ITEM NO. 02A IDOT LETTING: APRIL 29, 2022

SD061
TOTAL SHEETS = 56

CONSTRUCTION PLANS - ISSUED FOR BID

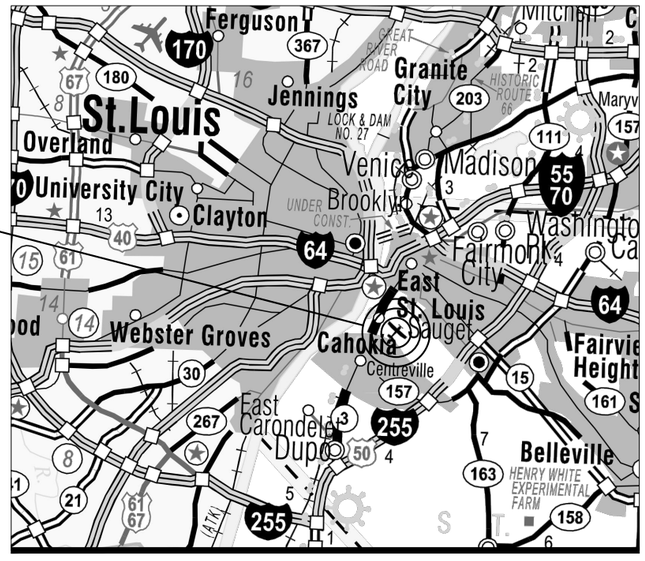
CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

BI-STATE DEVELOPMENT AGENCY
ST. LOUIS DOWNTOWN AIRPORT (CPS)
CAHOKIA, ST. CLAIR COUNTY, ILLINOIS

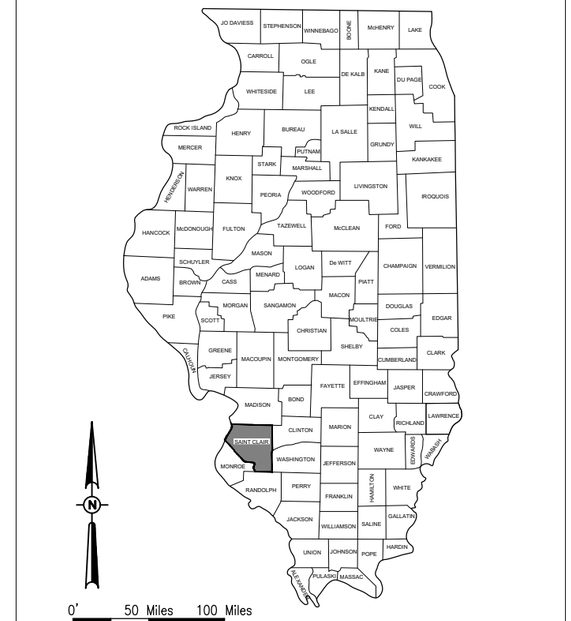
IDA PROJECT NO.: CPS-4976

March 4, 2022

VICINITY MAP



LOCATION MAP



SCOPE OF WORK:

THIS PROJECT SHALL CONSIST OF THE CONSTRUCTION OF NEW TAXIWAY AND APRON PAVEMENTS ON THE EAST SIDE OF THE AIRFIELD. THE PROJECT INCLUDES EARTHWORK GRADING AND DRAINAGE, AGGREGATE PLACEMENT, PCC PAVING, AIRFIELD LIGHTING AND SIGNAGE, PAVEMENT MARKING, EROSION CONTROL ITEMS, INSTALLATION OF JET BLAST DEFLECTOR EQUIPMENT, AND INCIDENTALS.

NOTICE TO CONTRACTORS AND BIDDERS

THESE CONSTRUCTION PLANS RELY UPON THE SPECIAL PROVISIONS AND THE SPECIFICATIONS TO PROVIDE FOR A COMPLETE DESCRIPTION OF THE WORK AND CONSTRUCTION REQUIREMENTS. THE PLANS SHALL ONLY BE USED IN COMBINATION WITH ALL CONTRACT DOCUMENTS.

No.	Issue/Description	Sheets Changed	Date	By

COVERING ELECTRICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

EXP. 11/30/23

Kevin N. Lightfoot, P.E.
Electrical Engineer

3/4/2022
Date

HANSON

HANSON PROFESSIONAL SERVICES INC.
1525 South Sixth Street
Springfield, Illinois 62703-2886
Telephone: 217.788.2450
Fax: 217.788.2503

EXP. 11/30/23

STATE OF ILLINOIS
BARRY S. STOLZ
062-057281
LICENSED PROFESSIONAL ENGINEER

Barry S. Stolz, P.E.
Civil Engineer / Project Manager

3/4/22
Date

ST. LOUIS DOWNTOWN AIRPORT

Bi-State Development Agency
6100 Archview Drive
Cahokia, Illinois 62206-1445
Telephone: 618.337.6060

Sandra Shore, A.A.E.
Airport Director

02/02/2022
Date

MAR 07, 2022 2:40 PM STOLZ01547
I:\2DJOBS\20A000105D\CAD\AIRPORT\SHEETS\G-001-CVR.DWG

SUMMARY OF QUANTITIES (BASE BID)

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AR108108	1/C #8 5 KV UG CABLE	FOOT	3,725	
AR110012	2" DIRECTIONAL BORE	FOOT	105	
AR110202	2" PVC DUCT, DIRECT BURY	FOOT	2,100	
AR110501	1-WAY CONC. ENCASED DUCT	FOOT	196	
AR110502	2-WAY CONCRETE ENCASED DUCT	FOOT	103	
AR125416	MITL-BASE MOUNTED-LED	EACH	42	
AR125443	TAXI GUIDANCE SIGN, 3 CHARACTER	EACH	2	
AR125449	TAXI GUIDANCE SIGN, 9 CHARACTER	EACH	1	
AR125565	SPLICE CAN	EACH	3	
AR125902	REMOVE BASE MOUNTED LIGHT	EACH	1	
AR150510	ENGINEER'S FIELD OFFICE	L SUM	1	
AR150520	MOBILIZATION	L SUM	1	
AR150540	HAUL ROUTE	L SUM	1	
AR152410	UNCLASSIFIED EXCAVATION	CU YD	39,419	
AR156500	TEMPORARY EROSION CONTROL	L SUM	1	
AR156530	TEMPORARY SEEDING	ACRE	19.8	
AR156531	EROSION CONTROL BLANKET	SQ YD	24,950	
AR156540	RIPRAP	SQ YD	25	
AR208540	OVERSIZE AGGREGATE	TON	22,330	
AR209510	CRUSHED AGGREGATE BASE COURSE	TON	5,583	
AR501512	12" PCC PAVEMENT	SQ YD	10,664	
AR501530	PCC TEST BATCH	EACH	1	
AR620520	PAVEMENT MARKING-WATERBORNE	SQ FT	4,255	
AR620525	PAVEMENT MARKING-BLACK BORDER	SQ FT	2,905	
AR701174	PRECAST CONC. BOX CULVERT 7'X4'	FOOT	160	
AR701524	24" RCP, CLASS IV	FOOT	170	
AR705943	ADJUST UNDERDRAIN INSP. HOLE	EACH	1	
AR752424	PRECAST REINFORCED CONC. FES 24"	EACH	2	
AR752648	CONCRETE HEADWALL 48"	EACH	2	
AR800545	MITL, BASE MOUNTED SIZE D	EACH	6	
AR800550	JET BLAST BARRIER/DEFLECTOR	L SUM	1	
AR800551	12" PCC PAVEMENT, NON-FERROUS	SQ YD	4,964	
AR800564	CABLE AND CCR TESTING AND CALIBRATION	L SUM	1	
AR901510	SEEDING	ACRE	19.8	
AR908514	LIGHT-DUTY HYDRAULIC MULCH	ACRE	14.7	

SUMMARY OF QUANTITIES (ADDITIVE ALTERNATE BID #1)

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AS800550	JET BLAST BARRIER/DEFLECTOR	L SUM	1	

SUMMARY OF QUANTITIES (ADDITIVE ALTERNATE BID #2)

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AT800550	JET BLAST BARRIER/DEFLECTOR	L SUM	1	

SUMMARY OF QUANTITIES (ADDITIVE ALTERNATE BID #3)

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AU800527	APRON LIGHTING SYSTEM	L SUM	1	

GENERAL NOTES:

QUANTITIES

PAYMENT WILL BE MADE UNDER THE ITEM NUMBERS, DESCRIPTIONS AND UNITS NOTED IN THE ABOVE TABLE IN ACCORDANCE WITH THE BASIS OF PAYMENT FOR EACH RESPECTIVE WORK ITEM COMPLETED AND ACCEPTED BY THE ENGINEER.

EARTHWORK QUANTITIES

REFER TO THE EARTHWORK SUMMARY TABLE AND NOTES ON PLAN SHEET "SITE STOCKPILE & CHANNEL OVERVIEW".

CERITIFIED PAYROLLS

THE RESIDENT ENGINEER/TECHNICIAN CANNOT FORWARD CONSTRUCTION REPORTS TO THE ILLINOIS DIVISION OF AERONAUTICS FOR PROCESSING UNTIL ALL CERTIFIED PAYROLLS FOR THE PERIOD HAVE BEEN RECEIVED.

MATERIAL CERTIFICATIONS

MATERIALS TO BE INCORPORATED INTO THE PROJECT CANNOT BE USED WITHOUT PRIOR APPROVAL. ALL MATERIALS TO BE USED IN THE PROJECT MUST BE SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL. USE OF MATERIALS WITHOUT PRIOR APPROVAL AND ULTIMATELY DETERMINED TO BE UNACCEPTABLE BY THE ILLINOIS DIVISION OF AERONAUTICS ARE SUBJECT TO REMOVAL AND/OR NON-PAYMENT.

INDEX TO SHEETS

SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	SUMMARY OF QUANTITIES AND INDEX TO SHEETS
3	SCOPE OF WORK
4	PROPOSED SAFETY AND PHASING PLAN
5	CONSTRUCTION SAFETY DETAILS AND NOTES
6	TYPICAL PAVEMENT SECTIONS
7	SITE DEMOLITION PLAN
8	GEOMETRY LAYOUT PLAN
9	SITE STOCKPILE & CHANNEL OVERVIEW
10	PROPOSED PLAN & PROFILE - TWY A6
11	PROPOSED PLAN & PROFILE - TWY A
12	PROPOSED PLAN & PROFILE - SOIL STOCKPILE
13	TWY A6 CHANNEL 0+00-9+00
14	TWY A6 CHANNEL 9+00-17+39
15	TWY A CHANNEL PROFILE STA. 00+00-10+74
16	RWY 12L-30R CHANNEL PROFILE STA. 0+00-10+00
17	RWY 12L-30R CHANNEL PROFILE STA. 10+00-20+00
18	RWY 12L-30R CHANNEL PROFILE STA. 20+00-30+18
19	STAKING PLAN - SHEET 1
20	STAKING PLAN - SHEET 2
21	STAKING PLAN - SHEET 3
22	JOINTING PLAN
23	JOINTING DETAILS
24	DRAINAGE DETAILS
25	BOX CULVERT DETAILS - SHEET 1
26	BOX CULVERT DETAILS - SHEET 2
27	JET BLAST DEFLECTOR DETAILS AND NOTES
28	JET BLAST DEFLECTOR DETAILS
29	MARKING PLAN
30	MARKING DETAILS - SHEET 1
31	MARKING DETAILS - SHEET 2
32	STORMWATER POLLUTION PREVENTION PLAN SHEET 1
33	STORMWATER POLLUTION PREVENTION PLAN SHEET 2
34	STORMWATER POLLUTION PREVENTION DETAILS SHEET 1
35	STORMWATER POLLUTION PREVENTION DETAILS SHEET 2
36	PROPOSED ELECTRICAL PLAN
37	PROPOSED APRON LIGHTING PLAN
38	APRON LIGHTING DETAILS 1
39	APRON LIGHTING DETAILS 2
40	AIRFIELD LIGHTING NOTES
41	TAXI GUIDANCE SIGN SCHEDULE AND LIGHT LOCATION TABLE
42	AIRFIELD LIGHT DETAILS
43	TAXI GUIDANCE SIGN DETAILS
44	SPLICE CAN DETAIL
45	AIRFIELD LIGHTING CABLE SPLICE DETAILS
46	CONDUIT TRENCH DETAILS
47	CABLE AND DUCT MARKER DETAILS
48	ELECTRICAL NOTES SHEET 1
49	ELECTRICAL NOTES SHEET 2
50	GROUNDING DETAILS
51	GROUND RESISTANCE TESTING DETAILS
52	GROUNDING NOTES
53	ELECTRICAL LEGEND AND ABBREVIATIONS
54	EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR AIRPORT VAULT
55	EXISTING HV WIRING SCHEMATIC FOR RWY 12L-30R & TWY B CKT 1
56	SERIES CIRCUIT CABLE TESTING DETAILS

FOR BID

HANSON
Engineering | Planning | Allied Services

Hanson Professional Services Inc.
1525 S. 6th Street
Springfield, IL 62703
phone: 217-788-2450
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Offices Nationwide
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Illinois Licensed
Professional Service Corporation
#184-001084

ST. LOUIS DOWNTOWN AIRPORT

ST. LOUIS DOWNTOWN AIRPORT
BI-STATE DEVELOPMENT AGENCY
6100 Archview Drive
Cahokia, Illinois 62206

STATE OF ILLINOIS
BARRY S. STOLZ
062-057281
LICENSED PROFESSIONAL ENGINEER

DATE SIGNED: ~~3~~/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

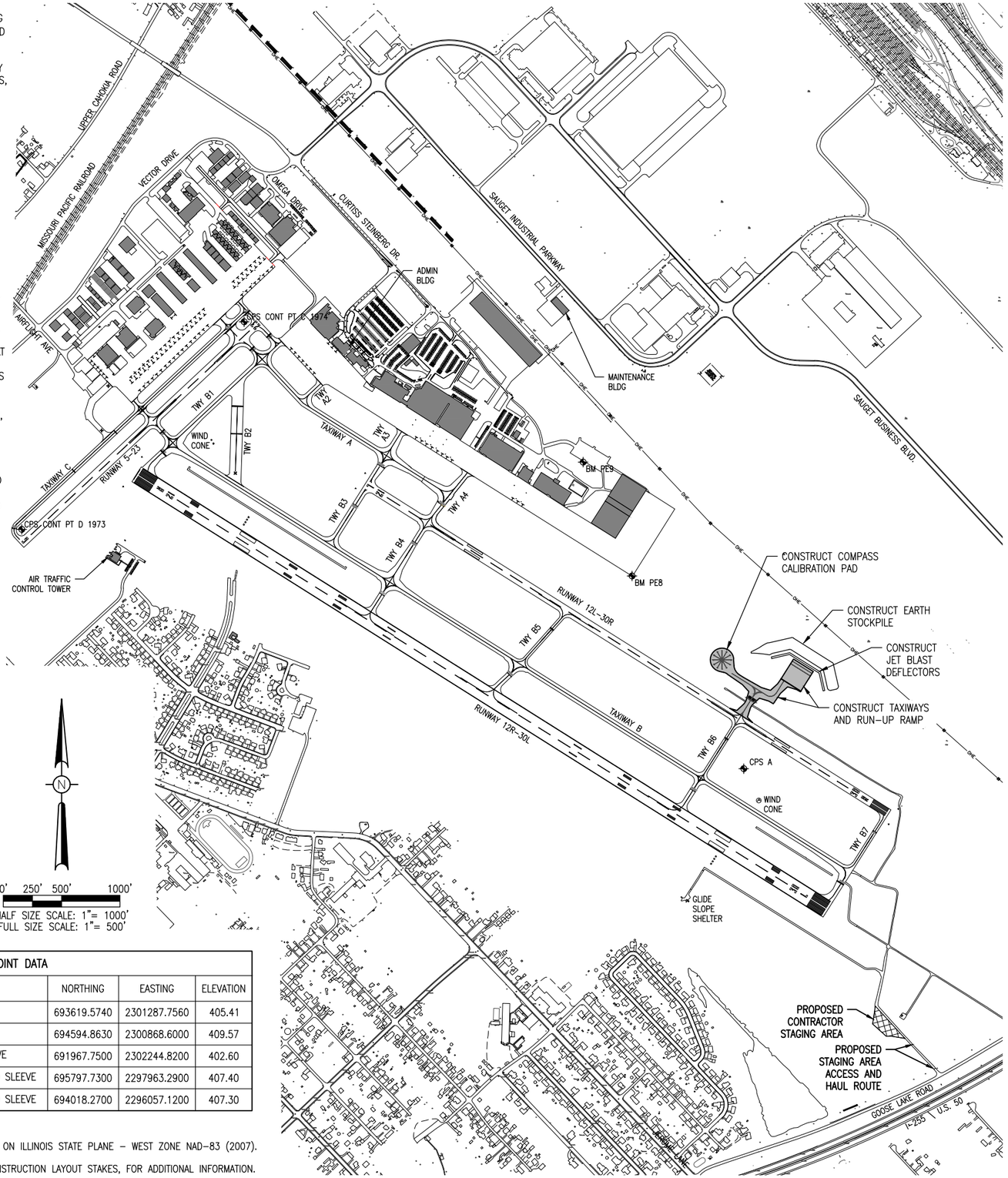
ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: G-002-FLP.DWG
DESIGN BY: BSS 4/12/2021
DRAWN BY: MJD 4/16/2021
REVIEWED BY: ~~BS~~S 03/~~0~~3/2022

SHEET TITLE

SUMMARY OF QUANTITIES AND INDEX TO SHEETS

UTILITY NOTE

THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.



J.U.L.I.E. INFORMATION

COUNTY_____ST. CLAIR
CITY_____CAHOKIA
TOWNSHIP_____CENTERVILLE
SECTION NO._____T.1N. – R.10W.
ADDRESS_____ST. LOUIS DOWNTOWN AIRPORT
6100 ARCHVIEW DRIVE
CAHOKIA, IL 62206-1445

LEGEND

- EXISTING IMPROVEMENTS
- EXISTING BUILDINGS
- PROPOSED IMPROVEMENTS
- PROPOSED CONTRACTOR STAGING AREA
- PROPOSED STOCKPILE
- EXISTING FENCE
- SURVEY CONTROL POINT

CONTROL POINT DATA

POINT #	DESCRIPTION	NORTHING	EASTING	ELEVATION
BM PE8	CUT SQUARE	693619.5740	2301287.7560	405.41
BM PE9	CUT SQUARE	694594.8630	2300868.6000	409.57
CPS A	STAINLESS STEEL ROD IN SLEEVE	691967.7500	2302244.8200	402.60
CPS CONT PT C 1974	COPPER-CLAD STEEL ROD W/O SLEEVE	695797.7300	2297963.2900	407.40
CPS CONT PT D 1973	COPPER-CLAD STEEL ROD W/O SLEEVE	694018.2700	2296057.1200	407.30

SURVEY NOTES

1. ALL COORDINATE VALUES SHOWN IN TABLE ARE BASED ON ILLINOIS STATE PLANE – WEST ZONE NAD-83 (2007).
2. REFER TO IDOT STANDARD SPECIFICATIONS 50-06, CONSTRUCTION LAYOUT STAKES, FOR ADDITIONAL INFORMATION.

GENERAL NOTES

1. THE SCOPE OF WORK SHEET IS INTENDED ONLY AS A GENERAL DESCRIPTION OF WORK ITEMS AND THEIR APPROXIMATE LOCATIONS AND LIMITS, FOR THE PURPOSE OF UNDERSTANDING THE SCOPE OF THE PROJECT. THIS SHEET SHALL NOT BE USED AS A CONSTRUCTION PLAN. REFER TO THE FOLLOWING PLAN SHEETS FOR DETAILED CONSTRUCTION REQUIREMENTS, LOCATIONS, AND ITEMS OF WORK.
2. WORK FOR THIS PROJECT SHALL CONSIST OF, BUT IS NOT LIMITED TO, CONSTRUCTION OF NEW PCC PAVEMENT, UNCLASSIFIED EXCAVATION, INSTALLATION OF AIRFIELD LIGHTING AND SIGNAGE, EARTHWORK GRADING AND DRAINAGE, PAVEMENT MARKING, EROSION CONTROL ITEMS AND INCIDENTALS.
3. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, AND TRANSPORTATION NECESSARY TO CONSTRUCT ALL ELEMENTS OF THE PROJECT AS DESCRIBED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS. THE PROJECT PAY ITEMS ARE INTENDED TO BE INCLUSIVE OF ALL WORK TO BE PERFORMED AS SHOWN IN THESE PLANS. ALL INCIDENTAL WORK REQUIRED TO COMPLETE THE PROJECT TO THE SATISFACTION OF THE RESIDENT ENGINEER/ TECHNICIAN IS TO BE INCLUDED IN THE COSTS OF PERFORMING THESE ITEMS.
4. THE RULES, REGULATIONS, AND SPECIFICATIONS ENUMERATED HEREIN SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS. THEY SHALL NOT PROHIBIT THE CONTRACTOR FROM FURNISHING AND INSTALLING HIGHER GRADES OF MATERIAL THAN ARE SPECIFIED HEREIN.
5. THE CONTRACTOR IS NOT PERMITTED TO USE THE AIRPORT ENTRANCE DRIVE AND AUTO PARKING LOT FOR MATERIAL AND EQUIPMENT HAULING OR STORAGE. THE CONSTRUCTION ENTRANCE AS SHOWN ON THE SCOPE OF WORK AND/OR SAFETY PHASING PLAN ARE ONLY TO BE USED FOR THE PROJECT. ACCESS TO THE PROJECT FOR ALL HAULING OF MATERIALS AND EQUIPMENT SHALL BE RESTRICTED TO THE DESIGNATED CONSTRUCTION ENTRANCE.
6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT, PRESERVE AND REPAIR THE EXISTING AIRFIELD AND ROADWAY PAVEMENTS AT ALL TIMES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING ELECTRICAL, DRAINAGE, AND PAVEMENT STRUCTURES AT NO ADDITIONAL COST TO THE CONTRACT.
7. NO EQUIPMENT SHALL BE PERMITTED TO CROSS OR USE ANY EXISTING PAVEMENT OUTSIDE THE CONSTRUCTION LIMITS, GENERAL PROJECT AREA OR HAUL ROUTE.
8. CONTRACTOR IS REQUIRED TO PROVIDE THEIR OWN RESTROOM FACILITIES.
9. UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS OUTSIDE OF THE PROPOSED CONSTRUCTION LIMITS SHALL BE GRADED, SEEDED AND/OR HYDROMULCH SEEDED AT NO ADDITIONAL COST TO THE CONTRACT.
10. ALL WASTE MATERIAL SHALL BE HAULED FROM THE AIRPORT AND PROPERLY DISPOSED OF UNLESS OTHERWISE SPECIFIED HEREIN.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS FOR HAULING ON PUBLIC ROADS, AS APPLICABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY DAMAGES TO ANY PAVEMENTS (PUBLIC OR PRIVATE) CAUSED BY HIS/HER CONSTRUCTION EQUIPMENT OR PERSONNEL.
12. THE OWNER SHALL HAVE THE RIGHT OF FIRST REFUSAL FOR ALL SALVAGEABLE MATERIAL REMOVED ON THE PROJECT.
13. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEEER/ TECHNICIAN SO THEY MAY DEVELOP ONE SET OF REDLINED AS-BUILT DRAWINGS AT THE COMPLETION OF THE PROJECT.
14. CONTRACTOR SHALL NOTE THAT ALL AREAS WITHIN THE AIRPORT PROPERTY LINE AND OUTSIDE THE CONSTRUCTION LIMITS MAY BE USED FOR AGRICULTURAL PURPOSES. THE CONSTRUCTION LIMITS SHALL BE RESTRICTED TO AREAS THAT ARE ABSOLUTELY NECESSARY TO DISTURB TO COMPLETE THE REQUIRED WORK ITEMS. LIMITS SHALL BE COORDINATED WITH THE RESIDENT ENGINEER PRIOR TO BEGINNING ANY WORK. ALL AREAS WHICH HAVE BEEN FARMED AND OR DESIGNATED TO BE FARMED AFTER THE PROJECT COMPLETION, AND HAVE BEEN DISTURBED BY CONSTRUCTION ACTIVITY, SHALL BE CHISEL PLOWED (36" MAX.) OR OTHERWISE SCARIFIED TO RETURN THE AREA TO A REASONABLE TILLABLE CONDITION (IF SO PERMITTED BY THE AIRPORT MANAGER.)
15. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION ALL GRASS, STONE, OR PAVEMENT DISTURBED BY CONTRACTOR'S CONSTRUCTION OPERATIONS, STAGING, AND CONSTRUCTION ACCESS ROUTES. DISTURBED AREAS TO BE REPAIRED, GRADED, AND MULCHED SEEDED UNLESS OTHERWISE NOTED. STAGING AREA AND SITE ACCESS RESTORATION SHALL BE INCLUDED IN THE COST OF THE HAUL ROUTE.
16. APPROXIMATE LOCATIONS OF UNDERGROUND UTILITIES ARE SHOWN THROUGHOUT THESE PLANS. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS AND PROTECT THESE UTILITIES DURING CONSTRUCTION. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL COORDINATE WITH THE PROPER PERSONS FOR THE PURPOSE OF LOCATING AND PROTECTING EXISTING UNDERGROUND UTILITIES.
17. THE CONTRACTOR MUST AT ALL TIMES MAINTAIN PROPER DRAINAGE FOR ALL AREAS AFFECTED BY HIS WORK.

FOR BID

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#184-001084

ST. LOUIS DOWNTOWN AIRPORT
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BI-STATE DEVELOPMENT AGENCY
6100 Archview Drive
Cahokia, Illinois 62206

STATE OF ILLINOIS
BARRY S. STOLZ
062-057281
LICENSED PROFESSIONAL ENGINEER

DATE SIGNED: ~~3~~/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: G-003-SOW.DWG
DESIGN BY: BSS 4/12/2021
DRAWN BY: MJD 4/16/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

SCOPE OF WORK

MAR 04, 2022 4:54 PM STOLZ01547
I:\20JOBS\20A000105D\CAD\AIRPORT\SHEETS\G-003-SOW

NOTES

1. RUNWAY 12L–30R WILL BE CLOSED FOR THE DURATION OF THE PROJECT CONSTRUCTION. AT ALL TIMES, THE CONTRACTOR'S OPERATIONS SHALL BE SUCH AS TO MINIMIZE DISRUPTION TO AIRCRAFT OPERATIONS, INCLUDING MINIMIZING THE RUNWAY CLOSURE DURATION.
2. RUNWAY 12L–30R LIGHTING CIRCUITS AND NAVAIDS SHALL BE TURNED OFF FOR THE DURATION OF THE PROJECT CONSTRUCTION. EXISTING TAXIWAY EDGE LIGHTS WITHIN THE CLOSED PORTIONS SHALL BE TURNED OFF OR OBSCURED. THE CONTRACTOR SHALL PROVIDE APPROVED MATERIALS TO OBSCURE ALL AFFECTED EDGE LIGHTS. INSTALL AND MAINTAIN THE MATERIALS DURING CONSTRUCTION. ALL COSTS FOR OBSCURING LIGHT SHALL BE INCIDENTAL TO THE PROJECT.
3. AIRPORT SECURITY SHALL BE MAINTAINED THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL BE RESTRICTED TO THE DESIGNATED WORK AREAS. THE CONTRACTOR SHALL ENSURE THAT ACCESS POINTS USED BY CONSTRUCTION VEHICLES AND PERSONNEL ARE CLOSED WHEN NOT IN USE AND LOCKED AT THE END OF THE WORKING DAY TO PREVENT UNAUTHORIZED ACCESS TO THE AIRPORT MOVEMENT AREA.
4. CLOSURE CROSSES AND BARRICADES SHALL BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION.
5. AT THE COMPLETION OF ALL CONSTRUCTION, THE HAUL ROUTE AND CONSTRUCTION EQUIPMENT PARKING AREA SHALL BE RESTORED TO PRE–CONSTRUCTION CONDITIONS PER THE SPECIFICATIONS.
6. THE COSTS FOR PROVISION, PLACEMENT, MAINTENANCE AND REMOVAL OF BARRICADES AND ALL ASSOCIATED INCIDENTALS SHALL BE PAID FOR UNDER ITEM AR150520 MOBILIZATION.
7. THE COSTS FOR CONSTRUCTION, MAINTENANCE OF ACCESS GATE, HAUL ROUTE AND EQUIPMENT STAGING AREA, TEMPORARY SIGNAGE AND ALL ASSOCIATED INCIDENTALS SHALL BE PAID FOR UNDER ITEM AR150540 HAUL ROUTE.

SAFETY PLAN COMPLIANCE DOCUMENT

PRIOR TO THE ISSUANCE OF A CONSTRUCTION NOTICE–TO–PROCEED (NTP), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AND SUBMITTING A SAFETY PLAN COMPLIANCE DOCUMENT IN ACCORDANCE WITH FAA ADVISORY CIRCULAR 150/5370–2G, PARAGRAPH 2.4.2, OR EQUIVALENT SECTION IN SUBSEQUENT/CURRENT ISSUE. THE AIRPORT DIRECTOR SHALL APPROVE THIS DOCUMENT AND SUBMIT TO THE AIRPORT AUTHORITY FOR APPROVAL PRIOR TO THE NTP ISSUANCE.

CONTROL POINTS						
CRITICAL POINT #	LATITUDE	LONGITUDE	SITE ELEV.	EQUIP. ELEV.	TOTAL ELEV.	DURATION
1	038° 33' 41.34"	–090° 08' 34.53"	405.000	25'	430.00	TEMP.
2	038° 34' 24.97"	–090° 09' 28.30"	411.000	3'	414.00	TEMP.
3	038° 34' 22.78"	–090° 09' 23.87"	411.000	3'	414.00	TEMP.
4	038° 34' 21.80"	–090° 09' 21.89"	411.000	3'	414.00	TEMP.
5	038° 34' 10.99"	–090° 09' 12.03"	411.000	3'	414.00	TEMP.
6	038° 34' 01.42"	–090° 08' 52.67"	407.000	3'	410.00	TEMP.
7	038° 33' 53.51"	–090° 08' 36.68"	406.000	3'	409.00	TEMP.
8	038° 33' 48.92"	–090° 08' 32.56"	408.000	25'	433.00	TEMP.
9	038° 33' 46.27"	–090° 08' 33.12"	408.000	25'	433.00	TEMP.
10	038° 33' 43.69"	–090° 08' 33.80"	407.000	25'	432.00	TEMP.
11	038° 34' 05.35"	–090° 08' 47.77"	406.000	25'	431.00	TEMP.
12	038° 34' 06.57"	–090° 08' 50.22"	406.000	25'	431.00	TEMP.
13	038° 34' 11.19"	–090° 08' 52.13"	404.000	25'	429.00	TEMP.
14	038° 34' 10.93"	–090° 08' 45.74"	407.000	18'	425.00	PERM.
15	038° 34' 08.07"	–090° 08' 39.97"	407.000	18'	425.00	PERM.
16	038° 34' 09.55"	–090° 08' 40.58"	407.000	18'	425.00	PERM.
17	038° 34' 11.13"	–090° 08' 43.78"	407.000	18'	425.00	PERM.
18	038° 34' 11.76"	–090° 08' 45.47"	418.000	15'	433.00	TEMP.
19	038° 34' 11.76"	–090° 08' 45.47"	418.000	0'	418.00	PERM.
20	038° 34' 08.49"	–090° 08' 39.09"	418.000	15'	433.00	TEMP.

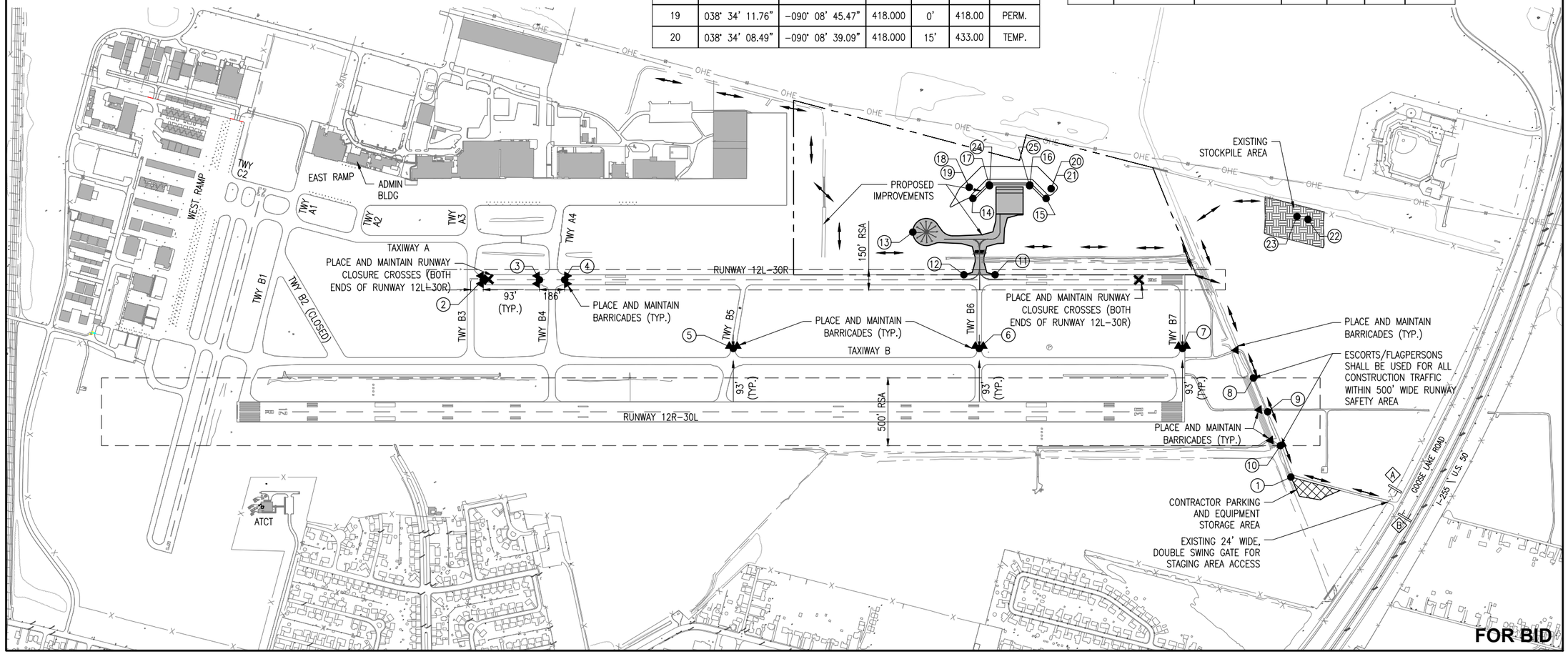
LEGEND

- EXISTING IMPROVEMENTS
- PROPOSED IMPROVEMENTS
- EXISTING BUILDINGS
- PROPOSED HAUL ROUTE
- PROPOSED EQUIPMENT PARKING AREA
- EXISTING FENCE
- PROPOSED BARRICADES
- PROPOSED CLOSURE CROSS
- CONSTRUCTION SIGN
- CRITICAL POINT
- RUNWAY SAFETY AREA

0' 200' 400' 800'
HALF SIZE SCALE: 1"= 800'
FULL SIZE SCALE: 1"= 400'

DOWNTOWN GROUND FREQUENCY = 121.80

CONTROL POINTS						
CRITICAL POINT #	LATITUDE	LONGITUDE	SITE ELEV.	EQUIP. ELEV.	TOTAL ELEV.	DURATION
21	038° 34' 08.49"	–090° 08' 39.09"	418.000	0'	418.00	PERM.
22	038° 33' 56.59"	–090° 08' 20.40"	415.000	15'	430.00	TEMP.
23	038° 33' 57.20"	–090° 08' 21.13"	415.000	15'	430.00	TEMP.
24	038° 34' 11.07"	–090° 08' 43.79"	407.000	50'	457.00	PERM.
25	038° 34' 09.51"	–090° 08' 40.65"	407.000	50'	457.00	PERM.



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DATE SIGNED: ~~3~~/4/22
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CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
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DESIGN BY: MJD 03/12/2021
DRAWN BY: MJD 03/12/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

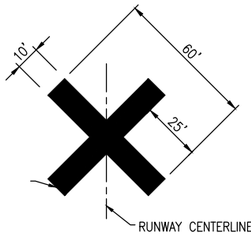
PROPOSED SAFETY AND PHASING PLAN

LIGHTED RUNWAY CLOSURE MARKER

NOT TO SCALE

NOTES:

1. THE AIRPORT HAS TWO LIGHTED RUNWAY CLOSURE MARKERS AVAILABLE FOR USE ON THIS PROJECT. THE COST OF PLACING, OPERATING, MAINTAINING, AND REMOVING THE LIGHTED RUNWAY CLOSURE MARKERS WILL BE CONSIDERED INCIDENTAL TO THE CONTRACT. THE CONTRACTOR SHALL RETURN THE AIRPORT-OWNED LIGHTED RUNWAY CLOSURE MARKERS IN THE SAME OR BETTER CONDITION THAN AT THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL MAKE FREQUENT INSPECTION OF THE LIGHTED CROSSES AND MAKE PROMPT REPAIRS AS NECESSARY.
3. THE CONTRACTOR SHALL BE ON-CALL FOR 24-HOUR EMERGENCY MAINTENANCE WHEN LIGHTED CROSSES ARE BEING USED.
4. THE LIGHTED MARKERS SHALL BE PLACED OVER THE RUNWAY NUMERALS AS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER.
5. LIGHTED MARKERS SHALL BE SECURED FROM WIND EFFECTS BY THE CONTRACTOR AS RECOMMENDED BY THE MANUFACTURER.
6. THE LIGHTED MARKERS SHALL BE IN PLACE AND OPERATING WHENEVER THE RUNWAY IS CLOSED AND REMOVED WHEN THE RUNWAY IS RE-OPENED.



CLOSURE CROSS MARKER DETAIL

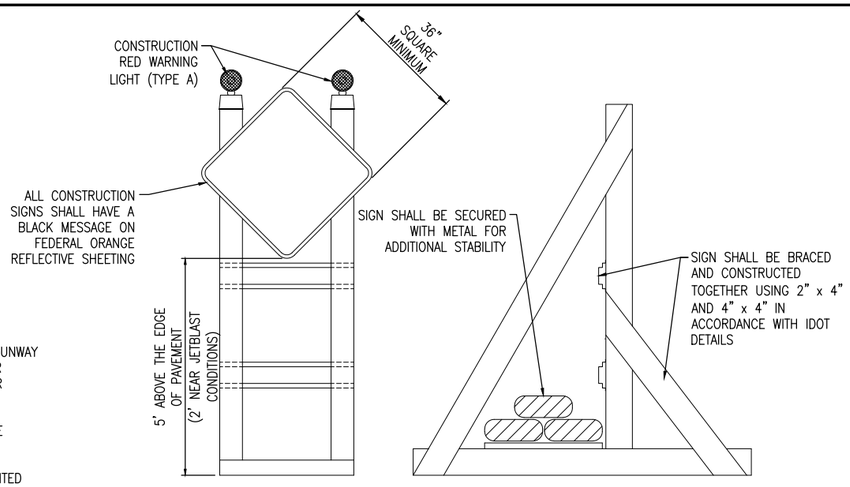
NOT TO SCALE

NOTES:

1. TEMPORARY CLOSURE CROSS MARKINGS SHALL BE CONSTRUCTED OF PLYWOOD, SNOW FENCE OR APPROVED FABRIC AND SHALL BE SECURED TO PAVEMENT BY SANDBAGS OR OTHER APPROVED METHOD.
2. COST FOR PROVIDING, PLACING, MAINTAINING, RELOCATING AND REMOVING CLOSURE CROSSES SHALL BE INCLUDED IN THE COST OF THE MOBILIZATION ITEM.

BARRICADE NOTES

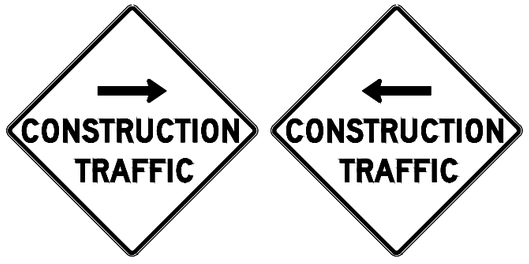
1. ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE ILLINOIS SUPPLEMENT (LATEST EDITION) AND THE FAA ADVISORY CIRCULARS (LATEST EDITION) UNLESS NOTED OTHERWISE. THE FAA OR MORE STRINGENT SPECIFICATIONS SHALL GOVERN.
2. BARRICADES SHALL BE "LOW-PROFILE" WITH A MAXIMUM HEIGHT OF 18" ABOVE GROUND, EXCLUSIVE OF ASSOCIATED WARNING LIGHTS AND FLAGS.
3. BARRICADES SHALL BE SPACED END TO END THE WIDTH OF THE PAVEMENT, WITH GAPS BETWEEN BARRICADES NOT TO EXCEED 4' WIDE. BARRICADES ARE TO BE SET BACK 93' FROM THE ACTIVE TAXIWAY CENTERLINE OR AS SHOWN ON THE PLANS.
4. CONSTRUCTION RED WARNING LIGHT: THESE ARE PORTABLE, LENS DIRECTED, ENCLOSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY MAY BE USED IN EITHER A STEADY BURN (TYPE C) OR LOW INTENSITY FLASHING MODE (TYPE A) UNLESS NOTED OTHERWISE.
5. THE LIGHTING SHALL BE MAINTAINED IN OPERATION DURING THE HOURS OF DARKNESS BETWEEN 1/2 HOUR BEFORE SUNSET AND 1/2 HOUR AFTER SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO OBSCURE VISION.
6. BARRICADES SHALL BE SECURED TO THE GROUND BY APPROVED METHODS TO PREVENT MOVEMENT BY PROP WASH, JET BLAST OR OTHER WIND CURRENTS.
7. THE ONLY COLOR COMBINATION ON BARRICADES IS ORANGE AND WHITE. THE ORANGE STRIPES SHALL BE ENCAPSULATED LENS REFLECTIVE SHEETING. THE WHITE STRIPES SHALL BE EITHER ENCAPSULATED OR ENCLOSED LENS REFLECTIVE SHEETING AND MUST BE IN ACCEPTABLE CONDITION.
8. COST FOR PROVIDING, PLACING, MAINTAINING, AND REMOVING BARRICADES SHALL BE PAID FOR UNDER ITEM AR150520 – MOBILIZATION.



FRONT VIEW SIDE VIEW

SIGNAGE NOTES

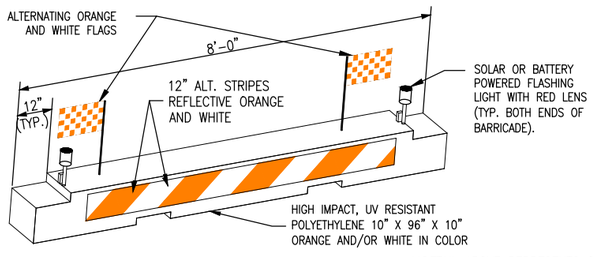
1. ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE ILLINOIS SUPPLEMENT (LATEST EDITION) AND THE FAA ADVISORY CIRCULARS (LATEST EDITION) UNLESS NOTED OTHERWISE. THE FAA OR MORE STRINGENT SPECIFICATIONS SHALL GOVERN.
2. UNLESS OTHERWISE SPECIFIED, CONSTRUCTION SIGNS SHALL BE MOUNTED ON PORTABLE OR NON-PORTABLE SUPPORTS. A PORTABLE SUPPORT IS DEFINED AS A TYPICAL SIGN STANDARD AS SHOWN ON THIS SHEET, OR A SMALL LIGHT WEIGHT TRAILER. A NON-PORTABLE SUPPORT IS DEFINED AS DRIVEN METAL OR WOOD POST. ALL SIGNS, REGARDLESS OF THE TYPE OF SUPPORTS USED, SHALL BE MOUNTED SUCH THAT THE MESSAGE ON THE SIGN IS LEVEL IN THE HORIZONTAL PLANE AFTER PLACEMENT. THE COST OF CONSTRUCTION WARNING LIGHTS SHALL BE INCLUDED IN THE COST OF THE CONSTRUCTION SIGNS.
3. CONSTRUCTION RED WARNING LIGHT: THESE ARE PORTABLE, LENS DIRECTED, ENCLOSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY ARE TO BE USED IN A LOW INTENSITY FLASHING MODE (TYPE A).
4. THE LIGHTING SHALL BE MAINTAINED IN OPERATION DURING THE HOURS OF DARKNESS BETWEEN 1/2 HOUR BEFORE SUNSET AND 1/2 HOUR AFTER SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO OBSCURE VISION.
5. COST FOR PROVIDING, PLACING, MAINTAINING, AND REMOVING SIGNS SHALL BE INCLUDED IN ITEM AR150540 HAUL ROUTE.



W20-3 48" x 48" (A) W20-3 48" x 48" (B)

CONSTRUCTION SIGNS

NOT TO SCALE



LOW-PROFILE BARRICADE DETAIL

NOT TO SCALE

**DETAIL ABOVE REPRESENTS ONE OPTION FOR LOW-PROFILE BARRICADES. OTHER OPTIONS MAY BE UTILIZED AS LONG AS THEY MEET THE REQUIREMENTS OF THE PROJECT, INCLUDING BARRICADE NOTE 1.

SAFETY NOTES

1. FOLLOWING ARE THE CONSTRUCTION SAFETY PROCEDURES THAT THE CONTRACTOR SHALL FOLLOW THROUGHOUT THIS PROJECT. ADDITIONAL REQUIREMENTS ARE SHOWN ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEET AND THIS SHEET.
2. ALL PROVISIONS OF THE LATEST EDITION OF FAA ADVISORY CIRCULAR AC 150/5370-2 (CURRENT EDITION), "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION", APPLY TO THIS CONTRACT, EXCEPT AS MODIFIED BY THIS SAFETY PLAN, OR AS MODIFIED BY THE OWNER THROUGH THE RESIDENT ENGINEER/TECHNICIAN AT THE PRECONSTRUCTION CONFERENCE, OR DURING THE COURSE OF THE CONTRACT.
3. THE CONTRACTORS SHALL MINIMIZE DISRUPTION OF STANDARD OPERATING PROCEDURES FOR AERONAUTICAL ACTIVITY BY REMAINING WITHIN THE PRESCRIBED STAGING, CONSTRUCTION, AND PHASING AREAS PRESENTED ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEETS.
4. NO UNAUTHORIZED PERSONNEL SHALL ENTER ANY AREA OF THE AIRPORT THAT COULD POTENTIALLY BE HAZARDOUS. THE AIRPORT MANAGER RESERVES THE RIGHT TO SUSPEND OPERATIONS IN ORDER TO MAINTAIN SAFETY AT THE AIRPORT.
5. CONTRACTOR EQUIPMENT, VEHICLES, AND PROJECT MATERIALS SHALL BE STORED AT THE STAGING AREA SHOWN ON THE PLAN VIEW, EXCEPT AS OTHERWISE PROVIDED FOR AT THE PRECONSTRUCTION CONFERENCE.
6. ALL CONSTRUCTION EQUIPMENT OPERATING IN THE PRESCRIBED CONSTRUCTION AREA IS REQUIRED TO DISPLAY A CHECKERBOARD FLAG PROPERLY LOCATED OR A ROTATING BEACON (STROBE) AS SPECIFIED IN AC 150/5210-5, "PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT" LATEST EDITION.
7. NO CONSTRUCTION MATERIAL STOCKPILES SHALL BE LOCATED WITHIN 250' OF ANY ACTIVE RUNWAY, WITHIN 93' OF ANY OTHER ACTIVE AIRPORT OPERATIONS AREA, OR PENETRATE A PART 77 IMAGINARY SURFACE (PROVIDED BY THE RESIDENT ENGINEER/TECHNICIAN) EXTENDING OUT AND UPWARDS FROM ALL SIDES OF AN ACTIVE RUNWAY.
8. CLOSED AIRFIELD PHASING AREAS, OPEN TRENCHES, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH LIGHTED BARRICADES WITH STEADY BURNING OR FLASHING RED LIGHTS AS SPECIFIED IN 150/5370-2, "OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION, LATEST EDITION. LIGHTED BARRICADES MUST BE NO TALLER THAN 18" (EXCLUSIVE OF SUPPLEMENTARY LIGHTS AND FLAGS) ON THE TAXIWAYS AND COMPLY WITH ADVISORY CIRCULAR 150/5370-2, LATEST EDITION. CONTRACTOR SHALL NIGHT CHECK BARRICADES DAILY FOR PROPER OPERATION.
9. NO OPEN TRENCHES WITHIN 250' OF AN ACTIVE RUNWAY CENTERLINE OR WITHIN 93' OF ANY AIRPORT OPERATIONS AREA WILL BE PERMITTED UNLESS PROPERLY MARKED. OTHER TRENCHES SHALL BE MAINTAINED SAFE, I.E., BARRICADED OR COVERED WITH STEEL PLATES IN ALL OTHER AREAS.
10. OPEN TRENCHES, EXCAVATIONS, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHOULD BE PROMINENTLY MARKED WITH ORANGE FLAGS AND LIGHTED WITH FLASHING RED LIGHTS DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS.
11. NO CONSTRUCTION EQUIPMENT GREATER THAN 25' TALL WILL BE PERMITTED ON THE AIRPORT. HOWEVER OTHER EQUIPMENT TALLER THAN 25' MAY BE PERMITTED WITH THE APPROVAL OF THE AIRPORT MANAGER AND AIRSPACE APPROVAL BY THE FAA.
12. NO OPEN FLAME WELDING OR TORCH CUTTING OPERATION IS PERMITTED UNLESS ADEQUATE FIRE AND SAFETY PRECAUTIONS ARE PROVIDED AND HAVE BEEN APPROVED BY THE AIRPORT MANAGER NO FLARE POTS ARE ALLOWED ON THE PROJECT.
13. SOIL, DEBRIS, AND LOOSE MATERIAL DROPPED OR TRUCKED ONTO AIRPORT ROADS, TAXIWAYS, AND SOD SURFACES, OR WHICH CAN BE BLOWN ONTO SUCH SURFACES, SHALL BE IMMEDIATELY SWEPT, PICKED UP AND REMOVED, OR PLACED INTO CLOSED CONTAINERS. ANY DAMAGE TO AIRPORT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT NO COST TO THE OWNER.
14. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING AIRPORT LIGHTING AND NAVIGATIONAL ELECTRICAL SYSTEMS DURING CONSTRUCTION. A CONTACT PERSON AND TELEPHONE NUMBER FOR 24 HOUR EMERGENCY IMMEDIATE REPAIR SHALL BE SUBMITTED TO THE AIRPORT MANAGER AND RESIDENT ENGINEER/TECHNICIAN. HAUL ROUTES CROSSING PAVEMENT, DRAINAGE, MISCELLANEOUS. STRUCTURES AND/OR AIRFIELD CABLES SHALL BE PROTECTED FROM DAMAGE.
15. ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
16. CONTRACTOR SHALL PLACE, SECURE, AND MAINTAIN LIGHTED BARRICADES AND CLOSURE CROSSES WHEN A RUNWAY/TAXIWAY/APRON IS CLOSED OR AS REQUIRED BY THE PLANS AND DESIGNATED BY THE RESIDENT ENGINEER/TECHNICIAN.
17. CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.
18. THE CONTRACTOR SHALL PERIODICALLY PERFORM ONSITE INSPECTIONS THROUGHOUT THE DURATION OF THE PROJECT WITH THE IMMEDIATE REMEDY OF ANY DIFFERENCES, WHETHER CAUSED BY NEGLIGENCE, OVERSIGHT, OR PROJECT SCOPE CHANGE.
19. CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER/TECHNICIAN AT NO ADDITIONAL COST.
20. CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER/TECHNICIAN.
21. CONTRACTOR SHALL MAINTAIN FLASHERS, SIGNS AND/OR BARRICADES AS REQUIRED BY THE PLANS, CITY OR COUNTY REGULATIONS OR CONTRACTOR ACTIVITIES. CONTRACTOR SHALL OBTAIN ANY AND ALL REQUIRED LOCAL PERMITS UNLESS SPECIFIED OTHERWISE.
22. THE CONTRACTOR SHALL UTILIZE WATER AND/OR CHEMICALS APPROVED BY THE RESIDENT ENGINEER/TECHNICIAN AS NECESSARY TO CONTROL DUST.
23. NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE RUNWAY, INCLUDING TURF RUNWAYS. CONSTRUCTION EQUIPMENT OR CONSTRUCTION ACTIVITY WILL NOT BE PERMITTED WITHIN 250' OF ANY ACTIVE RUNWAY CENTERLINE (150' FOR RUNWAY 5-23) OR WITHIN 93' OF ANY OTHER ACTIVE AIRPORT TAXIWAY OR APRON. HOWEVER, CONSTRUCTION MAY BE PERMITTED IN THESE AREAS IF THE CONTRACTOR HAS GAINED APPROVAL FROM THE AIRPORT MANAGER AT LEAST 7 DAYS IN ADVANCE OF THE SCHEDULED CONSTRUCTION PERIOD AND THE OPERATIONAL AREA IS CLOSED TO TRAFFIC AND PROPER NOTAMS ARE ISSUED BY THE AIRPORT MANAGER TO THE APPROPRIATE FLIGHT SERVICE STATION.
24. UNLESS SPECIFIED OTHERWISE, COST FOR THE ABOVE IS TO BE CONSIDERED INCIDENTAL TO THE PROJECT. SEPARATE PAYMENT SHALL NOT BE MADE.

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DATE SIGNED: ~~3~~/4/22 LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

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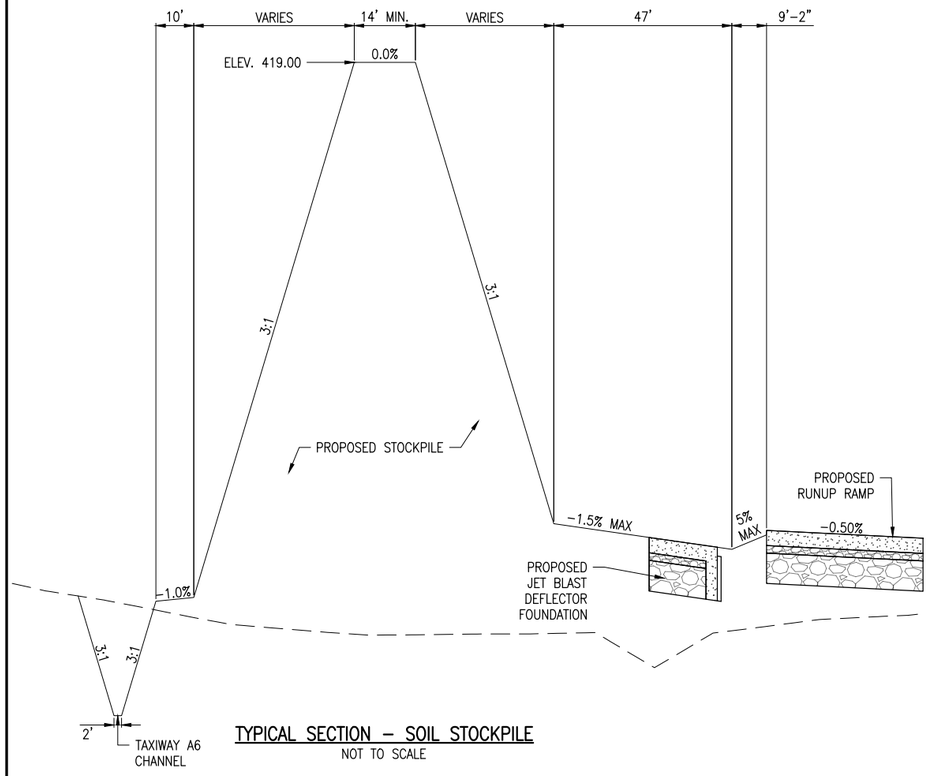
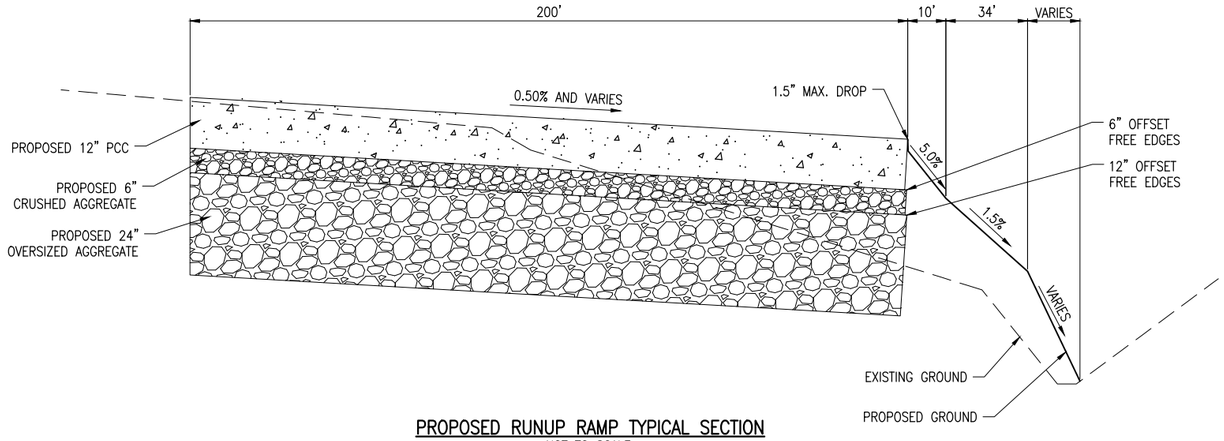
DRAWN BY: MJD 4/16/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

CONSTRUCTION SAFETY DETAILS AND NOTES



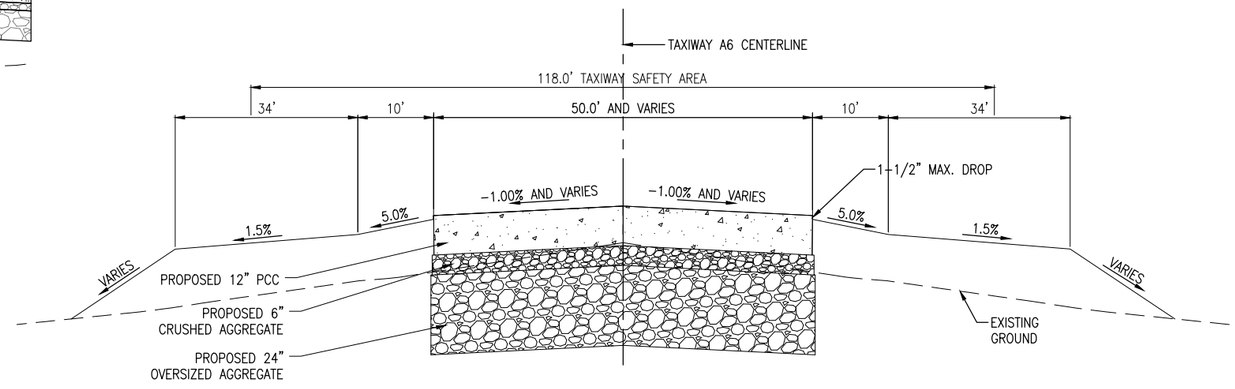
TYPICAL SECTION – SOIL STOCKPILE
NOT TO SCALE



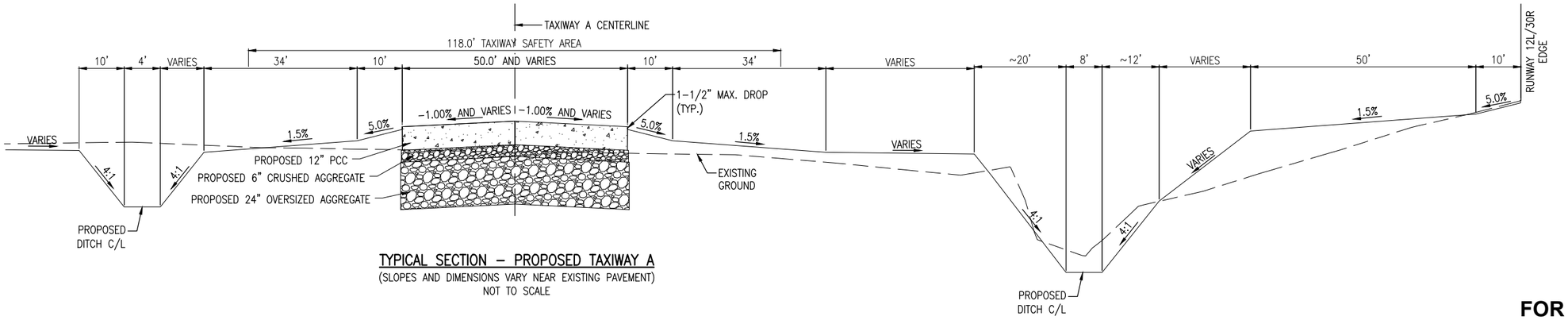
PROPOSED RUNUP RAMP TYPICAL SECTION
NOT TO SCALE

NOTE:
QUANTITY OF CRUSHED AGGREGATE BASE COURSE AND OVERSIZE AGGREGATE ARE BASED ON THE DIMENSIONS SHOWN. CONTRACTOR MAY ELECT TO EXTEND THESE DIMENSIONS FOR CONSTRUCTION BUT WILL NOT BE PAID FOR ADDITIONAL QUANTITY.

* WIDTHS AND GRADES ON APRON VARY NEAR TRANSITIONS TO EXISTING PAVEMENT EDGE AND INTERSECTIONS.



TYPICAL SECTION – PROPOSED TAXIWAY A6
(SLOPES AND DIMENSIONS VARY NEAR EXISTING PAVEMENT)
NOT TO SCALE



TYPICAL SECTION – PROPOSED TAXIWAY A
(SLOPES AND DIMENSIONS VARY NEAR EXISTING PAVEMENT)
NOT TO SCALE

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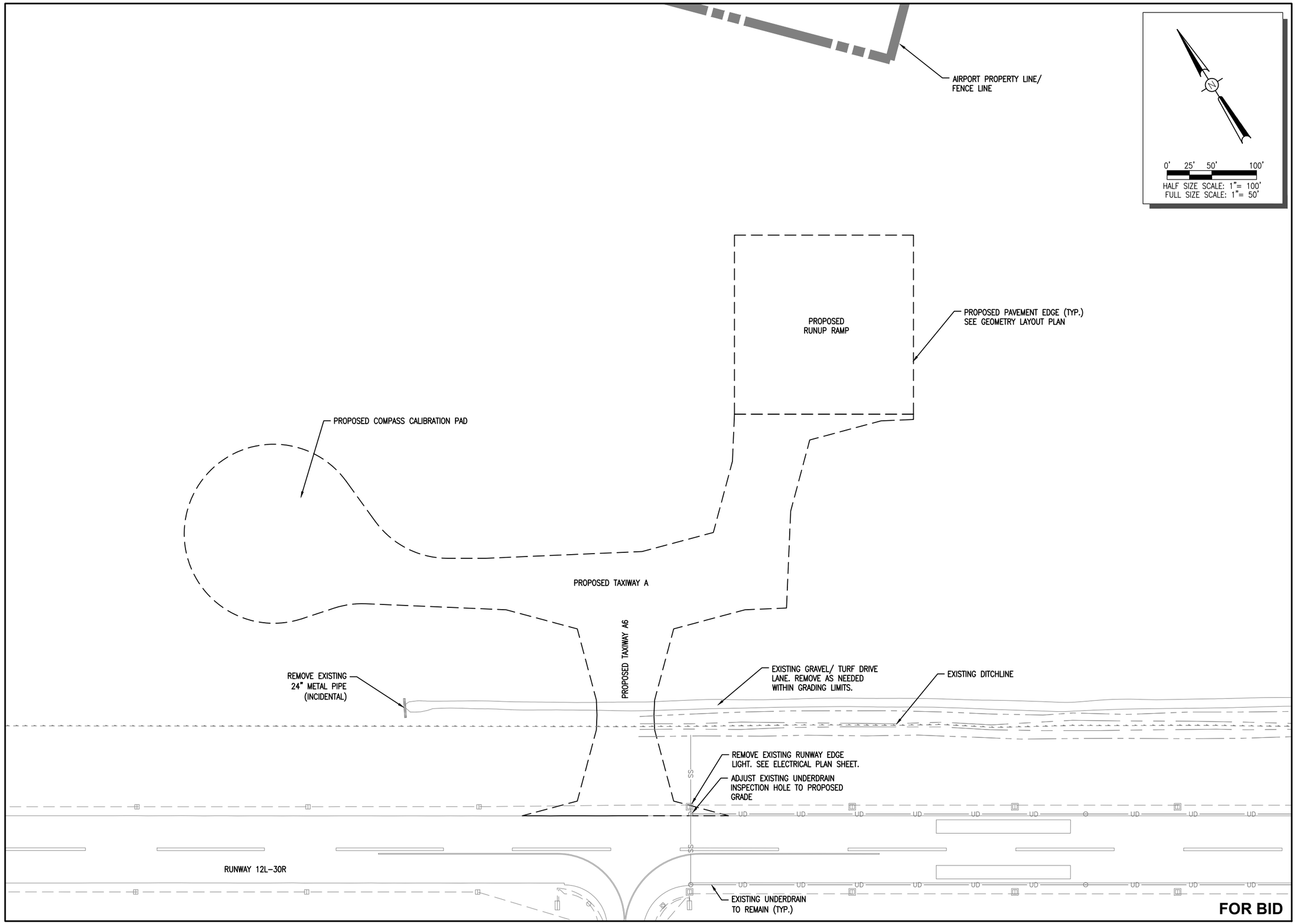
TYPICAL PAVEMENT SECTIONS



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REVIEWED BY: ~~BSS~~ 03/~~0~~3/2022

SHEET TITLE

SITE DEMOLITION PLAN

MAR 04, 2022 4:58 PM STOLZ01547
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PAVEMENT GEOMETRY KEYNOTE TABLE			
POINT #	NORTHING	EASTING	ELEVATION
1	692362.4152	2302319.8278	405.79
2	692408.9473	2302276.7516	405.33
3	692487.5859	2302301.1097	404.75
4	692502.0467	2302309.3725	404.63
5	692515.7436	2302318.8480	404.68
6	692571.6694	2302379.2605	404.93
7	692547.3112	2302457.8991	405.27
8	692524.2126	2302498.3240	405.32
9	692613.2536	2302559.9223	405.32
10	692669.1793	2302620.3348	405.34
11	692644.8212	2302698.9734	405.54
12	692626.7596	2302730.5829	405.64
13	692801.0304	2302840.3671	406.64
14	692907.6335	2302671.1460	406.65
15	692738.4124	2302564.5429	405.65
16	692695.0820	2302534.5671	405.34
17	692639.1563	2302474.1546	405.05
18	692663.5144	2302395.5160	404.93
19	692750.3917	2302243.4718	404.95
20	692772.9621	2302207.6438	404.95

PAVEMENT GEOMETRY KEYNOTE TABLE			
POINT #	NORTHING	EASTING	ELEVATION
21	692857.5726	2302260.9453	404.05
22	692851.1281	2302161.1532	405.11
23	692906.1672	2302157.5988	405.20
24	692899.7227	2302057.8067	405.70
25	692802.6829	2302033.6556	405.20
26	692696.4757	2302046.3396	403.42
27	692793.5155	2302070.4907	405.13
28	692778.7145	2302103.2323	405.06
29	692689.4775	2302232.2252	404.87
30	692629.0650	2302288.1509	404.77
31	692550.4264	2302263.7928	404.67
32	692535.9656	2302255.5299	404.65
33	692522.2687	2302246.0544	404.63
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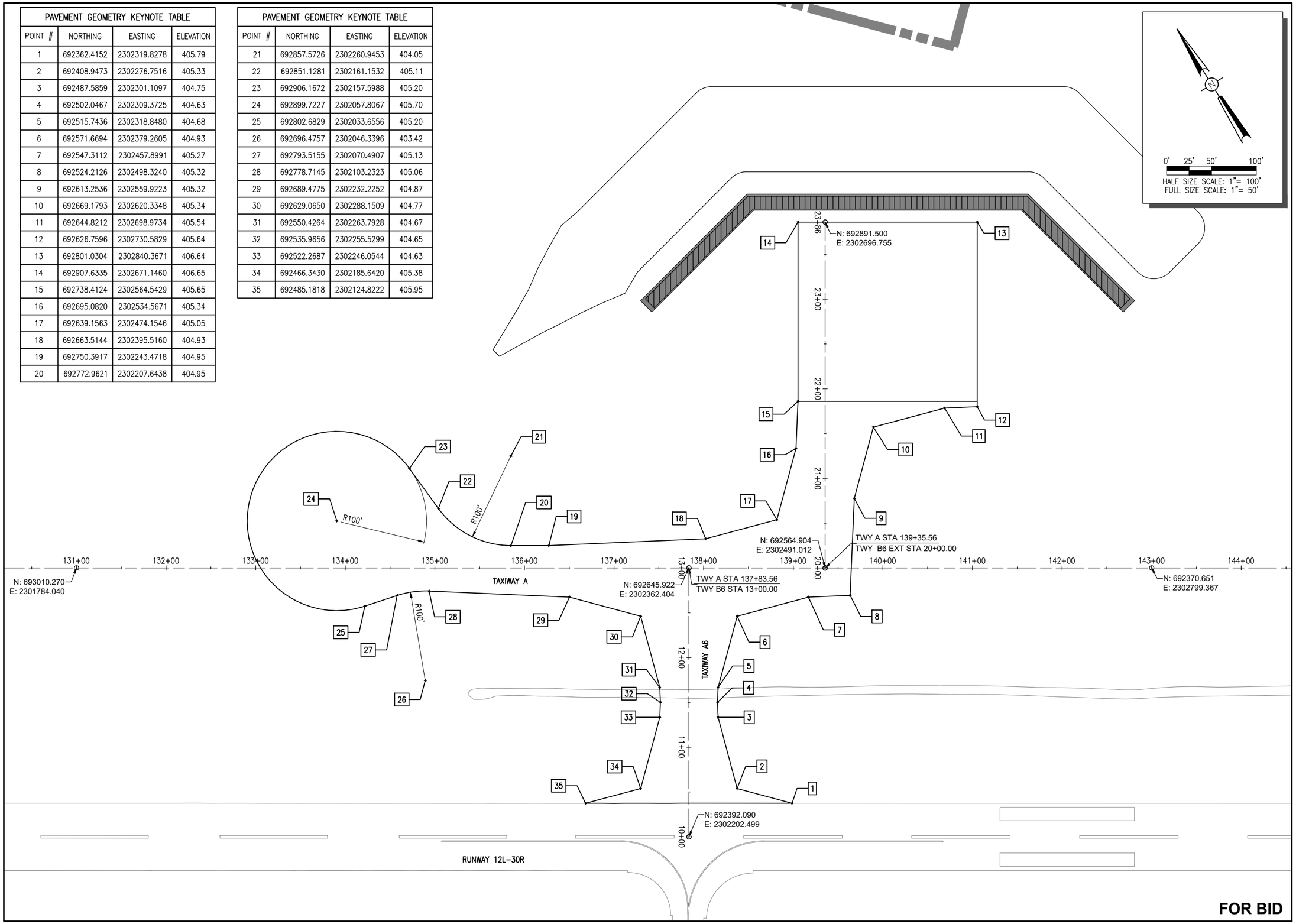

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062-057281
LICENSED
PROFESSIONAL ENGINEER

DATE SIGNED: ~~3~~/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: C-171-LAY.DWG
DESIGN BY: JRH 03/25/2021
DRAWN BY: MJD 04/15/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

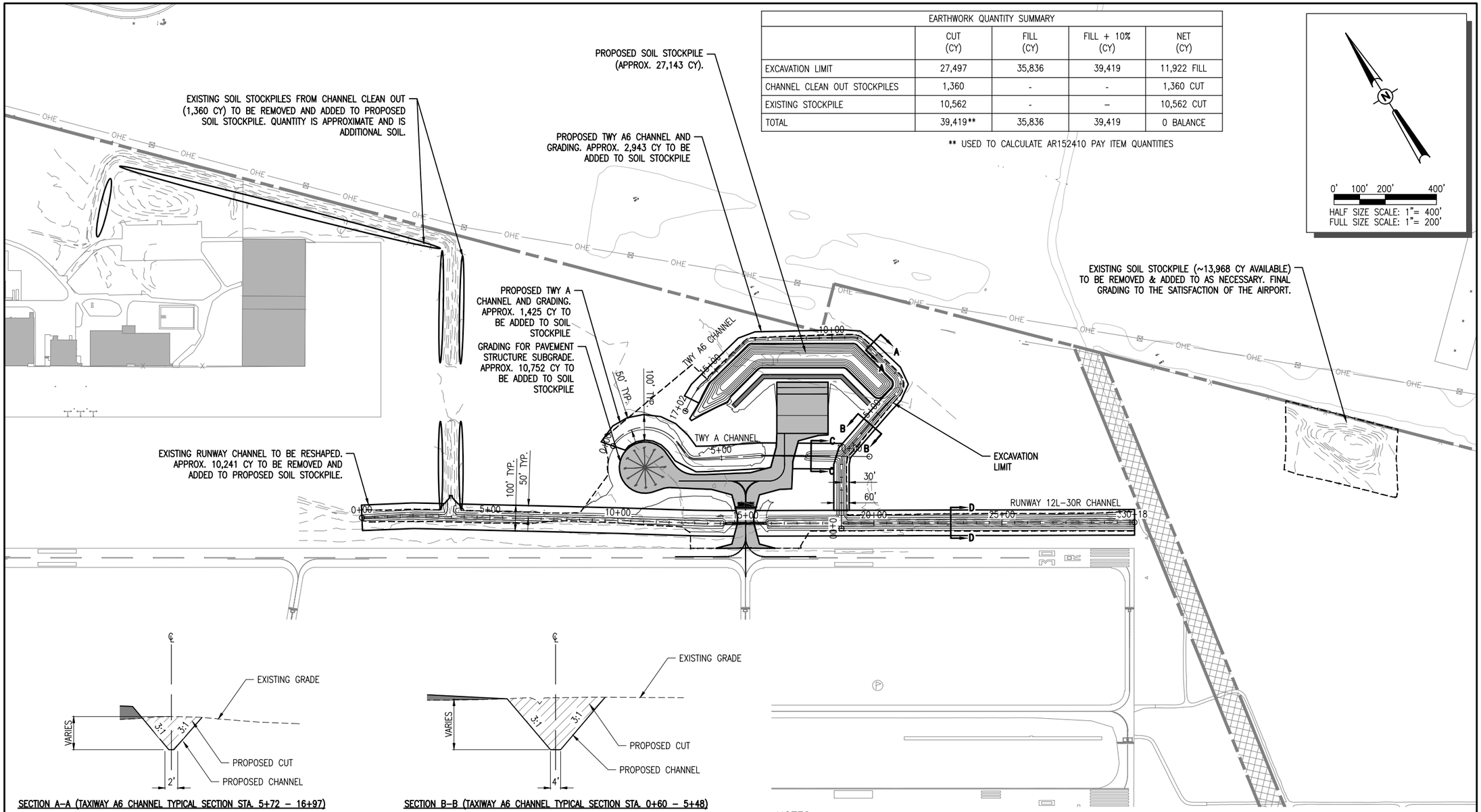
SHEET TITLE

GEOMETRY LAYOUT PLAN

MAR 04, 2022 4:59 PM STOLZ01547
I:\20JOBS\20A000105D\CAD\AIRPORT\SHEET\C-171-LAY

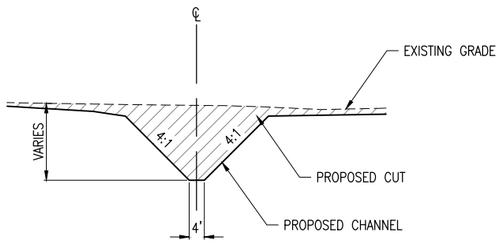
EARTHWORK QUANTITY SUMMARY				
	CUT (CY)	FILL (CY)	FILL + 10% (CY)	NET (CY)
EXCAVATION LIMIT	27,497	35,836	39,419	11,922 FILL
CHANNEL CLEAN OUT STOCKPILES	1,360	-	-	1,360 CUT
EXISTING STOCKPILE	10,562	-	–	10,562 CUT
TOTAL	39,419**	35,836	39,419	0 BALANCE

** USED TO CALCULATE AR152410 PAY ITEM QUANTITIES

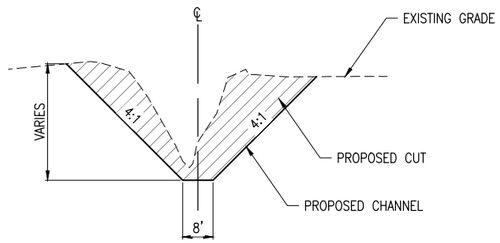


SECTION A–A (TAXIWAY A6 CHANNEL TYPICAL SECTION STA. 5+72 – 16+97)

SECTION B–B (TAXIWAY A6 CHANNEL TYPICAL SECTION STA. 0+60 – 5+48)



SECTION C–C (TAXIWAY A CHANNEL TYPICAL SECTION)



SECTION D–D (RUNWAY 12L–30R CHANNEL TYPICAL SECTION)

NOTES:

1. EARTHWORK QUANTITIES (CUT/FILL VOLUMES) FOR THE "EXISTING GROUND VS. PROP. DESIGN" SHOWN ABOVE WERE CALCULATED UTILIZING AUTODESK CIVIL3D 2021 SOFTWARE. THE CALCULATION METHOD WAS BY A COMPARISON OF SURFACE MODELS CREATED WITH EXISTING SURVEY DATA AND PROPOSED DESIGN GRADES. THE VOLUMES WERE CALCULATED IN TWO PARTS: THE CUT/FILL VOLUME REQUIRED TO CORE OUT AND FILL FOR THE PROPOSED PAVEMENT SECTION AS COMPARED TO THE EXISTING SUBGRADE DATUM, AND THE CUT/FILL VOLUMES REQUIRED FOR PROPOSED GRADING WORK OUTSIDE OF THE PROPOSED PAVEMENT LIMITS AS COMPARED TO THE EXISTING GROUND SURFACE. THE NUMBERS IN THE SUMMARY TABLES ABOVE REPRESENT A TOTAL OF THESE TWO PARTS ADDED TOGETHER FOR CLARITY.
2. IF THE CONTRACTOR DOES NOT AGREE TO THE QUANTITIES DERIVED IN THIS METHOD, THE CONTRACTOR MAY ELECT TO SURVEY THE EXISTING GRADES PRIOR TO BEGINNING EARTHWORK OPERATIONS AS PART OF THE PROJECT FOR THE ENGINEER TO REVIEW FOR A POTENTIAL ADJUSTMENT TO THE PAY ITEM QUANTITY. ANY COSTS ASSOCIATED WITH THE CONTRACTOR–PROVIDED SURVEY SHALL BE INCLUDED IN THE ORIGINAL BID AMOUNT, AND NO ADDITIONAL PAYMENT SHALL BE MADE. FOLLOWING THE CONTRACTOR'S VERIFICATION OF THE QUANTITIES, IF A DISAGREEMENT STILL EXISTS, THE MEASUREMENT OF THE EARTHWORK FOR PAYMENT SHALL BE MADE BY THE RESIDENT ENGINEER, PER THE 152 SPECIFICATION, WHO SHALL TAKE CROSS–SECTIONAL ELEVATIONS AND MEASUREMENTS OF THE EXISTING GROUND SURFACE AND THE FINAL GRADED SURFACE FOR COMPARISON.
2. FOLLOWING THE PROJECT AWARD, THE ENGINEER CAN PROVIDE THE RELEVANT AUTOCAD AND CIVIL 3D SURFACE MODEL FILES TO THE AWARDED CONTRACTOR UPON REQUEST TO ASSIST WITH CONSTRUCTION LAYOUT.

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IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
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ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: C-105-DRN.DWG
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REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

SITE STOCKPILE & CHANNEL OVERVIEW

MAR 07, 2022 2:28 PM HERND01562
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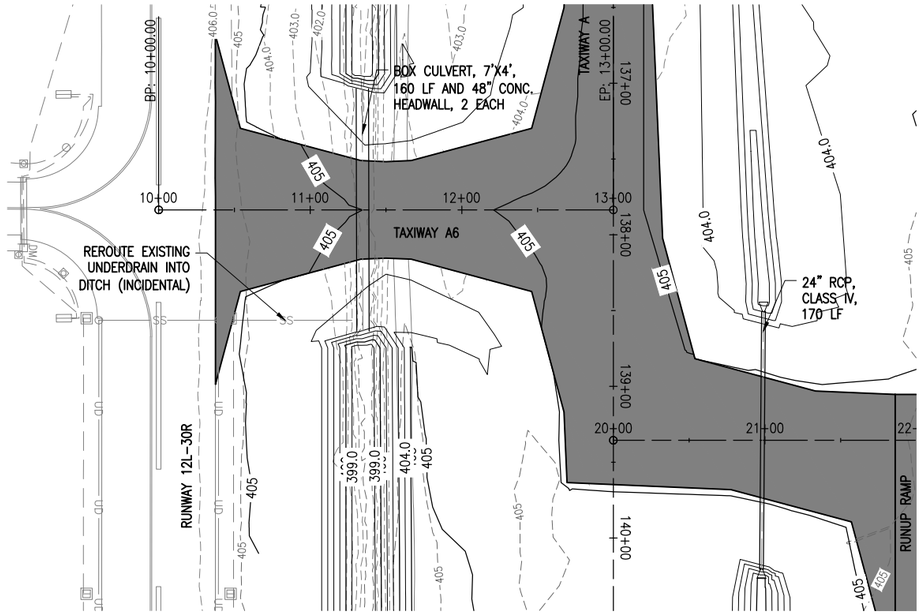
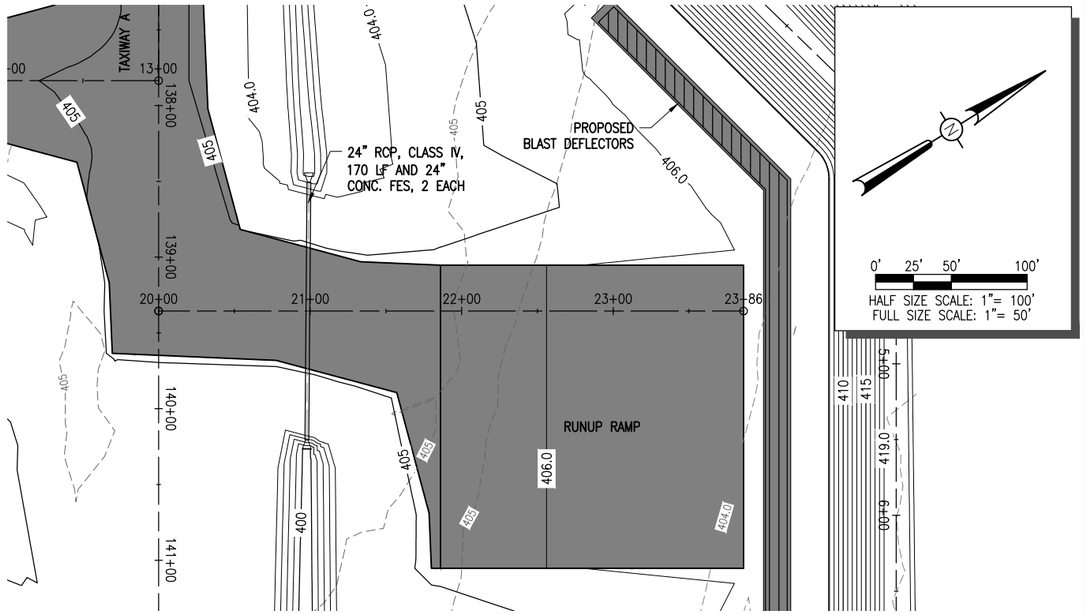
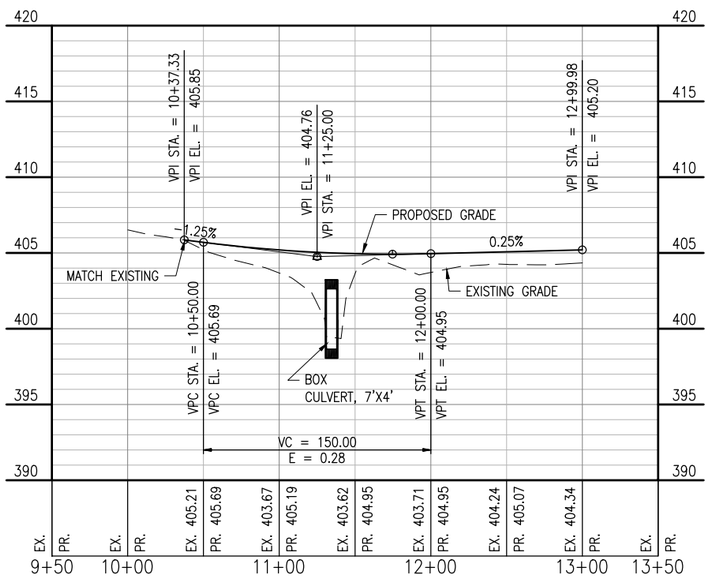
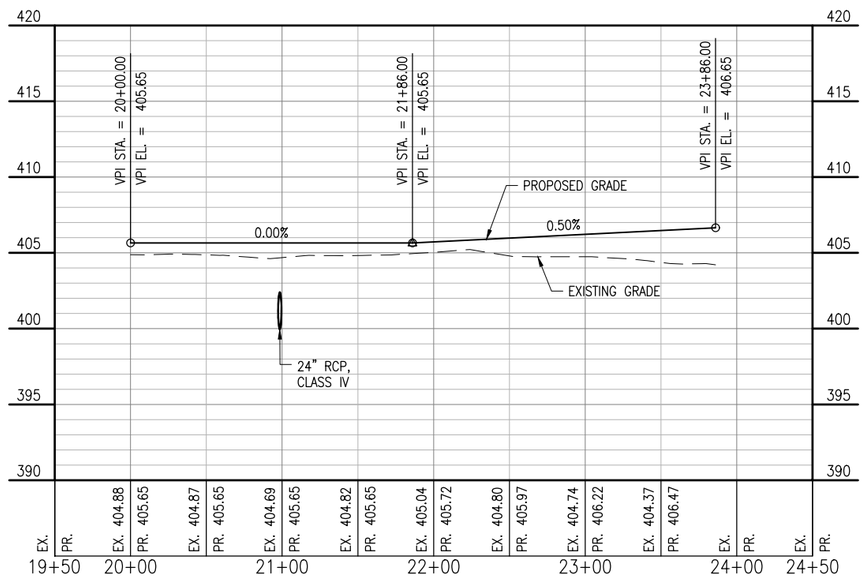






PLAN & PROFILE – TAXIWAY A6



PLAN & PROFILE – TAXIWAY A6 EXTENDED & BLAST PAD

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IDA No: CPS-4976

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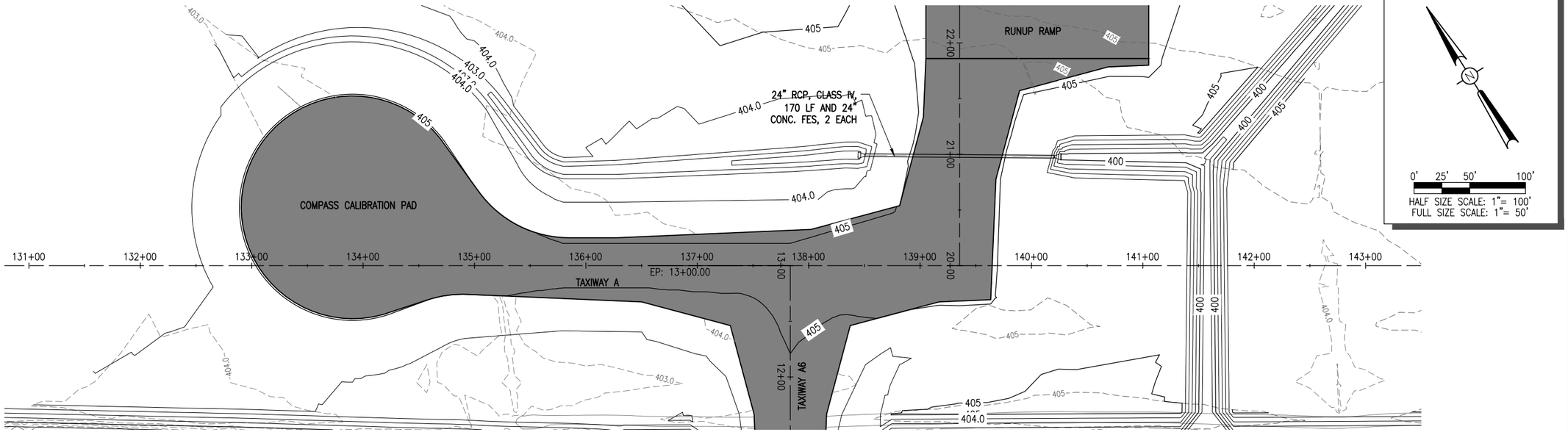
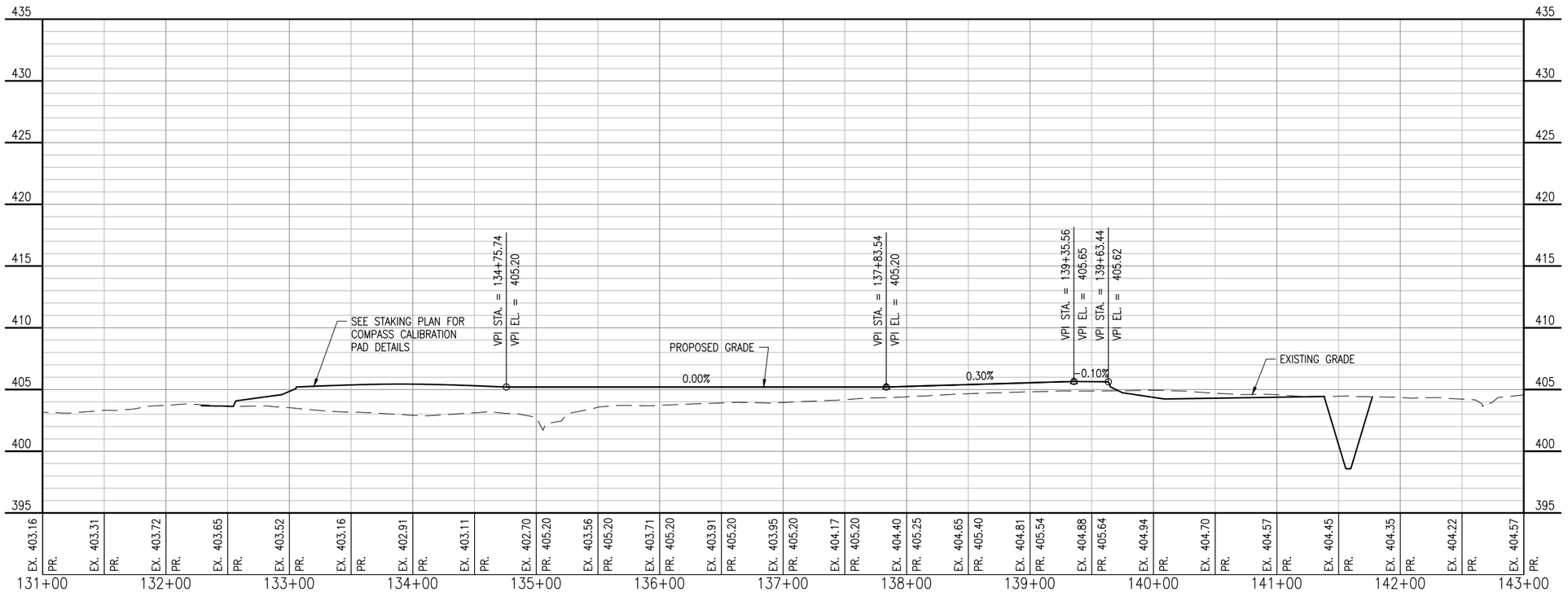
DESIGN BY: MJD 03/11/2021
DRAWN BY: MJD 03/11/2021
REVIEWED BY: ~~BSS~~ 03/~~03~~/2022

SHEET TITLE

PROPOSED PLAN & PROFILE - TWY A6





PLAN & PROFILE – TAXIWAY A

FOR BID

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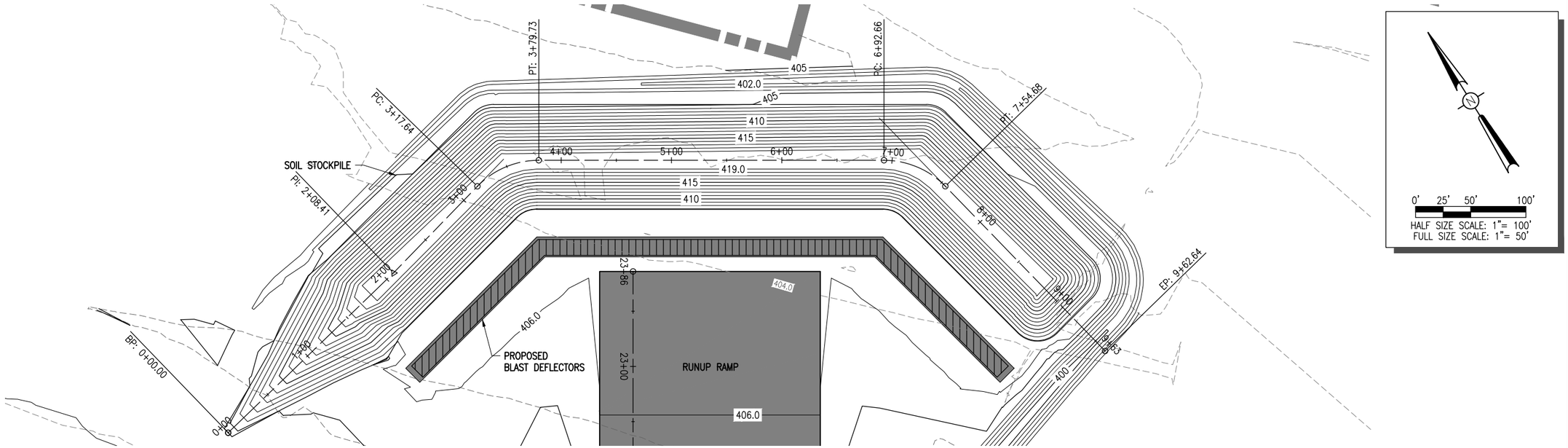
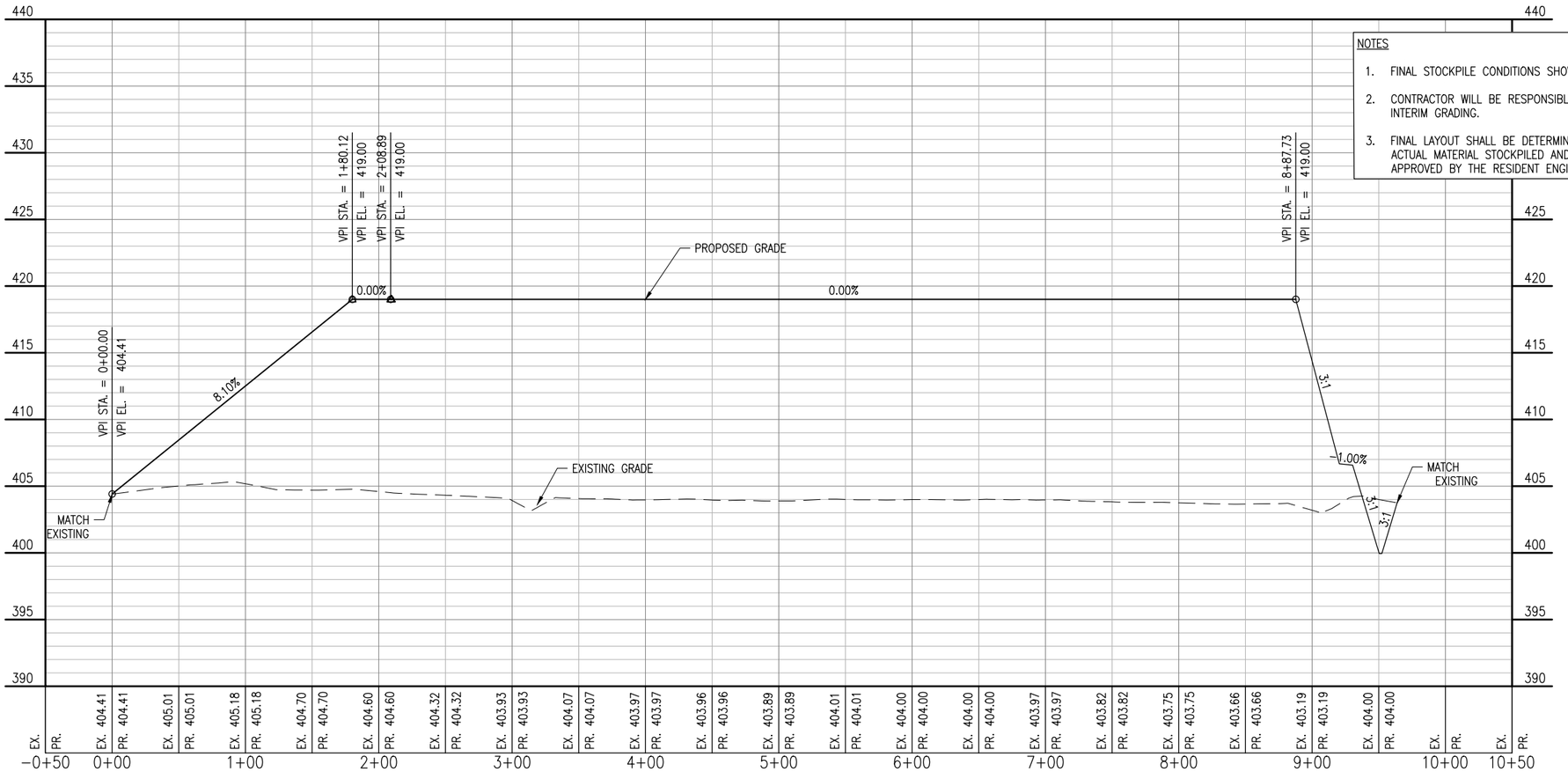
SHEET TITLE

PROPOSED PLAN & PROFILE - TWY A





PLAN & PROFILE – SOIL STOCKPILE

NOTES

1. FINAL STOCKPILE CONDITIONS SHOWN.
2. CONTRACTOR WILL BE RESPONSIBLE FOR INTERIM GRADING.
3. FINAL LAYOUT SHALL BE DETERMINED BY ACTUAL MATERIAL STOCKPILED AND APPROVED BY THE RESIDENT ENGINEER.

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PROJECT NO: 20A000105D
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DESIGN BY: MJD 03/11/2021
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REVIEWED BY: ~~BSS~~ 03/~~0~~3/2022

SHEET TITLE

PROPOSED PLAN & PROFILE - SOIL STOCKPILE

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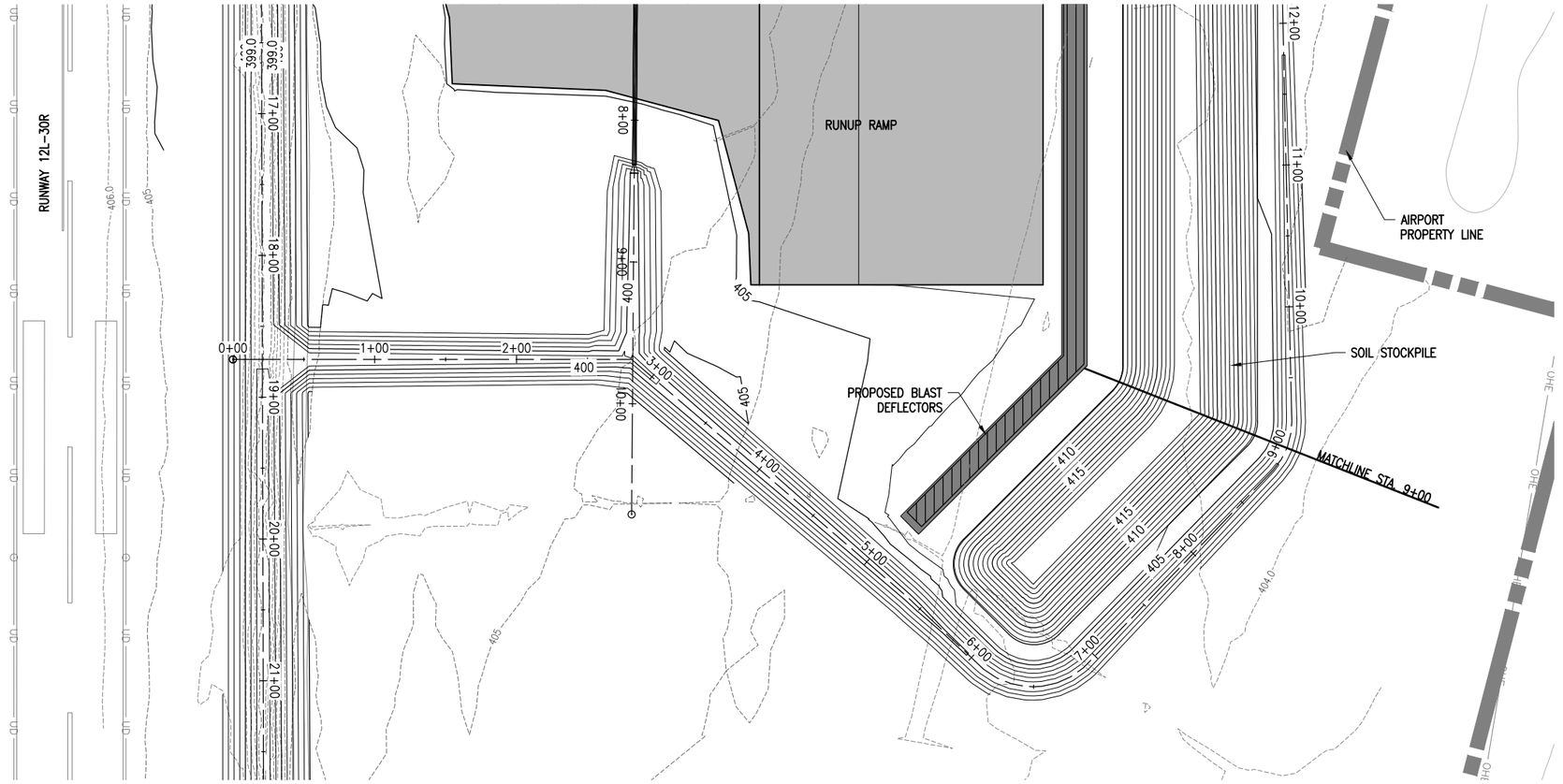

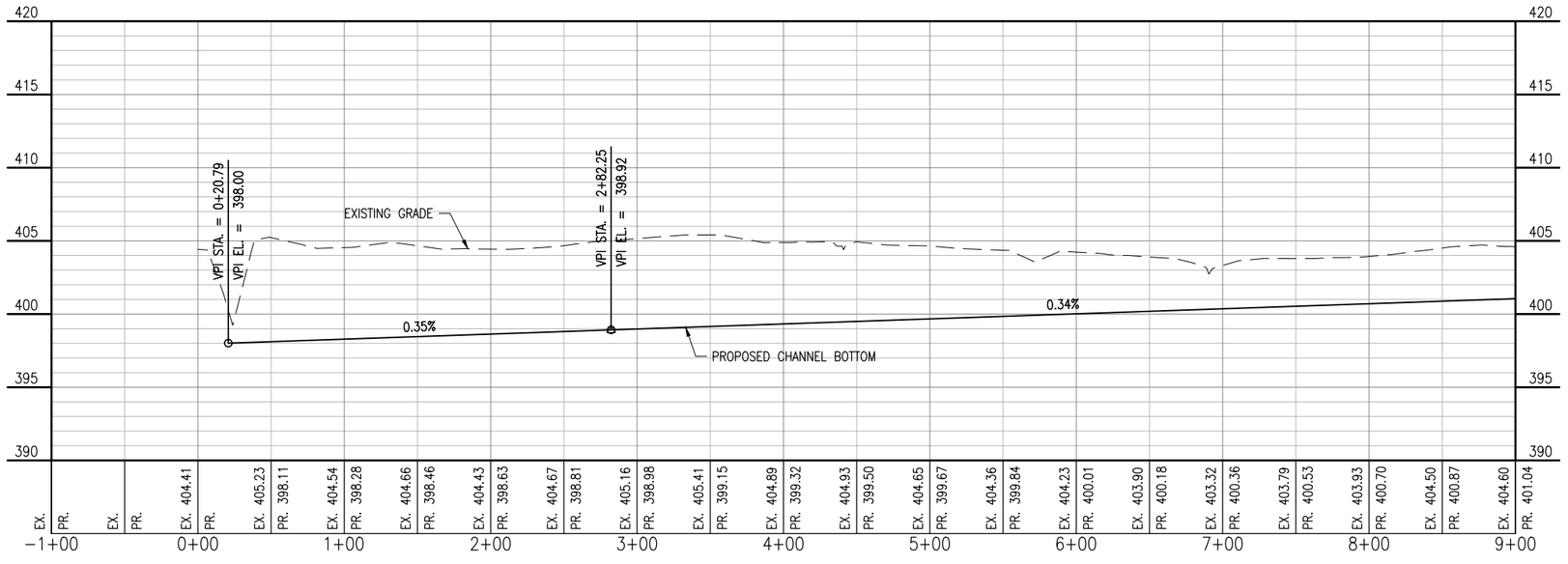

PLAN & PROFILE – TAXIWAY A6 CHANNEL STA. 0+00 TO STA 9+00

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CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION DES	DWN	REV

ISSUE: MARCH 4, 2022
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REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

TWY A6 CHANNEL
0+00-9+00

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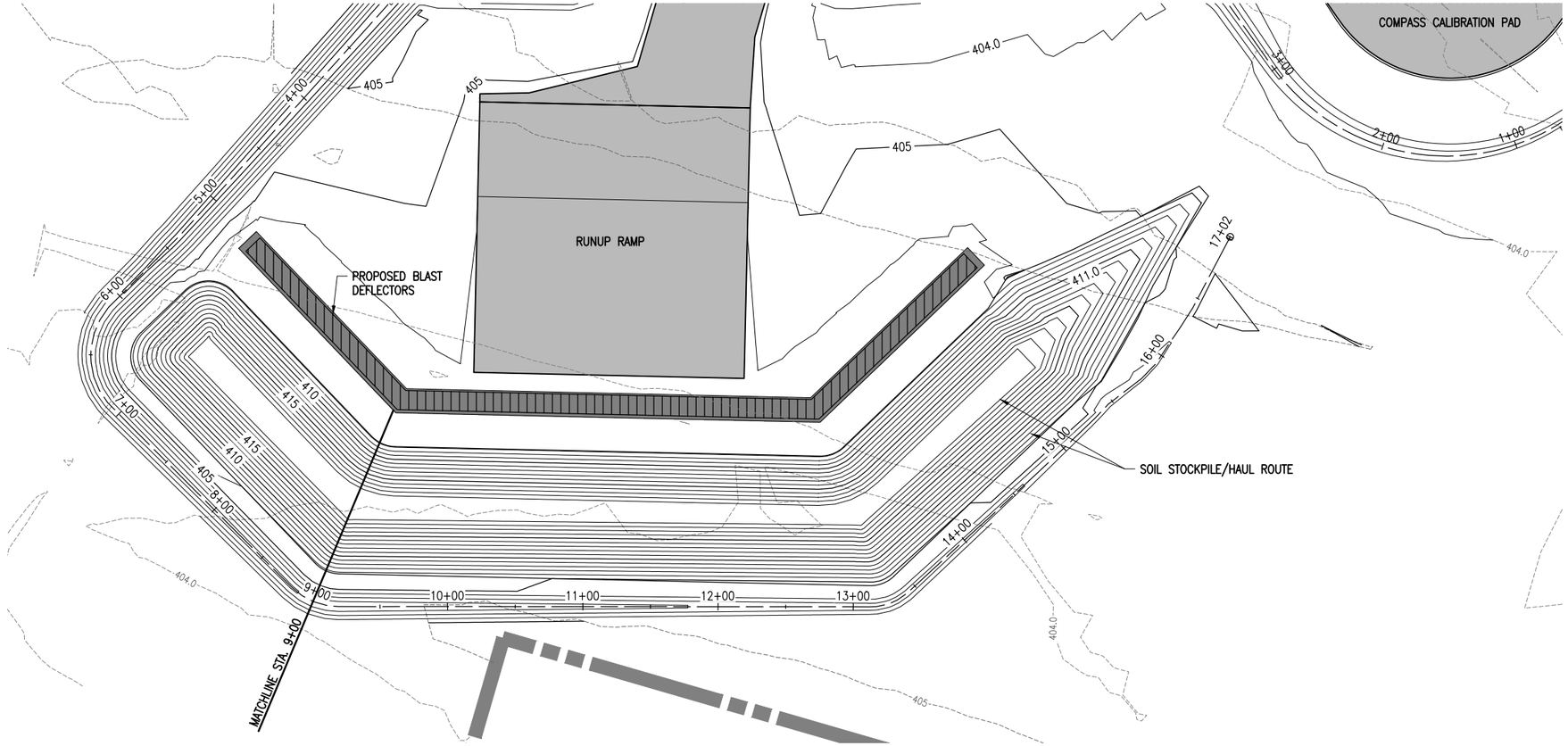

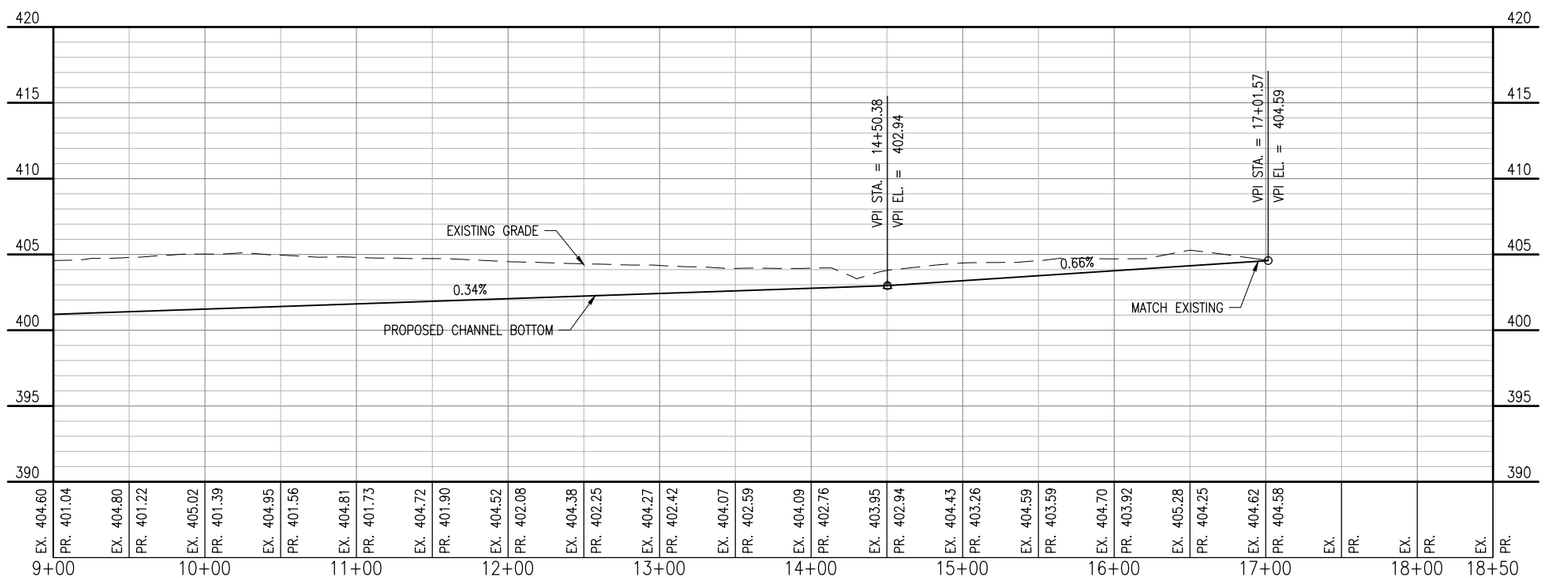

PLAN & PROFILE – TAXIWAY A6 CHANNEL STA. 9+00 TO STA 17+39

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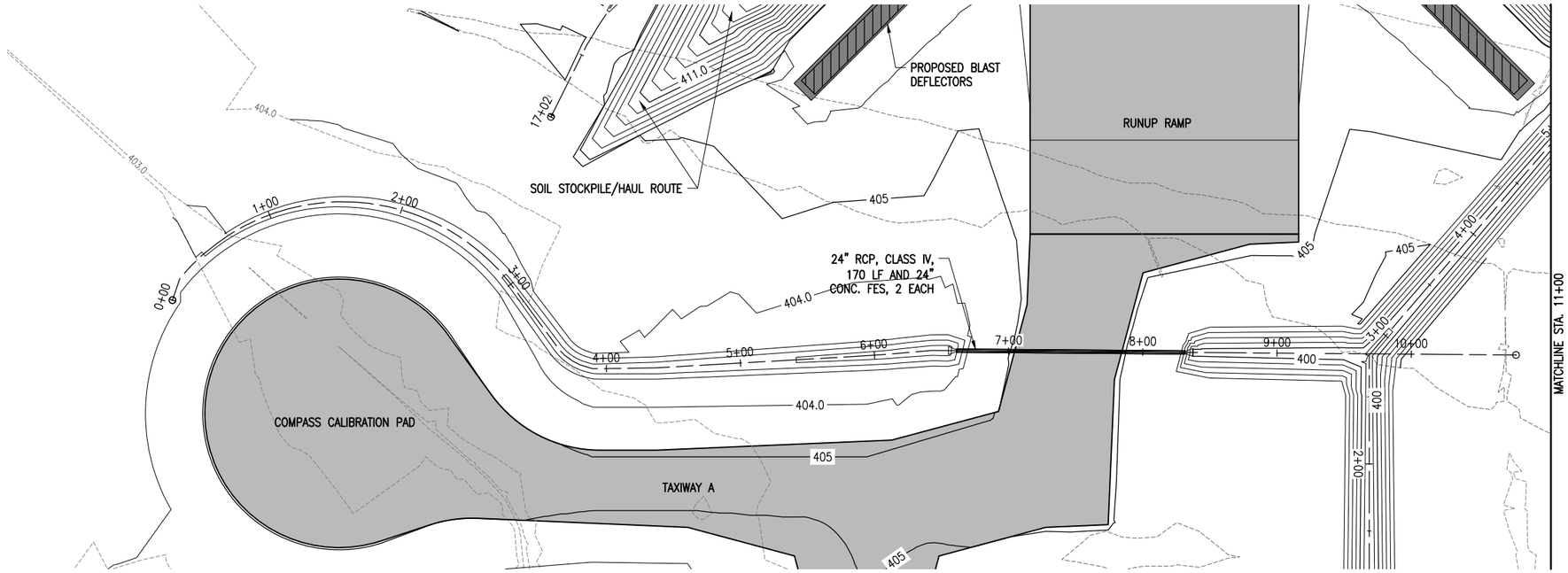
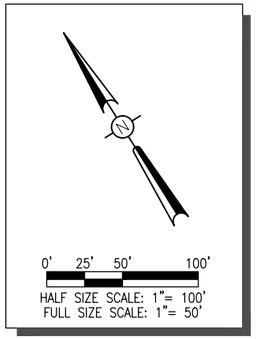
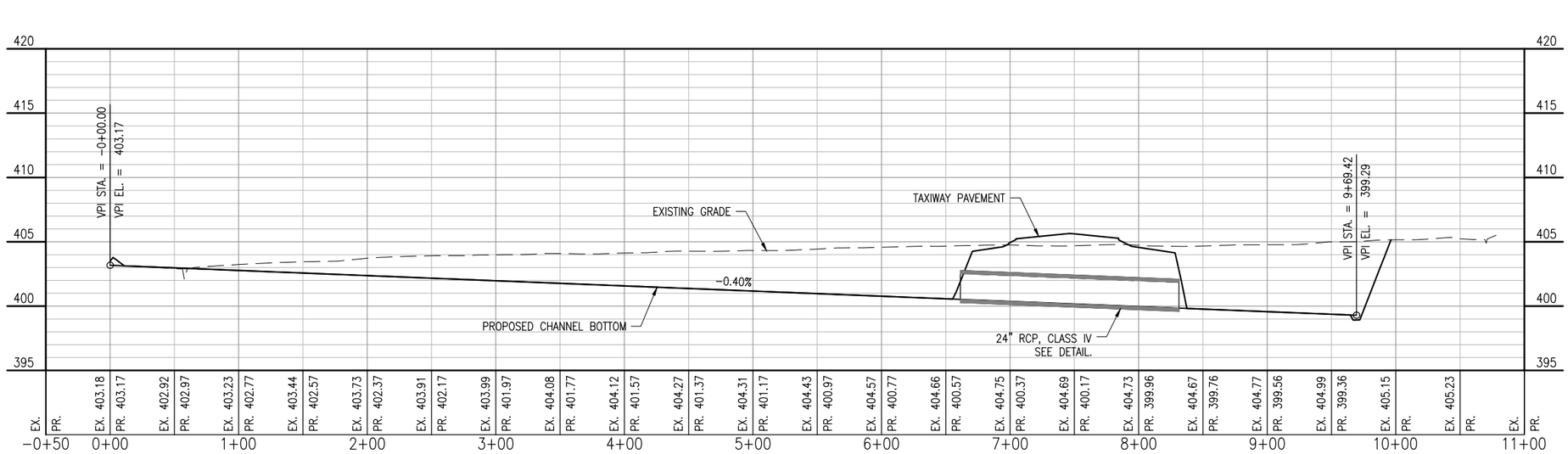
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

TWY A6 CHANNEL
9+00-17+39







PLAN & PROFILE – TAXIWAY A CHANNEL STA. 0+00 TO STA 10+74

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SHEET TITLE

TWY A CHANNEL PROFILE STA. 00+00-10+74

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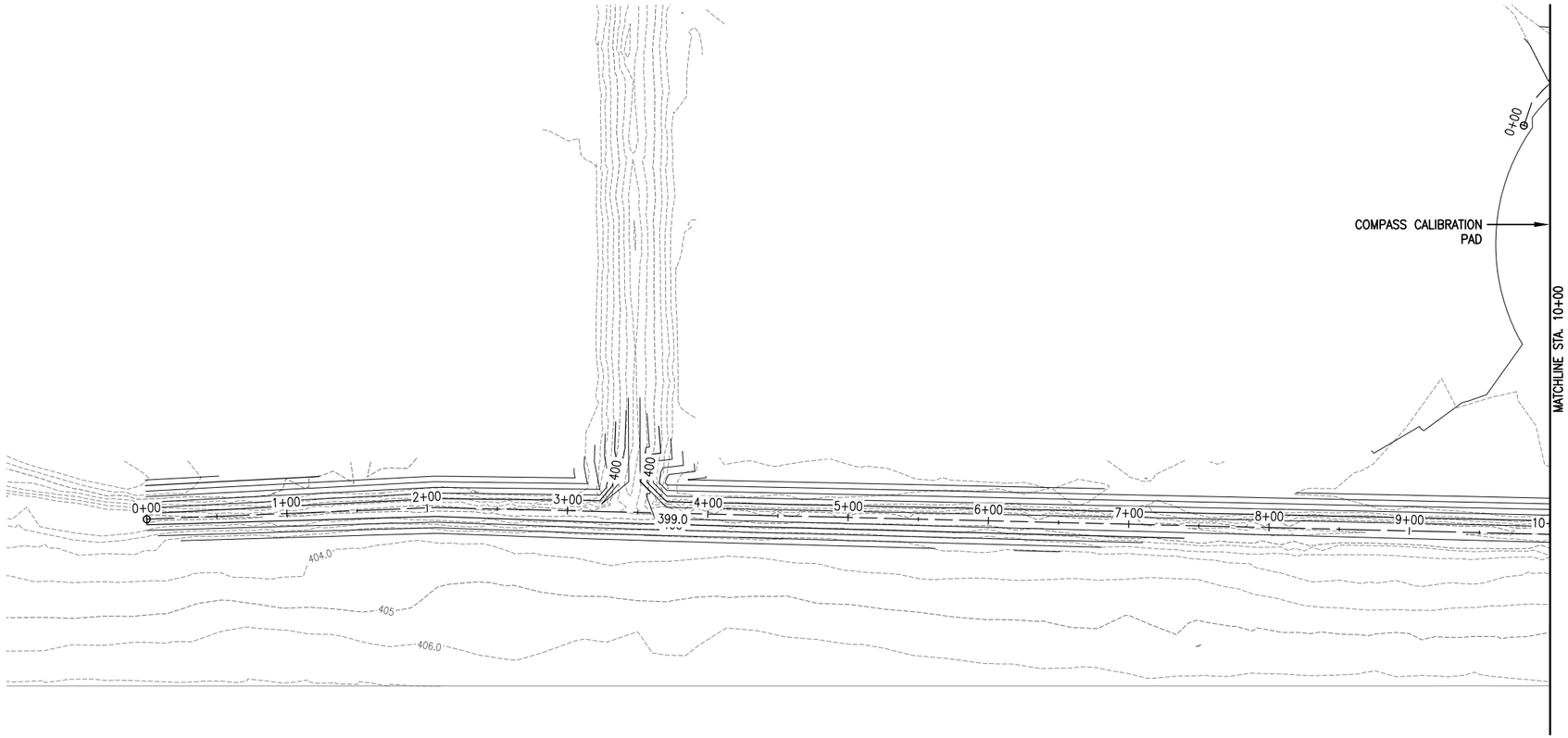

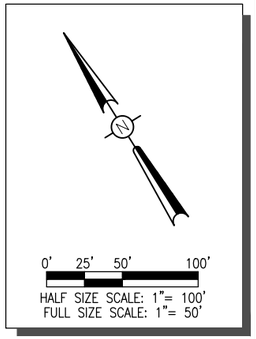

PLAN & PROFILE – RUNWAY 12L–30R CHANNEL STA. 0+00 TO STA 10+00

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RWY 12L-30R CHANNEL PROFILE STA. 0+00-10+00

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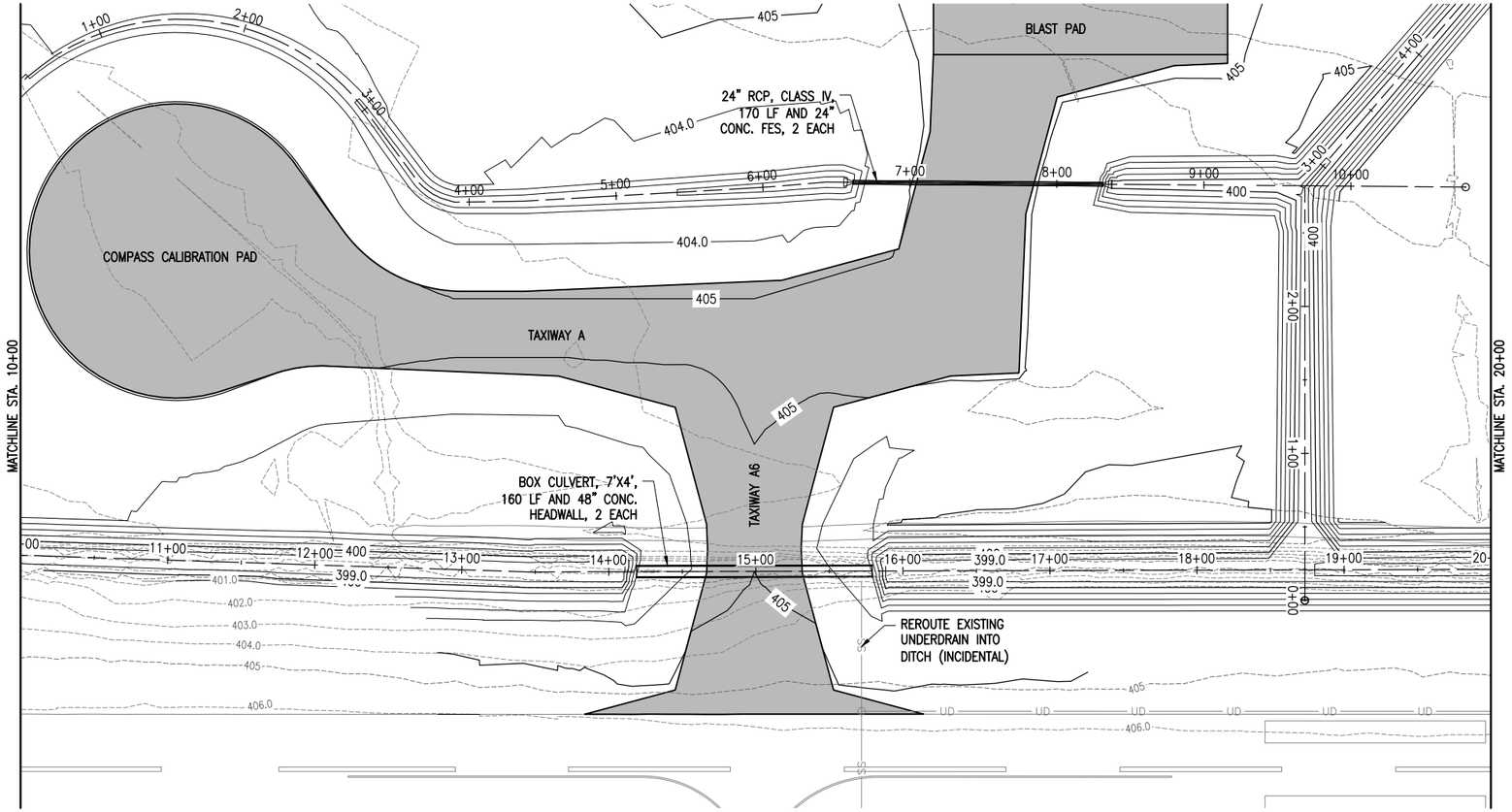
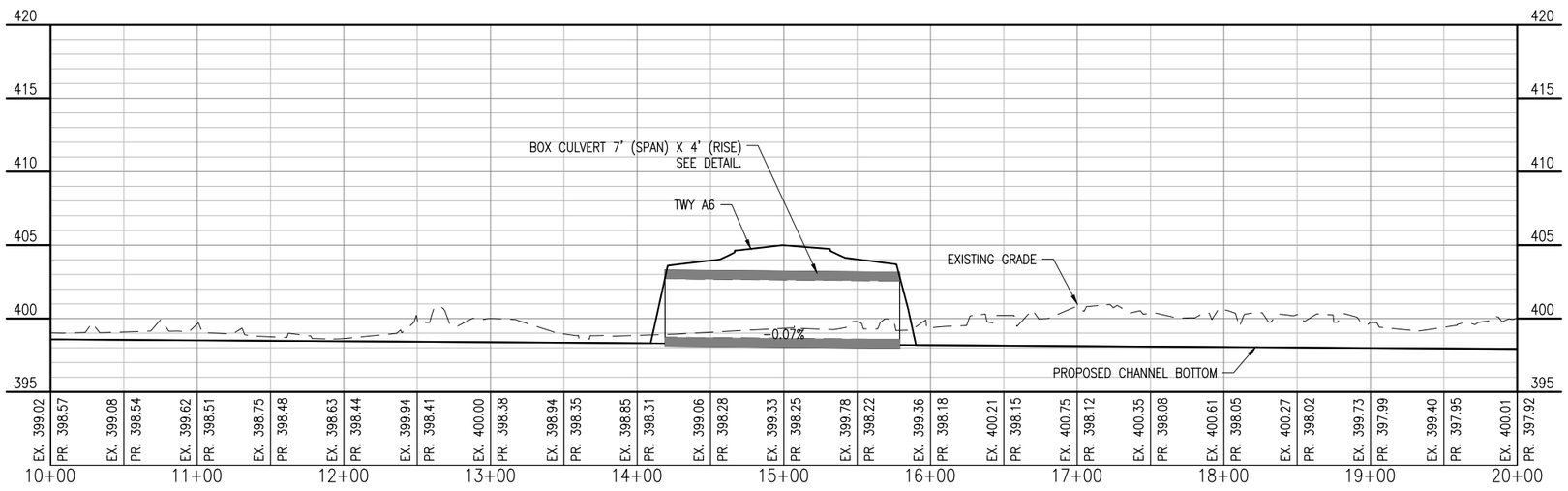
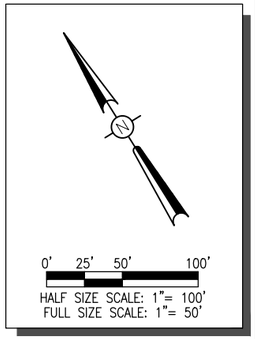




PLAN & PROFILE – RUNWAY 12L–30R CHANNEL STA. 10+00 TO STA 20+00



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CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: C-702-CUL.DWG
DESIGN BY: MJD 03/15/2021
DRAWN BY: HLE 03/22/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

RWY 12L-30R
CHANNEL PROFILE
STA. 10+00-20+00

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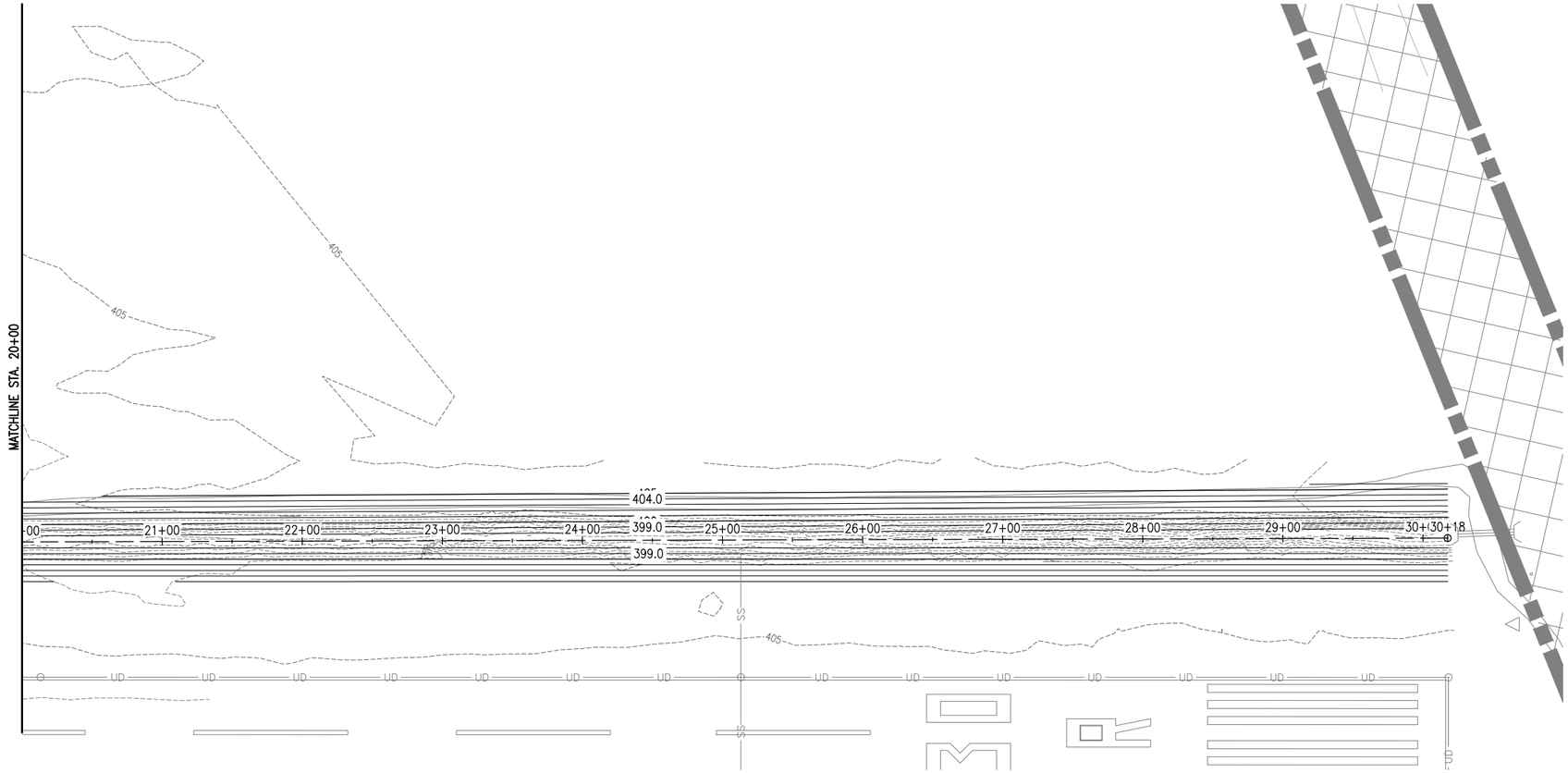

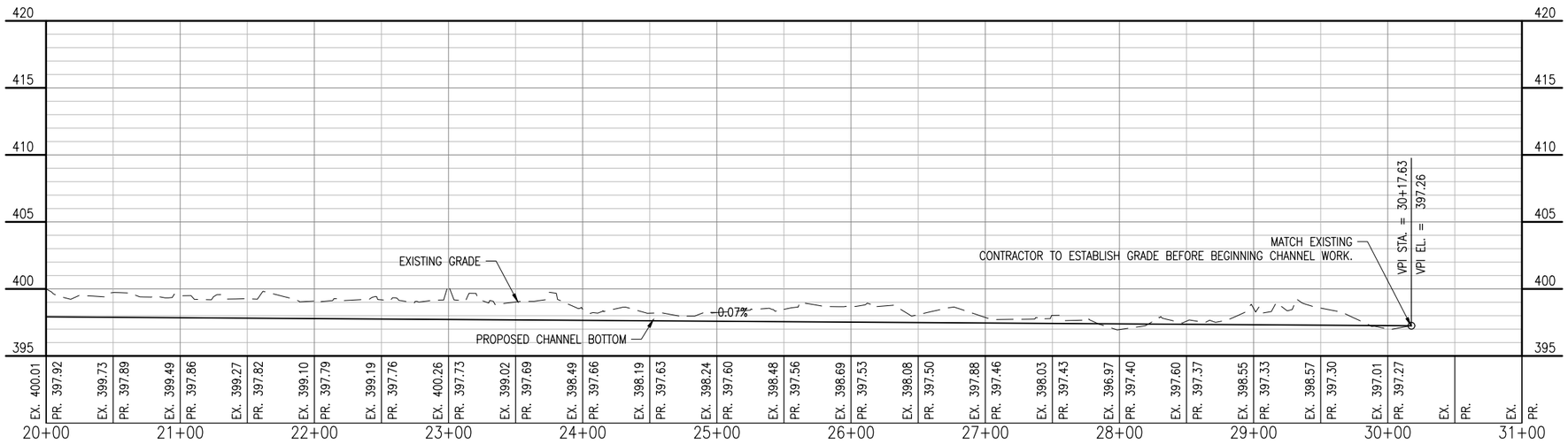

PLAN & PROFILE – RUNWAY 12L–30R CHANNEL STA. 20+00 TO STA 30+18

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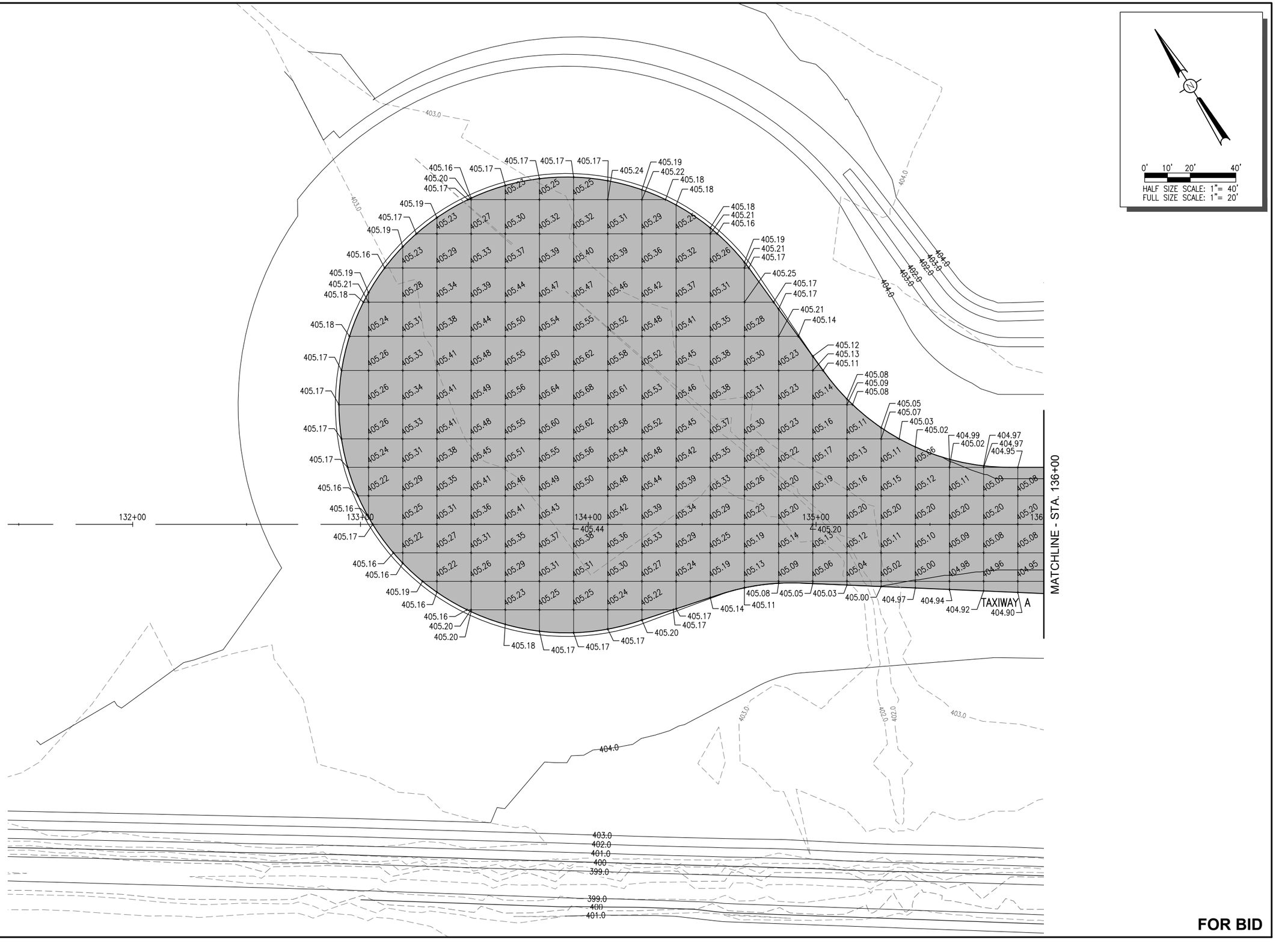

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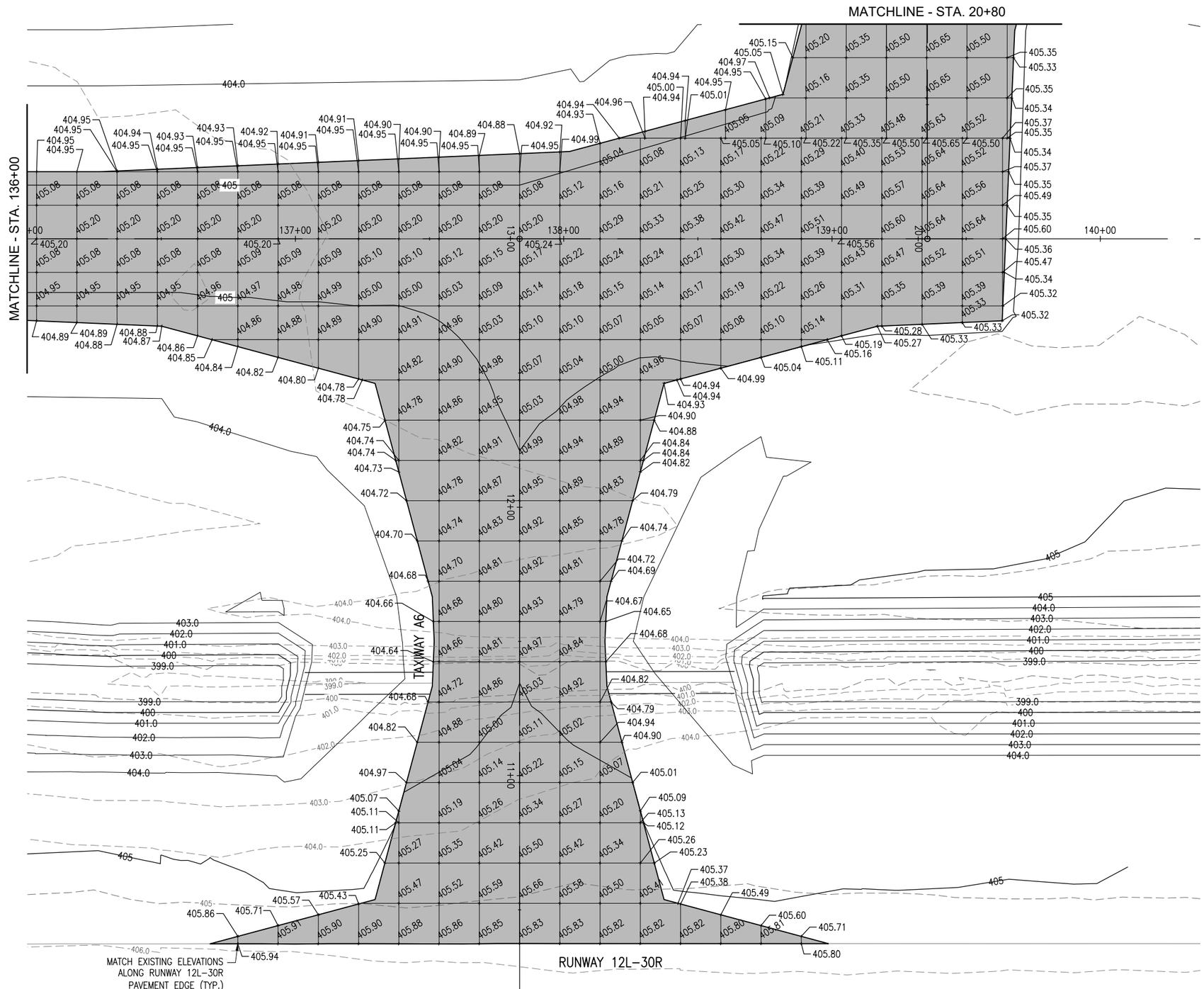
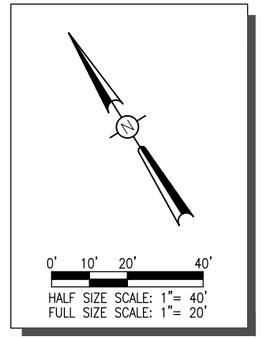
SHEET TITLE

STAKING PLAN - SHEET 1





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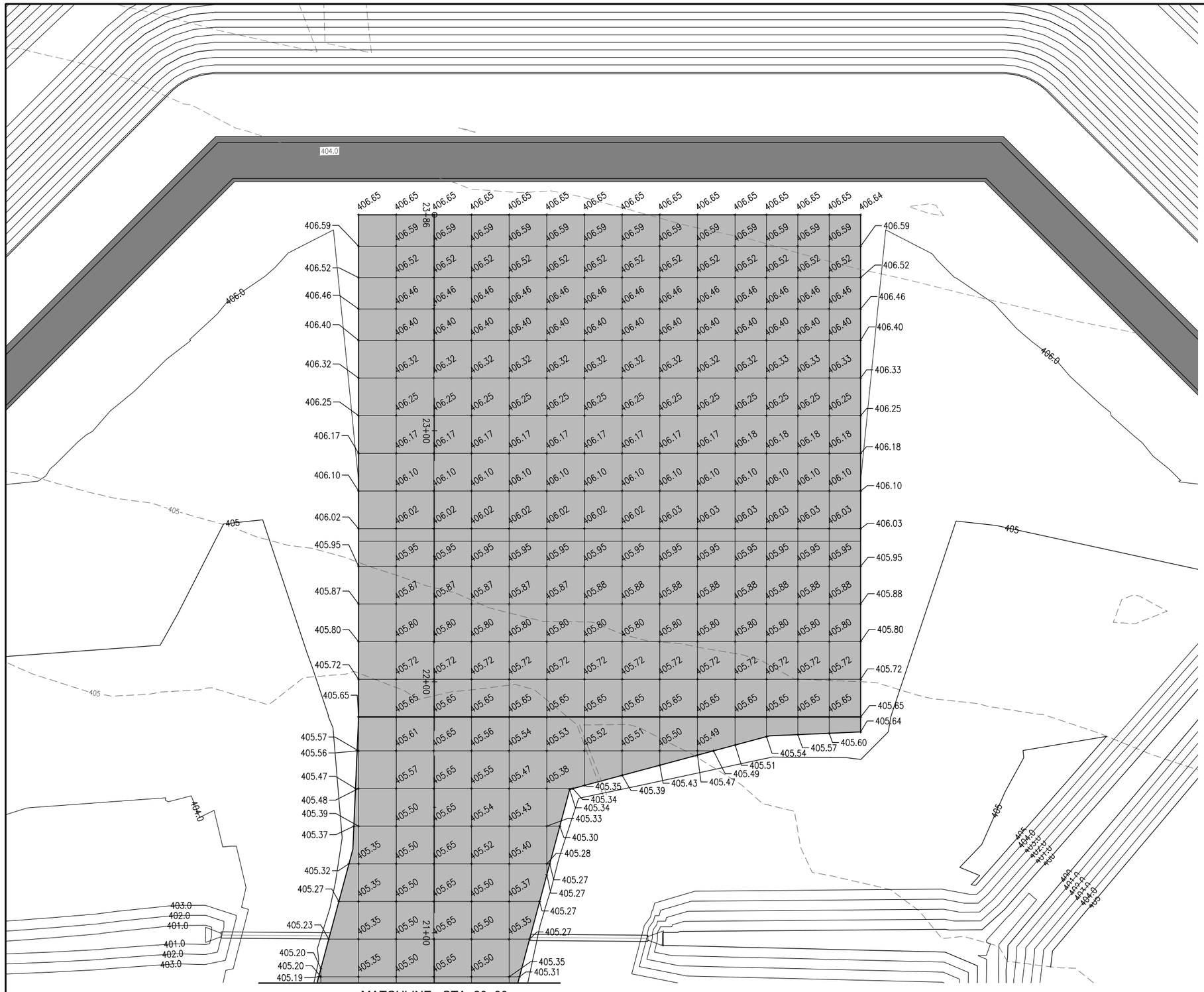
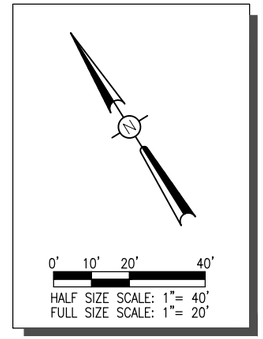
SHEET TITLE

STAKING PLAN - SHEET 2





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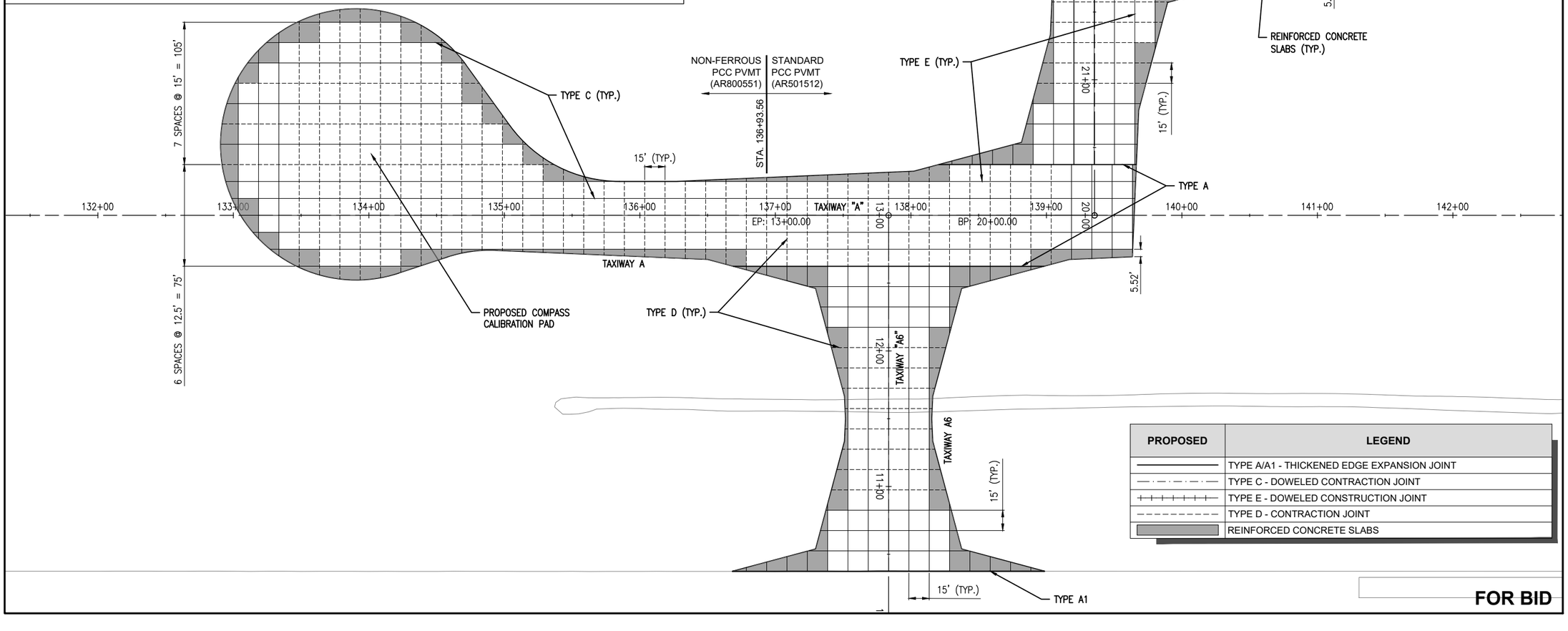
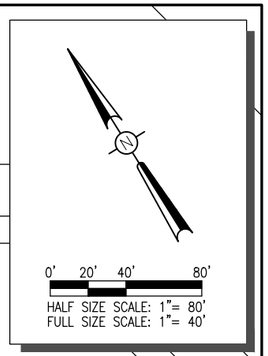
SHEET TITLE

STAKING PLAN - SHEET 3

JOINTING NOTES

1. DUE TO THE MAGNETICALLY-SENSITIVE NATURE OF THE PROPOSED COMPASS CALIBRATION PAD (CCP), THE USE OF STEEL/FERROUS MATERIALS WITHIN A DESIGNATED RADIUS OF THE CENTER OF THE CCP IS PROHIBITED. THE DIVIDING LINE FOR THIS PROJECT IS STATION 136+93.56 ON TAXIWAY "A". AS NOTED ON THE JOINTING PLAN VIEW, WITHIN THE NON-FERROUS PCC PAVEMENT AREAS, ALL DOWEL BARS AND REINFORCING MATERIALS SHALL BE FIBERGLASS AND SHALL CONFORM TO THE PROJECT SPECIAL PROVISIONS ITEM AR800551. ALTERNATE NON-FERROUS MATERIALS (ALUMINUM, BRASS, BRONZE) MAY BE PROPOSED FOR APPROVAL PRIOR TO THE BID OPENING/LETTING DATE AND ANY APPROVED MATERIALS WILL BE ISSUED BY ADDENDUM. THE PROPOSED PCC PAVEMENT MIX DESIGN SHALL BE CONSISTENT THROUGHOUT THE ENTIRE PROJECT.
2. ALL LONGITUDINAL AND TRANSVERSE CONTRACTION JOINTS SHALL BE SAWED. ALL JOINT EDGES SHALL BE SAWCUT TO PRODUCE THE 1/4" CHAMFER.
3. ALL DOWEL BARS SHALL BE SECURELY HELD IN PLACE BY MEANS OF A DOWEL BAR ASSEMBLY WHICH WILL ENSURE THAT THEY WILL REMAIN PARALLEL TO THE SURFACE OF THE PAVEMENT AND TO THE CENTERLINES OF THE PAVEMENT LANES. THE DOWEL BAR ASSEMBLIES SHALL BE APPROVED BY THE RESIDENT ENGINEER/TECHNICIAN PRIOR TO INSTALLATION.
4. DOWEL BARS FOR 12 IN. THICK PAVEMENT SHALL BE 1 IN. DIAMETER, 18 IN. LONG AT 12 IN. SPACING.
5. DOWELS IN TRANSVERSE CONTRACTION AND LONGITUDINAL CONSTRUCTION JOINTS SHALL BE COATED WITH A RUSTPROOFING COMPOUND AND HALF THE LENGTH GREASED WITH A HEAVY GREASE.
6. ALLOWABLE TOLERANCES FOR GROOVE DEPTH WILL BE ±1/8" FOR CONSTRUCTION JOINTS AND ±1/4" FOR CONTRACTION JOINTS.
7. THE CONTRACTOR IS REQUIRED TO DRILL AND EPOXY THE PROPOSED DOWELS IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS. THE EPOXY MATERIAL MUST BE APPROVED BY THE DIVISION OF AERONAUTICS PRIOR TO USE.
8. THE COST OF ALL DOWEL BARS, BASKET ASSEMBLIES, SAWING AND SEALING SHALL BE INCLUDED IN THE COST OF THE PCC PAVEMENT.
9. WHEN CONSTRUCTING "FILL-IN" PAVEMENT LANES THE CONTRACTOR SHALL USE BELTING OR OTHER PROTECTIVE MATERIAL FOR THE PAVING MACHINE TO TRAVEL ON AND WILL PROTECT THE TRANSVERSE JOINTS.
10. JOINT SEALANT SHALL BE AS SPECIFIED IN THE STANDARD SPECIFICATIONS, ITEM 605.
11. CURING COMPOUND SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS, ITEM 501, SECTION 501-2.9, AND SHALL BE APPROVED PRIOR TO THE PAVING OPERATION BY THE RESIDENT ENGINEER/TECHNICIAN.
12. ALL NON-ALIGNED EDGES WILL BE SAWED FULL DEPTH.
13. AWARDED CONTRACTOR MAY PROPOSE AN ALTERNATIVE PAVING/JOINTING PLAN FOR REVIEW AND APPROVAL FOLLOWING AWARD.
14. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AT "MATCH" LOCATIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE RESIDENT ENGINEER/TECHNICIAN IMMEDIATELY TO DETERMINE IF ADJUSTMENTS ARE NECESSARY TO PROPOSED GRADES.





PROPOSED	LEGEND
———	TYPE A/A1 - THICKENED EDGE EXPANSION JOINT
—·—·—·—	TYPE C - DOWELED CONTRACTION JOINT
+++++++++	TYPE E - DOWELED CONSTRUCTION JOINT
- - - - - -	TYPE D - CONTRACTION JOINT
▭	REINFORCED CONCRETE SLABS

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SHEET TITLE

JOINTING PLAN

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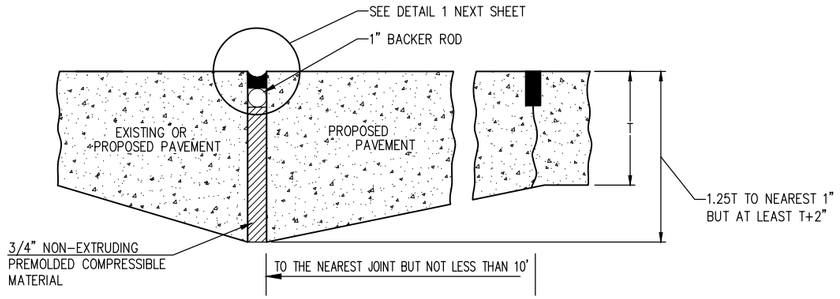
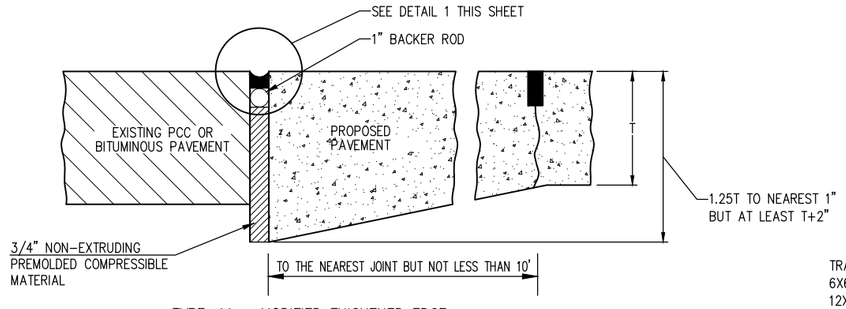


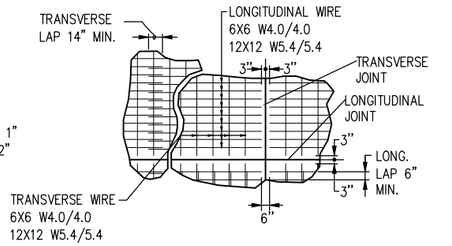
TYPE-A THICKENED EDGE

ISOLATION JOINT



TYPE-A1 - MODIFIED THICKENED EDGE

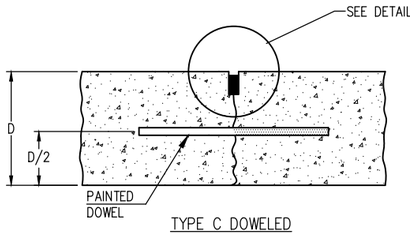
ISOLATION JOINT



REINFORCEMENT SHEET WIRE FABRIC DETAIL

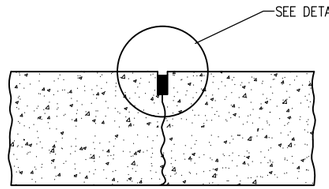
NOT TO SCALE

NOTE:
DIFFERENT WIRE MESH SIZES/CONFIGURATIONS OR SIZES ARE PERMITTED IF THE MINIMUM CROSS SECTIONAL AREA EQUALS 0.5 OR GREATER.



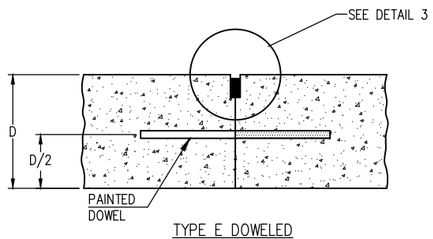
TYPE C DOWELED

CONTRACTION JOINT



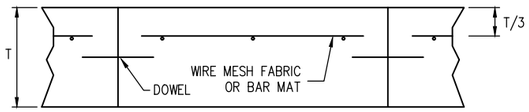
TYPE D DUMMY

CONTRACTION JOINT



TYPE E DOWELED

CONSTRUCTION JOINT



PAVEMENT REINFORCING DETAIL

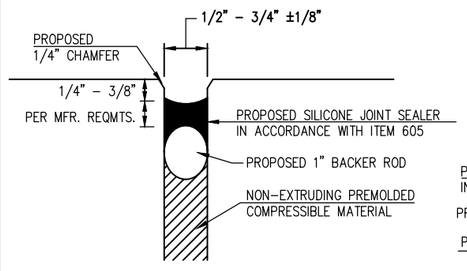
NOT TO SCALE

REINFORCING NOTES:

1. END LAPS SHALL BE A MINIMUM OF 12", BUT NOT LESS THAN 30 TIMES THE DIAMETER OF THE LONGITUDINAL WIRE OR BAR.
2. SIDE LAPS SHALL BE A MINIMUM OF 6", BUT NOT LESS THAN 20 TIMES THE DIAMETER OF TRANSVERSE WIRE OR BAR.
3. END AND SIDE CLEARANCES SHALL BE A MAXIMUM OF 6" AND A MINIMUM OF 2".
4. LONGITUDINAL MEMBERS SHALL BE SPACED NOT LESS THAN 4" NOR MORE THAN 12" APART.
5. TRANSVERSE MEMBERS SHALL BE SPACED NOT LESS THAN 4" NOR MORE THAN 24" APART.
6. REINFORCING FOR STANDARD PCC PAVEMENT (AR501512) SHALL CONSIST OF WELDED STEEL WIRE FABRIC CONFORMING TO THE REQUIREMENTS OF ASTM A 185 OR BAR MATS CONFORMING TO THE REQUIREMENTS OF ASTM A 184 OR A 704. ALTERNATIVELY, WITHIN THE STANDARD PCC PAVEMENT AREAS, THE CONTRACTOR HAS THE OPTION OF UTILIZING THE SAME REINFORCING APPROVED FOR THE NON-FERROUS PCC PAVEMENT AREAS (NOTE 7 BELOW) IF A COST SAVINGS CAN BE REALIZED.
7. REINFORCING FOR NON-FERROUS PCC PAVEMENT (AR800551) SHALL CONSIST OF FIBERGLASS BAR MATS DESIGNED FOR REINFORCING CONCRETE IN AIRPORT/ROADWAY PAVEMENTS OR SIMILAR STRUCTURES, OR ALTERNATIVE MATERIALS APPROVED PRIOR TO BIDDING. STEEL REINFORCING WILL NOT BE ALLOWED WITHIN THE NON-FERROUS PCC PAVEMENT AREAS AS DESIGNATED ON THE JOINTING PLAN SHEET.
8. PAVEMENT REINFORCING SHALL BE INCIDENTAL TO THE PCC PAVEMENT ITEMS.

DOWEL NOTES:

1. DOWEL BARS WITHIN THE STANDARD PCC PAVEMENT (AR501512) SHALL BE STEEL DOWEL BARS CONFORMING TO THE PROJECT SPECIFICATIONS ITEM 501.
2. DOWEL BARS WITHIN THE NON-FERROUS PCC PAVEMENT (AR800551) SHALL CONSIST OF FIBERGLASS DOWEL BARS DESIGNED FOR CONCRETE IN AIRPORT/ROADWAY PAVEMENTS OR SIMILAR STRUCTURES, OR ALTERNATIVE MATERIALS APPROVED PRIOR TO BIDDING. DOWEL BASKETS, PINS AND ACCESSORIES SHALL ALSO BE NON-FERROUS, SUCH AS PLASTIC. STEEL DOWELS, BASKETS AND ACCESSORIES WILL NOT BE ALLOWED WITHIN THE NON-FERROUS PCC PAVEMENT AREAS AS DESIGNATED ON THE JOINTING PLAN SHEET.
3. CARE SHALL BE TAKEN BY THE CONTRACTOR TO ENSURE THAT THE DOWEL BARS AND BASKET ASSEMBLIES IN CONTRACTION JOINTS ARE ADEQUATELY SECURED AND WILL NOT FLOAT DURING THE CONCRETE VIBRATING PROCESS.



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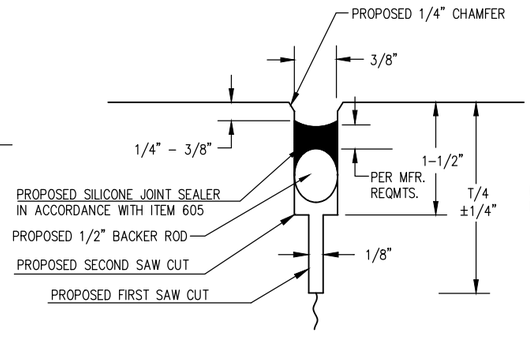

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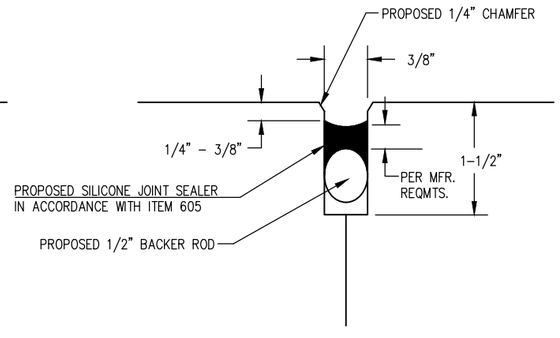

DETAIL 3

NOT TO SCALE

JOINT SEALING DETAILS

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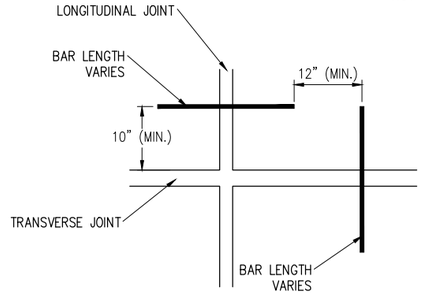

POSITION OF DOWELS AT EDGE OF JOINT TYPE C OR E

DOWEL PLAN VIEW

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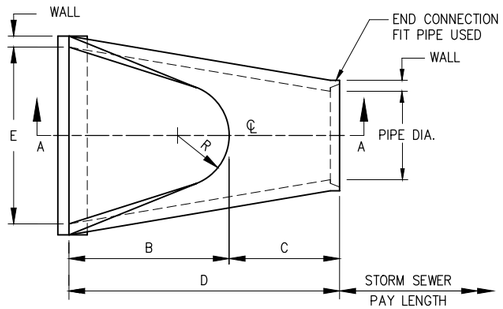
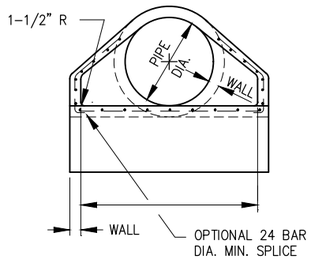
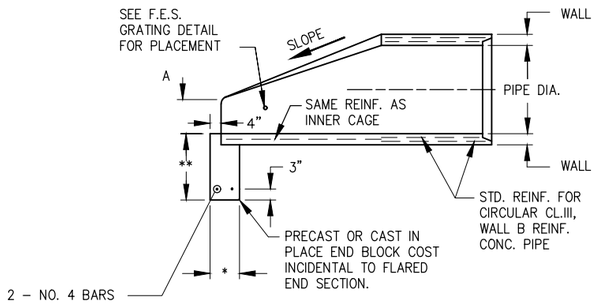


TOP VIEW



END VIEW



* 8" – 36" DIA. PIPE OR LESS
10" – GREATER THAN 36" DIA. PIPE

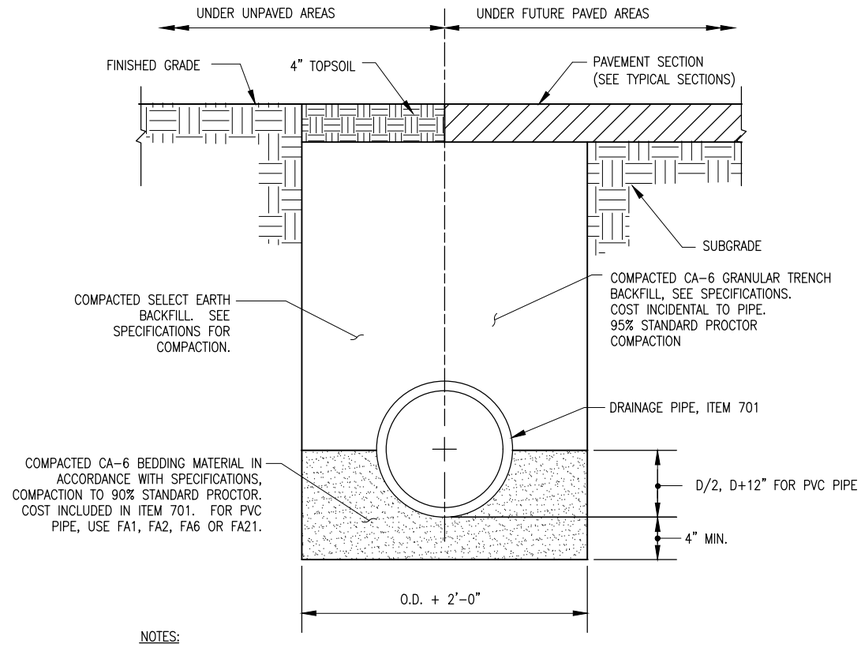
** 18" – 36" DIA. PIPE OR LESS
24" – GREATER THAN 36" DIA. PIPE

SECTION A-A

PIPE DIA.	WALL	A	B	C	D	E	R	SLOPE
24"	3"	9-1/2"	3'-7 1/2"	30"	6'-1 1/2"	4'-0"	14"	1:2.5

PRECAST CONCRETE FLARED END SECTION

(IDOT STANDARD 542301-MODIFIED)
NOT TO SCALE



NOTES:

1. UNSUITABLE MATERIAL ENCOUNTERED DURING PLACEMENT OF BEDDING SHALL BE REMOVED AND REPLACED.
2. WITHIN 3 FEET OF PAVED AREA, GRANULAR BACKFILL IS TO BE USED INSTEAD OF EARTH BACKFILL.
3. AT CONTRACTOR'S OPTION IDOT CONTROLLED LOW STRENGTH MATERIAL WITH A HIGH EARLY STRENGTH, "FLASH FILL", MAY BE USED INSTEAD OF GRANULAR TRENCH BACKFILL UNDER PAVEMENTS AT NO ADDITIONAL COST TO THE CONTRACT.

PIPE TRENCH DETAIL

NOT TO SCALE

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LICENSED PROFESSIONAL ENGINEER

DATE SIGNED: 3/4/22
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CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

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ISSUE: MARCH 4, 2022
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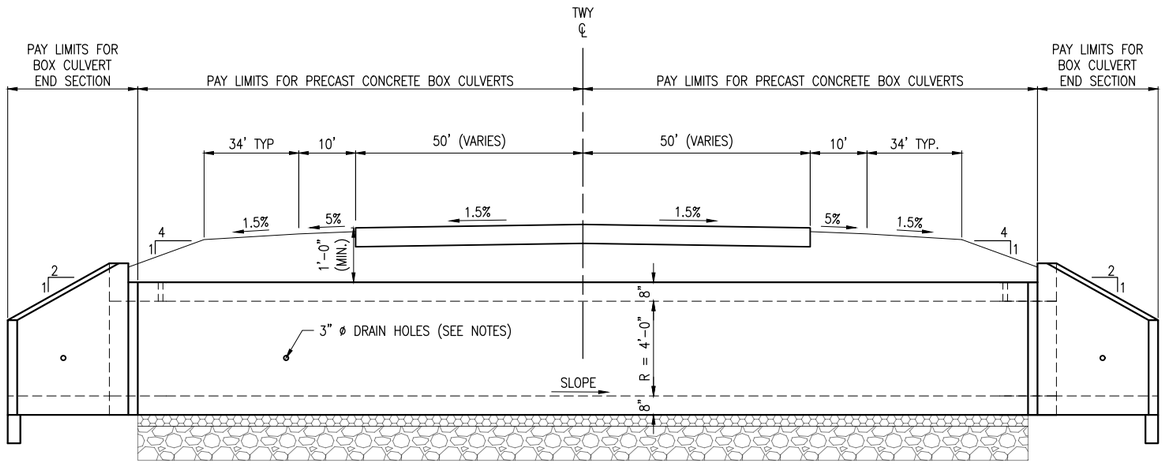
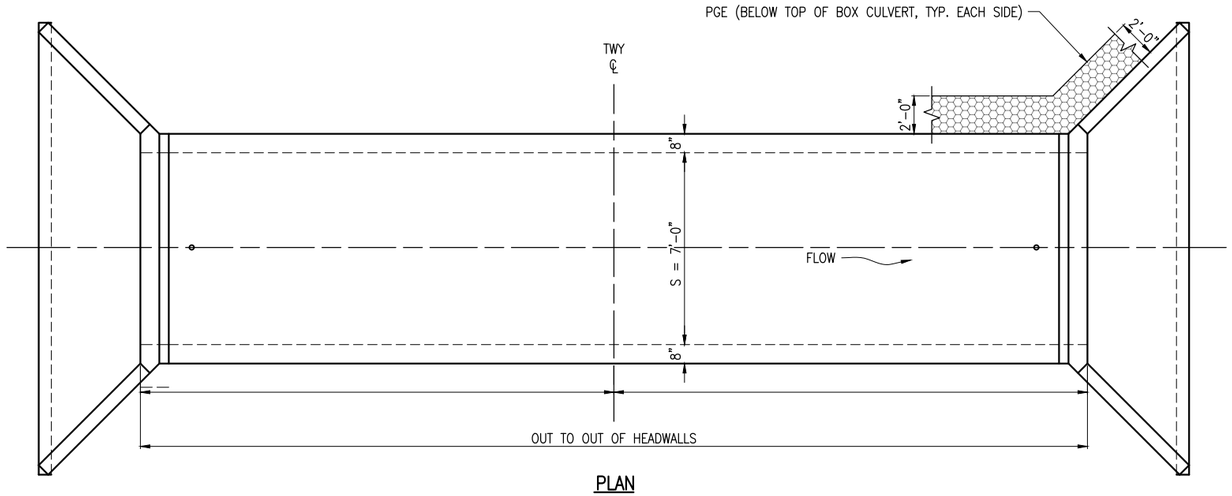
SHEET TITLE

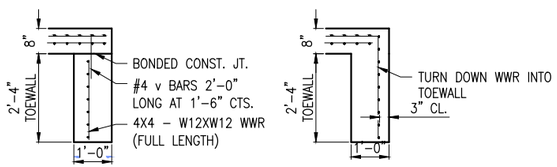
DRAINAGE DETAILS



ELEVATION



PLAN



SECTION B–B
(FROM NEXT SHEET)

ALT. SECTION B–B
(FROM NEXT SHEET)

TOEWALL CONSTRUCTION SEQUENCE

1. PERFORM EXCAVATION AND CONSTRUCT TOEWALL.
2. BACKFILL ACCORDINGLY AND PREPARE BEDDING FOR BOX CULVERT END SECTIONS.
3. CONSTRUCT REMAINDER OF BOX CULVERT END SECTION

NOTE: IF SOIL CONDITIONS PERMIT, THE TOEWALL MAY BE POURED MONOLITHICALLY WITH THE BOTTOM SLAB OF THE END SECTION USING ALT. SECTION D–D SUBJECT TO APPROVAL FROM THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL DETAILS ASSOCIATED WITH THE PRECAST BOX CULVERT INCLUDING ANY STRENGTHENING OR STIFFENING PROVISIONS NECESSARY FOR HANDLING THE PRECAST SEGMENTS. CONCEPTUAL DETAILS FOLLOWED BY SHOP DRAWINGS AND DESIGN CALCULATIONS SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

DESIGN SPECIFICATIONS

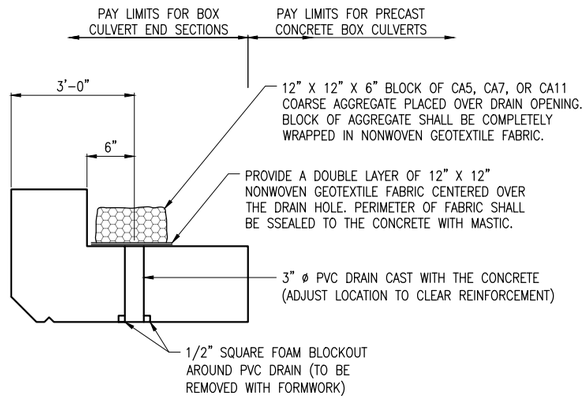
1. FAA AC 150/5320-6G (OR LATEST EDITION/PUBLICATION)
2. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (LATEST EDITION)
3. IDOT STANDARD DRAWINGS FOR SINGLE CELL PRECAST BOX CULVERTS
4. AS REQUIRED

LOADING

1. THE PRECAST CONCRETE BOX CULVERT SHALL COMPLY WITH ASTM C789 AND ASTM C850.
2. THE CRITICAL AIRCRAFT LOADING SHALL BE A DUAL WHEEL AIRCRAFT WITH A MAXIMUM TAKEOFF WEIGHT OF 108,000 LBS.
3. PRECAST BOX CULVERTS SHALL BE DESIGNED FOR A MINIMUM COVER OF 1 FOOT.

NOTES

1. DRAIN HOLES SHALL BE PROVIDED ON EXTERIOR CULVERT WALLS FOR EACH PRE-CAST BOX SEGMENT WITH A CLEAT RISE GREATER THAN THREE (3) FEET.
2. DRAIN HOLES SHALL BE LOCATED WITHIN 1/3 OF THE CLEAR RISE OF THE BOX CULVERT, SHALL NOT INTERCEPT THE HAUNCH, AND SHALL CONFORM TO THE SPECIFIED REQUIREMENTS.
3. NON-WOVEN GEOTEXTILE FABRIC SHALL CONFORM TO THE SPECIFIED REQUIREMENTS.
4. PRE-CAST CONCRETE BOX CULVERTS AND BOX CULVERT END SECTIONS SHALL BE BACKFILLED WITH POROUS GRANULAR EMBANKMENT BELOW THE TOP OF THE BOX CULVERT EXTENDING TO A VERTICAL PLANE TWO (2) FEET FROM THE EXTERIOR SIDES OF THE CULVERT, TWO (2) FEET FROM THE BACK FACE OF THE END SECTIONS, AND NOT CLOSER THAN TWO (2) FEET FROM THE FACE OF THE EMBANKMENT.



DRAIN DETAIL

(ALL COSTS ASSOCIATED WITH FURNISHING AND CONSTRUCTING THE ABOVE DRAIN DETAIL WILL NOT BE MEASURED FOR PAYMENT BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE ASSOCIATED WORK.)

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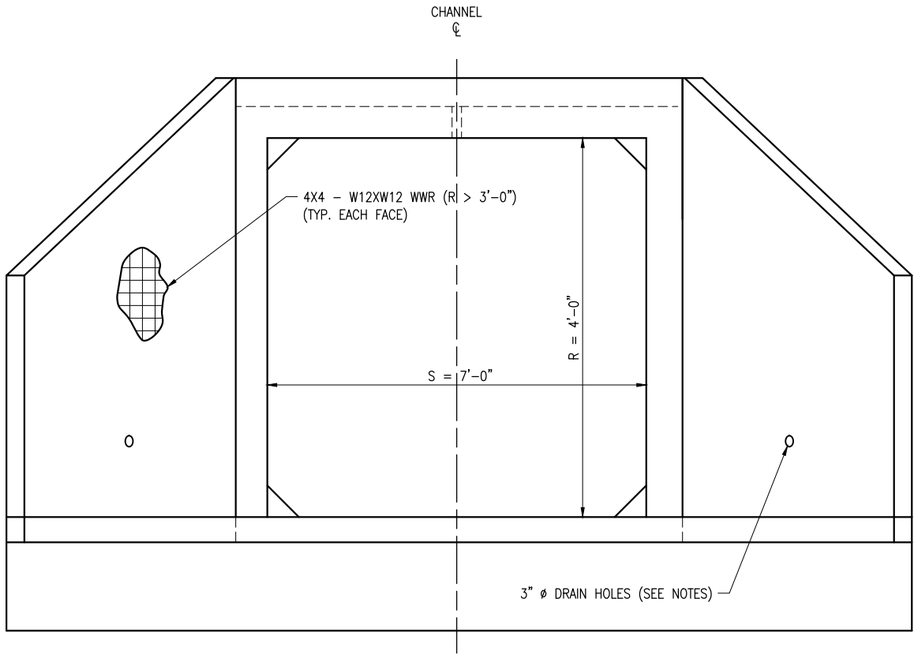
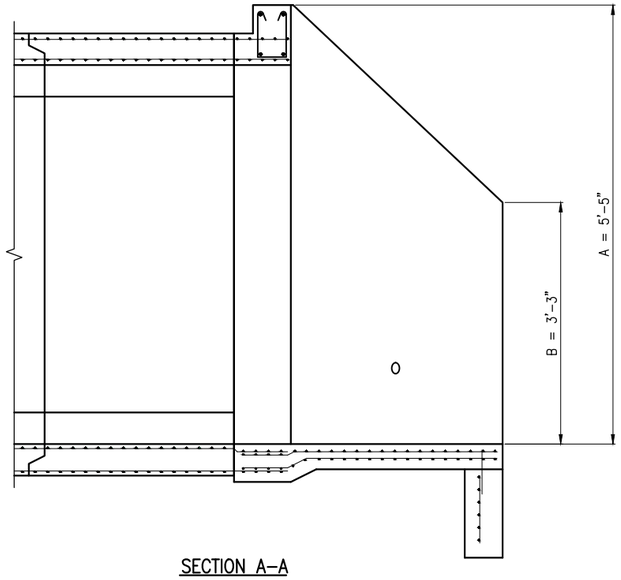
SHEET TITLE

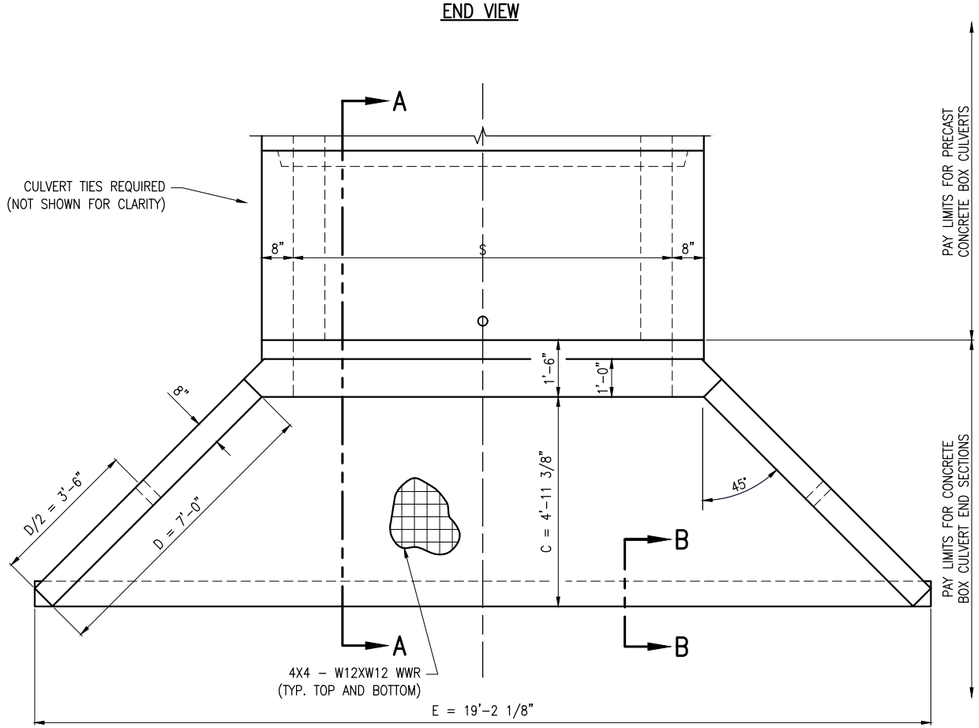
BOX CULVERT DETAILS - SHEET 1



END VIEW



SECTION A–A



PLAN

NOTE: CULVERT TIES ARE NOT SHOWN BUT ARE REQUIRED. SEE GENERAL NOTE 2 THIS SHEET.

GENERAL NOTES

BOX CULVERT END SECTIONS SHALL BE CONSTRUCTED ACCORDING TO THE REQUIREMENTS OF THE SPECIAL PROVISIONS EXCEPT AS MODIFIED HEREIN. END SECTIONS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH FOR BOX CULVERT END SECTIONS.

1. BOX SECTION DIMENSIONS, MATERIALS, AND REINFORCEMENT DETAILS FOR BOX CULVERT END SECTIONS SHALL BE ACCORDING TO THE REQUIREMENTS FOR ASTM C 1577 AS REQUIRED FOR THE DESIGN OF THE PORTION OF THE CULVERT WITHIN THE LIMITS OF PRECAST CONCRETE BOX CULVERTS EXCEPT AS MODIFIED HEREIN.

2. THE NUMBER OF CULVERT TIES (NOT SHOWN) SHALL BE SUFFICIENT TO ENGAGE THE MINIMUM LENGTH OF CULVERT BARREL AND WILL BE DEPENDENT UPON THE LENGTH OF BOX CULVERT SEGMENTS FURNISHED BY THE CONTRACTOR.

3. THE DETAILS CONTAINED HEREIN ARE FOR CONSTRUCTING THE END SECTIONS USING CAST–IN–PLACE (CIP) CONSTRUCTION. THE CONTRACTOR MAY PROPOSE TO FURNISH THE END SECTIONS USING PRECAST CONSTRUCTION METHODS AND THE END SECTIONS MAY CONSIST OF MULTIPLE PRECAST SEGMENTS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL DETAILS ASSOCIATED WITH THE PRECAST OPTION INCLUDING ANY STRENGTHENING OR STIFFENING PROVISIONS NECESSARY FOR HANDLING THE PRECAST SEGMENTS. CONCEPTUAL DETAILS FOLLOWED BY SHOP DRAWINGS AND DESIGN CALCULATIONS SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

5. ELEMENTS OF THE PRECAST OPTION SHALL AT A MINIMUM RESULT IN THE SAME WINGWALL GEOMETRY AND NOT HAVE THICKNESS LESS THAN THAT DETAILED HEREIN.

6. THE OPTION TO CONSTRUCT THE END SECTIONS USING PRECAST CONSTRUCTION METHODS SHALL BE AT NO ADDITIONAL CHARGE.

7. SHOP DRAWINGS THAT DETAIL SLAB THICKNESS AND REINFORCEMENT LAYOUT FOR THE BOX CULVERT END SECTIONS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW AND APPROVAL. REINFORCEMENT BARS NOT DETAILED HEREIN SHALL BE DETAILED WITH A CLEAR DISTANCE AT THE END OF THE REINFORCEMENT NOT LESS THAN 1/2" NOR MORE THAN 2".

8. THE CONTRACTOR MAY USE REINFORCEMENT BARS IN LIEU OF WELDED WIRE REINFORCEMENT (WWR). REINFORCEMENT BARS SHALL BE LIMITED TO THE SIZES OF #3 THROUGH #5 BARS, A MAXIMUM SPACING OF THE LESSER OF 8" OR THE MEMBER THICKNESS, AND SHALL RESULT IN AN AREA OF REINFORCEMENT EQUAL TO OR GREATER THAN THAT PROVIDED BY THE WWR. MINIMUM LAP LENGTHS DETAILED HEREIN ARE APPLICABLE TO WWR AND REINFORCEMENT BARS.

9. REINFORCEMENT (CIRCUMFERENTIAL AND LONGITUDINAL) IN THE PRECAST CONCRETE BOX CULVERT SEGMENTS IMMEDIATELY ADJACENT TO THE BOX CULVERT END SECTIONS THAT IS BEING LAPPED WITH THE END SECTION REINFORCEMENT SHALL NOT BE LESS THAN THAT REQUIRED BY ASTM C 1577 FOR THE DESIGN FILL HEIGHT OR THE REINFORCEMENT DETAILED FOR THE END SECTION, WHICHEVER IS GREATER.

10. ONE DRAIN HOLE SHALL BE PROVIDED IN EACH WINGWALL FOR THE END SECTIONS OF BOX CULVERTS HAVING AN OPENING WITH A CLEAR RISE GREATER THAN 3 FT. THE DRAIN HOLE SHALL BE LOCATED WITHIN 1/3 OF THE CLEAR RISE OF THE BOX CULVERT AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

FOR BID

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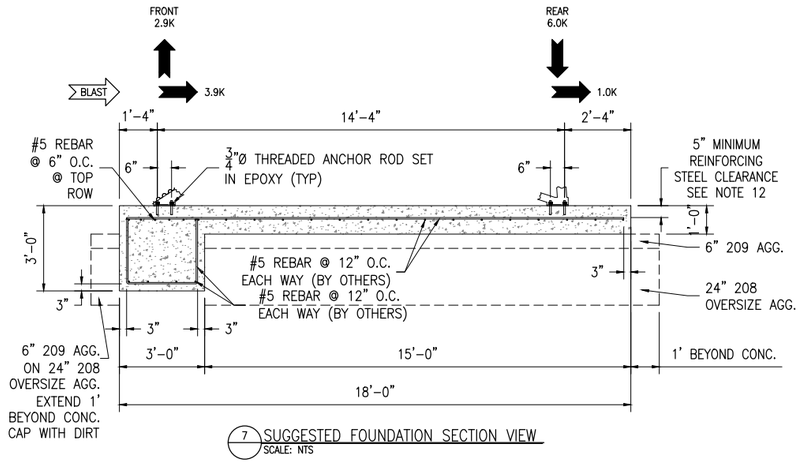
SHEET TITLE

BOX CULVERT DETAILS - SHEET 2



7 SUGGESTED FOUNDATION SECTION VIEW
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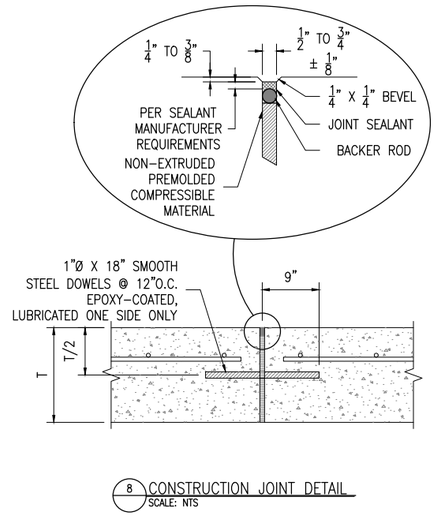

8 CONSTRUCTION JOINT DETAIL
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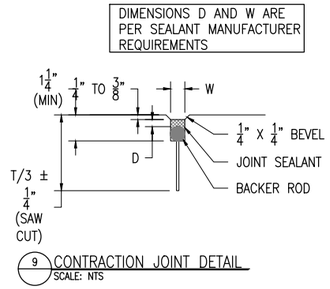

9 CONTRACTION JOINT DETAIL
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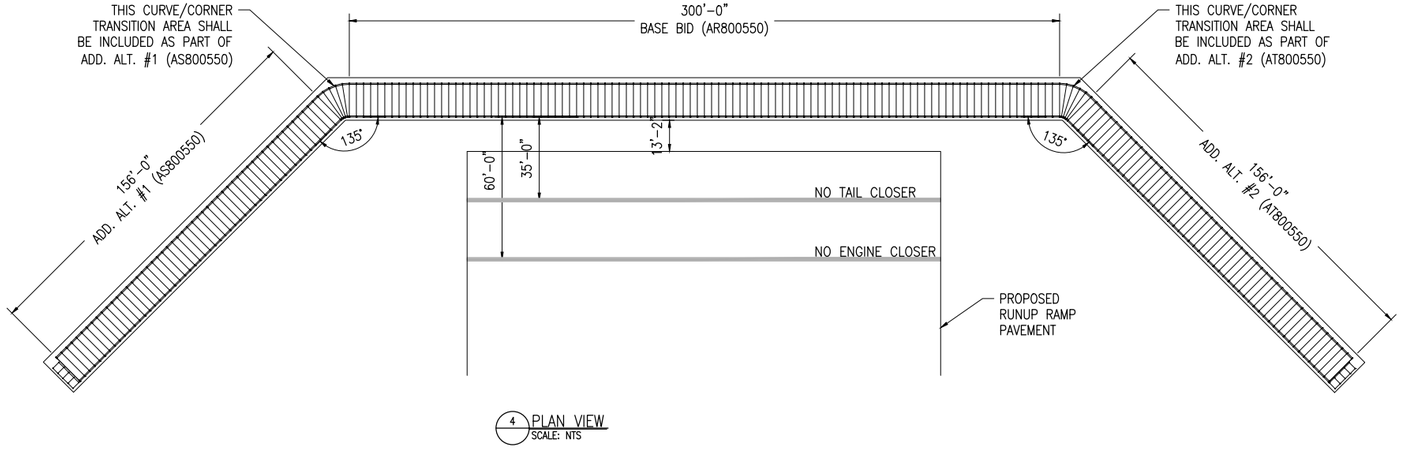

4 PLAN VIEW
SCALE: NTS

NOTES:

1. THE COMPLETE BLAST DEFLECTOR LAYOUT SHALL BE BID WITHIN THREE SEPARATE PAY ITEMS TO ALLOW FLEXIBILITY FOR AWARD IN THE EVENT OF FUNDING LIMITATIONS. AS NOTED ABOVE, THE ITEMS ARE INTENDED AS FOLLOWS:
   - BASE BID: CENTER 300' LONG SECTION (AR800550)
   - ADD. ALT. #1 BID: LEFT 156' LONG SECTION PLUS TRANSITION CURVE BETWEEN LEFT AND CENTER SECTIONS (AS800550)
   - ADD. ALT. #2 BID: RIGHT 156' LONG SECTION PLUS TRANSITION CURVE BETWEEN RIGHT AND CENTER SECTIONS (AT800550)
2. THE PROPOSED END WALLS (LEFT AND RIGHT) SHALL BE INCLUDED WITH THE BASE BID CENTER SECTION. IF ANY ADDITIVE ALTERNATE BIDS ARE AWARDED, THE END WALLS WILL BE INSTALLED AT THE FURTHEST OUTSIDE POINT OF THE COMPLETE DEFLECTOR LAYOUT.
3. ALL OTHER DETAILS, NOTES AND SPECIFICATIONS SHALL REMAIN AS-IS REGARDLESS OF THE LENGTH OF DEFLECTOR LAYOUT AWARDED.

BLAST DEFLECTOR NOTES:

1. BLAST DEFLECTOR SHALL WITHSTAND FULL-POWER EXHAUST VELOCITIES OF TAIL-ENGINE, BUSINESS JET AIRCRAFT. BLAST DEFLECTOR HEIGHT IS NOT SUITABLE FOR TAIL (#2) ENGINE OF DC/MD-10, MD-11, L-1011, OR KC-10 AIRCRAFT. DESIGN LOADS ARE AS FOLLOWS AND ARE CALCULATED PER FAA GUIDELINES UNLESS NOTED OTHERWISE:
   GROUP III (TAIL ENGINE) EXHAUST CONTOUR:
   265 MPH (PEAK) = 180 PSF (NOM.)
   106 MPH WIND PER ASCE 7-16
   57.5 PSF (ULT.) = 34.5 PSF (NOM.)
2. NO AIRCRAFT SHALL BE OPERATED WITH ENGINE NOZZLE CLOSER THAN 60' AND NO TAIL CLOSER THAN 35' TO THE LEADING EDGE OF THE BLAST DEFLECTOR.
3. THE BLAST DEFLECTOR HAS A NOMINAL HEIGHT OF 19' WITH A GREATER EFFECTIVE HEIGHT.
4. FRAME MEMBERS SHALL BE ASTM A36 STEEL AND HOT-DIP GALVANIZED TO 2 OZ/FT² PER ASTM A123.
5. DEFLECTING SURFACES SHALL BE CORRUGATED STEEL SHEETS DESIGNED TO SUPPORT LOADS IN A MINIMUM TWO-SPAN CONDITION. SHEET THICKNESS SHALL BE 16 GA WITH A MINIMUM 2.10 OZ/FT² (G210) HOT-DIP GALVANIZED FINISH PER ASTM A653. SHEET SECTION MODULUS SHALL BE A MINIMUM OF 0.196 IN³/FT.
6. ALL FIELD CONNECTIONS SHALL BE BOLTED (NO FIELD WELDING PERMITTED). FASTENERS SHALL BE SAE J429 GRADE 5, ASTM A449, OR ASTM F593 (ALLOY GROUP 2) WITH AN APPROPRIATE COATING FOR CORROSION RESISTANCE (WHERE APPLICABLE). ADEQUATE LOCKING PROPERTIES SHALL BE PROVIDED TO PREVENT FASTENERS FROM WORKING LOOSE DURING NORMAL OPERATION (SUBJECT TO MANUFACTURER MAINTENANCE GUIDELINES).
7. ALL ANCHORAGE SHALL BE SUPPLIED BY THE BLAST DEFLECTOR MANUFACTURER AND SHALL BE INSTALLED INTO THE COMPLETED FOUNDATION DURING THE ERECTION OF THE BLAST DEFLECTOR.
8. BLAST DEFLECTOR MANUFACTURER ONSITE SUPERVISION IS REQUIRED DURING INSTALLATION FOR PRODUCT GUARANTEE.

FOUNDATION NOTES:

1. FOUNDATION DESIGN SHOWN IS SUGGESTED ONLY. FINAL FOUNDATION/SUBGRADE DESIGN SHALL BE BASED ON SERVICE ANCHOR LOADS SHOWN, SITE SOIL CONDITIONS, AND GOVERNING CODES. DESIGN SHOWN CONSIDERS JET EXHAUST CHARACTERISTICS AND INCORPORATES LOAD REDUCTIONS AT FRAMES ADJACENT TO THE ENGINE CENTERLINES. THIS SUGGESTED DESIGN IS BASED ON THE FOLLOWING ASSUMPTIONS:

ALLOWABLE SOIL BEARING CAPACITY	1000 PSF
SOIL LATERAL (PASSIVE) PRESSURE	250 PSF/FT DEPTH
STATIC FRICTION COEFFICIENT	0.40

2. FINISHED FOUNDATION SURFACE SHALL BE A SINGLE PLANE AND MAY SLOPE UP TO 2% IN ANY SINGLE DIRECTION TO ACCOMMODATE DRAINAGE OR TO MATCH EXISTING GRADES. THE FOLLOWING TOLERANCES SHALL APPLY:

FINISHED FOUNDATION ELEVATION	±1/4"
FOUNDATION DIMENSIONS	±1/2"

3. PORTLAND CEMENT CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
4. REINFORCING STEEL, OR ANY OTHER EMBEDDED COMPONENTS, SHALL NOT BE PLACED WITHIN THE TOP 5" OF THE FINISHED FOUNDATION SURFACE FOR ANCHOR BOLT CLEARANCE.
5. CONSTRUCTION AND CONTRACTION JOINTS SHALL BE PLACED 18' O.C. (MAX.) OR PER APPROVED DESIGN, BUT NOT WITHIN 12" OF ANY BLAST DEFLECTOR ANCHOR LOCATION.
6. BLAST DEFLECTOR MANUFACTURER SHALL FURNISH, LOCATE, AND SUPERVISE THE INSTALLATION OF ALL ANCHORAGE AFTER FOUNDATION CONSTRUCTION HAS BEEN COMPLETED.
7. AGGREGATES SHOWN BENEATH THE FOUNDATION SLAB (6" 209 AND 24" 208 OVERSIZE) SHALL BE INCLUDED WITHIN THE LUMP SUM BID PRICES FOR EACH SECTION OF BLAST DEFLECTOR..

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SHEET TITLE

JET BLAST DEFLECTOR DETAILS AND NOTES

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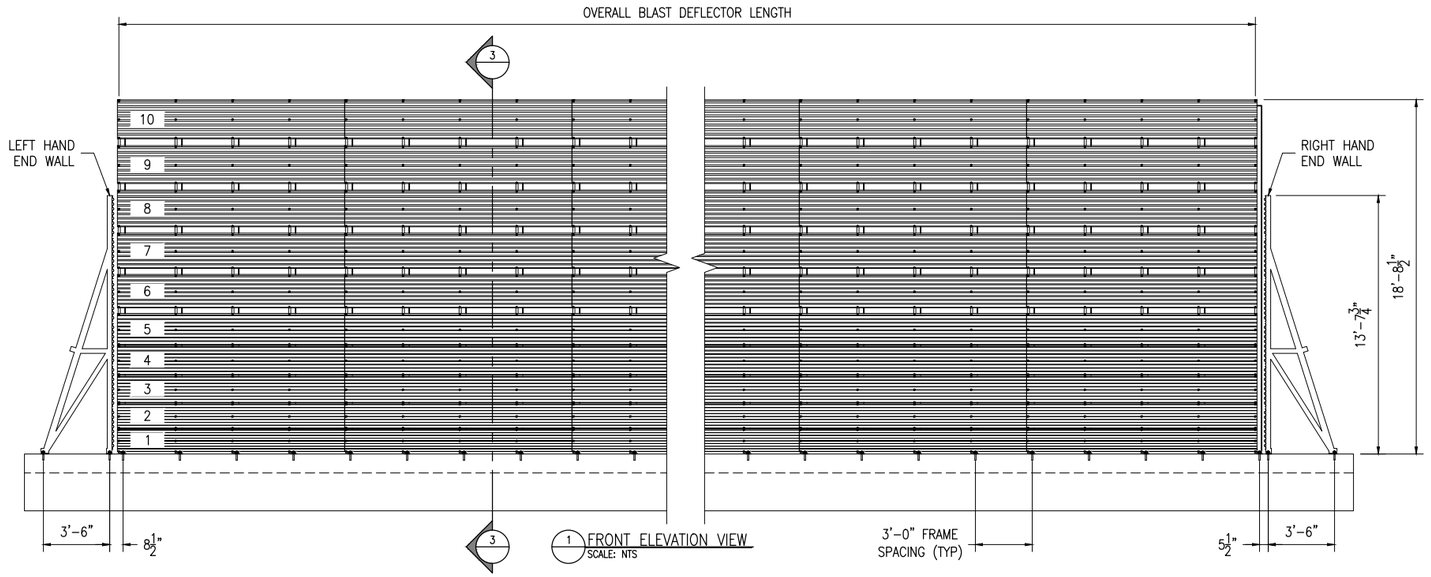
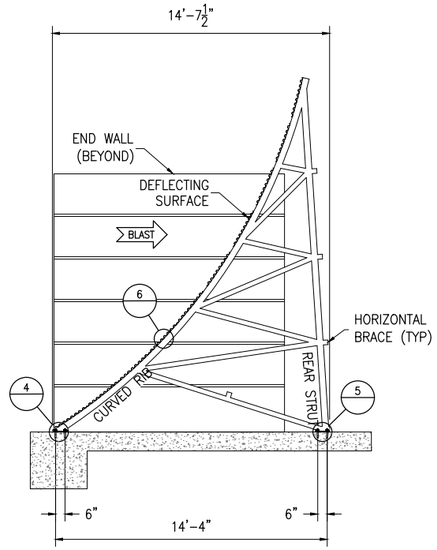


1 FRONT ELEVATION VIEW
SCALE: NTS



3 SECTION VIEW
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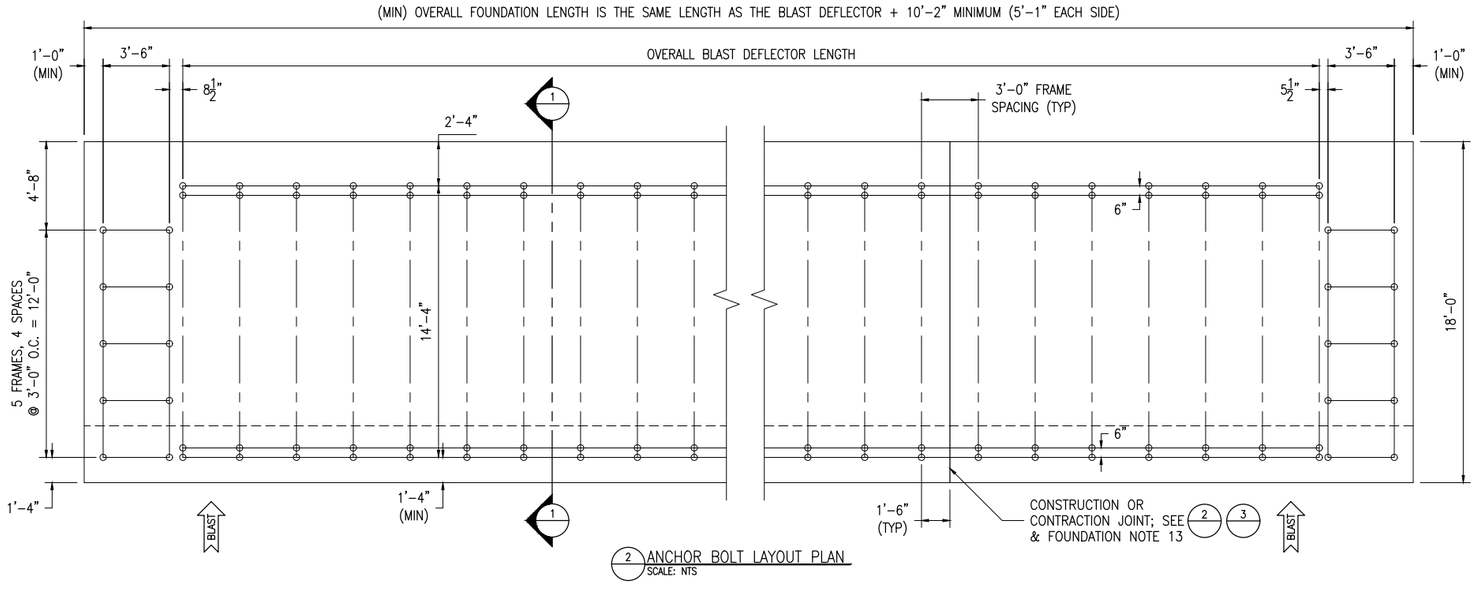

2 ANCHOR BOLT LAYOUT PLAN
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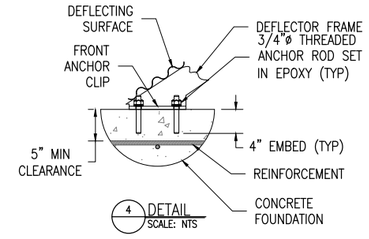
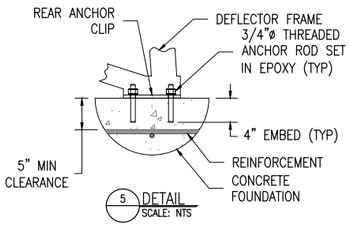


4 DETAIL
SCALE: NTS



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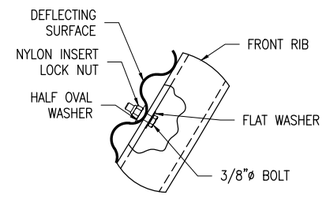

6 DETAIL
SCALE: NTS

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6100 Archview Drive
Cahokia, Illinois 62206

STATE OF ILLINOIS
BARRY S. STOLZ
062-057281
LICENSED
PROFESSIONAL ENGINEER

DATE SIGNED: ~~3~~/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: C-503-BLST.DWG
DESIGN BY: BSS 4/12/2021
DRAWN BY: CWS 4/16/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

JET BLAST DEFLECTOR DETAILS

MAR 04, 2022 5:12 PM STOLZ01547
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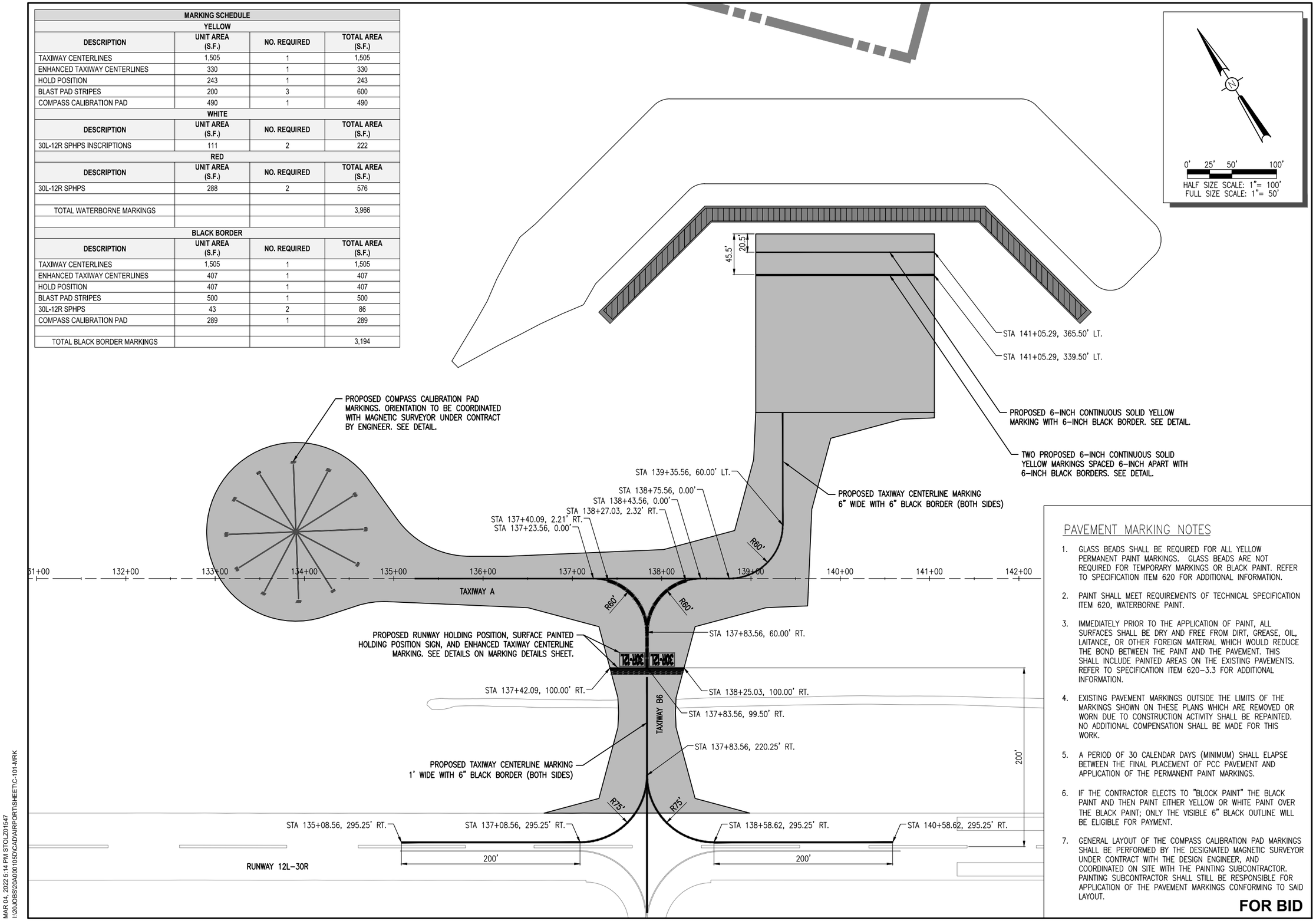
MARKING SCHEDULE			
YELLOW			
DESCRIPTION	**UNIT AREA (S.F.)**	**NO. REQUIRED**	**TOTAL AREA (S.F.)**
TAXIWAY CENTERLINES	1,505	1	1,505
ENHANCED TAXIWAY CENTERLINES	330	1	330
HOLD POSITION	243	1	243
BLAST PAD STRIPES	200	3	600
COMPASS CALIBRATION PAD	490	1	490
WHITE			
DESCRIPTION	**UNIT AREA (S.F.)**	**NO. REQUIRED**	**TOTAL AREA (S.F.)**
30L-12R SPHPS INSCRIPTIONS	111	2	222
RED			
DESCRIPTION	**UNIT AREA (S.F.)**	**NO. REQUIRED**	**TOTAL AREA (S.F.)**
30L-12R SPHPS	288	2	576
TOTAL WATERBORNE MARKINGS			3,966
BLACK BORDER			
DESCRIPTION	**UNIT AREA (S.F.)**	**NO. REQUIRED**	**TOTAL AREA (S.F.)**
TAXIWAY CENTERLINES	1,505	1	1,505
ENHANCED TAXIWAY CENTERLINES	407	1	407
HOLD POSITION	407	1	407
BLAST PAD STRIPES	500	1	500
30L-12R SPHPS	43	2	86
COMPASS CALIBRATION PAD	289	1	289
TOTAL BLACK BORDER MARKINGS			3,194



PAVEMENT MARKING NOTES

1. GLASS BEADS SHALL BE REQUIRED FOR ALL YELLOW PERMANENT PAINT MARKINGS. GLASS BEADS ARE NOT REQUIRED FOR TEMPORARY MARKINGS OR BLACK PAINT. REFER TO SPECIFICATION ITEM 620 FOR ADDITIONAL INFORMATION.
2. PAINT SHALL MEET REQUIREMENTS OF TECHNICAL SPECIFICATION ITEM 620, WATERBORNE PAINT.
3. IMMEDIATELY PRIOR TO THE APPLICATION OF PAINT, ALL SURFACES SHALL BE DRY AND FREE FROM DIRT, GREASE, OIL, LAITANCE, OR OTHER FOREIGN MATERIAL WHICH WOULD REDUCE THE BOND BETWEEN THE PAINT AND THE PAVEMENT. THIS SHALL INCLUDE PAINTED AREAS ON THE EXISTING PAVEMENTS. REFER TO SPECIFICATION ITEM 620-3.3 FOR ADDITIONAL INFORMATION.
4. EXISTING PAVEMENT MARKINGS OUTSIDE THE LIMITS OF THE MARKINGS SHOWN ON THESE PLANS WHICH ARE REMOVED OR WORN DUE TO CONSTRUCTION ACTIVITY SHALL BE REPAINTED. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THIS WORK.
5. A PERIOD OF 30 CALENDAR DAYS (MINIMUM) SHALL ELAPSE BETWEEN THE FINAL PLACEMENT OF PCC PAVEMENT AND APPLICATION OF THE PERMANENT PAINT MARKINGS.
6. IF THE CONTRACTOR ELECTS TO "BLOCK PAINT" THE BLACK PAINT AND THEN PAINT EITHER YELLOW OR WHITE PAINT OVER THE BLACK PAINT; ONLY THE VISIBLE 6" BLACK OUTLINE WILL BE ELIGIBLE FOR PAYMENT.
7. GENERAL LAYOUT OF THE COMPASS CALIBRATION PAD MARKINGS SHALL BE PERFORMED BY THE DESIGNATED MAGNETIC SURVEYOR UNDER CONTRACT WITH THE DESIGN ENGINEER, AND COORDINATED ON SITE WITH THE PAINTING SUBCONTRACTOR. PAINTING SUBCONTRACTOR SHALL STILL BE RESPONSIBLE FOR APPLICATION OF THE PAVEMENT MARKINGS CONFORMING TO SAID LAYOUT.

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Contract No. SD061

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ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: C-101-MRK.DWG
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REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

MARKING PLAN

MAR 04, 2022 5:14 PM STOLZ01547
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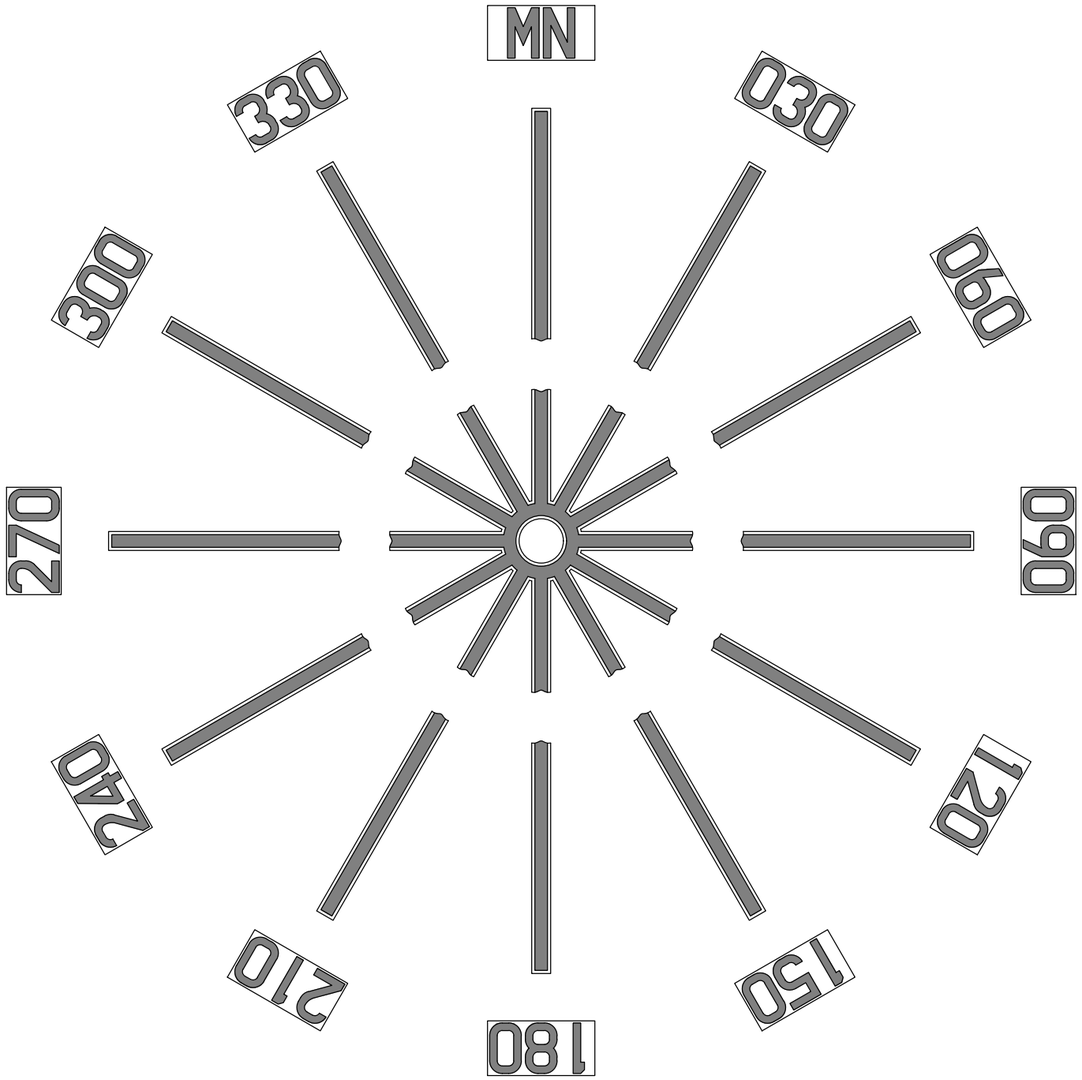
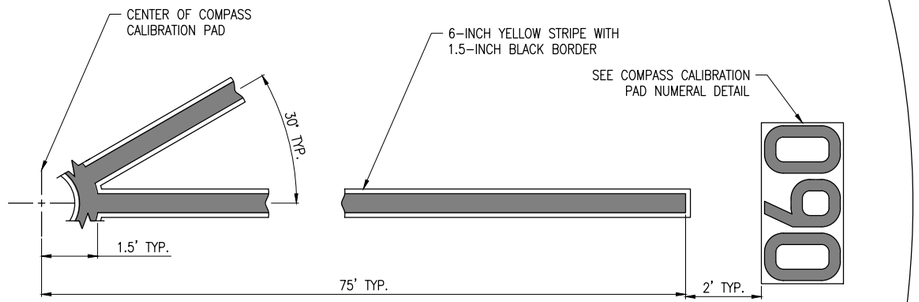


COMPASS CALIBRATION PAD MARKINGS
NOT TO SCALE



COMPASS CALIBRATION PAD DETAIL
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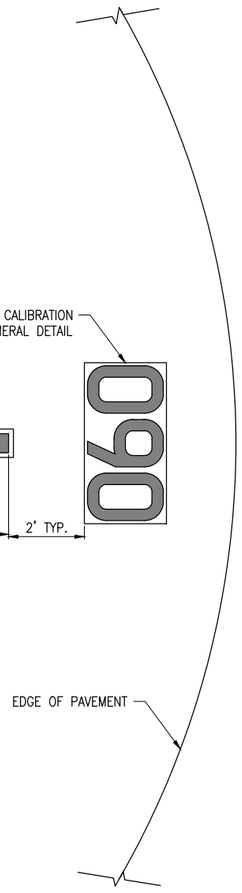

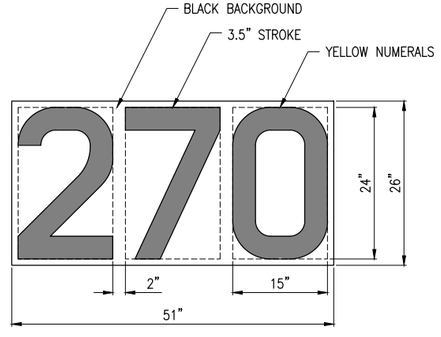

COMPASS CALIBRATION PAD
NOT TO SCALE

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REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

MARKING DETAILS - SHEET 1

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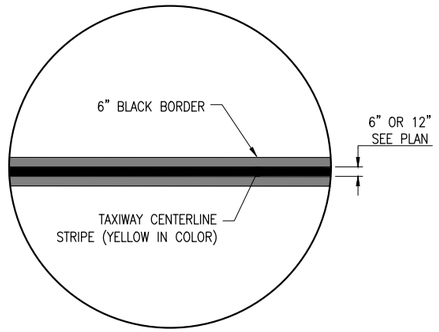


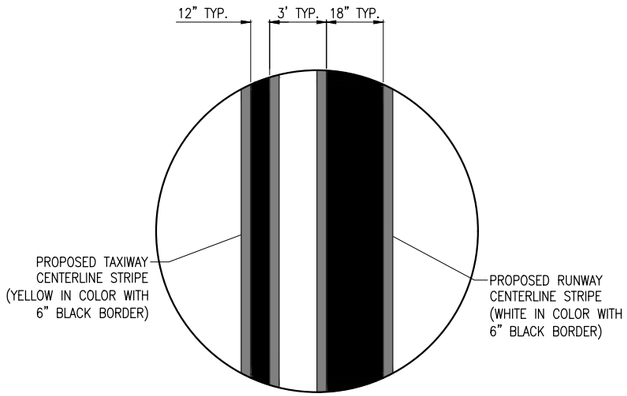
TAXIWAY CENTERLINE DETAIL
NOT TO SCALE

SURFACE PAINTED HOLDING POSITION SIGN NOTES

1. SURFACE PAINTED HOLDING POSITION SIGN MARKINGS SHALL CONFORM TO FAA AC 150/5340-1M, OR CURRENT EDITION. INSCRIPTIONS SHALL BE IN ACCORDANCE WITH APPENDIX A.
3. SURFACE PAINTED HOLDING POSITION SIGNS (SPHPS) SHALL CONSIST OF A WHITE INSCRIPTION ON A SOLID RED BACKGROUND. THE WHITE INSCRIPTION SHALL BE 12 FT. TALL.
4. A SET OF STENCILS FOR THE SURFACE PAINTED HOLDING POSITION SIGNS SHALL BE PROVIDED BY THE CONTRACTOR TO THE AIRPORT AT THE CONCLUSION OF THE PROJECT. THE STENCILS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE CONTRACT PAY ITEMS.
5. THE SURFACE PAINTED HOLDING POSITION SIGNS SHALL BE ORIENTED PARALLEL TO THE RUNWAY HOLDING POSITION MARKING.
6. SURFACE PAINTED HOLDING POSITIONS SIGNS SHALL BE LOCATED AS SHOWN BASED ON DIMENSIONS FROM THE TAXIWAY CENTERLINE AND RUNWAY HOLDING POSITION MARKING.

ENHANCED TAXIWAY CENTERLINE MARKING NOTES:

1. TAXIWAY CENTERLINE MARKINGS SHALL BE YELLOW IN COLOR AND OUTLINED IN BLACK.
2. TAXIWAY CENTERLINE MARKINGS SHALL BE ENHANCED FOR 150-FT PRIOR TO A RUNWAY HOLDING POSITION MARKING, UNLESS NOTED OTHERWISE. FOR A CURVED TAXIWAY CENTERLINE, THIS DISTANCE SHALL BE MEASURED ALONG THE CENTERLINE BEING ENHANCED TO A DISTANCE OF 150-FT. ENHANCEMENTS LESS THAN 150-FT MERGE TANGENT TO THE CURVE AND SHALL END WITH THE LAST SET OF FULL DASHES.
3. WHERE TWO TAXIWAY CENTERLINES CONVERGE AT OR BEFORE THE RUNWAY HOLDING POSITION MARKING, PARTIAL INNER DASHED LINES LESS THAN 5 FEET AT THE POINT OF CONVERGENCE MAY BE OMITTED.
4. DASHES ON EITHER SIDE OF THE TAXIWAY CENTERLINE MUST BE ALIGNED, STARTING AND STOPPING WITH THE DASHES ON THE OPPOSITE SIDE OF THE CENTERLINE. TO ACCOMPLISH THIS FOR CURVED TAXIWAY CENTERLINES, THE MEASUREMENTS FOR THE DASHES AND GAPS SHALL BE MADE AT THE CENTERLINE AND EXTENDED PERPENDICULAR FROM THE CENTERLINE TO OBTAIN THE LOCATIONS OF THE DASHES.
5. ENHANCED TAXIWAY CENTERLINE MARKINGS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF FAA AC 150/5340-1M, STANDARDS FOR AIRPORT MARKING (OR CURRENT EDITION).
6. IF THE CONTRACTOR ELECTS TO "BLOCK PAINT" THE BLACK PAINT AND THEN PAINT EITHER YELLOW OR WHITE PAINT OVER THE BLACK PAINT; ONLY THE VISIBLE BLACK PAINT WILL BE ELIGIBLE FOR PAYMENT.



TAXIWAY CENTERLINE LEAD-IN DETAIL
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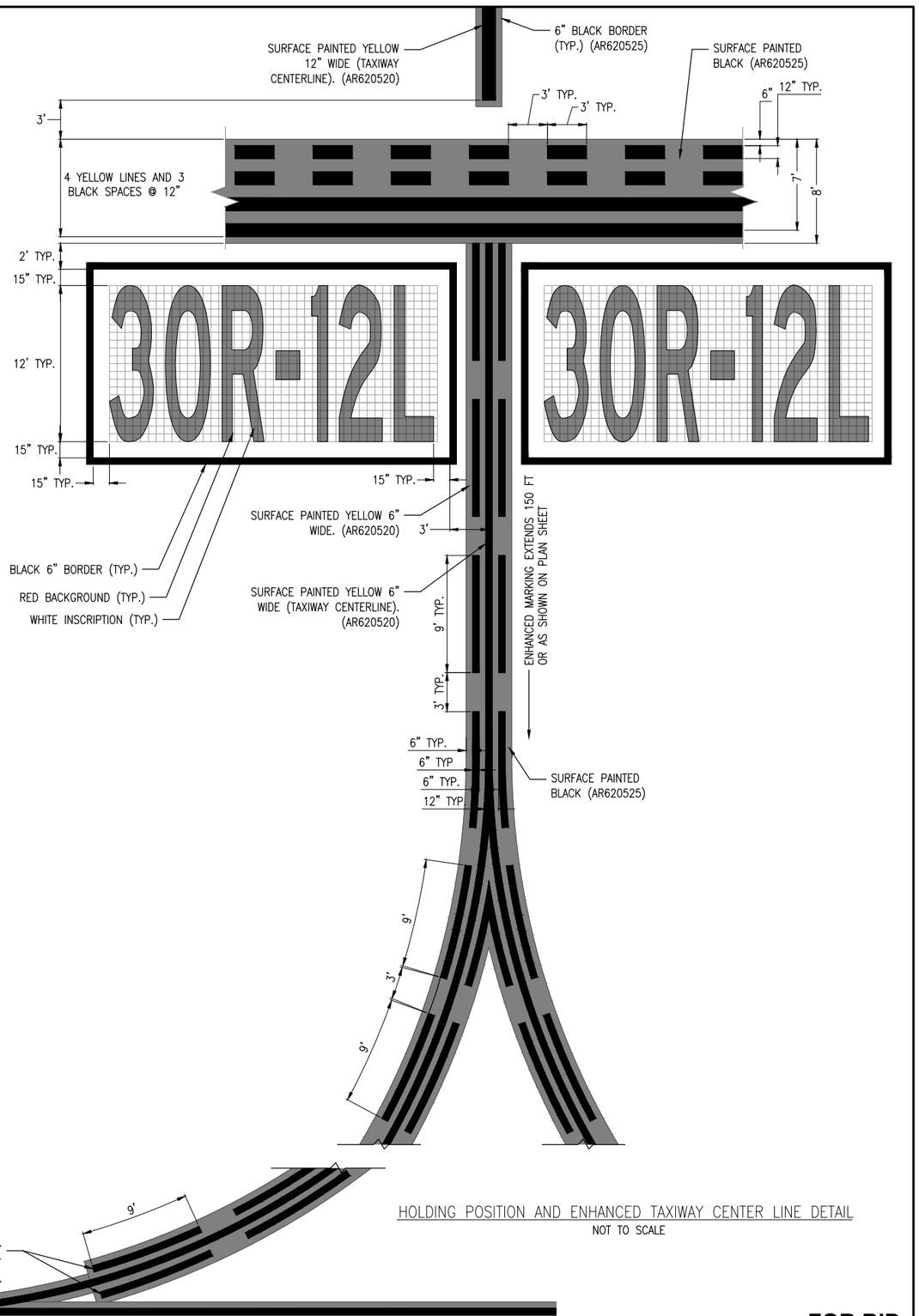

HOLDING POSITION AND ENHANCED TAXIWAY CENTER LINE DETAIL
NOT TO SCALE

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IDA No: CPS-4976

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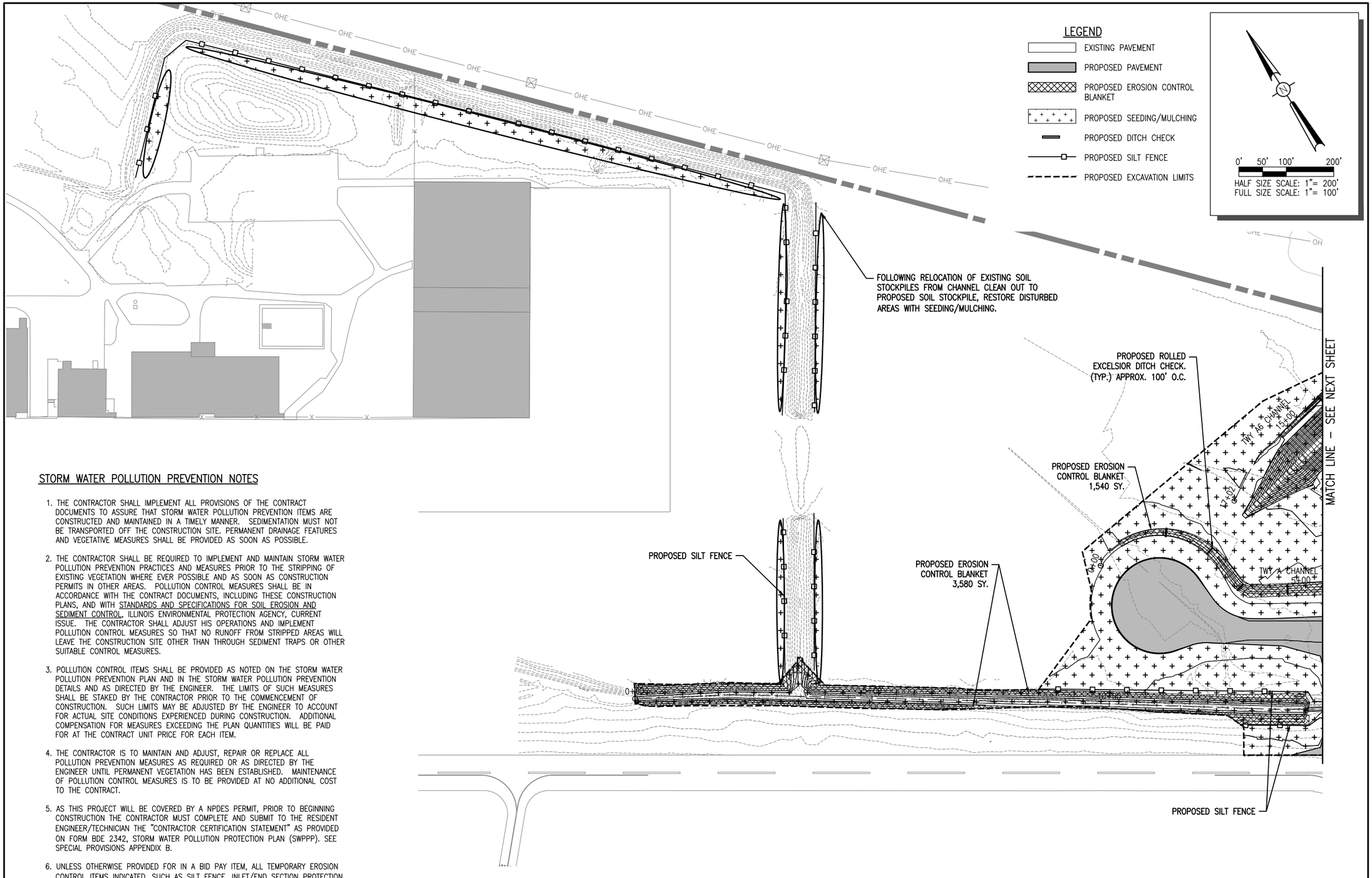
REVIEWED BY: ~~BSS~~ 03/~~0~~3/2022

SHEET TITLE

MARKING DETAILS - SHEET 2



STORM WATER POLLUTION PREVENTION NOTES

1. THE CONTRACTOR SHALL IMPLEMENT ALL PROVISIONS OF THE CONTRACT DOCUMENTS TO ASSURE THAT STORM WATER POLLUTION PREVENTION ITEMS ARE CONSTRUCTED AND MAINTAINED IN A TIMELY MANNER. SEDIMENTATION MUST NOT BE TRANSPORTED OFF THE CONSTRUCTION SITE. PERMANENT DRAINAGE FEATURES AND VEGETATIVE MEASURES SHALL BE PROVIDED AS SOON AS POSSIBLE.

2. THE CONTRACTOR SHALL BE REQUIRED TO IMPLEMENT AND MAINTAIN STORM WATER POLLUTION PREVENTION PRACTICES AND MEASURES PRIOR TO THE STRIPPING OF EXISTING VEGETATION WHERE EVER POSSIBLE AND AS SOON AS CONSTRUCTION PERMITS IN OTHER AREAS. POLLUTION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, INCLUDING THESE CONSTRUCTION PLANS, AND WITH STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, ILLINOIS ENVIRONMENTAL PROTECTION AGENCY, CURRENT ISSUE. THE CONTRACTOR SHALL ADJUST HIS OPERATIONS AND IMPLEMENT POLLUTION CONTROL MEASURES SO THAT NO RUNOFF FROM STRIPPED AREAS WILL LEAVE THE CONSTRUCTION SITE OTHER THAN THROUGH SEDIMENT TRAPS OR OTHER SUITABLE CONTROL MEASURES.

3. POLLUTION CONTROL ITEMS SHALL BE PROVIDED AS NOTED ON THE STORM WATER POLLUTION PREVENTION PLAN AND IN THE STORM WATER POLLUTION PREVENTION DETAILS AND AS DIRECTED BY THE ENGINEER. THE LIMITS OF SUCH MEASURES SHALL BE STAKED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SUCH LIMITS MAY BE ADJUSTED BY THE ENGINEER TO ACCOUNT FOR ACTUAL SITE CONDITIONS EXPERIENCED DURING CONSTRUCTION. ADDITIONAL COMPENSATION FOR MEASURES EXCEEDING THE PLAN QUANTITIES WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR EACH ITEM.

4. THE CONTRACTOR IS TO MAINTAIN AND ADJUST, REPAIR OR REPLACE ALL POLLUTION PREVENTION MEASURES AS REQUIRED OR AS DIRECTED BY THE ENGINEER UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. MAINTENANCE OF POLLUTION CONTROL MEASURES IS TO BE PROVIDED AT NO ADDITIONAL COST TO THE CONTRACT.

5. AS THIS PROJECT WILL BE COVERED BY A NPDES PERMIT, PRIOR TO BEGINNING CONSTRUCTION THE CONTRACTOR MUST COMPLETE AND SUBMIT TO THE RESIDENT ENGINEER/TECHNICIAN THE "CONTRACTOR CERTIFICATION STATEMENT" AS PROVIDED ON FORM BDE 2342, STORM WATER POLLUTION PROTECTION PLAN (SWPPP). SEE SPECIAL PROVISIONS APPENDIX B.

6. UNLESS OTHERWISE PROVIDED FOR IN A BID PAY ITEM, ALL TEMPORARY EROSION CONTROL ITEMS INDICATED, SUCH AS SILT FENCE, INLET/END SECTION PROTECTION, DITCH CHECKS, AND OTHERS AS DETERMINED NECESSARY BY THE CONTRACTOR AND/OR RESIDENT ENGINEER/TECHNICIAN, ARE TO BE PAID UNDER ITEM AR156500 TEMPORARY EROSION CONTROL, AND NO ADDITIONAL COMPENSATION WILL BE MADE.

FOR BID

MAR 04, 2022 5:15 PM STOLZ01547
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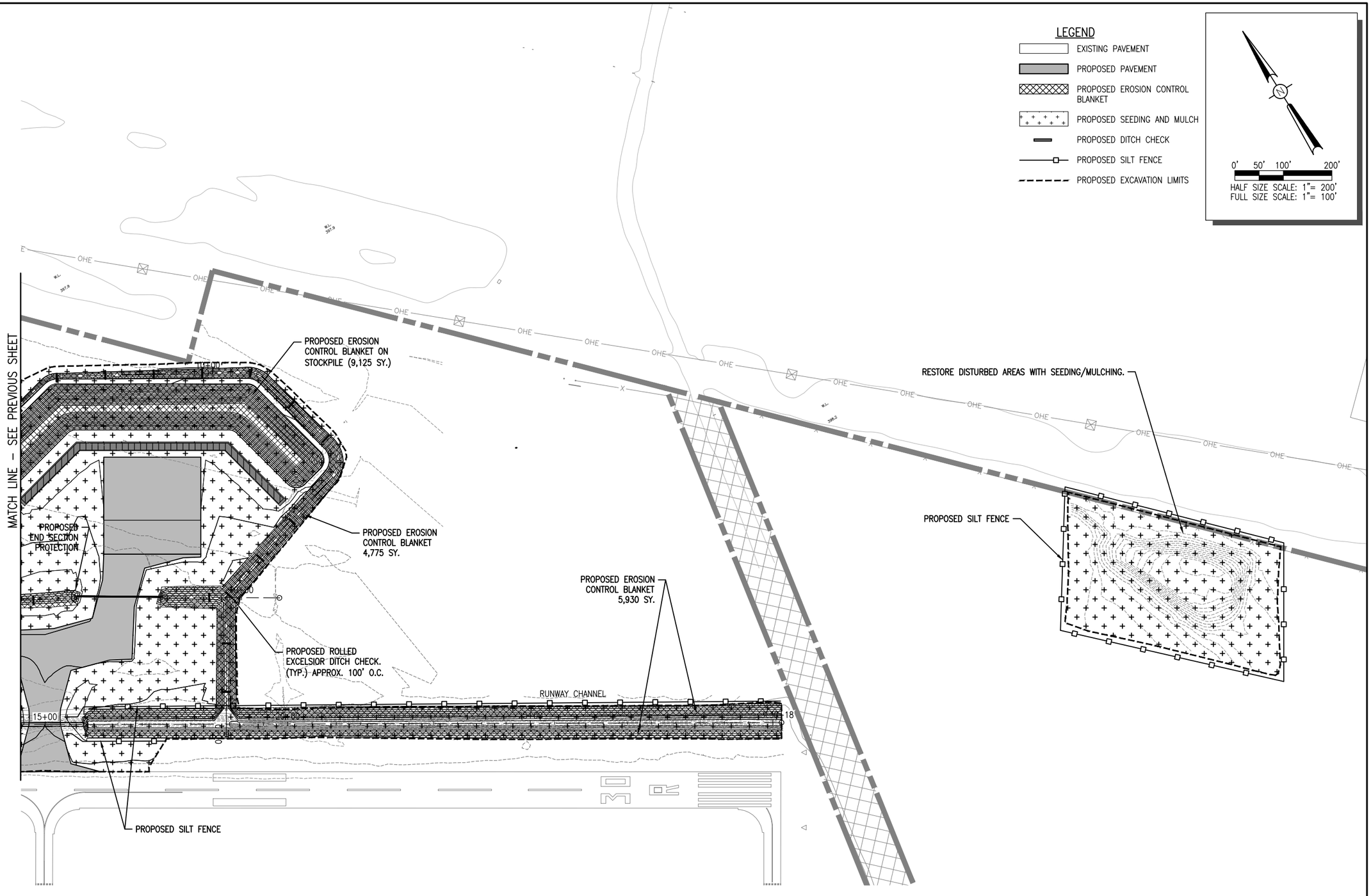
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

STORMWATER POLLUTION PREVENTION PLAN SHEET 1



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SHEET TITLE

STORMWATER POLLUTION PREVENTION PLAN SHEET 2

MAR 04, 2022 5:16 PM STOLZ01547
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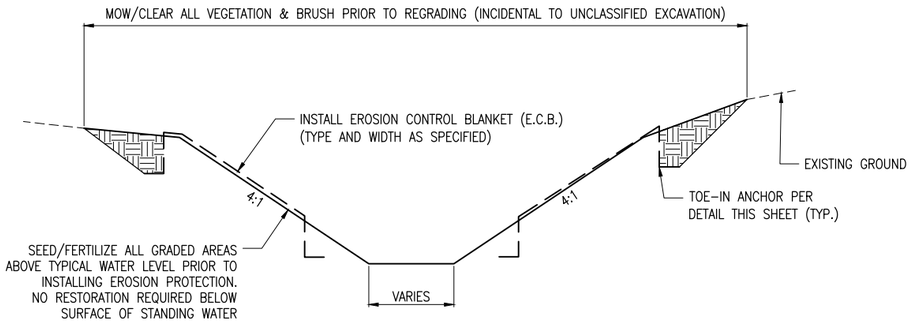
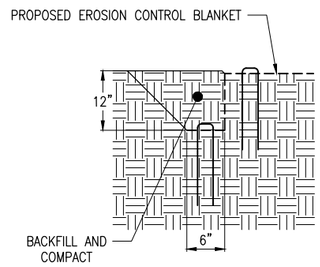


REGRADE DITCH EROSION CONTROL DETAIL

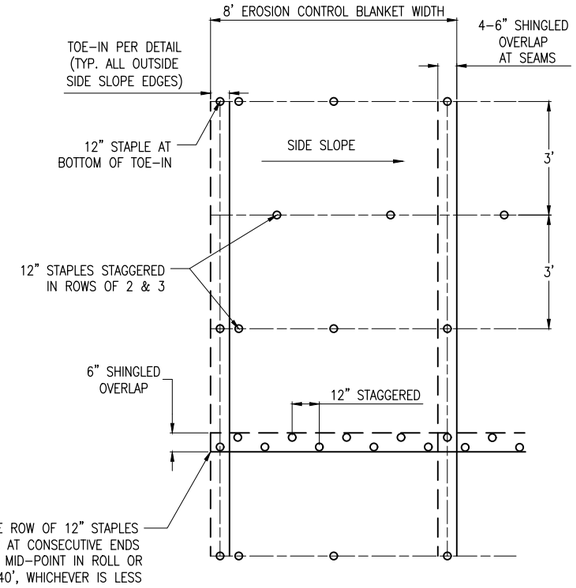
NOT TO SCALE

NOTE: ALL EROSION CONTROL BLANKETS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS BASED ON THE PROPOSED TYPE AND USE.



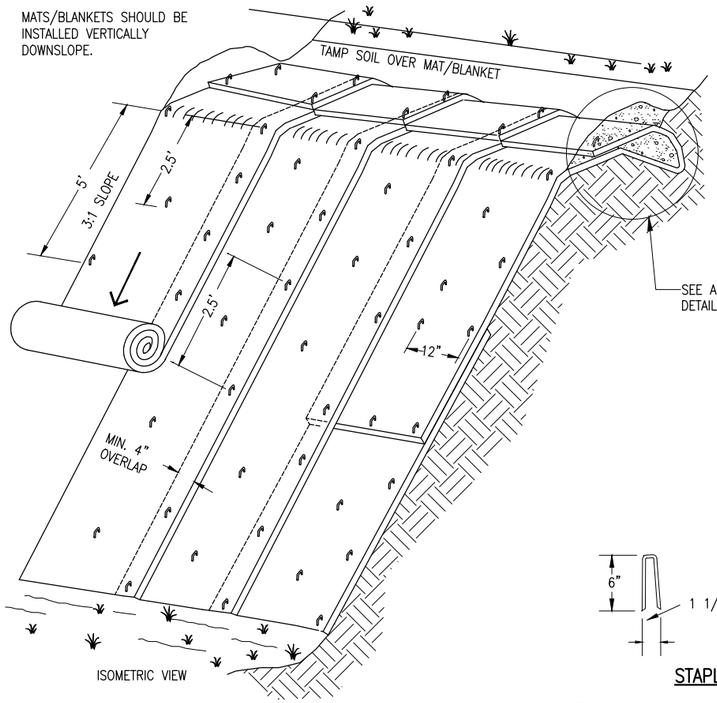
EROSION CONTROL BLANKET TOE-IN ANCHOR DETAIL

NOT TO SCALE



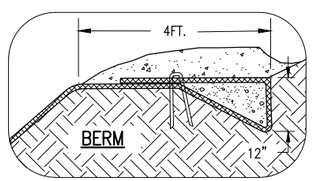
EROSION CONTROL BLANKET STAPLE PATTERN DETAILS

NOT TO SCALE



TYPICAL SLOPE SOIL STABILIZATION

STAPLES



ANCHORING DETAIL

EROSION CONTROL BLANKET DETAIL

NO SCALE

CONTRACTOR'S CERTIFICATION STATEMENT

THIS CERTIFICATION STATEMENT IS A PART OF THE STORM WATER POLLUTION PREVENTION PLAN FOR THE PROJECT DESCRIBED BELOW IN ACCORDANCE WITH NPDES PERMIT NO. ILR10 ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY.

PROJECT INFORMATION:

AIRPORT: _____ PROJECT: _____

PROJECT NO: _____ COUNTY: _____

CONTRACT NUMBER: _____

I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT (ILR10) THAT AUTHORIZES THE STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE IDENTIFIED AS PART OF THIS CERTIFICATION.

SIGNATURE: _____ DATE: _____

PRINTED NAME: _____ TITLE: _____

NAME OF FIRM: _____

STREET ADDRESS: _____

CITY, STATE, ZIP: _____

PHONE NUMBER: _____

THE INFORMATION WITHIN THIS BOX SHALL BE COMPLETED BY THE CONTRACTOR AFTER THE AWARD OF THE CONTRACT TO OBTAIN THE REQUIRED NPDES PERMIT FROM IEPA. COMPLETION OF THIS IS A CONTRACT REQUIREMENT.

FOR BID

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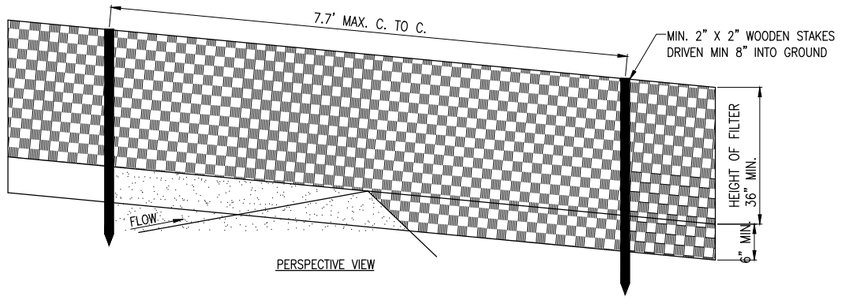
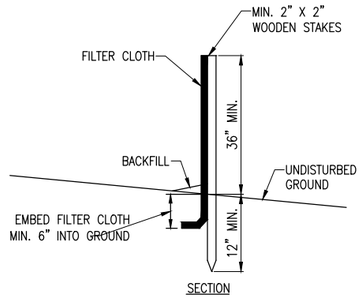
DRAWN BY: CWS 4/16/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

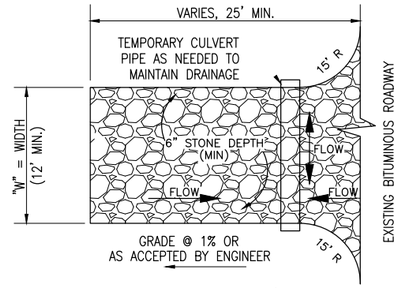
STORMWATER POLLUTION PREVENTION DETAILS SHEET 1





SILT FENCE DETAIL

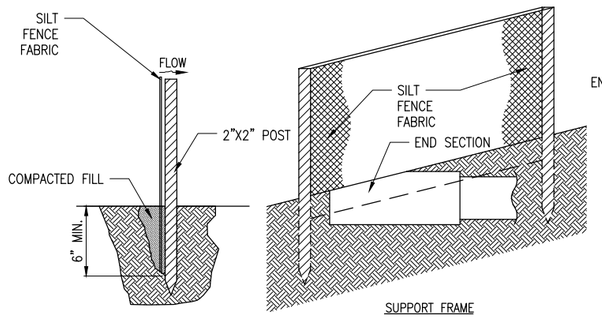
NO SCALE

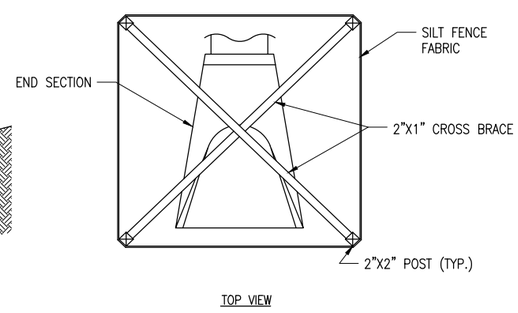


CONSTRUCTION ENTRANCE DRIVE/STAGING AREA DETAIL

NOT TO SCALE

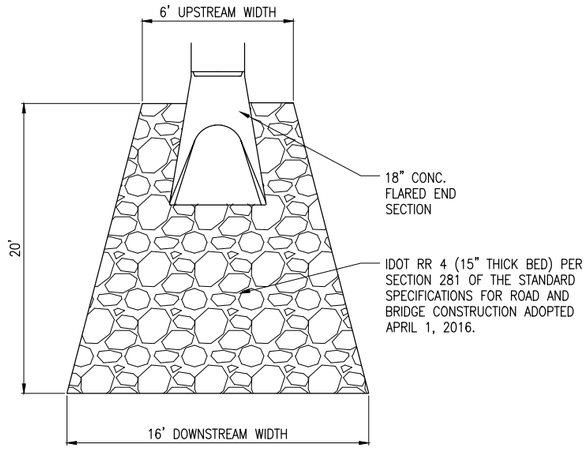
1. STONE SIZE SHALL CONFORM TO IDOT CA (2" TO 3" DIA.) STONE SHALL HAVE GEOTEXTILE UNDERLAYMENT.
2. CONTRACTOR SHALL PERIODICALLY PLACE 2" STONE TOP DRESSING AND WASH STONE AS REQUIRED BY OWNER/ENGINEER. CONTRACTOR SHALL ENSURE MUD IS NOT TRACKED ONTO PUBLIC ROADS AND SHALL IMMEDIATELY CLEAN ROADS IF TRACKING OCCURS. INCIDENTAL WORK NOT PAID FOR DIRECTLY.
3. CONTRACTOR SHALL PROVIDE ADEQUATELY SIZED PIPE AND COVER FOR CONSTRUCTION TRAFFIC VEHICLES TO MAINTAIN PROPER DRAINAGE BELOW TEMPORARY CONSTRUCTION ENTRANCE DRIVE/STAGING AREA.
4. CONSTRUCTION ENTRANCE DRIVE/STAGING AREA IS TO BE REMOVED AND THE SITE RESTORED TO PRE-CONSTRUCTION CONDITION AT THE COMPLETION OF THE PROJECT.





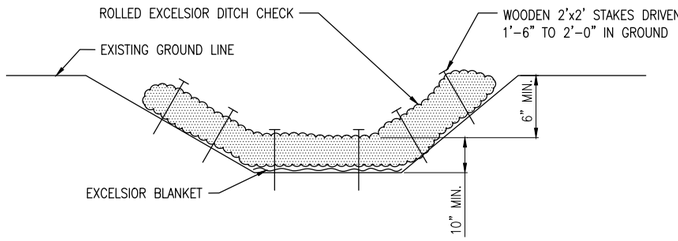
FABRIC INLET/END SECTION PROTECTION

NOT TO SCALE



RIPRAP DETAIL

NOT TO SCALE



ROLLED EXCELSIOR DITCH CHECK

NOT TO SCALE

1. DITCH CHECKS (ROLLED EXCELSIOR) SHALL BE PLACED IN THE DITCH CHANNEL OR AS DIRECTED BY THE RESIDENT ENGINEER/TECHNICIAN, AND SHALL EXTEND UP THE SIDES OF THE DITCH BANKS SO THAT THE BOTTOM OF THE ENDS ARE 6" ABOVE THE TOP OF THE DITCH CHECK IN THE MIDDLE OF THE DITCH.
2. DITCH CHECKS SHALL BE SECURELY ANCHORED IN PLACE BY WOODEN STAKES DRIVEN ON THE DOWNSTREAM SIDE THE ROLL. THE STAKES SHALL BE DRIVEN AT A 30 DEGREE ANGLE TOWARD THE UPSTREAM SIDE OF THE ROLL TO SECURE THE DITCH CHECKS. THE STAKES SHALL BE A MAXIMUM SPACING OF 2 FEET.
3. A LAYER OF EXCELSIOR BLANKET 5 FEET IN WIDTH SHALL BE PLACED UNDER THE ROLLED EXCELSIOR IN THE BED OF THE DITCH: 1 FOOT UPSTREAM OF THE DITCH CHECK, 1 FOOT UNDER DITCH CHECK, AND EXTEND 3 FEET DOWNSTREAM OF THE DITCH CHECK.
4. INSPECTIONS SHALL BE FREQUENT AND REPAIR/REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED, AT NO ADDITIONAL COST TO CONTRACT.
5. DITCH CHECKS SHALL BE REMOVED ONCE SEEDING HAS BEEN ESTABLISHED.

FOR BID

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DOWNTOWN AIRPORT

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Cahokia, Illinois 62206

STATE OF ILLINOIS
BARRY S. STOLZ
062-057281
LICENSED
PROFESSIONAL ENGINEER

DATE SIGNED: -3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION	DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: C-581-SWP.DWG
DESIGN BY: BSS 4/12/2021
DRAWN BY: CWS 4/16/2021
REVIEWED BY: ~~BSS~~ 03/03/2022

SHEET TITLE

STORMWATER POLLUTION PREVENTION DETAILS SHEET 2

MAR 04, 2022 5:29 PM STOLZ01547
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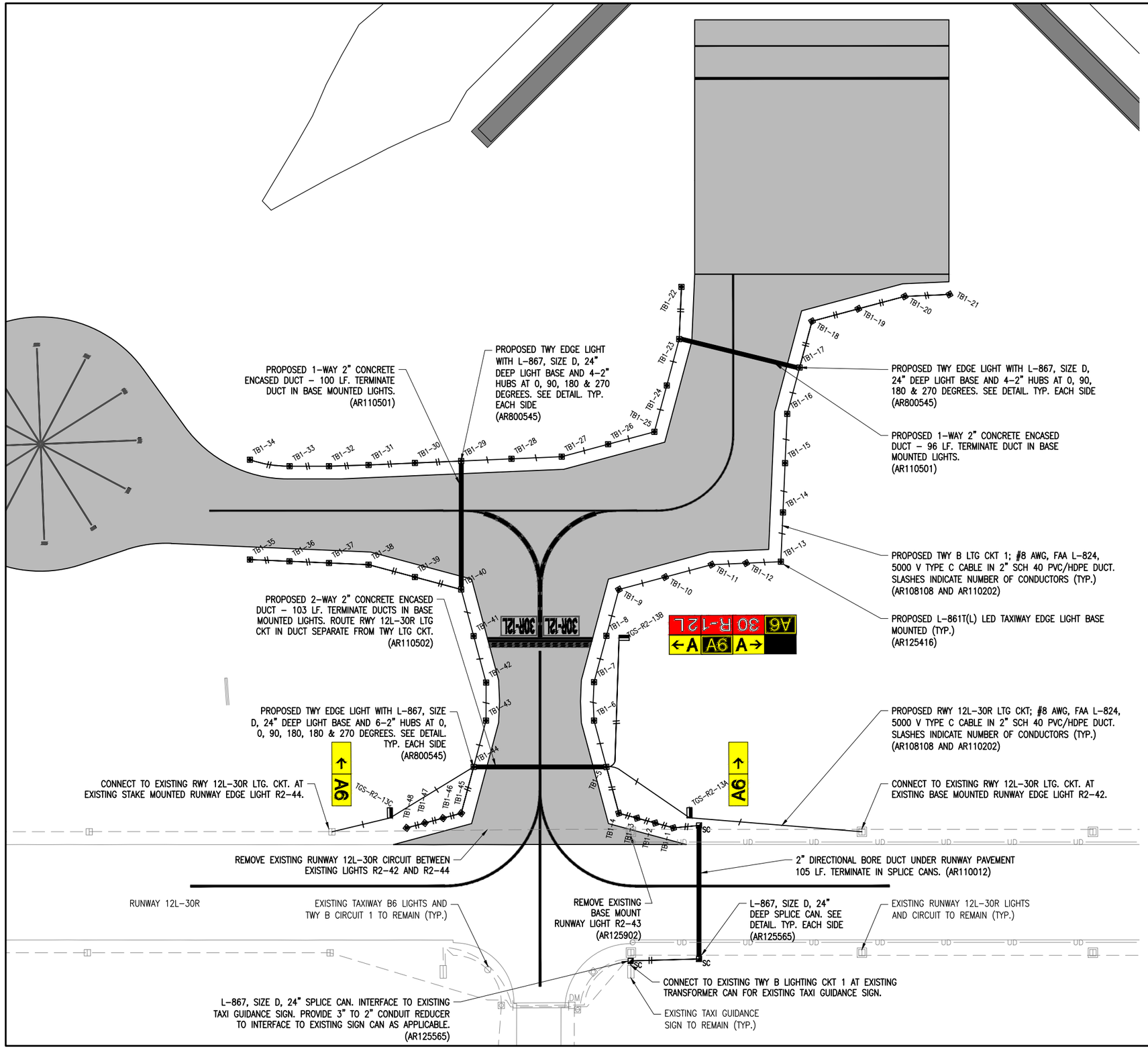

MAR 04, 2022 5:17 PM STOLZ01547
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LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

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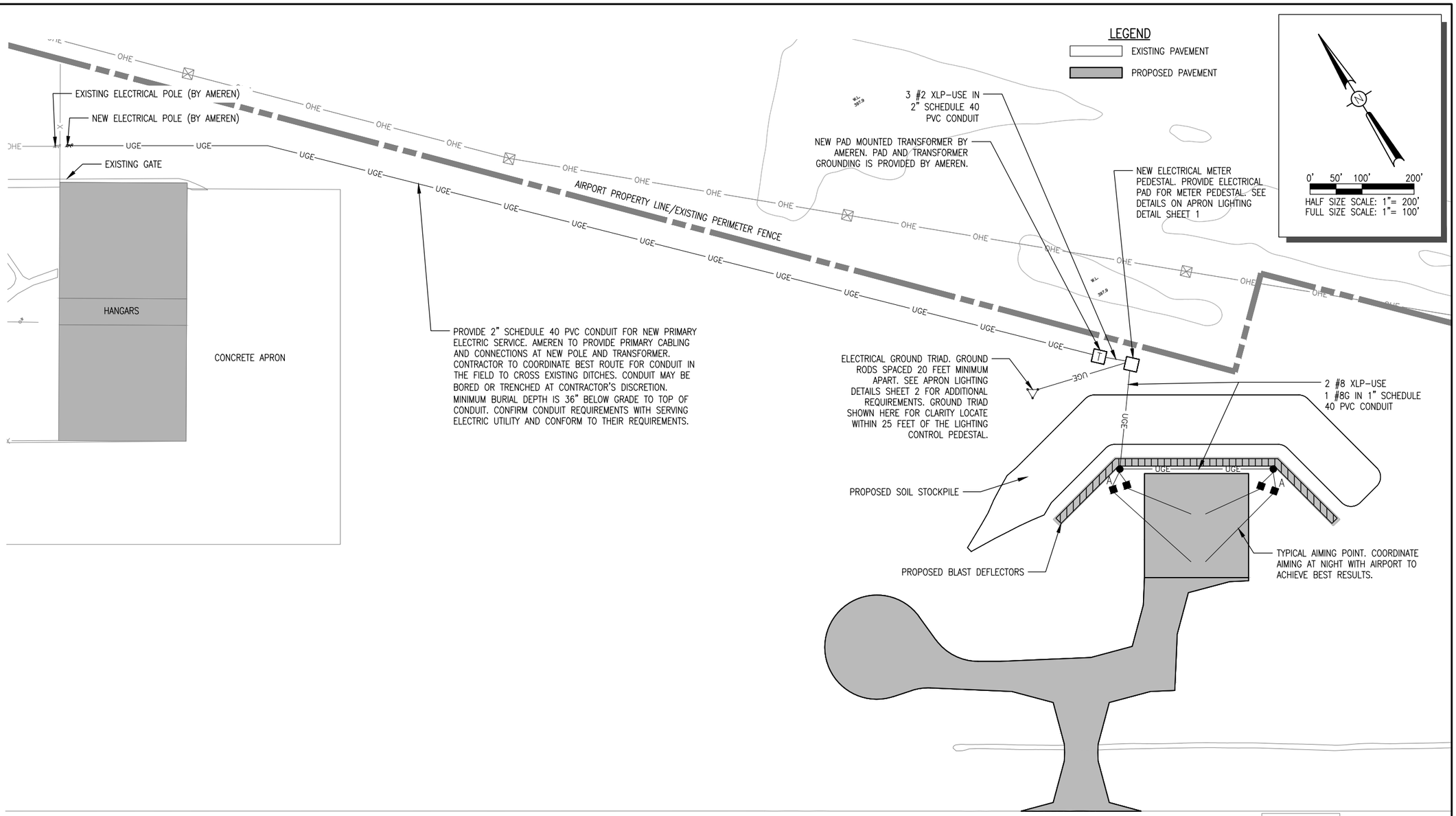
REVIEWED BY: BSS 03/03/2022

SHEET TITLE

PROPOSED ELECTRICAL PLAN



LIGHT FIXTURE SCHEDULE								
SYMBOL	TYPE	DESCRIPTION	CATALOG #	LAMP TYPE	WATTAGE	VOLTAGE	LIGHT LESS FACTOR	MOUNTING
	A	HIGH LUMEN FLOOD LIGHT SIZE 2, P6 PHOTOMETRIC PACKAGE MEDIUM FLOOD DISTRIBUTION FV VISOR, BLACK	LITHONIA LIGHTING: HFL-2 LED P6 40K MFL FV SF DBLXD PROVIDE MULTI-VOLT DRIVER	LED	1538 W	240 V	0.81	PROVIDE PRECAST CONCRETE LIGHT POLE 63' LENGTH BURIED 13' DEEP FOR OVERALL MOUNTING HEIGHT OF 50'. SPORTS LIGHTING MODEL #: E-630-JPR-G

LIGHT POLE LOCATIONS:

NORTH LIGHT POLE: N 692940.33, E 2302635.51

SOUTH LIGHT POLE: N 692783.01, E 2302885.25

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MAR 04, 2022 5:18 PM STOLZ01547
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RYAN D. NATION
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REGISTERED PROFESSIONAL ENGINEER
OF
ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

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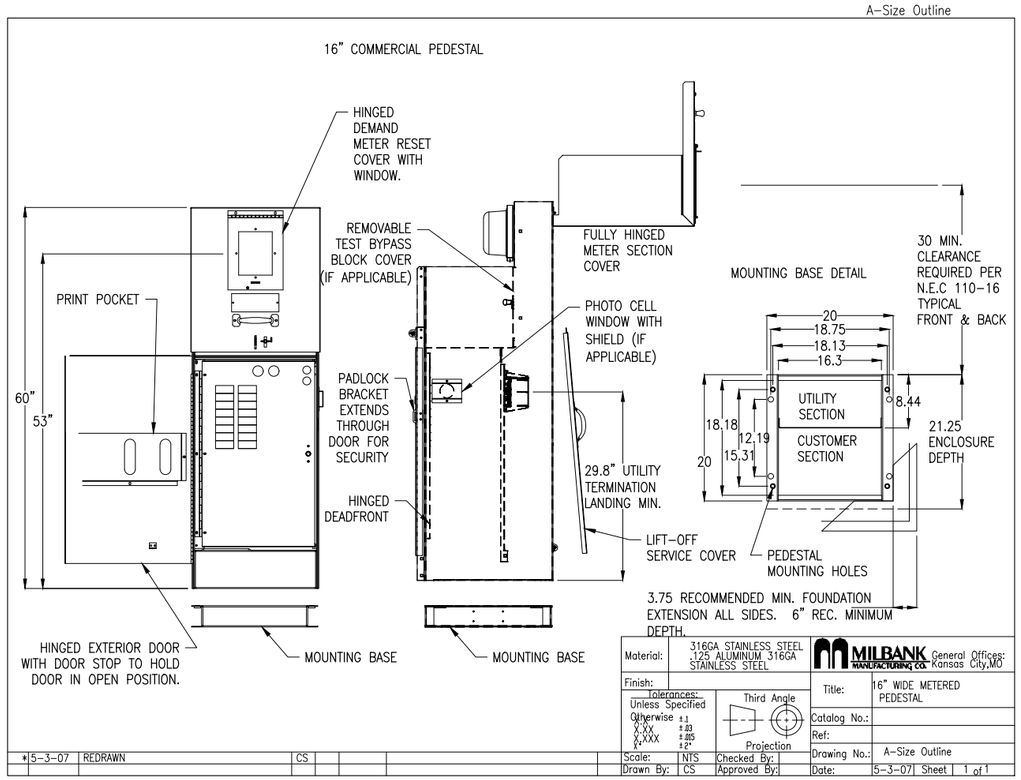
REVIEWED BY: BSS 03/03/2022

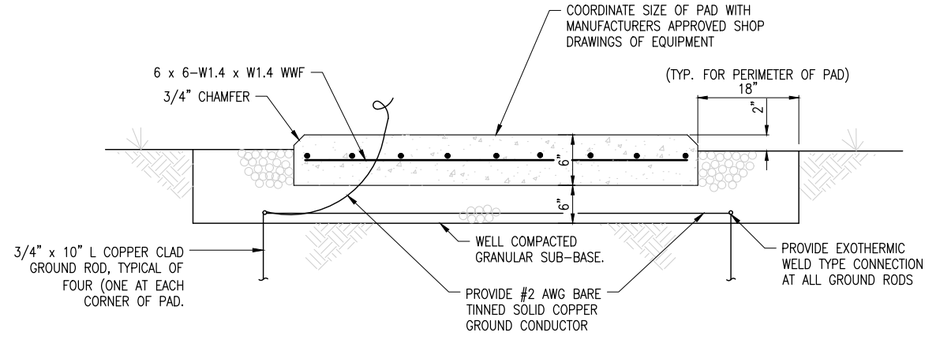
SHEET TITLE

PROPOSED APRON LIGHTING PLAN



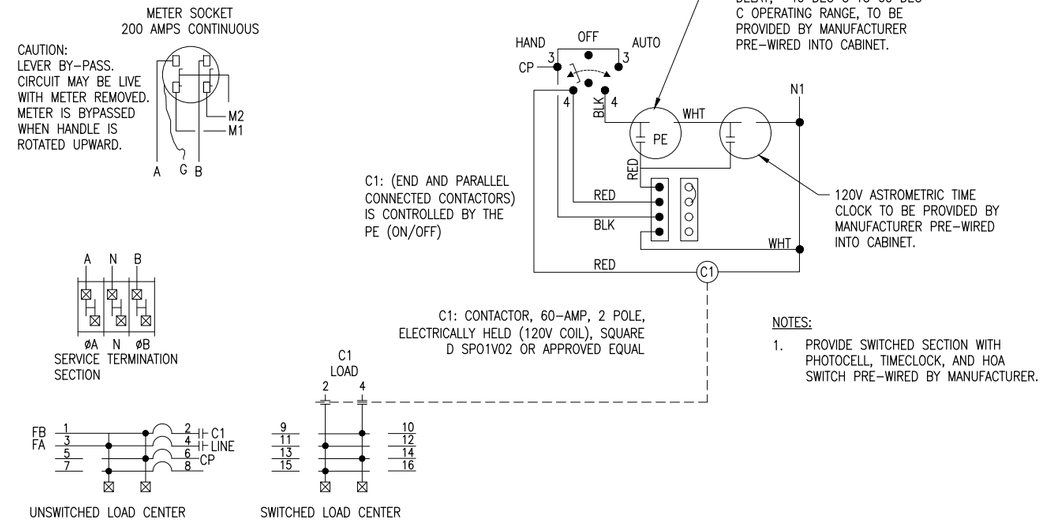
16" COMMERCIAL PEDESTAL DETAIL

NOT TO SCALE



ELECTRICAL EQUIPMENT PAD DETAIL

NOT TO SCALE



LCP–1 COMMERCIAL PEDESTAL WIRING DIAGRAM

NOT TO SCALE

PANEL LCP-1										MILBANK MODEL CP3B51112A22SL1
100 A	MAIN BREAKER		120 /	240	VOLT	1 PHASE	3 WIRE			PAD MOUNTED
VOLT- AMP	CIR. NO.	LOAD	CB	P	Ø	P	CB	LOAD	CIR. NO.	VOLT- AMP
UNSWITCHED SECTION OF PANEL										
	1				A				2	
	3	BACK FED MAIN BREAKER	100	2	B	2	60	FEEDER TO SWITCHED SECTION OF PANEL	4	
	5	SPACE	-	-	A	1	20	CONTROL CIRCUIT	6	250
	7	SPACE	-	-	B	1	20	SPACE	8	
SWITCHED SECTION OF PANEL										
3076	9	LIGHTING	20	2	A	1	20	SPACE	10	
	11				B	1	20	SPARE	12	
	13	SPACE	-	-	A	-	-	SPACE	14	
	15	SPACE	-	-	B	-	-	SPACE	16	

CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING RATING OF 22000 RMS SYMMETRICAL AMPERES.

TOTAL CONNECTED LOAD =3.1 KVA

TOTAL DEMAND LOAD =3.1 KVA

~PROVIDE A NEMA 3R 316 STAINLESS STEEL ENCLOSURE
~PROVIDE AN INTERIOR LED LIGHT AND SWITCH WITH LCP-1 UNIT PACKAGE UNIT. UNIT MANUFACTURER TO PROVIDE INTERIOR LIGHT, SWITCH, AND ASSOCIATED CABLE AND CONDUIT

~PROVIDE COPPER GROUND BUS

LCP–1 PANEL SCHEDULE

NOT TO SCALE

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Contract No. SD061

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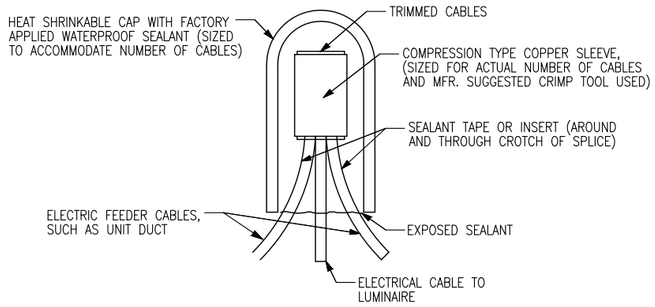
REVIEWED BY: BSS 03/03/2022

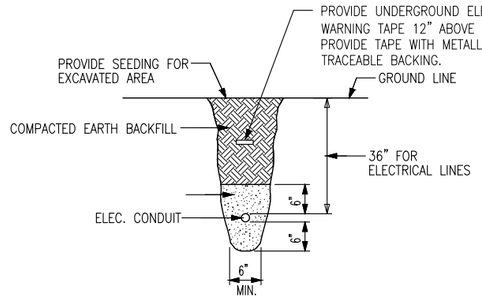
SHEET TITLE

APRON LIGHTING DETAILS 1

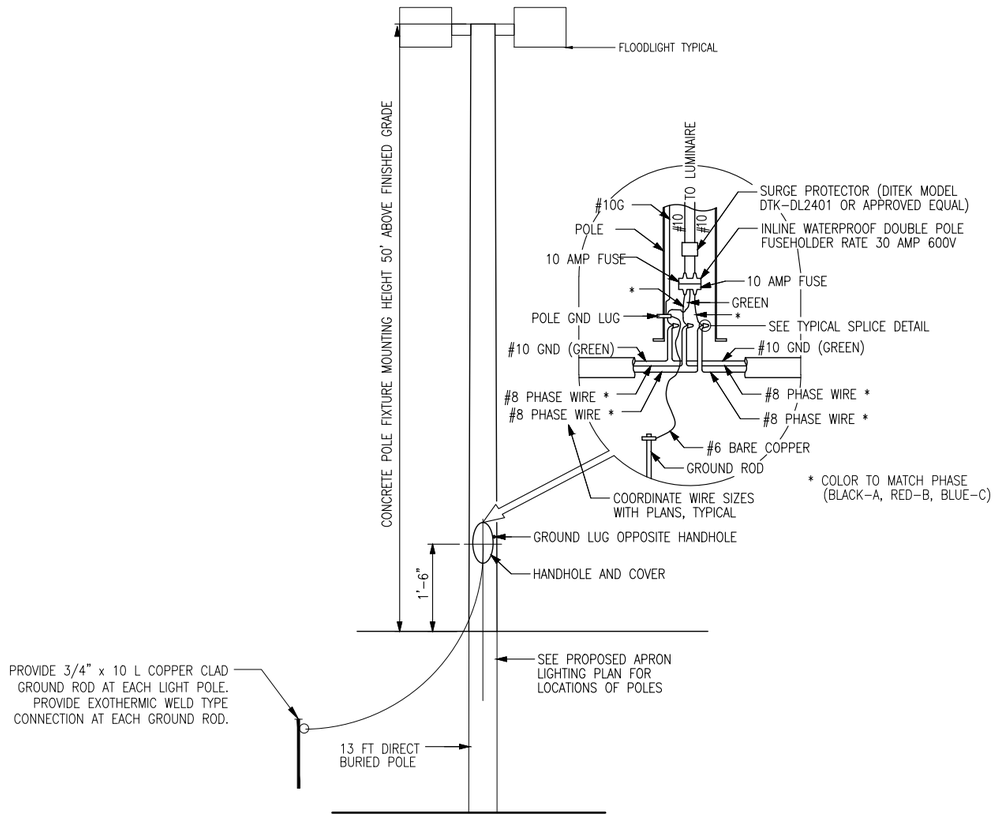


TYPICAL SPLICE DETAIL

NOT TO SCALE

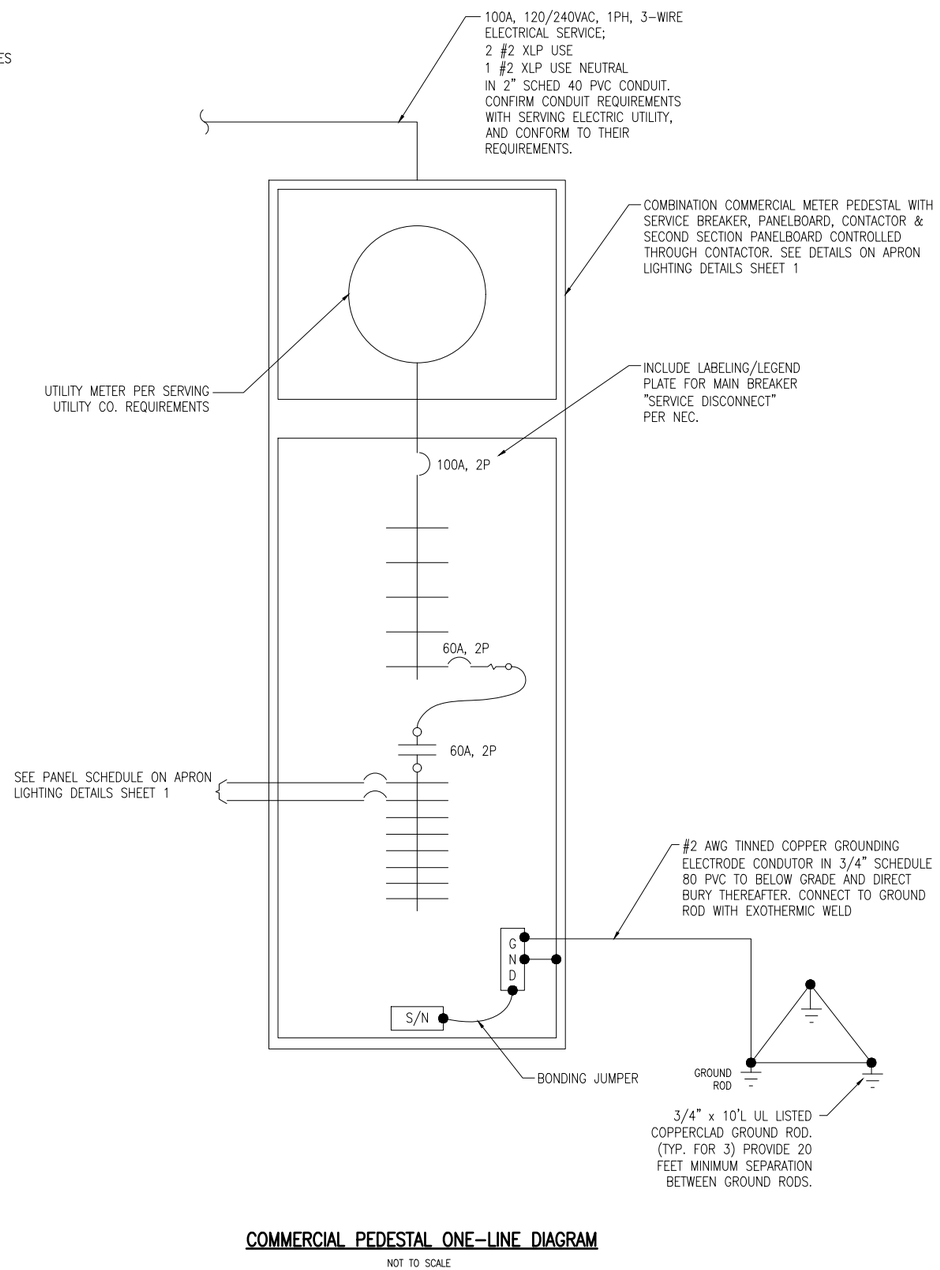


TRENCH DETAIL IN SODDED AREAS



LIGHT POLE DETAIL

NOT TO SCALE



COMMERCIAL PEDESTAL ONE-LINE DIAGRAM

NOT TO SCALE

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DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

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IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
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REVIEWED BY: BSS 03/03/2022

SHEET TITLE

APRON LIGHTING DETAILS 2

AIRFIELD LIGHTING REMOVAL, RELOCATION, AND INSTALLATION NOTES

1. KEEP ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).

2. EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS.

3. VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, RELOCATING, INSTALLING, CONNECTING OR WORKING ON THE RESPECTIVE AIRFIELD LIGHTING, DISTANCE REMAINING SIGN, RUNWAY SIGN, TAXI SIGN, NAVAID, VAULT EQUIPMENT OR OTHER DEVICE.

4. INSTALL AIRFIELD LIGHTING, SIGNS, SPLICE CANS, ELECTRICAL DUCTS, HANDHOLES, MANHOLES, AND CABLE AT THE LOCATIONS SHOWN AND IN COMPLIANCE WITH THE SPECIFICATIONS, SPECIAL PROVISIONS, RESPECTIVE DETAILS, AND MANUFACTURER'S RECOMMENDATIONS.

5. NEW AIRFIELD LIGHTING SYSTEM INSTALLATIONS, ADJUSTMENTS, RELOCATIONS, REINSTALLATIONS, AND/OR UPGRADES SHALL USE BASE (L-867 OR L-868) MOUNTED FIXTURES AND A CLOSED CONDUIT SYSTEM.

6. LIGHTING CABLE FOR AIRFIELD LIGHTING SERIES CIRCUITS SHALL BE 1/C, #8 AWG, FAA L-824, 5000 VOLT, TYPE C UNDERGROUND CABLE IN 2" SCHEDULE 40 PVC OR SCHEDULE 40 HDPE DUCT. CABLE SHALL BE FAA APPROVED.

7. IN AREAS WHERE THERE IS A CONGESTION OF CABLES OR WHERE THE PROPOSED CABLE CROSSES AN EXISTING CABLE, THE CONTRACTOR IS REQUIRED TO HAND DIG THE TRENCH NECESSARY FOR THE PROPOSED CABLE. AT OTHER LOCATIONS, THE PROPOSED CABLE MAY BE TRENCHED OR PLOWED INTO PLACE. HAND DIGGING, TRENCHING AND/OR PLOWING WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED CABLES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

8. GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE AND RUNWAY/TAXI SIGN. THE PURPOSE OF THE LIGHT BASE GROUND IS PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. PER NATIONAL ELECTRICAL CODE ARTICLE 250.53 "GROUNDING ELECTRODE SYSTEM INSTALLATION" RESISTANCE FROM THE GROUND ROD/ELECTRODE TO EARTH GROUND MUST BE 25 OHMS OR LESS VIA MEASUREMENT WITH A GROUND TESTER. GROUNDS RODS FOR LIGHT BASE GROUNDS SHALL BE 3/4-INCH BY 10-FEET MINIMUM LENGTH UL LISTED COPPER-CLAD STEEL SECTIONAL RODS. GROUND RODS SHALL BE PRODUCED FROM 100% DOMESTIC STEEL. EACH GROUND ROD SHALL BE TESTED AND THE RESULTS RECORDED FOR EACH AIRFIELD LIGHT FIXTURE AND RUNWAY/TAXI SIGN INSTALLATION. COPIES OF GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE PROJECT ENGINEER AND/OR THE RESIDENT ENGINEER/TECHNICIAN.

9. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT THAT ARE INSTALLED IN CONDUIT OR DUCT SHALL BE RUN TOGETHER IN THE SAME RACEWAY OR DUCT.

10. THE CONTRACTOR SHALL TEST THE RESPECTIVE AIRFIELD LIGHTING CIRCUITS IN AREAS OF WORK WHERE RESPECTIVE CIRCUITS MIGHT BE AFFECTED. THE RESPECTIVE RUNWAY AND TAXIWAY LIGHTING CCR'S (FOR THE AREAS OF WORK ON THIS PROJECT) SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, AND/OR ADDITIONS AND AFTER THE NEW CABLES AND LIGHTING SYSTEM MODIFICATIONS AND ADDITIONS HAVE BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATIONS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT ENGINEER/TECHNICIAN. TEST RESULTS SHALL BE PROVIDED TO THE PROJECT ENGINEER AND RESIDENT ENGINEER/ TECHNICIAN.

11. FAA AC 150/5370-10G "STANDARDS FOR SPECIFYING CONSTRUCTION OF AIRPORTS", ITEM L-108 "UNDERGROUND POWER CABLE FOR AIRPORTS", REQUIRES THAT EVERY AIRFIELD LIGHTING CABLE SPLICER SHALL BE QUALIFIED IN MAKING CABLE SPLICES AND TERMINATIONS ON CABLES RATED ABOVE 5,000 VOLTS AC. CABLE SPLICING/TERMINATING PERSONNEL SHALL HAVE A MINIMUM OF THREE (3) YEARS CONTINUOUS EXPERIENCE IN TERMINATING/SPLICING MEDIUM VOLTAGE CABLE.

12. OTHER CONSTRUCTION PROJECTS MIGHT BE IN PROGRESS AT THE AIRPORT AT THE SAME TIME AS THIS PROJECT. THE CONTRACTOR WILL BE REQUIRED TO COOPERATE WITH ALL OTHER CONTRACTORS AND THE AIRPORT MANAGER IN THE COORDINATION OF THE WORK.

13. OBTAIN APPROVAL FROM THE AIRPORT MANAGER PRIOR TO SHUTTING DOWN A RUNWAY OR TAXIWAY. WHEN A RESPECTIVE RUNWAY IS CLOSED THE RESPECTIVE RUNWAY LIGHTING AND NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. WHEN A RESPECTIVE TAXIWAY IS CLOSED THE RESPECTIVE TAXIWAY LIGHTING FOR THAT TAXIWAY SHALL BE SHUT OFF.

14. THE CONTRACTOR IS REQUIRED TO FILL IN ALL HOLES AND DEPRESSIONS RESULTING FROM THE NEW WORK, WITH EARTH MATERIAL. THE AREAS SHALL BE COMPACTED TO PREVENT FUTURE SETTLEMENT AND FERTILIZED, SEEDED, AND MULCHED IN ACCORDANCE WITH ITEMS 901 AND 908 RESPECTIVELY.

15. IN THE EVENT A CONFLICT IS DETERMINED WITH RESPECT TO MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION.

16. SEE SAFETY PLAN AND NOTES FOR SAFETY AND CONSTRUCTION COORDINATION REQUIREMENTS.

17. EXISTING AIRFIELD LIGHTS DESIGNATED FOR REMOVAL SHALL BE CAREFULLY REMOVED IN THERE ENTIRETY. THE CONTRACTOR SHALL DISCONNECT AND REMOVE THE EXISTING LIGHTS, AS NOT TO DAMAGE THEM, INCLUDING MOUNTING STAKES, BASES, FOUNDATIONS AND TRANSFORMERS. THE EXISTING AIRFIELD LIGHTS, TRANSFORMERS, LIGHT BASES, COVERS AND MOUNTING STAKES SHALL BE TURNED OVER TO THE AIRPORT. LIGHT BASES SHALL BE REMOVED AND DISPOSED OF OFF SITE. ANY MATERIAL NOT SALVAGED BY THE AIRPORT SHALL BE DISPOSED OF OFF THE AIRPORT SITE, IN A LEGAL MANNER, AT THE CONTRACTOR'S OWN EXPENSE. EXISTING DUCTS AND CABLES ASSOCIATED WITH AIRFIELD LIGHTING REMOVALS, RELOCATIONS, REPLACEMENTS AND/OR CABLE OR DUCT REPLACEMENTS SHALL BE REMOVED AND DISPOSED OF OFF SITE AT NO ADDITIONAL COST TO THE CONTRACT. PROVIDE TEMPORARY CABLES AND DUCTS TO ACCOMMODATE AIRFIELD LIGHTING CIRCUITS THAT ARE TO REMAIN ACTIVE DURING CONSTRUCTION. CONTRACTOR MAY REMOVE ABANDONED CABLES AT NO ADDITIONAL COST TO THE CONTRACT AND SHALL HAVE THE SALVAGE RIGHTS TO ABANDONED CABLES. REMOVAL OF EXISTING AIRFIELD LIGHTING WILL BE PAID FOR UNDER ITEM AR800476 REMOVE AIRFIELD LIGHTING PER LUMP SUM.

18. OWNER SHALL BE KEPT INFORMED OF WORK AND SCHEDULES.

19. ROUTE NEW CABLES AND DUCTS TO AVOID INTERFERENCES WITH OTHER UTILITIES, LINES, CABLES AND STRUCTURES.

20. ALL ELECTRICAL EQUIPMENT (INCLUDING AIRFIELD LIGHTING AND NAVADS) AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 – NATIONAL ELECTRIC CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS, AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERNEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

21. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2G (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".

22. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E – STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.

23. RUNWAY AND TAXIWAY LIGHTING CIRCUITS SHALL BE ACTIVE AT THE END OF EACH CONSTRUCTION DAY FOR AN OPEN RUNWAY OR AN OPEN TAXIWAY. THE CONTRACTOR SHALL PROVIDE TEMPORARY CABLE & CONNECTIONS WHERE NECESSARY TO MAINTAIN A RUNWAY OR TAXIWAY LIGHTING SYSTEM. TEMPORARY CABLE FOR AIRFIELD LIGHTING SERIES CIRCUITS SHALL BE 1/C #8 FAA L-824 5KV UG CABLE IN DUCT OR UNIT DUCT.

24. ALL ABOVEGROUND JUMPERS SHALL BE IN A DUCT WITH ALL CONNECTIONS SEALED. THE CONTRACTOR SHALL SECURE, IDENTIFY AND PLACE ALL TEMPORARY EXPOSED WIRING IN CONDUIT, DUCT, OR UNIT DUCT TO PREVENT ELECTROCUTION AND FIRE IGNITION SOURCES AS PER THE REQUIREMENTS OF FAA 150/5370-2G, OPERATION SAFETY ON AIRPORTS DURING CONSTRUCTION, SECTION 2.18.3 "LIGHTING AND VISUAL NAVAIDS". ALL LABOR, MATERIALS, AND TIME NECESSARY TO COMPLY WITH THIS REQUIREMENT SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

25. WHEN A RESPECTIVE RUNWAY IS CLOSED THE LIGHTING AND NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. KEEP RESPECTIVE NAVAIDS ACTIVE DURING TIMES WHEN RESPECTIVE RUNWAY IS OPEN. NAVAIDS RECEIVING MAINTENANCE SHALL BE SHUT OFF UNTIL OPERATING PROPERLY. COORDINATE WITH AIRPORT MANAGER TO ISSUE NOTAMS WHEN AIRFIELD LIGHTING AND/OR NAVAIDS ARE OUT OF SERVICE.

26. CONTRACTOR SHALL INTERFACE EXISTING AIRFIELD LIGHTING AND/OR SIGNS TO THE NEW, REMOVED, REINSTALLED, ADJUSTED, REPLACED, AND/OR RELOCATED AIRFIELD LIGHTING AND ASSOCIATED CIRCUITS.

27. ALL AIRFIELD LIGHT FIXTURES SHALL BE TAGGED BY THE CONTRACTOR IN ACCORDANCE WITH THE RESPECTIVE LIGHT FIXTURE NUMBERS. CONFIRM LIGHT FIXTURE NUMBERING WITH THE AIRPORT MANAGER/MAINTENANCE SUPERVISOR.

28. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE, OR HANDHOLE.

29. THE CONTRACTOR IS REQUIRED TO RESTORE ALL DISTURBED PAVEMENT ASSOCIATED WITH REMOVAL WORK AND/OR NEW AIRFIELD LIGHTING INSTALLATIONS.

30. SEE TAXI GUIDANCE SIGN SCHEDULE FOR REQUIREMENTS ON TAXI SIGNS.

31. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

THE LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS ARE NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER/TECHNICIAN SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT.

ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL, AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.

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062-047643
STATE OF ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION	DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: E-001-NOTES.DWG
DESIGN BY: KNL 3/25/2021
DRAWN BY: CWS 3/26/2021
REVIEWED BY: BSS 03/03/2022

SHEET TITLE

AIRFIELD LIGHTING NOTES

TAXI GUIDANCE SIGN SCHEDULE

SIGN NUMBER	LOCATION	PROPOSED SIDE A	PROPOSED SIDE B	NORTHING	EASTING	GROUND RESISTANCE	REMARKS
TGS-R2-13A	RUNWAY 30R INTERSECTION TO THE TAXIWAY TO THE RUN-UP PAD.	A6 →	BLANK	692378.8228	2302333.2048		NEW SIGN TYPE: L-858Y DIRECTION SIGN; IDENTIFYING THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXIWAY THAT CONNECTS TO THE RUN-UP AREA. CONNECT TO RUNWAY 12L-30R LIGHTING CIRCUIT.
TGS-R2-13B	TAXIWAY A6 INTERSECTION TO RUNWAY 12L-30R ON THE NORTH SIDE OF RUNWAY 12L-30R	A6 30 R-12L	←A A6 A→	692528.1770	2302361.6998		NEW SIGN TYPE: L-858L/R LOCATION/MANDATORY INSTRUCTION SIGN; IDENTIFYING THE RESPECTIVE TAXIWAY (LOCATION) AND IDENTIFYING HOLDING POSITION SIGN FOR TAXIWAY/RUNWAY INTERSECTION, MANDATORY). CONNECT TO RUNWAY 12L-30R LIGHTING CIRCUIT.
TGS-R2-13C	RUNWAY 12L INTERSECTION TO THE TAXIWAY TO THE RUN-UP PAD	← A6	BLANK	692504.3800	2302133.7124		NEW SIGN TYPE: L-858Y DIRECTION SIGN; IDENTIFYING THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXIWAY THAT CONNECTS TO THE RUN-UP AREA. CONNECT TO RUNWAY 12L-30R LIGHTING CIRCUIT.

TAXI GUIDANCE SIGN LEGEND

- A — TYPE L-858L(L) LOCATION SIGN – YELLOW LEGEND AND BORDER ON A BLACK BACKGROUND
- 5 — TYPE L-858R(L) MANDATORY INSTRUCTION SIGN – BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON A RED BACKGROUND
- A→ — TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGN – BLACK LEGEND ON A YELLOW BACKGROUND
- BLANK – BLACK BACKGROUND

NOTES:

1. THE PROPOSED TAXI GUIDANCE SIGNS AND/OR REPLACEMENT PANELS SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-44 (CURRENT ISSUE IN EFFECT) AND BE FAA-APPROVED FOR TYPE L-858Y(L) DIRECTION, DESTINATION, AND BOUNDARY SIGNS (BLACK LEGEND ON YELLOW BACKGROUND); TYPE L-858R(L) MANDATORY INSTRUCTION SIGN (BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON RED BACKGROUND); AND/OR TYPE L-858L(L) LOCATION SIGN (YELLOW LEGEND AND BORDER ON BLACK BACKGROUND). THE REPLACEMENT SIGN PANELS SHALL BE MANUFACTURED BY THE ORIGINAL EQUIPMENT MANUFACTURER TO MAINTAIN THE ETL LISTING AND FAA APPROVAL OF EACH RESPECTIVE SIGN.
2. ALL SIGNS SHALL BE FURNISHED WITH TETHERS. TETHERS SHALL BE 3/16" STAINLESS STEEL AIRCRAFT CABLE WITH A FORMED EYE ON BOTH ENDS. THE TETHER EYE SHALL BE ATTACHED TO THE SIGN AND BASE BY BEING SANDWICHED BETWEEN TWO STAINLESS STEEL FENDER WASHERS, WITH A 1/2" MINIMUM STAINLESS STEEL BOLT. THE TETHER SHALL BE OF SUFFICIENT LENGTH TO HAVE A MINIMUM OF 6" OF SLACK WHEN ATTACHED BETWEEN THE SIGN AND THE SIGN BASE. THE TETHERS AND BONDING CONDUCTORS SHALL BE OF SUFFICIENT LENGTH TO ALLOW THE FRANGIBLE COUPLINGS TO OPERATE WITHOUT RESTRICTIONS AND TO ALLOW THE POWER CABLE TO DISCONNECT IF THE SIGN FALLS OVER. PROVIDE 3" ± 1/2" SLACK IN TETHER AND ALL TETHERS SHALL BE THE SAME LENGTH.
3. ALL SIGNS SHALL BE ORIENTATED SUCH THAT THE LONGITUDINAL CENTERLINE OF THE SIGN IS PERPENDICULAR TO THE RESPECTIVE TAXIWAY/RUNWAY CENTERLINE, UNLESS NOTED OTHERWISE.
4. ALL MANDATORY SIGNS (SIZE 1) SHALL BE LOCATED 15' OFF THE EDGE OF FULL STRENGTH PAVEMENT, (UNLESS DETAILED OTHERWISE) AND ALIGNED WITH THE FRONT EDGE OF THE FIRST YELLOW STRIPE (FURTHEST FROM THE RUNWAY) OF THE HOLD POSITION MARKING UNLESS SHOWN OTHERWISE FOR A RESPECTIVE SIGN. CONFIRM LOCATIONS WITH THE PROJECT ENGINEER.
5. RUNWAY EXIT/TAXIWAY ENTRANCE SIGNS (TAXIWAY GUIDANCE SIGNS TO DEFINE THE THROAT OR ENTRANCE INTO THE INTERSECTING TAXIING ROUTE) OR RUNWAY EXIT/TAXIWAY ENTRANCE LIGHTS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY CIRCUIT TO BE ILLUMINATED WHEN THE RUNWAY EDGE LIGHTS ARE ON TO COMPLY WITH FAA AC 150/5340-18F, CHAPTER 1, PART 15 "SIGN OPERATION", AND/OR FAA AC 150/5340-30J PART 2.5.3.4.
6. HOLDING POSITION SIGNS FOR RUNWAYS SHALL BE CONNECTED TO THE RESPECTIVE RUNWAY SERIES CIRCUIT TO BE ILLUMINATED WHEN THE ASSOCIATED RUNWAY LIGHTS ARE ILLUMINATED TO COMPLY WITH FAA AC150/5340-18F, CHAPTER 1, PART 15 "SIGN OPERATION".
7. CONCRETE STEEL REINFORCEMENT SHALL BE TYPE ASTM A615 OR A706 GRADE 60. ALL REINFORCEMENT SHALL HAVE A 3" MINIMUM CONCRETE COVER. REINFORCEMENT MAY BE ADJUSTED TO MISS INTERFERENCES. CONCRETE SHALL CONFORM TO ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE.
8. SEE SPECIFICATION ITEM L-125 FOR ADDITIONAL REQUIREMENTS ON TAXI GUIDANCE SIGNS.

LIGHT LOCATION TABLE

LIGHT #	NORTHING	EASTING	GROUND RESISTANCE
TB1-1	692378.8800	2302318.2129	
TB1-2	692389.7546	2302308.1460	
TB1-3	692400.6291	2302298.0791	
TB1-4	692411.5037	2302288.0121	
TB1-5	692447.5409	2302299.1746	
TB1-6	692483.5782	2302310.3370	
TB1-7	692509.1513	2302326.4472	
TB1-8	692534.7800	2302354.1320	
TB1-9	692560.4088	2302381.8169	
TB1-10	692549.2463	2302417.8541	
TB1-11	692538.0839	2302453.8914	
TB1-12	692524.5312	2302477.6099	
TB1-13	692510.9786	2302501.3284	
TB1-14	692542.8728	2302523.3928	
TB1-15	692574.7670	2302545.4571	
TB1-16	692606.6612	2302567.5215	
TB1-17	692632.2900	2302595.2063	
TB1-18	692657.9187	2302622.8912	
TB1-19	692646.7563	2302658.9284	
TB1-20	692635.5938	2302694.9657	
TB1-21	692618.0771	2302725.6218	
TB1-22	692735.5160	2302550.3795	
TB1-23	692701.6744	2302526.9679	
TB1-24	692676.0456	2302499.2831	

LIGHT LOCATION TABLE

LIGHT #	NORTHING	EASTING	GROUND RESISTANCE
TB1-25	692650.4169	2302471.5982	
TB1-26	692661.5793	2302435.5610	
TB1-27	692672.7418	2302399.5237	
TB1-28	692692.3857	2302365.1448	
TB1-29	692712.0297	2302330.7659	
TB1-30	692730.1259	2302299.0957	
TB1-31	692748.2215	2302267.4265	
TB1-32	692764.0213	2302240.5974	
TB1-33	692780.5483	2302214.3538	
TB1-34	692801.4682	2302190.6226	
TB1-35	692735.0457	2302148.7789	
TB1-36	692717.3233	2302174.3969	
TB1-37	692699.6008	2302200.0149	
TB1-38	692681.8784	2302225.6328	
TB1-39	692654.1938	2302251.2613	
TB1-40	692626.5087	2302276.8903	
TB1-41	692590.3261	2302265.6829	
TB1-42	692554.1124	2302254.4657	
TB1-43	692528.8610	2302238.4553	
TB1-44	692503.2323	2302210.7704	
TB1-45	692477.6035	2302183.0856	
TB1-46	692481.9881	2302168.9302	
TB1-47	692486.3727	2302154.7749	
TB1-48	692490.7573	2302140.6195	

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CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION	DES	DWN	REV

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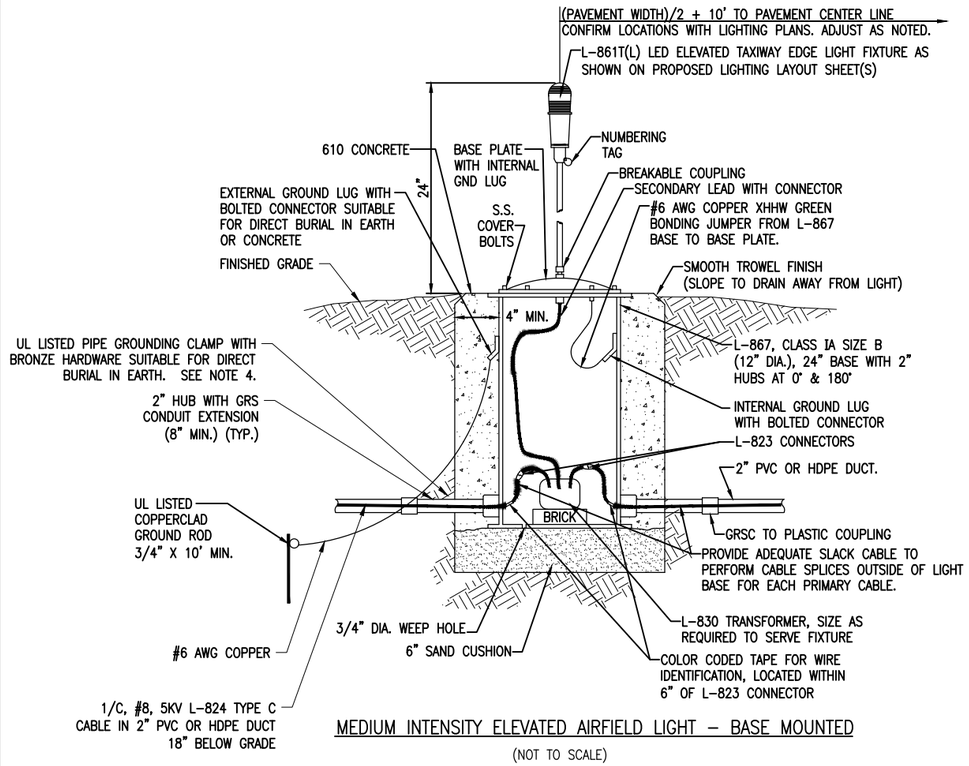
SHEET TITLE

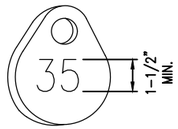
TAXI GUIDANCE SIGN SCHEDULE AND LIGHT LOCATION TABLE



MEDIUM INTENSITY ELEVATED AIRFIELD LIGHT – BASE MOUNTED

(NOT TO SCALE)

A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, RUNWAY DISTANCE REMAINING SIGNS, AND LIGHTED RUNWAY/TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FEET LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.



NOTE:

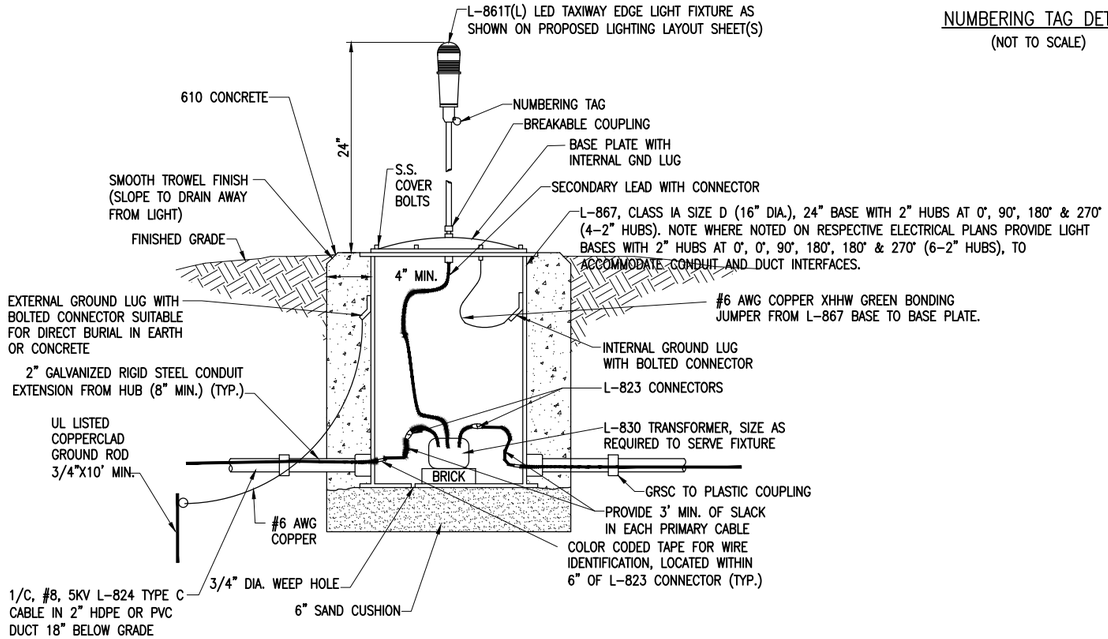
AFFIX NON-CORROSIVE, NON-BREAKABLE, TAG TO FIXTURE FACING RUNWAY/TAXIWAY WITH SET SCREW, WIRE TIE, OR METAL BAND. NUMERALS SHALL BE ENGRAVED FOR PERMANENT READABILITY. STAINLESS STEEL OR BRASS TAGS WITH 1/2" HIGH STAMPED LETTERING WILL ALSO BE ACCEPTABLE.

NUMBERING TAG DETAIL

(NOT TO SCALE)

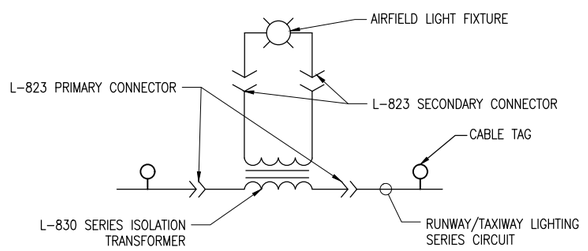
NOTES:

1. SEE ELECTRICAL NOTES SHEETS.
2. SEE "ELECTRICAL NOTES SHEET 2" AND "GROUNDING NOTES" SHEET FOR GROUNDING NOTES FOR AIRFIELD LIGHTING.
3. SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR LIGHT LOCATIONS
4. WHERE GROUND LUGS ARE NOT ACCESSIBLE ON BASE CANS, PROVIDE A UL LISTED PIPE GROUND CLAMP RATED FOR DIRECT BURIAL IN EARTH AND BOND TO THE METAL CONDUIT EXTENSION TO PROVIDE GROUND PATH TO LIGHT BASE.
5. THE PROPOSED AIRFIELD LIGHT FIXTURES SHALL CONFORM TO ADVISORY CIRCULAR 150/5345-46 (CURRENT ISSUE(S) IN EFFECT) AND BE FAA APPROVED FOR TYPE L-861T(L) FOR TAXIWAY EDGE LIGHTS. AIRFIELD LIGHT FIXTURES SHALL HAVE LED (LIGHT EMITTING DIODE) ILLUMINATION AND SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF FAA ENGINEERING BRIEF NO. 67D LIGHT SOURCES OTHER THAN INCANDESCENT AND XENON FOR AIRPORT AND OBSTRUCTION LIGHTING FIXTURES.
6. LIGHT BASE CANS FOR THE AIRFIELD LIGHT FIXTURES SHALL CONFORM TO THE REQUIREMENTS OF FAA AC 150/5345-42 (CURRENT ISSUE IN EFFECT), FOR TYPE L-867, CLASS IA, SIZE B (12 IN. NOMINAL DIAMETER) OR SIZE D (16 IN. NOMINAL DIAMETER), AND 24 IN. DEEP AND/OR AS DETAILED ON THE PLANS. EACH LIGHT BASE CAN SHALL INCLUDE INTERNAL AND EXTERNAL GROUND LUGS TO ACCOMMODATE THE RESPECTIVE APPLICATIONS. LIGHT BASE PLATES SHALL BE SIZED AND COMPATIBLE WITH THE RESPECTIVE LIGHT BASES AND LIGHT FIXTURES WITH STAINLESS STEEL BOLTS.
7. PRIOR TO INSTALLING THE AIRFIELD LIGHT FIXTURES, APPLY AN OXIDE-INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS, BREAKABLE COUPLING, AND ALL PLACES WHERE METAL COMES INTO CONTACT WITH METAL.
8. SERIES CIRCUIT ISOLATION TRANSFORMERS FOR THE AIRFIELD LIGHTING SHALL BE MANUFACTURED TO FAA SPECIFICATION AC 150/5345-47, (CURRENT EDITION IN EFFECT), AND SHALL BE FAA-APPROVED (ETL/INTERTEK TESTING SERVICES-CERTIFIED). SERIES CIRCUIT TRANSFORMER SHALL BE PROPERLY SIZED FOR THE RESPECTIVE AIRFIELD LIGHTING DEVICE, AND SHALL BE AS RECOMMENDED BY THE RESPECTIVE EQUIPMENT MANUFACTURER. CONFIRM PROPER TRANSFORMER SELECTION AND SIZING WITH THE RESPECTIVE EQUIPMENT MANUFACTURER.
9. THE CONCRETE USED IN THE CONSTRUCTION OF THE BASES FOR THE AIRFIELD LIGHTING AND SPLICE CANS SHALL BE IN ACCORDANCE WITH ITEM 610 CONCRETE FOR MISCELLANEOUS STRUCTURES.
10. IDENTIFICATION TAGS SHALL BE ATTACHED TO EACH AIRFIELD LIGHT FIXTURE.
11. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125, AND FAA AC 150/5370-10H ITEM L-108 AND L-125, RUBBER AND PLASTIC ELECTRICAL TAPES SHALL BE SCOTCH ELECTRICAL TAPE NUMBERS 130C LINERLESS RUBBER SPLICING TAPE (2" WIDE) AND 88 (1.5" WIDE) RESPECTIVELY, AS MANUFACTURED THE MINNESOTA MINING AND MANUFACTURING COMPANY, OR EQUIVALENT.



MEDIUM INTENSITY TAXIWAY EDGE LIGHT – BASE MOUNTED WITH L-867D CAN

"NOT TO SCALE"



LIGHTING CONNECTION SCHEMATIC

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NO.	DATE	DESCRIPTION		
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ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
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DESIGN BY: KNL 3/25/2021
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SHEET TITLE

AIRFIELD LIGHT DETAILS

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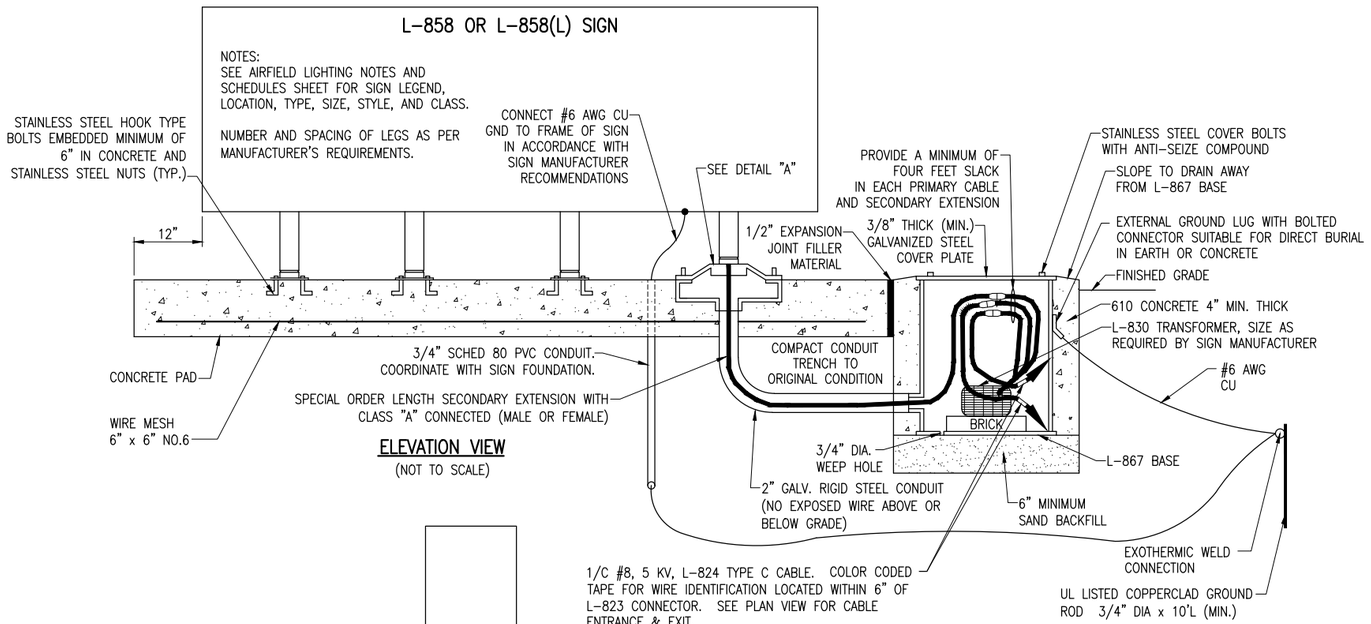
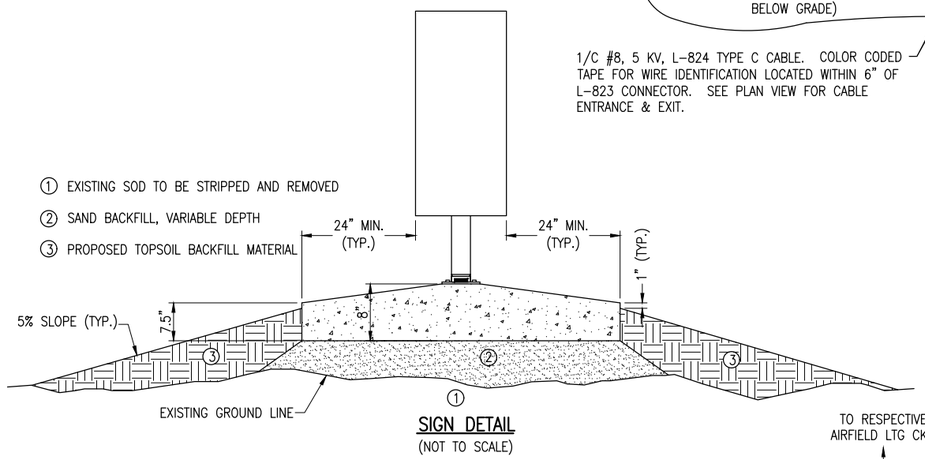
L-858 OR L-858(L) SIGN

NOTES:
SEE AIRFIELD LIGHTING NOTES AND SCHEDULES SHEET FOR SIGN LEGEND, LOCATION, TYPE, SIZE, STYLE, AND CLASS.

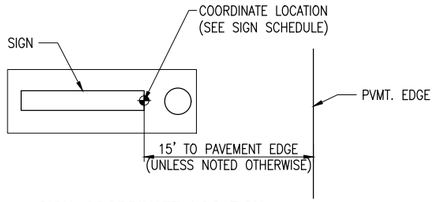
NUMBER AND SPACING OF LEGS AS PER MANUFACTURER'S REQUIREMENTS.



ELEVATION VIEW
(NOT TO SCALE)



SIGN DETAIL
(NOT TO SCALE)



SIGN COORDINATE LOCATION
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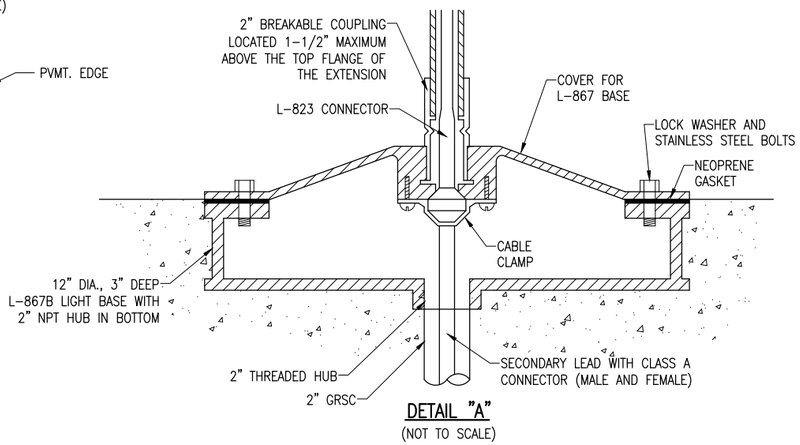
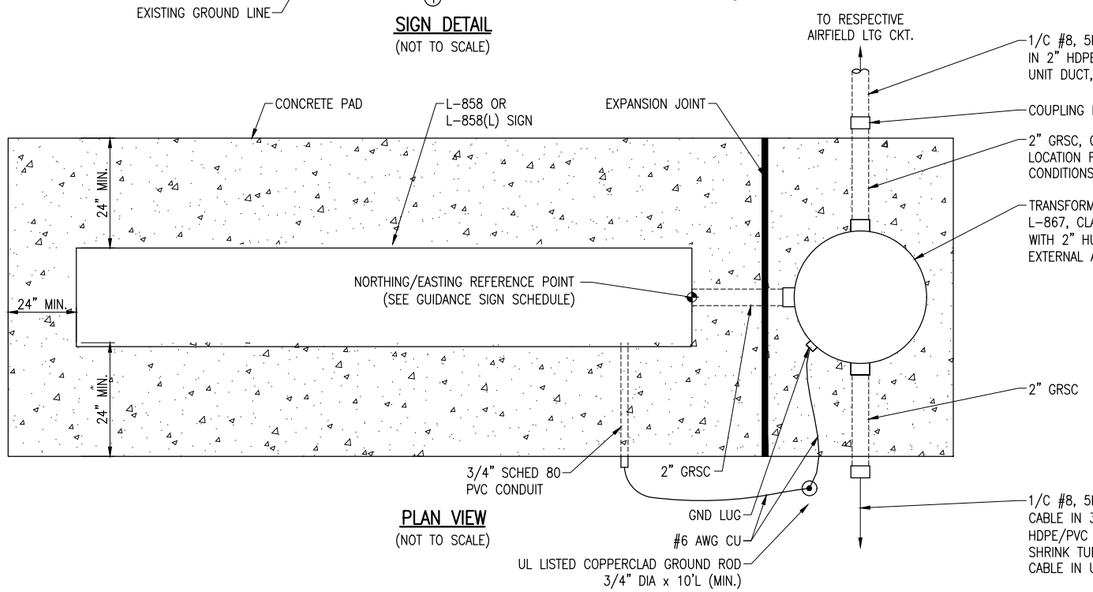


DETAIL "A"
(NOT TO SCALE)



PLAN VIEW
(NOT TO SCALE)

A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR CONNECTED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN, TAXI SIGN FRAME, OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. ALSO BOND THE SIGN FRAME TO THE GROUND ROD WITH A #6 AWG BARE COPPER CONDUCTOR.

GENERAL NOTES

1. SEE PROPOSED ELECTRICAL SHEETS, AIRFIELD LIGHTING NOTES AND TAXI GUIDANCE SIGN SCHEDULES FOR SIGN LEGEND, LOCATION, TYPE, SIZE, STYLE, AND CLASS.
2. SEE ELECTRICAL NOTES SHEETS.

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LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION	DES	DWN	REV

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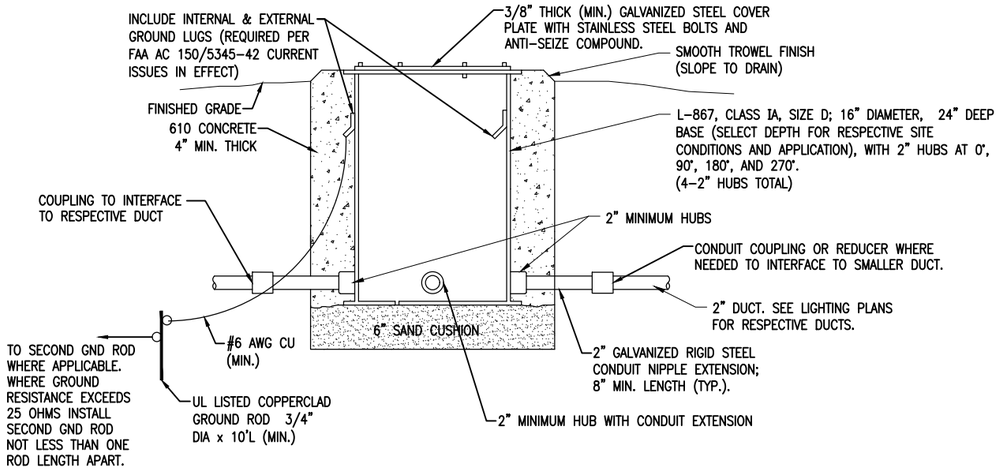
SHEET TITLE

TAXI GUIDANCE SIGN DETAILS



SPLICE CAN/JUNCTION CAN DETAIL

"NOT TO SCALE"

NOTES FOR SPLICE CAN/JUNCTION CAN DETAIL:

1. SPLICE CANS SHALL CONFORM TO THE REQUIREMENTS OF FAA AC 150/5345-42 (CURRENT ISSUES IN EFFECT), FOR TYPE L-867, CLASS IA, SIZE D, (16 IN. NOMINAL DIAMETER), AND 24 IN. DEEP AND/OR AS DETAILED ON THE PLANS. EACH SPLICE CAN SHALL INCLUDE INTERNAL AND EXTERNAL GROUND LUGS TO ACCOMMODATE THE RESPECTIVE APPLICATIONS. SPLICE CANS AND/OR JUNCTION CANS SHALL HAVE GALVANIZED STEEL COVERS, 3/8-INCH THICK (MINIMUM), WITH STAINLESS STEEL BOLTS.
2. FOR THE PURPOSE OF ENHANCING SAFETY, EACH BASE MUST HAVE INSTALLED, BY THE MANUFACTURER, AN INTERNAL AND EXTERNAL GROUND STRAP THAT IS AVAILABLE FOR THE PURPOSE OF ATTACHING A GROUND LUG THAT IS CONNECTED TO AN EARTH GROUND OR A SAFETY GROUND CONDUCTOR INSTALLED WITH THE RESPECTIVE CIRCUIT. FOR AIRPORT PROJECTS RECEIVING FEDERAL FUNDS THIS REQUIREMENT IS MANDATORY PER FAA AC 150/5345-42 (CURRENT ISSUES IN EFFECT).
3. APPLY AN OXIDE-INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS, AND ALL PLACES WHERE METAL COMES INTO CONTACT WITH METAL.
4. THE CONCRETE USED IN THE CONSTRUCTION OF THE BASES FOR THE AIRFIELD LIGHTING CANS SHALL BE IN ACCORDANCE WITH ITEM 610 CONCRETE FOR MISCELLANEOUS STRUCTURES.
5. LIDS FOR THE SPLICE CANS CONTAINING HIGH VOLTAGE AIRFIELD LIGHTING CABLES SHALL INCLUDE MINIMUM 1/2-INCH HIGH LETTERING LABELED "DANGER HIGH VOLTAGE KEEP OUT" TO COMPLY WITH NEC ARTICLE 300.45 "WARNING SIGNS" AND NEC ARTICLE 314.71(E) "SUITABLE COVERS". THIS WILL NEED TO BE COORDINATED WITH THE SPLICE CAN MANUFACTURER.
6. LIDS FOR THE SPLICE CANS CONTAINING LOW VOLTAGE CABLES (RATED 600 VOLTS AND BELOW) WILL BE ACCEPTABLE TO USE BLANK COVERS.

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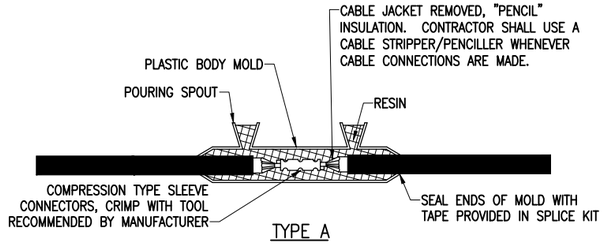
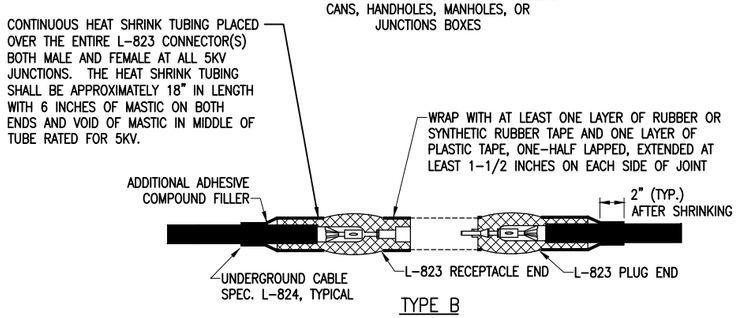
SHEET TITLE

SPLICE CAN DETAIL



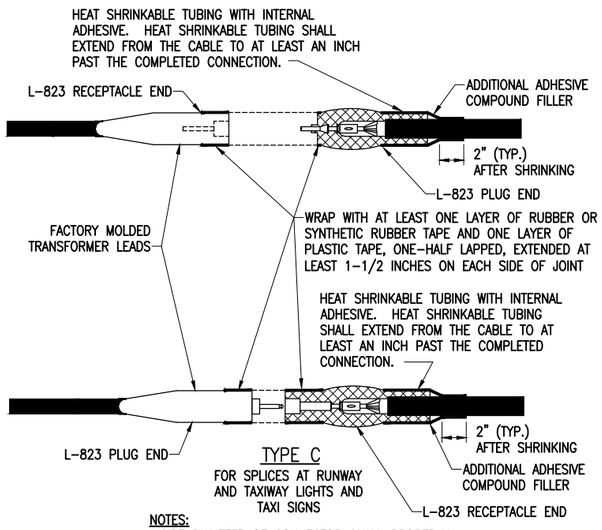
TYPE A

FOR SPLICES IN LOW VOLTAGE CABLE (600V) HOMERUNS FOR EXTENSIONS TO EXISTING LOW VOLTAGE CABLES ONLY. TYPE A SPLICES SHALL BE MADE IN SPLICE CANS, HANDHOLES, MANHOLES, OR JUNCTIONS BOXES



TYPE B

FOR SPLICES AT JUNCTION OF HOMERUN WITH LOOP CIRCUIT AND FOR SPLICES IN HOMERUNS TO EXISTING CABLES

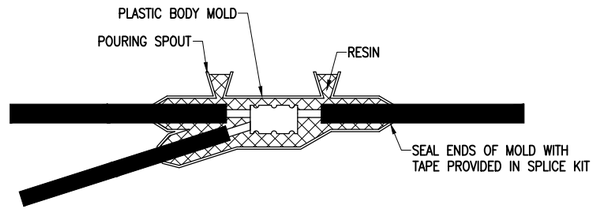


TYPE C

FOR SPLICES AT RUNWAY AND TAXIWAY LIGHTS AND TAXI SIGNS

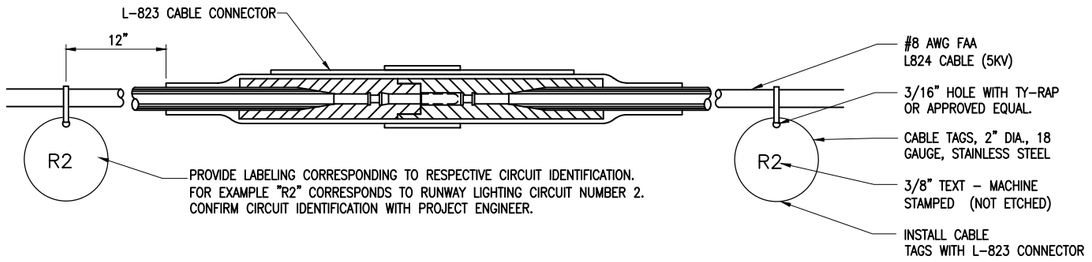
NOTES:
INSIDE DIAMETER OF CONNECTOR SHALL PROPERLY MATCH THE OUTSIDE DIAMETER OF CABLE.

CABLE SPLICES
"NOT TO SCALE"



LOW VOLTAGE UNDERGROUND TAP SPLICE

FOR TAP SPLICES IN LOW VOLTAGE (600V) CABLE. SPLICES SHALL BE RATED AND LISTED SUITABLE FOR DIRECT BURIAL LOCATIONS. FOR SPLICES UP TO #2 AWG CONDUCTOR, SPLICES SHALL BE WYE RESIN TYPE POWER CABLE TAP SPLICE KIT SUITABLE FOR THE RESPECTIVE CABLES AND RESPECTIVE APPLICATION.



1. CONTRACTOR SHALL PROVIDE CABLE CIRCUIT IDENTIFICATION MARKERS ATTACHED TO BOTH SIDES OF EACH CABLE CONNECTION.
2. CABLE IDENTIFICATION TAGS SHALL BE STAINLESS STEEL OR BRASS.
3. THE CABLE SHALL THOROUGHLY BE CLEANED PRIOR TO THE INSTALLATION OF THE L-823 CONNECTOR KIT.
4. ATTACH EACH CABLE TIE ENOUGH TO HOLD IN PLACE WITHOUT COMPRESSING EDGE OF CABLE TAG INTO CONDUCTOR. TRIM OFF EXCESS CABLE TIE.
5. CABLE TAGS SHALL BE PROVIDED AT ALL POINTS OF ACCESS INCLUDING L-867 BASES, L-868 BASES, HANDHOLES, MANHOLES, JUNCTION BOXES, AND WIREWAYS.
6. CABLE TAGS SHALL BE LABELED AS FOLLOWS FOR RESPECTIVE AIRFIELD LIGHTING CIRCUITS,
   RUNWAY 12R-30L LIGHTING: R1
   RUNWAY 12L-30R LIGHTING: R2
   TAXIWAY B, CKT 1 LIGHTING: TB1
   TAXIWAY B, CKT 2 LIGHTING: TB2

CABLE TAG DETAIL
"NOT TO SCALE"

NOTES:

1. SPLICE DETAILS ARE PROVIDED FOR NEW WORK AND TO ASSIST IN REPAIRS OF ACCIDENTAL OR UNEXPECTED INTERRUPTIONS AND/OR CUTS TO AIRFIELD LIGHTING CABLES.
2. KEEP ON HAND A MINIMUM OF 10 SETS OF SPLICE KITS FOR L-823 CONNECTORS AND A MINIMUM OF 10 SETS OF TYPE A LOW VOLTAGE SPLICE KITS TO ACCOMMODATE REPAIRS.
3. EVERY AIRFIELD LIGHTING CABLE SPLICER SHALL BE QUALIFIED IN MAKING CABLE SPLICES AND TERMINATIONS ON CABLES RATED AT AND/OR ABOVE 5,000 VOLTS AC TO COMPLY WITH THE REQUIREMENTS OF FAA AC 150/5370-10G ITEM L-108.
4. INSIDE DIAMETER OF RESPECTIVE CABLE CONNECTOR SHALL PROPERLY MATCH OUTSIDE DIAMETER OF CABLE.
5. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.
6. WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE (ALL-WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR HIGH-VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125, AND FAA AC 150/5370-10H ITEM L-108 AND L-125, HIGH VOLTAGE ELECTRICAL INSULATING TAPE SHALL BE 3M SCOTCH 130C LINERLESS RUBBER SPLICING TAPE (2 INCHES WIDE) OR APPROVED EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 (1.5 INCHES WIDE) OR APPROVED EQUIVALENT. TAPES MUST BE RATED SUITABLE FOR THE APPLICATION.
7. PROVIDE CABLE TAGS TO IDENTIFY THE RESPECTIVE CIRCUITS ALL POINTS OF ACCESS INCLUDING L-867 BASES, L-868 BASES, HANDHOLES, MANHOLES, JUNCTION BOXES, AND WIREWAYS.
8. CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. FOR THE L-823 CONNECTORS, THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER THE KIT MANUFACTURER'S INSTRUCTIONS.

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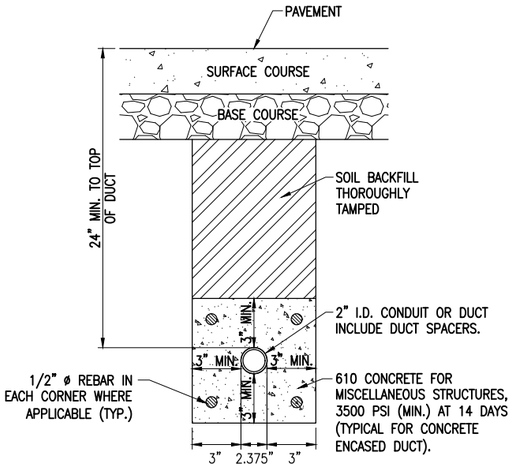
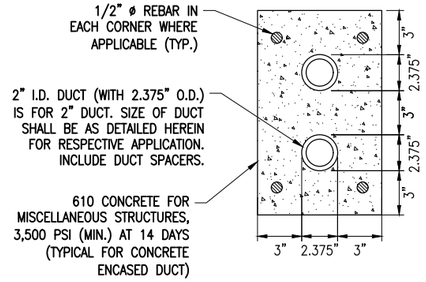
AIRFIELD LIGHTING CABLE SPLICE DETAILS



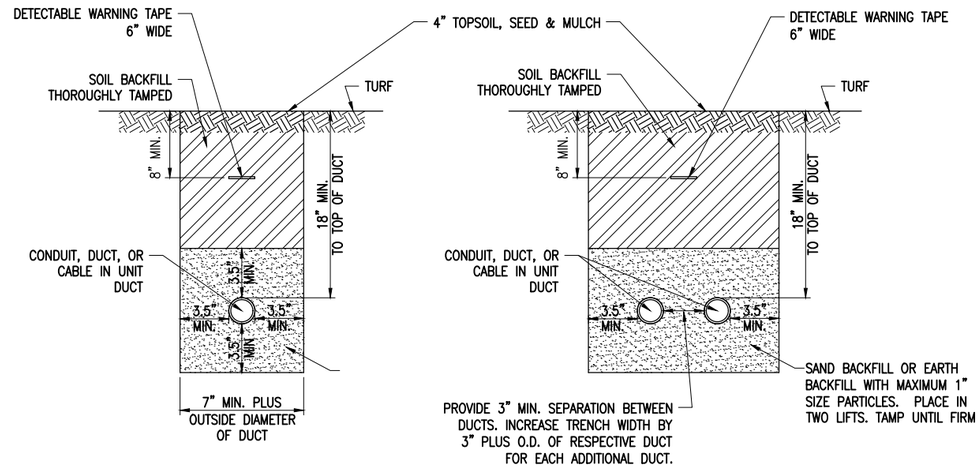
1-WAY DUCT BANK - PAVED AREAS

"NOT TO SCALE"



2-WAY DUCT BANK - VERTICAL

"NOT TO SCALE"



CONDUIT IN TRENCH - NON-PAVEMENT AREAS

"NOT TO SCALE"

NOTES:

1. DIMENSIONS FOR COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.

2. TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.

3. DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 18 INCHES PER NEC 300.5 AND 300.50. MINIMUM COVER REQUIREMENTS FOR DUCTS CONTAINING NAVAID FEEDER CIRCUITS SHALL BE 24". MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED BELOW PAVEMENT OR ROADWAYS IS 30" UNLESS DETAILED OTHERWISE. MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED IN AREAS SUBJECT TO FARMING IS 42". MINIMUM COVER FOR DUCTS CONTAINING SECONDARY ELECTRIC SERVICE CONDUCTORS SHALL BE 36" OR AS REQUIRED BY THE SERVING ELECTRIC UTILITY COMPANY. ADJUST/INCREASE BURIAL DEPTHS TO ACCOMMODATE SITE CONDITIONS, DRAINAGE AND/OR OBSTRUCTIONS. COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER.

4. HIGH-VOLTAGE CIRCUIT WIRING (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW-VOLTAGE CIRCUIT WIRING (RATED 600 VOLTS AND BELOW) SHALL MAINTAIN SEPARATION FROM EACH OTHER. HIGH-VOLTAGE WIRING AND LOW-VOLTAGE WIRING SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, HANDHOLE, OR JUNCTION BOX. CORRECTIVE WORK WILL BE REQUIRED TO SEPARATE HIGH VOLTAGE SERIES CIRCUIT CONDUCTORS FROM LOW VOLTAGE CONDUCTORS WHERE THEY ARE INSTALLED IN THE SAME RACEWAY.

5. SERVICE CONDUCTORS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, OR HANDHOLE WITH FEEDER CIRCUITS, BRANCH CIRCUITS OR CONTROL CIRCUITS.

6. COMMUNICATION CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, OR HANDHOLE WITH POWER CIRCUITS.

7. HOME RUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME RACEWAY OR DUCT.

8. COORDINATE DUCT INTERFACE TO MANHOLES AND HANDHOLES. FIELD CUT OPENINGS FOR CONDUITS AND DUCTS TO INTERFACE TO MANHOLES AND/OR HANDHOLES. CUT WALL OF RESPECTIVE HANDHOLE OR MANHOLE WITH A TOOL DESIGNED FOR MATERIAL TO BE CUT. SIZE HOLES FOR RESPECTIVE DUCTS, CONDUITS, AND TERMINATION FITTINGS AND SEAL AROUND PENETRATIONS. ALL CORING, INTERFACE, CUTTING, AND SEALING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION AND/OR RESPECTIVE HANDHOLE/MANHOLE INSTALLATION. PROVIDE BUSHINGS OR BELLS AT CONDUIT TERMINATIONS IN ELECTRICAL HANDHOLES OR MANHOLES.

9. ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.

10. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

11. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).

12. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION PHONE; 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.

13. ADJUSTMENTS TO DUCT BANK ROUTES MIGHT BE REQUIRED TO ACCOMMODATE EXISTING SITE CONDITIONS AND UNDERGROUND LINES AND UTILITIES. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL COORDINATE DUCT ROUTE ADJUSTMENTS WITH THE RESIDENT ENGINEER AND THE AIRPORT MANAGER/DIRECTOR.

14. CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING CABLES, LINES, OR UTILITIES WITHIN 10 FT OF PROPOSED EXCAVATING/TRENCHING AREA. ANY CABLES, LINES, AND UTILITIES FOUND INTERFERING WITH PROPOSED EXCAVATION OR CABLE/TRENCHING SHALL BE HAND DUG AND EXPOSED. ANY DAMAGED CABLES OR OTHER UTILITIES SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE RESPECTIVE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE. THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND OWNER SHALL BE NOTIFIED IMMEDIATELY IF ANY CABLES OR OTHER UTILITIES ARE DAMAGED.

15. PAYMENT FOR LOCATING AND MARKING UNDERGROUND UTILITIES AND CABLES WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION.

16. THE CONTRACTOR WILL DETERMINE IF THERE IS A CONFLICT BETWEEN THE INSTALLATION OF THE PROPOSED ELECTRICAL DUCTS AND ANY EXISTING UTILITIES. THE CONTRACTOR WILL MAKE ALL NECESSARY ADJUSTMENTS IN DEPTH OF INSTALLATION TO AVOID ANY AND ALL PROPOSED UNDERGROUND IMPROVEMENTS

17. CONDUITS FOR DIRECT BURIAL OR CONCRETE ENCASED DUCT BANK SHALL BE SCHEDULE 40 (MINIMUM) PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651, LISTED SUITABLE FOR UNDERGROUND USE EITHER DIRECT-BURIED OR ENCASED IN CONCRETE, OR SCHEDULE 40 (MINIMUM) HDPE CONDUIT, UL LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND LISTED SUITABLE FOR UNDERGROUND USE; EITHER DIRECT BURY OR ENCASED IN CONCRETE. HEAVIER WALL CONDUITS SHALL BE FURNISHED FOR RESPECTIVE APPLICATIONS WHERE DETAILED HEREIN.

18. CONDUITS FOR DIRECTIONAL BORING SHALL BE SCHEDULE 40 PVC CONDUIT OR SCHEDULE 80 PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651 AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, SCHEDULE 80 HDPE CONDUIT, UL-LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, OR WALL TYPE MINIMUM SDR 11 HDPE CONDUIT MANUFACTURED IN ACCORDANCE WITH ASTM D-3350 (SPECIFICATION OF POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS) AND ASTM F2160 (STANDARD SPECIFICATION FOR SOLID WALL, HIGH-DENSITY POLYETHYLENE CONDUIT BASED ON CONTROLLED OUTSIDE DIAMETER), AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION. PER NEC 300.5 (K), RACEWAYS INSTALLED USING DIRECTIONAL BORING EQUIPMENT SHALL BE APPROVED FOR THE PURPOSE.

19. UNDERGROUND DUCTS INSTALLED BY DIRECTIONAL-BORING METHOD SHALL BE INSTALLED IN A MANNER THAT WILL NOT DAMAGE ANY EXISTING UNDERGROUND UTILITIES, AND SHALL NOT DISTURB OR DAMAGE THE RESPECTIVE PAVEMENT OR ROADWAY SURFACE. DUCTS SHALL BE DIRECTIONAL-BORED AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. THE DUCTS WILL BE BORED AT A MINIMUM DEPTH OF 42 IN. BELOW THE RESPECTIVE PAVEMENT IT IS BEING BORED UNDER.

20. A PULL WIRE SHALL BE INSTALLED IN EACH CONDUIT OR DUCT TO BE LEFT VACANT.

21. CONTRACTOR SHALL COORDINATE DUCT MARKING WITH AIRPORT.

22. ALL POWER AND CONTROL CABLES IN HANDHOLES, MANHOLES, AND JUNCTION BOXES SHALL BE TAGGED TO IDENTIFY THE RESPECTIVE CABLE. A MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MANHOLE; ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT. CABLE TAGS SHALL BE STAMPED BRASS TAGS OR OTHER WEATHERPROOF/WATERPROOF CORROSION RESISTANT MATERIAL.

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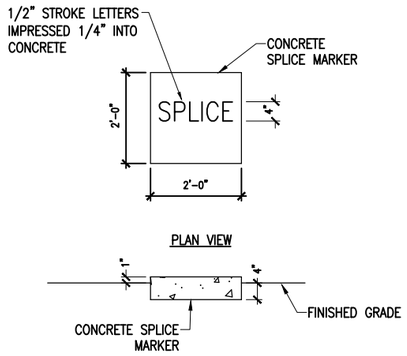
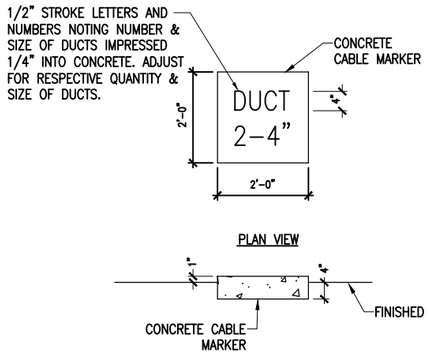
SHEET TITLE

CONDUIT TRENCH DETAILS



TURF CABLE MARKERS

"NOT TO SCALE"



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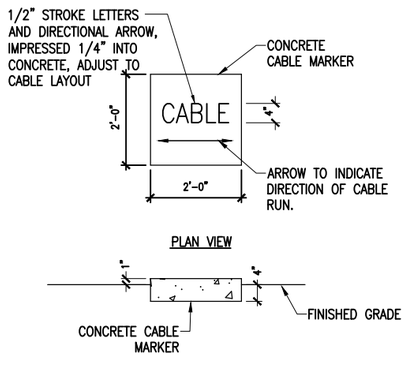

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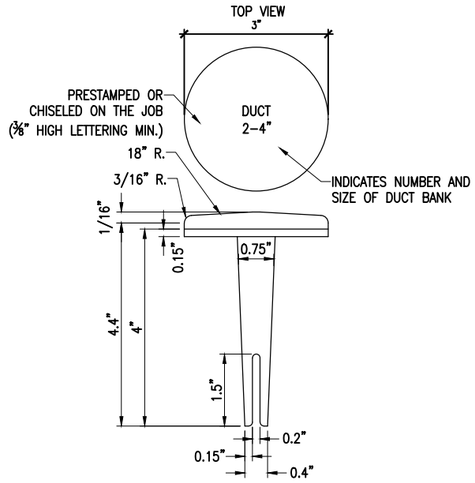


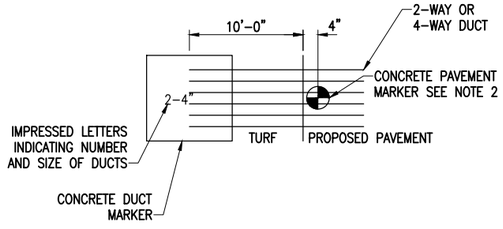
BITUMINOUS PAVEMENT DUCT MARKERS

"NOT TO SCALE"

NOTE:

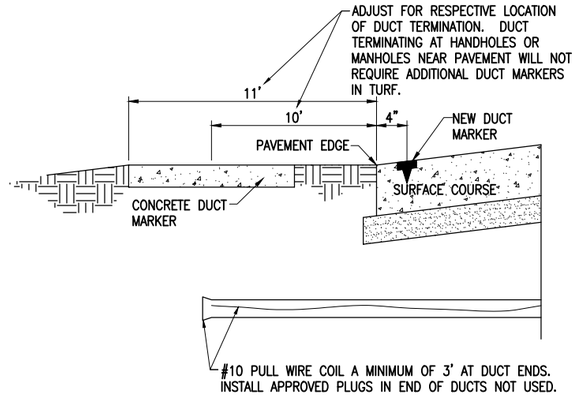
1. TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE

2. BRASS DUCT MARKERS ARE AVAILABLE FROM BERNTSEN INTERNATIONAL INC., P.O. BOX 8670, MADISON, WI. 53708-8670, PHONE: 1-877-959-8556, SURV-KAP, 3225 E. 47TH ST., TUCSON, AZ 85713, PHONE: (502)-622-6011, OR OTHER EQUIVALENT MANUFACTURERS.



DUCT MARKER DETAIL-PLAN

"NOT TO SCALE"



UNDERGROUND ELECTRICAL DUCT

(NOT TO SCALE)

CABLE & DUCT MARKER NOTES:

1. THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.

2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE INFORMED AS DESCRIBED IN NOTE 4.

3. UNDERGROUND CABLE RUNS MUST BE IDENTIFIED BY CABLE MARKERS AT 200 FEET (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. CABLE MARKERS ARE NOT REQUIRED FOR CABLE RUNS BETWEEN RUNWAY/TAXIWAY EDGE LIGHTS.

4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE ½" AND ¼" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.

5. EMPLOY THE FOLLOWING METHODS WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED:
   A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
   B. INCREASE THE MARKER SIZE TO 30" X 30".
   C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE

6. TURF DUCT MARKERS ARE NOT REQUIRED AT PAVEMENT CROSSINGS WHERE DUCTS TERMINATE IN HANDHOLES, OR JUNCTION STRUCTURES.

7. LOCATION OF ALL DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICE/CONNECTIONS, EXCEPT THOSE AT ISOLATION TRANSFORMERS, MUST BE IDENTIFIED BY SPLICE MARKERS. SPLICE MARKERS MUST BE PLACED ABOVE THE SPLICE/CONNECTIONS. DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICES SHALL BE AVOIDED WHERE POSSIBLE. CABLE SPLICES SHALL BE LOCATED IN SPLICE CANS, LIGHT BASES, HANDHOLES, MANHOLES, OR OTHER JUNCTION STRUCTURES UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.

8. THE CABLE AND SPLICE MARKERS MUST IDENTIFY THE CIRCUITS TO WHICH THE CABLES BELONG. FOR EXAMPLE: RWY 4-22, PAPI-4, PAPI-22.

9. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS MUST BE IDENTIFIED BY DUCT MARKERS.

FOR BID

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LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

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CABLE AND DUCT MARKER DETAILS

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GENERAL NOTES

1. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 – NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

2. CONTRACTOR SHALL KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.

3. CONTRACTOR SHALL COORDINATE WORK AND ANY POWER OUTAGES AND/OR SHUT DOWN OF SYSTEMS WITH THE RESPECTIVE FACILITY OWNER PERSONNEL AND THE AIRPORT MANAGER/DIRECTOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).

4. THE CONTRACTOR SHALL ASCERTAIN THAT ALL LIGHTING SYSTEM COMPONENTS FURNISHED BY HIM, INCLUDING FAA APPROVED EQUIPMENT, ARE COMPATIBLE IN ALL RESPECTS WITH EACH OTHER AND THE REMAINDER OF THE NEW/EXISTING SYSTEM. ANY NONCOMPATIBLE COMPONENTS FURNISHED BY THIS CONTRACTOR SHALL BE REPLACED BY HIM AT NO ADDITIONAL COST TO THE AIRPORT SPONSOR WITH A SIMILAR UNIT, APPROVED BY THE ENGINEER (DIFFERENT MODEL OR DIFFERENT MANUFACTURER) THAT IS COMPATIBLE WITH THE REMAINDER OF THE AIRPORT LIGHTING SYSTEM.

5. IN CASE THE CONTRACTOR ELECTS TO FURNISH AND INSTALL AIRPORT LIGHTING EQUIPMENT REQUIRING ADDITIONAL WIRING, TRANSFORMERS, ADAPTORS, MOUNTINGS, ETC., TO THOSE SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATION, ANY COST FOR THESE ITEMS SHALL BE INCIDENTAL TO THE EQUIPMENT COST.

6. THE CONTRACTOR INSTALLED EQUIPMENT (INCLUDING FAA APPROVED) SHALL NOT GENERATE ANY ELECTROMAGNETIC INTERFERENCE IN THE EXISTING AND/OR NEW COMMUNICATIONS, WEATHER, AIR NAVIGATION, AND AIR TRAFFIC CONTROL EQUIPMENT. ANY EQUIPMENT GENERATING SUCH INTERFERENCE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST WITH THE EQUIPMENT MEETING THE APPLICABLE SPECIFICATIONS AND NOT GENERATING ANY INTERFERENCE.

7. WHEN A SPECIFIC TYPE, STYLE, CLASS, ETC. OF FAA APPROVED EQUIPMENT IS SPECIFIED ONLY THAT TYPE, STYLE, CLASS, WILL BE ACCEPTABLE, EVEN THOUGH EQUIPMENT OF OTHER TYPES STYLES, CLASSES, ETC. MAY BE APPROVED.

8. ANY AND ALL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN TO THE CONTRACTOR REGARDING CHANGES IN OR DEVIATIONS FROM THE PLANS AND SPECIFICATIONS SHALL BE IN WRITING WITH COPIES SENT TO THE AIRPORT SPONSOR AND THE ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF AERONAUTICS. THE CONTRACTOR SHALL NOT ACCEPT ANY VERBAL INSTRUCTIONS FROM THE RESIDENT ENGINEER/RESIDENT TECHNICIAN REGARDING ANY CHANGES FROM THE PLANS AND SPECIFICATIONS.

9. A MINIMUM OF THREE COPIES OF THE INSTRUCTION BOOK SHALL BE SUPPLIED WITH EACH DIFFERENT TYPE OF EQUIPMENT. THE BOOKS DESCRIBING A MORE SOPHISTICATED TYPE OF EQUIPMENT, SUCH AS REGULATORS, PAPI, REIL, ETC. AS A MINIMUM SHALL 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 INSTRUCTION.

   D. START–UP INSTRUCTIONS.

   E. PREVENTATIVE MAINTENANCE REQUIREMENTS.

   F. CHART FOR TROUBLE–SHOOTING.

   G. COMPLETE POWER AND CONTROL DETAILED WIRING DIAGRAM(S), SHOWING EACH CONDUCTOR/CONNECTION/COMPONENT – "BLACK" BOXES ARE NOT ACCEPTABLE. THE DIAGRAM OF THE NARRATIVE SHALL SHOW VOLTAGE/CURRENTS/WAVE SHAPES AT STRATEGIC LOCATIONS TO BE USED WHEN CHECKING AND/OR TROUBLE–SHOOTING THE EQUIPMENT. WHEN THE EQUIPMENT HAS SEVERAL MODES OF OPERATION, SUCH AS SEVERAL BRIGHTNESS STEPS, THESE PARAMETERS SHALL BE INDICATED FOR ALL DIFFERENT MODES.

   H. PARTS LIST WHICH WILL INCLUDE ALL MAJOR AND MINOR COMPONENTS SUCH AS RESISTORS, DIODES, ETC. IT SHALL INCLUDE A COMPLETE NOMENCLATURE OF EACH COMPONENT AND, IF APPLICABLE, THE NAME OF ITS MANUFACTURER AND THE CATALOG NUMBER.

   I. SAFETY INSTRUCTIONS.

POWER AND CONTROL NOTES

1. PROVIDE LEGEND PLATES FOR ALL ELECTRICAL EQUIPMENT TO IDENTIFY FUNCTION, CIRCUIT VOLTAGE AND PHASE. WHERE THE EQUIPMENT CONTAINS FUSES, ALSO IDENTIFY THE FUSE OR FUSE LINK AMPERE RATING. WHERE THE EQUIPMENT DOES NOT HAVE SUFFICIENT AREA TO INSTALL LEGEND PLATES, THE LEGEND PLATES SHALL BE INSTALLED ON THE WALL NEXT TO THE UNIT. LEGEND PLATES SHALL BE WEATHERPROOF ENGRAVED PLASTIC OR PHENOLIC MATERIAL, 1/4" HIGH BLACK LETTERS ON A WHITE BACKGROUND UNLESS NOTED OTHERWISE. SECURE WITH WEATHERPROOF ADHESIVE AND MACHINE SCREWS. FURNISH ADDITIONAL LEGEND PLATES WHERE REQUIRED BY CODE, FOR ADDITIONAL EQUIPMENT, AS DETAILED HEREIN ON THE PLANS, AND AS NOTED IN THE SPECIAL PROVISION SPECIFICATIONS.

2. COLOR CODE ALL PHASE WIRING BY THE USE OF COLORED WIRE INSULATION AND/OR COLORED TAPE. WHERE TAPE IS USED, THE WIRE INSULATION SHALL BE BLACK. BLACK AND RED SHALL BE USED FOR PHASE CONDUCTORS ON 120/240VAC SINGLE–PHASE, THREE WIRE SYSTEMS AND BLACK, ORANGE (FOR HIGH LEG) AND BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 240/120VAC THREE–PHASE, FOUR WIRE SYSTEMS. NEUTRAL CONDUCTORS, SIZE NO. 6 AWG OR SMALLER, SHALL BE IDENTIFIED BY A CONTINUOUS WHITE OR NATURAL GRAY OUTER FINISH ALONG ITS ENTIRE LENGTH. NEUTRAL CONDUCTORS LARGER THAN NO. 6 AWG SHALL 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. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR SIZES (AWG OR KCMIL).

3. ALL BRANCH CIRCUIT CONDUCTORS CONNECTED TO A PARTICULAR PHASE SHALL BE IDENTIFIED WITH THE SAME COLOR. THE COLOR CODING SHALL BE EXTENDED TO THE POINT OF UTILIZATION.

4. IN CONTROL WIRING THE SAME COLOR SHALL BE USED THROUGHOUT THE SYSTEM FOR THE SAME FUNCTION, SUCH AS 10%, 30%, 100% BRIGHTNESS CONTROL, ETC.

5. LOW VOLTAGE (600 V.) AND HIGH VOLTAGE (5000 V.) CONDUCTORS SHALL BE INSTALLED IN SEPARATE WIREWAYS.

6. NEATLY LACE WIRING IN DISTRIBUTION PANELS, WIREWAYS, SWITCHES AND JUNCTION/PULL BOXES.

7. THE MINIMUM SIZE OF PULL/JUNCTION BOXES, REGARDLESS OF THE QUANTITY AND SIZE OF THE CONDUCTORS SHOWN, SHALL BE AS FOLLOWS:

   A. IN STRAIGHT PULLS THE LENGTH OF THE BOX SHALL 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 SHALL BE AT LEAST 3 TIMES GREATER THAN THE TOTAL TRADE CROSS–SECTIONAL AREA OF THE CONDUITS TERMINATING AT THE END.

   B. IN ANGLE PULLS OR 'U' PULLS THE DISTANCE BETWEEN EACH CONDUIT ENTRY INSIDE THE BOX AND THE OPPOSITE WALL OF THE BOX SHALL NOT BE LESS THAN SIX (6) TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT. THIS DISTANCE SHALL BE INCREASED FOR ADDITIONAL ENTRIES BY THE AMOUNT OF THE SUM OF THE DIAMETERS OF ALL OTHER CONDUIT ENTRIES ON THE SAME WALL AS THE BOX. THE DISTANCE BETWEEN CONDUIT ENTRIES ENCLOSING THE SAME CONDUCTOR SHALL NOT BE LESS THAN SIX TIMES THE TRADE DIAMETER OF THE LARGEST CONDUIT.

8. A RUN OF CONDUIT BETWEEN TERMINATIONS AT EQUIPMENT ENCLOSURES, SQUARE DUCTS AND PULL/JUNCTION BOXES, SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL), INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE TERMINATIONS, CAST, CONDUIT TYPE OUTLETS SHALL NOT BE TREATED AS PULL/JUNCTION BOXES.

9. EQUIPMENT CABINETS SHALL NOT BE USED AS PULL/JUNCTION BOXES. ONLY WIRING TERMINATING AT THE EQUIPMENT SHALL BE BROUGHT INTO THESE ENCLOSURES.

10. SPLICES AND JUNCTION POINTS SHALL BE PERMITTED ONLY IN JUNCTION BOXES, DUCTS EQUIPPED WITH REMOVABLE COVERS, AND AT EASILY ACCESSIBLE LOCATIONS.

11. CIRCUIT BREAKERS IN POWER DISTRIBUTION PANEL(S) SHALL BE THERMAL–MAGNETIC MOLDED CASE, PERMANENT TRIP WITH 100 AMPERE, MINIMUM FRAME.

12. DUAL LUGS SHALL BE USED WHERE TWO (2) WIRES, SIZE NO. 6 OR LARGER, ARE TO BE CONNECTED TO THE SAME TERMINAL.

13. ALL INTERIOR WALL MOUNTED EQUIPMENT ENCLOSURES SHALL BE MOUNTED ON HOT DIPPED GALVANIZED STEEL STRUT SUPPORT, OR STAINLESS STEEL STRUT SUPPORT, WITH CORROSION RESISTANT HARDWARE. PROVIDE ZINC RICH PAINT APPLIED TO FIELD CUTS OF GALVANIZED STEEL SUPPORT TO MINIMIZE THE POTENTIAL FOR CORROSION PER THE RESPECTIVE STRUT SUPPORT MANUFACTURER'S RECOMENTATIONS.

14. SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL HARDWARE.

15. CONDUITS FOR ELECTRIC SERVICE ENTRANCE AND FEEDERS SHALL BE AS DETAILED HEREIN ON THE PLANS. WHERE GALVANIZED RIGID STEEL CONDUIT IS SPECIFIED IT SHALL HAVE THREADED FITTINGS. SET SCREW TYPE FITTINGS WILL NOT BE ACCEPTABLE. CONDUITS FOR UNDERGROUND APPLICATIONS SHALL BE AS DETAILED HEREIN. CONDUITS FOR GROUNDING ELECTRODE CONDUCTORS OR INDIVIDUAL GROUNDING CONDUCTORS SHALL BE SCHEDULE 40 OR SCHEDULE 80 PVC.

16. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AT CONNECTIONS TO EQUIPMENT SUBJECT TO VIBRATION OR WHERE FLEXIBILITY IS REQUIRED. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6, SUITABLE FOR GROUNDING, SUNLIGHT RESISTANT, AND RESISTANT TO OIL, GASOLINE, AND GREASE. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO MOTORS, TRANSFORMERS, & CONSTANT CURRENT REGULATORS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. DO NOT INSTALL LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS NOT UL. LISTED. CONFIRM LIQUID–TIGHT FLEXIBLE METAL CONDUIT BEARS THE UL LABEL PRIOR TO INSTALLING IT.

17. UNLESS OTHERWISE SHOWN, ALL EXPOSED CONDUITS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE LINES OF THE STRUCTURE.

18. ALL STEEL CONDUITS, FITTINGS, NUTS, BOLTS, ETC. SHALL BE GALVANIZED.

19. USE CONDUIT BUSHINGS AT EACH CONDUIT TERMINATION. WHERE NO. 4 AWG OR LARGER UNDERGROUND WIRE IS INSTALLED, USE INSULATED BUSHINGS.

20. USE DOUBLE LOCK NUTS AT EACH CONDUIT TERMINATION.

21. WRAP ALL PRIMARY AND SECONDARY POWER CONNECTIONS WITH SUFFICIENT LAYERS OF HIGH VOLTAGE ELECTRICAL INSULATING TAPE (RUBBER SPLICING TAPE SUITABLE FOR PRIMARY ELECTRICAL INSULATION FOR SPLICING CABLE FROM 600 VOLTS TO 69,000 VOLTS) AND COVER WITH VINYL ELECTRICAL TAPE (ALL–WEATHER VINYL INSULATING TAPE SUITABLE FOR PROTECTIVE JACKETING FOR HIGH–VOLTAGE CABLE SPLICES AND REPAIRS) FOR FULL VALUE OF CABLE INSULATION VOLTAGE. PER ILLINOIS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF AIRPORTS ITEM 108, ITEM 125 AND FAA AC 150/5370–10H ITEM L–108, HIGH VOLTAGE ELECTRICAL INSULATING TAPE SHALL BE 3M SCOTCH 130C (2 INCHES WIDE) OR APPROVED EQUIVALENT, AND VINYL ELECTRICAL TAPE SHALL BE 3M SCOTCH 88 (1.5 INCHES WIDE) OR APPROVED EQUIVALENT. TAPES MUST BE RATED SUITABLE FOR THE APPLICATION.

22. UNLESS OTHERWISE NOTED, ALL SINGLE CONDUCTOR CONTROL WIRING SHALL BE NO. 12 AWG. COPPER MINIMUM.

23. THE FOLLOWING SHALL APPLY TO RELAY/CONTACTOR PANELS/ENCLOSURES:

   A. FOR INTERIOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 12 (DUST TIGHT) ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. FOR EXTERIOR/OUTDOOR LOCATIONS ALL COMPONENTS SHALL BE MOUNTED IN NEMA 4X STAINLESS STEEL ENCLOSURE(S) WITH VERTICALLY HINGED COVERS. ALL CONDUIT ENTRIES INTO NEMA 4, 4X ENCLOSURES SHALL HAVE NEMA 4 HUBS LISTED SUITABLE FOR THE RESPECTIVE ENCLOSURE TO MAINTAIN THE NEMA 4, 4X RATING OF THE ENCLOSURE.

   B. THE ENCLOSURE(S) SHALL HAVE AMPLE SPACE FOR THE CIRCUIT COMPONENTS, TERMINAL BLOCKS AND INCOMING AND INTERNAL WIRING.

   C. ALL CONTROL CONDUCTOR TERMINATIONS SHALL BE OF THE OPEN–EYE CONNECTOR/SCREW TYPE. SOLDERED CLOSED–EYE TERMINATIONS, OR TERMINATIONS WITHOUT CONNECTORS ARE NOT ACCEPTABLE.

   D. WHEN THE ENCLOSURE COVER IS OPENED, ALL CIRCUIT COMPONENTS, WIRING AND TERMINALS SHALL BE EXPOSED AND ACCESSIBLE WITHOUT REMOVAL OF ANY PANELS, COVERS, ETC., EXCEPT THOSE COVERING HIGH VOLTAGE COMPONENTS.

   E. ACCESS TO, OR REMOVAL OF A CIRCUIT COMPONENT OR TERMINAL BLOCK WILL NOT REQUIRE THE REMOVAL OF ANY OTHER CIRCUIT COMPONENT OR TERMINAL BLOCK.

   F. EACH CIRCUIT COMPONENT SHALL BE CLEARLY IDENTIFIED INDICATING ITS CORRESPONDING NUMBER SHOWN ON THE DRAWINGS AND ITS FUNCTION.

   G. A COMPLETE WIRING DIAGRAM SHALL BE MOUNTED ON THE INSIDE OF THE COVER. THE DIAGRAM SHALL REPRESENT EACH CONDUCTOR BY A SEPARATE LINE.

   H. THE DIAGRAM SHALL IDENTIFY EACH CIRCUIT COMPONENT AN NUMBERING AND COLOR OF EACH TERMINAL CONDUCTOR AND TERMINAL.

   I. ALL WIRING SHALL BE NEATLY TRAINED AND LACED.

   J. MINIMUM WIRE SIZE SHALL BE NO. 12 AWG.

24. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH METER SOCKET, SERVICE DISCONNECT, SAFETY SWITCH, CUTOUT, PANELBOARD, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "ARC FLASH HAZARD WARNING".

FOR BID

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ELECTRICAL NOTES
SHEET 1

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AIRFIELD LIGHTING NOTES

1. UNLESS OTHERWISE NOTED, ALL UNDERGROUND AIRFIELD LIGHTING SERIES CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE FAA APPROVED 5000 VOLT L-824 TYPE. ALL UNDERGROUND FIELD POWER LOW VOLTAGE (600 VOLT & BELOW) CIRCUIT CONDUCTORS WHETHER DEB OR IN DUCT/CONDUIT SHALL BE UL LISTED 600 VOLT, TYPE XLP-USE-2 COPPER CONDUCTORS. CONDUCTOR SIZES SHALL BE AS SPECIFIED, HEREIN.
2. NO COMPONENTS OF PRIMARY CIRCUIT SUCH AS CABLE, CONNECTORS AND TRANSFORMERS SHALL BE BROUGHT ABOVE GROUND AT EDGE LIGHTS, SIGNS, REIL, PAPI, ETC.
3. THERE SHALL 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 SHALL BE ENCLOSED IN RIGID CONDUIT OR IN FLEXIBLE, WATERTIGHT CONDUIT WITH BREAKABLE COUPLING(S) AT THE GRADE OR THE HOUSING COVER, AS SHOWN IN APPLICABLE DETAILS.
4. THE JOINTS OF THE L-823 PRIMARY CONNECTORS SHALL BE 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 ON EACH SIDE OF THE JOINT, AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.
5. THE CABLE ENTRANCE INTO THE FIELD-ATTACHED L-823 CONNECTORS SHALL BE ENCLOSED BY A HEAT-SHRINKABLE TUBING WITH CONTINUOUS INTERNAL ADHESIVE, AS SHOWN ON AIRFIELD LIGHTING CABLE SPLICE DETAILS.
6. L-823 TYPE II, TWO-CONDUCTOR SECONDARY CONNECTORS SHALL BE CLASS 'A' (FACTORY MOLDED).
7. THERE SHALL BE NO SPLICES IN THE SECONDARY CABLE(S) WITHIN THE STEMS OF A RUNWAY/TAXIWAY EDGE/THRESHOLD LIGHTING FIXTURE AND THE WIREWAYS LEADING TO TAXIWAY SIGNS AND PAPI/REIL EQUIPMENT.
8. ELECTRICAL INSULATING GREASE SHALL BE APPLIED WITHIN THE L-823, SECONDARY, TWO CONDUCTOR CONNECTORS TO PREVENT WATER ENTRANCE. THESE CONNECTORS SHALL NOT BE TAPED.
9. DEB ISOLATION TRANSFORMERS SHALL BE BURIED AT A DEPTH OF TEN (10") INCHES ON A LINE CROSSING THE LIGHT AND PERPENDICULAR TO THE RUNWAY/TAXIWAY CENTERLINE AT A LOCATION TWELVE (12") INCHES FROM THE LIGHT OPPOSITE FROM THE RUNWAY/TAXIWAY.
10. A SLACK OF THREE (3') FEET, MINIMUM, PLUS DEPTH OF BASE CAN (IF APPLICABLE), SHALL BE PROVIDED IN THE PRIMARY CABLE AT EACH TRANSFORMER/CONNECTOR TERMINATION. AT STAKE-MOUNTED LIGHTS, THE SLACK SHALL BE LOOSELY COILED IMMEDIATELY BELOW THE ISOLATION TRANSFORMER. THERE SHALL BE NO ADDITIONAL PAYMENT FOR CABLE SLACK AND THEREFORE THE QUANTITY OF PROPOSED CABLE SLACK HAS NOT BEEN INCLUDED IN THE RESPECTIVE CABLE PAY ITEMS.
11. DIRECTION OF PRIMARY CABLES SHALL BE IDENTIFIED BY COLOR CODING AS FOLLOWS: WHEN FACING LIGHT WITH BACK TO PAVEMENT, CABLE TO THE LEFT IS CODED RED AND CABLE TO RIGHT IS CODED BLUE. THIS APPLIES TO STAKE MOUNTED LIGHTS AND BASE MOUNTED LIGHTS WHERE THE BASE HAS ONLY ONE ENTRANCE.
12. L-867 BASES FOR EDGE LIGHTS AND TAXI SIGNS SHALL BE SIZE B, 24" DEEP, CLASS IA, UNLESS OTHERWISE NOTED. LARGER SIZES SHALL BE PROVIDED WHERE DETAILED HEREIN.
13. BASE MOUNTED BREAKABLE COUPLINGS SHALL NOT HAVE WEEP HOLES TO THE OUTSIDE. PLUGGED UP HOLES SHALL NOT BE ACCEPTABLE. IT SHALL BE A 1/4" DIAMETER, MINIMUM, OR EQUIVALENT OPENING FOR DRAINAGE FROM THE SPACE AROUND THE SECONDARY CONNECTOR INTO THE L-867 BASE.
14. THE ELEVATION OF THE BREAKABLE COUPLING GROOVE SHALL NOT EXCEED 1-1/2" ABOVE THE EDGE OF THE COVER IN CASE OF BASE MOUNTED COUPLINGS, OR THE TOP OF THE STAKE IN CASE OF STAKE MOUNTED COUPLINGS.
15. WHERE THE BREAKABLE COUPLING IS NOT AN INTEGRAL PART OF THE LIGHT FIXTURE STEM OR MOUNTING LEG, A BEAD OF SILICON SEAL SHALL BE APPLIED COMPLETELY AROUND LIGHT STEM OR WIREWAY AT BREAKABLE COUPLING TO PROVIDE A WATERTIGHT SEAL.
16. TOPS OF THE STAKES SUPPORTING LIGHT FIXTURES SHALL BE FLUSH WITH THE SURROUNDING GRADE.
17. PLASTIC LIGHTING FIXTURE COMPONENTS, SUCH AS LAMP HEADS, STEMS, BREAKABLE COUPLINGS, BASE COVERS, BRACKETS, STAKES, SHALL NOT BE ACCEPTABLE.
18. THE TOLERANCE FOR THE HEIGHT OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE: ONE (1) INCH. IN CASE OF STAKE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE HEIGHT SHALL BE MEASURED BETWEEN THE TOP OF THE STAKE AND THE TOP OF THE LENS. IN CASE OF BASE MOUNTED LIGHTS, THE SPECIFIED LIGHTING FIXTURE HEIGHT SHALL BE MEASURED BETWEEN THE TOP OF THE BASE FLANGE AND THE TOP OF THE LENS, THUS INCLUDING THE BASE COVER, THE FRANGIBLE COUPLING, THE STEM, THE LAMP HOUSING AND THE LENS.
19. THE TOLERANCE FOR THE LATERAL SPACING (LIGHT LANE TO RUNWAY/TAXIWAY CENTERLINE) OF RUNWAY/TAXIWAY EDGE LIGHTS SHALL BE ONE (1) INCH. THIS ALSO APPLIES AT INTERSECTIONS TO LATERAL SPACING BETWEEN LIGHTS OF A RUNWAY/TAXIWAY AND THE INTERSECTING RUNWAY/TAXIWAY.
20. ENTRANCES INTO L-867 BASES SHALL HAVE CONDUIT COUPLINGS OR REDUCERS TO INTERFACE UNIT DUCT/CONDUIT TO L-867 BASE HUBS, OR SHALL BE SEALED WITH HEAT SHRINK.
21. GALVANIZED/PAINTED EQUIPMENT/COMPONENT SURFACES SHALL NOT BE DAMAGED BY DRILLING, FILING, ETC. DRAIN HOLES IN METAL TRANSFORMER HOUSINGS SHALL BE MADE BEFORE GALVANIZING.
22. EDGE LIGHT NUMBERING TAGS SHALL BE FACING THE PAVEMENT.
23. CABLE/SPLICE/DUCT MARKERS SHALL BE PRECAST CONCRETE OF THE SIZE SHOWN. LETTERS/NUMBERS/ARROWS FOR THE LEGEND TO BE IMPRESSED INTO THE TOPS OF THE MARKERS SHALL BE PRE-ASSEMBLED AND SECURED IN THE MOLD BEFORE THE CONCRETE IS POURED. LEGEND INSCRIBED BY HAND IN WET CONCRETE SHALL NOT BE ACCEPTABLE.
24. ALL UNDERGROUND CABLE RUNS SHALL BE IDENTIFIED BY CABLE MARKERS AT 200 FEET MAXIMUM SPACING, WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS SHALL BE INSTALLED IMMEDIATELY ABOVE THE CABLES.
25. THERE SHALL BE NO SPLICES BETWEEN THE ISOLATION TRANSFORMERS. L-823 CONNECTORS ARE ALLOWED AT TRANSFORMER CONNECTIONS ONLY, UNLESS OTHERWISE SHOWN.
26. APPLY AN OXIDE INHIBITING, ANTI-SEIZING COMPOUND TO ALL SCREWS, NUTS AND BREAKAGE COUPLING THREADS.
27. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS SHALL BE IDENTIFIED BY DUCT MARKERS.
28. WHERE A PARALLEL, CONSTANT VOLTAGE SYSTEM CIRCUIT TAP CONNECTION IS PROVIDED, THE "T" SPLICES OR WYE SPLICES, SHALL BE OF THE CAST TYPE.
29. CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, MARKINGS, ETC. SHALL BE 3500 PSI (MINIMUM) AT 14 DAYS, IN ACCORDANCE WITH ITEM 610 STRUCTURAL PORTLAND CEMENT CONCRETE.
30. ALL POWER AND CONTROL CABLES IN MAN/HAND HOLES SHALL BE TAGGED. USE EMBOSSED COPPER STRIPS TO BE ATTACHED AT BOTH ENDS TO THE CABLE BY THE USE OF PLASTIC STRAPS. MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MAN/HAND HOLE-ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT.
31. THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION, PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. LOCATION OF FAA POWER, CONTROL AND COMMUNICATION CABLES SHALL BE COORDINATED WITH AND/OR LOCATED BY THE FAA. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVE GROUND UTILITIES.
32. WHEN PREPARING CABLE FOR SPLICES, THE CONTRACTOR SHALL USE A CABLE STRIPPER/PENCILLER WHENEVER CABLE CONNECTIONS ARE MADE.

GROUNDING NOTES FOR AIRFIELD LIGHTING

1. GROUNDING FOR RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS SHALL BE AS DETAILED ON THE PLANS AND AS SPECIFIED HEREIN. A GROUND ROD MUST BE INSTALLED AT EACH LIGHT FIXTURE, TAXI GUIDANCE SIGN AND L-867/L-868 BASE. THE PURPOSE OF THE LIGHT BASE GROUND IS TO PROVIDE A DEGREE OF PROTECTION FOR MAINTENANCE PERSONNEL FROM POSSIBLE CONTACT WITH AN ENERGIZED LIGHT BASE OR MOUNTING STAKE THAT MAY RESULT FROM A SHORTED POWER CABLE OR ISOLATION TRANSFORMER. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED TAXI GUIDANCE SIGNS. A LIGHT BASE GROUND SHALL ALSO BE INSTALLED AT EACH STAKE MOUNTED LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AND CONNECTED TO THE METAL FRAME OF EACH TAXI GUIDANCE SIGN AS DETAILED ON THE PLANS AND IN ACCORDANCE WITH THE RESPECTIVE TAXI GUIDANCE SIGN MANUFACTURER RECOMMENDATIONS. THE LIGHT BASE GROUND SHALL BE A #6 AWG BARE COPPER CONDUCTOR BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 3/4-INCH DIAMETER BY 10-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD. CONNECTIONS TO GROUND LUGS ON THE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE SHALL BE WITH A UL LISTED GROUNDING CONNECTOR. CONNECTIONS TO LIGHT BASES MAY ALSO BE MADE WITH A UL 467 LISTED PIPE CLAMP CONNECTED TO THE GRSC NIPPLE EXTENDING FROM A THREADED LIGHT BASE HUB. CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, INC., ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS. TOP OF GROUND RODS SHALL BE BURIED 12 INCHES MINIMUM BELOW GRADE, UNLESS SPECIFIED OTHERWISE HEREIN, FOR RESPECTIVE APPLICATIONS.
2. PER THE REQUIREMENTS OF FAA AC 150/5340-30J DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6 "LIGHT FIXTURE BONDING" IT NOTES THE FOLLOWING: BOND THE LIGHT FIXTURE TO THE LIGHT BASE INTERNAL GROUND LUG VIA A NO. 6 AWG STRANDED COPPER WIRE RATED 600 VOLTS WITH GREEN XHHW, THWN-2, OR OTHER SUITABLE INSULATION, BARE STRANDED CONDUCTOR OR A BRAIDED GROUND STRAP OF EQUIVALENT CURRENT RATING. THE BONDING CONDUCTOR LENGTH MUST BE SUFFICIENT TO ALLOW THE REMOVAL OF THE LIGHT FIXTURE FROM THE LIGHT BASE FOR ROUTINE MAINTENANCE. SEE THE LIGHT FIXTURE MANUFACTURER'S INSTRUCTIONS FOR PROPER METHODS OF ATTACHING A BONDING WIRE TO THE FIXTURE.
3. STEEL USED TO MANUFACTURE GROUND RODS SHALL BE 100 PERCENT DOMESTIC STEEL.
4. CLEAN ALL METAL SURFACES BEFORE MAKING GROUND CONNECTIONS. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL PER 2020 NATIONAL ELECTRICAL CODE ARTICLE 250-12.
5. THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.
6. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, DISTANCE REMAINING SIGN, JUNCTION STRUCTURE/L-867 BASE/L-868 BASE, OR OTHER AIRFIELD LIGHT FIXTURE, THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE AND EACH TAXI GUIDANCE SIGN INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, LONGER GROUND RODS OR ADDITIONAL GROUND RODS MIGHT BE REQUIRED. IF GROUND RESISTANCE EXCEEDS 25 OHMS CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. ALSO REFER TO EOR-47643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS WHERE APPLICABLE. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND THE PROJECT ENGINEER.

FOR BID

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ILLINOIS LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: E-003-NOTES.DWG
DESIGN BY: KNL 3/25/2021
DRAWN BY: CWS 3/26/2021
REVIEWED BY: BSS 03/03/2022

SHEET TITLE

ELECTRICAL NOTES
SHEET 2

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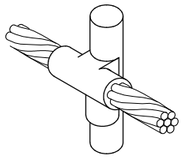
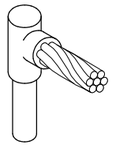


CABLE TO GROUND ROD



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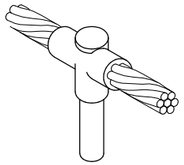

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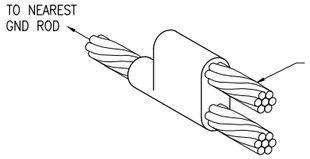
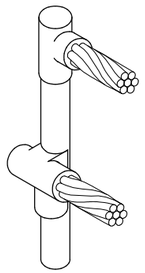
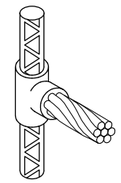


CABLE TO CABLE
HORIZONTAL PARALLEL TAP



CABLES TO GROUND ROD



CABLE TO REBAR

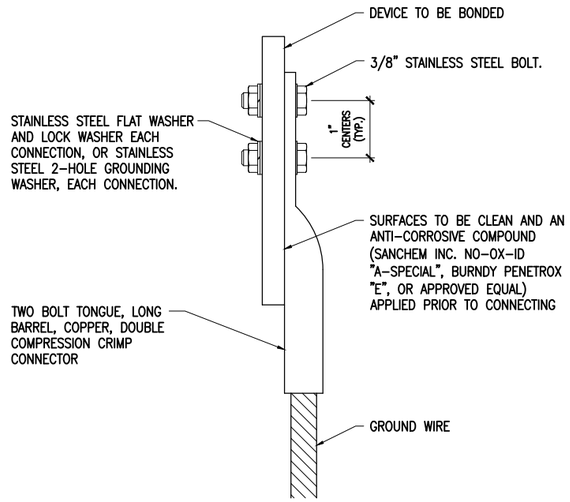
DETAIL NOTES

1. ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY PENTAIR ERICO PRODUCTS, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, OR THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES OR APPROVED EQUAL. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.

2. FOR APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.

3. INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 40 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT.

EXOTHERMIC WELD DETAILS



2 HOLE LONG BARREL COMPRESSION LUG TABLE (OR APPROVED EQUAL)			
WIRE SIZE	BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PENN-UNION CAT. NO.
#8 AWG STRANDED	YA8C-2TC38	256-30695-1157	BBLU-8D-2TC38
#6 AWG SOLID	YA8C-2TC38 OR YGA6C-2TC38E2G1		
#6 AWG STRANDED	YA6C-2TC38	256-30695-1158	BBLU-6D-2TC38
#4 AWG STRANDED	YA4C-2TC38	256-30695-1159	BBLU-4D-2TC38
#2 AWG STRANDED	YA2C-2TC38	256-30695-1160	BBLU-2D-2TC38
#2 AWG SOLID	YA3C-2TC38	256-30695-1160	BBLU-3D-2TC38
#1/0 AWG STRANDED	YA25-2TC38	256-30695-1162	BBLU-1/0D-2TC38
#2/0 AWG STRANDED	YA26-2TC38	256-30695-1116	BBLU-2/0D-2TC38
#3/0 AWG STRANDED	YA27-2TC38	54816BE	BBLU-3/0D-2TC38
#4/0 AWG STRANDED	YA28-2TC38	256-30695-1117	BBLU-4/0D-2TC38

NOTES

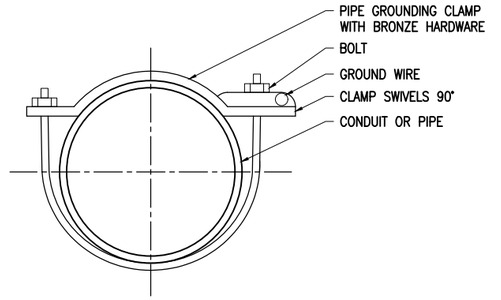
1. ALL CONNECTIONS TO GROUND BUS BAR SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE BUS BAR.

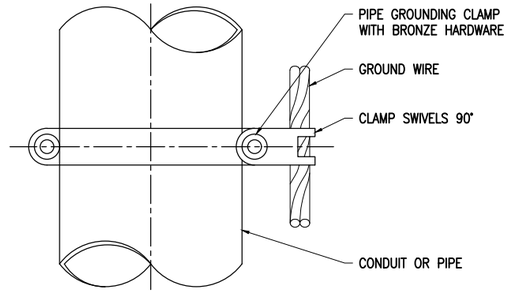
2. GROUND WIRE CONNECTIONS TO EQUIPMENT SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE.

3. GROUNDING ELECTRODE CONDUCTORS, BONDING JUMPERS, & INDIVIDUAL GROUND WIRES SHALL NOT BE INSTALLED IN METAL CONDUIT. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENCIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC APTH FROM ENCIRCLING THE CONDUIT.

4. ALL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL





PIPE GROUNDING CLAMP TABLE (OR APPROVED EQUAL)		
BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PIPE SIZE
GAR3902-BU	3902BU	1/2" - 1"
GAR3903-BU	3903BU	1 1/4" - 2"
GAR3904-BU	3904BU	2 1/2" - 3 1/2"
GAR3905-BU	3905BU	4" - 5"
GAR3906-BU	3906BU	6"

NOTES

1. PIPE GROUNDING CLAMPS SHALL HAVE BRONZE HARDWARE, BE CORROSION RESISTANT, SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE, & UL 467 LISTED.

PIPE/CONDUIT GROUNDING CLAMP DETAIL

FOR BID

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6100 Archview Drive
Cahokia, Illinois 62206

LICENSED PROFESSIONAL ENGINEER
KEVIN N. LIGHTFOOT
062-047643
STATE OF ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: E-507-DETL.DWG
DESIGN BY: KNL 3/25/2021
DRAWN BY: CWS 3/26/2021
REVIEWED BY: BSS 03/03/2022

SHEET TITLE

GROUNDING DETAILS

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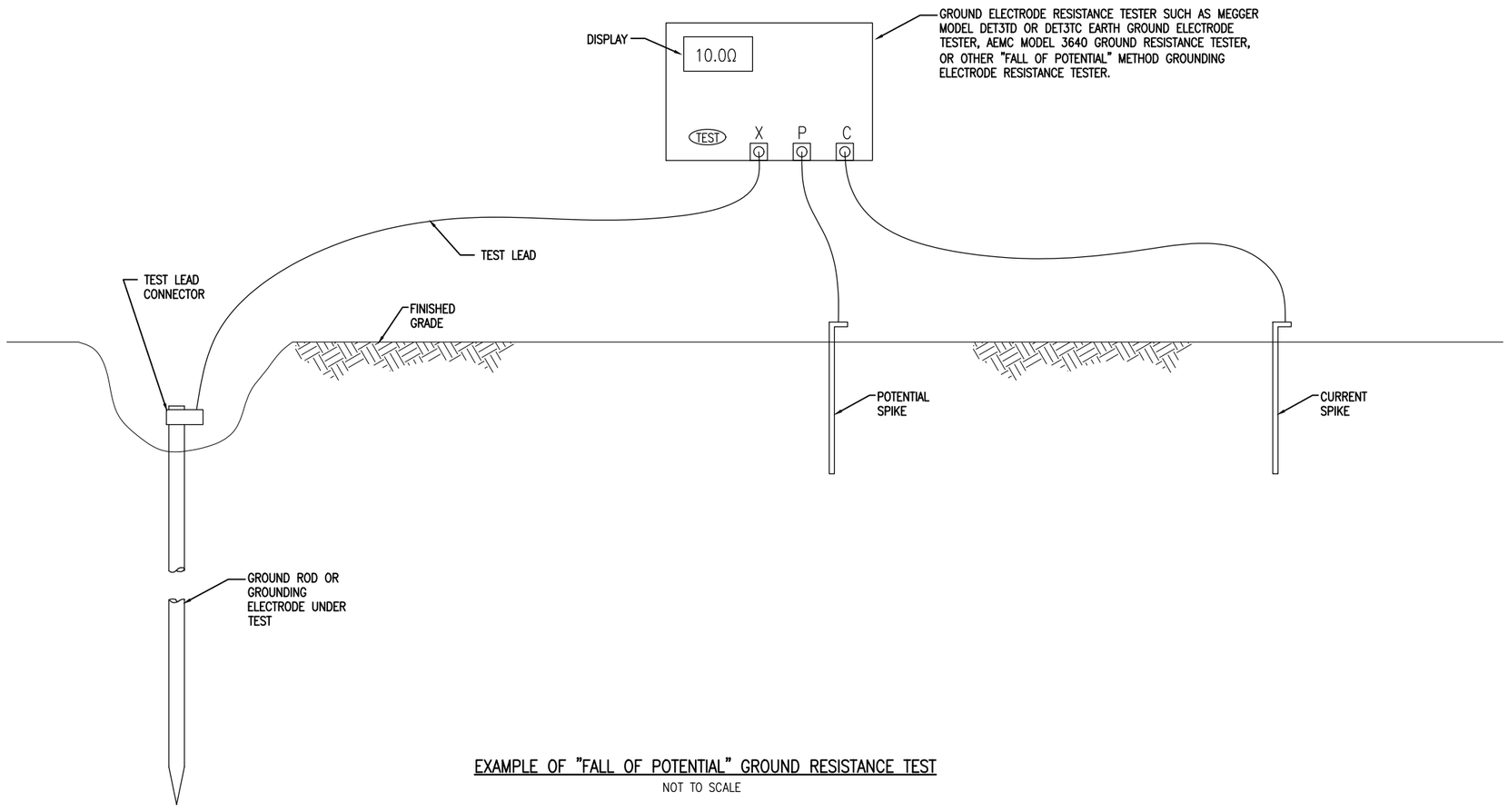

EXAMPLE OF "FALL OF POTENTIAL" GROUND RESISTANCE TEST

NOT TO SCALE

NOTES

1. CONTRACTOR SHALL TEST AND RECORD THE RESISTANCE FOR EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUNDING ELECTRODE SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN, AND THE PROJECT ENGINEER.

2. FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, SPLICE CAN AND NAVAID THE CONTRACTOR SHALL TEST THE MADE ELECTRODE GROUND SYSTEM WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND SYSTEMS. TEST RESULTS SHALL BE RECORDED FOR EACH AIRFIELD LIGHT FIXTURE, TAXI GUIDANCE SIGN, AND NAVAIDS INSTALLATION. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. ALSO REFER TO EOR-47643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS WHERE APPLICABLE. COPIES OF THE GROUND SYSTEM TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER / RESIDENT TECHNICIAN, AND THE PROJECT ENGINEER.

3. GROUND RESISTANCE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH THE RESPECTIVE GROUND ELECTRODE RESISTANCE TESTING EQUIPMENT MANUFACTURER'S INSTRUCTIONS.

4. RECORD SITE CONDITIONS DURING TESTS.

5. "FALL OF POTENTIAL" TYPE GROUND ELECTRODE RESISTANCE TESTER IS RECOMMENDED FOR TESTING INDIVIDUAL STAND ALONE GROUND RODS.

FOR BID

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KEVIN N. LIGHTFOOT
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STATE OF ILLINOIS

DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

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PROJECT NO: 20A000105D
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DESIGN BY: KNL 3/25/2021
DRAWN BY: CWS 3/26/2021
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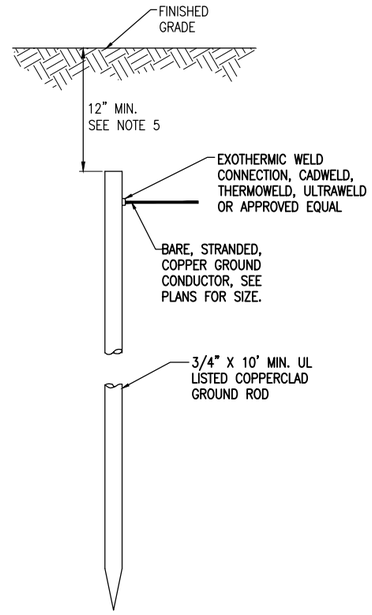
SHEET TITLE

GROUND RESISTANCE TESTING DETAILS

GROUNDING NOTES

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE LATEST NATIONAL ELECTRICAL CODE (NFPA 70) IN FORCE AND FAA-STD-019e (LIGHTNING AND SURGE PROTECTION, GROUNDING, BONDING, AND SHIELDING REQUIREMENTS FOR FACILITIES AND ELECTRONIC EQUIPMENT). THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDENT ON CAREFUL, PROPER INSTALLATION AND CHOICE OF MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:

1. FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING (UNLESS DETAILED OTHERWISE HEREIN). GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS AND THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, INC., ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
2. CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTION. ALSO REFER TO EOR-47643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS WHERE APPLICABLE. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND THE PROJECT ENGINEER.
3. ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
4. ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENETROX E, OR APPROVED EQUAL.
5. METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2020 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
6. METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT
7. ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, DOSSERT CORPORATION, ILSCO CORPORATION, PENN-UNION CORPORATION, THOMAS & BETTS, OR APPROVED EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
8. ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
9. PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
10. EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2020 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.
11. ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2020 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2020 NEC 250-102.
12. IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
13. PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
14. EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
15. ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, DOSSERT CORPORATION, ILSCO CORPORATION, PENN-UNION CORPORATION, THOMAS & BETTS, OR APPROVED EQUAL.
16. BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
17. BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
18. INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENCIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONDUCTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLED DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
19. IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2020 NEC 250-102. NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS.
20. NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT UNTIL ALL POWER IS REMOVED FROM EQUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS, TO WARN PERSONNEL OF THE POSSIBLE HAZARDS.
21. GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA
22. WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTIONS.
23. GROUND RODS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA FROM 100 PERCENT DOMESTIC STEEL TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS AND THE STEEL PRODUCTS PROCUREMENT ACT.



10 FT. GROUND ROD

NOTES

1. TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
2. THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
3. COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.
4. GROUND RODS SHALL BE SPACED AS DETAILED ON THE PLANS AND SHALL NOT BE SPACED LESS THAN ONE ROD LENGTH APART.
5. TOP OF GROUND RODS FOR AIRFIELD LIGHT FIXTURES AND TAXI GUIDANCE SIGNS, SHALL BE 12" MINIMUM BELOW GRADE UNLESS DETAILED OTHERWISE HEREIN.
6. GROUND RODS FOR INDIVIDUAL SPLICE CANS SHALL BE 3/4-IN DIAMETER BY 10 FOOT LONG. WHERE GROUND RESISTANCE EXCEEDS 25 OHMS FURNISH AND INSTALL A SECOND GROUND ROD SPACED MINIMUM OF 10 FEET APART (ONE ROD LENGTH APART), AND CONNECT TO FIRST GND ROD.

GROUND RODS

NOT TO SCALE

FOR BID

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REVIEWED BY: BSS 03/03/2022

SHEET TITLE

GROUNDING NOTES

ELECTRICAL LEGEND – ONE–LINE DIAGRAM	
	CABLE TERMINATOR/LUG
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND – GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
M	MOTOR
#	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE
XXX	EQUIPMENT, XXX = DEVICE DESCRIPTION
GND	GROUND BUS OR TERMINAL
S/N	NEUTRAL BUS
	PANELBOARD WITH MAIN LUGS
	PANELBOARD WITH MAIN BREAKER
	FUSE PANEL WITH MAIN FUSE PULLOUT
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE
	CONTROL STATION
N EM L	TRANSFER SWITCH
G	ENGINE GENERATOR SET

ELECTRICAL LEGEND – SCHEMATIC	
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
S#	STARTER COIL, * = STARTER NUMBER
OL	OVERLOAD RELAY CONTACT
CR#	CONTROL RELAY, * = CONTROL RELAY NUMBER
R#	RELAY, * = RELAY NUMBER
	TOGGLE SWITCH / 2 POSITION SWITCH
OFF AUTO OX	2–POSITION SELECTOR SWITCH
OFF HAND AUTO XOO OOX	3–POSITION SELECTOR SWITCH (H–O–A SHOWN)
	2 POLE DISCONNECT SWITCH
	3 POLE DISCONNECT SWITCH
	PHOTOCELL
	TERMINAL BLOCK, * = TERMINAL NUMBER
	DEVICE TERMINAL, * = DEVICE TERMINAL NUMBER
	INTERNAL PANEL WIRING
	FIELD WIRING
	FUSE
GND	GROUND BUS OR TERMINAL
S/N	NEUTRAL BUS
	GROUND, GROUND ROD, GROUND BUS
	INDUSTRIAL CONTROL RELAY OR LIGHTING CONTACTOR
P	S1 CUTOUT HANDLE REMOVED
I	S1 CUTOUT HANDLE INSERTED
	N.O. THERMAL SWITCH
	N.C. THERMAL SWITCH
	L–830 SERIES ISOLATION TRANSFORMER

ELECTRICAL ABBREVIATIONS	
A.F.F.	ABOVE FINISHED FLOOR
A, AMP	AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CR	CONTROL RELAY
CU	COPPER
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EOR	ENGINEER OF RECORD
EP	EXPLOSION PROOF
ES	EMERGENCY STOP
ETL	INTERTEK – ELECTRICAL TESTING LABS
ETM	ELAPSE TIME METER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRSC	GALVANIZED RIGID STEEL CONDUIT
HOA	HAND OFF AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
J	JUNCTION BOX
KVA	KILOVOLT AMPERE(S)
KNL	KEVIN NEIL LIGHTFOOT
KW	KILOWATTS
LC	LIGHTING CONTACTOR
LTFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT (UL LISTED)
LTG	LIGHTING
LP	LIGHTING PANEL
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MIL
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE (NFPA 70)
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OHE	OVERHEAD ELECTRIC
OL	OVERLOAD

ELECTRICAL ABBREVIATIONS (CONTINUED)	
PB	PULL BOX
PC	PHOTO CELL
PDB	POWER DISTRIBUTION BLOCK
PNL	PANEL
RCPT	RECEPTACLE
R	RELAY
S	STARTER
SPD	SURGE PROTECTION DEVICE
SPST	SINGLE POLE SINGLE THROW
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UL	UNDERWRITER'S LABORATORIES
V	VOLTS
W/	WITH
W/O	WITHOUT
WP	WEATHER PROOF
XFER	TRANSFER
XFMR	TRANSFORMER

AIRPORT EQUIPMENT/FACILITY ABBREVIATIONS	
ASOS	AUTOMATED SURFACE OBSERVING SYSTEM
ATCT	AIR TRAFFIC CONTROL TOWER
AWOS	AUTOMATED WEATHER OBSERVING SYSTEM
CCR	CONSTANT CURRENT REGULATOR
DME	DISTANCE MEASURING EQUIPMENT
FAR	FEDERAL AVIATION REGULATION
GS	GLIDE SLOPE FACILITY
HIRL	HIGH INTENSITY RUNWAY LIGHT
ILS	INSTRUMENT LANDING SYSTEM
IM	INNER MARKER
LIR	LOW IMPACT–RESISTANT
LOC	LOCALIZER FACILITY
MALS	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM
MALSR	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATING LIGHTS
MIRL	MEDIUM INTENSITY RUNWAY LIGHT
MITL	MEDIUM INTENSITY TAXIWAY LIGHT
NDB	NON–DIRECTIONAL BEACON
PAPI	PRECISION APPROACH PATH INDICATOR
PLASI	PULSE LIGHT APPROACH SLOPE INDICATOR
RAIL	RUNWAY ALIGNMENT INDICATING LIGHTS
REIL	RUNWAY END IDENTIFIER LIGHT
RVR	RUNWAY VISUAL RANGE
VADI	VISUAL APPROACH DESCENT INDICATOR
VASI	VISUAL APPROACH SLOPE INDICATOR
VOR	VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE FACILITY
WC	WIND CONE

NOTES:

1. ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 – NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
2. KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING/CONSTRUCTION FOR USE AS A REFERENCE.
3. VAULT WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER AND MAINTENANCE SUPERVISOR. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
4. IN THE EVENT A CONFLICT IS DETERMINED WITH RESPECT TO MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER FOR FURTHER DIRECTIONS.
5. COLOR CODE PHASE AND NEUTRAL CONDUCTOR INSULATION FOR NO. 6 AWG OR SMALLER. PROVIDE COLORED INSULATION OR COLORED MARKING TAPE FOR PHASE AND NEUTRAL CONDUCTORS FOR NO. 4 AWG AND LARGER. INSULATED GROUND CONDUCTORS SHALL HAVE GREEN COLORED INSULATION FOR ALL CONDUCTOR AWG AND/OR KCMIL TO COMPLY WITH NEC 250.119. NEUTRAL CONDUCTORS SHALL HAVE WHITE COLORED INSULATION FOR NO. 6 AWG AND SMALLER TO MEET THE REQUIREMENTS OF NEC 200.6. STANDARD COLORS FOR POWER WIRING AND BRANCH CIRCUITS SHALL BE AS FOLLOWS:

120/240 VAC, 1 PHASE, 3 WIRE	
PHASE A	BLACK
PHASE B	RED
NEUTRAL	WHITE
GROUND	GREEN

6. SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.
7. LTFMC DENOTES LIQUID TIGHT FLEXIBLE METAL CONDUIT UL LISTED, SUNLIGHT RESISTANT, & SUITABLE FOR GROUNDING. LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ASSOCIATED FITTINGS SHALL BE U.L. LISTED TO MEET THE REQUIREMENTS OF NEC 350.6. LIQUID TIGHT FLEXIBLE METAL CONDUIT THAT IS USED FOR FLEXIBILITY (INCLUDING CONNECTIONS TO CCR'S & TRANSFORMERS) SHALL REQUIRE AN EXTERNAL BONDING JUMPER OR INTERNAL EQUIPMENT GROUNDING CONDUCTOR PER NEC 350.60. EXTERNAL BONDING JUMPERS USED WITH CCR INSTALLATIONS SHALL BE #6 AWG COPPER (MINIMUM). DO NOT INSTALL LTFMC THAT IS NOT UL LISTED. CONFIRM LTFMC BEARS THE UL LABEL PRIOR TO INSTALLATION.
8. ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES UL LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.
9. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, ADJUSTING, CONNECTING, OR WORKING ON THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT, OR OTHER DEVICE.
10. HIGH VOLTAGE CIRCUITS (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW VOLTAGE CIRCUITS (RATED 600 VOLTS AND BELOW) SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, JUNCTION STRUCTURE OR HANDHOLE.

FOR BID

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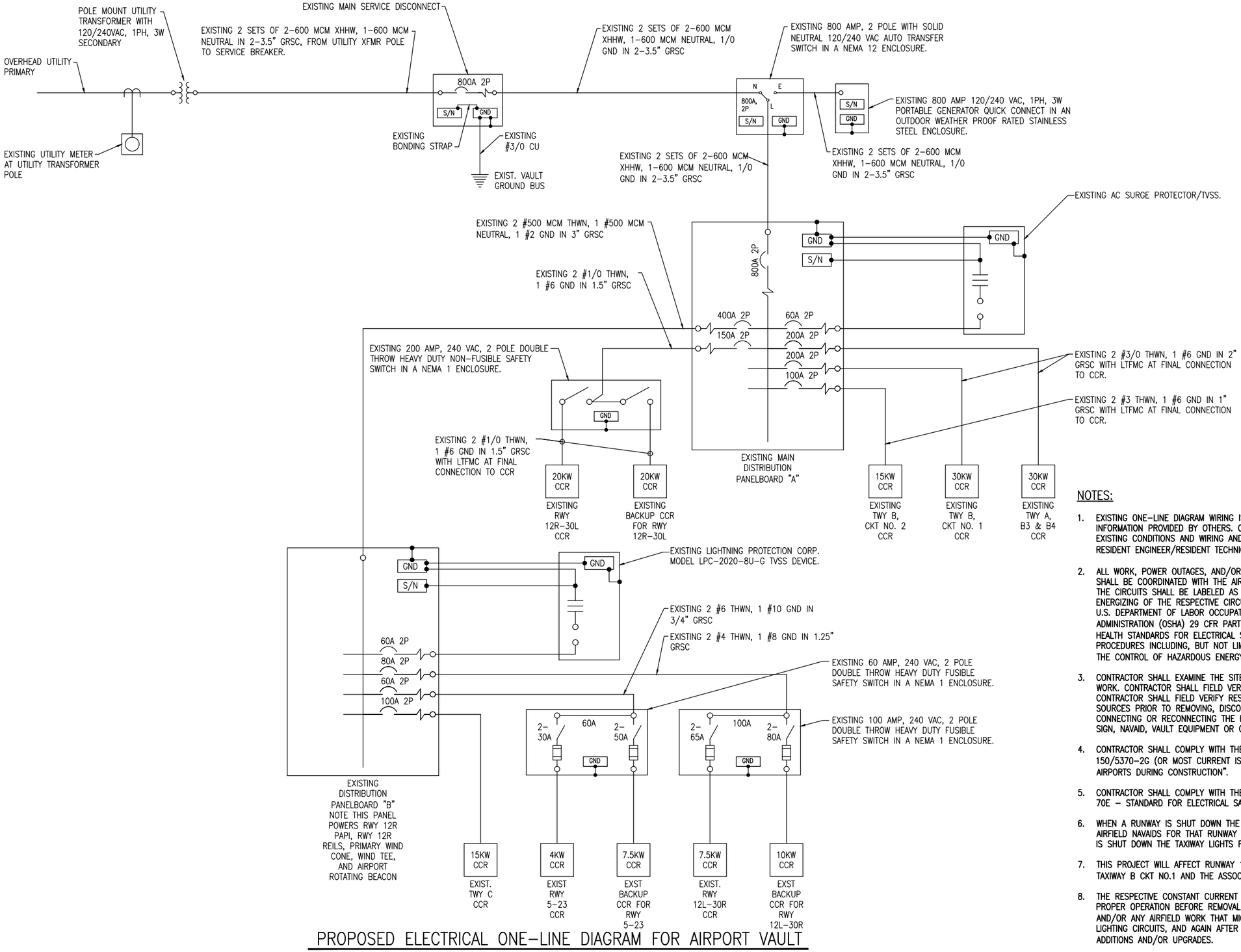
SHEET TITLE

ELECTRICAL LEGEND AND ABBREVIATIONS



PROPOSED ELECTRICAL ONE-LINE DIAGRAM FOR AIRPORT VAULT

NOTES:

1. EXISTING ONE-LINE DIAGRAM WIRING IS BASED ON FIELD DATA AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND WIRING AND REPORT ANY VARIATIONS TO THE RESIDENT ENGINEER/RESIDENT TECHNICIAN.
2. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).
3. CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE THE EXTENT OF THE WORK. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, CONNECTING OR RECONNECTING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT OR OTHER DEVICE.
4. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF FAA AC NO. 150/5370-2G (OR MOST CURRENT ISSUE) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
5. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E – STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
6. WHEN A RUNWAY IS SHUT DOWN THE RUNWAY LIGHTING AND ASSOCIATED AIRFIELD NAVAIDS FOR THAT RUNWAY SHALL BE SHUT OFF. WHEN A TAXIWAY IS SHUT DOWN THE TAXIWAY LIGHTS FOR THAT TAXIWAY SHALL BE SHUT OFF.
7. THIS PROJECT WILL AFFECT RUNWAY 12L-30R LIGHTING CIRCUIT AND TAXIWAY B CKT NO.1 AND THE ASSOCIATED CCR'S.
8. THE RESPECTIVE CONSTANT CURRENT REGULATORS SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS, AND/OR ANY AIRFIELD WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS, AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS AND/OR UPGRADES.

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DATE SIGNED: 3/4/22
LICENSE EXPIRES: 11/30/23

CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

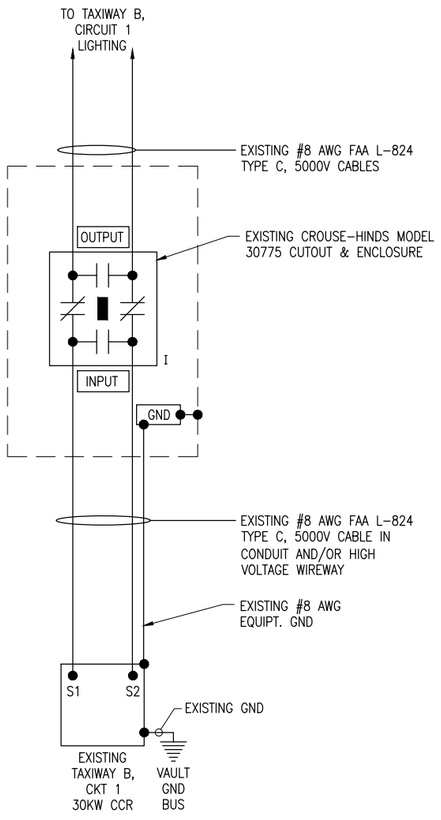
Contract No. SD061

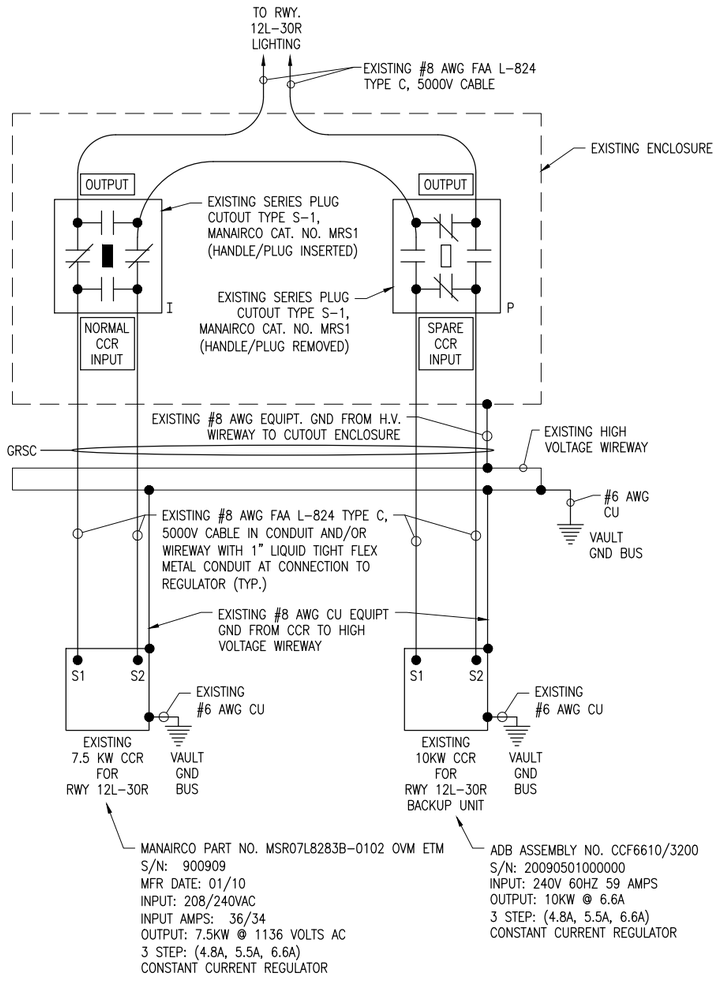
NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
PROJECT NO: 20A000105D
CAD FILE: E-601.DWG
DESIGN BY: KNL 3/25/2021
DRAWN BY: CWS 3/26/2021
REVIEWED BY: BSS 03/03/2022

SHEET TITLE

EXISTING ELECTRICAL ONE-LINE DIAGRAM FOR AIRPORT VAULT





EXISTING HIGH VOLTAGE WIRING SCHEMATIC FOR RUNWAY 12L-30R & TAXIWAY B CIRCUIT NO. 1

LEGEND

"I" DENOTES PLUG CUTOUT WITH PLUG INSERTED

"P" DENOTES PLUG CUTOUT WITH PLUG PULLED

"CCR" DENOTES CONSTANT CURRENT REGULATOR

NOTES:

1. KEEP ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/TECHNICIAN. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT).

2. EXAMINE THE SITE TO CONFIRM AND FIELD VERIFY EXISTING SITE CONDITIONS.

3. VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES FOR RESPECTIVE SYSTEMS PRIOR TO REMOVING, DISCONNECTING, WORKING ON, RELOCATING, RECONNECTING, AND/OR INSTALLING THE RESPECTIVE AIRFIELD LIGHTING, TAXI SIGN, NAVAID, VAULT EQUIPMENT, OR OTHER DEVICES. THE CONTRACTOR WILL NEED TO EXERCISE CAUTION WHEN WORKING IN THE VAULT AND ON THE AIRFIELD. CONTRACTOR SHALL REPORT ANY VARIATIONS, DEFICIENCIES, AND/OR APPARENT SAFETY CONCERNS TO THE PROJECT ENGINEER AND THE RESIDENT PROJECT REPRESENTATIVE. CONTRACTOR SHALL FOLLOW LOCKOUT/TAGOUT PROCEDURES FOR SAFETY PERSONNEL.

4. IDENTIFY EACH RESPECTIVE CIRCUIT PRIOR TO PERFORMING WORK ON THAT CIRCUIT.

5. NOTE THE EXISTING AIRPORT ELECTRICAL VAULT HAS APPARENT NATIONAL ELECTRICAL CODE WORKING CLEARANCE VIOLATIONS WHICH MIGHT CAUSE UNSAFE WORKING CONDITIONS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND CIRCUITS. CONTRACTOR WILL NEED TO EXERCISE CAUTION WHEN WORKING IN THE VAULT AND ON THE AIRFIELD.

6. NEVER REMOVE OR INSERT A CUTOUT WITH THE CIRCUIT ENERGIZED. SHUTOFF CIRCUITS PRIOR TO PULLING OR INSERTING A SERIES PLUG CUTOUT.

7. THE RESPECTIVE PERSONNEL PERFORMING AIRFIELD LIGHTING WORK, VAULT WORK, AND/OR TESTS SHALL BE FAMILIAR WITH, AND QUALIFIED TO WORK ON, 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.

8. EXERCISE CAUTION, PRACTICE SAFETY, AND DISCONNECT THE SERIES CIRCUITS FROM THE RESPECTIVE CONSTANT CURRENT REGULATORS, AS APPLICABLE WHEN PERFORMING WORK ON THE AIRFIELD LIGHTING OR WORK THAT MIGHT AFFECT THE AIRFIELD LIGHTING. CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS TO DISCONNECT POWER AND LOCKOUT CIRCUITS FOR PROTECTION OF PERSONNEL. EXISTING CCR'S DO NOT APPEAR TO HAVE CUTOUTS.

9. OVERSEE AND CONDUCT TESTS FOR AREAS OF WORK WHERE THE RESPECTIVE CIRCUITS MIGHT BE AFFECTED. MEGGER TEST AND RECORD EXISTING SERIES CIRCUITS (WITH A CABLE INSULATION TESTER) PRIOR TO CABLE WORK OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING SYSTEMS, AND AGAIN AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES AND/OR OTHER WORK HAS BEEN COMPLETED. PROVIDE 5KV INSULATION TESTER FOR 5,000 VOLT SERIES CIRCUIT CABLES. ALSO TEST AND RECORD SERIES CIRCUIT LOOP RESISTANCE WITH AN OHMMETER. PROVIDE COPY OF TEST RESULTS TO THE ENGINEER OF RECORD (EOR) WITHIN 5 DAYS OF CONDUCTING TESTS.

10. RESPECTIVE CCR'S SHALL BE TESTED FOR PROPER OPERATION BEFORE REMOVAL WORK, MODIFICATIONS, ADDITIONS AND/OR ANY AIRFIELD WORK THAT MIGHT POSSIBLY AFFECT LIGHTING CIRCUITS AND AGAIN AFTER THE AIRFIELD WORK AND ADDITIONS HAVE BEEN COMPLETED. CONTRACTOR SHALL TEST AND RECORD THE INPUT CURRENT AND OUTPUT CURRENT FOR EACH CONSTANT CURRENT REGULATOR IN THE AUTOMATIC AND MANUAL MODES OF OPERATION. PROVIDE A TRUE RMS AMMETER FOR CURRENT MEASUREMENTS. CONTRACTOR SHALL REPORT CONCERNS AND/OR DEFICIENCIES TO THE RESIDENT PROJECT REPRESENTATIVE AND THE ENGINEER OF RECORD (EOR). WRITTEN TEST RESULTS SHALL BE PROVIDED TO THE RESIDENT PROJECT REPRESENTATIVE AND THE ENGINEER OF RECORD (EOR).

11. FURNISH AND INSTALL UL LISTED FIRE STOP MATERIAL AT EACH SERIES PLUG CUTOUT ENCLOSURE CONDUIT ENTRY AND EXIT. THIS APPLIES TO ALL CUTOUT ENCLOSURES IN THE VAULT.

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CONSTRUCT RUNUP RAMP AND TAXIWAY ACCESS FROM THE AIRFIELD, INCLUDING JET BLAST/NOISE MITIGATION BARRIER

IDA No: CPS-4976

Contract No. SD061

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: MARCH 4, 2022
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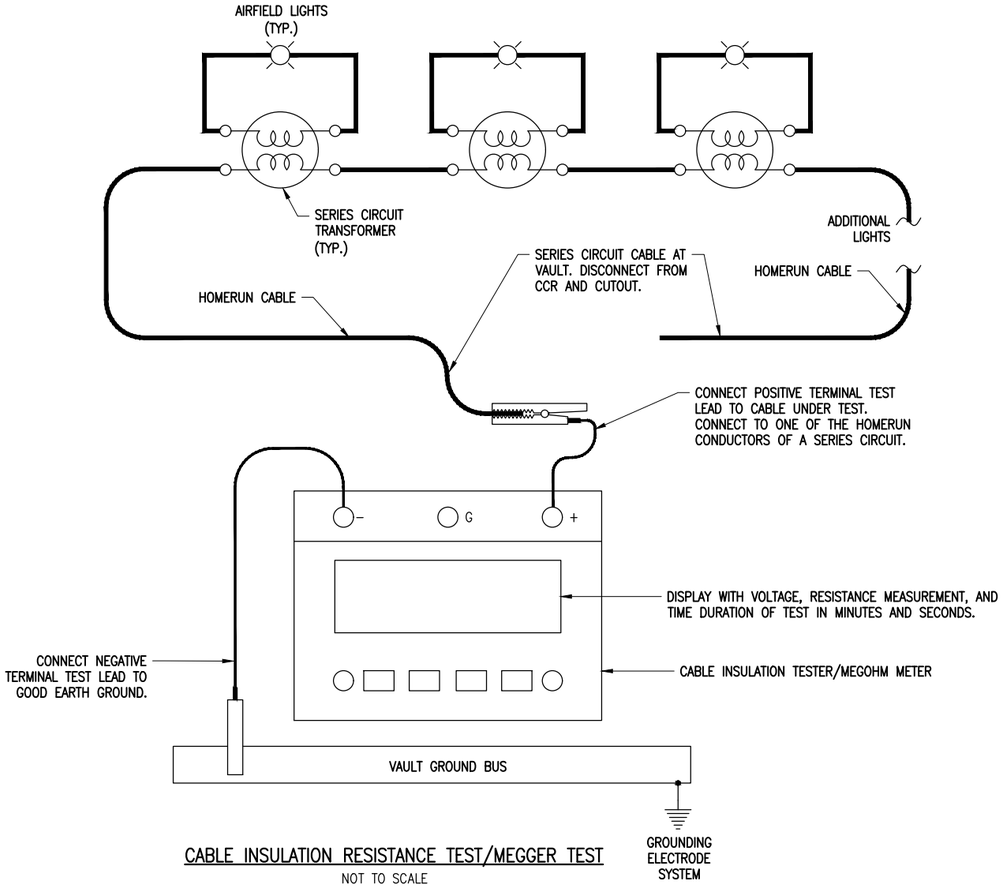
DESIGN BY: KNL 3/25/2021
DRAWN BY: CWS 3/26/2021
REVIEWED BY: BSS 03/03/2022

SHEET TITLE

EXISTING HV WIRING SCHEMATIC FOR RWY 12L-30R & TWY B CKT 1



CABLE INSULATION RESISTANCE TEST/MEGGER TEST

NOT TO SCALE

CABLE INSULATION RESISTANCE TEST (MEGGER TEST) NOTES

1. PRIOR TO BEGINNING EXCAVATIONS, AIRFIELD LIGHTING MODIFICATIONS, CABLE INSTALLATION, AND/OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS, ALL EXISTING SERIES CIRCUIT LIGHTING CABLES SHALL BE MEGGER TESTED WITH AN INSULATION RESISTANCE TESTER AND RECORDED AT THE RESPECTIVE AIRPORT ELECTRICAL VAULT.

2. AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES, AND/OR OTHER WORK AND ADDITIONS HAVE BEEN COMPLETED ALL EXISTING SERIES CIRCUIT LIGHTING CABLES SHALL BE MEGGER TESTED WITH AN INSULATION RESISTANCE TESTER AND RECORDED AT THE RESPECTIVE AIRPORT ELECTRICAL VAULT.

3. THE CONTRACTOR IS RESPONSIBLE TO EMPLOY THE SERVICES OF PERSONNEL QUALIFIED, FAMILIAR WITH, AND TRAINED TO PERFORM THE RESPECTIVE TESTS, AND QUALIFIED TO WORK ON 5000 VOLT AIRFIELD LIGHTING SERIES CIRCUITS, CONSTANT CURRENT REGULATORS, AND ASSOCIATED AIRPORT ELECTRICAL VAULT EQUIPMENT.

4. INSULATION RESISTANCE TESTING EQUIPMENT FOR USE WITH 5,000 VOLT SERIES CIRCUIT CABLES SHALL USE AN INSULATION RESISTANCE TESTER CAPABLE OF TESTING THE CABLES AT 5,000 VOLTS. OLDER SERIES CIRCUIT CABLES AND/OR CABLES IN POOR CONDITION MAY REQUIRE THE TEST VOLTAGE TO BE PERFORMED AT A VOLTAGE LOWER THAN 5,000 VOLTS (EXAMPLE 1,000 VOLTS, 500 VOLTS, OR LESS THAN 500 VOLTS). THE RESPECTIVE TEST VOLTAGE SHALL BE RECORDED FOR EACH CABLE INSULATION RESISTANCE TEST RESULT.

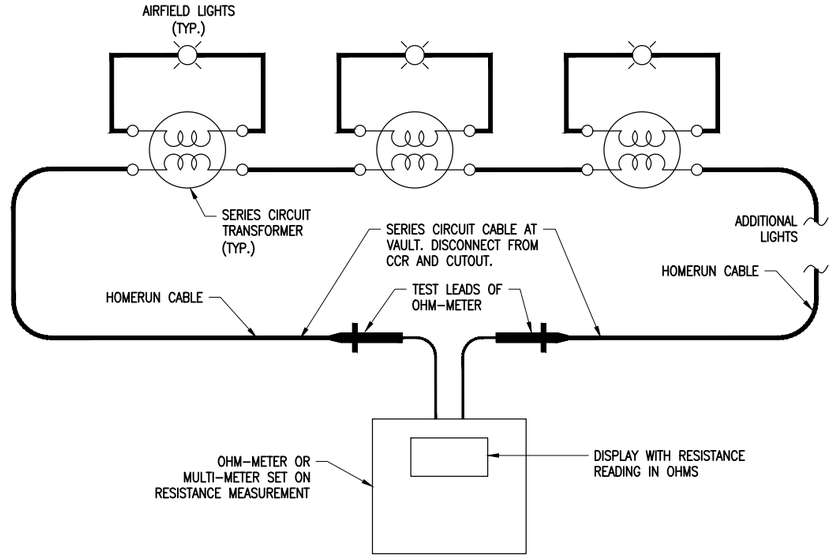
5. INSULATION RESISTANCE TESTING EQUIPMENT FOR USE WITH 600 VOLT RATED CABLES SHALL USE A 500 VOLT INSULATION RESISTANCE TESTER. THE RESPECTIVE TEST VOLTAGE SHALL BE RECORDED FOR EACH CABLE INSULATION RESISTANCE TEST RESULT.

6. IT IS RECOMMENDED TO USE THE SAME INSULATION RESISTANCE TEST EQUIPMENT THROUGHOUT THE PROJECT TO ENSURE RELIABLE COMPARATIVE READINGS AT THE BEGINNING OF THE PROJECT AND AT THE COMPLETION OF THE PROJECT.

7. DISCONNECT THE AIRFIELD LIGHTING SERIES CIRCUIT CABLES FROM THE CONSTANT CURRENT REGULATOR WHEN PERFORMING CABLE INSULATION RESISTANCE TESTS (MEGGER TESTS). TEST THE CABLES THAT GO TO THE AIRFIELD FOR THE RESPECTIVE AIRFIELD LIGHTING SERIES CIRCUIT. CONNECT THE CABLE INSULATION RESISTANCE TESTER TO ONE OF THE AIRFIELD LIGHTING SERIES CIRCUIT CABLES AND TO A GOOD GROUND IN THE AIRPORT ELECTRICAL VAULT SUCH AS THE AIRPORT VAULT GROUND BUS. CONDUCT THE CABLE INSULATION RESISTANCE TEST ON EACH RESPECTIVE CABLE FOR NOT LESS THAN 90 SECONDS. RECORD THE TEST RESULTS AT THE END OF THE TIME DURATION FOR THE TEST.

8. FAA ADVISORY CIRCULAR 150/5340-26C MAINTENANCE OF AIRPORT VISUAL AID FACILITIES PROVIDES GUIDANCE ON INSULATION RESISTANCE TESTS. ALSO REFER TO THE USER MANUAL FOR THE RESPECTIVE CABLE INSULATION RESISTANCE TESTER. REASONABLY NEW SERIES CIRCUIT CABLES AND TRANSFORMERS WITH GOOD CONNECTIONS SHOULD READ 500 MEGA-OHMS TO 1,000 MEGA-OHMS OR HIGHER. THE READINGS SHOULD DECREASE WITH AGE. THE RESISTANCE VALUE DECLINES OVER THE SERVICE LIFE OF THE CIRCUIT; A 10-20 PERCENT DECLINE PER YEAR MAY BE CONSIDERED NORMAL. A YEARLY DECLINE OF 50 PERCENT (4 PERCENT MONTHLY) OR GREATER INDICATES THE EXISTENCE OF A PROBLEM, SUCH AS A HIGH RESISTANCE GROUND, SERIOUS DETERIORATION OF THE CIRCUIT INSULATION, LIGHTNING DAMAGE, BAD CONNECTIONS, BAD SPLICES, CABLE INSULATION DAMAGE, OR OTHER FAILURE. FAA ADVISORY CIRCULAR 150/5340-26C NOTES "GENERALLY SPEAKING, ANY CIRCUIT THAT MEASURES LESS THAN 1 MEGOHM IS CERTAINLY DESTINED FOR RAPID FAILURE." AIRFIELD LIGHTING SERIES CIRCUITS WITH CABLE INSULATION READINGS OF LESS THAN 1 MEGOHM ARE NOT UNCOMMON FOR OLDER CIRCUITS THAT ARE 20 YEARS OR MORE OF AGE.

9. BASED ON INFORMATION IN FAA AC NO. 150/5340-26C MAINTENANCE OF AIRPORT VISUAL AID FACILITIES, THE CABLE INSULATION RESISTANCE VALUE INEVITABLY DECLINES OVER THE SERVICE LIFE OF THE CIRCUIT; A 10-20 PERCENT DECLINE PER YEAR MAY BE CONSIDERED NORMAL. IN THE EVENT THAT THE CABLE INSULATION RESISTANCE READINGS HAVE DECLINED MORE THAN 2 PERCENT PER MONTH IT MIGHT INDICATE CABLE DAMAGE DUE TO LIGHTNING OR DAMAGE AS A RESULT OF CONTRACTOR OPERATIONS. WHERE THE CABLE INSULATION RESISTANCE READINGS HAVE DECLINED MORE THAN 2 PERCENT PER MONTH OVER THE PROJECT CONSTRUCTION DURATION AS A RESULT OF CONTRACTOR OPERATIONS, CONTRACTOR WILL NEED TO INVESTIGATE, ADDRESS, AND REPAIR THE RESPECTIVE CABLE CIRCUITS.



MEASURE RESISTANCE OF SERIES CIRCUIT LOOP.

NOT TO SCALE

SERIES CIRCUIT LOOP RESISTANCE MEASUREMENT NOTES

1. PRIOR TO BEGINNING EXCAVATIONS, AIRFIELD LIGHTING MODIFICATIONS, CABLE INSTALLATION, AND/OR ANY OTHER WORK THAT MIGHT POSSIBLY AFFECT AIRFIELD LIGHTING CIRCUITS, THE RESPECTIVE SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE MEASURED WITH AN OHMMETER AND RECORDED FOR EACH CIRCUIT AT THE VAULT.

2. AFTER AIRFIELD LIGHTING MODIFICATIONS, ADDITIONS, UPGRADES, AND/OR OTHER WORK AND ADDITIONS HAVE BEEN COMPLETED THE RESPECTIVE SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE MEASURED WITH AN OHMMETER AND RECORDED FOR EACH CIRCUIT AT THE VAULT.

3. ALL EXISTING SERIES CIRCUIT CABLE LOOPS SHALL HAVE THE RESISTANCE MEASURED WITH AN OHMMETER AND RECORDED FOR EACH CIRCUIT AT THE VAULT. THE RESISTANCE OF THE SERIES CIRCUIT LOOP WITH CONNECTIONS USING #8 AWG COPPER CONDUCTOR SHOULD BE APPROXIMATELY 0.8 TO 1 OHM PER THOUSAND FEET OF CABLE LENGTH. THE RESISTANCE OF THE SERIES CIRCUIT LOOP WITH CONNECTIONS USING #6 AWG COPPER CONDUCTOR SHOULD BE APPROXIMATELY 0.5 TO 0.7 OHM PER THOUSAND FEET OF CABLE LENGTH. THE NUMBER OF SERIES CIRCUIT TRANSFORMERS AND CONNECTIONS WILL AFFECT THE OVERALL RESISTANCE OF THE SERIES CIRCUIT LOOP AND THEREFORE THE MEASUREMENTS MIGHT BE SLIGHTLY HIGHER THAN THE CALCULATED RESISTANCE FOR THE RESPECTIVE LENGTH OF CABLE.

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REVIEWED BY: BSS 03/03/2022

SHEET TITLE

SERIES CIRCUIT CABLE TESTING DETAILS