

MANCHESTER-BOSTON REGIONAL AIRPORT

MANCHESTER, NH

REPLACEMENT OF RUNWAY 6 DEPARTURE END ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)

AIP # 3-33-0011-XXX-2026

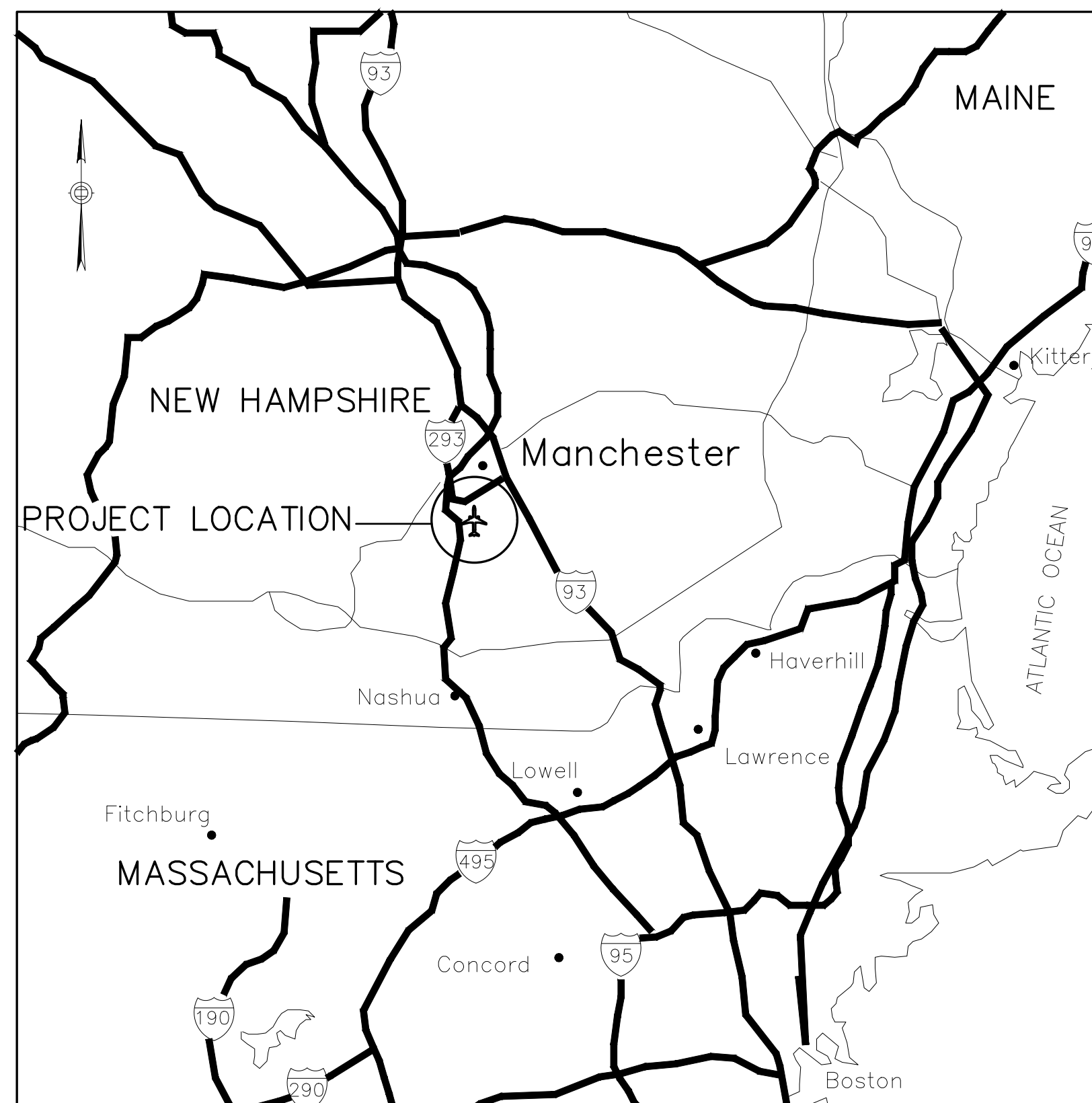
CITY BID #FY26-805-63

MJ PROJECT NO. 19199.11



CITY OF MANCHESTER - DEPARTMENT OF AVIATION


1 AIRPORT ROAD, SUITE 300
MANCHESTER, NEW HAMPSHIRE
(603) 624-6539
WWW.FLYMANCHESTER.COM



MCFARLAND JOHNSON, INC.
53 REGIONAL DRIVE, CONCORD, NH 03301
PH: 603-225-2978 FAX: 603-225-0095

PROJECT DESIGNER

Sealed	DAVID W. RICH
PE No.	NH 14477
Date	JUNE 02, 2026



PLANS BEST VIEWED IN COLOR

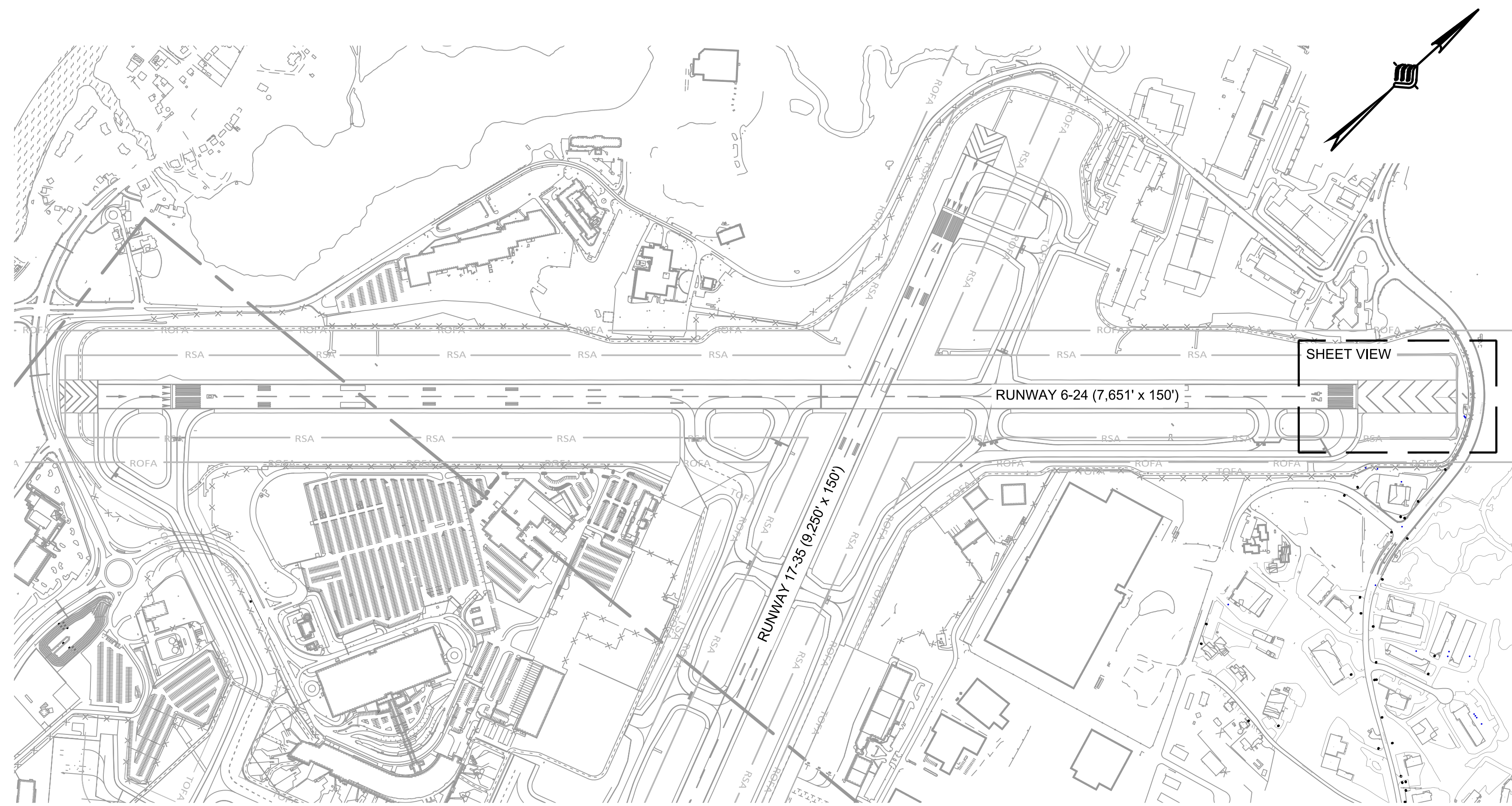
BID DOCUMENTS

JUNE 2026

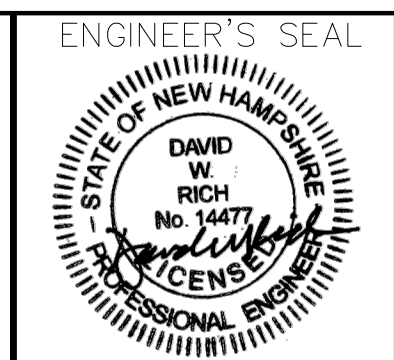
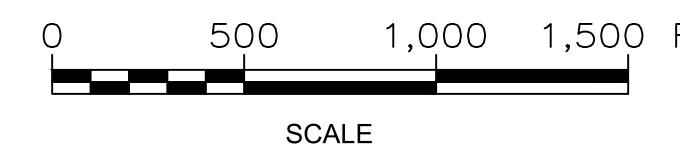
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ITEM LIST TABLE			
BID ITEM	DESCRIPTION OF ITEM	UNIT	QUANTITY
M-100-1	GATE GUARD	LS	1
M-200-1	MAINTENANCE AND PROTECTION OF TRAFFIC	LS	1
M-200-2	TEMPORARY HAUL ROAD	LS	1
C-100-1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	LS	1
C-102-5.1	INSTALLATION AND REMOVAL OF INLET PROTECTION	EA	20
C-102-5.2	INSTALLATION AND REMOVAL OF EROSION CONTROL LOGS	LF	200
C-105-1	MOBILIZATION (5% MAXIMUM)	LS	1
P-101-5.1	JOINT AND CRACK REPAIR	LF	4,000
P-101-5.2	COLD MILLING	SY	11,600
P-101-5.3	REMOVAL OF EXISTING EMAS SYSTEM	LS	1
P-403-8.1	ASPHALT MIXTURE SURFACE COURSE	TON	2,350
P-603-5.1	EMULSIFIED ASPHALT TACK COAT	GAL	1,400
P-605-5.1	JOINT SEALING FILLER (SAW & SEAL)	LF	850
P-620-5.1	SURFACE PREPARATION	SF	19,200
P-620-5.2	MARKINGS	SF	46,500
P-620-5.3	REFLECTIVE MEDIA	LBS	350
P-621-5.1	GROOVING	SY	720
T-901-5.1	SEEDING	SF	9,000
T-905-5.1	TOPSOIL (FURNISHED FROM OFF THE SITE)	CY	120
L-125-5.1	RETROREFLECTIVE MARKER	EA	168
S-001-5.1	INSTALLATION OF PROPOSED EMAS SYSTEM	LS	1

EXISTING LEGEND		
	D	DRAIN PIPE
	UD	UNDERDRAIN
	W	WATER PIPE
	UE	UNDERGROUND ELECTRIC
	DUCT	DUCT BANK
	FAA	FAA ELECTRIC
	OH	OVERHEAD ELECTRIC
		ELEVATED TAXIWAY EDGE LIGHT
		IN-PAVEMENT TAXIWAY CENTERLINE LIGHT
		RUNWAY EDGE LIGHT
		ELECTRIC MANHOLE
		ELECTRIC HANDHOLE
		FAA ELECTRIC HANDHOLE
		CATCH BASIN
		DRAIN MANHOLE
		UNDERDRAIN CLEANOUT
		AIRFIELD GUIDANCE SIGN
		POLE MOUNTED SIGN
		EDGE OF PAVEMENT
		TAXIWAY MARKING
		WATER VALVE
		WATER SHUTOFF
	225	MAJOR CONTOUR
	225.5	MINOR CONTOUR
	CB	CORE / BORING LOCATION
		UTILITY LINE CAP
		BOLLARD
	T	TELEPHONE CABLE



KEY PLAN
1" = 500'



PROJECT DESIGNER
McFARLAND JOHNSON
53 REGIONAL DRIVE, CONCORD, NH 03301-5022
PH: 603-225-2978 FAX: 603-225-0095
DESIGNED BY: NRD
DRAWN BY: NRD
CHECKED BY: DFB



MANCHESTER-BOSTON REGIONAL AIRPORT
REPLACEMENT OF RUNWAY 6 DEPARTURE END
ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
INDEX SHEET
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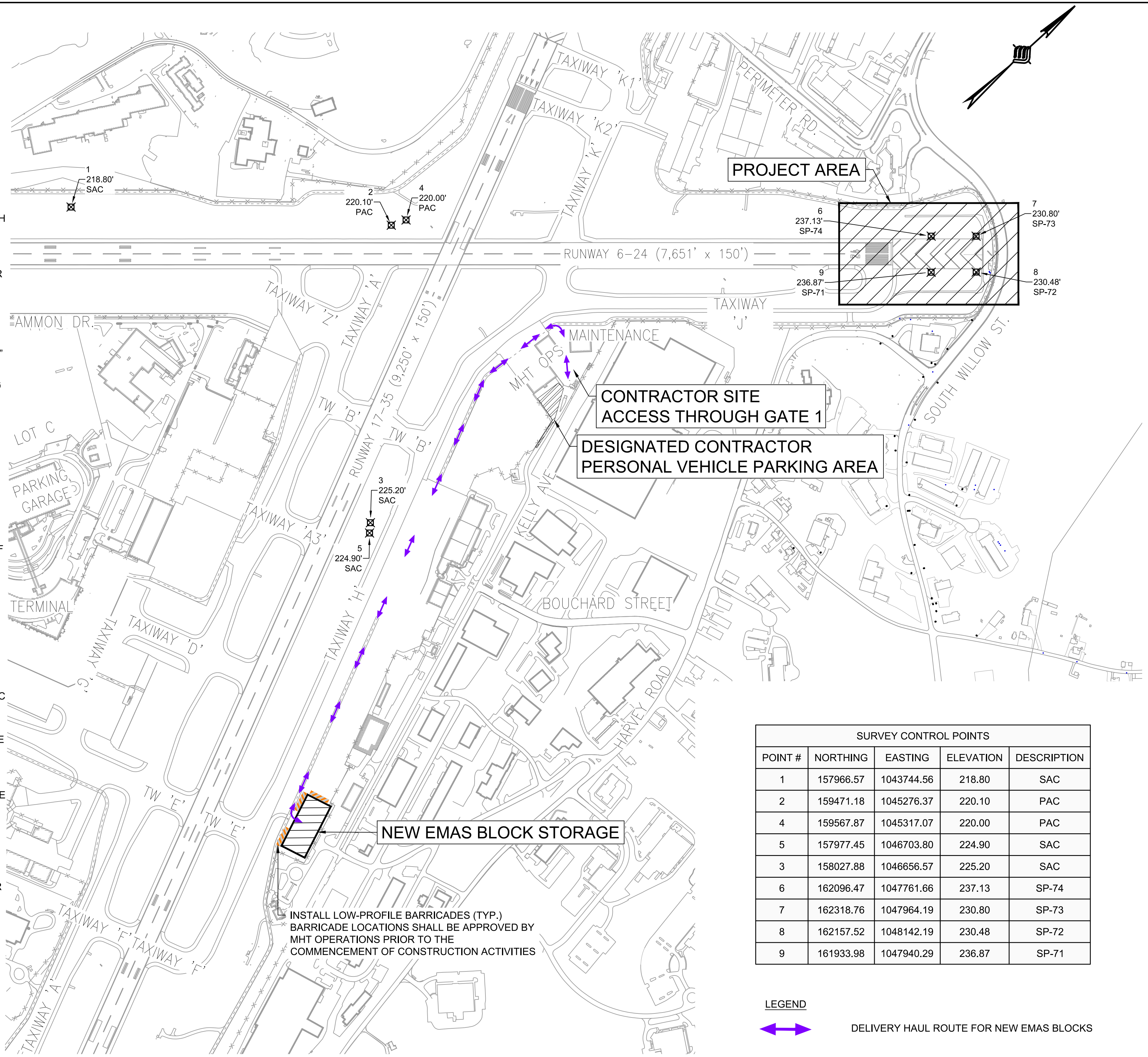
REV. NO.	DATE	DESCRIPTION

M/J PROJ. No.: 19199.11
FILE NAME:
AIP No.: TBD
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IN-01
SHEET 2 OF 20

K:\MANCHESTER\19199.11 REPLACE RUNWAY 6-24 EMAS\DRAWINGS\INDEX SHEET FILES\19199.11-INDX.DWG

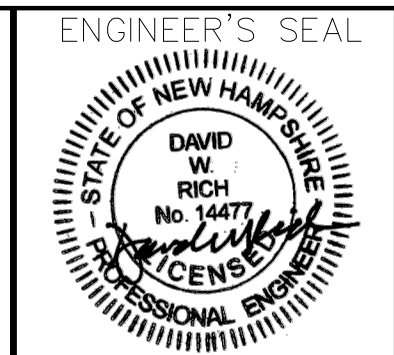
GENERAL NOTES:

1. THE CONTRACTOR SHALL CONDUCT THEIR OPERATION SO AS TO AFFORD COMPLETE UNRESTRICTED ACCESS BY EMERGENCY PERSONNEL AND EQUIPMENT.
2. THE CONTRACTOR SHALL SUBMIT TO THE RESIDENT PROJECT REPRESENTATIVE (RPR) A PROPOSED WORK SCHEDULE FOR THE SUBSEQUENT 2-WEEK PERIOD A MINIMUM OF 48 HOURS PRIOR TO THE SCHEDULED PROJECT PROGRESS MEETING. THE SCHEDULE SHALL INCLUDE IDENTIFICATION OF WORK TASKS AND SKETCHES OF PROPOSED PAVEMENT CLOSURES, PROPOSED HAUL ROUTES AND PROPOSED LOCATION OF ALL SAFETY BARRICADES. THE LOOK AHEAD SCHEDULE SHALL BE REVIEWED AND APPROVED BY THE RPR AND MHT OPERATIONS. WORK NOT SHOWN ON THE APPROVED TWO (2) WEEK LOOK AHEAD SCHEDULE MAY BE DENIED FOR REASON OF INADEQUATE TIME TO COORDINATE WITH AIRPORT TENANTS AND AIRPORT USERS.
3. THE CONTRACTOR SHALL NOT BEGIN WORK IN ANY AREA UNTIL MHT OPERATIONS HAS APPROVED THE TEMPORARY MARKINGS AND SAFETY BARRICADES LAYOUT, AND CONFIRMED THAT TEMPORARY MARKINGS AND SAFETY BARRICADES HAVE BEEN PROPERLY PLACED. THE CONTRACTOR SHALL NOT ENTER THE WORK AREA TO COMMENCE OPERATIONS UNTIL OBTAINING APPROVAL FROM MHT OPERATIONS.
4. ALL VEHICLES ENTERING AND EXITING THE CONSTRUCTION WORK AREA SHALL BE CLEANED AND CLEAR FROM FOREIGN OBJECT DEBRIS (FOD). THE CONTRACTOR SHALL FURNISH, MAINTAIN, AND OPERATE ONE VACUUM SWEEPER TRUCK WITH A DEDICATED OPERATOR ON A FULL-TIME BASIS FOR THE DURATION OF THE PROJECT AND SHALL UTILIZE IT TO REMOVE PROJECT DEBRIS FROM THE ACCESS ROUTE AND WORK AREA AS DIRECTED BY THE RPR OR MHT OPERATIONS.
5. AT THE COMPLETION OF EACH WORK DAY, THE CONTRACTOR SHALL INSPECT THE WORK SITE IN THE PRESENCE OF THE RPR AND MHT OPERATIONS TO VERIFY THAT ALL SAFETY BARRICADES AND SAFETY LIGHTS ARE IN PLACE AND IN PROPER WORKING ORDER. ACCESS ROUTES AND ALL PAVEMENTS ADJACENT TO THE WORK AREA SHALL BE INSPECTED FOR FOD. ALL DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR PRIOR TO LEAVING THE WORK SITE FOR THE DAY. IN ADDITION, PRIOR TO THE COMPLETION OF EACH WORK DAY THE CONTRACTOR SHALL VERIFY WITH MHT OPERATIONS THAT ALL THE ELECTRICAL SERVICES AND NAVAIDS ARE FULLY OPERATIONAL.
6. THE CONTRACTOR'S ATTENTION IS CALLED TO THE SUPPLEMENTAL PROVISIONS, CONSTRUCTION SAFETY AND PHASING PLAN, AND SPECIAL WORK REQUIREMENTS OF THE CONTRACT DOCUMENTS WITH REGARD TO ANY "SPECIAL PROVISIONS" WHICH MAY BE SPECIFIC TO THE SAFETY AND PHASING OF THIS PROJECT.
7. NORMAL AIRCRAFT OPERATIONS WILL BE CONDUCTED ON THE AIRPORT DURING CONSTRUCTION. THE PROJECT PHASING HAS BEEN DESIGNED TO MINIMIZE INTERFERENCE WITH DAILY AIRPORT OPERATIONS. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR THE SAFETY OF OPERATING AIRCRAFT AS WELL AS CONTRACTOR EQUIPMENT AND PERSONNEL. MINOR MODIFICATIONS AND/OR CHANGES TO THE CONSTRUCTION SAFETY AND PHASING PLAN MAY BE ALLOWED BUT ONLY IF IT MINIMIZES IMPACT TO AIRPORT OPERATIONS AND WILL BENEFIT MHT OPERATIONS. ALL SUCH CHANGES SHALL BE AT NO ADDITIONAL EXPENSE TO THE CITY OF MANCHESTER - DEPARTMENT OF AVIATION, AND SHALL BE APPROVED BY THE RPR, MHT OPERATIONS, AND FAA PRIOR TO ANY IMPLEMENTATION. ALL CHANGES SHALL BE DOCUMENTED.
8. NO CONSTRUCTION OPERATIONS SHALL BE PERFORMED WITHIN 121.5 FEET OF THE CENTERLINE OF ANY ACTIVE TAXIWAY, WITHIN 250 FEET OF THE CENTERLINE OF ANY ACTIVE RUNWAY OR WITHIN THE LIMITS OF ACTIVE RUNWAY APPROACH ZONES UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM MHT OPERATIONS. WHEN PERMISSION HAS BEEN GRANTED TO WORK INSIDE THESE LIMITS, NO EQUIPMENT SHALL BE LEFT WITHIN THE LIMITS WHEN NOT ACTUALLY WORKING. ALL BOOMS SHALL BE LOWERED WHEN THE EQUIPMENT IS NOT IN OPERATION. CONTRACTOR'S EQUIPMENT MAINTENANCE REQUIRING OPEN FLAME, WELDING, SPARKS OR BURNING, SHALL NOT BE PERFORMED WITHIN 150 FEET OF AIRCRAFT. ALL HOT WORK SHALL REQUIRE A PERMIT FROM THE MANCHESTER FIRE DEPARTMENT.
9. THE CONTRACTOR SHALL FOLLOW MANCHESTER AIRPORT OPERATIONS CONSTRUCTION TRAFFIC REQUIREMENTS AS THEY PERTAIN TO THE OPERATIONS AND ROUTES TO BE TAKEN BY EQUIPMENT TRAVELING ON AIRPORT PROPERTY. ANY SIGNS, LIGHTS, SIGNALS, MARKINGS, OR TRAFFIC CONTROL DEVICES TO ALLOW PERSONNEL AND EQUIPMENT TO SAFELY ACCESS/EGRESS THE WORK SITE SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF THE WORK AT NO ADDITIONAL COST TO THE CITY OF MANCHESTER, UNLESS SPECIFICALLY NOTED AS ELIGIBLE FOR PAYMENT. NO AIRCRAFT PAVEMENT OR NAVIGATION AID CURRENTLY IN SERVICE SHALL BE LEFT OUT OF SERVICE OVERNIGHT UNLESS PREVIOUSLY SCHEDULED AND APPROVED BY MHT OPERATIONS AND FAA REPRESENTATIVE, WHERE APPLICABLE.
10. PARKING OF PERSONAL VEHICLES INSIDE THE AOA WILL NOT BE PERMITTED. THE CONTRACTOR, AS A SUBSIDIARY OBLIGATION, SHALL PROVIDE TRANSPORTATION FOR HIS/HER EMPLOYEES TO AND FROM THE WORK AREA FROM A PUBLIC PARKING AREA, DESIGNATED CONTRACTOR EMPLOYEE PARKING AREA AT MHT ARFF/OPS BUILDING BY GATE ONE OR AS OTHERWISE APPROVED BY MHT OPS.
11. ALL EXCAVATIONS SHALL BE BACKFILLED, THE PAVEMENT REPAIRED, PROPERLY CURED, MARKED AND APPROVED BY THE RPR AND MHT OPERATIONS PRIOR TO THE WORK AREA BEING REOPENED TO TRAFFIC.
12. ALL EXCAVATED STRUCTURES, PAVEMENTS, AND UNUSED CONSTRUCTION DEBRIS SHALL BE IMMEDIATELY REMOVED FROM THE AIRFIELD AND BE LEGALLY RECYCLED OR DISPOSED OF BY THE CONTRACTOR OFF AIRPORT PROPERTY, OR TEMPORARILY STORED IN THE DESIGNATED CONTRACTOR STAGING AND EQUIPMENT STORAGE AREA (WORK AREA 1). THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES REQUIRED FOR DISPOSAL OF CONSTRUCTION MATERIAL OFF THE AIRPORT. NO SEPARATE MEASUREMENT AND PAYMENT WILL BE MADE FOR THE DISPOSAL, BUT RATHER THE DISPOSAL SHALL BE INCIDENTAL TO THE RESPECTIVE ITEM ASSOCIATED WITH THE MATERIAL.
13. LOCATION OF EXISTING UTILITIES AND INFRASTRUCTURE UNDERGROUND AND ABOVE GROUND ARE FROM SURVEY AND RECORD PLANS AND THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES IN THE PROJECT AREA INCIDENTAL TO ALL PROJECT PAY ITEMS. ALL EXISTING UTILITIES AND INFRASTRUCTURE IN THE VICINITY OF ANY EXCAVATION SHALL BE CLEARLY MARKED BY THE CONTRACTOR ON THE GROUND PRIOR TO BEGINNING EXCAVATION. THE CONTRACTOR SHALL NOTIFY THE FAA AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION NEAR FAA NAVAIDS OR THEIR ASSOCIATED CABLES.
14. THE CONTRACTOR SHALL REPAIR, AT THEIR OWN EXPENSE, ANY UNDERGROUND UTILITIES DAMAGED BY THEIR OPERATIONS AND THEIR SUBCONTRACTOR'S OPERATIONS. ALL REPAIRS SHALL REQUIRE THE RPR'S AND UTILITY OWNER'S REVIEW AND APPROVAL.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE BY EQUIPMENT TO EXISTING PAVEMENT. ANY DAMAGE THAT OCCURS SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER AND RPR, AT NO COST TO THE OWNER.
16. THE CONTRACTOR SHALL PERFORM DUST CONTROL THROUGHOUT THE PROJECT DURATION AS NECESSARY. NO SEPARATE MEASUREMENT AND PAYMENT WILL BE MADE FOR DUST CONTROL. DUST CONTROL SHALL BE INCIDENTAL TO THE VARIOUS ITEMS ASSOCIATED WITH DUST GENERATION. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THEIR OWN WATER SOURCE.
17. ALL ENVIRONMENTAL EROSION CONTROL DEVICES SHALL BE INSTALLED AND APPROVED BY THE RPR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.



SURVEY CONTROL POINTS				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	157966.57	1043744.56	218.80	SAC
2	159471.18	1045276.37	220.10	PAC
4	159567.87	1045317.07	220.00	PAC
5	157977.45	1046703.80	224.90	SAC
3	158027.88	1046656.57	225.20	SAC
6	162096.47	1047761.66	237.13	SP-74
7	162318.76	1047964.19	230.80	SP-73
8	162157.52	1048142.19	230.48	SP-72
9	161933.98	1047940.29	236.87	SP-71

LEGEND
 DELIVERY HAUL ROUTE FOR NEW EMAS BLOCKS



PROJECT DESIGNER
McFarland Johnson
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: RHL
 DRAWN BY: RHL
 CHECKED BY: DWR



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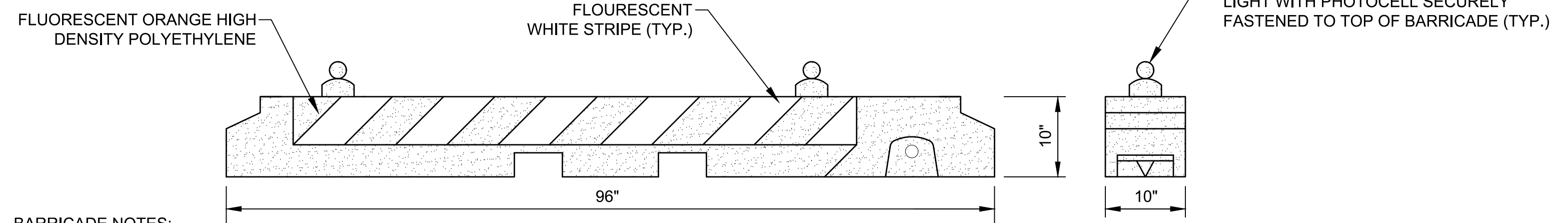
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 GP-01

K:\MANCHESTER\19199.11 REPLACE RUNWAY 6-24 EMAS\DRAWINGS\SSHEET FILES\19199.11-GENR.DWG

CONSTRUCTION SAFETY AND PHASING NOTES:

- CONTRACTOR SHALL SUBMIT A WRITTEN SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO MOBILIZATION AND BEFORE ANY CONSTRUCTION IS ALLOWED TO BE PERFORMED. ANY DELAY IN THE ISSUANCE OF THE NOTICE TO PROCEED DUE TO THE FAILURE BY THE CONTRACTOR TO OBTAIN AN APPROVED SPCD WILL NOT BE GROUNDS FOR ANY CONTRACT TIME EXTENSION. THE CONTRACTOR SHALL BECOME KNOWLEDGEABLE OF THE REQUIREMENTS AND PROCEDURES OF THE FAA ADVISORY CIRCULAR NO. 150/5370-2G (OR CURRENT EDITION) "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION" AND THE APPROVED "CONSTRUCTION SAFETY AND PHASING PLAN" (CSPP), AND INCORPORATE RELEVANT ITEMS INTO THE SPCD WHICH MUST MEET OR EXCEED THE PROJECT'S CSPP REQUIREMENTS. THE SPCD SHALL BE MODIFIED AND UPDATED AS REQUIRED THROUGHOUT THE PROJECT TO ADDRESS EACH PHASE AND/OR SUB PHASE AS WORK PROGRESSES. SOME, BUT NOT ALL OF THE ITEMS, TO BE ADDRESSED IN THE SPCD ARE AS FOLLOWS:
 - IDENTIFICATION AND QUALIFICATIONS OF DEDICATED SAFETY & SECURITY POINT OF CONTACT.
 - WORK SCHEDULING, COORDINATION, AND NOTIFICATION PROCEDURES OF CONSTRUCTION ACTIVITIES.
 - AIRFIELD COMMUNICATIONS AND 24-HOUR EMERGENCY NOTIFICATION PROCEDURES.
 - CONSTRUCTION OPERATIONS ADJACENT TO OR WITHIN SAFETY AREAS, AND OBJECT FREE AREAS.
 - AREAS, NAVAID CRITICAL AREAS, AND APPROACH SURFACES. (I.E. GRADING, HAULING MATERIALS, ETC.).
 - METHODS AND REQUIREMENTS FOR SEPARATING CONSTRUCTION AREAS FROM AIRPORT OPERATIONS AREAS (AOA).
 - PREVENTING INTERFERENCE WITH FAA NAVAID (ILS OR OTHER) CRITICAL AREAS.
 - CONTROL OF FOREIGN OBJECT DEBRIS (FOD) AND DUST.
 - CONSTRUCTION VEHICLE REQUIREMENTS, PROCEDURES AND DRIVER TRAINING FOR ESCORT DRIVERS.
 - OPERATIONS WITHIN MOVEMENT AND NON-MOVEMENT AREAS TO PREVENT RUNWAY INCURSIONS.
 - CONTRACTOR ACCESS POINTS, VEHICLE CROSSING LOCATIONS, SECURITY FENCING AND GATES, AND EMPLOYEE SECURITY TRAINING.
 - PROCEDURES, REQUIREMENTS, AND COORDINATION OF RUNWAY AND/OR TAXIWAY CLOSURES, INCLUDING NOTICE TO AIRMEN (NOTAM) COORDINATION.
 - RSA DELINEATION MARKER PLACEMENT LOCATIONS, AND TEMPORARY CONSTRUCTION SIGN LOCATIONS.
 - PROCEDURES FOR MANAGING HAZARDOUS MATERIALS.
 - PROCEDURES FOR LOCATING & PROTECTING EXISTING UNDERGROUND UTILITIES.
- THE CONSTRUCTION SAFETY AND PHASING PLANS HAVE BEEN REVIEWED AND ACCEPTED BY THE FAA AND MHT OPERATIONS. COMBINING, MODIFYING, OR ALTERING WORK AREAS WILL NOT BE ALLOWED WITHOUT APPROVAL FROM THE FAA AND MHT OPERATIONS. THE CONTRACTOR SHALL PREPARE THEIR BID BASED ON THE CONSTRUCTION PHASING SHOWN IN THESE DOCUMENTS. APPROVED MODIFICATIONS AFTER THE BID SHALL RESULT IN NO ADDITIONAL COST TO THE OWNER. ANY PROPOSED CHANGES FROM THE CONTRACTOR SHALL BE SUBMITTED THROUGH THE RPR WHO SHALL SUBMIT IT TO THE AIRPORT AND FAA. REVIEW OF ANY REVISED CSPP MAY TAKE 45 WORKING DAYS OR LONGER. HOWEVER, CHANGES MAY NOT BE ACCEPTED.
- ALL OF THE CONTRACTOR'S AND SUBCONTRACTOR'S EMPLOYEES SHALL HAVE A "TAILGATE" SAFETY MEETING EVERY SHIFT CHANGE OR START OF EACH DAY PRIOR TO ANY WORK, WITH THE RPR AND MHT OPERATIONS PRESENT, TO REVIEW THE DAY'S WORK AND SAFETY PROCEDURES. THIS DAILY COORDINATION OF THE CONSTRUCTION ACTIVITIES SHALL BE HELD TO CLEARLY IDENTIFY THE LIMITS OF WORK FOR THE DAY. THE CONTRACTOR SHALL NOT EXCEED THE LIMITS OF WORK WITHOUT APPROVAL FROM THE RPR AND MHT OPERATIONS. IN ADDITION, A SIGN-IN SHEET SHALL BE KEPT FOR THE ATTENDANCE AT THIS MEETING.
- CONTRACTOR SHALL PROVIDE A COMPETENT SAFETY PERSON (WHO ALSO COULD BE THE SUPERINTENDENT OR OTHER SUPERVISORY PERSON) FAMILIAR WITH AIRPORT SAFETY TO MONITOR CONSTRUCTION ACTIVITIES. THIS INDIVIDUAL WILL BE RESPONSIBLE FOR MONITORING CONSTRUCTION ACTIVITIES AND PERSONNEL FOR COMPLIANCE WITH THE SAFETY REQUIREMENTS ESTABLISHED BY THE CONTRACT DOCUMENTS, THE SPCD, THE REGULATIONS AND REQUIREMENTS OF THE AIRPORT, FAA, AND OTHER APPLICABLE AGENCIES.
- CONTRACTOR SHALL PROVIDE A POINT OF CONTACT TO THE OWNER AND RPR WHO CAN BE CONTACTED AT ANY TIME THROUGHOUT THE COURSE OF THE CONTRACT. THIS INDIVIDUAL WILL BE CAPABLE OF COORDINATING AN IMMEDIATE RESPONSE TO CORRECT ANY CONSTRUCTION RELATED ACTIVITY THAT MAY ADVERSELY AFFECT THE OPERATIONAL SAFETY OF THE AIRPORT.
- THE PRIMARY ACCESS POINT SHALL BE THROUGH GATE 1. ALL VEHICLES ENTERING THE AIRFIELD SHALL BE ESCORTED TO AND FROM THE WORK AREA BY MHT OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL PROJECT SUPPLIERS AND SUBCONTRACTORS OF THE HAUL ROUTE AND ACCESS POINT.
- THE CONTRACTOR SHALL PROVIDE A GATE GUARD WHO IS RESPONSIBLE FOR SECURING THE AIRFIELD FROM PEDESTRIAN OR UNAUTHORIZED VEHICLE TRAFFIC ENTERING THE AIRFIELD ERRANTLY OR MALICIOUSLY, AND SHALL BE RESPONSIBLE FOR QUEUING AND HOLDING TRAFFIC WHILE WAITING FOR AN ESCORT VEHICLE TO HAND OVER TRAFFIC ENTERING THE AIRFIELD. THE GATE GUARD SHALL EITHER LOCK AND SECURE THE GATE WHILE WAITING FOR VEHICLES TO ACCESS OR IMPEED ACCESS IN OTHER WAYS SUCH AS BLOCKING THE ACCESS WITH THEIR VEHICLE. WHEN THE GATE GUARD IS PERFORMING THIS ROLE, THAT IS THE EMPLOYEE'S SOLE FUNCTION. ONLY IF THE GATE IS CLOSE AND LOCKED CAN A GATE GUARD PROVIDE OTHER TASKS.
- ALL VEHICLES WILL BE INSPECTED PRIOR TO ENTERING AOA BY THE GATE GUARD AND/OR MHT OPERATIONS. TEMPORARY CONSTRUCTION BADGES WILL BE ISSUED TO INDIVIDUALS THAT DO NOT HAVE A MHT BADGE. INDIVIDUALS ENTERING THE AOA MUST BE IN A VEHICLE. WALKING THROUGH A VEHICLE GATE IS NOT PERMITTED.
- ALL CONTRACTOR'S MOTORIZED VEHICLES OPERATING IN AIRCRAFT MOVEMENT AREAS SHALL BE EQUIPPED WITH AN AMBER FLASHING LIGHT AND/OR A 3 SQUARE-FOOT FLAG CONSISTING OF INTERNATIONAL ORANGE AND WHITE SQUARES NOT LESS THAN ONE SQUARE-FOOT DISPLAYING IN FULL VIEW ABOVE THE VEHICLE. ALL CONTRACTOR VEHICLES SHALL HAVE THE COMPANY IDENTIFICATION AND TELEPHONE NUMBER PLAINLY VISIBLE ON BOTH SIDES OF THE VEHICLE.
- UPON RECEIPT OF APPROVAL FOR A CLOSURE AND BEFORE EQUIPMENT ENTERS THE AIRFIELD AND CONSTRUCTION COMMENCES, THE WORK AREA SHALL BE SECURED. LIGHTING EQUIPMENT AND SAFETY BARRICADES SHALL BE PLACED AND OPERATIONAL AS APPLICABLE. THE WORK AREA SHALL BE CLEARLY DELINEATED AND ALL SAFETY REQUIREMENTS SHALL BE APPROVED BY THE RPR PRIOR TO BEGINNING ANY WORK.
- CONSTRUCTION SIGNS (I.E. "CONSTRUCTION TRAFFIC" WITH ARROWS, "NO UNAUTHORIZED VEHICLES BEYOND THIS POINT" OR OTHER STANDARD MANUAL OF UNIFORM TRAFFIC CONTROL DEVICE (MUTCD) SIGNS) SHALL BE LOCATED AT THE WORK AREA EGRESS/INGRESS POINTS. THERE SHALL BE NO SEPARATE PAYMENT FOR PROVIDING THESE SIGNS.
- CONTRACTOR SHALL ENSURE THAT NO PAVEMENT LIPS, PAVEMENT EDGES, SIGN FOUNDATIONS, STRUCTURES OR OTHER APPURTENANCES EXCEED 3 INCHES WITHIN ACTIVE AIRCRAFT OPERATIONAL AREAS.
- DAILY COORDINATION OF CONSTRUCTION ACTIVITIES SHALL BE HELD ON-SITE WITH THE RPR AND MHT OPERATIONS TO CLEARLY IDENTIFY THE LIMITS OF WORK FOR THE DAY. THE CONTRACTOR SHALL NOT EXCEED THE LIMITS OF WORK WITHOUT APPROVAL FROM THE RPR.
- TEMPORARY TAXIWAY CLOSURES OR CAUTIONS AND/OR RUNWAY CLOSURES IN ACCORDANCE WITH THE CSPP ARE SUBJECT TO WIND/WEATHER AVAILABILITY AND ARE SUBJECT TO A RECALL TIME TO BE DETERMINED BY MHT OPERATIONS.
- IF ALLOWED, WHEN WORKING UNDER A TAXIWAY CAUTION, ALL ADJACENT PAVEMENTS WILL BE AVAILABLE FOR UNLIMITED AIRCRAFT OPERATIONS. THE CONTRACTOR SHALL CONDUCT OPERATIONS IN SUCH A MANNER THAT NO INTERFERENCE WITH AIRCRAFT OPERATIONS WILL OCCUR. THE CONTRACTOR SHALL BE ESCORTED BY MHT OPERATIONS AND THE CONTRACTOR SHALL RELOCATE PERSONNEL AND EQUIPMENT A MINIMUM OF 129.5 FEET FROM THE TAXIWAY CENTERLINE, OR A MINIMUM OF 250' FROM ACTIVE RUNWAY CENTERLINES, TO ALLOW FOR SAFE PASSAGE OF AIRCRAFT AS REQUIRED.
- DURING NIGHT WORK (IF ALLOWED), ALL LIGHTING EQUIPMENT UTILIZED SHALL BE CONTROLLED TO PREVENT STRAY LIGHT. THE CONTRACTOR SHALL DIRECT ALL LIGHTING AWAY FROM ADJACENT NEIGHBORHOODS AND IN A MANNER THAT DOES NOT INTERFERE WITH THE AIR TRAFFIC CONTROL TOWER AND AIRCRAFT OPERATIONS. THE CONTRACTOR SHALL PREPARE A LIGHTING PLAN TO BE REVIEWED AND APPROVED BY MHT OPERATIONS. MHT OPERATIONS SHALL APPROVE THE LOCATION AND OPERATION OF ALL LIGHTING EQUIPMENT.
- IT SHOULD BE UNDERSTOOD BY THE CONTRACTOR THAT TRAINING OF A GATE GUARD OR OTHER BADGED EMPLOYEE MAY TAKE SIGNIFICANT EFFORT AND TIME AND SHOULD BE ACCOUNTED FOR UNDER MAINTENANCE AND PROTECTION OF TRAFFIC. NO ADDITIONAL COMPENSATION WILL BE ELIGIBLE DUE TO UNFORSEEN COSTS FOR TRAINING AND BADGING.

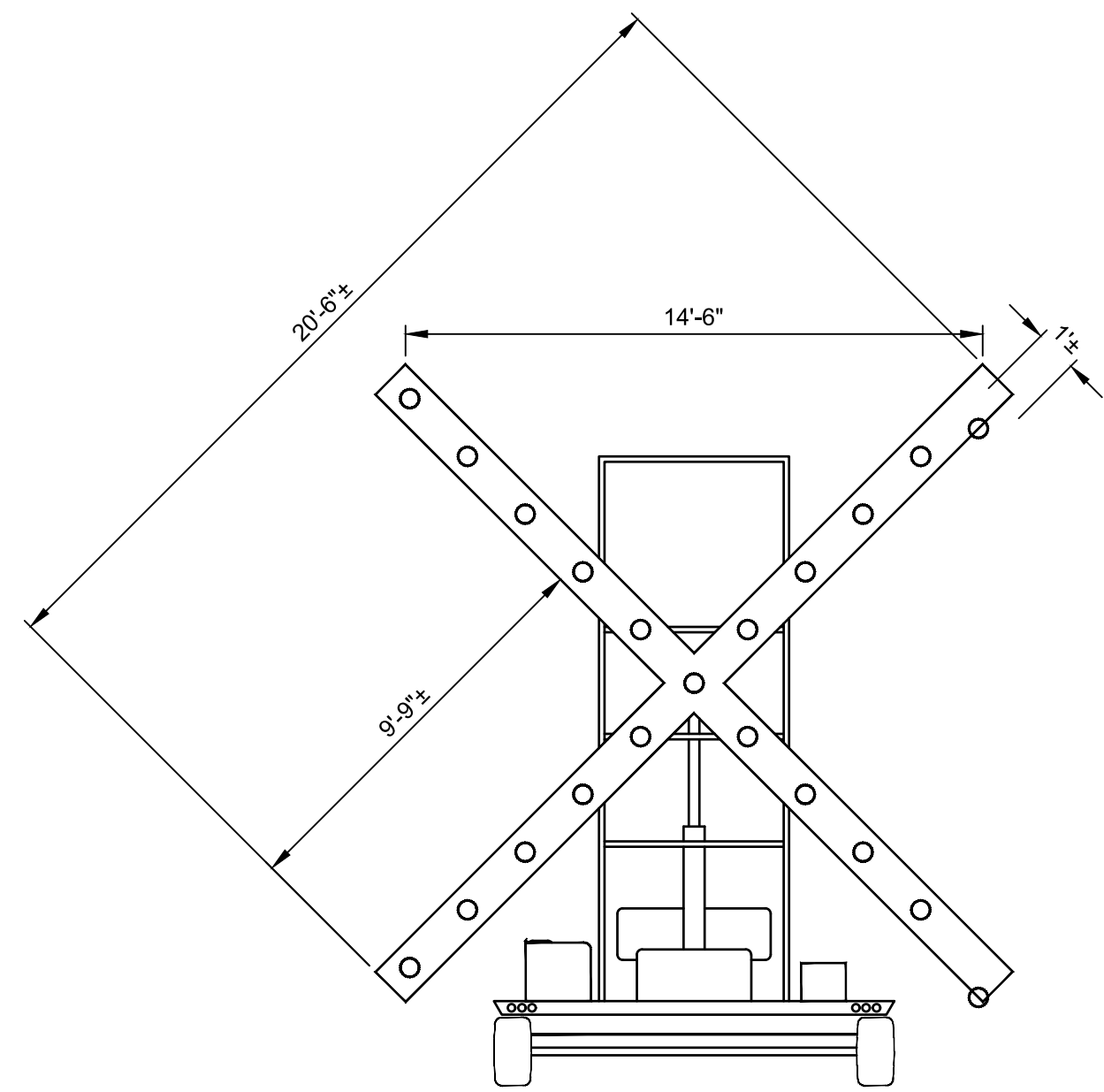


BARRICADE NOTES:

- BARRICADES SHALL BE MULTI-BARRIER SAFETY BARRICADES WITH REFLECTIVE STRIPING.
- BARRICADES SHALL BE INTERLOCKED WITH ADJACENT BARRICADES TO CREATE A CONTINUOUS BARRICADE.
- THE RPR AND MHT OPERATIONS WILL HAVE FINAL DETERMINATION WHERE BARRICADES WILL BE PLACED.
- BARRICADES SHALL BE BALLASTED WITH WATER OR OTHER APPROVED METHODS TO WITHSTAND HIGH WINDS AND/OR JET BLAST.
- ALL BARRICADES SHALL MEET REQUIREMENTS OF FAA ADVISORY CIRCULAR 150/5370-2G (CURRENT EDITION), "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION".
- CONTRACTOR IS RESPONSIBLE FOR SUPPLYING AN ADEQUATE NUMBER OF BARRICADES TO PROPERLY CLOSE AIRFIELD PAVEMENTS AS SHOWN ON SHEET CS-01.
- CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF BARRICADES THROUGHOUT THE PROJECT DURATION. THE BARRICADES SHALL BE MOVED AT THE DIRECTION OF THE RPR OR AIRPORT OPERATIONS.
- CONTRACTOR SHALL MAKE DAILY INSPECTIONS OF THE BARRICADES TO VERIFY LIGHTS ARE OPERATING EVERY NIGHT.
- CONTRACTOR SHALL PROVIDE AND INSTALL "NO ENTRY" SIGNS ON TAXIWAYS TO BE CLOSED AT THE REQUEST OF THE OWNER. SEE DETAIL ON THIS SHEET.

BALLASTED LIGHTED SAFETY BARRICADE

NOT TO SCALE

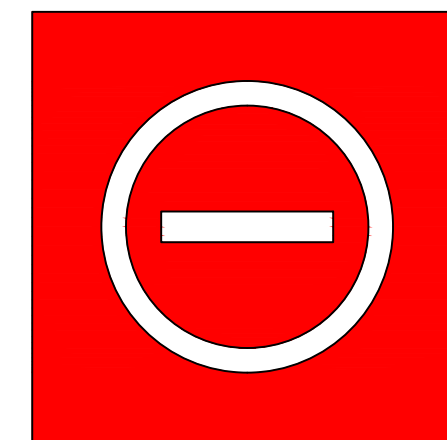


LIGHTED RUNWAY CLOSURE MARKER

NOT TO SCALE

RUNWAY CLOSURE MARKER NOTES:

- RUNWAY CLOSURE MARKER IS TO BE A TOWABLE UNIT WHICH CAN BE QUICKLY AND EFFICIENTLY SET UP AND REMOVED FROM THE RUNWAY. THE RUNWAY CLOSURE MARKER SHALL MEET THE REQUIREMENTS OF FAA AC 150/5345-55A (LATEST REVISION).
- RUNWAY CLOSURE MARKER MUST BE ABLE TO WITHSTAND A MINIMUM WIND SPEED OF 40 M.P.H. WITHOUT ADVERSELY AFFECTING AIMING OR OPERATION.
- RUNWAY CLOSURE MARKER WILL CONSIST OF 21 90-WATT PAR 38 CLEAR INCANDESCENT LAMPS OR LAMPS WHICH ARE CAPABLE OF TRANSMITTING AVIATION WHITE LIGHT PER SAE-AS25050. ARRANGED IN THE SHAPE OF THE LETTER "X" WITH ARMS CROSSED AT AN ANGLE APPROPRIATE TO MAKE THE "X" DISCERNIBLE TO APPROACHING AIRCRAFT. THE "X" FRAME CONTAINING THE LIGHTS IS TO BE PAINTED NO. 13538 AVIATION YELLOW, PER FED-STD-595, ON ALL SIDES TO ENSURE VISIBILITY.
- LIGHT FIXTURES MOUNTED IN "X" FRAME MUST INDIVIDUALLY BE CAPABLE OF PROVIDING THE FOLLOWING MINIMUM INTENSITIES:
 DAYTIME EFFECTIVE INTENSITY OF 70,000 CANDELA (cd)
 AT THE BEAM CENTER, 34,000 cd AT 10 DEGREES RADIUS, AND 13,000 cd AT 15 DEGREES RADIUS.
 NIGHTTIME EFFECTIVE INTENSITY OF 2,000 (cd) AT THE BEAM CENTER, 970 cd AT 10 DEGREES RADIUS, AND 370 cd AT 15 DEGREES RADIUS.
- LIGHT FIXTURES MOUNTED IN "X" FRAME MUST HAVE ALL LIGHT BULBS, SOCKETS, WIRING AND CONNECTIONS ENCLOSED IN WEATHER RESISTANT HOUSINGS.
- LIGHT FIXTURES MOUNTED IN "X" FRAME ARE TO BE IN A FLASHING MODE CONTROLLED BY A SOLID STATE FLASHER. FLASHER IS TO BE EQUIPPED WITH A FAIL SAFE ALLOWING LIGHTS TO REMAIN ON CONTINUOUS SHOULD FLASHER UNIT FAIL.
 FLASH INTERVAL TIME WILL BE:
 DAYTIME OPERATION - 2.5 SECONDS ON, 2.5 SECONDS OFF
 NIGHTTIME OPERATION - 2.5 SECONDS ON, 2.5 SECONDS OFF
- UNIT MUST BE EQUIPPED WITH A PHOTO CELL WHICH WILL REDUCE THE OUTPUT VOLTAGE TO 65 VOLTS DURING NIGHTTIME OPERATION.
- THE RUNWAY CLOSURE MARKER MUST BE EQUIPPED FOR A CONNECTION TO 120V AC POWER SOURCE TO ALLOW FOR BACK-UP POWER SOURCE CAPABILITY OR ON-SITE POWER SUPPLY IF AVAILABLE. RUNWAY CLOSURE MARKER IS TO BE ENERGIZED BY A PORTABLE DIESEL ENGINE POWER SUPPLY WITH AN ADEQUATE FUEL CAPACITY TO SUPPLY POWER TO THE UNIT AT FULL LOAD FOR A MINIMUM OF 120 HOURS OF CONTINUOUS OPERATION.
- RUNWAY CLOSURE MARKER IS TO BE EQUIPPED WITH 2 LIGHTS MOUNTED ON THE BACK SIDE OF THE TOP LEGS OF THE "X" FRAME. LIGHTS ARE TO BE WIRED SUCH THAT THEY REMAIN CONTINUOUSLY ON DURING CLOSURE MARKER OPERATION AS AN INDICATION OF POWER BEING SUPPLIED TO THE UNIT.
- UNIT IS TO BE EQUIPPED WITH SOLAR POWERED SAFETY BEACON MOUNTED IN A LOCATION VISIBLE TO ATCT OR AIRPORT PERSONNEL. BEACON IS TO BE WIRED SUCH THAT IT WILL BE ACTIVATED IN THE EVENT OF TOTAL POWER LOSS AND HAVE SUFFICIENT POWER TO OPERATE FOR A MINIMUM OF 140 HOURS DAY OR NIGHT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, MAINTAINING, MOVING AND FUELING. INCLUDING FUELING ON THE WEEKENDS AND MAINTENANCE ON THE WEEKEND.



NO ENTRY SIGN DIMENSIONS			
DESCRIPTION	DIMENSION (IN)	WIDTH (IN)	COLOR
OUTER SIDE LENGTH	40	N/A	N/A
DIAMETER	22	2	WHITE
DASH	15.5	3.3	WHITE

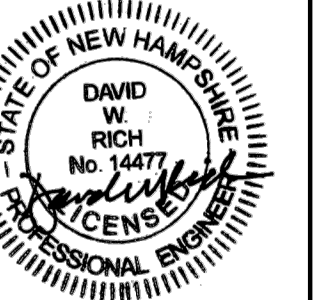
NO ENTRY SIGN NOTES:

- CONSTRUCT ACCORDING TO SIGN DIMENSION TABLE AND SIGN TYPE L-858R REQUIREMENTS.
- WHITE SYMBOLS SHALL HAVE A 3/4" BLACK BORDER.
- SIGN SHALL NOT BE MOUNTED TO THE ASPHALT SURFACE OR PAINTED ON THE PAVEMENT SURFACE.
- SIGN SHALL BE MOUNTED ON A SKID STYLE FRAME AND BE HELD DOWN TO WITHSTAND JET BLAST WHILE STILL BEING FRANGIBLE.
- SIGN SHALL BE INSTALLED AT BARRICADE LOCATIONS AS REQUESTED BY AIRPORT OPERATIONS.

NO ENTRY SIGN DETAIL

NOT TO SCALE

ENGINEER'S SEAL



PROJECT DESIGNER
McFARLAND JOHNSON
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: RHL
 DRAWN BY: RHL
 CHECKED BY: DWR



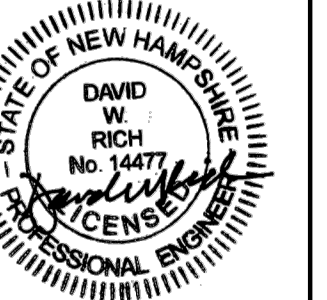
MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 CONSTRUCTION SAFETY AND PHASING
 PLAN - NOTES & DETAILS
 SCALE: N.T.S. DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION

M/J PROJ. No.: 19199.11
 FILE NAME:
 AIP No.: TBD

DRAWING NO.

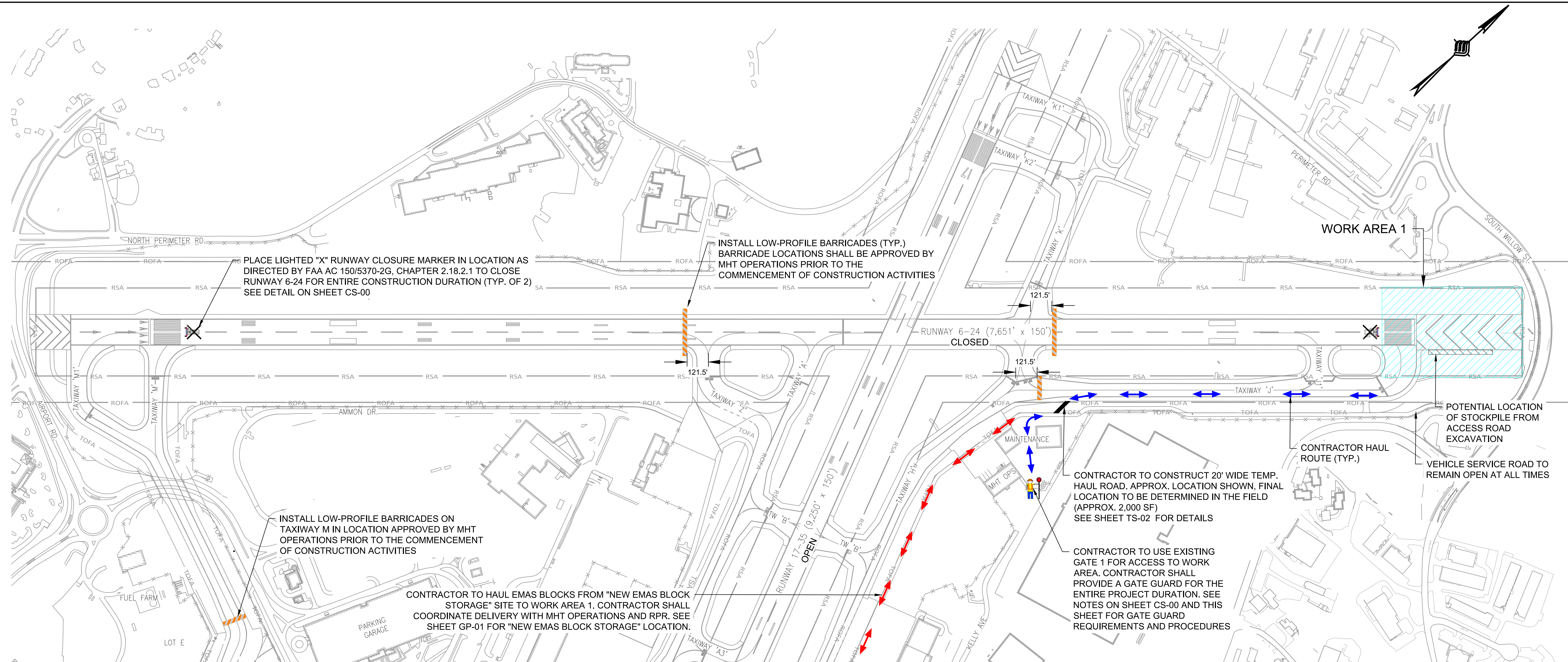
CS-00



PROJECT DESIGNER
McFarland Johnson
53 REGIONAL DRIVE, CONCORD, NH 03301-5022
PH: 603-225-2978 FAX: 603-225-0095
DESIGNED BY: RHL
DRAWN BY: RHL
CHECKED BY: DWR



MANCHESTER-BOSTON REGIONAL AIRPORT
REPLACEMENT OF RUNWAY 6 DEPARTURE END
ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
CONSTRUCTION SAFETY AND PHASING
PLAN
DATE: JUNE 2026
SCALE: 1" = 300'



OVERALL CONSTRUCTION SAFETY AND PHASING NOTES:

- ALL AIRFIELD MAINTENANCE AND PROTECTION OF TRAFFIC MEASURES, WHETHER SHOWN ON THE PLANS OR REQUESTED BY MHT OPERATIONS OR RESIDENT PROJECT REPRESENTATIVE (RPR), SHALL BE CONSIDERED INCIDENTAL TO MAINTENANCE AND PROTECTION OF TRAFFIC.
- ALL CONSTRUCTION PERSONNEL AND EQUIPMENT SHALL REMAIN WITHIN THE HAUL ROUTE AND WORK AREA SHOWN ON THIS SHEET AT ALL TIMES UNLESS APPROVED AND ESCORTED BY MHT OPERATIONS.
- CONTRACTOR SHALL PLACE LIGHTED BARRICADES AND LIGHTED RUNWAY CLOSURE MARKERS AS SHOWN ON THIS SHEET AND TO THE APPROVAL OF MHT OPERATIONS PRIOR TO THE COMMENCEMENT OF WORK. SEE DETAILS ON SHEET CS-00.
- REFUELING OF THE LIGHTED RUNWAY CLOSURE MARKERS SHALL BE PERFORMED ON A REGULAR SCHEDULE APPROVED IN ADVANCE BY MHT OPERATIONS. CONTRACTOR PERSONNEL SHALL BE ESCORTED BY MHT OPERATIONS AT ALL TIMES.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING A GATE GUARD TO MONITOR AND REGULATE ALL CONSTRUCTION VEHICLES AND PERSONNEL LEAVING OR ENTERING THE SITE AT ALL TIMES WHEN THE GATE IS UNLOCKED. GATE GUARD PAYMENT WILL BE UNDER THE GATE GUARD PAY ITEM.
- NO WORK MAY OCCUR WITHIN 121.5' OF THE CENTERLINE OF ANY OPEN TAXIWAY, OR WITHIN 250' OF THE CENTERLINE OF ANY OPEN RUNWAY, UNLESS EXPLICITLY DETAILED ON THE SAFETY AND PHASING PLANS.
- ALL WORK WITHIN RUNWAY OR TAXIWAY OBJECT FREE AREAS MUST BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS AT LEAST 72 HOUR IN ADVANCE TO THE START OF WORK.
- THE RUNWAY 6-24 CLOSURE SHALL BE COORDINATED WITH THE RPR AND MHT OPERATIONS A MINIMUM OF 72 HOURS IN ADVANCE.
- ALL VEHICLES FROM THE CONSTRUCTION WORK AREAS SHALL BE CLEAR FROM FOREIGN OBJECT DEBRIS (FOD) PRIOR TO ENTERING AND LEAVING THE SITE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FUNCTIONAL VACUUM SWEEPER WITH A DEDICATED OPERATOR AT ALL TIMES AND SHALL PROVIDE ADEQUATE SWEEPING AND MAINTENANCE OF THE HALL ROUTES AT ALL TIMES.
- ALL HAUL ROUTES SHALL BE RESTORED TO THEIR EXISTING CONDITION OR BETTER FOLLOWING CONSTRUCTION.
- ANY PAVEMENT OR OTHER STRUCTURE DAMAGED DUE TO CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- ANY PAVEMENT MARKING DAMAGED OR OBSCURED DUE TO HEAVY TRAFFIC SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- MHT OPERATIONS SHALL PROVIDE ESCORTS FOR THE ENTIRE CONSTRUCTION DURATION.
- STOCKPILE HEIGHTS SHALL NOT EXCEED A HEIGHT OF 25 FEET UNLESS OTHERWISE SHOWN ON THE PLANS.
- CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENT BEST MANAGEMENT PRACTICES PRIOR TO COMMENCEMENT OF WORK.
- EDGE LIGHTS AND AIRFIELD GUIDANCE SIGNS WITHIN THE WORK AREA OR DIRECTING AIRCRAFT INTO WORK AREA SHALL BE DISCONNECTED AND/OR REPLACED WITH BLANK PANELS. ALL TEMPORARY JUMPER LOCATIONS REQUIRED TO MAINTAIN OPERATIONAL LIGHTING CIRCUITS OUTSIDE OF THE WORK AREA SHALL BE PROPOSED BY THE CONTRACTOR AND APPROVED BY THE RPR AND AIRPORT OPERATIONS PRIOR TO INSTALLATION. ITEMS TO MAINTAIN AIRCRAFT GUIDANCE SHALL BE PAID FOR UNDER MAINTENANCE AND PROTECTION OF TRAFFIC.

WORK AREA 1

DESCRIPTION: INCLUDES ALL WORK ASSOCIATED WITH THE REMOVAL OF THE EXISTING AND INSTALLATION OF NEW RUNWAY 6-24 EMAS

DURATION: 60 CONSECUTIVE CALENDAR DAYS

WORK SCHEDULE: M-F 7:00 AM TO 7:00 PM

- WORK PERFORMED AT NIGHT, ON WEEKENDS, OR FOR DURATIONS OF UP TO 24 HOURS WILL BE SUBJECT TO OWNER REVIEW AND MAY BE APPROVED ON A CASE-BY-CASE BASIS.

CLOSURES:

- RUNWAY 6-24 FULL CLOSURE
- TAXIWAY J BETWEEN TAXIWAY K AND RUNWAY 24 END
- TAXIWAY J1
- TAXIWAY M BETWEEN TERMINAL APRON AND RUNWAY 6 END
- TAXIWAY M1

LIQUIDATED DAMAGES: REFER TO CONTRACT DOCUMENTS

RESTRICTIONS:

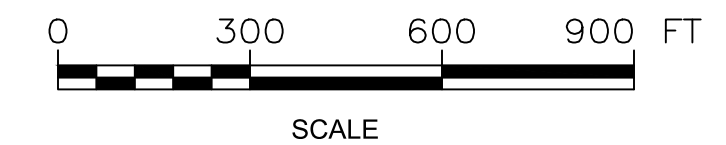
- CONTRACTOR SHALL ACCESS THE WORK AREA VIA GATE 1 UNLESS OTHERWISE APPROVED BY MHT OPERATIONS
- CONTRACTOR SHALL REMAIN UNDER ESCORT OF MHT OPERATIONS AT ALL TIMES WHILE IN THE AIRCRAFT OPERATIONS AREA (AOA)
- CONTRACTOR MUST KEEP ALL EQUIPMENT AND PERSONNEL A MINIMUM OF 10 FEET FROM THE AIRPORT SECURITY FENCE
- CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER CONTRACTORS, AS APPLICABLE, TO MINIMIZE IMPACTS TO AIRPORT OPERATIONS
- CONTRACTOR SHALL COORDINATE WITH MHT OPERATIONS IN THE EVENT OF MAJOR DELIVERIES

PRIMARY WORK TO BE COMPLETED:

- INSTALL LIGHTED RUNWAY CLOSURE MARKERS AND LOW PROFILE BARRICADES
- INSTALL REQUIRED JUMPERS AND SIGN/LIGHT COVERS
- INSTALL EROSION CONTROL MEASURES AND BMPs
- REMOVE AND DISPOSE OF EXISTING EMAS BLOCKS, ANCHOR BEAM AND ANCILLARY ITEMS
- MILL EXISTING PAVEMENT
- REPAIR CRACKS ON MILLED SURFACE AS REQUIRED
- REMOVE EXISTING PAVEMENT MARKINGS
- INSTALL NEW ANCHOR BEAM
- INSTALL NEW BITUMINOUS PAVEMENT
- INSTALL NEW EMAS SYSTEM
- INSTALL NEW PAVEMENT MARKINGS
- INSTALL NEW TOPSOIL, SEED, AND MULCH IN DISTURBED AREAS

NOTE:

- REFERENCE SPECIFICATIONS FOR ADDITIONAL EMAS BLOCK INFORMATION AND BADGING REQUIREMENTS.



LEGEND

- WORK AREA
- LOW-PROFILE BARRICADE
- LIGHTED RUNWAY CLOSURE MARKER
- CONTRACTOR HAUL ROUTE
- CONTRACTOR NEW EMAS BLOCK HAUL ROUTE
- RSA - RUNWAY SAFETY AREA
- ROFA - RUNWAY OBJECT FREE AREA
- TSA - TAXIWAY SAFETY AREA
- TOFA - TAXIWAY OBJECT FREE AREA
- GATE GUARD

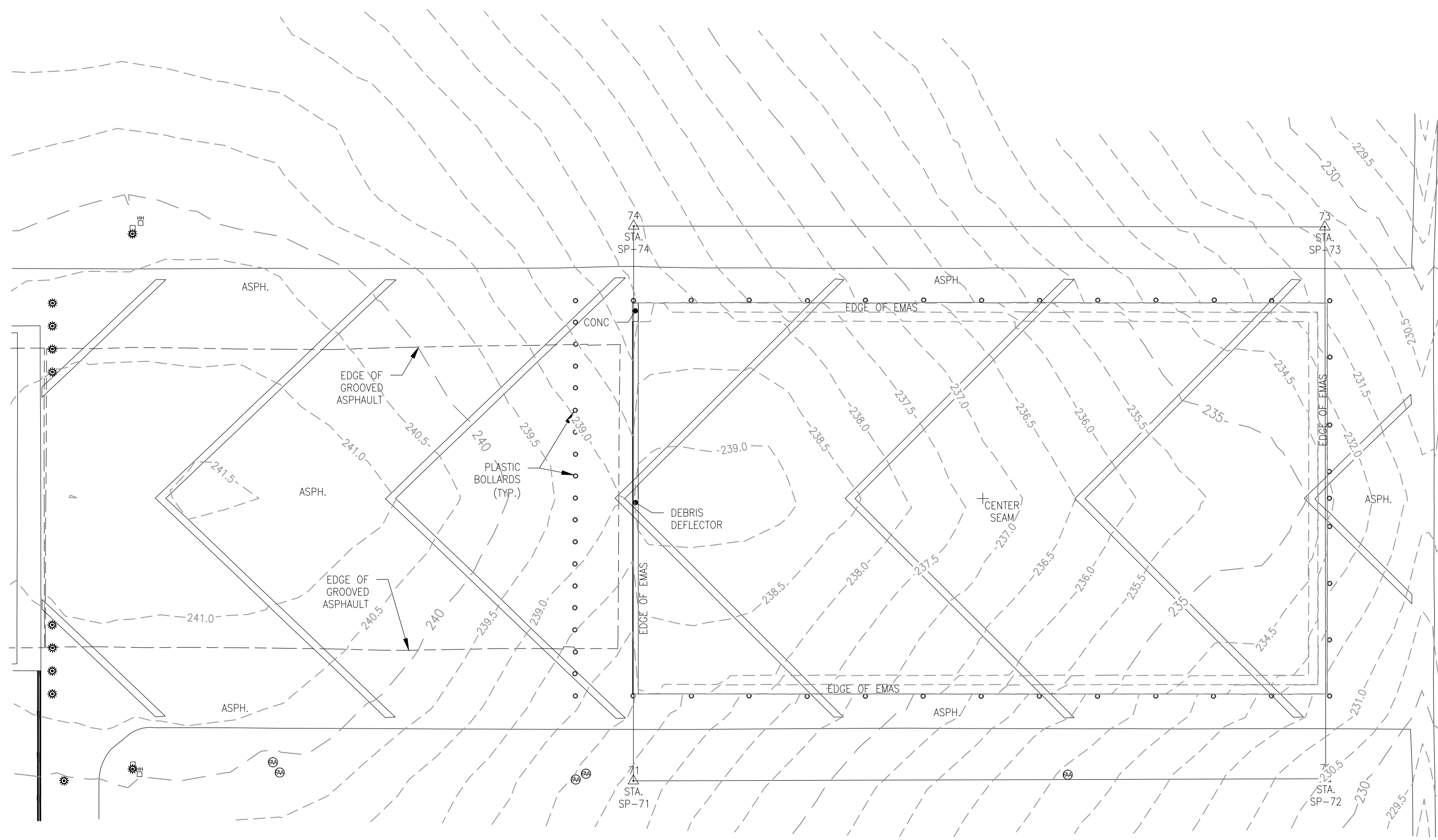
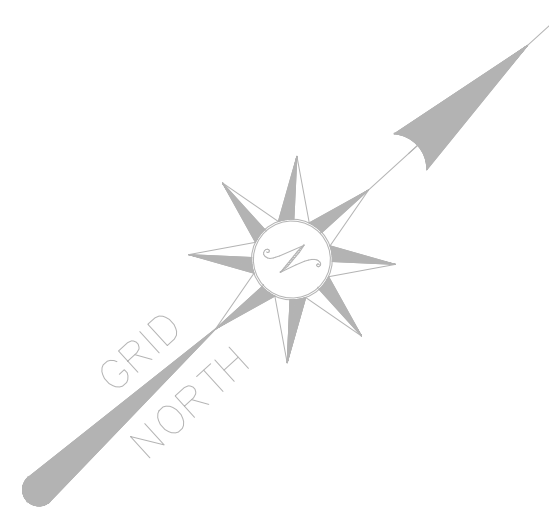
REV. NO.	DATE	DESCRIPTION	BY

M/J PROJ. No.: 19199.11
FILE NAME:
AIP No.: TBD

DRAWING NO.

CS-01

K:\MANCHESTER\19199.11 REPLACE RUNWAY 6-24 EMAS\DRAWINGS\SHEET FILES\19199.11-02-01.DWG



LEGEND

- ⊙ AIRPORT EDGE/MARKER LIGHT
- ⊠ PULL BOX/HAND HOLE
- ⊙ FAA MANHOLE
- EDGE OF PAVEMENT
- EDGE OF CONCRETE
- PAVEMENT MARKINGS
- - - MINOR CONTOUR
- - - MAJOR CONTOUR

**TOPOGRAPHIC WORKSHEET of
a portion of the Northeast end of
RUNWAY 24 at MHT
prepared for
McFARLAND-JOHNSON, INC.**

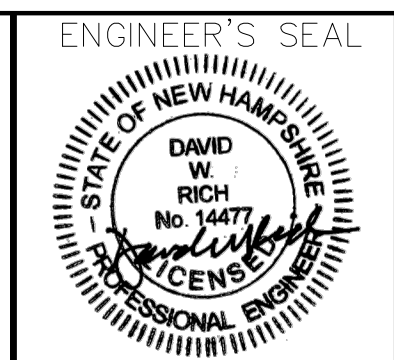
	GM2 Associates, Inc. 197 Loudon Road, Suite 310 Concord, NH 03301	JOB NO.: 42879.00 SCALE: 1"= 40'
	Tel: 603-856-7854 Fax: 603-856-7855	DATE: April 16, 2026

SURVEY NOTES:

1.) THIS SURVEY IS THE RESULT OF AN ACTUAL ON-THE-GROUND SURVEY BY THIS OFFICE USING LEICA 3" ROBOTIC TOTAL STATIONS AND TRIMBLE R12 GNSS RECEIVERS COMPLETED IN APRIL OF 2026. PRIMARY CONTROL TRAVERSE ERROR OF CLOSURE BETTER THAN 1:15,000.

2.) HORIZONTAL AND VERTICAL DATUM BASED ON MHT GEODETIC CONTROL, PAC & SAC POINTS.

3.) UNDERGROUND UTILITIES: ASCE S.U.E. QUALITY LEVEL C
 THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY, AND ARE NOT WARRANTED TO BE CORRECT. UNDERGROUND UTILITIES ARE SHOWN BASED ON EITHER RECORDED DATA PROVIDED BY THE OPERATING AUTHORITIES, VISUAL INSPECTION OF AVAILABLE ABOVEGROUND STRUCTURES, PHYSICAL SURFACE MARKINGS FOUND, OR DATA PROVIDED BY OTHERS. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT INDICATED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED FOR SERVICE, SIZE, INVERT ELEVATION, LOCATIONS, ETC. PRIOR TO NEW CONNECTIONS TO OR RELOCATION OF SAME. CONTRACTOR MUST NOTIFY DIS. SAFE AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION. NOTIFY THIS FIRM IN WRITING OF ANY AND ALL DISCREPANCIES PRIOR TO COMMENCING ANY WORK.



PROJECT DESIGNER

 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095



**MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 EXISTING CONDITIONS PLAN**

SCALE: 1"=40' DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION	BY

M/J PROJ. No.: 19199.11
 FILE NAME:
 AIP No.: TBD

DRAWING NO.
 EX-01

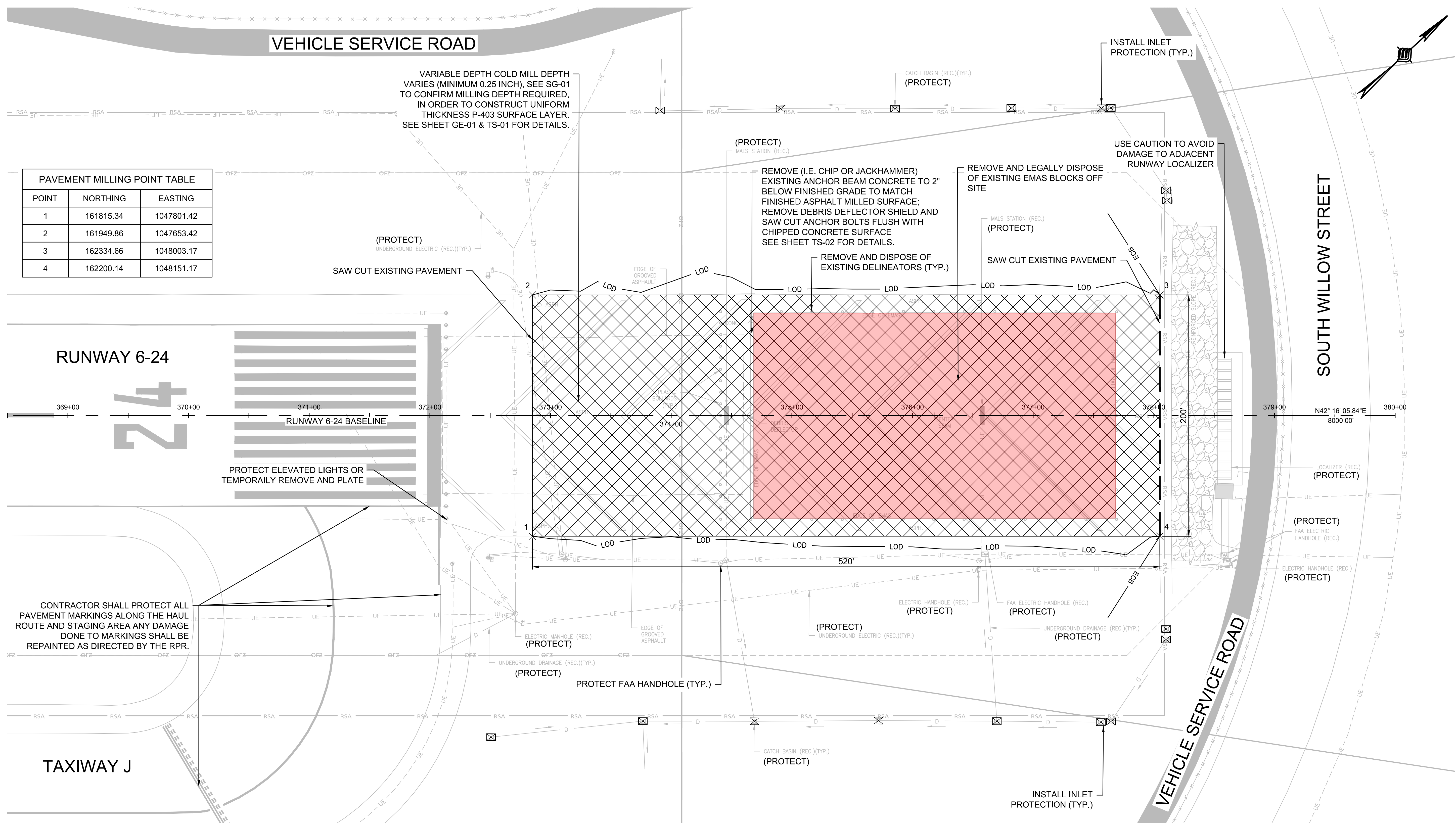
SHEET 6 OF 20

K:\MANCHESTER\19199.11 REPLACE RUNWAY 6&A EMAS\DRAWINGS\SSHEET FILES\19199.11-EXIST.DWG

VEHICLE SERVICE ROAD

VARIABLE DEPTH COLD MILL DEPTH VARIES (MINIMUM 0.25 INCH), SEE SG-01 TO CONFIRM MILLING DEPTH REQUIRED, IN ORDER TO CONSTRUCT UNIFORM THICKNESS P-403 SURFACE LAYER. SEE SHEET GE-01 & TS-01 FOR DETAILS.

PAVEMENT MILLING POINT TABLE		
POINT	NORTHING	EASTING
1	161815.34	1047801.42
2	161949.86	1047653.42
3	162334.66	1048003.17
4	162200.14	1048151.17



RUNWAY 6-24

PROTECT ELEVATED LIGHTS OR TEMPORARILY REMOVE AND PLATE

CONTRACTOR SHALL PROTECT ALL PAVEMENT MARKINGS ALONG THE HAUL ROUTE AND STAGING AREA ANY DAMAGE DONE TO MARKINGS SHALL BE REPAINTED AS DIRECTED BY THE RPR.

TAXIWAY J

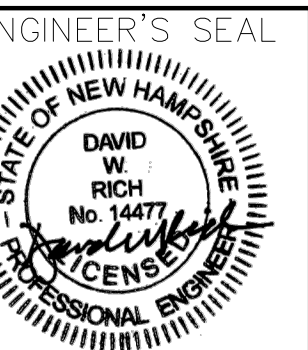
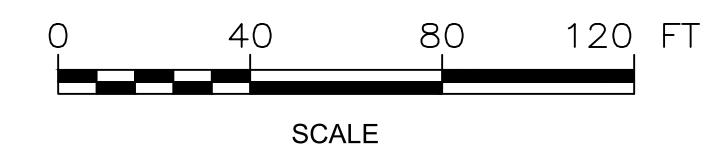
SOUTH WILLOW STREET

VEHICLE SERVICE ROAD

- LEGEND:**
- COLD MILL EXISTING PAVEMENT (VARIABLE DEPTH)
 - REMOVE AND LEGALLY DISPOSE OF EXISTING EMAS BLOCKS OFF SITE
 - SAWCUT PAVEMENT
 - INLET PROTECTION
 - ECB — EROSION CONTROL LOG
 - LOD — APPROXIMATE LIMIT OF DISTURBANCE
 - RSA — RUNWAY SAFETY AREA
 - OFZ — OBSTACLE FREE ZONE
 - LOCALIZER CRITICAL AREA

NOTES:

1. FOR SAFETY AND PHASING PLANS SEE SHEET CS-00 TO CS-01.
2. CONTRACTOR TO PROTECT ALL EXISTING OBJECTS NOT SCHEDULED TO BE REMOVED.
3. WORK OUTSIDE OF DESIGNATED WORK AREA TO BE PERFORMED UNDER PRIOR PERMISSION REQUEST (PPR) AS APPROVED BY MHT OPERATIONS AND THE RPR.
4. CONTRACTOR SHALL SAW-CUT ALL PAVEMENT EDGES PRIOR TO REMOVAL OF PAVEMENT.
5. CONTRACTOR IS ADVISED THAT SEALANT MAY BE PRESENT AT THE INTERFACE BETWEEN EXISTING EMAS BLOCKS AND THE UNDERLYING HMA SURFACE. THE CONTRACTOR SHALL INCLUDE PROVISIONS FOR REMOVAL OR TREATMENT OF THIS SEALANT AS REQUIRED TO FACILITATE MILLING OPERATIONS. CONTRACTOR'S APPROACH SHALL BE COORDINATED WITH AND APPROVED BY THE RPR.
6. UTILITY INFORMATION SHOWN (INCLUDING ELECTRIC HANDHOLES, FAA ELECTRICAL HANDHOLES, UNDERGROUND ELECTRICAL, MALS STATION CATCH BASINS, AND UNDERGROUND DRAINAGE) IS BASED ON RECORD DRAWINGS TITLED "AIRSIDE WORK - EXTEND RUNWAY 24 (77 FEET) AND WIDEN TAXIWAY J, CONSTRUCT RUNWAY 06 EMAS, ETC.", RECORD DRAWING DATED AUGUST 20, 2008. THE LOCATION, TYPE, AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND NOT GUARANTEED. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES IN THE FIELD AND SHALL BE RESPONSIBLE FOR COORDINATION WITH THE OWNER AND ALL UTILITY PROVIDERS PRIOR TO CONSTRUCTION.



PROJECT DESIGNER
McFARLAND JOHNSON
53 REGIONAL DRIVE, CONCORD, NH 03301-5022
PH: 603-225-2978 FAX: 603-225-0095
DESIGNED BY: NRD
DRAWN BY: NRD
CHECKED BY: DFB



MANCHESTER-BOSTON REGIONAL AIRPORT
REPLACEMENT OF RUNWAY 6 DEPARTURE END
ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
DEMOLITION & EROSION CONTROL PLAN
SCALE: 1"=40'
DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION

M/J PROJ. No.: 19199.11
FILE NAME:
AIP No.: TBD
DRAWING NO.
DE-01
SHEET 7 OF 20

EROSION CONTROL SPECIFICATIONS FOR UPLAND AREAS:

- SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS.
- RECOGNIZING THAT IMMEDIATE ATTENTION TO EROSION CONTROL PRACTICES DRAMATICALLY IMPROVES SOIL AND MOISTURE CONSERVATION AND REDUCES NEGATIVE IMPACTS ON WATER QUALITY. THE CONTRACTOR SHALL GIVE HIGH PRIORITY TO THE DAILY AND TIMELY INSTALLATION OF BOTH TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES. IMMEDIATE INSTALLATION OF PRACTICES USUALLY REDUCES LONG TERM COSTS TO THE CONTRACTOR AND PROVIDES BENEFITS TO THE DEVELOPER AND THE PUBLIC GOOD.
- EROSION CONTROL PRACTICES ARE SHOWN ON THE PLANS WITH RESPECT TO LOCATION AS DETERMINED FROM EXISTING TOPOGRAPHY. CHANGES MAY BE INDICATED IN THE FIELD TO IMPROVE EROSION AND SEDIMENT CONTROL.
- CONSTRUCTION SHALL PROCEED UNIT BY UNIT TO FACILITATE INSTALLATION OF EROSION CONTROL MEASURES AND THE COMPLETION OF GRADING, SEEDING, AND LANDSCAPING AS SOON AS POSSIBLE WITHIN A UNIT. THIS PROCEDURE SHOULD RESULT IN THE EXPOSURE OF THE SMALLEST PRACTICAL LAND AREA AT ANY ONE TIME.
- PRIOR TO ANY DISTURBANCE WITHIN EXISTING GRASSLAND AREAS DEPTH OF TOPSOIL SHALL BE EVALUATED BY THE CONTRACTOR, AND EXISTING TOPSOIL SHALL BE REMOVED AND STOCKPILED SITE FOR RESTORATION OF GRASSLAND AREAS.
- ALL DISTURBED UPLAND AREAS SHALL HAVE TOPSOIL SPREAD (4" MINIMUM (REFER TO PLANS)) WITHIN TWO WEEKS AND BE LIMED, FERTILIZED, TILLED, SEEDED AND MULCHED. ALL SLOPES 3:1 (1 RISE ON 3 RUN) AND STEEPER SHALL HAVE MULCH HELD IN PLACE WITH BIODEGRADABLE JUTE NETTING OR EROSION CONTROL BLANKET, STAPLED AND STAKED. EACH AREA SHALL BE LIMED, FERTILIZED, PREPARED, SEEDED AND MULCHED (WITH ANCHORED NETTING OR BLANKET IF REQUIRED) WITHIN 14 DAYS OF FINAL GRADING. WHEN PERMANENT SEEDING CANNOT BE INSTALLED BY SEPTEMBER 15, TEMPORARY SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL BE INSTALLED IMMEDIATELY AND MAINTAINED IN THAT CONDITION UNTIL PERMANENT PRACTICES CAN BE INSTALLED IN THE FOLLOWING PLANTING SEASON.
- ALTHOUGH NOT ANTICIPATED TO OCCUR, ANY OBSERVATIONS OF THREATENED OR ENDANGERED SPECIES ON THE PROJECT SITE SHALL BE REPORTED IMMEDIATELY TO THE NHF&G NONGAME AND ENDANGERED WILDLIFE ENVIRONMENTAL REVIEW PROGRAM BY PHONE AT 603-271-2461 AND BY EMAIL AT NHF&GREVIEW@WILDLIFE.NH.GOV, WITH THE EMAIL SUBJECT LINE CONTAINING THE NHB DATACHECK TOOL RESULTS LETTER ASSIGNED NUMBER, THE PROJECT NAME, AND THE TERM WILDLIFE SPECIES OBSERVATION.
- ALTHOUGH NOT ANTICIPATED TO OCCUR, ANY PHOTOGRAPHS OF THE OBSERVED SPECIES AND NEARBY ELEMENTS OF HABITAT OR AREAS OF LAND DISTURBANCE SHALL BE PROVIDED TO NHF&G IN DIGITAL FORMAT AT THE ABOVE EMAIL ADDRESS FOR VERIFICATION, AS FEASIBLE.
- ALTHOUGH NOT ANTICIPATED TO OCCUR, ANY IN THE EVENT A THREATENED OR ENDANGERED SPECIES IS OBSERVED ON THE PROJECT SITE DURING THE PROJECT, THE SPECIES SHALL NOT BE DISTURBED, HANDLED, OR HARMED IN ANY WAY PRIOR TO THE CONSULTATION WITH NHF&G AND IMPLEMENTATION OF CORRECTIVE ACTIONS RECOMMENDED BY NHF&G. IF ANY, TO ASSURE THE PROJECT DOES NOT APPRECIABLY JEOPARDIZE THE CONTINUED EXISTENCE OF THREATENED AND ENDANGERED SPECIES AS DEFINED IN FIS 1002.04.
- ALTHOUGH NOT ANTICIPATED TO OCCUR, ANY THE NHF&G, INCLUDING ITS EMPLOYEES AND AUTHORIZED AGENTS, SHALL HAVE ACCESS TO THE PROPERTY DURING THE PROJECT.
- TEMPORARY STABILIZATION OF DISTURBED UPLAND AREAS (IF REQUIRED):

SEEDBED PREPARATION: TILL AT LEAST TWO INCHES DEEP MIXING IN FERTILIZER AND GROUND LIMESTONE. APPLY LIMESTONE 2 TONS/ACRE (100#/1,000 SQ. FT.) OR ACCORDING TO SOIL TEST.

FERTILIZE: UNIFORMLY APPLY NOT LESS THAN 400#/ACRE (14#/1,000 SQ. FT.) OF 10-10-10 OR EQUIVALENT OR AS INDICATED BY SOIL TEST. FORTY PERCENT OF NITROGEN SHOULD BE IN ORGANIC FORM.

SEEDING: SELECT APPROPRIATE SEEDING MIXTURE FROM TABLE 1 BELOW. SPREAD SEED UNIFORMLY. FIRM SOIL BY ROLLING OR PACKING; IF NOT FEASIBLE, THEN RAKE LIGHTLY TO COVER SEEDS.

MULCHING: MULCH ALL DISTURBED AREAS WITH 2 TONS OF HAY OR STRAW PER ACRE (90-100#/1,000 SQ. FT.). ANCHOR ON ALL SLOPES 3:1 OR STEEPER AND FLATTER SLOPES SUBJECT TO WASH OR WIND BLOWN. USE JUTE (OR OTHER BIODEGRADABLE) NETTING OR BLANKET. STAKING AND STAPLING MAY BE REQUIRED.

- PERMANENT STABILIZATION OF DISTURBED UPLAND AREAS:
SEED BED PREPARATION: TOPSOIL (SANDY TOPSOIL, TOPSOIL, OR SILT TOPSOIL), FRIABLE, FREE OF TREE ROOTS, WEEDS, STONES MORE THAN 1-1/2 INCHES IN DIAMETER OR LENGTH SHALL BE PLACED OVER ALL DISTURBED AREAS IN A 4" MINIMUM (REFER TO PLANS) THICK LAYER.

TOPSOIL: IMPORTED TOPSOIL SHALL BE MIXED ON-SITE WITH NATIVE TOPSOIL AND SHALL BE MIXED ON SIGHT ROUGHLY 4:1 TO THE TEXTURE OF THE EXISTING SOILS. LAB ANALYSIS OF EXISTING REMOVED TOPSOIL SHALL BE PERFORMED BY THE CONTRACTOR TO DETERMINE ORGANIC CONTENT AND TEXTURE OF THE NATIVE TOPSOIL FOR A MORE ACCURATE RATIO OF THE FINAL IMPORTED TOPSOIL AND STOCKPILE MIXTURE. SOILS SHALL BE FREE OF INVASIVE SPECIES, HERBICIDES AND TOXIC MATERIALS. SOIL SHALL BE INSPECTED AND APPROVED BY BIOLOGIST AND ENGINEER PRIOR TO USE.

SEEDING: WARM SEASON SEED MIX:

A. GRASS MIX	LBS/ACRE
CREeping RED FESCUE	35% (43.75%)
PERENNIAL RYE GRASS	30% (37.50%)
RED TOP	5 (6.25%)
ALSIKE CLOVER	5 (6.25%)
BIRDSFOOT TREFOLI	5 (6.25%)
TOTALS -	80 LBS/ACRE (1.84 LBS/1000SF)

*PERCENT MAY VARY AS APPROVED BY BIOLOGIST

SEEDING METHODS: SEEDING SHOULD BE PERFORMED BY THE FOLLOWING METHOD:
HYDROSEEDING WITH SUBSEQUENT TRACKING.
TRACKING THE SEEDING WITH SMALL TRACK CONSTRUCTION EQUIPMENT.
TRACKING SHOULD BE ORIENTED UP AND DOWN THE SLOPE.

MULCHING: MULCH ALL DISTURBED AREAS WITH 2 TONS OF FIBER PER ACRE (90 - 100#/1,000 SQ. FT.). ANCHOR ON ALL SLOPES 3:1 OR STEEPER AND ON FLATTER SLOPES SUBJECT TO WASH (WATERWAYS AND/OR WINDBLOWN) USING JUTE (OR OTHER BIODEGRADABLE) NETTING OR EROSION CONTROL BLANKET, STAKING, AND STAPLING.

MAINTENANCE: INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEED IMMEDIATELY. CONDUCT A FOLLOW-UP SURVEY AFTER ONE YEAR AND REPLACE FAILED PLANTS WHERE NECESSARY. IF VEGETATIVE COVER IS INADEQUATE TO PREVENT EROSION, OVERSEED AND FERTILIZE IN ACCORDANCE WITH SOIL TEST RESULTS. IF A STAND HAS LESS THAN 40% COVER, REEVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER. RE-ESTABLISH THE STAND FOLLOWING SEEDBED PREPARATION AND SEEDING RECOMMENDATIONS, OMITTING LIME AND FERTILIZER IN THE ABSENCE OF SOIL TEST RESULTS. IF THE SEASON PREVENTS RESOWING, MULCH OR (7. CONT.) JUTE NETTING IS AN EFFECTIVE TEMPORARY COVER. SEEDED AREAS SHOULD BE FERTILIZED DURING THE SECOND GROWING SEASON. LIME AND FERTILIZE THEREAFTER AT PERIODIC INTERVALS, AS NEEDED.

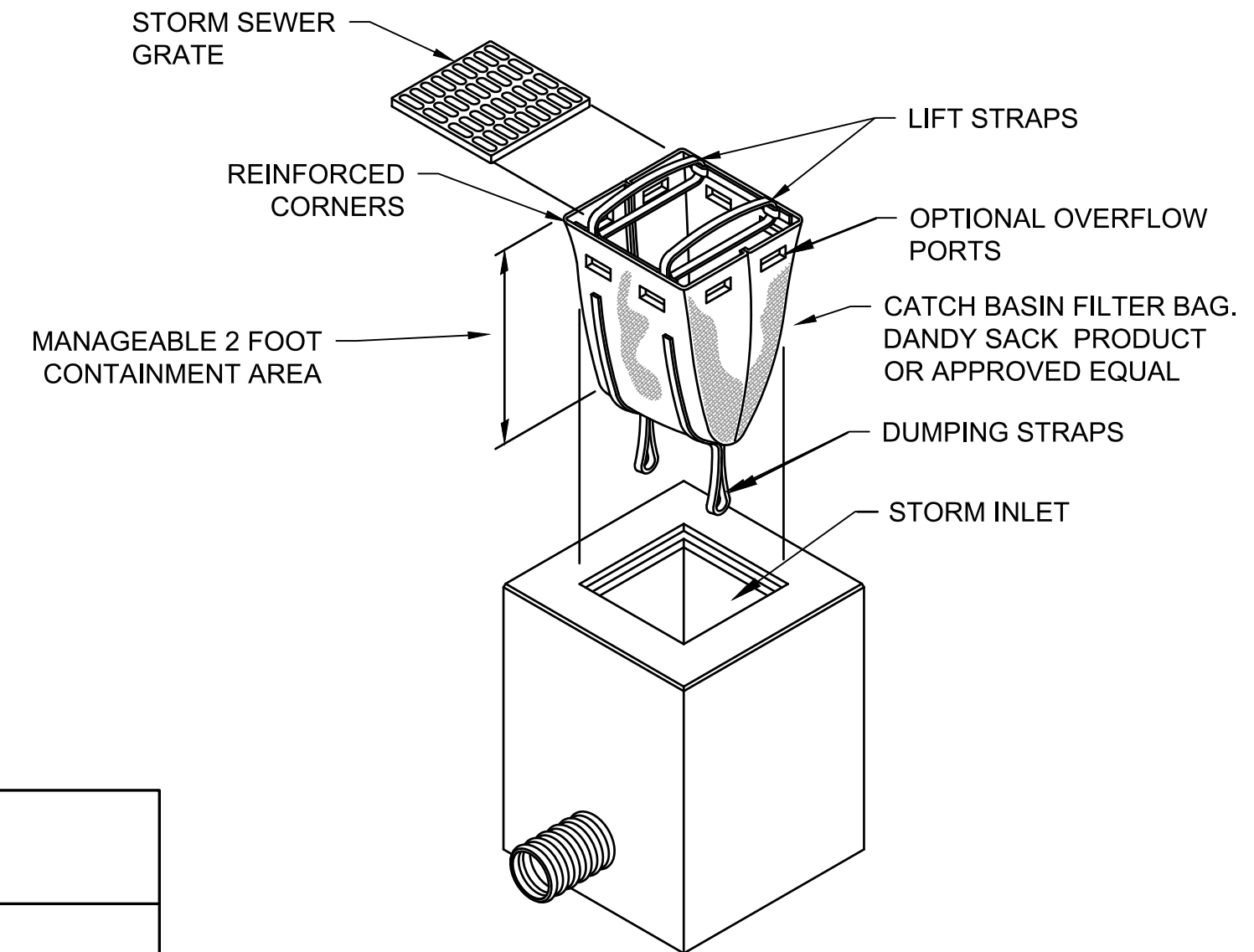
- TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
- MAINTENANCE: DURING THE CONSTRUCTION PERIOD AND UNTIL SUCH TIME AS THE LONG TERM VEGETATION IS ESTABLISHED TO A 85% VEGETATIVE STAND.
 - DISTURBED AREAS WILL BE FERTILIZED AND RESEED.
 - CATCH BASINS AND FILTER BAGS WILL BE CHECKED AND CLEANED AS NECESSARY.
 - DRAINAGE AND GRASS TREATMENT SWALES SHALL BE CHECKED FREQUENTLY AND CLEANED AS REQUIRED.
 - THE SILT FENCES WILL BE CHECKED ON A REGULAR BASIS AND REPAIRED AS NECESSARY TO CORRECT ANY DAMAGE, DETERIORATION, AND SHORT-CIRCUITING.
- REFER TO "GRADING PLANS" FOR THIS PROJECT PRIOR TO ANY SITE DISTURBANCE.
- INSPECTIONS: THE ENGINEER SHALL BE CONTACTED ON A REGULAR BASIS TO INSPECT ALL EROSION CONTROL PRACTICES AS WELL AS THE MAINTENANCE OF THE EROSION CONTROL COMPONENTS. REFER TO CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. EROSION CONTROL PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
- THE MAXIMUM AMOUNT OF AREA TO BE DISTURBED AND UNSTABILIZED SHALL BE 5 ACRES AT ANY ONE TIME.
- THE MAXIMUM AMOUNT OF TIME ANY AREA MAY BE DISTURBED WITHOUT STABILIZATION SHALL BE 14 DAYS.

CONSTRUCTION SEQUENCE

- INSTALL INLET PROTECTION/FILTER BAGS AT ALL LOCATIONS INDICATED ON PLAN OR AT OTHER LOCATIONS AS DETERMINED BY ENGINEER. INSTALL OTHER TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES AS EARTHWORK PROCEEDS.
- CONTRACTOR SHALL LEGALLY DISPOSE OF ALL SURPLUS UNCLASSIFIED EXCAVATION AT AN APPROVED LOCATION NOTED IN THE SPECIFICATIONS.
- MILL EXISTING PAVEMENT AS REQUIRED.
- INSTALL ANCHOR BEAM PAVEMENT, EMAS AND PAVEMENT MARKINGS.
- FINALIZE GRADING OF DISTURBED AREAS AS SHOWN ON PLANS AND LOAM, MULCH, FERTILIZE AND SEED AREAS TO ESTABLISH VEGETATION.
- INSPECT ALL DISTURBED AREAS ON A DAILY BASIS. FOLLOWING THIS DAILY INSPECTION, INSTALL AS REQUIRED ANY AND ALL TEMPORARY DRAINAGE, EROSION, AND SEDIMENT CONTROL PRACTICES AS INDICATED, I.E., DIVERSION CHANNELS, BERMS, DRAINS, DITCHES, STONE DIKES, SILT FENCES, SEED AND MULCH OR OTHER PRACTICES AS RECOMMENDED AND SPECIFIED IN THE "CONNECTICUT EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS".
- CLEAN AND RESTORE SILT DESTINATION SITES. REMOVE OTHER EROSION CONTROL PRACTICES ON A TIMELY BASIS AS PERMANENT MEASURES TAKE

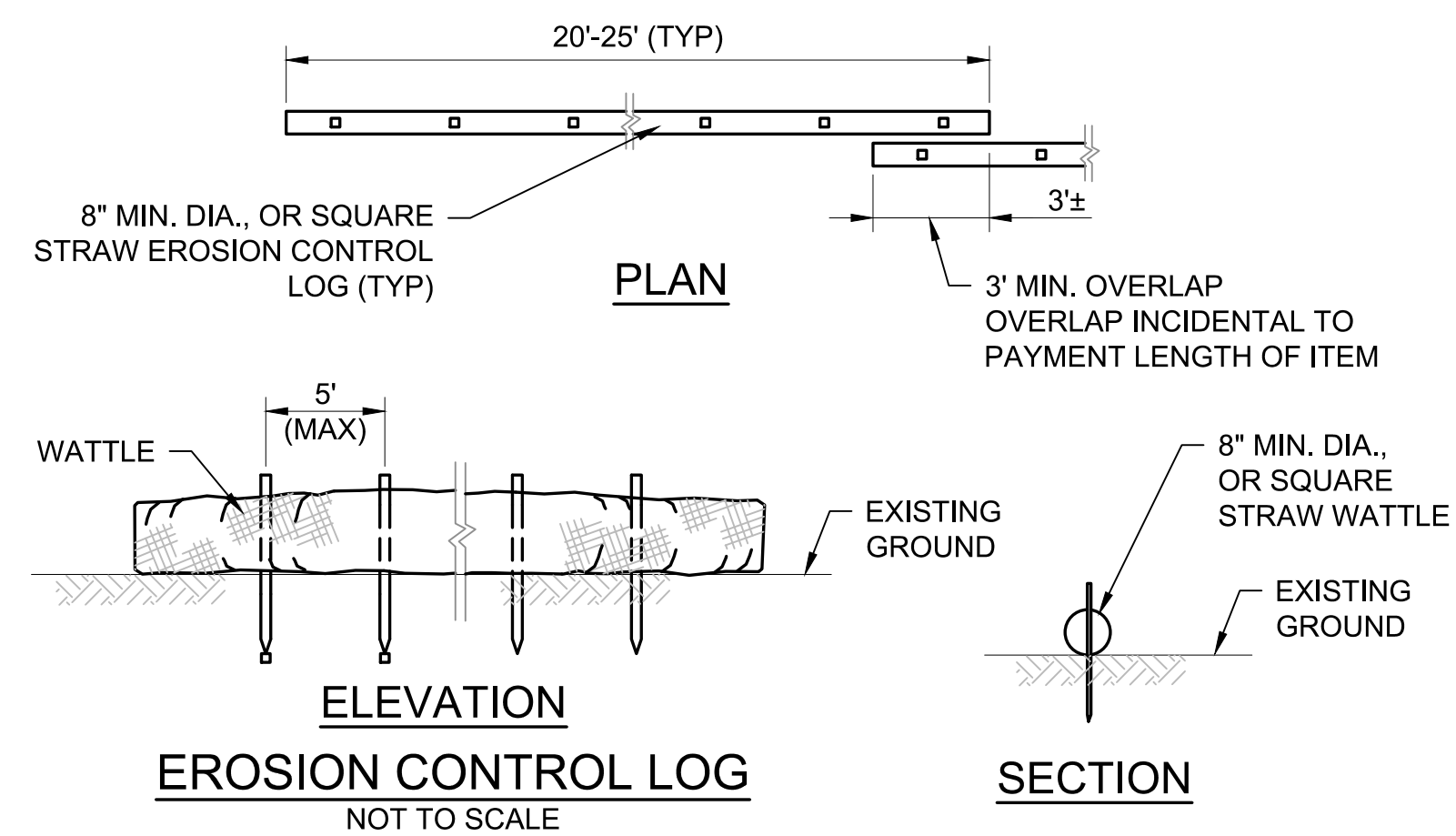
HOLD. SPOT FERTILIZE, SEED, AND MULCH AS REQUIRED.

- INSPECT AND MAINTAIN GRADING, EROSION CONTROL AND SEDIMENT CONTROL PRACTICES WEEKLY AND IMMEDIATELY AFTER ALL SUBSTANTIAL STORMS.
- REFER TO "GRADING, AND EROSION CONTROL PLANS" FOR ADDITIONAL DETAILS RELATIVE TO THE REQUIRED CONSTRUCTION SEQUENCE. MAINTENANCE OF ALL EROSION CONTROL COMPONENTS SHALL BE AN ONGOING PRACTICE AND IN STRICT ACCORDANCE WITH THE APPROVED PLAN.

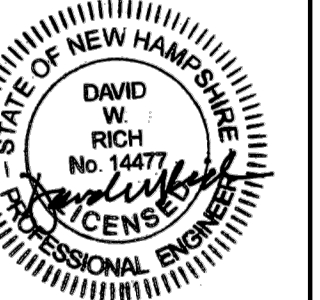


INLET PROTECTION (FILTER BAG) INSTALLATION
NOT TO SCALE

TABLE 1 - TEMPORARY UPLAND STABILIZATION PLANT SECTION AND SEEDING RATES			
SPECIES	PER ACRE	PER 1000 SQ.FT.	REMARKS
WINTER RYE	120 LBS.	3 LBS.	BEST FOR FALL SEEDING. SEED AUGUST 15 TO OCTOBER 15 FOR BEST COVER. SEED TO DEPTH OF ONE TO 1 1/2 INCHES.
OATS	2 1/2 BU OR 80 LBS.	2 LBS.	BEST FOR SPRING SEEDINGS. SEED BETWEEN APRIL 1 TO JULY 1 OR AUGUST 15 TO SEPTEMBER 15. SEED TO DEPTH OF ONE INCH.
ANNUAL RYE	40 LBS.	1 LB.	GROWS QUICKLY. BUT IS OF SHORT GRASS DURATION USE WHERE APPEARANCES ARE IMPORTANT. COVER SEED WITH NO MORE THAN 1/4 INCH OF SOIL. WITH MULCH, SEEDING MAY BE DONE THROUGHOUT GROWING SEASON. SEED BETWEEN APRIL 1 AND JUNE 1 OR AUGUST 15 & SEPTEMBER 15.
FOXTAIL MILLET	30 LBS.	0.7 LB.	MAY 1 TO JUNE 30. SEED TO DEPTH OF 1/2 TO 3/4 INCH.



ENGINEER'S SEAL



PROJECT DESIGNER
McFARLAND JOHNSON
53 REGIONAL DRIVE, CONCORD, NH 03301-5022
PH: 603-225-2978 FAX: 603-225-0095
DESIGNED BY: NRD
DRAWN BY: NRD
CHECKED BY: DFB



MANCHESTER-BOSTON REGIONAL AIRPORT
REPLACEMENT OF RUNWAY 6 DEPARTURE END
ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
EROSION CONTROL DETAILS AND NOTES
SCALE: N.T.S. DATE: JUNE 2026

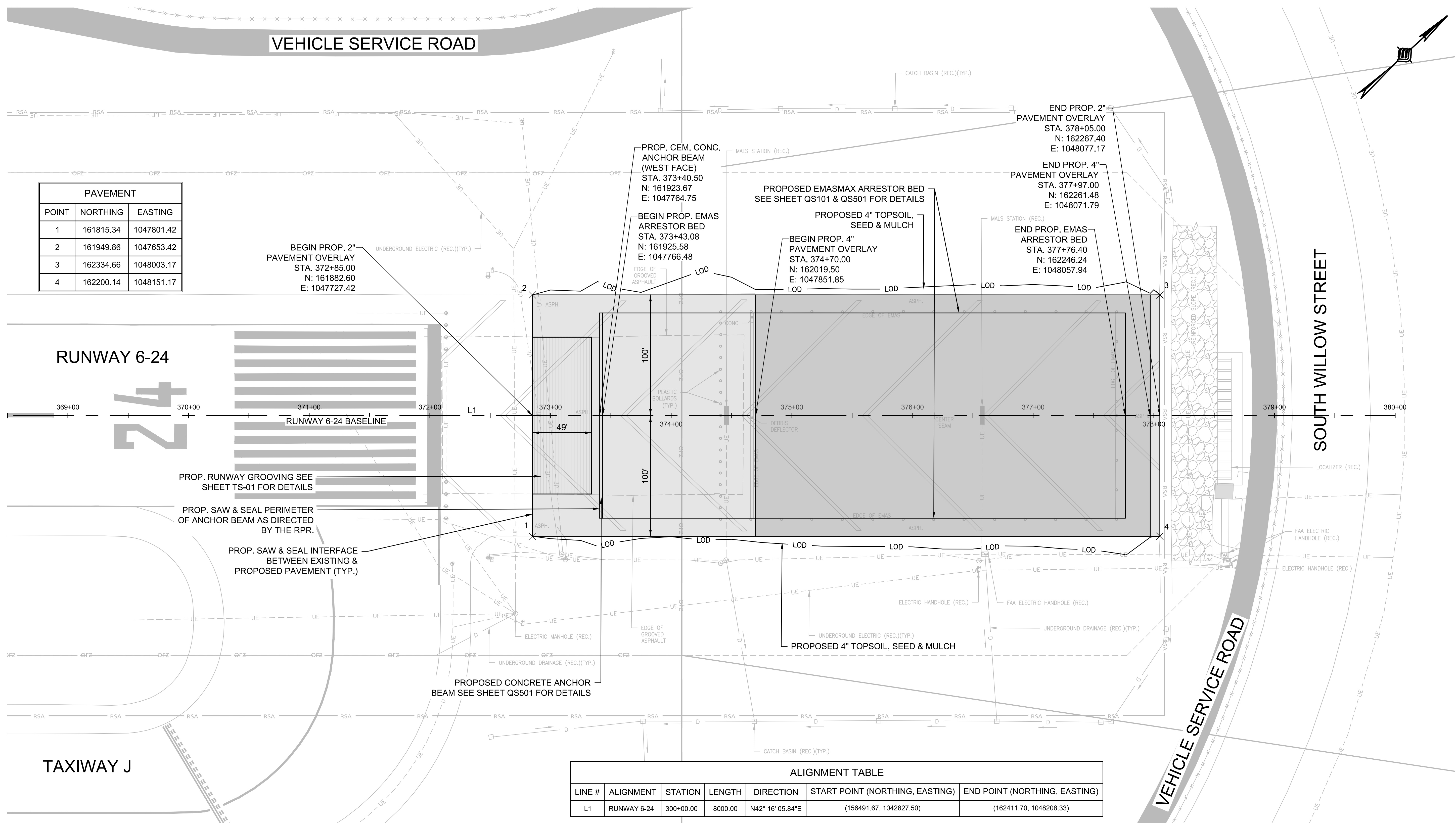
REV. NO.	DATE	DESCRIPTION	BY

M/J PROJ. No.: 19199.11
FILE NAME:
AIP No.: TBD

DRAWING NO.
EC-01

VEHICLE SERVICE ROAD

PAVEMENT		
POINT	NORTHING	EASTING
1	161815.34	1047801.42
2	161949.86	1047653.42
3	162334.66	1048003.17
4	162200.14	1048151.17



BEGIN PROP. 2" PAVEMENT OVERLAY STA. 372+85.00 N: 161882.60 E: 1047727.42

PROP. CEM. CONC. ANCHOR BEAM (WEST FACE) STA. 373+40.50 N: 161923.67 E: 1047764.75

BEGIN PROP. EMAS ARRESTOR BED STA. 373+43.08 N: 161925.58 E: 1047766.48

PROPOSED EMASMAX ARRESTOR BED SEE SHEET QS101 & QS501 FOR DETAILS

PROPOSED 4" TOPSOIL, SEED & MULCH

BEGIN PROP. 4" PAVEMENT OVERLAY STA. 374+70.00 N: 162019.50 E: 1047851.85

END PROP. 2" PAVEMENT OVERLAY STA. 378+05.00 N: 162267.40 E: 1048077.17

END PROP. 4" PAVEMENT OVERLAY STA. 377+97.00 N: 162261.48 E: 1048071.79

END PROP. EMAS ARRESTOR BED STA. 377+76.40 N: 162246.24 E: 1048057.94

RUNWAY 6-24

369+00 370+00 371+00 372+00 373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00

PROP. RUNWAY GROOVING SEE SHEET TS-01 FOR DETAILS

PROP. SAW & SEAL PERIMETER OF ANCHOR BEAM AS DIRECTED BY THE RPR.

PROP. SAW & SEAL INTERFACE BETWEEN EXISTING & PROPOSED PAVEMENT (TYP.)

PROPOSED CONCRETE ANCHOR BEAM SEE SHEET QS501 FOR DETAILS

ALIGNMENT TABLE

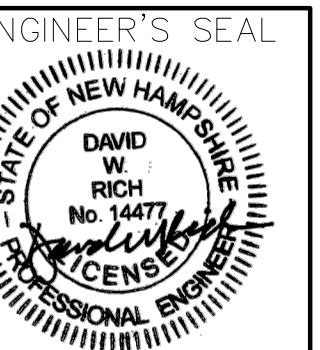
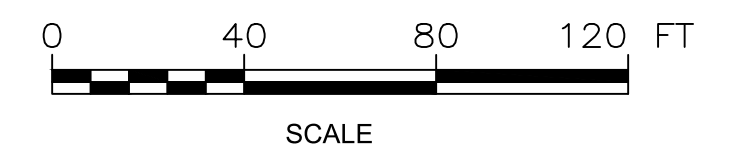
LINE #	ALIGNMENT	STATION	LENGTH	DIRECTION	START POINT (NORTHING, EASTING)	END POINT (NORTHING, EASTING)
L1	RUNWAY 6-24	300+00.00	8000.00	N42° 16' 05.84"E	(156491.67, 1042827.50)	(162411.70, 1048208.33)

LEGEND:

- 2" PAVEMENT OVERLAY AREA
- 4" PAVEMENT OVERLAY AREA
- RUNWAY GROOVING
- APPROXIMATE LIMIT OF DISTURBANCE
- RUNWAY SAFETY AREA
- OBSTACLE FREE ZONE
- LOCALIZER CRITICAL AREA

NOTE:

- UTILITY INFORMATION SHOWN (INCLUDING ELECTRICAL HANDHOLES, FAA ELECTRICAL HANDHOLES, UNDERGROUND ELECTRICAL, MALS STATION CATCH BASINS, AND UNDERGROUND DRAINAGE) IS BASED ON RECORD DRAWINGS TITLED "AIRSIDE WORK - EXTEND RUNWAY 24 (77 FEET) AND WIDEN TAXIWAY J, CONSTRUCT RUNWAY 06 EMAS, ETC.", RECORD DRAWING DATED AUGUST 20, 2008. THE LOCATION, TYPE, AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND NOT GUARANTEED. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES IN THE FIELD AND SHALL BE RESPONSIBLE FOR COORDINATION WITH THE OWNER AND ALL UTILITY PROVIDERS PRIOR TO CONSTRUCTION.



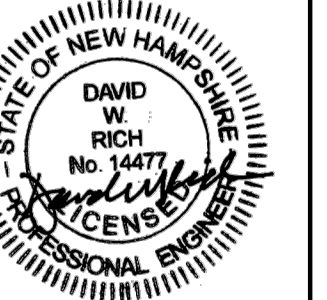
PROJECT DESIGNER
McFarland Johnson
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: NRD
 DRAWN BY: NRD
 CHECKED BY: DPB

CITY OF MANCHESTER
 DEPARTMENT OF AVIATION
 MANCHESTER, NEW HAMPSHIRE

MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 GEOMETRY PLAN
 SCALE: 1"=40'
 DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION

M/J PROJ. No.: 19199.11
 FILE NAME:
 AIP No.: TBD
 DRAWING NO.
GE-01
 SHEET 9 OF 20



PROJECT DESIGNER
McFarland Johnson
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: NRD
 DRAWN BY: NRD
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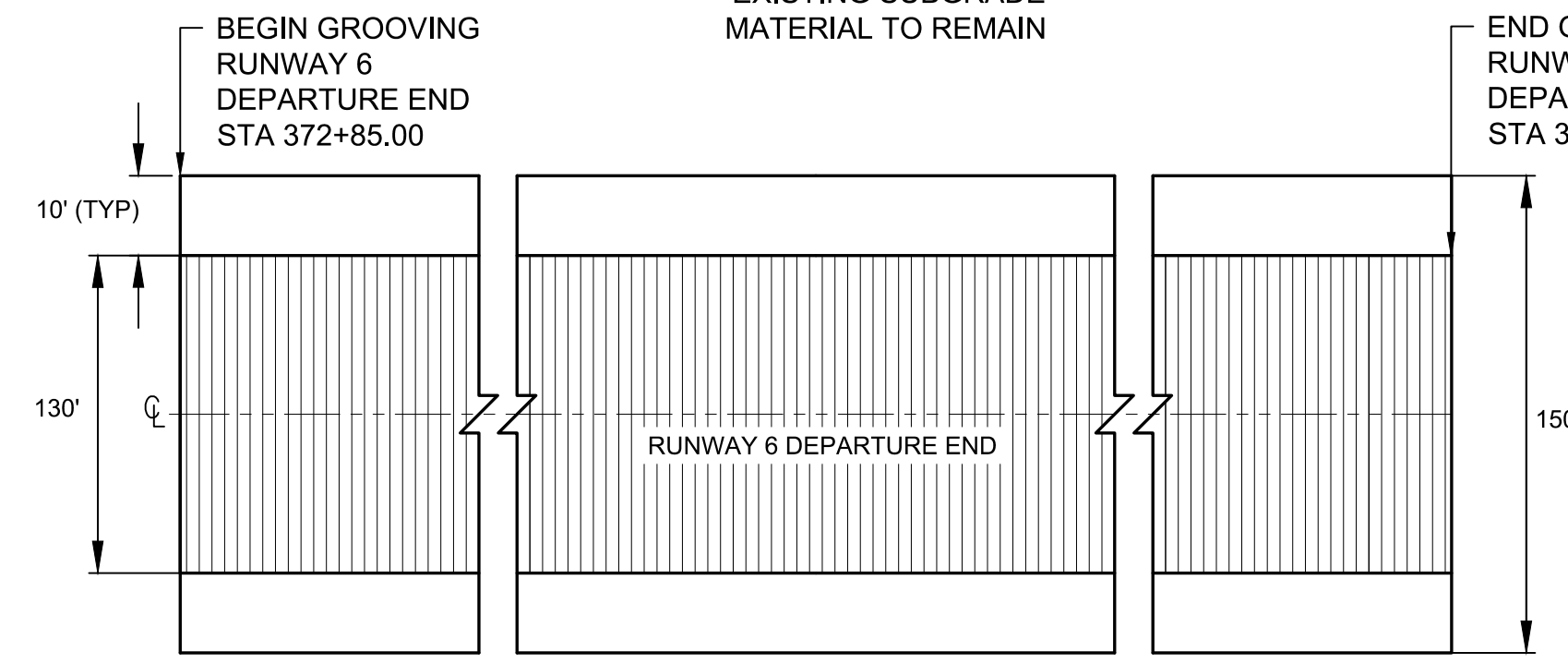
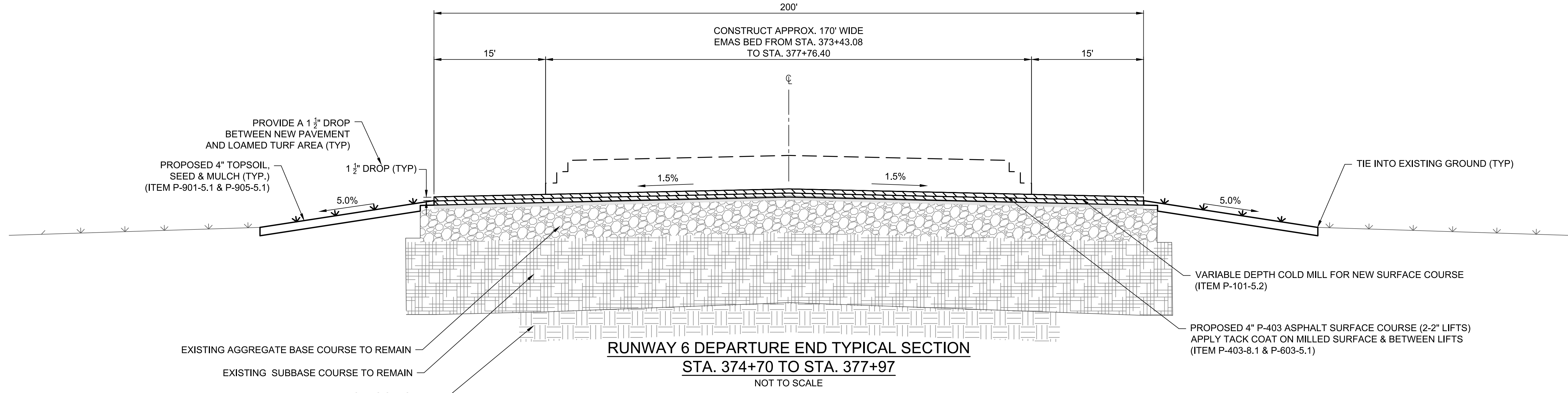
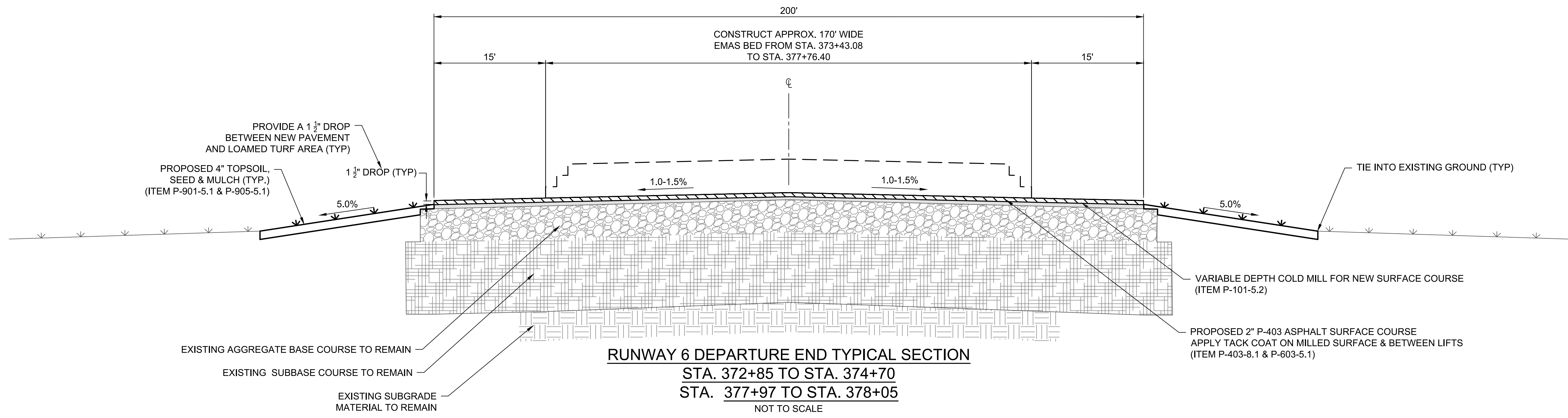


MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 TYPICAL SECTION AND PAVEMENT
 DETAILS (SHEET 1 OF 2)
 SCALE: N.T.S. DATE: JUNE 2026

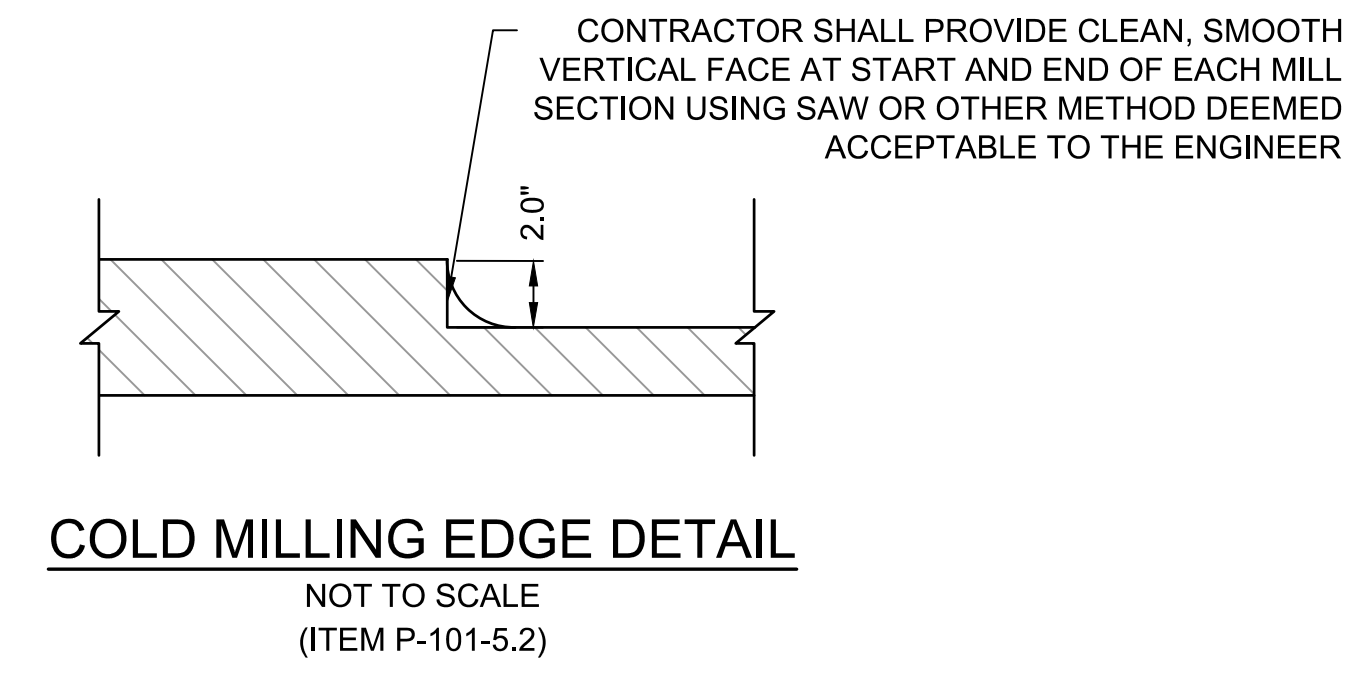
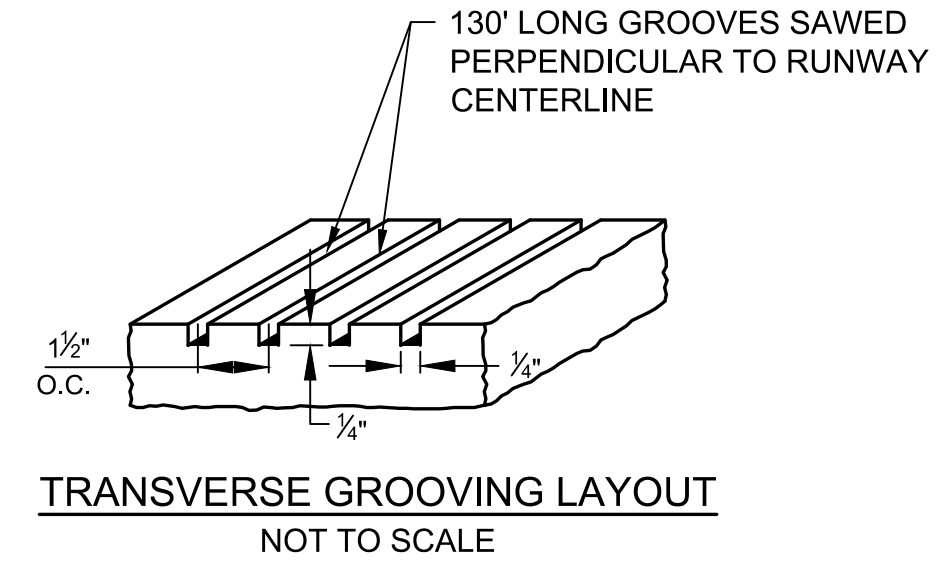
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 A/P No.: TBD

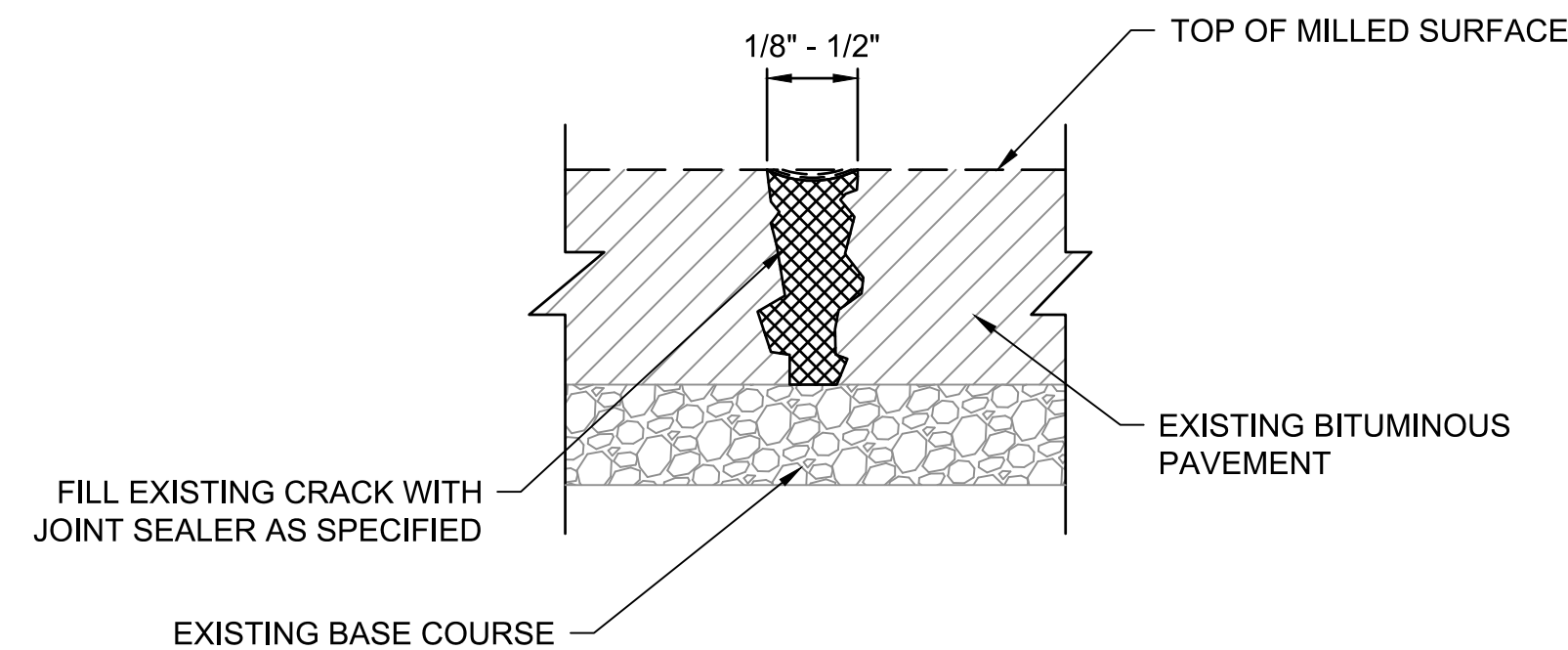
DRAWING NO.
 TS-01



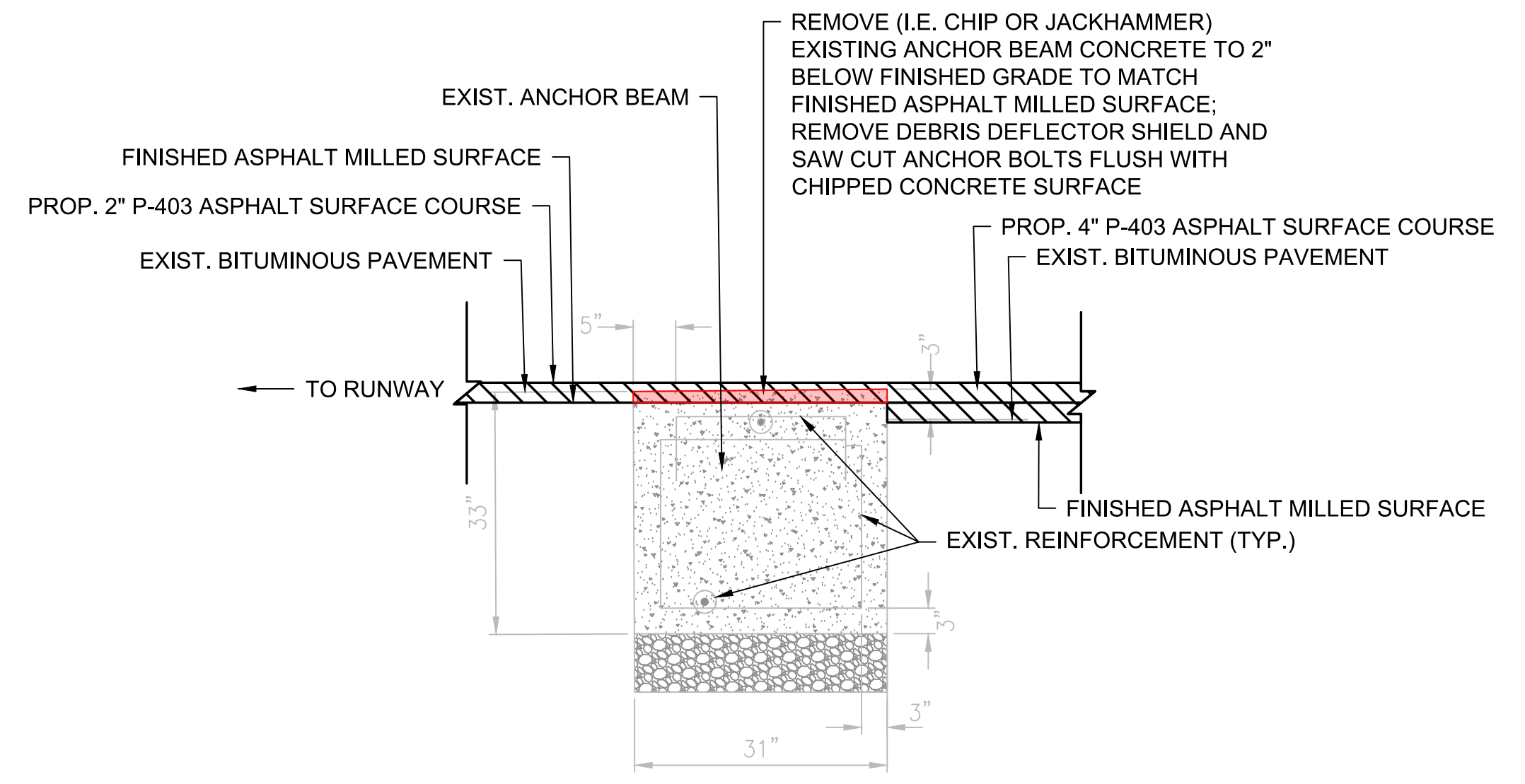
NOTE:
 CONTRACTOR TO FIELD VERIFY THE PAVEMENT GROOVING
 LIMITS WITH THE ENGINEER PRIOR TO STARTING THE GROOVING.



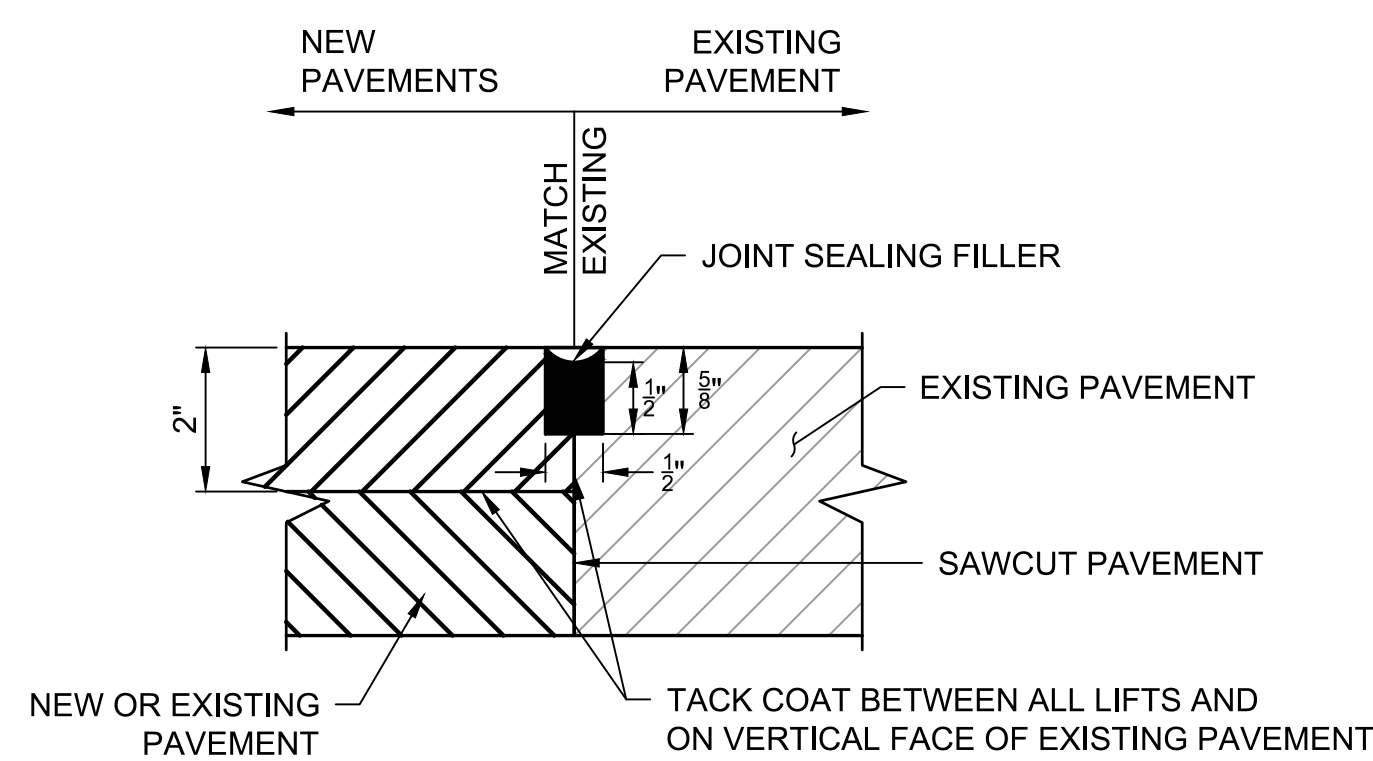
K:\MANCHESTER\19199.11\REPLACE RUNWAY 6&A\EMAS\DRAWINGS\SHEET FILES\19199.11\DETS.DWG



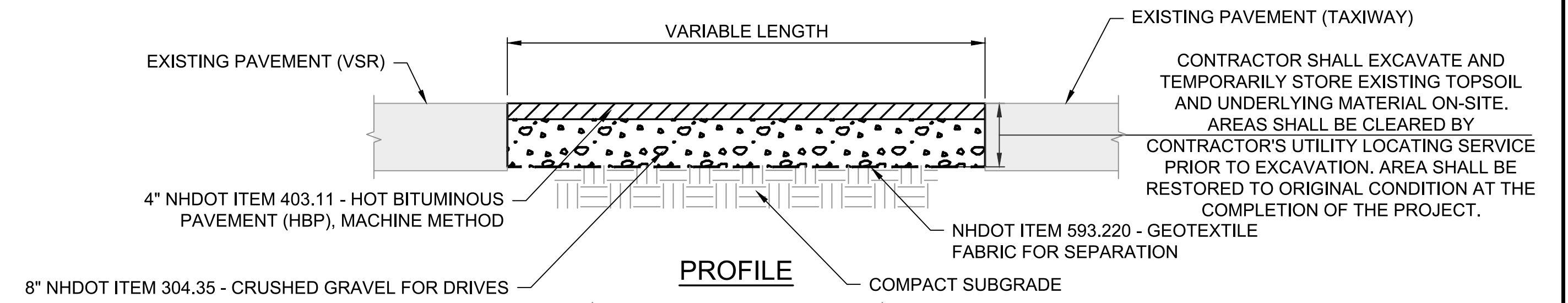
JOINT & CRACK REPAIR
BITUMINOUS CRACK SEAL LESS THAN 1/2"
 NOT TO SCALE
 (ITEM P-101-5.1)



EXIST. ANCHOR BEAM DEMO DETAIL
 NOT TO SCALE



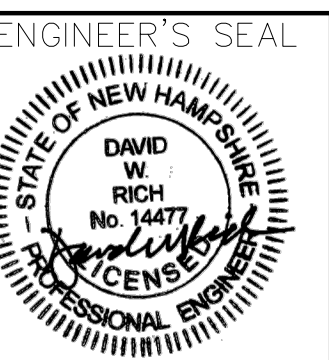
PAVEMENT TIE-IN AND JOINT SEALING FILLER DETAIL
 NOT TO SCALE
 (ITEM P-605-5.1)



TEMPORARY HAUL ROAD DETAIL
 NOT TO SCALE

VSR NOTES:

1. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING BASE COURSE.
2. GRADING & DRAINAGE - THE TEMP. ACCESS ROAD SHALL BE GRADED TO MAINTAIN AND PROMOTE EXISTING DRAINAGE PATTERNS. GRADING THAT RESULTS IN PONDING IS NOT ACCEPTABLE. THE RESIDENT PROJECT REPRESENTATIVE (RPR) AND OWNER WILL HAVE FINAL DETERMINATION AS TO WHETHER THE TEMP. HAUL ROAD REQUIRES RECONSTRUCTION.
3. DE-MOBILIZATION - UPON COMPLETION OF CONSTRUCTION, ANY TEMPORARY HAUL ROAD SHALL BE REMOVED, AND THE AREA RESTORED TO ITS ORIGINAL PRE-CONSTRUCTION CONDITION.
4. ALL COSTS ASSOCIATED WITH EXCAVATION, ON-SITE STORAGE, CONSTRUCTING NEW PAVEMENT SECTIONS (EXCAVATION, GEOTEXTILE, BASE COURSE AND ASPHALT SURFACE COURSE), REMOVAL/OFF-SITE DISPOSAL OF TEMP. HAUL ROAD MATERIALS, AND ALL RESTORATION SHALL BE CONSIDERED INCIDENTAL TO THE TEMPORARY HAUL ROAD PAY ITEM. (ITEM M-200-2)



PROJECT DESIGNER
McFarland Johnson
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: NRD
 DRAWN BY: NRD
 CHECKED BY: DFB



MANCHESTER-BOSTON REGIONAL AIRPORT
REPLACEMENT OF RUNWAY 6 DEPARTURE END
ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
TYPICAL SECTION AND PAVEMENT
DETAILS (SHEET 2 OF 2)
 SCALE: N.T.S. DATE: JUNE 2026

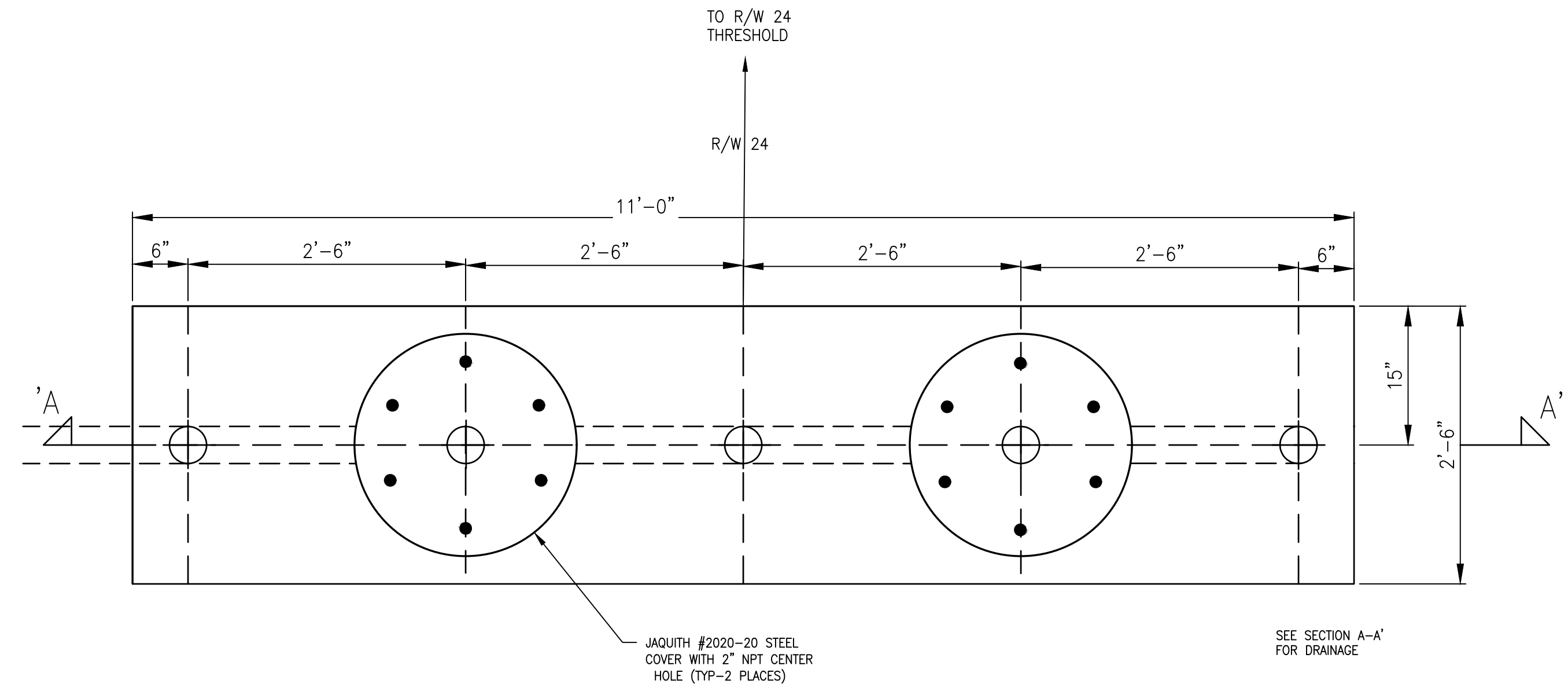
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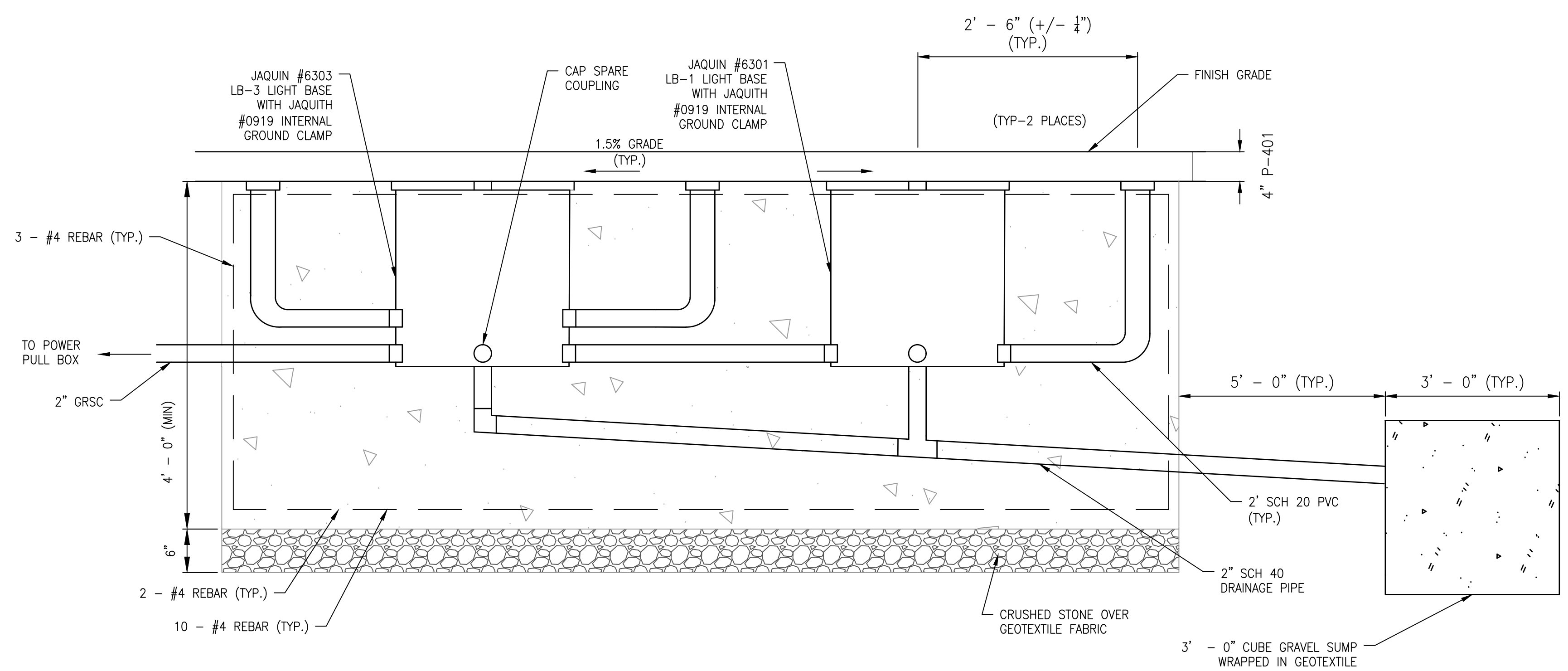
DRAWING NO.
 TS-02

K:\MANCHESTER\19199.11\REPLACE RUNWAY 6&7 EMAS\DRAWING\SSHEET FILES\19199.11\DETAILS.DWG

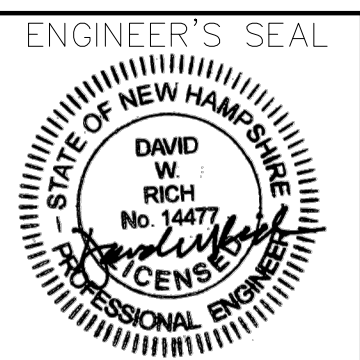
EXISTING RECORD INFORMATION FOR INFORMATIONAL PURPOSES ONLY



FRANGIBLE LIGHT BAR FOUNDATION PLAN MALS STA. 374+45
 (NOT FOR CONSTRUCTION)
 NOT TO SCALE



FRANGIBLE LIGHT BAR FOUNDATION 'A-A'
 (NOT FOR CONSTRUCTION)
 NOT TO SCALE



PROJECT DESIGNER
McFarland Johnson
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: ZM
 DRAWN BY: ZM
 CHECKED BY: NRD



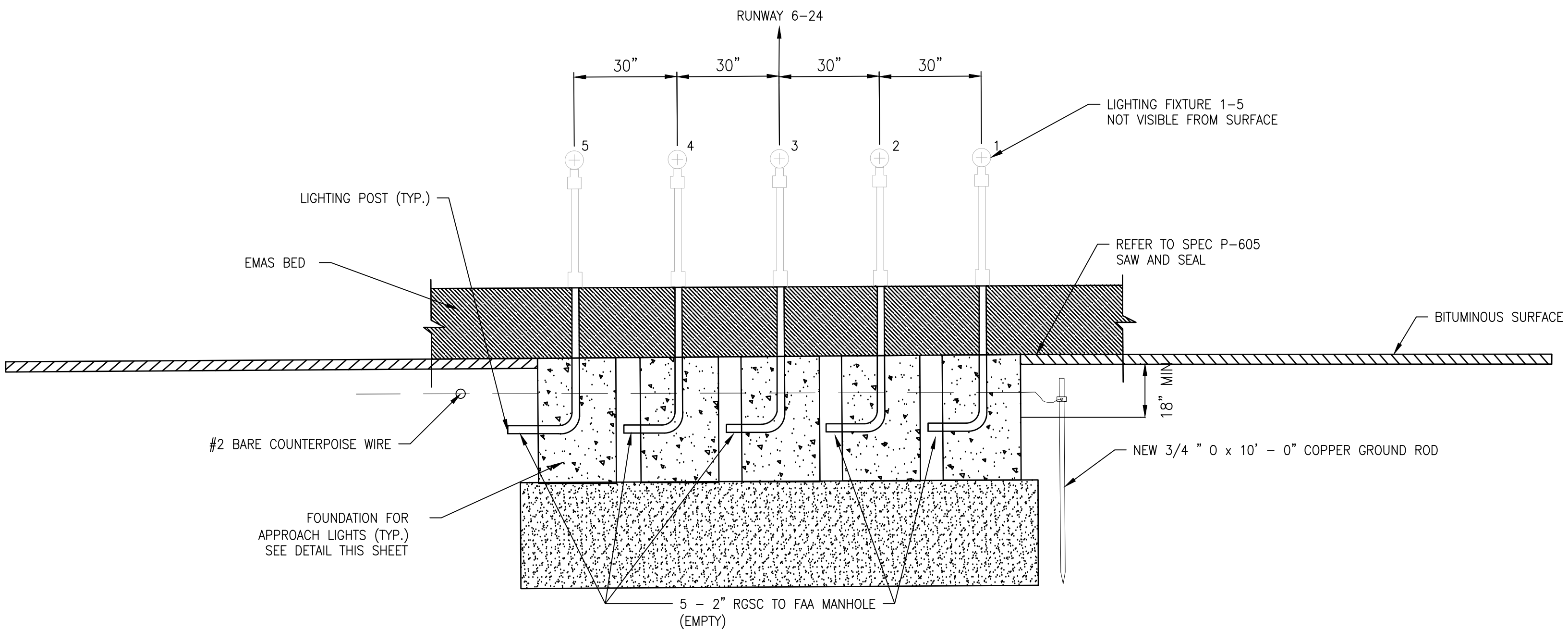
MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 RECORD DETAILS (SHEET 1 OF 2)
 SCALE: N.T.S. DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION	BY

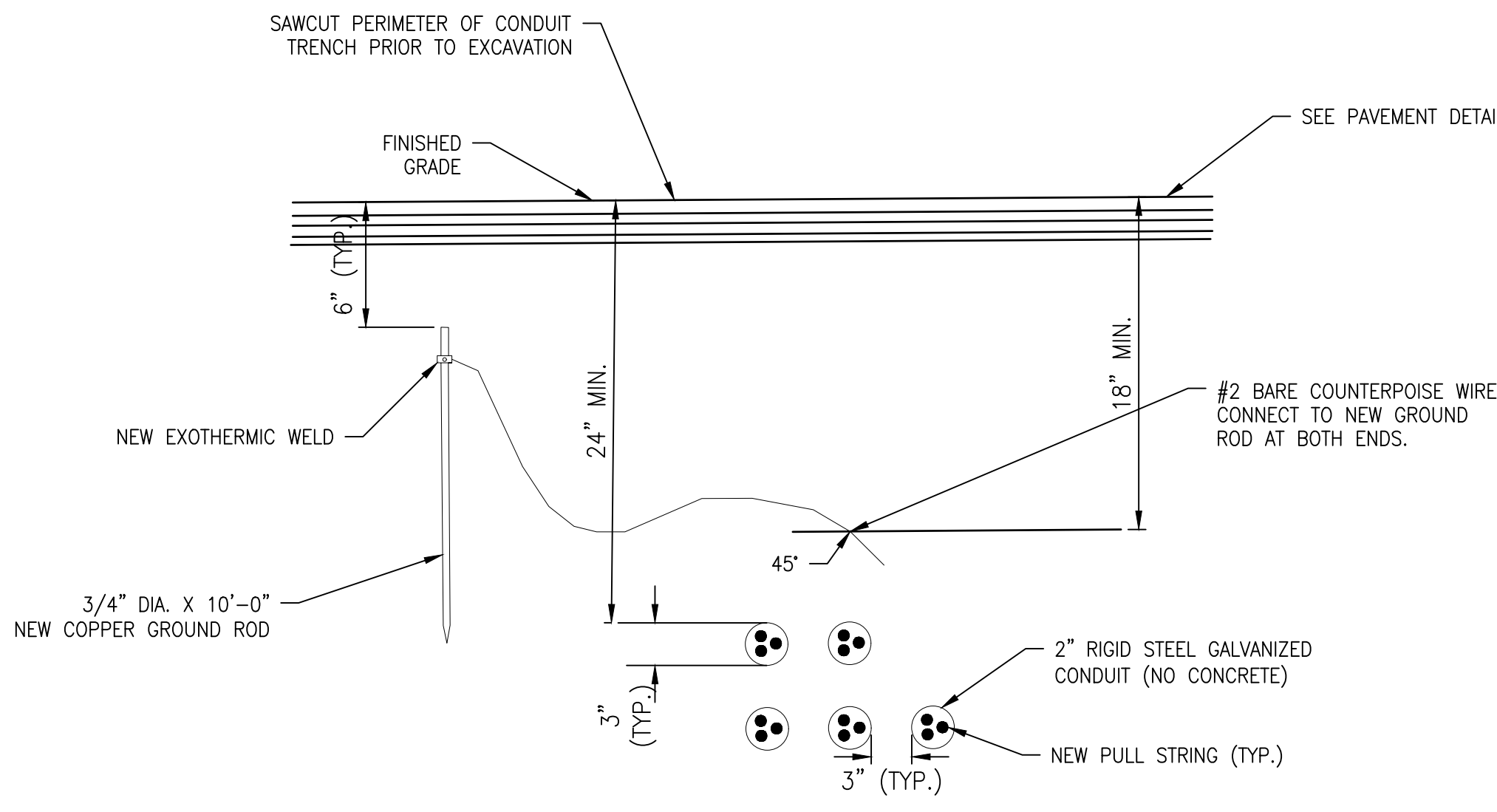
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 AIP No.: TBD

DRAWING NO.
 RD-01

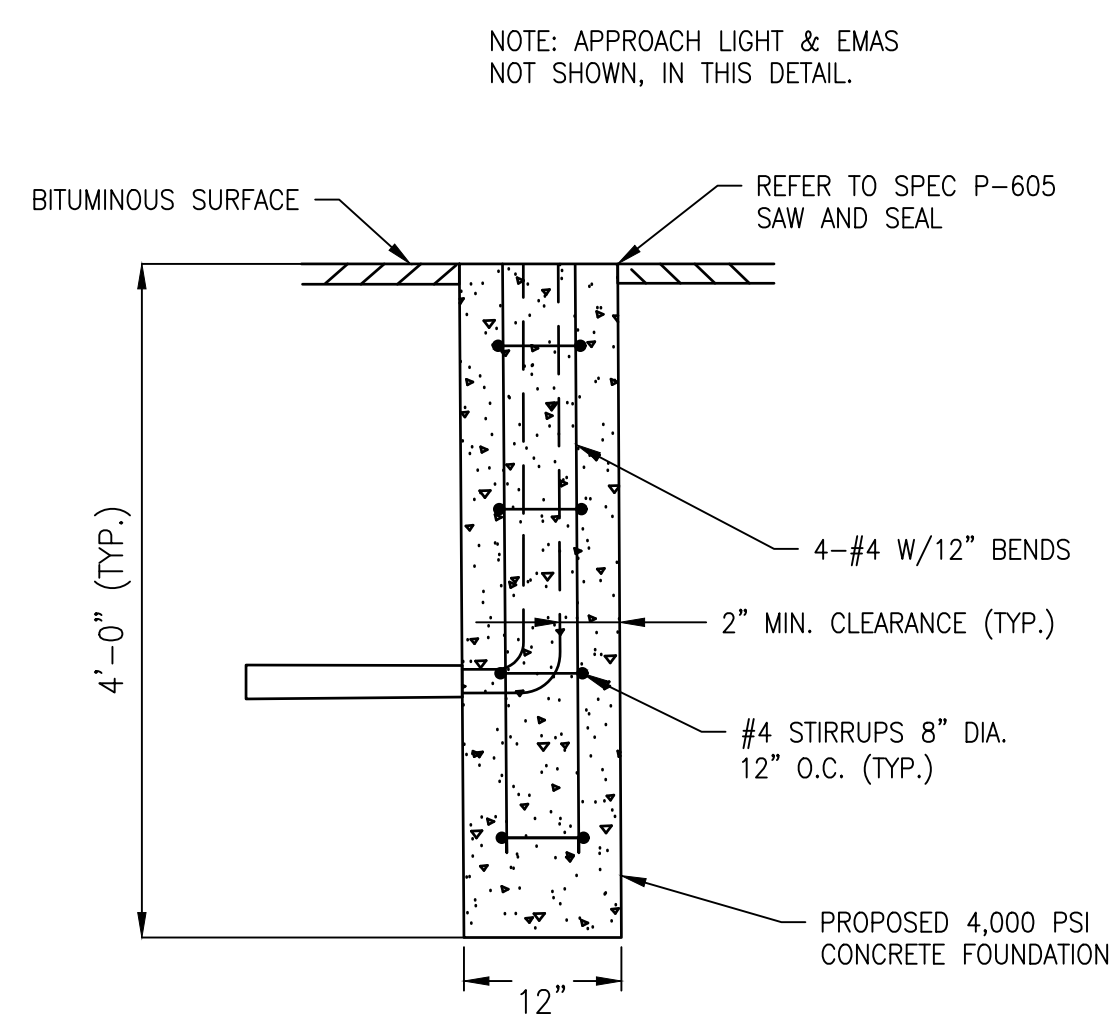
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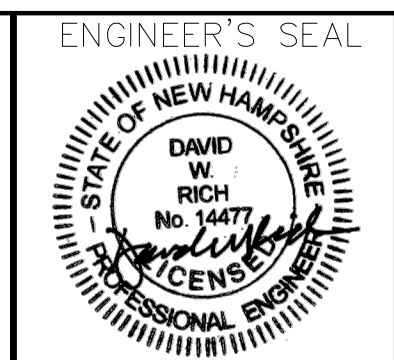
APPROACH LIGHTS AT MALS STA. 376+57 - ELEVATION VIEW
 (NOT FOR CONSTRUCTION)
 NOT TO SCALE



DIRECT BURIED CONDUIT DETAIL
 (NOT FOR CONSTRUCTION)
 NOT TO SCALE



APPROACH LIGHT FOUNDATION AT STA. 376+57
 (NOT FOR CONSTRUCTION)
 NOT TO SCALE



PROJECT DESIGNER
McFarland Johnson
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: ZM
 DRAWN BY: ZM
 CHECKED BY: NRD



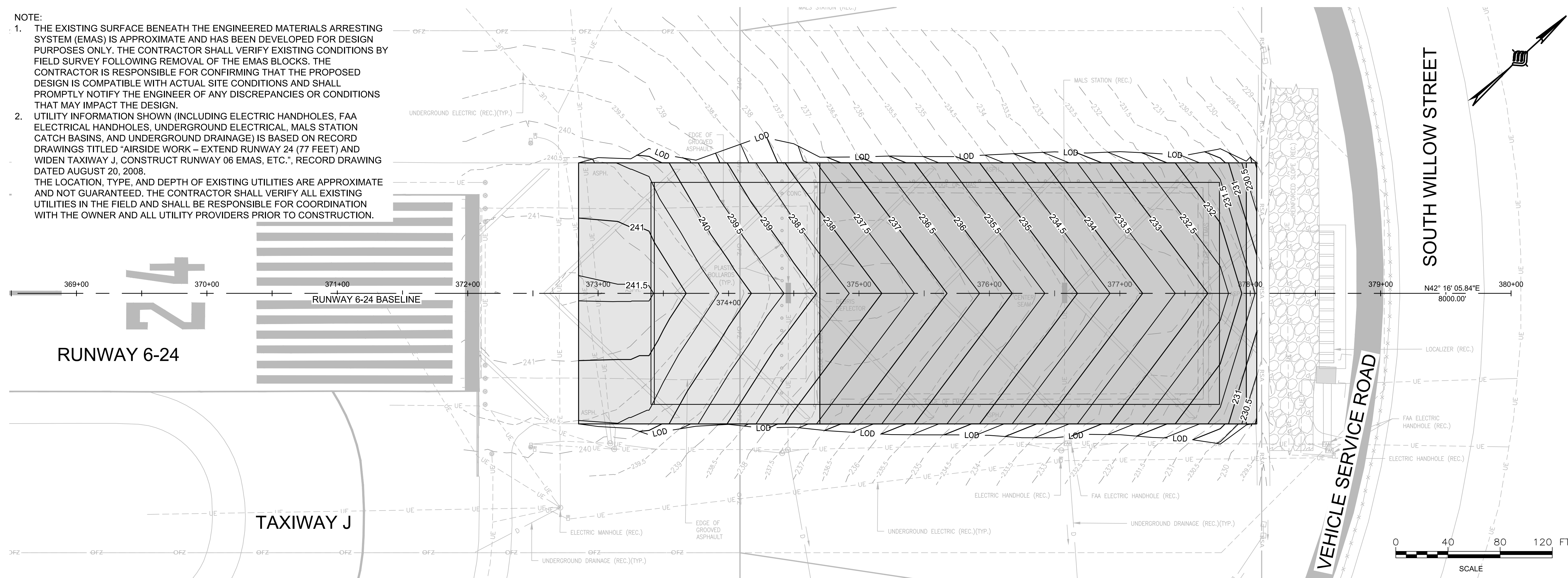
MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 RECORD DETAILS (SHEET 2 OF 2)
 SCALE: N.T.S. DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION	BY

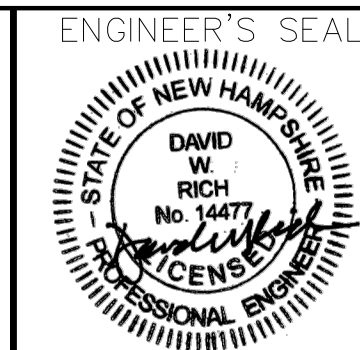
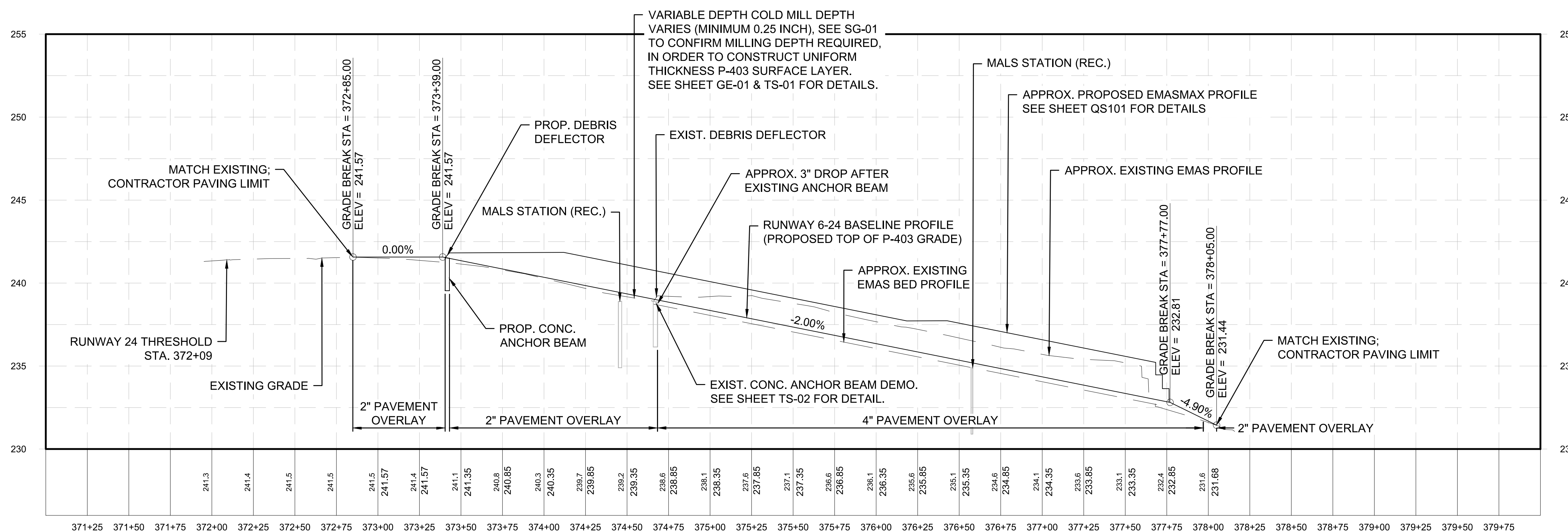
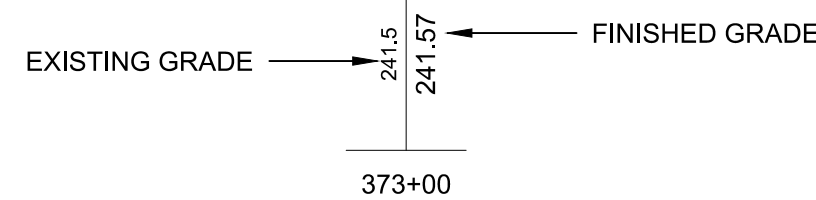
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 DRAWING NO.
 RD-02
 SHEET 13 OF 20

K:\MANCHESTER\19199.11\REPLACE RUNWAY 6-24 EMAS\DRAWING\SSHEET FILES\19199.11\DETAILS.DWG

- NOTE:
- THE EXISTING SURFACE BENEATH THE ENGINEERED MATERIALS ARRESTING SYSTEM (EMAS) IS APPROXIMATE AND HAS BEEN DEVELOPED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS BY FIELD SURVEY FOLLOWING REMOVAL OF THE EMAS BLOCKS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THAT THE PROPOSED DESIGN IS COMPATIBLE WITH ACTUAL SITE CONDITIONS AND SHALL PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONDITIONS THAT MAY IMPACT THE DESIGN.
 - UTILITY INFORMATION SHOWN (INCLUDING ELECTRIC HANDHOLES, FAA ELECTRICAL HANDHOLES, UNDERGROUND ELECTRICAL, MALS STATION CATCH BASINS, AND UNDERGROUND DRAINAGE) IS BASED ON RECORD DRAWINGS TITLED "AIRSIDE WORK - EXTEND RUNWAY 24 (77 FEET) AND WIDEN TAXIWAY J, CONSTRUCT RUNWAY 06 EMAS, ETC.", RECORD DRAWING DATED AUGUST 20, 2008. THE LOCATION, TYPE, AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND NOT GUARANTEED. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES IN THE FIELD AND SHALL BE RESPONSIBLE FOR COORDINATION WITH THE OWNER AND ALL UTILITY PROVIDERS PRIOR TO CONSTRUCTION.



- LEGEND:
- 2" PAVEMENT OVERLAY AREA
 - 4" PAVEMENT OVERLAY AREA
 - LOD APPROXIMATE LIMIT OF DISTURBANCE
 - RSA RUNWAY SAFETY AREA
 - OFZ OBSTACLE FREE ZONE
 - LOCALIZER CRITICAL AREA
 - 210 EXISTING MAJOR CONTOUR
 - 209 EXISTING MINOR CONTOUR
 - 210 PROPOSED MAJOR CONTOUR
 - 209 PROPOSED MINOR CONTOUR



PROJECT DESIGNER
McFarland Johnson
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: NRD
 DRAWN BY: NRD
 CHECKED BY: DFB



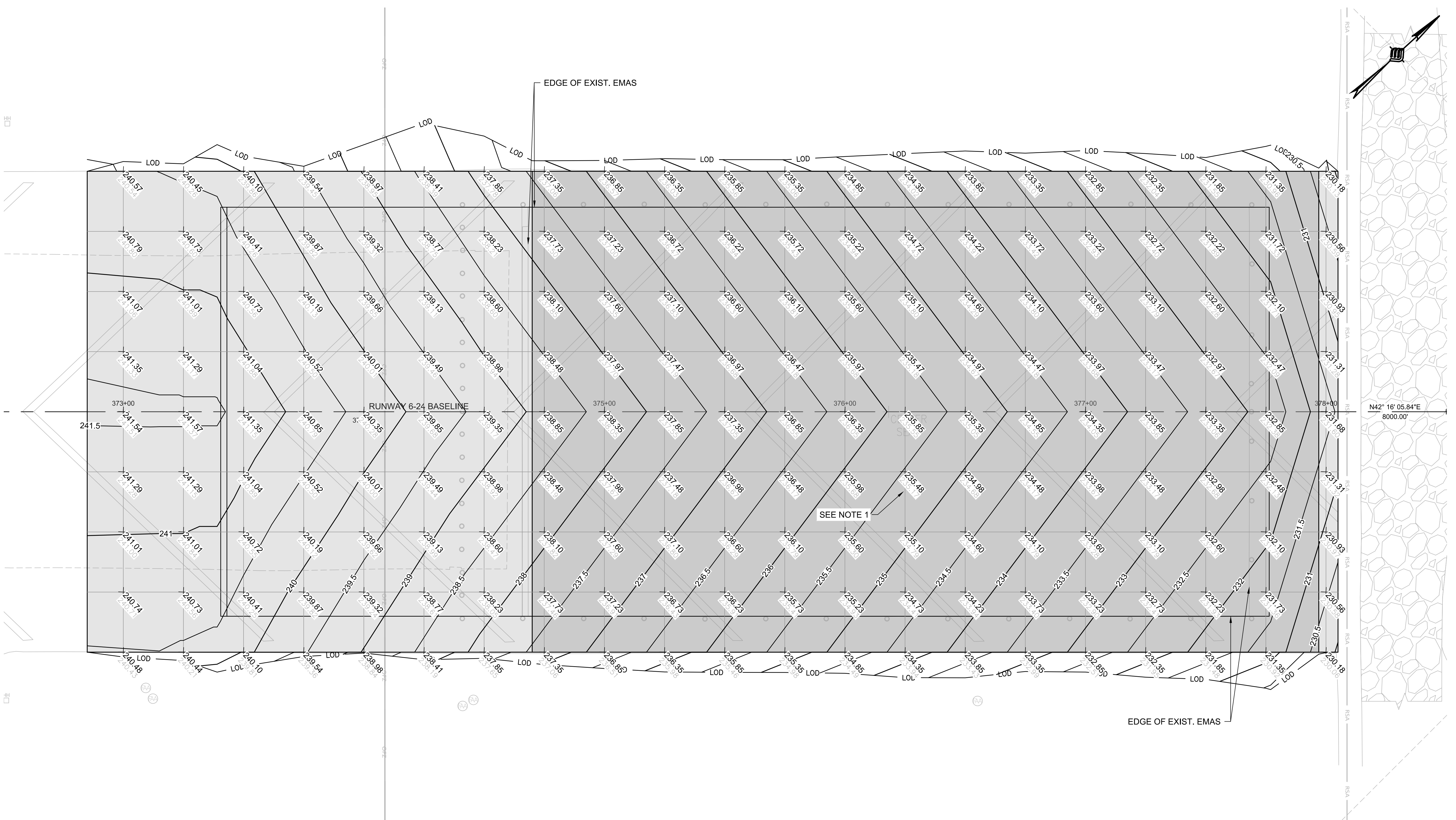
MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 GRADING PLAN & PROFILE
 SCALE: 1"=40'
 DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION

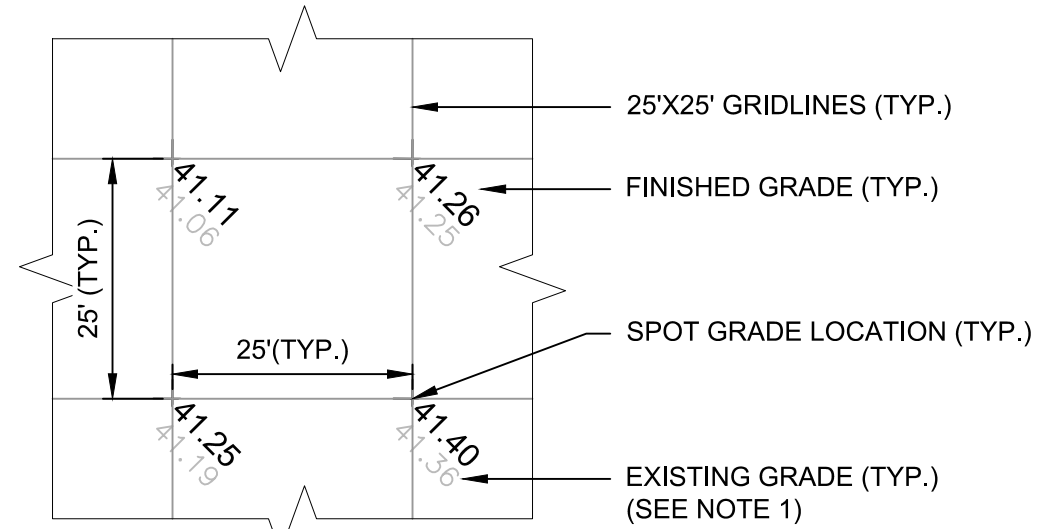
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 AIP No.: TBD

DRAWING NO.
GR-01
 SHEET 14 OF 20

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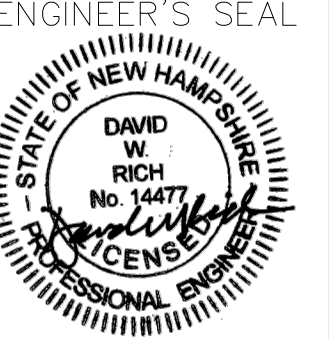
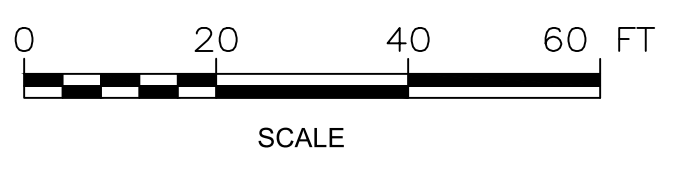
N42° 16' 05.84"E
8000.00'



SPOT GRADING DETAIL
NOT TO SCALE

- LEGEND:**
- 2" PAVEMENT OVERLAY AREA
 - 4" PAVEMENT OVERLAY AREA
 - LOD — APPROXIMATE LIMIT OF DISTURBANCE
 - RSA — RUNWAY SAFETY AREA
 - OFZ — OBSTACLE FREE ZONE
 - LOCALIZER CRITICAL AREA
 - 210 — PROPOSED MAJOR CONTOUR
 - 209 — PROPOSED MINOR CONTOUR

NOTE:
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PROJECT DESIGNER
McFARLAND JOHNSON
53 REGIONAL DRIVE, CONCORD, NH 03301-5022
PH: 603-225-2978 FAX: 603-225-0095
DESIGNED BY: NRD
DRAWN BY: NRD
CHECKED BY: DFB

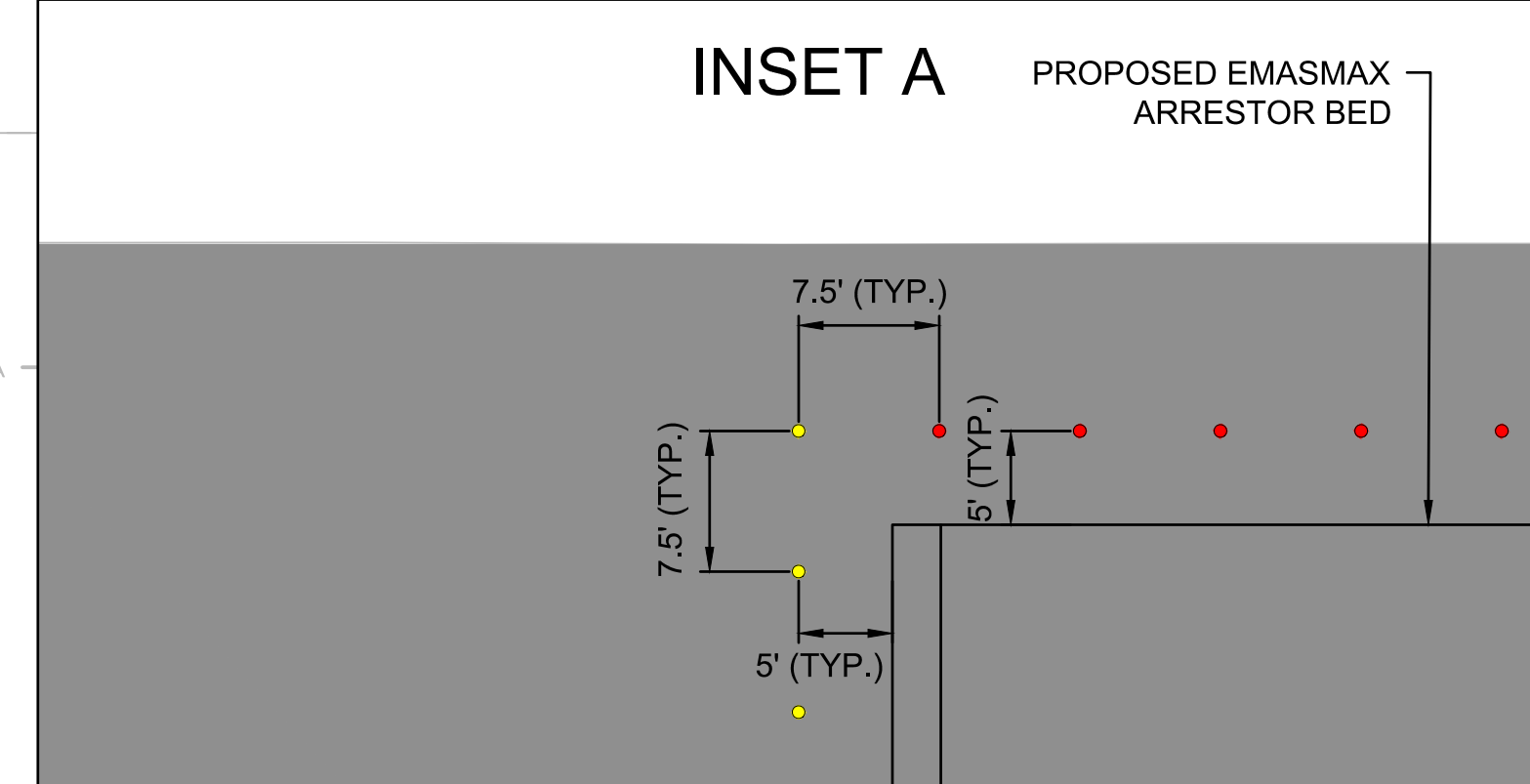
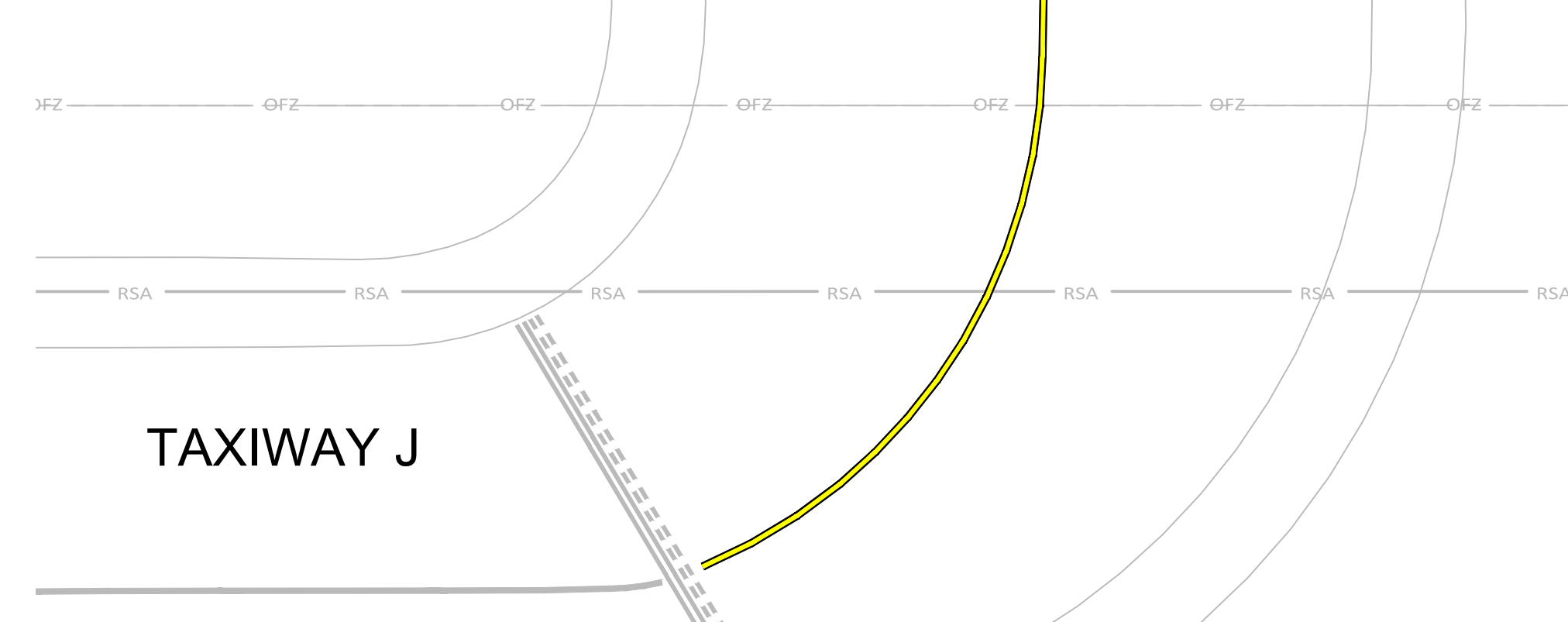
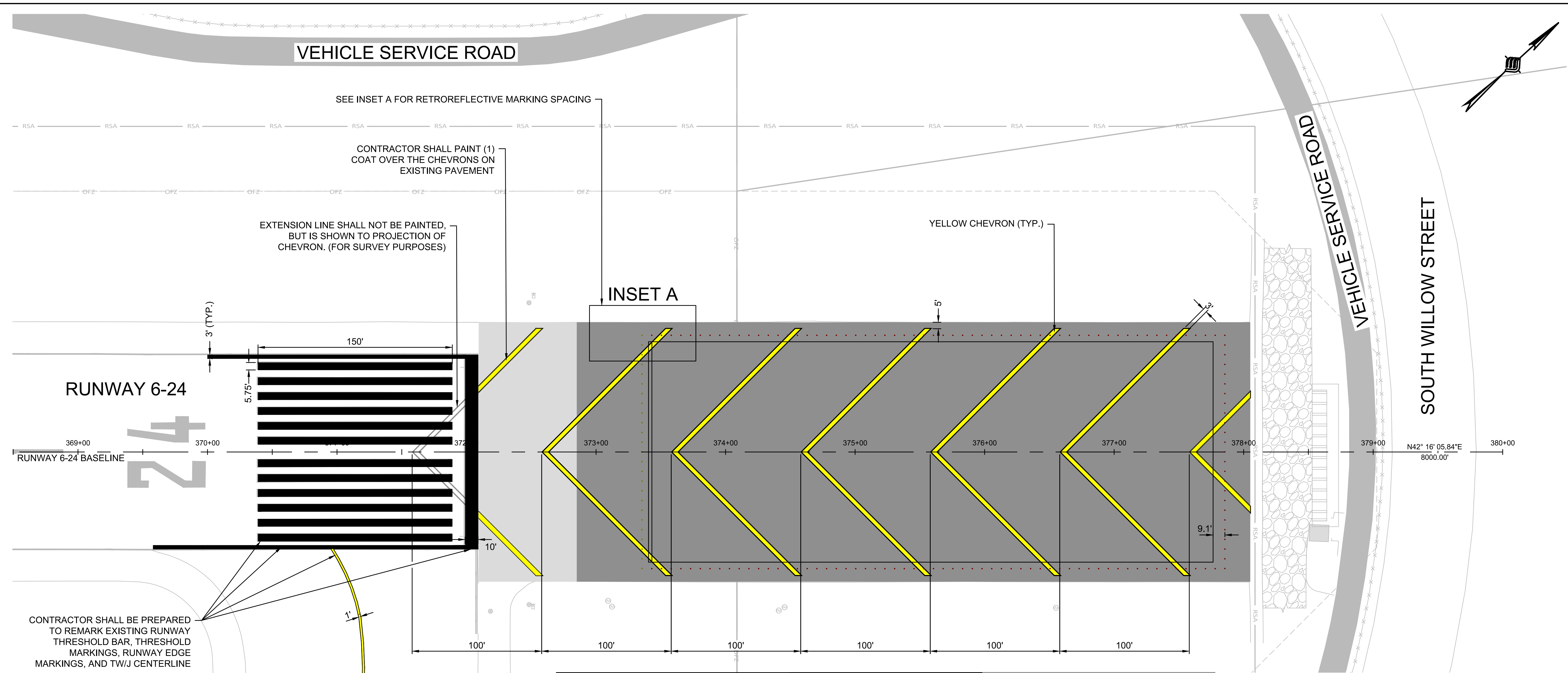


MANCHESTER-BOSTON REGIONAL AIRPORT
REPLACEMENT OF RUNWAY 6 DEPARTURE END
ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
SPOT GRADE PLAN
SCALE: 1"=20'
DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION

M/J PROJ. No.: 19199.11
FILE NAME:
AIP No.: TBD
DRAWING NO.
SG-01
SHEET 15 OF 20

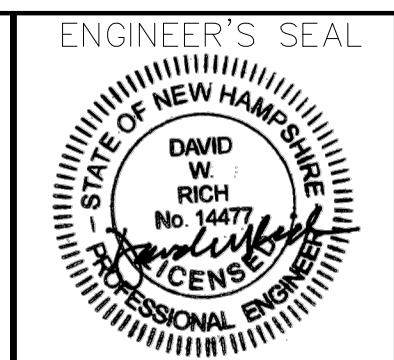
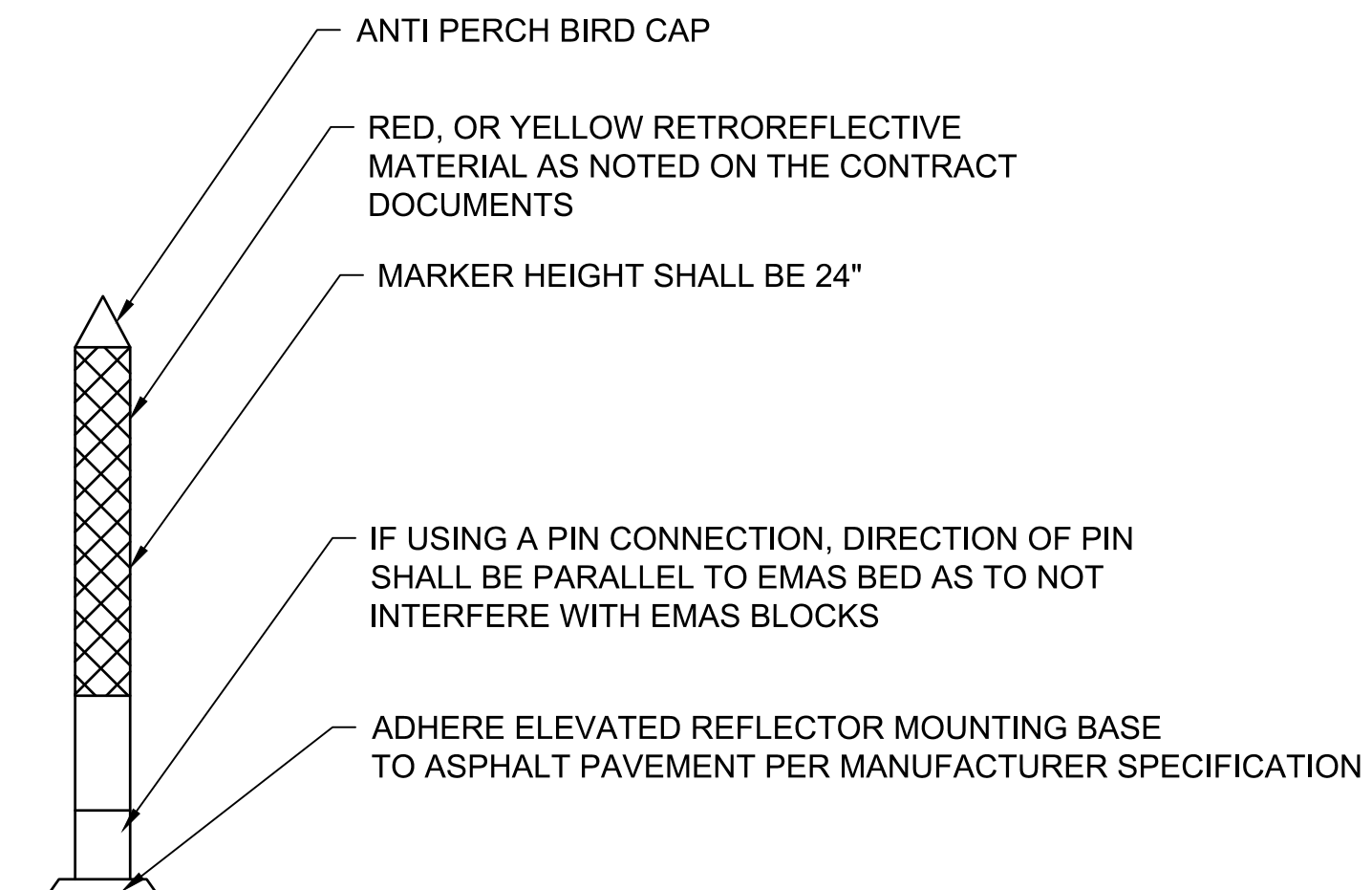
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- NOTES:**
- MARKING LAYOUT SHALL BE APPROVED BY THE RESIDENT PROJECT REPRESENTATIVE (RPR) AND MHT OPERATIONS PRIOR TO PAINT APPLICATION.
 - ANY SURVEY/LAYOUT REQUIRED FOR APPLICATION OF PAVEMENT MARKINGS SHALL BE INCIDENTAL TO PAINT MARKING PAY ITEMS.
 - THE CONTRACTOR IS RESPONSIBLE FOR RE-MARKING ANY EXISTING PAVEMENT MARKINGS THAT HAVE BEEN OBTSCURED OR DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
 - 6" BLACK BORDERS ARE REQUIRED FOR ALL MARKINGS.
 - THE CONTRACTOR SHALL PROPOSE A PAINT APPLICATION METHOD THAT WILL

- NOT DAMAGE THE NEWLY INSTALLED EMAS BLOCKS. BLOCKS DAMAGED AS A RESULT OF PAINT APPLICATION SHALL BE REPLACED AT CONTRACTOR'S EXPENSE. SEE NOTE 13 ON QS101
- PAINT COLORS AND MATERIALS, INCLUDING REFLECTIVE MATERIAL SHALL CONFORM WITH SECTION P-620 IN THE PROJECT SPECIFICATIONS.
- MARKINGS SHALL REQUIRE 30-DAYS BETWEEN 1ST AND 2ND APPLICATION.

- LEGEND:**
- EXISTING PAVEMENT
 - PROPOSED PAVEMENT
 - NEW PAVEMENT MARKING WITH 6" BLACK BORDER
 - RED TYPE II RETROREFLECTOR
 - YELLOW TYPE II RETROREFLECTOR
 - RSA RUNWAY SAFETY AREA
 - OFZ OBSTACLE FREE ZONE
 - LOCALIZER CRITICAL AREA



PROJECT DESIGNER
McFARLAND JOHNSON
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: NRD
 DRAWN BY: NRD
 CHECKED BY: DFB

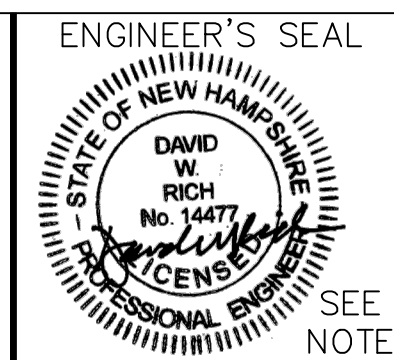


MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
MARKING PLAN
 SCALE: 1"=40'
 DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION	BY

M/J PROJ. No.: 19199.11
 FILE NAME:
 AIP No.: TBD
DRAWING NO.
 MK-01
 SHEET 16 OF 20

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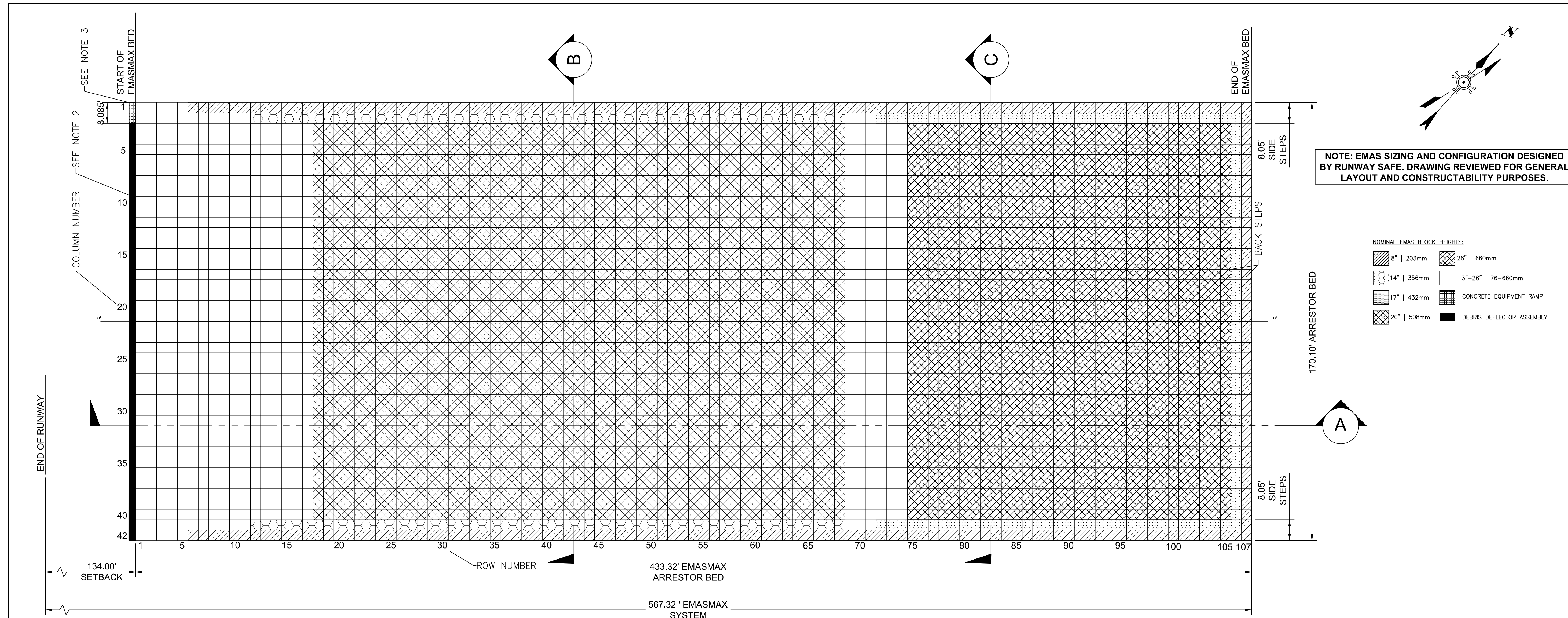
PROJECT DESIGNER
RUNWAY SAFE
 KUNGSFORSVALEVEN 21, 411 36 GÖTHEBURG, SWEDEN
 PH: +46 13 15 76 00
 DESIGNED BY: JS
 DRAWN BY: JS
 CHECKED BY: OR



MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 EMASMAX PLAN LAYOUT
 SCALE: N.T.S.
 DATE: JUNE 2026

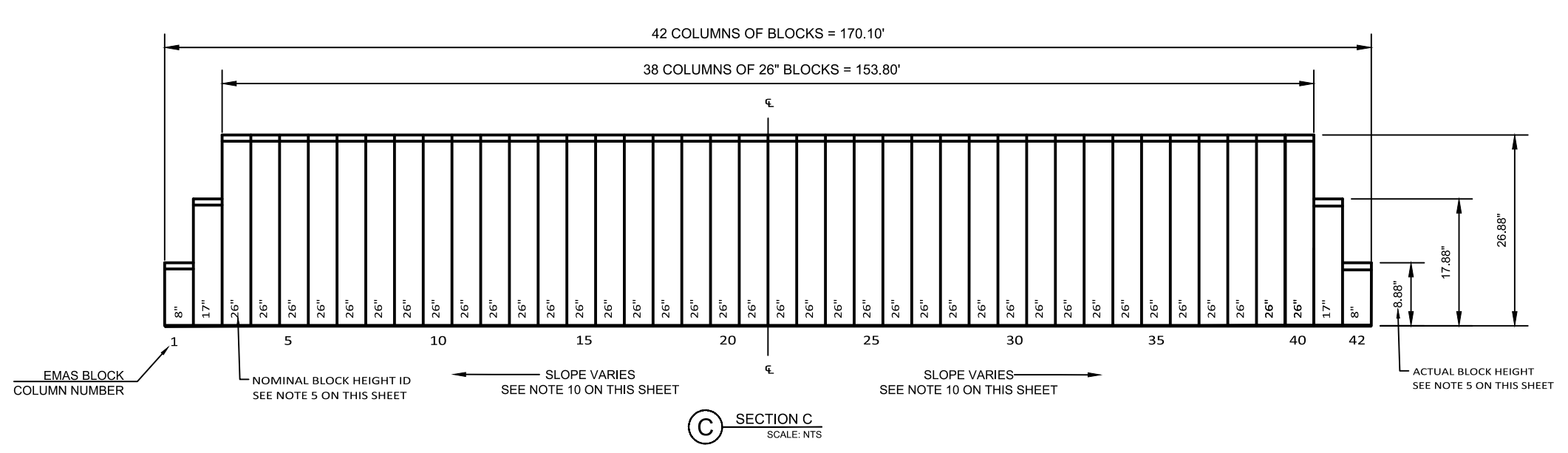
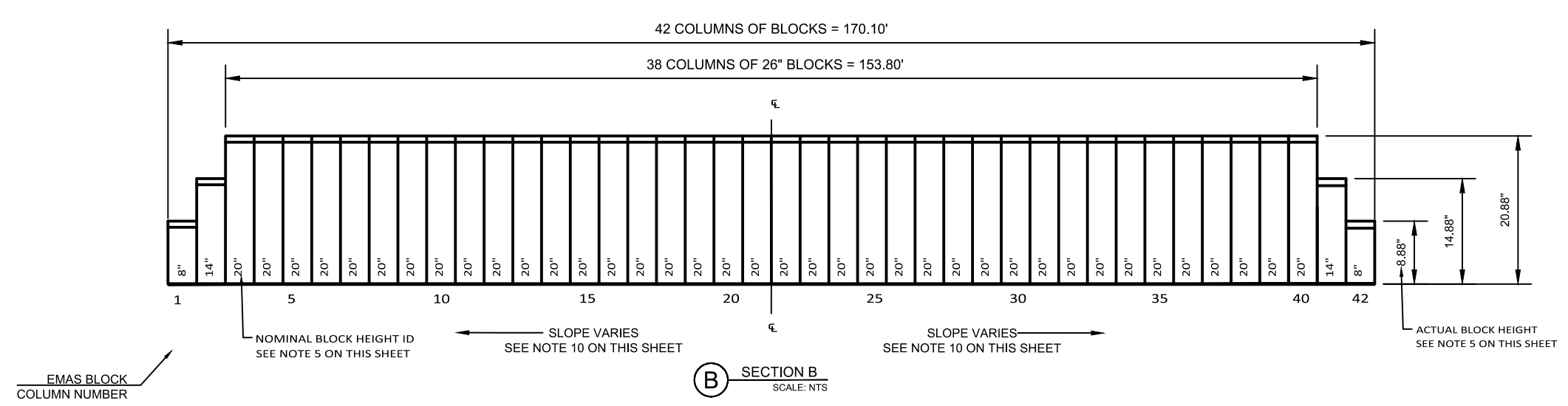
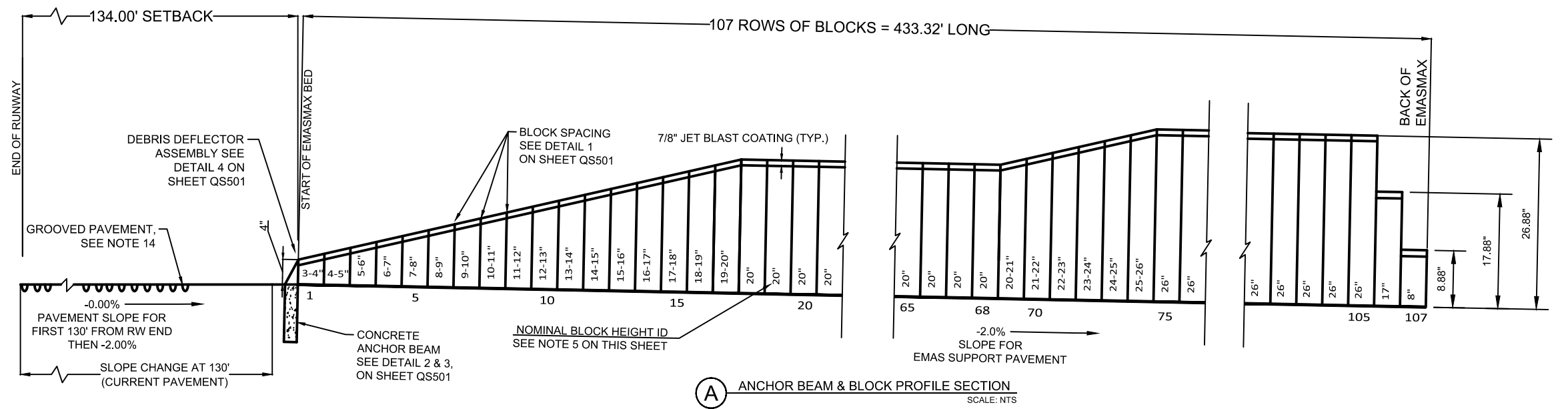
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MJ Proj. No.: 19199.11
 FILE NAME:
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 DRAWING NO.
QS101
 SHEET 17 OF 20



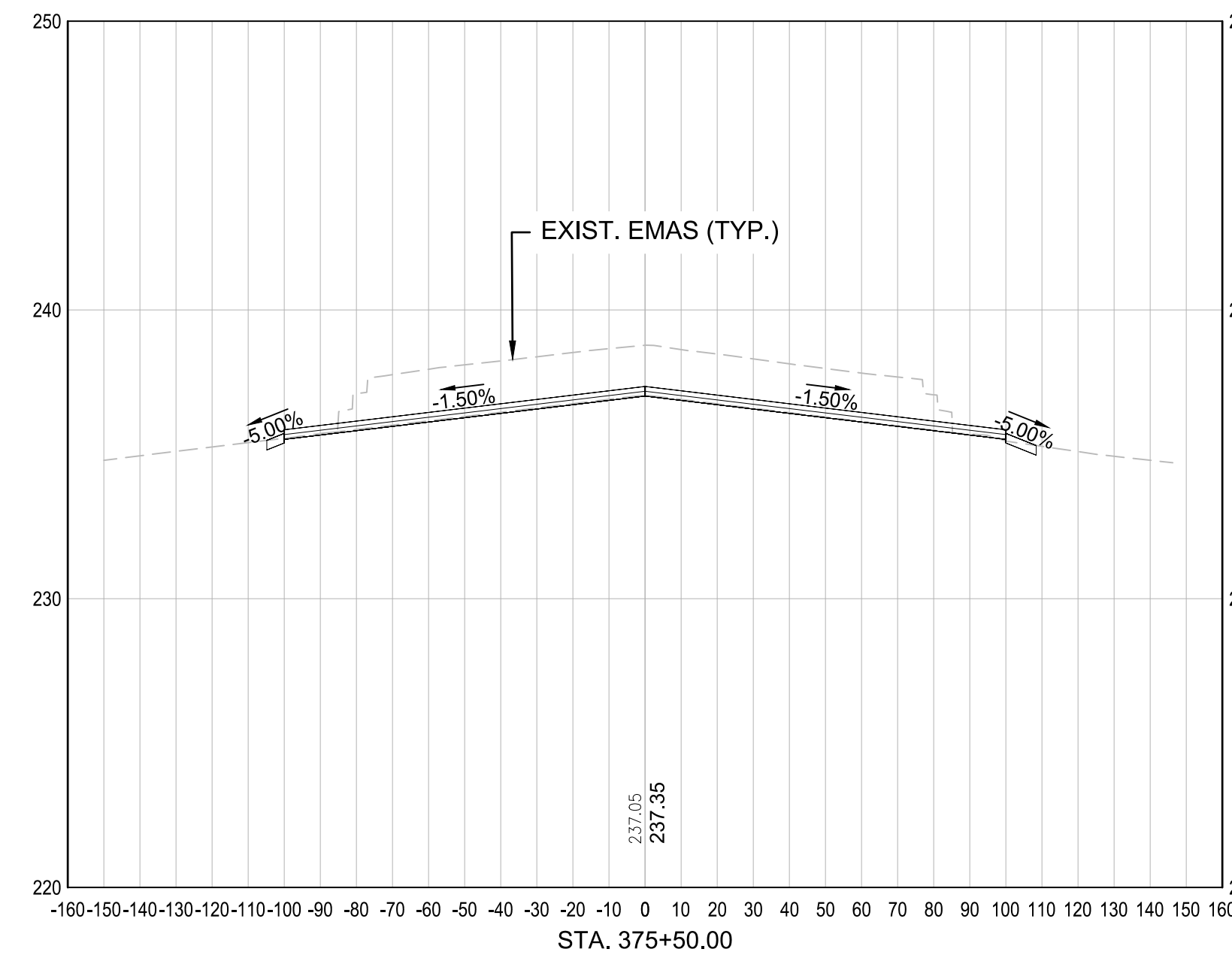
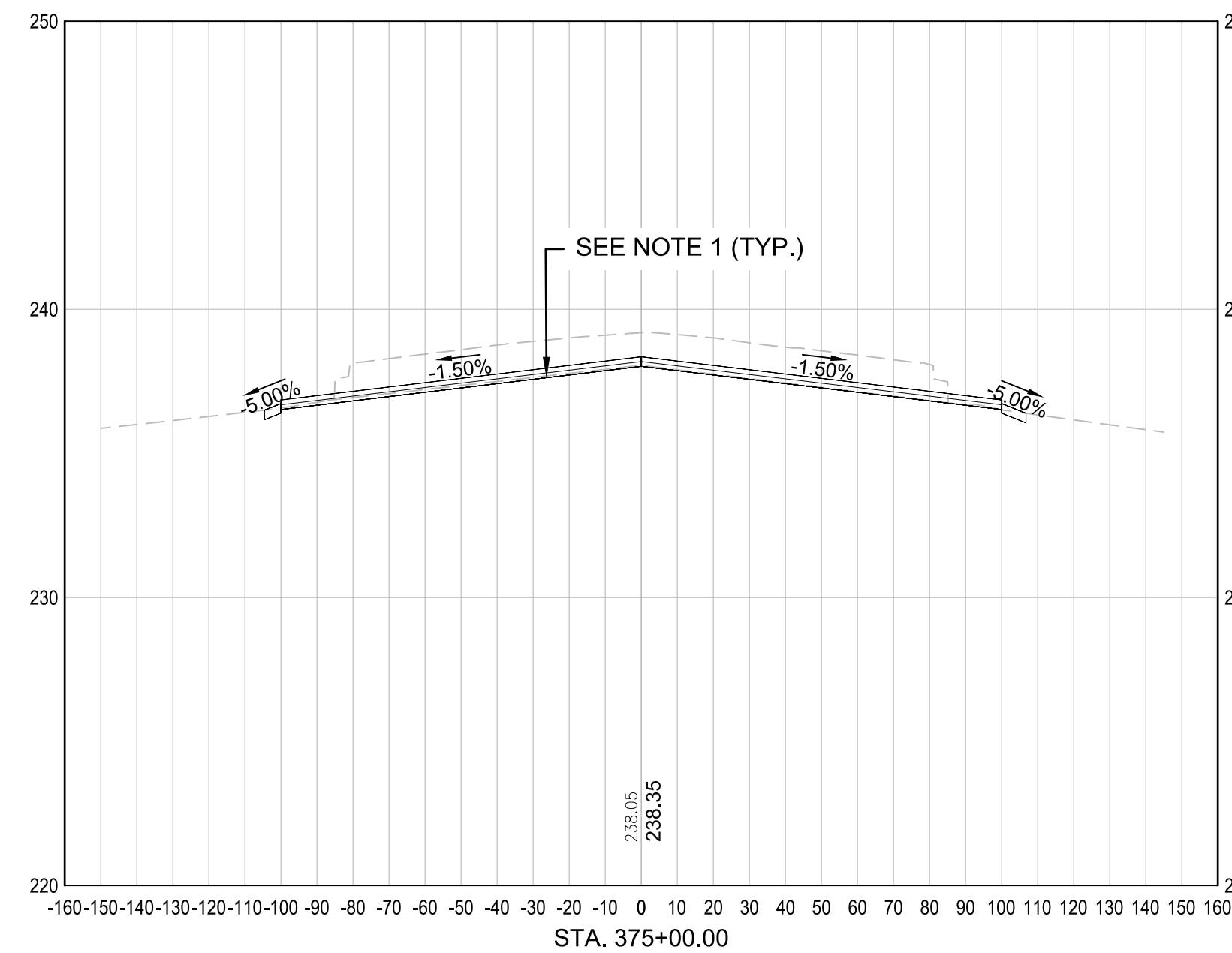
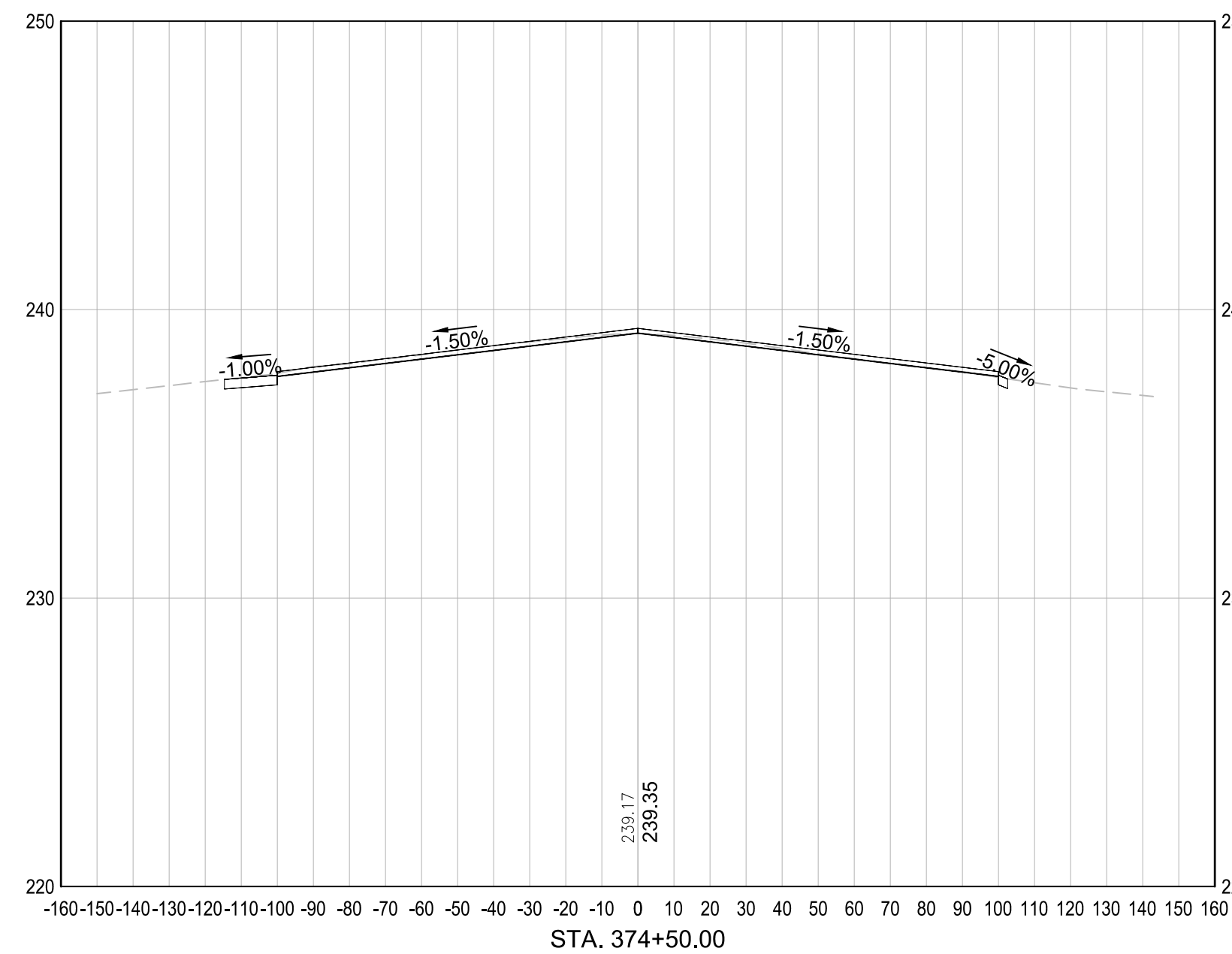
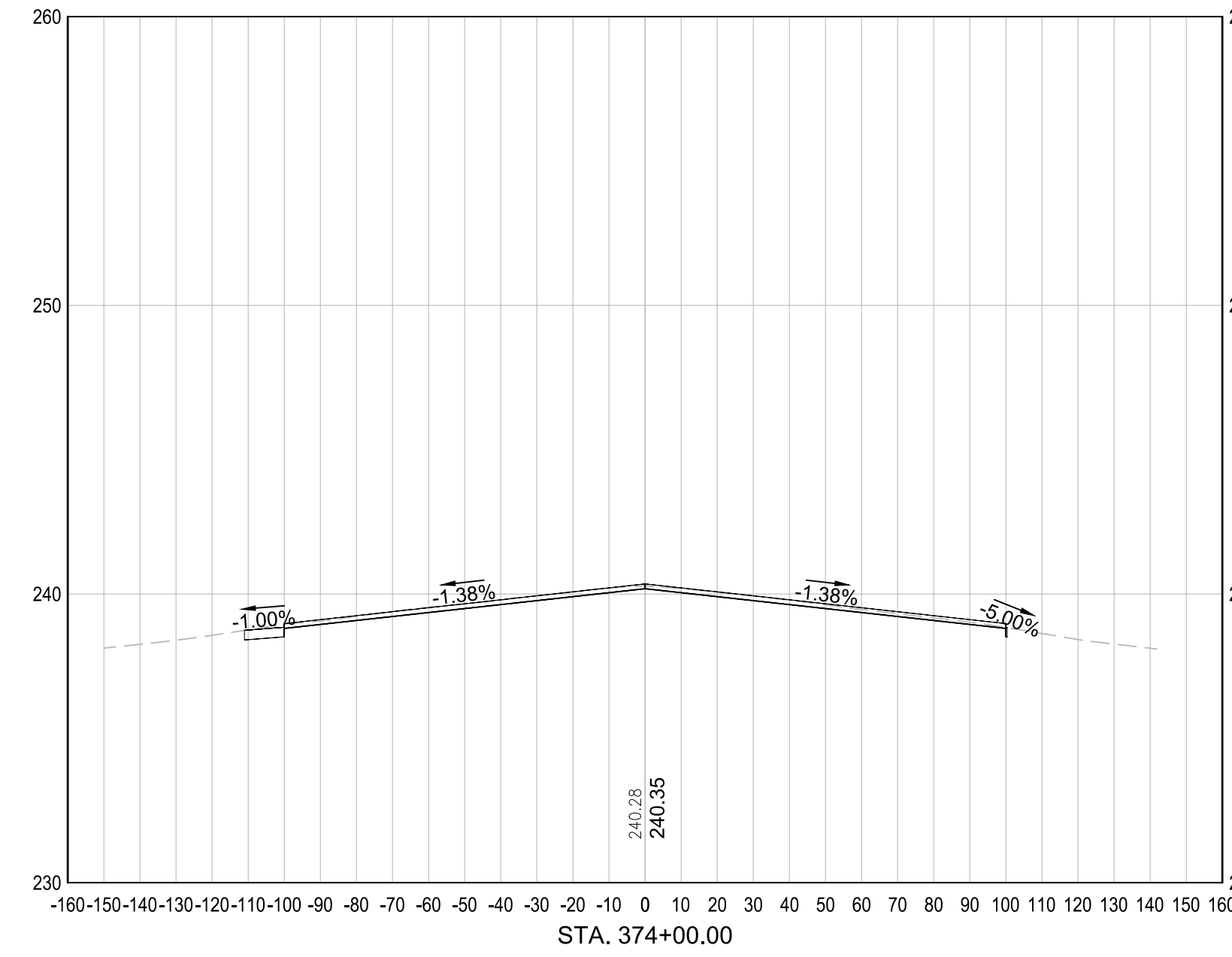
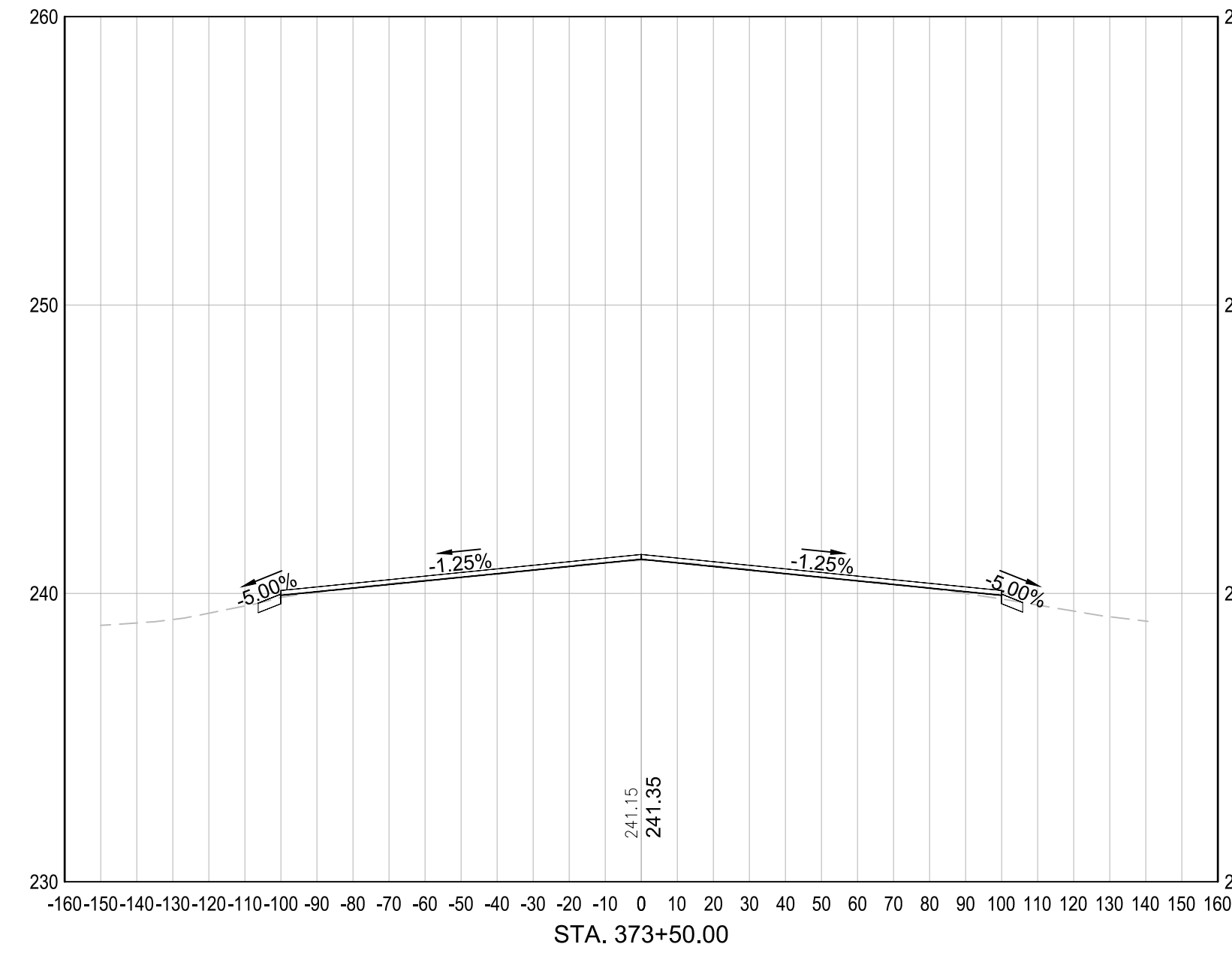
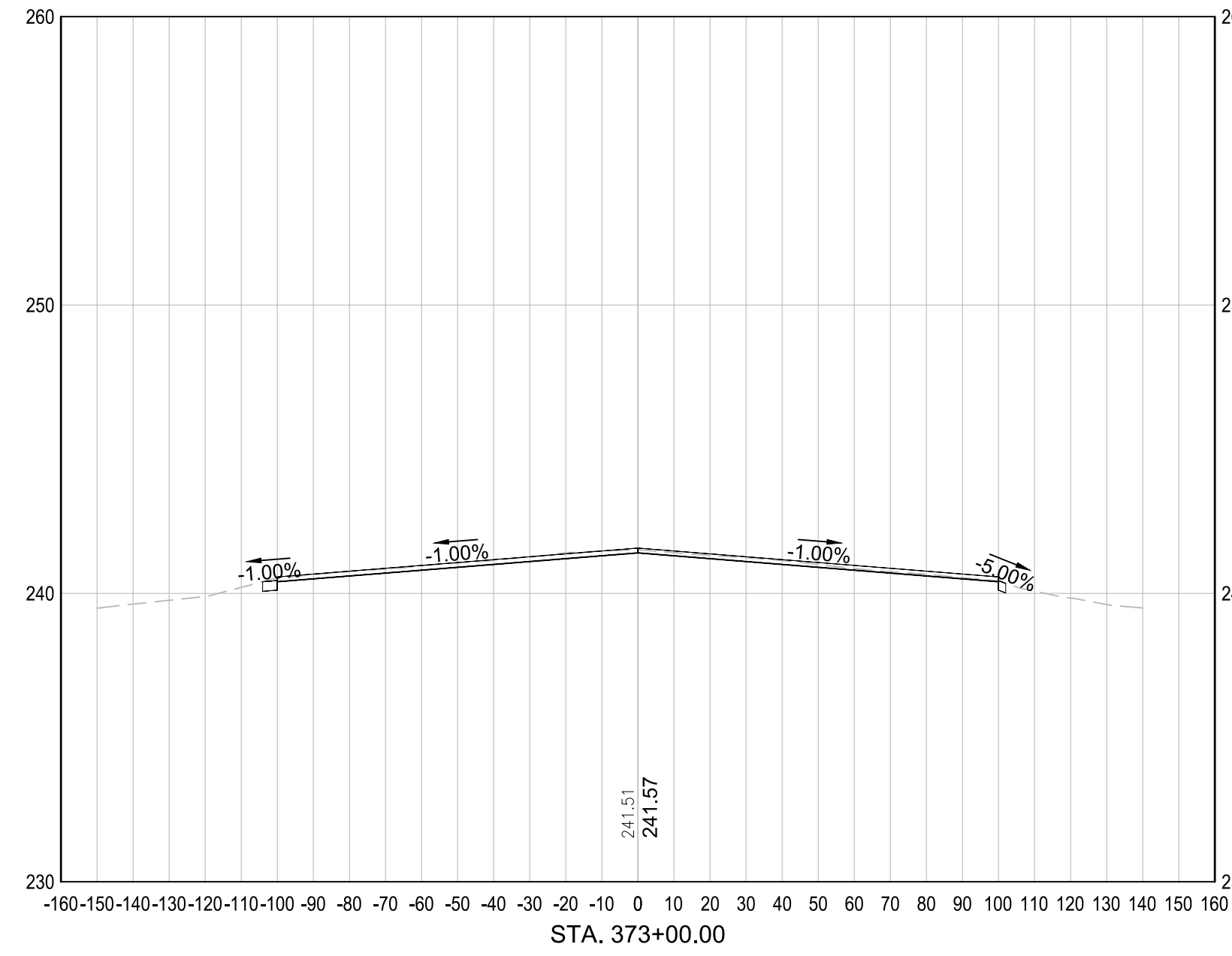
NOTE: EMAS SIZING AND CONFIGURATION DESIGNED BY RUNWAY SAFE. DRAWING REVIEWED FOR GENERAL LAYOUT AND CONSTRUCTABILITY PURPOSES.

- NOMINAL EMAS BLOCK HEIGHTS:
- 8" | 203mm
 - 14" | 356mm
 - 17" | 432mm
 - 20" | 508mm
 - 26" | 660mm
 - 3"-26" | 76-660mm
 - CONCRETE EQUIPMENT RAMP
 - DEBRIS DEFLECTOR ASSEMBLY

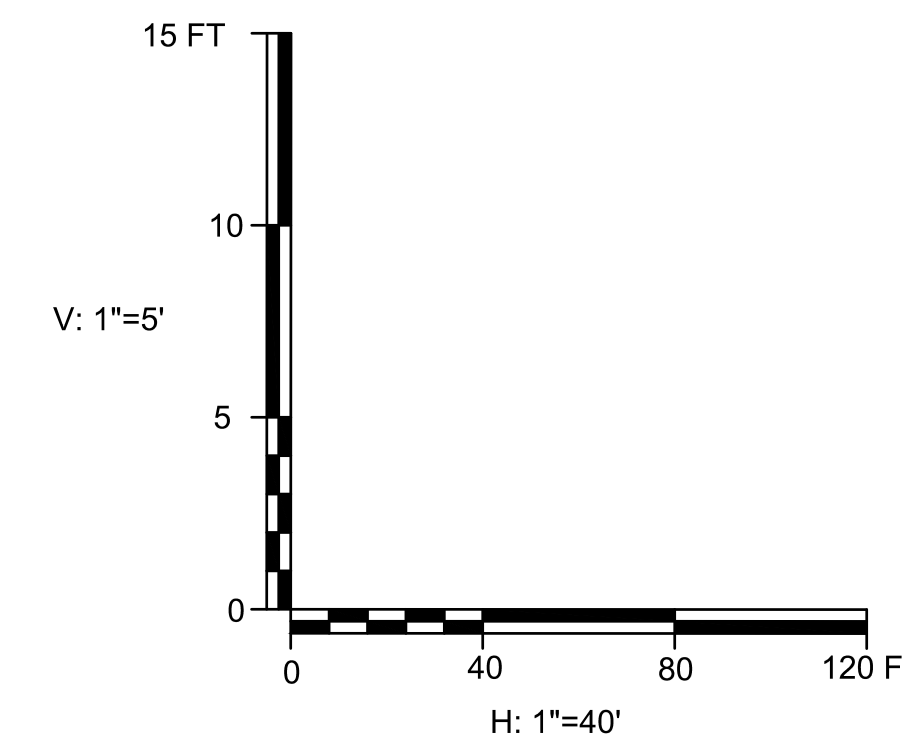


- GENERAL EMAS NOTES FOR 06 DEPARTURE END:**
- INSTALL EMASMAX SYSTEM IN ACCORDANCE WITH SPECIFICATION P-555 AND AS DIRECTED AND SUPERVISED BY ON-SITE EMASMAX MANUFACTURER REPRESENTATIVES.
 - DEBRIS DEFLECTOR ASSEMBLY SHALL BE INSTALLED ON TOP OF THE CONCRETE ANCHOR BEAM PRIOR TO BLOCK INSTALLATION. SEE DETAILS 1, 2, 3 & 4 ON SHEET QS501.
 - CONCRETE EQUIPMENT RAMP SHALL BE BUILT TO FACILITATE NECESSARY EQUIPMENT ACCESS ONTO THE EMAS, SEE DETAIL 7 ON SHEET QS501.
 - WITH EXCEPTION OF THE FIRST ROW, ALL EMASMAX BLOCKS SHALL BE INSTALLED WITH A $\approx 0.6"$ GAP FROM ADJACENT BLOCKS.
 - ALL EMASMAX BLOCKS ARE 4.0' X 4.0' AND VARY IN HEIGHT. A JET BLAST COATING OF $\frac{7}{8}"$ IS APPLIED PRIOR TO SHIPPING. FOR EASE OF IDENTIFYING BLOCKS DURING CONSTRUCTION, NOMINAL VALUES ARE USED. FOR BLOCK HEIGHTS SEE PROFILE "A" AND SECTION "B" ON THIS SHEET.
 - EMAS BED HEIGHT TOLERANCE IS $-0.25"$ TO $+0.75"$
 - EMAS BED LENGTH TOLERANCE IS -0.1% TO $+0.1\%$.
 - THE PAVEMENT UNDER THE EMAS BED SHOULD BE LEVEL AND FLAT TO AVOID BLOCKS MISALIGNMENT.
 - EMAS BED ALIGNMENT TOLERANCE IS $\pm 1/8"$ OVER A 20.25' SPAN.
 - THE TRANSVERSAL AND LONGITUDINAL SLOPE OF THE TOP SURFACE OF THE FINISHED EMAS BED SHOULD FOLLOW PAVEMENT SLOPE. REFER TO THE CIVIL DRAWINGS FOR THE SLOPE.
 - THE LONGITUDINAL GRADING CHANGE AND DECK JOINT SHOULD BE FINALIZED AT THE EMAS BLOCK JOINTS.
 - THE EMASMAX CONTRACTOR SHALL BEGIN BLOCK INSTALLATION BY ABUTTING THE FIRST ROW OF BLOCKS AGAINST THE PROPOSED CONCRETE ANCHOR BEAM.
 - ALL MARKINGS DESIGNATED TO BE INSTALLED ON EMASMAX BLOCKS MAY BE APPLIED WITH A WALK BEHIND APPLICATOR OF SUCH WEIGHT THAT IT WILL NOT DAMAGE THE EMAS MATERIAL.
 - IF NOT GROOVED YET, PAVEMENT GROOVING IS RECOMMENDED IN FRONT OF EMAS ARRESTOR BED (TOWARDS RUNWAY).

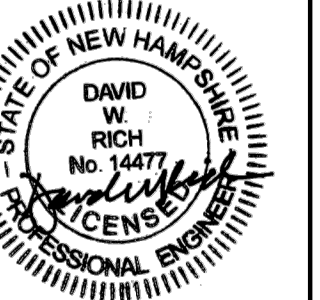
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- NOTE:
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 2. SEE SHEET TS-01 FOR TYPICAL SECTIONS.



ENGINEER'S SEAL



PROJECT DESIGNER
McFARLAND JOHNSON
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: NRD
 DRAWN BY: NRD
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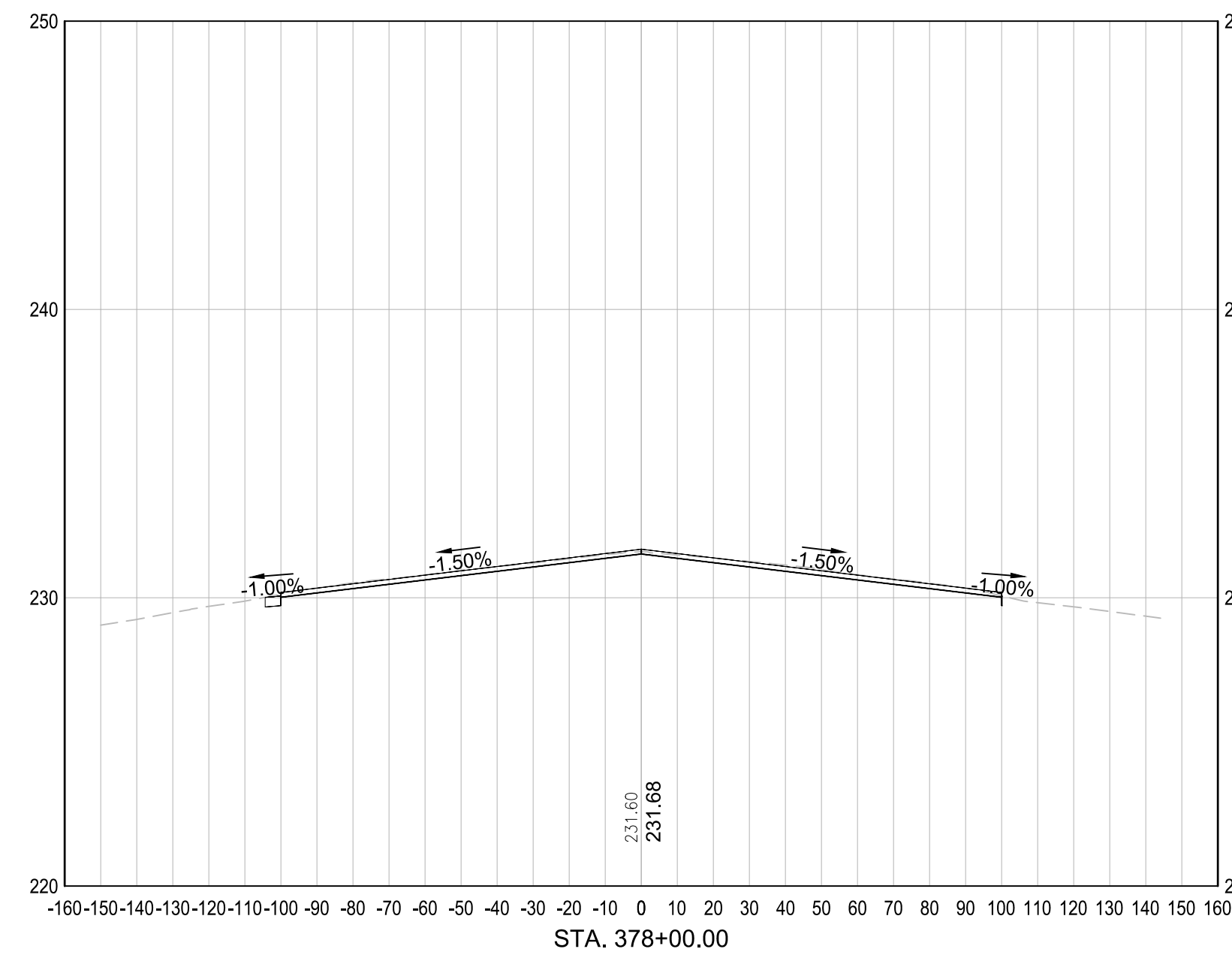
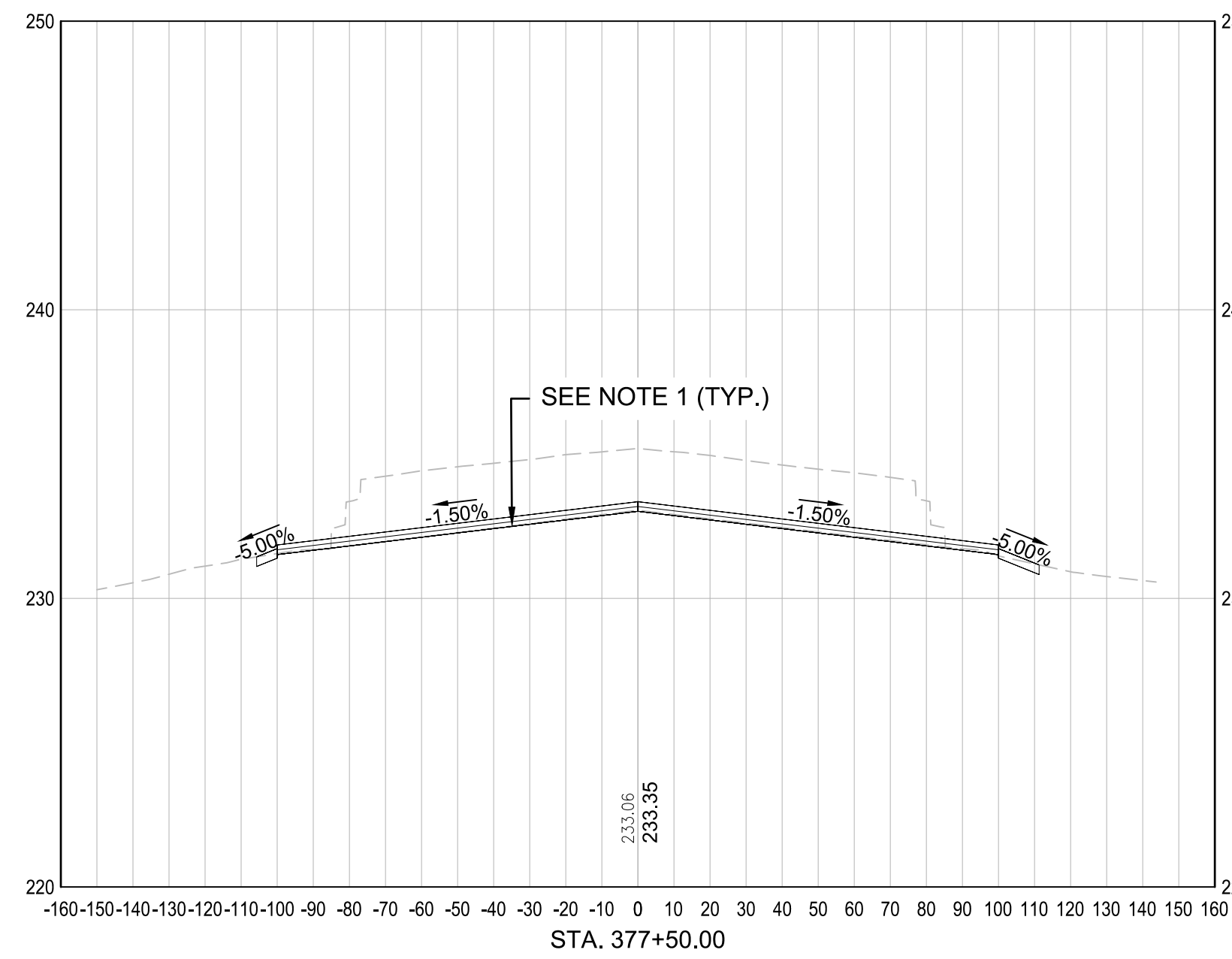
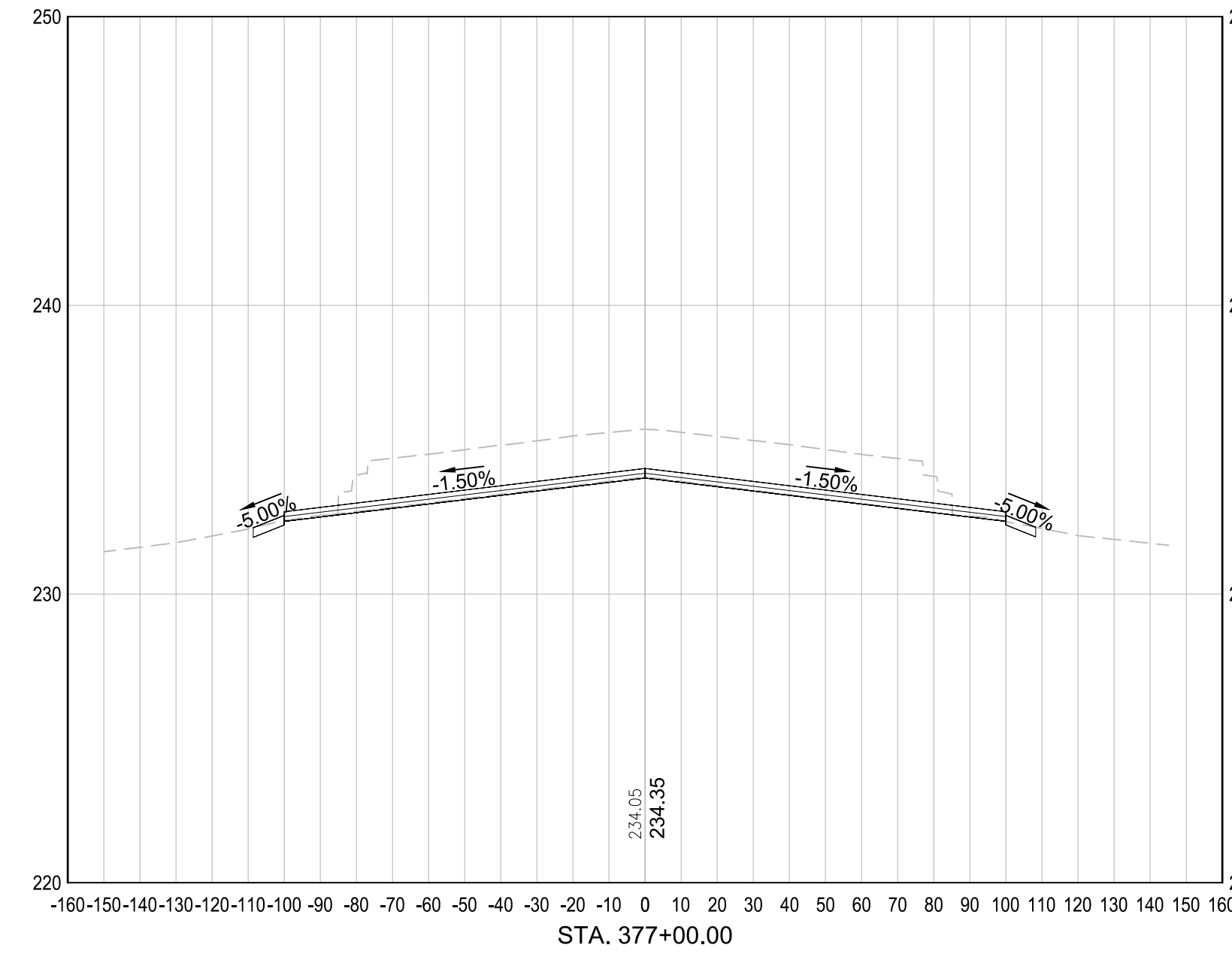
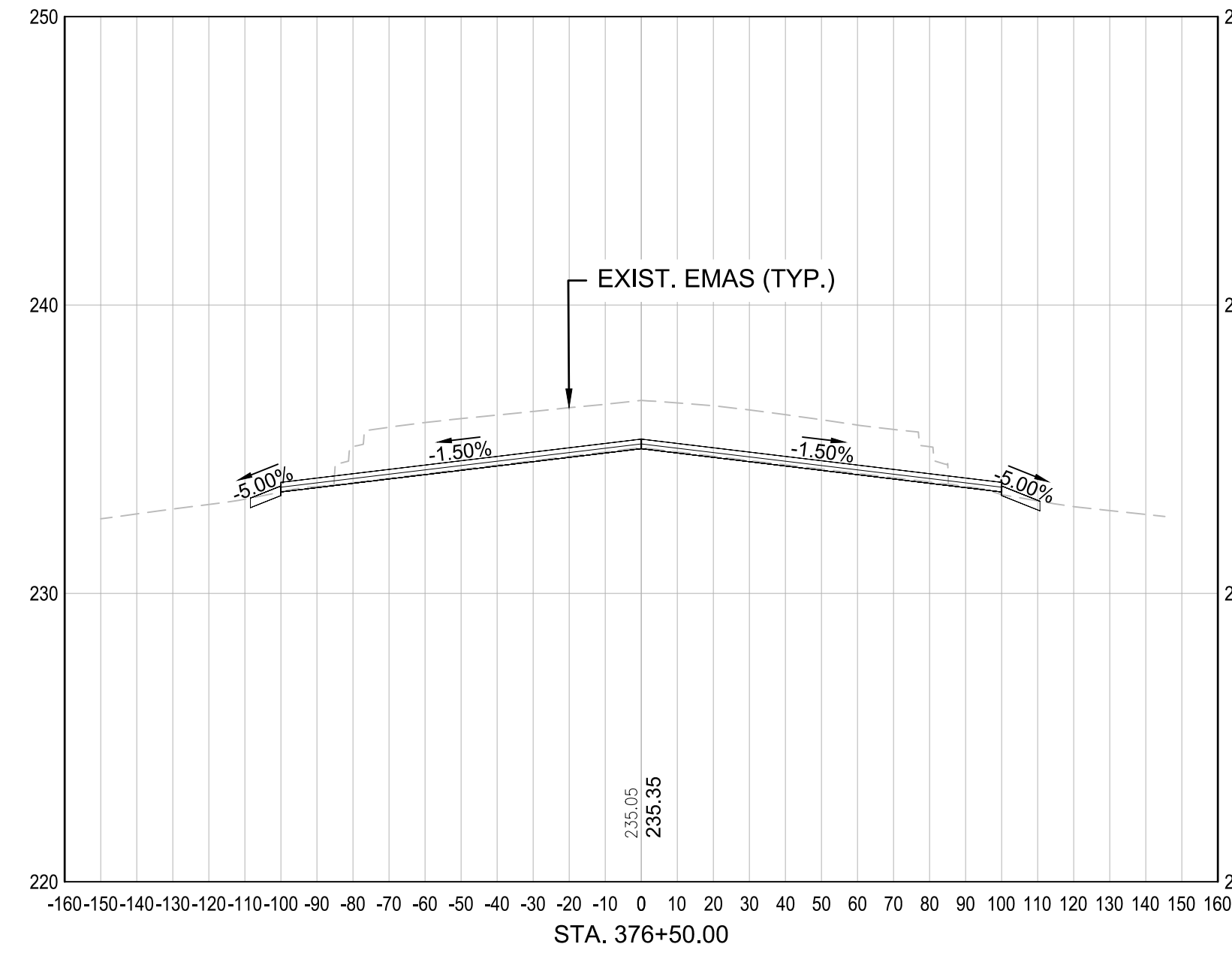
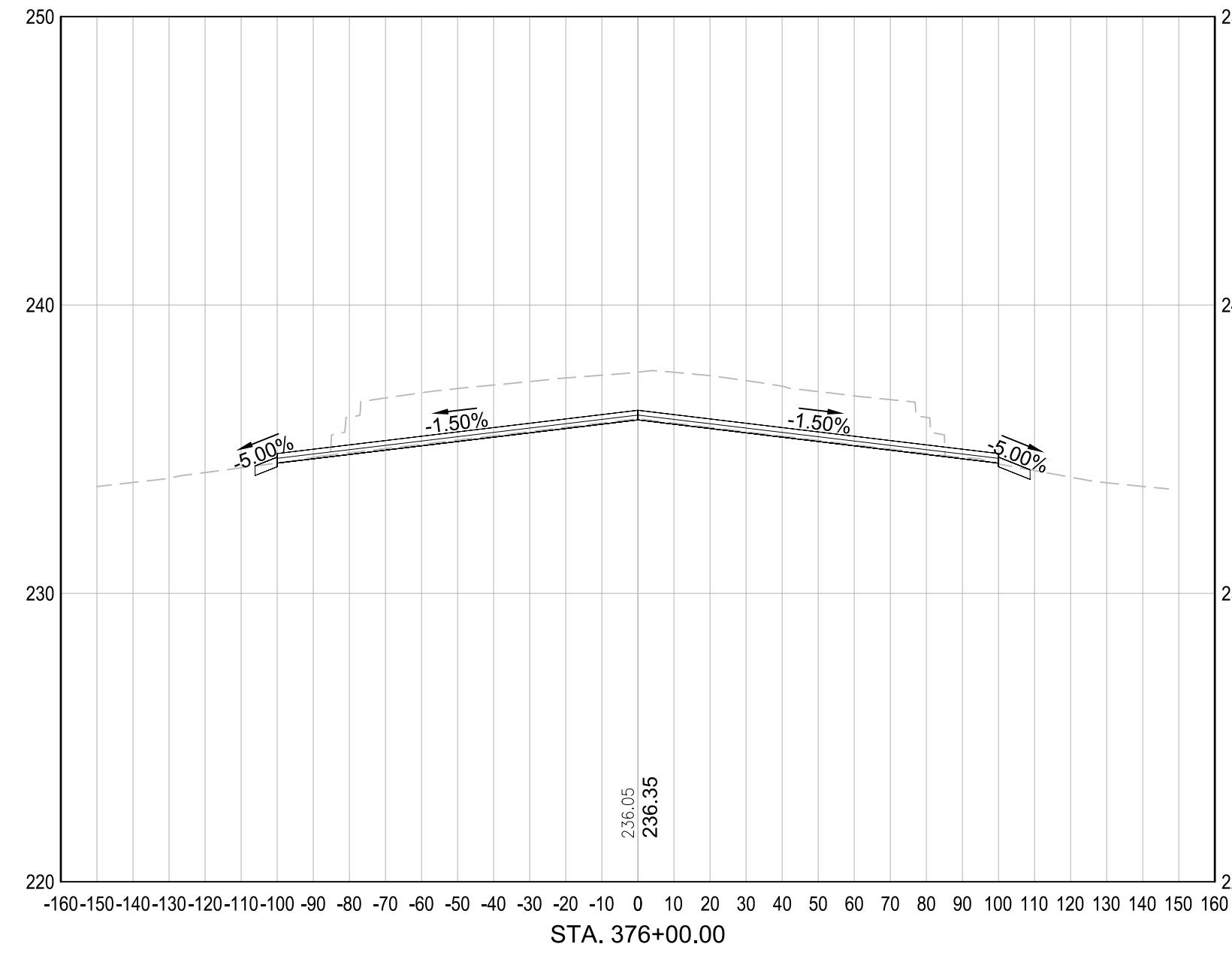


MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 CROSS SECTIONS - STA. 373+00 TO
 STA. 375+50
 SCALE: AS SHOWN
 DATE: JUNE 2026

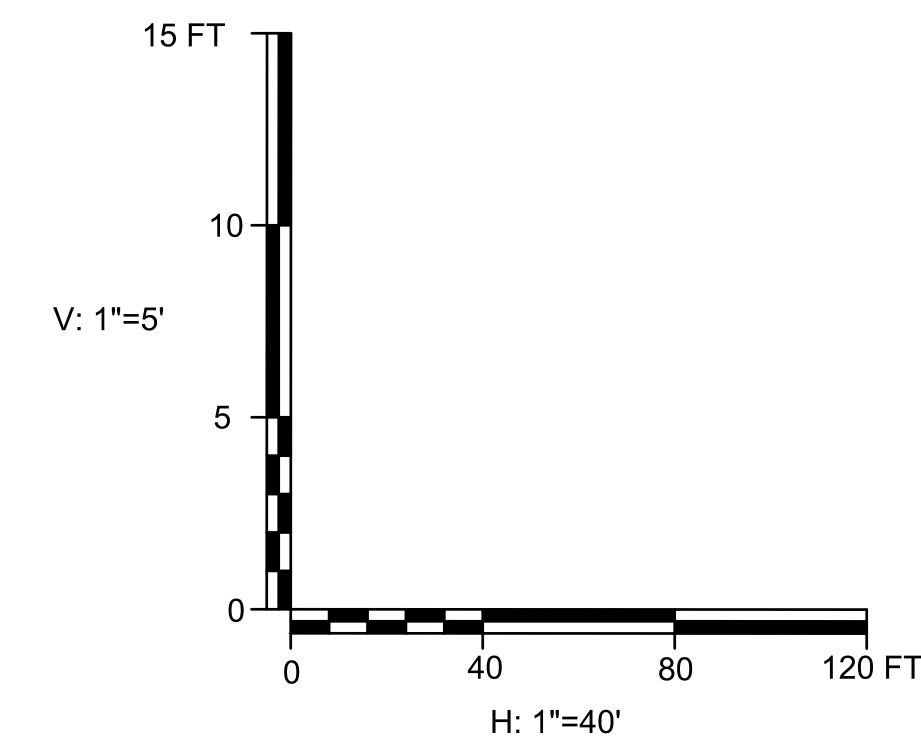
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M/J PROJ. No.: 19199.11
 FILE NAME:
 A/P No.: TBD
 DRAWING NO.
XS-01
 SHEET 19 OF 20

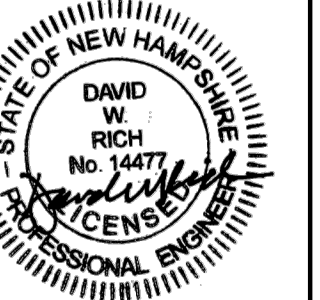
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 2. SEE SHEET TS-01 FOR TYPICAL SECTIONS.



ENGINEER'S SEAL



PROJECT DESIGNER
McFARLAND JOHNSON
 53 REGIONAL DRIVE, CONCORD, NH 03301-5022
 PH: 603-225-2978 FAX: 603-225-0095
 DESIGNED BY: NRD
 DRAWN BY: NRD
 CHECKED BY: DFB



MANCHESTER-BOSTON REGIONAL AIRPORT
 REPLACEMENT OF RUNWAY 6 DEPARTURE END
 ENGINEERED MATERIAL ARRESTING SYSTEM (EMAS)
 CROSS SECTIONS - STA. 376+00 TO
 STA. 378+00
 SCALE: AS SHOWN
 DATE: JUNE 2026

REV. NO.	DATE	DESCRIPTION	BY

M/J PROJ. No.: 19199.11
 FILE NAME:
 A/P No.: TBD
 DRAWING NO.
XS-02
 SHEET 20 OF 20

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