALL S-B	5896.19	5895.88	0.92%													
P-S-106	S FOURMILE	66+25.61, 0.00'	IN-S-106	18" RCES	5918.10	5917.50	1.04%		1							1				
P-S-107	S FOURMILE	68+70.06, 0.00'	HEADWALL S-C	30" x 19" RCES	5931.14	5930.04	3.03%						1							
P-S-108	S FOURMILE	72+32.09, 0.00'	30" RCES	30" RCES	5939.75	5938.32	3.57%						2							
P-S-110	S FOURMILE	79+84.16, 0.00'	24" RCES	24" RCES	5971.29	5968.84	5.07%			2										
P-S-113	S FOURMILE	90+37.57, 0.00'	23" x 19" RCES	23" x 19" RCES	6003.40	6000.00	4.79%					2								
RP-S-80	S FOURMILE	80+26.22, 14.00' LT																		
CH-S-100	S FOURMILE	52+75.00, 34.69' TO 56+46.29, 23.27' RT																		
CH-S-101	S FOURMILE	56+90.00, 21.40' TO 62+37.25, 22.34' RT																		
CH-S-104	S FOURMILE	62+59.46, 22.05' TO 66+31.27, 21.81' RT																		
CH-S-106	S FOURMILE	66+44.29, 19.82' TO 68+69.76, 27.08' RT																		
CH-S-107	S FOURMILE	68+85.00, 22.23' TO 72+25.21, 25.93' RT																		
CH-S-108	S FOURMILE	72+55.02, 19.88' TO 76+35.70, 21.60' RT																		
CH-S-109	S FOURMILE	76+35.70, 21.60' TO 79+85.06, 22.90' RT																		
CH-S-110	S FOURMILE	80+15.45, 18.17' TO 90+44.03, 21.91' RT																		
CH-S-113	S FOURMILE	90+90.00, 21.87' TO 98+14.27, 18.00' RT																		
WALL S-1	S FOURMILE																			
WALL S-2	S FOURMILE																			
WALL S-3	S FOURMILE																			
WALL S-4	S FOURMILE																			
WALL S-5	S FOURMILE																			
P-N-100	N FOURMILE	217+25.19, 0.00'	HEADWALL N-A	WALLN-1	6408.75	6405.65	9.02%													
P-N-103	N FOURMILE	223+85.64, 0.00'	IN-N-103	WALLN-3	6437.13	6436.20	2.09%								1					
P-N-104	N FOURMILE	228+94.51, 0.00'	IN-N-104	24" RCES	6456.73	6454.31	5.18%			1					1					
P-N-106	N FOURMILE	232+75.91, 0.00'	HEADWALL N-B	HEADWALL S-C	6478.52	6477.74	1.81%													
P-N-107	N FOURMILE	235+84.74, 0.00'	IN-N-107	MH-N-108C	6492.68	6492.65	0.50%								1					
P-N-108A	N FOURMILE	238+07.88, 102.70' RT	HEADWALL N-D	MH-N-108A	6489.40	6488.67	1.98%											1		
P-N-108B	N FOURMILE	237+69.17, 52.58' RT	MH-N-108A	MH-N-108B	6496.78	6489.90	4.65%											1		
P-N-108C	N FOURMILE	236+61.22, 7.87' RT	MH-N-108B	MH-N-108C	6504.50	6499.33	5.00%	109										1		
P-N-108D	N FOURMILE	235+74.13, 8.43' LT	MH-N-108C	36" RCES	6521.66	6521.18	4.91%	13			1									
P-N-109	N FOURMILE	237+53.09, 0.00'	HEADWALL N-I	23" x 19" RCES	6501.85	6500.07	3.50%					1								
P-N-110	N FOURMILE	240+62.38, 0.00'	18" RCES	18" RCES	6516.53	6513.98	6.41%		2											
P-N-111	N FOURMILE	241+79.63, 0.00'	HEADWALL N-E	38" x 24" RCES	6521.00	6518.84	5.63%	39						1						
SUBTOTAL																				
								161	3	5	1	3	5	1	0	3	1	2	1	

90% 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:	FOURMILE CANYON DR DRAINAGE TABULATIONS (2 OF 4)
								JAM	EMR	JAM	12/20/16	

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TABULATION OF DRAINAGE STRUCTURES

ID	LOCATION	STATION-OFFSET	LINE		PIPE INVERT ELEVATIONS		GRADE (%)	REMOVAL OF PIPE	PLUG CULVERT	CLEAN CULVERT	UNCLASSIFIED EXCAVATION	STRUCTURE EXCAVATION	STRUCTURE BACKFILL (CLASS 1)	FILTER MATERIAL (CLASS A)	LANDSCAPE BOULDER	GEOTEXTILE (DRAINAGE) (CLASS 1)	RIPRAP (9 INCH)	SOIL RIPRAP (9 INCH)	SOIL RIPRAP (18 INCH)	SOIL RIPRAP (24 INCH)	CONCRETE SLOPE AND DITCH PAVING	CONCRETE CLASS D	CUT STONE VENEER	REINFORCING STEEL	18 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	24 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	30 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	36 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	42 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	23X14 INCH REINFORCED CONCRETE PIPE (COMPLETE IN PLACE)	30X19 INCH REINFORCED CONCRETE PIPE ELLIPTICAL (COMPLETE IN PLACE)	DESCRIPTION							
			FROM UPPER	TO LOWER	UPPER	LOWER		LF	EA	EA	CY	CY	CY	CY	EA	SY	CY	CY	CY	CY	CY	CY	SF	LB	LF	LF	LF	LF	LF	LF	LF								
P-N-112	N FOURMILE	235+78.33, 19.93' RT	18" RCES	18" RCES	6527.24	6526.00	3.49%																		36														
P-N-115	N FOURMILE	250+48.65, 0.00'	HEADWALL N-F	HEADWALL N-G	6559.57	6557.96	3.94%	40			47	489	141	16		45	23	23					32	255	3840														
P-N-116	N FOURMILE	228+94.51, 0.00'	24" RCES	24" RCES	6566.75	6565.08	5.87%																			29													
P-N-117	N FOURMILE	223+85.64, 0.00'	HEADWALL N-H	24" RCES	6575.73	6572.29	8.59%	40			7	2	4	2			5					3	34	271	41														
RP-N-217	N FOURMILE	216+72.14, 13.30' LT									4			1			3																						
RP-N-223	N FOURMILE	222+66.00, 16.58' LT																																					
RP-N-229	N FOURMILE	229+39.11, 12.00' LT																																					
RP-N-243	N FOURMILE	243+03.60, 12.00' LT																																					
CH-N-100	N FOURMILE	216+72.14, 19.85' TO 221+64.00, 23.95' RT									136			68		405		203																					
CH-N-103	N FOURMILE	224+00.01, 21.75' TO 228+91.77, 25.47' RT									148			74		441		221																					
CH-N-104	N FOURMILE	229+10.00, 18.59' TO 232+70.84, 23.16' RT									78			39		231		116																					
CH-N-106	N FOURMILE	232+98.50, 21.71' TO 235+20.28, 16.50' RT						33			50			25		146		73																					
CH-N-107	N FOURMILE	235+69.06, 20.07' TO 236+84.25, 21.32' RT									22			11		64		32			1																		
CH-N-109	N FOURMILE	237+89.88, 18.51' TO 240+54.62, 21.18' RT									60			30		175		88																					
CH-N-110	N FOURMILE	240+83.22, 21.91' TO 241+71.68, 21.00' RT									28			14		79		40																					
CH-N-111	N FOURMILE	241+88.12, 23.00' TO 242+47.41, 23.97' RT									24			12		72		36																					
CH-N-114/112	N FOURMILE	243+10.05, 20.89' TO 250+35.00, 19.17' RT									156			78		467		234																					
CH-N-116	N FOURMILE	251+08.58, 21.00' TO 252+94.56, 22.93' RT									58			29		174		87																					
CH-N-117	N FOURMILE	253+15.00, 20.25' TO 256+86.71, 18.54' RT									66			33		193		97																					
WALL N-1	N FOURMILE										1268			127							1014																		
WALL N-2	N FOURMILE										430			43							344																		
WALL N-3	N FOURMILE										510			64				382																					
WALL N-4	N FOURMILE										547			55							437																		
WALL N-5	N FOURMILE										1466			147							1172																		
WALL N-6	N FOURMILE										596			75				447																					
WALL N-7	N FOURMILE										427			54							320																		
SUBTOTAL								113	0	0	6,128	491	145	997	0	2,492	31	1,250	829	3,287	1	35	289	4,111	36	70	0	0	0	0	0	0	0	0					
TOTAL								258	1	3	8,907	584	182	1,716	14	5,240	116	2,669	2,052	3,287	4	65	672	7,270	188	268	194	40	35	124	111								

90% 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:	PROJECT NO: 4043.SEPT12C36 SHEET NO: 23
								JAM	EMR	JAM	12/20/16	

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TABULATION OF DRAINAGE STRUCTURES																					
ID	LOCATION	STATION-OFFSET	LINE		PIPE INVERT ELEVATIONS		GRADE (%)	38X24 INCH REINFORCED CONCRETE PIPE ELLIPTICAL (COMPLETE IN PLACE)		18 INCH REINFORCED CONCRETE END SECTION	24 INCH REINFORCED CONCRETE END SECTION	36 INCH REINFORCED CONCRETE END SECTION	23X14 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	30X19 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	38X24 INCH REINFORCED CONCRETE END SECTION ELLIPTICAL	8X5 FOOT CONCRETE BOX CULVERT (PRECAST)	INLET TYPE C (5 FOOT)	INLET TYPE C (10 FOOT)	MANHOLE SLAB BASE (10 FOOT)	MANHOLE SLAB BASE (20 FOOT)	DESCRIPTION
			FROM UPPER	TO LOWER	UPPER	LOWER		LF	EA												
P-N-112	N FOURMILE	235+78.33, 19.93' RT	18" RCES	18" RCES	6527.24	6526.00	3.49%		2												
P-N-115	N FOURMILE	250+48.65, 0.00'	HEADWALL N-F	HEADWALL N-G	6559.57	6557.96	3.94%									41					
P-N-116	N FOURMILE	228+94.51, 0.00'	24" RCES	24" RCES	6566.75	6565.08	5.87%				2										
P-N-117	N FOURMILE	223+85.64, 0.00'	HEADWALL N-H	24" RCES	6575.73	6572.29	8.59%				1										
RP-N-217	N FOURMILE	216+72.14, 13.30' LT																			
RP-N-223	N FOURMILE	222+66.00, 16.58' LT																			
RP-N-229	N FOURMILE	229+39.11, 12.00' LT																			
RP-N-243	N FOURMILE	243+03.60, 12.00' LT																			
CH-N-100	N FOURMILE	216+72.14, 19.85' TO 221+64.00, 23.95' RT																			
CH-N-103	N FOURMILE	224+00.01, 21.75' TO 228+91.77, 25.47' RT																			
CH-N-104	N FOURMILE	229+10.00, 18.59' TO 232+70.84, 23.16' RT																			
CH-N-106	N FOURMILE	232+98.50, 21.71' TO 235+20.28, 16.50' RT																			
CH-N-107	N FOURMILE	235+69.06, 20.07' TO 236+84.25, 21.32' RT																			
CH-N-109	N FOURMILE	237+89.88, 18.51' TO 240+54.62, 21.18' RT																			
CH-N-110	N FOURMILE	240+83.22, 21.91' TO 241+71.68, 21.00' RT																			
CH-N-111	N FOURMILE	241+88.12, 23.00' TO 242+47.41, 23.97' RT																			
CH-N-114/112	N FOURMILE	243+10.05, 20.89' TO 250+35.00, 19.17' RT																			
CH-N-116	N FOURMILE	251+08.58, 21.00' TO 252+94.56, 22.93' RT																			
CH-N-117	N FOURMILE	253+15.00, 20.25' TO 256+86.71, 18.54' RT																			
WALL N-1	N FOURMILE																				
WALL N-2	N FOURMILE																				
WALL N-3	N FOURMILE																				
WALL N-4	N FOURMILE																				
WALL N-5	N FOURMILE																				
WALL N-6	N FOURMILE																				
WALL N-7	N FOURMILE																				
SUBTOTAL								0	2	3	0	0	0	0	41	0	0	0	0		
TOTAL								161	5	8	1	3	5	1	41	3	1	2	1		

90% 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:	FOURMILE CANYON DR DRAINAGE TABULATIONS (4 OF 4) PROJECT NO: 4043.SEPT12C36 SHEET NO: 24
							JAM	EMR	JAM	12/20/16	

Mary_Monks 10:27:47 PM 12/18/2016 pm\DCPW\APP\libr.mbakercorp.com\prowod\Documents\Projects\Lakewood\Office\Boulder\County\Emergency-Transportation\T03\08_Sheet_1_Files\VD_General\Sheets\DGNT_Fourmile_Tab_Survey.dgn

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

- Format *
- Horizontal Control Plans
 - Vertical Control Plans
 - Roadway Alignment Plans
 - Original Terrain Data _____
 - Other: _____

* Specify the information format, i.e., plan sheet, computer disk, computer printout, or other. The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- Landscaping
- Signalization
- Safety Improvement
- Asphalt Overlay
- Concrete Overlay
- Minor Widening
- Major Reconstruction
- New Roadway Construction
- Bridge Replacement
- Bridge Widening
- New Bridge
- Other: Flood Recovery and Restoration

SURVEY WORK TO BE PERFORMED BY OTHERS: _____

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 625:

- Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- Verification and Maintenance of Horizontal and Vertical Control
- Verify or Determine existing grades and alignments
- Verify or Determine existing topography
- GPS/RTS (Global Positioning System/Robotic Total Station) Construction Machine Control
- Clearing and Grubbing Limits (Section 201)
- Removal Limits (Section 202)
- Reset Items (Section 210)
- Excavation and Embankment (Section 203)

- Excavation**
- Unclassified
 - Stripping
 - Muck
 - Rock
 - Borrow
 - Other: _____
 - Potholing

- Embankment**
- Site Grading
 - Erosion Control (Perm)
 - Other: _____
 - As Staked Earthwork Quantities (See General Notes)

- Landscaping
- Top Soil (Section 207)
 - Seeding (Section 212)
 - Mulching (Section 213)
 - Planting (Section 214)
 - Herbicide (Section 217)
 - Other: Seeding Boundaries

- Erosion Control (Section 208)
- Seeding (Temp)
 - Silt Fence
 - Erosion Bales
 - Erosion Logs
 - Riprap (Temp)
 - Other: _____

- Roadway Bases
- Untreated Subgrade
 - Treated Subgrade
 - Aggregate Base Course (Section 304)
 - Reconditioning
 - PMBB - Plant Mix Bituminous Base
 - Other: _____

	Slope Staking (Y/N)	Grid (Y/N)	Grade (Y/N)	Special Interval
Excavation	Y	N	Y	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-

	Slope Staking (Y/N)	Grid (Y/N)	Grade (Y/N)	Special Interval
Embankment	Y	N	Y	-
	-	-	-	-
	-	-	-	-
	-	-	-	-
	-	-	-	-

Roadway Bases	Grid (Y/N)	Grade (Y/N)	Special Interval	Special Offset
-	-	-	-	-
N	Y	-	-	-
-	-	-	-	-
-	-	-	-	-

- Pavements
- HMA - Hot Mix Asphalt (Section 403)
 - Concrete (Section 412)
 - Heating & Scarifying Treatment
 - Prime Coat, Tack Coat & Rejuvenating Agent (Section 407)
 - Seal Coat or Chip Seal (Section 409)
 - Other: _____

Pavements	Grid (Y/N)	Special Interval	Special Offset
N	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

- Roadway Elements
- Curb and Gutter (Section 609)
 - Drop inlets - alignment and grades (Section 604)
 - Retaining Walls
 - Guard Rail (Section 606)
 - Sidewalk (Section 608)
 - Overlay Stationing
 - Other: Fire Department Pullouts

Curb & Gutter	Tangent Interval	Curve Interval	Special Offset
-	-	-	-

- Riprap (Perm) (Section 506)
- Slope and Ditch Paving (Section 507)

Stationing	Left Interval	Center Interval	Right Interval
-	-	-	-

- Minor Structures
- Structure Excavation limits (Section 206)
 - Culverts (Section 603)
 - Culverts w/ Headwalls and Wingwalls (Section 601)
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Pipes (Section 603)
 - Sanitary Sewer
 - Storm Sewer
 - Water
 - Irrigation
 - Miscellaneous
 - Manholes (Section 604)
 - Inlets (Section 604)
 - Permanent Water Quality BMP (Section 208)
 - Other: _____

- Major Structures - Overhead Signs (Section 614), Concrete Box Culverts, Bridges - and all other structures assigned a structure number
- Structure Excavation limits (Section 206)
 - Concrete Box Culverts (Section 603) w/ Headwalls and Wingwalls (Section 601)
 - Piling locations and cut off elevations (Section 502)
 - Caisson locations and elevations (Section 503)
 - Footing locations, alignment, and elevations
 - Abutment/Pier locations, alignment, and elevations
 - Wingwall skew angles/offsets
 - Structural concrete form locations
 - Substructure As-constructed survey required for Bridges (Subsection 601.12) and Overhead signs (S-614-50)
 - Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
 - Deck grades at Girder 10th or "n" th point locations and elevations
 - Slope and Ditch Paving (Section 507)
 - Other: Retaining Walls

- Fencing (Section 607)
- Temporary
 - Permanent
 - Sound Barrier
 - Other: _____

- Delineators (Section 612)
- Temporary
 - Permanent

- Lighting (Section 613) and Traffic Control Devices (Permanent) (Section 614)
- Signal pole locations and elevations
 - Light pole locations and elevations
 - Sign locations
 - Field verify sign post locations, elevations, and lengths before fabrication.
 - Other: _____

- Pavement Marking (Section 627)
 - Striping (Temp)
 - Striping (Perm)
 - Symbols
 - Other: _____
- Temporary Lighting and Construction Traffic Control Devices (Section 630)
 - Signal pole locations and elevations (Temp)
 - Light pole locations and elevations (Temp)
 - Sign Locations (Temp)
 - Other: _____
- All Easements (Temp Staking by P.L.S. Only)
- Right of Way (Temp Staking by P.L.S. Only)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER SECTION 629:

- Monumentation (Section 629)
 - Control
 - Right of Way
 - Land corners, Aliquot corners
 - Easements
 - Reference the specified existing monuments: ** _____
 - Replace the specified existing monuments: ** _____
 - Locate monuments. It is estimated _____ hours are required.

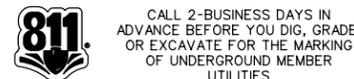
NOTE: All 629 items shall include adequate research, calculations, and evaluations of evidence for monuments to be set.

** A Tabulation of Survey Monuments may be provided on the plans.

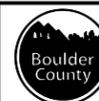
GENERAL NOTES:

- Unless indicated otherwise on this Survey Tabulation Sheet, all survey work and staking intervals shall be done in accordance with the latest edition of the CDDT Survey Manual.
- Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.
- The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer 3 days prior to the Presurvey Conference - Construction Survey.
- Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.
- The Contractor shall furnish an As Staked (or GPS/RTS Construction Machine Control) Earthwork Quantity report to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDDT Survey Manual. A printed copy of the As Staked (or GPS/RTS Construction Machine Control) Earthwork data report and a computer disk with that information on it, in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at a maximum 500 feet intervals.
- Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within specified tolerance.
- The Contractor's surveyor shall perform all field surveying and calculations necessary to tie plan grades into field grades.
- The Contractor shall coordinate construction staking on the project with any utility work.
- Fieldbooks shall contain daily records of points set and or measurements observed. The information recorded shall contain: date, crew members' names, point no., description, staking information, and sketches. If the survey information is collected electronically, information recorded shall be provided to the Project Engineer in a hard copy format that is intuitive, clear and related to the supplemental information recorded in the field books. All linear surveys, such as slope stakes and blue tops, shall have the station and offset information related to the measured information. Non-linear surveys such as structures staking shall have sketches relating electronic information, such as point numbers, to the sketch.
- The Contractor's surveyor shall submit the following fieldbooks to the Engineer:
 - Horizontal Control (Primary & Secondary)
 - Vertical Control (i.e. Benchmarks)
 - Property Pin Ties
 - Horizontal Alignment
 - Grading
 - Slope Staking
 - Minor Structures
 - Major Structures
 - One fieldbook for each work category shown on this sheet
 - Other Fieldbook(s): _____

90% SET



REVISIONS:	NO.	DATE	REVISION DESCRIPTION:



BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION

Michael Baker INTERNATIONAL

DESIGNED: **DEA** CAD: **DEA** CHECKED: **DEA** DATE: **12/20/16**

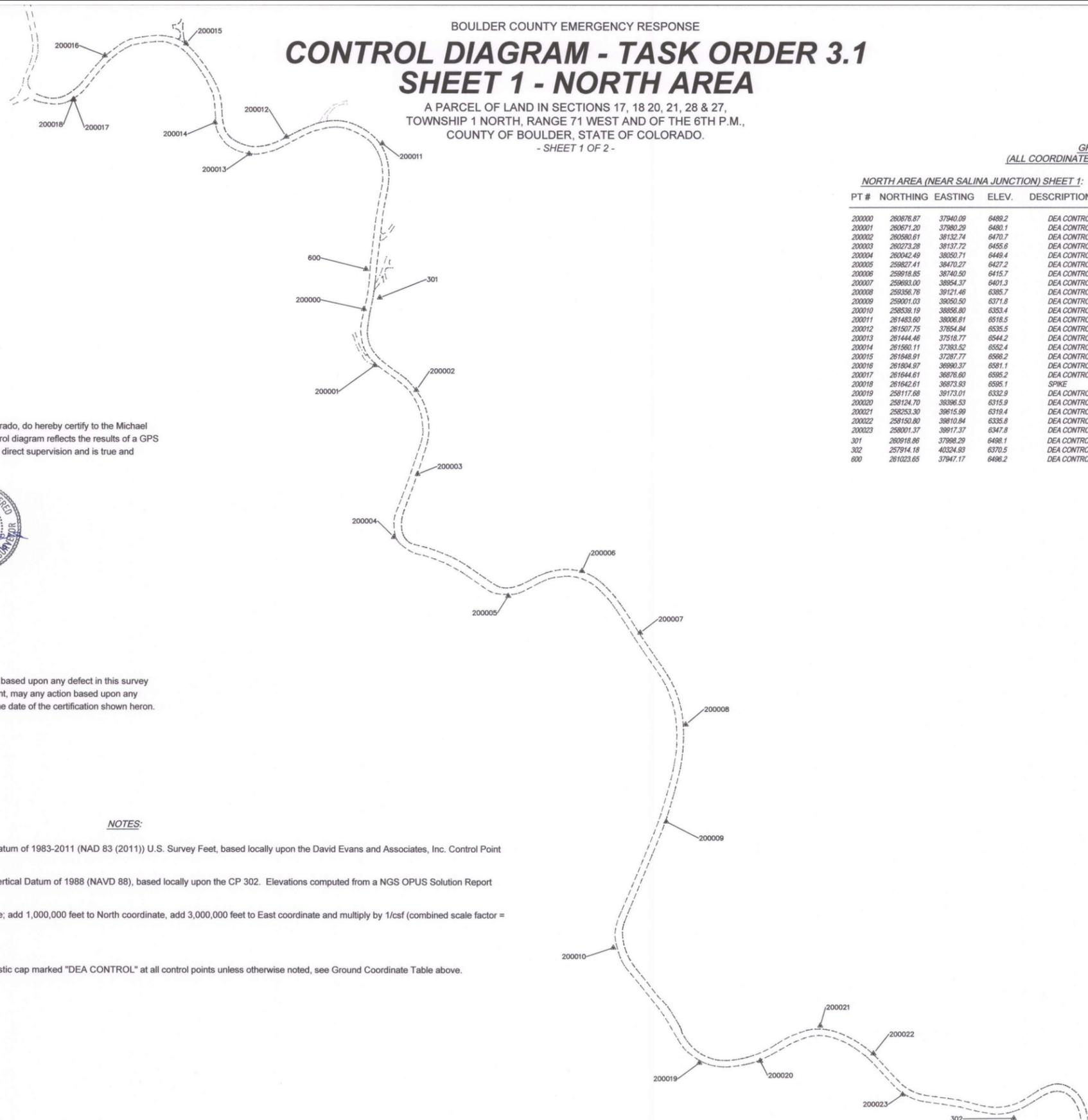
FOURMILE CANYON DR SURVEY TABULATION

PROJECT NO: 4043.SEPT12C36 SHEET NO: 25

BOULDER COUNTY EMERGENCY RESPONSE
CONTROL DIAGRAM - TASK ORDER 3.1
SHEET 1 - NORTH AREA

A PARCEL OF LAND IN SECTIONS 17, 18 20, 21, 28 & 27,
 TOWNSHIP 1 NORTH, RANGE 71 WEST AND OF THE 6TH P.M.,
 COUNTY OF BOULDER, STATE OF COLORADO.

- SHEET 1 OF 2 -



GROUND COORDINATE TABLE:
 (ALL COORDINATES AND ELEVATIONS ARE U.S. SURVEY FEET)

NORTH AREA (NEAR SALINA JUNCTION) SHEET 1:

PT #	NORTHING	EASTING	ELEV.	DESCRIPTION
200000	260676.87	37940.09	6489.2	DEA CONTROL
200001	260671.20	37980.29	6480.1	DEA CONTROL
200002	260580.61	38132.74	6470.7	DEA CONTROL
200003	260273.28	38137.72	6455.6	DEA CONTROL
200004	260042.49	38050.71	6449.4	DEA CONTROL
200005	259827.41	38470.27	6427.2	DEA CONTROL
200006	259918.85	38740.50	6415.7	DEA CONTROL
200007	259693.00	38854.37	6401.3	DEA CONTROL
200008	259356.78	39121.46	6385.7	DEA CONTROL
200009	259001.03	39050.50	6371.8	DEA CONTROL
200010	258538.19	38856.80	6353.4	DEA CONTROL
200011	261483.60	38006.81	6518.5	DEA CONTROL
200012	261507.75	37654.84	6535.5	DEA CONTROL
200013	261444.46	37518.77	6544.2	DEA CONTROL
200014	261560.11	37383.52	6552.4	DEA CONTROL
200015	261648.91	37287.77	6568.2	DEA CONTROL
200016	261804.97	36980.37	6581.1	DEA CONTROL
200017	261644.61	36876.80	6595.2	DEA CONTROL
200018	261642.61	36873.03	6595.1	SPIKE
200019	258117.68	39173.01	6332.9	DEA CONTROL
200020	258124.70	39396.53	6315.9	DEA CONTROL
200021	258253.30	39615.99	6319.4	DEA CONTROL
200022	258150.80	39810.84	6335.8	DEA CONTROL
200023	258001.37	39917.37	6347.8	DEA CONTROL
301	260918.86	37988.29	6498.1	DEA CONTROL
302	257914.18	40324.93	6370.5	DEA CONTROL
600	261023.65	37947.17	6496.2	DEA CONTROL

SOUTH AREA (NEAR HWY 119) SHEET 2:

PT #	NORTHING	EASTING	ELEV.	DESCRIPTION
100024	250346.27	49628.87	5778.8	DEA CONTROL
100025	250584.07	49585.56	5782.8	DEA CONTROL
100026	250804.54	49454.93	5785.6	DEA CONTROL
100027	250954.12	49269.71	5789.4	DEA CONTROL
100028	251448.15	49154.43	5804.0	DEA CONTROL
100029	251775.98	48956.33	5813.3	DEA CONTROL
100030	252138.37	48818.35	5819.7	DEA CONTROL
100031	252358.11	48633.73	5833.5	DEA CONTROL
100032	252388.93	48448.51	5838.5	DEA CONTROL
100033	252539.38	48137.93	5844.6	DEA CONTROL
100034	252404.68	47776.29	5854.4	DEA CONTROL
100035	252587.78	47473.35	5864.2	DEA CONTROL
100036	252553.99	47306.24	5871.4	DEA CONTROL
100037	252419.86	47133.40	5878.9	DEA CONTROL
100038	252722.06	46843.57	5895.1	DEA CONTROL
100039	252974.75	46500.09	5904.2	DEA CONTROL
100040	253150.97	46243.37	5927.2	DEA CONTROL
100041	253471.20	46308.88	5938.1	DEA CONTROL
100042	253729.30	45913.88	5956.6	DEA CONTROL
100043	254036.92	45883.37	5967.8	DEA CONTROL
100044	254102.26	45603.49	5977.0	DEA CONTROL
100045	254091.47	45343.27	5984.2	DEA CONTROL
100046	254393.02	45181.84	5995.4	DEA CONTROL
100047	254546.20	45253.45	5999.5	DEA CONTROL
100080	261604.11	36954.36	6503.1	DEA CONTROL
100465	261591.18	37329.25	6557.3	DEA CONTROL
100466	261447.49	37386.42	6532.1	DEA CONTROL
100609	261381.20	37569.77	6523.8	DEA CONTROL
101071	260638.48	38026.63	6475.4	DEA CONTROL
101186	260011.76	38071.33	6448.3	DEA CONTROL
101165	259876.02	38358.17	6431.5	DEA CONTROL
101164	259866.71	38213.78	6438.4	DEA CONTROL
101255	259728.03	38483.34	6407.2	DEA CONTROL
102091	259786.42	38614.89	6395.8	DEA CONTROL
102181	259788.31	38588.82	6386.3	DEA CONTROL
102182	259655.25	38686.38	6391.5	DEA CONTROL
102183	259855.84	38794.09	6410.3	DEA CONTROL
102235	259749.65	38830.01	6383.8	#5 REBAR NO CAP
102344	261144.17	37955.05	6502.8	DEA CONTROL
102422	248602.28	51625.47	5895.2	2-1/2" ALUMINUM CAP
102423	248610.54	49179.72	5897.9	STONE IN MOUND
102494	260145.40	38047.32	6449.4	DEA CONTROL
102532	260425.78	38125.45	6456.6	#5 REBAR OPC "DEA INC"
102592	260916.04	38053.09	6473.9	80# NAIL
102721	261635.00	38675.71	6598.9	80# NAIL
102827	261086.85	37956.27	6498.1	80# NAIL
102954	261386.63	37997.17	6512.5	80# NAIL
500008	259356.78	39121.46	6385.8	DEA CONTROL
500009	259001.03	39050.50	6371.9	DEA CONTROL

I, Todd G. Beers, A Licensed Land Surveyor in the State of Colorado, do hereby certify to the Michael Baker International and Boulder County, Colorado, that this control diagram reflects the results of a GPS Control Survey completed on October 20, 2014, made under my direct supervision and is true and correct to the best of my knowledge and belief.



Todd G. Beers, Professional Land Surveyor
 State of Colorado P.L.S. Number 30822
 Fore and on behalf of David Evans and Associates, Inc.

Notice:

According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

NOTES:

- The basis of coordinates for this map is the North America Datum of 1983-2011 (NAD 83 (2011)) U.S. Survey Feet, based locally upon the David Evans and Associates, Inc. Control Point DEA CP 302 for ground coordinate scale factor determination.
- The basis of elevations for this map is the North American Vertical Datum of 1988 (NAVD 88), based locally upon the CP 302. Elevations computed from a NGS OPUS Solution Report using a four (4) hour occupation data set at DEA CP 302.
- To modify ground control to Colorado State Plane North Zone; add 1,000,000 feet to North coordinate, add 3,000,000 feet to East coordinate and multiply by 1/csf (combined scale factor = 1/1.000328515 = 0.999671593).
- Fieldwork for control was completed October, 2014.
- Set 18" long #5 rebar with 1-1/4" outside diameter yellow plastic cap marked "DEA CONTROL" at all control points unless otherwise noted, see Ground Coordinate Table above.



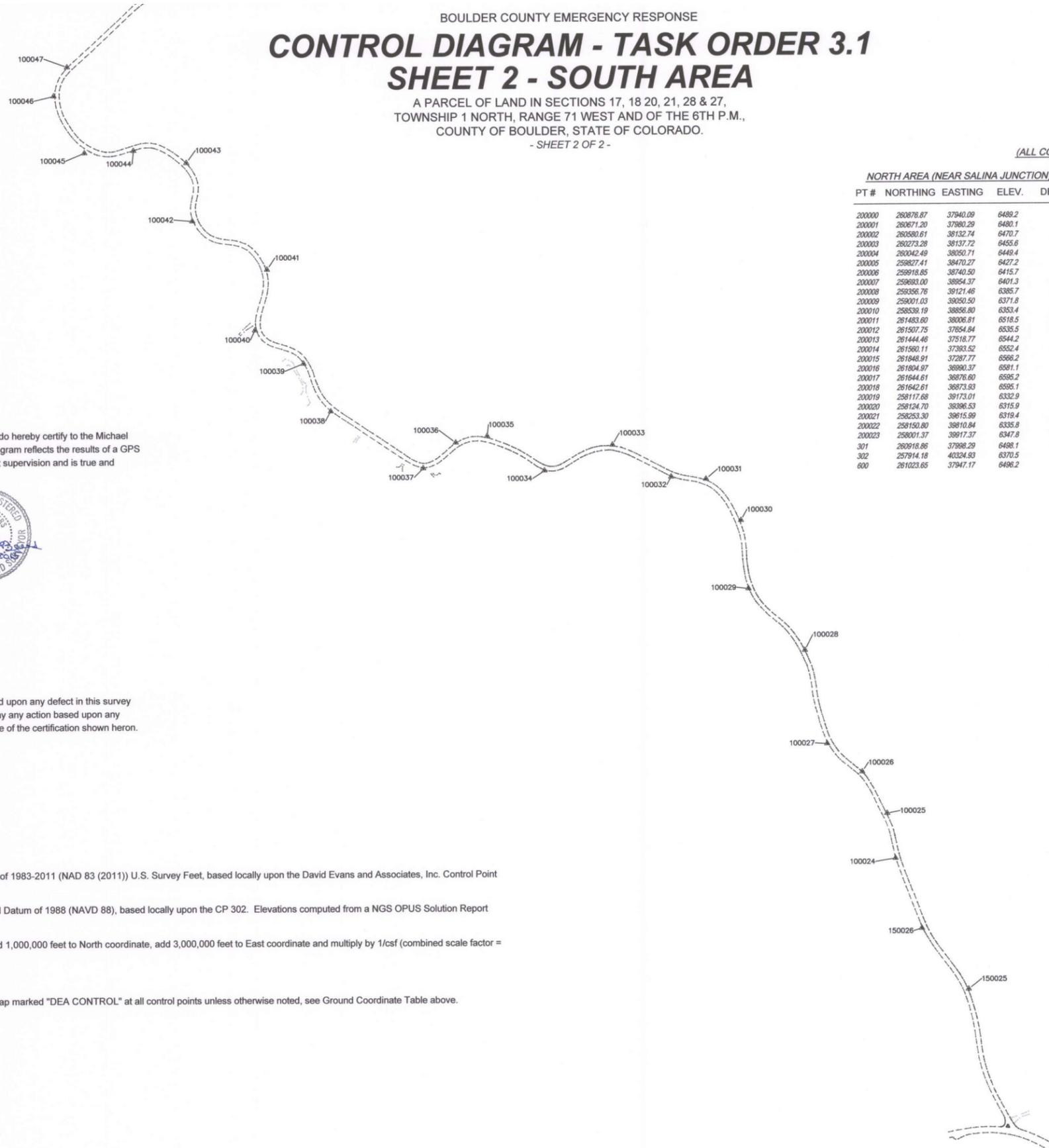
90% SET	CALL UTILITY NOTIFICATION CENTER OF COLORADO CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES	NO.	DATE	REVISION DESCRIPTION:	BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION Michael Baker INTERNATIONAL	DESIGNED:	CAD:	CHECKED:	DATE:	FOURMILE CANYON DR SURVEY CONTROL DIAGRAM PROJECT NO: 4043.SEPT12C36 SHEET NO: 26
						MJM	MJM	MJK	12/20/16	

CONTROL DIAGRAM - TASK ORDER 3.1 SHEET 2 - SOUTH AREA

A PARCEL OF LAND IN SECTIONS 17, 18 20, 21, 28 & 27,
TOWNSHIP 1 NORTH, RANGE 71 WEST AND OF THE 6TH P.M.,
COUNTY OF BOULDER, STATE OF COLORADO.

- SHEET 2 OF 2 -

GROUND COORDINATE TABLE:
(ALL COORDINATES AND ELEVATIONS ARE U.S. SURVEY FEET)



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200003	260273.28	38137.72	6455.6	DEA CONTROL
200004	260042.49	38050.71	6448.4	DEA CONTROL
200005	259827.41	38470.27	6427.2	DEA CONTROL
200006	259918.85	38740.50	6415.7	DEA CONTROL
200007	259693.00	38954.37	6401.3	DEA CONTROL
200008	259356.76	39121.46	6385.7	DEA CONTROL
200009	259001.03	39050.50	6371.8	DEA CONTROL
200010	258539.19	38856.80	6353.4	DEA CONTROL
200011	261483.60	38006.81	6516.5	DEA CONTROL
200012	261507.75	37654.84	6535.5	DEA CONTROL
200013	261444.48	37518.77	6544.2	DEA CONTROL
200014	261580.11	37383.52	6552.4	DEA CONTROL
200015	261848.91	37287.77	6566.2	DEA CONTROL
200016	261804.97	36990.37	6581.1	DEA CONTROL
200017	261644.61	36876.60	6595.2	DEA CONTROL
200018	261642.61	36873.93	6595.1	SPIKE
200019	258117.68	39173.01	6332.9	DEA CONTROL
200020	258124.70	39396.53	6315.9	DEA CONTROL
200021	258253.30	39815.99	6319.4	DEA CONTROL
200022	258150.80	39810.84	6335.8	DEA CONTROL
200023	258001.37	39917.37	6347.8	DEA CONTROL
301	260818.88	37988.29	6498.1	DEA CONTROL
302	257914.18	40324.83	6370.5	DEA CONTROL
600	261023.65	37947.17	6496.2	DEA CONTROL

SOUTH AREA (NEAR HWY 119) SHEET 2:

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100029	251775.98	48856.33	5813.3	DEA CONTROL
100030	252136.37	48818.35	5819.7	DEA CONTROL
100031	252356.11	48633.73	5833.5	DEA CONTROL
100032	252368.93	48448.51	5838.5	DEA CONTROL
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100035	252587.78	47473.35	5864.2	DEA CONTROL
100036	252553.99	47306.24	5871.4	DEA CONTROL
100037	252419.86	47133.40	5878.9	DEA CONTROL
100038	252722.06	46843.57	5885.1	DEA CONTROL
100039	252974.75	46500.09	5904.2	DEA CONTROL
100040	253150.97	46243.37	5927.2	DEA CONTROL
100041	253471.20	46308.88	5938.1	DEA CONTROL
100042	253729.30	45913.88	5956.6	DEA CONTROL
100043	254036.92	45883.37	5967.8	DEA CONTROL
100044	254102.26	45803.49	5977.0	DEA CONTROL
100045	254091.47	45343.27	5984.2	DEA CONTROL
100046	254383.02	45181.64	5995.4	DEA CONTROL
100047	254546.20	45253.45	5999.5	DEA CONTROL
100048	261604.11	36854.36	6583.1	DEA CONTROL
100485	261591.18	37329.25	6557.3	DEA CONTROL
100486	261447.49	37386.42	6532.1	DEA CONTROL
100609	261361.20	37569.77	6523.8	DEA CONTROL
101071	260638.48	38026.63	6475.4	DEA CONTROL
101166	260011.76	38071.33	6448.3	DEA CONTROL
101165	259876.02	38358.17	6431.5	DEA CONTROL
101164	259860.71	38213.78	6438.4	DEA CONTROL
101255	259728.03	38483.34	6407.2	DEA CONTROL
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102182	259855.25	38896.38	6391.5	DEA CONTROL
102183	259855.84	38794.09	6410.3	DEA CONTROL
102235	259749.65	38830.01	6383.8	#5 REBAR NO CAP
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102532	260425.78	38125.45	6456.6	#5 REBAR OPC "DEA INC"
102692	260616.04	38053.09	6473.9	60# NAIL
102721	261635.00	36675.71	6598.9	60# NAIL
102827	261066.85	37956.27	6488.1	60# NAIL
102954	261386.63	37997.17	6512.5	60# NAIL
500008	259356.76	39121.46	6385.8	DEA CONTROL
500009	259001.03	39050.50	6371.9	DEA CONTROL

I, Todd G. Beers, A Licensed Land Surveyor in the State of Colorado, do hereby certify to the Michael Baker International and Boulder County, Colorado, that this control diagram reflects the results of a GPS Control Survey completed on October 20, 2014, made under my direct supervision and is true and correct to the best of my knowledge and belief.

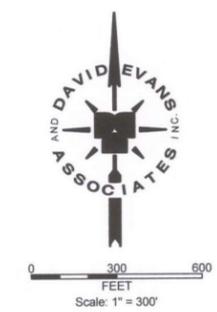


Todd G. Beers, Professional Land Surveyor
State of Colorado P.L.S. Number 30822
Fore and on behalf of David Evans and Associates, Inc.

Notice:

According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

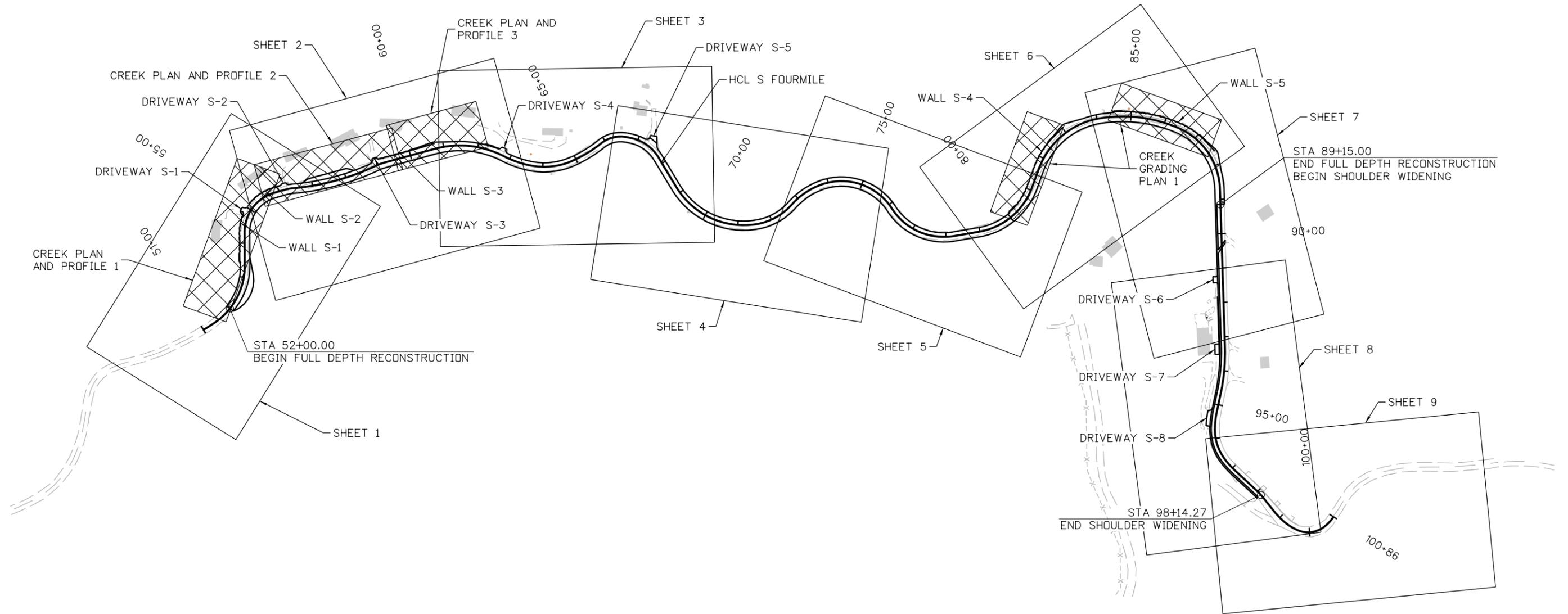
- 1.) The basis of coordinates for this map is the North America Datum of 1983-2011 (NAD 83 (2011)) U.S. Survey Feet, based locally upon the David Evans and Associates, Inc. Control Point DEA CP 302 for ground coordinate scale factor determination.
- 2.) The basis of elevations for this map is the North American Vertical Datum of 1988 (NAVD 88), based locally upon the CP 302. Elevations computed from a NGS OPUS Solution Report using a four (4) hour occupation data set at DEA CP 302.
- 3.) To modify ground control to Colorado State Plane North Zone; add 1,000,000 feet to North coordinate, add 3,000,000 feet to East coordinate and multiply by 1/csf (combined scale factor = 1/1.000328515 = 0.999671593).
- 4.) Fieldwork for control was completed October, 2014.
- 5.) Set 18" long #5 rebar with 1-1/4" outside diameter yellow plastic cap marked "DEA CONTROL" at all control points unless otherwise noted, see Ground Coordinate Table above.



90% 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: <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION DESCRIPTION:</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	NO.	DATE	REVISION DESCRIPTION:										 BOULDER COUNTY TRANSPORTATION DEPARTMENT ENGINEERING DIVISION Michael Baker INTERNATIONAL	DESIGNED: MJM CAD: MJM CHECKED: MJK DATE: 12/20/16	FOURMILE CANYON DR SURVEY CONTROL DIAGRAM PROJECT NO: 4043.SEPT12C36 SHEET NO: 27
NO.	DATE	REVISION DESCRIPTION:															

LEGEND

-  ROADWAY, DRAINAGE AND REMOVAL PLANS
-  CREEK SHEETS



mary.monks 3/07/21 PM 12/20/2016 p:\VDC\APP1\bkr.mbakercorp.com\p\prod\Documents\Projects\Lakewood\Office\Boulder_County_Emergency_Transportation\103\08_Sheet_Files\0_General_Sheets\04\Fourmile_Plan_Index_.s.dgn



150 0 150 300 FT
HORIZONTAL SCALE: 1"=300'

90% 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

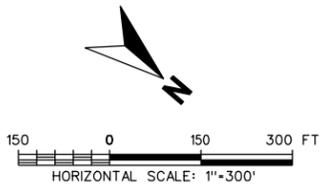
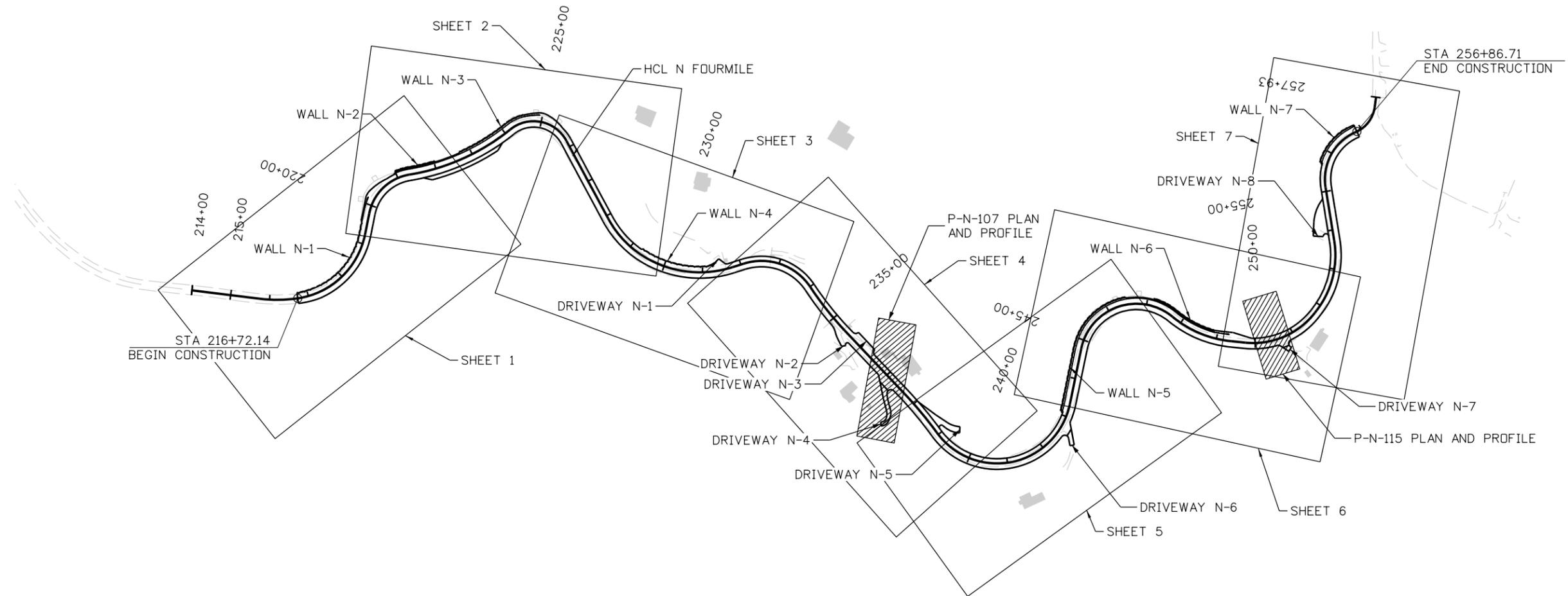
DESIGNED:	CAD:	CHECKED:	DATE:
MEM	EAV	DTW	12/20/16

FOURMILE CANYON DR (SOUTH)
KEY MAP
PROJECT NO: 4043.SEPT12C36 SHEET NO: 28

LEGEND

 ROADWAY, DRAINAGE AND REMOVAL PLANS

 DRAINAGE PLAN AND PROFILE SHEETS



90% 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:

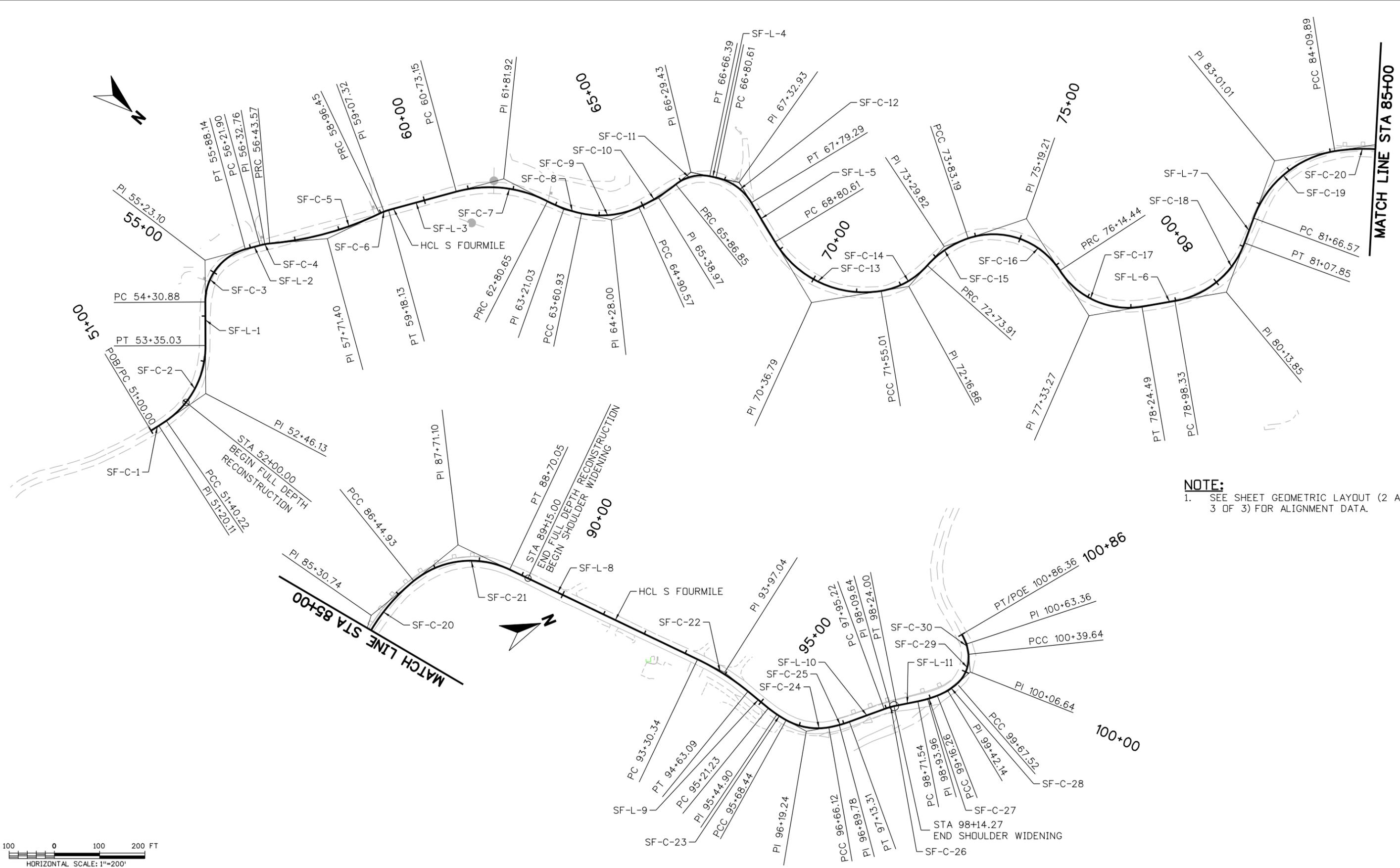
 **BOULDER COUNTY TRANSPORTATION DEPARTMENT**
ENGINEERING DIVISION
 **Michael Baker INTERNATIONAL**

DESIGNED:	CAD:	CHECKED:	DATE:
MEM	EAV	DTW	12/20/16

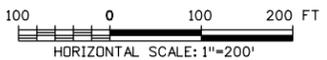
FOURMILE CANYON DR (NORTH)
KEY MAP
 PROJECT NO: 4043.SEPT12C36 SHEET NO: 29

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mary.monks 11:51:46 AM p:\w\DCPWAPP\lbr.mbakercorp.com\p\prod\Documents\Projects\Lakewood\Office\Boulder_County_Emergency_Transportation\TDS\08_Sheet_L_Files\05_Roadway\DN\South\Fourmile_Geo_S-Layout01.dgn



NOTE:
 1. SEE SHEET GEOMETRIC LAYOUT (2 AND 3 OF 3) FOR ALIGNMENT DATA.



90% 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: MEM CAD: EAV CHECKED: DTW DATE: 12/20/16	FOURMILE CANYON DR (SOUTH) GEOMETRIC LAYOUT (1 OF 3) PROJECT NO: 4043.SEPT12C36 SHEET NO: 30
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HORIZONTAL ALIGNMENT DATA (HCL S FOURMILE)											
LINE NUMBER	CURVE NUMBER	POINT TYPE	STATION	NORTHING	EASTING	BEARING	DISTANCE (FEET)	RADIUS (FEET)	LENGTH (FEET)	CURVE DELTA	CURVE DIRECTION
		PDB/PC	51+00.00	252554.69	47508.07						
	SF-C-1	PI	51+20.11	252560.95	47488.96			667	40.22	3° 27'17"	LEFT
		PCC	51+40.22	252566.04	47469.50						
	SF-C-2	PI	52+46.13	252592.85	47367.03			200	194.81	55° 48'31"	LEFT
		PT	53+35.03	252523.17	47287.27						
SF-L-1						S48° 51'24W	95.85				
		PC	54+30.88	252460.10	47215.09						
	SF-C-3	PI	55+23.10	252399.43	47145.64			120	157.26	75° 05'05"	RIGHT
		PT	55+88.14	252450.92	47069.13						
SF-L-2						N56° 03'30W	33.76				
		PC	56+21.90	252469.77	47041.13						
	SF-C-4	PI	56+32.76	252475.84	47032.11			120	21.68	10° 20'57"	RIGHT
		PRC	56+43.57	252483.42	47024.33						
	SF-C-5	PI	57+71.40	252572.69	46932.83			700	252.88	20° 41'54"	LEFT
		PRC	58+96.45	252623.85	46815.68						
	SF-C-6	PI	59+07.32	252628.20	46805.72			120	21.68	10° 20'57"	RIGHT
		PT	59+18.13	252634.27	46796.71						
SF-L-3						N56° 03'30W	155.02				
		PC	60+73.15	252720.82	46668.10						
	SF-C-7	PI	61+81.92	252781.56	46577.86			280	207.5	42° 27'39"	RIGHT
		PRC	62+80.65	252887.29	46552.29						
	SF-C-8	PI	63+21.03	252926.54	46542.79			300	80.28	15° 19'58"	LEFT
		PCC	63+60.93	252961.88	46523.26						
	SF-C-9	PI	64+28.00	253020.58	46490.81			205	129.64	36° 13'56"	LEFT
		PCC	64+90.57	253048.75	46429.95						
	SF-C-10	PI	65+38.97	253069.08	46386.02			380	96.28	14° 31'03"	LEFT
		PRC	65+86.85	253077.75	46338.41						
	SF-C-11	PI	66+29.43	253085.38	46296.52			90	79.54	50° 38'01"	RIGHT
		PT	66+66.39	253122.60	46275.85						
SF-L-4						N29° 02'47W	14.22				
		PC	66+80.61	253135.03	46268.94						
	SF-C-12	PI	67+32.93	253180.77	46243.54			120	98.68	47° 06'52"	RIGHT
		PT	67+79.29	253230.51	46259.77						
SF-L-5						N18° 04'04E	101.32				
		PC	68+80.61	253326.84	46291.19						
	SF-C-13	PI	70+36.79	253475.32	46339.63			230	274.4	68° 21'23"	LEFT
		PCC	71+55.01	253575.10	46219.48						
	SF-C-14	PI	72+16.86	253614.62	46171.90			175	118.91	38° 55'50"	LEFT
		PRC	72+73.91	253615.46	46110.06						
	SF-C-15	PI	73+29.82	253616.23	46054.16			210	109.27	29° 48'50"	RIGHT
		PCC	73+83.19	253644.68	46006.04						
	SF-C-16	PI	75+19.21	253713.91	45888.95			175	231.25	75° 42'47"	RIGHT
		PRC	76+14.44	253844.46	45927.15						
	SF-C-17	PI	77+33.27	253958.50	45960.51			180	210.05	66° 51'43"	LEFT
		PT	78+24.49	254034.00	45868.75						
SF-L-6						N50° 33'14W	73.84				
		PC	78+98.33	254080.92	45811.73						
	SF-C-18	PI	80+13.85	254154.31	45722.52			200	209.52	60° 01'21"	LEFT
		PT	81+07.85	254113.71	45614.37						
SF-L-7						S69° 25'25W	58.72				
		PC	81+66.57	254093.08	45559.40						

NOTE:
 1. SEE SHEET GEOMETRIC LAYOUT (1 OF 3)
 FOR ALIGNMENT GRAPHICS.

90% 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:	FOURMILE CANYON DR (SOUTH) GEOMETRIC LAYOUT (2 OF 3)	PROJECT NO: 4043.SEPT12C36	SHEET NO: 31
								MEM	EAV	DTW	12/20/16			

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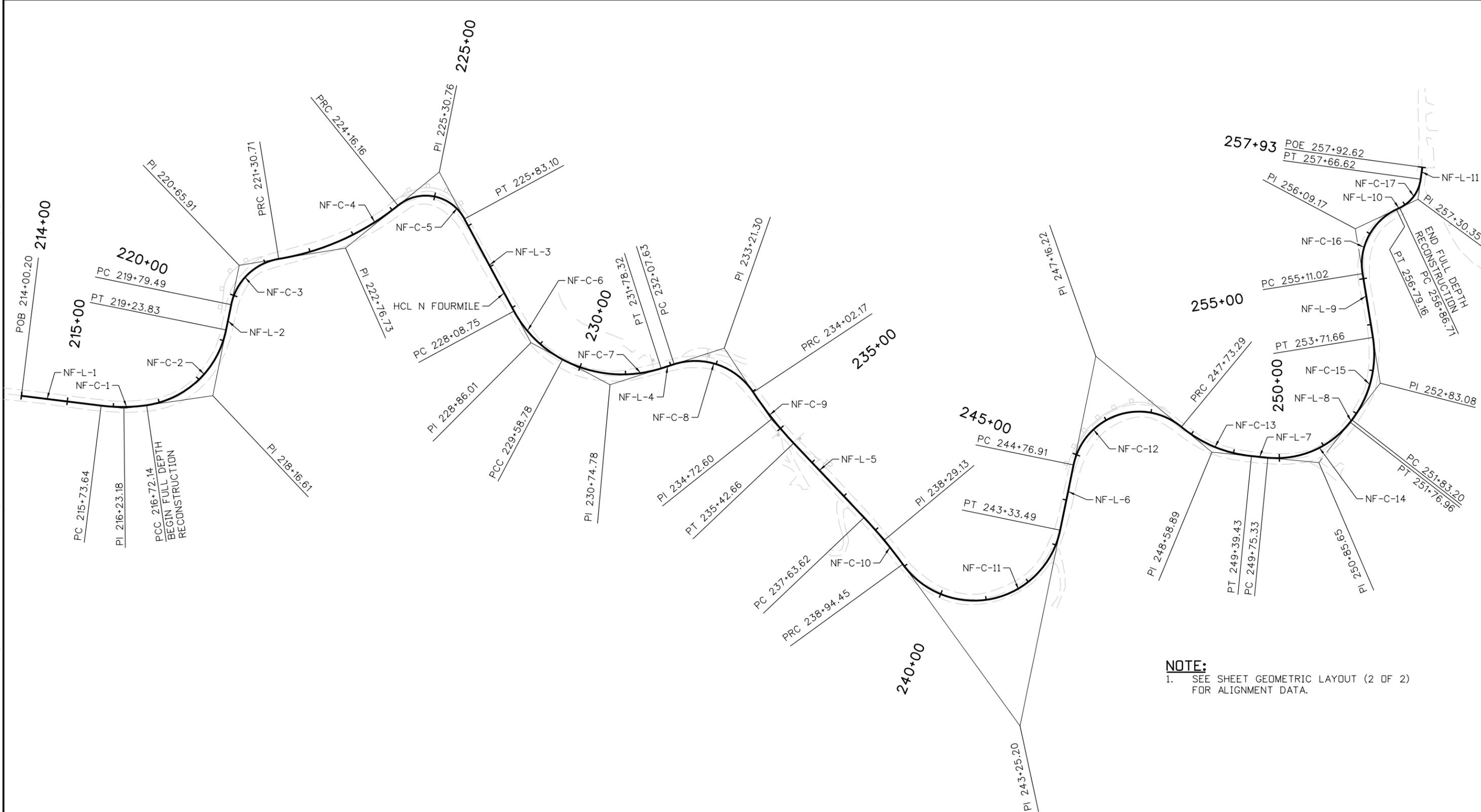
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HORIZONTAL ALIGNMENT DATA (HCL S FOURMILE)											
LINE NUMBER	CURVE NUMBER	POINT TYPE	STATION	NORTHING	EASTING	BEARING	DISTANCE (FEET)	RADIUS (FEET)	LENGTH (FEET)	CURVE DELTA	CURVE DIRECTION
	SF-C-19	PI	83+01.01	254045.83	45433.54			230	243.32	60° 36'50"	RIGHT
		PCC	84+09.89	254132.31	45330.61						
	SF-C-20	PI	85+30.74	254210.05	45238.08			410	235.04	32° 50'45"	RIGHT
		PCC	86+44.93	254325.54	45202.51						
	SF-C-21	PI	87+71.10	254446.13	45165.38			200	225.13	64° 29'38"	RIGHT
		PT	88+70.05	254531.57	45258.22						
SF-L-8						N47° 22'38E	460.29				
		PC	93+30.34	254843.27	45596.92						
	SF-C-22	PI	93+97.04	254888.43	45645.99			555	132.75	13° 42'16"	RIGHT
		PT	94+63.09	254920.68	45704.37						
SF-L-9						N61° 04'54E	58.14				
		PC	95+21.23	254948.79	45755.26						
	SF-C-23	PI	95+44.90	254960.24	45775.97			265	47.2	10° 12'22"	LEFT
		PCC	95+68.44	254975.17	45794.33						
	SF-C-24	PI	96+19.24	255007.23	45833.74			144	97.68	38° 51'55"	LEFT
		PCC	96+66.12	255056.92	45844.32						
	SF-C-25	PI	96+89.78	255080.06	45849.24			265	47.19	10° 12'12"	LEFT
		PT	97+13.31	255103.7	45849.98						
SF-L-10						N01° 48'25E	81.91				
		PC	97+95.22	255185.58	45852.57						
	SF-C-26	PI	98+09.64	255199.99	45853.02			185	28.77	8° 54'39"	RIGHT
		PT	98+24.00	255214.15	45855.7						
SF-L-11						N10° 43'04E	47.54				
		PC	98+71.54	255260.86	45864.54						
	SF-C-27	PI	98+93.96	255282.89	45868.71			250	44.73	10° 15'03"	LEFT
		PCC	99+16.26	255305.32	45868.9						
	SF-C-28	PI	99+42.14	255331.2	45869.11			150	51.26	19° 34'41"	LEFT
		PCC	99+67.52	255355.65	45860.63						
	SF-C-29	PI	100+06.64	255392.61	45847.83			75	72.12	55° 05'45"	LEFT
		PCC	100+39.64	255403.26	45810.18						
	SF-C-30	PI	100+63.36	255409.72	45787.36			110	46.72	24° 20'04"	LEFT
		PT/POE	100+86.36	255406.2	45763.9						

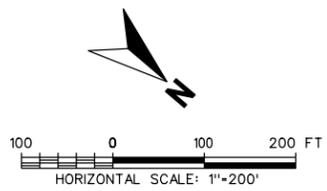
NOTE:
 1. SEE SHEET GEOMETRIC LAYOUT (1 OF 3) FOR ALIGNMENT GRAPHICS.

90% 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 	DESIGNED: MEM	CAD: EAV	CHECKED: DTW	DATE: 12/20/16	PROJECT NO: 4043.SEPT12C36	SHEET NO: 32

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NOTE:
 1. SEE SHEET GEOMETRIC LAYOUT (2 OF 2) FOR ALIGNMENT DATA.



90% 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:
MEM	EAV	DTW	12/20/16

FOURMILE CANYON DR (NORTH)
GEOMETRIC LAYOUT
(1 OF 2)
 PROJECT NO: 4043.SEP12C36 SHEET NO: 33

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HORIZONTAL ALIGNMENT DATA (HCL N FOURMILE)											
LINE NUMBER	CURVE NUMBER	POINT TYPE	STATION	NORTHING	EASTING	BEARING	DISTANCE (FEET)	RADIUS (FEET)	LENGTH (FEET)	CURVE DELTA	CURVE DIRECTION
		PDB	214+00.20	259638.90	38971.65						
NF-L-1						N33° 13'43W	173.45				
		PC	215+73.64	259783.98	38876.61						
	NF-C-1	PI	216+23.18	259825.42	38849.46			370	98.50	15° 15'09"	LEFT
		PCC	216+72.14	259858.26	38812.37						
	NF-C-2	PI	218+16.61	259954.03	38704.20			205	251.70	70° 20'50"	LEFT
		PT	219+23.83	259884.37	38577.63						
NF-L-2						S61° 10'17W	55.65				
		PC	219+79.49	259857.53	38528.88						
	NF-C-3	PI	220+65.91	259815.86	38453.17			125	151.23	69° 19'00"	RIGHT
		PRC	221+30.71	259871.97	38387.44						
	NF-C-4	PI	222+76.73	259966.78	38276.39			550	285.45	29° 44'12"	LEFT
		PRC	224+16.16	259994.02	38132.93						
	NF-C-5	PI	225+30.76	260015.40	38020.35			95	166.94	100° 40'59"	RIGHT
		PT	225+83.10	260122.07	38062.22						
NF-L-3						N21° 26'04E	225.64				
		PC	228+08.75	260332.11	38144.68						
	NF-C-6	PI	228+86.01	260404.02	38172.92			255	150.04	33° 42'42"	LEFT
		PCC	229+58.78	260479.52	38156.49						
	NF-C-7	PI	230+74.78	260592.86	38131.82			275	219.54	45° 44'23"	LEFT
		PT	231+78.32	260654.30	38033.44						
NF-L-4						N58° 01'00W	29.32				
		PC	232+07.63	260669.83	38008.57						
	NF-C-8	PI	233+21.30	260730.03	37912.16			150	194.54	74° 18'26"	RIGHT
		PRC	234+02.17	260839.13	37944.04						
	NF-C-9	PI	234+72.60	260906.73	37963.80			800	140.49	10° 03'43"	LEFT
		PT	235+42.66	260976.74	37971.44						
NF-L-5						N06° 13'43E	220.96				
		PC	237+63.62	261196.40	37995.41						
	NF-C-10	PI	238+29.13	261261.52	38002.52			1000	130.83	7° 29'45"	RIGHT
		PRC	238+94.45	261325.15	38018.06						
	NF-C-11	PI	243+25.20	261743.60	38120.26			190	439.04	132° 23'46"	LEFT
		PT	243+33.49	261536.93	37742.32						
NF-L-6						S61° 19'41W	143.42				
		PC	244+76.91	261468.12	37616.49						
	NF-C-12	PI	247+16.22	261353.30	37406.53			144	296.38	117° 55'35"	RIGHT
		PRC	247+73.29	261592.59	37403.41						
	NF-C-13	PI	248+58.89	261678.18	37402.30			280	166.14	33° 59'49"	LEFT
		PT	249+39.43	261748.51	37353.52						
NF-L-7						N34° 44'33W	35.90				
		PC	249+75.33	261778.02	37333.06						
	NF-C-14	PI	250+85.65	261868.67	37270.19			200	201.63	57° 45'43"	LEFT
		PT	251+76.96	261863.85	37159.97						
NF-L-8						S87° 29'44W	6.23				
		PC	251+83.20	261863.57	37153.74						
	NF-C-15	PI	252+83.08	261859.21	37053.96			230	188.46	46° 56'53"	LEFT
		PT	253+71.66	261783.31	36989.02						
NF-L-9						S40° 32'51W	139.36				
		PC	255+11.02	261677.41	36898.43						
	NF-C-16	PI	256+09.17	261602.83	36834.62			130	168.14	74° 06'23"	RIGHT
		PT	256+79.16	261643.78	36745.42						
NF-L-10						N65° 20'46W	7.55				
		PC	256+86.71	261646.92	36738.56						
	NF-C-17	PI	257+30.35	261665.13	36698.89			80	79.90	57° 13'35"	LEFT
		PT	257+66.62	261641.63	36662.12						
NF-L-11						S57° 25'39W	26.01				
		PDE	257+92.62	261627.63	36640.20						

NOTE:
 1. SEE SHEET GEOMETRIC LAYOUT (1 OF 2) FOR ALIGNMENT GRAPHICS.

90% 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 	DESIGNED:	CAD:	CHECKED:	DATE:	FOURMILE CANYON DR (NORTH) GEOMETRIC LAYOUT (2 OF 2) PROJECT NO: 4043.SEPT12C36 SHEET NO: 34
							MEM	EAV	DTW	12/20/16	