

BOULDER COUNTY HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION

DRAFT ISSUED FOR 100% OCTOBER 14, 2016

TABULATION OF ROADWAY LENGTH AND DESIGN DATA		
PROJECT SUMMARY	LENGTH	
STA 1+25 TO 22+75		2,150.00
TOTAL (FT)		2,150.00
TOTAL (MILES)		0.41



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REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE	
				BOULDER COUNTY	amec foster wheeler	DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016	
				DISCLAIMER AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.		DRN BY: TB DSN BY: SJ CHK BY: JL APR BY: SJ	TITLE	PROJECT No. 32790038	
COVER SHEET								DRAWING No. 1	REV. 0

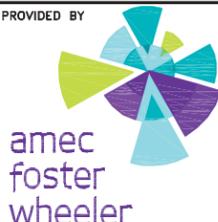
I:\PUBLIC\Drive\3279\project_files - water_group\32790038 - hall_ranch_2 rd_repair & hazard\9.0_cadd\9.1_sheet_sets\2_STANDARD PLANS.dwg-9/23/2016 1:47 PM

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COLORADO
 DEPARTMENT OF TRANSPORTATION
 M&S STANDARDS PLANS LIST
 July 04, 2012
 Revised on June 24, 2016

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX , WILL BE ATTACHED TO THE PLANS.

REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	BOULDER COUNTY	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
							DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016
				DISCLAIMER					PROJECT No.
				AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.					32790038
					DRN BY	TB	TITLE	STANDARD PLANS	
					DSN BY	SJ		DRAWING No.	REV
					CHK BY	JL		2	0
					APR BY	SJ			

GENERAL NOTES

- IT IS ESTIMATED THAT 1 LUMP SUM OF CLEARING AND GRUBBING SHALL BE REQUIRED. TREES OF 4" DIAMETER OR SMALLER SHALL BE INCLUDED IN **ITEM 201-00000 CLEARING AND GRUBBING 1 LS.**
- MATERIAL GENERATED FROM CLEARING AND GRUBBING WILL BE REMOVED BY THE CONTRACTOR AND DEPOSITED OFFSITE FROM THE PROJECT UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF ABOVE GROUND AND UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTORS ATTENTION IS DIRECTED TO PARAGRAPH 105.11 OF THE STANDARD SPECIFICATIONS CONCERNING UTILITIES.
- THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY OF PROTECTING LIVE UTILITIES DURING HIS CONSTRUCTION OPERATIONS AND SHALL HOLD BOULDER COUNTY HARMLESS FOR ANY AND ALL DAMAGE TO LIVE UTILITIES ARISING FROM HIS CONSTRUCTION OPERATIONS. IT IS ESTIMATED THAT **ITEM 203-01597 POTHOLING 8 HOURS** MAY BE REQUIRED ON THIS PROJECT AS DIRECTED BY THE PROJECT ENGINEER.
- THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITIES AT LEAST TWO (2) BUSINESS DAYS, NOT INCLUDING THE ACTUAL DAY OF NOTICE, PRIOR TO COMMENCING POTHOLING OPERATIONS. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATIONS CENTER OF COLORADO (UNCC) AT 811 OR 1-800-922-1987, TO HAVE LOCATIONS OF UNCC REGISTERED LINES MARKED BY MEMBER COMPANIES. ALL OTHER UNDERGROUND FACILITIES SHALL BE LOCATED BY CONTACTING THE RESPECTIVE OWNER. UTILITY SERVICE LATERALS SHALL ALSO BE LOCATED PRIOR TO BEGINNING EXCAVATION OR GRADING. UNCC LOCATE TICKETS SHALL BE SUBMITTED TO THE PROJECT ENGINEER.
- THE CONTRACTOR SHALL MAINTAIN DRAINAGE DURING CONSTRUCTION. MAINTAINING DRAINAGE SHALL BE PAID FOR BY **ITEM 208-00400 WATER CONTROL 1 LS.**
- THE CONTRACTOR SHALL PROTECT ALL EXISTING SURVEY MONUMENTS DESIGNATED TO REMAIN IN PLACE FROM DAMAGE DURING CONSTRUCTION OPERATIONS. ANY MONUMENTS DISTURBED BY THE CONTRACTOR SHALL BE RESET AT THE CONTRACTOR'S OWN EXPENSE. THE CONTRACTOR AND THE PROJECT ENGINEER SHALL NOTE THESE MONUMENTS IN THE FIELD PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL WORK WITHIN THE EXISTING APPARENT RIGHT-OF-WAY LIMITS AND LIMITS OF DISTURBANCE AREAS AS DIRECTED BY THE PROJECT ENGINEER.
- DUE TO THE SENSITIVE NATURE OF THE WETLANDS ADJACENT TO THE PROJECT, MINIMAL IMPACT TO THE ECOSYSTEM IS ESSENTIAL. DISTURBANCE AND REMOVAL OF VEGETATION OUTSIDE OF THE CONSTRUCTION LIMITS NOT APPROVED BY THE PROJECT ENGINEER SHALL BE RECLAIMED AND PERMITTED TO THE SATISFACTION OF THE PROJECT ENGINEER, AND REGULATORY AGENCIES BY THE CONTRACTOR AT NO COST TO THE PROJECT.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE WORK AND THE SURROUNDING AREA FROM DAMAGE CAUSED BY ALL WATER FLOWS THAT ENTER THE CONSTRUCTION AREA UNTIL THE PROJECT IS ACCEPTED. THIS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.
- THE CONTRACTOR SHALL ONLY PARK AND STAGE EQUIPMENT IN AREAS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO SELECT PARKING AREAS THAT MINIMIZE ROADWAY TRAVEL. AVOID ENVIRONMENTALLY SENSITIVE AREAS AND ACCOMMODATE CLEAR ZONE REQUIREMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOMPACTING, REGRADING, AND RESEEDING ANY DISTURBED AREAS WITH A NATIVE OR WETLAND SEED MIX.
- IT IS ESTIMATED THAT **203-01500 BLADING 10 HOUR, 203-01582 TRUCK (DUMP) 30 HOUR, 203-01594 COMBINATION LOADER 30 HOUR AND 203-02330 LABORER 24 HOUR** MAY BE REQUIRED FOR MISCELLANEOUS EROSION CONTROL WORK AS DIRECTED BY THE ENGINEER.
- IT IS ESTIMATED THAT A **620-00020 SANITARY FACILITY 1 EACH**, WILL BE REQUIRED FOR THIS PROJECT.
- IT IS ESTIMATED THAT A **625-00000 CONSTRUCTION SURVEYING 1 LS**, WILL BE REQUIRED FOR THIS PROJECT.

- IT IS ESTIMATED THAT A **626-00000 MOBILIZATION 1 LS**, WILL BE REQUIRED FOR THIS PROJECT.
- WATER REQUIRED FOR CONSTRUCTION ACTIVITIES SHALL BE SOURCED FROM OUTSIDE OF THE PROJECT AREA. WATER SHALL NOT BE USED FROM THE SOUTH ST. VRAIN CREEK.

ENVIRONMENTAL NOTES

- A PRECONSTRUCTION MEETING SHALL BE HELD ON-SITE WITH BOULDER COUNTY AND THE SELECTED CONTRACTOR TO IDENTIFY THE PROJECT LIMITS, EQUIPMENT AND MATERIALS STORAGE AREAS, SEDIMENT AND EROSION CONTROLS, AND EQUIPMENT MAINTENANCE AREAS PRIOR TO THE COMMENCEMENT OF WORK. REQUIRED CONTRACTOR SUBMITTALS SPECIFIED IN 107.25 (b) (5) WATER QUALITY CONTROL AND 208 (b) EROSION CONTROL SHALL BE AVAILABLE FOR THIS PRECONSTRUCTION MEETING. THE MEETING SHALL BE INCLUDED IN THE COST OF THE WORK.
- TO PROTECT KNOWN ENVIRONMENTAL RESOURCES IN BOULDER COUNTY ROW (WETLAND, THREATENED AND ENDANGERED SPECIES), TEMPORARY USE AREAS FOR EQUIPMENT STAGING, SETUP, REPAIR, OR OVERNIGHT PARKING AREAS SHALL BE PRE-APPROVED BY THE PROJECT ENGINEER FOLLOWING COORDINATION WITH THE REGIONAL ENVIRONMENTAL STAFF. COORDINATION FOR TEMPORARY USE AREAS WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK. THE CONTRACTOR SHALL SUBMIT A PLAN FOR PRE-APPROVAL OF EQUIPMENT SETUP AND STAGING AREAS.

WILDLIFE NOTES

- TO THE EXTENT PRACTICAL, ALL VEGETATION REMOVAL AND WORK ON STRUCTURES NECESSARY TO COMPLETE THE PROJECT SHALL BE CONDUCTED OUTSIDE OF THE NESTING SEASON FOR MIGRATORY BIRDS (MARCH 1 TO AUGUST 31). A NESTING MIGRATORY BIRD SURVEY OF THE PROJECT AREA AND THE TERRAIN WITHIN 50 FT. OF THE PROJECT AREA SHALL BE COMPLETED BY THE A BIOLOGIST DESIGNATED BY BOULDER COUNTY PARKS AND OPEN SPACE (CONTRACTOR, EMPLOYEE, OR VOLUNTEER) PRIOR TO ANY VEGETATION REMOVAL DURING THE NESTING SEASON. IF ACTIVE NESTS ARE LOCATED, 50 FT. WORK ZONE BUFFERS MUST BE PROVIDED AROUND ACTIVE NESTS. THESE SURVEY AND BUFFER REQUIREMENTS FOR MIGRATORY BIRD NESTS DO NOT APPLY IF THE VEGETATION REMOVAL OR WORK ON STRUCTURES IS CONDUCTED OUTSIDE OF THE MARCH 1 TO AUGUST 31 MIGRATORY BIRD NEST SEASON. ANY COSTS OR DELAYS ASSOCIATED WITH WORK BUFFER RESTRICTIONS SHALL NOT BE COMPENSATED SEPARATELY.
- IN ORDER TO FACILITATE COMPLIANCE WITH THE BALD AND GOLDEN EAGLE PROTECTION ACT, THE MIGRATORY BIRD TREATY ACT, AND THE CPW RECOMMENDED BUFFER ZONES AND SEASONAL RESTRICTIONS FOR COLORADO RAPTORS, THE DESIGNATED BIOLOGIST BY BOULDER COUNTY PARKS AND OPEN SPACE (CONTRACTOR, EMPLOYEE, OR VOLUNTEER) SHALL CONDUCT RAPTOR SURVEYS PRIOR TO THE START OF CONSTRUCTION. SURVEYS WILL BE CONDUCTED FROM JANUARY 1 TO JULY 15 AND SHALL BE PERFORMED NO MORE THAN 7 DAYS PRIOR TO CONSTRUCTION PER THE PROJECT SPECIAL PROVISION SECTION 240 PROTECTION OF MIGRATORY BIRDS BIOLOGICAL WORK BY CONTRACTOR'S BIOLOGIST. IF AN ACTIVE RAPTOR NEST IS OBSERVED BY THE CONTRACTOR'S BIOLOGIST WITHIN 0.5 MILE OF THE PROJECT AREA, THE PROJECT ENGINEER WILL BE NOTIFIED TO COMMUNICATE FINDINGS TO BOULDER COUNTY PARKS AND OPEN SPACE BIOLOGIST WHO WILL COORDINATE WITH THE CPW AND SUBSEQUENTLY PROVIDE GUIDANCE TO THE PROJECT ENGINEER AS TO WHETHER ACTIVITIES NEED TO BE MODIFIED OR LIMITED IN CERTAIN AREAS OF THE PROJECT IN ORDER TO COMPLY WITH THE CPW RECOMMENDED BUFFER ZONES AND SEASONAL RESTRICTIONS FOR COLORADO RAPTORS GUIDANCE. ANY COSTS OR DELAYS ASSOCIATED WITH WORK BUFFER RESTRICTIONS WILL BE INCLUDED IN THE COST OF WORK.

WETLAND NOTES

- BEST MANAGEMENT PRACTICES (BMP) WILL BE IMPLEMENTED BEFORE, DURING, AND FOLLOWING CONSTRUCTION TO MANAGE SEDIMENT. STRUCTURAL AND/OR NON-STRUCTURAL EROSION AND SEDIMENT CONTROL DEVICES WILL BE USED TO PREVENT THE MOVEMENT OF SEDIMENT FROM EXPOSED AREAS INTO SURROUNDING DRAINAGES AND WETLAND AREAS TO PROTECT AQUATIC RESOURCES WITHIN AND ADJACENT TO THE PROJECT AREA. SEED, FERTILIZER, MULCH AND MULCH TACKIFIER SHALL BE APPLIED TO ALL DISTURBED VEGETATED NON-WETLAND AREAS FOLLOWING CONSTRUCTION.
- BEST MANAGEMENT PRACTICES SHALL BE USED DURING CONSTRUCTION TO LIMIT DISCHARGES OF SEDIMENTS AND POLLUTANTS INTO WETLANDS AND OPEN WATER AREAS IDENTIFIED ON THE PLANS. ANY INCIDENTAL FILL MATERIALS THAT ARE DISCHARGED TO THESE AREAS SHALL BE REMOVED IMMEDIATELY. RECLAMATION AND RESEEDING OF UPLAND AREAS WITH THE SPECIFIED NATIVE SEED MIX AND EROSION CONTROL DEVICES SHALL BE IMPLEMENTED AS SOON AS PRACTICAL FOLLOWING THE DISTURBANCE.

- TEMPORARY STAGING AREAS FOR CONSTRUCTION EQUIPMENT AND MATERIALS WILL UTILIZE PREVIOUSLY DISTURBED AREAS SUCH AS ROADS, GRAVELED PARKING AREAS, AND SHOULDER PULL OUTS. MAJOR REPAIRS TO CONSTRUCTION EQUIPMENT WILL BE PERFORMED OFFSITE, WHERE PRACTICAL.
- EQUIPMENT OPERATION OFF THE ROADWAY PRISM SHALL BE MINIMIZED TO THE EXTENT POSSIBLE TO PREVENT POSSIBLE IMPACTS TO BIOLOGICAL RESOURCES.
- RESTORATION OF THE PROJECT AREA WILL INCLUDE REMOVAL OF ALL DEBRIS, LITTER, EXCAVATION SPOILS, CONCRETE, AND WASTE MATERIALS FROM PROJECT LOCATIONS OR OFFSITE DISPOSAL.
- EXCAVATED MATERIAL FROM CULVERT INSTALLATION OR PAVING SHALL NOT BE STOCKPILED, PLACED, OR DISCHARGED INTO WETLANDS UNLESS THE WETLANDS ARE PROTECTED BY GEOTEXTILE, STRAW AND SOIL EMBANKMENT PER REVISION OF SECTION 420 - GEOTEXTILE MATS IN WETLAND AREAS. INCIDENTAL DISCHARGES SHALL BE REMOVED USING APPROPRIATE SIZED EQUIPMENT TO MINIMIZE DAMAGE TO EXISTING WETLANDS AT THE CONTRACTOR'S EXPENSE.
- SEDIMENT CLEANED OR REMOVED FROM THE CULVERTS AND CHANNEL SHALL NOT BE DEPOSITED WITHIN WETLAND AREAS BUT SHALL BE REMOVED TO AN UPLAND SITE FOR REVEGETATION OR OFFSITE DISPOSAL.
- WATER QUALITY SHALL BE PROTECTED FROM SOIL EROSION AND SEDIMENTATION WITHIN AND DOWNSTREAM OF PROJECT AREA BY RETAINING A VEGETATION BUFFER STRIP BETWEEN WATER BODIES AND DISTURBED AREAS WHEN FEASIBLE.
- BOULDER COUNTY WETLANDS SPECIALIST SHALL BE CONTACTED AT LEAST 7 DAYS PRIOR TO CONSTRUCTION AT CULVERT TO FLAG WETLAND BOUNDARIES.
- THE CONTRACTOR SHALL INSTALL PLASTIC FENCE/EROSION LOG ALONG THE LDA LINE OR AS SHOWN IN THE EROSION CONTROL SHEET SITE MAP TO PROTECT WETLAND VEGETATION AND PREVENT EQUIPMENT ACCESS BEYOND THE FENCED ZONE. TEMPORARY FENCE BECOMES PROPERTY OF THE CONTRACTOR UPON COMPLETION OF WORK.
- THE CONTRACTOR SHALL NOT DISTURB ANY WETLANDS NOT DESIGNATED FOR TEMPORARY OR PERMANENT IMPACT ON THE PLANS. ANY GROUND OR VEGETATIVE DISTURBANCE TO WETLANDS NOT DESIGNATED FOR IMPACT SHALL BE RESTORED TO PRE-DISTURBANCE CONDITIONS TO THE SATISFACTION OF THE PROJECT ENGINEER FOLLOWING COORDINATION WITH REGIONAL ENVIRONMENTAL STAFF AT NO EXPENSE TO THE PROJECT. WETLAND DISTURBANCE SHALL BE LIMITED AS MUCH AS POSSIBLE. CONTRACTOR SHALL SUBMIT WETLAND DISTURBANCE PLAN TO THE PROJECT ENGINEER PRIOR TO CONSTRUCTION IF ADDITIONAL AREAS ARE REQUIRED BEYOND THAT SHOWN IN THE PLANS.
- THE CONTRACTOR SHALL PERFORM CULVERT INSTALLATION AND PAVING FROM THE ROADWAY EMBANKMENT OR ADJACENT UPLAND AREAS TO THE EXTENT POSSIBLE TO MINIMIZE WETLAND IMPACTS AND GROUND DISTURBANCES. WHERE EQUIPMENT, GROUND OR VEGETATION DISTURBING ACTIVITIES ARE REQUIRED WITHIN WETLANDS, THE CONTRACTOR SHALL UTILIZE TIMBER MATS OR TEMPORARY FILLS AS SPECIFIED IN PROJECT SPECIAL PROVISION 420 - GEOTEXTILE MATS IN WETLAND AREAS UNLESS PRIOR APPROVAL IS PROVIDED BY THE PROJECT ENGINEER FOLLOWING CONSULTATION WITH REGIONAL ENVIRONMENTAL STAFF. COSTS FOR MATS OR TEMPORARY FILLS SHALL NOT BE COMPENSATED FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.
- WHERE TRANSPLANTING IS NOT POSSIBLE, AS APPROVED BY THE PROJECT ENGINEER FOLLOWING COORDINATION WITH REGIONAL ENVIRONMENTAL STAFF, WETLANDS SHALL BE RESTORED BY REPLACING TOPSOIL, SEEDING WITH A WETLAND SEED MIX, AND WEED FREE MULCHING. COSTS FOR WETLAND MAT REMOVAL, STOCKPILING AND REINSTALLATION OF TOPSOIL SHALL NOT BE COMPENSATED FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK. SEEDING (WETLANDS), BRUSH LAYER CUTTINGS, AND MULCHING (WEED FREE STRAW) WILL BE PAID FOR BY THE APPROPRIATE BID ITEMS.
- THE CONTRACTOR WILL NOT CONDUCT FUELING OR LUBRICATING OF CONSTRUCTION EQUIPMENT OR OTHER MOTOR VEHICLES WITHIN 100 FT. OF STREAMS, WETLANDS OR OTHER OPEN WATER SOURCES.
- ALL EQUIPMENT ON SITE FOR PROJECT CONSTRUCTION SHALL BE CLEAN PRIOR TO DELIVERY AT PROJECT LOCATION TO PREVENT THE SPREAD OF INVASIVE SPECIES AND NOXIOUS WEEDS. ALL MUD AND DEBRIS SHALL BE REMOVED FROM EQUIPMENT AND GEAR. A 1:15 SOLUTION OF SPARQUAT INSTITUTIONAL CLEANER AND WATER SHALL BE APPLIED TO EQUIPMENT OR EQUIPMENT SHALL BE RINSED WITH 140°F WATER FOR 10 MINUTES.
- TRIMMING, GEOTEXTILE, EARTHWORK, AND WEED-FREE STRAW REQUIRED FOR PROTECTING THE EXISTING WETLAND VEGETATION WILL NOT BE

- MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK PER THE REVISION OF SECTION 420.
- WORK WITHIN WILLOW AREAS SHALL REQUIRE THE CONTRACTOR TO TRIM SHRUBS TO GROUND LEVEL PRIOR TO PLACING MATS OR TEMPORARY FILLS.
- WILLOW ROOT MASSES THAT REQUIRE REMOVAL FOR CULVERT REPAIRS SHALL BE SALVAGED AND REPLANTED ON LOCATION AS DIRECTED IN ACCORDANCE WITH THE REVISION OF SECTION **215 TRANSPLANT SHRUB.**
- STOCKPILED EQUIPMENT AND MATERIALS SHALL NOT BE PLACED WITHIN WETLAND AREAS UNLESS PLACED ON MATS OR TEMPORARY FILLS PER THE REVISION OF SECTION 420.
- DISTURBED AREAS SHALL BE RESTORED TO PRECONSTRUCTION CONDITIONS BY REMOVAL OF TEMPORARY FILLS AND MATS, ROUGHENING THE AREA WITH LOADER BUCKET TEETH, WETLAND SEEDING, MULCHING AND PLANTING OF BRUSH LAYER CUTTINGS AND SHRUB ROOT PADS.
- SEDIMENTS OR EXCAVATION SPOILS SHALL NOT BE DEPOSITED WITHIN WETLAND AREAS OR THE ACTIVE CREEK CHANNEL BUT SHALL BE REMOVED TO AN UPLAND SITE APPROVED BY THE PROJECT ENGINEER FOR REVEGETATION OR OFF-SITE DISPOSAL.

WATER QUALITY NOTES

- THE CONTRACTOR SHALL CONTAIN ALL CONCRETE MATERIALS AND WASTEWATER. A **CONCRETE WASHOUT STRUCTURE 208-00045 - 1 EACH** IS REQUIRED AT AN UPLAND LOCATION. THE CONTRACTOR SHALL SUBMIT A PLAN TO CONTAIN AND DISPOSE OF CONCRETE WASTES WITH A CONTINGENCY PLAN FOR ADDRESSING ACCIDENTAL RELEASES PER STANDARD SPECIFICATION 107.25 (b) (5). CONCRETE WASHOUT STRUCTURE SHALL BE A ECO-PAN.
- SEEDING (NATIVE), FERTILIZER, MULCHING (WEED FREE STRAW), AND MULCH TACKIFIER SHALL BE APPLIED TO ALL DISTURBED NON-WETLAND AREAS.
- CLEAN WATER DIVERSIONS OR CONVEYANCES WILL BE CONSTRUCTED AROUND THE WORK AREA TO REDUCE SEDIMENT DISCHARGES DURING CONSTRUCTION. A GROUNDWATER DEWATERING DISCHARGE PERMIT FROM THE COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT WILL BE OBTAINED BY THE CONTRACTOR WHERE DEWATERING IS REQUIRED. SAND BAGS OR CLEAN MATERIALS SHALL BE USED FOR TEMPORARY DIVERSIONS OR CONVEYANCES.
- SEDIMENT AND EROSION CONTROLS WILL BE INSTALLED BEFORE AND DURING CONSTRUCTION TO PROTECT EXISTING WETLANDS AND WATER QUALITY. RECLAMATION AND RESEEDING OF UPLAND AREAS WITH A NATIVE SEED MIX AND EROSION CONTROL DEVICES SHALL BE IMPLEMENTED AS SOON AS PRACTICAL FOLLOWING THE COMPLETION OF EACH CULVERT OR AS DIRECTED BY THE PROJECT ENGINEER.
- A CLEAN WATER DIVERSION SHALL BE ESTABLISHED TO ISOLATE CONSTRUCTION ACTIVITIES FROM LIVE WATER. THE CONTRACTOR SHALL PROVIDE A METHODS STATEMENT DETAILING THE PROPOSED WORK.
- PUMPING OPERATIONS FOR DEWATERING DURING CONSTRUCTION REQUIRES A CONSTRUCTION DEWATERING PERMIT FROM THE CDPHE. THE CONTRACTOR SHALL PROVIDE A COPY OF THE PERMIT PRIOR TO DEWATERING OPERATIONS. APPLICABLE CONDITIONS OF THE PERMIT INCLUDING MONITORING AND REPORTING SHALL BE INCLUDED IN THE COST OF THE WORK.



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REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE																			
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016																			
				<p>DISCLAIMER</p> <p>AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.</p>		<table border="1"> <tr> <td>DRN BY</td> <td>TB</td> <td>TITLE</td> </tr> <tr> <td>DSN BY</td> <td>SJ</td> <td></td> </tr> <tr> <td>CHK BY</td> <td>JL</td> <td></td> </tr> <tr> <td>APR BY</td> <td>SJ</td> <td></td> </tr> </table>	DRN BY	TB	TITLE	DSN BY	SJ		CHK BY	JL		APR BY	SJ		GENERAL NOTES (SHEET 1 OF 2)	<table border="1"> <tr> <td colspan="2">PROJECT No.</td> </tr> <tr> <td colspan="2">32790038</td> </tr> <tr> <td>DRAWING No.</td> <td>REV</td> </tr> <tr> <td>3</td> <td>0</td> </tr> </table>	PROJECT No.		32790038		DRAWING No.	REV	3
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CONSERVATION MEASURES FOR PREBLE'S, UTE'S LADIES' TRESSES AND COLORADO BUTTERFLY PLANT

PRE-CONSTRUCTION:

1. DESIGN PROJECTS TO MINIMIZE IMPACTS TO RIPARIAN AND ADJACENT UPLAND HABITATS.
 - o MINIMIZE RIPRAP, CONCRETE AND OTHER IMPERMEABLE ENGINEERING FEATURES.
 - o USE BIOENGINEERING TECHNIQUES.
 - o MINIMIZE FOOTPRINT OF DISTURBANCE BY LIMITING ACCESS POINTS, STAGING, ETC.
 - o LOCATE ACCESS ROUTES IN ALREADY DISTURBED AREAS.
 - o INSTALL LEDGES FOR MOUSE MOVEMENT UNDER BRIDGES, CULVERTS. OR INSTALL ADJACENT DRY CULVERTS.
 - o AVOID FRAGMENTATION OF LINEAR RIPARIAN CORRIDORS.
2. DELINEATE, ON THE GROUND, AREAS OF NO ENTRY FOR EQUIPMENT.
3. DEBRIEF ONSITE PERSONNEL OF LIMITS OF WORK AREA, AND OTHER CONSERVATION MEASURES.
4. FOLLOW STORMWATER GUIDELINE AND UTILIZE BMPs TO LIMIT SEDIMENTATION, CONTAMINATION, EROSION.
5. LOCATE UTILITIES ALONG EXISTING ROAD CORRIDORS. BURY OVERHEAD UTILITIES AS POSSIBLE. BORE UTILITIES UNDER HABITATS.
6. DEVELOP AND IMPLEMENT A HABITAT RESTORATION PLAN THAT ADDRESSES SITE PREPARATION, PLANTING, WEED CONTROL, SEED MIXTURES AND POST-CONSTRUCTION MONITORING.

PROJECT IMPLEMENTATION:

1. CONTACT USFWS IF PREBLE'S MOUSE, COLORADO BUTTERFLY PLANT, OR UTE LADIES' TRESSES ARE FOUND WITHIN PROJECT AREA.
2. LIMIT DISTURBANCE (CRUSHING) OR REMOVAL OF VEGETATION. (WILLOWS, TREES, SHRUBS, AND GRASSES WITHIN RIPARIAN AND ADJACENT UPLAND HABITAT.
 - o LIMIT DISTURBANCE TO VEGETATION TO PROJECT FOOTPRINT.
 - o USE SMALLER EQUIPMENT WHEN POSSIBLE.
 - o SOIL COMPACTION: LINE ACCESS ROUTES WITH GEOTEXTILES, ESPECIALLY IN WET, UNSTABLE SOILS.
3. USE USFWS TRACKING TABLE TO RECORD ACRES OR SQUARE FEET OF DISTURBED HABITAT (TEMPORARY OR PERMANENT).
 - o TEMPORARY: NATIVE VEGETATION WILL REESTABLISH FOLLOWING REHABILITATION.
 - o PERMANENT: RIPARIAN OR UPLAND HABITAT WILL NOT RETURN AS A RESULT OF PROJECT ACTIVITIES.
4. TRACK VOLUMES OF WATER FROM ONSITE SOURCES STORED OR USED FOR DUST ABATEMENT, SOIL COMPACTION, CONCRETE MIXING OR OTHER ACTIVITIES.
5. STAGE, OPERATE, LOCATE AND REFUEL EQUIPMENT OUTSIDE OF RIPARIAN AND ADJACENT UPLAND HABITAT.
 - o OPERATE EQUIPMENT FROM PREVIOUSLY DISTURBED OR MODIFIED ROADBEDS OR SHOULDERS ABOVE RIPARIAN.
 - o LIMIT ENTRANCE AND EXIT POINTS IN PROJECT AREA.
 - o STOCKPILE TOPSOIL AND DEBRIS OUTSIDE OR RIPARIAN AND PROTECT FROM STREAM FLOWS.
6. DURING PREBLE'S ACTIVE SEASON (MAY 1-NOVEMBER 1), WORK ONLY AT DAYLIGHT. (PREBLE'S ARE NOCTURNAL).
7. PROMPTLY REMOVE WASTE TO MINIMIZE SITE DISTURBANCE AND ATTRACTION OF PREDATORS.
8. COVER EXPOSED HOLES OR LOOSE DIRT WITH TARP, BOARDS TO PREVENT ENTRAPMENT.

9. USE BMPs TO LIMIT CONSTRUCTION DISTURBANCE.
 - o SOIL COMPACTION: ESTABLISH ONE ACCESS ROUTE PREFERABLY ALONG EXISTING DISTURBED SURFACE OR ROUTE.
 - o SOIL COMPACTION: TEMPORARILY LINE ACCESS ROUTES WITH GEOTEXTILES IN WET, UNSTABLE SOIL.
 - o WEED CONTROL: WASH AND INSPECT VEHICLES AND EQUIPMENT BEFORE ENTERING OR LEAVING PROJECT AREA.
 - o WEED CONTROL: USE ONLY WEED FREE CERTIFIED MATERIALS, INCLUDING GRAVEL, SAND, TOPSOIL, MULCH, SEED.
10. COMPLETE CONSTRUCTION BEFORE BEGINNING RESTORATION ACTIVITIES.

POST-CONSTRUCTION:

1. UPON COMPLETION OF PROJECT, REVEGETATE ALL DISTURBED AREAS WITH NATIVE VEGETATION.
 - o RIP COMPACTED AREAS PRIOR TO REPLANTING WITH NATIVE VEGETATION.
 - o FILL AND RESEED WITH WEED FREE MATERIAL AND NATIVE SEED MIXTURES.
 - o CONSULT THE SERVICE BEFORE FINALIZING A SEED AND PLANT LIST.
2. BURY RIPRAP, THEN PLANT WITH NATIVE VEGETATION.
3. REHABILITATE ADJACENT HABITATS IMPACTED BY FLOODWATERS TO RESTORE CONNECTIVITY AND PREVENT FUTURE IMPACTS FROM EROSION OR SEDIMENTATION.
4. CONSIDER MONITORING THE REVEGETATED AREA FOR SUCCESS. THE SERVICE CAN HELP ESTABLISH SUCCESS CRITERIA DURING THE CONSULTATION PROCESS.



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REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE								
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016								
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								DRAWING No. 4 REV 0								

L:\PUBLIC\p_drive\3279 Project files- Water Group\32790038 - Hall Ranch 2 Rd. Repair & Hazard\9.0 CADD\9.1 Sheet Sets\5 SUMMARY OF QUANTITIES.dwg--11/4/2016 9:33 AM

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY		CHANNEL		LOW WATER CROSSING												PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST	PLAN	AS CONST	PLAN	AS CONST											PLAN	AS CONST
			201-00000	Clearing and Grubbing	L S	1															1		
			202-00010	Removal of Tree	EACH			2													2		
			202-04002	Clean Culvert	EACH	1															1		
			203-00010	Unclassified Excavation (Complete In Place)	CY	1005		3,347		312											4,664		
			203-01500	Blading	HOUR	10															10		
			203-01582	Truck (Dump)	HOUR	30															30		
			203-01594	Combination Loader	HOUR	30															30		
			203-01597	Potholing	HOUR	8															8		
			203-02330	Laborer	HOUR	24															24		
			206-00000	Structure Excavation	CY					67											67		
			206-00100	Structure Backfill (Class 1)	CY					51											51		
			207-00205	Topsoil	CY	19		94		46											159		
			207-00210	Stockpile Topsoil	CY	19		94		46											159		
			207-00305	Wetland Topsoil	CY	13		17		14											44		
			207-00310	Stockpile Wetland Topsoil	CY	13		17		14											44		
			208-00002	Erosion Log (12 Inch)	LF	25															25		
			208-00020	Silt Fence	LF	2150		851													3,001		
			208-00040	Check Dam	EACH					3											3		
			208-00045	Concrete Washout Structure	EACH	1															1		
			208-00400	Water Control	L S			1													1		
			208-00206	Erosion Control Supervisor	DAY	5															5		
			212-00006	Seeding (Native)	ACRE	0.24															0.24		
			212-00028	Seeding (Wetlands)	ACRE			0.24		0.10											0.34		
			212-00032	Soil Conditioning	ACRE	0.24		0.24		0.10											0.58		
			213-00002	Mulching (Weed Free Hay)	ACRE	0.24		0.24		0.10											0.58		
			213-00061	Mulch Tackifier	LB	24		24		10											58		
			214-01015	Willow Cuttings	EACH			400													400		
			304-06000	Aggregate Base Course (Class 6)	TON	1821															1,821		
			240-00000	Wildlife Biologist	HOUR	40															40		
			420-00102	Geotextile (Ercsion Control) (Class 1)	SY			1204		125											1,329		
			506-00013	Riprap (Special)	TON			390													390		
			506-00209	Riprap (9 Inch)	CY			180		32											212		
			506-00218	Riprap (18 Inch)	CY					90											90		
			506-00409	Soil Riprap (9 Inch)	CY	282															282		
			507-00200	Dry Rubble Slope and Ditch Paving	CY			60													60		
			601-01000	Concrete Class B	CY					10											10		
			603-02305	38x24 Inch Reinforced Concrete Pipe Elliptical (Complete In Place)	LF					78											78		
			603-05130	38x24 Inch Reinforced Concrete End Section Elliptical	EACH					4											4		
			620-00020	Sanitary Facility	EACH	1															1		
			625-00000	Construction Surveying	L S	1															1		
			626-00000	Mobilization	L S	1															1		



REV	DATE	DESCRIPTION	ENGR	CADD	CLIENT	BOULDER COUNTY	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE	
						BOULDER COUNTY	amec foster wheeler	DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016	
<p>DISCLAIMER</p> <p>AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.</p>						<p>TITLE</p> <p>SUMMARY OF APPROXIMATE QUANTITIES</p>				PROJECT No.	32790038
										DRAWING No.	5
										REV	0

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SUMMARY OF EARTHWORK QUANTITIES		
UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE) (NET)		CUBIC YARDS
FOR ROADWAY		1,005
FOR CHANNEL		3,347
LOW WATER CROSSING DITCH EXCAVATION		312
TOTAL		4,664
FOR INFORMATION ONLY EARTHWORK QUANTITIES BALANCE		
Use the following when the Quantity of Embankment Times factor is more than Unclassified Excavation, thereby requiring borrow.		
EMBANKMENT MATERIAL (COMPLETE IN PLACE) (NET)		CUBIC YARDS
FOR ROADWAY: REGULAR EMBANKMENT		2,287
FOR CHANNEL		424
TOTAL		2,711
COMPACTION		CUBIC YARDS
TOTAL EMBANKMENT (NET)		2,711
TOTAL		2,711
EARTHWORK QUANTITIES BALANCE		
UNCLASSIFIED EXCAVATION		CUBIC YARDS
TOTAL		4,664
EMBANKMENT (NET)		
TOTAL		2,711
EMBANKMENT (NET) TIMES COMPACTION FACTOR		1.10
TOTAL		2,982
EXCAVATION SUMMARY		
EXCAVATION TO BE USED AS EMBANKMENT MATERIAL		2,982
EXCESS EXCAVATION TO BE PROPERTY OF THE CONTRACTOR		1,682
TOTAL		4,664

TABULATION OF RIPRAP									
LOCATION	STATION TO STATION	SIDE	420-00102	506-00013	506-00209	506-00216	506-00409	507-00200	REMARKS
			GEOTEXTILE (EROSION CONTROL) (CLASS 1)	RIPRAP (SPECIAL)	RIPRAP (9 INCH)	RIPRAP (18 INCH)	SOIL RIPRAP (9 INCH)	DRY RUBBLE SLOPE AND DITCH PAVING	
		RT/LT	SY	TON	CY	CY	CY	CY	
CHANNEL	123+85 TO 126+00	LT	736		180		282		
CHANNEL	123+85 TO 127+42	LT	289	390					
CHANNEL	123+85 TO 127+16	RT	179					80	
ROADWAY	16+17.24 TO 16+47.24	RT/LT				90			
ROADWAY	16+17.24 TO 16+47.24	LT			32				
LOW WATER CROSSING	2+35 TO 2+47	RT/LT	125						
PROJECT TOTALS			1,329	390	212	90	282	80	

TABULATION OF EROSION CONTROL																
LOCATION	STATION TO STATION	SIDE	207-00205	207-00210	207-00305	207-00310	208-00002	208-00020	208-00041	212-00006	212-00028	212-00032	213-00002	213-00061	214-01015	REMARKS
			TOPSOIL	STOCKPILE TOPSOIL	WETLAND TOPSOIL	STOCKPILE WETLAND TOPSOIL	EROSION LOG (12 INCH)	SILT FENCE	ROCK CHECK DAM	SEEDING (NATIVE)	SEEDING (WETLANDS)	SOIL CONDITIONING	MULCHING (WEED FREE HAY)	MULCH TACKIFIER	WILLOW CUTTINGS	
		RT/LT	CY	CY	CY	CY	LF	LF	EACH	ACRE	ACRE	ACRE	ACRE	LB	EACH	
CHANNEL	123+13 TO 124+04	LT						104								
CHANNEL	125+85 TO 127+24	LT						179								
CHANNEL	127+44 TO 128+50	LT						113		0.02	0.02	0.02	2			
CHANNEL	123+03 TO 128+50	RT						455								
CHANNEL	123+05 TO 124+11	LT			17	17										
CHANNEL	123+00 TO 127+25	RT	94	54												
CHANNEL	123+85 TO 127+16	RT								0.01	0.21	0.22	0.22	22	150	
ROADWAY	1+25 TO 22+75	LT						2150								
ROADWAY	1+25 TO 22+75	RT/LT	19	19												
ROADWAY	17+90	RT/LT					25									
ROADWAY	16+00 TO 22+10	LT							0.23		0.23	0.23	23			
ROADWAY	3+51 TO 4+55	RT/LT			11	12										
LOW WATER CROSSING	0+9.50 TO 0+61	RT/LT	12	12							0.1	0.10	0.10	10	250	
LOW WATER CROSSING	0+83 TO 2+35.5	RT/LT	34	34												
LOW WATER CROSSING	1+02	RT/LT							1							
LOW WATER CROSSING	1+52	RT/LT							1							
LOW WATER CROSSING	2+25	RT/LT							1							
LOW WATER CROSSING	1+05 TO 1+85	RT/LT			11	14										
PROJECT TOTALS			159	159	41	44	25	3,001	3	0.24	0.34	0.58	0.58	58	400	

TABULATION OF SURFACING					
LOCATION	STATION TO STATION	SIDE	304-06000	601-01000	REMARKS
			AGGREGATE BASE COURSE (CLASS 6)	Concrete Class B	
		LT/RT	TON	CY	
Roadway	1+25 TO 16+17.24	LT/RT	1,149		
Roadway	16+17.24 TO 16+47.24	LT/RT	22	10	
Roadway	16+47.24 TO 22+75	LT/RT	484		
SUB-TOTAL			1,655	10	
IRREGULARITIES (10%)			166	0	
TOTALS			1,821	10	



REV	DATE	DESCRIPTION	ENGR CADD	CLIENT BOULDER COUNTY	PROVIDED BY 	ISSUED FOR DRAFT	PROJECT HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	ISSUED DATE 10/14/2016
				DISCLAIMER AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.		DRN BY TB DSN BY SJ CHK BY JL APR BY SJ		TITLE TABULATIONS
								PROJECT No. 32790038
								DRAWING No. 6 REV 0

SURVEY CONTROL DIAGRAM

A PORTION OF LAND LOCATED IN THE NORTHWEST QUARTER OF SECTION 25, TOWNSHIP 3 NORTH, RANGE 71 WEST OF THE 6TH P.M., COUNTY OF BOULDER, STATE OF COLORADO

Notes:

- THIS EXHIBIT WAS PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE COMMITMENT AND DOES NOT CONSTITUTE A TITLE SEARCH BY FLATIRONS, INC. TO DETERMINE TITLE OR EASEMENTS OF RECORD. THIS EXHIBIT DOES NOT PURPORT TO REFLECT ANY OF THE FOLLOWING WHICH MAY BE APPLICABLE TO THE SUBJECT REAL ESTATE: EASEMENTS, OTHER THAN POSSIBLE EASEMENTS THAT WERE VISIBLE AT THE TIME OF MAKING THIS EXHIBIT; BUILDING SETBACK LINES; RESTRICTIVE COVENANTS; SUBDIVISION RESTRICTIONS; ZONING OR OTHER LAND-USE REGULATIONS; AND ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.
- ACCORDING TO COLORADO LAW, YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS EXHIBIT WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS EXHIBIT BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.
- THIS EXHIBIT IS VALID ONLY IF PRINT HAS SEAL AND SIGNATURE OF SURVEYOR.
- THE DISTANCE MEASUREMENTS SHOWN HEREON ARE U.S. SURVEY FOOT.
- BENCHMARK INFORMATION: ELEVATIONS BASED ON NGS POINT "5493", WITH A PUBLISHED ELEVATION OF 5494.34 FEET (NAVD88), BEING A SURVEY DISK SET IN ROCK OUTCROP.
- DATES OF FIELDWORK: DECEMBER 2015 – JANUARY 2016
- BOUNDARY DETERMINATION IS NOT A PART OF THIS EXHIBIT. THIS IS NOT A "LAND SURVEY PLAT" OR "IMPROVEMENT SURVEY PLAT" AND THIS EXHIBIT IS NOT INTENDED FOR PURPOSES OF TRANSFER OF TITLE OR SUBDIVISIONS OF LAND AND THAT IT IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OF A FENCE, BUILDING OR OTHER FUTURE IMPROVEMENT LINES.



APPROXIMATE LOCATION OF "WILDLIFE SURVEY" MARKS

X: 474909 Y: 4450184
X: 475086 Y: 4450281

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
252	1316778.51	3057948.60	5494.34	BM NGS "5493"
573	1316707.62	3057891.10	5490.11	CP 573
717	1316780.06	3057634.66	5492.12	CP 717

Surveyor's Statement

I, JOHN B. GUYTON, A LAND SURVEYOR LICENSED IN THE STATE OF COLORADO, HEREBY STATE FOR AND ON BEHALF OF FLATIRONS, INC., THAT THIS SURVEY CONTROL DIAGRAM WAS PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE; THAT SAID EXHIBIT AND THE RELATIVE COORDINATES AND ELEVATIONS SHOWN HEREON ARE ACCURATE TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

JOHN B. GUYTON COLORADO P.L.S. #16406
CHAIRMAN & CEO, FLATIRONS, INC.

DRAFT
WORKING COPY ONLY
ONLY FINAL VERSION
WILL HAVE STAMP AND SIGNATURE



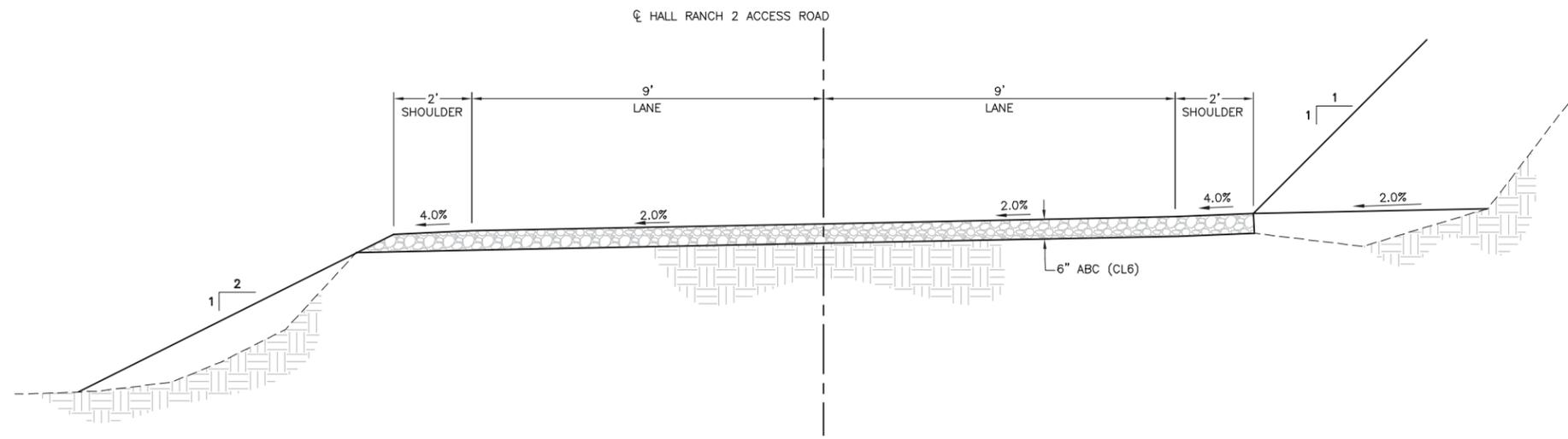
Flatirons, Inc.
Surveying, Engineering & Geomatics
www.FlatironsInc.com

655 FOURTH AVE LONGMONT, CO 80501
PH: (303) 776-1733
FAX: (303) 776-4355
3825 IRIS AVE, STE 395 BOULDER, CO 80301
PH: (303) 443-7001
FAX: (303) 443-9830
3660 DOWNING ST UNIT E DENVER, CO 80205
PH: (303) 936-6997

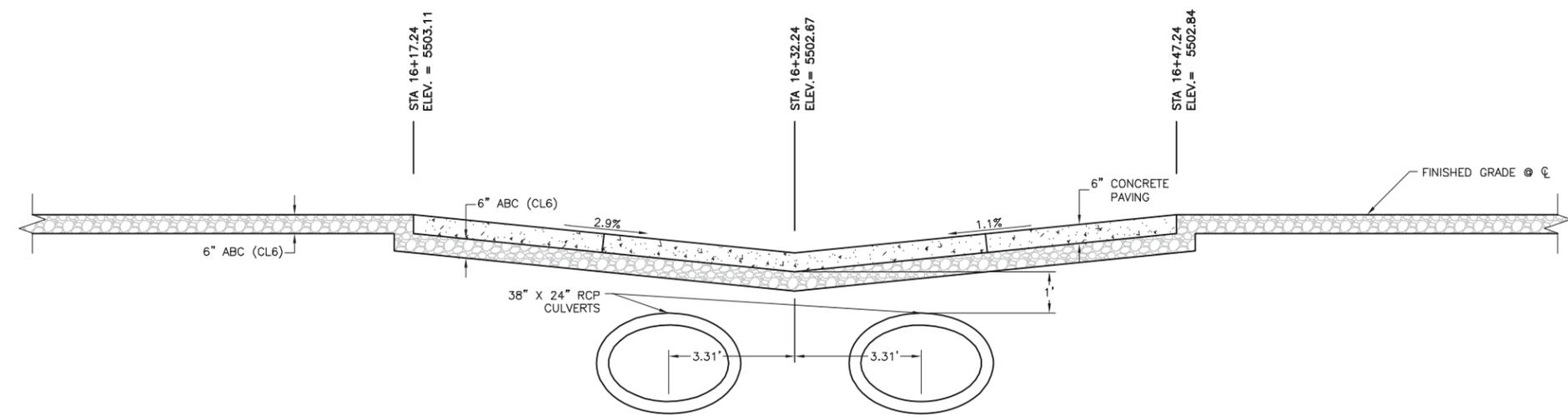
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REV	DATE	DESCRIPTION	ENGR	CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
					BOULDER COUNTY	amec foster wheeler	DRAFT	HALL RANCH 2 ROAD REPAIR AND HAZARD MITIGATION	09/23/2016
					DISCLAIMER			PROJECT No. 32790038	
					AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.			DRAWING No. 7	
					SURVEY CONTROL DIAGRAM			REV 0	

I:\PUBLIC\Drive\3279\project_files\water_group\327900338 - hall ranch 2 rd. repair & hazard\9.0 cadd\9.1 sheet_sets\8 ROADWAY SECT & DET.dwg-10/14/2016 10:30 AM



HALL RANCH 2 ACCESS ROAD STA 1+25 TO 22+75

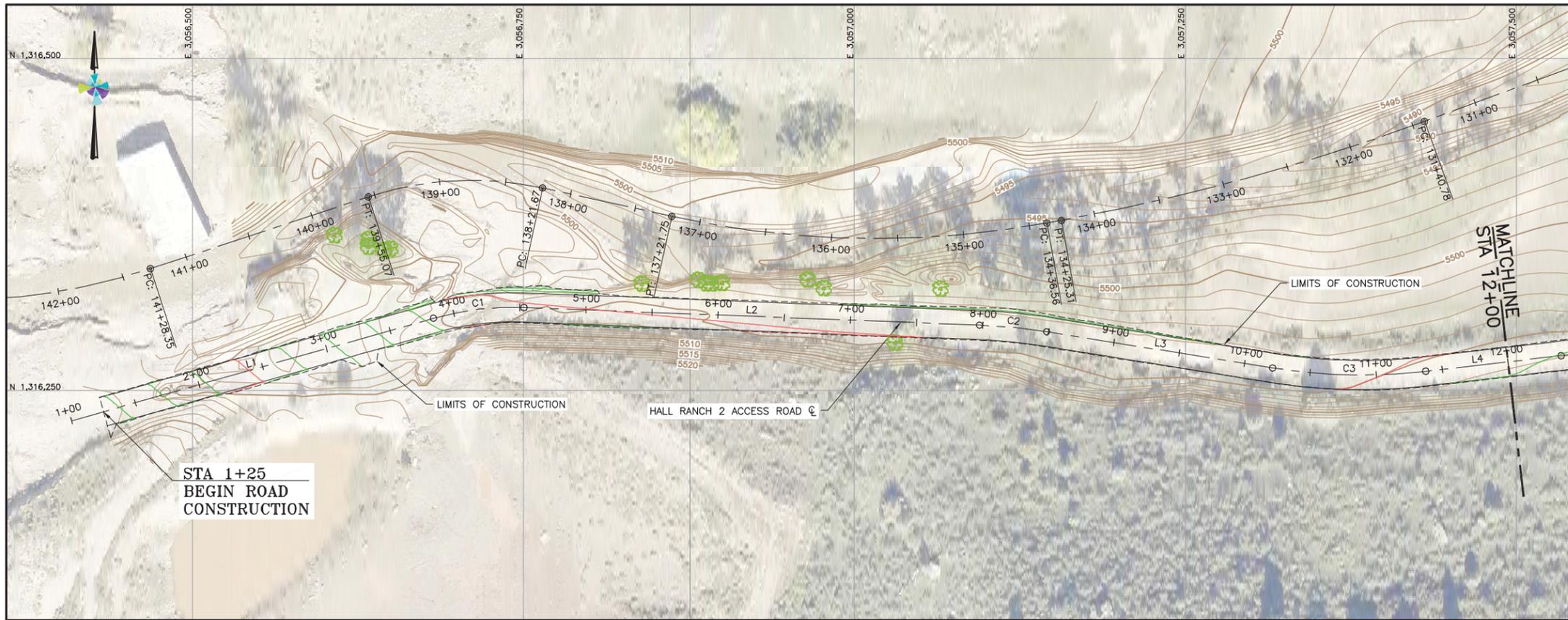


LOW WATER CROSSING AT STA 16+32.24



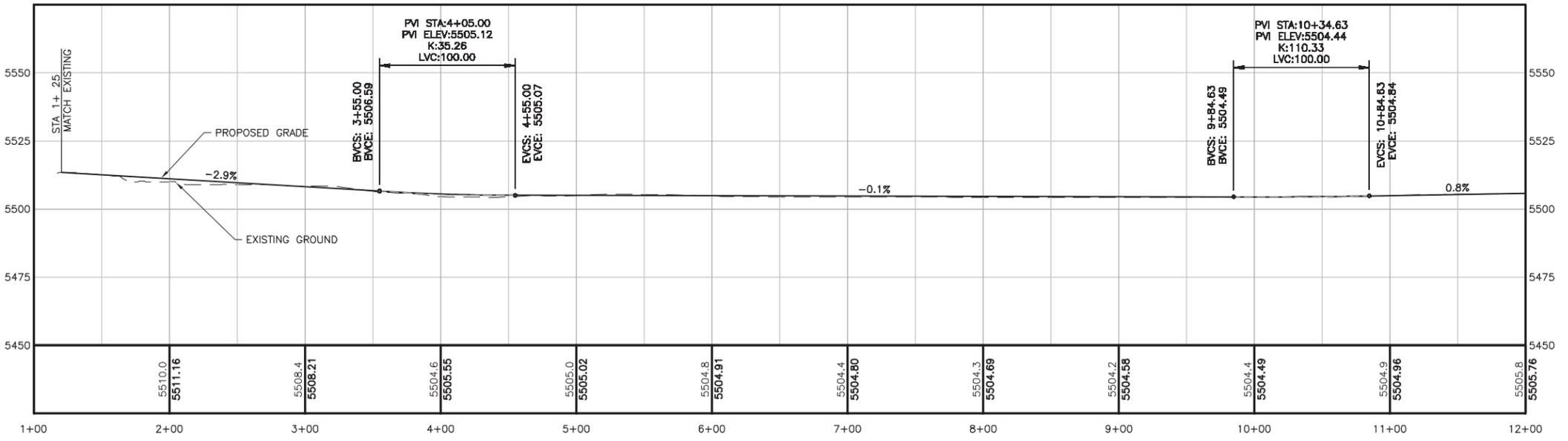
REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016
								DISCLAIMER AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.
							ROADWAY TYPICAL SECTIONS AND DETAILS	DRAWING No. 8 REV 0

I:\PUBLIC\Drive\3279\project files- water group\32790038 - hall ranch 2 rd. repair & hazard\9.0 cadd\9.1 sheet sets\9 ROADWAY PLAN AND PROFILE.dwg-9/26/2016 7:31 AM



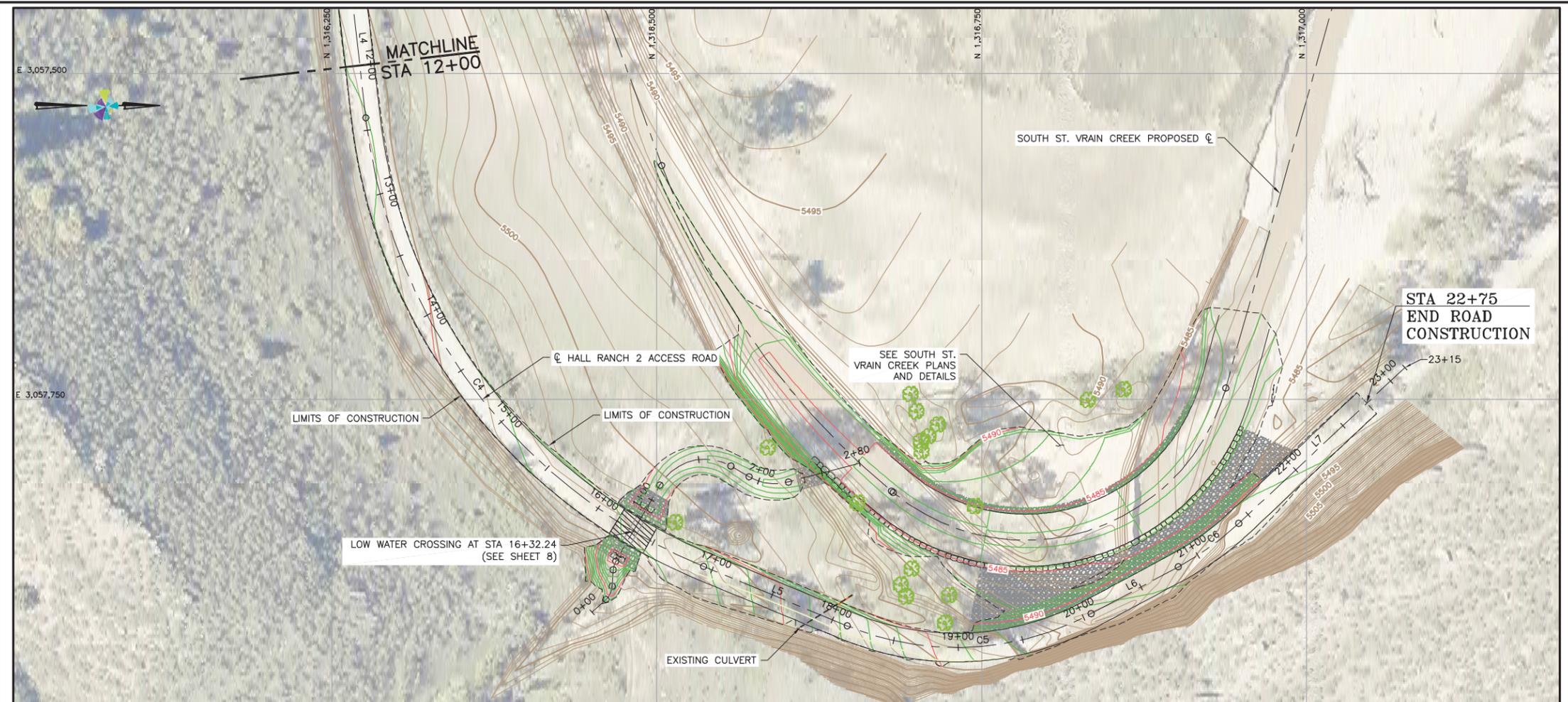
LEGEND:
 EXISTING GROUND SURFACE CONTOUR EL, FEET
 PROPOSED GROUND SURFACE CONTOUR EL, FEET

HALL RANCH 2 ACCESS ROAD						
SEGMENT	STARTING STATION	NORTHING	EASTING	DELTA (D-M-S)	RADIUS (ft)	LENGTH (ft)
L1	1+00.00	1,316,227.01	3,056,408.72			
C1	3+83.97	1,316,304.28	3,056,681.98	17-59-47	220.00	69.10
L2	4+53.07	1,316,312.42	3,056,750.32			
C2	7+97.45	1,316,299.15	3,057,094.44	6-52-38	425.00	51.01
L3	8+48.47	1,316,294.13	3,057,145.17			
C3	10+21.35	1,316,266.84	3,057,315.89	15-38-57	425.00	116.08
L4	11+37.43	1,316,264.29	3,057,431.58			
C4	12+40.37	1,316,276.06	3,057,533.85	61-00-21	425.00	452.52
L5	16+92.89	1,316,536.11	3,057,878.11			
C5	18+12.37	1,316,646.55	3,057,923.70	50-36-23	220.00	194.31
L6	20+06.69	1,316,834.38	3,057,914.27			
C6	20+82.75	1,316,901.43	3,057,878.36	14-54-48	220.00	57.26
L7	21+40.02	1,316,947.84	3,057,845.09			



REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE	
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016	
				<p>DISCLAIMER AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.</p>		<p>DRN BY: TB DSN BY: SJ CHK BY: JL APR BY: SJ</p>		<p>ROADWAY PLAN AND PROFILE (SHEET 1 OF 2)</p>	
								PROJECT No.	32790038
								DRAWING No.	9
								REV	0

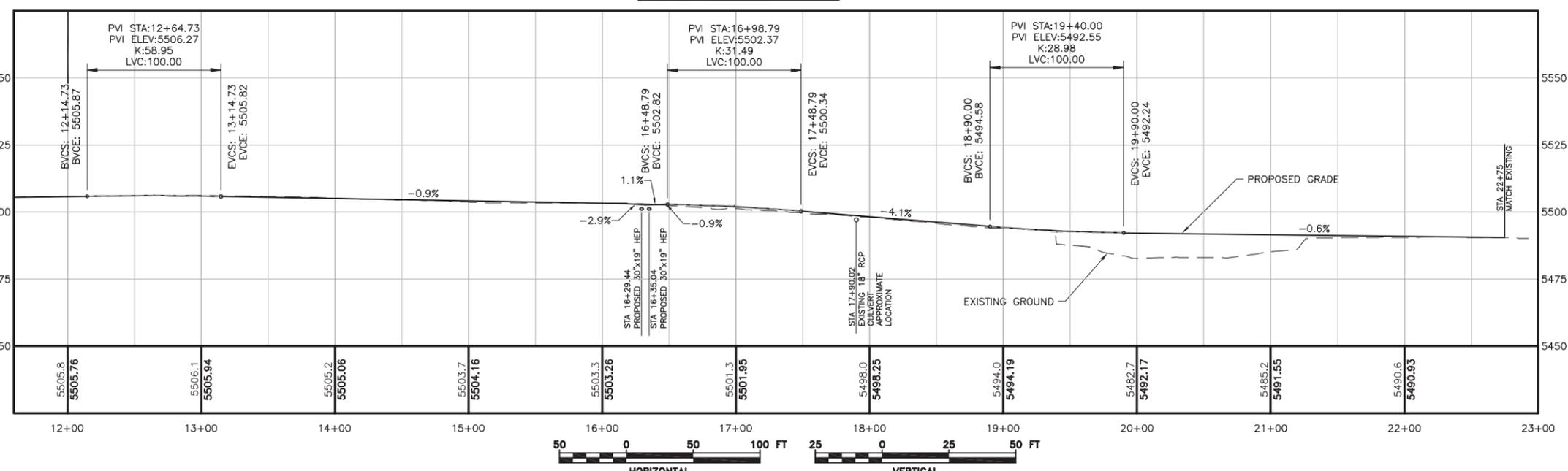
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LEGEND:

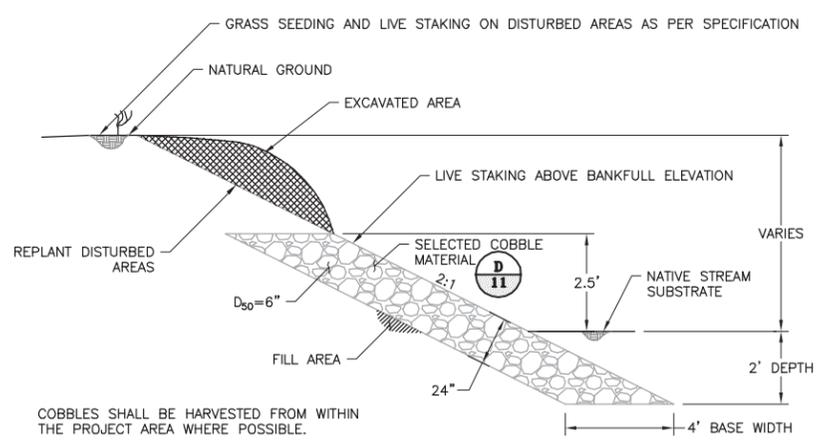
	EXISTING GROUND SURFACE CONTOUR EL, FEET
	PROPOSED GROUND SURFACE CONTOUR EL, FEET

HALL RANCH 2 ACCESS ROAD						
SEGMENT	STARTING STATION	NORTHING	EASTING	DELTA (D-M-S)	RADIUS (ft)	LENGTH (ft)
L1	1+00.00	1,316,227.01	3,056,408.72			
C1	3+83.97	1,316,304.28	3,056,681.98	17-59-47	220.00	69.10
L2	4+53.07	1,316,312.42	3,056,750.32			
C2	7+97.45	1,316,299.15	3,057,094.44	6-52-38	425.00	51.01
L3	8+48.47	1,316,294.13	3,057,145.17			
C3	10+21.35	1,316,266.84	3,057,315.89	15-38-57	425.00	116.08
L4	11+37.43	1,316,264.29	3,057,431.58			
C4	12+40.37	1,316,276.06	3,057,533.85	61-00-21	425.00	452.52
L5	16+92.89	1,316,536.11	3,057,878.11			
C5	18+12.37	1,316,646.55	3,057,923.70	50-36-23	220.00	194.31
L6	20+06.69	1,316,834.38	3,057,914.27			
C6	20+82.75	1,316,901.43	3,057,878.36	14-54-48	220.00	57.26
L7	21+40.02	1,316,947.84	3,057,845.09			

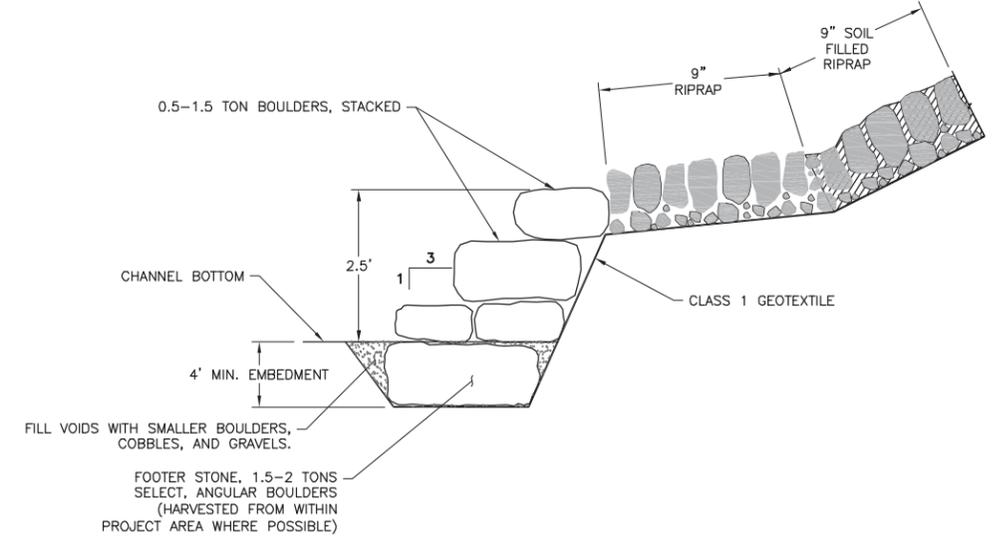


REV	DATE	DESCRIPTION	ENGR	CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE	
					BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016	
					<p>DISCLAIMER</p> <p>AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.</p>		<p>DRN BY: TB</p> <p>DSN BY: SJ</p> <p>CHK BY: JL</p> <p>APR BY: SJ</p>		<p>TITLE</p> <p>ROADWAY PLAN AND PROFILE (SHEET 2 OF 2)</p>	
									PROJECT No.	32790038
									DRAWING No.	10
									REV	0

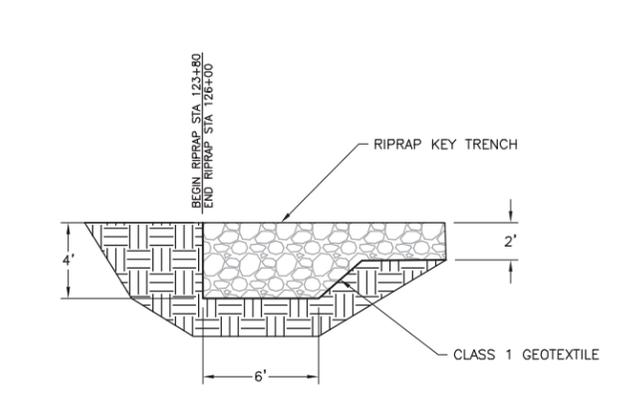
I:\PUBLIC\Drive\3279 project files- water group\32790038 - hall ranch 2 rd. repair & hazard\9.0 cadd\9.1 sheet sets\11 CREEK TYP SECT & DET.dwg-10/14/2016 12:51 PM



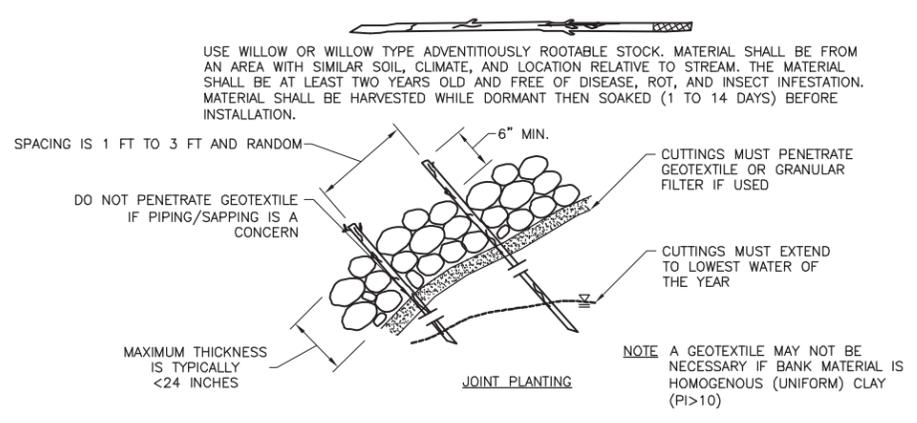
A BANK STABILIZATION DETAIL (COBBLE)
11 NTS



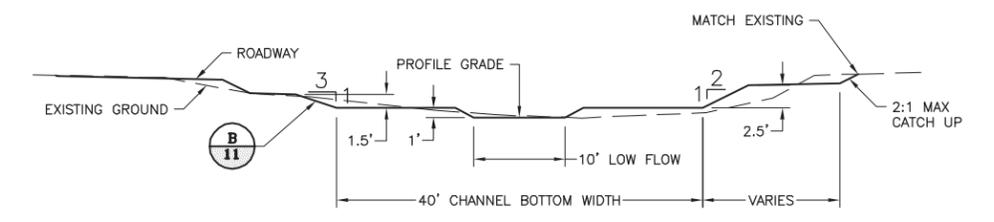
B BOULDER TOE PROTECTION
11 NTS



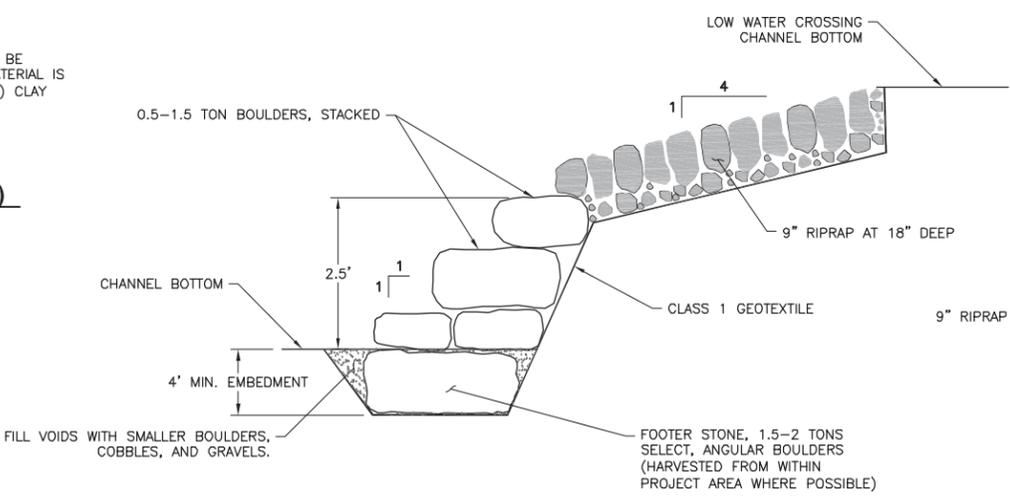
C RIPRAP TERMINATION DETAIL
11 NTS



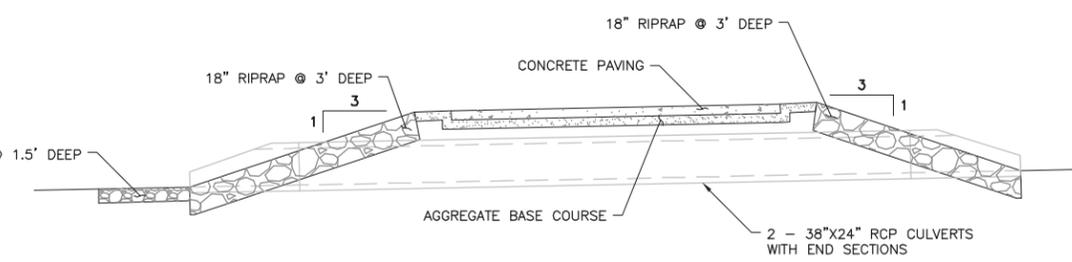
D BANK STABILIZATION WITH LIVE STAKING (COBBLE)
11 NTS



E TYPICAL SECTION
11 NTS



F LOW WATER CROSSING CHANNEL OUTLET
11 NTS

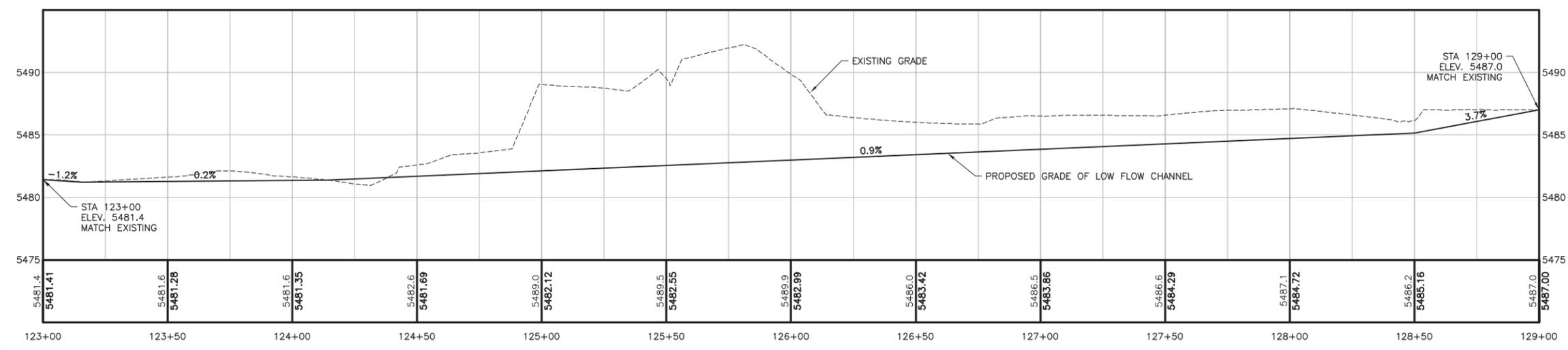
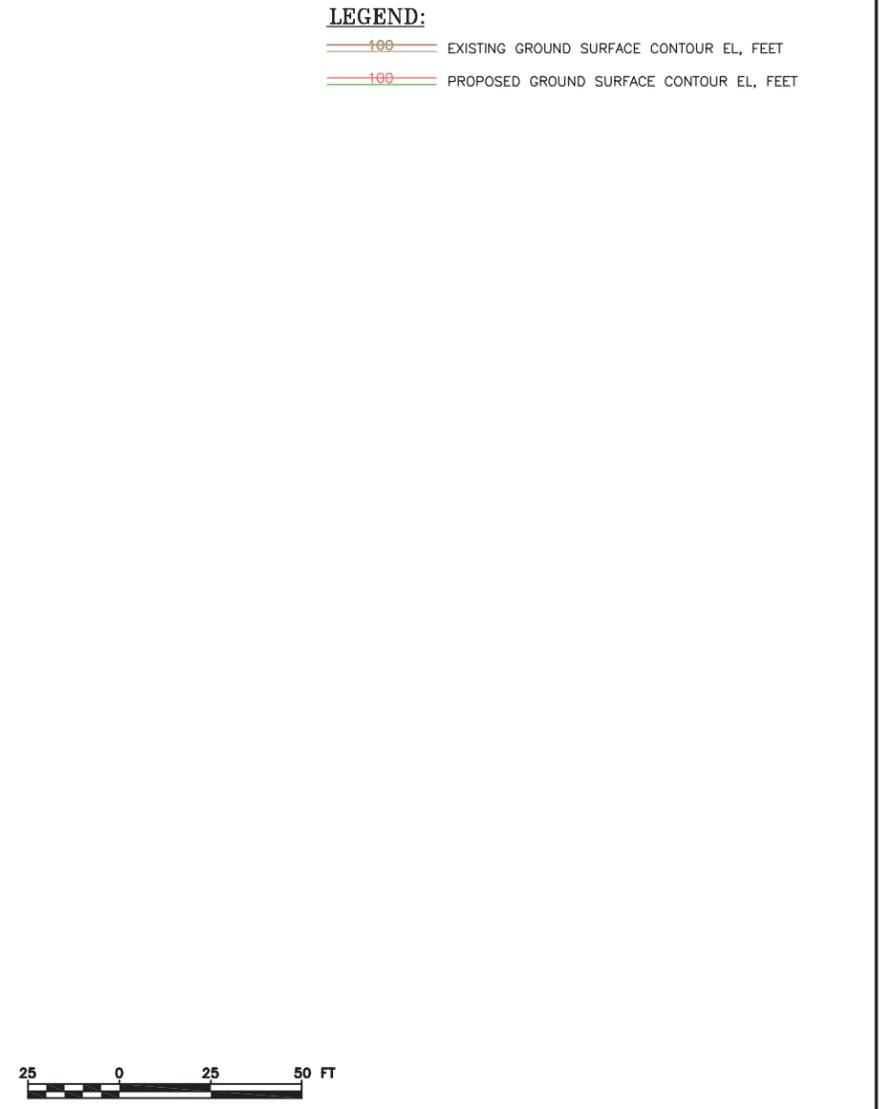
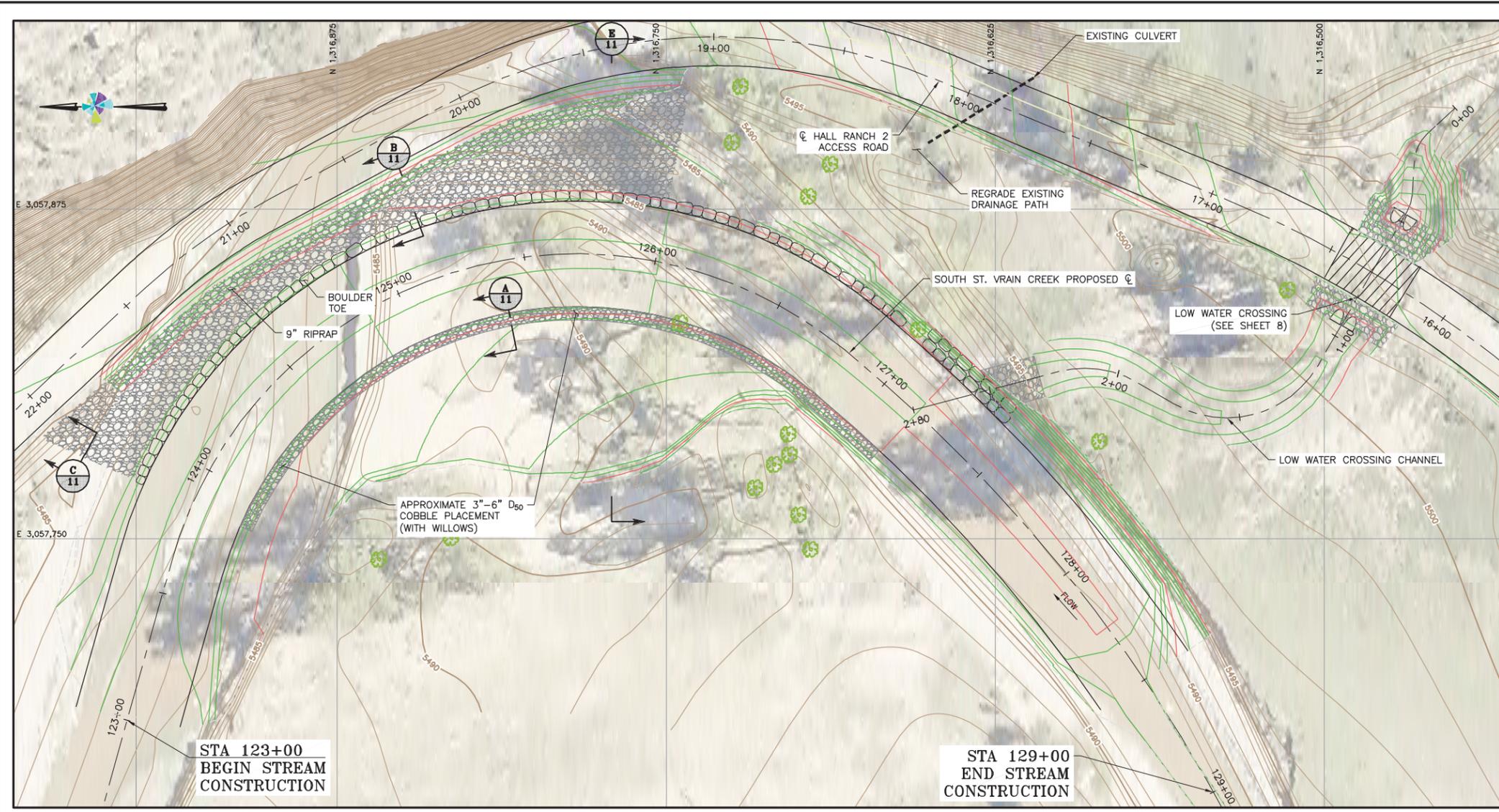


G LOW WATER CROSSING ROADWAY SLOPE
11 NTS



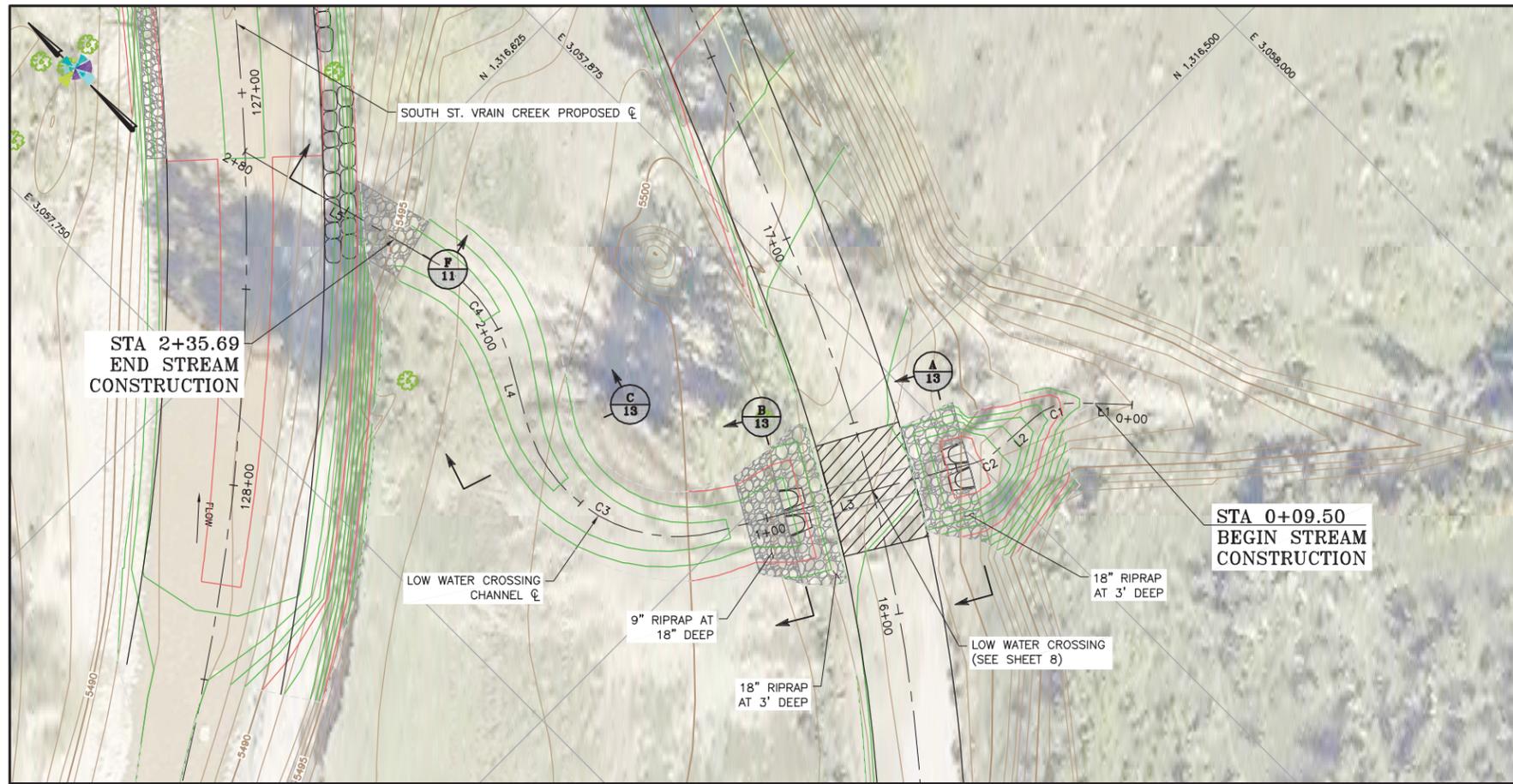
REV	DATE	DESCRIPTION	ENGR	CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE	
					BOULDER COUNTY	amec foster wheeler	DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016	
<p>DISCLAIMER</p> <p>AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.</p>						<p>DRN BY TB</p> <p>DSN BY SJ</p> <p>CHK BY JL</p> <p>APR BY SJ</p>	TITLE	SOUTH ST. VRAIN CREEK TYPICAL SECTIONS AND DETAILS	PROJECT No. 32790038	
									DRAWING No. 11	REV 0

I:\PUBLIC_P_Drive\3279 project files - water_group\32790038 - hall ranch 2 rd. repair & hazard\9.0 cadd\9.1 sheet_sets\12 CREEK PLAN AND PROFILE.dwg-9/24/2016 12:21 PM

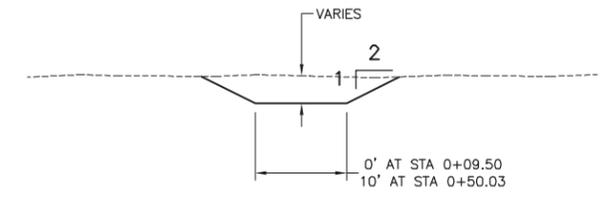


REV	DATE	DESCRIPTION	ENGR	CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
					BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	09/23/2016
					<p>DISCLAIMER</p> <p>AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.</p>		<p>TITLE</p> <p>SOUTH ST. VRAIN CREEK PLAN AND PROFILE</p>		<p>PROJECT No.</p> <p>32790038</p>
							<p>DRN BY TB</p> <p>DSN BY SJ</p> <p>CHK BY JL</p> <p>APR BY SJ</p>		<p>DRAWING No.</p> <p>12</p>
									<p>REV</p> <p>0</p>

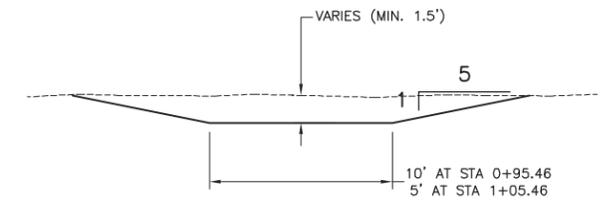
I:\PUBLIC\Drive\3279\project files - water group\32790038 - hall ranch 2 rd. repair & hazard\9.0 cadd\9.1 sheet sets\13 LOW WATER CROSSING P&P.dwg-10/11/2016 5:40 PM



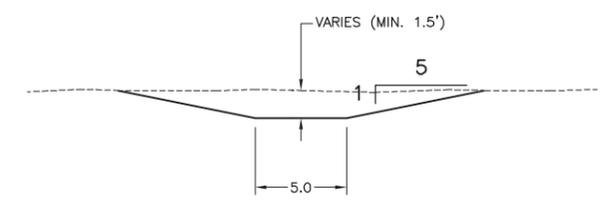
LEGEND:
 199 EXISTING GROUND SURFACE CONTOUR EL, FEET
 199 PROPOSED GROUND SURFACE CONTOUR EL, FEET



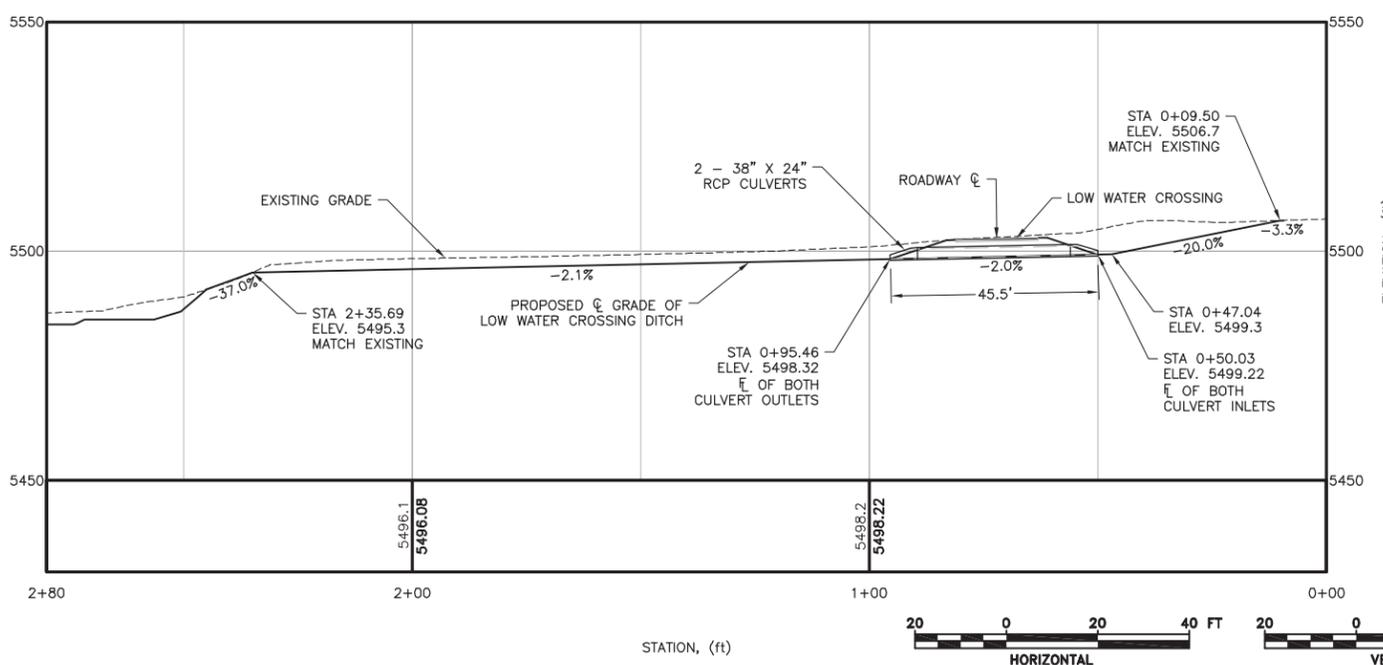
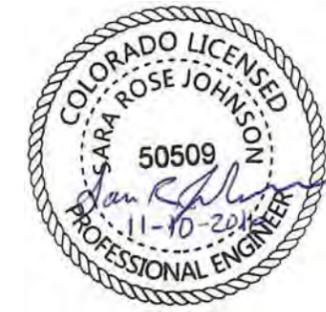
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SCALE: 1"=5'-0"



B STA 0+95.46 - 1+05.46
SCALE: 1"=5'-0"



C STA 1+05.46 - 2+35.69
SCALE: 1"=5'-0"

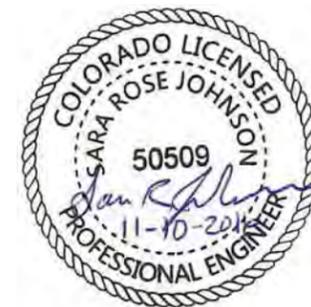
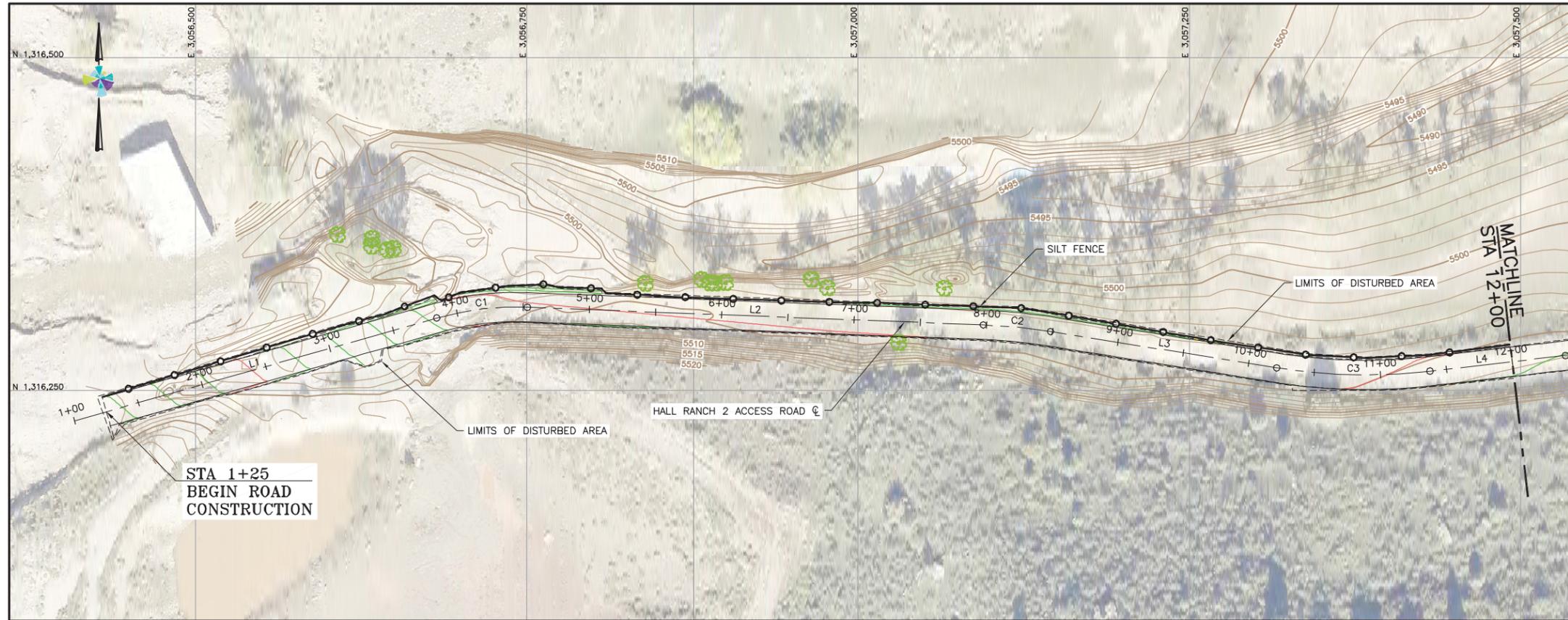


LOW WATER CROSSING						
SEGMENT	STARTING STATION	NORTHING	EASTING	DELTA (D-M-S)	RADIUS (ft)	LENGTH (ft)
L1	0+00.00	1,316,450.38	3,057,913.28			
C1	0+14.49	1,316,460.99	3,057,903.41	43-32-02	15.00	11.40
L2	0+25.89	1,316,465.74	3,057,893.35			
C2	0+38.54	1,316,466.51	3,057,880.72	26-36-37	15.00	6.97
L3	0+45.51	1,316,468.51	3,057,874.11			
C3	1+13.06	1,316,502.41	3,057,815.68	90-00-00	40.00	62.83
L4	1+75.89	1,316,557.08	3,057,801.16			
C4	1+91.97	1,316,570.99	3,057,809.23	45-00-00	40.00	31.42
L5	2+23.39	1,316,601.34	3,057,813.29			

REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016
				DISCLAIMER AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.			LOW WATER CROSSING PLAN & PROFILE	PROJECT No. 32790038
							DRAWING No. 13	REV 0

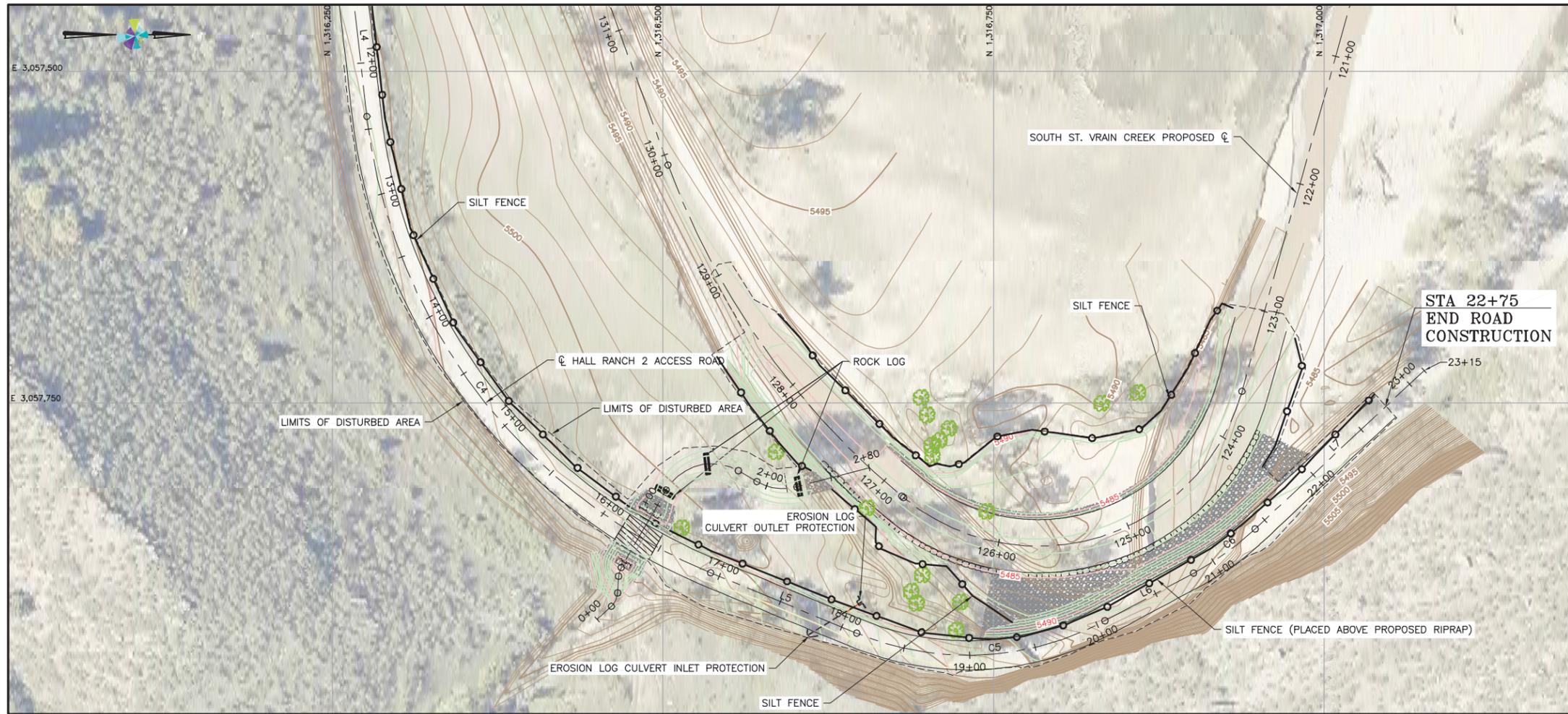
I:\PUBLIC\Drive\3279\project_files\water_group\32790038 - hall ranch 2 rd. repair & hazard\9.0 cadd\9.1 sheet_sets\15 EROSION CONTROL PLAN2.dwg-10/11/2016 5:42 PM

LEGEND:
 SILT FENCE
 LIMITS OF DISTURBED AREA



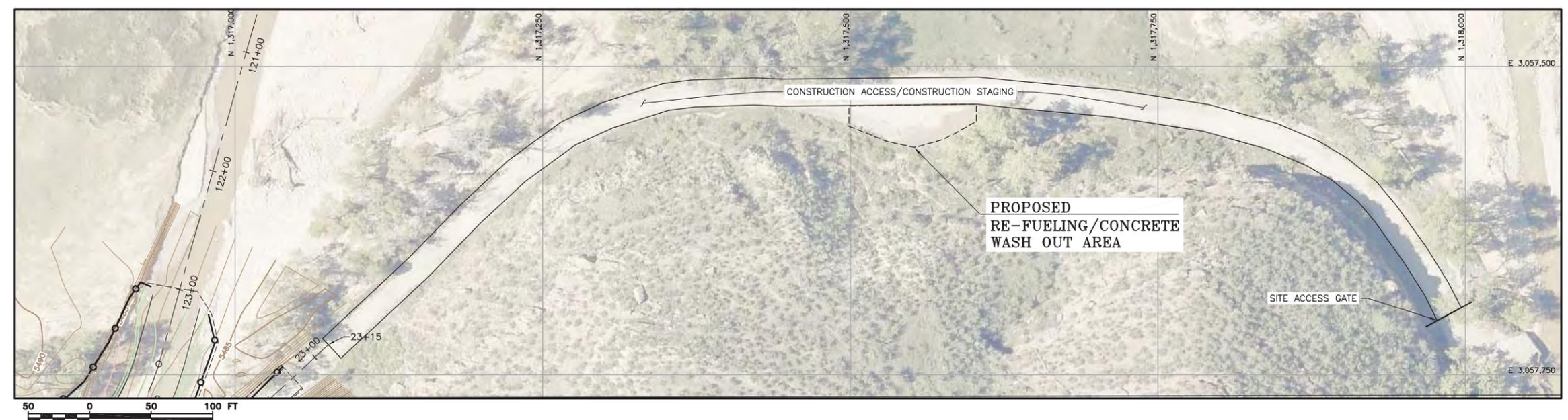
REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016
				AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.				DRN BY: TB DSN BY: SJ CHK BY: JL APR BY: SJ
EROSION CONTROL (SHEET 1 OF 2)								DRAWING No. 14 REV 0

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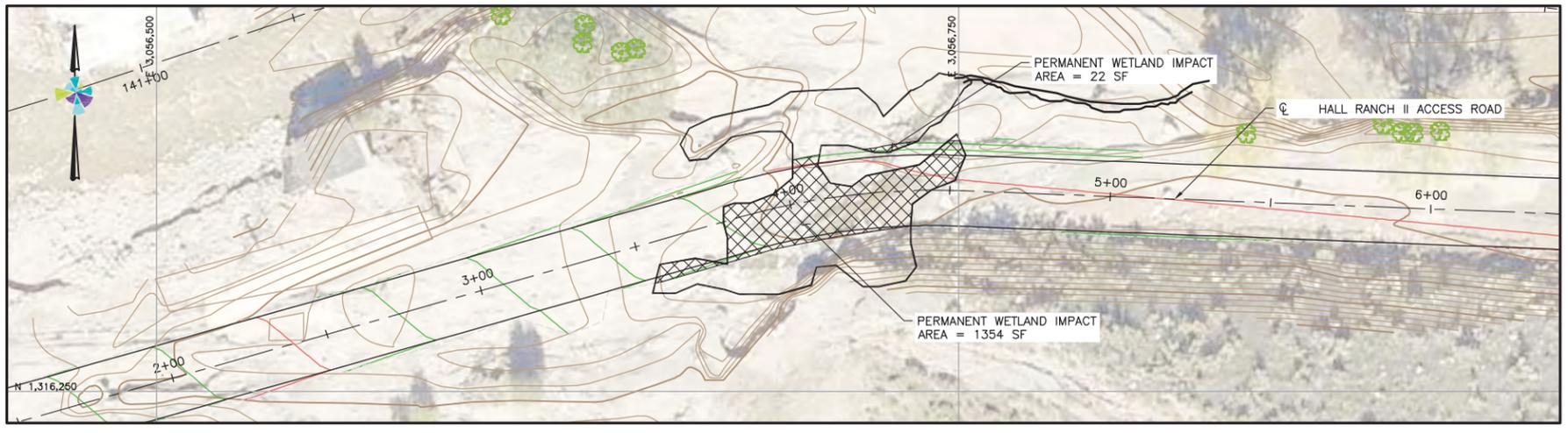
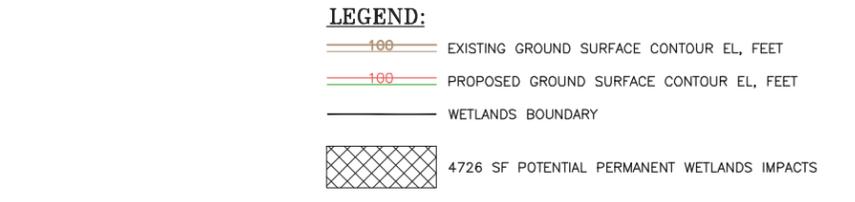
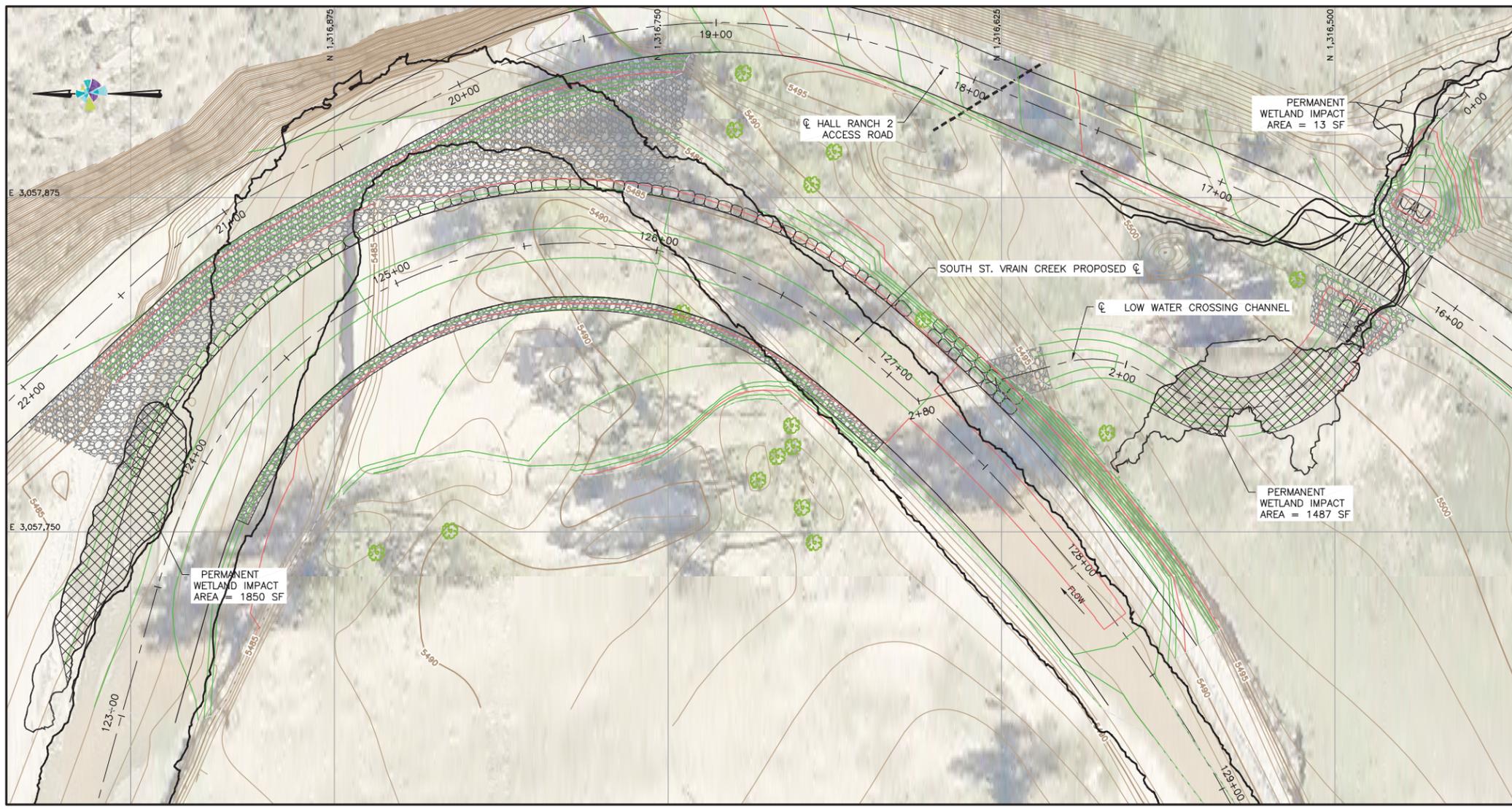
- LEGEND:**
- SILT FENCE
 - LIMITS OF DISTURBED AREA
 - ROCK LOG
 - EROSION LOG (12 INCH)

- NOTES:**
1. CONCRETE WASH OUT STRUCTURE SHALL BE ECO-PAN OR APPROVED EQUIVALENT.



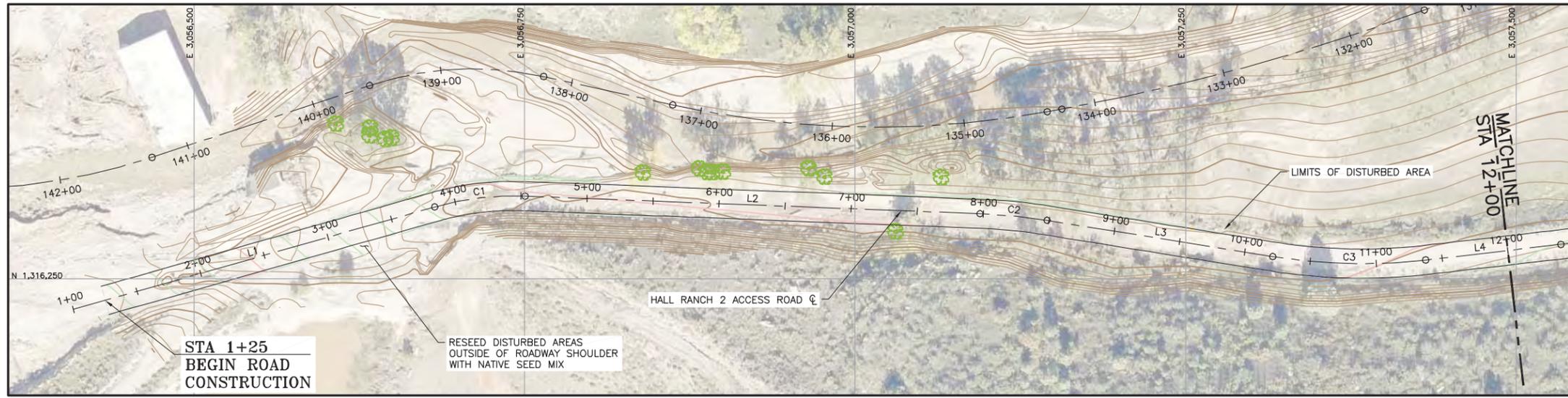
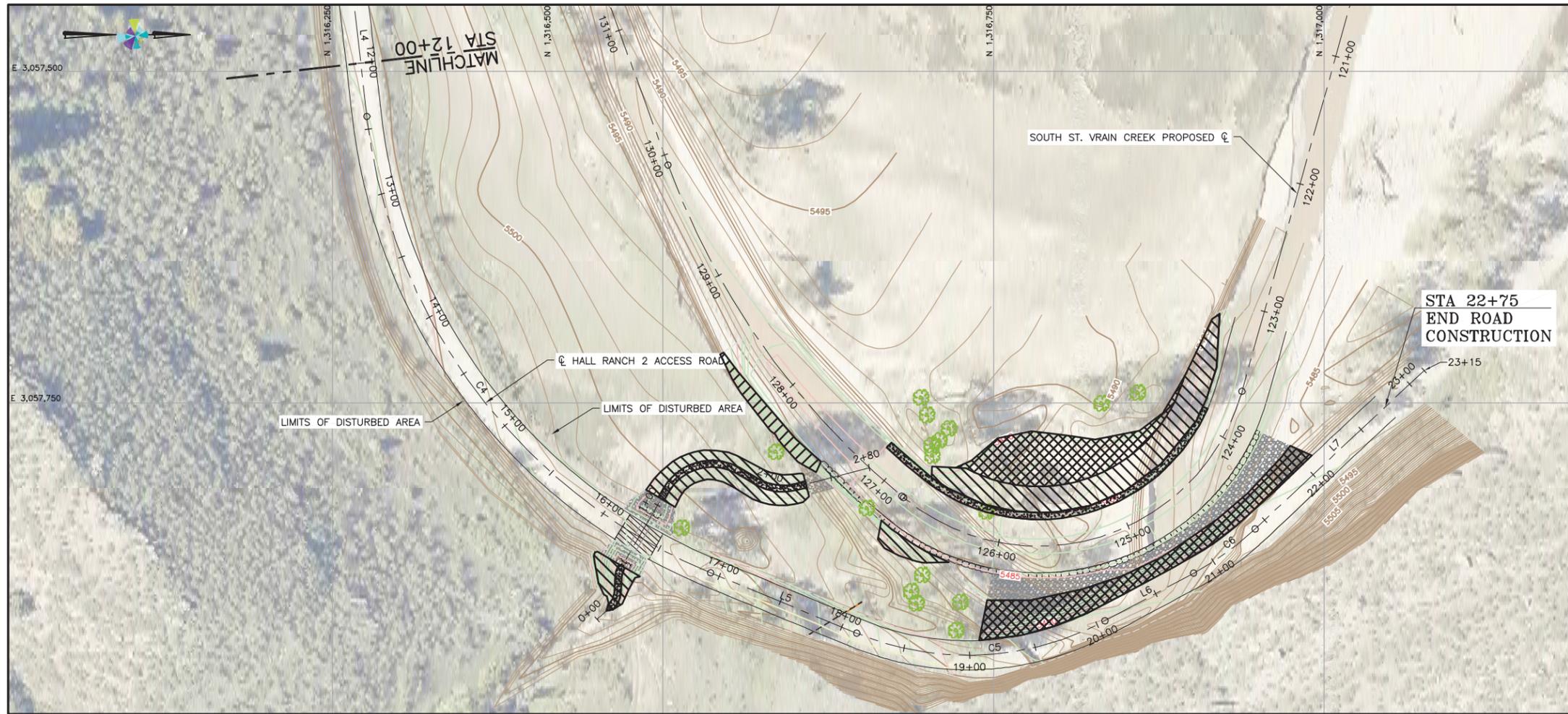
REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016
				DISCLAIMER AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.				PROJECT No. 32790038
							EROSION CONTROL (SHEET 2 OF 2)	DRAWING No. 15
								REV 0

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REV	DATE	DESCRIPTION	ENGR CADD	CLIENT	PROVIDED BY	ISSUED FOR	PROJECT	ISSUED DATE
				BOULDER COUNTY		DRAFT	HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION	10/14/2016
				DISCLAIMER AMEC FOSTER WHEELER PRODUCED THE INFORMATION PRESENTED ON THIS DRAWING THROUGH THE USE OF TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE SPECIFIC TO ITS EFFORTS. RECEIVING THIS DRAWING DOES NOT GUARANTEE ANY RIGHTS TO SUCH TECHNICAL INFORMATION AND PRACTICAL EXPERIENCE. ANY ALTERATION OR ADAPTATION OF THE DATA OR CONTENTS OF THIS DRAWING SHALL BE AT USER'S SOLE RISK AND WITHOUT ANY LIABILITY OR LEGAL RESPONSIBILITY TO AMEC FOSTER WHEELER.				
WETLANDS IMPACTS								PROJECT No. 32790038
							DRAWING No. 16	REV 0

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- LEGEND:**
- LIMITS OF DISTURBED AREA
 - [Cross-hatched box] REVEGETATE WITH NATIVE SEED MIX (UPLAND)
 - [Diagonal lines box] REVEGETATE WITH WETLAND SEED MIX (MESIC)
 - [Dotted box] WILLOW STAKES

Hall 2 Road Repair Upland Seed Mix				
Common Name	Latin name	Variety	% of mix	PLS/Acre
Sideoats grama	<i>Bouteloua curtipendula</i>	Vaughn	7	1.92
Blue grama	<i>Bouteloua gracilis</i>	Native	14	0.89
Canada Wildrye	<i>Elymus canadensis</i>	vNS	10	4.55
Squirreltail	<i>Elymus elymoides</i>	BCPOS provided	10	2.72
Slender wheatgrass	<i>Elymus trachycakus</i>	San Luis	8	2.83
Griffith's wheatgrass	<i>Elymus albicans</i>	BCPOS provided	8	2.72
Western wheatgrass	<i>Pascopyrum smithii</i>	Amba	8	3.80
Switchgrass	<i>Panicum virgatum</i>	BCPOS provided	10	1.34
Little bluestem	<i>Schizachyrium scoparium</i>	Cimarron or Pastura	5	1.01
Needle & Thread Grass	<i>Stipa comata</i>	Native or BCPOS Provided	5	2.27
Fringed sage	<i>Artemisia frigida</i>	vNS	2	0.02
Rabbitbrush	<i>Chrysothamnus nauseosus</i>	vNS	4	0.52
Blanketflower	<i>Gaillardia aristata</i>	BCPOS provided	2	0.79
Hairy golden aster	<i>Heterotheca villosa</i>	vNS	5	0.30
Yellow Coneflower	<i>Ratibida columnifera</i>	BCPOS Provided	2	0.08
Total			100	25.66

Hall 2 Road Repair Mesic Seed Mix				
Common Name	Latin name	Variety	% of mix	PLS/Acre
Sideoats grama	<i>Bouteloua curtipendula</i>	Vaughn	7	1.92
Canada Wildrye	<i>Elymus canadensis</i>	vNS	12	5.45
Slender wheatgrass	<i>Elymus trachycakus</i>	San Luis	10	3.29
Manna Grass	<i>Glyceria grandis</i>	vNS	8	2.13
Green Needlegrass	<i>Nasella viridula</i>	Lodonn	12	3.47
Western wheatgrass	<i>Pascopyrum smithii</i>	Amba	11	5.23
Switchgrass	<i>Panicum virgatum</i>	BCPOS provided	13	1.75
Little Bluestem	<i>Schizachyrium scoparium</i>	Cimarron or Pastura	6	1.20
Prairie Cordgrass	<i>Spartina pectinata</i>	vNS	7	2.44
Showy milkweed	<i>Asclepias speciosa</i>	vNS	2	1.85
Rabbitbrush	<i>Chrysothamnus nauseosus</i>	vNS	4	0.52
Hairy golden aster	<i>Heterotheca villosa</i>	vNS	5	0.30
Blue Vervain	<i>Verbena hastata</i>	vNS	3	0.09
Total			100	29.44

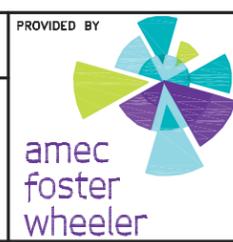
* Rate given is for broadcast seed. Drill seeding shall be 1/2 of given rate.
 VNS = Variety not stated
 PLS = Pure Live Seed



REV	DATE	DESCRIPTION	ENGR CADD

CLIENT
BOULDER COUNTY

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ISSUED FOR
DRAFT

DRN BY: TB
 DSN BY: SJ
 CHK BY: JL
 APR BY: SJ

PROJECT
HALL RANCH 2 ACCESS ROAD REPAIR AND HAZARD MITIGATION

TITLE
REVEGETATION PLAN

ISSUED DATE	10/14/2016
PROJECT No.	32790038
DRAWING No.	17
REV	0