

MINNESOTA DEPARTMENT OF TRANSPORTATION

COUNTY OF KANABEC

CONSTRUCTION PLAN FOR FULL DEPTH RECLAMATION, BITUMINOUS SURFACING, AND AGG. SHOULDERING

LOCATED ON CSAH 6 (210TH & 205TH & W. MAPLE AVE) FROM NORTH MN TRUNK HIGHWAY 47 TO NORTH GROVE STREET IN MORA, MN.
FROM NW. COR. SEC. 7, T39N,R24W TO GROVE STREET SEC. 11, T39N, R24W

LEGEND

COUNTY LINE	_____
TOWNSHIP OR RANGE LINE	_____
SECTION LINE	_____
QUARTER LINE	_____
SIXTEENTH LINE	_____
TEMPORARY EASEMENT	_____
EXISTING RIGHT OF WAY	_____
PROPOSED RIGHT OF WAY	_____
CORPORATE LIMITS	_____
PROPERTY LINE	_____

FENCE _____

WOODS _____

SIGN _____

DECIDUOUS TREE _____

CONIFEROUS TREE _____

BUSH OR SHRUB _____

STUMP _____

BENCHMARK _____

SWAMP OR MARSH _____

IRON PIPE _____

UTILITIES

OVERHEAD ELECTRIC _____

ELECTRIC - BURIED _____

POWER POLE _____

LIGHT POLE _____

GUY WIRE _____

TRANSFORMER _____

COMM. PEDESTAL _____

TELEPHONE - BURIED _____

FIBER OPTIC - BURIED _____

MEDIA - BURIED _____

COMMUNICATION MANHOLE _____

SANITARY SEWER _____

SANITARY MANHOLE _____

GAS _____

STORM SEWER _____

STORM MANHOLE _____

CATCH BASIN _____

WATERMAIN _____

WATER VALVE _____

HYDRANT _____

WATER SHUTOFF _____

SCALES = FEET

PLAN _____ 50'

PROFILE _____ 50' _____ 5' _____

CROSS SECTION _____ 20' _____ 20' _____

STATE AID PROJ. NO. 033-606-023

GROSS LENGTH 35,044.29 FEET 6.637 MILES

BRIDGES-LENGTH FEET MILES

EXCEPTIONS-LENGTH 807.92 FEET 0.153 MILES

NET LENGTH 34,236.37 FEET 6.484 MILES



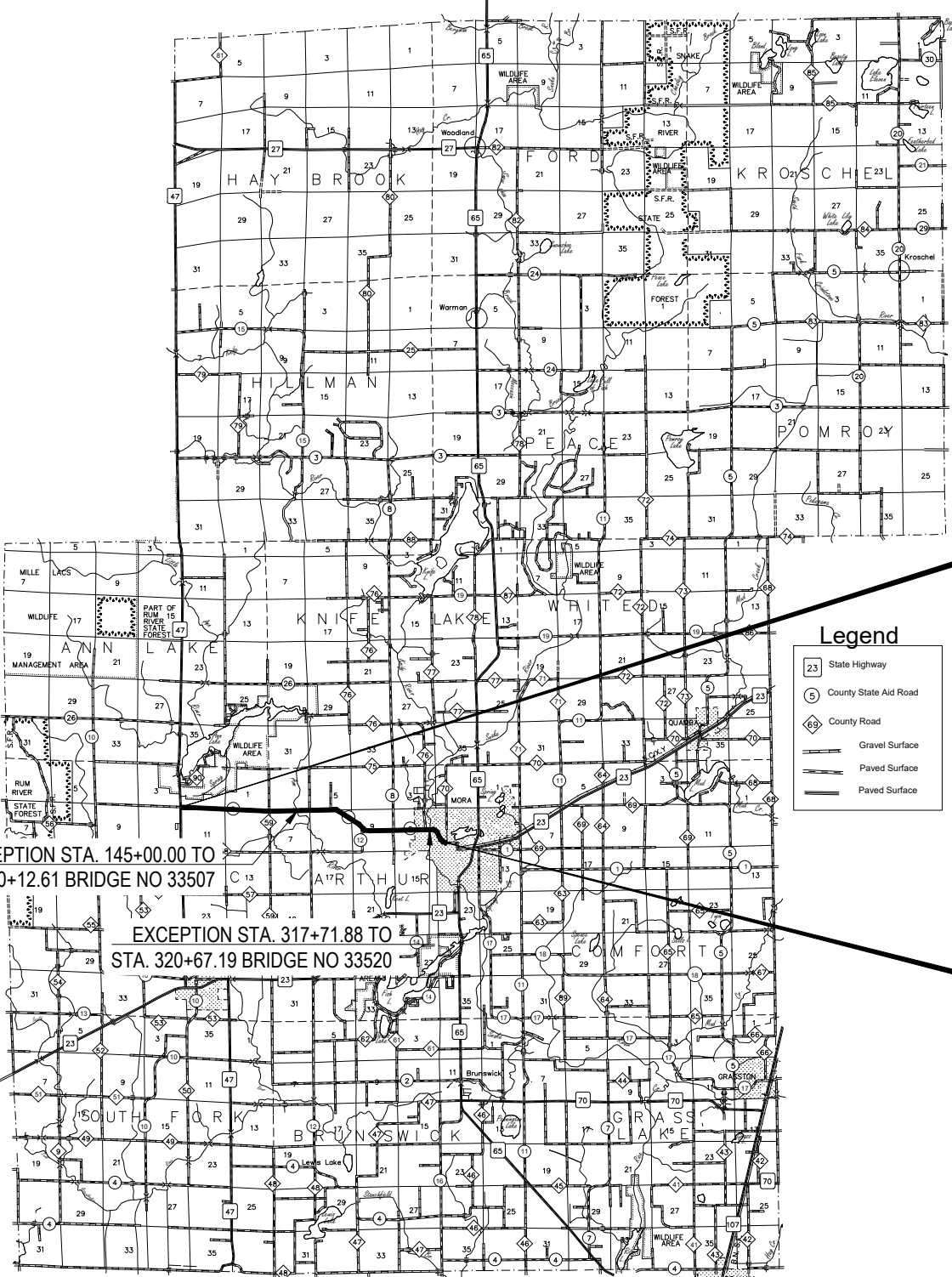
NOT TO SCALE

NOTE: ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO LATEST MMUTCD, INCLUDING THE LATEST FEILD MANUAL FOR TEMPORARY CONTROL ZONE LAYOUTS.

NOTE: THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES."

BEGIN S.P. 033-606-023
STATION 0+00.00

END S.P. 033-606-023
STATION 350+44.29



Legend

23	State Highway
5	County State Aid Road
69	County Road
Gravel Surface	
Paved Surface	
Paved Surface	

EXCEPTION STA. 145+00.00 TO
STA. 150+12.61 BRIDGE NO 33507

EXCEPTION STA. 317+71.88 TO
STA. 320+67.19 BRIDGE NO 33520

MINN. PROJ. NO. STBG 3325 (273)

GOVERNING SPECIFICATIONS
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION
"STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

SHEET	DESCRIPTION
1	TITLE
2	ESTIMATED QUANTITIES
3-5	TYPICAL SECTIONS
6	SUBGRADE CORRECTION DETAIL
7	MAILBOX PAVING - ROAD CONNECTION DETAIL
8-21	LAYOUT PLAN

THIS PLAN CONTAINS 21 SHEETS

DESIGN DESIGNATION - TIER NO.

PRES. ADT	1180	(2023)
PROJ. ADT	1390	(2045)
PROJ. HCADT		
ESAL	410,000	
R-VALUE	12	
SOIL FACTOR		
FUNCTIONAL CLASS.	MAJOR COLLECTOR	
DESIGN	10 TON	
SHOULDER WIDTH	NA	
NO. OF TRAFFIC LANES	2 - 12 FOOT LANES	
NO. OF PARKING LANES	NA	
REGULATORY SPEED	55 MPH	
BASED ON	STOPPING SIGHT DISTANCE	
HEIGHT OF EYE	3.5 FEET	
HEIGHT OF OBJECT	2.0 FEET	
DESIGN SPEED NOT ACHIEVED AT	NA	

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT
WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM
A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE
STATE OF MINNESOTA

COUNTY ENGINEER CHAD T. GRAMENTZ DATE 4/14/25

COUNTY KANABEC REG. NO. 47090

DISTRICT STATE AID ENGINEER 4/17 20 25

REVIEWED FOR COMPLIANCE WITH STATE AID AND/OR FEDERAL AID
RULES/POLICY

STATE AID ENGINEER
APPROVED FOR FEDERAL AID FUNDING

STATE PROJ. NO. 033-606-023

SHEET NO. 1 OF 21 SHEETS

STATEMENT OF ESTIMATED QUANTITIES AND GENERAL NOTES

SPEC. NO.	ITEM DESCRIPTION	UNITS	QANTITIY	NOTES
2021.501	MOBILIZATION	L.S.	1	
2051.501	MAINTENANCE & RESTORATION OF HAUL ROADS	L.S.	1	
2104.503	SAWING BITUMINOUS PAVEMENT	L.F.	1060	9
2108.504	GEOTEXTILE FABRIC TYPE 5	SQ. YD.	1500	7
2123.51	DOZER	HOURL	12	7
2123.51	MOTOR GRADER	HOURL	12	7
2123.51	2.0 CU. YD.SHOVEL	HOURL	12	7
2123.51	DISK HARROW	HOURL	12	7
2123.51	TAMPERING ROLLER	HOURL	12	7
2211.507	AGGREGATE BASE (LV) CLASS 5	CU. YD.	1000	7
2215.504	FULL DEPTH RECLAMATION	SQ. YD.	116299	11
2221.507	SHOULDER BASE AGGREGATE (LV) CLASS 1	CU. YD.	7340	3
2231.509	BITUMINOUS PATCHING MIXTURE	TON	40	7,8,10
2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GAL	12277	4
2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2,C)	TON	19694	1,2
2360.509	TYPE SP 12.5 NONWEARING COURSE MIXTURE (2,C)	TON	14690	1,2
2563.601	TRAFFIC CONTROL	L.S.	1	5,6
2582.503	4" SOLID LINE PAINT	L.F.	95202	12,13
2582.503	4" BROKEN LINE PAINT	L.F.	22569	14

BASIS FOR PLANNED QUANTITIES AND CONSTRUCTION NOTES

1. TYPE 2360 MIXTURES CALCULATED AT 115 LBS/INCH/SQ. YD.
2. QUANTITIES FOR APPROACHES AND INTERSECTING ROADS ARE INCLUDED. 618 TONS FOR MAIL BOX BUMP OUT, & 35,297 TONS FOR MAIN-LINE
3. AGGREGATE SHOULDERING QUANTITIES WITH A 6 FT WIDTH. 5,748.91 CYLV MAIN-LINE (1.30 COMPACTION FACTOR) AND 420 TONS FOR APPROACHES AND ENTRANCES.
4. BITUMINOUS MATERIAL FOR TACK COAT CALCULATED AT 0.05 GALLONS PER SQUARE YARD.
5. SHORT TERM WORK ZONES:

TRAFFIC CONTROL LAYOUT FOR EACH "INSTALLATION LOCATION" SHALL MEET REQUIREMENTS OF THE CURRENT OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD), INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
6. MOVING OPERATIONS:

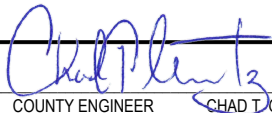
• TRAFFIC CONTROL LAYOUT FOR EACH "OPERATION" OF (STRIPING/PAVING/SEAL COAT,ETC.) SHALL MEET THE REQUIREMENTS OF THE CURRENT 2020 EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

IF DESIRED, THE LOCAL AGENCY MAY ALSO SPECIFY CERTAIN LAYOUTS TO BE USED, SUCH AS "LAYOUT 5, PAGE 6K-5; LAYOUT 8, PAGE 6K-8", ETC.
7. GRADE CORRECTION AND PARTIAL- DEPTH PATCHING AS APPROVED BY ENGINEER. ITEMS PROVIDED FOR GRADE CORRECTIONS AND PARTIAL DEPTH REPAIRS ANTICIPATED FROM PREVIOUS PROJECTS OF THIS TYPE. (SEE DETAILS ON SHEET 6)
8. BITUMINOUS PATCHING MIXTURE, AS APPROVED BY THE ENGINEER IN THE FIELD.
9. SAWING BITUMINOUS PAVEMENT IS FOR BITUMINOUS PATCHING MIXTURE, AS APPROVED BY THE ENGINEER IN THE FIELD.
10. BITUMINOUS PATCHING MIXTURE WILL BE USED AS DETERMINED IN THE FIELD BY THE ENGINEER. THIS MIXTURE WILL BE USED FOR BOTH FULL -DEPTH AND PARTIAL- DEPTH PATCHING, AS APPROVED BY THE ENGINEER IN THE FIELD AND PRIOR TO PLACEMENT OF NON-WEAR COURSE.
11. NO ADJUSTMENTS WILL BE MADE TO THE SQ. YD. PRICE FOR FULL DEPTH RECLAMATION FOR VARIATIONS OF RECLAMATION DEPTH.
12. YELLOW 25,112 FT
13. WHITE 70,090 FT
14. YELLOW 22,569 FT

THE FOLLOWING STANDARD PLATES APPROVED BY THE F.H.W.A. SHALL APPLY ON THIS PROJECT:

PLATE NO.	DESCRIPTION
8000 K	TEMPORARY CHANNELIZERS
9000 E	APPROACHES AND ENTERANCES

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COUNTY ENGINEER

REG. NO.: 47090

DATE: 4/14/25

CHAD T. GRAMENTZ

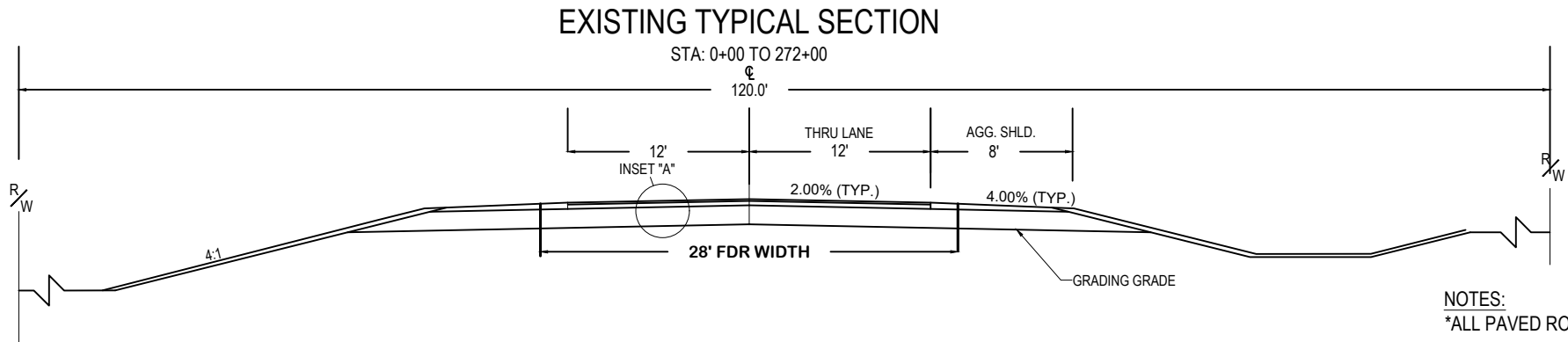
SP 033-606-023

ESTIMATED QUANTITIES

SHEET NO. 2 OF 21 SHEETS

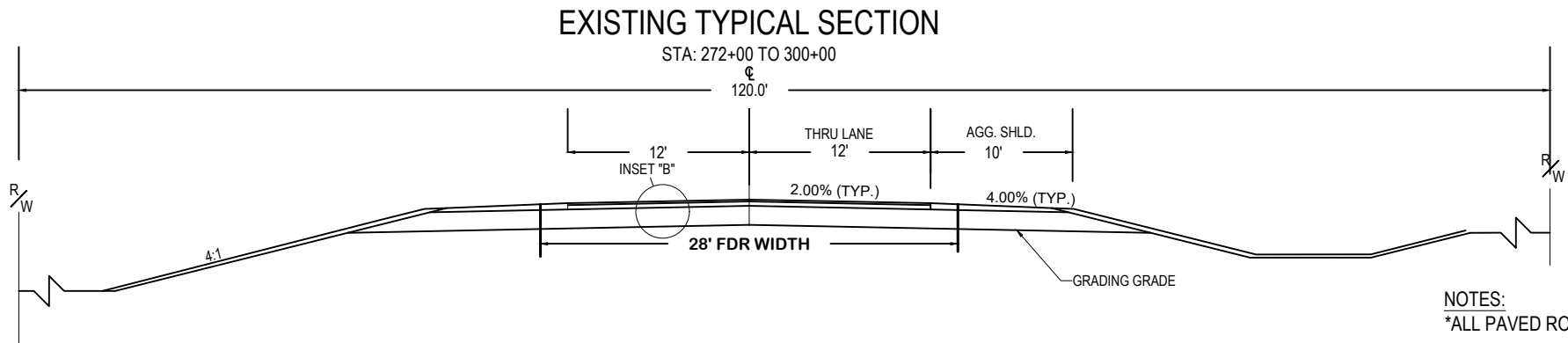
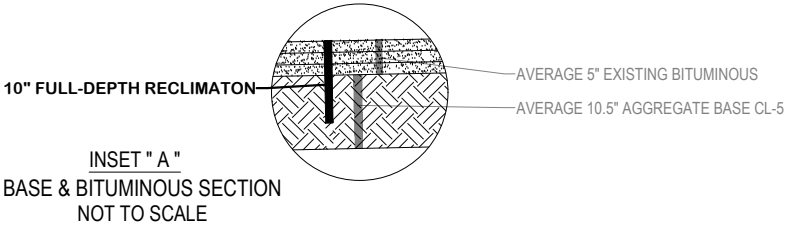
PROJECT HISTORY REFERENCE

SAP 033-606-010 GRADING
SAP 033-606-012 GRADING
SAP 033-606-020 OVERLAY



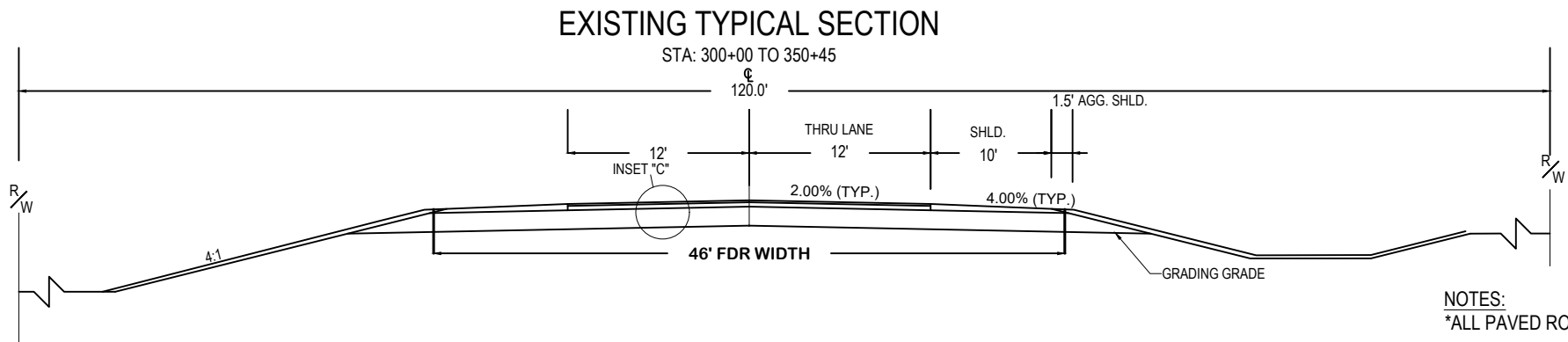
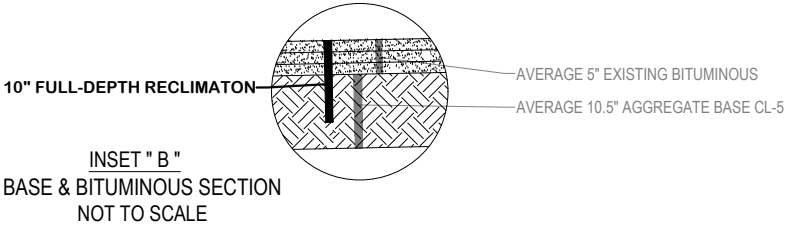
NOTES:
*ALL PAVED ROAD INTERSECTIONS SHOULD BE INCLUDED IN THE FDR

NOTE: NOT TO SCALE



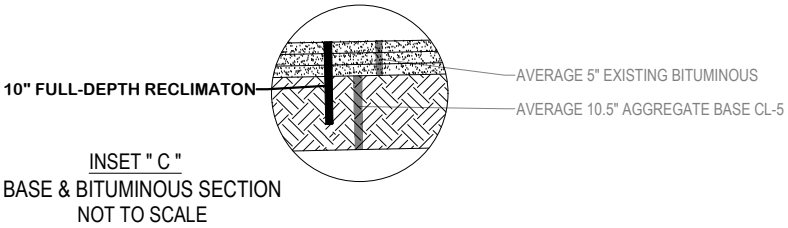
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NOTE: NOT TO SCALE

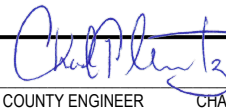


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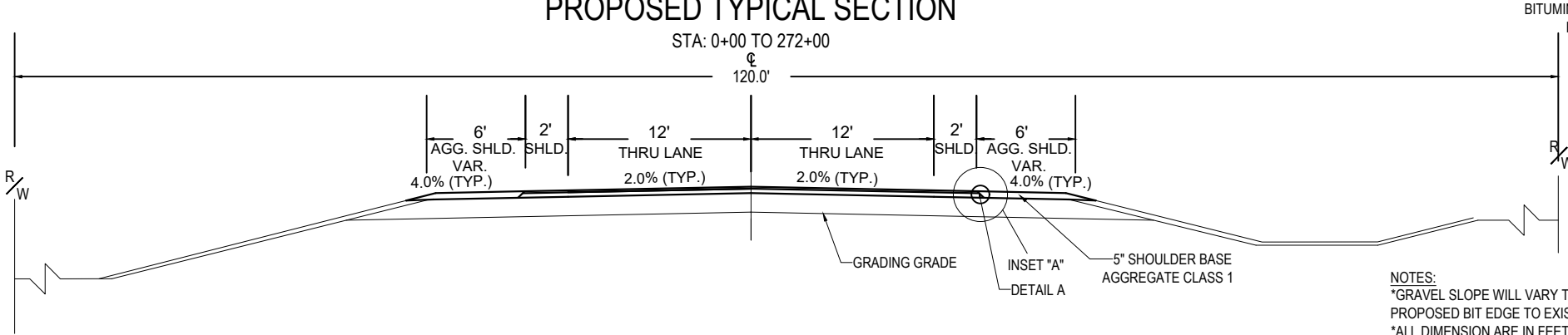
REG. NO.: 47090
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SP 033-606-023

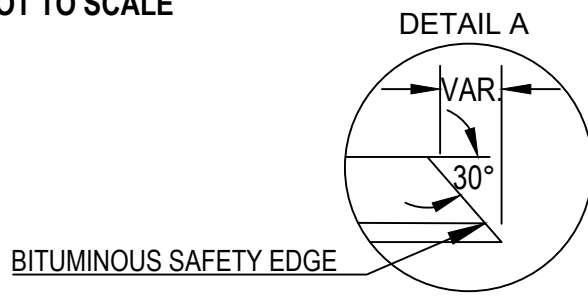
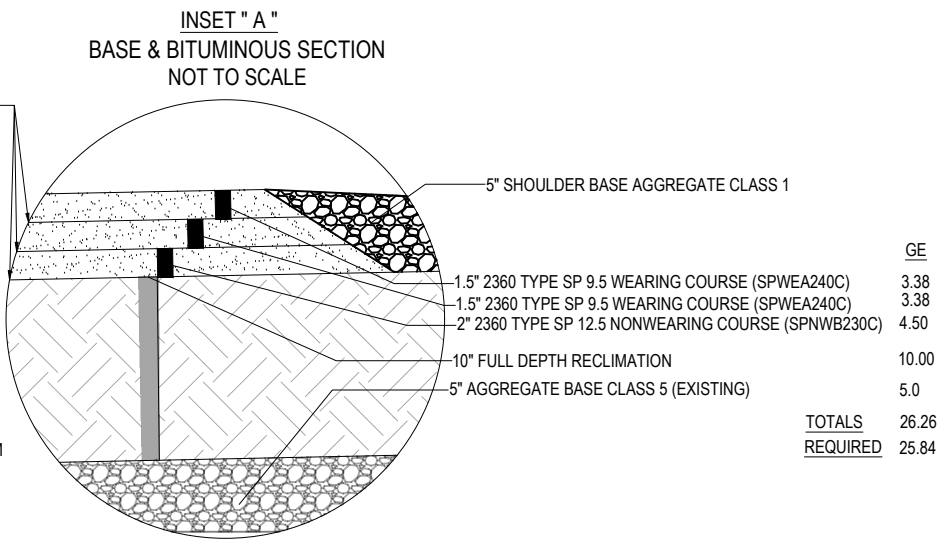
EXISTING TYPICAL SECTIONS

SHEET NO. 3 OF 21 SHEETS

PROPOSED TYPICAL SECTION



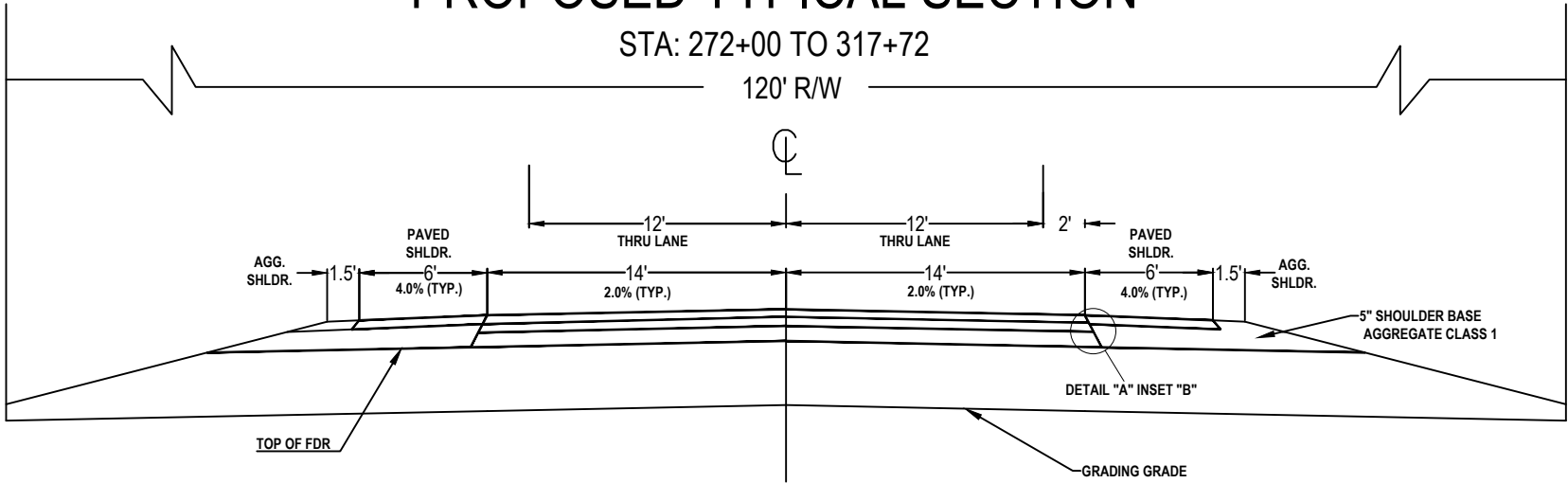
NOTES:
*GRAVEL SLOPE WILL VARY TO BLEND IN FROM PROPOSED BIT EDGE TO EXISTING GRAVEL.
*ALL DIMENSION ARE IN FEET, UNLESS OTHERWISE NOTED.
*GRADING GRADE WILL HAVE THE SAME SLOPE AS FINISHED ROAD SURFACE.
NOTE: NOT TO SCALE



PROPOSED TYPICAL SECTION

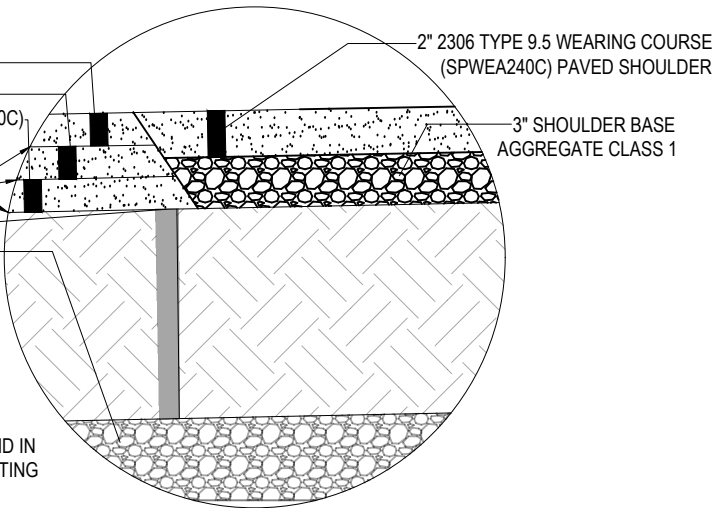
STA: 272+00 TO 317+72

120' R/W



GE	
3.38	1.5" 2360 TYPE SP 9.5 WEARING COURSE (SPWEA240C)
3.38	1.5" 2360 TYPE SP 9.5 WEARING COURSE (SPWEA240C)
4.50	2" 2360 TYPE SP 12.5 NON-WEARING COURSE (SPNWB230C)
	BITUMINOUS MATERIAL FOR TACK COAT
10.00	10" FULL DEPTH RECLIMATION
5.0	5" AGGREGATE BASE CLASS 5 (EXISTING)
26.26	TOTALS
25.84	REQUIRED

INSET " B "
BASE & BITUMINOUS SECTION
NOT TO SCALE



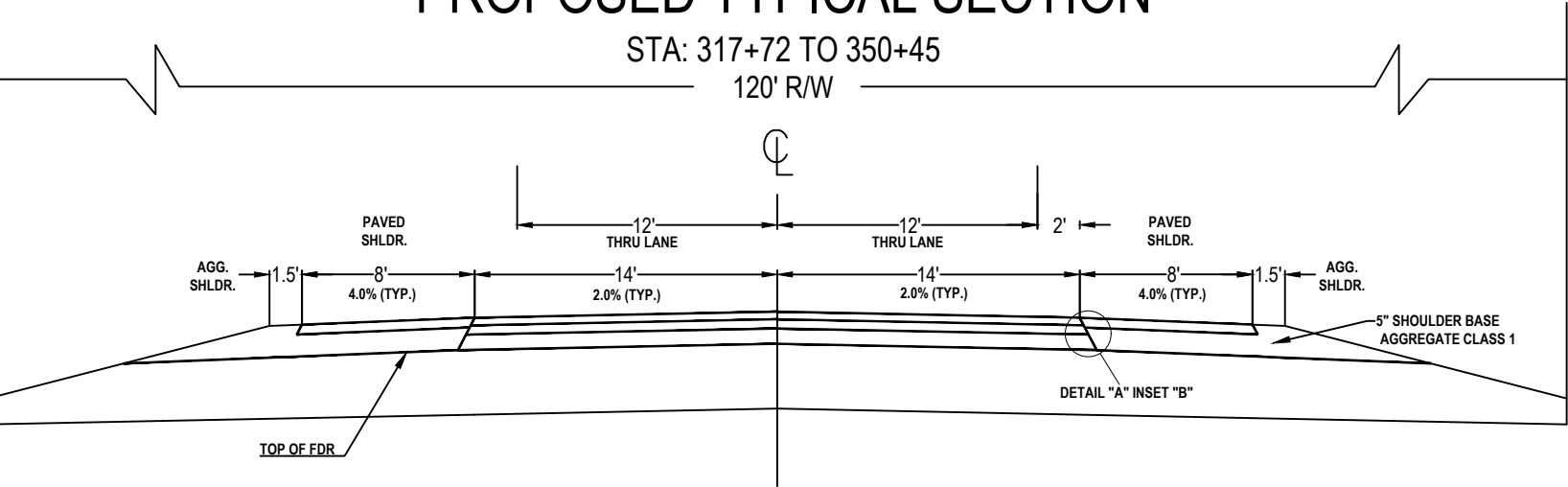
NOTES:
*GRAVEL SLOPE WILL VARY TO BLEND IN FROM PROPOSED BIT EDGE TO EXISTING GRAVEL.
*ALL DIMENSION ARE IN FEET, UNLESS OTHERWISE NOTED.
*GRADING GRADE WILL HAVE THE SAME SLOPE AS FINISHED ROAD SURFACE.

NOTE: NOT TO SCALE

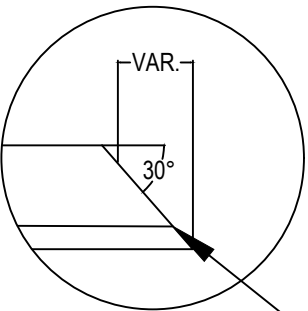
PROPOSED TYPICAL SECTION

STA: 317+72 TO 350+45

120' R/W



DETAIL A



BITUMINOUS SAFETY EDGE

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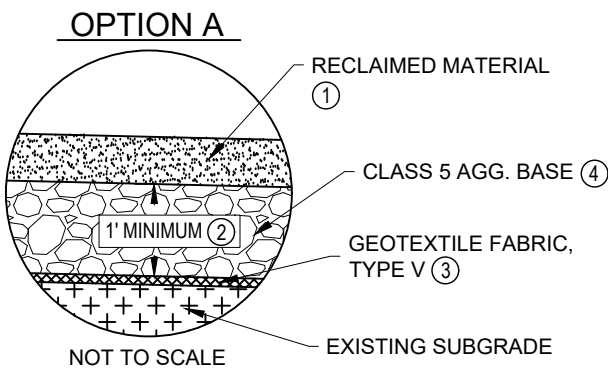
SP 033-606-023

PROPOSED TYPICAL SECTIONS

SHEET NO. 5 OF 21 SHEETS

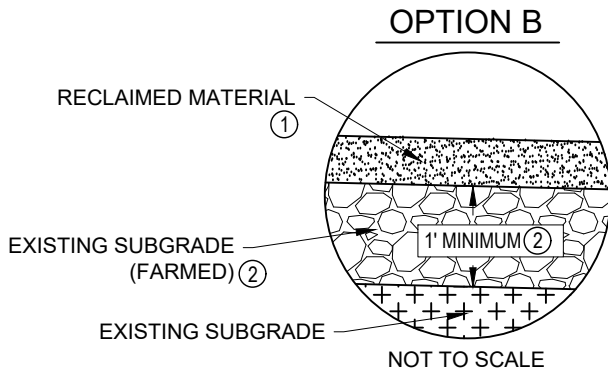
SUBGRADE CORRECTION

USE OPTION A OR OPTION B AT SPOT LOCATIONS
AS DIRECTED BY ENGINEER



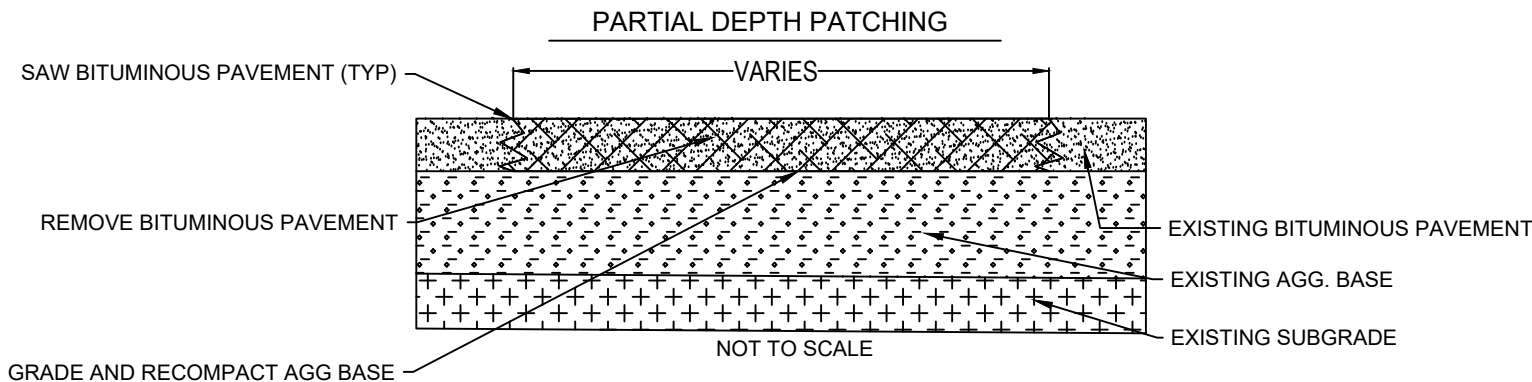
NOTES - OPTION A

1. SALVAGE AND REPLACE RECLAIMED BASE/BITUMINOUS MATERIAL.
2. EXCAVATE A MINIMUM OF ONE FOOT BELOW THE BOTTOM OF RECLAIMED MATERIAL OR AS DETERMINED BY ENGINEER.
3. PLACE GEOTEXTILE FABRIC TYPE V AT BOTTOM OF EXCAVATION
4. FILL EXCAVATION WITH CLASS 5 AGGREGATE BASE.
5. ALL WORK TO BE PAID WITH EQUIPMENT RENTAL HOURS.



NOTES - OPTION B

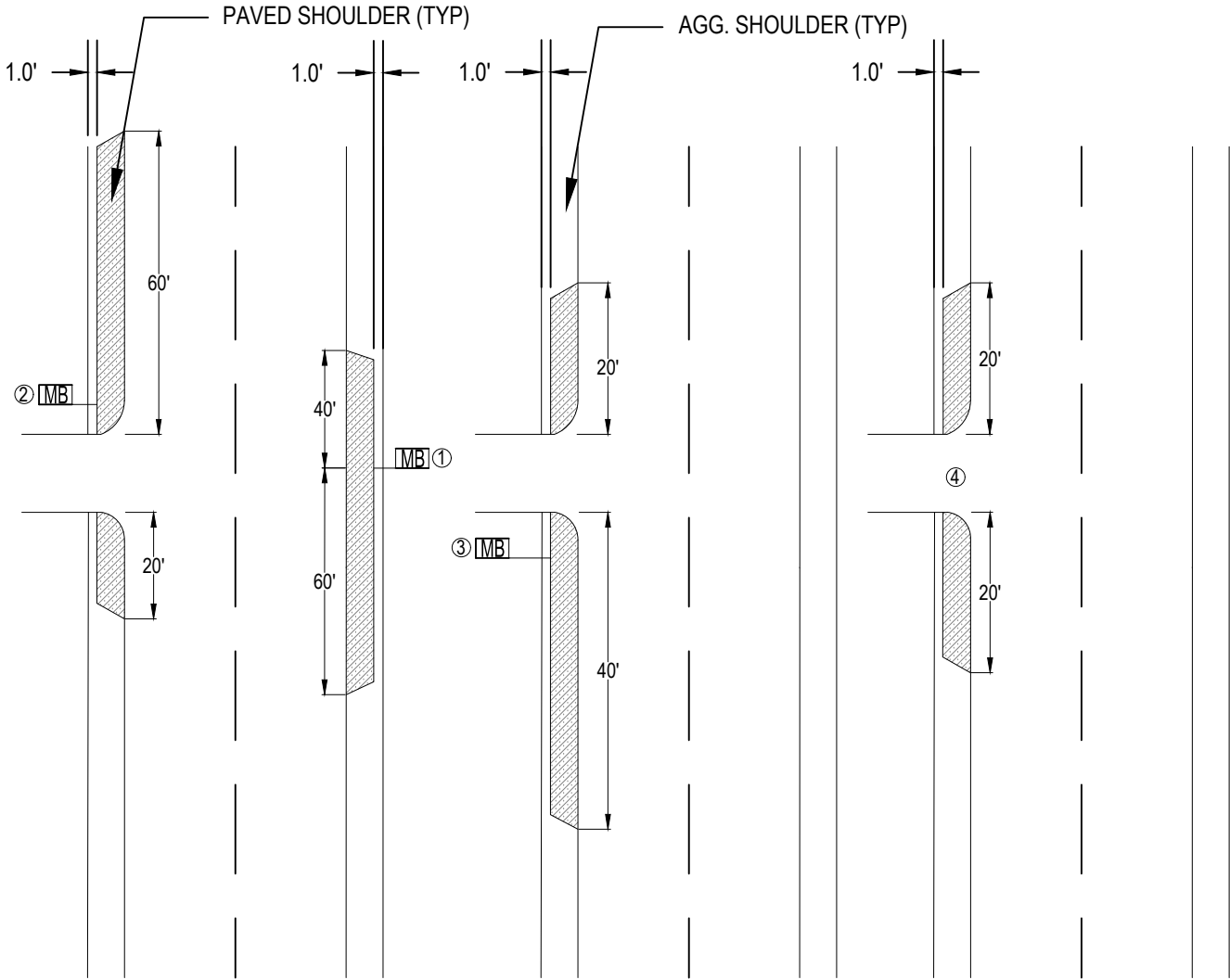
1. SALVAGE AND REPLACE RECLAIMED BASE/BITUMINOUS MATERIAL.
2. FARM AND REPLACE EXISTING SUBGRADE A MINIMUM OF ONE FOOT BELOW THE BOTTOM OF RECLAIMED MATERIAL OR AS DETERMINED BY ENGINEER.
3. ALL WORK TO BE PAID WITH EQUIPMENT RENTAL HOURS.



NOTES - OPTION A

1. SAW BITUMINOUS PAVEMENT
2. REMOVE BITUMINOUS MATERIAL, AS DETERMINED BY ENGINEER.
3. LEVEL AGGREGATE BASE TO UNIFORM GRADE AND COMPACT. REPLACE ANY EXISTING AGG. BASE LOST WITH REMOVAL OF BITUMINOUS PAVEMENT.
4. ANY WORK FOR PARTIAL DEPTH PATCHING THAT DOES NOT HAVE A PAY ITEM IS INCIDENTAL TO BITUMINOUS PATCHING MIXTURE.

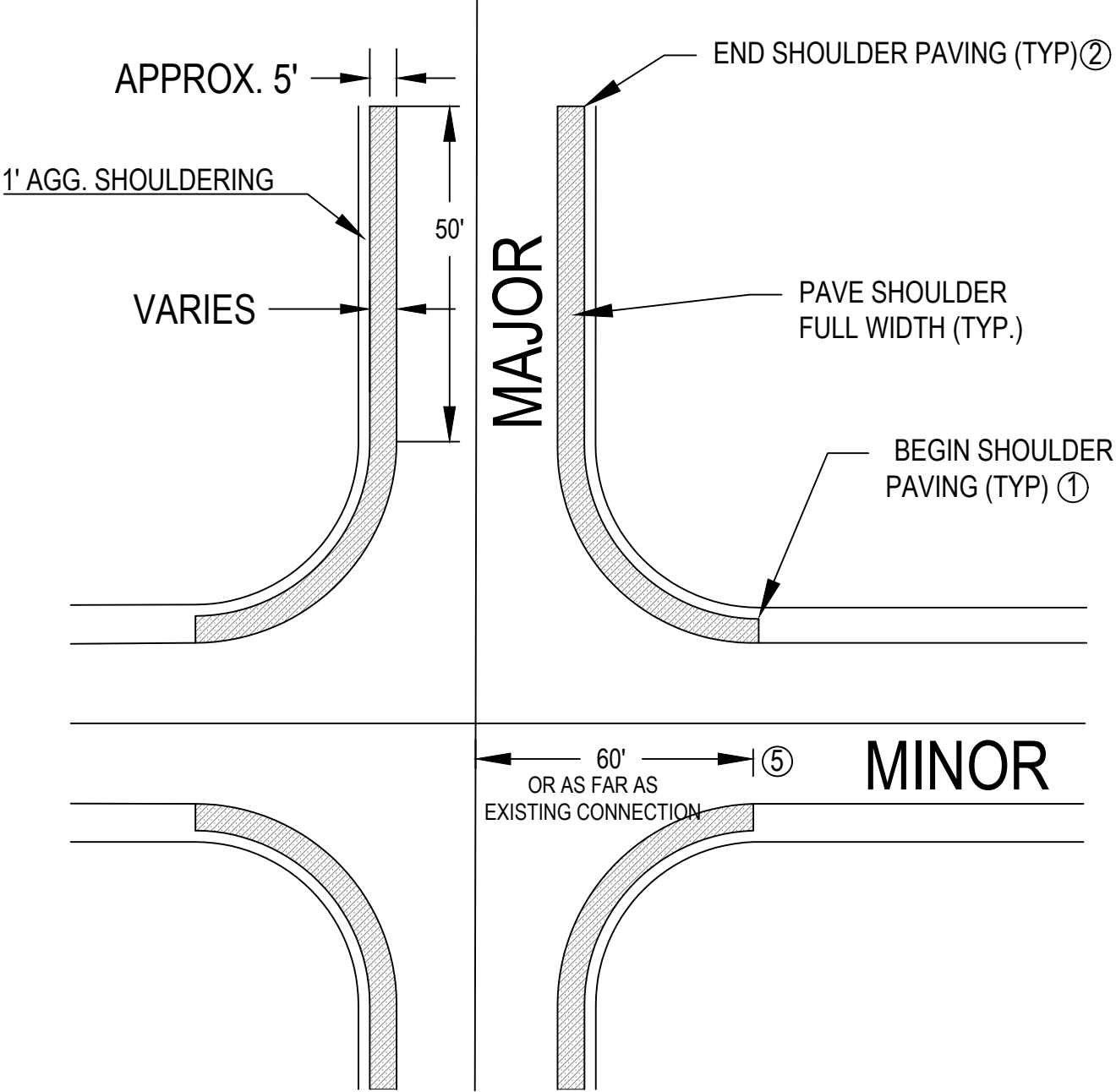
MAILBOX PAVING



NOTES

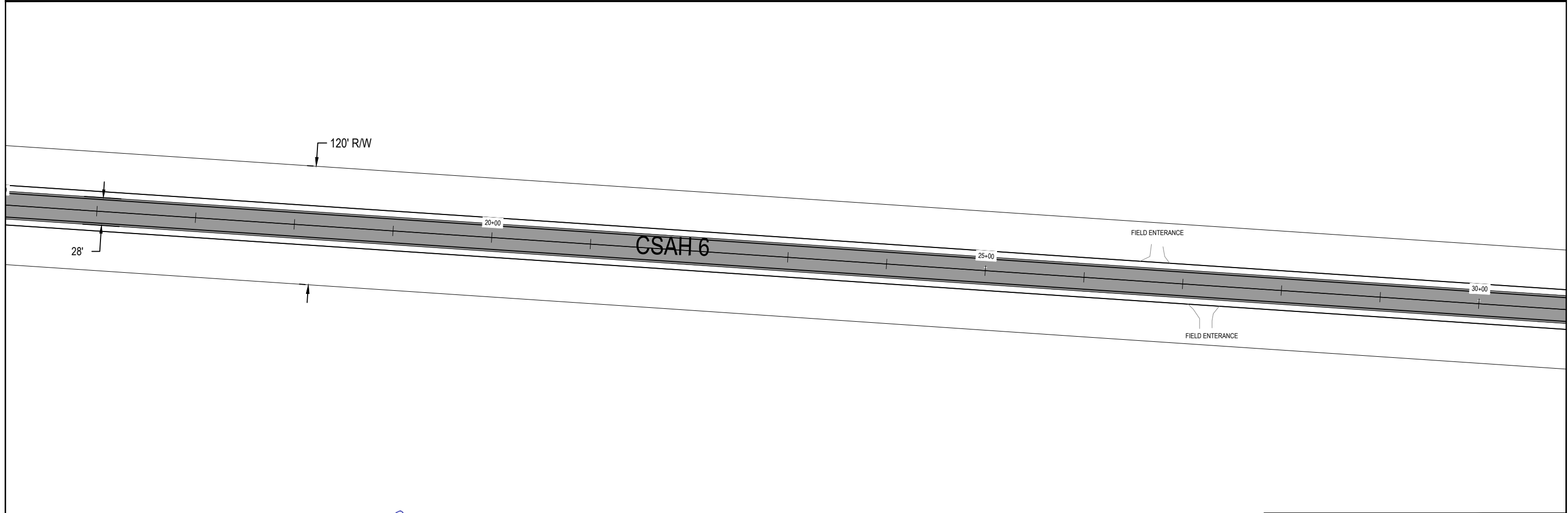
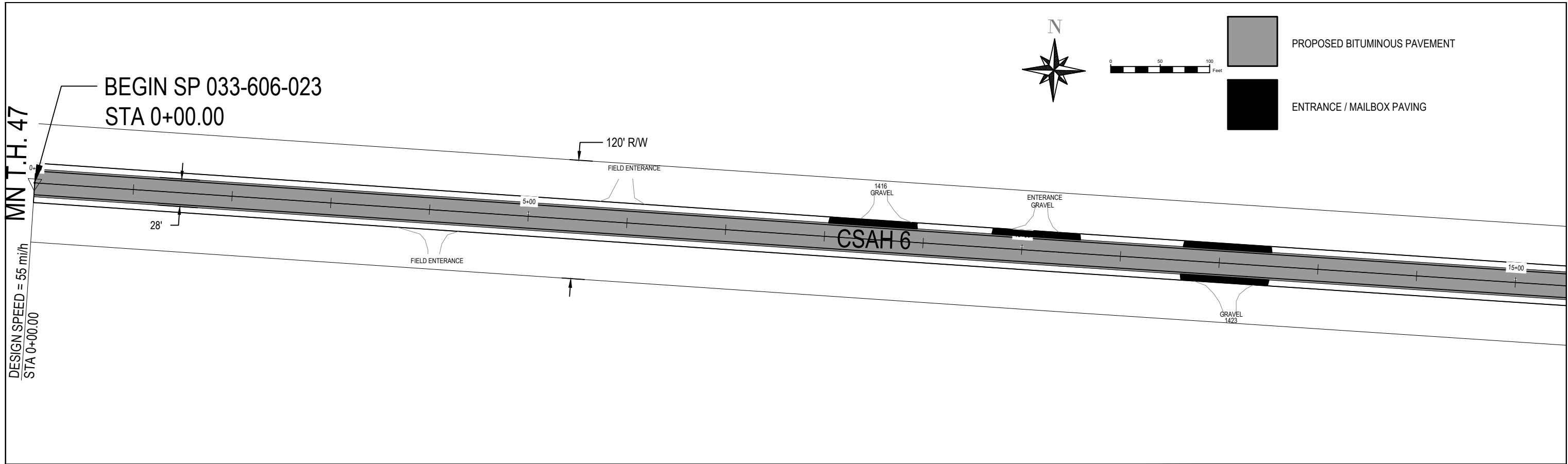
- 1. PAVING FOR MAILBOX OPPOSITE OF ENTRANCE. 60' BEFORE AND 40' AFTER.
- 2. PAVING FOR MAILBOX LOCATION AHEAD OF ENTRANCE. 60' BEFORE AND 20' AFTER.
- 3. PAVING FOR MAILBOX LOCATION AFTER ENTRANCE. 20' BEFORE AND 40' AFTER
- 4. PAVING FOR DRIVEWAY LOCATION. 20' BEFORE AND 20' AFTER..
- 5. PAVED SHOULDERS ARE FULL WIDTH OR 1' FROM SHOULDER P.I. ANYTHING DIFFERENT WILL BE UNDER ENGINEERS DISCRETION.
- 6. PAVING LIFT(S) AND THICKNESS SHALL MATCH MAINLINE PAVING DESIGN.
- 7. BUMP OUTS ONLY APPLY TO STA 0+00 THRU 272+00

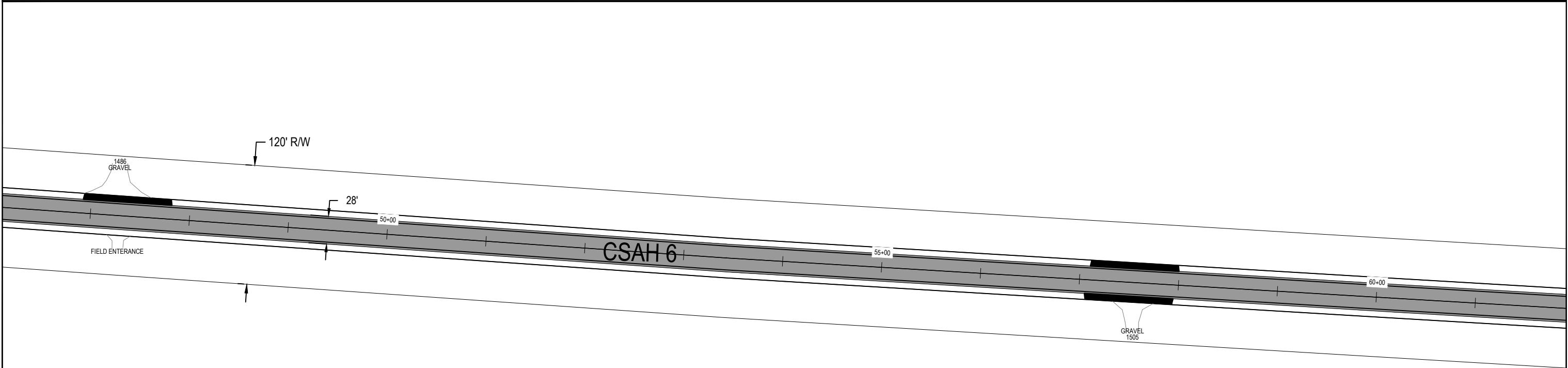
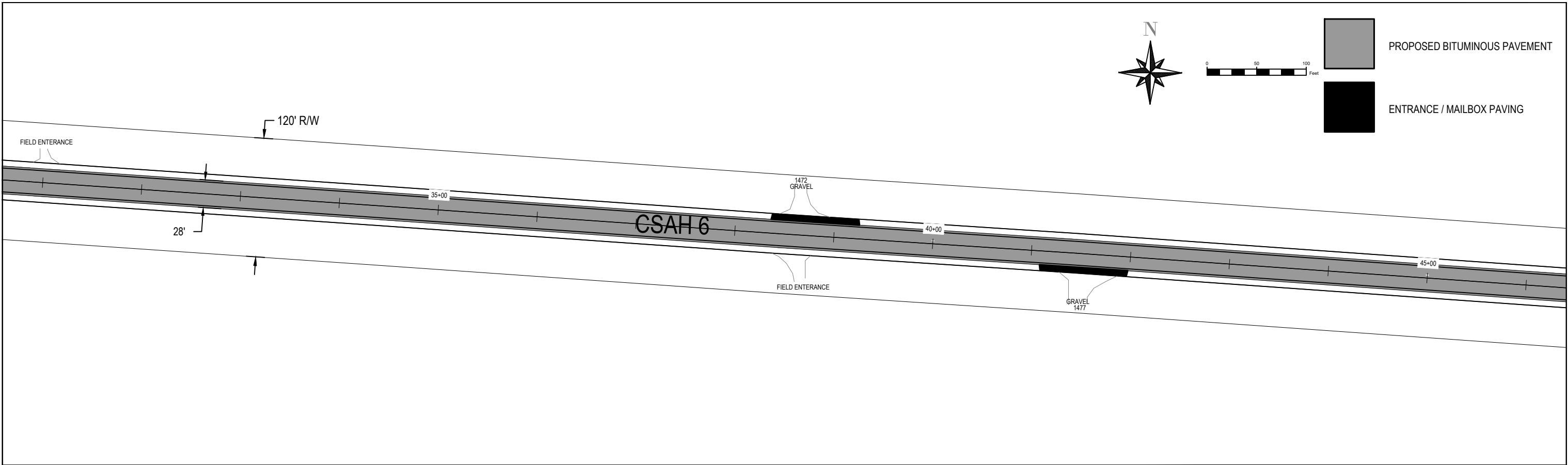
ROAD CONNECTION DETAIL

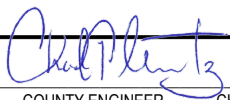


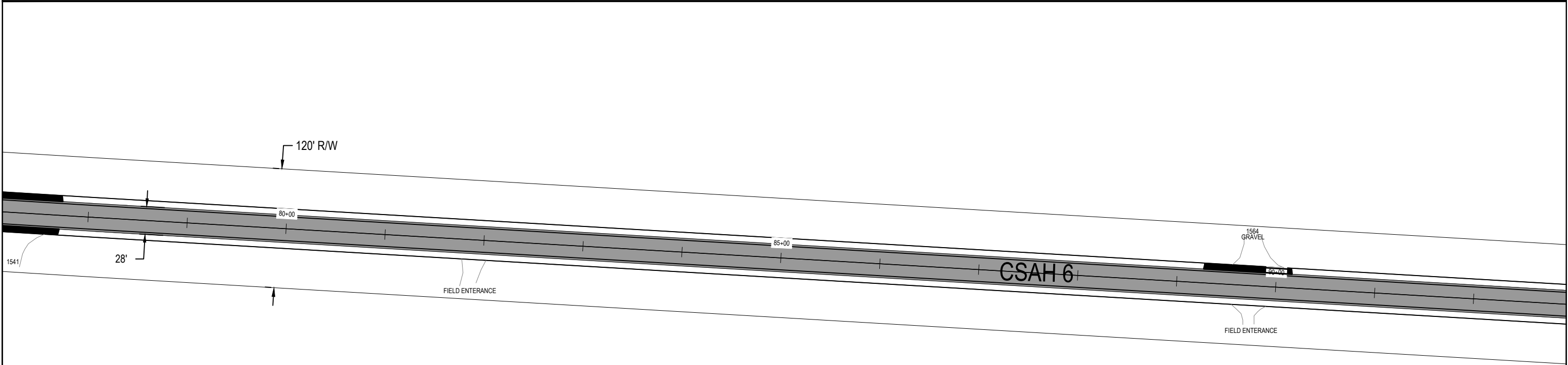
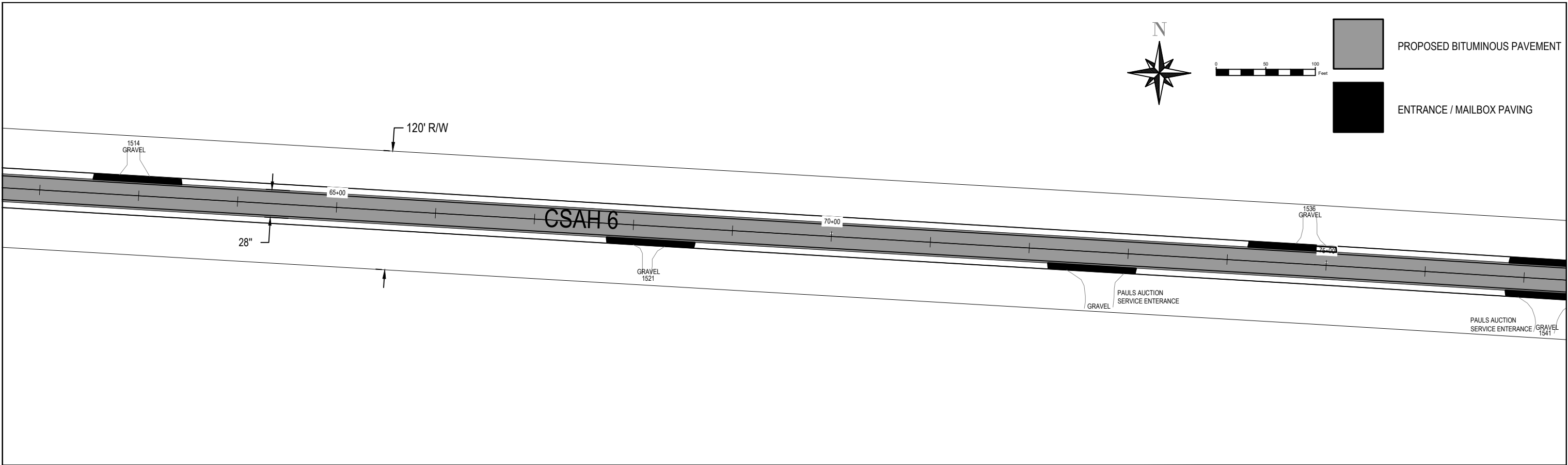
NOTES

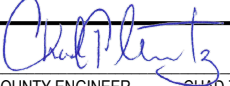
- 1. START SHOULDER PAVING AT BEGINNING OF RADIUS ON MINOR ROAD.
- 2. END SHOULDER PAVING 50 FEET AFTER END OF RADIUS ON MAINLINE.
- 3. PAVING LIFT(S) AND THICKNESS SHALL MATCH MAINLINE PAVING DESIGN.
- 4. ANY REMOVAL OF EXISTING SHOULDER AGGREGATE NECESSARY FOR SHOULDER PAVING SHALL BE INCIDENTAL AND NO DIRECT PAYMENT SHALL BE MADE.
- 5. END MINOR ROAD APPROACH PAVEMENT AT 60' FROM MAINLINE CENTERLINE OR THE END OF THE RADIUS, WHICH EVER IS LONGER.
- 6. ALL WORK SHALL STAY WITHIN THE "CSAH 6" RIGHT OF WAY



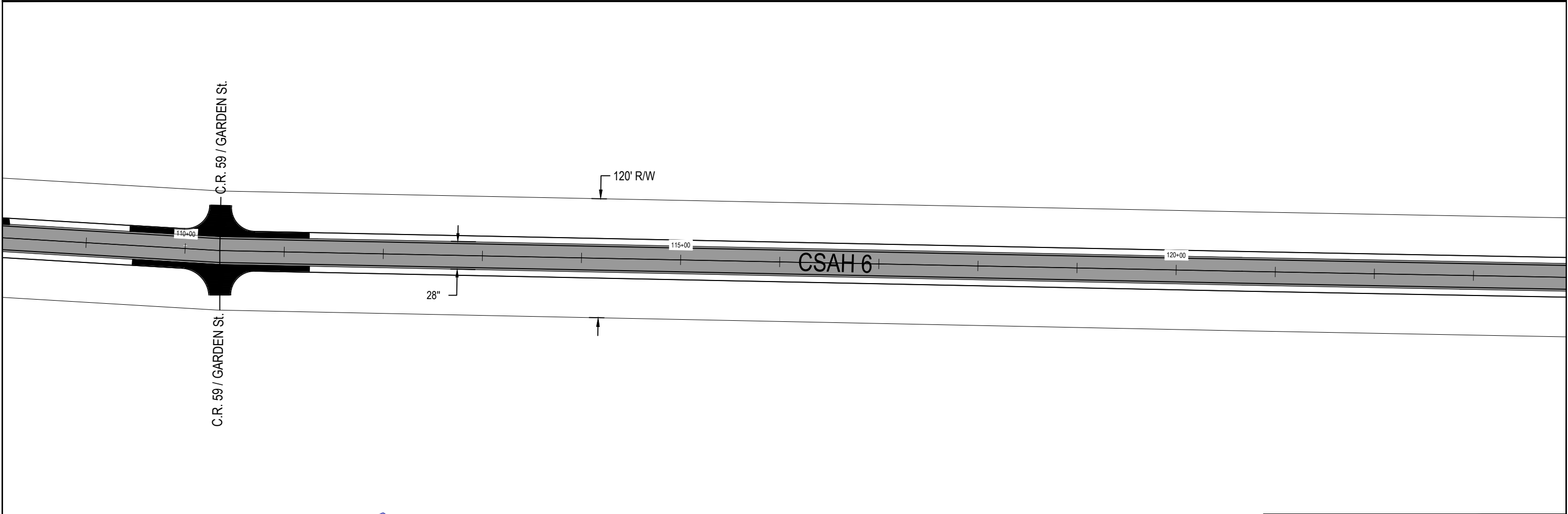
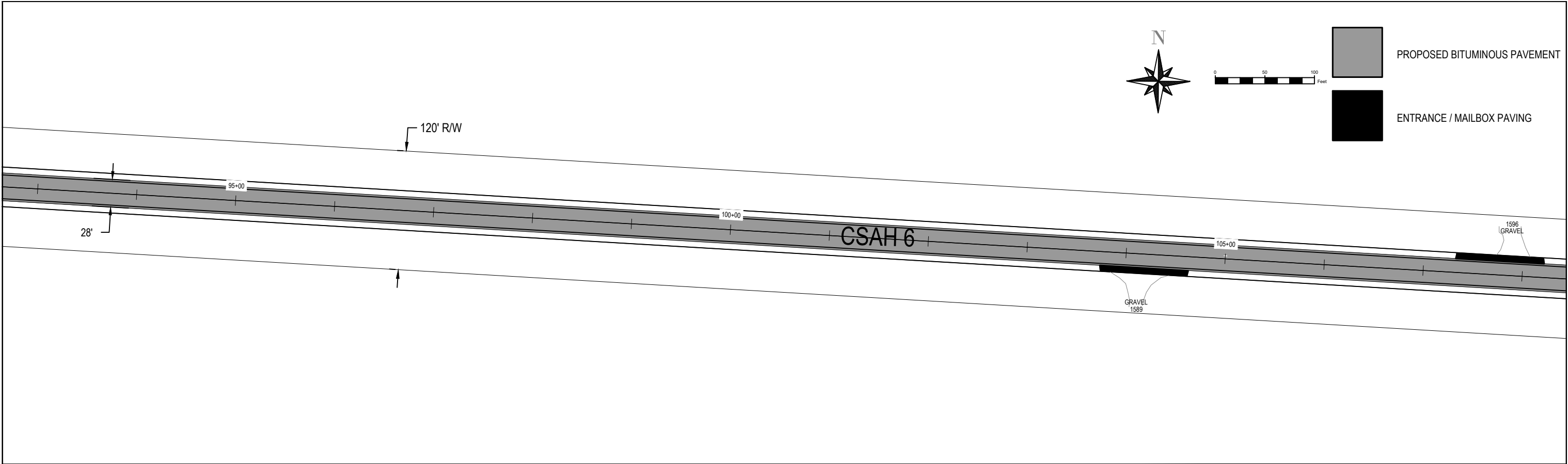


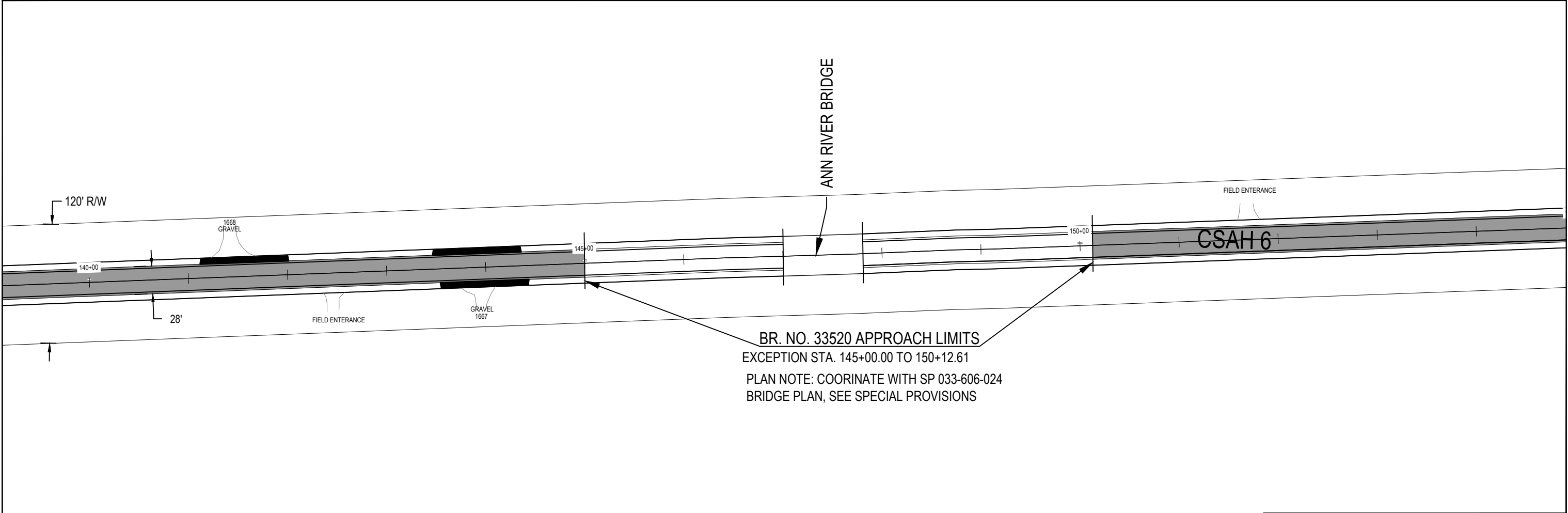
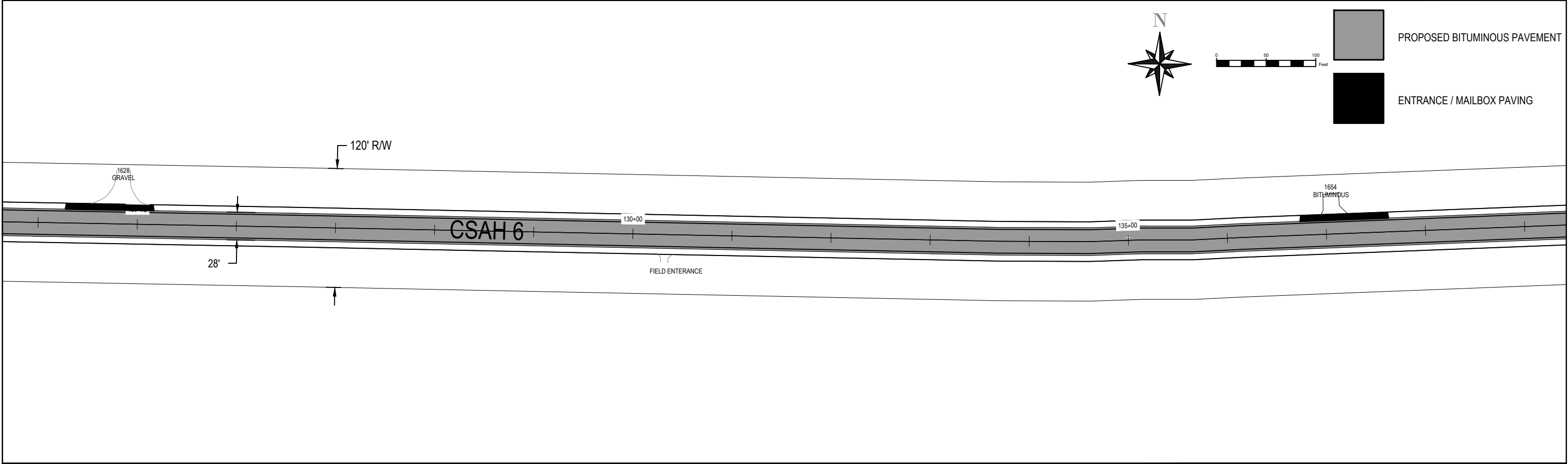
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED
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PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. COUNTY ENGINEER CHAD T. GRAMENTZ
REG. NO.: 47090
DATE: 4/14/25



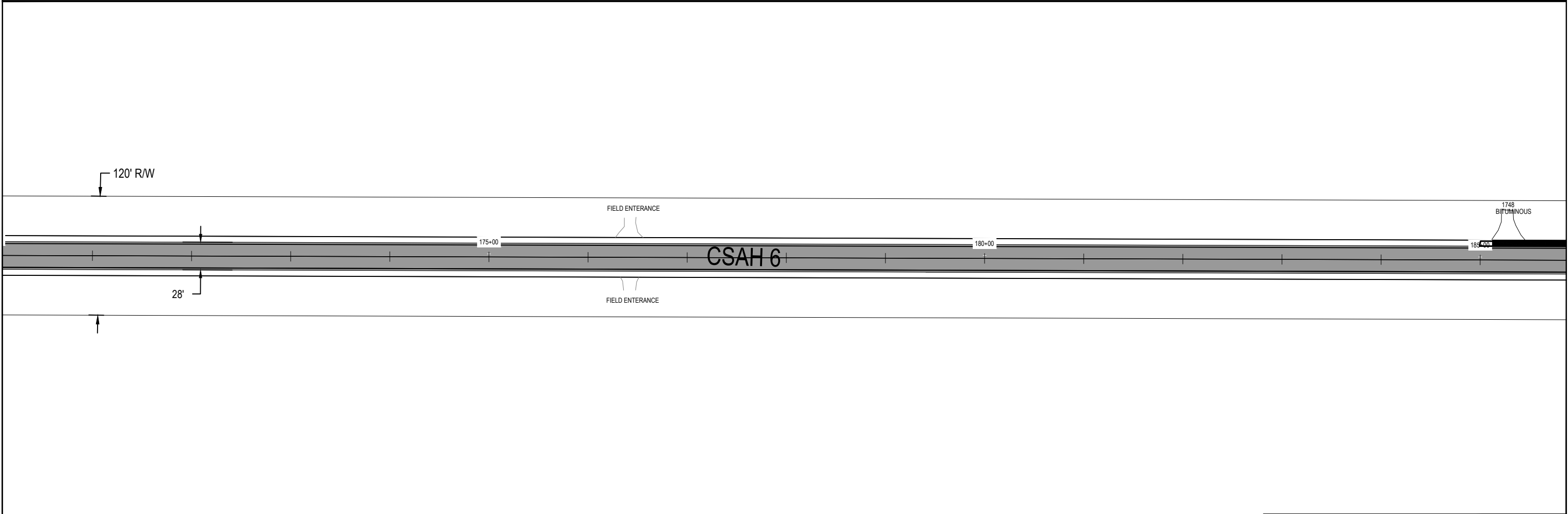
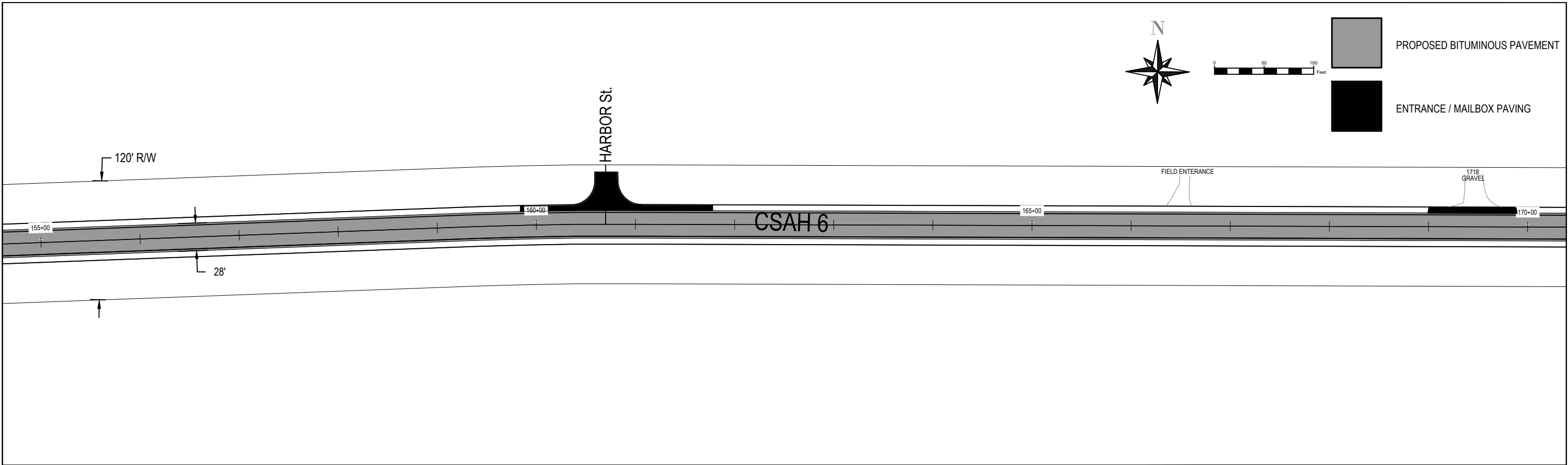
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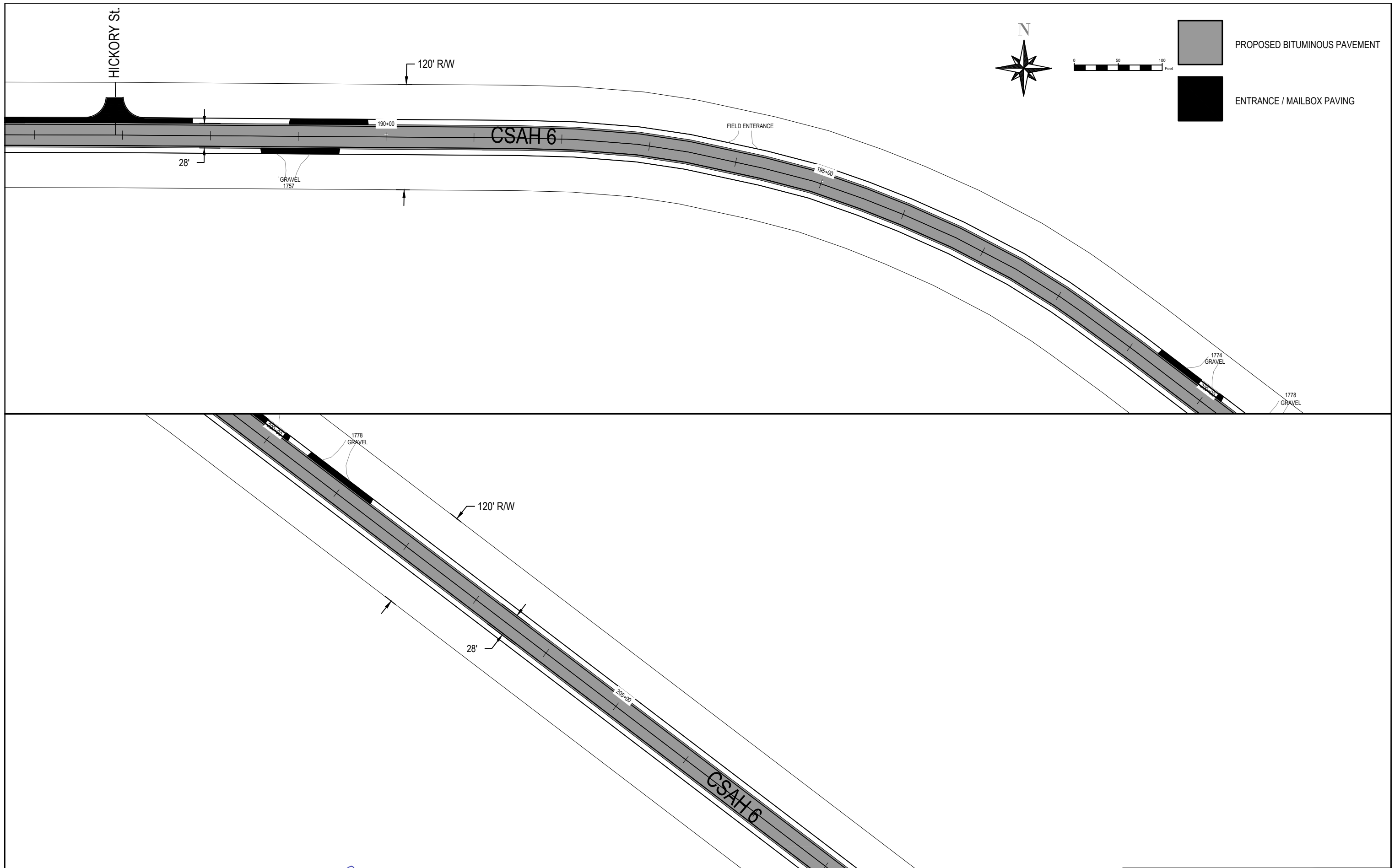
SP 033-606-023
LAYOUT PLAN 3
SHEET NO. 10 OF 21 SHEETS





BR. NO. 33520 APPROACH LIMITS
EXCEPTION STA. 145+00.00 TO 150+12.61
PLAN NOTE: COORINATE WITH SP 033-606-024
BRIDGE PLAN, SEE SPECIAL PROVISIONS





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COUNTY ENGINEER

CHAD T. GRAMENTZ

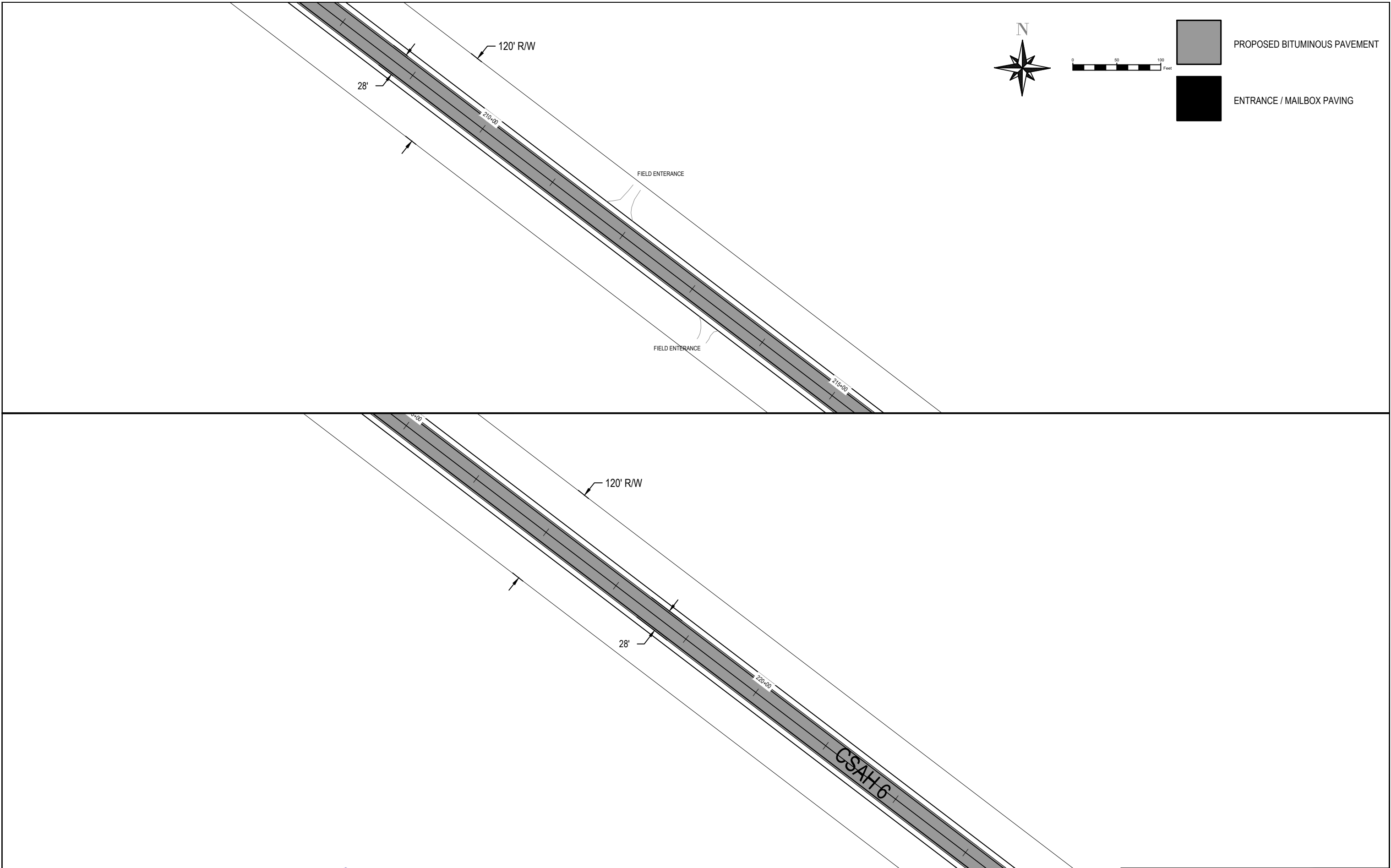
REG. NO.: 47090

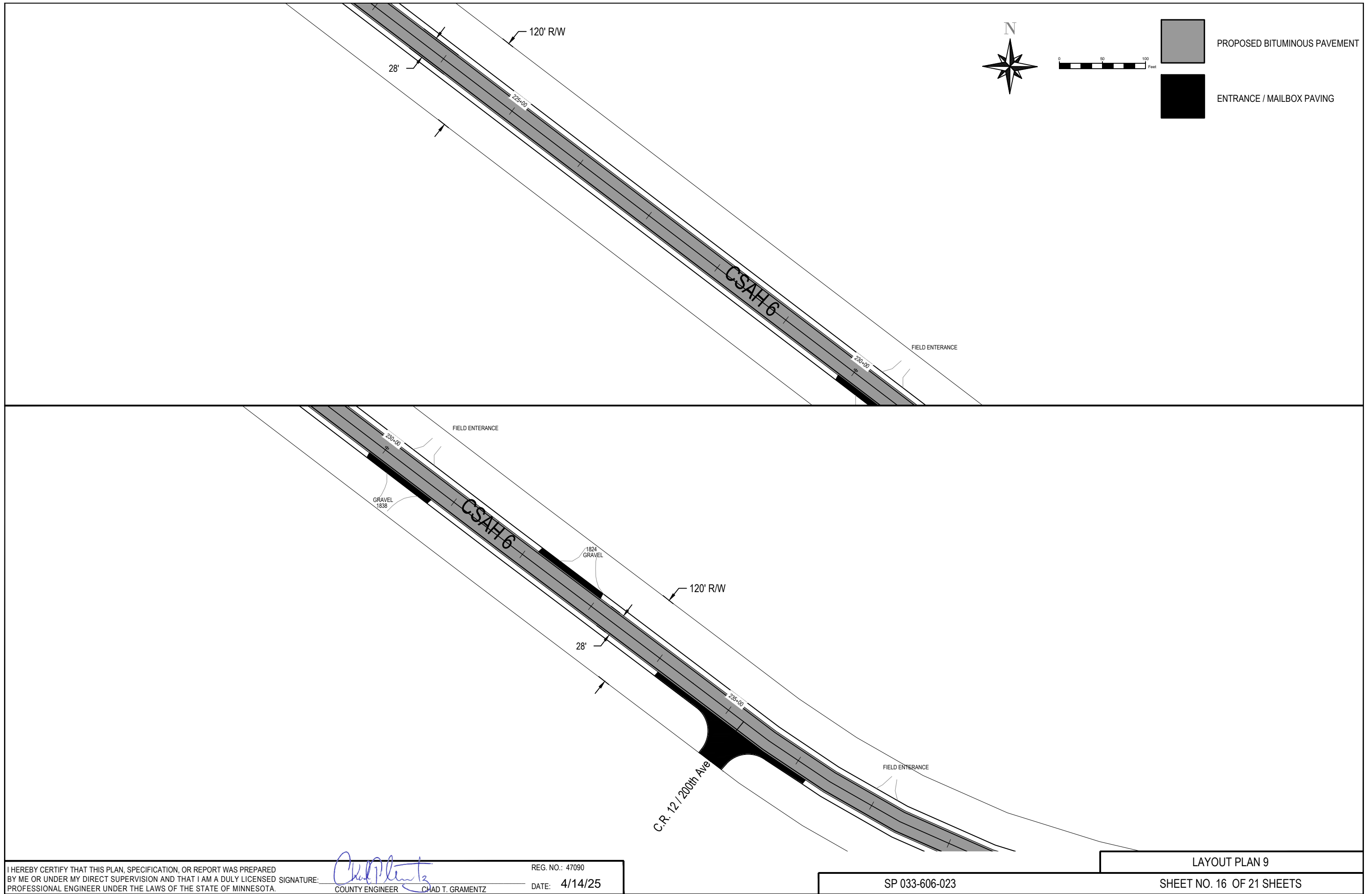
DATE: 4/14/25

SP 033-606-023

LAYOUT PLAN 7

SHEET NO. 14 OF 21 SHEETS



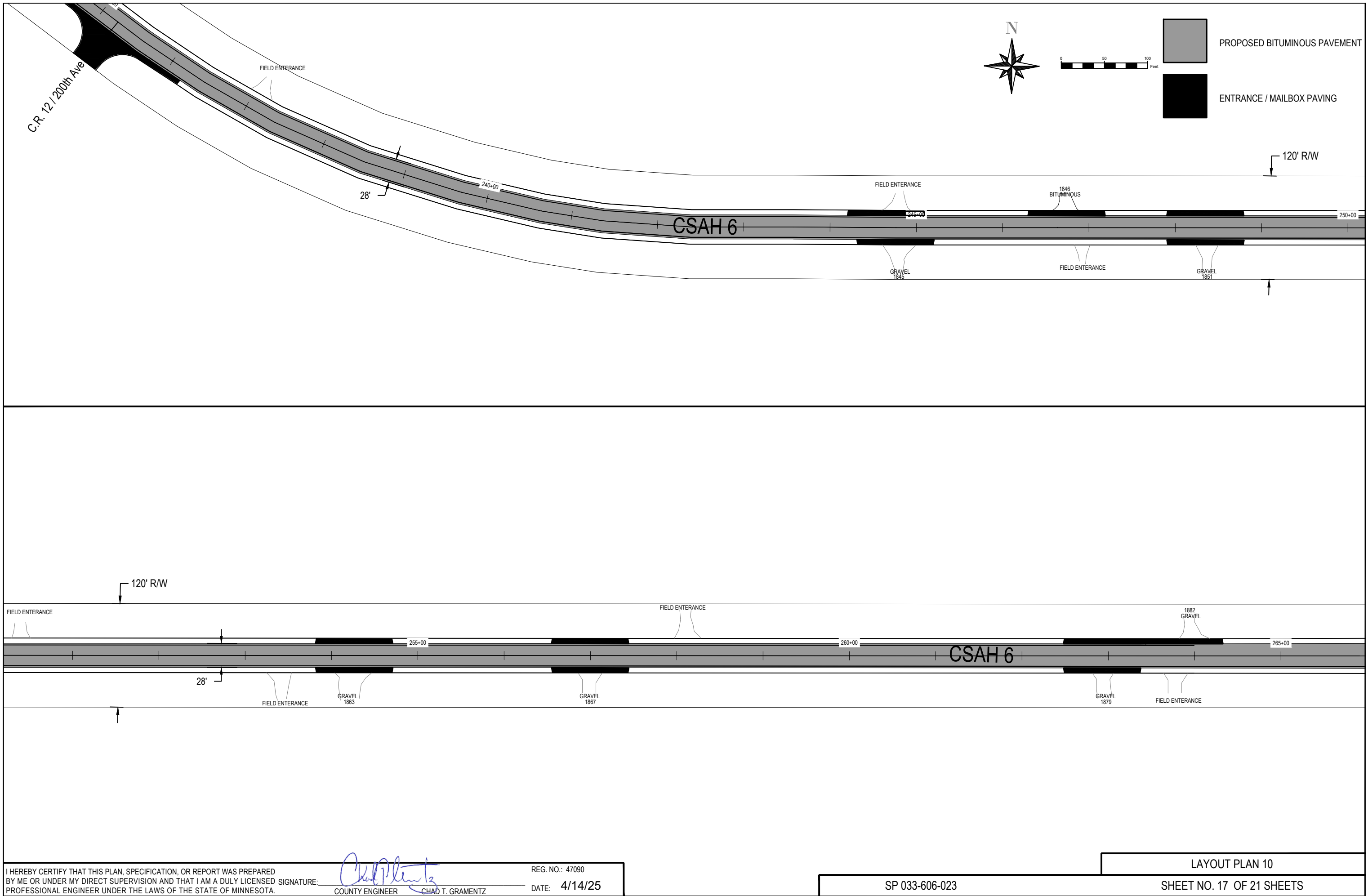


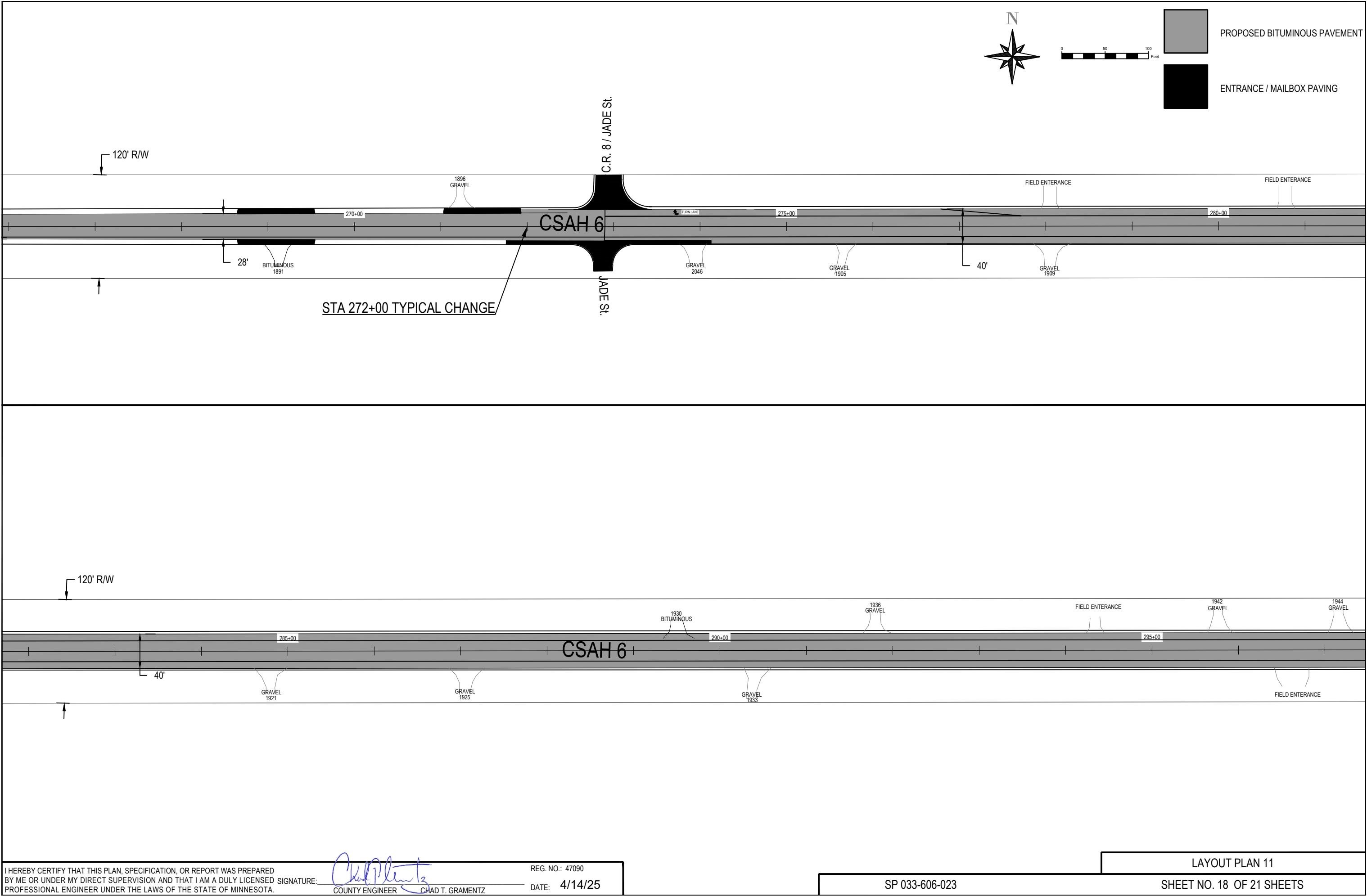
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED
BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED SIGNATURE: *Chad T. Gramentz*
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. COUNTY ENGINEER CHAD T. GRAMENTZ

REG. NO.: 47090
DATE: 4/14/25

SP 033-606-023

LAYOUT PLAN 9
SHEET NO. 16 OF 21 SHEETS





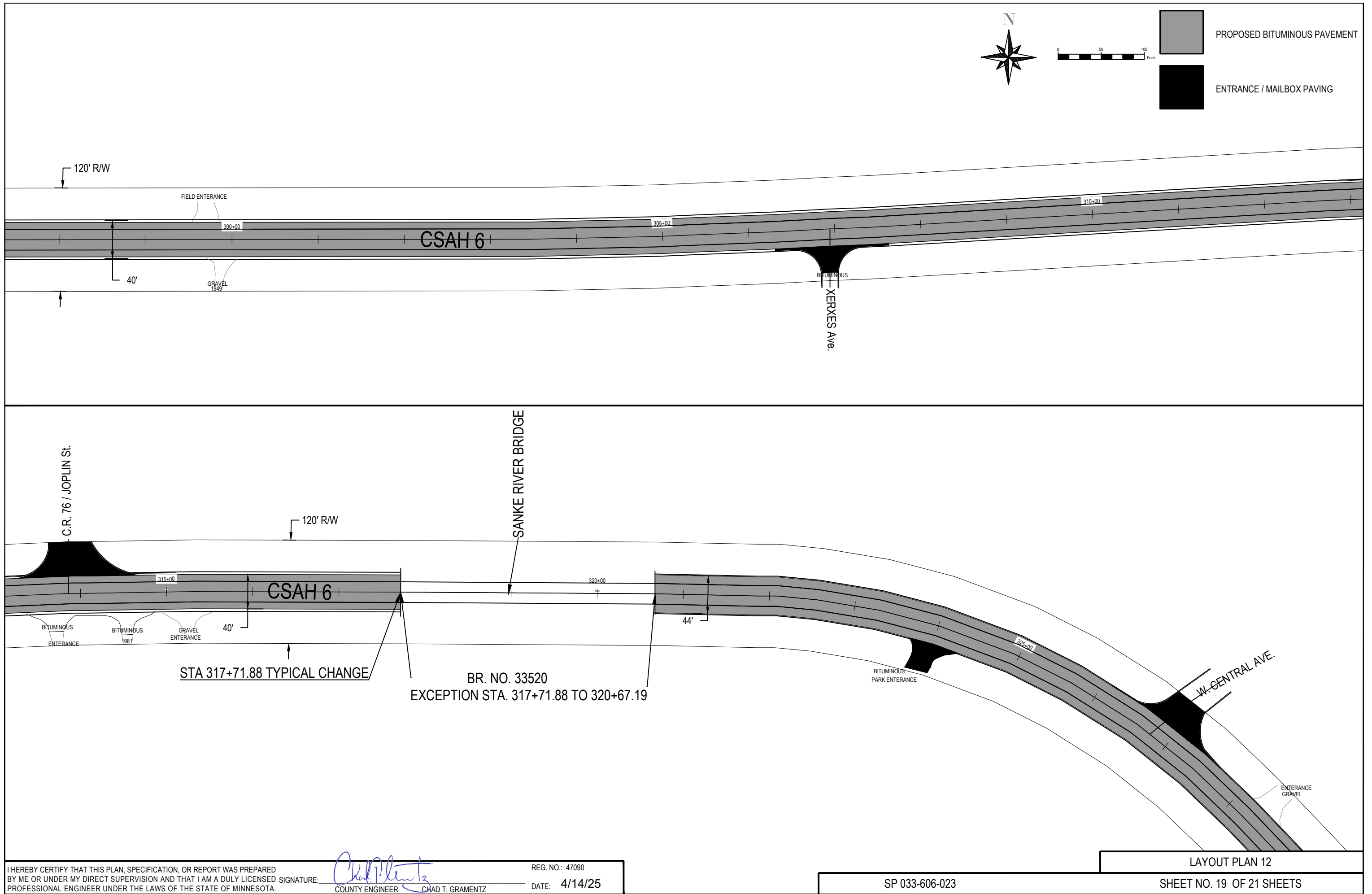
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED
BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Chad T. Gramentz
COUNTY ENGINEER CHAD T. GRAMENTZ

REG. NO.: 47090
DATE: 4/14/25

SP 033-606-023

LAYOUT PLAN 11
SHEET NO. 18 OF 21 SHEETS



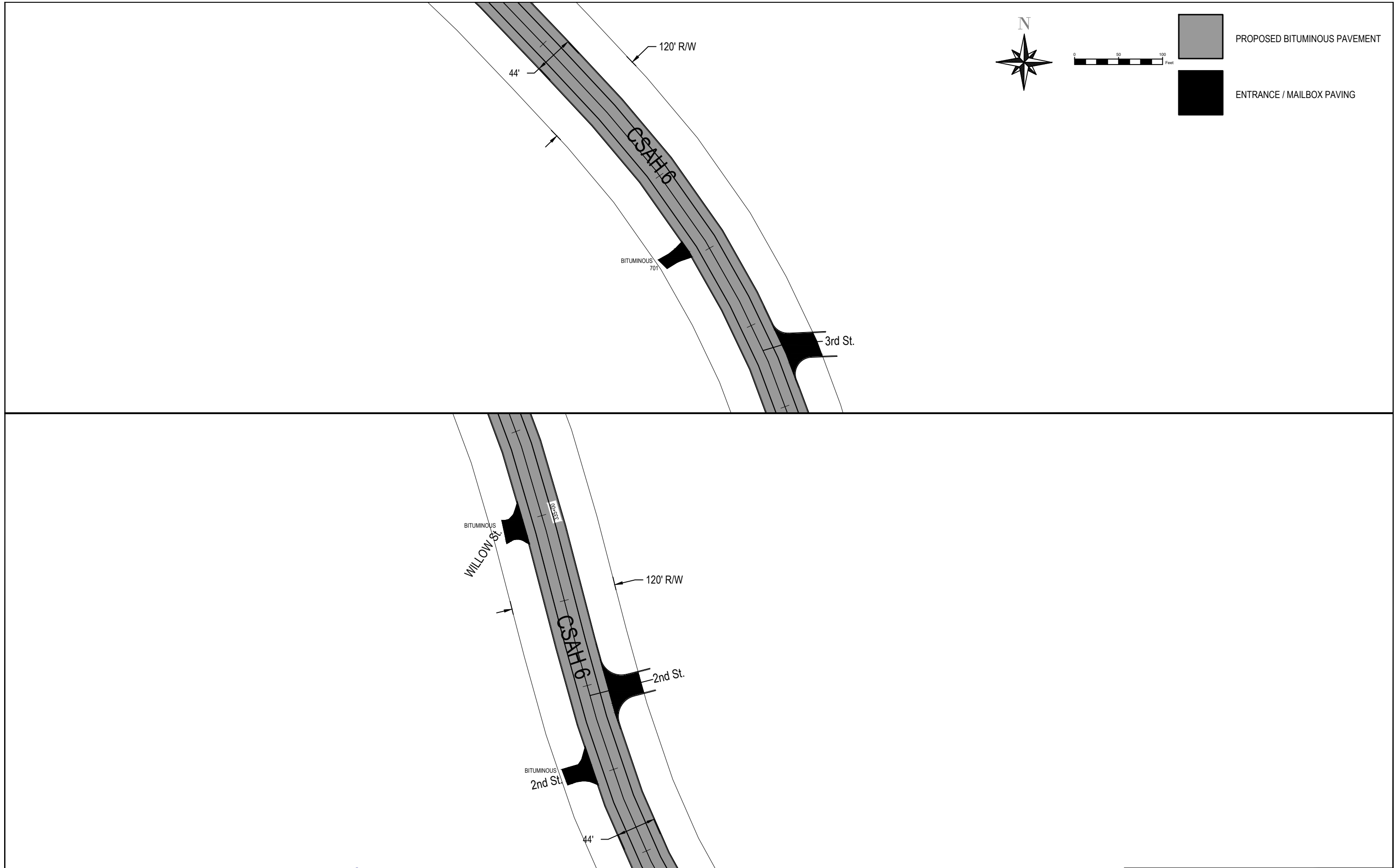
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

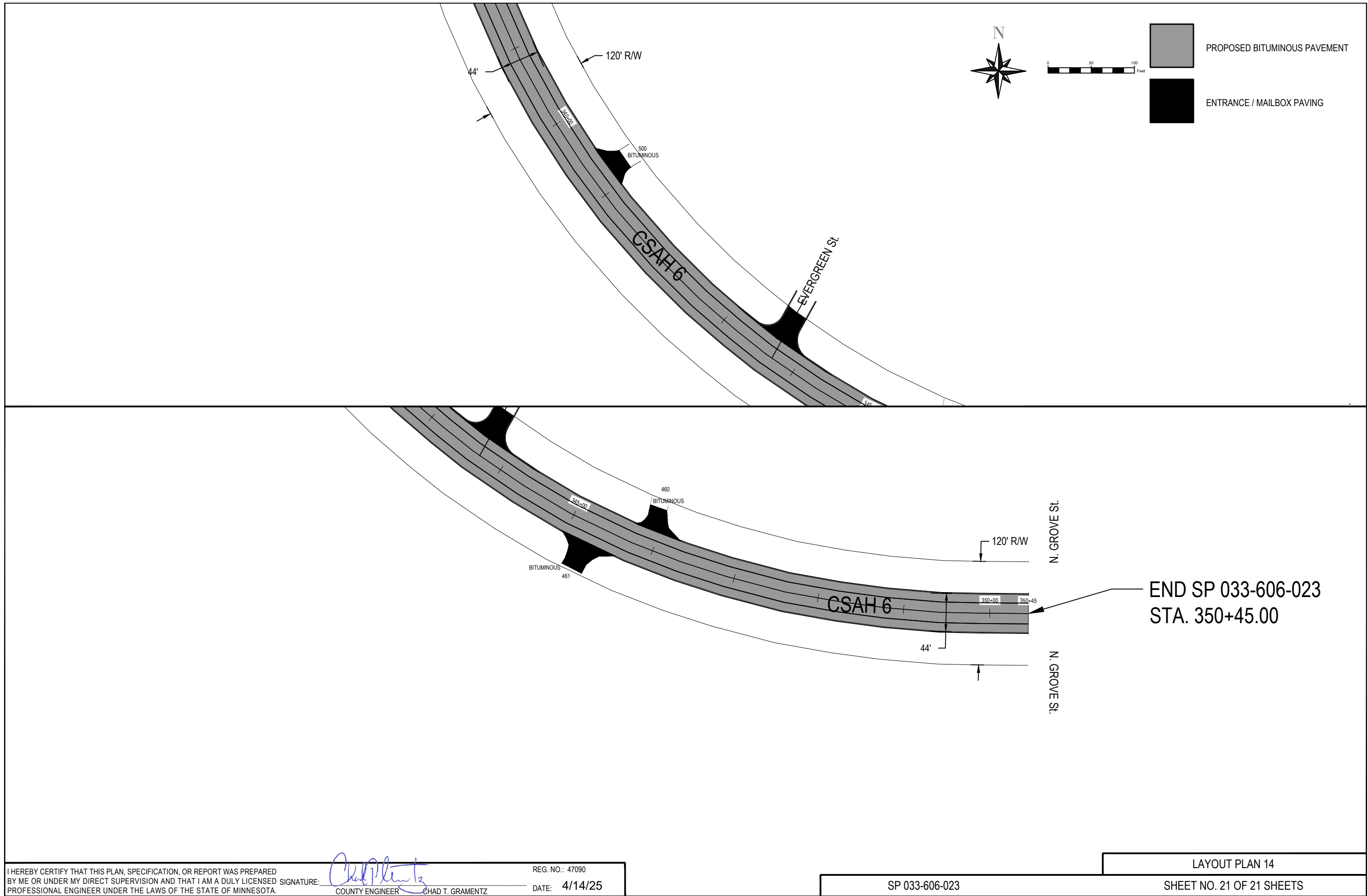
Chad T. Gramentz
COUNTY ENGINEER CHAD T. GRAMENTZ

REG. NO.: 47090
DATE: 4/14/25

SP 033-606-023

LAYOUT PLAN 12
SHEET NO. 19 OF 21 SHEETS





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PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Chad T. Gramentz
COUNTY ENGINEER CHAD T. GRAMENTZ

REG. NO.: 47090
DATE: 4/14/25

SP 033-606-023

LAYOUT PLAN 14
SHEET NO. 21 OF 21 SHEETS