



LOCATION MAP

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

LOR-VAR HIGH VISIBILITY MARKINGS

CITY OF LORAIN
LORAIN COUNTY

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DESIGN EXCEPTIONS

NONE REQUIRED

ADA DESIGN WAIVERS

NONE REQUIRED

UNDERGROUND UTILITIES

Contact Two Working Days
Before You Dig

OHIO811.org
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
(Non members must be called directly)

PLAN PREPARED BY:

Engineering

LJB Inc.
6480 Rockside Woods South
Suite 290
Independence, Ohio 44131
(866) 552-3536 | LJBinc.com

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ENGINEER'S SEAL

STANDARD CONSTRUCTION DRAWINGS

SUPPLEMENTAL SPECIFICATIONS

SPECIAL PROVISIONS

FEDERAL PROJECT NUMBER

E260355

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

INSTALL HIGH VISIBILITY MARKINGS IN VARIOUS LOCATIONS THROUGHOUT THE CITY OF LORAIN. INSTALL NEW CURB RAMPS AND RRFBS AT PEARL AVE & E 31ST ST. INSTALL A PEDESTRIAN HYBRID BEACON AT GROVE AVE (SR 57) & E 33RD ST.

EARTH DISTURBED AREAS

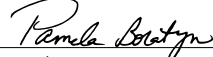
PROJECT EARTH DISTURBED AREA:	ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	ACRES

2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.


Robert Weaver
District 03 Deputy Director


Pamela Boratyn
Director, Department of Transportation

PRELIMINARY PLAN SUBMITTAL
SEPTEMBER 11, 2026

TITLE SHEET

DESIGN AGENCY



DESIGNER

ARW

REVIEWER

TVF 09-08-26

PROJECT ID

124448

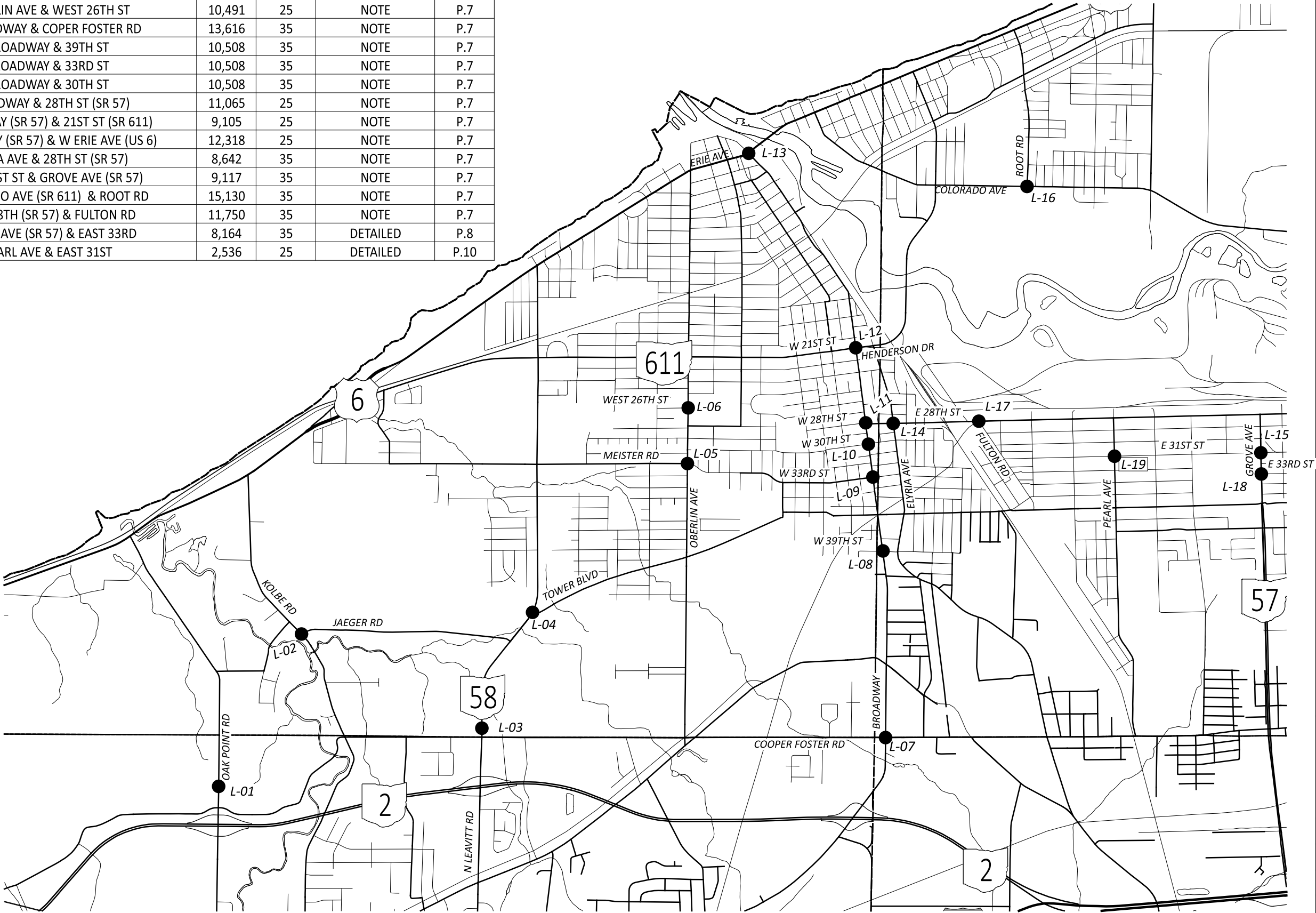
SHEET

P.1

TOTAL

15

LOCATION	ROAD NAME	ADT	SPEED (MPH)	PLAN STYLE	SHEET NUMBER
L-01	OAK POINT RD & PARK SQUARE DR / BUCK HORN BLVD	8,924	35	NOTE	P.7
L-02	KOLBE RD & JEAAGER RD	8,154	35	NOTE	P.7
L-03	MEIJER (STORE) & LEAVITT RD (SR 58)	23,789	40	NOTE	P.7
L-04	LEAVITT RD (SR 58) & TOWER BLVD	23,789	35	NOTE	P.7
L-05	OBERLIN AVE & MEISTER RD	10,491	35	NOTE	P.7
L-06	OBERLIN AVE & WEST 26TH ST	10,491	25	NOTE	P.7
L-07	S BROADWAY & COPER FOSTER RD	13,616	35	NOTE	P.7
L-08	BROADWAY & 39TH ST	10,508	35	NOTE	P.7
L-09	BROADWAY & 33RD ST	10,508	35	NOTE	P.7
L-10	BROADWAY & 30TH ST	10,508	35	NOTE	P.7
L-11	BROADWAY & 28TH ST (SR 57)	11,065	25	NOTE	P.7
L-12	BROADWAY (SR 57) & 21ST ST (SR 611)	9,105	25	NOTE	P.7
L-13	BROADWAY (SR 57) & W ERIE AVE (US 6)	12,318	25	NOTE	P.7
L-14	ELYRIA AVE & 28TH ST (SR 57)	8,642	35	NOTE	P.7
L-15	EAST 31ST ST & GROVE AVE (SR 57)	9,117	35	NOTE	P.7
L-16	COLORADO AVE (SR 611) & ROOT RD	15,130	35	NOTE	P.7
L-17	EAST 28TH (SR 57) & FULTON RD	11,750	35	NOTE	P.7
L-18	GROVE AVE (SR 57) & EAST 33RD	8,164	35	DETAILED	P.8
L-19	PEARL AVE & EAST 31ST	2,536	25	DETAILED	P.10



SCHEMATIC PLAN

DESIGN AGENCY



DESIGNER

ARW

REVIEWER

TVF 09-08-26

PROJECT ID

124448

SHEET

TOTAL

P.2

15

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

ELECTRIC

OHIO EDISON (DISTRIBUTION)

6326 LAKE AVE
ELYRIA, OH 44035
NATALIE CAMP
EMAIL: NCAMP@FIRSTENERGYCORP.COM
PHONE: (440) 241-9980

OHIO EDISON (TRANSMISSION)

76 S MAIN ST
AKRON, OH 44308
BRYAN HUNSCH
EMAIL: BHUNSCH@FIRSTENERGYCORP.COM
PHONE: (330) 384-5180

GAS

COLUMBIA GAS OF OHIO

3101 N RIDGE ROAD E
LORAIN, OH 44055
ADAM WOODIE
EMAIL: AWOODIE@NISOURCE.COM
PHONE: (440) 240-6144

SANITARY AND STORM SEWER

CITY OF LORAIN SEWER DEPARTMENT

1106 FIRST ST
LORAIN, OH 44052
ROBERT CULP
EMAIL: ROBERT_CULP@CITYOFLORAIN.ORG
PHONE: (440) 204-2500

TELECOMMUNICATIONS

BRIGHTSPEED

203 W 9TH ST
LORAIN, OH 44052
GERONIMO SALES
EMAIL: GERONIMO.O.SALES@BRIGHTSPEED.COM
PHONE: (440) 244-8330

CHARTER COMMUNICATIONS

578 TERNES RD
ELYRIA, OH 44138
DAN MCCAFFERTY
EMAIL: DMCCAFFERTY@CHARTER.COM
PHONE: (440) 204-2500

EVERSTREAM

1228 EUCLID AVE #250
CLEVELAND, OH 44115
GIO REILLO
EMAIL: GREILLO@EVERSTREAM.NET
PHONE: (216) 905-0780

TRAFFIC

CITY OF LORAIN

2132 WEST PARK DR
LORAIN, OH 44053
LES WICKER
EMAIL: LESTER_WICKER@CITYOFLORAIN.ORG
PHONE: (440) 714-2182

WATER

CITY OF LORAIN UTILITIES DEPARTMENT

1106 FIRST ST
LORAIN, OH 44052
JIM MALICK
EMAIL: JIM_MALICK@CITYOFLORAIN.ORG
PHONE: (440) 204-2285

SURVEYING PARAMETERS - OHIO COUNTY COORDINATE SYSTEM (OCCS)

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE THIS SHEET OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL
POSITIONING METHOD: ODOT VRS
MONUMENT TYPE: 3" LJB INC. DISK

VERTICAL POSITIONING
ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID 18 (CONUS)

HORIZONTAL POSITIONING
REFERENCE FRAME: NAD 83
ELLIPSOID: GRS80
COORDINATE SYSTEM: CUSTOM ODOT LORAIN LDP
MAP PROJECTION: LCC 1 PARALLEL
CENTRAL LATITUDE: N 41° 26' 29"
CENTRAL LONGITUDE: W 82° 07' 42"
FALSE NORTHING: 100,000 METERS
FALSE EASTING: 50,000 METERS
PROJECTION SCALE FACTOR: 1.000033

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET.

SURVEY CONTROL TABLE						
Name	Grid		Ground		Elevation	Description
	Northing	Easting	Northing	Easting		
1	N/A	N/A	343250.319	154029.019	630.527	3" LJB Disk
2	N/A	N/A	343635.752	154022.483	628.712	3" LJB Disk
11	N/A	N/A	342630.151	158540.984	635.139	3" LJB Disk
12	N/A	N/A	343083.198	158532.403	634.075	3" LJB Disk

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM 202 - WALK REMOVED, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 202:

- MARK THE WALK FOR REMOVAL AND OBTAIN CONCURRENCE BY THE ENGINEER.
- REMOVE AND DISPOSE OF THE EXISTING WALK TO THE NEAREST EXISTING JOINT.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE FOOT OF ITEM 202 - WALK REMOVED, AS PER PLAN.

ITEM 202 - CURB REMOVED, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 202:

- MARK THE CURB FOR REMOVAL AND OBTAIN CONCURRENCE BY THE ENGINEER.
- REMOVE AND DISPOSE OF CURB TO THE NEAREST EXISTING JOINT.
- SALVAGE STONE CURB FOR PICK UP BY THE CITY. IF THE CITY DOES NOT PICK UP THE CURB WITHIN 30 DAYS, DISPOSE OF THE CURB.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER FOOT OF ITEM 202 CURB REMOVED, AS PER PLAN.

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR (441), AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 251:

- REPAIR IS TO BE WITHIN THE LIMITS OF THE PROPOSED CROSSWALK ONLY.
- MARK THE LOCATION OF THE REPAIR AND OBTAIN CONCURRENCE OF THE ENGINEER.
- REMOVE AND DISPOSE OF THE WEARING SURFACE TO A DEPTH OF 2-1/2 INCHES.

- REPAIR SURFACES WITH 2-1/2 INCHES OF ITEM 441.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER SQUARE YARD OF ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN.

ITEM 608 - CURB RAMP, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 608, MARK AND OBTAIN CONCURRENCE BY THE ENGINEER ON THE PROPOSED CURB RAMP LOCATION AND STYLE.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER SQUARE FOOT OF ITEM 608 CURB RAMP, AS PER PLAN.

ITEM 608 - 4" CONCRETE WALK, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 608:

- MARK AND OBTAIN CONCURRENCE BY THE ENGINEER ON THE PROPOSED WALK LOCATION AND ELEVATION.
- CONSTRUCT AND FINISH SIDEWALK IN CONFORMANCE WITH LORAIN STANDARD DESIGNS PV-7.0, PV-8.0, AND PV-12.2.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER SQUARE FOOT OF ITEM 608 4" CONCRETE WALK, AS PER PLAN.

ITEM 609 - CURB, TYPE 6, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 609, PROVIDE AGGREGATE BASE AND SUBGRADE COMPACTION AS DETAILED IN THESE PLANS.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER SQUARE FOOT OF ITEM 608 4" CONCRETE WALK, AS PER PLAN. FULL DEPTH PAVEMENT ADJACENT TO THE CURB IS PAID FOR SEPARATELY.

ITEM 619 - FIELD OFFICE, TYPE B, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 619, THE CONTRACTOR SHALL FURNISH AND SET UP A WI-FI ROUTER MEETING THE REQUIREMENTS OF IEEE 802.11AC FOR THE EXCLUSIVE USE OF THE DEPARTMENT.

ALL OTHER FIELD OFFICE ITEMS SUPPLIED SHALL MEET THE REQUIREMENTS OF A TYPE B FIELD OFFICE.

THE FOLLOWING QUANTITY IS FORWARDED TO THE GENERAL SUMMARY:

7 MONTHS ITEM 619, FIELD OFFICE, TYPE B, AS PER PLAN

ITEM 625 - CONDUIT, JACKED OR DRILLED, 725.051, <BY SIZE>, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 625.14:

- PROVIDE LOCATING AND DEPTH FINDING FOR INTERSECTING UTILITIES AS DIRECTED BY THE ENGINEER.
- USE A LOW IMPACT SYSTEM, SUCH AS A VACUUM / HYDRO TRUCK TO POT HOLE PAVEMENT OR EARTH AREAS.
- RESTORE PAVED AREAS ACCORDING TO CMS 625.13 USING THE THICKNESS FOR TRENCH IN PAVED AREAS, TYPE B. ENSURE THE RESTORED AREAS BY FILLING THE RESULTING POT HOLE. ENSURE THE RESTORED AREAS ARE SAFE FOR VEHICULAR OR PEDESTRIAN TRAFFIC.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER FOOT OF ITEM 625 - CONDUIT, JACKED OR DRILLED, 725.051, <BY SIZE>, AS PER PLAN.



ITEM 630 - SIGNING MISC.: SOLAR-POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB) ASSEMBLY

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING A SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY. THE FLASHING UNIT SHALL BE SOLAR POWERED, PEDESTRIAN ACTIVATED, AND 2-SIDED WITH TWO LED ARRAY BASED YELLOW INDICATIONS ON EACH SIDE. MULTIPLE UNITS SHALL BE WIRELESSLY CONTROLLED AND SYNCHRONIZED. THE UNIT SHALL BE COMPLIANT WITH THE MOST CURRENT OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) AND FHWA INTERIM APPROVAL FOR RRFBs (IA-21).

GENERAL REQUIREMENTS:

- 1. EACH RRFB SHALL CONSIST OF TWO RAPIDLY FLASHED RECTANGULAR-SHAPED YELLOW INDICATIONS HAVING LED ARRAY BASED LIGHT SOURCE.
- 2. EACH RRFB SHALL BE A COMPLETE ASSEMBLY, CONSISTING OF BUT NOT LIMITED TO, SIGNAGE, SIGN MOUNTING HARDWARE, INDICATIONS AND ELECTRICAL COMPONENTS (WIRING, SOLID-STATE CIRCUIT BOARDS, ETC.).
- 3. EACH RRFB SHALL CONTAIN A PEDESTRIAN INDICATION LIGHT VISIBLE BY THE PEDESTRIAN IN THE DIRECTION OF TRAVEL.

FUNCTIONAL REQUIREMENTS

- 1. EACH RRFB SHALL UTILIZE SOLAR POWER.
- 2. EACH RRFB SHALL BE ACTIVATED BY ADA COMPLIANT PUSHBUTTONS.
- 3. THE RRFB SHALL BE NORMALLY DARK, SHALL INITIATE OPERATION ONLY UPON PEDESTRIAN ACTUATION, AND SHALL CEASE OPERATION AFTER A PREDETERMINED TIME LIMIT (BASED ON OMUTCD PROCEDURES).
- 4. EACH REMOTE RRFB SHALL BE WIRELESSLY ACTIVATED.
- 5. ALL RRFB LIGHT INDICATIONS SHALL BE WIRELESSLY SYNCHRONIZED (ALL LIGHTS WILL TURN ON WITHIN 120 MSEC AND REMAIN SYNCHRONIZED THROUGHOUT THE DURATION OF THE FLASHING CYCLE).
- 6. THE UNIT SHALL BE CAPABLE OF RUNNING 14 DAYS WITHOUT SUNLIGHT.

MATERIALS

FURNISH A COMPLETE ASSEMBLY, CONSISTING OF BUT NOT LIMITED TO, SIGNAGE, SIGN MOUNTING HARDWARE, INDICATIONS, AND ELECTRICAL COMPONENTS (WIRING, SOLID-STATE CIRCUIT BOARDS, ETC.). THE RRFB ASSEMBLY INCLUDES THE FOLLOWING ITEMS:

RRFB INDICATIONS

- A. EACH RRFB INDICATION LENS SHALL BE A MINIMUM SIZE OF APPROXIMATELY 5" WIDE X 2" HIGH.
- B. THE RRFB INDICATIONS SHALL BE ALIGNED HORIZONTALLY, WITH THE LONGER DIMENSION OF THE INDICATION HORIZONTAL. THERE SHALL BE TWO INDICATIONS ON THE FRONT AND TWO INDICATIONS ON THE BACK.
- C. EACH RRFB SHALL BE SUPPLIED WITH ALL REQUIRED HARDWARE TO INSTALL ASSEMBLY. ALL EXPOSED HARDWARE SHALL BE ANTI-VANDAL.
- D. EACH RRFB SHALL BE LOCATED BETWEEN THE BOTTOM OF THE CROSSING WARNING SIGN AND THE TOP OF THE SUPPLEMENTAL DOWNWARD DIAGONAL ARROW PLAQUE.
- E. THE LIGHT INTENSITY OF THE YELLOW INDICATIONS SHALL MEET THE MINIMUM CLASS 1 SPECIFICATIONS OF SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) STANDARD J595 (DIRECTIONAL FLASHING OPTICAL WARNING DEVICES FOR AUTHORIZED EMERGENCY, MAINTENANCE, AND SERVICE VEHICLES) DATED JANUARY, 2005.

F. TO MINIMIZE EXCESSIVE GLARE DURING NIGHTTIME CONDITIONS, AN AUTOMATIC SIGNAL DIMMING DEVICE SHALL BE USED TO REDUCE THE BRILLIANCE OF THE RRFB INDICATIONS.

G. AN LED PEDESTRIAN CONFIRMATION LIGHT DIRECTED AT AND VISIBLE TO PEDESTRIANS IN THE CROSSWALK SHALL BE INSTALLED INTEGRAL TO THE RRFB OR PUSHBUTTON TO GIVE CONFIRMATION THAT THE RRFB IS IN OPERATION.

H. THE PEDESTRIAN CONFIRMATION LIGHT SHALL HAVE A MINIMUM AREA OF 0.5 SQUARE INCHES AND BE CONSPICUOUS TO PEDESTRIANS AT ALL DISTANCES FROM THE BEGINNING OF THE CONTROLLED CROSSWALK TO A POINT 10 FEET FROM THE END OF THE CONTROLLED CROSSWALK DURING BOTH DAY AND NIGHT.

I. EACH RRFB SHALL INCLUDE THE PEDESTRIAN LIGHT SHOWN IN SCD TC-87.10, DISCUSSED IN NOTE 12 OF THE SCD. THE LIGHT SHALL BE ORIENTED TO ILLUMINATE THE CURB RAMP ASSOCIATED WITH THE RRFB CROSSING AND ROADWAY ADJACENT TO THE CURB RAMP.

SIGNS

- A. ALL SIGN ASSEMBLIES SHALL USE ANTI-VANDAL FASTENERS TO MOUNT COMPONENTS TO SIGN AND SIGN TO FIXTURE.
- B. PEDESTRIAN PUSHBUTTON SIGNS SHALL BE PROVIDED AND INCLUDE THE LEGEND "PUSH BUTTON TO TURN ON WARNING LIGHTS". SIGNS SHOULD BE MOUNTED ADJACENT TO OR INTEGRAL WITH EACH PEDESTRIAN PUSHBUTTON.
- C. TWO SETS OF SIGNS SHALL BE REQUIRED PER UNIT FOR VIEW FROM EACH APPROACH.
- D. ASSURE SIGN MEETS THE REQUIREMENTS OF C&MS 630.

CONTROL CIRCUIT

- A. THE CONTROL CIRCUIT SHALL HAVE THE CAPABILITY OF INDEPENDENTLY FLASHING UP TO TWO INDEPENDENT OUTPUTS. THE LED LIGHT OUTPUTS AND FLASH PATTERN SHALL BE COMPLETELY PROGRAMMABLE.
- B. THE CONTROL CIRCUIT SHALL BE SEALED WATERTIGHT TO ELIMINATE DIRT CONTAMINATION AND ALLOW FOR SAFE HANDLING IN ALL WEATHER CONDITIONS.
- C. THE LEDS SHALL BE SEALED AGAINST DUST AND MOISTURE INTRUSION AS PER THE REQUIREMENTS OF NEMA STANDARD 250-1991 FOR TYPE 4 ENCLOSURE AND TO PROTECT ALL INTERNAL LED AND ELECTRICAL COMPONENTS.

BATTERY AND SOLAR PANELS

- A. BATTERY UNIT SHALL BE A 12VDC, 35 AHR MINIMUM, SEALED GEL OR AGM LEAD ACID BATTERY. BATTERIES SHALL HAVE A WRITTEN TWO YEAR FULL REPLACEMENT WARRANTY.
- B. THE SOLAR PANEL SHALL PROVIDE A MINIMUM OF 40 WATTS PEAK TOTAL OUTPUT.
- C. THE SOLAR PANEL SHALL BE MOUNTED TO AN ALUMINUM PLATE AND BRACKET AT AN ANGLE OF 45 DEGREES-60 DEGREES TO PROVIDE MAXIMUM OUTPUT.
- D. ALL FASTENERS USED SHALL BE ANTI-VANDAL.

WIRELESS RADIO

- A. RADIO CONTROL SHALL OPERATE ON A 900 MHZ FREQUENCY HOPPING SPREAD SPECTRUM NETWORK, WI-FI OR APPROVED EQUAL.

B. RADIO SHALL INTEGRATE COMMUNICATION OF RRFB CONTROL CIRCUIT TO ACTIVATE SIGN FROM PUSHBUTTON INPUT.

C. THE RADIO SHALL BE SYNCHRONIZED SO ALL OF THE REMOTE RRFB LIGHT INDICATIONS WILL TURN ON WITHIN 120 MSEC OF EACH OTHER AND REMAIN SYNCHRONIZED THROUGH-OUT THE DURATION OF THE FLASHING CYCLE.

PUSHBUTTON

- A. THE PUSHBUTTON SHALL BE CAPABLE OF CONTINUOUS OPERATION OVER A TEMPERATURE RANGE OF -30 DEGREES F TO +165 DEGREES F.
- B. PUSHBUTTON SHALL BE ADA COMPLIANT.

PEDESTAL SHAFT AND BASE

MOUNT ON A STANDARD 4.5-INCH OD ALUMINUM PEDESTAL POLE WITH BREAKAWAY BASE. A 14 FOOT POLE SHALL BE PROVIDED AND FIELD ADJUSTED AND CAPPED TO MAINTAIN THE PROPER SIGN MOUNTING HEIGHTS, UNLESS SPECIFIED OTHERWISE IN THE PLANS. POLE AND BASE MANUFACTURER SHALL BE LISTED ON ODOT'S QUALIFIED PRODUCTS LIST.

CONSTRUCTION

THE RRFB SHALL BE ASSEMBLED AND CONSTRUCTED BY THE CONTRACTOR AS SHOWN AND SPECIFIED ON THE PLANS.

WARRANTY

WARRANTY SHALL BE TWO YEARS FROM THE DATE OF FINAL ACCEPTANCE.

MEASUREMENT

THE DEPARTMENT WILL MEASURE THE ITEM COMPLETE IN PLACE, INCLUDING ALL MATERIALS, TESTING, LABOR AND SOFTWARE FOR A FULLY FUNCTIONAL UNIT.

PAYMENT

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE PER EACH FOR ITEM 630 "SIGNING MISC.: SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY".

ITEM 632 - ACCESSIBLE PEDESTRIAN PUSHBUTTON, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 632.09 AND 732.06:

- 1. BEFORE ORDERING, FURNISHING AND INSTALLING ANY ACCESSIBLE PUSHBUTTONS, COMPLETE A SITE SURVEY OF THE CONTROLLER AND WIRING TO DETERMINE IF INSTALLATION IS FEASIBLE.
- 2. PROVIDE AND RETROFIT AN ACCESSIBLE PEDESTRIAN PUSHBUTTON. FURNISH MATERIALS ACCORDING TO ODOT'S QUALIFIED PRODUCT LIST. PROVIDE A BRAILLE PEDSTRIAN PUSHBUTTON SIGN.
- 3. REMOVE EXISTING PEDESTRIAN PUSHBUTTONS.
- 4. IF INSUFFICIENT CONDUCTORS EXIST, PROVIDE ALL REQUIRED CABLING. EXISTING CABLE MAY USED AS PULL WIRE IF NOT OTHERWISE NEEDED FOR OPERATION OF THE SIGNAL INSTALLATION. REMOVE UNUSED CABLE.
- 5. PROVIDE AND INSTALL INTERFACE DEVICES AND PANELS IN THE CONTROLLER CABINET. PROVIDE, RETROFIT AND PROGRAM CENTRAL CONTROL UNITS, INTERCONNECT BOARDS, INTERNAL CABINET WIRING TO LOAD SWITCHES AND INTERNAL CABINET WIRING TO PEDESTRIAN CALL INPUTS.

6. PROGRAM THE PUSHBUTTONS TO ADJUST TONE AND VOLUME AUTOMATICALLY BASED ON THE AMBIENT NOISE LEVEL.

7. TEST THE ACCESSIBLE PUSHBUTTONS IN THE PRESENCE OF THE ENGINEER AFTER THE INSTALLATION IS COMPLETE.

8. FURNISH 8 HOURS OF TRAINING IN THE OPERATION, SETUP AND MAINTENANCE OF THE ACCESSIBLE PEDESTRIAN BUTTON SYSTEM. FURNISH ALL HANDOUTS, MANUALS, AND PRODUCT INFORMATION. TRAIN ON THE SAME MODELS OF EQUIPMENT FURNISHED FOR THE PROJECT. THE MAINTAINING AGENCY SHALL FURNISH THE FACILITIES FOR THE TRAINING TO TAKE PLACE. FURNISH ALL MEDIA AND TEST EQUIPMENT NEEDED TO PRESENT THE TRAINING. TRAINING INSTRUCTOR(S) SHALL BE MANUFACTURER-CERTIFIED, EXPERIENCED IN THE SKILL OF TRAINING OTHERS AND HAVE CONDUCTED A MINIMUM OF THREE ONE DAY TRAININGS ON ACCESSIBLE PEDESTRIAN PUSHBUTTONS. COORDINATE TRAINING WITH THE ENGINEER A MINIMUM OF 30 DAYS IN ADVANCE OF PROPOSED DATE OF TRAINING.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID FOR EACH "ITEM 632 ACCESSIBLE PUSHBUTTON, AS PER PLAN"INCLUDING ALL INCIDENTALS, INTERFACE DEVICES, WIRING PANELS, PEDESTRIAN PUSHBUTTON SIGNS, CONNECTIONS, AND PROGRAMMING NECESSARY TO PROVIDE A COMPLETE, FULLY FUNCTIONING ACCESSIBLE PUSH BUTTON SYSTEM.

ITEM 632 - PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732 THE FOLLOWING SHALL APPLY:

- 1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
- 2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- 3. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
- 4. THE PEDESTRIAN SIGNAL HEAD SHALL BE OF THE LED COUNTDOWN TYPE.
- 5. NEW ATTACHMENT HARDWARE AND FITTINGS SHALL BE USED.
- 6. THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

PAYMENT FOR ITEM 632 PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN SHALL BE MADE FOR THE NUMBER OF COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

DESIGN AGENCY



DESIGNER
EDA

REVIEWER
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ITEM 632 - PEDESTAL FOUNDATION, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS ITEM 632:

1. MARK THE LOCATION AND OBTAIN CONCURRENCE OF THE ENGINEER BEFORE DRILLING FOUNDATIONS.
2. PLACE FOUNDATIONS FLUSH WITH ADJACENT WALK IN ACCORDANCE WITH TC-83.20.
3. CONSTRUCT THE FOUNDATION IN ACCORDANCE WITH HL-10.13.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH OF ITEM 632 PEDESTAL FOUNDATION, AS PER PLAN.

ITEM 632 - TEST HOLE PERFORMED

TO MINIMIZE CONFLICTS WITH UNDERGROUND UTILITIES, POTHOLE EXCAVATE LOCATIONS FOR POLE, SUPPORT AND PEDESTAL FOUNDATIONS AS DIRECTED BY THE ENGINEER. VACUUM EXCAVATE THE TOP FOUR FEET OF FOUNDATIONS. CONTRACTOR MAY BE REQUIRED TO VACUUM EXCAVATE BELOW ADJACENT UTILITY DEPTH.

PLACE FOUNDATION ITEMS AS NEAR TO THE LOCATIONS SHOWN IN THE PLANS AS POSSIBLE. VACUUM EXCAVATE TO ENSURE NO UTILITY CONFLICTS. NOTIFY THE ENGINEER OF ANY CONFLICTS AND COORDINATE WITH THE APPROPRIATE UTILITY COMPANY.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE UNDER CMS ITEM 632 "TEST HOLE PERFORMED" FOR EACH TEST HOLE PERFORMED, WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, AND INCIDENTALS.

ITEM 632 - SIGNALIZATION, MISC.: PEDESTRIAN HYBRID BEACON

IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE PEDESTRIAN HYBRID BEACONS SHALL CONSIST OF THREE SECTIONS SIGNAL HEADS STACKED WITH TWO SECTIONS ON THE TOP AND ONE CENTERED BELOW. THE TWO ON TOP SHALL BE 12" RED AND THE ONE ON THE BOTTOM SHALL BE 12" YELLOW.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH FURNISHED AND INSTALLED, TESTED, AND ACCEPTED.

ITEM 644 - REMOVAL OF PAVEMENT MARKINGS

CMS 641.03 IS MODIFIED TO REQUIRE APPROVAL FROM THE ENGINEER FOR METHODS AND EQUIPMENT USED FOR MARKING REMOVAL.

ITEM 641.10 REFERS TO THE REQUIREMENTS OF 614.11.G.1.A WHICH IS MODIFIED TO UTILIZE ONLY SAND, SHOT OR WATER BLASTING. GRINDING IS NOT PERMITTED.

ALL COSTS INCURRED SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 644 - REMOVAL OF PAVEMENT MARKING. REMOVAL OF PAVEMENT MARKINGS WILL BE MEASURED USING FEET OR EACH.

ITEM 809 - ATC CONTROLLER, AS PER PLAN

THE CONTROLLER UNIT SHALL BE FURNISHED AND INSTALLED PER SS 809 AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS (TAP) LIST. THE CONTROLLER SHALL BE AN ECONOLITE COBALT AND COMPATIBLE WITH THE CABINET TYPE BEING INSTALLED.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
2. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
3. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
4. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.
5. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
6. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.
7. CONDUITS.

- A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
- B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
- C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
- D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

8. WIRE FOR GROUNDING AND BONDING.

- A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

- I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
- II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
- III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
- IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
- B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

9. GROUND ROD.

- A. A 3/4-INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
- B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

10. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK	STRIPE YELLOW ARROW	NOT USED

1. POWER SERVICE AND DISCONNECT SWITCH.

- A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.
- B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

- I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

- II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

4. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

CITY OF LORAIN STANDARDS

PERFORM ALL APPLICABLE ITEMS IN ACCORDANCE WITH THE FOLLOWING CITY OF LORAIN STANDARDS:

PV-7.0, PV-8.0, PV-12.2, PV-14.0

DESIGN AGENCY



DESIGNER

EDA

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ITEM 614, MAINTAINING TRAFFIC

A MINIMUM OF 1 LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT. MAINTAIN PEDESTRIAN ACCESS WHEN FEASIBLE. WHEN PROPOSED WORK PREVENTS PEDESTRIANS FROM ACCESSING CROSSINGS OR SIDEWALK, PROVIDE A SIGNED PEDESTRIAN DETOUR OR ALTERNATE ROUTE.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNED HOLIDAYS OR SPECIAL EVENTS:

NEW YEAR'S (OBSERVED)	THANKSGIVING
MEMORIAL DAY	CHRISTMAS (OBSERVED)
LORAIN INTERNATIONAL FESTIVAL	LABOR DAY
FOURTH OF JULY (OBSERVED)	
GENERAL/REGULAR ELECTION DAY (NOV)	

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR SPECIAL EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR SPECIAL EVENT	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
TUESDAY	(GEN./REG. ELECTION) 5:00 AM TUESDAY THROUGH 12:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
THURSDAY	(THANKSGIVING ONLY) 6:00 AM WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

DURING THE SAME PERIODS, MAINTAIN PEDESTRIAN ACCESS IF PEDESTRIAN ACCESS WAS PRESENT PRIOR TO CONSTRUCTION.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THESE REQUIREMENTS, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE PER THE LANE VALUE CONTRACT (PN 127).

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER _____ M. GAL.

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

MAINTENANCE OF TRAFFIC SIGNAL/INTERSECTION CONTROL BEACON INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNALS AND INTERSECTION CONTROL BEACON INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

1. EXISTING SIGNAL/INTERSECTION CONTROL BEACON INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.
2. NEW OR REUSED SIGNAL/INTERSECTION CONTROL BEACON INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE

CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN TWO HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION. IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR THE CITY OF LORAIN FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONST-RUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 8 HOURS AND SHALL NOT INCLUDE THE HOURS OF 7 AM TO 7 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;
2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW SHALL NOT BE PERMITTED AT PROJECT COST NOR TIME COMPENSATION. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.
- DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).
- DURING PERIODS WHERE TRAFFIC NEEDS TO BE DIRECTED CONTRARY TO A TRAFFIC CONTROL DEVICE (FLAGGER, SIGN [E.G. STOP SIGN, STREET OR HIGHWAY SIGNS, ETC.], SIGNAL OR OTHER DEVICE USED TO REGULATE, WARN OR GUIDE TRAFFIC). TRAFFIC IN THIS INSTANCE INCLUDES VEHICULAR, PEDESTRIAN AND/OR SHARED USE PATH USERS.

DESIGN AGENCY



DESIGNER

SKB

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IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

- FOR LANE CLOSURES THAT MEET ALL OF THE CRITERIA LISTED BELOW: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).
- CRITERIA:
 - ON A MULTI-LANE DIVIDED INTERSTATE, OTHER FREEWAY OR EXPRESSWAY; AND,
 - AN AUTHORIZED SPEED LIMIT OF 45 MPH OR GREATER THAT IS IN EFFECT AT THE TIME OF THE OPERATION; AND,
 - AADT OF 50,000 (OR AADT OF 30,000 WITH 25% OR HIGHER PERCENT TRUCKS)

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION (OR AT THE POINT OF ROAD CLOSURE), AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS AND/OR IN CONTRARY TO OTHER TRAFFIC CONTROL DEVICES IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOS HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03. THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE ____ HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED. ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE SPECIAL HAULING PERMITS SECTION (HAULING.PERMITS@DOT.OHIO.GOV) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION OF TRAFFIC RESTRICTIONS TIME TABLE		
ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
RAMP & ROAD CLOSURES	>= 2 WEEKS	21 CALENDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	<= 12 HOURS	4 CALENDAR DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	>= 2 WEEKS	14 CALENDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES	N/A	14 CALENDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

PEDESTRIAN HYBRID BEACON (PHB) AND RAMP METER

- 1A. UPON WRITTEN APPROVAL BY THE DISTRICT TRAFFIC ENGINEER, THE ENGINEER WILL GIVE THE CONTRACTOR APPROVAL TO ACTIVATE THE PHB OR RAMP METER. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 10 CALENDAR DAYS PRIOR TO PLACING THE DEVICE IN STOP-AND-GO MODE TO ALLOW THE ENGINEER TIME TO NOTIFY LOCAL MEDIA AND LAW ENFORCEMENT OF THE SCHEDULED ACTIVATION.

- 1B. A PERMANENT NEW PHB SHALL OPERATE IN YELLOW FLASH MODE FOR 10 - 14 CALENDAR DAYS BEFORE BEING PLACED IN STOP-AND-GO MODE. COVER AND DO NOT OPERATE PEDESTRIAN SIGNAL HEADS AND PUSHBUTTONS PER CMS 632.25 DURING THIS PERIOD.

A PERMANENT NEW RAMP METER SHALL REST IN GREEN FOR 10 - 14 CALENDAR DAYS BEFORE BEING PLACED IN STOP-AND-GO MODE.

A 10-DAY PERFORMANCE TEST PER CMS 632.28.G MAY BE REQUIRED BY THE ENGINEER. ONCE THE PHB OR RAMP METER IS IN STOP-AND-GO OPERATION, THE 10-DAY PERFORMANCE TEST SHALL BEGIN, WHICH PLACES ALL MAINTENANCE AND RESPONSIBILITY ON THE CONTRACTOR TO ENSURE THE DEVICE IS FUNCTIONING AS DIRECTED IN THE PLANS. CONTRACTOR MAINTENANCE SHALL END WHEN BOTH 10-DAY PERFORMANCE TEST ENDS AND WRITTEN APPROVAL OF THE PHB OR RAMP METER INSPECTION IS GRANTED BY THE DISTRICT TRAFFIC ENGINEER.

- 1C. THE PHB OR RAMP METER SHALL NOT BE ACTIVATED TO STOP-AND-GO OPERATION ON A FRIDAY, SATURDAY OR SUNDAY, OR THE DAY OF OR PRECEDING A NATIONAL HOLIDAY (NEW YEARS, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING, OR CHRISTMAS), EXPECT WITH WRITTEN PERMISSION FROM THE DISTRICT CONSTRUCTION ENGINEER.

SEQUENCE OF CONSTRUCTION

MOST TASKS WILL BE ACCOMMODATED BY APPLICATION OF MT-95.31 (CLOSING RIGHT LANES OF A MULTI-LANE UNDIVIDED HIGHWAY WITH DRUMS).

THE USE OF BARRIER, TEMPORARY SIGNS, AND SUPPLEMENTAL ADVANCE SIGNS IS NOT ANTICIPATED IN THE PROJECT'S LOW SPEED ENVIRONMENT.

LANE CLOSURES ARE TO BE KEPT TO A MINIMUM. OVERNIGHT CLOSURES ARE NOT ANTICIPATED BUT MAY BE PERMITTED WITH THE PERMISSION OF THE ENGINEER.

PAVEMENT MARKINGS CHANGE ARE TO BE PERFORMED WITH THE USE OF FLAGGERS USING MT-97.12 AND MOBILE OPERATIONS USING MT-99.20.

DESIGN AGENCY



DESIGNER

SKB

REVIEWER

TVF 09-08-26

PROJECT ID

124448

SHEET

P.7

TOTAL

15

DEFAULT CONDITIONS

UNLESS STATED OTHERWISE BELOW:

1. ALL PAVEMENT MARKING MATERIAL IS TO BE ITEM 644 ON ASPHALT OR ITEM 645 ON CONCRETE.

2. HIGH VISIBILITY CROSSWALKS ARE LADDER STYLE WITH 12" TRANSVERSE LINES AND 24" LONGITUDINAL LINES SPACED IN ACCORDANCE WITH ODOT SCD TC-74.10. WHERE EXISTING CROSSWALKS ARE BEING REPLACED OR UPGRADED, MATCH EXISTING WIDTH AND RESTRIPE WHERE PRESENT. NEW PROPOSED CROSSWALKS SHALL BE 10' WIDE.

3. REMOVE AND RESTRIPE ANY STOP LINE WITH LESS THAN 4' OPEN SPACE FROM A PROPOSED CROSSWALK.

SITE 1 OAK POINT RD AT PARK SQUARE DR / BUCK HORN BLVD

INSTALL A TOTAL OF TWO HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 2 KOLBE RD AT JAEGER RD

INSTALL ONE HIGH VISIBILITY CROSSWALK AT THIS INTERSECTION, ACROSS THE NORTHEAST APPROACH.

SITE 3 LEAVITT RD (SR 58) AT MEIJER STORE ENTRANCES

INSTALL A TOTAL OF TWO HIGH VISIBILITY CROSSWALK AT THIS INTERSECTION: ONE ACROSS THE SOUTHERN ENTRANCE ROADWAY AND ONE ACROSS THE NORTHERN ENTRANCE ROADWAY.

SITE 4 LEAVITT RD (SR 58) AT TOWER BLVD

INSTALL A TOTAL OF TWO HIGH VISIBILITY CROSSWALK AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH AND ONE ACROSS THE WEST APPROACH TO THIS INTERSECTION.

SITE 5 OBERLIN AVE AT MEISTER RD

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALK AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 6 OBERLIN AVE AT W 26TH ST

INSTALL A TOTAL OF THREE HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, AND ONE ACROSS THE WEST APPROACH TO THIS INTERSECTION.

SITE 7 BROADWAY AT COOPER FOSTER PARK RD

INSTALL A TOTAL OF TWO HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH AND ONE ACROSS THE WEST APPROACH TO THIS INTERSECTION.

SITE 8 BROADWAY AT 39TH ST

INSTALL A TOTAL OF THREE HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH OF THIS INTERSECTION.

SITE 9 BROADWAY AT 33RD ST

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 10 BROADWAY AT 30TH ST

INSTALL A TOTAL OF THREE HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 11 BROADWAY AT 28TH ST (SR 57)

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 12 BROADWAY (SR 57) AT 21ST ST (SR 611)

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 13 BROADWAY (SR 57) AT ERIE AVE (US 6)

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 14 ELYRIA AVE AT 28TH ST (SR 57)

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 15 31ST ST AT GROVE AVE (SR 57)

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 16 COLORADO AVE (SR 611) AT ROOT RD

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

SITE 17 28TH ST (SR 57) AT FULTON RD

INSTALL A TOTAL OF FOUR HIGH VISIBILITY CROSSWALKS AT THIS INTERSECTION: ONE ACROSS THE NORTH APPROACH, ONE ACROSS THE SOUTH APPROACH, ONE ACROSS THE WEST APPROACH, AND ONE ACROSS THE EAST APPROACH TO THIS INTERSECTION.

PAVEMENT MARKING LEGEND

- E

= EDGE LINE (4" WHITE)
- S

= STOP LINE (24" WHITE)
- X

= CROSSWALK LINE (12" WHITE)
- Y

= YIELD LINE (24" WHITE)
- XX

= PAVEMENT MARKING REMOVAL (BY FOOT)
- X

= PAVEMENT MARKING REMOVAL (BY EACH)

SIGN LEGEND

- STOP

EXISTING SIGN TO REMAIN

STOP

EXISTING SIGN TO BE REMOVED

STOP

EXISTING SIGN TO BE RELOCATED

STOP

PROPOSED SIGN

#

POST REFLECTOR

*

FLUORESCENT YELLOW GREEN
- SIGNAL LEGEND
- | | PR. | EX. |
|-----------------------------------|-----|-----|
| PHB HEAD, 12" | | |
| SIGNAL SUPPORT POLE | | |
| PEDESTRIAN HEAD | | |
| ACCESSIBLE PEDESTRIAN PUSH BUTTON | | |
| LUMINAIRE, CONVENTIONAL | | |
| TRAFFIC PULL BOX | | |
| PEDESTAL SUPPPORT | | |
- SIMPLIFIED LOCATIONS NOTES
- DESIGN AGENCY

DESIGNER

EDA

REVIEWER

TVF 09-08-26

PROJECT ID

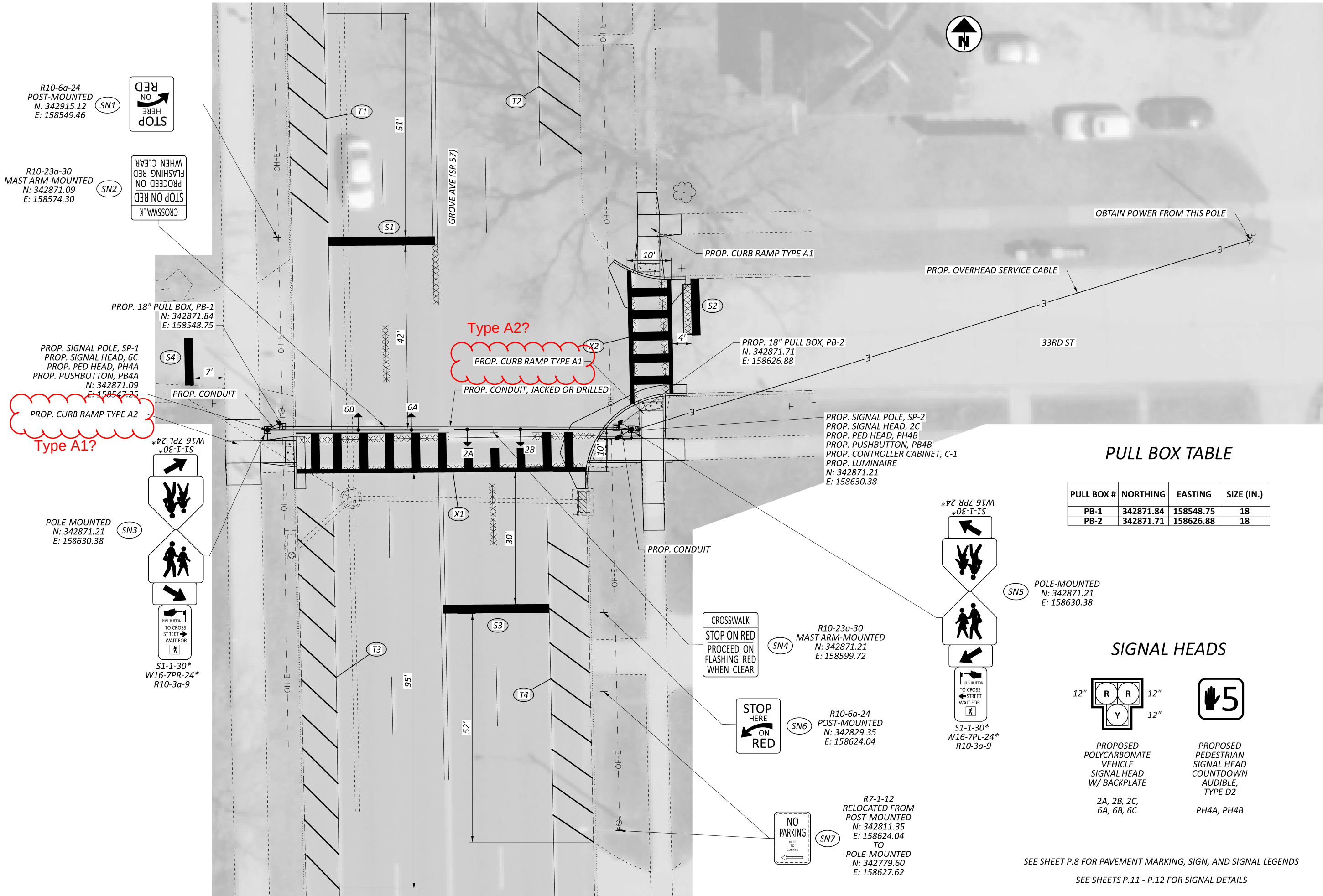
124448

SHEET

P.8

TOTAL

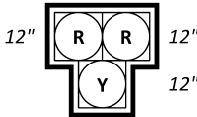
15



PULL BOX TABLE

PULL BOX #	NORTHING	EASTING	SIZE (IN.)
PB-1	342871.84	158548.75	18
PB-2	342871.71	158626.88	18

SIGNAL HEADS



PROPOSED
POLYCARBONATE
VEHICLE
SIGNAL HEAD
W/ BACKPLATE

2A, 2B, 2C,
6A, 6B, 6C



PROPOSED
PEDESTRIAN
SIGNAL HEAD
COUNTDOWN
AUDIBLE,
TYPE D2

PH4A, PH4B

SEE SHEET P.8 FOR PAVEMENT MARKING, SIGN, AND SIGNAL LEGENDS

SEE SHEETS P.11 - P.12 FOR SIGNAL DETAILS



TRAFFIC CONTROL PLAN
GROVE AVE (SR 57) & 33RD ST

DESIGN AGENCY



DESIGNER

EDA

REVIEWER

TVF 09-08-26

PROJECT ID

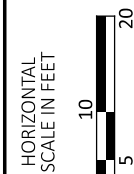
124448

SHEET

P.9

TOTAL

15



INTERSECTION DETAILS
GROVE AVE (SR 57) & 33RD ST



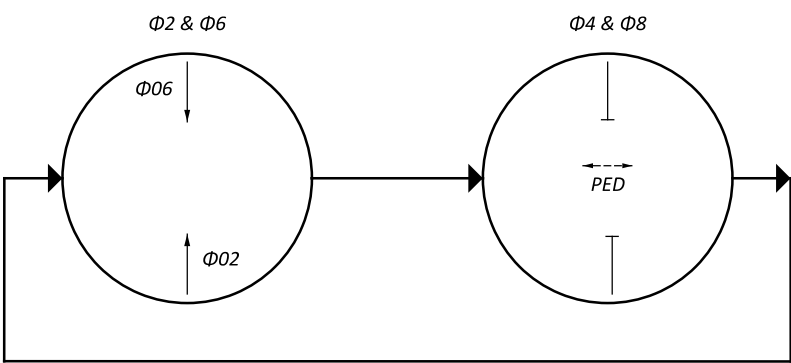
OPERATIONAL DIAGRAM & TIMING CHART

TRAFFIC SIGNAL HEAD	PEDESTRIAN SIGNAL HEAD	SIGNAL TIME (SEC)
 DARK	 DON'T WALK	-
 FLASHING YELLOW	 DON'T WALK	2.0
 STEADY YELLOW	 DON'T WALK	4.5
 STEADY RED	 DON'T WALK	1.0
 STEADY RED	 WALK	7.0
 ALTERNATING	 FLASHING HAND COUNTDOWN TIMER	15.0
 DARK	 DON'T WALK	-

FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A, 2B (NB)	R	Φ2 R	-
	Y	Φ2 Y	
	-	-	
	-	-	
6A, 6B (SB)	R	Φ6 R	-
	Y	Φ6 Y	
	-	-	
	-	-	

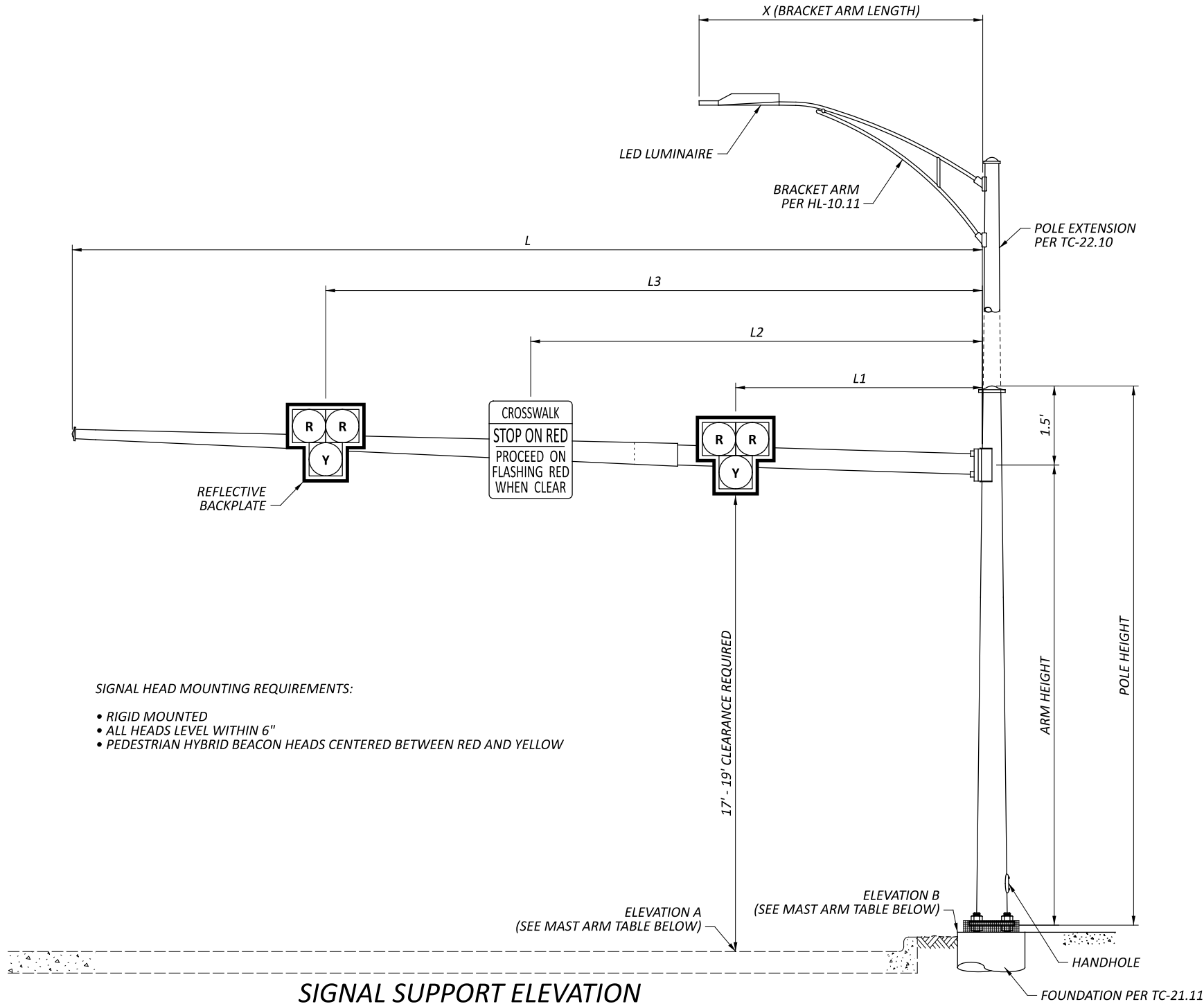
PHASING DIAGRAM



LEGEND	
VEHICLE Φ	
PERMITTED Φ	
PEDESTRIAN Φ	

WIRING DIAGRAM

TO BE INCLUDED IN REVISED PLANS SUBMISSION

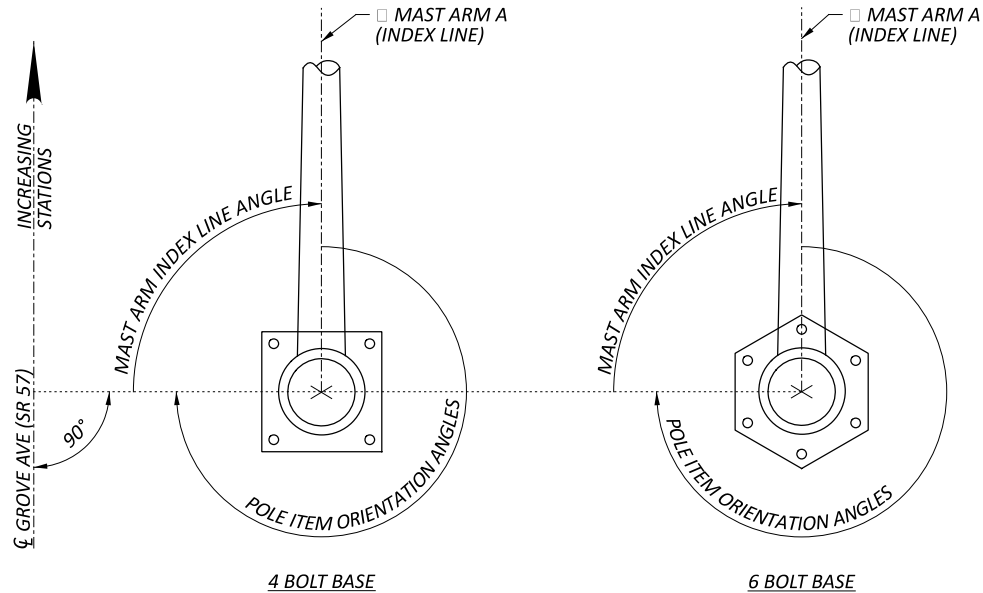


- SIGNAL HEAD MOUNTING REQUIREMENTS:
- RIGID MOUNTED
 - ALL HEADS LEVEL WITHIN 6"
 - PEDESTRIAN HYBRID BEACON HEADS CENTERED BETWEEN RED AND YELLOW

SIGNAL SUPPORT ELEVATION

MAST ARM TABLE

Plan Details for Signal Supports - Arm Lengths														Plan Details for Signal Supports - Mast Arm Orientation								
SUPPORT NO.	ARM DESIGNATION	NORTHING	EASTING	ELEVATION		SIGNAL SUPPORT DETAILS								MAST ARM A INDEX LINE ANGLE								
				A (Pavement Elevation)	B (Top of Foundation)	DESIGN TYPE	DESIGN NO.	POLE HEIGHT	ARM HEIGHT	L	L1	L2	L3		X	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	SIGNAL CABINET	BRACKET ARM	HANDHOLE	CABLE ENTRANCE 12" FROM TOP OF POLE EXTENSION
FT	FT	FT	FT	FT	FT	FT	FT	DEG	DEG	DEG	DEG	DEG	DEG	DEG	DEG							
SP-1	A	342871.09	158547.25	633.98	634.70	TC-81.22	12	19.5	18	39	6B	SN2	6A	-	90	90	90	-	-	-	180	-
											20.5	27.0	33.0									
SP-2	A	342871.21	158630.38	633.87	634.16	TC-81.22	12	24	19	40	2A	SN4	2B	10	270	270	270	180	180	315	180	135
											25.5	31.5	37.5									



- NOTE:
1. ALL ANGLES ARE MEASURED CLOCKWISE.
 2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A.

POLE ORIENTATION

RAPID RECTANGULAR FLASHING BEACON SEQUENCE OF OPERATIONS			
STATE	REST	ACTUATION	REST
INDICATION	DARK	FLASHING	DARK
DURATION (s)	-	18	-

CROSSWALK WIDTH (FT) = 36

PROP. RRFB
N: 343503.98
E: 153965.97

S1-1-30*
W16-7PR-24*
PED. PUSH BUTTON

PROP. RRFB
N: 343412.40
E: 153967.93

SEE SHEET P.8 FOR PAVEMENT MARKING AND SIGN LEGENDS

SN1 N: 343541.97
E: 153964.82

R1-5-36
POST-MOUNTED

PROP. CURB RAMP TYPE A1

PROP. CURB RAMP TYPE A1

PROP. CURB RAMP TYPE A1

PROP. CURB RAMP TYPE A1

PROP. CURB RAMP TYPE A1

R1-5-36
POST-MOUNTED

PROP. RRFB
SN3 N: 343512.86
E: 154022.00

S1-1-30*
W16-7PR-24*
PED. PUSH BUTTON

PROP. RRFB
SN5 N: 343422.13
E: 154023.56

S1-1-30*
W16-7PR-24*
PED. PUSH BUTTON

SN6 N: 343384.53
E: 154024.99

TRAFFIC CONTROL PLAN
PEARL AVE & 31ST ST

DESIGN AGENCY



DESIGNER
EDA

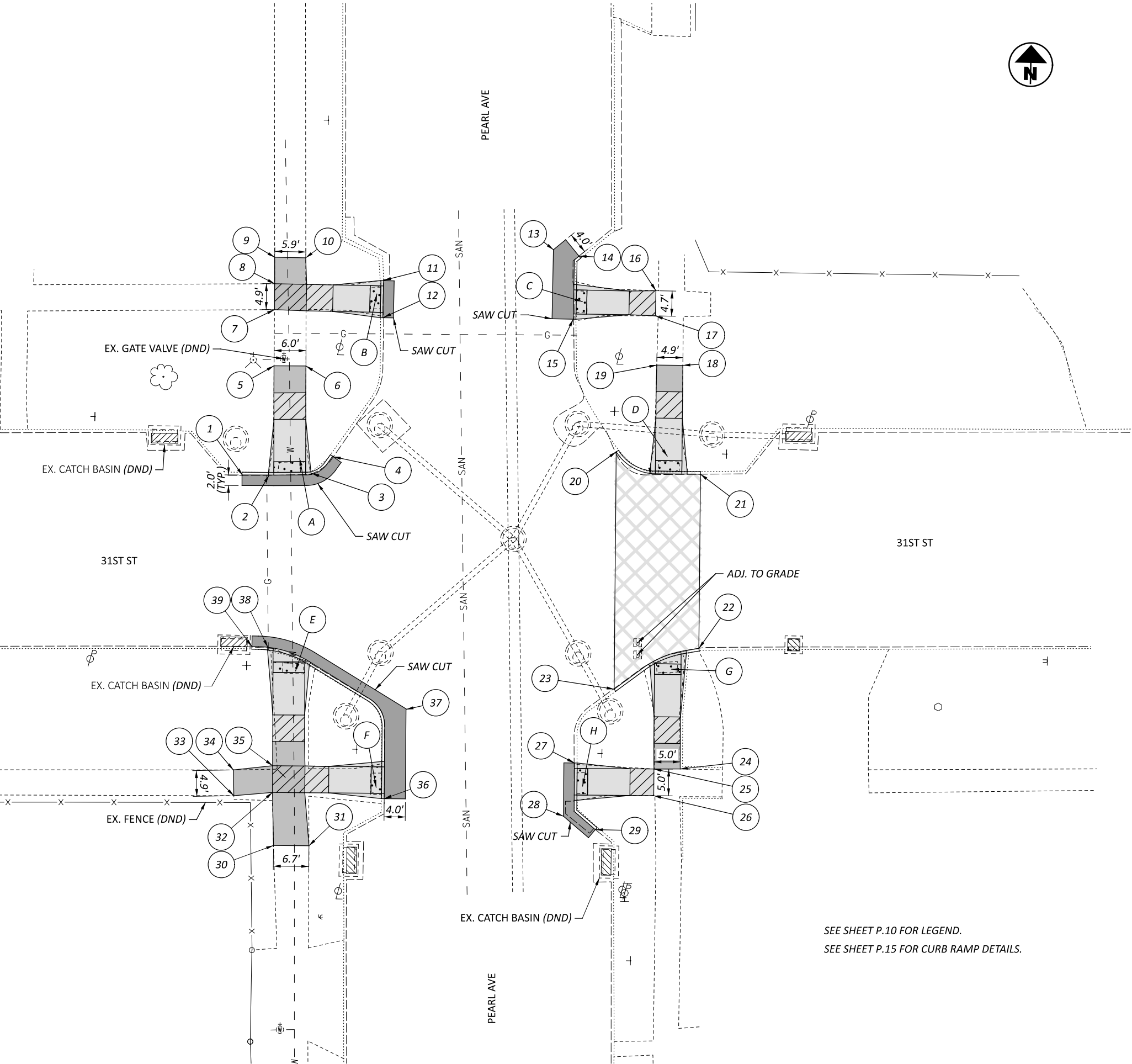
REVIEWER
TVF 09-08-26

PROJECT ID
124448

SHEET TOTAL
P.13 15

HORIZONTAL
SCALE IN FEET
0 5 10 20

CURB RAMP DETAILS				
LOCATION	NORTHING	EASTING	ELEVATION	DETAIL
1	343474.74	153949.85	629.26	EOP
2	343474.85	153954.85	629.20	EOP
3	343474.98	153961.85	629.32	EOP
4	343478.60	153966.87	629.66	EOP
5	343495.44	153955.48	629.28	WALK
6	343495.53	153961.51	629.43	WALK
7	343506.04	153955.36	629.37	WALK
8	343510.93	153955.30	629.42	WALK
9	343515.93	153955.19	629.42	WALK
10	343515.93	153961.06	629.44	WALK
11	343511.92	153975.84	629.05	EOP
12	343504.92	153975.84	629.12	EOP
13	343518.39	154007.78	629.04	SAWCUT
14	343517.27	154012.64	629.06	EOP
15	343505.35	154011.77	629.10	EOP
16	343511.04	154027.27	629.42	WALK
17	343506.30	154027.27	629.41	WALK
18	343497.06	154032.64	629.37	WALK
19	343497.01	154027.71	629.40	WALK
20	343480.51	154020.38	629.74	EOP
21	343476.59	154036.37	629.23	EOP
22	343443.72	154036.72	629.17	EOP
23	343435.72	154020.88	629.17	EOP
24	343420.91	154033.66	629.59	WALK
25	343420.82	154028.69	629.52	WALK
26	343415.77	154028.75	629.46	WALK
27	343421.64	154013.68	629.40	EOP
28	343411.56	154011.80	629.53	SAWCUT
29	343409.15	154017.86	629.11	EOP
30	343404.93	153957.18	630.13	WALK
31	343405.03	153963.87	629.98	WALK
32	343414.95	153956.79	629.83	WALK
33	343414.19	153949.51	630.17	WALK
34	343149.05	153949.33	630.07	WALK
35	343419.99	153956.72	629.85	WALK
36	343414.19	153977.90	629.27	EOP
37	343431.23	153981.68	629.24	SAWCUT
38	343442.32	153955.36	628.72	EOP
39	343442.42	153932.36	628.64	EOP



SEE SHEET P.10 FOR LEGEND.
SEE SHEET P.15 FOR CURB RAMP DETAILS.



INTERSECTION DETAILS
PEARL AVE & 31ST ST



DESIGN AGENCY



DESIGNER

EDA

REVIEWER

ARW 09-08-26

PROJECT ID

124448

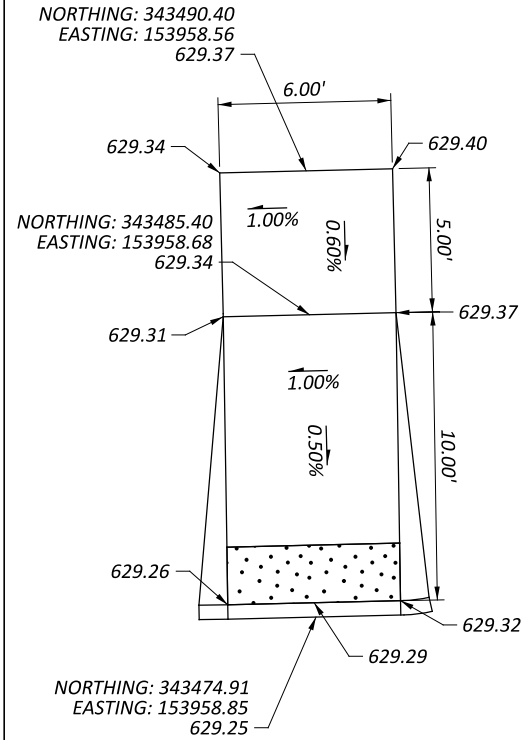
SHEET

P.14

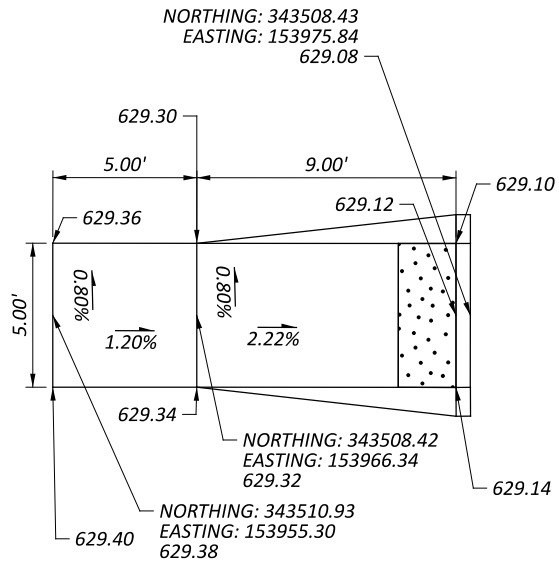
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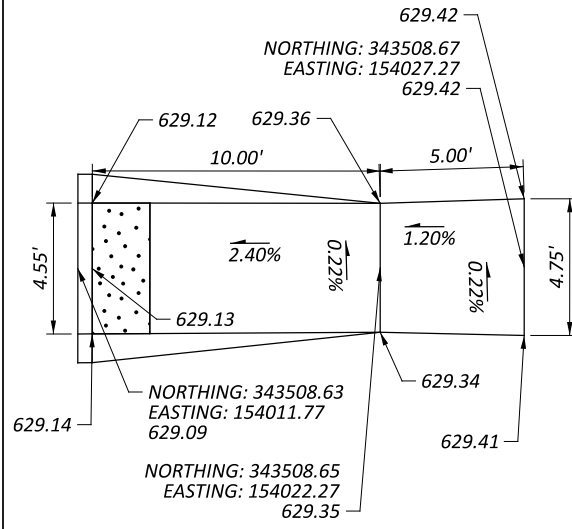
CURB RAMP DETAIL
TYPE A1
CURB RAMP A



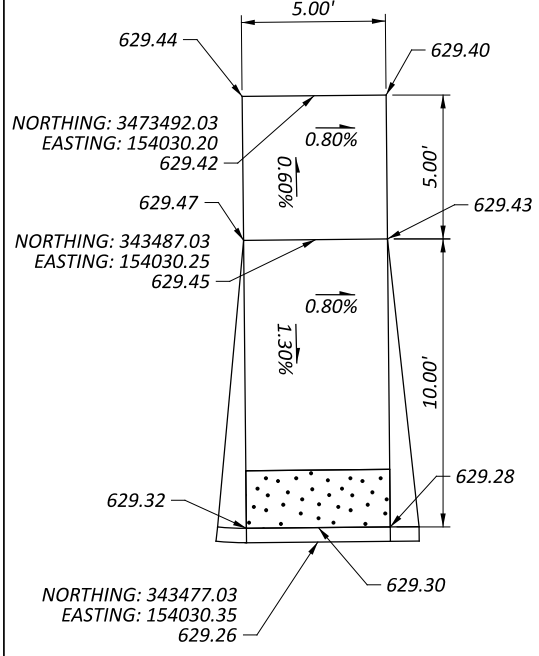
CURB RAMP DETAIL
TYPE A1
CURB RAMP B



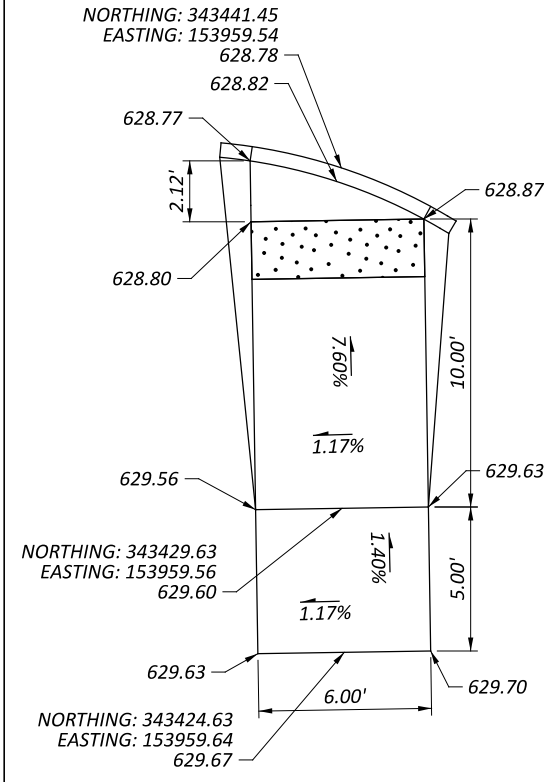
CURB RAMP DETAIL
TYPE A1
CURB RAMP C



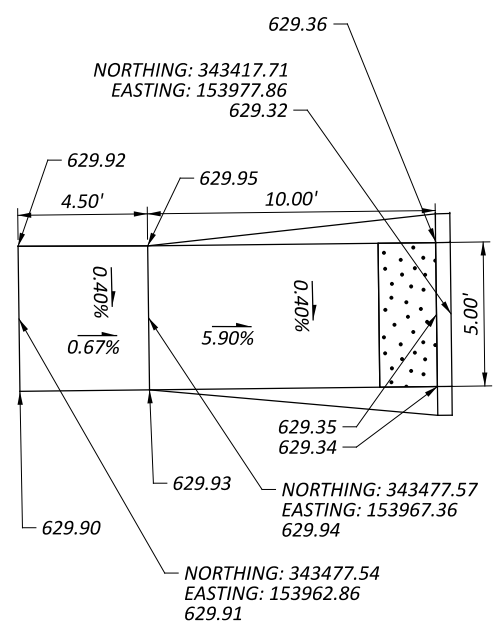
CURB RAMP DETAIL
TYPE A1
CURB RAMP D



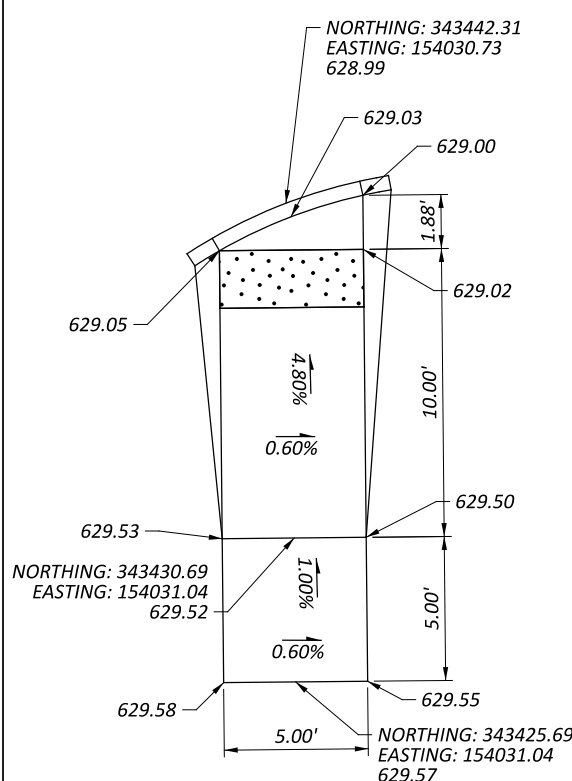
CURB RAMP DETAIL
TYPE A1
CURB RAMP E



CURB RAMP DETAIL
TYPE A1
CURB RAMP F



CURB RAMP DETAIL
TYPE A1
CURB RAMP G



CURB RAMP DETAIL
TYPE A1
CURB RAMP H

