STATE OF OHIO DEPARTMENT OF TRANSPORTATION NOB-CALDWELL SCHOOL CAMPUS CONNECTIVITY

VILLAGE OF CALDWELL AND OLIVE TOWNSHIP **NOBLE COUNTY**

INDEX OF SHEETS:

LEWIS ST.

LOCAL

25 MPH

LOCAL

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FAIRGROUND ST.

25 MPH 20 MPH

LOCAL

DRIVEWAY DETAILS
CURB RAMP DETAILS
STORM SEWER PROFILES
LIGHTING PLANS
TRAFFIC CONTROL PLAN

75-86 87-88 89-96

70-74

SUPPLEMENTAL

SPECIAL

PORTION TO BE IMPROVED ._____ INTERSTATE HIGHWAY_______ COUNTY & TOWNSHIP ROADS ________ OTHER ROADS ______

LOCATION MAP

LATITUDE: 39°44'54" LONGITUDE: -81°31'53"

DESIGN DESIGNATION	CR 56	CR 58
CURRENT ADT (2024)	4176	
DESIGN YEAR ADT (2044)		
DESIGN HOURLY VOLUME (2044)		
DIRECTIONAL DISTRIBUTION		
TRUCKS (24 HOUR B&C)		
DESIGN SPEED	40 MPH	
LEGAL SPEED	35 MPH	
DESIGN FUNCTIONAL CLASSIFICATION:	LOCAL	LOCAL

NHS PROJECT ______ NO

DESIGN EXCEPTIONS

ADA DESIGN WAIVERS

NONE

UNDERGROUND UTILITIES
Contact Two Working Days
Before You Dig
OHIO 811. org Before You Dig
01110044 0 4 4 4 4 4 000 000 0764

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

PLAN PREPARED BY:

Miamisburg, OH 45342 (866) 552-3536 | LJBinc.con

			S	TANDARD	CONSTRUCTION DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
	BP-3.1	1/19/24	TC-41.20	10/18/13		ss	800 1/17/25	
	BP-4.1	7/19/13	TC-42.20	10/18/13		SS	832 7/19/24	
	BP-5.1	1/17/25	TC-52.10	10/18/13				
ENGINEER'S SEAL	BP-7.1	1/17/25	TC-52.20	1/15/21		SS	895 4/18/14	
2,10,,122,10 02,12	-		~~~~	~~~		SS	916 7/19/24	
	RM-2.1	7/19/13	HL-10.11	7/21/23	3 _^			
	RM-5.2	7/21/23	HL-10.12	7/21/23	₹/1\			
	RM-6.1	7/18/14	HL-10.13	1/20/23	\ <u></u>			
		}	HL-20.11	7/18/25 .				
	MT-101.90	7/17/20	HL-30.31	7/21/23 :				
	MT-101.60	1/17/25	HL-30.22	7/17/25				
		ζ	HL-40.20	7/18/25				
		}	HL-60.11	7/21/17				
		\ \ \	HL-60.12	7/21/23 •				
		}	HL-60.31	7/19/24				
			Lunn,	۸ ۸ ۸ ۲		·		

FEDERAL PROJECT NUMBER

E240020

RAILROAD INVOLVEMENT

PROJECT DESCRIPTION

THE PROJECT INVOLVES THE CONSTRUCTION AND RECONSTRUCTION OF WALK BETWEEN CALDWELL ELEMENTARY SCHOOL AND CALDWELL HIGHSCHOOL ALONG CR 56 (FAIRGROUND RD), MAIN ST, LEWIS ST, AND FAIRGROUND ST. NEW CURB AND DRAINAGE IMPROVEMENTS WILL BE CONSTRUCTED ALONG CR 56 AND MAIN ST WEST OF MILLER ST. IT ALSO INVOVLES THE CONSTRUCTION OF WALK, CURB, AND DRAINAGE IMPROVEMENTS ALONG CR 58 (BRONZE HEIGHTS LN).

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	2.02 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.01 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	2.03 ACRES



2023 SPECIFICATIONS

APPROVED.

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS, CHANGES LISTED IN THE PROPOSAL, AND THE SUPPLEMENTAL SPECIFICATION 800 VERSION INDICATED ON THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE PART TIME CLOSING OF THE HIGHWAY TO TRAFFIC, AS NOTED ON SHEET 13. DURING WHICH TIME DETOURS WILL BE PROVIDED AS SHOWN HEREIN. PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

DATE	_ NOBLE COUNTY COMMISSIONER
APPROVED	NOBLE COUNTY COMMISSIONER
APPROVED	NOBLE COUNTY COMMISSIONER
APPROVED	

Director, Department of Transportation

LM 08/29/2 120193

SEE

SHEET NO.

> 29 27

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GENERAL SUMMARY

DESCRIPTION

ROADWAY

SN AGEN	ICY

SHH LM 08/29/2

120193 14 103

174 174 203 20000 174 CY EMBANKMENT 94 1,464 1,558 204 10000 1,558 SY SUBGRADE COMPACTION 204 45000 HOUR PROOF ROLLING 120 120 607 35000 120 FENCE REMOVED AND REBUILT 65 607 FT FENCE, MISC.:WOOD FENCE 27 65 98000 65 190 34,974 35,164 608 10000 35,164 SF 4" CONCRETE WALK FT 608 40000 CONCRETE STEPS, TYPE A 4 4 4 557 557 608 52000 557 SF CURB RAMP 150 20 170 608 53020 170 DETECTABLE WARNING MAILBOX SUPPORT SYSTEM, SINGLE 13 13 SPECIAL 69098000 13 EACH EROSION CONTROL 601 32204 ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC 449 449 659 00300 449 CY TOPSOIL 4,041 4,041 659 10000 4,041 SY SEEDING AND MULCHING 203 203 659 14000 203 SY REPAIR SEEDING AND MULCHING 203 203 659 15000 203 SY INTER-SEEDING 0.57 0.57 659 20000 0.57 TON COMMERCIAL FERTILIZER 0.84 0.84 659 31000 0.84 ACRE LIME 35000 15000 WATER
STORM WATER POLLUTION PREVENTION PLAN 14 23 37 MGAL 832 LS 832 15002 STORM WATER POLLUTION PREVENTION INSPECTIONS LS LS 15010 STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE LS 832 LS 60,000 832 30000 60,000 EACH EROSION CONTROL \sim \sim \sim \sim \sim DRAINAGE 511 46610 CLASS QC1 CONCRETE, HEADWALL 0.67 0.67 0.67 CY 0.1 0.1 602 20000 0.1 CY CONCRETE MASONRY 56 56 611 00900 56 FT 6" CONDUIT. TYPE B 120 377 497 611 04400 497 FT 12" CONDUIT, TYPE B 1.315 FT 15" CONDUIT, TYPE B 1,315 05900 2,630 2.630 611 51 102 102 24" CONDUIT, TYPE B 51 611 10400 FT 611 98150 EACH CATCH BASIN, NO. 3 11 611 98180 11 EACH CATCH BASIN, NO. 3A 11 1 611 98470 FACH CATCH BASIN, NO. 2-2B 611 98504 EACH CATCH BASIN, NO. 2-2C 611 98630 EACH CATCH BASIN ADJUSTED TO GRADE 4 4 611 99574 EACH MANHOLE, NO. 3 611 99654 EACH MANHOLE ADJUSTED TO GRADE MANUFACTURED WATER QUALITY STRUCTURE, TYPE 1 1 895 10010 EACH PAVEMENT 304 20000 144 CY AGGREGATE BASE

PART.

01/ENH

LS

2,144

19,357

4

1,239

466

582

13

10

114

202

ITEM

201

202

202

202

202

202

202

202

202

202

202

203

ITEM

EXT

11000

23000

30000

30200

32000

35100

38000

53100

58100

98100

98200

10000

GRAND

TOTAL

LS

2,144

19,357

4

1,239

466

582

13

10

114

202

UNIT

SF

FT

FT

FT

EACH

EACH

EACH

FT

CY

CLEARING AND GRUBBING

PIPE REMOVED, 24" DIAMETER AND UNDER

REMOVAL MISC.: (RAILROAD TRACKS)

PAVEMENT REMOVED

GUARDRAIL REMOVED

CATCH BASIN REMOVED

REMOVAL MISC.:HANDRAIL

MAILBOX REMOVED

EXCAVATION

WALK REMOVED

STEPS REMOVED

CURB REMOVED

CEVSD CAMPUS CONNECTIVITY

NOB

0.04 364 834

10

LS

244

423

13

15

11

16

17

690

18,934

1,120

466

582

114

18

119

127 54 32 1,578 761 761

150

105

SHEET NUMBER

19

1,210

20

90

97A

98

XS

187

 $\sqrt{2}$ 54.04 407 10000 441 70000 452 2 339 10010 2,064 452

2,339 12010 2,064 150 609 18000 150

54.04 ^

37 / 2

GAL

CY

SY

SY

TACK COAT

ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG64-22

6" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P

B" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P

COMBINATION CURB AND GUTTER, TYPE 3

GENERAL SUMMARY

SEE

SHEET

NO.

10

89

3

REVISED

 $\sqrt{2}$

DESCRIPTION

LIGHTING

NOB CEVSD CAMPUS CONNECTIVITY

(LIGHT POLE, AESTHETIC, AS PER PLAN (16' TALL, TAPERED OCTAGON OR ROUND))
LIGHT POLE FOUNDATION, 24" X 6" DEEP 33 33 625 14000 33 EACH 10,299 FT NO. 6 AWG 2400 VOLT DISTRIBUTION CABLE 10,299 10,299 625 23302 1,716 625 23400 1,716 FT NO. 10 AWG POLE AND BRACKET CABLE 1.716 84 84 625 25400 84 FT CONDUIT, 2", 725.04 2,791 2,791 625 25402 2,791 FT CONDUIT, 2", 725.05 26 26 625 25502 26 FT CONDUIT, JACKED OR DRILLED, 725.052, AS PER PLAN (2") 1 133 625 25909 133 FT 89 133 33 33 625 27551 33 EACH LUMINAIRE, DECORATIVE, AS PER PLAN, SOLID-STATE (LED) 89 2,901 2,901 625 29001 2,901 FT TRENCH, AS PER PLAN 89 625 30510 EACH PULL BOX, 725.06, SIZE 4 33 35 625 32000 35 EACH GROUND ROD 625 34001 POWER SERVICE, AS PER PLAN 89 3 3 EACH 2,901 2,901 625 36011 2,901 FT UNDERGROUND WARNING/MARKING TAPE, AS PER PLAN 89 150 **GROUND MOUNTED SUPPORT, NO. 3 POST** 150 630 03100 150 FT 41 630 04101 41 FT GROUND MOUNTED SUPPORT, NO. 4 POST, AS PER PLAN 10 EACH SIGN POST REFLECTOR 11 630 08600 11 11 \ 83 83 } 630 80100 83 SF SIGN, FLAT SHEET 630 85000 REMOVAL OF GROUND MOUNTED SIGN AND STORAGE 18 18 } 18 EACH 630 85600 FACH REMOVAL OF GROUND MOUNTED MAJOR SIGN AND REERECTION 14 (14) 630 86002 14 EACH REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL SIGNING, MISC.: SOLAR-POWERED RECTANGULAR RAPID FLASHING BEACON (RREB) SIGN ASSEMBLY 630 97700 EACH 631 93250 ĚACH SCHOOL SPĚEĎ LIMIT SIĞN ASŠEMBLY, MIŠC.: (RĚMÔVÁL) 97) 2 631 93241 EACH SCHOOL SPEED LIMIT SIGN ASSEMBLY, SOLAR-POWERED, AS PER PLAN \sim 0.37 0.37 644 00300 0.37 MILE CENTER LINE 67 67 67 644 00500 FT STOP LINE 552 552 644 552 00620 FT CROSSWALK LINE, 12' 169 169 644 00630 169 FT CROSSWALK LINE, 24" 28 644 20800 28 28 FT YIELD LINE TRAFFIC SIGNALS 632 64020 EACH PEDESTAL FOUNDATION 4 4 4 4 632 64950 4 EACH TEST HOLE PERFORMED MAINTENANCE OF TRAFFIC 222 410 222 TRAFFIC COMPACTED SURFACE, TYPE A OR B 222 12000 CY INCIDENTALS LS 614 11000 LS MAINTAINING TRAFFIC 10000 CONSTRUCTION LAYOUT STAKES AND SURVEYING 623 LS LS LS 624 10000 LS MOBILIZATION

PART.

01/ENH

3,850

119

66

33

ITEM

609

609

625

625

625

ITEM

EXT

26001

33200

00450

00480

10481

GRAND

TOTAL

3,850

119

66

33

UNIT

FT

EACH

FACH

CURB, TYPE 6, AS PER PLAN

CONNECTION, FUSED PULL APART

CONNECTION, UNFUSED PERMANENT

CURB, TYPE 10-B

SHEET NUMBER

19

20

10

11

16

17

3,489

18

361

119

90

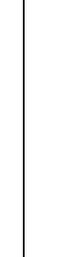
66

33

97A

98

XS



SHH LM 08/29/25

120193

15 103

625. POWER SERVICE. AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS. THE FOLLOWING IS ADDED

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

POWER COMPANY AEP OHIO

38831 SR 7- REEDSVILLE. OH **ADDRESS**

PHONE # 614-312-5807

CLARK SAUNDERS CONTACT NAME

PROVIDE A PAD MOUNTED POWER SERVICE AS DESCRIBED IN PAGE 3 OF HL-40.20.

THE ENGINEER SHALL ENSURE THAT EACH POWER SERVICE ELECTRICAL ENERGY ACCOUNT IS IN THE NAME OF AND THAT THE BILLING ADDRESS IS TO THE MAINTAINING AGENCY NOTED IN THE PLANS. THIS SHALL BE DONE NOT ONLY FOR EACH NEW POWER SERVICE ESTABLISHED BY THIS PROJECT BUT ALSO FOR EACH EXISTING POWER SERVICE. SINCE THERE MAY BE A REASSIGN-MENT OF THE RESPONSIBILITY FOR AN EXISTING SERVICE AS A RESULT OF THE WORK PERFORMED BY THIS PROJECT.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH C&MS ITEM 625. "POWER SERVICE. AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR. MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE. EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A. AND SHALL BE KEYED IN ACCORDANCE WITH C&MS 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

ITEM 625 TRENCH, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 625:

- 1. INCLUDE ALL EXCAVATION. GRANULAR AND OTHER BACKFILL MATERIAL (FOR PAVED AREAS). COMPACTION. DISPOSAL OF SURPLUS MATERIALS AND RESTORATION TO MATCH SURROUNDING SURFACE.
- 2. RESTORATION WILL INCLUDE ANY SEEDING, SODDING OR OTHER PLANTINGS WHICH WERE DISTURBED AND THE REPLACEMENT OF ANY MINOR ITEMS SUCH AS GUARDRAIL OR FENCE PANELS, AND RETURN TO FORMER POSITION AND MOUNTING OF ITEMS SUCH AS TRASH CONTAINERS. PLANTER BOXES OR PARKING METERS AND SMALL SIGNS WHICH WERE TEMPORARILY MOVED TO FACILITATE THE TRENCHING.
- 3. CONTRACTOR MAY CHOOSE TO DIRECTIONAL DRILL INSTEAD OF TRENCH.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID PER FOOT OF ITEM 625 TRENCH. AS PER PLAN.

ITEM 625, UNDERGROUND WARNING/MARKING TAPE, AS PER PLAN

IN ADDITION TO ITEM 625, PLACE A DETECTABLE MARKING TAPE SYSTEM IN CONJUNCTION WITH ALL NEW TRENCHED CONDUITS. THE DETECTABLE TAPE SYSTEM SHALL CONSIST ONLY OF MARKING TAPE.

MARKING TAPE SHALL BE PLACED BETWEEN 6 INCHES AND 12 INCHES BELOW FINISHED GRADE WITH A TAPE LENGTH EQUAL TO THE LENGTH OF THE CONDUIT. THE TAPE SHALL BE DIELECTRIC POLYOLEFIN FILM TAPE, 3-INCHES WIDE, AND ORANGE IN COLOR.

MATERIALS AND INK COLORS SHALL BE USED THAT WILL NOT CHANGE WHEN EXPOSED TO ACIDS AND OTHER DESTRUCTIVE SUBSTANCES COMMONLY FOUND IN SOIL. MARKING TAPE SHALL BE PRINTED EVERY 10 FEET WITH "VILLAGE OF CALDWELL TRAFFIC DEPARTMENT ELECTRICAL CABLE CALL 614-312-5807".

COSTS ASSOCIATED WITH THESE REQUIREMENTS SHALL BE INCLUDED IN UNIT PRICE BID PER FEET OF ITEM 625. "UNDERGROUND WARNING/MARKING TAPE. AS PER PLAN".

ITEM 625, PULL BOX, MISC.: 725.06, SIZE 4

IN ADDITION TO ITEM 625.11. A PULL BOX INSTALLED IN THE SIDEWALK WHERE PEDESTRIANS WILL CONTACT THE LID SHALL HAVE A STABLE AND NON-SKID SURFACE THAT IS PERMANENTLY ATTACHED OR INTEGRAL WITH THE LID OF THE PULL BOX. A PULL BOX LOCATED IN THE SIDEWALK SHALL BE CONSTRUCTED SUCH THAT IT IS FLUSH WITH THE SURROUNDING SIDEWALK SURFACE. THERE SHALL BE NO PROTRUSION OR DEPRESSION THAT COULD BE A TRIPPING HAZARD OR A LOCATION WHERE WATER AND DEBRIS COULD COLLECT.

FINAL INSTALLATION MUST MEET OR EXCEED CURRENT ADA REQUIREMENTS.

625, CONDUIT, JACKED OR DRILLED, 725.052, AS PER PLAN, 2"

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CMS ITEM 625 CONDUIT DEPTH SHALL BE MINIMUM OF 36 INCHES.

PAYMENT WILL BE MADE AT THE UNIT PRICE BID PER FOOT UNDER ITEM 625 "CONDUIT, JACKED OR DRILLED, 725,052, AS PER PLAN, 2" " WHICH SHALL BE FULL COMPENSATION FOR LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM.

ITEM 625, LIGHT POLE, AESTHETIC, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIALS SPECIFICATION, DECORATIVE LIGHT POLES SHALL BE AS FOLLOWS:

-16' TALL, TAPERED OCTAGON OR ROUND -CAST ALUMINUM. 20" OCTAGONAL OR ROUND BASE -24" WIDE X 7/8" DIAMETER BANNER ARMS MOUNTED AT 16' AND 12' ABOVE THE BASE OF THE POLE

-FINISH LIGHT POLE. MISCELLANEOUS FITTINGS AND ACCESSORIES WITH A POWDER COAT BLACK FINISH IN ACCORDANCE WITH ODOT SUPPLEMENTAL SPECIFICATION 916.

-DO NOT LABEL EACH LIGHT POLE AS SPECIFIED IN 625.09.

PAYMENT WILL BE MADE FOR EACH ITEM 625. "LIGHT POLE. AESTHETIC. AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR. MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM.

625, LUMINAIRE, DECORATIVE, AS PER PLAN, SOLID-STATE (LED)

IN ADDITION TO THE REQUIREMENTS OF ITEM 625 OF THE OHIO DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIAL SPECIFICATIONS. DECORATIVE LUMINAIRES SHALL BE AS FOLLOWS:

- 1. HOLOPHANE LED POST TOP PUCL3 P20 30K xxxx FC3 CLGL 2. COOPER LIGHTING SOLUTIONS - STREETWORKS AVN-CLB-SA-60-730-U-T3-4
- 3. OR APPROVED EQUAL

PHOTOCELL CONTROL WILL BE EXTERNAL. OPERATION WILL BE AT 240 VOLTS

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER EACH LIGHT POLE, COMPLETE AND 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.
- A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
- B. 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.
- C. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS. ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

2. 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. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
- C. 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.
- 3. 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, CONTROLLER OR FLASHER CABINETS.
- II. USE A MINIMUM 6 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
- III. 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.

- 4. 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.

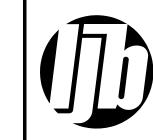
5. PAYMENT

- A. ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.
- B. IN A 3-WIRE HIGHWAY LIGHTING SYSTEM. THE THIRD CONDUCTOR OF THE DUCT CABLE OR DISTRIBUTION CABLE WILL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR AND MAY AS SUCH BE PART OF THE CABLE BID ITEM.

UTILITY CONFLICTS

UTILITY CONFLICTS WITH WATER MAINS. WATER SERVICES AND OTHER UTILITIES ARE LIKELY DURING CONSTRUCTION. EXERCISE DUE CARE IN LOCATING UTILITIES AND EXCAVATING FOUNDATIONS. DIRECT ALL UTILITY CONFLICTS WITH PROPOSED LIGHTING ELEMENTS TO THE NOBLE COUNTY ENGINEER'S OFFICE. 740-732-4400.

ESIGN AGENCY



ESIGNER RH

REVIEWER LAS 08/29/2! ROJECT ID

120193

89 103

631 SCHOOL SPEED LIMIT SIGN ASSEMBLY, SOLAR-POWERED, AS PER PLAN

THIS SPECIFICATION APPLIES TO SCHOOL SIGN FLASHERS POWERED BY BATTERIES AND RECHARGED BY SOLAR PANELS.

THE ENTIRE SCHOOL ZONE FLASHER AND SIGN ASSEMBLY SHALL CONFORM TO THE CONTRACT DOCUMENTS AND MEET THE REQUIREMENTS SET FORTH IN THE OMUTCD. THE SIGN SIZE SHALL BE 24" X 60" AND SIGN CODE S5-H11-24.

THE FLASHER CONTROL AND BATTERY WILL BE HOUSED IN ONE OR MORE STAINLESS STEEL OR ALUMINUM ENCLOSURES WITH A NEMA RATING OF AT LEAST 3X. ENCLOSURE EXTERIOR SURFACES SHALL BE BARE OR POWDER COAT ALUMINUM OR STAINLESS STEEL. THE ENCLOSURE INTERIOR SURFACES SHALL BE THE SAME AS THE EXTERIOR.

IF CONTAINED IN A SINGLE ENCLOSURE, THE CONTROL ELECTRONICS AND BATTERY SHALL BE SEPARATED IN A MANNER TO PREVENT DAMAGE TO THE CONTROL ELECTRONICS IF THE BATTERY ENVELOPE IS COMPROMISED.

A PAIR OF LED SIGNAL BEACONS, ONE ABOVE AND ONE BELOW THE SIGN, MEETING THE CURRENT ITE VEHICLE TRAFFIC CONTROL SIGNAL HEADS (VTCSH) STANDARD WILL BE USED UNLESS OTHERWISE SPECIFIED. THE MANUFACTURER OF THE SIGNAL BEACON SHALL BE LISTED ON THE DEPARTMENT'S QUALIFIED PRODUCTS LIST FOR LED SIGNAL LAMPS.

THE SOLAR PANEL AND/OR CONTROLLER MANUFACTURER WILL PROVIDE SIGNED COPIES OF CALCULATIONS USED TO SIZE THE SOLAR PANEL AND BATTERIES. INCLUDED IN THESE CALCULATIONS WILL BE THE INSOLATION VALUE USED AND ITS SOURCE, THE SOLAR PANEL EFFICIENCY, CHARGER/CONTROLLER EFFICIENCY, INVERTER EFFICIENCY, PROPOSED LED LAMP LOAD, AND A FIGURE REPRESENTING ANTICIPATED MISCELLANEOUS LOSSES.

SOLAR PANEL MANUFACTURER MUST TEST PANEL ACCORDING TO IEC61215 OR EQUIVALENT APPROVED STANDARD. SOLAR PANEL MOUNTING MUST BE RATED FOR 90 MPH DESIGN WIND.

RUN REQUIREMENTS ARE 4 HOURS PER DAY FOR TWO WEEKS UNDER CONTINUOUS WORST-CASE (MINIMUM) INSOLATION FIGURES (USUALLY DECEMBER) FOR THE PROPOSED GEOGRAPHIC LOCATION, USING A PANEL ELEVATION ANGLE APPROPRIATE TO THE SITE LATITUDE, AT A SUSTAINED TEMPERATURE OF 25 DEGREES FAHRENHEIT (-4 DEGREES CELSIUS).

IF VOLTAGES OVER 50V AC OR DC ARE PRESENT, GROUNDING AND BONDING REQUIREMENTS SPECIFIED IN THE ODOT CMS WILL BE FOLLOWED.

ANY TIMER INCLUDED IN THE ASSEMBLY MUST SATISFY THE REQUIREMENTS OF 731.10 AND BE LISTED ON THE DEPARTMENT'S QUALIFIED PRODUCTS LIST.

PAYMENT FOR 631 SCHOOL SPEED LIMIT SIGN ASSEMBLY, SOLAR POWERED, AS PER PLAN, SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TESTING, CERTIFICATIONS AND OTHER INCIDENTALS NECESSARY TO FURNISH THE SOLAR POWERED SCHOOL ZONE FLASHER COMPLETE IN PLACE, INCLUDING THE SIGN, ALL CONNECTIONS MADE, WIRING COMPLETE, TESTED AND ACCEPTED.

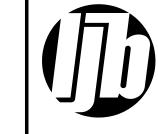
631 SCHOOL SPEED LIMIT SIGN ASSEMBLY, MISC.: REMOVAL

REMOVE THE INDICATED SCHOOL SPEED LIMIT SIGN ASSEMBLY, SUPPORT AND SOLAR POWERED BEACON.

STORE THE REMOVED MATERIALS ON-SITE FOR PICK UP BY THE NOBLE COUNTY ENGINEER'S OFFICE.

PAYMENT WILL BE MADE PER SCHOOL SPEED LIMIT SIGN ASSEMBLY REMOVED.

ESIGN AGENCY



ESIGNER LAS

REVIEWER JLM 11/17/25 ROJECT ID

> 120193 97 103

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	1	1	}	}	}		}	}	}	}	}) }	}		}		}		}		}	}	SCHOOL SPEED LIMIT ASSEMBLY, MISC.: REN	631 SIGN SIGN
	1	1 }																					SCHOOL SPEED LIMIT SSEMBLY, SOLAR-POWE	SIGN RED, AS