

STATE OF MICHIGAN

DEPARTMENT OF TRANSPORTATION

AIRPORTS DIVISION

LANSING, MICHIGAN



ANN ARBOR MUNICIPAL AIRPORT

ANN ARBOR, MICHIGAN

GATE AND FENCE IMPROVEMENTS

CONSTRUCTION DATA

PRIME CONTRACTOR: _____

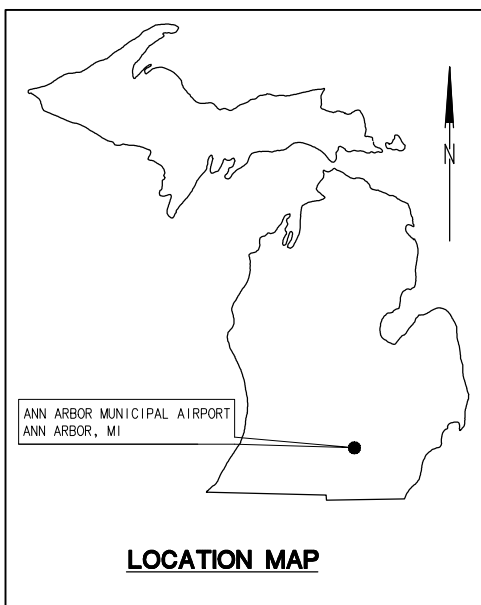
MAJOR SUBCONTRACTORS AND/OR SUPPLIERS: _____

WORK: COMMENCED _____, COMPLETED _____

PROJECT ENGINEER: _____

ALL CONSTRUCTION PERFORMED UNDER THIS CONTRACT HAS BEEN COMPLETED IN FULL CONFORMITY WITH THE DRAWINGS, NOTES AND SPECIFICATIONS CONTAINED IN THESE PLANS. ALL CHANGES FROM PLANS AS BID, HAVE BEEN NOTED.

(CERTIFIED) _____ PROJECT ENGINEER: _____ DATE _____



UTILITY NOTE:

THE LOCATION AND PROTECTION OF ALL EXISTING UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. LOCATION AND PROTECTION OF EXISTING UTILITIES IN ALL WORK AREAS IS CONSIDERED INCIDENTAL TO MOBILIZATION. AS-BUILT RECORD DRAWINGS HAVE BEEN USED TO SHOW THE LOCATION OF KNOWN UNDERGROUND UTILITIES IN THIS PLAN.

DESIGNERS CERTIFICATION

IN COMPLIANCE WITH THE SPONSOR'S UNITED STATES CODE, TITLE 49 CERTIFICATION, THESE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED IN ACCORDANCE WITH CURRENT F.A.A. STANDARDS, IDENTIFIED IN F.A.R. PART 152.11 AND/OR STANDARDS OF THE MICHIGAN AERONAUTICS COMMISSION PREVIOUSLY APPROVED BY THE F.A.A. ANY DEVIATIONS FROM THE F.A.A. OR APPROVED M.A.C. STANDARDS WERE APPROVED BY F.A.A. N.A. LETTER DATED ____ AND ARE DISCUSSED IN THE ENGINEERING REPORT ACCOMPANYING THESE PLANS.

CERTIFIED _____ WILLIAM M. MALINOWSKI P.E. NO. 17808 _____ DATE _____

DESIGNERS & CONSULTANTS



APPROVED _____ WILLIAM M. MALINOWSKI, P.E. NO. 17808 _____ DATE _____

CITY OF ANN ARBOR PROJECT: ITB# 4275

14	STANDARD PLAN , ST-F-101 ELECTRICAL INSTALLATION DETAILS	02-22-13
13	STANDARD PLAN , ST-F-101 CHAIN LINK FENCE, CLASS E	02-22-13
12	LIGHT AND SIGN NOTES AND DETAILS	02-22-13
11	GATE COMPONENT NOTES AND DETAILS	02-22-13
10	GATE NOTES AND DETAILS	02-22-13
9	FENCE PLAN	02-22-13
8	PLAN - GATE #5	02-22-13
7	PLAN - GATE #3 AND GATE #4	02-22-13
6	GATE #2 ALTERNATE BID	02-22-13
5	PLAN - GATE #2A AND GATE #2B	02-22-13
4	PLAN - GATE #1	02-22-13
3	SAFETY AND PHASING PLAN	02-22-13
2	SUMMARY OF QUANTITIES & SUPPLEMENTAL DATA	02-22-13
1	TITLE & APPROVAL SHEET	02-22-13

INDEX OF SHEETS

SHEET NUMBER

LATEST REVISION DATE

AIRPORT TYPE GENERAL UTILITY

81-01

ANN ARBOR MUNICIPAL AIRPORT

APPROVED _____ MATT KULHANEK - AIRPORT MANAGER _____ DATE _____

APPROVED _____ NAME _____ DATE _____

DEPARTMENT OF TRANSPORTATION AIRPORTS DIVISION

APPROVED _____ AIRPORTS DIVISION ADMINISTRATOR - RICK HAMMOND _____ DATE _____

APPROVED _____ CHIEF ENGINEER - DAVID L. BAKER #40936 _____ DATE _____

MISS DIG System, Inc.
1-800-482-7171



D/E	DAH	X	SOC	DR	X	QC	WM	X	W. MALINOWSKI	IN CHARGE

GRAND RAPIDS, MI.
3950 SPARKS DR., S.E.
616 574-8500

URS

ANN ARBOR MUNICIPAL AIRPORT

ANN ARBOR, MICHIGAN

GATE AND FENCE IMPROVEMENTS
TITLE & APPROVAL SHEET

FEDERAL PROJECT NO.
J-26-0005-1710

STATE CONTRACT NO.
FM 81-01-C34

DRAWING
01 OF 14

12943839

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SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND MATERIALS TESTING REQUIREMENTS

STANDARD SPEC. NUMBER	SPECIFICATION TITLE (ABBREVIATED) (BOA)-INDICATES A STANDARD SPECIFICATION OF THE MDSHT BUREAU OF AERONAUTICS	SPECIFICATIONS		SUPPLEMENTAL SPECIFICATIONS		MAT'L TEST
		REQ'D THIS CONTRACT	date or revision date	REQ'D THIS CONTRACT	date or revision date	
L-101	AIRPORT ROTATING BEACON					
L-102	AIRPORT HAZARD BEACON					
L-103	AIRPORT BEACON TOWERS					
L-107	AIRPORT 8-FOOT & 12-FOOT WIND CONES					
L-108	AIRPORT UNDERGROUND CABLE	X	03-10-86			X
L-109	AIRPORT TRANSFORMER VAULT & EQUIPMENT					
L-110	AIRPORT UNDERGROUND ELECTRICAL DUCT	X	11-15-88			X
L-112	AIRPORT WIND TEE					
L-119	AIRPORT OBSTRUCTION LIGHTS					
L-125	INSTALLATION OF AIRPORT LIGHTING SYSTEMS (BOA) SUBPART: A_X_B_C_X_D_E_					
P-151	CLEARING AND GRUBBING					
P-152	EXCAVATION AND EMBANKMENT					
P-153	WATERING					
P-154	SUBBASE COURSE					
P-155	LIME-TREATED SUBGRADE					
F-160	WIRE FENCE WITH WOOD POSTS (CLASSES A & B)					
F-161	WIRE FENCE WITH STEEL POSTS (CLASSES C & D)					
F-162	CHAIN LINK FENCES (CLASS E)	X	05-01-85			
P-208	AGGREGATE BASE COURSE					
P-209	CRUSHED AGGREGATE BASE COURSE					
P-304	CEMENT TREATED BASE COURSE					
P-402	POROUS FRICTION COURSE					
P-411/412	BITUMINOUS BASE LEVELING AND TOP COURSES SUB-SPECIFICATION: P-411_X_ , F/S/L					
P-501	PORTLAND CEMENT CONCRETE PAVEMENT					
P-602	BITUMINOUS PRIME COAT					
P-603	BITUMINOUS TACK COAT					
P-605	JOINT SEALING FILLER					
P-606	ADHESIVE COMPOUNDS FOR WIRE & LIGHTS IN PAVEMENT	X	05-01-85			
P-609	SEAL COATS A BITUMINOUS SURFACE TREATMENT					
P-610	STRUCTURAL PORTLAND CEMENT CONCRETE	X	05-01-85			X
P-620	RUNWAY AND TAXIWAY PAINTING					
P-625	TAR EMULSION PROTECTIVE SEAL COAT					
P-626	ASPHALTIC EMULSION SLURRY SEAL OR SURFACE TREAT					
D-701	PIPE FOR STORM SEWERS AND CULVERTS					
D-705	PIPE UNDERDRAINS FOR AIRPORTS					
D-751	MANHOLES, CATCH BASINS, INLETS, & INSPECTION HOLES					
D-752	CONC. CULVERTS, HEADWALLS & MISC. DRAINAGE STRUCT.					
D-754	CONC. PAVED GUTTERS, DITCHES, & FLUMES					
S-800	(SPECIAL SPECIFICATIONS OF THE DESIGNER)	X	02-08-13			
T-611	COMPACTION CONTROL TEST					
T-901	SEEDING	X	05-01-85			X
T-904	SODDING					
T-905	TOPSOILING					
T-907	TILLING					
T-908	MULCHING	X	05-01-85			X

BUREAU OF AERONAUTICS STANDARD PLANS

DRAWING NUMBER	PLAN TITLE (ABBREVIATED)	REQ'D THIS CONTRACT	DATE OR REVISION DATE
ST-D-110	MANHOLES, CATCH BASINS & INLETS FOR PIPES THRU 42" DIA.		
ST-D-120	CAST IRON COVERS		
ST-D-130	PIPE END SECTIONS		
ST-D-141	HEADWALLS (12"-36" PIPE)		
ST-D-142	HEADWALLS (42"-60" PIPE)		
ST-F-100	WIRE FENCING CLASS A & C, CHAIN LINK CLASS E		
ST-F-101	CHAIN LINK FENCE, CLASS E		7-30-87
ST-L-120	ELECTRICAL INSTALLATION DETAILS	X	4-01-79
ST-M-103 S	STEEL FRAME LANDING STRIP MARKER OR CIRCLE SEGMENT		
ST-M-111	AIRPORT PAVEMENT MARKING		
ST-M-112	AIRPORT PAVEMENT MARKING		
ST-M-113	RUNWAY APPROACH MARKERS AND CENTERLINE MONUMENTS		

SPECIFICATION & CONTRACT ITEM NOTES

THE FIRST THREE DIGITS OF EACH ITEM NUMBER INDICATE THE SPECIFICATION NUMBER CONTROLLING THE WORK ITEM. WORK ITEMS WITH THE FIRST THREE DIGITS AS 800, 901, 802 ETC INDICATE A SPECIAL SPECIFICATION OF THE DESIGNER. THESE SPECIAL SPECIFICATIONS MAY BE PROVIDED ON THE PLANS OR IN THE PROPOSAL.

ALL STANDARD OR SPECIAL CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS ARE INCLUDED IN THE PROPOSAL DOCUMENTS OR PLAN. UNLESS OTHERWISE NOTED, STANDARD SPECIFICATIONS ARE EXTRACTED FROM THE FEDERAL AVIATION ADMINISTRATION STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS.

ASHOTO OR ASTM (ETC) SPECIFICATIONS AND TESTS, FEDERAL SPECIFICATIONS, AND FAA MANUFACTURING SPECIFICATIONS ARE NOT PUBLISHED IN THE PROPOSAL DOCUMENTS BUT ARE INCLUDED AS A CONTRACT REQUIREMENT BY REFERENCE ONLY.

AGGREGATE SERIAL NUMBERS CONTAINING THE LETTERED SUFFIX "M" INDICATE THAT THE AGGREGATES HAVE SIMILAR GRADATIONS TO MDOT LIKE NUMBERED HIGHWAY AGGREGATES BUT MAY HAVE DIFFERENT PHYSICAL REQUIREMENTS. THE PHYSICAL CHARACTERISTICS AND TEST RESULTS REQUIRED FOR AGGREGATES CAN BE FOUND IN THE "MATERIAL TESTING REQUIREMENTS" OR INDIVIDUAL MATERIAL SPECIFICATIONS INCLUDED IN THE PROPOSAL DOCUMENTS.

SAVING MATERIALS, OTHER THAN EXCESS SOILS AND AGGREGATES OR MATERIALS SPECIFIED FOR USE IN THE WORK, SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.

SPECIFICATION & DESIGN CRITERIA

AIRPORT FACILITIES (i.e. RUNWAYS, TAXIWAYS, APRONS, RAMPS), WHICH MAY BE A PART OF THESE PLANS, ARE DESIGNED FOR THE AIRPORT TYPE AND AIRCRAFT CROSS WEIGHT OR THE PRESSURE CHECKED BELOW.

WHERE ANY APPLICABLE SPECIFICATION, METHOD, STANDARD, TEST, OR PERFORMANCE RESULT INCLUDES VARIABLES BASED ON THE WINDING TYPE, HEIGHT, OR PRESSURE, THE PARAMETERS CHECKED BELOW SHALL BE USED TO DETERMINE THE WINDING ACCEPTABLE UNDER THIS CONTRACT.

WORK ON NON-AIRPORT FACILITIES (i.e. ROADS, PARKING LOTS), OR ON AIRPORT FACILITIES NOT DESIGNED TO MEET THE OVERALL AIRPORT TYPE OR AIRCRAFT REQUIREMENTS (i.e. SHALL AIRCRAFT FACILITIES INCLUDED WITH AIR CARRIER FACILITIES IN A COMMON CONTRACT), SHALL MEET THE CRITERIA SHOWN ON THE PERTINENT PLAN SHEETS.

AIRCRAFT DESIGN GROUP & AIRCRAFT APPROACH CATEGORY

	A	B	C	D	E
I					
II		X			
III					
IV					
V					
VI					

AIRPORT AND PAVEMENT DESIGN DATA

AIRCRAFT GROSS WEIGHT (1000 Lbs)	TIRE PRESSURE	ASTM D-2487 USCS SUBGRADE SOIL GROUP	SOIL DRAINAGE	FROST CONDITION
under 12.5	30 to 60	under 100 psi	good	depth of penetration inches
12.5 to 30	X 60 & over	over 100 psi	X poor	45

COMPACTION CONTROL TESTS FOR CONSTRUCTION

FAA TEST 611 REQUIRED THIS CONTRACT _____

METHOD: AASHTO T99 _____ METHOD: AASHTO T180 _____ AS SHOWN ON PLAN SHEETS _____

METHOD: ASTM D698 _____ METHOD: ASTM D1557 _____

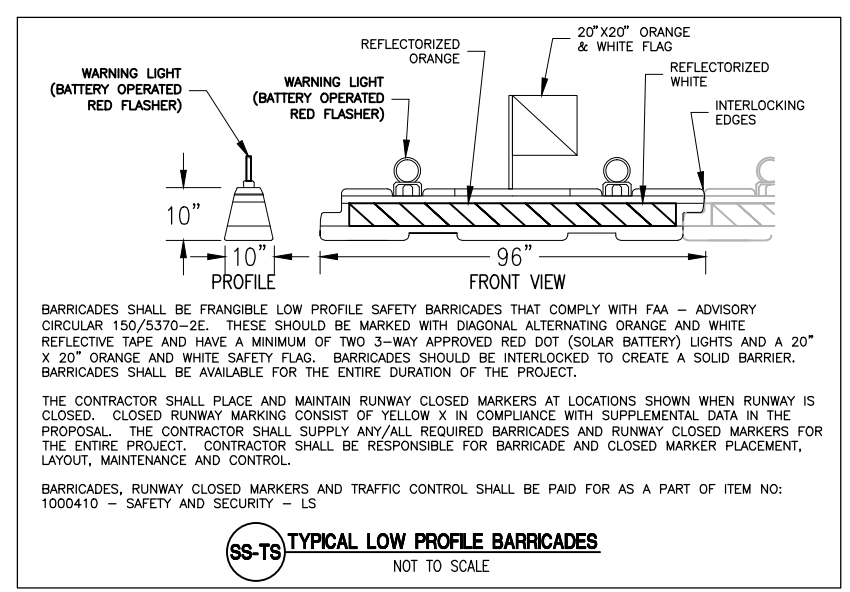
ITEM NUMBER	ITEM DESCRIPTION	UNIT	BID QUANTITY					CHANGE ORDER					FINAL QUANTITY				
			TOTAL	*FED AID	*NON-FED	1	2	3	4	5	TOTAL	*FED AID	*NON-FED				
1000400	MOBILIZATION AND GENERAL CONDITIONS	LS	1	1													
1000410	SAFETY AND SECURITY	LS	1	1													
1000535	PERMITS	DLB	1,000	1,000													
1517001	MISC - FENCE REMOVAL AND OFFSITE DISPOSAL	LFT	757	757													
1627001	MISC - 4' CHAIN LINK FENCE WITH TOP RAIL AND TENSION WIRE	LFT	244	244													
1627001	MISC - 8' CHAIN LINK FENCE WITH TOP AND BOTTOM RAIL	LFT	175	175													
1627050	MISC - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED	EA	12	12													
1627051	MISC - AUTOMATIC GATE #1 24'x10', AS SPECIFIED	LS	1	1													
1627051	MISC - AUTOMATIC GATE #2A 12'x8', AS SPECIFIED	LS	1	1													
1627051	MISC - AUTOMATIC GATE #2B 12'x8', AS SPECIFIED	LS	1	1													
1627051	MISC - AUTOMATIC GATE #3 20'x8', AS SPECIFIED	LS	1	1													
1627051	MISC - AUTOMATIC GATE #4 20'x8', AS SPECIFIED	LS	1	1													
1627051	MISC - AUTOMATIC GATE #5 20'x8', AS SPECIFIED	LS	1	1													
6207050	MISC - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS	EA	12	12													
8007051	MISC - ALTERNATE BID, AUTOMATIC GATE #2, 20'x8', AS SPECIFIED	LS															

NOTE:

UNCERTAINTY REGARDING STATUS OF 2013 FEDERAL AIRPORT IMPROVEMENT FUNDS MAY DELAY OR PRECLUDE AWARD OF THIS PROJECT.

IT IS THE INTENTION OF THE SPONSOR TO BID THE ENTIRE PROJECT AND AWARD BASED ON THE TOTAL BID AMOUNT. HOWEVER, QUANTITIES WILL BE ADDED OR DELETED TO MEET AVAILABLE FUNDING. THIS WILL BE DONE BY CHANGE ORDER ISSUED PRIOR TO A NOTICE TO PROCEED.

UNIT PRICES FOR ALL WORK ITEMS SUBJECT TO ADDITION OR REDUCTION DUE TO LIMITED FUNDING SHALL REMAIN AS BID, REGARDLESS OF QUANTITY CHANGES. THE CONTRACTOR WILL NOT BE PERMITTED TO ADJUST UNIT PRICES BASED ON QUANTITY CHANGES. THE CONTRACTOR SHALL ENSURE THAT THE UNIT PRICES QUOTED ACCURATELY REFLECT WORK UNITS REQUIRED.



BARRICADES SHALL BE FRANGIBLE LOW PROFILE SAFETY BARRICADES THAT COMPLY WITH FAA - ADVISORY CIRCULAR 150/5370-2E. THESE SHOULD BE MARKED WITH DIAGONAL ALTERNATING ORANGE AND WHITE REFLECTIVE TAPE AND HAVE A MINIMUM OF TWO 3-WAY APPROVED RED DOT (SOLAR BATTERY) LIGHTS AND A 20" X 20" ORANGE AND WHITE SAFETY FLAG. BARRICADES SHOULD BE INTERLOCKED TO CREATE A SOLID BARRIER. BARRICADES SHALL BE AVAILABLE FOR THE ENTIRE DURATION OF THE PROJECT.

THE CONTRACTOR SHALL PLACE AND MAINTAIN RUNWAY CLOSED MARKERS AT LOCATIONS SHOWN WHEN RUNWAY IS CLOSED. CLOSED RUNWAY MARKING CONSIST OF YELLOW X IN COMPLIANCE WITH SUPPLEMENTAL DATA IN THE PROPOSAL. THE CONTRACTOR SHALL SUPPLY ANY/ALL REQUIRED BARRICADES AND RUNWAY CLOSED MARKERS FOR THE ENTIRE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR BARRICADE AND CLOSED MARKER PLACEMENT, LAYOUT, MAINTENANCE AND CONTROL.

BARRICADES, RUNWAY CLOSED MARKERS AND TRAFFIC CONTROL SHALL BE PAID FOR AS A PART OF ITEM NO: 1000410 - SAFETY AND SECURITY - LS

SS-TS TYPICAL LOW PROFILE BARRICADES
NOT TO SCALE

SUMMARY OF SPECIFICATIONS AND SUPPLEMENTAL CONTRACT DATA

NO	DATE	BASE SHEET REVISIONS	BY	CHKD
6	4-1-78	ST-M-113, DESIGN CRITERIA		N.M. W.S.
5	7-6-76	UPDATED SPECS., SUPP. SPECS. & STD. PLANS		F.B. W.S.

LEGEND

X AN "X" PLACED IN ANY "REQUIRED THIS CONTRACT" OR OTHER SPACE INDICATES THAT THE DATA SO MARKED IS MADE A PART OF THIS PROPOSAL AND CONTRACT.

SUMMARY OF CONTRACT QUANTITIES

MICHIGAN DEPARTMENT OF TRANSPORTATION
AIRPORTS DIVISION
LANSING, MICHIGAN

URS

GRAND RAPIDS, MI.
5650 PARKS DR., S.E.
616 571-8800

ANN ARBOR MUNICIPAL AIRPORT
ANN ARBOR, MICHIGAN

GATE AND FENCE IMPROVEMENTS
SUMMARY OF QUANTITIES & SUPPLEMENTAL DATA

FEDERAL PROJECT NO:
J-26-0005-1710

STATE CONTRACT NO.
FM 61-01-C34

DRAWING
02 OF 14

12943839

ISSUED FOR
DATE
IN CHARGE
W. MALINOWSKI

CONSTRUCTION SAFETY - SECURITY PLAN
ANN ARBOR MUNICIPAL AIRPORT
ANN ARBOR, MICHIGAN

THE CONTRACT PROVIDES FOR AIRPORT IMPROVEMENTS UNDER STATE OF MICHIGAN CONTRACT FM 81-01-C34 AND FEDERAL PROJECT NO. J-26-0005-1710 FOR THE GATE AND FENCE IMPROVEMENTS.

GENERAL CONDITIONS AND NOTES:

PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL MAKE A PERSONAL EXAMINATION OF THE SITE AND ACQUAINT THEMSELVES FULLY WITH THE NATURE OF ALL WORK, THE CONDITIONS TO BE ENCOUNTERED AND ANY OTHER CIRCUMSTANCES AFFECTING THE COMPLETION OF WORK. THE CONTRACTOR SHALL MAKE ALL INVESTIGATIONS NECESSARY SO THAT THEIR PROPOSAL SHALL BE BASED UPON FULL KNOWLEDGE AND ESTIMATION OF THE CONDITIONS AND REQUIREMENTS TO BE MET.

THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE RULES AND REGULATIONS GOVERNING THE MOVEMENT AND PARKING OF VEHICLES ON AIRPORT PROPERTY AND SHALL BE RESPONSIBLE FOR THEIR INDIVIDUAL EMPLOYEES AND ALL SUBCONTRACTORS STRICT ADHERENCE OF THESE RULES.

THE CONTRACTOR SHALL PROVIDE A SPECIFIC PARKING LOT FOR ALL CONSTRUCTION EMPLOYEES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL CONSTRUCTION EMPLOYEES PARK IN THIS SPECIFIC AREA.

CONTRACTOR'S EQUIPMENT MUST BE STRICTLY LIMITED TO CONSTRUCTION AREAS DURING CONSTRUCTION AND TO THE CONTRACTOR'S STORAGE AREA DURING NON-CONSTRUCTION PERIODS. STORAGE AREAS SHALL BE AS SHOWN ON THIS SHEET.

THE CONTRACTOR'S EQUIPMENT SHALL NOT EXCEED 20' IN HEIGHT AT ANY TIME DURING STORAGE. VEHICLES SHALL NOT BE PARKED IN AIRCRAFT OPERATION AREA WHEN NOT IN USE OR REQUIRED FOR CONSTRUCTION. ALL CONSTRUCTION EQUIPMENT AND VEHICLES SHALL BE MARKED WITH 1 (ONE) 24" X 24" ORANGE FLAG AND/OR ROTATING BEACON.

ALL VEHICLE OPERATIONS WITHIN THE AIRPORT PERIMETER SHALL BE CONDUCTED WITH CAUTION AND WHILE MONITORING AND OPERATING AT 123.0 MHZ. AIRCRAFT SHALL HAVE THE RIGHT-OF-WAY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR 123.0 MHZ AND ENSURE AIR OPERATION AREAS (AOA'S) ARE CLEAR PRIOR TO CONTRACTOR VEHICLES OPERATING IN THOSE AREAS. RADIOS ARE NOT AVAILABLE AT THE AIRPORT. COST OF FURNISHING AND MAINTAINING RADIOS SHALL BE INCLUDED IN ITEM NO. 1000410-SAFETY AND SECURITY. RUNWAY INCURSION EVENTS ARE SUBJECT TO A CONTRACTOR FINE OF \$10,000.00 PER OCCURRENCE.

IF ANY PAVEMENT IS CROSSED WITH CONSTRUCTION EQUIPMENT THAT ACTIVE AIRCRAFT USE, THAT PAVEMENT SHALL BE CLEANED FREE OF DEBRIS PRIOR TO AIRCRAFT USE. A POWER BROOM WILL BE REQUIRED FOR THE ENTIRE JOB TO CLEAN DEBRIS FROM TAXIWAYS AND RUNWAYS AT ALL TIMES. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR ALL TRUCK TRAFFIC ON-SITE. TRUCK HAULING MATERIAL ON/OFF SITE MUST STAY WITHIN CONTRACTOR'S MARKED HAUL ROUTES. ANY AND ALL DAMAGE THAT OCCURS IS THE RESPONSIBILITY OF THE CONTRACTOR.

CONSTRUCTION COORDINATION:

THE AIRPORT MANAGER SHALL ISSUE ALL NOTAMS TO ADVISE AIRMEN OF THE CONSTRUCTION ACTIVITY ON THE AIRPORT. IN ALL CASES, THE AIRCRAFT OPERATIONS ON THE AIRPORT SHALL HAVE THE RIGHT-OF-WAY OVER THE CONSTRUCTION EQUIPMENT.

THE GENERAL CONTRACTOR WILL BE REQUIRED TO PROVIDE A SAFETY / EMERGENCY PLAN AT THE PRE-CONSTRUCTION MEETING. URS WILL PROVIDE THE CONTRACTOR WITH A DRAFT DOCUMENT UPON SELECTION.

THE GENERAL CONTRACTOR IS TO PROVIDE A PROJECT SUPERINTENDENT WHO IS TO BE ON-SITE AT ALL TIMES WHILE WORK IS BEING ACCOMPLISHED. THE SUPERINTENDENT WILL BE RESPONSIBLE FOR ALL SUBCONTRACTOR COORDINATION, COMPLETION OF THE PROJECT TO PLANS AND SPECIFICATIONS. THE PROJECT ENGINEER WILL COORDINATE PROJECT MEETINGS, CHANGE ORDERS, PAY ESTIMATES, AND INSPECTION WITH THE PROJECT SUPERINTENDENT. THE COST OF THE PROJECT SUPERINTENDENT WILL BE INCLUDED IN THE MOBILIZATION AND GENERAL CONDITIONS.

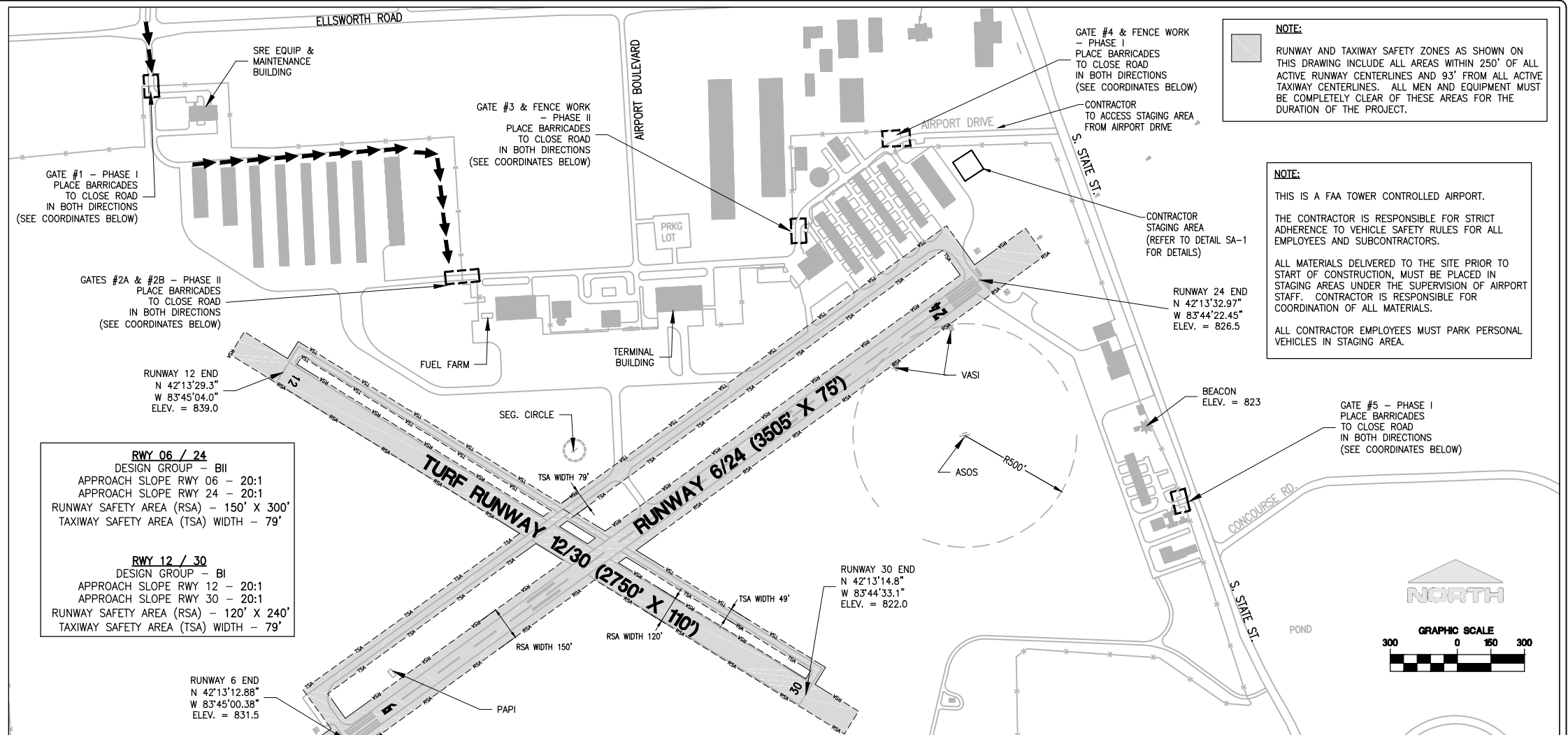
THE CONTRACTOR SHALL PREPARE A DETAILED CONSTRUCTION SCHEDULE FOR REVIEW AT THE PRE-CONSTRUCTION CONFERENCE. THE SCHEDULE SHALL INCLUDE A BREAKDOWN OF WORK SEGMENTS AND A CHART OR DIAGRAM GIVING TIMING AND SEQUENCING OF THOSE WORK SEGMENTS. THE SCHEDULE SHALL BE UPDATED DAILY TO ALLOW MAXIMUM ADVANCE ISSUANCE OF NOTAMS AND ADVISORIES TO AIRCRAFT USERS. NO CHANGES OR DEVIATIONS FROM THIS PLAN WILL BE PERMITTED UNLESS AUTHORIZED BY THE PROJECT ENGINEER. PRIOR TO THE START OF WORK OR PHASE, THE CONTRACTOR WILL, UNDER THE DIRECTION OF THE PROJECT ENGINEER, FURNISH, PLACE AND SECURE ALL BARRICADES AND RUNWAY CLOSED MARKERS AT THE LOCATION SHOWN ON THE PLANS.

SITE ACCESS SHALL BE COORDINATED WITH THE AIRPORT AUTHORITY. PRIMARY ACCESS TO THE SITE SHALL BE VIA THE LOCATIONS SHOWN FROM THE STORAGE AREA TO BE USED.

LIMITATIONS OF OPERATION:

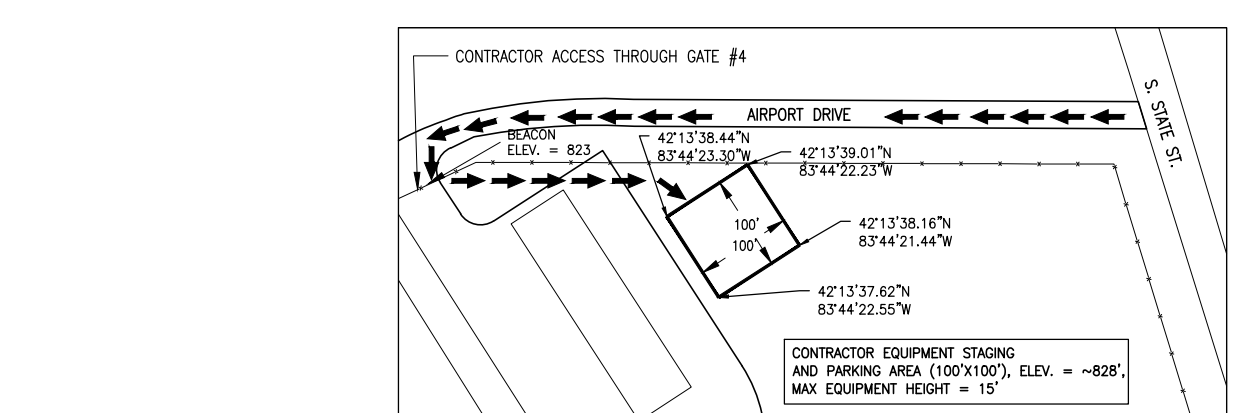
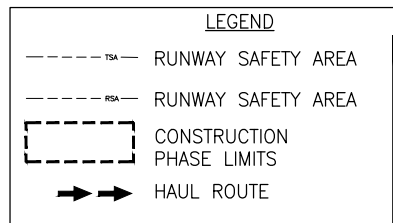
WORK WITHIN 200' (FEET) OF A RUNWAY CENTERLINE OR WITHIN 125' (FEET) OF A TAXIWAY CENTERLINE SHALL REQUIRE CLOSURE OF THE RUNWAY OR TAXIWAY. CLOSED RUNWAY MARKERS AND BARRICADES SHALL BE PLACED AT THE LOCATIONS SHOWN ON THIS SHEET. CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, IN WRITING, A MINIMUM OF 72 HOURS PRIOR TO ANY PROPOSED RUNWAY OR TAXIWAY CLOSURE. ANY RUNWAY OR TAXIWAY CLOSURE MUST BE APPROVED BY THE PROJECT ENGINEER PRIOR TO CLOSING. THE CONTRACTOR SHALL PHASE THE WORK NEXT TO RUNWAY(S) OR TAXIWAY(S) SUCH THAT EXCAVATION IS BROUGHT TO FINAL GRADE PRIOR TO OPENING THE TAXIWAY OR RUNWAY.

THE CONTRACTOR SHALL NOT PARK EQUIPMENT WITHIN 200' (FEET) OF THE CENTERLINE OF ANY ACTIVE RUNWAY. ALL VEHICLES AND EQUIPMENT SHALL BE RETURNED TO THE STORAGE AREA DESIGNATED ON THIS SHEET AT THE END OF THE DAY.



RWY 06 / 24
DESIGN GROUP - BII
APPROACH SLOPE RWY 06 - 20:1
APPROACH SLOPE RWY 24 - 20:1
RUNWAY SAFETY AREA (RSA) - 150' X 300'
TAXIWAY SAFETY AREA (TSA) WIDTH - 79'
RWY 12 / 30
DESIGN GROUP - BI
APPROACH SLOPE RWY 12 - 20:1
APPROACH SLOPE RWY 30 - 20:1
RUNWAY SAFETY AREA (RSA) - 120' X 240'
TAXIWAY SAFETY AREA (TSA) WIDTH - 79'

WORK AREA COORDINATES FOR SAFETY & PHASING LIMITS				
GATE 1 WORK LIMITS:	GATE 2 WORK LIMITS:	GATE 3 WORK LIMITS:	GATE 4 WORK LIMITS:	GATE 5 WORK LIMITS:
PT. 1 42°13'41.99"N 83°45'11.92"W	PT. 1 42°13'33.39"N 83°44'53.53"W	PT. 1 42°13'35.28"N 83°44'33.61"W	PT. 1 42°13'39.24"N 83°44'27.42"W	PT. 1 42°13'23.15"N 83°44'11.14"W
PT. 2 42°13'42.05"N 83°45'11.40"W	PT. 2 42°13'33.46"N 83°44'53.08"W	PT. 2 42°13'32.08"N 83°44'33.03"W	PT. 2 42°13'39.34"N 83°44'26.99"W	PT. 2 42°13'23.24"N 83°44'10.69"W
PT. 3 42°13'41.36"N 83°45'11.84"W	PT. 3 42°13'32.97"N 83°44'53.05"W	PT. 3 42°13'34.94"N 83°44'33.04"W	PT. 3 42°13'38.98"N 83°44'26.81"W	PT. 3 42°13'22.95"N 83°44'10.51"W
PT. 4 42°13'41.45"N 83°45'11.37"W	PT. 4 42°13'32.95"N 83°44'53.52"W	PT. 4 42°13'34.99"N 83°44'33.59"W	PT. 4 42°13'38.88"N 83°44'27.24"W	PT. 4 42°13'22.81"N 83°44'10.99"W



SA1 PHASE I STAGING AREA COORDINATES
NOT TO SCALE

PHASING PLAN

PHASE I - 14 CALENDAR DAYS
PHASE I WORK INCLUDES ALL WORK ON GATES #1, #4, AND #5, AND BEGIN FENCE REMOVAL AND REPLACEMENT WORK.

PHASE II - 10 CALENDAR DAYS
PHASE II WORK INCLUDES ALL WORK ON GATES #2A, #2B AND #3, AND COMPLETION OF FENCE REMOVAL AND REPLACEMENT WORK.

TOTAL CONTRACT TIME - 24 CALENDAR DAYS

DURING ALL PHASES THE CONTRACTOR SHALL MAINTAIN A SECURE AIRFIELD. TEMPORARY FENCE SHALL BE INSTALLED BEHIND THE GATE OPENING TO SEAL OFF THE AREA AT EACH GATE. BARRICADES WITH ROAD CLOSED SIGNS SHALL BE PROVIDED AT THE INTERIOR AND EXTERIOR OF EACH GATE AND REMAIN IN PLACE UNTIL THE NEW GATE IS FUNCTIONING.

AT THE COMPLETION OF PHASE II WORK, THE CONTRACTOR AND THE PROJECT ENGINEER SHALL DEVELOP A PUNCH LIST OF UNCOMPLETED WORK. THE CONTRACTOR SHALL HAVE 5 ADDITIONAL CALENDAR DAYS TO COMPLETE THIS WORK. PUNCH LIST WORK IS NOT INCLUDED IN THE SCHEDULED CALENDAR DAYS TO COMPLETE THE PROJECT. SEPARATE LIQUIDATED DAMAGES SHALL BE APPLIED TO UNCOMPLETED PUNCH LIST ITEMS AFTER THE ADDITIONAL CALENDAR DAYS HAVE EXPIRED.

AT THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL BE GIVEN A LIST OF ALL SHOP DRAWINGS, MATERIAL CERTIFICATIONS AND TESTING REQUIRED. PRIOR TO ISSUANCE OF A NOTICE TO PROCEED, THE CONTRACTOR SHALL SUBMIT COPIES OF ALL REQUIRED DOCUMENTS, INCLUDING BITUMINOUS MIX DESIGN, TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL. WHEN APPROVED, A NOTICE TO PROCEED WILL BE ISSUED.

THE CONTRACTOR SHALL COMPLY WITH THE PROJECT'S COMPLETION TIMES STATED, UNLESS OTHERWISE AUTHORIZED BY THE PROJECT ENGINEER. LIQUIDATED DAMAGES SHALL BE APPLIED FOR NONCOMPLIANCE OF EACH PHASE, THE TOTAL CONTRACT TIME, AND THE END OF PUNCH LIST WORK AT A RATE OF FIVE HUNDRED DOLLARS (\$500) PER CALENDAR DAY.

ITEM NO. 1000535 - PERMITS - DLRS

THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR CONSTRUCTION PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE CITY OF ANN ARBOR AND DTE ENERGY FOR ANY PERMITS THAT SHALL BE REQUIRED. THE ESTIMATED PRICE FOR OBTAINING THESE PERMITS IS \$1,000. THE CONTRACTOR SHALL INSERT THIS EXACT AMOUNT ON THE BID FORM; FAILURE TO INSERT THIS EXACT AMOUNT IN BID FORM MAY LEAD TO A REJECTED BID PROPOSAL. WHEN THE PERMITS ARE OBTAINED, THE CONTRACTOR SHALL SUBMIT ALL INVOICES FOR THE PAYMENT OF THE PERMITS AND THE ACTUAL COST FOR THE PERMITS WILL BE PAID FOR ON A CHANGE ORDER AS AN ADJUSTMENT TO THE UNIT COST INDICATED ON THE BID FORM.

THE CONTRACTOR, ONCE AWARDED THE CONTRACT, SHALL CONTACT THE APPROPRIATE AGENCIES TO SIGN AND SUBMIT THE PROPER FEES.

PAYMENT SHALL BE MADE ON THE CONTRACT UNIT PRICE FOR REIMBURSEMENT TO THE CONTRACTOR FOR PAYING FOR THE NECESSARY PERMITS.

PAYMENT WILL BE MADE UNDER:

ITEM NO. 1000535 - PERMITS - DLRS

NOTE:
RUNWAY AND TAXIWAY SAFETY ZONES AS SHOWN ON THIS DRAWING INCLUDE ALL AREAS WITHIN 250' OF ALL ACTIVE RUNWAY CENTERLINES AND 93' FROM ALL ACTIVE TAXIWAY CENTERLINES. ALL MEN AND EQUIPMENT MUST BE COMPLETELY CLEAR OF THESE AREAS FOR THE DURATION OF THE PROJECT.

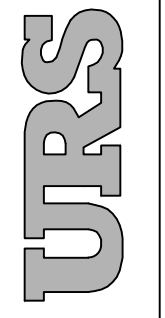
NOTE:
THIS IS A FAA TOWER CONTROLLED AIRPORT. THE CONTRACTOR IS RESPONSIBLE FOR STRICT ADHERENCE TO VEHICLE SAFETY RULES FOR ALL EMPLOYEES AND SUBCONTRACTORS.

ALL MATERIALS DELIVERED TO THE SITE PRIOR TO START OF CONSTRUCTION, MUST BE PLACED IN STAGING AREAS UNDER THE SUPERVISION OF AIRPORT STAFF. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL MATERIALS.
ALL CONTRACTOR EMPLOYEES MUST PARK PERSONAL VEHICLES IN STAGING AREA.

DATE	ISSUED FOR
02-22-13	BUS & CONSTRUCTION
02-22-13	RVA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X	X
PM	MM	X	X
SOC	DR	X	X
QC	MM	X	X
W. MALINOWSKI			
IN CHARGE			

GRAND RAPIDS, MI
5650 PARKS DR, S.E.
616 574-8800



ANN ARBOR, MICHIGAN

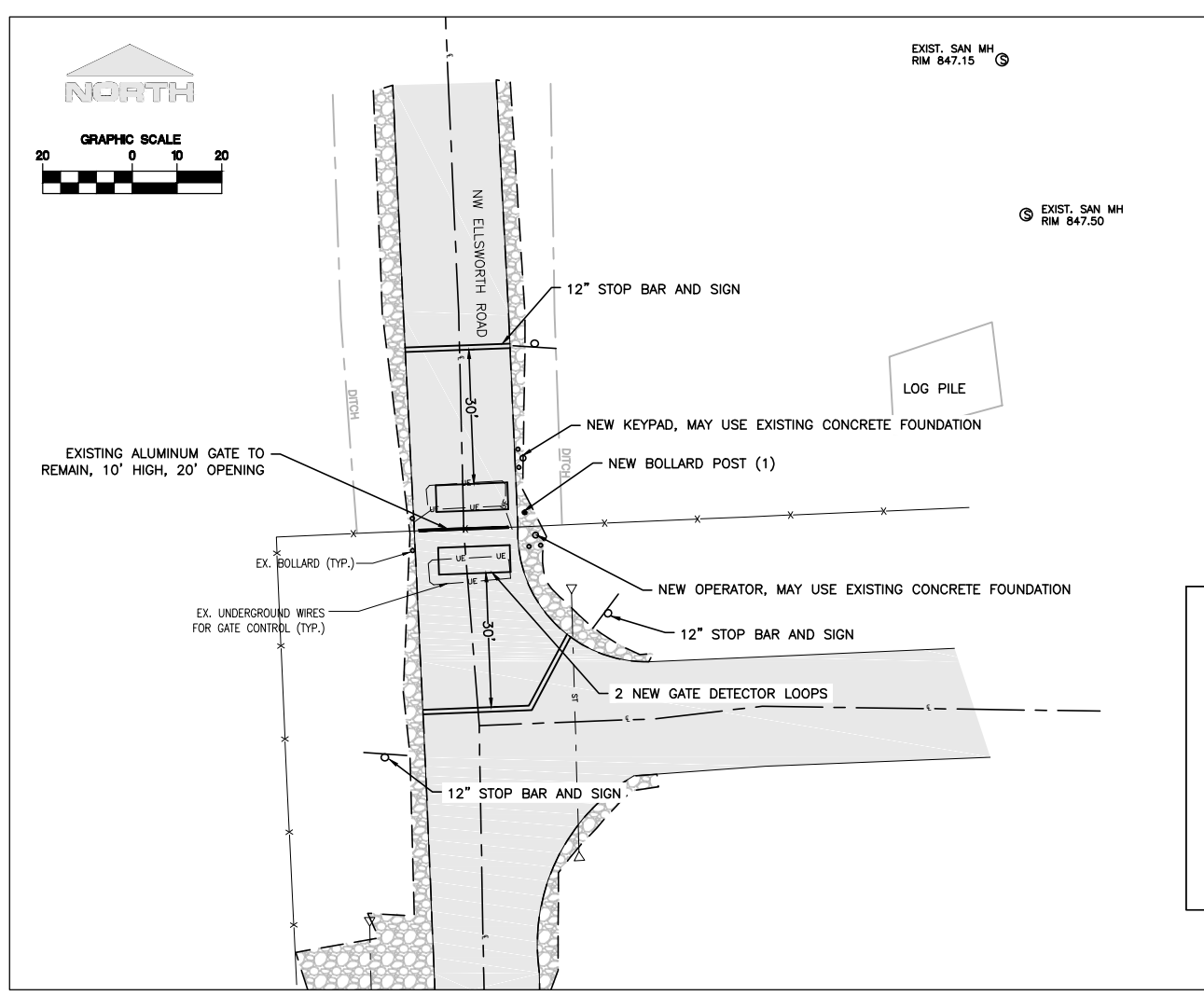
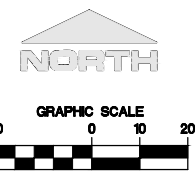
ANN ARBOR MUNICIPAL AIRPORT
GATE AND FENCE IMPROVEMENTS
SAFETY AND PHASING PLAN

FEDERAL PROJECT NO.
J-26-0005-1710
STATE CONTRACT NO.
FM 81-01-C34

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LEGEND	
	EX. FENCE
	EX. ASPHALT
	EX. GRAVEL
	ROAD CENTERLINE
	EX. UNDERGROUND STORM
	EX. UNDERGROUND ELECTRIC
	EX. UNDERGROUND WATER
	EX. SANITARY SEWER
	EX. UNDERGROUND GAS
	EX. DITCH
	OVERHEAD LIGHT POST
	SIGN
	EX. BOLLARD / PROP. BOLLARD

GATE #1

WORK TO BE INCLUDED AS PART OF GATE #1

WORK FOR THIS GATE SHALL INCLUDE ALL STEPS SHOWN RESULTING IN A FULLY FUNCTIONAL AUTOMATIC GATE WITH A ONE (1) YEAR WARRANTY FOR FUNCTION AND PERFORMANCE. IT SHALL INCLUDE THE INSTALLATION, TROUBLESHOOTING, & TESTING OF THE SLIDING GATE OPERATOR CONTROLS AND MOTORS.

THE EXISTING GATE SHALL BE REUSED, ANY COMPONENTS OF THE EXISTING GATE THAT NO LONGER PROVIDE FULL FUNCTIONALITY WILL BE REFURBISHED OR REPLACED INCIDENTAL TO THIS ITEM OF WORK. A NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG WITH NEW DETECTOR LOOPS. EXISTING LOOPS SHALL BE REMOVED AND VOIDS SEALED. PAINTED 12" STOP BARS AND STOP SIGN SHALL ALSO BE INCLUDED IN THIS ITEM OF WORK. ONE (1) NEW BOLLARD POST SHALL ALSO BE INSTALLED AS SHOWN IN THE DETAIL. REUSE EXISTING UNDER-PAVEMENT ELECTRICAL CROSSINGS OR BORE AND JACK AS NEEDED TO RUN ELECTRICAL UNDER EXISTING PAVEMENT. ANY EXISTING KEYPADS OR CONTROLLERS REMOVED AS PART OF COMPLETING THIS ITEM OF WORK WILL BE TURNED OVER TO THE SPONSOR.

ITEMS OF WORK FOR THIS GATE:

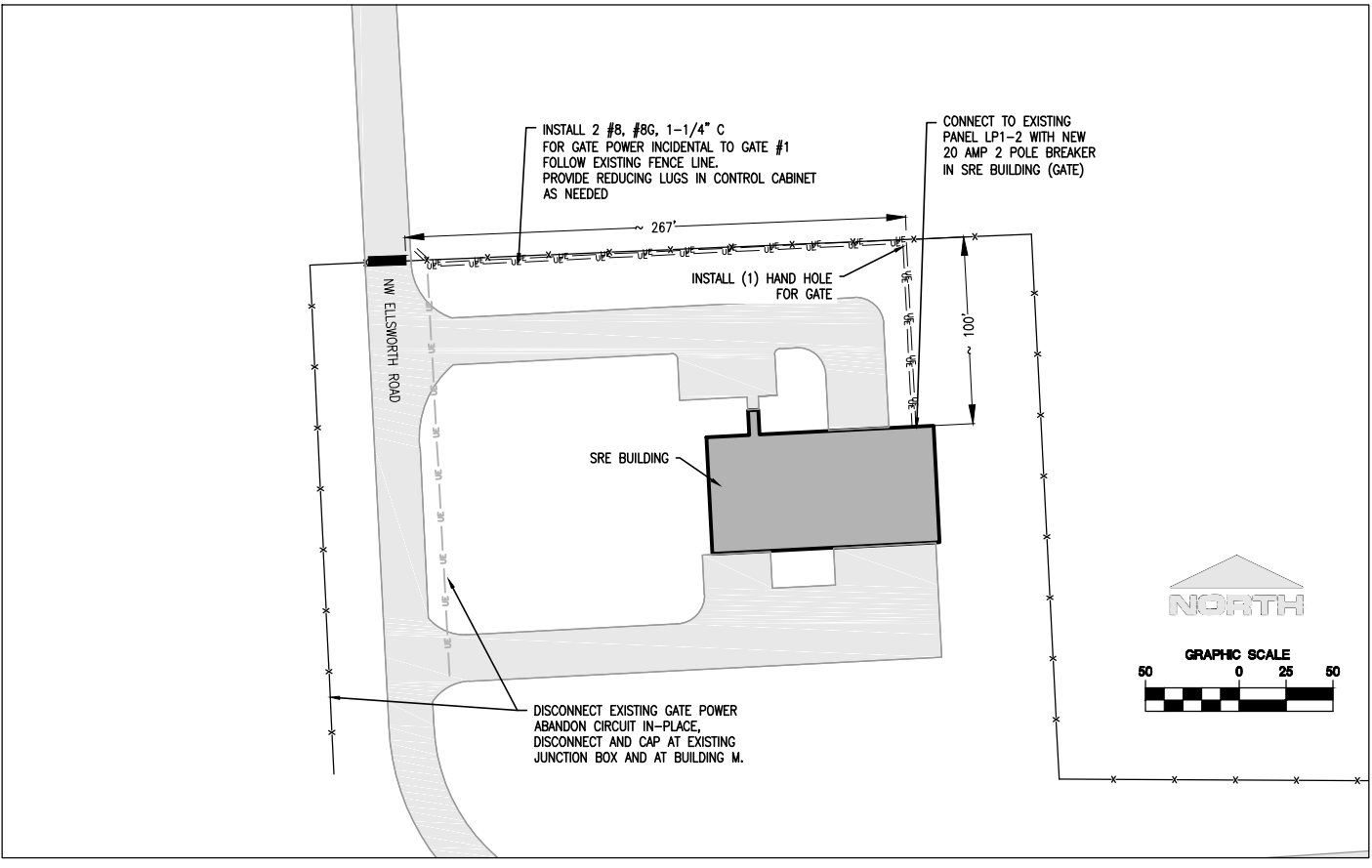
- REMOVE EXISTING OPERATOR
- REMOVE EXISTING GATE DETECTOR LOOPS (x3) - RESEAL VOIDS
- REMOVE EXISTING KEYPAD
- INSTALL NEW BOLLARD POST & INSTALL NEW H.D.P.E. COVERS ON EXISTING BOLLARDS
- REFURBISH EXISTING GATE (AS NEEDED)
- PROVIDE NEW ELECTRICAL CONNECTION FOR GATE FROM SRE BUILDING
- INSTALL NEW OSCO HSLG-1, HEAVY DUTY, 208 VOLT, SINGLE PHASE, 1HP OPERATOR (OR APPROVED EQUAL) AND CONTROLS
- REMOUNT EXISTING BREAKER PANEL AT GATE ON NEW FREESTANDING ASSEMBLY AS NEEDED
- INSTALL NEW GATE DETECTOR LOOPS
- INSTALL NEW STOP SIGN (x3)
- PAINT MARK NEW STOP BAR (x3)
- GROUNDING PER MANUFACTURERS SPECIFICATIONS ON ALL EQUIPMENT
- PROVIDE AND INSTALL ALL GATE SIGNAGE AS SHOWN ON SHEET 9 OF THE PLANS.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL ACCESS CONTROL SYSTEMS.

PAYMENT SHALL BE MADE UNDER:

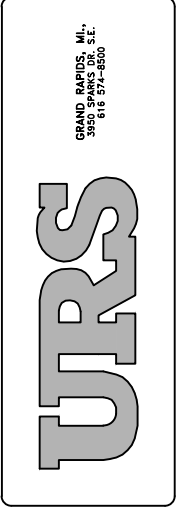
ITEM NO. 1627051MISC. - AUTOMATIC GATE #1 24'x10', AS SPECIFIED - EA
 ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED - EACH
 ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS - EACH

GATE #1 - POWER CONNECTIONS



DATE	ISSUED FOR
02-22-13	BUS & CONSTRUCTION
02-22-13	RVA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X	FM	MM	X	SQC	DR	X	QC	MM	X	W.	IN	IN CHARGE
		X			X			X			X	W. MALINOWSKI		



ANN ARBOR MUNICIPAL AIRPORT

GATE AND FENCE IMPROVEMENTS

PLAN - GATE #1

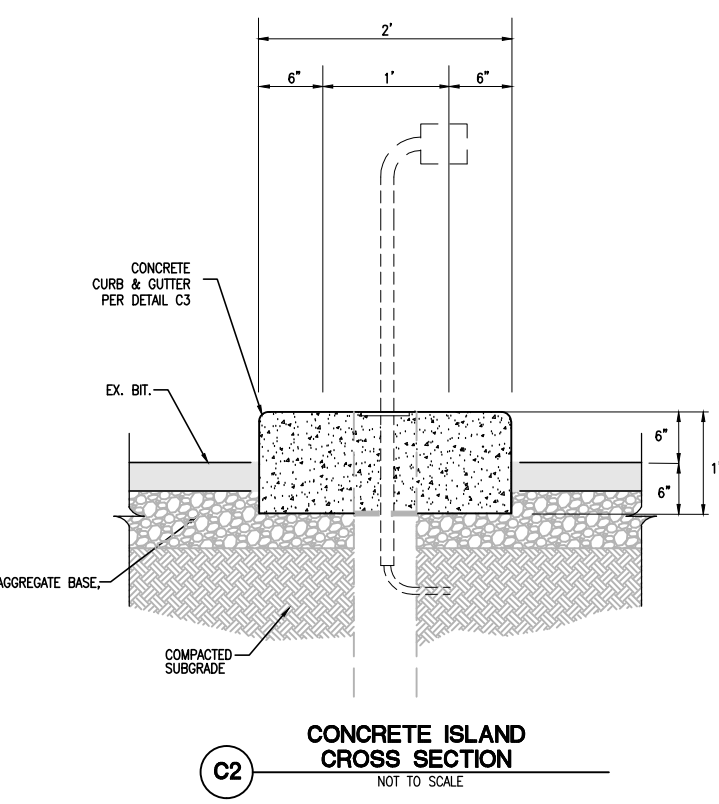
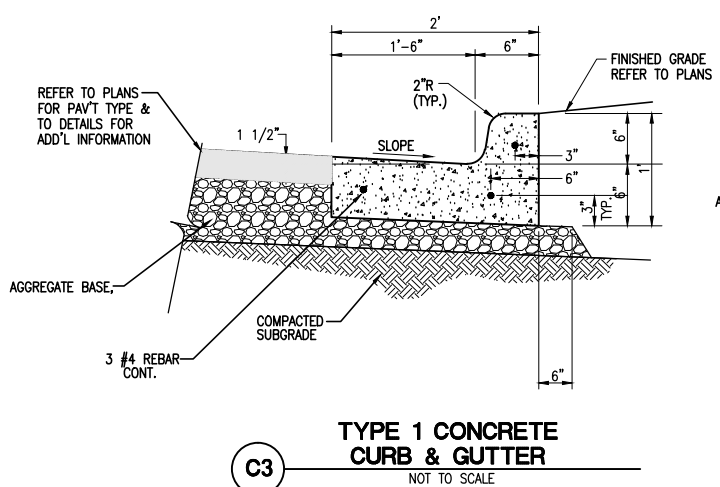
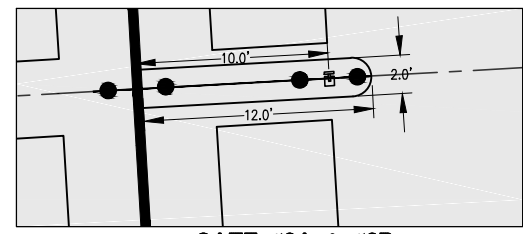
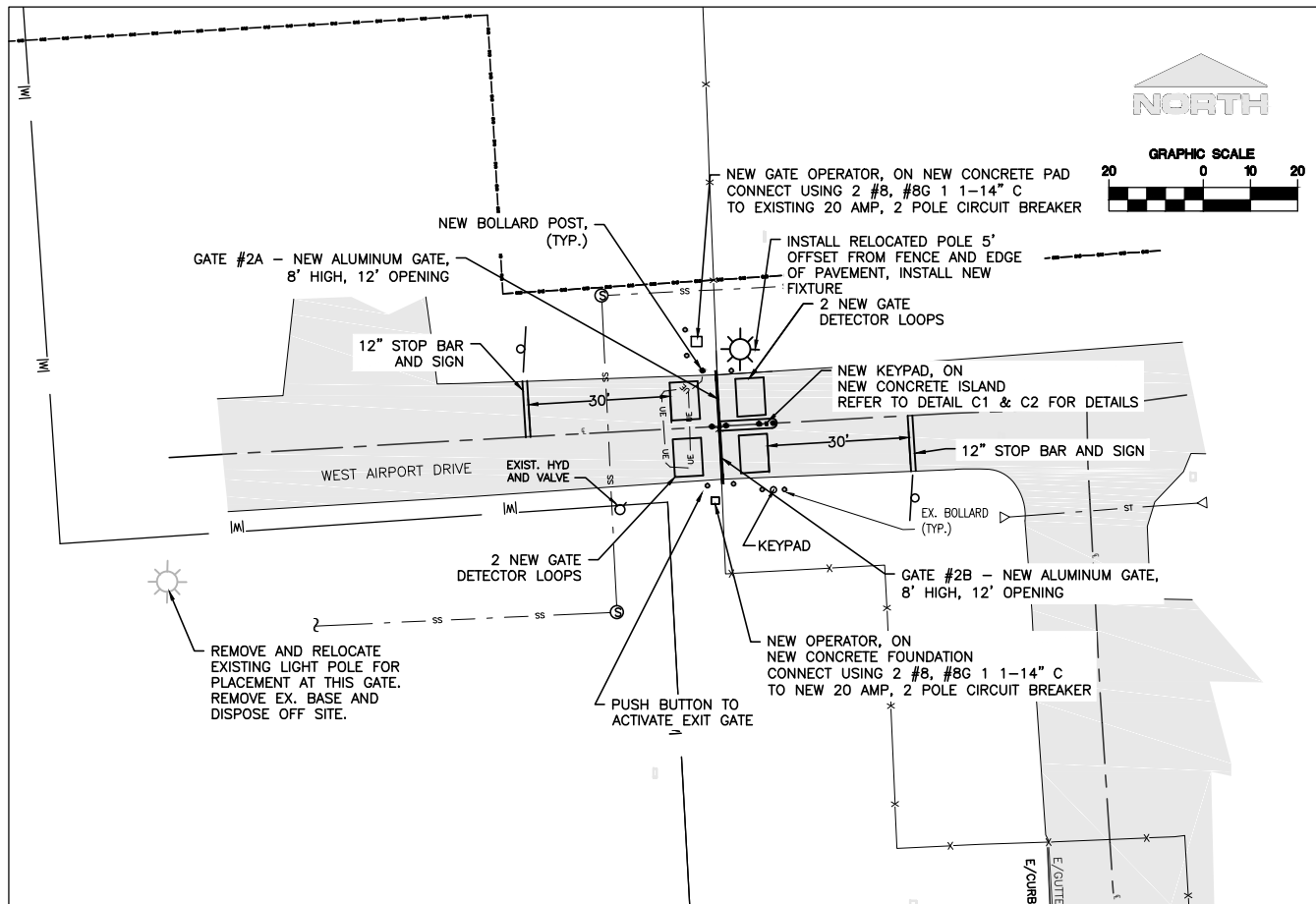
ANN ARBOR, MICHIGAN

FEDERAL PROJECT NO.
J-26-0005-1710

STATE CONTRACT NO.
FM 61-01-C34

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GATES #2A, #2B

GATE #2A & #2B - POWER CONNECTIONS

WORK TO BE INCLUDED AS PART OF GATE #2A & #2B
WORK FOR THESE GATES SHALL INCLUDE ALL STEPS AS DESCRIBED AND LISTED BELOW RESULTING IN TWO (2) FULLY FUNCTIONAL AUTOMATIC GATES, EACH WITH A ONE (1) YEAR WARRANTY FOR FUNCTION AND PERFORMANCE.

WORK TO BE INCLUDED AS PART OF GATE #2A
A NEW GATE, NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG WITH STOP BARS AND SIGNS.

WORK TO BE INCLUDED AS PART OF GATE #2B
A NEW GATE, NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG WITH STOP BARS AND SIGNS. GATE CONTROL SHALL INCLUDE PUSH BUTTON FOR EXIT.

THE EXISTING GATE WILL BE REMOVED FROM SITE AND BECOME THE PROPERTY OF THE CONTRACTOR. ANY EXISTING KEYPADS OR CONTROLLERS REMOVED AS PART OF COMPLETING THIS ITEM OF WORK WILL BE TURNED OVER TO THE SPONSOR. TWO (2) NEW OPERATORS AND SETS OF CONTROLS SHALL BE PROVIDED ALONG WITH NEW DETECTOR LOOPS FOR EACH GATE. EXISTING DETECTOR LOOPS SHALL BE REMOVED WITH VOIDS SEALED CLOSED. A CONCRETE ISLAND SEPARATING THE TWO DIRECTIONAL TRAFFIC WILL BE INSTALLED INCIDENTAL TO GATE #2B. A PAINTED 12" STOP BAR AND STOP SIGN SHALL ALSO BE PROVIDED FOR EACH GATE FOR EACH ITEM OF WORK. FIVE (5) NEW BOLLARD POSTS SHALL ALSO BE INSTALLED AS SHOWN IN THE DETAIL. REUSE EXISTING UNDER-PAVEMENT ELECTRICAL CROSSINGS OR BORE AND JACK AS NEEDED TO RUN ELECTRICAL UNDER EXISTING PAVEMENT.

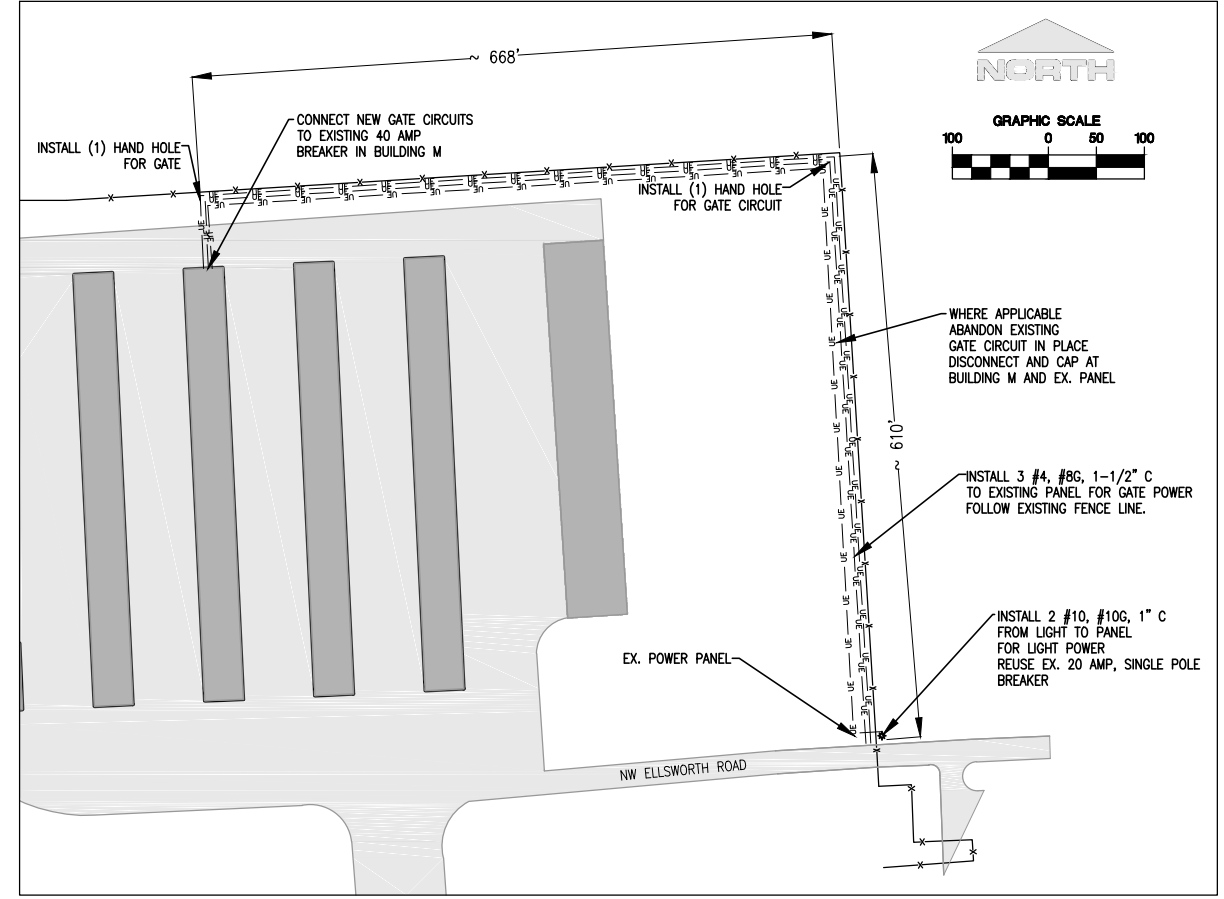
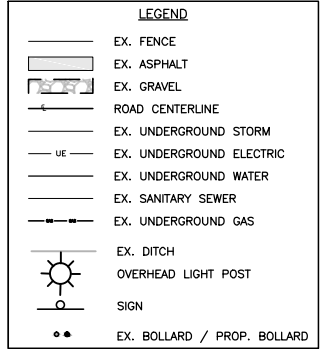
ITEMS OF WORK FOR THESE GATES:

- REMOVE EXISTING GATE, OPERATOR AND CONTROLS
- REMOVE EXISTING GATE DETECTOR LOOPS - RESEAL VOIDS
- INSTALL NEW BOLLARD POSTS (x5) & INSTALL NEW H.D.P.E. COVERS ON EXISTING BOLLARDS
- CONSTRUCT NEW CONCRETE ISLAND PER DETAILS C1, C2 & C3
- PROVIDE NEW ELECTRICAL CONNECTION FOR GATE FROM BUILDING M, INCLUDING 2 HAND HOLES.
- INSTALL NEW OSCO HSLG-1 HEAVY DUTY (OR APPROVED EQUAL) OPERATOR AND CONTROLS (x2)
- REMOVE AND RELOCATE EXISTING PANEL ON NEW FREESTANDING ASSEMBLY
- INSTALL PUSH BUTTON EXIT FOR GATE #2B
- REMOVE AND RELOCATE EXISTING LIGHT POLE ON NEW BASE
- INSTALL NEW LIGHT FIXTURE CREE LIGHTING LED XSP2 TYPE III BSXPA03BA-USFR (OR APPROVED EQUAL) ON RELOCATED POLE
- INSTALL NEW GATE DETECTOR LOOPS
- INSTALL NEW STOP SIGN (x2)
- PAINT MARK NEW STOP BAR (x2)

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL ACCESS CONTROL SYSTEMS.

PAYMENT SHALL BE MADE UNDER:

ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #2A 12'x8', AS SPECIFIED - EA
 ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #2B 12'x8', AS SPECIFIED - EA
 ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED - EACH
 ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS - EACH



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02-22-13	BUS & CONSTRUCTION
02-22-13	BOA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X
PM	MM	X
SQC	DR	X
QC	MM	X

W. MALINOWSKI
 IN CHARGE

GRAND RAPIDS, MI.
 5850 SPARKS DR., S.E.
 616 574-8800

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ANN ARBOR MUNICIPAL AIRPORT

ANN ARBOR, MICHIGAN

GATE AND FENCE IMPROVEMENTS

PLAN - GATE #2A & #2B

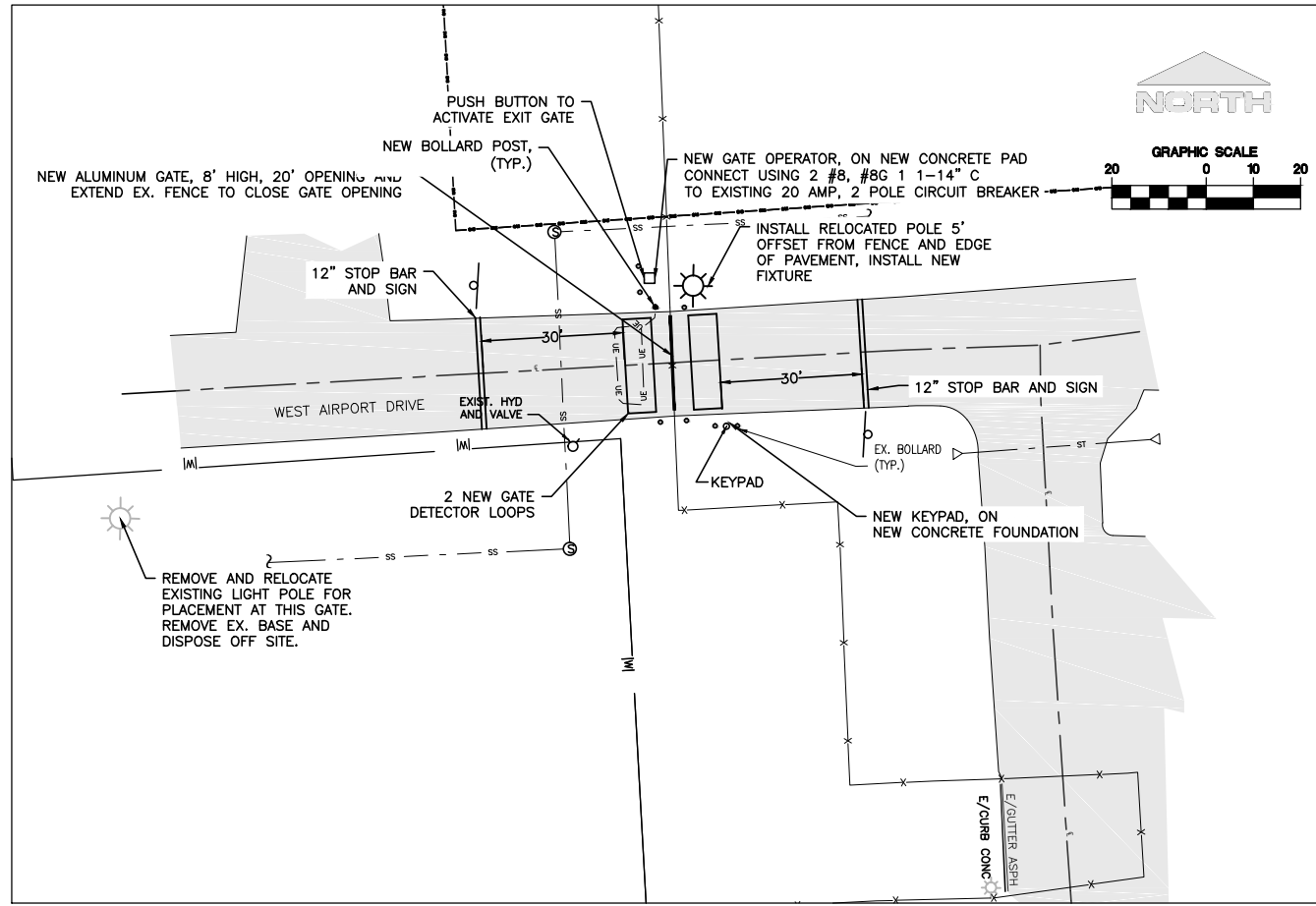
FEDERAL PROJECT NO.
J-26-0005-1710

STATE CONTRACT NO.
FM 61-01-C34

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GATES #2 - ALTERNATE BID ITEM

WORK TO BE INCLUDED AS PART OF GATE #2 - ALTERNATE BID.

WORK FOR THIS GATES SHALL INCLUDE ALL STEPS AS DESCRIBED AND LISTED BELOW RESULTING IN ONE (1) FULLY FUNCTIONAL AUTOMATIC GATE WITH A ONE (1) YEAR WARRANTY FOR FUNCTION AND PERFORMANCE.

A NEW GATE SHALL BE PROVIDED WITH A NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG WITH STOP BARS AND SIGNS. GATE CONTROL SHALL INCLUDE PUSH BUTTON FOR EXIT.

NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG NEW DETECTOR LOOPS. PAINTED 12" STOP BARS AND STOP SIGN SHALL ALSO BE INCLUDED IN THIS ITEM OF WORK. ONE (1) NEW BOLLARD POST SHALL ALSO BE INSTALLED AS SHOWN IN THE DETAIL. REUSE EXISTING UNDER-PAVEMENT ELECTRICAL CROSSINGS OR BORE AND JACK AS NEEDED TO RUN ELECTRICAL UNDER EXISTING PAVEMENT. ANY EXISTING KEYPADS OR CONTROLLERS REMOVED AS PART OF COMPLETING THIS ITEM OF WORK WILL BE TURNED OVER TO THE SPONSOR.

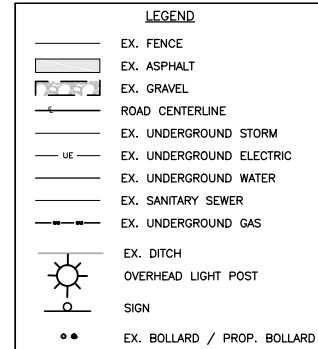
ITEMS OF WORK FOR THESE GATES:

- REMOVE EXISTING GATE, OPERATOR AND CONTROLS
- REMOVE EXISTING GATE DETECTOR LOOPS - RESEAL VOIDS
- INSTALL NEW BOLLARD POST (x1) & INSTALL NEW H.D.P.E. COVERS ON EXISTING BOLLARDS
- INSTALL NEW OSCO HSLG-1 HEAVY DUTY (OR APPROVED EQUAL) OPERATOR AND CONTROLS (x2)
- REMOVE AND RELOCATE EXISTING PANEL ON NEW FREESTANDING ASSEMBLY
- PROVIDE NEW ELECTRICAL CONNECTION FOR GATE FROM EXISTING PANEL
- INSTALL PUSH BUTTON EXIT FOR GATE #2B
- REMOVE AND RELOCATE EXISTING LIGHT POLE ON NEW BASE
- INSTALL NEW LIGHT FIXTURE CREE LIGHTING LED XSP2 TYPE III BSXPA03BA-USFR (OR APPROVED EQUAL) ON RELOCATED POLE
- PROVIDE NEW ELECTRICAL CONNECTION FOR LIGHT FROM EXISTING PANEL
- INSTALL NEW GATE DETECTOR LOOPS
- INSTALL NEW STOP SIGN (x2)
- PAINT MARK NEW STOP BAR (x2)

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL ACCESS CONTROL SYSTEMS.

PAYMENT SHALL BE MADE UNDER:

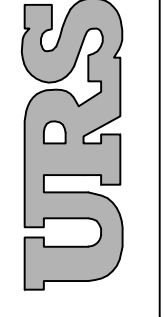
- ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED - EACH
- ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS - EACH
- ITEM NO. 8007051 - MISC. - ALTERNATE BID, AUTOMATIC GATE #2, 20'x8', AS SPECIFIED - EA



DATE	ISSUED FOR
02-22-13	BUS & CONSTRUCTION
02-22-13	RVA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X
PM	MM	X
SQC	DR	X
QC	MM	X
W. MALINOWSKI		
IN CHARGE		

GRAND RAPIDS, MI.
3600 PARKS DR. S.E.
616 874-8800



ANN ARBOR MUNICIPAL AIRPORT

ANN ARBOR, MICHIGAN

GATE AND FENCE IMPROVEMENTS

PLAN - GATE #2 ALTERNATE BID

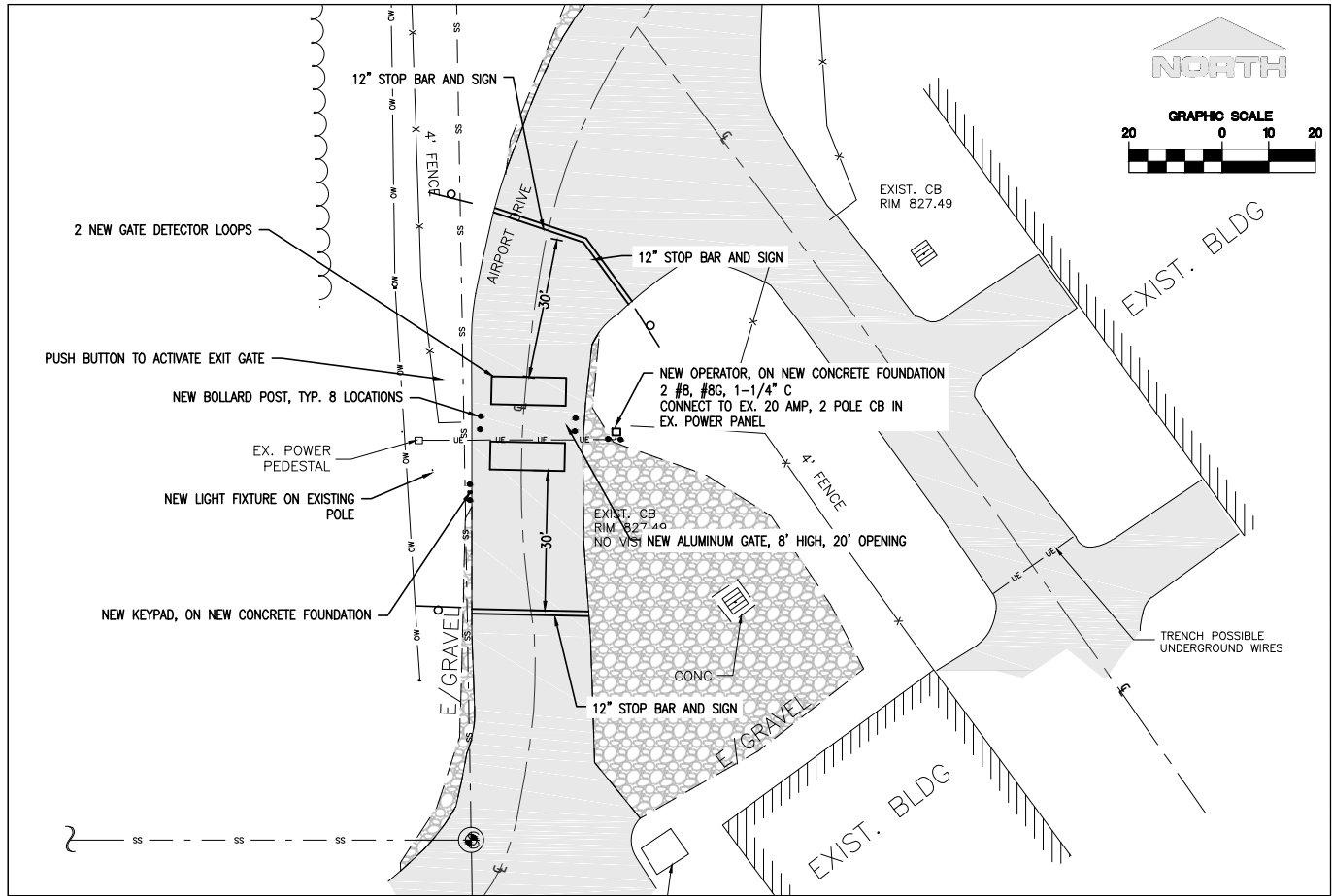
FEDERAL PROJECT NO.
J-26-0005-1710

STATE CONTRACT NO.
FM 81-01-C34

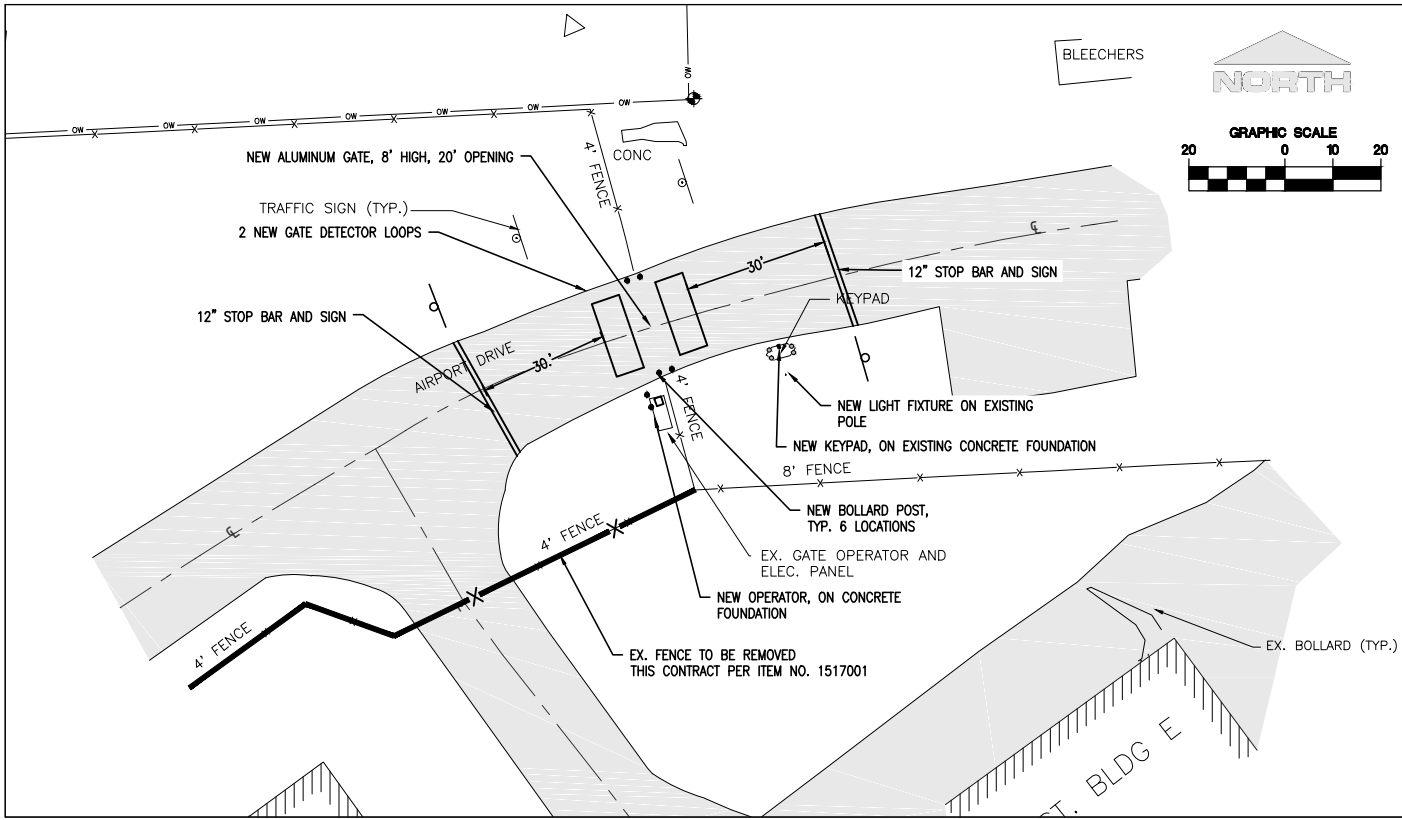
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GATE #3



GATE #4

WORK TO BE INCLUDED AS PART OF GATE #3

WORK FOR THIS GATE SHALL INCLUDE ALL STEPS SHOWN RESULTING IN A FULLY FUNCTIONAL AUTOMATIC GATE, WITH A ONE (1) YEAR WARRANTY FOR FUNCTION AND PERFORMANCE.

A NEW GATE, OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG WITH STOP BARS AND SIGNS. GATE CONTROL SHALL INCLUDE PUSH BUTTON FOR EXIT. PAINTED 12" STOP BARS AND STOP SIGN SHALL ALSO BE INCLUDED IN THIS ITEM OF WORK. EIGHT (8) NEW BOLLARD POSTS SHALL ALSO BE INSTALLED AS SHOWN IN THE DETAIL. REUSE EXISTING UNDER-PAVEMENT ELECTRICAL CROSSINGS OR BORE AND JACK AS NEEDED TO RUN ELECTRICAL UNDER EXISTING PAVEMENT. ANY EXISTING KEYPADS OR CONTROLLERS REMOVED AS PART OF COMPLETING THIS ITEM OF WORK WILL BE TURNED OVER TO THE SPONSOR.

ITEMS OF WORK FOR THIS GATE:

- INSTALL NEW BOLLARD POST (x8) & INSTALL NEW H.D.P.E. COVERS ON EXISTING BOLLARDS
- INSTALL NEW GATE
- PROVIDE NEW ELECTRICAL CONNECTION FOR GATE FROM EXISTING PANEL
- INSTALL NEW OSCO HJSC-121, HEAVY DUTY, 240 VOLT SINGLE PHASE, 1HP (OR APPROVED EQUAL) OPERATOR AND CONTROLS
- INSTALL NEW PUSH BUTTON FOR EXIT
- INSTALL NEW CREE LIGHTING LED XSP2 TYPE III BSXPA03BA-USFR LIGHT FIXTURE ON EXISTING POLE
- INSTALL NEW GATE DETECTOR LOOPS
- INSTALL NEW STOP SIGN (x3)
- PAINT MARK NEW STOP BAR (x2)

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL ACCESS CONTROL SYSTEMS.

PAYMENT SHALL BE MADE UNDER:

- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #3 20'x8', AS SPECIFIED - EA
- ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED - EACH
- ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS - EACH

WORK TO BE INCLUDED AS PART OF GATE #4

WORK FOR THIS GATE SHALL INCLUDE ALL STEPS SHOWN RESULTING IN A FULLY FUNCTIONAL AUTOMATIC GATE, WITH A ONE (1) YEAR WARRANTY FOR FUNCTION AND PERFORMANCE.

NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG NEW DETECTOR LOOPS. PAINTED 12" STOP BARS AND STOP SIGN SHALL ALSO BE INCLUDED IN THIS ITEM OF WORK. SIX (6) NEW BOLLARD POSTS SHALL ALSO BE INSTALLED AS SHOWN IN THE DETAIL. IF NECESSARY, REUSE EXISTING UNDER-PAVEMENT ELECTRICAL CROSSINGS OR BORE AND JACK TO RUN ELECTRICAL UNDER EXISTING PAVEMENT. ANY EXISTING KEYPADS OR CONTROLLERS REMOVED AS PART OF COMPLETING THIS ITEM OF WORK WILL BE TURNED OVER TO THE SPONSOR.

ITEMS OF WORK FOR THIS GATE:

- INSTALL NEW BOLLARD POST (x6) & INSTALL NEW H.D.P.E. COVERS ON EXISTING BOLLARDS
- INSTALL NEW GATE
- INSTALL NEW OSCO HJSC-121, HEAVY DUTY, 240 VOLT SINGLE PHASE, 1HP (OR APPROVED EQUAL) OPERATOR AND CONTROLS. EXISTING CONCRETE PAD MAY BE REUSED WITH ENGINEER'S APPROVAL. NEW CONCRETE PAD WILL BE CONSIDERED INCIDENTAL IF REQUIRED.
- PROVIDE NEW ELECTRICAL CONNECTION FOR GATE FROM BUILDING E
- PROVIDE NEW ELECTRICAL CONNECTION FOR GATE FROM EX. PANEL, PANEL DISCONNECT AT BUILDING E
- INSTALL 2 #8, #8G, 1-1/4" CONDUIT FROM EX. PANEL TO NEW CONTROLLER
- REUSE EX. 20 AMP, 2 POLE BREAKER AT PANEL
- REMOVE AND RELOCATE EXISTING PANEL ON NEW FREESTANDING ASSEMBLY.
- INSTALL NEW CREE LIGHTING LED XSP2 TYPE III BSXPA03BA-USFR (OR APPROVED EQUAL) LIGHT FIXTURE ON EXISTING POLE
- INSTALL NEW GATE DETECTOR LOOPS
- INSTALL NEW STOP SIGN (x2)
- PAINT MARK NEW STOP BAR (x2)

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL ACCESS CONTROL SYSTEMS.

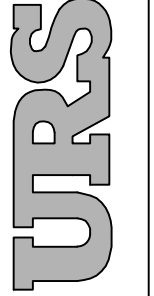
PAYMENT SHALL BE MADE UNDER:

- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #4 20'x8', AS SPECIFIED - EA
- ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED - EACH
- ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS - EACH

DATE	ISSUED FOR

D/E	DAH	X	X
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SOC	DR	X	X
QC	MM	X	X

GRAND BARRIS, INC.
5850 SPARKS DR., S.E.
616 571-8800

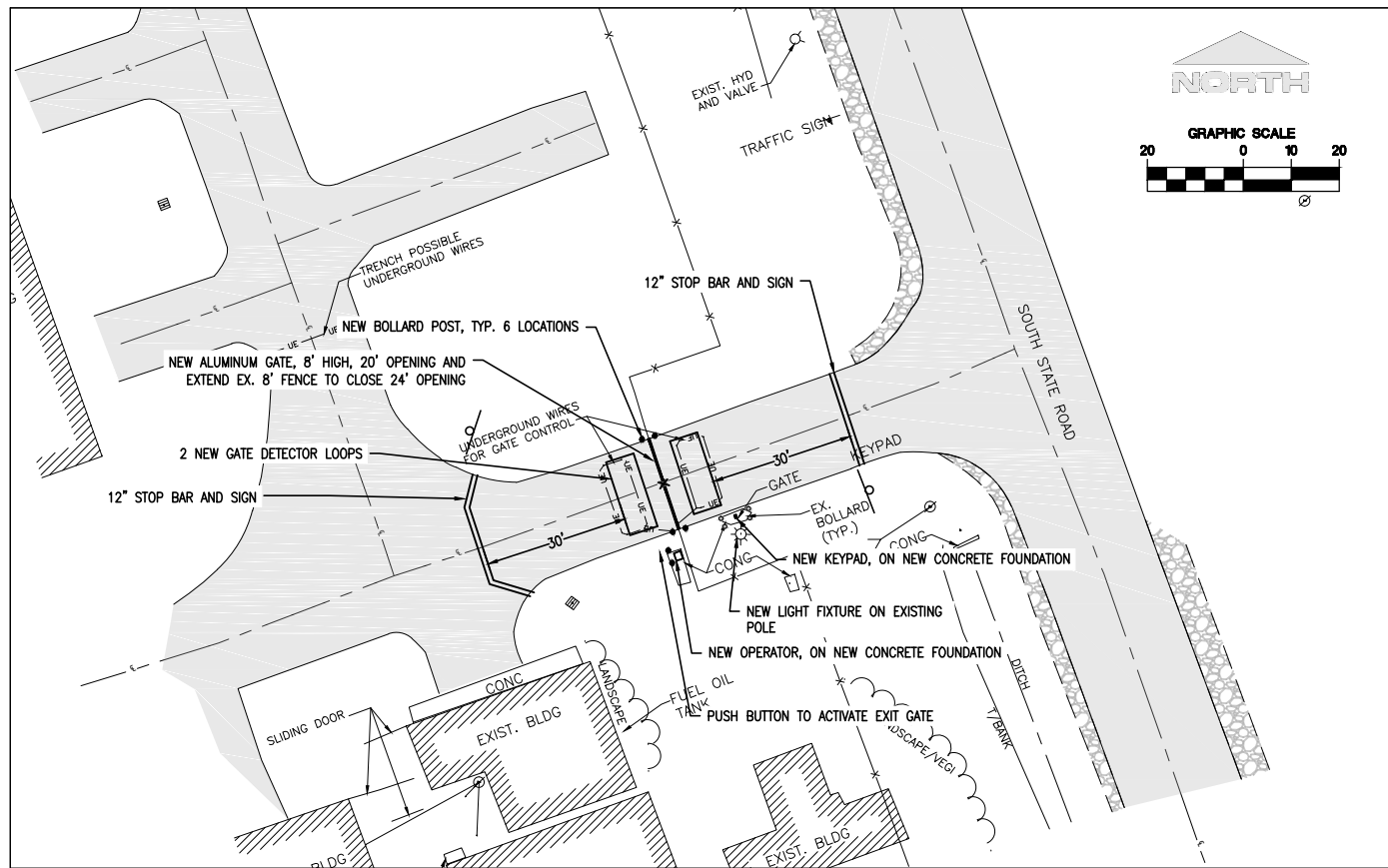


ANN ARBOR MUNICIPAL AIRPORT
GATE AND FENCE IMPROVEMENTS
PLAN - GATE #3 AND GATE #4
ANN ARBOR, MICHIGAN

FEDERAL PROJECT NO.
J-26-0005-1710
STATE CONTRACT NO.
FM 81-01-C34

DRAWING
07 OF 14

12943839



GATE #5

WORK TO BE INCLUDED AS PART OF GATE #5

WORK FOR THIS GATE SHALL INCLUDE ALL STEPS SHOWN RESULTING IN A FULLY FUNCTIONAL AUTOMATIC GATE, WITH A ONE (1) YEAR WARRANTY FOR FUNCTION AND PERFORMANCE.

WORK TO BE INCLUDED AS PART OF GATE #5

A NEW GATE SHALL BE PROVIDED WITH A NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG WITH STOP BARS AND SIGNS. GATE CONTROL SHALL INCLUDE PUSH BUTTON FOR EXIT.

NEW OPERATOR AND CONTROLS SHALL BE PROVIDED ALONG NEW DETECTOR LOOPS. PAINTED 12" STOP BARS AND STOP SIGN SHALL ALSO BE INCLUDED IN THIS ITEM OF WORK. EIGHT (8) NEW BOLLARD POSTS SHALL ALSO BE INSTALLED AS SHOWN IN THE DETAIL. REUSE EXISTING UNDER-PAVEMENT ELECTRICAL CROSSINGS OR BORE AND JACK AS NEEDED TO RUN ELECTRICAL UNDER EXISTING PAVEMENT. ANY EXISTING KEYPADS OR CONTROLLERS REMOVED AS PART OF COMPLETING THIS ITEM OF WORK WILL BE TURNED OVER TO THE SPONSOR.

ITEMS OF WORK FOR THIS GATE:

- REMOVE EXISTING DETECTOR LOOPS & SEAL
- INSTALL NEW BOLLARD POST (x6) & INSTALL NEW H.D.P.E. COVERS ON EXISTING BOLLARDS
- INSTALL NEW GATE
- PROVIDE NEW ELECTRICAL CONNECTION FOR GATE WITH 2 #8, #8G, 1-1/4" CONDUIT
- INSTALL NEW OSCO H15G-121, HEAVY DUTY, 240 VOLT SINGLE PHASE, 1HP (OR APPROVED EQUAL) OPERATOR AND CONTROLS
- INSTALL NEW PUSH BUTTON FOR EXIT
- INSTALL NEW CREE LIGHTING LED XSP2 TYPE III BSXPA03BA-USFR (OR APPROVED EQUAL) LIGHT FIXTURE ON EXISTING POLE
- INSTALL NEW GATE DETECTOR LOOPS
- INSTALL NEW STOP SIGN (x2)
- PAINT MARK NEW STOP BAR (x2)

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL ACCESS CONTROL SYSTEMS.

PAYMENT SHALL BE MADE UNDER:

- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #5 20'x8', AS SPECIFIED - EA
- ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED - EACH
- ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS - EACH

GENERAL GATE NOTES AND SPECIFICATIONS:

THESE SPECIFICATIONS APPLY TO ALL ITEM OF WORK RESULTING IN FULLY FUNCTIONAL AUTOMATIC SLIDING GATES AS SHOWN IN THESE PLANS.

ACCESS CONTROL SYSTEM:

1. GENERAL

- A. THE REPLACEMENT ACCESS CONTROL SYSTEMS SHALL CONSIST OF A BACKLIT KEYPAD, REPLACEMENT GOOSENECK STANDS, AND PROXIMITY ACCESS CONTROL SYSTEM.
- B. THE KEYPAD SHALL BE CONNECTED TO NEW GATE OPERATORS MOUNTED WITHIN THE ADJACENT AREA. THE KEYPAD SHALL OPERATE BY SENDING A "VEND OPEN" SIGNAL TO THE GATE OPERATOR.
- C. ALL CABLE CONNECTIONS SHALL BE ACCORDING TO MANUFACTURER SPECIFICATIONS.
- D. THE CONTRACTOR SHALL SUPPLY TWO (2) REMOTE OPERATORS, FOR EACH GATE, COMPLIANT TO USE FOR THIS SYSTEM FOR USE THE BY OWNER.
- E. OPERATING ENVIRONMENT FOR THE ACCESS CONTROL SYSTEM WILL BE -40F TO 125F.

2. KEYPAD

THE KEYPAD SHALL BE THE ROSSLARE SECURITY PRODUCTS MODEL AYC-Q64B OR APPROVED EQUAL, AND SHALL EXHIBIT THE FOLLOWING FEATURES:

- A. ASSEMBLIES SHALL BE WEATHER PROOF, AND SHALL HAVE A SNOW/RAIN SHIELD INSTALLED TO PROTECT THE READER.
- B. THE CONTRACTOR SHALL FURNISH AND INSTALL AN ELECTRICAL BACK-BOX FOR EACH ASSEMBLY AND SHALL ATTACH EACH ASSEMBLY TO THE BACK-BOX USING REMOVABLE, TAMPER-RESISTANT SCREWS.
- C. SHALL BE CAPABLE OF BEING USED WITH THE NEW ELECTRONIC SLIDING GATES.
- D. SHALL BE MOUNTED ON A NEW GOOSENECK STAND CONSTRUCTED OF HEAVY GAUGE STEEL. THE STAND SHALL BE INSTALLED ACCORDING TO DETAIL F11 AND PROVIDE A HEAVY-DUTY IMPACT RESISTANT MOUNTING BOLT COVER PLATE TO COVER THE BOLTS. THE CONTRACTOR WILL MAKE ALL SITE PREPARATIONS NECESSARY TO INSTALL NEW STANDS, INCLUDING REMOVAL AND DISPOSAL OF EXISTING STANDS AND MOUNTING PLATES.
- E. SHALL HAVE A TAMPER-RESISTANT KEY LOCK HOUSING OF HEAVY DUTY GAUGE, METAL CONSTRUCTION WITH HINGED DOOR AND SHALL BE WEATHERPROOF.
- F. THE SYSTEM SHALL BE INTELLIGENT, STAND ALONE WITH OVER 1,000 PROGRAMMABLE ACCESS CODES.
- G. SHALL SUPPORT 4 TO 8 DIGITS PIN CREDENTIALS.

3. EXIT BUTTON

EXIT BUTTON SHALL BE AS FOLLOWS:

- A. ASSEMBLIES SHALL BE WEATHER PROOF.
- B. THE CONTRACTOR SHALL FURNISH AND INSTALL AN ELECTRICAL BACK-BOX FOR EACH ASSEMBLY AND SHALL ATTACH EACH ASSEMBLY TO THE BACK-BOX USING REMOVABLE, TAMPER-RESISTANT SCREWS.
- C. SHALL BE CAPABLE OF BEING USED WITH THE NEW ELECTRONIC SLIDING GATES.
- D. SHALL BE MOUNTED ON A NEW GOOSENECK STAND CONSTRUCTED OF HEAVY GAUGE STEEL. THE STAND SHALL BE INSTALLED ACCORDING TO DETAIL F11 AND PROVIDE A HEAVY-DUTY IMPACT RESISTANT MOUNTING BOLT COVER PLATE TO COVER THE BOLTS. THE CONTRACTOR WILL MAKE ALL SITE PREPARATIONS NECESSARY TO INSTALL NEW STANDS, INCLUDING REMOVAL AND DISPOSAL OF EXISTING STANDS AND MOUNTING PLATES.
- E. SHALL HAVE A TAMPER-RESISTANT KEY LOCK HOUSING OF HEAVY DUTY GAUGE, METAL CONSTRUCTION WITH HINGED DOOR AND SHALL BE WEATHERPROOF.
- F. THE BUTTON SHALL HAVE TEXT READING "PUSH TO EXIT".

4. PROXIMITY ACCESS SYSTEM (PAS)

ADDITIONAL GATE ACTIVATION WILL BE BY A TRANSMITTER/RECEIVER SYSTEM. THESE RECEIVERS WILL BE MOUNTED INSIDE THE OPERATOR HOUSING AND THE TRANSMITTER WILL BE OF PORTABLE HAND HELD TYPE WITH VISOR CLIP. TWO (2) , TWO-BUTTON TRANSMITTERS WILL BE SUPPLIED PER EACH ACCESS CONTROLLER. ALL SUPPLIED TRANSMITTERS WILL BE PROGRAMMED FOR A COMMON FREQUENCY SO THAT THEY CAN CONTROL GATES #1, #2A, #3, #4 & #5 ON THE FIRST BUTTON AND GATE #2B ON THE SECOND. THE TRANSMITTER/RECEIVER SYSTEM SHALL BE THE LINEAR ACCESS ACCESSPRO CONTROLLER MODEL AP-5 OR APPROVED EQUAL.

5. SIGNAGE AND MARKING

GATE NUMBER SIGN SHALL BE PLACED ON FENCE ADJACENT TO THE GATE ON BOTH THE INTERIOR AND EXTERIOR PER DETAIL F6. GATE WARNING SIGNS SHALL BE PLACED ON INTERIOR AND EXTERIOR OF THE GATE PER DETAIL F15. STOP SIGN AND PAVEMENT MARKINGS SHALL BE PLACED ON THE INTERIOR AND EXTERIOR PER DETAIL F12.

6. WARRANTY

ONCE ALL GATES HAVE BEEN ACCEPTED AS COMPLETE AND FULLY OPERATIONAL, THE CONTRACTOR WILL PROVIDE THE SPONSOR A SIGNED ONE (1) YEAR WARRANTY, COMMENCING AS OF THE DATE OF FINAL ACCEPTANCE, FOR FUNCTION AND PERFORMANCE. DELIVERY AND ACCEPTANCE OF THIS WARRANTY DOCUMENT IS REQUIRED IN ORDER TO BE CONSIDERED ELIGIBLE FOR FULL PAYMENT.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL ACCESS CONTROL SYSTEMS.

PAYMENT SHALL BE MADE UNDER:

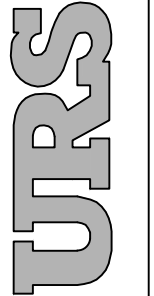
- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #1 24'x10', AS SPECIFIED - LS
- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #2A 12'x8', AS SPECIFIED - LS
- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #2B 12'x8', AS SPECIFIED - LS
- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #3 20'x8', AS SPECIFIED - LS
- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #4 20'x8', AS SPECIFIED - LS
- ITEM NO. 1627051 - MISC. - AUTOMATIC GATE #5 20'x8', AS SPECIFIED - LS

ITEM NO. 8007051 - MISC. - ALTERNATE BID, AUTOMATIC GATE #2, 20'x8', AS SPECIFIED

DATE	ISSUED FOR
02-22-13	BUS & CONSTRUCTION
02-22-13	RVA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X	X	X	X	X	X
PM	MM	X	X	X	X	X	X
SQC	DR	X	X	X	X	X	X
QC	MM	X	X	X	X	X	X

W. MALINOWSKI
IN CHARGE



ANN ARBOR MUNICIPAL AIRPORT
ANN ARBOR, MICHIGAN
GATE AND FENCE IMPROVEMENTS
PLAN - GATE #5

FEDERAL PROJECT NO.
J-26-0005-1710
STATE CONTRACT NO.
FM 81-01-C34

DRAWING
08 OF 14

12943839

FENCE REMOVAL AND REPLACEMENT WORK BREAKDOWN

FENCE SECTION POINT (START)	FENCE SECTION POINT (END)	SECTION LENGTH	DESCRIPTION OF WORK	REMOVE EXISTING FENCE (LFT.)	INSTALL NEW 4' FENCE (LFT.)	INSTALL NEW 8' FENCE (LFT.)
1	2	243.5	Install new 4' Chain Link Fence, with Top Rail		243.5	
2	3	-				
3	4	62.2	Remove Ex. & install new 8' Chain Link Fence	62.2		62.2
4	5	40.9	Remove Ex. & install new 8' Chain Link Fence	40.9		40.9
5	6	-	Gate #3 (This Contract)			
6	7	9.2	Remove Ex. & install new 8' Chain Link Fence	9.2		9.2
7	8	-	Ex. Fence to remain intact	0.0		0.0
8	9	-	Ex. Fence to remain intact	0.0		0.0
9	10	-	Ex. Fence to remain intact	0.0		0.0
10	11	36.6	Remove Ex. & install new 8' Chain Link Fence	36.6		36.6
11	12	-	Gate #4 (This Contract)			
12	13	25.7	Remove Ex. & install new 8' Chain Link Fence	25.7		25.7
Subtotals				174.6	243.5	174.6

FENCE SECTION POINT (START)	FENCE SECTION POINT (END)	SECTION LENGTH	DESCRIPTION OF WORK	REMOVE EXISTING FENCE (LFT.)
R1	R2	69.7	Remove Ex. Chain link fence	69.7
R2	R3	19.6	Remove Ex. Chain link fence	19.6
R3	R4	147.9	Remove Ex. Chain link fence	147.9
R4	R5	-		
R5	R6	227.2	Remove Ex. Chain link fence	227.2
R6	R7	39.9	Remove Ex. Chain link fence	39.9
R7	R8	17.0	Remove Ex. Chain link fence	17.0
R8	R9	23.6	Remove Ex. Chain link fence	23.6
R9	R10	36.6	Remove Ex. Chain link fence	36.6
Subtotals				581.4

1517001 - MISC. - FENCE REMOVAL AND OFFSITE DISPOSAL	757	LFT.
1517001 - MISC. - INSTALL NEW 4' CLASS E CHAIN LINK FENCE, AS SPECIFIED	244	LFT.
1517001 - MISC. - INSTALL NEW 8' CLASS E CHAIN LINK FENCE, AS SPECIFIED	175	LFT.

ITEM NO. 1627001 - MISC. - 4' CHAIN LINK FENCE WITH TOP RAIL AND TENSION WIRE
 ITEM NO. 1627001 - MISC. - 8' CHAIN LINK FENCE WITH TOP AND BOTTOM RAIL

THE CONTRACTOR SHALL FURNISH AND INSTALL NEW CLASS E FENCE AS SHOWN IN THESE PLANS MEETING MDOT - STANDARD SPECIFICATION F-162 FOR CHAIN LINK FENCE. FOR THE EIGHT FOOT FENCE, THIS INCLUDES INSTALLATION OF NEW TOP AND BOTTOM RAILS, FABRIC, WITH 2" MESH. FOR THE FOUR FOOT FENCE, BOTTOM RAIL SHALL BE OMITTED AND INCLUDE BOTTOM TENSION WIRE. ALL LOCATIONS WHERE NEW FENCE INTERSECTS WITH EXISTING WILL BE TIED TOGETHER AT NEW POSTS INCIDENTAL TO THIS ITEM OF WORK. THERE WILL BE NO GAPS BETWEEN NEW AND EXISTING FENCE, OR NEW GATES FOLLOWING COMPLETION OF THIS PROJECT.

NEW FENCE FABRIC SHALL BE 9 GAUGE ALUMINUM-COATED STEEL WIRE IN A 2-INCH (50 MM) MESH WITH TOP SELVAGE, AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 491. TO PREVENT HEAVING, CONTRACTOR WILL NOT BE ALLOWED TO USE CONCRETE FOOTINGS FOR ANY POSTS, INSTEAD ALL NEW POSTS WILL BE DRIVEN TO A MINIMUM DEPTH OF 48". THIS SHALL INCLUDE PROVIDING ALL NECESSARY TERMINAL POSTS, LINE POSTS, TOP RAILS, BRACE RAILS, FABRIC, FABRIC TIES, BRACKETS, TENSION WIRES AND ALL OTHER COMPONENTS TO FURNISH THE COMPLETED 8' FENCE.

LINE POSTS, RAILS, AND BRACES SHALL CONFORM TO THE REQUIREMENTS OF ASTM F-1043 OR ASTM F 1083 AS FOLLOWS: GALVANIZED TUBULAR STEEL PIPE SHALL CONFORM TO THE REQUIREMENTS OF GROUP 1A, (SCHEDULE 40) COATINGS CONFORMING TO TYPE A, OR GROUP 1C (HIGH STRENGTH PIPE), EXTERNAL COATING TYPE B, AND INTERNAL COATING TYPE B OR D.) GROUND RODS SHALL BE INSTALLED PER STANDARD SHEET ST-F-101. GROUND ROD INSTALLATION IS INCIDENTAL TO NEW FENCE INSTALLATION. LINE POSTS FOR CLASS E FENCE SHALL HAVE A MAXIMUM INTERVAL SPACING OF 8' FOR FENCE HEIGHTS OVER 8'.

WIRE TIES AND TENSION WIRE:
 WIRE FABRIC TIES, HOG RINGS, AND TENSION WIRE FOR USE IN CONJUNCTION WITH A GIVEN TYPE OF FABRIC WILL BE OF THE SAME MATERIAL IDENTIFIED WITH THE FABRIC TYPE. WIRE TIES AND HOG RINGS WILL BE 9-GAUGE STEEL. TENSION WIRE WILL BE 7-GAUGE COILED SPRING WIRE. ALUMINUM WIRE WILL ONLY BE ACCEPTED IF THE FABRIC TYPE 3 IS USED. ALL MATERIALS WILL CONFORM TO THE LATEST EDITION OF SPECIFICATION ASTM F-626-08.

CLEARING OF ALL NATURAL GROWTH WITHIN 2' OF BOTH SIDES OF THE NEW FENCE SHALL BE CLEARED INCIDENTAL TO THIS ITEM OF WORK. EXISTING GRADES UNDER AFFECTED FENCE LINE WILL BE LEVELED TO ALLOW MAXIMUM 2' CLEARANCE BETWEEN THE BOTTOM RAIL/TENSION WIRE AND GROUND.

THE UNIT PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTAL MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

PAYMENT SHALL BE MADE UNDER:

ITEM NO. 1627001 - MISC. - 4' CHAIN LINK FENCE WITH TOP RAIL AND TENSION WIRE - LFT
 ITEM NO. 1627001 - MISC. - 8' CHAIN LINK FENCE WITH TOP AND BOTTOM RAIL - LFT

ITEM NO. 1517001 - MISC. - FENCE REMOVAL AND OFFSITE DISPOSAL

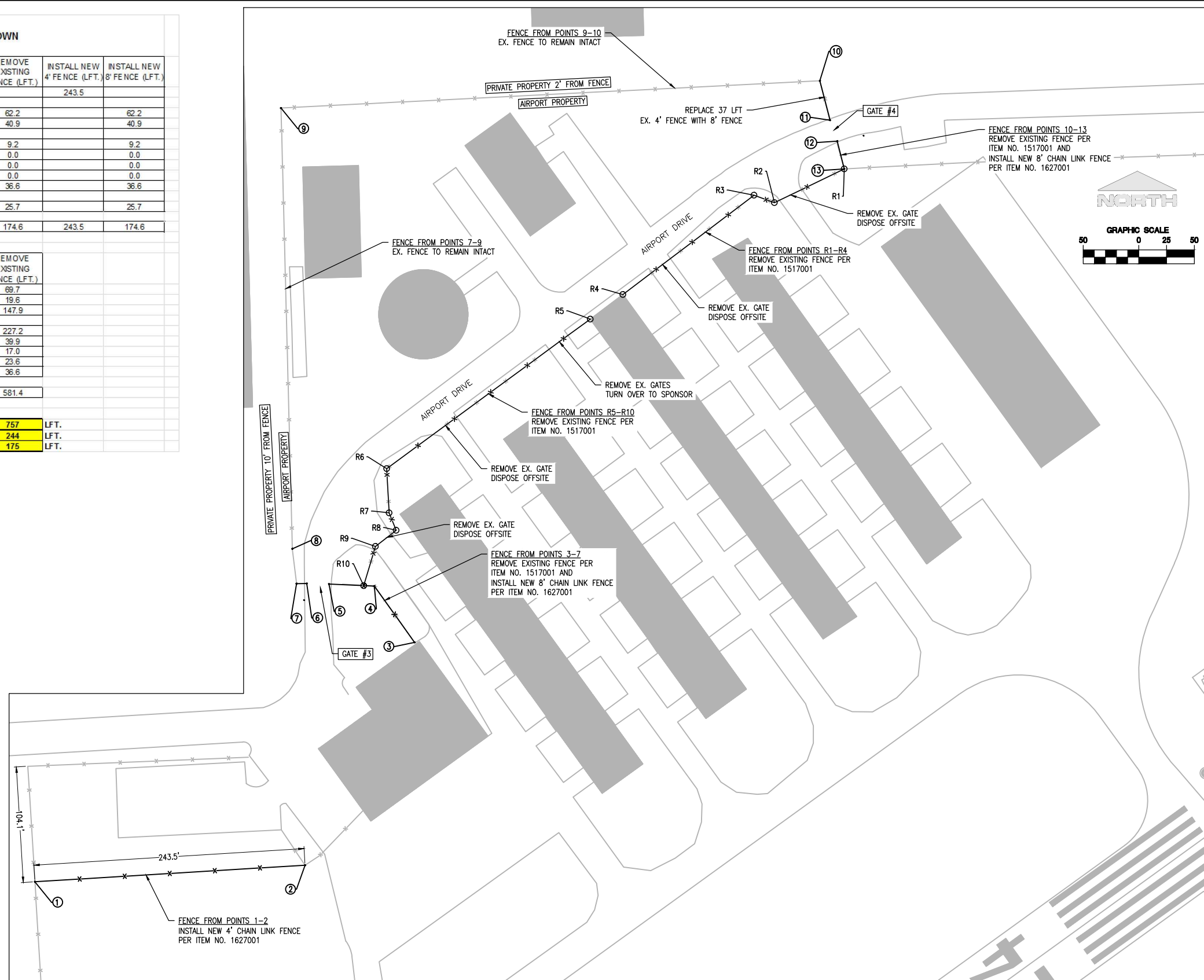
THE CONTRACTOR SHALL REMOVE THE EXISTING SECTIONS OF CHAIN LINK FENCE AND POSTS. ALL LOCATIONS WHERE REMOVED FENCE INTERSECTS WITH FENCE TO REMAIN INTACT WILL BE PROTECTED BY THE CONTRACTOR INCIDENTAL TO THIS ITEM OF WORK. ALL REMOVED FENCING MATERIALS INCLUDING EXISTING GATES, FABRIC, POSTS AND CONCRETE FOUNDATIONS WILL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OFFSITE, EXCEPT WHERE SPECIFICALLY NOTED IN THE PLANS.

FOLLOWING REMOVAL OF EXISTING POSTS, THE HOLES WILL BE FILLED AND COMPACTED WITH SUITABLE NATIVE MATERIAL, LEVELED AND SEEDED AND MULCHED INCIDENTAL TO THIS ITEM OF WORK. NATIVE FILL MATERIAL IS AVAILABLE ONSITE FOR USE.

THE UNIT PRICE SHALL INCLUDE ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTAL MATERIALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

PAYMENT SHALL BE MADE UNDER:

ITEM NO. 1517001 - MISC. - FENCE REMOVAL AND OFFSITE DISPOSAL - LFT



FENCE REPLACEMENT SECURITY NOTE:
 THIS IS A FAA TOWER CONTROLLED AIRPORT. PERIMETER FENCE SECURITY MUST BE MAINTAINED BY THE CONTRACTOR DURING FENCE REPLACEMENT WORK. DURING FENCE REMOVAL AND REPLACEMENT WORK, POSTS AND FABRIC SHALL BE REMOVED AND REPLACED IN A MANNER SUCH THAT THEY ARE REPLACED IN THE SAME WORKING DAY.

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PM	MM	MM	MM	MM	MM	12-22-13	BUS & CONSTRUCTION
SQC	DR	X	X	X	X	12-22-13	RVA REVIEW
OC	MM	X	X	X	X	12-08-13	SPONSOR REVIEW
							W. MALINOWSKI

IN CHARGE

GRAND RAPIDS, MI.
 3650 SPARKS DR., S.E.
 616 574-8800

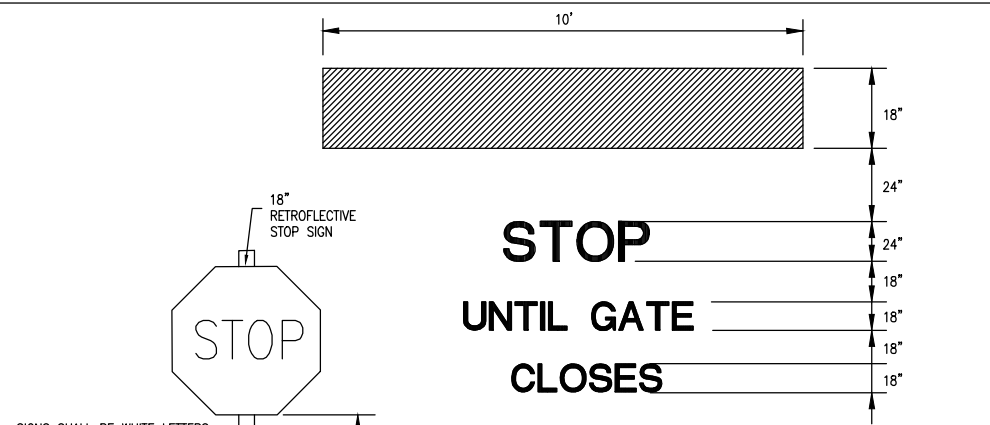
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ANN ARBOR MUNICIPAL AIRPORT
ANN ARBOR, MICHIGAN
GATE AND FENCE IMPROVEMENTS
FENCE PLAN

FEDERAL PROJECT NO.
J-26-0005-1710
 STATE CONTRACT NO.
FM 81-01-C34

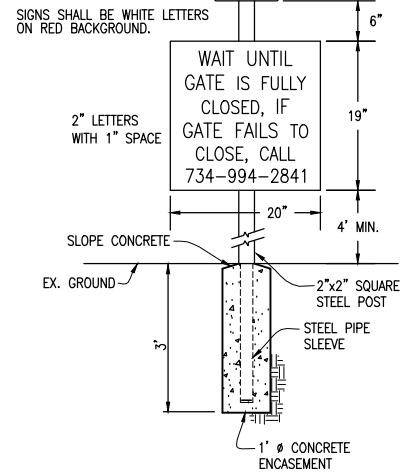
DRAWING
09 OF 14

12943839



**STOP
UNTIL GATE
CLOSES**

- NOTES:
- LETTERS FOR "STOP" TO BE 24" HIGH - 3" STROKE.
 - LETTERS FOR "UNTIL GATE CLOSES" TO BE 18" HIGH - 3" STROKE
 - MARKING TO BE WHITE PAINT PER SPECIFICATION P-620.
 - PAINT FOR PAVEMENT MARKING SHALL MEET REQUIREMENTS FOR SPECIFICATION TTP-85.
 - IMMEDIATELY BEFORE APPLICATION OF THE PAINT, THE SURFACE SHALL BE DRY AND FREE FROM DIRT, GREASE, OIL OR OTHER FOREIGN MATERIAL WHICH WOULD REDUCE THE BOND BETWEEN THE PAINT AND THE SURFACE OF THE PAVEMENT.



F12 PAVEMENT MARKING STOP SIGN W/ TEXT
NOT TO SCALE

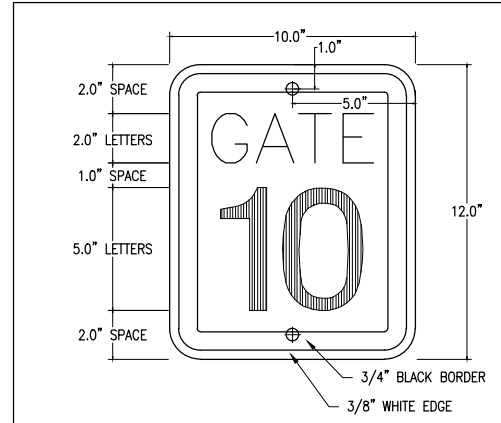
ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED
ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS

WORK FOR THIS ITEM INCLUDES ALL MARKING PER EACH STOP SIGN LOCATION AS SHOWN IN THESE PLANS. MARKING AND SIGNAGE SHALL CONFORM TO SPECIFICATIONS AND DIMENSIONS AS INDICATED IN DETAIL F12.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL PREPARATION, LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM OF WORK.

PAYMENT SHALL BE MADE UNDER:

ITEM NO. 1627050 - MISC. - STOP SIGN WITH GATE INSTRUCTIONS, AS SPECIFIED - EACH
ITEM NO. 6207050 - MISC. - PAVEMENT MARKING, STOP LOCATIONS AS SPECIFIED, WITH REFLECTIVE BEADS - EACH



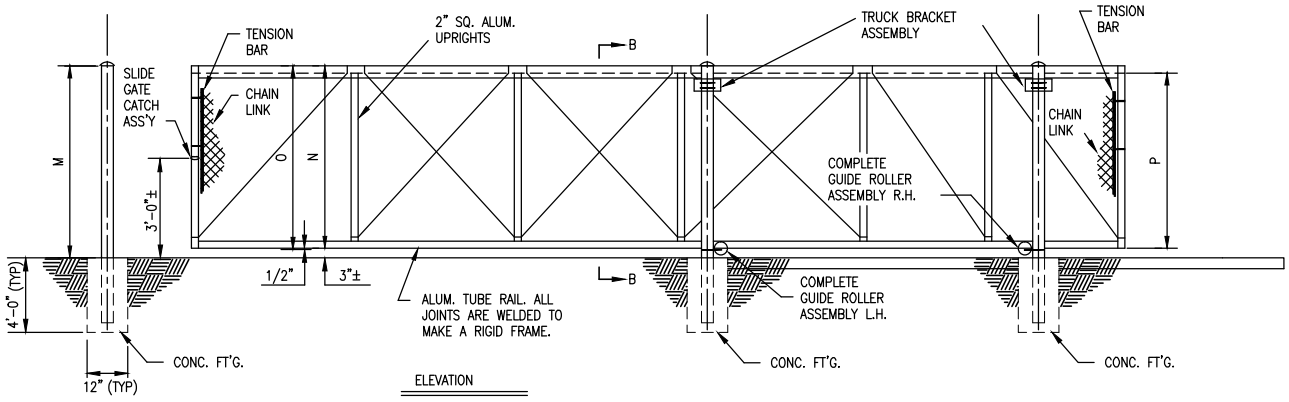
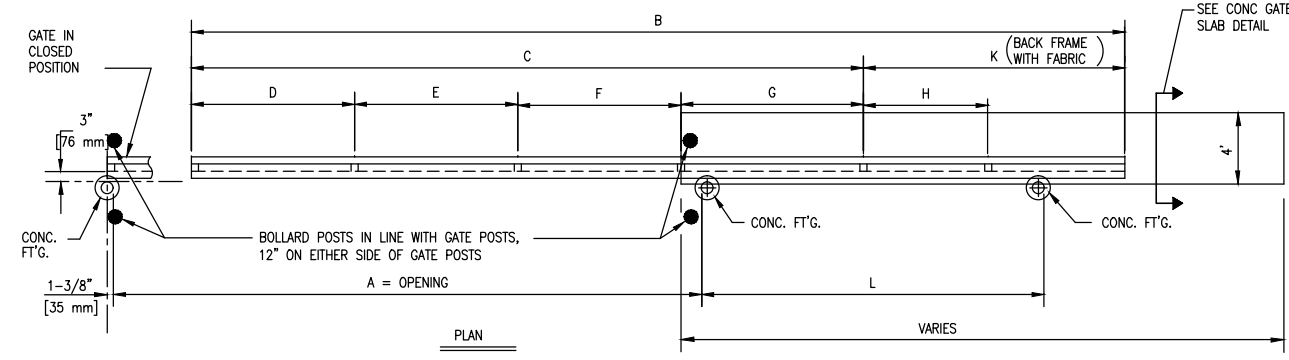
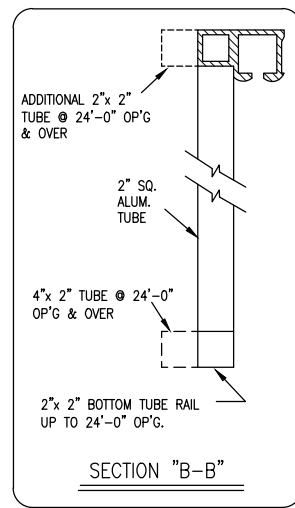
F6 GATE NUMBER SIGN DETAIL
NOT TO SCALE

GATE NUMBER SIGN ON FENCE

THE CONTRACTOR SHALL FURNISH AND INSTALL REFLECTIVE NUMBER SIGNS ON FENCE ADJACENT TO 6 NEW AIRPORT PERIMETER GATES AS SHOWN IN DETAIL F6. THE SIGNS SHALL BE SIGN SHALL BE BLACK LETTERS ON WHITE BACKGROUND, FASTENED TO THE FENCE FABRIC BY USING TWO STAINLESS BOLTS (1/4" X 20) WITH HEXAGONAL HEADS, LOCK WASHERS AND NUTS PASSING THROUGH THE SIGN ON THE OUTSIDE OF THE FENCE AND THROUGH A BACKING PLATE ON THE INSIDE OF THE FENCE. BACKING PLATE SHALL BE 2" X 11", 0.080 ALUMINUM. SIGN SHALL BE A MINIMUM 0.063 ALUMINUM. REMOVAL AND DISPOSAL OF ANY EXISTING GATE NUMBERING SIGNS SHALL BE CONSIDERED INCIDENTAL TO EACH GATE PAY ITEM.

NOTE: REFER TO SHEET 4 FOR GATE LOCATIONS

GATE NUMBER	SIZE	TYPE
1	20.0'	ELEC. SLIDING
2A	12.0'	ELEC. SLIDING
2B	12.0'	ELEC. SLIDING
3	20.0'	ELEC. SLIDING
4	20.0'	ELEC. SLIDING
5	20.0'	ELEC. SLIDING



F9 SLIDING GATE DETAIL
NOT TO SCALE

- NOTES:
- FOR SINGLE GATES 11'-0" AND OVER AND DOUBLE GATES 22'-0" AND OVER USE 3/8" DIAMETER GALVANIZED TRUSS RODS.
 - FOR SINGLE GATES 23'-0" THRU 30'-0" AND DOUBLE GATES 46'-0" THRU 60'-0" ADD 2" SQUARE TUBE TO OUTSIDE OF TOP RAIL AND USE 2" X 4" TUBE IN PLACE OF 2" SQUARE TUBE FOR THE BOTTOM RAIL.
 - IF CONVERSION TO METRIC UNITS IS DESIRED, FOR REFERENCE, THE RELATIONSHIP IS 3.2808 FEET = 1.000 METERS, 1.00 INCH = 25.4 mm

GATE OPENING		A	B	C	D	E	F	G	H	K	L
SINGLE	DOUBLE										
6'-0"	12'-0"	6'-0"	12'-9"	6'-2"						6'-7"	6'-6"
7'-0"	14'-0"	7'-0"	13'-9"	7'-2"						6'-7"	6'-6"
8'-0"	16'-0"	8'-0"	14'-9"	8'-2"						6'-7"	6'-6"
9'-0"	18'-0"	9'-0"	15'-9"	9'-2"	4'-8"	4'-6"				6'-7"	6'-6"
10'-0"	20'-0"	10'-0"	16'-9"	10'-2"	5'-2"	5'-0"				6'-7"	6'-6"
11'-0"	22'-0"	11'-0"	18'-9"	11'-2"	5'-8"	5'-6"				7'-7"	7'-6"
12'-0"	24'-0"	12'-0"	19'-9"	12'-2"	6'-2"	6'-0"				7'-7"	7'-6"
13'-0"	26'-0"	13'-0"	20'-9"	13'-2"	6'-8"	6'-6"				7'-7"	7'-6"
14'-0"	28'-0"	14'-0"	21'-9"	14'-2"	7'-2"	7'-0"				7'-7"	7'-6"
15'-0"	30'-0"	15'-0"	23'-3"	15'-2"	7'-8"	7'-6"				10'-1"	10'-0"
16'-0"	32'-0"	16'-0"	25'-3"	16'-2"	8'-2"	8'-0"				10'-1"	10'-0"
17'-0"	34'-0"	17'-0"	27'-3"	17'-2"	8'-8"	8'-6"				10'-1"	10'-0"
18'-0"	36'-0"	18'-0"	28'-3"	18'-2"	9'-2"	9'-0"				10'-1"	10'-0"
19'-0"	38'-0"	19'-0"	29'-3"	19'-2"	6'-5 5/8"	6'-4 3/4"				10'-1"	10'-0"
20'-0"	40'-0"	20'-0"	30'-3"	20'-2"	6'-9 5/8"	6'-8 3/4"				10'-1"	10'-0"
21'-0"	42'-0"	21'-0"	31'-3"	21'-2"	7'-1 5/8"	7'-0 3/4"				10'-1"	10'-0"
22'-0"	44'-0"	22'-0"	32'-3"	22'-2"	7'-5 5/8"	7'-4 3/4"				10'-1"	10'-0"
23'-0"	46'-0"	23'-0"	33'-3"	23'-2"	7'-9 5/8"	7'-8 3/4"				12'-1"	12'-0"
24'-0"	48'-0"	24'-0"	34'-3"	24'-2"	8'-1 5/8"	8'-0 3/4"				12'-1"	12'-0"
25'-0"	50'-0"	25'-0"	35'-3"	25'-2"	8'-5 3/4"	8'-4 3/4"				12'-1"	12'-0"
26'-0"	52'-0"	26'-0"	36'-3"	26'-2"	6'-7 1/2"	6'-6 1/2"				12'-1"	12'-0"
27'-0"	54'-0"	27'-0"	37'-3"	27'-2"	6'-10 1/2"	6'-9 1/2"				12'-1"	12'-0"
28'-0"	56'-0"	28'-0"	38'-3"	28'-2"	7'-1 1/2"	7'-0 1/2"				12'-1"	12'-0"
29'-0"	58'-0"	29'-0"	39'-3"	29'-2"	7'-4 1/2"	7'-3 1/2"				12'-1"	12'-0"
30'-0"	60'-0"	30'-0"	40'-3"	30'-2"	7'-7 1/2"	7'-6 1/2"				12'-1"	12'-0"

HEIGHTS FOR GATES WITHOUT BARB WIRE

6'-0" HIGH			7'-0" HIGH			8'-0" HIGH			10'-0" HIGH		
M	N	O	M	N	O	M	N	O	M	N	O
6'-1"	5'-8 1/2"	5'-9"	5'-7"	7'-1"	6'-8 1/2"	6'-9"	6'-7"	8'-1"	7'-8 1/2"	7'-9"	10'-1"
											9'-8 1/2"
											9'-9"
											9'-7"

HEIGHTS FOR GATES WITH BARB WIRE

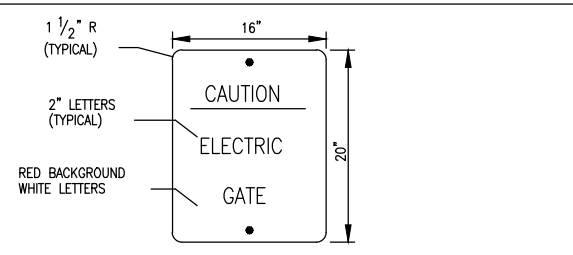
6'-0" HIGH			7'-0" HIGH			8'-0" HIGH			10'-0" HIGH		
M	N	O	M	N	O	M	N	O	M	N	O
6'-1"	4'-8 1/2"	5'-10"	4'-7"	7'-1"	5'-8 1/2"	6'-10"	5'-7"	8'-1"	6'-8 1/2"	7'-10"	10'-1"
											8'-8 1/2"
											8'-9"
											8'-7"

CIRCUIT TABLE

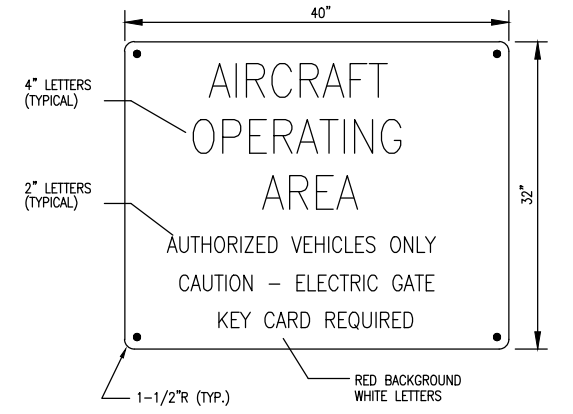
NAME	VOLTAGE	BREAKER	LENGTH	WIRE
1			1150'	
2			1100'	3-1/C, #6, 600V
3		100A	100'	2-1/C, #6, 600V
4			175	3-1/C, #6, 600V
5		60A	100'	3-1/C, #6, 600V

GATE TABLE

NAME	SIZE OPENING	HEIGHT	OVERHEAD LIGHT	CIRCUIT	EXIT BUTTON
1	24'	10'	NEW	1	NO
2A	12'	8'	RELOCATE	2	NO
2B	12'	8'		2	YES
3	20'	8'	EXISTING	3	YES
4	20'	8'	EXISTING	4	NO
5	20'	8'	NEW	5	YES



TYPICAL SIGN - INTERIOR FACE



TYPICAL SIGN - EXTERIOR FACE

INFORMATION SIGNS SHALL BE FASTENED TO THE STANDARD U-CHEMEL STEEL POST USING TWO STAINLESS STEEL BOLTS WITH HEXAGON HEADS, LOCK WASHERS AND NUTS. SIGN SHALL BE A MINIMUM OF 0.080 ALUMINUM.

F15 GATE WARNING SIGNS
NOT TO SCALE

D/E	DAH	PM	SOC	QC	W.	IN	CHARGE	DATE	ISSUED FOR
X	X	X	X	X	X	X	X	X	X

D/E	DAH	PM	SOC	QC	W.	IN	CHARGE	DATE	ISSUED FOR
X	X	X	X	X	X	X	X	X	X

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ANN ARBOR, MICHIGAN

GATE AND FENCE IMPROVEMENTS

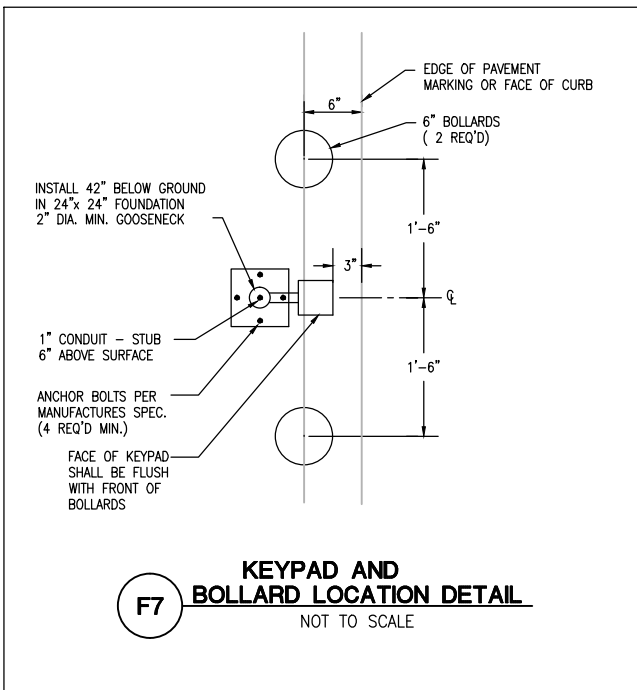
GATE NOTES AND DETAILS

FEDERAL PROJECT NO.
J-26-0005-1710

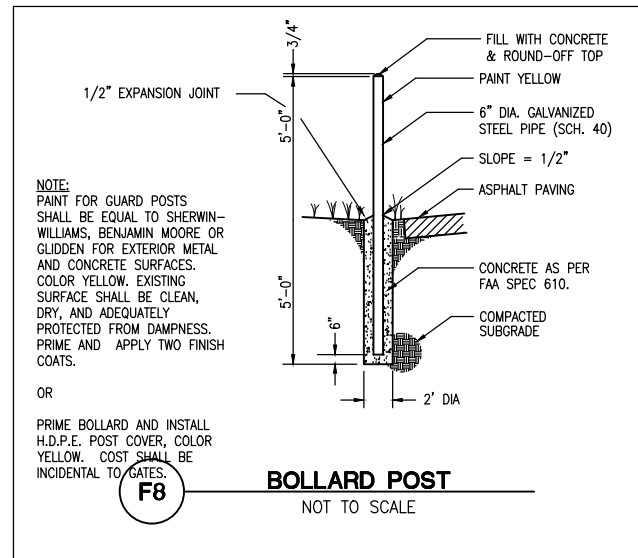
STATE CONTRACT NO.
FM 81-01-C34

DRAWING
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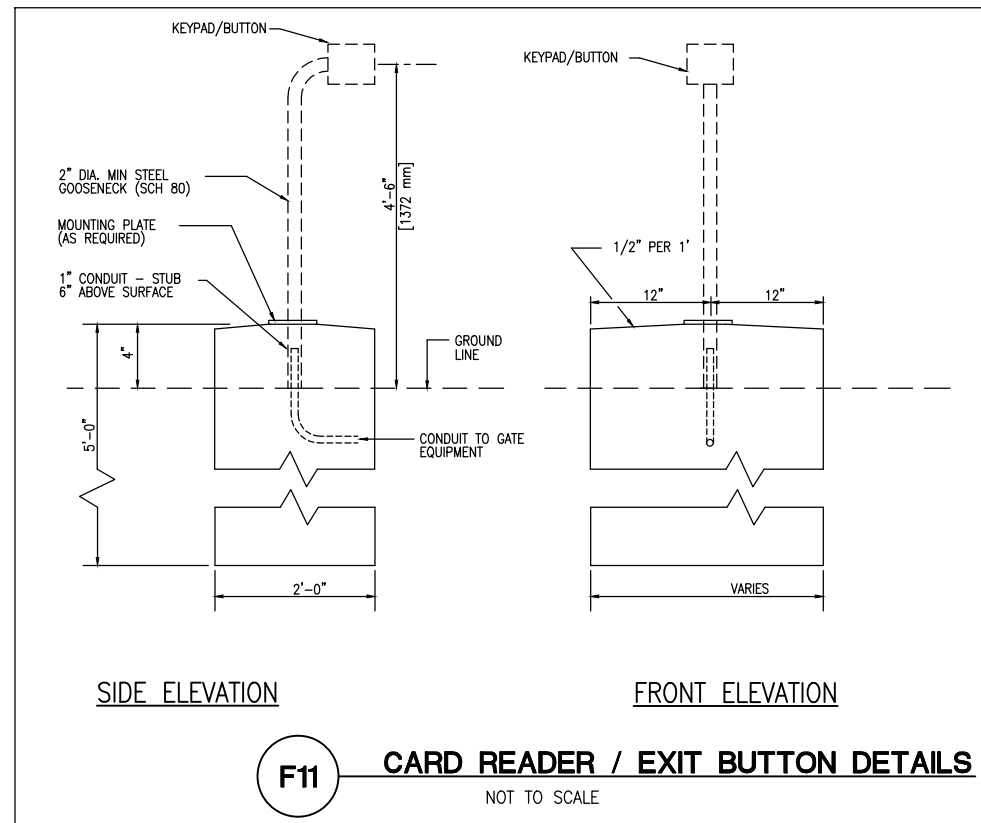
12943839



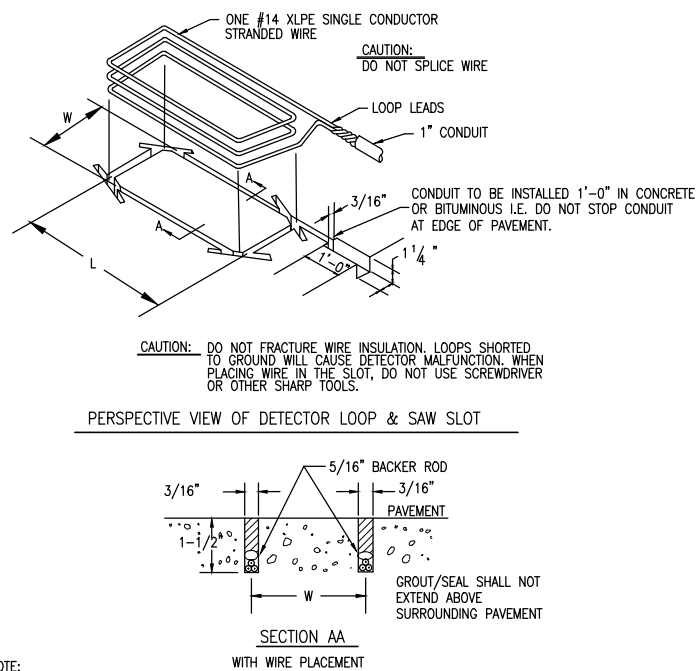
F7 **KEYPAD AND BOLLARD LOCATION DETAIL**
NOT TO SCALE



F8 **BOLLARD POST**
NOT TO SCALE

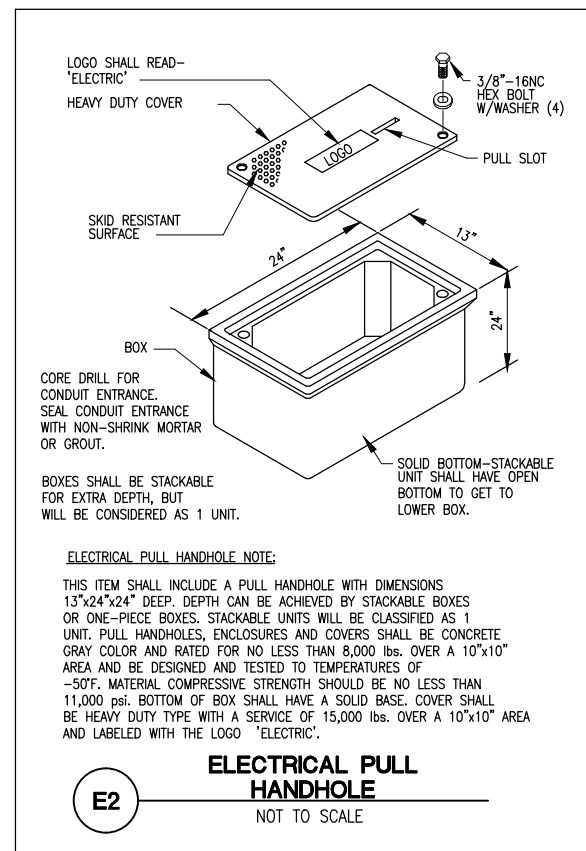


F11 **CARD READER / EXIT BUTTON DETAILS**
NOT TO SCALE

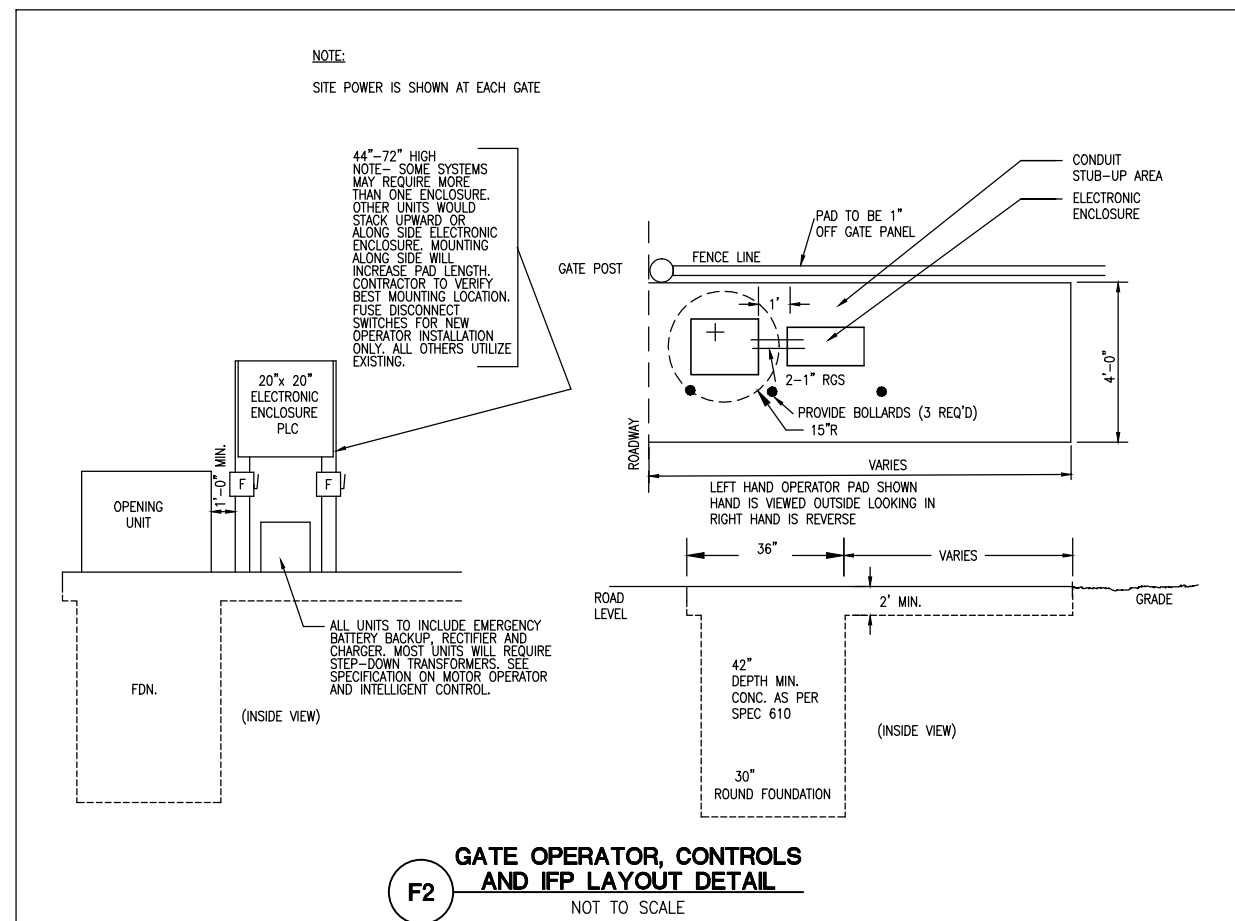


- NOTE:**
- LOOP LEADS ARE LIMITED TO 100 FEET.
 - LOOP LEADS MUST HAVE FOUR (4) TWISTS PER FOOT.
 - LOOP & LOOP LEADS MUST BE LOCATED AT LEAST 18" FROM ANY ELECTRICAL POWER SERVICE OR RUNS & OR STEEL PLATFORMS. LOOP LEADS MUST BE IN SEPARATE CONDUIT BETWEEN LOOP AND DETECTOR. THEY MUST NOT SHARE CONDUIT WITH OTHER WIRING OR LEADS FROM OTHER LOOPS.
 - USE #14 XLPE SINGLE CONDUCTOR STRANDED
 - ALL WIRE TO BE CONTINUOUS WITHOUT SPLICING.
- TYPICAL LAYOUT FOR LOOP**
- SAW SLOT 3/16" WIDE x 1-1/2" DEEP. MAKE RECTANGULAR SHAPE TO REQUIRED LOOP DIMENSIONS PLUS SLOT FOR LEAD CONDUIT. GROUT WITH NO. 202 WEATHERBAN SEALANT. A PRODUCT OF 3M CO. OR EQUIVALENT.

F10 **GATE SCHEDULE & DETECTOR LOOP LAYOUT**
NOT TO SCALE



E2 **ELECTRICAL PULL HANDHOLE**
NOT TO SCALE

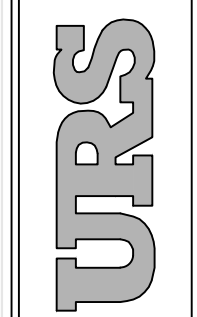


F2 **GATE OPERATOR, CONTROLS AND IFP LAYOUT DETAIL**
NOT TO SCALE

DATE	ISSUED FOR
02-22-13	BUS & CONSTRUCTION
02-22-13	BOA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X	X	X	X
PM	MM	X	X	X	X
SQC	DR	X	X	X	X
QC					

IN CHARGE
W. MALINOWSKI



ANN ARBOR MUNICIPAL AIRPORT
ANN ARBOR, MICHIGAN

GATE AND FENCE IMPROVEMENTS
GATE COMPONENT NOTES AND DETAILS

FEDERAL PROJECT NO.
J-26-0005-1710

STATE CONTRACT NO.
FM 81-01-C34

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11 OF 14

12943839

NOTE - NEW LED LIGHT FIXTURE ON EXISTING LIGHT POLE

THIS ITEM OF WORK SHALL INCLUDE THE INSTALLATION OF NEW LED STREET LIGHTS FIXTURES ON EXISTING LIGHT POLE ASSEMBLIES. NEW FIXTURES SHALL BE CREE LIGHTING LED XSP2 TYPE III BSKPA03BA-USFR OR APPROVED EQUAL. FIXTURE SHALL INCLUDE BACKLIGHT CONTROL SHIELD, PHOTOCELL CONTROL AND FUSING IN FIXTURE.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE STREET LIGHTS.

PAYMENT WILL BE MADE INCIDENTAL TO EACH GATE WHERE THIS ITEM OF WORK IS SPECIFIED.

NOTE - RELOCATE EXISTING LIGHT POLE AND REPLACE FIXTURE

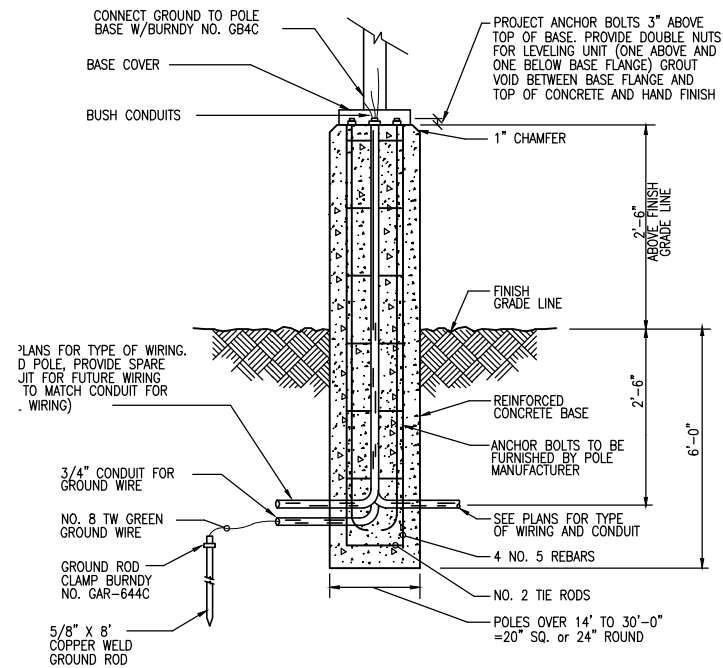
THIS ITEM OF WORK SHALL INCLUDE REMOVAL AND RELOCATION OF AN EXISTING LIGHT POLE AS SHOWN IN THESE PLANS.

DURING REMOVAL THE CONTRACTOR SHALL CAP EXISTING CIRCUITS AND ABANDON IN PLACE TO PROTECT AGAINST FUTURE HAZARDS. THE EXISTING POLE SHALL BE RELOCATED AND MOUNTED ON A NEW BASE PER DETAIL E5. EXISTING LIGHT POLE ARMS SHALL BE REUSED.

THE EXISTING LIGHT FIXTURE WILL BE REMOVED AND BE TURNED OVER TO THE SPONSOR AND REPLACED WITH A NEW LIGHT FIXTURE CREE LIGHTING LED XSP2 TYPE III BSKPA03BA-USFR OR APPROVED EQUAL. FIXTURE SHALL INCLUDE BACKLIGHT CONTROL SHIELD, PHOTOCELL CONTROL AND FUSING IN FIXTURE.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR FURNISHING ALL MATERIALS FOR ALL REMOVAL, DISPOSAL, PREPARATION, INSTALLATION AND FOR ALL LABOR, EQUIPMENT, TOOLS, EXPENSES AND INCIDENTALS NECESSARY TO FURNISH COMPLETE FUNCTIONAL STREET LIGHT.

PAYMENT WILL BE MADE INCIDENTAL TO EACH GATE WHERE THIS ITEM OF WORK IS SPECIFIED.



E5 **BASE DETAIL-OUTDOOR LIGHTING STANDARDS**
NOT TO SCALE

DATE	ISSUED FOR
02-22-13	BUS & CONSTRUCTION
02-22-13	RVA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X	PM	MM	X	SQC	DR	X	QC	MM	X	W.	MALINOWSKI	IN	CHARGE
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ANN ARBOR, MICHIGAN
 GATE AND FENCE IMPROVEMENTS
 LIGHT AND SIGN NOTES AND DETAILS

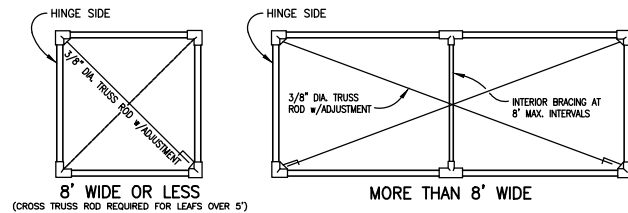
FEDERAL PROJECT NO.
J-26-0005-1710

STATE CONTRACT NO.
FM 61-01-C34

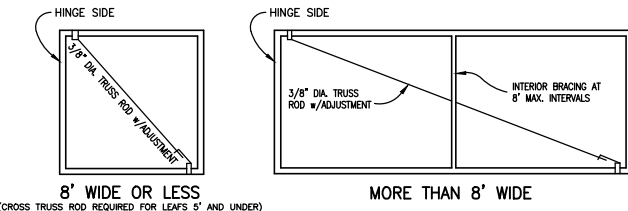
DRAWING
12 OF 14

12943839

WHEN BARBED WIRE TOP IS SPECIFIED, THE GATE FRAME END MEMBERS SHALL BE EXTENDED 12" ABOVE THE TOP HORIZONTAL SECTION OF THE GATE FRAME. THREE STRANDS OF BARBED WIRE, UNIFORMLY SPACED, SHALL BE ATTACHED BY BANDS, CLIPS OR EYEBOLTS.

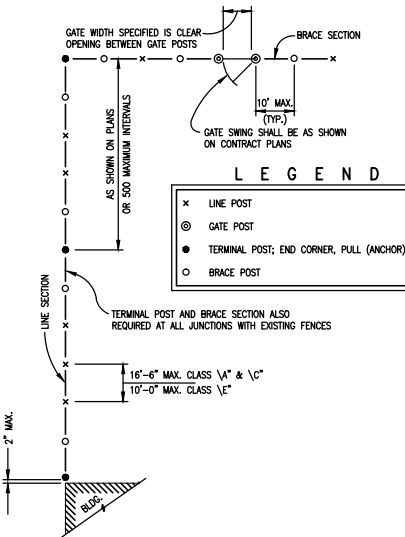


FITTED CONNECTIONS



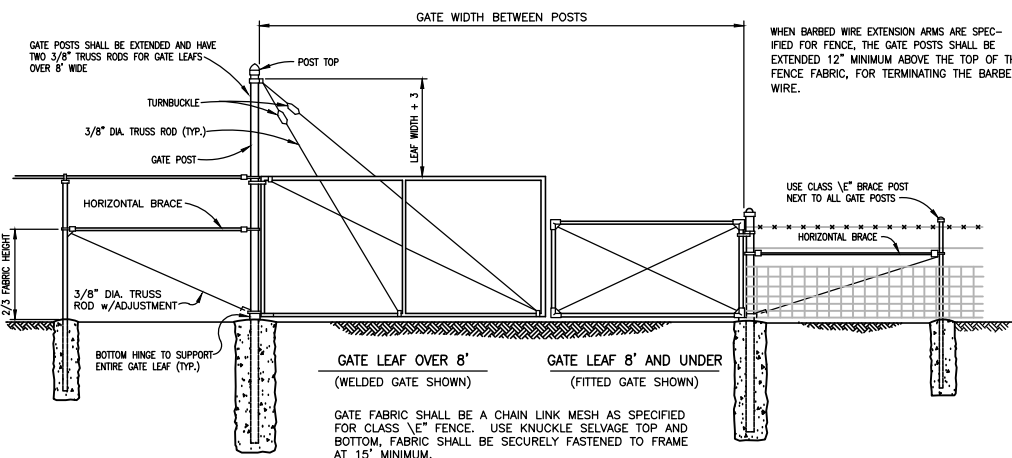
WELDED CONNECTIONS

GATE FRAMES



TYPICAL FENCE LAYOUT

(ALL CLASSES)

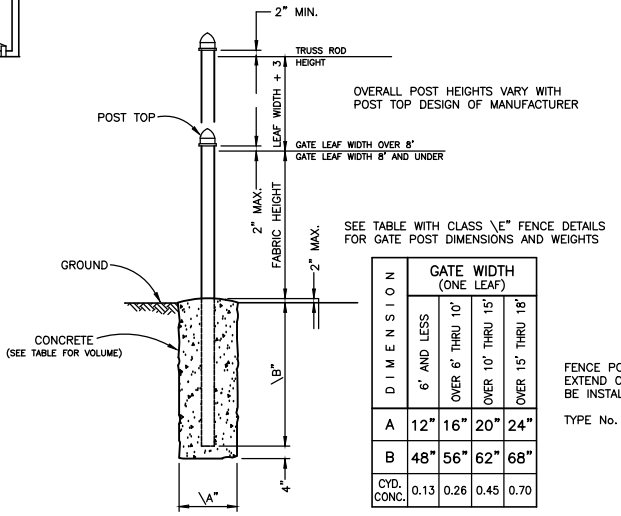


TYPICAL GATE INSTALLATIONS

**GATE DETAILS & SPECIFICATIONS
(CLASS E, FAA SPEC. F-162)**

GATE FRAME AND GATE POST, DIMENSIONS AND WEIGHTS					
DESCRIPTION	SECTION	STEEL FRAMES		ALUMINUM FRAME *	
		OUTSIDE DIMENSION (INCHES)	WEIGHT (Lbs./Ft.)	OUTSIDE DIMENSION (INCHES)	WEIGHT (Lbs./Ft.)
FABRIC HEIGHT 6' AND LESS, AND LEAF WIDTH 8' OR LESS	○	1.66	2.27	1.90	0.94
	□	1.50	1.90	2.00	0.94
FABRIC HEIGHT OVER 6' AND/OR ALL LEAF WIDTHS OVER 8'	○	1.90	2.72	1.90	0.94
	□	2.00	2.60	2.00	0.94
INTERIOR BRACING	○	1.66	2.27	1.90	0.94
	□	1.50	1.90	2.00	0.94
GATE POSTS GATE LEAF WIDTH 6' AND LESS	○	2.875	5.79	2.875	2.00
	□	2.50	5.70	3.00	2.00
GATE LEAF WIDTH OVER 6' THRU 13' GATE LEAF WIDTH OVER 13' THRU 18' GATE LEAF WIDTH OVER 18'	○	4.00	9.11	4.00	3.00
	□	6.625	18.97	6.625	7.00
	○	8.625	28.55	8.625	10.50

* SEE F.A.A. SPEC. F-162 FOR DETAILS. TO BE USED ONLY WITH ALUMINUM ALLOY FENCE.



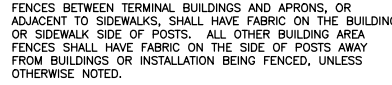
GATE POST & CONCRETE BASE

GATE NOTES :

GATE HINGES AND FITTINGS SHALL BE HEAVY PATTERN AND EASILY OPERATED BY ONE PERSON. BOTTOM HINGE SHALL BE BALL AND SOCKET, OR EQUAL, CAPABLE OF SUPPORTING ENTIRE WEIGHT OF GATE LEAF.
GATES SHALL HAVE A SELF LATCHING DEVICE WITH PROVISIONS FOR LOCKING.
GATE KEEPERS SHALL BE PROVIDED FOR ANY LEAF MORE THAN 5' WIDE TO HOLD IT IN AN OPEN POSITION.
DOUBLE GATES WITH LEAFS MORE THAN 4' WIDE SHALL BE PROVIDED WITH LOCKABLE CANE BOLTS AND SOCKETS.
WELDS ON STEEL FRAMES SHALL BE GROUND SMOOTH, THOROUGHLY CLEANED AND COVERED WITH ALUMINUM OR ZINC BASE PAINT.
GATES, FITTINGS AND INSTALLATION SHALL MEET SPECIFICATION F-162.

GENERAL NOTES :

DIMENSIONS :
ALL DIMENSIONS, SIZES, GAUGES, WEIGHTS OR THICKNESSES SHOWN ARE THE MINIMUM ACCEPTABLE, UNLESS OTHERWISE INDICATED.
SPECIFICATIONS :
THE FEDERAL, A.S.T.M. AND A.A.S.H.T.O. SPECIFICATIONS SHOWN SHALL BE INTERPRETED TO MEAN THE LATEST ISSUE OR AMENDMENT OF SUCH SPECIFICATION, IN EFFECT ON THE DATE OF THE PLAN APPROVAL.
SPECIFICATIONS REFERRED TO ON THIS STANDARD PLAN ARE A PART OF THE CONTRACT DOCUMENTS.
MATERIALS AND CONSTRUCTION METHODS NOT DETAILED HEREON, SHALL BE IN ACCORDANCE WITH THE SPECIFICATION LISTED FOR EACH CLASS OF FENCE, UNLESS OTHERWISE NOTED ON THE CONTRACT PLANS.
MEASUREMENT :
FENCES ARE MEASURED IN PLACE, FROM OUTSIDE TO OUTSIDE OF END, CORNER OR GATE POSTS. MEASUREMENT DOES NOT INCLUDE GATE OPENINGS.
GATES ARE MEASURED IN UNITS FOR EACH TYPE AND SIZE INSTALLED.
FABRIC INSTALLATION :
WIRE OR FABRIC ON BOUNDARY AND SECURITY FENCES SHALL BE ON THE SIDE OF POSTS AWAY FROM AIRPORT PROPERTY.
FENCES BETWEEN TERMINAL BUILDINGS AND APRONS, OR ADJACENT TO SIDEWALKS, SHALL HAVE FABRIC ON THE BUILDING OR SIDEWALK SIDE OF POSTS. ALL OTHER BUILDING AREA FENCES SHALL HAVE FABRIC ON THE SIDE OF POSTS AWAY FROM BUILDINGS OR INSTALLATION BEING FENCED, UNLESS OTHERWISE NOTED.



BARBED WIRE EXTENSION ARMS

(WHEN SPECIFIED ON CONTRACT PLANS)

NOTES : CLASS E FENCE

FABRIC :
WOVEN WITH A 9 GAUGE WIRE IN A 2 INCH MESH AND SHALL BE OF THE TYPE I, II, III OR IV (SPEC. F-162) UNLESS OTHERWISE SPECIFIED ON THE CONTRACT PLANS.
GATES AND GATE HARDWARE :
ALL GATES, GATE POSTS AND HARDWARE MEMBERS ADJACENT TO GATES, SHALL MEET SPECIFICATION F-162 UNLESS OTHERWISE SPECIFIED ON CONTRACT PLANS.
SELVAGE, RAILS & TENSION WIRES :
FENCES 60" AND LESS IN TERMINAL AREAS SHALL HAVE KNUCKLE SELVAGE AND RAILS TOP AND BOTTOM. HAZARDOUS AND SECURITY AREAS TO BE FENCED SHALL HAVE BARBED SELVAGE, TOP AND BOTTOM, WITHOUT RAILS. WHEN RAILS ARE OMITTED, NO. 7 GAUGE TENSION WIRES OF THE SAME MATERIAL AS THE FABRIC SHALL BE PROVIDED.
IF RAILS AND BARBED SELVAGE ARE SPECIFIED THE BARBS SHALL EXTEND 1" ABOVE THE TOP RAIL.
POSTS, RAILS AND BRACES :
SEE TABLE FOR CHAIN LINK FENCES MEMBERS DIMENSIONS AN WEIGHTS.
FABRIC FASTENERS :
MINIMUM 3/16" x 3/4" STRETCHER BAR, BANDED TO TERMINAL POSTS; OR INTEGRAL FABRIC FITTINGS ON TERMINAL POSTS. MINIMUM NO. 6 WIRE CLIPS FOR LINE POSTS AND NO. 9 WIRE CLIPS FOR BRACES, RAILS AND TENSION WIRE. ALL FASTENERS SHALL HAVE A MAXIMUM SPACING OF 14" VERTICALLY AND 24" HORIZONTALLY.
COATINGS :
ZINC COATING ON POSTS, RAILS, GATE FRAMES, BRACES AND STEEL FITTINGS SHALL AVERAGE 1.8 OZ./S.F.. NO INDIVIDUAL SPECIMEN SHALL HAVE LESS THAN 1.6 OZ./S.F..
COATINGS ON STEEL FABRIC SHALL MEET THE FOLLOWING MINIMUMS :
1. TYPE-I (ZINC COATED) :
CLASS I - 1.20 oz./s.f.
CLASS II - 1.80 oz./s.f.
2. TYPE-II (ALUMINUM COATED) :
No. 6 Ga. - 0.40 oz./s.f.
No. 11 Ga. - 0.30 oz./s.f.
3. TYPE-IV (P.V.C. COATED)
MINIMUM 0.015 INCH THICKNESS
FENCE HEIGHT :
THE FABRIC HEIGHT IS THE NOMINAL FENCE HEIGHT.

BARBED WIRE :

BARBED WIRE SHALL BE 2-STRAND TWISTED STEEL OF No. 12 1/2 MINIMUM WIRE GAUGE, WITH FOUR POINT BARBS OF No. 14 MINIMUM WIRE GAUGE, AND SHALL CONFORM TO SPECIFICATIONS.

CONCRETE :

CONCRETE SHALL BE PRODUCED AND PLACED IN ACCORDANCE WITH SPECIFICATION P-610. FOOTING TOPS SHALL BE 1" MINIMUM ABOVE GROUND AT THE POST, AND TROWEL FINISHED TO SLOPE AWAY FROM THE POST.

OPENINGS UNDER FENCE :

ANY OPENING UNDER FENCE, WHEREIN THE BOTTOM FENCE WIRE IS MORE THAN 4" ABOVE GROUND AND THE TOTAL AREA OF OPENING IS 96 SQUARE INCHES OR MORE, SHALL BE CLOSED.

OPENINGS LESS THAN 18" HIGH SHALL BE CLOSED BY INSTALLING ONE OR MORE ADDITIONAL LINE POSTS NEAR THE OPENING CENTER AND STRETCHING STRANDS OF BARBED WIRE BETWEEN THE EXTRA POSTS AT 8" MAXIMUM VERTICAL SPACING. VERTICAL STRANDS OF BARBED WIRE SHALL BE INSTALLED AT 12" MAXIMUM HORIZONTAL SPACING AND TIES TO ALL HORIZONTAL STRANDS AND THE FABRIC BOTTOM WIRE. THIS WORK SHALL BE INCIDENTAL TO FENCE INSTALLATION COSTS.

OPENINGS 18" OR MORE IN HEIGHT, OPENINGS IN HIGH SECURITY AND HAZARD AREAS, DITCHES, DRAINAGE COURSES, ETC., SHALL BE CLOSED BY METHODS DETAILED ON THE CONTRACT PLANS. PAYMENT FOR CLOSURES DETAILED ON THE PLANS SHALL BE AS NOTED ON THE CONTRACT PLANS.

FENCE LINE AND ALIGNMENT :

FENCE LINES SHALL BE CLEARED AND GRUBBED OF ALL OBSTRUCTIONS AS PER SPECIFICATIONS.

THE FENCE SHALL BE CONSTRUCTED VERTICAL, STRAIGHT AND TRUE TO LINE, THE LONGITUDINAL GRADIENT SHALL PARALLEL THE GENERAL SLOPE OF THE GROUND.

GROUND RODS :

GROUND RODS SHALL BE INSTALLED AT 500" MAXIMUM INTERVALS, AND WHERE POWER LINES PASS OVER THE FENCE. EACH SECTION OF FENCE SEPARATED BY GRASS, BUILDINGS OR OTHER OPENINGS SHALL HAVE A MINIMUM OF ONE ROD.

ADDITIONAL GROUND RODS SHALL BE INSTALLED, AS DIRECTED BY THE ENGINEER, SO THE RESISTANCE TO GROUND OF ANY FENCE SECTION WILL NOT EXCEED 25 OHMS. MEASUREMENT OF RESISTANCE SHALL BE MADE BY THE CONTRACTOR UNDER SUPERVISION OF THE ENGINEER.

GROUND RODS SHALL BE 5/8" x 8' MINIMUM SIZE, COPPER OR COPPER CLAD. GROUND CABLE SHALL BE No. 6 AWG MINIMUM, BARE STRANDED COPPER WIRE. CONNECTIONS TO FENCE AND RODS SHALL BE MADE WITH SUITABLE NONCORROSIVE METAL CLAMPS, LUGS OR CONNECTORS.

FENCE IN PAVEMENT :

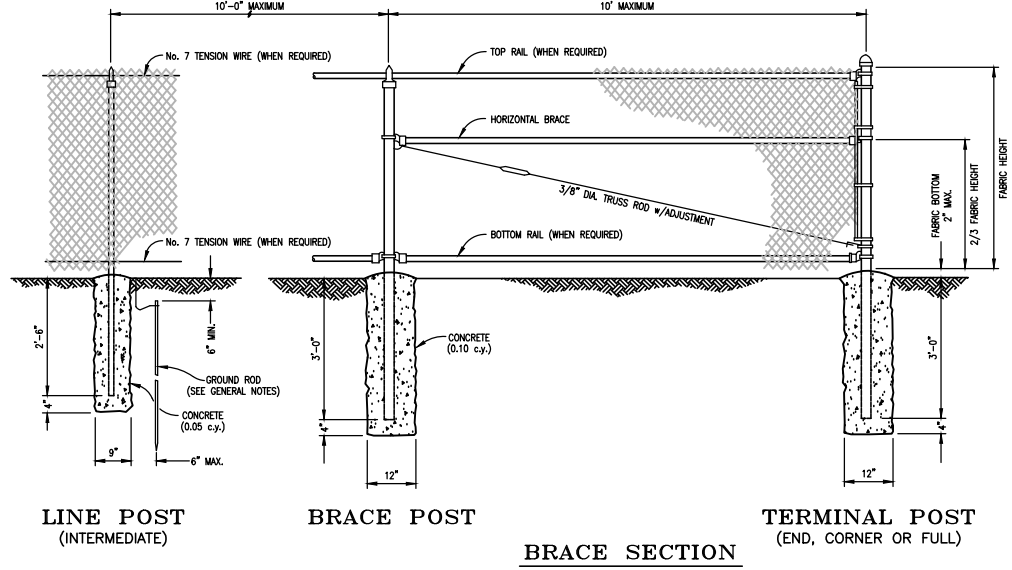
FENCES LOCATED ALONG THE EDGE OF SIDEWALKS, SERVICE APRON AND TERMINAL APRON PAVEMENTS SHALL EITHER BE INSTALLED IN SUCH PAVEMENT OR IN A SEPARATE PAVED STRIP ADJACENT TO THE PRIMARY PAVEMENT.

DETAILS AND PAYMENT FOR "IN PAVEMENT" FENCING SHALL BE AS NOTED ON THE CONTRACT PLANS.

CHAIN LINK FENCE MEMBERS DIMENSIONS AND WEIGHTS

DESCRIPTION	SECTION	STEEL FRAME		ALUMINUM FRAME *	
		OUTSIDE DIMENSION (INCHES)	WEIGHT (Lb./Ft.)	OUTSIDE DIMENSION (INCHES)	WEIGHT (Lb./Ft.)
CORNER, BRACE, END & PULL POSTS FABRIC HEIGHTS 6' & LESS	○	2.375	3.65	2.375	1.264
	□	2.000	2.60	2.500	1.253
	○	2.875	5.79	2.875	2.000
	□	2.500	5.10	2.500	2.900
FABRIC HEIGHTS OVER 6'	○	2.875	5.79	2.875	2.000
	□	2.500	5.10	2.500	2.900
ALL FABRIC HEIGHTS	ROLL FORM	3.5 x 3.5	5.10	----	----
LINE POSTS	□	1.875 x 1.625	2.40	1.875 x 1.625	0.910
		2.250 x 1.700	2.70	----	----
	○	1.900	2.72	1.900	0.940
		2.375	3.65	2.375	1.250
ALL FABRIC HEIGHTS	H	2.250 x 1.700	3.43	2.250 x 1.950	1.25
	○	1.660	2.27	1.660	0.760
RAILS & BRACES	○	1.625 x 1.250	1.35	----	----
	ROLL FORM				

* TO BE USED ONLY IF TYPE D FABRIC (ALUMINUM ALLOY) IS SPECIFIED ON THE CONTRACT PLANS



**CHAIN LINK FENCE
(CLASS E, FAA SPEC. F-162)**

REVISIONS				
NO.	DATE	REMARKS	BY	CHKD
1	02/02/04	FABRIC HEIGHTS 10' & LESS	CA	
1	2/1/99	SHEET FORMAT	RJC	PWS

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF AERONAUTICS
LANSING, MICHIGAN

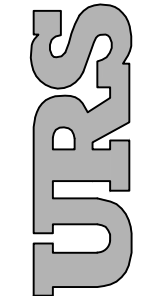
STANDARD PLAN FOR
CHAIN LINK FENCE, CLASS E

APPROVED _____
DESIGNED WSS 4/69
DRAWN RWS 4/69
CHECKED HN 5/5/69
DATE ST-F-101

DATE	ISSUED FOR
12-22-13	BRIS & CONSTRUCTION
12-22-13	BRIS REVIEW
12-08-13	SPONSOR REVIEW

D/E	DAH	X	X	X	X	X
PM	WHM	X	X	X	X	X
SOC	DR	X	X	X	X	X
QC	WHM	X	X	X	X	X
	W. MALINOWSKI					
	IN CHARGE					

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616 574-8800



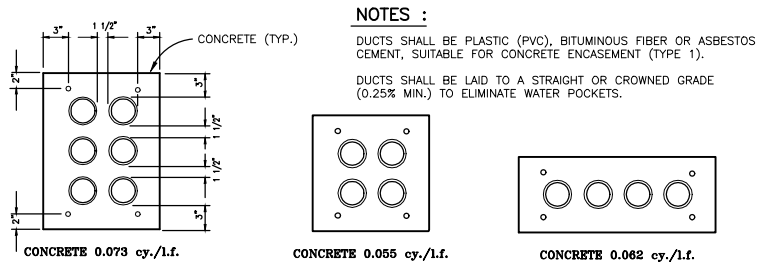
ANN ARBOR, MICHIGAN

ANN ARBOR MUNICIPAL AIRPORT
GATE AND FENCE IMPROVEMENTS
STANDARD PLAN, ST-F-101 CHAIN LINK FENCE, CLASS E

FEDERAL PROJECT NO.
J-26-0005-1710
STATE CONTRACT NO.
FM 81-01-C34

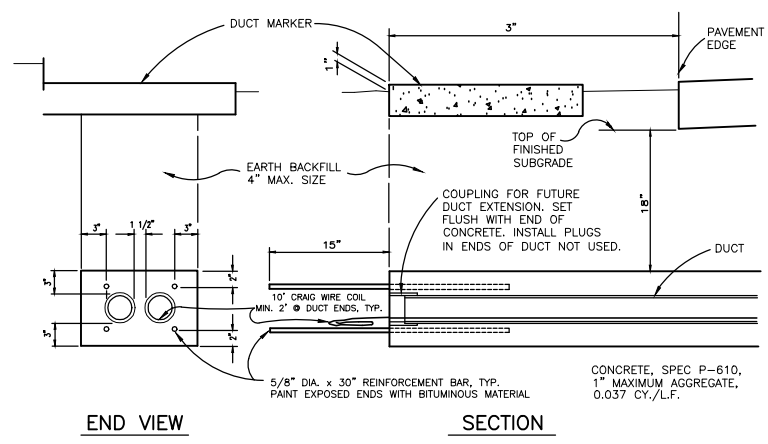
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13 OF 14

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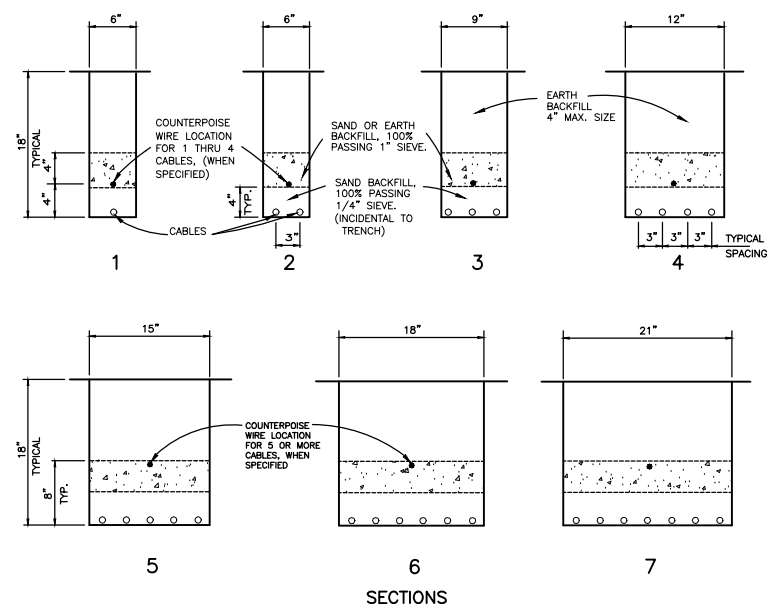


TYPICAL MULTIPLE BANK LAYOUTS

NUMBER OF BANKS AND CONFIGURATION AS SPECIFIED ON THE PLANS DIMENSIONS ARE TYPICAL FOR ALL CONFIGURATIONS.



CONCRETE ENCASED UNDERGROUND ELECTRICAL DUCTS
 (SPECIFICATION L-110)



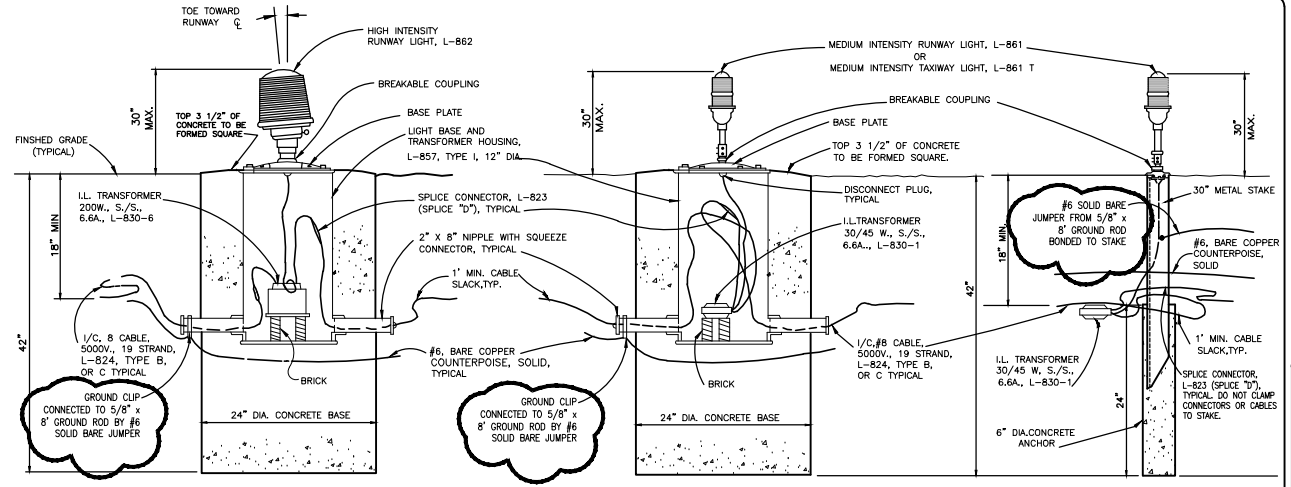
NOTES :

DETAIL NUMBERS INDICATE NUMBER OF CABLES.
 TRENCHES FOR MORE THAN 7 CABLES SHALL BE INCREASED 3" IN WIDTH FOR EACH ADDITIONAL CABLE AND TWO PARALLEL COUNTERPOISE WIRES SHALL BE INSTALLED AT THE QUARTER POINTS, OR IF SPECIFIED ON THE PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
 DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.

SAND BACKFILL MAY BE WAIVED BY THE ENGINEER IF THE EXISTING SOIL MEETS THE BACKFILL REQUIREMENTS.

ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH. RETURNING MATERIALS AND RATES MAY BE SHOWN ON THE PLANS.

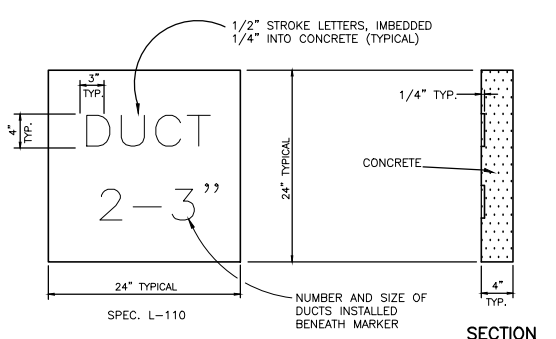
CABLE TRENCHES
 SPEC. L-108



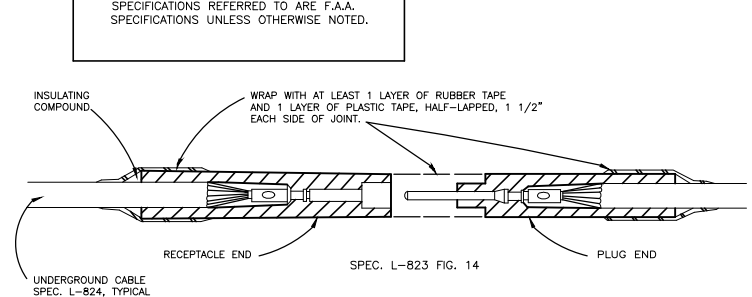
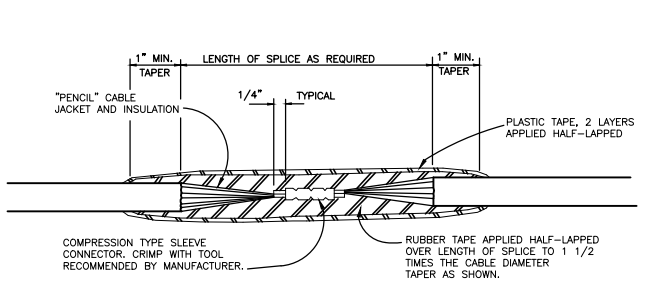
NOTES

THE LIGHT BASE AND TRANSFORMER HOUSING SHOWN IS STANDARD. LARGE SIZE LIGHT BASE AND TRANSFORMER HOUSING, 16" DIA., WILL BE USED ONLY IF SPECIFIED ON THE PLANS.
 LIGHT BASES SHALL BE INSTALLED WITH CONDUIT NIPPLES PARALLEL TO THE MAIN TRENCH.
 TOP OF STAKE OR TOP EDGE OF CONCRETE BASE SHALL BE FLUSH WITH FINISHED GRADE.
 CONCRETE SHALL MEET SPEC. P-610, 1" MAXIMUM AGGREGATE. (0.355 c.y. PER BASE, 0.015 c.y. PER ANCHOR).
 EDGE EXPOSED CONCRETE WITH A 1/4" MINIMUM RADIUS TOOL.
 PAY ITEMS FOR RUNWAY AND TAXIWAY LIGHTS INCLUDE FURNISHING AND INSTALLING FIXTURE, LAMP, TRANSFORMER, CABLE CONNECTORS, FRANGIBLE COUPLING AND STAKE WITH CONCRETE ANCHOR OR LIGHT BASE AND PLATE WITH CONCRETE BASE, AS REQUIRED.
 SEPARATE PAY ITEMS ARE ESTABLISHED FOR EACH TYPE AND COLOR OF LENS SPECIFIED, AND COLOR FILTER, WHERE REQUIRED.
 COLOR OF LENSES OR FILTERS, AND WATTAGE OF LAMPS SHALL BE AS SPECIFIED ON THE PLANS.

RUNWAY AND TAXIWAY LIGHTS
 SPEC. L-125

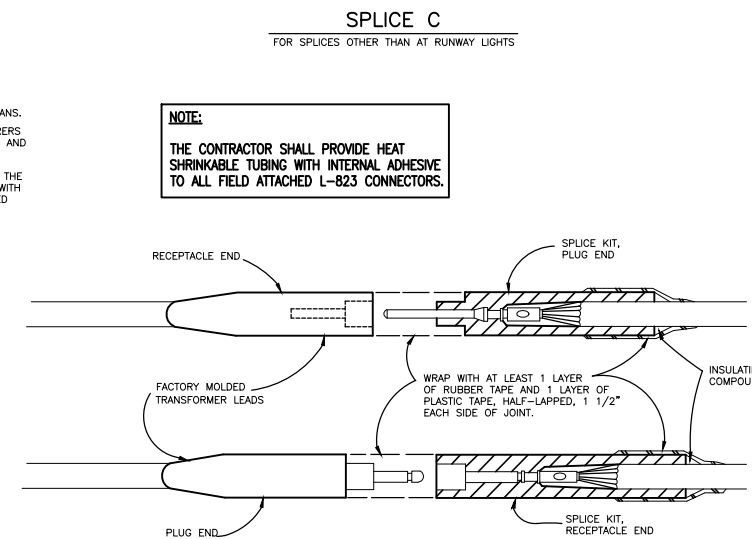
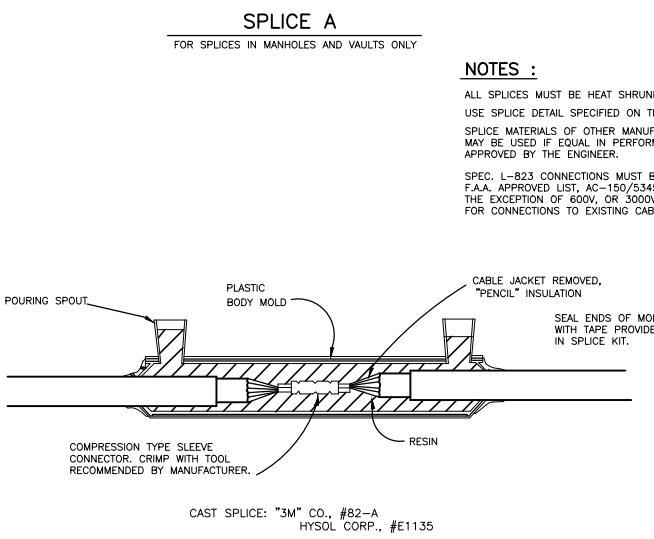


CABLE AND DUCT MARKERS
 SPEC. L-108 & L-110

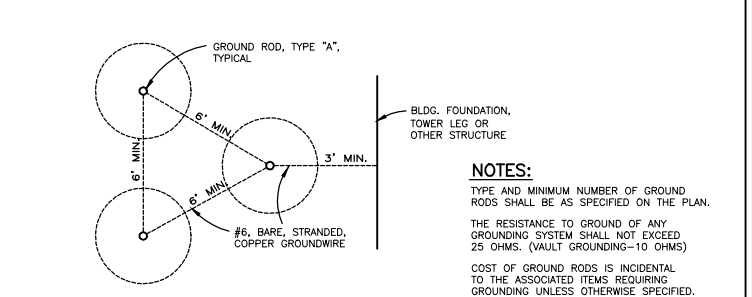


NOTES :

ALL SPLICES MUST BE HEAT SHRUNK.
 USE SPLICE DETAIL SPECIFIED ON THE PLANS.
 SPLICE MATERIALS OF OTHER MANUFACTURERS MAY BE USED IF EQUAL IN PERFORMANCE AND APPROVED BY THE ENGINEER.
 SPEC. L-823 CONNECTIONS MUST BE ON THE F.A.A. APPROVED LIST, AC-150/5345-1, WITH THE EXCEPTION OF 600V, OR 3000V, USED FOR CONNECTIONS TO EXISTING CABLES.

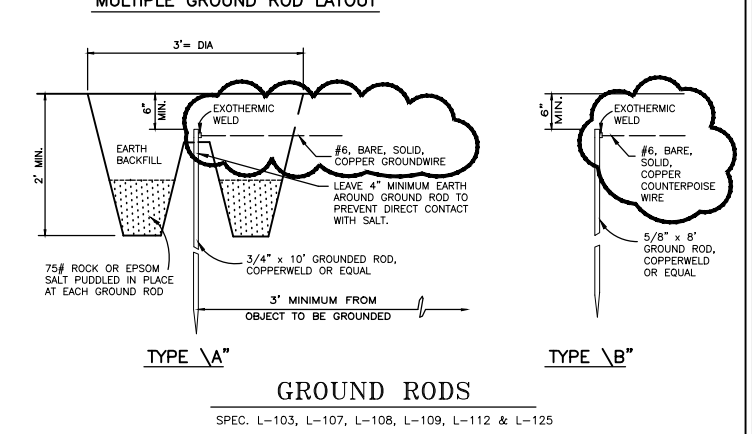


CABLE SPLICES
 SPEC. L-108



NOTES:

TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
 THE RESISTANCE TO GROUND OF ANY GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS. (VAULT GROUNDING-10 OHMS)
 COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.



REVISIONS				
NO.	DATE	REMARKS	BY	CHKD
9	2/1/99	SHEET FORMAT	RJC	PWS
8	4/1/79	LENS PAY ITEM	RWS	HN
7	1/31/79	DEPT. NAME CHANGE	GRR	REL
6	1/23/76	SPEC. L-860 SERIES	FB	MB
5	1/14/75	SPLIT LENS NOTE	FB	MB
4	5/15/74	DEPT. NAME CHANGE	RA	IMV
3	9/20/73	GROUNDING INFORMATION	FB	MB
2	2/2/71	SPEC. L-857	KB	IN
1	11/13/70	5000V M.CABLE	RA	

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF AERONAUTICS LANSING, MICHIGAN			
STANDARD PLAN FOR			
ELECTRICAL INSTALLATION DETAILS			
APPROVED	DESIGNED	WSS	3/68
	DRAWN	RWS	8/68
	CHECKED	IN	9/68
Oliver House DESIGN ENGINEER	DATE	ST-L-120	

DATE	ISSUED FOR
02-22-13	BUS & CONSTRUCTION
02-22-13	BVA REVIEW
02-08-13	SPONSOR REVIEW

D/E	DAH	X	X	X	X	X
PM	MM	X	X	X	X	X
SOC	DR	X	X	X	X	X
QC	MM	X	X	X	X	X
W.	MALINOWSKI					
IN CHARGE						

GRAND RAPIDS, MI.
 5850 SPARKS DR., S.E.
 616 571-8500



ANN ARBOR MUNICIPAL AIRPORT
 ANN ARBOR, MICHIGAN
 GATE AND FENCE IMPROVEMENTS
 STANDARD PLAN, ST-L-120, ELECTRICAL INSTALLATION DETAILS

FEDERAL PROJECT NO. J-26-0005-1710
STATE CONTRACT NO. FM 81-01-C34
DRAWING 14 OF 14
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 JVanDun
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