

ITEM NO: 2A
IDOT LETTING: NOVEMBER 8, 2024

CONSTRUCTION PLANS

**RECONSTRUCT WEST AIRCRAFT T-HANGAR
AREA PAVEMENTS**

COLES COUNTY AIRPORT AUTHORITY
COLES COUNTY MEMORIAL AIRPORT (MTO)
MATTOON-CHARLESTON, COLES COUNTY, ILLINOIS

IDA PROJECT NO. MTO-4816
SBG PROJECT NO. N/A

SEPTEMBER 13, 2024
(100% SUBMITTAL)



VICINITY MAP



LOCATION MAP

NOTICE TO CONTRACTORS AND BIDDERS

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

No.	Issue/Description	Sheets Changed	Date	By

COVERING
ELECTRICAL DESIGN

Kevin N. Lightfoot
9/13/2024
EXPIRES: 11/30/2025

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LICENSED PROFESSIONAL ENGINEER
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SEPTEMBER 13, 2024
Kevin N. Lightfoot, P.E. Lic. Exp. 11/30/2025 Date

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Andrew J. Eam
SEPTEMBER 13, 2024
Andrew J. Eam Airport Manager Date

1:22:03S22A0071D\CAD\AIRPORT\SHEET\G-001-COV.DWG

GENERAL NOTES

- THE PROJECT PAY ITEMS ARE INTENDED TO BE INCLUSIVE OF ALL WORK TO BE PERFORMED AS SHOWN IN THESE PLANS. ALL INCIDENTAL WORK REQUIRED TO COMPLETE THE PROJECT TO THE SATISFACTION OF THE RESIDENT ENGINEER IS TO BE INCLUDED IN THE COSTS OF PERFORMING THESE ITEMS. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, AND TRANSPORTATION NECESSARY TO CONSTRUCT ALL ELEMENTS OF THE PROJECT AS DESCRIBED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS.
- THE RULES, REGULATIONS, AND SPECIFICATIONS ENUMERATED HEREIN SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS. THEY SHALL NOT PROHIBIT THE CONTRACTOR FROM FURNISHING AND INSTALLING HIGHER GRADES OF MATERIAL THAN ARE SPECIFIED HEREIN, IF APPROVED BY THE ENGINEER.
- ACCESS TO THE SITE SHALL BE RESTRICTED EXCLUSIVELY TO THE DESIGNATED CONSTRUCTION ENTRANCE, STAGING AREA, AND HAUL ROUTE. NO EQUIPMENT OR PERSONNEL SHALL BE PERMITTED OUTSIDE THE GENERAL PROJECT AREA.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AND KEEP CLEAN OF DEBRIS ALL EXISTING AIRFIELD AND ROADWAY PAVEMENTS AT ALL TIMES. ANY DAMAGE TO EXISTING ELECTRICAL, DRAINAGE, AND PAVEMENT STRUCTURES SHALL BE IMMEDIATELY REPAIRED AT NO ADDITIONAL COST TO THE CONTRACT.
- CONTRACTOR IS REQUIRED TO PROVIDE THEIR OWN RESTROOM FACILITIES.
- THE LOCATION OF THE ENGINEER'S FIELD OFFICE WILL BE DETERMINED AT THE PRE-CONSTRUCTION MEETING.
- THE OWNER SHALL HAVE THE RIGHT OF FIRST REFUSAL FOR ALL SALVAGEABLE MATERIAL REMOVED ON THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS FOR HAULING ON PUBLIC ROADS, AS APPLICABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING ANY DAMAGES TO ANY PAVEMENTS (PUBLIC OR PRIVATE) CAUSED BY HIS/HER CONSTRUCTION EQUIPMENT OR PERSONNEL.
- THE CONTRACTOR SHALL PROVIDE ONE SET OF PRELIMINARY REDLINED RECORD DRAWINGS TO THE RESIDENT ENGINEER AT THE COMPLETION OF THE PROJECT FOR INCORPORATION INTO THE OFFICIAL RECORD DRAWINGS HE WILL PREPARE.
- APPROXIMATE LOCATIONS OF UNDERGROUND UTILITIES ARE SHOWN THROUGHOUT THESE PLANS. THE CONTRACTOR SHALL DETERMINE EXACT LOCATIONS AND PROTECT THESE UTILITIES DURING CONSTRUCTION. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL COORDINATE WITH THE PROPER AUTHORITIES FOR THE PURPOSE OF LOCATING AND PROTECTING EXISTING UNDERGROUND UTILITIES.
- NPDES PERMIT** - THIS PROJECT DISTURBS MORE THAN 1 ACRE, THEREFORE, AN NPDES PERMIT WILL BE REQUIRED.
- MATERIAL CERTIFICATIONS** - MATERIALS CANNOT BE INSTALLED UNTIL ALL THE MATERIAL CERTIFICATIONS FOR THAT ITEM HAVE BEEN RECEIVED, REVIEWED AND ACCEPTED BY THE RESIDENT ENGINEER. MATERIALS INSTALLED WITHOUT APPROVAL ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
- CERTIFIED PAYROLLS** - THE RESIDENT ENGINEER CANNOT FORWARD A CONSTRUCTION REPORT FOR PAYMENT TO THE IDOT-DIVISION OF AERONAUTICS FOR PROCESSING UNTIL ALL CERTIFIED PAYROLLS FOR THAT PERIOD HAVE BEEN RECEIVED.

J.U.L.I.E. INFORMATION

COUNTY _____ COLES
CITY _____ MATTOON
TOWNSHIP _____ LAFAYETTE
SECTION NO. _____ 14.15,22,23
ADDRESS _____ COLES COUNTY
MEMORIAL AIRPORT
432 AIRPORT ROAD
MATTOON, ILLINOIS
61938

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5	AIRFIELD SAFETY PLAN - PHASE 2
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7	STORM WATER POLLUTION PREVENTION PLAN
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36	EXIST ELEC 1-LINE FOR VAULT & BLDGS B THRU G CONTINUED
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SUMMARY OF QUANTITIES - BASE BID				
ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AR150510	ENGINEER'S FIELD OFFICE	L SUM	1	
AR150520	MOBILIZATION	L SUM	1	
AR150530	TRAFFIC MAINTENANCE	L SUM	1	
AR152410	UNCLASSIFIED EXCAVATION	CU YD	616	
AR152480	SHOULDER ADJUSTMENT	SQ YD	869	
AR152540	SOIL STABILIZATION FABRIC	SQ YD	5766	
AR154606	GRANULAR DRAINAGE SUBBASE-6"	SQ YD	2277	
AR156510	SILT FENCE	FOOT	291	
AR156520	INLET PROTECTION	EACH	3	
AR162508	CLASS E FENCE 8'	FOOT	42	
AR162606	CLASS E GATE-6'	EACH	1	
AR162728	ELECTRIC GATE-28'	EACH	2	
AR162900	REMOVE CLASS E FENCE	FOOT	57	
AR162908	REMOVE ELECTRIC GATE	EACH	2	
AR162910	REMOVE CLASS E GATE	EACH	1	
AR209606	CRUSHED AGG. BASE COURSE-6"	SQ YD	3535	
AR401613	BIT. SURF. CSE.-METHOD I, SUPERPAVE	TON	508	
AR401660	SAW & SEAL BIT. JOINTS	FOOT	1077	
AR401900	REMOVE BITUMINOUS PAVEMENT	SQ YD	5682	
AR403613	BIT. BASE CSE.-METHOD I, SUPERPAVE	TON	508	
AR501506	6" PCC PAVEMENT	SQ YD	1836	
AR501530	PCC TEST BATCH	EACH	1	
AR501605	5" PCC SIDEWALK	SQ FT	3446	
AR501690	PCC SIDEWALK REMOVAL	SQ FT	388	
AR602510	BITUMINOUS PRIME COAT	GALLON	1060	
AR603510	BITUMINOUS TACK COAT	GALLON	530	
AR620520	PAVEMENT MARKING-WATERBORNE	SQ FT	362	
AR620525	PAVEMENT MARKING-BLACK BORDER	SQ FT	362	
AR701008	8" PVC STORM SEWER	FOOT	48	
AR701012	12" PVC STORM SEWER	FOOT	44	
AR705506	6" PERFORATED UNDERDRAIN	FOOT	464	
AR705640	UNDERDRAIN CLEANOUT	EACH	4	
AR751001	TRENCH DRAIN	FOOT	160	
AR751411	INLET-TYPE A	EACH	2	
AR800928	GRANULAR DRAINAGE SUBBASE-4"	SQ YD	3535	
AR901510	SEEDING	ACRE	0.2	
AR908510	MULCHING	ACRE	0.2	
AR910410	PARKING BLOCK	EACH	3	
AR910415	REMOVE PARKING BLOCK	EACH	3	

SUMMARY OF QUANTITIES - ADD ALT				
ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	AS-BUILT QUANTITY
AS401916	REM & REP BIT PAVEMENT-TYPE B	SQ YD	87	

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.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A

Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: G-002-SOQ.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

SUMMARY OF QUANTITIES AND SHEET INDEX

SCOPE OF WORK

PROJECT BASE BID CONSISTS OF FULL DEPTH PAVEMENT REMOVAL, 6" PCC FULL DEPTH PAVEMENT, 5" FULL DEPTH HMA PAVEMENT, WATERBORNE AIRFIELD MARKING, INSTALLATION OF A TRENCH DRAIN AND UNDER DRAINS, INSTALLATION OF 2 - 28" ELECTRIC SLIDE GATES AND ASSOCIATED FENCING, SHOULDER ADJUSTMENT, SEEDING, AND MULCHING. OF THE WEST T-HANGAR ACCESS PAVEMENTS INCLUDING THE WEST AND NORTH ENTRANCES TO THE T-HANGAR AREA.

ADDITIVE ALTERNATE - INCLUDES FULL DEPTH BITUMINOUS PAVEMENT PATCHING.

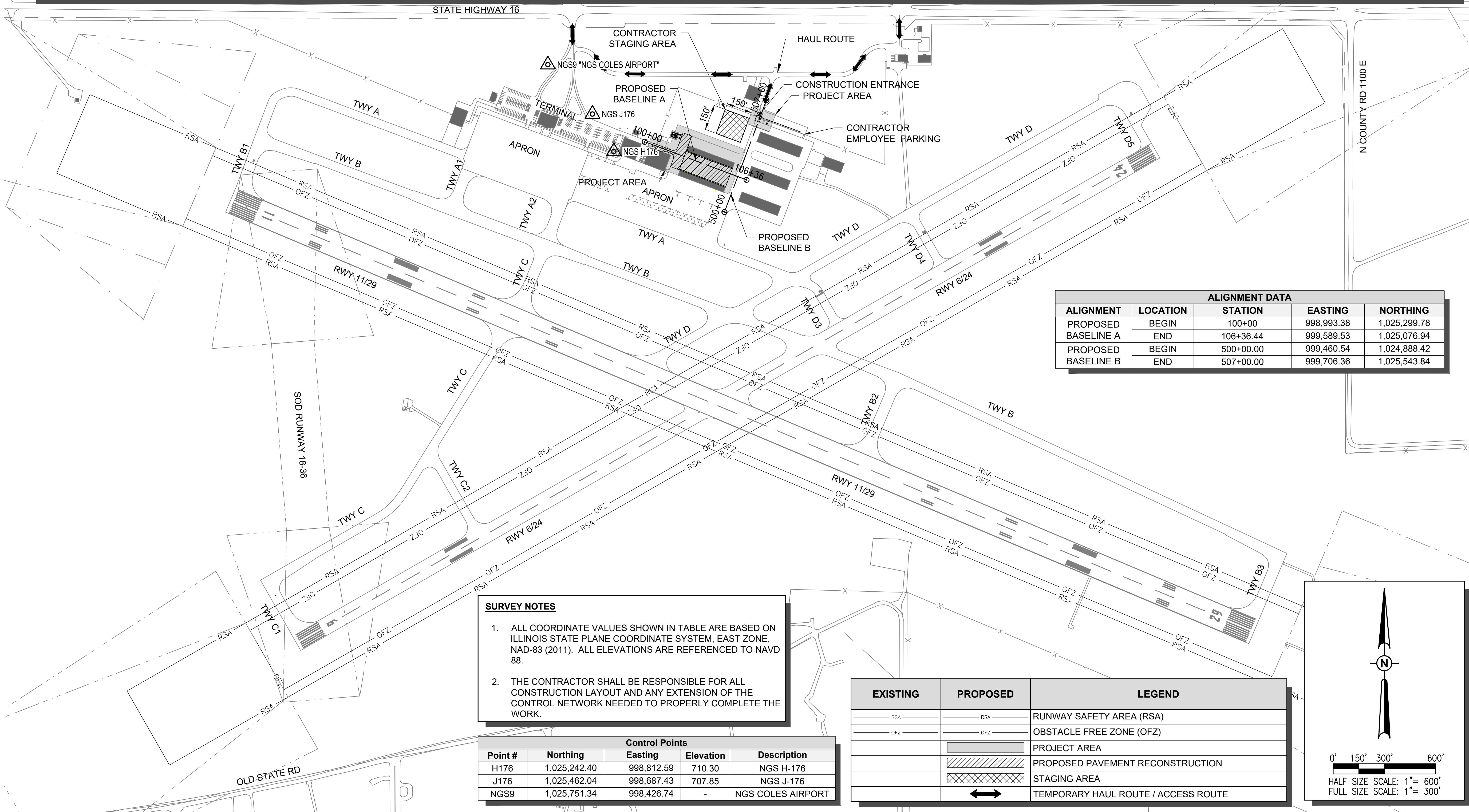
GENERAL

THE COLES COUNTY MEMORIAL AIRPORT IS A FAA PART 139, NON-TOWER CONTROLLED, GENERAL AVIATION AIRPORT COMPRISED OF TWO PAVED RUNWAYS AND ONE SOD SHORT TAKEOFF AND LANDING (STOL) RUNWAY. THE PROPOSED CONSTRUCTION NOT WILL REQUIRE THE CLOSURE ANY ACTIVE RUNWAYS OR TAXIWAYS.

THE BASE BID AND ADDITIVE ALTERNATE WILL REQUIRE THE CLOSURE OF THE WEST T-HANGAR APRON PAVEMENT INCLUDING WEST AND NORTH ENTRANCES TO THE APRON HANGAR AREA.

AIRFIELD SAFETY

- AIRFIELD SAFETY SHALL BE HELD PARAMOUNT AT ALL TIMES. ANY INDIVIDUALS RESPONSIBLE FOR INCURSIONS OR POTENTIAL INCURSIONS WITH AIR TRAFFIC DUE TO NON-COMPLIANCE WITH REQUIREMENTS SET FORTH IN THESE PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND FAA ADVISORY CIRCULAR 150/5370-2 (CURRENT EDITION) WILL BE SUBJECT TO AN IMMEDIATE SUSPENSION OF DRIVING PRIVILEGES ON THE AIRPORT OR A COMPLETE RESTRICTION FROM ENTERING THE AIR OPERATIONS AREA ALTOGETHER. THE AIRPORT MANAGER OR RESIDENT ENGINEER/TECHNICIAN MAY STOP THE WORK AT ANY TIME THEY BELIEVE AIRFIELD SAFETY IS BEING COMPROMISED.
- AIRPORT SECURITY WILL BE MAINTAINED AT ALL TIMES. ONLY CONTRACTOR EMPLOYEES SHALL BE ALLOWED WITHIN THE PROJECT LIMITS. GATES SHALL BE CLOSED AT ALL TIMES UNLESS THE CONTRACTOR IS IN A CONTINUOUS HAULING OPERATIONS, DURING WHICH TIME HE WILL PROVIDE A PERSON TO MONITOR THE GATE AREA.
- RADIO CONTROL - THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT WITH THE AIRPORT UNICOM (122.70 MHz) ANY TIME THERE ARE WORKERS OR EQUIPMENT ON THE AIRFIELD.



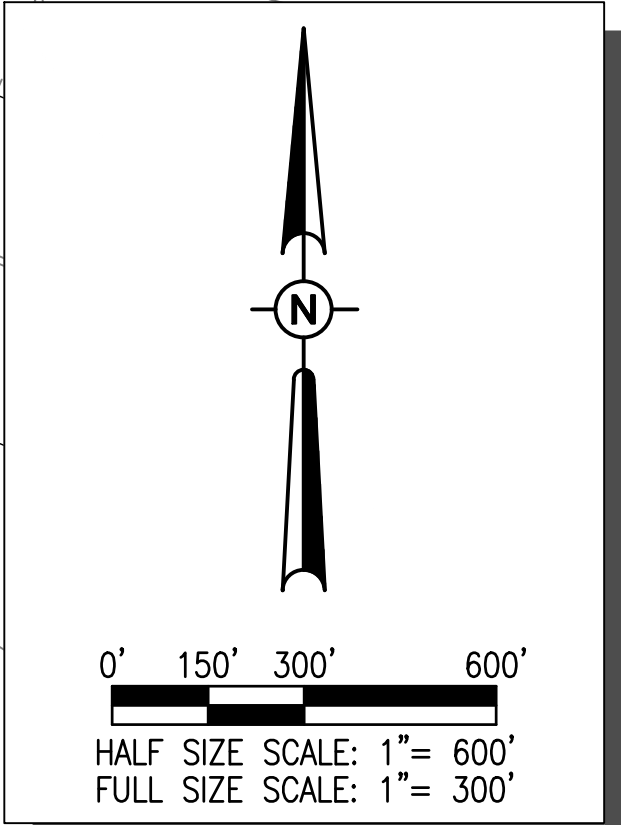
ALIGNMENT DATA				
ALIGNMENT	LOCATION	STATION	EASTING	NORTHING
PROPOSED BASELINE A	BEGIN	100+00	998,993.38	1,025,299.78
PROPOSED BASELINE A	END	106+36.44	999,589.53	1,025,076.94
PROPOSED BASELINE B	BEGIN	500+00.00	999,460.54	1,024,888.42
PROPOSED BASELINE B	END	507+00.00	999,706.36	1,025,543.84

SURVEY NOTES

- ALL COORDINATE VALUES SHOWN IN TABLE ARE BASED ON ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD-83 (2011). ALL ELEVATIONS ARE REFERENCED TO NAVD 88.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND ANY EXTENSION OF THE CONTROL NETWORK NEEDED TO PROPERLY COMPLETE THE WORK.

Control Points				
Point #	Northing	Easting	Elevation	Description
H176	1,025,242.40	998,812.59	710.30	NGS H-176
J176	1,025,462.04	998,687.43	707.85	NGS J-176
NGS9	1,025,751.34	998,426.74	-	NGS COLES AIRPORT

EXISTING	PROPOSED	LEGEND
		RUNWAY SAFETY AREA (RSA)
		OBSTACLE FREE ZONE (OFZ)
		PROJECT AREA
		PROPOSED PAVEMENT RECONSTRUCTION
		STAGING AREA
		TEMPORARY HAUL ROUTE / ACCESS ROUTE



RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

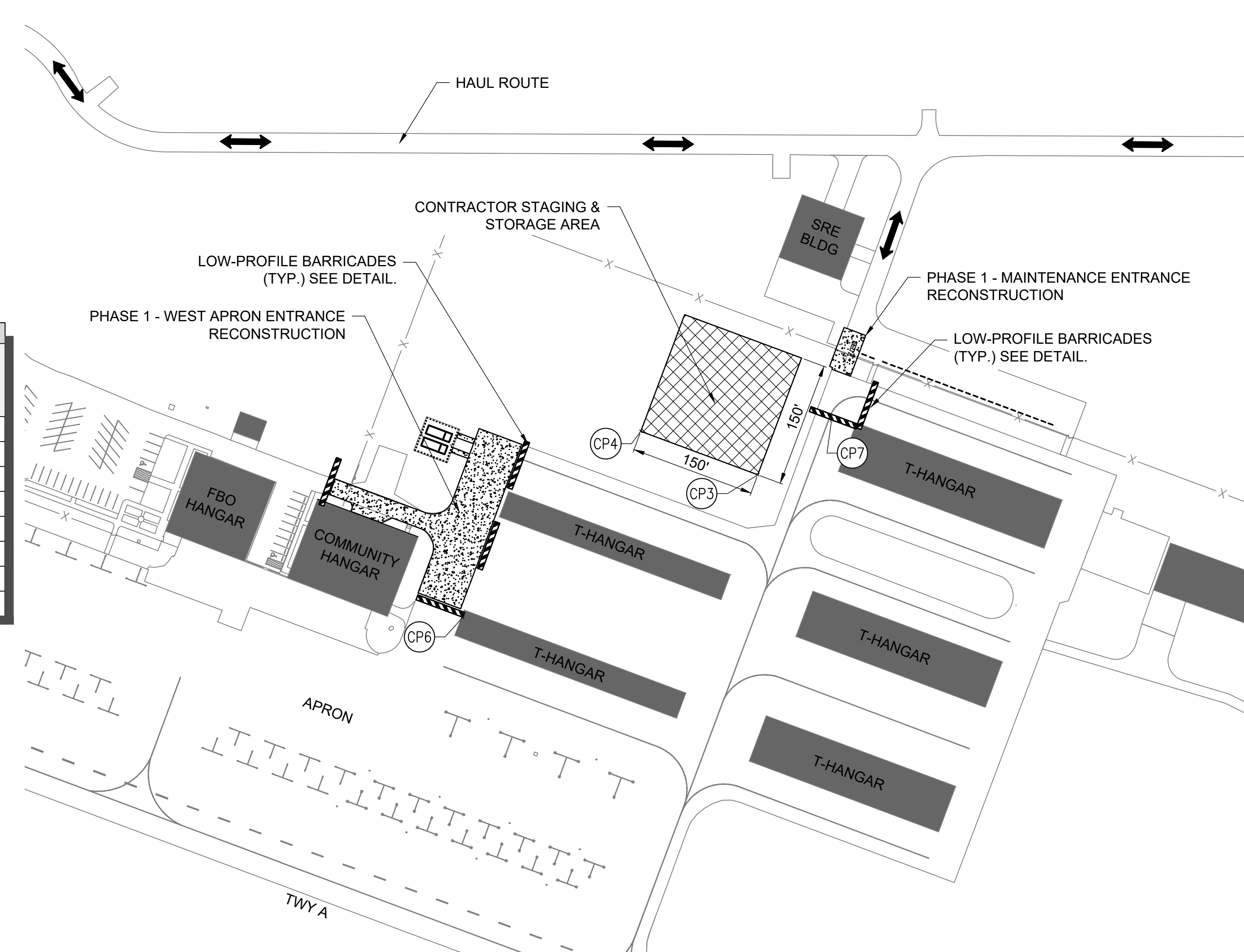
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-101-SOW.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

SCOPE OF WORK



CRITICAL POINTS						
POINT NO.	DESCRIPTION	LAT.	LONG.	EXIST. GROUND ELEV. (MSL)	EQUIPMENT OBJECT HEIGHT (FT)	TOP ELEV. (MSL)
3	CONSTRUCTION STAGING AREA / EQUIPMENT	N039° 28' 55.8847"	W088° 16' 44.8243"	703	25	728
4	CONSTRUCTION STAGING AREA / EQUIPMENT	N039° 28' 56.4020"	W088° 16' 46.6172"	702	25	727
6	LOW PROFILE BARRICADE	N039° 28' 54.1928"	W088° 16' 49.3487"	706	3	709
7	LOW PROFILE BARRICADE	N039° 28' 56.5372"	W088° 16' 43.69.12"	704	3	707
8	LOW PROFILE BARRICADE	N039° 28' 52.2400"	W088° 16' 46.2371"	706	3	709
9	LOW PROFILE BARRICADE	N039° 28' 53.5439"	W088° 16' 50.7126"	708	3	711
10	LOW PROFILE BARRICADE	N039° 28' 55.2492"	W088° 16' 44.7725"	705	3	708

*OBJECT HEIGHT TO BE VERIFIED IN THE FIELD

PHASE 1 SAFETY PLAN

NOTES

GENERAL

- THE PROPOSED SAFETY PLAN WILL GOVERN WHEN WORK IS BEING COMPLETED IN THE SHADED REGIONS SHOWN ON THE PLANS.

CLOSURES

- NO RUNWAY OR TAXIWAY CLOSURES

PHASE TRANSITION

- THE CONTRACTOR WILL CONTACT THE AIRPORT A MINIMUM OF 7 DAYS BEFORE THE DESIRED INITIATION DATE OF WORK IN EACH WORK AREA, AND KEEP THE AIRPORT APPRISED OF ANY CHANGES TO THE PROJECT SCHEDULE, BOTH IMMEDIATE AND OVERALL.
- PRIOR TO REMOVING ANY BARRICADES AND REOPENING ANY PAVEMENTS, THE CONTRACTOR SHALL THOROUGHLY CLEAN AND INSPECT THE AREA.

FLAGGER NOTES

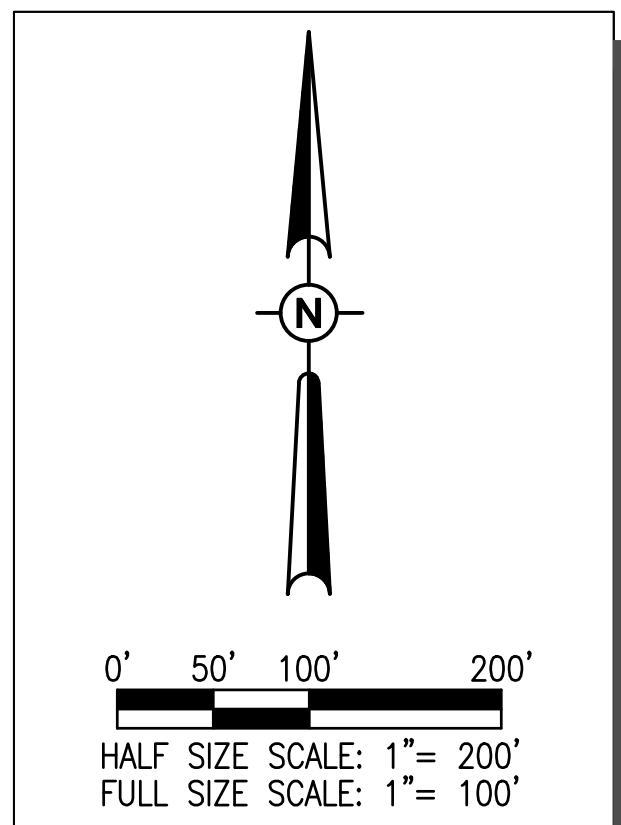
- RADIO CONTROL - THE CONTRACTOR WILL BE REQUIRED TO BE IN TWO-WAY RADIO CONTACT (122.70 MHz.) WITH THE AIRPORT UNICOM. THIS WILL KEEP THE CONTRACTOR IN CONSTANT CONTACT WITH THE AIRPORT AND ENABLE THE AIRPORT TO IMMEDIATELY CONTACT THE CONTRACTOR IN CASE OF AN AERONAUTIC EMERGENCY THAT WOULD REQUIRE ACTION BY THE CONTRACTOR AND/OR HIS PERSONNEL.

PHASE 1 NOTES:

- PHASE 1 INCLUDES RECONSTRUCTING THE EXISTING WEST APRON ENTRANCE FROM THE PARKING LOT AND THE NORTH APRON ENTRANCE FROM THE MAINTENANCE (SRE) BUILDING.

FULL DEPTH REMOVAL OF EXISTING PAVEMENT
PCC PAVEMENT CONSTRUCTION
DRAINAGE IMPROVEMENTS INCLUDING GRADING AND UNDERDRAINS
INSTALLATION OF 2 - 28' ELECTRIC SLIDE GATES/FENCING AND FENCE REMOVAL / REPLACEMENT

PROPOSED	LEGEND
[Shaded Area]	PHASE 1
[Hatched Area]	PHASE 2
[Cross-hatched Area]	STAGING AREA
[Double Arrow]	TEMPORARY HAUL ROUTE / ACCESS ROUTE
[Zigzag Line]	LOW PROFILE BARRICADE
[Circle with 1]	SAFETY CRITICAL POINT



RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
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ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
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REVIEWED BY: LDH 7/26/24

SHEET TITLE

AIRFIELD SAFETY PLAN - PHASE 1

**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

IDA No: MTO-4816

SBG Project No: N/A

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PROJECT NO: 22A0001D

CAD FILE: C-101-CSPP.DWG

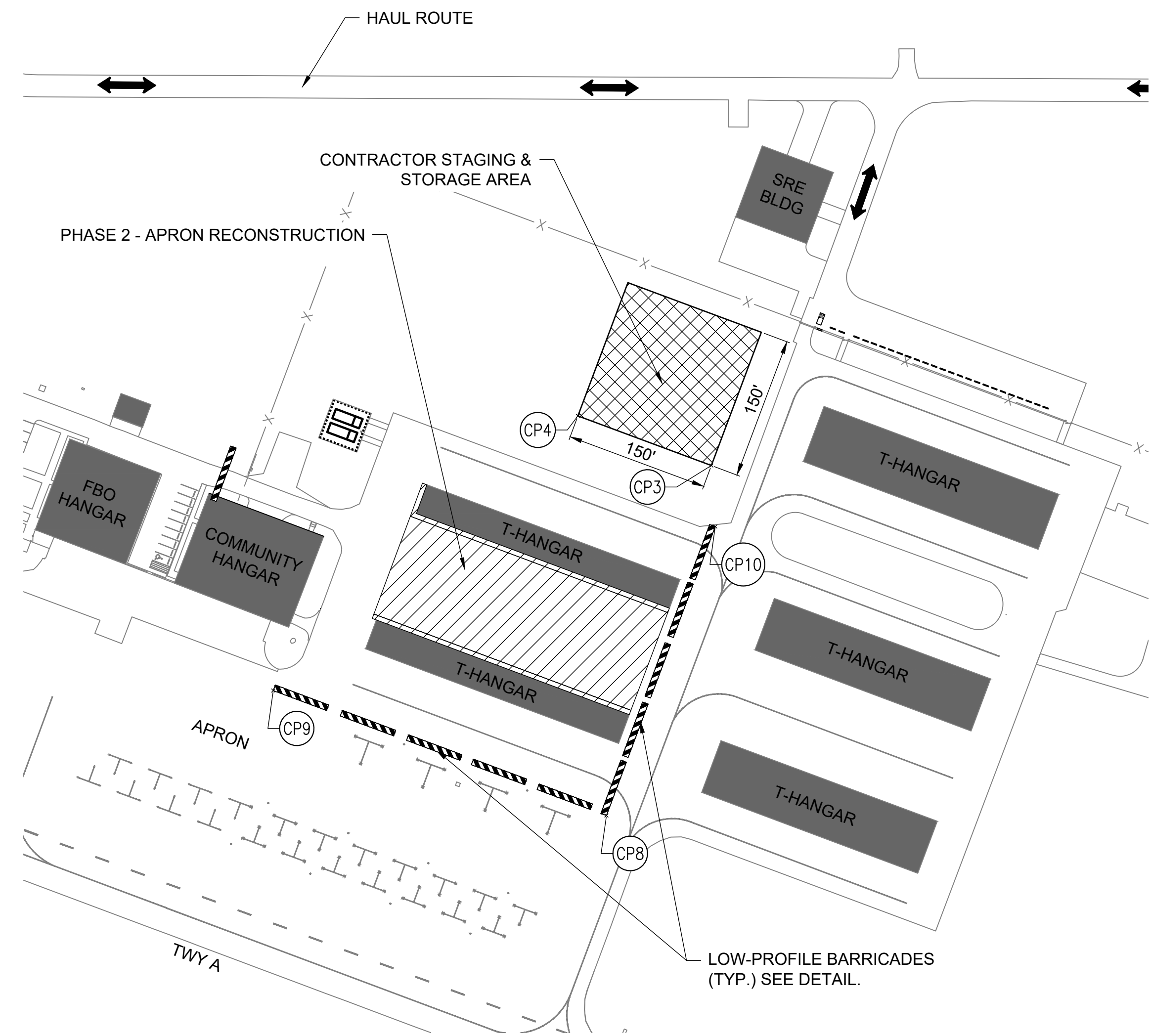
DESIGN BY: LDH 9/4/2023

DRAWN BY: JP 9/18/2023

REVIEWED BY: LDH 7/26/24

SHEET TITLE

**AIRFIELD SAFETY
PLAN - PHASE 2**

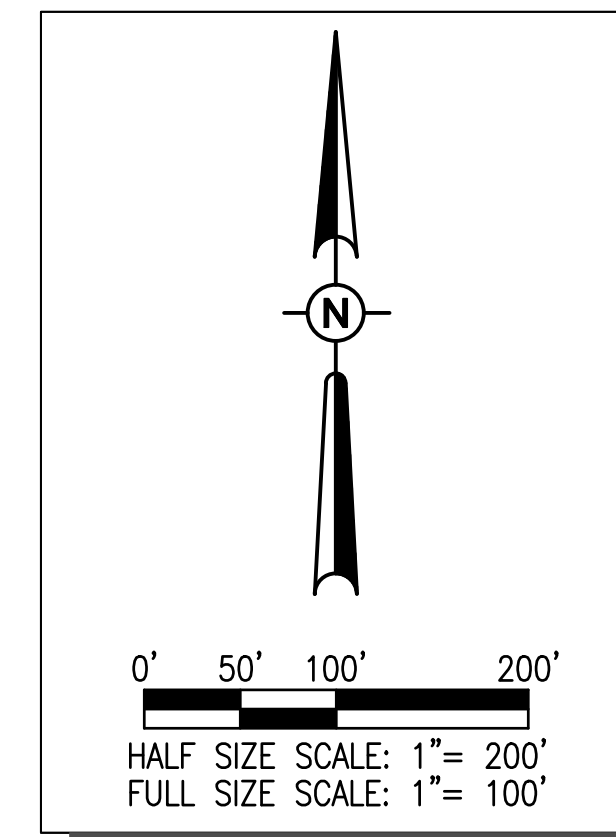


PHASE 2 SAFETY PLAN

PHASE 2

- PHASE 2 INCLUDES RECONSTRUCTING THE EXISTING APRON / TAXILANE.
FULL DEPTH REMOVAL OF EXISTING PAVEMENT
PCC SIDEWALK PAVEMENT APPROACHES AROUND EXISTING T-HANGARS
HMA PAVEMENT CONSTRUCTION
INSTALLATION OF TRENCH DRAIN BETWEEN THE EXISTING T-HANGARS
DRAINAGE IMPROVEMENTS INCLUDING GRADING AND UNDERDRAINS

PROPOSED	LEGEND
	PHASE 1
	PHASE 2
	STAGING AREA
	TEMPORARY HAUL ROUTE / ACCESS ROUTE
	LOW PROFILE BARRICADE
	SAFETY CRITICAL POINT

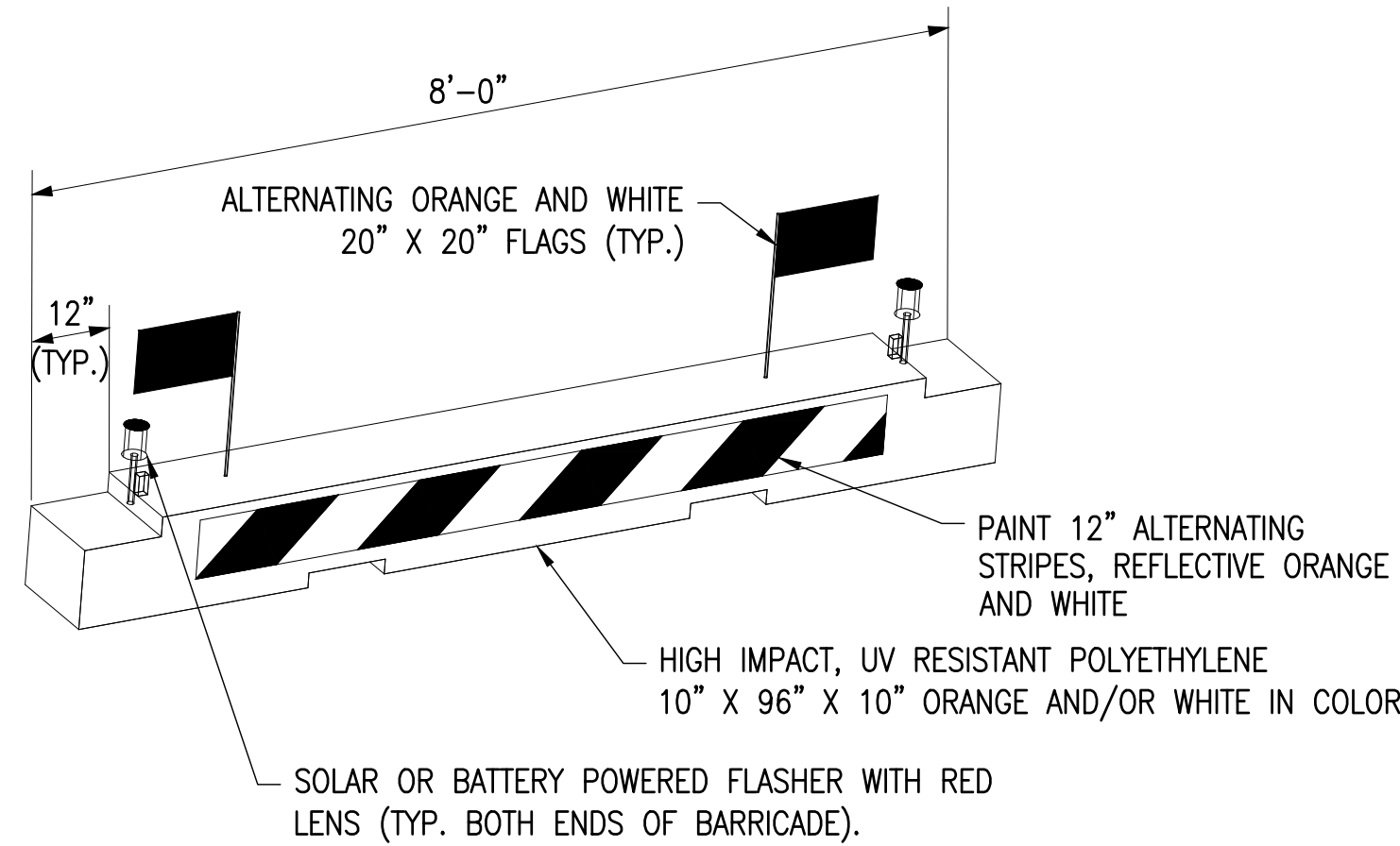


SAFETY NOTES

- ALL PROVISIONS OF THE LATEST EDITION OF FAA ADVISORY CIRCULAR AC 150/5370-2 (CURRENT EDITION), "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION", APPLY TO THIS CONTRACT, EXCEPT AS MODIFIED BY THIS SAFETY PLAN. ANY CHANGES TO THIS SAFETY PLAN MUST BE APPROVED BY THE FAA AND THE AIRPORT.
- THE CONTRACTORS SHALL MINIMIZE DISRUPTION OF STANDARD OPERATING PROCEDURES FOR AERONAUTICAL ACTIVITY BY REMAINING WITHIN THE PRESCRIBED STAGING, CONSTRUCTION, AND PHASING AREAS PRESENTED ON THE CONSTRUCTION SAFETY AND PHASING PLAN SHEETS.
- NO UNAUTHORIZED PERSONNEL SHALL ENTER ANY AREA OF THE AIRPORT THAT COULD POTENTIALLY BE HAZARDOUS. THE AIRPORT MANAGER RESERVES THE RIGHT TO SUSPEND OPERATIONS IN ORDER TO MAINTAIN SAFETY AT THE AIRPORT.
- PRIOR TO ACCESSING THE AIRFIELD, ANY DESIGNATED CONTRACTOR OR SUBCONTRACTOR EMPLOYEES WHO WILL BE OPERATING OR ESCORTING A VEHICLE ON AN ACTIVE AREA OF THE AIRFIELD MUST ATTEND A 1 HOUR AIRFIELD SAFETY TRAINING AND ORIENTATION PROVIDED BY THE AIRPORT. PRIOR TO THE TRAINING, THE EMPLOYEES MUST BE FAMILIAR WITH THE "FAA GUIDE TO GROUND VEHICLE OPERATIONS", AND KEEP A HARD COPY IN THE VEHICLE FOR REFERENCE. THE GUIDE CAN BE FOUND AT: https://www.faa.gov/airports/runway_safety/media/Ground_Vehicle_Guide_Proof_Final.pdf
- NO CONSTRUCTION VEHICLES SHALL BE DRIVEN ACROSS ANY ACTIVE AIRFIELD PAVEMENT AREA WITHOUT AN APPROPRIATE ESCORT.
- CONTRACTOR EQUIPMENT, VEHICLES, AND PROJECT MATERIALS SHALL BE STORED AT THE STAGING AREA SHOWN ON THE PLAN VIEW, EXCEPT AS OTHERWISE PROVIDED FOR AT THE PRE-CONSTRUCTION CONFERENCE.
- ALL CONSTRUCTION EQUIPMENT OPERATING IN THE PRESCRIBED CONSTRUCTION AREA IS REQUIRED TO DISPLAY A CHECKERBOARD FLAG PROPERLY LOCATED OR A ROTATING BEACON (STROBE) AS SPECIFIED IN AC 150/5210-5, "PAINTING, MARKING, AND LIGHTING OF VEHICLES USED ON AN AIRPORT" LATEST EDITION.
- CLOSED AIRFIELD PHASING AREAS, OPEN TRENCHES, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHALL BE PROMINENTLY MARKED WITH LIGHTED BARRICADES WITH STEADY BURNING OR FLASHING RED LIGHTS AS SPECIFIED IN 150/5370-2, "OPERATIONAL SAFETY ON AIRPORT DURING CONSTRUCTION", LATEST EDITION. LIGHTED BARRICADES MUST BE NO TALLER THAN 18" (EXCLUSIVE OF SUPPLEMENTARY LIGHTS AND FLAGS) ON THE TAXIWAYS AND COMPLY WITH ADVISORY CIRCULAR 150/5370-2, LATEST EDITION. CONTRACTOR SHALL NIGHT CHECK BARRICADES DAILY FOR PROPER OPERATION.
- OPEN TRENCHES, EXCAVATIONS, AND STOCKPILED MATERIALS AT THE CONSTRUCTION SITE SHOULD BE PROMINENTLY MARKED WITH ORANGE FLAGS AND LIGHTED WITH FLASHING RED LIGHTS DURING HOURS OF RESTRICTED VISIBILITY AND/OR DARKNESS.
- NO CONSTRUCTION EQUIPMENT GREATER THAN 25' TALL, OTHER THAN AS SHOWN ON THE SAFETY PLAN, WILL BE PERMITTED ON THE AIRPORT WITHOUT THE APPROVAL OF THE AIRPORT MANAGER AND ADDITIONAL AIRSPACE APPROVAL BY THE FAA. AIRSPACE APPROVALS REQUIRE CONSIDERABLE LEAD TIME AND SHOULD BE REQUESTED WELL IN ADVANCE.
- NO OPEN FLAME WELDING OR TORCH CUTTING OPERATION IS PERMITTED UNLESS ADEQUATE FIRE AND SAFETY PRECAUTIONS ARE PROVIDED AND HAVE BEEN APPROVED BY THE AIRPORT MANAGER NO FLARE POTS ARE ALLOWED ON THE PROJECT.
- SOIL, DEBRIS, AND LOOSE MATERIAL DROPPED OR TRUCKED ONTO AIRPORT ROADS, TAXIWAYS, AND SOD SURFACES, OR WHICH CAN BE BLOWN ONTO SUCH SURFACES, SHALL BE IMMEDIATELY SWEEPED, PICKED UP AND REMOVED, OR PLACED INTO CLOSED CONTAINERS. ANY DAMAGE TO AIRPORT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT NO COST TO THE OWNER.
- EACH CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING AIRPORT LIGHTING AND NAVIGATIONAL ELECTRICAL SYSTEMS DURING CONSTRUCTION. A CONTACT PERSON AND TELEPHONE NUMBER FOR 24 HOUR EMERGENCY IMMEDIATE REPAIR SHALL BE SUBMITTED TO THE AIRPORT MANAGER AND RESIDENT ENGINEER/TECHNICIAN. HAUL ROUTES CROSSING PAVEMENT, DRAINAGE, MISCELLANEOUS STRUCTURES AND/OR AIRFIELD CABLES SHALL BE PROTECTED FROM DAMAGE.
- ALL AIRCRAFT AND AIRPORT OPERATIONS HAVE THE RIGHT-OF-WAY. CONTRACTOR TO YIELD TO VEHICLES AND REMAIN CLEAR AT ALL TIMES.
- CONTRACTOR SHALL PLACE, SECURE, AND MAINTAIN LIGHTED BARRICADES AND CLOSURE CROSSES WHEN A RUNWAY/TAXIWAY/APRON IS CLOSED OR AS REQUIRED BY THE PLANS AND DESIGNATED BY THE RESIDENT ENGINEER/TECHNICIAN.
- CONTRACTOR SHALL MARK HAZARDOUS AREA WITH STEADY-BURNING OR FLASHING RED LIGHTS DURING PERIODS OF LOW VISIBILITY AS REQUIRED.
- THE CONTRACTOR SHALL PERIODICALLY PERFORM ONSITE INSPECTIONS THROUGHOUT THE DURATION OF THE PROJECT WITH THE IMMEDIATE REMEDY OF ANY DIFFERENCES, WHETHER CAUSED BY NEGLIGENCE, OVERSIGHT, OR PROJECT SCOPE CHANGE.
- CONTRACTOR SHALL MOVE MAINTENANCE OF TRAFFIC COMPONENTS AT THE WRITTEN DIRECTION OF THE RESIDENT ENGINEER/TECHNICIAN AT NO ADDITIONAL COST.
- CONTRACTOR SHALL NOT REMOVE THE BARRICADES WITHOUT THE APPROVAL BY THE RESIDENT ENGINEER/TECHNICIAN OR PROPER AIRPORT PERSONNEL.
- CONTRACTOR SHALL MAINTAIN FLASHERS, SIGNS AND/OR BARRICADES AS REQUIRED BY THE PLANS, CITY OR COUNTY REGULATIONS OR CONTRACTOR ACTIVITIES. CONTRACTOR SHALL OBTAIN ANY AND ALL REQUIRED LOCAL PERMITS UNLESS SPECIFIED OTHERWISE.
- THE CONTRACTOR SHALL UTILIZE WATER AND/OR CHEMICALS APPROVED BY THE RESIDENT ENGINEER/TECHNICIAN AS NECESSARY TO CONTROL DUST.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR IMPLEMENTING MEASURES TO CONTROL OR AVOID CREATING

ATTRACTANTS TO WILDLIFE. MEASURES MAY INCLUDE CONTINUOUSLY REMOVING ANY WASTE OR LOOSE MATERIALS, PLACEMENT OF MATERIALS IN APPROPRIATE STORAGE CONTAINERS, PROPERLY MAINTAINING FENCES AND GATES TO PREVENT ACCESS, AND PREVENTING PONDING OF WATER THROUGHOUT THE SITE.

- UNLESS SPECIFIED OTHERWISE, COST FOR SAFETY, STAGING, AND TRAFFIC MAINTENANCE ITEMS IS TO BE PAID UNDER AR150530.
- ALL AIRFIELD CLOSURES SHALL BE COORDINATED WITH AIRPORT MANAGEMENT A MINIMUM OF 7 DAYS BEFORE THE DESIRED CLOSING TIME TO ALLOW FOR THE PROPER COORDINATION. AIRPORT MANAGEMENT HAS COMPLETE AUTHORITY IN DETERMINING WHEN THE AIRFIELD MAY BE CLOSED.



LOW PROFILE AIRCRAFT BARRICADE DETAIL

BARRICADE NOTES

- ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE ILLINOIS SUPPLEMENT (LATEST EDITION) AND THE FAA ADVISORY CIRCULARS (LATEST EDITION) UNLESS NOTED OTHERWISE. THE FAA OR MORE STRINGENT SPECIFICATIONS SHALL GOVERN.
- BARRICADES SHALL BE INTERLOCKED END TO END OVER THE LENGTH OF THE PAVEMENT WHERE PROTECTING OPEN RUNWAYS, AND SPACED END TO END A MAXIMUM OF 4 FEET IN OTHER ALL OTHER AREAS. BARRICADES ARE TO BE SET BACK FROM THE ACTIVE RUNWAY OR TAXIWAY CENTERLINE THE DISTANCE AS SHOWN ON THE PLANS.
- CONSTRUCTION RED WARNING LIGHT: THESE ARE PORTABLE, LENS DIRECTED, ENCLOSED LIGHTS. THE COLOR OF THE LIGHT EMITTED SHALL BE RED. THEY MAY BE USED IN EITHER A STEADY BURN (TYPE C) OR LOW INTENSITY FLASHING MODE (TYPE A) UNLESS NOTED OTHERWISE.
- THE LIGHTING SHALL BE MAINTAINED IN OPERATION DURING THE HOURS OF DARKNESS BETWEEN 1/2 HOUR AFTER SUNSET AND 1/2 HOUR BEFORE SUNRISE AND WHEN CONDITIONS EXIST WHICH TEND TO OBSCURE VISION.
- BARRICADES SHALL BE SECURED TO THE GROUND BY APPROVED METHODS TO PREVENT MOVEMENT BY PROP WASH, JET BLAST OR OTHER WIND CURRENTS.
- THE ONLY COLOR COMBINATION ON BARRICADES IS ORANGE AND WHITE. THE ORANGE STRIPES SHALL BE ENCAPSULATED LENS REFLECTIVE SHEETING. THE WHITE STRIPES SHALL BE EITHER ENCAPSULATED OR ENCLOSED LENS REFLECTIVE SHEETING AND MUST BE IN ACCEPTABLE CONDITION.
- COST FOR PROVIDING, PLACING, MAINTAINING, RELOCATING AND REMOVING BARRICADES SHALL BE PAID UNDER ITEM AR150530.

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RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-101-CSPP.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

AIRFIELD SAFETY NOTES & DETAILS

CONTRACTOR'S CERTIFICATION STATEMENT

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

PROJECT INFORMATION:

AIRPORT: _____ PROJECT: _____

PROJECT NO: _____ COUNTY: _____

CONTRACT NUMBER: _____

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

SIGNATURE: _____

DATE: _____

PRINTED NAME: _____ TITLE: _____

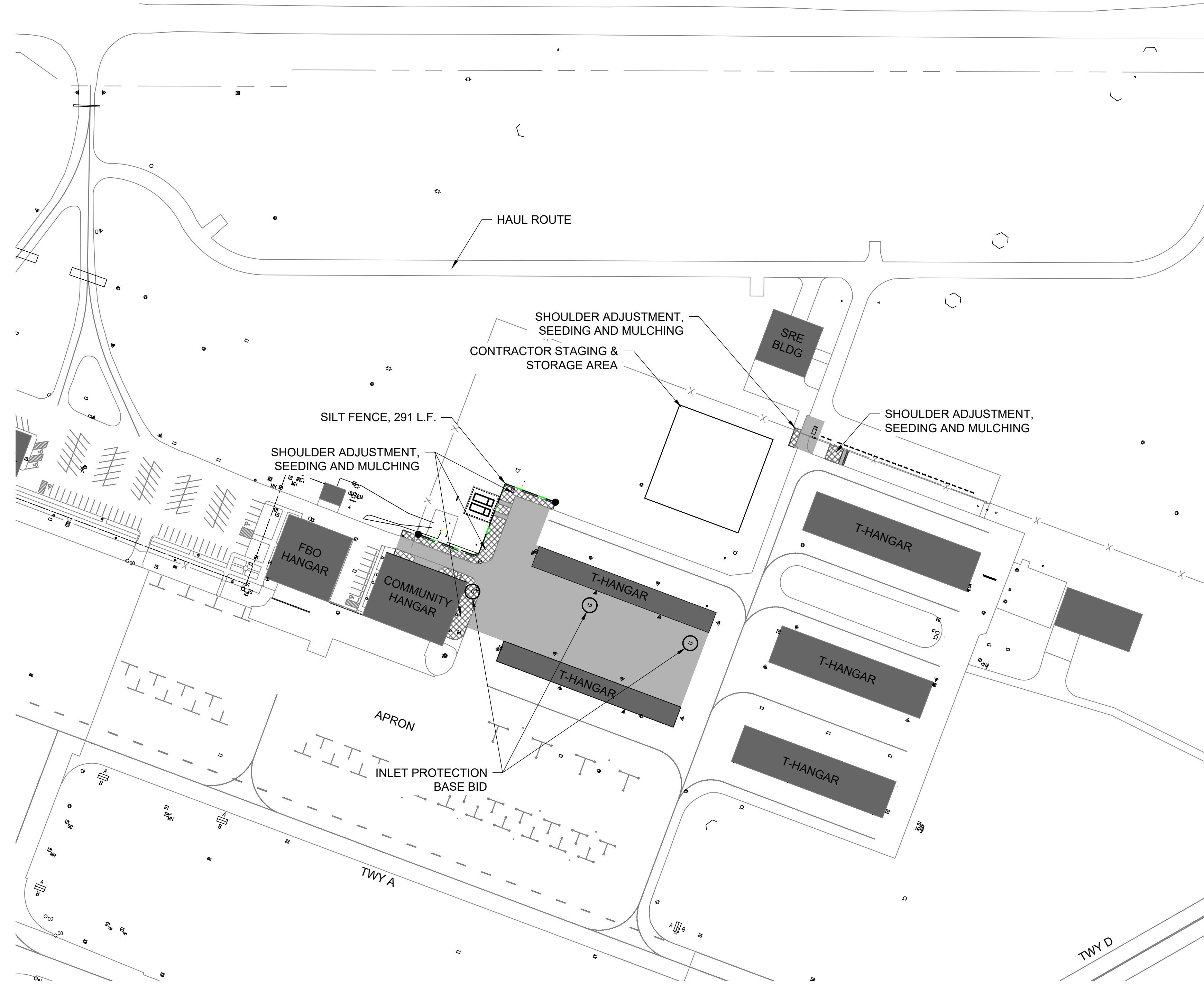
NAME OF FIRM: _____

STREET ADDRESS: _____

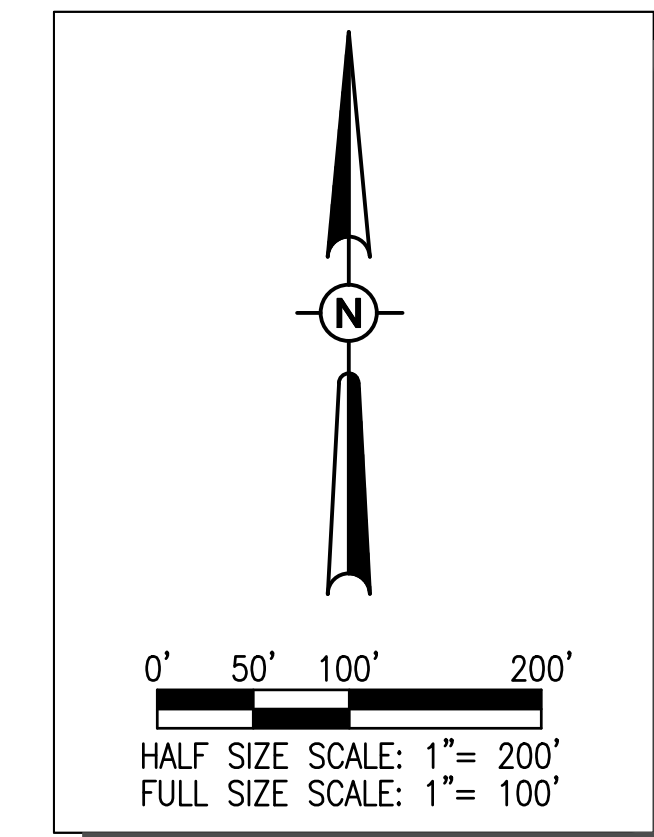
CITY, STATE, ZIP: _____

PHONE NUMBER: _____

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



PROPOSED	LEGEND
	PROJECT AREA
	SHOULDER ADJUSTMENT
	SILT FENCE
	INLET PROTECTION



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
1525 S. 6th Street
Springfield, IL 62568
phone: 217-788-2450
fax: 217-788-2503

Illinois Licensed
Professional Service Corporation
#184-001084



RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024

PROJECT NO: 22A0001D
CAD FILE: C-181-SWP.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

STORM WATER POLLUTION PREVENTION PLAN

**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

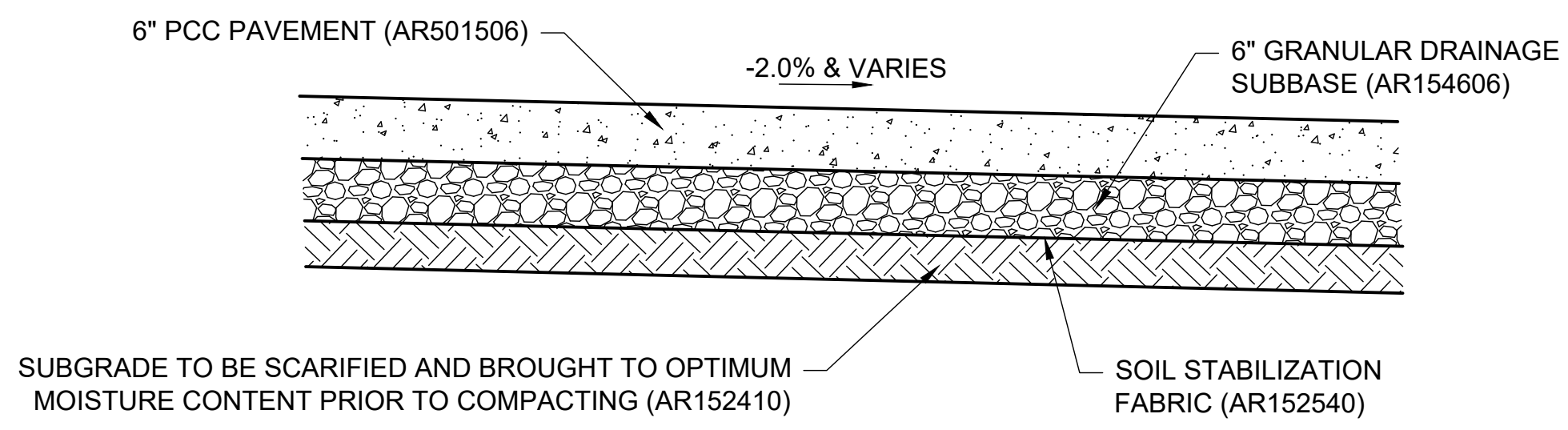
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

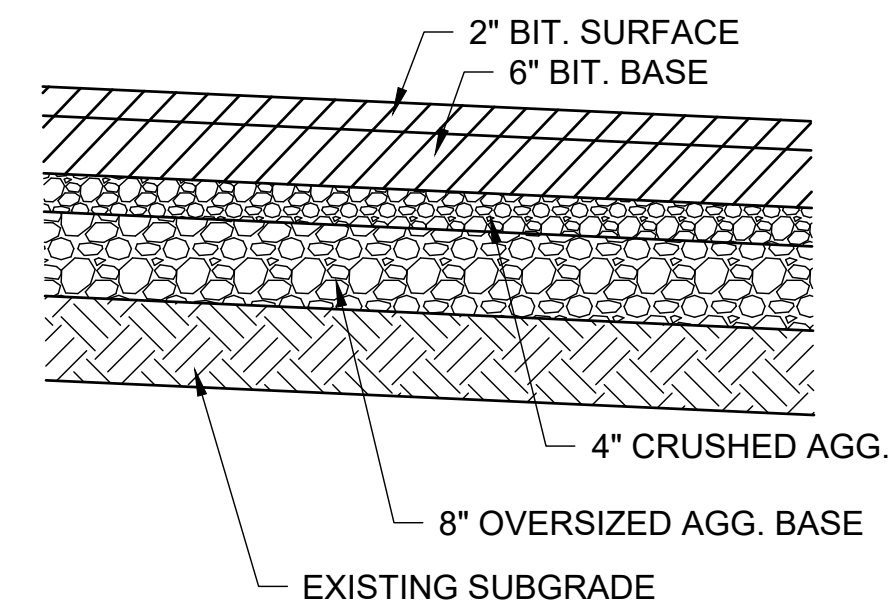
ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-302-TYP.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

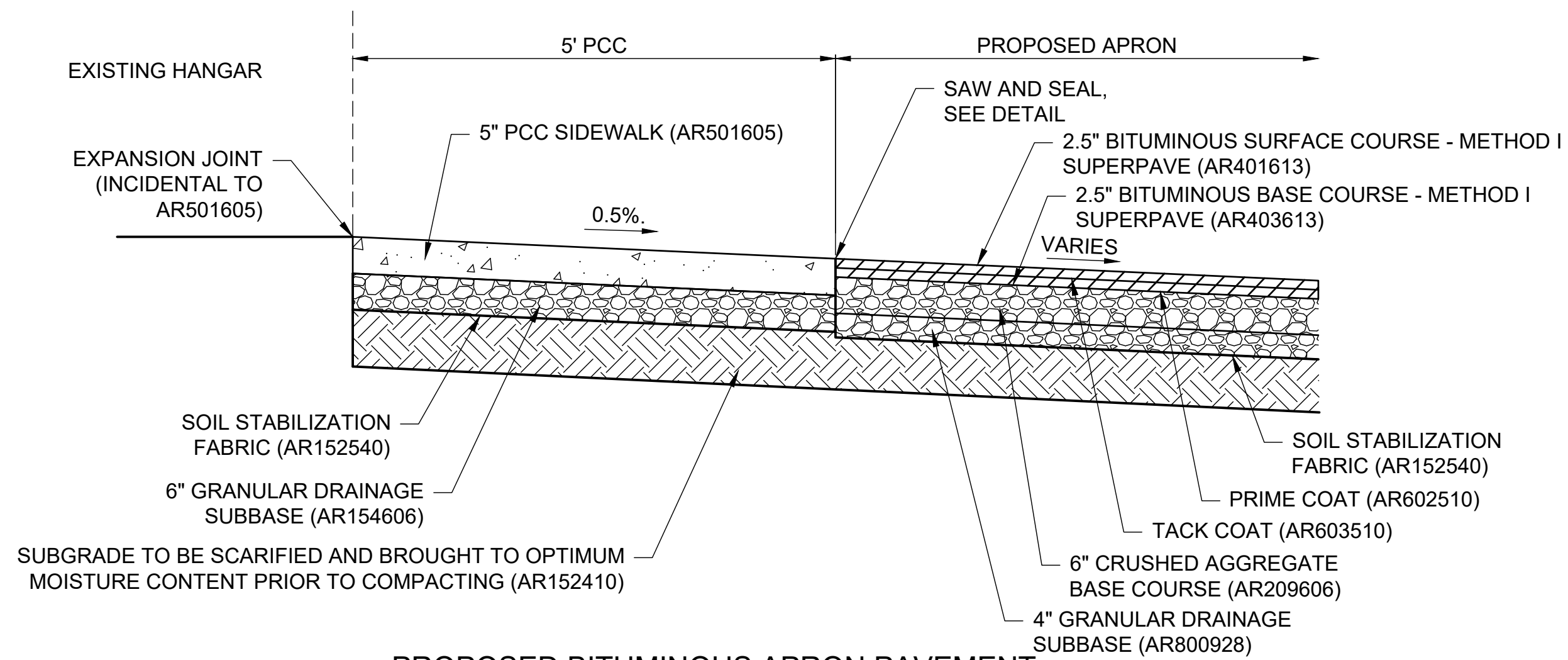
**TYPICAL PAVEMENT
SECTIONS**



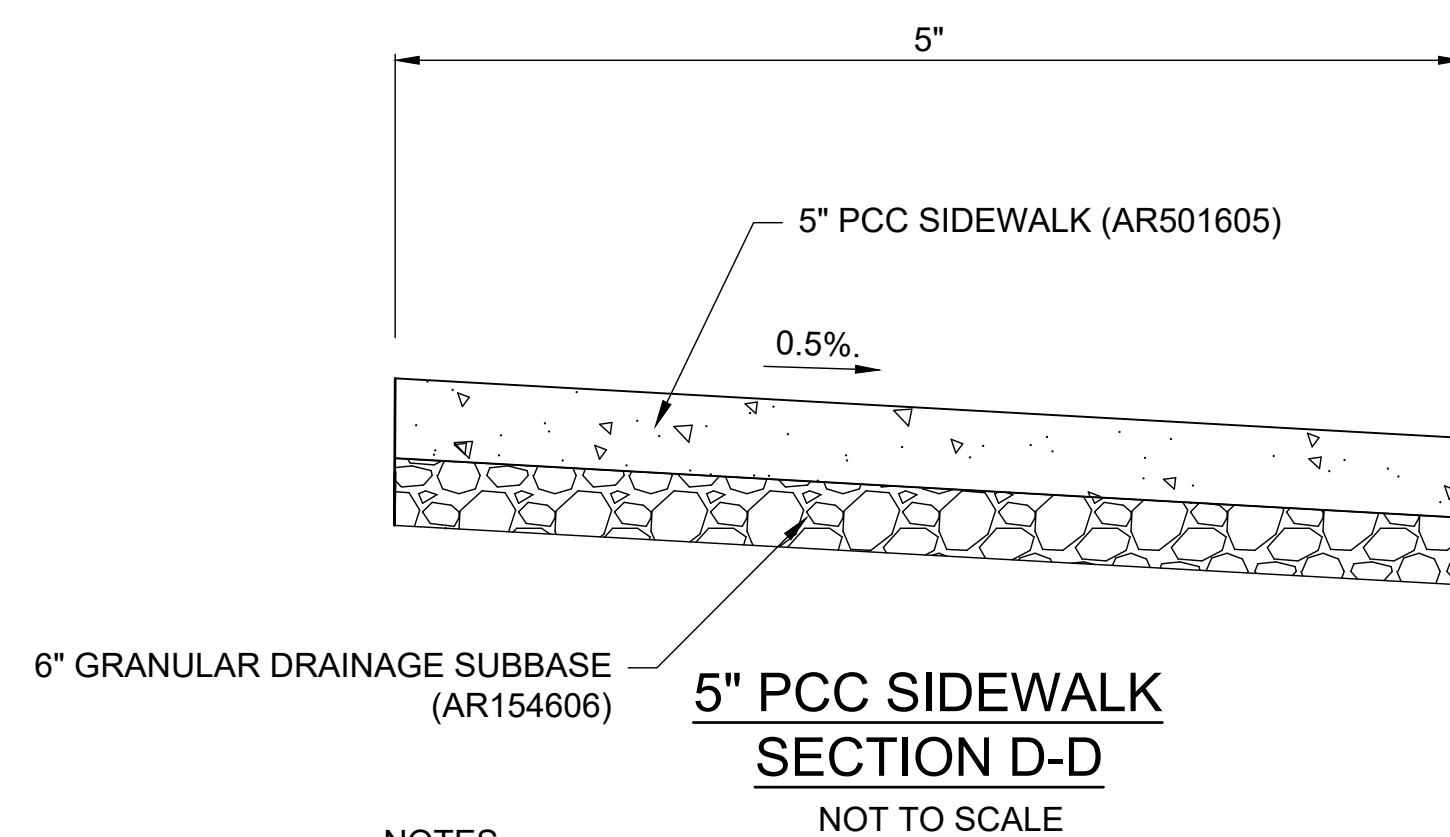
**PROPOSED PCC APRON ENTRANCE
SECTION A-A
NOT TO SCALE**



**EXISTING APRON PAVEMENT
NOT TO SCALE**

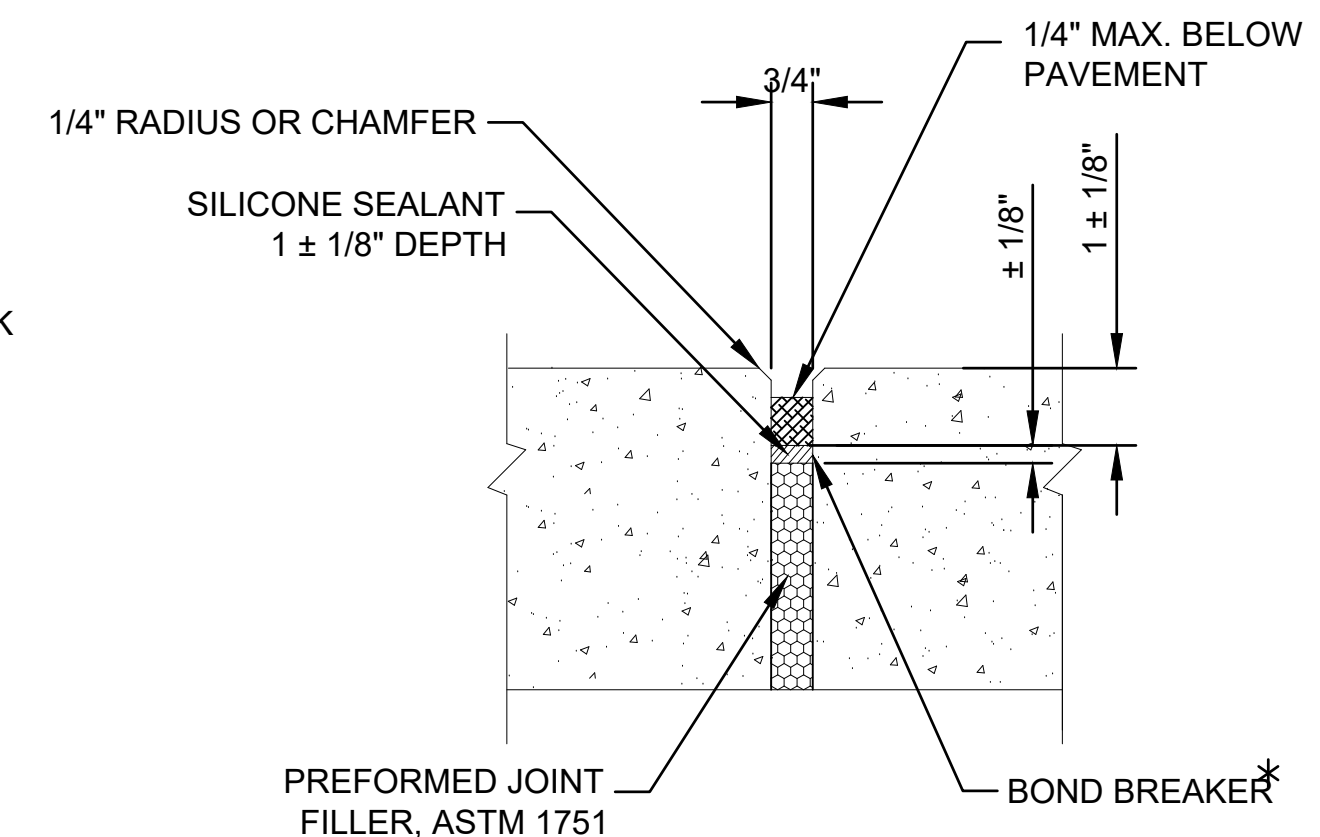
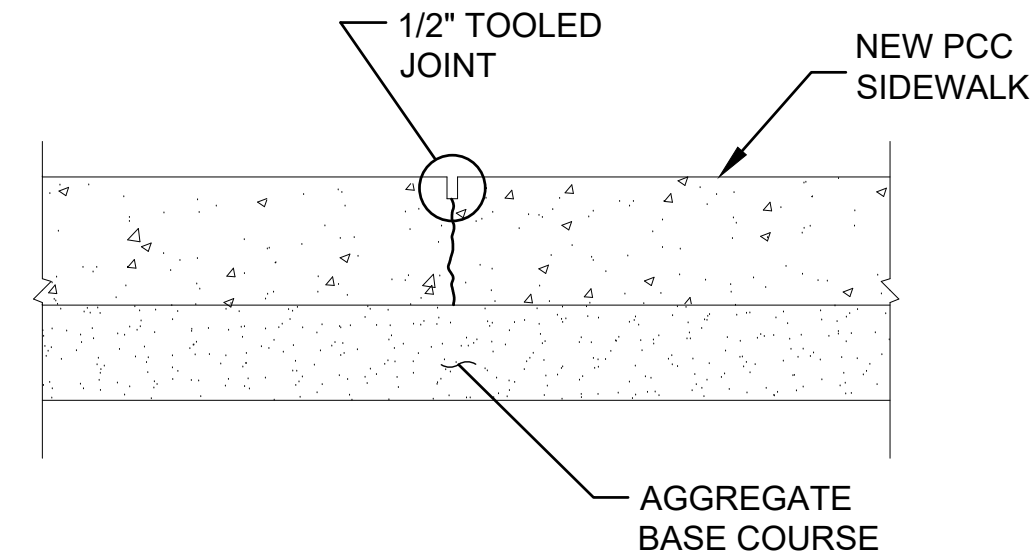
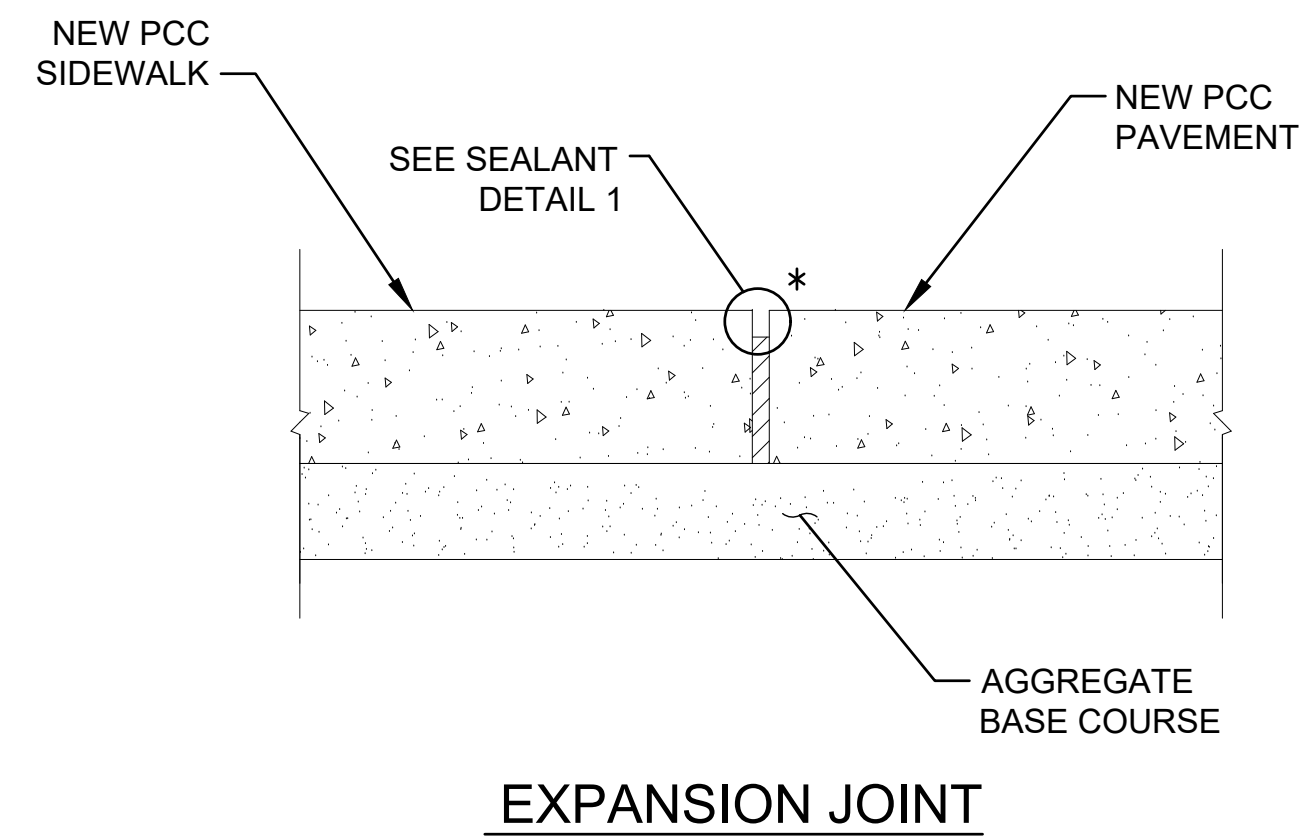


**PROPOSED BITUMINOUS APRON PAVEMENT
SECTION B-B
NOT TO SCALE**



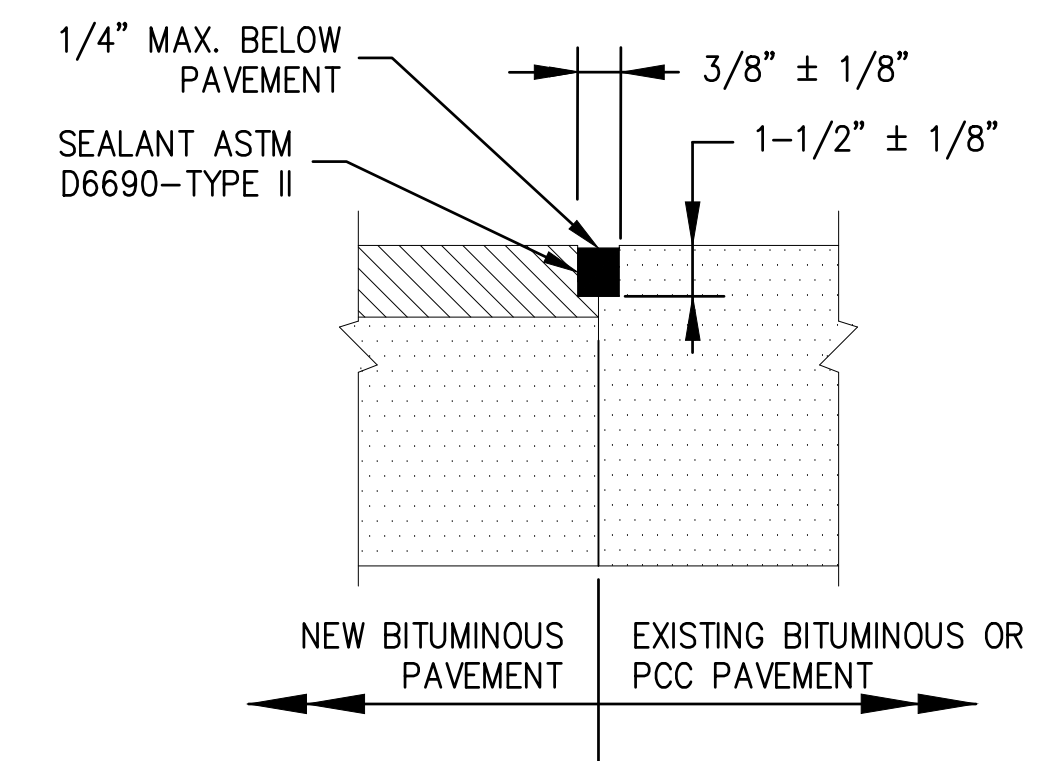
NOTES

- 3/4" PREFORMED JOINT FILLER TO BE USED IN ALL LOCATIONS WHERE SIDEWALK IS ADJACENT TO EXISTING HANGAR SLAB.
1. JOINTS ARE TO BE SPACED EVENLY, MAX. SPACING IS 5 FEET WITH 3/4" PREFORMED EXPANSION JOINTS AT 25' MAX. INTERVALS.



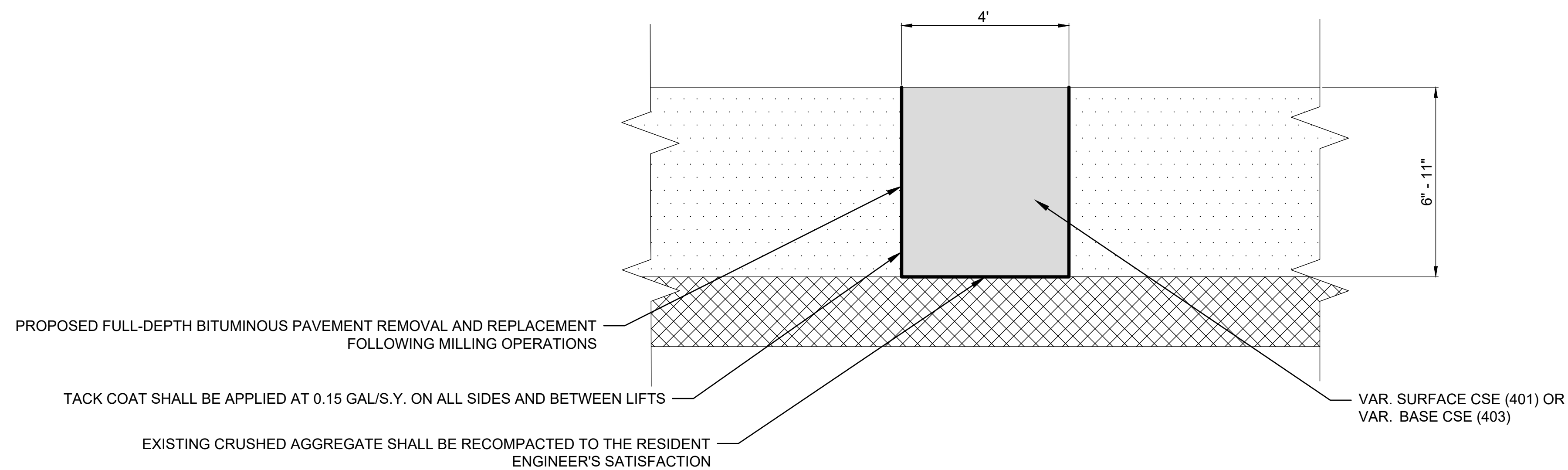
* POLYETHYLENE OR POLYESTER TAPE (3 MIL. MIN.) OR MARKING TAPE, RUBBER TAPE, 1/8" WIDER THAN WIDTH OF JOINT.

SIDEWALK JOINT DETAILS



NOTE:
ALL BITUMINOUS/BITUMINOUS JOINT SEALING TO BE PAID UNDER SAW AND SEAL BITUMINOUS JOINTS, ITEM AR401660.

BITUMINOUS/BITUMINOUS SEAL



ADDITIVE ALTERNATIVE - REMOVE & REPLACE BITUMINOUS PAVEMENT - TYPE B (FULL DEPTH)

NOT TO SCALE

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

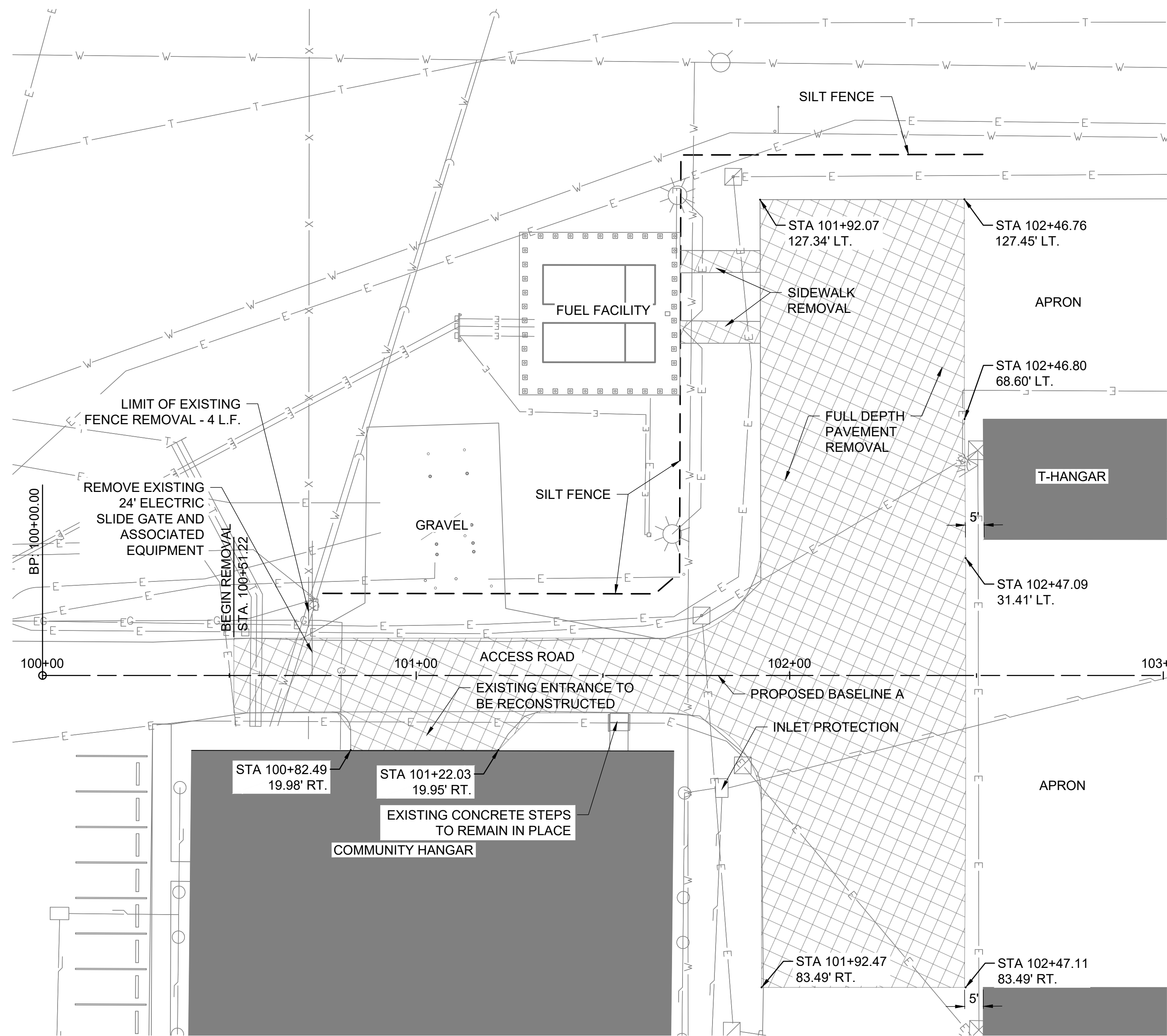
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

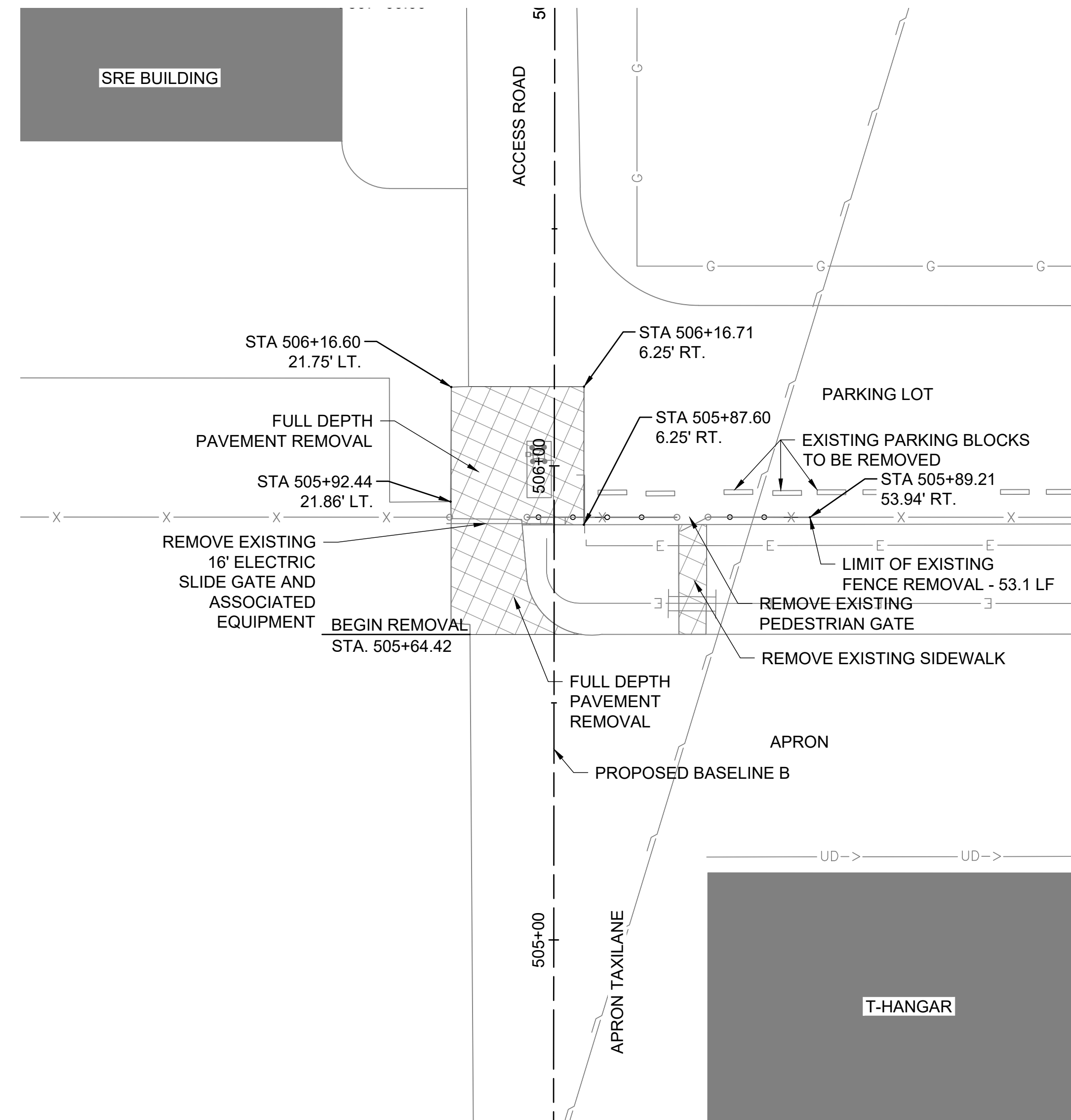
ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-302-TYP.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

PAVEMENT DETAILS



PROPOSED WEST APRON ENTRANCE



PROPOSED NORTH APRON ENTRANCE

DEMOLITION NOTES

- PRIOR TO THE INITIATION OF ANY SITE WORK, CONTRACTOR SHALL LAYOUT LIMITS FOR ALL PROPOSED WORK ITEMS AND LOCATE ALL EXISTING UTILITIES WITHIN THE PROJECT VICINITY. ANY POTENTIAL AREAS OF CONFLICT SHALL BE POT-HOLED BY THE CONTRACTOR FOR VERIFICATION AND REPORTED TO THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO THE PROPOSED LAYOUT AS REQUIRED TO AVOID CONFLICTS AT NO ADDITIONAL COST. CONFLICTS THAT CANNOT BE MITIGATED BY ADJUSTMENTS TO THE LAYOUT WILL REQUIRE FURTHER EVALUATION.
- REMOVED CONCRETE, ASPHALT, MILLED MATERIAL, EXCAVATION, ABANDONED UTILITIES AND OTHER MATERIALS SHALL BE DISPOSED OF OFFSITE. UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER/TECHNICIAN.
- STRIPPED TOPSOIL SHALL BE RETAINED ONSITE AND USED TO CAP GRADED AREAS ENSURING A MINIMUM THICKNESS OF 4" OF TOPSOIL MATERIAL.
- PAVEMENT SAWING INCIDENTAL TO PAVEMENT REMOVAL.

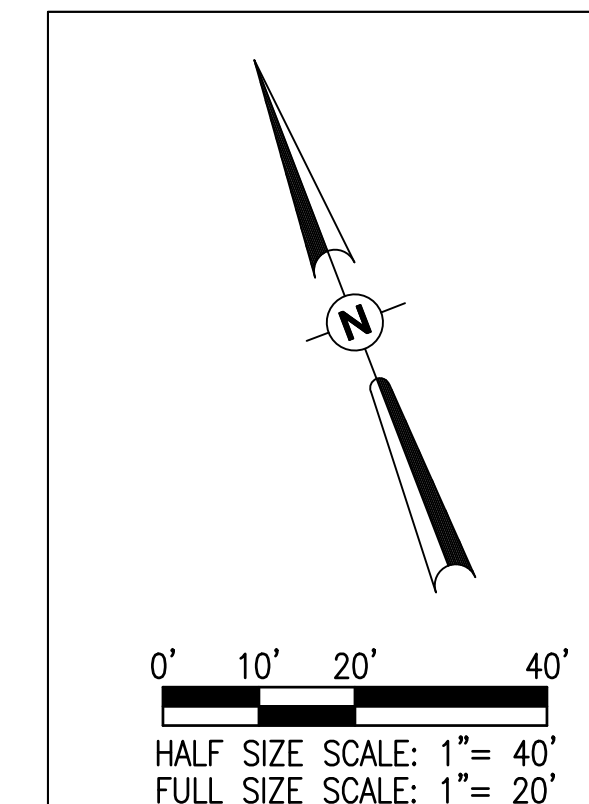
ELECTRICAL NOTES

- SEE ELECTRICAL PLANS FOR REMOVAL OF ELECTRIC SLIDE GATE EQUIPMENT AND OTHER ASSOCIATED ELECTRICAL ITEMS.
- ALL WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER/DIRECTOR AND RESIDENT ENGINEER/TECHNICIAN.

REMOVE & REPLACE BITUMINOUS PAVEMENT - ADDITIVE ALTERNATE

- SEE DETAILS SHEET FOR PATCHING. PATCHING LOCATIONS ARE APPROXIMATE AND WILL BE CONFIRMED AND LAID OUT BY THE RESIDENT ENGINEER/TECHNICIAN.

EXISTING	PROPOSED	LEGEND
		PAVEMENT / SIDEWALK REMOVAL
		REMOVE AND REPLACE BITUMINOUS PAVEMENT
		SILT FENCE
		AIRPORT BUILDING
		UNDERDRAIN
		STORM SEWER
		TELEPHONE LINE
		FENCE
		ELECTRICAL CABLES
		WATER LINES
		SANITARY SEWER
		GAS
		MANHOLE
		HANDHOLE
		INLET
		LIGHT



RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

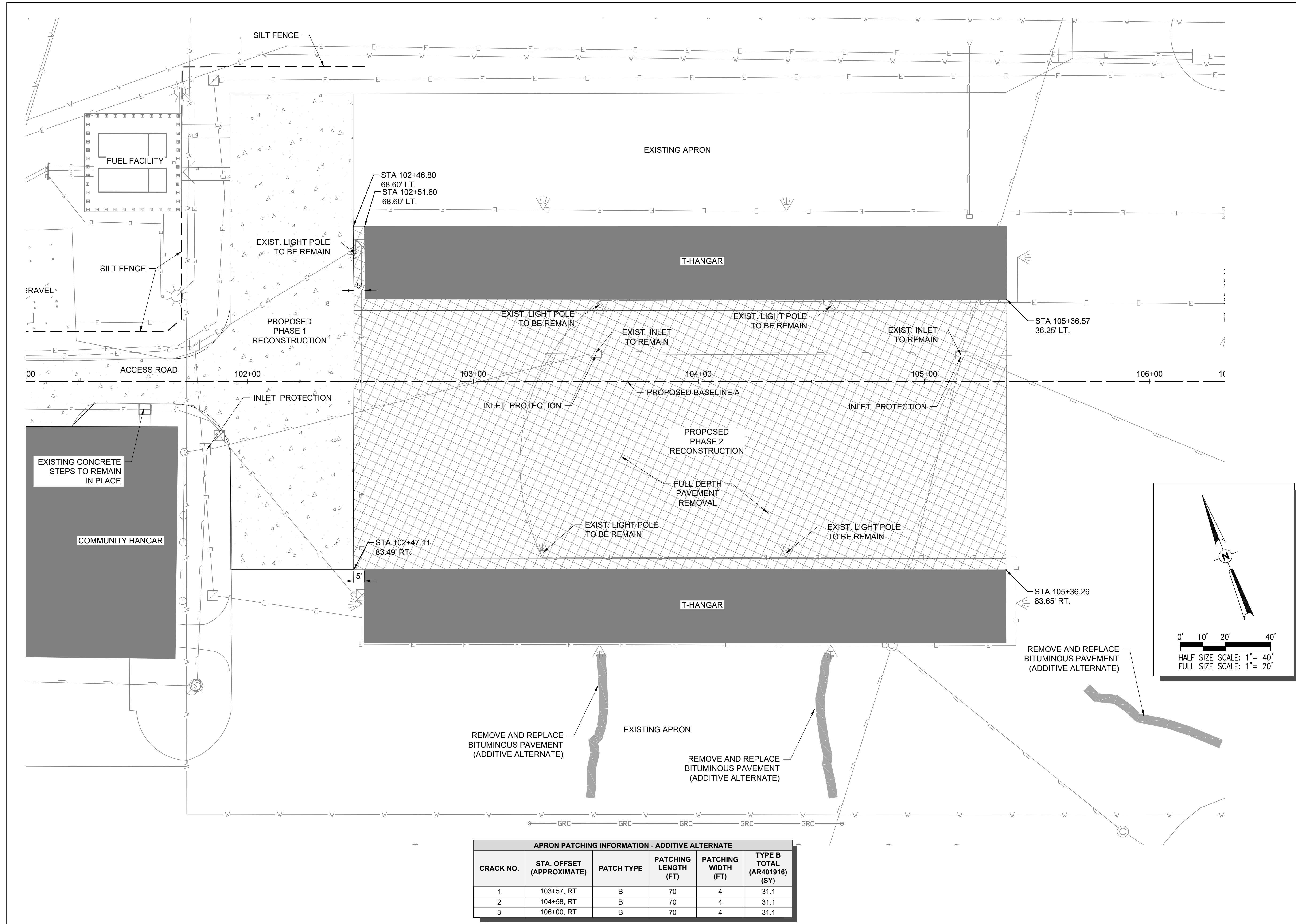
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-111-DEMO-PH1.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

DEMOLITION PLAN - PHASE 1



APRON PATCHING INFORMATION - ADDITIVE ALTERNATE					
CRACK NO.	STA. OFFSET (APPROXIMATE)	PATCH TYPE	PATCHING LENGTH (FT)	PATCHING WIDTH (FT)	TYPE B TOTAL (AR401916) (SY)
1	103+57, RT	B	70	4	31.1
2	104+58, RT	B	70	4	31.1
3	106+00, RT	B	70	4	31.1

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

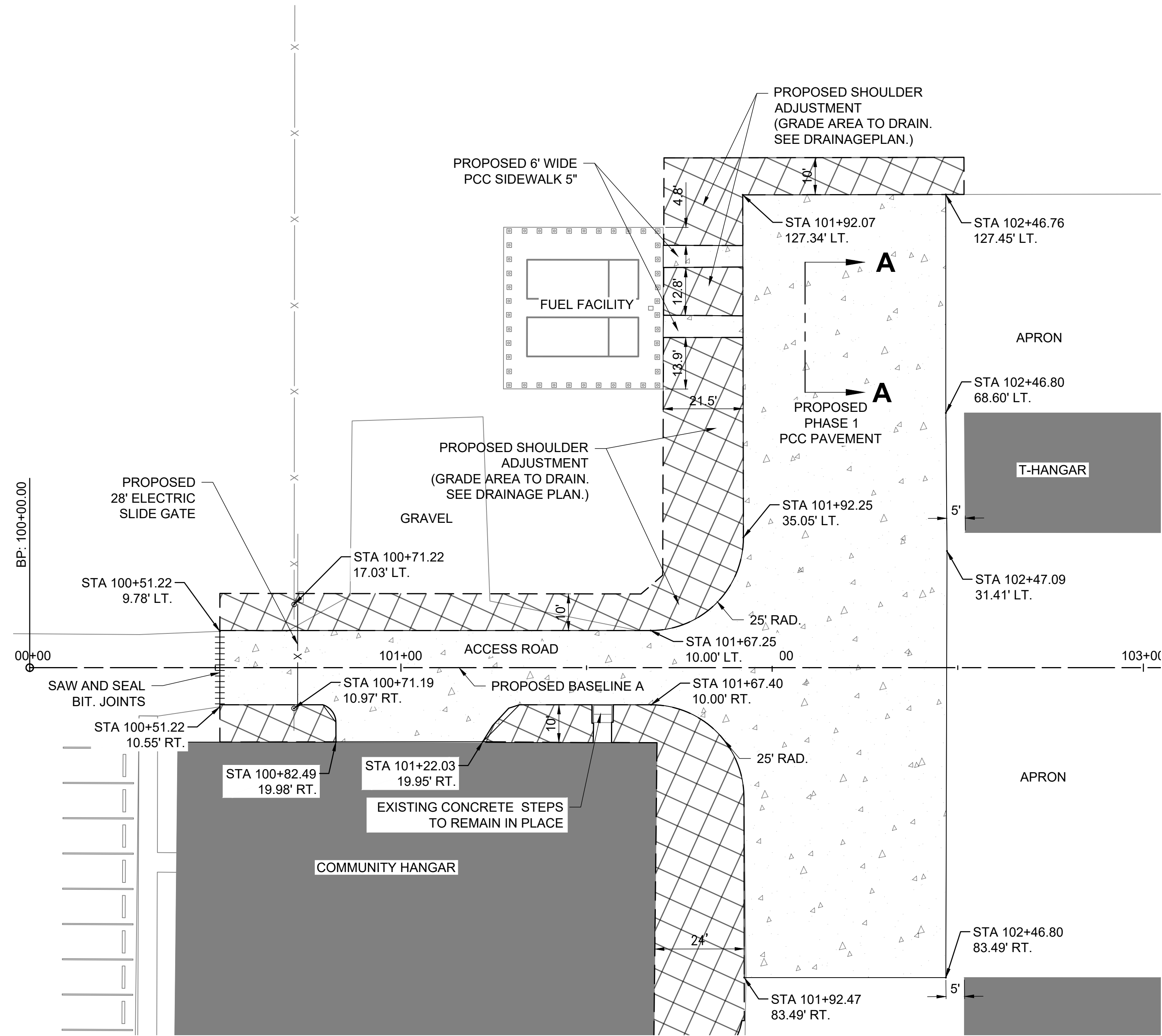
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-112-DEMO-PH2.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

DEMOLITION PLAN - PHASE 2

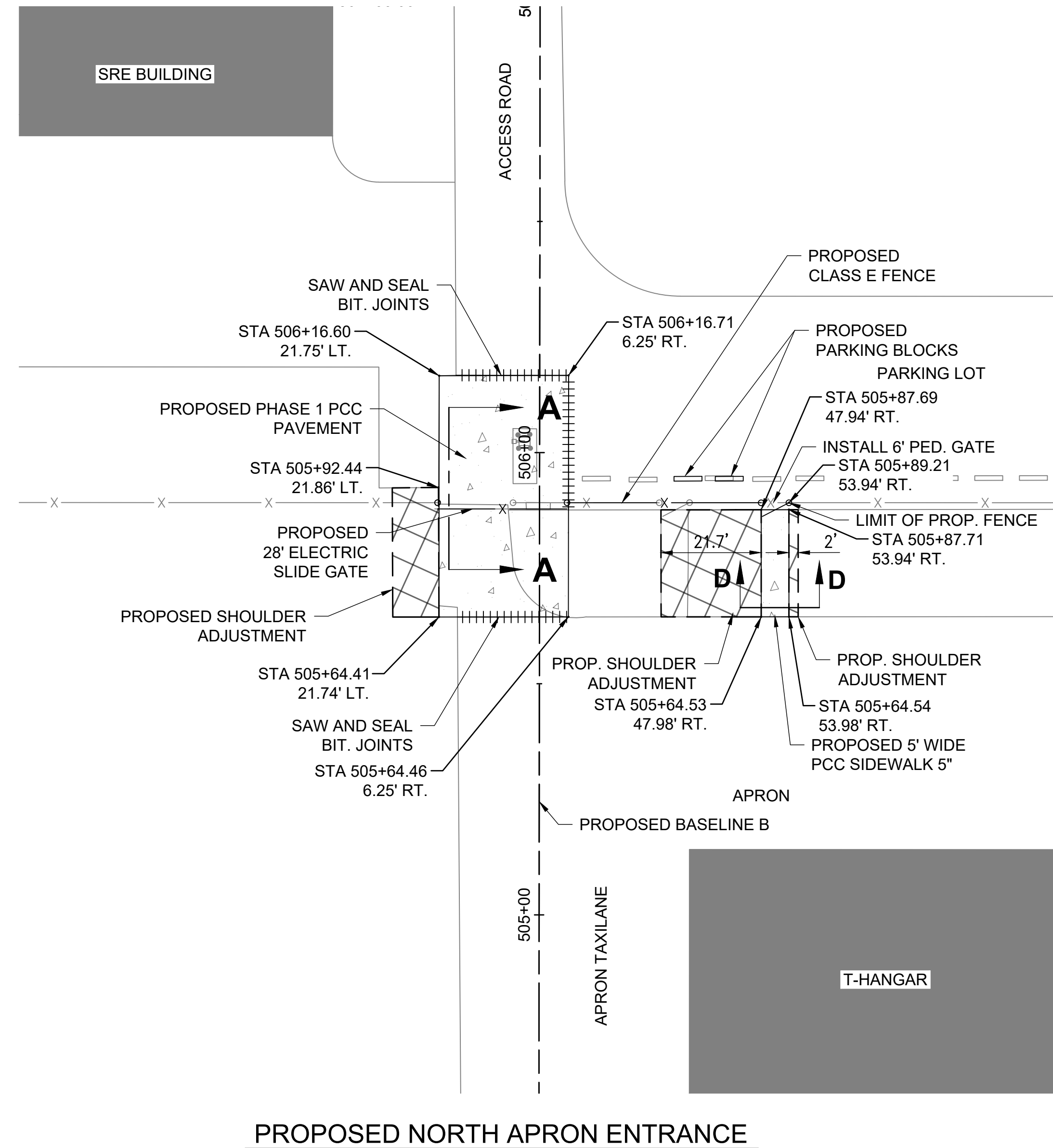
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PROPOSED WEST APRON ENTRANCE

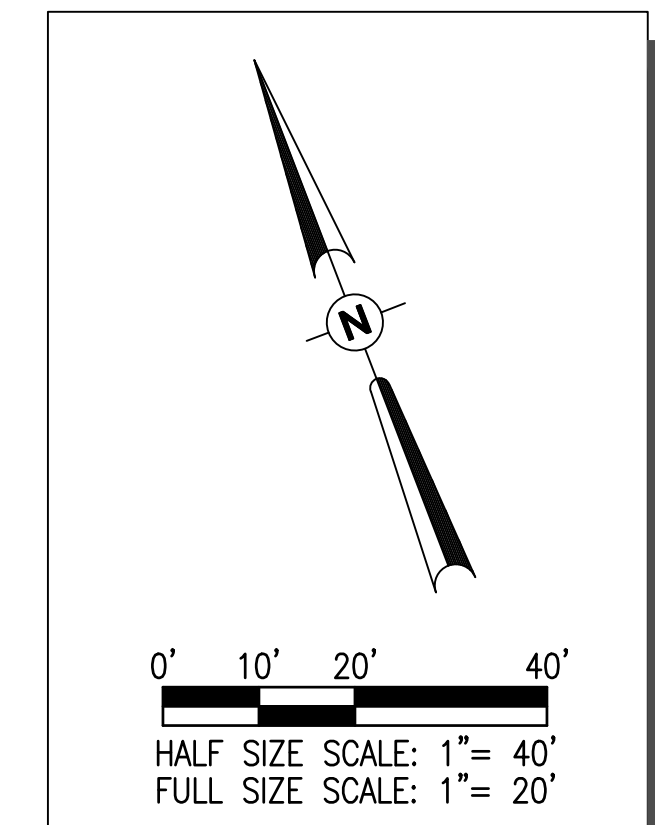
NOTES

1. SEE PROPOSED GRADING PLAN FOR ELEVATION INFORMATION
2. SEE ELECTRICAL PLANS FOR REMOVAL OF ELECTRIC SLIDE GATE EQUIPMENT AND OTHER ASSOCIATED ELECTRICAL ITEMS.
3. SEE DRAINAGE PLAN FOR INSTALLATION OF PROPOSED DRAINAGE ITEMS.



PROPOSED NORTH APRON ENTRANCE

PROPOSED	LEGEND
	SHOULDER ADJUSTMENT
	PCC PAVEMENT
	SAW & SEAL BITUMINOUS JOINTS
	FENCE / ELECTRIC SLIDE GATE



**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

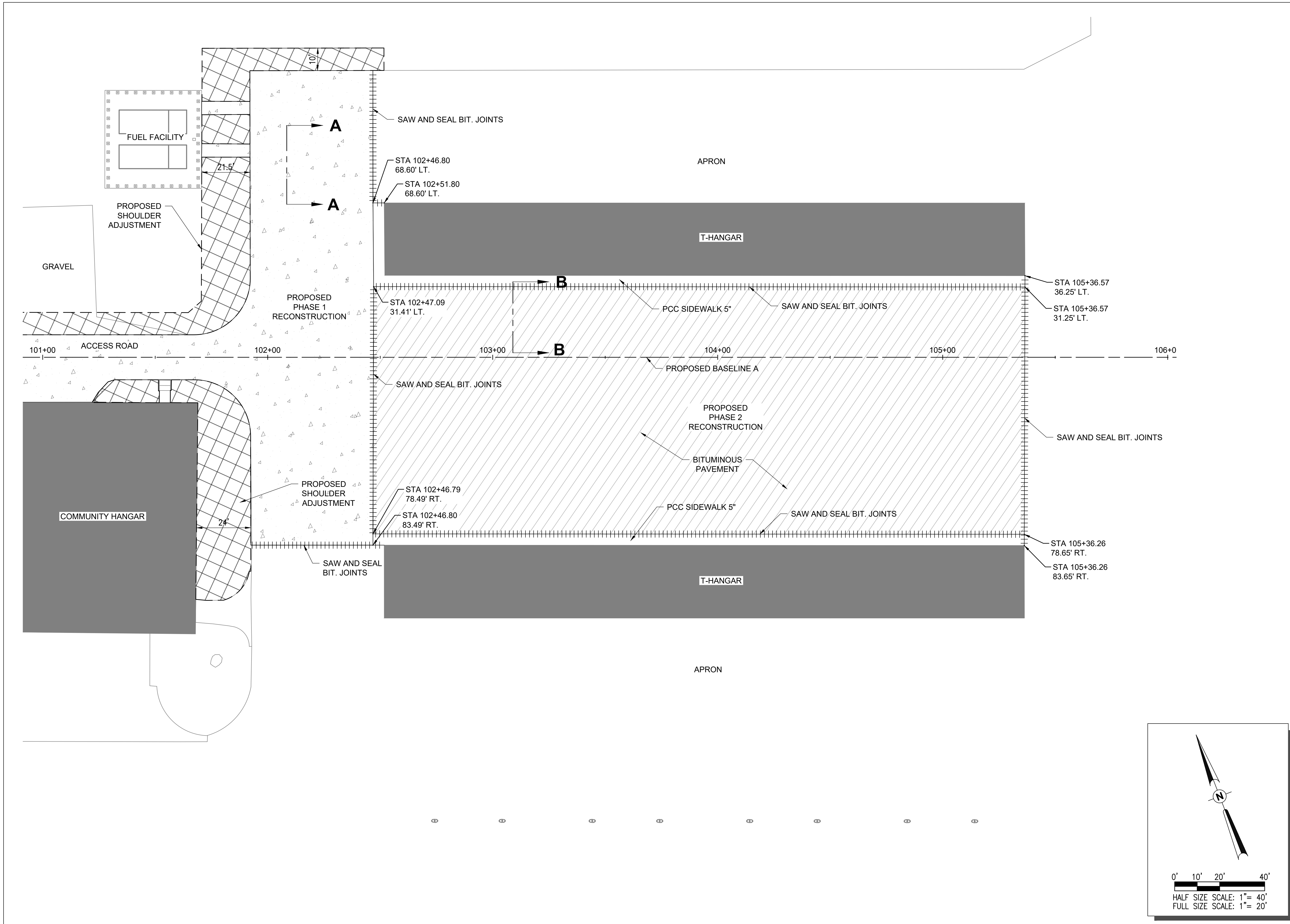
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-121-PLAN-PH 1.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

**CONSTRUCTION
PLAN - PHASE 1**



**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

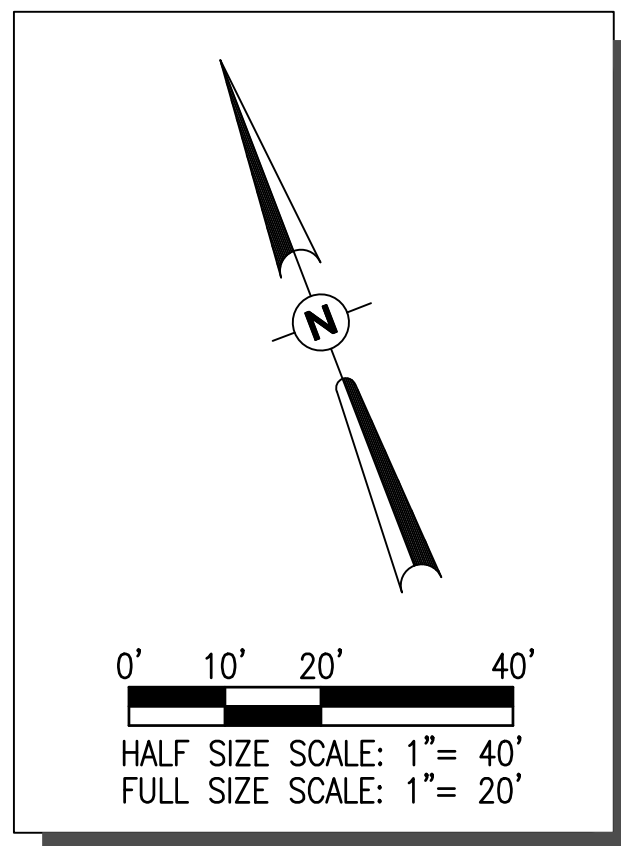
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

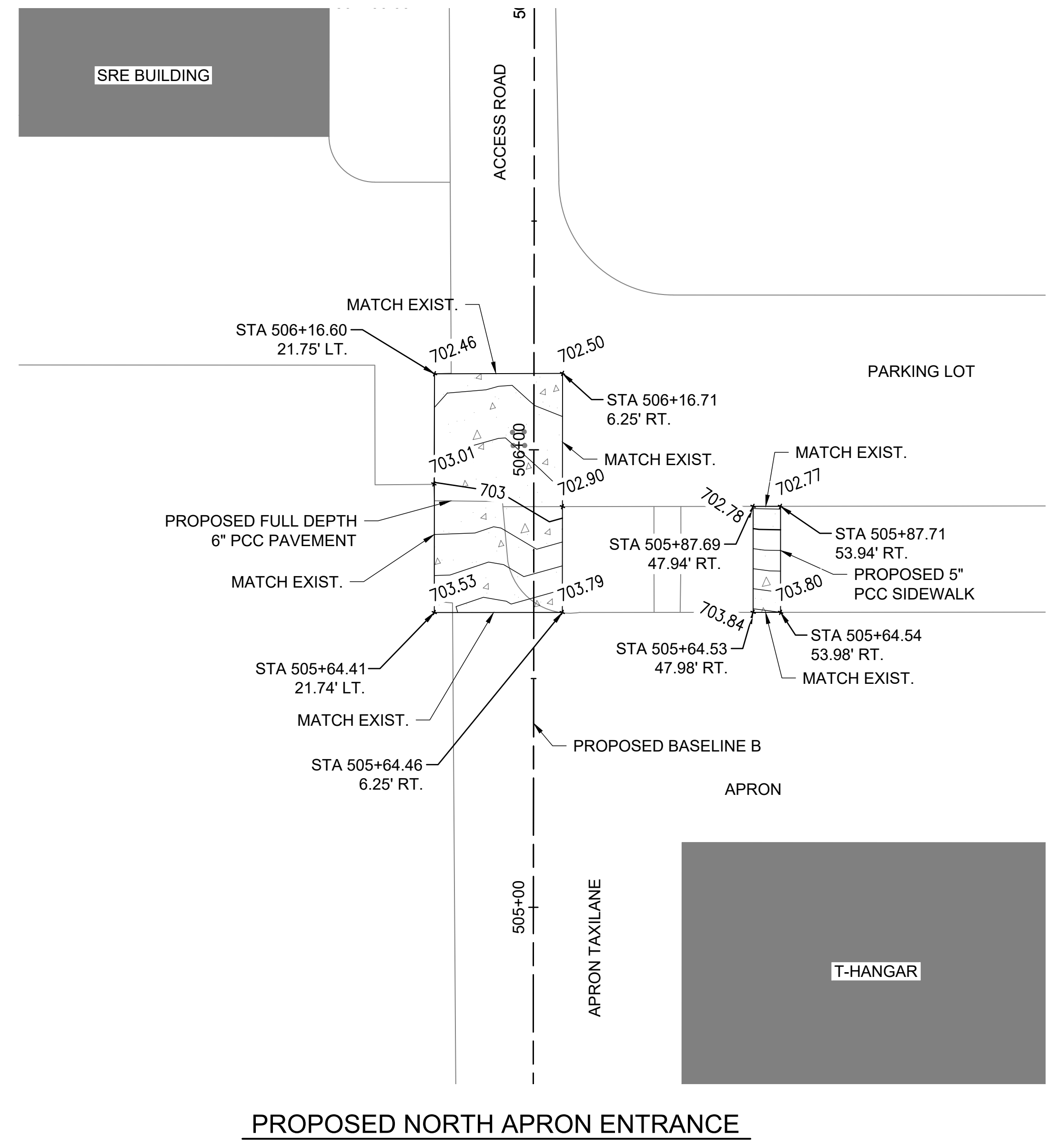
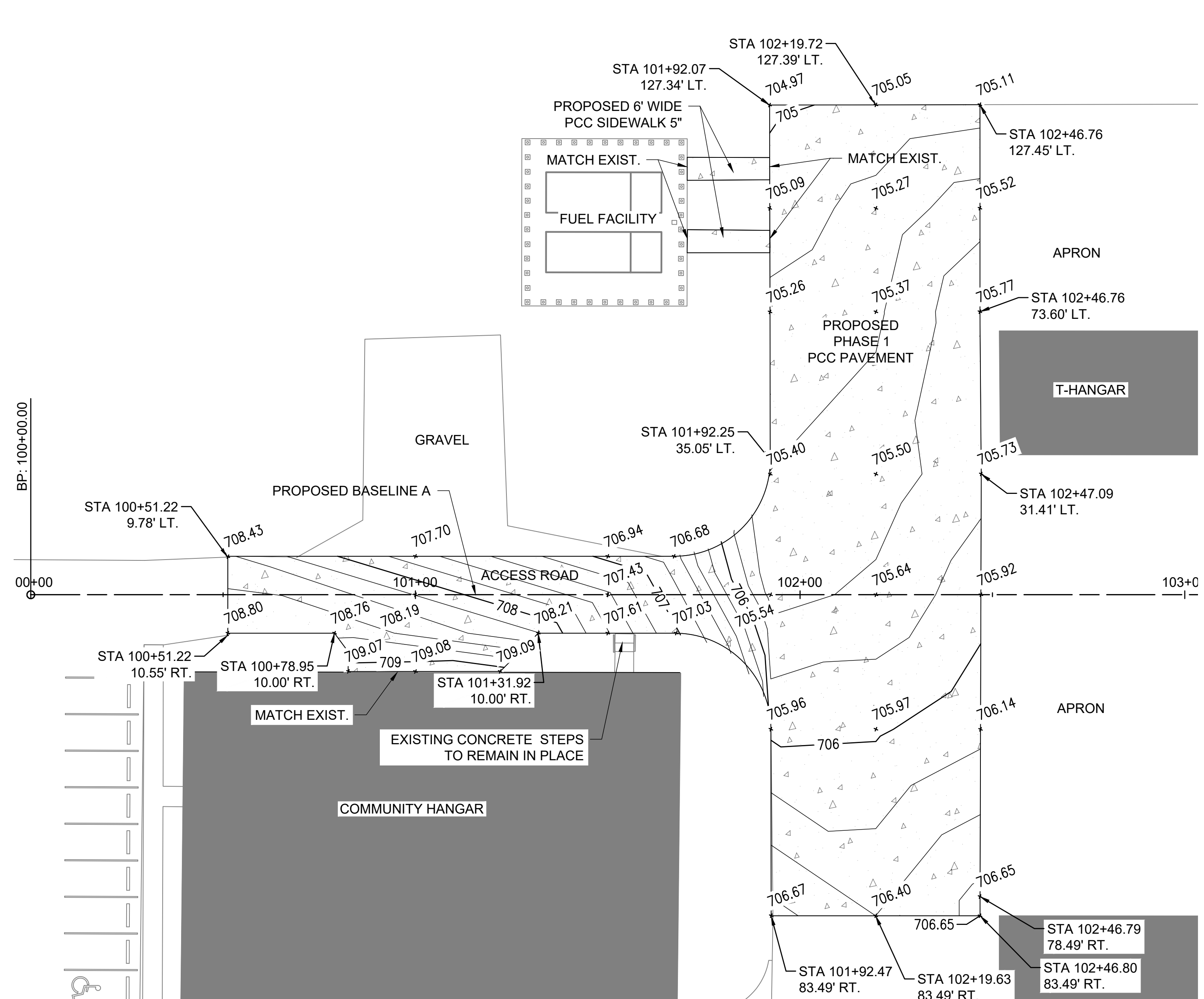
ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-122-PLAN-PH2.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

**CONSTRUCTION
PLAN - PHASE 2**



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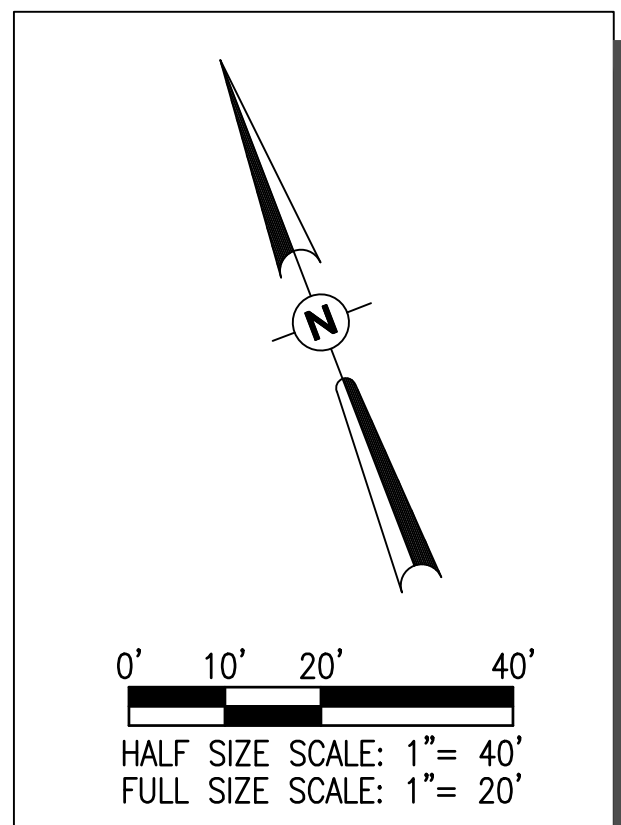


PROPOSED WEST APRON ENTRANCE

PROPOSED NORTH APRON ENTRANCE

- NOTES**
- SEE ELECTRICAL PLANS FOR REMOVAL OF ELECTRIC SLIDE GATE EQUIPMENT AND OTHER ASSOCIATED ELECTRICAL ITEMS.
 - SEE DRAINAGE PLAN FOR INSTALLATION OF PROPOSED DRAINAGE ITEMS.

PROPOSED	LEGEND
	PCC PAVEMENT
	FULL DEPTH BITUMINOUS PAVEMENT
	0.2-FOOT CONTOURS
	ELEVATION



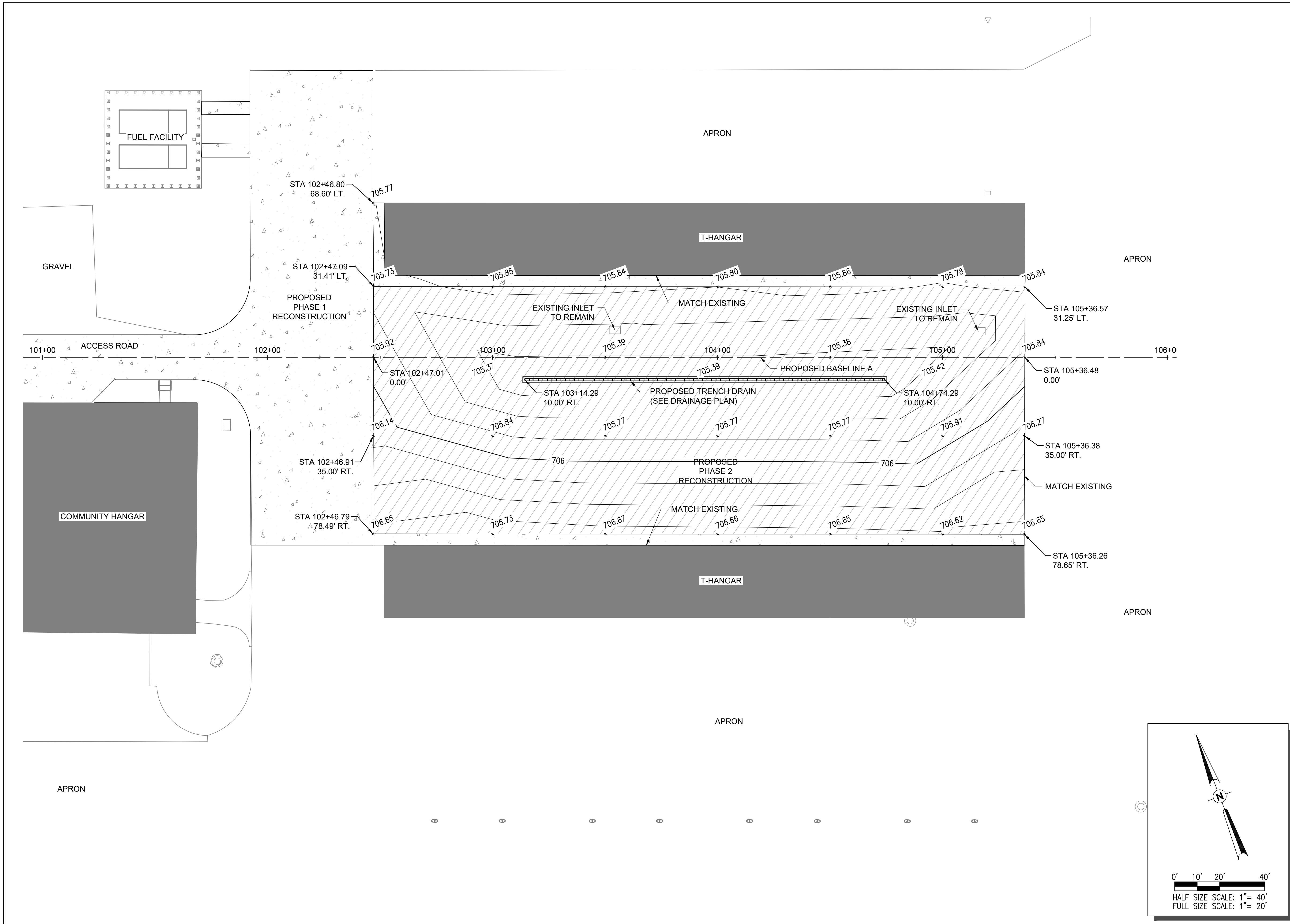
RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-141-GRAD-PH 1.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

GRADING PLAN - PHASE 1



**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

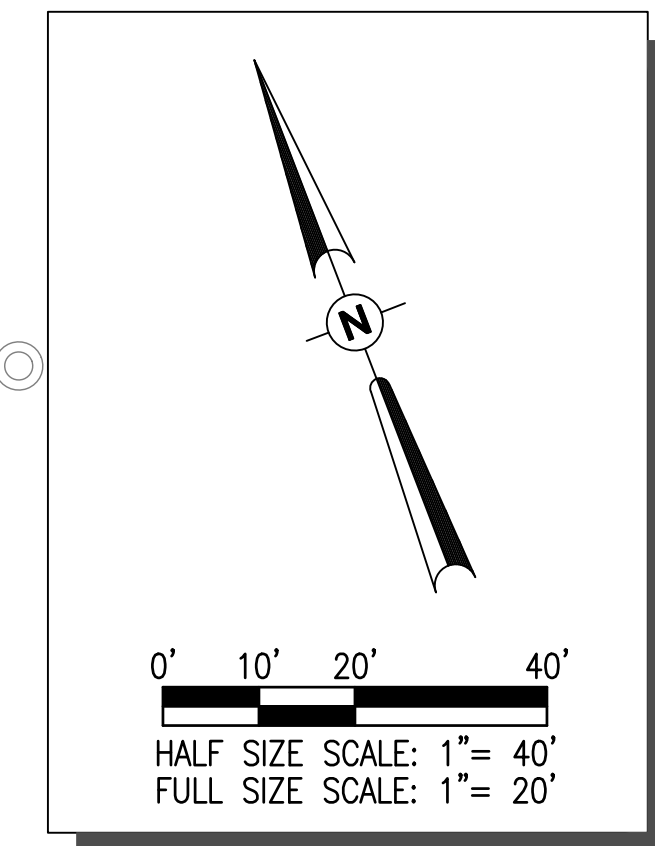
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-142-GRAD-PH2.DWG
DESIGN BY: LDH 9/4/2023
DRAWN BY: JP 9/18/2023
REVIEWED BY: LDH 7/26/24

SHEET TITLE

**GRADING PLAN -
PHASE 2**



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NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024

PROJECT NO: 22A0001D

CAD FILE: C-125-JNT-PH1.DWG

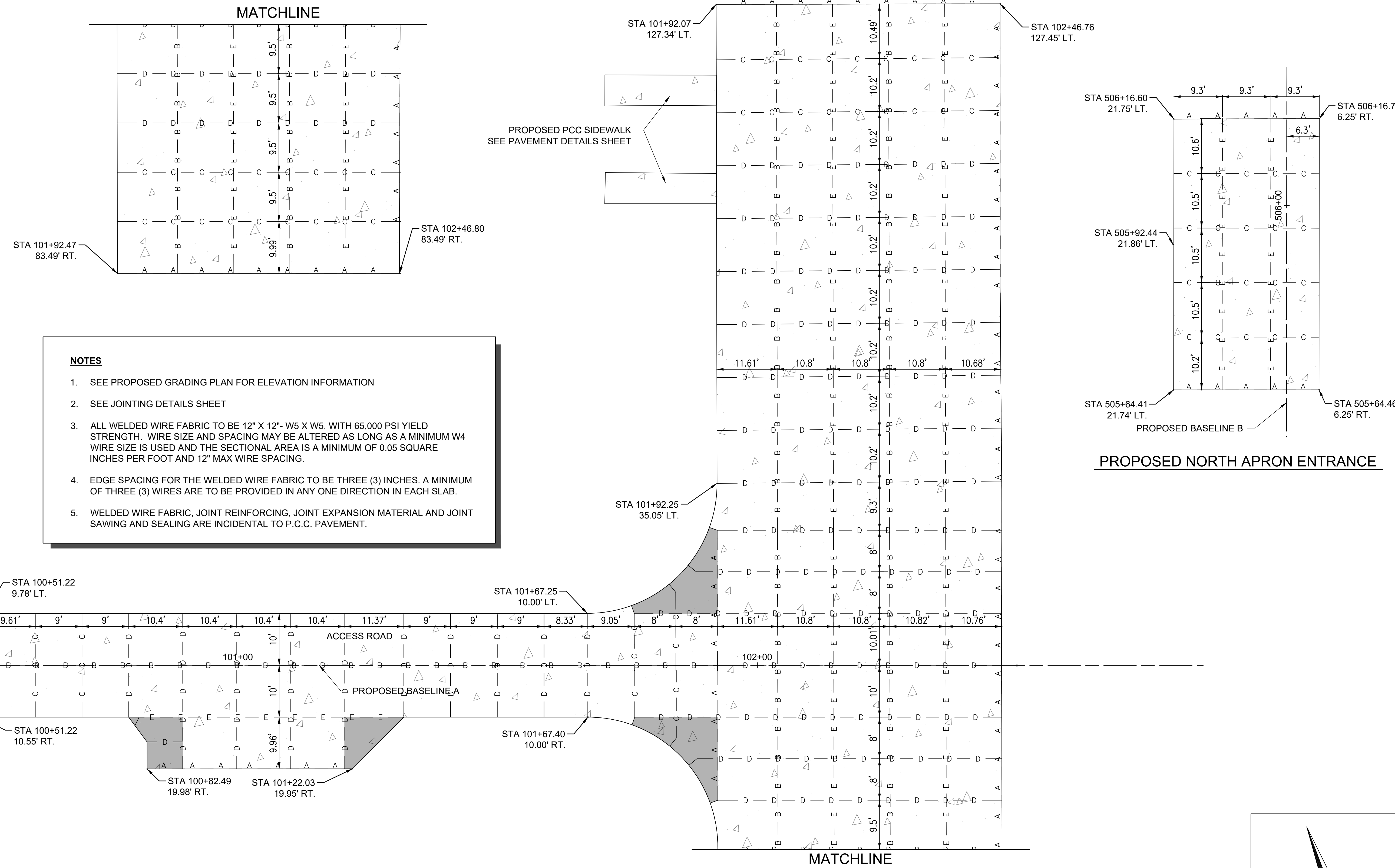
DESIGN BY: LDH 9/4/2023

DRAWN BY: JP 9/18/2023

REVIEWED BY: LDH 7/26/24

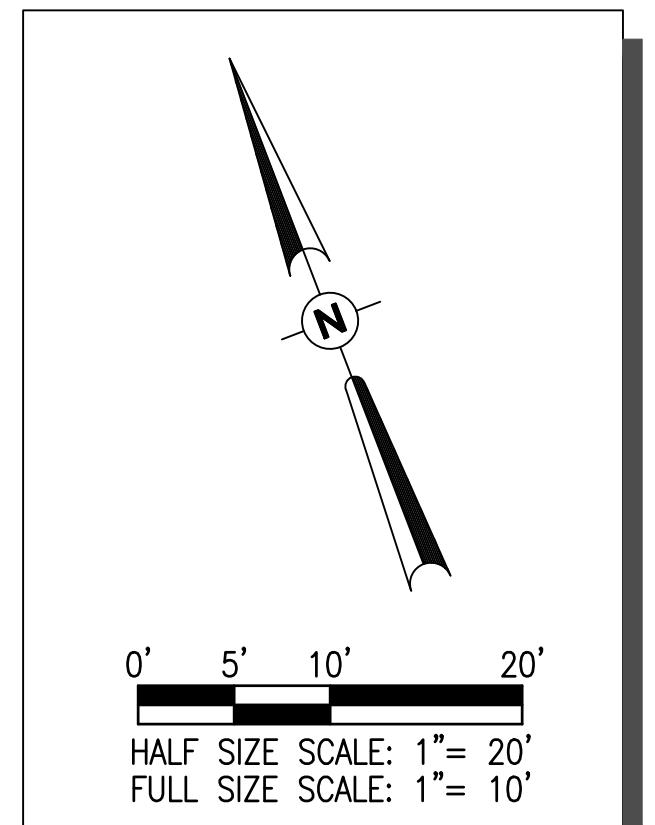
SHEET TITLE

PCC JOINTING PLAN

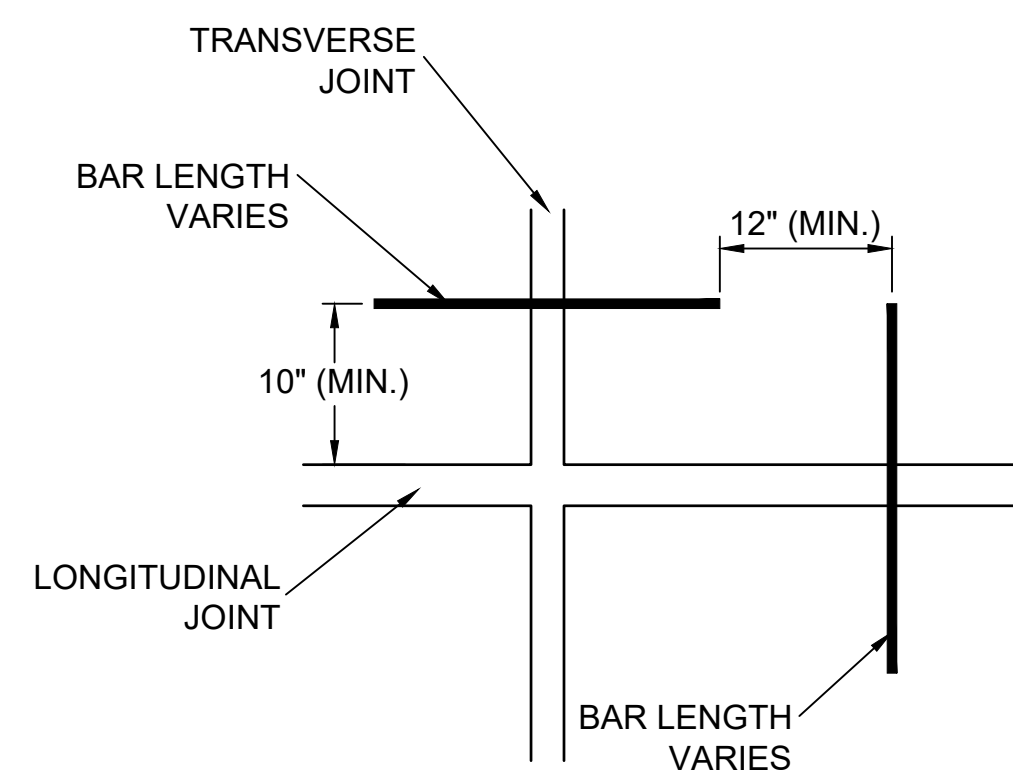
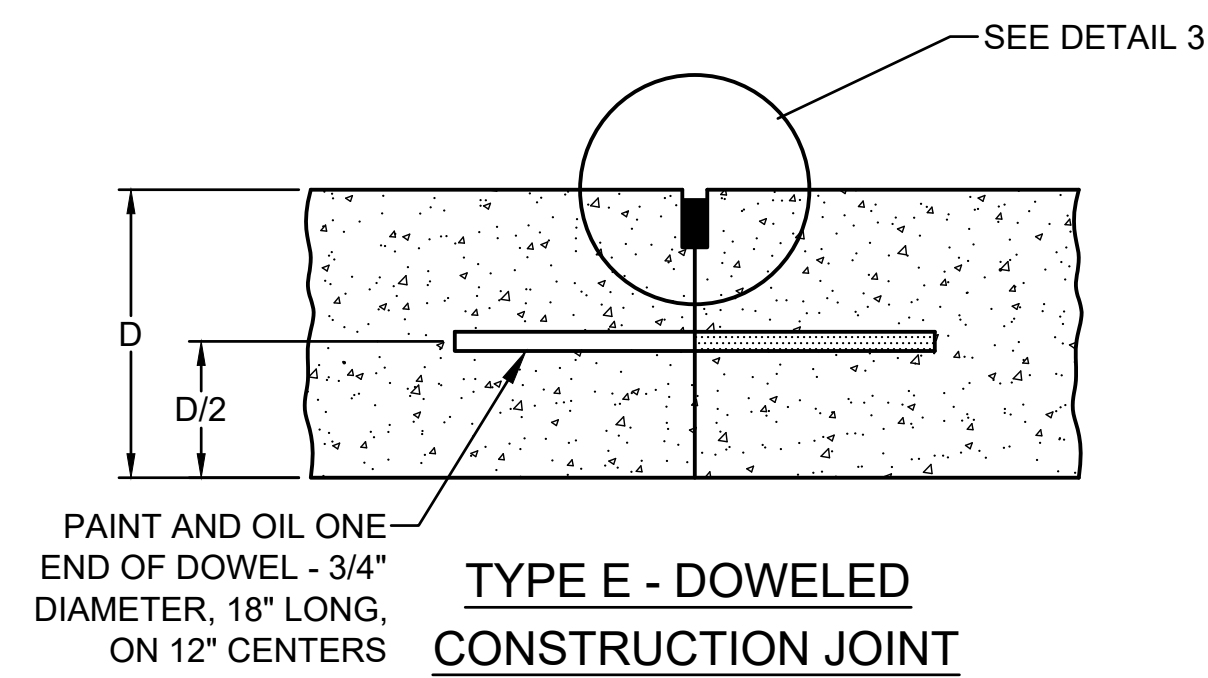
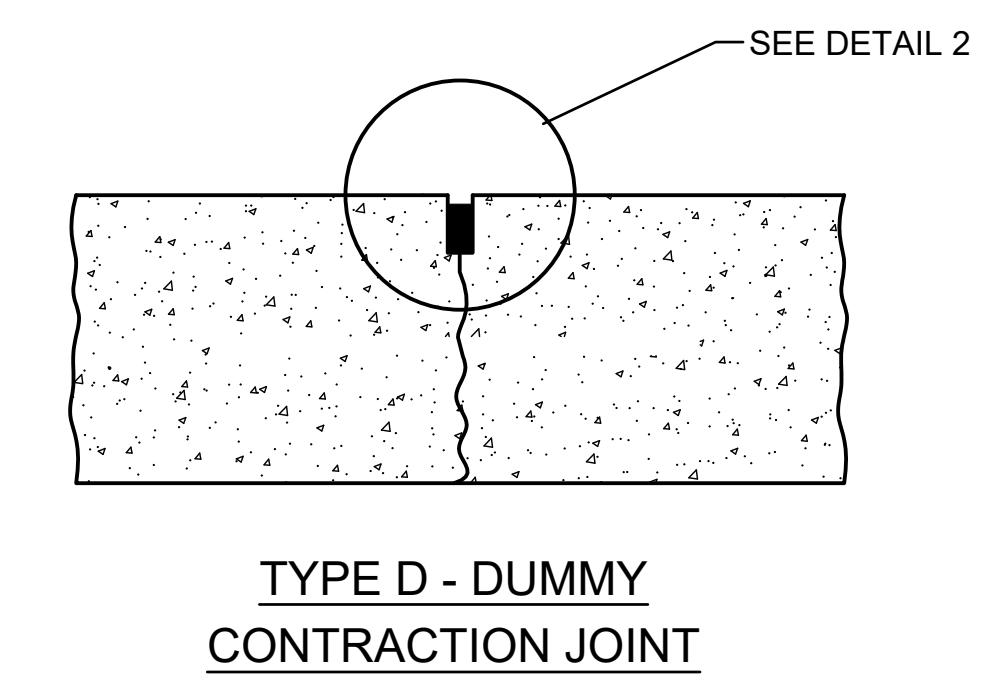
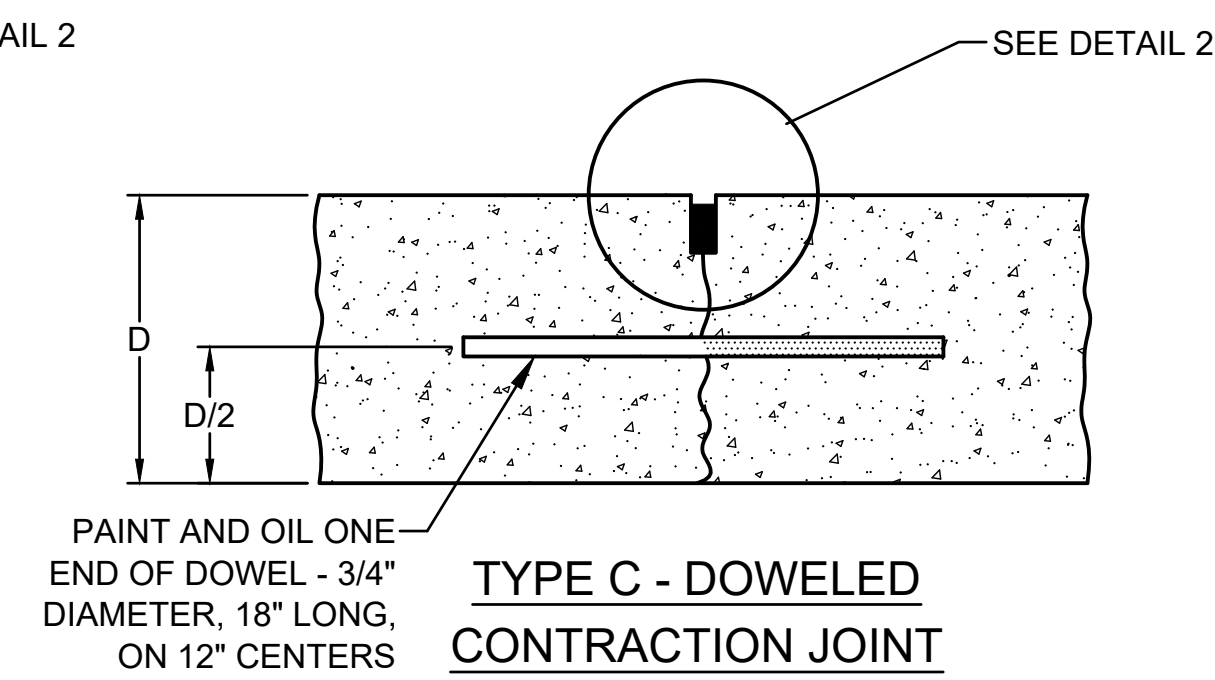
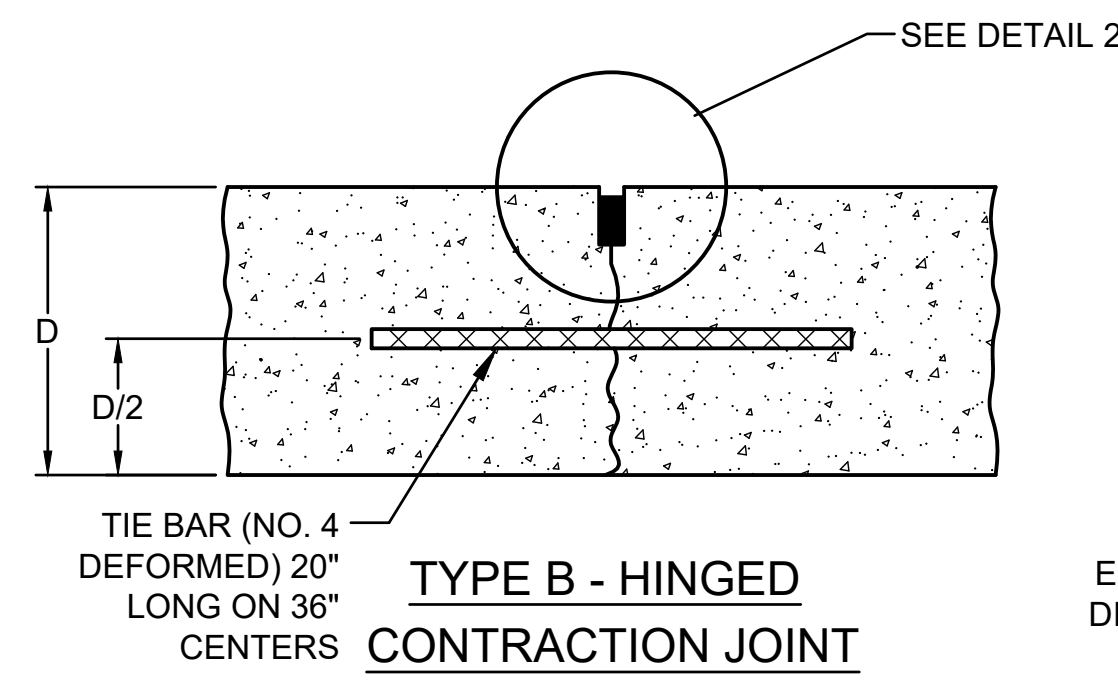
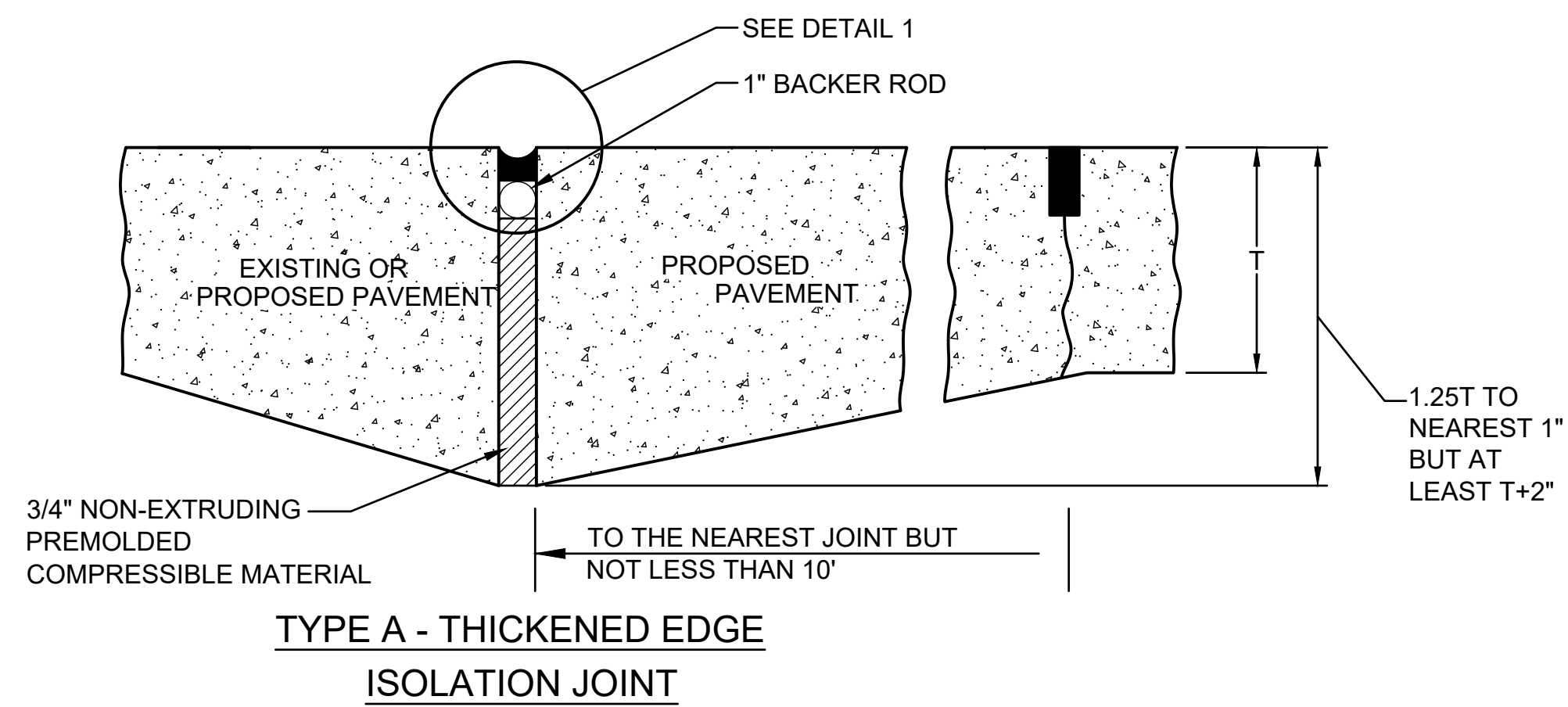


- NOTES**
1. SEE PROPOSED GRADING PLAN FOR ELEVATION INFORMATION
 2. SEE JOINTING DETAILS SHEET
 3. ALL WELDED WIRE FABRIC TO BE 12" X 12"- W5 X W5, WITH 65,000 PSI YIELD STRENGTH. WIRE SIZE AND SPACING MAY BE ALTERED AS LONG AS A MINIMUM W4 WIRE SIZE IS USED AND THE SECTIONAL AREA IS A MINIMUM OF 0.05 SQUARE INCHES PER FOOT AND 12" MAX WIRE SPACING.
 4. EDGE SPACING FOR THE WELDED WIRE FABRIC TO BE THREE (3) INCHES. A MINIMUM OF THREE (3) WIRES ARE TO BE PROVIDED IN ANY ONE DIRECTION IN EACH SLAB.
 5. WELDED WIRE FABRIC, JOINT REINFORCING, JOINT EXPANSION MATERIAL AND JOINT SAWING AND SEALING ARE INCIDENTAL TO P.C.C. PAVEMENT.

PROPOSED	LEGEND
	PCC PAVEMENT
	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
	REINFORCED SLAB

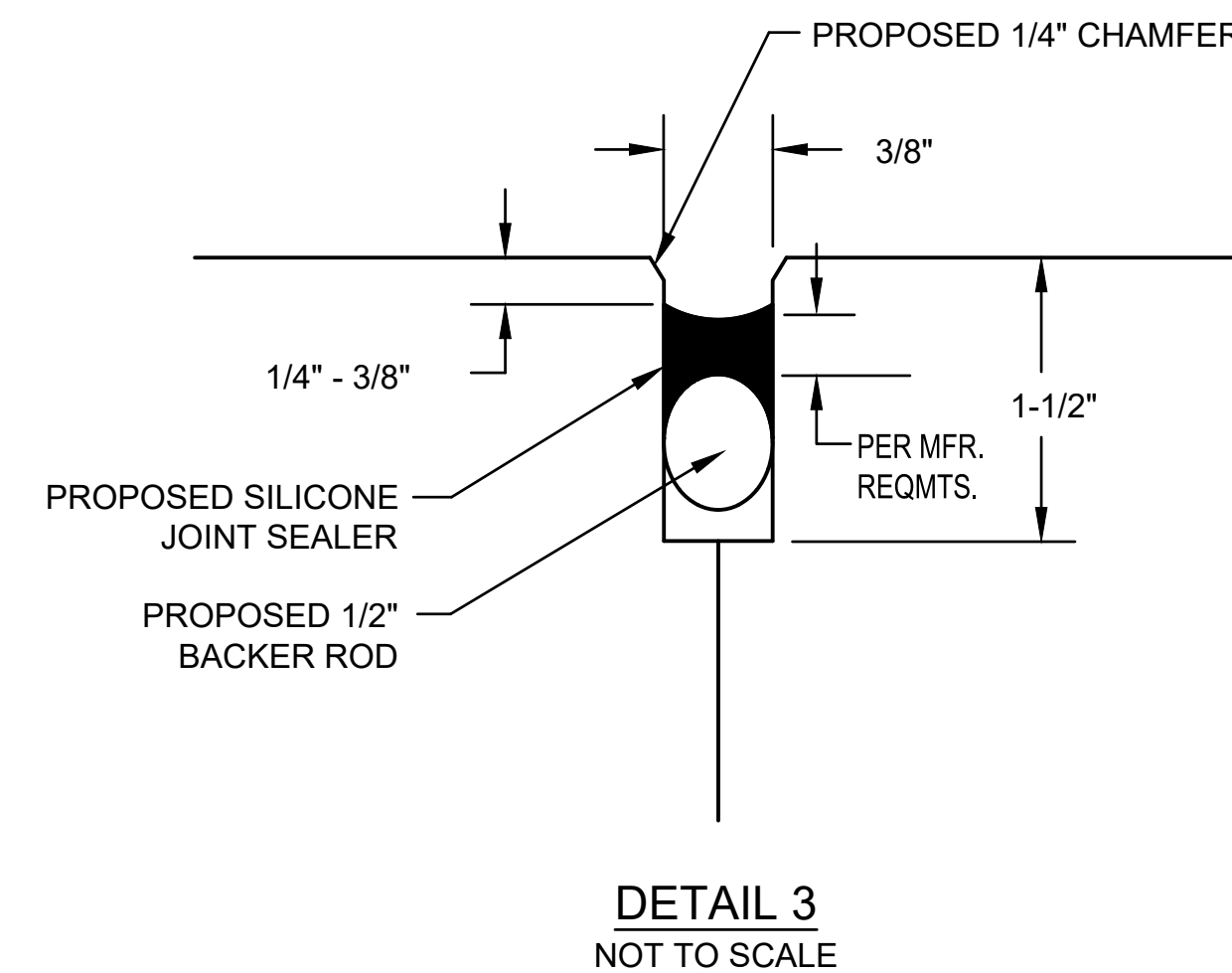
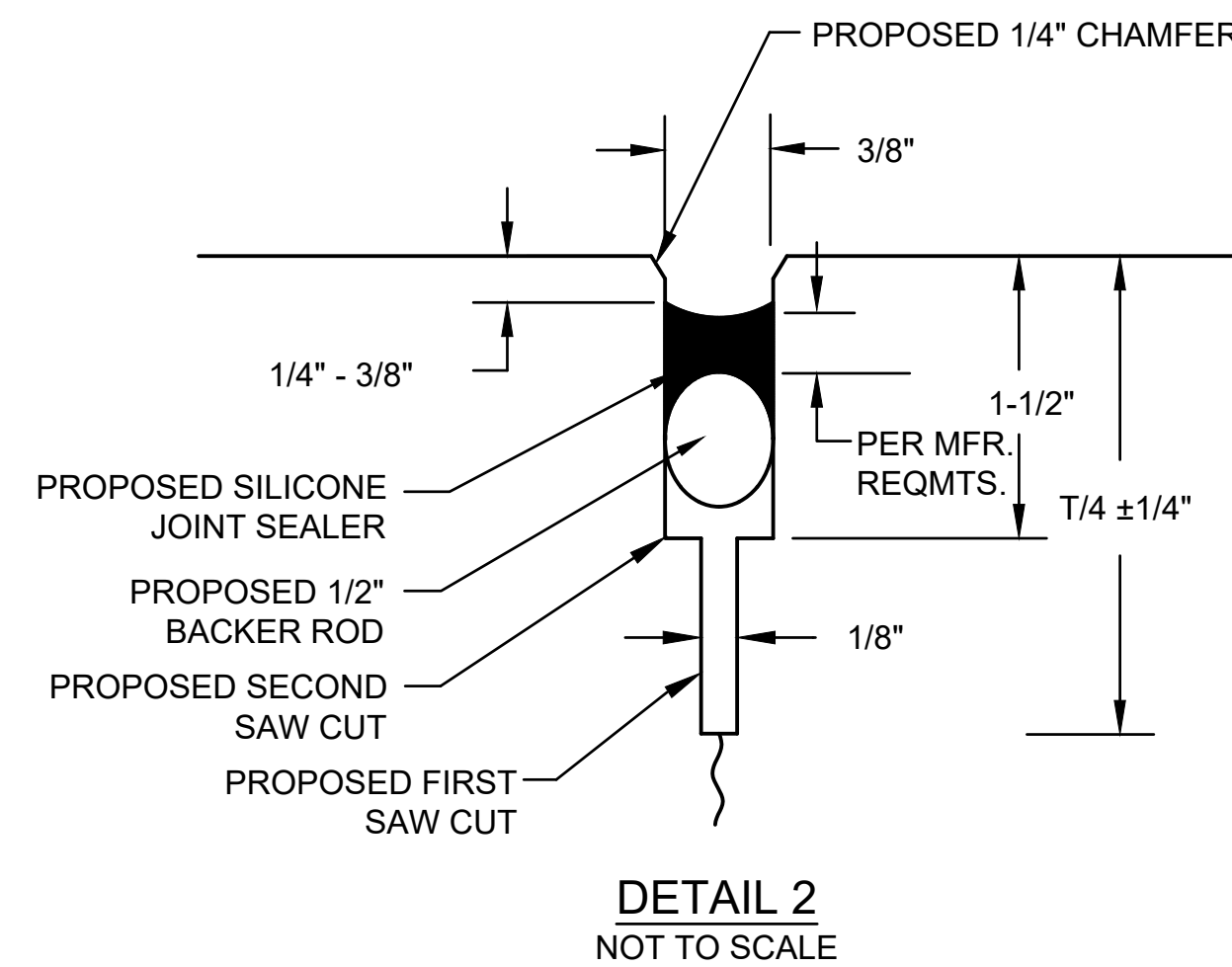
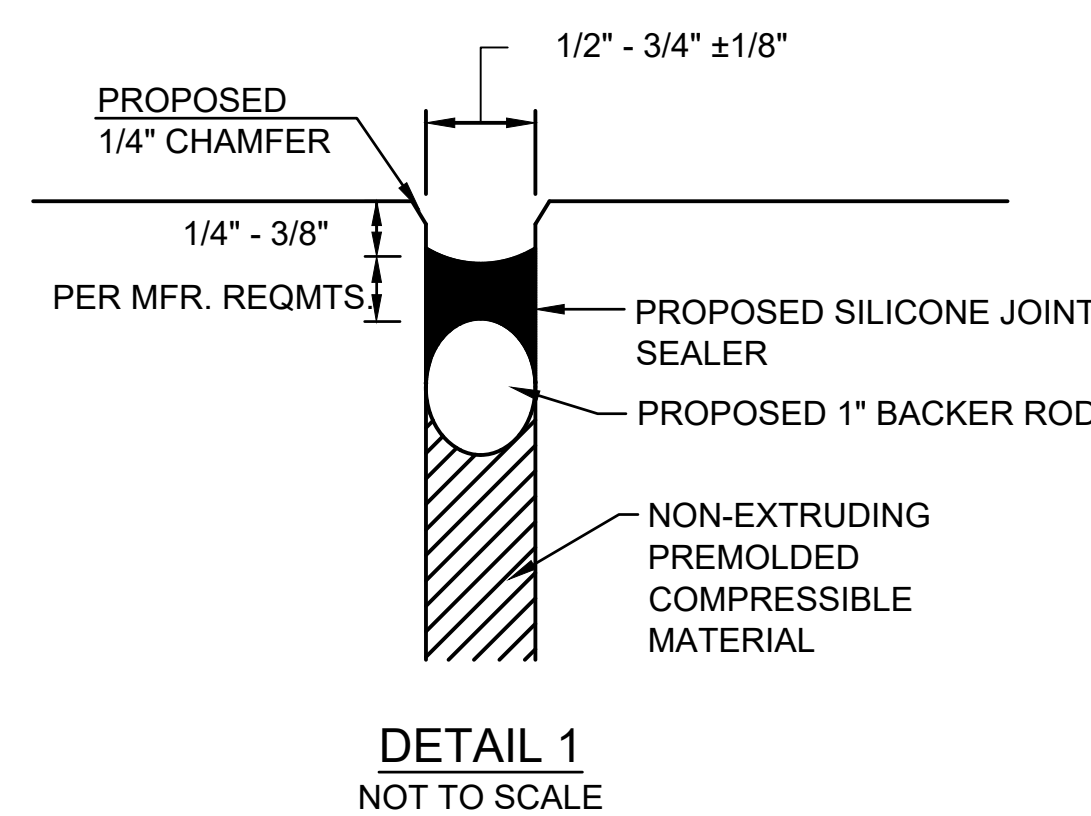


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1. POSITION OF DOWELS AT EDGE OF JOINT TYPE C OR E
2. ELIMINATE DOWEL OR TIE BAR FROM LONGITUDINAL JOINT AS NECESSARY TO MAINTAIN 12 INCH FROM END OF TRANSVERSE DOWEL BARS

DOWEL PLAN VIEW



**JOINT SEALING DETAILS
NOT TO SCALE**

**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

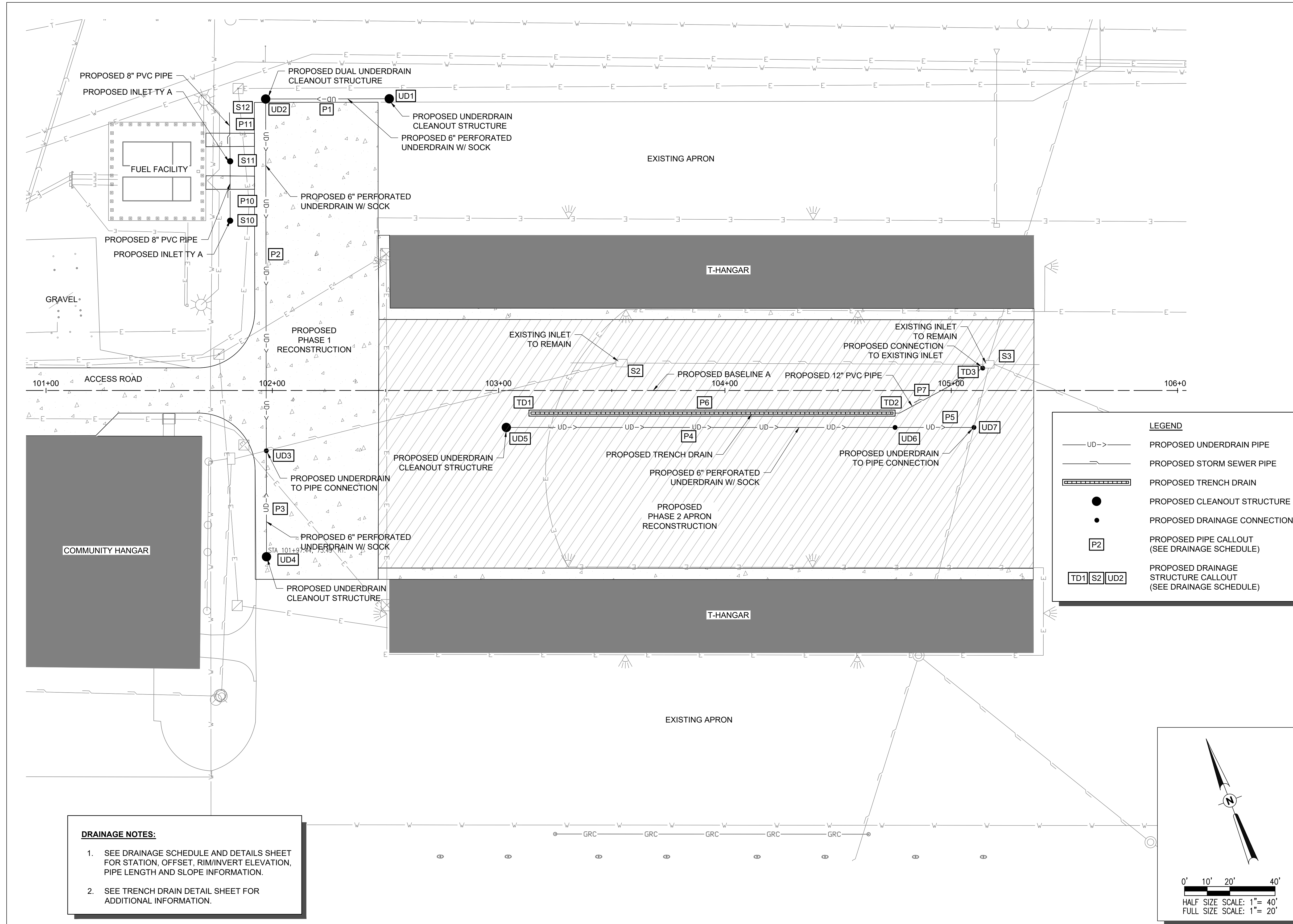
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
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REVIEWED BY: LDH 7/26/24

SHEET TITLE

**PROPOSED JOINT
DETAILS**

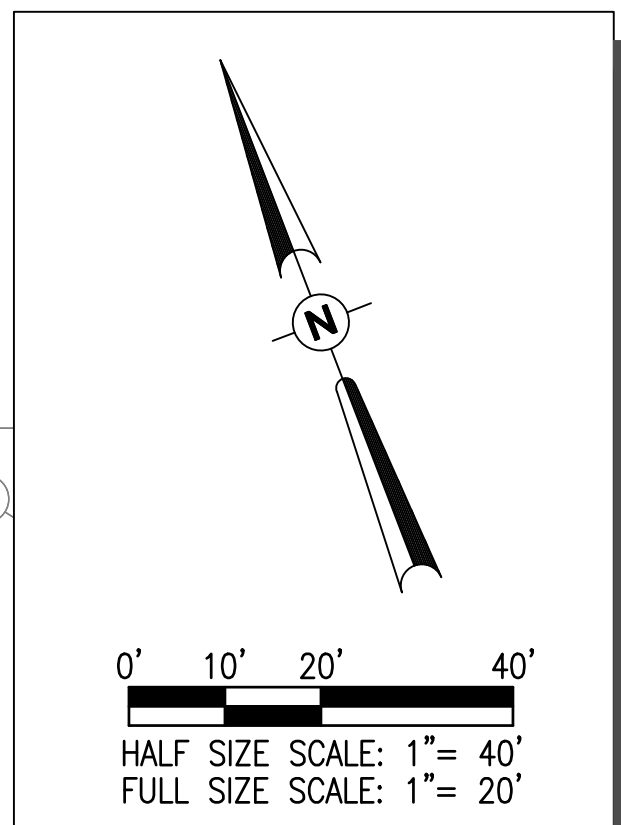


LEGEND

- UD —>— PROPOSED UNDERDRAIN PIPE
- S — PROPOSED STORM SEWER PIPE
- ▬▬▬▬▬▬▬▬ PROPOSED TRENCH DRAIN
- PROPOSED CLEANOUT STRUCTURE
- PROPOSED DRAINAGE CONNECTION
- P2 PROPOSED PIPE CALLOUT (SEE DRAINAGE SCHEDULE)
- TD1 S2 UD2 PROPOSED DRAINAGE STRUCTURE CALLOUT (SEE DRAINAGE SCHEDULE)

DRAINAGE NOTES:

- SEE DRAINAGE SCHEDULE AND DETAILS SHEET FOR STATION, OFFSET, RIM/INVERT ELEVATION, PIPE LENGTH AND SLOPE INFORMATION.
- SEE TRENCH DRAIN DETAIL SHEET FOR ADDITIONAL INFORMATION.



RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
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ISSUE: SEPTEMBER 13, 2024
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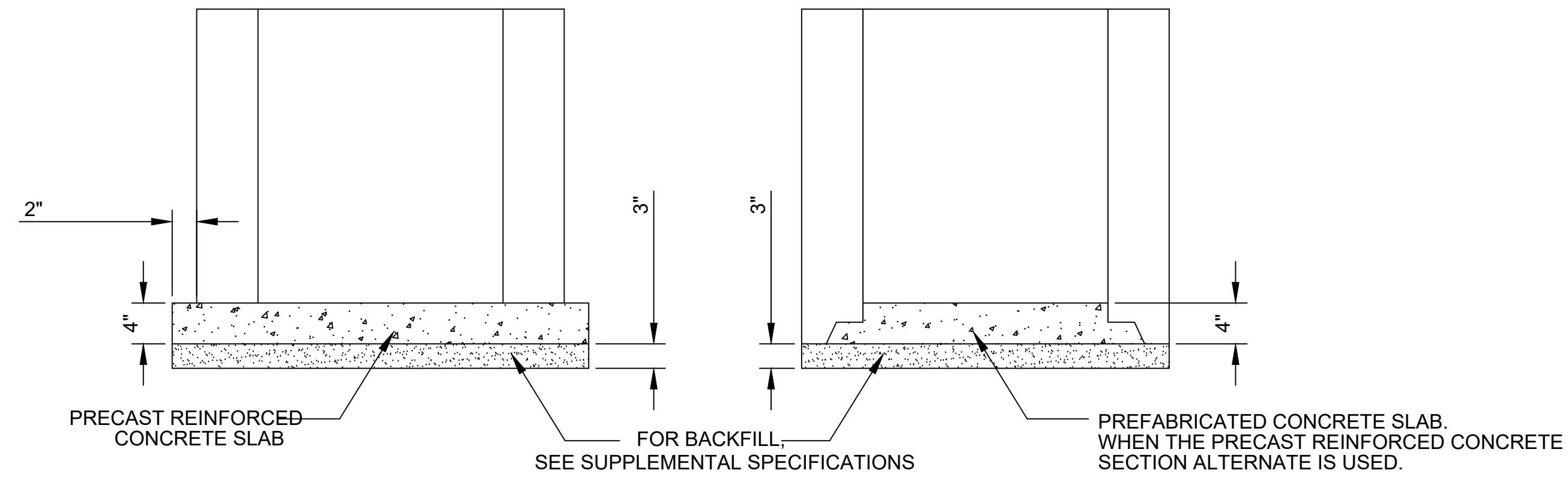
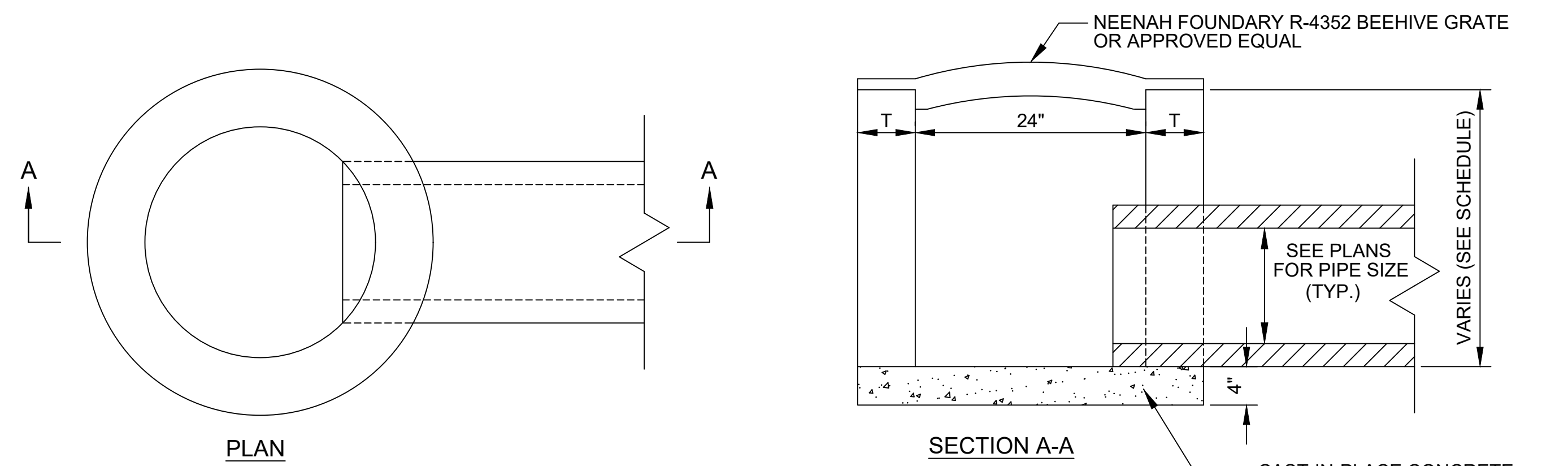
SHEET TITLE

DRAINAGE PLAN

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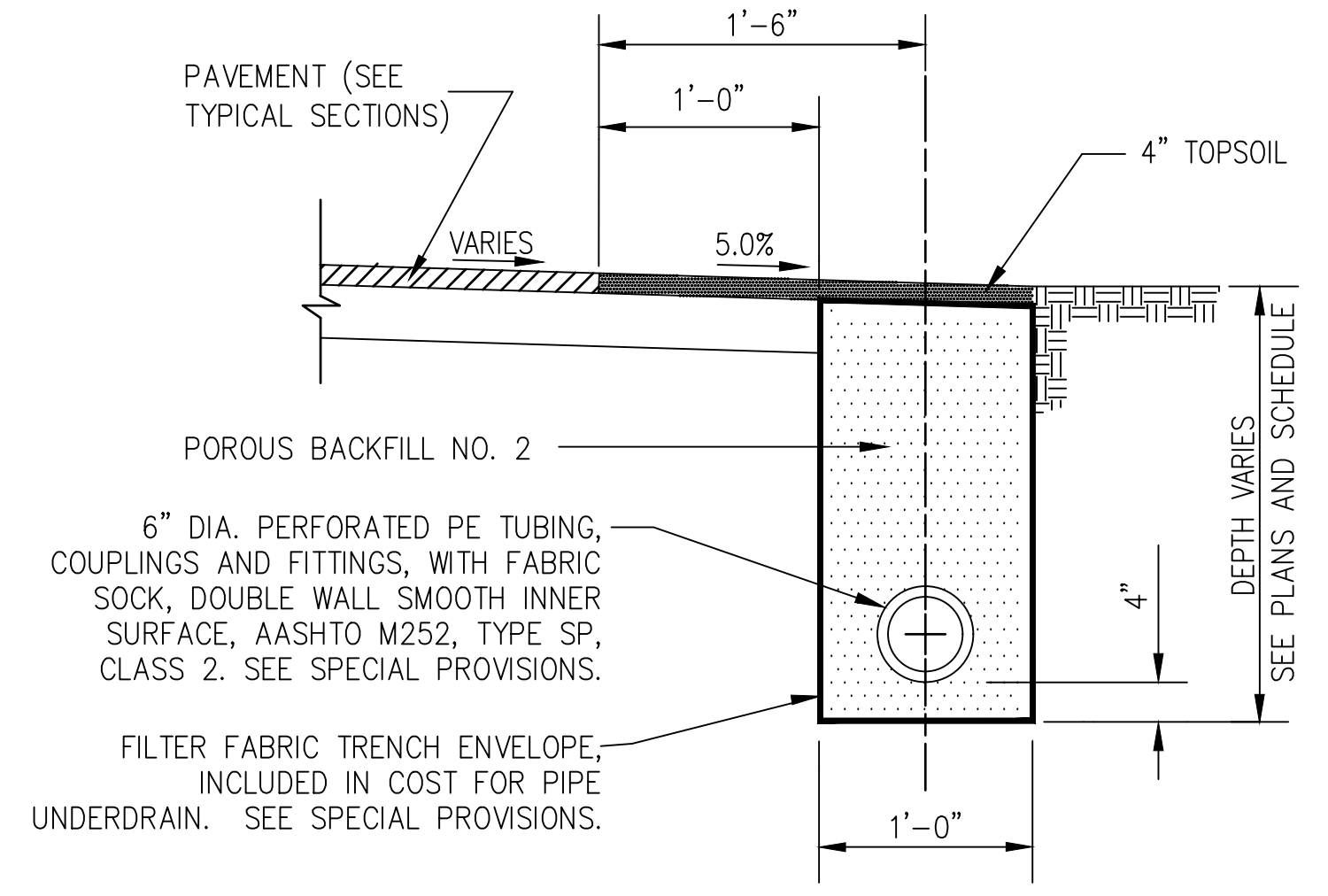
DRAINAGE STRUCTURE SCHEDULE						
STRUCT#	STA.	OFF		RIM	INVERT	TYPE
UD1	102+51.7	129.0		LT 705.11	701.63	UNDERDRAIN CLEANOUT STRUCTURE
UD2	101+97.0	128.9		LT 705.00	701.45	UNDERDRAIN DUAL CLEANOUT STRUCTURE
UD3	101+97.35	26.6		RT -	700.91	UNDERDRAIN TO PIPE CONNECTION
UD4	101+97.44	73.5		RT 706.47	701.57	UNDERDRAIN CLEANOUT STRUCTURE
UD5	103+03.40	16.3		RT 705.44	702.94	UNDERDRAIN CLEANOUT STRUCTURE
UD6	104+75.18	16.3		RT -	702.00	UNDERDRAIN POINT
UD7	105+10.05	16.3		RT -	701.50	UNDERDRAIN TO PIPE CONNECTION
TD1	103+14.29	10.0		RT 705.25	702.55	TRENCH DRAIN
TD2	104+74.29	10.0		RT 705.25	700.95	TRENCH DRAIN
TD3	105+13.91	9.9		LT 705.47	700.26	TRENCH DRAIN TO STRUCTURE CONNECTION
S2	103+54.32	12.0		LT 705.56	-	EXISTING INLET TO REMAIN
S3	105+16.32	11.5		LT 705.47	-	EXISTING INLET TO REMAIN
S10	101+81.37	75.1		LT 705.00	704.03	INLET TYPE A
S11	101+81.38	101.3		LT 704.75	703.95	INLET TYPE A
S12	101+81.05	122.8		LT -	703.90	8" PVC PIPE OUTLET

DRAINAGE PIPE SCHEDULE						
PIPE NO.	FROM	TO	L.F.	SLOPE	TYPE	
P1	UD1	UD2	54.6	0.34%	6" PERFORATED UNDERDRAIN W/ SOCK	
P2	UD2	UD3	155.5	0.35%	6" PERFORATED UNDERDRAIN W/ SOCK	
P3	UD4	UD3	46.8	1.41%	6" PERFORATED UNDERDRAIN W/ SOCK	
P4	UD5	UD6	171.8	0.55%	6" PERFORATED UNDERDRAIN W/ SOCK	
P5	UD6	UD7	35.0	1.43%	6" PERFORATED UNDERDRAIN W/ SOCK	
P6	TD1	TD2	160.0	1.00%	TRENCH DRAIN (12" EQUIVALENT)	
P7	TD2	TD3	43.8	1.57%	12" PVC	
P10	S10	S11	26.3	0.30%	8" PVC	
P11	S11	S12	21.5	0.23%	8" PVC	

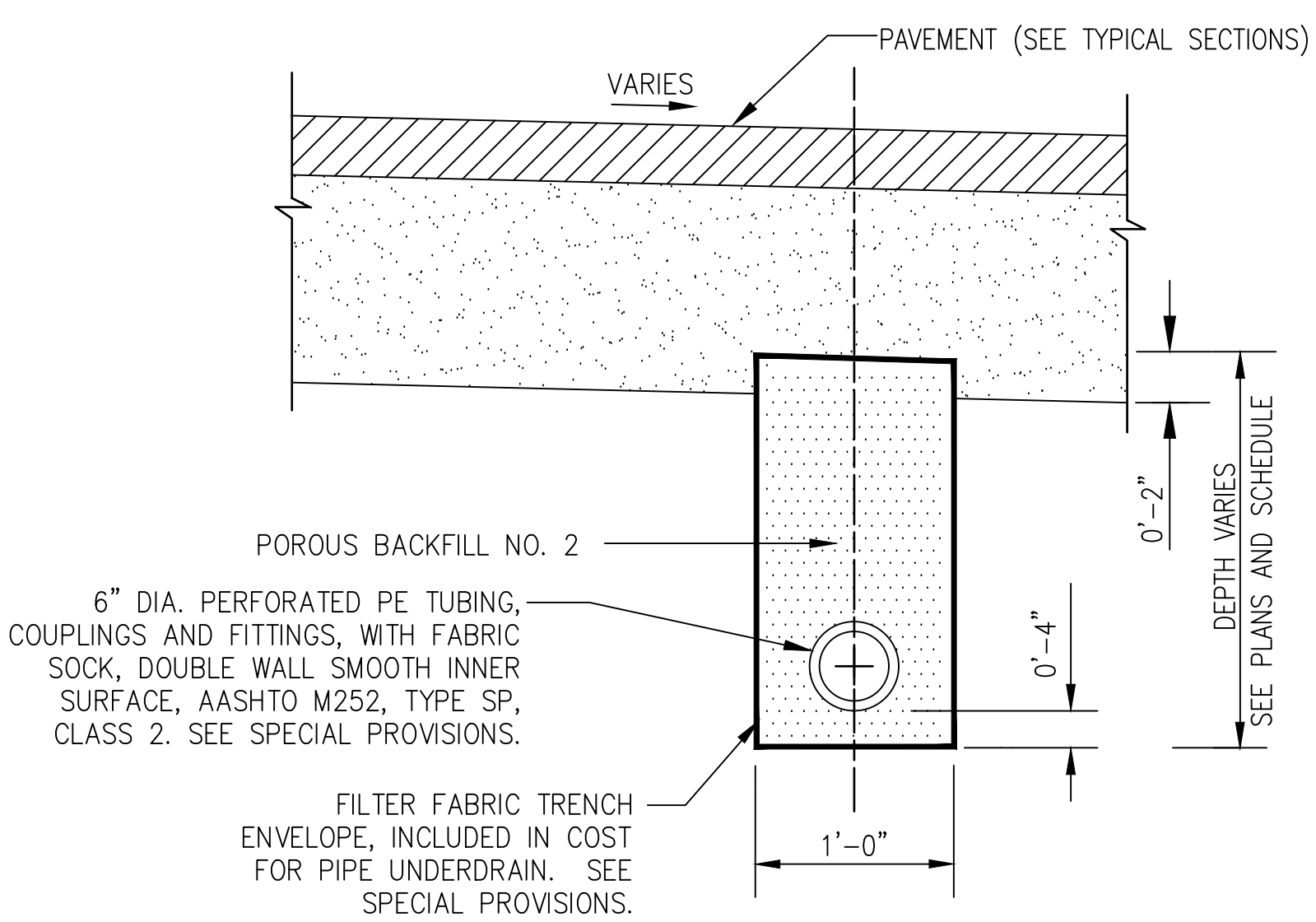


- NOTES:**
- SEE DRAINAGE AND UNDERDRAIN SCHEDULE FOR LOCATION, SIZE AND NUMBER OF PIPE CONNECTIONS.
 - INLETS TO BE PRECAST REINFORCED CONCRETE SECTIONS (T = 5").

INLET TYPE A
(IDOT STANDARD 602301)



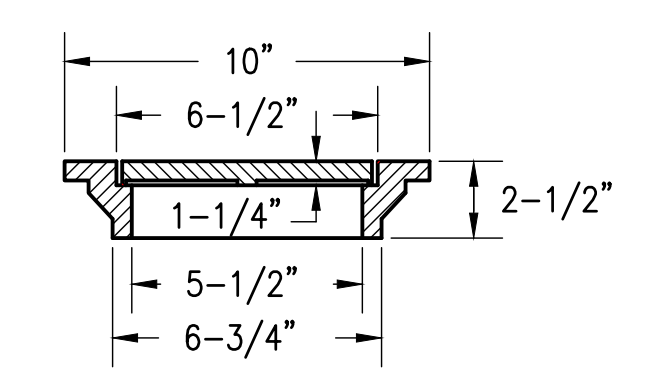
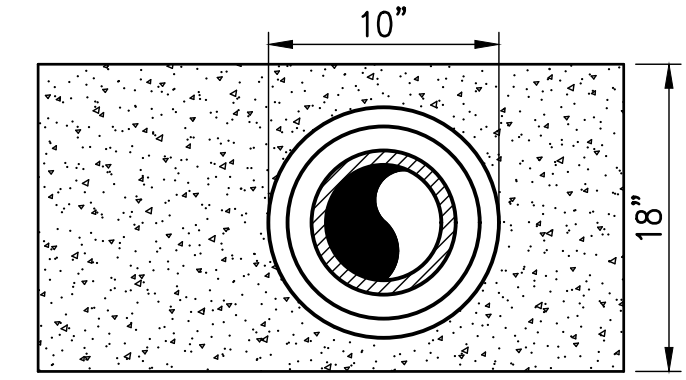
UNDERDRAIN ALONG PAVEMENT EDGE



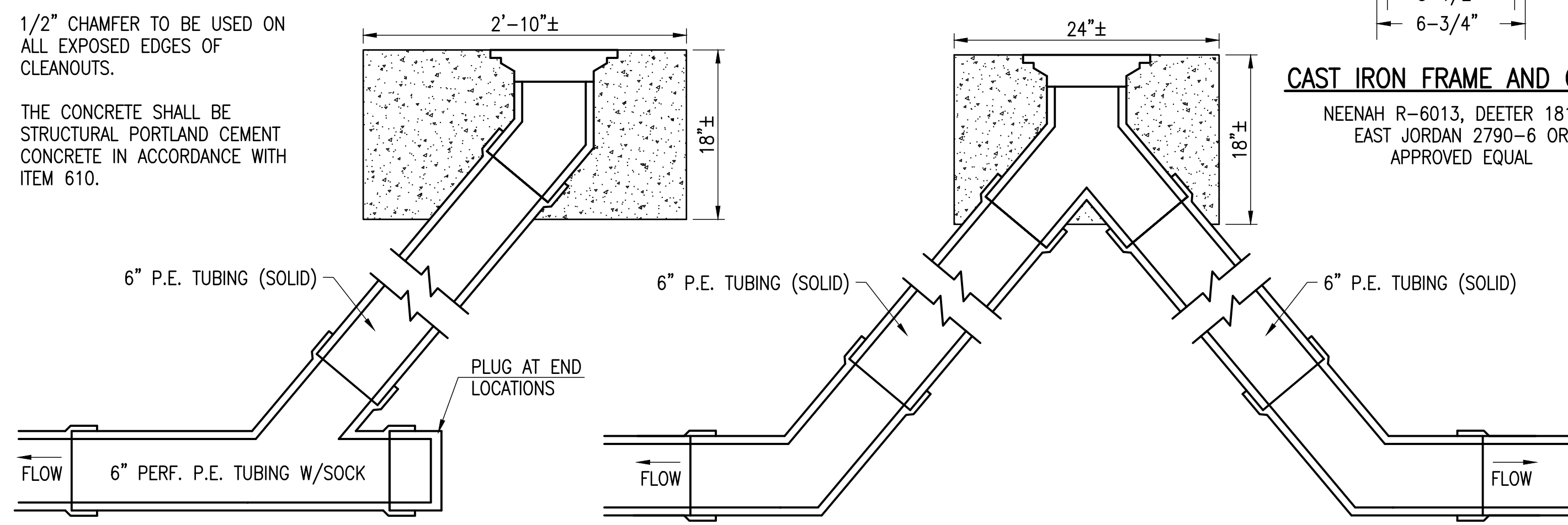
UNDERDRAIN UNDER PAVEMENT

CLEANOUT NOTES

- TOP OF CLEANOUTS SHALL BE 2" ABOVE FINISH GROUND LINE AT LOCATION SHOWN ON PLANS.
- 1/2" CHAMFER TO BE USED ON ALL EXPOSED EDGES OF CLEANOUTS.
- THE CONCRETE SHALL BE STRUCTURAL PORTLAND CEMENT CONCRETE IN ACCORDANCE WITH ITEM 610.



CAST IRON FRAME AND COVER
NEENAH R-6013, DEETER 1810,
EAST JORDAN 2790-6 OR
APPROVED EQUAL



UNDERDRAIN CLEANOUT

NO SCALE

DUAL UNDERDRAIN CLEANOUT

NO SCALE

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

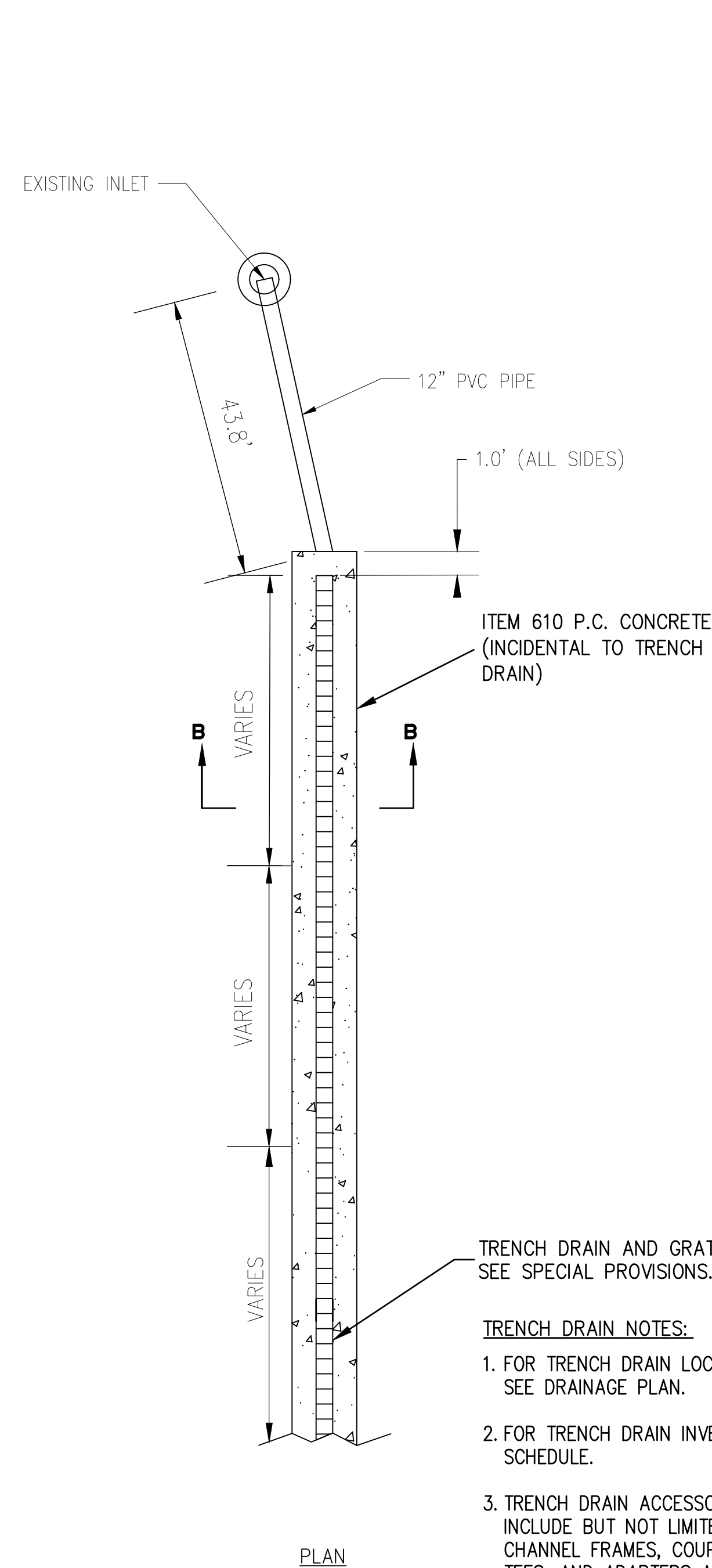
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
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REVIEWED BY: ~~LDH~~ 7/26/2024

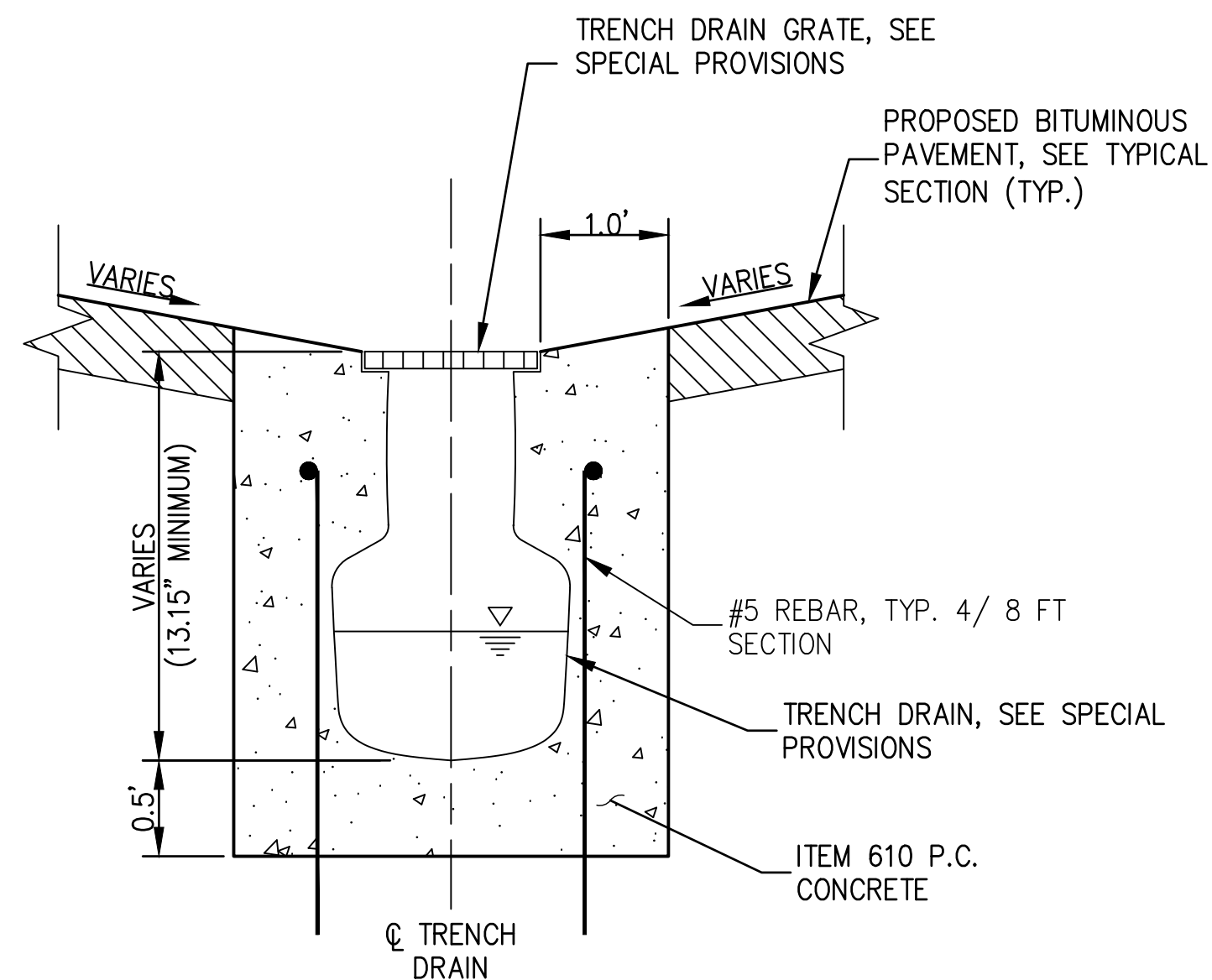
SHEET TITLE

DRAINAGE SCHEDULES AND DETAILS



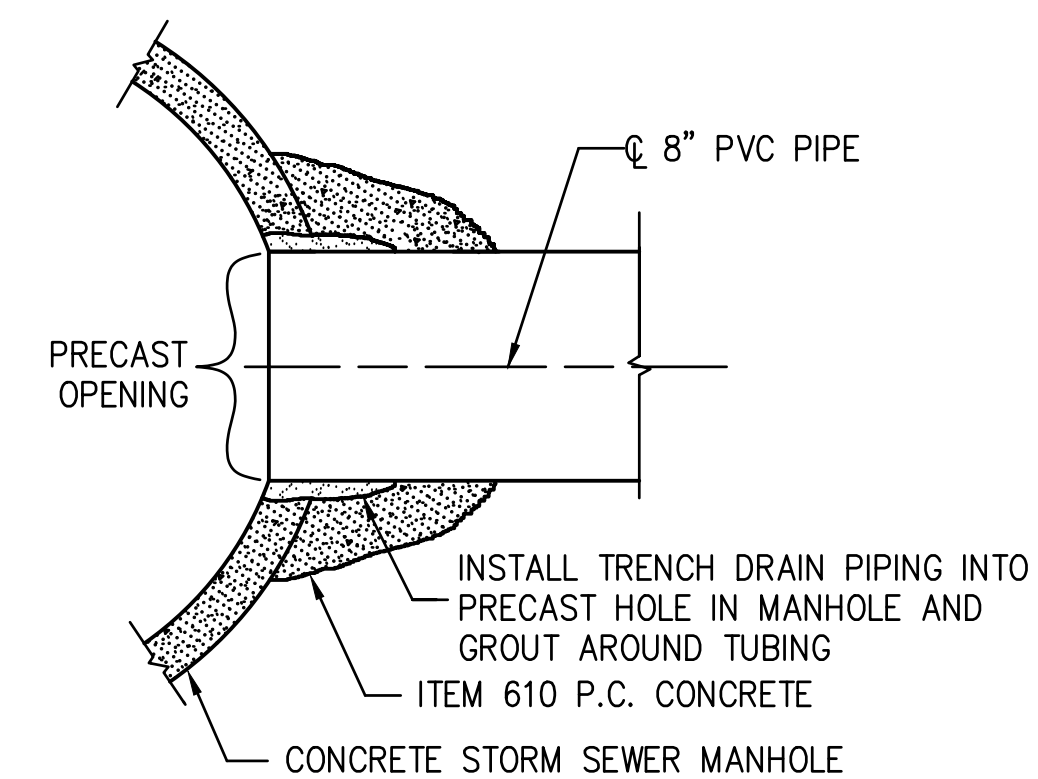
TRENCH DRAIN DETAIL

- TRENCH DRAIN NOTES:**
1. FOR TRENCH DRAIN LOCATION, SEE DRAINAGE PLAN.
 2. FOR TRENCH DRAIN INVERTS SEE SCHEDULE.
 3. TRENCH DRAIN ACCESSORIES, TO INCLUDE BUT NOT LIMITED TO, CHANNEL FRAMES, COUPLERS, TEES, AND ADAPTERS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO TRENCH DRAIN.



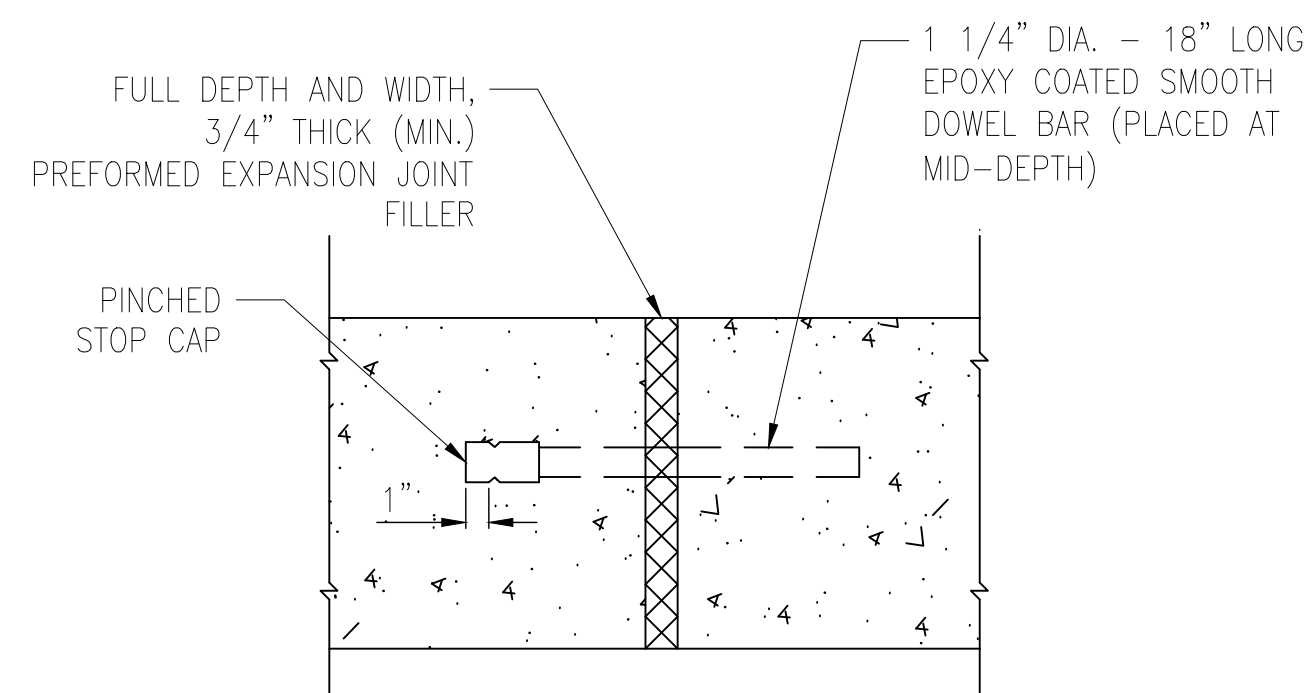
NOTE:
12 INCHES P.C. CONCRETE AROUND ALL SIDES OF TRENCH DRAIN, SEE PLAN.

**SECTION B-B
TRENCH DRAIN**



- NOTES**
1. HOLE FOR TRENCH DRAIN PIPING TO BE PRECAST INTO MANHOLE AT ELEVATION SPECIFIED IN TRENCH DRAIN SCHEDULE.
 2. CONNECTIONS INCIDENTAL TO UNDERDRAIN.

**TRENCH DRAIN CONCRETE
COLLAR AND GROUT
CONNECTION**



- NOTES:**
1. CONTRACTION JOINTS TO BE LOCATED AT NO GREATER THAN 12.5' ON CENTER. CONTRACTION JOINTS ARE TO BE EITHER 3/4" THICK PREFORMED JOINT FILLER, SAWED 2" DEEP AT 4 TO 24 HOURS OR FORMED WITH A 1/8" THICK STEEL TEMPLATE 2" DEEP.
 2. EXPANSION JOINTS TO BE LOCATED AT 50' MAX SPACING.
 3. ALL EXPANSION AND SAWED CONTRACTION JOINTS SHALL BE SEALED WITH HOT-POURED SEALANT, ASTM D6690, TYPE II, COST INCIDENTAL TO TRENCH DRAIN.

EXPANSION JOINT DETAIL

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
CAD FILE: C-503-DRN.DWG
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SHEET TITLE

**TRENCH DRAIN
DETAILS**

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

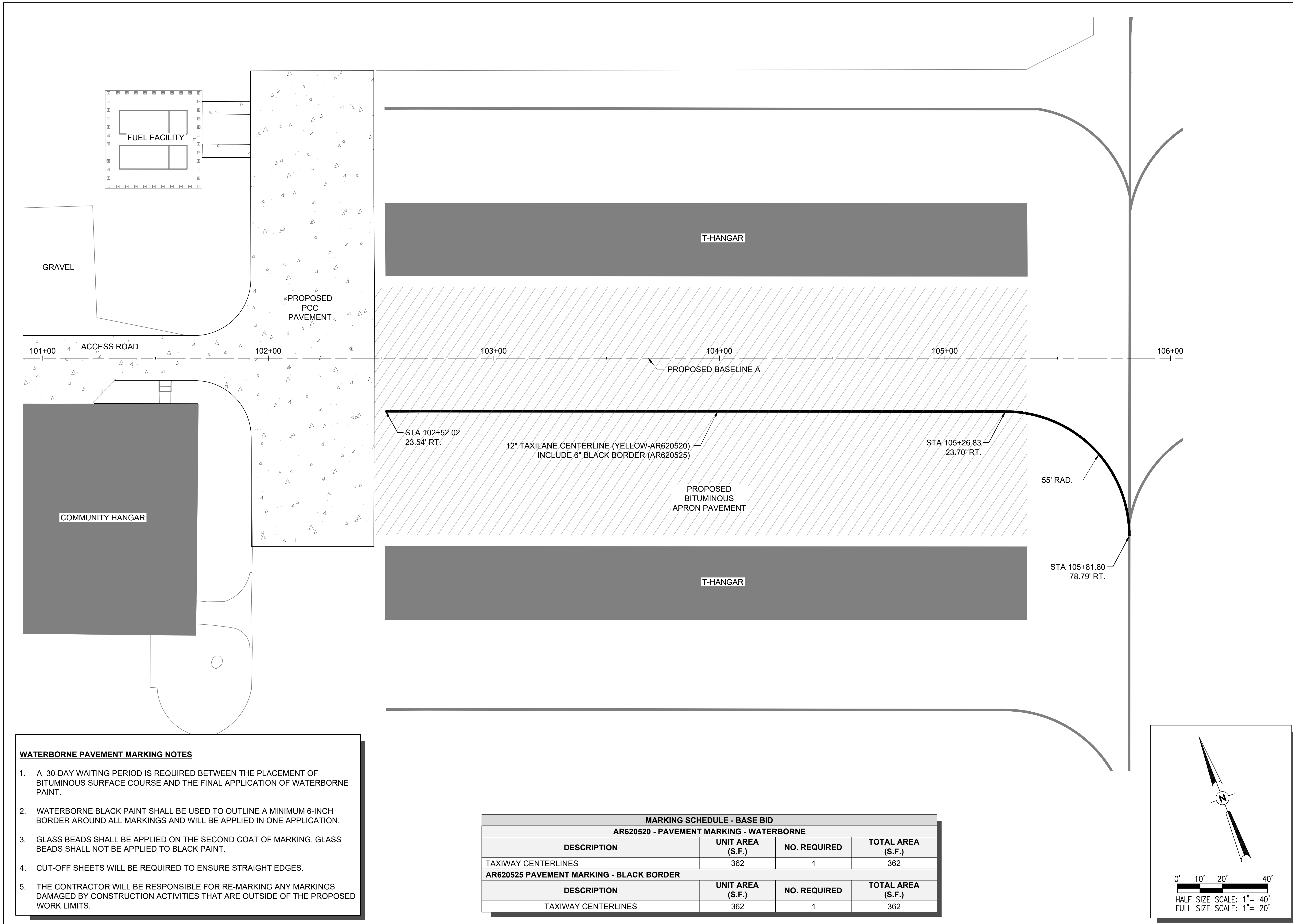
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SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024
PROJECT NO: 22A0001D
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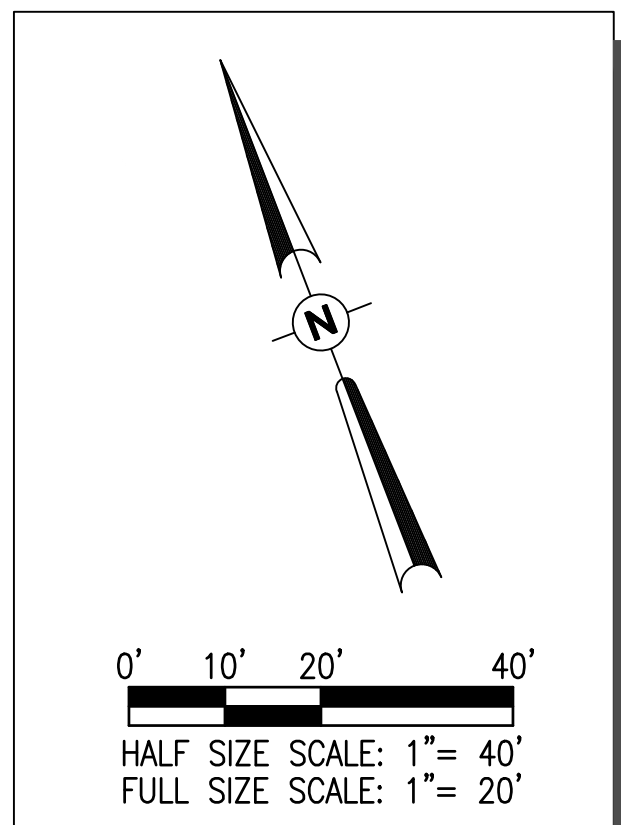
MARKING PLAN



WATERBORNE PAVEMENT MARKING NOTES

- A 30-DAY WAITING PERIOD IS REQUIRED BETWEEN THE PLACEMENT OF BITUMINOUS SURFACE COURSE AND THE FINAL APPLICATION OF WATERBORNE PAINT.
- WATERBORNE BLACK PAINT SHALL BE USED TO OUTLINE A MINIMUM 6-INCH BORDER AROUND ALL MARKINGS AND WILL BE APPLIED IN ONE APPLICATION.
- GLASS BEADS SHALL BE APPLIED ON THE SECOND COAT OF MARKING. GLASS BEADS SHALL NOT BE APPLIED TO BLACK PAINT.
- CUT-OFF SHEETS WILL BE REQUIRED TO ENSURE STRAIGHT EDGES.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR RE-MARKING ANY MARKINGS DAMAGED BY CONSTRUCTION ACTIVITIES THAT ARE OUTSIDE OF THE PROPOSED WORK LIMITS.

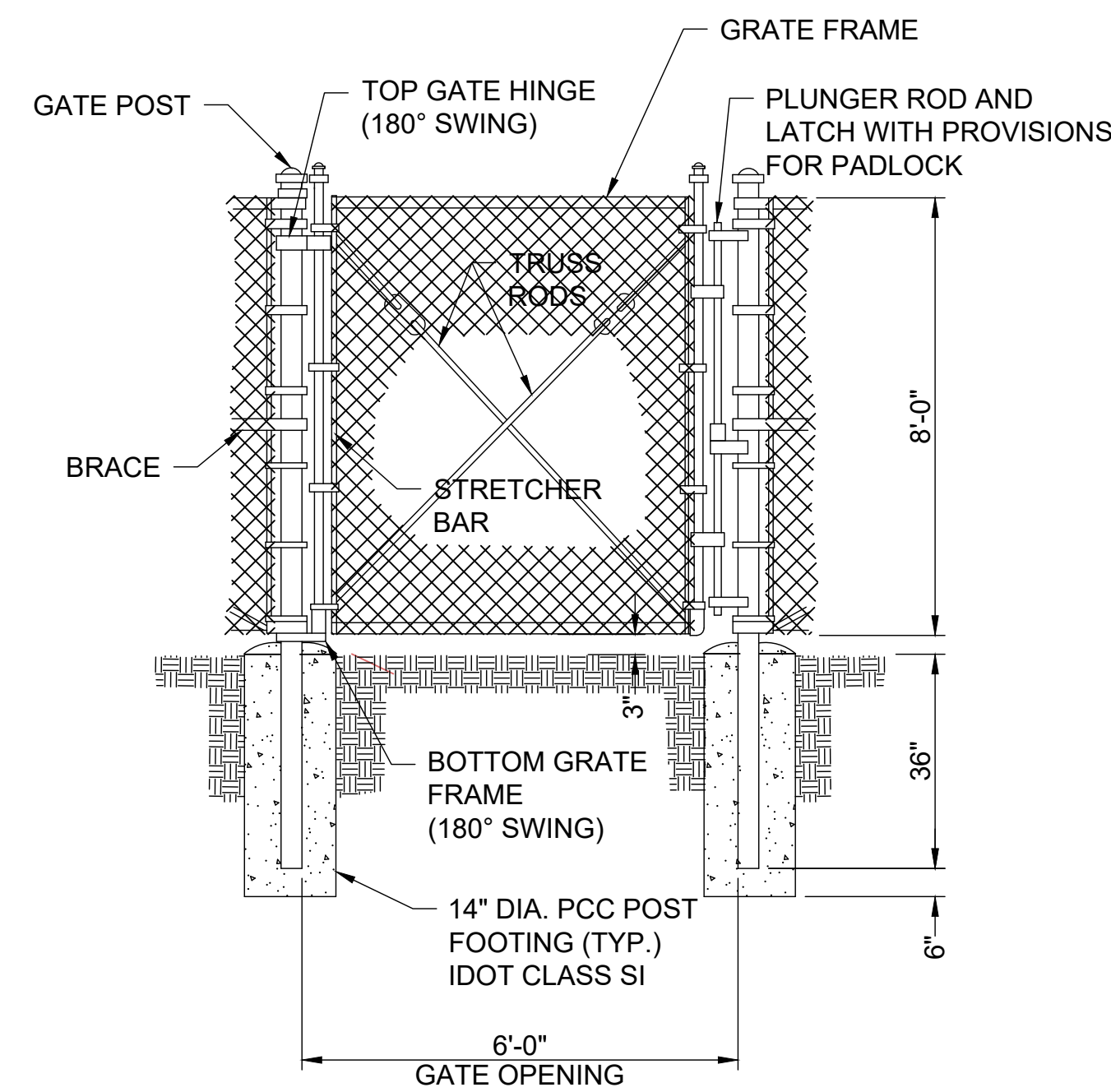
MARKING SCHEDULE - BASE BID			
AR620520 - PAVEMENT MARKING - WATERBORNE			
DESCRIPTION	UNIT AREA (S.F.)	NO. REQUIRED	TOTAL AREA (S.F.)
TAXIWAY CENTERLINES	362	1	362
AR620525 PAVEMENT MARKING - BLACK BORDER			
DESCRIPTION	UNIT AREA (S.F.)	NO. REQUIRED	TOTAL AREA (S.F.)
TAXIWAY CENTERLINES	362	1	362



NO.	DATE	DESCRIPTION		
		DES	DWN	REV

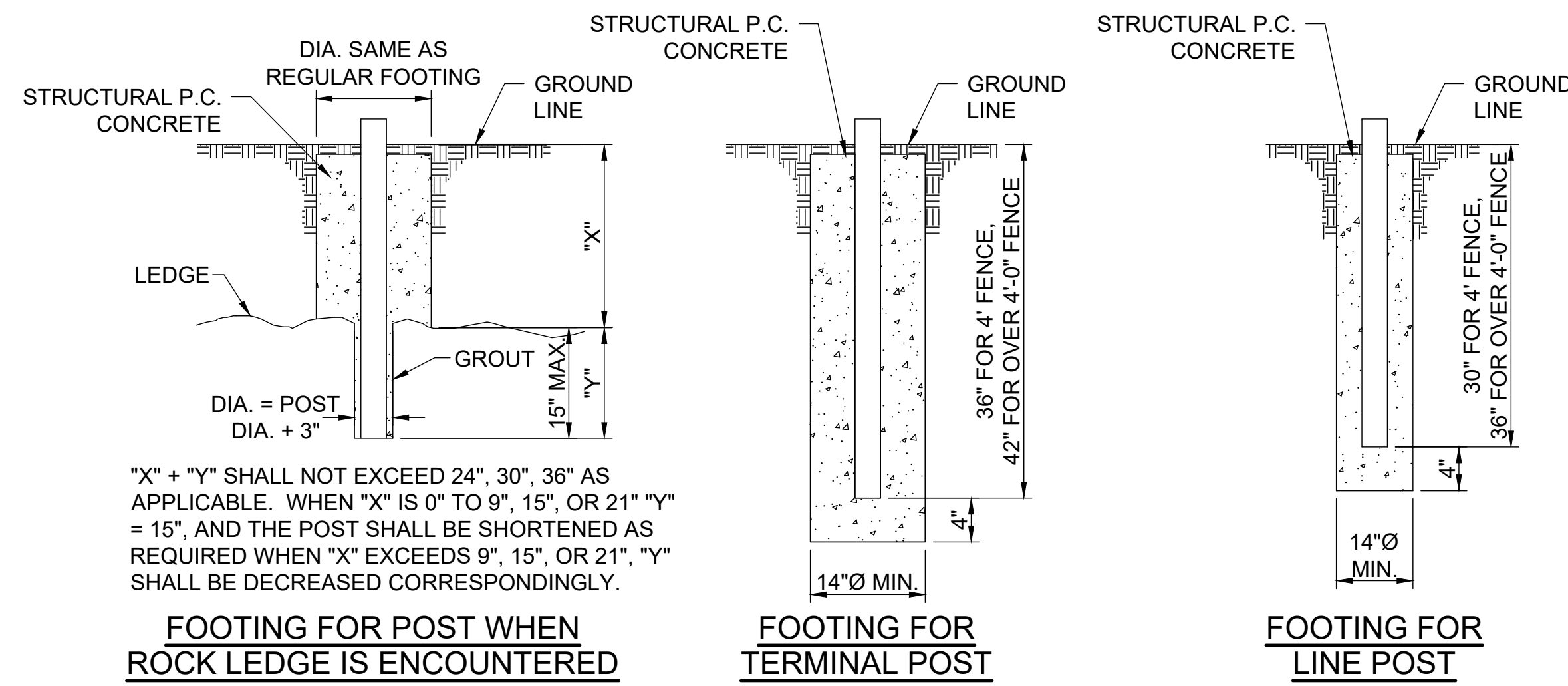
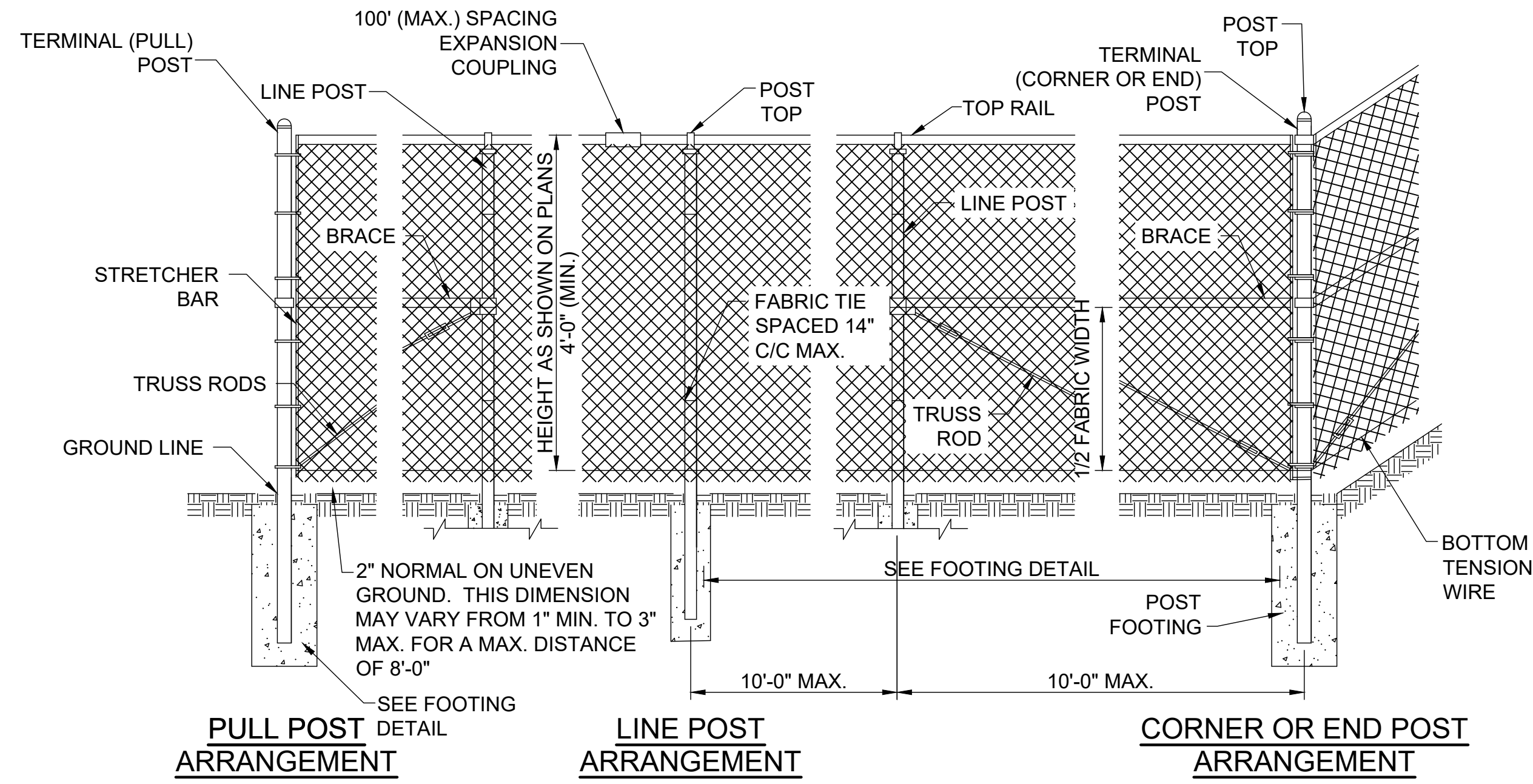
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PROJECT NO: 22A0001D
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REVIEWED BY: LDH 7/26/24

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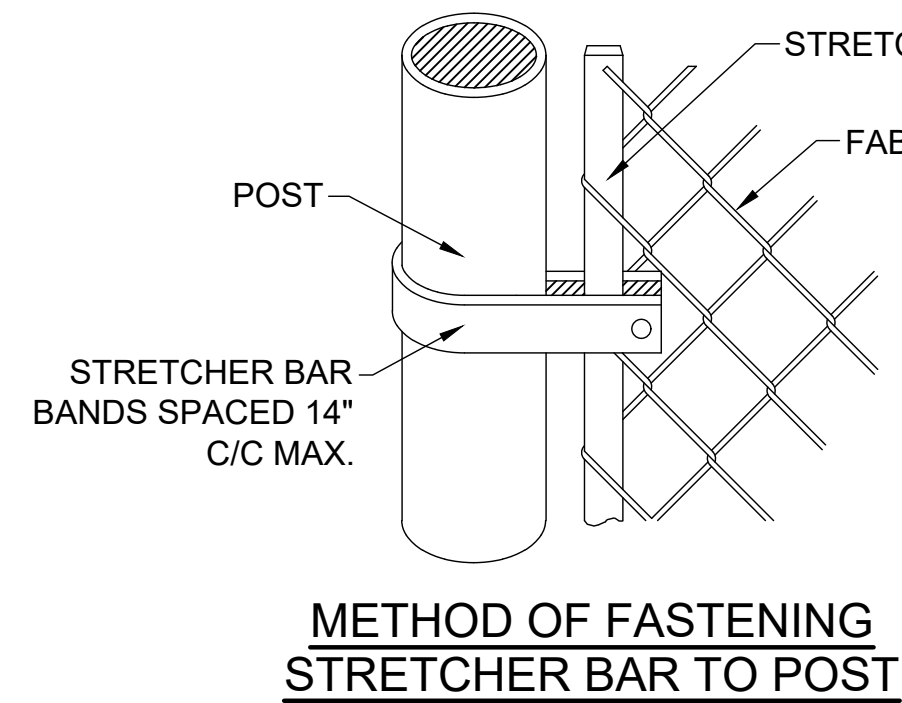


NOTE: 180° HINGES FOR GATES SHALL NOT BE AN "ADJUSTABLE ARM HINGE." INSTEAD HINGE SHALL BE HOOVER FENCE COMPANY'S BULLDOG CHAIN LINK GATE HINGE OR APPROVED EQUAL.

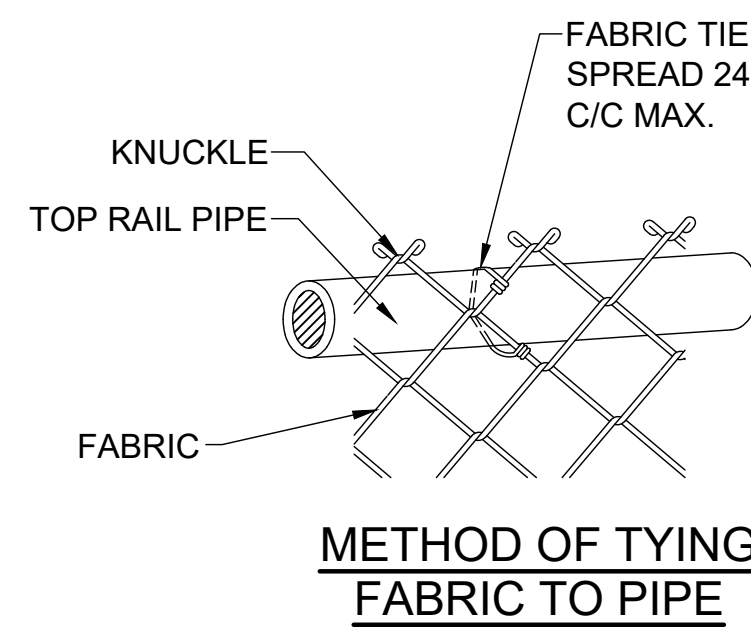
PEDESTRIAN GATE, 6 FOOT WIDE



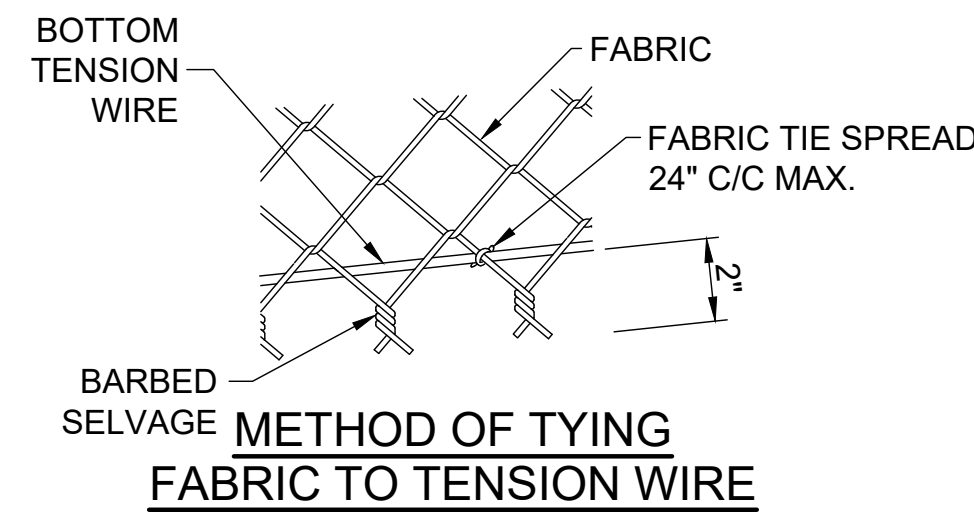
"X" + "Y" SHALL NOT EXCEED 24", 30", 36" AS APPLICABLE. WHEN "X" IS 0" TO 9", 15", OR 21" "Y" = 15", AND THE POST SHALL BE SHORTENED AS REQUIRED WHEN "X" EXCEEDS 9", 15", OR 21", "Y" SHALL BE DECREASED CORRESPONDINGLY.



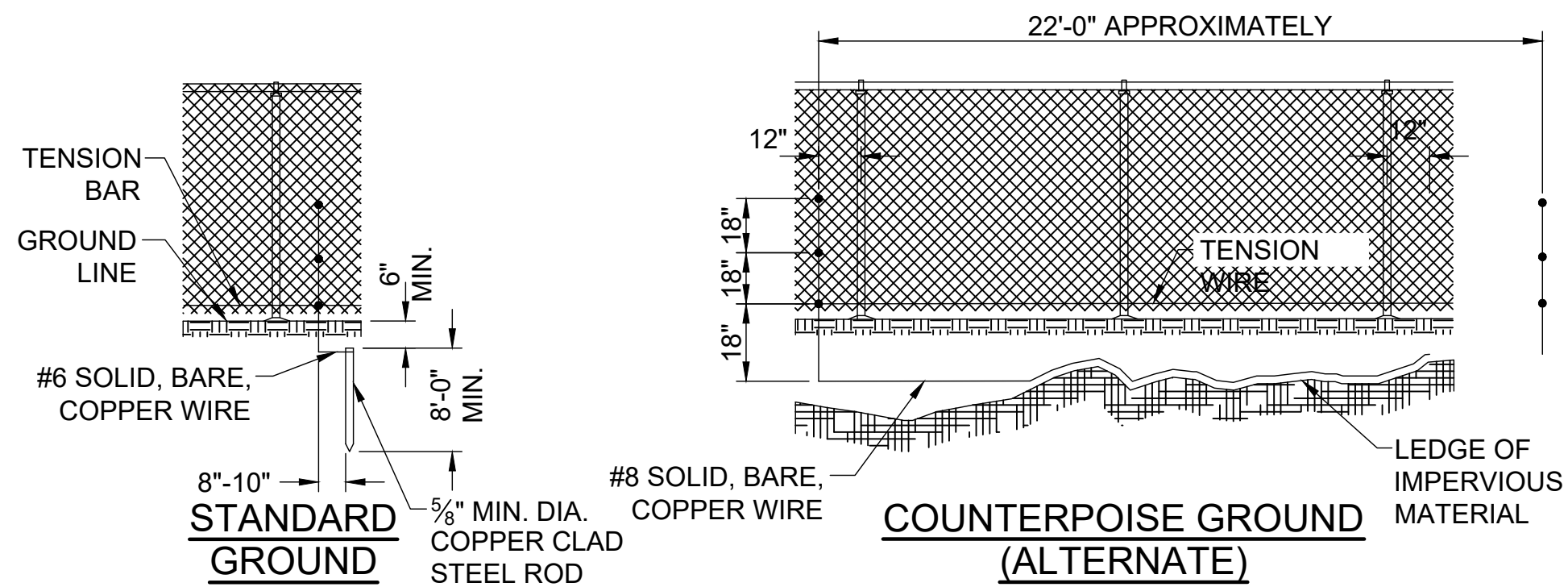
METHOD OF FASTENING STRETCHER BAR TO POST



METHOD OF TYING FABRIC TO PIPE



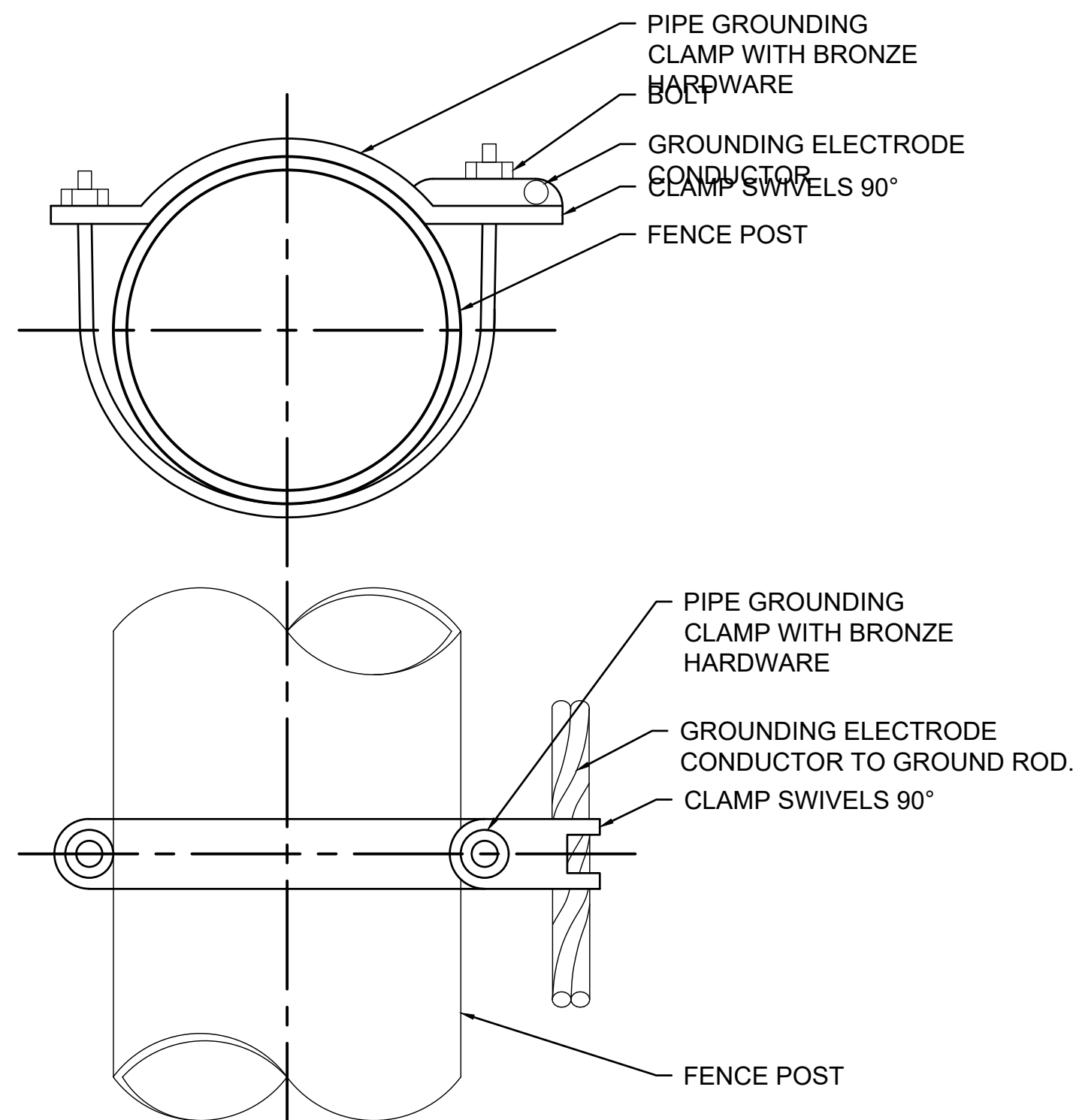
METHOD OF TYING FABRIC TO TENSION WIRE



GROUNDING NOTE:

PROTECTIVE ELECTRICAL GROUND

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.



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

NOTES

- PIPE GROUNDING CLAMPS SHALL HAVE BRONZE HARDWARE, BE CORROSION RESISTANT, SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE, & UL467 LISTED.
- CONNECT FENCE POST TO GROUND ROD WHERE ACCESS TO FENCE FABRIC IS NOT AVAILABLE TO ACCOMMODATE PROTECTIVE ELECTRICAL GROUND AT A GATE.

FENCE POST GROUNDING CLAMP DETAIL
NOT TO SCALE

GENERAL NOTES

- FABRIC - THE FABRIC MAY BE WOVEN WITH EITHER ZINC COATED STEEL WIRE OR ALUMINUM-ALLOY WIRE IN A 2-INCH MESH. COATED WIRE AND ALUMINUM-ALLOY SHALL HAVE A DIAMETER OF 0.148 INCHES. THE FABRIC SHALL MEET THE FOLLOWING REQUIREMENTS:
 - ZINC-COATED STEEL FABRIC SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 181, TYPE 1, CLASS D. THE FABRIC SHALL BE GALVANIZED AFTER WEAVING.
 - ALUMINUM-COATED STEEL FABRIC SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 181 TYPE II. THE UNIT WEIGHT OF THE COATING SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T 213. THE ALUMINUM-COATED STEEL FABRIC SHALL BE GIVEN A CLEAR ORGANIC COATING AFTER FABRICATION.
 - ALUMINUM-ALLOY FABRIC SHALL BE MADE FROM WIRE CONFORMING TO THE REQUIREMENTS OF AASHTO M 181 TYPE III.
 - VINYL-COATED FABRIC IS NOT INCLUDED.
 - ZINC-5% ALUMINUM-MISCHMETAL ALLOY-COATED STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM F 1345, CLASS 2.

- METAL POSTS - METAL POSTS (LINE, CORNER, END, PULL AND GATE POSTS) SHALL BE THE SHAPES, DIMENSIONS, AND WEIGHT SHOWN IN THE TABLES WITHIN IDOT STANDARD 664001-02- CHAIN LINK FENCE, FOR THE SHAPES IDENTIFIED BELOW.
 - STEEL PIPE, TYPE A, SHALL BE HOT-DIPPED GALVANIZED CONFORMING TO THE REQUIREMENTS OF ASTM F 1083.

- STEEL PIPE, TYPE B, SHALL BE MANUFACTURED FROM COLD ROLLED ELECTRIC RESISTANCE WELDED, HEATED AND TEMPERED STEEL. THE STEEL STRIP USED IN THE MANUFACTURE OF THE PIPE SHALL CONFORM TO ASTM A 569 OR ASTM A 607. THE WALL THICKNESS SHALL NOT BE LESS THAN THAT SHOWN IN THE TABLES. THE PRODUCT OF THE YIELD STRENGTH AND SECTION MODULUS OF THE PIPE SHALL NOT BE LESS THAN THAT OF THE PIPE MEETING THE REQUIREMENTS OF ASTM F 1083.

THE PROTECTIVE COATINGS SHALL BE AS FOLLOWS:

- EXTERNAL AND INTERNAL HOT-DIPPED ZINC COATING ACCORDING TO ASTM F1083.
- EXTERNAL COATING SHALL BE IN-LINE HOT-DIPPED ZINC COATING AFTER FABRICATION FOLLOWED BY A CHROMATE CONVERSION COATING WITH AN ELECTROSTATIC THERMOPLASTIC FINISH. THE ZINC COATING SHALL BE NOT LESS THAN .9 OUNCES PER SQUARE FOOT OF SURFACE. THE CHROMATE COATING WEIGHT SHALL BE 30 MICROGRAMS + .0002 INCHES.
- THE INTERNAL SURFACE SHALL BE GIVEN CORROSION PROTECTION BY IN-LINE APPLICATION OF A FULL ZINC BASE ORGANIC COATING AFTER FABRICATION. THE COATING SHALL BE 87% ZINC POWDER BY WEIGHT AND CAPABLE OF PROVIDING GALVANIC PROTECTION. THE THICKNESS SHALL BE A MINIMUM OF .5 MIL. THE EXTERNAL PROTECTIVE COATING SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING TESTS:

EXPOSURE TEST	ASTM	DESIGNATION	EXPOSURE TIME
SALT SPRAY	ASTM B 117		1000 HRS. MIN.
HUMIDITY	ASTM D 2247		500 HRS. MIN.
WEATHERING	ASTM G 23		500 HRS. MIN.

THE INTERNAL PROTECTIVE COATING SHALL BE CAPABLE OF WITHSTANDING EXPOSURE TO SALT SPRAY, ASTM B 117, FOR A MINIMUM OF 500 HOURS.

- STEEL PIPE, TYPE C, SHALL BE MANUFACTURED BY ROLLED FORMING ALUMINIZED STEEL TYPE 2 STRIP AND ELECTRIC RESISTANCE WELDING INTO TUBULAR FORM. THE OUTSIDE OF THE WELD AREA SHALL BE METALLIZED WITH COMMERCIAL PURE ALUMINUM TO A THICKNESS SUFFICIENT TO PROVIDE RESISTANCE TO CORROSION EQUAL TO THAT OF THE REMAINDER OF THE OUTSIDE OF THE TUBE. THE ALUMINUM COATING WEIGHT SHALL BE A MINIMUM OF 0.75 OUNCES PER SQUARE FOOT, TRIPLE SPOT TEST, 0.70 OUNCES PER SQUARE FOOT SINGLE SPOT TEST, AS MEASURED IN ACCORDANCE WITH ASTM A 428. THE STEEL STRIP USED IN THE MANUFACTURE OF THE PIPE SHALL CONFORM TO ASTM A 787 TYPE 1 AND SHALL HAVE A MINIMUM YIELD STRENGTH OF 50,000 P.S.I. THE WEIGHT OF THE PIPE SHALL NOT BE LESS THAN THAT SHOWN ON THE PLANS AND THE PRODUCT OF THE YIELD STRENGTH AND SECTION MODULUS OF THE PIPE SHALL NOT BE LESS THAN THAT OF PIPE MEETING THE REQUIREMENTS OF ASTM A 120.
- SQUARE HOLLOW STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500, GRADE B OR ASTM A 501. THE TUBING SHALL BE GALVANIZED INSIDE AND OUTSIDE IN ACCORDANCE WITH AASHTO M 111, USING ZINC OF ANY GRADE CONFORMING TO THE REQUIREMENT OF AASHTO M 120. THE ZINC COATING SHALL NOT BE LESS THAN 2.0 OUNCES PER SQUARE FOOT OF SURFACE.
- STRUCTURAL SHAPES SHALL BE EXCLUDED.

- BOTTOM TENSION WIRE - THE BOTTOM TENSION WIRE SHALL BE #9 GAUGE GALVANIZED STEEL WIRE MEETING THE REQUIREMENTS OF AASHTO M 181, THE WIRE SHALL BE STRETCHED TIGHT WITH GALVANIZED TURNBUCKLES SPACED AT INTERVALS NOT MORE THAN 1,000 FEET. THE ZINC COATING SHALL BE NOT LESS THAN 12 OUNCES PER SQUARE FOOT OF SURFACE.
- METAL BRACES - METAL BRACES SHALL HAVE THE SHAPES SHOWN ON THE PLANS AND AT THE DIMENSIONS SHOWN WITHIN THE TABLE WITHIN IDOT STANDARD 664001-02 - CHAIN LINK FENCE. THEY SHALL BE ACCORDING TO THE SPECIFICATIONS FOR METAL POSTS, EITHER STEEL PIPE, STRUCTURAL SHAPE OR ROLLED FORMED SECTION AND SHALL BE GALVANIZED AS SPECIFIED FOR METAL POSTS.
- GATE - THE GATE TYPE AND SIZE SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS AND AS PROVIDED IN THE SPECIAL PROVISIONS.
- STRUCTURAL P.C. CONCRETE - THE STRUCTURAL P.C. CONCRETE SHALL CONFORM TO IDOT CLASS SI CONCRETE. A HIGH EARLY STRENGTH CONCRETE MAY BE USED. THE CONCRETE MIX DESIGN SHALL BE APPROVED FOR USE BY THE ENGINEER PRIOR TO USING IT ON THE PROJECT.
- BOLTS AND NUTS - ALL BOLTS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 307 AND SHALL BE ZINC-COATED IN ACCORDANCE WITH AASHTO M 298, CLASS 50 OR ASTM A 153.
- WIRE TIES AND TENSION WIRE - WIRE FABRIC TIES, WIRE TIES, AND TENSION WIRE FURNISHED FOR USE IN CONJUNCTION WITH A GIVEN TYPE OF FABRIC SHALL BE OF THE SAME MATERIAL AND COATING WEIGHT IDENTIFIED WITH THE FABRIC TYPE. ZINC-COATED STEEL WIRE, ALUMINUM-COATED STEEL WIRE, AND ALUMINUM ALLOY WIRE SHALL CONFORM TO REQUIREMENTS OF AASHTO M 181, TYPE I CLASS 2 OR TYPE II. THE TOP TENSION WIRE WILL BE DELETED IN LIEU OF THE TOP RAIL WHEN TOP RAIL IS REQUIRED. THE BOTTOM TENSION WIRE IS REQUIRED.
- TOP RAILS - THE TOP RAILS SHALL BE 1.66 INCH O.D., GALVANIZED OR ALUMINUM COATED PIPE HAVING A MINIMUM BENDING STRENGTH OF 202 LBS. AT THE CENTER OF A 10 FT. SPAN AND WILL BE REQUIRED.
- PRIVACY SLATS - PROPOSED CHAIN-LINK FENCING AND GATE SHALL INCLUDE VERTICAL POLYMER PRIVACY INSERT SLATS, PROVIDING VISUAL CLOSURE OF A MINIMUM OF 70%. THE SLATS SHALL EITHER BE PRE-INSTALLED INTO THE CHAIN-LINK MESH OR INSTALLED AFTER THE CHAIN-LINK FENCE INSTALLATION. THE INSERT SLATS SHALL MEET ASTM F3000/F3000M. THE LENGTH OF THE SLAT INSERTS SHALL COVER THE FULL DIAMOND PORTION OF THE CHAIN-LINK FABRIC, AND SHALL NOT PROTRUDE ABOVE THE TOP RAIL OR BELOW THE BOTTOM TENSION WIRE. THE FENCE FRAMEWORK SHALL BE DESIGNED TO SUPPORT THE WIND LOADING CALCULATED WITH THE INSERT SLATS INSTALLED, WHICH MAY AFFECT THE LINE POST SIZE AND SPACING. COLOR OF THE INSERT SLATS SHALL BE BLACK.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: SEPTEMBER 13, 2024

PROJECT NO: 22A0001D

CAD FILE: C-501-FEN.DWG

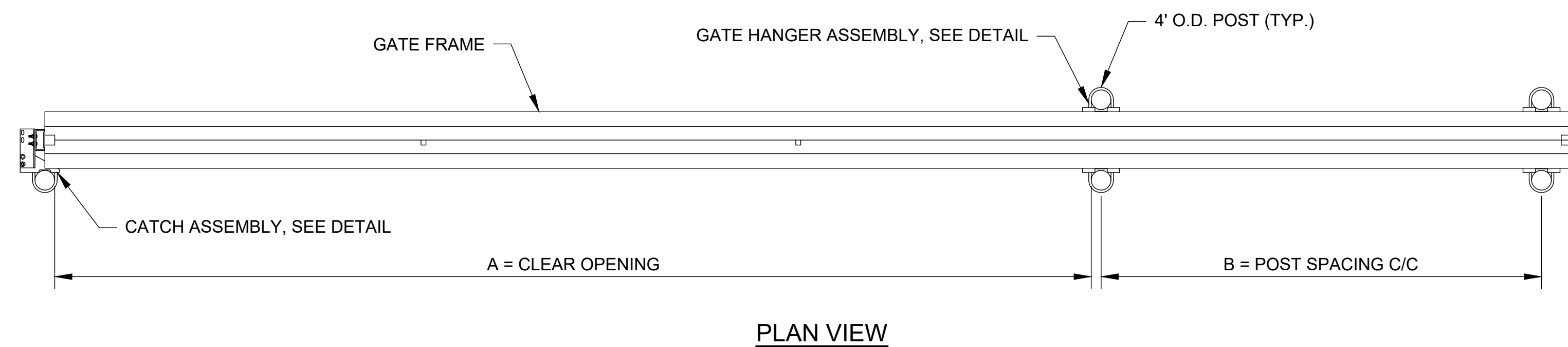
DESIGN BY: LDH 9/4/2023

DRAWN BY: JP 9/18/2023

REVIEWED BY: LDH 7/26/24

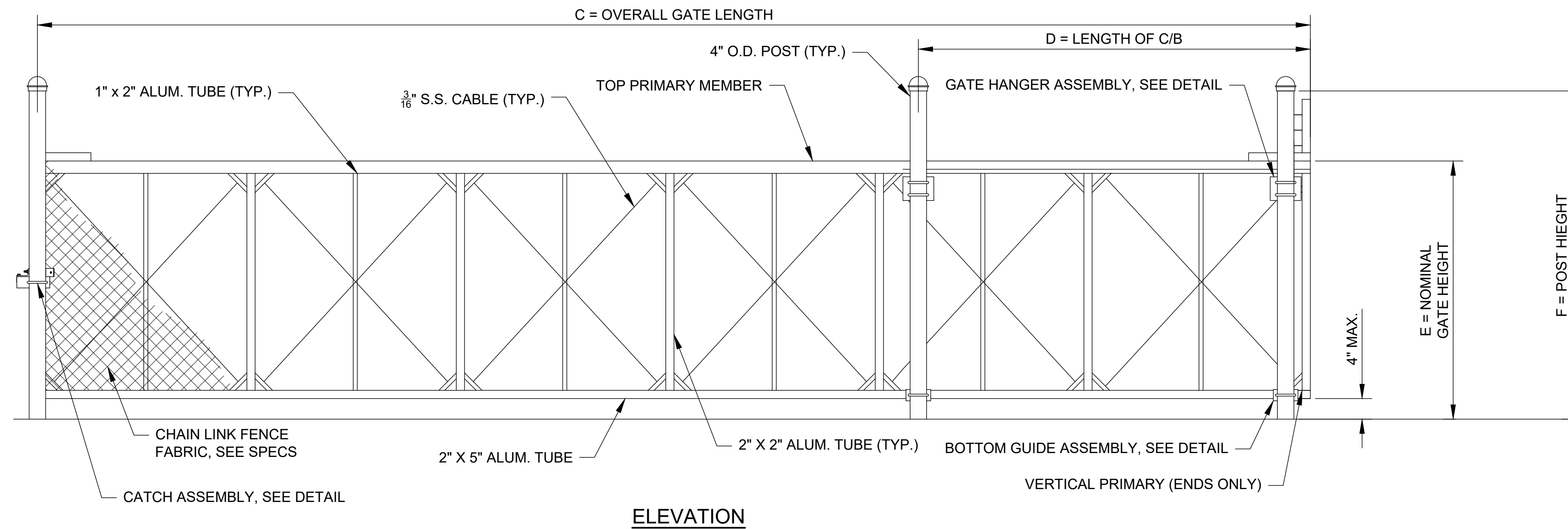
SHEET TITLE

FENCE NOTES

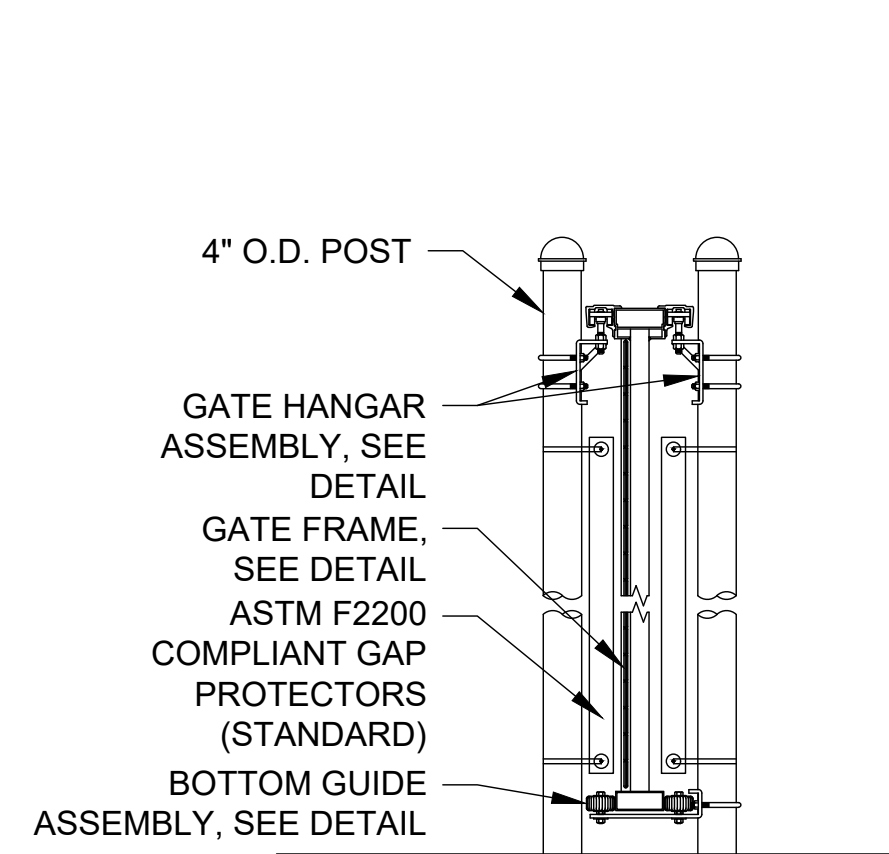


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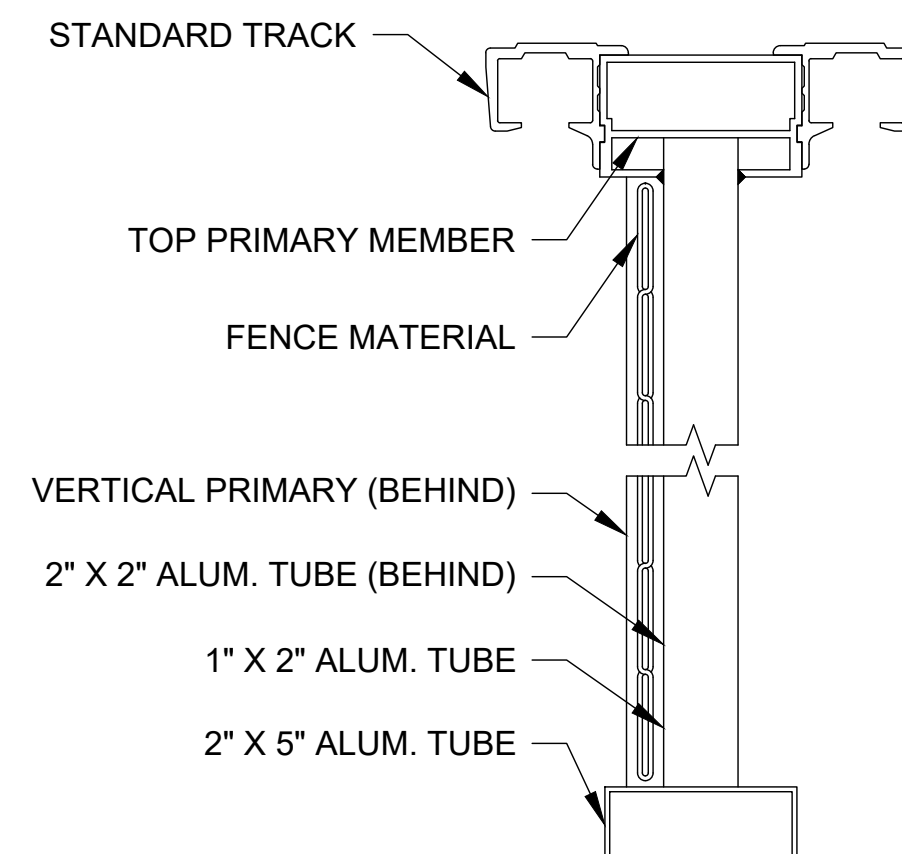
1. FOOTING WIDTH TO BE 4X POST WIDTH. MINIMUM 1'-6" DIAMETER. MINIMUM DEPTH TO BE 42"
2. GATE SHALL BE FORTRESS "STRUCTURAL" CANTILEVER SLIDE GATE WITH TWIN TRACKS. VERIFY DIMENSIONS WITH MANUFACTURER. PRIMARY GATE FRAME SHALL BE ALUMINUM ALLOY AND RECTANGULAR IN SHAPE. GATE MESH SHALL MATCH FENCE MESH SIZE AND MATERIAL. (2-INCH MESH, 9 GAUGE). SEE SPECS
3. ALL SIGN INSTALLATIONS SHALL BE CONSIDERED INCIDENTAL TO THE FENCE & GATE INSTALLATIONS. SEE SIGNAGE DETAILS



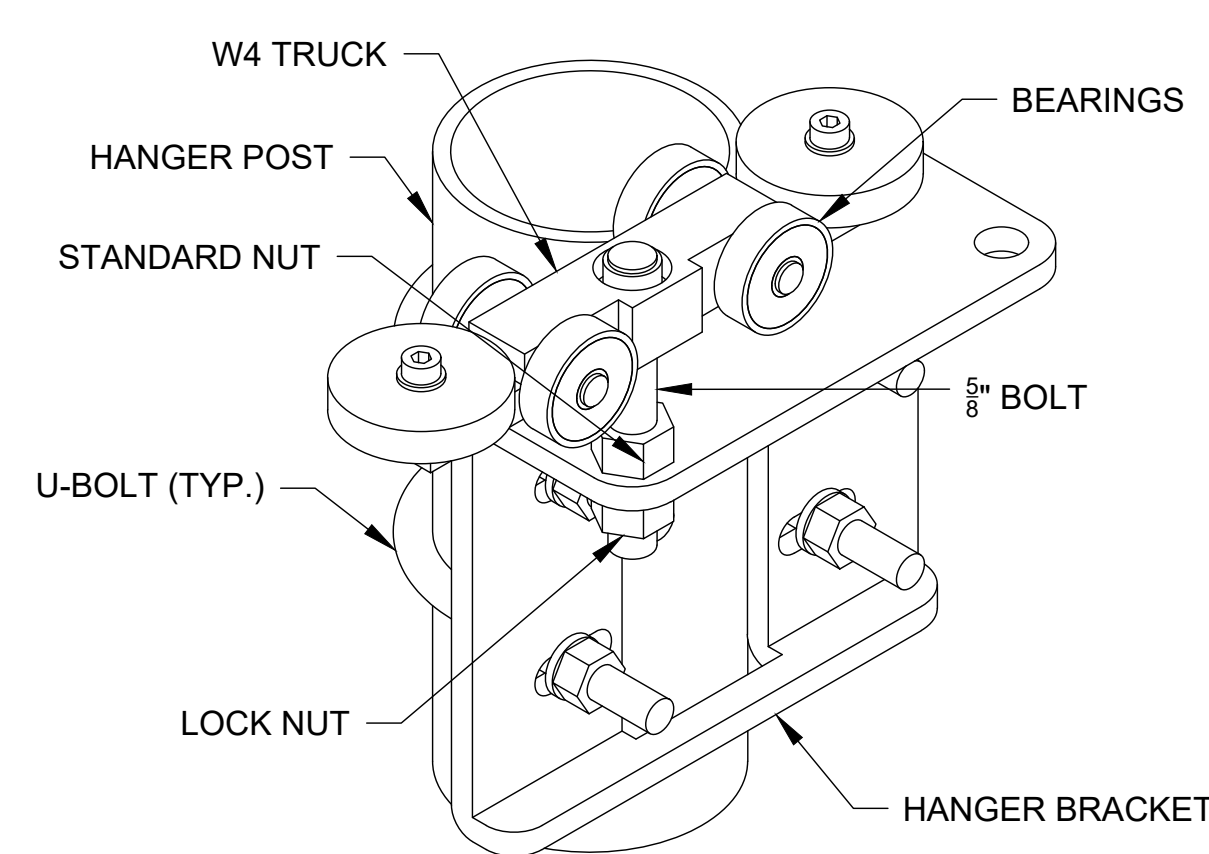
ELEVATION



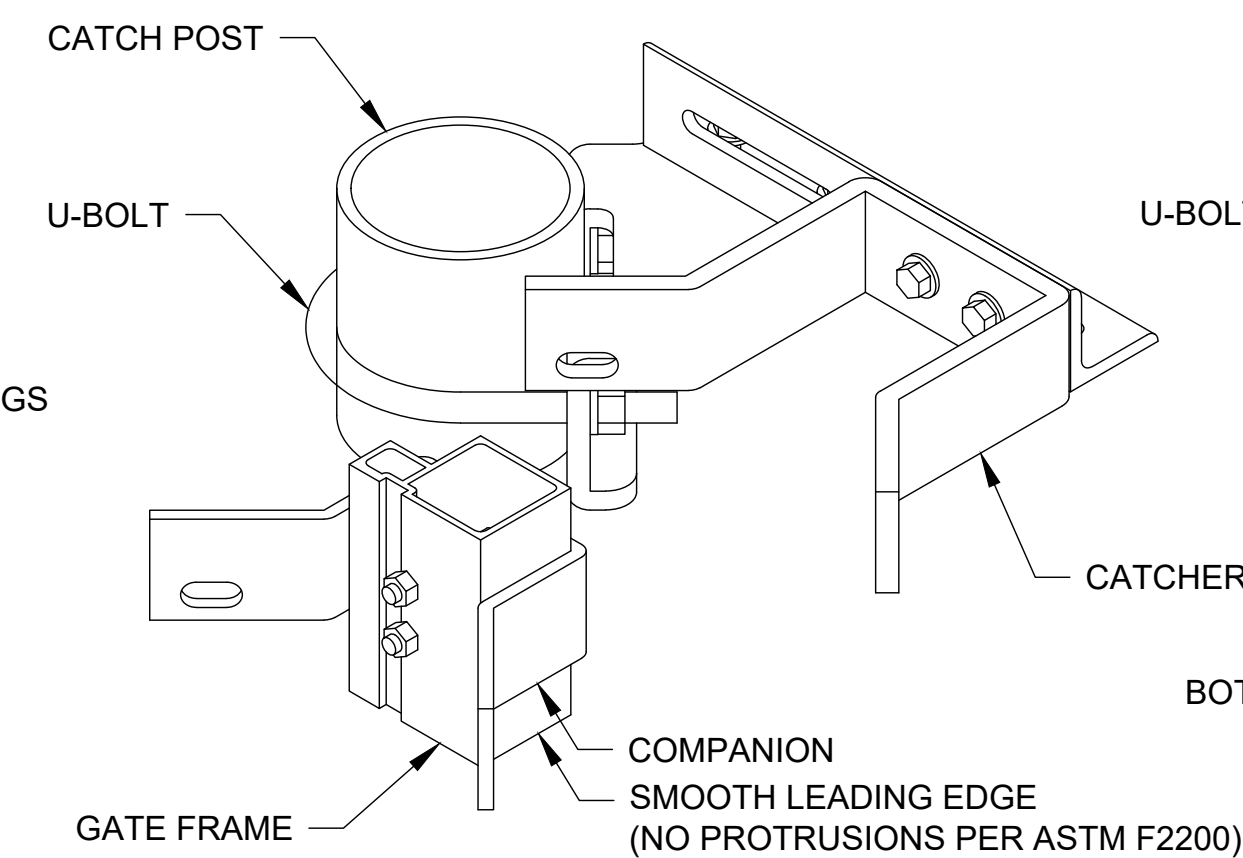
ASSEMBLY SECTION



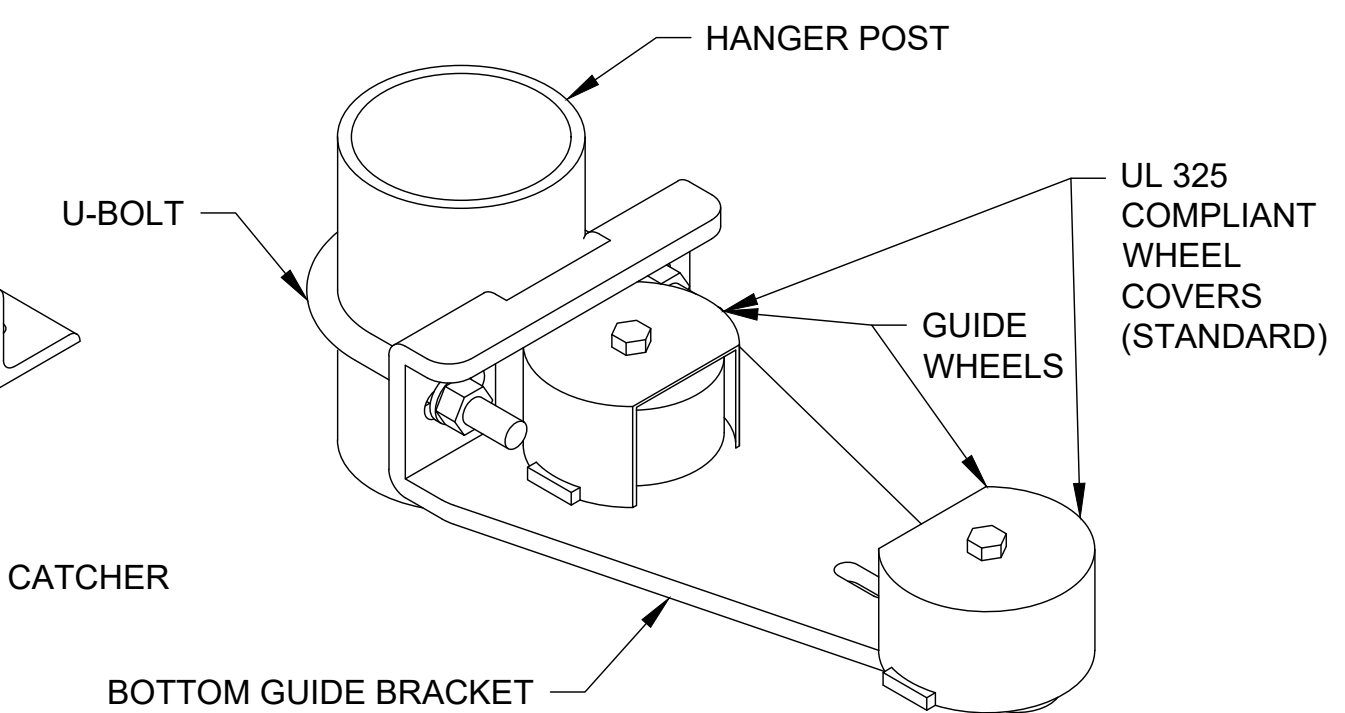
GATE FRAME SECTION



GATE HANGER ASSEMBLY



CATCH ASSEMBLY



BOTTOM GUIDE ASSEMBLY

CRITICAL DIMENSION CHART

NOMINAL GATE SIZE **		28' W X 8' H
A	CLEAR OPENING	28'-0"
B	COUNTERBALANCE POST SPACING C/C	13'-1"
C	OVERALL GATE LENGTH	42'-0"
D	COUNTERBALANCE LENGTH	14'-0"
E	NOMINAL GATE HEIGHT *	8'-0"
F	POST HEIGHT	9'-6"

* EXCLUDES BARBED WIRE ARM
** CONFIRM ALL DIMENSIONS WITH GATE MFR.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

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SHEET TITLE

28 FOOT SLIDE GATE DETAILS

NO.	DATE	DESCRIPTION		
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SHEET TITLE

ELECTRICAL LEGEND - PLANS	
	CONDUIT (EXPOSED)
	CONDUIT OR DUCT (CONCEALED OR BURIED)
	POLE MOUNTED LED FIXTURE
	#12 AWG TWHN COPPER UNLESS NOTED OTHERWISE. LONG SLASHES INDICATE NEUTRAL. SHORT SLASHES INDICATE HOT OR SWITCHED LEG. SLASHES WITH DOT INDICATE SEPARATE GROUND WIRE.
	HOMERUN TO PANEL PNL A INDICATES PANEL 1,3,5 INDICATES CIRCUIT NUMBERS
	WALL OR CEILING M'T'D. LED FIXTURE.
	DUCT
	DUCT
	BURIED/UNDERGROUND ELECTRIC
	OVERHEAD ELECTRIC
	TOGGLE SWITCH
	PUSH BUTTON STATION
	WALL OR CEILING M'T'D. JUNCTION BOX. CONFIGURATION VARIES WITH USE
	SINGLE THROW DISCONNECT SWITCH
	SINGLE THROW, FUSIBLE DISCONNECT SWITCH
	ENCLOSED CIRCUIT BREAKER
	MOTOR
	TRANSFORMER
	ELECTRIC UTILITY METER
	ENCLOSURE
	CIRCUIT BREAKER PANEL-SEE SCHEDULES
	CONTROL PANEL
	GROUND ROD

NOTES:

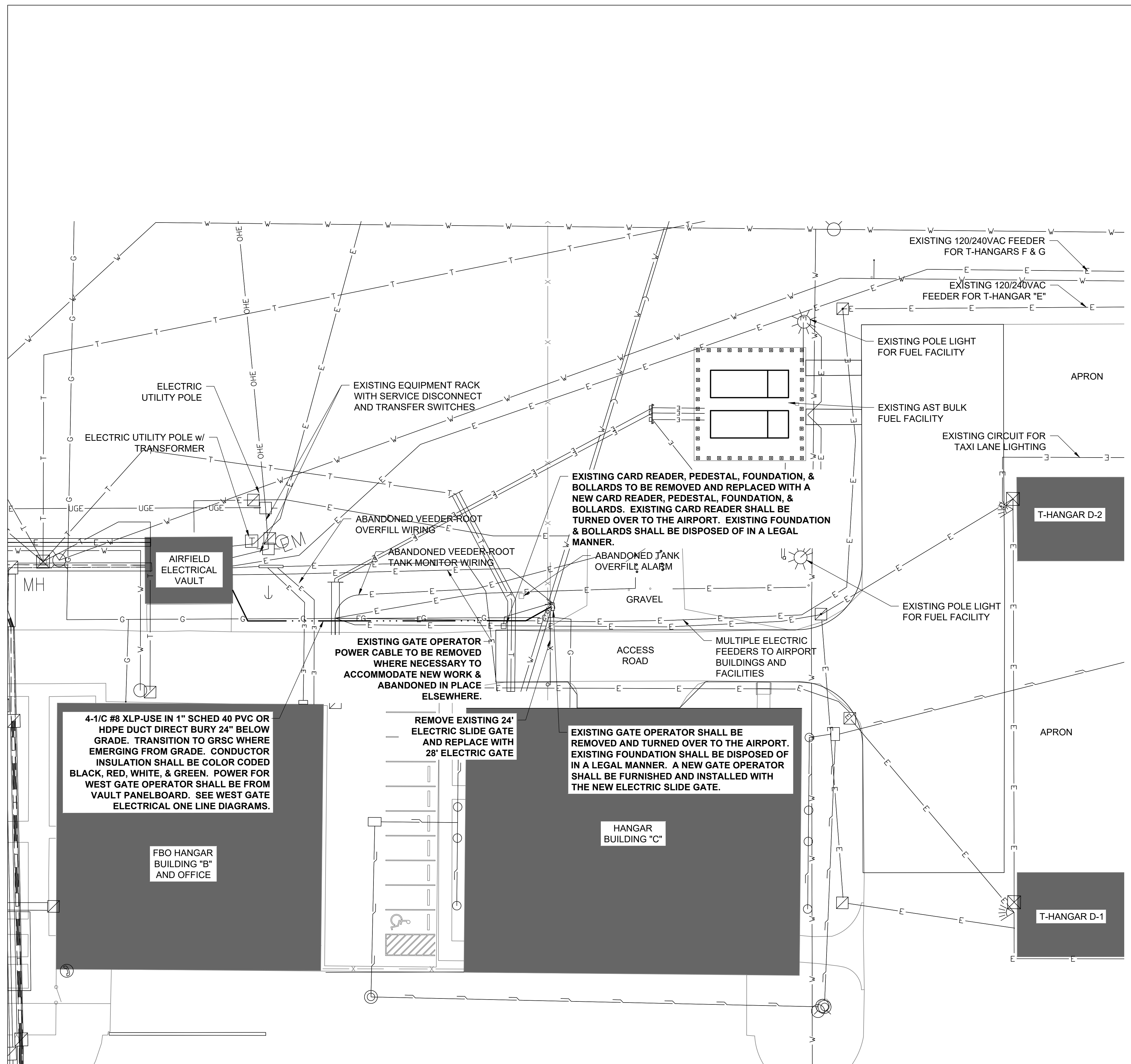
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- KEEP A COPY OF THE LATEST NEC IN FORCE ON SITE AT ALL TIMES DURING CONSTRUCTION FOR USE AS A REFERENCE.
- NEW WORK, POWER OUTAGES, AND/OR SHUT DOWN OF EXISTING SYSTEMS SHALL BE COORDINATED WITH THE AIRPORT MANAGER. ONCE SHUT DOWN, THE CIRCUITS SHALL BE LABELED AS SUCH TO PREVENT ACCIDENTAL ENERGIZING OF THE RESPECTIVE CIRCUITS. ALL PERSONNEL SHALL FOLLOW U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) 29 CFR PART 1910 OCCUPATIONAL SAFETY & HEALTH STANDARDS FOR ELECTRICAL SAFETY AND LOCKOUT/TAGOUT PROCEDURES INCLUDING, BUT NOT LIMITED TO, 29 CFR SECTION 1910.147 THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT). WHERE THE FACILITY IS NOT EQUIPPED WITH LOCKOUT/TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUITS PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THE RESPECTIVE SYSTEM.

ELECTRICAL LEGEND - ONE-LINE DIAGRAM	
	CABLE TERMINATOR/LUG
	TRANSFORMER
	DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
	HEAVY DUTY FUSIBLE SAFETY SWITCH 2 POLE 30A WITH 20A FUSES
	CIRCUIT BREAKER
	THERMAL MAGNETIC CIRCUIT BREAKER
	FUSE
	TRANSIENT VOLTAGE SURGE SUPPRESSOR OR SURGE PROTECTOR DEVICE
	GROUND - GROUND ROD, GROUNDING ELECTRODE, OR AT EARTH POTENTIAL
	INDICATING LIGHT
	MOTOR
	LOAD, MOTOR, # = HORSEPOWER
	ELECTRIC UTILITY METER BASE
	JUNCTION BOX WITH SPLICE
	EQUIPMENT, XXX = DEVICE DESCRIPTION
	GROUND BUS OR TERMINAL
	NEUTRAL BUS
	PANELBOARD WITH MAIN LUGS
	PANELBOARD WITH MAIN BREAKER
	FUSE PANEL WITH MAIN FUSE PULLOUT
	DUPLEX RECEPTACLE 120V SINGLE PHASE GROUNDING TYPE
	CONTROL STATION
	TRANSFER SWITCH
	ENGINE GENERATOR SET

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
MALSRS	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

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



- LEGEND**
- ▭ EXISTING PAVEMENT
 - ▭ EXISTING BUILDING
 - ▭ EXISTING ELECTRICAL DUCT
 - ▭ PROPOSED ELECTRICAL DUCT
 - EXISTING ELECTRICAL CABLES
 - PROPOSED ELECTRICAL CABLES
 - UD EXISTING UNDERDRAIN
 - SS EXISTING STORM SEWER
 - SAN EXISTING SANITARY SEWER
 - W EXISTING WATER LINE
 - T EXISTING TELEPHONE LINE
 - G EXISTING GAS LINE
 - X EXISTING FENCE
 - ⊙ EXISTING MANHOLE
 - ⊠ EXISTING JUNCTION BOX
 - ▽ EXISTING END SECTION
 - EXISTING GATE OPERATOR
 - ⊕ CARD READER WITH BOLLARDS
 - X PROPOSED FENCE

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

NO.	DATE	DESCRIPTION		
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REVIEWED BY: KNL 06/28/2024

SHEET TITLE

ELECTRICAL SITE PLAN 1

SEP 10, 2024 2:21 PM HALUSM00682
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NO.	DATE	DESCRIPTION		
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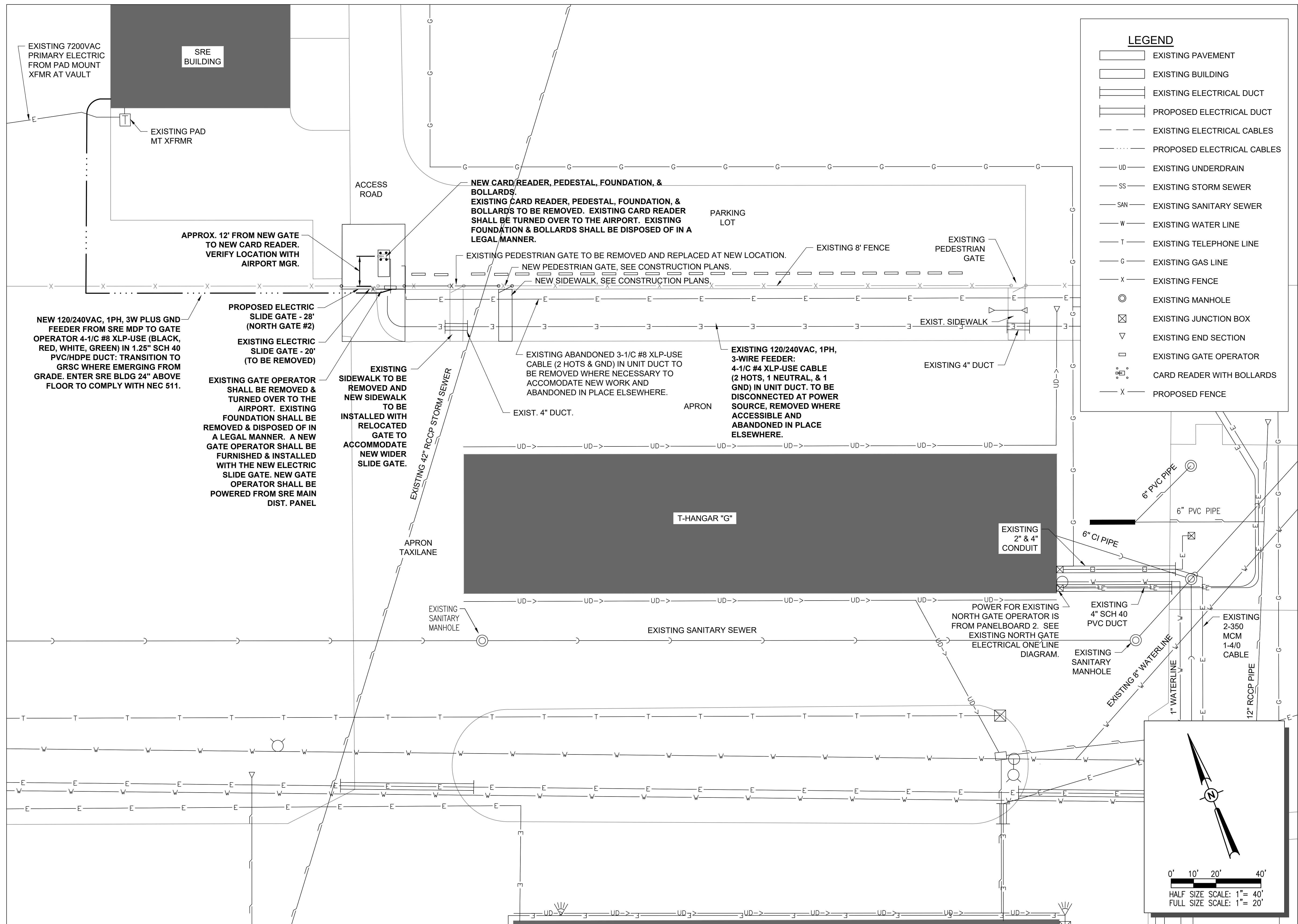
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SHEET TITLE

ELECTRICAL SITE PLAN 2



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		DES	DWN	REV

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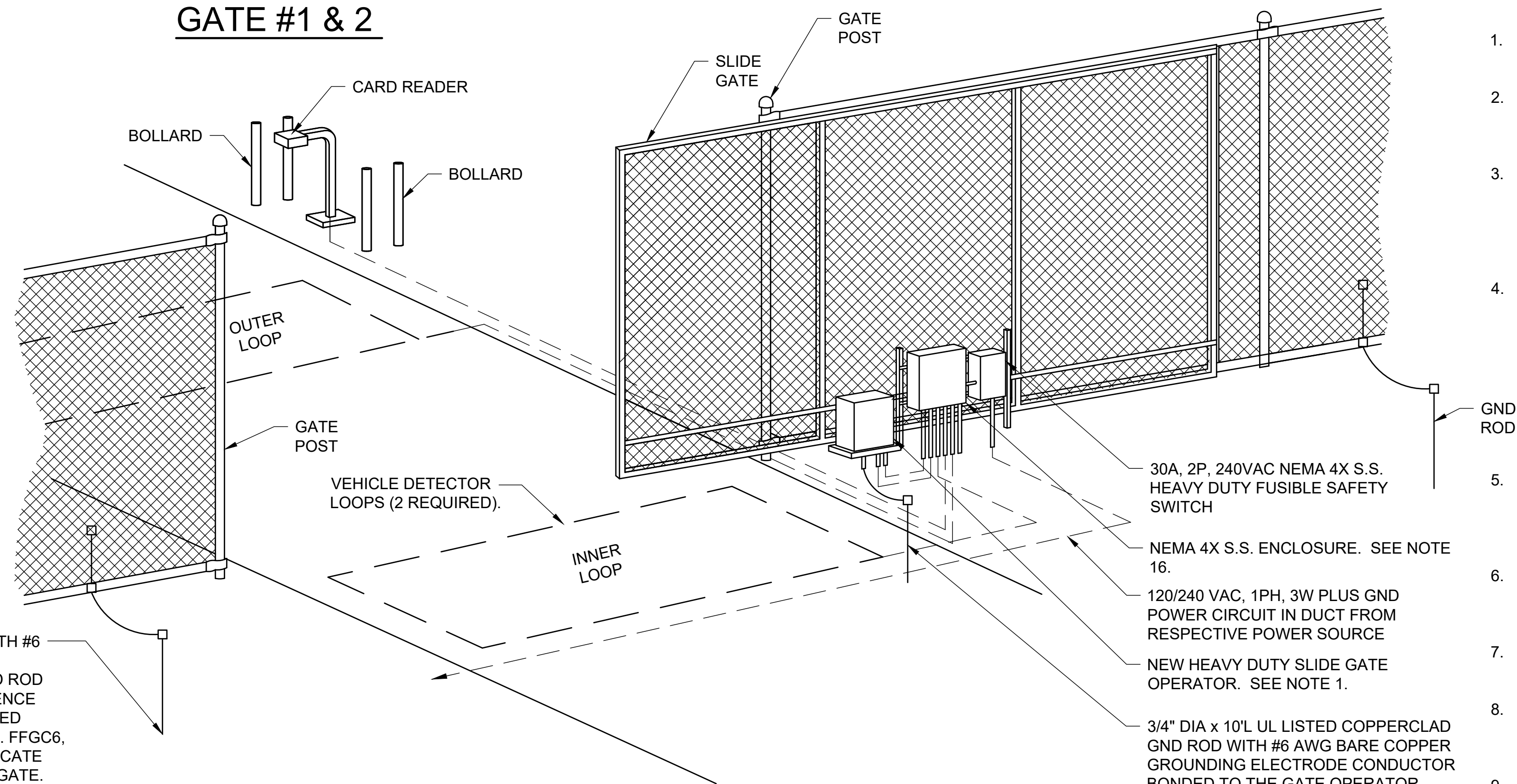
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SHEET TITLE

**PROPOSED SLIDE
GATE DETAILS -
GATE 1 & 2**

GATE #1 & 2

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'	4' X 14'	2 TURNS
20' TO 24'	4' X 18'	2 TURNS
24' TO 30'	6' X 22'	2 TURNS
30' TO 34'	6' X 26'	2 TURNS



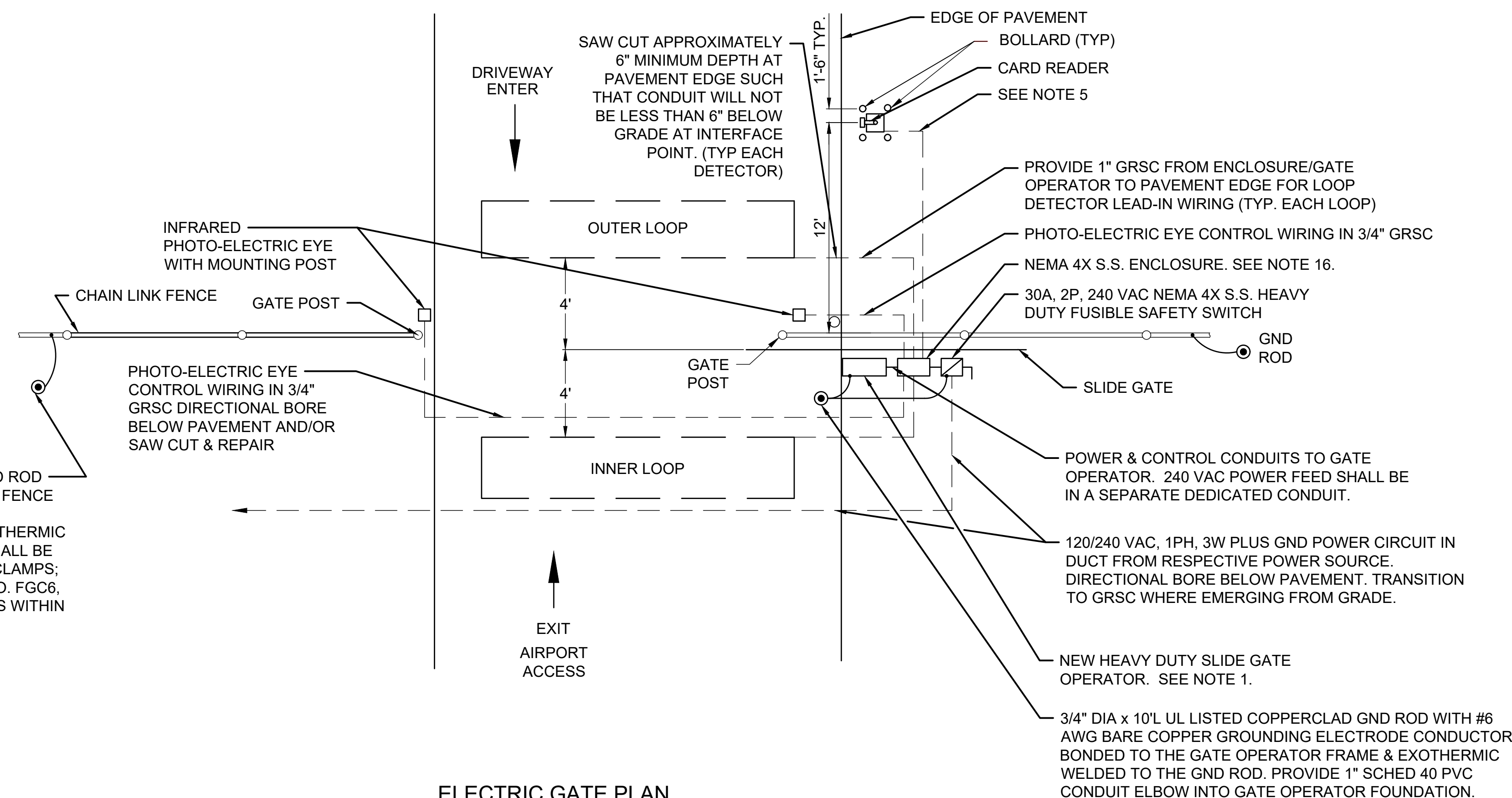
NOTES:

- SEE SPECIAL PROVISION SPECS FOR REQUIREMENTS ON RESPECTIVE GATE & GATE OPERATOR SYSTEM.
- ALL DIMENSIONS AND LAYOUT INFORMATION SHOWN SHOULD BE ADJUSTED AS RECOMMENDED BY THE MANUFACTURER. SEE RESPECTIVE SITE PLAN FOR EACH GATE.
- CONCRETE FOUNDATIONS SHALL BE PROVIDED FOR THE SLIDE GATE OPERATOR. FOUNDATION FOR THE GATE OPERATOR SHALL BE 48" (MIN.) IN DEPTH AND OF THE SIZE RECOMMENDED BY THE MANUFACTURER. FOUNDATION FOR THE GATE OPERATOR SHALL EXTEND APPROX. 8" ABOVE GRADE. SEE DETAILS.
- 1" GRSC CONDUIT WILL BE REQUIRED BETWEEN THE SLIDE GATE OPERATOR INSTALLATION, AND THE DETECTOR LOOPS. PROVIDE 3/4" GRSC BETWEEN THE SLIDE GATE OPERATOR AND THE PHOTO-ELECTRIC EYES. THE MINIMUM BURYING DEPTH IS 18" IN AREAS NOT SUBJECT TO VEHICLE TRAFFIC AND 30" IN AREAS SUBJECT TO VEHICLE TRAFFIC. 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.
- NEW GATE OPERATOR SHALL INTERFACE TO THE CARD READER. FIELD VERIFY EXISTING SITE CONDITIONS, CABLE ROUTES, & DUCT LOCATIONS AS APPLICABLE TO INTERFACE THE CONTROL SYSTEM TO THE NEW GATE OPERATOR.
- THE SLIDING GATE SHALL BE CANTILEVER TYPE OF THE SIZE CALLED FOR ON THE PLANS. SHALL HAVE AN ENCLOSED ROLLER ASSEMBLY AND SHALL BE AS MANUFACTURED BY TYMETAL CORPORATION OR APPROVED EQUAL.
- PROVIDE SIGNS FOR EACH NEW GATE. SECURE WITH STAINLESS STEEL HARDWARE. PROVIDE NEW SIGNS AS DETAILED HEREIN.
- CONTRACTOR SHALL COORDINATE ANY POWER OUTAGES TO EXISTING EQUIPMENT WITH THE RESPECTIVE OWNER'S REPRESENTATIVE AND THE AIRPORT DIRECTOR.
- INCLUDE AC SURGE PROTECTOR FOR THE GATE OPERATOR, UL 1449 LISTED, SURGE CURRENT RATING OF 40KA, SUITABLE FOR USE ON A 120/240 VAC, 1 PHASE, 3 WIRE SYSTEM WITH LED INDICATING OPERATIONAL STATUS. JOSLYN MODEL 1265-21, SQUARE D CAT. NO. TVS120XR50S OR APPROVED EQUAL. INCLUDE MOUNTING BRACKET.
- CONCRETE USED FOR INSTALLING THE GATE OPERATOR, CARD READER, & FENCE SHALL MEET THE REQUIREMENTS OF ITEM 610 CONCRETE.
- 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, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- PROVIDE A WEATHERPROOF ENGRAVED PHENOLIC OR PLASTIC LEGEND PLATE FOR THE SAFETY SWITCH AT THE RESPECTIVE GATE OPERATOR NOTING THE GATE SERVED, VOLTAGE, AND RESPECTIVE POWER SOURCE CIRCUIT AND LOCATION.
- PAYMENT FOR EACH SLIDE GATE, GATE OPERATOR, AND ALL ASSOCIATED CONTROL & SAFETY DEVICES SHALL BE ON A PER EACH 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.
- CONTROL CIRCUIT WIRING SHALL NOT BE ROUTED THROUGH THE SAFETY SWITCH/DISCONNECT.
- INCLUDE CORROSION RESISTANT SUPPORT POSTS AND HARDWARE WITH THE PHOTO-ELECTRIC EYE SAFETY DEVICES.
- ALL CONTROL POWER TRANSFORMERS, SURGE PROTECTORS, POWER SUPPLIES, RECEPTACLES, LOOP DETECTOR AMPLIFIERS, SECONDARY SAFETY DEVICE EQUIPMENT, SECURITY SYSTEM 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.

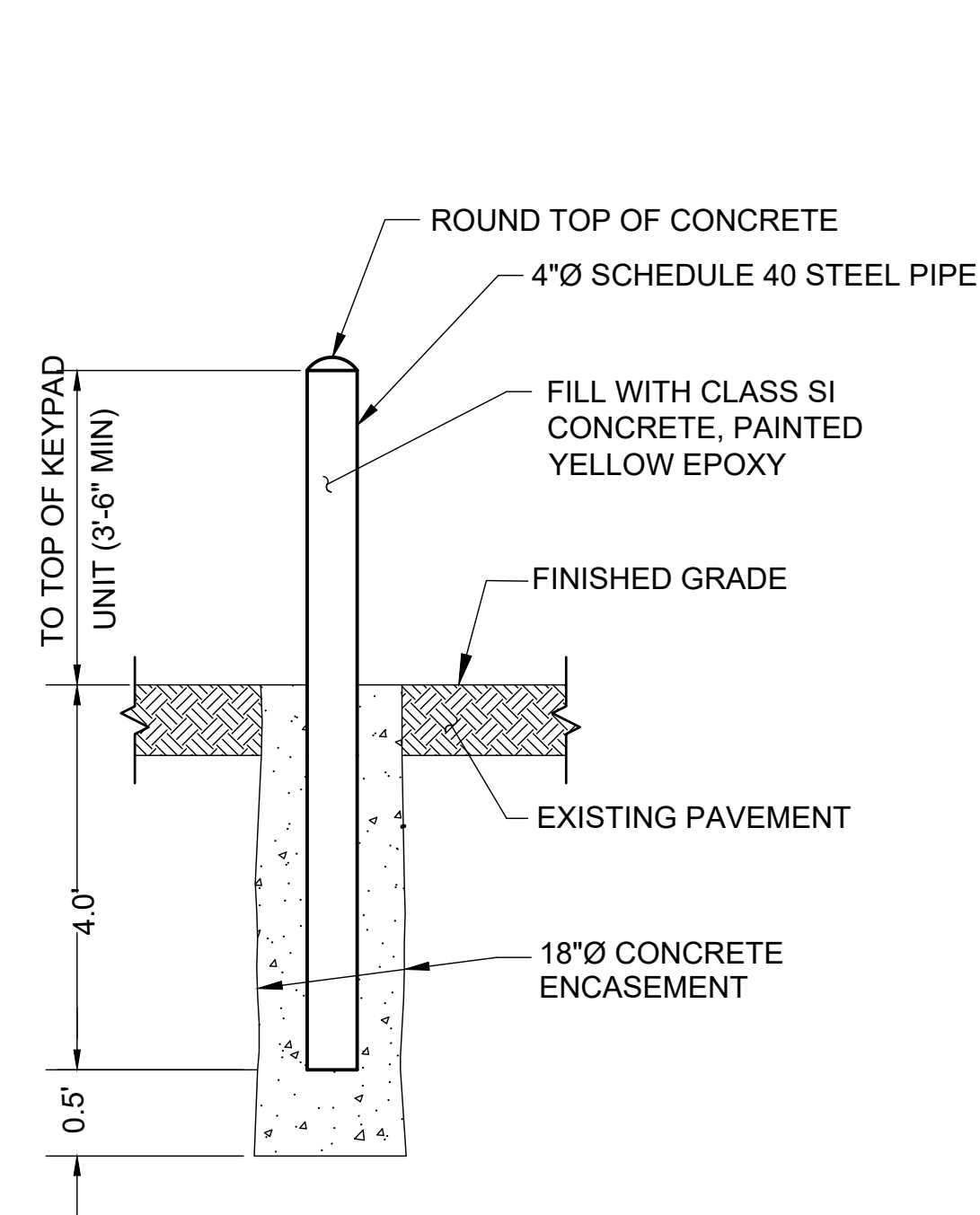
5/8" DIA. x 8'L UL LISTED COPPERCLAD GND ROD WITH #6 AWG (MIN.) BARE SOLID CU FROM FENCE FABRIC & TENSION WIRE TO GND ROD. CONNECTION TO GND ROD SHALL BE EXOTHERMIC WELD. CONNECTION TO FENCE FABRIC AND TENSION WIRE SHALL BE WITH UL LISTED FENCE FABRIC GROUND CLAMPS; BURNDY CAT. NO. FFGC6, HARGER CAT. NO. FGC6, OR APPROVED EQUAL. LOCATE GND RODS WITHIN 100 FT. OF EACH SIDE OF EACH GATE.

ELECTRIC GATE DETAIL (ISOMETRIC)
N.T.S.

NOTE: PHOTO-ELECTRIC EYES ARE REQUIRED FOR THE GATE OPENING BUT NOT SHOWN THIS DETAIL.



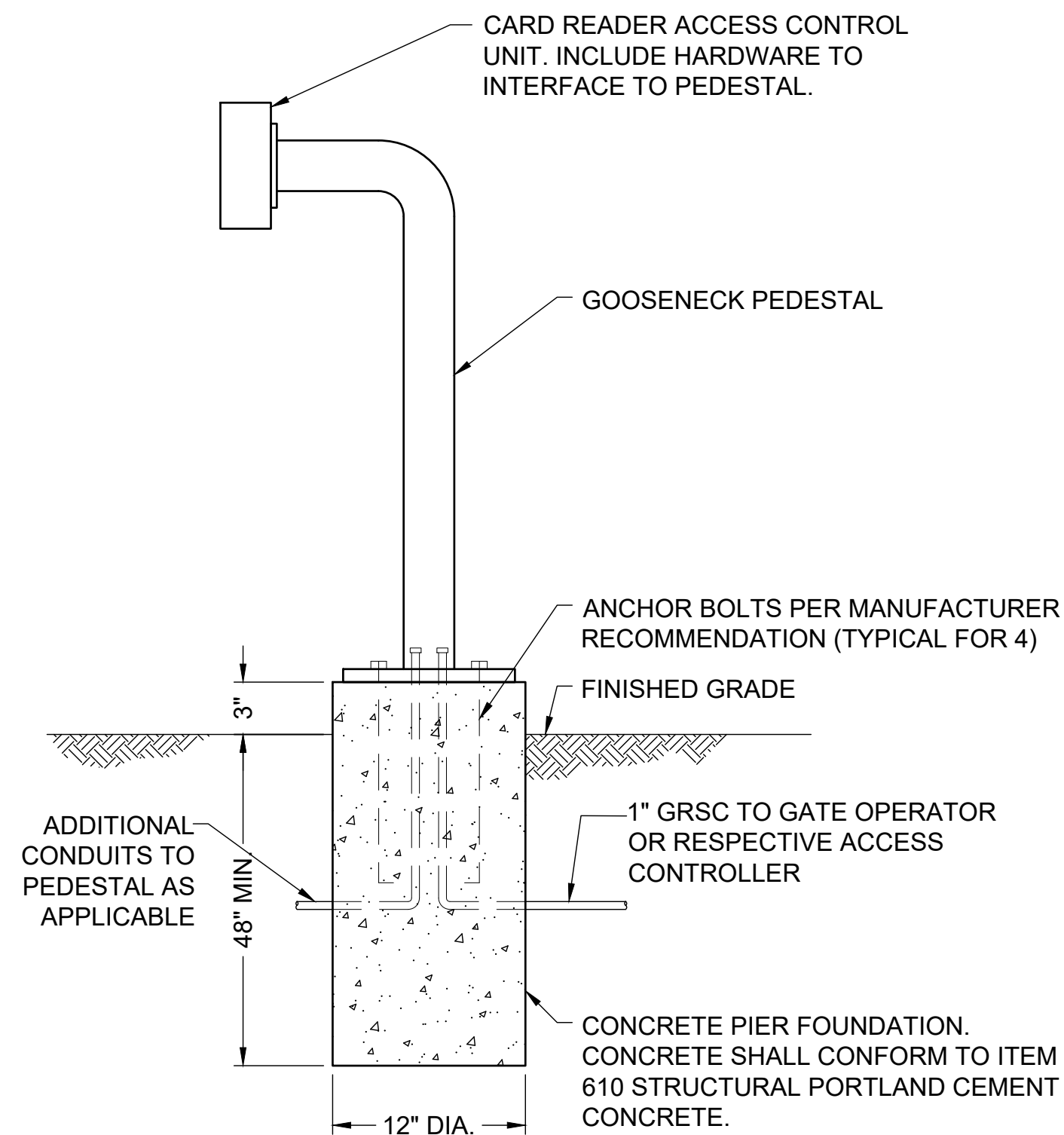
ELECTRIC GATE PLAN
N.T.S.



NOTES

1. THE EXPOSED PORTION OF THE BOLLARD SHALL HAVE YELLOW PLASTIC SLEEVES WITH REFLECTIVE TAPE, SUITABLE FOR OUTDOOR USE.
2. BOLLARD AND ASSOCIATED ITEMS ARE INCIDENTAL TO THE ELECTRIC SLIDING GATE INSTALLATION.

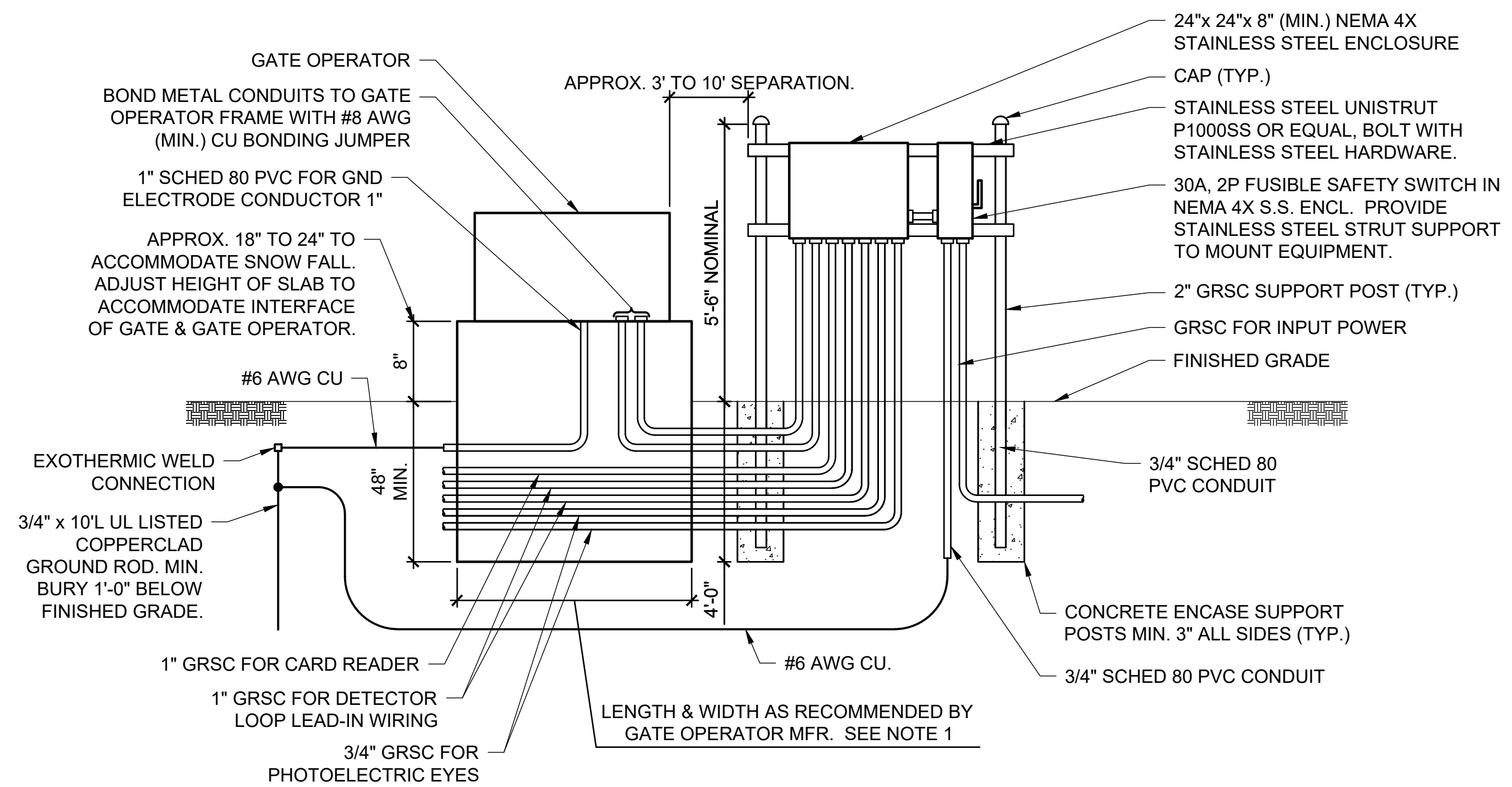
BOLLARD DETAIL
NOT TO SCALE



NOTES

1. PROPOSED CARD READER ACCESS CONTROL UNIT WITH PEDESTAL & FOUNDATION WILL REQUIRE INTERFACE TO THE NEW GATE OPERATOR CONTROL SYSTEM.
2. INCLUDE #12 AWG EQUIPMENT GND WIRE TO CARD READER.
3. FACE OF KEYPAD ACCESS CONTROL UNIT SHALL NOT EXTEND BEYOND BOLLARDS.

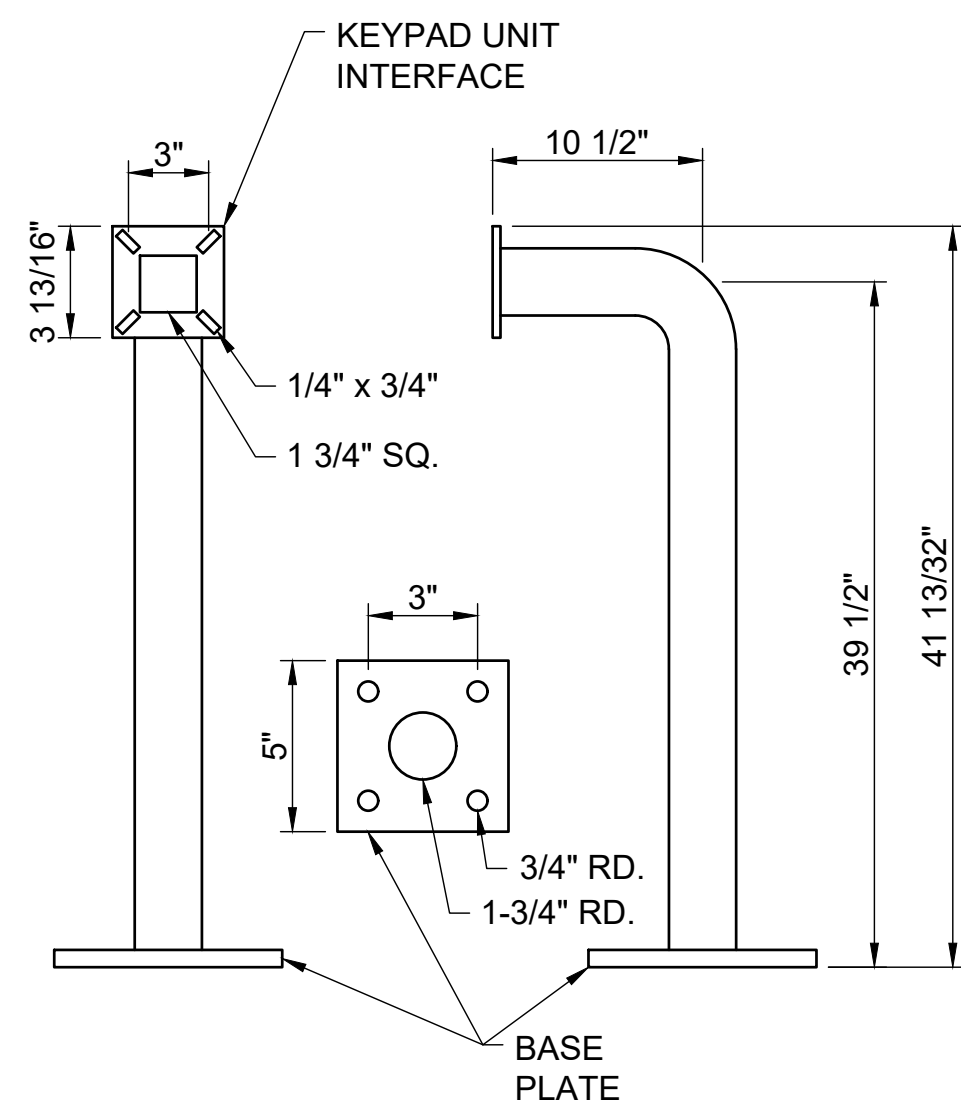
CARD READER ACCESS CONTROL UNIT PEDESTAL ELEVATION DETAIL
NOT TO SCALE



NOTES

1. FOUNDATION FOR GATE OPERATOR SHALL BE 48" MIN. IN DEPTH AND OF THE LENGTH & WIDTH RECOMMENDED BY THE MANUFACTURER. CONFIRM MOUNTING REQUIREMENTS WITH THE RESPECTIVE GATE OPERATOR 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.
5. GATE WILL REQUIRE PHOTOELECTRIC EYE SECONDARY SAFETY DEVICES. PROVIDE CONDUITS BETWEEN GATE OPERATOR SYSTEM AND SAFETY DEVICES.

GATE OPERATOR FOUNDATION DETAIL
NOT TO SCALE



GOOSENECK PEDESTAL DETAIL
NOT TO SCALE

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

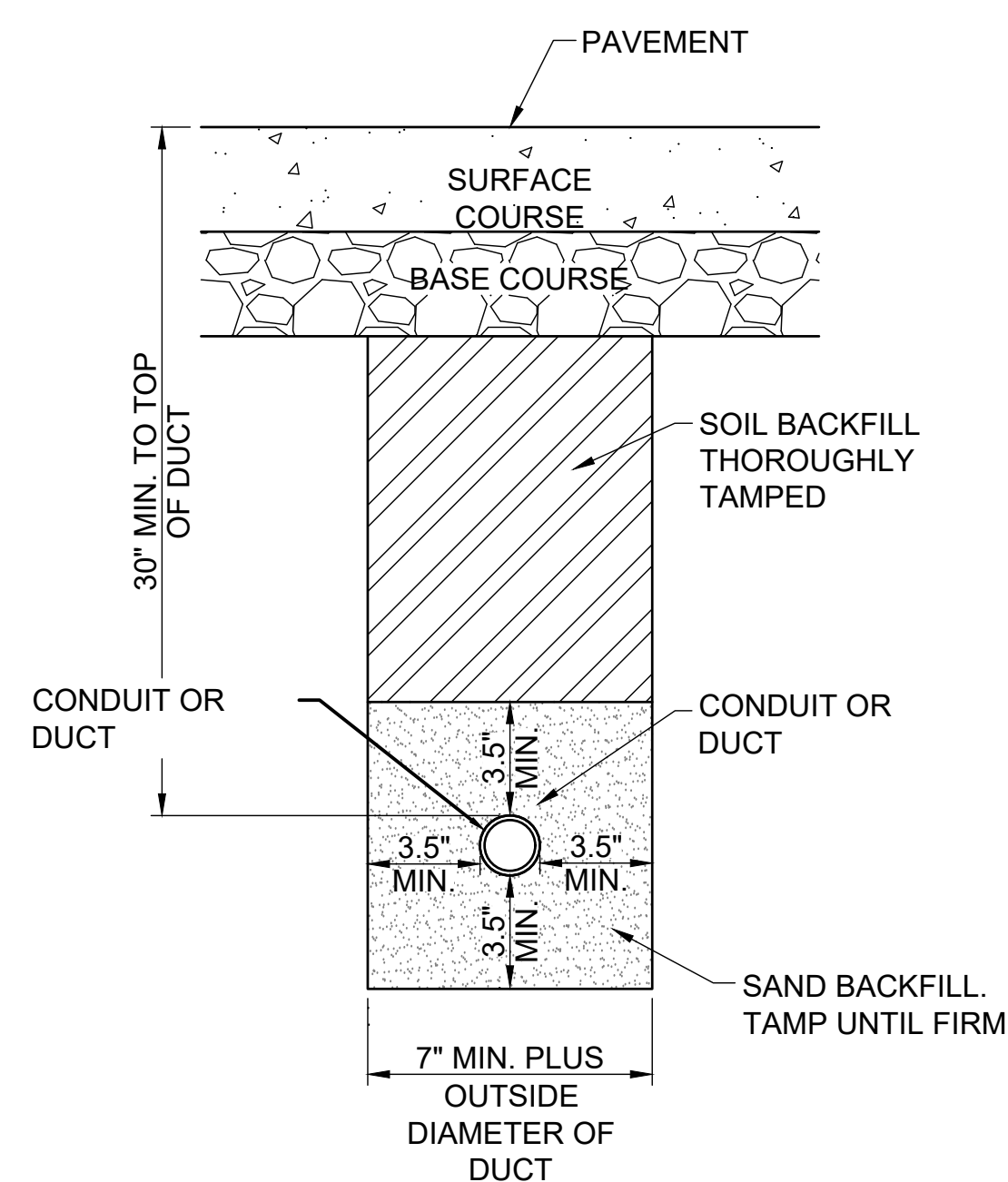
Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: 11/17/2023
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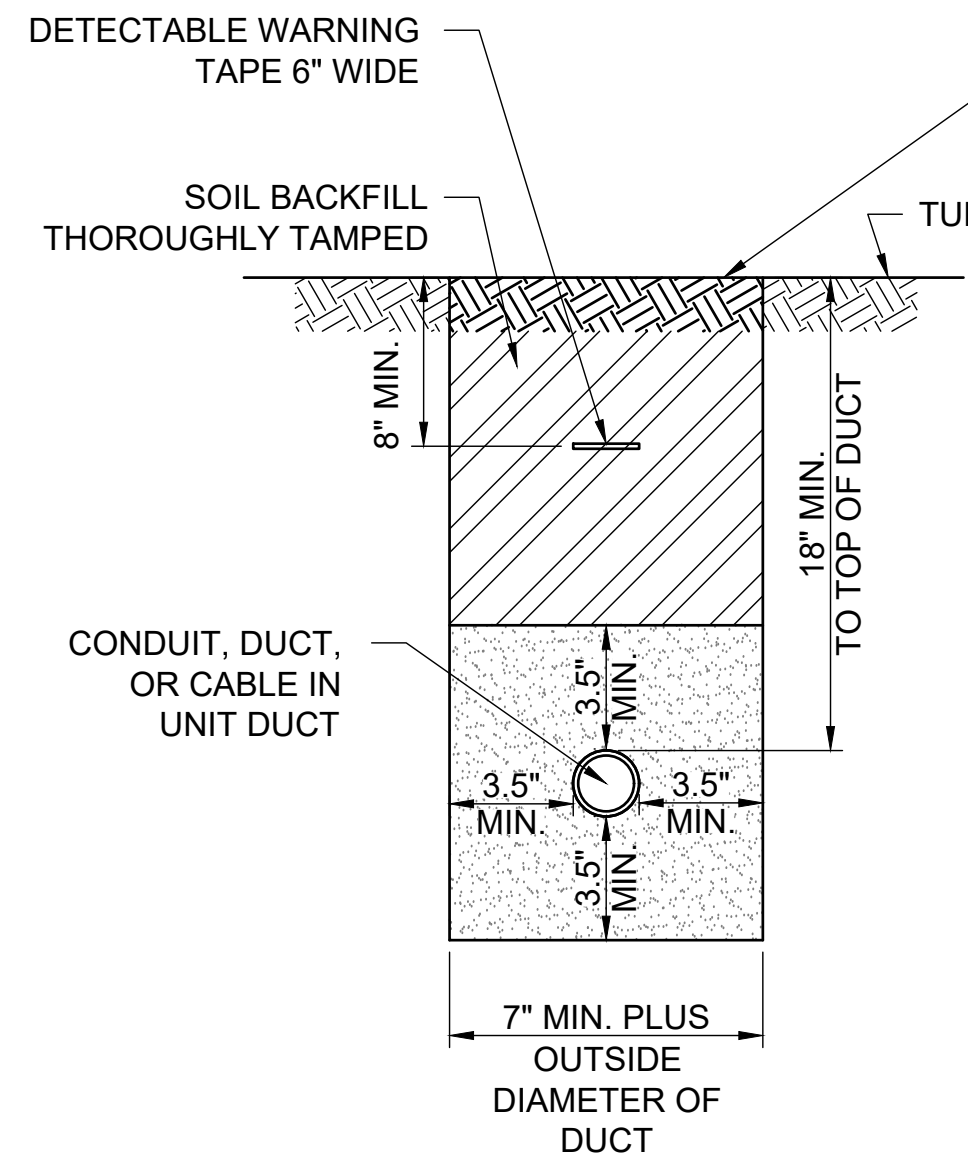
SHEET TITLE

GATE OPERATOR DETAILS



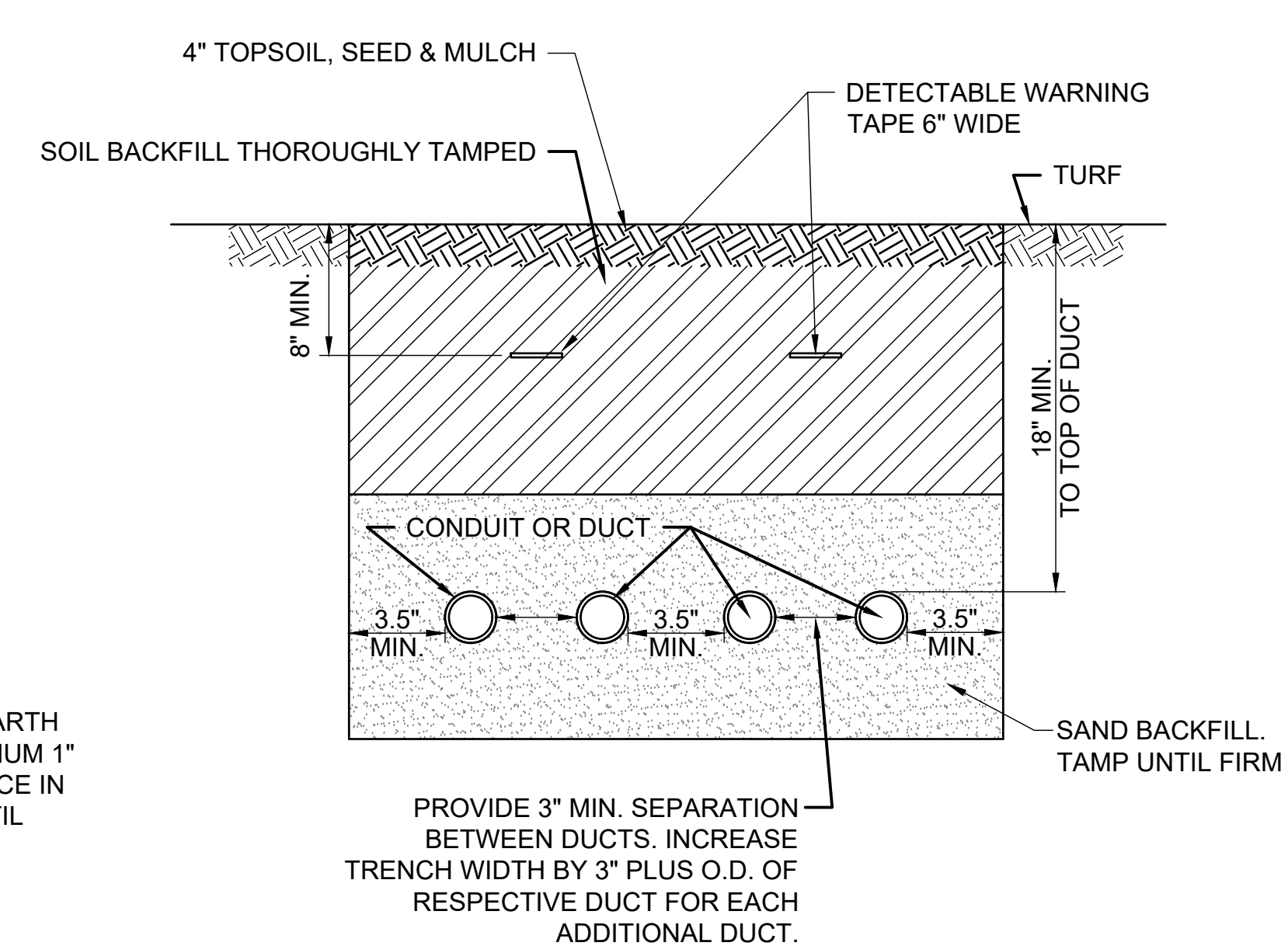
CONDUIT IN TRENCH - PAVED AREAS

"NOT TO SCALE"



CONDUIT IN TRENCH - NON-PAVEMENT AREAS

"NOT TO SCALE"



PROVIDE 3" MIN. SEPARATION BETWEEN DUCTS. INCREASE TRENCH WIDTH BY 3" PLUS O.D. OF RESPECTIVE DUCT FOR EACH ADDITIONAL DUCT.

NOTES:

- DIMENSIONS FOR COVERAGE AND SEPARATION BETWEEN DUCTS ARE MINIMUM.
- TRENCHES WITH MORE THAN TWO DUCTS OR CABLE IN UNIT DUCTS SHALL BE INCREASED 3" IN WIDTH PLUS DIAMETER OF RESPECTIVE DUCT FOR EACH ADDITIONAL CONDUIT, DUCT, OR CABLE IN UNIT DUCT; IF SPECIFIED ON PLANS TWO PARALLEL TRENCHES MAY BE CONSTRUCTED.
- DEPTH OF TRENCHES SHALL BE AS SHOWN ABOVE UNLESS OTHERWISE SPECIFIED ON THE PLANS. MINIMUM COVER REQUIREMENTS FOR CABLES AND DUCTS AT AIRPORT RUNWAYS AND ADJACENT AREAS WHERE TRESPASSING IS PROHIBITED IS 18 INCHES PER NEC 300.5 AND 300.50. MINIMUM COVER REQUIREMENTS FOR DUCTS CONTAINING NAVAID FEEDER CIRCUITS SHALL BE 24". MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED BELOW PAVEMENT OR ROADWAYS IS 30". MINIMUM COVER REQUIREMENTS FOR DUCTS LOCATED IN AREAS SUBJECT TO FARMING IS 42". MINIMUM COVER FOR DUCTS CONTAINING SECONDARY ELECTRIC SERVICE CONDUCTORS SHALL BE 36" OR AS REQUIRED BY THE SERVING ELECTRIC UTILITY COMPANY. ADJUST/INCREASE BURIAL DEPTHS TO ACCOMMODATE SITE CONDITIONS, DRAINAGE AND/OR OBSTRUCTIONS. COVER IS DEFINED AS THE SHORTEST DISTANCE IN INCHES MEASURED BETWEEN A POINT ON THE TOP SURFACE OF ANY DIRECT-BURIED CONDUCTOR, CABLE, CONDUIT, OR OTHER RACEWAY AND THE TOP SURFACE OF FINISHED GRADE, CONCRETE OR SIMILAR COVER.
- HIGH-VOLTAGE CIRCUIT WIRING (AIRFIELD LIGHTING 5000 VOLT SERIES CIRCUITS AND/OR OTHER CIRCUITS RATED ABOVE 600 VOLTS) AND LOW-VOLTAGE CIRCUIT WIRING (RATED 600 VOLTS AND BELOW) SHALL MAINTAIN SEPARATION FROM EACH OTHER. HIGH-VOLTAGE WIRING AND LOW-VOLTAGE WIRING SHALL NOT BE INSTALLED IN THE SAME WIREWAY, CONDUIT, DUCT, RACEWAY, HANDHOLE, OR JUNCTION BOX. CORRECTIVE WORK WILL BE REQUIRED TO SEPARATE HIGH VOLTAGE SERIES CIRCUIT CONDUCTORS FROM LOW VOLTAGE CONDUCTORS WHERE THEY ARE INSTALLED IN THE SAME RACEWAY.
- SERVICE CONDUCTORS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, OR HANDHOLE WITH FEEDER CIRCUITS, BRANCH CIRCUITS OR CONTROL CIRCUITS.
- COMMUNICATION CIRCUITS SHALL NOT BE INSTALLED IN THE SAME RACEWAY, CONDUIT, DUCT, OR HANDHOLE WITH POWER CIRCUITS.
- HOME RUN CABLES FOR A RESPECTIVE CIRCUIT SHALL BE INSTALLED IN THE SAME RACEWAY OR DUCT.
- COORDINATE DUCT INTERFACE TO MANHOLES AND HANDHOLES. FIELD CUT OPENINGS FOR CONDUITS AND DUCTS TO INTERFACE TO MANHOLES AND/OR HANDHOLES. CUT WALL OF RESPECTIVE HANDHOLE OR MANHOLE WITH A TOOL DESIGNED FOR MATERIAL TO BE CUT. SIZE HOLES FOR RESPECTIVE DUCTS, CONDUITS, AND TERMINATION FITTINGS AND SEAL AROUND PENETRATIONS. ALL CORING, INTERFACE, CUTTING, AND SEALING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION AND/OR RESPECTIVE HANDHOLE/MANHOLE INSTALLATION. PROVIDE BUSHINGS OR BELLS AT CONDUIT TERMINATIONS IN ELECTRICAL HANDHOLES OR MANHOLES.
- ALL DISTURBED SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. COST IS INCIDENTAL TO TRENCH.
- ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES, AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.

- 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).
- THE LOCATION, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND AND/OR ABOVEGROUND UTILITIES INDICATED ON THE PLANS IS NOT REPRESENTED AS BEING ACCURATE, SUFFICIENT OR COMPLETE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES, INCLUDING SERVICE CONNECTIONS TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF HIS OPERATIONAL PLANS AND SHALL OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES DETAILED INFORMATION AND ASSISTANCE RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULE OF THE COMPANIES FOR REMOVAL OR ADJUSTMENT WHERE REQUIRED. IN THE EVENT AN UNEXPECTED UTILITY INTERFERENCE IS ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY COMPANY OF JURISDICTION. THE OWNER'S REPRESENTATIVE AND/OR THE RESIDENT ENGINEER SHALL ALSO BE IMMEDIATELY NOTIFIED. ANY DAMAGE TO SUCH MAINS AND SERVICES SHALL BE RESTORED TO SERVICE AT ONCE AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT. ALL UTILITY CABLES AND LINES SHALL BE LOCATED BY THE RESPECTIVE UTILITY. CONTACT JULIE (JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS) FOR UTILITY INFORMATION PHONE: 1-800-892-0123. CONTACT THE FAA (FEDERAL AVIATION ADMINISTRATION) FOR ASSISTANCE IN LOCATING FAA CABLES AND UTILITIES. ALSO CONTACT AIRPORT DIRECTOR/MANAGER AND AIRPORT PERSONNEL FOR ASSISTANCE IN LOCATING UNDERGROUND AIRPORT CABLES AND/OR UTILITIES. ALSO COORDINATE WORK WITH ALL ABOVEGROUND UTILITIES.
- ADJUSTMENTS TO DUCT BANK ROUTES MIGHT BE REQUIRED TO ACCOMMODATE EXISTING SITE CONDITIONS AND UNDERGROUND LINES AND UTILITIES. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL COORDINATE DUCT ROUTE ADJUSTMENTS WITH THE RESIDENT PROJECT REPRESENTATIVE AND THE AIRPORT MANAGER.
- CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING CABLES, LINES, OR UTILITIES WITHIN 10 FT OF PROPOSED EXCAVATING/TRENCHING AREA. ANY CABLES, LINES, AND UTILITIES FOUND INTERFERING WITH PROPOSED EXCAVATION OR CABLE/TRENCHING SHALL BE HAND DUG AND EXPOSED. ANY DAMAGED CABLES OR OTHER UTILITIES SHALL BE IMMEDIATELY REPAIRED TO THE SATISFACTION OF THE RESPECTIVE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE. THE RESIDENT ENGINEER/RESIDENT TECHNICIAN AND OWNER SHALL BE NOTIFIED IMMEDIATELY IF ANY CABLES OR OTHER UTILITIES ARE DAMAGED.

- PAYMENT FOR LOCATING AND MARKING UNDERGROUND UTILITIES AND CABLES WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE DUCT INSTALLATION.
- THE CONTRACTOR WILL DETERMINE IF THERE IS A CONFLICT BETWEEN THE INSTALLATION OF THE PROPOSED ELECTRICAL DUCTS AND ANY EXISTING UTILITIES. THE CONTRACTOR WILL MAKE ALL NECESSARY ADJUSTMENTS IN DEPTH OF INSTALLATION TO AVOID ANY AND ALL PROPOSED UNDERGROUND IMPROVEMENTS
- CONDUITS FOR DIRECT BURIAL OR CONCRETE ENCASED DUCT BANK SHALL BE SCHEDULE 40 (MINIMUM) PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651, LISTED SUITABLE FOR UNDERGROUND USE EITHER DIRECT-BURIED OR ENCASED IN CONCRETE, OR SCHEDULE 40 (MINIMUM) HDPE CONDUIT, UL LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND LISTED SUITABLE FOR UNDERGROUND USE; EITHER DIRECT BURY OR ENCASED IN CONCRETE. HEAVIER WALL CONDUITS SHALL BE FURNISHED FOR RESPECTIVE APPLICATIONS WHERE DETAILED HEREIN.
- CONDUITS FOR DIRECTIONAL BORING SHALL BE SCHEDULE 40 PVC CONDUIT OR SCHEDULE 80 PVC CONDUIT, UL-LISTED, RATED FOR 90°C CABLE-CONFORMING TO NEMA STANDARD TC-2 AND UL 651 AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, SCHEDULE 80 HDPE CONDUIT, UL-LISTED, CONFORMING TO NEMA STANDARD TC-7 AND UL 651B AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION, OR WALL TYPE MINIMUM SDR 11 HDPE CONDUIT MANUFACTURED IN ACCORDANCE WITH ASTM D-3350 (SPECIFICATION OF POLYETHYLENE PLASTICS PIPE AND FITTINGS MATERIALS) AND ASTM F2160 (STANDARD SPECIFICATION FOR SOLID WALL, HIGH-DENSITY POLYETHYLENE CONDUIT BASED ON CONTROLLED OUTSIDE DIAMETER), AND SUITABLE FOR DIRECTIONAL BORING INSTALLATION. PER NEC 300.5 (K), RACEWAYS INSTALLED USING DIRECTIONAL BORING EQUIPMENT SHALL BE APPROVED FOR THE PURPOSE.
- UNDERGROUND DUCTS INSTALLED BY DIRECTIONAL-BORING METHOD SHALL BE INSTALLED IN A MANNER THAT WILL NOT DAMAGE ANY EXISTING UNDERGROUND UTILITIES, AND SHALL NOT DISTURB OR DAMAGE THE RESPECTIVE PAVEMENT OR ROADWAY SURFACE. DUCTS SHALL BE DIRECTIONAL-BORED AT THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. THE DUCTS WILL BE BORED AT A MINIMUM DEPTH OF 42 IN. BELOW THE RESPECTIVE PAVEMENT IT IS BEING BORED UNDER.
- A PULL WIRE SHALL BE INSTALLED IN EACH CONDUIT OR DUCT TO BE LEFT VACANT.
- CONTRACTOR SHALL COORDINATE DUCT MARKING WITH AIRPORT.
- ALL POWER AND CONTROL CABLES IN HANDHOLES, MANHOLES, AND JUNCTION BOXES SHALL BE TAGGED TO IDENTIFY THE RESPECTIVE CABLE. A MINIMUM OF TWO TAGS SHALL BE PROVIDED ON EACH CABLE IN A MANHOLE; ONE AT THE CABLE ENTRANCE AND ONE AT THE CABLE EXIT. CABLE TAGS SHALL BE STAMPED BRASS TAGS OR OTHER WEATHERPROOF/WATERPROOF CORROSION RESISTANT MATERIAL.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

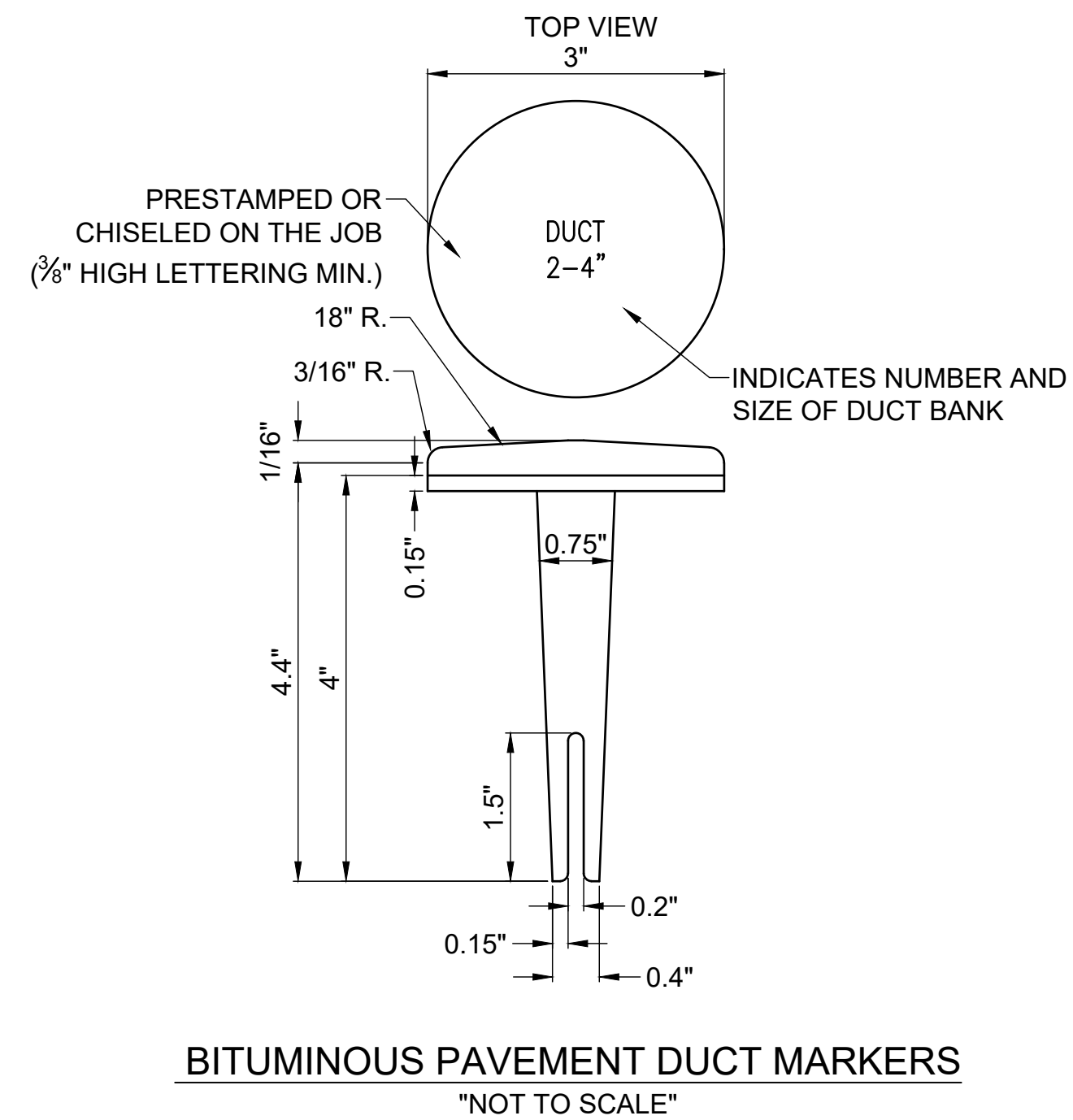
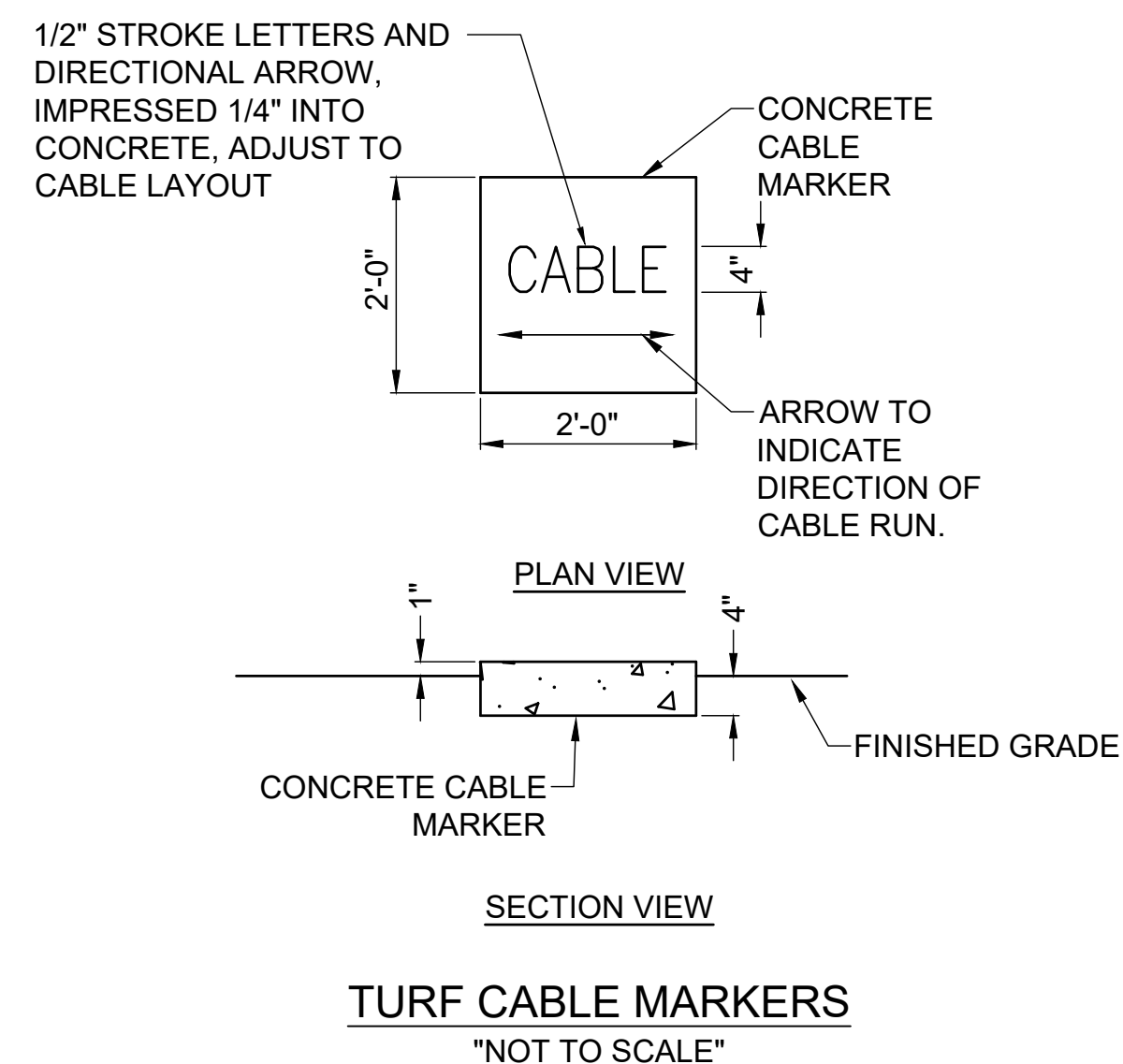
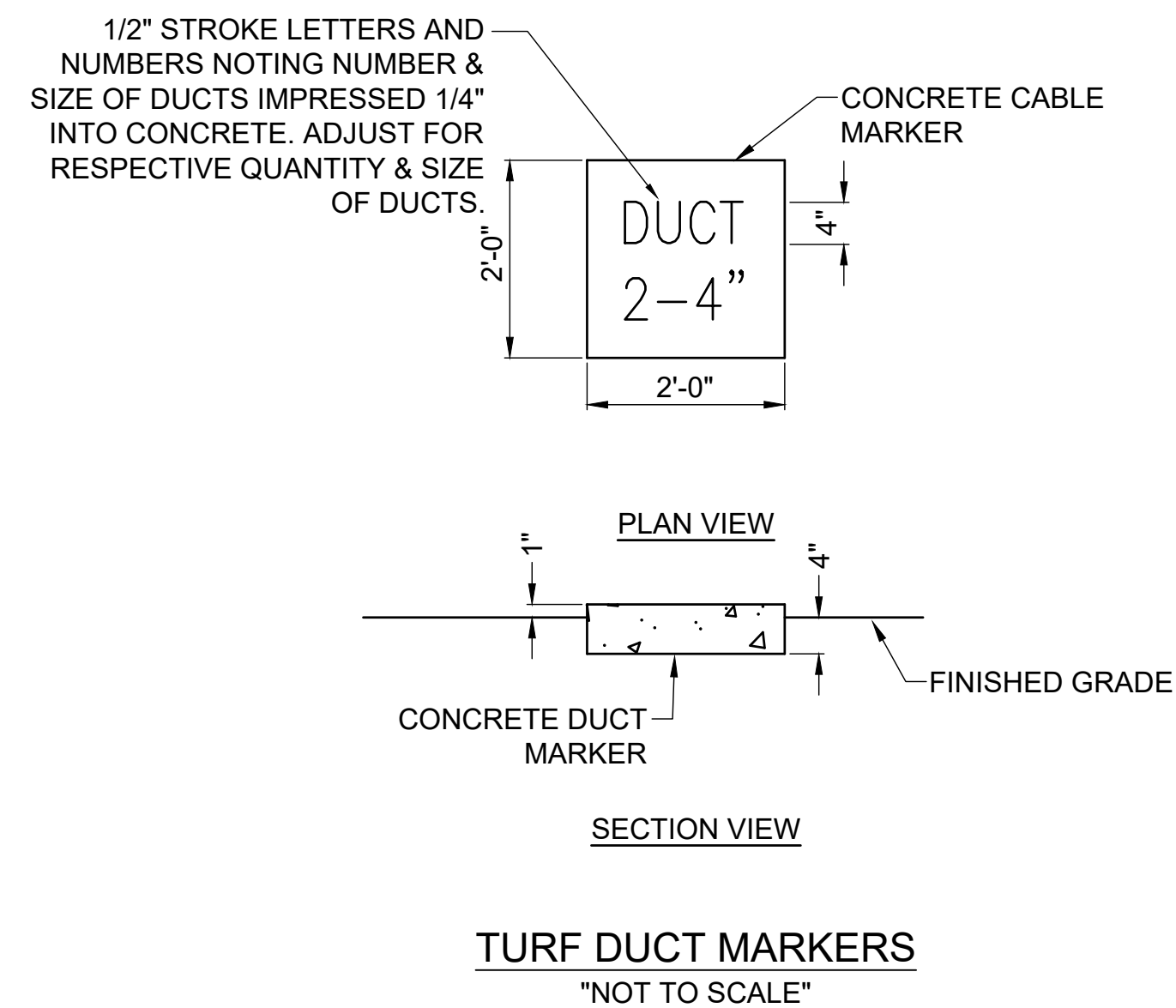
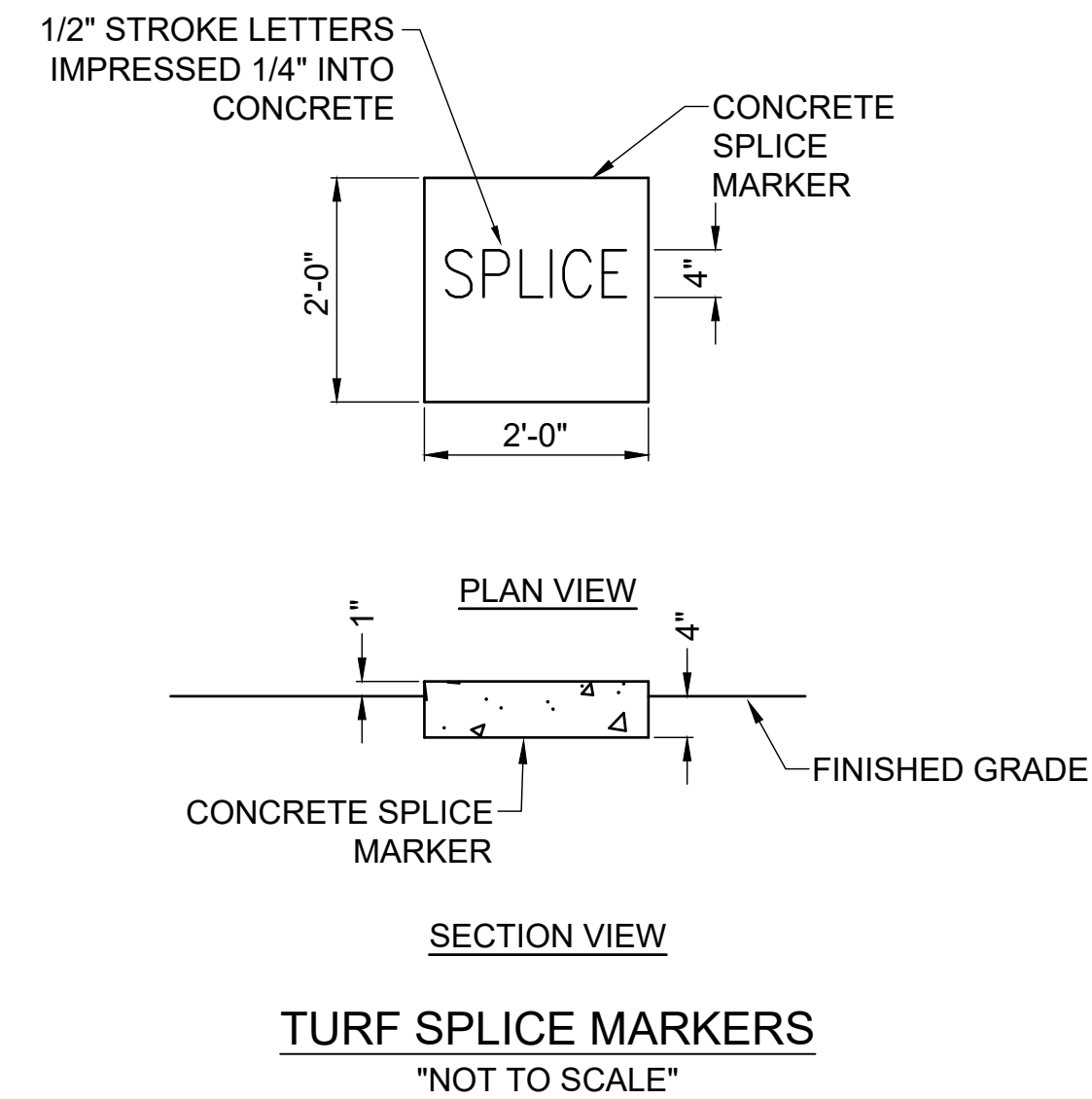
Contract No. CO072

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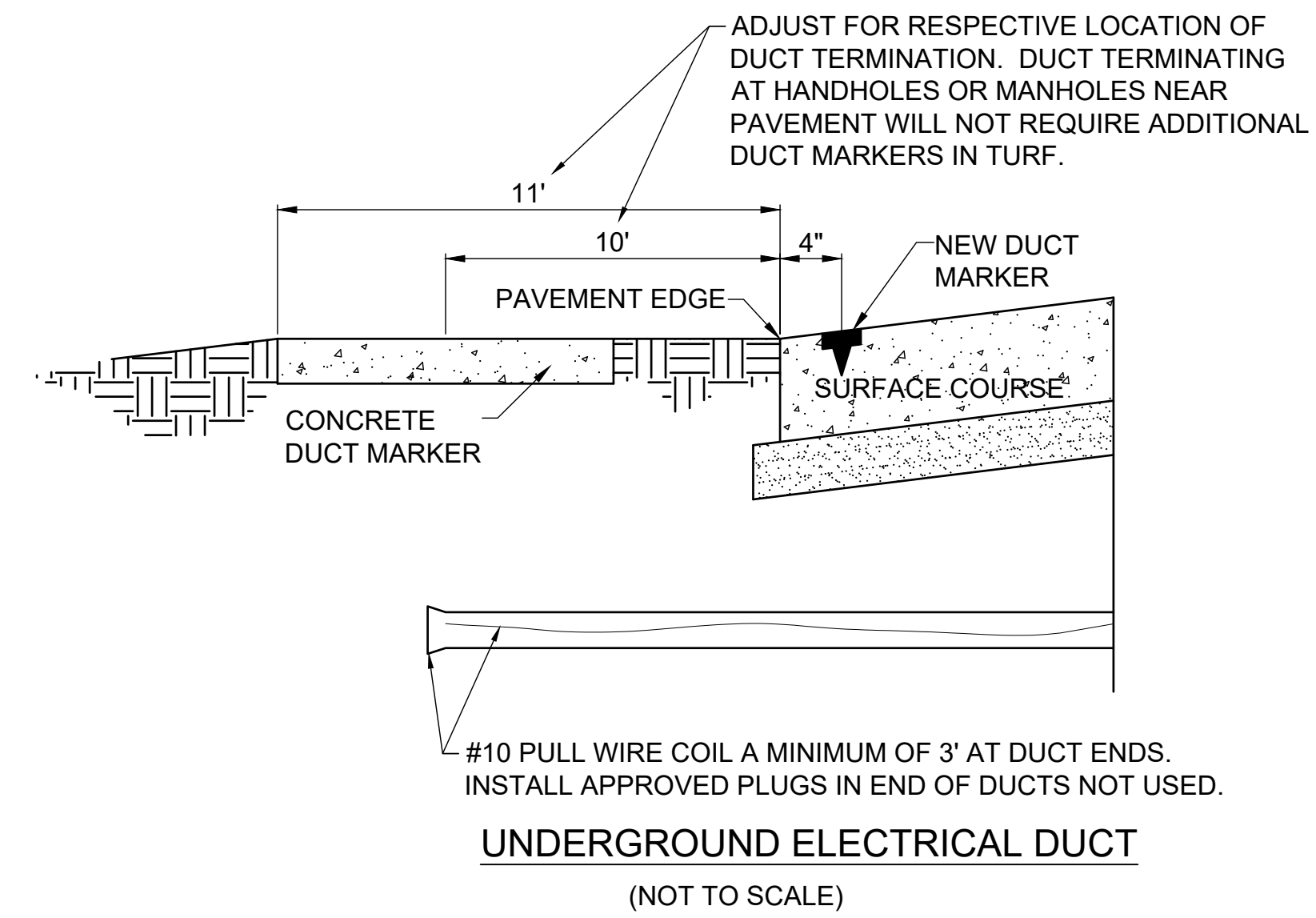
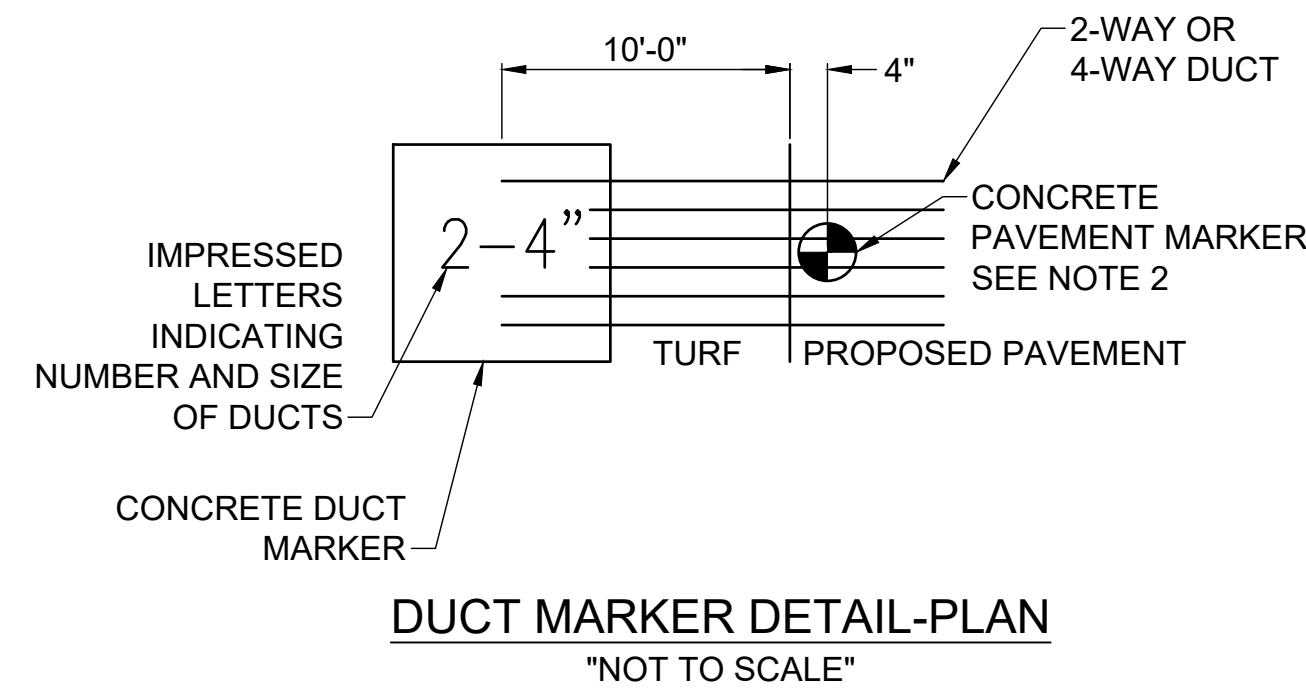
SHEET TITLE

**CONDUIT TRENCH
DETAIL**



NOTE:

1. TOP OF MARKER SHALL BE FLUSH WITH FINISHED PAVEMENT SURFACE. MARKER MAY BE INSTALLED IN A DRILLED HOLE AND SECURED WITH EPOXY GLUE
2. BRASS DUCT MARKERS ARE AVAILABLE FROM BERNTSEN INTERNATIONAL INC., P.O. BOX 8670, MADISON, WI. 53708-8670, PHONE: 1-877-959-8556, SURV-KAP, 3225 E. 47TH ST., TUCSON, AZ 85713, PHONE: (502)-622-6011, OR OTHER EQUIVALENT MANUFACTURERS.



CABLE & DUCT MARKER NOTES:

1. THE COST OF ALL TURF AND PAVEMENT DUCT MARKERS SHALL BE INCIDENTAL TO THE DUCT. THE COST OF ALL CABLE MARKERS SHALL BE INCIDENTAL TO THE CABLE.
2. BITUMINOUS PAVEMENT DUCT MARKER AND CONCRETE DUCT MARKER TO BE PROVIDED AT EACH END OF EACH DUCT AS SHOWN ON THE LOCATION PLAN. FOR CONCRETE PAVEMENT, THE LETTER "D" SHALL BE IMPRESSED IN THE PAVEMENT INSTEAD OF THE MARKER. THE LETTER SHALL BE INFORMED AS DESCRIBED IN NOTE 4.
3. UNDERGROUND CABLE RUNS MUST BE IDENTIFIED BY CABLE MARKERS AT 200 FEET (61 M) MAXIMUM SPACING WITH AN ADDITIONAL MARKER AT EACH CHANGE OF DIRECTION OF THE CABLE RUN. CABLE MARKERS MUST BE INSTALLED ABOVE THE CABLE. CABLE MARKERS ARE NOT REQUIRED FOR CABLE RUNS BETWEEN RUNWAY/TAXIWAY EDGE LIGHTS.
4. CONCRETE CABLE MARKERS AND DUCT MARKERS SHALL HAVE LETTERS 4" HIGH, 3" WIDE WITH WIDTH OF STROKE 1/2" AND 1/4" DEEP. ALL LETTERS, NUMBERS AND ARROWS TO BE IMPRESSED.
5. EMPLOY THE FOLLOWING METHODS WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED:
 - A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
 - B. INCREASE THE MARKER SIZE TO 30" X 30".
 - C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE
6. TURF DUCT MARKERS ARE NOT REQUIRED AT PAVEMENT CROSSINGS WHERE DUCTS TERMINATE IN HANDHOLES, OR JUNCTION STRUCTURES.
7. LOCATION OF ALL DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICE/CONNECTIONS, EXCEPT THOSE AT ISOLATION TRANSFORMERS, MUST BE IDENTIFIED BY SPLICE MARKERS. SPLICE MARKERS MUST BE PLACED ABOVE THE SPLICE/CONNECTIONS. DIRECT EARTH BURIAL UNDERGROUND CABLE SPLICES SHALL BE AVOIDED WHERE POSSIBLE. CABLE SPLICES SHALL BE LOCATED IN SPLICE CANS, LIGHT BASES, HANDHOLES, MANHOLES, OR OTHER JUNCTION STRUCTURES UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER.
8. THE CABLE AND SPLICE MARKERS MUST IDENTIFY THE CIRCUITS TO WHICH THE CABLES BELONG. FOR EXAMPLE: GATE 1, GATE 2.
9. LOCATIONS OF ENDS OF ALL UNDERGROUND DUCTS MUST BE IDENTIFIED BY DUCT MARKERS.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

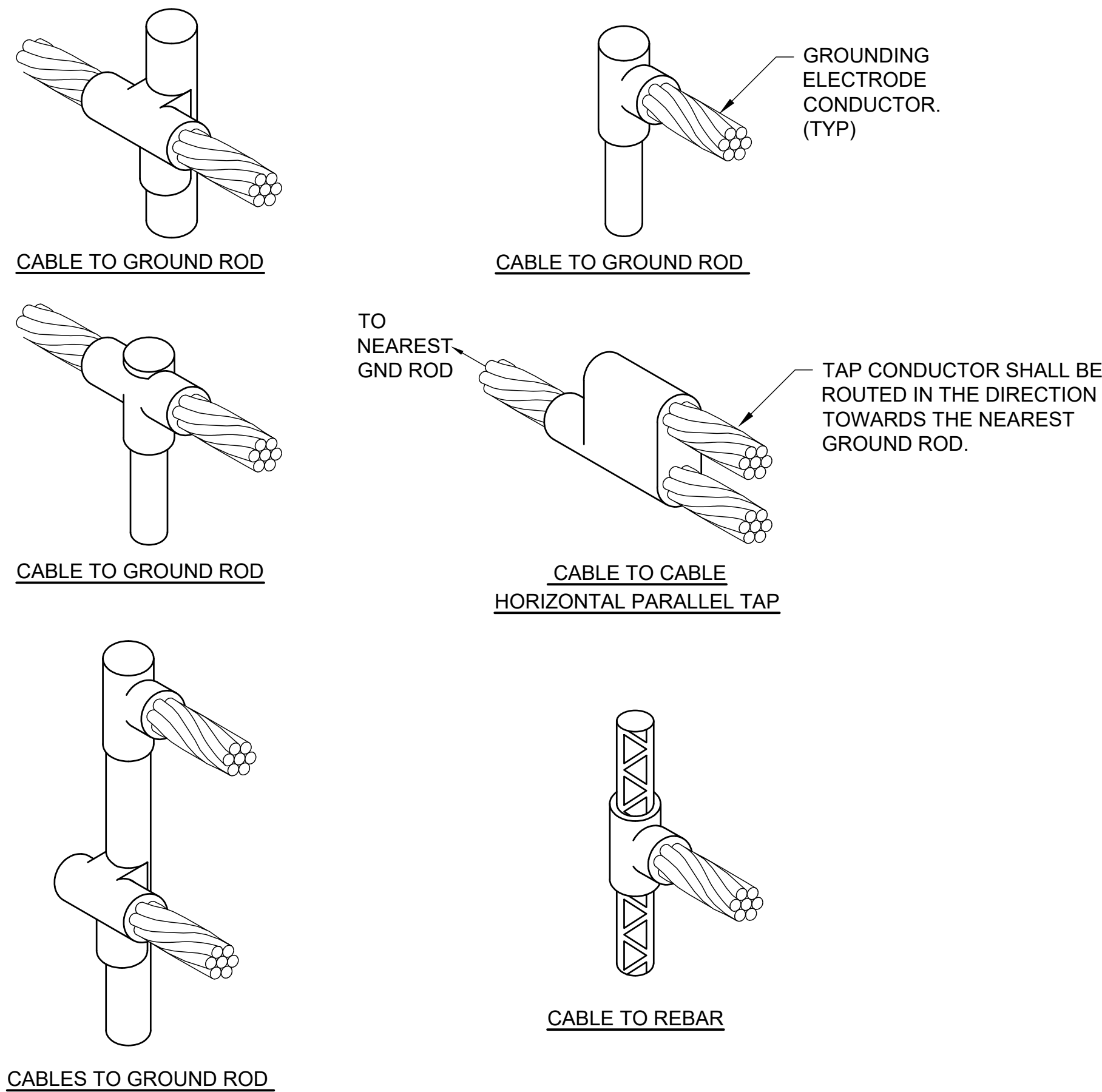
IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

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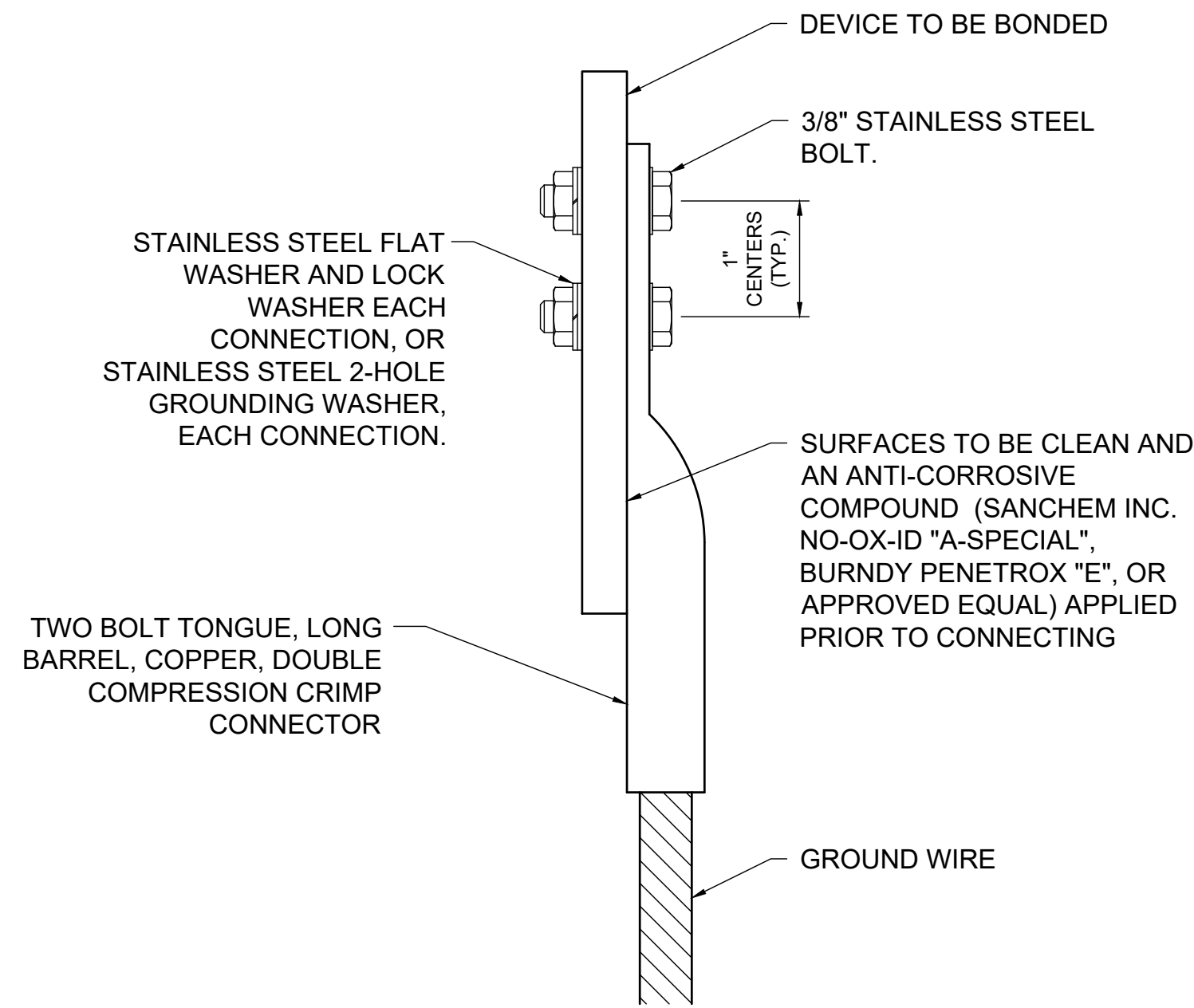
CABLE AND DUCT MARKER DETAILS



DETAIL NOTES

- KNOWLEDGEABLE AND QUALIFIED PERSONNEL SHALL PERFORM EXOTHERMIC WELD CONNECTIONS TO ENSURE GOOD, SAFE, & RELIABLE CONNECTIONS. ALL BELOW GRADE CONNECTIONS TO GROUND RODS & GROUND RING CONDUCTORS SHALL BE EXOTHERMIC WELD TYPE CONNECTIONS. EXOTHERMIC WELDS SHALL BE CADWELD AS MANUFACTURED BY PENTAIR ERICO PRODUCTS, ULTRAWELD AS MANUFACTURED BY HARGER LIGHTNING PROTECTION & GROUNDING EQUIPMENT, OR THERMOWELD AS MANUFACTURED BY CONTINENTAL INDUSTRIES OR APPROVED EQUAL. VERIFY PROPER SIZES, MOLDS, TYPES, AND REQUIREMENTS FOR THE RESPECTIVE APPLICATION WITH THE MANUFACTURER, AND INSTALL PER THEIR DIRECTIONS.
- INDIVIDUAL GROUNDING ELECTRODE CONDUCTORS SHALL NOT BE INSTALLED IN METAL CONDUIT. INSTALL GROUNDING ELECTRODE CONDUCTORS IN SCHED 80 PVC CONDUIT AS REQUIRED IN FOUNDATIONS, FOR PROTECTION, WHERE ENTERING ENCLOSURES, ETC. WHERE PLASTIC CONDUIT IS USED FOR INDIVIDUAL GROUND WIRES, DO NOT COMPLETELY ENIRCLE THE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. WHERE METAL CLAMPS ARE INSTALLED USE NYLON BOLTS, NUTS, WASHERS, & SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS. GIRDLING OF A GROUND CONDUCTOR IS THE RESULT OF PLACING THE CONDUCTOR IN A RING OF MAGNETIC MATERIAL. THIS RING COULD BE A METALLIC CONDUIT, U-BOLT OR STRUT SUPPORT PIPE CLAMP, OR OTHER SUPPORT HARDWARE. THE RESULT OF GIRDLING GROUND CONDUCTORS SIGNIFICANTLY INCREASES THE INDUCTIVE IMPEDANCE OF THE GROUND CONDUCTOR. INDUCTIVE AND CAPACITIVE IMPEDANCE IS A TYPE OF RESISTANCE THAT OPPOSES THE FLOW OF ALTERNATING CURRENT. ANY INCREASE IN THE IMPEDANCE OF A GROUND CONDUCTOR REDUCES ITS ABILITY TO EFFECTIVELY MITIGATE RADIO FREQUENCY NOISE IN THE GROUND SYSTEM. THE CONDITION WHERE A GROUND CONDUCTOR IS GIRDLED DURING A LIGHTNING STRIKE RESULTS IN PHENOMENA KNOWN AS SURGE IMPEDANCE LOADING. SURGE IMPEDANCE LOADING IS A RESULT OF VOLTAGE AND CURRENT REACHING 500,000 VOLTS AND 10,000 AMPS FOR A SHORT DURATION. GIRDLING FURTHER INCREASES THE IMPEDANCE AT LIGHTNING FREQUENCIES OF 100 KILOHERTZ TO 100 MEGAHERTZ. AT THESE POWER AND FREQUENCY LEVELS ANY INCREASE IN THE IMPEDANCE OF THE GROUND CONDUCTOR MUST BE CONTROLLED. DURING LIGHTNING DISCHARGE CONDITIONS A LOW INDUCTIVE IMPEDANCE PATH IS MORE IMPORTANT THAN A LOW DC RESISTANCE PATH.
- ALL APPLICATIONS TO GALVANIZED STEEL OR PAINTED STEEL, SHALL REMOVE GALVANIZING AND/OR PAINT & CLEAN THE SURFACE TO EXPOSE BARE STEEL BEFORE MAKING EXOTHERMIC WELD CONNECTION.

EXOTHERMIC WELD DETAILS



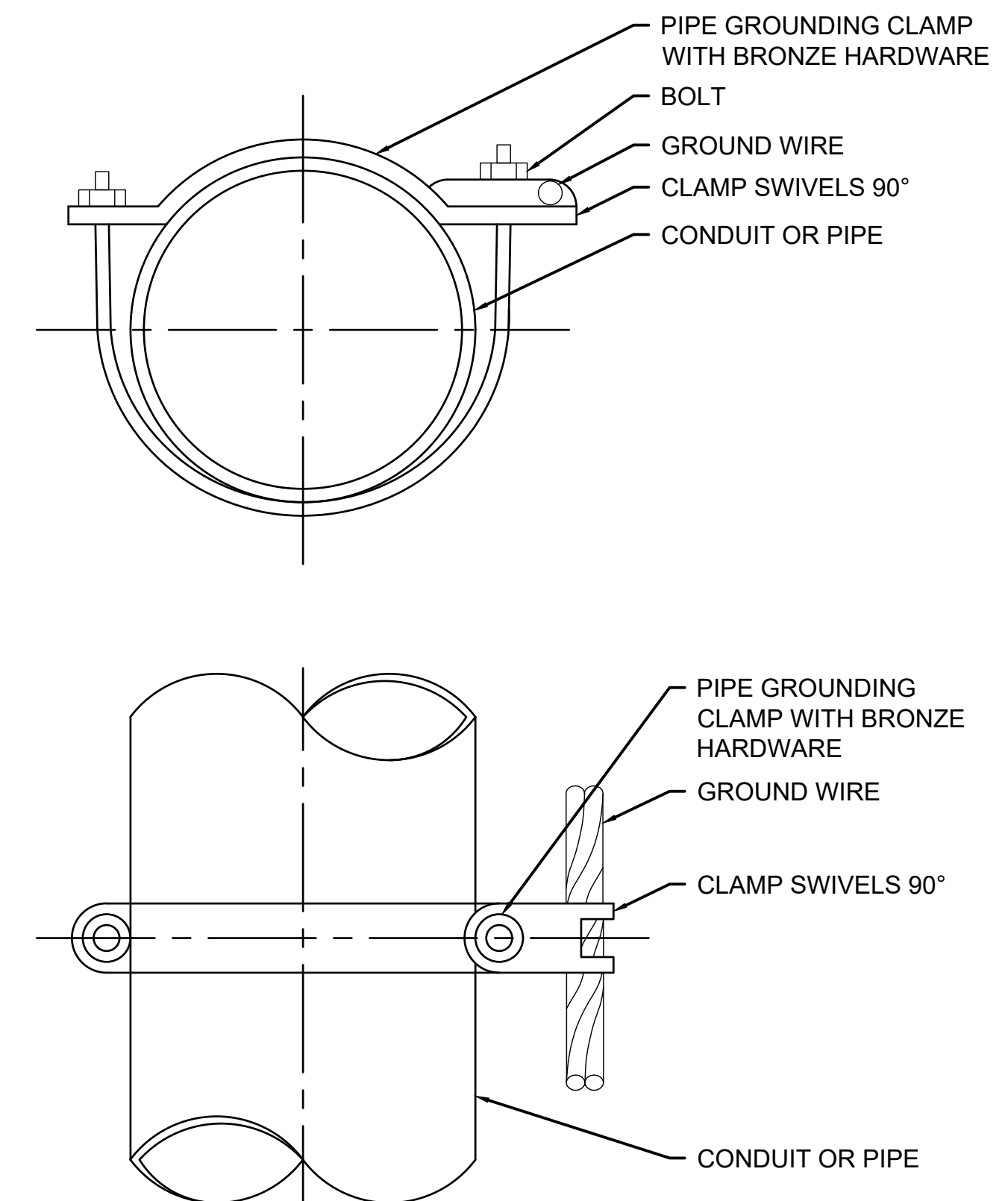
2 HOLE LONG BARREL COMPRESSION LUG TABLE (OR APPROVED EQUAL)

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

NOTES

- IT IS IMPORTANT TO HAVE GOOD SECURE GROUND CONNECTIONS THAT WILL WITHSTAND WEATHER CONDITIONS AND MAINTAIN CONTINUITY TO GROUND. OFTEN WEATHER CONDITIONS CAN AFFECT GROUNDING CONNECTIONS THAT RESULT IN LOOSE CONNECTIONS AND UNSAFE CONDITIONS.
- SAFETY OF PERSONNEL IS THE PRIORITY. PROTECTION OF EQUIPMENT IS SECONDARY.
- THE GROUND WIRE CONNECTIONS TO EQUIPMENT LOCATED ABOVE GRADE, SHALL BE WITH 2 HOLE TONGUE LONG BARREL COMPRESSION LUGS BOLTED TO THE DEVICE WITH 3/8-INCH STAINLESS STEEL BOLTS, NUTS, AND WASHERS OR WITH THE RESPECTIVE EQUIPT MANUFACTURER'S LUG OR TERMINAL WHERE APPLICABLE. THIS ALSO APPLIES TO CONNECTIONS TO GROUND BUS BARS.
- HARGER LIGHTNING PROTECTION AND GROUNDING EQUIPMENT ALSO MANUFACTURERS TWO HOLE LONG BARREL COMPRESSION LUGS.
- EACH CONNECTION SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND (SANCHEM INC. NO-OX-ID "A-SPECIAL", BURNDY PENETROX E, OR APPROVED EQUAL) BEFORE JOINING. ALL COPPER BUS BARS SHALL BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION. CLEAN SURFACES, OF RESPECTIVE DEVICES TO BE BONDED, TO BARE METAL, PER NEC 250-12.

GROUNDING LUG CONNECTION DETAIL



PIPE GROUNDING CLAMP TABLE (OR APPROVED EQUAL)

BURNDY CAT. NO.	THOMAS & BETTS CAT. NO.	PIPE SIZE
GAR3902-BU	3902BU	1/2" - 1"
GAR3903-BU	3903BU	1 1/4" - 2"
GAR3904-BU	3904BU	2 1/2" - 3 1/2"
GAR3905-BU	3905BU	4" - 5"
GAR3906-BU	3906BU	6"

NOTES

- EACH PIPE GROUNDING CLAMP SHALL HAVE BRONZE HARDWARE, BE CORROSION RESISTANT, SUITABLE FOR DIRECT BURIAL IN EARTH OR CONCRETE, & UL 467 LISTED.
- FOR APPLICATIONS SUBJECT TO ADDITIONAL CORROSION, PROVIDE PIPE GROUNDING CLAMPS WITH TINNED COATED BRONZE HARDWARE
- HARGER CPC AND APC SERIES PIPE GROUNDING CLAMPS PROPERLY SIZED FOR THE RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE.
- PENN-UNION TYPE "GPL" SERIES PIPE GROUNDING CLAMPS PROPERLY SIZED FOR THE RESPECTIVE PIPE AND GROUND WIRE ARE ALSO ACCEPTABLE.

PIPE/CONDUIT GROUNDING CLAMP DETAIL

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		DES	DWN	REV

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GROUNDING DETAILS

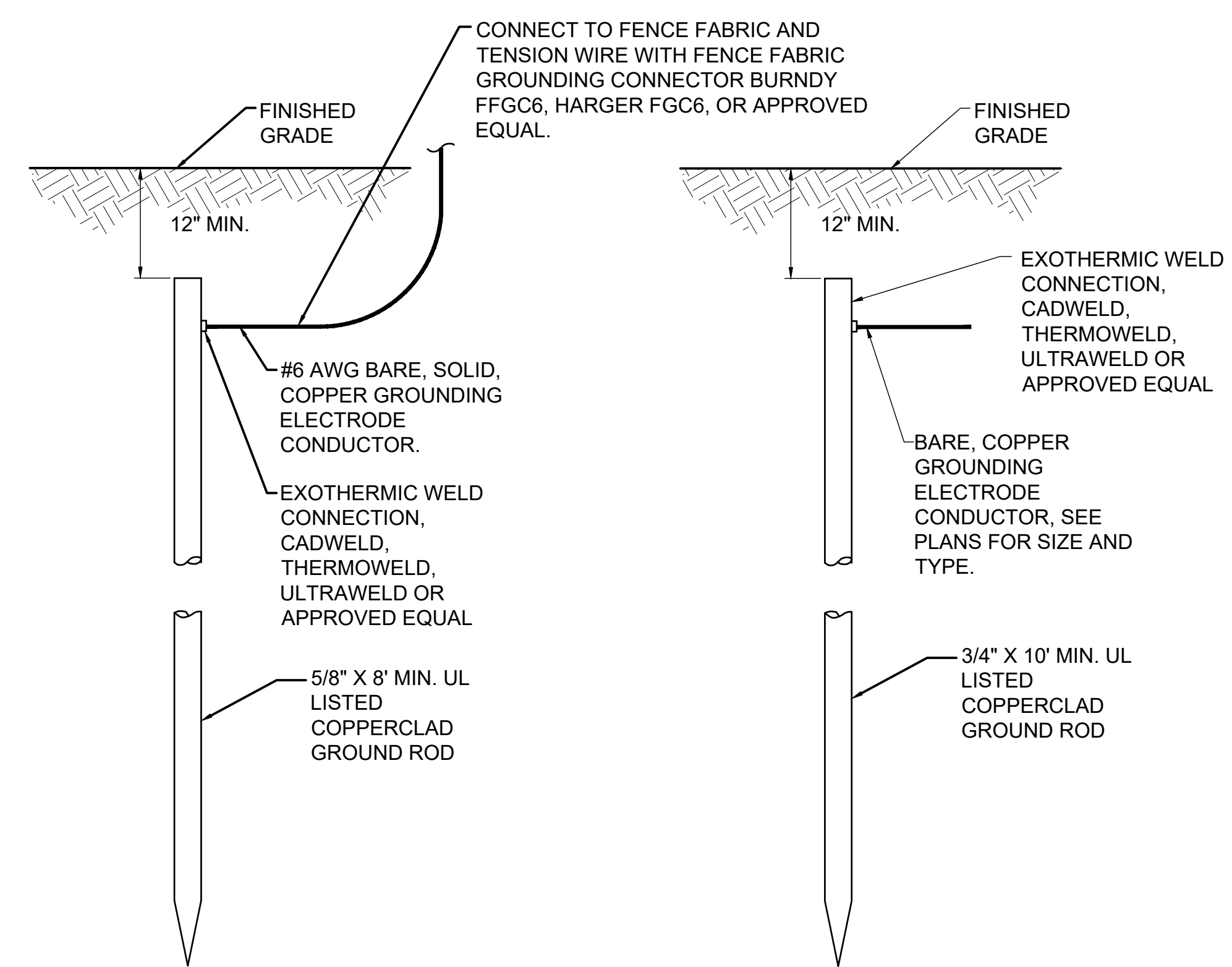
GROUNDING NOTES

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING SHOWN ON THE RESPECTIVE CONTRACT DOCUMENTS AND/OR AS MAY BE NECESSARY OR REQUIRED TO MAKE A COMPLETE GROUNDING SYSTEM, AS REQUIRED BY THE LATEST NFPA 70 - NATIONAL ELECTRICAL CODE (NEC) IN FORCE, OTHER APPLICABLE CODES, AND IN ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS, AND REQUIREMENTS FOR THE PRIORITY OF PROTECTION OF PERSONNEL AND ADDITIONALLY FOR THE PROTECTION OF EQUIPMENT. ALL PERSONNEL ARE RECOMMENDED TO ALSO COMPLY WITH NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE. THE RELIABILITY OF THE GROUNDING SYSTEM IS DEPENDENT ON CAREFUL, PROPER INSTALLATION, AND CHOICE OF MATERIALS. IMPROPER PREPARATION OF SURFACES TO BE JOINED TO MAKE AN ELECTRICAL PATH, LOOSE JOINTS, OR CORROSION CAN INTRODUCE IMPEDANCE THAT WILL SERIOUSLY IMPAIR THE ABILITY OF THE GROUND PATH TO PROTECT PERSONNEL AND EQUIPMENT AND TO ABSORB TRANSIENTS THAT CAN CAUSE NOISE IN COMMUNICATIONS CIRCUITS. THE FOLLOWING FUNCTIONS ARE PARTICULARLY IMPORTANT TO ENSURE A RELIABLE GROUND SYSTEM:

- FURNISH AND INSTALL GROUND RODS AS DETAILED HEREIN. GROUND RODS FOR ELECTRICAL INSTALLATIONS SHALL BE MINIMUM 3/4-IN. DIAMETER BY 10-FT LONG, UL-LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS FOR FENCE GROUNDING SHALL BE MINIMUM 5/8-IN. DIAMETER BY 8-FT. LONG, UL LISTED, COPPER CLAD WITH 10-MIL MINIMUM COPPER COATING. GROUND RODS SHALL BE SPACED OR AS DETAILED ON THE RESPECTIVE PLANS, AND IN NO CASE SPACED LESS THAN ONE ROD LENGTH APART. ALL CONNECTIONS TO GROUND RODS, GROUND FIELDS, AND/OR THE GROUND RING SHALL BE MADE WITH EXOTHERMIC WELD TYPE CONNECTORS, CADWELD BY PENTAIR ERICO PRODUCTS, INC., THERMOWELD BY CONTINENTAL INDUSTRIES, ULTRAWELD BY HARGER, OR APPROVED EQUAL. EXOTHERMIC WELD CONNECTIONS SHALL BE INSTALLED IN CONFORMANCE WITH THE RESPECTIVE MANUFACTURER'S DIRECTIONS USING MOLDS AS REQUIRED FOR EACH RESPECTIVE APPLICATION. BOLTED CONNECTIONS WILL NOT BE PERMITTED AT GROUND RODS OR AT BURIED GROUNDING ELECTRODE CONDUCTORS.
- CONTRACTOR SHALL TEST EACH MADE ELECTRODE GROUND ROD/GROUND FIELD/GROUND RING WITH AN INSTRUMENT SPECIFICALLY DESIGNED FOR TESTING GROUND FIELD SYSTEMS. IF GROUND RESISTANCE EXCEEDS 25 OHMS, CONTACT THE PROJECT ENGINEER OF RECORD FOR FURTHER DIRECTION. ALSO REFER TO EOR-047643 FOR ADDITIONAL INFORMATION ON GROUNDING REQUIREMENTS, WHERE APPLICABLE. COPIES OF GROUND ROD TEST RESULTS SHALL BE FURNISHED TO THE RESIDENT ENGINEER/TECHNICIAN AND THE PROJECT ENGINEER OF RECORD.
- ALL PRODUCTS ASSOCIATED WITH THE GROUNDING SYSTEM SHALL BE UL-LISTED AND LABELED.
- ALL BOLTED OR MECHANICAL CONNECTIONS SHALL BE COATED WITH A CORROSION PREVENTATIVE COMPOUND BEFORE JOINING, SANCHEM INC. "NO-OX-ID "A-SPECIAL" COMPOUND, BURNDY PENETROX E, OR APPROVED EQUAL.
- METALLIC SURFACES TO BE JOINED SHALL BE PREPARED BY THE REMOVAL OF ALL NON-CONDUCTIVE MATERIAL, PER 2020 NATIONAL ELECTRICAL CODE ARTICLE 250-12. ALL COPPER BUS BARS MUST BE CLEANED PRIOR TO MAKING CONNECTIONS TO REMOVE SURFACE OXIDATION.
- METALLIC RACEWAY FITTINGS SHALL BE MADE UP TIGHT TO PROVIDE A PERMANENT LOW IMPEDANCE PATH FOR ALL CIRCUITS. METAL CONDUIT TERMINATIONS IN ENCLOSURES SHALL BE BONDED TO THE ENCLOSURE WITH UL-LISTED FITTINGS SUITABLE FOR GROUNDING. PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING SERVICE EQUIPMENT (METER BASE, CT CABINET, MAIN SERVICE BREAKER ENCLOSURE, ETC.). PROVIDE GROUNDING BUSHINGS WITH BONDING JUMPERS FOR ALL METAL CONDUITS ENTERING AN ENCLOSURE THROUGH CONCENTRIC OR ECCENTRIC KNOCKOUTS THAT ARE PUNCHED OR OTHERWISE FORMED SO AS TO IMPAIR THE ELECTRICAL CONNECTION TO GROUND. STANDARD LOCKNUTS OR BUSHINGS SHALL NOT BE THE SOLE MEANS FOR BONDING WHERE A CONDUIT ENTERS AN ENCLOSURE THROUGH A CONCENTRIC OR ECCENTRIC KNOCKOUT.
- ALL CONNECTIONS, LOCATED ABOVE GRADE, BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS SHALL BE MADE USING UL-LISTED DOUBLE COMPRESSION CRIMP TYPE CONNECTORS OR UL-LISTED BOLTED GROUND CONNECTORS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, THOMAS AND BETTS, PENN-UNION OR EQUAL. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUES IN UL STANDARD 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
- ALL METAL EQUIPMENT ENCLOSURES, CONDUITS, CABINETS, BOXES, RECEPTACLES, MOTORS, ETC. SHALL BE BONDED TO THE RESPECTIVE GROUNDING SYSTEM.
- PROVIDE ALL BOXES FOR PROPOSED OUTLETS, SWITCHES, CIRCUIT BREAKERS, ETC. WITH GROUNDING SCREWS. PROVIDE ALL PANELBOARD, SWITCHGEAR, ETC., ENCLOSURES WITH GROUNDING BARS WITH INDIVIDUAL SCREWS, LUGS, CLAMPS, ETC., FOR EACH OF THE GROUNDING CONDUCTORS THAT ENTER THEIR RESPECTIVE ENCLOSURES.
- EACH NEW FEEDER CIRCUIT AND/OR BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUND WIRE. METAL RACEWAY OR CONDUIT SHALL NOT MEET THIS REQUIREMENT. THE EQUIPMENT GROUND WIRE FROM EQUIPMENT SHALL NOT BE SMALLER THAN ALLOWED BY 2020 NEC TABLE 250-122 "MINIMUM SIZE CONDUCTORS OR GROUNDING RACEWAY AND EQUIPMENT." WHEN CONDUCTORS ARE ADJUSTED IN SIZE TO COMPENSATE FOR VOLTAGE DROP, EQUIPMENT-GROUNDING CONDUCTORS SHALL BE ADJUSTED PROPORTIONATELY ACCORDING TO CIRCULAR MIL AREA. ALL EQUIPMENT GROUND WIRES SHALL BE COPPER, EITHER BARE OR INSULATED GREEN IN COLOR. WHERE THE EQUIPMENT GROUNDING CONDUCTORS ARE INSULATED, THEY SHALL BE IDENTIFIED BY THE COLOR GREEN, AND SHALL BE THE SAME INSULATION TYPE AS THE PHASE CONDUCTORS.

- ALL EXTERIOR METAL CONDUIT, WHERE NOT ELECTRICALLY CONTINUOUS BECAUSE OF MANHOLES, HANDHOLES, NON-METALLIC JUNCTION BOXES, ETC., SHALL BE BONDED TO ALL OTHER METAL CONDUIT IN THE RESPECTIVE DUCT RUN, AND AT EACH END, WITH A COPPER-BONDING JUMPER SIZED IN CONFORMANCE WITH 2020 NEC 250-102. WHERE METAL CONDUITS TERMINATE IN AN ENCLOSURE (SUCH AS A MOTOR CONTROL CENTER, SWITCHBOARD, ETC) WHERE THERE IS NOT ELECTRICAL CONTINUITY WITH THE CONDUIT AND THE RESPECTIVE ENCLOSURE, PROVIDE A BONDING JUMPER FROM THE RESPECTIVE ENCLOSURE GROUND BUS TO THE CONDUIT SIZED PER 2020 NEC 250-102.
- IT IS THE INTENT OF THIS SPECIFICATION THAT ALL MOTOR FRAMES, PUMP BASES ELECTRICAL EQUIPMENT ENCLOSURES, PANEL HOUSINGS, CONDUITS, BOXES, ETC. HAVE A CONTINUOUS COPPER WIRE GROUND CONNECTION AND SHALL BE POSITIVELY BONDED TO THE RESPECTIVE GROUNDING SYSTEM. CONDUIT CONNECTORS WILL NOT BE CONSIDERED AS ADEQUATE GROUNDING.
- PROVIDE A POSITIVE GROUND BOND FOR ALL OUTLET BOXES, ELECTRICAL EQUIPMENT ENCLOSURES, GROUNDING RECEPTACLES, TOGGLE SWITCHES, ETC. INSTALL A GROUNDING CONDUCTOR IN ALL WIRE AND CABLE RACEWAYS. GROUND CONDUCTOR TO HAVE 600-VOLT INSULATION AND BE IDENTIFIED BY A CONTINUOUS GREEN COLOR COATING. THEY SHALL BE USED SOLELY FOR GROUNDING PURPOSES AND BE ENTIRELY SEPARATE FROM WHITE GROUNDED NEUTRAL CONDUCTOR, EXCEPT AT SUPPLY SIDE OF SERVICE DISCONNECTING MEANS, WHERE GROUNDING AND NEUTRAL SYSTEMS ARE TO BE CONNECTED TO SERVICE GROUND.
- EACH AND ALL GROUNDED CASED AND METAL PARTS ASSOCIATED WITH ELECTRICAL EQUIPMENT SHALL BE TESTED FOR CONTINUITY OF CONNECTION WITH GROUND BUS SYSTEM BY CONTRACTOR IN PRESENCE OF OWNER'S REPRESENTATIVE.
- ALL CONNECTIONS BETWEEN THE DIFFERENT TYPES OF GROUNDING CONDUCTORS ABOVE GRADE SHALL BE MADE USING BOLTED GROUND CONNECTORS. GROUND LUGS SHALL BE PROVIDED IN ALL ENCLOSURES AND WIRING TERMINATION JUNCTION BOXES. EQUIPMENT GROUNDS AND GROUNDING CONDUCTOR SHALL BE CONNECTED TO THESE GROUND LUGS. FOR GROUND CONNECTIONS TO ENCLOSURES, CASES AND FRAMES OF ELECTRICAL EQUIPMENT NOT SUPPLIED WITH GROUND LUGS THE CONTRACTOR SHALL DRILL REQUIRED HOLES FOR MOUNTING A BOLTED GROUND CONNECTOR. ALL BOLTED GROUND CONNECTORS SHALL BE BURNDY, DOSSERT CORPORATION, ILSCO CORPORATION, PENN-UNION CORPORATION, THOMAS & BETTS, OR APPROVED EQUAL.
- BOND ALL NONCURRENT-CARRYING PARTS OF METAL EQUIPMENT TO GROUND SYSTEM.
- BUILDING STRUCTURAL STEEL SYSTEM SHALL BE BONDED TO ELECTRICAL GROUND SYSTEM.
- INSTALL GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS AND SEPARATE GROUND CONDUCTORS IN SCHEDULE 80 PVC CONDUIT OR EXPOSED WHERE ACCEPTABLE TO LOCAL CODES. WHERE GROUNDING ELECTRODE CONDUCTORS, LIGHTNING PROTECTION DOWN CONDUCTORS OR INDIVIDUAL GROUND CONDUCTORS ARE RUN IN PVC CONDUIT, DO NOT COMPLETELY ENIRCLE CONDUIT WITH FERROUS AND/OR MAGNETIC MATERIALS. USE NON-METALLIC REINFORCED FIBERGLASS STRUT SUPPORT. WHERE METAL CONDUIT CLAMPS ARE INSTALLED, USE NYLON BOLTS, NUTS, WASHERS AND SPACERS TO INTERRUPT A COMPLETE METALLIC PATH FROM ENCIRCLING THE CONDUIT. THIS IS REQUIRED TO AVOID GIRDLING OF GROUND CONDUCTORS.
- IF LOCAL CODES DICTATE THAT INDIVIDUAL GROUNDING CONDUCTORS MUST BE RUN IN METAL CONDUIT OR RACEWAY, THEN THE CONDUIT OR RACEWAY MUST BE BONDED AT EACH END OF THE RUN WITH A BONDING JUMPER SIZED EQUAL TO THE INDIVIDUAL GROUNDING CONDUCTOR OR AS REQUIRED BY 2020 NEC 250-102 AND/OR 2020 NEC 250.64(E). NOTE THIS DOES NOT APPLY TO AC EQUIPMENT GROUNDING CONDUCTORS RUN WITH AC CIRCUITS. CONFIRM REQUIREMENTS WITH AUTHORITY HAVING JURISDICTION.
- GROUNDING WORK AFFECTING OPERATIONS AT A FACILITY SHALL BE COORDINATED WITH THE OWNER'S DESIGNATED REPRESENTATIVE(S) AND TO MINIMIZE DOWNTIME TO EXISTING SYSTEMS. THE RESPECTIVE PERSONNEL SHALL COORDINATE WORK AND ANY POWER OUTAGES WITH THE OWNER'S DESIGNATED REPRESENTATIVE(S). ANY SHUTDOWN OF EXISTING SYSTEMS SHALL BE SCHEDULED WITH AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO SHUT DOWN. ALL POWER SYSTEMS (AC OR DC) SHALL HAVE PROVISIONS TO LOCKOUT AND TAGOUT ANY CIRCUIT TO HELP ENSURE THE CIRCUIT IS SAFE TO WORK ON FOR PROTECTION OF PERSONNEL. 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 AND 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), WHERE A FACILITY DOES NOT HAVE LOCKOUT/TAGOUT KITS THE RESPECTIVE PERSONNEL SHALL PROVIDE ADEQUATE QUANTITIES OF LOCKOUT/TAGOUT KITS SUITABLE FOR USE WITH THE RESPECTIVE EQUIPMENT. WHERE EXISTING ELECTRICAL EQUIPMENT DOES NOT HAVE FEATURES FOR LOCKOUT/TAGOUT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT AND MEASURES TO COMPLY WITH OSHA LOCKOUT/TAGOUT REQUIREMENTS. ALL PADLOCKS FOR USE WITH LOCKOUT/TAGOUT PROCEDURES SHALL HAVE A DIFFERENT KEY. PROVIDE LOCKOUT HASPS TO ACCOMMODATE MULTIPLE PADLOCKS WHERE MULTIPLE PEOPLE ARE WORKING ON THE SAME SYSTEM. INCLUDE LOCKOUT TAGS FOR EACH PIECE OF EQUIPMENT REQUIRING SERVICING AND SHUTDOWN. COMPLIANCE WITH LOCKOUT/TAGOUT PROCEDURES AND ALL OTHER SAFETY PROCEDURES AND REQUIREMENTS ARE THE RESPONSIBILITY OF THE RESPECTIVE PERSONNEL WORKING AT THE FACILITY.
- NEVER REMOVE, ALTER, OR ATTEMPT TO REPAIR CONDUCTORS OR CONDUIT SYSTEMS PROVIDING GROUNDING OR ELECTRICAL BONDING FOR ANY ELECTRICAL EQUIPMENT UNTIL ALL POWER IS REMOVED FROM EQUIPMENT. WARN ALL PERSONNEL OF THE UNGROUNDED CONDITION OF THE EQUIPMENT. DISPLAY APPROPRIATE WARNING SIGNS, SUCH AS DANGER TAGS, TO WARN PERSONNEL OF THE POSSIBLE HAZARDS.

- GROUNDING WORK AND MODIFICATIONS SHALL NOT BE PERFORMED DURING A THUNDERSTORM OR WHEN A THUNDERSTORM IS PREDICTED IN THE AREA.
- PER NFPA 70E STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE IT DEFINES ELECTRICALLY SAFE WORK CONDITION AS "A STATE IN WHICH AN ELECTRICAL CONDUCTOR OR CIRCUIT PART HAS BEEN DISCONNECTED FROM ENERGIZED PARTS, LOCKED/TAGGED IN ACCORDANCE WITH ESTABLISHED STANDARDS, TESTED TO VERIFY THE ABSENCE OF VOLTAGE, AND, IF NECESSARY, TEMPORARILY GROUNDED FOR PERSONNEL PROTECTION." PRIOR TO CONDUCTING TESTS OR WORKING ON EQUIPMENT, VERIFY EQUIPMENT ENCLOSURES AND FRAMES HAVE A GOOD AND SECURE GROUND CONNECTION. FAILURE TO PROPERLY GROUND THIS EQUIPMENT PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM.
- WHERE A CONFLICT IS DETERMINED WITH RESPECT TO GROUNDING REQUIREMENTS PER MANUFACTURER INSTALLATION INSTRUCTIONS, NEC, AND/OR THE CONTRACT DOCUMENTS, CONTACT THE PROJECT ENGINEER OF RECORD; KEVIN LIGHTFOOT FOR FURTHER DIRECTIONS.
- GROUND RODS SHALL BE PRODUCED FROM 100 PERCENT DOMESTIC STEEL TO COMPLY WITH THE AIRPORT IMPROVEMENT PROGRAM BUY AMERICAN PREFERENCES REQUIREMENT. THE BUY AMERICAN PREFERENCE REQUIREMENTS ESTABLISHED WITHIN 49 USC 50101 REQUIRE THAT ALL STEEL AND MANUFACTURED GOODS USED ON AIP PROJECTS MUST BE PRODUCED IN THE UNITED STATES.



8 FT. GROUND ROD FOR FENCING
NOT TO SCALE

10 FT. GROUND ROD
NOT TO SCALE

NOTES

- GROUND RODS FOR GATE OPERATORS AND OTHER ELECTRICAL EQUIPMENT SHALL BE A MINIMUM 3/4-INCH DIAMETER BY 10-FT LONG UL LISTED COPPER CLAD. GROUND RODS FOR FENCING SHALL BE A MINIMUM 5/8-INCH DIAMETER BY 8-FT LONG UL LISTED COPPER CLAD.
- 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 GROUND WIRE SHALL BE CONNECTED TO THE FABRIC AND TENSION WIRE WITH UL LISTED FENCE FABRIC GROUND CLAMPS; BURNDY CAT. NO. FFGC6, HARGER CAT NO. FGC6, OR APPROVED EQUAL. GROUNDING CONNECTORS SHALL BE SIZED AND SUITABLE FOR THE RESPECTIVE APPLICATION. CONNECTIONS TO GROUND RODS SHALL BE WITH UL LISTED CONNECTORS SUITABLE FOR DIRECT BURY IN EARTH OR EXOTHERMIC WELD TYPE CONNECTORS. THE GROUND WIRE USED TO BOND THE FENCE FABRIC AND TENSION WIRE TO THE GROUND ROD SHALL BE #6 AWG BARE SOLID COPPER CONDUCTOR.

GROUND RODS
NOT TO SCALE



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Professional Service Corporation
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RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

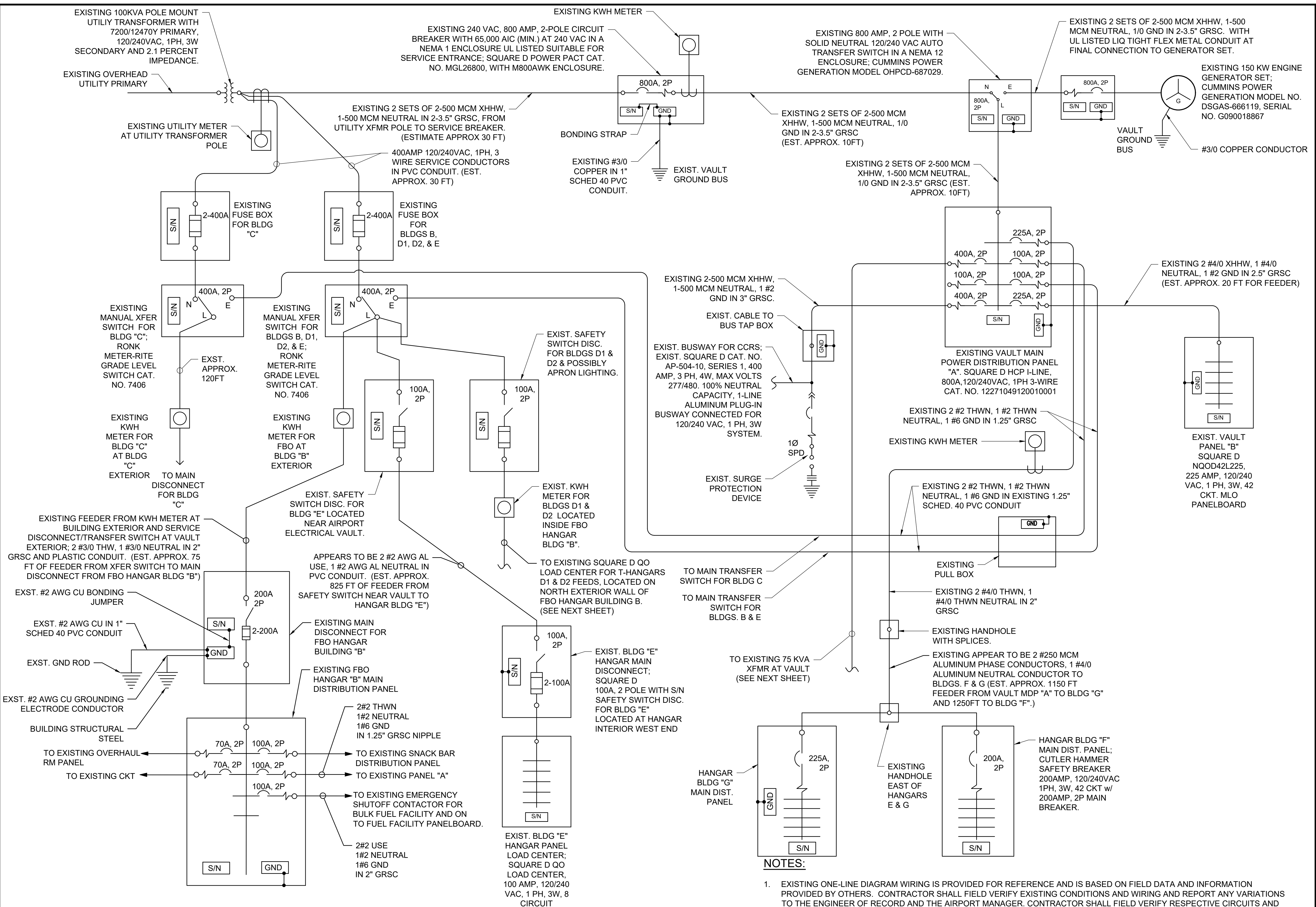
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GROUNDING NOTES

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EXISTING ELECTRICAL ONE LINE FOR AIRPORT VAULT & BUILDINGS B THROUGH G

- NOTES:**
- EXISTING ONE-LINE DIAGRAM WIRING IS PROVIDED FOR REFERENCE AND IS BASED ON FIELD DATA AND INFORMATION PROVIDED BY OTHERS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND WIRING AND REPORT ANY VARIATIONS TO THE ENGINEER OF RECORD AND THE AIRPORT MANAGER. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO WORKING ON, REMOVING, REPLACING, DISCONNECTING OR CONNECTING THE RESPECTIVE AIRFIELD LIGHTING, PANEL, SAFETY SWITCH, GATE OPERATOR, OR OTHER DEVICE.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

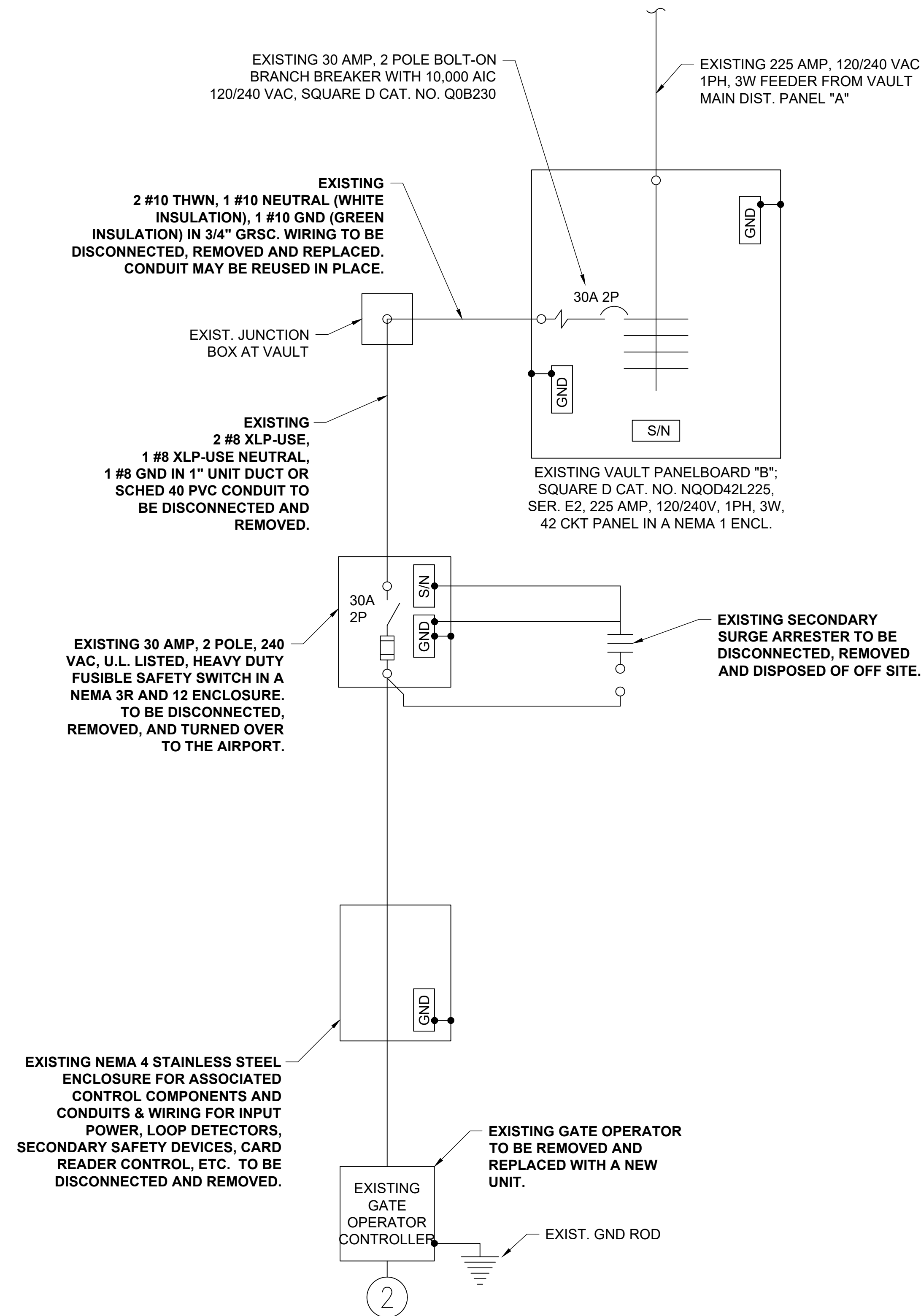
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EXIST ELEC 1-LINE FOR VAULT & BLDGS B THRU G



**EXISTING WEST GATE #1 OPERATOR
ELECTRICAL ONE LINE DIAGRAM**

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). WHERE THE FACILITY IS NOT EQUIPPED WITH LOCKOUT/TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUIT PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM.
2. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
3. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, RELOCATING, ADJUSTING, WORKING ON, INSTALLING, OR CONNECTING THE RESPECTIVE EQUIPMENT OR OTHER DEVICE. RESPECTIVE CIRCUITS SHALL BE DISCONNECTED AND/OR SHUT OFF AND LOCKED OFF FOR SAFETY OF PERSONNEL
4. REMOVAL OF EXISTING ELECTRIC SLIDE GATE WILL BE PAID FOR UNDER ITEM AR162908 - REMOVE ELECTRIC GATE.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

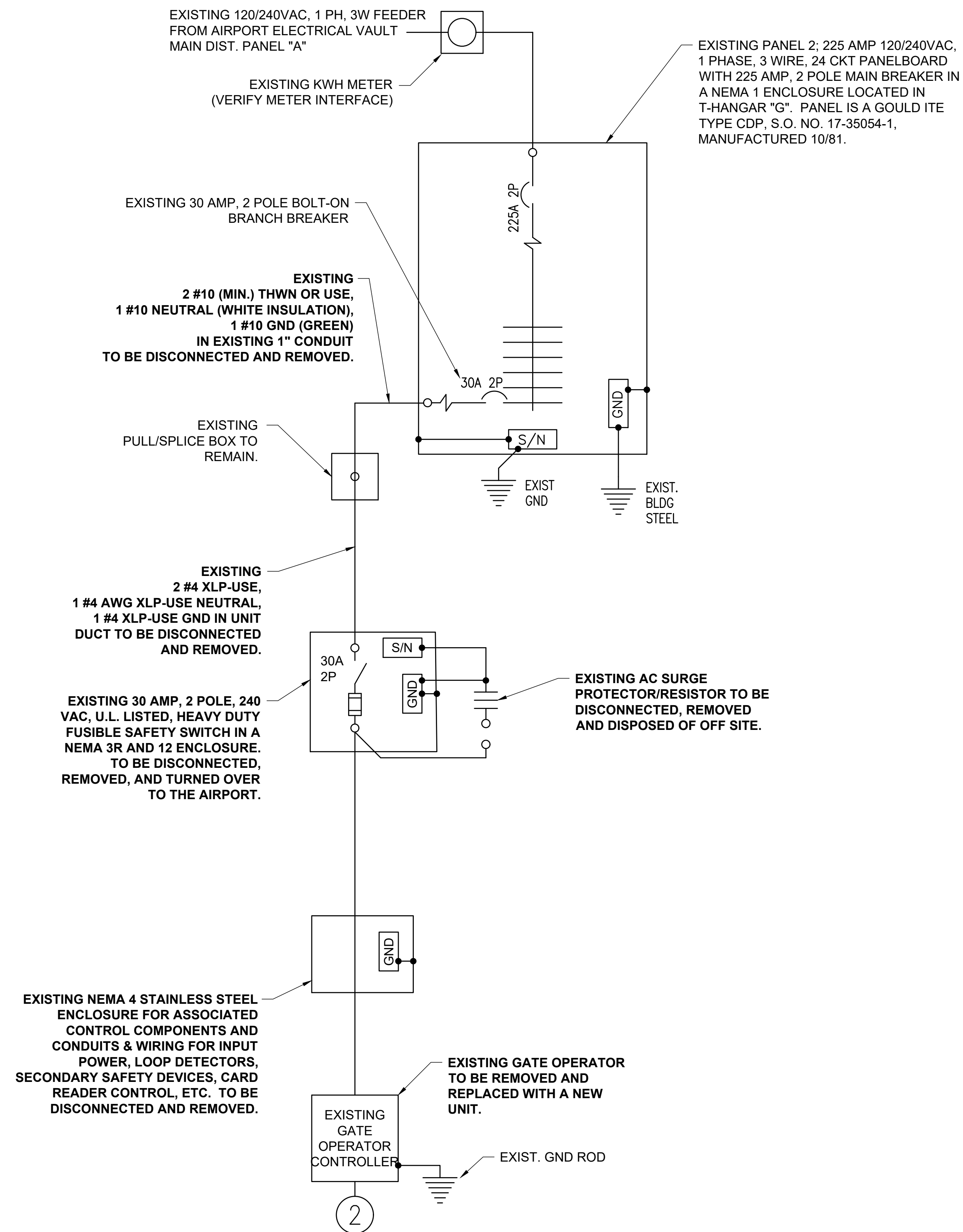
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SHEET TITLE

EXISTING WEST
GATE NO. 1
ELECTRICAL
ONE-LINE DIAGRAM



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). WHERE THE FACILITY IS NOT EQUIPPED WITH LOCKOUT/TAGOUT EQUIPMENT THE RESPECTIVE PERSONNEL WILL BE RESPONSIBLE FOR PROVIDING THE APPROPRIATE LOCKOUT/TAGOUT EQUIPMENT. FAILURE TO SHUT DOWN AND LOCKOUT THE CIRCUIT PRESENTS A DANGEROUS HAZARD FOR PERSONNEL WORKING ON THIS SYSTEM.
2. CONTRACTOR SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF NFPA 70E - STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
3. CONTRACTOR SHALL FIELD VERIFY EXISTING SITE CONDITIONS. CONTRACTOR SHALL FIELD VERIFY RESPECTIVE CIRCUITS AND POWER SOURCES PRIOR TO REMOVING, DISCONNECTING, RELOCATING, ADJUSTING, WORKING ON, INSTALLING, OR CONNECTING THE RESPECTIVE EQUIPMENT OR OTHER DEVICE. RESPECTIVE CIRCUITS SHALL BE DISCONNECTED AND/OR SHUT OFF AND LOCKED OFF FOR SAFETY OF PERSONNEL
4. REMOVAL OF EXISTING ELECTRIC SLIDE GATE WILL BE PAID FOR UNDER ITEM AR162908 - REMOVE ELECTRIC GATE.

**EXISTING NORTH GATE #2 OPERATOR
ELECTRICAL ONE LINE DIAGRAM**

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

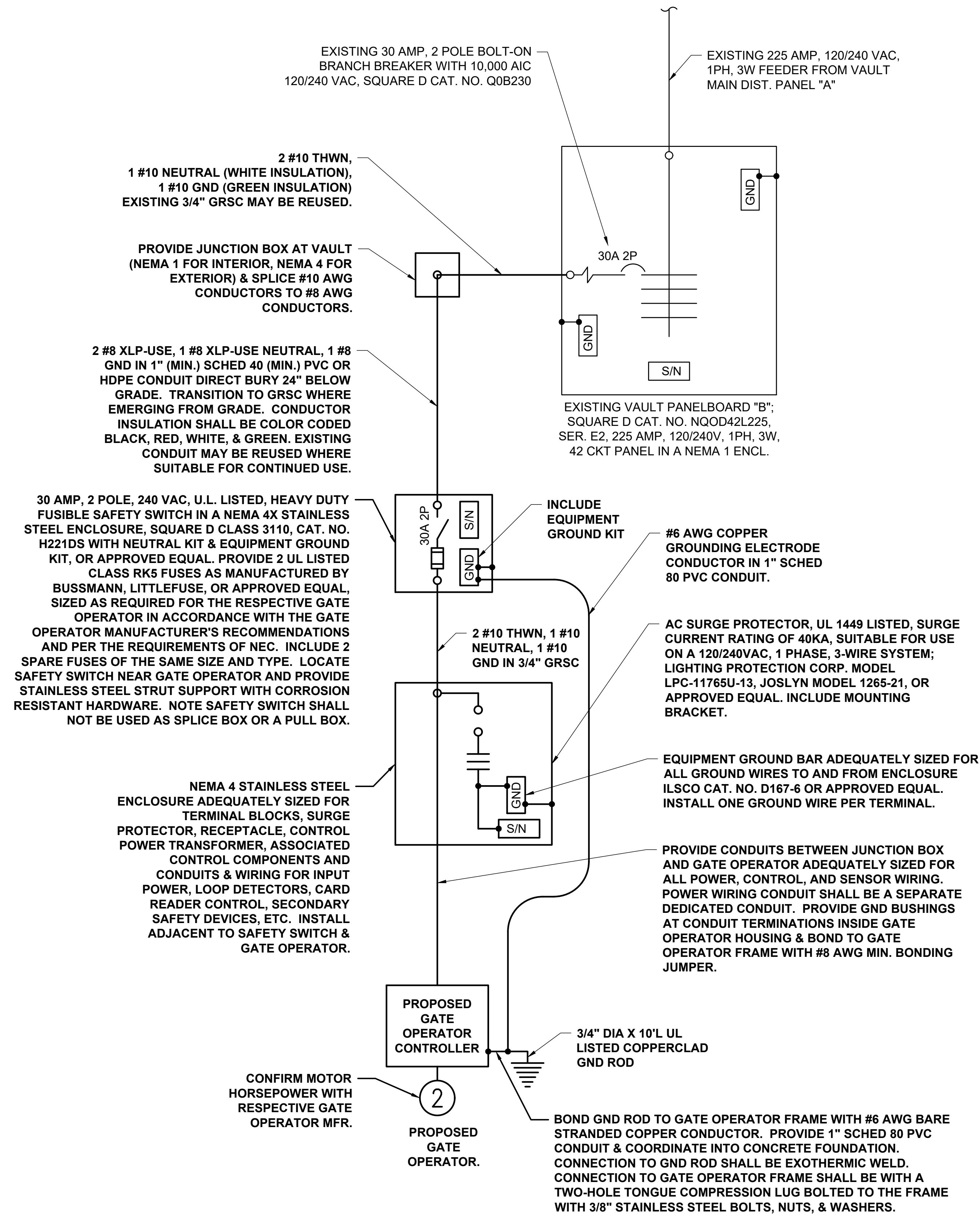
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SHEET TITLE

EXISTING NORTH GATE NO. 2
ELECTRICAL ONE-LINE DIAGRAM

ELECTRICAL NOTES

- CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE EXISTING CONDITIONS.
- SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
- ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70-NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- MAINTAIN SECURITY OF AIRPORT THROUGHOUT GATE REPLACEMENT.
- ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
- ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, SIMPLEX/DUPLEX 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.
- 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.
- FIELD VERIFY CONDUIT & CABLE ROUTING.



**PROPOSED WEST GATE #1 OPERATOR
ELECTRICAL ONE LINE DIAGRAM**

**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

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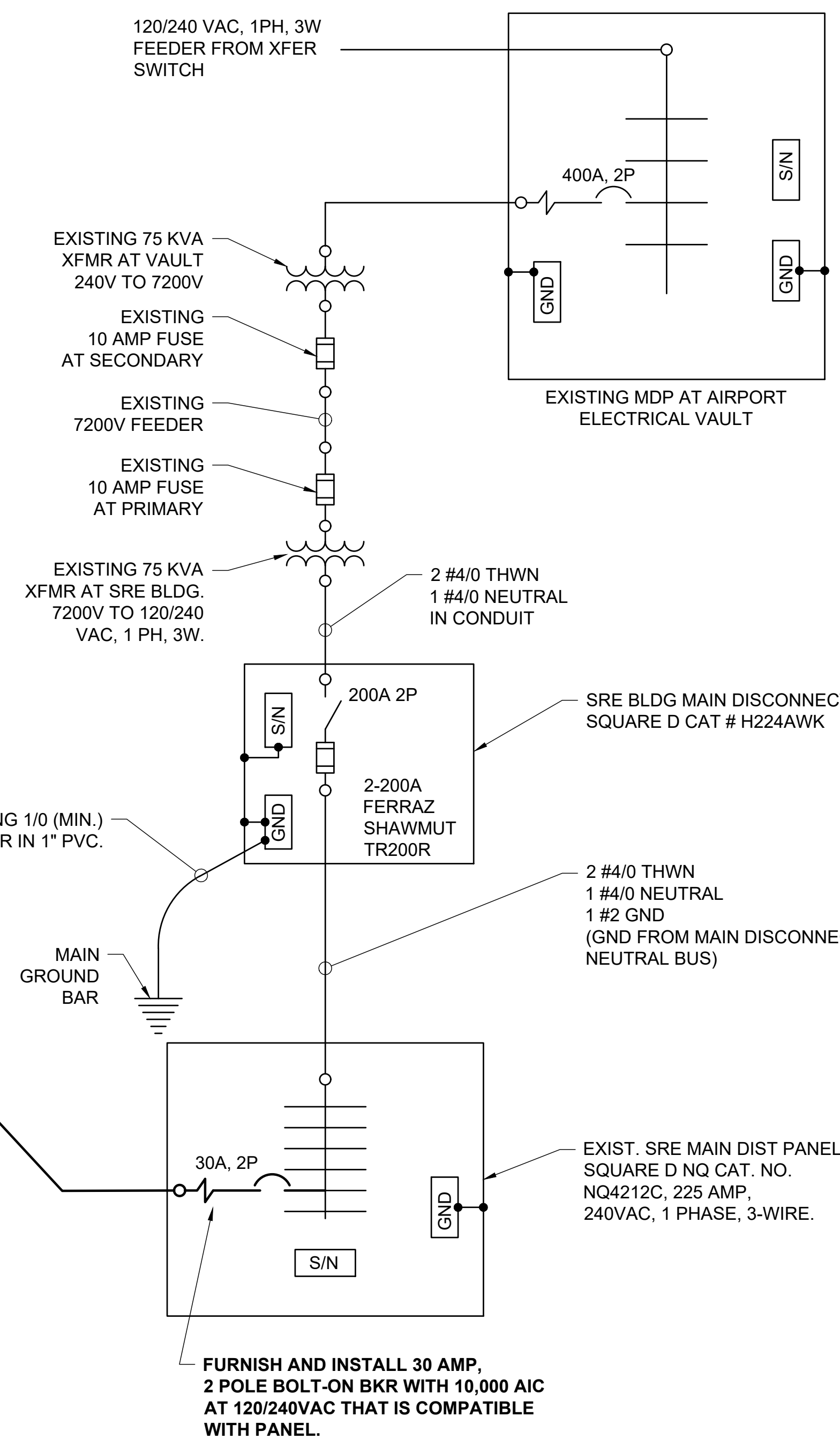
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SHEET TITLE

**PROPOSED WEST
GATE NO. 1
ELECTRICAL
ONE-LINE DIAGRAM**

ELECTRICAL NOTES

- CONTRACTOR SHALL EXAMINE THE SITE TO DETERMINE EXISTING CONDITIONS.
- SEE "ELECTRICAL LEGEND AND ABBREVIATIONS" SHEET FOR GENERAL NOTES AND REQUIREMENTS.
- ALL ELECTRICAL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA 70-NATIONAL ELECTRICAL CODE (NEC) MOST CURRENT ISSUE IN FORCE, THE RESPECTIVE EQUIPMENT MANUFACTURER'S DIRECTIONS AND ALL OTHER APPLICABLE LOCAL CODES, LAWS, ORDINANCES AND REQUIREMENTS IN FORCE. ANY INSTALLATIONS WHICH VOID THE U.L. LISTING, INTERTEK TESTING SERVICES VERIFICATION/ETL LISTING, (OR OTHER THIRD PARTY LISTING) AND/OR THE MANUFACTURER'S WARRANTY OF A DEVICE WILL NOT BE PERMITTED.
- MAINTAIN SECURITY OF AIRPORT THROUGHOUT GATE REPLACEMENT.
- ALL EQUIPMENT SHOWN NOT LABELED AS EXISTING IS NEW.
- ALL CONTROL POWER TRANSFORMERS, POWER SUPPLIES, SIMPLEX/DUPLEX 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.
- 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.
- FIELD VERIFY CONDUIT & CABLE ROUTING.



**PROPOSED NORTH GATE #2 OPERATOR
ELECTRICAL ONE LINE DIAGRAM**

2 #8 XLP-USE, 1 #8 XLP-USE NEUTRAL, 1 #8 GND IN 1.25" (MIN.) SCHED 40 (MIN.) PVC OR HDPE CONDUIT. DIRECT BURY 24" BELOW GRADE. TRANSITION TO GRSC WHERE EMERGING FROM GRADE AND INSIDE SRE BLDG. CONDUCTOR INSULATION SHALL BE COLOR CODED BLACK, RED, WHITE, & GREEN.

30 AMP, 2 POLE, 240 VAC, U.L. LISTED, HEAVY DUTY FUSIBLE SAFETY SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE, SQUARE D CLASS 3110, CAT. NO. H221DS WITH NEUTRAL KIT & EQUIPMENT GROUND KIT, OR APPROVED EQUAL. PROVIDE 2 UL LISTED CLASS RK5 FUSES AS MANUFACTURED BY BUSSMANN, LITTLEFUSE, OR APPROVED EQUAL, SIZED AS REQUIRED FOR THE RESPECTIVE GATE OPERATOR IN ACCORDANCE WITH THE GATE OPERATOR MANUFACTURER'S RECOMMENDATIONS AND PER THE REQUIREMENTS OF NEC. INCLUDE 2 SPARE FUSES OF THE SAME SIZE AND TYPE. LOCATE SAFETY SWITCH NEAR GATE OPERATOR AND PROVIDE STAINLESS STEEL STRUT SUPPORT WITH CORROSION RESISTANT HARDWARE. NOTE SAFETY SWITCH SHALL NOT BE USED AS SPLICE BOX OR A PULL BOX.

NEMA 4 STAINLESS STEEL ENCLOSURE ADEQUATELY SIZED FOR TERMINAL BLOCKS, SURGE PROTECTOR, RECEPTACLE, CONTROL POWER TRANSFORMER, ASSOCIATED CONTROL COMPONENTS AND CONDUITS & WIRING FOR INPUT POWER, LOOP DETECTORS, CARD READER CONTROL, SECONDARY SAFETY DEVICES, ETC. INSTALL ADJACENT TO SAFETY SWITCH & GATE OPERATOR.

INCLUDE EQUIPMENT GROUND KIT

#6 AWG COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" SCHED 80 PVC CONDUIT.

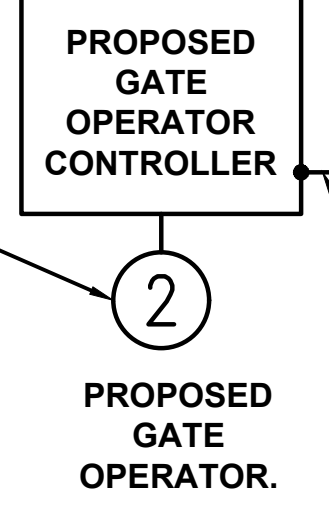
AC SURGE PROTECTOR, UL 1449 LISTED, SURGE CURRENT RATING OF 40KA, SUITABLE FOR USE ON A 120/240VAC, 1 PHASE, 3-WIRE SYSTEM; LIGHTING PROTECTION CORP. MODEL LPC-11765U-13, JOSLYN MODEL 1265-21, OR APPROVED EQUAL. INCLUDE MOUNTING BRACKET.

EQUIPMENT GROUND BAR ADEQUATELY SIZED FOR ALL GROUND WIRES TO AND FROM ENCLOSURE ILSKO CAT. NO. D167-6 OR APPROVED EQUAL. INSTALL ONE GROUND WIRE PER TERMINAL.

PROVIDE CONDUITS BETWEEN JUNCTION BOX AND GATE OPERATOR ADEQUATELY SIZED FOR ALL POWER, CONTROL, AND SENSOR WIRING. POWER WIRING CONDUIT SHALL BE A SEPARATE DEDICATED CONDUIT. PROVIDE GND BUSHINGS AT CONDUIT TERMINATIONS INSIDE GATE OPERATOR HOUSING & BOND TO GATE OPERATOR FRAME WITH #8 AWG MIN. BONDING JUMPER.

3/4" DIA X 10' L UL LISTED COPPERCLAD GND ROD

BOND GND ROD TO GATE OPERATOR FRAME WITH #6 AWG BARE STRANDED COPPER CONDUCTOR. PROVIDE 1" SCHED 40 PVC CONDUIT & COORDINATE INTO CONCRETE FOUNDATION. CONNECTION TO GND ROD SHALL BE EXOTHERMIC WELD. CONNECTION TO GATE OPERATOR FRAME SHALL BE WITH A TWO-HOLE TONGUE COMPRESSION LUG BOLTED TO THE FRAME WITH 3/8" STAINLESS STEEL BOLTS, NUTS, & WASHERS.



CONFIRM MOTOR HORSEPOWER WITH RESPECTIVE GATE OPERATOR MFR.

PROPOSED GATE OPERATOR.

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816
SBG Project No: N/A
Contract No. CO072

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SHEET TITLE

**PROPOSED NORTH GATE NO. 2
ELECTRICAL ONE-LINE DIAGRAM**



NOTES:

- 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.
- PER NEC 110.22 "IDENTIFICATION OF DISCONNECT MEANS", EACH DISCONNECTING MEANS SHALL BE LEGIBLY MARKED TO INDICATE ITS PURPOSE AND IDENTIFY THE POWER SOURCE THAT SUPPLIES THE DISCONNECTING MEANS.
- PER NEC 408.4 "FIELD MARKING REQUIRED" PART (B) "SOURCE OF SUPPLY", ALL SWITCHBOARDS, SWITCHGEAR, AND PANELBOARDS SUPPLIED BY A FEEDER(S) SHALL BE PERMANENTLY MARKED TO INDICATED EACH DEVICE OR EQUIPMENT WHERE THE POWER ORIGINATES.
- PER NEC 702.2 "SIGNS" PART (A) "STANDBY", A SIGN SHALL BE PLACED AT THE SERVICE-ENTRANCE EQUIPMENT THAT INDICATES THE TYPE AND LOCATION OF EACH ON-SITE OPTIONAL STANDBY POWER SOURCE.
- VERIFY ALL POWER SOURCES AND REPORT ANY VARIATIONS OR CONFLICTS WITH SCHEDULE TO THE ENGINEER OF RECORD AND THE AIRPORT MANAGER.

POWER SOURCE LEGEND PLATES	
DEVICE	LABEL
AIRPORT ELECTRICAL VAULT MAIN SERVICE DISCONNECT	AIRPORT ELECTRICAL VAULT MAIN SERVICE DISCONNECT 120/240 VAC, 1 PHASE, 3-WIRE NOTE THIS SERVICE HAS A STANDBY ENGINE GENERATOR BACKUP POWER SOURCE LOCATED IN THE ENGINE ROOM OF THE VAULT BUILDING
AIRPORT ELECTRICAL VAULT AUTO TRANSFER SWITCH	AIRPORT ELECTRICAL VAULT AUTO TRANSFER SWITCH 120/240 VAC, 1 PHASE, 3-WIRE NORMAL POWER SOURCE FROM AIRPORT ELECTRICAL VAULT MAIN SERVICE DISCONNECT BACKUP POWER SOURCE FROM AIRPORT ELECTRICAL VAULT STANDBY ENGINE GENERATOR
AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"	AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A" 120/240 VAC, 1 PHASE, 3-WIRE FED FROM AUTO TRANSFER SWITCH NOTE THIS PANEL HAS A STANDBY ENGINE GENERATOR BACKUP POWER SOURCE LOCATED IN THE ENGINE ROOM OF THE VAULT BUILDING
AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "B"	AIRPORT ELECTRICAL VAULT DISTRIBUTION PANEL "B" 120/240 VAC, 1 PHASE, 3-WIRE FED FROM AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"
SAFETY SWITCH FOR UNIT HEATER LOCATED IN ENGINE GENERATOR ROOM OF AIRPORT ELECTRICAL VAULT	ENGINE ROOM HEATER 240 VAC, 1 PHASE, 2-WIRE FED FROM AIRPORT ELECTRICAL VAULT DISTRIBUTION PANEL "B"
WEST ACCESS GATE 1 OPERATOR DISCONNECT	WEST ACCESS GATE 1 OPERATOR DISCONNECT FED FROM AIRPORT ELECTRICAL VAULT DISTRIBUTION PANEL "B"
SERVICE FUSE BOX FOR BUILDINGS B, D1, D2, and E LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	SERVICE FUSE BOX FOR BUILDINGS B, D1, D2, AND E. 120/240 VAC, 1 PHASE, 3-WIRE NOTE THIS SERVICE HAS A STANDBY ENGINE GENERATOR BACKUP POWER SOURCE LOCATED IN THE ENGINE ROOM OF THE VAULT BUILDING
RONK SERVICE TRANSFER SWITCH FOR BUILDINGS B, D1, D2, AND E LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	RONK SERVICE TRANSFER SWITCH FOR BUILDINGS B, D1, D2, AND E. 120/240 VAC, 1 PHASE, 3-WIRE NORMAL POWER SOURCE FROM SERVICE FUSE BOX FOR BUILDINGS B, D1, D2, AND E. BACKUP POWER SOURCE FROM AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"
SERVICE FUSE BOX FOR BUILDING "C" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	SERVICE FUSE BOX FOR BUILDING "C". 120/240 VAC, 1 PHASE, 3-WIRE NOTE THIS SERVICE HAS A STANDBY ENGINE GENERATOR BACKUP POWER SOURCE LOCATED IN THE ENGINE ROOM OF THE VAULT BUILDING
RONK SERVICE TRANSFER SWITCH FOR BUILDING "C" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	RONK SERVICE TRANSFER SWITCH FOR BUILDING "C". 120/240 VAC, 1 PHASE, 3-WIRE NORMAL POWER SOURCE FROM SERVICE FUSE BOX FOR BUILDING "C". BACKUP POWER SOURCE FROM AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"

POWER SOURCE LEGEND PLATES	
DEVICE	LABEL
SAFETY SWITCH FOR BUILDING "E" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	HANGAR BUILDING "E" SAFETY SWITCH DISCONNECT 120/240 VAC, 1 PHASE, 3-WIRE FED FROM RONK SERVICE TRANSFER SWITCH FOR BUILDINGS B, D1, D2, AND E.
MAIN DISCONNECT FOR FBO HANGAR BUILDING "B"	FBO HANGAR BUILDING "B" MAIN DISCONNECT SWITCH 120/240 VAC, 1 PHASE, 3-WIRE FED FROM RONK SERVICE TRANSFER SWITCH FOR BUILDINGS B, D1, D2, AND E LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT
MAIN DISTRIBUTION PANEL FOR FBO HANGAR BUILDING "B"	FBO HANGAR BUILDING "B" MAIN DISTRIBUTION PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM FBO HANGAR BUILDING "B" MAIN DISCONNECT SWITCH
PANEL "A" FOR FBO HANGAR BUILDING "B"	FBO HANGAR BUILDING "B" PANEL "A" 120/240 VAC, 1 PHASE, 3-WIRE FED FROM FBO HANGAR BUILDING "B" MAIN DISTRIBUTION PANEL
SNACK BAR DISTRIBUTION PANEL FOR FBO HANGAR BUILDING "B"	FBO HANGAR BUILDING "B" SNACK BAR DISTRIBUTION PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM FBO HANGAR BUILDING "B" MAIN DISTRIBUTION PANEL
OVERHAUL ROOM PANEL FOR FBO HANGAR BUILDING "B"	FBO HANGAR BUILDING "B" OVERHAUL ROOM PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM FBO HANGAR BUILDING "B" MAIN DISTRIBUTION PANEL
FUEL FACILITY PANELBOARD FED FROM FBO MAIN DISTRIBUTION PANEL	FUEL FACILITY PANELBOARD 120/240 VAC, 1 PHASE, 3-WIRE FED FROM FBO HANGAR BUILDING "B" MAIN DISTRIBUTION PANEL THROUGH EMERGENCY SHUTOFF CONTACTOR
LOAD CENTER FOR HANGAR "D1" AND HANGAR "D2" FEEDERS LOCATED AT EXTERIOR OF FBO HANGAR BUILDING "B"	HANGAR "D1" AND HANGAR "D2" FEEDER CIRCUITS PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM DISCONNECT FOR BUILDINGS D1 and D2 LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT
BUILDING "C" MAIN DISCONNECTING MEANS	BUILDING "C" MAIN DISCONNECT PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM RONK SERVICE TRANSFER SWITCH FOR BUILDING "C" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT
BUILDING "D1" T-HANGAR MAIN DISCONNECT	BUILDING "D1" T-HANGAR DISCONNECT 120/240 VAC, 1 PHASE, 3-WIRE FED FROM LOAD CENTER FOR HANGAR "D1" AND HANGAR "D2" LOCATED AT EXTERIOR OF FBO HANGAR BUILDING "B"

POWER SOURCE LEGEND PLATES	
DEVICE	LABEL
BUILDING "D2" T-HANGAR MAIN DISCONNECT	BUILDING "D2" T-HANGAR DISCONNECT 120/240 VAC, 1 PHASE, 3-WIRE FED FROM LOAD CENTER FOR HANGAR "D1" AND HANGAR "D2" LOCATED AT EXTERIOR OF FBO HANGAR BUILDING "B"
BUILDING "E" HANGAR MAIN DISCONNECTING MEANS	HANGAR BUILDING "E" MAIN DISCONNECT SWITCH 120/240 VAC, 1 PHASE, 3-WIRE FED FROM DISCONNECT FOR BUILDING "E" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT
BUILDING "E" HANGAR LOAD CENTER	BUILDING "E" HANGAR PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM MAIN DISCONNECT FOR HANGAR BUILDING "E"
BUILDING "F" HANGAR MAIN DISTRIBUTION PANEL	BUILDING "F" HANGAR MAIN DISTRIBUTION PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"
BUILDING "G" HANGAR MAIN PANEL	BUILDING "G" HANGAR MAIN DIST. PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"
BUILDING "F" HANGAR MAIN DISTRIBUTION PANEL	BUILDING "F" HANGAR MAIN DISTRIBUTION PANEL 120/240 VAC, 1 PHASE, 3-WIRE FED FROM AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"
SNOW REMOVAL EQUIPMENT BUILDING MAIN DISCONNECTING MEANS	SNOW REMOVAL EQUIPMENT BUILDING MAIN DISCONNECT SWITCH 120/240 VAC, 1 PHASE, 3-WIRE FED FROM ADJACENT PAD MOUNT TRANSFORMER
SNOW REMOVAL EQUIPMENT BUILDING MAIN DISTRIBUTION PANEL "A"	SNOW REMOVAL EQUIPMENT BUILDING MAIN DISTRIBUTION PANEL "A" 120/240 VAC, 1 PHASE, 3-WIRE FED FROM SRE BUILDING MAIN DISCONNECT SWITCH
SNOW REMOVAL EQUIPMENT BUILDING DISTRIBUTION PANEL "B"	SNOW REMOVAL EQUIPMENT BUILDING DISTRIBUTION PANEL "B" 120/240 VAC, 1 PHASE, 3-WIRE FED FROM SRE BUILDING MAIN DISTRIBUTION PANEL "A"
NORTH ACCESS GATE 2 OPERATOR DISCONNECT	NORTH ACCESS GATE 2 OPERATOR DISCONNECT FED FROM SRE BUILDING MAIN DISTRIBUTION PANEL "A"

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

Contract No. CO072

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SHEET TITLE

POWER SOURCE LEGEND PLATES



NOTES:

- 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.
- PER NEC 110.24 "AVAILABLE FAULT CURRENT" PART (A) "FIELD MARKING", SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE AVAILABLE FAULT CURRENT.
- PER NEC 408.6 "SHORT-CIRCUIT CURRENT RATING" THE AVAILABLE FAULT CURRENT AND THE DATE THE CALCULATION WAS PERFORMED SHALL BE FIELD MARKED ON THE ENCLOSURE AT THE POINT OF SUPPLY.

FAULT CURRENT CALCULATION LEGEND PLATES	
DEVICE	LABEL
AIRPORT ELECTRICAL VAULT MAIN SERVICE DISCONNECT	MAX AVAILABLE FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY WAS CALCULATED TO BE: 19,842 AMPS LINE TO LINE 29,763 AMPS LINE TO NEUTRAL ON 9/23/2023 MAX AVAILABLE FAULT CURRENT AT AIRPORT ELECTRICAL VAULT MAIN SERVICE DISCONNECT WAS CALCULATED TO BE: 17,847 AMPS LINE TO LINE 22,288 AMPS LINE TO NEUTRAL ON 9/23/2023
AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"	MAX AVAILABLE FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY WAS CALCULATED TO BE: 19,842 AMPS LINE TO LINE 29,763 AMPS LINE TO NEUTRAL ON 9/23/2023 MAX AVAILABLE FAULT CURRENT AT AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A" WAS CALCULATED TO BE: 16,726 AMPS LINE TO LINE 19,092 AMPS LINE TO NEUTRAL ON 9/23/2023
AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "B"	MAX AVAILABLE FAULT CURRENT AT AIRPORT ELECTRICAL VAULT DISTRIBUTION PANEL "B" WAS CALCULATED TO BE: 14,117 AMPS LINE TO LINE 13,427 AMPS LINE TO NEUTRAL ON 9/23/2023
SERVICE FUSE BOX FOR BUILDINGS B, D1, D2, and E LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	MAX AVAILABLE FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY WAS CALCULATED TO BE: 19,842 AMPS LINE TO LINE 29,763 AMPS LINE TO NEUTRAL ON 9/23/2023 MAX AVAILABLE FAULT CURRENT SERVICE FUSE BOX FOR BUILDINGS B, D1, D2, and E WAS CALCULATED TO BE: 16,734 AMPS LINE TO LINE 19,113 AMPS LINE TO NEUTRAL ON 9/23/2023
SERVICE FUSE BOX FOR BUILDING "C" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	MAX AVAILABLE FAULT CURRENT AT UTILITY TRANSFORMER SECONDARY WAS CALCULATED TO BE: 19,842 AMPS LINE TO LINE 29,763 AMPS LINE TO NEUTRAL ON 9/23/2023 MAX AVAILABLE FAULT CURRENT SERVICE FUSE BOX FOR BUILDING "C" WAS CALCULATED TO BE: 16,734 AMPS LINE TO LINE 19,113 AMPS LINE TO NEUTRAL ON 9/23/2023
MAIN DISCONNECT FOR FBO HANGAR BUILDING "B"	MAX AVAILABLE FAULT CURRENT AT FBO HANGAR BUILDING "B" MAIN DISCONNECT SWITCH WAS CALCULATED TO BE: 9,556 AMPS LINE TO LINE 7,038 AMPS LINE TO NEUTRAL ON 9/23/2023

FAULT CURRENT CALCULATION LEGEND PLATES	
DEVICE	LABEL
MAIN DISTRIBUTION PANEL FOR FBO HANGAR BUILDING "B"	MAX AVAILABLE FAULT CURRENT AT FBO HANGAR BUILDING "B" MAIN DISTRIBUTION PANEL WAS CALCULATED TO BE: 9,556 AMPS LINE TO LINE 7,038 AMPS LINE TO NEUTRAL ON 9/23/2023
LOAD CENTER FOR HANGAR "D1" AND HANGAR "D2" FEEDERS LOCATED AT EXTERIOR OF FBO HANGAR BUILDING "B"	MAX AVAILABLE FAULT CURRENT AT BUILDING "C" MAIN DISCONNECT PANEL WAS CALCULATED TO BE: 10,288 AMPS LINE TO LINE 7,862 AMPS LINE TO NEUTRAL ON 9/23/2023
BUILDING "D1" T-HANGAR MAIN DISCONNECT	MAX AVAILABLE FAULT CURRENT AT BUILDING "D1" T-HANGAR DISCONNECT WAS CALCULATED TO BE: 1,471 AMPS LINE TO LINE 774 AMPS LINE TO NEUTRAL ON 9/23/2023
BUILDING "D2" T-HANGAR MAIN DISCONNECT	MAX AVAILABLE FAULT CURRENT AT BUILDING "D2" T-HANGAR DISCONNECT WAS CALCULATED TO BE: 1,844 AMPS LINE TO LINE 983 AMPS LINE TO NEUTRAL ON 9/23/2023
BUILDING "E" HANGAR MAIN DISCONNECTING MEANS	MAX AVAILABLE FAULT CURRENT AT HANGAR BUILDING "E" MAIN DISCONNECT SWITCH WAS CALCULATED TO BE: 526 AMPS LINE TO LINE 268 AMPS LINE TO NEUTRAL ON 9/23/2023
BUILDING "F" HANGAR MAIN DISTRIBUTION PANEL	MAX AVAILABLE FAULT CURRENT AT BUILDING "F" HANGAR MAIN DISTRIBUTION PANEL WAS CALCULATED TO BE: 1,150 AMPS LINE TO LINE 599 AMPS LINE TO NEUTRAL ON 9/23/2023
BUILDING "G" HANGAR MAIN PANEL	MAX AVAILABLE FAULT CURRENT AT BUILDING "G" HANGAR MAIN DIST. PANEL WAS CALCULATED TO BE: 1,243 AMPS LINE TO LINE 649 AMPS LINE TO NEUTRAL ON 9/23/2023
SNOW REMOVAL EQUIPMENT BUILDING MAIN DISCONNECTING MEANS	MAX AVAILABLE FAULT CURRENT AT TRANSFORMER SECONDARY FEEDING SNOW REMOVAL EQUIPMENT BUILDING MAIN DISCONNECT SWITCH WAS CALCULATED TO BE: 5,754 AMPS LINE TO LINE 8,631 AMPS LINE TO NEUTRAL ON 9/23/2023
SNOW REMOVAL EQUIPMENT BUILDING MAIN DISTRIBUTION PANEL "A"	MAX AVAILABLE FAULT CURRENT AT TRANSFORMER SECONDARY FEEDING SNOW REMOVAL EQUIPMENT BUILDING MAIN DISCONNECT SWITCH WAS CALCULATED TO BE: 5,754 AMPS LINE TO LINE 8,631 AMPS LINE TO NEUTRAL ON 9/23/2023

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: 11/17/2023
PROJECT NO: 22A0001D
CAD FILE: E-612.DWG
DESIGN BY: KNL 09/27/2023
DRAWN BY: CWS 09/27/2023
REVIEWED BY: KNL 06/28/2024

SHEET TITLE

FAULT CURRENT CALCULATION LEGEND PLATES



NOTES:

- ARC FLASH RISK LABELS ARE BASED ON FAULT CURRENT FROM UTILITY TRANSFORMER THAT IS LESS THAN 25,000 AMPS AT 120/240 VAC AT EACH RESPECTIVE PIECE OF EQUIPMENT.
- FAULT CURRENT INFORMATION TO BE PROVIDED BY SERVING ELECTRIC UTILITY COMPANY OR FROM DATA OBTAINED FROM UTILITY TRANSFORMER NAMEPLATE. CONTACT PROJECT ENGINEER OF RECORD TO CONFIRM FAULT CURRENT CALCULATIONS.
- CONTRACTOR SHALL PROVIDE APPROPRIATE LABELS ON ELECTRICAL EQUIPMENT, IN ACCORDANCE WITH NFPA 70E ARTICLE 130 WORK INVOLVING ELECTRICAL HAZARDS, PART 130.5 ARC FLASH RISK ASSESSMENT, (H) EQUIPMENT LABELING, WHERE MAXIMUM CALCULATED FAULT CURRENT EXCEEDS 25,000 AMPS CONTACT PROJECT ENGINEER.
- ALL LABELING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE ELECTRIC SLIDE GATE WORK PAY ITEM OR OTHER ELECTRICAL WORK PAY ITEM.

ARC FLASH RISK LABEL	
EQUIPMENT	LABEL
AIRPORT ELECTRICAL VAULT MAIN SERVICE DISCONNECT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
AIRPORT ELECTRICAL VAULT MAIN DISTRIBUTION PANEL "A"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
AIRPORT ELECTRICAL VAULT DISTRIBUTION PANEL "B"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
EACH CIRCUIT BREAKER ON THE AIRPORT ELECTRICAL VAULT BUSWAY (10 LABELS)	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
RELAY INTERFACE PANEL FOR RUNWAY AND NAVAIDS LOCATED IN THE AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120 VAC, 1-PHASE, 2-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
RELAY INTERFACE PANEL FOR TAXIWAY LIGHTING LOCATED IN THE AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120 VAC, 1-PHASE, 2-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
LIGHTING CONTACTOR CONTROL PANEL LOCATED IN THE AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
LIGHTING CONTACTOR CONTROL PANEL FOR RUNWAY 11 PAPI AND REILS LOCATED IN THE AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
DOUBLE THROW SAFETY SWITCH FOR RUNWAY 11-29 CCR'S LOCATED IN THE AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 240 VAC, 1-PHASE, 2-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
EXHAUST FAN CONTROL PANEL LOCATED IN THE AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120 VAC, 1-PHASE, 2-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
AIRPORT ELECTRICAL VAULT L-854 RADIO CONTROLLER	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120 VAC, 1-PHASE, 2-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1

ARC FLASH RISK LABEL	
EQUIPMENT	LABEL
SAFETY SWITCH FOR UNIT HEATER LOCATED IN ENGINE GENERATOR ROOM OF AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 240 VAC, 1-PHASE, 2-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
WEST ACCESS GATE 1 OPERATOR DISCONNECT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
NORTH ACCESS GATE 2 OPERATOR DISCONNECT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SERVICE FUSE BOX FOR BUILDINGS "B" AND "E" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
RONK SERVICE TRANSFER SWITCH FOR BUILDINGS "B" AND "E" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
RELAY INTERFACE PANEL FOR TAXIWAY LIGHTING LOCATED IN THE AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120 VAC, 1-PHASE, 2-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SERVICE FUSE BOX FOR BUILDING "C" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
RONK SERVICE TRANSFER SWITCH FOR BUILDING "C" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SAFETY SWITCH FOR BUILDING "E" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SAFETY SWITCH FOR APRON LIGHTING "D" AND "E" LOCATED AT EXTERIOR OF AIRPORT ELECTRICAL VAULT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
MAIN DISCONNECT FOR FBO HANGAR BUILDING "B"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1

ARC FLASH RISK LABEL	
EQUIPMENT	LABEL
PANEL "A" FOR FBO HANGAR BUILDING "B"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SNACK BAR DISTRIBUTION PANEL FOR FBO HANGAR BUILDING "B"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
OVERHAUL ROOM PANEL FOR FBO HANGAR BUILDING "B"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
FUEL FACILITY PANELBOARD FED FROM FBO MAIN DISTRIBUTION PANEL	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
LOAD CENTER FOR HANGAR "D1" AND HANGAR "D2" FEEDERS LOCATED AT EXTERIOR OF FBO HANGAR BUILDING "B"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
BUILDING "C" MAIN DISCONNECTING MEANS AND PANELS	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
BUILDING "D1" T-HANGAR MAIN DISCONNECT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
BUILDING "D2" T-HANGAR MAIN DISCONNECT	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
BUILDING "E" HANGAR MAIN DISCONNECTING MEANS	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
BUILDING "E" HANGAR LOAD CENTER	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
BUILDING "F" HANGAR PANEL 1	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1

RECONSTRUCT WEST AIRCRAFT T-HANGAR AREA PAVEMENTS

IDA No: MTO-4816

SBG Project No: N/A

Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: 11/17/2023
PROJECT NO: 22A0001D
CAD FILE: E-609.DWG
DESIGN BY: KNL 09/27/2023
DRAWN BY: CWS 09/27/2023
REVIEWED BY: KNL 06/28/2024

SHEET TITLE

ARC FLASH RISK LABELS SHEET 1



ARC FLASH RISK LABEL	
EQUIPMENT	LABEL
BUILDING "F" HANGAR PANEL 2	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
BUILDING "F" HANGAR PANEL 3	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SNOW REMOVAL EQUIPMENT BUILDING MAIN DISCONNECTING MEANS	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SNOW REMOVAL EQUIPMENT BUILDING MAIN DISTRIBUTION PANEL "A"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
SNOW REMOVAL EQUIPMENT BUILDING DISTRIBUTION PANEL "B"	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1
EACH SAFETY SWITCH IN THE SNOW REMOVAL EQUIPMENT BUILDING (FOR HEATING EQUIPMENT)	WARNING ARC FLASH HAZARD APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED. NOMINAL VOLTAGE: 120/240 VAC, 1-PHASE, 3-WIRE ARC FLASH BOUNDARY: 19 INCHES ARC FLASH PPE CATEGORY: 1

**RECONSTRUCT WEST
AIRCRAFT T-HANGAR
AREA PAVEMENTS**

IDA No: MTO-4816

SBG Project No: N/A

Contract No. CO072

NO.	DATE	DESCRIPTION		
		DES	DWN	REV

ISSUE: 11/17/2023

PROJECT NO: 22A0001D

CAD FILE: E-609.DWG

DESIGN BY: KNL 09/27/2023

DRAWN BY: CWS 09/27/2023

REVIEWED BY: KNL 06/28/2024

SHEET TITLE

**ARC FLASH RISK
LABELS SHEET 2**

NOTES:

- ARC FLASH RISK LABELS ARE BASED ON FAULT CURRENT FROM UTILITY TRANSFORMER THAT IS LESS THAN 25,000 AMPS AT 120/240 VAC AT EACH RESPECTIVE PIECE OF EQUIPMENT.
- FAULT CURRENT INFORMATION TO BE PROVIDED BY SERVING ELECTRIC UTILITY COMPANY OR FROM DATA OBTAINED FROM UTILITY TRANSFORMER NAMEPLATE. CONTACT PROJECT ENGINEER OF RECORD TO CONFIRM FAULT CURRENT CALCULATIONS.
- CONTRACTOR SHALL PROVIDE APPROPRIATE LABELS ON ELECTRICAL EQUIPMENT, IN ACCORDANCE WITH NFPA 70E ARTICLE 130 WORK INVOLVING ELECTRICAL HAZARDS, PART 130.5 ARC FLASH RISK ASSESSMENT, (H) EQUIPMENT LABELING. WHERE MAXIMUM CALCULATED FAULT CURRENT EXCEEDS 25,000 AMPS CONTACT PROJECT ENGINEER.
- ALL LABELING WILL BE CONSIDERED INCIDENTAL TO THE RESPECTIVE ELECTRIC SLIDE GATE WORK PAY ITEM OR OTHER ELECTRICAL WORK PAY ITEM.