10A

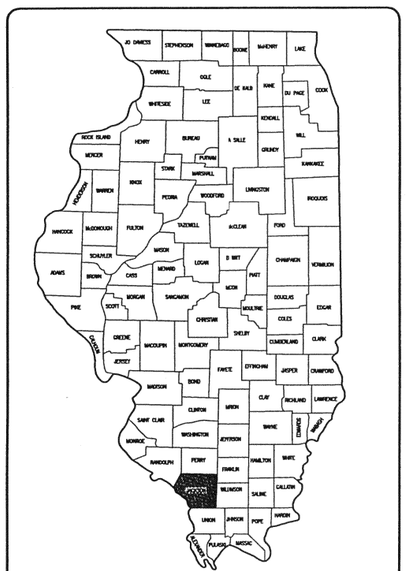
SO080
TOTAL SHEETS - 34

CONSTRUCTION PLANS
FOR
SOUTHERN ILLINOIS AIRPORT AUTHORITY
MURPHYSBORO/CARBONDALE, JACKSON COUNTY, ILLINOIS

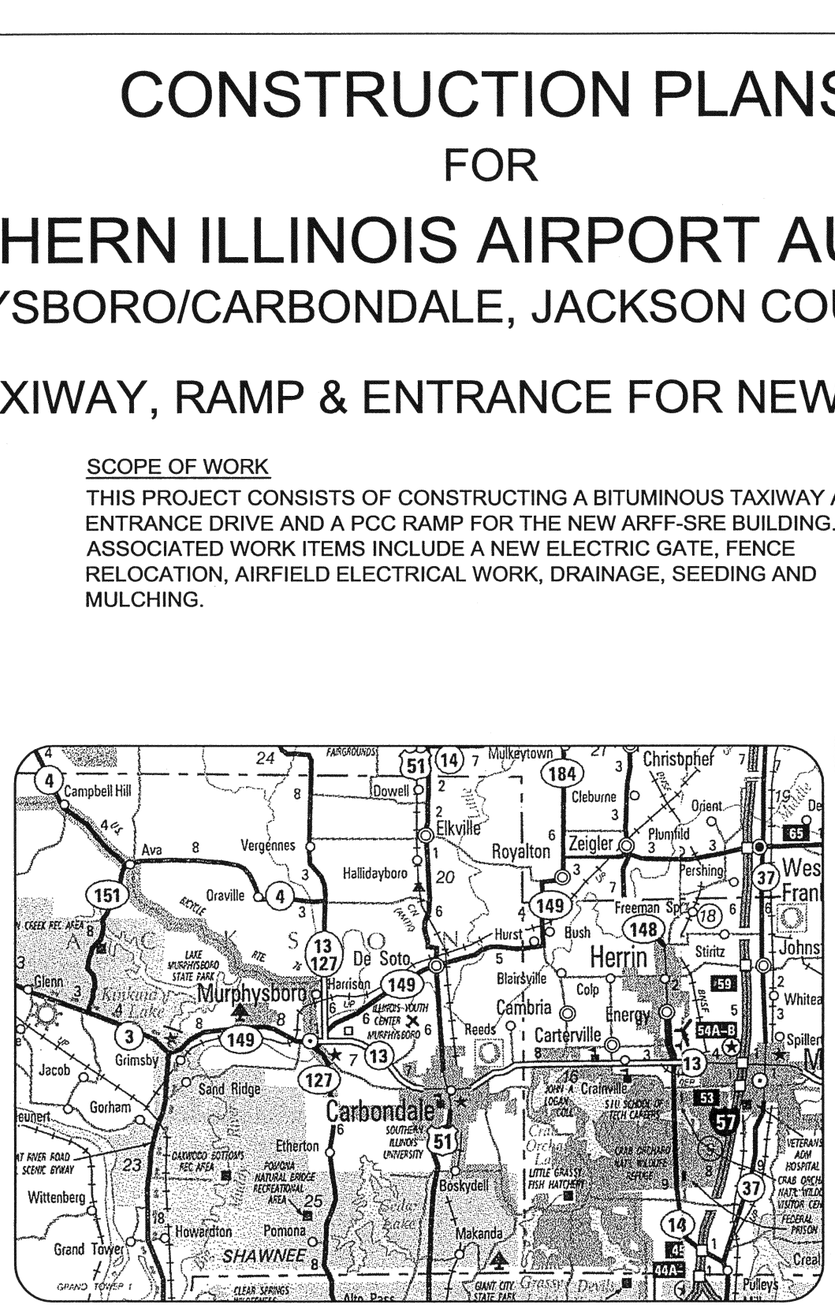
CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING.

SCOPE OF WORK

THIS PROJECT CONSISTS OF CONSTRUCTING A BITUMINOUS TAXIWAY AND ENTRANCE DRIVE AND A PCC RAMP FOR THE NEW ARFF-SRE BUILDING. ASSOCIATED WORK ITEMS INCLUDE A NEW ELECTRIC GATE, FENCE RELOCATION, AIRFIELD ELECTRICAL WORK, DRAINAGE, SEEDING AND MULCHING.



LOCATION OF COUNTY



LOCATION

IL. PROJ.:	MDH-4038
A.I.P. PROJ.:	3-17-0009-B33
LATITUDE:	37° 46' 43"
LONGITUDE:	89° 15' 08"
ELEVATION:	411.0' M.S.L.
DATE:	APRIL 22, 2011

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

COVERING ELECTRICAL DESIGN, SHEETS 12 THRU 23 & 25

JEFFERY S. LITHERLAND
062-046891
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

HANSON
Hanson Professional Services Inc.
ELECTRICAL ENGINEER
Submitted by: Kevin N. Lightfoot ENG'R
Date Submitted 4/21/2011
Lics. Exp. Date 11/30/2011

HANSON
Hanson Professional Services Inc.
CIVIL ENGINEER
Submitted by: ENG'R
Date Submitted 4/22/11
Lics. Exp. Date 11/30/11

SOUTHERN ILLINOIS AIRPORT AUTHORITY
Approved: CHAIRMAN
Date 4/19/2011

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
IL. PROJ.: MDH-4038 A.I.P. PROJ.: 3-17-0009-B33

Hanson Project No. 0BA00240 0800
Filename R-001CVR.DWG
Scale NOT TO SCALE
Date 04/22/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/19/2011

HANSON
Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

COVER SHEET

1
1 of 34 sheets

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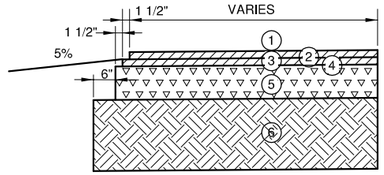
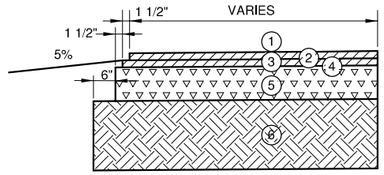


ACCESS TAXIWAY

1. PROPOSED 1 1/2" BITUMINOUS SURFACE COURSE
2. BITUMINOUS TACK COAT
3. PROPOSED 2 1/2" BITUMINOUS BASE COURSE
4. BITUMINOUS PRIME COAT
5. PROPOSED 10" CRUSHED AGGREGATE BASE COURSE
6. PROPOSED 16" LIME MODIFIED SUB-GRADE

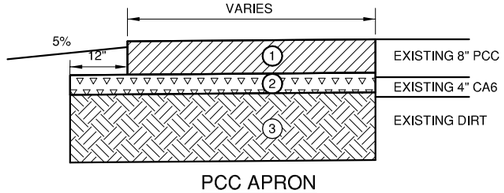
1/2 TYPICAL SECTION
N.T.S.



ENTRANCE DRIVE

1. PROPOSED 1 1/2" BITUMINOUS SURFACE COURSE
2. BITUMINOUS TACK COAT
3. PROPOSED 1 1/2" BITUMINOUS BASE COURSE
4. BITUMINOUS PRIME COAT
5. PROPOSED 8" CRUSHED AGGREGATE BASE COURSE
6. PROPOSED 16" LIME MODIFIED SUB-GRADE

2/2 TYPICAL SECTION
N.T.S.



PCC APRON

1. PROPOSED 7" PCC PAVEMENT
2. PROPOSED 4" CRUSHED AGGREGATE BASE COURSE
3. PROPOSED 16" LIME MODIFIED SUB-GRADE

3/2 TYPICAL SECTION
N.T.S.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITIES	AS BUILT QUANTITIES
AR108108	1/C #8 5KV UG CABLE	L.F.	320	
AR110202	2" PVC DUCT, DIRECT BURY	L.F.	250	
AR110502	2-WAY CONCRETE ENCASED DUCT	L.F.	70	
AR125441	TAXI GUIDANCE SIGN, 1 CHARACTER	E.A.	1	
AR125565	SPLICE CAN	E.A.	1	
AR125965	RELOCATE RWY DISTANCE REMAIN SIGN	E.A.	1	
AR150530	TRAFFIC MAINTENANCE	L.S.	1	
AR152411	UNCLASSIFIED EXCAVATION	L.S.	1	
AR155540	BY-PRODUCT LIME	TON	193	
AR155616	SOIL PROCESSING - 16"	S.Y.	7700	
AR156510	SILT FENCE	L.F.	100	
AR156511	DITCH CHECK	EA.	4	
AR156532	EXCELSIOR BLANKET	S.Y.	127	
AR162508	CLASS E FENCE 8'	L.F.	192	
AR162724	ELECTRIC GATE - 24'	EA.	1	
AR162900	REMOVE CLASS E FENCE	L.F.	80	
AR209510	CRUSHED AGGREGATE BASE COURSE	TON	2915	
AR401613	BIT. SURF. CSE. - METHOD I, SUPERPAVE	TON	300	
AR403613	BIT. BASE. CSE. - METHOD I, SUPERPAVE	TON	450	
AR501507	7" PCC PAVEMENT	S.Y.	3800	
AR501530	PCC TEST BATCH	EA.	1	
AR602510	BITUMINOUS PRIME COAT	GAL.	1040	
AR603510	BITUMINOUS TACK COAT	GAL.	350	
AR620520	PAVEMENT MARKING - WATERBORNE	S.F.	300	
AR701512	12" RCP, CLASS IV	L.F.	100	
AR701524	24" RCP, CLASS IV	L.F.	120	
AR752412	PRECAST REINFORCED CONCRETE FES 12"	EA.	2	
AR752424	PRECAST REINFORCED CONCRETE FES 24"	EA.	2	
AR901510	SEEDING	ACRE	4.5	
AR908510	MULCHING	ACRE	4.5	

INDEX TO SHEETS

BY	DATE
REVISION	

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

Hanson Project No. 08A00024D 0800
Filename R-002TYP.DWG
Scale NOT TO SCALE
Date 04/05/11

HANSON
Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

SUMMARY OF QUANTITIES
INDEX TO SHEETS AND
PROPOSED TYPICAL SECTIONS

2
2 of 34 sheets

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SCOPE OF WORK

THIS PROJECT CONSISTS OF THE CONSTRUCTION OF A TAXIWAY, RAMP AND ENTRANCE TO THE NEW ARFF–SRE BUILDING. ASSOCIATED WORK ITEMS INCLUDE GRADING, DRAINAGE, SEEDING AND FENCING.

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.

CONTRACTOR RESPONSIBILITIES

THE CONTRACTOR'S EQUIPMENT PARKING AND STORAGE AREA WILL BE AS SHOWN. THE CONTRACTOR'S EMPLOYEES WILL PARK THEIR VEHICLES IN THIS AREA. ONLY CONTRACTOR VEHICLES WILL BE ALLOWED OUTSIDE THIS AREA.

THE CONTRACTOR AND HIS EMPLOYEES WILL BE RESTRICTED TO THE WORK AREA AND ALL OTHER AREAS OF THE AIRPORT ARE "OFF LIMITS" TO THEM.

THE CONTRACTOR SHALL MAINTAIN CONTINUOUS TAXIWAY ACCESS TO ALL HANGARS AND ADMINISTRATIVE AREAS.

ALL WORK PERFORMED SHALL BE DONE IN A ORDERLY AND EFFECTIVE MANNER TO MINIMIZE RUNWAY CLOSURE(S).

NO TRENCHES OR HOLES WILL REMAIN OPEN OVERNIGHT. ANY HOLES LEFT OPEN WILL BE BARRICADED.

BARRICADES AND TRAFFIC CONES

IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PLACE AND MAINTAIN BARRICADES, TRAFFIC CONES, SIGNS AND OTHER TEMPORARY BARRIERS TO SEPARATE AIRCRAFT TRAFFIC AND CONSTRUCTION TRAFFIC. BARRICADES USED ON THE AIRFIELD WILL BE EQUIPPED WITH 20" SQUARE ORANGE FLAGS AND RED FLASHING LIGHTS. THE RESPONSIBILITY OF AND COST OF ERECTION, MAINTENANCE AND REMOVAL OF ALL TRAFFIC CONTROL MEASURES USED BY THE CONTRACTOR SHALL BE CONSIDERED AS PART OF PAY ITEM AR150530 TRAFFIC MAINTENANCE. COORDINATE ALL CLOSURES WITH RESIDENT ENGINEER.

LEGEND

- EXISTING IMPROVEMENTS
- PROPOSED IMPROVEMENTS
- EXISTING BUILDINGS
- PROPOSED HAUL ROUTE AND EQUIPMENT PARKING AREA
- PROPOSED BARRICADES

AIRPORT SECURITY NOTE

AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR WILL ENSURE THE NEW VEHICULAR GATE IS CLOSED WHEN ENTERING OR EXITING THE AIRFIELD.

HEIGHT OF CONSTRUCTION EQUIPMENT

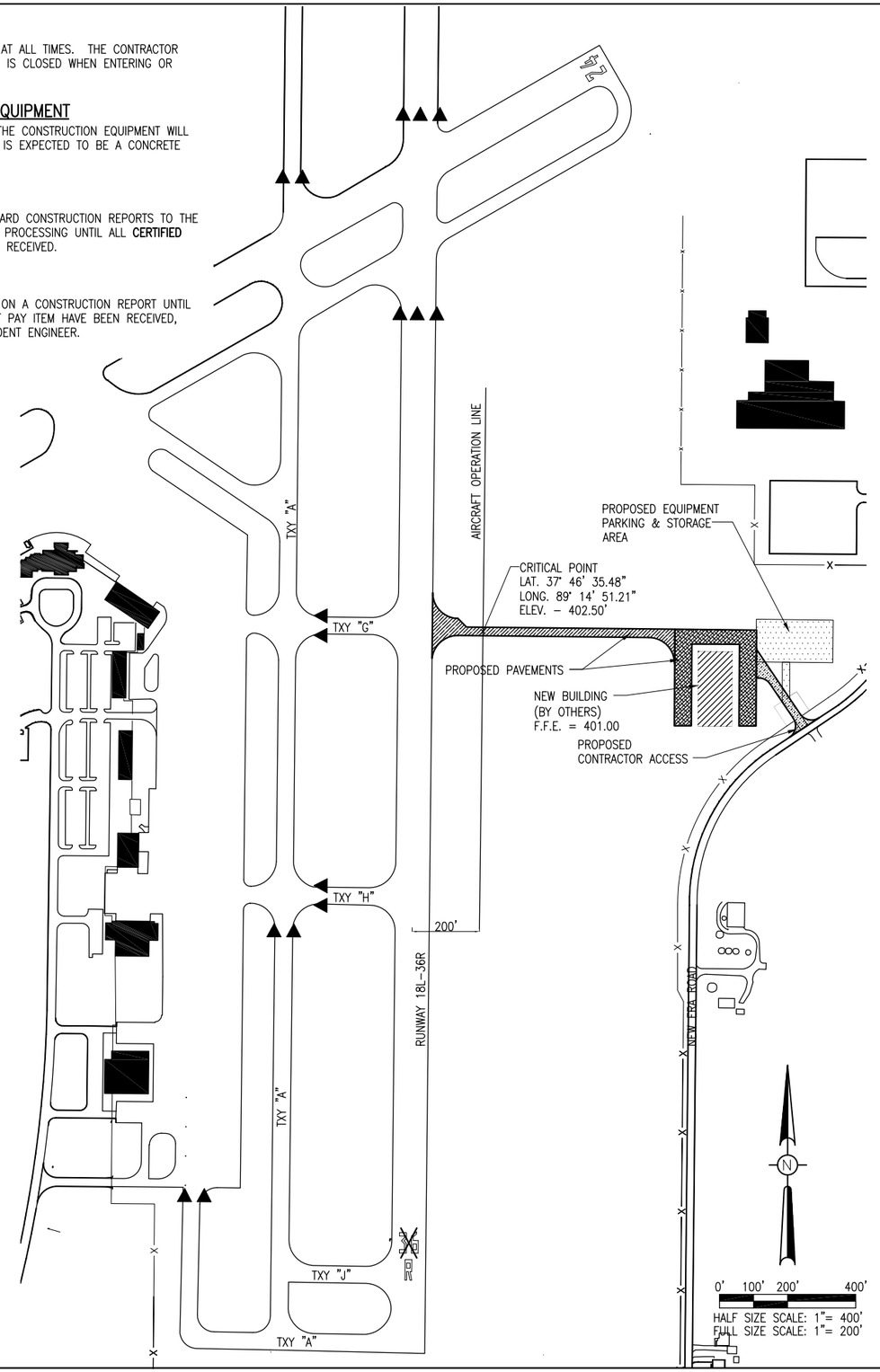
THE MAXIMUM ANTICIPATED HEIGHT OF THE CONSTRUCTION EQUIPMENT WILL BE 25 FEET. THE TALLEST EQUIPMENT IS EXPECTED TO BE A CONCRETE TRUCK.

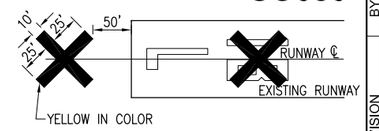
CERTIFIED PAYROLLS

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

MATERIAL CERTIFICATION

COMPLETED WORK **CANNOT** BE PLACED ON A CONSTRUCTION REPORT UNTIL ALL MATERIAL CERTIFICATIONS FOR THAT PAY ITEM HAVE BEEN RECEIVED, REVIEWED AND ACCEPTED BY THE RESIDENT ENGINEER.





DETAIL OF CROSS FOR CLOSED RUNWAY

"NOT TO SCALE"

NOTE:

COST OF CONSTRUCTING, PLACING, MAINTAINING AND REMOVING CROSSES WILL BE CONSIDERED INCIDENTAL TO THE PAY ITEM AR150530 TRAFFIC MAINTENANCE. THE CROSSES WILL BE YELLOW IN COLOR AND SHALL BE MADE OF A SUITABLE MATERIAL AS APPROVED BY THE AIRPORT MANAGER. THE CROSSES WILL BE PLACED OVER THE NUMERALS AND SECURED IN A MANNER APPROVED BY THE MANAGER. THE PROPOSED CROSSES WILL BE PLACED WHEN THE RUNWAY IS CLOSED AND REMOVED WHEN THE RUNWAY IS RE–OPENED. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PLACEMENT AND REMOVAL OF THE CROSSES.

J.U.L.I.E. INFORMATION

COUNTY_____JACKSON
CITY_____CARBONDALE
TOWNSHIP_____8 SOUTH
RANGE _____ 1 WEST
SECTION NO._____ 31 & 32
ADDRESS_____P.O. BOX 1086
CARBONDALE, ILLINOIS 62903–1086

CRITICAL POINT DATA

LAT. 37° 46' 35.48"
LONG. 89° 14' 51.21"
ELEV. – 402.50'

PROPOSED SAFETY PLAN

GENERAL – THE SOUTHERN ILLINOIS AIRPORT IS COMPRISED OF THREE RUNWAYS. THE PROPOSED CONSTRUCTION WILL NECESSITATE THE CLOSING OF RUNWAY 18L–36R. ANY TIME THE CONTRACTOR IS WORKING WITHIN 200' OF THE RUNWAY, THE RUNWAY MUST BE CLOSED. RUNWAY CLOSURES WILL BE COORDINATED AND SCHEDULED AS DESCRIBED IN THE SPECIAL PROVISIONS. PRIOR TO RE–OPENING THE RUNWAY THE CONTRACTOR WILL SMOOTH GRADE ALL AREAS WITHIN THE SAFETY AREA TO THE SATISFACTION OF THE RESIDENT ENGINEER AND RE–OPEN THE RUNWAY. ALL WORK INCLUDED IN OPENING AND CLOSING THE RUNWAY WILL BE PAID AS DESCRIBED IN THE SPECIAL PROVISIONS FOR THE PAY ITEM AR150530 TRAFFIC MAINTENANCE.

IDENTIFICATION – WHEN THE CONTRACTORS VEHICLES AND EQUIPMENT ARE ON THE AIRPORT THEY SHALL BE PROPERLY MARKED WITH THREE (3') FOOT SQUARE CHECKERED FLAGS (INTERNATIONAL ORANGE AND WHITE). THE CONTRACTOR WILL ALSO PROVIDE WORKERS WITH SOME TYPE OF TAG OR GARMENT TO IDENTIFY THE PERSON AS BEING PART OF THE CONSTRUCTION CREW.

RADIO CONTROL – THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO–WAY RADIO CONTACT (121.80 MHz.) WITH THE AIRPORT CONTROL TOWER. THIS WILL ENABLE THE AIRPORT TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTIC EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

THE CONTRACTOR SHALL BE REQUIRED TO RECEIVE FAR PART 139 TRAINING FOR ALL PERSONNEL WHO DRIVE VEHICLES INSIDE THE FENCED AREA OF THE AIRPORT. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

EROSION CONTROL

THIS PROJECT WILL DISTURB MORE THAN 1 ACRE OF LAND, THEREFORE A N.P.D.E.S. PERMIT WILL BE REQUIRED.

HAUL ROUTE AND VEHICLE PARKING

THE CONTRACTOR WILL USE THE DESIGNATED HAUL ROUTE AND PARKING AREA AS SHOWN ON THIS SHEET. THE PROPOSED PARKING AREA WILL BE 225' X 125'. THE CONTRACTOR WILL BE REQUIRED TO PROTECT AND MAINTAIN THE PROPOSED HAUL ROUTE AND PARKING AREA THROUGHOUT THE COURSE OF THE PROJECT. ANY AREAS DAMAGED OUTSIDE OF THESE AREAS WILL BE REPAIRED BY THE CONTRACTOR AND AT THE CONTRACTOR'S OWN EXPENSE. CLEANING AND MAINTENANCE OF THE HAUL ROUTE AND PARKING AREA WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. THE CONTRACTOR SHALL EXERCISE CARE SO AS TO NOT MAR THE RUNWAY PAVEMENT ANY DAMAGE DONE BY THE CONTRACTOR SHALL BE REPAIRED AT NO EXPENSE TO THE CONTRACT.

AIRCRAFT OPERATION LINE

THE CONTRACTOR WILL LOCATE THIS LINE AT THE START OF CONSTRUCTION AND WILL PLACE FLAGGED LATHE EVERY 150' ALONG IT. THIS LINE WILL BE THE LIMITS THAT ALL CONTRACTOR PERSONNEL MAY VENTURE WHEN A RUNWAY IS NOT CLOSED. THE CONTRACTOR WILL MAINTAIN THE LATHE LINE FOR RUNWAYS.

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3–17–0009–B33
IL. PROJ.: MDH–4038

Hanson Project No. 08A00240 0800
Filename R–003SFY.DWG
Scale 1"=200'
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/19/11

HANSON
Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED SAFETY PLAN

3
3 of 34 sheets

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EXISTING CHAIN LINK FENCE

PROPOSED 4" BITUMINOUS ACCESS TAXIWAY

PROPOSED 7" PCC PAVEMENT.

BORROW STOCK PILE

PROPOSED 3" BITUMINOUS ENTRANCE DRIVE.

NEW BUILDING (BY OTHERS) F.F.E. = 401.00

BORROW AREA

EXISTING GAS LINE

NEW ERA ROAD

75'R.

40'R.

25' (TYP.)

24' (TYP.)

282.5' LT.

STA. 13+38

STA. 12+88

STA. 11+47

STA. 10+97

PROPOSED PAVEMENT AREAS

ENTRANCE DRIVE

PROPOSED 1 1/2" BITUMINOUS SURFACE COURSE
PROPOSED 1 1/2" BITUMINOUS BASE COURSE
PROPOSED 8" CRUSHED AGGREGATE BASE COURSE
PROPOSED 16" LIME MODIFIED SUB-GRADE

ACCESS TAXIWAY

PROPOSED 1 1/2" BITUMINOUS SURFACE COURSE
PROPOSED 2 1/2" BITUMINOUS BASE COURSE
PROPOSED 10" CRUSHED AGGREGATE BASE COURSE
PROPOSED 16" LIME MODIFIED SUB-GRADE

PCC APRON

PROPOSED 7" PCC PAVEMENT
PROPOSED 4" CRUSHED AGGREGATE BASE COURSE
PROPOSED 16" LIME MODIFIED SUB-GRADE

0' 25' 50' 100'
FULL SCALE: 1"= 50'
HALF SCALE: 1"= 100'

LEGEND

- (E)G — EXISTING GAS LINE
- (E)W — EXISTING WATER LINE
- (E) E — EXISTING ELECTRICAL LINE
- (E)T — EXISTING TELEPHONE LINE
- X — EXISTING FENCE
- (E)S — EXISTING SANITARY LINE
- PROPOSED IMPROVEMENTS
- EXISTING CONTOURS

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DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No.	08A0024D 0800	
Filename	R-004EXST.DWG	
Scale	NOT TO SCALE	
Date	04/04/2011	
LAYOUT	JSL	04/04/2011
DRAWN	CWS	04/04/2011
REVIEWED	CAH	04/22/2011

HANSON

Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

EXISTING CONDITIONS PLAN

4

SO080

EROSION CONTROL NOTES

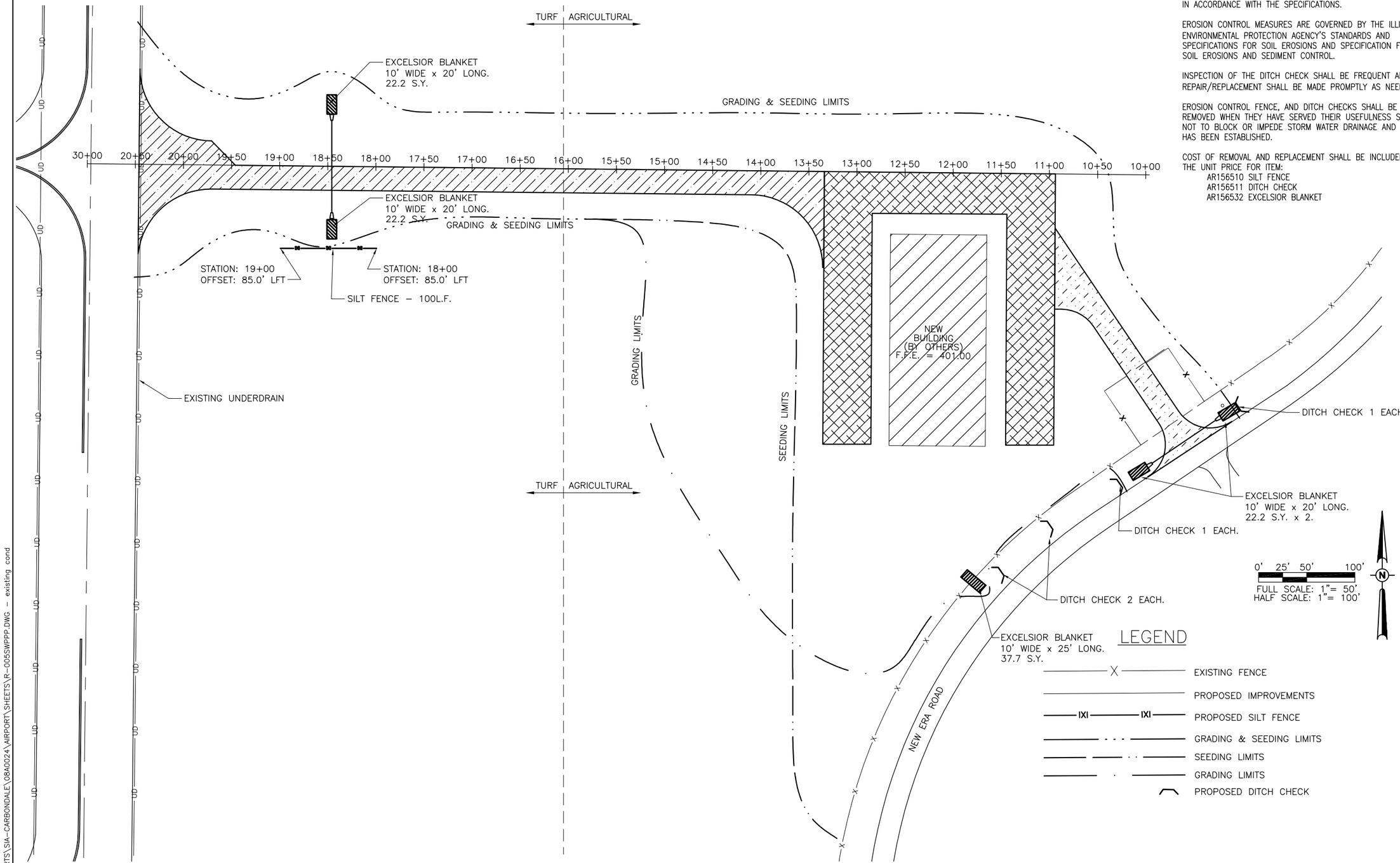
ALL PROPOSED EROSION CONTROL MEASURES SHALL BE COMPLETED AS DETAILED ON THIS EROSION CONTROL PLAN AND IN ACCORDANCE WITH THE SPECIFICATIONS.

EROSION CONTROL MEASURES ARE GOVERNED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S STANDARDS AND SPECIFICATIONS FOR SOIL EROSIONS AND SPECIFICATION FOR SOIL EROSIONS AND SEDIMENT CONTROL.

INSPECTION OF THE DITCH CHECK SHALL BE FREQUENT AND REPAIR/REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

EROSION CONTROL FENCE, AND DITCH CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM WATER DRAINAGE AND GRASS HAS BEEN ESTABLISHED.

COST OF REMOVAL AND REPLACEMENT SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM:
- AR156510 SILT FENCE
- AR156511 DITCH CHECK
- AR156532 EXCELSIOR BLANKET



LEGEND

- EXISTING FENCE
- PROPOSED IMPROVEMENTS
- PROPOSED SILT FENCE
- GRADING & SEEDING LIMITS
- SEEDING LIMITS
- GRADING LIMITS
- PROPOSED DITCH CHECK

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A0024D 0800
Filename R-005SWPPP.DWG
Scale NOT TO SCALE
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

HANSON
Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED STORM WATER POLLUTION PREVENTION PLAN

5
5 of 34 sheets

APR 21, 2011 4:00 PM KINCA00394
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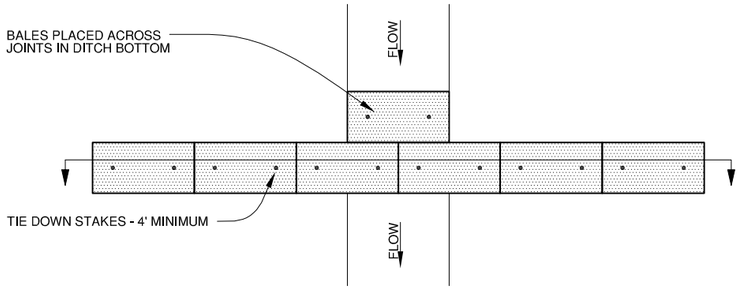
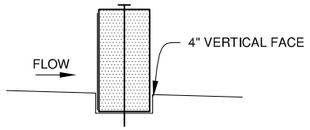


PLAN



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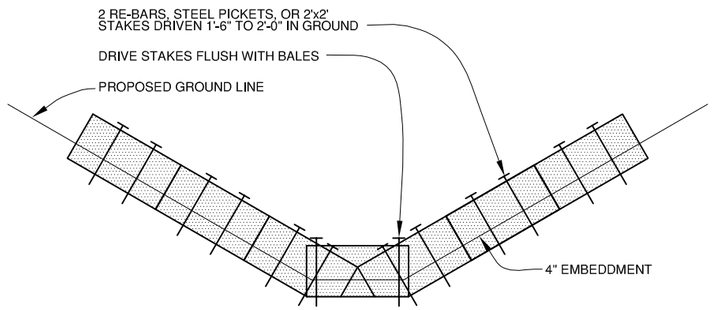


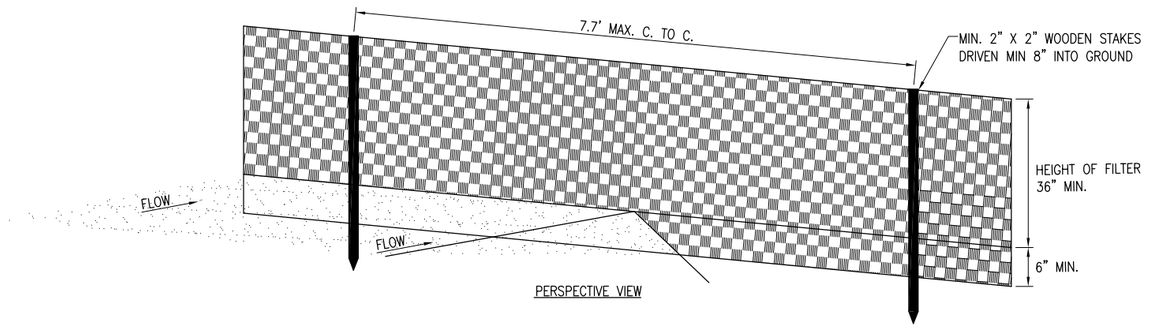
ELEVATION

NOTES:

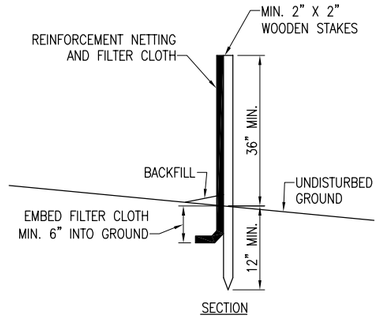
1. BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR AS DIRECTED BY THE ENGINEER, AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4 INCHES AND PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR/REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS AND TURFING IS ESTABLISHED

HAY BALE DETAIL

"NOT TO SCALE"



PERSPECTIVE VIEW



SECTION

SILT FENCE DETAIL

"NOT TO SCALE"

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DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A0024D 0800
Filename R-006SWPPPDET.DWG
Scale NOT TO SCALE
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED		

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Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

STORM WATER POLLUTION PREVENTION DETAILS

SO080

CONTROL DATA

NO.	DESCRIPTION	NORTHING	EASTING	ELEV.
1	STA. 20+50 EDGE OF EXISTING RUNWAY	405407.6052	2562076.7798	403.14
2	STA. 10+00	405392.0972	2563126.5297	397.54
3	INTERSECTION OF PROP. ACCESS ROAD & NEW ERA ROAD	405107.1107	2563167.9583	398.16

EXISTING UNDERDRAIN
LOCATE AND AVOID

EXISTING UNDERDRAIN
LOCATE AND AVOID

RUNWAY 18L–36R

CONTROL PNT. #1

FLOWLINE ELEV. 400.20

FLOWLINE ELEV. 400.00

GRADING AND SEEDING LIMITS

GRADING AND SEEDING LIMITS

GRADING LIMITS

SEEDING LIMITS

0' 10' 20' 40' 60'
FULL SCALE: 1"= 30'
HALF SCALE: 1"= 60'

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED IMPROVEMENTS
- PROPOSED / EXISTING SPOT GRADE ELEVATIONS
- GRADING & SEEDING LIMITS
- SEEDING LIMITS
- GRADING LIMITS

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33

IL. PROJ.: MDH-4038

Hanson Project No. 08A0024D 0800		
Filename R-007GRD.DWG		
Scale NOT TO SCALE		
Date 04/05/2011		
LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED GRADING TAXIWAY

7

7 of 34 sheets

APR 22, 2011 9:07 AM KINCA00394
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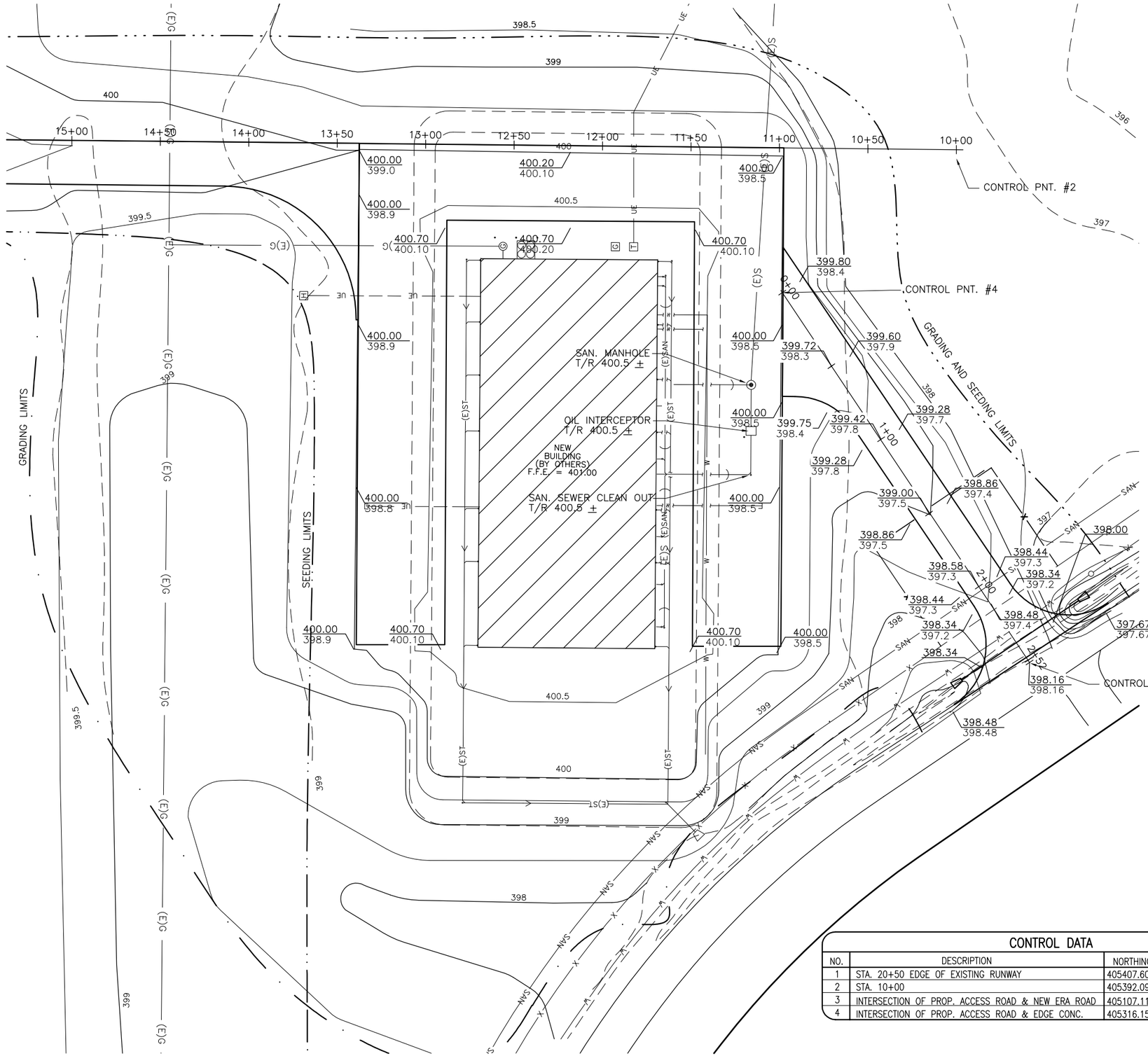
SO080



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED IMPROVEMENTS
- PROPOSED / EXISTING SPOT GRADE ELEVATIONS
- GRADING & SEEDING LIMITS
- SEEDING LIMITS
- GRADING LIMITS

0' 10' 20' 40' 60'

FULL SCALE: 1"= 30'
HALF SCALE: 1"= 60'

CONTROL DATA

NO.	DESCRIPTION	NORTHING	EASTING	ELEV.
1	STA. 20+50 EDGE OF EXISTING RUNWAY	405407.6052	2562076.7798	403.14
2	STA. 10+00	405392.0972	2563126.5297	397.54
3	INTERSECTION OF PROP. ACCESS ROAD & NEW ERA ROAD	405107.1107	2563167.9583	398.16
4	INTERSECTION OF PROP. ACCESS ROAD & EDGE CONC.	405316.1558	2563028.1749	

APR 21, 2011 4:19 PM HAGL000382
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DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A0024D 0800
Filename R-007GRD.DWG
Scale NOT TO SCALE
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED GRADING RAMP AND ACCESS ROAD

8
8 of 34 sheets

TAXIWAY G

RUNWAY 36R 18L

PROPOSED FLOW LINE
ELEVATION: 400.20'

PROPOSED 12" R.C.C.P.
FLARED END SECTION.
STA. 18+50 - 58' RT.

PROPOSED 100 L.F.
12" R.C.C.P. @ 0.20% SLOPE.

PROPOSED BITUMINOUS ACCESS TAXIWAY

PROPOSED 12" R.C.C.P.
FLARED END SECTION.
STA. 18+50 - 58' LT.

PROPOSED FLOW LINE
ELEVATION: 400.00'

EXISTING UNDERDRAIN
LOCATE AND AVOID

PROPOSED P.C.C. APRON

EXISTING ARFF / SRE
BUILDING

PROPOSED BITUMINOUS
ENTRANCE DRIVE.

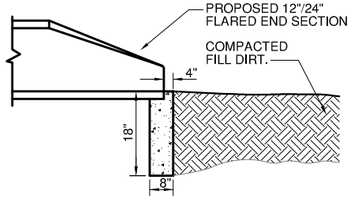
PROPOSED FLOW LINE
ELEVATION: 394.20'

PROPOSED 24" R.C.C.P.
FLARED END SECTION.
STA: 2+22.5 - LT. 68'

PROPOSED 120 L.F.
24" R.C.C.P. @ 0.66% SLOPE.

PROPOSED 24" R.C.C.P.
FLARED END SECTION.
STA: 2+22.5 - RT. 68'

PROPOSED FLOW LINE
ELEVATION: 395.00'



IDOT STD. 542301-02

1/7 FLARED END SECTION
NOT TO SCALE

0' 25' 50' 100'
FULL SCALE: 1"= 50'
HALF SCALE: 1"= 100'

LEGEND

- (E)G — EXISTING GAS LINE
- (E)W — EXISTING WATER LINE
- (E) E — EXISTING ELECTRICAL LINE
- (E)T — EXISTING TELEPHONE LINE
- x-x — TEMPORARY FENCE BY OTHERS
- X — EXISTING FENCE
- (E)S — EXISTING SANITARY LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED IMPROVEMENTS

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
Filename R-009DRN.DWG
Scale NOT TO SCALE
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED DRAINAGE PLAN

9
9 of 34 sheets

APR 22, 2011 1:17 PM SCHUB01446
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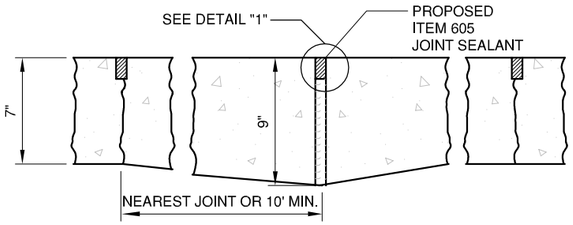
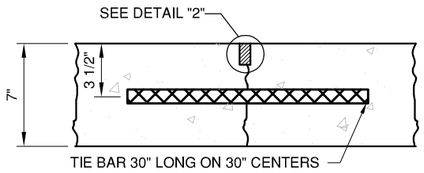
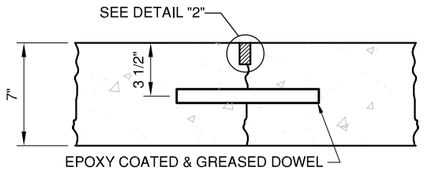


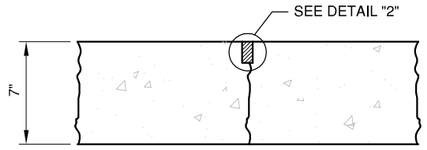
TYPE A - THICKENED EDGE ISOLATION JOINT



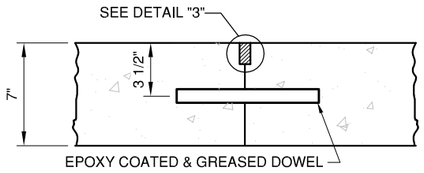
TYPE B - HINGED CONTRACTION JOINT



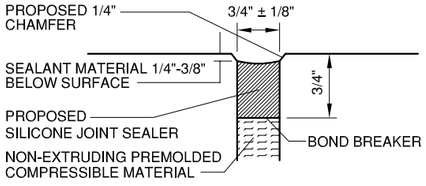
TYPE C - DOWELED CONTRACTION JOINT



TYPE D - DUMMY CONTRACTION JOINT



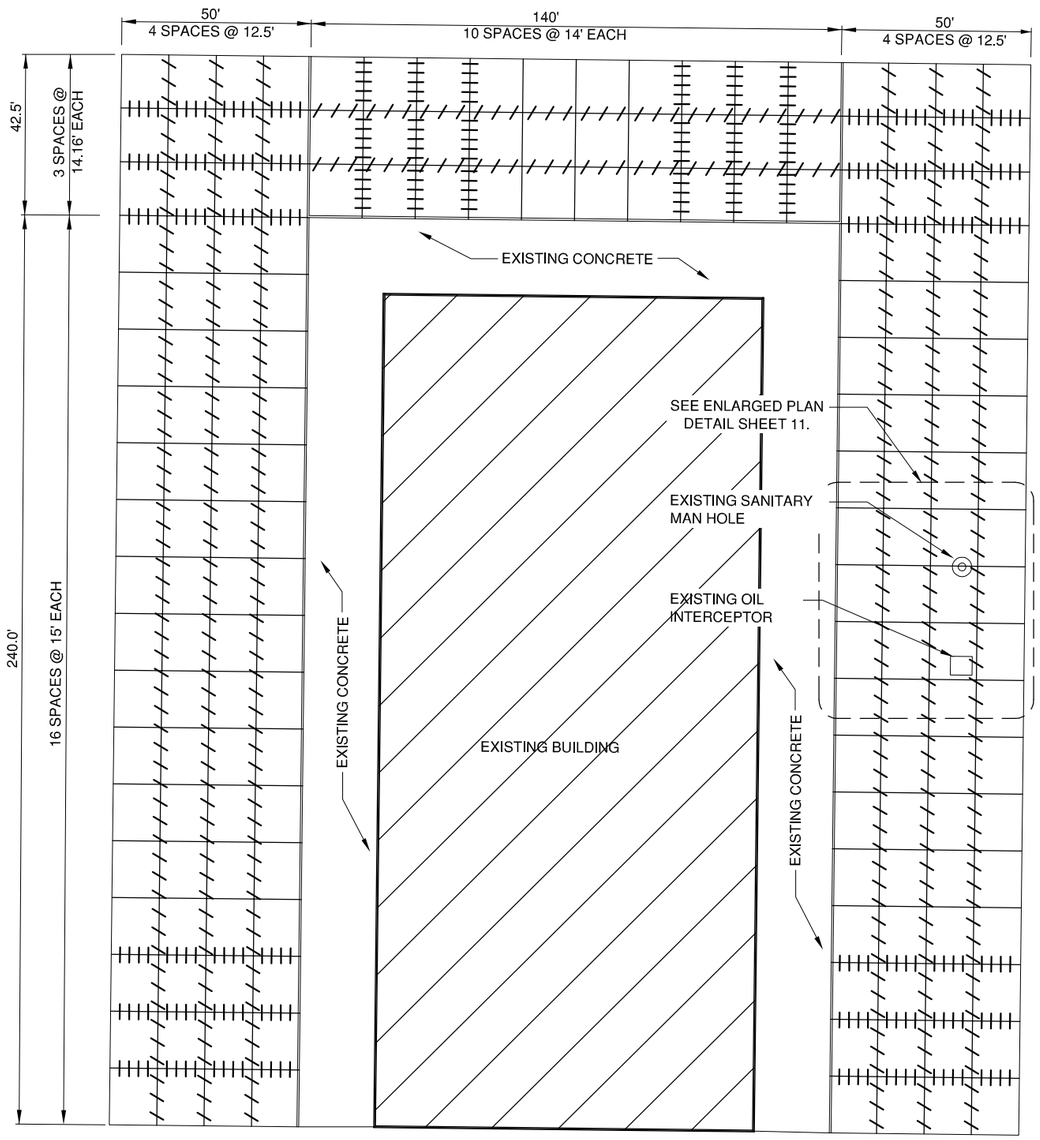
TYPE E - DOWELED CONSTRUCTION JOINT

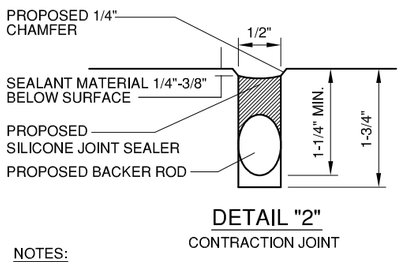


DETAIL "1"
ISOLATION JOINT

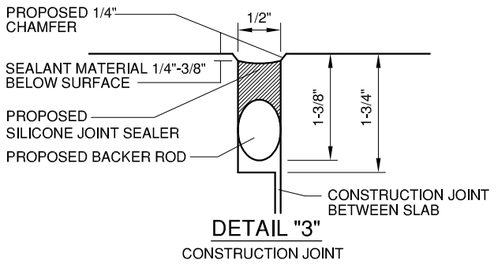
PCC JOINTING NOTES:

1. ALL EXPOSED JOINT EDGES SHALL BE EDGED WITH AN APPROVED TOOL HAVING A RADIUS OF 1/4" OR STONED TO PRODUCE THE 1/8" CHAMFER.
2. ALL LONGITUDINAL AND TRANSVERSE CONTRACTION JOINTS SHALL BE SAWED.
3. ALL TRANSVERSE & LONGITUDINAL CONSTRUCTION JOINTS MUST BE DOWELED WITH TYPE E DOWELED CONSTRUCTION JOINT. ALL DOWEL BARS SHALL BE SECURELY HELD IN PLACE BY MEANS OF A DOWEL. BAR ASSEMBLY WHICH WILL INSURE 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 ENGINEER PRIOR TO INSTALLATION. DOWELS SHALL BE 3/4" DIA, 18" IN LENGTH AND 12" SPACING.
4. TIE BARS FOR CONTRACTION JOINTS SHALL BE 5/8" DIAMETER AND 30" LONG AND 30" ON CENTER SPACING.
5. DOWELS SHALL BE EPOXY COATED 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 COST OF ALL DOWEL BARS, TIE-BARS, WW FABRIC, SAWING AND SEALING SHALL BE INCLUDED IN THE COST OF THE P.C.C. PAVEMENT.
8. PRIOR TO PLACING ADJACENT PAVEMENT SECTIONS, THE VERTICAL EDGE SHALL BE SAWED TO PRODUCE A SMOOTH AND STRAIGHT EDGE.
9. WHEN CONSTRUCTING "FILL-IN" PAVEMENT LANES USING A SELF PROPELLED PAVER, THE CONTRACTOR SHALL USE BELTING OR OTHER PROTECTIVE MATERIAL FOR THE PAVING MACHINE TO TRAVEL ON AND SHALL ROPE THE ADJACENT TRANSVERSE JOINTS TO PREVENT DEBRIS INTRUSION IN THE JOINTS.
10. JOINT SEALANT SHALL BE SILICONE JOINT SEALER AS SPECIFIED IN THE STANDARD SPECIFICATIONS ITEM 605.
11. CURING COMPOUND WILL BE AS SPECIFIED IN THE STANDARD SPECIFICATIONS, ITEM 501-2.9 AND SHALL BE APPROVED PRIOR TO THE PAVING OPERATION BY THE ENGINEER.
12. ALL NON-ALIGNED EDGES WILL BE SAWED FULL DEPTH.





DETAIL "2"
CONTRACTION JOINT



DETAIL "3"
CONSTRUCTION JOINT

NOTES:

1. BACKER ROD MATERIAL MUST BE COMPATIBLE WITH THE TYPE OF LIQUID SEALANT USED AND SIZED TO PROVIDE THE DESIRED SHAPE FACTOR.

LEGEND:

- TYPE A - THICKENED EDGE ISOLATION JOINT
- TIED OR DOWELED JOINT
- TYPE C - DOWELED CONTRACTION JOINT
- TYPE D OR E - DUMMY OR DOWELED JOINT
- EXISTING ARFF - SRE BUILDING

0' 5' 10' 20'
FULL SCALE: 1"= 20'
HALF SCALE: 1"= 40'

N

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33

IL. PROJ.: MDH-4038

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED		

Hanson Project No. 08A00240 0800
Filename R-010JNT.DWG
Scale 1" = 20'
Date 04/05/2011

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED JOINTING PLAN

10

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APR 20, 2011 10:11 AM SCHUB01446
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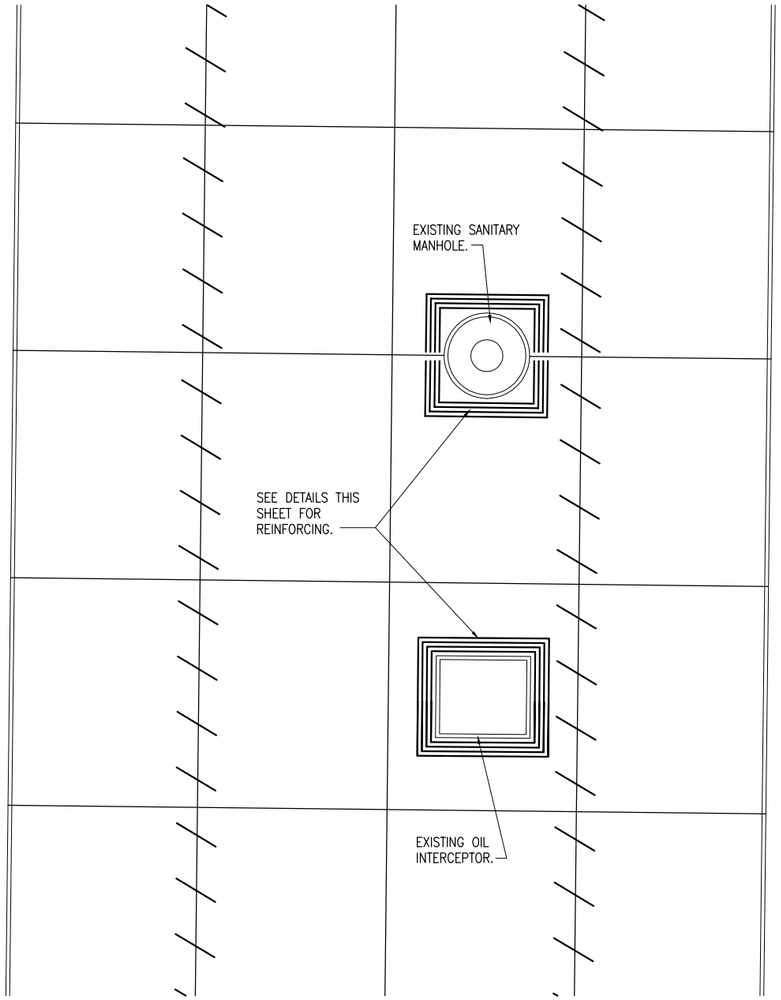


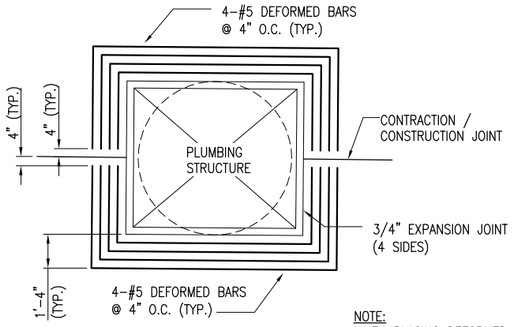
ENLARGED PARTIAL JOINTING PLAN

NOT TO SCALE

NOTE: SEE SHEET 10 FOR FULL JOINTING PLAN, NOTES AND DETAILS.

LEGEND:

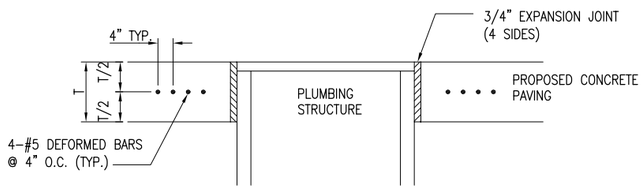
- TYPE A - THICKENED EDGE ISOLATION JOINT
- TIED OR DOWELED JOINT
- TYPE D OR E - DUMMY OR DOWELED JOINT



NOTE:
WHEN PLACING DEFORMED BARS AROUND STRUCTURE, NO DEFORMED BAR WILL COME CLOSER THAN 4" TO ANY JOINT.

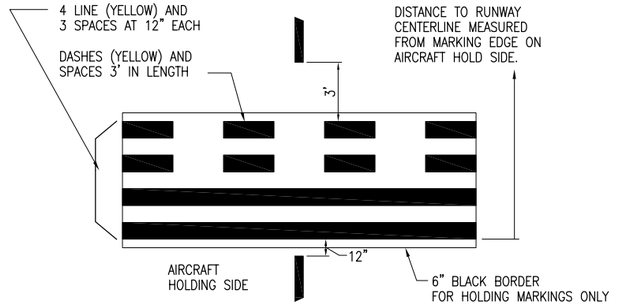
PLUMBING STRUCTURE (PLAN VIEW)

SCALE: NONE



PLUMBING STRUCTURE (PROFILE)

SCALE: NONE



RUNWAY HOLDING POSITION MARKINGS

SCALE: NONE

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No.	08A00240 0800
Filename	R-501.DWG
Scale	NOT TO SCALE
Date	04/04/2011

LAYOUT	JSL	03/03/2011
DRAWN	CWS	03/03/2011
REVIEWED	CAH	04/21/2011

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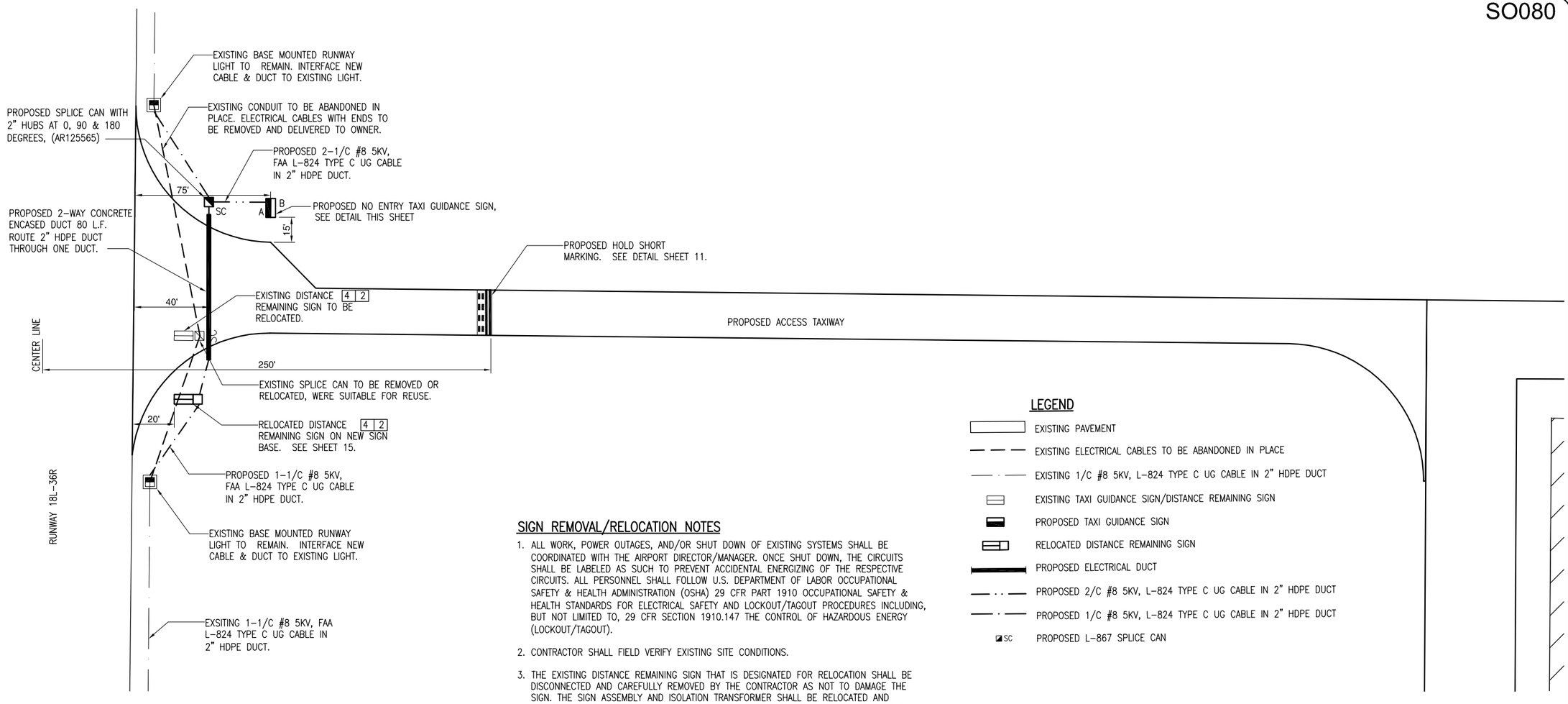
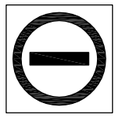
CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED AIRFIELD SIGNAGE & MARKING DETAILS

11
11 of 34 sheets





SIDE A

SIDE B

DETAIL – NO ENTRY TAXI GUIDANCE SIGN DETAIL

SCALE: NONE

TAXI GUIDANCE SIGN NOTES:

1. THE PROPOSED "NO ENTRY" GUIDANCE SIGN SHALL CONFORM TO ADVISORY CIRCULAR 150/5345 44J (OR LATEST ISSUE IN FORCE) AND BE FAA-APPROVED FOR TYPE L-858R MANDATORY INSTRUCTION SIGN (BLACK OUTLINE ON OUTSIDE EDGE OF WHITE LEGEND ON RED BACKGROUND); THE SIGN SHALL BE SIZE 1, 18-IN. SIGN FACE WITH A 12-IN. LEGEND; STYLE 3, POWERED FROM A 2.8 TO 6.6 AMP SERIES LIGHTING CIRCUIT; CLASS 2, FOR OPERATION FROM -40 DEGREES F TO 131 DEGREES F; MODE 2, TO WITHSTAND WIND LOADS OF 200 M.P.H., BASE-MOUNTED, DOUBLE-SIDED, AS SPECIFIED ON PLANS.

SIGN REMOVAL/RELOCATION NOTES

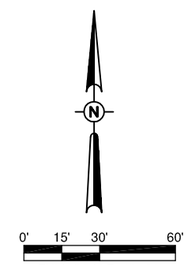
1. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT DIRECTOR/MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL 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. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS.
3. THE EXISTING DISTANCE REMAINING SIGN THAT IS DESIGNATED FOR RELOCATION SHALL BE DISCONNECTED AND CAREFULLY REMOVED BY THE CONTRACTOR AS NOT TO DAMAGE THE SIGN. THE SIGN ASSEMBLY AND ISOLATION TRANSFORMER SHALL BE RELOCATED AND INSTALLED IN THE LOCATION SHOWN. THE EXISTING FOUNDATION SHALL BE REMOVED & DISPOSED OF OFF THE AIRPORT SITE.
4. THE CONTRACTOR IS ENCOURAGED TO INSPECT THE EXISTING DISTANCE REMAINING SIGN PRIOR TO RELOCATION AND IDENTIFY TO THE RESIDENT ENGINEER ANY DAMAGED OR INOPERATING PARTS. ONCE THE EXISTING SIGN IS REMOVED, THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE DURING THE RELOCATION. THE SIGN SHALL BE REINSTALLED IN PROPER WORKING ORDER, OR REPAIRED / REPLACED AT THE CONTRACTOR'S EXPENSE.
5. THE EXISTING DISTANCE REMAINING SIGN IS A SIZE 5 SIGN. THE RELOCATED DISTANCE SIGN SHALL BE PLACED IN ACCORDANCE WITH FAA AC 150/5340-18F STANDARDS FOR AIRPORT SIGN SYSTEMS; (20FT TO 35FT PERPENDICULAR DISTANCE FROM DEFINED RUNWAY PAVEMENT EDGE TO THE NEAR SIDE OF THE SIGN). FIELD VERIFY LOCATION OF EXISTING DISTANCE REMAINING SIGN & RELOCATE TO COMPLY WITH AC 150/5340-18F AND TO MATCH EXISTING ARRANGEMENT OF DISTANCE REMAINING SIGNS. CONTACT THE RESIDENT ENGINEER IN THE EVENT OF A CONFLICT.
6. PROPOSED GUIDANCE SIGNS & RELOCATED DISTANCE REMAINING SIGN SHALL BE CONSTRUCTED AT THE LOCATIONS SHOWN ON THE PROPOSED AIRFIELD ELECTRICAL, SIGNAGE & MARKING PLANS AND IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS.
7. WHERE TEMPORARY WIRING IS REQUIRED, ALL ABOVE GROUND 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 150/5370-2E, – OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION, PART 3-6, C.
8. NO CONNECTION TO AN ACTIVE LIGHTING CIRCUIT WILL BE BROKEN UNTIL THE CIRCUIT HAS BEEN TURNED OFF IN ACCORDANCE WITH NOTE 1.

LEGEND

- EXISTING PAVEMENT
- EXISTING ELECTRICAL CABLES TO BE ABANDONED IN PLACE
- EXISTING 1/C #8 5KV, L-824 TYPE C UG CABLE IN 2" HDPE DUCT
- EXISTING TAXI GUIDANCE SIGN/DISTANCE REMAINING SIGN
- PROPOSED TAXI GUIDANCE SIGN
- RELOCATED DISTANCE REMAINING SIGN
- PROPOSED ELECTRICAL DUCT
- PROPOSED 2/C #8 5KV, L-824 TYPE C UG CABLE IN 2" HDPE DUCT
- PROPOSED 1/C #8 5KV, L-824 TYPE C UG CABLE IN 2" HDPE DUCT
- SC PROPOSED L-867 SPLICE CAN

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.



FULL SCALE: 1"= 30'
HALF SCALE: 1"= 60'

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A0024D 0800
Filename R-012ELPLAN.DWG
Scale NOT TO SCALE
Date 04/05/2011

LAYOUT	KNL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	JSL	04/11/2011

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Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED
AIRFIELD ELECTRICAL, SIGNAGE & MARKING PLAN

12
12 of 34 sheets

APR 22, 2011 11:11 AM KINCA00394
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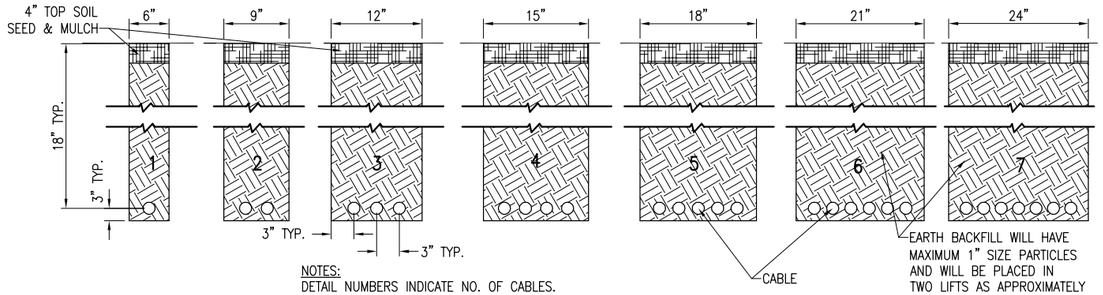


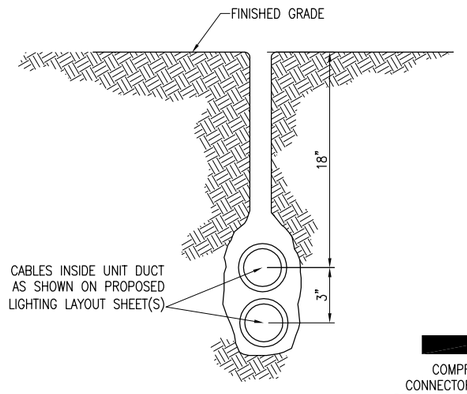
NOTES:
DETAIL NUMBERS INDICATE NO. OF CABLES.

TRENCHES WITH MORE THAN SEVEN CABLES SHALL BE INCREASED 3" IN WIDTH FOR EACH ADDITIONAL CABLE; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.

DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS.

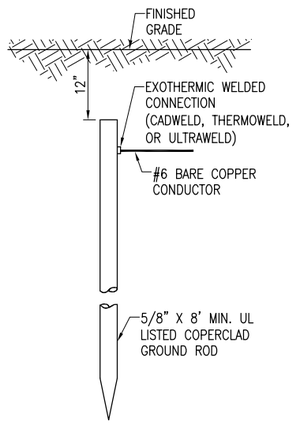
ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.

CABLE TRENCHES
(NOT TO SCALE)



PLOWED CABLE
(NOT TO SCALE)

PER FAA AC 150/5340-30E DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. 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 BONDED TO THE GROUND LUG ON THE RESPECTIVE L-867 TRANSFORMER BASE/LIGHT CAN OR MOUNTING STAKE AND A 5/8-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.

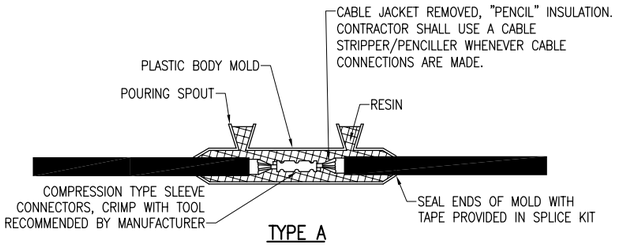


NOTES:
TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.

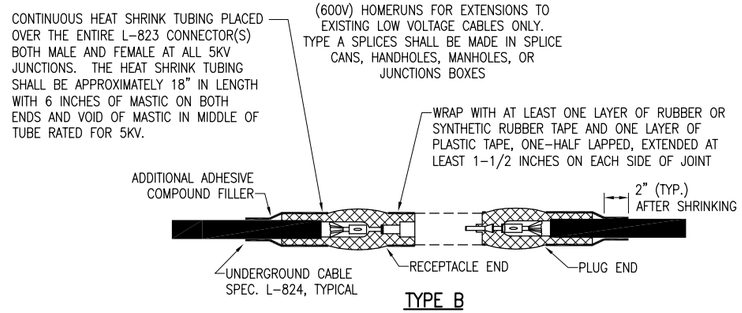
THE RESISTANCE TO GROUND OF THE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.

COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.

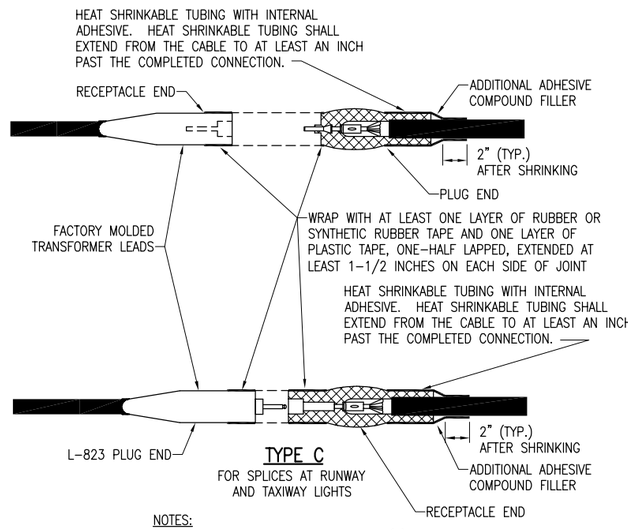
GROUND ROD
(NOT TO SCALE)



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

NOTES:
SEE PROPOSED LIGHTING LAYOUT SHEET(S) FOR SPLICE TYPE.

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

CABLE SPLICES
(NOT TO SCALE)

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800	LAYOUT	KNL	04/05/2011
Filename E-501.DWG	DRAWN	CWS	04/05/2011
Scale NOT TO SCALE	REVIEWED	JSL	04/11/2011
Date 04/05/2011			

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Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

ELECTRICAL DETAILS
SHEET 1

13
13 of 33 sheets

APR 18, 2011 10:09 AM SCHUB01446
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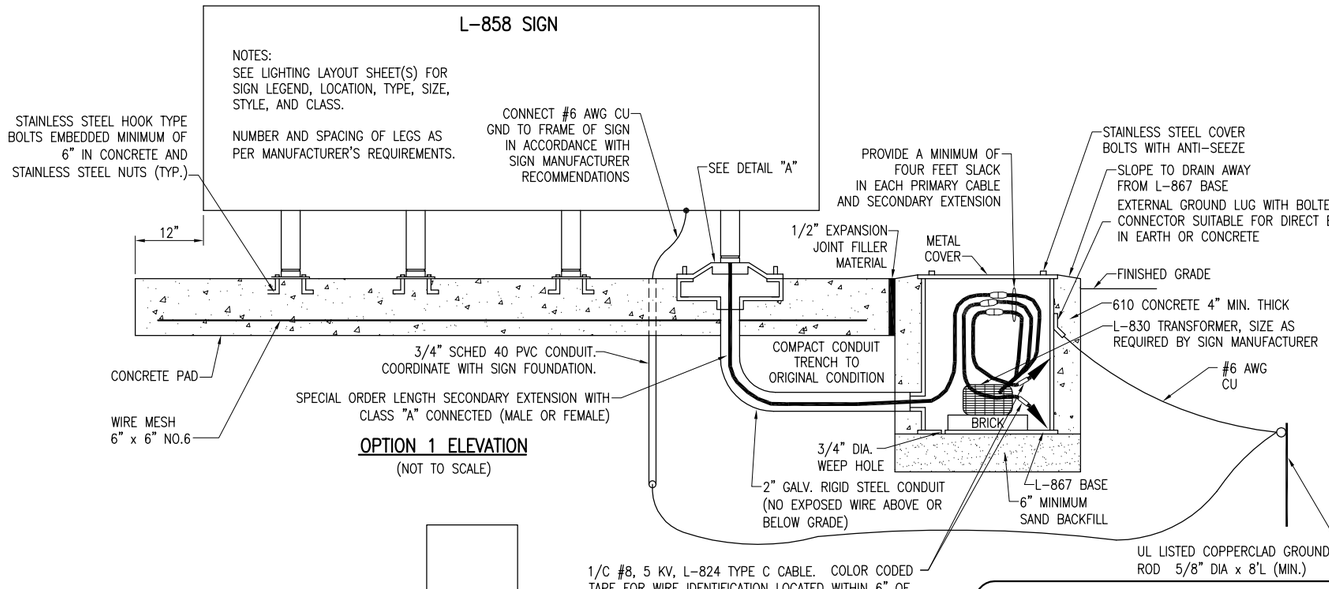
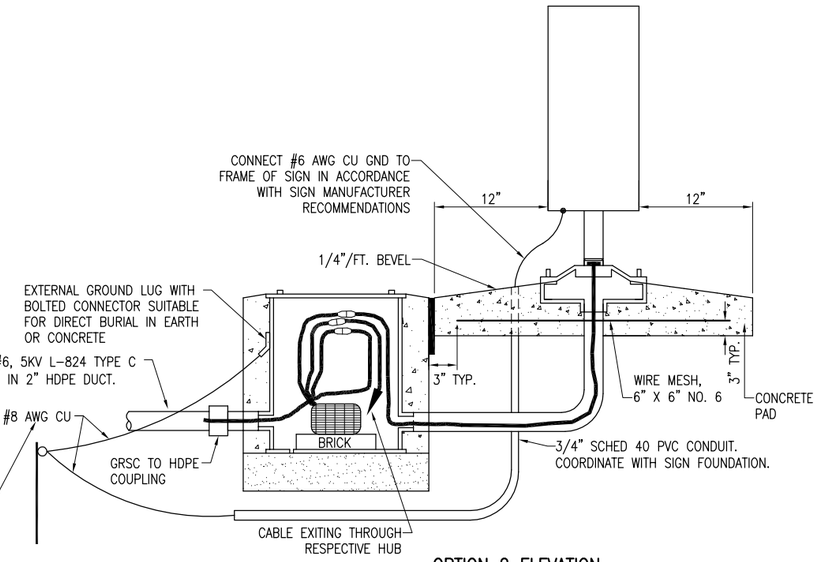
L-858 SIGN

NOTES:
SEE LIGHTING LAYOUT SHEET(S) FOR SIGN LEGEND, LOCATION, TYPE, SIZE, STYLE, AND CLASS.

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



OPTION 1 ELEVATION
(NOT TO SCALE)

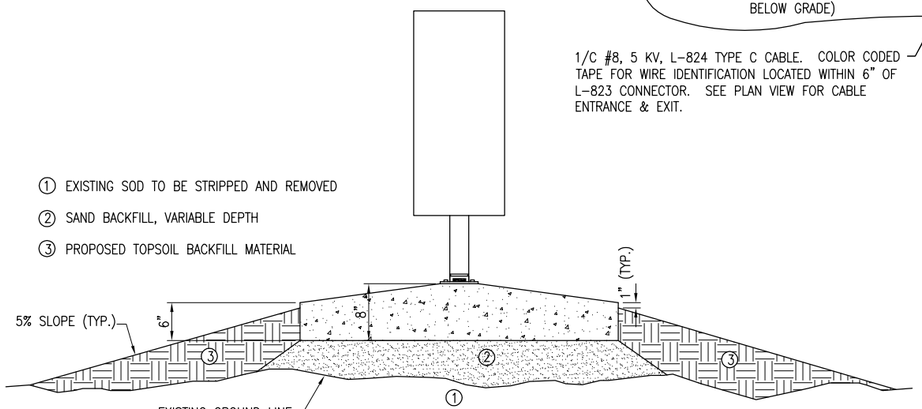


OPTION 2 ELEVATION
(NOT TO SCALE)

PER FAA AC 150/5340-30E DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. 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 $\frac{5}{8}$-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.

GENERAL NOTES

1. SEE LIGHTING LAYOUT SHEET FOR SIGN LEGEND, LOCATION, TYPE, SIZE, STYLE, AND CLASS.



SIGN DETAIL
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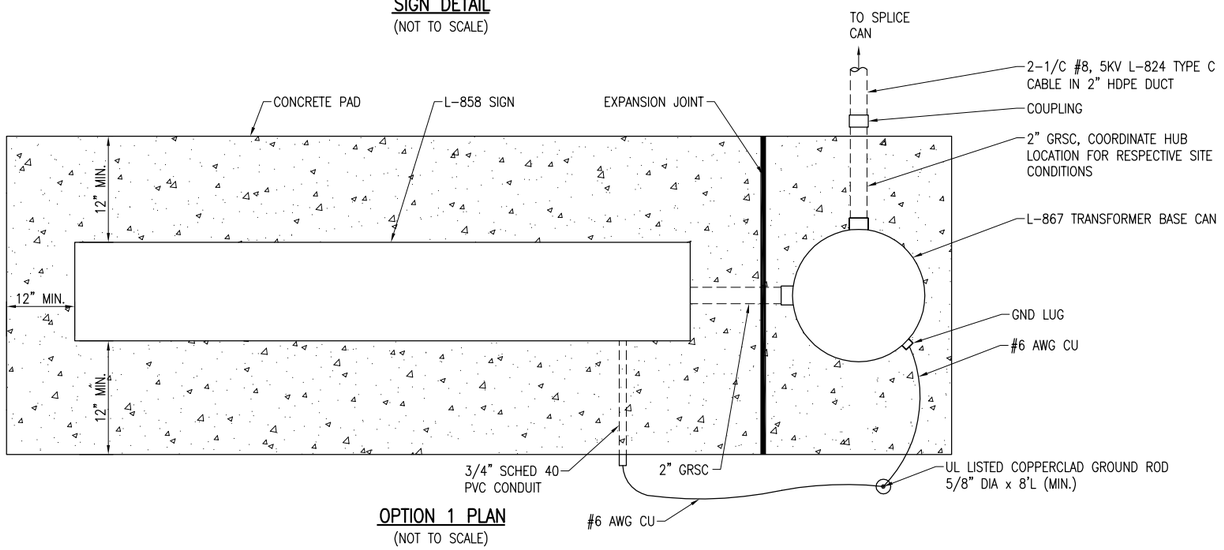
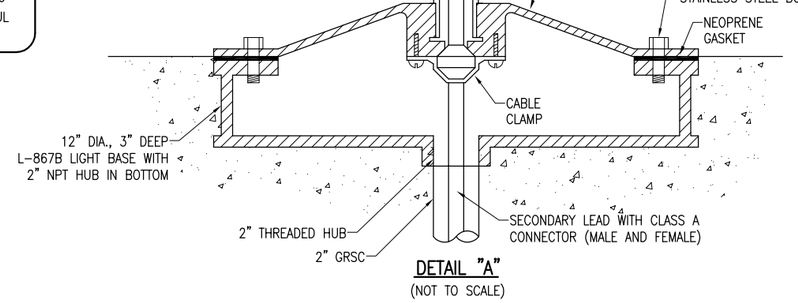
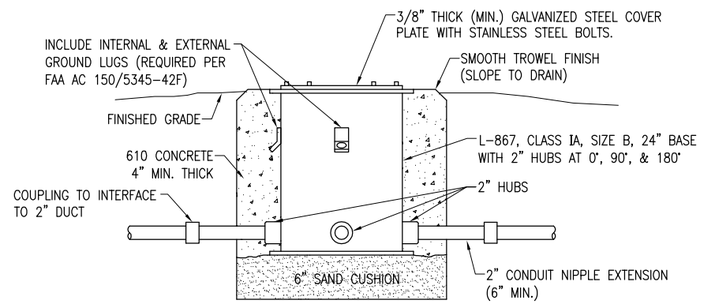


OPTION 1 PLAN
(NOT TO SCALE)



DETAIL "A"
(NOT TO SCALE)



TRANSFORMER BASE/SPLICE CAN DETAIL
(NOT TO SCALE)

NOTE:
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 150/5345-42F.

BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
SIA SOUTHERN ILLINOIS AIRPORT
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
Filename E-502.DWG
Scale NONE
Date 04/05/2011

LAYOUT	KNL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	JSL	04/11/2011

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Murphysboro, Illinois 62966
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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

ELECTRICAL DETAILS SHEET 2

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14 of 33 sheets

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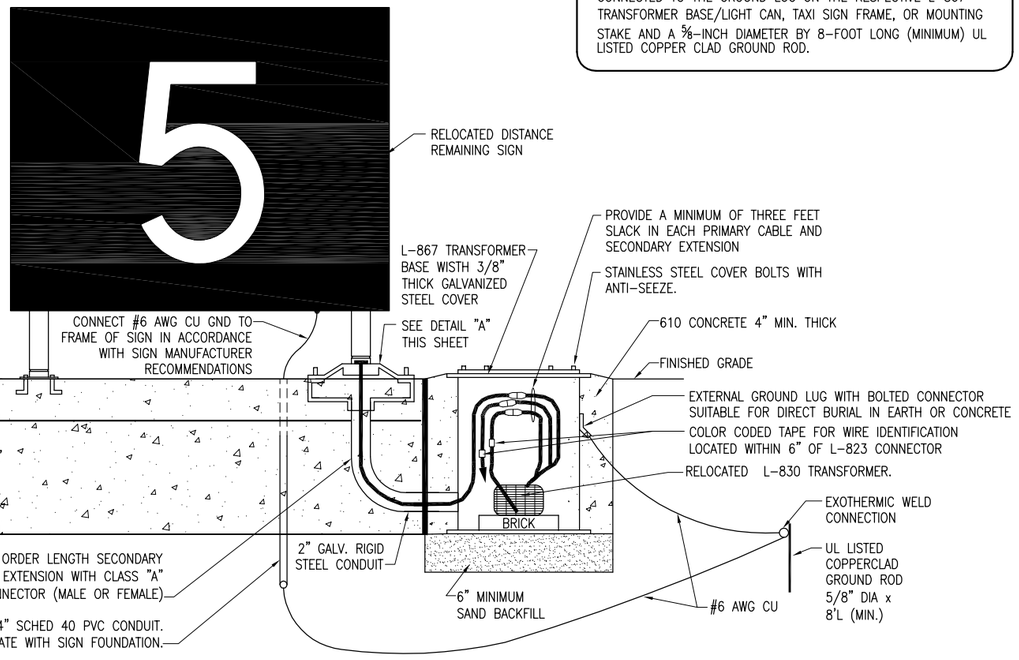
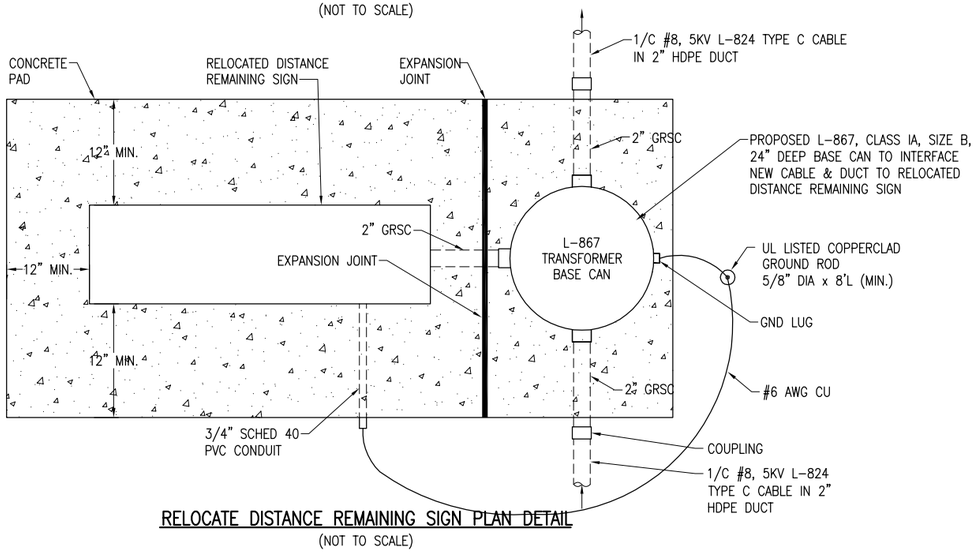
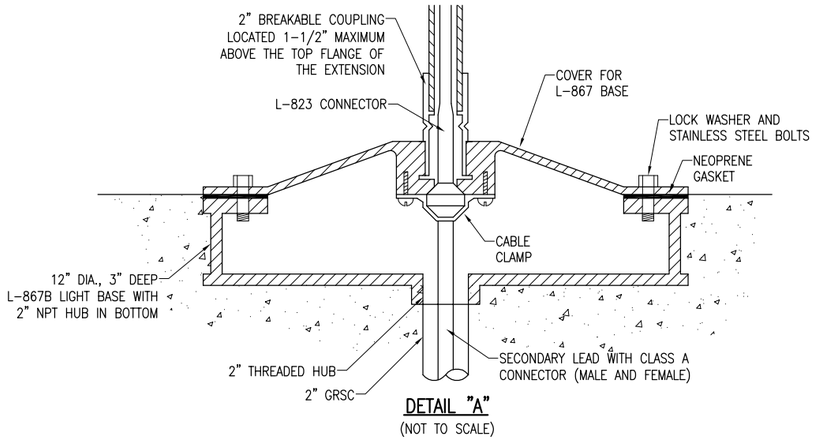
PER FAA AC 150/5340-30E DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, A LIGHT BASE GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. A LIGHT BASE GROUND SHALL BE INSTALLED AT EACH STAKE MOUNTED LIGHT AND EACH TRANSFORMER BASE/LIGHT CAN ASSOCIATED WITH RUNWAY LIGHTS, TAXIWAY LIGHTS, AND LIGHTED 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 5/8-INCH DIAMETER BY 8-FOOT LONG (MINIMUM) UL LISTED COPPER CLAD GROUND ROD.



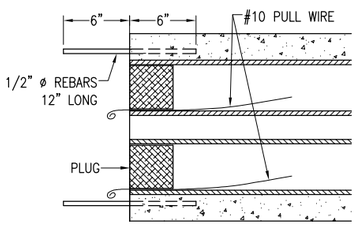
RELOCATED DISTANCE REMAINING SIGN ELEVATION DETAIL
(NOT TO SCALE)



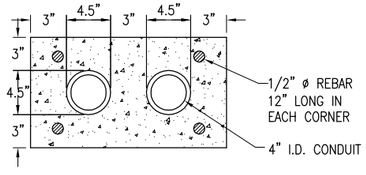
RELOCATE DISTANCE REMAINING SIGN PLAN DETAIL
(NOT TO SCALE)



DETAIL "A"
(NOT TO SCALE)



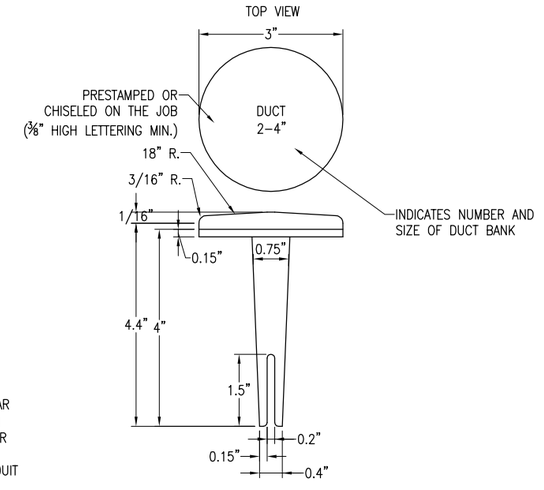
TYPICAL SECTION
(NOT TO SCALE)



2-DUCT BANK
(NOT TO SCALE)

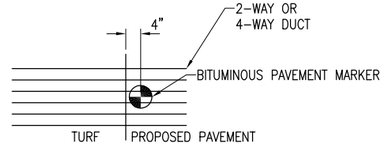
DUCT BANK NOTES:

1. ALL DIMENSION ARE MINIMUM.
2. INCLUDE DUCT SPACERS AS MANUFACTURED BY UNDERGROUND DEVICES INC., TO MAINTAIN PROPER SEPARATION OF CONDUITS.
3. REBAR IS REQUIRED TO ACCOMODATE FUTURE DUCT EXTENSIONS & INTERFACE AT DUCT BANK TERMINATIONS. DUCT BANKS TERMINATING IN MANHOLES DO NOT REQUIRE REBAR AT TERMINATIONS.
4. CONDUITS FOR CONCRETE ENCASED DUCT SHALL BE SCHEDULE 40 PVC CONFORMING TO ITEM 110.
5. MINIMUM DEPTH OF TOP OF DUCT ENCASEMENT SHALL BE 30" BELOW FINISHED GRADE.
6. HIGH VOLTAGE AND LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, HANDHOLE, OR MANHOLE.
7. HOMERUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME RACEWAY OR DUCT.



BITUMINOUS PAVEMENT DUCT MARKERS
"NOT TO SCALE"

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



DUCT MARKER DETAIL
"NOT TO SCALE"

CABLE & DUCT MARKER NOTES:

1. THE COST OF ALL PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT.
2. BITUMINOUS PAVEMENT DUCT MARKER PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN.

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800	LAYOUT	04/05/2011
Filename E-503.DWG	DRAWN	04/05/2011
Scale NO SCALE	REVIEWED	04/11/2011
Date 04/05/2011	KNL	
	CWS	
	JSL	

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

ELECTRICAL DETAILS SHEET 3

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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, 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 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 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. BLACK, RED, AND BLUE SHALL BE USED FOR PHASE CONDUCTORS ON 208/120 VAC 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.

14. SUPPORT FOR EXTERIOR MOUNTED EQUIPMENT SHALL USE HOT DIPPED GALVANIZED STEEL STRUT SUPPORT OR STAINLESS STEEL STRUT SUPPORT WITH STAINLESS STEEL 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 RECOMMENDATIONS.

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 TRANSFORMER CONNECTIONS WITH SUFFICIENT LAYERS OF INSULATING TAPE (3M SCOTCH 23 ALL–VOLTAGE SPLICING TAPE, 3M SCOTCH 130C LINERLESS RUBBER SPLICING TAPE, OR APPROVED EQUAL) AND COVER WITH VINYL ELECTRICAL TAPE (3M SCOTCH 88 VINYL ELECTRICAL TAPE OR APPROVED EQUAL) FOR FULL VALUE OF CABLE INSULATION VOLTAGE.

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

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 "FLASH PROTECTION".

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
SOUTHERN ILLINOIS AIRPORT

IL. PROJ.: MDH–4038 A.I.P. PROJ.: 3–17–0009–B33

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Scale NOT TO SCALE
Date 04/05/2011
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LAYOUT	KNL	04/05/2011
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Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF–SRE BUILDING

ELECTRICAL NOTES SHEET 1

16
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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 ELECTRICAL 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 ELECTRICAL 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, 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.

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 SHALL BE SIZE B, 24" DEEP, CLASS I, UNLESS OTHERWISE NOTED.

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.

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 PAPI SYSTEM IS PROVIDED, THE "T" SPLICES SHALL BE OF THE CAST TYPE.

29. CONCRETE USED FOR SLABS, FOOTINGS, BACKFILL AROUND TRANSFORMER HOUSINGS, MARKINGS, ETC. SHALL BE 3500 PSI, AIR-ENTRAINED.

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 WHATEVER 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 J.U.L.I.E. FOR UTILITY INFORMATION AT 1-800-892-0123.** 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.

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. PER FAA AC 150/5340-30E DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS, CHAPTER 12, PART 12.6; A GROUND MUST BE INSTALLED AT EACH LIGHT FIXTURE. 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 5/8-INCH DIAMETER BY 8-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 GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., SOLON, OHIO, (PHONE: 800-248-9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE: 918-663-1440), ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE: 800-842-7437), 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. 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 2008 NATIONAL ELECTRICAL CODE ARTICLE 250-12.

3. PER FAA 150/5340-30E THE RESISTANCE TO GROUND OF THE RESPECTIVE MOUNTING STAKE OR LIGHT BASE (WITH GROUND ROD CONNECTED) MUST BE 25 OHMS OR LESS.

BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

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IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800

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3125 New Era Road
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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

ELECTRICAL NOTES SHEET 2

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ELECTRICAL LEGEND – ONE-LINE DIAGRAM

	CABLE TERMINATOR/LUG, TERMINAL BLOCK, OR SPLICE
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	TOGGLE SWITCH / 2 POSITION SWITCH
	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 OR TERMINALS
XXX	EQUIPMENT, XXX = DEVICE DESCRIPTION
GND	GROUND BAR, GROUND BUS OR GROUND TERMINAL
S/N	SOLID NEUTRAL, NEUTRAL BUS, OR NEUTRAL TERMINAL
	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 SWTICH: N = NORMAL EM = EMERGENCY L = LOAD
G	ENGINE GENERATOR SET

ELECTRICAL LEGEND – PLANS

	CONDUIT (EXPOSED)
	CONDUIT OR UNIT DUCT (CONCEALED OR BURIED)
	DUCT
	DUCT
E	BURIED/UNDERGROUND ELECTRIC
OHE	OVERHEAD ELECTRIC
	TOGGLE SWITCH
	PUSH BUTTON STATION
	WALL OR CEILING MT'D. JUNCTION BOX. CONFIGURATION VARIES WITH USE
	SINGLE THROW DISCONNECT SWITCH
	SINGLE THROW, FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
M	MOTOR
T	TRANSFORMER
	ELECTRIC UTILITY METER
	ENCLOSURE
	CIRCUIT BREAKER PANEL–SEE SCHEDULES
CP	CONTROL PANEL
	GROUND ROD
	POLE WITH CAMERA

ELECTRICAL ABBREVIATIONS

A.F.F.	ABOVE FINSHED 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
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
HID	HIGH INTENSITY DISCHARGE
HOA	HAND OFF AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
J	JUNCTION BOX
KVA	KILOVOLT AMPERE(S)
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 CIRCLUAR 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 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, ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

2. ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE 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).

3. 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

208Y/120 VAC, 3 PHASE, 4 WIRE

PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

4. SEE RESPECTIVE SITE PLANS FOR SITE LEGEND INFORMATION.

5. 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.

6. ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES U.L. LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.

7. HIGH VOLTAGE & LOW VOLTAGE CIRCUITS SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, OR HANDHOLE.

8. PER NEC 511 THE GARAGE AREA OF THE ARFF/SRE BUILDING MIGHT BE CLASSIFIED AS A CLASS I, DIVISION 2, GROUP D HAZARDOUS LOCATION FOR A LEVEL OF 18 INCHES ABOVE THE FLOOR. ALL ELECTRICAL INSTALLATIONS SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEC 500, 501 AND 511 IN ADDITION TO THE OTHER APPLICABLE SECTIONS OF NEC. WHERE ELECTRICAL EQUIPMENT IS INSTALLED IN A CLASSIFIED HAZARDOUS LOCATION IT SHALL BE SUITABLE FOR USE IN THE RESPECTIVE CLASSIFIED HAZARDOUS LOCATION. WHERE POSSIBLE, AVOID INSTALLATION OF ELECTRICAL EQUIPMENT, RACEWAYS AND WIRING IN THE CLASSIFIED HAZARDOUS AREAS OF THE FACILITY.

BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

SIA SOUTHERN ILLINOIS AIRPORT

Hanson Project No. 08A00240 0800
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Scale NO SCALE
Date 04/05/2011

LAYOUT	KNL	04/05/2011
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REVIEWED	JSL	04/11/2011

HANSON

Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

ELECTRICAL LEGEND AND ABBREVIATIONS

18

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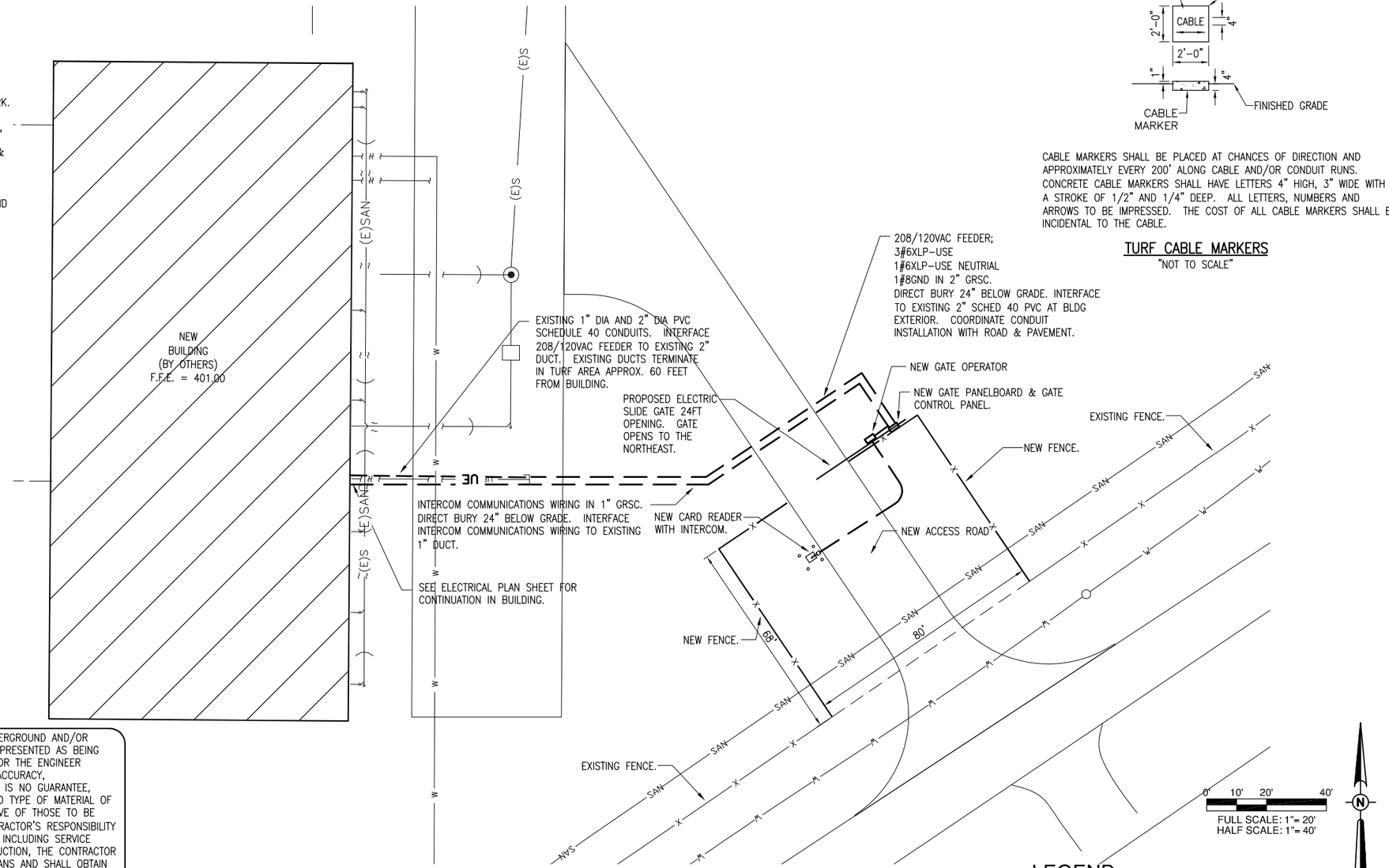
NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
2. SEE "PROPOSED SLIDE GATE DETAILS" SHEET FOR ADDITIONAL REQUIREMENTS ON ELECTRIC SLIDE GATE WORK.
3. COORDINATE INSTALLATION OF NEW FENCING, GATE POSTS, GATE, GATE OPERATOR AND ASSOCIATED ELECTRICAL AND CONTROL WORK WITH THE ALIGNMENT OF THE FENCING, & ROAD/PAVEMENT WORK.
4. COORDINATE ELECTRICAL WORK WITH FENCE WORK AND EXISTING SITE CONDITIONS, UTILITIES, LINES, ETC. TO AVOID INTERFERENCES.



CABLE MARKERS SHALL BE PLACED AT CHANCES OF DIRECTION AND APPROXIMATELY EVERY 200' ALONG CABLE AND/OR CONDUIT RUNS. CONCRETE CABLE MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH A STROKE OF 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.

TURF CABLE MARKERS
"NOT TO SCALE"

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.

LEGEND

- (E)G — EXISTING GAS LINE
- (E)W — EXISTING WATER LINE
- (E) E — EXISTING ELECTRICAL LINE
- (E)T — EXISTING TELEPHONE LINE
- X — EXISTING FENCE
- (E)S — EXISTING SANITARY LINE
- PROPOSED IMPROVEMENTS
- PROPOSED ELECTRICAL CABLES

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DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

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Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
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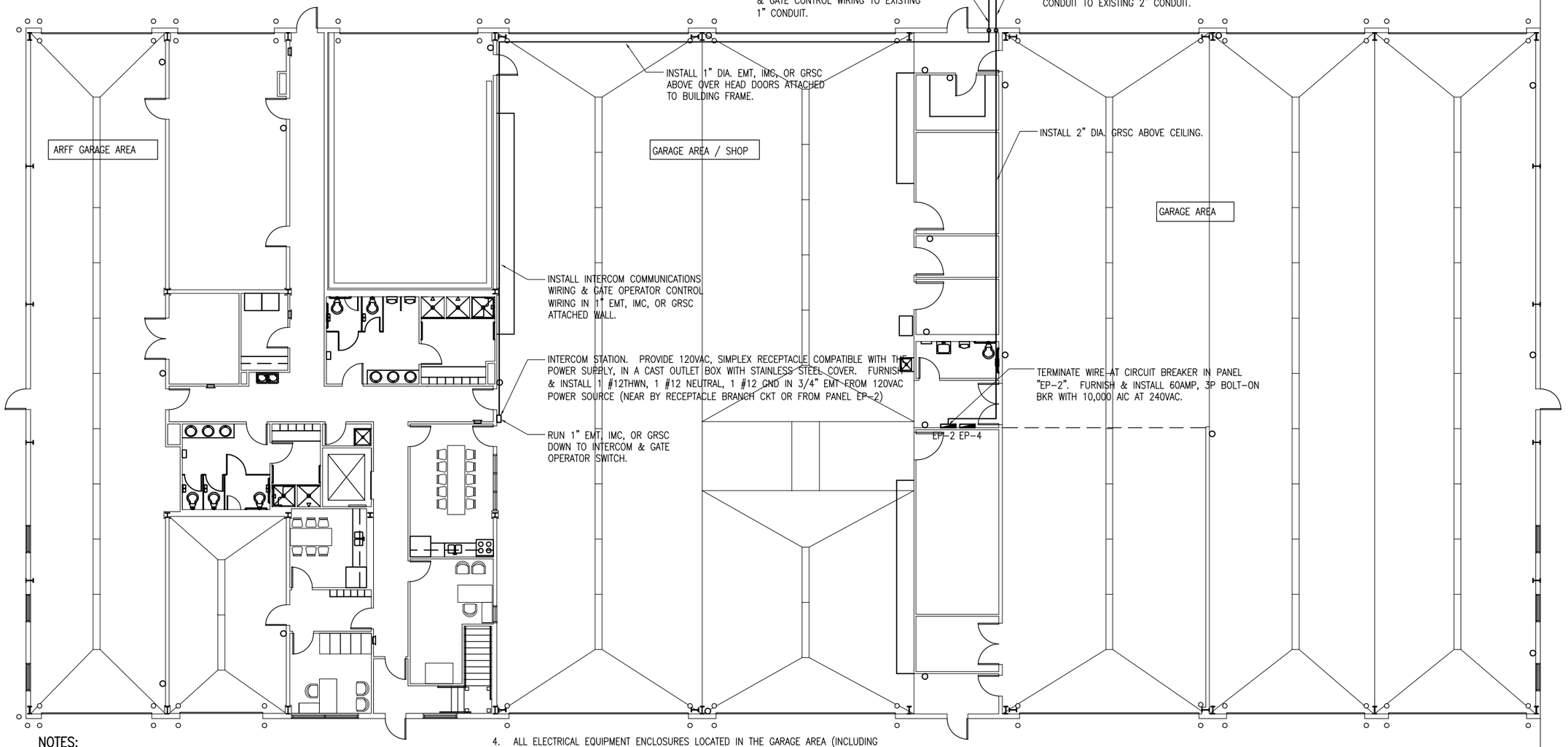
CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

ELECTRIC GATE POWER PLAN

SQ080



NOTES:

1. PER NEC 511 THE GARAGE AREA TO THE ARFF/SRE FACILITY MIGHT BE CLASSIFIED AS A CLASS I, DIVISION 2, GROUP D HAZARDOUS LOCATION FOR A LEVEL OF 18 INCHES ABOVE THE FLOOR. ALL ELECTRICAL INSTALLATIONS SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEC 500, 501 AND 511 IN ADDITION TO THE OTHER APPLICABLE SECTIONS OF NEC. WHERE ELECTRICAL EQUIPMENT IS INSTALLED IN A CLASSIFIED HAZARDOUS LOCATION IT SHALL BE SUITABLE FOR USE IN THE RESPECTIVE CLASSIFIED HAZARDOUS LOCATION. WHERE POSSIBLE, AVOID INSTALLATION OF ELECTRICAL EQUIPMENT, RACEWAYS AND WIRING IN THE CLASSIFIED HAZARDOUS AREAS OF THE FACILITY.
2. ALL CONDUIT RUNS SHALL BE OVERHEAD TO COMPLY WITH NEC 511.
3. CONDUIT FOR THE FEEDER CIRCUIT TO THE GATE PANELBOARD SHALL BE GRSC (GALVANIZED RIGID STEEL CONDUIT) WITH THREADED FITTINGS, INTERIOR CONDUIT FOR THE INTERCOM SYSTEM SHALL BE EMT WITH COMPRESSION FITTINGS OR IMC OR GRSC WITH THREADED FITTINGS. EXTERIOR CONDUITS SHALL BE GRSC. ALL WIRING SHALL BE IN CONDUIT.
4. ALL ELECTRICAL EQUIPMENT ENCLOSURES LOCATED IN THE GARAGE AREA (INCLUDING INTERCOM, SAFETY SWITCHES, PANELBOARDS, MOTOR STARTERS, ETC.) SHALL BE INSTALLED SUCH THAT THE BOTTOM OF THE ENCLOSURE IS NOT LESS THAN 20" ABOVE FINISHED FLOOR ELEVATION. NO CONDUITS SHALL BE INSTALLED THAT EXTEND INTO THE AREA 18" ABOVE FLOOR. ALL CONDUIT RUNS SHALL BE OVERHEAD TO COMPLY WITH NEC 511.
5. RECEPTACLES IN THE GARAGE AREA SHALL BE MOUNTED 48" FROM TOP OF THE RECEPTACLE TO FINISHED GRADE. SURFACE MOUNT OUTLET BOXES SHALL BE DIE CAST CONSTRUCTION HUBBELL/RACO/BELL, APPLETON, CROUSE-HINDS, OR APPROVED EQUAL WEATHERPROOF OUTLET BOXES WITH STAINLESS STEEL COVER PLATES.
6. COORDINATE ELECTRICAL WORK WITH BUILDING WORK, MECHANICAL, PLUMBING, OH DOORS, SITE WORK, THE RESPECTIVE SERVING UTILITY COMPANIES & GENERAL WORK TO AVOID INTERFERENCES.
7. CONTRACTOR SHALL PROVIDE AND INSTALL HOT-DIPPED GALVANIZED STEEL STRUT SUPPORT & CORROSION RESISTANT HARDWARE FOR MOUNTING ELECTRICAL PANELS, SWITCHES, OUTLETS, BOXES, CONDUITS & OTHER EQUIPMENT. SECURELY FASTEN TO BUILDING GIRT. PROVIDE ADDITIONAL STRUT HARDWARE SUPPORTED FROM THE FLOOR WHERE APPLICABLE.

N

PROPOSED ELECTRICAL PLAN

SCALE 1/8"=1'-0"

3 0 6 12

N

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33

IL. PROJ.: MDH-4038

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED ARFF/SRE BUILDING ELECTRICAL PLAN

20

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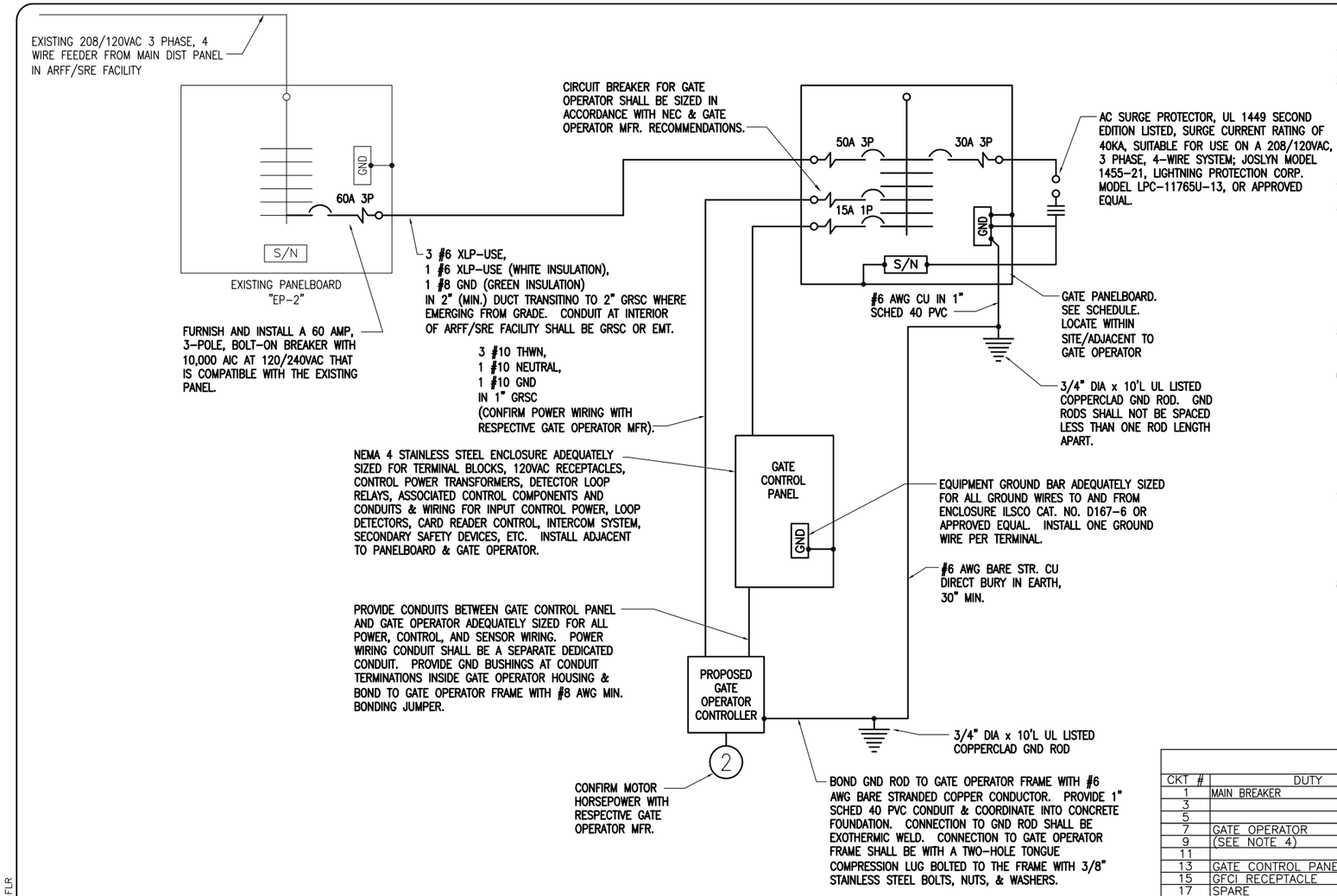

PROPOSED ELECTRICAL ONE LINE FOR GATE P3 OPERATOR

LEGEND PLATE SCHEDULE

DEVICE	LABEL
GATE PANELBOARD	GATE PANELBOARD 208/120VAC, 3PH 4W FED FROM PANEL EP-2
GATE CONTROL PANEL	GATE CONTROL PANEL 120VAC, 1PH, 2W
GATE OPERATOR	GATE OPERATOR 208VAC NOTE 120V CONTROL POWER FED FROM SEPARATE CIRCUIT

NOTE: 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/OR 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.

NOTES

1. SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
2. 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, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
3. ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
4. ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, SIMPLEX RECEPTACLES, LOOP DETECTOR AMPLIFIERS, SECONDARY SAFETY DEVICE EQUIPMENT, AND ANY OTHER ASSOCIATED CONTROLS SHALL BE INSTALLED EITHER INSIDE THE GATE OPERATOR CONTROL PANEL OR INSIDE A SEPARATE NEMA 4 STAINLESS STEEL CONTROL PANEL ENCLOSURE. WHERE THE CONTROL EQUIPMENT IS TO BE INSTALLED INSIDE THE GATE OPERATOR CONTROL PANEL THE CONTRACTOR SHALL COORDINATE THIS WITH THE GATE OPERATOR MANUFACTURER AND THE RESPECTIVE GATE OPERATOR EQUIPMENT SUPPLIER. LOCATING THESE CONTROLS OUTSIDE OF GATE OPERATOR CONTROL PANEL BUT WITHIN THE GATE OPERATOR HOUSING WILL NOT MEET THIS REQUIREMENT.
5. PROPOSED 24 FT. ELECTRIC SLIDE GATE AND ASSOCIATED WORK SHOWN ON THIS SHEET WILL BE PAID FOR UNDER ITEM AR162724 ELECTRIC GATE - 24'.
6. PER NEC 511 THE GARAGE AREA OF THE ARFF/SRE FACILITY MIGHT BE CLASSIFIED AS A CLASS I, DIVISION 2, GROUP D HAZARDOUS LOCATION FOR A LEVEL OF 18 INCHES ABOVE THE FLOOR. ALL ELECTRICAL INSTALLATIONS SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEC 500, 501 AND 511 IN ADDITION TO THE OTHER APPLICABLE SECTIONS OF NEC. WHERE ELECTRICAL EQUIPMENT IS INSTALLED IN A CLASSIFIED HAZARDOUS LOCATION IT SHALL BE SUITABLE FOR USE IN THE RESPECTIVE CLASSIFIED HAZARDOUS LOCATION. WHERE POSSIBLE, AVOID INSTALLATION OF ELECTRICAL EQUIPMENT, RACEWAYS AND WIRING IN THE CLASSIFIED HAZARDOUS AREAS OF THE FACILITY.
7. FURNISH & INSTALL A WEATHERPROOF WARNING LABEL FOR EACH SAFETY SWITCH, PANELBOARD, LOAD CENTER, CUTOUT, & CONTROL PANEL TO WARN PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS, PER THE REQUIREMENTS OF NEC 110.16 "FLASH PROTECTION". LABELS SHALL BE HAZARD COMMUNICATION SYSTEMS, LLC (190 OLD MILFORD RD., BOX 1174, MILFORD, PA 18337. PHONE: 1-877-748-0244) PART NO. H6010-9VWHBJ OR APPROVED EQUAL.
8. GATE OPERATORS SHALL BE RATED FOR THE RESPECTIVE VOLTAGE AVAILABLE AT THE SITE AND SHALL PROPERLY OPERATE ON THE RESPECTIVE NOMINAL VOLTAGE SYSTEM PLUS OR MINUS 10 PERCENT. CONTRACTOR SHALL CONFIRM WITH THE GATE OPERATOR MANUFACTURER THAT THE RESPECTIVE GATE OPERATOR HE SELECTS IS RATED SUITABLE FOR THE RESPECTIVE APPLICATION, IS SUITABLE AND COMPATIBLE WITH THE RESPECTIVE GATE, AND WILL OPERATE PROPERLY ON THE RESPECTIVE POWER SUPPLY. NOTE THE GATE OPERATOR MUST ALSO OPERATE PROPERLY ON STANDBY ENGINE GENERATOR POWER AND SHALL NOT REQUIRE MANUAL RESET DUE TO TRANSFER FROM UTILITY POWER TO STANDBY GENERATOR POWER OR BACK TO UTILITY POWER. THE GATE OPERATOR MUST NOT REQUIRE MANUAL RESET FOR MOMENTARY POWER OUTAGES. WHERE A POWER OUTAGE OCCURS THE GATE OPERATOR SHALL AUTOMATICALLY RESUME NORMAL OPERATION UPON RESTORATION OF POWER.

GATE PANELBOARD SCHEDULE

CKT #	DUTY	SIZE		SIZE	DUTY	CKT #
1	MAIN BREAKER	50A 3P		30A 3P	AC SURGE PROTECTOR	2
3		---		---		4
5		---		---		6
7	GATE OPERATOR	15A 3P			BLANK	8
9	(SEE NOTE 4)	---			BLANK	10
11		---			BLANK	12
13	GATE CONTROL PANEL	15A 1P			BLANK	14
15	GFCI RECEPTACLE	20A 1P			BLANK	16
17	SPARE	15A 1P			BLANK	18

S/N GND

100 AMP, 208/120 VAC, 3 PHASE, 4 WIRE, 18 CIRCUIT MAIN LUGS PANELBOARD WITH A 50 AMP, 3 POLE BACK FED MAIN BREAKER RATED 10,000 AIC AT 240VAC IN A NEMA 3R & 12 ENCLOSURE SQUARE D CAT. NO. NQ418LIC WITH MH26WP ENCLOSURE, OR APPROVED EQUAL. PANELBOARD BUSSES, INCLUDING NEUTRAL SHALL BE COPPER, INCLUDE COPPER EQUIPMENT GROUND BAR.

NOTES

1. PANELBOARD BUSSES SHALL BE COPPER. NEUTRAL SHALL BE COPPER. EQUIPMENT GROUND BAR SHALL BE COPPER.
2. ALL BRANCH CIRCUIT & FEEDER BREAKERS SHALL BE BOLT-ON TYPE WITH 10,000 AIC AT 120/240 VAC.
3. INCLUDE ENGRAVED, PHENOLIC OR PLASTIC LEGEND PLATE LABELED "GATE PANEL, 208/120 VAC, 3PH, 4W FED FROM PANEL EP-2". INCLUDE ADDITIONAL LEGEND PLATE FOR THE MAIN BREAKER LABEL "MAIN DISCONNECT".
4. CIRCUIT BREAKERS AND WIRING SHALL BE SIZED FOR THE ACTUAL EQUIPMENT FURNISHED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S RECOMMENDATION AND NEC. CONTRACTOR SHALL ADJUST CIRCUIT BREAKER SIZES & WIRING WHERE APPLICABLE TO CONFORM WITH MFR RECOMMENDATIONS AND NEC.
5. FURNISH & INSTALL A DUPLEX, 120 VAC SPEC GRADE, 20 AMP, NEMA 5-20R UL LISTED GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE IN A CAST/WEATHERPROOF OUTLET BOX WITH WEATHERPROOF COVER PLATE. LOCATE ADJACENT TO PANEL. PROVIDE 1 #12 THWN, 1 #12 NEUTRAL, 1 #12 GND IN 3/4" GRSC NIPPLE FROM PANEL TO RECEPTACLE.
6. PANELBOARD SHALL BE MANUFACTURED IN THE UNITED STATES TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN REQUIREMENTS. PROVIDE CERTIFICATION OF MANUFACTURE IN THE UNITED STATES WITH SHOP DRAWING SUBMITTAL.

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No.	08A00240	0800
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HANSON
Hanson Professional Services Inc.
3125 New Era Road
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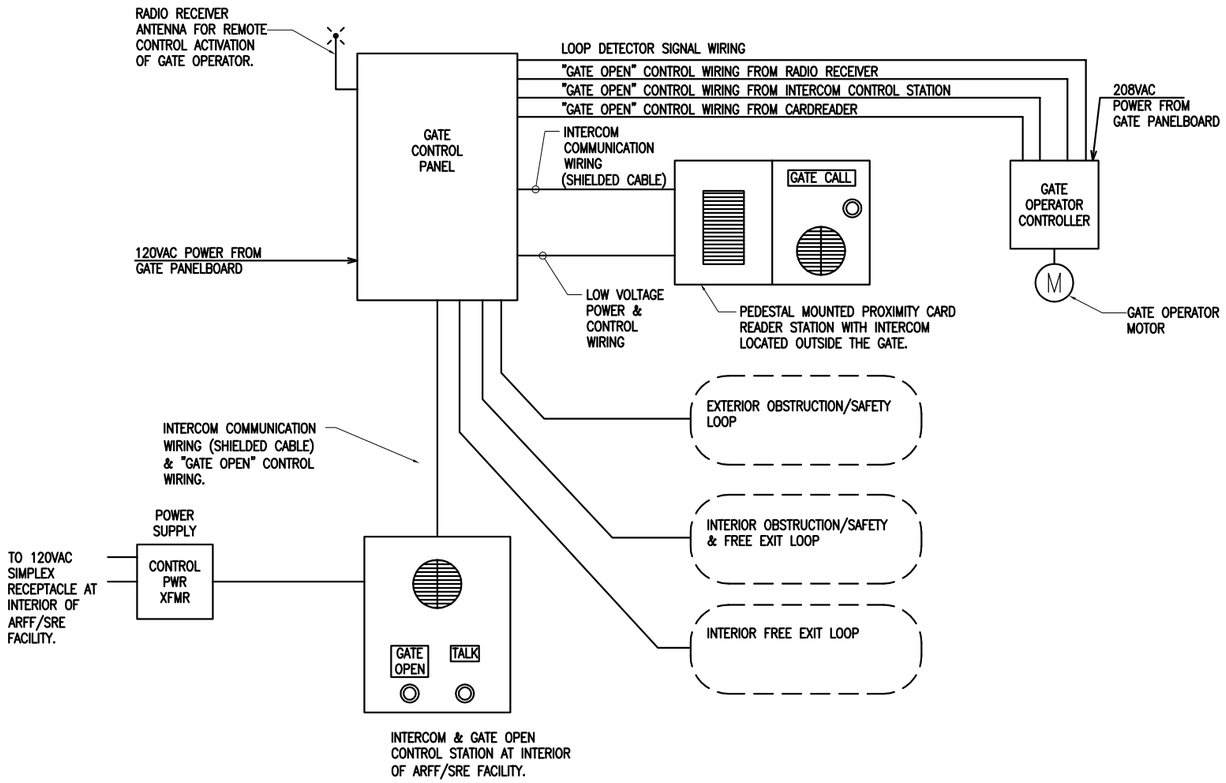
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED GATE P3 OPERATOR ELECTRICAL ONE LINE



CONTROL BLOCK DIAGRAM FOR GATE P3 OPERATOR

NOTES

1. ALL WIRING SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT AT EXTERIOR & UNDERGROUND LOCATION. WIRING SHALL BE INSTALLED IN GALVANIZED RIGID STEEL CONDUIT OR EMT AT INTERIOR LOCATIONS.
2. GATE CONTROL PANEL ENCLOSURE SHALL BE NEMA 4X STAINLESS STEEL WITH HINGED COVER, ADEQUATELY SIZED TO HOUSE TERMINAL BLOCKS, RECEPTACLES, CONTROL POWER TRANSFORMERS, LOOP DETECTOR RELAYS, RADIO RECEIVERS, CONTROL COMPONENTS, GROUND BAR, & ASSOCIATED CONDUITS & WIRING. COORDINATE CONTROL SYSTEM WITH THE RESPECTIVE GATE OPERATOR TO ENSURE COMPATIBILITY AND A PROPERLY OPERATING SYSTEM.
3. THE FREE EXIT FUNCTION WILL BE ACTIVATED BY THE TWO INTERIOR LOOPS. FREE EXIT IS ALLOWED ONLY WHEN BOTH THE "FREE EXIT" AND INTERIOR "OBSTRUCTION/SAFETY & FREE EXIT" LOOPS ARE ACTIVATED SIMULTANEOUSLY. USE DUAL CONTACT RELAY DETECTORS. PROVIDE ONE DETECTOR FOR EACH LOOP. SERIES WIRE CONNECTIONS BETWEEN THE "FREE EXIT" DETECTOR AND THE INTERIOR "OBSTRUCTION/SAFETY & FREE EXIT" LOOP. COORDINATE & CONFIRM CONTROLS & WIRING WITH THE RESPECTIVE GATE OPERATOR REPRESENTATIVE.
4. EQUIPMENT GROUND WIRES SHALL BE INCLUDED WITH EACH POWER CIRCUIT AND EACH CONTROL CIRCUIT.
5. MAINTAIN SEPARATION OF 208/120VAC POWER CIRCUITS AND LOW VOLTAGE (EXAMPLE 24V, 16.5V, 12V) CIRCUITS.
6. CONTROL WIRING SHALL BE IN ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS FOR THE RESPECTIVE APPLICATION AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS & SPECIFICATIONS.

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

SIA SOUTHERN ILLINOIS AIRPORT

Hanson Project No. 08A0024D 0800
Filename E-602.DWG
Scale NOT TO SCALE
Date 04/05/2011

LAYOUT	KNL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	JSL	04/11/2011

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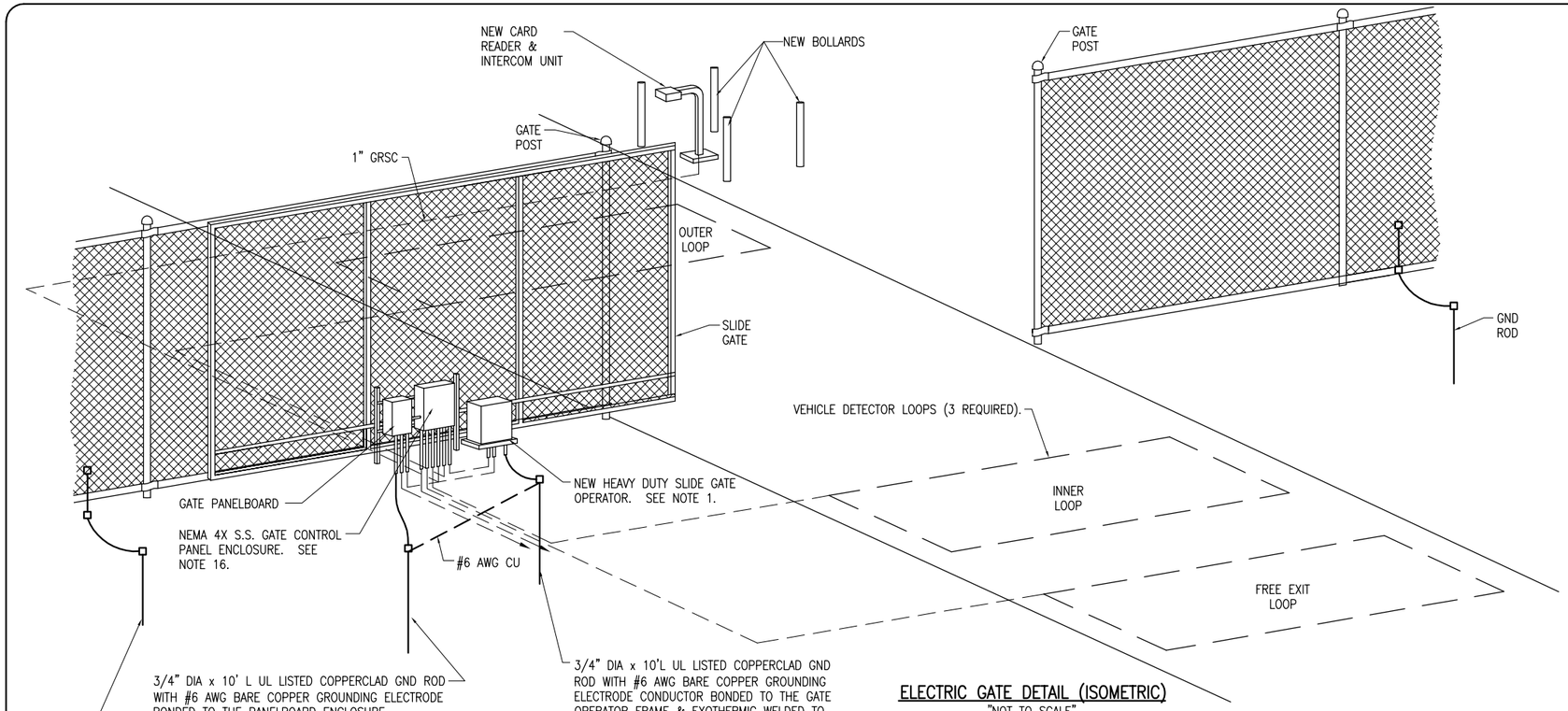
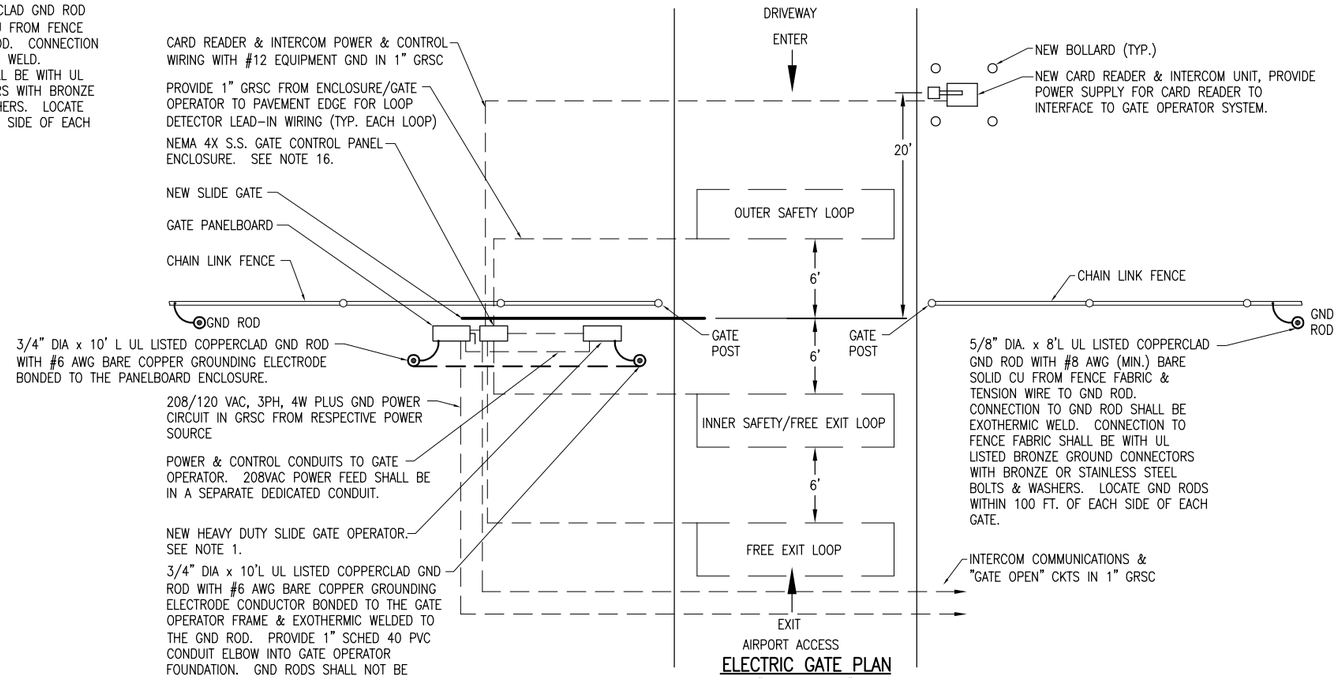
CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED
CONTROL BLOCK DIAGRAM
FOR GATE P3 OPERATOR

22
22 of 33 sheets



ELECTRIC GATE DETAIL (ISOMETRIC)
"NOT TO SCALE"



ELECTRIC GATE PLAN
"NOT TO SCALE"

NOTES:

1. SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON RESPECTIVE GATE & GATE OPERATOR SYSTEM.
2. ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE SITE PLAN FOR GATE.
3. CONCRETE FOUNDATIONS SHALL BE PROVIDED FOR THE SLIDE GATE OPERATOR UNIT. FOUNDATION FOR THE GATE OPERATOR SHALL BE 48" (MIN.) IN DEPTH AND OF THE SIZE RECOMMENDED BY THE MANUFACTURER.
4. 1" GRS CONDUIT WILL BE REQUIRED BETWEEN THE GATE CONTROL PANEL INSTALLATION AND THE CARD READER ACCESS CONTROL UNIT, AND THE DETECTOR LOOPS. THE MINIMUM BURYING DEPTH IS 24". ALL METAL CONDUITS ENTERING THE GATE OPERATOR SHALL BE BONDED TO THE GATE OPERATOR FRAME WITH A #8 AWG (MIN.) COPPER BONDING JUMPER. CONFIRM CONTROL WIRING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR SALES AND SERVICE REPRESENTATIVE.
5. THE GUARD/BOLLARD POSTS SHALL BE 4" DIA. STEEL (HEAVY WALL) PIPE, CONCRETE FILLED, AND SHALL EXTEND FROM THE TOP OF THE CARD CONTROL UNIT TO A DEPTH OF 48" BELOW THE GROUND LINE. THE CONCRETE FOOTER DIMENSION SHALL BE AS DETAILED HEREIN. GUARD/BOLLARD POSTS SHALL BE PAINTED WITH YELLOW COLORED ENAMEL FINISH.
6. THE SLIDING GATE SHALL BE CANTILEVER TYPE OF THE SIZE CALLED FOR ON THE PLANS, SHALL HAVE AN ENCLOSED ROLLER ASSEMBLY WHICH IS PROTECTED FROM FREEZING RAIN AND SNOW, AND SHALL BE AS MANUFACTURED BY TYMETAL CORPORATION OR APPROVED EQUAL.
7. (RESERVED).
8. CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT MANAGER.
9. (RESERVED)
10. CONCRETE USED FOR INSTALLING THE GATE OPERATOR, ASSOCIATED EQUIPMENT, & FENCE SHALL MEET THE REQUIREMENTS OF STRUCTURAL PORTLAND CEMENT CONCRETE ITEM 610.
11. 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 UL LISTING, ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
12. PROVIDE A WEATHERPROOF ENGRAVED PHENOLIC OR PLASTIC LEGEND PLATE FOR THE PANELBOARD AT THE RESPECTIVE GATE OPERATOR NOTING THE GATE SERVED, VOLTAGE, AND RESPECTIVE POWER SOURCE CIRCUIT AND LOCATION.
13. PAYMENT FOR EACH SLIDE GATE, GATE OPERATOR, AND ALL ASSOCIATED CONTROL & SAFETY DEVICES SHALL BE ON A LUMP SUM BASIS AND SHALL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, CABLE IN CONDUIT, DUCT, OR UNIT DUCT, GROUNDING, LABOR, TOOLS, COORDINATION, TESTING, AND INCIDENTALS REQUIRED TO INSTALL THE GATE COMPLETE AND IN OPERATING CONDITION.
14. CONTROL CIRCUIT WIRING SHALL NOT BE ROUTED THROUGH THE PANELBOARD.
15. (RESERVED)
16. CONTROL POWER TRANSFORMERS, POWER SUPPLIES, RECEPTACLES, LOOP DETECTOR AMPLIFIERS, RADIO RECEIVER, SECONDARY SAFETY DEVICE EQUIPMENT, AND OTHER ASSOCIATED CONTROLS SHALL BE INSTALLED INSIDE A SEPARATE NEMA 4 STAINLESS STEEL CONTROL PANEL ENCLOSURE. THE CONTRACTOR SHALL COORDINATE THE CONTROL SYSTEM WITH THE GATE OPERATOR MANUFACTURER AND THE RESPECTIVE GATE OPERATOR EQUIPMENT SUPPLIER.

VEHICLE DETECTOR LOOPS		
GATE SIZE	LOOP SIZE	NO. OF TURNS
8' TO 12'	4' X 6'	3 TURNS
12' TO 16'	4' X 10'	2 TURNS
16' TO 20'	6' X 14'	2 TURNS
20' TO 24'	6' X 18'	2 TURNS
24' TO 30'	6' X 22'	2 TURNS
30' TO 34'	6' X 26'	2 TURNS

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

LAYOUT	KNL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	JSL	04/11/2011

Hanson Project No. 08A00240 0800
Filename E-505.DWG
Scale NOT TO SCALE
Date 04/05/2011

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED
SLIDE GATE DETAILS

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GENERAL NOTES

METAL POSTS – METAL POSTS (LINE, CORNER, END, PULL AND GATE POSTS) SHALL BE THE SHAPES, DIMENSIONS, AND WEIGHT SHOWN IN THE TABLES. (1) STEEL PIPE, TYPE A, SHALL BE HOT–DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF ASTM F 1083.

TOP RAILS – THE TOP RAILS SHALL BE 1.625 INCH O.D., GALVANIZED OR ALUMINUM COATED PIPE HAVING A MINIMUM BENDING STRENGTH OF 202 LBS. AT THE CENTER OF A 10 FT. SPAN.

STRETCHER BARS – THE STRETCHER BARS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 1/4" X 3/4" AND THE STRETCHER BAR BANDS SHALL BE FLAT GALVANIZED STEEL BARS NOT LESS THAN 1/8" X 1' WITH A 3/8" DIAMETER GALVANIZED CARRIAGE BOLT. THE ZINC COATING SHALL BE NOT LESS THAN 1.2 OUNCES PER SQUARE FOOT OF SURFACE.

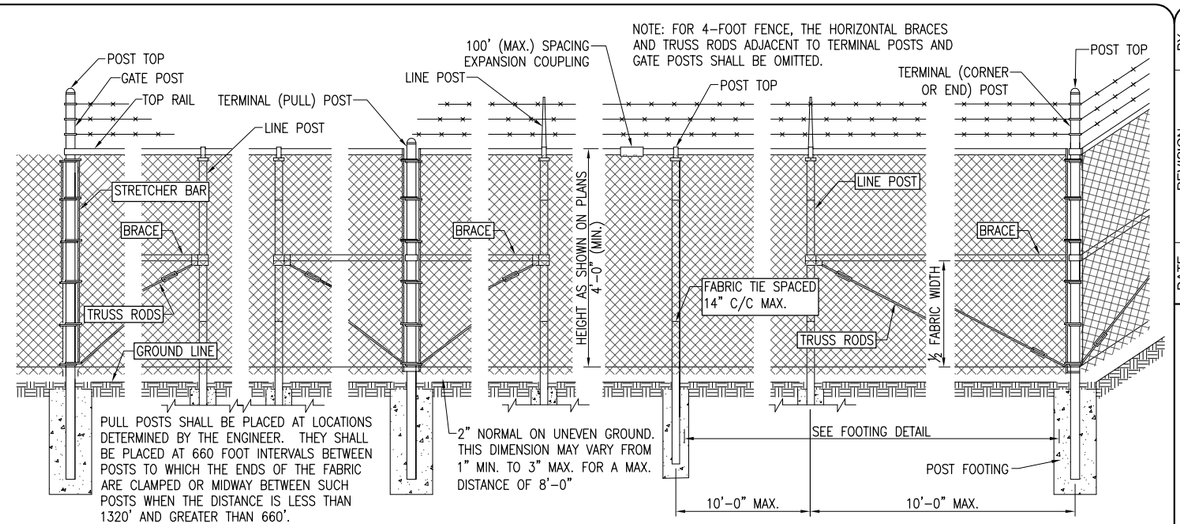
FABRIC TIES – THE FABRIC TIES SHALL BE HOG RINGS, OR ALUMINUM WIRE, OR GALVANIZED STEEL WIRE NOT LESS THAN #9 GAUGE. THE ZINC COATING SHALL BE NOT LESS THAN 1.2 OUNCES PER SQUARE FOOT OF SURFACE.

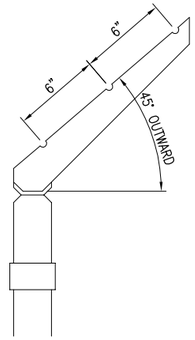
FITTINGS – THE PERTINENT FITTINGS FOR FENCE AND GATES SHALL BE STEEL OR MALLEABLE IRON OR WROUGHT IRON OR APPROVED TYPE AND SHALL BE GALVANIZED. THE ZINC COATING SHALL BE NOT LESS THAN 1.2 OUNCES PER SQUARE FOOT OF SURFACE IN ACCORDANCE WITH AASHTO M 232.

STRUCTURAL P.C. CONCRETE – THE STRUCTURAL P.C. CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ITEM 610 OF THE STANDARD SPECIFICATIONS.

BOLTS AND NUTS – THE BOLTS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 307 AND SHALL BE ZINC COATED IN ACCORDANCE WITH AASHTO M 232 OR M 298, CLASS 50.

BARBED WIRE – BARBED WIRE MAY BE EITHER GALVANIZED STEEL BARBED WIRE OR ALUMINUM–COATED STEEL BARBED WIRE CONSISTING OF 2 STRANDS OF 12 1/2 GAUGE WIRE WITH 4–POINT BARBS OF 14 GAUGE WIRE SPACED 5 INCHES APART CONFORMING TO THE FOLLOWING REQUIREMENTS: (1) GALVANIZED BARBED WIRE SHALL CONFORM TO THE SPECIFICATIONS OF ZINC–COATED (GALVANIZED) STEEL BARBED WIRE,AASHTO M 280, CLASS 3 WITH A MINIMUM COATING OF 0.80 OUNCES PER SQUARE FOOT OF WIRE SURFACE (2) ALUMINUM– COATED STEEL BARBED WIRE SHALL CONFORM TO THE SPECIFICATIONS FOR GALVANIZED STEEL BARBED WIRE, EXCEPT THE WIRE SHALL BE ALUMINUM COATED. THE WIRE SHALL HAVE NOT LESS THAN 0.25 OUNCES OF COATING OF ALUMINUM ALLOY PER SQUARE FOOT OF UNCOATED SURFACE. THE WEIGHT OF THE ALUMINUM ALLOY COATING SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T 213.



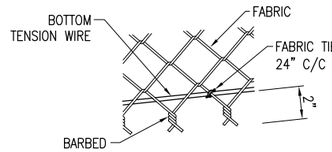


DETAIL – BARBED WIRE ARM OF LINE POST

8' FENCE–POST & BRACE TABLE

DESCRIPTION	DIA. – INCH (O.D.)	
LINE POST	2.875	
TERMINAL POST	4.0	
END POST	4.0	
CORNER POST	4.0	
PULL POST	4.0	
GATE POST	4.0	
TOP RAIL	1.66	

NOTE: ONLY ROUND POSTS WILL BE PERMITTED.

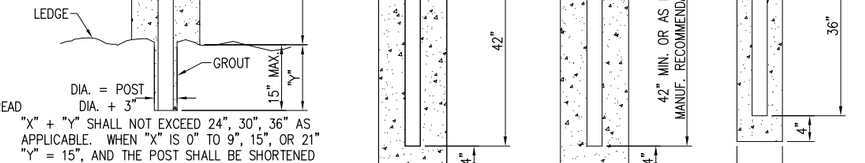


METHOD OF TYING FABRIC TO TENSION WIRE

PULL POST ARRANGEMENT

LINE POST ARRANGEMENT

CORNER OR END POST ARRANGEMENT

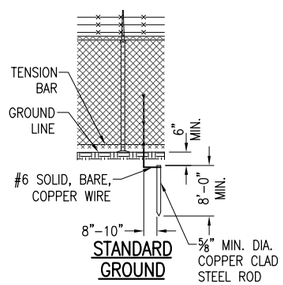


FOOTING FOR POST WHEN ROCK LEDGE IS ENCOUNTERED

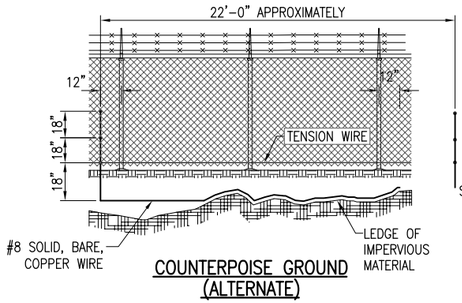
FOOTING FOR TERMINAL POST

FOOTING FOR GATE POST

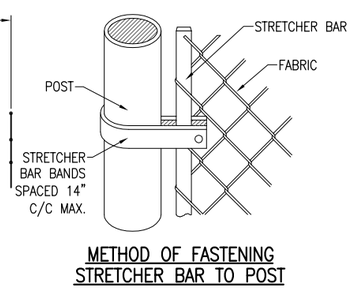
FOOTING FOR LINE POST



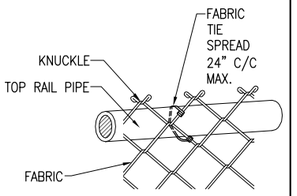
STANDARD GROUND



COUNTERPOISE GROUND (ALTERNATE)



METHOD OF FASTENING STRETCHER BAR TO POST

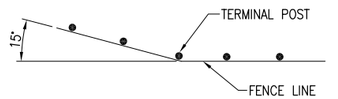


METHOD OF TYING FABRIC TO PIPE

PROTECTIVE ELECTRICAL GROUND

GENERAL NOTE:

CONTINUOUS FENCE SHALL BE GROUNDED AT INTERVALS NOT EXCEEDING 500 FT IN URBAN AREAS AND 1,000 FT IN RURAL AREAS. THERE SHALL BE A GROUND WITHIN 100 FT OF GATES IN EACH SECTION OF THE FENCE ADJACENT TO THE GATE. FENCE UNDER A POWER LINE SHALL BE GROUNDED BY THREE GROUNDS; ONE DIRECTLY UNDER THE CROSSING AND ONE ON EACH SIDE 25 FT TO 50 FT AWAY. A SINGLE GROUND SHALL BE LOCATED DIRECTLY UNDER EACH TELEPHONE WIRE OR CABLE CROSSING. THE COUNTERPOISE GROUND SHALL BE USED ONLY WHERE IT IS IMPOSSIBLE TO DRIVE A GROUND ROD. THE GROUND WIRE SHALL BE CONNECTED TO THE FABRIC AND TENSION WIRE WITH UL LISTED GROUNDING CONNECTORS OF CAST BRONZE BODY AND BRONZE OR STAINLESS STEEL BOLTS AND WASHERS. GROUNDING CONNECTORS SHALL BE SIZED AND SUITABLE FOR THE RESPECTIVE APPLICATION. CONNECTIONS TO GROUND RODS SHALL BE WITH UL LISTED GROUNDING CONNECTORS SUITABLE FOR EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY ERICO PRODUCTS, INC., DIRECT BURIAL IN EARTH OR SOLON, OHIO, (PHONE 1–800–248–9353), THERMOWELD BY CONTINENTAL INDUSTRIES, INC., TULSA, OKLAHOMA (PHONE 918–663–1440) OR ULTRAWELD BY HARGER, GRAYSLAKE, ILLINOIS (PHONE 1–800–842–7437). EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS SUITABLE FOR EACH RESPECTIVE APPLICATION. GROUND RODS SHALL BE 5/8–IN. DIAMETER BY 8 FT LONG (MINIMUM), UL–LISTED, COPPER–CLAD. THE GROUND WIRE USED TO BOND THE FENCE FABRIC AND TENSION WIRE TO THE GROUND ROD SHALL BE #6 AWG BARE SOLID COPPER CONDUCTOR.



WHERE THE FENCE LINE HAS A CHANGE IN DIRECTION OF 15° OR MORE, A TERMINAL POST SHALL BE PLACED AS SHOWN ABOVE. WHERE ANGLE IS LESS THAN 15° AND EXISTING CONDITIONS REQUIRE TERMINAL POST, THEY SHALL BE PLACED AS DIRECTED BY ENGINEER.

BY	DATE	REVISION

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3–17–0009–B33
IL. PROJ.: MDH–4038

Hanson Project No. 08A0024D 0800	LAYOUT	JSL	04/05/2011
Filename R–524FEN.DWG	DRAWN	CWS	04/05/2011
Scale NOT TO SCALE	REVIEWED		
Date 04/05/2011			

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PROPOSED FENCE DETAILS

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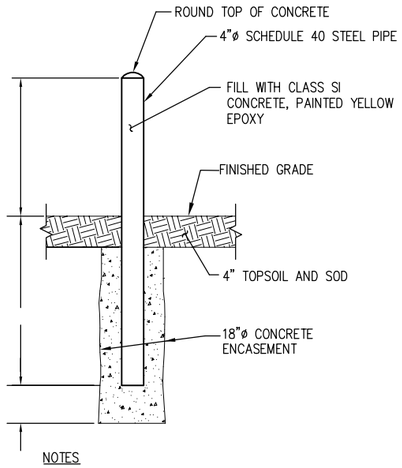
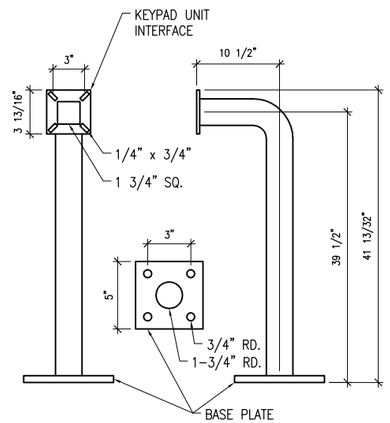


NOTES

1. THE EXPOSED PORTION OF THE BOLLARD SHALL BE PAINTED YELLOW EPOXY.
2. BOLLARD AND ASSOCIATED ITEMS ARE INCIDENTAL TO THE ELECTRIC SLIDING GATE.

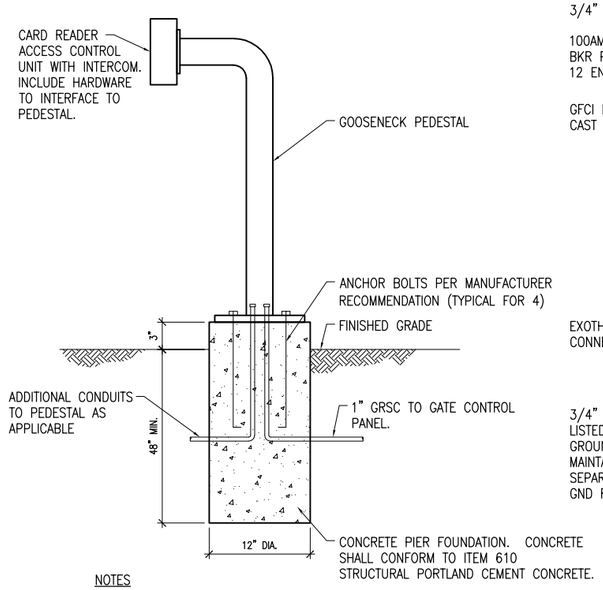
BOLLARD DETAIL



GOOSENECK PEDESTAL DETAIL

SCALE: NONE

NOTE:
GOOSENECK PEDESTAL SHALL BE AMERICAN ACCESS SYSTEMS, INC. (7079 SOUTH JORDAN RD., UNIT 6, ENGLEWOOD, CO 80112, PHONE: 800-541-5677, FAX 303-799-9756) MODEL 18-001 OR APPROVED EQUAL.

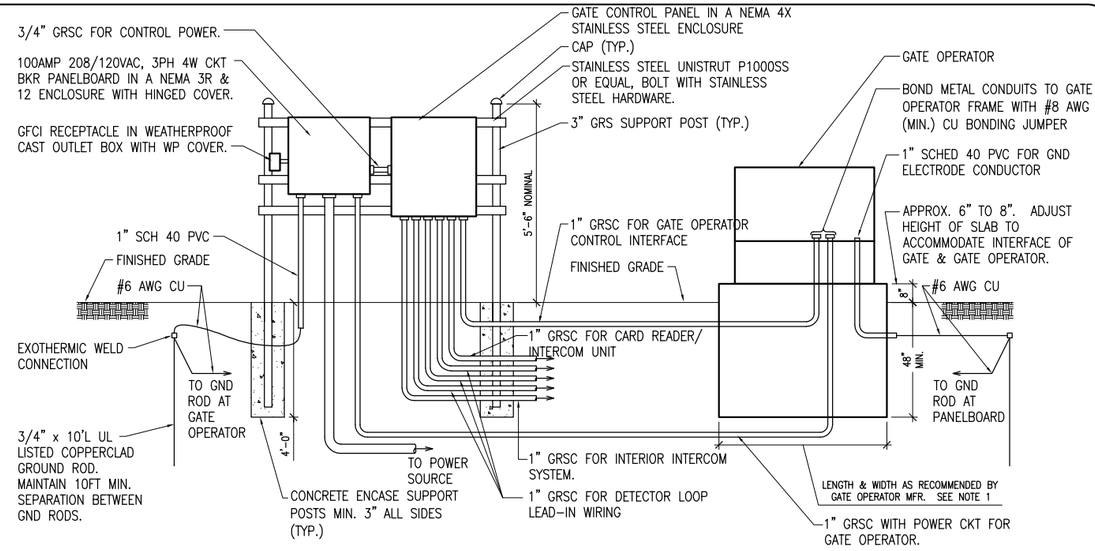


NOTES

1. SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON CARD READER & INTERCOM ACCESS CONTROL UNIT.
2. INCLUDE #12 AWG EQUIPMENT GND WIRE TO CARD READER.
3. FACE OF CARD READER SHALL NOT EXTEND BEYOND BOLLARDS.

CARD READER ACCESS CONTROL UNIT PEDESTAL ELEVATION DETAIL

SCALE: NONE



NOTES

1. FOUNDATION FOR GATE OPERATOR SHALL BE 48" MIN. IN DEPTH AND OF THE LENGTH & WIDTH RECOMMENDED BY THE MANUFACTURER.
2. COORDINATE CONDUITS INTO FOUNDATION.
3. CONFIRM CONDUIT SIZES AND WIRING REQUIREMENTS WITH THE GATE OPERATOR MFR. ADJUST/INCREASE CONDUIT SIZES WHERE APPLICABLE. REQUIREMENTS VARY BETWEEN DIFFERENT MANUFACTURERS.
4. ALL ENCLOSURES RATED NEMA 4, 4X SHALL HAVE WATERTIGHT HUBS AT CONDUIT ENTRANCES U.L. LISTED NEMA 4, 4X FOR THE RESPECTIVE ENCLOSURE, TO MAINTAIN THE NEMA 4, 4X RATING.

GATE OPERATOR FOUNDATION DETAIL

"NOT TO SCALE"

NOTES

1. WARNING SIGNS/PLACARDS AS DETAILED ABOVE OR SIMILAR, SHALL BE INSTALLED WHERE CLEARLY VISIBLE ON BOTH SIDES OF EACH ELECTRIC SLIDE GATE. WARNING SIGNS SHALL BE WEATHERPROOF, CORROSION RESISTANT METAL, AS DETAILED ABOVE, AND IN ACCORDANCE WITH THE RESPECTIVE GATE MANUFACTURER'S RECOMMENDATIONS, HY-SECURITY PART NO. MX000882, OR EQUAL.

WARNING SIGN DETAIL

BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS
A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
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Scale NOT TO SCALE
Date 04/05/2011

LAYOUT	KNL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	JSL	04/11/2011

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CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

CARD READER, BOLLARD & GATE OPERATOR DETAILS

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25 of 33 sheets

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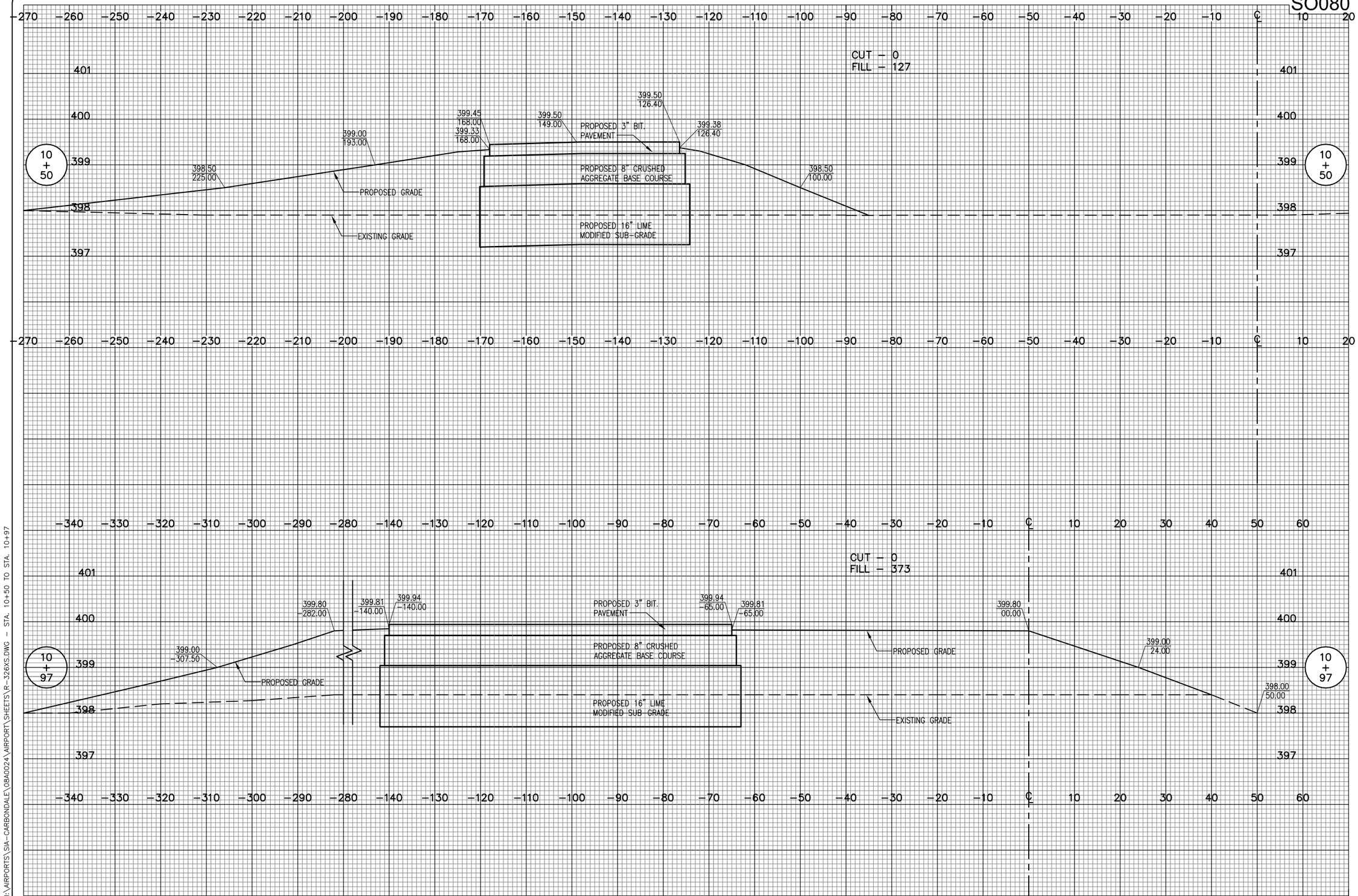
SO080



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BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33

IL. PROJ.: MDH-4038

Hanson Project No. 08A0024D 0800
Filename R-326XS.DWG
Scale 1"=20'Horiz., 1"=1'Vert.
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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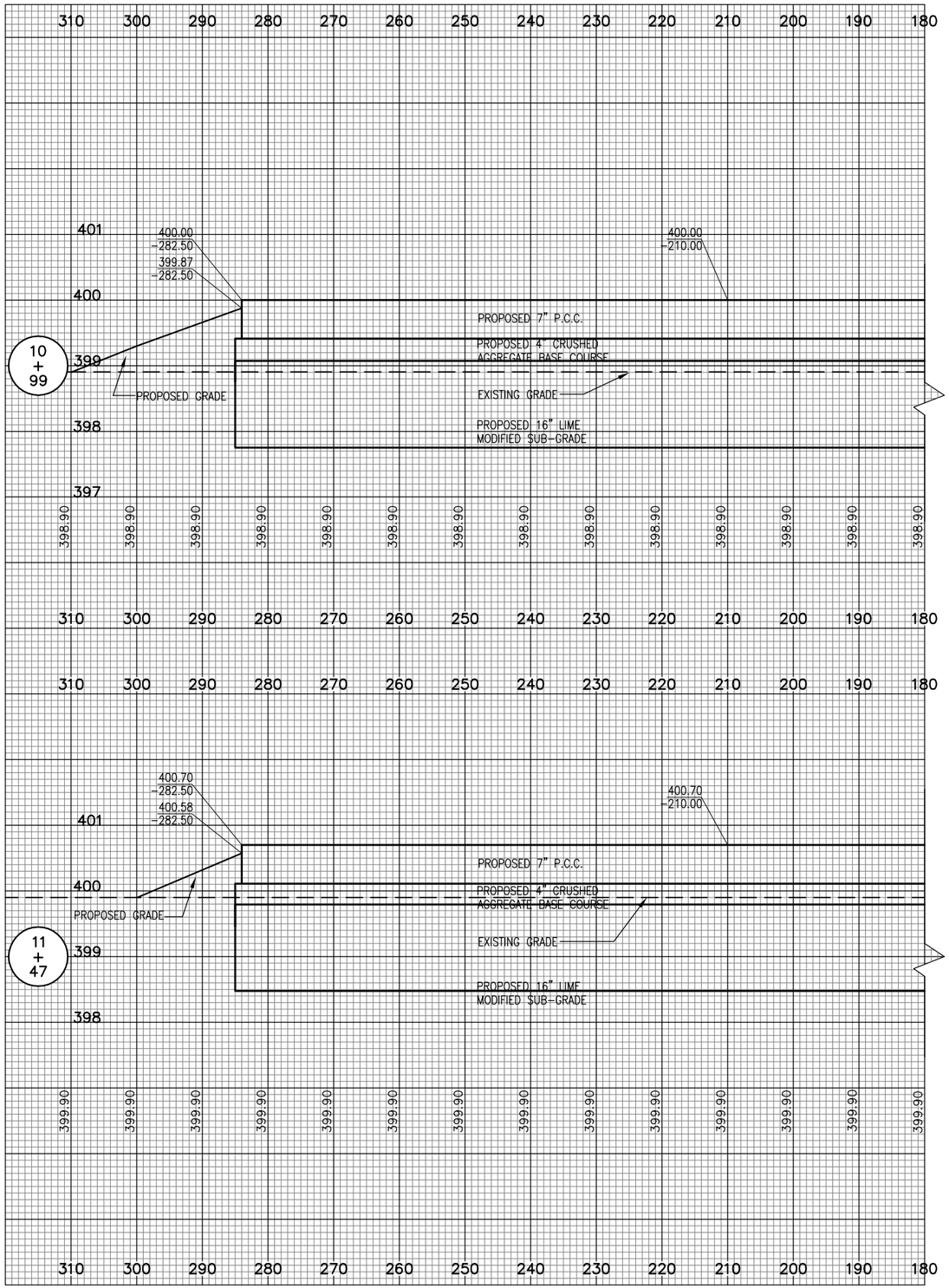
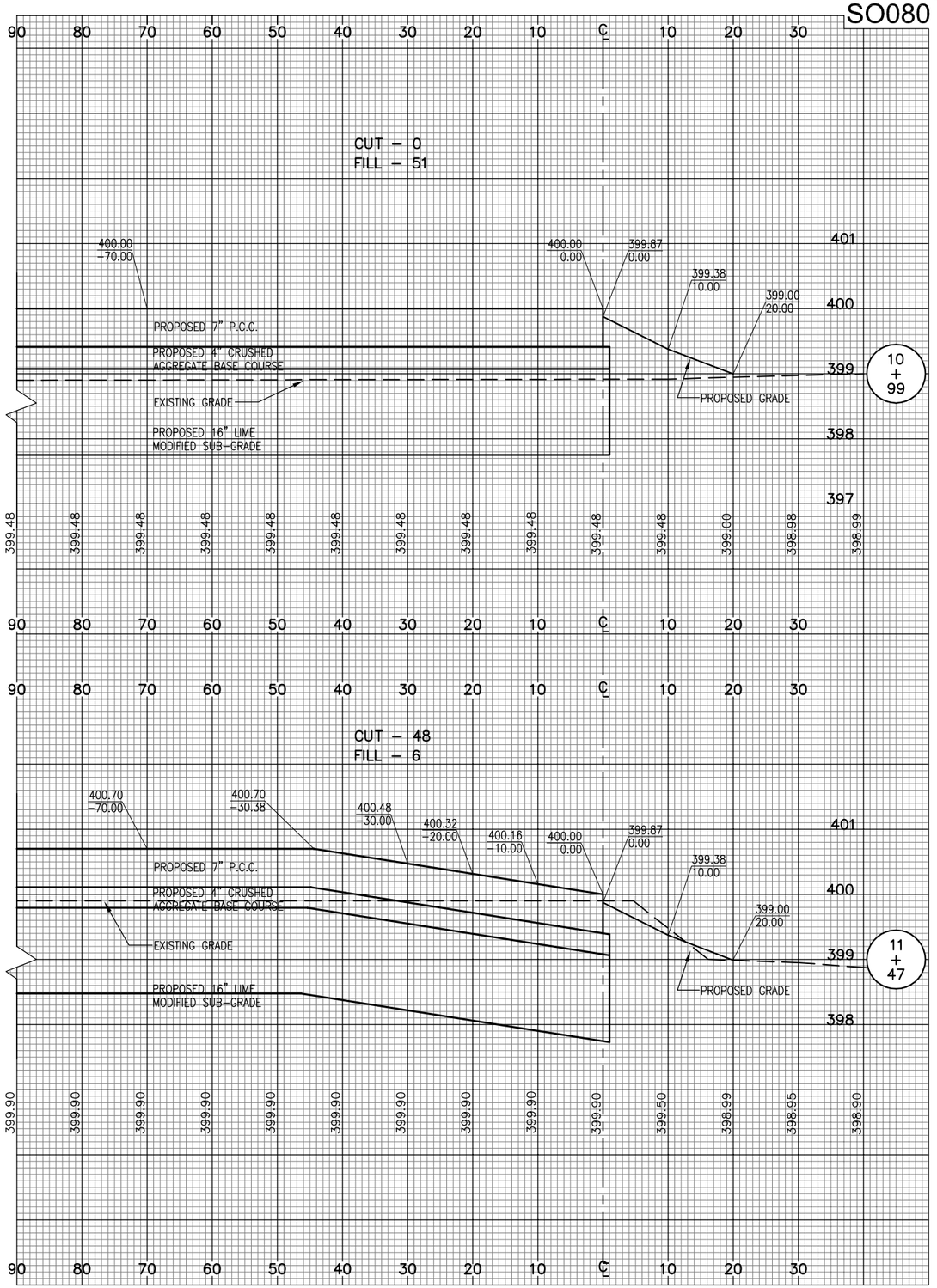
CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED MATENANCE ROAD
CROSS-SECTIONS
STA. 10+50 TO STA. 10+97

26
26 of 34 sheets

SO080





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DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
Filename R-327XS.DWG
Scale 1"=20'Horiz. 1"=1'Vert.
Date 04/05/2011

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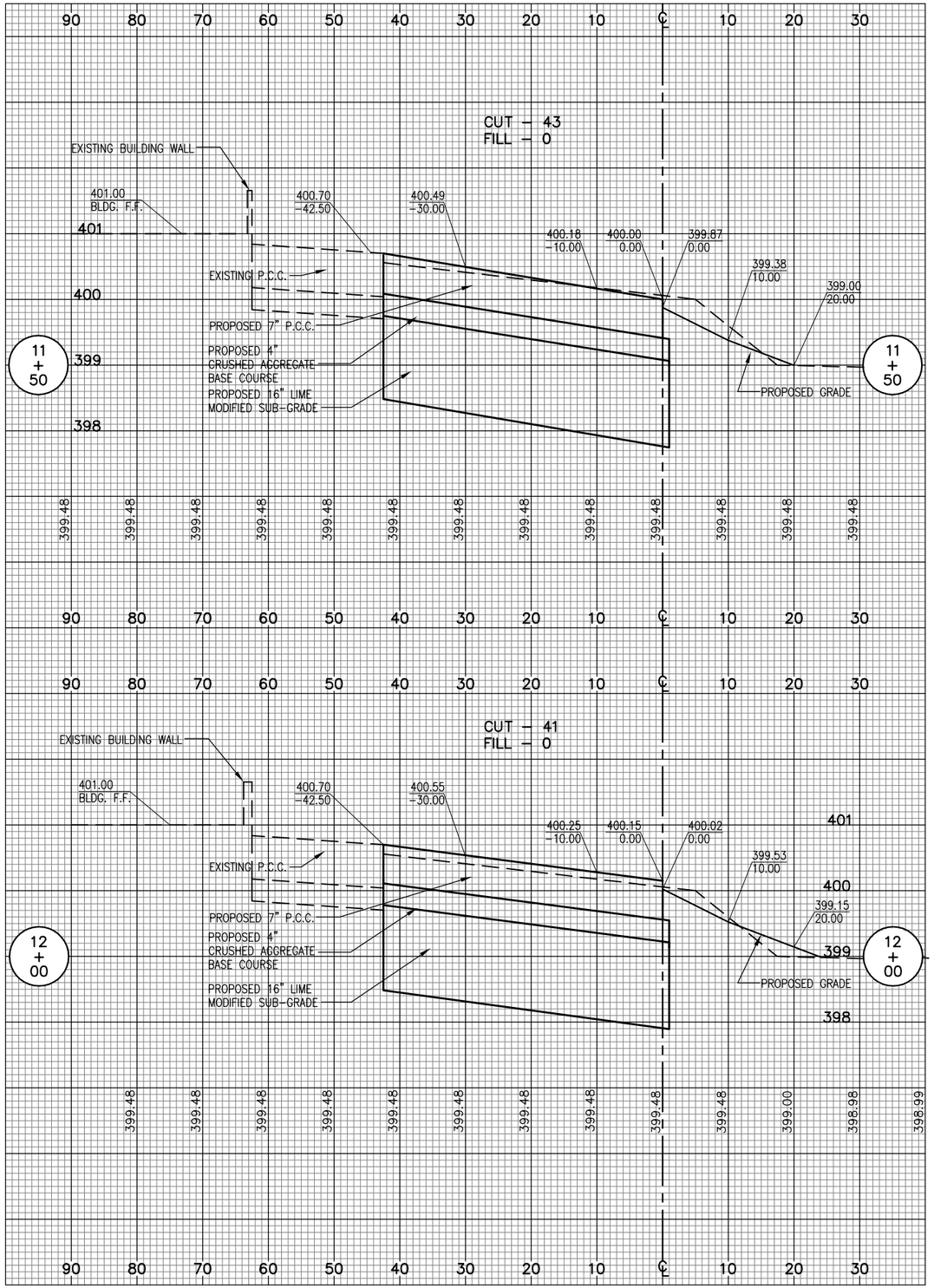
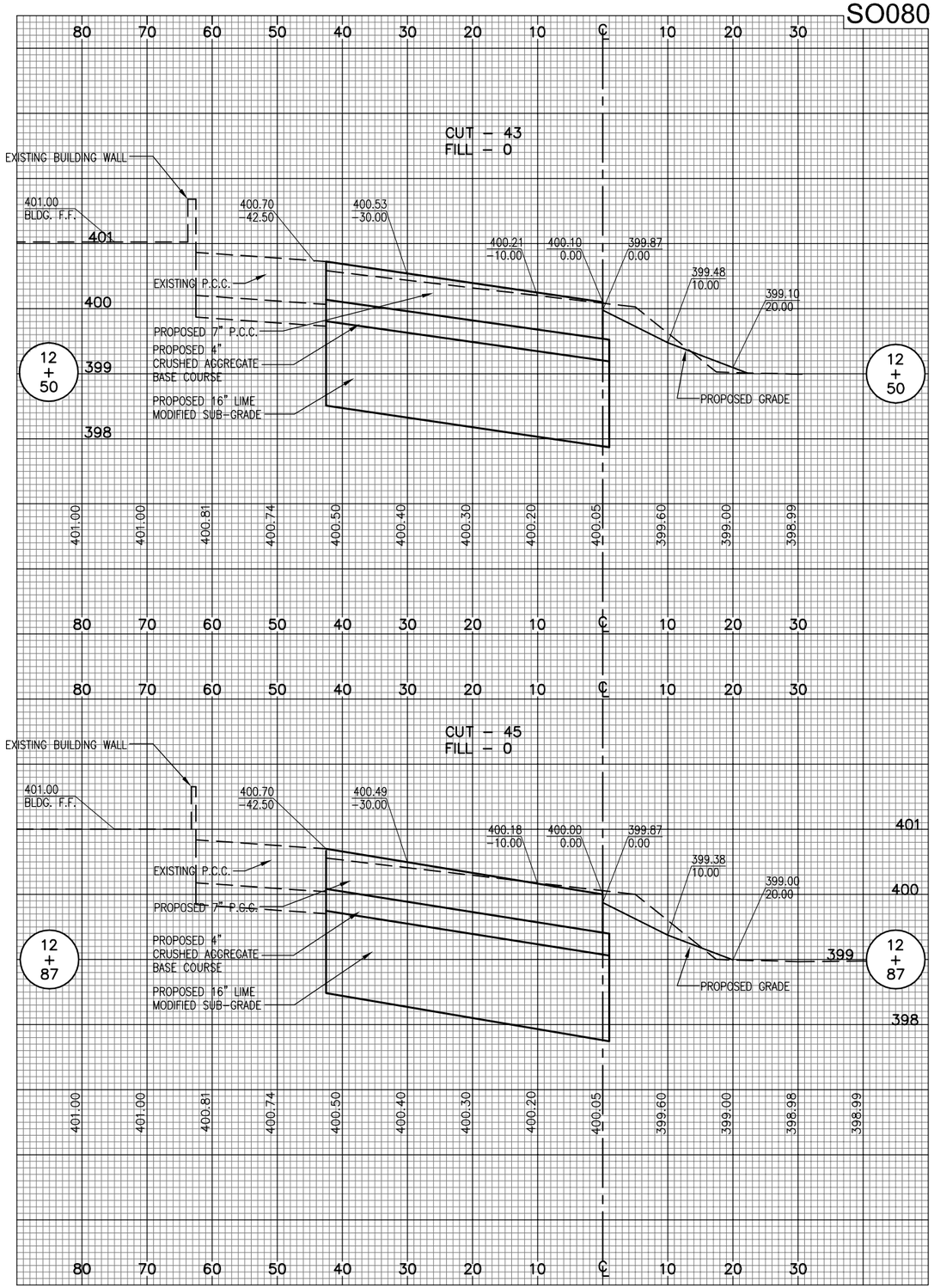
CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED MATENANCE ROAD
CROSS-SECTIONS
STA. 10+99 TO STA. 11+47

27
27 of 34 sheets





BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33

IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
Filename R-328XS.DWG
Scale 1"=20'Horiz. 1"=1'Vert.
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

HANSON
Hanson Professional Services Inc.
3125 New Era Road
Murphysboro, Illinois 62966
Offices Nationwide

CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED MATENANCE ROAD CROSS-SECTIONS
STA. 11+50 TO STA. 12+87

28
28 of 34 sheets

APR 22, 2011 11:57 AM HAGLOOO382
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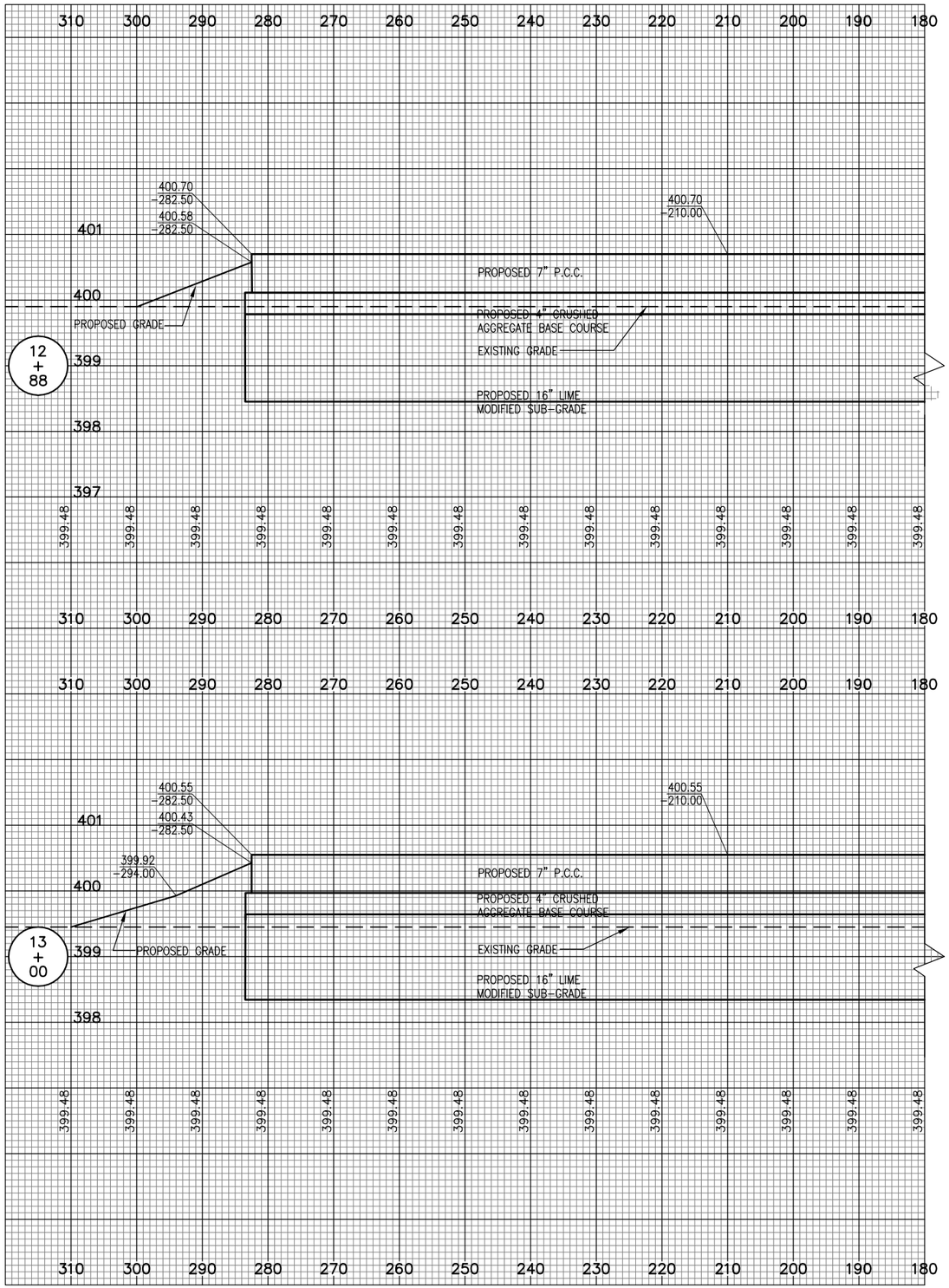
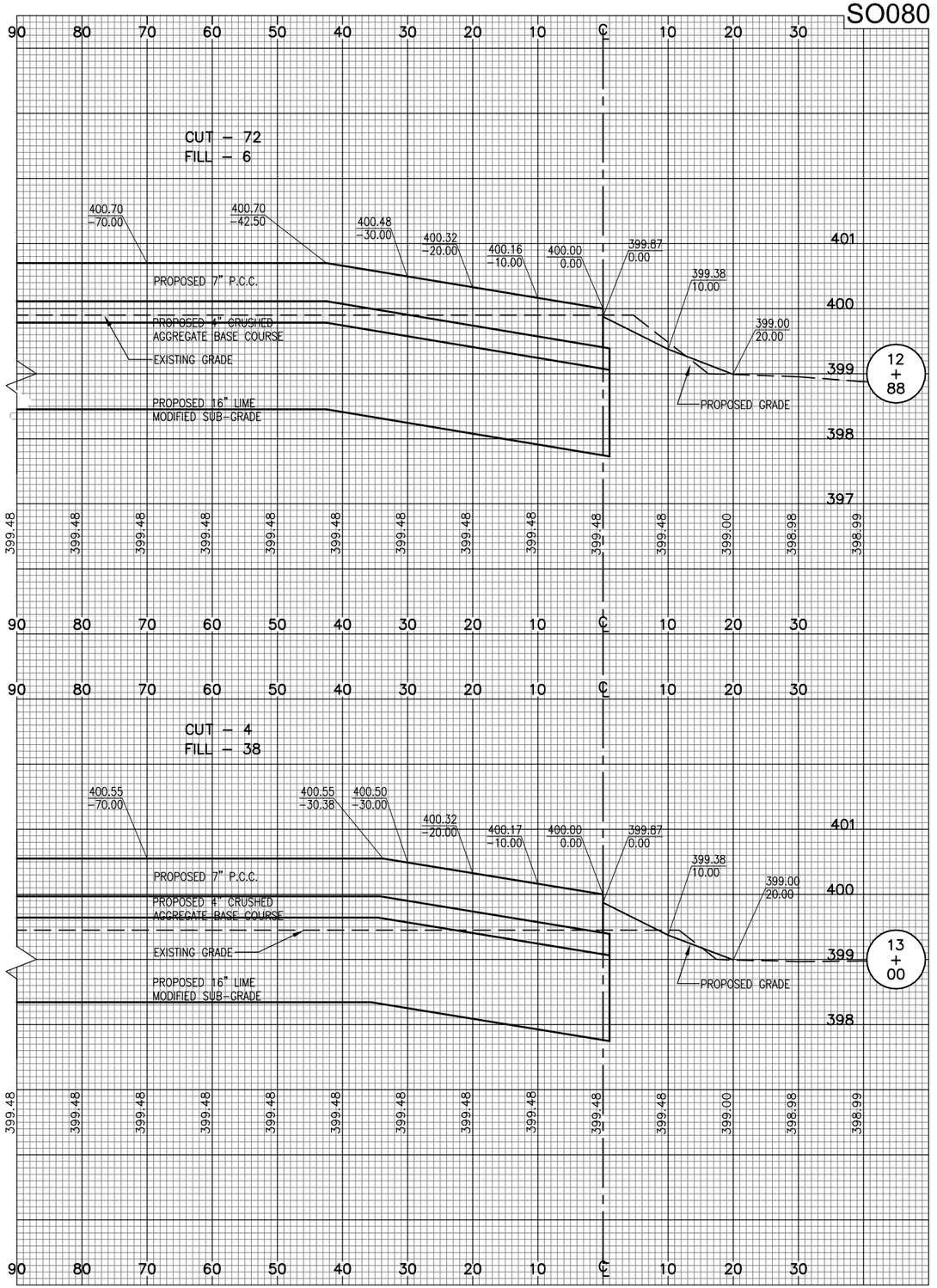
SO080





BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33

IL. PROJ.: MDH-4038

Hanson Project No.	08A00240 0800	
Filename	R-329XS.DWG	
Scale	1"=20'Horiz. 1"=1'Vert.	
Date	04/05/2011	
LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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PROPOSED MATENANCE ROAD
CROSS-SECTIONS
STA. 12+88 TO STA. 13+00

29

APR 22, 2011 11:59 AM HAGLOOO382
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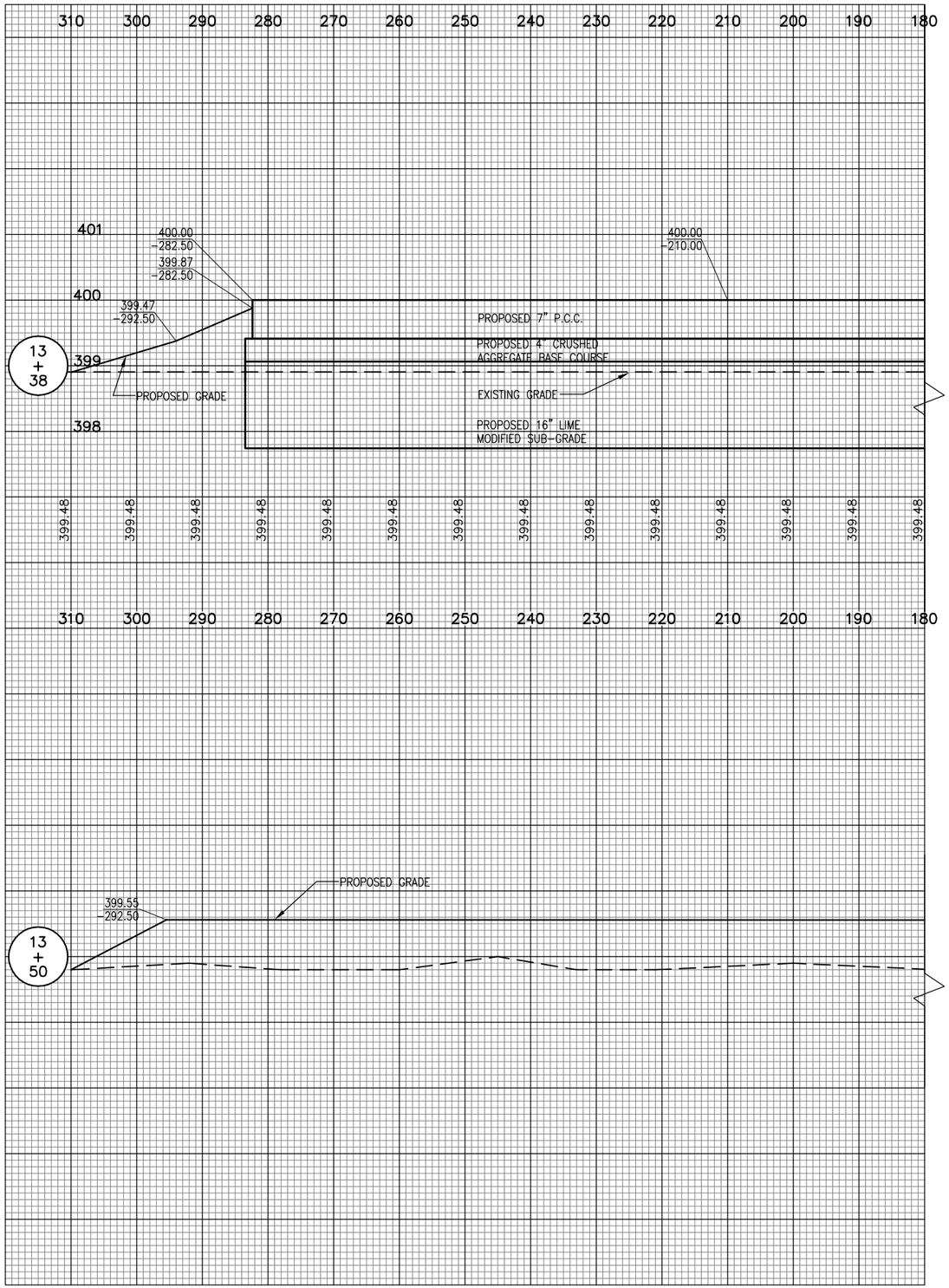
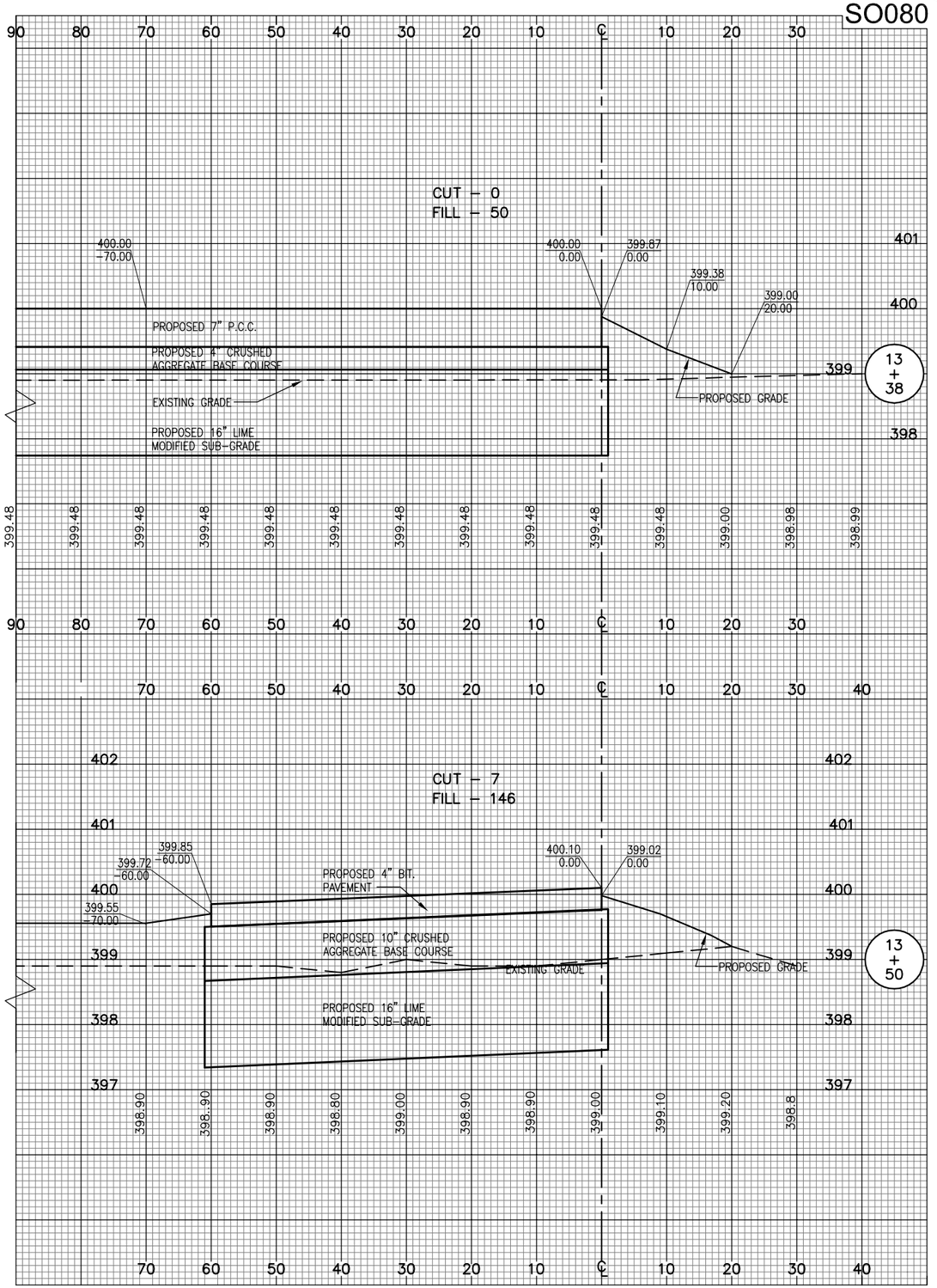
SO080





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BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A0024D 0800
Filename R-330XS.DWG
Scale 1"=20'Horiz. 1"=1'Vert.
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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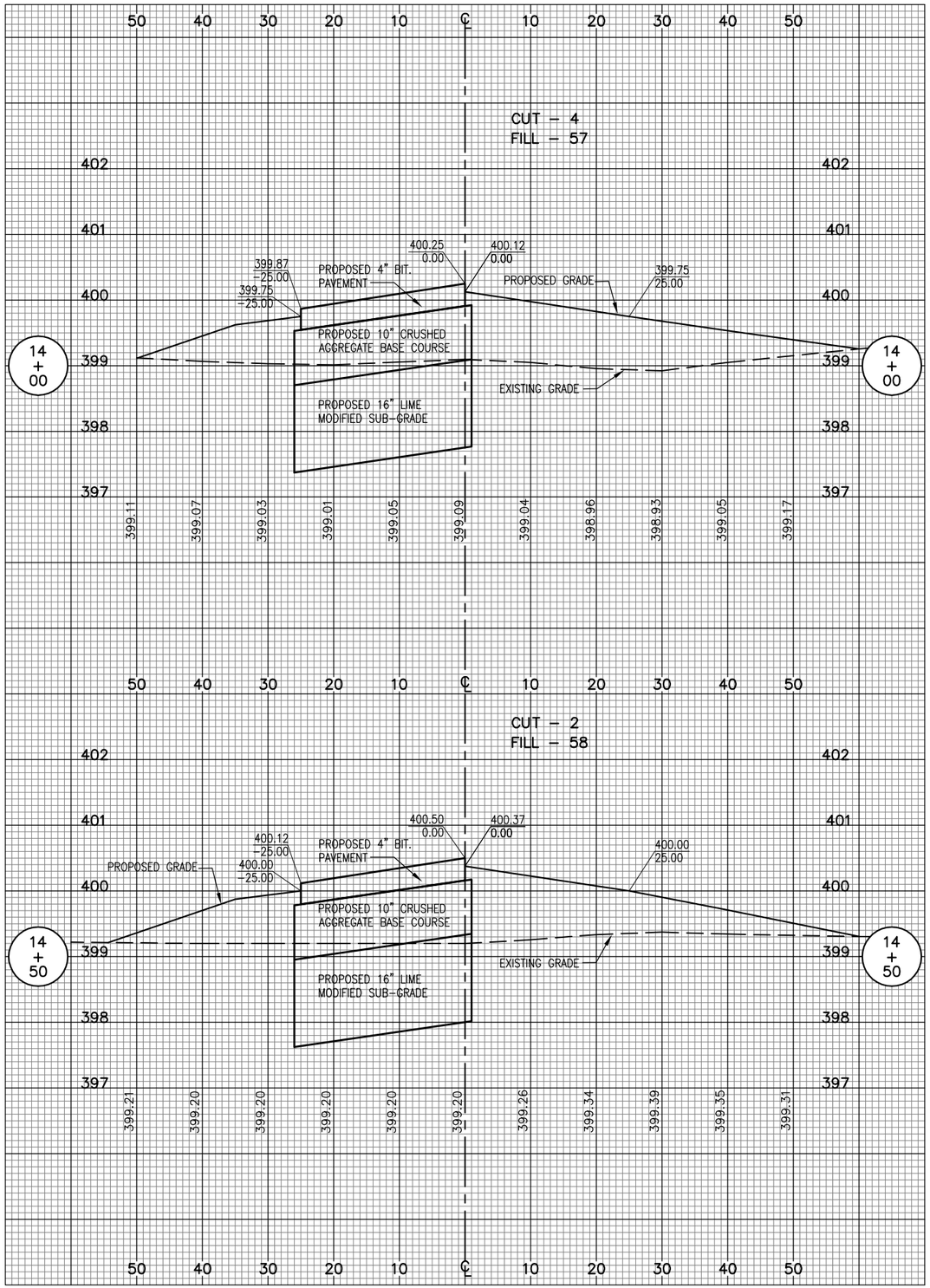
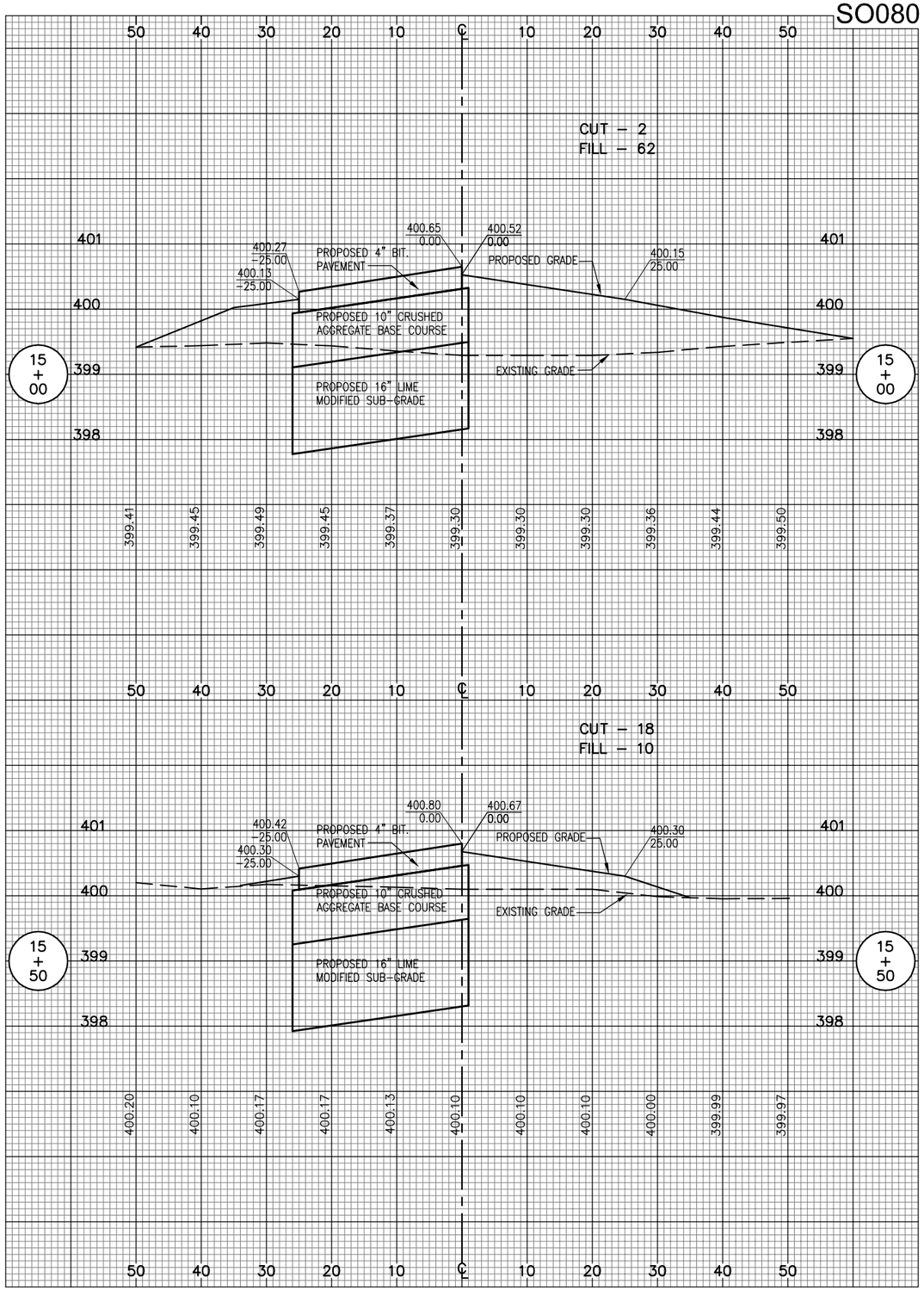
CONSTRUCT TAXIWAY, RAMP & ENTRANCE FOR NEW ARFF-SRE BUILDING

PROPOSED MATENANCE ROAD
CROSS-SECTIONS
STA. 13+38 TO STA. 13+50

30
30 of 34 sheets

SO080





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I:\AIRPORTS\SIA-CARBONDALE\08A0024\AIRPORT\SHEETS\R-331XS.DWG – STA. 15+50 TO STA. 14+00

DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
Filename R-331XS.DWG
Scale 1"=20'Horiz. 1"=1'Vert.
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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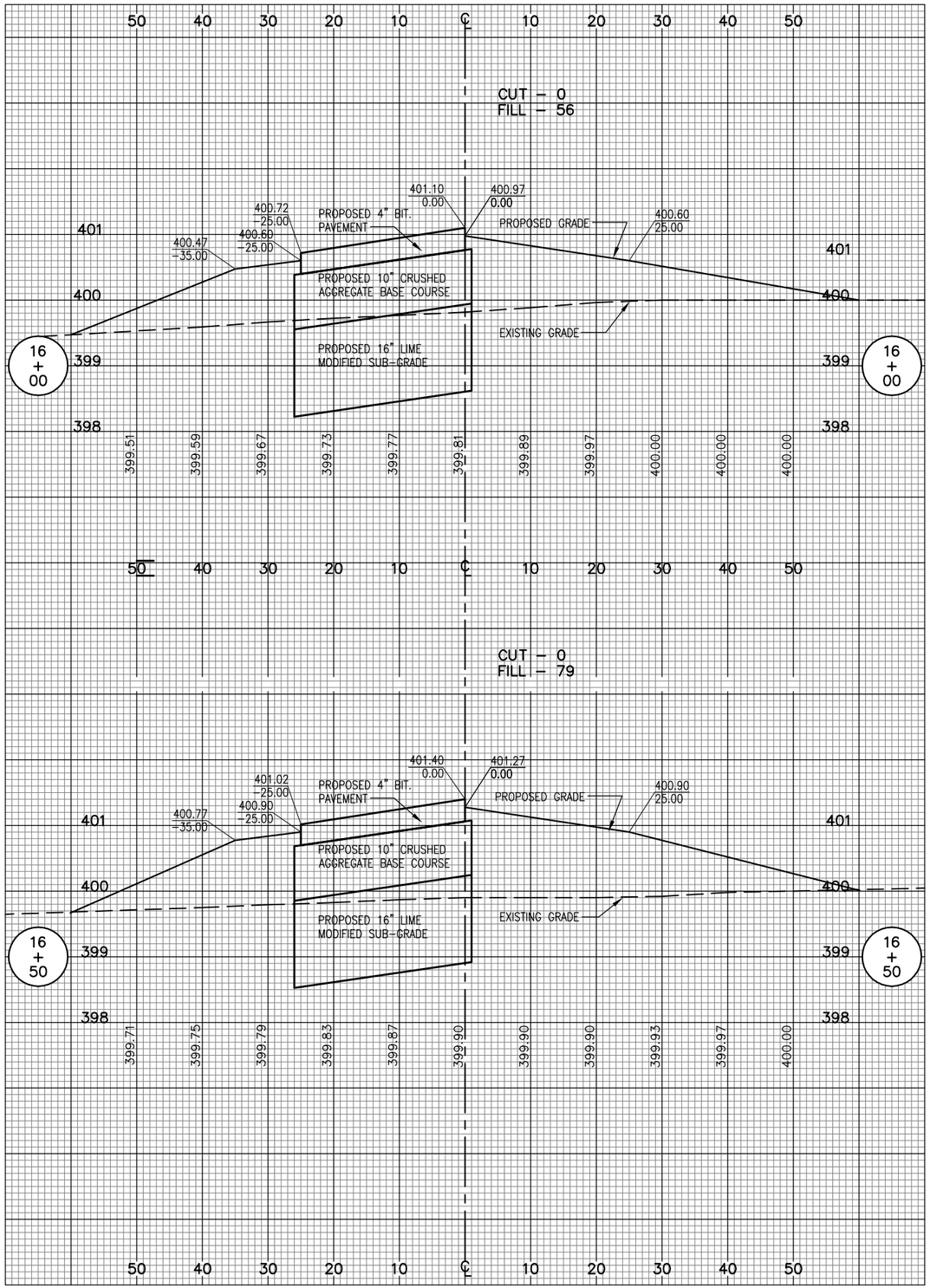
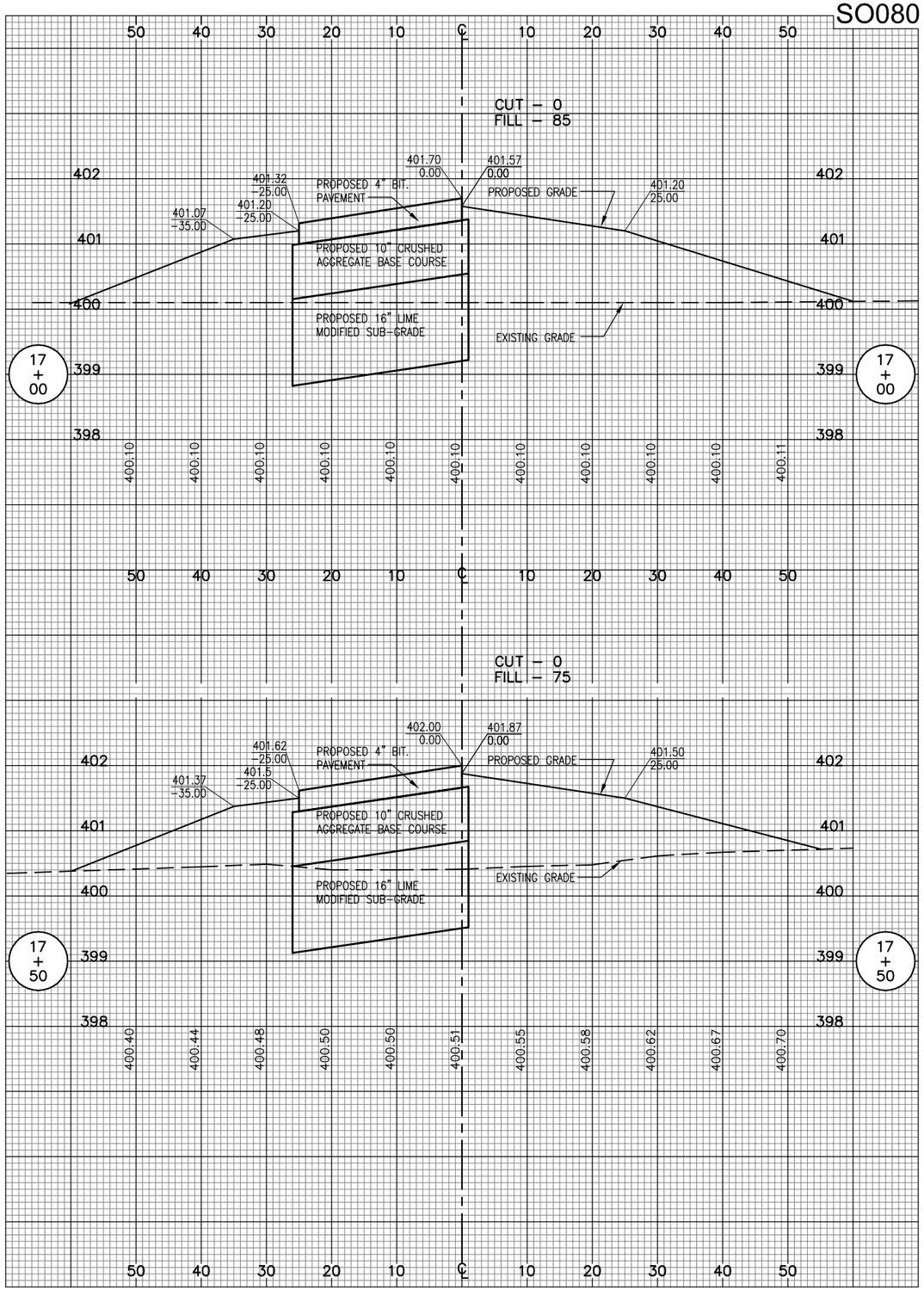
PROPOSED MATENANCE ROAD CROSS-SECTIONS STA. 15+50 TO STA. 14+00

31
31 of 34 sheets

SO080





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DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33
IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
Filename R-332XS.DWG
Scale 1"=20'Horiz., 1"=1'Vert.
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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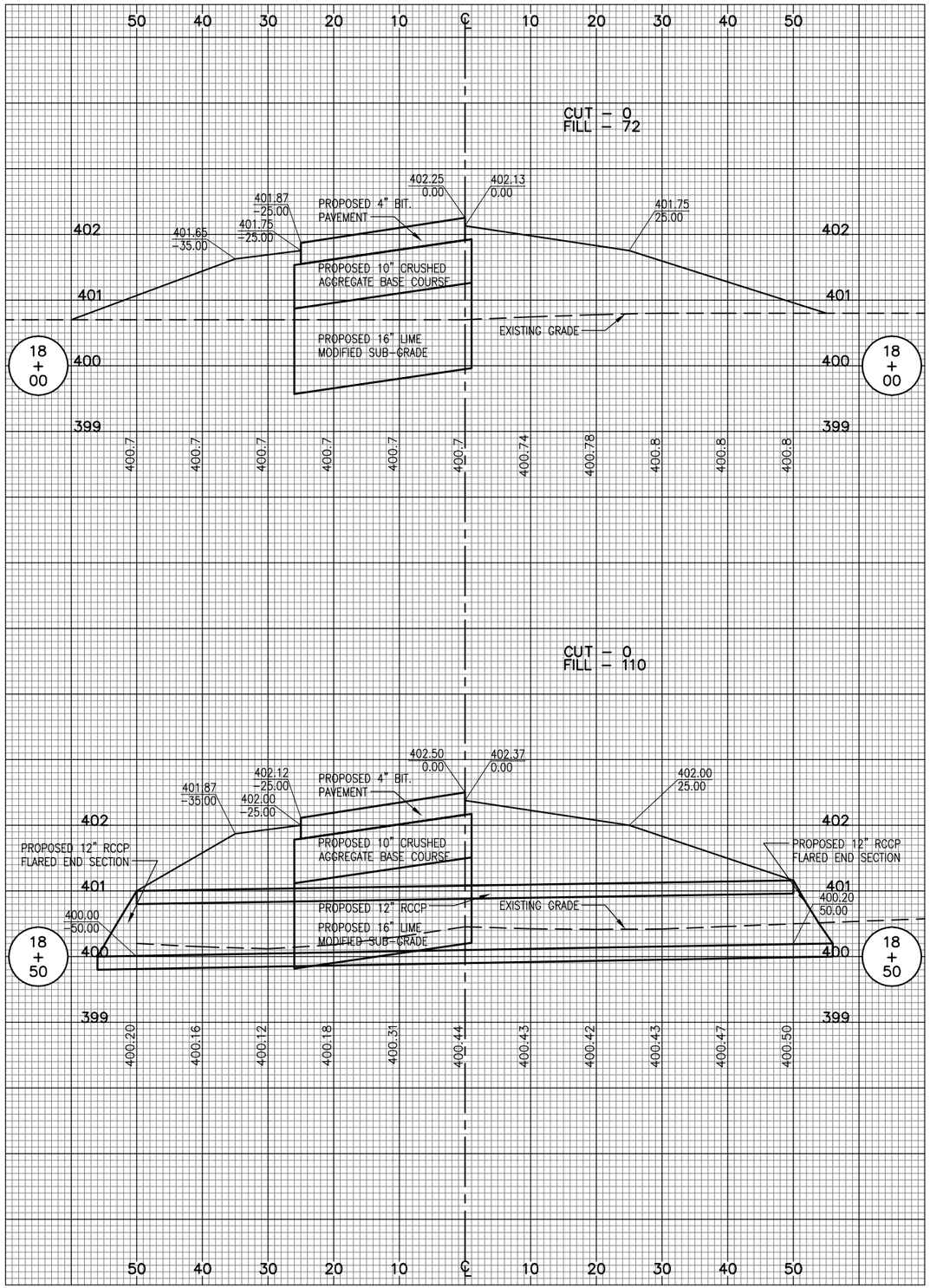
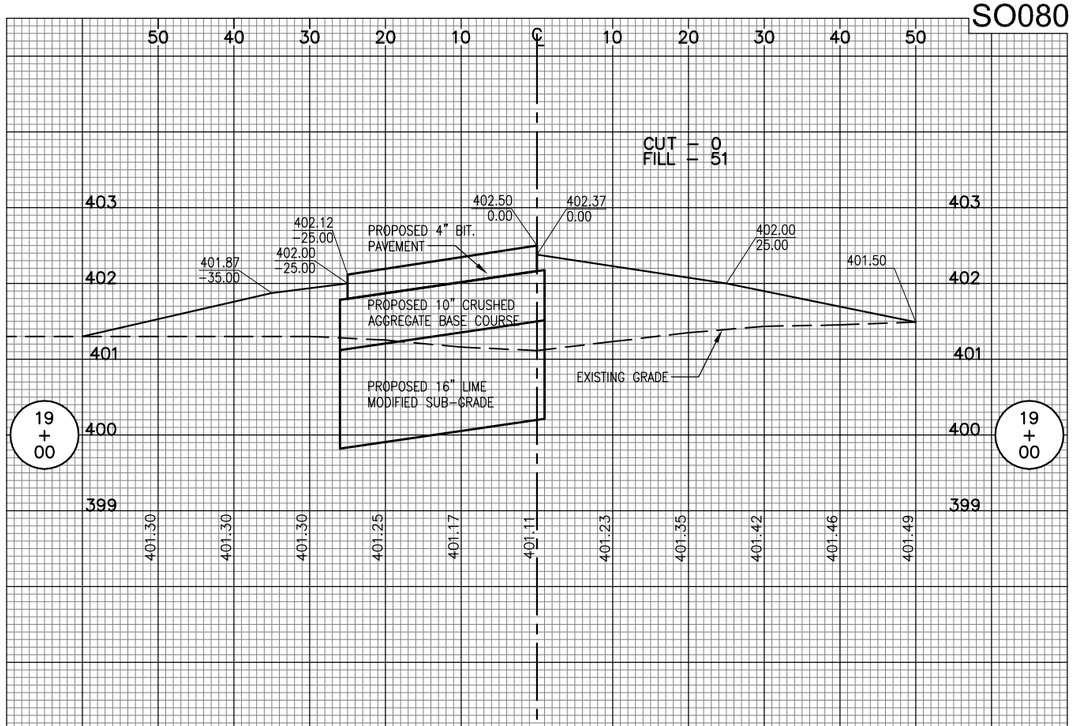
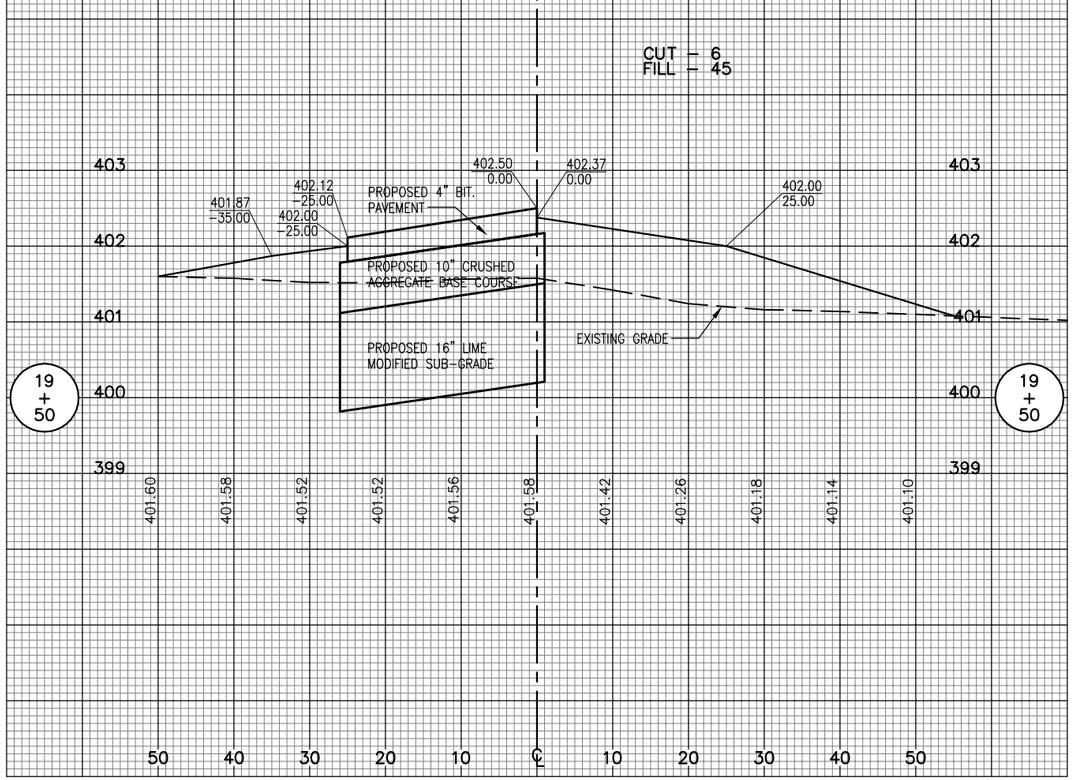
PROPOSED MATENANCE ROAD CROSS-SECTIONS STA. 17+50 TO STA. 16+00

32
32 of 34 sheets

SO080







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BY	REVISION	DATE

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

IL. PROJ.: MDH-4038 A.I.P. PROJ.: 3-17-0009-B33

Hanson Project No. 08A0024D 0800
Filename R-333XS.DWG
Scale 1"=20'Horiz., 1"=1'Vert.
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/052011
REVIEWED		

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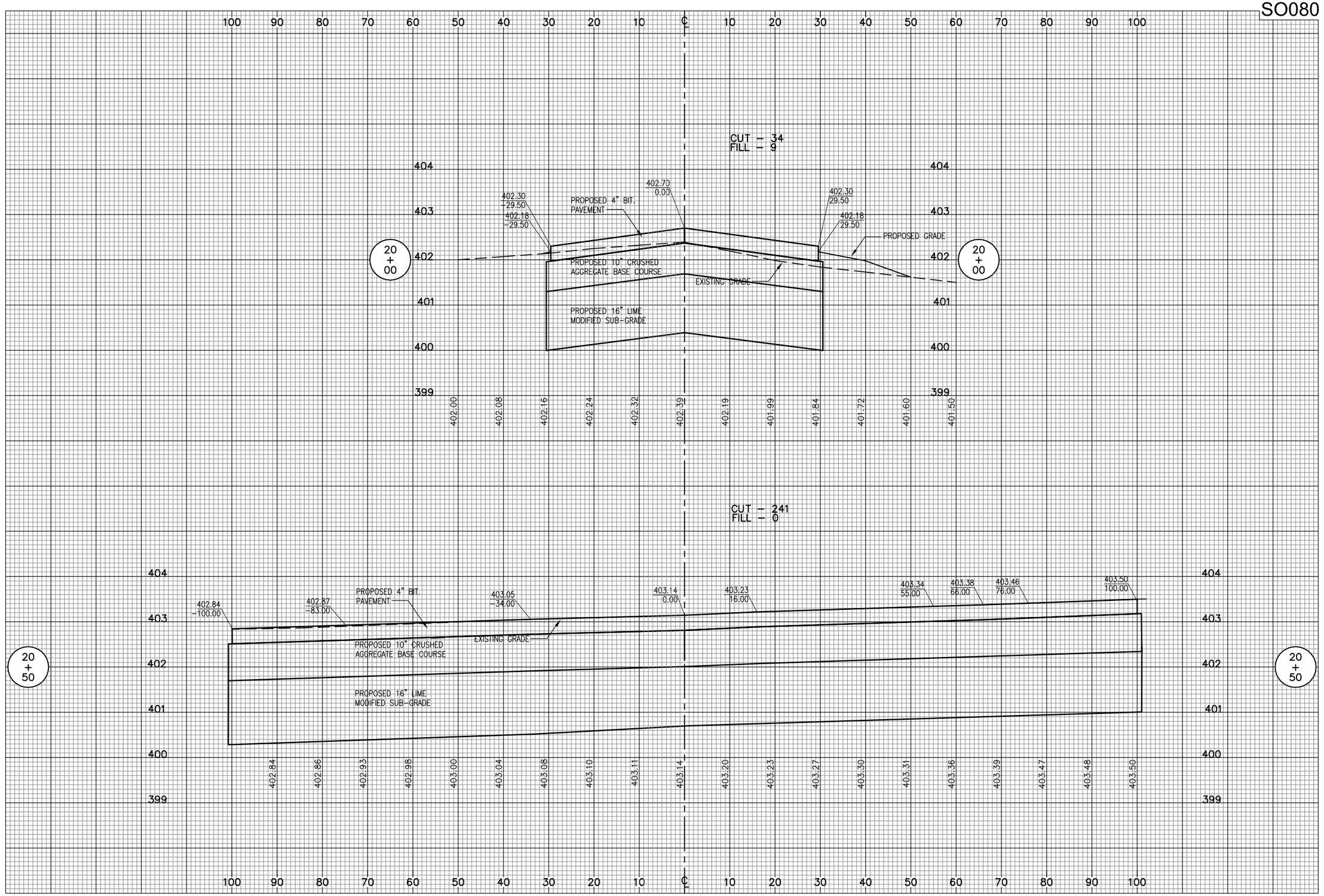
PROPOSED MATENANCE ROAD
CROSS-SECTIONS
STA. 19+50 TO STA. 18+00

33
33 of 34 sheets

SO080



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DATE	REVISION	BY

SOUTHERN ILLINOIS AIRPORT
MURPHYSBORO / CARBONDALE, ILLINOIS

A.I.P. PROJ.: 3-17-0009-B33

IL. PROJ.: MDH-4038

Hanson Project No. 08A00240 0800
Filename R-334XS.DWG
Scale 1"=20'Horiz., 1"=1'Vert.
Date 04/05/2011

LAYOUT	JSL	04/05/2011
DRAWN	CWS	04/05/2011
REVIEWED	CAH	04/21/2011

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STA. 20+50 TO STA. 20+00

34
34 of 34 sheets