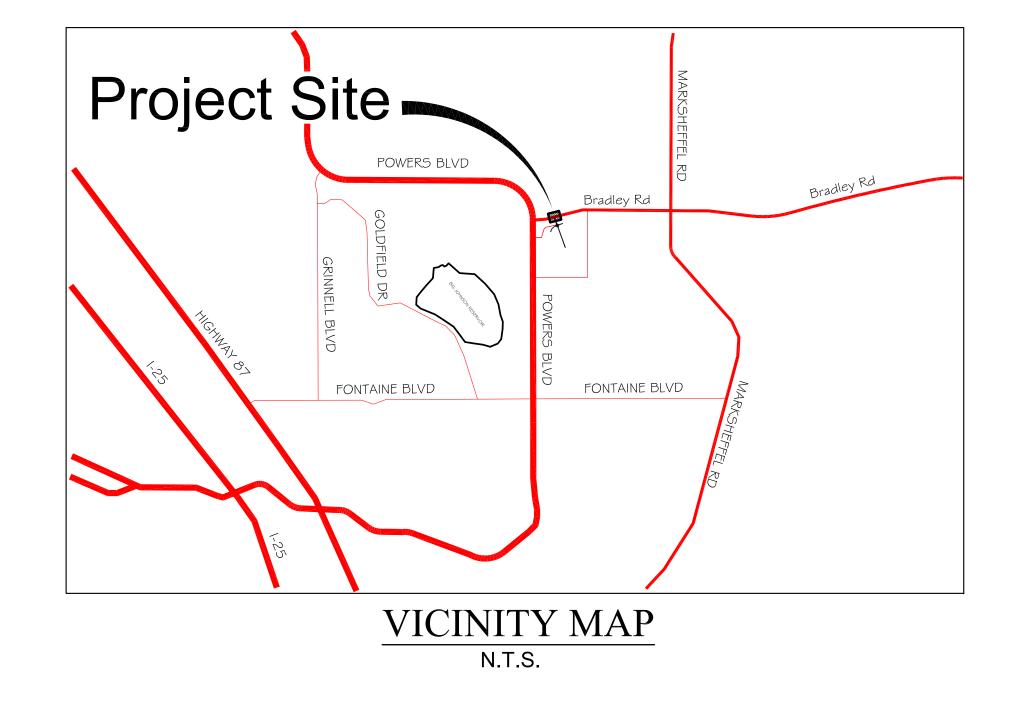
TRAILS AT ASPEN RIDGE

EL PASO COUNTY, CO

TRAFFIC SIGNAL & SIGNING PLANS PCD File Number CDR-20-010

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SITE MAP



ENGINEER'S STATEMENT:

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID DETAILED PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERION ESTABLISHED BY THE COUNTY FOR DETAILED DRAINAGE PLANS AND SPECIFICATIONS, AND SAID DETAILED PLANS AND SPECIFICATIONS ARE PREPARATION OF THE DETAILED DRAINAGE PLANS AND SPECIFICATIONS.

SCOTT BARNHART, PE #37447 FOR AND ON BEHALF OF MATRIX DESIGN GROUP, INC.

OWNER/DEVELOPER:

REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN AND ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

TIM BUSCHAR DIRECTOR OF LAND ACQUISITION AND DEVELOPMENT COLA, LLC 555 MIDDLE PARKWAY COLORADO SPRINGS, CO 80921

IN CONFORMITY WITH THE MASTER PLAN OF THE DRAINAGE BASIN. SAID DETAILED DRAINAGE PLANS AND SPECIFICATIONS MEET THE PURPOSE FOR WHICH THE PARTICULAR DRAINAGE FACILITY(S) IS DESIGNED. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE

OWNER/DEVELOPER COLA, LLC

CIVIL ENGINEER

555 MIDDLE CREEK PARKWAY, SUITE 380 COLORADO SPRINGS, CO 80921

2435 RESEARCH PARKWAY, SUITE 300 COLORADO SPRINGS, CO 80920

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(719) 495-2283

GAS **COLORADO SPRINGS UTILITIES**

> 1521 HANCOCK EXPRESSWAY COLORADO SPRINGS, CO MARY HOAGLUND (719) 668-4083

STREET EL PASO COUNTY PUBLIC SERVICES DEPARTMENT

(719) 520-6460

DRAINAGE EL PASO COUNTY PUBLIC SERVICES DEPARTMENT

(719) 520-6460

FIRE DEPARTMENT SECURITY FIRE DEPARTMENT

400 SECURITY BOULEVARD SECURITY, CO 80911 (719) 392-7121

EL PASO COUNTY:

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12. THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS. THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS

JENNIFER IRVINE, P.E. COUNTY ENGINEER / ECM ADMINISTRATOR DATE

COMPUTER FILE INFORMATION			REVISIONS	STATEMENT:	
Creation Date: 07/24/2020	Initials: mhh	No.	Description	Date	THE CITY OF COLORADO
Last Modification Date: October, 2020	Initials: mhh				SPRINGS RECOGNIZES THE DESIGN ENGINEER AS HAVING
Full Path: S:\19.886.014 (Trails at Aspen Ridge - F2)\100 Dwg\104 Plan Sets\Traffic					RESPONSIBILITY FOR THE
Drawing File Name: PR-SG01.dwg					DESIGN. THE CITY HAS LIMITED IT'S SCOPE OF
Acad Ver. 2018	Scale: AS SHOWN				REVIEW ACCORDINGLY.



Excellence by Design 90% Set DESIGNED BY: MHH DRAWN BY: MHH

CHECKED BY: SDB

BRADLEY ROAD / LEGACY HILL DRIVE						
ROAD & SIGNAL PLANS						
TITLE SHEET						
Subset:	SG	Subset Sheets: 1 of 4	Sheet No:	1		

TRAFFIC SIGNAL GENERAL NOTES:

- 1. THE CONTRACTOR SHALL FIELD VERIFY THAT THE HEIGHT OF THE SIGNALS ABOVE THE ROADWAY SURFACE MEETS THE CDOT CLEARANCE REQUIREMENTS AS SHOWN ON S-614-40A, SHEET 1 OF 4.
- 2. POLES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH THE SECTION 509.24 OF THE STANDARD SPECIFICATIONS AS CALLED FOR ON THE ROADWAY PLANS.
- 3. CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH. WET DR CAVING HOLES SHALL BE BACKFILLED WITH FLOW-FILL AND RE-DRILLED AFTER A THREE DAY CURING PERIOD WITHOUT THE USE OF A CASING.
- 4. CAISSON CONCRETE SHALL REACH 80% OF THE REQUIRED STRENGTH PRIOR TO INSTALLING SPAN WIRE AND TETHER CABLES.
- 5. WELDING OF STEEL SHALL CONFORM TD THE REQUIREMENTS OF ANSI/ AWS DI.1. ALL AREAS TD BE WELDED SHALL BE GROUND TO BRIGHT MET AL. ALL WELDING AND REQUIRED TESTING SHALL BE COMPLETE BEFORE ANY MATERIAL IS GALVANIZED. ALL CIRCUMFERENTIAL WELDS SHALL BE NON-DESTRUCTIVELY TESTED USING THE ENHANCED MAGNETIC PARTICLE METHOD IN ACCORDANCE WITH SUBSECTION 509.18 (D) OF THE STANDARD SPECIFICATIONS. THE ACCEPTANCE CRITERIA IS STATED IN TABLE 6.1 OF ANSI/AWS DI.1. ALL LONGITUDINAL WELDS WITHIN 6 INCHES OF FULL PENETRATION CIRCUMFERENTIAL GROOVE WELDS AND FULL PENETRATION GROOVE WELDS SHALL BE INSPECTED AS SPECIFIED ABOVE. MAXIMUM WELD UNDERCUT SHALL BE 0.01 INCHES.
- 6. ALL ELECTRICAL CONNECTIONS TO THE SIGNALS SHALL BE GROUNDED IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
- 7. WORKING DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH SUBSECTION 105.02 OF THE STANDARD SPECIFICATIONS..
- 8. DEFINITIONS:
 - I.D. = INSIDE DIAMETER
 O.D. = OUTSIDE DIAMETER
 - NPS NOMINAL PIPE SIZE

Add the standard County Construction notes and signage/striping notes (attached)





Add the traffic signal

NOTES:

- ALL WORK PERFORMED SHALL COMPLY WITH STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (COLORADO DEPARTMENT OF TRANSPORTATION, 2019), STANDARD PLANS M&S STANDARDS (COLORADO DEPARTMENT OF TRANSPORTATION, JULY 31, 2019) INCLUDING ALL REVISIONS, AND EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ADOPTED DECEMBER 23, 2004 - REVISED DECEMBER 13, 2016 - REVISION 6).
- 2 POTHOLING SHALL BE COMPLETED AT THE FOUR SIGNAL POLE LOCATIONS TO VERIFY THERE ARE NO UTILITY CONFLICTS. TWO HOURS FOR EACH POLE LOCATION HAS BEEN ASSUMED.
- ALL TRAFFIC SIGNAL HEADS SHALL BE ALIGNED AS SHOWN ON THE PLANS BUT NOT CLOSER THAN 6-INCHES
- FROM THE END OF THE MAST FOR THE LEFT TURN SIGNAL. ALL SIGNAL HEAD LOCATIONS SHALL BE APPROVED BY THE ENGINEER.

 4. ALL SIGNAL EQUIPMENT, CONDUIT, AND PULL BOXES SHALL BE INSTALLED WITHIN THE PUBLIC RIGHT-OF-WAY.
- 5. THE CONTRACTOR SHALL SUPPLY SHOP DRAWINGS OF ALL SIGNAL EQUIPMENT TO THE ENGINEER AND OBTAIN APPROVAL PRIOR TO ORDERING.
- 6. THE EXACT PLACEMENT OF ALL TRAFFIC SIGNAL EQUIPMENT, SIGNING, AND STRIPING SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- 7. THE CAISSONS SHALL BE INSTALLED ACCORDING TO COOT STANDARDS (S-614-40).
- PEDESTRIAN PUSH BUTTONS SHALL BE PIZO MODEL SE-2005-08 (ADA PEDESTRIAN PUSH BUTTON), OR ENGINEER APPROVED EQUAL, THE BUTTON
 HOUSING SHALL BE BLACK IN COLOR, THE PEDESTRIAN PUSH BUTTON SIGN SHALL BE R10-3E AS DESCRIBED IN THE MUTCO.
- 10. THE PEDESTRIAN SIGNALS SHALL BE LED COUNTDOWN, ALL VEHICLE SIGNAL INDICATIONS SHALL BE 12 INCH LED.
- THE CONTRACTOR SHALL COORDINATE WITH MVEA ENERGY TO PROVIDE POWER TO THE SIGNAL AND LUMINAIRES. POWER TO THE SIGNAL WILL BE METERED AND SEPARATE FROM THE LUMINAIRE POWER.
- 12. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION SURVEYING TO CONFIRM THE RIGHT-OF-WAY AND ESTABLISH SIGNAL POLE LOCATIONS. THE CONTRACTOR SHALL REPLACE SURVEY MONUMENTS THAT ARE DISTURBED DURING CONSTRUCTION.

DESIGN DATA:

1. THE DESIGNS HEREIN ASSUME THAT SIGNALS ARE INSTALLED WITHIN THE ROADWAY PRISM WITH THE FOLLOWING SOIL PARAMETERS:

SOIL DENSITY y = 110 LB./CU.FT.
SOIL COHESION = 750 LB./SO.FT. FOR MEDIUM STIFF COHESIVE SOIL
SOIL Ø ANGLE = 30° FOR MEDIUM DENSE COHESIONLESS SOIL
SF - 1.25 FOR TORSIONAL RESISTANCE AND 3.D FOR FLEXURAL RESISTANCE

2. CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:

/A\ OLONIALO MILLINOT DE INICTALLED MITURITUE DO ADMAY EADTUMODE DDIOM

GENERAL NOTES

- 1. THE OWNER / DEVELOPER / DISTRICT SHALL CONTRACT WITH A QUALIFIED PROFESSIONAL ENGINEERING CONSULTANT FOR THE DESIGN, DEVELOPMENT, AND PROGRAMMING OF ALL TRAFFIC SIGNAL TIMING AND CONTROLLER OPERATIONAL PARAMETERS, SETTINGS, ADJUSTMENTS, AND EQUIPMENT THAT WILL ACHIEVE SATISFACTORY TRAFFIC SIGNAL OPERATION, INCLUDING ISOLATED, INDEPENDENT, FULLY—ACTUATED SIGNAL OPERATION AND SIGNAL SYSTEM COORDINATION TIMING PLANS OPERATION WITH EXISTING ADJACENT SIGNALIZED INTERSECTIONS, WHERE DOCUMENTED TO BE NECESSARY DURING VARIOUS TIMES OF THE DAY.
- 2 TRAFFIC SIGNAL MATERIALS AND INSTALLATION SHALL COMPLY WITH THE SPECIFICATIONS FOR THIS PROJECT, THE PROJECT SPECIAL PROVISIONS, "STATE OF COLORADO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", "COLORADO STANDARD PLANS", "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICCES", "THE NATIONAL ELECTRIC CODE", AND ALL LOCAL ORDINANCES AND REGULATIONS.
- 3. THE COLORADO DEPARTMENT OF TRANSPORTATION (COOT) STANDARD PLAN SHEET S-614-40 "TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS" ARE TO BE USED TO CONSTRUCT THIS PROJECT, EXCEPT THAT ALL POLES, MAST ARMS, AND EQUIPMENT SHALL BE PAINTED BLACK.
- ALL SUBMITTALS SHALL BE MADE TO EL PASO COUNTY FOR APPROVAL. OBTAIN ALL REQUIRED PERMITS FOR THE WORK, PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN FOR THE WORK, CONTACT EL PASO COUNTY 96 HOURS IN ADVANCE OF BEGINNING CONSTRUCTION.
- LOCATIONS OF ALL CONDUIT RUNS, DETECTORS, POLES, CONTROLLER CABINETS, PULL BOXES, AND FOUNDATIONS SHALL BE FIELD APPROVED BY EL
 PASO COUNTY. THE CONTRACTOR SHALL VERIFY POLE FOUNDATION AND ANCHOR BOLT ELEVATIONS WITH RESPECT TO TOP OF EXISTING OR FUTURE
 CURB AND SLOPE OF SIDEWALK PRIOR TO INSTALLATION OF ANY EQUIPMENT.
- ALL PAVING, SIDEWALK, LANDSCAPING AND LAWN IRRIGATION SYSTEMS DISTURBED BY THE CONTRACTOR SHALL BE REPLACED IN KIND, EQUAL TO OR EXCEEDING ORIGINAL CONDITIONS OR AS DIRECTED BY THE OWNER.
- 7. PAVEMENT MARKINGS ARE SHOWN FOR INFORMATION ONLY. REFER TO STRIPING PLANS FOR DETAILS.
- 8. CONTRACTOR TO VERIFY POWER SOURCE AND COORDINATE HOOK-UP WITH ELECTRIC UTILITY PROVIDER.
- 9. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

TRAFFIC SIGNAL NOTES

- 1. THE CONTRACTOR SHALL PROVIDE, FOR REVIEW, BY THE ENGINEER, A COMPLETE TRAFFIC SIGNAL MATERIAL SUBMITTAL PACKAGE THAT CONTAINS, ALL OF THE PROPOSED TRAFFIC SIGNAL EQUIPMENT, INCLUDING MATERIAL SPECIFICATIONS AND DESCRIPTIONS THAT WILL BE NECESSARY TO COMPLETE THE TRAFFIC SIGNAL WORK, THE CONTRACTOR SHALL ALLOW FOR A MINIMUM THREE WEEK SUBMITTAL REVIEW PERIOD AND SHALL NOT ORDER ANY SIGNAL EQUIPMENT UNTIL AFTER A REVIEW OF ALL SUBMITTALS HAVE BEEN COMPLETED BY THE ENGINEER AND VERIFIED BY THE CONTRACTOR.
- FUNCTIONAL AND OPERATIONAL RESPONSIBILITY FOR ALL NEWLY INSTALLED AND EXISTING TRAFFIC SIGNAL EQUIPMENT WILL BECOME THE RESPONSIBILITY OF THE CONTRACTOR UNTIL FINAL ACCEPTANCE OF THE PROJECT. THE CONTRACTOR SHALL CONSIDER THIS WORK INCIDENTAL TO THE OVERALL WORK BEING PERFORMED AND SHALL BE INCLUDED AS PART OF THE PROJECT.
- 3. SEE COLORADO DEPARTMENT OF TRANSPORTATION SIGNAL DETAILS FOR CONSTRUCTION/INSTALLATION DETAILS NOT SHOWN ON THESE PLANS.
- 4. ALL SIGNAL EQUIPMENT REMOVED BY THE CONTRACTOR SHALL BE SALVAGED AND BECOME THE PROPERTY OF EL PASO COUNTY. THE SALVAGED EQUIPMENT SHALL BE DELIVERED AS DIRECTED BY THE ENGINEER, DELIVERY OF SIGNAL EQUIPMENT WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE WORK FOR REMOVAL OF TRAFFIC SIGNAL EQUIPMENT.
- 5. OVERHEAD STREET NAME SIGN DESIGN AND LAYOUT INFORMATION SHALL BE PER THE STREET NAME SIGN DETAIL CONTAINED IN THE PROJECT PLANS.
- 6. TRAFFIC SIGNS MOUNTED ON SIGNAL POLES, MAST ARMS, AND PEDESTALS SHALL BE MOUNTED USING BANDING, ALUMINUM CHANNELS, AND BACKING ZEES PER APPLICABLE COOT STANDARD PLANS. OR SIMILAR RIGID SIGN BRACING MOUNTING ASSEMBLY.
- 7. ONCE THE PROFESSIONAL ENGINEERING CONSULTANT HAS COMPLETED ALL TRAFFIC SIGNAL CONTROLLER TIMING DEVELOPMENT AND CONTROLLER PROGRAMMING, THE CONTRACTOR WILL COORDINATE THE DELIVERY DATE OF THE PROGRAMMED TRAFFIC SIGNAL CONTROLLER FOR REVIEW BY THE EPC DEPARTMENT OF PUBLIC WORKS, HIGHWAY DIVISION SIGNAL SHOP AND SHALL ALLOW FOR A MINIMUM TWO WEEK REVIEW PERIOD, AFTER WHICH TIME THE CONTRACTOR MAY MAKE ARRANGEMENTS FOR PICKING UP THE SIGNAL CONTROLLER.
- 8. CONTROLLER CABINET SHALL BE FURNISHED WITH A "BEST" DOOR LOCK KIT LOCK AND CORE IS "BEST": 5L6R LEFT AND RIGHT.
- 9. CONDUIT IS TO BE REPLACED IN THE EVENT THAT EXISTING CONDUIT IS DAMAGED AND AS DIRECTED BY THE ENGINEER.
- ELECTRICAL SERVICE DISCONNECT BOXES SHALL BE LOCKABLE AND WEATHER PROOF WITH THE NEMA TYPE CIRCUIT BREAKER. ENCLOSURES SHALL BE
 PROVIDED AT THE CONNECTION POINT OF EACH POWER SOURCE OR POINT OF SERVICE AS DIRECTED BY THE ENGINEER.
- 11. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRING REQUIRED TO COMPLETE THE INSTALLATION AND ESTABLISH THE FUNCTIONALITY OF ALL TRAFFIC SIGNAL EQUIPMENT.
- 12. ALL INCIDENTAL ITEMS NOT SHOWN IN THE SUMMARY OF APPROXIMATE QUANTITIES OR TABULATION OF SIGNAL EQUIPMENT SHALL BE CONSIDERED TO BE INCLUDED AS PART OF THE TRAFFIC SIGNAL INSTALLATION AND WILL NOT BE MEASURED AND PAID FOR SEPARATELY. ALL QUANTITIES ARE APPROXIMATE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY TO COMPLETE THE CONSTRUCTION SHOWN ON THESE PLANS.
- 13. THE SIGNAL SHALL NOT BE TURNED ON OR STARTED UNTIL DIRECTED BY THE ENGINEER. PRIOR TO SIGNAL ACTIVATION, THE ENGINEER SHALL CONFIRM THAT THE APPROPRIATE PAVEMENT MARKINGS AND SIGNING ARE IN PLACE AND THAT ALL WORK NECESSARY FOR PROPER SIGNAL OPERATION HAS BEEN COMPLETED.
- 14. THE SIGNAL CONTROLLER SHALL BE A MCCAIN 2070 FLEX ATC CONTROLLER AND THE CONFLICT MONITOR SHALL BE A MODEL 2010 ECLIP W/ETHERNET PORT (EDI). THE CONTROLLER CABINET SHALL BE A COOT SPECIFICATION MODEL 332D WITH BATTERY BACKUP AND AUX RACK AND SHALL CONTAIN ANTI-GRAFFITI SILVER FINISH COATING. THE CABINET SHALL BE MOUNTED ON A CAST-IN-PLACE CONCRETE FOUNDATION PER APPLICABLE CDOT'S STANDARDS STANDARD PLAN AND THE CABINET SHALL BE POSITIONED SUCH THAT, WITH THE FRONT DOOR OPEN, BOTH THE CONTROLLER DISPLAY AND THE SIGNAL INSTALLATION WILL BE VISIBLE.
- 15. LUMINAIRES SHALL CONSIST OF AN ASSEMBLY THAT UTILIZES LEDS AS THE LIGHT SOURCE, IN ADDITION, A COMPLETE LUMINAIRE SHALL CONSIST OF A HOUSING, LED ARRAY, AND ELECTRONIC DRIVER (POWER SUPPLY). ALL LUMINAIRES SHALL BE WIRED 120 VOLTS AC WITH MULTI-TAP HEADS. THE LED FIXTURE MUST HAVE A COLOR TEMPERATURE OF 4100K (+/- 500K), MUST BE DESIGNED TO OPERATE AT A TEMPERATURE RANGE OF -40°F TO 105°F (-40°C TO 40°C), AND PROVIDE A MINIMUM OF 70,000 HOURS OF OPERATION. LUMINAIRES SHALL BE E-LIGHT-STAR LED STREET LIGHT, OR APPROVED EQUAL. THE CONTRACTOR SHALL PROVIDE A RECOMMENDATION FOR THE TYPE OF STREET LIGHT BASED ON THE CONSTRUCTION PLANS AND MANUFACTURER'S SPECIFICATIONS, TO BE APPROVED BY THE ENGINEER. THE FIXTURE MUST BE CAST ALUMINUM, PROVIDED WITH FUSING, SURGE SUPPRESSION AND MUST BE UL LISTED FOR WET LOCATIONS. THE FIXTURE MUST HAVE AN INTERNAL, WEATHER-TIGHT LED DRIVE. NO ACTIVE COOLING FEATURES (FANS, ETC.) WILL BE ALLOWED. THE FINISH SHALL MATCH THE EXTENSION ARM SHAFTS. THE LUMINAIRES WILL BE INSTALLED ON 15 FOOT EXTENSION ARM SHAFTS AT A NOMINAL HEIGHT OF 40 FEET AND SHALL BE WELDED TO THE SIGNAL POLE PER COOT TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS STANDARD PLAN S-614-40. LUMINAIRE ARM SHAFT PLACEMENT AND ORIENTATION SHALL BE IN ACCORDANCE WITH THE PROJECT PLANS.
- 16. THE INTERSECTION DETECTION SYSTEM (MICROWAVE RADAR) CONTRACT ITEM INCLUDES DEVICE INSTALLATION (I.E., DETECTOR UNIT, HARDWARE, WIRING, PROCESSOR MODULE, ETC.), AND VERIFICATION OF SUCCESSFUL IN-FIELD DETECTION ZONE OPERATION BASED ON SEVERAL VEHICLE ACTUATIONS IN ALL
- 17. THE CONTRACTOR SHALL COORDINATE THE SCHEDULES OF THE CONTRACTED PROFESSIONAL ENGINEERING CONSULTANT AND THE EPC DEPARTMENT OF PUBLIC WORKS, HIGHWAY DIVISION TRAFFIC SIGNAL STAFF FOR SCHEDULING THE ON-SITE FIELD IMPLEMENTATION OF ALL TRAFFIC SIGNAL TIMING AND OPERATIONAL PROGRAMMING, VEHICLE DETECTION ZONE PLACEMENT, AND DETECTION EQUIPMENT POSITIONING. THIS WORK SHALL BE SCHEDULED NEAR THE END OF THE PROJECT, PRIOR TO PROJECT ACCEPTANCE, AND ONLY AFTER ALL FINAL PAVEMENT MARKINGS, SIGNING, AND TRAFFIC SIGNAL WORK HAS BEEN COMPLETED.
- 18. THE MICROWAVE RADAR DETECTION SYSTEM SHALL UTILIZE MS SEDICO INTERSECTOR TC-CK1-SBE WITH INTERFACE BOARD.
- 19. PEDESTRIAN SIGNAL HEAD INSTALLATION SHALL INCLUDE ALUMINUM AND POWDER COATED GLOSS BLACK SIGNAL HEAD WITH APPROVED LED COUNTDOWN DISPLAY, ALUMINUM OPEN VISOR WITH THE OUTSIDE POWDER COATED GLOSS BLACK, PUSHBUTTON, AND INSTRUCTIONAL R10-3E COUNTDOWN PEDESTRIAN ACTUATION SIGN, PUSHBUTTONS SHALL BE POLERA INAVIGATOR S 2-WIRE PUSH BUTTONS, SPECIFIED AS INS2 5 U N 1-B-BD-ES, OR APPROVED EQUIVALENT, CUSTOM MESSAGING SHALL NOT INTERFERE TRADITIONAL NON-VISUAL FORMATS SPECIFIED IN 4E OF THE MUTCH AND SHALL ONLY PROVIDE ADDITIONAL INFORMATION AS DIRECTED BY THE ENGINEER.
- 20. ALL TRAFFIC SIGNAL POLES, MAST ARMS, PEDESTALS, AND LUMINAIRE ARMS SHALL HAVE A GLOSS BLACK COAT FINISH OVER HOT DIP GALVANIZED BASE COAT, INSTALLED IN ACCORDANCE WITH THE PAINT MANUFACTURER'S INSTRUCTIONS.

TRAFFIC DETAILS:

CDOT PLAN NUMBER S STANDARD TITLE NUMBER OF SHEETS S-612-1 DELINEATOR INSTALLATIONS 8 SHEETS S-613-1 8 SHEETS ROADWAY LIGHTING S-614-1 2 SHEETS TYPICAL GROUND SIGN PLACEMENT S-614-2 1 SHEET **CLASS I SIGNS** S-614-3 **CLASS II SIGNS** 1 SHEET S-614-4 **CLASS III SIGNS** 3 SHEETS

TRAFFIC SIGNAL NOTES (CONTINUED)

- 21. ALL SIGNAL POLE AND CONTROLLER LOCATIONS SHOWN ARE APPROXIMATE ONLY, MAST ARMS SHALL BE OF SUFFICIENT LENGTH AND DESIGN TO ALLOW PROPER PLACEMENT OF SIGNAL HEADS AND OVERHEAD SIGNING PER THE PLANS. ACTUAL LOCATIONS SHALL BE STAKED IN THE FIELD AND FIELD VERIFIED BY THE ENGINEER PRIOR TO DRILLING, EXCAVATION, AND ORDERING THE SIGNAL EQUIPMENT AND MAST ARMS. THE LOCATION OF EACH SIGNAL POLE FOUNDATION SHALL BE POTHOLED PRIOR TO DRILLING TO CONFIRM WHETHER OR NOT ANY UTILITY CONFLICTS EXIST.
- 22. LATERAL OFFSETS FROM THE NEAR EDGE OF TRAFFIC SIGNAL POLES, PEDESTALS, AND CABINETS TO THE FACE OF CURB OR THE EDGE OF A PAVED SHOULDER SHOULD BE AT LEAST SIX FEET, HOWEVER, A MINIMUM LATERAL OFFSET OF AT LEAST FOUR FEET MAY BE PROVIDED FOR CURB OFFSETS. IF NO PAVED SHOULDER EXISTS, A MINIMUM LATERAL OFFSET OF AT LEAST EIGHT FEET SHOULD BE PROVIDED FROM THE EDGE OF PAVEMENT FOR AN AUXILIARY LANE AND A MINIMUM LATERAL OFFSET OF AT LEAST TWELVE FEET SHOULD BE PROVIDED FROM THE EDGE OF PAVEMENT FOR A THROUGH LANE.
- 23. SHOULD THE CONTRACTOR ENCOUNTER WATER IN THE CAISSON, ANY DE-WATERING METHODS AND NECESSARY PERMITS SHALL BE INCLUDED IN THE COST OF THE CAISSON AND WILL BE CONSIDERED INCIDENTAL TO THE WORK.
- 24. ALL TRAFFIC SIGNAL COMPONENT PULL BOXES SHALL BE PRE CAST HIGH DENSITY POLYMER CONCRETE (HDPC) MATERIAL WITH THE FOLLOWING SIZES: 36 INCH X 48 INCH X 18 INCH FOR THE PULL BOX ADJACENT TO THE CONTROLLER CABINET FOUNDATION AND 24 INCH X 36 INCH X 18 INCH FOR THE REMAINING PULL BOXES.
- 25. TRAFFIC PULL BOX LOCATIONS SHOWN IN THE PROJECT PLANS ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER. PULL BOXES SHALL BE FLUSH WITH THE FINISHED GROUND SURFACE AND SHALL NOT BE PLACED IN AREAS THAT ARE SUSCEPTIBLE TO WATER RUN OFF OR STANDING WATER. CONDUIT RUNS BETWEEN PULL BOXES SHALL NOT EXCEED APPROXIMATELY 200 FEET AND PULL BOXES SHALL NOT BE LOCATED IN HANDICAP RAMPS, PEDESTRIAN LANDING AREAS, SIDEWALKS, PRIMARY SIDEWALK PATHS, OR ROADWAY PAVEMENT AREAS.
- 26. THE CONDUIT NUMBERS AND SIZES FOR TYPICAL CONDUIT RUNS INCLUDE THE FOLLOWING FOR A PERMANENT, MAST ARM SIGNAL INSTALLATION: A. BETWEEN THE SIGNAL POLE FOUNDATION AND ADJACENT SIGNAL POLE PULL BOX: TWO (2) 2 INCH AND ONE (1) 3 INCH; B.) BETWEEN SIGNAL POLE PULL BOXES: TWO (2) 2 INCH AND THREE (3) 3 INCH; C.) BETWEEN THE CONTROLLER CABINET FOUNDATION AND ADJACENT PULL BOX: THREE (3) 2 INCH AND FOUR (4) 3 INCH D.) BETWEEN THE SECONDARY SERVICE PEDESTAL METER FOUNDATION AND THE CONTROLLER CABINET FOUNDATION: ONE (1) 2 INCH FOR THE ELECTRICAL SERVICE FEED.
- 27. ALL CONDUIT AND FITTINGS SHALL BE SCHEDULE 80 PVC AND ALL CONDUIT SHALL HAVE A PULL ROPE LEFT IN THEM WHEN CONSTRUCTION IS COMPLETED. ALL CONDUIT ENTERING THE CABINET FOUNDATION AND PULL BOXES SHALL HAVE BELL END STYLE COUPLINGS ON ALL CONDUIT ENDS.
- 28. ALL CONDUIT THAT IS DIRECTIONALLY BORED SHALL BE A MINIMUM OF THREE FEET BELOW THE EXISTING PAVEMENT. THIS WORK SHALL AVOID DISTURBING OR DAMAGING EXISTING FACILITIES AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROMPT RECONSTRUCTION, ALTERATION, REPAIR, OR MAINTENANCE OF HIGHWAY PROPERLY, AS NECESSARY, TO REPAIR ANY DAMAGE CAUSED BY THE ACCOMMODATION OF THE UTILITY, AND TO RESTORE THE HIGHWAY TO PRE-EXISTING OR BETTER CONDITIONS.
- 29. ALL SIGNAL CABLE SHALL BE CONTINUOUS FROM CONNECTIONS MADE IN THE HAND HOLE COMPARTMENT OF THE SIGNAL POLE BASE TO THE TERMINAL COMPARTMENT IN THE CONTROLLER CABINET AND SHALL CONTAIN NO SPLICES. EACH SIGNAL HEAD SHALL CONTAIN SEPARATE AND CONTINUOUS SIGNAL CABLE FROM THE SIGNAL HEAD TO THE ABOVE GROUND HAND HOLE AT THE BASE OF THE SIGNAL POLE AND SHALL CONTAIN NO SPLICES.
- 30. A SEPARATE AND CONTINUOUS 21 CONDUCTOR CABLE SHALL RUN FROM THE CONTROLLER CABINET TO THE HAND HOLE AT EACH SIGNAL POLE AND SHALL CONTAIN NO SPLICES.
- 31. ALL SIGNS MOUNTED ON SIGNAL POLES, MAST ARMS, AND PEDESTALS SHALL BE MOUNTED USING BANDING ALUMINUM CHANNELS, AND BACKING ZEES PER CDOT TYPICAL POLE MOUNT SIGN INSTALLATIONS STANDARD PLAN S-614-20, OR SIMILAR RIGID SIGN BRACING MOUNTING ASSEMBLY, AS DIRECTED BY THE ENGINEER. MAST ARM SIGNS THAT REQUIRE Z-BRACKETS SHALL BE MOUNTED ON ASTRO-STYLE BRACKETS AND RISERS. THE COST OF ALL HARDWARE, FITTINGS, TOOLS, AND EQUIPMENT NECESSARY FOR A COMPLETE INSTALLATION OF MAST ARM SIGNS WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- 32. ALL CONDUCTORS AND CABINET WIRING SHALL BE COLOR CODED AND PERMANENTLY TAGGED PER ENGINEER DIRECTION AND IN ACCORDANCE WITH THE SIGNAL PHASE NUMBERING AND DETECTION ZONE PHASE NUMBERING INFORMATION CONTAINED IN THE PROJECT PLANS.
- 33. ALL VEHICLE SIGNAL HEADS SHALL HAVE APPROVED 12 INCH LED INDICATIONS AND SHALL BE ALUMINUM WITH POWDER COATED GLOSS BLACK FINISH AND SHALL CONTAIN 12 INCH ALUMINUM TUNNEL VISORS WITH THE OUTSIDE POWDER COATED GLASS BLACK. ALL VEHICLE SIGNAL HEADS SHALL HAVE ALUMINUM LOUVERED BACK PLATES WITH POWDER COATED GLOSS BLACK FINISH AND YELLOW RETRO REFLECTIVE BORDER. MAST ARM SIGNAL HEADS SHALL USE ASTRO— TYPE MOUNTING ASSEMBLIES AND SHALL BE INSTALLED APPROXIMATELY LEVEL WITH ONE ANOTHER AT A 17 TO 19 FOOT VERTICAL CLEARANCE ABOVE THE HIGH POINT OF THE PAVEMENT GRADE.
- 34. FINAL VEHICLE DETECTION ZONE PLACEMENT AND DIMENSIONS, IN ACCORDANCE WITH THE PROJECT PLANS, AND FINAL SIGNAL PROGRAMMING SHALL BE COMPLETED IN THE FIELD AND THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR COORDINATING AND SCHEDULING THIS WORK.
- 35. ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS THAT HAVE NOT BEEN PLACED IN SERVICE SHALL BE COVERED WITH A PREFABRICATED WEATHER RESISTANT NYLON FORM FITTING SIGNAL FACE COVER MATERIAL. THE SIGNAL FACE SHALL REMAIN COMPLETELY COVERED UNTIL THE SIGNAL HEAD IS PLACED IN SERVICE AND IS FULLY FUNCTIONAL AND OPERATIONAL.
- 36. ALL DETECTION EQUIPMENT, DETECTION ZONES, AND SIGNAL TIMING OPERATION SHALL BE CONFIRMED IN THE FIELD BY THE PROFESSIONAL ENGINEERING CONSULTANT TO BE ACHIEVING SATISFACTORY TRAFFIC SIGNAL OPERATION.
- 37. COMMUNICATION SYSTEM SHALL BE A DYMEC ETHERNET SWITCH KY-3170EMX AND CELLULAR MODEM MICROHARD BULLET LTE, WITH CITEL SURGE SUPPRESSION ON ALL THESE COMPONENTS.
- 38. THE CONTRACTED PROFESSIONAL ENGINEERING TRAFFIC SIGNAL TIMING, CONTROLLER PROGRAMMING AND OPERATION, AND OVERALL TRAFFIC SIGNAL OPERATIONAL CONSULTANT SERVICES THAT ARE TO BE RETAINED BY THE OWNER / DEVELOPER / DISTRICT SHALL INCLUDE, BUT NOT BE LIMITED TO:

 A. DEVELOPING ALL TRAFFIC SIGNAL TIMING AND OPERATIONAL PARAMETERS FOR ACHIEVING ISOLATED, FULL—ACTUATED VEHICLE AND PEDESTRIAN INTERSECTION OPERATION AND, WHEN DOCUMENTED TO BE NECESSARY, COORDINATED SIGNAL SYSTEM TIMING PLAN OPERATION DURING VARIOUS
 - B. PROGRAMMING ALL SIGNAL TIMING PARAMETERS INTO THE TRAFFIC SIGNAL CONTROLLER,
 - C. FIELD IMPLEMENTING AND FINE-TUNING / ADJUSTING ALL TRAFFIC SIGNAL TIMING PARAMETERS, INCLUDING FOLLOW-UP FIELD REVIEWS AS MAY BE NECESSARY.
 - D. DEVELOPING, PROGRAMMING, FIELD IMPLEMENTING, AND FINE-TUNING ALL VEHICLE DETECTION ZONE DIMENSIONS, ZONE LOCATIONS, AND OPERATIONAL PARAMETERS.
- ALL OF THE AFOREMENTIONED CONTRACTED PROFESSIONAL ENGINEERING TRAFFIC SIGNAL OPERATIONAL CONSULTANT SERVICES DELIVERABLES SHALL BE CONSISTENT WITH NATIONAL PUBLICATIONS, INCLUDING, BUT NOT LIMITED TO: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION / REVISION, FHWA-HOP-08-024 "TRAFFIC SIGNAL TIMING MANUAL" (JUNE 2008), FHWA-HRT-04-091 "SIGNALIZED INTERSECTIONS: INFORMATIONAL GUIDE" (AUGUST 2004), FHWA-HOP-06-006 "TRAFFIC CONTROL SYSTEMS HANDBOOK" (OCTOBER 2005), FHWA-DTFH61-01-C-00183 "SIGNAL TIMING PROCESS FINAL REPORT" (DECEMBER 2003), NCHRP REPORT 731 "GUIDELINES FOR TIMING YELLOW AND ALL-RED INTERVALS AT SIGNALIZED INTERSECTIONS" (2012), NCHRP REPORT 812 "SIGNAL TIMING MANUAL SECOND EDITION" (2015)

EPC 10/2

SG01

COMPUTER FILE INFORMATION **REVISIONS** STATEMENT Description Date No. Creation Date: 07/24/2020 Initials: mhh THE CITY OF COLORADO SPRINGS RECOGNIZES THE Last Modification Date: October, 2020 Initials: mhh DESIGN ENGINEER AS HAVING Full Path: S:\19.886.014 (Trails at Aspen Ridge - F2)\100 Dwg\104 Plan Sets\Traffic RESPONSIBILITY FOR THE DESIGN. THE CITY HAS Drawing File Name: PR-SG01.dwg LIMITED IT'S SCOPE OF REVIEW ACCORDINGLY. Scale: AS SHOWN Acad Ver. 2018

Matrix
Excellence by Design

DESIGNED BY: MHH

DRAWN BY: MHH

CHECKED BY: SDB

2435 Research Pkwy, Suite 300, Colorado Springs, CO 80920 719.575.0100

90% Set

BRADLEY ROAD / LEGACY HILL DRIVE
ROAD & SIGNAL PLANS

SIGNAL NOTES

Subset: SG Subset Sheets: 2 of 4 Sheet No: 2

	TABULATION OF SIGNAL QUANTITIES						
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY				
503-00036	DRILLED SHAFT (36 INCH)	LF	19				
	DRILLED SHAFT (48 INCH)	LF	21				
503-00054	DRILLED SHAFT (54 INCH)	LF	42				
613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	518				
613-01300	3 INCH ELECTRICAL CONDUIT (PLASTIC)	LF	467				
613-07034	PULL BOX (24"x36"x18")	EA	1				
613-07060	PULL BOX (18"x30"x18")	EA	4				
613-13011	LUMINAIRE (LED) (11,000 LUMENS)	EA	4				
613-50109	METER POWER PEDISTAL	EA	1				
614-10130	ILLUMINATED SIGN	EA	3				
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EA	2				
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EA	9				
614-72855	TRAFFIC SIGNAL CONTROLLER CABINET	EA	1				
614-72860	PEDESTRIAN PUSH BUTTON	EA	2				
614-72863	PEDESTRIAN PUSH BUTTON POST ASSEMBLY	EA	2				
614-72895	VEHICLE DETECTION SYSTEM (SINGLE CAMERA)	EA	3				
614-84000	TRAFFIC SIGNAL PEDESTAL POLE STEEL	EA	2				
614-81155	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-55 FOOT MAST ARM)	EA	1				
614-81165	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-65 FOOT MAST ARM)	EA	1				
614-81175	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-75 FOOT MAST ARM)	EA	2				
614-86238	TRAFFIC SIGNAL CONTROLLER (SOLID STATE) (FULL-ACTUATED) (8 PHASE)	EA	1				

NOTE:

TRAFFIC SIGNAL FACE (12-12-12) SHALL INCLUDE VISORS AND ALL MOUNTING HARDWARE REQUIRED TO INSTALL.

SIGNAL POLE SCHEDULE

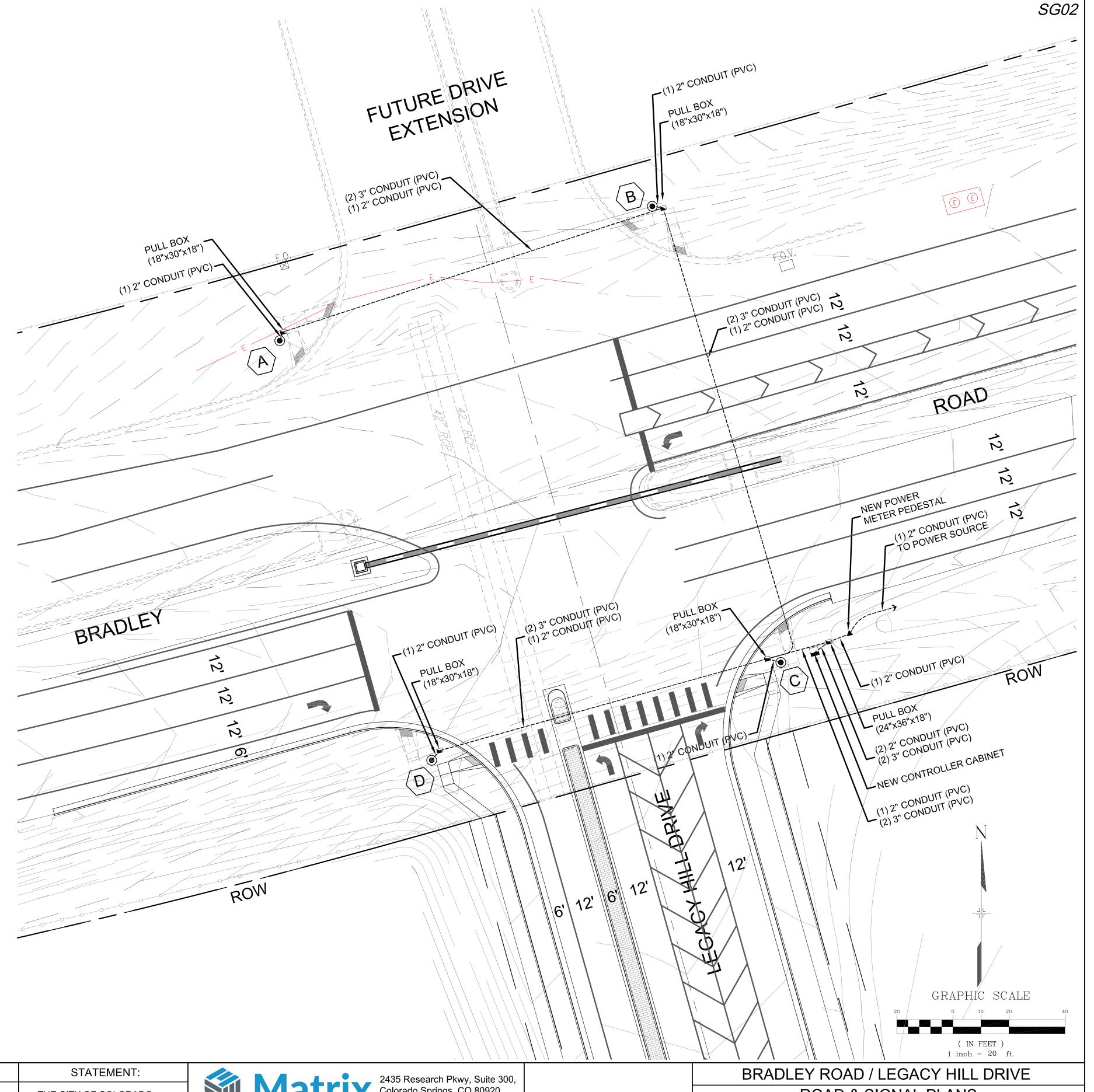
POLE NUMBER		A		B		C		D		
LOCATION		NW CORNER		NE CORNER		SE CORNER		SW CORNER		
NORTHING		8757.19		8805.17		8642.36		8607.43		
EASTING		12466.04		1259	12599.05		12644.91		12520.29	
CAISSON ELEV.		*5928.08		*5930.86		*5927.38		*5930.59		
MAST ARM LENGTH		75'		7	5'	5	5'	*	*	
BASE DIA.	DEPTH	54"	21'	54"	21'	36"	19'	48"	21'	

NOTES:

* CONTRACTOR TO VERIFY ALL ELEVATIONS PRIOR TO CONSTRUCTION.
 ** POLE "D" IS SIZED FOR ULTIMATE 65' MAST ARM TO BE INSTALLED AT A LATER DATE.

SIGNAL EQUIPMENT LEGEND

PEDESTRIAN SIGNAL HEAD		POWER METER PEDESTAL	lacktriangledown
TRAFFIC SIGNAL HEAD W/ BACKPLATE	→	CONTROLLER CABINET	
TRAFFIC SIGNAL HEAD W/O BACKPLATE	-	PEDESTRIAN PUSH BUTTON AND SIGN	
LUMINAIRE	——	DETECTOR CAMERA ON 6' EXTENSION	 ✓
PED PUSH BUTTON POLE	•	YAGI ANTENNA	
SIGNAL POLE		TRAFFIC SIGN	
PULL BOX		ILLUMINATED STREET NAME SIGN	
PROPOSED SIGNAL CONDUIT		POWER SOURCE	⊕ <u>=</u>



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BRADLEY ROAD / LEGACY HILL DRIVE
ROAD & SIGNAL PLANS

SIGNAL POLE & CONDUIT PLAN

Subset: SG Subset Sheets: 3 of 4 Sheet No: 3

