

Knox County Regional Airport | Rehabilitate Runway 10/28

OHIO AVIATION ASSOCIATION CONFERENCE



August 26, 2021



INTRODUCTION: KNOX COUNTY REGIONAL AIRPORT

- North-East of Columbus, near Mt. Vernon in Knox County
- Knox County Regional Airport Authority
 - 84 based aircraft
 - 4 multi-engine
 - Challenger 350
 - Frequent Transient Jet Aircraft
- Regional GA Airport in the NPIAS
- ODOT GA Level 1 Airport



INTRODUCTION

- Current Annual Economic Impact: \$24,000,000
- Key Business Efficiency Tool
 - 14 of the top 25 KC Employers use the Airport
 - 80% of Top 25 List employees work for these organizations
- Deep, Broad Community Involvement and Support
 - Last 5 years, \$1,100,000 from the Community
- History:
 - Built in 1966, a Jim Rhoades/Norm Crabtree Airport
 - Now 5,500 X 100 Runway, Modern, Efficient, Cost-Effective

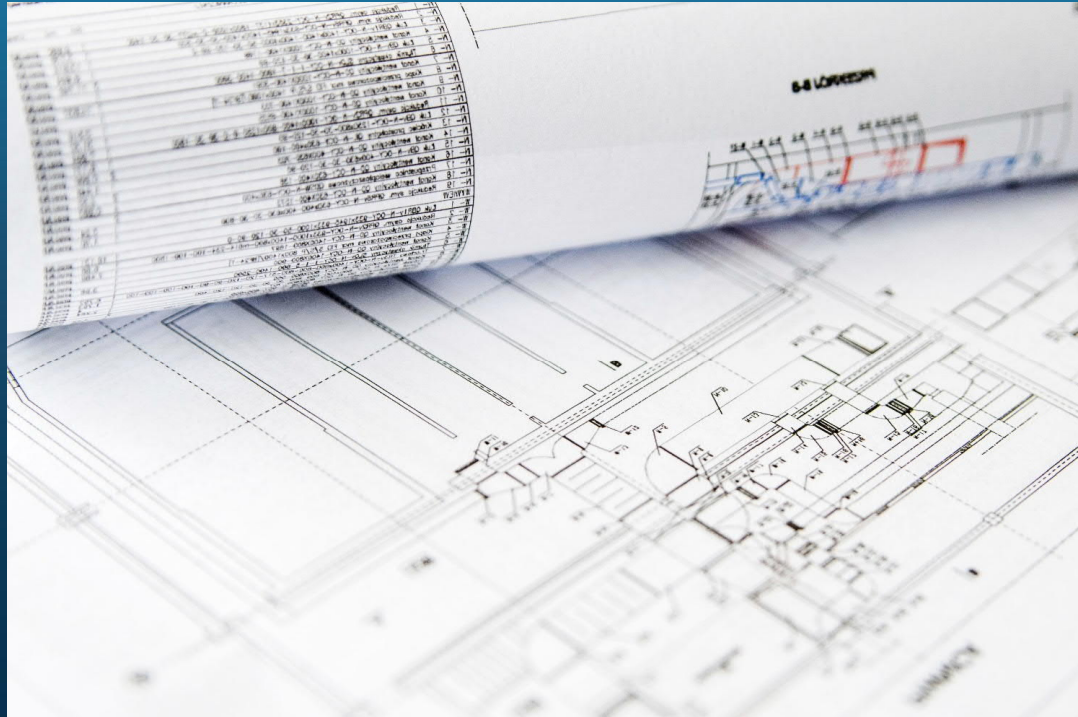


INTRODUCTION: Runway 10/28 Resurfacing Project

- THANK YOU!:
 - FAA Detroit ADO
 - ODOT Office of Aviation
 - CHA
 - Kokosing Construction, Alan Kintner
 - Airport Manager Josh Wynn
- The Project:
 - The Plan
 - The Surprise
 - The Solution
 - The Execution



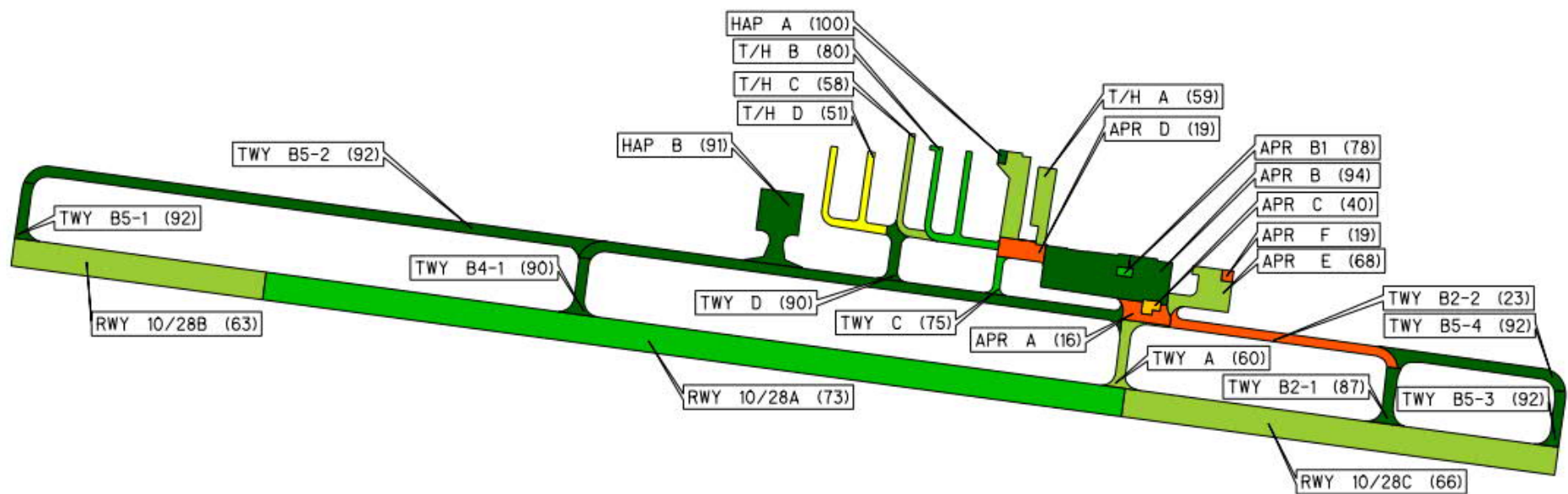
THE PLAN



AIRPORT OVERVIEW



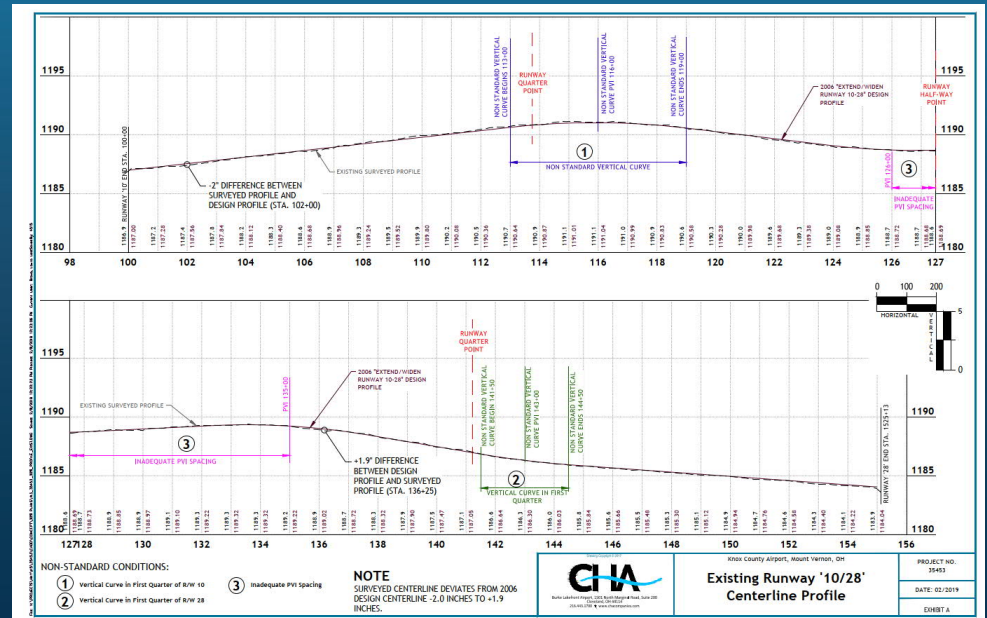
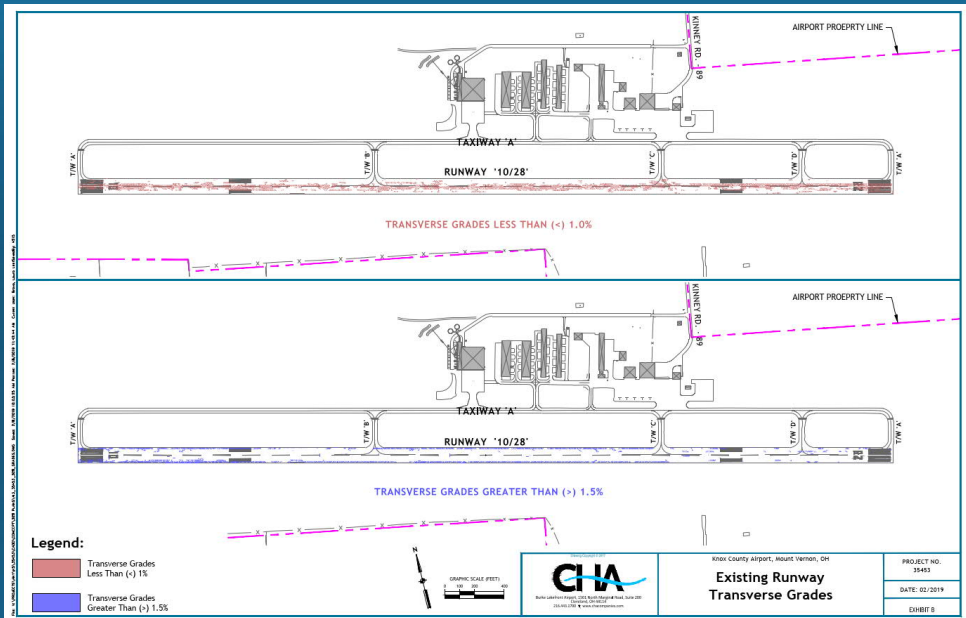
RUNWAY CONDITION



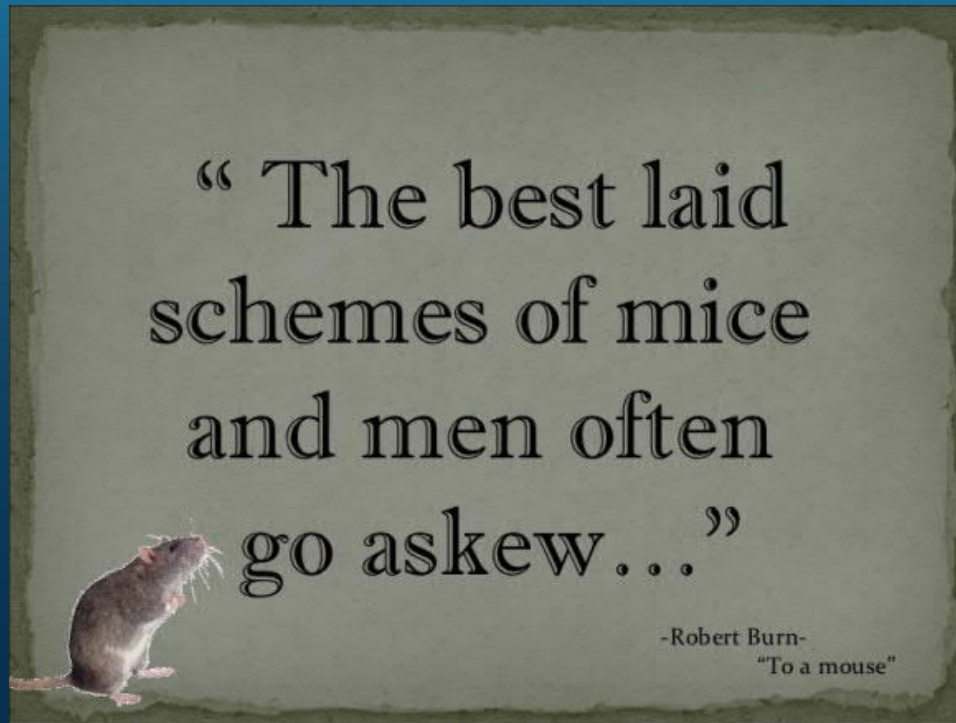
RUNWAY CONDITION



RUNWAY CONDITIONS VS STANDARDS



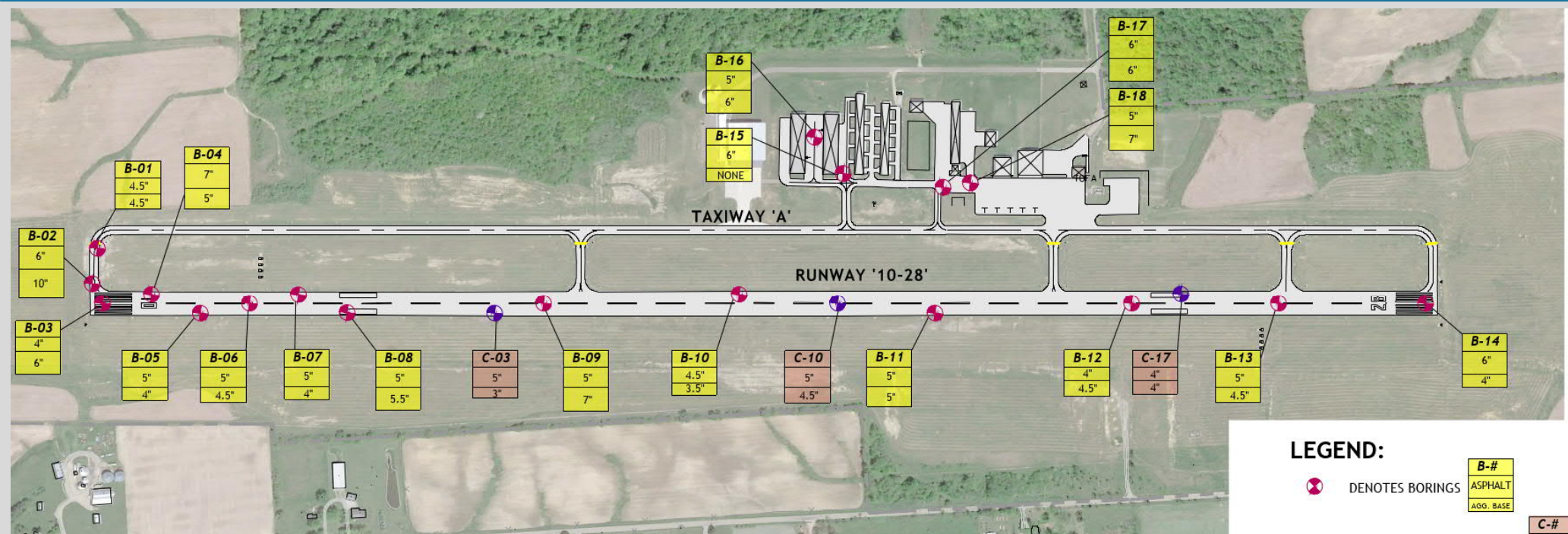
THE SURPRISE



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EXISTING PAVEMENT SECTION



LEGEND:



DENOTES BORINGS

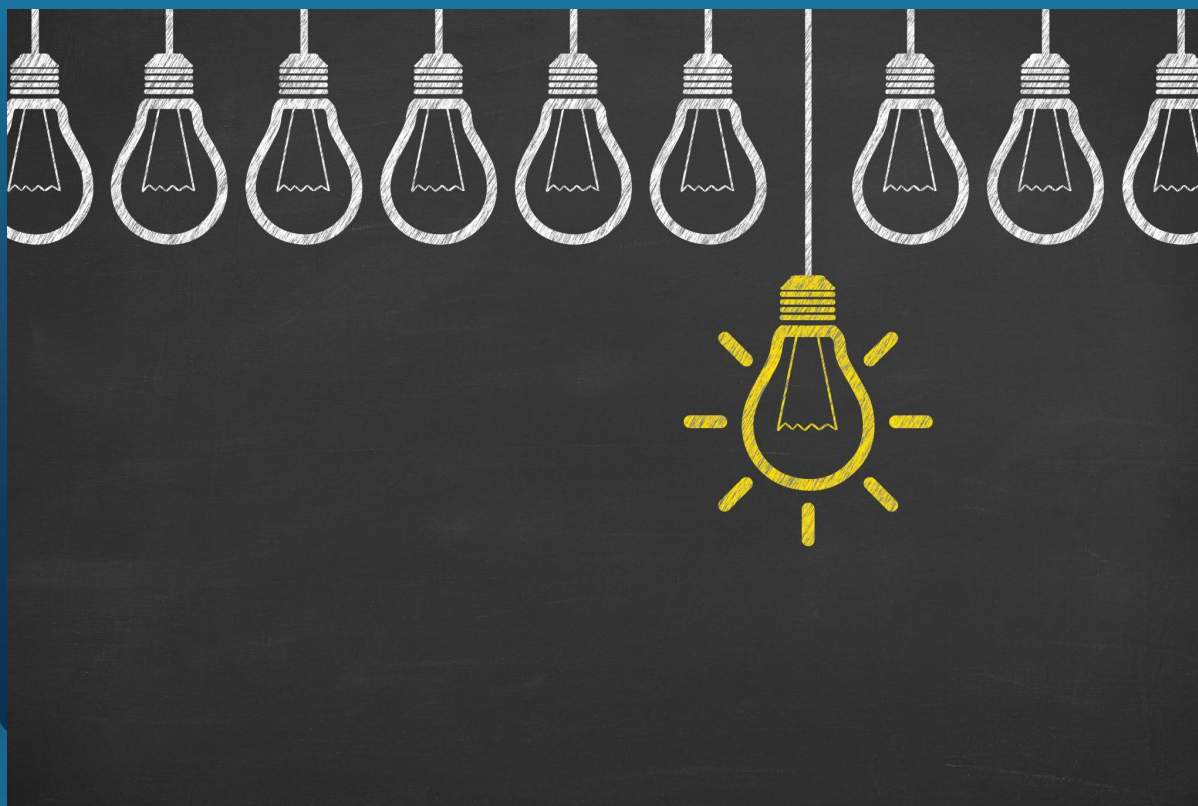
DENOTES PAVEMENT CORES

B-#
ASPHALT
AGG. BASE

C-#
ASPHALT
AGG. BASE



THE SOLUTION



REHABILITATION OPTIONS

- Mill and Overlay
 - Does not address strength
 - Does not address non-standard conditions
 - Cost estimate \$2.5M
- Full-Depth Reconstruction
 - Addresses strength
 - Corrects non-standard conditions
 - Cost estimate \$7.2M
- Full Depth Reclamation
 - Partially addresses strength
 - Corrects non-standard conditions to extent practical
 - Cost estimate \$4.1M



PAVEMENT DESIGN

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Skyhawk-172	2,558	5,000	0.00
2	Challenger-CL-604	38,850	100	0.00
3	Gulfstream-G-V	90,900	3	0.00
4	Gulfstream-G-IV	75,000	2	0.00
5	SuperKingAir-350	15,100	200	0.00

413 NewFlexib~02 Des. Life = 20

Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	4.00	200,000
User Defined	11.72	40,000
Non-Standard Structure		
Subgrade	CBR = 5.0	7,500

Total thickness to the top of the subgrade, t = 15.72 in

413 NewFlexib~02 Des. Life = 20

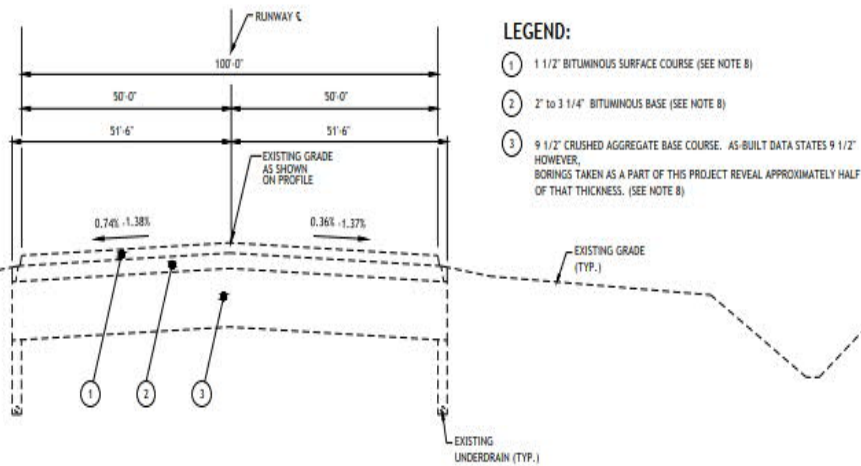
Layer Material	Thickness (in)	Modulus or R (psi)
P-401/P-403 HMA Surface	4.00	200,000
User Defined	8.26	40,000
Non-Standard Structure		
Subgrade	CBR = 8.0	12,000

Total thickness to the top of the subgrade, t = 12.26 in

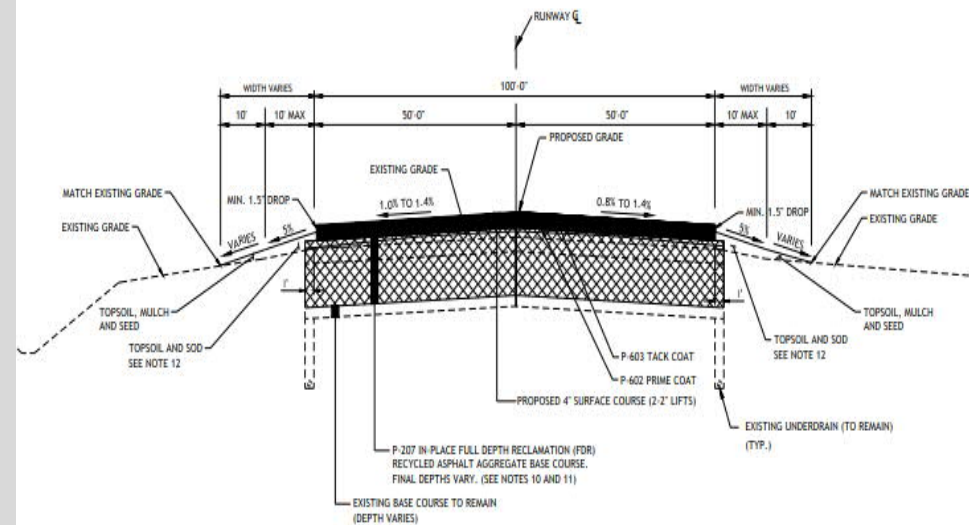


FULL-DEPTH RECLAMATION

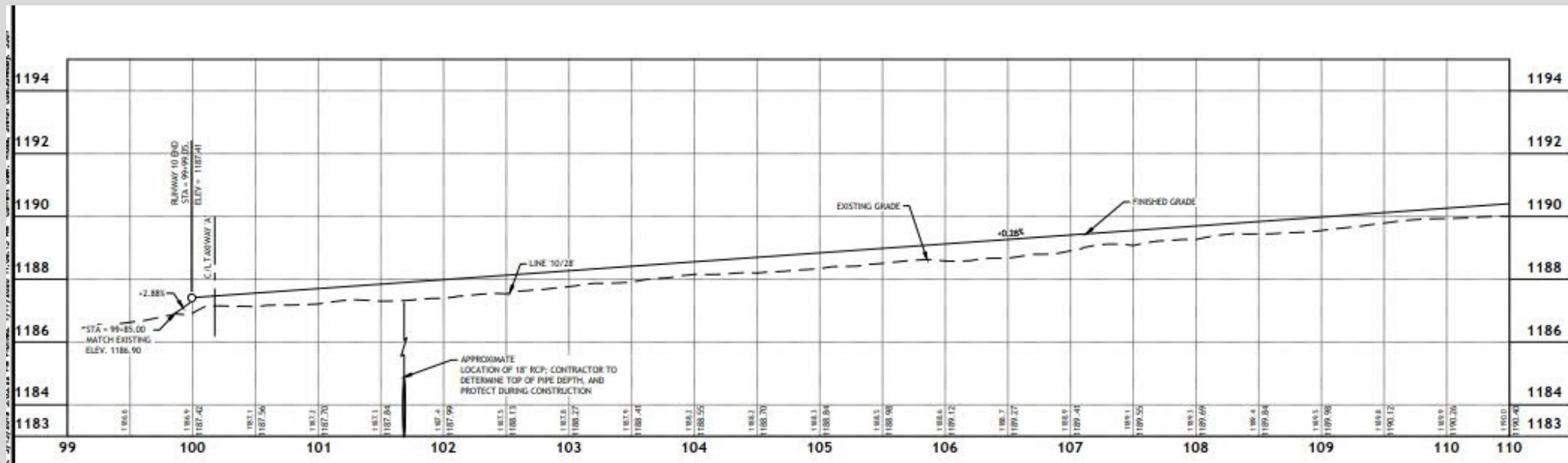
EXISTING RUNWAY '10/28' TYPICAL SECTION
NOT TO SCALE
STA. 100+00.00 TO STA. 154+98.11



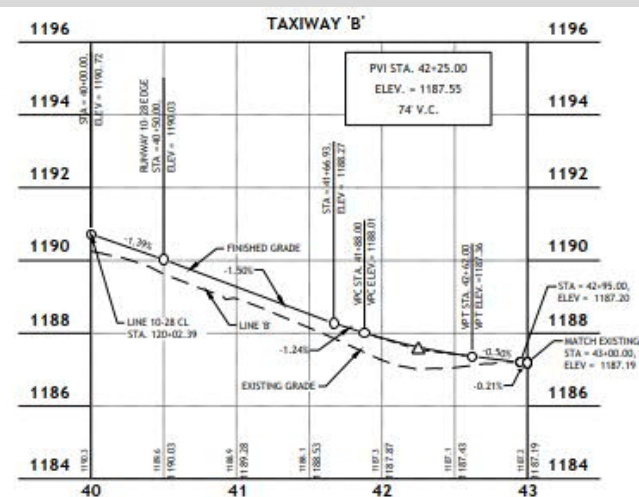
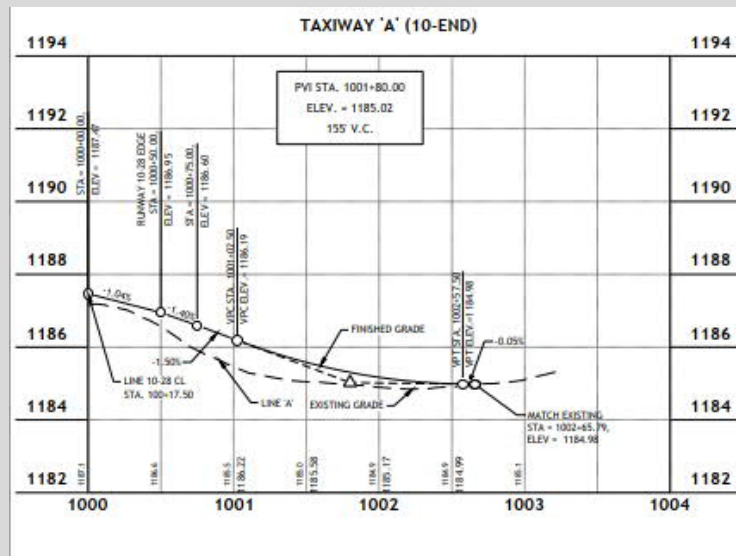
TYP-2 PROPOSED RUNWAY '10/28' TYPICAL SECTION
NOT TO SCALE
STA. 99+99.05 TO STA. 154+99.06



RUNWAY PROFILE



TAXIWAY MILL & OVERLAY



THE *GOOD* SURPRISE

- ORIGINAL PLAN:
 - DESIGN GRANT - AIP 2019
 - CONSTRUCTION GRANT - AIP 2020
 - CONSTRUCTION - 2021
- January 2020
 - FAA PHONE CALL - AIP 2019 DISCRETIONARY MAY BE AVAILABLE
 - ACCELERATED DESIGN
 - BID AND AWARD
 - DESIGN AND CONSTRUCTION GRANT ISSUED SEPTEMBER 2019
 - CONSTRUCTION 2020



THE EXECUTION



SCHEDULE

7/13 - Close runway and start reclamation

7/28 - Finish cement stabilization on runway

7/29 – Start asphalt paving runway

8/14 – Finish taxiway paving and temporary pavement markings

8/15 – Open runway and 30-day cure time

9/14 – Close runway and start grooving runway

9/20 – open runway

The topsoil, sodding and seeding were performed towards the end of the cement stabilization and during all of the asphalt paving items.



RECLAMATION

Equipment:

- 2 Wirtgen 250i Reclamation Machines
- CAT 16 - 140 AWD Grader with Survey Control
- CAT CP-563 Style Sheep-Foot Roller and a Smooth Drum Roller
- 4,500 Gal Size Tandem Axle Water Truck
- 2 Tandem Axle Cement Spreading Trucks Fed From Delivery Semi-Tractors



RECLAMATION



RECLAMATION



ASPHALT PAVING

2 ea 2" courses, 100' x 5500'

Equipment:

- Runway Paving with 220 Blaw Knox Paver @ 25' width with Top Con Grade Control
- 3 ea Double Drum Rollers Hamm or Sakai
- 4' head Wirtgen Mill for Joint Prep
- Ramp / Taxiway Paving with Voegelé 12'
- Pneumatic and Double Drum Rollers on Ramps



ASPHALT PAVING



ASPHALT PAVING



GROOVING



NOTABLE POINTS

8" of the Existing Asphalt and Aggregate Base Was Recycled With Minimal Effort.

Grade Control Throughout The Process Is Critical

- No Surprise But Worth Mentioning.

No Surface Diamond Grinding Had To Be Performed On The Project.



LESSONS LEARNED

- Full-Time Inspection
- Off-Airport Haul Route
- Material Swell
- Subgrade/Undercut



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