



DEPARTMENT OF PUBLIC WORKS

Contract Document

Contract No. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

JULY 10, 2017



NOTICE OF APPARENT LOW BIDDER

Sturgeon Electric Company, Inc.
12150 E. 112th Ave.
Henderson, CO 80640

The EXECUTIVE DIRECTOR OF PUBLIC WORKS has considered the Bids submitted on August 10, 2017, for work to be done and materials to be furnished in and for:

CONTRACT 201735705 Traffic Signal Upgrade – Mill Levy 6

as set forth in detail in the Contract Documents for the City and County of Denver, Colorado. It appears that your Bid is fair, equitable, and to the best interest of the City and County; therefore, said Bid is hereby accepted at the bid price contained herein, subject to the approval and execution of the Contract Documents by the City in accordance with the Charter of the City and County of Denver, and to your furnishing the items specified below. The award is based on the total bid items: **(61) bid items (202-00190 through 700-90026)** the total estimated cost thereof being: **One Million Six Hundred Thirteen Thousand Two Hundred Ten Dollars and Eighty Cents (\$1,613,210.80)**.

It will be necessary for you to appear forthwith at the office of the Department of Public Works, Contract Administration, 201 W. Colfax Ave., Dept 614, Denver, Colorado 80202, to receive the said Contract Documents, execute the same and return them to the Department of Public Works, Contract Administration within the time limit set forth in the Bid Package Documents.

In accordance with the requirements set forth in the Contract Documents, you are required to furnish the following documents:

- a. Insurance Certificates: General Liability and Automotive Liability, Workman's Compensation and Employer Liability;
- b. Payment and Performance Bond along with One original Power of Attorney relative to Performance and/or Payment Bond; and,

All construction Contracts made and entered into by the City and County of Denver are subject to Affirmative Action and Equal Opportunity Rules and Regulations, as adopted by the Manager of Public Works, and each contract requiring payment by the City of one-half million dollars (\$500,000.00) or more shall first be approved by the City Council acting by ordinance and in accordance with Section 3.2.6 of the Charter of the City and County of Denver.

Prior to issuance of Notice to Proceed, all Equal Opportunity requirements must be completed. Additional information may be obtained by contacting the Director of Contract Compliance at (720-913-1700).

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795



NOTICE OF APPARENT LOW BIDDER

CONTRACT NO. 201735705

Page 2

The Bid Security submitted with your Bid, will be returned upon execution of the Contract and furnishing of the Performance Bond. In the event you should fail to execute the Contract and to furnish the performance Bond within the time limit specified, said Bid Security will be retained by the City and County of Denver as liquidated damages, and not as a penalty for the delay and extra work caused thereby.

Dated at Denver, Colorado this 21st day of August 2017.

CITY AND COUNTY OF DENVER

By

George H. Delaney
Interim Executive Director of Public Works

cc: Kristen Moore (CAO), (Treasury/Tax Compliance), (DSBO), (PM), (PW-Aud), File.



DEPARTMENT OF PUBLIC WORKS

BID FORM SUBMITTAL PACKAGE

Contract No. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

JULY 10, 2017

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

**TABLE OF CONTENTS
FOR
BID FORM AND SUBMITTAL PACKAGE**

Table of Contents	BF-1
Bidder's Checklist	BF-2 through BF-3
Bid Form and Submittal Package Acknowledgment Form	BF-4 through BF-5
Bid Form	BF-6 through BF-8
List of Proposed Minority/Woman Business Enterprise(s)	BF-9 through BF-12
Commitment to Minority/Woman Business Enterprise Participation	BF-13
Minority/Woman Business Enterprise Letter(s) of Intent & Checklist	BF-14 through BF-15
Joint Venture Affidavit	BF-16
Joint Venture Eligibility Form	BF-17 through BF-19
Bid Bond	BF-20
Diversity and Inclusiveness in City Solicitations Form	BF-21 through BF-24



This Checklist is provided solely for the assistance of the bidders, and need not be returned by Bidders with your BID FORM PACKAGE.

BIDDER'S CHECKLIST

These forms comprise the Bid Form and Submittal Package. Designated forms must be completed and turned in at the time of Bid Opening. Bidders should refer to the Contract Documents, particularly the Instructions to Bidders, accompanying this package, in completing these forms.

FORM/ PAGE NO.	COMMENTS	COMPLETE
BF-4 – BF-5	a.) Legal name, address, Acknowledgment signature and attestation (if required.)	<input type="checkbox"/>
BF-6+	a.) Fill in individual bid item dollars and totals in Numerical figures only b.) Complete all blanks c.) Legal name required	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
BF-7	a.) Write out bid total or bid totals in words and figures in the blank form space(s) provided b.) Calculate Textura® Construction Payment Management System Fee from chart on pg. BF-3 and write % and fee in the space provided	<input type="checkbox"/>
BF-8	a.) List all subcontractors who are performing work on this project	<input type="checkbox"/>
BF-9 – BF-10	a.) Fully complete List of Proposed Minority /Woman Business Enterprise Bidders, Subcontractors, Suppliers, Manufacturers, or Brokers – check appropriate boxes.	<input type="checkbox"/>
BF-11	a.) Complete all blanks b.) If Addenda have been issued, complete bottom section.	<input type="checkbox"/> <input type="checkbox"/>
BF-12	a.) Complete appropriate sections - signature(s) required. b.) If corporation, then corporate seal required.	<input type="checkbox"/> <input type="checkbox"/>
BF-13	a.) Fully complete Commitment to Participation	<input type="checkbox"/>
BF-16	a.) If applicable, fully complete Joint Venture Affidavit (Submit 10 days prior to Bid Opening date)	<input type="checkbox"/>
BF-17 – BF-19	a.) If applicable, fully complete Joint Venture Eligibility Form (Submit 10 days prior to Bid Opening date)	<input type="checkbox"/>
BF-20	a.) Fill in all Bid Bond blanks b.) Signatures required c.) Corporate Seal if required d.) Dated e.) Attach Surety Agents Power of Attorney or Certified or cashier's check made out to the Manager of Revenue referencing Bidder's Company and Contract Number.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
BF-21- BF-24	a.) Each bidder, as a condition of responsiveness to this solicitation, shall <u>complete and return</u> the "Diversity and Inclusiveness in City Solicitations Information Request Form" with their Bid.	<input type="checkbox"/>

Textura ® Construction Payment Management System (CPM System)

Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System (CPM System) for this Project. All fees associated with the CPM System are to be paid by the Contractor for billings for work performed. Bidders are required, when preparing a bid, to enter the price of the CPM service on the line provided for the service. The fee is all inclusive of all subcontractor, project and subscription fees associated with the CPM system. The bidder will calculate the fee based on a percentage of their total bid, and then should include it on the line item provided in the bid form labeled “**Textura® Construction Payment Management System Fee**”. This expense becomes part of the contract and billable to the City. All costs including but not limited to costs associated with training, entering data or utilizing Textura other than the Textura Construction Payment Management System Fee are overhead and shall not be reimbursed by the City. Contractor is responsible for any tax on Textura fee. As with other taxes, the City will not reimburse Contractor for this cost and therefore this cost should be included in Contractor’s bid. Textura will invoice the awarded contractor directly.

PROJECT SIZE	FEE (% OF BID)
< \$1,000,000	0.22% (.0022)
\$1,000,001 - \$5,000,000	0.17% (.0017)
\$5,000,001 - \$20,000,000	0.12% (.0012)
\$20,000,001 - \$50,000,000	0.10% (.0010)
\$50,000,001 - \$100,000,000	0.08% (.0008)
\$100,000,001 - \$500,000,000	0.05% (.0005)
> \$500,000,000	CONTACT TEXTURA FOR PROGRAM PRICING

For more information:

<http://www.denvergov.org/content/denvergov/en/contract-administration/bidding-process.html>

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

BID FORM AND SUBMITTAL PACKAGE ACKNOWLEDGMENT

CONTRACT NO. 201735705

Traffic Signal Upgrade - Mill Levy 6

BIDDER: Sturgeon Electric Company, Inc.
(Legal Name per Colorado Secretary of State)

ADDRESS: 12150 E. 112th Ave.
Henderson, CO 80640

The undersigned bidder states that the undersigned bidder has received and had an opportunity to fully and thoroughly examine a complete set of the Contract Documents for **Contract No. 201735705, Traffic Signal Upgrade - Mill Levy 6**, made available to the undersigned bidder pursuant to Notice of Invitation for Bids dated July 10, 2017.

The undersigned bidder acknowledges that a complete and final set of the Contract Documents for the referenced Project, the components of which are identified below, are bound and maintained as the record set of Contract Documents by the Contract Administration Division of the Department of Public Works and that this Record Set is available for examination by the undersigned bidder.

The undersigned bidder, having thoroughly examined each of the components identified below and contained in Contract Documents, HEREBY SUBMITS THIS BID FORM AND SUBMITTAL PACKAGE, fully understanding that the Contract Documents, as defined in Paragraph 1 of the contract, including this executed Bid Form and Submittal Package, constitute all of the terms, conditions and requirements upon which this submission is based and further understanding that, by submission of this Bid Form and Submittal Package, the City shall rely on the representations and commitments of the undersigned bidder contained herein.

The following completed documents comprising this Bid Form and Submittal Package will be included with and, by this reference, are expressly incorporated into the Contract Documents specified at Paragraph 1 of the Contract:

- Bid Form and Submittal Package Acknowledgment Form
- Bid Form
- List of Proposed Minority/Woman Owned Business Enterprise(s)
- Commitment to Minority/Woman Owned Business Enterprise Participation
- Minority/Woman Owned Business Enterprise(s) of Intent
- Joint Venture Affidavit (if applicable)
- Joint Venture Eligibility Form (if applicable)
- Bid Bond
- Certificate of Insurance

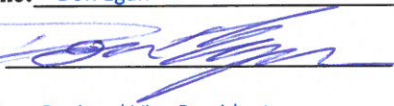
The following designated documents constitute that portion of the Contract Documents made available by the Notice of Invitation for Bids, but not included in the Bid Form and Submittal Package:

- Notice of Invitation for Bids
- Instructions to Bidders
- Addenda (as applicable)
- Equal Employment Opportunity Provisions (Appendix A and Appendix F)
- Contract Form
- General Contract Conditions
- Special Contract Conditions
- Performance and Payment Bond
- Notice to Apparent Low Bidder
- Notice to Proceed
- Contractor's Certification of Payment Form
- Final/Partial Lien Release Form
- Final Receipt
- Change Orders (as applicable)
- Federal Requirements (as applicable)
- Prevailing Wage Rate Schedule(s)
- Technical Specifications
- Contract Drawings
- Accepted Shop Drawings

The undersigned bidder expressly assumes responsibility for the complete contents of these designated documents as bound together with the Bid Form and Submittal Package submitted herewith and designated the Contract Documents.

IN WITNESS WHEREOF, the undersigned bidder has signed personally or by duly authorized officer or agent and duly attested.

BIDDER:

Name: Don Egan
By: 
Title: Regional Vice President

ATTEST:

By: 
Asst. Secretary - Krysta Brewer

[SEAL]



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

BID FORM

**CONTRACT NO. 201735705
Traffic Signal Upgrade - Mill Levy 6**

BIDDER Sturgeon Electric Company, Inc.
(Legal Name per Colorado Secretary of State)

TO: The Manager of Public Works
City and County of Denver
c/o Contract Administration
201 West Colfax, Dept. 614
Denver, Colorado 80202

The Undersigned Bidder, having examined the plans, technical specifications, and remainder of the proposed Contract Documents as designated and enumerated in the General and Special Contract Conditions and any and all addenda thereto; having investigated the location of and conditions affecting the proposed Work; and being acquainted with and fully understanding the extent and character of the Work covered by this bid, and all factors and conditions affecting or which may be affected by Work, **HEREBY SUBMITS THIS BID**, pursuant to an advertisement of a Notice of Invitation for Bids as published on **July 10, 2017**, to furnish all required materials, tools, appliances, equipment and plant; to perform all necessary labor and to undertake and complete: **CONTRACT NO. 201735705, Traffic Signal Upgrade - Mill Levy 6**, in Denver, Colorado, in full accordance with and conformity to the Plans, Technical Specifications, and Contract Documents hereto attached or by reference made a part hereof, and for the following price(s) set forth on this Bid Form.

The following documents, which taken as a whole constitute the Contract Documents for this Project, and which are incorporated herein, by reference, were made available to the Bidder as provided in the Advertisement of Notice of Invitation for Bids, were received by the bidder, and form the basis for this bid:

Advertisement of Notice of Invitation for Bids
Instructions to Bidders
Commitment to M/WBE Participation
Article III, Divisions 1 and 3 of Chapter 28, D.R.M.C.
Bid Bond
Addenda (as applicable)
Equal Employment Opportunity Provisions (Appendix A and Appendix F)
Bid Form
Contract Form
General Contract Conditions
Special Contract Conditions
Performance and Payment Bond
Notice to Apparent Low Bidder
Notice to Proceed
Contractor's Certification of Payment Form
Final/Partial Lien Release Form
Final Receipt
Change Orders (as applicable)
Federal Requirements (as applicable)
Prevailing Wage Rate Schedule(s)
Technical Specifications
Contract Drawing
Accepted Shop Drawings
Certificate of Insurance

Item No.	Description and Price	Estimated Quantity	Estimated Cost
202-00190	REMOVAL OF CONCRETE MEDIAN COVER MATERIAL at the unit price of \$ 50.00 per SQUARE YARD.	58 SY	\$ 2,900.00
202-00200	REMOVAL OF SIDEWALK at the unit price of \$ 44.00 per SQUARE YARD.	251 SY	\$ 11,044.00
202-00203	REMOVAL OF CURB AND GUTTER at the unit price of \$ 19.00 per LINEAR FOOT.	242 LF	\$ 4,598.00
202-00206	REMOVAL OF CONCRETE CURB RAMP at the unit price of \$ 42.00 per SQUARE YARD.	347 SY	\$ 14,574.00
202-00210	REMOVAL OF CONCRETE PAVEMENT at the unit price of \$ 42.00 per SQUARE YARD.	140 SY	\$ 5,880.00
202-00220	REMOVAL OF ASPHALT MAT at the unit price of \$ 44.00 per SQUARE YARD.	132 SY	\$ 5,808.00
202-00250	REMOVAL OF PAVEMENT MARKING at the unit price of \$ 3.50 per SQUARE FOOT.	2,150 SF	\$ 7,525.00
202-00810	REMOVAL OF GROUND SIGN at the unit price of \$ 165.00 per EACH.	7 EA	\$ 1,155.00
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT at the unit price of \$ 29,600.00 per LUMP SUM.	1 LS	\$ 29,600.00
203-01597	POTHOLING at the unit price of \$ 340.00 per EACH.	140 EA	\$ 47,600.00
208-00035	AGGREGATE BAG at the unit price of \$ 40.00 per LINEAR FOOT.	250 LF	\$ 10,000.00

Item No.	Description and Price	Estimated Quantity	Estimated Cost
208-00045	CONCRETE WASHOUT STRUCTURE at the unit price of \$ 2,200.00 per EACH.	2 EA	\$ 4,400.00
208-00053	STORM DRAIN INLET PROTECTION (TYPE I) at the unit price of \$ 400.00 per EACH.	11 EA	\$ 4,400.00
208-00205	EROSION CONTROL SUPERVISOR at the unit price of \$ 100.00 per HOUR.	200 HR	\$ 20,000.00
210-004XX	RESET 5GHz RADIO at the unit price of \$ 785.00 per EACH.	1 EA	\$ 785.00
210-00473	REMOVE AND RELOCATE CCTV AND WIRING at the unit price of \$ 1,120.00 per LUMP SUM.	1 LS	\$ 1,120.00
210-00815	RESET SIGN PANEL at the unit price of \$ 190.00 per EACH.	1 EA	\$ 190.00
210-00XXX	RESET BENCH at the unit price of \$ 275.00 per EACH.	1 EA	\$ 275.00
212-00100	TREE RETENTION AND PROTECTION at the unit price of \$ 15,500.00 per LUMP SUM.	1 LS	\$ 15,500.00
403-00720	HOT MIX ASPHALT (PATCHING) (ASPHALT) at the unit price of \$ 345.00 per TON.	20 TON	\$ 6,900.00
412-01100	CONCRETE PAVEMENT (11 INCH) at the unit price of \$ 140.00 per SQUARE YARD.	169 SY	\$ 23,660.00
503-00036	DRILLED CAISSON (36 INCH) at the unit price of \$ 420.00 per LINEAR FOOT.	157 LF	\$ 65,940.00
503-00037	VACUUMED CAISSON (36 INCH) at the unit price of \$ 560.00 per LINEAR FOOT.	157 LF	\$ 87,920.00

Item No.	Description and Price	Estimated Quantity	Estimated Cost
608-00000	CONCRETE SIDEWALK at the unit price of \$ <u>89.00</u> per SQUARE YARD.	406 SY	\$ <u>36,134.00</u>
608-00010	CONCRETE CURB RAMP at the unit price of \$ <u>145.00</u> per SQUARE YARD.	379 SY	\$ <u>54,955.00</u>
609-20010	6" CURB HEAD at the unit price of \$ <u>37.00</u> per LINEAR FOOT.	225 LF	\$ <u>8,325.00</u>
609-20100	CURB HEAD (0"-12" VARIABLE HEIGHT) at the unit price of \$ <u>40.00</u> per LINEAR FOOT.	53 LF	\$ <u>2,120.00</u>
609-21020	6" CURB AND GUTTER - 2' CATCH PAN at the unit price of \$ <u>34.00</u> per LINEAR FOOT.	188 LF	\$ <u>6,392.00</u>
609-21021	4" MOUNTABLE CURB at the unit price of \$ <u>80.00</u> per LINEAR FOOT.	15 LF	\$ <u>1,200.00</u>
610-00055	MEDIAN COVER MATERIAL (STONE) at the unit price of \$ <u>61.00</u> per SQUARE FOOT.	263 SF	\$ <u>16,043.00</u>
613-00206	2 INCH ELECTRICAL CONDUIT (BORED) at the unit price of \$ <u>31.00</u> per LINEAR FOOT.	1,500 LF	\$ <u>46,500.00</u>
613-00306	3 INCH ELECTRICAL CONDUIT (BORED) at the unit price of \$ <u>31.00</u> per LINEAR FOOT.	2,885 LF	\$ <u>89,435.00</u>
613-10000	WIRING at the unit price of \$ <u>54,775.00</u> per LUMP SUM.	1 LS	\$ <u>54,775.00</u>
613-1300X	LUMINAIRE LED (55 WATT) at the unit price of \$ <u>820.00</u> per EACH.	23 EA	\$ <u>18,860.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
613-8013X	ELECTRIC METER PEDESTAL CABINET at the unit price of \$ 4,440.00 per EACH.	7 EA	\$ <u>31,080.00</u>
614-00011	SIGN PANEL (CLASS I) at the unit price of \$ 40.00 per SQUARE FOOT.	194 SF	\$ <u>7,760.00</u>
614-00035	SIGN PANEL (SPECIAL) at the unit price of \$ 46.00 per SQUARE FOOT.	319 SF	\$ <u>14,674.00</u>
614-00216	STEEL SIGN POST (2X2 INCH TUBING) at the unit price of \$ 21.00 per LINEAR FOOT.	11 LF	\$ <u>231.00</u>
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN) at the unit price of \$ 695.00 per EACH.	42 EA	\$ <u>29,190.00</u>
614-70336	TRAFFIC SIGNAL FACE (12-12-12) at the unit price of \$ 1,030.00 per EACH.	83 EA	\$ <u>85,490.00</u>
614-72855	TRAFFIC SIGNAL CONTROLLER & CABINET (INSTALL ONLY) at the unit price of \$ 4,475.00 per EACH.	7 EA	\$ <u>31,325.00</u>
614-72860	PEDESTRIAN PUSH BUTTON at the unit price of \$ 365.00 per EACH.	24 EA	\$ <u>8,760.00</u>
614-72866	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM at the unit price of \$ 6,575.00 per EACH.	5 EA	\$ <u>32,875.00</u>
614-72886	INTERSECTION DETECTION SYSTEM (CAMERA) at the unit price of \$ 9,925.00 per EACH.	1 EA	\$ <u>9,925.00</u>
614-728X1	INTERSECTION DETECTION SYSTEM (2 CAMERA) at the unit price of \$ 17,305.00 per EACH.	4 EA	\$ <u>69,220.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
614-81115	TRAFFIC SIGNAL-LIGHT POLE STEEL (NO MAST ARM) at the unit price of \$ <u>2,390.00</u> per EACH.	1 EA	\$ <u>2,390.00</u>
614-81120	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM) at the unit price of \$ <u>8,485.00</u> per EACH.	4 EA	\$ <u>33,940.00</u>
614-81125	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-25 FOOT MAST ARM) at the unit price of \$ <u>8,770.00</u> per EACH.	7 EA	\$ <u>61,390.00</u>
614-81130	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-30 FOOT MAST ARM) at the unit price of \$ <u>9,225.00</u> per EACH.	5 EA	\$ <u>46,125.00</u>
614-81135	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM) at the unit price of \$ <u>9,455.00</u> per EACH.	6 EA	\$ <u>56,730.00</u>
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM) at the unit price of \$ <u>11,550.00</u> per EACH.	1 EA	\$ <u>11,550.00</u>
614-86105	TELEMETRY (FIELD) at the unit price of \$ <u>4,760.00</u> per EACH.	6 EA	\$ <u>28,560.00</u>
625-00000	CONSTRUCTION SURVEYING at the unit price of \$ <u>42,000.00</u> per LUMP SUM.	1 LS	\$ <u>42,000.00</u>
626-00000	MOBILIZATION at the unit price of \$ <u>76,500.00</u> per LUMP SUM.	1 LS	\$ <u>76,500.00</u>
627-30410	PREFORMED THERMOPLASTIC PAVEMENT MARKING (XWALK-STOP LINE) at the unit price of \$ <u>11.00</u> per SQUARE FOOT.	2,615 SF	\$ <u>28,765.00</u>
630-00003	UNIFORMED TRAFFIC CONTROL at the unit price of \$ <u>110.00</u> per HOUR.	168 HR	\$ <u>18,480.00</u>

Item No.	Description and Price	Estimated Quantity	Estimated Cost
630-XXXXX	CONSTRUCTION ZONE TRAFFIC CONTROL at the unit price of \$ <u>900.00</u> per DAY.	120 DAY	\$ <u>108,000.00</u>
700-70082	01 FURNISH & INSTALL ELECTRICAL SERVICE ALLOWANCE at the unit price of \$ <u>50,000.00</u> per	ALLOWANCE	\$ <u>50,000</u>
700-70380	02 EROSION CONTROL ALLOWANCE at the unit price of \$ <u>5,000.00</u> per	ALLOWANCE	\$ <u>5,000</u>
700-70589	03 ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT ALLOWANCE at the unit price of \$ <u>4,000.00</u> per	ALLOWANCE	\$ <u>4,000</u>
700-90026	04 LANDSCAPING ALLOWANCE at the unit price of \$ <u>10,000.00</u> per	ALLOWANCE	\$ <u>10,000</u>

Bid Items Total Amount [Sixty-One (61) 202-00190 through 700-90026] \$ 1,610,473.00
Textura ® Fee from table on Page BF-3 0.17 % of Bid Items Total Amount \$ 2,737.80

Bid Items Total Amount plus Textura® Fee equals Total Bid Amount \$ 1,613,210.80

Total Bid Amount:

One Million Six Hundred Thirteen Thousand Two Hundred Ten Dollars and Eighty Cents

Dollars (\$ 1,613,210.80)

If the Manager mails a written Notice of Apparent Low Bidder, addressed to the Bidder's business address stated on this Bid Form, the Undersigned Bidder shall, in accordance with the Contract Documents, be ready to, and shall, within five (5) days after the date of the Notice: (i) execute the attached form of Contract in conformity with this bid; (ii) furnish the required proofs of insurance; and (iii) furnish the required bond or bonds in the sum of the full amount of this bid, executed by a surety company acceptable to the Manager.

The Liberty Mutual Surety, a corporation of the State of MA, is hereby offered as Surety on said bond. If such surety is not approved by the Manager, another and satisfactory surety company shall be furnished.

Enclosed with this bid is a bid guarantee, as defined in the attached Instructions to Bidders, in the amount of -----5%-----. The Undersigned Bidder agrees that the entire amount of this bid guarantee is to be paid to and become the property of the City as liquidated damages, and not as a penalty, if: (i) the bid is considered to be the best by the City; (ii) the City notifies the Undersigned Bidder that it is the Apparent Low Bidder; and (iii) the Undersigned Bidder fails to execute the Contract in the form prescribed or to furnish the required bond and proofs of insurance, within five (5) days after the date of such notification.

The following persons, firms or corporations are interested with the Undersigned Bidder in this bid:

Name: N/A Name: N/A

Address: N/A Address: N/A

If there are no such persons, firms, or corporations, please so state in the following space:

NONE

The Undersigned Bidder proposes to subcontract the following Work in accordance with General Contract Conditions, Title 5, SUBCONTRACTS, and represents that, to the greatest degree practical, all subcontractors known at the time of bid submittal have been identified.

Item of Work	Percent (%) of Total; Work	Proposed Subcontractor and Address
<u>Concrete/ Asphalt</u>	<u>11.06%</u>	<u>Chato's Concrete LLC</u> <u>8326 Quivas Way Denver, CO 80221</u>
<u>Directional Boring</u>	<u>4.09%</u>	<u>Drilltech Directional Boring</u> <u>7080 York St Denver, CO 80229</u>
<u>Pavement Markings</u>	<u>2.12%</u>	<u>Kolbe Striping, Inc.</u> <u>550 Topeka Way Castle Rock, CO 80109</u>
<u>Traffic Control</u>	<u>6.37%</u>	<u>Legacy Traffic Management</u> <u>1390 S Cherokee St Denver, CO 80223</u>

(Copy this page if additional room is required.)



DENVER
OFFICE OF ECONOMIC
DEVELOPMENT

List of Proposed
MWBE
Bidders, Subcontractors,
Suppliers (Manufacturers) or
Brokers

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave. Dept. 907
Denver, CO 80202
Phone: 720-913-1999
DSBO@denvergov.org

City & County of Denver Contract No.: 201735705

The undersigned Bidder proposes to utilize all listed firms. The following MWBE(s) firms listed are CURRENTLY certified by the City and County of Denver. Only the level of MWBE participation listed at the bid opening will count toward satisfaction of the project goal. Only bona fide commissions may be counted for Brokers. MWBE prime bidders must detail their bid information below. Please copy and attach this page to list additional MWBE.

Prime Bidder

Business Name: Sturgeon Electric Company, Inc.

Address: 12150 E. 112th Ave., Henderson, CO 80640

Contact Person: Chris Cervera, Estimator

Type of Service: Electrical Construction

Dollar Amount: \$:

Percent of
Project:

Certified MWBE Prime Bidder

Business Name:

Address:

Contact Person:

Type of Service:

Dollar Amount: \$:

Percent of
Project:

Subcontractors, Suppliers Manufacturers or Brokers (check one box)

<input checked="" type="checkbox"/>	Subcontractor (✓)	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
-------------------------------------	-------------------	--------------------------	--------------	--------------------------	------------------	--------------------------	------------

Business Name: Chato's Concrete LLC

Address: 8326 Quivas Way Denver, CO 80221

Type of Service: Concrete/ Asphalt

Contact Person: Marlene Andrade

Dollar Amount: \$: 178,513.00

Percent of
Project: 11.06%

<input type="checkbox"/>	Subcontractor (✓)	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
--------------------------	-------------------	--------------------------	--------------	--------------------------	------------------	--------------------------	------------

Business Name:

Address:

Type of Service:

Contact Person:

Dollar Amount: \$:

Percent of
Project:

<input type="checkbox"/>	Subcontractor (✓)	<input type="checkbox"/>	Supplier (✓)	<input type="checkbox"/>	Manufacturer (✓)	<input type="checkbox"/>	Broker (✓)
--------------------------	-------------------	--------------------------	--------------	--------------------------	------------------	--------------------------	------------

Business Name:

Address:

Type of Service:

Contact Person:

Dollar Amount: \$:

Percent of
Project:

Rev 031816JE

NOT APPLICABLE

Subcontractors, Suppliers Manufacturers or Brokers (check one box)				
<input type="checkbox"/> Subcontractor (✓)	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)	
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	
<input type="checkbox"/> Subcontractor (✓)	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)	
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	
<input type="checkbox"/> Subcontractor (✓)	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)	
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	
<input type="checkbox"/> Subcontractor (✓)	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)	
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	
<input type="checkbox"/> Subcontractor (✓)	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)	
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	
<input type="checkbox"/> Subcontractor (✓)	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)	
Business Name:				
Address:		Type of Service:		
Contact Person:		Dollar Amount: \$:	Percent of Project:	
<input type="checkbox"/> Subcontractor (✓)	<input type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Manufacturer (✓)	<input type="checkbox"/> Broker (✓)	

Rev 031816JE

The undersigned Bidder hereby certifies that the aforementioned subcontractors and suppliers have full knowledge that their names have been offered as subcontractors and suppliers for the work, and the Bidder further certifies that the dollar amount of work to be performed by the aforementioned M/WBE(s) was furnished to the Bidder prior to the bid opening. The undersigned Bidder agrees that after the bid opening, it shall submit to the City an executed and completed W/MBE "Letter of Intent" in three working days (3) on each of its M/WBE subcontractors. The "Letter of Intent" form is contained in the Contract Documents.

The undersigned Bidder acknowledges the right of the City to reject any or all bids submitted, to waive informalities in bids and to re-advertise this Project for bids.

The undersigned certifies that it has carefully checked all works and figures and all statements made in these Bid Forms.

This bid is submitted upon the declaration that neither, I (we), nor, to the best of my (our) knowledge, none of the members of my (our) firm or company have either directly or indirectly entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this bid.

Business Address of Bidder: 12150 E. 112th Ave.

City, State, Zip Code: Henderson, CO 80640

Telephone Number of Bidder: (303) 286-8000 Fax No. (303) 286-1811

Social Security or Federal Employer ID Number of Bidder: 84-0681206

Name and location of the last work of this kind herein contemplated upon which the Bidder was engaged:
CCD Mill Levy 7A

For information relative thereto, please refer to:

Name: Diane Urbina

Title: Contract Administrator

Address: 201 W. Colfax Ave., Denver, CO 80202

The undersigned acknowledges receipt, understanding, and full consideration of the following addenda to the Contract Documents:

Addenda Number 1 Date 08/03/2017

Addenda Number _____ Date _____

Addenda Number _____ Date _____

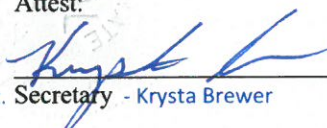
Dated this 10th day of August, 20 17.

Signature of Bidder:

If an Individual: _____ doing business
as _____.

If a Partnership: _____
by: _____ General Partner.

If a Corporation: Sturgeon Electric Company, Inc.
a Michigan Corporation,
by: Don Egan Regional Vice
its President.

Attest:

Asst. Secretary - Krysta Brewer (Corporate Seal)

If a Joint Venture, signature of all Joint Venture participants.

Firm: _____
Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Title: _____ Secretary (Corporate Seal)

Firm: _____
Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Title: _____ Secretary (Corporate Seal)

Firm: _____
Corporation (), Partnership () or () Limited Liability Company

By: _____ (If a Corporation)
Attest: _____
Title: _____ Secretary (Corporate Seal)



COMMITMENT TO MWBE PARTICIPATION

The undersigned has satisfied the MWBE participant requirements in the following manner (Please check the appropriate box):

The Bidder/Proposer is committed to the minimum 11 % **MWBE** utilization on the project, and will submit Letters of Intent (LOI) for each subcontractor/subconsultant listed in the Bid Forms as follows:

Hard Bids: Three (3) business days after the bid opening.

Request for Proposals/Qualifications: With the proposal when due.

Compliance Plans: With each task/work order

The Bidder/Proposer is unable to meet the project goal of _____ % **MWBE**, but is committed to a minimum of _____ % **MWBE** utilization on the project. The Bidder/Proposer understands that they must submit a detailed statement of their good faith effort under sealed bid procedures, as a matter of responsiveness, or with initial proposals, under contract negotiation procedures; or no later than **three (3)** days after bid opening as a matter of responsibility as in accordance with DRMC Section 28-62 and 28-67 of Ordinance 85 to the Division of Small Business Opportunity.

The Bidder/Proposer is a certified **MWBE** in good standing with the City and is committed to self-perform a minimum of _____ % of the work on the contract.

Bidder/Proposer (Name of Firm): Sturgeon Electric Company, Inc.

Firm's Representative (Please print): Don Egan

Signature (Firm's Representative): 

Title: Regional Vice President

Address: 12150 E. 112th Ave.

City: Henderson

State: CO

Zip: 80640

Phone: (303) 286-8000

Fax: (303) 286-1811

Email: DEgan@MYRGroup.com

A copy of the MWBE Certification letter must be attached to each Letter of Intent (LOI).



DENVER
OFFICE OF ECONOMIC
DEVELOPMENT

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 West Colfax Ave., Dept. 907
Denver, CO 80202
Phone: 720-913-1899

LETTER OF INTENT (LOI)
INSTRUCTIONS FOR COMPLETION & SUBMISSION:

- All lines must be completed or marked N/A for Not Applicable
- Certification Letter must be submitted with LOI
- Submit the attached completed checklist with this letter
- Email to dsbo@denvergov.org
- RFP RFPs and RFQs: LOIs should be included with Submittal

Contract No.: 201735705		Project Name: Traffic Signal Upgrade, Mill Levy 6					
A. The Following Section is To Be Completed by the Bidder/Consultant This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE, EBE or DBE							
Name of Bidder/Consultant: Sturgeon Electric Company, Inc.				Self-Performing: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Phone: (303) 286-8000	
Contact Person: Chris Cervera, Estimator			Email: CCervera@MYRGroup.com			Fax: (303) 286-1811	
Address: 12150 E. 112th Ave.			City: Henderson			State: CO Zip: 80640	
B. The Following Section is To Be Completed by the M/WBE, SBE, EBE or DBE, at any Tier This Letter of Intent Must be Signed by the M/WBE, SBE, EBE or DBE and Bidder/Consultant							
Name of Certified Firm: Chato's Concrete LLC					Phone: 720-252-7959		
Contact Person: Marlene Andrade			Email: marlene@chatosconcrete.com			Fax: 303-427-7156	
Address: 8326 Quivas Way			City: Denver			State: CO Zip: 80221	
Please check the designation which applies to the certified firm.		M/WBE (*)	X	SBE (*)	X	EBE (*)	DBE (*) X
Indirect Utilization: If this M/WBE, SBE, EBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm: N/A							
A Copy of the M/WBE, SBE, EBE or DBE Letter of Certification must be Attached							
Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. On unit price bids only, identify which bid line items the M/WBE/SBE/EBE/DBEs scope of work or supply corresponds to. Concrete							
X	Subcontractor/Subconsultant (v)		Supplier (v)			Broker (v)	
Bidder intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE, EBE or DBE bid amount is:							
\$ 178,513.00					11.06 %		
Consultant intends to utilize the aforementioned M/WBE, SBE, EBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE, EBE or DBE will perform is:							
If the fee amount of the work to be performed is requested, the fee amount is: \$							
Bidder/Consultant's Signature:						Date: 08/10/2017	
Title: Estimator							
M/WBE, SBE, EBE or DBE or Self-Performing Firm's Signature:						Date: 8.10.17	
Title: Owner/Partner							
If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.							

Letter of Intent (LOI) Checklist

All lines must be completed or marked N/A for Not Applicable

Submit the attached completed checklist with this letter.

Completed ✓	
<input checked="" type="checkbox"/>	Project Number & Project Name
<input checked="" type="checkbox"/>	Section A: Name of Bidder/Consultant, Contact Person, Address, City, State, Zip, Phone, Email
<input checked="" type="checkbox"/>	Section B: Name of Certified Firm, Contact Person, Address, City, State, Zip, Phone, Email
<input checked="" type="checkbox"/>	Designation checked for MBE/WBE, SBE, EBE or DBE
<input checked="" type="checkbox"/>	Indirect Utilization: Name of subcontractor/subconsultant, supplier or broker is indicated if using the participation of a 2 nd tier subcontractor/subconsultant, supplier or broker.
<input checked="" type="checkbox"/>	Scope of work performed or item supplied by M/WBE, SBE, EBE or DBE
<input checked="" type="checkbox"/>	Line items performed, if line-item bid.
<input checked="" type="checkbox"/>	Copy of M/WBE, SBE, EBE or DBE Letter of Certification Attached
<input checked="" type="checkbox"/>	Designation checked for Subcontractor/Subconsultant, Supplier or Broker
	If project is a hard bid...
<input checked="" type="checkbox"/>	Bidder has indicated dollar amount for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
<input checked="" type="checkbox"/>	Bidder has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
	If project is an RFP/RFQ...
<input type="checkbox"/> N/A	Consultant has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker Name & contact name for MWBE.
<input type="checkbox"/> N/A	Fee amount if fee amount of work to be performed is requested.
<input checked="" type="checkbox"/>	Bidder/Consultant's Signature, Title & Date
<input checked="" type="checkbox"/>	M/WBE, SBE, EBE or DBE Firm's Signature, Title and Date

Select One ✓	SUBMITTED VIA... For Construction Hard Bids ONLY, Bidders are strongly urged to deliver the LOI via one of the methods below. (The preferred method is to scan/email completed forms to email address below. Delivery to any other point cannot be guaranteed timely delivery.)
<input checked="" type="checkbox"/>	Email to DSBO@denvergov.org

The complete and accurate information that is required for the Letter of Intent is based on the following sections of the Ordinance 85: Section 28-63 and Section 28-68. Failure to complete this information on the Letter of Intent (LOI) may automatically deem a bid or proposal non-responsive.

City and County of Denver: DBE Approval

City and County of Denver

Thu 9/29/2016 10:03 AM

Marlene Andrade <marlene@chatosconcrete.com>;

Eleazar Villalobos
Chato's Concrete, LLC
8326 Quivas Way
Denver, CO 80221

Dear Eleazar Villalobos:

The Division of Small Business Opportunity is pleased to inform you that Chato's Concrete, LLC is certified as a Disadvantaged Business Enterprise (DBE) pursuant to the US Department of Transportation's Regulation 49 CFR Part 26. Your firm will be listed on the Colorado Unified Certification Program's (UCP) on-line directory of eligible DBEs at www.coloradodbe.org.

Chato's Concrete, LLC is eligible to participate as a DBE on US Department of Transportation financially-assisted projects in Colorado in the work codes appearing as part of your firm's listing on the directory as eligible to be counted toward DBE participation. It is your responsibility to manage your firm's work codes to ensure they are correct.

CO UCP NAICS 237310: CONCRETE PAVING (I.E., HIGHWAY, ROAD, STREET, PUBLIC SIDEWALK)
CO UCP NAICS 237310: CURBS AND STREET GUTTERS, HIGHWAY, ROAD AND STREET, CONSTRUCTION
CO UCP NAICS 237310: GUARDRAIL CONSTRUCTION
CO UCP NAICS 238990: SIDEWALK CONSTRUCTION, RESIDENTIAL AND COMMERCIAL
CO UCP NAICS 484220: DUMP TRUCKING (E.G., GRAVEL, SAND, TOP SOIL)
CO UCP NAICS 484220: GRAVEL HAULING, LOCAL
CO UCP NAICS 484220: SAND HAULING, LOCAL
CO UCP NAICS 484220: TOP-SOIL HAULING, LOCAL

The anniversary date of your firm's DBE certification is September 28, 2017. You will be notified prior to the anniversary date that eligibility must be re-evaluated. However, if you do not receive notification from this office, it is your responsibility to contact us. Pursuant to 49 CFR 26.83(i), submittal of this information is required to ensure that there is no interruption of your firm's status as a certified DBE. If any changes occur in the firm's legal structure, ownership, management, control, or work performed, you must notify the division immediately.

Sincerely,

Director

City and County of Denver
Office of Economic Development
<http://www.denvergov.org/oed>
<http://denver.mwdbe.com>

This message was sent to: marlene@chatosconcrete.com
Sent on: 9/29/2016 11:03:08 AM
System ReferenceID: 40262118

City and County of Denver: M/WBE Approval

City and County of Denver

Thu 9/29/2016 10:05 AM

To: Marlene Andrade <marlene@chatosconcrete.com>;

Eleazar Villalobos
Chato's Concrete, LLC
8325 Quivas Way
Denver, CO 80221

Dear Eleazar Villalobos:

SUBJECT: Minority/Women Business Enterprise (M/WBE) Certification, Pursuant to Article III of Chapter 28, Div. 3 of the D.R.M.C. Construction, Reconstruction, Remodeling and Professional Design, Construction Services and Concessions

The City and County of Denver's Division of Small Business Opportunity (DSBO) has approved Chato's Concrete, LLC for certification as a Minority/Women Business Enterprise (M/WBE). Chato's Concrete, LLC will be listed in the City and County of Denver's Minority/Women Business Enterprise (M/WBE) Certification Directory. Your firm is certified with the following certification dates:

September 29, 2016 to September 28, 2017

Listed below is each NAICS code and Work Specialty for which Chato's Concrete, LLC is certified. Please verify your NAICS codes and work specialties as this letter showing the following codes is required for bidding on City projects:

NAICS CODES:

DENVER 237310: CONCRETE PAVING (I.E., HIGHWAY, ROAD, STREET, PUBLIC SIDEWALK)
DENVER 237310: CURBS AND STREET GUTTERS, HIGHWAY, ROAD AND STREET, CONSTRUCTION
DENVER 237310: GUARDRAIL CONSTRUCTION
DENVER 238990: SIDEWALK CONSTRUCTION, RESIDENTIAL AND COMMERCIAL
DENVER 484220: DUMP TRUCKING (E.G., GRAVEL, SAND, TOP SOIL)
DENVER 484220: GRAVEL HAULING, LOCAL
DENVER 484220: SAND HAULING, LOCAL
DENVER 484220: TOP-SOIL HAULING, LOCAL

WORK SPECIALTY:

Concrete Contractor: flatwork, sidewalks, curb ramps, curb and gutter; material hauling; concrete curb paving, hot bituminous paving (Patching Only)

This Certification is intended to be used only for participation in city funded projects, and/or certain privately funded projects on city-owned property for contracts with construction, reconstruction, remodeling and professional design and construction services.

Your business enterprise is required to maintain an accurate mailing address, email address and telephone number information with DSBO. If any changes occur in the firm's legal structure, ownership, management, control, or work performed, you must notify DSBO immediately. Failure to report any of these changes may result in removal of your business enterprise from the Certification Directory and possible revocation of certification of your business enterprise as an M/WBE.

Please be aware that your M/WBE Certification is valid for a period of one (1) year, and must be renewed annually. It is your

<https://outlook.office.com/owa/?viewmodel=ReadMessageItem&ItemID=AAMkADc5NTA5NTgxLTEwZjkiNGFiYi1hMGI5LWZjMDhjNjQ0YTM5OABGAAAAA...>

10/6/2016

City and County of Denver: M/WBE Approval - Marlene Andrade

responsibility to request and submit a renewal application and all of the documents required within the renewal application in order for your renewal to be processed. Your application and accompanying documents should be sent electronically to our office at least thirty (30) days prior to the expiration date of your M/WBE Certification.

You may visit www.work4denver.com to view upcoming Construction/Professional Service bidding opportunities, or www.denvergov.org/purchasing for upcoming Goods & Services bid opportunities. This letter must be attached to your Letter of Intent (LOI) for bidding opportunities in which you may be utilized for goal participation.

Sincerely,

Director

City and County of Denver
Office of Economic Development
<http://www.denvergov.org/oed>
<http://denver.mwdbe.com>

This message was sent to: marlene@chatosconcrete.com
Sent on: 9/29/2016 11:05:06 AM
System ReferenceID: 40262128

City and County of Denver: SBE Approval

City and County of Denver

Thu 9/29/2016 10:05 AM

Marlene Andrade <marlene@chatosconcrete.com>;

Eleazar Villalobos
Chato's Concrete, LLC
3326 Quivas Way
Denver, CO 80221

Dear Eleazar Villalobos:

SUBJECT: Small Business Enterprise (SBE) Certification, Pursuant to Article VII of Chapter 28, Div. 1 of the D.R.M.C. Construction, Reconstruction, Remodeling and Professional Design, Construction Services and Concessions

The City and County of Denver's Division of Small Business Opportunity (DSBO), has approved Chato's Concrete, LLC for certification as a Small Business Enterprise (SBE). Chato's Concrete, LLC will be listed in the City and County of Denver's Small Business Enterprise (SBE) Certification Directory located at www.denvergov.org/dsbo. Your firm is certified with the following certification dates:

September 29, 2016 to September 28, 2017

Listed below is each NAICS code and Work Specialty for which Chato's Concrete, LLC is certified. Please verify your NAICS codes and work specialties as this letter showing the following codes is required for bidding on City projects:

NAICS CODES:

DENVER 237310: CONCRETE PAVING (I.E., HIGHWAY, ROAD, STREET, PUBLIC SIDEWALK)
DENVER 237310: CURBS AND STREET GUTTERS, HIGHWAY, ROAD AND STREET, CONSTRUCTION
DENVER 237310: GUARDRAIL CONSTRUCTION
DENVER 238990: SIDEWALK CONSTRUCTION, RESIDENTIAL AND COMMERCIAL
DENVER 484220: DUMP TRUCKING (E.G., GRAVEL, SAND, TOP SOIL)
DENVER 484220: GRAVEL HAULING, LOCAL
DENVER 484220: SAND HAULING, LOCAL
DENVER 484220: TOP-SOIL HAULING, LOCAL

WORK SPECIALTY:

Concrete Contractor: flatwork, sidewalks, curb ramps, curb and gutter; material hauling; concrete curb paving, hot bituminous paving (Patching Only)

This Certification is intended to be used only for participation in city funded projects, and/or certain privately funded projects on city-owned property for contracts with construction, reconstruction, remodeling and professional design and construction services.

Your business enterprise is required to maintain an accurate mailing address, email address and telephone number information with DSBO. If any changes occur in the firm's legal structure, ownership, management, control, or work performed, you must notify DSBO immediately. Failure to report any of these changes may result in removal of your business enterprise from the Certification Directory and possible revocation of certification of your business enterprise as an SBE.

Please be aware that SBE Certifications are for a period of one (1) year, and must be renewed annually. It is your responsibility to

10/6/2016

City and County of Denver: SBE Approval - Marlene Andrade

request and submit a renewal application and all of the documents required within the renewal application in order for your renewal to be processed. Your application and accompanying documents should be sent electronically to our office at least thirty (30) days prior to the expiration date of your SBE Certification.

You may visit www.work4denver.com to view upcoming Construction/Professional Service bidding opportunities, or www.denvergov.org/purchasing for upcoming Goods & Services bid opportunities. This letter must be attached to your Letter of Intent (LOI) for bidding opportunities in which you may be utilized for goal participation.

Sincerely,

Director

City and County of Denver
Office of Economic Development
<http://www.denvergov.org/oed>
<http://denver.mwdbe.com>

This message was sent to: marlene@chatosconcrete.com
Sent on: 9/29/2016 11:05:14 AM
System ReferenceID: 40262141

NOT APPLICABLE



Joint Venture Affidavit

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave. Dept. 907
Denver, CO 80202
Phone: 720-913-1999
DSBO@denvergov.org

The Undersigned swears that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venturer in the undertaking. Further, the Undersigned covenant and agree to provide the City current, complete, and accurate information regarding actual joint venture work and the payment thereof and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records, and files of the joint venture, by authorized representatives of the City or Federal funding agency, if applicable. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements.

Name of Firm:

Print Name:

Title

Signature:

Date:

Notary Public

County of

State of

My Commission Expires:

Subscribed and sworn before me this

day of , 20

Notary Seal

Notary Signature:

Notary Commission #:

Address:

Name of Firm:

Print Name:

Title

Signature:

Date:

Notary Public

County of

State of

My Commission Expires:

Subscribed and sworn before me this

day of , 20

Notary Seal

Notary Signature:

Notary Commission #:

Address:

NOT APPLICABLE



JOINT VENTURE ELIGIBILITY FORM

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave. Dept. 907
Denver, CO 80202
Phone: 720-913-1999
DSBO@denvergov.org

Joint Venture means an association of two (2) or more business enterprises to constitute a single business enterprise to perform a City construction or professional design and construction services contract for which purpose they combine their property, capital, efforts, skills and knowledge, and in which each joint venturer is responsible for a distinct, clearly defined portion of the work of the contract, performs a commercially useful function, and whose share in the capital contribution, control, management responsibilities, risks and profits of the joint venture are equal to its ownership interest. Joint ventures must have an agreement in writing specifying the terms and conditions of the relationships between the joint venturers and their relationship and responsibility to the contract.

The Division of Small Business Opportunity (DSBO) requires the following information be provided from participants of a prospective joint venture, to assist DSBO in evaluating the proposed joint venture. This Joint Venture Eligibility form and the Joint Venture Affidavit apply if SBEs, EBEs, MBEs, WBEs or DBEs participate in this joint venture.

Please return this form, the Joint Venture Affidavit, and a copy of your Joint Venture Agreement to: Division of Small Business Opportunity, 201 West Colfax Avenue, Denver, CO 80202, at least ten (10) working days prior to bid opening or proposal.

If you have questions regarding this process, please contact DSBO at 720-913-1999.

Joint Venture Information

Name: Contact Person:
Address:
City: State: Zip: Phone:

Joint Venture Participants

Name: Contact Person:
Address:
City: State: Zip: Phone:
% Ownership: Certifying Entity: Type Certification & Date: (S/E/M/W or DBE)
Type of Work for which Certification was granted:

Name: Contact Person:
Address:
City: State: Zip: Phone:
% Ownership: Certifying Entity: Type Certification & Date: (S/E/M/W or DBE)
Type of Work for which Certification was granted:

General Information

SBE/EBE/MBE/WBE/DBE Initial Capital Contributions: \$ %
Future capital contributions (explain requirements) (attach additional sheets if necessary):

Source of Funds for the SBE/EBE/MBE/WBE/DBE Capital Contributions:

Describe the portion of the work or elements of the business controlled by the SBE/EBE/MBE/WBE or DBE: (attach additional sheets if necessary)

NOT APPLICABLE

Describe the portion of the work or elements of the business controlled by non-SBE/EBE/MBE/WBE or DBE: (attach additional sheets if necessary)

JOINT VENTURE ELIGIBILITY FORM

General information

Describe the SBE/EBE/MBE/WBE or DBE's involvement in the overall management of the joint venture (e.g., participation on a management committee or managing board voting rights, etc.) (attach additional sheets if necessary)

Describe the SBE/EBE/MBE/WBE or DBE's share in the profits of the joint venture:

Describe the SBE/EBE/MBE/WBE or DBE's share in the risks of the joint venture:

Describe the roles and responsibilities of each joint venture participant with respect to managing the joint venture (use additional sheets if necessary):

a. SBE/EBE/MBE/WBE or DBE joint venture participant:

b. Non- SBE/EBE/MBE/WBE or DBE joint venture participant:

Describe the roles and responsibilities of each joint venture participant with respect to operation of the joint venture (use additional sheets if necessary):

a. SBE/EBE/MBE/WBE or DBE joint venture participant:

b. Non- SBE/EBE/MBE/WBE or DBE joint venture participant:

NOT APPLICABLE

Which firm will be responsible for accounting functions relative to the joint venture's business?			
Explain what authority each party will have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties?			
Please provide information relating to the approximate number of management, administrative, support and non-management employees that will be required to operate the business and indicate whether they will be employees of the S/E/MWBE/DBE, non- S/E/MWBE/DBE or joint venture:			
	Non- SBE/EBE/MWBE/DBE	SBE/EBE/MWBE/DBE	Joint Venture
Management			
Administrative			
Support			
Hourly Employees			
JOINT VENTURE ELIGIBILITY FORM			
General Information			
Please provide the name of the person who will be responsible for hiring employees for the joint venture.			
Who will they be employed by?			
Are any of the proposed joint venture employees currently employees of any of the joint venture partners?	<input type="checkbox"/>	Yes (✓)	No (✓)
If yes, please list the number and positions and indicate which firm currently employs the individual(s), (use additional sheets if necessary)			
Number of employees		Position	Employed By
Attach a copy of the proposed joint venture agreement, promissory note or loan agreement (if applicable), and any and all written agreements between the joint venture partners.			
List all other business relationships between the joint venture participants, including other joint venture agreements in which the parties are jointly involved.			
If there are any significant changes in or pertaining to this submittal, the joint venture members must immediately notify the Division of Small Business Opportunity.			

COMP-FRM-015

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

BID BOND

KNOW ALL MEN BY THESE PRESENTS:
THAT Sturgeon Electric Company, Inc.

Liberty Mutual Insurance Company, as Principal, and by virtue of the laws of the State of Massachusetts, and authorized to do business within the State of Colorado, as Surety, are held and firmly bound unto the City and County of Denver, Colorado, as Oblige, in full and just sum of five percent of the accompanying bid amount Dollars, (\$ ---5%---), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents:

WHEREAS, the said Principal is herewith submitting its bid, dated August 10, 2017, for the construction of: **Contract No. 201735705, TRAFFIC SIGNAL UPGRADE - MILL LEVY 6**, as set forth in detail in the Contract Documents for the City and County of Denver, Colorado, and said Oblige has required as a condition for receiving said bid that the Principal deposit specified bid security in the amount of not less than five percent (5%) of the amount of said bid, as it relates to work to be performed for the City, conditioned that in event of failure of the Principal to execute the Contract, for such construction and furnish required Performance and Payment Bond if the contract is offered him that said sum be paid immediately to the Oblige as liquidated damages, and not as a penalty, for the Principal's failure to perform.

The condition of this obligation is such that if the aforesaid Principal shall, within the period specified therefore, on the prescribed form presented to him for signature, enter into a written contract with the Oblige in accordance with his bid as accepted and give Performance and Payment Bond with good and sufficient surety or sureties, upon the form prescribed by the Oblige, for the faithful performance and the proper fulfillment of said Contract, or in the event of withdrawal of said bid within the time specified, or upon the payment to the Oblige of the sum determined upon herein, as liquidated damages and not as penalty, in the event the Principal fails to enter into said contract and give such Performance and Payment Bond within the time specified, then this Obligation shall be null and void, otherwise to remain in full force and effect.

Signed, sealed and delivered this 10th day of August, 2017.

ATTEST

Secretary

Elna Lynds

Sturgeon Electric Company, Inc.

Principal

By

Don Egan

Title

Regional Vice President

Liberty Mutual Insurance Company

Surety

By

Sheree Hsieh
Sheree Hsieh, Attorney-in-Fact

Seal if Bidder is Corporation
(Attach Power-of-Attorney)

[SEAL]



THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7774384

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brenda Johnston; Cindy Stellhorn; Cynthia L. Jenkins; Edward L. Mournighan; Ginger J. Krahn; Kimberly E. Kinkead; Michael H. Bill; Michael J. Marsella; Michael M. Bill; Rebecca A. Virt; Sheree Hsieh

all of the city of Indianapolis, state of IN each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 19th day of May, 2017.



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 19th day of May, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 10th day of August, 2017.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for investigating, note, loan, letter, or creating, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



Office of Economic Development
 Division of Small Business Opportunity
 201 W. Colfax Ave, Dept. 907
 Denver, CO 80202
 p: 720.913.1999
 f: 720.913.1609
www.denvergov.org/dsbo

Diversity and Inclusiveness * in City Solicitations Information Request Form

Type in your response, print out, sign and date; or print out and complete manually. Please print legibly.

Denver Executive Order No. 101 establishes strategies between the City and private industry to use diversity and inclusiveness to promote economic development in the City and County of Denver and to encourage more businesses to compete for City contracts and procurements. The Executive Order requires, among other things, the collection of certain information regarding the practices of the City's contractors and consultants toward diversity and inclusiveness and encourages/requires City agencies to include diversity and inclusiveness policies in selection criteria where legally permitted in solicitations for City services or goods.

Answer each question below. Missing or incomplete responses will be recorded as "no", "not applicable", or "none". **A proposal or response to a solicitation by a contractor/consultant that does not include this completed form shall be deemed non-responsive and rejected.**

Business Email Address: CCervera@MYRGroup.com

Please include the Email address of the contact person facilitating this solicitation for the City and County of Denver: CCervera@MYRGroup.com

Agency Name:

- | | | |
|---|--|--|
| <input type="checkbox"/> Arts and Venue | <input type="checkbox"/> Purchasing Division | <input type="checkbox"/> Sheriff Department |
| <input type="checkbox"/> Auditor Office | <input type="checkbox"/> Human Services | <input type="checkbox"/> Technology Services |
| <input type="checkbox"/> Community Planning | <input type="checkbox"/> Economic Development | <input type="checkbox"/> Other |
| <input type="checkbox"/> Denver International Airport | <input type="checkbox"/> Parks and Recreation | |
| <input type="checkbox"/> Environmental Health | <input type="checkbox"/> Police Department | |
| <input type="checkbox"/> Fire Department | <input checked="" type="checkbox"/> Public Works | |

Project Name: Traffic Signal Upgrades, Mill Levy 6

BID / RFP No.: 201735705

Name of Contractor/Consultant: Sturgeon Electric Company, Inc. - Chris Cervera/Estimator

What industry is your business? Electrical Construction

Address:

12150 E. 112th Ave.
Henderson, CO 80640

Business Phone No.: (303) 286-8000

Business Facsimile No.: (303) 286-1811

OED - Executive Order No. 101
 Diversity and Inclusiveness in City Solicitations Information Request Form
 Rev. 12/29/2015

1. How many employees does your company employ?

- 1-10 51-100
 11-50 over 100

1.1. How many of your company's employees are:

Full-time 100% Part-Time 0%

2. Do you have a Diversity and Inclusiveness Program? Yes No

If No, and your company size is less than 10 employees continue to question 11. Complete and sign the form.

If Yes, does it address:

- 2.1 Employment and retention? Yes No
2.2 Procurement and supply chain activities? Yes No
2.3 Customer service? Yes No

3. Provide a detailed narrative of your company's diversity and inclusiveness principles and programs. This may include, for example, (i) diversity and inclusiveness employee training programs, equal opportunity policies, and the budget amount spent on an annual basis for workplace diversity; or (ii) diversity and inclusiveness training and information to improve customer service.

See attached Equal Opportunity Employment Policy & Supplier Diversity Program

4. Does your company regularly communicate its diversity and inclusiveness policies to employees?

If Yes, how does your company regularly communicate its diversity and Inclusiveness policies to employees? (select all that apply)

- Employee Training
 Pamphlets
 Public EEO postings
 Other
 Not Applicable

5. If you responded that you do not have a diversity and inclusiveness program, describe any plans your company may have to adopt such a program.

Not Applicable

6. How often do you provide training in diversity and inclusiveness principles?

- Monthly Annually
 Quarterly Not Applicable Other As Needed

6.1 What percentage of the total number of employees generally participate?

- 0 - 25% 51 - 75%
 26 - 50% 76 - 100% Not Applicable

7. State how you achieve diversity and inclusiveness in supply and procurement activities. This may include, for example, narratives of training programs, equal opportunity policies, diversity or inclusiveness partnership programs, mentoring and outreach programs, and the amount and description of budget spent on an annual basis for procurement and supplier diversity and inclusiveness.

See attached Equal Opportunity Employment Policy & Supplier Diversity Program

8. Do you have a diversity and inclusiveness committee? Yes No

8.1 If Yes, how often does it meet?

- Monthly Annually No Committee
 Quarterly Other _____

8.2 If you responded that you do not have a diversity and inclusiveness committee, describe any plans your company may have to establish such a committee.

NONE

9. Do you have a budget for diversity and inclusiveness efforts? Yes No

10. Does your company integrate diversity and inclusion competencies into executive/manager performance evaluation plans? Yes No

11. Would you like information detailing how to implement a Diversity and Inclusiveness program? Yes No

If yes, please email XO101@denvergov.org.

I attest that the information represented herein is true, correct and complete, to the best of my knowledge.



Signature of Person Completing Form

August 10th, 2017

Date

Tracy Lathrop, Estimating Coordinator

Printed Name of Person Completing Form

NOTE: Attach additional sheets or documentation as necessary for a complete response.

*"Diversity and inclusiveness program" means a program that invites values, perspectives and contributions of people from diverse backgrounds, and integrates diversity into its hiring and retention policies, training opportunities, and business development methods to provide an equal opportunity for each person to participate, contribute, and succeed within the organization's workplace. "Diversity" encompasses a wide variety of human differences, including differences such as race, age, gender, gender identity, sexual orientation, ethnicity, physical disabilities, appearance, historically underutilized and disadvantaged persons, as well as social identities such as religion, marital status, socio-economic status, lifestyle, education, parental status, geographic background, language ability, and veteran status."

MYR Group Inc.

Human Resource Policy Statement

Topic: Equal Employment Opportunity
Section: HR 03.10

Policy

The Company is an Equal Opportunity Employer that does not discriminate on the basis of actual or perceived race, creed, color, religion, national origin, ancestry, age, disability or handicap, sex, sexual orientation, gender identity, military service member or veteran status, marital status, genetic profile, or any other characteristic protected by applicable federal, state, or local laws.

Scope

This policy applies to all employees of the Company.

Policy Guidelines

The Company's management teams are dedicated to upholding this policy with respect to recruitment, hiring, placement, promotion, transfer, training, compensation, benefits, employee activities, and general treatment during employment.

The Company will continually review its personnel practices and procedures to ensure that all supervisors and managers are adhering to the Company's commitment to equal employment opportunity principles.

Recruitment and Hiring

In the recruitment and selection of employees, it is the policy of the Company to further the principles of equal employment opportunity by seeking talented and competent persons who are suited for the position available by reason of education, training, interpersonal skills, and general ability. The Company will make this policy known to employment agencies, personnel, and all recruiting sources used. In all solicitations and advertisements for employees, the Company will use or require the use of specific reference to its status as an "Equal Opportunity Employer," and will indicate its desire to consider both male and female applicants.



Promotions/Transfers

Promotions within the Company are based on past performance and qualifications to perform additional functions and/or assume additional responsibilities, as determined by management, using objective standards. Transfer decisions, that may or may not accompany a promotion, will be based on anticipated or actual business needs, as determined by management, and will be made in compliance with the applicable provisions of this policy.

Personnel Actions/Benefits

Personnel actions, such as compensation, benefits, transfers, layoffs, return from layoff, company sponsored training, education, and social programs will be administered without regard to actual or perceived race, creed, color, religion, national origin, ancestry, age, disability or handicap, sex, military service member or veteran status, genetic profile, or any other characteristic protected by applicable federal, state, or local laws.

In the area of employer contributions for insurance, pensions, welfare programs, and other similar "fringe benefits," the Company will not be considered to have violated these guidelines if the contributions are the same for men and women or if the resulting benefits are equal.

Prepared by: D. K. Shaw	Approved by: W. A. Koertner	Date Issued: 10/01/13	Supersedes: 06/01/12	Page: 1 of 2
				

MYR Group Inc.

Human Resource Policy Statement

Topic: Equal Employment Opportunity
Section: HR 03.10

Reasonable Accommodation

The Company will endeavor to make a reasonable accommodation for the known physical or mental limitations of qualified employees with disabilities unless the accommodation would impose an undue hardship on the Company's operations. If an employee needs assistance to perform his or her job duties because of a physical or mental condition, the Vice President, Human Resources should be notified.

The Company will endeavor to accommodate the sincere religious beliefs of its employees to the extent such accommodation does not pose an undue hardship on the Company's operations. If an employee wishes to request such an accommodation, the Vice President, Human Resources should be notified.

Work Conditions

The Company will take all necessary steps to ensure that each employee's work environment is free of unlawful discrimination or harassment without regard to actual or perceived race, creed, color, religion, national origin, ancestry, age, disability or handicap, sex, sexual orientation, gender identity, military service member or veteran status, marital status, genetic profile, or any other characteristic protected by applicable federal, state or local laws.

Employees shall not be penalized in their conditions of employment because they require time away from work on account of childbearing or other qualified leave, such as adoption, or the foster care placement of a child, as covered under the Family and Medical Leave Act (see the Family and Medical Leave Policy Statement HR 02.10). A qualified leave will be considered to be justification for a leave of absence for a reasonable period of time. Following a qualified leave, and upon signifying intent to return, within a reasonable time, such employees shall be reinstated to their original job or to a position of like status and pay, without loss of service credit.



Any employee with questions or concerns about equal employment opportunities in the workplace, or who believe they have not been treated in accordance with this policy, are encouraged to contact the Vice President, Human Resources at (800) 288-5187 or Human-Resources@myrgroup.com, or the Company's Anonymous Incident Reporting System at (800) 461-9330. The Company will not allow any form of retaliation against individuals who raise issues related to equal employment opportunity.

Affirmative Action Programs

In order to further promote the Company policy of non-discrimination and to promote the effective utilization of minority groups and female personnel, the Company has adopted and implemented an Affirmative Action Program. This program is periodically reviewed and communicated to all management personnel. In addition, Affirmative Action Programs have been prepared with respect to handicapped persons, military service members, and veterans. The implementation of the Affirmative Action Programs shall be the responsibility of each manager and supervisor. The coordination and monitoring of the Affirmative Action Programs has been entrusted to the Vice President, Human Resources, or local Manager, Human Resources (where applicable).

Policy Responsibility/Administration

All officers and managers are responsible for administration of this policy.

Prepared by: D. K. Shaw	Approved by: W. A. Koertner	Date Issued: 10/01/13	Supersedes: 06/01/12	Page: 2 of 2
				



SUPPLIER DIVERSITY PROGRAM

Commitment and Participation

MYR Group Inc. (MYR Group) is dedicated to the fair consideration of all suppliers in its day to day procurement of materials, equipment, and services as required for any project. We understand the importance of supplier diversity and want to provide opportunities for Disadvantaged Business Enterprise (DBE) firms. DBE firms when referred to herein will include Minority Business Enterprises, Women Business Enterprises, Veteran Business Enterprises, Historically Underutilized Businesses, and Small, Women and Minority disadvantaged suppliers that have been certified by a federal/state/or local government. We have experience in working with a wide range of diverse suppliers to provide a competitive edge in producing high-quality, low-cost innovative products and services. All of MYR Group's employees with purchasing responsibility and/or involved in procurement decisions for equipment, material, and services are expected to notify and give every consideration to using qualified DBE firms in a manner that is consistent with state and federal laws and regulations. We have exceeded the "expected levels" of on-site DBE participation on a number of projects and will continue to strive to exceed such levels while conducting business in the highest professional manner.

Goods and/or Services to be Subcontracted

To demonstrate MYR Group's commitment, MYR has developed a firm mentoring agreement to subcontract a mutually agreed upon scope of work, as well as agreements with our subcontractors' that rates will not exceed MYR's proposed rates.

MYR Group will solicit by Invitation for Bids, Requests for Proposals, telephone calls or any other document issued by the state to obtain bids, or proposals for the purpose of entering into a contract with DBE firms for equipment, material, and services. We have done this on several projects and achieved up to 41% DBE participation on projects through equipment, material, and service purchases.

We will demonstrate our dedication by providing supplier diversity training, workshops, technical assistance, executive level roundtables, and educational support to each of these firms and MYR Group's procurement staff. We will continue to look for opportunities to utilize DBE firms throughout the entire process of our projects.

Method to Identify

MYR Group has worked with numerous DBE firms in the past. We currently have an established network of firms from whom we can solicit bids. These companies are certified with the States, Cities, Counties, and other Municipalities. We will maintain current lists of all government entities to identify new sources of certified DBE firms. Our efforts to solicit DBE participation will include Request for Proposals and negotiations with all participants to ensure a full commitment to supplier diversity on all our projects. In this process we will communicate opportunities and establish qualifications of subcontractors and suppliers.

Fair Competition

MYR Group is committed to supplier diversity and securing the best pricing through fair competition. In order to accomplish both objectives, our intention is to include a substantial number of DBE's on each bid solicitation. We have a standard procedure for soliciting bids, which includes advertising, direct mail, and phone contact. We consistently review our process to ensure we are maximizing opportunities. Through this method we will enhance the DBE process plus secure the best pricing.

MYR Group employees responsible for the procurement of equipment, materials, and services, will dedicate their efforts to seek qualified DBE firms. Those DBE firms who have shown the capability to complete the work being procured will be given the opportunity to compete for the contract. MYR Group employees will be aware of and accountable for the project goals for subcontracting to DBE firms. They will make every reasonable effort to obtain such goals, and will continuously review said goals for possible improvement. To implement this supplier diversity program effort on behalf of DBE firms, the following steps shall be taken:

- 1) Solicit DBE firms with the maximum possible advance notice to allow preparation of qualifications, utilizing DBE lists, notification to DBE contact groups, telephone solicitation, and other means necessary to ensure that appraising of contracting opportunities are communicated to qualified DBE firms.
- 2) Certify the status of DBE firms through documentation from government agencies. MYR Group must receive documentation from the appropriate state approved agency before bid solicitation begins. Our process of prequalifying includes examination of Dun & Bradstreet reports, satisfactorily completed AIA 305 forms, and prior knowledge or experience with the subcontractor(s).
- 3) Assist interested and qualified DBE firms in the preparation of their quotations by allowing time for preparation of the quotation and making the scope and delivery schedules available.
- 4) MYR Group accepts full responsibility for the performance of our subcontractors/suppliers, and will work with them as "partners" to achieve the project goals. Subcontractors will work according to our schedule and standards. MYR Group will mentor all subcontractors/suppliers. The DBE firms will be instructed as to MYR Group's work practices, safety programs; as well as, estimating, accounting, and purchasing methods.
- 5) MYR Group will collect statistics and other documentation to prepare and provide a quarterly written report that details the actual results of our supplier diversity program. This report will include the total value of work performed by MYR Group for the quarter; total value of work performed by DBE subcontractors during the quarter; names and work subcontracted to each DBE firm(s) during the quarter; and each DBE firm's respective contribution to MYR's total participation. We will also identify the breakdown of women and/or specific ethnic origin of each company.



SUPPLEMENT TO SUPPLIER DIVERSITY PROGRAM FOR PROCUREMENT STAFF

MYR GROUP Inc. (MYR Group) has stepped up its effort to achieve its business goals and objectives to (increase profitability, improve processes and quality, achieve cost reductions/containment, etc.) through the continued use and implementation of supplier diversity programs. Supplier diversity is a process that seeks to identify diverse supply partners and systemically integrate inclusive practices for Disadvantaged Business Enterprises (DBE) firms. DBE when referred to herein will include Minority Business Enterprises, Women Business Enterprises, Veteran Business Enterprises, Historically Underutilized Businesses, and Small, Women and Minority (SWAM) diversity suppliers that have been certified by a federal/state/or local government. Our world is changing and technology has created a globally connected market with rapid diversification of the major cities of the world including ours in the U.S.A. This diversity change has economic, political, and social implications for all businesses today including MYR Group. DBE firms are a recognized emerging market, and a key source for wealth building and community contribution through job creation opportunities. MYR recognizes the social corporate responsibilities which includes the openness or transparency of companies as well as taking into account the will and expectations of their stakeholders. MYR Group firmly believes that companies function best when they merge their business interest with the interest of their stakeholders' on all levels including supplier diversity.

Supplier diversity can make a meaningful contribution to the company's costs while at the same time making a tremendous contribution to the company's impact on issues of socially responsible behavior. MYR Group's supplier selection alone can create paying jobs that can infuse a community with newfound wealth. Other reasons why supplier diversity should be embraced include increased profitability, increased sales, decreased costs, more quality and creation of improved efficiencies, and other factors that can positively impact the bottom line. MYR Group also recognizes that developing stronger supplier inclusion practices will lead to a more competitive advantage including heightening brand, image and reputation. Companies who identify suppliers who can provide a higher quality product/service that serve to drive the entire business process forward and faster with greater reliability and/or new processes will benefit the most and be best prepared for the future demands in the ever changing workforce going forward. MYR Group recognizes that its ability to articulate and implement these strategies, as well as demonstrate a desire to embrace diversity at all levels (marketing, supplier, and workforce) will be the driving force to succeed and operate with impunity in a diverse working environment.

MYR Group will use the supplier diversity program to better able DBE firms to contribute to the overall procurement delivery process for equipment, material and services. The procurement decisions based on competitive price alone are no longer applicable and should be replaced with a strategy of total cost/total best value with DBE firms always considered. The goal will be to

make the inclusion of DBE firms in all solicitations as well as a basic part of their daily activities for both transactional and strategic tasks. Again, with the overall goal to make this as smooth and simple as possible to assure inclusive integration of DBE firms.

MYR Group will look to the procurement staff to implement and carry out the new supplier diversity program by requiring DBE firms to be considered at all levels from initial bid requests to final contract award and execution. It is currently understood that supplier diversity is and/or may be taking place but without verification and tracking on a full scale. Thus, it is hard to quantify to what extent MYR Group's supplier diversity is being carried out. So, what we would like to do first is create a master list of all suppliers currently being used for equipment, material, and services and break out those suppliers that are DBE firms and those that are not. If in not sure on status send a letter to supplier to declare if they are DBE certified. Second, from the master supplier list where no DBE firms exist, it should be noted and action should be taken to search for DBE firms in that sector/category to include in future solicitations for projects. MYR Group understands that in some cases there may just not be any opportunities or even DBE firms to complete our contracts and in such situations an explanation stating the reason will be required, and all efforts made to seek supplier diversity when applicable will be documented. Once projects are awarded, the DBE spend should be tracked and broken out separately for each separate DBE in order for MYR Group to track. This will be MYR Group's goal and mission for the supplier diversity program as well as MYR Group's expectation from those involved at all levels of the procurement process.



DEPARTMENT OF PUBLIC WORKS

BID DOCUMENTS PACKAGE

Contract No. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

JULY 10, 2017

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

TABLE OF CONTENTS FOR CONTRACT DOCUMENTS

BID FORM AND SUBMITTAL PACKAGE	<u>PAGE</u>
Bid Form and Submittal Package (bound separately and attached as part of these Bid Documents)	
Table of Contents	BF-1
Bidder's Checklist	BF-2 through BF-3
Bid Form and Submittal Package Acknowledgment Form	BF-4 through BF-5
Bid Form	BF-6 through BF-8
List of Proposed Minority and Woman Business Enterprise(s)	BF-9 through BF-12
Commitment to Minority and Woman Business Enterprise Participation	BF-13
Minority and Woman Business Enterprise Letter(s) of Intent & Checklist	BF-14 through BF-15
Joint Venture Affidavit	BF-16
Joint Venture Eligibility Form	BF-17 through BF-19
Bid Bond	BF-20
Diversity and Inclusiveness in City Solicitations Form	BF-21 through BF-24
BID DOCUMENTS	
Table of Contents	BDP-1
Statement of Quantities	SQ-1 through SQ-4
Notice of Invitation for Bids	BDP-2 through BDP-3
Instructions to Bidders	BDP-4 through BDP-15
Equal Employment Opportunity Provisions	BDP-16 through BDP-25
Appendix A	
Appendix F	
Contract Form	BDP-26 through BDP-30
Index of the General Contract Conditions	BDP-31 through BDP-35
Special Contract Conditions	BDP-36 through BDP-44
Final/Partial Release and Certificate of Payment Forms (Samples)	BDP-39 through BDP-41
Performance and Payment Bond Form	BDP-45 through BDP-46
Performance and Payment Bond Surety Authorization letter (Sample)	BDP - 47
Notice to Apparent Low Bidder (Sample)	BDP-48 through BDP-49
Notice To Proceed (Sample)	BDP-50
Certificate of Contract Release (Sample)	BDP-51
Prevailing Wage Rate Schedule	8 pages
Technical Specifications	97 pages
Contract Drawings	47 pages



DENVER
THE MILE HIGH CITY

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
201735705

TRAFFIC SIGNAL UPGRADE – MILL LEVY 6
STATEMENT OF QUANTITIES

<u>Item No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	
202-00190	REMOVAL OF CONCRETE MEDIAN COVER MATERIAL	58	SY
202-00200	REMOVAL OF SIDEWALK	251	SY
202-00203	REMOVAL OF CURB AND GUTTER	242	LF
202-00206	REMOVAL OF CONCRETE CURB RAMP	347	SY
202-00210	REMOVAL OF CONCRETE PAVEMENT	140	SY
202-00220	REMOVAL OF ASPHALT MAT	132	SY
202-00250	REMOVAL OF PAVEMENT MARKING	2,150	SF
202-00810	REMOVAL OF GROUND SIGN	7	EA
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1	LS
203-01597	POTHOLING	140	EA
208-00035	AGGREGATE BAG	250	LF
208-00045	CONCRETE WASHOUT STRUCTURE	2	EA
208-00053	STORM DRAIN INLET PROTECTION (TYPE I)	11	EA
208-00205	EROSION CONTROL SUPERVISOR	200	HR
210-004XX	RESET 5GHz RADIO	1	EA
210-00473	REMOVE AND RELOCATE CCTV AND WIRING	1	LS
210-00815	RESET SIGN PANEL	1	EA
210-00XXX	RESET BENCH	1	EA
212-00100	TREE RETENTION AND PROTECTION	1	LS



DENVER
THE MILE HIGH CITY

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
201735705

TRAFFIC SIGNAL UPGRADE – MILL LEVY 6
STATEMENT OF QUANTITIES

<u>Item No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	
403-00720	HOT MIX ASPHALT (PATCHING) (ASPHALT)	20	TON
412-01100	CONCRETE PAVEMENT (11 INCH)	169	SY
503-00036	DRILLED CAISSON (36 INCH)	157	LF
503-00037	VACUUMED CAISSON (36 INCH)	157	LF
608-00000	CONCRETE SIDEWALK	406	SY
608-00010	CONCRETE CURB RAMP	379	SY
609-20010	6" CURB HEAD	225	LF
609-20100	CURB HEAD (0"-12" VARIABLE HEIGHT)	53	LF
609-21020	6" CURB AND GUTTER - 2' CATCH PAN	188	LF
609-21021	4" MOUNTABLE CURB	15	LF
610-00055	MEDIAN COVER MATERIAL (STONE)	263	SF
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	1,500	LF
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	2,885	LF
613-10000	WIRING	1	LS
613-1300X	LUMINAIRE LED (55 WATT)	23	EA
613-8013X	ELECTRIC METER PEDESTAL CABINET	7	EA
614-00011	SIGN PANEL (CLASS I)	213	SF
614-00035	SIGN PANEL (SPECIAL)	319	SF
614-00216	STEEL SIGN POST (2X2 INCH TUBING)	11	LF



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201735705

TRAFFIC SIGNAL UPGRADE – MILL LEVY 6
STATEMENT OF QUANTITIES

<u>Item No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	42	EA
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	83	EA
614-72855	TRAFFIC SIGNAL CONTROLLER & CABINET (INSTALL ONLY)	7	EA
614-72860	PEDESTRIAN PUSH BUTTON	24	EA
614-72866	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	5	EA
614-72886	INTERSECTION DETECTION SYSTEM (CAMERA)	1	EA
614-728X1	INTERSECTION DETECTION SYSTEM (2 CAMERA)	4	EA
614-81115	TRAFFIC SIGNAL-LIGHT POLE STEEL (NO MAST ARM)	1	EA
614-81120	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM)	4	EA
614-81125	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-25 FOOT MAST ARM)	7	EA
614-81130	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-30 FOOT MAST ARM)	5	EA
614-81135	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM)	6	EA
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	1	EA
614-86105	TELEMETRY (FIELD)	6	EA
625-00000	CONSTRUCTION SURVEYING	1	LS



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CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
201735705

TRAFFIC SIGNAL UPGRADE – MILL LEVY 6
STATEMENT OF QUANTITIES

Item No.	Description	Estimated Quantity	
626-00000	MOBILIZATION	1	LS
627-30410	PREFORMED THERMOPLASTIC PAVEMENT MARKING (XWALK-STOP LINE)	2,615	SF
630-00003	UNIFORMED TRAFFIC CONTROL	168	HR
630-XXXXX	CONSTRUCTION ZONE TRAFFIC CONTROL	120	DAY
700-70082	01 FURNISH & INSTALL ELECTRICAL SERVICE		ALLOWANCE
700-70380	02 EROSION CONTROL		ALLOWANCE
700-70589	03 ENVIRONMENTAL HEALTH AND SAFETY MANAGEMENT		ALLOWANCE
700-90026	04 LANDSCAPING		ALLOWANCE

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

NOTICE FOR INVITATION FOR BIDS
FOR CONTRACT NO. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

BID SCHEDULE:
11:00 AM, Local Time
AUGUST 10, 2017

Sealed bids will be received in Room 6.G.7, 201 W. Colfax Ave., Denver, CO 80202, beginning at 10:30 a.m., no later than 11:00 a.m., on bid day. All properly delivered bids will then be publicly opened and read aloud.

Bids submitted prior to 10:30 a.m. on the specified bid opening date/time shall be presented at the Office of Contract Administration, Attention: Public Works Contract Administration, 201 W. Colfax Ave., Department 614, Denver, CO 80202.

Prior to submitting a bid, the bidder shall consult the Contractor's Bulletin Board located at 201 W. Colfax Ave., 2nd Floor, Denver, CO 80202 and/or www.work4denver.com.

GENERAL STATEMENT OF WORK:

This is the Traffic Signal Upgrade – Mill Levy Package #6 project. The overall objective of this project is the redesign and reconstruction of seven (7) traffic signals within the City and County of Denver. The locations of these traffic signals are at the following intersections: 1. S University Blvd & Virginia Ave; 2. S University Blvd & Mississippi Ave; 3. S University Blvd & Mississippi Ave - Arizona Ave (Mid Block Pedestrian Signal); 4. S University Blvd & Louisiana Ave; 5. S University Blvd & Florida Ave; 6. S University Blvd & Harvard Ave; 7. S University Blvd & Bates Ave - Cornell Ave (Mid Block Pedestrian Signal). In addition to the traffic signal improvements, there will be improvements made to curb ramps, sidewalk, curb and gutters, curb returns, storm sewer inlets and manholes at each intersection for enhanced pedestrian access as necessary. Ramp improvements will be designed and constructed to current CCD standards and specifications. In addition, there may be additional damaged sidewalks, curb and gutter and curb returns adjacent to the ramps that will need to be upgraded.

ESTIMATED CONSTRUCTION COST:

The estimated cost of construction for this project is between \$1,819,000 and \$2,223,000.

TEXTURA CONSTRUCTION PAYMENT MANAGEMENT:

Bidders are required, when preparing a bid, to agree that it shall use the Textura® Construction Payment Management System (CPM System) for this Project and recognizes that all fees associated with the CPM System are to be paid by the awarded Contractor for billings for work performed. Use the pricing scale provided in Instructions to Bidders to price the Textura service appropriately. For details on the company and service contact the Textura® Corporation 866-TEXTURA or www.texturacorp.com.

DOCUMENTS AND BID INFORMATION AVAILABLE:

Contract Documents complete with Technical Specifications and, if applicable, construction drawings will be available on the first day of publication at: www.work4denver.com. To download digital Contract Documents at a cost of \$10.00 per download, reference eBid Document Number #5219986. Contact QuestCDN at 952-233-1632 or info@questcdn.com for assistance.

PRE-BID CONFERENCE:

A pre-bid conference will be held for this Project at 11:00 a.m., local time, on July 18, 2017. This meeting will take place at 201 W. Colfax Ave., Room 4.I.4, Denver, CO 80202.

DEADLINE TO SUBMIT QUESTIONS: July 28th, 2017 2:00 p.m. local time.

PREQUALIFICATION REQUIREMENTS:

Each bidder must be prequalified as a 1D(1) Traffic Signals in the \$3,000,000 monetary level in accordance with the City’s Rules and Regulations Governing Prequalification of Contractors. Each bidder must have submitted a prequalification application a minimum of ten (10) calendar days prior to the bid opening date. Applications must be submitted to the Department of Public Works, Prequalification Section, 201 W. Colfax Ave., Department 614, Denver, CO 80202. To view the Rules and Regulations and to obtain a prequalification application, please visit our website at www.denvergov.org/prequalification or call 720-865-2539 for prequalification information ONLY.

MINORITY AND WOMAN BUSINESS ENTERPRISE PARTICIPATION:

Construction, reconstruction and remodeling contracts made and entered into by the City and County of Denver are subject to Article III, Divisions 1 and 3 of Chapter 28 of the Denver Revised Municipal Code, (Sections 28-31 to 28-36 and 28-52 to 28-90 D.R.M.C) and all Minority and Woman Business Enterprise and Equal Employment Opportunity Rules and Regulations adopted by the Director of the Division of Small Business Opportunity.

Article III, Division 3 of Chapter 28 of the D.R.M.C. directs the Director of the Division of Small Business Opportunity to establish a project goal for expenditures on construction, reconstruction, and remodeling work contracted by the City and County of Denver. The specific goal for this project is:

11% Minority and Woman Business Enterprise (M/WBE) Participation

Project goals must be met with certified participants as set forth in Section 28-60, D.R.M.C. or through the demonstration of a sufficient good faith effort under Section 28-62 D.R.M.C. For compliance with good faith requirements under Section 28-62(b), **the M/WBE percentage solicitation level required for this project is 100%.**

The Director of the Division of Small Business Opportunity urges all participants in City construction, reconstruction and remodeling projects to assist in achieving these goals.

MISCELLANEOUS:

Contracts for construction, reconstruction, and remodeling are subject to the City prevailing wage rate requirements established pursuant to Section 20-76, D.R.M.C.

As its best interest may appear, the City and County of Denver reserves the right to reject any or all bids and to waive informalities in bids.

A modified version of this Notice of Invitation for Bids and the project’s Statement of Quantities is available on the City and County of Denver’s website at: www.work4denver.com.

Publication Dates: July 10, 11, 12, 2017
Published In: The Daily Journal

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

INSTRUCTIONS TO BIDDERS

IB-1 INSTRUCTION TO BIDDERS

These Instructions to Bidders are a part of the Contract Documents and are intended to serve as a guide to bidders. They are general in nature and may be amended or supplemented as needed to support any one specific invitation to bid. Each bidder shall prepare its bid in strict compliance with all requirements of the Contract Documents and by careful application of these instructions.

IB-2 BIDDING

The copy of the Contract Documents contains the Bid Form and Submittal Package for this Project, which must be used to submit a bid hereunder. The bidder must fully complete, execute and submit this Bid Form and Submittal Package, along with any other specified components of the Contract Documents, as its bid for the referenced Project.

A bidder is not required to submit as part of its bid the entire set of Contract Documents distributed by the City pursuant to the Notice of Invitation for Bids, if the bidder executes and submits the Bidder Acknowledgment Form included with the Bid Form and Submittal Package as part of its bid. However, each bidder, by submitting its bid, shall be conclusively presumed to have received and reviewed all of the information contained in the Contract Documents as this term is further defined herein.

Each bid must be enclosed in a sealed envelope, must be addressed to the Manager and must show on the face of the envelope the full name of the bidder, the City Project number, and descriptive title of the Project for which the bid is made.

The advertisement for Notice of Invitation for Bids will identify where and when the bid must be delivered.

IB-3 CONTRACT DOCUMENTS AS PUBLISHED BY CITY

Each bidder shall be responsible for, and shall be deemed to have received, all the information contained in the Contract Documents as distributed by the City pursuant to the Notice of Invitation for Bids, including addenda, whether or not such bidder has reviewed all or part of the Contract Documents in either its hard copy form or in any other format. If organizations or companies other than the City or its design professional distribute the City's Contract Documents for review by prospective bidders, whether in hard copy or via electronic or other media, neither the City nor its design professional shall be responsible for the content, completeness or accuracy of any information distributed or transmitted by any such organization or company.

IB-4 COMPLETING AND SIGNING THE BID FORMS

The bidder must complete the Bid Form by legibly writing or printing in ink, in words and figures as required, all the bidder's prices offered for the Work to be performed. All blank spaces, which require a response of the bidder, must be properly completed in full. If in the process of evaluating a bid, words and figures, as written on the Bid Form by the bidder, do not agree, the written words will govern.

For Bid Forms requiring unit price bids, the bidder shall write in the Bid Form spaces provided a unit price for each item for which a quantity is given and shall also write the product of each unit price and the quantity specified in the "Amount" or "Total" space provided.

Each bidder must sign the Bid Form and give the bidder's current business address. If an individual, the signature must be of the individual offering the bid; if a partnership, the signature must be that of a general partner; and if a corporation, both the president and the secretary must sign and the seal of the corporation must be affixed. Signatures of other persons may be acceptable if the bid contains sufficient evidence, satisfactory to the City in its sole discretion, to indicate that the other persons are authorized to bind the bidder.

IB-5 UNACCEPTABLE BIDS

The City will not accept bids from Bidders not prequalified with the Department of Public Works (if prequalification is required for this project), in arrears to the City upon debt or contract, or which are defaulters (as surety or otherwise) upon any obligation to the City.

IB-6 INFORMAL AND UNBALANCED BIDS

Any alteration, interlineations, erasure, omission, deletion or addition by the bidder to the Bid Form and Submittal Package or other parts of the Contract Documents submitted with the Bid Form and Submittal Package, as originally issued to the bidder, shall render the accompanying bid informal and may constitute cause for rejection.

Any unauthorized addition, conditional or alternate bids, failure to provide a unit price, lump sum amount or authorized alternate item specified or other irregularities of any kind which tend to render the bid incomplete, indefinite or ambiguous shall render the bid informal and may constitute cause for rejection.

Bids that are unbalanced so that each item does not reasonably carry its own proportion of cost or that contain inadequate or unreasonable prices for any item may be rejected. Bids, which have not acknowledged all addenda to the Contract Documents issued for this bid, may also be rejected.

The right is reserved by the City to reject any or all bids and to waive any informalities where it is deemed by the City to be in the best interests of the City to do so.

IB-7 ONLY ONE BID ACCEPTED

The City will accept only one bid for the same work from any one bidder. This includes bids that may be submitted under different names by one business enterprise.

IB-8 BID GUARANTEE

As a guarantee of good faith on the part of the bidder, each bid must be accompanied by a bid guarantee, consisting of either a certified or cashier's check made payable without condition to the order of the City and County of Denver or a bid bond written by an approved corporate surety in favor of the City and County of Denver. If the bid of a bidder is acceptable and the bidder is notified by the Manager that it is considered to be the Apparent Low Bidder and said bidder fails to execute a contract in the form prescribed or to furnish a performance and payment bond with a legally responsible and approved surety or to furnish the required evidence of insurance or satisfy all conditions precedent to contract execution within five (5) days after such notice is made by the City, said bid guarantee shall be forfeited to the City as liquidated damages and not as a penalty.

The bid guarantee shall be in the amount of five percent (5%) of the total bid unless otherwise specified in the Notice of Invitation for Bids and on the form appearing in the Contract Documents in the Bid Form and Submittal Package. Failure to submit a properly executed bid guarantee, on the form provided herein may, in the City's sole discretion, constitute cause for rejection.

Following award and execution of the Contract by the Apparent Low Bidder, or earlier in the sole discretion of the City, bid guarantees of all but the Apparent Low Bidder will be returned. When the Apparent Low Bidder executes the Contract and delivers to the City satisfactory performance and payment bonds, required insurance documentation, and has satisfied all conditions precedent to contract execution by the City, and after approval, if any, by the Council of the City of the proposed Contract with the Apparent Low Bidder, the bid guarantee of the Apparent Low Bidder shall be returned. Such return shall be made within one hundred twenty (120) days from date bids are opened unless otherwise specified in the Special Contract Conditions.

IB-9 SITE INSPECTION AND INVESTIGATIONS

Prior to submitting a bid, the bidder is invited to inspect the work site and its surroundings. Although the bidder is not required to make such an inspection before bidding, for purposes of the Contract it shall be conclusively presumed that by failing to make such an inspection, the bidder has waived the right to later claim additional compensation or time extensions for conditions which would have been evident had the site been inspected.

Drawings and Technical Specifications, defining the Work to be done, were prepared on the basis of interpretation by the design professionals of information derived from investigations of the work site. Such information and data are subject to sampling errors, and the interpretation of the information and data depends to a degree on the judgment of the design professional. In view of this, the bidder is invited to make such additional investigations as the bidder's judgment dictates the need for such investigations. Information about the degree of difficulty of the Work to be done cannot totally be derived from either the Drawings or Technical Specifications or from the Manager or his representatives.

Since the bid information cannot be guaranteed, the Contractor shall have assumed the risks attendant to successful performance of the Work and shall never make claim for additional compensation or time extensions on the grounds that the nature or amount of work to be done was not understood by the bidder at the time of the bidding.

IB-10 INCONSISTENCIES

Any seeming inconsistencies or ambiguities between different provisions of the Contract Documents or any point which the bidder believes requires a decision or interpretation by the City must be inquired into by the bidder by addressing a formal written communication to the Manager of Public Works and sending or delivering it to the offices of the Division of Public Works advertising this Project for bid at least forty-eight (48) hours, excluding Saturdays, Sundays, and holidays, before the time set for the opening of bids

Information about the decision or interpretation made in response to any inquiry will be posted on the Contractor's Bulletin Board (refer to IB-12 CONTRACTOR'S BULLETIN BOARD, for the location of the Contractor's Bulletin Board). If the matter raised requires, in the sole discretion of the Manager, that an addendum to the bid documents be issued, such addendum will be published and each bidder shall be required to acknowledge the addendum by signing and identifying it in the Bid Form when submitting the bid.

After bids are opened, all bidders must abide by the formal response of the Manager, as to any interpretation. The City shall not be bound and the bidder shall not rely on any oral communication, interpretation clarification or determination of the Contract Documents prior to bid opening.

IB-11 WITHDRAWAL OF BID

A bidder may withdraw its bid at any time prior to the time for receipt of bids set forth in the Notice of Invitation for Bids by making written request upon the Manager of Public Works. After such time, no bid may be withdrawn or modified.

Such request must be signed by the persons authorized to bind the bidder as defined in IB-3, COMPLETING AND SIGNING BID FORMS.

IB-12 CONTRACTOR'S BULLETIN BOARD

It shall be conclusively presumed that the bidder has, before submitting any bid, read and shall take full responsibility for all addenda, posted decisions, and other information relevant to the bid posted by the City on the Contractor's Bulletin Board. The Contractor's Bulletin Board is located at 201 W. Colfax, 2nd Floor, Denver, CO 80202, in the Wellington E. Webb Municipal Office Building.

IB-13 PRE-BID MEETING

Bidders are urged to attend the pre-bid meeting(s) scheduled for this Project. Attendance is not mandatory; however, bidders will be held responsible for all information presented at such meeting(s).

IB-14 ADDENDA

As its best interests may require, the City may issue addenda to the Contract Documents. Such addenda shall be posted on the Contractor's Bulletin Board and made available to all persons having purchased a set of Contract Documents as set forth in the Notice of Invitation for Bids contained herein. All bidders must acknowledge receipt of all addenda on the Bid Form at the time of submission of the bid.

IB-15 BID OPENING

Bidders are invited to be present at the bid opening. Unless otherwise suspended, delayed or canceled by posted notice from the Manager, bid opening will occur at the time and place designated in the Notice of Invitation for Bid.

IB-16 EVALUATION OF BIDS AND BASIS OF BID SELECTION

Bids will be evaluated after being read in open meeting at the place designated for such bid opening. All low bidders' bids will be reviewed for responsiveness to the requirements of the Contract Documents and whether or not the bids contain irregularities which could give any bidder an unfair advantage.

Selection will be made on the basis of the lowest, total, responsive, qualified bid, which bid shall include the total base bid set forth on the Bid Form, plus the total of any alternates set forth on the Bid Form and selected by the City during evaluation. Alternates, if any are included in the bid, will be selected in the priority shown on the Bid Form, subject to the limits of available funds. Bid selection will be subject to all requirements and special bidder qualifications contained herein and subject to approval of such resulting Contract in accordance with the Charter and Revised Municipal Code of the City and County of Denver. In addition to all other specified requirements, the City will correct arithmetical errors in all bids and corrected totals only will be considered as the basis of selection.

Upon concluding that the bid is, in fact, the lowest, total, responsive bid to the bidding conditions and that of a responsible, qualified bidder, the City will notify the Apparent Low Bidder.

As its best interests may appear, the City and County of Denver reserves the right to waive informalities in bids, to reject any and all bids and to rebid the Project.

IB-17 NOTICE TO APPARENT LOW BIDDER

The Notice to Apparent Low Bidder, a form of which is included in the Contract Special Conditions Section of the Contract Documents, is issued by the City directly to the selected bidder and informs the bidder that the Manager intends to seek approval of the execution of the Contract by the City in accordance with the Charter and Revised Municipal Code of the City and County of Denver. Specifically, it informs the bidder of its obligations with respect to execution of the Contract and instructs the bidder on how to proceed toward execution of the Contract. The City reserves the right to notify the Apparent Low Bidder, at any time within one hundred twenty (120) days from the date of the opening of the bids, that approval to contract with the Apparent Low Bidder shall be sought in accordance with the Charter and Revised Municipal Code of the City and County of Denver.

In accordance with the terms and conditions contained in the Bid Form and Submittal Package and any additional requirements set forth in the Notice to Apparent Low Bidder or elsewhere in the Contract Documents, the Apparent Low Bidder shall execute the Contract Form contained in the Contract Documents made available by the City for execution in the appropriate number of counterparts. The Apparent Low Bidder shall return the fully executed Contract Document sets, along with any supplemental documents required herein, to the City and shall comply with all other conditions precedent to Contract execution within five (5) days of the date of issuance of the Notice to Apparent Low Bidder by the City. Failure to comply with each of these requirements within five (5) days of the date of issuance of the Notice to Apparent Low Bidder by the City shall render the bid nonresponsive and may constitute cause for rejection.

Issuance of such Notice shall not, however, constitute a commitment on the part of the City or create any rights in the Apparent Low Bidder to any contract with the City.

IB-18 EXECUTION OF CONTRACT

The process of executing a contract requires action by both the apparent low bidder and the City. After it notifies the Apparent Low Bidder, the City will prepare the Contract Documents by incorporating all of the documents submitted by the Apparent Low Bidder into one or more executable copies. Upon notification that contracts documents are ready for execution the Apparent Low Bidder shall execute the contract documents. At this time, the successful bidder shall also provide certain supplemental documents for incorporation into the Contract Documents. These supplemental documents shall include: the properly executed Certificate of Insurance Forms evidencing the apparent low bidder's satisfactory compliance with

the insurance requirements set forth in the Contract Documents; a properly executed Payment and Performance Bond Form and appropriate Power of Attorney evidencing the Apparent Low Bidder's satisfactory compliance with the bonding requirements set forth in the Contract Documents; and documentation of compliance with any other conditions precedent to execution of the Contract by the City set forth in the Contract Documents. The insurance and bond forms contained in the Contract Special Conditions Section of the Contract Documents must be used in satisfying these supplemental document requirements.

These documents are then delivered to the City within the prescribed time period for examination of the documents to determine whether or not the Contractor has correctly executed the Contract and has correctly provided the required supplemental documents and that these documents are satisfactorily and properly completed. From here, all of the documents are forwarded to the City Attorney who will, if the insurance and bonding offered is acceptable and if all other elements of the Contract Documents are in order, recommend that the Manager and the Mayor approve the documents and, when required by the City Charter, prepare an ordinance for submittal to City Council authorizing the execution of the Contract. The City Attorney shall in all applicable instances submit the proposed contract and ordinance to City Council. After City Council approval, the Contract shall be reviewed by the City Attorney and routed for execution by the Mayor, the Clerk for attestation and the Auditor for countersignature and registration. When the total process of contract execution is complete, a Notice to Proceed will be issued and a single executed copy of the Contract will be delivered to the Contractor. Any work performed or a material purchased prior to the issuance of Notice to Proceed is at the Contractor's risk.

IB-19 BONDING REQUIREMENTS

In accordance with the provisions of General Contract Conditions, Title 15, PERFORMANCE AND PAYMENT BONDS, the minimum bonding requirements for this Contract are set forth in the form **CITY AND COUNTY OF DENVER PERFORMANCE AND PAYMENT BOND** contained in the Special Conditions Section of the Contract Documents. Upon receipt of Notice to Apparent Low Bidder, the apparent low bidder must cause this form bond to be purchased, executed and furnished, along with appropriate Powers of Attorney and a surety authorization letter (in form similar to the one attached), to the City in accordance with the instructions contained herein.

IB-20 INSURANCE REQUIREMENTS

The minimum insurance requirements for this Contract are set forth in the Special Conditions Section of the Contract Documents. Bidders are urged to consider, in preparing a bid hereunder, that each condition, requirement or specification set forth in the form certificate must be complied with by the Contractor and all subcontractors performing Work on the Project, unless such requirements are specifically accepted in writing by the City's Risk Management Office. The Contractor must either include all subcontractors performing work hereunder as insureds under each required policy or furnish a separate certificate for each subcontractor. In either case, the Contractor shall insure that each subcontractor complies with all of the coverage requirements.

IB-21 PERMITS AND LICENSES

All permits, licenses and approvals required in the prosecution of the work shall be obtained and paid for by the Contractor.

IB-22 PREVAILING WAGE REQUIREMENTS

Contractor shall comply with, and agrees to be bound by, all requirements, conditions and City determinations regarding the Payment of Prevailing Wages Ordinance, Sections 20-76 through 20-79, D.R.M.C. including, but not limited to, the requirement that every covered worker working on a City owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the date the bid or request for proposal was advertised. In the event a request for bids, or a request for proposal, was not advertised, Contractor shall pay every covered worker no less than the prevailing wages and fringe benefits in effect on the date funds for the contract were encumbered.

Date bid or request for qualifications/proposals was advertised: July 10, 2017.

Prevailing wage and fringe rates will adjust on, and only on, the anniversary of the date the Contract was fully executed. Unless expressly provided for in this Agreement, Contractor will receive no additional compensation for increases in prevailing wages or fringe benefits.

Contractor shall provide the Auditor with a list of all subcontractors providing any services under the contract.

Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under the contract.

Contractor shall prominently post at the work site the current prevailing wage and fringe benefit rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The City may, by written notice, suspend or terminate work if Contractor fails to pay required wages and fringe benefits.

IB-23 TAX REQUIREMENTS

General. Bidders are referred to the General Contract Condition 323, TAXES, as to taxes to which they may be subject in performing the Work under this Contract, including but not limited to sales and use taxes and the Denver Occupational Privilege Tax. The following instructions are to be considered along with the General Contract Conditions and not in lieu of them.

Sales and Use Tax. Construction and building materials sold to contractors and subcontractors for use on structures, roads, streets, highways, and other public works owned by the City and County of Denver are exempt from state, RTD, and Cultural Facilities District sales and use taxes. However, such materials will be subject to sales and use taxes imposed by the City and County of Denver.

It is the responsibility of the Contractor and its subcontractors to apply to the Colorado Department of Revenue (“CDOR”) for a certificate, or certificates, of exemption indicating that their purchase of construction or building materials is for a public project, and to deliver to the City copies of such applications as soon as possible after approval by the CDOR. Bidders shall not include in their bid amounts the exempt state, RTD, and Cultural Facilities District Sales and Use Taxes.

Denver Occupational Privilege Tax. Any employee working for a contractor, or a subcontractor, who earns over \$500 working in Denver during a calendar month, is subject to the payment of the Employee Occupational Privilege Tax. The Contractor and any subcontractor must pay the Business Occupational Privilege Tax for each of its employees who are subject to such tax.

IB-24 DIVERSITY AND INCLUSIVENESS IN CITY SOLICITATIONS

Each bidder shall, as a condition of responsiveness to this solicitation, complete and return the “Diversity and Inclusiveness in City Solicitations Information Request Form” with their Bid.

Using the “Diversity and Inclusiveness in City Solicitations Information Request Form” provided, please state whether you have a diversity and inclusiveness program for employment and retention, procurement and supply chain activities, or customer service and provide the additional information requested on the form. The information provided on the “Diversity and Inclusiveness in City Solicitations Information Request Form” will provide an opportunity for City contractors to describe their own diversity and inclusiveness practices. Contractors are not expected to conduct intrusive examinations of its employees, managers, or business partners in order to describe diversity and inclusiveness measures. Rather, the City simply seeks a description of the contractor’s current practices, if any.

Diversity and Inclusiveness information provided by City contractors in response to City solicitations for services or goods will be collated, analyzed, and made available in reports consistent with City Executive Order No. 101. However, no personally identifiable provided by or obtained from contractor’s will be in such reports.

IB-25 MINORITY AND WOMAN BUSINESS ENTERPRISE (M/WBE) REQUIREMENTS

Article III, Divisions 1 and 3 of Chapter 28, Denver Revised Municipal Code (D.R.M.C.), designated as Sections 28-31 – 28-36 and 28-52 – 28-90 D.R.M.C. and referred to in these Bid Documents as the “M/WBE Ordinance” and any Rules or Regulations promulgated pursuant thereto apply to this Project and are incorporated into these Bid Documents by reference. Generally, the M/WBE Ordinance provides for the adoption of a good faith goals program, to be administered by the Division of Small Business Opportunity (DSBO), devised to provide increased bidding opportunities for Minority and Woman Business Enterprises (M/WBEs). As such, each bidder must comply with the terms and conditions of the M/WBE Ordinance in making its bid and, if awarded the Contract, in performing all Work thereunder. A bidder’s failure to comply with the M/WBE Ordinance, any Rules or Regulations promulgated pursuant thereto, or any additional requirement contained herein shall render the bid non-responsive and shall constitute cause for rejection. Failure by the contractor awarded the contract to comply with M/WBE Ordinance requirements during the performance of the contract is a material breach of the contract, which may result in the in the imposition of sanctions on the Contractor, as deemed appropriate by DSBO. Copies of the M/WBE Ordinance and its accompanying Rules and Regulations are available for the use and review of bidders from DSBO. In order to comply with the bid requirements of the M/WBE Ordinance, a bidder shall either meet the established project goal or, in the alternative, demonstrate that the bidder has made sufficient good faith efforts to meet the goal in accordance with the M/WBE Ordinance.

Meeting Established Goal

In preparing a bid to meet the established Project goal, bidders should consider the following instructions relating to compliance with the M/WBE Ordinance:

1. Under the M/WBE Ordinance, the Director of DSBO (“Director”) is directed to establish project goals for expenditures on construction, reconstruction, and remodeling work performed for the City and County of Denver. The specific goal for this project is stated in the Notice of Invitation for Bids bound herein.
2. In preparing its bid, each bidder shall list on the Bid Form pages entitled "List of Proposed MWBE Bidders, Subcontractors, Suppliers, Manufacturers, Manufacturers' Representatives or Brokers" the name, address, work description/supply, committed level of participation and other required information for each M/WBE of any tier which the bidder intends to use in performing the work on this Project. **Only the M/WBEs identified and the precise levels of participation listed for each on the Bid Form page, at the time of bid opening, will be considered in determining whether the bidder has met the designated participation goal. Additional, revised or corrected participation submitted after bid opening will not be considered.** M/WBE bidders may count self-performance or joint venture activity in meeting the M/WBE project goal, but only for the scope of work performed as a commercially useful function and at a percentage level the M/WBE will be performing itself.
3. Any agreement between a bidder or proposer and an MBE or WBE in which the bidder or proposer requires that the MBE or WBE not provide subcontracting quotations to other bidders or proposers is prohibited and shall render a bidder's bid or proposer's proposal nonresponsive. D.R.M.C. 28-63(f)
4. If a bidder/proposer is participating in a joint venture with a certified M/WBE firm, complete the Joint Venture Eligibility Form and Joint Venture Affidavit contained in this bid document/RFP. Submit the aforementioned forms with the firm’s Joint Venture Agreement, to the DSBO Director, **at least 10 working days prior to the proposal submittal.** The Joint Venture must be approved prior to the bid opening or proposal submittal by the DSBO Director. Approval by the DSBO Director includes determining the amount the Joint Venture will count towards meeting the project goal.
5. All M/WBEs listed on the Bid Form must be properly certified by the City on or before the date bids are opened in order to count towards meeting the designated goal. DSBO maintains an M/WBE Directory (“Directory”), which is a current listing of M/WBEs that have been certified by the City. A copy of the DSBO Directory is located at DSBO web site at <https://www.denvergov.org/dsbo>.

Bidders are encouraged to use the Directory to assist in locating M/WBEs for the work and supplies required on the Project. Bidders are reminded that changes may be made to the Directory at anytime in accordance with the City's M/WBE Ordinance and procedures established to administer this program and a current copy of the Directory must always be used in preparing a bid. M/WBE certification or listing in the Directory is not a representation or warranty by the City as to the qualifications of any listed M/WBE.

6. In accordance with the provisions of the M/WBE Ordinance, DSBO will evaluate each bid to determine the responsiveness of the bid to the requirements of the M/WBE Ordinance. In determining whether a bidder's committed level of participation meets or exceeds the stated M/WBE goal, DSBO shall base its calculation of applicable amounts and percentages on the total base bid amount, not including any listed alternates, of each bid as follows:
 - a. The bid information provided by the agency will be used to determine the total base bid amount of each bid. Each bidder's total base bid amount will be multiplied by the M/WBE percentage established for the project to determine the exact dollar amount of required M/WBE participation for the Project. This amount will then be compared against the exact dollar amounts for the M/WBE committed for participation by the bidder. If the total dollar amount of participation listed meets or exceeds the established M/WBE dollar amount goal listed, then DSBO will determine that the goal has been met.
 - b. In addition, DSBO will determine the exact commitment percentage for each listed M/WBE by dividing the dollar amount listed for each M/WBE by the total base bid dollar amount submitted by the bidder. These individual percentages, when totaled for all listed M/WBE, will establish the total committed percentage level of M/WBE participation that the bidder must comply with during the life of the contract. In all cases, the committed percentage level of M/WBE participation must equal or exceed the assigned M/WBE goal for the Project.
 - c. In providing the exact dollar amount of participation for each listed M/WBE, a bidder should take care never to round up in determining whether or not the total of these amounts meets or exceeds the established percentage goal. The goal must be met or exceeded by dollar amounts and percentages in order for DSBO to determine that the bidder has met or exceeded the applicable M/WBE goal.
 - d. As previously mentioned, compliance with the M/WBE goal will be determined on the base bid alone. If a bid contains alternates, participation contained in any alternate will not count towards satisfaction of the Project goal. However, should any designated alternate be selected by the City for inclusion in the contract ultimately awarded, the M/WBE goal percentage level submitted at bid time, on the base bid, will also apply to the selected alternates and must be maintained for the life of the contract on the total contract amount, including any alternate work. Thus, even though such participation will not be considered in evaluating bids, bidders are urged to consider participation in preparing bids for designated alternates.
 - e. On projects where force account or allowance bid items have been included, bidders must meet the M/WBE goal percentage based upon the total base bid, including all such items that are submitted to the City. However, when a force account or allowance is designated by the City to be either performed or purchased from a specific company, the bidder may back out the dollar amount of the force account or allowance from the total base bid and meet the M/WBE goal on the remaining reduced amount.
 - f. On bids which, at the time of bid opening, are equal to or exceed Five Million Dollars (\$5,000,000.00), including any alternates which may be selected, only sixty percent (60%) of the value of the commercially useful function performed by M/WBE suppliers shall count toward satisfaction of the Project goal. On Projects under Five Million (\$5,000,000.00) the value of the commercially useful function of M/WBE supplier(s) will

count at a one hundred percent (100%) level. Manufacturer's representatives and packagers shall be counted in the same manner as brokers.

- g. In utilizing the M/WBE participation of a Broker only the bona fide commissions earned by such Broker for its performance of a commercially useful function will count toward meeting the Project goals. The bidder must separate the bona fide brokerage commissions from the actual cost of the supplies or materials provided to determine the actual dollar amount of participation that can be counted towards meeting the goal.
7. On or before the third (3rd) working day after bid opening, all of the Bidders are required to submit an executed "Letter of Intent" for each M/WBE listed on the Bid Form as a joint venture member, subcontractor, supplier, manufacturer, manufacturers' representative or broker of any tier. **An MBE or WBE Prime Bidder needs to submit a Letter of Intent for itself for self performed work**, and must identify their level of participation on the designated M/WBE participation page bound herein. A Letter of Intent shall be submitted only for the M/WBEs listed at the time of bid opening, since this is the only participation that will be counted toward satisfaction of the project goal. A form for the M/WBE Letter of Intent is included with the Bid Form. The M/WBE Letter of Intent is a written communication from the Bidder to the City evidencing an understanding that the Bidder has or will enter into a contractual relationship with the M/WBE or that its subcontractor(s) and supplier(s), manufacturer(s), manufacturers' representative(s) and broker(s) will do so. Each M/WBE Letter of Intent shall be accompanied by a copy of the City and County of Denver's M/WBE certification letter for each proposed M/WBE identified at bid time. Bidders are urged to carefully review these Letters before submission to the City to ensure that they are properly completed and executed by the appropriate parties.

Good Faith Effort.

In preparing a bid to demonstrate a good faith effort, bidders should consider the following instructions relating to compliance with the M/WBE Ordinance:

1. If the bidder or proposer has not fully met the project goal as provided in section 28-60, then it shall demonstrate that it has made good faith efforts to meet such goal. The bidder or proposer shall furnish to the director, within three (3) working days after bid opening by the City or on or before the time of the final project-specific proposal submitted to and authorized by the City pursuant to a competitive selection process, or bid selection by a private owner, a detailed statement of its good faith efforts to meet the project goal set by the director. This statement shall address each of the items in subsection (b) and any additional criteria that the director may establish by rule or regulation consistent with the purposes of this division 3. Good faith efforts must be demonstrated to be meaningful and not merely for formalistic compliance with this Division 3. The scope and intensity of the efforts will be considered in determining whether the bidder or proposer has achieved a good faith effort.
2. The statement of good faith efforts shall include a specific response and verification with respect to each of the following good faith effort categories, which may be further defined by rule or regulation. A bidder or proposer may include any additional information it believes may be relevant. Failure of a bidder or proposer to show good faith efforts as to any one (1) of the following categories shall render its overall good faith effort showing insufficient and its bid or proposal non-responsive:
 - a. If prebid or preselection meetings are scheduled by the City at which MBEs and WBEs may be informed of subcontracting or joint venture opportunities under a proposed contract to be bid, or procured pursuant to the competitive selection process, attendance at such prebid or preselection meetings is not mandatory; however, bidders and proposers are responsible for the information provided at these meetings.
 - b. The bidder or proposer must solicit through all reasonable and available means, the interest of all MBEs and WBEs certified in the scopes of work of the contract. The bidder or proposer must solicit the interest of such MBEs and WBEs within sufficient time, prior to the bid opening or date of final project-specific proposal in the case of a competitive selection process, to allow such MBEs and WBEs to respond to the solicitation. The bidder or proposer must determine with certainty

- if the MBEs and WBEs are interested by demonstrating appropriate steps to follow up initial solicitations.
- c. The bidder or proposer must select portions of the work of the contract to be performed by MBEs and WBEs in order to increase the likelihood that the project goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MBE and WBE participation as subcontractors or joint venturers, and for bidder or proposer self-performed work, as suppliers, manufacturers, manufacturer's representatives and brokers, all reasonably consistent with industry practice, even when the bidder or proposer would otherwise prefer to perform these work items with its own forces. The bidder or proposer must identify what portions of the contract will be self-performed and what portions of the contract will be opened to solicitation of bids, proposals and quotes from MBE and WBEs. All portions of the contract not self-performed must be solicited for MBE and WBE participation. The ability or desire of a bidder or proposer to perform the work of a contract with its own forces does not relieve the bidder or proposer of the responsibility to meet the project goal or demonstrate good faith efforts to do so.
 - d. The bidder or proposer, consistent with industry practice, must provide MBEs and WBEs at a clearly stated location with timely, adequate access to and information about the plans, specifications, and requirements of the contract, including bonding and insurance requirements, if any, to assist them in responding to a solicitation.
 - e. The bidder or proposer must negotiate in good faith with interested MBEs and WBEs and provide written documentation of such negotiation with each such MBE or WBE.
 - f. For each MBE or WBE which contacted the bidder or proposer or which the bidder or proposer contacted or attempted to subcontract or joint venture with, consistent with industry practice, the bidder or proposer must supply a statement giving the reasons why the bidder or proposer and the MBE or WBE did not succeed in negotiating a subcontracting, supplier, manufacturer, manufacturer's representative, broker or joint venture agreement, as applicable.
3. The bidder or proposer must provide verification that it rejected each non-utilized MBE and WBE because the MBE or WBE did not submit the lowest bid or it was not qualified. Such verification shall include a verified statement of the amounts of all bids received from potential or utilized subcontractors, suppliers, manufacturers, manufacturer's representatives, brokers or joint venturers on the contract, whether or not they are MBEs or WBEs. In making such a determination of not being qualified, the bidder or proposer shall be guided by the definition of qualified in section 28-54(42), but evidence of lack of qualification must be based on factors other than solely the amount of the MBE's or WBE's bid. For each MBE or WBE found not to be qualified by the bidder or proposer, the verification shall include a statement giving the bidder's or proposer's reasons for its conclusion. A bidder's or proposer's industry standing or group memberships may not be the cause of rejection of an MBE or WBE. A bidder or proposer may not reject an MBE or WBE as being unqualified without sound reasons based on a reasonably thorough investigation and assessment of the MBE's or WBE's capabilities and expertise.
 4. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining bonding, lines of credit, or insurance as required by the City or by the bidder or proposer, provided that the bidder or proposer need not provide financial assistance toward this effort.
 5. If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining necessary and competitively priced equipment, supplies, materials, or related assistance or services for performance under the contract, provided that the bidder or proposer need not provide financial assistance toward this effort.

6. The bidder or proposer must use the DSBO MBE/WBE directories to identify, recruit, and place MBEs and WBEs.
7. In determining whether a bidder or proposer has satisfied good faith efforts as to a project goal, the success or failure of other bidders or proposers on the contract in meeting such project goal may be considered.

Continuing Commitments.

In accordance with the provisions of the M/WBE Ordinance, the bidder agrees that it is committed to meeting either the M/WBE participation goal or the M/WBE participation set forth in its statement of good faith. This commitment must be expressly indicated on the "Commitment to MWBE SBE Participation" form included with the Bid Form. This commitment includes the following understandings:

1. The bidder understands it must maintain M/WBE goals throughout the performance of the Contract pursuant to the requirements set out in D.R.M.C. 28-72.
2. The bidder understands that it must establish and maintain records and submit regular reports, as required, which will allow the City to assess progress in achieving the M/WBE participation goal.
3. The bidder understands that if change orders or any other contract modifications are issued under the contract, the bidder shall have a continuing obligation to immediately inform DSBO in writing of any agreed upon increase or decrease in the scope of work of such contract, upon any of the bases discussed in Section 28-73 of the M/WBE Ordinance, regardless of whether such increase or decrease in scope of work has been reduced to writing at the time of notification.
4. The bidder understands that if change orders or other contract modifications are issued under the contract, that include an increase in scope of work of a contract for construction, reconstruction, or remodeling, whether by amendment, change order, force account or otherwise which increases the dollar value of the contract, whether or not such change is within the scope of work designated for performance by an M/WBE at the time of contract award, such change orders or contract modification shall be immediately submitted to DSBO for notification purposes. Those amendments, change orders, force accounts or other contract modifications that involve a changed scope of work that cannot be performed by existing project subcontractors or by the contractor shall be subject to a goal for M/WBEs equal to the original goal on the contract which was included in the bid. The contractor shall satisfy such goal with respect to such changed scope of work by soliciting new M/WBEs in accordance with Section 28-73 of the M/WBE Ordinance as applicable, or the contractor must show each element of modified good faith set out in Section 28-75(c) of the M/WBE Ordinance. The contractor shall supply to the director the documentation described in Section 28-75(c) of the M/WBE Ordinance with respect to the increased dollar value of the contract.

All bidders are charged with knowledge of and are solely responsible for complying with each and every provision of the M/WBE Ordinance in making a bid and, if awarded, in performing the work described in the Contract Documents. Failure to comply with these provisions could constitute cause for rejection of a bid or subject the selected contractor to sanctions set forth in the M/WBE Ordinance. These instructions are intended only to generally assist the bidder in preparing and submitting a compliant bid. Should any questions arise regarding specific circumstances, bidders must consult the M/WBE Ordinance or contact the Project's designated DSBO representative at (720) 913-1999.

IB- 26 DISCLOSURE OF INFORMATION

All submissions and other materials provided or produced pursuant to this Invitation for Bids may be subject to the Colorado Open Records Law, C.R.S. 24-72-201, et seq. As such, bidders are urged to review these disclosure requirements and any exceptions to disclosure of information furnished by another party and, prior to submission of a bid to the City, appropriately identify materials that are not subject to disclosure. In the event of a request to the City for disclosure of such information, the City shall advise the bidder of such request to give the bidder an opportunity to object to the disclosure of designated confidential materials furnished to the City. In the event of the filing of a lawsuit to compel such disclosure, the City will tender all such material to the court for judicial determination of the issue of disclosure and each bidder agrees to intervene in such lawsuit to protect and assert its claims of privilege against disclosure of such material. Each

bidder further agrees to defend, indemnify and save and hold harmless the City, its officers, agents and employees, from any claim, damages, expense, loss or costs arising out of the bidder's intervention to protect and assert its claims of privilege against disclosure under the Open Records Law including, but not limited to, prompt reimbursement to the City of all reasonable attorney fees, costs and damages that the City may incur directly or may be ordered to pay by such court.

IB-27 GENERAL BIDDING INFORMATION

Bidders are instructed to contact the Contract Administrator designated below for this Project for pre-bid, post-bid and general City bidding information. Bidders can also visit www.work4denver.com for information, both general and project specific. The Contract Administrator assigned to this project is Debby Gibson who can be reached via email at debby.gibson@denvergov.org.

IB-28 PAYMENT PROCEDURE REQUIREMENTS

Contractor recognizes and agrees that it shall be required to use the Textura® Construction Payment Management System (CPM System) for this Project. All fees associated with the CPM System are to be paid by the Contractor for billings for work performed. Bidders are required, when preparing a bid, to enter the price of the CPM service on the line provided for the service. The fee is all inclusive of all subcontractor, project and subscription fees associated with the CPM system. The bidder will calculate the fee based on a percentage of their total bid, and then should include it on the line item provided in the bid form labeled **“Textura® Construction Payment Management System Fee”**. This expense becomes part of the contract and billable to the City. Textura will invoice the awarded contractor directly. All costs including but not limited to costs associated with training, entering data or utilizing Textura other than the Textura Construction Payment Management System Fee are overhead and shall not be reimbursed by the City. Contractor is responsible for tax on Textura fee. As with other taxes, the City will not reimburse Contractor for this cost and therefore this cost should be included in Contractor's bid. Textura will invoice the awarded contractor directly.

PROJECT SIZE
< \$1,000,000
\$1,000,001 - \$5,000,000
\$5,000,001 - \$20,000,000
\$20,000,001 - \$50,000,000
\$50,000,001 - \$100,000,000
\$100,000,001 - \$500,000,000
> \$500,000,000

For more information:

<http://www.denvergov.org/content/denvergov/en/contract-administration/bidding-process.html>

**RULES AND REGULATIONS
REGARDING
EQUAL EMPLOYMENT OPPORTUNITY**

Promulgated and adopted by the Manager of Public Works pursuant to and by authority of Article III, Division 2, Chapter 28 of the Revised Municipal Code of the City and County of Denver, and for the purpose of insuring that contractors, subcontractors and suppliers soliciting and receiving compensation for contract work from or through the City and County of Denver provide equal opportunity in employment without regard to race, color, creed, sex, national origin, age, religion, marital status, political opinion or affiliation or mental or physical handicap and meet certain requirements for the hiring, training, promotion, and treatment during employment of members of ethnic groups subject to differential treatment, including persons of African descent (Black), Spanish-surnamed (Hispanic), Asian-American and American Indian Groups.

RULE I - DEFINITIONS

- A. "City" means the City and County of Denver.
- B. "Manager" shall mean the Manager of Public Works for the City and County of Denver.
- C. "Contract" means a contract entered into with the City and County of Denver, financed in whole or in part by local resources or funds of the City and County of Denver, for the construction of any public building or prosecution or completion of any public work.
- D. "Contractor" means the original party to a contract with the City and County of Denver, also referred to as the "general" or "prime" contractor.
- E. "Director" means the Director of the Division of Small Business Opportunity.
- F. "Subcontractor" means any person, company, association, partnership, corporation, or other entity, which assumes by subordinate agreement some or all of the obligations of the general or prime contractor.
- G. The phrase "Bidding Specifications" as used in Article III, Division 2 of Chapter 28 of the Revised Municipal Code shall include BID CONDITION, INVITATION TO BID, and NOTICE OF PROPOSAL.
- H. "Affirmative Action Program" means a set of specific and result-oriented procedures or steps to which a contractor commits himself to apply every good faith effort to employ members of ethnic minority groups, to include persons of African descent (Black), Spanish surnamed (Hispanic), Asian-American, American Indians, and persons with mental or physical handicap.
- I. "Division of Small Business Opportunity" means the City agency established pursuant to Article III, Division 1 of Chapter 28 of the Denver Revised Municipal Code.

RULE II - NOTICE OF HEARING

When results of conciliation efforts are unsatisfactory to the Manager and he is informed in accordance with Article III, Division 2 of Chapter 28 of the Revised Municipal code that a contractor or subcontractor has apparently failed to meet affirmative action and equal employment opportunity requirements after a reasonable period of notice to correct deficiencies, the Manager will, prior to imposition of any sanctions, afford the general contractor a hearing in order to determine whether the contractor or his subcontractors have failed to comply with the affirmative action and equal employment opportunity requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or of the contract. Written notice of such hearing shall be delivered personally or sent by certified mail, return receipt requested, to the contractor and to any subcontractor involved, at least ten (10) days prior to the date scheduled for the hearing.

RULE III - HEARING

- A. Contractors will appear at hearings and may be represented by counsel, and may present testimony orally and other evidence.
- B. Hearings shall be conducted by one or more hearing examiners designated as such by the Manager.
- C. The Director of the Division of Small Business Opportunity may participate in hearings as a witness.
- D. Hearings shall be held at the place specified in the notice of hearing.
- E. All oral testimony shall be given under oath or affirmation and a record of such proceedings shall be made.
- F. All hearings shall be open to the public.
- G. The hearing officer shall make recommendations to the Manager who shall make a final decision.

REGULATIONS

REGULATION NO. 1 - ORDINANCE:

The Rules and Regulations of the Manager shall be inserted in the bidding specifications for every contract for which bidding is required.

REGULATION NO. 2 - EXEMPTIONS:

Each contract and subcontract, regardless of the dollar amount, shall be subject to affirmative action requirements unless specifically exempted in writing individually by the Manager. Exemptions apply only to "affirmative action" in equal employment opportunity, and are not to be construed as condonation in any manner of "discrimination" or "discriminatory practices" in employment because of race, color, creed, sex, age, national origin, religion, marital status, political opinion or mental or physical handicap.

REGULATION NO. 3 - DIRECTOR OF CONTRACT COMPLIANCE:

The Director of the Division of Small Business Opportunity shall perform the duties assigned to such official by Article III, Division 2 Chapter 28 of the Revised Municipal Code and by the Manager. (1) The Director of the Division of Small Business Opportunity or designated representatives shall inform bidders and contractors of affirmative action procedures, programs, and goals in accordance with the Ordinance at pre-bid and pre-construction conference; (2) make regular on-site inspections; (3) supply contractors and subcontractors with report forms to be completed by them when requested, and furnished to the Director of the Division of Small Business Opportunity; and (4) review payroll records, employment records and practices of general contractors and their subcontractors and suppliers during the performance of any contract. The Director of the Division of Small Business Opportunity shall promptly report apparent affirmative action deficiencies to the Manager.

REGULATION NO. 4 - GOALS AND TIMETABLES:

In general, goals and timetables should take into account anticipated vacancies and the availability of skills in the market place from which employees should be drawn. In addition, where discrimination in employment by a general contractor or any of his subcontractors is indicated, a corrective action program will take into account the need by the general contractor and his subcontractors to correct past discriminatory practices and reach goals of minority manpower utilization on a timely basis through such recruiting and advertising efforts as are necessary and appropriate.

REGULATION NO. 5 - AWARD OF CONTRACTS:

It shall be the responsibility of the Director of the Division of Small Business Opportunity to determine the affirmative action capability of bidders, contractors and subcontractors and to recommend to the Manager the award of contracts to those bidders, contractors and subcontractors and suppliers who demonstrate the ability and willingness to comply with the terms of their contract.

REGULATION NO. 6 - PUBLICATION AND DUPLICATION:

Copies of these Rules and Regulations as amended by the Manager from time to time, shall as soon as practicable and after Notice being published will be made a part of all City Contracts.

REGULATION NO. 7 - NOTICE TO PROCEED:

Prior to issuance of the Notice to Proceed, a sign-off will be required of the Director of the Division of Small Business Opportunity or his designee.

REGULATION NO. 8 - CONTRACTS WITH SUBCONTRACTORS:

To the greatest extent possible, the contractor shall make a good faith effort to contract with minority contractors, subcontractors and suppliers for services and supplies by taking affirmative actions, which include but are not limited to the following:

1. Advertise invitations for subcontractor bids in minority community news media.
2. Contact minority contractor organizations for referral of prospective subcontractors.
3. Purchase materials and supplies from minority material suppliers.

REGULATION NO. 9 - AGENCY REFERRALS:

It shall be no excuse that the union with which the contractor or subcontractor has an agreement providing for referral, exclusive or otherwise, failed to refer minority employees.

REGULATION NO. 10 - CLAUSES:

The Manager shall include the appropriate clauses in every contract and the contractor shall cause to be inserted in every subcontract the appropriate clauses:

1. APPENDIX A: City and County of Denver Equal Opportunity Clause - ALL CONTRACTS funded only with City and County of Denver monies.
2. APPENDIX B: Equal Opportunity Clause (11246) - ALL FEDERAL ASSISTED.
3. APPENDIX C: Section 3 - Assurance of Compliance - HUD ASSISTED PROJECTS.
4. APPENDIX D: Section 3 - Clause - HUD ASSISTED PROJECTS.

All amendments to the appendices shall be included by reference.

REGULATION NO. 11 - SHOW CAUSE NOTICES:

When the Manager has reasonable cause to believe that a contractor has violated Article III, Division 2 of Chapter 28 of the Denver Revised Municipal Code, he may issue a notice requiring the contractor to show cause, within fifteen (15) days why enforcement procedures, or other appropriate action to insure compliance, should not be instituted.

REGULATION NO. 12 - BID CONDITIONS - AFFIRMATIVE ACTION REQUIREMENTS - EQUAL EMPLOYMENT OPPORTUNITY:

1. APPENDIX E: The Bid Conditions - Affirmative Action Requirements - Equal Employment Opportunity as amended and published by the U.S. Department of Labor Employment Standards Administration, Office of Federal Contract Compliance, shall be inserted verbatim for bidding specification for every non-exempt contract involving the use of Federal funds.
2. APPENDIX F: The Bid Conditions - Affirmative Action Requirements - Equal Employment Opportunity as published by the Department of Public Works, City and County of Denver, shall be inserted verbatim as bidding specifications for every non-exempt contract using City funds.

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

APPENDIX A

**CITY AND COUNTY OF DENVER EQUAL OPPORTUNITY CLAUSE -
ALL CONTRACTS**

1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap.
3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. Each Contractor will comply with all provisions of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and the rules, regulations, and relevant orders of the Manager and the Director.
5. The Contractor will furnish all information and reports required by Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and by rules, regulations and orders of the Manager and Director or pursuant thereto, and will permit access to his books, records, and accounts by the Manager, Director, or their designee for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts in accordance with procedures authorized in Article III, Division 2, Chapter 28 of the Revised Municipal Code, or by rules, regulations, or order of the Manager.
7. The Contractor will include Regulation 12, Paragraph 2 and the provisions of paragraphs (1) through (6) in every subcontract of purchase order unless exempted by rules, regulations, or orders of the Manager issued pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, so that such provisions will be binding on each subcontractor or supplier. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

The applicant further agrees to be bound by the above equal opportunity clauses with respect to its own employment practices when it participates in City contracts. The Contractor agrees to assist and cooperate actively with the Manager and the Director in obtaining compliance of subcontractors and suppliers with the equal opportunity clause and the rules, regulations and relevant orders of the Manager, and will furnish the Manager and the Director such information as they may require for the supervision of compliance, and will otherwise assist the Manager and Director in the discharge of the City's primary responsibility for securing

compliance. The Contractor further agrees to refrain from entering into any contract or contract modification subject to Article III, Division 2 of Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who has not demonstrated eligibility for, City contracts.

The Contractor will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the Manager and Director. In addition, the Contractor agrees that failure or refusal to comply with these undertakings the Manager may take any or all of the following actions:

- A. Cancellation, termination, or suspension in whole or in part of this contract.
- B. Refrain from extending any further assistance to the applicant under the program with respect to which the failure occurred until satisfactory assurance of future compliance has been received from such applicant.
- C. Refer the case to the City Attorney for appropriate legal proceedings.

SUBCONTRACTS: Each prime Contractor or Subcontractor shall include the equal opportunity clause in each of its subcontracts.

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

APPENDIX F

AFFIRMATIVE ACTION REQUIREMENTS

EQUAL EMPLOYMENT OPPORTUNITY

For All Non-Exempt Construction Contracts to Be Awarded by the
City and County of Denver, Department of Public Works.

NOTICE

EACH BIDDER, CONTRACTOR OR SUBCONTRACTOR (HEREINAFTER THE CONTRACTOR) MUST FULLY COMPLY WITH THE REQUIREMENTS OF THESE BID CONDITIONS AS TO EACH CONSTRUCTION TRADE IT INTENDS TO USE ON THIS CONSTRUCTION CONTRACT, AND ALL OTHER CONSTRUCTION WORK (BOTH CITY AND NON-CITY) IN THE DENVER AREA DURING THE PERFORMANCE OF THIS CONTRACT OR SUBCONTRACT. THE CONTRACTOR COMMITS ITSELF TO THE GOALS FOR MINORITY MANPOWER UTILIZATION, AS APPLICABLE, AND ALL OTHER REQUIREMENTS, TERMS AND CONDITION OF THESE BID CONDITIONS BY SUBMITTING A PROPERLY SIGNED BID.

THE CONTRACTOR SHALL APPOINT A COMPANY EXECUTIVE TO ASSUME THE RESPONSIBILITY FOR THE IMPLEMENTATION OF THE REQUIREMENTS, TERMS AND CONDITIONS OF THESE BID CONDITIONS.

/s/ _____

Manager of Public Works
City and County of Denver

A. REQUIREMENTS - AN AFFIRMATIVE ACTION PLAN:

Contractors shall be subject to the provisions and requirements of these bid conditions including the goals and timetables for minority* and female utilization, and specific affirmative action steps set forth by the Division of Small Business Opportunity (DSBO). The contractor's commitment to the goals for minority, and female utilization as required constitutes a commitment that it will make every good faith effort to meet such goals.

1. GOALS AND TIMETABLES:

The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade are as follows:

GOALS FOR MINORITY PARTICIPATION FOR EACH TRADE	GOALS FOR FEMALE PARTICIPATION FOR EACH TRADE
From January 1, 1982 to Until Further Notice	From January 1, 1982 to Until Further Notice
21.7% - 23.5%	6.9%

The goals for minority and female utilization above are expressed in terms of hours of training and employment as a proportion of the total number of hours to be worked by the contractor's aggregate workforce, which includes all supervisory personnel, in each trade, on all projects for the City and County of Denver during the performance of its contract (i.e., The period beginning with the first day of work on the City and County of Denver funded construction contract and ending with the last day of work).

The hours of minority and female employment and training must be substantially uniform throughout the length of the contract in each trade and minorities and females must be employed evenly on each of a contractor's projects. Therefore, the transfer of minority or female employees from contractor to contractor or from project to project for the purpose of meeting the contractor's goals shall be a violation of these Bid Conditions.

If the Contractor counts the nonworking hours of apprentices they must be employed by the Contractor during the training period; the Contractor must have made a commitment to employ apprentices at the completion of their training subject to the availability of employment opportunities; and the apprentices must be trained pursuant to training programs approved by the Bureau of Apprenticeship and Training.

* "Minority" is defined as including, Blacks, Spanish Surname Americans, Asian Americans, and American Indians, and includes both men and minority women.

2. SPECIFIC AFFIRMATIVE ACTION STEPS:

No contractor shall be found to be in noncompliance solely on account of its failure to meet its goals, but will be given an opportunity to demonstrate that the contractor has instituted all the specific affirmative action steps specified and has made every good faith effort to make these steps work toward the attainment of its goals within the timetables, all to the purpose of expanding minority and female utilization in its aggregate workforce. A contractor, who fails to comply with its obligation under the Equal Opportunity Clause of its contract and fails to achieve its commitments to the goals for minority and female utilization has the burden of proving that it has engaged in an Affirmative Action Program directed at increasing minority and female utilization and that such efforts were at least as extensive and as specific as the following:

- a. The Contractor should have notified minority and female organizations when employment opportunities were available and should have maintained records of the organization's response.

- b. The Contractor should have maintained a file of the names and addresses of each minority and female referred to it by any individual or organization and what action was taken with respect to each such referred individual, and if the individual was not employed by the Contractor, the reasons. If such individual was sent to the union hiring hall for referral and not referred back by the union or if referred, not employed by the Contractor, the file should have documented this and their reasons.
- c. The Contractor should have promptly notified the Department of Public Works, and the Division of Small Business Opportunity when the union or unions with which the Contractor has collective bargaining agreements did not refer to the contractor a minority or female sent by the contractor, or when the Contractor has other information that the union referral process has impeded efforts to meet its goals.
- d. The Contractor should have disseminated its EEO policy within its organization by including it in any employee handbook or policy manual; by publicizing it in company newspapers and annual reports and by advertising such policy at reasonable intervals in union publications. The EEO policy should be further disseminated by conducting staff meetings to explain and discuss the policy; by posting of the policy; and by review of the policy with minority and female employees.
- e. The Contractor should have disseminated its EEO policy externally by informing and discussing it with all recruitment sources; by advertising in news media, specifically including minority and female news media; and by notifying and discussing it with all subcontractors.
- f. The Contractor should have made both specific and reasonably recurrent written and oral recruitment efforts. Such efforts should have been directed at minority and female organizations, schools with substantial minority and female enrollment, and minority and female recruitment and training organizations within the Contractor's recruitment area.
- g. The Contractor should have evidence available for inspection that all tests and other selection techniques used to select from among candidates for hire, transfer, promotion, training, or retention are being used in a manner that does not violate the OFCCP Testing Guidelines in 41 CFR Part 60-3.
- h. The Contractor should have made sure that seniority practices and job classifications do not have a discriminatory effect.
- i. The Contractor should have made certain that all facilities are not segregated by race.
- j. The Contractor should have continually monitored all personnel activities to ensure that its EEO policy was being carried out including the evaluation of minority and female employees for promotional opportunities on a quarterly basis and the encouragement of such employees to seek those opportunities.
- k. The Contractor should have solicited bids for subcontracts from available minority and female subcontractors engaged in the trades covered by these Bid Conditions, including circulation of minority and female contractor associations.

NOTE: The Director and the Division of Small Business Opportunity will provide technical assistance on questions pertaining to minority and female recruitment sources, minority and female community organizations, and minority and female news media upon receipt of a request for assistance from a contractor.

3. NON - DISCRIMINATION:

In no event may a contractor utilize the goals and affirmative action steps required in such a manner as to cause or result in discrimination against any person on account of race, color, religion, sex, marital status, national origin, age, mental or physical handicap, political opinion or affiliation.

4. COMPLIANCE AND ENFORCEMENT:

In all cases, the compliance of a contractor will be determined in accordance with its obligations under the terms of these Bid Conditions. All contractors performing or to perform work on projects subject to these Bid Conditions hereby agree to inform their subcontractors in writing of their respective obligations under the terms and requirements of these Bid Conditions, including the provisions relating to goals of minority and female employment and training.

B. CONTRACTORS SUBJECT TO THESE BID CONDITIONS:

In regard to these Bid Conditions, if the Contractor meets the goals set forth therein or can demonstrate that it has made every good faith effort to meet these goals, the Contractor shall be presumed to be in compliance with Article III, Division 2 of Chapter 28 of the Revised Municipal Code, the implementing regulations and its obligations under these Bid Conditions. In the event, no formal sanctions or proceedings leading toward sanctions shall be instituted unless the contracting or administering agency otherwise determines that the contractor is violating the Equal Opportunity Clause.

1. Where the Office of Contract Compliance finds that a contractor failed to comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or the implementing regulations and the obligations under these Bid Conditions, and so informs the Manager, the Manager shall take such action and impose such sanctions, which include suspension, termination, cancellation, and debarment, as may be appropriate under the Ordinance and its regulations. When the Manager proceeds with such formal action it has the burden of proving that the Contractor has not met the goals contained in these Bid Conditions. The Contractor's failure to meet its goals shall shift to it the requirement to come forward with evidence to show that it has met the good faith requirements of these Bid Conditions.
2. The pendency of such proceedings shall be taken into consideration by the Department of Public Works in determining whether such contractor can comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and is therefore a "responsible prospective contractor".
3. The Division of Small Business Opportunity shall review the Contractor's employment practices during the performance of the contract. If the Division of Small Business Opportunity determines that the Contractor's Affirmative Action Plan is no longer an acceptable program, the Director shall notify the Manager.

C. OBLIGATIONS APPLICABLE TO CONTRACTORS:

It shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority or female employees. Discrimination in referral for employment, even if pursuant to provisions of a collective bargaining agreement, is prohibited by the National Labor Relations Act, as amended, Title VI of the Civil Rights Act of 1964, as amended, and Article III, Division 2 of Chapter 28 of the Revised Municipal Code. It is the policy of the Department of Public Works that contractors have a responsibility to provide equal employment opportunity, if they wish to participate in City and County of Denver contracts. To the extent they have delegated the responsibility for some of their employment practices to a labor organization and, as a result, are prevented from meeting their obligations pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, such Contractors cannot be considered to be in compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, or its implementing rules and regulations.

D. GENERAL REQUIREMENTS:

Contractors are responsible for informing their subcontractors in writing regardless of tier, as to their respective obligations. Whenever a Contractor subcontracts a portion of work in any trade covered by these Bid Conditions, **it shall include these Bid Conditions in such subcontracts and each subcontractor shall**

be bound by these Bid Conditions to the full extent as if it were the prime contractor. The Contractor shall not, however, be held accountable for the failure of its subcontractors to fulfill their obligations under these Bid Conditions. However, the prime contractor shall give notice to the Director of any refusal or failure of any subcontractor to fulfill the obligations under these Bid Conditions. A subcontractor's failure to comply will be treated in the same manner as such failure by a prime contractor.

1. Contractors hereby agree to refrain from entering into any contract or contract modification subject to Article III, Division 2, Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who is determined not to be a "responsive" bidder for the City and County of Denver contracts pursuant to the Ordinance.
2. The Contractor shall carry out such sanctions and penalties for violation of these Bid Conditions and the Equal Opportunity Clause including suspension, termination and cancellation of existing subcontracts and debarment from future contracts as may be ordered by the Manager pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code and its implementing regulations.
3. Nothing herein is intended to relieve any contractor during the term of its contract from compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, and the Equal Opportunity Clause of its contract with respect to matters not covered in these Bid Conditions.
4. Contractors must keep such records and file such reports relating to the provisions of these Bid Conditions as shall be required by the Office of Contract Compliance.
5. Requests for exemptions from these Bid Conditions must be made in writing, with justification, to the Manager of Public Works, 201 W. Colfax, Dept. 608, Denver, Colorado 80202, and shall be forwarded through and with the endorsement of the Director.

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

CONTRACT NO. 201735705

Traffic Signal Upgrade - Mill Levy 6

CONTRACT

THIS CONTRACT AND AGREEMENT, made and entered into by and between the City and County of Denver, a municipal corporation of the State of Colorado, hereinafter referred to as the "City," party of the first part, and , hereinafter referred to as the "Contractor," party of the second part,

Sturgeon Electric Company, Inc.
12150 E 112th Ave.
Henderson, CO 80640

WITNESSETH, Commencing on **July 10, 2017**, and for at least three (3) days the City advertised that sealed bids would be received for furnishing all labor, tools, supplies, equipment, materials, and everything necessary and required for the following:

CONTRACT NO. 201735705

Traffic Signal Upgrade - Mill Levy 6

WHEREAS, bids pursuant to said advertisement have been received by the Manager of Public Works, who has recommended that a Contract for said work be made and entered into with the above named Contractor who was the lowest, responsive, qualified bidder therefore, and

WHEREAS, said Contractor is now willing and able to perform all of said work in accordance with said advertisement and its bid.

NOW THEREFORE, in consideration of the compensation to be paid the Contractor, the mutual agreements hereinafter contained, and subject to the terms hereinafter stated, it is mutually agreed as follows:

1. CONTRACT DOCUMENTS

It is agreed by the parties hereto that the following list of documents, instruments, technical specifications, plans, drawings and other materials which are attached hereto and bound herewith, incorporated herein by reference or otherwise referenced in these documents constitute and shall be referred to either as the "Contract Documents" or the "Contract," and all of said documents, instruments, technical specifications, Plans, Drawings and other materials taken together as a whole constitute the Contract between the parties hereto, and they are as fully a part of this agreement as if they were set out verbatim and in full herein:

Advertisement of Notice of Invitation for Bids
Instructions to Bidders
Commitment to M/WBE Participation
Article III, Divisions 1, 2, and 3 of Chapter 28, D.R.M.C.
Bid Bond
Addenda (as applicable)

Equal Employment Opportunity Provisions (Appendix A and Appendix F)
Bid Form
Contract Form
General Contract Conditions
Special Contract Conditions
Performance and Payment Bond
Notice to Apparent Low Bidder
Notice to Proceed
Contractor's Certification of Payment Form
Final/Partial Lien Release Form
Certificate of Contract Release
Change Orders (as applicable)
Federal Requirements (as applicable)
Prevailing Wage Rate Schedule(s)
Technical Specifications
Contract Drawings
Accepted Shop Drawings

2. SCOPE OF WORK

The Contractor agrees to and shall furnish all labor, tools, supplies, equipment, materials and everything necessary for and required to do, perform and complete all of the Work described, drawn, set forth, shown and included in said Contract Documents.

3. TERMS OF PERFORMANCE

The Contractor agrees to undertake the performance of the Work under this Contract within ten (10) days after being notified to commence work by issuance of a Notice to Proceed in substantially the form contained herein from the Manager and agrees to fully complete said Work within **240** (Two Hundred Forty Days) consecutive calendar days from the effective date of said Notice, plus such extension or extensions of time as may be granted in accordance with the provisions of the General Contract Conditions and any applicable Special Contract Conditions.

4. TERMS OF PAYMENT

The City agrees to pay the Contractor for the performance of all of the Work required under this Contract, and the Contractor agrees to accept as the Contractor's full and only compensation therefore, such sum or sums of money as may be proper in accordance with the price or prices set forth in the Contractor's Bid Form hereto attached and made a part hereof for **bid item numbers 202-00190 through 700-90026 Sixty-One (61)**, the total estimated cost thereof being **One Million Six Hundred Thirteen Thousand Two Hundred Ten Dollars and Eighty Cents (\$1,613,210.80)**. Adjustments to said Contract Amount and payment of amounts due hereunder shall be made in accordance with the provisions of the General Contract Conditions and any applicable Special Contract Conditions.

5. NO DISCRIMINATION IN EMPLOYMENT

In connection with the performance of the Work under this Contract, the Contractor agrees not to refuse to hire, discharge, promote or demote, or to discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status, sexual orientation, marital status, or physical or mental disability; and the Contractor further agrees to insert the foregoing provision in all subcontracts hereunder.

6. COMPLIANCE WITH M/WBE REQUIREMENT

This Contract is subject to all applicable provisions of Divisions 1 and 3 of Article III, of Chapter 28, Denver Revised Municipal Code (D.R.M.C.), designated as Sections 28-31 – 28-36 and 28-52 – 28-90 D.R.M.C. and referred to in this Contract as the "M/WBE Ordinance". Without limiting the general applicability of the foregoing, the Contractor acknowledges its continuing duty, pursuant to Sections 28-72, 28-73 and 28-75 of the D.R.M.C., to maintain throughout the duration of this Contract, compliance with the level of minority and Woman business enterprise participation, upon which the City approved the award of this Contract to the Contractor and the Contractor further acknowledges that failure to maintain such participation commitments or otherwise comply with the requirements of the M/WBE Ordinance shall subject the

Contractor to sanctions in accordance with Section 28-77 of the D.R.M.C. Nothing contained in this provision or in the M/WBE Ordinance shall negate the City's right to prior approval of subcontractors, or substitutes therefore, under this Contract

7. WAGE RATE REQUIREMENTS

In performance of all Work hereunder, the Contractor agrees to comply with and be bound by all requirements and conditions of the City's Payment of Prevailing Wages Ordinance, Sections 20-76 through 20-79, D.R.M.C. and any determinations made by the City pursuant thereto.

8. APPLICABILITY OF LAWS

The Agreement between the Contractor and the City shall be deemed to have been made in the City and County of Denver, State of Colorado and shall be subject to, governed by, and interpreted and construed by or in accordance with the laws of the State of Colorado and the Charter, Revised Municipal Code, Rules, Regulations, Executive Orders and fiscal rules of the City. As such, the Contractor shall at all times comply with the provisions of the Charter, Revised Municipal Code, Rules, Regulations, Executive Orders and fiscal rules of the City, and those State of Colorado and Federal Laws, Rules and Regulations, which in any manner limit, control or apply to the actions or operations of the Contractor, any subcontractors, employees, agents or servants of the Contractor engaged in the Work or affecting the materials and equipment used in the performance of the Work, as the same may be, from time to time, promulgated, revised or amended. The Charter and Revised Municipal Code of the City and County of Denver, as the same may be amended from time to time, are hereby expressly incorporated into this Agreement as if fully set out herein by this reference.

9. APPROPRIATION

The amount of money, which has been appropriated and encumbered for the purpose of this contract, to date, is equal to or in excess of the Contract Amount. The Manager, upon reasonable written request, will advise the Contractor in writing of the total amount of appropriated and encumbered funds, which remain available for payment for all Work under the Contract.

The issuance of any change order or other form or order or directive by the City which would cause the aggregate payable under the contract to exceed the amount appropriated for the contract is expressly prohibited. In no event shall the issuance of any change order or other form of order or directive by the City be considered valid or binding if it requires additional compensable work to be performed, which work will cause the aggregate amount available under the Contract to exceed the amount appropriated and encumbered for this Contract, unless and until such time as the Contractor has been advised in writing by the Manager that a lawful appropriation, sufficient to cover the entire cost of such additional work, has been made.

It shall be the responsibility of the Contractor to verify that the amounts already appropriated for this Contract are sufficient to cover the entire cost of such work, and any work undertaken or performed in excess of the amount appropriated is undertaken or performed in violation of the terms of this contract, without the proper authorization for such work, and at the Contractor's own risk.

10. APPROVALS

In the event this Contract calls for the payment by the City of five hundred thousand dollars (\$500,000.00) or more, approval by the Board of Councilmen of the City and County of Denver, acting by ordinance, in accordance with Section 3.2.6 of the Charter of the City and County of Denver, is and shall be an express condition precedent to the lawful and binding execution and effect and performance of this contract.

11. ASSIGNMENT

The Contractor shall not assign any of its rights, benefits, obligations or duties under this Contract except upon the prior written consent and approval of the Manager to such assignment.

12. DISPUTES RESOLUTION PROCESS

It is the express intention of the parties to this Contract that all disputes of any nature whatsoever regarding the Contract including, but not limited to, any claims for compensation or damages arising out of breach or default under this Contract, shall be resolved by administrative hearing pursuant to the provisions of Section 56-106, D.R.M.C., or, as applicable, Section 28-33 D.R.M.C. for Minority and Woman Business Enterprise disputes. The Contractor expressly agrees that this dispute resolution process is the only dispute resolution

mechanism that will be recognized by the parties for any claims put forward by the Contractor, notwithstanding any other claimed theory of entitlement on the part of the Contractor or its subcontractors or suppliers.

13. CONTRACT BINDING

It is agreed that this Contract shall be binding on and inure to the benefit of the parties hereto, their heirs, executors, administrators, assigns and successors.

14. PARAGRAPH HEADINGS

The captions and headings set forth herein are for convenience of reference only and shall not be construed so as to define or limit the terms and provisions hereof.

15. SEVERABILITY

It is understood and agreed by the parties hereto that, if any part, term, or provision of this Contract, except for the provisions of this Contract requiring prior appropriation and limiting the total amount to be paid by the City, is by the courts held to be illegal or in conflict with any law of the State of Colorado, the validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular part, term or provision held to be invalid.

16. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS:

Contractor consents to the use of electronic signatures by the City. The Agreement, and any other documents requiring a signature hereunder, may be signed electronically by the City in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Agreement solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Agreement in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

IN WITNESS WHEREOF, the parties have executed this agreement and affixed their seals at Denver, Colorado as of the day first above written.

Contract Control Number: 201735705

Vendor Name: STURGEON ELECTRIC COMPANY, INC.

By: 

Name: JIM BUSHNER
(please print)

Title: DIVISION MANAGER
(please print)

ATTEST: [if required]

By: 

Name: Krysta Brewer
(please print)

Title: Office Manager
(please print)



Contract Control Number:

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of

SEAL

CITY AND COUNTY OF DENVER

ATTEST:

By _____

APPROVED AS TO FORM:

REGISTERED AND COUNTERSIGNED:

By _____

By _____

By _____



**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS**

General Contract Conditions

INDEX

TITLE 1		
DEFINITIONS	1
101	CITY	1
102	CONTRACT	1
103	CONTRACT AMOUNT	1
104	CONTRACT DOCUMENTS	1
105	CONTRACT TIME	1
106	CONTRACTOR	2
107	CONTRACTOR PERSONNEL	2
108	DAYS	2
109	DEPUTY MANAGER	2
110	DESIGNER	2
111	FINAL COMPLETION	2
112	MANAGER	3
113	PRODUCT DATA	3
114	PROJECT	3
115	PROJECT MANAGER	3
116	SAMPLES	3
117	SHOP DRAWINGS	3
118	SUBCONTRACTOR	3
119	SUBSTANTIAL COMPLETION	3
120	SUPPLIER	4
121	WORK	4
TITLE 2		
CITY ADMINISTRATIVE ORGANIZATIONS; LINE OF AUTHORITY	5
201	DEPARTMENT OF AVIATION	5
202	MANAGER OF AVIATION	5
203	DEPARTMENT OF PUBLIC WORKS	5
204	MANAGER OF PUBLIC WORKS	5
205	BUILDING INSPECTION	5
206	ZONING	5
207	DIVISION OF SMALL BUSINESS OPPORTUNITY	6
208	CITY AUDITOR	6
209	MANAGER OF FINANCE	6
210	CITY ATTORNEY	6
211	OFFICE OF RISK MANAGEMENT	6
212	CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY	6
213	CITY'S COMMUNICATION WITH THE CONTRACTOR	7

TITLE 3		
CONTRACTOR PERFORMANCE AND SERVICES.....		8
301 CONSIDERATION		
(CONTRACTOR'S PROMISE OF PERFORMANCE).....		8
302 NOTICE TO PROCEED AND COMPLETION OF THE WORK		8
303 EXACT CONTRACTOR PERFORMANCE		8
304 SUBSTITUTED PERFORMANCE.....		8
305 WORK PERFORMED UNDER ADVERSE		
WEATHER CONDITIONS.....		9
306 WORKING HOURS AND SCHEDULE		9
307 CONTRACTOR'S SUPERINTENDENT.....		10
308 COMMUNICATIONS		10
309 CONTRACTOR SUBMITTALS		
AND OTHER WRITTEN COMMUNICATIONS TO THE CITY.....		10
310 COMPETENCE OF CONTRACTOR'S WORK FORCE		11
311 NO EMPLOYMENT OF ILLEGAL ALIENS		
TO PERFORM WORK UNDER THE CONTRACT		11
312 CONDUCT OF CONTRACTOR'S PERSONNEL		12
313 SUGGESTIONS TO CONTRACTOR.....		12
314 WORK FORCE		12
315 CONSTRUCTION MACHINES AND STANDBY EQUIPMENT		13
316 CUTTING AND PATCHING THE WORK		13
317 PERMITS AND LICENSES		13
318 CONSTRUCTION SURVEYS		14
319 PRESERVATION OF PERMANENT		
LAND SURVEY CONTROL MARKERS		14
320 TRADEMARKS, COPYRIGHTS AND PATENTED DEVICES,		
MATERIALS, AND PROCESSES		15
321 PROJECT SIGNS.....		15
322 PUBLICITY AND ADVERTISING.....		16
323 TAXES		16
324 DOCUMENTS AND SAMPLES AT THE SITE		17
325 CLEANUP DURING CONSTRUCTION.....		17
326 SANITARY FACILITIES.....		18
327 POWER, LIGHTING, HEATING, VENTILATING,		
AIR CONDITIONING AND WATER SERVICES		18
 TITLE 4		
CONTRACT DOCUMENTS (DRAWINGS AND TECHNICAL SPECIFICATIONS).....		19
401 CONTRACT DOCUMENTS - REVIEW AND INTERPRETATION.....		19
402 OWNERSHIP OF CONTRACT DRAWINGS		
AND TECHNICAL SPECIFICATIONS.....		20
403 CONTRACT DRAWINGS AND TECHNICAL SPECIFICATIONS		
ISSUED TO THE CONTRACTOR		20
404 REQUESTS FOR INFORMATION OR CLARIFICATION		21
405 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES		21
406 SUBSTITUTION OF MATERIALS AND EQUIPMENT		22
 TITLE 5		
SUBCONTRACTS		24
501 SUBCONTRACTS.....		24
502 SUBCONTRACTOR ACCEPTANCE		24
 TITLE 6		
TIME OF COMMENCEMENT AND COMPLETION		27
601 BEGINNING, PROGRESS AND TIME OF COMPLETION		27
602 LIQUIDATED DAMAGES; ADMINISTRATIVE COSTS;		

ACTUAL DAMAGES.....	27
603 DELAY DAMAGES.....	28
TITLE 7	
COOPERATION, COORDINATION AND RATE OF PROGRESS	29
701 COOPERATION WITH OTHER WORK FORCES	29
702 COORDINATION OF THE WORK.....	30
703 COORDINATION OF PUBLIC CONTACT.....	30
704 RATE OF PROGRESS	30
TITLE 8	
PROTECTION OF PERSONS AND PROPERTY	32
801 SAFETY OF PERSONS	32
802 PROTECTIVE DEVICES AND SAFETY PRECAUTIONS	33
803 PROTECTION OF PROPERTY AND WORK IN PROGRESS	33
804 PROTECTION OF MUNICIPAL, PUBLIC SERVICE OR PUBLIC UTILITY SYSTEMS	34
805 PROTECTION OF STREET AND ROAD SYSTEM	35
806 PROTECTION OF DRAINAGE WAYS.....	36
807 PROTECTION OF THE ENVIRONMENT	36
808 HAZARDOUS AND EXPLOSIVE MATERIALS OR SUBSTANCES.....	37
809 ARCHAEOLOGICAL AND HISTORICAL DISCOVERIES	37
TITLE 9	
COMPENSATION	38
901 CONSIDERATION (CITY'S PROMISE TO PAY).....	38
902 PAYMENT PROCEDURE	38
903 SCHEDULE OF VALUES IN LUMP SUM CONTRACTS	39
904 UNIT PRICE CONTRACTS.....	39
905 PROGRESS PERIOD.....	39
906 APPLICATIONS FOR PAYMENT.....	40
907 RELEASES AND CONTRACTORS CERTIFICATIONS OF PAYMENT	41
908 RETAINAGE	41
909 ADDITIONAL WITHHOLDING OF PROGRESS PAYMENTS	42
910 FINAL ESTIMATE AND PAYMENT.....	43
911 ACCOUNTING OF COSTS AND AUDIT	43
TITLE 10	
WAGE	45
1001 PREVAILING WAGE ORDINANCE.....	45
1002 POSTING OF THE APPLICABLE WAGE RATES.....	45
1003 RATE AND FREQUENCY OF WAGES PAID.....	45
1004 REPORTING WAGES PAID	45
1005 FAILURE TO PAY PREVAILING WAGES	46
TITLE 11	
CHANGES IN THE WORK, CONTRACT PRICE OR CONTRACT TIME	47
1101 CHANGE ORDER.....	47
1102 CITY INITIATED CHANGES	47
1103 CONTRACTOR CHANGE REQUEST.....	48
1104 ADJUSTMENT TO CONTRACT AMOUNT	51
1105 TIME EXTENSIONS.....	54
TITLE 12	
CONTRACTOR CLAIMS FOR ADJUSTMENT AND DISPUTES.....	56
1201 NOTICE OF INTENT TO CLAIM.....	56

1202	SUBMITTAL OF CLAIMS	56
1203	WAIVER OF CLAIMS	58
TITLE 13		
DISPUTES		59
1301	DISPUTES	59
TITLE 14		
SITE CONDITIONS		60
1401	DIFFERING SITE CONDITIONS.....	60
1402	SITE INSPECTIONS AND INVESTIGATIONS.....	60
TITLE 15		
PERFORMANCE AND PAYMENT BONDS		62
1501	SURETY BONDS	62
1502	PERFORMANCE BOND	62
1503	PAYMENT BOND.....	62
TITLE 16		
INSURANCE AND INDEMNIFICATION		63
1601	INSURANCE	63
1602	DEFENSE AND INDEMNIFICATION	63
TITLE 17		
INSPECTION AND DEFECTS		64
1701	CONSTRUCTION INSPECTION BY THE CITY	64
1702	AUTHORITY OF INSPECTORS	64
1703	OBSERVABLE DEFECTS.....	64
1704	DEFECTS - UNCOVERING WORK	64
1705	LATENT DEFECTS	65
1706	REMOVAL OF DEFECTIVE MATERIALS AND WORK	65
TITLE 18		
WARRANTIES, GUARANTEES AND CORRECTIVE WORK.....		66
1801	CONTRACTOR'S WARRANTIES, GUARANTEES AND CORRECTION OF WORK	66
1802	PERFORMANCE DURING WARRANTY PERIOD	67
TITLE 19		
SUBSTANTIAL COMPLETION OF THE WORK.....		69
1901	CONTRACTOR'S NOTICE OF SUBSTANTIAL COMPLETION	69
1902	INSPECTION AND PUNCH LIST	69
1903	CERTIFICATE OF SUBSTANTIAL COMPLETION	69
1904	RIGHT OF EARLY OCCUPANCY OR USE	69
TITLE 20		
FINAL COMPLETION AND ACCEPTANCE OF THE WORK.....		71
2001	CLEAN-UP UPON COMPLETION.....	71
2002	FINAL COMPLETION AND ACCEPTANCE OF THE WORK	71
2003	FINAL SETTLEMENT.....	71
TITLE 21		
SUSPENSION OF WORK.....		74
2101	SUSPENSION OF WORK.....	74
2102	SUSPENSION OF THE WORK FOR THE CITY'S CONVENIENCE	74
2103	SUSPENSION BECAUSE OF ORDER OF CITY, STATE	

OR FEDERAL COURT OR AGENCY	75
2104 SUSPENSION RESULTING FROM CONTRACTOR'S FAILURE TO PERFORM.....	75
TITLE 22	
CITY'S RIGHT TO TERMINATE THE CONTRACT	76
2201 TERMINATION OF CONTRACT FOR CAUSE	76
2202 TERMINATION OF CONTRACT FOR CONVENIENCE OF THE CITY	77
TITLE 23	
MISCELLANEOUS PROVISIONS	80
2301 PARTIES TO THE CONTRACT.....	80
2302 FEDERAL AID PROVISIONS.....	80
2303 NO WAIVER OF RIGHTS	80
2304 NO THIRD PARTY BENEFICIARY	80
2305 GOVERNING LAW; VENUE.....	81
2306 ABBREVIATIONS	81
2307 STATUTE OF LIMITATIONS IN C.R.S. § 13-80-102(1)(h)	81

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division

SPECIAL CONTRACT CONDITIONS

SC-1 CONSTRUCTION SPECIFICATIONS

Except as amended herein or in the attached Technical Specifications, all Work performed under the terms of this Contract shall be governed by the applicable provisions of the following latest editions:

City and County of Denver:

Standard Specifications for Construction, GENERAL CONTRACT CONDITIONS,
2011 Edition.

Transportation Standards and Details for the Engineering Division

City and County of Denver Traffic Standard Drawings

Wastewater Management Division

– *Standard Detail Drawings*

– *Public Works Wastewater Capital Projects Management Standard Construction Specifications*

Colorado Department of Transportation:

Standard Specifications for Road and Bridge Construction
(Sections 200 through 700 of the 2011 Edition)

Federal Highway Administration:

Manual on Uniform Traffic Control Devices for Streets & Highways (MUTCD)

Building & Fire Codes:

Building Code of the City and County of Denver

(International Building Code 2009 Series, City and County of Denver Amendments 2011)

National Fire Protection Association Standards

(As referenced in the Building Code of the City and County of Denver)

The aforementioned City and County of Denver documents are available for review at the Capital Projects Management Office, 201 W. Colfax Ave., Dept. 506, (5th floor), Denver, CO 80202. The *Standard Specifications for Construction, GENERAL CONTRACT CONDITIONS* is available at: <https://www.denvergov.org/content/denvergov/en/contract-administration/contractor-resources.html>. *Transportation Standards and Details for the Engineering Division* and the Wastewater Management Division – *Standard Detail Drawings*, are available at <http://www.denvergov.org>.

The “*Colorado Department of Transportation Standard Specifications for Road and Bridge Construction*” is available for review on CDOT’s website at <http://www.coloradodot.info/> and can be purchased from the Colorado Department of Transportation.

The *Manual on Uniform Traffic Control Devices for Streets & Highways* is available for review at the Federal Highway Administration Website at: www.fhwa.dot.gov. The FHWA website also contains purchasing information.

SC-2 DEPUTY MANAGER / CITY ENGINEER

General condition 109 DEPUTY MANAGER is hereby deleted in its entirety and replaced with the following:

The “Deputy Manager” means the official who reports directly to the Manager and exercises supervisory responsibility in the City agency defined in Title 2 herein that is responsible for the Project. The Manager hereby designates the City Engineer as the Deputy Manager for purposes of this Contract. The City Engineer shall have responsibility for this Project and shall undertake all duties, responsibilities, rights and authority, including specific actions and decisions, delegated to the Deputy Manager under the various terms and conditions of this Contract.

SC-3 ENGINEERING DIVISION / CITY ENGINEER

The Engineering Division is a unit of the Department of Public Works and is supervised by the City Engineer, who is subordinate to the Manager of Public Works. This Division is responsible for the planning, design, construction, operation and maintenance of all of the City's transportation facilities and the planning, design and construction of all of the City’s wastewater facilities, except for the City's Municipal Airport System. All other references to the Transportation Division or the Deputy Manager of Public Works for Transportation are deleted and replaced with references to the Engineering Division and City Engineer, respectively.

SC-4 WASTEWATER MANAGEMENT DIVISION

The Wastewater Management Division is a unit of the Department of Public Works and is supervised by the Deputy Manager of Public Works for Wastewater Management, who is subordinate to the Manager of Public Works. This Division is responsible for the operation and maintenance of the City's wastewater facilities.

SC-5 CITY DELEGATION OF AUTHORITY

With reference to General Contract Condition 109, DEPUTY MANAGER and General Contract Condition 212, CITY’S CONTRACT ADMINISTRATION LINE OF AUTHORITY, the Manager hereby designates the City Engineer as the City official responsible for those certain actions and decisions designated as the responsibility of the Deputy Manager under the General Conditions and delegates to the City Engineer the authority necessary to undertake those responsibilities under this Contract. The Director shall have supervisory responsibility over the Project Manager. Additionally, Contractor questions concerning the Plans and Technical Specifications shall be directed to:

Denver Department of Public Works / Engineering Division,

<u>Project Manager</u>		<u>Telephone</u>
City Project Manager	Christopher Krook	(720) 865-4003
<u>Consultant</u>	<u>Name</u>	<u>Telephone</u>
Design Consultant	Consultant Contact	
AECOM	Margie Krell	(303) 796-4631

SC-6 LIQUIDATED DAMAGES

Should the Contractor fail to complete all Work within the Contract Time allocated under the Contract Form at Paragraph 3, TERMS OF PERFORMANCE, the Contractor shall become liable to the City and County of Denver for liquidated damages, and not as a penalty, at the rate of \$500.00 for each Day that the Contractor exceeds the time limits herein specified, all in accordance with provisions of General Contract Condition 602, LIQUIDATED DAMAGES; ADMINISTRATIVE COSTS; ACTUAL DAMAGES.

Representative hourly rates for the City administrative costs described in General Contract Condition 602.2 shall be as follows for this Project:

Project Manager	\$69 per hour
Project Engineer	\$63 per hour
Inspector	\$49 per hour
Surveying, if necessary	\$100 per hour

SC-7 SUBCONTRACTS

In accordance with General Contract Condition 501, SUBCONTRACTS, no limit shall apply to that percentage of the Work, which may be sublet providing that the subcontractors receive prior approval in accordance with General Contract Condition 502, SUBCONTRACTOR ACCEPTANCE.

SC-8 RESERVED

SC-9 PAYMENTS TO CONTRACTORS

The application for payment shall be submitted through Textura® Corporations Construction Management Website. Contractor recognizes and agrees that it shall be required to use the Textura Construction Payment Management System for this Project. Contractor further agrees that, to the fullest extent possible within the CPM System, the City shall be entitled to all non-Confidential records, reports, data and other information related to the project that are available to Contractor through the CPM System, including, but not limited to, information related to Contractor and subcontractor billings. To that end, Contractor agrees that it will activate any available settings within the CPM System that are necessary to grant the City access to such non-Confidential information related to the contract and the project. Applications for payment shall be based on the Contract Unit Prices or the approved Schedule of Values described in GC 903.1

In accordance with General Contract Condition 902, PAYMENT PROCEDURE, the party(ies) responsible for review of all Pay Applications shall be:

<u>Agency/Firm</u>	<u>Name</u>	<u>Telephone</u>
Public Works/Engineering Division	Justin Schmitz	(720) 913-4561

In accordance with General Contract Condition 906, APPLICATIONS FOR PAYMENT, each Application submitted shall include the following:

1. The estimate of Work completed shall be based on the approved schedule of values or unit prices, as applicable, and the percent of the Work complete.
2. Each Application for Payment shall include each and every independent subcontractor's payroll information including pay dates and pay amounts.
3. The Contractor shall also submit to the Auditor and other appropriate officials of the City in a timely fashion, information required by General Contract Condition 1004, REPORTING WAGES PAID.
4. Applications for Payment must be accompanied by completed Partial or Final Claim Release Form, as appropriate, from EACH subcontractor and supplier, **AND** the Contractors' Certification of Payment Form (CCP), unless an exception is approved pursuant to General contract condition 907.

The forms, Final/Partial Release and Certificate of Payment (Subcontractor/Supplier) and the Contractor's Certification of Payment (CCP), both of which must be used are attached below. If subcontractor or supplier payments are disbursed via Textura® CPM, those systems generated Release and CCP forms are acceptable.

**DEPARTMENT OF PUBLIC WORKS
Engineering Division**

**FINAL/PARTIAL RELEASE AND CERTIFICATE OF PAYMENT
(SUBCONTRACTOR/SUPPLIER)**

(PROJECT NO. and NAME)	Date: _____, 20__.
(NAME OF CONTRACTOR)	Subcontract #: _____.
(NAME OF SUBCONTRACTOR/SUPPLIER)	Subcontract Value: \$ _____.
Check Applicable Box:	Last Progress Payment: \$ _____.
<input type="checkbox"/> MBE <input type="checkbox"/> WBE	Date: _____.
	Total Paid to Date: \$ _____.
	Date of Last Work: _____.

The Undersigned hereby certifies that all costs, charges or expenses incurred by the undersigned or on behalf of the undersigned for any work, labor or services performed and for any materials, supplies or equipment provided on the above referenced Project or used in connection with the above referenced Subcontract (the "Work Effort") have been duly paid in full.

The Undersigned further certifies that each of the undersigned's subcontractors and suppliers that incurred or caused to be incurred, on their behalf, costs, charges or expenses in connection with the undersigned's Work Effort on the above referenced Project have been duly paid in full.

In consideration of \$_____ representing the Last Progress Payment referenced above and in further consideration of the Total Paid to Date, also referenced above, and other good and valuable consideration received and accepted by the undersigned this ____ day of _____, 20__, the Undersigned hereby releases and discharges the City and County of Denver (the "City"), the above referenced City Project, the City's premises and property and the above referenced Contractor from all claims, liens, rights, liabilities, demands and obligations, whether known or unknown, of every nature arising out of or in connection with the performance of the work effort.

As additional consideration for the payments referenced above, the undersigned agrees to defend, indemnify and save and hold harmless the City, its officers, employees, agents and assigns and the above-referenced Contractor from and against all costs, losses, damages, causes of action, judgments under the subcontract and expenses arising out of or in connection with any claim or claims against the City or the Contractor which arise out of the Undersigned's performance of the Work Effort and which may be asserted by the Undersigned or any of its suppliers or subcontractors of any tier or any of their representatives, officers, agents, or employees.

It is acknowledged that this release is for the benefit of and may be relied upon by the City and the referenced Contractor.

The foregoing shall not relieve the undersigned of any obligation under the provisions of the Undersigned's subcontract, as the subcontract may have been amended, which by their nature survive completion of the Undersigned's work effort including, without limitation, warranties, guarantees, insurance requirements and indemnities.

STATE OF COLORADO) ss. CITY OF _____)	(Name of Subcontractor)
Signed and sworn before me this day of _____, 20__.	By: _____
_____ Notary Public/Commissioner of Oaths My Commission Expires _____	Title: _____



Instructions for Completing the Contractor/Consultant Certification of Payment Form

Office of Economic Development
Division of Small Business Opportunity
Compliance Unit
201 W. Colfax Ave. Dept. 907
Denver, CO 80202
Phone: 720-913-1999
DSBO@denvergov.org

Note: The attached Contractor/Consultant Certification of Payment form must be completed by the Contractor/ Subconsultant and all subcontractors/subconsultant or suppliers used on the project at **any tier** and submitted with each pay application. The Contractor/Consultant is responsible for the accuracy of all information provided and is required to have each subcontractor/subconsultant or supplier fill out the appropriate forms. Please be sure to complete all information requested at the top of the form, including the name of the person who prepared this form.

If you reproduce this form, you must continue to list each of the originally listed firms, as well as any additional firms used during the performance period of the contract. Please complete an additional CCP if there is second tier-ing involved.

If you have any questions, please call the Compliance Unit of DSBO at 720.913.1999.

Instructions for Completing the Contractor/Consultant Certification of Payment Form, per Column

Contractor/Subcontractor or Subconsultant/Supplier Name: In the space provided, list all subcontractors/ subconsultants and suppliers used on the project. For all M/W/S/E/DBEs use the exact name listed in the DSBO Directory.

M/W/S/E/DBE/NON: For each name listed, indicate whether the entity is a certified M/W/S/E/DBE.

- Column A:** Provide the contract amount, as listed at bid time, for the Contractor/Consultant and each subcontractor/subconsultant or supplier.
- Column B:** Provide the percentage portion of each listed subcontractor/subconsultant or supplier contract amount (Column A) compared to the total original contract amount in (I).
- Column C:** Provide the original contract amount (Column A) for each subcontractor/subconsultant or supplier plus any awarded alternate and/or change order amounts applicable. If an alternate/change order does not apply to the listed firm, re-enter the original contract amount (Column A).
- Column D:** Provide the percent portion of each listed subcontractor/subconsultant or supplier contract amount (Column C) compare to the current total contract amount in (II).
- Column E:** Provide the amount requested for work performed or materials supplied by each listed subcontractor/subconsultant or supplier for this pay application. The sum of the items in this column should equal the estimated amount requested for this pay application.
- Column F:** Provide the amount paid to each subcontractor/subconsultant or supplier on the previous pay application. Enter the previous pay application number in the column heading. The sum of the items listed in this column should equal the warrant amount paid to the Contractor/Consultant on the previous pay application. The amounts paid to the subcontractor/subcontractor or suppliers should be the actual amount of each check issued.
- Column G:** Provide the net paid to date for the Contractor/Subconsultant and each listed subcontractor/subconsultant or supplier.
- Column H:** Provide the percent portion of the net paid to date (Column G) for the Contractor/Subconsultant and each listed subcontractor/subconsultant or supplier of the current total contract amount in (II).

Rev 031816

SC-10 CONTRACT FORMS

In accordance with the terms and conditions of the Contract Documents, the City requires the use of certain form documents in complying with or satisfying various obligations, notifications and conditions in contracting with the City or performing Work hereunder. These form documents are referenced by title throughout the Contract Documents for mandatory use as directed. The following are the forms that shall be detached and utilized in accordance with the Contract Documents:

1. Performance and Payment Bond
2. Performance and Payment Bond Surety Authorization Letter (Sample)
3. Final/Partial Lien Release.

The following are forms that will be issued by the City during construction:

1. Notice to Apparent Low Bidder (Sample)
2. Notice to Proceed (Sample)
3. Certificate of Contract Release (Sample)

SC-11 CONSTRUCTION INSPECTION BY THE CITY

General Condition 1701, CONSTRUCTION INSPECTION BY THE CITY, is modified as follows:

.1 Persons who are employees of the City or who are under contract to the City or the City as lessee will be assigned to inspect and test the Work. These persons may perform any tests and observe the Work to determine whether or not designs, materials used, manufacturing and construction processes and methods applied, and equipment installed satisfy the requirements of the drawings and specifications, accepted Shop Drawings, Product Data and Samples, and the General Contractor's warranties and guarantees. The General Contractor shall permit these inspectors unlimited access to the Work and provide means of safe access to the Work, which cost shall be included as a Cost of the Work without any increase to the Guaranteed Maximum Price. In addition, General Contractor shall provide whatever access and means of access are needed to off-site facilities used to store or manufacture materials and equipment to be incorporated into the Work and shall respond to any other reasonable request to further the inspector's ability to observe or complete any tests. Such inspections shall not relieve the General Contractor of any of its quality control responsibilities or any other obligations under the Contract. All inspections and all tests conducted by the City are for the convenience and benefit of the City. These inspections and tests do not constitute acceptance of the materials or Work tested or inspected, and the City may reject or accept any Work or materials at any time prior to the inspections pursuant to G.C. 2002, whether or not previous inspections or tests were conducted by the inspector or a City representative.

.2 Building Inspection will perform building code compliance inspections for structures designed for human occupancy. It is the General Contractor's responsibility to schedule and obtain these inspections. If a code compliance inspection results in identification of a condition which will be at variance to the Contract Documents, the General Contractor shall immediately notify the Project Manager and confirm such notification with formal correspondence no later than forty-eight (48) hours after the occurrence.

.3 When any unit of government or political subdivision, utility or Railroad Corporation is to pay a portion of the cost of the Work, its respective representatives shall have the right to inspect the Work. This inspection shall not make any unit of government or political subdivision, utility or Railroad Corporation a party to the Contract, and shall not interfere with the rights of either party.

SC-12 DISPOSAL OF NON-HAZARDOUS WASTE AT DADS

In accordance with the Landfill Agreement made between the City and Waste Management of Colorado, Inc., bidders will be required to haul dedicated loads (non-hazardous entire loads of waste) to the Denver-Arapahoe Disposal Site ("DADS") for disposal. DADS is located at Highway 30 and Hampden Avenue in Arapahoe County, Colorado. The City will pay all fees associated with such disposal but the bidder shall be responsible for the costs of transporting the loads. Non-hazardous waste is defined as those substances and materials not defined or classified as hazardous by the Colorado Hazardous Waste Commission pursuant to C.R.S. §25-15-101(6), as amended from time to time, and includes construction debris, soil and asbestos. Bidders shall not use Gun Club Road between I-70 and Mississippi Avenue as a means of access to DADS.

SC-13 PROHIBITION ON USE OF CCA-TREATED WOOD PRODUCTS

The use of any wood products pressure-treated with chromated copper arsenate (CCA) is prohibited. Examples of CCA-treated wood products include wood used in play structures, decks, picnic tables, landscaping timbers, fencing, patios, walkways and boardwalks.

SC-14 WAIVER OF: PART 8 OF ARTICLE 20 OF TITLE 13, COLORADO REVISED STATUTES.

The Contractor specifically waives all the provisions of Part 8 of Article 20 of Title 13, Colorado Revised Statutes regarding defects in the Work under this Construction Contract.

SC-15 ATTORNEY'S FEES

Colorado Revised Statute 38-26-107 requires that in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to the Contractor sufficient funds to insure the payment of any such claims. Should the City and County of Denver be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, the Contractor agrees to pay to the City its costs and a reasonable attorney's fee which cost shall be included as a Cost of the Work.

Because the City Attorney Staff does not bill the City for legal services on an hourly basis, the Contractor agrees a reasonable fee shall be computed at the rate of one hundred dollars per hour of City Attorney time.

SC-16 INSURANCE

General Condition 1601 is hereby deleted in its entirety and replaced with the following:

(1) **General Conditions:** Contractor agrees to secure, at or before the time of execution of this Agreement, the following insurance covering all operations, goods or services provided pursuant to this Agreement. Contractor shall keep the required insurance coverage in force at all times during the term of the Agreement, or any extension thereof, during any warranty period, and for eight (8) years after termination of the Agreement. The required insurance shall be underwritten by an insurer licensed or authorized to do business in Colorado and rated by A.M. Best Company as "A-"VIII or better. Each policy shall contain a valid provision or endorsement requiring notification to the City in the event any of the required policies be canceled or non-renewed before the expiration date thereof. Such written notice shall be sent to the parties identified in the Notices section of this Agreement. Such notice shall reference the City contract number listed on the signature page of this Agreement. Said notice shall be sent thirty (30) days prior to such cancellation or non-renewal unless due to non-payment of premiums for which notice shall be sent ten (10) days prior. If such written notice is unavailable from the insurer, contractor shall provide written notice of cancellation, non-renewal and any reduction in coverage to the parties identified in the Notices section by certified mail, return receipt requested within three (3) business days of such notice by its insurer(s) and referencing the City's contract number. If any policy is in excess of a deductible or self-insured retention, the City must be notified by the Contractor. Contractor shall be responsible for the payment of any deductible or self-insured retention. The insurance coverages specified in this Agreement are the minimum requirements, and these requirements do not lessen or limit the liability of the Contractor. The Contractor shall maintain, at its own expense, any additional kinds or amounts of insurance that it may deem necessary to cover its obligations and liabilities under this Agreement.

(2) **Proof of Insurance:** Contractor shall provide a copy of this Agreement to its insurance agent or broker. Contractor may not commence services or work relating to the Agreement prior to placement of coverage. Contractor certifies that the certificate of insurance attached as part of the Contract Documents, preferably an ACORD certificate, complies with all insurance requirements of this Agreement. The City requests that the City's contract number be referenced on the Certificate. The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements set forth in this Agreement shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. The City's Risk Management Office may require additional proof of insurance, including but not limited to policies and endorsements.

(3) **Additional Insureds:** For Commercial General Liability and Auto Liability, Contractor and subcontractor's insurer(s) shall name the City and County of Denver, its elected and appointed officials, employees and volunteers as additional insured.

(4) **Waiver of Subrogation:** For all coverages, Contractor's insurer shall waive subrogation rights against the City.

(5) **Subcontractors and Subconsultants:** All subcontractors and subconsultants (including independent contractors, suppliers or other entities providing goods or services required by this Agreement) shall be subject to all of the requirements herein and shall procure and maintain the same coverages required of the Contractor. Contractor shall include all such subcontractors as additional insured under its policies (with the exception of Workers' Compensation) or shall ensure that all such subcontractors and subconsultants maintain the required

coverages. Contractor agrees to provide proof of insurance for all such subcontractors and subconsultants upon request by the City.

(6) **Workers' Compensation/Employer's Liability Insurance:** Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits of \$100,000 per occurrence for each bodily injury claim, \$100,000 per occurrence for each bodily injury caused by disease claim, and \$500,000 aggregate for all bodily injuries caused by disease claims. Contractor expressly represents to the City, as a material representation upon which the City is relying in entering into this Agreement, that none of the Contractor's officers or employees who may be eligible under any statute or law to reject Workers' Compensation Insurance shall effect such rejection during any part of the term of this Agreement, and that any such rejections previously effected, have been revoked as of the date Contractor executes this Agreement.

(7) **Commercial General Liability:** Contractor shall maintain a Commercial General Liability insurance policy with limits of \$1,000,000 for each occurrence, \$1,000,000 for each personal and advertising injury claim, \$2,000,000 products and completed operations aggregate, and \$2,000,000 policy aggregate.

(8) **Business Automobile Liability:** Contractor shall maintain Business Automobile Liability with limits of \$1,000,000 combined single limit applicable to all owned, hired and non-owned vehicles used in performing services under this Agreement

(9) **Additional Provisions:**

- (a) For Commercial General Liability, the policies must provide the following:
 - (i) That this Agreement is an Insured Contract under the policy;
 - (ii) Defense costs in excess of policy limits;
 - (iii) A severability of interests or separation of insureds provision (no insured vs. insured exclusion); and
 - (iv) A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by the City.
- (b) For claims-made coverage:
 - (i) The retroactive date must be on or before the contract date or the first date when any goods or services were provided to the City, whichever is earlier
- (c) Contractor shall advise the City in the event any general aggregate or other aggregate limits are reduced below the required per occurrence limits. At their own expense, and where such general aggregate or other aggregate limits have been reduced below the required per occurrence limit, the Contractor will procure such per occurrence limits and furnish a new certificate of insurance showing such coverage is in force.

SC-17 GREENPRINT DENVER REQUIREMENTS

In accordance with the City and County of Denver Executive Order 123: Greenprint Denver Office and Sustainability Policy, as amended, Contractor shall adhere to sections of Executive Order 123 pertinent to the construction of the built environment. This includes but is not limited to: all construction and renovation of buildings shall follow instructions and memorandum for high performance buildings; horizontal projects shall include the use of fly ash concrete and recycled aggregate where possible; and, all projects shall recycle construction and demolition waste, and install materials that contain recycled content whenever possible using the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) as guidance. Non-hazardous solid waste that is eligible for reuse or recycling is not subject to the DADS disposal requirement defined in SC-12.

A completed "Greenprint Denver Closeout Form for Construction Projects" shall be delivered to the Project Manager as a submittal requirement of Final Acceptance.

<http://www.denvergov.org/constructioncontracts/Home/ContractorResources/tabid/443154/Default.aspx>

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

PERFORMANCE AND PAYMENT BOND Bond No. 014077347

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned **STURGEON ELECTRIC COMPANY, INC.**, a corporation organized and existing under and by virtue of the laws of the State of **MICHIGAN**, hereafter referred to as the "Contractor", and **LIBERTY MUTUAL INSURANCE**, a corporation organized and existing under and by virtue of the laws of the State of **MASSACHUSETTS**, and authorized to transact business in the State of Colorado, as Surety, are held and firmly bound unto the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado, hereinafter referred to as the "City", in the penal sum of **One Million Six Hundred Thirteen Thousand Two Hundred Ten Dollars and Eighty Cents (\$1,613,210.80)**, lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves and our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents;

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT:

WHEREAS, the above bounden Contractor has entered into a written contract with the aforesaid City for furnishing all labor and tools, supplies, equipment, superintendence, materials and everything necessary for and required to do, perform and complete the construction of **CONTRACT NO. 201735705 TRAFFIC SIGNAL UPGRADE - MILL LEVY 6**, Denver, Colorado, and has bound itself to complete the project within the time or times specified or pay liquidated damages, all as designated, defined and described in the said Contract and Conditions thereof, and in accordance with the Plans and Technical Specifications therefore, a copy of said Contract being made a part hereof;

NOW, THEREFORE, if the said Contractor shall and will, in all particulars well and truly and faithfully observe, perform and abide by each and every Covenant, Condition and part of said Contract, and the Conditions, Technical Specifications, Plans, and other Contract Documents thereto attached, or by reference made a part thereof and any alterations in and additions thereto, according to the true intent and meaning in such case, then this obligation shall be and become null and void; otherwise, it shall remain in full force and effect;

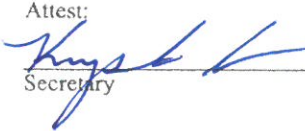
PROVIDED FURTHER, that if the said Contractor shall satisfy all claims and demands incurred by the Contractor in the performance of said Contract, and shall fully indemnify and save harmless the City from all damages, claims, demands, expense and charge of every kind (including claims of patent infringement) arising from any act, omission, or neglect of said Contractor, its agents, or employees with relation to said work; and shall fully reimburse and repay to the City all costs, damages, and expenses which it may incur in making good any default based upon the failure of the Contractor to fulfill its obligation to furnish maintenance, repairs or replacements for the full guarantee period provided in the Contract Documents, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

PROVIDED FURTHER, that if said Contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its subcontractors with labor and materials, rental machinery, tools or equipment used or performed in the prosecution of work provided for in the above Contract and that if the Contractor will indemnify and save harmless the City for the extent of any and all payments in connection with the carrying out of such Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect;

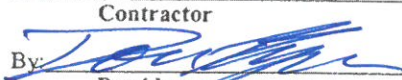
PROVIDED FURTHER, that if the said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, gasoline, lubricating oils, fuel oils, grease, coal, or any other supplies or materials used or consumed by said Contractor or its subcontractors in performance of the work contracted to be done, or fails to pay any person who supplies rental machinery, tools or equipment, all amounts due as the result of the use of such machinery, tools or equipment in the prosecution of the work, the Surety will pay the same in any amount not exceeding the amount of this obligation, together with interest as provided by law;

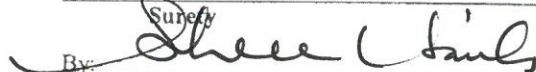
PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to contracts with others in connection with this project, or the work to be performed thereunder, or the Technical Specifications and Plans accompanying the same, shall in any way affect its obligation on this bond and it does hereby waive notice of any change, extension of time, alteration or addition to the terms of the Contract, or contracts, or to the work, or to the Technical Specifications and Plans.

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this
29th day of August, 2017.

Attest:

Secretary

Sturgen Electric Company, Inc.


Contractor
By: 
President Don Egan
Liberty Mutual Insurance Company

Surety
By: 
Attorney-In-Fact Sheree Hsieh

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond).

APPROVED AS TO FORM:
Attorney for the City and County of
Denver

By: 


Assistant City Attorney

APPROVED FOR THE CITY AND COUNTY OF
DENVER

By: 
MAYOR

By: 
EXECUTIVE DIRECTOR OF PUBLIC WORKS

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7774441

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brenda Johnston; Cindy Stellhorn; Cynthia L. Jenkins; Edward L. Mournighan; Ginger J. Krahn; Kimberly E. Kinkead; Michael H. Bill; Michael J. Marsella; Michael M. Bill; Rebecca A. Virt; Sheree Hsieh

all of the city of Indianapolis, state of IN each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 19th day of May, 2017.



The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 19th day of May, 2017, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Upper Merion Twp., Montgomery County
My Commission Expires March 28, 2021
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 29th day of August, 2017.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.



MJ INSURANCE

August 29, 2017

PERFORMANCE AND PAYMENT BOND Surety Authorization

Assistant City Attorney
201 W. Colfax Ave. Dept 1207
Denver, Colorado 80202

RE: Sturgeon Electric Company, Inc.

Contract No. :	201735705
Project Name:	Traffic Signal Upgrade – Mill Levy 6
Contract Amount:	\$1,613,210.80
Performance and Payment Bond No.:	014077347

Dear Assistant City Attorney,

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through the authorization of Liberty Mutual Insurance Company on August 29, 2017.

We hereby authorize the City and County of Denver, Department of Public Works, to date all bonds and powers of attorney to coincide with the date of the contract.

If you should have any additional questions or concerns, please don't hesitate to give me a call at 317 805-7500.

Thank you.

Sincerely,

Sheree Hsieh,
Attorney-in-Fact to Liberty Mutual Insurance Company

Your future in focus.

9225 Priority Way West Dr. | Suite 100 | Indianapolis, IN 46240
O 317.805.7500 | F 317.805.7515 | W mjinsurance.com



**PERFORMANCE AND PAYMENT BOND
SURETY AUTHORIZATION
(SAMPLE)**

FAX NUMBER: 720-913-3183
TELEPHONE NUMBER: 720-913-3267

Assistant City Attorney
201 W. Colfax Ave. Dept 1207
Denver, Colorado 80202

RE: (Company name)

Contract No: 201735705
Project Name: Traffic Signal Upgrade - Mill Levy 6
Contract Amount:
Performance and Payment Bond No.:

Dear Assistant City Attorney,

The Performance and Payment Bonds covering the above captioned project were executed by this agency, through _____ insurance company, on _____, 20__.

We hereby authorize the City and County of Denver, Department of Public Works, to date all bonds and powers of attorney to coincide with the date of the contract.

If you should have any additional questions or concerns, please don't hesitate to give me a call at _____.

Thank you.

Sincerely,

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

311 | POCKETGOV.COM | DENVERGOV.ORG | DENVER 8 TV



NOTICE OF APPARENT LOW BIDDER
(SAMPLE)

Current Date

To:

Gentlemen:

The MANAGER OF PUBLIC WORKS has considered the Bids submitted on August 10, 2017 for work to be done and materials to be furnished in and for:

CONTRACT No. 201735705 TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

as set forth in detail in the Contract Documents for the City and County of Denver, Colorado. It appears that your Bid is fair, equitable, and to the best interest of the City and County; therefore, said Bid is hereby accepted at the bid price contained herein, subject to execution of the Contract Documents and your furnishing the items specified below, the total cost thereof (Contract Amount Written), (Contract Amount Numeric).

It will be necessary for you to appear forthwith at the office of the Department of Public Works, Finance and Administration, 201 W. Colfax Ave. Dept 614, Denver, Colorado 80202, to receive the said Contract Documents, execute the same and return them to the Department of Public Works, Finance and Administration, within the time limit set forth in the Bid Proposal.

In accordance with the requirements set forth in the Contract Documents, you are required to furnish the following documents:

- a. Insurance Certificates: General Liability and Automotive Liability, Workman's Compensation and Employer Liability; or any other coverage required by the contract; and
- b. One original plus four copies of the Power of Attorney relative to Performance and/or Payment Bond;

All construction Contracts made and entered into by the City and County of Denver are subject to Affirmative Action and Equal Opportunity Rules and Regulations, as adopted by the Manager of Public Works, and each contract requiring payment by the City of one-half million dollars (\$500,000.00) or more shall first be approved by the City Council acting by ordinance and in accordance with Section 3.2.6 of the Charter of the City and County of Denver.

Prior to issuance of Notice to Proceed, all Equal Opportunity requirements must be completed. Additional information may be obtained by contacting the Director of Contract Compliance at (720-913-1700).

**NOTICE OF APPARENT LOW BIDDER
(SAMPLE)**

CONTRACT NO. 201735705

Page 2

The Bid Security submitted with your Bid, will be returned upon execution of the Contract and furnishing of the Performance Bond. In the event you should fail to execute the Contract and to furnish the performance Bond within the time limit specified, said Bid Security will be retained by the City and County of Denver as liquidated damages, and not as a penalty for the delay and extra work caused thereby.

Dated at Denver, Colorado this _____ day of _____ 20____.

CITY AND COUNTY OF DENVER

By _____
Executive Director of Public Works

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

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Current Date

**NOTICE TO PROCEED
(SAMPLE)**

Name
Company
Street
City/State/Zip

CONTRACT NO. 201735705, TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

In accordance with General Contract Condition 302 of the Standard Specifications for Construction, General Contract Conditions, 2011 Edition, you are hereby authorized and directed to proceed on _____ with the work of constructing contract number 201735705, as set forth in detail in the contract documents for the City and County of Denver.

With a contract time of _____ calendar days, the project must be complete on or before _____.

If you have not already done so, you must submit your construction schedule, in accordance with General Contract Condition 306.2.B, to the Project Manager within 10 days. Additionally, you must submit your tax exempt certificate, and copies of your subcontractors' certificates, in accordance with General Contract Condition 323.5, to the Project Manager as soon as possible. Failure to submit these certificates will delay processing of payment applications.

Sincerely,

Lesley B. Thomas
City Engineer

cc:

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

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Certificate of Contract Release
(SAMPLE)

Date

Name
Company
Street
City/State/Zip

RE: Certificate of Contract Release for
201735705, TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

Received this date of the City and County of Denver, as full and final payment of the cost of the improvements provided for in the foregoing contract, _____ dollars and _____ cents (\$_____), in cash, being the remainder of the full amount accruing to the undersigned by virtue of said contract; said cash also covering and including full payment for the cost of all extra work and material furnished by the undersigned in the construction of said improvements, and all incidentals thereto, and the undersigned hereby releases said City and County of Denver from any and all claims or demands whatsoever, regardless of how denominated, growing out of said contract.

And these presents are to certify that all persons performing work upon or furnishing materials for said improvements under the foregoing contract have been paid in full and this payment to be made is the last or final payment.

Contractor's Signature

Date Signed

If there are any questions, please contact me by telephone at (720) 913-XXXX. Please return this document via facsimile at (720) 913-1805 and mail to original to the above address.

Denver Public Works/Office of the Executive Director
201 West Colfax Avenue, Dept 608 | Denver, CO 80202
www.denvergov.org/dpw
p. 720.865.8630 | f. 720.865.8795

311 | POCKETGOV.COM | DENVERGOV.ORG | DENVER 8 TV



DEPARTMENT OF PUBLIC WORKS

Addendum

Contract No. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

JULY 10, 2017

**CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
Engineering Division**

CONTRACT NO. 201735705
PROJECT NAME: Traffic Signal Upgrade – Mill Levy 6
ADDENDUM NO. 1 TO CONTRACT DOCUMENTS

Bidders are hereby instructed that the drawings, specifications, and other contract documents are modified, corrected, supplemented and/or superseded for the above mentioned project as hereinafter described in the following attachments:

Bid Form

Replace BF-6.4 with BF-6.4 Addendum #1

Bid Document

Replace SQ-2 with SQ-2 Addendum #1

Questions and Answers

Q1- Page 26 of the technical specifications 212.1, General Requirements (A), states that the City Forestry Staff could want a full time Arborist to over see the project, how will this cost be covered?

A1- The awarded contractor will not be required to hire a full-time arborist. This is a general forestry comment for all projects relating to them. In this case, it would have been identified ahead of time if a full-time arborist were to be required. For this project, defer to the notes on plan sheets regarding coordination and tree protection approval with Forestry Operations: "1. Existing trees to be preserved in public right of way shall be protected per Forestry standards & practices. Tree protection shall be installed prior to issue of demolition permit, approved by Forestry, and shall remain in place throughout construction. No construction activities or storage of materials (including soil) shall take place within tree protection zones without prior written authorization from the Office of the City Forester.

2. Trees located within University ROW are maintained by Forestry Operations. Contact Rich Wilson (Richard.Wilson@denvergov.org) and coordinate tree protection with him. Public right of way trees to be protected outside University ROW will be monitored by Forestry ROW Inspections.

3. Due to level of construction adjacent to public ROW trees, chain link fencing shall be used to establish tree protection zone boundaries. Once installed and approved by Forestry staff, tree protection zone shall not be resized or removed without prior approval from Office of the City Forester."

Q2- What is the contract time for completing the project? Page 4 of the technical specifications states that the contractor has 60 days to complete, is this accurate?

A2- This a typo in the Technical Specifications. The actual Period of Performance is 240 days per the Bid Document.

Q3- Is there a place along the project for storing material and equipment?

A3 -There is not a designated storage area for this project.

Q4-The Summary of Approximate Quantities shows that the contractor is to furnish and install the Signal poles and mast arms, please verify that the contractor will furnish and install poles and mast arms?

A4- This is correct, for this project the signal poles and mast arms are to be furnished and installed by the contractor.

Q5- In the Technical Specification page 75 it is stated that all traffic signal poles shall have a 10' long luminaire arm with a 250 watt high pressure sodium "Hockey Puck" luminaire. The bid item 613-1300x and page 49 (of the Technical Specifications) refer to a 55watt LED(5300 lumines), Luminaire, please clarify to which luminaire type the city would like installed?

A5- Please disregard 250 watt HPS note on page 75. The luminaire required is the 55 Watt LED.

Q6- Will night work be allowed for any part of the project?

A6- While we are not restricting this project from nightwork altogether, the contractor will have to work with Right of Way – Construction Engineering when applying for the permit to see what is permitted. Given all locations of this project are adjacent to residential dwellings, any construction would have to comply with the CCD Noise Control Ordinance 9 PM – 7AM Mon-Fri and 5 PM – 8 AM Sat/Sun.

Q7- Will the City allow a full closures of the individual intersections for the "turn over" from existing to new?

A7 -Full closures will not be allowed. However, working with PW-Transportation & Mobility inspectors, hired traffic control and Uniformed Traffic Control Officers, traffic control can be coordinated for minimal disruption during “turn over” from existing to new signals.

Q8- What is the warranty period for this project?

A8- In addition to any transferable equipment and manufacturer’s warranties, all Denver Public Works projects are bound to the City and County of Denver, Department of Public Works Standard Specifications for Construction – General Contract Conditions. This can be found @ <https://www.denvergov.org/content/dam/denvergov/Portals/743/documents/2011%20DENVER%20GENERAL%20CONTRACT%20CONDITIONS.pdf> specifically Title 18 – Warranties, Guarantees, and Corrective Work.

Q9- It appears that the ped push buttons signs have been included in the “Sign Panel Class 1” pay item. Those Signs should be included in the of the push buttons, per spec. Page 68.

A9- This is correct, the specifications are accurate in that the cost of these signs are incidental to the “pedestrian push button” item cost. Therefore the quantity of “Sign Panel Class 1” should be 19 SF less. So for item

614-00011	SIGN PANEL (CLASS I)	QTY 213 SF should be 194 SF
------------------	-----------------------------	------------------------------------

Q10- The plan sheets only include “drilled caisson” quantities. Are there any location the city anticipates “vacuumed caissons”?

A11- The City anticipates approximately half of the caissons to be drilled and half to be vacuumed per the bid tab item numbers. The “per location” plan sheets did not get updated to reflect this, so those amounts on each sheet for “Drilled Caisson LF” should be half and half. The main SOQ sheet and Bid Tab reflect the accurate engineer’s estimate for quantity of each.

503-00036	DRILLED CAISSON (36 INCH)	157 LF
503-00037	VACUUMED CAISSON (36 INCH)	157 LF

Q11- Would the City consider removing the “tree retention and protection” pay item and moving it to a force account item?

A11-The tree retention and protection item is to remain. However, for clarification to methods and possible techniques, please refer to Specifications Section 212. This shows possibly needed techniques and requirements by Forestry Operations for the contractor to follow. The consultant estimated approximately 56 trees would have at least some portion in proximity to the project potentially in need of tree retention and protection.

Item No.	Description and Price	Estimated Quantity	Estimated Cost
613-8013X	ELECTRIC METER PEDESTAL CABINET at the unit price of \$_____per EACH.	7 EA	\$ _____
614-00011	SIGN PANEL (CLASS I) at the unit price of \$_____per SQUARE FOOT.	194 SF	\$ _____
614-00035	SIGN PANEL (SPECIAL) at the unit price of \$_____per SQUARE FOOT.	319 SF	\$ _____
614-00216	STEEL SIGN POST (2X2 INCH TUBING) at the unit price of \$_____per LINEAR FOOT.	11 LF	\$ _____
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN) at the unit price of \$_____per EACH.	42 EA	\$ _____
614-70336	TRAFFIC SIGNAL FACE (12-12-12) at the unit price of \$_____per EACH.	83 EA	\$ _____
614-72855	TRAFFIC SIGNAL CONTROLLER & CABINET (INSTALL ONLY) at the unit price of \$_____per EACH.	7 EA	\$ _____
614-72860	PEDESTRIAN PUSH BUTTON at the unit price of \$_____per EACH.	24 EA	\$ _____
614-72866	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM at the unit price of \$_____per EACH.	5 EA	\$ _____
614-72886	INTERSECTION DETECTION SYSTEM (CAMERA) at the unit price of \$_____per EACH.	1 EA	\$ _____
614-728X1	INTERSECTION DETECTION SYSTEM (2 CAMERA) at the unit price of \$_____per EACH.	4 EA	\$ _____




DENVER
THE MILE HIGH CITY

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
201735705

TRAFFIC SIGNAL UPGRADE – MILL LEVY 6
STATEMENT OF QUANTITIES

<u>Item No.</u>	<u>Description</u>	<u>Estimated Quantity</u>	
403-00720	HOT MIX ASPHALT (PATCHING) (ASPHALT)	20	TON
412-01100	CONCRETE PAVEMENT (11 INCH)	169	SY
503-00036	DRILLED CAISSON (36 INCH)	157	LF
503-00037	VACUUMED CAISSON (36 INCH)	157	LF
608-00000	CONCRETE SIDEWALK	406	SY
608-00010	CONCRETE CURB RAMP	379	SY
609-20010	6" CURB HEAD	225	LF
609-20100	CURB HEAD (0"-12" VARIABLE HEIGHT)	53	LF
609-21020	6" CURB AND GUTTER - 2' CATCH PAN	188	LF
609-21021	4" MOUNTABLE CURB	15	LF
610-00055	MEDIAN COVER MATERIAL (STONE)	263	SF
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	1,500	LF
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	2,885	LF
613-10000	WIRING	1	LS
613-1300X	LUMINAIRE LED (55 WATT)	23	EA
613-8013X	ELECTRIC METER PEDESTAL CABINET	7	EA
614-00011	SIGN PANEL (CLASS I)	194	SF
614-00035	SIGN PANEL (SPECIAL)	319	SF
614-00216	STEEL SIGN POST (2X2 INCH TUBING)	11	LF

This **ADDENDUM** shall be attached to, become a part of, and be returned with the Bid Proposal.



Lesley B. Thomas
City Engineer
8/3/17

Date

The undersigned bidder acknowledges receipt of this Addendum. The Proposal submitted herewith is in accordance with the stipulations set forth herein.



Contractor

ADDENDUM NO. 1

DATE: 08-03-17



PREVAILING WAGE RATES

Contract No. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

JULY 10, 2017



DENVER
THE MILE HIGH CITY

Career Service Authority
Denver's Human Resource Agency

201 W. Colfax, Department 412
Denver, CO 80202
p: 720.913.5751
f: 720.913.5720
www.denvergov.org/csa

TO: All Users of the City of Denver Prevailing Wage Schedules
FROM: Susan Keller, Human Resources Technician
DATE: Monday, June 12, 2017
SUBJECT: Latest Change to Prevailing Wage Schedules

Please be advised, prevailing wage rates for some building, heavy, and highway construction trades have not been updated by the United States Department of Labor (DOL) since March 1, 2002. The Career Service Authority Board, in their meeting held on April 21, 2011, approved the use of the attached supplemental wage rates until prevailing wage rates for these classifications of work are again published by the United States Department of Labor in accordance with the Davis-Bacon Act.

The effective date for this publication is **Friday, June 9, 2017** and applies to the City and County of Denver for **HIGHWAY CONSTRUCTION PROJECTS** in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO170019
Superseded General Decision No. CO20160019
Modification No. 2
Publication Date: 6/9/17
(8 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to, and individually registered in, a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program, which has received prior approval, by the DOL. Any employer, who employs an apprentice and is found to be in violation of this provision, shall be required to pay said apprentice the full journeyman scale.

For questions call (720) 913-5726.

Attachments as listed above.

General Decision Number: CO170019 06/09/2017 CO19

Superseded General Decision Number: CO20160019

State: Colorado

Construction Type: Highway

Counties: Denver and Douglas Counties in Colorado.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2017
1	01/27/2017
2	06/09/2017

CARP9901-008 11/01/2016

	Rates	Fringes
CARPENTER (Form Work Only).....	\$ 25.50	7.47

ELEC0068-016 03/01/2011

	Rates	Fringes
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	\$ 26.42	4.75%+8.68
Zone 2.....	\$ 29.42	4.75%+8.68

TRAFFIC SIGNAL INSTALLER ZONE DEFINITIONS

Zone 1 shall be a 35 mile radius, measured from the following addresses in each of the following cities:
Colorado Springs - Nevada & Bijou
Denver - Ellsworth Avenue & Broadway
Ft. Collins - Prospect & College
Grand Junction - 12th & North Avenue
Pueblo - I-25 & Highway 50
All work outside of these areas shall be paid Zone 2 rates.

* ENGI0009-008 05/01/2017

Rates	Fringes
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POWER EQUIPMENT OPERATOR:

(3)-Hydraulic Backhoe (Wheel Mounted, under 3/4 yds), Hydraulic Backhoe (Backhoe/Loader combination), Drill Rig Caisson (smaller than Watson 2500 and similar), Loader (up to and including 6 cu. yd.).....\$ 27.60	9.15
(3)-Loader (under 6 cu. yd.) Denver County.....\$ 27.60	9.15
(3)-Motor Grader (blade- rough) Douglas County.....\$ 27.60	9.15
(4)-Crane (50 tons and under), Scraper (single bowl, under 40 cu. yd).....\$ 27.75	9.15
(4)-Loader (over 6 cu. yd) Denver County.....\$ 27.75	9.15
(5)-Drill Rig Caisson (Watson 2500 similar or larger), Crane (51-90 tons), Scraper (40 cu.yd and over),.....\$ 27.92	9.15
(5)-Motor Grader (blade- finish) Douglas County.....\$ 27.92	9.15
(6)-Crane (91-140 tons).....\$ 28.55	9.15

SUCO2011-004 09/15/2011

	Rates	Fringes
CARPENTER (Excludes Form Work)...	\$ 19.27	5.08
CEMENT MASON/CONCRETE FINISHER		
Denver.....	\$ 20.18	5.75
Douglas.....	\$ 18.75	3.00
ELECTRICIAN (Excludes Traffic Signal Installation).....	\$ 35.13	6.83
FENCE ERECTOR (Excludes Link/Cyclone Fence Erection).....	\$ 13.02	3.20
GUARDRAIL INSTALLER.....	\$ 12.89	3.20
HIGHWAY/PARKING LOT STRIPING:Painter		
Denver.....	\$ 12.62	3.21
Douglas.....	\$ 13.89	3.21
IRONWORKER, REINFORCING (Excludes Guardrail Installation).....	\$ 16.69	5.45
IRONWORKER, STRUCTURAL (Includes Link/Cyclone Fence		

Erection, Excludes Guardrail Installation).....	\$ 18.22	6.01
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LABORER

Asphalt Raker.....	\$ 16.29	4.25
Asphalt Shoveler.....	\$ 21.21	4.25
Asphalt Spreader.....	\$ 18.58	4.65
Common or General		
Denver.....	\$ 16.76	6.77
Douglas.....	\$ 16.29	4.25
Concrete Saw (Hand Held)....	\$ 16.29	6.14
Landscape and Irrigation....	\$ 12.26	3.16
Mason Tender-		
Cement/Concrete		
Denver.....	\$ 16.96	4.04
Douglas.....	\$ 16.29	4.25
Pipelayer		
Denver.....	\$ 13.55	2.41
Douglas.....	\$ 16.30	2.18
Traffic Control (Flagger)...	\$ 9.55	3.05
Traffic Control (Sets Up/Moves Barrels, Cones, Install Signs, Arrow Boards and Place Stationary Flags)(Excludes Flaggers).....	\$ 12.43	3.22

PAINTER (Spray Only).....	\$ 16.99	2.87
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POWER EQUIPMENT OPERATOR:

Asphalt Laydown		
Denver.....	\$ 22.67	8.72
Douglas.....	\$ 23.67	8.47
Asphalt Paver		
Denver.....	\$ 24.97	6.13
Douglas.....	\$ 25.44	3.50
Asphalt Roller		
Denver.....	\$ 23.13	7.55
Douglas.....	\$ 23.63	6.43
Asphalt Spreader.....	\$ 22.67	8.72
Backhoe/Trackhoe		
Douglas.....	\$ 23.82	6.00
Bobcat/Skid Loader.....	\$ 15.37	4.28
Boom.....	\$ 22.67	8.72
Broom/Sweeper		
Denver.....	\$ 22.47	8.72
Douglas.....	\$ 22.96	8.22
Bulldozer.....	\$ 26.90	5.59
Concrete Pump.....	\$ 21.60	5.21
Drill		
Denver.....	\$ 20.48	4.71
Douglas.....	\$ 20.71	2.66
Forklift.....	\$ 15.91	4.68
Grader/Blade		
Denver.....	\$ 22.67	8.72
Guardrail/Post Driver.....	\$ 16.07	4.41
Loader (Front End)		
Douglas.....	\$ 21.67	8.22
Mechanic		
Denver.....	\$ 22.89	8.72
Douglas.....	\$ 23.88	8.22

Oiler		
Denver.....	\$ 23.73	8.41
Douglas.....	\$ 24.90	7.67
Roller/Compactor (Dirt and Grade Compaction)		
Denver.....	\$ 20.30	5.51
Douglas.....	\$ 22.78	4.86
Rotomill.....	\$ 16.22	4.41
Screed		
Denver.....	\$ 22.67	8.38
Douglas.....	\$ 29.99	1.40
Tractor.....	\$ 13.13	2.95

TRAFFIC SIGNALIZATION:

Groundsman

Denver.....	\$ 17.90	3.41
Douglas.....	\$ 18.67	7.17

TRUCK DRIVER

Distributor

Denver.....	\$ 17.81	5.82
Douglas.....	\$ 16.98	5.27

Dump Truck

Denver.....	\$ 15.27	5.27
Douglas.....	\$ 16.39	5.27

Lowboy Truck.....	\$ 17.25	5.27
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Mechanic.....	\$ 26.48	3.50
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Multi-Purpose Specialty &
Hoisting Truck

Denver.....	\$ 17.49	3.17
Douglas.....	\$ 20.05	2.88

Pickup and Pilot Car

Denver.....	\$ 14.24	3.77
Douglas.....	\$ 16.43	3.68

Semi/Trailer Truck.....	\$ 18.39	4.13
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Truck Mounted Attenuator....	\$ 12.43	3.22
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Water Truck

Denver.....	\$ 26.27	5.27
Douglas.....	\$ 19.46	2.58

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

**Office of Human Resources
Supplemental rates
(Specific to the Denver Projects)
Revised 4/11/2017)**

Classification		Base	Fringe
Millwrights		\$28.00	\$10.00
Line Construction:			
	Lineman, Gas Fitter/Welder	\$36.88	\$9.55
	Line Eq Operator/Line Truck Crew	\$25.74	\$8.09
Power Equipment Operators (Tunnels Above and Below Ground, shafts and raises):			
	GROUP 1	\$25.12	\$10.81
	GROUP 2	\$25.47	\$10.85
	GROUP 3	\$25.57	\$10.86
	GROUP 4	\$25.82	\$10.88
	GROUP 5	\$25.97	\$10.90
	GROUP 6	\$26.12	\$10.91
	GROUP 7	\$26.37	\$10.94
Power Equipment Operators:			
	GROUP 1	\$22.97	\$10.60
	GROUP 2	\$23.32	\$10.63
	GROUP 3	\$23.67	\$10.67
	GROUP 4	\$23.82	\$10.68
	GROUP 5	\$23.97	\$10.70
	GROUP 6	\$24.12	\$10.71
	GROUP 7	\$24.88	\$10.79
Ironworkers (Ornamental)		\$26.05	\$12.00
Laborers (Removal of Asbestos)		\$21.03	\$8.55
Plumbers		\$30.19	\$13.55
Pipefitters		\$30.45	\$12.85
Truck Drivers:			
	GROUP 1	\$18.42	\$10.00
	GROUP 2	\$19.14	\$10.07
	GROUP 3	\$19.48	\$10.11
	GROUP 4	\$20.01	\$10.16
	GROUP 5	\$20.66	\$10.23
	GROUP 6	\$21.46	\$10.31

POWER EQUIPMENT OPERATOR CLASSIFICATIONS
(TUNNELS ABOVE AND BELOW GROUND, SHAFTS, AND RAISES):

GROUP 1 - Brakeman

GROUP 2 - Motorman

GROUP 3 - Compressor

GROUP 4 - Air Tractors; Grout Machine; Gunnite Machine; Jumbo Form

GROUP 5 - Concrete Placement Pumps; Mucking Machines and Front End Loaders, Underground, Slusher; Mine Hoist Operator; Mechanic

GROUP 6 - Mechanic Welder

GROUP 7 - Mole

NOTE: Any equipment listed below being used in tunnel work, below or above ground shall be paid not less than \$2.00 per hour above the listed wage rates.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1 - Air compressor, brakeman, drill operator -smaller than Watson 2500 and similar, operators of 5 or more light plants, welding machines, generators, single unit conveyor, pumps, vacuum well point system, tractor, under 70 hp with or without attachments compressors, 360 C.F.M. or less

GROUP 2 - Conveyor, handling building materials, ditch witch and similar trenching machine, forklift, haulage motor man, pugmill, portable screening plant with or without a spray bar, screening plants, with classifier, self-propelled roller, rubber-tires under 5 tons.

GROUP 3 - asphalt plant, backfiller; cableway signalman; C.M.I. and similar, concrete batching plants, concrete finish machine, concrete gang saw on concrete paving, concrete mixer, less than 1 yd., under 8 inches, distributors, bituminous surfaces dozer, drill, diamond or core, elevating graders, elevator operator, lubricating and service engineer, grout machine, gunnite machine, hoist, 1 drum, horizontal directional drill operator, hydraulic backhoes; road stabilization machine, sandblasting Machine, single unit portable crusher, with or without washer, Tie tamper, wheel mounted, trenching machine operator, winch on truck.

GROUP 4 - Cable operated power shovels, draglines, articulated truck operator, clamshells, 5 cubic yards and under, concrete mixer over 1 Cubic yard, concrete pavers 34E or similar, grade Checker, hoist, 2 drums, mechanic, mixer mobile, Portable crusher, with or without washer; tractor with sideboom, roto-M ill and similar, welder.

GROUP 5 - Cable operated power shovels, draglines, clamshells and Backhoes over 5 cubic yards, caisson drill Watson 2500 similar or larger, motor grader blade-finish, hoist 3 drum or more.

GROUP 6 - Cableway, derrick, quad nine push unit, wheel excavator, belt or elevating loader.

GROUP 7 - tower cranes all types.

TRUCK DRIVER CLASSIFICATIONS:

GROUP 1 - Greasemen, Servicemen and Ambulance Drivers, Battery Men, Shuttle Truck or Bus, Flat Rack Tandem Axle.

GROUP 2 - Fork Lift Driver, Straddle Truck Driver, Lumber Carrier, Liquid and Bulk Tankers Single Axle, Combination, Euclid Electric or Similar, Specialty and Hoisting, Truck Drivers Fuel Truck, Grease Truck, Combination Fuel and Grease.

GROUP 3 - Truck Driver Snow Plow, Truck Driver Dump or Type Jumbo and similar type equipment.

GROUP 4 - Cement Mixer Agitator Truck over 10 cubic yards to and including 15 cubic yards, Tire Man, Cab Operated Distributor Truck Driver.

GROUP 5 - Heavy Duty Diesel Mechanic, Body Man, Welders or Combination Men.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.



TECHNICAL SPECIFICATIONS

Contract No. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

JULY 10, 2017

CITY OF AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS
SPECIAL PROVISIONS
Mill Levy 6 University Signals Upgrade

GENERAL CONTRACT CONDITIONS

General Contract Conditions shall be the City and County of Denver (CCD), Department of Public Works, "Standard Specifications for Construction General Contract Conditions," 2011 edition and hereinafter modified shall be used for this project.

STANDARD CONSTRUCTION SPECIFICATIONS

Standard Construction Specifications shall be the Colorado Department of Transportation (CDOT) "Standard Specifications for Road and Bridge Construction" adopted in 2011 and as hereinafter modified shall be used for this project.

STANDARD CONSTRUCTION DETAILS

It is the intent of the City to use applicable details from the CDOT M&S Standards and CCD Transportation Standards and Details for the Engineering Division, most recent editions. Drainage related appurtenances shall be constructed as shown in the CCD Department of Public Works document titled "Wastewater Capital Projects Management Standard Construction Specifications". This document can be found at the following web address: https://www.denvergov.org/content/dam/denvergov/Portals/705/documents/guidelines/PWES-010.0-Wastewater_Capital_Projects_Standard_Construction_Specifications.pdf

PROJECT SPECIAL PROVISIONS

The following Special Provisions take precedence over the Standard Specifications or Plans. Anything mentioned in the specifications and not shown in the drawings, or shown in the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. These Special Provisions supplement or amend the referenced Standard Specifications.

References to CCD, City, Department, or Engineer in the Standard Specifications and/or Project Special Provisions refer to the City and County of Denver Construction Manager.

INDEX TO PROJECT SPECIAL PROVISIONS

Index to Project Special Provisions	
Commencement and Completion of Work	
Revision of Section 101 Definitions and Terms	
Revision of Section 106 Conformity to the Contract of Hot Mix Asphalt	
Revision of Section 107 Performance of Safety Critical Work	
Revision of Section 107 Worker Safety	
Revision of Section 107 Protection of Existing Vegetation	
Revision of Section 201 Clearing and Grubbing	
Revision of Section 202 Removal of Asphalt Concrete Pavement	
Revision of Section 202 Removal of Asphalt Mat	
Revision of Section 202 Removal of Traffic Signal Equipment	
Revision of Section 203 Excavation and Embankment	
Revision of Section 203 Potholing	
Revision of Section 208 Erosion Control	
Revision of Section 209 Watering and Dust Palliatives	
Revision of Section 210 Reset Structures	
Revision of Section 212 Tree Retention and Protection	
Revision of Section 250 Environmental, Health, and Safety Management	
Revision of Section 403 Hot Mix Asphalt	
Revision of Section 503 Drilled Caissons	
Revision of Section 608 Sidewalks and Concrete Curb Ramps	
Revision of Section 609 Curb and Gutter	
Revision of Section 613 Electrical Conductor Identification	
Revision of Section 613 Electrical Conduit – General	
Revision of Section 613 Lighting (Luminaire)(LED 5300 Lumens)	
Revision of Section 613 Pull Box – General	
Revision of Section 613 Electric Meter Pedestal Cabinet and Base	
Revision of Section 614 Sign Panel (Special)	
Revision of Section 614 Pedestrian Signal Face (16) (Countdown)	
Revision of Section 614 Traffic Control Devices	
Revision of Section 614 Traffic Signal Controller Cabinet (Install Only)	
Revision of Section 614 Traffic Signal Cabinet Base	
Revision of Section 614 Uninterrupted Power Supply System	
Revision of Section 614 Pedestrian Push Button and Instruction Sign	
Revision of Section 614 Intersection Detection System (Camera)	
Revision of Section 614 Traffic Signal Poles - General	
Revision of Section 614 Telemetry (Field)	
Revision of Section 614 Fiber Optic Cable – General	
Revision of Section 625 Construction Surveying	
Revision of Section 626 Mobilization	
Revision of Section 630 Construction Zone Traffic Control	
Allowances	
Special Construction Requirements	Traffic Signal Installation Personnel Requirement
	Utilities

STANDARD SPECIAL PROVISION INDEX

SSP Index 05-05-2017
 [For 2011 CDOT Spec Book]

Name	Date	No. of Pages
Revision of Section 101 and 630 – Construction Zone Traffic Control	(April 30, 2015)	2
Revision of Section 106 – Certificates of Compliance and Certified Test Reports	(February 3, 2011)	1
Revision of Sections 106, 627 and 713 - Glass Beads for Pavement Marking	(February 23, 2017)	2
Revision of Section 107 – Warning Lights for Work Vehicles and Equipment	(January 30, 2014)	1
Revision of Sections 107 and 208 – Water Quality Control, Under One Acre of Disturbance	(March 29, 2016)	4
Revision of Section 201 – Clearing and Grubbing	(November 10, 2016)	1
Revision of Section 203 – Excavation and Embankment	(November 10, 2016)	11
Revision of Sections 206, 304, and 613 – Compaction	(November 10, 2016)	1
Revision of Sections 206 and 601 – Maturity Meters and Concrete Form and Falsework Removal	(December 18, 2015)	3
Revision of Section 208 – Erosion Control	(April 20, 2017)	22
Revision of Section 250 – Environmental, Health and Safety Management	(March 23, 2017)	14
Revision of Section 401 – Compaction of Hot Mix Asphalt	(April 26, 2012)	1
Revision of Section 401 – Temperature Segregation	(February 3, 2011)	1
Revision of Sections 412, 601, and 711 – Liquid Membrane-Forming Compounds for Curing Concrete	(May 5, 2011)	1
Revision of Section 601 – Concrete Batching	(February 3, 2011)	1
Revision of Section 601 – Concrete Finishing	(February 3, 2011)	1
Revision of Section 601 – Concrete Slump Acceptance	(October 29, 2015)	1
Revision of Section 601 – Structural Concrete Strength Acceptance	(April 30, 2015)	1
Revision of Sections 601 and 701 – Cements and Pozzolans	(November 6, 2014)	4
Revision of Sections 613 and 715 – LED Roadway Luminaire	(January 30, 2014)	5
Revision of Sections 614 and 713– Sign Panel Sheeting	(August 11, 2016)	2
Revision of Section 627 – Preformed Plastic Pavement Marking	(May 12, 2016)	2
Revision of Section 627 and 713 – Modified Epoxy Pavement Marking	(May 12, 2016)	2
Revision of Section 630 – Retroreflective Sign Sheeting	(January 12, 2017)	1
Revision of Section 702 – Bituminous Materials	(March 29, 2016)	11
Revision of Section 703 – Aggregate for Hot Mix Asphalt	(November 1, 2012)	2
Revision of Section 703 – Concrete Aggregate	(July 28, 2011)	1
Revision of Section 709 – Epoxy Coated Reinforcing Bars	(February 18, 2016)	1
Revision of Section 712 – Water for Mixing or Curing Concrete	(February 3, 2011)	1

COMMENCEMENT AND COMPLETION OF WORK

The Contractor shall complete all work within 60 calendar days in accordance with the "Notice to Proceed."

Section 108 of the Standard Specifications is hereby revised for this project as follows:

Subsection 108.03 shall include the following:

The Contractor's progress schedule may be a Bar Chart Schedule.

Salient features to be shown on the Contractor's progress schedule for this project are:

- (1) Notice to Proceed
- (2) Mobilization(s)
- (3) Erosion Control
- (4) Removals
- (5) Utilities
- (6) Curb, Gutter, Curb Ramps, Sidewalk
- (7) Concrete Pavement
- (8) Hot Mix Asphalt (Patching)
- (9) Traffic Signals
- (10) Signing and Striping
- (11) Construction Traffic Control

**REVISION OF SECTION 101
DEFINITIONS AND TERMS**

Section 101 of the Standard Specifications is hereby revised for this project as follows:

Technical Specifications related to construction materials and methods for the Work under this Contract shall consist of the Colorado Department of Transportation *Standard Specifications for Road and Bridge Construction* dated 2011.

Certain terms utilized in the Specifications referred to in the paragraph above shall be interpreted to have different meaning within the scope of this Contract. A summary of redefinitions follows:

101.28 Department. City and County of Denver, Colorado.

101.29 Engineer. The Director of Public Works, Denver, Colorado, or designated representative.

101.39 Laboratory. The City and County of Denver, Colorado, or designated representative..

101.29 Project Engineer or Project Manager. The Director of Public Works, Denver, Colorado, or designated representative.

101.76 State. City and County of Denver, Colorado (where applicable).

**REVISION OF SECTION 106
CONFORMITY TO THE CONTRACT OF HOT MIX ASPHALT**

Section 106 of the Standard Specifications is hereby revised for this project as follows:

Subsection 106.05 shall include the following:

For this project, Contractor process control testing of hot mix asphalt is mandatory.

**REVISION OF SECTION 107
PERFORMANCE OF SAFETY CRITICAL WORK**

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Add subsection 107.061 immediately following subsection 107.06 as follows:

107.061 Performance of Safety Critical Work. The following work elements are considered safety critical work for this project:

- (1) Overhead structure construction or repair
- (2) Temporary works: falsework, shoring that exceeds 5 feet in height, cofferdams, and temporary bridges
- (3) Work requiring the use of cranes or other heavy lifting equipment. Also when construction materials are being lifted that may fall onto active traffic lanes.

The Contractor shall submit, for record purposes only, an initial detailed construction plan that addresses safe construction of each of the safety critical elements. When the specifications already require an erection plan, a bridge removal plan, or a removal of portion of bridge plan, it shall be included as a part of this plan. The detailed construction plan shall be submitted two weeks prior to the safety critical element conference described below. The construction plan shall be stamped "Approved for Construction" and signed by the Contractor. The construction plan will not be approved by the Engineer.

The Construction Plan shall include the following:

- (1) Safety Critical Element for which the plan is being prepared and submitted.
- (2) Contractor or subcontractor responsible for the plan preparation and the work.
- (3) Schedule, procedures, equipment, and sequence of operations, that comply with the working hour limitations
- (4) Temporary works required: falsework, bracing, shoring, etc.
- (5) Additional actions that will be taken to ensure that the work will be performed safely.
- (6) Names and qualifications of workers who will be in responsible charge of the work:
 - A. Years of experience performing similar work
 - B. Training taken in performing similar work
 - C. Certifications earned in performing similar work
- (7) Names and qualifications of workers operating cranes or other lifting equipment
 - A. Years of experience performing similar work
 - B. Training taken in performing similar work
 - C. Certifications earned in performing similar work
- (8) The construction plan shall address how the Contractor will handle contingencies such as:
 - A. Unplanned events (storms, traffic accidents, etc.)
 - B. Structural elements that don't fit or line up
 - C. Work that cannot be completed in time for the roadway to be reopened to traffic
 - D. Replacement of workers who don't perform the work safely
 - E. Equipment failure
 - F. Other potential difficulties inherent in the type of work being performed
- (9) Name and qualifications of Contractor's person designated to determine and notify the Engineer in writing when it is safe to open a route to traffic after it has been closed for safety critical work.
- (10) Erection plan or bridge removal plan when submitted as required elsewhere by the specifications. Plan requirements that overlap with above requirements may be submitted only once.

**REVISION OF SECTION 107
PERFORMANCE OF SAFETY CRITICAL WORK**

A safety critical element conference shall be held two weeks prior to beginning construction on each safety critical element. The Engineer, the Contractor, the safety critical element subcontractors, and the Contractor's Engineer shall attend the conference. Required pre-erection conferences or bridge removal conferences may be included as a part of this conference.

After the safety critical element conference, and prior to beginning work on the safety critical element, the Contractor shall submit a final construction plan to the Engineer for record purposes only. The Contractor's Engineer shall sign and seal temporary works related to construction plans for the safety critical elements. The final construction plan shall be stamped "Approved for Construction" and signed by the Contractor.

The Contractor shall perform safety critical work only when the Engineer is on the project site. The Contractor's Engineer shall be on site to inspect and provide written approval of safety critical work for which he provided signed and sealed construction details. Unless otherwise directed or approved, the Contractor's Engineer need not be on site during the actual performance of safety critical work, but shall be present to conduct inspection for written approval of the safety critical work.

When ordered by the Engineer, the Contractor shall immediately stop safety critical work that is being performed in an unsafe manner or will result in an unsafe situation for the traveling public. Prior to stopping work, the Contractor shall make the situation safe for work stoppage. The Contractor shall submit an acceptable plan to correct the unsafe process before the Engineer will authorize resumption of the work.

When ordered by the Engineer, the Contractor shall remove workers from the project that are performing the safety critical work in a manner that creates an unsafe situation for the public in accordance with subsection 108.05.

Should an unplanned event occur or the safety critical operation deviate from the submitted plan, the Contractor shall immediately cease operations on the safety critical element, except for performing any work necessary to ensure worksite safety, and provide proper protection of the work and the traveling public. If the Contractor intends to modify the submitted plan, he shall submit a revised plan to the Engineer prior to resuming operations.

All costs associated with the preparation and implementation of each safety critical element construction plan will not be measured and paid for separately, but shall be included in the work.

Nothing in the section shall be construed to relieve the Contractor from ultimate liability for unsafe or negligent acts or to be a waiver of the Colorado Governmental Immunity Act on behalf of the City and County of Denver.

**REVISION OF SECTION 107
WORKER SAFETY**

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Subsection 107.06 shall include the following:

Contractors shall comply with the CCD Noise Control Ordinance for all construction activities scheduled to occur between the hours of 9:00 p.m. to 7:00 a.m. Monday – Friday and 5:00 p.m. and 8:00 a.m. Saturday through Sunday if noise levels are expected to exceed 50 dBA in residential areas or 60 dBA in commercial areas. Nighttime construction activities exceeding noise levels during these restricted hours may not be initiated without first obtaining this permit variance from CCD.

Under any circumstances where nighttime construction activities will take place between the restrictive hours listed above where noise levels will exceed the noise impact thresholds, the contractor is required to apply for a construction noise variance no less than one month before the startup date for construction. Note: the CCD board only meets the 2nd Thursday of every month.

Applications shall be submitted through the Denver Department of Environmental Health (DEH) at a cost of \$25.00 for application processing.

The contractor is responsible for fulfilling the requirements set forth by the CCD and is responsible for obtaining the permit variance prior to the construction startup date. All exemption requests and permitting requirements will not be paid for separately, but will be included in the work.

If the Contractor is ordered to cease operations due to violations of a noise ordinance as a result of equipment back up alarms, the Contractor shall take whatever actions are necessary to comply with the ordinance and continue work on the project. This includes the option of using an observer in lieu of using the equipment's back up alarms as allowed by 29 CFR 1926.601(b) (4) (II) of the OSHA Safety and Health Standards. Should the Contractor fail to mitigate the noise ordinance violation, the Contractor shall be deemed to have waived any right to a claim as a result of work suspension or being required to perform the work at times not specified in the Contract.

If the Contractor uses an observer in lieu of back up alarms, the Contractor shall follow all of the OSHA requirements regarding the use of observers.

All costs incidental to the foregoing requirements shall be included in the original contract prices for the project.

**REVISION OF SECTION 107
PROTECTION OF EXISTING VEGETATION**

Section 107 of the Standard Specifications is hereby revised for this project as follows:

Subsection 107.12 shall include the following:

The Contractor shall save all existing vegetation (including trees, shrubs, ground covers, grasses, wetlands & riparian) in this area, except for that vegetation, which must be removed to accommodate construction of the project, per the plans. Specific areas of vegetation to be protected shall be as directed by the Engineer and shall be protected by using orange construction fencing, wire fencing with metal posts or silt fence. Fencing for trees shall be installed according to CCD's Standard Detail for Tree Protection Area included in the plans or as approved by the Engineer. Equipment shall not be installed or stockpile material within 15 feet of existing trees to remain.

The Contractor shall perform all the work in such a manner that the least environmental damage will result. All questionable areas or items shall be brought to the attention of the Engineer for approval prior to removal or any damaging activity.

The Contractor shall promptly report any vegetation damaged or scarred during construction to the Engineer for assessment of damages. Damaged or destroyed fenced vegetation, shall be replaced at the expense of the Contractor. Vegetation of replaceable size shall be replaced at the Contractor's expense. When trees, shrubs beyond replaceable size or wetlands have been damaged or destroyed, the Contractor shall be liable for the appraised value based upon the official current publications. For trees and shrubs use the International Society of Arboriculture, Guide for Plant Appraisals. The Contractor shall pay any fines or jail time should a wetland be damaged, at no cost to the project. The value of disturbed vegetation shall be calculated according to the following formula:

(Vegetation size) x (Species) x (Location) x (Condition) x (Arborist or Wetland Specialist) = Vegetation value

A consulting Arborist retained by the City will determine the value of the trees and shrubs. A consulting Wetland Specialist shall determine the value of the wetland or wetland species. This value will be deducted from any money due to the Contractor.

The determination as to whether a plant is of replacement size or beyond will be made by the City's Landscape Architect or Wetland Specialist. Contact Rich Wilson (Richard.Wilson@denvergov.org) at CCD Forestry Department.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is repaired to the Engineer's satisfaction at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

**REVISION OF SECTION 201
CLEARING AND GRUBBING**

Section 201 of the Standard Specifications is hereby revised for this project as follows:

Subsection 201.02, paragraph 2 shall be deleted and replaced with the following:

Removals shall be completed to the proposed subgrade elevation for the work, or as designated by the Engineer.

Removal of trees with less than a 4 inch diameter, when measured 24 inches or less above the existing grade, will not be measured and paid for separately. These tree removals will be included in the clearing and grubbing work.

Subsection 201.02, paragraph 8 shall be deleted and replaced with the following:

All tree trimming will be done by the City and County of Denver through the City Forester's Office. Contact Rich Wilson (Richard.Wilson@denvergov.org) two (2) days prior.

Subsection 201.02 is hereby revised to include:

All trees designated to remain shall be protected in accordance with Denver's Standard Detail for Tree Protection Area.

Subsection 201.04 is hereby revised to include:

Clearing and grubbing will not be measured and paid for separately but shall be included in the cost of the work.

Tree protection will be measured and paid for according to Revision of Section 212, Tree Retention and Protection, of these special provisions.

Payment includes all labor, equipment, and materials necessary to complete the work.

**REVISION OF SECTION 202
REMOVAL OF ASPHALT CONCRETE PAVEMENT**

Section 202 of the Standard Specifications is hereby revised for this project as follows:

In subsection 202.02 delete the seventh paragraph and replace with the following:

The existing concrete pavement, which varies in thickness, shall be removed in a manner that minimizes contamination of the removed concrete with underlying material. The removed pavement shall become the property of the Contractor and be disposed of by any one or more of the following described methods:

1. Use in embankment construction in accordance with subsection 203.06.
2. Place material in bottom of fills as approved by the Engineer.
3. Place material in subgrade soft spots outside of the roadway prism as directed by the Engineer.
4. Dispose of outside the project site.

Subsection 202.11 shall include the following:

The removal of the existing concrete pavement will be measured by the square yard of pavement removed to the required depth and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Removal of Concrete Pavement	Square Yard

Unless otherwise specified in the Contract, the disposal of the concrete pavement or its use in other locations on the project will not be measured and paid for separately, but shall be included in the work.

**REVISION OF SECTION 202
REMOVAL OF ASPHALT MAT**

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.01 shall include the following:

This work includes removal and disposal of existing asphalt mat within the project limits as shown on the plans or at locations directed by the Engineer.

In subsection 202.02 delete the seventh paragraph and replace with the following:

The existing asphalt mat, which varies in thickness, shall be removed in a manner that minimizes contamination of the removed mat with underlying material. The removed mat shall become the property of the Contractor and shall be and be disposed of by any one or more of the following described methods:

1. Use in embankment construction in accordance with subsection 203.06.
2. Place material in bottom of fills as approved by the Engineer.
3. Place material in subgrade soft spots outside of the roadway prism as directed by the Engineer.
4. Recycle into the Hot Mix Asphalt.
5. Dispose of outside the project site.

Subsection 202.11 shall include the following:

The removal of the existing asphalt mat will be measured by the square yard of mat removed to the underlying material and accepted.

Subsection 202.12 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Removal of Asphalt Mat	Square Yard

Unless otherwise specified in the Contract, the disposal of the asphalt mat or its use in other locations on the project will not be measured and paid for separately, but shall be included in the work.

**REVISION OF SECTION 202
REMOVAL OF TRAFFIC SIGNAL EQUIPMENT**

Section 202 of the Standard Specifications is hereby revised for this project as follows:

Subsection 202.03 shall include the following:

The Contractor shall safeguard any salvageable materials designated by Denver Traffic, and shall be responsible for the expense of repairing or replacing damaged or missing material until it is delivered to the City and County of Denver Traffic Maintenance Yard at 5440 Roslyn Street.

Designation of salvageable equipment and times for delivery of such items shall be coordinated with Denver Traffic (contact Chris Lillie at 720-865-4066 or Greg Salazar at 303-591-7146).

Signal operations shall be maintained at each of the project intersections throughout construction.

Subsection 202.04 shall include the following:

Removal of the traffic signal equipment shall include signal poles (without luminaries), pedestal poles, footings, span wire cable, traffic signal controller and cabinet, pedestrian push button, cabinet footings, all attachment hardware, and all incidental equipment, except as noted on plans. All existing foundations and pull boxes shall be removed and back-filled. All wiring shall be removed from existing conduit and the conduit shall be abandoned in place.

Xcel Energy shall remove all signal poles with luminaries attached. Xcel Energy will remove only the signal pole and luminaire, and the Contractor shall remove the remainder of the traffic signal equipment, as noted in the plans. The Contractor shall coordinate with Xcel Energy for these removals and is referred to the Project Special Revision "Utilities" herein.

All "Light Emitting Diode" (LED) signal lenses in existing signal faces shall be removed prior to the removal of the signal face. These LED lenses shall be protected from damage and delivered to 5440 Roslyn Street, Denver. This work shall be included in the cost of Removal of Traffic Signal Equipment and will not be paid for separately.

Times for delivery to the maintenance yard shall be coordinated with Denver Traffic Engineering Services at (720) 865-4000.

Subsection 202.12 shall include the following:

Pay Item	Pay Unit
Removal of Traffic Signal Equipment	Lump Sum

Payment includes all labor, equipment, and materials necessary to complete the work.

**REVISION OF SECTION 203
EXCAVATION AND EMBANKMENT**

Section 203 of the Standard Specifications is hereby revised for this project as follows:

Subsection 203.03 shall include the following:

(c) Subgrade Preparation. Subgrade preparation is the preparation of the underlying subgrade directly below and prior to placement of any new subbase, base course layers, pavement, and/or structure.

In Subsection 203.09, third paragraph, delete the first sentence.

Subsection 203.13 Item (f) is hereby deleted in its entirety and replaced with the following:

Proof Rolling. Proof Rolling will not be measured or paid for separately but will be considered incidental to other items in the work.

Subsection 203.13 is hereby revised to include the following:

(g) *Subgrade Preparation.* Subgrade preparation will not be measured or paid for separately, but will be considered incidental to the work item of the overlying structure.

Subsection 203.14 is hereby revised to include the following:

Stockpiling of embankment material utilized for utility backfill will not be measured or paid for separately but shall be considered incidental to other work items.

**REVISION OF SECTION 203
POTHOLING**

Section 203 of the Standard Specifications is hereby revised for this project as follows:

Delete Subsection 203.13(e) and replace with the following:

(e) Potholing. Potholing will be measured by each. All other related work, including removal of existing pavement, backfilling, shoring and labor will not be measured and paid for separately, but shall be included in the work. All surface material disturbed by potholing shall be restored in kind in accordance with the provisions of the Standards and Details for the City and County of Denver (Latest Revision). Related work also includes permanent backfill with CLSM (flow fill or flashfill), permanent asphalt patches in asphalt street, and new concrete panel for sidewalk if one pothole in sidewalk, new street concrete panel if 3 or more potholes result after work is done. Follow CCD TS&D for restoration.

Subsection 203.14 of the Standard Specifications shall be modified as follows:

Payment will be made under:

Pay Item	Pay Unit
Potholing	Each

REVISION OF SECTION 208 EROSION CONTROL

Section 208 of the Standard Specifications is hereby removed in its entirety and replaced with the following:

PART I: DEFINITIONS

Definitions used for this Section shall consist of those listed in Title 1 of the City and County of Denver “Standard Specifications for Construction, General Contract Conditions”, 1999 edition.

Definitions used for this Section hereby incorporate those identified within the City and County of Denver Construction Activities Stormwater Manual (CASM).

Additional Definitions applicable to this Section are listed heretofore:

Basis of Payment: The terms under which “Work” is paid, as a designated “Pay Item” in accordance with the quantity measured and the “Pay Unit.”

Best Management Practices (BMPs): Schedules of activities, prohibitions of practices, installation of devices, maintenance procedures, and other management practices deployed to stabilize the construction site to prevent or reduce the pollution of State Waters (see definition below). Stormwater BMPs can be classified as "structural" (i.e., devices installed or constructed on a site) or "non-structural" (procedures, such as modified landscaping practices).

Colorado Department of Health and Environment (CDPHE): State of Colorado, Water Quality Control Division responsible for issuance of State Construction Stormwater Permit.

Construction Activities Stormwater Discharge Permit (CASDP): Permit issued by the City for compliance with City & County of Denver Revised Municipal Code and Department of Public Works Rules & Regulations concerning the discharge of pollutants in storm generated runoff from construction sites to Municipal Separate Storm Sewer System (MS4, see definition below) or State Waters, via the Municipal Separate Storm Sewer System (MS4).

Construction Activities Stormwater Manual (CASM): City and County of Denver Construction Activities Stormwater Manual (CASM), 2010 edition.

Colorado Department of Transportation (CDOT): State agency that has published standards for Erosion Control with accompanying Erosion Control Supervisor certification courses.

Erosion Control Supervisor (ECS): The Erosion Control Supervisor is assigned by the Contractor to perform duties as described in this Section. The ECS shall be properly trained in BMPs per requirements of Part V below, and shall be under the direction of a Professional Engineer licensed in the State of Colorado when performing any modifications to the Project Stormwater Management Plan (SWMP).

Final Stabilization: Point of construction when all ground surface disturbing activities at the site have been completed and uniform vegetative cover has reached 70% of pre-disturbance vegetative cover, or equivalent permanent features have been employed. At this point, all temporary BMPs can be removed, all construction and equipment maintenance wastes have been disposed of properly; and all elements of the Stormwater Management Plan have been completed.

**REVISION OF SECTION 208
EROSION CONTROL**

Major SWMP Modification: Changes to the original SWMP that removes or adds additional area to the Project, or modifies the final hydrology or drainage of the Project. A Major SWMP Modification requires the submission of revised Stormwater Management Plan (SWMP) elements to the Permit Authority for review and approval. Any adjustments to a SWMP must be performed either by or under the direction of a Professional Engineer licensed in the State of Colorado.

Minor SWMP Modification: Modification to the SWMP that does NOT increase the scope or change hydrology of the Project but: modifies/improves specific BMPs in use at site, indicates progression in phasing of the Project, or specifies relocation of previously approved BMPs within the Project. Any adjustments to a SWMP must be performed either by or under the direction of a Professional Engineer licensed in the State of Colorado.

Municipal Separate Storm Sewer System (MS4): A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- a) Owned or operated by a State, city, town, county, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of stormwater or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under Section 208 of the Federal Clean Water Act that discharges to State Waters;
- b) Designed or used for collecting or conveying stormwater;
- c) Which is not a combined sewer; and
- d) Which is not part of a Publicly Owned Treatment Works (POTW).

Permit Authority: The Department authorized by the City to review and process CASDP Applications for Capital and/ or governmental sponsored Projects. The responsible City department serving as the Permit Authority is the Public Works Project Controls Office. As a clarification, the Development Services Department of the City serves as the point of intake and permit processing center.

Permit Enforcement Authority: The Department authorized by the City to inspect and enforce CASDP Rules and Conditions for all construction Projects within the City's MS4 Boundary. The responsible City department serving as the Permit Enforcement Authority is the Wastewater Management Division of the Department of Public Works.

State Construction Stormwater Permit: Colorado Revised Statutes require that all construction sites/development Projects, which, by definition, disturb one or more acres in area, shall be covered by a State issued general permit for construction activities. Information on the application requirements for the State permit can be obtained by phone at 303-692-3500; or by visiting their offices located at 4300 Cherry Creek Drive South, Denver, CO 80246-1530 or on the Web at: www.cdphe.state.co.us

State Waters: Any and all surface waters which are contained in or flow in or through this State, not to include waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.

Examples of State Waters include, but are not limited to, perennial streams, intermittent or ephemeral gulches and arroyos, ponds, lakes, reservoirs, irrigation canals or ditches, wetlands, stormwater conveyances (when they discharge to a surface water), and groundwater.

**REVISION OF SECTION 208
EROSION CONTROL**

Stormwater Management Plan (SWMP): The Stormwater Management Plan contains the requirements necessary to accomplish all the following:

The SWMP establishes a minimum standard to construct, install, maintain, and remove required BMPs during the life of the Contract to prevent or minimize pollution of stormwater due to erosion, sediment transport, and construction related pollutant generated during all phases of the Project. A SWMP consists of the following elements:

- (i) CASDP Narrative Worksheet with Narrative Report. The Narrative Report and supporting documents should fully address the methods to be used to prevent sediment, debris, and other pollutants from entering the MS4 and/ or State Waters in and around the Project area. Proposed structural and non-structural BMPs should be described with sufficient implementation detail to insure that the logical phases of the proposed construction Project meet the performance standards listed in the CASM.
- (ii) Proposed site drawings and Best Management Practice (BMP) installation details as they apply to the site conforming to the Urban Storm Drainage Criteria Manual, Vol. 3, "Best Management Practices", most current version as issued by the Urban Drainage and Flood Control District (UDFCD), or those established by the City's Department of Public Works. If erosion control drawings were included within the bid documents for the Project, they shall be used for bid purposes and initial planning/ deployment of BMPs on the Project. If provided drawings are signed/ sealed by a Professional Engineer, they have been pre-approved by the Permit Authority and may be used without revision for purposes of submitting for CASDP. If provided drawings do not have signature/ seal of Professional Engineer licensed by the State of Colorado, they will require revision by the Contractor with Professional Engineer signature/seal prior to submission to the City and County of Denver for CASDP.
- (iii) Supporting documentation related to proposed BMPs that are not currently identified in UDFCD Vol. 3 or as otherwise published by the City.

Any preparation of or adjustments to a SWMP must be performed either by or under the supervision of a Professional Engineer or Landscape Architect, licensed in the State of Colorado. SWMP elements submitted to the City shall also meet currently established criteria of the CDPHE as the SWMP must meet all local, State and Federal requirements.

Substantial Completion of Erosion Control: Point of construction when permanent BMPs have been installed, initial growth is in place, and the site is waiting for vegetative cover to reach 70% of pre-disturbance vegetative cover.

PART II: DESCRIPTION

This Work shall consist of constructing, installing, maintaining, and removing when required, BMPs during the life of the Contract until Final Stabilization to prevent or minimize erosion, sedimentation, and pollution of any waters including storm, drainageways, MS4, State Waters, and/ or wetlands. Work under this Section includes the Contractor obtaining required Permits, utilizing SWMP elements provided in the Contract, and/ or SWMP elements specifically prepared by the Contractor as defined herein. The work shall also consist of providing on-going maintenance and monitoring of the SWMP as may be necessary due to the specific and/or dynamic needs of

**REVISION OF SECTION 208
EROSION CONTROL**

the Project as well as meet all requirements set forth within the CASM.

The Contractor shall coordinate the construction of temporary BMPs with the construction of permanent BMPs to assure economical, effective, and continuous erosion and sediment control and water pollution prevention throughout the construction period until Final Stabilization is achieved.

When a provision of this Section or an order by the Permit Enforcement Authority requires that an action be immediate or taken immediately, it shall be understood that the Contractor shall at once begin effecting completion of the action and pursue it to completion in a manner acceptable to the Permit Enforcement Authority, and in accordance with applicable Permitting requirements.

PART III: MATERIALS

Materials to be used for BMPs shall conform to each specific detail as set forth within the Project SWMP or as noted on the Contract Drawings.

PART IV: EROSION CONTROL PERMIT STATUS

The current SWMP status for the Project is as follows:

A SWMP is currently not required for this project as the proposed disturbed area and/ or proximity to stream does not meet the minimum criteria for requiring a CASDP. All provisions of the following Parts V-VIII of this Section are hereby deleted and shall not be made part of the Project. However, the responsibilities for minimizing sediment pollution from the Project have not been waived, and as such, the City hereby requires the Contractor to perform as specified in the following notes.

“A CASDP Permit will not be required for this project, however, the Contractor and/or their authorized agents shall ensure that all potential pollutants generated during demolition, excavation, trenching, boring, grading, or other construction Work associated with this permit, be prevented from discharge to stormwater conveyance systems in the vicinity of the Project.

The Contractor and/or their authorized agents shall remove all sediment, mud, construction debris, or other potential pollutants that may have been discharged to or, accumulate in the flow lines of storm drainage appurtenances and public rights of ways of the City and County of Denver and CDOT as a result of construction activities associated with this Project. All removals shall be conducted in a timely manner.

The Contractor shall be held responsible for remediation of any adverse impacts to the CCD or CDOT MS4, State Waters, waterways, wetlands, and or other public or private properties, resulting from work done as part of this Project.

The Contractor and/or their authorized agents shall insure that all loads of cut and fill material imported to or exported from the Project shall be properly covered to prevent loss of the material during transport on public rights of way.” (Sec.49-552; Revised Municipal Code)

**REVISION OF SECTION 208
EROSION CONTROL**

Approved erosion and sediment control ‘Best Management Practices’ shall be maintained and kept in good repair for the duration of the Project. All necessary maintenance and repair shall be completed immediately upon discovery of any deficiency or defect.

The Contractor and/or their authorized agents shall implement the following Best Management Practices (BMPs) on site during construction:

1. **VEHICLE TRACKING CONTROL:** This BMP is required at all access points for ingress/egress from off-site impervious surfaces to construction site pervious areas that are used by vehicular traffic or construction equipment.
2. **INLET PROTECTION:** This BMP is required on all existing or proposed storm sewer inlets in the vicinity of the construction site that may receive site runoff. The BMP must be appropriate to the type of storm inlet and appropriate for the ground surface at the inlet.
3. **INTERIM SITE STABILIZATION:** This BMP is required to provide a measure for preventing the discharge of sediment from construction sites where overlot grading or other site disturbance has occurred. This BMP is particularly necessary on sites where construction activities/disturbance will be limited to small areas of the Project site. Acceptable BMPs include:
 - a) Preserving existing vegetation
 - b) Seeding and planting
 - c) Mulching
 - d) Mulching and seeding
 - e) Temporary/Permanent re-vegetation operations
 - f) Chemical soil stabilizer application (requires WMD approval)
4. **WASTE MANAGEMENT/CONTAINMENT:** This BMP requires that all construction wastes, fuels, lubricants, chemical wastes, trash, sanitary wastes, contaminated soils or debris shall be contained on site, protected from contact with precipitation or surface runoff, periodically removed from the construction site, and properly disposed of.
5. **SPILL PREVENTION/CONTAINMENT:** This BMP defines the measures proposed for preventing, controlling, or containing spills of fuel, lubricants, or other pollutants; and protecting potential pollutants from contact with precipitation or runoff.
6. **CHUTE WASHOUT CONTAINMENT:** Water used in the cleaning of cement truck delivery chutes shall be discharged into a predefined, bermed containment area on the job site. The required containment area is to be bermed so that wash water is totally contained. Wash water discharged into the containment area shall be allowed to infiltrate or evaporate. Dried cement waste is removed from the containment area and properly disposed of.
 - a) The direct or indirect discharge of water containing waste cement to the storm sewer system is prohibited (Sec.56-102a, c; Revised Municipal Code, City and County of Denver).
7. **SWEEPING:** This BMP requires that impervious surfaces which are adjacent to or contained within construction sites be swept on a daily basis or as needed during the day when sediment and other

**REVISION OF SECTION 208
EROSION CONTROL**

materials are tracked or discharged on to them. Either sweeping by hand or use of Street Sweepers is acceptable. Street sweepers using water while sweeping is preferred in order to minimize dust. Flushing off paved surfaces with water is prohibited.

8. **PERIMETER CONTROL:** This BMP requires that a construction site install a perimeter control measure along the edge of the construction Site, to prevent, or filter the discharge of surface runoff from the construction site. The type of perimeter control used shall be determined based on site conditions and location. Maintenance and repair of the control measure shall occur as needed, in a timely manner.
9. **STOCK PILES:** Soils that will be stockpiled for more than thirty (30) days shall be protected from wind and water erosion within fourteen (14) days of stockpile construction. Stabilization of stockpiles located within 100 feet of receiving waters, or with slopes 3 to 1 or greater shall be completed within seven (7) days following stockpile construction. Stabilization and protection of the stockpile may be accomplished by any of the following: Mulching, Temporary/Permanent Revegetation Operations, Chemical Soil Stabilizer Application (requires Denver Public Works approval), or erosion control matting/Geotextiles. If stockpiles are located within 100 feet of receiving waters, a drainageway or the site perimeter, additional sediment controls shall be required.
10. **SAW CUTTING OPERATIONS:** The Contractor shall protect all storm sewer facilities adjacent to any location where pavement cutting operations involving wheel cutting, saw cutting, or abrasive water jet cutting are to take place. The Contractor shall remove and properly dispose of all waste products generated by said cutting operations on a daily basis or as needed throughout the work day. The discharge of any water contaminated by waste products from cutting operations to the storm sewer system is prohibited. (Sec.56-102a, c; Revised Municipal Code, City and County of Denver)
11. **STRUCTURAL CONTROLS:** Development sites that are required to provide detention and water quality enhancement facilities for storm runoff need to install the detention facilities early in the construction build-out of the site. Projects that are using underground detention are required to install a pretreatment structure(s) or sedimentation basin(s) as a means of treating potentially polluted storm water prior to entering the detention structure. Use of these structures is required for entrapping sediment and construction debris during the active construction phase of the project. A narrative section of a Management Plan should address operation and maintenance of the structural controls being used as an active construction BMP.

PART V: BASIS OF PAYMENT

Erosion Control will not be measured and paid for separately, but shall be included in the work unless specified otherwise.

Aggregate Bags will be measured by each bag that is installed and accepted. Payment will be full compensation for all work, materials and equipment required to complete the item, including surface preparation, maintenance throughout the project, and removal upon completion of work.

**REVISION OF SECTION 208
EROSION CONTROL**

Sweeping, when used as a BMP as shown in the Contract, will be measured by the number of hours that a pickup broom or equipment capable of collecting sediment, authorized by the Engineer, is used to remove sediment from the roadway or other paved surfaces. Each week the Contractor shall submit to the Engineer a statement detailing the type of sweeping equipment used and the number of hours it was used to pick up sediment. Operator will not be measured and paid for separately, but shall be included in the work. Payment for Sweeping (Sediment Removal) shall be full compensation for all work necessary to complete this item.

Pay Item	Pay Unit
Aggregate Bag	Linear Foot
Concrete Washout Structure	Each
Storm Drain Inlet Protection (Type I)	Each
Erosion Control Supervisor	Hour

**REVISION OF SECTION 209
WATERING AND DUST PALLIATIVES**

Section 209 of the Standard Specifications is hereby revised for this project to include the following:

Subsection 209.07 paragraph 1 shall be deleted and replaced with the following:

Water for moisture-density control, landscaping, pre-wetting, and for dust palliatives will not be measured and paid for separately but shall be included in the cost of the work.

**REVISION OF SECTION 210
RESET STRUCTURES**

Section 210 of the Standard Specifications is hereby revised for this project to include the following:

Subsection 210.02 is hereby revised to include the following:

Resetting of structures is to be done in accordance with the plans. It is the Contractor's responsibility to document the condition of the structure prior to its removal. This includes but is not limited to photographs, videotapes and measurements. Any existing damage or condition that may be disputable after the structure is replaced should be brought to the Engineers attention prior to removal. If necessary, new material shall be used at the direction of the Engineer.

Subsection 210.12 is hereby revised as follows:

Any structure that is to be reset shall be measured per each, length, etc and paid for under section 210 Reset Structure (Type).

Subsection 210.13 is hereby revised to as follows:

Payment will be made under:

Pay Item	Pay Unit
Reset 5GHz Radio	Each
Reset Sign Panel	Each
Reset Bench	Each

Payment shall be full compensation for all work and materials necessary to complete this item including, but not limited to documentation of existing structure and stockpiling of structure as required.

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

Section 212 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

This work consists of retaining and protection of trees during the construction of the project.

212.1 GENERAL REQUIREMENTS:

- (a) There should be daily supervision of field crews by the City Forestry Staff or Project Consulting Arborist during the critical phases of the project: for example, demolition of existing concrete; root pruning; construction of retaining walls and construction of new curb or sidewalk in tree protection areas. City Forester may require a consulting arborist be hired to oversee the project.
- (b) If it appears that the completion of the construction may cause damage to the branches of any tree, the Contractor shall contact the City Forester's Office. The Forester will make a determination as to whether such damage is eminent.
- (c) To prevent or minimize soil compaction, designated routes for equipment and foot traffic by work crews shall be determined prior to commencing construction activities, and shall be indicated in the tree protection plan to be submitted by Contractor. These routes shall be marked at the site, prior to commencement of construction, with tree protection fencing and signage as specified in Paragraphs 3.6 and 3.7 of this section. A Tree Protection Plan shall be submitted and approved.
- (d) Motorized equipment and trailers, including tractors, bobcats, bulldozers, trackhoes, trucks, cars, and carts shall not be allowed access within tree protection areas. Should access be necessary within designated tree protection areas, the existing grade shall be covered with six (6) to eight (8) inches of wood mulch to help distribute the weight of equipment and to minimize soil compaction and rutting. Plywood and/or mulch is not acceptable bridging material for driving over exposed tree roots. Exposed tree roots shall not be driven over. The City Forester or Project Consulting Arborist shall be notified and shall approve of the access and driving surface prior to its use.
- (e) Materials and supplies shall not be stockpiled or stored within the tree protection area. Should temporary storage be necessary within designated tree protection areas, the existing grade shall be covered with double, overlapping sheets of 1/2 inch thick plywood, or six (6) to eight (8) inches of wood mulch to help distribute the weight of materials or supplies and to minimize soil compaction.
- (f) Under no circumstances shall any objects or materials be leaned against or supported by a tree's trunk, branches, or exposed roots. The attachment or installation to trees of any sign, cable, wire, nail, swing, or any other material that is not needed to help support the natural structure of the tree is prohibited. Standard arboricultural techniques such as bracing or cabling that are performed by professional arborists are acceptable upon approval by the City Forester or Project Consulting Arborist.
- (g) Appropriate tree pruning and/or removal permits must be secured prior to beginning work.

212.2 DEFINITIONS:

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

- (a) **TREE PROTECTION AREA:** Generally, a tree protection area should consist of the ground encompassing from 1.5 (minimum) to 2.0 times the distance between the trunk and drip line, or one linear foot away from the trunk base for every inch diameter of the trunk, whichever is greater. (See section below). Areas of ground covered by pavement, buildings, or other permanent structures where the presence of roots is minimal or negligible, are excluded. The area under or within the tree's dripline is also referred to as the "Critical Root Zone" (see below).
1. With groups of trees or where an array effect is present, there may be discontinuous (non-overlapping) perimeters of tree protection areas, which result in difficult to maintain or ineffective tree protection fencing. In these cases, even though tree protection areas do not overlap, they should be treated as though they do if the distance between the perimeters of such areas is less than thirty (30) feet. In effect, this will artificially enlarge the area of tree protection, but will result in a more clearly defined, manageable area.
- (b) **DRIP LINE:** The outermost edge of the tree's canopy or branch spread. The area within a tree's dripline is all the ground under the total branch spread.
- (c) **CRITICAL ROOT ZONE:** Generally, all of the ground area included in the dripline.
- (d) **DIAMETER (CALIPER):** The size (in inches) of a tree's trunk is measured at:
1. six (6) inches above grade for trunk diameters up to and including four (4) inches;
 2. twelve (12) inches above grade for trunk diameters from four (4) inches up to and including eight (8) inches; and
 3. four and a half (4½) feet above grade for trunk diameters greater than eight (8) inches; in accordance with guidelines established in the "Guide for Plant Appraisal". All measurements should be rounded to the nearest inch.
- (e) **HIGH-VALUE SHRUB:** Any specimen shrub with an appraised value of \$100.00 or more.
- (f) **PROJECT CONSULTING ARBORIST:** An independent consultant with a degree in a field related to arboriculture, and at least five years field experience in tree preservation or on-site monitoring of public works or construction projects involving tree retention and protection. The Consultant should be an active member in the American Society of Consulting Arborists and International Society of Arboriculture.

212.3 REFERENCE STANDARDS AND GUIDELINES:

- (a) Contractor shall comply with applicable requirements and recommendations of the most current versions of the following standards and guidelines. Where these conflict with other specified requirements, the more restrictive requirements shall govern.
1. ANSI 2133.1-1988: American National Standard for Tree Care Operations
 2. ANSI A300-1994: Standard Practices for Trees, Shrubs and Other Woody Plant Materials
 3. NATIONAL ARBORIST ASSOCIATION STANDARDS: Pruning, Cabling and Bracing, Fertilization

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

4. GUIDE FOR PLANT APPRAISAL-8TH EDITION: Authored by the Council of Tree and Landscape Appraisers; published by the International Society of Arboriculture

MATERIALS

Not applicable.

CONSTRUCTION REQUIREMENTS

212.4 DEMOLITION OF EXISTING CONCRETE: Caution should be used during removal of existing street, curb, gutter, sidewalk, drain inlets, and other concrete and asphalt demolition, to minimize injury to tree root systems. The following procedures should be used when removing existing concrete.

- (a) Breaking of the existing concrete and asphalt for removal should be done in a manner that will minimize ground disturbance and vibration.
- (b) Curbs and sidewalks within designated tree protection areas and critical root zones shall be removed by hand. When removing existing sidewalks and curbs, care should be taken to avoid injury to roots located under, over, or adjacent to paved surfaces.
- (c) Roots and root-trunk flares growing over curbs should not be injured during breaking of curbs and removal of debris. Wood and bark tissues shall not be injured by striking tissues with equipment.
- (d) During the removal of concrete, all root systems and soil areas exposed shall not be disturbed.
- (e) Motorized equipment and trailers, including tractors, Bobcats, bulldozers, trackhoes, trucks, cars, and carts are to be limited to access on the existing paved street only. Access is not allowed behind the curb within tree protection areas.
- (f) Should access be necessary within designated tree protection areas, the existing grade shall be covered with double, overlapping sheets of 1/2 inch thick plywood, or six (6) to eight (8) inches of wood mulch to help distribute the weight of equipment and to minimize soil compaction and rutting. Plywood and/or mulch is not acceptable bridging material for driving over exposed tree roots. Exposed tree roots shall not be driven over. The City Forester or Project Consulting Arborist shall be notified and shall approve of the access and driving surface prior to its use.

212.5 CONSTRUCTION OF SIDEWALKS, CURBS, CONCRETE, ASPHALT PAVING AND DRAINAGE INLETS: The following procedures shall be used when constructing sidewalks, curbs, concrete, asphalt paving, and drainage inlets.

- (a) Keep all materials and equipment within the street bounded by existing curbs.
- (b) Protect exposed roots from contamination by stabilization materials and concrete.

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

- (c) Locate concrete washout areas away from roots and tree protection areas.
- (d) When excavating for the construction of inlets, excavated soil shall be deposited in trucks and hauled off or deposited temporarily on $\frac{1}{2}$ inch thick plywood outside the critical root zone. Excavated and fill soil shall not be deposited, even temporarily, on unprotected natural grade.
- (e) After proper pruning, as needed, cover exposed roots within thirty (30) minutes to minimize desiccation. Roots may be covered with soil, mulch, or moistened burlap (7 ounce or equivalent), and shall be kept moist during the period until the final grade is established.
- (f) Where possible, sidewalks should be raised, narrowed, curbed, or relocated to prevent cutting and removing major roots (e.g. roots greater than three inches in diameter).
- (g) Place a sheet of six (6) mil or thicker plastic over the grade within affected portions of tree protection areas prior to pouring concrete sidewalks, curbs, inlets, ramps, and driveway approaches. The plastic will assist in providing a non-leaching barrier between the concrete, soil and roots.
- (h) Construct new sidewalks on, or above, the existing grade instead of excavating into root zones. The new grade shall not interfere with sheet-flow drainage.
- (i) Limit grading to a maximum of two (2) inches of fill over natural grade within critical root zones. Fill should consist of sandy loam topsoil. Clay soils shall not be used as fill. When using fill soil, the existing surface to receive fill should be scarified prior to filling. Any filling operation should not occur during water saturated soil conditions.
- (j) Existing soil may be used as a form for back of curb and gutter, with or without the use of a thin masonite-type form, although a masonite form is preferred. This will minimize excavation in the critical root zone and prevent undue injury to the roots. This method is unnecessary in areas outside the critical root zone. Place a layer of Typar BioBarrier between the curb and tree roots to help inhibit root growth that may exploit small cracks in the curb. Where appropriate, use curbs with discontinuous footings to maintain natural grade near the base of trees adjacent to the curbing, and to minimize injury to roots and root flares.
- (k) Provide for easy concrete removal and replacement where an obvious raised root may cause sidewalk cracking in the future. This can be accomplished by installing an expansion joint on either side of the root or by etching the concrete on either side of the root to allow that particular section to be broken out and replaced. Compaction rating for the replacement walkway should not exceed 80% Proctor density. Tree roots will continue to slowly add girth every year; therefore, the base material needs to be malleable (e.g. suitable subgrade aggregates, crushed granite, or compacted sand) to prevent a fulcrum or pressure point which can crack or heave the walkway.

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

- (l) Where appropriate, and under the direction of the City Forester or Project Consulting Arborist, root restricting barriers can be installed with a minimal amount of disturbance. There are several promising landscape related materials used as barriers to root growth, especially away from sidewalks, curbs and streets. Three such materials are:
1. a stiff nylon woven fabric (Q899 nylon fabric with extra firm finish from Jason Mills, Westwood, NJ);
 2. 14-mesh or smaller copper wire screen; and
 3. Typar BioBarrier (REEMAY, Inc., Old Hickory, TN). The nylon fabric has holes approximately 1/26th-inch square separated by strands approximately 1/26th-inch thick, with strands fused together. Copper screen has been shown to be effective in controlling seedling root growth. Typar BioBarrier is a commercial product developed specifically to control roots of trees, and consists of a felt-like spun-bounded polypropylene fabric to which polyethylene pellets are attached at one and a half (1 1/2) inch spacing. The pellets are impregnated with the herbicide Trifluralin and release it slowly over time (many years). After a two (2) foot deep, narrow trench is dug adjacent to the curb, sidewalk, or other structure involved, and after any affected roots are properly pruned, the material of choice should be placed against the side of the wall closest to the roots that were severed (side of the wall farthest from the structure being protected). Note: This procedure should not be used if large, existing roots (four (4) inches or larger in diameter) will be severed. The nylon fabric and copper screen will constrict roots to the size of the openings in the material; beyond the constrictions, roots will be greatly stunted except for knobs that form against the barriers. The barrier should be installed at least eighteen (18) to twenty-four (24) inches deep (in a vertical plane).
- (m) In areas where roots have to be removed for construction of drain inlets, roots shall be severed prior to excavation to eliminate unnecessary tearing of roots by equipment.
1. Excavate soil by hand at the construction cut limit to a depth of thirty (30) inches or to the depth of the required root cut, whichever is less.
 2. Prune roots as specified in Part 3, 3.1, D of this section.
 3. Protect exposed roots as specified in Part 3, 3.1, B.5 of this section.
- (n) Concrete or chemicals spilled within tree protection areas should be completely removed. Contamination soil shall be completely removed at the time of the spill and removed by hand without disturbance to root systems. Appropriate soil should be added as necessary to restore the grade.

212.6 IRRIGATION OR UTILITY INSTALLATION:

- (a) **PROTECTION OF TREES AND HIGH-VALUE SHRUBS:** Contractor shall protect all trees and high-value shrubs from injury due to irrigation related work. All injuries to trees and high-value shrubs shall be mitigated to the satisfaction of the Owner, and, if appropriate in accordance with guidelines established in the "Guide for Plant Appraisal". All costs of such mitigating shall be charged to and paid by the Contractor. See Subsection 212.02(e) of this section for definition of high value.

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

1. All irrigation lines shall be indicated on construction plans and pre-approved by the City Forester or Project Consulting Arborist. Unless absolutely necessary, no irrigation lines shall be located within 10 feet of any existing tree trunk. (See following paragraphs).
- (b) **EXISTING TREES:** The City Forester or Project Consulting Arborist shall be notified prior to any trenching or excavation known or suspected to involve cutting of more than:
 1. two roots, three inches or more in diameter; and/or
 2. four roots between two (2) and three (3) inches in diameter. The City Forester or Project Consulting Arborist shall be notified immediately in the event that roots in excess of that described above are cut, torn, ripped, or otherwise injured.
- (c) All trenching or other work under the dripline of any tree shall be done by hand or by other methods which will prevent breakage or other injury to branches and roots.
- (d) Where it is necessary to excavate within the critical root zone of existing trees, contractor shall use all possible care to avoid injury to trees and tree roots. Excavation, in areas where two (2) inch diameter and larger roots occur, shall be done by hand with approved hand tools. Where possible, tree roots two (2) inches or larger in diameter shall be tunneled or bored under and shall be covered with moistened burlap to prevent excessive drying.
- (e) Wherever a trenching machine exposes roots smaller than two (2) inches in diameter, such roots extending through the trench wall shall be hand pruned (see Subsection 212.07 of this section). All trenches within critical root zones shall be closed within twelve (12) hours-if this is not possible, the trench walls shall be covered with burlap and kept moistened. Prior to backfilling, Contractor shall contact the City Forester or Project Consulting Arborist to inspect the condition and treatment of roots larger than two (2) inches in diameter injured by trenching.
- (f) Horizontal directional boring (auger tunneling), rather than open trenching, should be used for irrigation line or other utility installation within one half (½) foot linear distance from the trunk base for every inch of trunk diameter, if root disruption or utility installation occurs on no more than one side of the tree. If trenching or utility installation will occur on two or more sides of a tree trunk (e.g. N,S,E, or W), then horizontal directional boring should be used if line installation is within one (1) foot linear distance from the trunk base for every inch of trunk diameter.

212.7 ROOT PRUNING:

- (a) Tree roots shall not be pruned or cut unless their removal is unavoidable or absolutely necessary. The City Forester or Project Consulting Arborist shall be notified prior to any operation known or suspected to involve cutting of more than:
 1. two roots, three inches or more in diameter; and/or

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

2. four roots between two (2) and three (3) inches in diameter. The City Forester or Project Consulting Arborist shall be notified immediately in the event that roots in excess of that described above are cut, torn, ripped, or otherwise injured.
- (b) Upon approval by the City Forester, prior to any excavation, removal of sidewalk, or other activity that will result in removal of soil and tree roots, all tree roots within a designated area will be pruned to a depth of fourteen (14) inches. Pruning shall occur with a Dosko Root Pruner, or equivalent, in accessible areas, and by hand in areas inaccessible to the root pruning machine. All other root pruning shall be done by hand with approved tools.
- (c) Removal of roots greater than one (1) inch diameter or parts of roots that are injured or diseased should be performed as follows:
1. Preserve the root bark ridge (similar in structure and function to a branch bark ridge). Directional root pruning is the recommendation technique and should be used during hand excavation around tree roots. Roots are similar to branches in their response to pruning practices. With directional root pruning, objectionable and severely injured roots are properly cut to a lateral root, if possible, that is growing downward or in a favorable direction.
 2. All roots needing to be pruned or removed shall be cut cleanly with sharp hand tools, with oversight by the City Forester or Project Consulting Arborist. No wound dressings shall be used.
 3. Recommended root pruning tools:
 - A. Scissor-type lopper.
 - B. Scissor-type pruner.
 - C. Large and small hand saws.
 - D. Wound scriber.
 - E. Trowel or small shovel.
 - F. Garden Fork.
 - G. Hand broom.
- (d) **ROOT PRUNING NEAR SIDEWALKS**
1. Root pruning should be done carefully, by hand, to achieve the objective of reducing future sidewalk problems as well as preserving the trees. Removing anchoring roots or causing injuries in anchoring roots and root flares can cause future decay and windthrow hazards. Indiscriminate cutting of vigorous roots results in their resprouting so that several more new roots may grow from the cut end, back under the sidewalk, thereby reducing the time between sidewalk repairs. Roots can be managed in the ground without significant harm to trees, if care is taken to avoid injuries that lead to root and trunk decay.
 2. Directional root pruning is recommended because it considers the tree's response to root pruning and decay. With directional root pruning, roots are cut to a large lateral, if possible, that is growing downward or in a more favorable direction. The pruned root ends will be less likely to resprout, since a large lateral can assume the new terminal role of the root.
 3. Proper removal of selected roots or parts of roots can direct roots away from sidewalks in the future. Procedures for root pruning directly next to sidewalks are as follows:

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

4. Hand dig a trench six (6) to eight (8) inches in depth at the edge of the planting strip and sidewalk.
 5. Remove all roots less than two (2) inches diameter in this trench back to a desirable lateral root, preserving the root bark ridge. If careful excavation does not reveal a desirable lateral root within twelve (12) inches of the exposed root in question, then the exposed root shall be pruned properly so that a minimal amount of root is removed.
 6. Small root bundles, the source of future sidewalk problems, should also be removed at this time.
- (e) All roots between two (2) and four (4) inches in diameter should be examined by the City Forester or Project Consulting Arborist in terms of their role in anchoring the tree.
1. All roots that contribute significantly to anchorage should be preserved. Remove all other roots in this size range to sound, downward growing lateral roots that are at least one half(½) the size of the root being removed.
 2. All roots larger than four (4) inches in diameter are to be preserved unless their removal is absolutely necessary. Preservation of large roots may require:
 - A. reducing the sidewalk width near the root flare; and/or
 - B. ramping or bridging the sidewalk over the roots to allow for root growth.
- (f) Tree guying subsequent to root pruning: Upon review of on-site root pruning and constructing grading limits, the City Forester or Project Consulting Arborist shall determine if existing trees subject to root pruning should be guyed or otherwise stabilized. Contractor shall retain a qualified tree service company to complete tree guying and stabilization in accordance with National Arborist Association standards as referenced in Section 5.00. Tree service company shall be licensed by the City and County of Denver, through the City Forester's Office.

212.8 TREE PROTECTION FENCING:

- (a) Tree protection fencing should be installed two (2) feet behind the existing curb in areas where the street surface will be removed and replaced. Tree protection areas shall be designated on construction documents, and fencing locations should be staked for approval by the Construction Manager and City Forester or Project Consulting Arborist.
- (b) Tree protection fences should be constructed of one of the following:
1. Galvanized chain-link - six (6) feet in height. Posts should be installed on ten (10) foot centers (maximum), at a depth of three (3) feet minimum. Installation of post shall not result in injury to surface roots or root flares of trees.
 2. Colored (orange), molded plastic construction fencing-four (4) feet in height.
- (c) Fencing should be installed to completely surround the limits of tree protection areas, and should extend at least ten (10) feet beyond the designated construction limits.
- (d) Tree protection fencing shall be installed prior to any site activity and shall remain until its removal is authorized by the City Forester or Project Consulting Arborist.

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

212.9 TREE PROTECTION SIGNAGE: A standard Denver Forestry Tree Protection sign shall be mounted on tree protection fencing at fifty (50) foot intervals warning constructing personnel and the public to keep out of the tree protection areas. Signs may be picked up at Denver Forestry Office.

212.10 PROJECT SITE MONITORING: As determined by the City Forester for projects of sufficient size to warrant such, a Project Consulting Arborist shall be retained to enforce and monitor the Tree Retention and Protection objectives. The project site should be monitored a minimum of two (2) times weekly-more frequently at the start of the project until all procedures and specifications are understood and properly executed by all parties. Specific monitoring schedules should be developed at preconstruction meetings and modified as deemed necessary by the appropriate parties. Schedules shall be relayed to the City Forester along with reports of site visits.

212.11 INJURIES TO EXISTING PLANTS - DAMAGE PENALTIES:

- (a) **TREE AND HIGH-VALUE SHRUB APPRAISAL:** All trees and high-value shrubs will be evaluated and appraised by the City Forester or Project Consulting Arborist, and a list of all tree values for the project will be on file in the Construction Manager's office. Any tree or other plant requiring retention or protection that is not on the list shall be appraised by the City Forester or Project Consulting Arborist as necessary to comply with this damage penalty.
- (b) Documentation for appraisals will consist of:
 - 1. measurement of plant size;
 - 2. identification by common and botanical names;
 - 3. current condition (overall health, injuries, overt hazard status, etc.) and
 - 4. location factors as described in the "Guide for Plant Appraisal". Photographs may be taken of certain trees and shrubs to document debilitating condition factors.
- (c) The threshold level for plants to be appraised shall be \$100.00; only those trees and shrubs estimated to have a monetary value greater than \$100.00 shall be appraised.
- (d) Trees and other plants designated as requiring retention or protection shall be identified and located on construction plans. Loss of, or partial injury to, any of these plants due to Contractor neglect or improper construction activities will result in a penalty of up to treble damages of the assessed value of the tree as determined by the City Forester or Project Consulting Arborist as described in Chapter 57 of Denver Revised Municipal Code.
- (e) Trees determined as requiring "general protection" or "special protection" in the construction areas and in other key locations should be clearly identified by the City Forester or Project Consulting Arborist. Loss or partial injury to any of these trees due to Contractor neglect or improper construction activities will result in a penalty of up to treble damages for the assessed value of the trees as determined by the City Forester or Project Consulting Arborist as described in Chapter 57 of Denver Revised Municipal Code. Injury to a portion of these trees will be assessed by the City Forester or Project Consulting Arborist and a corresponding portion of the liquidated damages will be assessed to the Contractor.

**REVISION OF SECTION 212
TREE RETENTION AND PROTECTION**

- (f) A fine of one-thousand dollars (\$1,000.00) will be levied against the Contractor for each incident of construction damage (including construction traffic) within designated tree protection areas. Any fine shall be independent of any applicable damages for the assessed value of the tree or tree part.
- (g) Trees or roots visibly and unnecessarily injured will cause the Owner to withhold from the Contractor an assessed amount conforming to the requirements stipulated above, for a period of one full year. After that period the impact of the injury to any tree will be assessed by the City Forester or the Project Consulting Arborist.

212.12 SUBMITTALS:

- (a) Proposed methods and schedule for effectuating tree and other plant protection shall be submitted for approval. Contractor shall submit construction schedule which includes a time frame for work near existing plants. Approval of such shall be obtained from the City Forester prior to commencement of construction near tree protection areas.
- (b) Proposed methods, materials, and schedule for root pruning, branch pruning, and other tree maintenance shall be submitted for approval. The City Forester or Project Consulting Arborist shall mark the location of root pruning lines in the field prior to the operation. If possible, root pruning should occur between autumnal leaf fall and spring foliage. Root pruning during the growing season shall require approval of the City Forester or Project Consulting Arborist.

212.13 TREE AND OTHER PLANT MAINTENANCE DURING AND AFTER COMPLETION OF CONSTRUCTION.

- (a) Proper maintenance should include, but without limitation to: structural and remedial pruning; watering; mulching; remediating soil compaction; fertilization; insect and disease control; soil and tissue analysis; aeration; and wound treatment.
- (b) The timing duration and frequency of necessary maintenance practices should be determined by the City Forester or Project Consulting Arborist, based on factors associated with the site and affected plants.

METHOD OF MEASUREMENT

The lump sum price will be paid and shall be full compensation for tree retention and protection for the entire project.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	Pay Unit
Tree Retention and Protection	Lump Sum

**REVISION OF SECTION 250
ENVIRONMENTAL, HEALTH, AND SAFETY MANAGEMENT**

Section 250 of the Standard Specifications is hereby revised for this project to include the following:

Subsection 250.01 shall include the following:

Excavation and drilling activities associated with the proposed project have the potential to encounter soil and groundwater that may have been impacted by petroleum products or previous releases of hazardous substances. Workers shall be alert during excavations for any visual or olfactory signs of contamination. If soil and/or groundwater contamination is encountered, work will stop immediately and the procedures outlined in the project's material management plan and Section 250 of Standard Specifications for Road and Bridge Construction shall be followed. The Contractor shall be responsible for the required workers' health and safety.

Subsection 250.03 shall include the following:

The Contractor will prepare a material management plan (MMP) to ensure hazardous materials and contaminated groundwater is handled properly. The MMP will be submitted either prior to, or at the Pre-Construction Conference for review and approval by CDOT Environmental and Denver EQ. The cost of the MMP will be paid by the Environmental Health and Safety Management Allowance.

The Contractor shall be responsible for the required worker health and safety and the public in accordance with all applicable local, state and federal regulations. The Contractor Health and Safety Officer and/or Monitoring Technician shall be on site as necessary during subsurface activities to ensure the safety of workers, as detailed in the CDOT Standard Specification 250 -Environmental, Health and Safety Management and this 250 Standard Specification revision. Denver EQ will also be contacted.

For proper handling of asbestos-contaminated soil, if any, the Contractor will follow all applicable Solid and Hazardous Waste Regulations and the procedures listed in the project's material management plan (MMP). Asbestos contaminated soil removal must be performed by a Certified Asbestos Inspector (CABI) to determine what, if any, controls must be instituted to allow future activity in the excavation area.

Petroleum impacted soils could be present at the following locations:

- University Blvd. at Harvard Ave on the northwest corner.

If petroleum contaminated soils are encountered, the contractor must follow standard materials management for such soils.

If construction debris is encountered, the contractor must stop work in the immediate area until a determination is made that no asbestos or hazardous materials are present. If asbestos containing material is encountered in building debris, they must be managed as per Solid Waste Regulation 5.5, Management of Asbestos Contaminated Soil.

It is possible to encounter historical asbestos transite pipe when excavating at depth. This material was commonly used as utility lines throughout the city until the 1980s. Additionally, due to past practices, building debris containing asbestos may also be found. If any transite pipe or building debris is encountered during soil disturbing activities, all activities related to that disturbance must immediately stop and the visible material must be evaluated for asbestos content by EQ or their designee. If intact transite pipe is encountered, only a certified asbestos abatement contractor can remove the asbestos containing material from the site as per State Regulations

**REVISION OF SECTION 250
ENVIRONMENTAL, HEALTH, AND SAFETY MANAGEMENT**

Number 8. If asbestos containing material is encountered in building debris, they must be managed as per Solid Waste Regulation 5.5, Management of Asbestos Contaminated Soil.

As always, if unanticipated soil staining, odors, landfill gas or petroleum/solvent contaminated groundwater are discovered during construction activities, work should stop until an EQ environmental professional makes a determination on how best to proceed. Additionally, CDOT Spec. 250 must be followed at all times.

The contractor shall review the most recent ISA prior to construction.

Subsection 250.09 is hereby deleted and replaced with the following:

250.9 All work including monitoring, sampling, handling, material disposal, and analytical costs (if necessary) will be paid by the Environmental Health and Safety Allowance.

Subsection 250.10 is hereby deleted and replaced with the following:

250.10 Payment will be made under:

Pay Item	Pay Unit
Environmental Health and Safety Allowance	N/A

**REVISION OF SECTION 403
HOT MIX ASPHALT**

Section 403 of the Standard Specifications is hereby revised for this project as follows:

Subsection 403.02 shall include the following:

The design mix for hot mix asphalt shall conform to the following:

Table 403-1				
Property	Test Method	Value For Grading		
			Patching	
Air Voids, percent at: N (design)	CPL 5115		3.5 – 4.5	
Lab Compaction (Revolutions): N (design)	CPL 5115		100	
Stability, minimum	CPL 5106		30	
Aggregate Retained on the 4.75 mm (No. 4) Sieve for S, SX and SG, and on the 2.36mm (No. 8) Sieve for ST and SF with at least 2 Mechanically Induced fractured faces, % minimum*	CP 45		60	
Accelerated Moisture Susceptibility Tensile Strength Ratio (Lottman), minimum	CPL 5109 Method B		80	
Minimum Dry Split Tensile Strength, kPa (psi)	CPL 5109 Method B		205 (30)	
Grade of Asphalt Cement, Top Layer			PG 64-22	
Grade of Asphalt Cement, Layers below Top			PG 64-22	
Voids in the Mineral Aggregate (VMA) % minimum	CP 48		See Table 403-2	
Voids Filled with Asphalt (VFA), %	AI MS-2		65-75	
Dust to Asphalt Ratio Fine Gradation Coarse Gradation	CP 50		0.9 – 2.0 1.1 – 2.2	
<p>Note: AI MS-2 = Asphalt Institute Manual Series 2</p> <p>Note: Mixes with gradations having less than 40% passing the 4.75 mm (No. 4) sieve shall be approached with caution because of constructability problems.</p> <p>Note: Gradations for mixes with a nominal maximum aggregate size of one-inch or larger are considered a coarse gradation if they pass below the maximum density line at the #4 screen. Gradations for mixes with a nominal maximum aggregate size of 3/4" to 3/8" are considered a coarse gradation if they pass below the maximum density line at the #8 screen. Gradations for mixes with a nominal maximum aggregate size of #4 or smaller are considered a coarse gradation if they pass below the maximum density line at the #16 screen.</p>				

**REVISION OF SECTION 403
HOT MIX ASPHALT**

All mix designs shall be run with a gyratory compaction angle of 1.25 degrees and properties must satisfy Table 403-1. Form 43 will establish construction targets for Asphalt Cement and all mix properties at Air Voids up to 1.0 percent below the mix design optimum. CCD will establish the production asphalt cement and volumetric targets based on the Contractor’s mix design and the relationships shown between the hot mix asphalt mixture volumetric properties and asphalt cement contents on the Form 429. CCD may select a different AC content other than the one shown at optimum on the Contractor’s mix design in order to establish the production targets as contained on the Form 43. Historically, Air Voids adjustments typically result in asphalt cement increases from 0.1 to 0.5 percent. Contractors bidding the project should anticipate this change and factor it into their unit price bid.

Table 403-2

Nominal Maximum Size*, mm (inches)	Minimum Voids in the Mineral Aggregate (VMA)			
	***Design Air Voids**			
	3.5%	4.0%	4.5%	5.0%
37.5 (1½)	11.6	11.7	11.8	N/A
25.0 (1)	12.6	12.7	12.8	
19.0 (¾)	13.6	13.7	13.8	
12.5 (½)	14.6	14.7	14.8	
9.5 (⅜)	15.6	15.7	15.8	
4.75 (No. 4)	16.6	16.7	16.8	16.9
	* The Nominal Maximum Size is defined as one sieve larger than the first sieve to retain more than 10%. ** Interpolate specified VMA values for design air voids between those listed. *** Extrapolate specified VMA values for production air voids beyond those listed.			

The Contractor shall prepare a quality control plan outlining the steps taken to minimize segregation of HMA. This plan shall be submitted to the Engineer and approved prior to beginning the paving operations. When the Engineer determines that segregation is unacceptable, the paving shall stop and the cause of segregation shall be corrected before paving operations will be allowed to resume.

Hot mix asphalt for patching shall conform to the gradation requirements for Hot Mix Asphalt (Grading S)(100)(PG 64-22).

A minimum of 1 percent hydrated lime by weight of the combined aggregate shall be added to the aggregate for all hot mix asphalt.

**REVISION OF SECTION 403
HOT MIX ASPHALT**

Subsection 403.03 shall include the following:

If liquid anti stripping additive is added at the plant, an approved in line blender must be used. The blender shall be in the line from the storage tank to the drier drum or pugmill. The blender shall apply sufficient mixing action to thoroughly mix the asphalt cement and anti stripping additive.

The Contractor shall construct the work such that all roadway pavement placed prior to the time paving operations end for the year, shall be completed to the full thickness required by the plans. The Contractor's Progress Schedule shall show the methods to be used to comply with this requirement.

Delete subsection 403.05 and replace with the following:

403.05 The accepted quantities of hot mix asphalt will be paid for in accordance with subsection 401.22, at the contract unit price per ton for the bituminous mixture.

Payment will be made under:

Pay Item	Pay Unit
Hot Mix Asphalt (Patching)(Asphalt)	Ton

Aggregate, asphalt recycling agent, asphalt cement, additives, hydrated lime, and all other work and materials necessary to complete each hot mix asphalt item will not be paid for separately, but shall be included in the unit price bid. When the pay item includes the PG binder grade, any change to the submitted mix design optimum asphalt cement content to establish production targets on the Form 43 will not be measured and paid for separately, but shall be included in the work. No additional compensation will be considered or paid for any additional asphalt cement, plant modifications and additional personnel required to produce the HMA as a result in a change to the mix design asphalt cement content.

Historically, typical asphalt cement increases reflected on the Form 43 are from 0.1 to 0.5 percent. However, the Contractor should anticipate the AC increases typical of his mixes. Contractors bidding the project should anticipate this change and factor it into their unit price bid.

Asphalt cement will not be measured and paid for separately, but shall be included in the work.

Excavation, preparation, and tack coat of areas to be patched will not be measured and paid for separately, but shall be included in the work.

**REVISION OF SECTION 503
DRILLED CAISSONS**

Section 503 of the Standard Specifications is hereby revised as follows:

Subsection 503.01 shall include the following:

This work consists of drilling or vacuuming holes and placing concrete and reinforcing steel therein to form foundations for traffic signal poles in conformance with the plans and as directed by the Engineer.

The traffic signal pole foundation shall conform to the requirements of the City and County of Denver's Standard Details for Signal Pole Foundations (Detail 16.1.8).

Section 503.03, delete the first paragraph and replace with the following:

Class BZ concrete shall be used for the traffic signal pole foundation. Class BZ concrete in the top three feet of the foundation shall be placed with a 5% to 8% air content. Class BZ concrete shall be placed without air-entrainment below the three foot depth.

Vacuumed caisson excavation shall be performed with a vacuum pothole machine to prevent drilling through existing utilities.

Subsection 503.07 shall include the following:

Foundation work shall include raking and/or plumbing of the poles after loading, and grouting by the Contractor after pole rake is approved by the Engineer.

Subsection 503.08 shall include the following:

Caisson (36 Inch & 48 Inch) will be measured by the linear foot from the top of caisson to the bottom of the hole excavated. The pedestal pole caisson (18 Inch) will not be measured and pay for separately, but shall be included in the cost of the Pedestal Pole installation.

Furnish of base plate(s), anchor bolts, nuts and nut covers that are required components of the traffic signal pole foundation are incidental to the Contractor's unit cost for traffic signal poles; installation of same shall be considered incidental to the Contractor's unit cost for Drilled and Vacuumed Caissons.

Subsection 503.09 shall include the following:

Pay Item	Pay Unit
Drilled Caisson (36 Inch)	Linear Foot

The unit price of drilled caisson (36 Inch) shall be full compensation for making all excavations; hauling and disposal of excavated material; performing all necessary drilling/pumping; furnishing and placing required concrete and reinforcement steel, including the reinforcement projecting above the tops of the caissons necessary for splicing; all backfilling; removing casings; and for furnishing all tools, labor, equipment, and incidentals necessary to complete the work. No extra payment will be made for casing left in place. Caissons vacuumed in lieu of drilling will be paid as Vacuumed Caisson.

**REVISION OF SECTION 608
SIDEWALKS AND CONCRETE CURB RAMPS**

Section 608 of the Standard Specifications is hereby revised for this project as follows:

Subsection 608.01 shall include the following:

Concrete Curb Ramp construction shall conform to the requirements of the City and County of Denver's Standard Details for Curb Ramps (Detail 7.4). This work includes the installation of detectable warnings on concrete curb ramps as shown on the plans.

Subsection 608.02, delete in its entirety and replace as follows:

Materials shall meet the requirements specified in the following subsections:

Joint Fillers 705.01

Concrete for sidewalks, curb ramps, and bikeways shall be Class "P", as specified in subsections 601.02 and 601.03.

Alternate materials may be used, if pre-approved by the Engineer. The Contractor shall submit a sample of the product, the name of the selected supplier, and documentation that the product meets all contrast requirements and will be fully compatible with the curb ramp surface to the Engineer for approval prior to the start of work. Concrete shall be cured with a non-pigmented "clear" curing compound.

All concrete used for sidewalks and curb ramps shall be reinforced with polypropylene fibers. Polypropylene fibers shall be FIBERMESH or FORTA FIBRE. Length of fibers shall be as recommended by the manufacturer. Add 1.5 pounds FIBERMESH or FORTA FIBRE per cubic yard of concrete.

ASTM C-1315 cure+seal shall be applied to all paving and flatwork placed September 1 through April 1 to minimize damage from de-icing chemicals.

Detectable warnings on curb ramps shall be truncated domes of the dimensions shown on the plans. Domes shall be prefabricated by the manufacturer as a pattern on embeddable surface plates. Plates shall meet all Americans with Disabilities Act (ADA) requirements for truncated domes, and when installed, shall be capable of producing the pattern of domes shown on the plans. The Contractor shall submit a sample of the product, the name of the selected supplier, and documentation that the product meets all contrast requirements and will be fully compatible with the curb ramp surface to the Engineer for approval prior to the start of work.

The domes and their underlying surface shall have a discernible contrast of color from the adjacent surface. The contrasting colors shall not be black and white. The plate color shall be red or as approved by the Engineer. Prior to the start of work, the Contractor shall submit appropriate documentation from the manufacturer verifying that the contrast has been met, along with a sample plate, to the Engineer for approval.

Subsection 608.03 shall include the following:

(g) *Detectable Warnings for curbs ramps.*

1. Plates. Prior to installation of the plates, concrete conforming to subsection 608.02 shall be installed and consolidated as a base for the plates. The concrete shall be placed to a thickness that will allow the base

**REVISION OF SECTION 608
SIDEWALKS AND CONCRETE CURB RAMPS**

surface of the plates to be at the same elevation as the adjacent concrete. The plates shall be embedded into the plastic concrete in accordance with the manufacturer's specifications.

Subsection 608.05 shall include the following:

Detectable warnings on curb ramps, including plates and all other work and materials necessary for fabrication, transport, and installation will not be measured and paid for separately, but shall be included in the work.

Subsection 608.06 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Concrete Sidewalk	Square Yard
Concrete Curb Ramp	Square Yard

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work.

All work necessary and incidental to the construction of Concrete Curb Ramp including bed course material, will not be measured and paid for separately but shall be included in the work.

Payment shall be full compensation for prep work, furnishing, and placing all materials, including detectable warnings, necessary to complete the work to the dimensions shown on plans.

Reconditioning, forms, finishing, jointing, backfill and curing, will be in accordance with the plans and specifications and will not be paid for separately.

**REVISION OF SECTION 609
CURB AND GUTTER**

Section 609 of the Standard Specifications is hereby revised as follows:

Subsection 609.01 shall include the following:

The section will be as shown in the CCD Transportation Standards and Details for the Engineering Division, most recent edition.

- Curb Type 2 (Section B) will be CCD Standard Detail 5.3B, 6 Inch Curb Head.
- Curb and Gutter, Type 2 (Section II-B) will be CCD Standard Detail 5.3A, 6 Inch Curb and Gutter – 2' Pan
- Curb and Gutter, Type 2 (Section II-M) will be CCD Standard Detail 5.3A, 4 Inch Mountable Curb.
- Gutter Type 2 (Variable) will be CCD Standard Detail 8.0, Intersection Valley Gutter.

Subsection 609.02 shall include the following:

In the first paragraph, reference to Section 703.07, Bed Course Material, shall be deleted.

Paragraph 2 shall be deleted and replaced with the following:

Concrete for Curb and Gutter shall conform to the requirements for Class “P” concrete as specified in subsections 601.02 and 601.03. When curb machines are used, the Contractor will be permitted to use AASHTO M 43 Size 57 or 67 aggregate in lieu of the coarse aggregate specified in Table 601-1, and a lesser slump will be permitted.

Subsection 609.03(a) shall include the following:

Excavation shall conform to the requirements of the revisions to Subsection 608.03(a)- Sidewalk and Bikeways.

Subsection 609.03(b) shall include the following:

The contractor shall construct the work in strict conformity to line and grade stakes. Deviations in excess of 1/2" Horizontal and/or 1/4" Vertical shall be grounds for the Engineer to reject the work. Rejected work will be replaced or corrected by the contractor at no expense to the City. The Engineer will have complete authority in determining whether the work is to be corrected or replaced. If the contractor cannot adequately correct any rejected work, the contractor shall replace the work at no expense to the City.

Subsection 609.03(c) shall include the following:

The Contractor shall protect all new concrete items built under this Contract against defacement, or other injury, from any cause. If said damage cannot be adequately repaired to the satisfaction of the Engineer, the Contractor shall remove and replace the unacceptable items at Contractor's expense.

Subsection 609.03(d) shall include the following:

For construction of curb and gutter adjacent to existing concrete pavement, the joint pattern shall match that of the concrete pavement. The joint pattern shall be approved by the Engineer prior to construction.

**REVISION OF SECTION 609
CURB AND GUTTER**

Subsection 609.03(f) shall include the following:

The Contractor shall insure that new concrete items built under this contract drain properly and, as such, there are no areas of standing water on new concrete items. Any low spots in the new concrete items in excess of 1/4" will require removal and replacement of such items at the Contractor's expense.

Subsection 609.03(j) shall include the following:

(j) Protection of New Concrete. The Contractor shall protect all new concrete items built under this Contract against defacement, or other injury, from any cause. If said damage cannot be adequately repaired to the satisfaction of the Project Manager, the Contractor shall remove and replace the unacceptable items at Contractor's expense.

Subsection 609.04 shall be added as follows:

ASTM C-1315 cure+seal shall be applied to all paving and flatwork concrete placed Sept 1 thru April 1st to minimize damage from deicer chemicals.

Subsection 609.06 shall include the following:

ASTM C-1315 cure+seal will not be paid for separately but included in the work.

Subsection 609.07 shall include the following:

Payment shall be made under:

Pay Item	Pay Unit
Curb Type 2 (Section B)	Linear Foot
Curb and Gutter, Type 2 (Section II-B)	Linear Foot
Curb and Gutter, Type 2 (Section II-M)	Linear Foot
Gutter Type 2 (Variable)	Linear Foot

Excavation to proposed subgrade elevation will not be paid for separately but shall be included in the work.

Payment shall be full compensation for labor and materials to construct to the dimensions shown on plans. Reconditioning, reinforcing steel, forms, finishing, jointing, backfill and curing, will be in accordance with these plans and specifications and will not be paid for separately.

**REVISION OF SECTION 613
ELECTRICAL CONDUCTOR IDENTIFICATION**

Section 613 of the Standard Specifications is hereby revised as follows:

Subsection 613.08 shall include the following:

All electrical conductors shall be tagged as follows:

Electrical conductor cable tags shall be located below the termination in the base of the streetlight, in the pull box, in the pedestal, and at the point of termination to existing facilities of the Local Utility Company supplying electrical service. The tags shall be attached with a cable tie. The information written on the tag shall include the direction and approximate length of cable, feeds running from where and to, etc.

Each incoming conductor shall be individually color coded with one (1) tape mark, while outgoing conductors shall have two (2) tape marks.

Example:

-----	-----
FEEDS TO PULL BOX	FEEDS FROM XFMR
50' NORTH & 75' WEST	250' SOUTH & EAST
THEN TO HIGHWAY SIGN	200' WEST
-----	-----

Uniform tags are available in a Tag Kit. *The Tag Kit consists of: 100 tags, 3-part yellow with 1 hole, 100 black nylon ties and 1 black Sharpie pen.

<i>Manufacturers</i>	<i>Catalog Numbers</i>
Uticom Systems Inc.	U5025Y1
Or approved equal	

Subsection 613.11 shall include the following:

Electrical conductor tagging will not be paid for separately, but shall be included in the cost of wiring.

**REVISION OF SECTION 613
ELECTRICAL CONDUIT – GENERAL**

Section 613 of the Standard Specifications is hereby revised as follows:

Add the following to subsection 613.07:

Directional boring is the preferred method of conduit installation.

All conduit bends, including factory-installed bends, shall not have a bend radius less than six times the inside diameter of the conduit.

The excavations required for the installation of conduit or cable shall be performed in such a manner as to avoid unnecessary damage to streets, sidewalks, landscaping, sprinkler systems and other improvements. Trenches shall not be excavated wider than necessary for the installation of the electrical appurtenances. Excavation shall not be performed until immediately before installation of conduits. The material from the excavation shall be placed in a position not to cause damage or obstruction to vehicular or pedestrian traffic or interfere with surface drainage.

Trenches shall be made with a rock-wheel or other machine capable of cutting a narrow trench (4") so as to allow traffic to pass over prior to back filling. The machine shall be equipped with shields to direct the spoil downward and away from passing vehicles, workmen and pedestrians.

Off-street trenches shall be back-filled with the same material that was removed and shall be compacted and shaped to match the surrounding surface. On-street trenches within ALL roadway areas shall be back-filled with CDOT approved Structure Backfill (Flow-Fill) and capped with 9" minimum of Hot Mix Asphalt Pavement (Patching) in accordance with Section 403 and City and County of Denver Street Cut Regulations if applicable. If surrounding pavement depth is greater than 9 inches, the HMA (Patching) depth shall match the existing pavement.

All surface materials including sprinkler systems, landscaping, shrubs, sod grass, and native growth vegetation which is disturbed by trenching and back-filling operation shall be restored in kind equal to or exceeding the original conditions.

All conduit runs that will not have a copper conductor installed shall have a #14 AWG stranded copper conductor placed inside for locating purposes. Locating conductor and tape will not be measured and paid separately, but shall be included in the unit price for conduit.

Conduit shall always enter a pull box, hand-hole, or any other type structure from the direction of the run only.

All conduits shall be fully compatible with fiber optic cable. Plastic conduit shall be Schedule 80 in the diameters shown on the plans and shall be compliant with Bellcore TW-NWT-000356 requirements. Each conduit shall be equipped with a pull tape and each bore shall have a copper tracer wire of at least 12 gauge.

Each conduit shall be equipped with either a pull rope or pull tape, depending on the length of conduit between pull boxes.

Each conduit with a length greater than 400' between pull boxes shall be equipped with a pull tape. The pull tape shall have a minimum tensile strength of 1250 lbs. and be of a design and manufacture that prevents cutting or burning into the conduit during cable installation.

**REVISION OF SECTION 613
ELECTRICAL CONDUIT – GENERAL**

Each conduit with a length of 400' or less between pull boxes shall be equipped with a pull rope or pull tape. The pull rope shall have a minimum tensile strength of 1250 lbs.

Plastic PVC conduit shall be certified by the manufacturer as meeting ANSI/UL 6 and 651. The manufacturer shall be ISO 9000 compliant.

If the contractor is unable to jack or bore the conduit at the lengths shown on the plans from pull box to pull box, all splice couplings and associated work to splice the conduit shall be included in the cost of this item. This shall include excavation down to the required depth of conduit at the splice location. Also included in the cost of this item are all landscape repairs, which will be required after excavation of conduit at all splice locations. All splice couplings shall be water and air tight and installed at a depth to match the remaining run of conduit. No elevation difference will be allowed. Splices shall be kept to a minimum and all locations shall be approved by the City. Additional pull boxes shall not be substituted for splices.

All conduit bends, including factory-installed bends, shall not have a bend radius less than six times the inside diameter of the conduit.

Conduit plugs for sealing conduit shall also be supplied and installed in all open conduit ends as soon as the conduit is installed. Plugs shall be durable, fabricated from no metallic parts, be of the split design to allow removal and reinstallation around in-place cables and be easily removable and reusable. Plugs shall be capable of being installed by hand without any tools and shall provide a water and air tight seal of at least 100 psi and shall cause no damage to the cable when installed.

At some locations (as illustrated on the Plans or in these specifications, or as directed by the Engineer), new conduits shall be installed in an existing pull box. At these locations, the Contractor shall carefully excavate around the pull box and install the new conduit in the pull box in a manner that meets the requirements of this Special Provision. The Contractor shall not damage the existing pull box. If the existing pull boxes or concrete collars are cracked or damaged during conduit installation, the Contractor shall be required to replace either or both conforming to the requirements of the contract at no additional cost.

Subsection 613.10 shall include the following:

Electrical Conduit will be measured by the linear feet of conduit and installed in accordance with these Special Provisions, the Project Standards or as directed by the City. Electrical Conduit will include groundwork, sweeps, pull cord, copper tracer wire, adapters, fittings, splice couplings, conduit plugs (for conduits both with and without fiber optic cable), equipment, labor, and all other items necessary to complete the work.

Subsection 613.11 shall include the following:

Pay Item	Pay Unit
2 Inch Electrical Conduit (Bored)	Linear Foot
3 Inch Electrical Conduit (Bored)	Linear Foot

**REVISION OF SECTION 613
LIGHTING (LUMINAIRE)(LED 5300 LUMENS)**

Section 613 of the Standard Specifications is hereby revised for this project as follows:

Subsection 613.02 shall include the following:

The Contractor shall furnish and install LED Street Light Luminaire at locations as shown on the plans. The LED Street Light Luminaire shall be compatible or interchangeable with standard LED Street Light Luminaire as stocked by the City and County of Denver.

The current City and County of Denver's luminaire fixtures on the Denver traffic poles are the curvilinear (hockey puck) style fixtures, and the LED Street Light Luminaire in these fixtures that are compatible with that stocked by the City and County of Denver is as follows:

<u>Manufacturer</u>	<u>Catalog Numbers</u>
E-Lite Star	ESU-CA012M03042S-525CCD1-1

The luminaire shall also include a photo cell (S-T P124-1.5-PTW or equal) and the luminaire finish shall be in Federal Green.

The Contractor shall submit a lighting materials list to the City and County of Denver for approval prior to ordering. Contact Chris Lillie at 720-865-4066.

Subsection 613.08 shall include the following:

At least one grounding electrode shall be installed adjacent to each light standard. Wiring shall be a 120/240 volt or 120/208 volt, 3-wire system with individual luminaires wired for 120 volts.

Subsection 613.11 shall include the following:

Luminaires (LED 5300 lumens) lighting will not be measure and paid for separately, but shall be included in the cost of the Traffic Signal Poles.

REVISION OF SECTION 613
PULL BOX – GENERAL

Section 613 of the Standard Specifications is hereby revised as follows:

Subsection 613.07 shall include the following:

Pull boxes Type A and Type B shall be used in all signal conduit installation. Pull boxes shall be made of fiberglass reinforced polymer concrete designed to support a minimum service load of 20,000 pounds over a 10 inch by 10 inch square. The pull box shall have a detachable cover with a skid-resistant surface and have the words “TRAFFIC” or, “ELECTRIC” cast into the surface. Painting the words shall not be accepted. The cover shall be attached to the pull box body by means of screw-in bolts and shall have two lift slots to aid in the removal of the lid. Non-standard bolts shall not be used.

All traffic communication pull boxes shall have the words “TRAFFIC COMM” physically impressed (not painted) on its top. The interconnect pull boxes or Pull Box (Special) shall be the Type C pull box. The covers shall be attached to the pull box body by screw-in bolts and shall have two lift slots to aid in the removal of the lid.

All concrete collars, footings, and location marker supports shall be Portland Cement Concrete Class B and shall be in accordance with Section 601.

Pull boxes that are to be in traveled ways shall be outfitted with traffic bearing lids rated for HS 20- 44 loads. The pull boxes shall have a special concrete footing extending 8 inches around the outside and 6 inches around the inside of the pull box bottom, as shown in the plans. Pull boxes installed in dirt or landscape areas shall have a 12 inch wide by 6 inch thick concrete collar placed around the top in lieu of the concrete footing, as shown in the plans.

When the plans call for a fiber optic cable location marker to be installed at the pull box location, the concrete foundation support for the location marker shall be placed monolithically with the concrete collar.

Pull Box (Surface Mounted) shall be metal type with a hinged front door and have at least a NEMA 3R rating. The hinged door shall be provided with both a weather tight seal and a key lock mechanism. Surface mounted pull boxes shall be of the dimensions shown in the plans, and shall be mounted on or embedded into hard surfaces such as bridge decks, concrete barriers, retaining walls, or buildings, as shown on the plans. Surface mounted pull boxes shall be attached using 3/8-inch epoxy anchors or other methods, as approved by the Engineer. Surface mounted pull boxes shall not be used for ground installations.

Subsection 613.11 shall include the following:

Pull Boxes Type A, Type B, and Type C (Special) will not be measured or paid for separately but shall be included in the cost of conduit.

**REVISION OF SECTION 613
ELECTRIC METER PEDESTAL CABINET AND BASE**

Section 613 of the Standard Specifications is hereby revised for this project as follows:

Subsection 613.07 shall include the following:

New traffic signal installations require an Electric Meter Pedestal Cabinet and Base for the new traffic signal. Xcel Energy will furnish only the electric meter. The Contractor shall furnish the electric meter pedestal cabinet, and shall install the pedestal cabinet and base, by a licensed electrician (journeyman), at the locations as show on the plan and in accordance with the City and County of Denver’s standard – sheets 16.1.19 and 16.1.20.

Subsection 613.10 shall include the following:

Electric Meter Pedestal Cabinet and Base will be measured and installed in accordance with these Special Provisions, the Project Standards or as directed by the City. The Electric Meter Pedestal Cabinet and Base installation will include groundwork, sweeps, pull cord, copper tracer wire, adapters, fittings, splice couplings, conduit plugs, equipment, labor, and all other items necessary to complete the work.

Contractor shall submit material specifications to the Engineer for prior approval.

Subsection 613.11 shall include the following:

Pay Item	Pay Unit
Electric Meter Pedestal Cabinet and Base	Each

**REVISION OF SECTION 614
SIGN PANEL (SPECIAL)**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work includes the installation of street name signs on the traffic signal pole or mast arm.

Subsection 614.04 shall include the following:

All overhead street name signs shall follow City and County of Denver Traffic Standards.

Subsection 614.13 shall include the following:

Sign Panel (Special) will be measured by the actual number of unites that are installed and accepted.

Subsection 614.14 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Sign Panel (Special)	Square Foot

**REVISION OF SECTION 614
PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

This work includes the installation of LED Pedestrian Signal Faces with countdown timers as shown in the Contract.

Subsection 614.08 (h) shall include the following:

Pedestrian signal faces with count down timers shall meet the following requirements:

- i. The dimensions of the signal housing and the LED symbols, as well as moisture and dust resistance requirements shall be in accordance with the current ITE PTCSI Standards.
- ii. Signal housing shall be aluminum, painted in Federal Green and “clam-shell” mounted.
- iii. The signal shall have user-selectable modes for countdown for walk cycle only, pedestrian cycle only, or both walk and pedestrian clearance.
- iv. The countdown module shall have an internal conflict monitor to prevent any possible conflicts between the Hand/Person signal indications and the time display. The display shall not countdown during a Solid Hand indication.
- v. LED symbols shall be solid icons and shall provide uniform light dispersion such that the “pixel” effect is minimized. Lettered or outline symbol styles will not be permitted.
- vi. The Man/Hand configuration shall provide clear and distinct lamination where either symbol is in use.
- vii. The LED module shall be rated for use in an ambient operating temperature range of -40° F to 165° F.
- viii. The signal shall meet NEMA Standard TS2 for voltage surge protection, and shall have an automatic reset in case of a power outage.

Subsection 614.13 shall include the following:

Pedestrian Signal Face (16) (Count down) will be measured by the actual number of units that are installed and accepted.

Subsection 614.14 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Pedestrian Signal Face (16) (Countdown)	Each

**REVISION OF SECTION 614
TRAFFIC CONTROL DEVICES**

Section 614 of the Standard Specification is hereby revised for this project as follows:

Subsection 614.08 (h) shall include the following:

“Light Emitting Diode” (LED) signal lenses shall be installed in all Red, Yellow, Green, Walk and Don’t Walk, and Countdown signal displays. This work shall be included in the cost of the item for Traffic Signal Face and will not be paid for separately.

**REVISION OF SECTION 614
TRAFFIC SIGNAL CONTROLLER CABINET (INSTALL ONLY)**

Section 614 of the Standard Specifications is hereby revised as follows:

Subsection 614.01 shall include the following:

This work shall consist of installation of a complete Traffic Signal Controller and Cabinet assembly, malfunction management units (MMU), vehicle detector amplifiers, uninterrupted power supply (UPS), Ethernet switch, other ancillary hardware, and traffic signal cabinet base per City and County of Denver standards. Material specifications are provided for information only.

Delete Subsection 614.08 (b), and replace with the following:

Traffic Signal Controllers - General

This specification sets forth the minimum requirements for a shelf-mounted, two through sixteen phase, fully-actuated, digital, solid-state traffic controller. The controller shall be configurable to meet, as a minimum, all applicable sections of the NEMA Standards Publications for TS2 and NTCIP 1202 and ATC standard 6.10. Where differences occur, these specifications shall govern. Controller versions shall be available to comply with NEMA TS2 Types 1 and 2. Type 2 versions of the controller shall be capable of operating as a Type 1 controller.

The controller shall meet or exceed the specifications of the Econolite's Cobalt 2100-C Fully Actuated controller (<http://www.econolite.com/files/4413/9949/2986/controllercobaltdatasheet.pdf>), or an equivalent approved by the City and County of Denver Transportation & Mobility.

Delete Subsection 614.08 (c) and replace with the following:

All new cabinets are the P-type cabinets as per the City & County of Denver Traffic Standards. Each cabinet shall be installed on a newly installed traffic signal controller cabinet base unless otherwise specified on the plan. Contact Chris Lillie at 720-865-0466 for cabinet assembly requirements and all other necessary auxiliary hardware.

Controller cabinet assemblies shall include an integrated uninterrupted power supply (UPS) units that comply with the City and County of Denver standards (see UPS spec).

Subsection 614.09 shall include the following:

The Contractor shall coordinate the pick-up of the controller and cabinet assembly from the City and County of Denver's Traffic Engineering Services and shall install it at the proper location. The Contractor shall coordinate pick-up times with Chris Lillie at (720) 865-4066.

The controller shall be installed in accordance with the details shown in the plans and in accordance with manufacturer's recommendations.

Subsection 614.10 shall include the following:

The Contractor shall demonstrate successful traffic signal operations at all new controller and cabinet locations to the satisfaction of the Engineer or Engineer's designee prior to acceptance of this item. The Contractor shall contact the Engineer or Engineer's designee 3 days before turning on signal. Work shall include all required

-2-

**REVISION OF SECTION 614
TRAFFIC SIGNAL CONTROLLER CABINET (INSTALL ONLY)**

programming of controllers and establishing or reestablishing all required wiring connections. Phasing and timing

information at each location shall be furnished to the Contractor by the City & County of Denver.

All new wiring shall conform to City & County of Denver and International Municipal Signal Association (IMSA) specifications.

Subsection 614.13 shall include the following:

The unit price for the installation of traffic signal controllers cabinets shall include all labor, materials, ancillary hardware, traffic signal cabinet base, wiring and wiring re-connection (including Xcel Energy power feed) required to install a complete system and successful operation of the item. Connection of the controller to the fiber optic interconnect system shall be paid for separately under item 614 "Telemetry (Field)".

Removal and disposal of existing cabinets shall be in accordance with the Project Special Provision for the referenced item.

Subsection 614.14 shall include the following:

Pay Item	Pay Unit
Traffic Signal Controller & Cabinet (Install Only)	Each

**REVISION OF SECTION 614
TRAFFIC SIGNAL CABINET BASE**

Section 614 of the Standard Specifications is hereby revised as follows:

Subsection 614.01 shall include the following:

This work shall consist of providing and installing a Quazite Traffic Signal Controller Cabinet Base as shown on the plans and in accordance with the City & County of Denver standards. The base shall be furnished by the City and County of Denver and fit the P-Type Traffic Signal Controller Cabinet. Dimensions of the base are shown in the City & County of Denver Traffic Signal Standard Drawing 16.1.16.

Subsection 614.10 shall include the following:

Prior to starting cabinet base installation, the contractor shall obtain field verification of the location of the base from the Engineer or Engineer's designee.

Cabinet base installation shall include all labor and materials to completely install a new P-type cabinet base for the controller cabinet as specified in the plans. This is to include all conduit installation and modification work, back-filling, and repair to all surrounding surface/area.

Subsection 614.13 shall include the following:

The traffic signal cabinet base and installation will not be measured and paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet installation.

Subsection 614.14 shall include the following:

Traffic signal cabinet base and installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet (Install Only) pay item.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

Section 614 of the Standard Specifications is hereby revised as follows:

Subsection 614.01 shall include the following:

This work shall consist of installation of the uninterrupted power supply (UPS) per City and County of Denver standards. UPS material specifications are provided for information only. The City and County of Denver will procure the UPS and install the UPS in the cabinet in the shop. The Contractor shall install the cabinet assembly, including the UPS, in the field.

Subsection 614.08 shall include the following:

An Uninterrupted Power Supply System (UPS) shall be included in each new Traffic Signal Controller Cabinet.

The double conversion UPS shall provide emergency battery power to the traffic signal controller. The UPS shall conform to the following specifications:

Operation:

The UPS system shall be capable of producing a fully regenerated, conditioned, pure sine wave AC. The online operational mode shall be continuous to all loads. It shall incorporate a high frequency Pulse-Width Modulated technology and shall use an input rectifier, charger, battery and inverter in a single board configuration. The UPS double conversion UPS shall provide a clean, pure AC sinewave output at all times with a voltage input variation of 85VAC to 145VAC while providing 120VAC to the connected load at all times. The UPS shall be capable of operating in the voltage range of 85VAC to 135VAC without using the batteries and always provide a regulated output to the protected loads.

The Input rectifier shall be rated at 2.5 times the output rating of the inverter.

The Inverter circuit shall be in continuous operation at all times (constant duty). The inverter shall be rated for 100% duty cycle and simultaneously fed from the rectifier and battery to eliminate any switching to battery or transitions during power fluctuations or power interruption. The inverter's output shall be pure clean sine wave with an efficiency of up to 85%.

The constant duty operation shall be rated in total watts. This will enable the traffic UPS to support any combination of signal heads whether Incandescent, LED or Neon, by any manufacturer, regardless of power-factor.

The UPS shall be capable of operating from a generator source without the need for over-sizing the UPS system. During operation from a generator source, the UPS shall operate in a normal fashion and provide filtered and regulated power with or without automatic input/output frequency synchronization. Upon excessive generator frequency drift, the UPS shall compensate through regeneration and supplying both continuous frequency and voltage regulation to the protected load.

The UPS shall be capable of glitch ride through capabilities and provide a seamless output to the connected load during this anomaly without the use of the batteries.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The UPS shall be capable of providing an overload output rating of 120% for 60 seconds, 150% for 10 seconds to any combinations of signal types whether Incandescent, LED or Neon during inrush or overload conditions.

The UPS shall have an internal static bypass that will transfer to line power if over load exceeds 150% for more than 5 sec. This bypass will maintain the load until this overload has cleared. The UPS shall have a separate Neutral detecting circuit that shall monitor loss of utility neutral and completely disconnect any input source to the UPS system.

The UPS shall have an input back feed relay operating in series with the Neutral monitoring circuit.

Upon loss of utility power, the UPS inverter shall continue to provide seamless pure sine-wave AC from the batteries without switching, transfer or changing its' operating status. The UPS will use the battery mode in '0' ms. This will insure that the UPS provides pure sine wave power under all conditions, at all times without interruption.

The UPS will continue to provide generated AC from the inverter until the batteries are depleted.

When the batteries have been depleted, the UPS will ensure upon the return of Utility Power that the UPS will restart automatically and provide regenerated AC to the protected equipment and allow the equipment to resume normal operation.

The UPS shall be capable of operating in a full regenerated, power-conditioning mode with depleted batteries or failed batteries. The regenerative power conditioning will ensure that there will be regulated and conditioned pure AC power to the equipment. This regenerative mode will provide extended brown-output protection with wide input line regulation, noise filtering and surge protection.

The UPS shall operate in an uninterruptible regenerative on-line mode during flash or normal signal operation.

The UPS shall be rated at Unity Power Factor. The output VA and Watts rating shall be equal on the output at all times.

The UPS shall be capable of COLD starting without AC present and provide AC power to the load.

The UPS shall be capable of self diagnostics during start up or with the use of the front panel TEST button.

The UPS case shall be constructed from .064 aluminum and carbon steel.

The UPS input and output connections shall be Anderson Power Pole quick lock connector to eliminate exposed terminals or connections.

The UPS to bypass interconnect harness shall be reversible with matching Anderson Power connectors that will prevent risk of shock, or damage to the connected equipment.

The UPS shall be capable of Hot-Swapping the batteries or battery bank, without shutting down the UPS.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The UPS shall be capable of being Hot-Swapped during normal operation when used with the external Hot Swap Bypass. The UPS may also be shut-off with the Hot Swap Bypass in place without loss of AC to the loads.

The UPS shall be capable of providing a replaceable relay card with relay output contacts for AC fail, Inverter ON, Low Battery, Battery Fail, Bypass and Alarms.

The UPS relay card may be replaced with an SNMP card for SNMP communications and information.

The UPS shall provide a programmable Dry Relay output for flash.

The contacts shall be provided in N/O and N/C positions. The delay timer shall be a maximum of 10 hours.

The timer shall be front panel mounted.

The Timer dial shall be 4.7 inches in circumference.

The timer shall have a scale in increments of 1s to 10seconds. This scale can be changed to indicate 1 minute, to 10 minutes or a maximum scale of 1 hour to 10 hours.

The scale shall be controlled by two (2) separate dip switches on the timer face.

The timer shall indicate using a flashing RED LED that the timing function is operating.

The timer shall use a steady RED LED to indicate that the timing is now completed.

The timer shall count in a down mode to '0' from the preset time indicated on the scale.

The LED indicators shall provide status for AC line, UPS Battery Mode, Charging, Low Battery, Fault, Bypass, Percentage of Load and Battery Charge.

The Event counter and Hour meter may be reset to '0' using separated buttons.

The UPS shall have a battery charger rated at 200 watts @ 36VDC with an optional of 400 watts.

This charger shall be completely separate from the rectifier/inverter included with the main UPS board.

The UPS chargers may be used in a parallel configuration for increased charger ratings.

The UPS uses a redundant internal 1 amp charger that will continue to charge the batteries if the separate board charger fails.

The UPS may be used with redundancy in mind with the use of the Dual Hot Swap Option. That will provide a secondary UPS source in less than 20ms. The Secondary UPS may be connected to the alternate input of the Hot Swap Bypass.

The Flash programming shall be a simple and field programmable without the use of an external connected device such as a laptop or computer.

The Hot swap Bypass shall allow the UPS to be removed or installed at any time during normal load operation.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The UPS shall include standard graphical real time software and connection cable.

The UPS shall be capable of sending programmable system alarms to the Econolite “icons” Traffic Management System.

Physical Description:

The UPS shall consist of 3 major components. The Main board Rectifier/Inverter, charger and control board.

The Main Board shall consist of a True-Sine-Wave constant duty high frequency inverter utilizing High-Frequency Pulse-Width Modulated technology.

The Input Rectifier shall be rated for the total wattage output rating of the UPS including the 150% overload and the charger rating. The inverter shall be a high efficiency constant duty design with an efficiency of 83%. The inverter shall include its’ own static bypass which provides an alternate AC path during overload and or Inverter alarm conditions.

The heat-sink shall be a continuous aluminum extrusion design with plenum directed airflow cooling. The 12VDC dual stage cooling fans shall be variable speed controlled by the logic board.

The charger portion shall be a 3 stage Hysterisis .5 amp, 36 or 72VDC charger with temperature compensation. The supplementary charger is a parallel design rated for 200, 500 and 1000 watts.

The Electronic Control board shall monitor the Rectifier and Inverter functions. It shall also provide the overall control of all the UPS functions and or operational capabilities.

Mounting Configuration:

The UPS shall be shelf mounted or rack mounted per the documents. Shelves and cabinets shall be supplied by others. Where rack mounting is required, the 170 style mounting method shall be 19” rack mount. Rack mounting ears shall be removable.

A separate standalone NEMA Traffic cabinet may be supplied if required in the plans and specifications.

4 rubber feet shall be installed on the bottom of the unit for shelf mounting.

Battery System:

The batteries shall be comprised of a quantity of three (3), high temperature, deep cycle (45AH) batteries which have been proven under extreme temperature conditions. The battery system or configuration shall consist of one string. Each string shall be 36 VDC. The batteries shall be provided with the appropriate interconnect cables. The battery cables shall have a minimum conductor size rating of #10.

The battery cable shall consist of a quick release Anderson connector rated at 25 amps. For the purpose of safety, the connector shall have recessed pins and keyed interlock to prevent reversal of connection or separation.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

Battery construction shall be of a polycarbonate high temperature design combined with high, pure lead content with internal resistance of .0028 ohms and a high impact poly case construction, to withstand high vibration and shock. The connections shall be of stainless steel 3/8 stud, with 3/8 stainless nut and locking washer. Removable lifting handle shall be standard.

The batteries shall also meet the following characteristics:

Nominal voltage: 12VDC
Capacity@ 25C: 45AH
Approx weight: 13.5Kg
Internal Resistance: 9.5 mOhms

Dimensions: 197mm x 165mm x 170mm (7.76 x 6.50 x 6.69)

Capacity (10hr rate): 75c-112%
65c-108%
55c-105%
25c-100%
0c- 85%
-15c- 65%

Self Discharge: 3 months 91% capacity remaining
6 months 82% capacity remaining
12 months 65% capacity remaining

Operating Temperature: -15c to +75C

Float Voltage: 13.5 to 13.80
Cyclic charging voltage: 14.5 to 14.90
Maximum charge current: 12A
Terminal material: Copper
Maximum discharge current: 400A (5 sec)

The system must be 36 volt DC maximum (no exception).

Electrical Specifications:

The unit shall meet the following electrical specifications:

Design: Double Conversion true on line.
Nominal input: 110, 115 & 120v AC single phase dip switch selectable.
Input Voltage Range: 80v to 140v AC
Input frequency: 50/60hz (47 to 63)
Efficiency: 83 %
Input configuration: 3 wire with ground

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

Input Protection:	15 amp re-settable breaker (on UPS 700)
Input Current:	10.4 amps (includes charger) (on UPS 700)
Power Rating Continuous:	700 watts, 1400watts, 2100 watts
Output Current:	@ 700 watts 5.8 amps / 11.6 @1400/ 17.7@2100
Output regulation:	+/- 3% with 100% resistive load
Output regulation w/low battery:	+/- 3% with 100% resistive load
Output Voltage:	120v AC
Output Wave Form:	Pure sine wave
Harmonic Distortion:	3% Linear Load; 5% Non Linear Load
Dynamic Response:	+/- 5% RMS for 100% step load change
	1 ms recovery time
Overload Capability:	120% for 60 sec
	150% watts for 10 sec
Charger:	200 watt 36VDC UPS 700, 72VDC on UPS 1400
	Parallel 400, 1000 and 2000 watt.
Surge:	ANSI-C62.41
Fault Clearing:	Current Limit and automatic to bypass
Short Circuit protection:	Output Breaker / Fuse, then shut down
Load Power Factor:	.6 leading to .6 lagging
Output Connection:	Anderson Power Pole Connector 6 pin keyed.
DC Connection:	Anderson 50 amp Keyed Recessed connector
Recognition:	UL Recognized & IEE 587 / C62.41 on main UPS board

Mechanical:

The UPS shall meet the following physical dimensions:

For 700 W UPS:

Size:	6.00" H x 10.5" D x 15.15" W
Weight:	18 lbs

The enclosure shall be constructed of 0.064 Carbon steel and aluminum. The enclosure shall be painted with powder coat paint with a minimum of 1.5 mil thickness.

Environmental:

The UPS shall meet or exceed NEMA temperature standards from -40c to + 74c.

Communications, Control & Diagnostics

LED indicators shall be provided for line monitoring, battery mode, charging, low battery, fault / bypass load level, battery level and ground fault. Manual test functions shall be available for alarm function, low battery, battery fail, bypass and overload. An RS 232 port with communication software shall be provided for real time UPS operational status in place of a relay status card when required.

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The relay status card shall have the following I/O via contact closure:

1. Bypass ON
2. AC fail or out of tolerance.
3. AC normal or in tolerance.
4. Inverter is operating (ON)
5. Battery low
6. Battery failed or bad
7. UPS general alarm
8. Ground (logic)
9. Apply 6 to +25VDC
10. between pin 9 and 10, will shut the UPS down

Options:

The UPS must be able to accept the following future options:

- SNMP/WEB monitoring.
- 24/7 Adjustable perpetual timer.
- Generator input option for hot swap bypass switch.
- Rack mount hot swap bypass switch.

In place of the relay card, an SNMP card can be installed that shall support TCP/IP, UDP, SNMP, and HTTP protocols and shall provide the SNMP MIB for UPS monitoring and UPS status. Remote access to UPS real time information including unit identification, data logging and UPS status in real time shall also be provided on a by unit basis. It shall be possible to use Microsoft Internet Explorer for remote viewing of the following:

1. UPS load
2. Battery Charger status
3. UPS operation Normal/Alarm
4. Input Voltage
5. Output Voltage
6. Battery Voltage
7. UPS Temperature
8. UPS information logging
9. Remote UPS battery testing.
10. Send output email if UPS status has changed
11. Built in reset with panel mounted led indicators for SNMP status.

The SNMP card shall have the following status LEDs:

- LED(1) Green LED: Status receiving
Yellow: Data Transmitting
- LED(2) Green: SNMP connecting
Yellow: SNM P functioning

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

The optional 24/7 timer shall be integral to the UPS. It shall include a DB9 connector to provide the connection and programming to the timer. This timer shall be programmable for any number of flash delays related to the time of day. It allows the complete flexibility of flash delay or skipping the flash during that particular event related to traffic flow and even holidays. The time shall have the follow features:

1. 7 days, 24 hrs Flash delay timing.
2. Perpetual Clock.
3. Maximum of 31 setting per day.
4. Timing resolution to the minute.
5. 4 Possible commands per event.
6. Real-time operation, editing functions will not interrupt the unit's functions.
7. J-Tag port for instant preload of complete 7-day schedule file.
8. SPDT 10 amp 240VAC /24VDC ratings.
9. Input Voltage 110 to 240VAC or 24VDC unregulated supply.
10. Plus! Capable of scheduling for holidays or specific year/dates.
11. Capable of operating at 2400 baud micro-modem for direct phone connection
12. Capable of operating at 1200 to 230,000 baud rate on a serial port.
13. Capable of log retention

An optional generator input shall be available for the UPS.

Reliability:

Calculated MTBF shall be 120,000 hours based on component ratings. When bypass switch is installed, system MTBF shall increase to 160,000 hours.

Hot Swap Bypass Switch:

A hot bypass switch shall be provided and wired to function within the UPS system. The bypass switch shall have the following characteristics:

Bypass Rating:	30 amps maximum
Bypass Transfer:	Automatically to line in 20ms, '0' crossing at full load
Control:	Rocker On/Off switch indicating 'Auto' and Bypass
Relays:	AC internal Load relay at 'Zero Crossing' with parallel function DC relay for interlocking and protection failsafe mode to N/C for AC power direct to load when failure occurs or in Bypass position.
Protection:	Internal Snubber circuit for spike attenuation during transfer at 'Zero' crossing. Internal fuse required.
Connections:	Flush mounted Anderson Power connector. With locked and keyed.
Indicators:	LED for Line Available, Bypass, Ups On Line, UPS Available.
Dimensions:	7.5 x 5 x 2.5
Weight:	1.4 lbs

**REVISION OF SECTION 614
UNINTERRUPTED POWER SUPPLY SYSTEM**

Warranty:

A standard (2) two year manufacturer warranty shall be provided for all electronic components. All batteries shall carry a one year warranty.

Subsection 614.13 shall include the following:

Traffic signal uninterrupted power supply system installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet (Install Only).

Subsection 614.14 shall include the following:

Traffic signal uninterrupted power supply system installation will not be paid for separately, but shall be included in the cost of the Traffic Signal Controller Cabinet (Install Only).

**REVISION OF SECTION 614
PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN**

Section 614 of the Standard Specification is hereby revised for this project as follows:

Subsection 614.08 (f) shall include the following:

1-1: Push button assemblies shall be of the direct push button solid state contact type and shall not have any levers, handles or toggle switches externally or internally. The pushbutton shall be of tamperproof and all weather construction. The pushbutton shall have a protective shroud that is an integral part of the cover and it shall encircle the pushbutton actuator to deter vandalism. The assembly shall be made weatherproof and shockproof by means of synthetic rubber gaskets between the cover and the enclosure and between the plunger and the cover so that it shall be impossible to receive an electrical shock under any weather conditions. The front cover plate shall be secured with stainless steel vandal resistant screws. The push button shall operate on logic ground.

1-2: The solid state switch shall be entirely insulated from the housing and operating button. The pushbutton shall consist of a 2 inch 303 stainless steel metal plunger and an oil and gasoline resistant Piezo driven solid state switch, all encased in a high impact thermoplastic enclosure with four (4) stainless steel mounting screws. The solid state switch shall be normally open and shall be closed with a minimum of pressure on the button (3lb ± 1lb), restoring immediately to the normally open position when the pressure is released.

The aluminum housing shall be the flat back frame type with adjustable mounting staves that will readily enable it to be mounted on any size traffic signal pole or push button standard. The housing shall have a ½ inch access hole in the rear for wiring. The housing shall have a bottom threaded conduit entrance hole and shall be provided with a threaded plug so that access is only possible from the rear of the housing. The plug shall not be removable with ordinary tools. The housing shall be painted Dark Olive/Federal Green baked enamel matching to Federal Standard 595A color #14056.

The frame shall have a cast aluminum attachment to allow the mounting of a 9" X 12" pedestrian instruction sign. By removal of 4 screws the frame shall convert to allow the mounting of a 5" X 7 ¾" pedestrian instruction sign.

Pedestrian Instruction Sign:

2-1: Pedestrian instruction signs shall conform to the latest version of the M.U.T.C.D., published by the U.S. Department of Transportation Federal Highway Administration.

2-2: Pedestrian instruction signs shall be Type R10-3a, Type R10-3b, Type R10-3c, R10-3d, and R10-3e as specified in the contract documents (or bid documents).

Pedestrian instruction signs shall be constructed in accordance with the applicable provisions of the current CCD Standard Specifications. Pedestrian instruction sign need not be reflectorized. The sign shall be fabricated with 0.063 aluminum. The signs shall be mounted using four 5/16" mounting holes 4" X 6 ¾" for the 5" X 7 ¾" sign and 7" X 10" for the 9" x 12" sign. The pedestrian instruction signs shall have rounded corners ¾" radius for the 5" X 7 ¾" sign and 1 ½" radius for the 9" X 12" sign.

**REVISION OF SECTION 614
PEDESTRIAN PUSH BUTTON AND INSTRUCTION SIGN**

Subsection 614.14 shall include the following:

Pay Item	Pay Unit
Pedestrian Push Button	Each

The Pedestrian Instruction Sign shall not be paid for separately but included in the cost of the Pedestrian Push Button pay item.

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

Section 614 of the Standard Specifications is hereby revised as follows:

Subsection 614.01 shall include the following:

This work consists of furnishing and installing a fully-functional FLIR vehicle detection camera system or approved equal (video detection system), at the specified locations identified in the plans. Subsection 614.08 shall include the following:

Detection Camera:

The detection camera shall consist of a thermal camera, thermal lens, and enclosure; and shall meet the following specifications:

- *Thermal Camera & Lens*
The detection camera shall be a 320 x 240 (minimum) and 10 frames per second (minimum) thermal camera that fits into the camera enclosure specified herein. The lens shall be a fixed thermal lens. Digital zooming is allowed.
- *Camera Enclosure*
The camera enclosure shall consist of a dustproof and waterproof outdoor camera housing designed specifically to fit the thermal camera and thermal lens specified herein. The enclosure shall have a sun shield to prevent direct and indirect sunlight entering the lens. A thermostatically controlled heater for window defogging and defrosting is allowed.
- *Power*
The detection camera shall be powered by a 120/240VAC, 50/60Hz power source or by a 24VDC ($\pm 10\%$) power source.
- *Reliability*
The interface card shall be designed and manufactured to have a MTBF (Mean Time Between Failure) prediction figure of greater than or equal to 10 years continuous operation.
- *Certifications & Environmental*
The detection camera shall meet the following Certifications and Environmental specifications:

<i>Certifications</i>	Comply with Electromagnetic Compatibility - 2004/108/EG Comply with FCC Part 15, Class A
<i>Weatherproof</i>	IP66 ingress protection standards (minimum)
<i>Operating Temperature</i>	-34°C to +74°C (-29°F to +165°F) (minimum)
<i>Relative Humidity</i>	Up to 100% non-condensing
<i>Shock & vibration</i>	NEMA II

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

- *Mounting Brackets*

A versatile mounting bracket shall be supplied to mount the camera enclosure, specified herein, to a horizontal luminaire or vertical traffic signal pole.

All mounts shall be secured with stainless steel mounting straps or bolts. The mounts, including the mass and size of the detection camera, shall be designed to withstand a wind load of 120km/h (or 75mph) with a 30-second gust factor.

- *Camera to Controller Cabinet Cable*

Cable needed to power the detection camera specified herein, transmit thermal video and data information to the controller cabinet shall be provided and meet the specifications of the thermal video imaging detection system manufacturer.

Thermal Video Processor:

A thermal video processor shall be included in the detection camera, specified herein, or in the interface card, specified herein; and shall meet the following specifications:

- *Functionality*

The thermal video processor shall provide the following functionality:

<i>Detector Display</i>	Capable of displaying bike detection regions on the thermal video image with associated outputs with output status shown on the screen
<i>Detector Placement</i>	By using a portable PC with graphical user interface software or web server
<i>Detector Function</i>	Capable of detecting within the view of the connected detection camera the presence of bicycles in user defined bicycle detection regions
<i>Detector Type</i>	Configurable as presence, count, delay, extension, or pulse mode of either arrival or departure of bicycles. The detector shall be capable of detecting pedestrians and small motorcycles too.
<i>Detector Modification</i>	All detectors and parameters shall be able to be changed without interrupting detection. When one detector is modified, all existing detectors shall continue to operate, including the one that is being modified. When the new detector position is confirmed, the new detector shall have no learning phase and shall be operating while the one being modified ceases to operate
<i>Detector Failure State</i>	Provide a constant call on each active detection channel, in the event of unacceptable interference or loss of the thermal video signal
<i>Regions per Video Output</i>	Up to 4 (minimum)
<i>Detector Delay & Extension</i>	Defined between 0.1-99 seconds and pulse mode between 0-500ms in 10ms increments.
<i>Direction Sensitivity</i>	Able to make a detector directional sensitive

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

Camera Interface/Surge Suppression Panel

When the thermal video processor is in the detection camera, a UV resistant signal cable with 3 wires (maximum) of wire diameter AWG18 (minimum) shall be provided to power the detection camera, transmits detection information to the interface card specified herein, and provides remote communication specified herein. The cable distance between detection camera and interface card is 300m or 1,000ft (maximum).

When the thermal video processor is in the interface card with coax thermal video cables being used between the detection camera and the interface card, a surge suppression panel shall be provided that powers the detection camera with high-voltage transient protection and power isolation, and suppresses electrical spikes on the thermal video coax cable.

The camera interface/surge suppression panel shall meet the following specifications:

- *Certifications and Environmental*

The interface card shall meet the following Certifications and Environmental specifications:

<i>Certifications</i>	Comply with Electromagnetic Compatibility - 2004/108/EG Comply with FCC Part 15, Class A
<i>Weatherproof</i>	IP66 ingress protection standards (minimum)
<i>Operating Temperature</i>	-34°C to +74°C (-29°F to +165°F) (minimum)
<i>Relative Humidity</i>	0-95% non-condensing (minimum)
<i>Shock & vibration</i>	NEMA II

Interface Card:

Input/output main and expansion cards shall be supplied that are designed to convert real-time detection signals from the video processor, specified herein, into contact closure signals to the traffic light controller; and to relay traffic signal phase status to the video processor, specified herein. The interface card shall meet the following specifications:

- *Functionality*

The interface card shall provide the following functionality:

<i>Cabinet/Controller</i>	US: EDGE card for TS-1 cabinet and 2070 TS-1 and TS-2 controllers
<i>Compatibility</i>	Rest of World: EURO card for various standard controllers
<i>Status Indicators</i>	Visual for state of each detection output, visual state of power status (ON/OFF), visual state of camera status (operational/not operational)
<i>Identification</i>	Individually addressable with serial number, MAC address, IP-address, subnet mask and default gateway
<i>Program Retention</i>	Continue to operate in accordance with previous program after recovering from communication system or power failure
<i>Time Synchronization</i>	Manually or NTP time source
<i>Detector Failure State</i>	Provide a constant call on each active detection channel, in the event of unacceptable interference or loss of the thermal video signal
<i>Regions per Video Output</i>	Up to 4 (minimum)

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

<i>Detector Delay & Extension</i>	Defined between 0.1-99 seconds and pulse mode between 0-500ms in 10ms increments.
<i>Direction Sensitivity</i>	Able to make a detector directional sensitive

- *Communication*

The interface card shall meet the following specifications:

<i>Controller Interface Output</i>	Contact closure via interface backplane, providing up to four channels of vehicle detection with no front panel connectors being used
<i>ETHERNET</i>	RJ45 port for hard-wired system set-up and monitoring
<i>USB</i>	USB 2.0 (minimum) on front panel for connecting a USB dongle to allow wireless set-up and monitoring via portable PC, tablet and/or smart phone 4°C to +74°C (-29°F to +165°F) (minimum)

- *Remote Communications*

Remote communications to allow remote management specified herein shall be provided via the interface card and shall meet the following specifications:

- a) *Functionality*

Remote communications shall provide the following functionality:

<i>Cabinet/Controller</i>	US: TS-1 cabinet and 2070 TS-1 and TS-2 controllers
<i>Compatibility</i>	Rest of World: EURO card for various standard controllers
<i>Thermal Video</i>	MJPEG, MPEG-4 (ISO 14496-2) and/or H.264 (ISO/IEC MPEG-4 AVC)
<i>Compression</i>	
<i>Thermal Video Frame Rate</i>	Constant and variable 10 frames per second (minimum)
<i>Thermal Video Bandwidth</i>	Between 32 kbps and 4 Mbps (minimum)
<i>Status Indicators</i>	Ethernet link/activity
<i>Identification</i>	Individually addressable with serial number, MAC address, IP-address, subnet mask and default gateway
<i>Program Retention</i>	Continue to operate in accordance with previous program after recovering from communication system or power failure

- b) *Communication*

The remote communications shall meet the following specifications:

<i>Ethernet Port</i>	One 10/100Base-T front-panel RJ45 port (minimum)
<i>Thermal Video Input</i>	Via front panel connector

- *Power*

The interface card shall meet the following power specifications:

<i>Input Voltage</i>	24VDC \pm 10% (via cabinet detector rack backplane)
<i>Power Consumption</i>	10W (maximum)

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

- *Physical Properties*

The interface card shall meet the following physical properties specifications:

<i>Size</i>	US: Fits directly into NEMA TS-1 cabinet detector rack or fits on DIN-rail Rest of world: Fits directly in EURO half/full 19" rack or fits on DIN-rail
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- *Reliability*

The interface card shall be designed and manufactured to have a MTBF (Mean Time Between Failure) prediction figure of greater than or equal to 10 years continuous operation.

- *Certifications and Environmental*

The input/output main and expansion cards shall meet the following Certifications and Environmental specifications:

<i>Certifications</i>	Comply with FCC Part; 15 NEMA TS 2-2003 v02.06
<i>Operating Temperature</i>	-37°C to 74°C (-35°F to 165°F) (minimum)
<i>Humidity</i>	0 – 95% non-condensing

Remote Management System

Remote management system shall be provided to monitor, control, and troubleshoot the thermal video imaging detection devices remotely via the Ethernet communication system. The vendor shall provide all software that will be loaded and configured by staff on furnished server hardware that is connected to the thermal video imaging detection devices via the Ethernet communication system. Remote management shall meet the following minimum requirements:

- *Diagnostic & Health Monitoring*

<i>Management Status</i>	Provide real-time status display of services required to access, troubleshoot, and archive data from the thermal video imaging detection system network connected devices
<i>Network Device View</i>	Provide view of all thermal video imaging detection system network connected devices
<i>Operation Log</i>	Support retrieving, displaying, and saving operational messages, warnings, and errors

- *Remote Management & Maintenance*

<i>Video Viewing/Recording</i>	Support viewing and recording streaming video including detector overlay
<i>Device Management</i>	Support creating, editing, downloading, and uploading detector configurations
<i>Remote Firmware Updates</i>	Support updating firmware of any device from a remote location
<i>Remote Backup/Restore</i>	Support backup/restore device configuration from remote location

**REVISION OF SECTION 614
INTERSECTION DETECTION SYSTEM (CAMERA)**

Access Permissions
Clock Synchronization

Support password implementation
Support the Network Time Protocol (NTP) to synchronize the internal clocks of the thermal video imaging detection system network connected devices a minimum of once a day

Subsection 614.13 shall include the following:

Intersection Detection System (Camera), Intersection Detection System (2 Camera), and Intersection Detection System (4 Camera) shall be measured and paid by the number of intersections that they are installed on. The item shall include all labor, materials, and ancillary hardware required to provide a fully-functional camera system to the satisfaction of the Project Manager.

Subsection 614.14 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Intersection Detection System (Camera)	Each
Intersection Detection System (2 Camera)	Each
Intersection Detection System (4 Camera)	Each

**REVISION OF SECTION 614
TRAFFIC SIGNAL POLES - GENERAL**

Section 614 of the Standard Specifications is hereby revised for this project as follows:

Subsection 614.01 shall include the following:

The Contractor will furnish and order all traffic signal poles and mast arms. The Contractor shall store and protect the poles and mast arms in the Contractor's yard upon delivery. The Contractor will transport the poles and mast arms to the job site for installation. The traffic signal poles, luminaires and mast arms shall be installed by the Contractor.

Contractor shall be responsible for furnishing and installing aluminum pedestal poles.

Subsection 614.08 (g) shall include the following:

Traffic Signal Pedestal Poles shall conform to the requirements of the City and County of Denver's Traffic Signal Standard Detail 16.1.13.

All traffic signal poles shall include a 10 foot long luminaires mast arm and a 250 watt high pressure sodium "hockey puck" style luminaires in accordance with the current City and County of Denver Standards. Prior to the City and County of Denver submitting the order for traffic signal poles, mast arms and luminaires, contractor shall submit material specifications to the City and County of Denver Traffic Engineering Services for approval.

PAINTING: All traffic signal mast arm poles shall be powder coated in accordance with the following specifications:

General: Super Durable Powder Coating: The super durable powder coating shall consist of a Urethane or Triglycidyl Isocyanurate (TGIC) Polyester Powder, and provide a minimum of 3 times the gloss retention, color retention and ultraviolet light (UV) resistance as standard powder coatings. Color shall be dark olive green, in conformance with Federal Specification No. 14056.

Surface Preparation: The exterior steel surface shall be blast cleaned to Steel Structures Painting Council Surface Preparation Specification No. 6 (SSPC-SP6) requirements utilizing cast steel abrasives conforming to the Society of Automotive Engineers (SAE) Recommended Practice J827. The blast method is a recirculating, closed cycle centrifugal wheel system with abrasive conforming to SAE Shot Number S280.

Interior Color: Interior surfaces (pole shafts only) at the base end for a length of approximately 2.0' shall be mechanically cleaned and coated with a zinc rich epoxy powder. The coating shall be electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350 degrees Fahrenheit and a maximum of 400 degrees Fahrenheit.

Exterior Coating: All exterior surfaces shall be coated with Urethane or Triglycidyl Isocyanurate (TGIC) Polyester Powder to a minimum film thickness of 2.0 mils (0.002"). The coating shall be electrostatically applied and cured in a gas fired convection oven by heating the steel substrate to a minimum of 350 degrees Fahrenheit and a maximum of 400 degrees Fahrenheit. The thermosetting powder resin shall provide both intercoat as well as substrate fusion adhesion that meets 5A or 5B classifications of ASTM D3359.

**REVISION OF SECTION 614
TRAFFIC SIGNAL POLES - GENERAL**

Packaging: Prior to shipment, small poles shall be wrapped in 0.188” thick Ultraviolet inhibiting plastic backed foam. Larger poles shall be cradled in a 1.0” rubberized foam base.

Handling and Shipment: Poles shall be handled in a manner that will preserve the overall appearance and prevent damage to the coating. The use of chains or cables for loading, unloading, or installing is prohibited. Only ¾ inch diameter or larger nonabrasive nylon rope or equivalent nylon belting will be used. Adequate hold-downs and appropriate blocking shall be utilized for shipping to prevent load movement and damage to the outer coating in transit. No handling should be allowed until “dry through” condition has been achieved with the coating.

Delivery, Installation, and Acceptance of Poles: Extra care will be taken not to damage the coating. Upon arrival of the poles at the delivery point, neither chains nor cables will be used to either unloading or installation of poles.

Procedure for Field Touch-Up: The pole manufacturer will furnish extra paint, both primer and color coat, to satisfy the needs of field touch-up requirements, in the event of minor physical damage to the coating from handling or transit. Damaged area must be clean and dry before repair application. Field touch-up will be at the direction of the pole manufacturer or their authorized representative.

Subsection 614.14 shall include the following:

Pay Item	Pay Unit
Traffic Signal-Light Pole Steel (1-20 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-25 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-30 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-35 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-40 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-45 Foot Mast Arm)	Each
Traffic Signal-Light Pole Steel (1-50 Foot Mast Arm)	Each
Traffic Signal Street Light Pole	Each

REVISION OF SECTION 614 TELEMETRY (FIELD)

Section 614 of the Standard Specifications is hereby revised for this project as follows.

Subsection 614.01 shall include the following:

This work consists of fan-out and termination of fiber optic (interconnect) cable at each controller cabinet locations as identified in the plans. This work also includes providing and installing all necessary telemetry equipment including but not limited to optical splice closures, field patch panels, splice organizers, cables, pigtails/jumpers and labels.

Color-coded fibers and buffer tubes shall be used throughout the entire project. At the terminal points the jackets shall be stripped and the ends taped. Gel filled compound shall be removed using filled cable cleaner.

At every cabinet or optical closure, only the fibers identified in the plans to be spliced and/or connected to a patch panel or other internal device are required to be landed. All cut and unconnected fibers shall be sealed in a manner recommended by the fiber optic cable manufacturer and coiled neatly in a splice organizer.

The same color-coded pairs of fibers and/or wires shall be used throughout the entire project unless shown as otherwise in the plans. Gel filling compound shall be removed using filled cable cleaner.

Subsection 614.08 shall include the following:

Fiber Optic Patch Pigtail:

The fiber optic pigtail cables shall consist of MM fibers housed individually in protective jackets. Both ends of the cable shall be connected. Fiber optic patch cord cable shall be suitable for operation over a temperature range of -30 degrees to +60 degrees Celsius. Fiber optic patch cord cables shall be of length suitably long to be connected between the interconnect panel and the communications equipment (i.e. fiber optic transceivers). Patch cord couplings shall be compatible with termination points. Appropriate strain relief in the cabinet (through cable ties) shall be installed at a minimum of three locations. Sufficient slack shall be left to allow relocation of the equipment anywhere in the cabinet. The attenuation of a fiber optic patch cord cable after installation, not including the connector loss, shall not exceed 0.1 dB measured at 850 nm and 1300 nm.

Connectors:

The connector shall have a ceramic ferrule with a nickel-plated nut and body. The connector shall be an AT&T ST style compatible field mounted connector. The connector shall be compatible with a physical contact (PC) finish. All connectors shall be polished to a PC finish such that the return loss per mated pair of connectors is less than -25 dB. The return loss when the connector is mated with previously installed connectors shall be less than -18 dB.

The connector insertion loss shall not be greater than 0.20 dB (typical). The connector loss shall not vary more than 0.20 dB after 1000 repeated matings. Tensile strength shall withstand an axial load of 20 lb. with less than 1.20 dB change.

**REVISION OF SECTION 614
TELEMETRY (FIELD)**

Index matching fluids or gels shall not be used. The connectors shall be compatible with the optical fiber surrounding jacket and shall be installed on one end of the optical fiber in accordance with the manufacturer's recommended materials, equipment and practices. The connector shall be suitable for the intended environment and shall meet the following environmental conditions:

Operating Temperature: -40° to +80° C

Storage Temperature: -40° to +85° C

The connector loss shall not vary more than 0.20 dB over the operating temperature range. Connectors shall be protected by a suitably installed waterproof protection cap.

Miscellaneous Cabling:

Fiber optic patch cords shall be fiber optic jumper cable, duplex, ceramic ferrule, MM 62.5 nm, adaptable to AT&T ST style connectors, 2 meters in length, ITT Canon Model 161001-4020 or approved equal. Cable from fiber optic modem to Port 3 controller harness shall be 25-pin cable Model 44982G4 or approved equal. The Contractor shall deliver transceivers to the City's Traffic Signal Shop. Contact Joe Strauss (720) 865-4062 for coordination.

Optical Splice Closures:

Coyote Runt or Coyote Pup Type closures shall be provided for splicing lateral fiber optic cables to the main (backbone) fiber cable in all pull box locations that are identified in the plans. All closures shall include 1-Inch future port kit (part no. 8003408, Pre-Formed Line Products). The Coyote Runt Closure shall be used at locations with 3 fiber optic cables. In locations requiring more than 3 cables, a Coyote Pup Closure shall be installed.

Subsection 614.13 shall include the following:

Telemetry (Field) shall be measured by the total number of cabinets at which the interconnect cable is fanned out, terminated, connected, patch panels and fiber-optic interfaces installed. All labor and materials required to perform panel installations, provide in-cabinet strain relief, fanout, cable termination and connection to the controller is considered included in the unit price for this item.

This item, therefore, includes the following:

1. All required in-cabinet cable ties and strain relief (including ancillary hardware and labor to complete);
2. All required fan-out kits, kit tools, ancillary hardware and labor to accomplish the fan-out at the cabinet;
3. All required pigtails and harness cables;
4. All required interconnect centers and fiber optic interface panels in individual controller cabinets as shown in the plans;
 - All required termination enclosures (including specified features), connectors, adapters, jumpers, pigtails, patch cord cables, ancillary hardware and labor required to accomplish the cabinet termination;
 - All required optical splice closures;
 - All other labor and material necessary to complete the item

**REVISION OF SECTION 614
TELEMETRY (FIELD)**

All labor and materials necessary to complete this item shall be considered included in the unit price and will not be paid separately.

Subsection 614.14 shall include the following:

Payment will be made under:

Pay Item	Pay Unit
Telemetry (Field)	Each

**REVISION OF SECTION 614
FIBER OPTIC CABLE – GENERAL**

Section 614 of the Standard Specifications is hereby revised for this project as follows.

Subsection 614.01 shall include the following:

This work provides for the installation of fiber optic communications cable to be installed in conduit or duct as specified in the plans. All labor and materials required to fan-out, terminate, splice or otherwise connect fiber optic cables at individual controller cabinets, will be paid separately under the Telemetry (Field) pay item. The contractor shall be required to demonstrate successful signal system communications to the Engineer as a requirement of acceptance of this item.

Subsection 614.10 shall include the following:

All fiber-optic interconnect cable shall be furnished by the Contractor, and installed, spliced (if required and only as approved by the Engineer), terminated, connected and tested by the Contractor. The number denoted prior to the “MM” designator identifies the number of multi-mode fibers (Strands) in the cable. The number denoted prior to the “SM” designator identifies the number of single-mode fibers (Strands) in the cable.

Cable ends shall be stored in pull boxes or splice closures at locations indicated in the plans or as directed by the Engineer. Fibers to be spliced and/or connected in any manner shall be limited to those identified in the plans, and only in designated controller cabinets or splice closures. All other fibers shall be left uncut or sealed as appropriate in a manner recommended by the cable manufacturer.

Fiber optic cable shall be installed in a continuous run between all controller cabinets and splice closures as shown in the plans. Lateral cables shall be spliced only in splice closures and routed to the controllers as shown in the plans. Under no conditions shall the fiber cable be cut out or spliced at intermediate points without the express written direction of the Engineer.

Cable shall be installed in new conduit or existing conduit as specified in the plans. The Contractor shall be required to leave a minimum of 10 feet of cable slack in the equipment controller cabinet. The Contractor shall leave a minimum of 50 feet of cable slack in the pull box adjacent to the controller and shall leave a minimum of 50 feet of slack in all other communication pull boxes.

Cable Tags and Labels:

Fiber optic cable shall be neatly coiled and clearly tagged and labeled at each communication pull box and at all locations where the fiber is exposed. Cable tags and Labels shall be as follows:

Materials: Metal or heavy plastic identification tags with cable type and number, copper pair or optic number assignments, and destination shall be provided on both ends of all cables (except station cables) and all splice cases. All cables shall be clearly labeled with cable number (City to determine scheme) and size at each end of the cable, when it enters or leaves a conduit and at 30-foot intervals when run in accessible areas such as tunnels, manholes, ceilings, etc.

Manufacturer: Tags shall be 3M, Panduit or an approved equivalent.

**REVISION OF SECTION 614
FIBER OPTIC CABLE - GENERAL**

General Requirements: The Contractor shall provide the Engineer with two copies of the cable manufacturer's cable specifications and installation instructions for fiber optic cable in conduit. All installation shall be in accordance with these practices except as otherwise directed by the Engineer.

Additional cable costs due to damage caused by the Contractor's neglect of recommended procedures shall be Contractor's responsibility. The main cable shall be installed in continuous runs except where cable type changes or where maximum pull lengths govern. The manufacturer's recommended limits for cable pull tensions shall not be exceeded. Cable ends shall be stored in controller cabinets or pull boxes immediately adjacent to cabinets or as directed by the City.

Lateral and Branch cables shall be installed using appropriate strain relief in the cabinet (through cable ties) at a minimum of three locations.

All fiber optic cables to be installed shall be checked with an OTDR before and after installation. Documentation of fiber performance shall be provided to the City within 30 days of test. All optical fibers shall be within the manufacturer's recommended tolerances. In addition, any other acceptance testing recommended by the manufacturer shall be provided. Data shall be supplied to the City prior to completion of the project.

Fiber optic cable shall be transported to site using cable reel trailers. Care shall be taken at all times to avoid scraping, denting, twisting, or otherwise damaging the cable before, during and after installation. Damaged cable shall be replaced by the Contractor without additional compensation.

Cable shall be installed in conduit or duct in the field in accordance with the contract drawings. The conduit and duct ends shall have all rough edges smoothed to prevent scraping the cable. All existing or suspected dirt and debris within the conduit shall be cleaned with compressed air before installing cable. A manufacturer recommended lubricant shall be applied to the cable to reduce friction between the cable and duct or conduit. Where fiber optic cables are to be installed in inner duct, the Contractor shall secure each section of the conduit to prevent it from being pulled without the cables.

A cable grip shall be attached to the cables so that no direct force is applied to the optical fiber. The cable grip shall have a ball-bearing swivel to prevent the cable from twisting during pulling. Cable rollers and feeders and winch cable blocks shall be used to guide the cable freely into the duct and at maintenance hole locations. Mechanical aids and pulling cable or ropes shall be used as required. **The maximum pulling tension as defined by the cable manufacturer shall not be exceeded.** The cable shall be taken up at intermediate pulling points with an intermediate cable take-up device as approved by the Engineer to prevent over-tension on the cable. Cable pulls shall be continuous and steady between pull points and shall not be interrupted until the entire run of cable has been pulled. Personnel equipped with two-way radios shall be stationed at each maintenance hole, cabinet, pedestal, communications box, and junction box through which the cable is to be pulled to observe and lubricate the cable. Intermediate splices between pull boxes shall not be allowed. The cable shall be securely fastened in place within pull boxes, pedestals, manholes and cabinets.

The contractor shall ensure cable length is sufficient to allow for connection between the communications equipment and the splice equipment and the splice enclosures including provision for slack, vertical runs, cable necessary for splicing, wastage and cable to allow for the removal of the splice enclosure for future splicing.

**REVISION OF SECTION 614
FIBER OPTIC CABLE - GENERAL**

Lateral and Branch Fiber Optic Cable: Lateral/Branch fiber optic cable shall consist of 6 multimode fibers and 6 single-mode fibers. Lateral/Branch fiber optic cable shall be installed in new or existing conduit, or along existing span wire, as depicted in the plans. Cables shall be provided with appropriate strain relief in the cabinet, consisting of cable ties in at least three interior cabinet locations. Lateral and Branch fiber optic cable shall be clearly tagged and labeled as such at pull boxes and all other locations where it is exposed. At any location where the cable is brought into or out of a span wire pole, the Contractor shall install a new weather-head to accommodate the bending radius of the cable.

Subsection 614.13 shall include the following:

Fiber Optic Cable for the main (backbone), lateral and branch cables will not be measured separately, but shall be included in the item Telemetry (Field), and shall include all labor and materials required to install the main, lateral, branch, and start cables through conduits to all pull boxes, cabinets and closures specified in the plans. Installation of all internal field cabinet telemetry, splicing, fan-out and termination of the cable at individual controller cabinets is described and paid for under Telemetry (Field).

Subsection 614.14 shall include the following:

No separate measurement or payment will be made for fiber optic cable. All fiber optic cable shall be considered incidental to the Telemetry (Field) pay item.

**REVISION OF SECTION 625
CONSTRUCTION SURVEYING**

Section 625 of the standard specifications is hereby revised as follows:

Delete section 625 and replace with the following:

DESCRIPTION

625.1 This work consists of the construction surveying, calculating, and staking necessary for the construction of all elements of the project. The work shall be done under the supervision of a Professional Land Surveyor (PLS) who is licensed in the State of Colorado. Locating, preserving, referencing, installing and restoring land monuments such as Primary Control monuments from which the Right of Way or any land boundary will be calculated, described or monumented, Public Land Survey System (PLSS) monuments, General Land Office (GLO) monuments, Bureau of Land Management (BLM) monuments, Mineral Survey (MS) monuments, Right of Way (ROW) monuments, property boundary monuments and offsets, range points, benchmarks, easement monuments, and other monuments that are required by law or regulation to be established by a PLS, and the determination of any land boundary, shall be done under the supervision of a Professional Land Surveyor (PLS) who is licensed in the State of Colorado.

MATERIALS AND EQUIPMENT

625.2 The Contractor shall furnish all personnel, survey equipment, safety equipment, materials, and traffic control necessary to perform the required construction surveying and staking. All surveying equipment, including Electronic Distance Meters (EDM), total stations, theodolites, levels, rods, tapes, tripods, tribrachs, and Global Positioning System (GPS) receivers and equipment.

If any survey equipment is found to be functioning outside the manufacturer's specified tolerance, certification from an approved repair facility showing that the instruments have been repaired, properly adjusted, or both if necessary shall be included in the survey records and submitted to the City Surveyor's Office before being used.

CONSTRUCTION REQUIREMENTS

625.3 A Construction Survey Conference shall be held with the City Surveyor's Office prior to performing any surveying work under this section. The Contractor's Surveyor (PLS) and Party Chief shall attend. A Construction Survey Checklist shall be completed and signed by the City Surveyor's Office and the contractor.

The Contractor shall check and verify all established Primary horizontal and vertical control points.

All survey records generated shall be the property of the City and shall be available to the City Surveyor's Office for inspection or reproduction at all times. All survey records shall be transmitted to the City Surveyor's Office for inclusion into the project records before final project acceptance.

Electronic formats may be acceptable, please coordinate with the City Surveyor's Office. Copies of any new Monument Records filed by the PLS with the State Board of Registration shall be submitted to the City Surveyor prior to filing.

625.4 Contractor Surveying. The Contractor's PLS shall perform all construction surveying and staking that is necessary for construction of the project.

**REVISION OF SECTION 625
CONSTRUCTION SURVEYING**

625.5 Staking. It is the responsibility of the Contractor's PLS to adhere to industry standards and acceptable practices in regards to staking. Any restaking will be the responsibility of the Contractor's PLS at no cost to the City.

625.6 Accuracy and Tolerances. It is the responsibility of the Contractor's PLS to adhere to industry standards and applicable standards with regard to horizontal and vertical accuracy tolerances.

625.7 Responsibility and Inspection. Supervision and coordination of construction surveying and staking is the Contractor's responsibility. The City Surveyor's Office or Engineer may inspect the Contractor's surveying; however such inspection will not relieve the Contractor of any responsibility for accuracy or completeness of work. All Contractor surveying inaccuracies, errors, or omissions shall be corrected at the Contractor's expense.

625.8 Reset Monuments and Stakes. Survey monuments, benchmarks, and other significant stakes that are damaged, destroyed, or made inaccessible by the progress of construction shall be replaced, transferred or reestablished at the Contractor's expense.

Locating, preserving, referencing, installing and restoring land monuments as described in 625.01, shall be done in accordance with Section 629, under the supervision of a PLS who is experienced and competent in Right of Way and boundary surveying and licensed in the State of Colorado.

625.9 Changes. All changes in lines and grades required by field conditions and all discrepancies in grades, alignment, location or dimensions detected by the Contractor shall be immediately submitted to the Engineer in writing. No changes in given data or plans will be allowed unless approved by the Engineer in writing. All changes shall be documented by the contractor.

625.10 Pay Quantities Measurements. The Engineer will perform all interim and final measurements deemed necessary by the City to determine contract pay quantities. The Contractor shall establish and maintain Control points and stationing as required for these measurements.

625.11 Survey Records. Survey records shall be completed as the work is done. Field survey notes for construction surveying and checking by the Contractor shall be recorded in survey records in conformance with industry standards and acceptable practices.

All survey records generated shall be the property of the City and shall be available to the City Surveyor's Office or the Engineer for inspection or reproduction at all times. All survey records shall be transmitted to the City Surveyor's Office for inclusion into the project records before final project acceptance. All survey records shall be stamped with the seal of, and signed by, the responsible PLS.

Electronic submittal of survey records may be acceptable, please coordinate with the City Surveyor's Office.

METHOD OF MEASUREMENT

625.12 Construction surveying will not be measured but will be paid for on a lump sum basis.

**REVISION OF SECTION 625
CONSTRUCTION SURVEYING**

BASIS OF PAYMENT

625.13 Payment for construction surveying will be the contract lump sum bid and will be full compensation for all surveying work necessary to complete the project to include all resetting of stakes, marks, monuments and preparing survey documentation as required. Partial payment for construction surveying, as determined by the Engineer, will be made as the work progresses.

Payment will be made under:

Pay Item	Pay Unit
Construction Surveying	Lump Sum

Traffic control for construction surveying will be measured and paid for in accordance with Section 630.

**REVISION OF SECTION 626
MOBILIZATION**

Section 626 of the Standard Specifications is hereby revised to include:

Subsection 626.01 is hereby revised to include:

This item also includes demobilization of equipment and supplies from this project site. Subsection 626.02 is hereby deleted and replaced by the following:

Two payments will be made for the mobilization item. 50% of the amount bid for mobilization will be paid at the completion of mobilization. The remaining 50% of the amount bid for mobilization will be paid at the completion of the project when the equipment has been demobilized.

Pay Item
Mobilization

Pay Unit
Lump Sum

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

Section 630 of the Standard Specifications is hereby revised as follows:

Subsection 630.01 shall be revised to include the following:

The Contractor shall submit, in writing, the proposed Method of Handling Traffic (MHT) for review and approval of the Project Engineer. The MHT shall be developed according to this section and the construction plans.

Subsection 630.05 TRAFFIC CONES shall include the following:

Steel drum channelizing devices shall not be used for traffic control

Subsection 630.06 shall include the following:

Non-metallic drums or tubular markers may be substituted for vertical panel channelizing devices.

Subsection 630.10(a), shall include the following:

When a different MHT is required for a subsequent construction phase, it must be submitted at least two weeks prior to starting that phase. All proposed methods of handling traffic shall be approved, in writing, by the Project Engineer following approval of the Traffic Engineering Services Department.

Approval of the proposed MHT does not relieve the Contractor of liability specifically assigned to him under the contract. The Contractor shall erect and maintain warning lights, signs, barricades, and sufficient safeguards around all excavations, embankments, and obstructions.

The contractor shall notify the Project Engineer by Thursday at 3:00 P.M. which streets they intend to work on the following week. This notification will be made for all phases of construction.

Subsection 630.10(a) shall be added as follows:

The key elements of the Contractor's method of handling traffic (MHT) are outlined in subsection 630.10(a).

The components of the Traffic Control Plan (TCP) for this project are included in the following:

- Subsection 104.04 and Section 630 of the Standard Specifications.
- Tabulation of Traffic Engineering Items included in the plans for this project.
- Latest revised Standard Plan S-630-1, Traffic Controls for Highway Construction and Standard Plan S-630-2.

Special Traffic Control Plan requirements for this project are as follows:

1. During the construction of this project, traffic shall use the present traveled roadway.

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

2. Work that interferes with traffic will only be permitted during the following hours:
 - The Contractor shall perform all the work on the roadway between the hours of 8:30 AM and 3:30 PM or as approved by the Project Engineer. Weekend and nighttime work will be allowed with the prior written approval of the Project Engineer. During this time, only one lane can be closed on each approach.
 - Work will not be permitted that directly or indirectly interferes with the flow of traffic between the hours of 5:30 AM and 8:30 AM Monday through Friday; between the hours of 3:30 PM to 6:30 PM Monday through Thursday; and after 2:00 PM on Fridays unless otherwise authorized by the Project Engineer.
 - No work on Holidays
 - Contractor shall not close lanes during special events.
 - Contractor shall coordinate lane closures with adjacent projects.
 - Contractor shall maintain business access during business hours.
 - The Contractor shall coordinate all of the work on the roadway during any special event with the City and County of Denver.
3. The Contractor shall install construction traffic control devices where they do not block or impede other existing traffic control devices or sidewalks for pedestrians, disabled persons or bicyclists. The Contractor is restricted from storing any materials, construction traffic control devices, signs, etc. in any median area or park area.
4. Vertical cuts or fills greater than 1 inch resulting from construction operations adjacent to traffic lanes, or within the clear zone shall be temporarily sloped at a 6:1 or flatter slope, and delineated at 35 foot intervals immediately after removal operations to safeguard the traveling public.
5. Construction equipment used on this project shall meet the same minimum exhaust requirements as those specified by the manufacturer of the equipment.
6. The Contractor and subcontractors shall equip their construction vehicles with flashing amber lights. Equipment to be used at night shall also be equipped with flashing amber lights. Flashing amber lights on vehicles and equipment shall be visible from all directions.

The Contractor shall maintain access to all roadways, side streets, walkways, alleyways, driveways, and hike/bike paths at all times unless otherwise directed by the Engineer. Parking areas temporarily disturbed by construction activities shall be restored to a useable condition during non-working hours. Such temporary parking shall utilize an all-weather surface. The Contractor shall develop an Access Maintenance Plan in coordination with, and based on the requirements of, the affected property owners and tenants, and submit it to the Engineer for approval prior to commencement of work. This plan shall detail all barricades, ramps, signs, and temporary means of access required by the property owners or tenants. Prior to commencing any work which affects access to a property, the Access Maintenance Plan for that property must be submitted and approved by the Engineer.

7. The Access Maintenance Plan shall be coordinated with all affected owners and tenants. The Access Maintenance Plan shall include documentation of this coordination, including the approval signature of each affected owner or tenant. Should the Contractor be unable to obtain approval and signatures, documentation of the efforts made to obtain said approval and signatures must be submitted. All access shall be maintained

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

on surfaces equal to or better than those existing at the time the access is first disturbed. For short periods of time only as allowed by the Engineer, access may be maintained on an aggregate base course surfaces.

8. The Contractor shall maintain continuous access throughout the project for pedestrians, bicyclists, and disabled persons. When the existing access route is disturbed by construction, a temporary all-weather access shall be provided. All temporary access shall be a minimum of 5 feet wide and meet Americans with Disabilities Act (ADA) requirements. Acceptable all weather surfacing shall be concrete or asphalt surface, or as approved by the Engineer. Delineation of pedestrian access through the work area shall be accomplished using temporary plastic fencing.
9. The costs of maintaining access will not be paid for separately, unless otherwise provided, but shall be included in the work. Utilization of materials to be incorporated into the work may be permitted. However, any degradation or other contamination or destruction shall be corrected at the Contractor's expense prior to acceptance.
10. During non-construction periods (evenings, weekends, holidays, etc.) all work shall be adequately protected to insure the safety of vehicular and pedestrian traffic, as detailed in the Contractor's MHT. Excavations or holes shall be filled in or fenced when unattended.
11. Whenever the Contractor removes, obliterates, or overlays any pavement markings, he /she shall replace them on a daily basis prior to opening the affected areas to traffic. All temporary pavement markings shall fully comply with the Standard Specifications and Special Provisions.
12. The Contractor shall not have construction equipment or materials in the lanes open to traffic any time unless directed by the Engineer.
13. All personal vehicle and construction equipment parking is prohibited where it conflicts with safety, access, or the flow of traffic. Landscaped areas, public park areas, and roadway shoulders shall be kept clear of parking and storage of all personal and construction equipment except where approved by the Engineer.
14. The Contractor shall not place tack coat on any surface to be paved where traffic will be forced to travel upon fresh bituminous materials.
15. The Contractor shall be required to make arrangements with the Regional Transportation district (RTD) prior to closing any existing bus stops within the project limits. Temporary stops will be required as directed by the Engineer and as required by RTD. For bus stop/route conflicts Regional Transportation District, RTD / 1560 Broadway, Suite 700, Denver, CO 80202 shall be contacted two business days prior to start of construction.
16. The Contractor shall be required to maintain temporary drives at any existing establishment that has singular access off of the roadways, unless otherwise approved in writing by the property owner.
17. No work that interferes with traffic will be allowed on holidays or any day of a three-day or four-day weekend that includes a holiday. Holidays on which this restriction applies consist of those holidays recognized by the State of Colorado as listed in subsection 101.36

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

18. All lane closures shall be subject to the approval of the Engineer. Request for each closure shall be made at least 24 hours in advance of the time the lane closure is to be implemented. Lane closures will not be allowed to remain unless being utilized in continuum for the intended purpose for which they were set up.
19. During no-working hours, the roadways shall be restored to a safe travel conditions for the free flow of traffic. Any maintenance required restoring the roadways to this condition, including the pavement patching and grading, shall be done prior to opening the areas to traffic or completing work for the day.
20. The Contractor shall clean the roadway of all construction debris before opening it to traffic.
21. All flagging stations used at night shall be illuminated with floodlights. Street, highway lights and “high mast lighting” may be used for flagging station illumination when approved by the Engineer. Floodlights shall be located and directed so as not to interfere with the sight of any motorists, and the cost to be included in the work.
22. Prior to removal and resetting of any sign the Contractor and Engineer shall prepare an inventory. Any signs damaged due to the Contractor’s operations shall be replaced in kind or repaired by the Contractor at no additional cost to the project.
23. Unless noted otherwise, all costs incidental to the foregoing requirements shall be included in the original contract prices for the project, including any additional traffic control items required for haul routes into the project.

Subsection 630.10 (11) shall be added as follows:

Contractor shall obtain all required access and construction permits from the City & County of Denver prior to initiating work along City right of way.

All lane closures require an arrow board to be installed.

All streets that will be reduced in the number of travel lanes should have variable message boards installed for a minimum of 3 days after the striping change to inform drivers of the lane reduction.

Subsection 630.14 shall include the following:

The flagger's STOP/SLOW sign paddle shall be 18 inches with letters six inches high.

Subsection 630.15 is hereby deleted and replaced with the following:

Temporary pavement markings for traffic control will not be measured and paid for separately, but shall be included in the work.

**REVISION OF SECTION 630
CONSTRUCTION ZONE TRAFFIC CONTROL**

Subsection 630.16 is hereby deleted and replaced with the following:

All costs incidental to maintenance of access will not be paid for separately, unless otherwise provided, but shall be included in the work.

All costs incidental to the foregoing requirements shall be included in the original Contract prices for the project.

ALLOWANCES

DESCRIPTION

This special provision contains the City and County of Denver’s estimate for allowances included in the Contract. The estimated amounts will be added to the total bid to determine the amount of the performance and payment bonds. Allowance work shall be performed as directed by the Engineer.

BASIS OF PAYMENT

Payment will be made in accordance with subsection 109.04. Payment will constitute full compensation for all work necessary to complete the item.

Allowance work valued at \$5,000 or less that must be performed by a licensed journeyman in order to comply with federal, state, or local codes may be paid for after receipt of an itemized statement endorsed by the Contractor.

<u>Item No.</u>	<u>Allowance</u>	<u>Estimated Quantity</u>	<u>Amount</u>
01	Furnish & Install Electrical Service Allowance	N/A	\$ 50,000
02	Erosion Control Allowance	N/A	\$ 5,000
03	Environmental Health and Safety Management Allowance	N/A	\$ 4,000
04	Landscaping Allowance	N/A	\$ 10,000

Allowance descriptions include:

1 Furnish & Install Electrical Service Allowance – This allowance is for all cost charges from the power service provider, and all necessary materials, labor and coordination required to maintain existing or establish new power sources required for permanent operation of equipment as shown in the plans.

2 Erosion Control – This work consists of stormwater BMPs authorized and approved by the Engineer. This allowance is to pay for all necessary work and materials for erosion control items not identified in the plans and at the Engineer’s direction. Payment will be made based on time and materials used to perform the work. All items shall be pre-approved by the engineer prior to installation or they will be at no cost to the project.

3 Environmental Health and Safety Management – This work is described in Section 250 - Environmental, Health, and Safety Management of the Standard Specifications.

4 Landscaping – This work is for restoring existing landscape, including topsoil sod, and irrigation systems back to preconstruction condition.

**SPECIAL CONSTRUCTION REQUIREMENTS
TRAFFIC SIGNAL INSTALLATION
PERSONNEL REQUIREMENT**

The Contractor shall adhere to the following requirements regarding Traffic Signal construction and maintenance personnel. Current Certificates showing qualifications shall be submitted at the preconstruction meeting.

- (1) For any work inside the traffic signal cabinet, Signal and Signal Bench Technician shall be minimum IMSA Level II certified. This includes the completion of training in construction, corrective maintenance, and signal turn-on.
- (2) For all work external to the signal cabinet, a minimum IMSA Level I Traffic Signal Field Technician/Electrician or Traffic Signal Bench Technician/Signal Technician is required. An IMSA Level II Traffic Signal Electrician shall be on the job site at all times that signalization work is taking place to ensure proper construction. A maximum ratio of four IMSA Level I to one IMSA Level II will be allowed for work external to the signal cabinet.

The United States Department of Labor – Bureau of Apprenticeship and Training may be substituted for the IMSA Level I Traffic Signal Electrician requirement.

UTILITIES

Known utilities within the limits of this project are:

UTILITY COMPANY	CONTACT NAME	TELEPHONE
CenturyLink 5325 Zuni Street, Suite 728 Denver, CO 80221	Mo Klick Maureen.Klick@CenturyLink.com	303-295-2860, ext 3061
Comcast 1617 S. Acoma Street Denver, CO 80223	Eric Carroll Eric_Carroll@cable.comcast.com	720-413-0245
Denver PW Traffic Engineering Services 201 West Colfax Avenue, Dept. 508 Denver, CO 80202	John Yu John.Yu@denvergov.org	720-865-3176
Denver Wastewater Management Division 201 West Colfax Avenue, Dept. 506 Denver, CO 80223	Sam Stevens Sam.Stevens@denvergov.org	303-446-3529
Denver Water Department 1600 W. 12th Ave. Denver, CO 80204-3412	Ray Batts Ray.Batts@denverwater.org	303-628-6682
Metro Wastewater Reclamation District 6450 York St. Denver, CO 80229	Troy Gottschalk TGottschalk@mwr.d.dst.co.us	303-286-3331
Xcel Energy – Electric 5460 W. 60th Avenue Arvada, CO 80003	Mark Lesiw Mark.Lesiw@xcelenergy.com	
Xcel Energy – Gas 5460 W. 60th Avenue Arvada, CO 80003	Call Builder’s Call Line	800-628-2121

The work described in these plans and specifications requires coordination between the Contractor and the utility companies in accordance with subsection 105.11 in conducting their respective operations as necessary to complete the utility work with minimum delay to the project.

PART 1 - CONTRACTOR SHALL PERFORM THE WORK LISTED BELOW:

Coordinate project construction with performance by the utility owner of each utility work element listed in Part 2 below. Perform preparatory work specified in Part 2 for each utility work element. Provide an accurate construction schedule that includes all utility work elements to the owner of each impacted utility. Provide each utility owner with periodic updates to the schedule. Conduct necessary utility coordination meetings, and provide other necessary accommodations as directed by the Engineer. Notify each utility owner in writing, with a copy to the Engineer, prior to the time each utility work element is to be performed by the utility owner. Provide notice, as specified in Part 2, immediately prior to the time the utility work must begin to meet the project schedule.

UTILITIES

Provide traffic control, as directed by the Engineer, for any utility work performed by the utility owner within the project limits expected to be coordinated with construction. However, traffic control for utility work outside of typical project work hours shall be the responsibility of the utility owner.

Perform each utility work element for every utility owner listed in Part 1. Notify each utility owner in advance of any work being done by the Contractor to its facility, so that the utility owner can coordinate its inspections for final acceptance of the work with the Engineer. Obtain written acceptance from the utility owner for work performed by Contractor.

All Utility Companies

The Contractor will contact each utility company a minimum of 2 business days, unless otherwise noted, prior to working in the utility company's area so that the utility company can provide an inspector and/or complete any necessary adjustments or relocations.

If a need for utility work by either the Contractor or a Utility Company other than Xcel Energy arises, the following shall apply:

The Contractor shall be responsible for coordinating the adjustment of utilities on this project. The Contractor shall keep each utility company advised of any work being performed in the vicinity of their facilities, so that each utility company can coordinate any needed locates, adjustments or inspections.

Contractor shall provide the appropriate utility company ample notice, but not less than two (2) working days, prior to commencing activities in the vicinity of their facilities. Any additional work performed by the Contractor on behalf of the impacted utility company shall not be paid for by the project, but shall be paid by the utility company requiring the work, unless otherwise agreed to in writing by the Engineer.

For Xcel Energy, the following procedure shall apply:

At the pre-construction meeting, notify the Engineer of schedule requirements for completion of utility work as specified in Part 2. Based upon scheduling needs, the Manager of Public Works will send a Work Request to Xcel Energy per the Franchise Agreement between the City and County of Denver and Public Service Company of Colorado, and the related Operating Agreement and Street Lighting Agreement (collectively know as the "Franchise Agreements"). Referring to Relocation of Xcel Energy Facilities, Section 5.7 of the Franchise Agreement states that "The relocations set forth in Section 5.7.A of the franchise shall be completed within a reasonable time, not to exceed ninety (90) days from the date on which the Manager of Public Works requests, in writing, that the relocation commence."

In reference to new/modified service to City facilities (i.e., power supply, removal or installation of poles, etc.), Section 5.3 of the Operating Agreement states: "The company (Xcel Energy) shall complete each project requested by the City within a reasonable time. The Parties agree that for Traffic Facilities, a reasonable time shall not exceed one hundred twenty (120) days from the date upon which the Manager of Public Works makes a Work Request and for all other City Facilities a reasonable time shall not exceed one hundred eighty (180) days from the date upon which the Manager of Public Works makes a Work Request." When requesting that the City initiate a Work Request to Xcel Energy, the Contractor should consider the time limits contained in the Franchise Agreements.

-3-
UTILITIES

Conduct necessary utility coordination meetings, and provide other necessary accommodations as directed by the Engineer. Complete any other tasks as specified in Part 2 or elsewhere in this utility specification.

CenturyLink

The Contractor shall protect Century Link's facilities in place as shown in the plans.

Xcel Energy - Electric

The Contractor shall protect Xcel's poles and electric facilities in place as shown in the plans.

PART 2 - UTILITY OWNERS SHALL PERFORM THE WORK LISTED BELOW:

Although the Contractor shall provide traffic control for utility work expected to be coordinated with construction, traffic control for utility work outside of typical project work hours or outside of project limits shall be the responsibility of the utility owner. The utility owner shall prepare and submit to the Engineer a Method of Handling Traffic for utility work to be performed outside typical project work hours or outside of project limits. The utility owner shall obtain acceptance of the Method of Handling Traffic from the Engineer prior to beginning the utility work to be performed outside typical project work hours or outside of project limits.

This work will be performed by the utility owners as necessary to avoid conflicts with construction activities. New locations shall be as indicated in the plans. Utility owners shall comply with schedule requirements of the Contractor and make every effort not to impact the overall construction schedule. Unless otherwise approved by the Engineer, abandoned aboveground appurtenances such as pedestals shall be removed and abandoned underground utilities and manholes/handholds shall be abandoned in place.

Utility owners are responsible for obtaining all necessary permits from the City and County of Denver, as required.

Xcel Energy – Electric

The Contractor shall submit the materials list for the proposed light standards for review and approval by Xcel Energy Forces. This review is expected to take 30 days to complete.

Xcel Energy shall install the traffic signal poles and luminaires as shown on the plans. After City and County of Denver Contractor has completed the construction of the proposed traffic signals (including installation of all mast arms and other signal equipment) and they are operational, Xcel Energy forces shall disconnect the power source to existing traffic signal controllers and luminaries as shown on the plans. This work is expected to be coordinated with construction, take one working day at each intersection to complete and shall be performed at no cost to the project.

Xcel Energy shall relocate electric meters at each intersection as indicated in the plans. This work is expected to be coordinated with construction and shall be performed at no cost to the project.

-4-
UTILITIES

The Contractor shall provide the utility owner written notice five days immediately prior to required inspections.

The Contractor shall provide the utility owner written notice 45 days in advance of each utility work element at each intersection that is expected to be coordinated with construction.

GENERAL:

The Contractor shall comply with Article 1.5 of Title 9, CRS ("Excavation Requirements") when excavating or grading is planned in the area of underground utility facilities. The Contractor shall notify all affected utilities at least two (2) business days, not including the actual day of notice, prior to commencing such operations. The Contractor shall contact the Utility Notification Center of Colorado (UNCC) at phone no. **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.

The locations of utility facilities as shown on the plan and profile sheets were obtained from the best available information. No warranty is made for the adequacy or accuracy of subsurface information provided. The Contractor shall cooperate with the utility owners in their relocation operations as provided in subsection 105.11 of the Standard Specifications for Road and Bridge Construction. No guarantee is made that utility conflicts will be resolved prior to construction activities and any delays resulting from utility relocation work shall be dealt with in accordance with subsection 108.07 of the Standard Specifications for Road and Bridge Construction as amended.

All costs incidental to the foregoing requirements will not be paid for separately, but shall be included in the work.



DEPARTMENT OF PUBLIC WORKS

Drawings

Contract No. 201735705

TRAFFIC SIGNAL UPGRADE - MILL LEVY 6

JULY 10, 2017

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS – TRANSPORTATION & MOBILITY



MILL LEVY 6 TRAFFIC SIGNAL UPGRADE

MASTER PROJECT #2016-PROJMSTR-0000660
CCD PRO TRACKING #PWTES 2015-042
MAY 2017



CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

APPROVED BY:

	6.13.17
EXECUTIVE DIRECTOR OF PUBLIC WORKS	DATE
	6.13.17
CITY ENGINEER	DATE
	6/12/2017
DIRECTOR OF ENGINEERING CAPITAL PROJECTS	DATE
	06/05/17
CITY TRAFFIC ENGINEER	DATE

INDEX OF SHEETS

1	TITLE SHEET
2-6	GENERAL NOTES
7	SUMMARY OF APPROXIMATE QUANTITIES
8-10	PROJECT CONTROL DIAGRAM
11	TREE PROTECTION DETAIL
12-18	TRAFFIC SIGNAL REMOVAL PLANS
19-25	TRAFFIC SIGNAL PLANS
26-32	SIGNING AND STRIPING PLANS
33-39	INTERSECTION REMOVALS
40-47	INTERSECTION DETAILS



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Print Date: 5/16/2017	Sheet Revisions				TRANSPORTATION ENGINEERING DIVISION 5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815	As Constructed		MILL LEVY 6 TRAFFIC SIGNALS		Project No./Code
File Name: 34993-TI-Univ.dgn	Date:	Comments	Init.			No Revisions:	UNIVERSITY BOULEVARD		PZ03798-425	
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Unit Information						Revised:	Designer: M. KRELL	Structure Numbers	1 OF 1	
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600						Void:	Detailer:	Sheet Subset: TITLE	Subset Sheets:	



PROJECT DESCRIPTION:

THIS PROJECT CONSISTS OF THE INSTALLATION OF NEW SIGNALS ALONG UNIVERSITY BLVD FROM CORNELL AVE TO VIRGINIA AVE. THE PROJECT ALSO INCLUDES THE REBUILD OF CURB RETURNS AND CURB RAMPS AT EACH INTERSECTION. THE WORK INCLUDES REMOVAL OF AND NEW STRIPING AS DESCRIBED IN THE PLANS. THE ROADWAYS IN THIS PROJECT ARE CLASSIFIED AS URBAN.

GENERAL NOTES:

- TRANSPORTATION STANDARDS AND DETAILS FOR THE ENGINEERING DIVISION, CURRENT VERSION, AND TRAFFIC SIGNAL STANDARDS AND SIGN & MARKING STANDARDS FOR TRAFFIC ENGINEERING SERVICES, CURRENT VERSION, SHALL BE UTILIZED FOR THIS PROJECT.
- ALL PAVEMENTS MARKINGS SHALL BE INSTALLED ON A CLEAN SURFACE, ALL CALLED FOR BY THE RESPECTIVE MANUFACTURERS. SURFACE CLEANING BY POWER WASH SHALL ALSO BE REQUIRED WHEN THERE IS A POSSIBILITY OF DEICING MATERIAL ON THE ROAD. BEFORE APPLYING NEW PAVEMENT MARKING THE CONTRACTOR MUST REMOVE 80% OF THE OLD MARKINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO USE ANY MEANS NECESSARY TO ENSURE APPROPRIATE SURFACE PREPARATION. PREPARATION OF THE SURFACE SHALL BE INCLUDED IN THE COST OF THE MATERIAL. PRIOR TO THE PAVEMENT BEING PREPARED FOR STRIPING, THE CONTRACTOR SHALL REVIEW SECTION 107.25 AND ALL OF SECTION 208, IN THE 2011 CDOT STANDARD SPECIFICATIONS BOOK.
- PAVEMENT MARKINGS SHALL BE REMOVED FORM THE PAVEMENT TO THE MAXIMUM EXTENT POSSIBLE BY METHODS THAT DO NOT ALTER OR DAMAGE THE SURFACE OR TEXTURE OF THE PAVEMENT TO THE SATISFACTION OF THE ENGINEER. REMOVAL OF PAVEMENT MARKING SHALL BE IN ACCORDANCE OF SECTION 202.05. ALL MATERIAL ON EXISTING ROADWAY, WHICH IS LOOSEENED IN THE PROCESS OF PREPARATION OF THE SURFACE FOR STRIPING, NEEDS TO BE CLEARED OFF THE ROADWAY (SWEEPING (PICK-UP BROOM)) IMMEDIATELY AND WILL NOT BE PAID FOR SEPARATELY. NONE OF THE MATERIAL OR THE WATER USED TO PREPARE THE SURFACE SHALL BE ALLOWED TO RUN OFF INTO ANY STORM DRAIN SYSTEM, VEGETATIVE SWALE, WATERWAY, STREAM, WETLAND OR ADJACENT PROPERTY. IF RUNOFF OCCURS, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK UNTIL INLET PROTECTION CAN BE INSTALLED TO PROTECT THE STORM DRAIN SYSTEM, VEGETATIVE SWALE, WATERWAY, STREAM, WETLAND OR ADJACENT PROPERTY. ANY PROTECTION SHALL BE INCLUDED IN THE COST OF THE PROJECT AND APPROVED BY THE ENGINEER PRIOR TO USE.
- PAVEMENT MARKING REMOVAL SHALL BE COMPLETED BY SANDBLASTING OR WATER BLASTING METHODS ONLY. GRINDING WILL ONLY BE ALLOWED WITH PRIOR APPROVAL FROM THE ENGINEER.
- 10 DAYS PRIOR TO WORK COMMENCING, THE CONTRACTOR'S POTENTIAL POLLUTION REPORT-SPILL CONTINGENCY PREVENTION PLAN SHALL BE COPIED AND ATTACHED TO THE PLANS PER SECTION 107.25. VEHICLE CLEANING MAY OCCUR ON SITE, IN APPROVED AREA, WHERE WASTE WATER CAN BE CONTAINED AND PROPERLY DISPOSED OF.
- THERE SHALL BE NO STOCKPILING OF SIDE CASTING OF WASTE MATERIALS INCLUDING BUT NOT LIMITED TO PAINT CHIPS, ASPHALT, AND CONCRETE ADJACENT TO ANY STATE WATERS THAT RESULT FROM PROJECT ACTIVITIES.
- CONTAINMENT AND CLEAN UP OF EQUIPMENT FUEL, OIL AND LUBRICANT LEAKS: CONTRACTOR SHALL INSPECT AND CERTIFY EQUIPMENT AND VEHICLES DAILY TO ENSURE PETROLEUM, OILS AND LUBRICANTS (POL) ARE NOT LEAKING ONTO THE SOIL OR PAVEMENT. ABSORBENT MATERIAL OR CONTAINERS APPROVED BY THE ENGINEER SHALL BE USED TO PREVENT LEAKING POL FROM REACHING THE SOIL OR PAVEMENT. CONTRACTOR SHALL HAVE READY APPROVED ABSORBENT MATERIAL OR CONTAINERS OF SUFFICIENT CAPACITY TO CONTAIN ANY LEAK POL THAT CAN REASONABLY BE FORESEEN. ALL MATERIALS RESULTING FROM POL LEAKAGE CONTROL AND CLEANUP SHALL BE THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE. THE COST FOR CONTROL AND CLEANUP OF POL LEAKS SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
- CONTRACTOR SHALL NEITHER STAGE OR PARK EQUIPMENT AT ANY TIME OFF THE ROADWAY/SHOULDER OR ON VEGETATED AREAS, ON PRAIRIE DOG HOLES, OR WITHIN 300 FEET OF WATERWAYS. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR STAGING AREAS. CONTRACTOR SHALL COMPLETE WORK IN ONE LOCATION BEFORE THEY MOVE TO ANOTHER LOCATION. FOR GRINDING THE CONTRACTOR SHALL USE CHANGE STACKED DIAMOND TIP BLADES AND HAVE A VACUUM MACHINE ON SITE TO CONTROL DUST AND SLURRY. THIS ITEM WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
- THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE. LIMITS OF DISTURBANCE SHALL BE DETERMINED BY THE ENGINEER AND THE CONTRACTOR. ANY DISTURBANCES BEYOND THESE LIMITS SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. DISTURBANCES WITHIN THE LIMITS SHALL BE RESTORED BY THE CONTRACTOR AND SHALL BE INCLUDED IN THE COST OF THE WORK. CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL CONSTRUCTION PROCEDURE SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS. ANY OFF ROAD STAGING AREAS MUST BE PRE-APPROVED BY THE ENGINEER.

GENERAL NOTES (CONT.):

- NO OFF ROAD PARKING, STAGING, OR WORK SHALL OCCUR ON ANY IRRIGATED LANDSCAPES. THE CONTRACTOR SHALL REPLACE ANY DAMAGED LANDSCAPE, INCLUDING GRASS, IRRIGATION SYSTEM COMPONENTS, TREES, SHRUBS AND GROUND COVER TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. SOD SHALL MATCH EXISTING. THE CONTRACTOR SHALL COORDINATE WITH CITY AND COUNTY OF DENVER PERSONNEL AT LEAST 5 WORKING DAYS IN ADVANCE OF ANY DISTURBANCE IN THE AREA. NO LANDSCAPE SHALL BE WITHOUT WATERING SERVICES DURING THE GROWING SEASON. IF THE IRRIGATION SERVICE IS INTERRUPTED FOR MORE THAN THREE DAYS, THE CONTRACTOR SHALL BE LIABLE TO HAND TRUCK WATER. IF IRREPARABLE DAMAGE TO LANDSCAPED AREAS OCCURS CONTRACTOR WILL BE RESPONSIBLE FOR ALL PLANT REPLACEMENT IN THE AFFECTED AREA. LANDSCAPE RESTORATION SHALL BE CONSIDERED COMPLETE WHEN THE LANDSCAPE AND IRRIGATION SYSTEM IS RESTORED TO ITS ORIGINAL CONDITION AND APPROVED BY THE MAINTAINING PERSONNEL. ALL REPAIR WORK, TO ANY IRRIGATION COMPONENTS, SHALL BE INSPECTED BY THE CITY AND COUNTY OF DENVER LANDSCAPE MAINTENANCE FORCES PRIOR TO BURIAL AND ACCEPTANCE OF SAID WORK.
- THE CONTRACTOR SHALL COORDINATE WITH JOHN YU OF PW-TRAFFIC ENGINEERING SERVICES AT 720-865-3176 AND LINDSEY VAN CLEAVE FROM PW-STREET MAINTENANCE AT 303-446-3548 PRIOR TO CONSTRUCTION AT ALL PROJECT INTERSECTIONS. THE CONTRACTOR SHALL CONTACT PW-CONSTRUCTION ENGINEERING AT 303-446-3469 FOR STREET OCCUPANCY PERMIT WITH MHT AT LEAST 5 DAYS PRIOR TO THE START OF CONSTRUCTION.
- ALL CITY & COUNTY OF DENVER (CCD) STORM AND/OR SANITARY SEWERS, INCLUDING MANHOLE ADJUSTMENTS, ARE TO BE INSPECTED BY CCD MAINLINE INSPECTIONS. THE CONTRACTOR SHALL CALL MAINLINE INSPECTIONS AT 303-446-3722, A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO THE PRECONSTRUCTION MEETING AND PRIOR TO STARTING ANY WORK. SEWER LOCATES CAN BE REQUESTED BY CALLING 303-446-3744. ALL CCD STORM AND/OR SANITARY SEWERS MUST BE CONSTRUCTED IN ACCORDANCE WITH CURRENT CCD-WASTEWATER MANAGEMENT DIVISION (WMD) STANDARD DETAILS AND SPECIFICATIONS.
- ALL CITY & COUNTY OF DENVER (CCD) STORM DRAIN AND SANITARY PIPES AND APPURTENANCES SHALL BE PROTECTED AT ALL TIME.

PAVEMENT, CURB AND GUTTER, SIDEWALK AND CURB RAMPS:

- UNLESS OTHERWISE NOTED, ALL NORTHINGS AND EASTINGS, DIMENSIONS AND ELEVATIONS AT THE CURB AND GUTTER ARE TO THE LIP OF GUTTER. ALL CURB RAMP NORTHING/EASTINGS OR STATIONS AND OFFSETS ARE TO THE LIP OF GUTTER.
- ANY LAYER OF HMA PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.
- REMOVAL OF ASPHALT MAT, CONCRETE PAVEMENT, CURB AND GUTTER, OR SIDEWALK REQUIRED ON THIS PROJECT SHALL BE SAW CUT TO A VERTICAL EDGE. SAW CUTS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK. REMOVAL LIMITS FOR CONCRETE PAVEMENT, SIDEWALK, AND CURB & CUTTER SHALL BE TO THE NEAREST JOINT.
- HMA (PATCHING)(ASPHALT) SHALL BE 9" THICK OR MATCH THE DEPTH OF THE SURROUNDING EXISTING PAVEMENT, WHICHEVER IS GREATER, AND APPROVED BY THE ENGINEER. HMA FOR PATCHING SHALL CONFORM TO THE GRADATION REQUIREMENTS FOR HOT MIX ASPHALT (GRADING S)(100)(PG 64-22). ASPHALT PATCHING SHALL FOLLOW CCD STANDARD DRAWINGS 12.0 THOUGH 12.6, WHICH ARE AVAILABLE ON THE CCD WEB SITE. LIFT MIX DESIGN CRITERIA ON CCD STANDARD DRAWING 12.6 SHALL BE ACCORDING TO THE ARTERIAL TRAFFIC CATEGORY.
- FOR PRELIMINARY PLAN QUANTITIES OF HMA MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:

DILUTED EMULSIFIED ASPHALT (SLOW SETTING)	AT	0.10 GAL. PER SQ. YD. (DILUTED)
HOT MIX ASPHALT	AT	110 LBS. PER SQ. YD. PER 1" THICKNESS
- A TACK COAT OF EMULSIFIED ASPHALT (SLOW-SETTING) IS REQUIRED BETWEEN LIFTS OF BITUMINOUS PAVEMENT. DILUTED EMULSIFIED ASPHALT FOR TACK SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER. EMULSIFIED ASPHALT WORK TO BE INCLUDED IN THE HMA WORK.
- RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.
- CONCRETE FOR SIDEWALKS, CURB RAMPS AND CONCRETE PAVEMENT SHALL BE CLASS P.
- ALL CONCRETE USED ON THIS PROJECT SHALL INCORPORATE CLASS 2 SULFATE RESISTANT CRITERIA OF SECTION 601.04.
- ANY CURB AND GUTTER, ASPHALT OR CONCRETE PAVEMENT WHICH IS TO REMAIN AND IS DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- ALL CONCRETE ON THIS PROJECT SHALL USE COMPRESSIVE STRENGTH ACCEPTANCE CRITERIA.
- CONCRETE PAVEMENT PANEL REPLACEMENTS SHALL FOLLOW CCD STANDARD DETAIL 11.6, INCLUDING TIE BARS AND DOWELL BARS.

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Print Date: 5/16/2017		Sheet Revisions Date: Comments Init.				TRANSPORTATION ENGINEERING DIVISION 5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815	As Constructed No Revisions: Revised: Void:	MILL LEVY 6 TRAFFIC SIGNALS UNIVERSITY BOULEVARD GENERAL NOTES			Project No./Code PZ03798-425 34993 Sheet Number 2
File Name: 34993-GN-Univ-01.dgn								Designer: M. KRELL	Structure Numbers		
Horiz. Scale: 1:1 Vert. Scale: As Noted								Detailer:			
Unit Information Unit Leader Initials								Sheet Subset: NOTES	Subset Sheets: 1 OF 5		
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600											



UTILITY LIST:

COMCAST CABLE CORPORATION 8000 EAST ILIFF AVE. DENVER, CO 80231	ERIC CARROLL ERIC.CARROLL@CABLE.COMCAST.COM	720-413-0245
METRO WASTEWATER RECLAMATION 6450 YORK ST. DENVER, CO 80229	TROY GOTTSCHALK TGOTTSCHALK@MWRD.DST.CO.US	303-286-3331
XCEL ENERGY-LIGHTING/ELECTRIC 1123 W 3RD AVENUE DENVER, CO 80223	BUILDERS CALL LINE	1-800-628-2121
XCEL ENERGY - GAS 1123 W 3RD AVENUE DENVER, CO 80223	BUILDERS CALL LINE	1-800-628-2121
XCEL ENERGY-DENVER STEAM 1123 W 3RD AVENUE DENVER, CO 80223	BUILDERS CALL LINE	1-800-628-2121
DENVER WATER DEPARTMENT 1600 WEST 12TH AVENUE DENVER, CO 80204	RAY BATTS RAY.BATTS@DENVERWATER.ORG	303-628-6682
DENVER TRAFFIC OPERATIONS 201 W COLFAX AVE, DEPT 506 DENVER, CO 80202	JOHN YU JOHN.YU@DENVERGOV.ORG	720-865-3176
DENVER WASTEWATER MANAGEMENT 201 W. COLFAX AVE, DEPT 506 DENVER, CO 80202	SAM STEVENS SAM.STEVENS@DENVERGOV.ORG	303-446-3529 303-601-6201
CENTURYLINK 7759 S. WHEELING COURT ENGLEWOOD, CO 80112	MO KLICK MAUREEN.KLICK@CENTURYLINK.COM	720-578-3720 720-333-1235
ZAYO OPERATIONS 14231 EASTONVILLE ROAD	ERIC BOE ERIC.BOE@ZAYO.COM	303-481-6121 719-649-3675
LEVEL 3 COMMUNICATIONS 1025 ELDORADO BLVD BROOMFIELD, CO 80021	ALAN.SMITH@LEVEL3.COM LANCE.LARSON@LEVEL3.COM	918-547-0050 303-326-7574

STORMWATER MANAGEMENT:

A SEPARATE CASDP (EC PERMIT) IS NOT REQUIRED, THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL ENSURE THAT ALL POTENTIAL POLLUTANTS GENERATED DURING DEMOLITION OR CONSTRUCTION WORK ASSOCIATED WITH THIS PROJECT, BE PREVENTED FROM DISCHARGE TO STREAMS, WETLANDS OR ANY WATER BODY IN THE VICINITY OF THIS PROJECT SITE IN ACCORDANCE WITH THE FOLLOWING:

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE WATERWAY DURING ALL DEMOLITION, EXCAVATION, TRENCHING, BORING, GRADING OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO THE MUNICIPAL SEPARATE STORM SEWER SYSTEM, RECEIVING WATERS, WATERWAYS, WETLANDS, AND/OR OTHER PUBLIC OR PRIVATE PROPERTIES, RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
2. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO OR, ACCUMULATE IN THE FLOW LINES OF STORM DRAINAGE APPURTENANCES, AND PUBLIC RIGHTS OF WAY OF THE CITY AND COUNTY OF DENVER, AS A RESULTS OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT. ALL REMOVALS SHALL BE CONDUCTED IN A TIMELY MANNER.
3. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC RIGHTS OF WAY. (SEC. 49-553; REVISED MUNICIPAL CODE).

STORMWATER MANAGEMENT (CONT.):

4. THE USE OF REBAR TO ANCHOR BEST MANAGEMENT PRACTICES, OTHER THAN PORTABLE TOILETS, IS PROHIBITED.
5. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL IMPLEMENT THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPs) ON SITE DURING CONSTRUCTION:
 - I. VEHICLE TRACKING CONTROL: THIS BMP IS REQUIRED AT ALL ACCESS POINTED FROM INGRESS/EGRESS FROM OFF-SITE IMPERVIOUS SURFACES TO CONSTRUCTION SITE PVIOUS AREAS THAT ARE USED BY VEHICULAR TRAFFIC OR CONSTRUCTION EQUIPMENT.
 - II. INLET PROTECTION: THIS BMP IS REQUIRED ON ALL EXISTING OR PROPOSED STORM SEWER INLETS IN THE VICINITY OF THE CONSTRUCTION SITE THAT MAY RECEIVE SITE RUNOFF. THE BMP MUST BE APPROPRIATE TO THE TYPE OF STORM INLET AND APPROPRIATE FOR THE GROUND SURFACE AT THE INLET.
 - III. INTERIM SITE STABILIZATION: THIS BMP IS REQUIRED TO PROVIDE A MEASURE FOR PREVENTING THE DISCHARGE OF SEDIMENT FROM CONSTRUCTION SITES WHERE OVERLOT GRADING OR OTHER SITE DISTURBANCE HAS OCCURRED. THIS BMP IS PARTICULARLY NECESSARY ON SITES WHERE CONSTRUCTION ACTIVITIES/ DISTURBANCES WILL BE LIMITED TO SMALL AREAS OF THE PROJECT SITE. ACCEPTABLE BMPs INCLUDE:
 - A) PRESERVING EXISTING VEGETATION
 - B) SEEDING AND PLANTING
 - C) MULCHING
 - D) MULCHING AND SEEDING
 - E) TEMPORARY/PERMANENT RE-VEGETATION OPERATIONS
 - F) CHEMICAL SOIL STABILIZER APPLICATION (REQUIRES WMD APPROVAL)
 - IV. WASTE MANAGEMENT/CONTAINMENT: THE BMP REQUIRES THAT ALL CONSTRUCTION WASTES, FUELS, LUBRICANTS, CHEMICAL WASTES, TRASH, SANITARY WASTES, CONTAMINATED SOILS OR DEBRIS SHALL BE CONTAINED ON SITE, PROTECTED FROM CONTACT WITH PRECIPITATION OF SURFACE RUNOFF, PERIODICALLY REMOVED FROM THE CONSTRUCTION SITE, AND PROPERLY DISPOSED OF.
 - V. SPILL PREVENTION/CONTAINMENT: THIS BMP DEFINES THE MEASURES PROPOSED FOR PREVENTING, CONTROLLING, OR CONTAINING SPILLS OF FUEL, LUBRICANTS, OR OTHER POLLUTANTS; AND PROTECTING POTENTIAL POLLUTANTS FROM CONTACT WITH PRECIPITATION OR RUNOFF.
 - VI. CHUTE WASHOUT CONTAINMENT: WATER USED IN THE CLEANING OF CEMENT TRUCK DELIVERY CHUTES OR HAND TOOLS SHALL BE DISCHARGED INTO A PREDEFINED, BERMED CONTAINMENT AREA ON THE JOB SITE. THE REQUIRED CONTAINMENT AREA IS TO BE BERMED SO THAT WASH WATER IS TOTALLY CONTAINED. WASH WATER DISCHARGED INTO THE CONTAINMENT AREA SHALL BE ALLOWED TO INFILTRATE OR EVAPORATE. DRIED CEMENT WASTE IS REMOVED FROM THE CONTAINMENT AREA AND PROPERLY DISPOSED OF.
 - A) THE DIRECT OR INDIRECT DISCHARGE OF WATER CONTAINING WASTE CEMENT TO THE STORM SEWER SYSTEM IS PROHIBITED (SEC. 56-102A, C; REVISED MUNICIPAL CODE, CITY AND COUNTY OF DENVER).
 - VII. SWEEPING: THIS BMP REQUIRES THAT IMPERVIOUS SURFACES WHICH ARE ADJACENT TO OR CONTAINED WITHIN CONSTRUCTION SITES BE SWEEPED ON A DAILY BASIS OR AS NEEDED DURING THE DAY WHEN SEDIMENT AND OTHER MATERIALS ARE TRACKED OR DISCHARGED ON TO THEM. EITHER SWEEPING BY HAND OR USE OF STREET SWEEPERS IS ACCEPTABLE. STREET SWEEPERS USING WATER WHILE SWEEPING IS PREFERRED IN ORDER TO MINIMIZE DUST. FLUSHING OFF PAVED SURFACES WITH WATER IS PROHIBITED.
 - VIII. PERIMETER CONTROL: THIS BMP REQUIRES THAT A CONSTRUCTION SITE INSTALL A PERIMETER CONTROL MEASURE ALONG THE EDGE OF THE CONSTRUCTION SITE, TO PREVENT, OR FILTER THE DISCHARGE OF SURFACE RUNOFF FROM THE CONSTRUCTION SITE. THE TYPE OF PERIMETER CONTROL USED SHALL BE DETERMINED BASED ON SITE CONDITIONS AND LOCATION. MAINTENANCE AND REPAIR OF THE CONTROL MEASURE SHALL OCCUR AS NEEDED, IN A TIMELY MANNER.
 - IX. STOCK PILES: SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE PROTECTED FROM WIND AND WATER EROSION WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION. STABILIZATION OF STOCKPILES LOCATED WITHIN 100 FEET OF RECEIVING WATERS OR WITH SLOPES 3 TO 1 OR GREATER SHALL BE COMPLETED WITHIN SEVEN (7) DAYS FOLLOWING STOCKPILE CONSTRUCTION. STABILIZATION AND PROTECTION OF THE STOCKPILE MAY BE ACCOMPLISHED BY ANY OF THE FOLLOWING: MULCHING, TEMPORARY/PERMANENT RE-VEGETATION OPERATIONS, CHEMICAL SOIL STABILIZER APPLICATION (REQUIRES DENVER PUBLIC WORKS APPROVAL), OR EROSION CONTROL MATTING/GEOTEXTILES. IF STOCKPILES ARE LOCATED WITHIN 100 FEET OF RECEIVING WATERS, A DRAINAGEWAY OR THE SITE PERIMETER, ADDITIONAL SEDIMENT CONTROLS SHALL BE REQUIRED.
 - X. SAW CUTTING OPERATIONS: THE CONTRACTOR SHALL PROTECT ALL STORM SEWER FACILITIES ADJACENT TO ANY LOCATION WHERE PAVEMENT CUTTING OPERATIONS INVOLVING WHEEL CUTTING, SAW CUTTING, SAND BLASTING OR ABRASIVE WATER JET CUTTING ARE TO TAKE PLACE. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL WASTE PRODUCTS GENERATED BY SAID CUTTING OPERATIONS ON A DAILY BASIS OR AS NEEDED THROUGHOUT THE WORK DAY. THE DISCHARGE OF ANY WATER CONTAMINATED BY WASTE PRODUCTS FROM CUTTING OPERATIONS TO THE STORM SEWER SYSTEM IS PROHIBITED. (SEC. 56-102A, C' REVISED MUNICIPAL CODE, CITY AND COUNTY OF DENVER)

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Print Date: 5/16/2017		Sheet Revisions Date: Comments Init.				TRANSPORTATION ENGINEERING DIVISION 5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815	As Constructed		MILL LEVY 6 TRAFFIC SIGNALS			Project No./Code PZ03798-425
File Name: 34993-GN-Univ-03.dgn		No Revisions:		UNIVERSITY BOULEVARD			GENERAL NOTES		Designer: M. KRELL Structure Numbers	Sheet Number 4		
Horiz. Scale: 1:1 Vert. Scale: As Noted		Revised:		Detailer:			Sheet Subset: NOTES				Subset Sheets: 3 OF 5	
Unit Information Unit Leader Initials		Void:		Sheet Subset: NOTES			Subset Sheets: 3 OF 5		Sheet Number 4			
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600												

STORMWATER MANAGEMENT (CONT.):

- 5. XI. STRUCTURAL CONTROLS: DEVELOPMENT SITES THAT ARE REQUIRED TO PROVIDE DETECTION AND WATER QUALITY ENHANCEMENT FACILITIES FOR STORM RUNOFF NEED TO INSTALL THE DETENTION FACILITIES EARLY IN THE CONSTRUCTION BUILD-OUT OF THE SITE. PROJECTS THAT ARE USING UNDERGROUND DETENTION ARE REQUIRED TO INSTALL A PRETREATMENT STRUCTURE(S) OR SEDIMENTATION BASIN(S) AS A MEANS OF TREATING POTENTIALLY POLLUTED STORM WATER PRIOR TO ENTERING THE DETENTION STRUCTURE. USE OF THESE STRUCTURES IS REQUIRED FOR ENTRAPPING SEDIMENT AND CONSTRUCTION DEBRIS DURING THE ACTIVE CONSTRUCTION PHASE OF THE PROJECT. A NARRATIVE SECTION OF A MANAGEMENT PLAN SHOULD ADDRESS OPERATION AND MAINTENANCE OF THE STRUCTURAL CONTROLS BEING USED AS AN ACTIVE CONSTRUCTION BMP.
- 6. EROSION AND SEDIMENT CONTROL 'BEST MANAGEMENT PRACTICES' SHALL BE MAINTAINED AND KEPT IN EFFECTIVE OPERATION CONDITION FOR THE DURATION OF THIS PROJECT. ALL NECESSARY MAINTENANCE AND REPAIR SHALL BE COMPLETED IMMEDIATELY UPON DISCOVERY OF ANY DEFICIENCY OR DEFECT.
- 7. CONSTRUCTION FENCE SHALL BE PLACED AT LOCATIONS AS DIRECTED BY THE ENGINEER OR EROSION CONTROL SUPERVISOR.

WASTEWATER CAPITAL PROJECTS MANAGEMENT GENERAL NOTES

- 1. CONTRACTORS PERFORMING WORK ON ANY WASTEWATER FACILITY OR APPURTENANCE MUST BE PROPERLY LICENSED AND HAVE A LICENSED PLUMBER OR DRAINLAYER ON SITE DURING THE WORK. (GENERAL CONTRACT CONDITIONS (G.C.C.) 317.1)
- 2. THE CURRENT EDITION OF THE WASTEWATER MANAGEMENT DIVISION STANDARD DETAILS SHALL APPLY TO ALL WORK AND WILL BE THE EDITION CURRENT AS OF THE ADVERTISEMENT DATE. THE CONTRACTOR MUST BE IN POSSESSION OF THE STANDARD DETAILS AT THE PRE-CONSTRUCTION CONFERENCE AND A COPY MUST REMAIN ON THE JOB SITE AT ALL TIMES DURING CONSTRUCTION. WASTEWATER MANAGEMENT DIVISION STANDARD DETAILS CAN BE OBTAINED AT WWW.DENVERGOV.ORG(SPECIAL CONTRACT CONDITIONS (SC-1), CONTRACT FORM 8 (APPLICABLE LAWS))
- 3. THE CONTRACT SPECIFIED EDITION OF THE CITY AND COUNTY OF DENVER'S TRANSPORTATION STANDARDS AND DETAILS FOR THE ENGINEERING DIVISION SHALL BE FOLLOWED FOR ALL ROADWAY WORK IN THE PLAN SET AND WILL BE THE EDITION CURRENT AS OF THE ADVERTISEMENT DATE. THESE STANDARDS AND DETAILS CAN BE OBTAINED AT WWW.DENVERGOV.ORG (SC-1, CONTRACT FORM 8 (APPLICABLE LAWS))
- 4. THE CONSTRUCTION ACTIVITIES STORMWATER DISCHARGE PERMITS (STATE AND LOCAL FLOODPLAIN PERMITS), STREET-CUT PERMIT, AND STREET OCCUPANCY PERMIT (INCLUDING THE ASSOCIATED TRAFFIC CONTROL PLANS) MAY BE REQUIRED AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL OF THESE PERMITS. APPROVED COPIES OF ALL REQUIRED PERMITS MUST BE SUBMITTED TO THE CITY CONSTRUCTION PROJECT MANAGER PRIOR TO THE START OF CONSTRUCTION. (G.C.C. 301.2, 317.1 & 317.2& 317.5; CONTRACT FORM 8 (APPLICABLE LAWS))
- 5. A PARKS PERMIT WILL BE REQUIRED FOR ANY WORK OR OCCUPANCY OF PARK LAND, THIS INCLUDES BUT IS NOT LIMITED TO: DESIGNATED CITY PARKS, PARKWAYS, OPEN SPACE, TRAILS AND BIKE PATHS. (G.C.C. 301.2, 317.1 & 317.2& 317.5; CONTRACT FORM 8 (APPLICABLE LAWS))
- 6. ALL DESIGN DRAWINGS PROVIDED AS PART OF THIS CONTRACT ARE FORMATTED FOR PRINTING FULL SIZE, ON STANDARD 22 X 34 INCH (ANSI D) PAPER SIZE AND TO HALF-SIZE (AND SCALE WHERE APPROPRIATE) ON STANDARD 11 X 17 PAPER SIZE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT HARD COPIES OF PLANS UTILIZED FOR BIDDING OR CONSTRUCTION ARE PRINTED ON THE PROPER MEDIA SIZE AND THAT SCALES PROVIDED WITHIN THE DRAWINGS ARE CORRECTLY INTERPRETED.
- 7. "RED-LINED" DRAWINGS AND PRINTS ARE TO BE MAINTAINED BY THE CONTRACTOR AND SUBMITTED TO THE CITY CONSTRUCTION PROJECT MANAGER AT THE COMPLETION OF THE PROJECT. ANY AND ALL FIELD CHANGES MADE DURING CONSTRUCTION MUST BE NOTED. THE DRAWINGS WILL STATE "RED LINES" IN LARGE BLOCK LETTERS. THE RED-LINED DRAWINGS MUST BE RECEIVED AND ACCEPTED BY THE CITY CONSTRUCTION PROJECT MANAGER PRIOR TO FINAL ACCEPTANCE AND SETTLEMENT.
- 8. THE CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION PROJECT MANAGER IMMEDIATELY OF "ANY" DISCREPANCIES OR VARIATIONS IN DRAWINGS & SPECIFICATIONS THAT AFFECT PRICING OR THAT COULD REQUIRE MODIFICATION TO THE DESIGN. (G.C.C.1103)
- 9. THE CITY AND COUNTY OF DENVER ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. THE UTILITIES SHOWN ON THESE DRAWINGS HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. ALL UTILITIES MUST BE LOCATED BY THE CONTRACTOR. ALL COSTS ASSOCIATED WITH FIELD VERIFICATION OF LOCATION AND DEPTHS OF UTILITIES SHALL BE BORNE BY THE CONTRACTOR AND SHALL BE COMPLETED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. (G.C.C. 701, 804)
- 10. ALL RANGE POINTS OR OTHER SURVEY MONUMENTS WHICH MAY BE DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE TIED OUT AND RESET PER CITY SURVEYING STANDARDS. (G.C.C. 318, 319)
- 11. ALL ELEVATIONS SHOWN ARE NAVD88 DATUM, UNLESS OTHERWISE NOTED.
- 12. INLETS AND MANHOLES ARE NOT SHOWN TO SCALE ON THE PLAN AND PROFILE SHEETS.

WASTEWATER CAPITAL PROJECTS MANAGEMENT GENERAL NOTES (CONT.)

- 13. INVERT ELEVATIONS AND CALCULATED PIPE SLOPES ON STORM AND SANITARY PROFILES ARE TO THE CENTER OF MANHOLE OR STRUCTURE. PIPE LENGTHS ARE TWO DIMENSIONAL LENGTHS AND ARE CENTER TO CENTER BETWEEN MANHOLES AND TO THE INSIDE EDGE OF INLETS.
 - 14. NORTHING AND EASTING CALLOUTS ON TYPE 16 AND TYPE 14 INLETS ARE TO THE CENTER OF THE STRUCTURE AT THE FLOWLINE. NORTHING AND EASTING CALLOUTS ON MANHOLES ARE TO THE CENTER OF THE MANHOLE.
 - 15. LOCATION OF INLETS AND/OR INLET CONNECTORS MAY BE ADJUSTED IN THE FIELD AT THE DIRECTION OF THE CITY CONSTRUCTION PROJECT MANAGER IN CONJUNCTION WITH DESIGN INTENTION. ALL INLET CONNECTIONS SHOWN IN PLAN AND PROFILE ARE APPROXIMATE LOCATIONS AND DEPTHS.
 - 16. DEPTHS OR BOTTOM OF STRUCTURE ELEVATIONS WILL NOT BE PROVIDED FOR INLETS WITHIN THE PROJECT SCOPE, AS THESE ARE REQUIRED TO BE DETERMINED BASED ON FIELD CONDITIONS IN ACCORDANCE WITH APPLICABLE STANDARD DETAIL DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ESTABLISH INLET DEPTHS AND COMPLETE CONSTRUCTION IN CONFORMANCE WITH APPLICABLE STANDARD DETAIL DRAWINGS BASED ON CLEARANCES OF ADJACENT UTILITIES WHILE MAINTAINING MINIMUM REQUIRED GRADES ON LATERAL CONNECTIONS.
 - 17. ALL SEWER MANHOLES MUST BE MAINTAINED AND ACCESSIBLE DURING CONSTRUCTION.
 - 18. ALL SANITARY MANHOLES ARE 4' DIAMETER WITH "A" BASE AND CONCENTRIC CONE UNLESS NOTED OTHERWISE.
 - 19. ALL MANHOLES BUILT WITHIN THIS PROJECT SHALL INCLUDE EITHER A 4' OR 8' CAST IRON RISER WITH 3' STEEL ADJUSTING RINGS.
- DENVER WATER
- 20. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TAKE WHATEVER STEPS NECESSARY TO PROTECT ALL WATER FACILITIES. IF ANY WATER FACILITIES CANNOT BE ADEQUATELY PROTECTED, THEN SAID WATER FACILITIES SHALL BE RELOCATED OR REMOVED IN ACCORDANCE WITH THE DENVER WATER DEPARTMENT REQUIREMENTS, BY A DENVER WATER PREQUALIFIED CONTRACTOR.
 - 21. CONSTRUCTION ACTIVITIES BY ANY PARTY THAT DISTURB, RELOCATE, SEVER, OR IN ANY OTHER WAY IMPACT A SERVICE LINE SHALL BE REQUIRED TO MEET CURRENT DENVER WATER REQUIREMENTS FOR SERVICE LINES AS SPECIFIED IN CHAPTER 3 OF THE LATEST DENVER WATER STANDARDS. IN THE EVENT LEAD WATER LINES ARE ENCOUNTERED, DO NOT DISTURB, IMMEDIATELY STOP WORK, AND NOTIFY THE CITY CONSTRUCTION PROJECT MANAGER.
- TREE PROTECTION
- 22. IF EXISTING TREES ARE TO BE REMOVED THEY MUST FIRST BE EVALUATED BY THE CITY AND COUNTY OF DENVER FORESTRY (PARKS) DEPARTMENT AND A PERMIT MUST BE OBTAINED. EXISTING TREES TO REMAIN MUST HAVE FORESTRY APPROVED TREE PROTECTION SET UP AROUND THEM DURING THE CONSTRUCTION AS SHOWN IN THE "INDIVIDUAL TREE PROTECTION DETAIL" IN THE DENVER PARKS DEPARTMENT STANDARD PLANS. THE CONTRACTOR MUST FOLLOW ALL OF THE CITY AND COUNTY OF DENVER TREE RETENTION AND PROTECTION GUIDELINES. REFER TO DENVER PARKS DEPARTMENT SPECIFICATION 01 56 39.
- METRO WASTEWATER RECLAMATION DISTRICT
- 23. METRO WASTEWATER RECLAMATION DISTRICT MUST BE NOTIFIED AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ON METRO FACILITIES IN ORDER FOR A DISTRICT INSPECTOR TO BE PRESENT DURING CONSTRUCTION. CONTRACTOR MUST CONTACT METRO WASTEWATER RECLAMATION DISTRICT TO SCHEDULE THE INSPECTION 303-286-6000.



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Print Date: 5/16/2017		Sheet Revisions				As Constructed		MILL LEVY 6 TRAFFIC SIGNALS		Project No./Code	
File Name: 34993-GN-Univ-04.dgn		Date:	Comments	Init.		No Revisions:	UNIVERSITY BOULEVARD		PZ03798-425		
Horiz. Scale: 1:1 Vert. Scale: As Noted						Revised:	Designer: M. KRELL	Structure Numbers	34993		
Unit Information Unit Leader Initials						Void:	Detailer:		Sheet Subset: NOTES	Subset Sheets: 4 OF 5	Sheet Number 5
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600					5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815						

SUMMARY OF APPROXIMATE QUANTITIES

CONTRACT ITEM NUMBER	CONTRACT ITEM	UNIT	ROADWAY ITEMS		PROJECT TOTALS	
			PLAN	AS CONST	PLAN	AS CONST
202-00190	REMOVAL OF CONCRETE MEDIAN COVER MATERIAL	SY	58		58	
202-00200	REMOVAL OF SIDEWALK	SY	251		251	
202-00203	REMOVAL OF CURB AND GUTTER	LF	242		242	
202-00206	REMOVAL OF CONCRETE CURB RAMP	SY	347		347	
202-00210	REMOVAL OF CONCRETE PAVEMENT	SY	140		140	
202-00220	REMOVAL OF ASPHALT MAT	SY	132		132	
202-00250	REMOVAL OF PAVEMENT MARKING	SF	2,150		2,150	
202-00810	REMOVAL OF GROUND SIGN	EACH	7		7	
202-00828	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	L S	1		1	
203-01597	POTHOLING	HOURL	140		140	
208-00035	AGGREGATE BAG	LF	250		250	
208-00045	CONCRETE WASHOUT STRUCTURE	EACH	2		2	
208-00053	STORM DRAIN INLET PROTECTION (TYPE I)	EACH	11		11	
208-00205	EROSION CONTROL SUPERVISOR	HOURL	200		200	
210-00473	RESET CCTV AND WIRING	EACH	1		1	
210-004XX	RESET 5GHz RADIO	EACH	1		1	
210-00815	RESET SIGN PANEL	EACH	1		1	
210-00XXX	RESET BENCH	EACH	1		1	
212-00100	TREE RETENTION AND PROTECTION	L S	1		1	
403-00720	HOT MIX ASPHALT (PATCHING) (ASPHALT)	TON	20		20	
412-01100	CONCRETE PAVEMENT (11 INCH)	SY	169		169	
503-00036	DRILLED CAISSON (36 INCH)	LF	157		157	
503-00037	VACUUMED CAISSON (36 INCH)	LF	157		157	
608-00000	CONCRETE SIDEWALK	SY	406		406	
608-00010	CONCRETE CURB RAMP	SY	379		379	
609-20010	6" CURB HEAD	LF	225		225	
609-20100	CURB HEAD (0"-12" VARIABLE HEIGHT)	LF	53		53	
609-21020	6" CURB AND GUTTER - 2 CATCH PAN	LF	188		188	
609-21021	4" MOUNTABLE CURB	LF	15		15	
610-00055	MEDIAN COVER MATERIAL (STONE)	SF	263		263	
613-00206	2 INCH ELECTRICAL CONDUIT (BORED)	LF	1,500		1,500	
613-00306	3 INCH ELECTRICAL CONDUIT (BORED)	LF	2,885		2,885	
613-10000	WIRING	L S	1		1	
613-1300X	LUMINAIRE LED (55 WATT)	EACH	23		23	
613-8013X	ELECTRIC METER PEDESTAL CABINET AND BASE	EACH	7		7	
614-00011	SIGN PANEL (CLASS I)	SF	213		213	
614-00035	SIGN PANEL (SPECIAL)	SF	319		319	

CONTRACT ITEM NUMBER	CONTRACT ITEM	UNIT	ROADWAY ITEMS		PROJECT TOTALS	
			PLAN	AS CONST	PLAN	AS CONST
614-00216	STEEL SIGN POST (2X2 INCH TUBING)	LF	11		11	
614-70150	PEDESTRIAN SIGNAL FACE (16) (COUNTDOWN)	EACH	42		42	
614-70336	TRAFFIC SIGNAL FACE (12-12-12)	EACH	83		83	
614-72855	TRAFFIC SIGNAL CONTROLLER & CABINET (INSTALL ONLY)	EACH	7		7	
614-72860	PEDESTRIAN PUSH BUTTON	EACH	24		24	
614-72866	EMERGENCY VEHICLE TRAFFIC SIGNAL PRIORITY CONTROL SYSTEM	EACH	5		5	
614-72886	INTERSECTION DETECTION SYSTEM (CAMERA)	EACH	1		1	
614-728X1	INTERSECTION DETECTION SYSTEM (2 CAMERA)	EACH	4		4	
614-81115	TRAFFIC SIGNAL-LIGHT POLE (NO MAST ARM)	EACH	1		1	
614-81120	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-20 FOOT MAST ARM)	EACH	4		4	
614-81125	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-25 FOOT MAST ARM)	EACH	7		7	
614-81130	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-30 FOOT MAST ARM)	EACH	5		5	
614-81135	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-35 FOOT MAST ARM)	EACH	6		6	
614-81145	TRAFFIC SIGNAL-LIGHT POLE STEEL (1-45 FOOT MAST ARM)	EACH	1		1	
614-86105	TELEMETRY (FIELD)	EACH	6		6	
625-00000	CONSTRUCTION SURVEYING	L S	1		1	
626-00000	MOBILIZATION	L S	1		1	
627-30410	PREFORMED THERMOPLASTIC PAVEMENT MARKING (XWALK-STOP LINE)	SF	2,615		2,615	
630-00003	UNIFORMED TRAFFIC CONTROL	HOURL	168		168	
630-XXXXX	CONSTRUCTION ZONE TRAFFIC CONTROL	DAY	120		120	
700-70082	01 FURNISH & INSTALL ELECTRICAL SERVICE ALLOWANCE	N/A	1		1	
700-70380	02 EROSION CONTROL ALLOWANCE	N/A	1		1	
700-70589	03 ENVIRONMENTAL HEALTH & SAFETY MANAGEMENT ALLOWANCE	N/A	1		1	
700-90026	04 LANDSCAPING ALLOWANCE	N/A	1		1	

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 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.



TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

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No Revisions:
Revised:
Void:

MILL LEVY 6 TRAFFIC SIGNALS
UNIVERSITY BOULEVARD
SUMMARY OF APPROXIMATE QUANTITIES

Designer: M. KRELL Structure Numbers
 Detailer: Subsets
 Sheet Subset: SAQ Subset Sheets: 1 OF 1

Project No./Code
PZ03798-425
34993
Sheet Number 7

CCD UNIVERSITY INTERSECTIONS

SURVEY CONTROL PERPETUATION DIAGRAM
 Sections 13, 14, 23, 24, 25, 26, 35, and 36
 Township 4 South, Range 68 West, of the 6th Principal Meridian



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General Notes:

1. This survey does not constitute a title search by 105 West, Inc., nor is it intended to be construed as a boundary survey.
2. The purpose of this Survey Control Diagram is to show the location of Survey Control and Right-of-Way/Property Evidence prior to construction of the University Boulevard Intersections Project. It is not a boundary survey and is not to be construed as a Land Survey.
3. UNITS: Project coordinates and elevations shown hereon are U.S. Survey Feet.
4. According to Colorado State 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.

COORDINATE DATUM: Project coordinates are based on the following City and County of Denver Mapping Projection:

Project Mapping Projection
 Projection: User-Defined Transverse Mercator
 Zone: CCD_Local
 Central Point False Northing = 400,000.00
 Central Point False Easting = 600,000.00
 Latitude of Origin = N39°45'19.00000"
 Central Meridian = W104°53'53.00000"
 Zone Width = 6°0'00.0"
 Scale Factor at Origin = 1.00025403000
 Units are US Survey Feet

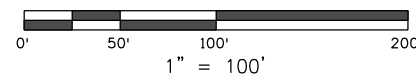
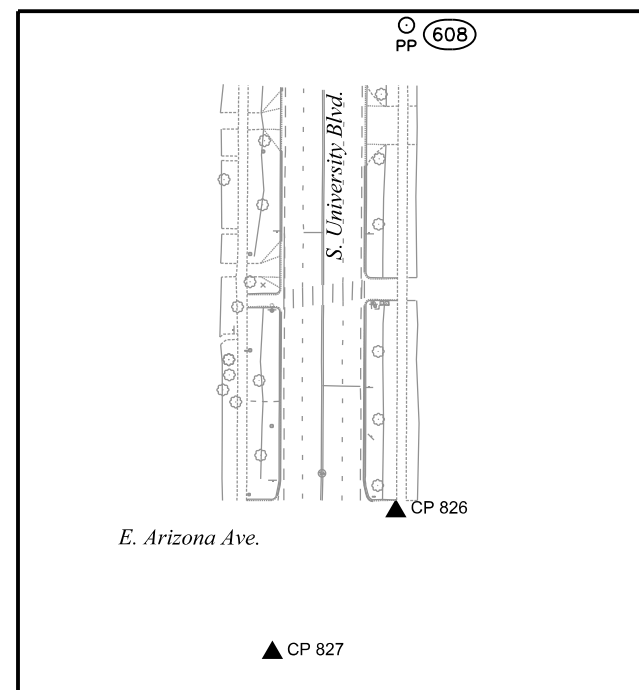
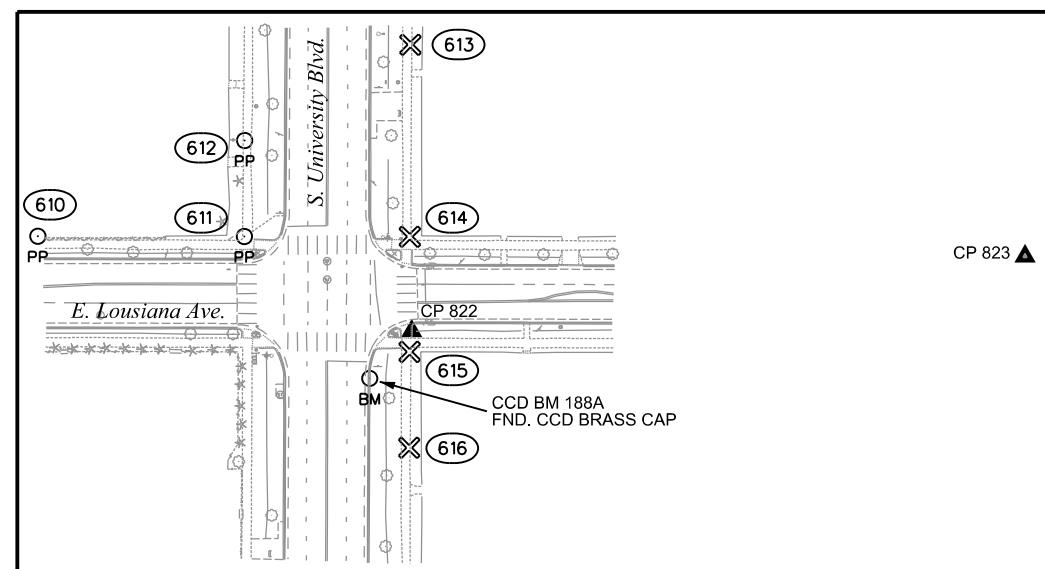
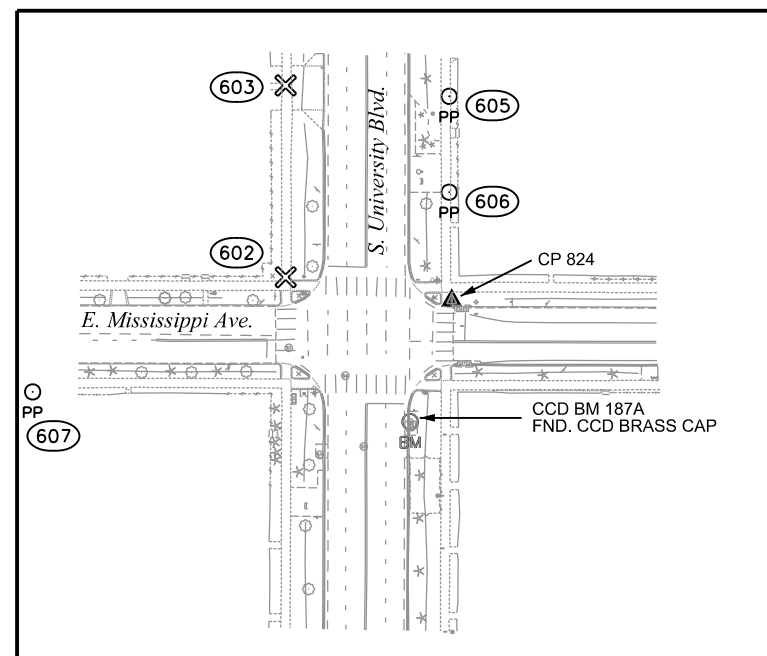
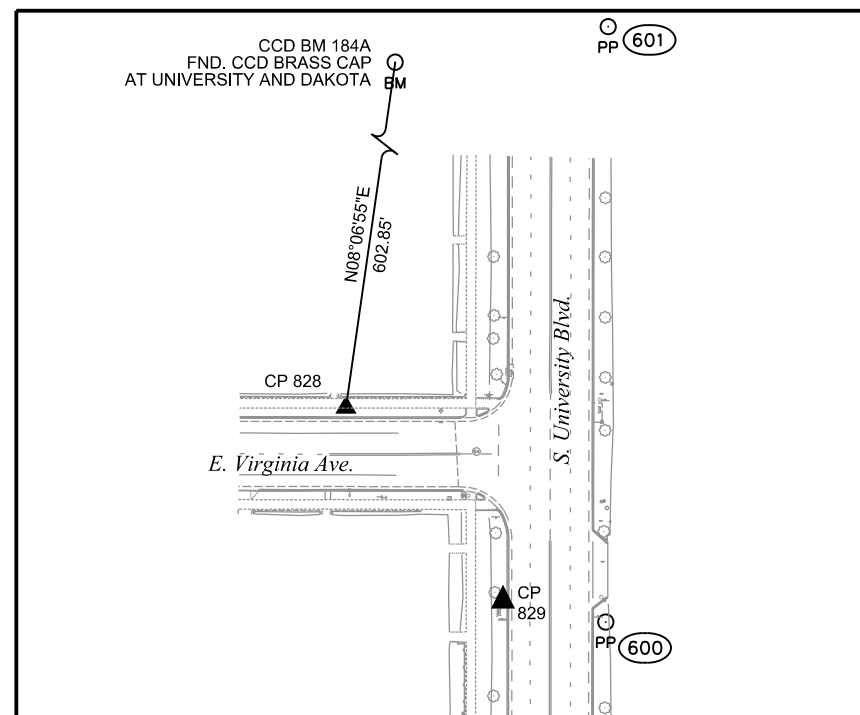
PROJECT BENCHMARK: Elevations are based on published (NAVD 88) City and County of Denver Benchmarks, shown hereon.

I, Richard D. Muntean, a Licensed Professional Surveyor in the State of Colorado do hereby state that the survey represented by this map was made under my supervision and that this map and the notes shown hereon accurately represent said survey to the best of my knowledge, information and belief.

RICHARD D. MUNTEAN, PLS No. 38189
 For and on behalf of 105 West, Inc.

- (XXX) ○ PP PROPERTY/ROW EVIDENCE
- (XXX) ✕ CHISELED "+" UNLESS OTHERWISE NOTED
- CP XXX ▲ SET CONTROL POINT
 1" COPPER PLUG IN CONCRETE
- XXX ○ BM CCD BENCHMARK

**PRELIMINARY
 PLANS**
 NOT FOR CONSTRUCTION



Print Date: 1/27/2017
 File Name: 127-0019 CCD Univ Intersections
 Horiz. Scale: 1:100 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
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Sheet Revisions		
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**TRANSPORTATION
 ENGINEERING DIVISION**

DENVER PUBLIC WORKS

5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

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MILL LEVY 6 TRAFFIC SIGNALS		
UNIVERSITY BOULEVARD		
SURVEY CONTROL PERPETUATION DIAGRAM		
Designer:	Structure Numbers	
Detailer:		
Sheet Subset: PCD	Subset Sheets: 1 OF 3	

Project No./Code
PZ03798-425
34993
Sheet Number 8

CCD UNIVERSITY INTERSECTIONS

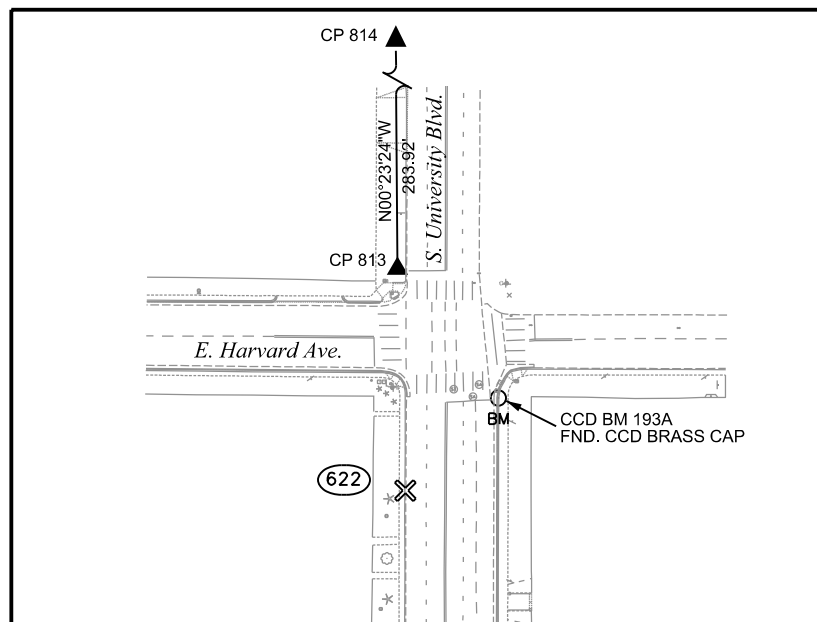
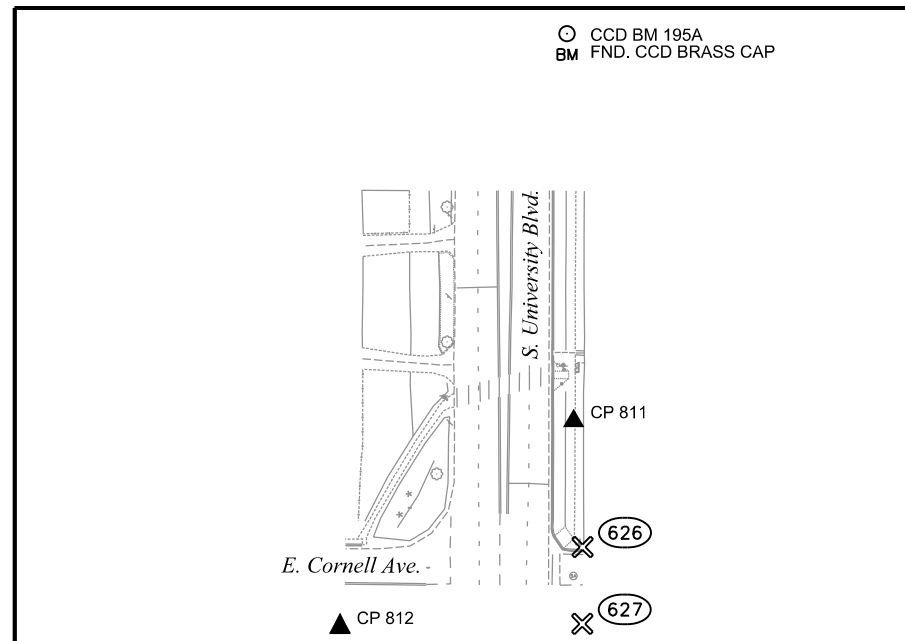
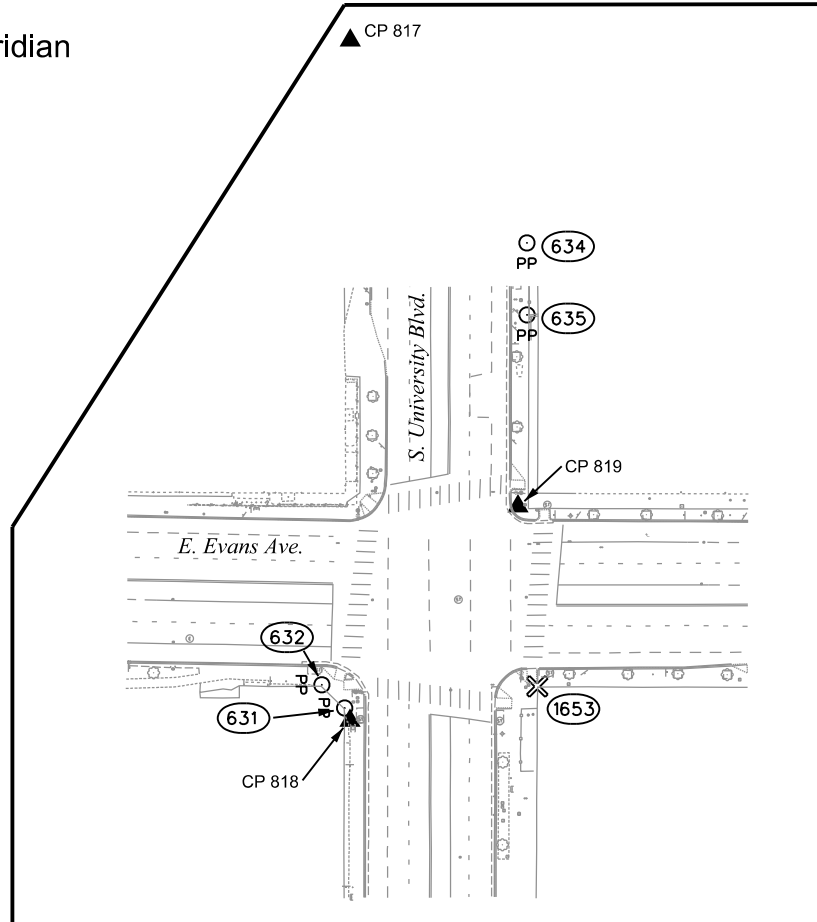
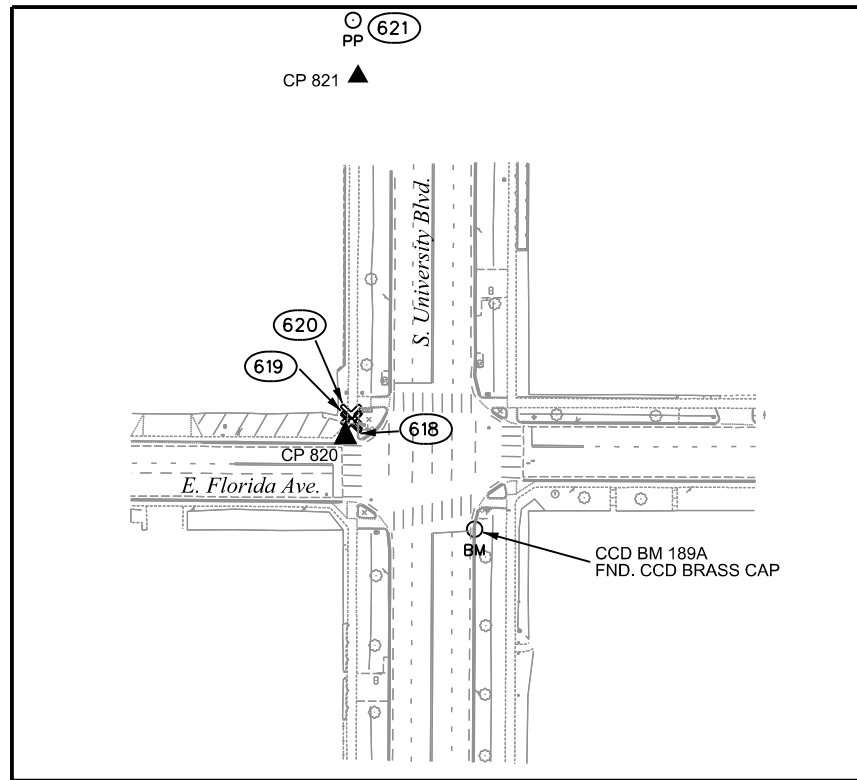
SURVEY CONTROL PERPETUATION DIAGRAM

Sections 13, 14, 23, 24, 25, 26, 35, and 36

Township 4 South, Range 68 West, of the 6th Principal Meridian



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General Notes:

1. This survey does not constitute a title search by 105 West, Inc., nor is it intended to be construed as a boundary survey.
2. The purpose of this Survey Control Diagram is to show the location of Survey Control and Right-of-Way/Property Evidence prior to construction of the University Boulevard Intersections Project. It is not a boundary survey and is not to be construed as a Land Survey.
3. UNITS: Project coordinates and elevations shown hereon are U.S. Survey Feet.
4. According to Colorado State 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.

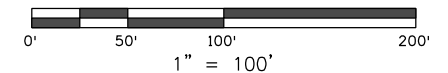
COORDINATE DATUM: Project coordinates are based on the following City and County of Denver Mapping Projection:

Project Mapping Projection
 Projection: User-Defined Transverse Mercator
 Zone: CCD_Local
 Central Point False Northing = 400,000.00
 Central Point False Easting = 600,000.00
 Latitude of Origin = N39°45'19.00000"
 Central Meridian = W104°53'53.00000"
 Zone Width = 6°0'00.0"
 Scale Factor at Origin = 1.00025403000
 Units are US Survey Feet

PROJECT BENCHMARK: Elevations are based on published (NAVD 88) City and County of Denver Benchmarks, shown hereon.

I, Richard D. Muntean, a Licensed Professional Surveyor in the State of Colorado do hereby state that the survey represented by this map was made under my supervision and that this map and the notes shown hereon accurately represent said survey to the best of my knowledge, information and belief.

RICHARD D. MUNTEAN, PLS No. 38189
 For and on behalf of 105 West, Inc.



- (XXX) PP PROPERTY/ROW EVIDENCE
- (XXX) X CHISELED "+" UNLESS OTHERWISE NOTED
- CP XXX ▲ SET CONTROL POINT 1" COPPER PLUG IN CONCRETE
- XXX ○ BM CCD BENCHMARK

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

Print Date: 1/27/2017
 File Name: 127-0019 CCD Univ Intersections
 Horiz. Scale: 1:100 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.

TRANSPORTATION ENGINEERING DIVISION

5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
 No Revisions:
 Revised:
 Void:

MILL LEVY 6 TRAFFIC SIGNALS
 UNIVERSITY BOULEVARD
 PROJECT CONTROL DIAGRAM

Designer:
 Detailer:
 Sheet Subset: PCD Subset Sheets: 2 OF 3

Project No./Code
 PZ03798-425
 34993
 Sheet Number 9

CCD UNIVERSITY INTERSECTIONS
 SURVEY CONTROL PERPETUATION DIAGRAM
 Sections 13, 14, 23, 24, 25, 26, 35, and 36
 Township 4 South, Range 68 West, of the 6th Principal Meridian



FOUND R.O.W. AND BOUNDARY MONUMENT COORDINATE TABLE

Point No.	Northing(ft)	Easting(ft)	Elev(ft)	Description
600	382,505.80	582,784.30	5,339.12	Fnd. 2-1/2" Pipe - 17/18
601	382,839.80	582,785.60	5,345.85	Fnd. 1-1/4" OPC - PE & LS 9489
602	378,650.60	582,711.60	5,350.33	Fnd. Chiseled "+" in Conc.
603	378,750.50	582,711.60	5,349.87	Fnd. Chiseled "+" in Conc.
605	378,744.80	582,796.90	5,350.92	Fnd. 1-1/4" Tag & Nail - LS 9655 7.0' WC
606	378,694.80	582,796.90	5,351.20	Fnd. 1-1/4" Tag & Nail - LS 26958
607	378,590.70	582,562.40	5,346.71	Fnd. 1-1/2" Tag & Nail - LS 38091 3' WC
608	378,265.70	582,795.50	5,351.97	Fnd. Chiseled "+" in Conc.
610	377,330.80	582,567.00	5,354.78	Fnd. 1" Tag & Nail - LS 31158
611	377,330.60	582,705.90	5,355.32	Fnd. 1" Tag & Nail - LS 31158
612	377,380.60	582,706.20	5,355.19	Fnd. 1" Tag & Nail - LS 31158
613	377,430.50	582,792.50	5,355.74	Fnd. Chiseled "+" in Conc.
614	377,330.50	582,792.20	5,355.95	Fnd. Chiseled "+" in Conc.
615	377,270.50	582,792.00	5,356.27	Fnd. Chiseled "+" in Conc.
616	377,220.50	582,791.80	5,356.76	Fnd. Chiseled "+" in Conc.
618	375,995.80	582,702.20	5,353.39	Fnd. Chiseled "+" in Conc.
619	375,996.40	582,702.70	5,353.35	Fnd. Chiseled "+" in Conc.
620	375,999.80	582,702.10	5,353.67	Fnd. Chiseled "+" in Conc.
621	376,224.70	582,703.20	5,354.65	Fnd. Chiseled "+" in Conc.
622	369,297.40	582,708.30	5,355.77	Fnd. Chiseled "+" in Conc.
626	366,420.60	582,755.00	5,398.29	Fnd. Chiseled "+" in Conc.
627	366,380.60	582,754.80	5,399.52	Fnd. Chiseled "+" in Conc.
631	371,944.80	582,680.90	5,378.27	Fnd. 1" Tag & Nail - LS 31158
632	371,956.90	582,669.00	5,377.50	Fnd. 1" Tag & Nail - LS 31158
634	372,187.20	582,775.90	5,374.86	Fnd. 3/4" Tag & Nail - Illegible
635	372,149.70	582,776.00	5,375.45	Fnd. 3/4" Tag & Nail - LS 26958
1653	371,956.10	582,781.30	5,378.69	Fnd. Chiseled "+" in Conc.

SET PROJECT CONTROL

Point No.	Northing(ft)	Easting(ft)	Elev(ft)	Description
811	366,436.30	582,750.40	5,398.51	Set 1" Copper Plug "105 West 811"
812	366,379.10	582,628.60	5,399.37	Set 1" Copper Plug "105 West 812"
813	369,413.00	582,704.20	5,357.72	Set 1" Copper Plug "105 West 813"
814	369,696.90	582,702.20	5,363.84	Set 1" Copper Plug "105 West 814"
817	372,292.60	582,683.90	5,372.45	Set 1" Copper Plug "105 West 817"
818	371,938.20	582,683.70	5,378.54	Set 1" Copper Plug "105 West 818"
819	372,050.00	582,771.20	5,378.22	Set 1" Copper Plug "105 West 819"
820	375,988.40	582,699.20	5,352.92	Set 1" Copper Plug "105 West 820"
821	376,176.00	582,705.70	5,354.64	Set 1" Copper Plug "105 West 821"
822	377,281.30	582,793.20	5,356.35	Set 1" Copper Plug "105 West 822"
823	377,320.30	583,112.60	5,364.63	Set 1" Copper Plug "105 West 823"
824	378,638.40	582,798.10	5,351.25	Set 1" Copper Plug "105 West 824"
826	377,983.10	582,790.00	5,352.77	Set 1" Copper Plug "105 West 826"
827	377,909.30	582,725.60	5,352.52	Set 1" Copper Plug "105 West 827"
828	382,617.60	582,648.90	5,339.38	Set 1" Copper Plug "105 West 828"
829	382,517.00	582,730.80	5,339.13	Set 1" Copper Plug "105 West 829"

CITY AND COUNTY OF DENVER BENCHMARKS


Point No.	Northing(ft)	Easting(ft)	Elev(ft)	Description
184A	383,214.50	582,734.00	5,353.69	CCD BM 184A
187A	378,575.30	582,776.50	5,350.70	CCD BM 187A
188A	377,256.70	582,771.30	5,356.17	CCD BM 188A
189A	375,940.10	582,766.50	5,352.92	CCD BM 189A
193A	369,345.70	582,756.80	5,356.33	CCD BM 193A
195A	366,638.10	582,746.90	5,396.62	CCD BM 195A

**PRELIMINARY
PLANS**

NOT FOR CONSTRUCTION

Print Date: 1/27/2017
 File Name: 127-0019 CCD Univ Intersections
 Horiz. Scale: 1:100 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.


**TRANSPORTATION
ENGINEERING DIVISION**
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
 No Revisions:
 Revised:
 Void:

**MILL LEVY 6 TRAFFIC SIGNALS
UNIVERSITY BOULEVARD
PROJECT CONTROL DIAGRAM**

Designer:
 Detailer:
 Sheet Subset: PCD Subset Sheets: 3 OF 3

Project No./Code
 PZ03798-425
 34993
 Sheet Number **10**



Know what's below.
Call before you dig.

FORESTRY:

1. PER CITY CODE, ALL TREE REMOVALS IN DENVER LIMITS MUST BE PERFORMED BY PROPERTY OWNER OF A TREE CONTRACTOR LICENSED BY DENVER FORESTRY (INCLUDING TREES IN ROW'S AND ON PRIVATE PROPERTY). FOR A CURRENT LIST OF LICENSED TREE CONTRACTORS, VISIT WWW.DENVERGOV.ORG/FORESTRY.

A. FOR FORESTRY-APPROVED TREE REMOVALS IN PUBLIC RIGHT(S) OF WAY: A TREE REMOVAL PERMIT ISSUED BY THE OFFICE OF THE CITY FORESTER IS REQUIRED PRIOR TO REMOVAL. IN ORDER TO OBTAIN TREE REMOVAL PERMIT, CONTACT FORESTRY (FORESTRY@DENVERGOV.ORG) WITH OF LICENSED CONTRACTOR OR PROPERTY OWNER PERFORMING REMOVAL.

B. FOR TREES ON PRIVATE PROPERTY: A FORESTRY-ISSUED TREE REMOVAL PERMIT IS NOT REQUIRED PRIOR TO REMOVAL. HOWEVER, PER CITY CODE, ALL TREE REMOVALS IN DENVER MUST BE PERFORMED BY PROPERTY OWNER OR A TREE CONTRACTOR LICENSED BY THE OFFICE OF THE CITY FORESTER.

2. REPLACEMENT TREES ON UNIVERSITY BLVD. & EVANS AVE. TO BE DETERMINED BY FORESTRY OPERATIONS.

3. A FORESTRY-ISSUED TREE PLANTING PERMIT IS REQUIRED FOR ALL TREES TO BE PLANTED IN PUBLIC RIGHTS OF WAY. CONTRACT FORESTRY (FORESTRY@DENVERGOV.ORG) WITH NAME OF CONTRACTOR OR PROPERTY OWNER PERFORMING PLANTING. INCLUDE D-LOG NUMBER (2016-PROJMSTR-0000314) WHEN REQUESTING PERMIT. PLANTING PERMITS MUST BE OBTAINED PRIOR TO INSTALLATION.

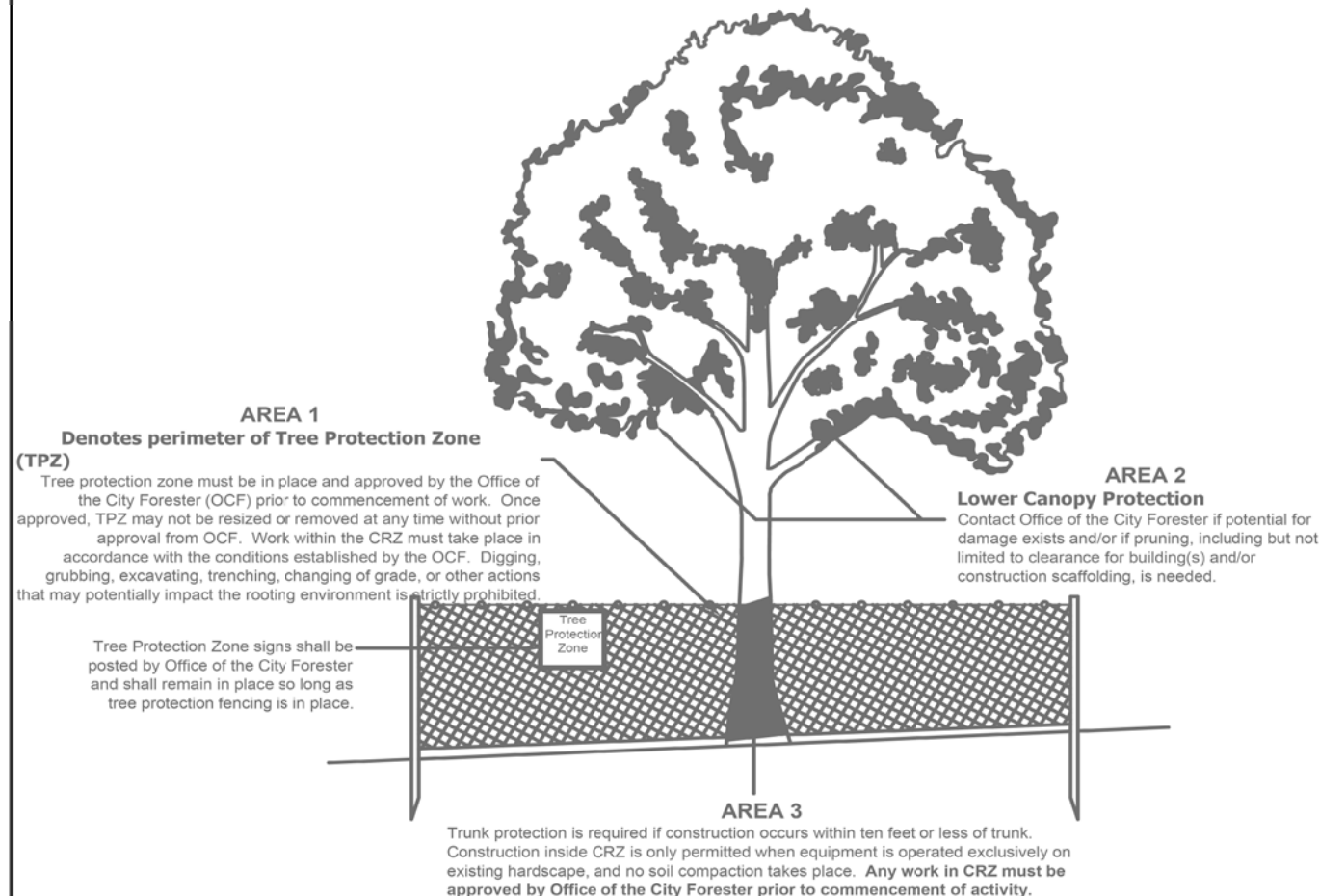
4. EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.

5. TREES LOCATED WITHIN UNIVERSITY ROW ARE MAINTAINED BY FORESTRY OPERATIONS. CONTRACT RICH WILSON (RICHARD.WILSON@DENVERGOV.ORG) AND COORDINATE TREE PROTECTION WITH HIM. PUBLIC RIGHT OF WAY TREES TO BE PROTECTED OUTSIDE UNIVERSITY ROW WILL BE MONITORED BY FORESTRY ROW INSPECTIONS.

6. DUE TO LEVEL OF CONSTRUCTION ADJACENT TO PUBLIC ROW TREES, CHAIN LINK FENCING SHALL BE USED TO ESTABLISH TREE PROTECTION ZONE BOUNDARIES. ONCE INSTALLED AND APPROVED BY FORESTRY STAFF, TREE PROTECTION ZONE SHALL NOT BE REVISED OR REMOVED WITHOUT PRIOR APPROVAL FROM OFFICE OF THE CITY FORESTER.

7. ALL WORK WITHIN THE DRIP LINE OF TREES IS TO BE HAND WORK ONLY AND APPROVED PRIOR TO CONSTRUCTION BY FORESTRY OPERATIONS.

TREE PROTECTION ZONE
The area inside a perimeter established at the Critical Root Zone (CRZ). The CRZ is equal to the dripline, furthest extent of tree canopy, or is equal to one foot radially from the tree for every one inch of trunk diameter at breast height (DBH = 4.5' above soil line), or whichever is greater.



NOTES

- Office of the City Forester Tree Retention and Protection Specifications shall be followed throughout duration of project.
- Damage to protected trees is subject to penalty per City Ordinance.
- Tree protection shall be installed prior to commencement of demolition/construction activities, approved by Office of the City Forester staff, and shall remain in place until Certificate of Occupancy is issued by the City & County of Denver.
- Once approved by the Office of the City Forester, the Tree Protection Zone shall not be resized, modified, removed, or altered in any manner without prior written approval.
- Entrance/access to the Tree Protection Zone is not permitted without prior written approval from the Office of the City Forester.
- No materials, debris, equipment, or site amenities shall be stored within the Tree Protection Zone without prior written approval from the Office of the City Forester.
- While tree protection fencing is in place, trees shall be deep-root watered at an interval of once per week when temperatures are at or above 50-degrees F. Trees shall be watered at the rate of 10 gallons per inch caliper.
- Minimum Tree Protection Zone, Area 1 fencing shall be "orange plastic safety fencing," min. 48" in height, top secured to metal T-posts with 12-gauge wire woven through top of fencing for entire length.
 - Heavy duty T-posts shall be placed so that wire & fence are taut.
 - Chain link fencing is recommended and may be required by the Office of the City Forester where heavy construction activity is adjacent to existing trees.
 - "Tree Protection Zone" signs shall remain in place as posted by Office of the City Forester and shall be maintained in the condition in which they were installed.

MARK	BULLETIN	DATE	PREPARED BY OFFICE OF THE CITY FORESTER (OCF) PARKS AND RECREATION DEPARTMENT	CITY AND COUNTY OF DENVER 201 W. COLFAX AVE. DENVER, COLORADO 80202	STANDARD TREE DETAIL FOR TREE PROTECTION ZONE	NOT TO SCALE DATE: June 2016 DIAGRAM P-3
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Print Date: 5/16/2017	0000
File Name: 34993-RD-DET-Tree_Protection.dgn	
Horiz. Scale: 1:1 Vert. Scale: As Noted	
Unit Information Unit Leader Initials	
AECOM 6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600	

Sheet Revisions		
Date:	Comments	Init.



TRANSPORTATION ENGINEERING DIVISION
5440 Roslyn Street
Denver, CO 80216
Phone: 720-865-6815

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Void:

MILL LEVY 6 TRAFFIC SIGNALS			
UNIVERSITY BOULEVARD			
TREE PROTECTION DETAIL			
Designer:	M. KRELL	Structure Numbers	
Detailer:			
Sheet Subset:	DETAILS	Subset Sheets:	1 OF 1

Project No./Code
PZ03798-425
34993
Sheet Number 11

margie.krell 2:40:03 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7_0_CAD_GIS\Plan_Sheets\34993-RD-DET-Tree_Protection.dgn

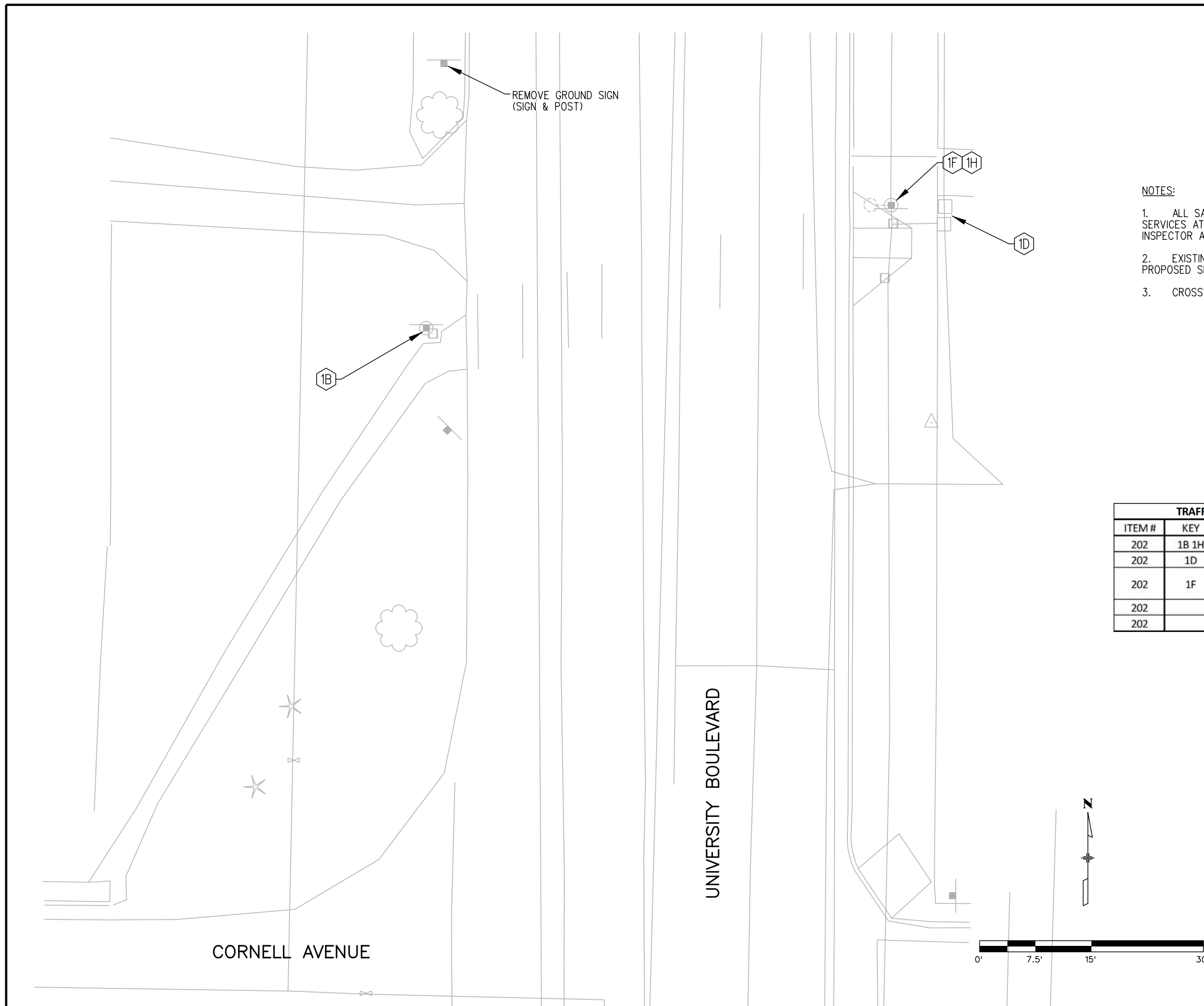


Know what's below.
Call before you dig.

NOTES:

1. ALL SALVAGED SIGNAL EQUIPMENT REMOVED SHALL BE DELIVERED TO TRAFFIC ENGINEERING SERVICES AT 5440 ROSLYN STREET. COORDINATE WITH TRAFFIC ENGINEERING SERVICES PROJECT INSPECTOR AT 720-865-4000 PRIOR TO DELIVERY.
2. EXISTING COMMUNICATIONS ANTENNA & EQUIPMENT SHALL BE PRESERVED AND RESET ON PROPOSED SIGNAL.
3. CROSSWALK PAVEMENT MARKINGS ARE TO BE REMOVED.

TRAFFIC SIGNAL REMOVAL ITEMS FOR BATES/CORNELL & UNIVERSITY MID-BLOCK				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
202	1B 1H	REMOVE SIGNAL POLE	EA	2
202	1D	REMOVE SIGNAL CABINET, CONTROLLER, & PULL BOXES	EA	1
202	1F	REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT	EA	1
202		REMOVE GROUND SIGN	EA	1
202		REMOVE PAVEMENT MARKING	SF	120



Print Date: 5/16/2017		Sheet Revisions Date: Comments Init.				As Constructed		MILL LEVY 6 TRAFFIC SIGNALS		Project No./Code	
File Name: 34993-TR-INT-Univ_Cornell_Removal.dgn						No Revisions:		TRAFFIC SIGNAL REMOVAL PLAN		PZ03798-425	
Horiz. Scale: 1:15 Vert. Scale: As Noted				City & County of Denver		Revised:		UNIVERSITY BLVD BETWEEN BATES & CORNELL		34993	
Unit Information Unit Leader Initials				TRANSPORTATION ENGINEERING DIVISION		Void:		Designer: M. HEUGH		Structure Numbers	
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600				5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815				Detailer:		Subset Sheets: 1 of 7	
				City & County of Denver				Sheet Subset: SIG REM		Sheet Number 12	

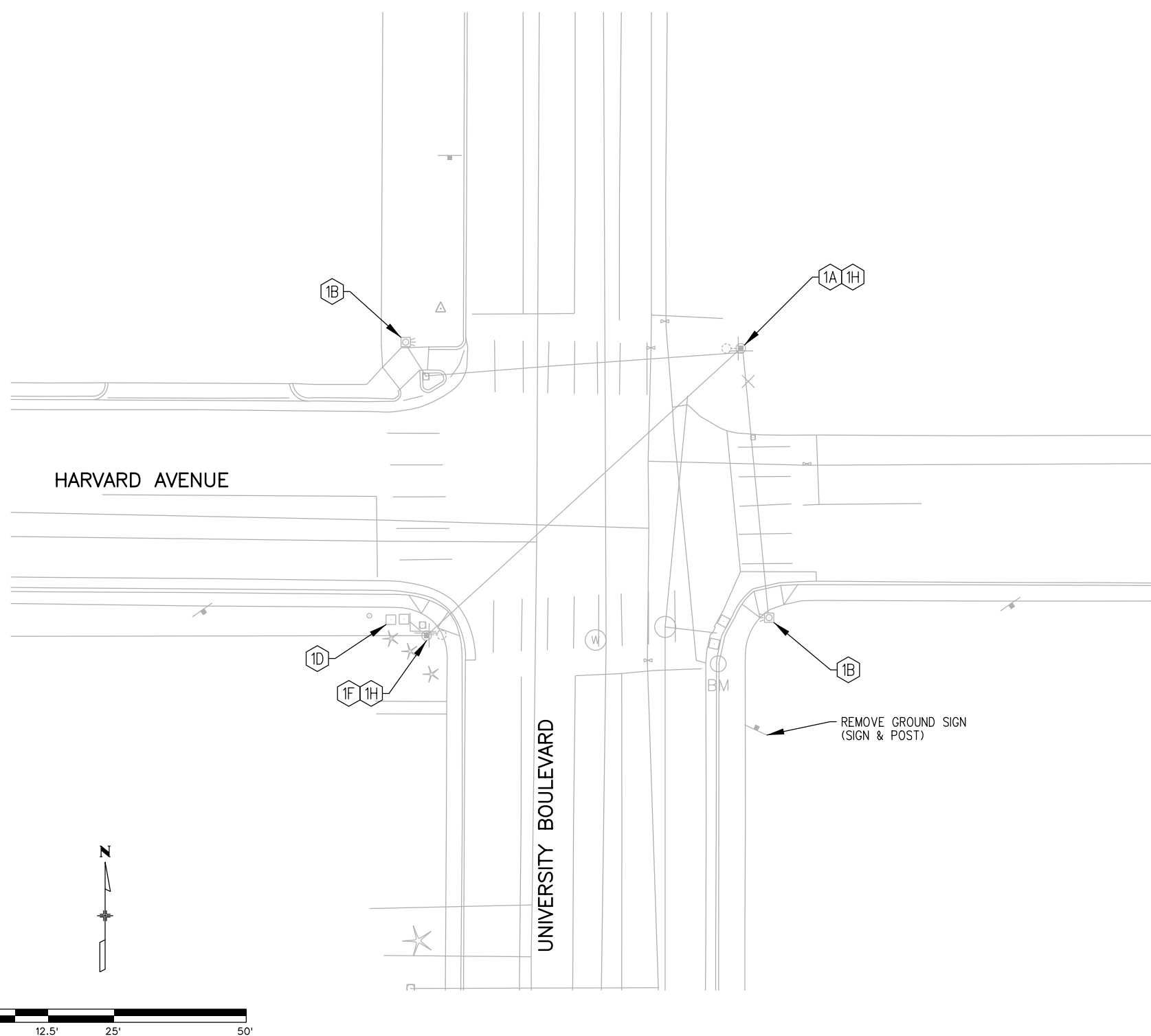
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Know what's below.
Call before you dig.

NOTES:

1. ALL SALVAGED SIGNAL EQUIPMENT REMOVED SHALL BE DELIVERED TO TRAFFIC ENGINEERING SERVICES AT 5440 ROSLYN STREET. COORDINATE WITH TRAFFIC ENGINEERING SERVICES PROJECT INSPECTOR AT 720-865-4000 PRIOR TO DELIVERY.
2. CROSSWALK AND STOP BAR PAVEMENT MARKINGS ON THE WEST AND SOUTH SIDE OF THE INTERSECTION ARE TO BE REMOVED.



TRAFFIC SIGNAL REMOVAL ITEMS FOR HARVARD AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
202		REMOVE GROUND SIGN	EA	1
202	1A	REMOVE SIGNAL HEAD	EA	1
202	1B 1H	REMOVE SIGNAL POLE	EA	4
202	1D	REMOVE SIGNAL CABINET, CONTROLLER, & PULL BOXES	EA	1
202	1F	REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT	EA	1
202		REMOVE PAVEMENT MARKING	SF	275

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Print Date: 5/16/2017
 File Name: 34993-TR-INT-Univ-Harvard-Removal.dgn
 Horiz. Scale: 1:25 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.



TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
No Revisions:
Revised:
Void:

MILL LEVY 6 TRAFFIC SIGNALS		
TRAFFIC SIGNAL REMOVAL PLAN		
HARVARD AVE & UNIVERSITY BLVD		
Designer: M. HEUGH	Structure Numbers	
Detailer:		
Sheet Subset: SIG REM	Subset Sheets: 2 of 7	

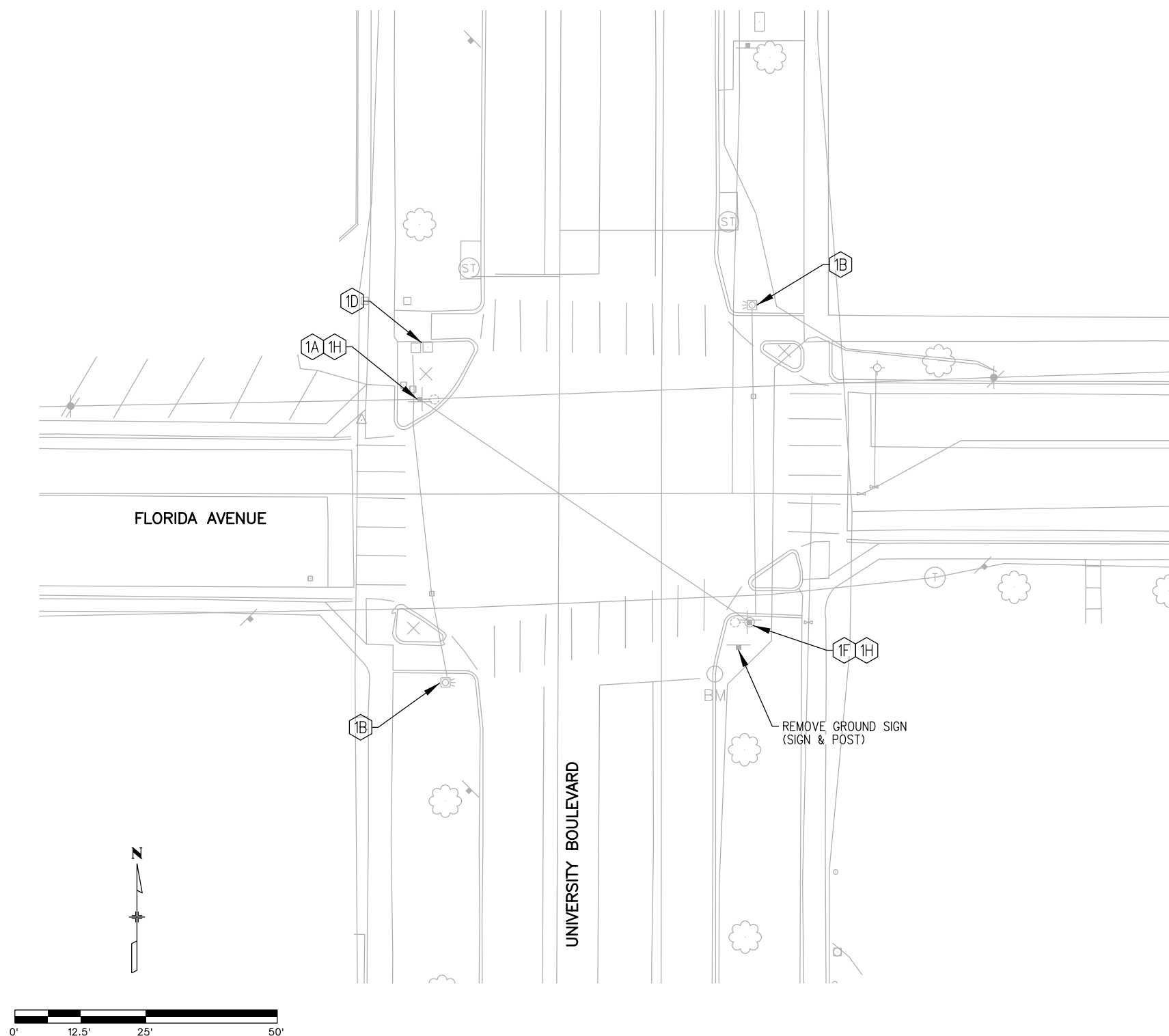
Project No./Code
PZ03798-425
34993
Sheet Number 13



Know what's below.
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NOTES:

1. ALL SALVAGED SIGNAL EQUIPMENT REMOVED SHALL BE DELIVERED TO TRAFFIC ENGINEERING SERVICES AT 5440 ROSLYN STREET. COORDINATE WITH TRAFFIC ENGINEERING SERVICES PROJECT INSPECTOR AT 720-865-4000 PRIOR TO DELIVERY.
2. ALL CROSSWALK AND STOP BAR PAVEMENT MARKINGS ARE TO BE REMOVED.



TRAFFIC SIGNAL REMOVAL ITEMS FOR FLORIDA AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
202		REMOVE GROUND SIGN	EA	1
202	1A	REMOVE SIGNAL HEAD	EA	1
202	1B 1H	REMOVE SIGNAL POLE	EA	4
202	1D	REMOVE SIGNAL CABINET, CONTROLLER, & PULL BOXES	EA	1
202	1F	REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT	EA	1
202		REMOVE PAVEMENT MARKING	SF	525

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Print Date: 5/16/2017
 File Name: 34993-TR-INT-Univ_Florida_Removal.dgn
 Horiz. Scale: 1:25 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.

TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
No Revisions:
Revised:
Void:

MILL LEVY 6 TRAFFIC SIGNALS			
TRAFFIC SIGNAL REMOVAL PLAN			
FLORIDA AVE & UNIVERSITY BLVD			
Designer:	M. HEUGH	Structure Numbers	
Detailer:			
Sheet Subset:	SIG REM	Subset Sheets:	3 of 7

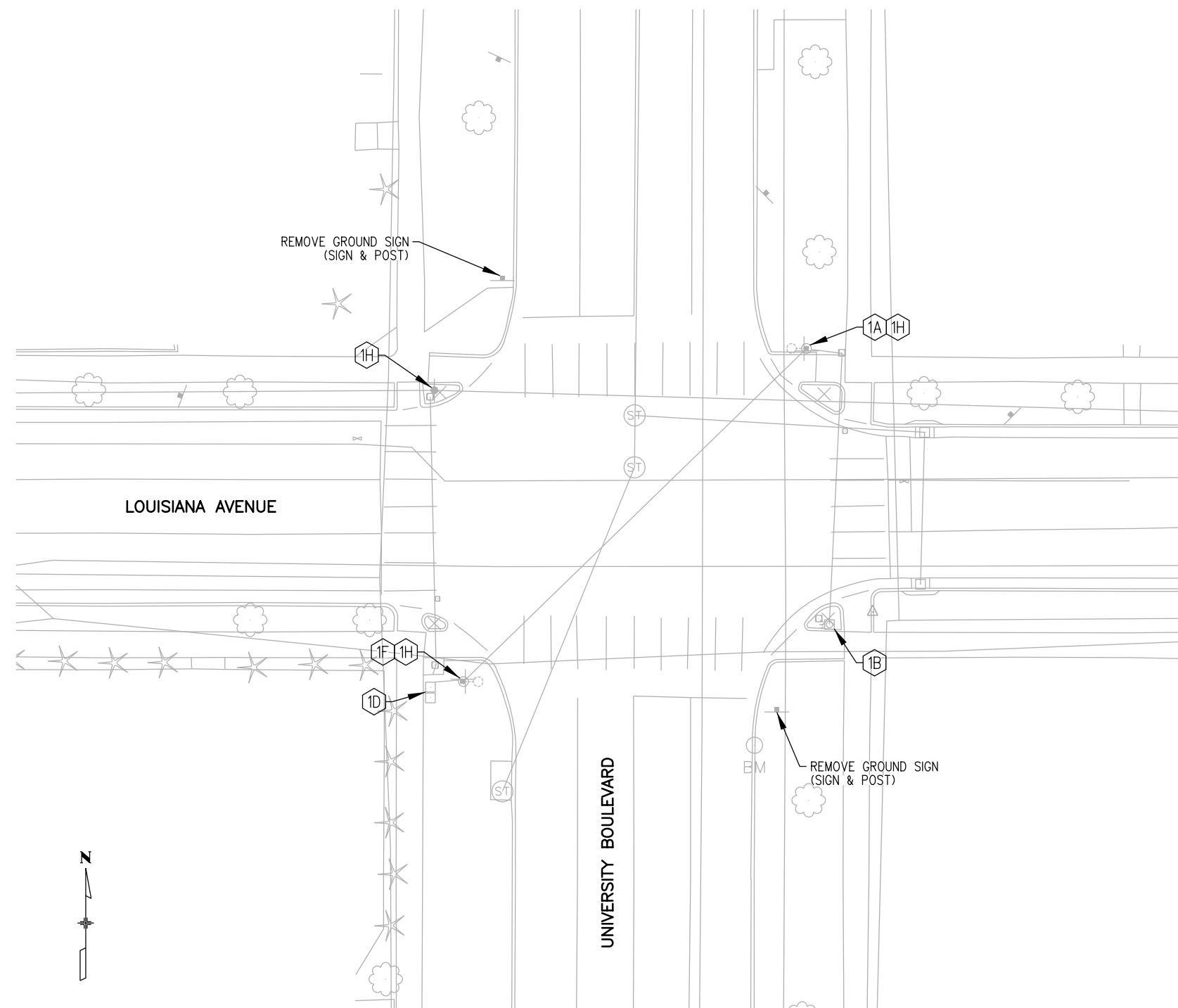
Project No./Code
PZ03798-425
34993
Sheet Number 14



Know what's below.
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NOTES:

1. ALL SALVAGED SIGNAL EQUIPMENT REMOVED SHALL BE DELIVERED TO TRAFFIC ENGINEERING SERVICES AT 5440 ROSLYN STREET. COORDINATE WITH TRAFFIC ENGINEERING SERVICES PROJECT INSPECTOR AT 720-865-4000 PRIOR TO DELIVERY.
2. ALL CROSSWALK AND STOP BAR PAVEMENT MARKINGS ARE TO BE REMOVED.



TRAFFIC SIGNAL REMOVAL ITEMS FOR LOUISIANA AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
202		REMOVE GROUND SIGN	EA	2
202	1A	REMOVE SIGNAL HEAD	EA	1
202	1B 1H	REMOVE SIGNAL POLE	EA	4
202	1D	REMOVE SIGNAL CABINET, CONTROLLER, & PULL BOXES	EA	1
202	1F	REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT	EA	1
202		REMOVE PAVEMENT MARKING	SF	610

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Print Date: 5/16/2017
 File Name: 34993-TR-INT-Univ_Louisiana-Removal.dgn
 Horiz. Scale: 1:25 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.

TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
No Revisions:
Revised:
Void:

**MILL LEVY 6 TRAFFIC SIGNALS
 TRAFFIC SIGNAL REMOVAL PLAN
 LOUISIANA AVE & UNIVERSITY BLVD**

Designer: M. HEUGH Structure Numbers
 Detailer: Structure Numbers
 Sheet Subset: SIG REM Subset Sheets: 4 of 7

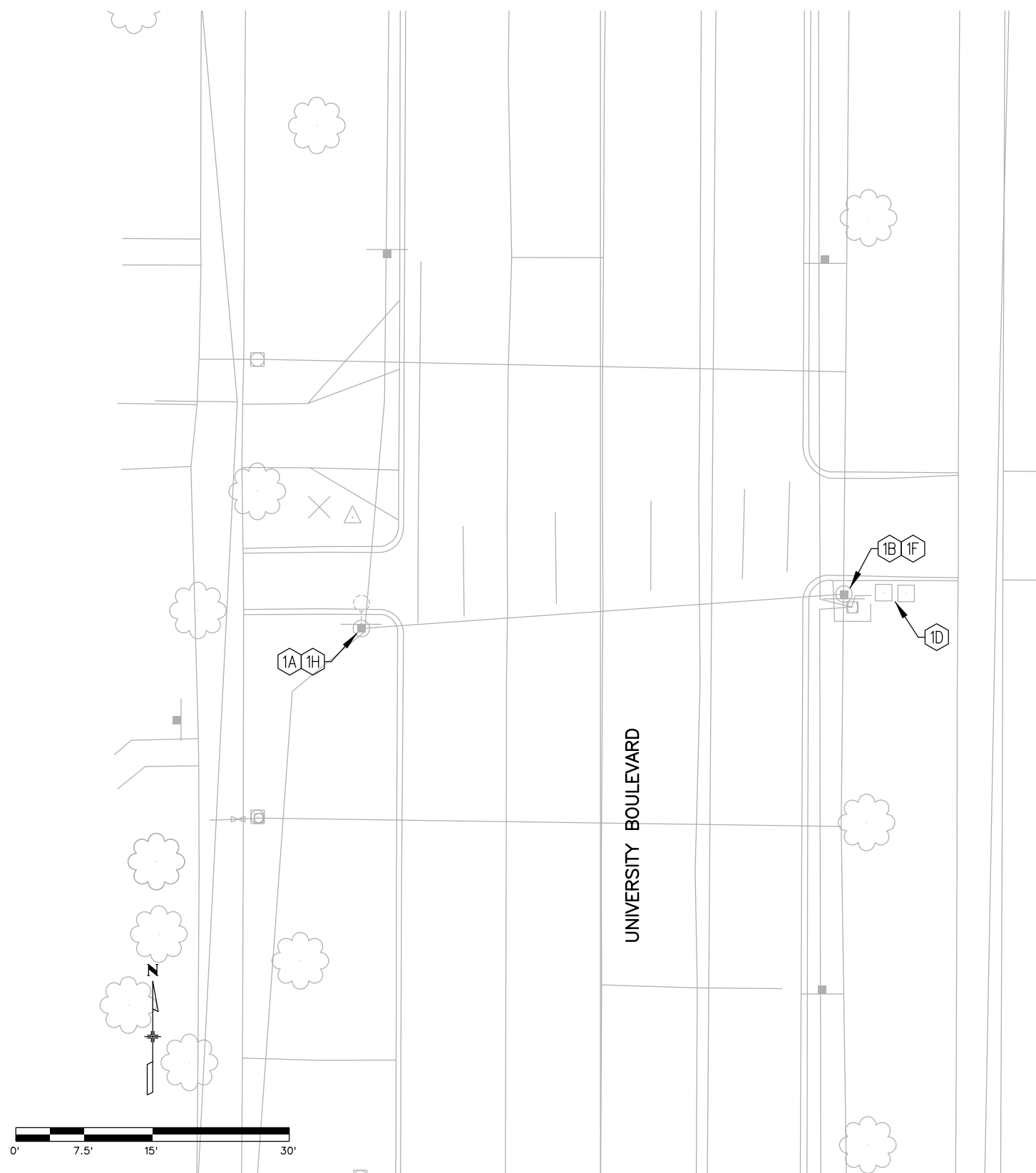
Project No./Code
PZ03798-425
34993
Sheet Number 15



NOTES:

1. ALL SALVAGED SIGNAL EQUIPMENT REMOVED SHALL BE DELIVERED TO TRAFFIC ENGINEERING SERVICES AT 5440 ROSLYN STREET. COORDINATE WITH TRAFFIC ENGINEERING SERVICES PROJECT INSPECTOR AT 720-865-4000 PRIOR TO DELIVERY.
2. ALL CROSSWALK PAVEMENT MARKINGS ARE TO BE REMOVED.

TRAFFIC SIGNAL REMOVAL ITEMS FOR ARIZONA/MISSISSIPPI & UNIVERSITY MID-BLOCK				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
202	1A	REMCVE SIGNAL HEAD	EA	1
202	1B 1H	REMCVE SIGNAL POLE	EA	2
202	1D	REMCVE SIGNAL CABINET, CONTROLLER, & PULL BOXES	EA	1
202	1F	REMCVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT	EA	1
202		REMCVE PAVEMENT MARKING	SF	105



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Print Date: 5/16/2017
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 Horiz. Scale: 1:15 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
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 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.

TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed	MILL LEVY 6 TRAFFIC SIGNALS	
No Revisions:	TRAFFIC SIGNAL REMOVAL PLAN	
Revised:	MID-BLOCK BETWEEN ARIZONA & MISSISSIPPI	
Void:	Designer: M. HEUGH	Structure Numbers
	Detailer:	
	Sheet Subset: SIG REM	Subset Sheets: 5 of 7

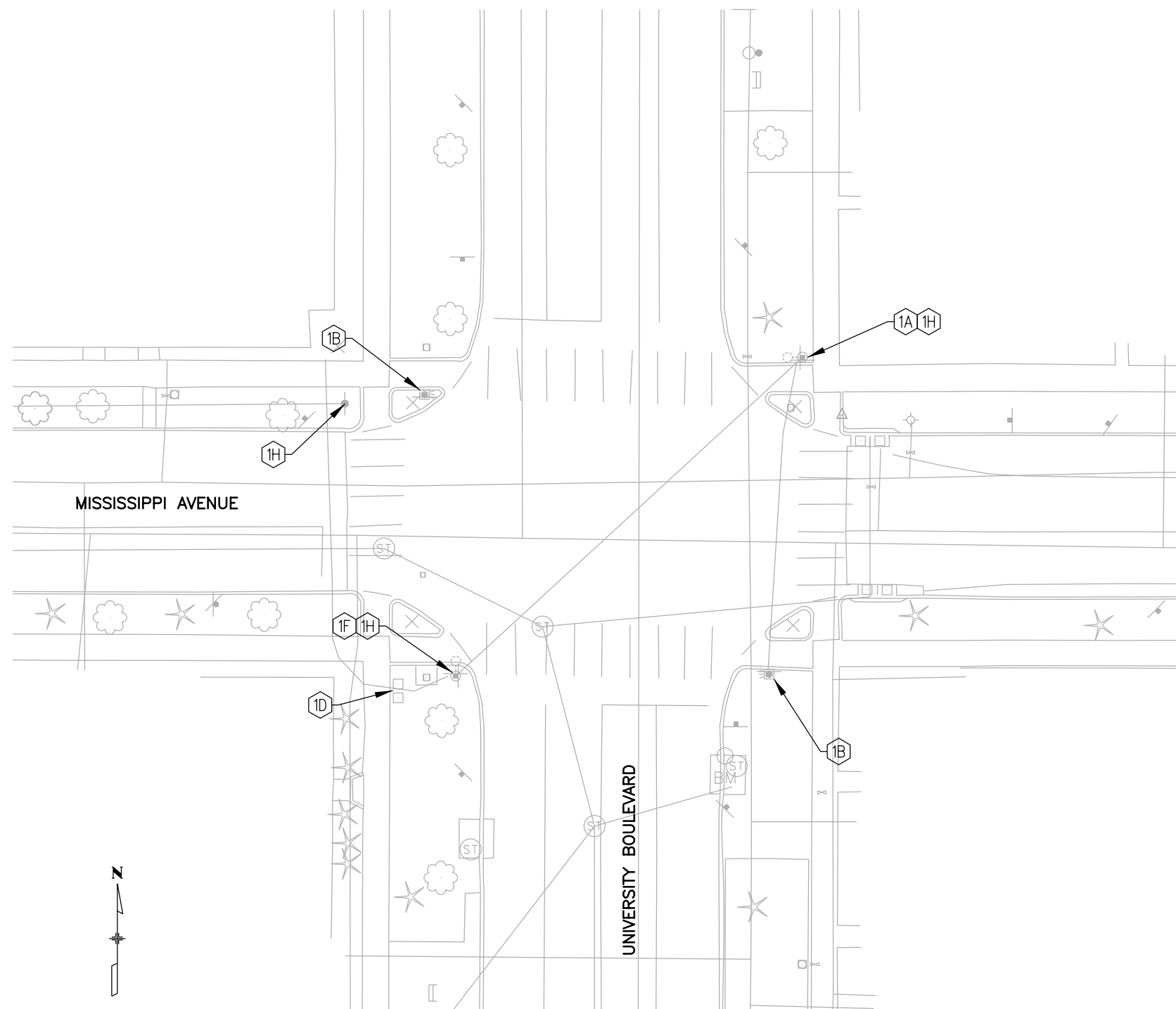
Project No./Code
 PZ03798-425
 34993
 Sheet Number 16



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NOTES:

1. ALL SALVAGED SIGNAL EQUIPMENT REMOVED SHALL BE DELIVERED TO TRAFFIC ENGINEERING SERVICES AT 5440 ROSLYN STREET. COORDINATE WITH TRAFFIC ENGINEERING SERVICES PROJECT INSPECTOR AT 720-865-4000 PRIOR TO DELIVERY.
2. ALL CROSSWALK AND STOP BAR PAVEMENT MARKINGS ARE TO BE REMOVED.



TRAFFIC SIGNAL REMOVAL ITEMS FOR MISSISSIPPI AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
202	1A	REMOVE SIGNAL HEAD	EA	1
202	1B 1H	REMOVE SIGNAL POLE	EA	4
202	1D	REMOVE SIGNAL CABINET, CONTROLLER, & PULL BOXES	EA	1
202	1F	REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT	EA	1
202		REMOVE PAVEMENT MARKING	SF	515

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Sheet Revisions		
Date:	Comments	Init.



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 No Revisions:
 Revised:
 Void:

**MILL LEVY 6 TRAFFIC SIGNALS
TRAFFIC SIGNAL REMOVAL PLAN
MISSISSIPPI AVE & UNIVERSITY BLVD**

Designer: M. HEUGH Structure Numbers
 Detailer:
 Sheet Subset: SIG REM Subset Sheets: 6 of 7

Project No./Code
 PZ03798-425
 34993
 Sheet Number 17

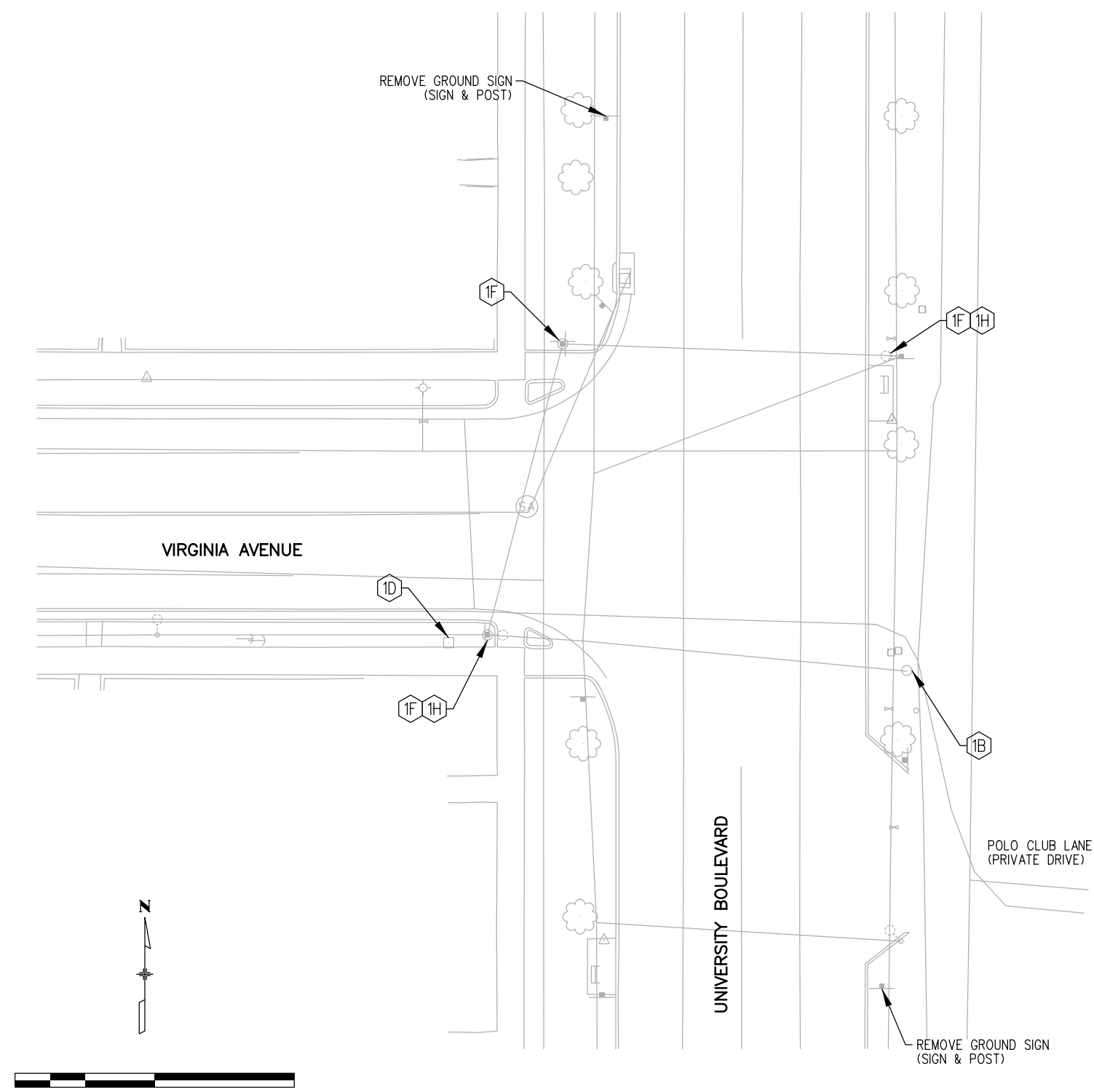


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NOTES:

1. ALL SALVAGED SIGNAL EQUIPMENT REMOVED SHALL BE DELIVERED TO TRAFFIC ENGINEERING SERVICES AT 5440 ROSLYN STREET. COORDINATE WITH TRAFFIC ENGINEERING SERVICES PROJECT INSPECTOR AT 720-865-4000 PRIOR TO DELIVERY.

TRAFFIC SIGNAL REMOVAL ITEMS FOR VIRGINIA AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
202		REMOVE GROUND SIGN	EA	2
202	1B 1H	REMOVE SIGNAL POLE	EA	4
202	1D	REMOVE SIGNAL CABINET, CONTROLLER, & PULL BOXES	EA	1
202	1F	REMOVE SPAN WIRE, CABLE, AND ALL ATTACHED SIGNAL HEADS AND EQUIPMENT	EA	3



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Print Date: 5/16/2017
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Sheet Revisions		
Date:	Comments	Init.

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No Revisions:
Revised:
Void:

MILL LEVY 6 TRAFFIC SIGNALS
TRAFFIC SIGNAL REMOVAL PLAN
VIRGINIA AVE & UNIVERSITY BLVD

Designer: M. HEUGH	Structure Numbers
Detailer:	
Sheet Subset: SIG REM	Subset Sheets: 7 of 7

Project No./Code
 PZ03798-425
 34993
 Sheet Number 18

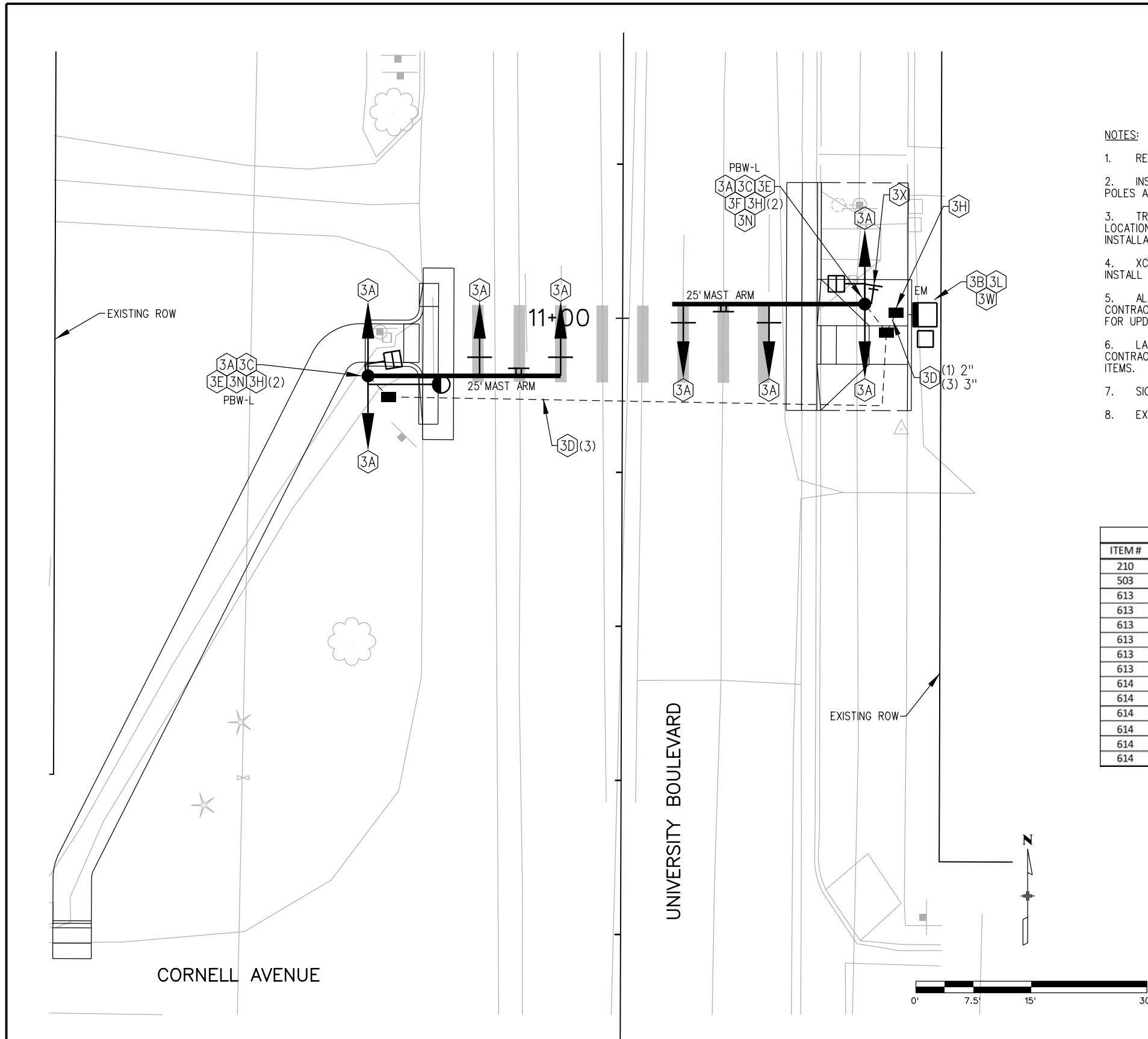


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NOTES:

1. REFER TO CCD TRAFFIC STANDARD DRAWING 16.1.2 FOR LEGEND AND KEY NOTES.
2. INSTALLATION OF TRAFFIC SIGNAL SHALL INCLUDE INSTALLATION OF SIGNS MOUNTED ON SIGNAL POLES AND MAST ARMS.
3. TRAFFIC SIGNAL POLES, CABINETS & PULL BOXES ARE SHOWN SCHEMATICALLY. FINAL LOCATIONS SHALL BE FIELD APPROVED BY CITY TRAFFIC ENGINEER OR DESIGNEE PRIOR TO INSTALLATION.
4. XCEL SHALL INSTALL POWER METER AND CONNECTION TO POWER METER. CONTRACTOR SHALL INSTALL REMAINING TRAFFIC SIGNAL EQUIPMENT AND EXTEND POWER TO THE SIGNAL CABINET.
5. ALL LABOR AND MATERIALS TO BE PROVIDED BY THE CONTRACTOR EXCEPT AS NOTED. CONTRACTOR TO CONTACT CITY TRAFFIC ENGINEERING SERVICES PRIOR TO ORDERING MATERIALS FOR UPDATED SPECIFICATIONS.
6. LABOR AND MATERIALS FOR WIRING OF THE TRAFFIC SIGNAL SHALL BE PROVIDED BY THE CONTRACTOR. THE COST OF WIRING SHALL NOT BE PAID SEPARATELY BUT IN THE COST OF OTHER ITEMS.
7. SIGNAL CONDUIT PLACED UNDER EXISTING ROADWAY SHALL BE BY DIRECT BORE METHOD.
8. EXISTING COMMUNICATIONS ANTENNA & EQUIPMENT SHALL BE RESET.

TRAFFIC SIGNAL ITEMS FOR BATES/CORNELL & UNIVERSITY MID-BLOCK				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
210	3X	RESET 5GHz RADIO	EA	1
503		DRILLED CAISSON (35-INCH) - SIGNAL POLE FOOTING	LF	26
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	85
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	LF	175
613	3W	ELECTRIC METER PEDESTAL CABINET	EA	1
613	3H	PULL BOX TYPE A ("ELECTRIC")	EA	2
613	3H	PULL BOX TYPE B ("TRAFFIC")	EA	3
613	3N	LUMINAIRE LED (55 WATT)	EA	2
614	3A	PEDESTRIAN SIGNAL FACE (16-INCH)(COUNTDOWN)	EA	2
614	3A	TRAFFIC SIGNAL FACE (12-12-12)	EA	8
614	3C	PEDESTRIAN PUSH BUTTON	EA	2
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-25 FOOT MAST ARM)	EA	2
614	3B	UNINTERRUPTED POWER SUPPLY SYSTEM	EA	1
614	3B	TRAFFIC SIGNAL CONTROLLER (COBALT) AND CABINET (TYPE P) (INSTALL ONLY)	EA	1



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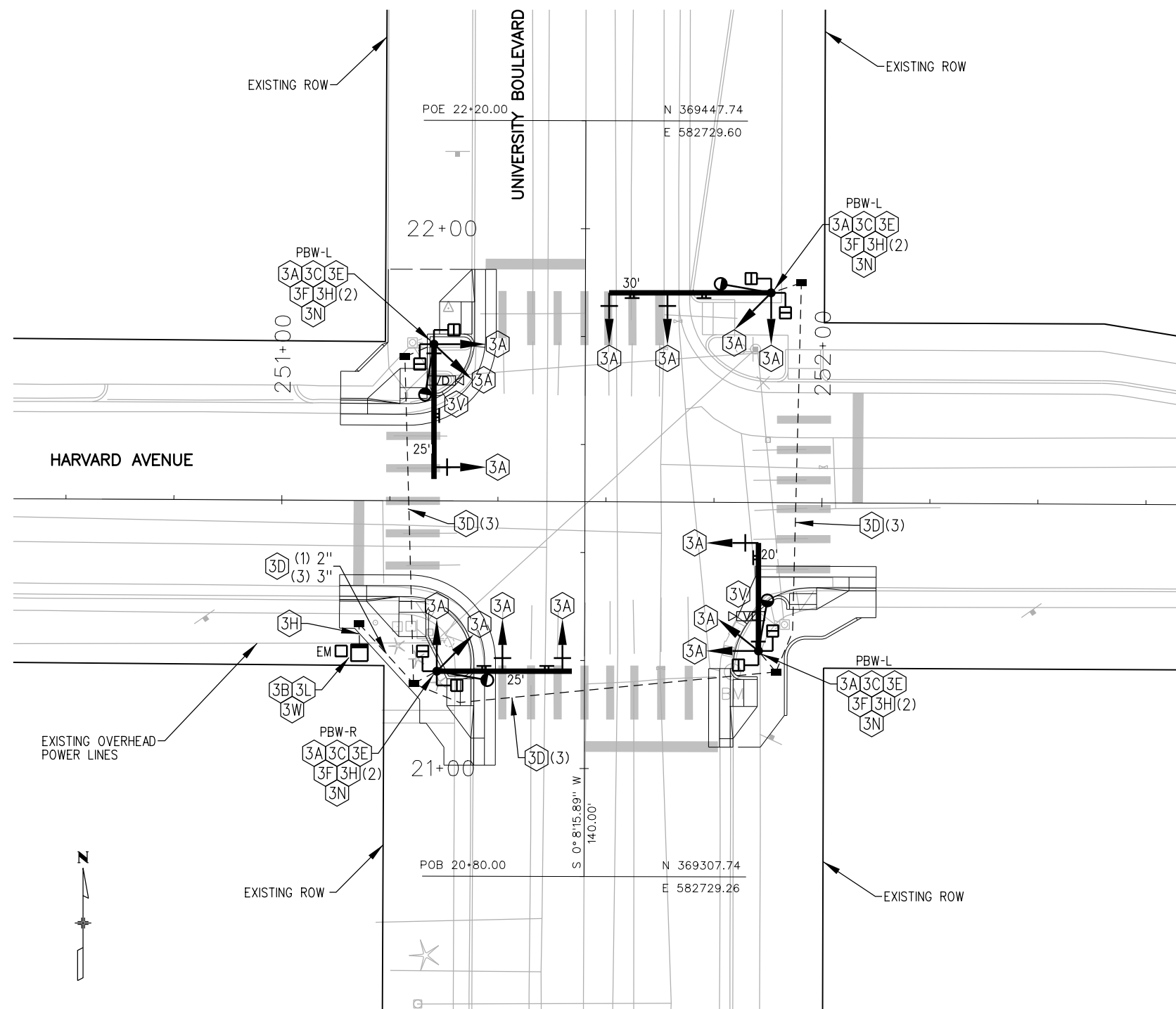
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 No Revisions:
 Revised:
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MILL LEVY 6 TRAFFIC SIGNALS
TRAFFIC SIGNAL PLAN
UNIVERSITY BLVD BETWEEN BATES & CORNELL
 Designer: M. HEUGH
 Detailer:
 Sheet Subset: SIGNAL Subset Sheets: 1 of 7

Project No./Code
 PZ03798-425
 34993
 Sheet Number 19



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NOTES:

- REFER TO CCD TRAFFIC STANDARD DRAWING 16.1.2 FOR LEGEND AND KEY NOTES.
- INSTALLATION OF TRAFFIC SIGNAL SHALL INCLUDE INSTALLATION OF SIGNS MOUNTED ON SIGNAL POLES AND MAST ARMS.
- TRAFFIC SIGNAL POLES, CABINETS & PULL BOXES ARE SHOWN SCHEMATICALLY. FINAL LOCATIONS SHALL BE FIELD APPROVED BY CITY TRAFFIC ENGINEER OR DESIGNEE PRIOR TO INSTALLATION.
- XCEL SHALL INSTALL POWER METER AND CONNECTION TO POWER METER. CONTRACTOR SHALL INSTALL REMAINING TRAFFIC SIGNAL EQUIPMENT AND EXTEND POWER TO THE SIGNAL CABINET.
- ALL LABOR AND MATERIALS TO BE PROVIDED BY THE CONTRACTOR EXCEPT AS NOTED. CONTRACTOR TO CONTACT CITY TRAFFIC ENGINEERING SERVICES PRIOR TO ORDERING MATERIALS FOR UPDATED SPECIFICATIONS.
- LABOR AND MATERIALS FOR WIRING OF THE TRAFFIC SIGNAL SHALL BE PROVIDED BY THE CONTRACTOR. THE COST OF WIRING SHALL NOT BE PAID SEPARATELY BUT IN THE COST OF OTHER ITEMS.
- SIGNAL CONDUIT PLACED UNDER EXISTING ROADWAY SHALL BE BY DIRECT BORE METHOD.
- ALL REBUILT SIGNALS SHALL HAVE NEW VIDEO DETECTION INSTALLED.

TRAFFIC SIGNAL ITEMS FOR HARVARD AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
503		DRILLED CAISSON (36-INCH) - SIGNAL POLE FOOTING	LF	52
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	240
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	LF	455
613	3W	ELECTRIC METER PEDESTAL CABINET	EA	1
613	3H	PULL BOX TYPE A ("ELECTRIC")	EA	4
613	3H	PULL BOX TYPE B ("TRAFFIC")	EA	5
613	3N	LUMINAIRE LED (55 WATT)	EA	4
614	3A	PEDESTRIAN SIGNAL FACE (16-INCH)(COUNTDOWN)	EA	8
614	3A	TRAFFIC SIGNAL FACE (12-12-12)	EA	14
614	3C	PEDESTRIAN PUSH BUTTON	EA	4
614	3T	OPTICOM	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-20 FOOT MAST ARM)	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-25 FOOT MAST ARM)	EA	2
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-30 FOOT MAST ARM)	EA	1
614	3B	UNINTERRUPTED POWER SUPPLY SYSTEM	EA	1
614	3B	TRAFFIC SIGNAL CONTROLLER (COBALT) AND CABINET (TYPE P) (INSTALL ONLY)	EA	1
614		TELEMETRY (FIELD)	EA	1
614	3V	VIDEO DETECTION SYSTEM (2 CAMERA)	EA	1



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Sheet Revisions		
Date:	Comments	Init.



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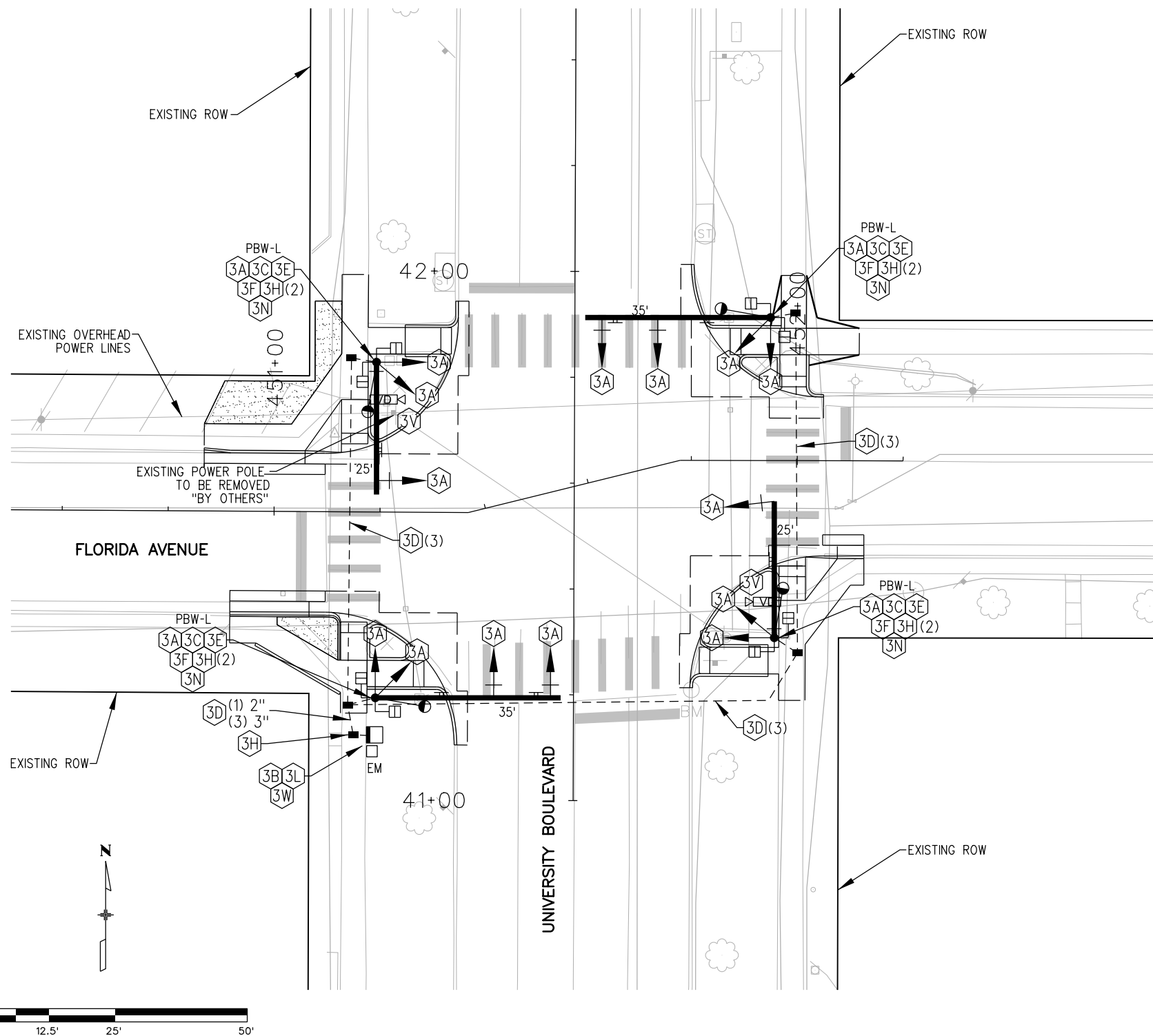
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No Revisions:	
Revised:	
Void:	

MILL LEVY 6 TRAFFIC SIGNALS			
TRAFFIC SIGNAL PLAN			
HARVARD AVE & UNIVERSITY BLVD			
Designer:	M. HEUGH	Structure Numbers	
Detailer:		Subset Sheets:	2 of 7

Project No./Code	PZ03798-425
	34993
Sheet Number	20



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NOTES:

1. REFER TO CCD TRAFFIC STANDARD DRAWING 16.1.2 FOR LEGEND AND KEY NOTES.
2. INSTALLATION OF TRAFFIC SIGNAL SHALL INCLUDE INSTALLATION OF SIGNS MOUNTED ON SIGNAL POLES AND MAST ARMS.
3. TRAFFIC SIGNAL POLES, CABINETS & PULL BOXES ARE SHOWN SCHEMATICALLY. FINAL LOCATIONS SHALL BE FIELD APPROVED BY CITY TRAFFIC ENGINEER OR DESIGNEE PRIOR TO INSTALLATION.
4. XCEL SHALL INSTALL POWER METER AND CONNECTION TO POWER METER. CONTRACTOR SHALL INSTALL REMAINING TRAFFIC SIGNAL EQUIPMENT AND EXTEND POWER TO THE SIGNAL CABINET.
5. XCEL TO RELOCATE CONFLICTING OVERHEAD POWER LINES AND REMOVE EXISTING POWER POLE PRIOR ANY CONSTRUCTION.
6. ALL LABOR AND MATERIALS TO BE PROVIDED BY THE CONTRACTOR EXCEPT AS NOTED. CONTRACTOR TO CONTACT CITY TRAFFIC ENGINEERING SERVICES PRIOR TO ORDERING MATERIALS FOR UPDATED SPECIFICATIONS.
7. LABOR AND MATERIALS FOR WIRING OF THE TRAFFIC SIGNAL SHALL BE PROVIDED BY THE CONTRACTOR. THE COST OF WIRING SHALL NOT BE PAID SEPARATELY BUT IN THE COST OF OTHER ITEMS.
8. SIGNAL CONDUIT PLACED UNDER EXISTING ROADWAY SHALL BE BY DIRECT BORE METHOD.
9. ALL REBUILT SIGNALS SHALL HAVE NEW VIDEO DETECTION INSTALLED.

TRAFFIC SIGNAL ITEMS FOR FLORIDA AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
503		DRILLED CAISSON (36-INCH) - SIGNAL POLE FOOTING	LF	52
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	285
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	LF	505
613	3W	ELECTRIC METER PEDESTAL CABINET	EA	1
613	3H	PULL BOX TYPE A ("ELECTRIC")	EA	4
613	3H	PULL BOX TYPE B ("TRAFFIC")	EA	5
613	3N	LUMINAIRE LED (55 WATT)	EA	4
614	3A	PEDESTRIAN SIGNAL FACE (16-INCH)(COUNTDOWN)	EA	8
614	3A	TRAFFIC SIGNAL FACE (12-12-12)	EA	14
614	3C	PEDESTRIAN PUSH BUTTON	EA	4
614	3T	OPTICOM	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-25 FOOT MAST ARM)	EA	2
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-35 FOOT MAST ARM)	EA	2
614	3B	UNINTERRUPTED POWER SUPPLY SYSTEM	EA	1
614	3B	TRAFFIC SIGNAL CONTROLLER (COBALT) AND CABINET (TYPE P) (INSTALL ONLY)	EA	1
614		TELEMETRY (FIELD)	EA	1
614	3V	VIDEO DETECTION SYSTEM (2 CAMERA)	EA	1

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As Constructed	MILL LEVY 6 TRAFFIC SIGNALS	
No Revisions:	TRAFFIC SIGNAL PLAN	
Revised:	FLORIDA AVE & UNIVERSITY BLVD	
Void:	Designer: M. HEUGH	Structure Numbers
	Sheet Subset: SIGNAL	Subset Sheets: 3 of 7

Project No./Code
PZ03798-425
34993
Sheet Number 21

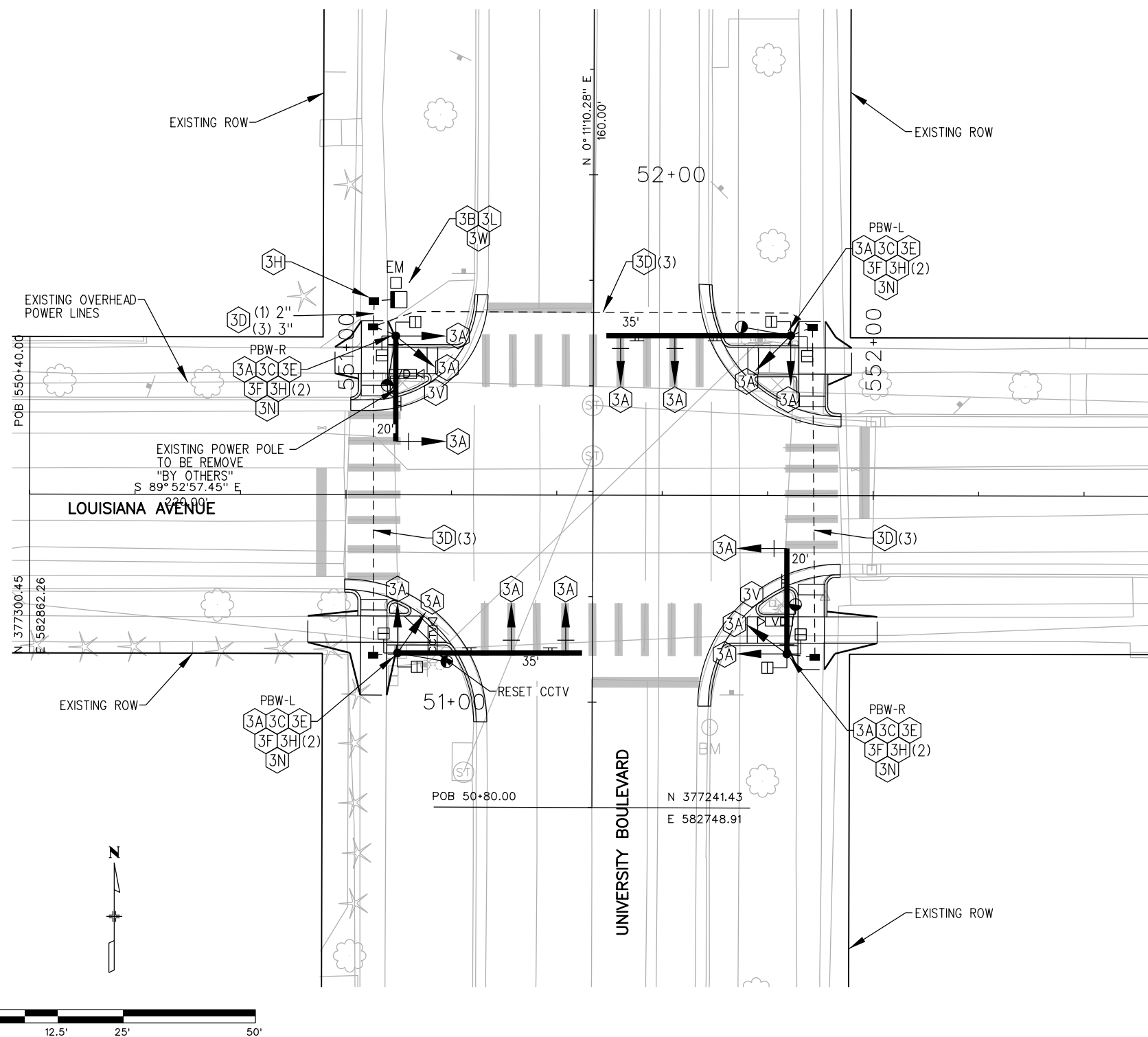


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NOTES:

- REFER TO CCD TRAFFIC STANDARD DRAWING 16.1.2 FOR LEGEND AND KEY NOTES.
- INSTALLATION OF TRAFFIC SIGNAL SHALL INCLUDE INSTALLATION OF SIGNS MOUNTED ON SIGNAL POLES AND MAST ARMS.
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- XCEL SHALL INSTALL POWER METER AND CONNECTION TO POWER METER. CONTRACTOR SHALL INSTALL REMAINING TRAFFIC SIGNAL EQUIPMENT AND EXTEND POWER TO THE SIGNAL CABINET.
- XCEL TO RELOCATE CONFLICTING OVERHEAD POWER LINES AND REMOVE CONFLICTING POWER POLES PRIOR ANY CONSTRUCTION.
- ALL LABOR AND MATERIALS TO BE PROVIDED BY THE CONTRACTOR EXCEPT AS NOTED. CONTRACTOR TO CONTACT CITY TRAFFIC ENGINEERING SERVICES PRIOR TO ORDERING MATERIALS FOR UPDATED SPECIFICATIONS.
- LABOR AND MATERIALS FOR WIRING OF THE TRAFFIC SIGNAL SHALL BE PROVIDED BY THE CONTRACTOR. THE COST OF WIRING SHALL NOT BE PAID SEPARATELY BUT IN THE COST OF OTHER ITEMS.
- SIGNAL CONDUIT PLACED UNDER EXISTING ROADWAY SHALL BE BY DIRECT BORE METHOD.
- ALL REBUILT SIGNALS SHALL HAVE NEW VIDEO DETECTION INSTALLED.

TRAFFIC SIGNAL ITEMS FOR LOUISIANA AVE & UNIVERSITY BLVD				
ITEM#	KEY	ITEM DESCRIPTION	UNIT	QTY
503		DRILLED CAISSON (36-INCH) - SIGNAL POLE FOOTING	LF	52
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	270
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	LF	500
613	3W	ELECTRIC METER PEDESTAL CABINET	EA	1
613	3H	PULL BOX TYPE A ("ELECTRIC")	EA	4
613	3H	PULL BOX TYPE B ("TRAFFIC")	EA	5
613	3N	LUMINAIRE LED (55 WATT)	EA	4
614	3A	PEDESTRIAN SIGNAL FACE (16-INCH)(COUNTDOWN)	EA	8
614	3A	TRAFFIC SIGNAL FACE (12-12-12)	EA	14
614	3C	PEDESTRIAN PUSH BUTTON	EA	4
614	3T	OPTICOM	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-20 FOOT MAST ARM)	EA	2
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-35 FOOT MAST ARM)	EA	2
614	3B	UNINTERRUPTED POWER SUPPLY SYSTEM	EA	1
614	3B	TRAFFIC SIGNAL CONTROLLER (COBALT) AND CABINET (TYPE P) (INSTALL ONLY)	EA	1
614		RESET AND RELOCATE CCTV AND WIRING	LS	1
614		TELEMETRY (FIELD)	EA	1
614	3V	VIDEO DETECTION SYSTEM (2 CAMERA)	EA	1



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As Constructed	MILL LEVY 6 TRAFFIC SIGNALS	
No Revisions:	TRAFFIC SIGNAL PLAN	
Revised:	LOUISIANA AVE & UNIVERSITY BLVD	
Void:	Designer: M. HEUGH	Structure Numbers
	Detailer:	
	Sheet Subset: SIGNAL	Subset Sheets: 4 of 7

Project No./Code
 PZ03798-425
 34993
 Sheet Number 22

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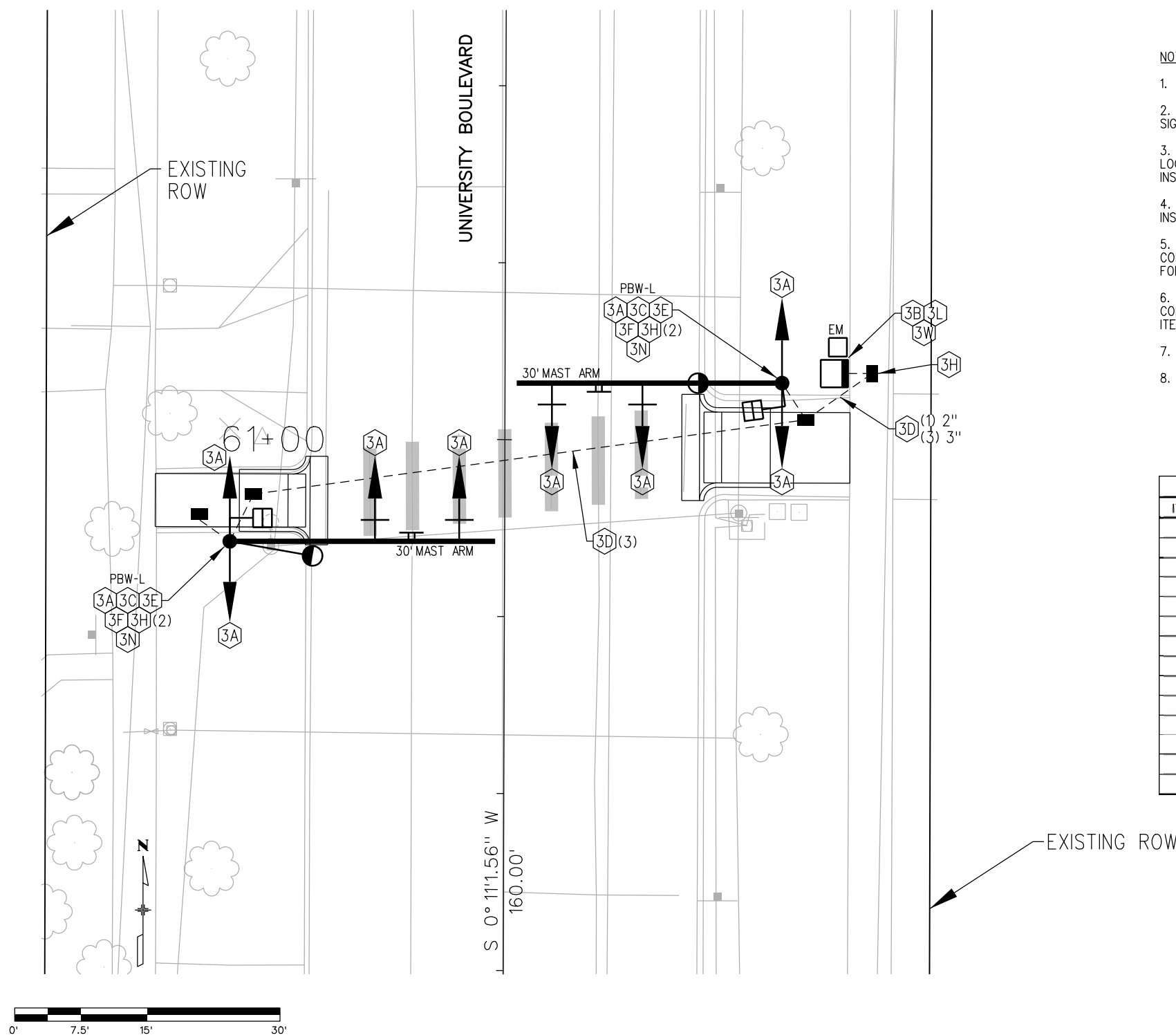


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- TRAFFIC SIGNAL POLES, CABINETS & PULL BOXES ARE SHOWN SCHEMATICALLY. FINAL LOCATIONS SHALL BE FIELD APPROVED BY CITY TRAFFIC ENGINEER OR DESIGNEE PRIOR TO INSTALLATION.
- XCEL SHALL INSTALL POWER METER AND CONNECTION TO POWER METER. CONTRACTOR SHALL INSTALL REMAINING TRAFFIC SIGNAL EQUIPMENT AND EXTEND POWER TO THE SIGNAL CABINET.
- ALL LABOR AND MATERIALS TO BE PROVIDED BY THE CONTRACTOR EXCEPT AS NOTED. CONTRACTOR TO CONTACT CITY TRAFFIC ENGINEERING SERVICES PRIOR TO ORDERING MATERIALS FOR UPDATED SPECIFICATIONS.
- LABOR AND MATERIALS FOR WIRING OF THE TRAFFIC SIGNAL SHALL BE PROVIDED BY THE CONTRACTOR. THE COST OF WIRING SHALL NOT BE PAID SEPARATELY BUT IN THE COST OF OTHER ITEMS.
- SIGNAL CONDUIT PLACED UNDER EXISTING ROADWAY SHALL BE BY DIRECT BORE METHOD.
- 2" PVC CONDUIT TO BE ROUTED THROUGH XCEL PULL BOXES FOR LUMINAIRES.

TRAFFIC SIGNAL ITEMS FOR ARIZONA/MISSISSIPPI & UNIVERSITY MID-BLOCK				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
503		DRILLED CAISSON (36-INCH) - SIGNAL POLE FOOTING	LF	26
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	85
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	LF	180
613	3W	ELECTRIC METER PEDESTAL CABINET	EA	1
613	3H	PULL BOX TYPE A ("ELECTRIC")	EA	2
613	3H	PULL BOX TYPE B ("TRAFFIC")	EA	3
613	3N	LUMINAIRE LED (55 WATT)	EA	2
614	3A	PEDESTRIAN SIGNAL FACE (16-INCH)(COUNTDOWN)	EA	2
614	3A	TRAFFIC SIGNAL FACE (12-12-12)	EA	8
614	3C	PEDESTRIAN PUSH BUTTON	EA	2
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-30 FOOT MAST ARM)	EA	2
614	3B	UNINTERRUPTED POWER SUPPLY SYSTEM	EA	1
614	3B	TRAFFIC SIGNAL CONTROLLER (COBALT) AND CABINET (TYPE P) (INSTALL ONLY)	EA	1
614		TELEMETRY (FIELD)	EA	1



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 Revised:
 Void:

MILL LEVY 6 TRAFFIC SIGNALS
TRAFFIC SIGNAL PLAN
UNIVERSITY BLVD BETWEEN MISSISSIPPI & ARIZONA
 Designer: M. HEUGH
 Detailer:
 Sheet Subset: SIGNAL Subset Sheets: 5 of 7

Project No./Code
 PZ03798-425
 34993
 Sheet Number 23

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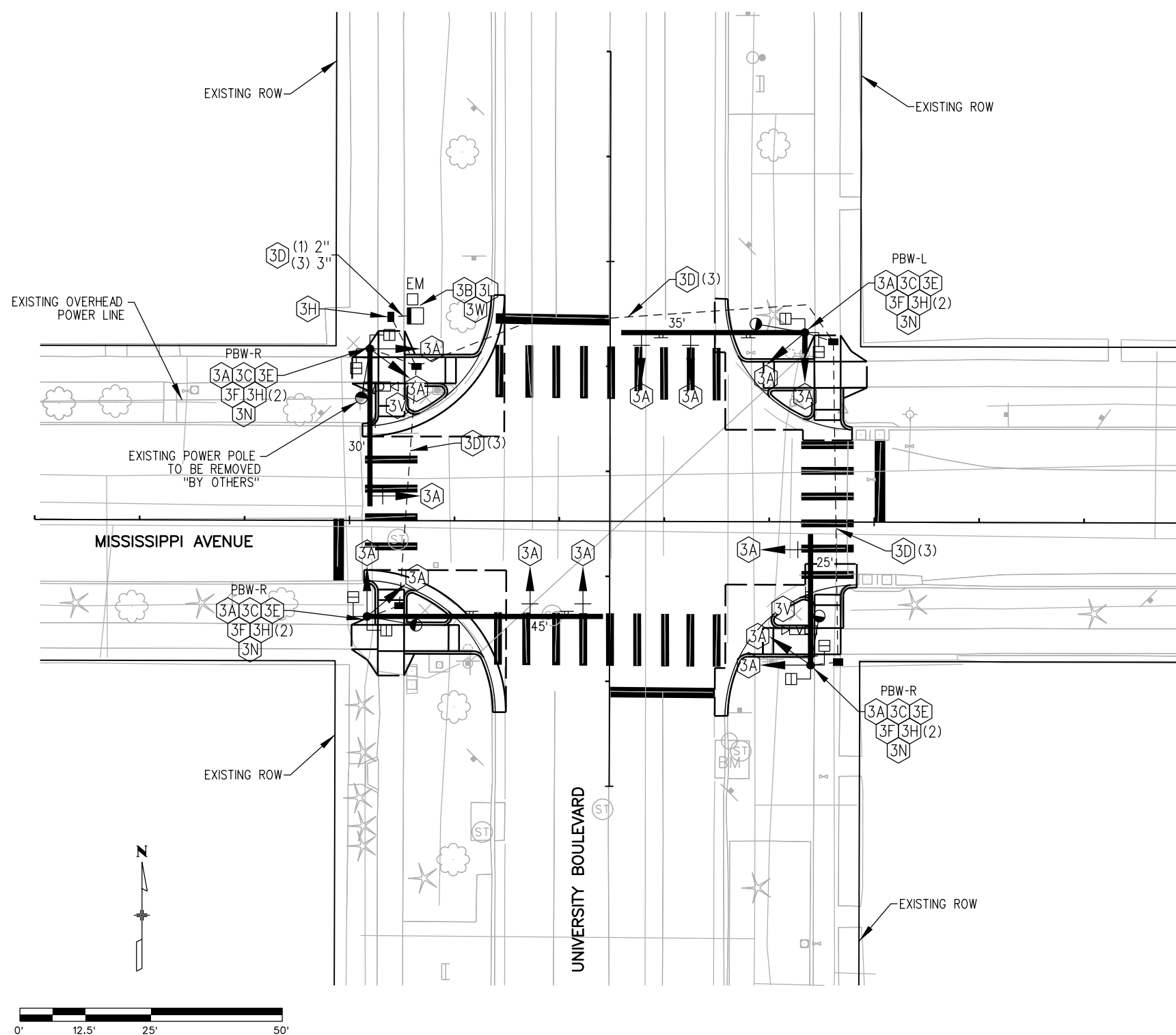


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- XCEL SHALL INSTALL POWER METER AND CONNECTION TO POWER METER. CONTRACTOR SHALL INSTALL REMAINING TRAFFIC SIGNAL EQUIPMENT AND EXTEND POWER TO THE SIGNAL CABINET.
- XCEL TO RELOCATE CONFLICTING OVERHEAD POWER LINES PRIOR ANY CONSTRUCTION.
- ALL LABOR AND MATERIALS TO BE PROVIDED BY THE CONTRACTOR EXCEPT AS NOTED. CONTRACTOR TO CONTACT CITY TRAFFIC ENGINEERING SERVICES PRIOR TO ORDERING MATERIALS FOR UPDATED SPECIFICATIONS.
- LABOR AND MATERIALS FOR WIRING OF THE TRAFFIC SIGNAL SHALL BE PROVIDED BY THE CONTRACTOR. THE COST OF WIRING SHALL NOT BE PAID SEPARATELY BUT IN THE COST OF OTHER ITEMS.
- SIGNAL CONDUIT PLACED UNDER EXISTING ROADWAY SHALL BE BY DIRECT BORE METHOD.
- ALL REBUILT SIGNALS SHALL HAVE NEW VIDEO DETECTION INSTALLED.

TRAFFIC SIGNAL ITEMS FOR MISSISSIPPI AVE & UNIVERSITY BLVD				
ITEM #	KEY	ITEM DESCRIPTION	UNIT	QTY
503		DRILLED CAISSON (36-INCH) - SIGNAL POLE FOOTING	LF	57
613	3D	2-INCH ELECTRICAL CONDUIT (BORED)	LF	230
613	3D	3-INCH ELECTRICAL CONDUIT (BORED)	LF	450
613	3W	ELECTRIC METER PEDESTAL CABINET	EA	1
613	3H	PULL BOX TYPE A ("ELECTRIC")	EA	4
613	3H	PULL BOX TYPE B ("TRAFFIC")	EA	5
613	3N	LUMINAIRE LED (55 WATT)	EA	4
614	3A	PEDESTRIAN SIGNAL FACE (16-INCH)(COUNTDOWN)	EA	8
614	3A	TRAFFIC SIGNAL FACE (12-12-12)	EA	14
614	3C	PEDESTRIAN PUSH BUTTON	EA	4
614	3T	OPTICOM	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-25 FOOT MAST ARM)	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-30 FOOT MAST ARM)	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-35 FOOT MAST ARM)	EA	1
614	3E 3F	TRAFFIC SIGNAL LIGHT POLE STEEL (1-45 FOOT MAST ARM)	EA	1
614	3B	UNINTERRUPTED POWER SUPPLY SYSTEM	EA	1
614	3B	TRAFFIC SIGNAL CONTROLLER (COBALT) AND CABINET (TYPE P) (INSTALL ONLY)	EA	1
614		TELEMETRY (FIELD)	EA	1
614	3V	VIDEO DETECTION SYSTEM (2 CAMERA)	EA	1



Print Date: 5/16/2017
 File Name: 34993-TR-INT-Univ_Mississippi - Signal.dgn
 Horiz. Scale: 1:25 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.



**TRANSPORTATION
ENGINEERING DIVISION**
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
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 Void:

**MILL LEVY 6 TRAFFIC SIGNALS
TRAFFIC SIGNAL PLAN
MISSISSIPPI AVE & UNIVERSITY BLVD**
 Designer: M. HEUGH Structure Numbers
 Detailer: Sheet Subset: SIGNAL Subset Sheets: 6 of 7

Project No./Code
 PZ03798-425
 34993
 Sheet Number 24

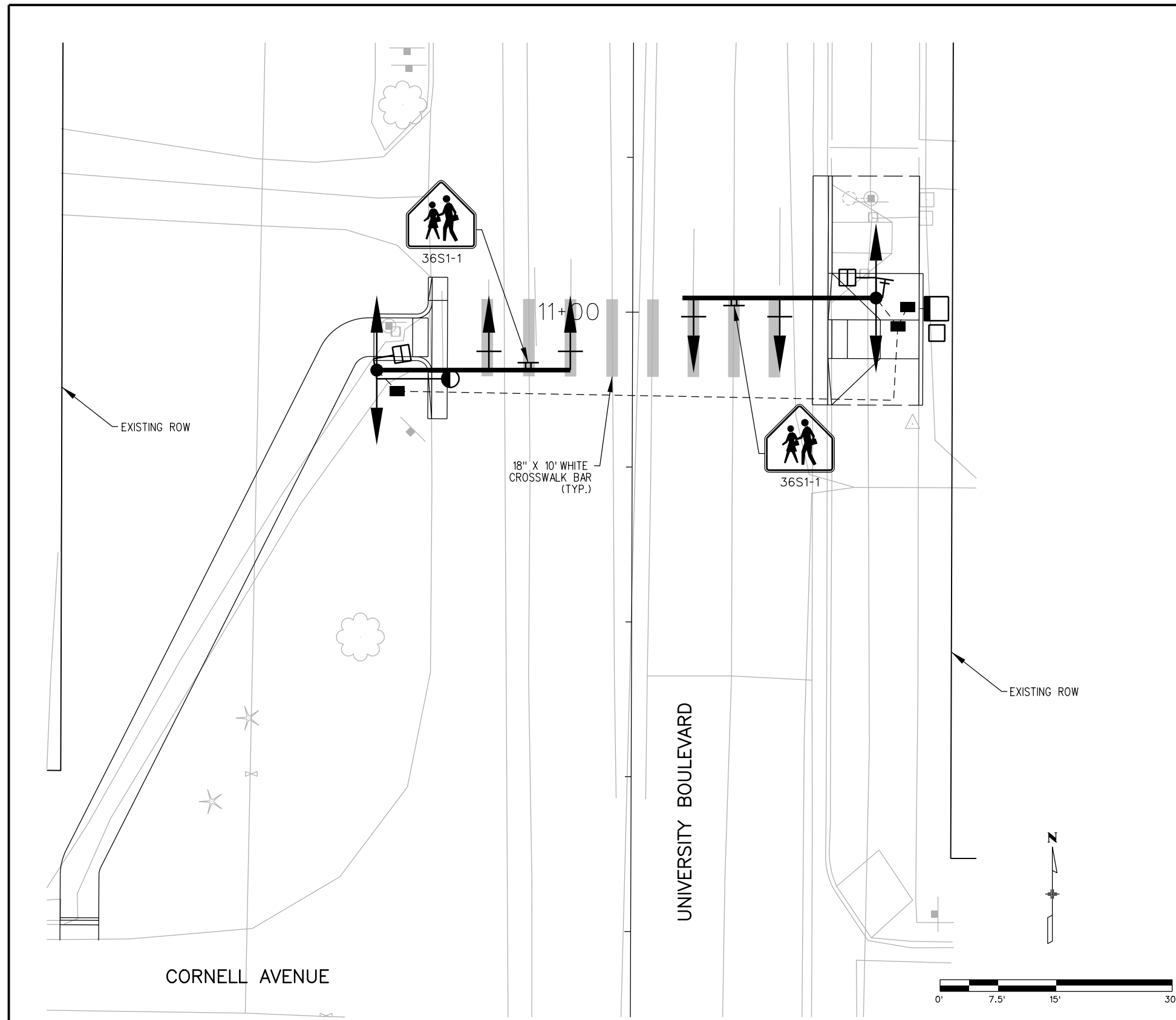


Know what's below.
Call before you dig.

NOTES:

1. ALL SIGNS & MARKINGS SHALL BE INSTALLED PER THE LATEST REVISION OF THE CITY AND COUNTY OF DENVER SIGN & MARKINGS STANDARDS.


SIGNING & STRIPING ITEMS FOR BATES/CORNELL & UNIVERSITY MID-BLOCK			
ITEM #	ITEM DESCRIPTION	UNIT	QTY
614	SIGN PANEL (CLASS I)	SF	18
627	PREFORMED PLASTIC PAVEMENT MARKINGS (Xwalk - Stop Line)	SF	120



margie.kreil 2:40:38 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-TR-INT-Univ_Cornell_S&S.dgn

Print Date: 5/16/2017	
File Name: 34993-TR-INT-Univ_Cornell_S&S.dgn	
Horiz. Scale: 1:15	Vert. Scale: As Noted
Unit Information	Unit Leader Initials
AECOM	6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.


City & County of Denver
TRANSPORTATION ENGINEERING DIVISION
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MILL LEVY 6 TRAFFIC SIGNALS			
SIGNING & STRIPING PLAN			
UNIVERSITY BLVD BETWEEN BATES & CORNELL AVE			
Designer:	M. HEUGH	Structure Numbers	
Detailer:			
Sheet Subset:	S&S	Subset Sheets:	1 of 7

Project No./Code
PZ03798-425
34993
Sheet Number 26

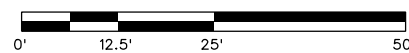
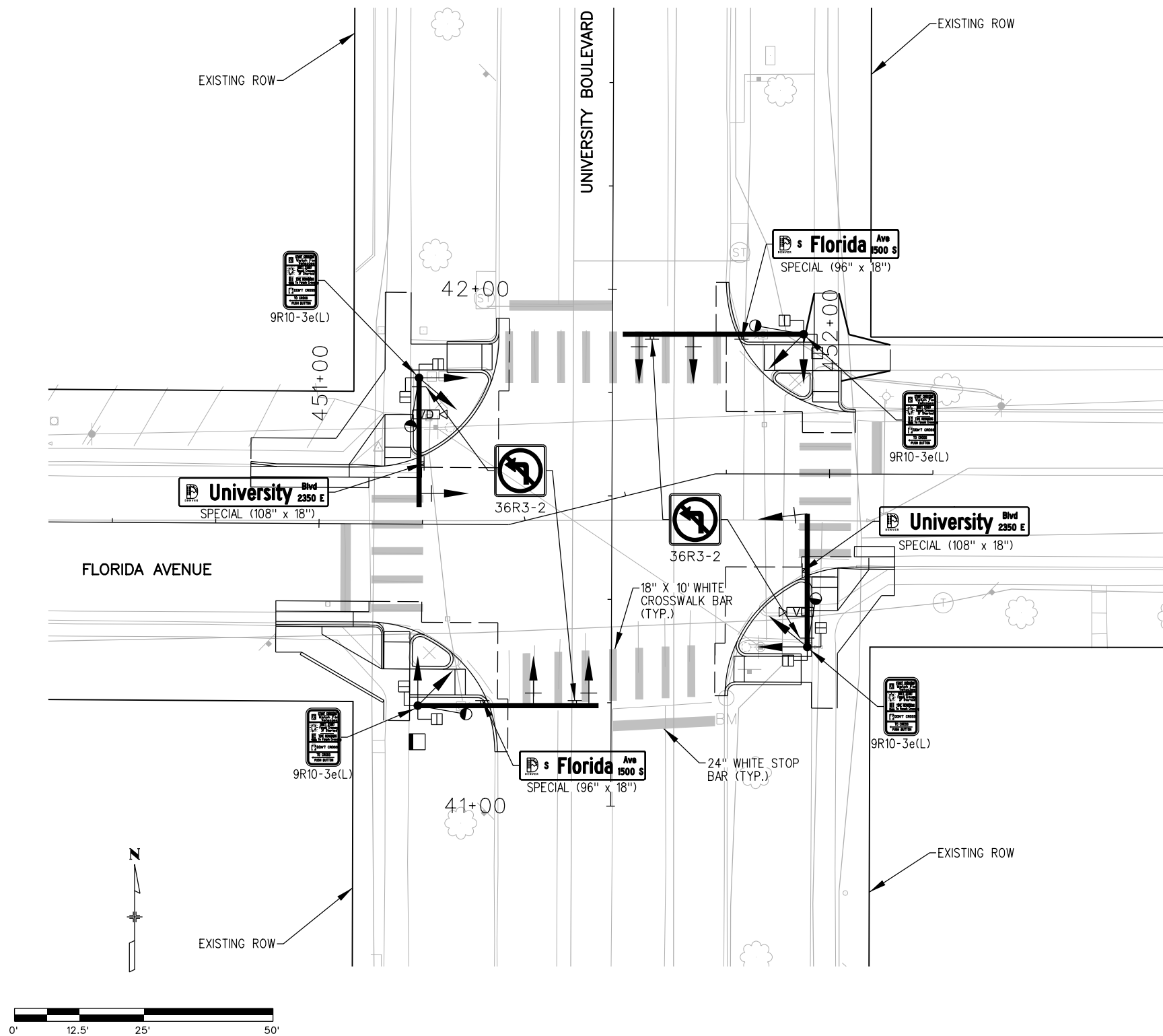


Know what's below.
Call before you dig.

NOTES:

1. ALL SIGNS & MARKINGS SHALL BE INSTALLED PER THE LATEST REVISION OF THE CITY AND COUNTY OF DENVER SIGN & MARKINGS STANDARDS.

SIGNING & STRIPING ITEMS FOR FLORIDA AVE & UNIVERSITY BLVD			
ITEM #	ITEM DESCRIPTION	UNIT	QTY
614	SIGN PANEL (CLASS I)	SF	39
614	SIGN PANEL (SPECIAL) (STREET SIGN)	SF	62
627	PREFORMED PLASTIC PAVEMENT MARKINGS (Xwalk - Stop Line)	SF	525



margie.krell 2:40:41 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-TR-INT-Univ_Florida_S&S.dgn

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 Horiz. Scale: 1:25 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
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 Greenwood Village, CO 80111
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Sheet Revisions		
Date:	Comments	Init.

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MILL LEVY 6 TRAFFIC SIGNALS			
SIGNING & STRIPING PLAN			
FLORIDA AVE & UNIVERSITY BLVD			
Designer:	M. HEUGH	Structure Numbers	
Detailer:			
Sheet Subset:	S&S	Subset Sheets:	3 of 7

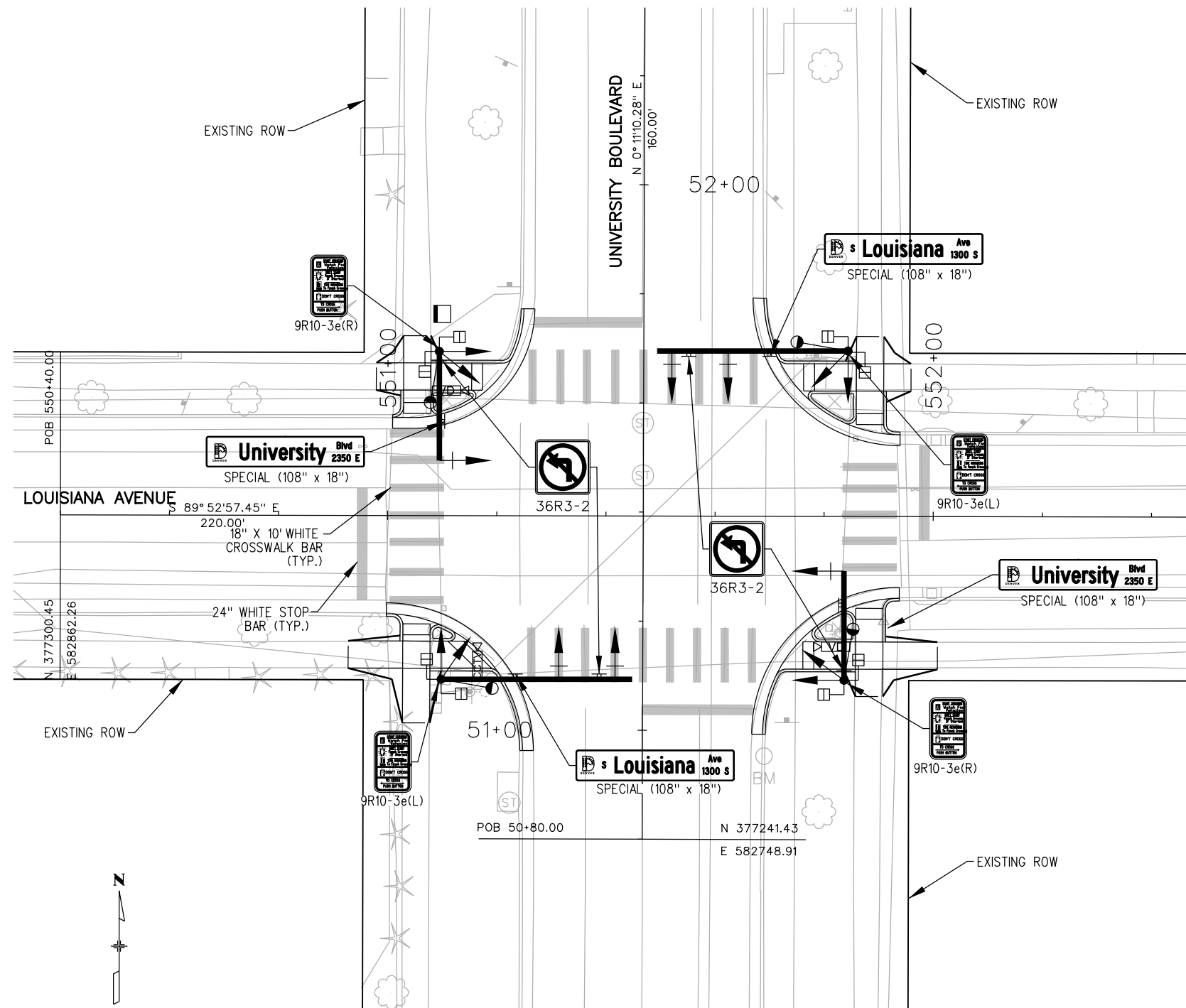
Project No./Code
PZ03798-425
34993
Sheet Number 28



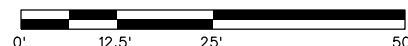
Know what's below.
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NOTES:

1. ALL SIGNS & MARKINGS SHALL BE INSTALLED PER THE LATEST REVISION OF THE CITY AND COUNTY OF DENVER SIGN & MARKINGS STANDARDS.



SIGNING & STRIPING ITEMS FOR LOUISIANA AVE & UNIVERSITY BLVD			
ITEM #	ITEM DESCRIPTION	UNIT	QTY
614	SIGN PANEL (CLASS I)	SF	39
614	SIGN PANEL (SPECIAL) (STREET SIGN)	SF	66
627	PREFORMED PLASTIC PAVEMENT MARKINGS (Xwalk - Stop Line)	SF	610



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Print Date: 5/16/2017
 File Name: 34993-TR-INT-Univ_Louisiana-S&S.dgn
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 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
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TRANSPORTATION ENGINEERING DIVISION
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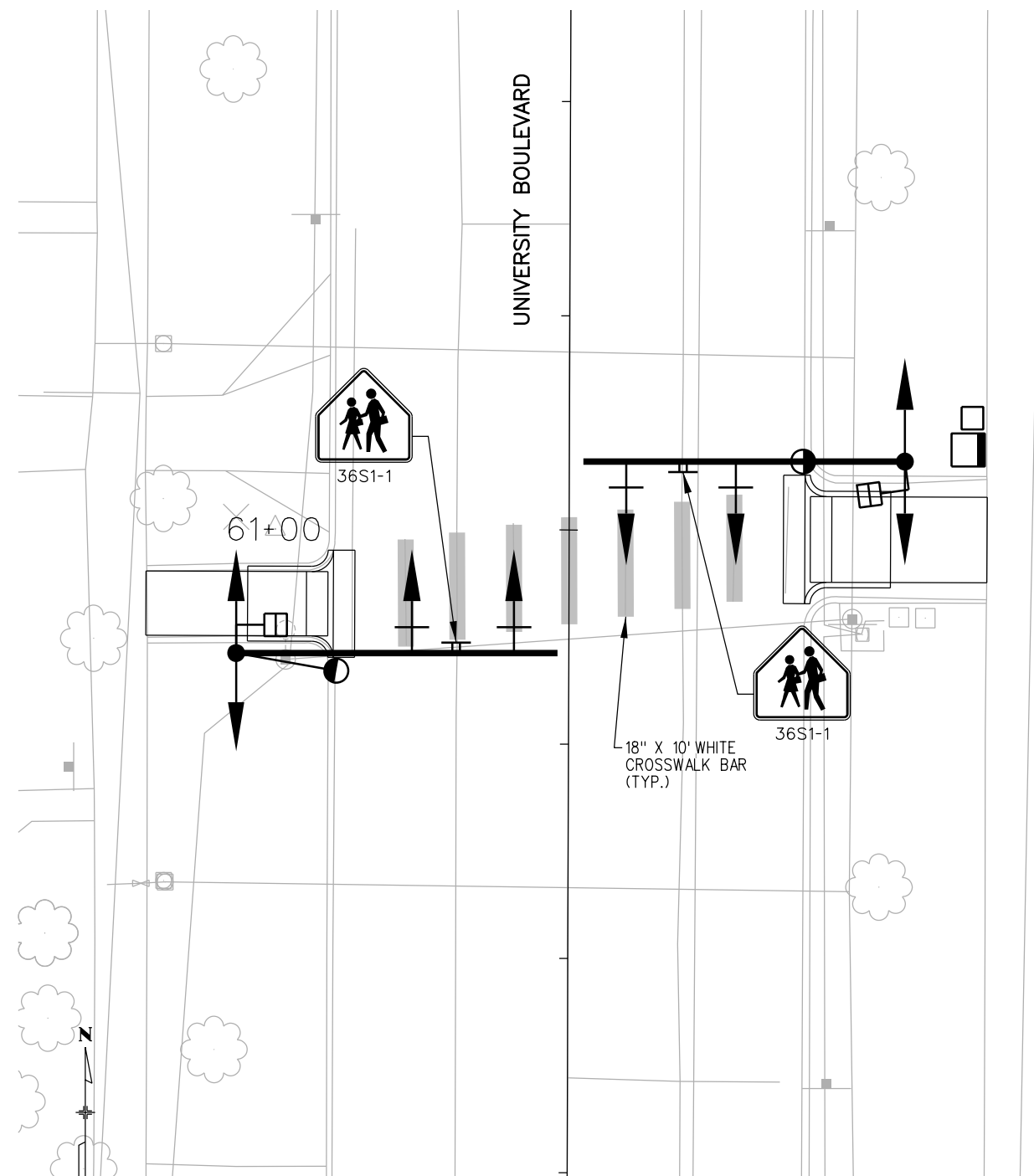
**MILL LEVY 6 TRAFFIC SIGNALS
SIGNING & STRIPING PLAN
LOUISIANA AVE & UNIVERSITY BLVD**

Designer: M. HEUGH	Structure Numbers
Detailer:	
Sheet Subset: S&S	Subset Sheets: 4 of 7

Project No./Code
 PZ03798-425
 34993
 Sheet Number 29



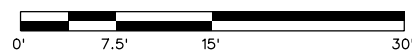
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NOTES:

1. ALL SIGNS & MARKINGS SHALL BE INSTALLED PER THE LATEST REVISION OF THE CITY AND COUNTY OF DENVER SIGN & MARKINGS STANDARDS.

SIGNING & STRIPING ITEMS FOR ARIZONA/MISSISSIPPI & UNIVERSITY MID-BLOCK			
ITEM #	ITEM DESCRIPTION	UNIT	QTY
614	SIGN PANEL (CLASS I)	SF	18
627	PREFORMED PLASTIC PAVEMENT MARKINGS (Xwalk - Stop Line)	SF	105



Print Date: 5/16/2017
 File Name: 34993-TR-INT-Univ_Arizona - S&S.dgn
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Date:	Comments	Init.



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MILL LEVY 6 TRAFFIC SIGNALS SIGNING & STRIPING PLAN UNIVERSITY BLVD BETWEEN MISSISSIPPI & ARIZONA			
Designer:	M. HEUGH	Structure Numbers	
Detailer:			
Sheet Subset:	S&S	Subset Sheets:	5 of 7

Project No./Code
PZ03798-425
34993
Sheet Number 30

margie.krell 2:40:44 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-TR-INT-Univ_Arizona - S&S.dgn

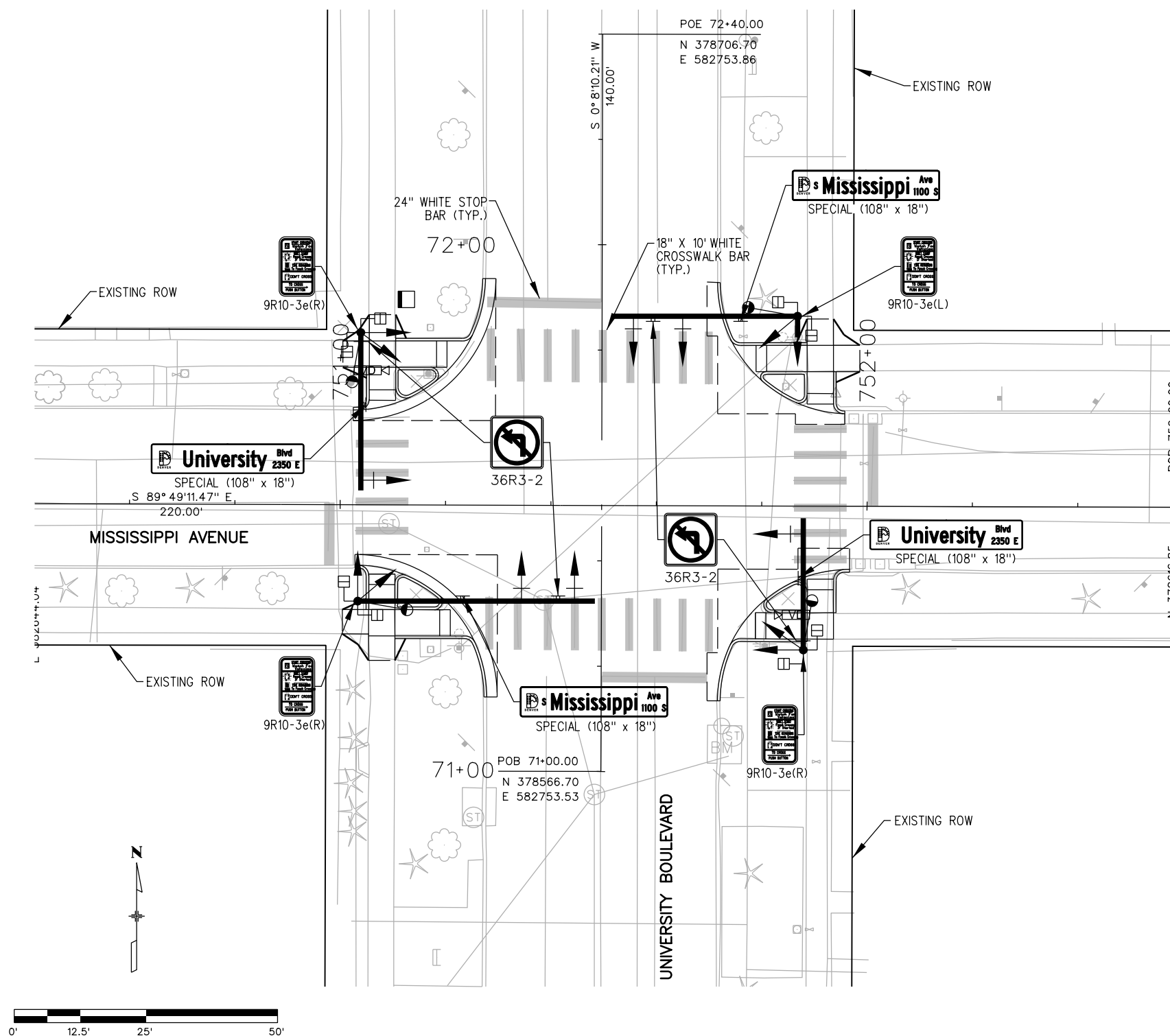


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NOTES:

- ALL SIGNS & MARKINGS SHALL BE INSTALLED PER THE LATEST REVISION OF THE CITY AND COUNTY OF DENVER SIGN & MARKINGS STANDARDS.

SIGNING & STRIPING ITEMS FOR MISSISSIPPI AVE & UNIVERSITY BLVD			
ITEM #	ITEM DESCRIPTION	UNIT	QTY
614	SIGN PANEL (CLASS I)	SF	39
614	SIGN PANEL (SPECIAL) (STREET SIGN)	SF	66
627	PREFORMED PLASTIC PAVEMENT MARKINGS (Xwalk - Stop Line)	SF	515



Print Date: 5/16/2017
 File Name: 34993-TR-INT-Univ_Mississippi - S&S.dgn
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 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.



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**MILL LEVY 6 TRAFFIC SIGNALS
SIGNING & STRIPING PLAN
MISSISSIPPI AVE & UNIVERSITY BLVD**
 Designer: M. HEUGH Structure Numbers
 Detailer:
 Sheet Subset: S&S Subset Sheets: 6 of 7

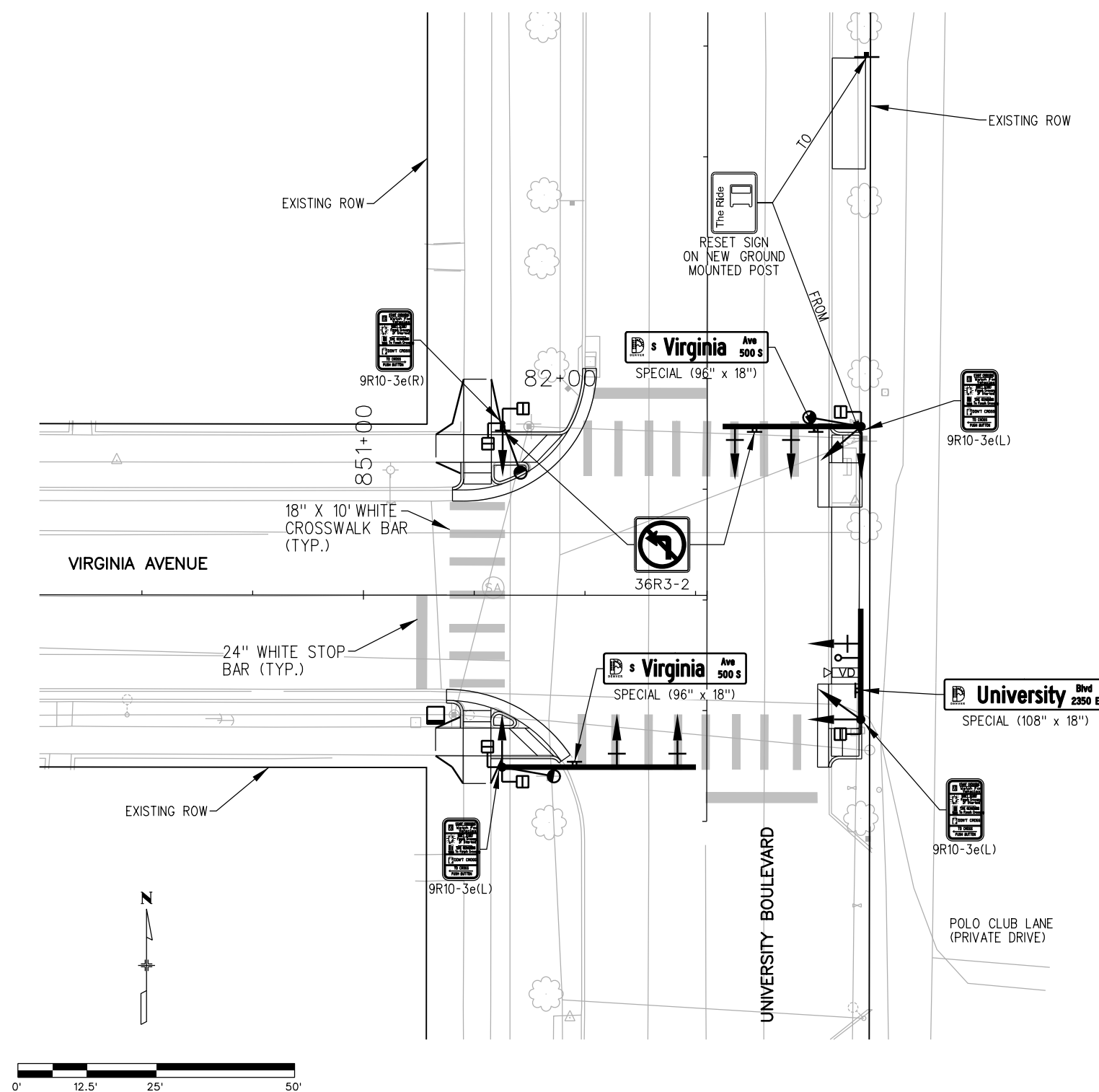
Project No./Code
 PZ03798-425
 34993
 Sheet Number 31



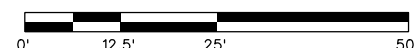
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NOTES:

1. ALL SIGNS & MARKINGS SHALL BE INSTALLED PER THE LATEST REVISION OF THE CITY AND COUNTY OF DENVER SIGN & MARKINGS STANDARDS




SIGNING & STRIPING ITEMS FOR VIRGINIA AVE & UNIVERSITY BLVD			
ITEM #	ITEM DESCRIPTION	UNIT	QTY
210	RESET SIGN PANEL	EA	1
614	SIGN PANEL (CLASS I)	SF	21
614	SIGN PANEL (SPECIAL) (STREET SIGN)	SF	62
614	STEEL SIGN POST (2X2 INCH TUBING)	LF	11
627	PREFORMED PLASTIC PAVEMENT MARKINGS (Xwalk - Stop Line)	SF	465



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Print Date: 5/16/2017	
File Name: 34993-TR-INT-Univ_Virginia_S&S.dgn	
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Unit Information	Unit Leader Initials
AECOM	6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.


City & County of Denver

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MILL LEVY 6 TRAFFIC SIGNALS			
SIGNING & STRIPING PLAN			
VIRGINIA AVE & UNIVERSITY BLVD			
Designer:	M. HEUGH	Structure Numbers	
Detailer:			
Sheet Subset:	S&S	Subset Sheets:	7 of 7

Project No./Code
PZ03798-425
34993
Sheet Number 32



Know what's below.
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REMOVAL LEGEND

- REMOVAL OF CURB & GUTTER
- REMOVAL OF CONCRETE CURB RAMP
- REMOVAL OF SIDEWALK
- REMOVAL OF ASPHALT MAT

- STA 10+88.12, 25.18' RT TO STA 11+01.26, 25.13' RT
REMOVE 13 LF CURB & GUTTER
- STA 11+16.57, 25.10' RT TO STA 11+17.69, 25.11' RT
REMOVE 1 LF CURB & GUTTER
- STA 11+01.27, 23.32' RT TO STA 11+16.57, 23.29' RT
REMOVE 13 SY CONCRETE CURB RAMP
- STA 10+88.12, 25.75' RT TO STA 11+17.69, 25.65' RT
REMOVE 29 SY SIDEWALK
- STA 10+88.12, 21.25' RT TO STA 11+17.69, 21.25' RT
REMOVE 7 SY ASPHALT MAT

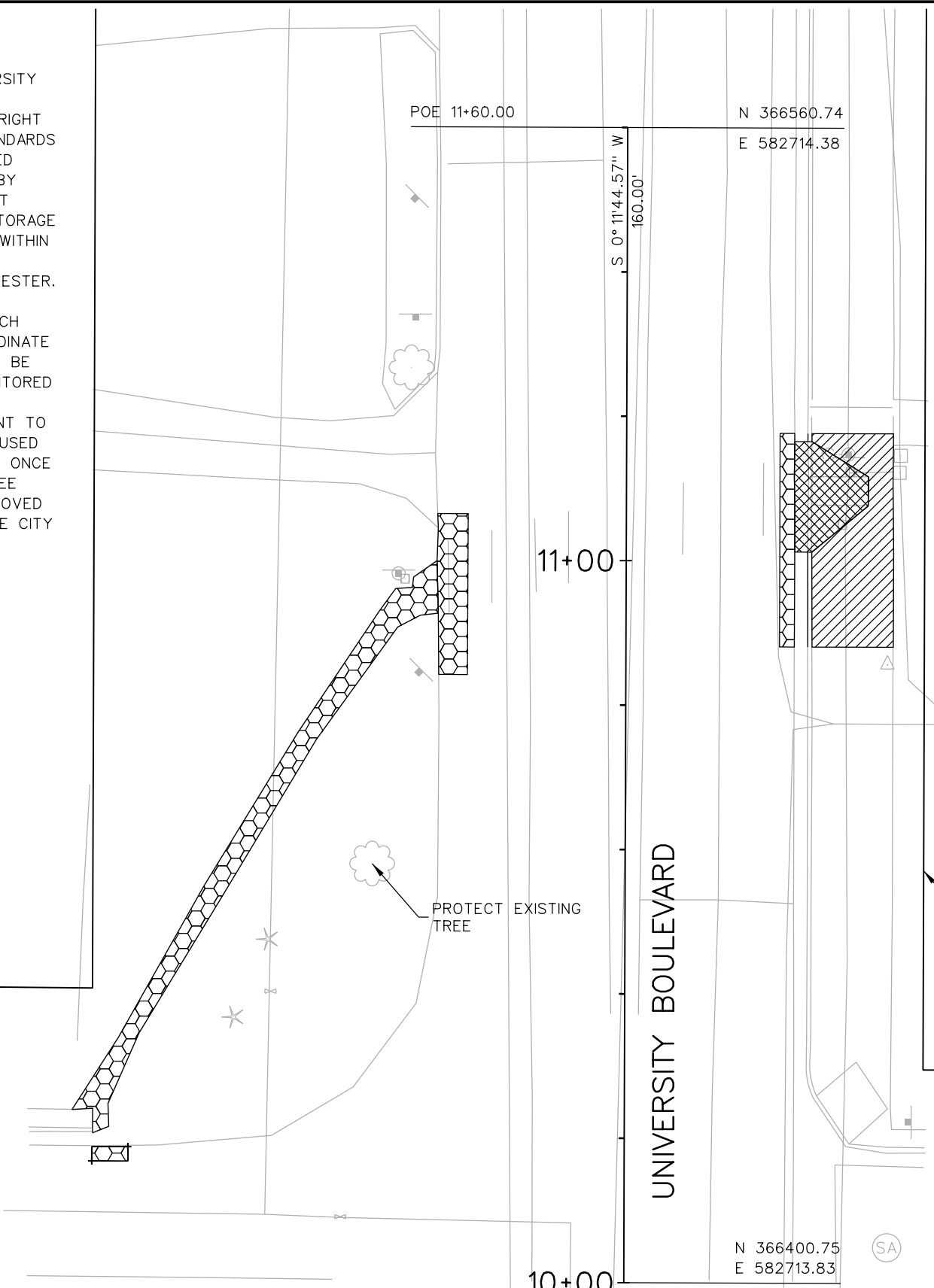
NOTES:

1. ALL STATIONING CALLED OUT FROM HCL UNIVERSITY BLVD.
2. EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
3. TREES LOCATED WITHIN UNIVERSITY ROW ARE MAINTAINED BY FORESTRY OPERATIONS. CONTACT RICH WILSON (RICHARD.WILSON@DENVERGOV.ORG) TO COORDINATE TREE PROTECTION. PUBLIC RIGHT OF WAY TREES TO BE PROTECTED OUTSIDE UNIVERSITY ROW WILL BE MONITORED BY FORESTRY ROW INSPECTIONS.
4. DUE TO THE LEVEL OF CONSTRUCTION ADJACENT TO PUBLIC ROW TREES, CHAIN LINK FENCING SHALL BE USED TO ESTABLISH TREE PROTECTION ZONE BOUNDARIES. ONCE INSTALLED AND APPROVED BY FORESTRY STAFF, TREE PROTECTION ZONES SHALL NOT BE RESIZED OR REMOVED WITHOUT PRIOR APPROVAL FROM THE OFFICE OF THE CITY FORESTER.

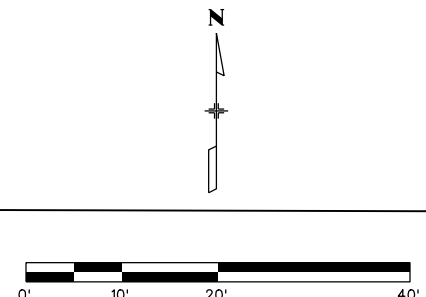
STA 10+84.16, 21.92' LT TO
STA 11+06.43, 21.91' LT
REMOVE 10 SY ASPHALT MAT

STA 10+20.51, 73.63' LT TO
STA 10+99.91, 26.18' LT
REMOVE 30 SY ASPHALT MAT

STA 10+16.63, 73.71' LT TO
STA 10+18.62, 68.71' LT
REMOVE 1 SY ASPHALT MAT



EXISTING R.O.W. (TYP.)



CORNELL AVENUE

UNIVERSITY BOULEVARD

Print Date: 5/16/2017	
File Name: 34993-REM-INT-Univ_Cornell.dgn	
Horiz. Scale: 1:20	Vert. Scale: As Noted
Unit Information	Unit Leader Initials
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Sheet Revisions		
Date:	Comments	Init.

TRANSPORTATION ENGINEERING DIVISION
5440 Roslyn Street
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MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION REMOVALS			
UNIVERSITY BLVD BETWEEN BATES & CORNELL AVE			
Designer:	M. KRELL	Structure Numbers	
Detailer:			
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 7

Project No./Code
PZ03798-425
34993
Sheet Number 33

margie.krell 2:40:50 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-REM-INT-Univ_Cornell.dgn

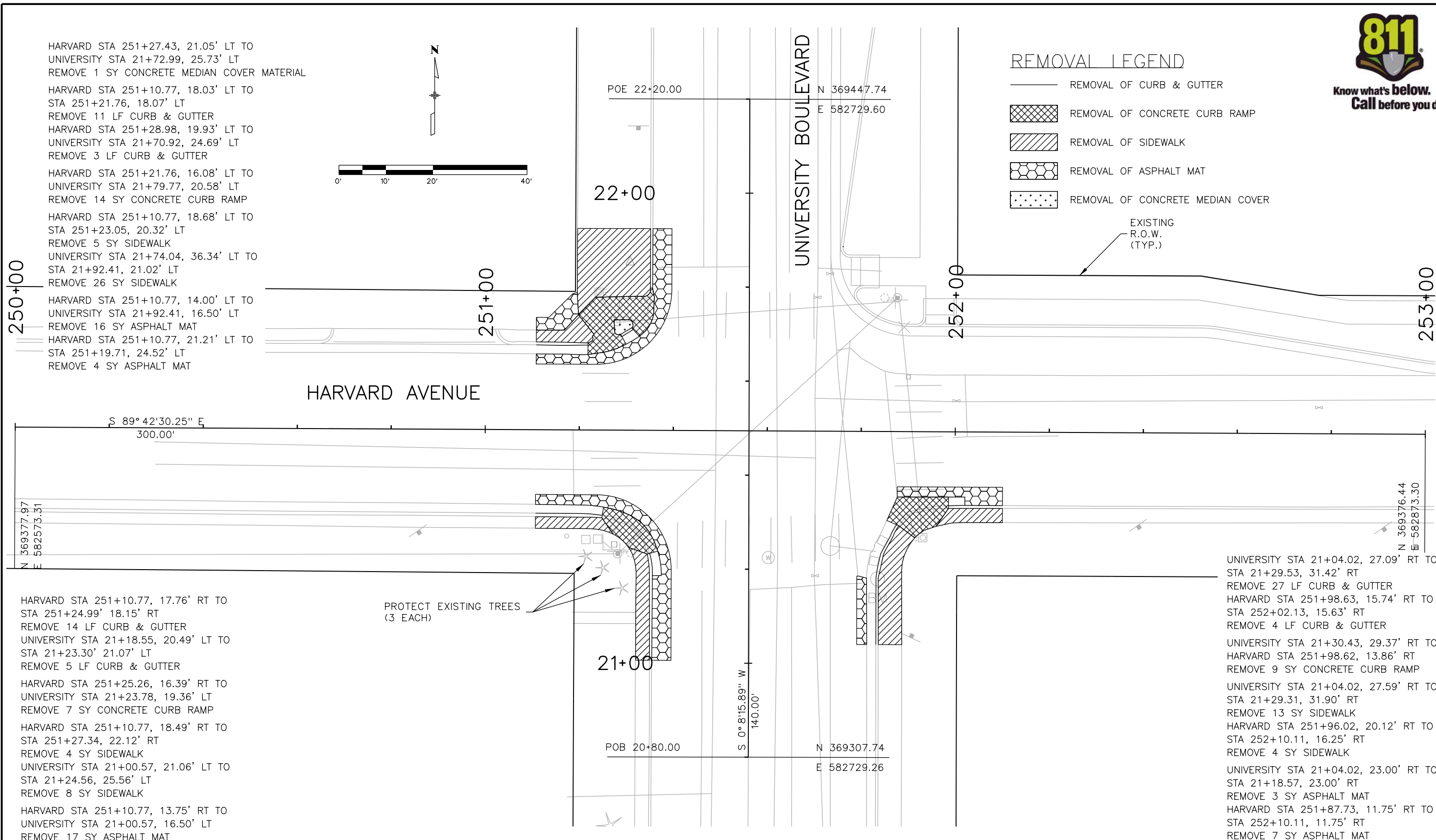


Know what's below.
Call before you dig.

REMOVAL LEGEND

- REMOVAL OF CURB & GUTTER
- REMOVAL OF CONCRETE CURB RAMP
- REMOVAL OF SIDEWALK
- REMOVAL OF ASPHALT MAT
- REMOVAL OF CONCRETE MEDIAN COVER

EXISTING
R.O.W.
(TYP.)



PROTECT EXISTING TREES
(3 EACH)

Print Date: 5/16/2017	
File Name: 34993-REM-INT-Univ_Harvard.dgn	
Horiz. Scale: 1:20	Vert. Scale: As Noted
Unit Information	Unit Leader Initials
AECOM	6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.

TRANSPORTATION ENGINEERING DIVISION
5440 Roslyn Street
Denver, CO 80216
Phone: 720-865-6815

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MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION REMOVALS UNIVERSITY BLVD & HARVARD AVE			
Designer:	M.KRELL	Structure Numbers	
Detailer:			
Sheet Subset:	ROADWAY	Subset Sheets:	2 of 7

Project No./Code
PZ03798-425
34993
Sheet Number 34

margie.krell 2:40:52 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7_0_CAD_GIS\Plan_Sheets\34993-REM-INT-Univ_Harvard.dgn



Know what's below. Call before you dig.

NOTES:

- EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
- TREES LOCATED WITHIN UNIVERSITY ROW ARE MAINTAINED BY FORESTRY OPERATIONS. CONTACT RICH WILSON (RICHARD.WILSON@DENVERGOV.ORG) TO COORDINATE TREE PROTECTION. PUBLIC RIGHT OF WAY TREES TO BE PROTECTED OUTSIDE UNIVERSITY ROW WILL BE MONITORED BY FORESTRY ROW INSPECTIONS.
- DUE TO THE LEVEL OF CONSTRUCTION ADJACENT TO PUBLIC ROW TREES, CHAIN LINK FENCING SHALL BE USED TO ESTABLISH TREE PROTECTION ZONE BOUNDARIES. ONCE INSTALLED AND APPROVED BY FORESTRY STAFF, TREE PROTECTION ZONES SHALL NOT BE RESIZED OR REMOVED WITHOUT PRIOR APPROVAL FROM THE OFFICE OF THE CITY FORESTER.

REMOVAL LEGEND

- REMOVAL OF CURB & GUTTER
- REMOVAL OF CURB
- ▨ REMOVAL OF CONCRETE CURB RAMP
- ▨ REMOVAL OF SIDEWALK
- ▨ REMOVAL OF ASPHALT MAT
- ▨ REMOVAL OF CONCRETE MEDIAN COVER
- ▨ REMOVAL OF CONCRETE PAVEMENT

FLORIDA STA 451+18.47, 21.49' RT TO UNIVERSITY STA 41+26.88, 30.44' LT
REMOVE 4 SY CONCRETE MEDIAN COVER MATERIAL

FLORIDA STA 450+91.75, 19.25' RT TO STA 451+04.67, 19.32' RT
REMOVE 13 LF CURB & GUTTER

FLORIDA STA 451+19.95, 21.45' RT TO UNIVERISTY STA 41+28.61, 30.06' LT
REMOVE 8 LF CURB

UNIVERISTY STA 41+10.44, 22.40' LT TO STA 41+18.89, 23.30' LT
REMOVE 9 LF CURB

FLORIDA STA 451+04.67, 17.00' RT TO UNIVERSITY STA 41+19.51, 21.57' LT
REMOVE 25 SY CONCRETE CURB RAMP

FLORIDA STA 450+91.75, 19.83' RT TO UNIVERSITY STA 41+16.38, 39.00' LT
REMOVE 12 SY SIDEWALK

FLORIDA STA 450+97.75, 15.00' RT TO STA 451+09.77, 15.00' RT
REMOVE 4 SY ASPHALT MAT

FLORIDA STA 451+09.77, 15.00' RT TO STA 451+19.96, 15.00' RT
REMOVE 3 SY CONCRETE PAVEMENT

FLORIDA STA 451+19.96, 19.00' RT TO UNIVERSITY STA 41+20.64, 22.00' LT
REMOVE 11 SY CONCRETE PAVEMENT

UNIVERSITY STA 41+10.44, 20.00' LT TO STA 41+20.64, 20.00' LT
REMOVE 3 SY CONCRETE PAVEMENT

FLORIDA STA 451+18.20, 14.90' LT TO UNIVERSITY STA 41+84.30, 25.41' LT
REMOVE 18 SY CONCRETE MEDIAN COVER MATERIAL

FLORIDA STA 450+86.74, 10.97' LT TO STA 451+06.02, 10.84' LT
REMOVE 19 LF CURB & GUTTER

FLORIDA STA 451+20.39, 13.19' LT TO UNIVERTISTY STA 41+81.83, 23.54' LT
REMOVE 20 LF CURB

UNIVERTISTY STA 41+91.91, 21.92' LT TO STA 41+94.29, 21.93' LT
REMOVE 2 LF CURB

FLORIDA STA 451+06.02, 9.00' LT TO STA 451+20.92, 11.49' LT
REMOVE 12 SY CONCRETE CURB RAMP

UNIVERSITY STA 41+81.13, 21.65' LT TO STA 41+91.91, 20.00' LT
REMOVE 9 SY CONCRETE CURB RAMP

FLORIDA STA 450+86.74, 11.39' LT TO STA 451+12.17, 16.74' LT
REMOVE 9 SY SIDEWALK

UNIVERISTY STA 41+75.67, 38.41' LT STA 41+99.26, 38.98' LT TO
REMOVE 18 SY SIDEWALK

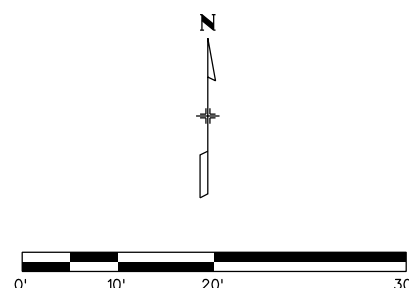
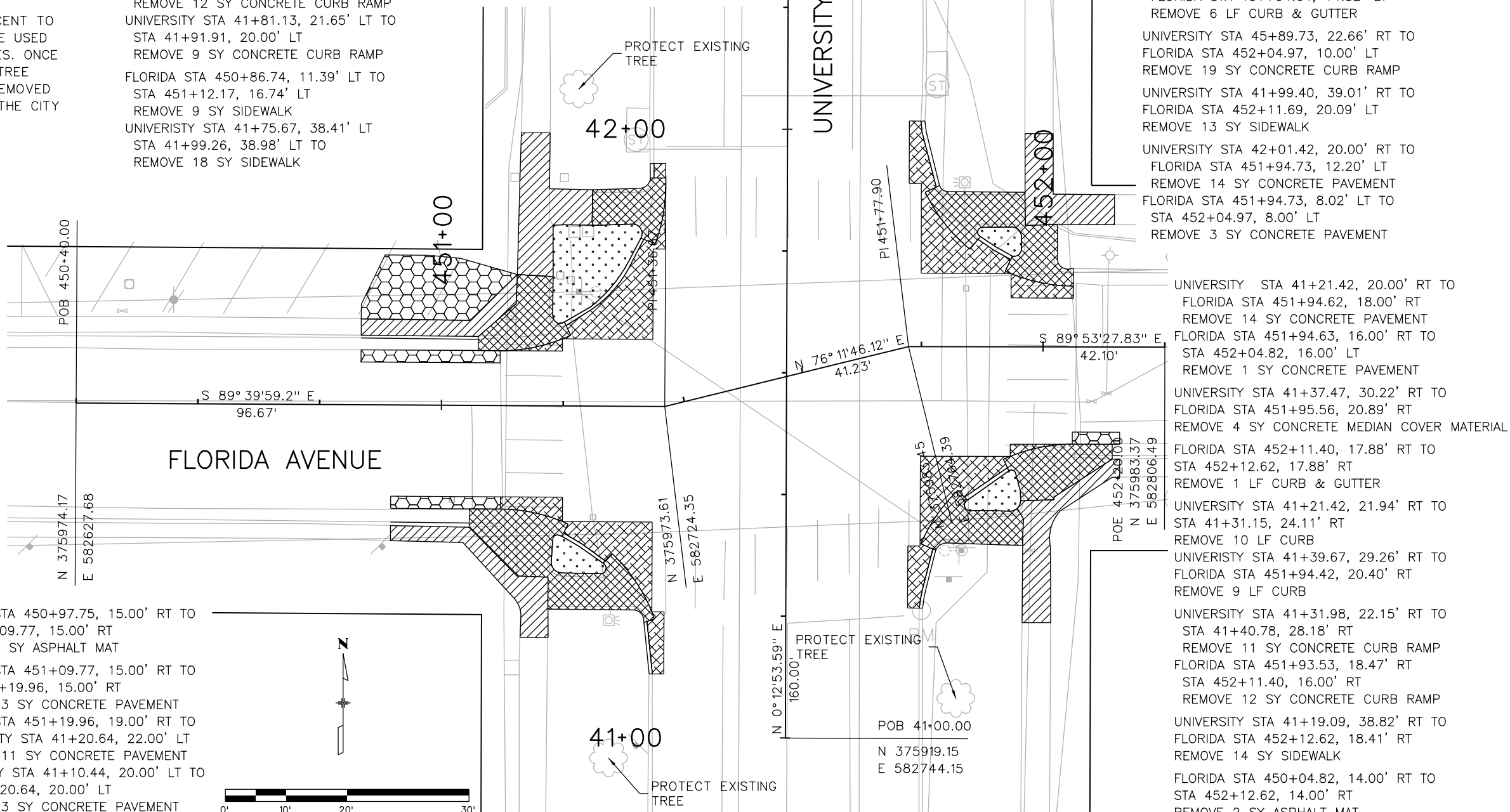
FLORIDA STA 450+86.74, 14.11' LT TO STA 451+12.34, 21.52' LT
REMOVE 23 SY ASPHALT MAT

FLORIDA STA 450+86.75, 7.00' LT TO STA 451+09.60, 7.00' LT
REMOVE 5 SY ASPHALT MAT

FLORIDA STA 451+09.60, 9.00' LT TO STA 451+19.80, 9.00' LT
REMOVE 1 SY CONCRETE PAVEMENT

FLORIDA STA 451+19.80, 11.00' LT TO UNIVERSITY STA 41+90.44, 20.00' LT
REMOVE 14 SY CONCRETE PAVEMENT

UNIVERSITY STA 41+91.91, 20.00' LT TO STA 41+94.29, 20.00' LT
REMOVE 1 SY CONCRETE PAVEMENT



margie.krell 2:40:53 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-REM-INT-Univ_Florida.dgn

Print Date: 5/16/2017	
File Name: 34993-REM-INT-Univ_Florida.dgn	
Horiz. Scale: 1:20	Vert. Scale: As Noted
Unit Information	Unit Leader Initials
AECOM	6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.



TRANSPORTATION ENGINEERING DIVISION

5440 Roslyn Street
Denver, CO 80216
Phone: 720-865-6815

As Constructed
No Revisions:
Revised:
Void:

MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION REMOVALS UNIVERSITY BLVD & FLORIDA AVE			
Designer:	M. KRELL	Structure Numbers	
Detailer:			
Sheet Subset:	ROADWAY	Subset Sheets:	3 of 7

Project No./Code	
PZ03798-425	
	34993
Sheet Number	35



Know what's below.
Call before you dig.

NOTES:

- EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
- TREES LOCATED WITHIN UNIVERSITY ROW ARE MAINTAINED BY FORESTRY OPERATIONS. CONTACT RICH WILSON (RICHARD.WILSON@DENVERGOV.ORG) TO COORDINATE TREE PROTECTION. PUBLIC RIGHT OF WAY TREES TO BE PROTECTED OUTSIDE UNIVERSITY ROW WILL BE MONITORED BY FORESTRY ROW INSPECTIONS.
- DUE TO THE LEVEL OF CONSTRUCTION ADJACENT TO PUBLIC ROW TREES, CHAIN LINK FENCING SHALL BE USED TO ESTABLISH TREE PROTECTION ZONE BOUNDARIES. ONCE INSTALLED AND APPROVED BY FORESTRY STAFF, TREE PROTECTION ZONES SHALL NOT BE RESIZED OR REMOVED WITHOUT PRIOR APPROVAL FROM THE OFFICE OF THE CITY FORESTER.

LOUISIANA STA 551+07.97, 19.10' LT TO UNIVERSITY STA 51+61.79, 33.21' LT
REMOVE 2 SY CONCRETE MEDIAN COVER MATERIAL

LOUISIANA STA 551+00.87, 17.90' LT TO STA 551+02.32, 17.88' LT
REMOVE 1 LF CURB & GUTTER

LOUISIANA STA 551+07.82, 18.43' LT TO UNIVERSITY STA 51+60.32, 32.44' LT
REMOVE 7 LF CURB & GUTTER

UNIVERSITY STA 51+69.93, 24.25' LT TO STA 51+77.21, 22.48' LT
REMOVE 8 LF CURB & GUTTER

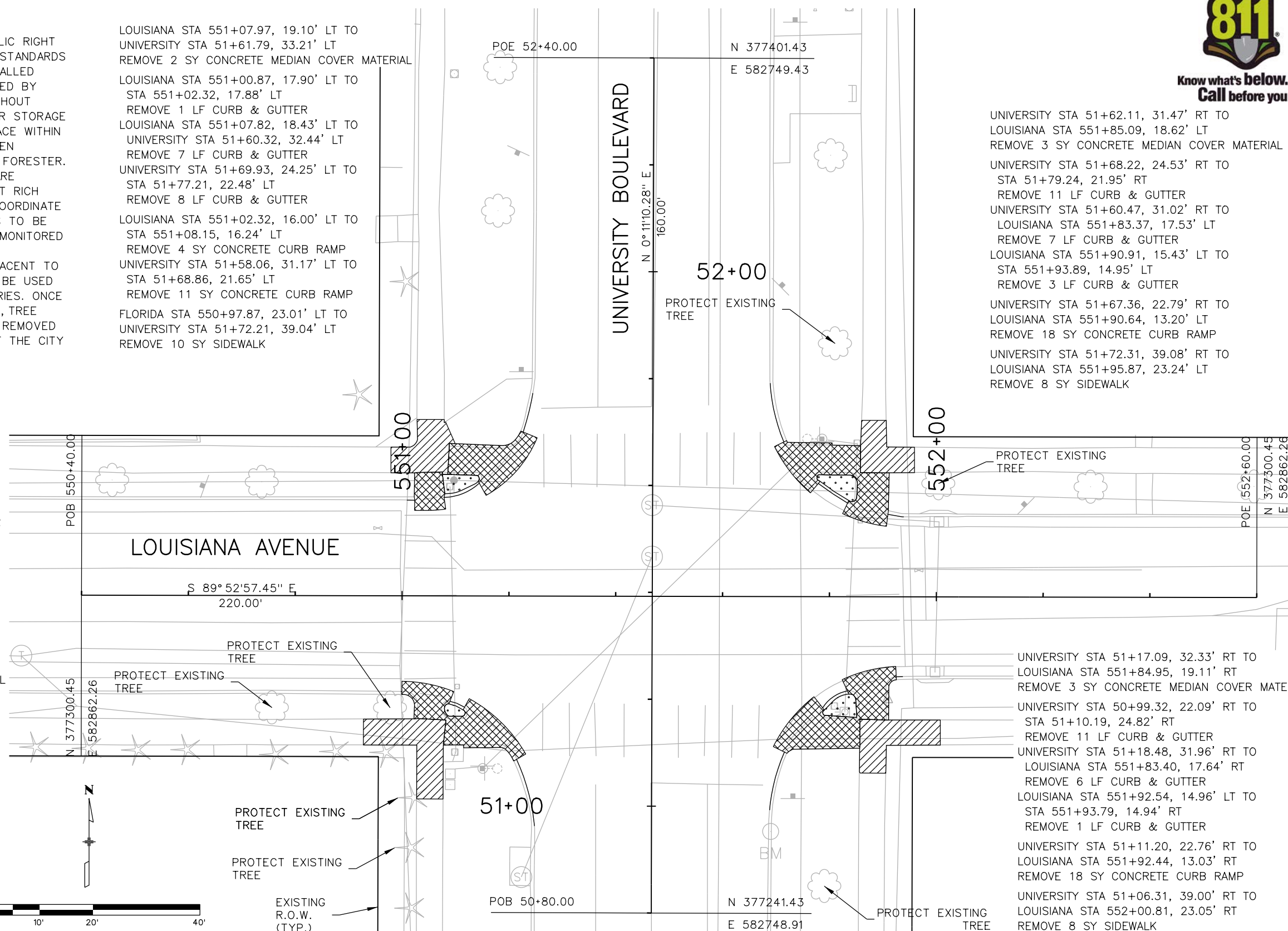
LOUISIANA STA 551+02.32, 16.00' LT TO STA 551+08.15, 16.24' LT
REMOVE 4 SY CONCRETE CURB RAMP

UNIVERSITY STA 51+58.06, 31.17' LT TO STA 51+68.86, 21.65' LT
REMOVE 11 SY CONCRETE CURB RAMP

FLORIDA STA 550+97.87, 23.01' LT TO UNIVERSITY STA 51+72.21, 39.04' LT
REMOVE 10 SY SIDEWALK

REMOVAL LEGEND

- REMOVAL OF CURB & GUTTER
- ▨ REMOVAL OF CONCRETE CURB RAMP
- ▧ REMOVAL OF SIDEWALK
- ⋯ REMOVAL OF CONCRETE MEDIAN COVER



LOUISIANA STA 551+22.74, 20.74' RT TO UNIVERSITY STA 51+16.70, 35.59' LT
REMOVE 1 SY CONCRETE MEDIAN COVER MATERIAL

LOUISIANA STA 551+09.00, 19.73' RT TO UNIVERSITY STA 51+18.39, 35.08' LT
REMOVE 3 LF CURB & GUTTER

UNIVERSITY STA 51+08.68, 25.31' LT TO STA 50+96.20, 21.92' LT
REMOVE 13 LF CURB & GUTTER

LOUISIANA STA 551+00.01, 16.00' RT TO UNIVERSITY STA 51+09.66, 23.59' LT
REMOVE 15 SY CONCRETE CURB RAMP

FLORIDA STA 550+92.81, 23.09' RT TO UNIVERSITY STA 51+01.21, 39.04' LT
REMOVE 14 SY SIDEWALK

UNIVERSITY STA 51+17.09, 32.33' RT TO LOUISIANA STA 551+84.95, 19.11' RT
REMOVE 3 SY CONCRETE MEDIAN COVER MATERIAL

UNIVERSITY STA 50+99.32, 22.09' RT TO STA 51+10.19, 24.82' RT
REMOVE 11 LF CURB & GUTTER

UNIVERSITY STA 51+18.48, 31.96' RT TO LOUISIANA STA 551+83.40, 17.64' RT
REMOVE 6 LF CURB & GUTTER

LOUISIANA STA 551+92.54, 14.96' LT TO STA 551+93.79, 14.94' RT
REMOVE 1 LF CURB & GUTTER

UNIVERSITY STA 51+11.20, 22.76' RT TO LOUISIANA STA 551+92.44, 13.03' RT
REMOVE 18 SY CONCRETE CURB RAMP

UNIVERSITY STA 51+06.31, 39.00' RT TO LOUISIANA STA 552+00.81, 23.05' RT
REMOVE 8 SY SIDEWALK

Print Date: 5/16/2017

File Name: 34993-REM-INT-Univ_Louisiana.dgn

Horiz. Scale: 1:20

Vert. Scale: As Noted

Unit Information

Unit Leader Initials



6200 South Quebec Street
Greenwood Village, CO 80111
Phone: 303-740-2600



Sheet Revisions

Date:	Comments	Init.



City & County of Denver

TRANSPORTATION ENGINEERING DIVISION

5440 Roslyn Street
Denver, CO 80216
Phone: 720-865-6815

As Constructed

No Revisions:

Revised:

Void:

MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION REMOVALS

UNIVERSITY BLVD & LOUISIANA AVE

Designer: M. KRELL

Detailer:

Sheet Subset: ROADWAY

Structure Numbers

Subset Sheets: 4 of 7

Project No./Code

PZ03798-425

34993

Sheet Number 36

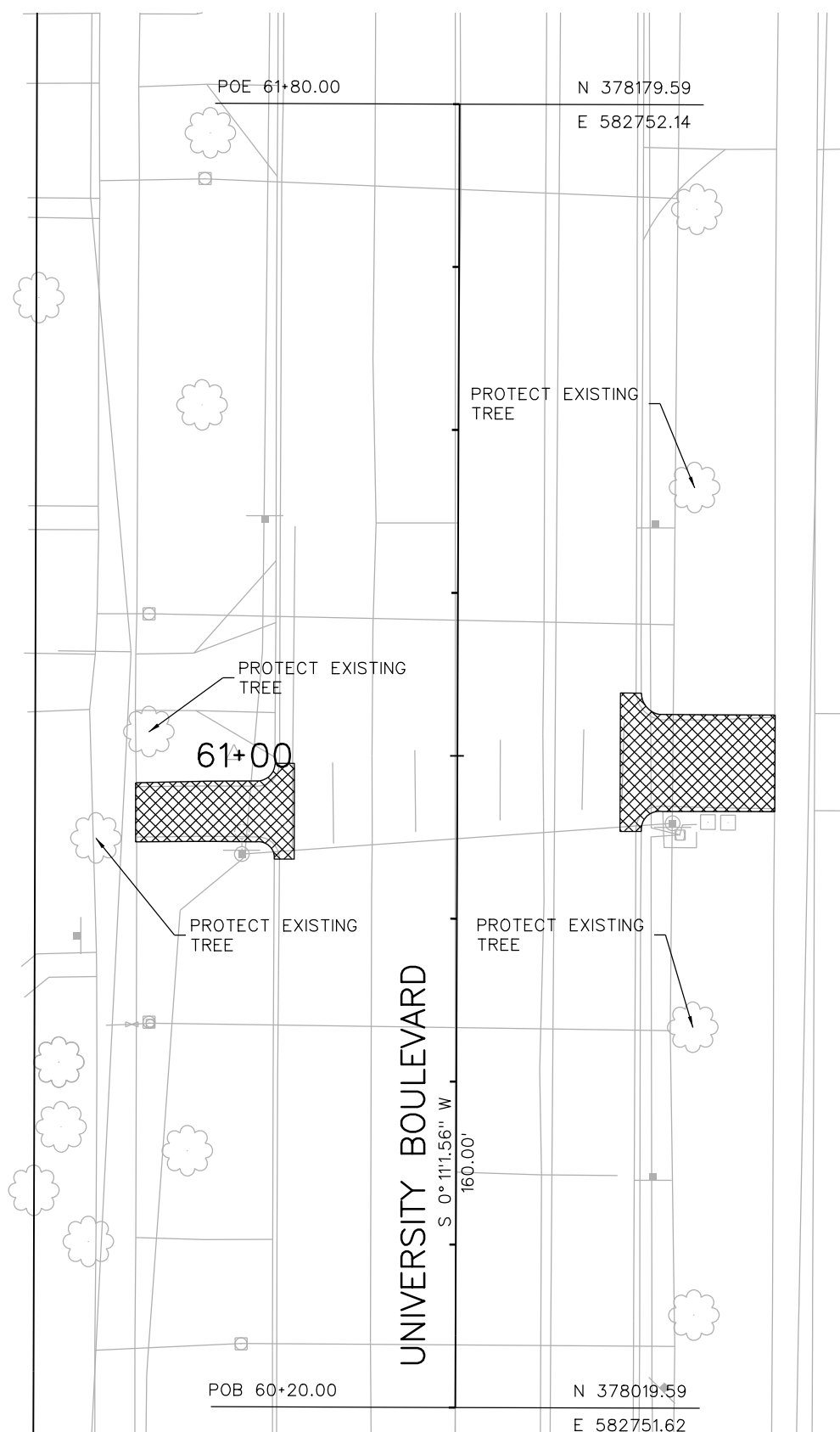


Know what's below.
Call before you dig.


NOTES:

1. ALL STATIONING CALLED OUT FROM HCL UNIVERSITY BLVD.
2. EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
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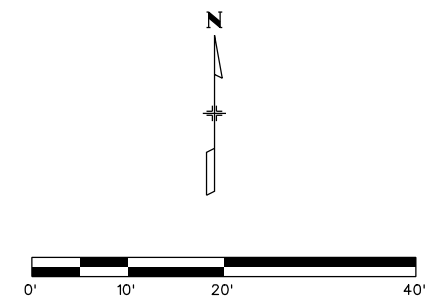
STA 60+87.27, 20.00' LT TO
 STA 60+99.01, 20.00' LT
 REMOVE 17 SY CONCRETE CURB RAMP





REMOVAL LEGEND

 REMOVAL OF CONCRETE CURB RAMP

STA 60+90.79, 20.00' RT TO
 STA 61+07.78, 20.00' RT
 REMOVE 27 SY CONCRETE CURB RAMP



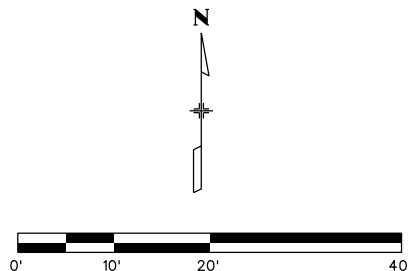
margie.krell 2:40:55 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-REM-INT-Univ_Arizona.dgn

Print Date: 5/16/2017		Sheet Revisions Date: Comments Init. 			 City & County of Denver TRANSPORTATION ENGINEERING DIVISION 5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815		As Constructed		MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION REMOVALS		Project No./Code	
File Name: 34993-REM-INT-Univ_Arizona.dgn							No Revisions:		UNIVERSITY BLVD BETWEEN MISSISSIPPI & ARIZONA		PZ03798-425	
Horiz. Scale: 1:20 Vert. Scale: As Noted		Revised:		Designer: M. KRELL		Structure Numbers		34993				
Unit Information Unit Leader Initials		Void:		Detailer:		Sheet Subsets		5 of 7				
 6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600				Sheet Subset: ROADWAY		Subset Sheets: 5 of 7		Sheet Number 37				



NOTES:

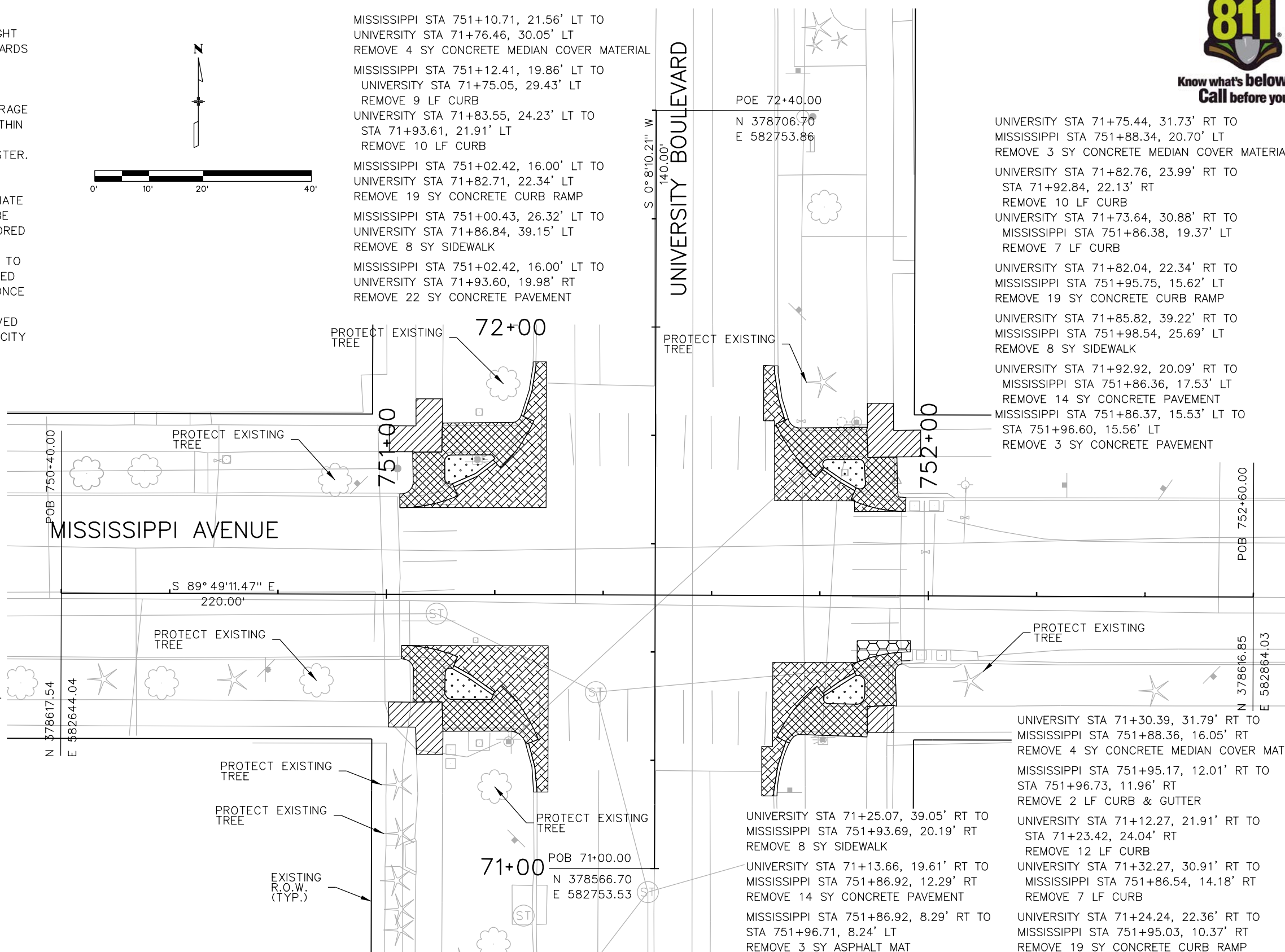
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- MISSISSIPPI STA 751+10.71, 21.56' LT TO UNIVERSITY STA 71+76.46, 30.05' LT REMOVE 4 SY CONCRETE MEDIAN COVER MATERIAL
- MISSISSIPPI STA 751+12.41, 19.86' LT TO UNIVERSITY STA 71+75.05, 29.43' LT REMOVE 9 LF CURB
- UNIVERSITY STA 71+83.55, 24.23' LT TO STA 71+93.61, 21.91' LT REMOVE 10 LF CURB
- MISSISSIPPI STA 751+02.42, 16.00' LT TO UNIVERSITY STA 71+82.71, 22.34' LT REMOVE 19 SY CONCRETE CURB RAMP
- MISSISSIPPI STA 751+00.43, 26.32' LT TO UNIVERSITY STA 71+86.84, 39.15' LT REMOVE 8 SY SIDEWALK
- MISSISSIPPI STA 751+02.42, 16.00' LT TO UNIVERSITY STA 71+93.60, 19.98' RT REMOVE 22 SY CONCRETE PAVEMENT

REMOVAL LEGEND

- REMOVAL OF CURB & GUTTER
- REMOVAL OF CURB
- ▨ REMOVAL OF CONCRETE CURB RAMP
- ▧ REMOVAL OF SIDEWALK
- ▩ REMOVAL OF CONCRETE MEDIAN COVER
- REMOVAL OF CONCRETE PAVEMENT
- ◻ REMOVAL OF ASPHALT MAT




- MISSISSIPPI STA 751+10.90, 14.49' RT TO UNIVERSITY STA 71+31.31, 30.35' LT REMOVE 4 SY CONCRETE MEDIAN COVER MATERIAL
- MISSISSIPPI STA 751+12.49, 13.15' RT TO UNIVERSITY STA 71+32.63, 29.68' LT REMOVE 9 LF CURB
- UNIVERSITY STA 71+13.88, 21.84' LT TO STA 71+23.24, 23.44' LT REMOVE 9 LF CURB
- MISSISSIPPI STA 751+02.83, 9.44' RT TO UNIVERSITY STA 71+23.91, 21.67' LT REMOVE 19 SY CONCRETE CURB RAMP
- MISSISSIPPI STA 751+00.46, 19.88' RT TO UNIVERSITY STA 71+21.26, 39.29' LT REMOVE 8 SY SIDEWALK
- MISSISSIPPI STA 751+02.83, 9.44' RT TO UNIVERSITY STA 71+13.90, 19.86' LT REMOVE 22 SY CONCRETE PAVEMENT

- UNIVERSITY STA 71+75.44, 31.73' RT TO MISSISSIPPI STA 751+88.34, 20.70' LT REMOVE 3 SY CONCRETE MEDIAN COVER MATERIAL
- UNIVERSITY STA 71+82.76, 23.99' RT TO STA 71+92.84, 22.13' RT REMOVE 10 LF CURB
- UNIVERSITY STA 71+73.64, 30.88' RT TO MISSISSIPPI STA 751+86.38, 19.37' LT REMOVE 7 LF CURB
- UNIVERSITY STA 71+82.04, 22.34' RT TO MISSISSIPPI STA 751+95.75, 15.62' LT REMOVE 19 SY CONCRETE CURB RAMP
- UNIVERSITY STA 71+85.82, 39.22' RT TO MISSISSIPPI STA 751+98.54, 25.69' LT REMOVE 8 SY SIDEWALK
- UNIVERSITY STA 71+92.92, 20.09' RT TO MISSISSIPPI STA 751+86.36, 17.53' LT REMOVE 14 SY CONCRETE PAVEMENT
- MISSISSIPPI STA 751+86.37, 15.53' LT TO STA 751+96.60, 15.56' LT REMOVE 3 SY CONCRETE PAVEMENT
- UNIVERSITY STA 71+30.39, 31.79' RT TO MISSISSIPPI STA 751+88.36, 16.05' RT REMOVE 4 SY CONCRETE MEDIAN COVER MATERIAL
- MISSISSIPPI STA 751+95.17, 12.01' RT TO STA 751+96.73, 11.96' RT REMOVE 2 LF CURB & GUTTER
- UNIVERSITY STA 71+12.27, 21.91' RT TO STA 71+23.42, 24.04' RT REMOVE 12 LF CURB
- UNIVERSITY STA 71+32.27, 30.91' RT TO MISSISSIPPI STA 751+86.54, 14.18' RT REMOVE 7 LF CURB
- UNIVERSITY STA 71+24.24, 22.36' RT TO MISSISSIPPI STA 751+95.03, 10.37' RT REMOVE 19 SY CONCRETE CURB RAMP

Print Date: 5/16/2017	0000
File Name: 34993-REM-INT-Univ_Mississippi.dgn	
Horiz. Scale: 1:20 Vert. Scale: As Noted	
Unit Information Unit Leader Initials	
AECOM 6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600	

Sheet Revisions		
Date:	Comments	Init.


City & County of Denver

TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed	MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION REMOVALS	
No Revisions:	UNIVERSITY BLVD & MISSISSIPPI AVE	
Revised:	Designer: M. KRELL	Structure Numbers
Void:	Detailer:	Sheet Subsets
	Sheet Subset: ROADWAY	Subset Sheets: 6 of 7

Project No./Code	PZ03798-425
	34993
Sheet Number	38

margie.krell 2:40:59 PM M:\DCS\Projects\TRN 60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-REM-INT-Univ_Mississippi.dgn



Know what's below.
Call before you dig.

NOTES:

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VIRGINIA STA 851+23.64, 20.74' LT TO UNIVERSITY STA 81+84.37, 33.02' LT
REMOVE 2 SY CONCRETE MEDIAN COVER MATERIAL

VIRGINIA STA 851+24.52, 19.79' LT TO UNIVERISTY STA 81+82.75, 32.54' LT
REMOVE 6 LF CURB & GUTTER

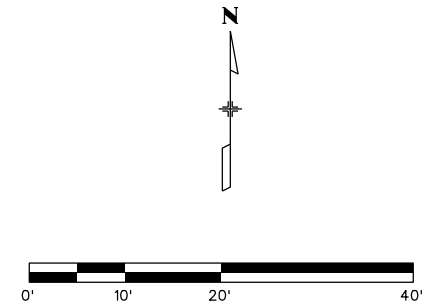
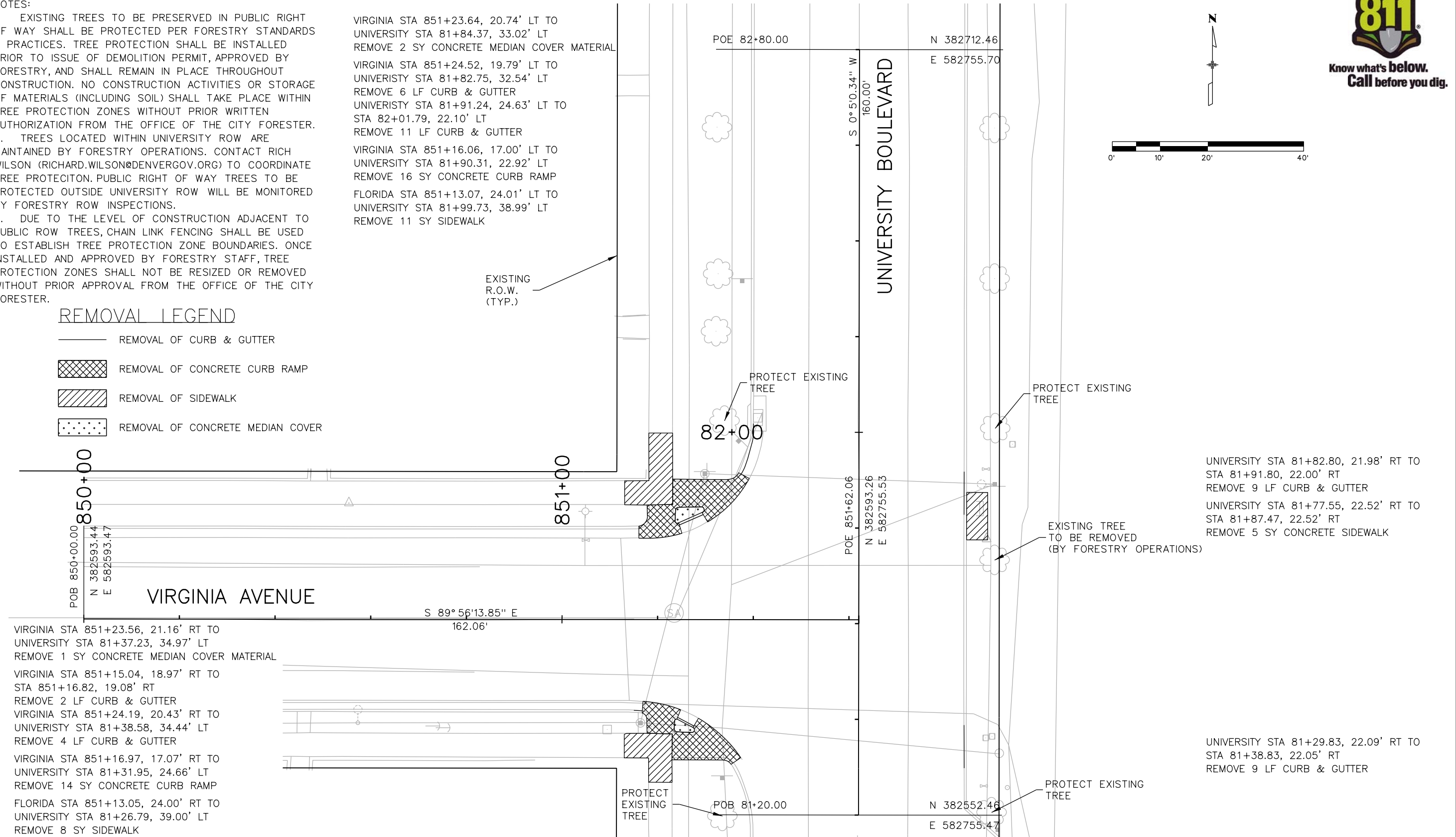
UNIVERISTY STA 81+91.24, 24.63' LT TO STA 82+01.79, 22.10' LT
REMOVE 11 LF CURB & GUTTER

VIRGINIA STA 851+16.06, 17.00' LT TO UNIVERSITY STA 81+90.31, 22.92' LT
REMOVE 16 SY CONCRETE CURB RAMP

FLORIDA STA 851+13.07, 24.01' LT TO UNIVERSITY STA 81+99.73, 38.99' LT
REMOVE 11 SY SIDEWALK

REMOVAL LEGEND

- REMOVAL OF CURB & GUTTER
- REMOVAL OF CONCRETE CURB RAMP
- REMOVAL OF SIDEWALK
- REMOVAL OF CONCRETE MEDIAN COVER



margie.krell 2:41:03 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_617.0_CAD_GIS\Plan_Sheets\34993-REM-INT-Univ_Virginia.dgn

VIRGINIA STA 851+23.56, 21.16' RT TO UNIVERSITY STA 81+37.23, 34.97' LT
REMOVE 1 SY CONCRETE MEDIAN COVER MATERIAL

VIRGINIA STA 851+15.04, 18.97' RT TO STA 851+16.82, 19.08' RT
REMOVE 2 LF CURB & GUTTER

VIRGINIA STA 851+24.19, 20.43' RT TO UNIVERISTY STA 81+38.58, 34.44' LT
REMOVE 4 LF CURB & GUTTER

VIRGINIA STA 851+16.97, 17.07' RT TO UNIVERSITY STA 81+31.95, 24.66' LT
REMOVE 14 SY CONCRETE CURB RAMP

FLORIDA STA 851+13.05, 24.00' RT TO UNIVERSITY STA 81+26.79, 39.00' LT
REMOVE 8 SY SIDEWALK

UNIVERSITY STA 81+82.80, 21.98' RT TO STA 81+91.80, 22.00' RT
REMOVE 9 LF CURB & GUTTER

UNIVERSITY STA 81+77.55, 22.52' RT TO STA 81+87.47, 22.52' RT
REMOVE 5 SY CONCRETE SIDEWALK

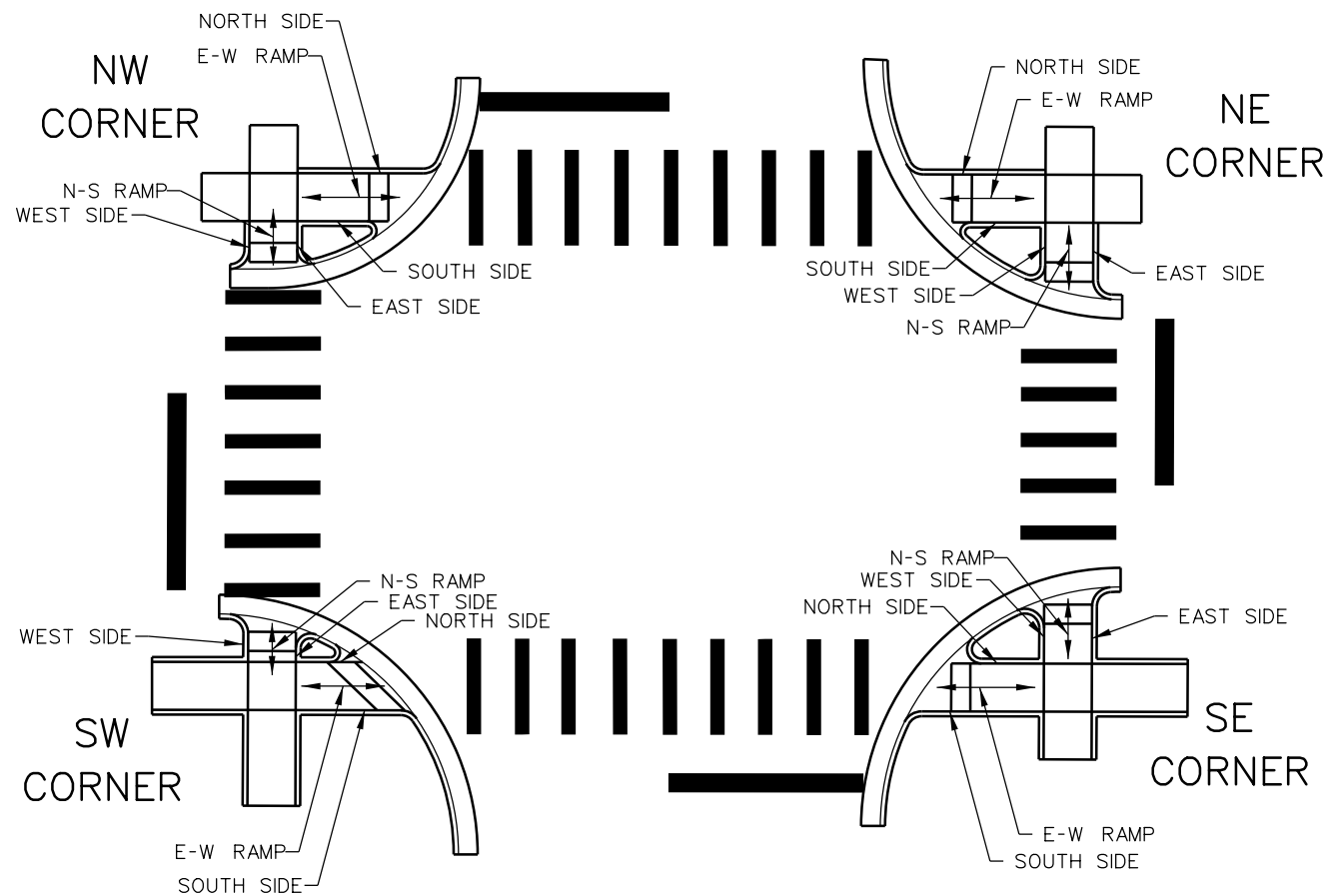
EXISTING TREE TO BE REMOVED (BY FORESTRY OPERATIONS)

UNIVERSITY STA 81+29.83, 22.09' RT TO STA 81+38.83, 22.05' RT
REMOVE 9 LF CURB & GUTTER

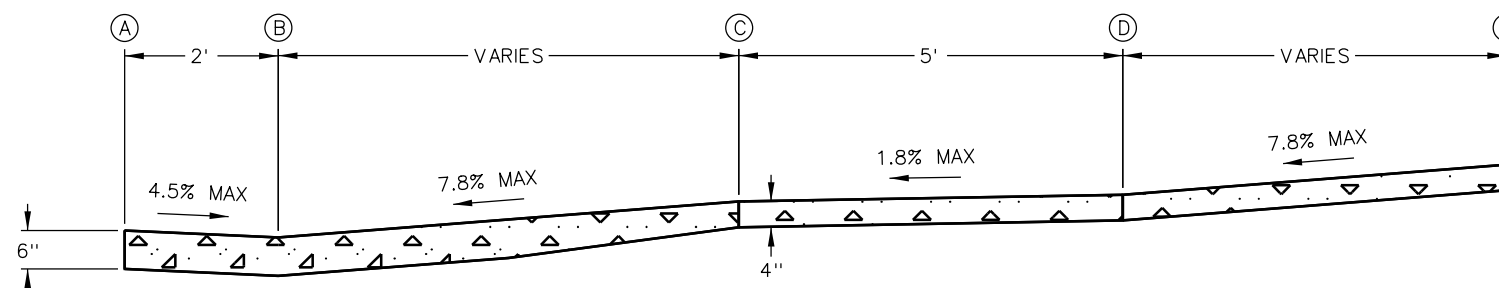
Print Date: 5/16/2017		Sheet Revisions				As Constructed		MILL LEVY 6 TRAFFIC SIGNALS		Project No./Code	
File Name: 34993-REM-INT-Univ_Virginia.dgn		Date:	Comments	Init.		No Revisions:		INTERSECTION REMOVALS		PZ03798-425	
Horiz. Scale: 1:20 Vert. Scale: As Noted					Revised:		UNIVERSITY BLVD & VIRGINIA AVE		34993		
Unit Information Unit Leader Initials					Void:		Designer: M. KRELL		Structure Numbers		
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600					Sheet Subset: ROADWAY		Detailer:		Subset Sheets: 7 of 7		
					City & County of Denver		5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815		Sheet Number 39		



Know what's below.
Call before you dig.



	Ramp Direction	Side of Ramp	Lip of Gutter			Flowline			Front of Landing			Back of Landing			Top of Ramp				
			Match Existing Pavement			Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Match Existing Sidewalk				
			Northing	Easting	Elev										Length	Slope	Northing	Easting	Elev
Corner	E-W	N	A			A to B	B	B to C	C	C to D	D	D to E	E	E	E	E	E	E	
		S	A			A to B	B	B to C	C	C to D	D	D to E	E	E	E	E	E	E	
	N-S	E	A			A to B	B	B to C	C	C to D	D	D to E	E	F	F	F	F	F	
		W	A			A to B	B	B to C	C	C to D	D	D to E	E	E	E	E	E	E	



TYPICAL CURB RAMP CROSS SECTION

Print Date: 5/16/2017

File Name: 34993-RD-INT-Detail.dgn

Horiz. Scale: 1:20

Vert. Scale: As Noted

Unit Information

Unit Leader Initials



6200 South Quebec Street
Greenwood Village, CO 80111
Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.



TRANSPORTATION
ENGINEERING DIVISION

5440 Roslyn Street
Denver, CO 80216
Phone: 720-865-6815

As Constructed

No Revisions:

Revised:

Void:

MILL LEVY 6 TRAFFIC SIGNALS
TYPICAL CURB RAMP DETAIL

Designer: M. KRELL

Detailer:

Sheet Subset: ROADWAY

Structure
Numbers

Subset Sheets: 1 of 8

Project No./Code

PZ03798-425

34993

Sheet Number 40

margie.krell 2:41:04 PM M:\DCS\Projects\TRN\60447633_Mill_Levy_6\7.0_CAD_GIS\Plan_Sheets\34993-RD-INT-Detail.dgn

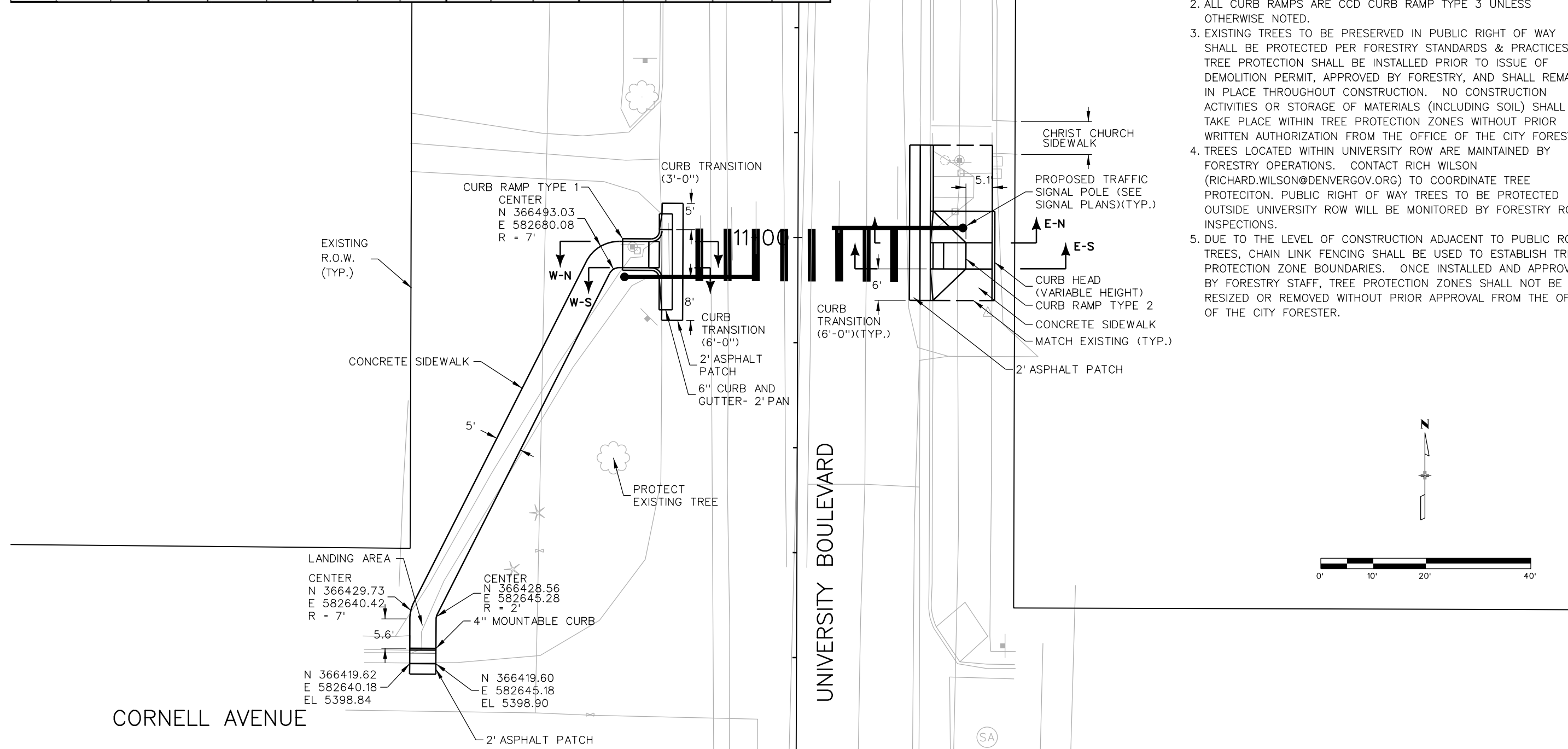


Know what's below.
Call before you dig.

NOTES:

1. ALL CURB RAMPS AND SIDEWALKS ARE 5' WIDE UNLESS OTHERWISE NOTED.
2. ALL CURB RAMPS ARE CCD CURB RAMP TYPE 3 UNLESS OTHERWISE NOTED.
3. EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
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Ramp Slope and Length Data																
	Ramp Direction	Side of Ramp	Lip of Gutter			Flowline			Top of Ramp			Back of Landing				
			Match Existing Pavement			Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Northing	Easting
			Northing	Easting	Elev											
W Side Univ	E-W	N	366499.98	582690.25	5397.78	2.00	-4.50%	5397.69	7.50	4.50%	5398.03				366500.02	582680.75
		S	366494.98	582690.23	5397.88	2.00	-4.50%	5397.79	7.50	4.00%	5398.09				366495.02	582680.73
E Side Univ	E-W	N	366512.36	582737.46	5397.51	2.00	-4.50%	5397.42	6.75	7.80%	5397.95	5.00	1.80%	5398.04	366512.31	582751.21
		S	366507.36	582737.44	5397.59	2.00	-4.50%	5397.50	6.75	7.80%	5398.03	5.00	1.80%	5398.12	366507.31	582751.19



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Print Date: 5/16/2017	
File Name: 34993-RD-INT-Univ_Cornell.dgn	
Horiz. Scale: 1:20 Vert. Scale: As Noted	
Unit Information Unit Leader Initials	
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600	

Sheet Revisions		
Date:	Comments	Init.

TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
No Revisions:
Revised:
Void:

MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION DETAIL			
UNIVERSITY BLVD BETWEEN BATES & CORNELL AVE			
Designer:	M. KRELL	Structure Numbers	
Detailer:		Subset Sheets:	2 of 8
Sheet Subset:	ROADWAY		

Project No./Code
PZ03798-425
34993
Sheet Number 41



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Ramp Slope and Length Data

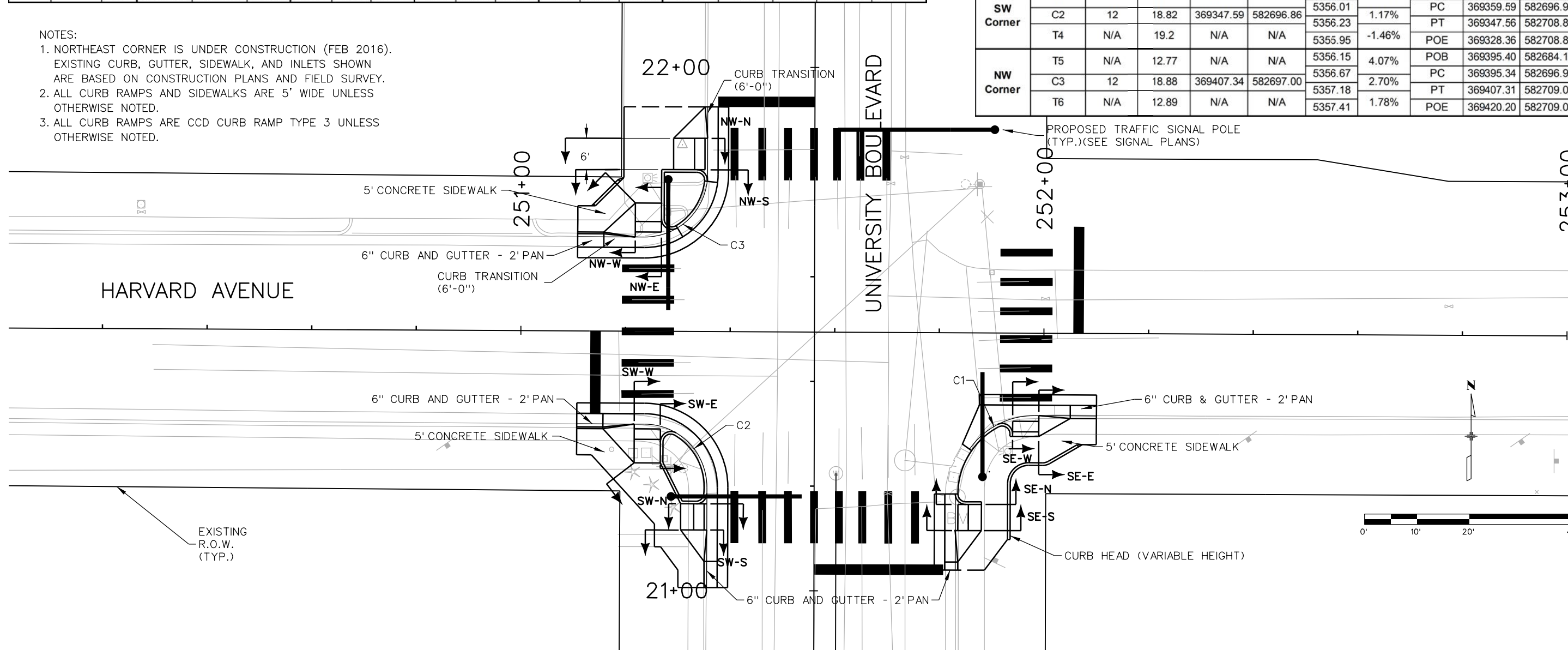
Ramp Direction	Side of Ramp	Lip of Gutter			Flowline			Top of Ramp			Back of Landing			Top Back of Curb (Match Existing Ground)					
		Match Existing Pavement			Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Width (FT)	Height (FT)	Elev	Northing	Easting	
		Northing	Easting	Elev															
SE Corner	N-S	E	369363.20	582772.34	5356.58	2.00	-4.50%	5356.49	4.00	7.80%	5356.80	5.00	1.80%	5356.89	0.50	0.54	5357.43	369351.70	582772.28
		W	369362.59	582766.79	5356.51	2.57	-4.50%	5356.39	3.43	7.80%	5356.66								
	E-W	N	369344.25	582754.35	5355.93	2.00	-4.50%	5355.84	5.00	7.80%	5356.23	5.00	1.80%	5356.32	0.50	0.64	5356.96	369344.22	582766.85
		S	369339.25	582754.34	5355.90	2.00	-4.50%	5355.81	5.00	7.80%	5356.20	5.00	1.80%	5356.29	0.50	0.74	5357.03	369339.22	582766.84
SW Corner	E-W	N	369344.35	582710.85	5356.23	2.00	-4.50%	5356.14	5.00	7.40%	5356.51								
		S	369339.35	582710.84	5356.18	2.00	-4.50%	5356.09	5.00	7.40%	5356.46	5.00	1.80%	5356.55				369339.38	582698.84
	N-S	E	369361.10	582700.51	5356.16	2.00	-4.50%	5356.07	7.02	7.00%	5356.56								
		W	369361.60	582695.00	5356.04	2.00	-4.50%	5355.95	7.42	7.00%	5356.47	5.75	1.80%	5356.57				369348.81	582691.26
NW Corner	E-W	N	369414.19	582711.02	5357.43	2.00	-4.50%	5357.34	6.50	5.10%	5357.67	9.50	1.67%	5357.83				369406.84	582693.00
		S	369408.19	582711.00	5357.32	2.00	-4.50%	5357.23	6.50	5.10%	5357.56	9.50	1.67%	5357.72				369408.24	582693.00
	N-S	E	369393.84	582700.70	5356.87	2.00	-4.50%	5356.78	6.06	7.55%	5357.24								
		W	369393.35	582695.16	5356.73	2.00	-4.50%	5356.64	6.50	7.80%	5357.15	5.00	1.80%	5357.24	0.50	0.31	5357.55	369405.40	582691.69

Flowline Data

Segment	Radius (FT)	Length (FT)	Center		Elev	Slope	Point	Point	
			Northing	Easting				Northing	Easting
SE Corner	T1	N/A	14.55	N/A	N/A	0.62%	POB	369331.69	582756.32
							PC	369346.25	582756.35
	C1	15	14.48	369346.21	582771.35	3.80%	PC	369354.81	582759.07
							PT	369361.21	582771.43
T2	N/A	11.90	N/A	N/A	2.61%	POE	369361.15	582783.33	
SW Corner	T3	N/A	12.93	N/A	N/A	4.33%	POB	369359.65	582683.99
							PC	369359.59	582696.92
	C2	12	18.82	369347.59	582696.86	1.17%	PC	369347.56	582708.86
							PT	369347.56	582708.86
T4	N/A	19.2	N/A	N/A	-1.46%	POE	369328.36	582708.81	
NW Corner	T5	N/A	12.77	N/A	N/A	4.07%	POB	369395.40	582684.17
							PC	369395.34	582696.94
	C3	12	18.88	369407.34	582697.00	2.70%	PC	369407.31	582709.00
							PT	369407.31	582709.00
T6	N/A	12.89	N/A	N/A	1.78%	POE	369420.20	582709.03	

NOTES:

- NORTHEAST CORNER IS UNDER CONSTRUCTION (FEB 2016). EXISTING CURB, GUTTER, SIDEWALK, AND INLETS SHOWN ARE BASED ON CONSTRUCTION PLANS AND FIELD SURVEY.
- ALL CURB RAMPS AND SIDEWALKS ARE 5' WIDE UNLESS OTHERWISE NOTED.
- ALL CURB RAMPS ARE CCD CURB RAMP TYPE 3 UNLESS OTHERWISE NOTED.

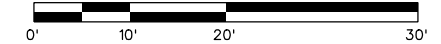
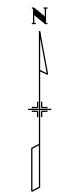


Print Date: 5/16/2017		Sheet Revisions				TRANSPORTATION ENGINEERING DIVISION 5440 Roslyn Street Denver, CO 80216 Phone: 720-865-6815	As Constructed		MILL LEVY 6 TRAFFIC SIGNALS			Project No./Code	
File Name: 34993-RD-INT-Univ_Harvard.dgn		Date:	Comments	Init.			No Revisions:	INTERSECTION DETAIL			PZ03798-425		
Horiz. Scale: 1:20 Vert. Scale: As Noted							Revised:	UNIVERSITY BLVD & HARVARD AVE			34993		
Unit Information Unit Leader Initials							Void:	Designer: M.KRELL	Structure Numbers	3 of 8		Sheet Number 42	
6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600						Sheet Subset: ROADWAY Subset Sheets:							

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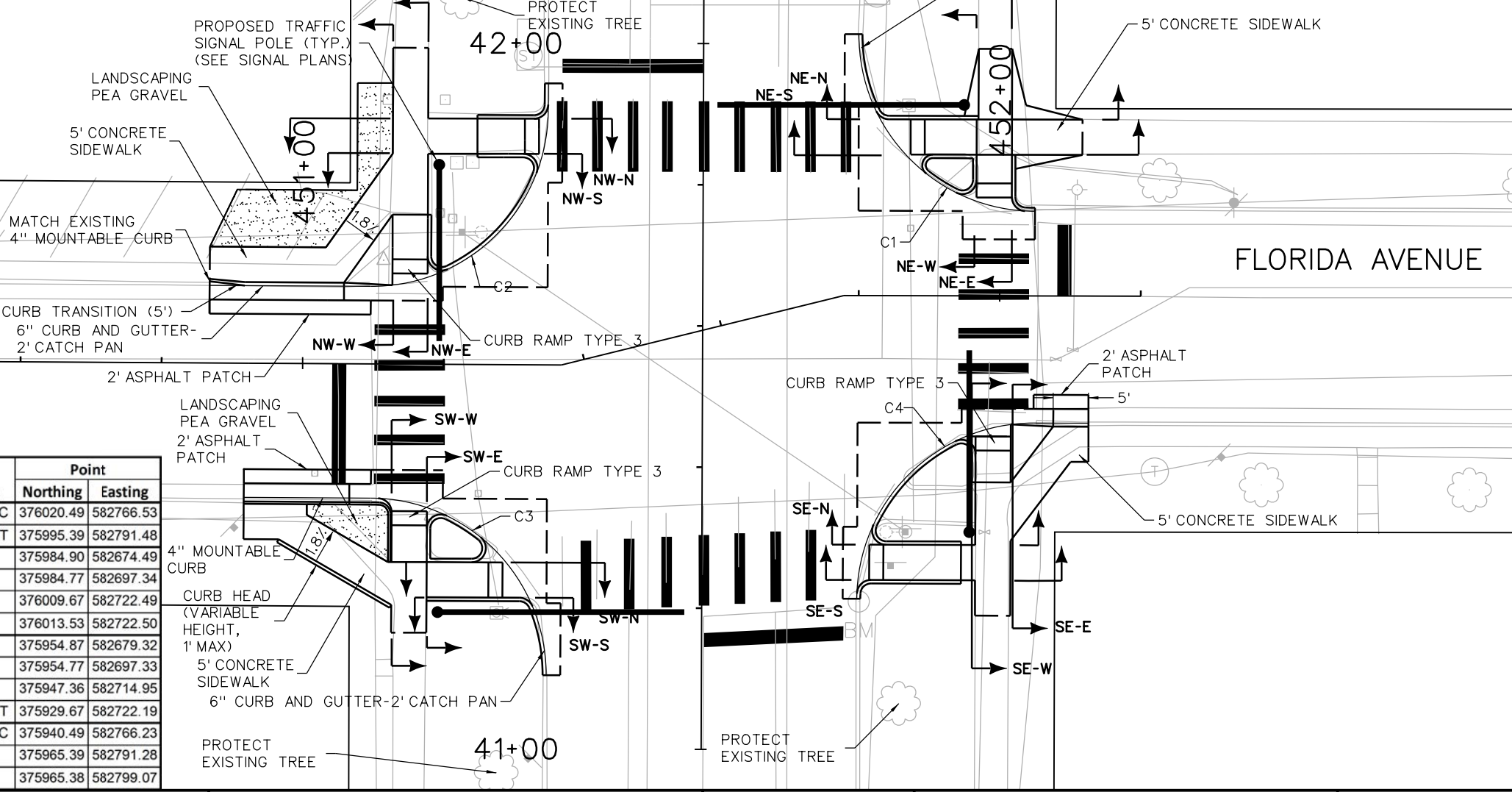


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Ramp Slope and Length Data																						
Corner	Ramp Direction	Side of Ramp	Lip of Gutter			Flowline			Front of Landing			Middle of Landing			Back of Landing			Top of Ramp				
			Match Existing Pavement			Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Match Existing Sidewalk				
			Northing	Easting	Elev													Length	Slope	Northing	Easting	Elev
NE Corner	E-W	N	376008.44	582767.32	5353.23	2.00	-4.50%	5353.14	13.70	5.80%	5353.93				5.00	1.80%	5354.02	10.00	5.85%	376008.38	582798.23	5354.61
		S	376003.34	582773.25	5353.31	2.00	-4.50%	5353.22	10.00	6.20%	5353.84				5.00	1.80%	5353.93	10.00	5.60%	376003.38	582798.22	5354.49
	N-S	E	375993.60	582788.19	5353.44	2.00	-4.50%	5353.35	7.80	7.40%	5353.93				5.00	1.80%	5354.02	10.00	4.63%	376018.40	582788.27	5354.48
		W	375994.71	582783.20	5353.42	2.00	-4.50%	5353.33	6.60	7.80%	5353.84				5.00	1.80%	5353.93	10.00	3.55%	376018.41	582783.53	5354.29
NW Corner	E-W	N	376008.53	582724.46	5353.09	2.00	-4.50%	5353.00	10.00	6.00%	5353.60				12.00	0.35%	5353.64			376008.55	582700.48	5353.64
		S	376003.53	582723.76	5353.08	2.00	-4.50%	5352.99	9.30	5.60%	5353.51				12.00	0.35%	5353.55			37603.59	582700.47	5353.55
	N-S	E	375983.95	582705.39	5352.75	2.00	-4.50%	5352.66	8.90	7.80%	5353.35	8.70	1.80%	5353.51	5.00	1.80%	5353.60	10.00	6.99%	376018.57	582700.52	5354.30
		W	375982.93	582700.50	5352.70	2.00	-4.50%	5352.61	10.00	7.80%	5353.39	8.70	1.80%	5353.55	5.00	1.80%	5353.64	10.00	5.63%	376018.56	582705.52	5354.20
SW Corner	E-W	N	375946.91	582718.05	5352.60	2.00	-4.50%	5352.51	10.75	5.95%	5353.15											
		S	375941.50	582721.51	5252.54	2.00	-4.50%	5252.45	14.48	5.46%	5253.24											
	N-S	E	375955.31	582705.93	5352.70	2.00	-4.50%	5352.61	7.21	7.49%	5353.15				5.00	1.80%	5353.24	5.00	2.80%	375935.68	582705.21	5353.38
		W	375956.56	582700.53	5352.66	2.00	-4.50%	5352.57	8.87	7.55%	5353.24				5.00	1.80%	5353.33	5.00	2.00%	375935.70	582700.21	5353.43
SE Corner	E-W	N	375948.16	582765.37	5352.69	2.00	-4.50%	5352.60	15.50	6.00%	5353.53				5.00	1.80%	5353.62			375948.11	582788.01	5353.62
		S	375943.16	582764.37	5352.59	2.00	-4.50%	5352.50	16.60	6.40%	5353.56				5.00	1.80%	5353.65			375943.09	582787.99	5353.65
	N-S	E	375967.21	582788.07	5353.48	2.00	-4.50%	5353.39	8.20	2.00%	5353.55	8.90	0.70%	5353.62	5.00	0.70%	5353.65	5.00	0.97%	375938.08	582787.97	5353.70
		W	375966.13	582783.05	5353.30	2.00	-4.50%	5353.21	7.00	3.00%	5353.42	8.90	1.20%	5353.53	5.00	0.70%	5353.56	5.00	-1.04%	375938.10	582782.97	5353.51

- NOTES:
1. ALL CURB RAMPS AND SIDEWALKS ARE 5' WIDE UNLESS OTHERWISE NOTED.
 2. ALL CURB RAMPS ARE CCD CURB RAMP TYPE 1 UNLESS OTHERWISE NOTED.
 3. EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
 4. TREES LOCATED WITHIN UNIVERSITY ROW ARE MAINTAINED BY FORESTRY OPERATIONS. CONTACT RICH WILSON (RICHARD.WILSON@DENVERGOV.ORG) TO COORDINATE TREE PROTECTION. PUBLIC RIGHT OF WAY TREES TO BE PROTECTED OUTSIDE UNIVERSITY ROW WILL BE MONITORED BY FORESTRY ROW INSPECTIONS.
 5. DUE TO THE LEVEL OF CONSTRUCTION ADJACENT TO PUBLIC ROW TREES, CHAIN LINK FENCING SHALL BE USED TO ESTABLISH TREE PROTECTION ZONE BOUNDARIES. ONCE INSTALLED AND APPROVED BY FORESTRY STAFF, TREE PROTECTION ZONES SHALL NOT BE RESIZED OR REMOVED WITHOUT PRIOR APPROVAL FROM THE OFFICE OF THE CITY FORESTER.



Flowline Data											
Corner	Segment	Radius (FT)	Length (FT)	Center		Elev	Slope	Point	Point		
				Northing	Easting				Northing	Easting	
NE Corner	C1	25	39.32	376020.39	582791.53	5353.31	0.48%	POB/PC	376020.49	582766.53	
						5353.5		POE/PT	375995.39	582791.48	
NW Corner	T1	N/A	22.86	N/A	N/A	5352.08	1.88%	POB	375984.90	582674.49	
	C2	25	39.32	376009.77	582697.49	5352.51		PC	375984.77	582697.34	
						5353.04		PT	376009.67	582722.49	
	T2	N/A	3.85	N/A	N/A	5353.03		-0.26%	POE	376013.53	582722.50
SW Corner	T3	N/A	18.02	N/A	N/A	5352.23	1.55%	POB	375954.87	582679.32	
						5352.51		PC	375954.77	582697.33	
	C3	25	39.22	375929.77	582697.19	5352.59		0.41%	MID	375947.36	582714.95
						5352.50		-0.46%	POE/PT	375929.67	582722.19
SE Corner	C4	25	39.22	375940.39	582791.23	5352.48	2.60%	POB/PC	375940.49	582766.23	
						5353.50		PT	375965.39	582791.28	
	T4	N/A	7.80	N/A	N/A	5353.62		1.54%	POE	375965.38	582799.07

Print Date: 5/16/2017

File Name: 34993-RD-INT-Univ_Florida.dgn
 Horiz. Scale: 1:20 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.

City & County of Denver

TRANSPORTATION ENGINEERING DIVISION

5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed	MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION DETAIL		Project No./Code
No Revisions:	UNIVERSITY BLVD & FLORIDA AVE		PZ03798-425
Revised:	Designer: M. KRELL	Structure Numbers	34993
Void:	Detailer:	Sheet Subset: ROADWAY	Sheet Number 43
	Subset Sheets: 4 of 8		

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Ramp Slope and Length Data

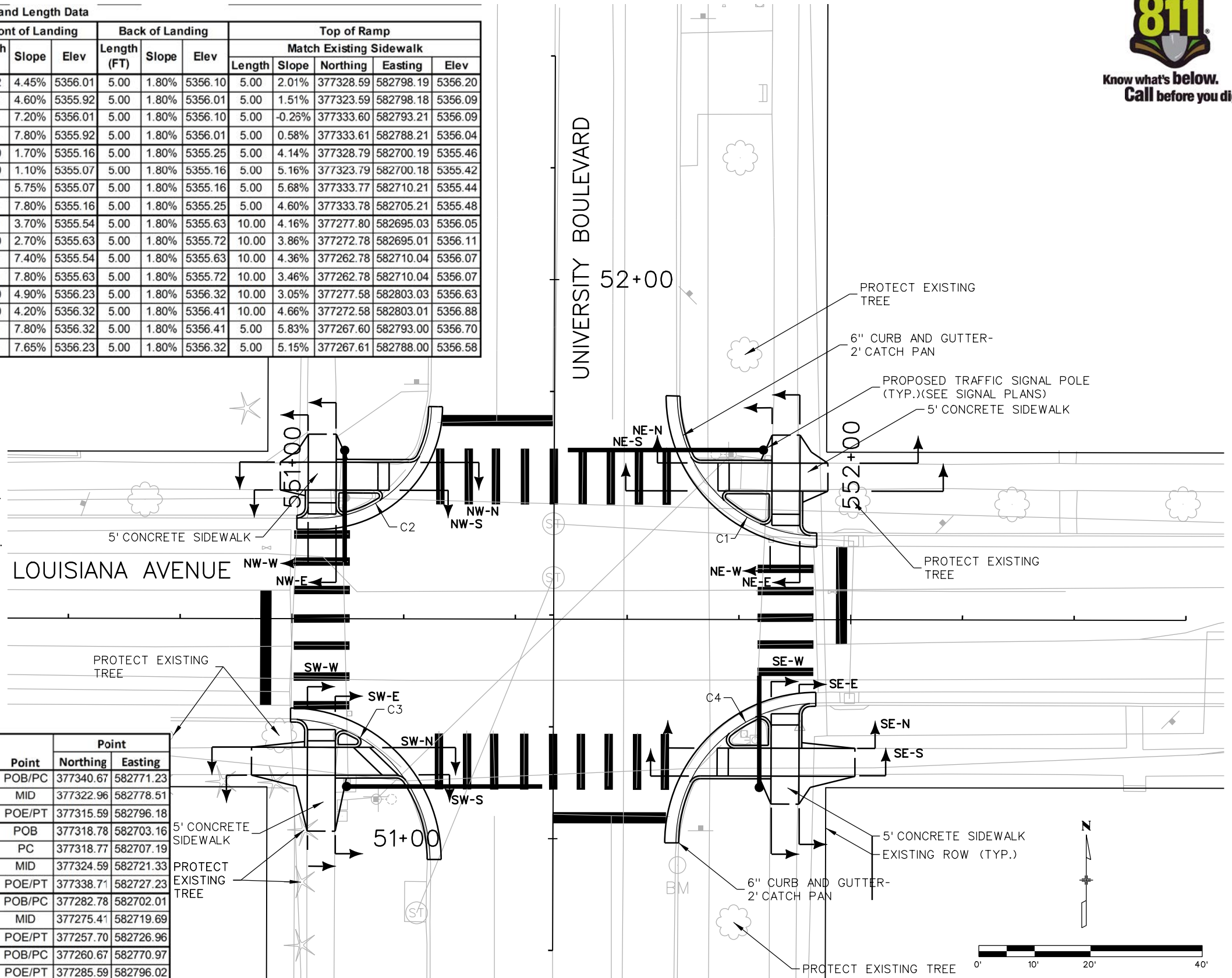
Corner	Ramp Direction	Side of Ramp	Lip of Gutter			Flowline			Front of Landing			Back of Landing			Top of Ramp				
			Match Existing Pavement			Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Match Existing Sidewalk				
			Northing	Easting	Elev										Length	Slope	Northing	Easting	Elev
NE Corner	E-W	N	377327.68	582772.52	5355.35	2.00	2.00%	5355.39	13.92	4.45%	5356.01	5.00	1.80%	5356.10	5.00	2.01%	377328.59	582798.19	5356.20
		S	377322.27	582776.40	5355.41	2.00	2.00%	5355.45	10.31	4.60%	5355.92	5.00	1.80%	5356.01	5.00	1.51%	377323.59	582798.18	5356.09
	N-S	E	377313.80	582792.91	5355.49	2.00	-2.00%	5355.45	7.82	7.20%	5356.01	5.00	1.80%	5356.10	5.00	-0.25%	377333.60	582793.21	5356.09
		W	377315.04	582787.51	5355.49	2.00	-4.50%	5355.40	6.68	7.80%	5355.92	5.00	1.80%	5356.01	5.00	0.58%	377333.61	582788.21	5356.04
NW Corner	E-W	N	377328.73	582726.80	5355.01	2.00	-4.50%	5354.92	14.30	1.70%	5355.16	5.00	1.80%	5355.25	5.00	4.14%	377328.79	582700.19	5355.46
		S	377323.74	582723.29	5355.05	2.00	-4.50%	5354.96	10.20	1.10%	5355.07	5.00	1.80%	5355.16	5.00	5.16%	377323.79	582700.18	5355.42
	N-S	E	377316.97	582710.16	5354.88	2.00	-4.50%	5354.79	4.80	5.75%	5355.07	5.00	1.80%	5355.16	5.00	5.68%	377333.77	582710.21	5355.44
		W	377316.78	582705.16	5354.82	2.00	-2.50%	5354.77	5.00	7.80%	5355.16	5.00	1.80%	5355.25	5.00	4.60%	377333.78	582705.21	5355.48
SW Corner	E-W	N	377277.74	582720.15	5355.30	2.00	-0.75%	5355.29	7.00	3.70%	5355.54	5.00	1.80%	5355.63	10.00	4.16%	377277.80	582695.03	5356.05
		S	377272.84	582724.37	5355.34	2.00	-1.50%	5355.31	12.00	2.70%	5355.63	5.00	1.80%	5355.72	10.00	3.86%	377272.78	582695.01	5356.11
	N-S	E	377283.55	582710.03	5355.30	2.00	-1.50%	5355.27	3.70	7.40%	5355.54	5.00	1.80%	5355.63	10.00	4.36%	377262.78	582710.04	5356.07
		W	377284.61	582705.04	5355.35	2.00	-4.50%	5355.26	4.80	7.80%	5355.63	5.00	1.80%	5355.72	10.00	3.46%	377262.78	582710.04	5356.07
SE Corner	E-W	N	377277.63	582775.03	5355.64	2.00	4.50%	5355.73	10.30	4.90%	5356.23	5.00	1.80%	5356.32	10.00	3.05%	377277.58	582803.03	5356.63
		S	377272.61	582771.80	5355.67	2.00	3.50%	5355.74	13.90	4.20%	5356.32	5.00	1.80%	5356.41	10.00	4.66%	377272.58	582803.01	5356.88
	N-S	E	377287.43	582793.05	5355.78	2.00	-3.50%	5355.71	7.80	7.80%	5356.32	5.00	1.80%	5356.41	5.00	5.83%	377267.60	582793.00	5356.70
		W	377286.40	582788.04	5355.71	2.00	0.50%	5355.72	6.70	7.65%	5356.23	5.00	1.80%	5356.32	5.00	5.15%	377267.61	582788.00	5356.58

NOTES:

- ALL CURB RAMPS AND SIDEWALKS ARE 5' WIDE UNLESS OTHERWISE NOTED.
- ALL CURB RAMPS ARE CCD CURB RAMP TYPE 1 WITH 5'x5' LANDINGS UNLESS OTHERWISE NOTED.
- EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
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- DUE TO THE LEVEL OF CONSTRUCTION ADJACENT TO PUBLIC ROW TREES, CHAIN LINK FENCING SHALL BE USED TO ESTABLISH TREE PROTECTION ZONE BOUNDARIES. ONCE INSTALLED AND APPROVED BY FORESTRY STAFF, TREE PROTECTION ZONES SHALL NOT BE RESIZED OR REMOVED WITHOUT PRIOR APPROVAL FROM THE OFFICE OF THE CITY FORESTER.

Flowline Data

Corner	Segment	Radius (FT)	Length (FT)	Center		Elev	Slope	Point	Point	
				Northing	Easting				Northing	Easting
NE Corner	C1	25	39.30	377340.59	582796.23	5355.38	0.51%	POB/PC	377340.67	582771.23
						5355.48		MID	377322.96	582778.51
						5355.32	-0.81%	POE/PT	377315.59	582796.18
NW Corner	T1	N/A	4.02	N/A	N/A	5354.77	0.25%	POB	377318.78	582703.16
						5354.78		PC	377318.77	582707.19
	C2	20	31.39	377338.77	582707.23	5354.96	1.15%	MID	377324.59	582721.33
						5354.88	-0.51%	POE/PT	377338.71	582727.23
SW Corner	C3	25	39.3	377257.78	582701.96	5355.18	0.61%	POB/PC	377282.78	582702.01
						5355.30		MID	377275.41	582719.69
						5355.40	0.51%	POE/PT	377257.70	582726.96
SE Corner	C4	25	39.24	377260.59	582795.97	5355.76		POB/PC	377260.67	582770.97
						5355.71	-0.13%	POE/PT	377285.59	582796.02



Print Date: 5/16/2017

File Name: 34993-RD-INT-Univ_Louisiana.dgn

Horiz. Scale: 1:20

Vert. Scale: As Noted

Unit Information

Unit Leader Initials



6200 South Quebec Street
Greenwood Village, CO 80111
Phone: 303-740-2600

Sheet Revisions

Date:	Comments	Init.



TRANSPORTATION ENGINEERING DIVISION

5440 Roslyn Street
Denver, CO 80216
Phone: 720-865-6815

As Constructed

No Revisions:

Revised:

Void:

MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION DETAIL

UNIVERSITY BLVD & LOUISIANA AVE

Designer:	M. KRELL	Structure Numbers	
Detailer:		Sheet Subset:	ROADWAY
		Subset Sheets:	5 of 8

Project No./Code

PZ03798-425

34993

Sheet Number 44

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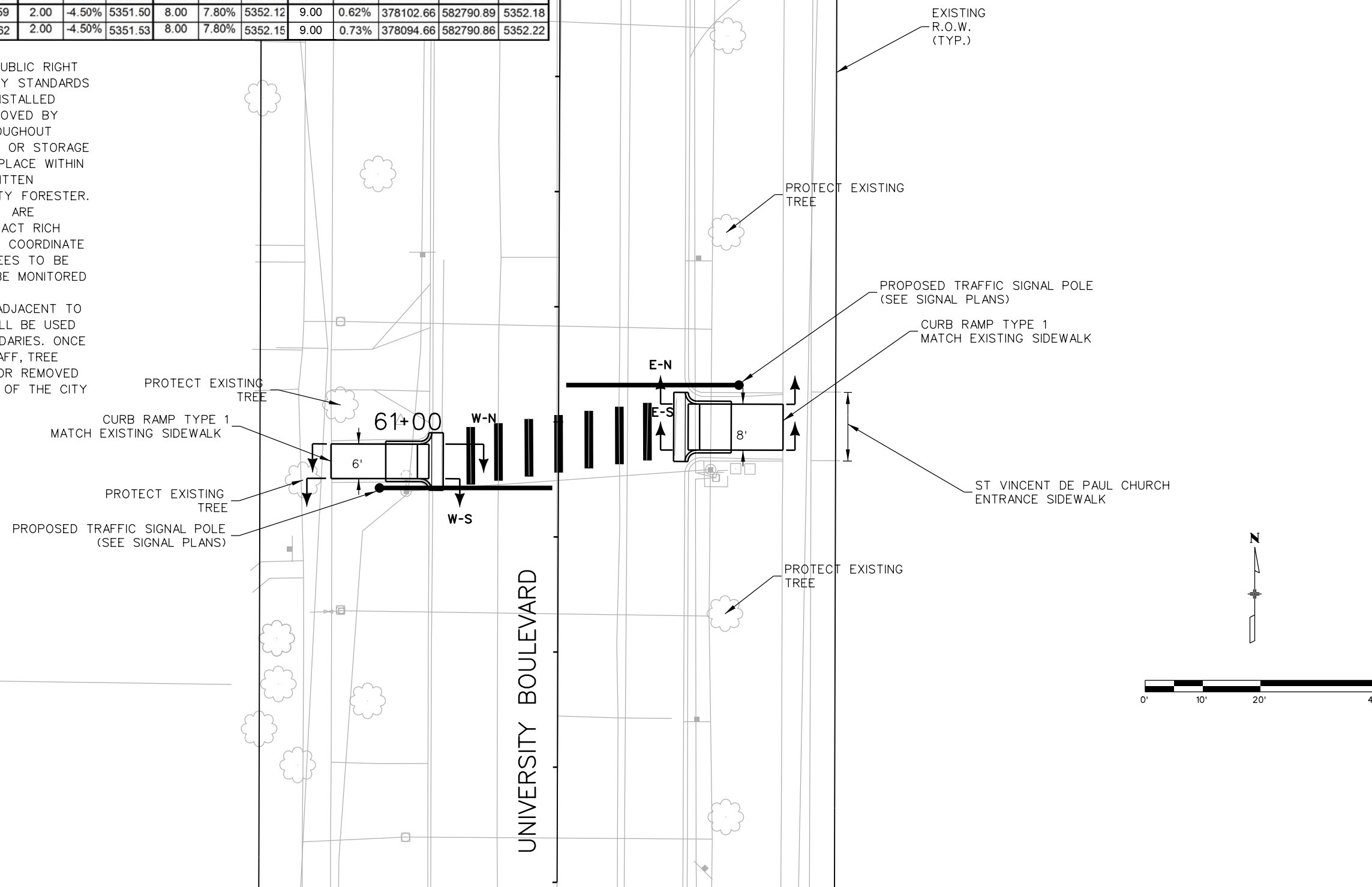
Know what's below.
Call before you dig.

Ramp Slope and Length Data

	Ramp Direction	Side of Ramp	Lip of Gutter			Flowline			Top of Ramp			Front of Sidewalk				
			Match Existing Pavement			Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Northing	Easting	Elev
			Northing	Easting	Elev											
W Side Univ	E-W	N	378095.71	582731.87	5351.31	2.00	-4.50%	5351.22	8.00	7.80%	5351.84	9.50	3.33%	378095.76	582712.37	5352.16
		S	378089.71	582731.85	5351.34	2.00	-4.50%	5351.25	8.00	7.80%	5351.87	9.50	1.75%	378089.76	582712.35	5352.04
E Side Univ	E-W	N	378102.72	582771.89	5351.59	2.00	-4.50%	5351.50	8.00	7.80%	5352.12	9.00	0.62%	378102.66	582790.89	5352.18
		S	378094.72	582771.86	5351.62	2.00	-4.50%	5351.53	8.00	7.80%	5352.15	9.00	0.73%	378094.66	582790.86	5352.22

NOTES:


- EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
- TREES LOCATED WITHIN UNIVERSITY ROW ARE MAINTAINED BY FORESTRY OPERATIONS. CONTACT RICH WILSON (RICHARD.WILSON@DENVERGOV.ORG) TO COORDINATE TREE PROTECTION. PUBLIC RIGHT OF WAY TREES TO BE PROTECTED OUTSIDE UNIVERSITY ROW WILL BE MONITORED BY FORESTRY ROW INSPECTIONS.
- DUE TO THE LEVEL OF CONSTRUCTION ADJACENT TO PUBLIC ROW TREES, CHAIN LINK FENCING SHALL BE USED TO ESTABLISH TREE PROTECTION ZONE BOUNDARIES. ONCE INSTALLED AND APPROVED BY FORESTRY STAFF, TREE PROTECTION ZONES SHALL NOT BE RESIZED OR REMOVED WITHOUT PRIOR APPROVAL FROM THE OFFICE OF THE CITY FORESTER.



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Print Date: 5/16/2017	
File Name: 34993-RD-INT-Univ_Arizona.dgn	
Horiz. Scale: 1:20	Vert. Scale: As Noted
Unit Information	Unit Leader Initials
AECOM	6200 South Quebec Street Greenwood Village, CO 80111 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.


City & County of Denver
TRANSPORTATION ENGINEERING DIVISION
 5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed
No Revisions:
Revised:
Void:

MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION DETAIL			
UNIVERSITY BLVD BETWEEN MISSISSIPPI & ARIZONA			
Designer:	M. KRELL	Structure Numbers:	
Detailer:		Sheet Subset:	ROADWAY
		Subset Sheets:	6 of 8

Project No./Code
PZ03798-425
34993
Sheet Number 45



Know what's below.
Call before you dig.

Ramp Slope and Length Data

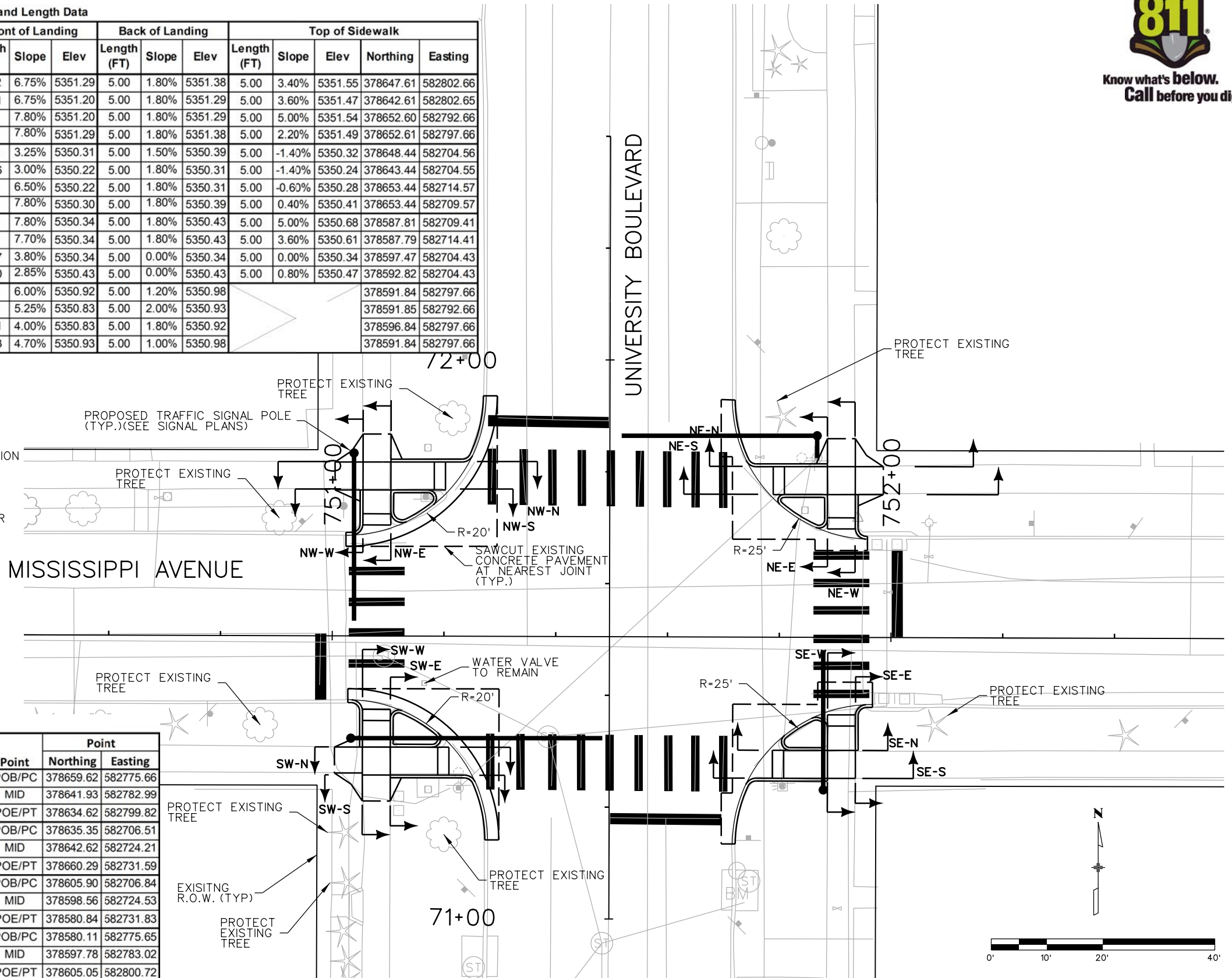
Corner	Ramp Direction	Side of Ramp	Lip of Gutter			Flowline			Front of Landing			Back of Landing			Top of Sidewalk				
			Match Existing Pavement			Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Length (FT)	Slope	Elev	Northing	Easting
			Northing	Easting	Elev														
NE Corner	E-W	N	378646.63	582776.98	5350.39	2.00	-2.00%	5350.35	13.92	6.75%	5351.29	5.00	1.80%	5351.38	5.00	3.40%	5351.55	378647.61	582802.66
		S	378641.24	582780.88	5350.54	2.00	-2.00%	5350.50	10.31	6.75%	5351.20	5.00	1.80%	5351.29	5.00	3.60%	5351.47	378642.61	582802.65
	N-S	W	378634.03	582792.01	5350.72	2.00	-2.00%	5350.68	6.68	7.80%	5351.20	5.00	1.80%	5351.29	5.00	5.00%	5351.54	378652.60	582792.66
		E	378632.81	582797.41	5350.77	2.00	-4.50%	5350.68	7.82	7.80%	5351.29	5.00	1.80%	5351.38	5.00	2.20%	5351.49	378652.61	582797.66
NW Corner	E-W	N	378647.48	582730.33	5349.94	2.00	-4.50%	5349.85	14.01	3.25%	5350.31	5.00	1.50%	5350.39	5.00	-1.40%	5350.32	378648.44	582704.56
		S	378642.08	582726.47	5350.00	2.00	-4.50%	5349.91	10.46	3.00%	5350.22	5.00	1.80%	5350.31	5.00	-1.40%	5350.24	378643.44	582704.55
	N-S	E	378634.74	582715.16	5349.87	2.00	-4.50%	5349.78	6.80	6.50%	5350.22	5.00	1.80%	5350.31	5.00	-0.60%	5350.28	378653.44	582714.57
		W	378633.53	582709.76	5349.77	2.00	-4.50%	5349.68	7.92	7.80%	5350.30	5.00	1.80%	5350.39	5.00	0.40%	5350.41	378653.44	582709.57
SW Corner	N-S	W	378607.75	582709.67	5349.78	2.00	-4.50%	5349.69	8.30	7.80%	5350.34	5.00	1.80%	5350.43	5.00	5.00%	5350.68	378587.81	582709.41
		E	378606.62	582715.06	5349.87	2.00	-4.50%	5349.78	7.27	7.70%	5350.34	5.00	1.80%	5350.43	5.00	3.60%	5350.61	378587.79	582714.41
	W-E	N	378598.74	582727.10	5350.01	2.00	-4.50%	5349.92	11.17	3.80%	5350.34	5.00	0.00%	5350.34	5.00	0.00%	5350.34	378597.47	582704.43
		S	378593.33	582730.80	5350.10	2.00	-4.50%	5350.01	14.60	2.85%	5350.43	5.00	0.00%	5350.43	5.00	0.80%	5350.47	378592.82	582704.43
SE Corner	N-S	E	378606.86	582797.43	5350.53	2.00	-4.50%	5350.44	8.03	6.00%	5350.92	5.00	1.20%	5350.98				378591.84	582797.66
		W	378605.64	582792.03	5350.56	2.00	-4.50%	5350.47	6.89	5.25%	5350.83	5.00	2.00%	5350.93				378591.85	582792.66
	W-E	N	378598.22	582780.68	5350.50	2.00	-4.50%	5350.41	10.51	4.00%	5350.83	5.00	1.80%	5350.92				378596.84	582797.66
		S	378592.83	582776.86	5350.30	2.00	-1.50%	5350.27	14.03	4.70%	5350.93	5.00	1.00%	5350.98				378591.84	582797.66

NOTES:

- ALL CURB RAMPS AND SIDEWALKS ARE 5' WIDE UNLESS OTHERWISE NOTED.
- ALL CURB RAMPS ARE CCD CURB RAMP TYPE 1 WITH 5'x5' LANDINGS UNLESS OTHERWISE NOTED.
- EXISTING TREES TO BE PRESERVED IN PUBLIC RIGHT OF WAY SHALL BE PROTECTED PER FORESTRY STANDARDS & PRACTICES. TREE PROTECTION SHALL BE INSTALLED PRIOR TO ISSUE OF DEMOLITION PERMIT, APPROVED BY FORESTRY, AND SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION. NO CONSTRUCTION ACTIVITIES OR STORAGE OF MATERIALS (INCLUDING SOIL) SHALL TAKE PLACE WITHIN TREE PROTECTION ZONES WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OFFICE OF THE CITY FORESTER.
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Flowline Data

Corner	Segment	Radius (FT)	Length (FT)	Center		Elev	Slope	Point	Point	
				Northing	Easting				Northing	Easting
NE Corner	C1	25	38.44	378659.61	582800.66	5350.28	1.82%	POB/PC	378659.62	582775.66
						5350.63		MID	378641.93	582782.99
						5350.52	-0.57%	POE/PT	378634.62	582799.82
NW Corner	C2	25	39.3	378660.35	582706.59	4349.61	1.58%	POB/PC	378635.35	582706.51
						4349.92		MID	378642.62	582724.21
						4349.76	-0.81%	POE/PT	378660.29	582731.59
SW Corner	C3	25	39.3	378580.90	582706.84	5349.59	1.68%	POB/PC	378605.90	582706.84
						5349.92		MID	378598.56	582724.53
						5349.99	0.36%	POE/PT	378580.84	582731.83
SE Corner	C4	25	40.96	378580.05	582800.65	5350.27	0.83%	POB/PC	378580.11	582775.65
						5350.44		MID	378597.78	582783.02
						5350.35	-0.44%	POE/PT	378605.05	582800.72



Print Date: 5/16/2017
 File Name: 34993-RD-INT-Univ_Mississippi.dgn
 Horiz. Scale: 1:20 Vert. Scale: As Noted
 Unit Information Unit Leader Initials
AECOM 6200 South Quebec Street
 Greenwood Village, CO 80111
 Phone: 303-740-2600

Sheet Revisions		
Date:	Comments	Init.

City & County of Denver

TRANSPORTATION ENGINEERING DIVISION

5440 Roslyn Street
 Denver, CO 80216
 Phone: 720-865-6815

As Constructed

No Revisions:
 Revised:
 Void:

MILL LEVY 6 TRAFFIC SIGNALS INTERSECTION DETAIL
UNIVERSITY BLVD & MISSISSIPPI AVE

Designer: M. KRELL
 Detailer:
 Sheet Subset: ROADWAY Subset Sheets: 7 of 8

Project No./Code

PZ03798-425

34993

Sheet Number 46

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