CONTRACT DRAWINGS
FOR THE CONSTRUCTION OF

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24

ANN ARBOR MUNICIPAL AIRPORT

CITY OF ANN ARBOR
ANN ARBOR, MICHIGAN

FAA FEDERAL PROJECT NO. LIGHTING:3-26-0005-XXX27 (IIJA)
B-26-0005-2826 (AIP)

FAA FEDERAL PROJECT NO. SIGNAGE: B-26-0005-292X

MDOT PROJECT LIGHTING: 213757 (AIP)
MDOT PROJECT SIGNAGE: 226567

C&S PROJECT: N75.007.001

AUGUST 2026

BID DOCUMENTS



LOCATION MAP

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052239
LICENSED PROFESSIONAL ENGINEER

GI001

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C1 SHEET INDEX

SCALE: NOT TO SCALE

BASE BID

ITEM NO	FAA SPEC	DESCRIPTION	QUANTITY	UNITS
1	C-105-6.1	MOBILIZATION (10% MAX.)	1	LS
2	CX-106-3.1	SAFETY, SECURITY AND MAINTENANCE OF TRAFFIC	1	LS
3	DX-800-4.1	SOFT DIG	1	DAYS
4	L-108-5.1	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE	9,860	LF
5	L-108-5.2	NO. 8 AWG, 5KV, L-824, TYPE C CABLE, INSTALLED IN TRENCH, DUCT BANK OR CONDUIT	15,350	LF
6	L-109-7.1	INSTALLATION OF EQUIPMENT WITH IN EXISTING VAULT OR PREFABRICATED METAL HOUSING IN PLACE	1	LS
7	L-110-5.1	NON-ENCASED ELECTRICAL CONDUIT, 1-WAY, 2-INCH, SCH. 40 PVC CONDUIT, IN TURF	10,730	LF
8	L-110-5.2	NON-ENCASED ELECTRICAL DRAINAGE CONDUIT, 1-WAY, 2-INCH, SCH. 40 PVC CONDUIT, IN TURF	45	LF
9	LX-113-5.1	(1) 2-INCH SCHEDULE 80 HDPE CONDUIT INSTALLED BY DIRECTIONAL DRILLING	570	LF
10	L-115-5.1	ELECTRICAL JUNCTION CAN	6	EA
11	L-125-5.1a	REMOVAL OF EXISTING EDGE LIGHT, LIGHT BASE AND APPURTENANCES	59	EA
12	L-125-5.1b	REMOVAL OF EXISTING GUIDANCE SIGN AND FOUNDATION	11	EA
13	L-125-5.2a	MEDIUM INTENSITY RUNWAY EDGE LIGHT, BASE MOUNTED, ELEVATED, LED, IN TURF	44	EA
14	L-125-5.2b	MEDIUM INTENSITY RUNWAY THRESHOLD LIGHT, BASE MOUNTED, ELEVATED, LED, IN TURF	16	EA
15	L-125-5.2c	TAXIWAY GUIDANCE SIGN AND FOUNDATION, 2 MODULES	7	EA
16	L-125-5.2d	TAXIWAY GUIDANCE SIGN AND FOUNDATION, 3 MODULES	4	EA
17	L-125-5.2e	TAXIWAY GUIDANCE SIGN AND FOUNDATION, 4 MODULES	1	EA

A1 QUANTITIES FOR CANVASS OF BIDS

SCALE: NOT TO SCALE

A3 LEGEND

SCALE: NOT TO SCALE

KEYED NOTE REFERENCE
EXISTING AIRPORT PROPERTY LINE
EXISTING AVIGATION EASEMENT BOUNDARY
EXISTING ROADWAY BOUNDARY
EXISTING RUNWAY OBJECT FREE AREA
EXISTING RUNWAY SAFETY AREA
EXISTING TAXIWAY OBJECT FREE AREA
EXISTING TAXIWAY SAFETY AREA
EXISTING EDGE OF WOODS
EXISTING CONIFEROUS TREE
EXISTING DECIDUOUS TREE
EXISTING CONTOUR LINE
EXISTING SWALE CENTERLINE
EXISTING FENCE LINE
EXISTING SINGLE SWING GATE
EXISTING DOUBLE SWING GATE
EXISTING CANTILEVER GATE
EXISTING GUIDE RAIL
EXISTING DRAINAGE LINE
EXISTING UNDERDRAIN
EXISTING UNDERDRAIN CLEANOUT
EXISTING CATCH BASIN
EXISTING DRAINAGE MANHOLE
EXISTING SANITARY LINE
EXISTING SANITARY MANHOLE
EXISTING UNDERGROUND TELEPHONE LINE
EXISTING FIBER OPTIC LINE
EXISTING OVERHEAD TELEPHONE LINE
EXISTING TELEPHONE JUNCTION BOX
EXISTING TELEPHONE MANHOLE
EXISTING UNDERGROUND ELECTRIC LINE
EXISTING OVERHEAD ELECTRIC LINE
EXISTING LIGHT POLE
EXISTING UTILITY POLE
EXISTING CONCRETE MARKER
EXISTING CONCRETE DUCT MARKER
EXISTING CONCRETE CABLE MARKER
EXISTING CONCRETE SPLICE MARKER
EXISTING BOLLARD OR POST
EXISTING TIE-DOWN
EXISTING MONITORING WELL
EXISTING RUNWAY OR TAXIWAY EDGE LIGHT
EXISTING IN-PAVEMENT EDGE LIGHT
EXISTING AIRFIELD GUIDANCE SIGN
EXISTING REIL UNIT
EXISTING ELECTRICAL POWER CONTROL SWITCH
EXISTING TRANSFORMER
EXISTING WIND CONE
EXISTING PAPI / VASI UNIT
EXISTING ELECTRICAL MANHOLE
EXISTING PULLBOX
EXISTING JUNCTION CAN
EXISTING JUNCTION CAN PLAZA
EXISTING CIRCUIT LABEL
EXISTING AIRFIELD LIGHTING CABLE IN TRENCH
EXISTING AIRFIELD LIGHTING CABLE IN CONDUIT
EXISTING DUCT BANK
EXISTING SURVEY BASELINE
EXISTING SURVEY BASELINE POINT
EXISTING SURVEY CONTROL POINT
EXISTING BENCHMARK LOCATION
EXISTING DRAINAGE LINE TO BE REMOVED
EXISTING UNDERDRAIN TO BE REMOVED
EXISTING UNDERDRAIN CLEANOUT TO BE REMOVED
EXISTING CATCH BASIN TO BE REMOVED
EXISTING DRAINAGE MANHOLE TO BE REMOVED

EXISTING RUNWAY OR TAXIWAY EDGE LIGHT TO BE REMOVED
EXISTING AIRFIELD GUIDANCE SIGN TO BE REMOVED
EXISTING ELECTRICAL MANHOLE TO BE REMOVED
EXISTING PULLBOX TO BE REMOVED
EXISTING JUNCTION CAN TO BE REMOVED
EXISTING AIRFIELD LIGHTING CABLE IN TRENCH TO BE REMOVED
EXISTING AIRFIELD LIGHTING CABLE IN CONDUIT TO BE REMOVED
EXISTING DUCT BANK TO BE REMOVED
EXISTING AIRFIELD GUIDANCE SIGN TO BE MODIFIED
EXISTING AIRFIELD GUIDANCE SIGN TO BE REFURBISHED
EXISTING MARKING TO BE REMOVED
PROPOSED UNDERGROUND ELECTRIC
PROPOSED REIL UNIT
PROPOSED PAPI UNIT
PROPOSED ELECTRICAL MANHOLE
PROPOSED JUNCTION CAN
PROPOSED BASE MOUNTED RUNWAY EDGE LIGHT AND LENS COLOR
PROPOSED BASE MOUNTED RUNWAY THRESHOLD LIGHT AND LENS COLOR
PROPOSED GUIDANCE SIGN AND FOUNDATION
PROPOSED AIRFIELD LIGHTING CABLE IN CONDUIT WITH CIRCUIT NUMBER AND NUMBER OF CABLES
PROPOSED DUCT BANK
PROPOSED DIRECTIONAL DRILL DUCT BANK
PROPOSED SILT FENCE LOCATION
PROPOSED STORM DRAIN INLET PROTECTION
BARRICADE LOCATION
WORK AREA LIMITS
FLAGPERSON LOCATION

C&S COMPANIES®
C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

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AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

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DRAWN BY: E.A. JANKOWSKI
DESIGNED BY: E.A. JANKOWSKI
CHECKED BY: S.L. MAKHLOUF

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QUANTITIES FOR CANVASS OF BIDS AND SHEET INDEX

GI002

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GENERAL CONSTRUCTION NOTES

1. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 70-08, ATTACHMENT A - CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) OF THE GENERAL PROVISIONS.
2. THESE DRAWINGS HAVE BEEN PREPARED, IN PART, BASED UPON RECORD DRAWINGS AND/OR CAD FILES FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THOSE UTILIZING THE INFORMATION ON THESE DRAWINGS ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY PURPOSE.
3. EXISTING UTILITIES WERE TAKEN FROM PLANS OF RECORD. THEY HAVE BEEN SHOWN TO THE EXTENT KNOWN AND ARE OFFERED IN GOOD FAITH SOLELY FOR INFORMATIONAL PURPOSES. THEY MAY NOT REFLECT ACTUAL LOCATIONS AND MAY NOT BE INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
4. THE ACTUAL LOCATION AND ELEVATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
5. IN THE EVENT OF DAMAGE TO EXISTING UTILITIES OR CABLES, THE ENGINEER AND OWNER SHALL BE NOTIFIED IMMEDIATELY.
6. THE CONTRACTOR SHALL REPAIR ALL DAMAGE TO UTILITIES OR CABLES, AS DIRECTED BY THE ENGINEER, IMMEDIATELY AND AT THE CONTRACTOR'S EXPENSE.
7. ALL AREAS DISTURBED AS A RESULT OF THE CONTRACTOR'S STAGING AND CONSTRUCTION OPERATIONS SHALL BE RESTORED EQUAL TO OR BETTER THAN ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8. DURING THE WORK OF THIS CONTRACT, THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN WHATEVER TEMPORARY LIGHTING MAY BE NECESSARY TO KEEP THE RUNWAY OR TAXIWAY IN OPERATING CONDITION WHEN OPEN FOR AIRCRAFT.
9. ALL DIRT, DUST, STONES AND LOOSE DEBRIS SHALL BE CONTINUOUSLY REMOVED FROM ALL PAVED SURFACES DURING THIS CONTRACT.
10. THE CONTRACTOR SHALL RECONSTRUCT AND MAINTAIN EXISTING ACCESS ROADS AS REQUIRED FOR ACCESS TO THE WORK AREAS.
11. ALL OF THE CONTRACTOR'S OPERATIONS SHALL REMAIN ON AIRPORT PROPERTY AT ALL TIMES. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED ON ADJACENT PROPERTY.
12. THIS CONTRACT DOES NOT ALLOW FOR PRICE INCREASES DUE TO ESCALATION IN COST OF UNIT BID ITEMS. THE CONTRACTOR SHALL TAKE THIS INTO CONSIDERATION WHEN PREPARING UNIT PRICES FOR BID.
13. THE COST OF ALL FAILING TESTS PERFORMED BY THE OWNER OR ON THE OWNER'S BEHALF SHALL BE BORNE BY THE CONTRACTOR.
14. THE CONTRACTOR SHALL BE AWARE THAT OTHER CONCURRENT PROJECTS MAY BE UNDER CONSTRUCTION ON THE AIRPORT. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ACTIVITIES WITH THE OTHER CONTRACTORS ON THE AIRPORT. THE COST OF COORDINATION SHALL BE INCLUDED IN ITEM CX-106.

GRADING AND EXCAVATION NOTES

15. QUALITY ASSURANCE TESTS WILL BE MADE BY AND AT THE EXPENSE OF THE OWNER, UNLESS OTHERWISE NOTED. THE COST OF ALL FAILING TESTS SHALL BE BORNE BY THE CONTRACTOR.
16. TOPSOILING, SEEDING, AND MULCHING WILL BE CONSIDERED A NECESSARY AND INCIDENTAL PART OF THE WORK AND ITS COST SHALL BE CONSIDERED BY THE CONTRACTOR AND INCLUDED IN THE CONTRACT PRICE FOR THE PAY ITEMS OF WORK INVOLVED.

ELECTRICAL AND SIGNAGE NOTES

17. ALL ELECTRICAL WORK SHALL CONFORM TO APPLICABLE LOCAL, STATE AND NATIONAL ELECTRICAL CODES.
18. THE ELECTRICAL CHARACTERISTICS OF PROPOSED EQUIPMENT SHALL BE VERIFIED TO BE COMPATIBLE WITH EXISTING EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
19. ABANDONED CABLES MAY EXIST IN THE VICINITY OF THE PROPOSED WORK. IF ENCOUNTERED, CONTRACTOR SHALL VERIFY THAT THEY ARE ABANDONED PRIOR TO REMOVAL. IF THEY ARE NOT ABANDONED, CABLES SHALL BE PROTECTED IN PLACE OR REPAIRED AT THE CONTRACTOR'S EXPENSE IF DAMAGED BY THE CONTRACTOR.
20. ITEMS OF SPECIFIC MANUFACTURE SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS AND OR MANUFACTURER'S REPRESENTATIVE DIRECTIONS.
21. ALL GROUND CONNECTIONS SHALL BE MADE USING EXOTHERMIC CONNECTIONS.
22. GROUND RODS SHALL BE INSTALLED AT 500-FT INTERVALS ALONG COUNTERPOISE WIRE.
23. ALL CABLE CONNECTIONS SHALL BE MADE AT LIGHT UNITS OR AT ENDS OF DUCT BANKS UNLESS DIRECTED OTHERWISE.
24. THE OWNER RESERVES THE RIGHT TO SALVAGE LIGHTING EQUIPMENT. THE EQUIPMENT TO BE SALVAGED IS IDENTIFIED IN THE SPECIFICATION. SALVAGED EQUIPMENT SHALL BE STOCKPILED AT A LOCATION DESIGNATED BY THE OWNER IN PROPER WORKING CONDITION. ALL OTHER LIGHTING EQUIPMENT SHALL BE SPOILED OFF AIRPORT PROPERTY AT A PROPER DISPOSAL SITE SELECTED BY THE CONTRACTOR.
25. PROVIDE WATERTIGHT TERMINATION FOR ALL BURIED CONDUIT ENDS.
26. THE CONTRACTOR SHALL ENSURE THAT ALL NECESSARY ELECTRICAL CIRCUITS ARE DE-ENERGIZED PRIOR TO COMMENCING WORK. A "LOCKOUT/TAGOUT" PROCEDURE SHALL BE IMPLEMENTED AT THE ELECTRICAL VAULT THAT IS ACCEPTABLE TO THE OWNER AND THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE AIRPORT ELECTRICIAN ON A DAILY BASIS FOR AFFECTED CIRCUITS.
27. ONE WEEK PRIOR TO EXCAVATING IN ANY AREA, THE CONTRACTOR SHALL HIRE AN APPROVED UTILITY LOCATING SERVICE TO LOCATE AND MARK OUT ALL UTILITIES. THE CONTRACTOR SHALL MEET WITH AIRPORT OPERATIONS AND THE RPR TO DETERMINE TAXIWAY OR RUNWAY CLOSURE TIMES AND DURATIONS FOR THE LOCATING TASKS. CONTRACTOR SHALL PERFORM SITE INVESTIGATIONS TO VERIFY LOCATION AND DEPTH OF ALL UTILITIES AS NECESSARY. INVESTIGATION TECHNIQUES MAY INCLUDE BY RF TRACING, GROUND PENETRATING RADAR, VACUUM OR AIR PRESSURE POT-HOLING OR BY OTHER MEANS APPROVED BY THE RPR. CONTRACTOR SHALL ACCURATELY RECORD AND MARK THE LOCATION OF ALL UTILITIES. ALL MARKERS SHALL BE APPROVED BY AIRPORT OPERATIONS AND CANNOT PRESENT A HEIGHT OBSTRUCTION OR FOREIGN OBJECT DEBRIS HAZARD TO AIRCRAFT (DISLODGE DUE TO WIND). THE CONTRACTOR SHALL VERIFY THE ROUTING OF ALL EXISTING CABLES AND NOTIFY THE RPR IF DISCREPANCIES EXIST TO THE ROUTING SHOWN ON THE CONTRACT DRAWINGS. ADVANCE NOTICE WILL ALLOW THE RPR TO MODIFY THE DESIGN PRIOR TO CONSTRUCTION.
28. ALL INTERRUPTIONS OF APRON, TAXIWAY, OR RUNWAY LIGHTING AND NAVIGATIONAL AIDS SHALL BE COORDINATED WITH AIRPORT OPERATIONS AND SHALL BE SUBJECT TO THE APPROVAL OF AIRPORT OPERATIONS.
29. THE CONTRACTOR SHALL PROVIDE FINAL RED LINE AS-BUILT DRAWINGS UPON COMPLETION OF THE PROJECT. RED LINE AS-BUILT DRAWINGS SHALL IDENTIFY LOCATIONS OF ALL PERMITTED IN-LINE SPLICES. IDENTIFICATION OF CABLE SPLICES AT LIGHT AND SIGN L-823 CABLE CONNECTOR KITS ARE NOT REQUIRED TO BE SHOWN.
30. SELECTIVE GRADING AROUND ELECTRICAL SCOPE ITEMS SHALL BE REQUIRED AS DIRECTED BY THE RPR. THE COST SHALL BE INCLUDED IN THE RESPECTIVE ELECTRICAL PAY ITEM.
31. ALL CABLE CONNECTIONS SHALL BE MADE AT LIGHT UNITS, JUNCTION CANS, PULL BOXES, MANHOLES, OR SIGNS UNLESS DIRECTED OTHERWISE. CABLE SPLICING ALONG THE CONDUIT RUNS OR WITHIN CONDUITS IS NOT ALLOWED. ALL CABLES SHALL BE CONTINUOUS WITHOUT SPLICES, INCLUDING HOME RUN CIRCUITS, UNLESS OTHERWISE APPROVED.
32. SOME EXISTING MANHOLES, JUNCTION CANS, PULL BOXES, CONDUITS, AND DUCT BANKS WHERE WORK IS SCHEDULED TO OCCUR MAY CONTAIN ADDITIONAL ENERGIZED CABLES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT PERSONNEL AND EQUIPMENT AS WELL AS TO MAINTAIN EXISTING CIRCUITS ASSOCIATED WITH ACTIVE AND OPEN PAVEMENTS.
33. THE CONTRACTOR IS ENCOURAGED TO USE PRECAST LIGHT BASES, SIGN FOUNDATIONS, AND ELECTRICAL STRUCTURES WHERE EVER POSSIBLE.
34. THE CONTRACTOR SHALL MARK OUT ALL PROPOSED PROJECT FEATURES FOR THE RPR'S APPROVAL PRIOR TO EXCAVATION AND FOUNDATION INSTALLATION. LAYOUT SHALL BE MADE BY A LICENSED LAND SURVEYOR. OFFSET PINS MAY BE INSTALLED TO TRIANGULATE TO THE PROPOSED FEATURE AFTER EXCAVATION.
35. IN THE EVENT ANY OBSTRUCTIONS AND/OR UTILITIES NOT SHOWN ON THE PLANS ARE ENCOUNTERED DURING CONSTRUCTION, AND ARE DEEMED TO BE CONFLICTS TO THE NEW WORK, ALL WORK SHALL STOP (ON THAT ITEM) AND THE RPR NOTIFIED PRIOR TO PROCEEDING WITH WORK. WORK MAY PROCEED ON OTHER WORK TASKS TO MAINTAIN SCHEDULE.
36. ROUTING OF CONDUIT IS DIAGRAMMATIC AND CONCEPTUAL IN NATURE AND NOT INTENDED TO SHOW ALL REQUIRED OFFSETS AND DETAILS. EXACT ROUTING WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE RPR.
37. NO IN-LINE SPLICES SHALL BE PERMITTED ON AIRFIELD CABLES UNLESS COORDINATED IN ADVANCE AND APPROVED OR SHOWN ON THE PLANS. THIS INCLUDES HOMERUN CIRCUITS.
38. IN AREAS WHERE PROPOSED CONDUIT IS DESIGNED TO BE INSTALLED AT A LOCATION WHERE EXISTING CONDUIT IS TO BE ABANDONED, THE CONTRACTOR SHALL REMOVE THE EXISTING CONDUIT. CONDUIT REMOVAL SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE PROPOSED CONDUIT.
39. RESTORATION OF DISTURBED SURFACES SHALL INCLUDE CREATING A SMOOTH STABLE UNIFORM SURFACE WITH TOPSOIL TO SUPPORT TURF GROWTH. ALL AREAS SHALL BE RAKED OR OTHERWISE CLEARED OF STONES AND OTHER MATERIAL LARGER THAN 1" IN ANY DIAMETER. SURFACES MUST MEET TSA/RSA STANDARDS AND SAFELY ACCOMMODATE THE AIRPORTS MOWING EQUIPMENT.
40. THE LOCATION OF JUNCTION CANS, PULL BOXES, AND CONDUITS MAY BE FIELD ADJUSTED TO AVOID CONFLICTS AS APPROVED BY THE RPR AND ENGINEER.
41. THE FINAL GRADE SHALL BE SMOOTH, FREE OF RUTS, DEPRESSIONS OR DROP OFFS. THE TOPSOIL SHALL BE THE FINISHED GRADE OF ALL LIGHTS, SIGNS, AND OTHER FEATURES AND BE PLACED WITH NO VERTICAL DROPS ALLOWED. TOPSOIL SHALL BE GRADED SLIGHTLY AWAY FROM ELECTRICAL FEATURES INCLUDING LIGHTS AND SIGNS WITH A MAXIMUM ALLOWABLE SLOPE OF 3.0 PERCENT IN COMPLIANCE WITH RUNWAY AND TAXIWAY SAFETY AREA GRADING REQUIREMENTS. THE FINISHED SURFACE SHALL BE LEFT IN A MANNER TO SAFELY ACCOMMODATE THE OWNER'S MOWING EQUIPMENT AS APPROVED BY THE OWNER. AREAS THAT EXPERIENCE TRENCH SETTLEMENT OVER THE ONE-YEAR WARRANTY PERIOD SHALL BE RE-TOPSOILED, SEEDED, AND MULCHED TO RESTORE THE INTENDED GRADE.
42. ALL CONDUIT CONNECTIONS TO EXISTING LIGHT UNITS, DUCT BANKS, OR SIGNS SHALL BE MADE WITH INDUSTRY STANDARD UL LISTED WATERTIGHT CONNECTORS. ALL NECESSARY SWEEPS SHALL BE MADE WITH PRE-FORMED SWEEPS OR CONDUIT BENT ON-SITE USING APPROVED CONDUIT HEATING EQUIPMENT (HOT BOX). ALL CONNECTIONS SHALL BE INCIDENTAL TO ITEM L-110 PAYMENT ITEMS.
43. THE CONTRACTOR SHALL VERIFY ALL INPUT VOLTAGES, AMPERAGE AND OTHER ELECTRICAL CHARACTERISTICS FOR REPLACEMENT TRANSFORMERS, REGULATORS, ETC. PRIOR TO ORDERING THE EQUIPMENT.
44. IT IS THE INTENT OF THIS CONTRACT TO HAVE A WELL DRAINED, WATER FREE UNDERGROUND ELECTRICAL SYSTEM INCLUDING ALL ELECTRICAL STRUCTURES. ALTHOUGH WATERTIGHT CONNECTORS ARE SPECIFIED. THE JOINTS AND COUPLINGS WILL LEAK IN WATER AND THEREFORE IS CLASSIFIED AS A "WET SYSTEM". ELECTRICAL DRAINS HAVE BEEN DESIGNED INTO THE PROJECT TO DRAIN INCOMING WATER. ADDITIONAL DRAINS, ABOVE AND BEYOND THOSE SHOWN ON THE PLANS, MAY BE REQUIRED TO MEET THIS REQUIREMENT AS RECOMMENDED BY THE CONTRACTOR AND APPROVED BY THE RPR.
45. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AN EFFECTIVE SAFETY PROGRAM. SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR AND ALL EMPLOYEES, REGARDLESS OF POSITION. SAFETY MUST BE PRACTICED DAILY IN EVERY WORK TASK FOLLOWING ALL INDUSTRY STANDARD AND OSHA REGULATIONS. AIRPORT LIGHTING CIRCUITS ARE, BY THEIR NATURE, VERY DANGEROUS AND REQUIRED SPECIALIZED TRAINING ON THEIR FUNCTIONALITY. AIRFIELD CIRCUITS RELAY ON CONSTANT CURRENT AND VOLTAGE METER READINGS CANNOT BE RELIED UPON AS PORTIONS OF THE CIRCUIT MAY READ NEAR ZERO VOLTS.
46. AT A MINIMUM THE FOLLOWING SAFETY PRACTICES SHOULD BE FOLLOWED BY ALL PERSONNEL:
    - A: DO NOT WORK ON LIVE CIRCUITS
    - B: ENSURE THAT ALL PERSONNEL ARE TRAINED AND FAMILIAR WITH ELECTRICAL SAFETY
    - C: STRICTLY OBSERVE SAFETY RULES. RULES SHALL BE LISTED IN THE CONTRACTOR SAFETY PLAN AND INCLUDE PERSONAL SAFETY PRECAUTIONS
    - D: ENSURE THAT ALL TEST AND SERVICE EQUIPMENT IS UL APPROVED AND RATED FOR THE CURRENT AND VOLTAGES EXPECTED
    - E: PRIOR TO BEGINNING ANY ELECTRICAL WORK, COORDINATE THE WORK SCHEDULE WITH AIRPORT OPERATIONS AND THE RPR. MAKE SURE CIRCUITS WILL NOT BE ENERGIZED DURING WORK BY OBSERVING STRICT LOCK OUT-TAG OUT PROCEDURES
    - F: AT LEAST TWO ELECTRICIANS SHOULD BE ASSIGNED WHEN WORKING ON HIGH VOLTAGE CIRCUITS, WITH AT LEAST ONE HAVING A THOROUGH KNOWLEDGE OF HIGH VOLTAGE AIRFIELD LIGHTING CIRCUITS. THE SECOND PERSON'S PRIMARY RESPONSIBILITY WILL BE AN OBSERVER
    - G: KNOW HOW TO SUMMON IMMEDIATE EMERGENCY AND MEDICAL AID
    - H: PROVIDE A SAFETY NOTICE BOARD AND ALL NECESSARY SAFETY EQUIPMENT.

48. THE CONTRACTOR IS ADVISED OF THE FOLLOWING:
    - A: ALWAYS ASSUME THAT THE CIRCUIT IS ENERGIZED, OR CAN BE ENERGIZED BY REMOTE CONTROL, UNTIL PROVEN OTHERWISE BY MECHANICAL DISCONNECTION AND LOCK OUT-TAG OUT.
    - B: NEVER UNDER ANY CIRCUMSTANCES. BREAK A LIVE CIRCUIT.
    - C: NEVER ENTER AN ELECTRICAL STRUCTURE WITH ENERGIZED CONDUCTORS AND NEVER HANDLE LIVE CABLES WHILE THERE IS CURRENT PRESENT UNLESS SPECIAL PRECAUTIONS ARE TAKEN.
    - D: TAKE CAUTION OF INDUCED VOLTAGES. VOLTAGES MAY BE INDUCED IN AN OTHERWISE UNENERGIZED CONDUCTOR FROM A NEARBY ENERGIZED CABLE.
    - E: CONFINED SPACE ENTRY AND EXCAVATION SHORING SHALL BE GOVERNED BY OSHA REQUIREMENTS.

C&S COMPANIES®
C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
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GENERAL NOTES

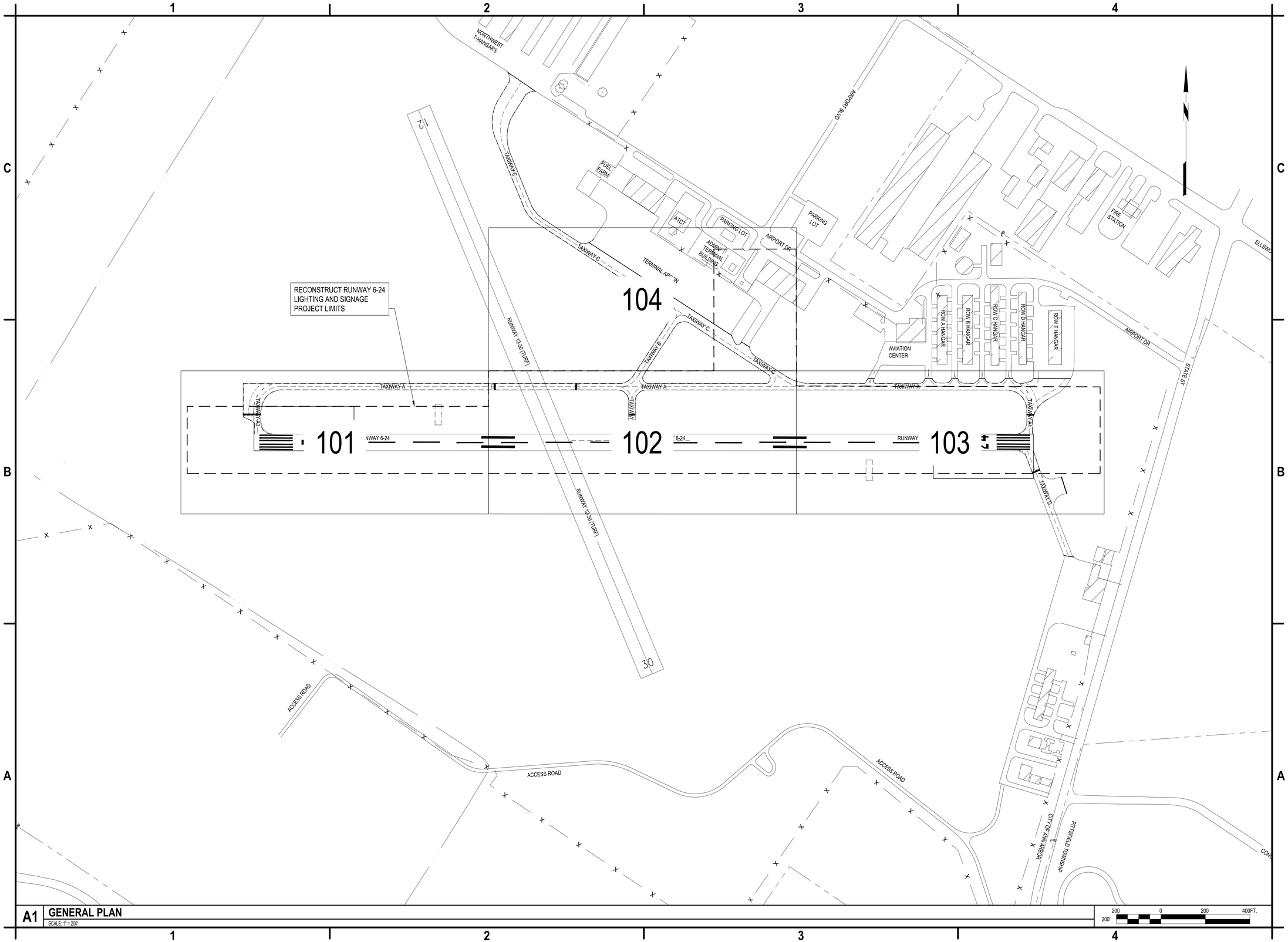
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A1 **GENERAL PLAN**
SCALE: 1" = 200'

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C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

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DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

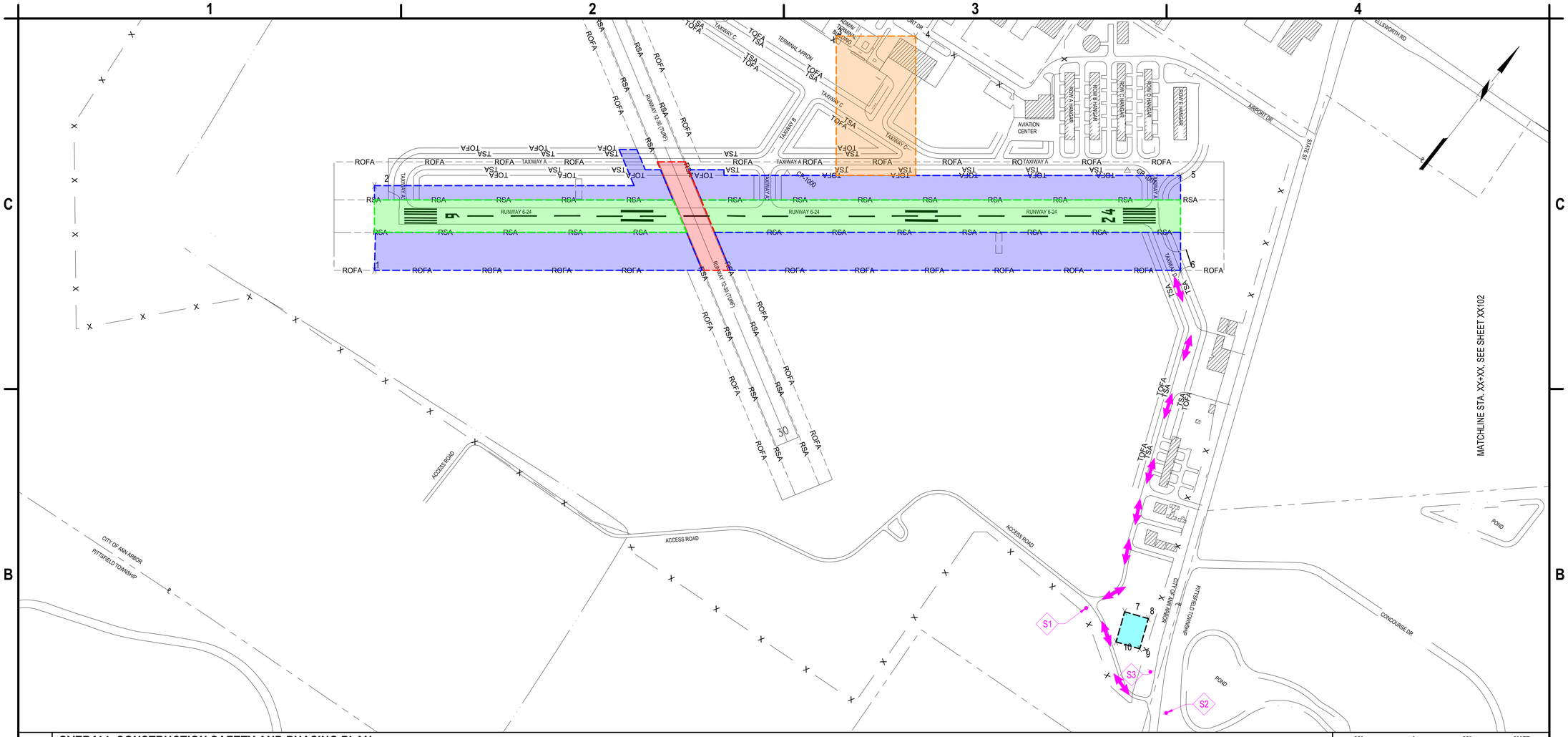
GENERAL PLAN

GI100

SHEET NO. 4 OF 21

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B1 OVERALL CONSTRUCTION SAFETY AND PHASING PLAN

SCALE: 1" = 250'

PHASE 1

PHASE 1A

PHASE 2

PHASE 3

CONTRACTOR'S STAGING AREA

S# TEMPORARY CONSTRUCTION SIGN, ITEM CX-106. SEE DETAIL C3/GC501

A1 LEGEND

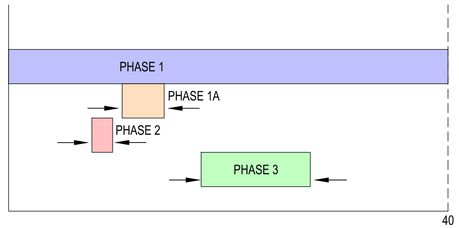
SCALE: NOT TO SCALE

NOTES:

1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL, IN THE PRESENCE OF THE RPR, VIDEOTAPE/PHOTOGRAPH ALL HAUL ROADS TO BE USED DURING THE PROJECT. THE INFORMATION SHALL BE PROVIDED TO THE OWNER PRIOR TO NTP. ANY DAMAGE TO THE PAVEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR, AS DIRECTED BY THE RPR. ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL HAVE AT LEAST ONE FULLY OPERATIONAL VACUUM SWEEPER TRUCK AVAILABLE AT ALL TIMES TO CLEAN PAVEMENTS, INCLUDING THE HAUL ROUTE AND PAVEMENT ADJACENT TO THE WORK AREAS. ALL PAVEMENT IS TO BE CLEANED AND FREE OF DIRT AND DEBRIS PRIOR TO OPENING TO AIRCRAFT TRAFFIC.
3. CONTRACTOR SHALL HAVE A FULL TIME PROJECT SUPERINTENDENT FOR THE PROJECT. THE PROJECT SUPERINTENDENT SHALL BE REQUIRED TO BE ONSITE AT ALL TIMES WHERE WORK IS UNDERWAY (INCLUDING SUBCONTRACTOR WORK). AN ALTERNATE BACK-UP PROJECT SUPERINTENDENT SHALL BE IDENTIFIED FOR PERIODS WHERE THE PRIMARY SUPERINTENDENT IS NOT AVAILABLE.
4. CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR LEAVE EQUIPMENT WITHIN THE RUNWAY OBJECT FREE AREA (ROFA) OVERNIGHT OR DURING NON-WORKING HOURS.
5. CONTRACTOR SHALL DELINEATE THE RUNWAY SAFETY AREA (RSA) ALONG THE WORK AREA USING LOW-PROFILE BARRICADES SPACED 8FT APART, OR AS DIRECTED BY THE RPR.
6. ANY WORK WITHIN THE RUNWAY SAFETY AREA, INCLUDING MAINTENANCE OF TRAFFIC ITEMS SHALL BE COORDINATED WITH THE AIRPORT, ATCT, AND RPR A MINIMUM OF 7 DAYS IN ADVANCE OF THE WORK COMMENCING.
7. CONTRACTOR TO PROVIDE OWN LOCK FOR GATE ACCESS

A2 SHEET NOTES

SCALE: NOT TO SCALE



CALENDAR DAYS:
PHASE 1: 40 CALENDAR DAYS
PHASE 1A: 2 CALENDAR DAYS
PHASE 2: 1 CALENDAR DAYS
PHASE 3: 7 CALENDAR DAYS

THE TOTAL CONTRACT TIME FOR THE RECONSTRUCT RUNWAY 6-24 LIGHTING PROJECT IS 40 CALENDAR DAYS.THE CONSTRUCTION START DATE IS ANTICIPATED TO BE FALL 2027. THE CONTRACTOR SHALL TAKE THIS INTO CONSIDERATION WHEN PREPARING UNIT PRICES FOR BID.

PHASE 1A, 2, AND 3 SHALL BE CONCURRENT WITH PHASE 1. CONTRACTOR SHALL COORDINATE CLOSURE OF PHASE 1A, 2 AND 3 WORK AREAS WITH THE AIRPORT, ATCT, AND RPR A MINIMUM OF 7 DAYS PRIOR TO THE BEGINNING OF WORK.

A3 PROJECT SCHEDULE

SCALE: NOT TO SCALE

POINT TABLE

POINT NO.	LONGITUDE	LATITUDE	ELEV.	DESCRIPITION
1	W83° 44' 59.69"	N42° 13' 10.22"	831.20	WORK AREA
2	W83° 45' 02.70"	N42° 13' 13.36"	831.00	WORK AREA
3	W83° 44' 44.96"	N42° 13' 31.11"	833.00	WORK AREA
5	W83° 44' 22.81"	N42° 13' 35.05"	824.00	WORK AREA
6	W83° 44' 19.44"	N42° 13' 31.53"	831.20	WORK AREA
7	W83° 44' 10.08"	N42° 13' 17.39"	825.00	STAGING AREA
8	W83° 44' 08.66"	N42° 13' 17.76"	825.00	STAGING AREA
9	W83° 44' 08.02"	N42° 13' 16.41"	826.00	STAGING AREA
10	W83° 44' 09.45"	N42° 13' 16.04"	824.00	STAGING AREA

A4 POINT TABLE

SCALE: NOT TO SCALE

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Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO: N75.007.001
DATE: AUGUST 2026
DRAWN BY: E.J SLEDZ
DESIGNED BY: E.J. SLEDZ
CHECKED BY: S.L. MAKHLOUF

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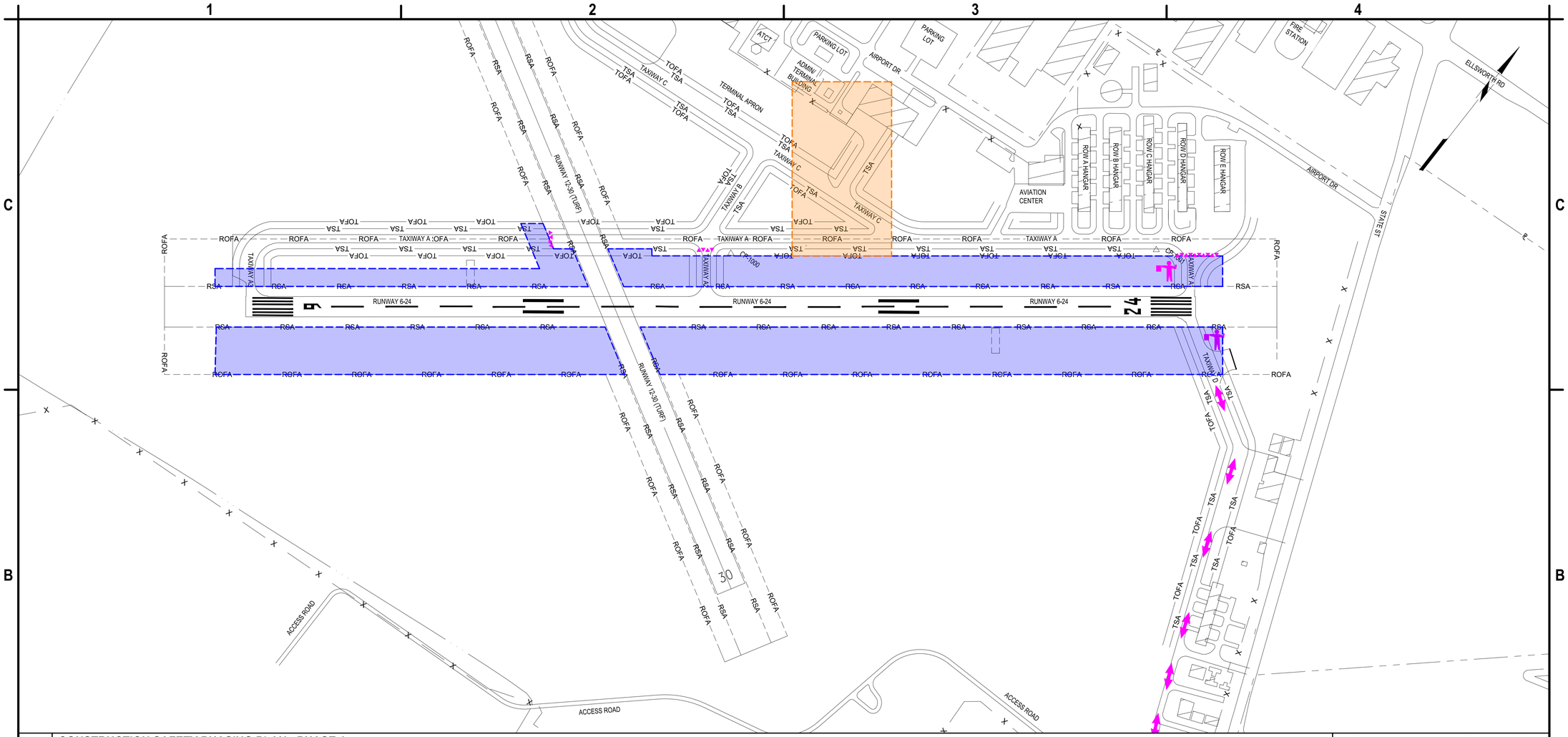
OVERALL CONSTRUCTION SAFETY AND PHASING PLAN

GC101

SHEET NO. 5 OF 21

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B1 CONSTRUCTION SAFETY PHASING PLAN - PHASE 1

SCALE: 1" = 200'

200' 200 0 200 400FT.

A1 LEGEND

SCALE: NOT TO SCALE

PHASE 1

PHASE 1A

CONTRACTOR PROVIDED FLAGGER WITH RADIO TO MONITOR CROSSING AT RUNWAY 6-24

CONTRACTOR'S ACCESS ROUTE

LOW PROFILE BARRICADES, ITEM CX-106. SEE DETAIL A4/GC501

A2 SHEET NOTES

SCALE: NOT TO SCALE

PHASE 1 - 40 CALENDAR DAYS

CONSTRUCTION:

- ELECTRICAL DEMOLITION AND INSTALLATION OUTSIDE OF RUNWAY 6-24 AND RUNWAY 12-30 RUNWAY SAFETY AREA (RSA).
- ELECTRICAL DEMOLITION AND INSTALLATION OUTSIDE OF TAXIWAY A OBJECT FREE AREA (TOFA).

PHASE 1A - 2 CALENDAR DAYS

CONSTRUCTION:

- RUNWAY 6-24 HOMERUN TO THE ELECTRICAL VAULT.
- WORK SHALL BE CONCURRENT WITH PHASE 1.

A3 AIRFIELD OPERATIONAL REQUIREMENTS

SCALE: NOT TO SCALE

PHASE 1 OPERATIONAL CLOSURES AND RESTRICTIONS TABLE

LOCATION	STATUS
RUNWAY 6/24	OPEN
RUNWAY 12/30	OPEN
TAXIWAY A	CLOSED WEST OF RUNWAY 12-30
TAXIWAY A1	CLOSED
TAXIWAY A2	CLOSED
TAXIWAY A3	CLOSED
TAXIWAY B	OPEN
TAXIWAY C	OPEN
TAXIWAY D	CLOSED
TERMINAL APRON	OPEN

A4 GENERAL PHASING NOTES

SCALE: NOT TO SCALE

GENERAL PHASING NOTES:

1. REFER TO ATTACHMENT A - CSPP OF THE GENERAL PROVISIONS FOR SPECIFIC OPERATING REQUIREMENTS DURING WORK ON THE AIRFIELD.
2. THE CONTRACTOR WILL BE GIVEN THE SPECIFIC NUMBER OF CALENDAR DAYS TO COMPLETE THE WORK AS SHOWN. LIQUIDATED DAMAGES SHALL BE ASSESSED AFTER THE CONTRACT TIME HAS EXPIRED UNLESS THE CONTRACTOR CAN SHOW JUST CAUSE FOR DELAYS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE JUSTIFICATION FOR WAIVING ANY LIQUIDATED DAMAGES CHARGED.
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4. CONTRACTOR SHALL COORDINATE SCHEDULE, RAMP CLOSURES, AND NOTAMS WITH THE RPR AND AIRPORT PRIOR TO STARTING WORK.
5. CONTRACTOR SHALL DELINEATE THE RUNWAY SAFETY AREA (RSA) ALONG THE WORK AREA USING LOW-PROFILE BARRICADES SPACED 8FT APART, OR AS DIRECTED BY THE RPR.
6. THE CONTRACTOR SHALL HAVE AT LEAST ONE FULLY OPERATIONAL VACUUM SWEEPER TRUCK AVAILABLE AT ALL TIMES TO CLEAN PAVEMENTS, INCLUDING THE HAUL ROUTE AND PAVEMENT ADJACENT TO THE WORK AREAS. ALL PAVEMENT IS TO BE CLEANED AND FREE OF DIRT AND DEBRIS PRIOR TO OPENING TO AIRCRAFT TRAFFIC.
7. ANN ARBOR MUNICIPAL AIRPORT IS A TOWERED AIRPORT. PRIOR TO CONSTRUCTION, CONTRACTOR MUST MEET WITH THE FAA AIR TRAFFIC CONTROL TOWER (ATCT) FOR RADIO TRAINING FOR FLAGGING.

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RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.J. SLEDZ
DESIGNED BY:	E.J. SLEDZ
CHECKED BY:	S.L. MAKHLOUF

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CONSTRUCTION SAFETY PHASING PLAN - PHASE 1

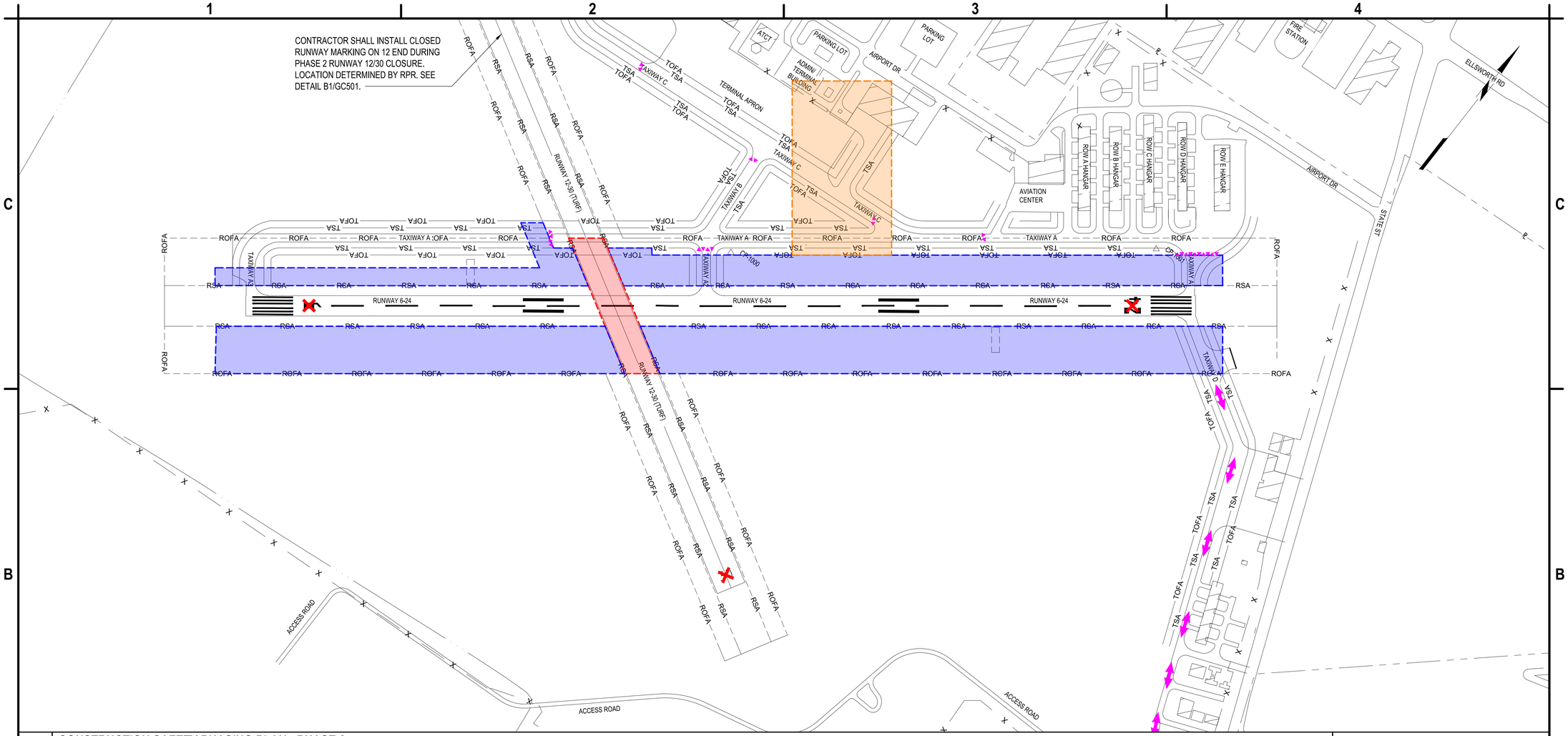
GC102

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CONTRACTOR SHALL INSTALL CLOSED RUNWAY MARKING ON 12 END DURING PHASE 2 RUNWAY 12/30 CLOSURE. LOCATION DETERMINED BY RPR. SEE DETAIL B1/GC501.



B1 CONSTRUCTION SAFETY PHASING PLAN - PHASE 2

SCALE: 1" = 200'

200 0 200 400FT.
200'

PHASE 1

PHASE 1A

PHASE 2

CONTRACTOR'S ACCESS ROUTE

LOW PROFILE BARRICADES, ITEM CX-106.
SEE DETAIL A4/GC501

TEMPORARY CLOSED RUNWAY MARKING, ITEM CX-106.
SEE DETAIL B1/GC501

A1 LEGEND

SCALE: NOT TO SCALE

PHASE 2 - 1 CALENDAR DAYS

CONSTRUCTION:

- ELECTRICAL DEMOLITION AND INSTALLATION WITHIN THE RUNWAY 6-24 AND RUNWAY 12-30 RUNWAY SAFETY AREA (RSA)
- WORK SHALL BE CONCURRENT WITH PHASE 1.

A2 SHEET NOTES

SCALE: NOT TO SCALE

PHASE 2 OPERATIONAL CLOSURES AND RESTRICTIONS TABLE

LOCATION	STATUS
RUNWAY 6/24	CLOSED
RUNWAY 12/30	CLOSED
TAXIWAY A	CLOSED
TAXIWAY A1	CLOSED
TAXIWAY A2	CLOSED
TAXIWAY A3	CLOSED
TAXIWAY B	CLOSED
TAXIWAY C	CLOSED
TAXIWAY D	CLOSED
TERMINAL APRON	CLOSED

A3 AIRFIELD OPERATIONAL REQUIREMENTS

SCALE: NOT TO SCALE

GENERAL PHASING NOTES:

1. REFER TO ATTACHMENT A - CSPP OF THE GENERAL PROVISIONS FOR SPECIFIC OPERATING REQUIREMENTS DURING WORK ON THE AIRFIELD.
2. THE CONTRACTOR WILL BE GIVEN THE SPECIFIC NUMBER OF CALENDAR DAYS TO COMPLETE THE WORK AS SHOWN. LIQUIDATED DAMAGES SHALL BE ASSESSED AFTER THE CONTRACT TIME HAS EXPIRED UNLESS THE CONTRACTOR CAN SHOW JUST CAUSE FOR DELAYS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE JUSTIFICATION FOR WAIVING ANY LIQUIDATED DAMAGES CHARGED.
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7. ANN ARBOR MUNICIPAL AIRPORT IS A TOWERED AIRPORT. PRIOR TO CONSTRUCTION, CONTRACTOR MUST MEET WITH THE FAA AIR TRAFFIC CONTROL TOWER (ATCT) FOR RADIO TRAINING FOR FLAGGING.

A4 GENERAL PHASING NOTES

SCALE: NOT TO SCALE

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RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.J. SLEDZ
DESIGNED BY:	E.J. SLEDZ
CHECKED BY:	S.L. MAKHLOUF

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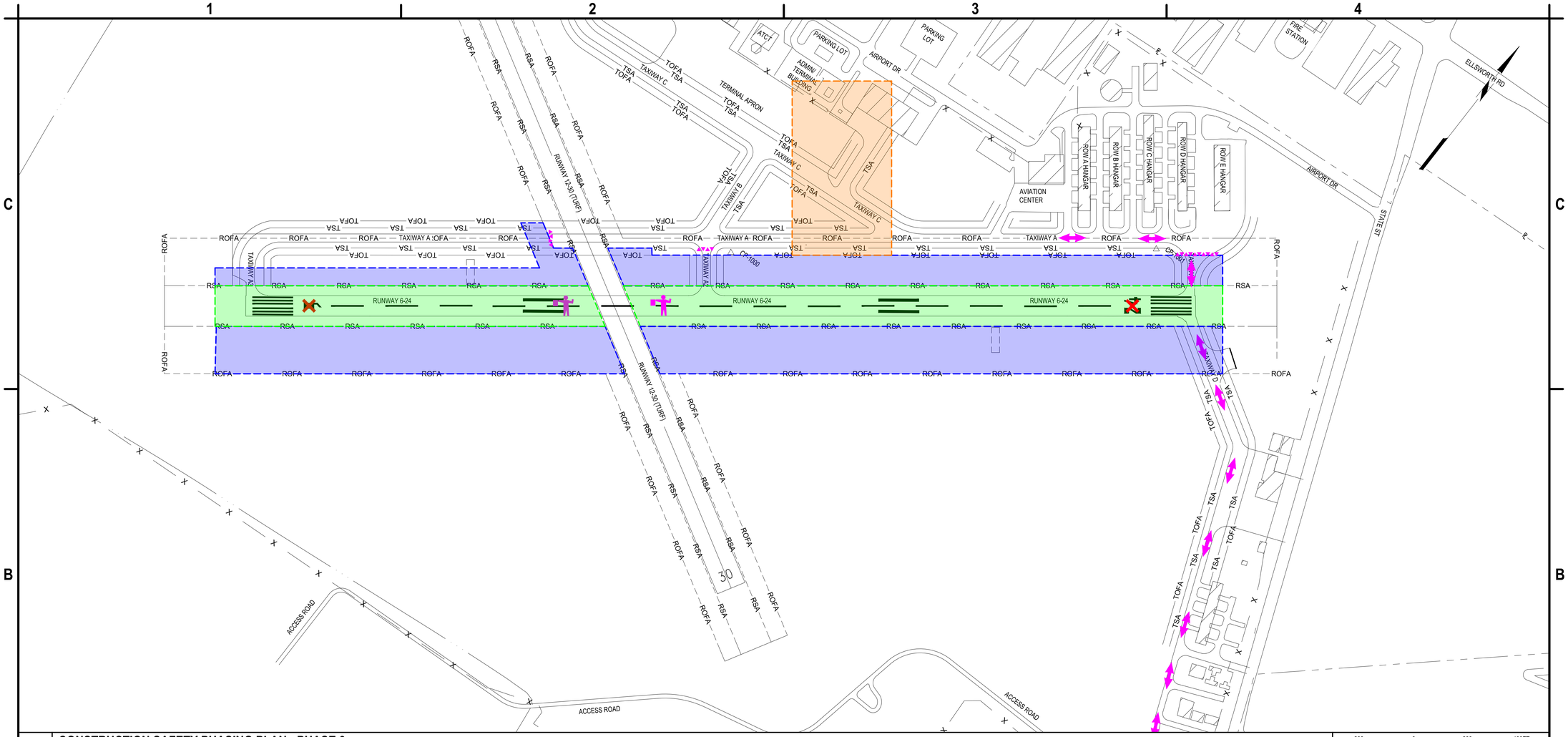
CONSTRUCTION SAFETY PHASING PLAN - PHASE 2

GC103

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B1 CONSTRUCTION SAFETY PHASING PLAN - PHASE 3
SCALE: 1" = 200'

PHASE 1

PHASE 1A

PHASE 3

CONTRACTOR PROVIDED FLAGGER WITH RADIO TO MONITOR CROSSING AT RUNWAY 12-30

CONTRACTOR'S ACCESS ROUTE

LOW PROFILE BARRICADES, ITEM CX-106. SEE DETAIL A4/GC501

TEMPORARY CLOSED RUNWAY MARKING, ITEM CX-106. SEE DETAIL B1/GC501

A1 LEGEND
SCALE: NOT TO SCALE

PHASE 3 - 7 CALENDAR DAYS

CONSTRUCTION:
- ELECTRICAL DEMOLITION AND INSTALLATION WITHIN THE RUNWAY 6-24 RUNWAY SAFETY AREA (RSA)
- WORK SHALL BE CONCURRENT WITH PHASE 1.

A2 SHEET NOTES
SCALE: NOT TO SCALE

PHASE 3 OPERATIONAL CLOSURES AND RESTRICTIONS TABLE

LOCATION	STATUS
RUNWAY 6/24	CLOSED
RUNWAY 12/30	OPEN
TAXIWAY A	CLOSED WEST OF RUNWAY 12-30
TAXIWAY A1	CLOSED
TAXIWAY A2	CLOSED
TAXIWAY A3	CLOSED
TAXIWAY B	OPEN
TAXIWAY C	OPEN
TAXIWAY D	CLOSED
TERMINAL APRON	OPEN

NOTES:

1. CONTRACTOR SHALL COORDINATE HOMERUN WORK WITH THE RPR AND THE ATCT. AT NO POINT SHALL THE CONTRACTOR CROSS ACTIVE PAVEMENT WITHOUT PRIOR APPROVAL FROM THE ATCT.

A3 AIRFIELD OPERATIONAL REQUIREMENTS
SCALE: NOT TO SCALE

GENERAL PHASING NOTES:

1. REFER TO ATTACHMENT A - CSPP OF THE GENERAL PROVISIONS FOR SPECIFIC OPERATING REQUIREMENTS DURING WORK ON THE AIRFIELD.
2. THE CONTRACTOR WILL BE GIVEN THE SPECIFIC NUMBER OF CALENDAR DAYS TO COMPLETE THE WORK AS SHOWN. LIQUIDATED DAMAGES SHALL BE ASSESSED AFTER THE CONTRACT TIME HAS EXPIRED UNLESS THE CONTRACTOR CAN SHOW JUST CAUSE FOR DELAYS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE JUSTIFICATION FOR WAIVING ANY LIQUIDATED DAMAGES CHARGED.
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A4 GENERAL PHASING NOTES
SCALE: NOT TO SCALE

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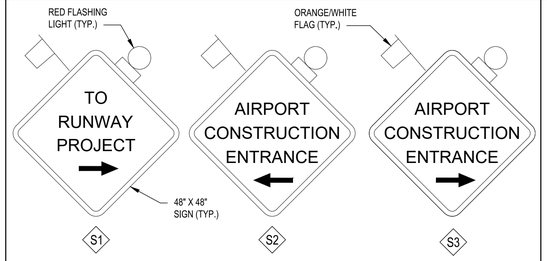
CONSTRUCTION SAFETY PHASING PLAN - PHASE 3

GC104

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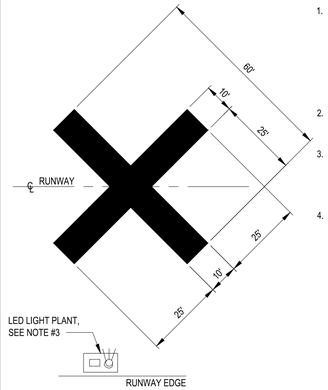


SIGN NOTES:

1. SIGN BACKGROUND IS TO BE ORANGE. SIGN LETTERING IS TO BE BLACK, MINIMUM HEIGHT OF 3", AND BE A BOLD LETTERING STYLE SIMILAR TO DETAIL SHOWN ON THIS SHEET.
2. SIGN SHALL BE LOCATED HIGH ENOUGH TO ALLOW EASY VIEWING FROM ALL CONSTRUCTION VEHICLES ENTERING THE CONSTRUCTION SITE.
3. SEE CONSTRUCTION SAFETY PHASING PLANS FOR GENERAL LOCATIONS. THE CONTRACTOR SHALL COORDINATE THE EXACT PLACEMENT AND LOCATION OF ALL CONSTRUCTION TRAFFIC SIGNS WITH THE AIRPORT AND RPR.
4. SEE DETAIL B3/EL501, FOR SIGN MOUNTING/ASSEMBLY AND STOP SIGN REQUIREMENTS.
5. ALL COSTS FOR PROVIDING INSTALLING, MAINTAINING, AND REMOVAL OF TEMPORARY SIGNS SHALL BE INCLUDED UNDER ITEM CX-106.

C3 TEMPORARY CONSTRUCTION SIGN DETAIL

SCALE: NOT TO SCALE

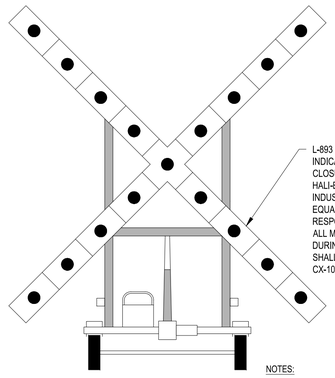


NOTES:

1. CLOSED RUNWAY MARKINGS SHALL BE YELLOW AS MANUFACTURED BY NEUBERT AERO CORP., TAMPA FLA., OR APPROVED EQUAL. IN LIEU THEREOF, CONTRACTOR MAY CONSTRUCT CLOSED RUNWAY MARKINGS FROM ANY OF THE FOLLOWING MATERIALS: DOUBLE-LAYERED PAINTED SNOW FENCE,COLORED PLASTIC, PAINTED SHEETS OF PLYWOOD, OR SIMILAR MATERIALS.
2. CLOSED RUNWAY MARKINGS SHALL BE SECURED TO PREVENT MOVEMENT BY PROP WASH, JET BLAST, OR OTHER WIND CURRENTS.
3. NON-LIGHTED RUNWAY CLOSURE MARKINGS SHALL BE ILLUMINATED BY A LIGHT PLANT LOCATED AT THE EDGE OF RUNWAY PAVEMENT FROM DUSK TILL DAWN. MAXIMUM HEIGHT SHALL BE 25' OR MAXIMUM SPECIFIED IN THE CSPP.
4. CLOSED RUNWAY MARKINGS SHALL BE PLACED AT EACH END OF THE RUNWAY DIRECTLY OR OR AS NEAR AS PRACTICABLE TO THE RUNWAY DESIGNATION NUMBERS.

B1 CLOSED RUNWAY MARKING DETAIL

SCALE: NOT TO SCALE

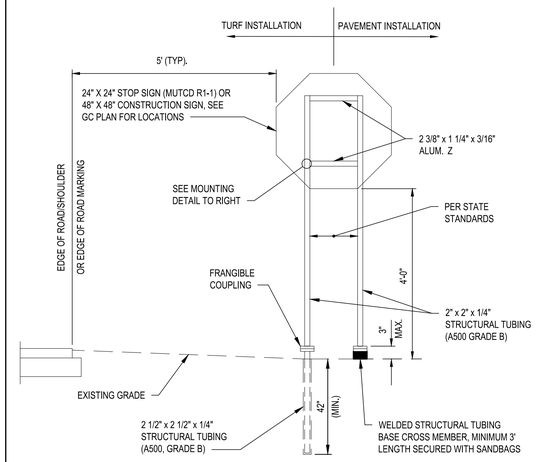


NOTES:

1. CLOSED RUNWAY MARKINGS SHALL BE PLACED AT EACH END OF THE RUNWAY DIRECTLY OR OR AS NEAR AS PRACTICABLE TO THE RUNWAY DESIGNATION NUMBERS, OR AS DESIGNATED BY THE RPR.

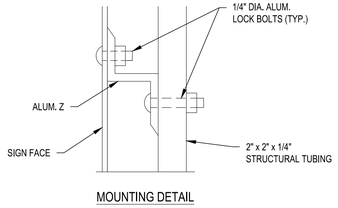
B2 LIGHTED CLOSED RUNWAY MARKING DETAIL

SCALE: NOT TO SCALE



B3 TEMPORARY CONSTRUCTION SIGN ASSEMBLY DETAIL

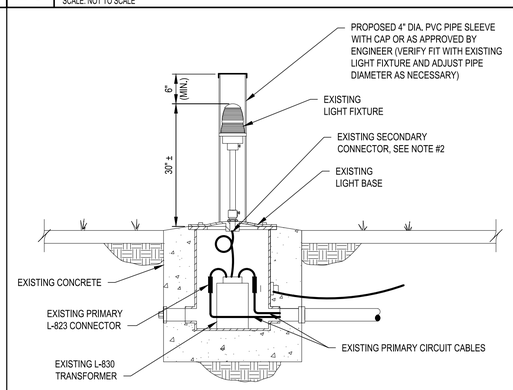
SCALE: NOT TO SCALE



MOUNTING DETAIL

NOTES:

1. COST FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVAL OF TEMPORARY SIGNS SHALL BE INCLUDED UNDER ITEM CX-106.
2. ALL SIGNS SHALL CONFORM IN SIZE, APPEARANCE AND REFLECTORIZATION TO THE REQUIREMENTS OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
3. AT PROJECT COMPLETION, ALL POSTS AND SIGNS SHALL BE REMOVED FROM AIRPORT PROPERTY AND SHALL REMAIN PROPERTY OF THE CONTRACTOR.
4. SIGNS SHALL NOT BE INSTALLED WITHIN ANY ACTIVE RSA, TSA, TOFA OR ROFA.

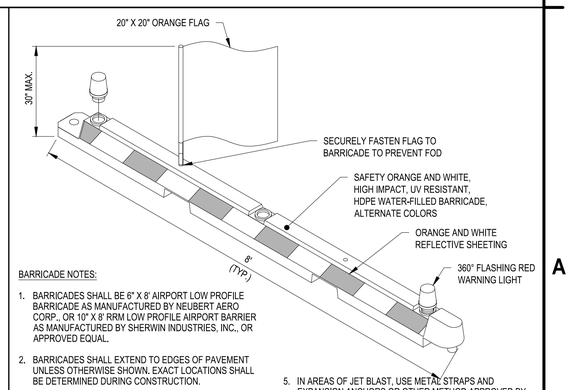


NOTES:

1. ALL COSTS ASSOCIATED WITH EDGE LIGHT COVERS SHALL BE INCLUDED IN ITEM CX-106.
2. THE CONTRACTOR MAY ELECT TO DISCONNECT THE LIGHT AT THE TRANSFORMER SECONDARY L-823 CONNECTION AT NO ADDITIONAL COST. CIRCUIT CONNECTIVITY MUST BE MAINTAINED FOR THOSE SECTIONS OF TAXIWAY / RUNWAY NOT CLOSED TO AIRCRAFT TRAFFIC.

A3 TEMPORARY EDGE LIGHT COVER DETAIL

SCALE: NOT TO SCALE



BARRICADE NOTES:

1. BARRICADES SHALL BE 6" X 8' AIRPORT LOW PROFILE BARRICADE AS MANUFACTURED BY NEUBERT AERO CORP., OR 10" X 8' RRM LOW PROFILE AIRPORT BARRIER AS MANUFACTURED BY SHERWIN INDUSTRIES, INC., OR APPROVED EQUAL.
2. BARRICADES SHALL EXTEND TO EDGES OF PAVEMENT UNLESS OTHERWISE SHOWN. EXACT LOCATIONS SHALL BE DETERMINED DURING CONSTRUCTION.
3. BARRICADES SHALL BE FILLED WITH WATER AND INTERLOCKED WITH EACH OTHER. BARRICADES WHICH HAVE TO BE MOVED DAILY MAY BE ANCHORED TO THE PAVEMENT BY AN ALTERNATE METHOD APPROVED BY AIRPORT OPERATIONS OR THE RPR.
4. COORDINATE ARFF ACCESS WITH OPERATIONS.
5. IN AREAS OF JET BLAST, USE METAL STRAPS AND EXPANSION ANCHORS OR OTHER METHOD APPROVED BY RPR TO SECURE BARRICADES TO THE PAVEMENT.
6. ONE FLAG AND TWO WARNING LIGHTS SHALL BE ATTACHED TO EACH BARRICADE.
7. ALL COSTS ASSOCIATED WITH THIS ITEM SHALL BE INCLUDED IN ITEM CX-106.

A4 INTERLOCKING AIRFIELD BARRICADE DETAIL

SCALE: NOT TO SCALE

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38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.J. SLEDZ
DESIGNED BY:	E.J. SLEDZ
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

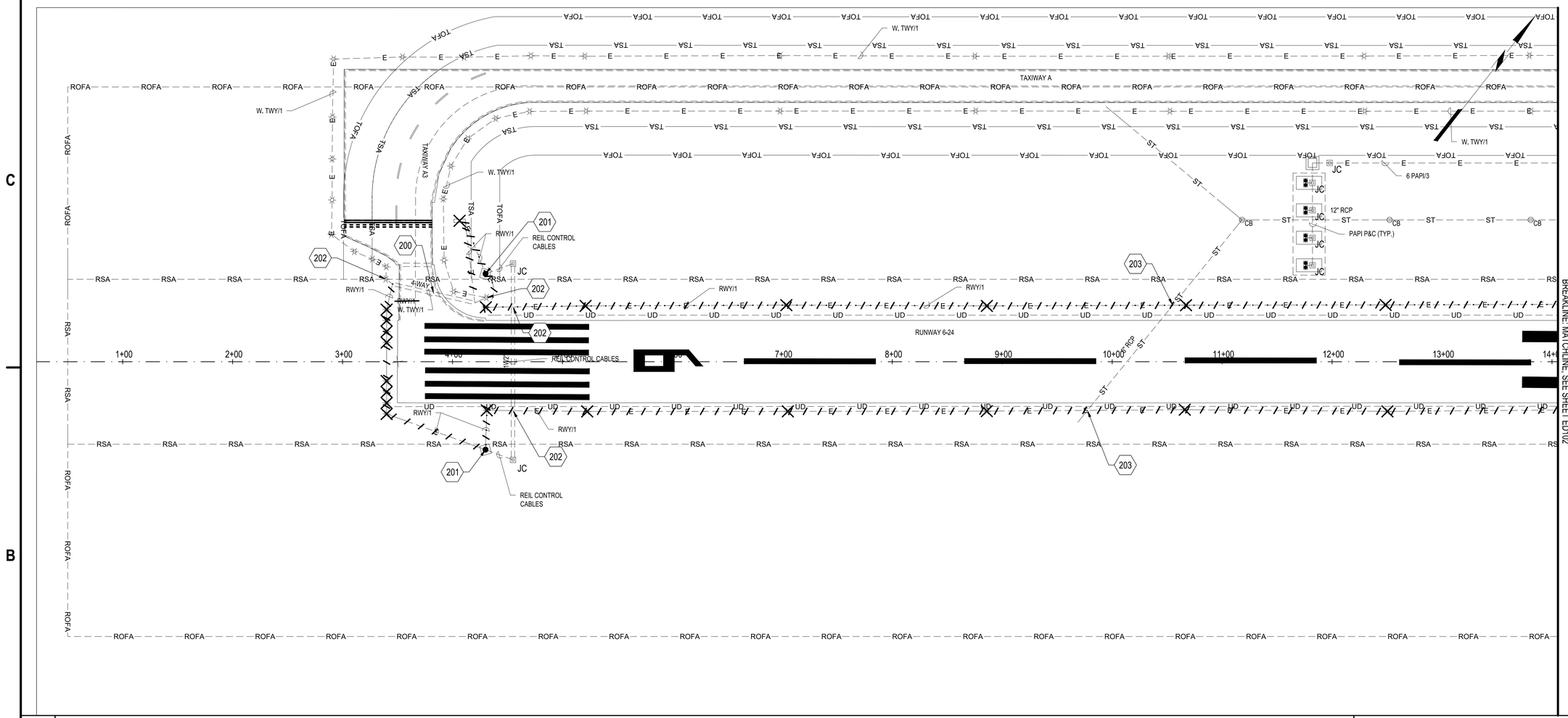
CONSTRUCTION SAFETY AND PHASING DETAILS

GC501

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B1 ELECTRICAL DEMOLITION PLAN

SCALE: 1" = 50'

50 0 50 100FT.
50'

200. EXISTING AIRFIELD LIGHTING CABLE IN DUCT BANK TO BE REMOVED AND DUCT BANK TO REMAIN AND BE PROTECTED IN PLACE, INCIDENTAL TO ITEM L-108.

201. EXISTING RUNWAY END IDENTIFICATOR LIGHTS (REIL) TO BE PROTECTED IN PLACE.

202. PROTECT EXISTING ELECTRICAL INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

203. PROTECT EXISTING DRAINAGE INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

A1 KEYED NOTES

SCALE: NOT TO SCALE

- EXISTING RUNWAY OR TAXIWAY EDGE LIGHT
- EXISTING AIRFIELD GUIDANCE SIGN
- EMH — EXISTING ELECTRICAL MANHOLE
- JC — EXISTING ELECTRICAL JUNCTION CAN
- RWY/1 — EXISTING CIRCUIT LABEL
- E — EXISTING AIRFIELD LIGHTING CABLE, IN CONDUIT OR TRENCH
- EXISTING DUCT BANK
- EXISTING BASE MOUNTED RUNWAY EDGE LIGHT TO BE REMOVED, ITEM L-125
- EXISTING AIRFIELD GUIDANCE SIGN AND FOUNDATION TO BE REMOVED, ITEM L-125
- ~~RWY/1~~ — EXISTING CABLE TO BE REMOVED. CONDUIT/DUCT BANK TO REMAIN IN PLACE, INCIDENTAL TO L-108
- ~~E~~ — EXISTING AIRFIELD LIGHTING CABLE IN CONDUIT OR TRENCH TO BE REMOVED, INCIDENTAL TO ITEM L-108; REMOVE PORTIONS OF CABLE AND CONDUIT IF ENCOUNTERED BY INCIDENTAL PROJECT EXCAVATION, COST INCIDENTAL TO ITEM L-110.

A2 KEYED LEGEND

SCALE: NOT TO SCALE

NOTES:

1. THE ACTUAL LOCATION AND ELEVATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN AT ALL TIMES. ALL EXISTING UTILITIES SHALL BE FIELD LOCATED AND CONSPICUOUSLY MARKED AND MAINTAINED.
2. ANY DAMAGE OR CRACKING OF EXISTING CONCRETE OR BITUMINOUS PAVEMENT CAUSED BY THE CONTRACTOR OR SUBCONTRACTORS SHALL BE REMOVED AND REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.
3. THE PAY ITEM DX-800 SOFT DIG, IS TO BE USED TO FIELD VERIFY ELECTRICAL CIRCUITRY AND DEPTHS OF UTILITY CROSSINGS.

A3 SHEET NOTES

SCALE: NOT TO SCALE

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C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

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AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

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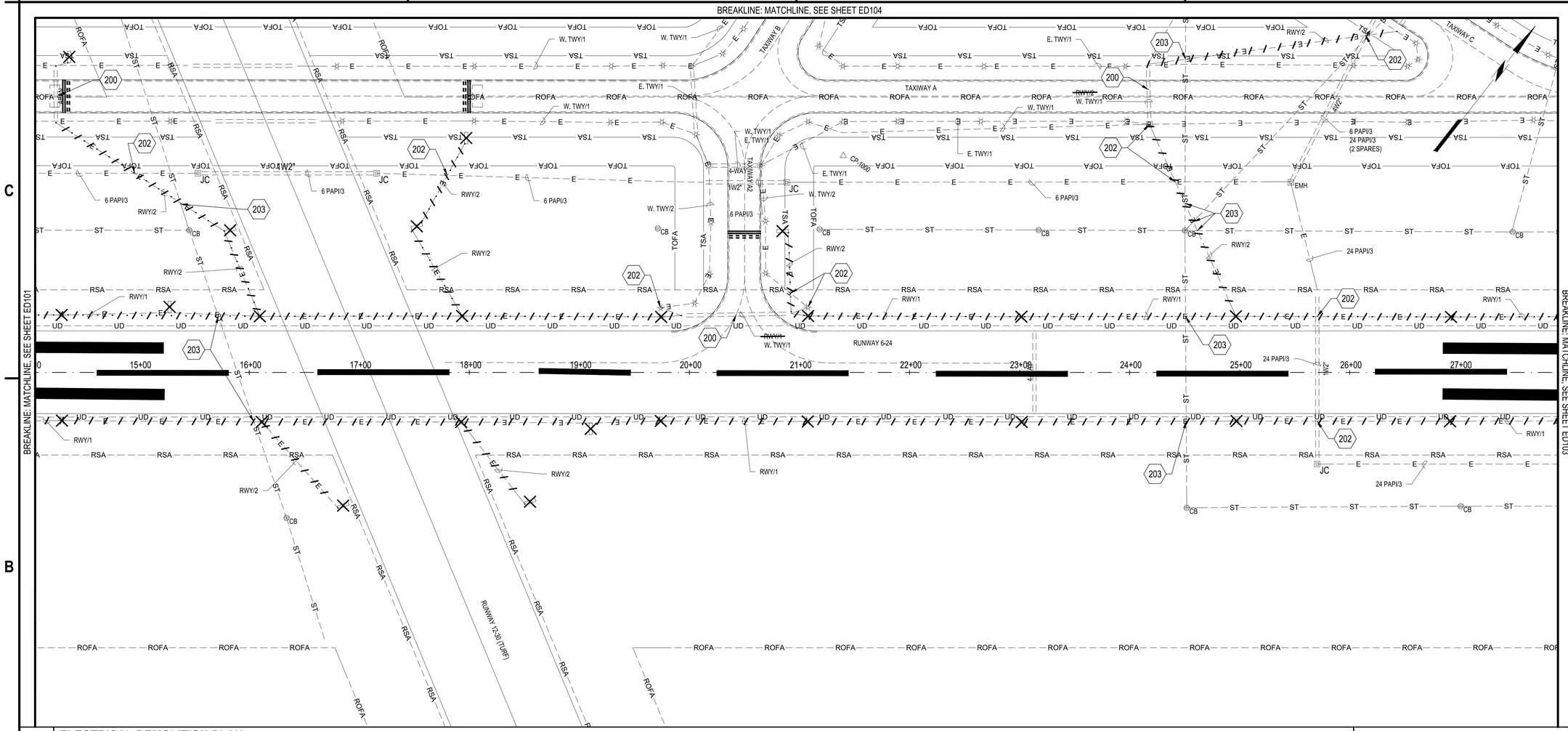
ELECTRICAL DEMOLITION PLAN

ED101

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B1 ELECTRICAL DEMOLITION PLAN

SCALE: 1" = 50'

50 0 50 100FT.
50'

200. EXISTING AIRFIELD LIGHTING CABLE IN DUCT BANK TO BE REMOVED AND DUCT BANK TO REMAIN AND BE PROTECTED IN PLACE, INCIDENTAL TO ITEM L-108.

202. PROTECT EXISTING ELECTRICAL INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

203. PROTECT EXISTING DRAINAGE INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

A1 KEYED NOTES

SCALE: NOT TO SCALE

- EXISTING RUNWAY OR TAXIWAY EDGE LIGHT
- EXISTING AIRFIELD GUIDANCE SIGN
- EMH — EXISTING ELECTRICAL MANHOLE
- JC — EXISTING ELECTRICAL JUNCTION CAN
- RWY/1 — EXISTING CIRCUIT LABEL
- E — EXISTING AIRFIELD LIGHTING CABLE, IN CONDUIT OR TRENCH
- EXISTING DUCT BANK
- EXISTING BASE MOUNTED RUNWAY EDGE LIGHT TO BE REMOVED, ITEM L-125
- EXISTING AIRFIELD GUIDANCE SIGN AND FOUNDATION TO BE REMOVED, ITEM L-125
- ~~RWY/1~~ — EXISTING CABLE TO BE REMOVED. CONDUIT/DUCT BANK TO REMAIN IN PLACE, INCIDENTAL TO L-108
- ~~E~~ — EXISTING AIRFIELD LIGHTING CABLE IN CONDUIT OR TRENCH TO BE REMOVED. REMOVE PORTIONS OF CABLE AND CONDUIT IF ENCOUNTERED BY INCIDENTAL PROJECT EXCAVATION, COST INCIDENTAL TO ITEM L-110.

A2 KEYED LEGEND

SCALE: NOT TO SCALE

NOTES:

1. THE ACTUAL LOCATION AND ELEVATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN AT ALL TIMES. ALL EXISTING UTILITIES SHALL BE FIELD LOCATED AND CONSPICUOUSLY MARKED AND MAINTAINED.
2. ANY DAMAGE OR CRACKING OF EXISTING CONCRETE OR BITUMINOUS PAVEMENT CAUSED BY THE CONTRACTOR OR SUBCONTRACTORS SHALL BE REMOVED AND REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.
3. THE PAY ITEM DX-800 SOFT DIG, IS TO BE USED TO FIELD VERIFY ELECTRICAL CIRCUITRY AND DEPTHS OF UTILITY CROSSINGS.

A3 SHEET NOTES

SCALE: NOT TO SCALE

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Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

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AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

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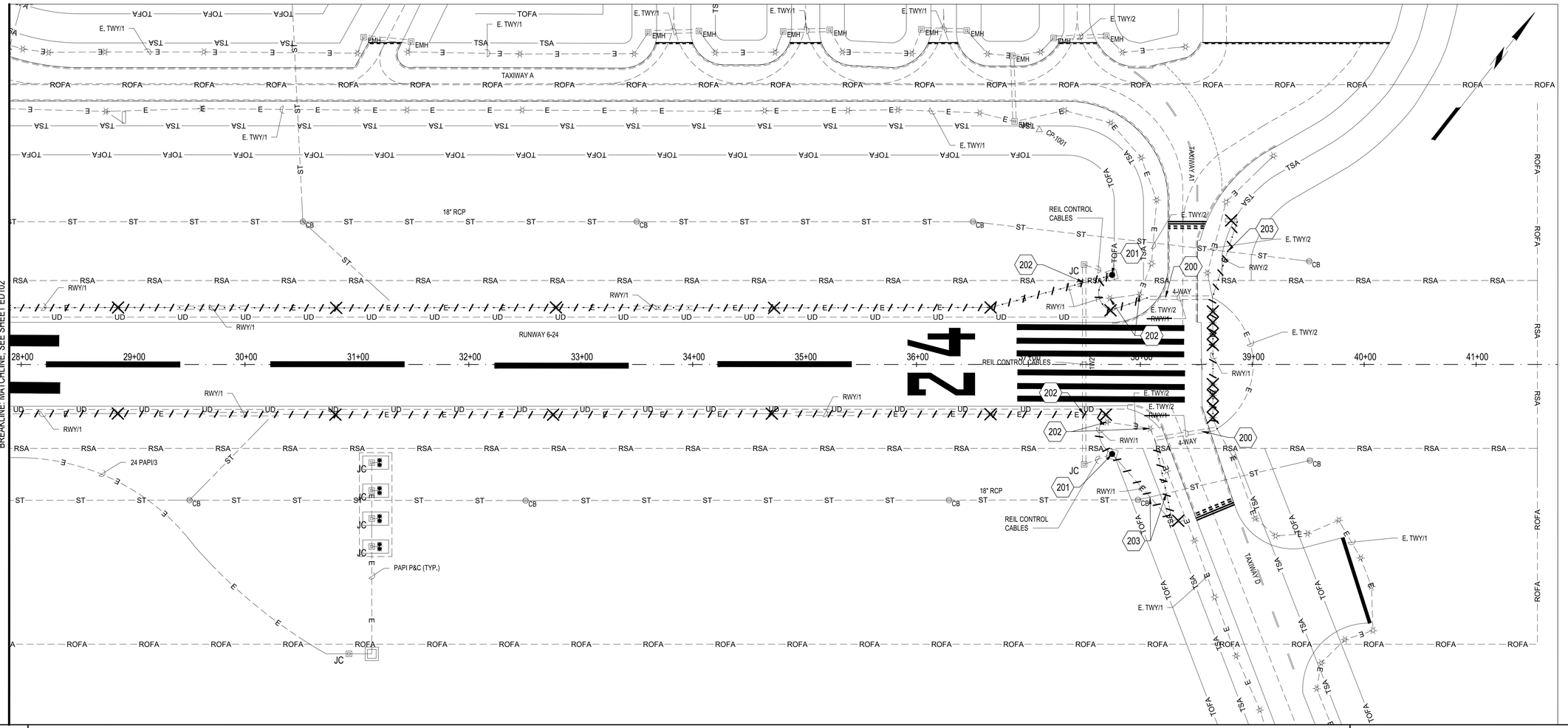
ELECTRICAL DEMOLITION PLAN

ED102

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B1 ELECTRICAL DEMOLITION PLAN

SCALE: 1" = 50'

200. EXISTING AIRFIELD LIGHTING CABLE IN DUCT BANK TO BE REMOVED AND DUCT BANK TO REMAIN AND BE PROTECTED IN PLACE, INCIDENTAL TO ITEM L-108.
201. EXISTING RUNWAY END IDENTIFICATOR LIGHTS (REIL) TO BE PROTECTED IN PLACE.
202. PROTECT EXISTING ELECTRICAL INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.
203. PROTECT EXISTING DRAINAGE INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

A1 KEYED NOTES

SCALE: NOT TO SCALE

- EXISTING RUNWAY OR TAXIWAY EDGE LIGHT
- EXISTING AIRFIELD GUIDANCE SIGN
- EMH — EXISTING ELECTRICAL MANHOLE
- JC — EXISTING ELECTRICAL JUNCTION CAN
- RWY/1 — EXISTING CIRCUIT LABEL
- E — EXISTING AIRFIELD LIGHTING CABLE, IN CONDUIT OR TRENCH
- EXISTING DUCT BANK
- EXISTING BASE MOUNTED RUNWAY EDGE LIGHT TO BE REMOVED, ITEM L-125
- EXISTING AIRFIELD GUIDANCE SIGN AND FOUNDATION TO BE REMOVED, ITEM L-125
- ~~RWY/1~~ — EXISTING CABLE TO BE REMOVED. CONDUIT/DUCT BANK TO REMAIN IN PLACE, INCIDENTAL TO L-108
- ~~E~~ — EXISTING AIRFIELD LIGHTING CABLE IN CONDUIT OR TRENCH TO BE REMOVED. REMOVE PORTIONS OF CABLE AND CONDUIT IF ENCOUNTERED BY INCIDENTAL PROJECT EXCAVATION, COST INCIDENTAL TO ITEM L-110.

A2 KEYED LEGEND

SCALE: NOT TO SCALE

NOTES:

1. THE ACTUAL LOCATION AND ELEVATION OF ALL UTILITIES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN AT ALL TIMES. ALL EXISTING UTILITIES SHALL BE FIELD LOCATED AND CONSPICUOUSLY MARKED AND MAINTAINED.
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3. THE PAY ITEM DX-800 SOFT DIG, IS TO BE USED TO FIELD VERIFY ELECTRICAL CIRCUITRY AND DEPTHS OF UTILITY CROSSINGS.

A3 SHEET NOTES

SCALE: NOT TO SCALE

BREAKLINE: MATCHLINE, SEE SHEET ED102

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C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
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LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

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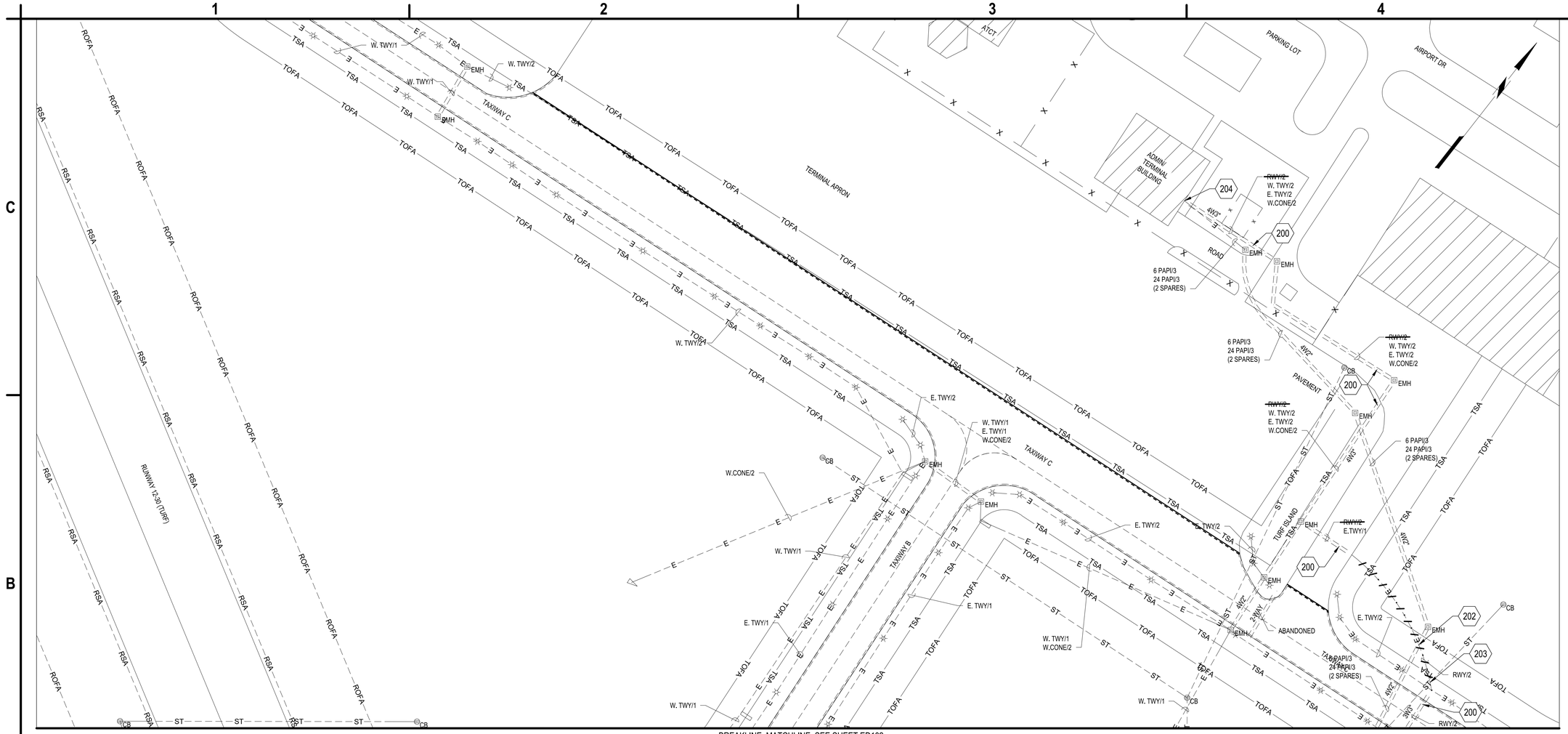
ELECTRICAL DEMOLITION PLAN

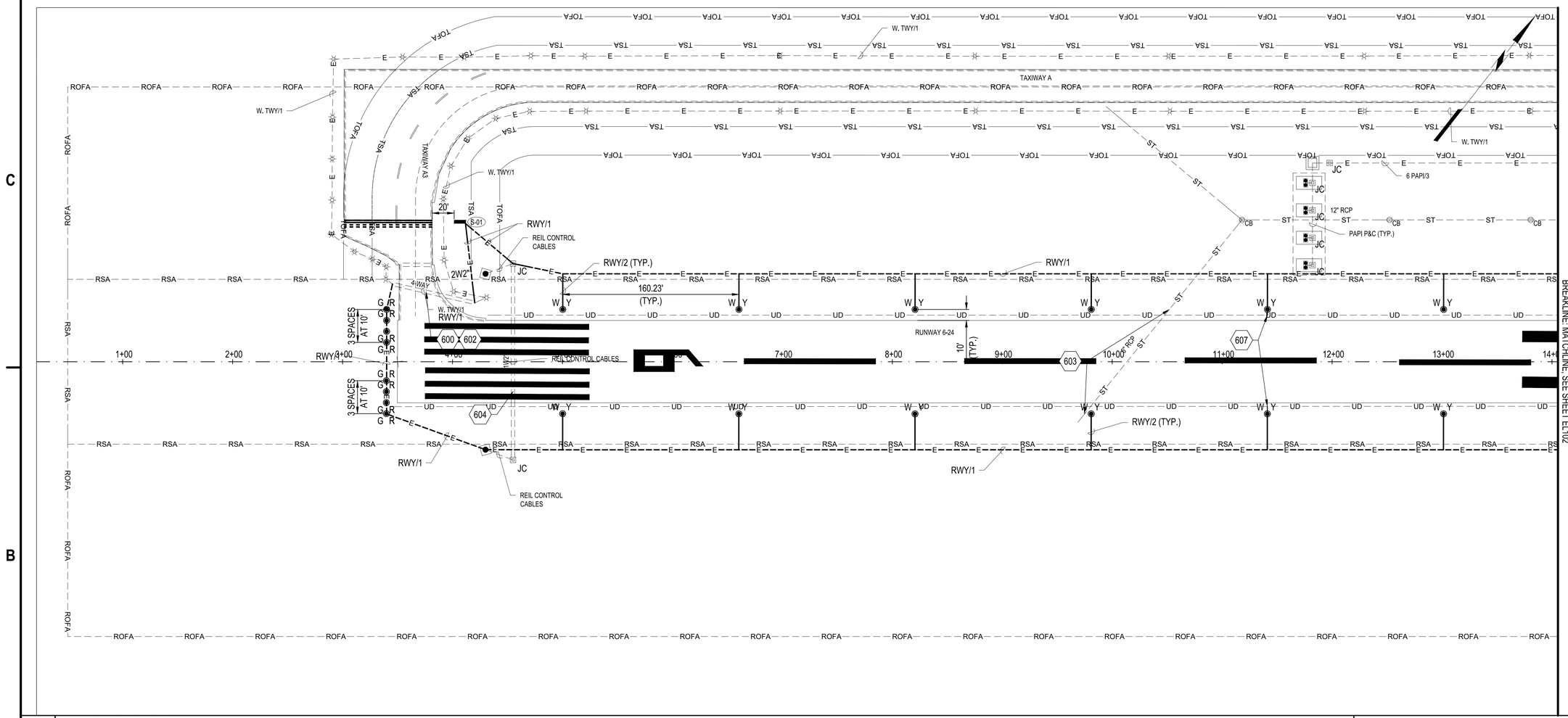
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ROFA
RSA
TSA
TOFA
RUNWAY 12-30 (TURF)
W. TWY/1
W. TWY/2
E. TWY/2
E. TWY/1
W. TWY/1
E. TWY/1
W.CONE/2
W. TWY/1
E. TWY/1
W.CONE/2
W. TWY/1
W.CONE/2
TAXIWAY C
TAXIWAY B
TERMINAL APRON
ADMIN/ TERMINAL BUILDING
ATCT
PARKING LOT
AIRPORT DR
ROAD
PAVEMENT
TURF ISLAND
ABANDONED
6 PAPI/3
24 PAPI/3
(2 SPARES)
RWY/2
W. TWY/2
E. TWY/2
W.CONE/2
RWY/2
E.TWY/1
RWY/2
W. TWY/2
E. TWY/2
W.CONE/2
RWY/2
E. TWY/2
RWY/2
E. TWY/2
W. TWY/1
W.CONE/2
RWY/2
W. TWY/1
RWY/2
W. TWY/1
RWY/2
W. TWY/1



B1 ELECTRICAL PLAN

SCALE: 1" = 50'

50 0 50 100FT.
50'

600. 1/C #8 AWG 5KV AIRFIELD LIGHTING CABLE(S), ITEM L-108. IN EXISTING CONDUIT OR DUCTBANK.

602. EXISTING DUCT BANK TO REMAIN AND BE PROTECTED IN PLACE. PROPOSED AIRFIELD LIGHTING CABLES TO BE ADDED TO THE EXISTING CONDUITS.

603. PROTECT EXISTING DRAINAGE INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

604. PROTECT EXISTING AIRFIELD LIGHTING CIRCUIT IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

607. ELECTRICAL SYSTEM DRAIN, ITEM L-110. SEE DETAIL B1/EL502.

A1 KEYED NOTES

SCALE: NOT TO SCALE

W Y / G R — PROPOSED BASE MOUNTED RUNWAY EDGE LIGHT (TYP.), ITEM L-125. SEE DETAIL B3/EL502.

PROPOSED BASE MOUNTED RUNWAY THRESHOLD LIGHT (TYP.), ITEM L-125. SEE DETAIL B1/EL501.

S-01 — PROPOSED GUIDANCE SIGN AND FOUNDATION (TYP.), ITEM L-125. SEE DETAILS ON SHEET EL503.

E — NO. 8 AWG, 5KV, 1/C AIRFIELD LIGHTING CABLE(S), ITEM L-108. INSTALLED IN 2" DIA. PVC CONDUIT, ITEM L-110. INSTALL COUNTERPOISE OVER CONDUIT, ITEM L-108. SEE CONDUIT TRENCHING DETAIL A1/EL502.

A2 KEYED LEGEND

SCALE: NOT TO SCALE

NOTES:

1. PROPOSED COUNTERPOSE WIRE NOT SHOWN ON PLANS FOR CLARITY PURPOSES. INSTALL PROPOSED COUNTERPOISE WIRE, IN TRENCH, ITEM L-108. SEE DETAIL A1/EL502.
2. RUNWAY EDGE LIGHTS SHALL BE LOCATED 10' OFF THE EDGE OF THE FULL STRENGTH RUNWAY PAVEMENT. RUNWAY EDGE LIGHTS SHALL BE UNIFORMLY SPACED AND SYMMETRICAL ABOUT THE RUNWAY CENTERLINE. LONGITUDINAL SPACING SHALL BEGIN AT THE RUNWAY THRESHOLD LIGHTS. RUNWAY EDGE LIGHTS WERE DESIGNED IN ACCORDANCE WITH FAA AC 150/5340-30J. CONTRACTOR SHALL VERIFY RUNWAY EDGE LIGHT SPACING PRIOR TO INSTALLATION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL OTHER AIRFIELD ELECTRICAL CIRCUITS THROUGHOUT THE DURATION OF CONSTRUCTION. ANY DAMAGE TO EXISTING CIRCUITS SHALL BE REPAIRED IN ACCORDANCE WITH SPECIFICATION L-108 AT NO ADDITIONAL COST TO THE OWNER.

A3 SHEET NOTES

SCALE: NOT TO SCALE

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38777 Six Mile Road, Suite 202
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CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

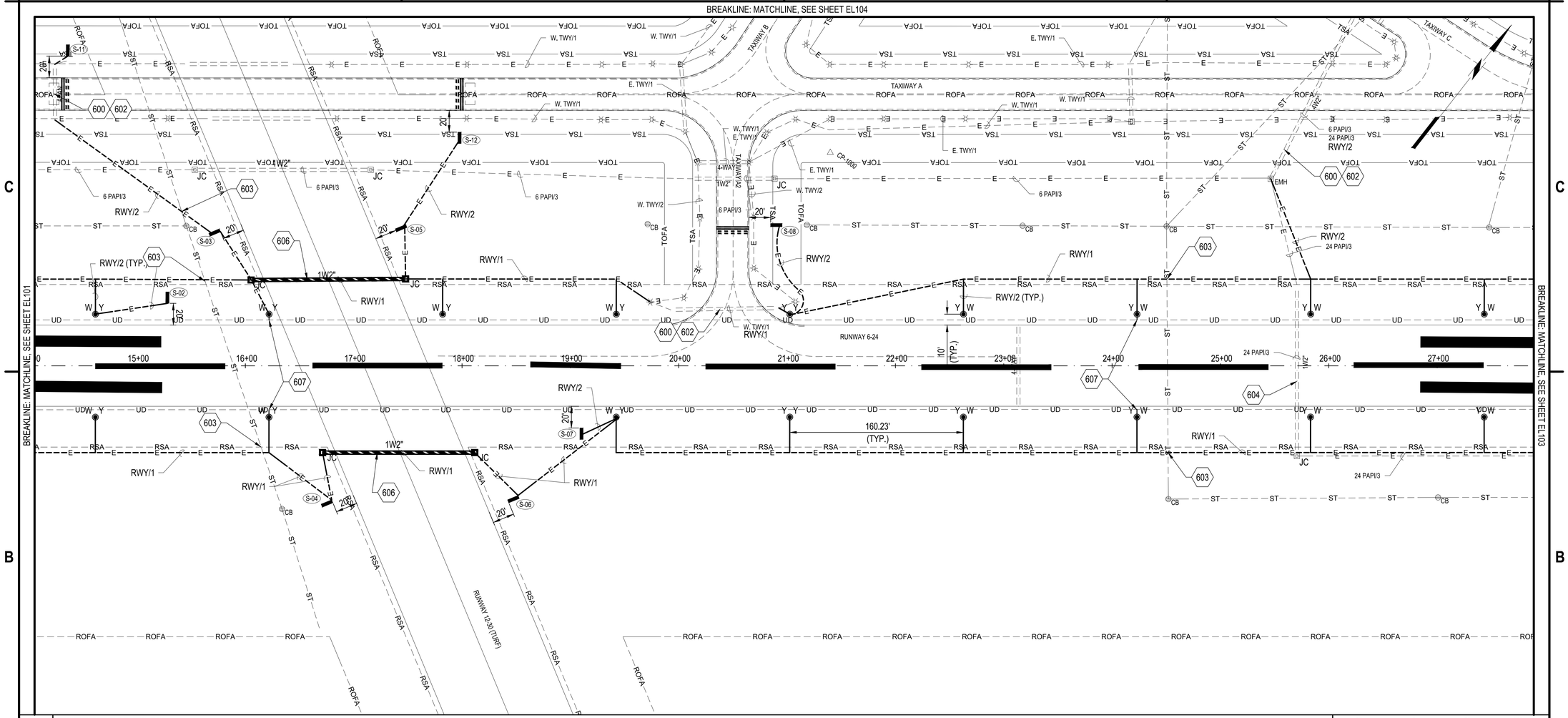
ELECTRICAL PLAN

EL101

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B1 ELECTRICAL PLAN

SCALE: 1" = 50'

50 0 50 100FT.
50'

600. 1/C #8 AWG 5KV AIRFIELD LIGHTING CABLE(S), ITEM L-108. IN EXISTING CONDUIT OR DUCTBANK.

602. EXISTING DUCT BANK TO REMAIN AND BE PROTECTED IN PLACE. PROPOSED AIRFIELD LIGHTING CABLES TO BE ADDED TO THE EXISTING CONDUITS.

603. PROTECT EXISTING DRAINAGE INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

604. PROTECT EXISTING AIRFIELD LIGHTING CIRCUIT IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

606. 1/C #8 AWG 5KV AIRFIELD LIGHTING CABLE(S), ITEM L-108. IN (1) 2" DIA. SCH. 80 HDPE CONDUIT BUNDLE INSTALLED BY HORIZONTAL DRILLING, ITEM LX-113. SEE DETAIL A3/EL502.

607. ELECTRICAL SYSTEM DRAIN, ITEM L-110. SEE DETAIL B1/EL502.

A1 KEYED NOTES

SCALE: NOT TO SCALE

W Y — PROPOSED BASE MOUNTED RUNWAY EDGE LIGHT (TYP.), ITEM L-125. SEE DETAIL B3/EL502.

S-01 — PROPOSED GUIDANCE SIGN AND FOUNDATION (TYP.), ITEM L-125. SEE DETAILS ON SHEET EL503.

JC — PROPOSED ELECTRICAL JUNCTION CAN (TYP.), ITEM L-115. SEE DETAIL C1/EL501.

E — NO. 8 AWG, 5KV, 1/C AIRFIELD LIGHTING CABLE(S), ITEM L-108. INSTALLED IN 2" DIA. PVC CONDUIT, ITEM L-110. INSTALL COUNTERPOISE OVER CONDUIT, ITEM L-108. SEE CONDUIT TRENCHING DETAIL A1/EL502. 2" DIA. SCH. 80 HDPE CONDUIT INSTALLED BY DIRECTIONAL DRILLING, ITEM LX-113. SEE DETAIL A3/EL502.

A2 KEYED LEGEND

SCALE: NOT TO SCALE

NOTES:

1. PROPOSED COUNTERPOSE WIRE NOT SHOWN ON PLANS FOR CLARITY PURPOSES. INSTALL PROPOSED COUNTERPOISE WIRE, IN TRENCH, ITEM L-108. SEE DETAIL A1/EL502.
2. RUNWAY EDGE LIGHTS SHALL BE LOCATED 10' OFF THE EDGE OF THE FULL STRENGTH RUNWAY PAVEMENT. RUNWAY EDGE LIGHTS SHALL BE UNIFORMLY SPACED AND SYMMETRICAL ABOUT THE RUNWAY CENTERLINE. LONGITUDINAL SPACING SHALL BEGIN AT THE RUNWAY THRESHOLD LIGHTS. RUNWAY EDGE LIGHTS WERE DESIGNED IN ACCORDANCE WITH FAA AC 150/5340-30J. CONTRACTOR SHALL VERIFY RUNWAY EDGE LIGHT SPACING PRIOR TO INSTALLATION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL OTHER AIRFIELD ELECTRICAL CIRCUITS THROUGHOUT THE DURATION OF CONSTRUCTION. ANY DAMAGE TO EXISTING CIRCUITS SHALL BE REPAIRED IN ACCORDANCE WITH SPECIFICATION L-108 AT NO ADDITIONAL COST TO THE OWNER.

A3 SHEET NOTES

SCALE: NOT TO SCALE

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REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

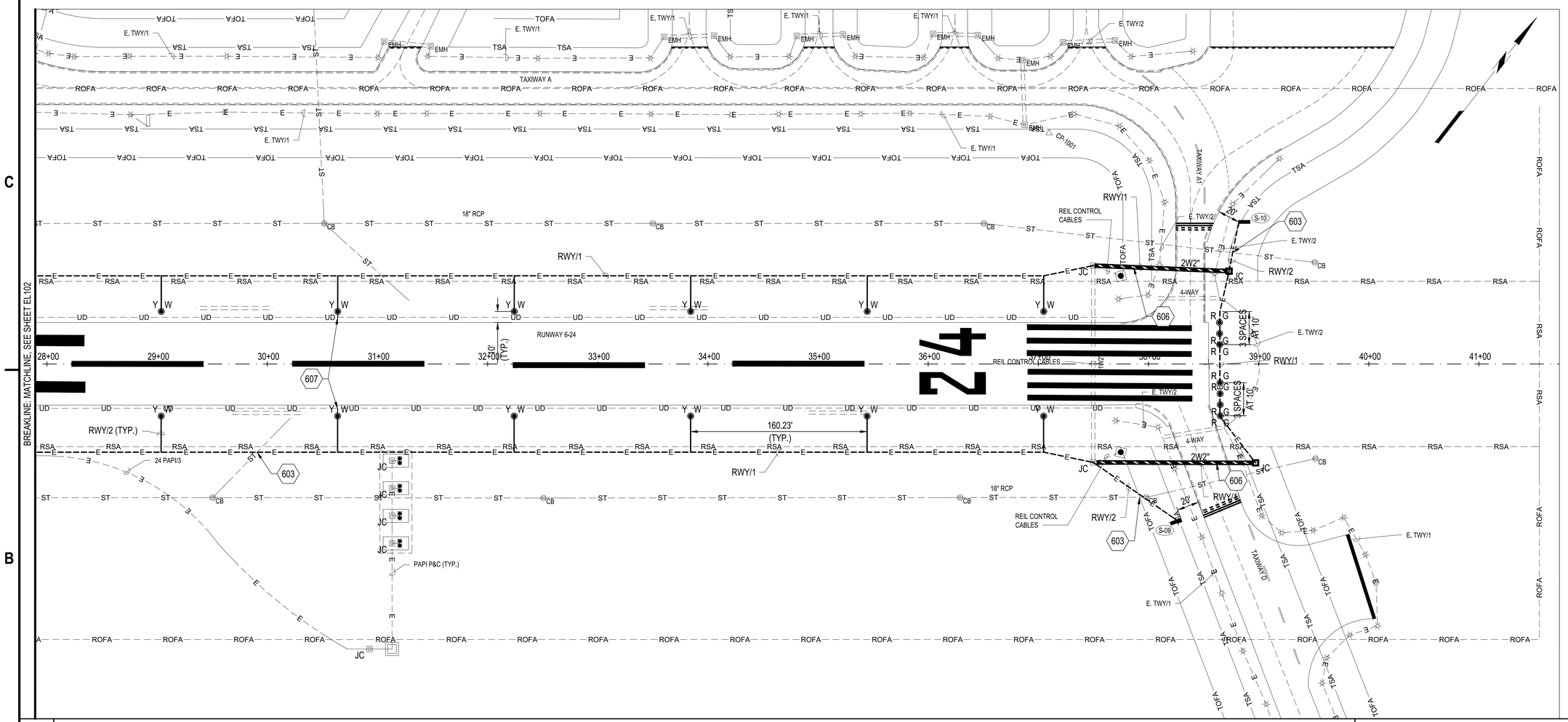
ELECTRICAL PLAN

EL102

SHEET NO. 15 OF 21

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B1 ELECTRICAL PLAN

SCALE: 1" = 50'

50 0 50 100FT.
50'

603. PROTECT EXISTING DRAINAGE INFRASTRUCTURE IN PLACE. ANY DAMAGE SHALL BE REPAIRED AS DETERMINED BY THE RPR AT THE CONTRACTOR'S EXPENSE.

606. 1/C #8 AWG 5KV AIRFIELD LIGHTING CABLE(S), ITEM L-108. IN (1) 2" DIA. SCH. 80 HDPE CONDUIT BUNDLE INSTALLED BY HORIZONTAL DRILLING, ITEM LX-113. SEE DETAIL A3/EL502.

607. ELECTRICAL SYSTEM DRAIN, ITEM L-110. SEE DETAIL B1/EL502.

A1 KEYED NOTES

SCALE: NOT TO SCALE

W Y / G R — PROPOSED BASE MOUNTED RUNWAY EDGE LIGHT (TYP.), ITEM L-125. SEE DETAIL B3/EL502.

PROPOSED BASE MOUNTED RUNWAY THRESHOLD LIGHT (TYP.), ITEM L-125. SEE DETAIL B1/EL501.

S-01 — PROPOSED GUIDANCE SIGN AND FOUNDATION (TYP.), ITEM L-125. SEE DETAILS ON SHEET EL503.

JC — PROPOSED ELECTRICAL JUNCTION CAN (TYP.), ITEM L-115. SEE DETAIL C1/EL501.

E — NO. 8 AWG, 5KV, 1/C AIRFIELD LIGHTING CABLE(S), ITEM L-108. INSTALLED IN 2" DIA. PVC CONDUIT, ITEM L-110. INSTALL COUNTERPOISE OVER CONDUIT, ITEM L-108. SEE CONDUIT TRENCHING DETAIL A1/EL502. 2" DIA. SCH. 80 HDPE CONDUIT INSTALLED BY DIRECTIONAL DRILLING, ITEM LX-113, SEE DETAIL A3/EL502.

A2 KEYED LEGEND

SCALE: NOT TO SCALE

NOTES:

1. PROPOSED COUNTERPOSE WIRE NOT SHOWN ON PLANS FOR CLARITY PURPOSES. INSTALL PROPOSED COUNTERPOISE WIRE, IN TRENCH, ITEM L-108. SEE DETAIL A1/EL502.

2. RUNWAY EDGE LIGHTS SHALL BE LOCATED 10' OFF THE EDGE OF THE FULL STRENGTH RUNWAY PAVEMENT. RUNWAY EDGE LIGHTS SHALL BE UNIFORMLY SPACED AND SYMMETRICAL ABOUT THE RUNWAY CENTERLINE. LONGITUDINAL SPACING SHALL BEGIN AT THE RUNWAY THRESHOLD LIGHTS. RUNWAY EDGE LIGHTS WERE DESIGNED IN ACCORDANCE WITH FAA AC 150/5340-30J. CONTRACTOR SHALL VERIFY RUNWAY EDGE LIGHT SPACING PRIOR TO INSTALLATION.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL OTHER AIRFIELD ELECTRICAL CIRCUITS THROUGHOUT THE DURATION OF CONSTRUCTION. ANY DAMAGE TO EXISTING CIRCUITS SHALL BE REPAIRED IN ACCORDANCE WITH SPECIFICATION L-108 AT NO ADDITIONAL COST TO THE OWNER.

A3 SHEET NOTES

SCALE: NOT TO SCALE

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C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

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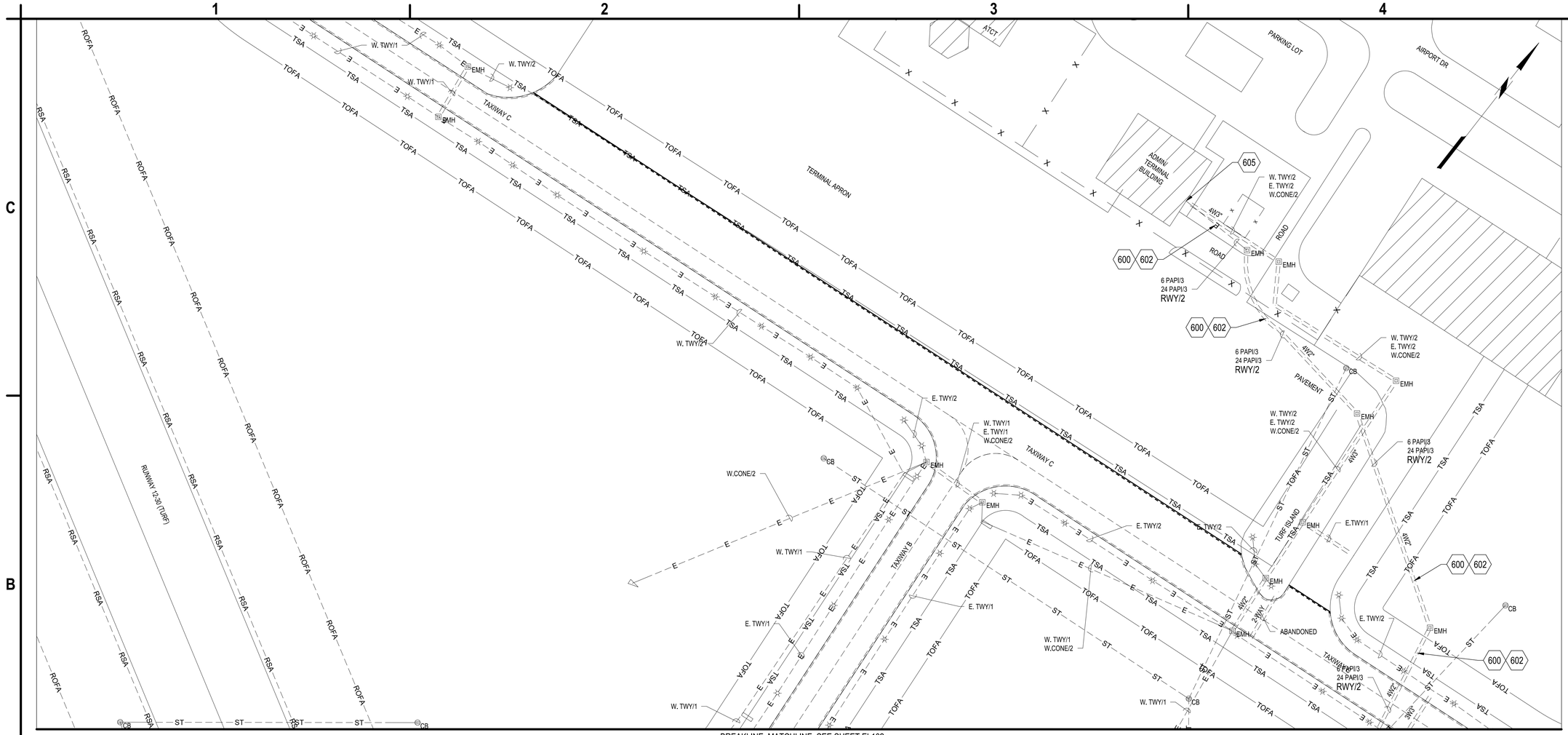
ELECTRICAL PLAN

EL103

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B1 ELECTRICAL PLAN

SCALE: 1" = 50'

50 0 50 100FT.
50'

600. 1/C #8 AWG 5KV AIRFIELD LIGHTING CABLE(S), ITEM L-108. IN EXISTING CONDUIT OR DUCTBANK.

602. EXISTING DUCT BANK TO REMAIN AND BE PROTECTED IN PLACE. PROPOSED AIRFIELD LIGHTING CABLES TO BE ADDED TO THE EXISTING CONDUITS.

605. CONNECT CABLES TO EXISTING CONSTANT CURRENT REGULATOR LOCATED IN THE ELECTRICAL VAULT. THE ELECTRICAL VAULT IS LOCATED IN THE BASEMENT OF THE TERMINAL BUIDLING.

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL OTHER AIRFIELD ELECTRICAL CIRCUITS THROUGHOUT THE DURATION OF CONSTRUCTION. ANY DAMAGE TO EXISTING CIRCUITS SHALL BE REPAIRED IN ACCORDANCE WITH SPECIFICATION L-108 AT NO ADDITIONAL COST TO THE OWNER.

A1 KEYED NOTES

SCALE: NOT TO SCALE

A2 NOT USED

SCALE: NOT TO SCALE

A3 SHEET NOTES

SCALE: NOT TO SCALE

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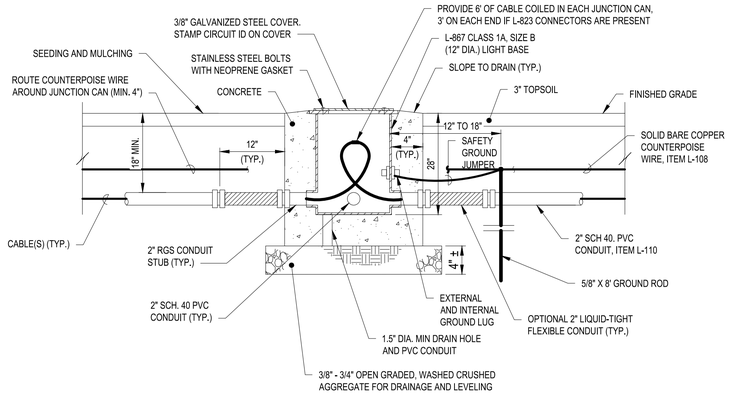
ELECTRICAL PLAN

EL104

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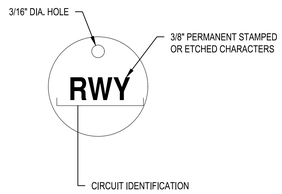


C1 ELECTRICAL JUNCTION CAN DETAIL (IN TURF)

SCALE: NOT TO SCALE

JUNCTION CAN NOTES:

1. ALL JUNCTION CANS SHALL HAVE FOUR CONDUIT STUBS SPACED 90° APART, CAP CONDUIT IF STUB IS NOT OCCUPIED. SEE PLANS FOR NUMBER AND LOCATION OF STUBS.
2. INSTALL A JUNCTION CAN AT INTERVALS NOT EXCEEDING 500 FT. WHERE THERE IS NOT ACCESS FOR PULLING CABLES AND TESTING.
3. CONNECT A SAFETY GROUND JUMPER TO THE EXTERNAL GROUND LUG AND ATTACH IT TO A 5/8" DIA. x 8 FT LONG (MIN.) GROUND ROD.
4. AT INTERVALS NOT EXCEEDING 500 FT, CONNECT THE COUNTERPOISE WIRE TO A 5/8" DIA. x 8 FT LONG (MIN.) GROUND ROD.
5. THE DESIGN INTENT IS TO MINIMIZE THE NUMBER OF SPLICES. SPLICE CABLES ONLY WHERE REQUIRED AND AS APPROVED BY THE RPR. SPLICES ARE NOT ALLOWED IN FAA REIL AND PAPI CONTROL CABLES.

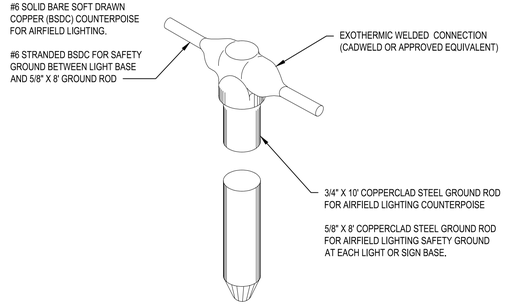


C3 CABLE CIRCUIT IDENTIFICATION TAG DETAIL

SCALE: NOT TO SCALE

IDENTIFICATION TAG NOTES:

1. AT LEAST TWO CABLE CIRCUIT IDENTIFICATION TAG SHALL BE INSTALLED ON EACH CABLE WITHIN EACH ACCESS POINT ONE AT THE CABLE ENTRANCE AND EXIT.
2. CABLE CIRCUIT IDENTIFICATION TAGS SHALL BE A 1" MIN. 2" MAX. DIA. DISK OF NON-CORROSIVE METAL MATERIAL (BRASS, STAINLESS, ALUMINUM) WITH THE CIRCUIT IDENTIFICATION PERMANENTLY STAMPED OR ENGRAVED.
3. CABLE CIRCUIT IDENTIFICATION TAGS SHALL BE ATTACHED TO CABLES WITH A UV RESISTANCE PLASTIC STRAP. METAL TIES SHALL NOT BE USED ON CABLES
4. PLASTIC TAGS SHALL NOT BE USED.
5. COST SHALL BE INCIDENTAL TO ITEM L-125.

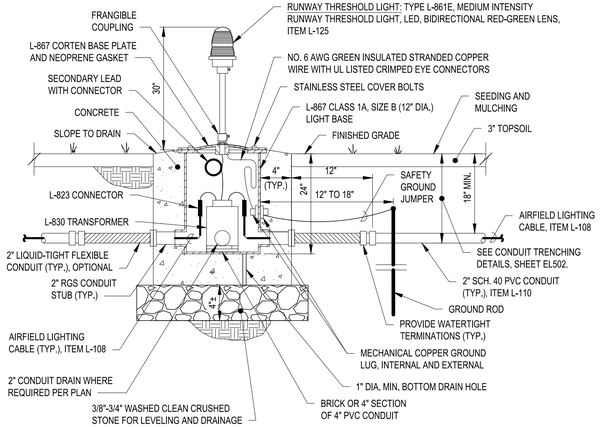


C4 AIRFIELD LIGHTING GROUND ROD CONNECTION DETAIL

SCALE: NOT TO SCALE

NOTES:

1. GROUND RODS FOR AIRFIELD LIGHTING #6 COUNTERPOISE SHALL BE INSTALLED AS SHOWN ON LAYOUT PLAN SHEETS AND NOT MORE THAN 500' APART.
2. TOP OF GROUND ROD SHALL BE DRIVEN NOT LESS THAN 6" BELOW GRADE.

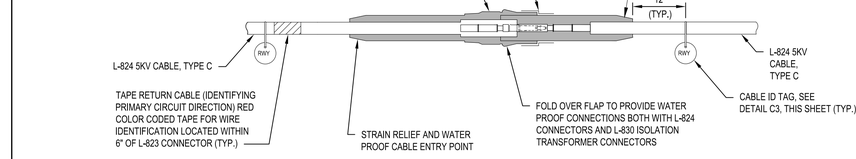


B1 ELEVATED THRESHOLD EDGE LIGHT DETAIL (IN TURF)

SCALE: NOT TO SCALE

LIGHT NOTES:

1. ALL LIGHT BASES SHALL HAVE A MINIMUM OF TWO CONDUIT STUBS SPACED 180 DEGREES APART. CAP CONDUIT IF STUB IS NOT OCCUPIED. ADDITIONAL CONDUIT STUBS MAY BE REQUIRED, SEE PLANS FOR NUMBER AND LOCATION OF STUBS.
2. CONNECT A SAFETY GROUND JUMPER TO THE EXTERNAL GROUND LUG AND ATTACH IT TO A 5/8" DIA. x 8 FT LONG (MIN.) GROUND ROD.
3. CONDUIT OUTBOARD OF THE FLEXIBLE CONDUIT AND AIRFIELD LIGHTING CABLES ARE PAID FOR SEPARATELY. ALL OTHER ITEMS ARE INCLUDED IN PAYMENT FOR THE EDGE LIGHT.
4. TRANSFORMERS FOR EDGE LIGHT FIXTURES SHALL BE 6.6 AMP PRIMARY/6.6 AMP SECONDARY. SIZE AS REQUIRED FOR LIGHT FIXTURE.
5. PROVIDE A MINIMUM OF 10' OF CABLE SLACK ON PRIMARY CONDUCTORS, 5' ON EACH END, AND GREEN GROUND ABOVE THE GROUND SURFACE.
6. WHERE REQUIRED ON THE PLANS, PROVIDE A 2" PVC DRAIN CONNECTOR TO A HUB 90° TO THE LIGHT BASE THAT CONNECTS TO THE UNDERDRAIN SYSTEM OR STORMWATER STRUCTURE. DRAINS ARE POSITIONED AT LOW POINTS IN THE SYSTEM.
7. PRECAST LIGHT BASES ARE REQUIRED.
8. SPARE PARTS LIST:
   - 8.1. THE CONTRACTOR SHALL PROVIDE AND TURN OVER THE FOLLOWING SPARE LIGHT FIXTURES IN NEW UNPACKAGED CONDITION TO THE OWNER:
     - (15) L-861
     - (10) ISOLATION TRANSFORMERS
   - 8.2. THE SPARE PARTS PACKAGE SHALL BE INCIDENTAL TO ITEM L-125.

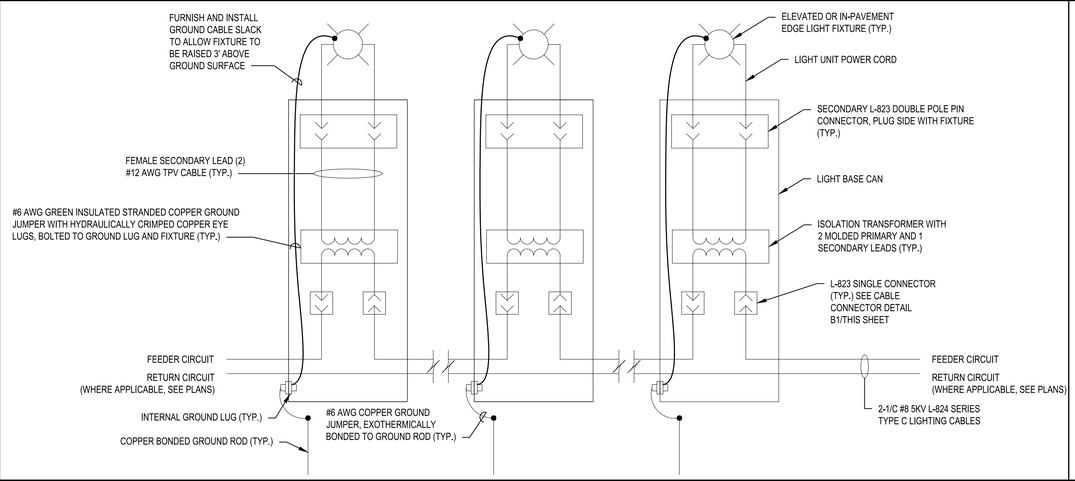


B3 CABLE CONNECTOR DETAIL

SCALE: NOT TO SCALE

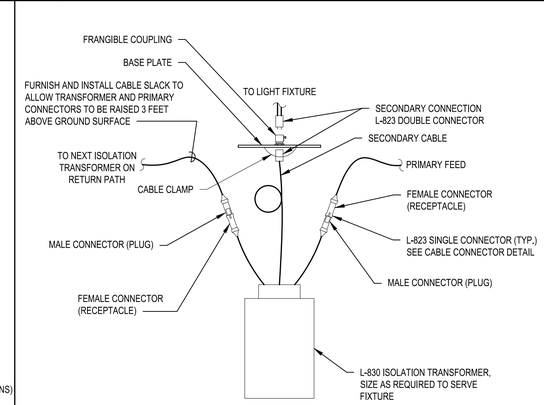
NOTES:

1. CONNECTION OF CONDUCTORS SHALL BE MADE USING CRIMP CONNECTIONS AND A CRIMPING TOOL APPROVED BY THE MANUFACTURER
2. PROPERLY MATCH THE INSIDE DIAMETER OF CONNECTOR TO THE OUTSIDE DIAMETER OF CABLE FOR A TIGHT FIT.
3. CABLE JACKET SHALL BE REMOVED BY A "PENCILING" TOOL APPROVED BY THE MANUFACTURER. CONDUCTORS SHALL NOT BE NICKED OR DAMAGED.
4. FACTORY MOLDED TRANSFORMER LEADS ONLY REQUIRE TAPE WRAP AFTER INSERTION OF THE PLUG CONNECTOR.



A1 AIRFIELD LIGHTING WIRING DIAGRAM

SCALE: NOT TO SCALE



A3 TYPICAL ISOLATION TRANSFORMER CONNECTION DETAIL

SCALE: NOT TO SCALE

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Phone: 734-953-2571
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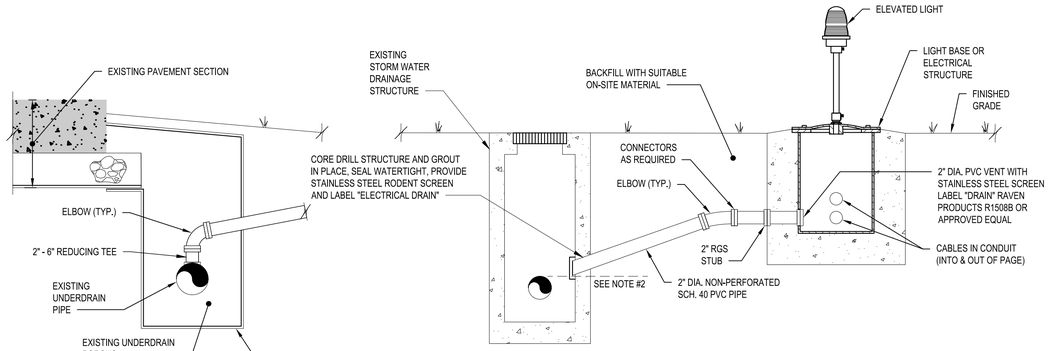
AIRFIELD LIGHT AND ELECTRICAL DETAILS

EL501

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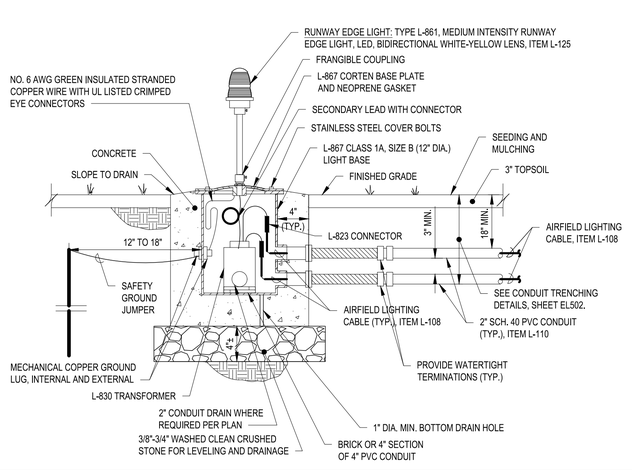


NOTES:

1. PROVIDE A 2" PVC DRAIN CONNECTED TO THE UNDERDRAIN SYSTEM OR TO A NEARBY DRAINAGE STRUCTURE AT THE LOCATIONS SHOWN ON THE PLAN. SLOPE DRAIN CONDUITS 1% TYPICAL, 0.5% MINIMUM TOWARD THE OUTLET.
2. PENETRATE DRAINAGE STRUCTURES WITH DRAIN CONDUIT ABOVE STORM PIPES WHEN POSSIBLE. SEAL ENTRY POINTS WITH NON-SHRINK GROUT. DRAINS SHALL BE PAID UNDER ITEM L-110, NON-ENCASED ELECTRICAL CONDUIT, 1-WAY, 2-INCH, SCH. 40 PVC CONDUIT, IN TURF.
3. COUNTERPOISE WIRE IS NOT REQUIRED OVER DRAIN PIPES.
4. USE STANDARD TEE'S, FURNCO CONNECTORS AND GASKETS TO CONNECT TO EXISTING DRAINAGE PIPES WHERE REQUIRED. ALL CONNECTIONS SHALL BE WATERTIGHT.
5. CONTRACTOR SHALL PROTECT THE PAVEMENT EDGE AND PROVIDE SUPPORT WHILE MAKING THE CONNECTION TO THE EXISTING UD AT THE EDGE OF PAVEMENT

B1 ELECTRICAL SYSTEM DRAINAGE DETAIL

SCALE: NOT TO SCALE

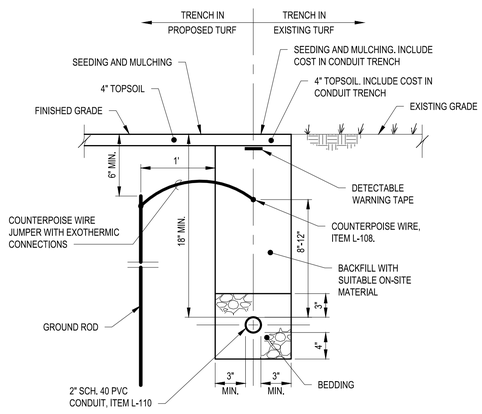


B3 ELEVATED RUNWAY EDGE LIGHT DETAIL (IN TURF)

SCALE: NOT TO SCALE

LIGHT NOTES:

1. ALL LIGHT BASES SHALL HAVE A MINIMUM OF TWO CONDUIT STUBS STACKED LATERALLY WITH 3" MINIMUM SEPERATION. CAP CONDUIT IF STUB IS NOT OCCUPIED. ADDITIONAL CONDUIT STUBS MAY BE REQUIRED, SEE PLANS FOR NUMBER AND LOCATION OF STUBS.
2. CONNECT A SAFETY GROUND JUMPER TO THE EXTERNAL GROUND LUG AND ATTACH IT TO A 5/8" DIA. x 8 FT LONG (MIN.) GROUND ROD.
3. CONDUIT OUTBOARD OF THE FLEXIBLE CONDUIT AND AIRFIELD LIGHTING CABLES ARE PAID FOR SEPARATELY. ALL OTHER ITEMS ARE INCLUDED IN PAYMENT FOR THE EDGE LIGHT.
4. TRANSFORMERS FOR EDGE LIGHT FIXTURES SHALL BE 6.6 AMP PRIMARY/6.6 AMP SECONDARY. SIZE AS REQUIRED FOR LIGHT FIXTURE.
5. PROVIDE A MINIMUM OF 10' OF CABLE SLACK ON PRIMARY CONDUCTORS, 5' ON EACH END, AND GREEN GROUND ABOVE THE GROUND SURFACE.
6. WHERE REQUIRED ON THE PLANS, PROVIDE A 2" PVC DRAIN CONNECTOR TO A HUB 90° TO THE LIGHT BASE THAT CONNECTS TO THE UNDERDRAIN SYSTEM OR STORMWATER STRUCTURE. DRAINS ARE POSITIONED AT LOW POINTS IN THE SYSTEM.
7. PRECAST LIGHT BASES ARE REQUIRED.
8. SPARE PARTS LIST:
   - 8.1. THE CONTRACTOR SHALL PROVIDE AND TURN OVER THE FOLLOWING SPARE LIGHT FIXTURES IN NEW UNPACKAGED CONDITION TO THE OWNER:
     - (15) L-861
     - (10) ISOLATION TRANSFORMERS
   - 8.2. THE SPARE PARTS PACKAGE SHALL BE INCIDENTAL TO ITEM L-125.



A1 CONDUIT TRENCHING DETAIL (IN TURF)

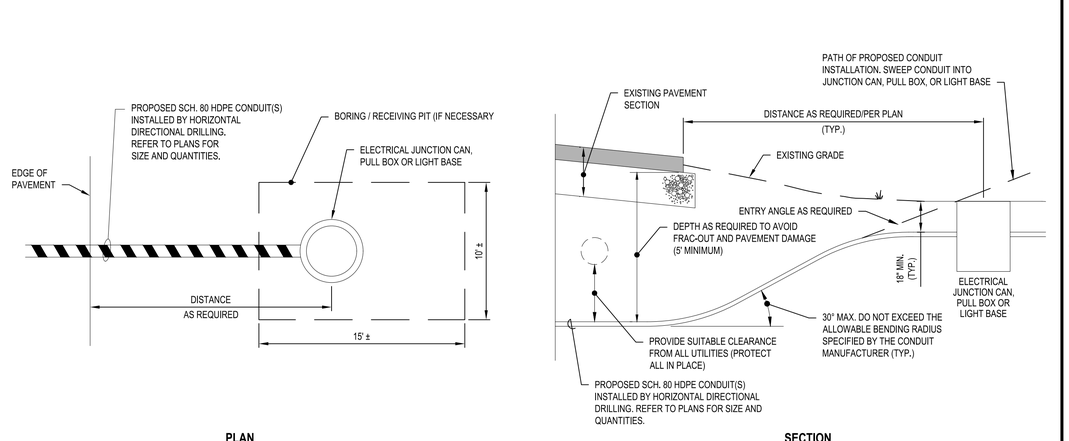
SCALE: NOT TO SCALE

CONDUIT TRENCHING NOTES:

1. ONE COUNTERPOISE WIRE SHALL BE PROVIDED FOR EVERY 2 CONDUITS OR INCREMENT THERE OF, PLACED IN A COMMON TRENCH. COUNTERPOISE WIRE SHALL BE PLACED PROPORTIONATELY ACROSS THE WIDTH OF CONDUITS.
2. DETECTABLE WARNING TAPE SHALL BE INSTALLED OVER EACH COUNTERPOISE WIRE PRIOR TO PLACING TOPSOIL.
3. PROVIDE 3" BETWEEN MULTIPLE CONDUITS IN A CONDUIT TRENCH. SEE LIGHTING PLANS FOR NUMBER OF CONDUITS PER TRENCH.
4. COUNTERPOISE WIRE SHALL BE CONNECTED TO A 5/8" DIA. x 8 FT LONG (MIN.) GROUND ROD EVERY 500 FT AND AT DUCT BANK ENDS AND CABLE CROSSINGS.ALL CONNECTIONS SHALL BE EXOTHERMIC.
5. THE CONTRACTOR SHALL RESTORE TRENCHED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL SURFACE.
6. THE TRENCH WIDTH SHALL BE WIDE ENOUGH TO ACCOMMODATE THE CONTRACTORS COMPACTION EQUIPMENT AND TO ACHIEVE THE SPECIFIED COMPACTION REQUIREMENTS.
7. EXCAVATIONS, TRENCHING AND SHORING SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.
8. EXCAVATIONS SHALL NOT UNDERMINE EXISTING PAVEMENTS, STRUCTURES OR UTILITIES.

A2 CONDUIT TRENCHING NOTES

SCALE: NOT TO SCALE



A3 HORIZONTAL DIRECTIONAL DRILLING DETAIL

SCALE: NOT TO SCALE

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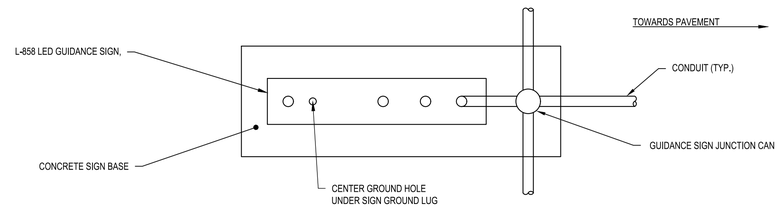
ELECTRICAL DUCT BANK AND CONDUIT DETAILS

EL502

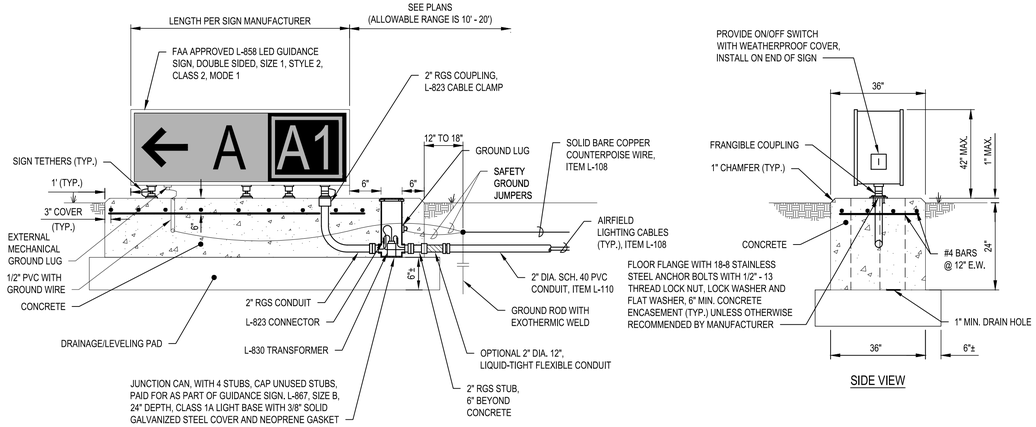
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PLAN



SIDE VIEW

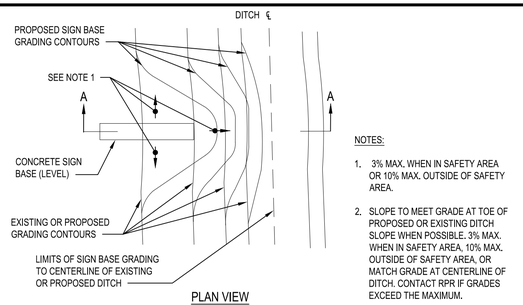
B1 AIRFIELD GUIDANCE SIGN DETAIL

SCALE: NOT TO SCALE

1. SIGNS SHALL BE CENTERED ON CONCRETE PAD.
2. SIGNS THAT CONSIST OF MULTIPLE SEPARATE MODULES NOT CONNECTED TOGETHER MUST HAVE A MINIMUM OF ONE TETHER PER MODULE.
3. SIGNS THAT USE MULTIPLE MODULES CONNECTED TOGETHER IN A CONTINUOUS FRAME MUST USE A TETHER AT BOTH ENDS.
4. JUNCTION CANS FOR GUIDANCE SIGNS SHALL HAVE 4 CONDUIT HUBS SPACED AT 90°.
5. SIGN, FOUNDATION, JUNCTION CAN, CONDUIT AND WIRE BETWEEN SIGN AND JUNCTION CAN, FLEXIBLE CONDUIT, TRANSFORMER AND ANCHOR BOLTS SHALL BE INCLUDED IN COST OF THE SIGN.
6. THE OWNER RESERVES THE RIGHT TO CHANGE SIGN MESSAGE INFORMATION PRIOR TO FINAL APPROVAL.
7. FLEXIBLE CONDUIT MAY BE USED WHERE NECESSARY, OTHERWISE USE STANDARD PVC TO RGS CONNECTORS.
8. CONTRACTOR IS ADVISED THAT L-830 TRANSFORMERS WILL VARY WITH EACH INDIVIDUAL SIGN AS A RESULT OF WATTAGE AND CURRENT RATINGS FOR THE VARIOUS SIGN SIZE (MODULES) AND CIRCUIT TO BE INSTALLED ON. IT IS THE CONTRACTORS RESPONSIBILITY TO WORK WITH THE SIGN MANUFACTURER TO SUPPLY THE APPROPRIATE L-830 ISOLATION TRANSFORMER FOR EACH NEW SIGN. CONTRACTOR SHALL SUBMIT ISOLATION TRANSFORMER SIZE WITH SIGN SUBMITTAL PACKAGE FOR APPROVAL FROM THE ENGINEER PRIOR TO ACCEPTANCE ON THE PROJECT.
9. THE CONTRACTOR IS ADVISED THAT FOUNDATION SIZES FOR NEW SIGNS WILL VARY AS A RESULT OF THE NUMBER OF SIGN MODULES, SIGN MANUFACTURE REQUIREMENTS, SIZE OF JUNCTION CAN, AND SPECIFIED FOUNDATION OVERHANGS.
10. IT IS THE CONTRACTORS RESPONSIBILITY TO IDENTIFY THE VARIABLE FOUNDATION LENGTHS REQUIRED FOR EACH SIGN AND ACCOUNT FOR THE COSTS UNDER THE RESPECTIVE AIRFIELD GUIDANCE SIGN AND RUNWAY DISTANCE REMAINING SIGN BID ITEMS.
11. SIGN FOUNDATIONS SHALL BE INSTALLED WITH THE JUNCTION CAN NEAREST THE EDGE OF PAVEMENT.
12. SIGNS OVER 120" SIZE 1 IN LENGTH SHALL BE CONSTRUCTED IN TWO SECTIONS, WITH A 3" MIN. TO 12" MAX. CLEAR DISTANCE BETWEEN SIGNS.
13. THE SIGN TOP SHALL BE REMOVABLE FOR MAINTENANCE AND ALLOW FOR VERTICAL/UPWARDS SIGN PANEL REMOVAL/REINSTALLATION.
14. SIGN PANELS SHALL BE MODULAR AND NOT FORMED IN ONE CONTINUOUS PIECE.
15. PROVIDE THE STRONGEST PANELS PRODUCED BY THE PARTICULAR MANUFACTURER.
16. SIGN MANUFACTURER SHALL MOUNT ALL POWER, CONTROL, AND CIRCUIT BOARDS IN A PROTECTED LOCATION WITHIN THE SIGN HOUSING.
17. SEE DETAIL A3/THIS SHEET FOR SIGN SCHEDULE.
18. SPARE PARTS:
    - 18.1. THE CONTRACTOR SHALL PROVIDE AND TURN OVER THE FOLLOWING SPARE GUIDANCE SIGN FIXTURES IN NEW UNPACKAGED CONDITION TO THE OWNER:
      - (6) SETS OF FRANGIBLE COUPLINGS AND LEGS FOR ONE MODULE
      - (2) ISOLATION TRANSFORMERS
      - (6) LED LIGHT STRIPS OR (18) LIGHT BULBS (VARIES BASED ON MANUFACTURER)
    - 18.2. THE SPARE PARTS PACKAGE SHALL BE INCIDENTAL TO ITEM L-125.

A1 AIRFIELD GUIDANCE SIGN NOTES

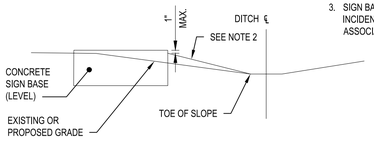
SCALE: NOT TO SCALE



PLAN VIEW

NOTES:

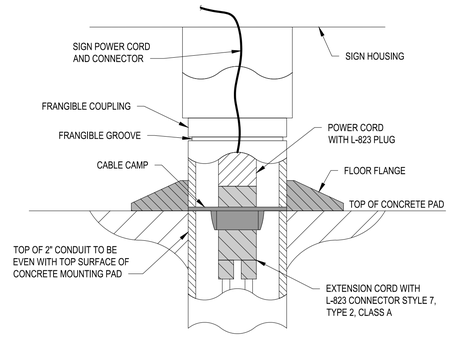
1. 3% MAX. WHEN IN SAFETY AREA OR 10% MAX. OUTSIDE OF SAFETY AREA.
2. SLOPE TO MEET GRADE AT TOE OF PROPOSED OR EXISTING DITCH SLOPE WHEN POSSIBLE, 3% MAX. WHEN IN SAFETY AREA, 10% MAX. OUTSIDE OF SAFETY AREA, OR MATCH GRADE AT CENTERLINE OF DITCH. CONTACT RPR IF GRADES EXCEED THE MAXIMUM.
3. SIGN BASE GRADING IS INCIDENTAL TO THE COST OF THE ASSOCIATED GUIDANCE SIGN.



SECTION A-A

C3 AIRFIELD GUIDANCE SIGN GRADING DETAIL

SCALE: NOT TO SCALE



NOTE:

1. AS REQUIRED BY THE FAA. THIS DETAIL ENSURES THAT THE POWER CORD WILL BE DISCONNECTED IN THE EVENT THAT THE SIGN IS KNOCKED OVER.

C4 GUIDANCE SIGN ELECTRICAL CONNECTION DETAIL

SCALE: NOT TO SCALE

GUIDANCE SIGN SCHEDULE - PROPOSED

SIGN NO.	MODULES	PROPOSED SIDE 1	PROPOSED SIDE 2
S-01	2	A3 6	A3 A→
S-02	3	12 - 30	
S-03	2		24 - 6
S-04	2	6 - 24	
S-05	2	24 - 6	
S-06	2		6 - 24
S-07	3	30 - 12	
S-08	4	A2 24 - 6	A2 B↑ ←A →
S-09	2	D 24	D↑
S-10	2	A1 24	←A A1
S-11	3	12 - 30	
S-12	3	30 - 12	

THIS SIDE TOWARD PAVEMENT EDGE

- INDICATES BLANK PANEL OR BLANK AREA OF PANEL

A3 PROPOSED GUIDANCE SIGN INDEX

SCALE: NOT TO SCALE

C&S COMPANIES®
C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

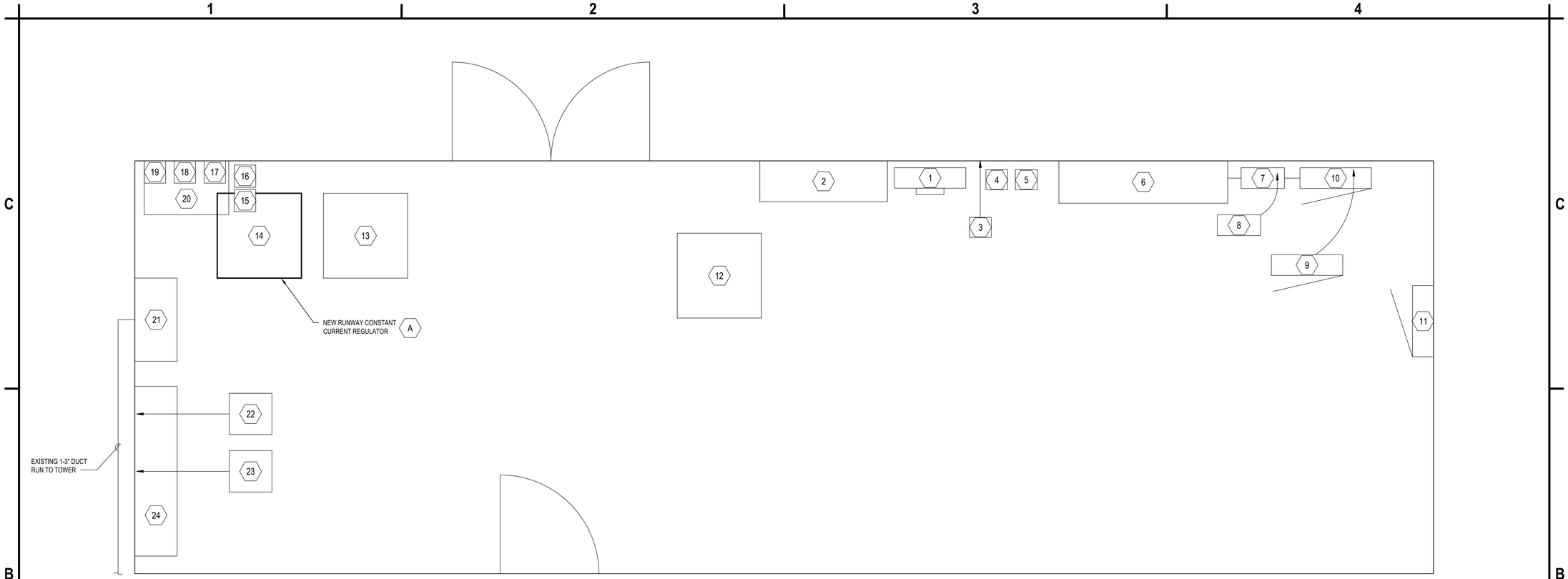
AIRFIELD GUIDANCE SIGN DETAILS

EL503

SHEET NO. 20 OF 21

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Aug 25, 2026 - 2:10pm
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EXISTING EQUIPMENT SCHEDULE

1	DTE METER SOCKET
2	DTE CT CABINET
3	PANEL LP-B ENCLOSED CIRCUIT BREAKER
4	OUTSIDE PANEL EAST OF BUILDING ON FENCE ENCLOSED CIRCUIT BREAKER
5	EXIT LIGHT DISCONNECT
6	MAIN 400 AMP PANEL
7	RAMP LIGHTING CONTACTOR
8	RAMP LIGHTING HAND / OFF / AUTO SWITCH
9	TAXIWAY PANEL BOARD
10	PANEL LP-C
11	VASI / WINDCONE PANEL
12	TAXIWAY WEST REGULATOR, 7.5kW, 240V INPUT, 120V CONTROL, 60Hz, 6.6A OUTPUT, 3 BRIGHTNESS STEPS
13	TAXIWAY EAST REGULATOR, 7.5kW, 240V INPUT, 120V CONTROL, 60Hz, 6.6A OUTPUT, 3 BRIGHTNESS STEPS
14	RUNWAY REGULATOR, 7.5kW, 480V INPUT, 120V CONTROL, 60Hz, 6.6A OUTPUT, 3 BRIGHTNESS STEPS
15	VASI 6 STEP UP TRANSFORMER - DE-ENGERGIZED
16	VASI 24 STEP UP TRANSFORMER - DE-ENERGIZED
17	VASI 24 CONTACTOR - DE-ENERGIZED
18	VASI 6 CONTACTOR
19	WINDCONE CONTACTOR
20	JUNCTION BOX
21	TERMINAL CABINET
22	EXISTING SINGLE OUTPUT RADIO CONTROL
23	THREE LEVEL RADIO CONTROL
24	INTERFACE PANEL

PROPOSED EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION
A	CONSTANT CURRENT REGULATOR, 4kW, 480V INPUT, 120V CONTROL, 60 Hz, 6.6A OUTPUT, 3 BRIGHTNESS STEPS, L-829, FERRORESONANT, AIR COOLED, RUNWAY 6-24, ITEM L-109.

NOTES:

1. FOR REFERENCE, ALL EXISTING CCR'S ARE MANUFACTURED BY FLIGHT LIGHT, INC.
2. MATCH EXISTING CONSTRUCTION FOR ALL NEW CONSTRUCTION INCLUDING BUT NOT LIMITED TO ARRANGEMENT OF EQUIPMENT AND MATERIALS.
3. ALL AIRFIELD LIGHTING CIRCUITS SHALL REMAIN OPERATIONAL DURING THE DURATION OF THE PROJECT. ALL SEQUENCING, PHASING, AND CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE RPR AND AIRFIELD OPERATIONS.
4. EXISTING CONDITIONS, QUANTITIES, AND DESCRIPTIONS SHOWN ARE BASED ON AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SHALL NOT BE CONSIDERED 100% ACCURATE. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COMPLETE REMOVALS, MODIFICATIONS, OR RELOCATIONS OF ALL ELECTRICAL DEVICES, EQUIPMENT, WIRING, ETC. AS SHOWN ON OR BY THE INTENT OF THE CONTRACT DOCUMENTS.
5. CONTRACTOR SHALL COORDINATE WITH THE AIRPORT ELECTRICIAN FOR EXACT LAYOUT AND SPACING AND OBTAIN CONCURRENCE PRIOR TO INSTALLATION.

A1 **AIRFIELD ELECTRICAL VAULT FLOOR PLAN**
SCALE: NOT TO SCALE

C&S COMPANIES®
C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
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STATE OF MICHIGAN
AARON M. ALJETS
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CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

AIRFIELD ELECTRICAL VAULT FLOOR PLAN

EL504

SHEET NO. 21 OF 21

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ANN ARBOR MUNICIPAL AIRPORT

Invitation to Bid

Project Description: Reconstruct Runway Lighting 6-24 and Reconstruct Runway Signage 6-24
Bid Due Date: 9/17/2026
Bid Time: 11:00 AM
Plans Available: 8/27/2026

Sealed bids will be received by the City of Ann Arbor, at 801 Airport Drive, Suite 2, Ann Arbor, MI 48108, until 2:00 PM (Local time), on the bid date, at which time and place all bids will be publicly opened and read aloud. **Any bid received after the specified time will not be considered.**

The proposed work includes the following: The removal and replacement of Runway 6-24 edge lights and bases, installing new cable in conduit, new transformers, and new guidance signs.

Bidder Qualifications

Bidders shall submit evidence of qualification meeting the requirements of General Contract Provisions 20-02. Possession by the prime contractor of MDOT prequalification at the time of bidding shall be an acceptable form of evidence. In addition, this project includes designated item classifications of L – Electrical.

If the prime bidder is not prequalified in the designated item classification(s), then it must use a subcontractor that is prequalified in such classification(s). This subcontractor must be designated prior to award of the contract to the confirmed low bidder.

There is a Disadvantage Business Enterprise (DBE) participation goal of 0.00% for this project.

A pre-bid meeting for this project will not be held.

Bidders may secure copies of the contract documents at the Michigan Inter-Governmental Trade Network bid system (https://www.bidnetdirect.com/MITN). Bidder assumes sole risk for any project specifications and drawings, electronic or hard copy, obtained other than directly from C&S Engineers, Inc.

A bid bond, certified check, or cashier's check payable to airport sponsor in an amount equal to five percent (5%) of the total price shall accompany each bid. This surety shall bind the bidder for a period of ninety (90) days after the notification of award.

If the selected contractor fails to provide the required materials and/or execute the contract within fifteen (15) calendar days after being furnished with the necessary contract and bond forms, the proposal guaranty will be forfeited to the sponsor in accordance with Section 30-08 of the General Provisions.

Each bidder is individually responsible for the careful examination of the site of the proposed work, the proposal, plans, general provisions, technical specifications, contract forms and all requirements of the project. The failure or omission by any bidder to do so shall in no way relieve any bidder from any obligation with respect to its bid.

The City of Ann Arbor reserves the following rights: to accept or reject any or all bids; and to award the contract to the most responsive and responsible bidder whose bid is determined by the City of Ann Arbor to be in its best interest.

Every request concerning this project must be addressed to C&S Engineers, Inc., 38777 Six Mile Road, Suite 202, Livonia, Michigan 48152:, email:smakhlouf@cscos.com:, Telephone:(734) 793-4628. To be given consideration, questions or comments must be received by addressee at least seven (7) days prior to the date fixed for opening of bids. Any supplemental instructions will be in the form of written addenda, which, when issued, will be sent and or posted not later than twenty-four (24) hours prior to the date fixed for the opening of bids. All addenda so issued shall become part of the contract and acknowledged by bidder.

CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF

RECONSTRUCT RUNWAY LIGHTING 6-24 AND
RECONSTRUCT RUNWAY SIGNAGE 6-24

ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR
ANN ARBOR, MI

FAA AIP NO. (LIGHTING): B-26-0005-2826
FAA IIJA NO. (LIGHTING): 3-26-0005-XXX27
FAA SIGNAGE: B-26-0005-292X

MDOT PROJECT NO. (LIGHTING): 213757
MDOT PROJECT NO. (SIGNAGE): 226567

BID DOCUMENTS
AUGUST 2026

CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF

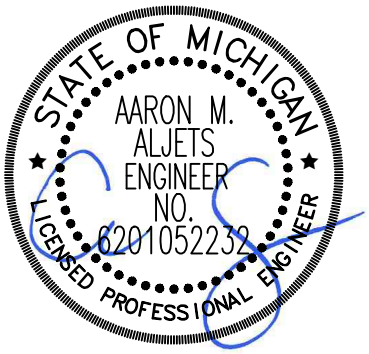
RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24

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CITY OF ANN ARBOR
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AUGUST 2026



C&S ENGINEERS, INC.
38777 SIX MILE ROAD, SUITE 202 LIVONIA, MI 48152

AARON M. ALJETS, P.E. – MI PE LICENSE NO. 6201052232

PROJECT NO. N75.007.001

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- Certification of Lower Tier Contractors Regarding Debarment
- Certification of Lobbying and Influencing Federal Employees
- Certification of Offeror/Bidder Regarding Tax Delinquency and Felony Convictions
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- Certification Regarding Domestic Preferences for Procurements

Certification for Receipt of Addenda
Statement of Surety's Intent
Bidder's List Collection Form
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Small Business Participation Letter of Intent Form
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ANN ARBOR MUNICIPAL AIRPORT

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24

BIDDERS ARE REQUIRED TO COMPLETE ALL FIELDS SHADED.
ALL OTHER FIELDS WILL BE AUTOMATICALLY CALCULATED.
AN EXCEL FILE WILL BE PROVIDED AND THESE SHEETS CAN BE FILLED OUT IN EXCEL OR HARD COPY.
ONLY HARD COPIES SHALL BE RETURNED WITH YOUR PROPOSAL.

ITEM NO	SPEC	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	TOTAL
		BASE BID				
1	C-105-6.1	MOBILIZATION (10% MAX.)	1	LS		
2	CX-106-3.1	SAFETY, SECURITY AND MAINTENANCE OF TRAFFIC	1	LS		
4	DX-800-4.1	SOFT DIG	1	DAYS		
5	L-108-5.1	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE	9,860	LF		
6	L-108-5.2	NO. 8 AWG, 5KV, L-824, TYPE C CABLE, INSTALLED IN TRENCH, DUCT BANK OR CONDUIT	15,350	LF		
7	L-109-7.1	INSTALLATION OF EQUIPMENT WITH IN EXISTING VAULT OR PREFABRICATED METAL HOUSING IN PLACE	1	LS		
8	L-110-5.1	NON-ENCASED ELECTRICAL CONDUIT, 1-WAY, 2-INCH, SCH. 40 PVC CONDUIT, IN TURF	10,730	LF		
9	L-110-5.2	NON-ENCASED ELECTRICAL DRAINAGE CONDUIT, 1-WAY, 2-INCH, SCH. 40 PVC CONDUIT, IN TURF	45	LF		
10	LX-113-5.1	(1) 2-INCH SCHEDULE 80 HDPE CONDUIT INSTALLED BY DIRECTIONAL DRILLING	570	LF		

ANN ARBOR MUNICIPAL AIRPORT

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ITEM NO	SPEC	DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	TOTAL
11	L-115-5.1	ELECTRICAL JUNCTION CAN	6	EA		
12	L-125-5.1a	REMOVAL OF EXISTING EDGE LIGHT, LIGHT BASE AND APPURTENANCES	59	EA		
13	L-125-5.1b	REMOVAL OF EXISTING GUIDANCE SIGN AND FOUNDATION	11	EA		
14	L-125-5.2a	MEDIUM INTENSITY RUNWAY EDGE LIGHT, BASE MOUNTED, ELEVATED, LED, IN TURF	44	EA		
15	L-125-5.2b	MEDIUM INTENSITY RUNWAY THRESHOLD LIGHT, BASE MOUNTED, ELEVATED, LED, IN TURF	16	EA		
16	L-125-5.2c	TAXIWAY GUIDANCE SIGN AND FOUNDATION, 2 MODULES	7	EA		
17	L-125-5.2d	TAXIWAY GUIDANCE SIGN AND FOUNDATION, 3 MODULES	4	EA		
18	L-125-5.2e	TAXIWAY GUIDANCE SIGN AND FOUNDATION, 4 MODULES	1	EA		
					TOTAL CONTRACT - BASE BID	

ATTACHMENTS TO PROPOSAL

BIDDER and his/her surety, where appropriate, have completed and executed the attached documents which are identified below.

Buy American Certification

Certifications:

- Certification of Offeror/Bidder Regarding Debarment
- Certification of Lower Tier Contractors Regarding Debarment
- Certification of Lobbying and Influencing Federal Employees
- Certification of Offeror/Bidder Regarding Tax Delinquency and Felony Convictions
- Trade Restriction Certification
- Certification Regarding Domestic Preferences for Procurements

Certification for Receipt of Addenda

Statement of Surety's Intent

Bidder's List Collection Form

Small Business Participation Utilization Plan

Small Business Participation Letter of Intent Form

Small Business Verification Form

Safety Plan Compliance Document (SPCD) Certification

BUY AMERICAN CERTIFICATION

The Contractor certifies that its bid/offer is in compliance with 49 U.S.C. § 50101, BABA and other related Made in America Laws (Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.), U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

The bidder or offeror certifies procurement of certain rolling stock using FAA grant funds will prohibit airports from using Federal financial assistance to procure buses or rail car vehicle rolling stock from covered entities.

CERTIFICATION OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE – CONSTRUCTION PROJECTS

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 U.S.C. § 50101, and other Made in America Laws, U.S. statutes, guidance, and FAA policies by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 U.S.C. § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:

a) Only installing iron, steel and manufactured products produced in the United States;
b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or

d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

a) To provide to the Airport Sponsor or FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
b) To faithfully comply with providing U.S. domestic product.
c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
d) Certify that all construction materials used in the project are manufactured in the U.S.

☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 U.S.C. § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

a) To the submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (**Nonavailability)** - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is:

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the "facility/project." The required documentation for a Type 3 waiver is:

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
d) Percentage of non-domestic component and subcomponent cost as compared to total "facility" component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
b) At minimum two comparable equal bids and/or offers;
c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date	Signature
Company Name	Title

(Buy American form(s) must be completed and submitted with the Proposal.)

CERTIFICATIONS

BIDDER'S NAME: _____

ADDRESS: _____

TELEPHONE NO.: _____ **FAX NO.** _____

IRS EMPLOYER IDENTIFICATION NUMBER: _____

CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

* * * * *

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov

2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.

3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

* * * * *

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

* * * * *

CERTIFICATION OF OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The Contractor must complete the following two certification statements. The Contractor must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The Contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

1) The Contractor represents that it is ( ) is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) The Contractor represents that it is ( ) is not ( ) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If a Contractor responds in the affirmative to either of the above representations, the Contractor is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The Contractor therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an

offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

* * * * *

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or

2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or

3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

* * * * *

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

Printed Name & Title: _____

Signature: _____

Date: _____

(These certifications must be completed and submitted with the Proposal.)

CERTIFICATION FOR RECEIPT OF ADDENDA

Receipt of the following Addenda is acknowledged:

ADDENDUM NO.: _____ DATED: _____

ADDENDUM NO.: _____ DATED: _____

ADDENDUM NO.: _____ DATED: _____

_____
(Firm or Corporation Making Bid)

_____
(Signature of Authorized Person)

P.O. Address: _____

Dated: _____

(This form must be completed and submitted with the Proposal.)

STATEMENT OF SURETY'S INTENT

TO: City of Ann Arbor

We have reviewed the bid of _____
(Contractor)
of _____
(Address)
for the Reconstruct Runway 6-24 Lighting,

project for which bids will be received on: _____
(Bid Opening Date)

and wish to advise that should this Bid of the Contractor be accepted and the Contract awarded to him, it is our present intention to become surety on the performance bond and labor and material bond required by the Contract.

Any arrangement for the bonds required by the Contract is a matter between the Contractor and ourselves and we assure no liability to you or third parties if for any reason we do not execute the requisite bonds.

We are duly authorized to do business in the State of

ATTEST: _____ _____

_____
Surety's Authorized Signature(s)

(Corporate seal, if any. If no seal, write "No Seal" across this place and sign.)

ATTACH PROPOSAL GUARANTEE

ATTACH POWER OF ATTORNEY

**(This form must be complete and submitted with the Proposal.
Copies of this form may be filled out and attached to this page.)**

BIDDER'S LIST COLLECTION FORM

The sponsor is required by CFR Title 49, Subtitle A, Part 26, subpart A, § 26.11(c) to collect bidders list information from all bidders at the time of bid submittal. The data must be collected for all firms who bid as **prime contractors or subcontractors** (successfully or not).

As such, it is the responsibility of the bidder to complete the following information for **their company and all firms that provided a quote** as a condition of submitting a proposal for this project. The sponsor will consider incomplete information to be an irregular proposal.

Airport Name: Ann Arbor Municipal Airport Bid Date: _____

Project Name: Reconstruct Runway 6-24 Lighting _____

Bidders and potential subcontractors / suppliers Information:

Firm Name	Firm Address (including ZIP code)	DBE or Non-DBE Status	NAICS Code(s) of Scope(s) Bid	Age of Firm	Annual Gross Receipts
				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million
				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million
				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million

				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million
				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million
				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million
				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million
				☐ Less than 1 year ☐ 3 years ☐ 4-7 years ☐ 8-10 years ☐ More than 10 years	☐ Less than $1 million ☐ $1-3 million ☐ $3-6 million ☐ $6-10 million ☐ Over $10 million

If additional space is needed, copy this form and submit with your original proposal. **This form must list all firms (including bidder) that supplied a quote (successful or not) and submitted with the proposal.**

SMALL BUSINESS PARTICIPATION UTILIZATION PLAN

(Submit this form and attach one letter of intent for each small business subcontractor, supplier or manufacturer that you are committed to utilizing on this project.)

AIRPORT NAME: Ann Arbor Municipal Airport

PROJECT NAME: Reconstruct Runway 6-24 Lighting

NAME OF BIDDERS FIRM: _____

STREET ADDRESS: _____

CITY _____ STATE _____ ZIP CODE _____

PRINTED NAME OF SIGNER: _____

EMAIL ADDRESS: _____

TOTAL BID AMOUNT: _____

SMALL BUSINESS UTILIZATION SUMMARY

Small Business Firm	Scope of Work	Committed Amount

SMALL BUSINESS PARTICIPATION COMMITMENT:

_____

Affirmation:

The undersigned hereby assures that the information included herein is true and correct, and that the Small Business firm(s) listed on the attached Letter of Intent Forms have agreed to perform a commercially useful function in the work items noted for each firm. The undersigned further understands that no changes to this plan may be made without prior approval from the Airport.

By: _____ _____

Signature of Bidder's Representative Title

SMALL BUSINESS PARTICIPATION
LETTER OF INTENT FORM
(Submit one letter of intent for each small business subcontractor, supplier or manufacturer)

PROJECT NAME/LOCATION: Reconstruct Runway 6-24 Lighting/Ann Arbor Municipal Airport_____

NAME OF BIDDER'S FIRM: _____

STREET ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____

NAME OF SMALL BUSINESS:_____

STREET ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____

CONTACT PERSON: _____

EMAIL ADDRESS: _____

PROOF ATTACHED OF SMALL BUSINESS ELIGIBILITY *(CHECK ONE AND ATTACH TO THE LOI)*

_____ Certification Included: _____
Or
_____ Verification of Gross Revenue form

CLASSIFICATION (Check one):

_____ PRIME CONSULTANT _____ SUBCONSULTANT _____ JOINT VENTURE
_____ PRIME CONTRACTOR _____ SUBCONTRACTOR _____ MANUFACTURER
_____ BROKER _____ SUPPLIER/DEALER _____ SUPPLIER/DISTRIBUTOR

DESCRIPTION OF WORK ITEMS TO BE PERFORMED:

NAICS	Scope of Work to be performed	Dollar Value

The undersigned small business firm affirms that it is ready, willing and able to perform the amount and type of work as described above and has provided proof they meet the requirements of a small business as outlined in the sponsors DBE program.

NAME: _____ DATE: _____
Signature of Small Business's Authorized Representative

SMALL BUSINESS VERIFICATION FORM

The SPONSOR will presume that a business is a "small business" or "small business concern" for purposes of this Program if the business is a for-profit enterprise, considering that they are within the size standards set forth by 49 CFR 26.65(b) https://www.transportation.gov/DBEsizestandards, that is either:

- DBE or ACDBE Certifications;
- An eligible participant of federal Small Business Administration (SBA) programs, which may include businesses certified as disadvantaged, minority-owned, women-owned, or emerging small businesses, Section 8(a) Business Development, Small Disadvantaged, and HUBZone. The SBA maintains an online listing of eligible, participating small businesses; or
- Certified by a public agency other than those listed above and meets a size standard that is no greater than the SBA size standard, which standard must be a criterion for certification or participation in that public agency program.

If you cannot provide documentation verifying your certification as a Small Business, please complete the following section.

Name Of Small Business:_____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Name Of Preparer: _____ Title: _____

Email Address: _____

Committed Amount: $_____ NAICS Codes_____

Scope of Work: _____

List the firm's total gross receipts for the past five years.

YEAR	TOTAL RECEIPTS
	$
	$
	$
	$
	$

If a small business is awarded a contract, the firm must provide proof of its small business status. If no certification is available, the small business must provide verifiable gross receipts in order to be counted toward participation. In lieu of full tax returns, the first page of each year's federal business tax return will be accepted, provided it includes a complete summary of the firm's gross receipts.

By signing this form, the preparer affirms that the information provided is accurate, complete, and reflects the current status of the firm.

Signature of Small Business: _____
Owner or Authorized Representative

Printed Name:_____ Date: _____

(This form must be completed and submitted with the Proposal.)

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) CERTIFICATION

Project Location: _____

Project Name: _____

Contractor's Official Name: _____

Contact Person: _____ Telephone: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Certification Statement:

I certify that I have read the Construction Safety and Phasing Plan (CSPP) included in the Contract Documents and if awarded this Contract, I will abide by its requirements as written.

I certify that I have read the Safety Plan Compliance Document (SPCD) included in the Contract Documents and if awarded this Contract, I will abide by its requirements as written;

I certify that I will provide the information required in the SPCD prior to the start of construction work, if awarded this Contract, and that I will provide any additional information requested by the Owner.

_____ _____

Printed Name of Signer Signature

_____ _____

Title Date

END OF PROPOSAL

Part 1 – General Contract Provisions

Section 10 Definition of Terms

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	**AASHTO**	The American Association of State Highway and Transportation Officials.
10-02	**Access Road**	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	**Advertisement**	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	**Airport**	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	**Airport Improvement Program (AIP)**	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	**Air Operations Area (AOA)**	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	**Apron**	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	**ASTM International (ASTM)**	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	**Award**	The Owner’s notice to the successful bidder of the acceptance of the submitted bid.
10-10	**Bidder**	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

Paragraph Number	Term	Definition
10-11	**Building Area**	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.
10-12	**Calendar Day**	Every day shown on the calendar.
10-13	**Certificate of Analysis (COA)**	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	**Certificate of Compliance (COC)**	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	**Change Order**	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	**Contract**	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	**Contract Item (Pay Item)**	A specific unit of work for which a price is provided in the contract.
10-18	**Contract Time**	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	**Contractor**	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	**Contractors Quality Control (QC) Facilities**	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).

Paragraph Number	Term	Definition
10-21	**Contractor Quality Control Program (CQCP)**	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	**Control Strip**	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
10-23	**Construction Safety and Phasing Plan (CSPP)**	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	**Drainage System**	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	**Engineer**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	**Equipment**	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	**Extra Work**	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	**FAA**	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	**Federal Specifications**	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.

Paragraph Number	Term	Definition
10-30	**Force Account**	**a.** Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. **b.** Owner Force Account - Work performed for the project by the Owner's employees.
10-31	**Intention of Terms**	Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner. Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.
10-32	**Lighting**	A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.
10-33	**Major and Minor Contract Items**	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	**Materials**	Any substance specified for use in the construction of the contract work.
10-35	**Modification of Standards (MOS)**	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	**Notice to Proceed (NTP)**	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	**Owner**	The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is the City of Ann Arbor.

Paragraph Number	Term	Definition
10-38	**Passenger Facility Charge (PFC)**	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	**Pavement Structure**	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	**Payment bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	**Performance bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.
10-42	**Plans**	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'
10-43	**Project**	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	**Proposal**	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.
10-45	**Proposal guaranty**	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	**Quality Assurance (QA)**	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	**Quality Control (QC)**	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	**Quality Assurance (QA) Inspector**	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	**Quality Assurance (QA) Laboratory**	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer

Paragraph Number	Term	Definition
		or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	**Resident Project Representative (RPR)**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	**Runway**	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	**Runway Safety Area (RSA)**	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	**Safety Plan Compliance Document (SPCD)**	Details how the Contractor will comply with the CSPP.
10-54	**Specifications**	A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.
10-55	**Sponsor**	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	**Structures**	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	**Subgrade**	The soil that forms the pavement foundation.
10-58	**Superintendent**	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	**Supplemental Agreement**	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the

Paragraph Number	Term	Definition
		total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	**Surety**	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	**Taxilane**	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	**Taxiway**	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.
10-63	**Taxiway/Taxilane Safety Area (TSA)**	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.
10-64	**Work**	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.
10-65	**Working day**	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	**Owner Defined terms**	The following terms are included in this contract:

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). See the Advertisement located in the front of these Contract Documents.

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization, if included in this proposal, is specified in Item C-105.

A prebid conference is required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements. The location, date and time are stated in the Advertisement.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

c. Documented record of Contractor default under previous contracts with the Owner.

d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by fax or by email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms,* of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than 7 calendar days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

Section 30 Award and Execution of Contract

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals*.

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within 240 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

The Owner reserves the right to award only the Base Bid, to award any Alternate Bid (if Alternates are an option), or to award either the Base Bid or the Alternate Bid plus Add-On Bids (if Add-On bids are an option).Where discrepancies occur that affect the bid total(s) as described in the subsection titled CONSIDERATION OF PROPOSALS, the contract amount awarded will reflect the corrected values.

Where alternate bids and/or add-on bids are included in the proposal, the lowest qualified bidder will be determined by comparison of the combination of Base Bid, or Alternate Bid, plus Add-On bids which are chosen by the Owner.

The Owner, based on their operational needs, has established the following order for evaluation of bids to determine the apparent low bidder:

Base Bid

30-03 Cancellation of award. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals.* Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty

will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds.*

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds,* of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

The Contractor shall also furnish the required insurance certificates in accordance with the subsection titled RESPONSIBILITY FOR DAMAGE CLAIMS of Sections 70 and 200. The successful bidder shall recognize that the proposal included in the contract for execution may differ from the proposal which was submitted with their bid. The proposal included in the contract for execution will include corrections to discrepancies which were discovered during the Owners consideration of proposals, and will contain only the pages from the successful bidder's proposal which cover the bids which were awarded. As a result, the proposal pages in the contract to be executed may contain pages which are not consecutively numbered due to the intentional omission of those proposal pages which cover bids that were not awarded.

49 CFR Part 26 provides that each contract the owner signs with a contractor (and each subcontract the prime contractor signs with a subcontractor) shall include the following assurance:

> "The contractor, sub-recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of Department of Transportation (DOT) assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate."

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract,* of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

END OF SECTION 30

Section 40 Scope of Work

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work

covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or

grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,

b. Remove such material from the site, upon written approval of the RPR; or

c. Use such material for the Contractor's own temporary construction on site; or,

d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

END OF SECTION 40

Section 50 Control of Work

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If

any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. See Special Provisions section to the General Provisions.

50-05 Cooperation of Contractor. The Contractor shall be supplied with five hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): five (5) full size copies of signed and sealed surveys, five (5) copies of the notes as well as pdf copies of both.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor’s expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor’s expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed

immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor’s right to dispute final payment based on differences in measurements or computations.

END OF SECTION 50

Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the

work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. An Engineer/RPR field office is not required.

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed

by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

Section 70 Legal Regulations and Responsibility to Public

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated as follows:

Utility	Location (Sheet No.)	Person to Contact	Phone No.

"Not Applicable"

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others,

unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic,* and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is described in the Construction Safety and Phasing Plan, Appendix A to Section 70.

70-09 Use of explosives. The use of explosives is not permitted on this project.

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or

otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Opening sections of work to traffic shall be as described in the CSPP.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

Utility Service or Facility	Person to Contract	Telephone No.
FAA Airway Facilities	Nick Clapsadle	734-765-5902
NOAA	N/A	

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-15.1 FAA facilities and cable runs. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport Owner and RPR a minimum of forty-five (45) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

e. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

The Contractor shall perform all testing, removal of contaminated material, transportation, treatment, remediation, and disposal of contaminated materials which are the result of a spill or release caused by the Contractor, and he shall provide and properly place materials to restore the property to its original condition, all to the Owner's satisfaction and at the Contractor's expense. Refer to the subsection 70-10 titled PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE of this section.

A. Air Pollution

1. No burning of combustible waste shall be permitted.
2. Alternatives to Burning Land Cleared Material.
    a. All spoil material from clearing and grubbing operations shall be disposed of in accordance with the Technical Specifications, unless otherwise directed.
    b. Wood may be salvaged for firewood or commercial use or it may be chipped and disposed of for use as mulch.

c. Logs, brush, etc. may be removed to an authorized disposal area or disposed of to the general public without charge.

3. Dust Control.

a. Common construction operations which may cause excessive dust include:

1) Quarry, drilling and rock crushing.

2) Clearing, grubbing and stripping.

3) Excavation and placement of embankment.

4) Cement and aggregate handling.

5) Cement or lime stabilization.

6) Blasting.

7) Use of haul roads.

8) Sandblasting or grinding.

b. Other construction operations which may cause air pollution are:

1) Volatiles escaping from asphalt and cut back materials.

2) Use of herbicides or fertilizers.

3) Smoke from asphalt plants or heater/planers.

c. Control of Dust and Other Air Pollutants shall be the responsibility of the Contractor and may include the following control methods:

1) Drilling apparatus equipped with water or chemical dust controlling systems.

2) Exposing the minimum area of land.

3) Applying temporary mulch with or without seeding.

4) Use of water sprinkling trucks.

5) Use of covered haul trucks.

6) Use of stabilizing agents in solution.

7) Use of dust palliative and penetration asphalt on temporary roads.

8) Use of wood chips in traffic or work areas.

9) Use of vacuum equipped sandblasting systems.

10) Use of plastic sheet coverings.

11) Restricting the application rate of herbicides to recommended dosage. Materials should be covered and protected from the elements. Application, equipment and empty containers shall not be rinsed and discharged to a stream, etc. or allowed to enter the groundwater.

12) Use dust control measures at bituminous mixing plants, and quarry operations.

13) Delay operations until climate or wind conditions dissipate or inhibit the potential pollutants in a manner satisfactory to the RPR.

B. Water Pollution

1. The Contractor shall use suitable precautions to minimize water pollution during the progress of the work. Erosion control devices or methods may consist of berms, dikes, dams, drains, sediment basins, fiber mats, woven plastic filter cloths, gravel, mulches, quick growing grasses, sod, bituminous spray or other control devices.
2. The amount of surface area of erodible earth at any one time shall not exceed the area allowed by permit.
3. Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or man-made channels leading thereto. Wash water or waste from concrete mixing and curing operations should not be allowed to enter streams, etc.

In the event of conflict between these requirements and pollution control laws, rules or regulations or other Federal, State or local agencies, the more restrictive laws, rules, or regulations shall apply.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work,* and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements.

The Contractor, at his own expense, shall procure and maintain, until final acceptance by the Owner of the work covered by the Contract, comprehensive liability insurance for damages imposed by law of the kinds and in the amounts hereinafter provided, written by a financially solvent insurance company authorized to do such business and write such coverage in the place where the Project is located, covering all operations under the Contract, whether performed by the Contractor or by its Subcontractor(s). Before commencing the work, the Contractor shall furnish to the Owner three (3) certificates of insurance, in satisfactory form to the Owner, showing that the Contractor has complied with the requirements of this Section. The policies and certificates shall provide that the policies shall not be changed or canceled until thirty (30) days after written notice thereof has been given to each of the Additional Insureds listed below. Property damage insurance shall include coverage for explosion, collapse, and underground operations (X C U hazards).

A. The kinds and amounts of insurance are as follows:

   1. General Liability insurance policies shall be Commercial General Liability Insurance (including premises operations, independent contractors, products/completed operations, explosion, collapse and underground hazard, broad form property damage, and blanket

contractual liability coverages) and shall be written on an Occurrence basis with the following minimum limits:

Each Occurrence $1,000,000

General Aggregate $3,000,000

As an alternative to the above limits for General Aggregate and Each Occurrence, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall likewise be written on an Occurrence basis. If the Contractor so elects, then the sum of the General Liability Each Occurrence limit and the Excess Liability Each Occurrence limit shall total at least $1,000,000. The sum of the General Liability General Aggregate limit and the Excess Liability Aggregate limit shall total at least $3,000,000.

2. Automobile Liability policies shall cover “All Owned”, “Scheduled”, “Hired” and “Non-Owned” autos. The minimum Combined Single Limit shall be $1,000,000.

   As an alternative to the above limit for Automobile Liability, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall be written on an Occurrence basis. If the Contractor so elects, then the sum of the Combined Single Limit and the Excess Liability Each Occurrence limit shall total at least $1,000,000.

3. Policy or policies covering the obligations of the Contractor in accordance with the provisions of any applicable Worker's Compensation or Disability Benefits Law.

4. If applicable, the Contractor and its Subcontractor(s) engaged in work involving “hazardous substances,” as defined in Section 3 of PL 1993, c. 139 (C.13:1K-8), or “hazardous waste,” as defined in Section 1 of PL 1976, c. 99 (C.13:1E-38), shall procure and maintain pollution liability insurance, also known as “environmental impairment liability insurance.”

B. Contractor’s insurance shall be primary over all other collectible insurance.

C. Anti-subrogation applies to General Liability and to Automobile Liability insurance coverages.

D. The Certificate Holder shall be City of Ann Arbor, 301 E. Huron Street, Ann Arbor, MI 48108 and C&S Engineers, Inc. 38777 Six Mile Road, Suite 202, Livonia, MI 48152.

E. The following shall be named as Additional Insureds: City of Ann Arbor; C&S Engineers; the Federal Aviation Administration; Michigan Department of Transportation.

F. The General Liability policies shall provide coverage for liability for damages imposed by law upon the Contractor and its Subcontractor(s) with respect to all work performed by any of them under the Contract. The insurance company providing General Liability insurance coverage acknowledges that the Contractor has agreed in this Contract to defend, hold harmless, and indemnify the Owner, the Engineer, the RPR, and their respective directors, officers, representatives and employees as set forth in this Section.

G. The Contractor's policies shall provide coverage for contractual liability imposed by contract, including this Contract, and completed operations liability for damages imposed by law arising between the date of the certification of completion of the work and the date of the expiration of the Contractor’s guarantee.

H. Contractor's policy shall provide coverage for liability arising out of the acts or omissions of its Subcontractors.

I. Each Subcontractor employed on the Project site by the Contractor shall provide comprehensive liability insurance in accordance with the above-described requirements of the Contractor. Such

insurance requirements shall be submitted to the RPR as part of the Subcontractor approval process.

END OF SECTION 70

ATTACHMENT "A"

TO

SECTION 70-08

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

FOR THE CONSTRUCTION OF

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24

AT

ANN ARBOR MUNICIPAL AIRPORT

ANN ARBOR, MI

FAA AIP NO. (LIGHTING): B-26-0005-2826, FAA IIJA NO. (LIGHTING): 3-26-0005-XXX27, FAA SIGNAGE: B-26-0005-292X

MDOT PROJECT NO. (LIGHTING): 213757, MDOT PROJECT NO. (SIGNAGE): 226567

AUGUST 2026

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CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

1.0 PURPOSE.

Aviation safety is the primary consideration at airports, especially during construction. The Airport Owner's Construction Safety and Phasing Plan (CSPP) and the Contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard.

The CSPP sets forth benchmarks and requirements for the project to help ensure the highest levels of safety, security and efficiency at the airport at the time of construction. Requirements for this CSPP were developed from FAA Advisory Circular (AC) 150/5370-2 Operational Safety on Airports During Construction, latest edition.

The CSPP is a standalone document, written to correspond with the safety and security requirements set forth in the AC, the airport safety and security requirements, and local codes and requirements. The CSPP is to be used by all personnel involved in the project. The CSPP covers the actions of not only the construction personnel and equipment, but also the action of inspection personnel and airport staff.

This document has been developed in order to minimize interruptions to airport operations, reduce construction costs, and maximize the performance and safety of construction activity. Strict adherence to the provisions of the CSPP by all personnel assigned to or visiting the construction site is mandatory.

The Contractor shall submit a Safety Plan Compliance Document (SPCD) to the Airport Owner describing how the Contractor will comply with the requirements set forth in this CSPP. The SPCD must be submitted to the Airport Owner prior to issuance of Notice to Proceed.

In the event the Contractor's activities are found in non-compliance with the provisions of the CSPP or the SPCD, the Airport Owner's Representative will direct the Contractor, in writing, to immediately cease those operations in violation. In addition, a safety meeting will be conducted for the purpose of reviewing those provisions in the CSPP/SPCD which were violated. The Contractor will not be allowed to resume any construction operations until conclusion of the safety meeting and all corrective actions have been implemented.

2.0 SCOPE OF PROJECT AND CSPP.

The proposed project generally includes the removal and replacement of all existing Runway 6-24 edge lights and guidance signs. All new cable in conduit will be installed as part of this project.

Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the Airport Owner must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities and associated costs will be identified. As they are identified, their impact to airport operations must be assessed. Adjustments are made to the proposed construction

activities, often by phasing the project and/or to airport operations in order to maintain operational safety. This planning effort will ultimately result in a project CSPP. The development of the CSPP takes place through the following five steps:

a. Identify Affected Areas
b. Describe Current Operations
c. Allow for Temporary Changes to Operations
d. Take Required Measures to Revise Operations
e. Manage Safety Risk

3.0 PLAN REQUIREMENTS.

3.1 COORDINATION.

The following items shall be coordinated as required:

a. Preconstruction Meeting. A preconstruction meeting will be conducted to discuss operational safety, testing, quality control, quality acceptance, security, safety, labor requirements, environmental factors, and other issues. All parties affected by the construction will be asked to attend including, but not limited to, the Airport Owner, tenants, contractor, subcontractors and RPR.

At the preconstruction meeting, the Contractor shall submit a plan of operation and schedule of work to the RPR for approval. The Contractor's plan of operation shall indicate, in detail, the amount of construction planned and the number of shifts and/or overtime operations proposed for the project. The schedule of work shall clearly indicate the sequence of work to be performed. The Contractor shall conform, at all times, to the requirements of these provisions and with current safety practices, rules, regulations and security requirements of Airport Owner. The preconstruction meeting will be held prior to issuance of a Notice to Proceed.

b. Contractor Progress Meetings. A minimum of one progress meeting to discuss scheduling and coordination shall be held each week unless otherwise directed by the Airport Owner, throughout the duration of the Contract, between the Airport Owner, Contractor, RPR and any other interested parties at a time and place to be designated by the RPR. These meetings shall include a detailed discussion of construction phasing and safety with regard to the Contractor's compliance with the requirements stipulated in the Contract Documents.

In attendance at these meetings shall be a Contractor's representative with the authority to make decisions concerning the scheduling and coordination of work. Progress meetings shall be facilitated by the RPR. Operational safety shall be a standing agenda item during progress meetings throughout the construction project.

c. Scope or Schedule Changes. Changes in the Scope of Work or Project Schedule shall be governed by Section 40 and Section 80 of the Contract Documents. Any proposed change that results in a deviation from the established CSPP as expressed by the Contract Documents must be submitted to the FAA and Airport Owner for review and approval. FAA review and approval can be expected to take sixty business days.

d. FAA ATO Coordination. Early coordination with Federal Aviation Administration (FAA) Air Traffic Organization (ATO) required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart.

No adjustments to NAVAID, encroachment on facility critical areas, or facility shutdowns are anticipated during construction, so ATO coordination will not be necessary.

3.2 PHASING.

a. Phase Elements (Work Areas)

The sequence of construction and phasing, for this project, was developed in order to maintain the maximum efficiency of aircraft operations while maintaining safety and allowing for the required construction activities for this project. The project phasing and detailed work areas are depicted on the drawings included in Appendix 1.

1. Overall Project Phasing Elements

(a) Areas Closed to Aircraft Operations: The drawings included in Appendix 1 indicate which runways, taxiways and taxilanes are closed for each work area to aircraft operations. Aircraft use will be limited to small aircraft with approach speeds of less than 50 knots to reduce the Runway 6-24 ROFZ width to 120 feet during construction.

(b) Durations of Closures: The drawings included in Appendix 1 indicate the duration of closures allowed for each work area. The overall construction duration (not including mobilization and final closeout) for the project is 40 calendar days.

(c) Taxi Routes: The drawings included in Appendix 1 indicate all active taxiways and taxi routes to runways and aprons to be used by aircraft for each work area.

(d) ARFF Access Routes: The Contractor shall be required to maintain emergency ARFF access into, out of, and around the construction site for the duration of the contract. The Contractor shall prominently light and mark open trenches and excavations at all times. Prior to beginning of construction in each work area and/or on a timely manner, the Contractor shall request the ARFF personnel to tour the site so ARFF personnel are aware of the access routes into, out of, and around the work areas and the on-going construction activities of the project.

(e) Construction Staging Areas: The drawings included in Appendix 1 indicate the approximate location of the Contractor's Staging and Storage Area. The actual size and exact location of the staging area shall be established prior to construction activities during mobilization and shall be approved by the Airport Owner.

(f) Construction Access and Haul Routes: The drawings included in Appendix 1 indicate the proposed locations of the Contractor's Construction Access and Haul Routes for

this project. Any changes to access and haul routes require approval by the Airport Owner.

(g) Impacts to NAVAIDs: The NAVAIDs will not be impacted for this project.

(h) Lighting and Marking Changes: All changes associated to the lighting and markings due to construction activities of this project are depicted on the contract drawings. These changes incorporate the design criteria as mandated by the FAA.

(i) Available Runway Length: The available runway length for the runways will not be altered for this project.

(j) Declared Distances: The takeoff run available (TORA), takeoff distance available (TODA), accelerate-stop distance available (ASDA), and landing distance available (LDA) for the runways will not be altered for this project.

(k) Required Hazard Marking and Lighting: This project utilizes the following to delineate work areas, hazards, and closed portions of the AOA on the airfield:

(1) Low profile lighted barricades to delineate work areas to delineate access routes, closed AOA areas, and hazardous areas;

(2) Portable Lighted Runway Closure Markers (Lighted X's);

(l) Work Hours: The drawings included in Appendix 1 indicate the work hours for each work area.

(m) Concurrent Work Areas: Work areas that can be completed concurrently are identified on the drawings included in Appendix 1.

2. Construction Safety Requirements

The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No active runway or taxiway shall be crossed, entered, or obstructed at any time. The Contractor shall plan and coordinate his/her work in such a manner as to ensure safety and a minimum of hindrance to airport operations. All Contractor equipment and material stockpiles shall be stored at locations determined during construction or as shown on the Construction Safety and Phasing Plans (Appendix 1). No equipment will be allowed to park within the approach area of an active runway at any time.

During the work under this Contract, the Airport Owner will make such arrangements to coordinate aircraft movements and Airport operations as necessary to conform to the construction procedures as outlined below and as shown on the Contract Drawings. The Contractor shall give adequate notice to the RPR, so as to afford time to coordinate construction with the Airport Owner. No work shall proceed in any area without prior approval.

The Contractor shall always confine construction operations to the Contractor work area and designated haul routes. Contractor personnel, equipment, stored materials, subcontractors and suppliers will not be allowed on any other area within the Air Operations Area and within the Airport boundaries without prior approval of the Airport Owner or RPR.

The RPR will perform a visual site assessment before the Contractor occupies the Contractor work area. The Contractor shall be held responsible for all repairs and cleanup costs incurred as a result of the Contractor's construction operations. Restoration shall be the complete return of all work areas to the original conditions.

Temporary cables in grass areas shall be marked with stakes and flagging. Temporary cables in paved areas shall be marked with barricades.

Prior to the start of construction operations, the Contractor shall perform the following:

- Install barricades, temporary jumpers, closed runway markings, cover airfield signage, disconnect lighting circuits, remove pavement markings, and other measures as indicated on the Construction Safety and Phasing Plans (Appendix 1).
- Coordinate issuing Notices to Airmen (NOTAM) with the Airport Owner and RPR for the construction activities involved at least 48 hours in advance of the work.
- Install necessary measures for soil erosion and sediment control.

At the conclusion of construction operations, the Contractor shall perform the following:

- Test and activate airfield lighting circuits.
- Remove barricades, temporary jumpers, closed runway markings, airfield signage coverings, reconnect lighting circuits, and install pavement markings as indicated on the Construction Safety Drawings.
- Clean all paved surfaces in accordance with Item CX-106, Safety, Security and Maintenance of Traffic.
- Coordinate cancellation of the NOTAMs with the Airport Owner and RPR.

b. Construction Safety and Phasing Plans. Drawings specifically indicating operational safety procedures and methods in affected areas have been developed for each construction phase. Such drawings are included in Appendix 1 and are included in the contract drawing package.

3.3 AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY.

Contractor, subcontractor, and supplier employees or any other unauthorized persons shall be restricted from entering an active airport operating area without previous permission from the Airport Owner and the Aircraft Control Tower.

In an emergency situation, the Airport Owner or other designated airport representative may order the Contractor to suspend operations; move personnel, equipment, and materials to a safe location; and stand by until aircraft use is completed.

The Contractor shall cooperate with the airport users through the RPR, in coordination with airport operations, in scheduling the operations to provide adequate clearance for safe aircraft parking, fueling, maintenance, loading or unloading, maneuvering, taxing operations, or other aircraft operations.

a. Identification of Affected Areas

The impacts to Airport Operations Areas are identified in the drawings included in Appendix 1.

a. Mitigation of effects.

This CSPP has established specific requirements and operational procedures necessary to maintain the safety and efficiency of airport operations during the construction of this project.

All coordination pertaining to airport operations during construction will go through the Airport Owner's Representative and the Airport Operations Manager. Any required NOTAM's to be issued will be sent through the Airport Owner's Representative and issued by Airport Operations.

1. **Temporary Changes to runway and/or taxiway operations:** Any affected Airport Operations Areas identified in the previous section for reduced access or identified as being closed entirely to aircraft traffic, will be barricaded by the use of low profile, lighted barricades placed as shown in the drawings provided in Appendix 1. In addition, required NOTAM's shall be issued on the various temporary changes to aircraft access through the affected areas including aircraft use will be limited to small aircraft with approach speeds of less than 50 knots to reduce the ROFZ width to 120 feet during construction.

2. **Detours for ARFF and other airport vehicles:** The project work site shall remain open to all ARFF vehicles in emergency situations. The Contractor is required to maintain access in and around the project work area for all ARFF vehicles. Proper routing of this traffic will be effectively communicated to all supervisory personnel involved in the construction project.

3. **Maintenance of essential utilities:** Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the Airport Owner and FAA shall locate all of their underground utilities. It is the Contractor's responsibility to have the locations of cabling and other underground utilities marked prior to beginning excavation. Any locations provided by the Airport Owner or FAA are approximate locations and the Contractor shall verify all locations prior to beginning excavations. When an underground cable or utility is damaged due to the Contractor's negligence the Contractor shall immediately repair the affected cable or utility at his/her own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation.

4. **Temporary Changes to air traffic control procedures:** Changes to air traffic control procedures have been coordinated with airport ATO. Any additional requests for changes must be made to the Airport Owner, through the RPR, in writing. These requested changes will be reviewed by the RPR, Airport Owner and ATO. If these changes are acceptable to all the aforementioned parties, the RPR will request a modification to the CSPP previously turned into the FAA. The Contractor shall plan on a minimum 90 days for this process to be completed. No deviation to the original CSPP shall be made without final FAA approval.

3.4 NAVIGATION AID (NAVAID) PROTECTION.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation.

3.5 CONTRACTOR ACCESS.

This section of the CSPP details the areas to which the Contractor must have access, and how Contractor personnel will access those project work areas.

a. Location of stockpiled construction materials.

The Contractor shall store material and equipment and schedule his operations for work to be done so that no unauthorized interference to normal Airport operations will result there from. Construction operations shall not be conducted in a manner to cause interference with Airport Operations. Stockpiled materials and equipment storage are not permitted within the Runway Safety Area/ Taxiway Safety Area (RSA/TSA), Obstacle Free Zone (OFZ) or Object Free Area (OFA) of an operational runway or taxiway. Stockpiled construction materials must be located inside the Contractor staging area as shown on the Construction Safety and Phasing Plans (Appendix 1) unless otherwise approved by the RPR.

Stockpiled material shall be constrained in a manner to prevent movement resulting from either aircraft jet blast or wind conditions in excess of ten miles per hour. In addition, stockpiled material shall have silt fence located around the material to prevent Foreign Object Debris (FOD) from moving onto the airfield pavements or polluting watercourses.

Open trenches exceeding 3 inches in depth and 5 inches in width or stockpiled material are not permitted within the limits of safety areas of operational runways or taxiways. Stockpiled material shall not be permitted within the protected areas of the runways or allowed to penetrate into any of the protected airspace.

Spoil and Disposal Areas: Spoil shall be disposed of offsite by the Contractor unless otherwise shown or specified. The Contractor shall submit the "Spoils Deposition Release Form" for any spoils which are transported from the project site. A copy of the form can be found in Appendix 4. No direct payment will be made for spoiling and disposal operations. The cost of spoiling material on site, or of spoiling material off-site, shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

b. Vehicle and pedestrian operations. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the Air Operations Area (AOA).

The Airport Owner will coordinate requirements for vehicle operations with the affected airport tenants. Specific vehicle and pedestrian requirements for this project are as follows:

All construction vehicles and personnel shall be restricted to the immediate work areas specified by the contract for this project. These areas include the haul routes into the work area, the designated Contractor staging area and the apron area under construction. Use of alternate haul routes or staging areas by the Contractor shall not be permitted without prior notification and approval by the Airport Owner's Representative.

1. Construction Site Parking:

The Contractor's personal vehicle parking area shall be in the Contractor's staging area, as shown on the Construction Safety and Phasing Plans (Appendix 1). Contractor personal vehicles will not be allowed inside the airport fence Air Operations Area (AOA) or secured area.

A staging area, as indicated on the Contract Drawings, will be provided where the Contractor may set up a field office and store equipment and materials. The Contractor shall make his own arrangements for and bear all costs of required utilities. The Contractor shall use and maintain the site in accordance with requirements of the Airport Owner. Upon completion of work, the Contractor's staging area shall be removed and the area cleaned and restored to original or better condition.

2. Construction Equipment Parking:

The Contractor's equipment storage area shall be in the Contractor staging area as shown on the Construction Safety and Phasing Plans (Appendix 1). The Contractor's equipment and construction vehicles shall be restricted to the construction site or storage areas during construction and parked in the equipment storage area during non-working periods. Maximum allowable equipment height in the staging area shall be 25 feet. Maximum allowable equipment height in the work areas shall be 25 feet. Maximum allowable equipment height at the borrow area shall be 25 feet.

Contractor must service all construction vehicles within the limits of the project work area or the Contractor's Staging Area. Parked construction vehicles must be outside the OFA and never in the safety area of an active runway or taxiway. Inactive equipment must not be parked on closed taxiways or runways. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees shall also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT, as applicable, to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids.

3. Access and Haul Roads:

The Contractor shall clear, construct and maintain haul routes as required for the prosecution of the work. The haul routes and access points shall only be in the locations approved by the RPR and the Airport Owner or as shown on the Construction Safety and Phasing Plans (Appendix 1).

Access or haul routes used by Contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Construction traffic must remain on the designated haul routes, never straying from the approved paths. Haul and access routes shall be clearly delineated with temporary marking and signage by the Contractor. Signage and marking placement shall be reviewed and approved by the RPR and Airport Owner prior to being put into service. The Contractor shall fully describe the appropriate access routes to all his/her employees, subcontractors and material delivery personnel.

The Contractor shall be responsible for maintaining existing haul routes. At the completion of the project, these areas shall be returned to their original lines and grades and shall be restored to a condition equal to or better than original. All non-paved areas that are disturbed by Contractor's haul roads, staging area, etc., located outside of the seeding limits shown on the plans shall be re-seeded and restored to their original or better condition by the Contractor at no additional cost to the Airport Owner.

The Contractor shall coordinate haul routes, closures and schedules with other projects which may be underway during the same time period as this contract.

The Contractor shall control and coordinate the material (supplies) that are hauled to and from work area. Delivery of equipment and materials to the area of work shall be by way of the access route shown on the Construction Safety and Phasing Plans (Appendix 1) or designated by the Airport Owner or RPR.

The Contractor shall maintain all haul routes and work areas in a dust free condition at all times. The Contractor shall control dust from the construction operations by vacuum type sweeping, watering or other methods as approved by the RPR. Contractor shall have equipment (in operating condition) on site, at all times, to control dust. If the Contractor fails to comply with this requirement, construction will be suspended until a plan for controlling the dust is approved by the RPR. Landside haul routes, boulevards and drives shall be kept clean by use of a vacuum sweeper on a daily basis as required. Application of water on dirt or gravel haul routes must be provided as often as necessary. Haul roads in any airport traffic areas must be especially monitored for dust and debris to prevent any potential Foreign Object Debris (FOD) situations.

Portions of the project area(s) shall be bounded by the low profile barricades identifying Contractor personnel and vehicle area operation limits. The locations of any barricaded

project limits, haul routes, Contractor Staging Areas, and associated safety and security details are also provided graphically in the attached exhibits.

4. Marking and Lighting of Vehicles:

When any vehicle or piece of equipment, other than one that has prior approval from the Airport Owner, must operate on an airport, it shall be escorted and properly identified.

The Contractor shall limit access within the airport security fence to authorized vehicles. All authorized vehicles shall have a vehicle dash board placard permit issued by the Airport Owner or an identification sign on both sides of the vehicle containing the Contractor's company name. Private vehicles of the Contractor's personnel must be parked outside the airport security fence and will not be allowed within the airport security fence at any time.

All vehicles operating on the airport and in the general vicinity of the safety area or in aircraft movement areas must be marked with flashing yellow/amber beacons or orange and white flags during daylight hours. During hours of darkness or low visibility they shall be marked with at least flashing yellow/amber beacons.

Beacons and flags must be maintained to standards and in good working and operational condition. Beacons must be located on the uppermost part of the vehicle structure, visible from any direction, and flash 75 +/- 15 flashes per minute. Flags shall be 3′ by 3′ with alternating 1′ by 1′ international orange and white squares and shall be replaced by the Contractor if they become faded, discolored, or ragged as determined by Airport Operations or the Airport Owner's Representative.

5. Description of Proper Vehicle Operations:

The Contractor shall be required to follow guidance on the additional identification and control of construction equipment per the Airport's Security Plan. No Contractor's vehicle or pedestrian crossing of active runways or taxiways will be allowed at any time during the work of this Contract, unless otherwise specified. No deviation from the pedestrian and vehicle routes to and from the Project Areas will be allowed unless specific permission has been granted by the Airport Owner.

The ground movement of aircraft shall have the right-of-way at all times, and the Contractor's vehicles and equipment shall yield to aircraft at all times.

6. Required Escorts:

At no time will vehicles or personnel enter portions of the secure AOA outside the contract area unless permitted and accompanied by an airport approved escort.

All construction-related activity taking place within any airport defined movement area requires the presence of an authorized Airport escort having radio communication with the FAA control tower or UNICOM unless prior approval is obtained from Airport Operations.

Spotters and/or flaggers having radio or telephone contact with the Airport may be used with the approval of the on shift Airport Operations Manager.

At no time shall active taxiways or taxilanes be crossed by construction equipment without notification and proper approval/clearance from radio-trained gate guards or Airport Operations.

7. Situational Awareness:

Aircraft traffic will continue to use existing runways, aprons, and taxiways of the Airport during the time that work under a contract is being performed. The Contractor shall, at all time, conduct the work as to create no hindrance, hazard, or obstacle to aircraft using the Airport.

Vehicle drivers must confirm by personnel observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

8. Two-way Radio Communication Procedures:

Two-way radio communications are required between Contractors and Airport Traffic Control Tower. Vehicular traffic located in or crossing an active movement area shall be directed by a flag person in radio contact with the Airport Traffic Control Tower. Prior to proceeding into the active movement area, all drivers shall confirm through personal observation that no aircraft is approaching the vehicle position. Construction personnel may operate in movement areas without two-way radio communication provided a NOTAM is issued closing the area, and provided that the area is properly marked to prevent incursions.

The Contractor shall comply with proper radio usage, including read back requirements and proper phraseology including the International Phonetic Alphabet.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard "Ground Vehicle Guide to Airport Signs and Markings." This safety placard may be downloaded through the Runway Safety Program Web site at http://www.faa.gov/airports/ runway_safety/publications/ (See "Signs & Markings Vehicle Dashboard Sticker".) or obtained from the FAA Airports Regional Office.

9. Maintenance of the Secured Area of the Airport.

The Contractor shall be responsible for maintaining security at all access gates used during the project and will be held liable by the Airport Owner for any breach of security. The Contractor shall be required to post a guard at the gate to open and close the gate for personnel and equipment. No gate shall be left open. Guard shall be responsible for ensuring that no unauthorized persons or vehicles enter the secure area. Airport Owner

and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel.

(a) Fencing and Gates. Airport Owner and contractors must also maintain a high level of security during construction when access points are created in the security fencing to permit construction vehicle access. Temporary gates shall be equipped and/or manned by construction personnel to prevent unauthorized access by vehicles, animals or people. Procedures conforming to Airport security protocols should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. Access shall be made available at all times to all airport emergency vehicles traveling to operations areas within the proximity of the construction work zone.

3.6 WILDLIFE MANAGEMENT.

Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports.

a. Trash. Food scraps from construction personnel activity must be collected and disposed of at a proper facility.

b. Standing water. Water shall not be allowed to collect and pool for more than any single 24-hour period. Temporary grading may be required to promote drainage during daily operations as well as between work phases.

c. Tall grass and seeds. The use of millet seed in turfing and seeding operations shall not be permitted. The Contractor is also responsible for mowing and maintaining the grass areas within the project work areas, while those areas are under the Contractor's control. Mowing shall be performed when the grass height reaches the maximum allowable height per the Owner's requirements.

d. Poorly maintained fencing and gates. The Contractor shall maintain a constant secure perimeter to the airfield, including continuous security perimeter fencing and gates (if applicable).

e. Disruption of existing wildlife habitat. Not applicable to this project.

Contractor shall take immediate remedial action to remove wildlife attractants should any occurrence be noted. Contractor shall immediately report to the RPR and Airport Owner should any wildlife congregation be noted, and in particular if mammals enter the airport through the construction gate.

3.7 FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT.

Special care and measures shall be taken to prevent Foreign Object Debris (FOD) damage when working in an airport environment. Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. The Contractor shall be responsible for implementing an approved FOD Management Plan prior to the start of construction activities. The FOD Management Plan will have procedures for prevention, regular cleanup, and containment of construction material and debris. The Contractor will ensure all vehicles related to the construction project using paved surfaces in the AOA shall be free of any debris that could create a FOD hazard. Special attention will be given to the cleaning of cracks and pavement joints. All taxiways, aprons, and runways must remain clean. Waste containers with attached lids shall be required on construction sites.

Special attention should be given to securing lightweight construction material (concrete insulating blankets, tarps, insulation, etc.). Specific securing procedures and/or chainlink enclosures may be required.

Contractors will provide their own equipment for vehicle and equipment washing and clean up.

Immediate access to a power sweeper is required when construction occurs on any pavement area inside the AOA, unless an appropriate alternative has been approved by the Airport Owner's Representative and Airport Operations Manager.

3.8 HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT.

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel, hydraulic fluid, or other chemical fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. To that end, the Contractor is required to develop a spill prevention plan and response procedures for vehicle operations prior to the start of construction activities. This includes maintenance of appropriate MSDS data and appropriate prevention and response equipment on-site.

Fueling Procedures and Spill Recovery Procedures shall be in accordance with Michigan Fire Code, latest edition, and the National Fire Protection Association standard procedures for spill response, latest edition. If fueling is to take place in the staging area, it must be away from catch basins. Contractor must have spill containment kits on site.

In the event of a fuel spill or the spill of other hazardous materials, the Contractor shall immediately notify the Airport Owner and the RPR, the Michigan Department of Environment, the Environmental Protection Agency, the Airport Owner and the RPR.

Contractor shall abide by the specific requirements contained in the Technical Specifications of this contract.

3.9 NOTIFICATION OF CONSTRUCTION ACTIVITY.

The following is information and procedures for immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport.

a. Maintenance of a list of Responsible Representatives/ Point of contact. A list of responsible representatives and points of contact shall be created by the RPR, the Airport and the Contractor prior to the start of construction. This list shall be compiled as part of the project pre-construction meeting agenda. Procedures will be established to contact all parties, including after regular work hours. Updates will be made to the list throughout the project duration by the RPR. Contractor points of contact shall be incorporated into the contractor's SPCD.

b. Notices to Airman (NOTAM). Only the Airport Owner may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway or taxiway. The Airport Owner must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The Airport Owner must file and maintain a list of authorized representatives with the FSS. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the Airport Owner. See Section 3.14 regarding issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

Any NOTAMs for planned airfield closures for this project must be coordinated through the airport manager and the airports duly appointed construction management representative. Reference Section 3.2 for planned closures for this project, which require issuance of a NOTAM.

c. Emergency Notification Procedures. In the event of an aircraft emergency, severe weather conditions, or any issue as determined by the Airport that may affect aircraft operations, the Contractor's personnel and/or equipment may be required to immediately vacate the area(s) affected. Points of contact for the various parties involved with the project shall be identified and shared at the pre-construction meeting among the various parties. Emergency points of contact shall be incorporated into the contractor's SPCD.

d. Coordination with ARFF Personnel. The Contractor shall coordinate, through the duly appointed airport representative, with ARFF personnel, mutual aid providers and other emergency services if construction requires the following:

- The deactivation and subsequent reactivation of water lines or fire hydrants, or
- The re-routing, blocking and restoration of emergency access routes, or
- The use of hazardous materials on the airfield.

Procedures and methods for addressing any planned or emergency response actions on the airfield concerning this project shall be established and implemented prior to the start of construction.

e. Notification to the FAA.

1. **Part 77.** Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e. cranes, graders, other equipment) on airports. FAA Form 7460-1, Notice of Proposed Construction or Alteration, is used for this purpose and submitted to the appropriated FAA Airports Regional or District Office. A 7460-1 form for this project has been prepared by the Engineer and submitted to the FAA for using equipment with a maximum height of 25 feet. A new 7460-1 form must be submitted to the FAA for review and comment for any equipment that the Contractor will use which is taller than the equipment used in the above 7460-1 submission. The Airport Owner will be responsible for submitting the new 7460-1 form to the FAA. To that end, the Contractor shall identify the equipment in his SPCD, including the maximum height it will extended to during construction, the area(s) in which the equipment will be used, and the duration the equipment will be used.

2. **Part 157.** It is not anticipated that Part 157 notifications will be required for this project.

3. **NAVAIDS.** For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

   (a) Airport owned/FAA Maintained. If construction operations require a shutdown of more than 24 hours, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown.

   (b) FAA owned. The Airport Owner must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs. (Impacts to FAA equipment covered by a Reimbursable Agreement (RA) do not have to be reported by the Airport Owner). Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, through the RPR, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. In addition, provide seven days' notice to schedule the actual shutdown.

f. Accidents. The Contractor shall provide at the site such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the work. The Contractor must promptly report in writing to the RPR all accidents whatsoever arising out of, or in connection with, the performance for the work, whether on or adjacent to the site which caused death, personal injury or property damages, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the RPR and the Airport Owner.

If any claim is made by anyone against the Contractor or any Subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the RPR giving full details of the claims.

3.10 INSPECTION REQUIREMENTS.

a. Daily (or more frequent) inspections. Inspections shall be conducted by the Contractor at least daily, but more frequently if necessary, to ensure conformance with the CSPP. A sample checklist is provided in Appendix 2 of this document. In addition to Contractor's required inspections, airport operations will inspect the construction site to ensure compliance with the CSPP and the SPCD. The Airport Owner's Representative will have full-time inspectors monitoring activity throughout construction. Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.

b. Final inspections. A final inspection with the Airport Owner's Representative, Airport and Contractor will take place prior to allowing airport operations.

3.11 UNDERGROUND UTILITIES.

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the FAA shall locate all of their underground cables. The Contractor shall locate and/or arrange for the location of all the underground cables. When an underground cable is damaged due to the Contractor's negligence the Contractor shall immediately repair the cable affected at his/her own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation. Locations of cabling will be marked prior to beginning excavation.

Prior to opening an excavation, effort shall be made to determine whether underground installation: i.e., sewer, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the approximate locations of such an installation, the exact locations shall be determined by careful hand probing or hand digging, and/or use of a vacuum truck, and when it is uncovered, adequate protection shall be provided for the existing installation. All known owners of underground facilities in the area concerned shall be advised of proposed work at least 48 hours prior to the start of actual excavation.

The information concerning underground utilities was compiled from information and sketches furnished by or obtained from utility companies and the Airport. The Airport Owner and the RPR do not guarantee their accuracy. The Contractor is advised to determine the exact locations from the available sources of information or provide his own means of detection. The only case in which the RPR will consider redesign or relocation of a proposed facility in the project is when an existing utility is located within the construction limits. In this case, the RPR will work with the Airport Owner to determine the appropriate action to resolve the conflict. If such relocation is impossible, the RPR will consider re-design or relocation of the proposed facilities. In both cases, Contractor shall be responsible for all underground utilities and shall not be separately compensated for delays or extra cost.

Note that most utility location services do not include locating FAA and Airport Owner facilities, and most will not locate services within the AOA.

3.12 PENALTIES.

Failure on the part of the Contractor to adhere to prescribed requirements may have consequences that jeopardize the health, safety or lives of customers and employees at the airport. The Airport may issue warnings on the first offense based upon the circumstances of the incident. Individuals involved in non-compliance violations may be required to surrender their Airport ID badges and/or be prohibited from working at the airport, pending an investigation of the matter.

Penalties for violations related to airport safety and security procedures will be established by the Airport.

Note: project shutdown or misdemeanor citations may be issued on a first offense. When construction operations are suspended, activity shall not resume until all deficiencies are rectified.

3.13 SPECIAL CONDITIONS.

In the event of an aircraft emergency, the Contractor's personnel and/or equipment may be required to immediately vacate the area. The Contractor will receive notification from airport operations when special conditions require the construction site to be vacated. In any event, extreme care should be exercised should construction personnel identify any ARFF (Airport Rescue and Fire-Fighting) or other emergency or rescue vehicle moving toward the Runway with emergency lights displayed. This will generally mean that an emergency situation is imminent.

Special conditions that could require suspension of the construction work include the following: aircraft in distress, aircraft accident, security breach, VIP operation, vehicle/pedestrian deviation, severe weather, or failing to abide by this Construction Safety and Phasing Plan and/or the Safety Plan Compliance Document.

3.14 RUNWAY AND TAXIWAY VISUAL AIDS.

This topic includes marking, lighting, signs, and visual NAVAIDs. Those areas where aircraft will be operating shall be clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, the Contractor shall inspect and verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs and visual NAVAIDs remain in place and operational.

a. General. Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

Marking and lighting for a temporary threshold is not required.

Closed runway markings are required. Closed runway markings shall be as shown on the Plans. Barricades, flagging, and flashers are required at the locations and times described in the subsection titled WORK AREA, STORAGE AREA AND SEQUENCE OF OPERATIONS of this Section and shall be supplied by the Contractor. Lighted Closed Runway Markers shall be provided by the Contractor.

b. Markings. Markings must be in compliance with the standards of AC 150/5340-1, Standards for Airport Markings, current edition, and the drawings and technical specifications of this project.

1. Closed Runways and Taxiways.

(a) Permanently Closed Runways. For permanently closed runways, the threshold marking, runway designation marking, and touchdown zone markings will be removed, and flat yellow closed runway markings (X's) will be placed at each end and at 1,000-foot (300 m) intervals.

(b) Temporarily Closed Runways. For temporarily closed runways, a lighted X will be placed at each end of the runway directly on or as near as practicable to the runway designation numbers. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, the lighted X will be located farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway will be marked with a flat yellow X.

(c) Partially Closed Runways and Displaced Thresholds. When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings will comply with AC 150/5340-1. An X will not be used on a partially closed runway or a runway with a displaced threshold. Because of the temporary nature of the threshold relocation or displacement due to construction, it will not be necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach.

(1) Partially Closed Runways. Pavement markings for temporary closed portions of the runway will consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing. Markings prior to the moved threshold will be obliterated or covered. Existing touchdown zone markings beyond the moved threshold may remain in place. Aiming point markings will be obliterated.

(2) Displaced Thresholds. Pavement markings for a displaced threshold will consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. Markings prior to the displaced threshold will be obliterated. Existing touchdown

zone markings beyond the displaced threshold may remain in place. Aiming point markings will be obliterated.

(d) Permanently Closed Taxiways. Permanently closed taxiways will be either be removed, or if pavement will remain, an X will be placed at the entrance to both ends of the closed section. Taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway will be obliterated.

(e) Temporarily Closed Taxiways. Barricades will be placed outside the safety area of intersecting taxiways. For runway/taxiway intersections, an X will be placed at the entrance to the closed taxiway from the runway. Taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section, will be obliterated if the taxiway will be closed for an extended period. Runway lead-off lines for high speed exits will always be obliterated, regardless of the duration of the closure.

(f) Temporarily Closed Airport. When the airport is temporarily closed, mark all runways as closed.

c. Lighting and visual NAVAIDs. This paragraph refers to standard runway and taxiway lighting systems. When runway and taxiway lighting fixtures need to be disconnected, disconnect the associated isolation transformers. Alternately, the light fixture may be covered in such a way as to prevent light leakage. Lamp shall not be removed from energized fixtures. Amu above ground temporary wiring shall be secure, identified, and placed in conduit to prevent electrocution and fire ignition sources. At towered airports certificated under Part 139, holding position signs shall be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is installed on the runway circuit for the closed runway, a temporary jumper shall be installed to the taxiway circuit to provide power to the holding position sign for nighttime operations.

1. Permanently Closed Runways and Taxiways. For runways and taxiways that have been permanently closed, the associated lighting circuits shall be disconnected.

2. Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic. A lighted X shall be used, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note: the lighted X must be illuminated at all times that it is on a runway.) For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, the lighting circuits shall be disconnected or switches secured to prevent inadvertent activation. Stop bars shall be activated, if available.

3. Partially Closed Runways and Displaced Thresholds. When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a

subsequently inaccurate NOTAM can result in a hazardous situation. For both partially closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.

(a) Partially Closed Runways. Runway edge and threshold lights shall be disconnected on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed).

(b) Temporary Displaced Thresholds. Edge lighting in the area of the displacement shall emit red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, centerline lights shall be blanked out in the direction of approach or the centerline lights shall be placed out of service. If the displacement is over 700 feet, the centerline lights shall be placed out of service.

(c) Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.

(d) A temporary threshold on an unlighted runway will be marked by retroreflective, elevated markers. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible.

(e) Temporary threshold lights and runway end lights and related visual NAVAIDs will be installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage.

(f) Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are for visual flight rules (VFR) aircraft operations.

(g) When runway thresholds are temporarily displaced, yellow lenses (caution zone) on runway edge lights shall be reconfigured, as necessary.

(h) Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights will be relocated to identify the temporary threshold. The VGSI or any equipment that would give misleading indications to pilots

as to the new threshold location may be disabled. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway.

4. **Temporarily Closed Taxiways.** If possible, the taxiway lighting circuits will be deactivated. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), the closed portion shall be temporarily disconnected, and a temporary jumper will be installed to keep the remaining circuit active. An alternative is to cover the light fixtures in the closed area in a way as to prevent light leakage.

d. Signs. Signs must be in conformance with AC 150/5345-44, Specification for Runway and Taxiway Signs and AC 150/5340-18, Standard for Airport Sign Systems, current edition.

1. **Existing Signs.** Runway exit signs are to be covered for closed runway exits. Outbound destination signs are to be covered for closed runways. Any time a sign does not serve its normal function or would provide conflicting information, it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

2. **Temporary Signs.** Orange construction signs comprise a message in black on an orange background. Orange construction signs may help pilots be aware of changed conditions. The airport operator may choose to introduce these signs as part of a movement area construction project to increase situational awareness when needed. Locate signs outside the taxiway safety limits and ahead of construction areas so pilots can take timely action. Use temporary signs judiciously, striking a balance between the need for information and the increase in pilot workload. When there is a concern of pilot "information overload," the applicability of mandatory hold signs must take precedence over orange construction signs recommended during construction. Temporary signs must meet the standards for such signs in Engineering Brief 93, Guidance for the Assembly and Installation of Temporary Orange Construction Signs. Many criteria in AC 150/5345-44, Specification for Runway and Taxiway Signs, are referenced in the Engineering Brief. Permissible sign legends are:

    1. CONSTRUCTION AHEAD,
    2. CONSTRUCTION ON RAMP, and
    3. RWY XX TAKEOFF RUN AVAILABLE XXX FT.

    Phasing, supported by drawings and sign schedule, for the installation of orange construction signs must be included in the CSPP or SPCD.

3. **Takeoff Run Available (TORA) signs (Recommended**): Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position.

e. Testing of Airport Lighting Circuits. See technical specification Item L-108, Underground Power Cable for Airports for testing requirements.

3.15 MARKING AND SIGNS FOR ACCESS ROUTES.

Location of haul routes on the airport site shall be as specified in the project drawing set and as provided graphically in the attached exhibits, reference Appendix 1. It shall be the Contractor's responsibility to coordinate off-site haul routes with the appropriate owner who has jurisdiction over the affected route. The haul routes, to the extent possible, shall be marked and signed in accordance with FAA airfield signage requirements, the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or state highway specifications, as applicable.

3.16 HAZARD MARKING, LIGHTING AND SIGNING.

a. Purpose. Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft and prevent construction personnel from entering areas open to aircraft. The CSPP specifies prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting is also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also included are markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

b. Equipment.

1. **Barricades.** Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. Gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. Barricades intended to exclude pedestrians must be continuously linked.

2. **Lights.** Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

3. **Supplement Barricades with Signs (for example) As Necessary.** Examples are "No Entry" and "No Vehicles."

4. **Air Operations Area – General.** Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway/taxilane safety area, or apron must be no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground.

5. **Air Operations Area – Runway/Taxiway Intersections.** Use highly reflective barricades with lights to close taxiways leading to closed runways. Close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

6. **Air Operations Area – Other.** Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

7. **Maintenance.** The contractor is required to maintain the hazard markings, lighting and signing and to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

3.17 WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION.

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. All support equipment, except haul trucks, should be equipped with artificial illumination to safely illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways. The Owner and the ATCT shall approve the location of and aiming of lighting equipment before it is used.

3.18 PROTECTION OF AIRFIELD AREAS.

Safety area encroachments, improper ground vehicle operations and unmarked or uncovered holes and trenches in the vicinity of aircraft operation surfaces and construction areas are the three most recurring threats to safety during construction. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces shall be a standing requirement for the duration of construction operations.

a. Runway Safety Area (RSA). A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway by aircraft.

Runway	Aircraft Design Group	RSA Distance from Centerline RSA	Holdline	RSA Width	RSA Length from End of Runway
6-24	B-II	75 ft.	125 ft.	150 ft.	300 ft.
12-30	B-I	60 ft.	200 ft.	120 ft.	240 ft.

No construction may occur within the existing RSA while the runway is open. Any construction between RSA and Holdline must be approved with Airport Operations prior to starting work.

The Airport Owner must coordinate any adjustment of RSA dimensions, to meet the above requirement, with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

Open trenches or excavations are not permitted within the RSA while the runway is open. The Contractor must backfill trenches before the runway is opened. Coverings are not allowed in runway safety areas. There shall be no stockpiled materials or equipment stored within the limits of the RSA.

After the Runway has been closed, Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the Airport Owner, and light them with red lights during hours of restricted visibility or darkness.

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

b. Runway Object Free Area (ROFA). Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

Runway	Aircraft Design Group	ROFA Distance from Centerline	ROFA Width	ROFA Length from End of Runway
6-24	B-II	250 ft.	500 ft.	300 ft.

12-30	B-I	200 ft.	400 ft.	240 ft.

c. Taxiway Safety Area (TSA). The taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. No construction may occur within the TSA while the taxiway is open for aircraft operations.

Taxiway	Aircraft Design Group	TSA Distance from Centerline	TSA Width
All	B-II	39.5 ft.	75 ft.

Open trenches or excavations are not permitted within the TSA while the taxiway is open. The Contractor must backfill trenches before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.

The Airport Owner must coordinate any adjustment of TSA dimensions, to meet the above requirement, with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

After the Taxiway has been closed, Contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the Airport Owner, and light them with red lights during hours of restricted visibility or darkness.

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

d. Taxiway Object Free Area (TOFA). Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway/taxilane object free area during normal operations. Thus the restrictions are more stringent. No construction equipment may be parked within the TOFA while the taxiway/taxilane is open for aircraft operations.

Construction activity may be accomplished without adjusting the width of the taxiway object free area, subject to the following restrictions:

1. Taxiing speed is limited to 10 mph.

2. Appropriate NOTAMs are issued.

3. Marking and lighting meeting the provisions above are implemented.

4. Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft

does not have full use of the entire taxiway width (with its main landing gear at the edge of the pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.

5. Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel.

Taxiway	Aircraft Design Group	TOFA Distance from Centerline	TOFA Width
All	B-II	62 ft.	124 ft.

e. Obstacle Free Zone (OFZ). Construction personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. The OFZ is a defined volume of airspace centered about and above the runway centerline. Aircraft use will be limited to small aircraft with approach speeds of less than 50 knots to reduce the OFZ width to 120 feet during construction.

f. Runway approach/departure surfaces. All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the Airport Owner with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

Runway End	Aircraft Approach Category	Airplane Design Group	Minimum Safety Area Behind Threshold	Minimum Unobstructed Approach Slope
6-24	B	II	300 ft.	20:1 to 200 feet behind threshold
12-30	B	I	240 ft.	20:1 to threshold

3.19 OTHER LIMITATIONS ON CONSTRUCTION.

a. Prohibitions. The following prohibitions are in effect for the duration of this project:

1. No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.

2. No use of open flame welding or torches unless fire safety precautions are provided and the Airport Owner has approved their use.

3. No use of electrical blasting caps or explosives of any kind on or within 1,000 ft (300 m) of the airport property.

b. Restrictions.

1. Construction suspension required during specific airport operations: Not Applicable

2. Areas that cannot be worked on simultaneously: See Appendix 1 for work area requirements.

3. Day or night construction restrictions: Not Applicable

4. Seasonal Construction Restrictions: Not Applicable

5. Temporary signs not approved by the airport operator

6. Grade changes that could result in unplanned effects on NAVAIDs.

APPENDIX 1

LOCATION MAP
(Sheet GI001of the Contract Drawings)

GENERAL PLAN
(Sheet GI100 of the Contract Drawings)

CONSTRUCTION SAFETY AND PHASING PLANS
(Sheets GC101-GC104 of the Contract Drawings)

CONSTRUCTION SAFETY AND PHASING DETAILS
(Sheet GC501 of the Contract Drawings)

CONTRACT DRAWINGS
FOR THE CONSTRUCTION OF

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24

ANN ARBOR MUNICIPAL AIRPORT

CITY OF ANN ARBOR
ANN ARBOR, MICHIGAN

FAA FEDERAL PROJECT NO. LIGHTING:3-26-0005-XXX27 (IIJA)
B-26-0005-2826 (AIP)

FAA FEDERAL PROJECT NO. SIGNAGE: B-26-0005-292X

MDOT PROJECT LIGHTING: 213757 (AIP)
MDOT PROJECT SIGNAGE: 226567

C&S PROJECT: N75.007.001

AUGUST 2026

BID DOCUMENTS



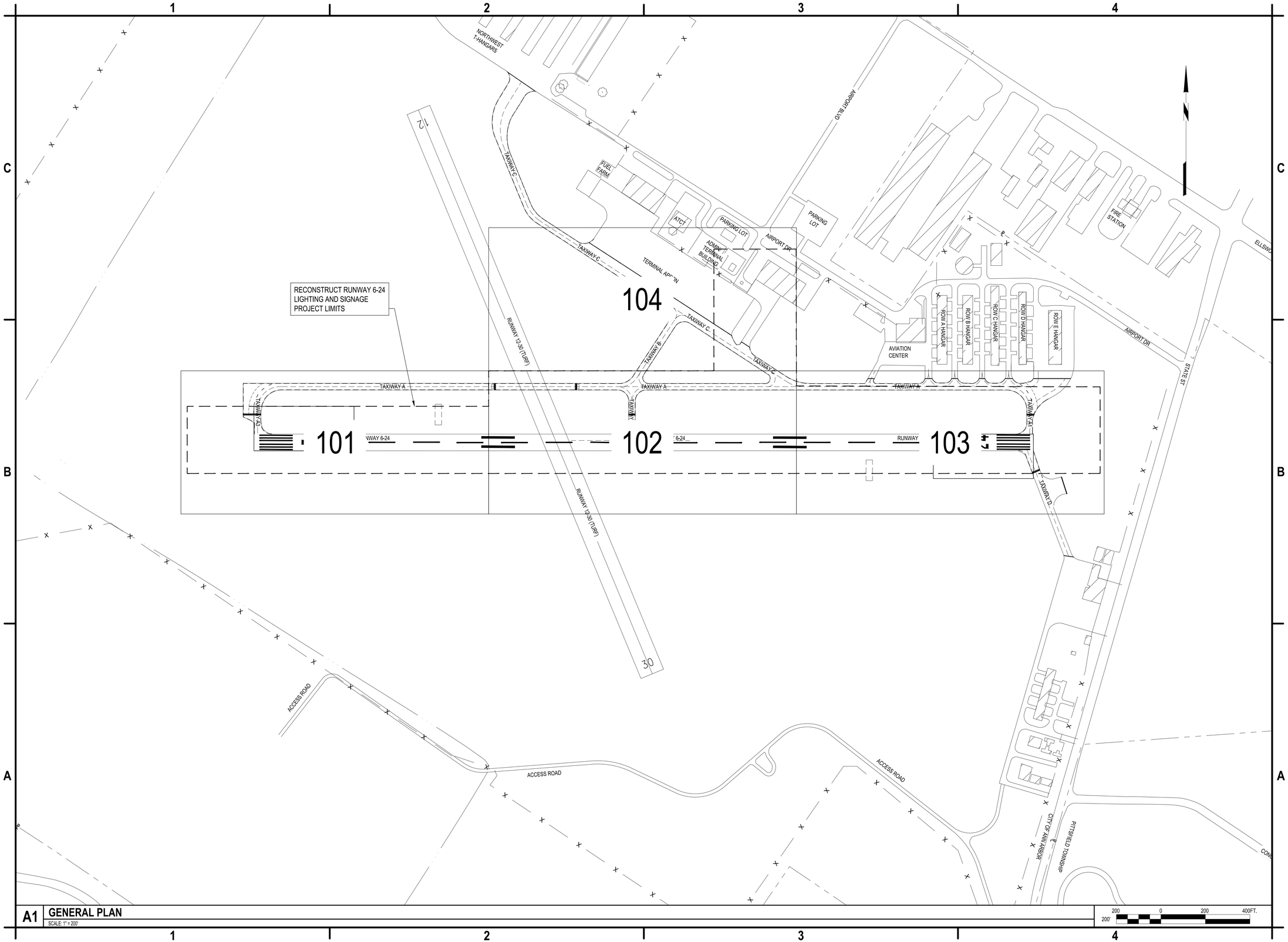
LOCATION MAP

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052239
LICENSED PROFESSIONAL ENGINEER

GI001

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A1 **GENERAL PLAN**
SCALE: 1" = 200'

C&S COMPANIES®
C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24 ANN ARBOR MUNICIPAL AIRPORT CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.A. JANKOWSKI
DESIGNED BY:	E.A. JANKOWSKI
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

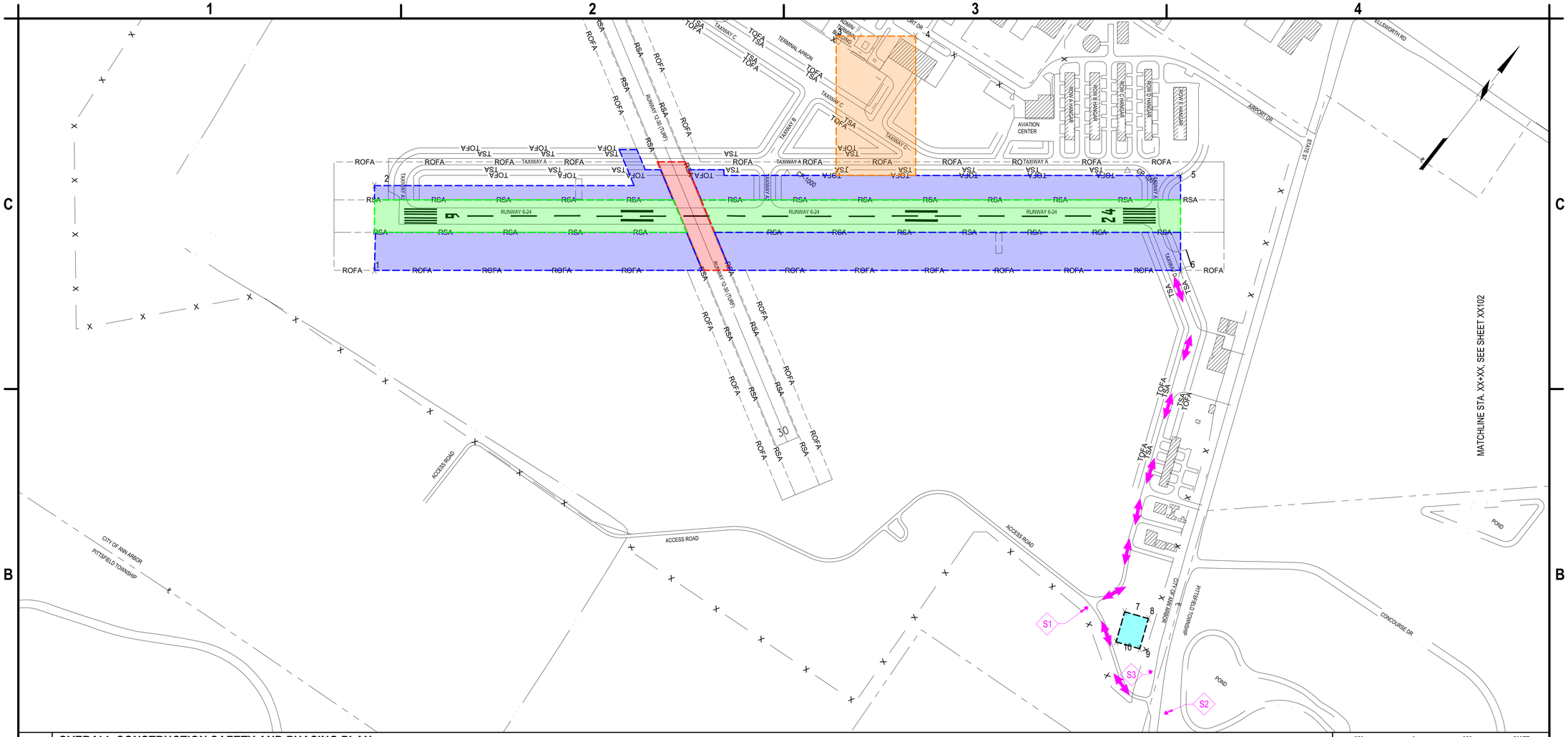
GENERAL PLAN

GI100

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B1 OVERALL CONSTRUCTION SAFETY AND PHASING PLAN

SCALE: 1" = 250'

PHASE 1

PHASE 1A

PHASE 2

PHASE 3

CONTRACTOR'S STAGING AREA

S# TEMPORARY CONSTRUCTION SIGN, ITEM CX-106. SEE DETAIL C3/GC501

A1 LEGEND

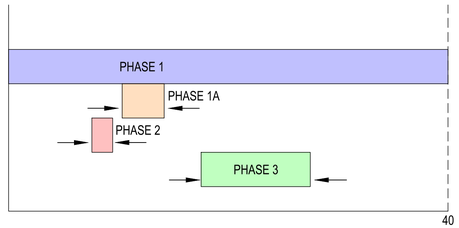
SCALE: NOT TO SCALE

NOTES:

1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL, IN THE PRESENCE OF THE RPR, VIDEOTAPE/PHOTOGRAPH ALL HAUL ROADS TO BE USED DURING THE PROJECT. THE INFORMATION SHALL BE PROVIDED TO THE OWNER PRIOR TO NTP. ANY DAMAGE TO THE PAVEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR, AS DIRECTED BY THE RPR. ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL HAVE AT LEAST ONE FULLY OPERATIONAL VACUUM SWEEPER TRUCK AVAILABLE AT ALL TIMES TO CLEAN PAVEMENTS, INCLUDING THE HAUL ROUTE AND PAVEMENT ADJACENT TO THE WORK AREAS. ALL PAVEMENT IS TO BE CLEANED AND FREE OF DIRT AND DEBRIS PRIOR TO OPENING TO AIRCRAFT TRAFFIC.
3. CONTRACTOR SHALL HAVE A FULL TIME PROJECT SUPERINTENDENT FOR THE PROJECT. THE PROJECT SUPERINTENDENT SHALL BE REQUIRED TO BE ONSITE AT ALL TIMES WHERE WORK IS UNDERWAY (INCLUDING SUBCONTRACTOR WORK). AN ALTERNATE BACK-UP PROJECT SUPERINTENDENT SHALL BE IDENTIFIED FOR PERIODS WHERE THE PRIMARY SUPERINTENDENT IS NOT AVAILABLE.
4. CONTRACTOR SHALL NOT STOCKPILE MATERIAL OR LEAVE EQUIPMENT WITHIN THE RUNWAY OBJECT FREE AREA (ROFA) OVERNIGHT OR DURING NON-WORKING HOURS.
5. CONTRACTOR SHALL DELINEATE THE RUNWAY SAFETY AREA (RSA) ALONG THE WORK AREA USING LOW-PROFILE BARRICADES SPACED 8FT APART, OR AS DIRECTED BY THE RPR.
6. ANY WORK WITHIN THE RUNWAY SAFETY AREA, INCLUDING MAINTENANCE OF TRAFFIC ITEMS SHALL BE COORDINATED WITH THE AIRPORT, ATCT, AND RPR A MINIMUM OF 7 DAYS IN ADVANCE OF THE WORK COMMENCING.
7. CONTRACTOR TO PROVIDE OWN LOCK FOR GATE ACCESS

A2 SHEET NOTES

SCALE: NOT TO SCALE



CALENDAR DAYS:
PHASE 1: 40 CALENDAR DAYS
PHASE 1A: 2 CALENDAR DAYS
PHASE 2: 1 CALENDAR DAYS
PHASE 3: 7 CALENDAR DAYS

THE TOTAL CONTRACT TIME FOR THE RECONSTRUCT RUNWAY 6-24 LIGHTING PROJECT IS 40 CALENDAR DAYS.THE CONSTRUCTION START DATE IS ANTICIPATED TO BE FALL 2027. THE CONTRACTOR SHALL TAKE THIS INTO CONSIDERATION WHEN PREPARING UNIT PRICES FOR BID.

PHASE 1A, 2, AND 3 SHALL BE CONCURRENT WITH PHASE 1. CONTRACTOR SHALL COORDINATE CLOSURE OF PHASE 1A, 2 AND 3 WORK AREAS WITH THE AIRPORT, ATCT, AND RPR A MINIMUM OF 7 DAYS PRIOR TO THE BEGINNING OF WORK.

A3 PROJECT SCHEDULE

SCALE: NOT TO SCALE

POINT TABLE

POINT NO.	LONGITUDE	LATITUDE	ELEV.	DESCRIPITION
1	W83° 44' 59.69"	N42° 13' 10.22"	831.20	WORK AREA
2	W83° 45' 02.70"	N42° 13' 13.36"	831.00	WORK AREA
3	W83° 44' 44.96"	N42° 13' 31.11"	833.00	WORK AREA
5	W83° 44' 22.81"	N42° 13' 35.05"	824.00	WORK AREA
6	W83° 44' 19.44"	N42° 13' 31.53"	831.20	WORK AREA
7	W83° 44' 10.08"	N42° 13' 17.39"	825.00	STAGING AREA
8	W83° 44' 08.66"	N42° 13' 17.76"	825.00	STAGING AREA
9	W83° 44' 08.02"	N42° 13' 16.41"	826.00	STAGING AREA
10	W83° 44' 09.45"	N42° 13' 16.04"	824.00	STAGING AREA

A4 POINT TABLE

SCALE: NOT TO SCALE

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C&S Engineers, Inc.
38777 Six Mile Road, Suite 202
Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION
		REVISIONS

PROJECT NO: N75.007.001
DATE: AUGUST 2026
DRAWN BY: E.J SLEDZ
DESIGNED BY: E.J. SLEDZ
CHECKED BY: S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

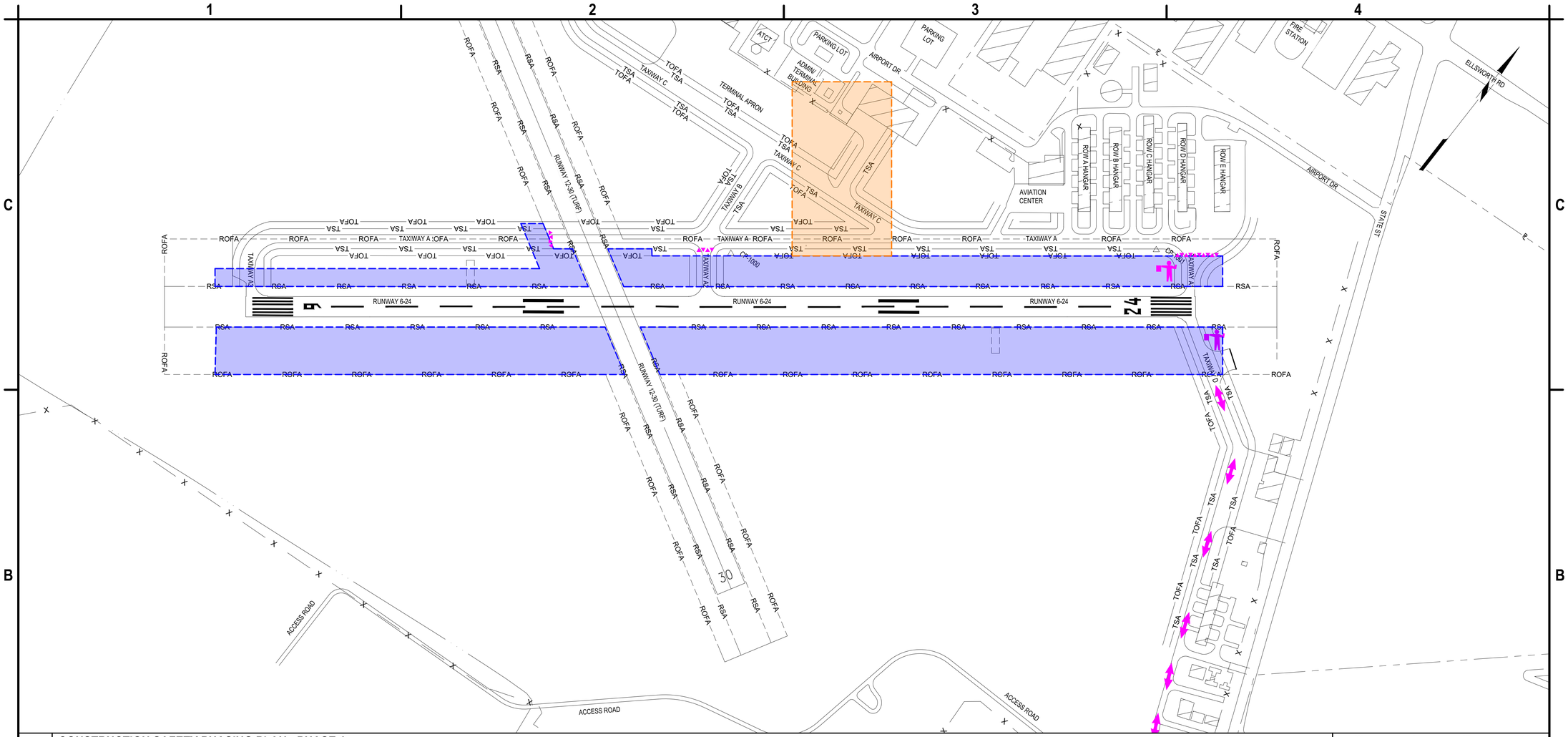
OVERALL CONSTRUCTION SAFETY AND PHASING PLAN

GC101

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B1 CONSTRUCTION SAFETY PHASING PLAN - PHASE 1

SCALE: 1" = 200'

200' 200 0 200 400FT.

A1 LEGEND

SCALE: NOT TO SCALE

PHASE 1

PHASE 1A

CONTRACTOR PROVIDED FLAGGER WITH RADIO TO MONITOR CROSSING AT RUNWAY 6-24

CONTRACTOR'S ACCESS ROUTE

LOW PROFILE BARRICADES, ITEM CX-106. SEE DETAIL A4/GC501

A2 SHEET NOTES

SCALE: NOT TO SCALE

PHASE 1 - 40 CALENDAR DAYS

CONSTRUCTION:

- ELECTRICAL DEMOLITION AND INSTALLATION OUTSIDE OF RUNWAY 6-24 AND RUNWAY 12-30 RUNWAY SAFETY AREA (RSA).
- ELECTRICAL DEMOLITION AND INSTALLATION OUTSIDE OF TAXIWAY A OBJECT FREE AREA (TOFA).

PHASE 1A - 2 CALENDAR DAYS

CONSTRUCTION:

- RUNWAY 6-24 HOMERUN TO THE ELECTRICAL VAULT.
- WORK SHALL BE CONCURRENT WITH PHASE 1.

A3 AIRFIELD OPERATIONAL REQUIREMENTS

SCALE: NOT TO SCALE

PHASE 1 OPERATIONAL CLOSURES AND RESTRICTIONS TABLE

LOCATION	STATUS
RUNWAY 6/24	OPEN
RUNWAY 12/30	OPEN
TAXIWAY A	CLOSED WEST OF RUNWAY 12-30
TAXIWAY A1	CLOSED
TAXIWAY A2	CLOSED
TAXIWAY A3	CLOSED
TAXIWAY B	OPEN
TAXIWAY C	OPEN
TAXIWAY D	CLOSED
TERMINAL APRON	OPEN

A4 GENERAL PHASING NOTES

SCALE: NOT TO SCALE

GENERAL PHASING NOTES:

1. REFER TO ATTACHMENT A - CSPP OF THE GENERAL PROVISIONS FOR SPECIFIC OPERATING REQUIREMENTS DURING WORK ON THE AIRFIELD.
2. THE CONTRACTOR WILL BE GIVEN THE SPECIFIC NUMBER OF CALENDAR DAYS TO COMPLETE THE WORK AS SHOWN. LIQUIDATED DAMAGES SHALL BE ASSESSED AFTER THE CONTRACT TIME HAS EXPIRED UNLESS THE CONTRACTOR CAN SHOW JUST CAUSE FOR DELAYS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE JUSTIFICATION FOR WAIVING ANY LIQUIDATED DAMAGES CHARGED.
3. PRIOR TO CONSTRUCTION, CONTRACTOR AND ENGINEER SHALL VIDEOTAPE/PHOTOGRAPH ALL HAUL ROADS TO BE USED DURING THE PROJECT. THE INFORMATION SHALL BE PROVIDED TO THE OWNER PRIOR TO NOTICE TO PROCEED. ANY DAMAGE TO THE PAVEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR, PER THE RPR. ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. CONTRACTOR SHALL COORDINATE SCHEDULE, RAMP CLOSURES, AND NOTAMS WITH THE RPR AND AIRPORT PRIOR TO STARTING WORK.
5. CONTRACTOR SHALL DELINEATE THE RUNWAY SAFETY AREA (RSA) ALONG THE WORK AREA USING LOW-PROFILE BARRICADES SPACED 8FT APART, OR AS DIRECTED BY THE RPR.
6. THE CONTRACTOR SHALL HAVE AT LEAST ONE FULLY OPERATIONAL VACUUM SWEEPER TRUCK AVAILABLE AT ALL TIMES TO CLEAN PAVEMENTS, INCLUDING THE HAUL ROUTE AND PAVEMENT ADJACENT TO THE WORK AREAS. ALL PAVEMENT IS TO BE CLEANED AND FREE OF DIRT AND DEBRIS PRIOR TO OPENING TO AIRCRAFT TRAFFIC.
7. ANN ARBOR MUNICIPAL AIRPORT IS A TOWERED AIRPORT. PRIOR TO CONSTRUCTION, CONTRACTOR MUST MEET WITH THE FAA AIR TRAFFIC CONTROL TOWER (ATCT) FOR RADIO TRAINING FOR FLAGGING.

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Livonia, Michigan 48152
Phone: 734-953-2571
Fax: 734-206-7973
www.cscos.com

STATE OF MICHIGAN
AARON M. ALJETS
ENGINEER
NO. 6201052232
LICENSED PROFESSIONAL ENGINEER

CITY OF ANN ARBOR MICHIGAN

RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.J. SLEDZ
DESIGNED BY:	E.J. SLEDZ
CHECKED BY:	S.L. MAKHLOUF

CONTRACTOR SHALL VERIFY ALL CONDITIONS ON JOB SITE & NOTIFY THE OWNER OF ANY VARIATIONS FROM DIMENSIONS SHOWN ON THESE DRAWINGS BEFORE PROCEEDING WITH ANY CONSTRUCTION.

CONSTRUCTION SAFETY PHASING PLAN - PHASE 1

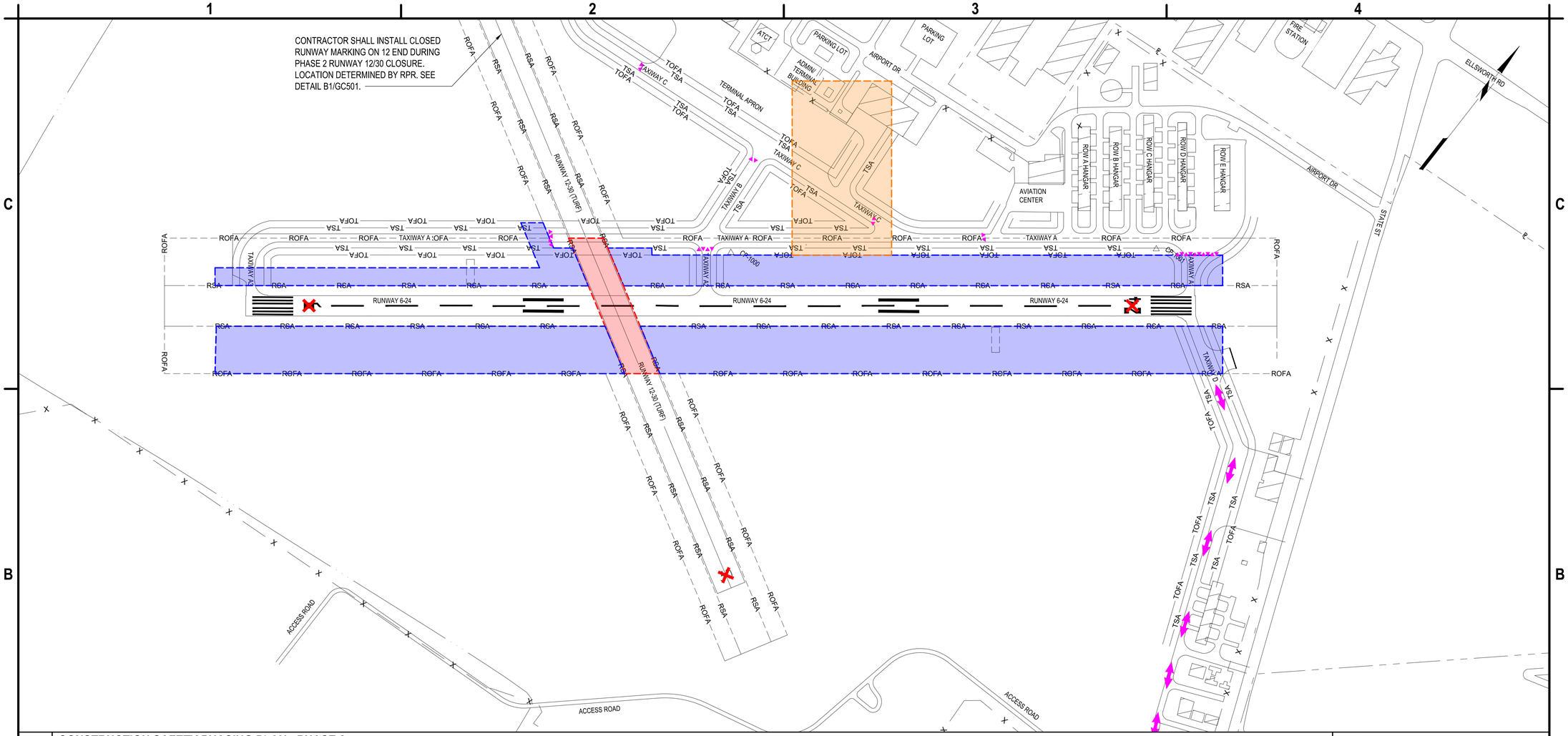
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CONTRACTOR SHALL INSTALL CLOSED RUNWAY MARKING ON 12 END DURING PHASE 2 RUNWAY 12/30 CLOSURE. LOCATION DETERMINED BY RPR. SEE DETAIL B1/GC501.



B1 CONSTRUCTION SAFETY PHASING PLAN - PHASE 2

SCALE: 1" = 200'

200 0 200 400FT.
200'

PHASE 1

PHASE 1A

PHASE 2

CONTRACTOR'S ACCESS ROUTE

LOW PROFILE BARRICADES, ITEM CX-106.
SEE DETAIL A4/GC501

TEMPORARY CLOSED RUNWAY MARKING, ITEM CX-106.
SEE DETAIL B1/GC501

A1 LEGEND

SCALE: NOT TO SCALE

PHASE 2 - 1 CALENDAR DAYS

CONSTRUCTION:

- ELECTRICAL DEMOLITION AND INSTALLATION WITHIN THE RUNWAY 6-24 AND RUNWAY 12-30 RUNWAY SAFETY AREA (RSA)
- WORK SHALL BE CONCURRENT WITH PHASE 1.

A2 SHEET NOTES

SCALE: NOT TO SCALE

PHASE 2 OPERATIONAL CLOSURES AND RESTRICTIONS TABLE

LOCATION	STATUS
RUNWAY 6/24	CLOSED
RUNWAY 12/30	CLOSED
TAXIWAY A	CLOSED
TAXIWAY A1	CLOSED
TAXIWAY A2	CLOSED
TAXIWAY A3	CLOSED
TAXIWAY B	CLOSED
TAXIWAY C	CLOSED
TAXIWAY D	CLOSED
TERMINAL APRON	CLOSED

A3 AIRFIELD OPERATIONAL REQUIREMENTS

SCALE: NOT TO SCALE

GENERAL PHASING NOTES:

1. REFER TO ATTACHMENT A - CSPP OF THE GENERAL PROVISIONS FOR SPECIFIC OPERATING REQUIREMENTS DURING WORK ON THE AIRFIELD.
2. THE CONTRACTOR WILL BE GIVEN THE SPECIFIC NUMBER OF CALENDAR DAYS TO COMPLETE THE WORK AS SHOWN. LIQUIDATED DAMAGES SHALL BE ASSESSED AFTER THE CONTRACT TIME HAS EXPIRED UNLESS THE CONTRACTOR CAN SHOW JUST CAUSE FOR DELAYS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE JUSTIFICATION FOR WAIVING ANY LIQUIDATED DAMAGES CHARGED.
3. PRIOR TO CONSTRUCTION, CONTRACTOR AND ENGINEER SHALL VIDEOTAPE/PHOTOGRAPH ALL HAUL ROADS TO BE USED DURING THE PROJECT. THE INFORMATION SHALL BE PROVIDED TO THE OWNER PRIOR TO NOTICE TO PROCEED. ANY DAMAGE TO THE PAVEMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR, PER THE RPR. ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. CONTRACTOR SHALL COORDINATE SCHEDULE, RAMP CLOSURES, AND NOTAMS WITH THE RPR AND AIRPORT PRIOR TO STARTING WORK.
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7. ANN ARBOR MUNICIPAL AIRPORT IS A TOWERED AIRPORT. PRIOR TO CONSTRUCTION, CONTRACTOR MUST MEET WITH THE FAA AIR TRAFFIC CONTROL TOWER (ATCT) FOR RADIO TRAINING FOR FLAGGING.

A4 GENERAL PHASING NOTES

SCALE: NOT TO SCALE

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38777 Six Mile Road, Suite 202
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RECONSTRUCT RUNWAY LIGHTING 6-24 AND RECONSTRUCT RUNWAY SIGNAGE 6-24
ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.J. SLEDZ
DESIGNED BY:	E.J. SLEDZ
CHECKED BY:	S.L. MAKHLOUF

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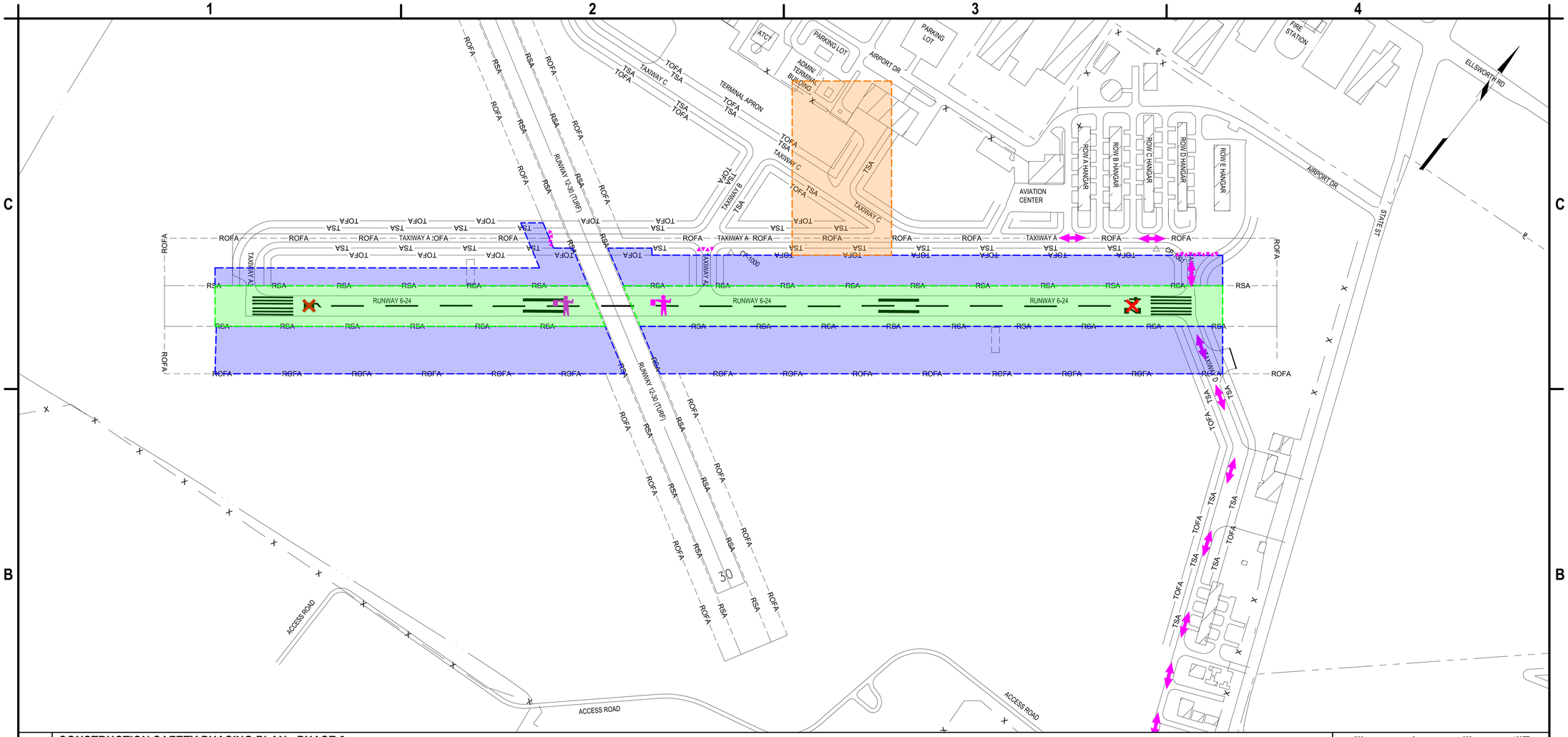
CONSTRUCTION SAFETY PHASING PLAN - PHASE 2

GC103

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B1 CONSTRUCTION SAFETY PHASING PLAN - PHASE 3
SCALE: 1" = 200'

PHASE 1

PHASE 1A

PHASE 3

CONTRACTOR PROVIDED FLAGGER WITH RADIO TO MONITOR CROSSING AT RUNWAY 12-30

CONTRACTOR'S ACCESS ROUTE

LOW PROFILE BARRICADES, ITEM CX-106. SEE DETAIL A4/GC501

TEMPORARY CLOSED RUNWAY MARKING, ITEM CX-106. SEE DETAIL B1/GC501

A1 LEGEND
SCALE: NOT TO SCALE

PHASE 3 - 7 CALENDAR DAYS

CONSTRUCTION:
- ELECTRICAL DEMOLITION AND INSTALLATION WITHIN THE RUNWAY 6-24 RUNWAY SAFETY AREA (RSA)
- WORK SHALL BE CONCURRENT WITH PHASE 1.

A2 SHEET NOTES
SCALE: NOT TO SCALE

PHASE 3 OPERATIONAL CLOSURES AND RESTRICTIONS TABLE

LOCATION	STATUS
RUNWAY 6/24	CLOSED
RUNWAY 12/30	OPEN
TAXIWAY A	CLOSED WEST OF RUNWAY 12-30
TAXIWAY A1	CLOSED
TAXIWAY A2	CLOSED
TAXIWAY A3	CLOSED
TAXIWAY B	OPEN
TAXIWAY C	OPEN
TAXIWAY D	CLOSED
TERMINAL APRON	OPEN

NOTES:

1. CONTRACTOR SHALL COORDINATE HOMERUN WORK WITH THE RPR AND THE ATCT. AT NO POINT SHALL THE CONTRACTOR CROSS ACTIVE PAVEMENT WITHOUT PRIOR APPROVAL FROM THE ATCT.

A3 AIRFIELD OPERATIONAL REQUIREMENTS
SCALE: NOT TO SCALE

GENERAL PHASING NOTES:

1. REFER TO ATTACHMENT A - CSPP OF THE GENERAL PROVISIONS FOR SPECIFIC OPERATING REQUIREMENTS DURING WORK ON THE AIRFIELD.
2. THE CONTRACTOR WILL BE GIVEN THE SPECIFIC NUMBER OF CALENDAR DAYS TO COMPLETE THE WORK AS SHOWN. LIQUIDATED DAMAGES SHALL BE ASSESSED AFTER THE CONTRACT TIME HAS EXPIRED UNLESS THE CONTRACTOR CAN SHOW JUST CAUSE FOR DELAYS. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE JUSTIFICATION FOR WAIVING ANY LIQUIDATED DAMAGES CHARGED.
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A4 GENERAL PHASING NOTES
SCALE: NOT TO SCALE

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ANN ARBOR MUNICIPAL AIRPORT
CITY OF ANN ARBOR

MARK	DATE	DESCRIPTION

REVISIONS

PROJECT NO:	N75.007.001
DATE:	AUGUST 2026
DRAWN BY:	E.J. SLEDZ
DESIGNED BY:	E.J. SLEDZ
CHECKED BY:	S.L. MAKHLOUF

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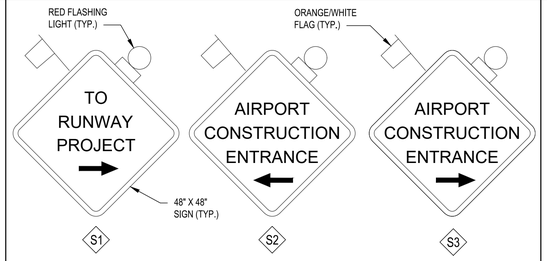
CONSTRUCTION SAFETY PHASING PLAN - PHASE 3

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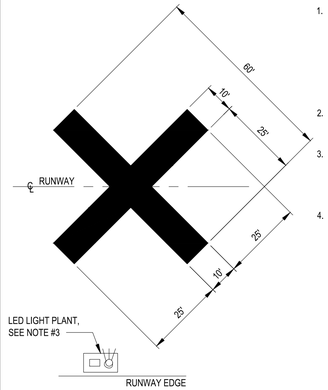


SIGN NOTES:

1. SIGN BACKGROUND IS TO BE ORANGE. SIGN LETTERING IS TO BE BLACK, MINIMUM HEIGHT OF 3", AND BE A BOLD LETTERING STYLE SIMILAR TO DETAIL SHOWN ON THIS SHEET.
2. SIGN SHALL BE LOCATED HIGH ENOUGH TO ALLOW EASY VIEWING FROM ALL CONSTRUCTION VEHICLES ENTERING THE CONSTRUCTION SITE.
3. SEE CONSTRUCTION SAFETY PHASING PLANS FOR GENERAL LOCATIONS. THE CONTRACTOR SHALL COORDINATE THE EXACT PLACEMENT AND LOCATION OF ALL CONSTRUCTION TRAFFIC SIGNS WITH THE AIRPORT AND RPR.
4. SEE DETAIL B3/EL501, FOR SIGN MOUNTING/ASSEMBLY AND STOP SIGN REQUIREMENTS.
5. ALL COSTS FOR PROVIDING INSTALLING, MAINTAINING, AND REMOVAL OF TEMPORARY SIGNS SHALL BE INCLUDED UNDER ITEM CX-106.

C3 TEMPORARY CONSTRUCTION SIGN DETAIL

SCALE: NOT TO SCALE

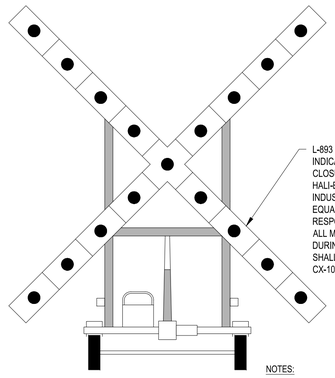


NOTES:

1. CLOSED RUNWAY MARKINGS SHALL BE YELLOW AS MANUFACTURED BY NEUBERT AERO CORP., TAMPA FLA., OR APPROVED EQUAL. IN LIEU THEREOF, CONTRACTOR MAY CONSTRUCT CLOSED RUNWAY MARKINGS FROM ANY OF THE FOLLOWING MATERIALS: DOUBLE-LAYERED PAINTED SNOW FENCE,COLORED PLASTIC, PAINTED SHEETS OF PLYWOOD, OR SIMILAR MATERIALS.
2. CLOSED RUNWAY MARKINGS SHALL BE SECURED TO PREVENT MOVEMENT BY PROP WASH, JET BLAST, OR OTHER WIND CURRENTS.
3. NON-LIGHTED RUNWAY CLOSURE MARKINGS SHALL BE ILLUMINATED BY A LIGHT PLANT LOCATED AT THE EDGE OF RUNWAY PAVEMENT FROM DUSK TILL DAWN. MAXIMUM HEIGHT SHALL BE 25' OR MAXIMUM SPECIFIED IN THE CSPP.
4. CLOSED RUNWAY MARKINGS SHALL BE PLACED AT EACH END OF THE RUNWAY DIRECTLY OR OR AS NEAR AS PRACTICABLE TO THE RUNWAY DESIGNATION NUMBERS.

B1 CLOSED RUNWAY MARKING DETAIL

SCALE: NOT TO SCALE

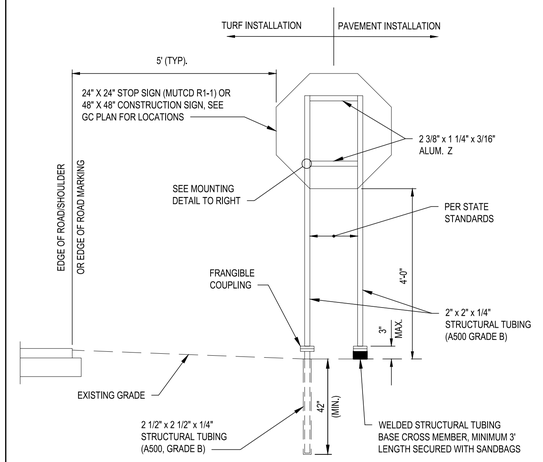


NOTES:

1. CLOSED RUNWAY MARKINGS SHALL BE PLACED AT EACH END OF THE RUNWAY DIRECTLY OR OR AS NEAR AS PRACTICABLE TO THE RUNWAY DESIGNATION NUMBERS, OR AS DESIGNATED BY THE RPR.

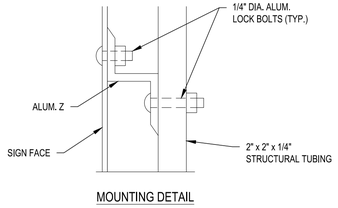
B2 LIGHTED CLOSED RUNWAY MARKING DETAIL

SCALE: NOT TO SCALE



B3 TEMPORARY CONSTRUCTION SIGN ASSEMBLY DETAIL

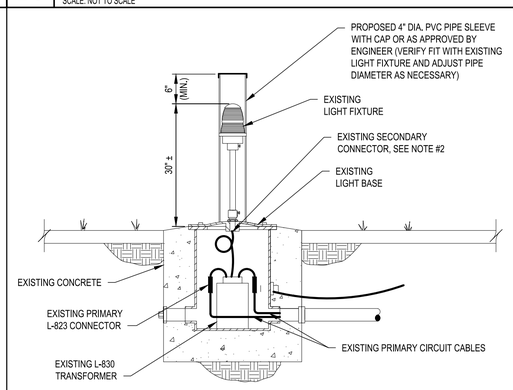
SCALE: NOT TO SCALE



MOUNTING DETAIL

NOTES:

1. COST FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVAL OF TEMPORARY SIGNS SHALL BE INCLUDED UNDER ITEM CX-106.
2. ALL SIGNS SHALL CONFORM IN SIZE, APPEARANCE AND REFLECTORIZATION TO THE REQUIREMENTS OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
3. AT PROJECT COMPLETION, ALL POSTS AND SIGNS SHALL BE REMOVED FROM AIRPORT PROPERTY AND SHALL REMAIN PROPERTY OF THE CONTRACTOR.
4. SIGNS SHALL NOT BE INSTALLED WITHIN ANY ACTIVE RSA, TSA, TOFA OR ROFA.

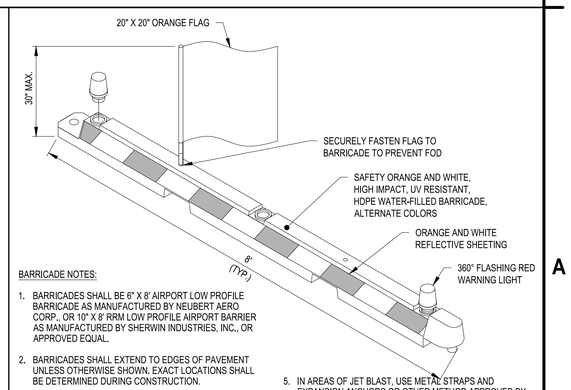


NOTES:

1. ALL COSTS ASSOCIATED WITH EDGE LIGHT COVERS SHALL BE INCLUDED IN ITEM CX-106.
2. THE CONTRACTOR MAY ELECT TO DISCONNECT THE LIGHT AT THE TRANSFORMER SECONDARY L-823 CONNECTION AT NO ADDITIONAL COST. CIRCUIT CONNECTIVITY MUST BE MAINTAINED FOR THOSE SECTIONS OF TAXIWAY / RUNWAY NOT CLOSED TO AIRCRAFT TRAFFIC.

A3 TEMPORARY EDGE LIGHT COVER DETAIL

SCALE: NOT TO SCALE



BARRICADE NOTES:

1. BARRICADES SHALL BE 6" X 8' AIRPORT LOW PROFILE BARRICADE AS MANUFACTURED BY NEUBERT AERO CORP., OR 10" X 8' RRM LOW PROFILE AIRPORT BARRIER AS MANUFACTURED BY SHERWIN INDUSTRIES, INC., OR APPROVED EQUAL.
2. BARRICADES SHALL EXTEND TO EDGES OF PAVEMENT UNLESS OTHERWISE SHOWN. EXACT LOCATIONS SHALL BE DETERMINED DURING CONSTRUCTION.
3. BARRICADES SHALL BE FILLED WITH WATER AND INTERLOCKED WITH EACH OTHER. BARRICADES WHICH HAVE TO BE MOVED DAILY MAY BE ANCHORED TO THE PAVEMENT BY AN ALTERNATE METHOD APPROVED BY AIRPORT OPERATIONS OR THE RPR.
4. COORDINATE ARFF ACCESS WITH OPERATIONS.
5. IN AREAS OF JET BLAST, USE METAL STRAPS AND EXPANSION ANCHORS OR OTHER METHOD APPROVED BY RPR TO SECURE BARRICADES TO THE PAVEMENT.
6. ONE FLAG AND TWO WARNING LIGHTS SHALL BE ATTACHED TO EACH BARRICADE.
7. ALL COSTS ASSOCIATED WITH THIS ITEM SHALL BE INCLUDED IN ITEM CX-106.

A4 INTERLOCKING AIRFIELD BARRICADE DETAIL

SCALE: NOT TO SCALE

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38777 Six Mile Road, Suite 202
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CONSTRUCTION SAFETY AND PHASING DETAILS

GC501

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APPENDIX 2

CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

Construction Project Daily Safety Inspection Checklist

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety Area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovers holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the Contractor may use to aid in identifying and correcting potentially hazardous conditions.

Potentially Hazardous Conditions

Item	Action Required	or	None
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.			☐
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.			☐
Runway resurfacing projects resulting in lips exceeding 3 inches from pavement edges and ends.			☐
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.			☐
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.			☐
Tall and especially relatively low visibility units (that is, equipment with slim profiles) –cranes, drills, and similar objects—located in critical areas, such as OFZ and approach zones.			☐

Item	Action Required	or	None
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on an apron, open taxiway, or open taxi lane or in related safety, approach, or departure area.			☐
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.			☐
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.			☐
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.			☐
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.			
Obliterated or faded temporary markings on active operational areas.			☐
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.			☐

Item	Action Required	or	None
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.			☐
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.			☐
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.			
Lack of radio communications with construction vehicles in airport movement areas.			☐
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.			☐
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.			☐
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.			☐
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).			

Item	Action Required	or	None
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.			☐
Failure to control dust. Consider limiting the amount of area from which the Contractor is allowed to strip turf.			☐
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.			☐
Site burning, which can cause possible obscuration.			☐
Construction work taking place outside of designated work areas and out of phase.			☐

APPENDIX 3

CONTRACTORS SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

(The SPCD Certification is located in the Proposal Section)

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

Project Location: Ann Arbor Municipal Airport

Project Name: Reconstruct Runway Lighting 6-24 and Reconstruct Runway Signage 6-24

General Statement:

The Construction Safety and Phasing Plan (CSPP), identified as Attachment "A" to Section 70-08, has been prepared in accordance with FAA Advisory Circular 150/5370-2G, *Operational Safety on Airports During Construction and the requirements of the Airport Owner*. The CSPP has been submitted to the FAA for review and comment. Any comments from the FAA which were received prior to bid opening have been incorporated into the CSPP.

In the event that the FAA transmits comments which require that the CSPP be revised after bid opening, I understand that I am obligated to abide by the conditions and statements contained in the revised CSPP. I further understand that I will be given the opportunity to evaluate the revised CSPP as it relates to my contract and request appropriate compensation in accordance with the provisions of the contract.

Supplemental Information:

Where the CSPP covers a subject and no additional information is needed, the statement below reads, "No supplemental information required". Where additional information is required by the Contractor, the information shall be provided in the spaces below.

The section numbers below correspond with the section numbers in the CSPP.

3.1 Coordination

Statement: [Explain how you will distribute information and details of meetings to employees and subcontractors.]

_____

_____

_____

_____

3.2 Phasing

Statement: [List the number of days each Work Area will take. State the time day work will start and finish for each work area.]

_____

_____

_____

_____

3.3 Areas and operations affected by the construction activity

Statement: Information is provided in the CSPP. No supplemental information is required.

3.4 Protection of NAVAIDs

Statement: Information is provided in the CSPP. No supplemental information is required.

3.5 Contractor Access

Security Statement: [Explain how you will maintain integrity of the airport security fence at the access gate, e.g.: Gate guards, closed and locked gates, temporary fencing, etc.]

Training Statement: [List individuals who will receive driver training (for certificated airports and as requested.]

Communication Statement: [Identify types of radios, if any, you will use to communicate with drivers and personnel. Identify who will be monitoring radios. Identify a contact person and phone number if ATCT cannot reach the contractor's designated person by radio.]

Escort Statement: [Identify who will escort material delivery vehicles.]

3.6 Wildlife Management

Statement: [Identify who will be monitoring wildlife in the construction area. Identify who will be monitoring wildlife at the construction gate.]

3.7 Foreign Object Debris (FOD) Management

Statement: [Identify who will be preparing a FOD Management Plan. (Plan must be approved prior to the start of construction activities.)]

3.8 Hazardous material (HAZMAT) management

Statement: [Identify who will be preparing a Spill Prevention Plan. (Plan must be approved prior to the start of construction activities.)]

3.9 Notification of construction activities. Provide the following:

Key Personnel Statement: [Identify your key personnel points of contact with phone numbers.]

Emergency Contacts Statement: [Identify your emergency contacts with 24 hour phone numbers.]

Equipment Statement: [Part 77: Identify equipment you will be using that is taller than feet, including on-site batch plants. Identify the maximum height it will be extended to during construction for each Work Area and the expected duration. Identify when during the day it will be used.]

3.10 Inspection requirements.

Statement: [Identify the person who will be responsible for daily inspections to ensure conformance with the CSPP. Describe additional inspections you will employ, if any, to ensure conformance.]

3.11 Underground utilities.

Statement: [Discuss proposed methods of identifying and protecting underground utilities.]

3.12 Penalties

Statement: Information is provided in the CSPP. No supplemental information is required.

3.13 Special conditions.

Statement: [Identify who will be responsible for moving equipment and personnel from the work area and vacating the area in the event of a special condition listed in the CSPP.]

3.14 Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.15 Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.16 Hazard marking and lighting.

Statement: [Identify who will be responsible for maintaining hazard marking and lighting. Include a 24 hour phone number.]

3.17 Protection of taxiway and runway safety areas. Include object free areas, obstacle free zones, approach/departure surfaces and safety areas as required. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:

Equipment and methods for maintaining Taxiway/Taxilane Safety Area standards.

Statement: Information is provided in the CSPP. No supplemental information is required.

Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.18 Other limitations on construction.

Other limitations are identified in the CSPP and do not require an entry in this document.

APPENDIX 4

SPOIL DEPOSITION RELEASE FORM

SPOILS DEPOSITION RELEASE FORM

To: _____ (AIRPORT OWNER), and

C&S Engineers, Inc., _____ (RPR).

Project: Reconstruct Runway Lighting 6-24 and Reconstruct Runway Signage 6-24

This SPOILS DEPOSITION RELEASE FORM is being forwarded to the above referenced AIRPORT OWNER and RPR to satisfy the Contract Documents governing the above referenced project. Pursuant to the Contract Documents, LANDOWNER has granted permission to CONTRACTOR to deposit spoils at LANDOWNER'S property located at _____ _____ (give specific location). Further, CONTRACTOR hereby agrees to the greatest extent of the law, to release, indemnify, hold harmless, and defend the AIRPORT OWNER and RPR from any and all damage, liability, or cost (including reasonable attorney's fees and cost of defense) to the extent caused by or arising out of the deposition of the spoils on LANDOWNER'S property.

CONTRACTOR:	**LANDOWNER:**
_____	_____
Signature	Signature
_____	_____
Written Name & Title	Written Name & Title
_____	_____
Company Name	Company Name
_____	_____
Mailing Address (Street Name and Number)	Mailing Address (Street Name and Number)
_____	_____
City, State, Zip Code	City, State, Zip Code
_____	_____
Daytime Phone Number (Include Area Code)	Daytime Phone Number (Include Area Code)
_____	_____
Date	Date

APPENDIX 5

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) CERTIFICATION

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) CERTIFICATION

Project Location: Ann Arbor Municipal Airport

Project Name: Reconstruct Runway Lighting 6-24 and Reconstruct Runway Signage 6-24

Contractor's Official Name: _____

Contact Person: _____ Telephone: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Certification Statement:

I certify that I have read the Construction Safety and Phasing Plan (CSPP) included in the Contract Documents and if awarded this Contract, I will abide by its requirements as written.

I certify that I have read the Safety Plan Compliance Document (SCPD) included in the Contract Documents and if awarded this Contract, I will abide by its requirements as written;

I certify that I will provide the information required in the SCPD prior to the start of construction work, if awarded this Contract, and that I will provide any additional information requested by the Airport Owner.

_____ _____

Printed Name of Signer Signature

_____ _____

Title Date

Section 80 Execution and Progress

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within one day of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall show all work items identified in the project proposal for each work area and shall include the project start date and end date.

80-03.1 Requirements.

A. Nomenclature and Definitions

B. Schedule Personnel

C. Software Compatibility Requirements

D. Preconstruction Schedule Meeting

E. Baseline Schedule Development

F. Progress Schedule Update

G. Schedule for Submittals

80-03.1.A Nomenclature and Definitions

Actual Start date- At the task level, the Actual Start date represents the point in time that meaningful work actually started on a task.

Actual Finish date - At the task level, the Actual Finish date represents the point in time that work actually ended on a task.; At the Project level, the Actual Finish date represents the point in time that the Contractor completes all Work in accordance with the time standards described in the CSPP.

Baseline Progress Schedule - The Progress Schedule submitted by the Contractor and accepted by the RPR that shows the plan to complete the construction contract work. The Baseline Schedule represents the Contractor's plan at the time of Contract Award for completing the Project.

Bid Date – The date that bids will be publically opened and read aloud.

Constraint - A schedule restriction imposed on the Start or Finish date(s) of a task that modifies or overrides a task's relationships.

Critical Task – A task on the critical path.

Critical Path – In the Progress Schedule, the critical path shall be those tasks being on the longest path. In a project network diagram, the series of tasks determines the earliest completion of the project.

Critical Delay - An event, action, or other factor that delays the critical path of the Progress Schedule and extends the time needed for completion of the construction project.

Critical Path Method (CPM) – A network analysis technique used to predict Project duration by analyzing which sequence of tasks (which path) has the least amount of scheduling flexibility (the least amount of float or slack). A scheduling technique utilizing tasks, durations, and interrelationships/dependencies (logic), such that all tasks are interrelated with logic ties from the beginning of the project to the completion of the project. Early dates are calculated by means of a forward pass using a specified start date. Late dates are calculated by means of a backward pass

starting from a specified completion date (usually the forward pass's calculated project early finish date).

Duration, Original - The original estimated number of Working Days (not including holidays or other nonworking periods) in which the work task associated with the task is expected to be performed. (The number of calendar days may be different based on the calendar assigned to the task.) For certain tasks such as concrete curing, or others approved by the RPR, the calendar shall reflect no non-working days.

Duration, Remaining - The estimated time, expressed in Working Days (not including holidays or other nonworking periods), needed to complete a task that has started but has not finished

Early Dates – The earliest date a task can start or finish based upon logic and durations. They are calculated by the software application when scheduling the project. Progress Schedules.

Final Baseline Progress Schedule @ Award - The original plan against which the Contractor's progress is measured. The Final Baseline Progress Schedule @ Award represents the original plan at the award of the Contract, of what is expected to happen. Once the Final Baseline Progress Schedule @ Award is accepted by the RPR it is saved and used as a basis to compare against Progress Schedules Updates. (See also Section 80-3 of the FAA's General Provisions.)

Fragnet – A subdivision of a project network diagram usually representing some portion of the project.

Late Dates – The latest a task can start or finish without delaying the time standards contained in the CSPP.

Longest Path - The sequence of tasks through the Progress Schedule network that establishes the Milestones contained in the CSPP.

Look-Ahead Schedule – Commonly a one or two week time segment generated from the accepted Progress Schedule that forecasts the work planned for the one or two week period following the Status Date, and includes any major materials to be delivered anticipated shifts in Work Areas.

Milestone – A task with zero duration that typically represents a significant event, usually the beginning and end of the project, milestones set forth in the contract proposal, construction stages, a major work package, or the contract interim time-related clauses.

Notice to Proceed– The actual date the Contractor starts fieldwork of a contract pay item, which is entered as a Start milestone task in the schedule. Contractually no work may start until after the Contract is awarded by the Owner, and the Contractor has received a written Notice to Proceed.

Open End - The condition that exists when a task has either no predecessor or no successor, or when a task's only predecessor relationship is a finish-to-finish relationship or only successor relationship is a start-to-start relationship.

Predecessor – A task that is defined by Schedule logic to precede another task. A predecessor may control the Start Date or Finish Date of its successor.

Progress Schedule –Also referred to as the Project's Schedule.

Progress Schedule Update – Changes to the Progress Schedule that reflect the status of tasks that have commenced or have been completed, including the following items: (a) Actual Start date and or Actual Finish date as appropriate; (b) Remaining Duration for tasks commenced and not complete; and (c) Suspend or Resume dates for tasks commenced and not complete.

Progress Schedule Revision – Revisions to the Progress Schedule ensures it accurately reflects the current means and methods of how the Project is anticipated to progress, including modifications made to any of the following items: (a) changes in logic connections between tasks; (b) changes in constraints; (c) changes to task descriptions; (d) task additions or deletions; (e) changes in calendar assignments.

Project Scheduler – The person that is responsible for developing and maintaining the Progress Schedule.

Recovery Schedule – A schedule depicting the plan for recovery of significant time lost on the project. This separate CPM schedule submission shall provide the resolution and include appropriate changes in network logic, task and calendar adjustments.

Relationships - The interdependence among tasks relationships link a task to its predecessors and successors. Relationships are defined as:

- **Finish to Start -** The successor task can start only when the current task finishes.
- **Finish to Finish –** The finish of the successor task depends on the finish of the current task.
- **Start to Start –** The start of the successor task depends on the start of the current task.
- **Start to Finish –** The successor task cannot finish until the current task starts.

Slack (Float), Free - The amount a task can slip without delaying the immediate successor task. Free Float is the property of a task and not the network path. The Owner owns the Project's Free Slack (Float).

Slack (Float) Suppression - Utilization of zero free slack (float) constraints which allows a task to start as late as possible by using all of its' available free slack (float). This technique allows tasks to appear more critical than if the task's total float was based on early dates. Assigning zero free float prevents true sharing of total float between the Owner and the Contractor. Utilization of overly generous task durations and overly restrictive calendar non-working periods are also considered to cause slack (float) suppression.

Slack (Float), Total - The amount of time a task (or chain of tasks) can be delayed from its early start without delaying the contract completion date. Float is a mathematical calculation and can change as the project progresses and changes are made to the project plan. Total Slack (Float) is calculated and reported for each task in a network, however, Total Float is an attribute of a network path and not associated with any one specific task along that path. The Owner owns the Project's Total Slack (Float).

Status Date – The date used to update a project. The Status Date is used as the starting point to calculate the schedule.

Task- A discrete, identifiable task or event that usually has an expected duration, has a definable Start Date and/or Finish Date, and can be used to plan, schedule, and monitor a project.

Work Breakdown Structure (WBS) - A deliverable-oriented grouping of project elements, which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of project components or work packages.

Work Package - A deliverable that is a group of related tasks within a project at the lowest level of the work breakdown structure.

Work Day - A calendar day scheduled for active prosecution of contract work by the Contractor or the Contractor's representative. (See Section 10-65 of the FAA's General Provisions.)

80-03.1.B Scheduling Personnel. The Contractor shall designate a Project scheduler to have all scheduling responsibilities for the Work. The Project scheduler must have had previous scheduling responsibilities on similar projects of similar size and complexities.

80-03-1.C Software Compatibility Requirements. The Owner uses Microsoft Project 2016 to schedule and monitor its construction program. All schedules submitted shall be in a format compatible with this program and version.

80-03.1.D Preconstruction Schedule Coordination. The Contractor shall contact the RPR after notification they are the low bidder, but no later than two (2) Work Days following Contract award to coordinate schedule development. The purpose of this will be to discuss essential matters pertaining to the satisfactory scheduling of project tasks, and to resolve any known questions regarding interpretation of the contract requirements for this work. The Project Scheduler shall be prepared to discuss the following:

- The proposed hierarchal Work Breakdown Structure (WBS) for the Progress Schedules.
- The proposed Project calendars.
- The factors that the Contractor determines to control the completion of the project and any milestone task completion dates contained therein.
- File naming Procedures for submissions.

80-03.1.E Baseline Schedule Development. The Contractor shall prepare, furnish, and maintain a computer-generated Progress Schedule using the Critical Path Method on Microsoft Project scheduling software The Contractor and the Owner shall use the Progress Schedule to manage the Work. No Work other than installation of the Engineer's Field Office, mobilization, procurement and administrative tasks, will be permitted to start until the RPR in writing has approved the Baseline Progress Schedule.

The purpose of the Progress Schedule, and scheduling provisions in the Contract, shall be to:

- Ensure that the Contractor and the Owner have a detailed plan to complete the Project in accordance with time standards contained in the CSPP;
- Provide a means of monitoring the progress of Work;
- Aid in communication and coordination of tasks among all affected parties;
- Analyze the effect of changed conditions on the time standards contained in the CSPP;
- Analyze the impact of proposed Contract Amendments.
- Establish a standard methodology for time adjustment analysis based on the principles of the Critical Path Method of scheduling, to analyze delays and resolve construction disputes concerning time;
- Determine appropriate extensions or reductions of Contract Time.

In scheduling and executing the work, the Contractor shall:

- Sequence the Work to commensurate with the Contractor's abilities, resources and the Contract Documents. The scheduling of tasks is the responsibility of the Contractor.
- Ensure that Progress Schedules prepared by the Project Scheduler for submission to the Owner are in compliance with the Contract. The intent should be that Schedule submissions are timely, complete, accurate, and in compliance with the Contract.

- Communicate all Contract changes, and decisions or actions taken by the Contractor and all subcontractors, fabricators, etc., that effect the Progress Schedule to the Project Scheduler in a timely manner to allow appropriate development, maintenance, and update of the Progress Schedule.
- Include all Work contained in the Contract and all Work directed in writing by the RPR. Work tasks directed by the RPR to be added to the Contract shall be included in the next Monthly Progress Schedule submission.
- Assure that Progress Schedule Updates reflect the actual dates that work tasks started and were completed in the field.
- Break a schedule task into multiple tasks to reflect a discontinuity in the work if a work task is suspended in the field and restarted at a later date, and the break between when the Work was suspended to when it was resumed is significant compared to the original task duration.
- Ensure the Progress Schedule contains all Work constraints and Milestones defined in the Contract including the CSPP.
- Schedule the Work using such procedures and staging or phasing as required by the Contract. Work designated as part of separate stages may be performed concurrently with other stages where allowed by the Contract or where approved by the RPR. Failure by the Contractor to include any element of Work required by the Contract in the accepted Progress Schedule does not relieve the Contractor from its responsibility to perform such Work.

The schedule shall be developed utilizing the following elements:

- **Work Breakdown Structure (WBS)** - A multi-level hierarchal WBS shall be incorporated that provides a deliverable-oriented grouping of tasks and defines the total scope of the project. The Contractor shall develop a detailed project specific WBS for the RPR's review and approval prior to the development of the Baseline Schedule. The RPR shall make the final determination on the number of levels of the WBS, and how the tasks shall be grouped to represent the deliverables of the project. A minimum WBS shall consist of the following Levels (X)
    - PRECONSTRUCTION (1)
        - GENERAL(2)
        - SHOP DRAWING AND SUBMITTALS (2)
        - PROCUREMENT/FABRICATION/DELIVERY(2)
    - CONSTRUCTION (1)
        - WORK PHASE (2)
            - CONSTRUCTION COMPONENT (3) (earthwork, drainage, paving, etc.)
    - POST CONSTRUCTION(1)
        - PUNCHLIST (2)
        - DEMOBILIZATION (2)
        - PROJECT DOCUMENTATION (2)
- **Task ID** - Include a unique identification number for each task. Task ID numbers shall not be changed, or reassigned for the duration of the contract.

- **Task** - Clearly and uniquely define each task with a description of the work that is readily identifiable to inspection staff and the progress of each task can be measured.
- **Milestone Tasks** – To the extent not specifically addressed in the CSPP, this term include tasks for all Contract milestones that define significant contractual events such as Contract Award, Notice to Proceed, Contractor Start Work, Substantial Completion, Contract Completion, and coordination points with outside entities such as utilities, the FAA, Time-Related Contract Provisions, etc.
- **Task Durations** – Define the Original Duration of each task in units of whole work days. With the exception of submittal/procurement tasks, durations shall not exceed 15 work days unless approved by the RPR. Durations for RPR submittal reviews shall meet the requirements set forth in the contract documents. If requested by the RPR, the Contractor shall justify the reasonableness of planned task time durations.
- **Relationships** - Clearly assign predecessors and successors relationships to each task, and assign appropriate logic ties between tasks (Finish to Start, Start to Start, Finish to Finish, etc.). Open-ended tasks are not permitted, with the exception of the first and last tasks in the schedule. Do not include inappropriate logic ties with Milestone Tasks (For a finish milestone task: a predecessor shall only be assigned a Finish to Finish logic tie, a successor shall only be assigned a Finish to Start or Finish to Finish logic tie. For a start milestone: a predecessor shall only be assigned a Finish to Start or Start to Start logic tie, a successor shall only be assigned with a Start to Start logic tie). Lag time may not exceed 10 days. The Contractor shall assign the "Contract Award Date" task as a predecessor to all Review and Approval type tasks to be performed by the RPR.
- **Task Constraint Dates** – The Contractor shall not have any constrained tasks, with the exception of contractual dates, unless the RPR accepts such constraints in writing.
- **Task Dates** – With the exception of contract Milestone dates, "Actual Start" and "Actual Finish" dates and "Start" and "Finish" dates, task dates shall be calculated by the Project scheduler tool within the scheduling software.
- **Calendars** – Notwithstanding the Contractor's assigned risk for delays due to weather (See Section Nos. 80-6 and 80-7 of the FAA's General Provisions), use clearly defined calendars that account for expected seasonal weather conditions (including winter shutdown periods) and environmental permit requirements, for the planning and scheduling of tasks. Do not incorporate a task with a description of "Winter Shutdown" that requires constraints rather utilize non-working periods utilizing a Base Calendar.

80-03-1.F Progress Schedule Update

In addition to the detailed schedule requirements for the submission of the Baseline Progress Schedule, the Contractor shall complete the following additional requirements for Monthly Progress Schedule submissions:

Durations – The Original Duration shall not be changed without prior written justification by the Contractor, and written approval by the RPR. The Contractor shall edit the Remaining Duration to reflect progress made on work tasks, and shall not use Duration percentage. If a proposed change to Original Duration is due to additional or changed work to the Contract, the Contractor shall instead add a task to reflect this additional work. The Contractor shall not use zero durations for Task Dependent tasks.

Started and Finished dates – For each task where work was begun during the Monthly reporting period, the Contractor shall check the box adjacent to Started and enter the date the work began. For each task where work was completed during the Monthly reporting period.

If the Contractor fails to submit the required Progress Schedule updates and revisions, the Contractor waives its rights to adjustments of time and related compensation for delays that accrue during the period in which the progress schedule has not been submitted in accordance with the detailed CPM scheduling requirements.

The Owner will have no liability for any subsequent Contractor time related disputes which occurred during the period of time in which the Contractor failed to submit monthly progress schedule updates and revisions in a timely manner.

80-03.1.G Schedule for Submittals.

Progress Schedule submissions will only be considered complete when all documents and data have been provided to the RPR. When preparing a formal submission of the Progress Schedule, the Contractor shall make a pdf of the current Progress Schedule and name it according to the file naming convention determined at the Preconstruction Scheduling Meeting.

A. Submittals shall be uploaded to a designated location on the Project FTP Site as directed by the RPR with sufficient time to allow for review.

B. Allow five (5) calendar days for review and turnaround of Progress Schedule submittals.

C. Monthly submission of updated Progress Schedule shall be completed prior to processing of monthly pay requisition.

D. Immediate Rejection of Progress Schedule submissions**.** The following deficiencies in a Contractor's Progress Schedule submission shall be grounds for the immediate rejection by the RPR, without further review, analysis and/or comments.

- Failure of the Project Scheduler to "schedule" the Project, as of the status date.
- Any tasks without predecessors or tasks without successors, appearing in the Schedule with the exception of the first and last task in the schedule.
- Any task constraints appearing in the Schedule that have not been approved in writing by the RPR, or that are not specifically allowed by this specification.
- Any Tasks with Actual Dates > Status Date
- Any Milestone Tasks with invalid relationships
- Failure to have a clearly defined Critical Path from the Status Date to the last task in the schedule, using the Longest Path method. This would reflect logic errors in the project schedule.
- If any of these deficiencies are found, the Contractor's submission shall be considered deficient, and RPR will notify the Contractor immediately.

No direct payment will be made for the coordinated construction schedule. The cost of creating, revising, maintaining, updating, etc. the coordinated construction schedule shall be included in the price of the bid for the various items of the Contract.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work

schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

See Attachment "A" to Section 70-08 - Construction Safety and Phasing Plan (CSPP) at the end of Section 70.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for

normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of calendar days shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1: Contract time based on calendar days

Contract Time based on calendar days shall consist of the number of calendar days stated in the contract for each work area, counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

Time charged against the first work area shall begin on the date stated in the written Notice to Proceed. Time charged against subsequent work areas shall begin on the date and time stated in the NOTAMS issued for closure of the affected Work Area, at which time the Contractor may begin to place barricades, temporary jumpers, etc. for that Work Area.

Time charged against an individual Work Area shall end when the Engineer deems that work is substantially complete. Substantial completion of work in an individual Work Area is defined as the Work Area being fully operational and open to aircraft traffic, all barricades affecting the Work Area are removed, all temporary jumpers affecting the Work Area are removed, all pavements in the Work Area are cleaned, and NOTAMS affecting the completed Work Area are cancelled.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Schedule	Liquidated Damages Cost	Allowed Construction Time
Total Contract	$1,000/Calendar Day	40 Calendar Days

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the execution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

Section 90 Measurement and Payment

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds (907 kg) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles

Term	Description
	shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. In the event inspection reveals the scales have been “overweighing” (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them.

Term	Description
	Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*.
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities,* will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items,* the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. From the total of the amount determined to be payable on a partial payment, 10 percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-03. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such

a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or

supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes,* or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

i. The Owner and Engineer will perform a warranty inspection with the Contractor approximately three (3) months before the end of the one year warranty period.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s). The Contractor shall prepare a project O&M Manual for the Owner. The O&M Manual shall consist of approved certification submittals, approved shop and setting drawing submittals, approved catalogue data submittals, circuit test results in accordance with Item L-108, and O&M Manuals for equipment installed that have operating procedures and/or maintenance requirements associated with them. The O&M manual shall be neatly bound in a properly sized 3-ring binder and tabbed by specification section. The O&M Manual shall be submitted to the Engineer prior to final payment to facilitate project closeout.

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

m. Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706) from the Prime Contractor.

n. Contractor's Affidavit of Release of Liens (AIA Document G706A) from the Prime Contractor.

o. Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706) from each subcontractor.

p. Contractor's Affidavit of Release of Liens (AIA Document G706A) from each subcontractor.

q. Consent of Surety to Final Payment (AIA Document G707) from the Prime Contractor.

END OF SECTION 90

Special Provisions to the General Provisions

SP 20-16 Addenda and interpretation. No interpretation of the meaning of the Contract Documents, Contract Drawings or other portions of the Contract will be made orally. Every request for such interpretation must be in writing and addressed to C&S Engineers, Inc., , and to be given consideration must be received at the above address at least seven (7) days prior to the date fixed for opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda, which, when issued, will be posted to the website at which the Contract Documents were obtained, not later than twenty-four (24) hours prior to the date fixed for the opening of bids. When addenda are posted to a website, it is the Contractor's responsibility to retrieve the addenda. Failure of any Bidder to receive or retrieve any such addenda or interpretation shall not relieve said Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract.

SP 30-10 Issued for Construction Contract Documents. Issued for Construction (IFC) Contact Documents will be distributed prior to the start of construction. The IFC contract documents consist of the Conformed Contract Documents and the Contract Drawings. The IFC Contract Documents will include a copy of the executed Form of Contract. The original filled out and signed Form of Contract will be kept on file with the Owner or Engineer. The IFC Construction Drawings will incorporate any changes made by addendum during the bidding process.

The cover of the Contract Documents will be labeled "Conformed Contract" and "Issued for Construction". The title sheet of the Contract Drawings will be labeled "Issued for Construction".

SP 50-17 Additional Survey Requirements.

A. This work shall consist of providing all necessary survey work to establish, spatially position, and verify the locations of existing and proposed features and measure quantities of items in accordance with the contract documents or as directed by the RPR. This work includes but is not limited to the establishment, reestablishment or localization of primary and secondary control, the stakeout or layout of proposed features, the initialization, calibration and navigation of automated equipment operations, the location or verification of existing or of constructed features, the verification of geospatial data for proposed construction work and the coordination and sharing of survey data with the RPR.

The Contractor shall be responsible for trimming trees, brush and other objects from survey lines in advance of all survey work to permit accurate and unimpeded work by the survey crews.

B. Survey Reference Points.

1. Existing horizontal and vertical control points for the Project are those designated on drawings or as determined from investigation of the existing conditions.
2. Locate and protect control points prior to starting Site Work and preserve permanent reference points during construction.
    a. Make no changes or relocations without prior approval of the RPR.
    b. Report to RPR when reference point is lost, destroyed or requires relocation because of necessary changes in grades or locations.

c. Replace Project control points, which may be lost or destroyed. Airport control points shall be replaced in accordance with their requirements.

d. Existing property corners, markers, stakes, iron pins, and survey monuments defining property lines which have a high probability of being disturbed during construction shall be properly tied into fixed reference points before being disturbed. If disturbed, they shall be accurately reset in their proper position upon completion of the work.

C. Project Layout Requirements.

1. Establish a sufficient number of permanent bench marks on Site, as may be required, referenced to data established by survey control points. Record locations of benchmarks with horizontal and vertical data on Project Record Documents.
2. From established control points, layout all Work by establishing all lines and grades at Site necessary to control Work. Contractor shall be responsible for all measurements that may be required for execution of Work to location and limit marks prescribed in appropriate Specification Sections or on Contract Drawings.
3. Furnish, at Contractor expense, all such stakes, steel pins, equipment, tools and material and labor that may be required in laying out Work control points.
4. Establish lines and levels. Locate and layout by instrumentation and similar appropriate means:
   a. Verify property, grades, lines, levels and dimensions indicated.
   b. Site Improvements
      1) Provide stakes for grading, fill and topsoil placement.
      2) Layout utility slopes and invert elevations.
      3) Layout limits of pavement demolition and proposed pavement.
4. Verify and coordinate in field all existing and proposed underground components including civil, structural, utilities and other components prior to initiation of the Work. Advise RPR and/or FAA of any conflicts or discrepancies.

D. Documents.

1. Submit name, address and contact information of Surveyor to RPR.
2. On request of the RPR, submit documentation to certify accuracy of construction survey and stakeout work and compliance with Contract Documents.
3. Submit certificate signed by licensed surveyor certifying that elevations and locations of improvements are in conformance with Contract Documents. Should any work be in non-conformance with Contract Documents, Contractor shall identify all such non-conformance in the certificate.
4. Standards and Availability: Data and other measurements shall be recorded in accordance with standard and approved methods. All field notes, sketches, recordings, and computations in establishing above horizontal and vertical control points shall be available at all times during progress of Work for ready examination by RPR.
5. Maintain complete and accurate record data on underground utilities and obstructions, new and existing, encountered in execution of Work. Record data on Project Record Documents.
6. On completion of major site improvements, prepare certified survey showing dimensions, locations, angles, and elevations of construction.

E. GPS Inspection Unit. Section not used.

F. Computer Aided Drafting & Design (CADD) and 3D Surface files. Section not used.

G. Equipment. Section not used.

H. Verification of Existing Grades. Section not used.

J. Traditional Survey Stakeout. The Contractor shall field locate all features to be constructed from survey control points which are identified on the Plans. Any error, apparent discrepancy or absence in the data shown or required to appropriately accomplish the stakeout survey shall be referred to the RPR immediately for interpretation when such is observed or required.

The Contractor shall place two offset stakes or references points along the center line at maximum intervals of 50 feet and at such intermediate locations as required to determine location and direction. From computations and measurements made by the Contractor, these stakes shall be clearly and legibly marked with the center line station number, offset and cut or fill from which the establishment of the centerline location and elevation can be determined. If markings become illegible for any reason the markings shall be restored by the Contractor. The Contractor shall locate and place all cut, fill, slope, fine grade, or other stakes and points for the proper progress of the work with a maximum station spacing of 50 feet. All control points shall be properly protected and flagged for easy identification.

The Contractor shall be responsible for the accuracy of the work and shall maintain all applicable reference points, stakes, etc. Damaged or destroyed reference points or bench marks made inaccessible by the progress of the construction shall be replaced or transferred by the Contractor. All control points shall be referenced by ties (4 minimum) to specific points on acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the RPR. All stakeout survey work related to control shall be referenced to the control line shown in the contract documents. Computations and survey notes necessary to establish the position of the work from control points, shall be made and maintained in a neat, legible and acceptable format by the Contractor. Computations, survey notes and other survey information shall be made available to the RPR within 3 work days from the request. The RPR may check all or any portion of the stakeout survey work or notes made by the Contractor. Such checking by the RPR shall not relieve the Contractor of any responsibilities for the accuracy or completeness of the work.

K. Automated Stakeout and Automated Machine Guidance Operations. Section not used.

L. GPS Inspection Unit. Section not used.

M. GPS Training Provisions. Section not used.

SP 50-18 Removal of water. The Contractor shall at all times during construction, provide and maintain proper and satisfactory means and devices for the removal of all water entering the excavations, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with the prosecution of the work or the proper placing of materials or other work.

Removal of water includes the construction and removal of cofferdams, sheeting and bracing, the furnishing of materials and labor necessary therefore, the excavation and maintenance of ditches and sluiceways and the furnishing and operation of pumps, wellpoints and appliances needed to maintain thorough drainage of the work in a satisfactory manner.

Water shall not be allowed to rise over or come in contact with any masonry, concrete or mortar, until at least twenty-four (24) hours after placement and no stream of water shall be allowed to flow over such work until such time as the RPR may permit.

Unless otherwise specified, all excavations which extend down to or below the static groundwater elevations at the sites of structures shall be dewatered by lowering and maintaining the groundwater beneath such excavations at an elevation not less than that specified herein at all times when work thereon is in progress, during subgrade preparation and the placing of the structure or other materials thereon.

Where the presence of fine granular subsurface materials and a high groundwater table may cause the upward flow of water into the excavation with a resulting quick condition, the Contractor shall install and operate a suitable dewatering system to prevent the upward flow of water during construction.

When the water table is within the capillary rise of silt/clay subsurface material, the Contractor shall select and operate his equipment in a manner to prevent the deterioration of the working surface due to the upward flow of water during construction.

The effluent pumped from the dewatering system shall be examined periodically by qualified personnel to determine if the system is operating satisfactorily without the removal of fines.

Unless otherwise directed by the RPR or shown on the Contract Documents, the water level shall not be permitted to rise until construction in the immediate area is completed and the excavation backfilled to the original grade or proposed grade.

Where well points are used, the groundwater shall be lowered and maintained continuously (day and night) at a level not less than two (2) feet below the bottom of the excavation. Excavation will not be permitted at a level lower than two (2) feet above the water level as indicated by the observation wells.

The wellpoint system shall be designed or installed by or under the supervision of an organization whose principal business is wellpointing and has at least five (5) consecutive years of similar experience and can furnish a representative list of satisfactory similar operations. Wellpoint headers, points and other pertinent equipment shall not be placed within the limits of the excavation in such a manner or location as to interfere with the laying of pipe or trenching operations or with the excavation for and/or construction of other structures. Standby gasoline or diesel powered equipment shall be provided so that in the event of failure of the operating equipment, the standby equipment can be readily connected to the dewatering system. The standby equipment shall be maintained in good order and actuated regularly not less than twice a week when directed.

Wellpoints shall be installed in the center of a sand wick drain which shall be placed by means of a sanding shell or other approved means to provide a sand core not less than ten (10) inches in diameter.

Detached observation wells of similar construction to the wellpoints shall be installed at intervals of not less than fifty (50) feet along the opposite side of the trench from the header pipe and line of wellpoints, or around the excavation for a structure or as shown on the Contract Drawings, to a depth of at least five (5) feet below the proposed excavation. In addition, one wellpoint in every fifty (50) feet shall be fitted with a tee, plug and valve so that the wellpoint can be converted for use as an observation well. Observation wells shall be not less than one and one-half (12) inch in diameter.

Water pumped or drained from excavations, or any sewers, drains, or water courses encountered in the work, shall be disposed of in a suitable manner without injury to adjacent property, the work under construction, or to pavements, roads and drives. No water shall be discharged to sanitary sewers. Sanitary sewage shall be pumped to sanitary sewers or shall be disposed of by an approved method.

Any damage caused by improper handling of water shall be repaired by the Contractor at his/her own expense.

SP 50-19 Sheeting and bracing. The Contractor shall furnish, place and maintain such sheeting, bracing and shoring as required to support the sides and ends of excavations in such a manner as to prevent any movement which would in any way damage the pipe, sewers, masonry or other work, diminish the width necessary, otherwise damage or delay the work, or endanger existing structures, pipes or pavements, or to occasion a hazard to persons engaged on the project or to the general public.

Sheeting and bracing or other trench protection shall be utilized as required for the safety of employees exposed to the hazard of falling or sliding material from any trench or excavation in conformance with the provisions of Industrial Code Rule 23 as amended, and OSHA. Sheeting and bracing must be designed by, signed and stamped by a Professional Engineer licensed to practice in the State in which the project is located.

The Contractor shall be responsible for the adequacy of all trench support systems used and for all damage to persons or property resulting from improper quality, strength, placing, maintenance and removal.

All material used for sheeting and bracing shall be sound and free from defects which might impair its strength or effectiveness.

All timber sheeting and bracing shall be sound and straight, free from cracks, shakes and large or loose knots.

All steel sheeting and bracing shall be sound and straight, free from bends, twists or splits, having square and undamaged ends.

Sheeting shall be driven vertically from the original ground surface as the excavation progresses. Sufficient toe support shall be sustained so as to maintain pressure against the original ground at all times.

Timber sheeting shall be driven so that edges are tight together and steel sheeting driven with the individual members interlocking. All bracing shall be of such design and strength as to maintain the sheeting in its proper position.

The Contractor shall be solely responsible for the adequacy of all sheeting and bracing.

In general, all sheeting and bracing, whether of steel, timber or other material, used to support the sides of trenches or other open excavations, shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a pipe, sewer or structure shall be withdrawn, unless otherwise directed, before more than 6 inches of earth is placed above the top of the pipe, sewer or structure and before any bracing is removed. The voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Contractor shall be responsible for the adequate shoring and/or bracing of any existing utilities encountered during the excavation. Such utilities shall be braced or shored in a manner acceptable to the local jurisdictional agency having authority over the utility encountered. It shall be the responsibility of the Contractor to prevent damage to or displacement of utilities, and to work with and request the concurrence of the utility's company representative in this matter.

SP 60-09 Shop and setting drawings and catalogue data. All materials and equipment used in the work shall be submitted to the RPR, unless otherwise directed. The RPR will forward the submittals to Engineer for their review and approval prior to ordering the equipment. All information required for the Engineer's review of each particular pay item shall be sent as one submittal. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Drawings and data shall be submitted sufficiently in advance of the work to permit proper review, including time for necessary revisions and re-submittals. The Contractor is solely responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

Shop and setting drawings shall present complete and accurate information relative to all working dimensions, equipment weight assembly and sectional view, all the necessary details, pertaining to coordinating the work of the Contract, lists of materials and finishes, parts lists and the description thereof, lists of spare parts and tools where such parts or tools are required, no-scale control diagrams for control wiring and control piping, and any other items of information that are required to demonstrate detail compliance with the Plans and Specifications. Each drawing shall be dated and shall show the name of the Project, Contract Number and the name of the manufacturer of the equipment covered by the drawing or drawings. The Engineer will not review any drawings that are not properly identified or that do not contain complete data on the work or that have not been checked, stamped and signed by the Contractor for compliance with the Contract Documents.

The Engineer's review of the Contractor's Shop Drawings signifies only that such drawings appear to be in substantial conformity with the Contract Drawings and Contract Documents. Such review does not indicate approval of every detail of the drawings nor of the work methods of the Contractor which are indicated thereon. Regardless of the corrections made in or made of such drawings by the Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings, for their conformity to the Plans and Specifications and for the proper fitting and construction of the work.

No work covered by shop and setting drawings shall be done until the drawings have been reviewed and found acceptable by the Engineer. No payment shall be made on any item for which submittals are not received and found acceptable by the Engineer.

SP 60-10 Electrical shop drawings. Drawings for electrical equipment shall show physical dimensions and installation details and shall include elementary and connection diagrams for each control assembly and the interconnection diagrams for all equipment. The drawings shall show clearly the coordination of control work, shall identify the components external to electrical equipment and shall define the contact arrangement and control action of the primary and final control elements.

Where standard electrical control equipment having complex internal wiring is required, such as control panels, generator transfer panels, electric or electronic instruments and similar items, the detail shop wiring diagrams for such equipment will not be required, and, if submitted, will in general not be reviewed. The submittal for each such item of equipment shall, however, include an elementary diagram of the input and output elements which require connections to external equipment, and/or a complete step by step description of the control action of the equipment being submitted. In the event that any questions

arise as to the type of information to be presented on the submittal, the supplier shall direct inquiries to the RPR through the Prime Contractor in advance of the preparation of his/her submittal.

SP 60-11 Substitute items. If in the Engineer's sole judgment an item of material or equipment proposed by the Contractor does not qualify as an "or-equal" item, it will be considered a substitute item. The Contractor shall submit sufficient information as provided below to allow the Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. The procedure for review by the Engineer will include the following and as the Engineer may decide is appropriate under the circumstances. Requests for review of substitute items of material or equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall first make a written application through the RPR to the Engineer for acceptance thereof, certifying that the substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the substitute will prejudice the Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents or Contract Drawings (or in the provisions of any other direct contract with the Owner for work on the Project) to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. If the substitute item requires modifications to any existing features or to any proposed work, the application shall also include details of proposed modifications necessary to accommodate the substitute item. Such details shall include scaled layouts, dimensions and other pertinent information to enable the Engineer to accurately assess the entire application. If the substitute item and proposed modifications are approved, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications and absorb all costs of any related changes imposed on other Contractor's. All variations of the substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the substitute. The Engineer may require the Contractor to furnish additional data about the substitute.

A. Engineer's Evaluation. The Engineer will be the sole judge of acceptability. No substitute will be ordered, installed or utilized without the Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The Engineer will record time required by the Engineer and the Engineer's Consultants in evaluating substitutes proposed or submitted by the Contractor and in making changes in the Contract Documents or Contract Drawings (or in the provisions of any other direct contract with Owner for work on the Project) occasioned thereby. The Engineer's charges shall be at the same rates the Engineer charges for such services to the Owner.

B. Contractor's Expense. All data to be provided by the Contractor in support of any substitute item will be at the Contractor's expense. In order to aid the Engineer in determining the equality of an or substitute item (when compared to the item actually specified), the Contractor shall arrange for the performance of any tests requested by the Engineer. The Engineer shall determine the nature, extent, tester and degree of supervision of such tests. Certified test results shall be mailed directly to the Engineer for all tests requested. All costs of such tests, including engineering costs, shall be borne by the Contractor. The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute. Whether or not the Engineer accepts a substitute item so proposed or submitted by the Contractor, the Contractor shall reimburse the Owner for the charges of the Engineer and the

Engineer's Consultants for evaluating each such substitute item. The costs for evaluating substitute items shall be deducted from the Owner's payment to the Contractor.

SP 60-12 Submittal procedure. The following procedure has been established for the submittal and processing of shop and setting drawings, working drawings, and catalogue data. Departures from this procedure may result in delay and misunderstandings.

A. All information required for the Engineer's review of each particular pay item shall be sent as one submittal to the RPR with an attached submittal cover sheet. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time.

B. In submitting certifications, drawings, catalog data, and similar items for review, one (1) electronic copy shall be submitted via e-mail. One (1) electronic copy will be returned to the Contractor via e-mail and bearing the review stamp. The Contractor shall provide one (1) hard copy of each submittal for inclusion in the O&M Manual prior to contract closeout.

The RPR shall be responsible for printing sufficient copies of each submittal for their own records. The Contractor shall be responsible for printing sufficient copies of each submittal for their own records and distributing to each of the other prime or subContractors whose work is to be correlated with such submittals.

C. Submittals will be stamped by the Engineer as follows:

1. "Approved", if no change or rejection is made.

2. "Approved as Noted", if minor changes or additions are made, but re-submittal is not considered necessary. All copies will bear the corrective marks.

3. "Revise and Resubmit", if the changes requested are extensive. In this case, re-submittal after correction is necessary and the same number of copies shall be included in the re-submittal as in the first submittal.

4. "Rejected", if it is considered that the data submitted cannot with reasonable revision meet the requirements of the Plans and Specifications.

5. "Submit Specified Item", if the data submitted is not clear, complete, or for other reasons cannot be examined by the Engineer to establish compliance with the Plans and Specifications.

D. Unless otherwise approved in specific cases, all submittals must be transmitted by the Prime Contractor, not by the SubContractors or vendors.

Any changes in re-submittals, other than those indicated as requested, must be specifically brought to the attention of the RPR. Changes or additions shall not be made in, or to, any fabricated item, part or material without having a re-review.

SP 70-22 Additional sanitary, health, and safety provisions. (Section not applicable.)

SP 70-23 Federal Contract Provisions for procurement and contracting under AIP.

The Contractor is required to insert these contract provision in each lower tier contract (e.g. subcontract or sub-agreement).

The Contractor is required (including all Subcontractors) to incorporate these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services.

The Contractor shall be responsible for compliance with these contract provisions by any Subcontractor, lower-tier Subcontractor or service provider.

A1 ACCESS TO RECORDS AND REPORTS

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A2 BREACH OF CONTRACT TERMS

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A3 BUY AMERICAN PREFERENCE

BUY AMERICAN PREFERENCE

The Contractor certifies that its bid/offer is in compliance with 49 U.S.C. § 50101, BABA and other related Made in America Laws (Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or

"Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.), U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

The bidder or offeror certifies procurement of certain rolling stock using FAA grant funds will prohibit airports from using Federal financial assistance to procure buses or rail car vehicle rolling stock from covered entities.

Certificate of Compliance with FAA Buy American Preference – Construction Projects

NOTE: Certification is included in the PROPOSAL.

A4 CIVIL RIGHTS – GENERAL

GENERAL CIVIL RIGHTS PROVISIONS

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin, creed, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

A5 CIVIL RIGHTS – TITLE VI ASSURANCE

Title VI Solicitation Notice:

The Owner, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4), 28 CFR § 50.3, and 49 CFR Part 21, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, all contractors will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of the owner's race, color, national origin, sex, creed, age, or disability in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR Part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964) including amendments thereto;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 et seq.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 .U.S.C. § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 U.S.C. § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (P.L. 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 U.S.C. § 12101, et seq) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR Parts 37 and 38;
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681, et seq).

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor"), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and

Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin), creed, sex, age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21 including amendments thereto.

3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.

4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

A6 CLEAN AIR AND WATER POLLUTION CONTROL

CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceeds $150,000.

A7 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.
No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.
In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $33 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.
The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.
The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these

clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

A8 COPELAND "ANTI-KICKBACK" ACT

COPELAND "ANTI-KICKBACK" ACT

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A9 DAVIS-BACON REQUIREMENTS

DAVIS-BACON REQUIREMENTS

1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under regulations implementing the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)

(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
(2) The classification is utilized in the area by the construction industry; and
(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, that the Secretary of Labor has found, upon the written

request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)

(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social

security numbers and home addresses shall not be included on weekly transmittals. Instead, the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at https://www.dol.gov/agencies/whd/government-contracts/construction/payroll-certification or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(E) A pay application can not be deemed acceptable until all Contractor and Subcontractors pay application back-up are submitted and approved by the Owner representative for the work period of the pay application.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or

a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at no less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

A10 DEBARMENT AND SUSPENSION

CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must confirm each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov.

2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.

3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A11 DISADVANTAGED BUSINESS ENTERPRISE

A. Bidders List Collection Data (§26.11) – Each bidder is required to complete and submit with their proposal. Bidders must provide the following information about all DBE and non-DBEs who bid as a prime contractor and subcontractor on this project:
   a. Firm name,
   b. Firm address including ZIP code
   c. Firm's status as a DBE or non-DBE
   d. NAICS code applicable to each scope of work the firm sought to perform in its bid
   e. Age of the firm, and
   f. The annual gross receipts of the firm

   Incomplete bidders list can deem a bid irregular. **SEE THE BIDDERS LIST COLLECTION DATA FORM IN THE PROPOSAL SECTION.**

B. **Solicitations Without a DBE Contract Goal.** The requirements of 49 CFR Part 26 including any amendments thereto apply to this contract. It is the policy of the Owner to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership. A DBE contract goal has not been established for this contract; however, the Owner is implementing Small Business participation measures.

C. Fostering Small Business Participation (49 CFR Part 26, §26.39).

   In accordance with 49 CFR Part 26.39, the Sponsor has created a Small Business Element to structure contracting requirements to facilitate competition by small business concerns, taking all reasonable steps to eliminate obstacles to their participation, including unnecessary and unjustified bundling of contract requirements that may preclude small business participation in procurements as prime Contractors or subContractors.

   A small business is defined as **a company and/or firm whose annual revenue does not exceed the cap on average annual gross receipts specified in §26.25(b).**

   To be recognized as a small business, a firm must complete the Small Business Verification Form and submit federal tax returns for the past three years at the time of bid submission. The first page of each year's federal business tax return will be accepted in lieu of the full return, provided it includes a summary of the firm's gross receipts. All businesses that meet these criteria will be considered small businesses, regardless of race or sex.

   The Owner will presume that a business is a "small business" or "small business concern" for purposes of this Program if the business is a for-profit enterprise, considering that they are within the size standards set forth by 49 CFR 26.65(b), that is either:

- All DBE and ACDBE Certifications;
- An eligible participant of federal Small Business Administration (SBA) programs, which may include businesses certified as disadvantaged, minority-owned, women-owned, or emerging small businesses, Section 8(a) Business Development, Small Disadvantaged, and HUBZone. The SBA maintains an online listing of eligible, participating small businesses; or

- Certified by a public agency other than those listed above and meets a size standard that is no greater than the SBA size standard, which standard must be a criterion for certification or participation in that public agency program.

Proof of such certifications will be required at time of bid in lieu of federal tax returns.

In compliance with this policy, the Sponsor's DBE Program in regard to §26.39 Fostering Small Business Participation may include, but is not limited to, the following strategies:

- In large contracts, require bidders on the prime contract to specify elements of the con Ensuring that a reasonable number of prime contracts and subcontracts are of a size that small businesses, including DBEs, can reasonably perform;
- Arranging quantities, specifications, and delivery schedules to facilitate small business participation; and
- Dividing large contracts into multiple bid schedules and bid items to make it easier to define portions of the work to subcontract.

In order to actively implement the Sponsor's program elements to foster small business participation and to comply with the requirement of good faith implementation of our DBE program, the Sponsor will require that the Contractor fill out and submit the FOSTERING SMALL BUSINESS PARTICIPATION form for construction work items as well as for professional services work items. The forms shall be filled out and submitted to the Sponsor within 5 days of bid opening. **SEE THE FOSTERING SMALL BUSINESS PARTICIPATION FORMS IN THE PROPOSAL SECTION.**

Prime Contracts (Projects Covered by a DBE Program)

DISADVANTAGED BUSINESS ENTERPRISES

Contract Assurance (§ 26.13) –

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or

4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (§26.29) – The prime Contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime Contractor receives from the Owner. The prime Contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE subcontractors and all lower tiers

The Monthly Payment Report, found later in this section, is required to be submitted on a monthly basis throughout the entirety of the project. A progress payment will not be deemed complete and able to be processed until the reports are submitted. This report monitors the payments made from the prime to the subcontractors.

The prime Contractor is responsible for issuing the subcontractor's Prompt Payment Certification to all subcontractors under this contract, and is required to ensure that all subcontractors issue the certificate to each of their subcontractors. Each Contractor/subcontractor shall require each of their subcontractors to fill out and submit a copy of the certification to the Sponsor's representative and the prime Contractor prior to each payment application or electronically acknowledge payment until the subcontractor's work is complete and paid in full. Not receiving the certification or electronic acknowledgement from the subcontractor will be cause for the Sponsor's representative to delay processing the payment application.

A12 DISTRACTED DRIVING

TEXTING WHEN DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $15,000 that involve driving a motor vehicle in performance of work activities associated with the project.

A13 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act P.L. 115-232, § 889(f)(1)).

A15 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

SOLICITATION CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR Part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A16 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

NOTE: Certification is included in the PROPOSAL.

A17 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

CONTRACT CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A18 PROCUREMENT OF RECOVERED MATERIALS (Section not applicable.)

A19 RIGHT TO INVENTIONS (Section not applicable.)

A20 SEISMIC SAFETY (Section not applicable.)

A21 TAX DELINQUENCY AND FELONY CONVICTIONS

NOTE: Certification is included in the PROPOSAL.

A22 TERMINATION OF CONTRACT

TERMINATION FOR CONVENIENCE
(CONSTRUCTION & EQUIPMENT CONTRACTS)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR CAUSE DEFAULT (CONSTRUCTION)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

A23 TRADE RESTRICTION CERTIFICATION

NOTE: Certification is included in the PROPOSAL.

A24 VETERAN'S PREFERENCE

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within 49 U.S.C. § 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 U.S.C. § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A25 DOMESTIC PREFERENCES FOR PROCUREMENTS

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

NOTE: Certification is included in the PROPOSAL.

A26 PROHIBITION OF COVERED UNMANNED AIRCRAFT SYSTEMS (UAS)

PROHIBITION OF COVERED UNMANNED AIRCRAFT SYSTEMS (UAS)

The Contractor certifies that they are aware of and comply with relevant Federal statutes and regulations, including those from the Federal Aviation Administration (FAA), for operating unmanned aircraft systems (UAS) in accordance, and in compliance with all related requirements in the FAA Reauthorization Act of 2024 (Public Law 118-63), section 936 (49 U.S.C. § 44801 note).

Contractor warrants that all UAS operations will be conducted in full compliance with all applicable Federal Aviation Administration (FAA) regulations, including but not limited to 14 CFR Part 107, and any other applicable local, state, or Federal laws and regulations.

Sponsors and subgrant recipients cannot use AIP grant funds to enter into, extend, or renew a contract related to covered unmanned aircraft systems (UAS). This includes both procurement and operational contracts, as well as contracts with entities that operate such systems.

SP 90-12 Security for construction warranty. The Contractor shall upon final acceptance of the work, furnish a bond to the Owner in a penal sum equal to five percent (5%) of the amount of the Contract price, executed by a surety company authorized by the Department of Insurance of the State of to execute such a bond in this State, and which bond shall be approved as to form and manner of execution by the Owner's attorney. This bond shall be conditioned for the faithful performance by the said Contractor of the conditions and stipulations of the subsection titled ACCEPTANCE AND FINAL PAYMENT of this section, thereof relating to maintenance and repair, for a period of one (1) year from the date of the final acceptance of the work. In default of the filing of such bond, a sum of money equal to said five percent (5%) may be retained out of any monies due to the Contractor and be held for one (1) year, or until the bond above described is filed.

For Contractors who have elected to set up an escrow account, they may elect to maintain the escrow account for a period of one (1) year from the date of final acceptance of the work in lieu of providing a bond for security of guarantee as described above.

MONTHLY PAYMENT REPORT
(MUST BE SUBMITTED BY THE 10TH OF EACH MONTH UNTIL PROJECT COMPLETION)

Name of Contractor's Firm: _____

Project Name/Location: _____

FAA AIP Project No.: _____

The Prime Contractor shall complete all required fields on this form and submit it to the DBE Liaison Officer (DBELO) no later than the 5th calendar day of each month. Prompt payment monitoring is mandatory for all subcontractors, regardless of DBE status. The Prime Contractor is also responsible for ensuring that this form is completed and submitted for all lower-tier subcontractors participating on this project.

Subcontractor/DBE Supplier Name*	DBE/ SBE / Other D/S/O	Subcontractor Contract Amount	Invoice No.	Invoice Date	Amount Invoiced	Amount Paid	Date of Payment	Total Payments Amount to Date	Contract Completed Y/N	Date Retainage Paid

_____ _____ _____

Signature of Contractor's Representative | Print Contractor's Representative | Date

SUBCONTRACTOR'S PROMPT PAYMENT CERTIFICATION

NOTE: Each Contractor shall provide a copy of this form to each of their SubContractors (DBE and non-DBE) that are working on or has worked on this project. This certification applies to all tier SubContractors. A completed copy of this form shall be submitted to the Sponsor's representative, the Prime Contractor and the Contractor you are working for at least 7 days prior to an application for payment. Any SubContractor failing to submit a copy of this form shall be cause for the Sponsor's representative to delay the payment application. Reference Section 70-21, Item 12 for information on 49 CFR §26.29 with regard to Prompt Payment.

Should a SubContractor indicate that they have not received payment for work they performed in which their Contractor has received payment, the Sponsor shall withhold the delinquent amount indicated unless the Contractor received written approval from the Sponsor of the Contractor's written request justifying withholding payment from the SubContractor.

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Project Title:_____

Airport Name:_____

AIP No.:_____

Company Name: _____

Company Address: _____

_____ Contact Phone No.:_____

Contractor's Name you subcontract to: _____

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1. Have you performed work on this project within the last 30 days? Yes ___ No ___

2. Has the work you performed within the last 30 days been completed and accepted by the RPR? Yes ___ No ___ Not sure ____

3. Have you been paid by the Contractor you subcontracted with for the work you performed? Yes ___ No ___

4. Estimated value of work performed in which you did not receive payment: $ _____

5. Have you completed all work that you are required to perform on this contact? Yes ___ No ___

Written Name of SubContractor's Rep. _____

Signature:_____ Date:_____

FEDERAL WAGE RATES

"General Decision Number: MI20260001 06/25/2026

State: Michigan

Construction Types: Highway

Counties: Michigan Counties of
Alcona, Alger, Allegan, Alpena, Antrim,
Arenac, Baraga, Barry, Bay, Benzie,
Berrien, Branch, Calhoun, Cass,
Charlevoix, Cheboygan, Chippewa, Clare,
Clinton, Crawford, Delta, Dickinson,
Eaton, Emmet, Genesee, Gladwin, Gogebic,
Grand Traverse, Gratiot, Hillsdale,
Houghton, Huron, Ingham, Ionia, Iosco,
Iron, Isabella, Jackson, Kalamazoo,
Kalkaska, Kent, Keweenaw, Lake, Lapeer,
Leelanau, Lenawee, Livingston, Luce,
Mackinac, Macomb, Manistee, Marquette,
Mason, Mecosta, Menominee, Midland,
Missaukee, Monroe, Montcalm,
Montmorency, Muskegon, Newaygo, Oakland,
Oceana, Ogemaw, Ontonagon, Osceola,
Oscoda, Otsego, Ottawa, Presque Isle,
Roscommon, Saginaw, Sanilac,
Schoolcraft, Shiawassee, St Clair, St
Joseph, Tuscola, Van Buren, Washtenaw,
Wayne and Wexford

Modification Number	Publication Date
1	01/09/2026
2	05/18/2026
3	06/25/2026

CARP0004-004 06/01/2025

	Rates	Fringes
CARPENTER: PILEDRIVER (REMAINDER OF STATE)	$ 35.57	21.54

CARP0004-005 06/01/2025

	Rates	Fringes
CARPENTER: PILEDRIVER (LIVINGSTON (TOWNSHIPS OF BRIGHTON, DEERFIELD, GENOA, HARTLAND, OCEOLA & TYRONE), MACOMB, MONROE, OAKLAND, SANILAC, ST. CLAIR AND WAYNE COUNTIES)	$ 41.37	28.69

ELEC0017-005 06/01/2025

	Rates	Fringes
LINE CONSTRUCTION: OPERATOR B (SHALL BE PROFICIENT IN OPERATING ANY 2 OF THE ABOVE MENTIONED PIECES OF EQUIPMENT LISTED UNDER OPERATOR A.)	$ 38.98	20.26
LINE CONSTRUCTION: OPERATOR A (SHALL BE PROFICIENT IN OPERATING ALL POWER EQUIPMENT INCLUDING:		

BACKHOE, EXCAVATOR, DIRECTIONAL BORE AND
BOOM/DIGGER TRUCK.).....$ 41.71 21.16
LINE CONSTRUCTION: JOURNEYMAN SPECIALIST
JOURNEYMAN SPECIALIST: REFERS TO A CREW OF ONLY ONE
PERSON WORKING ALONE.....$ 56.65 26.09
LINE CONSTRUCTION: JOURNEYMAN SIGNAL TECH,
COMMUNICATIONS TECH, TOWER TECH & FIBER OPTIC
SPLICERS.....$ 49.26 23.66
LINE CONSTRUCTION: GROUNDMAN/DRIVER.....$ 33.32 18.40

ENGI0324-003 06/01/2025

	Rates	Fringes
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 18- OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....	$ 35.78	28.25
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 17- COMPRESSOR OR WELDER OPERATOR (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....	$ 32.29	15.40
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 16- FORKLIFT AND 1 DRUM HOIST (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....	$ 46.77	28.25
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 15- HOISTING OPERATOR; 2 DRUM HOIST AND RUBBER TIRED BACKHOE (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....	$ 49.97	28.25
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 14- CRANE OPERATOR ON A CRANE THAT REQUIRES AN OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON,		

LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 51.61 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 13- CRANE OPERATOR; JOB MECHANIC AND 3 DRUM HOIST AND EXCAVATOR (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 50.61 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 12- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 120' OR LONGER ON A CRANE THAT REQUIRES AN OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 51.97 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 11- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 120' OR LONGER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 50.97 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 10- TOWER CRANE & DERRICK OPERATOR (WHERE OPERATOR'S WORK STATION IS 50 FT. OR MORE ABOVE FIRST SUB-LEVEL) ON A CRANE THAT REQUIRES AN OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 52.70 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 9- TOWER CRANE & DERRICK OPERATOR (WHERE OPERATOR'S WORK STATION IS 50 FT. OR MORE ABOVE FIRST SUB-LEVEL) (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB,

MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 51.70 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 8- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 140' OR LONGER ON A CRANE THAT REQUIRES AN OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 53.15 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 7- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 140' OR LONGER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 52.15 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 6- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 220' OR LONGER ON A CRANE THAT REQUIRES AN OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 53.42 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 5- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 220' OR LONGER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 52.42 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 4- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 300' OR LONGER ON A CRANE THAT REQUIRES AN OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST.

CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 54.92 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 3- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 300' OR LONGER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 53.92 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 2- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 400' OR LONGER ON A CRANE THAT REQUIRES AN OILER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 56.42 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 1- ENGINEER WHEN OPERATING COMBINATION OF BOOM AND JIB 400' OR LONGER (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:) FOOTNOTE: PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY AND CHRISTMAS DAY.....$ 55.42 28.25

ENGI0324-004 06/01/2025

	Rates	Fringes
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 6- OILER AND FIRE TENDER (AREA 2: ANTRIM, BREEZE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE, AND WEXFORD COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....	$ 35.78	28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 6-OILER AND FIRE TENDER. (AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, AND VAN BUREN COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB

400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 35.78 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 5-AIR COMPRESSOR, WELDER, GENERATORS, CONVEYORS. (AREA 2: ANTRIM, BREEZE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE, AND WEXFORD COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 32.29 15.40

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 5-AIR COMPRESSOR, WELDER, GENERATORS, CONVEYORS. (AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, AND VAN BUREN COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 32.29 15.40

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 4- AIR TUGGER (SINGLE DRUM), MATERIAL HOIST PUMP 6"" OR OVER, ELEVATORS, BROKK CONCRETE BREAKER. (AREA 2: ANTRIM, BREEZE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE, AND WEXFORD COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 46.77 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 4- AIR TUGGER (SINGLE DRUM), MATERIAL HOIST PUMP 6"" OR OVER, ELEVATORS, BROKK CONCRETE BREAKER. (AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, AND VAN BUREN COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 46.77 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 3- REGULAR EQUIPMENT OPERATOR, CRAE, DOZER, LOADER, HOIST, STRADDLE WAGON, MECHANIC, GRADER AND HYDRO EXCAVATOR. (AREA 2: ANTRIM, BREEZE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE, AND WEXFORD COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF

JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 50.61 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 3- REGULAR EQUIPMENT OPERATOR, CRAE, DOZER, LOADER, HOIST, STRADDLE WAGON, MECHANIC, GRADER AND HYDRO EXCAVATOR. (AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, AND VAN BUREN COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 50.61 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 2- CRANE OPERATOR WITH MAIN BOOM & JIB 140' OR LONGER, TOWER CRANE; GANTRY CRANE; WHIRLEY DERRICK. (AREA 2: ANTRIM, BREEZE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE, AND WEXFORD COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 52.15 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 2- CRANE OPERATOR WITH MAIN BOOM & JIB 140' OR LONGER, TOWER CRANE; GANTRY CRANE; WHIRLEY DERRICK. (AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, AND VAN BUREN COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 52.15 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 1- CRANE OPERATOR WITH MAIN BOOM & JIB 400', 300', OR 220' OR LONGER. (AREA 2: ANTRIM, BREEZE, CHARLEVOIX, EMMET, GRAND TRAVERSE, KALKASKA, LEELANAU, MISSAUKEE, AND WEXFORD COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB 400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 55.02 28.25

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: GROUP 1- CRANE OPERATOR WITH MAIN BOOM & JIB 400', 300', OR 220' OR LONGER. (AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON, HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, AND VAN BUREN COUNTIES) FOOTNOTE: CRANE OPERATOR WITH MAIN BOOM AND JIB 300; OR LONGER: $1.50 ADDITIONAL TO THE GROUP 1 RATE. CRANE OPERATOR WITH MAIN BOOM AND JIB

400; OR LONGER: $3.00 ADDITIONAL TO THE GROUP 1 RATE. PAID HOLIDYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, THANKSGIVING DAY, AND CHRISTMAS DAY.....$ 55.02 28.25

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	Rates	Fringes
OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 5- FIRE PERSON, OILER (AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KWEENAW, LAKW, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. JOSEPH, RUSCOLA, VAN BUREN, AND WEXFORD COUNTIES)...	$ 30.35	12.10
OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 5- FIRE PERSON, OILER (AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASTENAW, AND WAYNE COUNTIES).....	$ 30.35	12.10
OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 4- BOILER; CONCRETE SAW (40 HP OR OVER); CURING MACHINE (SELF-PROPELLED); FARM TRACTOR (WITH ATTACHMENT); FINISHING MACHINE (CONCRETE); HYDRAULIC PIPE PUSHING MACHINE; MULCHING EQUIPMENT; PUMPS (2 OR MORE UP TO 4-IN. DISCHARGE, IF USED 3 OR MORE HOURS A DAY, GAS OR DIESEL POWERED0-EXCLUDING SUBMERSIBLE PUMPS); ROLLER (OTHER THAN ASPHALT); STUMP REMOVER; TRENCHER (SERVICE); VIBRATING COMPACTION EQUIPMENT, SELF-PROPELLED (6 FT. WIDE OR OVER); SWEEPER (WAYNE TYPE); WATER WAGON AND EXTEND-A BOOM FORKLIFT. (AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KWEENAW, LAKW, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. JOSEPH, RUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....	$ 39.95	25.25
OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 4- BOILER; CONCRETE SAW (40 HP OR OVER); CURING MACHINE (SELF-PROPELLED); FARM TRACTOR (WITH ATTACHMENT); FINISHING MACHINE (CONCRETE); HYDRAULIC PIPE PUSHING MACHINE; MULCHING EQUIPMENT; PUMPS (2 OR MORE UP TO 4-IN. DISCHARGE, IF USED 3 OR MORE HOURS A DAY, GAS OR DIESEL POWERED0-EXCLUDING SUBMERSIBLE		

PUMPS); ROLLER (OTHER THAN ASPHALT); STUMP REMOVER; TRENCHER (SERVICE); VIBRATING COMPACTION EQUIPMENT, SELF-PROPELLED (6 FT. WIDE OR OVER); SWEEPER (WAYNE TYPE); WATER WAGON AND EXTEND-A BOOM FORKLIFT. (AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASTENAW, AND WAYNE COUNTIES).....$ 39.95 25.25

OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 3- AIR COMPRESSORS (600 CFM OR LARGER); AIR COMPRESSORS (2 OR MORE-LESS THAN 600 CFM); BOOM TRUCK (NON-SWINGING, NON-POWERED TYPE BOOM); CONCRETE BREAKER (SELF-PROPELLED OR TRUCK MOUNTED-INCLUDES COMPRESSOR); CONCRETE PAVER (1 DRUM-1/2 YD. OR LARGER); ELEVATOR (OTHER THAN PASSENGER); MAINTENACNE PERSON; PUMP (2 OR MORE-4-IN. UP TO 6-IN. DISCHARGE- GAS OR DIESEL POWERED- EXCLUDING SUBMERSIBLE PUMPS); PUMPCRETE MACHINE (AND SIMILAR EQUIPMENT); WAGON DRILL (MULTIPLE); WELDING MACHINE OR GENERATOR(2 OR MORE- 300 AMP. OR LARGER - GAS OR DIESEL POWERED). (AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KWEENAW, LAKW, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. JOSEPH, RUSCOLA, VAN BUREN, AND WEXFORD COUNTIES)...$ 40.52 25.25

OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 3- AIR COMPRESSORS (600 CFM OR LARGER); AIR COMPRESSORS (2 OR MORE-LESS THAN 600 CFM); BOOM TRUCK (NON-SWINGING, NON-POWERED TYPE BOOM); CONCRETE BREAKER (SELF-PROPELLED OR TRUCK MOUNTED-INCLUDES COMPRESSOR); CONCRETE PAVER (1 DRUM-1/2 YD. OR LARGER); ELEVATOR (OTHER THAN PASSENGER); MAINTENACNE PERSON; PUMP (2 OR MORE-4-IN. UP TO 6-IN. DISCHARGE- GAS OR DIESEL POWERED- EXCLUDING SUBMERSIBLE PUMPS); PUMPCRETE MACHINE (AND SIMILAR EQUIPMENT); WAGON DRILL (MULTIPLE); WELDING MACHINE OR GENERATOR(2 OR MORE- 300 AMP. OR LARGER - GAS OR DIESEL POWERED). (AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASTENAW, AND WAYNE COUNTIES).....$ 40.52 25.25

OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 2- BOOM TRUCK (POWER SWING TYPE BOOM); CRUSHER; HOIST; PUMP (1 OR MORE - 6-IN. DISCHARGE OR LARGER- GAS OR DIESEL-POWERED OR POWERED BY GENERATOR OF 300 AMPERES OR MORE- INCLUSIVE OF GENERATOR); SIDE BOOM TRACTOR (SMALLER THAN TYPE D-4 OR EQUIVALENT); TRACTOR (PNEU-TIRED, OTHER THAN BACKHOE OR FRONT END LOADER); TRENCHER (8-FT. DIGGING CAPACITY AND SMALLER); VAC TRUCK AND END DUMP OPERATOR. (AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON,

EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KWEENAW, LAKW, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. JOSEPH, RUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 41.25 25.25

OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 2- BOOM TRUCK (POWER SWING TYPE BOOM); CRUSHER; HOIST; PUMP (1 OR MORE - 6-IN. DISCHARGE OR LARGER- GAS OR DIESEL- POWERED OR POWERED BY GENERATOR OF 300 AMPERES OR MORE- INCLUSIVE OF GENERATOR); SIDE BOOM TRACTOR (SMALLER THAN TYPE D-4 OR EQUIVALENT); TRACTOR (PNEU-TIRED, OTHER THAN BACKHOE OR FRONT END LOADER); TRENCHER (8-FT. DIGGING CAPACITY AND SMALLER); VAC TRUCK AND END DUMP OPERATOR. (AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASTENAW, AND WAYNE COUNTIES)...$ 41.25 25.25

OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 1- BACKFILLER TAMPER; BACKHOE; BATCH PLANT OPERATOR (CONCRETE); CLAMSHELL; CONCRETE PAVER (2 DRUMS OR LARGER); CONVERYOR LOADER (EUCLID TYPE); CRANE (CRAWLER, TRUCK TYPE OR PILE DRIVING); DOZER; DRAGLINE; ELEVATING GRADER; ENDLOADER; GRADALL (AND SIMILAR TYPE MACHINE); GRADER; MECHANIC; POWER SHOVEL; ROLLER (ASPHALT); SCRAPER (SELF-PROPELLED OR TRACTOR DRAWN); SIDE BOOM TRACTOR (TYPE D-4 OR EQUIVALENT AND LARGER); SLIP FORM PAVER; SLOPE PAVER; TRENCHER (OVER 8 FT. DIGGING CAPACITY); WELL DRILLING RIG; CONCRETE PUMP WITH BOOM OPERATOR; HYDRO EXCAVATOR. (AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KWEENAW, LAKW, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. JOSEPH, RUSCOLA, VAN BUREN, AND WEXFORD COUNTIES)...$ 45.98 25.25

OPERATOR: POWER EQUIPMENT, UNDERGROUND CONSTRUCTION (INCLUDING SEWER): GROUP 1 (AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASTENAW, AND WAYNE COUNTIES)...$ 45.98 25.25

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	Rates	Fringes

POWER EQUIPMENT OPERATORS:, AIRPORT, BRIDGE & HIGHWAY CONSTRUCTION: GROUP 4- BOILER FIRE TENDER; CONCRETE BREAKER; OILER; FIRE TENDER; TRENCHER (SERVICE); FLEXPLANE OPERATOR; CLEFTPLANE OPERATOR; ROLLER OPERATOR (OTHER THAN ASPHALT); CURING EQUIPMENT OPERATOR (SELF-PROPELLED); POWER BIN

OPERATOR; PLANT DRIER OPERATOR (ASPHALT); VIBRATORY COMPCTION EQUIPMENT OPEARTOR (6 FT. WIDE OR OVER); GUARD POST DRIVER OPERATOR (POWER DRIVEN); ALL MULCHING EQUIPMENT; STUMP REMOVER; CONCRETE PUM (UNDER 3-IN.); MESH INSTALLER (SELF-PROPELLED); END DUMP; SKID STEER. .....$ 37.77 25.25

POWER EQUIPMENT OPERATORS:, AIRPORT, BRIDGE & HIGHWAY CONSTRUCTION: GROUP 3- SCREENING PLANT OPERATOR; WASHING PLANT OPERATOR; CRUSTHER OPERATOR; BACKHOE (WITH 3/8 YD. BUCKET OR LESS); SIDE BOOM TRACTOR (SMALLER THAN D-4 TYPE OR EQUIVALENT); SWEEPER (WAYNE TYPE AND SIMILAR EQUIPMENT); GREASE TRUCK; AIR COMPRESSOR OPERATOR (600 CU. FT. PER MIN OR MORE); AIR COMPRESSOR OPERATOR (TWO OR MORE, LESS THAN 600 CFM); END LOADER OPERATOR (1 YARD CAPACITY AND OVER); SIDE BOOM TRACTOR (TYPE D OR EQUIVALENT OR LARGER); ENDLOADER OPERATOR (UNDER 1 YARD CAPACITY); TRENCHER (SERVICE) .....$ 38.33 25.25

POWER EQUIPMENT OPERATORS:, AIRPORT, BRIDGE & HIGHWAY CONSTRUCTION: GROUP 2- ASPHALT PLANT OPERATOR; CRANE OPERATOR (DOES NOT INCLUDE WORK ON BRIDGE CONSTRUCTION PROJECTS WHEN THE CRANE OPERATOR IS ERECTING STRUCTURAL COMPONENTS); DRAGLINE OPERATOR; SHOVEL (EXCAVATOR) OPERATOR; LOCOMOTIVE OPERATOR; ELEVATING GRADER OPERATOR; PILE DRIVING OPERATOR; ROLLER OPERATOR (ASPHALT); BLADE GRADER OPERATOR; TRNECHING MACHINE OPERATOR (LADDER OR WHEEL TYPE); AUTO-GRADER; SELF-PROPELLED OR TRACTOR-DRAWN SCRAPER; CONVEYOR LOADER OPERATOR (EUCLID TYPE); BULLDOZER; HOISTING ENGINEER; TRACTOR OPERATOR; FINISHING MACHINE OPERATOR (ASPHALT); MECHANIC; PUMP OPERATOR (6-IN. DISCHARGE OR OVER, GAS, DIESEL POWERED OR GENERATOR OF 300 AMP. OR LARGER); SHOULDERING OR GRAVEL DISTRIBUTING MACHINE OPERATOR (SELF-PROPELLED); BACKHOE (WITH OVER 3/8 YD. BUCKET); SIDE BOOM TRACTOR (TYPE D-4 OR EQUIVALENT OR LARGER); TUBE FINISHER (SLIP FORM PAVING); GRADALL (AND SIMILAR TYPE MACHINE); ASPHALT PLANNER (SELF-PROPELLED); BATCH PLANT (CONCRETE-CENTRAL MIX); SLURRY MACHINE (ASPHALT); CONCRETE PUMP (3 IN.C AND OVER); ROTO-MILL; SWINGING BOOM TRUCK (OVER 12 TON CAPACITY); HYDRO DEMOLISHER (WATER BLASTER); FARM-TYPE TRACTOR WITH ATTACHED PAN; VACUUM TRUCK OPERATOR; BATCH PLANT (CONCRETE DRY BATCH); CONCRETE SAW OPERATOR (40 H.P. OR OVER); TRACTOR OPERATOR (FARM TYPE); FINISHING MACHINE OPERATOR (CONCRETE); GRADER OPEARTOR (SELF-PROPELLED FINE GRADE OR FORM (CONCRETE)); TRACTOR OPERATOR (FARM TYPE WITH ATTACHMENT); WAGON DRILL OPERATOR; BOOM OR WINCH HOIST TRUCK OPERATOR. .....$ 45.06 25.25

POWER EQUIPMENT OPERATORS:, AIRPORT, BRIDGE & HIGHWAY CONSTRUCTION: GROUP 1- PAVER OPERATOR (5 BAGS OR MORE); SLIP FORM PAVER; ASPHALT PAVER (SELF-PROPELLED); SHOVEL (EXCVAVATOR) INSTALLING UTILITIES OVER 20 FEET IN DEPTH.....$ 46.21 25.25

ENGI0324-007 05/01/2025

	Rates	Fringes

OPERATOR: POWER EQUIPMENT, STEEL ERECTION: REGULAR OPERATOR (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND

SCHOOLCRAFT COUNTIES:).....$ 47.12 25.00
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: OILER AND FIREMAN (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:).....$ 41.76 25.00
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: MECHANIC WITH TRUCK AND TOOLS (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:).....$ 48.90 25.00
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: CRANE OPERATOR, MAIN BOOM & JIB 220' OR LONGER (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:).....$ 50.66 25.00
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: CRANE OPERATOR, MAIN BOOM & JIB 140' OR LONGER (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:).....$ 50.07 24.60
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: CRANE OPERATOR, MAIN BOOM & JIB 120' OR LONGER (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:).....$ 49.77 25.00
OPERATOR: POWER EQUIPMENT, STEEL ERECTION: COMPRESSOR, WELDER AND FORKLIFT (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:).....$ 43.30 25.00

ENGI0324-008 10/01/2023

	Rates	Fringes
OPERATOR: POWER EQUIPMENT, SEWER RELINING: GROUP 2- OPERATION OF HOT WATER HEATERS AND CIRCULATION SYSTEMS, WATER JETTERS AND VACUUM AND MECHANICAL DEBRIS REMOVAL SYSTEMS. (ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MAR...	$ 35.33	15.44
OPERATOR: POWER EQUIPMENT, SEWER RELINING: GROUP 1- OPERATION OF AUDIO-VISUAL CLOSED CIRCUIT TV SYSTEM, INCLUDING REMOTE IN-GROUND CUTTER AND OTHER EQUIPMENT USED IN CONNECTION WITH THE CCTV SYSTEM. (ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC, MACOMB, MANISTEE, MAR.....$ 37.37		15.44

ENGI0325-012 05/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATORS - GAS DISTRIBUTION AND DUCT INSTALLATION WORK: GROUP 2- DOZER (LESS THAN D-6 EQUIVALENT), ENDLOADER (UNDER 2 YD. CAPACITY), SIDE BOOM (UNDER D-4 CAPACITY), BACKFILLER, PUMPS (1 OR 2 OF 6-INCH DISCHARGE OR GREATER), BOOM TRUCK (WITH POWERED BOOM), TRACTOR (WHEEL TYPE OTHER THAN BACKHOE OR FRONT ENDLOADER). TAMPER (SELF-PROPELLED), BOOM TRUCK (WITH NON-POWERED BOOM), CONCRETE SAW (20 HP OR LARGER), PUMPS (2 TO 4 UNDER 6-INCH DISCHARGE), COMPRESSOR (2 OR MORE OR WHEN ONE IS USED CONTINUOUSLY INTO THE SECOND DAY) AND TRENCHER(SERVICE). OILER, HYDRAULIC PIPE PUSHING MACHINE, GREASE PERSON AND HYDROSTATIC TESTING OPERATOR. SCOPE OF WORK: THE CONSTRUCTION, INSTALLATION, TREATING AND RECONDITIONING OF PIPELINES TRANSPORTING GAS VAPORS WITHIN CITIES, TOWNS, SUBDIVISIONS, SUBURBAN AREAS, OR WITHIN PRIVATE PROPERTY BOUNDARIES, UP TO AND INCLUDING PRIVATE METER SETTINGS OF PRIVATE INDUSTRIAL, GOVERNMENTAL OR OTHER PREMISES, MORE COMMONLY REFERRED TO AS ""DISTRIBUTION WORK,"" STARTING FROM THE FIRST METERING STATION, CONNECTION, SIMILAR OR RELATED FACILITY, OF THE MAIN OR CROSS COUNTRY PIPELINE AND INCLUDING DUCT INSTALLATION.....	$ 36.05	25.25
POWER EQUIPMENT OPERATORS - GAS DISTRIBUTION AND DUCT INSTALLATION WORK: GROUP 1- BACKHOE, CRANE, GRADER, MECHANIC, DOZER (D-6 EQUIVALENT OR LARGER), SIDE BOOM (D-4 EQUIVALENT OR LARGER), TRENCHER(EXCEPT SERVICE), ENDLOADER (2 YD. CAPACITY OR GREATER). SCOPE OF WORK: THE CONSTRUCTION, INSTALLATION, TREATING AND RECONDITIONING OF PIPELINES TRANSPORTING GAS VAPORS WITHIN CITIES, TOWNS, SUBDIVISIONS, SUBURBAN AREAS, OR WITHIN PRIVATE PROPERTY BOUNDARIES, UP TO AND INCLUDING PRIVATE METER SETTINGS OF PRIVATE INDUSTRIAL, GOVERNMENTAL OR OTHER PREMISES, MORE COMMONLY REFERRED TO AS ""DISTRIBUTION WORK,"" STARTING FROM THE FIRST METERING STATION, CONNECTION, SIMILAR OR RELATED FACILITY, OF THE MAIN OR CROSS COUNTRY PIPELINE AND INCLUDING DUCT INSTALLATION.....	$ 39.78	25.25

IRON0008-007 06/01/2024

	Rates	Fringes
IRONWORKER: GENERAL CONTRACTS LESS THAN $10,000,000 (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES) PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, JULY 4TH, LABOR DAY, THANKSGIVING DAY & CHRISTMAS DAY.....	$ 39.91	32.32
IRONWORKER: GENERAL CONTRACTS $10,000,000 OR GREATER (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES) PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, JULY 4TH, LABOR DAY, THANKSGIVING DAY & CHRISTMAS DAY.....	$ 39.91	32.32
IRONWORKER - PRE-ENGINEERED METAL BUILDING ERECTOR (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES) PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, JULY 4TH, LABOR DAY, THANKSGIVING DAY		

& CHRISTMAS DAY.....$ 23.70 6.95

IRON0025-002 06/01/2025

	Rates	Fringes
IRONWORKER: REINFORCING (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:)	$ 36.55	32.87
IRONWORKER: ORNAMENTAL AND STRUCTURAL (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:)	$ 36.55	35.93
IRONWORKER - PRE-ENGINEERED METAL BUILDING ERECTOR: BAY, GENESEE, LAPEER, LIVINGSTON (EAST OF BURKHARDT ROAD), MACOMB, MIDLAND, OAKLAND, SAGINAW, ST. CLAIR, THE UNIVERSITY OF MICHIGAN, WASHTENAW (EAST OF U.S. 23) & WAYNE (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA, WASHTENAW AND WAYNE COUNTIES	$ 30.02	28.13
IRONWORKER - PRE-ENGINEERED METAL BUILDING ERECTOR: ALLEGAN, ANTRIM, BARRY, BENZIE, BRANCH, CALHOUN, CHARLEVOIX, EATON, EMMET, GRAND TRAVERSE, HILLSDALE, IONIA, KALAMAZOO, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH, VAN BUREN AND WEXFORD COUNTIES: (ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOM	$ 28.80	27.43

IRON0055-005 07/01/2022

	Rates	Fringes
IRONWORKER: PRE-ENGINEERED METAL BUILDINGS (LENAWEE AND MONROE COUNTIES)	$ 23.59	19.35
IRONWORKER: ALL OTHER WORK (LENAWEE AND MONROE COUNTIES)	$ 33.00	27.20

IRON0292-003 06/01/2020

	Rates	Fringes
IRONWORKER: INCLUDING PRE-ENGINEERED METAL BUILDING ERECTOR (BERRIEN AND CASS COUNTIES:)	$ 31.75	22.84

LABO0005-006 10/01/2022

	Rates	Fringes
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (SANILAC AND ST. CLAIR COUNTIES - ZONE 5)	$ 26.21	16.62
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK		

PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (SANILAC AND ST. CLAIR COUNTIES - ZONE 5)	$ 24.75	16.35
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (OAKLAND COUNTY AND THE NORTHEAST PORTION OF LIVINGSTON COUNTY BORDERED BY OAK GROVE ROAD ON THE WEST AND M-59 ON THE SOUTH - ZONE 2)	$ 28.93	16.90
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVEL A, B, C. (OAKLAND COUNTY AND THE NORTHEAST PORTION OF LIVINGSTON COUNTY BORDERED BY OAK GROVE ROAD ON THE WEST AND M-59 ON THE SOUTH - ZONE 2)	$ 29.93	16.90
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (MONROE COUNTY - ZONE 4)	$ 31.75	14.90
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (MONROE COUNTY - ZONE 4)	$ 31.75	14.90
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (MACOMB AND WAYNE COUNTIES - ZONE 1)	$ 28.93	16.90
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (MACOMB AND WAYNE COUNTIES - ZONE 1)	$ 29.93	16.90
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D (LIVINGSTON COUNTY (EAST OF OAK GROVE RD. AND SOUTH OF M-59, EXCLUDING THE CITY OF HOWELL); AND WASHTENAW COUNTY - ZONE 3)	$ 28.93	14.20
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (LIVINGSTON COUNTY (EAST OF OAK GROVE RD. AND SOUTH OF M-59, EXCLUDING THE CITY OF HOWELL); AND WASHTENAW COUNTY - ZONE 3)	$ 29.93	14.20
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (HILLSDALE, JACKSON AND LENAWEE COUNTIES - ZONE 4)	$ 27.13	14.95
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTETIVE EQUIPMENT; ALSO, LEVEL D. (HILLSDALE, JACKSON AND LENAWEE COUNTIES - ZONE 4)	$ 24.17	12.90
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D (GENESEE, LAPEER AND SHIAWASSEE COUNTIES - ZONE 7)	$ 23.20	13.80
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (GENESEE, LAPEER AND SHIAWASSEE COUNTIES - ZONE 7)	$ 24.20	13.80
LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (CLINTON, EATON AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); LIVINGSTON COUNTY (WEST OF OAK GROVE RD., INCLUDING THE CITY OF HOWELL) - ZONE 6)	$ 26.33	12.95
LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (CLINTON, EATON AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); LIVINGSTON COUNTY (WEST OF OAK GROVE RD., INCLUDING THE CITY OF HOWELL) - ZONE 6)	$ 24.64	12.90

LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (ARENAC, BAY, CLARE, GLADWIN, GRATIOT, HURON, ISABELLA, MIDLAND, OGEMAW, ROSCOMMON, SAGINAW AND TUSCOLA COUNTIES - ZONE 8).....$ 23.74 12.95

LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (ARENAC, BAY, CLARE, GLADWIN, GRATIOT, HURON, ISABELLA, MIDLAND, OGEMAW, ROSCOMMON, SAGINAW AND TUSCOLA COUNTIES - ZONE 8)...$ 20.80 12.90

LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH AND VAN BUREN COUNTIES - ZONE 9) .....$ 20.80 12.90

LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B OR C. (ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); KALAMAZOO, KENT, LAKE, MANISTEE, MASON, MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA, ST. JOSEPH AND VAN BUREN COUNTIES - ZONE 9) .....$ 21.88 13.26

LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B, OR C (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES - ZONE 11).....$ 25.18 12.90

LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D. (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES - ZONE 11).....$ 22.58 12.90

LABORERS - HAZARDOUS WASTE ABATEMENT: LEVELS A, B, OR C (ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX, CHEBOYGAN, CRAWFORD, EMMET, GRAND TRAVERSE, IOSCO, KALKASKA, LEELANAU, MISSAUKEE, MONTMORENCY, OSCODA, OTSEGO, PRESQUE ISLE, AND WEXFORD COUNTIES- ZONE 10).....$ 17.45 12.75

LABORERS - HAZARDOUS WASTE ABATEMENT: CLASS B (ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX, CHEBOYGAN, CRAWFORD, EMMET, GRAND TRAVERSE, IOSCO, KALKASKA, LEELANAU, MISSAUKEE, MONTMORENCY, OSCODA, OTSEGO, PRESQUE ISLE, AND WEXFORD COUNTIES- ZONE 10).....$ 18.64 12.90

LABORERS - HAZARDOUS WASTE ABATEMENT: WORK PERFORMED IN CONJUNCTION WITH SITE PREPARATION NOT REQUIRING THE USE OF PERSONAL PROTECTIVE EQUIPMENT; ALSO, LEVEL D(ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX, CHEBOYGAN, CRAWFORD, EMMET, GRAND TRAVERSE, IOSCO, KALKASKA, LEELANAU, MISSAUKEE, MONTMORENCY, OSCODA, OTSEGO, PRESQUE ISLE, AND WEXFORD COUNTIES- ZONE 10).....$ 16.45 12.75

LABORERS - HAZARDOUS WASTE ABATEMENT: CLASS A (ALCONA, ALPENA, ANTRIM, BENZIE, CHARLEVOIX, CHEBOYGAN, CRAWFORD, EMMET, GRAND TRAVERSE, IOSCO, KALKASKA, LEELANAU, MISSAUKEE, MONTMORENCY, OSCODA, OTSEGO, PRESQUE ISLE, AND WEXFORD COUNTIES- ZONE 10).....$ 17.64 12.90

LABO0259-001 09/01/2025

	Rates	Fringes
LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 1- TUNNEL, SHAFT AND CAISSON LABORER, DUMP, SHANTY, HOG HOUSE TENDER, TESTING (ON GAS) AND WATCHMAN. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. (AREA 1: MACOMB, OAKLAND, AND WAYNE COUNTIES).....	$ 30.13	22.75
LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 2- MANHOLE, HEADWALL, CATCH BASIN BUILDER, BRICKLAYER TENDER, MORTAR MACHINE AND MATERIAL MIXER. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. (AREA 1: MACOMB, OAKLAND, AND WAYNE COUNTIES).....	$ 32.13	22.75
LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 3- AIR TOOL OPERATOR (JACKHAMMER, BUSH HAMMER AND GRINTER), FIRST BOTTOM, SECOND BOTTOM, CAGE TENDER, CAR PUSHER, CARRIER, CONCRETE, CONCRETE FORM, CONCRETE REPAIR, CEMENT INVERT LABORER, CEMENT FINISHER, CONCRETE SHOVELER, CONVEYOR, FLOOR, GASOLINE AND ELECTRIC TOOL OPERATOR, GUNITE, GROUT OPERATOR, WELDER, HEADING DINKY PERSON, INSIDE LOCK TENDER, PEA GRAVEL OPERATOR, PUMP, OUTSIDE LOCK TENDER, SCAFFOLD, TOP SIGNAL PERSON, SWITCH PERSON, TRACK, TUGGER, UTILITY PERSON, VIBRATOR, WINCH OPERATOR, PIPE JACKING, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.). SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. (AREA 1: MACOMB, OAKLAND, AND WAYNE COUNTIES).....	$ 28.13	22.75
LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 4- TUNNEL, SHAFT, AND CAISSON MUCKER, BRACER, LINER PLATE, LONG HAUL DINKY DRIVER AND WELL POINT. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. (AREA 1: MACOMB, OAKLAND, AND WAYNE COUNTIES).....	$ 23.97	16.93
LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 5- TUNNEL, SHAFT AND CAISSON MINER, DRILL RUNNER, KEY BOARD OPERATOR, POWER KNIFE OPERATOR, REINFORCED STEEL OR MESH (E.G. WIRE MESH, STELL MATS, DOWEL BARS, ETC.). SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER,		

SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. (AREA 1: MACOMB, OAKLAND, AND WAYNE COUNTIES).....$ 24.22 16.93

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 6- DYNAMITE AND POWDER. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. (AREA 1: MACOMB, OAKLAND, AND WAYNE COUNTIES).....$ 24.55 16.93

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 7- RESTORATION LABORER, SEEDING, SODDING, PLANTING, CUTTING, MULCHING AND TOP SOIL GRADING; AND THE RESTORATION OF PROPERTY SUCH AS REPLACING MAILBOXES, WOOD CHIPS, PLANTER BOXES, FLAGSTONES, ETC. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. (AREA 1: MACOMB, OAKLAND, AND WAYNE COUNTIES).....$ 17.83 16.93

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 1- TUNNEL, SHAFT AND CAISSON LABORER, DUMP, SHANTY, HOG HOUSE TENDER, TESTING (ON GAS) AND WATCHMAN. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION.(AREA 2: REMAINING COUNTIES).....$ 32.13 17.95

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 2- MANHOLE, HEADWALL, CATCH BASIN BUILDER, BRICKLAYER TENDER, MORTAR MACHINE AND MATERIAL MIXER. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION.(AREA 2: REMAINING COUNTIES).....$ 34.40 17.95

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 3- AIR TOOL OPERATOR (JACKHAMMER, BUSH HAMMER AND GRINTER), FIRST BOTTOM, SECOND BOTTOM, CAGE TENDER, CAR PUSHER, CARRIER, CONCRETE, CONCRETE FORM, CONCRETE REPAIR, CEMENT INVERT LABORER, CEMENT FINISHER, CONCRETE SHOVELER, CONVEYOR, FLOOR, GASOLINE AND ELECTRIC TOOL OPERATOR, GUNITE, GROUT OPERATOR, WELDER, HEADING DINKY PERSON, INSIDE LOCK TENDER, PEA GRAVEL OPERATOR, PUMP, OUTSIDE LOCK TENDER, SCAFFOLD, TOP SIGNAL PERSON, SWITCH PERSON, TRACK, TUGGER, UTILITY PERSON, VIBRATOR, WINCH OPERATOR, PIPE JACKING, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.). SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF

EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION.(AREA 2: REMAINING COUNTIES).....$ 28.00 17.45

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 4- TUNNEL, SHAFT, AND CAISSON MUCKER, BRACER, LINER PLATE, LONG HAUL DINKY DRIVER AND WELL POINT. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION.(AREA 2: REMAINING COUNTIES).....$ 29.57 16.93

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 5- TUNNEL, SHAFT AND CAISSON MINER, DRILL RUNNER, KEY BOARD OPERATOR, POWER KNIFE OPERATOR, REINFORCED STEEL OR MESH (E.G. WIRE MESH, STELL MATS, DOWEL BARS, ETC.). SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION.(AREA 2: REMAINING COUNTIES).....$ 25.76 16.93

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 6- DYNAMITE AND POWDER. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION.(AREA 2: REMAINING COUNTIES).....$ 26.07 16.93

LABORERS - TUNNEL, SHAFT AND CAISSON: GROUP 7- RESTORATION LABORER, SEEDING, SODDING, PLANTING, CUTTING, MULCHING AND TOP SOIL GRADING; AND THE RESTORATION OF PROPERTY SUCH AS REPLACING MAILBOXES, WOOD CHIPS, PLANTER BOXES, FLAGSTONES, ETC. SCOPE OF WORK: TUNNEL, SHAFT, AND CAISSON WORK OF EVERY TYPE AND DESCRIPTION AND ALL OPERATIONS INCIDENTAL THERETO, INCLUDING, BUT NOT LIMITED TO, SHAFTS AND TUNNELS FOR SEWERS , WATER, SUBWAYS, TRANSPORTATION, DIVERSION, SEWERAGE, CAVERNS, SHELTERS, AQUAFERS, RESERVOIRS, MISSILE SILOS AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION.(AREA 2: REMAINING COUNTIES).....$ 25.57 16.93

LABO0334-001 09/01/2025

	Rates	Fringes

LABORERS - OPEN CUT: GROUP 1- CONSTRUCTION LABORER. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION

AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK.

(ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES) ....$ 29.98 22.75

LABORERS - OPEN CUT: GROUP 2- MORTAR AND MATERIAL MIXER, CONCRETE FORM PERSON, SIGNAL PERSON, WELL POINT PERSON, MANHOLE, HEADWALL AND CATCH BASIN BUILDER, HEADWALL, SEAWALL, BREAKWALL AND DOCK BUILDER. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK.

(ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES).....$ 31.98 22.75

LABORERS - OPEN CUT: GROUP 3- AIR, GASOLINE AND ELECTRIC TOOL OPERATOR, VIBRATOR OPERATOR, DRILLER, PUMP PERSON, TAR KETTLE OPERATOR, BRACER, RODDER, REINFORCED STEEL OR MESH PERSON (E.G., WIRE MESH, STEEL MATS, DOWEL BARS, ETC.), WELDER, PIPE JACKING AND BORING PERSON, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.), WINDLASS AND TUGGER PERSON AND DIRECTIONAL BORING PERSON. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND

IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES) .....$ 28.14 22.75

LABORERS - OPEN CUT: GROUP 4- TRENCH OR EXCAVATING GRADE PERSON. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES) .....$ 23.71 16.72

LABORERS - OPEN CUT: GROUP 5- PIE LAYER (INCLUDING CROCK, METAL PIPE, MULTI-PLATE OR OTHER CONDUITS). SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS,

BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES) .....$ 24.17 16.72

LABORERS - OPEN CUT: GROUP 6- GROUTING MAN, AUDIO-VIDUAL TELEVISION OPERATIONS AND ALL OTHER OPERATIONS IN CONNECTION WITH CLOSED CIRCUIT TELEVITION INSPECTION, PIPE CLEANING AND PIPE RELINING WORK AND THE INSTALLATION AND REPAIR OF WATER SERVICE PIPE AND APPURTENANCES. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES) .....$ 22.00 16.72

LABORERS - OPEN CUT: GROUP 7- RESTORATION LABORER, SEEDING, SODDING, PLANTING, CUTTING, MULCHING AND TOP SOIL GRADING; AND THE RESTORATION OF PROPERTY SUCH AS REPLACING MAILBOXES, WOOD CHIPS, PLANTER BOXES, FLAGSTONES, ETC. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT

INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK.
(ZONE 1 - MACOMB, OAKLAND AND WAYNE COUNTIES) ......$ 17.84 16.72
LABORERS - OPEN CUT: GROUP 1- CONSTRUCTION LABORER.
SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK.
(ZONE 2 - LIVINGSTON COUNTY (EAST OF M-151 (OAK GROVE RD.)); MONROE AND WASHTENAW COUNTIES).......$ 32.10 17.45
LABORERS - OPEN CUT: GROUP 2- MORTAR AND MATERIAL MIXER, CONCRETE FORM PERSON, SIGNAL PERSON, WELL POINT PERSON, MANHOLE, HEADWALL AND CATCH BASIN BUILDER, HEADWALL, SEAWALL, BREAKWALL AND DOCK BUILDER. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF

AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 2 - LIVINGSTON COUNTY (EAST OF M-151 (OAK GROVE RD.)); MONROE AND WASHTENAW COUNTIES).....$ 34.10 17.45

LABORERS - OPEN CUT: GROUP 3- AIR, GASOLINE AND ELECTRIC TOOL OPERATOR, VIBRATOR OPERATOR, DRILLER, PUMP PERSON, TAR KETTLE OPERATOR, BRACER, RODDER, REINFORCED STEEL OR MESH PERSON (E.G., WIRE MESH, STEEL MATS, DOWEL BARS, ETC.), WELDER, PIPE JACKING AND BORING PERSON, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.), WINDLASS AND TUGGER PERSON AND DIRECTIONAL BORING PERSON. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 2 - LIVINGSTON COUNTY (EAST OF M-151 (OAK GROVE RD.)); MONROE AND WASHTENAW COUNTIES).....$ 30.10 17.45

LABORERS - OPEN CUT: GROUP 4- TRENCH OR EXCAVATING GRADE PERSON. CONSTRUCTION LABORER SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING

INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 2 - LIVINGSTON COUNTY (EAST OF M-151 (OAK GROVE RD.)); MONROE AND WASHTENAW COUNTIES).....$ 25.10 16.72

LABORERS - OPEN CUT: GROUP 5- PIE LAYER (INCLUDING CROCK, METAL PIPE, MULTI-PLATE OR OTHER CONDUITS). CONSTRUCTION LABORER SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 2 - LIVINGSTON COUNTY (EAST OF M-151 (OAK GROVE RD.)); MONROE AND WASHTENAW COUNTIES).....$ 25.25 16.72

LABORERS - OPEN CUT: GROUP 6- GROUTING MAN, AUDIO-VIDUAL TELEVISION OPERATIONS AND ALL OTHER OPERATIONS IN CONNECTION WITH CLOSED CIRCUIT TELEVITION INSPECTION, PIPE CLEANING AND PIPE RELINING WORK AND THE INSTALLATION AND REPAIR OF WATER SERVICE PIPE AND APPURTENANCES. CONSTRUCTION LABORER SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS,

FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 2 - LIVINGSTON COUNTY (EAST OF M-151 (OAK GROVE RD.)); MONROE AND WASHTENAW COUNTIES).....$ 22.55 16.72

LABORERS - OPEN CUT: GROUP 7- RESTORATION LABORER, SEEDING, SODDING, PLANTING, CUTTING, MULCHING AND TOP SOIL GRADING; AND THE RESTORATION OF PROPERTY SUCH AS REPLACING MAILBOXES, WOOD CHIPS, PLANTER BOXES, FLAGSTONES, ETC. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 2 - LIVINGSTON COUNTY (EAST OF M-151 (OAK GROVE RD.)); MONROE AND WASHTENAW COUNTIES).....$ 22.11 16.72

LABORERS - OPEN CUT: GROUP 1- CONSTRUCTION LABORER. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND

INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (WEST OF M-151 OAK GROVE RD.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES) .....$ 30.29 17.45

LABORERS - OPEN CUT: GROUP 2- MORTAR AND MATERIAL MIXER, CONCRETE FORM PERSON, SIGNAL PERSON, WELL POINT PERSON, MANHOLE, HEADWALL AND CATCH BASIN BUILDER, HEADWALL, SEAWALL, BREAKWALL AND DOCK BUILDER. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (WEST OF M-151 OAK GROVE RD.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES).....$ 32.29 17.45

LABORERS - OPEN CUT: GROUP 3- AIR, GASOLINE AND ELECTRIC TOOL OPERATOR, VIBRATOR OPERATOR, DRILLER, PUMP PERSON, TAR KETTLE OPERATOR, BRACER, RODDER, REINFORCED STEEL OR MESH PERSON (E.G., WIRE MESH, STEEL MATS, DOWEL BARS, ETC.), WELDER, PIPE JACKING AND BORING PERSON, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.), WINDLASS AND TUGGER PERSON AND DIRECTIONAL BORING PERSON. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS

AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (WEST OF M-151 OAK GROVE RD.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES).....$ 28.29 17.45

LABORERS - OPEN CUT: GROUP 4- TRENCH OR EXCAVATING GRADE PERSON. CONSTRUCTION LABORER SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (WEST OF M-151 OAK GROVE RD.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES).....$ 23.30 16.72

LABORERS - OPEN CUT: GROUP 5- PIE LAYER (INCLUDING CROCK, METAL PIPE, MULTI-PLATE OR OTHER CONDUITS). CONSTRUCTION LABORER SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS,

ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (WEST OF M-151 OAK GROVE RD.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES).....$ 23.44 16.72

LABORERS - OPEN CUT: GROUP 6- GROUTING MAN, AUDIO-VIDUAL TELEVISION OPERATIONS AND ALL OTHER OPERATIONS IN CONNECTION WITH CLOSED CIRCUIT TELEVITION INSPECTION, PIPE CLEANING AND PIPE RELINING WORK AND THE INSTALLATION AND REPAIR OF WATER SERVICE PIPE AND APPURTENANCES. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (WEST OF M-151 OAK GROVE RD.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES).....$ 20.74 16.72

LABORERS - OPEN CUT: GROUP 7- RESTORATION LABORER, SEEDING, SODDING, PLANTING, CUTTING, MULCHING AND TOP SOIL GRADING; AND THE RESTORATION OF PROPERTY SUCH AS REPLACING MAILBOXES, WOOD CHIPS, PLANTER BOXES, FLAGSTONES, ETC. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND

GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 3 - CLINTON, EATON, GENESEE, HILLSDALE AND INGHAM COUNTIES; IONIA COUNTY (CITY OF PORTLAND); JACKSON, LAPEER AND LENAWEE COUNTIES; LIVINGSTON COUNTY (WEST OF M-151 OAK GROVE RD.); SANILAC, ST. CLAIR AND SHIAWASSEE COUNTIES).....$ 22.23 16.72

LABORERS - OPEN CUT: GROUP 1- CONSTRUCTION LABORER. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 28.72 18.45

LABORERS - OPEN CUT: GROUP 2- MORTAR AND MATERIAL MIXER, CONCRETE FORM PERSON, SIGNAL PERSON, WELL POINT PERSON, MANHOLE, HEADWALL AND CATCH BASIN BUILDER, HEADWALL, SEAWALL, BREAKWALL AND DOCK BUILDER.SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL,

COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 30.72 18.45

LABORERS - OPEN CUT: GROUP 3- AIR, GASOLINE AND ELECTRIC TOOL OPERATOR, VIBRATOR OPERATOR, DRILLER, PUMP PERSON, TAR KETTLE OPERATOR, BRACER, RODDER, REINFORCED STEEL OR MESH PERSON (E.G., WIRE MESH, STEEL MATS, DOWEL BARS, ETC.), WELDER, PIPE JACKING AND BORING PERSON, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.), WINDLASS AND TUGGER PERSON AND DIRECTIONAL BORING PERSON. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF

AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 26.72 18.45

LABORERS - OPEN CUT: GROUP 4- TRENCH OR EXCAVATING GRADE PERSON. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 22.33 16.72

LABORERS - OPEN CUT: GROUP 5- PIE LAYER (INCLUDING CROCK, METAL PIPE, MULTI-PLATE OR OTHER CONDUITS). SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION

AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 22.45 16.72

LABORERS - OPEN CUT: GROUP 6- GROUTING MAN, AUDIO-VIDUAL TELEVISION OPERATIONS AND ALL OTHER OPERATIONS IN CONNECTION WITH CLOSED CIRCUIT TELEVITION INSPECTION, PIPE CLEANING AND PIPE RELINING WORK AND THE INSTALLATION AND REPAIR OF WATER SERVICE PIPE AND APPURTENANCES. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON

COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 19.67 16.72

LABORERS - OPEN CUT: GROUP 7- RESTORATION LABORER, SEEDING, SODDING, PLANTING, CUTTING, MULCHING AND TOP SOIL GRADING; AND THE RESTORATION OF PROPERTY SUCH AS REPLACING MAILBOXES, WOOD CHIPS, PLANTER BOXES, FLAGSTONES, ETC. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 4 - ALCONA, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT AND HURON COUNTIES; IONIA COUNTY (EXCEPT THE CITY OF PORTLAND); IOSCO, ISABELLA, KALAMAZOO, KALKASKA, KENT, LAKE,LEELANAU, MANISTEE, MASON, MECOSTA, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOOMMON, SAGINAW, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 22.30 16.72

LABORERS - OPEN CUT: GROUP 1- CONSTRUCTION LABORER. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN

WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES).....$ 29.98 22.75

LABORERS - OPEN CUT: GROUP 2- MORTAR AND MATERIAL MIXER, CONCRETE FORM PERSON, SIGNAL PERSON, WELL POINT PERSON, MANHOLE, HEADWALL AND CATCH BASIN BUILDER, HEADWALL, SEAWALL, BREAKWALL AND DOCK BUILDER.MORTAR AND MATERIAL MIXER, CONCRETE FORM PERSON, SIGNAL PERSON, WELL POINT PERSON, MANHOLE, HEADWALL AND CATCH BASIN BUILDER, HEADWALL, SEAWALL, BREAKWALL AND DOCK BUILDER SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES).....$ 30.09 19.45

LABORERS - OPEN CUT: GROUP 3- AIR, GASOLINE AND ELECTRIC TOOL OPERATOR, VIBRATOR OPERATOR, DRILLER, PUMP PERSON, TAR KETTLE OPERATOR, BRACER, RODDER, REINFORCED STEEL OR MESH PERSON (E.G., WIRE MESH, STEEL MATS, DOWEL BARS, ETC.), WELDER, PIPE JACKING AND BORING PERSON, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.), WINDLASS AND TUGGER PERSON AND DIRECTIONAL BORING PERSON. AIR, GASOLINE AND ELECTRIC TOOL OPERATOR, VIBRATOR OPERATOR, DRILLER, PUMP PERSON, TAR KETTLE OPERATOR, BRACER, RODDER, REINFORCED STEEL OR MESH PERSON (E.G., WIRE MESH, STEEL MATS, DOWEL BARS,

ETC.), WELDER, PIPE JACKING AND BORING PERSON, WAGON DRILL AND AIR TRACK OPERATOR AND CONCRETE SAW OPERATOR (UNDER 40 H.P.), WINDLASS AND TUGGER PERSON AND DIRECTIONAL BORING PERSON SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES).....$ 26.09 19.45

LABORERS - OPEN CUT: GROUP 4- TRENCH OR EXCAVATING GRADE PERSON. CONSTRUCTION LABORER SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES).....$ 22.56 16.72

LABORERS - OPEN CUT: GROUP 5- PIE LAYER (INCLUDING

CROCK, METAL PIPE, MULTI-PLATE OR OTHER CONDUITS).
CONSTRUCTION LABORER SCOPE OF WORK: OPEN CUT
CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK
WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING
INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING
SITE EXCAVATION AND PREPARATION, LAND BALANCING,
DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND
APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES
AND IMPROVEMENTS; RETENTION, OXIDATION,
FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO
INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING,
CONDUITS, STEEL SHEETING FOR UNDERGROUND
CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND
GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER
PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE
CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS,
SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL
WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT
INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS,
ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY
WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION
AND PARKING LOTS OR STEEL ERECTION WORK AND
EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING
INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND
FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING.
OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY
WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK.
(ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA,
DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW,
LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND
SCHOOLCRAFT COUNTIES).....$ 22.34 16.72
LABORERS - OPEN CUT: GROUP 6- GROUTING MAN,
AUDIO-VIDUAL TELEVISION OPERATIONS AND ALL OTHER
OPERATIONS IN CONNECTION WITH CLOSED CIRCUIT
TELEVITION INSPECTION, PIPE CLEANING AND PIPE
RELINING WORK AND THE INSTALLATION AND REPAIR OF
WATER SERVICE PIPE AND APPURTENANCES. SCOPE OF
WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED
TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH
INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL
BUILDING SITE EXCAVATION AND PREPARATION, LAND
BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND
UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS,
UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION,
FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO
INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING,
CONDUITS, STEEL SHEETING FOR UNDERGROUND
CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND
GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER
PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE
CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS,
SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL
WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT
INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS,
ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY
WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION
AND PARKING LOTS OR STEEL ERECTION WORK AND
EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING
INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND
FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING.
OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY
WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK.
(ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA,
DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW,
LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND

SCHOOLCRAFT COUNTIES).....$ 19.99 16.72
LABORERS - OPEN CUT: GROUP 7- RESTORATION LABORER, SEEDING, SODDING, PLANTING, CUTTING, MULCHING AND TOP SOIL GRADING; AND THE RESTORATION OF PROPERTY SUCH AS REPLACING MAILBOXES, WOOD CHIPS, PLANTER BOXES, FLAGSTONES, ETC. SCOPE OF WORK: OPEN CUT CONSTRUCTION WORK SHALL BE CONSTRUED TO MEAN WORK WHICH REQUIRES THE EXCAVATION OF EARTH INCLUDING INDUSTRIAL, COMMERCIAL AND RESIDENTIAL BUILDING SITE EXCAVATION AND PREPARATION, LAND BALANCING, DEMOLITION AND REMOVAL OF CONCRETE AND UNDERGROUND APPURTENANCES, GRADING, PAVING, SEWERS, UTILITIES AND IMPROVEMENTS; RETENTION, OXIDATION, FLOCCULATION AND IRRIGATION FACILITIES, AND ALSO INCLUDING BUT NOT LIMITED TO UNDERGROUND PIPING, CONDUITS, STEEL SHEETING FOR UNDERGROUND CONSTRUCTION, AND ALL WORK INCIDENTAL THERETO, AND GENERAL EXCAVATION. FOR ALL AREAS EXCEPT THE UPPER PENINSULA, OPEN CUT CONSTRUCTION WORK SHALL ALSO BE CONSTRUED TO MEAN WATERFRONT WORK, PIERS, DOCKS, SEAWALLS, BREAKWALLS, MARINAS AND ALL INCIDENTAL WORK. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS, OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION WORK AND EXCAVATION FOR THE BUILDING ITSELF AND BACK FILLING INSIDE OF AND WITHIN 5 FT. OF THE BUILDING AND FOUNDATIONS, FOOTINGS AND PIERS FOR THE BUILDING. OPEN CUT CONSTRUCTION WORK SHALL NOT INCLUDE ANY WORK COVERED UNDER TUNNEL, SHAFT AND CAISSON WORK. (ZONE 5 - ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES).....$ 22.45 16.72

LABO0465-001 06/01/2025

	Rates	Fringes
LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 4: GROUP 6- LINE-FORM SETTER FOR CURB OR PAVEMENT; ASPHALT SCREED CHECKER/SCREW MAN ON ASPHALT PAVING MACHINES. (AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON, AND SCHOOL CRAFT COUNTIES)....	$ 34.51	13.45
LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 4: GROUP 5- PIPE LAYERS, OXY-GUN. (AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON, AND SCHOOL CRAFT COUNTIES).....	$ 34.08	13.45
LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 4: GROUP 4- ASPHALT RAKER. (AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON, AND SCHOOL CRAFT COUNTIES).....	$ 34.46	13.45
LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 4: GROUP 3- TUNNEL MINER (HIGHWAY WORK ONLY); FINISHERS TENDERS; GUARD RAIL BUILDERS; HIGHWAY AND MEDIAN BARRIER INSTALLER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S (INCLUDING SOUND, RETAINING AND CRASH BARRIERS); FENCE ERECTOR; BOTTOM PERSON; POWEDER PERSON; WAGON DRILL		

AND AIR TRACK OPERATOR; DIAMOND AND CORE DRILLS; GRADE CHECKER; CERTIFIED WELDERS; CURB AND SIDE RAIL SETTER'S TENDER. (AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON, AND SCHOOL CRAFT COUNTIES)....$ 34.02 13.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 4: GROUP 2- MIXER OPERATOR (LESS THAN 5 SACKS); AIR OR ELECTRIC TOOL OPERATOR (JACKHAMMER, ETC.); SPREADER; BOXPERSON (ASPHALT, STONE, GRAVEL); CONCRETE PADDLER; POWER CHAIN SAW OPERATOR; PAVING BATCH TRUCK DUMPER; TUNNEL MUCKER (HIGHWAY WORK ONLY); CONCRETE SAW (UNDER 40 H.P.) AND DRY PACK MACHINE; ROTO-MILL GROUNDS PERSON. (AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON, AND SCHOOL CRAFT COUNTIES).....$ 33.73 13.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 4: GROUP 1- ASPHALT SHOVELER OR LOADER; ASPHALT PLANT MISC.; BURLAP PERSON; YARD PERSON; DUMPER (WAGON, TRUCK, ETC.); JOINT FILLING LABORER; MISCELLANEOUS LABORER; UNSKILLED LABORER; PAVEMENT REINFORCEING; HANDLING AND PLACING (E.G. WIRE MESH, STEEL MATS, DOWEL BARS); MASON'S TENDER OR BRICKLAYER'S TENDER ON MANHOLES; MANHOLE BUILDER; HEADWALLS, ETC.; WATERPROOFING (OTHER THAN BUILDLINGS), SEAL COATING AND SLURRY MIX, SHORING, UNDERPINNING; PRESSURE GROUTING; BRIDGE PIN AND HANGER REMOVAL; MATERIAL RECYCLING LABORER; HORIZONTAL PAVER LABORER (BRICK, CONCRETE, CLAY, STONE, AND ASPHALT); GROUND STABILIZATION AND MODIFICATION LABORER; GROUTING; WATERBLASTING; TOP PERSON; RAILROAD TRACK AND TRESTLE LABORER; CARPENTERS' TENDER; GUARD RAIL BUILDERS' TENDER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S TENDER; ASPHALT RAKER TENDER; SIGN INSTALLER; REMOTE CONTROL OPERATED EQUIPMENT. (AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON, AND SCHOOL CRAFT COUNTIES).....$ 33.52 13.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 3: GROUP 6- LINE-FORM SETTER FOR CURB OR PAVEMENT; ASPHALT SCREED CHECKER/SCREW MAN ON ASPHALT PAVING MACHINES. (AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PREQUE ISLE, ROSCOMMON, AND WEXFORD COUNTIES).....$ 33.61 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 3: GROUP 5- PIPE LAYERS, OXY-GUN. (AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PREQUE ISLE, ROSCOMMON, AND WEXFORD COUNTIES).....$ 33.18 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 3: GROUP 4- ASPHALT RAKER. (AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX,

CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PREQUE ISLE, ROSCOMMON, AND WEXFORD COUNTIES).....$ 33.56 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 3: GROUP 3- TUNNEL MINER (HIGHWAY WORK ONLY); FINISHERS TENDERS; GUARD RAIL BUILDERS; HIGHWAY AND MEDIAN BARRIER INSTALLER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S (INCLUDING SOUND, RETAINING AND CRASH BARRIERS); FENCE ERECTOR; BOTTOM PERSON; POWEDER PERSON; WAGON DRILL AND AIR TRACK OPERATOR; DIAMOND AND CORE DRILLS; GRADE CHECKER; CERTIFIED WELDERS; CURB AND SIDE RAIL SETTER'S TENDER. (AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PREQUE ISLE, ROSCOMMON, AND WEXFORD COUNTIES).....$ 33.12 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 3: GROUP 2- MIXER OPERATOR (LESS THAN 5 SACKS); AIR OR ELECTRIC TOOL OPERATOR (JACKHAMMER, ETC.); SPREADER; BOXPERSON (ASPHALT, STONE, GRAVEL); CONCRETE PADDLER; POWER CHAIN SAW OPERATOR; PAVING BATCH TRUCK DUMPER; TUNNEL MUCKER (HIGHWAY WORK ONLY); CONCRETE SAW (UNDER 40 H.P.) AND DRY PACK MACHINE; ROTO-MILL GROUNDS PERSON. (AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PREQUE ISLE, ROSCOMMON, AND WEXFORD COUNTIES).....$ 33.83 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 3: GROUP 1- ASPHALT SHOVELER OR LOADER; ASPHALT PLANT MISC.; BURLAP PERSON; YARD PERSON; DUMPER (WAGON, TRUCK, ETC.); JOINT FILLING LABORER; MISCELLANEOUS LABORER; UNSKILLED LABORER; PAVEMENT REINFORCEING; HANDLING AND PLACING (E.G. WIRE MESH, STEEL MATS, DOWEL BARS); MASON'S TENDER OR BRICKLAYER'S TENDER ON MANHOLES; MANHOLE BUILDER; HEADWALLS, ETC.; WATERPROOFING (OTHER THAN BUILDLINGS), SEAL COATING AND SLURRY MIX, SHORING, UNDERPINNING; PRESSURE GROUTING; BRIDGE PIN AND HANGER REMOVAL; MATERIAL RECYCLING LABORER; HORIZONTAL PAVER LABORER (BRICK, CONCRETE, CLAY, STONE, AND ASPHALT); GROUND STABILIZATION AND MODIFICATION LABORER; GROUTING; WATERBLASTING; TOP PERSON; RAILROAD TRACK AND TRESTLE LABORER; CARPENTERS' TENDER; GUARD RAIL BUILDERS' TENDER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S TENDER; ASPHALT RAKER TENDER; SIGN INSTALLER; REMOTE CONTROL OPERATED EQUIPMENT. (AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PREQUE ISLE, ROSCOMMON, AND WEXFORD COUNTIES).....$ 32.62 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 2: GROUP 6- LINE-FORM SETTER FOR CURB OR PAVEMENT; ASPHALT SCREED CHECKER/SCREW MAN ON ASPHALT PAVING MACHINES. (AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILACK, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, AND VAN BUREN COUNTIES).....$ 34.37 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 2: GROUP 5- PIPE LAYERS, OXY-GUN. (AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILACK, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, AND VAN BUREN COUNTIES).....$ 34.03 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 2: GROUP 4- ASPHALT RAKER. (AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILACK, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, AND VAN BUREN COUNTIES).....$ 34.16 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 2: GROUP 3- TUNNEL MINER (HIGHWAY WORK ONLY); FINISHERS TENDERS; GUARD RAIL BUILDERS; HIGHWAY AND MEDIAN BARRIER INSTALLER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S (INCLUDING SOUND, RETAINING AND CRASH BARRIERS); FENCE ERECTOR; BOTTOM PERSON; POWEDER PERSON; WAGON DRILL AND AIR TRACK OPERATOR; DIAMOND AND CORE DRILLS; GRADE CHECKER; CERTIFIED WELDERS; CURB AND SIDE RAIL SETTER'S TENDER. (AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILACK, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, AND VAN BUREN COUNTIES).....$ 33.81 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 2: GROUP 2- MIXER OPERATOR (LESS THAN 5 SACKS); AIR OR ELECTRIC TOOL OPERATOR (JACKHAMMER, ETC.); SPREADER; BOXPERSON (ASPHALT, STONE, GRAVEL); CONCRETE PADDLER; POWER CHAIN SAW OPERATOR; PAVING BATCH TRUCK DUMPER; TUNNEL MUCKER (HIGHWAY WORK ONLY); CONCRETE SAW (UNDER 40 H.P.) AND DRY PACK MACHINE; ROTO-MILL GROUNDS PERSON. (AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILACK, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, AND VAN BUREN COUNTIES).....$ 30.03 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 2: GROUP 1- ASPHALT SHOVELER OR LOADER; ASPHALT PLANT MISC.; BURLAP PERSON; YARD PERSON; DUMPER (WAGON, TRUCK, ETC.); JOINT FILLING LABORER; MISCELLANEOUS LABORER; UNSKILLED LABORER; PAVEMENT REINFORCEING; HANDLING AND PLACING (E.G. WIRE MESH, STEEL MATS, DOWEL BARS); MASON'S TENDER OR BRICKLAYER'S TENDER ON MANHOLES; MANHOLE BUILDER; HEADWALLS, ETC.; WATERPROOFING (OTHER THAN BUILDLINGS), SEAL COATING AND SLURRY MIX, SHORING, UNDERPINNING; PRESSURE GROUTING; BRIDGE PIN AND

HANGER REMOVAL; MATERIAL RECYCLING LABORER; HORIZONTAL PAVER LABORER (BRICK, CONCRETE, CLAY, STONE, AND ASPHALT); GROUND STABILIZATION AND MODIFICATION LABORER; GROUTING; WATERBLASTING; TOP PERSON; RAILROAD TRACK AND TRESTLE LABORER; CARPENTERS' TENDER; GUARD RAIL BUILDERS' TENDER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S TENDER; ASPHALT RAKER TENDER; SIGN INSTALLER; REMOTE CONTROL OPERATED EQUIPMENT. (AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILACK, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, AND VAN BUREN COUNTIES).....$ 33.37 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 1: GROUP 6- LINE-FORM SETTER FOR CURB OR PAVEMENT; ASPHALT SCREED CHECKER/SCREW MAN ON ASPHALT PAVING MACHINES. (AREA 1: GENESE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES).....$ 36.41 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 1: GROUP 5- PIPE LAYERS, OXY-GUN. (AREA 1: GENESE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES).....$ 36.11 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 1: GROUP 4- ASPHALT RAKER. (AREA 1: GENESE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES).....$ 35.90 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 1: GROUP 3- TUNNEL MINER (HIGHWAY WORK ONLY); FINISHERS TENDERS; GUARD RAIL BUILDERS; HIGHWAY AND MEDIAN BARRIER INSTALLER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S (INCLUDING SOUND, RETAINING AND CRASH BARRIERS); FENCE ERECTOR; BOTTOM PERSON; POWEDER PERSON; WAGON DRILL AND AIR TRACK OPERATOR; DIAMOND AND CORE DRILLS; GRADE CHECKER; CERTIFIED WELDERS; CURB AND SIDE RAIL SETTER'S TENDER. (AREA 1: GENESE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES).....$ 35.82 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 1: GROUP 2- MIXER OPERATOR (LESS THAN 5 SACKS); AIR OR ELECTRIC TOOL OPERATOR (JACKHAMMER, ETC.); SPREADER; BOXPERSON (ASPHALT, STONE, GRAVEL); CONCRETE PADDLER; POWER CHAIN SAW OPERATOR; PAVING BATCH TRUCK DUMPER; TUNNEL MUCKER (HIGHWAY WORK ONLY); CONCRETE SAW (UNDER 40 H.P.) AND DRY PACK MACHINE; ROTO-MILL GROUNDS PERSON. (AREA 1: GENESE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES).....$ 31.96 14.45

LABORER- HIGHWAY, BRIDGE, AND AIRPORT CONSTRUCTION AREA 1: GROUP 1- ASPHALT SHOVELER OR LOADER; ASPHALT PLANT MISC.; BURLAP PERSON; YARD PERSON; DUMPER (WAGON, TRUCK, ETC.); JOINT FILLING LABORER; MISCELLANEOUS LABORER; UNSKILLED LABORER; PAVEMENT REINFORCEING; HANDLING AND PLACING (E.G. WIRE MESH, STEEL MATS, DOWEL BARS); MASON'S TENDER OR BRICKLAYER'S TENDER ON MANHOLES; MANHOLE BUILDER; HEADWALLS, ETC.; WATERPROOFING (OTHER THAN BUILDLINGS), SEAL COATING AND SLURRY MIX, SHORING, UNDERPINNING; PRESSURE GROUTING; BRIDGE PIN AND HANGER REMOVAL; MATERIAL RECYCLING LABORER; HORIZONTAL PAVER LABORER (BRICK, CONCRETE, CLAY, STONE, AND ASPHALT); GROUND STABILIZATION AND MODIFICATION LABORER; GROUTING; WATERBLASTING; TOP PERSON; RAILROAD TRACK AND TRESTLE LABORER;

CARPENTERS' TENDER; GUARD RAIL BUILDERS' TENDER; EARTH RETENTION BARRIER AND WALL AND M.S.E. WALL INSTALLER'S TENDER; ASPHALT RAKER TENDER; SIGN INSTALLER; REMOTE CONTROL OPERATED EQUIPMENT. (AREA 1: GENESE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES).....$ 35.51 14.45

LABO1076-005 04/01/2025

	Rates	Fringes
LABORER: DISTRIBUTION WORK - THE CONSTRUCTION, INSTALLATION, TREATING AND RECONDITIONING OF DISTRIBUTION PIPELINES TRANSPORTING COAL, OIL, GAS OR OTHER SIMILAR MATERIALS, VAPORS OR LIQUIDS, INCLUDING PIPELINES WITHIN PRIVATE PROPERTY BOUNDARIES, UP TO AND INCLUDING THE METER SETTINGS ON RESIDENTIAL, COMMERCIAL, INDUSTRIAL, INSTITUTIONAL, PRIVATE AND PUBLIC STRUCTURES. ALL WORK COVERING PUMPING STATIONS AND TANK FARMS NOT COVERED BY THE BUILDING TRADES AGREEMENT. OTHER DISTRIBUTION LINES WITH THE EXCEPTION OF SEWER, WATER AND CABLE TELEVISION ARE INCLUDED. UNDERGROUND DUCT LAYER PAY: $.40 PER HOUR ABOVE THE BASE PAY RATE. (ZONE 5 - REMAINING COUNTIES IN MICHIGAN)	$ 22.95	13.45
LABORER: DISTRIBUTION WORK - THE CONSTRUCTION, INSTALLATION, TREATING AND RECONDITIONING OF DISTRIBUTION PIPELINES TRANSPORTING COAL, OIL, GAS OR OTHER SIMILAR MATERIALS, VAPORS OR LIQUIDS, INCLUDING PIPELINES WITHIN PRIVATE PROPERTY BOUNDARIES, UP TO AND INCLUDING THE METER SETTINGS ON RESIDENTIAL, COMMERCIAL, INDUSTRIAL, INSTITUTIONAL, PRIVATE AND PUBLIC STRUCTURES. ALL WORK COVERING PUMPING STATIONS AND TANK FARMS NOT COVERED BY THE BUILDING TRADES AGREEMENT. OTHER DISTRIBUTION LINES WITH THE EXCEPTION OF SEWER, WATER AND CABLE TELEVISION ARE INCLUDED. UNDERGROUND DUCT LAYER PAY: $.40 PER HOUR ABOVE THE BASE PAY RATE. (ZONE 4 - ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT)	$ 22.92	13.45
LABORER: DISTRIBUTION WORK - THE CONSTRUCTION, INSTALLATION, TREATING AND RECONDITIONING OF DISTRIBUTION PIPELINES TRANSPORTING COAL, OIL, GAS OR OTHER SIMILAR MATERIALS, VAPORS OR LIQUIDS, INCLUDING PIPELINES WITHIN PRIVATE PROPERTY BOUNDARIES, UP TO AND INCLUDING THE METER SETTINGS ON RESIDENTIAL, COMMERCIAL, INDUSTRIAL, INSTITUTIONAL, PRIVATE AND PUBLIC STRUCTURES. ALL WORK COVERING PUMPING STATIONS AND TANK FARMS NOT COVERED BY THE BUILDING TRADES AGREEMENT. OTHER DISTRIBUTION LINES WITH THE EXCEPTION OF SEWER, WATER AND CABLE TELEVISION ARE INCLUDED. UNDERGROUND DUCT LAYER PAY: $.40 PER HOUR ABOVE THE BASE PAY RATE. (ZONE 3 - BAY, GENESEE, LAPEER, MIDLAND, SAGINAW, SANILAC, SHIAWASSEE AND ST. CLAIR)	$ 23.55	13.45
LABORER: DISTRIBUTION WORK - THE CONSTRUCTION, INSTALLATION, TREATING AND RECONDITIONING OF DISTRIBUTION PIPELINES TRANSPORTING COAL, OIL, GAS OR OTHER SIMILAR MATERIALS, VAPORS OR LIQUIDS, INCLUDING PIPELINES WITHIN PRIVATE PROPERTY BOUNDARIES, UP TO AND INCLUDING THE METER SETTINGS ON RESIDENTIAL, COMMERCIAL, INDUSTRIAL,		

INSTITUTIONAL, PRIVATE AND PUBLIC STRUCTURES. ALL WORK COVERING PUMPING STATIONS AND TANK FARMS NOT COVERED BY THE BUILDING TRADES AGREEMENT. OTHER DISTRIBUTION LINES WITH THE EXCEPTION OF SEWER, WATER AND CABLE TELEVISION ARE INCLUDED. UNDERGROUND DUCT LAYER PAY: $.40 PER HOUR ABOVE THE BASE PAY RATE. (ZONE 2 - MONROE AND WASHTENAW)......$ 24.55 13.45

LABORER: DISTRIBUTION WORK - THE CONSTRUCTION, INSTALLATION, TREATING AND RECONDITIONING OF DISTRIBUTION PIPELINES TRANSPORTING COAL, OIL, GAS OR OTHER SIMILAR MATERIALS, VAPORS OR LIQUIDS, INCLUDING PIPELINES WITHIN PRIVATE PROPERTY BOUNDARIES, UP TO AND INCLUDING THE METER SETTINGS ON RESIDENTIAL, COMMERCIAL, INDUSTRIAL, INSTITUTIONAL, PRIVATE AND PUBLIC STRUCTURES. ALL WORK COVERING PUMPING STATIONS AND TANK FARMS NOT COVERED BY THE BUILDING TRADES AGREEMENT. OTHER DISTRIBUTION LINES WITH THE EXCEPTION OF SEWER, WATER AND CABLE TELEVISION ARE INCLUDED. UNDERGROUND DUCT LAYER PAY: $.40 PER HOUR ABOVE THE BASE PAY RATE. (ZONE 1 - MACOMB, OAKLAND AND WAYNE).....$ 28.41 13.45

PAIN0022-002 07/01/2008

	Rates	Fringes
PAINTER (HILLSDALE, JACKSON AND LENAWEE COUNTIES; LIVINGSTON COUNTY (EAST OF THE EASTERN CITY LIMITS OF HOWELL, NOT INCLUDING THE CITY OF HOWELL, NORTH TO THE GENESEE COUNTY LINE AND SOUTH TO THE WASHTENAW COUNTY LINE); MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES). FOOTNOTES: FOR ALL SPRAY WORK AND JOURNEYMAN RIGGING FOR SPRAY WORK, ALSO BLOWING OFF, $0.80 PER HOUR ADDITIONAL (APPLIES ONLY TO WORKERS DOING RIGGING FOR SPRAY WORK ON OFF THE FLOOR WORK. DOES NOT INCLUDE SETTING UP OR MOVING RIGGING ON FLOOR SURFACES, NOR DOES IT APPLY TO WORKERS ENGAGED IN COVERING UP OR TENDING SPRAY EQUIPMENT. FOR ALL SANDBLASTING AND SPRAY WORK PERFORMED ON HIGHWAY BRIDGES, OVERPASSES, TANKS OR STEEL, $0.80 PER HOUR ADDITIONAL. FOR ALL BRUSHING, CLEANING AND OTHER PREPARATORY WORK (OTHER THAN SPRAYING OR STEEPLEJACK WORK) AT SCAFFOLD HEIGHTS OF FIFTY (50) FEET FROM THE GROUND OR HIGHER, $0.50 PER HOUR ADDITIONAL. FOR ALL PREPARATORIAL WORK AND PAINTING PERFORMED ON OPEN STEEL UNDER FORTY (40) FEET WHEN NO SCAFFOLDING IS INVOLVED, $0.50 PER HOUR ADDITIONAL. FOR ALL SWING STAGE WORK-WINDOW JACKS AND WINDOW BELTS-EXTERIOR AND INTERIOR, $0.50 PER HOUR ADDITIONAL. FOR ALL SPRAY WORK AND SANDBLASTER WORK TO A SCAFFOLD HEIGHT OF FORTY (40) FEET ABOVE THE FLOOR LEVEL, $0.80 PER HOUR ADDITIONAL. FOR ALL PREPARATORIAL WORK AND PAINTING ON ALL HIGHWAY BRIDGES OR OVERPASSES UP TO FORTY (40) FEET IN HEIGHT, $0.50 PER HOUR ADDITIONAL. FOR ALL STEEPLEJACK WORK PERFORMED WHERE THE ELEVATION IS FORTY (40) FEET OR MORE, $1.25 PER HOUR ADDITIONAL..	$ 25.06	14.75

PAIN0312-001 06/01/2018

	Rates	Fringes
PAINTER: SPRAY, SANDBLAST, SIGN PAINTING (EXCLUDES: ALLEGAN COUNTY (TOWNSHIPS OF DORR, FILLMORE, HEATH, HOPKINS, LAKETOWN, LEIGHTON, MANLIUS, MONTEREY,		

OVERISEL, SALEM, SAUGATUCK AND WAYLAND); INCLUDES: BARRY, BERRIEN, BRANCH, CALHOUN, CASS, HILLSDALE, KALAMAZOO, ST. JOSEPH, VAN BUREN).....$ 24.94 13.35

PAINTER: BRUSH AND ROLLER (EXCLUDES: ALLEGAN COUNTY (TOWNSHIPS OF DORR, FILLMORE, HEATH, HOPKINS, LAKETOWN, LEIGHTON, MANLIUS, MONTEREY, OVERISEL, SALEM, SAUGATUCK AND WAYLAND); INCLUDES: BARRY, BERRIEN, BRANCH, CALHOUN, CASS, HILLSDALE, KALAMAZOO, ST. JOSEPH, VAN BUREN).....$ 23.74 13.35

PAIN0845-003 05/10/2018

	Rates	Fringes
PAINTER (CLINTON COUNTY; EATON COUNTY (DOES NOT INCLUDE THE TOWNSHIPS OF BELLEVUE AND OLIVET); INGHAM COUNTY; IONIA COUNTY (EAST OF HWY. M 66); LIVINGSTON COUNTY (WEST OF THE EASTERN CITY LIMITS OF HOWELL, INCLUDING THE CITY OF HOWELL, NORTH TO THE GENESEE COUNTY LINE AND SOUTH TO THE WASHTENAW COUNTY LINE); AND SHIAWASSEE COUNTY (TOWNSHIPS OF BENNINGTON, LAINGSBURY AND PERRY))	$ 25.49	13.74

PAIN0845-015 05/10/2018

	Rates	Fringes
PAINTER (MUSKEGON COUNTY; NEWAYGO COUNTY (EXCEPT THE TOWNSHIPS OF BARTON, BIG PRAIRIE, BROOKS, CROTON, ENSLEY, EVERETT, GOODWELL, GRANT, HOME, MONROE, NORWICH AND WILCOX); OCEANA COUNTY; OTTAWA COUNTY (EXCEPT THE TOWNSHIPS OF ALLENDALE, BLENDONE, CHESTER, GEORGETOWN, HOLLAND, JAMESTOWN, OLIVE, PARK, POLKTON, PORT SHELDON, TALLMADGE, WRIGHT AND ZEELAND):)	$ 25.49	13.74

PAIN0845-018 05/10/2018

	Rates	Fringes
PAINTER (ALLEGAN COUNTY (TOWNSHIPS OF DORR, FILLMORE, HEATH, HOPKINS, LAKETOWN, LEIGHTON, MANLIUS, MONTEREY, OVERISEL, SALEM, SAUGATUCK AND WAYLAND); IONIA COUNTY (WEST OF HWY. M-66); KENT, MECOSTA AND MONTCALM COUNTIES; NEWAYGO COUNTY (TOWNSHIPS OF BARTON, BIG PRAIRIE, BROOKS, CROTON, ENSLEY, EVERETT, GOODWELL, GRANT, HOME, MONROE, NORWICH AND WILCOX); OSCEOLA COUNTY (SOUTH OF HWY. #10); OTTAWA COUNTY (TOWNSHIPS OF ALLENDALE, BLENDONE, CHESTER, GEORGETOWN, HOLLAND, JAMESTOWN, OLIVE, PARK, POLK	$ 25.49	13.74

PAIN1011-003 06/02/2022

	Rates	Fringes
PAINTER (ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES) FOOTNOTES: HIGH PAY (BRIDGES, OVERPASSES, WATERTOWER): 30 TO 80 FT.: $.65 PER HOUR ADDITIONAL. 80 FT. AND OVER: $1.30 PER HOUR ADDITIONAL	$ 24.66	14.99

PAIN1474-002 06/01/2010

	Rates	Fringes
PAINTER (HURON COUNTY; LAPEER COUNTY (EAST OF HWY. M-53); ST. CLAIR, SANILAC AND TUSCOLA COUNTIES)		

FOOTNOTES: LEAD ABATEMENT WORK: $1.00 PER HOUR ADDITIONAL. WORK WITH ANY HAZARDOUS MATERIAL: $1.00 PER HOUR ADDITIONAL. SANDBLASTING, STEAM CLEANING AND ACID CLEANING: $1.00 PER HOUR ADDITIONAL. LADDER WORK AT OR ABOVE 40 FT., SCAFFOLD WORK AT OR ABOVE 40 FT., SWING STAGE, BOATSWAIN CHAIR, WINDOW JACKS AND ALL WORK PERFORMED OVER A FALLING HEIGHT OF 40 FT.: $1.00 PER HOUR ADDITIONAL. SPRAY GUN WORK, PICK PULLERS AND THOSE HANDLING NEEDLES, BLOWING OFF BY AIR PRESSURE, AND ANY PERSON RIGGING (SETTING UP AND MOVING OFF THE GROUND): $1.00 PER HOUR ADDITIONAL. STEEPLEJACK, TANKS, GAS HOLDERS, STACKS, FLAG POLES, RADIO TOWERS AND BEACONS, POWER LINE TOWERS, BRIDGES, ETC.: $1.00 PER HOUR ADDITIONAL, PAID FROM THE GROUND UP.....$ 23.79 12.02

PAIN1803-003 06/01/2025

	Rates	Fringes
PAINTER: WORK PERFORMED ON WATER, BRIDGES OVER WATER OR MOVING TRAFFIC, RADIO AND POWERLINE TOWERS, ELEVATED TANKS, STEEPLES, SMOKE STACKS OVER 40 FT. OF FALLING HEIGHTS, RECOVERY OF LEAD-BASED PAINTS AND ANY WORK ASSOCIATED WITH INDUSTRIAL PLANTS, EXCEPT MAINTENANCE OF INDUSTRIAL PLANTS. (ALCONA, ALPENA, ANTRIM, ARENAC, BAY, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT, IOSCO, ISABELLA, KALKASKA, LAKE, LEELANAU, MANISTEE, MASON, MIDLAND, MISSAUKEE, MONTMORENCY AND OGEMAW COUNTIES; OSCEOLA COUNTY (NORTH OF HWY. #10); OSCODA, OTSEGO, PREQUE ISLE, ROSCOMMON, SAGINAW AND WEXFORD COUNTIES).....	$ 29.23	19.11
PAINTER: ALL OTHER WORK, INCLUDING MAINTENANCE OF INDUSTRIAL PLANT. (ALCONA, ALPENA, ANTRIM, ARENAC, BAY, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT, IOSCO, ISABELLA, KALKASKA, LAKE, LEELANAU, MANISTEE, MASON, MIDLAND, MISSAUKEE, MONTMORENCY AND OGEMAW COUNTIES; OSCEOLA COUNTY (NORTH OF HWY. #10); OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW AND WEXFORD COUNTIES) FOOTNOTES: SPRAY PAINTING, SANDBLASTING, BLOWDOWN ASSOCIATED WITH SPRAYING AND BLASTING, WATER BLASTING AND WORK INVOLVING A SWING STAGE, BOATSWAIN CHAIR OR SPIDER: $1.00 PER HOUR ADDITIONAL. ALL WORK PERFORMED INSIDE TANKS, VESSELS, TANK TRAILERS, RAILROAD CARS, SEWERS, SMOKE STACKS, BOILERS OR OTHER SPACES HAVING LIMITED EGRESS NOT INCLUDING BUILDINGS, OPENTOP TANKS, PITS, ETC.: $1.25 PER HOUR ADDITIONAL.....	$ 29.35	19.05

PLAS0514-001 06/01/2023

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER: ZONE 2 (ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM,		

MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN, AND WEXFORD COUNTIES).....$ 31.50 18.51

CEMENT MASON/CONCRETE FINISHER: ZONE 1 (GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES).....$ 33.00 18.51

PLUM0190-003 05/01/2015

	Rates	Fringes
PLUMBER/PIPEFITTER - GAS DISTRIBUTION PIPELINE: WELDING IN CONJUNCTION WITH GAS DISTRIBUTION PIPELINE WORK	$ 33.03	20.19
PLUMBER/PIPEFITTER - GAS DISTRIBUTION PIPELINE: ALL OTHER WORK	$ 24.19	12.28

SUMI2002-001 08/13/1986

	Rates	Fringes
PAVEMENT MARKING MACHINE: GROUP 2 Performs all functions involved for the placement or removal of temporary or permanent pavement markings or markers not covered by the classification of Pavement Marker Group 1 or Line Protector. ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)	$ 30.03	14.45
PAVEMENT MARKING MACHINE: GROUP 2 Performs all functions involved for the placement or removal of temporary or permanent pavement markings or markers not covered by the classification of Pavement Marker Group 1 or Line Protector. ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE	$ 31.96	14.45
PAVEMENT MARKING MACHINE: GROUP 1 Drives or operates a truck mounted striper, grinder, blaster, groover, or thermoplastic melter for the placement or removal of temporary or permanent pavement markings or markers. ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES)	$ 33.37	14.45
PAVEMENT MARKING MACHINE: GROUP 1 Drives or operates a truck mounted striper, grinder, blaster, groover, or thermoplastic melter for the placement or removal of temporary or permanent pavement markings or markers. ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES	$ 35.51	14.45
LINE PROTECTOR: Performs all operations for the protection or removal of temporary or permanent pavement markings or markers in a moving convoy operation not performed by the classification of Pavement Marker Group 1. A moving convoy operation is compreised of only Pavement Markers Group 1 and Line Protectors. (ZONE 2: STATEWIDE (EXCLUDING GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)	$ 25.03	14.45
LINE PROTECTOR Performs all operations for the protection or removal of temporary or permanent pavement markings or markers in a moving convoy operation not performed by the classification of Pavement Marker Group 1. A moving convoy operation is compreised of only Pavement Markers Group 1 and Line Protectors. (ZONE 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE)	$ 26.63	14.45

FLAG PERSON	$ 10.10	0.00

TEAM0007-004 06/01/2025

	Rates	Fringes
TRUCK DRIVER TRUCKS, 8 CU. YDS. AND OVER (AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW, AND WAYNE COUNTIES). FOOTNOTE: +A +B TO FRINGE BENEFITS. A. $470.70 PER WEEK B. $68.70 DAILY	$ 33.50	0.75
TRUCK DRIVER TRUCKS, 8 CU. YDS. AND OVER (AREA 1: REMAINING COUNTIES) FOOTNOTE: +A +B TO FRINGE BENEFITS. A. $470.70 PER WEEK B. $68.70 DAILY	$ 33.40	0.75
TRUCK DRIVER TRUCKS UNDER 8 CU. YDS. (AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW, AND WAYNE COUNTIES) FOOTNOTE: +A +B TO FRINGE BENEFITS. A. $470.70 PER WEEK B. $68.70 DAILY	$ 33.50	0.75
TRUCK DRIVER TRUCKS UNDER 8 CU. YDS. (AREA 1: REMAINING COUNTIES) FOOTNOTE: +A +B TO FRINGE BENEFITS. A. $470.70 PER WEEK B. $68.70 DAILY	$ 33.40	0.75
TRUCK DRIVER EUCLIDS, DOUBLE BOTTOMS AND LOWBOYS (AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW, AND WAYNE COUNTIES) FOOTNOTE: +A +B TO FRINGE BENEFITS. A. $470.70 PER WEEK B. $68.70 DAILY	$ 33.65	0.75
TRUCK DRIVER EUCLIDS, DOUBLE BOTTOMS AND LOWBOYS (AREA 1: REMAINING COUNTIES) FOOTNOTE: +A +B TO FRINGE BENEFITS. A. $470.70 PER WEEK B. $68.70 DAILY	$ 33.55	0.75

TEAM0247-004 04/01/2013

	Rates	Fringes
SIGN INSTALLER GROUP 2: PERFORMS ALL MISCELLANEOUS LABOR, USES ALL HAND AND POWER TOOLS, AND OPERATORES ALL OTHER EQUIPMENT, MOBILE OR OTHERWISE, REQUIRED FOR THE INSTALLATION OF HIGHWAY AND STREET SIGNS. (AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW, AND WAYNE COUNTIES) FOOTENOTE: A. $132.70 PER WEEK, PLUS $17.80 PER DAY	$ 25.05	11.84
SIGN INSTALLER GROUP 2: PERFORMS ALL MISCELLANEOUS LABOR, USES ALL HAND AND POWER TOOLS, AND OPERATORES ALL OTHER EQUIPMENT, MOBILE OR OTHERWISE, REQUIRED FOR THE INSTALLATION OF HIGHWAY AND STREET SIGNS. (AREA 1: REMAINING COUNTIES) FOOTENOTE: A. $132.70 PER WEEK, PLUS $17.80 PER DAY	$ 25.27	11.84
SIGN INSTALLER GROUP 1: PERFORMS ALL NECESSARY LABOR AND USES ALL TOOLS REQUIRED TO CONSTRUCT AND SET CONCRETE FORMS REQUIRED IN THE INSTALLATION OF HIGHWAY AND STREET SIGNS. (AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW, AND WAYNE COUNTIES) FOOTENOTE: A. $132.70 PER WEEK, PLUS $17.80 PER DAY	$ 22.03	11.83
SIGN INSTALLER GROUP 1: PERFORMS ALL NECESSARY LABOR AND USES ALL TOOLS REQUIRED TO CONSTRUCT AND SET CONCRETE FORMS REQUIRED IN THE INSTALLATION OF HIGHWAY AND STREET SIGNS. (AREA 1: REMAINING COUNTIES) FOOTENOTE: A. $132.70 PER WEEK, PLUS $17.80 PER DAY	$ 21.78	11.83

TEAM0247-010 04/01/2018

	Rates	Fringes
TRUCK DRIVER, UNDERGROUND CONSTRUCTION: GROUP 3- TRUCK DRIVER ON LOW BOY, EUCLID AND DOUBLE BOTTOM. SCOPE OF WORK: EXCAATION, SITE PREPARATION, LAND BALANCING, GRADING, SEWERS, UTILITIES AND IMPROVEMENTS; ALSO INCLUDING BUT NOT LIMITED TO TUNNELS, UNDERGROUND PIPING, RETENTION, OXIDATION, FLOCCULATION FACILITIES, CONDUITS, GENERAL EXCAVATION AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. UNDERGROUND CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION. PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, TANKSGIVING DAY, AND CHRISTMAS DAY. (AREA 2 GENESEE, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW, AND WAYNE COUNTIES).....	$ 24.45	19.04
TRUCK DRIVER, UNDERGROUND CONSTRUCTION: GROUP 3- TRUCK DRIVER ON LOW BOY, EUCLID AND DOUBLE BOTTOM. SCOPE OF WORK: EXCAATION, SITE PREPARATION, LAND BALANCING, GRADING, SEWERS, UTILITIES AND IMPROVEMENTS; ALSO INCLUDING BUT NOT LIMITED TO TUNNELS, UNDERGROUND PIPING, RETENTION, OXIDATION, FLOCCULATION FACILITIES, CONDUITS, GENERAL EXCAVATION AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. UNDERGROUND CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION. PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, TANKSGIVING DAY, AND CHRISTMAS DAY. (AREA 1: LAPEER AND SHIAWASSEE COUNTIES).....	$ 24.12	19.04
TRUCK DRIVER, UNDERGROUND CONSTRUCTION: GROUP 2- TRUCK DRIVER ON DUMP TRUCKS OF 8 CUBIC YARDS CAPACITY OR OVER, POLE TRAILERS, SEMIS AND FUEL TRUCKS. SCOPE OF WORK: EXCAATION, SITE PREPARATION, LAND BALANCING, GRADING, SEWERS, UTILITIES AND IMPROVEMENTS; ALSO INCLUDING BUT NOT LIMITED TO TUNNELS, UNDERGROUND PIPING, RETENTION, OXIDATION, FLOCCULATION FACILITIES, CONDUITS, GENERAL EXCAVATION AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. UNDERGROUND CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION. PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH OF JULY, LABOR DAY, TANKSGIVING DAY, AND CHRISTMAS DAY. (AREA 2 GENESEE, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW, AND WAYNE COUNTIES).....	$ 24.26	19.04
TRUCK DRIVER, UNDERGROUND CONSTRUCTION: GROUP 2- TRUCK DRIVER ON DUMP TRUCKS OF 8 CUBIC YARDS CAPACITY OR OVER, POLE TRAILERS, SEMIS AND FUEL TRUCKS. SCOPE OF WORK: EXCAATION, SITE PREPARATION, LAND BALANCING, GRADING, SEWERS, UTILITIES AND IMPROVEMENTS; ALSO INCLUDING BUT NOT LIMITED TO TUNNELS, UNDERGROUND PIPING, RETENTION, OXIDATION, FLOCCULATION FACILITIES, CONDUITS, GENERAL EXCAVATION AND STEEL SHEETING FOR UNDERGROUND CONSTRUCTION. UNDERGROUND CONSTRUCTION WORK SHALL NOT INCLUDE ANY STRUCTURAL MODIFICATIONS, ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS OR HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE		

CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION.
PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH
OF JULY, LABOR DAY, TANKSGIVING DAY, AND CHRISTMAS
DAY. (AREA 1: LAPEER AND SHIAWASSEE COUNTIES)......$ 23.91 19.04
TRUCK DRIVER, UNDERGROUND CONSTRUCTION: GROUP 1-
TRUCK DRIVER ON ALL TRUCKS (EXCEPT DUMP TRUCKS OF 8
CUBIC YARDS CAPACITY OR OVER, POLE TRAILERS, SEMIS,
LOW BOYS, EUCLID, DOUBLE BOTTOM AND FUEL TRUCKS).
SCOPE OF WORK: EXCAATION, SITE PREPARATION, LAND
BALANCING, GRADING, SEWERS, UTILITIES AND
IMPROVEMENTS; ALSO INCLUDING BUT NOT LIMITED TO
TUNNELS, UNDERGROUND PIPING, RETENTION, OXIDATION,
FLOCCULATION FACILITIES, CONDUITS, GENERAL
EXCAVATION AND STEEL SHEETING FOR UNDERGROUND
CONSTRUCTION. UNDERGROUND CONSTRUCTION WORK SHALL
NOT INCLUDE ANY STRUCTURAL MODIFICATIONS,
ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS OR
HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE
CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION.
PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH
OF JULY, LABOR DAY, TANKSGIVING DAY, AND CHRISTMAS
DAY. (AREA 2 GENESEE, MACOMB, MONROE, OAKLAND, ST.
CLAIR, WASHTENAW, AND WAYNE COUNTIES).....$ 24.12 19.04
TRUCK DRIVER, UNDERGROUND CONSTRUCTION: GROUP 1-
TRUCK DRIVER ON ALL TRUCKS (EXCEPT DUMP TRUCKS OF 8
CUBIC YARDS CAPACITY OR OVER, POLE TRAILERS, SEMIS,
LOW BOYS, EUCLID, DOUBLE BOTTOM AND FUEL TRUCKS).
SCOPE OF WORK: EXCAATION, SITE PREPARATION, LAND
BALANCING, GRADING, SEWERS, UTILITIES AND
IMPROVEMENTS; ALSO INCLUDING BUT NOT LIMITED TO
TUNNELS, UNDERGROUND PIPING, RETENTION, OXIDATION,
FLOCCULATION FACILITIES, CONDUITS, GENERAL
EXCAVATION AND STEEL SHEETING FOR UNDERGROUND
CONSTRUCTION. UNDERGROUND CONSTRUCTION WORK SHALL
NOT INCLUDE ANY STRUCTURAL MODIFICATIONS,
ALTERATIONS, ADDITIONS AND REPAIRS TO BUILDINGS OR
HIGHWAY WORK, INCLUDING ROADS, STREETS, BRIDGE
CONSTRUCTION AND PARKING LOTS OR STEEL ERECTION.
PAID HOLIDAYS: NEW YEAR'S DAY, MEMORIAL DAY, FOURTH
OF JULY, LABOR DAY, TANKSGIVING DAY, AND CHRISTMAS
DAY. (AREA 1: LAPEER AND SHIAWASSEE COUNTIES)......$ 23.82 19.04

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.
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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors 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, 2017. If this
contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours
they work, up to 56 hours of paid sick leave each year.
Employees must be permitted to use paid sick leave for their
own illness, injury or other health-related needs, including
preventive care; to assist a family member (or person who is
like family to the employee) who is ill, injured, or has other
health-related needs, including preventive care; or for reasons
resulting from, or to assist a family member (or person who is
like family to the employee) who is a victim of, domestic
violence, sexual assault, or stalking. Additional information
on contractor requirements and worker protections under the EO
is available at
https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than "SU", "UAVG", "SA", or "SC" denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ⁄SU⁄ identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

⁄SU⁄ wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ⁄SA⁄ identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ⁄SA⁄ identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.

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            Washington, DC 20210
  2) If an initial decision has been issued, then any interested
  party (those affected by the action) that disagrees with the
  decision can request review and reconsideration from the Wage
  and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).
  Requests for review and reconsideration can be submitted via
  email to dba.reconsideration@dol.gov or by mail to:
            Wage and Hour Administrator
            U.S. Department of Labor
            200 Constitution Avenue, N.W.
            Washington, DC 20210
  The request should be accompanied by a full statement of the
  interested party's position and any information (wage payment
  data, project description, area practice material, etc.) that
  the requestor considers relevant to the issue.

  3) If the decision of the Administrator is not favorable, an
  interested party may appeal directly to the Administrative
  Review Board (formerly the Wage Appeals Board).  Write to:
            Administrative Review Board
            U.S. Department of Labor
            200 Constitution Avenue, N.W.
            Washington, DC 20210.
  ================================================================
           END OF GENERAL DECISION
  "
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END OF SPECIAL PROVISIONS

Item C-105 Mobilization

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 10 percent of the total project cost.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4 Engineer/RPR field office. An Engineer/RPR field office is not required.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 25%.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 40%.

d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by Section 90, paragraph 90-11, *Contractor Final Project Documentation,* the final 10%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-6.1	Mobilization (10% Max) – per lump sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

Item CX-106 Safety, Security and Maintenance of Traffic

DESCRIPTION

106-1.1 General. This work shall consist of maintaining aircraft and vehicular traffic and protecting the public from damage to person and property within the limits of and for the duration of the Contract, and as specified in the Construction Safety and Phasing Plan, Appendix A to Section 70.

Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

The following items are specifically included without limiting the generality implied by these Specifications and the Contract Drawings. Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

- Restoration of all surfaces disturbed as a result of the Contractor's Operations which are not otherwise paid for.
- Installation, maintenance, repair and removal of temporary access roads and maintenance and repair of existing access roads, including dust control measures.
- Installation, maintenance, repair and removal of temporary barricades, barricade lights, barricade flags, warning signs and hazard markings.
- Installation, maintenance, repair and removal of lighted closed runway markers.
- Installation, maintenance, and removal of temporary construction signs
- Installation, maintenance, and removal of temporary edge light covers
- Testing and maintenance of existing and new lighting circuitry.
- Cleaning and maintenance of all paved areas.

106-2.1 Testing of Airport Lighting Circuits. See technical specification Item L-108, Underground Power Cable for Airports for testing requirements.

METHOD OF MEASUREMENT

106-2.1 Measurement for payment of safety, security and maintenance of traffic will be made on a lump sum basis. Measurements for partial payment may be made at the discretion of the RPR as the work progresses based on contract time or percent of work completed.

BASIS OF PAYMENT

106-3.1 The lump sum price bid for safety, security and maintenance of traffic shall include all equipment, materials, labor and incidentals necessary to adequately and safely maintain and protect traffic.

In the event the contract completion date is extended, no additional payment will be made for safety, security and maintenance of traffic.

Partial payments of the lump sum price bid may be made for this item at the discretion of the RPR as the work progresses based on contract time or work completed, less any deductions for unsatisfactory safety, security and maintenance of traffic.

No payment will be made under safety, security and maintenance of traffic for each calendar day during which there are substantial deficiencies in compliance with the Specification requirements of any subsection of this Section as determined by the RPR.

The amount of such calendar day non-payment will be determined by dividing the lump sum amount bid for safety, security and maintenance of traffic by the number of calendar days between the date the Contractor commences work and the date of completion as designated in this proposal, without regard to any extension of time.

If the Contractor fails to maintain and protect traffic adequately and safely for a period of 24 hours, the Owner shall correct the adverse conditions by any means it deems appropriate and shall deduct the cost of the corrective work from any monies due the Contractor. The cost of this work shall be in addition to the liquidated damages and non-payment for safety, security and maintenance of traffic listed above.

However, where major nonconformance with the requirements of this Specification is noted by the RPR and prompt Contractor compliance is deemed not to be obtainable, all contract work may be stopped by direct order of the RPR regardless of whether corrections are made by the Owner as stated in the paragraph above.

Payment will be made under:

CX-106-3.1	Safety, Security and Maintenance of Traffic - per lump sum

END OF ITEM CX-106

ITEM DX-800 SOFT DIGS

DESCRIPTION

800-1.1 This item shall consist of soft digs as directed by the RPR in accordance with these specifications.

CONSTRUCTION METHODS

800-2.1 Soft digs shall consist of the Contractor providing precise horizontal and vertical locations of utilities obtained by exposing and measuring subsurface utilities at the approximate locations shown on the contract documents. The actual location of the soft dig over utilities shall be determined by using surface geophysical methods to trace the horizontal alignment of underground utilities to establish the location to expose said utilities. After the soft dig location is determined by the Contractor, the location shall be reviewed with the RPR prior to performing the soft dig.

The work shall be completed in accordance with CI/ASCE 38-02, "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data". This Standard Guideline defines utility quality levels and the specific means and methods for each quality level. However, the provisions in this specification take precedence over CI/ASCE 38-02.

The work shall be performed by a Subsurface Utility Engineering (SUE) provider. SUE is a branch of engineering practice that involves managing certain risks associated with utility mapping at appropriate quality levels, utility coordination, utility relocation design and coordination, utility condition assessment, communication of utility data to concerned parties, utility relocation cost estimates, implementation of utility accommodation policies, and utility design.
The SUE provider shall be duly licensed as a professional engineer, and shall have 10 years minimum experience in SUE. Contractor to submit experience.

The SUE provider shall own all equipment and shall not subcontract any of the work except professional surveying and pavement removal where applicable. The SUE provider's equipment shall include ground penetrating radar (GPR), single and multi-frequency pipe and cable locating equipment, acoustical pipe locators, pipe cameras, sondes, and truck mounted air-based vacuum excavation equipment, SerVac, VacMasters or equal (hydrovac systems shall not be allowed).

All soft digs performed, regardless of the size of the utility, shall locate the center point of the utility. The utility's width and/or diameter shall be measured. The location, top of elevation, and pipe inverts shall be determined by survey. This will be counted as one soft dig. Subsurface conditions that prevent the direct exposure of the utility will not eliminate or reduce payment for soft digs completed. The utility's measurements and surveyed location, elevation and inverts shall be given to the RPR.

METHOD OF MEASUREMENT

800-3.1 Soft Digs **s**hall be measured by each unit completed and accepted by the RPR.

BASIS OF PAYMENT

800-4.1 Payment shall be made at the contract unit price per each for soft dig, which prices and payments shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item DX-800-4.1 Soft Dig – Per Each

END OF ITEM DX-800

Item P-152 Excavation, Subgrade, and Embankment

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature.

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed in accordance with Item P-151.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of in waste areas as shown on the plans. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches (100 mm), to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

a. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of

the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes **as** shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches (300 mm) below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as “Unclassified Excavation.”

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor as indicated on the plans. All existing foundations shall be excavated at least 2 feet (60 cm) below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

152-2.3 Borrow excavation. Borrow areas are not required.

152-2.4 Drainage excavation. Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which a subbase or base course is to be placed, the top 12 inches of subgrade shall be compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches (150 mm) and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches (300 mm) and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches (300 mm) upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 Formation of embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches (150 mm) nor more than 12 inches (300 mm) of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform

moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The contractor will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D698. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the contractor for every 3,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches which shall be prepared for a seedbed in accordance with Item T-901**.**

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches (100 mm) in their greatest dimensions will not be allowed in the top 12 inches (300 mm) of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet (60 cm) in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet (1.2 m) below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.9 Proof rolling. Not Used

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 100 percent of the maximum dry density as determined by ASTM D698. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D698.

The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch (19.0 mm) sieve, follow the methods in ASTM D698**.** Tests for moisture content and compaction will be taken at a minimum of 3,000 S.Y. of subgrade. All quality assurance testing shall be done by the Contractor's laboratory in the presence of the RPR, and density test results shall be furnished upon completion to the RPR for acceptance determination.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch (12 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

b. Grade. The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +/- 0.05 feet (15 mm) of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet (30 mm) from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-3.1 No measurement for direct payment will be made for unclassified excavation on any portion of the work of this Contract. Unclassified excavation is considered a necessary and incidental obligation for the completion of the work and any costs for unclassified excavation shall be included in the various item of work involved.

BASIS OF PAYMENT

152-4.1 No payment will be made separately or directly for unclassified excavation. All unclassified excavations will be considered a necessary and incidental part of the work and its cost will be considered by the Contractor and included in the Contract unit price for the pay items of work involved.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Advisory Circulars (AC)

AC 150/5370-2	Operational Safety on Airports During Construction Software

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66	Design and Construction of Airport Pavements on Expansive Soils

END OF ITEM P-152

Item P-610 Concrete for Miscellaneous Structures

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch (37.5 mm)	467 or 4 and 67
1 inch (25 mm)	57
¾ inch (19 mm)	67
½ inch (12.5 mm)	7

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking. Not used.

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C595 Type IL. The chemical requirements for all cement types specified should be suitable criteria for deleterious activity. Low alkali cements less than 0.6% equivalent alkalis. Total alkalies (Na2O and K2O) of the cement required for the production of concrete shall be independently verified in accordance with ASTM C114 or

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751**.**

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of reinforcing steel conforming to the requirements of ASTM A615.

610-2.11 Materials for curing concrete. Curing materials shall conform to one of the following:

Materials for Curing

Waterproof paper	ASTM C171
Clear or white Polyethylene Sheeting	ASTM C171
White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B	ASTM C309

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard (280 kg per cubic meter). The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches (100 mm) as determined by ASTM C143.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F (4°C) without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F (10°C) nor more than 100°F (38°C). The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet (1.5 m). Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F (4°C), follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85ºF (30 ºC), follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231 make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

610-6.1 Concrete shall be considered incidental and no separate measurement shall be made.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

Item T-901 Seeding

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding, and fertilizing the areas shown on the plans or as directed by the RPR in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied as follows:

Seed Properties and Rate of Application

Seed	Minimum Seed Purity (Percent)	Minimum Germination (Percent)	Rate of Application lb/acre (or lb/1,000 S.F.)
Kentucky Bluegrass	98	85	1.5
Perennial Ryegrass	96	85	2.5
Creeping Red Fescue	97	85	1.0

Seeding shall be performed during the period between August and November inclusive, unless otherwise approved by the RPR.

901-2.2 Lime. Not required.

901-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of

contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 12-12-12 commercial fertilizer and shall be spread at the rate of 500.

901-2.4 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches (50 mm) in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches (125 mm) as a result of grading operations and, if immediately prior to seeding, the top 3 inches (75 mm) of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches (125 mm). Clods shall be broken and the top 3 inches (75 mm) of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method.

a. Liming. Not required.

b. Fertilizing. Following advance preparations and cleanup fertilizer shall be uniformly spread at the rate that will provide not less than the minimum quantity stated in paragraph 901-2.3.

c. Seeding. Grass seed shall be sown at the rate specified in paragraph 901-2.1 immediately after fertilizing. The fertilizer and seed shall be raked within the depth range stated in the special provisions. Seeds of legumes, either alone or in mixtures, shall be inoculated before mixing or sowing, in accordance with the instructions of the manufacturer of the inoculant. When seeding is required at other than the seasons shown on the plans or in the special provisions, a cover crop shall be sown by the same methods required for grass and legume seeding.

d. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot (60 to 97 kg per meter) of width for

clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot (223 to 298 kg per meter) of width for sandy or light soils.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons (190 liters) over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons (380 liters) per minute at a pressure of 100 lb / sq inches (690 kPa). The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch (16 mm) solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet (6 to 30 m). One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For case of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet (15 m) in length shall be provided to which the nozzles may be connected.

c. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds (100 kg) of lime shall be added to and mixed with each 100 gallons (380 liters) of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds (100 kg) of these combined solids shall be added to and mixed with each 100 gallons (380 liters) of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed or they shall be wasted and disposed of at approved locations.

d. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches (75 mm), after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the RPR, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot (0.01 sq m) or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

901-5.1 The quantity of seeding shall be considered incidental and no separate measurement shall be made.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials

Federal Specifications (FED SPEC)

FED SPEC	JJJ-S-181, Federal Specification, Seeds, Agricultural

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-901

Item T-905 Topsoil

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

905-2.1 Topsoil. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches (50 mm) or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 μm) sieve as determined by the wash test in accordance with ASTM C117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 Inspection and tests. Within 10 days following acceptance of the bid, the RPR shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the RPR before the various operations are started.

905-3.2 Preparing the ground surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the RPR, to a minimum depth of 2 inches (50 mm) to facilitate bonding of the topsoil to the covered subgrade

soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches (50 mm) in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

905-3.3 Obtaining topsoil. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the RPR. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the RPR. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the RPR. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoil purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the RPR. The Contractor shall notify the RPR sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-3.4 Placing topsoil. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 2 inches (50 mm) after compaction, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches (50 mm) or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the RPR. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

METHOD OF MEASUREMENT

905-4.1 The quantity of topsoil shall be considered incidental, and no separate measurement shall be made.

BASIS OF PAYMENT

905-5.1 The quantity of topsoil shall be considered incidental, and no separate measurement shall be made.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C117	Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-905

Item T-908 Mulching

DESCRIPTION

908-1.1 This item shall consist of furnishing, hauling, placing, and securing mulch on surfaces indicated on the plans or designated by the RPR.

MATERIALS

908-2.1 Mulch material. Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Mulch shall be free from noxious weeds, mold, and other deleterious materials. Mulch materials, which contain matured seed of species that would volunteer and be detrimental to the proposed overseeding, or to surrounding farm land, will not be acceptable. Straw or other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

a. Straw. Straw shall be the stalks from threshed plant residue of oats, wheat, barley, rye, or rice from which grain has been removed. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Straw shall contain no fertile seed.

b. Manufactured mulch. Cellulose-fiber or wood-pulp mulch shall be products commercially available for use in spray applications.

908-2.2 Inspection. The RPR shall be notified of sources and quantities of mulch materials available and the Contractor shall furnish him with representative samples of the materials to be used 30 days before delivery to the project. These samples may be used as standards with the approval of the RPR and any materials brought on the site that do not meet these standards shall be rejected.

CONSTRUCTION METHODS

908-3.1 Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

Mulch material shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the RPR. Straw or hay shall be spread over the surface to a uniform thickness at the rate of 2 to 3 tons per acre (1800 - 2700 kg per acre) to provide a loose depth of not less than 1-1/2 inches (38 cm) nor more than 3 inches (75 mm). Other organic material shall be spread at the rate directed by the RPR. Mulch may be blown on the slopes and the use of cutters in the equipment for this purpose will be permitted to the extent that at least 95% of the mulch in place on the slope shall be 6 inches (150 mm) or more in length. When mulches applied by the blowing method are cut, the loose depth in place shall be not less than one inch (25 mm) nor more than 2 inches (50 mm).

908-3.2 Securing mulch. The mulch shall be held in place by light discing, a very thin covering of topsoil, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the RPR. Where mulches have been secured by either of the asphalt binder methods, it will not be permissible to walk on the slopes after the binder has been applied. When an application of asphalt binder material is used to

secure the mulch, the Contractor must take every precaution to guard against damaging or disfiguring structures or property on or adjacent to the areas worked and will be held responsible for any such damage resulting from the operation.

If the "peg and string" method is used, the mulch shall be secured by the use of stakes or wire pins driven into the ground on 5-foot (1.5-m) centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crisscrossed diagonally over the mulch, after which the stakes shall be firmly driven nearly flush to the ground to draw the twine down tight onto the mulch.

908-3.3 Care and repair.

a. The Contractor shall care for the mulched areas until final acceptance of the project. Care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the RPR, and erecting any barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

b. The Contractor shall be required to repair or replace any mulch that is defective or becomes damaged until the project is finally accepted. When, in the judgment of the RPR, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor.

c. If the "asphalt spray" method is used, all mulched surfaces shall be sprayed with asphalt binder material so that the surface has a uniform appearance. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m), or as directed by the RPR, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it. Asphalt binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet (1.2 m) from the surface of the mulch and uniform distribution of the asphalt material shall be required. A pump or an air compressor of adequate capacity shall be used to ensure uniform distribution of the asphalt material.

d. If the "asphalt mix" method is used, the mulch shall be applied by blowing, and the asphalt binder material shall be sprayed into the mulch as it leaves the blower. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m) or as directed by the RPR, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it.

METHOD OF MEASUREMENT

908-4.1 The quantity of mulching shall be considered incidental, and no separate measurement shall be made.

BASIS OF PAYMENT

908-5.1 The quantity of mulching shall be considered incidental, and no separate measurement shall be made.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D977 Standard Specification for Emulsified Asphalt

Advisory Circulars (AC)

AC 150/5200-33 Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-908

Item L-108 Underground Power Cable for Airports

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS

108-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf form**.** The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's

discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in accordance with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 Cable. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. Conductors for use on 20 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 Type C, 5,000 volts, non-shielded, with cross cross-linked polyethylene insulation. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 Bare copper wire (counterpoise, bare copper wire ground and ground rods). Wire for counterpoise or ground installations for airfield lighting systems shall be No. 6 AWG bare solid copper wire for counterpoise and/or No. 6 AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8, and shall be bare copper wire. For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.

Ground rods shall be copper-clad steel**.** The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 8 feet long and 5/8 inch in diameter.

108-2.4 Cable connections. In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

a. The cast splice. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M™ Company, "Scotchcast" Kit No. 82-B, or an approved equivalent, used for potting the splice is acceptable.

b. The field-attached plug-in splice. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal is acceptable.

c. The factory-molded plug-in splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

d. The taped or heat-shrink splice. Taped splices employing field-applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL-I-24391 or Commercial Item Description A-A-55809. Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a thermoplastic adhesive-sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt-proof seal. Additionally, heat shrinkable tubing for multi-conductor cables, shielded cables, and armored cables shall be factory kits that are designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

108-2.5 Splicer qualifications. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the RPR proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

108-2.7 Flowable backfill. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

108-2.8 Cable identification tags. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.9 Tape. Electrical tapes shall be Scotch™ Electrical Tapes –Scotch™ 88 (1-1/2 inch (38 mm) wide) and Scotch™ 130C® linerless rubber splicing tape (2-inch (50 mm) wide), as manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

108-2.10 Electrical coating. Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

108-2.11 Existing circuits. Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the RPR. When the work affecting the circuit is complete,

the circuit's insulation resistance shall be checked again, in the presence of the RPR. The Contractor shall record the results on forms acceptable to the RPR. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

108-2.12 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

CONSTRUCTION METHODS

108-3.1 General. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from fixture to fixture.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the RPR or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than 3 feet (1 m) of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot (30 cm) vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the RPR.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch (6 mm) in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 Installation in duct banks or conduits. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 Installation of direct-buried cable in trenches. Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable shall be unreeled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unreeled and pulled into the trench from one end. Slack cable sufficient to provide strain relief shall be placed in the trench in a series of S curves. Sharp bends or kinks in the cable shall not be permitted.

Where cables must cross over each other, a minimum of 3 inches (75 mm) vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.

a. Trenching. Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical

trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be excavated to a minimum depth of 18 inches (0.5 m) below finished grade per NEC Table 300.5, except as follows:

- When off the airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches (91 cm) unless otherwise specified.
- Minimum cable depth when crossing under a railroad track, shall be 42 inches (1 m) unless otherwise specified.

The Contractor shall excavate all cable trenches to a width not less than 6 inches (150 mm). Unless otherwise specified on the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill material may alternatively be used.

Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

(1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

(2) Trenching, etc., in cable areas shall then proceed, with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair or replacement.

b. Backfilling. After the cable has been installed, the trench shall be backfilled. The first layer of backfill in the trench shall encompass all cables ; be 3 inches (75 mm) deep, loose measurement; and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. This layer shall not be compacted. The second layer shall be 5 inches (125 mm) deep, loose measurement, and shall contain no particles that would be retained on a one inch (25.0 mm) sieve. The remaining third and subsequent layers of backfill shall not exceed 8 inches (20 cm) of loose measurement and be excavated or imported material and shall not contain stone or aggregate larger than 4 inches (100 mm) maximum diameter.

The second and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent material. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557**.**

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the

type of turfing operation to be accommodated. A proper allowance for settlement shall also be provided. Any excess excavated material shall be removed and disposed of per the plans and specifications.

Underground electrical warning (caution) tape shall be installed in the trench above all direct-buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the RPR. If not shown on the plans, the warning tape shall be located 6 inches (150 mm) above the direct-buried cable or the counterpoise wire if present. A 3-6 inch (75 - 150 mm) wide polyethylene film detectable tape, with a metalized foil core, shall be installed above all direct buried cable or counterpoise. The tape shall be of the color and have a continuous legend as indicated on the plans. The tape shall be installed 8 inches (200 mm) minimum below finished grade.

c. Restoration. Following restoration of all trenching near airport movement surfaces, the Contractor shall visually inspect the area for foreign object debris (FOD) and remove any that is found. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include the topsoiling, seeding, and mulching as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. When trenching is through paved areas, restoration shall be equal to existing conditions. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D1557. Restoration shall be considered incidental to the pay item of which it is a component part.

108-3.4 Cable markers for direct-buried cable. The location of direct buried circuits shall be marked by a concrete slab marker, 2 feet (60 cm) square and 4-6 inch (10 - 15 cm) thick, extending approximately one inch (25 mm) above the surface. Each cable run from a line of lights and signs to the equipment vault shall be marked at approximately every 200 feet (61 m) along the cable run, with an additional marker at each change of direction of cable run. All other direct-buried cable shall be marked in the same manner. Cable markers shall be installed directly above the cable. The Contractor shall impress the word "CABLE" and directional arrows on each cable marking slab. The letters shall be approximately 4 inches (100 mm) high and 3 inches (75 mm) wide, with width of stroke 1/2 inch (12 mm) and 1/4 inch (6 mm) deep. Stencils shall be used for cable marker lettering; no hand lettering shall be permitted.

At the location of each underground cable connection/splice, except at lighting units, or isolation transformers, a concrete marker slab shall be installed to mark the location of the connection/splice. The Contractor shall impress the word "SPLICE" on each slab. The Contractor also shall impress additional circuit identification symbols on each slab as directed by the RPR. All cable markers and splice markers shall be painted international orange. Paint shall be specifically manufactured for uncured exterior concrete. After placement, all cable or splice markers shall be given one coat of high-visibility aviation orange paint as approved by the RPR. Furnishing and installation of cable markers is incidental to the respective cable pay item.

108-3.5 Splicing. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. Cast splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the RPR.

b. Field-attached plug-in splices. These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant

extending at least 1-1/2 inches (38 mm) on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

c. Factory-molded plug-in splices. These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches (38 mm) on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

d. Taped or heat-shrink splices. A taped splice shall be made in the following manner:

Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch (6 mm) of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches (75 mm) on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch (25 mm) over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.

Heat shrinkable tubing shall be installed following manufacturer’s instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminates prior to application.

e. Assembly. Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer’s recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch (6.4 mm) beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 Bare counterpoise wire installation for lightning protection and grounding. If shown on the plans or included in the job specifications, bare solid #6 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables. The RPR shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

a. Equipotential. The counterpoise size is as shown on the plans. The equipotential method is applicable to all airfield lighting systems; i.e. runway, taxiway, apron – touchdown zone, centerline, edge, threshold and approach lighting systems. The equipotential method is also successfully applied to

provide lightning protection for power, signal and communication systems. The light bases, counterpoise, etc – all components - are bonded together and bonded to the vault power system ground loop/electrode.

Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. The counterpoise is centered over the cable/conduit/duct to be protected.

The counterpoise conductor shall be installed no less than 8 inches (200 mm) minimum or 12 inches (300 mm) maximum above the raceway or cable to be protected, except as permitted below:

(1) The minimum counterpoise conductor height above the raceway or cable to be protected shall be permitted to be adjusted subject to coordination with the airfield lighting and pavement designs.

(2) The counterpoise conductor height above the protected raceway(s) or cable(s) shall be calculated to ensure that the raceway or cable is within a 45-degree area of protection, (45 degrees on each side of vertical creating a 90 degree angle).

The counterpoise conductor shall be bonded to each metallic light base, mounting stake, and metallic airfield lighting component.

All metallic airfield lighting components in the field circuit on the output side of the constant current regulator (CCR) or other power source shall be bonded to the airfield lighting counterpoise system.

All components rise and fall at the same potential; with no potential difference, no damaging arcing and no damaging current flow.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Equipotential Method of lightning protection.

Reference FAA STD-019E, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment, Part 4.1.1.7.

b. Isolation. Not used

c. Common Installation requirements. When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet (150 m) apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

d. Parallel Voltage Systems. Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.

108-3.7 Counterpoise installation above multiple conduits and duct banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 Counterpoise installation at existing duct banks. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.9 Exothermic bonding. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

a. All slag shall be removed from welds.

b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.

c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

d. That all affected circuits (existing and new) are free from unspecified grounds.

e. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 50 megohms. Verify continuity of all series airfield lighting circuits prior to energization.

f. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

g. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

h. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

i. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved “repair” procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet (meters) installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack.

108-4.3 No separate payment will be made for ground rods.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108-5.1	No. 6 AWG, Solid, Bare Copper Counterpoise Wire – per linear foot
Item L-108-5.2	No. 8 AWG, 5kV, L-824, Type C Cable, Installed in Trench, Duct Bank or Conduit – per linear foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Federal Aviation Administration Standard

FAA STD-019E	Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM L-108

Item L-109 Airport Transformer Vault and Vault Equipment

DESCRIPTION

109-1.1 This item shall consist of removing an existing airport transformer vault and equipment and constructing an airport transformer vault or a prefabricated metal housing per these specifications and per the design and dimensions shown in the plans. This work shall also include the installation of conduits in the floor and foundation, painting and lighting of the vault or metal housing, and the furnishing of all incidentals that are necessary to produce a completed unit. Included as a separate part under this item or as a separate item where an existing vault is to be used shall be the furnishing of all vault equipment, wiring, electrical buses, cable, conduit, potheads, and grounding systems. This work shall also include the painting of equipment and conduit; the marking and labeling of equipment and the labeling or tagging of wires; the testing of the installation; and the furnishing of all incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

109-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be certified in AC 150/5345-53, Airport Lighting Equipment Certification Program (ALECP) and listed in the ALECP Addendum.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be provided in electronic pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-3.1 Electrical vault building. The electrical vault building must comply with NEC Article 110.31, Enclosure for Electrical Installations, Item (A) Electrical Vaults. Construct the building of materials having adequate structural strength for the conditions and installed location, has a minimum fire rating of two or three hours as determined by the authority having jurisdiction (AHJ), and is bullet resistant to minimum UL 752 Level 4.

109-3.2 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

109-3.3 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

109-3.4 Reinforcing steel. Reinforcing steel bars shall be intermediate or structural grade deformed-type bars and shall be per ASTM A615.

109-3.5 Brick. Brick shall be per ASTM C62, Grade SW.

109-3.6 Rigid steel conduit. Rigid steel conduit and fittings shall be per Underwriters Laboratories Standards 6 and 514B.

109-3.7 Plastic Conduit and fittings. Plastic Conduit and fittings shall conform to the requirements of UL-651 and UL-654 schedule 40 polyvinyl chloride (PVC) suitable for use above or below ground.

109-3.8 Lighting. Vault or metal-housing light fixtures shall be of a vapor-proof type.

109-3.9 Outlets. Convenience outlets shall be heavy-duty duplex units designed for industrial service.

109-3.10 Switches. Vault or metal-housing light switches shall be single-pole switches.

109-3.11 Paint.

a. Priming paint for non-galvanized metal surfaces shall be a high solids alkyd primer compatible with the manufacturer's recommendations for the intermediate or topcoat.

b. White paint for body and finish coats on metal and wood surfaces shall be ready-mixed paint conforming to the Master Painter's Institute (MPI), Reference #9, Exterior Alkyd, Gloss.

c. Priming paint for wood surfaces shall be mixed on the job by thinning the specified white paint by adding 1/2 pint (0.24 liter) of raw linseed oil to each gallon (liter).

d. Paint for the floor, ceiling, and inside walls shall be per Porter Paint Company 69, 71, and 79 or equivalent. Walls and ceiling shall be light gray and the floor shall be medium gray.

e. The roof coating shall be hot asphalt material per ASTM D2823. Asbestos-free roof coating per ASTM D4479 may be substituted if required by local codes.

109-3.12 Ground bus. Ground bus shall be 1/8 × 3/4 inch (3 × 19 mm) minimum copper bus bar.

109-3.13 Square duct. Duct shall be square similar to that manufactured by the Square D Company (or equivalent), or the Trumbull Electric Manufacturing Company (or equivalent). The entire front of the duct on each section shall consist of hinged or removable cover for ready access to the interior. The cross-

section of the duct shall be not less than 4 × 4 inch (100 × 100 mm) except where otherwise shown in the plans.

109-3.14 Ground rods. Ground rods shall be in accordance with Item L-108.

109-3.15 Vault prefabricated metal housing. The prefabricated metal housing shall be a commercially available unit.

109-3.16 FAA-approved equipment. Certain items of airport lighting equipment installed in vaults are covered by individual ACs listed below:

AC 150/5345-3	Specification for L-821, Panels for Remote Control of Airport Lighting
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-10	Specification for Constant Current Regulators and Regulator Monitors
AC 150/5345-13	Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits.
AC 150/5345-49	Specification for L-854, Radio Control Equipment
AC 150/5345-56	Specification for L-890 Airport Lighting Control and Monitoring System (ALCMS)

109-3.17 Other electrical equipment. Distribution transformers, oil switches, cutouts, relays, terminal blocks, transfer relays, circuit breakers, and all other regularly used commercial items of electrical equipment not covered by FAA equipment specifications and ACs shall conform to the applicable rulings and standards of the Institute of Electrical and Electronic Engineers (IEEE) or the National Electrical Manufacturers Association (NEMA). When specified, test reports from a testing laboratory indicating that the equipment meets the specifications shall be supplied. In all cases, equipment shall be new and a first-grade product. This equipment shall be supplied in the quantities required for the specific project and shall incorporate the electrical and mechanical characteristics specified in the proposal and plans. Equipment selected and installed by the Contractor shall maintain the interrupting current rating of the existing systems or specified rating whichever is greater.

109-3.18 Wire. Wire (in conduit) rated up to 5,000 volts shall be per AC 150/5345-7, Specification for L-824 Underground Electrical Cables for Airport Lighting Circuits. For ratings up to 600 volts, moisture and heat resistant thermoplastic wire conforming to Commercial Item Description A-A-59544A Type THWN-2 shall be used. The wires shall be of the type, size, number of conductors, and voltage shown in the plans or in the proposal.

a. Control circuits. Unless otherwise indicated on the plans, wire shall be not less than No. 12 American wire gauge (AWG) and shall be insulated for 600 volts. If telephone control cable is specified, No. 19 AWG telephone cable per ANSI/Insulated Cable Engineers Association (ICEA) S-85-625 specifications shall be used.

b. Power circuits.

(1) 600 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 600 volts.

(2) 3,000 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 3,000 volts.

(3) Over 3,000 volts-Wire shall be No. 6 AWG or larger and insulated for at least the circuit voltage.

109-3.19 Short circuit / coordination / device evaluation / arc flash analysis. The Contractor shall, based upon the equipment provided, include as a part of the submittal process the electrical system "Short Circuit / Coordination / Device evaluation / Arc Flash Analysis". The analysis shall be performed by the equipment manufacturer and submitted in a written report. The analysis shall be signed and sealed by a registered professional Engineer from the state in which the project is located. The analysis shall comply with NFPA-70E and IEEE 1584.

The analysis will include: one line diagrams, short circuit analysis, coordination analysis, equipment evaluation, arc flash analysis and arc flash labels containing at a minimum, equipment name, voltage/current rating, available incident energy and flash protection boundary.

The selected firms field service Engineer shall perform data gathering for analysis completion and device settings, perform device setting as recommended by the analysis and will furnish and install the arc flash labels. The components worst case incident energy will be considered the available arc flash energy at that specific point in the system. Submit three written copies and one electronic copy of the report.

CONSTRUCTION METHODS

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-4.1 General. The Contractor shall construct the transformer vault or prefabricated metal housing at the location indicated in the plans. Vault construction shall be reinforced concrete, concrete masonry, or brick wall as specified. The metal housing shall be prefabricated equipment enclosure to be supplied in the size specified. The mounting pad or floor details, installation methods, and equipment placement are shown in the plans. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program.

The Contractor shall clear, grade, and seed the area around the vault or metal housing for a minimum distance of 10 feet (3 m) on all sides. The slope shall be not less than 1/2 inch per foot (12 mm per 0.3 m) away from the vault or metal housing in all directions.

The vault shall provide adequate protection against weather elements, including rain, wind-driven dust, snow, ice and excessive heat. The vault shall have sufficient filtered ventilation, to assure that the interior room temperatures and conditions do not exceed the recommended limits of the electrical equipment to be installed in the vault. The Contractor is responsible for contacting the manufacturer of the equipment to be installed to obtain environmental limitations of the equipment to be installed.

109-4.2 Foundation and walls.

a. Reinforced concrete construction. The Contractor shall construct the foundation and walls per the details shown in the plans. Unless otherwise specified, internal ties shall be of the mechanical type so that when the forms are removed the ends of the ties shall be at least one inch (25 mm) beneath the concrete surface; the holes shall be plugged and finished to prevent discoloration. Reinforcing steel shall be placed, as shown in the drawings, and secured in position to prevent displacement during the concrete placement.

The external surfaces of the concrete shall be thoroughly worked during the placing operation to force all coarse aggregate from the surface. Thoroughly work the mortar against the forms to produce a smooth finish free from air pockets and honeycomb.

The surface film of all pointed surfaces shall be removed before setting occurs. As soon as the pointing has set sufficiently, the entire surface inside and outside of the vault shall be thoroughly wet with water and rubbed with a No. 16 carborundum stone, or equivalent quality abrasive, bringing the surface to a paste. All form marks and projections shall be removed. The surface produced shall be smooth and

dense without pits or irregularities. The materials which have been ground into a paste during the rubbing process shall be spread or brushed uniformly over the entire surface (except the interior surfaces that are to be painted shall have all paste removed by washing before painting) and permitted to reset. Final exterior finish shall be obtained by rubbing with No. 30 carborundum stone, or an equivalent quality abrasive. The surface shall be rubbed until the entire surface is smooth and uniform in color.

b. Brick and concrete construction. When this type of construction is specified, the foundation shall be concrete conforming to the details shown in the plans. The outer edge of the foundation at the floor level shall be beveled 1-1/2 inches (38 mm) at 45 degrees. Brick walls shall be 8 inches (200 mm) thick, laid in running bond with every sixth course a header course. Brick shall be laid in cement mortar (one part masonry cement and 3 parts sand) with full mortar bed and shoved joints. All joints shall be completely filled with mortar, and facing brick shall be back-parged with mortar as work progresses. All joints shall be 3/8 inch (9 mm) thick, exterior joints tooled concave, and interior joints struck flush. Both interior and exterior brick surfaces shall be cleaned and nail holes, cracks and other defects filled with mortar. When specified, a nonfading mineral pigment mortar coloring shall be added to the mortar. Steel reinforcing bars, 3/8 inch (9 mm) in diameter and 12 inches (300 mm) long, shall be set vertically in the center of the brick wall on not more than 2 feet (60 cm) centers to project 2-1/2 inches (60 mm) into the concrete roof slab. Lintels for supporting the brickwork over doors, windows, and louvers shall consist of two $4 \times 3 \times 3/8$ inch ($100 \times 75 \times 9$ mm) steel angles. Lintels shall be painted with one coat of corrosion-inhibiting primer before installation, and all exposed parts shall be painted similar to doors and window sash after installation.

Window sills may be concrete poured in place or precast concrete as indicated in the plans. All exposed surfaces shall have a rubbed finish as specified under reinforced concrete construction. After completion, all interior and exterior faces of walls shall be scrubbed with a solution of muriatic acid and water in the proportions of not less than one part acid to 10 parts of water. All traces of efflorescence, loose mortar, and mortar stain shall be removed, and the walls washed down with clear water.

c. Concrete masonry construction. When this type of construction is specified, the foundation shall be concrete conforming to the details shown in the plans. The concrete masonry units shall be standard sizes and shapes and shall conform to ASTM C90 and shall include the closures, jambs, and other shapes required by the construction as shown in the plans. Standard construction practice shall be followed for this type of work including mortar, joints, reinforcing steel for extensions into roof slab, etc. Plaster for interior walls, if specified, shall be Portland cement plaster.

109-4.3 Roof. The roof shall be reinforced concrete as shown in the plans. Reinforcing steel shall be placed as shown in the drawing and secured in position to prevent displacement during the pouring of the concrete. The concrete shall be poured monolithically and shall be free of honeycombs and voids. The surface shall have a steel-troweled finish and shall be sloped as shown in the drawing. The underside of the roof slab shall be finished in the same manner as specified for walls.

One brush or mop coat of hot asphalt roof coating shall be applied to the top surface of the roof slab. The asphalt material shall be heated to within the range specified by the manufacturer and immediately applied to the roof. The finished coat shall be continuous over the roof surface and free from holidays and blisters. Smears and dribbles of asphalt on the roof edges and building walls shall be removed.

109-4.4 Floor. Construct building foundation in accordance with the details shown in the plans. The floor shall be reinforced concrete as shown in the drawings. When present, all sod, roots, refuse, and other perishable material shall be removed from the area under the floor to a depth of 8 inches (200 mm), unless a greater depth is specified in the invitation for bids. This area shall be backfilled with materials consisting of sand, cinders, gravel, or stone. Fill shall be placed in layers not to exceed 4 inches (100 mm) and shall be thoroughly compacted by tamping or rolling. A layer of building paper shall be placed over the fill prior to placing concrete. The floor surfaces shall have a steel-troweled finish. The floor shall be level unless a drain is specified, in which case the floor shall be pitched 1/4 inch (6 mm) per foot

downward toward the drain. A 1/4-inch (6-mm) asphalt felt expansion joint shall be placed between floor and foundation walls. The floor shall be poured monolithically and shall be free of honeycombs and voids.

109-4.5 Floor drain. If shown in the plans, a floor drain and dry well shall be installed in the center of the floor of the equipment room. The dry well shall be excavated 4 × 4 feet (1.2 × 1.2 m) square and to a depth of 4 feet (1.2 m) below the finished floor elevation and shall be backfilled to the elevation of the underside of the floor with gravel - which shall all pass a 2-inch (50 mm) mesh sieve and shall all be retained on a 1/4-inch (6.3 mm) mesh sieve. The gravel backfill shall be placed in 6 inch (150 mm) maximum layers, and the entire surface of each layer shall be tamped either with a mechanical tamper or with a hand tamper weighing not less than 25 pounds (11 kg) and having a face area of not more than 36 square inches (232 square cm) nor less than 16 square inches (103 square cm). The drain inlet shall be set flush in the concrete floor. The drain shall have a clear opening of not less than 8 inches (200 mm) in diameter.

109-4.6 Conduits in floor and foundation. Conduits shall be installed in the floor and through the foundation walls per the details shown in the plans. All underground conduit shall be painted with an asphalt compound. Conduit shall be installed with a coupling or metal conduit adapter flush with the top of the floor. All incoming conduit shall be closed with a pipe plug to prevent the entrance of foreign material during construction. Space conduit entrances shall be left closed.

109-4.7 Doors. Doors shall be metal-clad fireproof Class A (three (3) hour rated) doors conforming to requirements of the National Electrical Code (NEC) and local electrical codes. Panic bar exit hardware shall be installed per NEC requirements. Refer to the new electrical vault detail plan sheets for construction requirements.

109-4.8 Painting. The floor, ceiling, and inside walls of concrete construction shall first be given a hardening treatment, after which the Contractor shall apply two coats of paint as specified below, except that interior face brick walls need not be painted. The hardening treatment shall consist of applying two coats of either a commercial floor hardener or a solution made by dissolving 2 pounds (0.9 kg) of magnesium fluorosilicate or zinc sulfate crystals in one gallon (liter) of water. Each coat shall be allowed to dry at least 48 hours before the next application. After the second treating coat has dried, the surfaces shall be brushed clean of all crystals and thoroughly washed with clear water. Paint for walls and ceiling shall be a light gray color approved by the RPR. The floor paint shall be a medium gray color approved by the RPR. Before painting, the surfaces shall be dry and clean. The first coat shall be thinned by adding 2/3-quart (0.63 liters) of spar varnish and 1/3-quart (0.31 liters) of turpentine to each gallon (liter) of paint. The second coat shall be applied without thinning. All doors, lintels, and windows shall be cleaned to remove any rust or foreign material and shall be given one body and one finish coat of white paint. Bare metal surfaces shall be given a prime coat of corrosion-inhibiting primer prior to the body and finish coats.

109-4.9 Lights and switches. The Contractor shall furnish and install a minimum of two duplex convenience outlets in the vault room. Where a control room is specified, at least two duplex outlets shall be installed.

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

109-5.1 General. The Contractor shall furnish, install, and connect all equipment, equipment accessories, conduit, cables, wires, buses, grounds, and support necessary to ensure a complete and operable electrical distribution center for the airport lighting system as specified herein and shown in the plans. When specified, an emergency power supply and transfer switch shall be provided and installed.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction. All electrical work shall comply with the NEC and local code agency having jurisdiction including the separation of under 600V work from 5,000V work."

109-5.2 Power supply equipment. Transformers, regulators, booster transformers, and other power supply equipment items shall be furnished and installed at the location shown in the plans or as directed by the RPR. The power supply equipment shall be set on steel "H" sections, "I" beams, channels, or concrete blocks to provide a minimum space of 1-1/2 inch (38 mm) between the equipment and the floor. The equipment shall be placed so as not to obstruct the oil-sampling plugs of the oil-filled units; and name-plates shall, so far as possible, not be obscured.

If specified in the plans and specifications, equipment for an alternate power source or an emergency power generator shall be furnished and installed. The alternate power supply installation shall include all equipment, accessories, an automatic changeover switch, and all necessary wiring and connections. The emergency power generator set shall be the size and type specified.

109-5.3 Switchgear and panels. Oil switches, fused cutouts, relays, transfer switches, panels, panel boards, and other similar items shall be furnished and installed at the location shown in the plans or as directed by the RPR. Wall or ceiling mounted items shall be attached to the wall or ceiling with galvanized bolts of not less than 3/8-inch (9 mm) diameter engaging metal expansion shields or anchors in masonry or concrete vaults.

109-5.4 Duct and conduit. The Contractor shall furnish and install square-type exposed metallic ducts with hinged covers for the control circuits in the vault. These shall be mounted along the walls behind all floor-mounted equipment and immediately below all wall-mounted equipment. The hinged covers shall be placed to open from the front side with the hinges at the front bottom.

Wall brackets for square ducts shall be installed at all joints 2 feet (60 cm) or more apart with intermediate brackets as specified. Conduit shall be used between square ducts and equipment or between different items of equipment when the equipment is designed for conduit connection. When the equipment is not designed for conduit connection, conductors shall enter the square-type control duct through insulating bushings in the duct or on the conduit risers.

109-5.5 Wiring and connections. The Contractor shall make all necessary electrical connections in the vault per the wiring diagrams furnished and as directed by the RPR. In wiring to the terminal blocks, the Contractor shall leave sufficient extra length on each control lead to make future changes in connections at the terminal block. This shall be accomplished by running each control lead the longest way around the box to the proper terminal. Leads shall be neatly laced in place.

109-5.6 Marking and labeling. All equipment, control wires, terminal blocks, etc., shall be tagged, marked, or labeled as specified below:

a. Wire identification. The Contractor shall furnish and install self-sticking wire labels or identifying tags on all control wires at the point where they connect to the control equipment or to the terminal blocks. Wire labels, if used, shall be of the self-sticking preprinted type and of the manufacturer's recommended size for the wire involved. Identification -markings designated in the plans shall be followed. Tags, if used, shall be of fiber not less than 3/4 inch (19 mm) in diameter and not less than 1/32 inch (1 mm) thick. Identification markings designated in the plans shall be stamped on tags by means of small tool dies. Each tag shall be securely tied to the proper wire by a nonmetallic cord.

b. Labels. The Contractor shall stencil identifying labels on the cases of regulators, breakers, and distribution and control relay cases with white oil paint as designated by the RPR. The letters and numerals shall be not less than one inch (25 mm) in height and shall be of proportionate width. The Contractor shall also mark the correct circuit designations per the wiring diagram on the terminal marking strips, which are a part of each terminal block.

METHOD OF MEASUREMENT

109-6.1 The quantity of vaults to be paid for under this item shall consist of the number of vaults constructed in place and accepted as a complete unit.

109-6.2 The quantity of prefabricated metal housings to be paid for under this item shall consist of the number of housings constructed in place and accepted as a complete unit.

109-6.3 The quantity of equipment to be paid for under this item shall consist of all equipment installed, connected and accepted as a complete unit ready for operation within an existing vault or prefabricated metal housing.

BASIS OF PAYMENT

109-7.1 Payment will be made at the contract unit price for each completed and accepted vault or prefabricated metal housing equipment installation. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item L-109-7.1	Installation of Equipment with in existing vault or prefabricated metal housing in Place – per lump sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-3	Specification for L-821, Panels for Remote Control of Airport Lighting
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-10	Specification for Constant Current Regulators and Regulator Monitors
AC 150/5345-13	Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits
AC 150/5345-49	Specification L-854, Radio Control Equipment;
AC 150/5345-53	Airport Lighting Equipment Certification Program

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/ICEA S-85-625	Standard for Telecommunications Cable Aircore, Polyolefin Insulated, Copper Conductor Technical Requirements

ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

ASTM C62	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)
ASTM C90	Standard Specification for Loadbearing Concrete Masonry Units
ASTM D2823	Standard Specification for Asphalt Roof Coatings, Asbestos Containing
ASTM D4479	Standard Specification for Asphalt Roof Coatings – Asbestos-Free

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)

Institute of Electrical and Electronic Engineers (IEEE)

IEEE 1584	Guide for Performing Arc-Flash Hazard Calculations

Master Painter's Institute (MPI)

MPI Reference #9	Alkyd, Exterior, Gloss (MPI Gloss Level 6)

Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit – Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-70E	Standard for Electrical Safety in the Workplace
NFPA-780	Standard for the Installation of Lightning Protection Systems

END OF ITEM L-109

Item L-110 Airport Underground Electrical Duct Banks and Conduits

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits and removal of existing duct banks. It shall also include all turfing trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.2 Steel conduit. Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth."

110-2.3 Plastic conduit. Plastic conduit and fittings-shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

a. Type I–Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.

b. Type II–Schedule 40 PVC suitable for either above ground or underground use.

c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.

d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

110-2.4 Split conduit. Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.

110-2.5 Conduit spacers. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

110-2.7 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

110-2.8 Flowable backfill. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

110-2.9 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

110-3.1 General. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches (75 mm) per 100 feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches (0.5 m) below the subgrade; in other locations, the top of the duct bank or underground conduit shall be be not less than 18 inches (0.5 m) below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor’s expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound (90 kg) test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet (1.5 m).

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching

equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill may alternatively be used.

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet (60 cm).

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion per federal, state, and local requirements is incidental to Item L-110.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables) cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

b. Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

110-3.2 Duct banks. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches (0.5 m) below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches (0.5 m) below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet (1 m) beyond the edges of the pavement or 3 feet (1 m) beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches (75 mm) thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches (75 mm) apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches (75 mm) thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot (1.5-m) intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches (75 to 150 mm) wide tape, 8 inches (200 mm) minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch (75-mm) wide tape only for single conduit runs. Utilize the 6-inch (150-mm) wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches (600 mm) in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

110-3.3 Conduits without concrete encasement. Trenches for single-conduit lines shall be not less than 6 inches (150 mm) nor more than 12 inches (300 mm) wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches (100 mm) thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch (6.3 mm) sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches (0.5 m) below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches (60 cm) below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and lot less than 6 inches (150 mm) apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

110-3.4 Markers. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet (60 cm) square and 4 - 6 inches (100 - 150 mm) thick extending approximately one inch (25 mm) above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building. Each cable or duct run from a line of lights and signs to the equipment vault must be marked at approximately every 200 feet (61 m) along the cable or duct run, with an additional marker at each change of direction of cable or duct run.

The Contractor shall impress the word “DUCT” or “CONDUIT” on each marker slab. Impression of letters shall be done in a manner, approved by the RPR, for a neat, professional appearance. All letters and words must be neatly stenciled. After placement, all markers shall be given one coat of high-visibility orange paint, as approved by the RPR. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the RPR. The letters shall be 4 inches (100 mm) high and 3 inches (75 mm) wide with width of stroke 1/2 inch (12 mm) and 1/4 inch (6 mm) deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 Backfilling for conduits. For conduits, 8 inches (200 mm) of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches (100 mm) in diameter.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.6 Backfilling for duct banks. After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 “Excavation and Embankment” except that the material used for backfill shall be select material not larger than 4 inches (100 mm) in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per

lift shall be made for each 250 linear feet (76 m) of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.7 Restoration. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include topsoiling, seeding, and mulching shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 Ownership of removed cable. All cable removed shall become the property of the Contractor and shall be disposed of in a manner which is in accordance with all Federal, State, and Local regulations. In no case, shall any removed cables be left within the airport limits. Contractor shall make every effort to recycle the used cable at an approved recycling center. When the Contractor chooses to dispose of cable off the airport property, the Contractor shall obtain and file with the RPR permission in writing from the property owner for the use of private property for this purpose.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet (meter) of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110-5.1 Non-Encased Electrical Conduit, 1-Way, 2-Inch, Sch. 40 PVC Conduit, in Turf – per linear foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circular (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)

Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit - Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 1242	Electrical Intermediate Metal Conduit Steel
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

END OF ITEM L-110

Item LX-113 Horizontal Directional Drilling

DESCRIPTION

113-1.1. This item shall consist of the installation of conduits of the types and sizes shown by directional drilling, furnished and installed in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the Contract Drawings. This item includes procurement and installation of conduits, excavation and backfill necessary for construction of boring and receiving pits, connections to conduit with fittings as required, cleanup, restoration, and all incidentals necessary for a complete installation.

MATERIALS

113-2.1 DRILLING FLUID. Drilling fluid shall be provided by the Contractor and shall be selected based on soil conditions at the site of the work. The Contractor shall submit the drilling fluid for information only. Waste oil or environmentally non-compatible polymers shall not be part of the composition.

113-2.2 WATER. Water shall be clean, fresh and free of impurities which would alter the effectiveness of the drilling fluid to be used. The Contractor shall be responsible for procuring water for use during the directional drilling operation. The Contractor shall submit the water source for information only.

113-2.3 CONDUIT. The conduit shall meet the requirements of Underwriters Laboratories Standards UL-651A and NEMA TC7 and ASTM standards F2160-10 & 1962-11. Smooth wall conduit shall be minimum schedule 80 HDPE pipe. Material used for the manufacture of the pipe and fittings shall have a cell classification of 345444C according to ASTM D 3350. The pipe shall be stamped by the manufacturer with a designation of PE3408/4710 or PE4710.

The diameter of the conduit and the number of conduits shall be as shown on the plans. The diameters referenced are the nominal conduit diameters. Conduit bundles shall be made up of the number of conduits required as shown on the Contract Drawings.

113-2.4 SUBMITTALS FROM THE INSTALLER. The Contractor shall submit evidence that the installer performing the directional drilling has at least 5 years of experience planning and installing directionally drilled utilities of a diameter, length and complexity similar to this project.

Work Experience: Contractor shall have installed HDD pipe at least as large as 24 inches in diameter, and have performed installations at least 2,000 feet in length. Contractor to provide work experience information to include projects of similar magnitude and conditions. Contractor must have experience working on active airfields.

Furnish list of references upon request.

Field supervisory personnel: Experienced in the performance of the work and tasks as stated herein for a minimum of 5 years.

Design HDD installation and load bearing falsework under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of New York.

The Contractor shall submit, for information only, catalog data for all equipment proposed for use in completing the directional drill. The Contractor is responsible for selection of equipment necessary to complete the work of this item and shall augment or replace equipment as necessary to complete the work of this item in accordance with this specification, at no additional cost to the Owner.

The Contractor shall submit scaled diagrams of the intended path of each bore. The diagrams shall show a plan view and a profile view.

1. Include details of sheeting, and other shoring and falsework for trenches and pits, field sketches, and other details, to complete the work.
2. Show relation of proposed installation to existing highway facility and natural features over installation, angle of installation, right-of-way lines and general layout of built facilities.
3. Show cross section or sections from field survey, showing installation in relation to actual profile of existing grade.

The Contractor shall submit a detailed procedure of each representative boring operation. The following shall be considered in each package:

1. Estimation of maximum mud pressure during directional drilling.
2. Show where the boring contractor will have utility potholes open during each bore.
3. Show the existing utility crossings and the utility types need to be identified.
4. Show drill entry point, angle of attack, drill depth and drill radius.
5. Confirm proposed pipe will withstand pressures and pull back tensile requirements.
6. Provide drilling calculations.
7. Size, capacity and arrangement of equipment.
8. Location and size of drilling and receiving pits.
9. Method of removing drilling spoils.
10. Method of installing pipe, including pullback procedure, ballasting, use of rollers, side booms and side rollers, coating protection, internal cleaning, internal gauging, hydrostatic tests, dewatering, and purging.
11. Type, location and method of installing locator station.
12. Method of fusion pipe segment and type of equipment.
13. Type of cutting head.
14. Method of monitoring and controlling line and grade.
15. Detection of surface movement.
16. Method of mixing and application.
17. Cleaning and recycling equipment.
18. Estimated flow rates.
19. Procedures for minimizing drilling fluid escape.

Submit Risk Management Plan specific to the site of operation. The plan should address but not be limited to the following:

1. Cleaning and monitoring methods and procedure
2. Obstruction encountered during drilling operation or inability to advance drill stem or pipe
3. Pipe collapse
4. Containment and cleanout plan dealing with frac out in pavement and turf

5. Waste disposal plans
6. Emergency contact

113-2.5 TRACER WIRE. The tracer wire shall be a No. 12 AWG copper wire, 600-volt green jacket insulation, type THWN-2.

CONSTRUCTION METHODS

113-3.1 GENERAL. Subsurface test borings have been performed at the site and are available upon request. Additional subsurface explorations may be made by the Contractor, but shall be performed at no additional cost to the Owner. Contractor shall notify the Owner prior to scheduling any subsurface explorations. The Contractor shall comply with all local, state and federal requirements.
Coordinate work with the Airfield Operations staff and RPR.

113-3.1A DELIVERY, STORAGE, AND HANDLING:

A. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
B. Protect piping systems from entry of foreign materials and water by temporary covers, completing sections of work, and isolating parts of completed system.
C. Accept system components on site in manufacturer's original containers or configuration. Inspect for damage.
D. Use wooden shipping braces between layers of stacked pipe. Stack piping lengths no more than 3 layers high.
E. Store field joint materials indoors in dry area in original shipping containers. Maintain storage temperature of 60 to 85 degrees F.
F. Support casing and carrier pipes with nylon slings during handling.

113-3.2 DIRECTIONAL DRILLING. Prior to directional drilling, the proposed drilling route shall be staked out and the location approved by the Engineer.

Directional drilling shall be performed with equipment of sufficient capacity and power to place the conduit under the existing surface into a position true to required line and grade as shown on the Contract Drawings.

Drilling fluids shall be used in all directional drills. Drilling fluids shall be proportioned, mixed and used per the manufacturer's specifications. Drilling pressures in the borehole shall not exceed that which can be supported by the foundation soils with a reasonable factor of safety. Calculation of maximum allowable pressures shall be done for all points along the drill path, taking into account the shear strength of the foundation soils, the depth of drill path, the bore diameter, and the elevation of the groundwater table. Any blow-out or collapse of the surface shall be repaired by the Contractor at his expense and in accordance with the contract details and specifications.

The manufacturer's recommended maximum pulling tension shall not be exceeded. The Contractor shall calculate the pulling tension of each directional drilling operation taking into consideration the HDPE conduits size and type, bend radii of the installation, elevation changes, and vertical and horizontal path deviations. Ovalization of the conduit shall not exceed 5 percent. A breakaway device shall be used at the leading edge of the conduit to protect the conduit from damage if the pulling load gets too high. The breakaway device shall be set so that the maximum pulling tension of the conduit cannot be exceeded. A breakaway device is not necessary when the pulling equipment is incapable of exceeding the maximum pulling tension of the conduit.

The Contractor shall not exceed the manufacturer's maximum bend radius for the conduit being installed. All drilling corrections shall be made as gradual as possible.

HDPE conduit shall be joined by butt heat fusion welding or electrofusion welding.

The actual location of the drill head shall be checked and recorded at intervals not exceeding 10 feet horizontally during the pilot bore to ensure that alignment and profile are in accordance with the planned route with an accuracy of 1 inch. Deviations in excess of 1 foot from the planned route are subject to rejection, at the discretion of Engineer. Corrections, if required, shall be made by Contractor at no additional cost to the Owner.

Depth of drilling throughout its length shall be as shown on the Contract Drawings. In no case shall the final position of the installed conduit be shallower than the stated minimum depth at any point along the route of the conduit nor shall it enter the pavement subbase materials. Adding backfill above the route of the conduit in order to achieve minimum depth is not acceptable.

The maximum borehole size shall not exceed 1.5 times the outside diameter of the conduit or conduit bundle to be installed unless approved by the Engineer. The back reamer selected shall be compatible with the soil type.

Drilling fluid shall be carefully managed during pull back to ensure the bore hole remains established and the conduit being installed is floated and lubricated to the maximum extent possible. The use of a pulling swivel is mandatory during pullback to prevent rotation of the conduit being installed. If the conduit being installed begins to rotate or twist, pullback operations shall be stopped. The Contractor shall pull the conduit back so that the swivel can be serviced, repaired or replaced. Any damaged conduit shall be replaced prior to attempting a new pull back.

The drilling fluid shall be used to fill the void between the conduit and the bore hole during pull back. No voids will be allowed as they would pose potential settlement issues.

The conduit shall be installed in one continuous operation. The conduit shall be pulled 3 percent to 5 percent past the exit point, and the Contractor shall leave 3 percent to 5 percent extra conduit at the entry point. The conduit shall be allowed to “relax” for a period of at least 24 hours prior to cutting it for a termination or connection.

All slurries and waste materials generated by the directional drilling process and during the installation of the conduit shall be contained and disposed of off-site in an acceptable manner.

If an obstruction is encountered, such as rock, the Contractor shall pull back and re-drill in an offset location. The abandoned bore hole shall be backfilled with grout or bentonite to prevent future subsidence. The Contractor shall start pumping from the farthest point of progression of the abandoned drill hole to the surface to eliminate encapsulating voids. The cost of extra and/or partial bores and grout placement shall be incurred by the Contractor. The location of the new bore hole shall be approved by the Engineer prior to advancement. No additional payment shall be made in excess of the payment length indicated on the Contract Drawings.

Where conduits do not terminate in a structure, or when the structures will be installed at a later date, the Contractor shall physically monument the end points of the conduits. Monuments shall be as indicated on the Contract Drawings.

Install one continuous length of tracer wire for each single conduit or conduit bundle for the full length of the directional drill. Terminate the tracer wire inside the electrical pull boxes at each end of the HDPE conduit in a manner acceptable to the Engineer. The trace wire shall be terminated near the top of the structure, easily accessible for tracing and shall be marked "HDPE duct bank tracer wire" on a non-corrosive metal ID tag.

113-3.3 EXISTING UTILITIES. The sizes, locations, and depths of all existing structures and utilities shown on the Contract Drawings are approximate only. It is the Contractor's responsibility to verify the locations of all utilities prior to the start of work using a private utility locating service. The Contractor's shall verify the type, size and location of all underground utilities and structures in the area of the work, whether they are shown in the Contract Documents or not.

Where it is necessary to interrupt water or other public utility service to remove, realign, or change a subsurface structure, the work shall proceed with expedience and shall be continuous during the interruption of service until completion of the removal, realignment or change and the utility service is returned to its normal state.

113-3.4 PROTECTION OF EXISTING UTILITIES. All utilities whose facilities may be affected by the work of this Contract shall be notified in writing by the Contractor at least 7 days in advance of the start of operations which might affect such facilities. Copies of each such notice will be sent to the Engineer and the Owner.

All utility crossings outside the airfield runways should be exposed using a hydro-excavation, hand excavation (potholing) or other approved method to confirm depth. Exposed utility crossings shall be recorded by the Contractor prior to backfilling the open excavation.

Provide equipment to guard against electrocution and an alarm system on drilling equipment capable of detecting electrical current as it approaches electric lines.

The removal, replacement, support, or other handling of poles and posts of the public service corporations coming within the lines of the work shall be accomplished by the Contractor at his expense in accordance with arrangements satisfactory to the Owner or operator of the utility involved. The Contractor, at his expense, shall remove, replace or support all other posts required.

The Contractor shall not permit nor cause any hindrance to or interference with any individual, municipal department, public service corporation or any other company or companies in protecting its or their mains, pipes, poles, posts or other structures, nor in shifting, removing or replacing the same. The Contractor shall allow said individual, department, company or companies to take all such measures, as they may deem prudent to protect their structures.

113-3.5 CARE AND REPAIR. Contractor shall physically locate existing underground utilities by careful hand excavation. Utilities that are to remain in place shall be protected from damage during construction operations. Should uncharted or incorrectly charted utilities or any subsurface structure be encountered during excavation, consult the Engineer immediately for direction as to how to proceed. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of utility owner at no additional cost to the Owner.

113-3.6 RESTORATION. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. All drilling fluid and water shall be removed from the boring pit and receiving pit prior to backfilling. Surplus dirt may be incorporated into embankments on the project

site provided it is suitable material. The Contractor shall restore all disturbed areas equivalent to or better than their original condition.

Directional drilling operations in areas of existing special surface treatment, such as aprons, taxiways, runways, shoulders, roads, sidewalks, or similar stabilized surfaces shall be restored using materials comparable to original materials, and at depths matching existing layers.

The Contractor shall take extreme precautions not to undermine or jeopardize the pavement integrity. If the pavement surface is damaged or may be compromised, immediate repairs shall be implemented to restore the pavement section so it can be returned to service at the end of the work shift. All pavement repairs shall be as directed by the RPR and in accordance with the details provided on the drawings. The Contractor shall be prepared with the necessary materials to make the pavement repairs as needed.

Directional drilling operations in proposed turf areas shall be restored in accordance with the topsoil, seeding and mulching specifications of this contract. Topsoil, seeding and mulching will be paid for at the contract unit price for the pay items involved. All other work associated with restoration shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include the costs associated with restoration in the various pay items involved.

Directional drilling operations in areas of proposed pavement such as aprons, taxiways, runways, shoulders, roads, sidewalks, or other similar stabilized surfaces shall be restored using the materials specified or as shown on the plans. Payment for restoration up to the bottom of the proposed pavement section shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs associated with restoration in the various pay items involved.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

113-3.7 RECORD DRAWINGS. The Contractor shall submit scaled record drawings showing the actual final location of the conduit in both plan and profile. These drawings shall be based on periodic measurements taken during the drilling operation. The plan view shall indicate the actual piping alignment using dimensioned distances left or right of a straight line drawn between the monumented endpoints of the directionally drilled conduit. Offset dimensions shall be provided at intervals not exceeding 10 feet along the conduit. The accuracy of the dimensions shall be within 1 foot and shall be obtained by means of a surface sensing device.

The profile view shall indicate conduit depth below existing grade at intervals not exceeding 10 feet. The accuracy of the depth measurements shall be within 1 foot of the actual location.

The horizontal offset dimensions and the depth measurements shall be obtained at the same location along the conduit.

METHOD OF MEASUREMENT

113-4.1 Conduits installed by directional drilling shall be measured by the number of linear feet of conduit, or conduit bundle installed underground, ready for operation, and accepted as satisfactory. Measurement shall be made along the ground surface along the length of pipe installed, or as indicated on the Contract Drawings. Separate measurement shall be made for each conduit or conduit bundle installed in a bore hole. Additional quantities of conduit extending beyond the termination points shown on the Contract Drawings shall not be measured for payment.

BASIS OF PAYMENT

113-5.1 Payment will be made at the contract unit price for linear feet of conduit, or conduit bundle installed underground by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item LX-113-5.1	(1) 2-inch Schedule 80 HDPE Conduit Installed by Directional Drilling – per linear foot

SUBMITTALS AND CERTIFICATIONS

113-6.1 The following "Shop and Setting Drawings", "Working Drawings", Catalogue Data" and "Certifications" shall be submitted for review:

- Submittal for drilling fluid.
- Catalogue data showing that conduit meets the requirements specified.
- Submittal of experience for directional driller.
- Catalogue data for directional drilling equipment.
- Scaled diagrams of plan views and profiles.
- Detailed procedure for each representative boring operation.

REFERENCES

A. ASTM International:

1. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
2. ASTM D1248 – Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
3. ASTM D2412 – Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
4. ASTM D3261 - Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing
5. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
6. ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
7. ASTM F1962- Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings

B. National Utility Contractors Association (NUCA): Trenchless Excavation Construction Equipment & Methods Manual

C. Plastic Pipe Institute

1. Handbook of Polyethylene (PE) pipe
   a. Chapter 12 - Polyethylene Pipe for Horizontal Directional Drilling

D. Online reference documents:

https://www.tandfonline.com/doi/abs/10.1080/17486020600604024

https://www.netwasgroup.us/horizontal-directional/hdd-risk-identification.html

https://docuri.com/download/104_59a8d747f581719e12adeaa0_pdf

END OF ITEM LX-113

Item L-115 Electrical Manholes and Junction Structures

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the RPR. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

115-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications**.** The Contractor's submittals shall be electronically submitted in pdf format, tabbed by specification section**.** The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Concrete structures. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. Cast-in-place concrete structures shall be as shown on the plans.

115-2.3 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program. Provide precast concrete structures where shown on the plans.

Precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand 10,950lb aircraft loads, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans.

Threaded inserts and pulling eyes shall be cast in as shown on the plans.

The Contractor's representative shall complete the structural design, and provide signed and sealed shop drawings, design calculations, and other information requested by the RPR to allow for a full evaluation by the RPR. The RPR shall review per the process defined in the General Provisions.

115-2.4 Junction boxes. Junction boxes shall be L-867 Class 1 (non-load bearing) or L-868 Class 1 (load bearing) airport light bases that are encased in concrete. The light bases shall have a L-894 blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch (9-mm) thickness for L-867 and 3/4-inch (19-mm) thickness for L-868. All junction boxes shall be provided with both internal and external ground lugs.

115-2.5 Mortar. The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

115-2.7 Frames and covers. The frames shall conform to one of the following requirements:

a. ASTM A48 Gray iron castings

b. ASTM A47 Malleable iron castings

c. ASTM A27 Steel castings

d. ASTM A283, Grade D Structural steel for grates and frames

e. ASTM A536 Ductile iron castings

f. ASTM A897 Austempered ductile iron castings

All castings specified shall withstand a maximum tire pressure of 100 psi and maximum load of 10,950 lbs.

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

Each cover shall have the word “ELECTRIC” or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.

Each manhole shall be provided with a “DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

115-2.8 Ladders. Ladders, if specified, shall be galvanized steel or as shown on the plans.

115-2.9 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.10 Bedding/special backfill. Bedding or special backfill shall be as shown on the plans.

115-2.11 Flowable backfill. Flowable material used to backfill shall conform to the requirements of Item P-153, Controlled Low Strength Material.

115-2.12 Cable trays. Cable trays shall be of ladder type, 6-inch wide and 4-inches deep, unless otherwise shown. Cable trays shall be located as shown on the plans.

115-2.13 Plastic conduit. Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

115-2.14 Conduit terminators. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

115-2.15 Pulling-in irons. Pulling-in irons shall be manufactured with 7/8-inch (22 mm) diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7 strand, 1/2-inch (12 mm) diameter with an ultimate strength of 270,000 psi (1862 MPa)). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.

115-2.16 Ground rods. Ground rods shall be one piece, copper clad steel**.** The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 8 feet (2.4 m) long nor less than 5/8 inch (16 mm) in diameter.

CONSTRUCTION METHODS

115-3.1 Unclassified excavation. It is the Contractor’s responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the RPR without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the RPR. Structures shall be placed after the RPR has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches (150 mm) of sand or a material approved by the RPR as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 Concrete structures. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

115-3.3 Precast unit installations. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 Placement and treatment of castings, frames and fittings. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the RPR and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written approval is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the RPR and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor’s expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 Installation of ladders. Ladders shall be installed such that they may be removed if necessary. Mounting brackets shall be supplied top and bottom and shall be cast in place during fabrication of the structure or drilled and grouted in place after erection of the structure.

115-3.6 Removal of sheeting and bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches (150 mm) of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with

selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The RPR may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches (150 mm) in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

Backfill shall not be placed against any structure until approval is given by the RPR. In the case of concrete, such approval shall not be given until tests made by the laboratory under supervision of the RPR establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the RPR may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 Connection of duct banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches (150 mm) above the floor. The ground rod shall be installed within one foot (30 cm) of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch (100 mm) diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot (30 cm) above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup and repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer’s recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective Item L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

115-3.13 Manhole elevation adjustments. The Contractor shall adjust the tops of existing manholes in areas designated in the Contract Documents to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise or lower the top of each manhole to the new elevations. The existing top elevation of each manhole to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation.

The Contractor shall remove/extend the existing top section or ring and cover on the manhole structure or manhole access. The Contractor shall install precast concrete sections or grade rings of the required dimensions to adjust the manhole top to the new proposed elevation or shall cut the existing manhole walls to shorten the existing structure, as required by final grades. The Contractor shall reinstall the manhole top section or ring and cover on top and check the new top elevation.

The Contractor shall construct a concrete slab around the top of adjusted structures located in graded areas that are not to be paved. The concrete slab shall conform to the dimensions shown on the plans.

115-3.14 Duct extension to existing ducts. Where existing concrete encased ducts are to be extended, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

METHOD OF MEASUREMENT

115-4.1 Electrical manholes and junction structures shall be measured by each unit completed in place and accepted. The following items shall be included in the price of each unit: All required excavation and dewatering; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing

BASIS OF PAYMENT

115-5.1 The accepted quantity of electrical manholes and junction structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to

complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item L-115-5.1	Electrical Junction Can – per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Advisory Circular (AC)

AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime

FAA Engineering Brief (EB)

EB #83	In Pavement Light Fixture Bolts

Mil Spec

MIL-P-21035	Paint High Zinc Dust Content, Galvanizing Repair

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)

END OF ITEM L-115

Item L-125 Installation of Airport Lighting Systems

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

125-2.1 General.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in electronic PDF format, tabbed by specification section**.** The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR’s opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

EQUIPMENT AND MATERIALS

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 Tape. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. Not required.

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-861	2	1	N/A	4-Base Plate	L-867B	W/Y	L-830	Bidirectional Height = 30” Bulb Type: LED
L-861E	2	1	N/A	4-Base Plate	L-867B	R/G	L-830	Bidirectional Height = 30” Bulb Type: LED

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
L-858Y	1	2	2	1	See Plans for Legend
L-858R	1	2	2	1	See Plans for Legend
L-858L	1	2	2	1	See Plans for Legend

125-2.9 Runway End Identifier Light (REIL). Not required.

125-2.10 Precision Approach Path Indicator (PAPI). Not required.

125-2.11 Circuit Selector Cabinet. Not required.

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

INSTALLATION

125-3.1 Installation. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

125-3.1.1 Excerpts from AC 150/5340-30J, Appendix E

E.1 Electrical Notes.

E.1.1 General.

1. The electrical installation, at a minimum, must meet the NEC and local regulations.
2. The contractor must ascertain that all lighting system components furnished (including FAA approved equipment) are compatible in all respects with each other and the remainder of the new/existing system. Any non-compatible components furnished by the contractor must be replaced at no additional cost to the airport sponsor with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.
3. In case the contractor elects to furnish and install airport lighting equipment requiring additional wiring, transformers, adapters, mountings, etc., to those shown on the drawings and/or listed in the specifications, any cost for these items must be incidental to the equipment cost.
4. The contractor-installed equipment (including FAA approved) must not generate any EMI in the existing and/or new communications, weather, air navigation, and ATC equipment. Any equipment generating such interference must be replaced by the contractor at no additional cost with equipment meeting the applicable specifications.
5. When a specific type, style, class, etc., of FAA approved equipment is specified only that type, style, class, etc., will be acceptable, though equipment of other types, style, class, etc., may be FAA approved.

6. Any and all instructions from the RPR to the contractor regarding changes in, or deviations from, the plans and specifications must be in writing with copies sent to the airport sponsor and the FAA field office (Airports District Office (ADO)/Airports Field Office (AFO)). The contractor must not accept any verbal instructions from the RPR regarding any changes from the plans and specifications.

7. A minimum of three copies of instruction books must be supplied with each type of equipment. For more sophisticated types of equipment, such as regulators, PAPI, REIL, etc., the instruction book must contain the following:

a. A detailed description of the overall equipment and its individual components.

b. Theory of operation including the function of each component.

c. Installation instructions.

d. Start-up instructions.

e. Preventative maintenance requirements.

f. Chart for troubleshooting.

g. Complete power and control detailed wiring diagram(s), showing each conductor/connection/component; “black” boxes are not acceptable. The diagram or the narrative must show voltages/currents/wave shapes at strategic locations to be used when checking and/or troubleshooting the equipment. When the equipment has several brightness steps, these parameters must be indicated for all the different modes.

h. Parts list will include all major and minor components, such as resistors, diodes, etc. It must include a complete nomenclature of each component and, if applicable, the name of its manufacturer and the catalog number.

i. Safety instructions.

E.1.2 Power and Control.

1. Stencil all electrical equipment to identify function, circuit voltage and phase. Where the equipment contains fuses, also stencil the fuse or fuse link ampere rating. Where the equipment does not have sufficient stenciling area, the stenciling must be done on the wall next to the unit. The letters must be one inch (25 mm) high and painted in white or black paint to provide the highest contrast with the background. Engraved plastic nameplates may also be used with one inch (25 mm) white (black background) or black (white background) characters. All markings must be of sufficient durability to withstand the environment.

2. Color code all phase wiring by the use of colored wire insulation and/or colored tape. Where tape is used, the wire insulation must be black. Black and red must be used for single-phase, three wire systems and black, red and blue must be used for three-phase systems. Neutral conductors, size No. 6 AWG or smaller, must be identified by a continuous white or natural outer finish. Conductors larger than No. 6 AWG must be identified either by a continuous white or natural

gray outer finish along its entire length or by the use of white tape at its terminations and inside accessible wireways.

3. All branch circuit conductors connected to a particular phase must be identified with the same color. The color coding must extend to the point of utilization.

4. In control wiring, the same color must be used throughout the system for the same function, such as 10%, 30%, 100% brightness control, etc.

5. All power and control circuit conductors must be copper; aluminum must not be accepted. This includes wire, cable, busses, terminals, switch/panel components, etc.

6. Low voltage (600 V) and high voltage (5000 V) conductors must be installed in separate wireways.

7. Neatly lace wiring in distribution panels, wireways, switches and pull/junction boxes.

8. The minimum size of pull/junction boxes, regardless of the quantity and the size of the conductors shown, must be as follows:

a. In straight pulls, the length of the box must not be less than eight times the trade diameter of the larger conduit. The total area (including the conduit cross-sectional area) of a box end must be at least three times greater than the total trade cross-sectional area of the conduits terminating at the end.

b. In angle or u-pulls, the distance between each conduit entry inside the box and the opposite wall of the box must not be less than six times the trade diameter of the largest conduit. This distance must be increased for additional entries by the amount of the sum of the diameters of all other conduit entries on the same wall of the box. The distance between conduit entries enclosing the same conductor must of not be less than six times the trade diameter of the largest conduit.

9. A run of conduit between terminations at equipment enclosures, square ducts and pull/junction boxes, must not contain more than the equivalent of four quarter bends (360 degrees total), including bends located immediately at the terminations. Cast, conduit type outlets must not be treated as pull/junction boxes.

10. Equipment cabinets must not be used as pull/junction boxes. Only wiring terminating at the equipment must be brought into these enclosures.

11. Splices and junction points must be permitted only in junction boxes, ducts equipped with removable covers, and at easily accessible locations.

12. Circuit breakers in power distribution panel(s) must be thermal-magnetic, molded case, permanent trip with 100-ampere, minimum, frame.

13. Dual lugs must be used where two wires, size No. 6 or larger, are to be connected to the same terminal.

14. All wall mounted equipment enclosures must be mounted on wooden mounting boards.

15. Wooden equipment mounting boards must be plywood, exterior type, 3/4 inch (19 mm) minimum thickness, both sides painted with one coat of primer and two coats of gray, oil-based paint.

16. Rigid steel conduit must be used throughout the installation unless otherwise specified. The minimum trade size must be 3/4 inch (19 mm).

17. All rigid conduit must be terminated at CCRs with a section (10 inch (254 mm) minimum) of flexible conduit.

18. Unless otherwise shown all exposed conduits must be run parallel to, or at right angles with, the lines of the structure.

19. All steel conduits, fittings, nuts, bolts, etc., must be galvanized.

20. Use conduit bushings at each conduit termination. Where No. 4 AWG or larger ungrounded wire is installed, use insulated bushings.

21. Use double lock nuts at each conduit termination. Use weather tight hubs in damp and wet locations. Sealing locknuts must not be used.

22. Wrap all primary and secondary power transformer connections with sufficient layers of insulating tape and cover with insulating varnish for full value of cable insulation voltage.

23. Unless otherwise noted, all indoor single conductor control wiring must be No. 12 AWG.

24. Both ends of each control conductor must be terminated at a terminal block. The terminal block must be of proper rating and size for the function intended and must be located in equipment enclosures or special terminal cabinets.

25. All control conductor terminators must be of the open-eye connector/screw type. Soldered, closed-eyed terminators, or terminators without connectors are not acceptable.

26. In terminal block cabinets, the minimum spacing between parallel terminal blocks must be 6 inches (152 mm). The minimum spacing between terminal block sides/ends and cabinet sides/bottom/top must be 5 inches (127 mm). The minimum spacing will be increased as required by the number of conductors. Additional spacing must be provided at conductor entrances.

27. Both ends of all control conductors must be identified as to the circuit, terminal, block, and terminal number. Only stick-on labels must be used.

28. A separate and continuous neutral conductor must be installed and connected for each breaker circuit in the power panel(s) from the neutral bar to each power/control circuit.

29. The following must apply to relay/contactor panel/enclosures:

    a. All components must be mounted in dust proof enclosures with vertically hinged covers.

    b. The enclosures must have ample space for the circuit components, terminal blocks, and incoming internal wiring.

    c. All incoming/outgoing wiring must be terminated at terminal blocks.

d. Each terminal on terminal blocks and on circuit components must be clearly identified.

e. All control conductor terminations must be of the open-eye connector/screw type. Soldered, closed-eye connectors, or terminations without connectors are not acceptable.

f. When the enclosure cover is opened, all circuit components, wiring, and terminals must be exposed and accessible without any removal of any panels, covers, etc., except those covering high voltage components.

g. Access to, or removal of, a circuit component or terminal block will not require the removal of any other circuit component or terminal block.

h. Each circuit component must be clearly identified indicating its corresponding number shown on the drawing and its function.

i. A complete wiring diagram (not a block or schematic diagram) must be mounted on the inside of the cover. The diagram must represent each conductor by a separate line.

j. The diagram must identify each circuit component and the number and color of each internal conductor and terminal.

k. All wiring must be neatly trained and laced.

l. Minimum wire size must be No. 12 AWG.

E.1.3 Field Lighting.

1. Unless otherwise stated, all underground field power multiple and series circuit conductors (whether direct earth burial (DEB) or in duct/conduit) must be FAA approved Type L-824. Insulation voltage and size must be as specified.

2. No components of the primary circuit such as cable, connectors and transformers must be brought above ground at edge lights, signs, REIL, etc.

3. There must be no exposed power/control cables between the point where they leave the underground (DEB or L-867 bases) and where they enter the equipment (such as taxiway signs, PAPI, REIL, etc.). Enclosures. These cables must be enclosed in rigid conduit or in flexible water-tight conduit with frangible coupling(s) at the grade or the housing cover, as shown in applicable details.

4. The joints of the L-823 primary connectors must be wrapped with one layer of rubber or synthetic rubber tape and one layer of plastic tape, one half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint, as shown in Figure E-9.

5. The cable entrance into the field attached L-823 connectors must be enclosed by heat-shrinkable tubing with continuous internal adhesive as shown in Figure E-9.

6. The ID of the primary L-823 field attached connectors must match the cable OD to provide a watertight cable entrance. The entrance must be encapsulated in heat shrinkable tubing with continuous factory applied internal adhesive, as shown in Figure E-9.

7. L-823 type 11, two-conductor secondary connector must be class “A” (factory molded).

8. There must be no splices in the secondary cable(s) within the stems of a runway/taxiway edge/threshold lighting fixtures and the wireways leading to taxiway signs and PAPI/REIL equipment.

9. Electrical insulating grease must be applied within the L-823, secondary, two conductor connectors to prevent water entrance. The connectors must not be taped.

10. DEB isolation transformers must be buried at a depth of 10 inches (254 mm) on a line crossing the light and perpendicular to the runway/taxiway centerline at a location 12 inches (305 mm) from the light opposite from the runway/taxiway.

11. DEB primary connectors must be buried at a depth of 10 inches (254 mm) near the isolation transformer. They must be orientated parallel with the runway/taxiway centerline. There must be no bends in the primary cable 6 inches (152 mm), minimum, from the entrance into the field-attached primary connection.

12. A slack of 3 ft. (0.9 m), minimum, must be provided in the primary cable at each transformer/connector termination. At stake-mounted lights, the slack must be loosely coiled immediately below the isolation transformer.

13. Direction of primary cables must be identified by color coding as follows when facing light with back facing pavement: cable to the left is coded red and cable to the right is coded blue, this applies to the stake-mounted lights and base-mounted lights where the base has only one entrance.

14. L-867 bases must be size B, 24" (610 mm) deep Class 1 unless otherwise noted.

15. Base-mounted frangible couplings must not have weep holes to the outside. Plugged holes are not acceptable. The coupling must have a 1/4" (6 mm) diameter minimum or equivalent opening for drainage from the space around the secondary connector into the L-867 base.

16. The elevation of the frangible coupling groove must not exceed 1-1/2" (38 mm) above the edge of the cover for base-mounted couplings or the top of the stake for stake-mounted couplings.

17. Where the frangible coupling is not an integral part of the light fixture stem or mounting leg, a bead of silicone rubber seal must be applied completely around the light stem or wireway at the frangible coupling to provide a watertight seal.

18. Tops of the stakes supporting light fixtures must be flush with the surrounding grade.

19. Plastic lighting fixture components, such as lamp heads, stems, frangible couplings, base covers, brackets, stakes, are not acceptable. L-867 plastic transformer housings are acceptable. A metal threaded fitting must be set in flange during casting process. Base cover bolts must be fabricated from 18-8 stainless steel.

20. The tolerance for the height of runway/taxiway edge lights must be ±1 inch (25 mm). For stake-mounted lights, the specified lighting fixture height must be measured between the top of the stake and the top of the lens. For base-mounted lights, the specified lighting fixture height must

be measured between the top of the base flange and the top of the lens, and includes the base cover, the frangible coupling, the stem, the lamp housing and the lens.

21. The tolerance for the lateral spacing (light lane to runway/taxiway centerline) of runway/taxiway edge lights must be ±1 inch (25.4 mm). This also applies at intersections to lateral spacing between lights of a runway/taxiway and the intersecting runway/taxiway.

22. L-867 bases may be precast. Entrances into L-867 bases must be plugged from the inside with duct seal.

23. Galvanized/painted equipment/component surfaces must not be damaged by drilling, filing, etc. – this includes drain holes in metal transformer housings.

24. Edge light numbering tags must be facing the pavement.

25. Cable/splice/duct markers must be pre-cast concrete of the size shown. Letters/numbers/arrows for the legend to be impressed into the tops of the markers must be pre-assembled and secured in the mold before the concrete is poured. Legends inscribed by hand in wet concrete are not acceptable.

26. All underground cable runs must be identified by cable markers at 200 ft (61 m) maximum spacing with an additional marker at each change of direction of the cable run. Cable markers must be installed above the cable.

27. Locations of all DEB underground cable splice/connections, except those at isolation transformers, must be identified by splice markers. Splice markers must be placed above the splice/connections.

28. The cable and splice markers must identify the circuits to which the cables belong. For example: RWY 4-22, PAPI-4, PAPI-22.

29. Locations of ends of all underground ducts must be identified by duct markers.

30. The preferred mounting method of runway and taxiway signs is by the use of single row of legs. However, two rows will be acceptable.

31. Reference Figure E-13 and Figure E-14 for an example of a lighted sign installation.

    a. Power to the sign must be provided through breakaway cable connectors installed within the frangible point portion of the sign's mounting legs.

    b. There must be no above ground electrical connection between signs in a sign array.

32. Stencil horizontal and vertical aiming angles on each REIL flash head or equipment enclosure. The numerals must be black and one inch (25 mm) minimum height.

33. Stencil vertical aiming angles on the outside of each PAPI lamp housing. The numerals must be black and one inch (25 mm) minimum height.

34. All power and control cables in man/hand holes must be tagged. Use embossed stainless steel strips or tags attached at both ends to the cable by the use of UV resistant plastic straps. A

minimum of two tags must be provided on each cable in a man/hand hole - one at the cable entrance, and one at the cable exit.

35. Apply a corrosion inhibiting, anti-seize compound to all screws, nuts and frangible coupling threads. If coated bolts are used per EB #83, do not apply anti-seize compound.

36. There must be no splices between the isolation transformers. L-823 connectors are allowed at transformer connections only, unless shown otherwise.

37. DEB splices in home runs must be of the cast type, unless shown otherwise.

38. Where a parallel, constant voltage PAPI system is provided, the "T" splices must be of the cast type.

39. Concrete used for slabs, footing, backfill around transformer housings, markers, etc., must be 3000 PSI, min., air-entrained.

E.1.4 Equipment Grounding.

1. Ground all non-current-carrying metal parts of electrical equipment by using conductors sized and routed per NEC Handbook, Article 250.

2. All ground connections to ground rods, busses, panels, etc., must be made with pressure type solderless lugs and ground clamps. Soldered or bolt and washer type connections are not acceptable. Clean all metal surfaces before making ground connections. Exothermic welds are the preferred method of connection to a ground rod

3. Tops of ground rods must be 6 inches (152 mm) below grade.

4. The resistance to ground of the vault grounding system with the commercial power line neutral disconnected must not exceed 10 ohms.

5. The resistance to ground of the counterpoise system, or at isolation locations, such as airport beacon must not exceed 10 ohms.

125-3.2 Testing. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.4 Elevated and In-pavement Lights. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost

edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

METHOD OF MEASUREMENT

125-4.1 Runway lights, taxiway lights, and guidance signs will be measured by the number of each type removed and accepted by the RPR.

125-4.2 Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the RPR.

BASIS OF PAYMENT

125-5.1 Payment will be made at the contract unit price for each runway light, taxiway light, or guidance sign removed and accepted by the RPR.

125-5.2 Payment will be made at the Contract unit price for each complete runway or taxiway light, guidance sign, reflective marker, runway end identification light, precision approach path indicator, or abbreviated precision approach path indicator installed by the Contractor and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item L-125-5.1a	Removal of Existing Edge Light, Light Base and Appurtenances – per each
Item L-125-5.1b	Removal of Existing Guidance Sign and Foundation – per each
Item L-125-5.2a	Medium Intensity Runway Edge Light, Base Mounted, Elevated, LED, In Turf – per each
Item L-125-5.2b	Medium Intensity Runway Threshold Light, Base Mounted, Elevated, LED, In Turf – per each
Item L-125-5.2c	Taxiway Guidance Sign and Foundation, 2 Modules – per each
Item L-125-5.2d	Taxiway Guidance Sign and Foundation, 3 Modules – per each
Item L-125-5.2e	Taxiway Guidance Sign and Foundation, 4 Modules – per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids

AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures

END OF ITEM L-125