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

MINN. PROJ. NO. STBG 3325 (273)

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

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

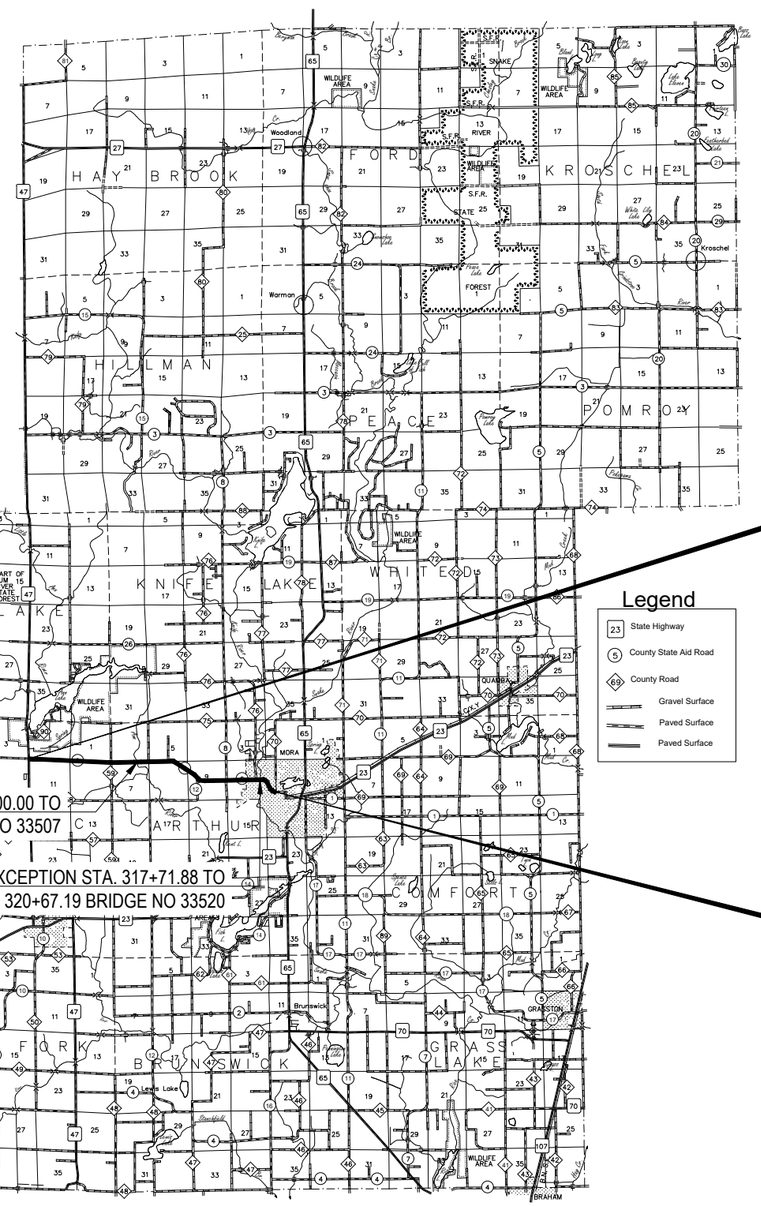
UTILITIES

OVERHEAD ELECTRIC — OE —
ELECTRIC - BURIED — UE —
POWER POLE
LIGHT POLE
GUY WIRE
TRANSFORMER
COMM. PEDESTAL
TELEPHONE - BURIED — T-BUR —
FIBER OPTIC - BURIED — FO —
MEDIA - BURIED — UTV —
COMMUNICATION MANHOLE
SANITARY SEWER — SAN —
SANITARY MANHOLE
GAS — UG —
STORM SEWER
STORM MANHOLE
CATCH BASIN
WATERMAIN
WATER VALVE
HYDRANT
WATER SHUTOFF

SCALES = FEET

PLAN	50'	
PROFILE	50' HORIZ.	5' VERT.
CROSS SECTION	20' HORIZ.	20' VERT.

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

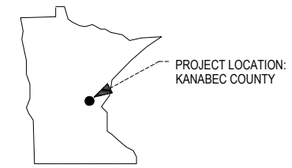


EXCEPTION STA. 145+00.00 TO STA. 150+12.61 BRIDGE NO 33507

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

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

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



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 CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES."

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

Nathan M.R. Gannon 4/17 20 25

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

Angela Murphy Digitally signed by Angela Murphy Date: 2025.04.18 20:38:26 -05'00' 20

STATE AID ENGINEER
APPROVED FOR FEDERAL AID FUNDING

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	HOUR	12	7
2123.51	MOTOR GRADER	HOUR	12	7
2123.51	2.0 CU. YD.SHOVEL	HOUR	12	7
2123.51	DISK HARROW	HOUR	12	7
2123.51	TAMPERING ROLLER	HOUR	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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SIGNATURE: _____ COUNTY ENGINEER CHAD T. GRAMENTZ

REG. NO.: 47090

DATE: 4/14/25

ESTIMATED QUANTITIES

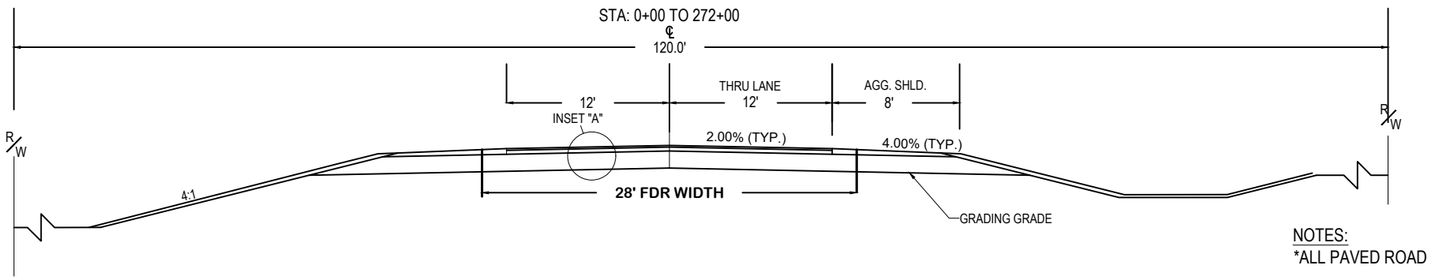
SP 033-606-023

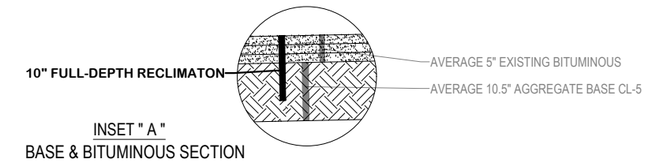
PROJECT HISTORY REFERENCE

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

EXISTING TYPICAL SECTION

STA: 0+00 TO 272+00





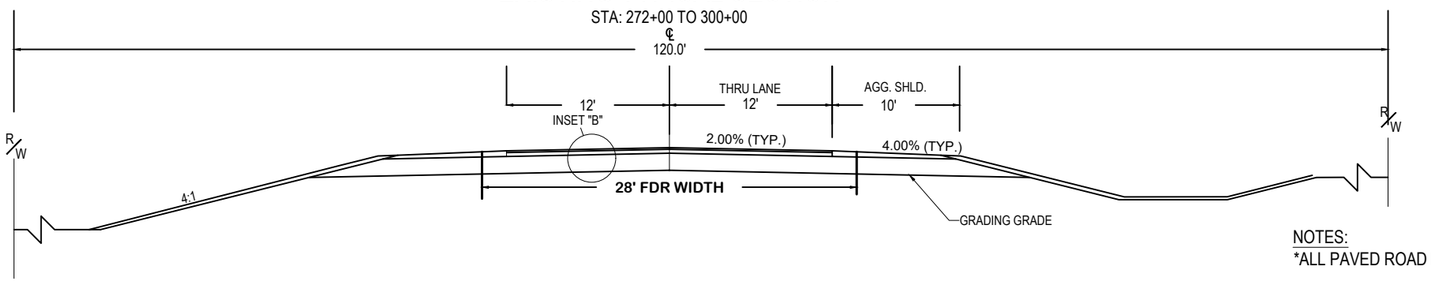
INSET " A "
BASE & BITUMINOUS SECTION
NOT TO SCALE

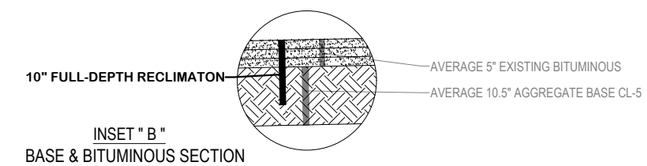
NOTES:
*ALL PAVED ROAD INTERSECTIONS SHOULD BE INCLUDED IN THE FDR

NOTE: NOT TO SCALE

EXISTING TYPICAL SECTION

STA: 272+00 TO 300+00





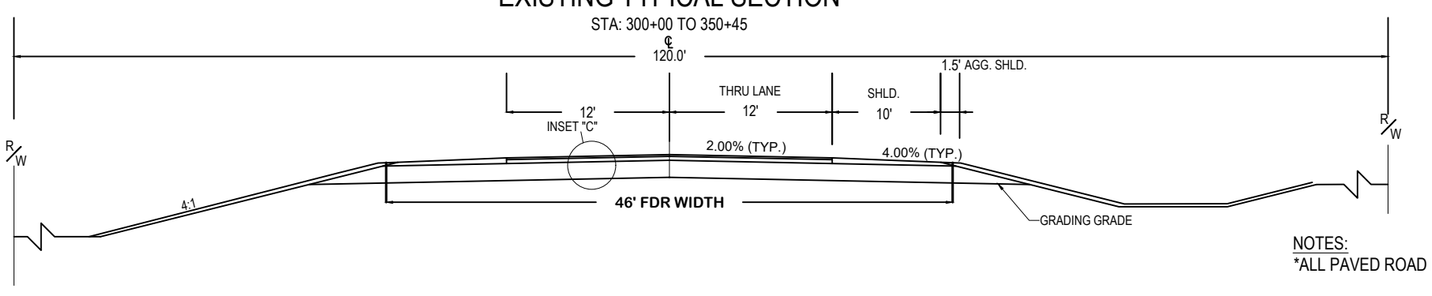
INSET " B "
BASE & BITUMINOUS SECTION
NOT TO SCALE

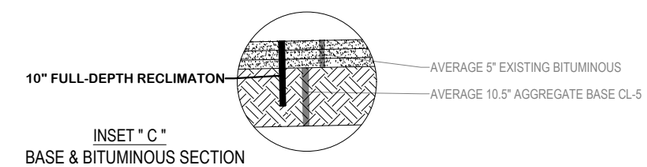
NOTES:
*ALL PAVED ROAD INTERSECTIONS SHOULD BE INCLUDED IN THE FDR

NOTE: NOT TO SCALE

EXISTING TYPICAL SECTION

STA: 300+00 TO 350+45





INSET " C "
BASE & BITUMINOUS SECTION
NOT TO SCALE

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

NOTE: NOT TO SCALE

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SIGNATURE: _____ COUNTY ENGINEER CHAD T. GRAMENTZ

REG. NO.: 47090

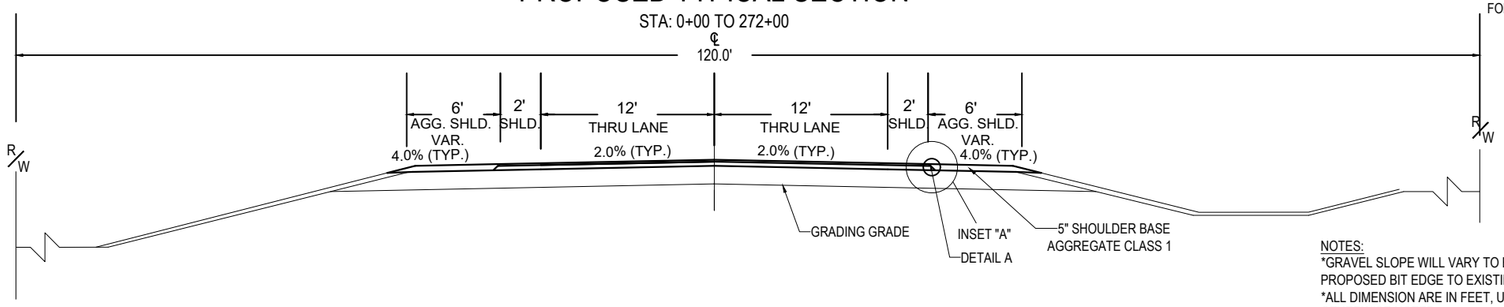
DATE: 4/14/25

EXISTING TYPICAL SECTIONS

SP 033-606-023

PROPOSED TYPICAL SECTION

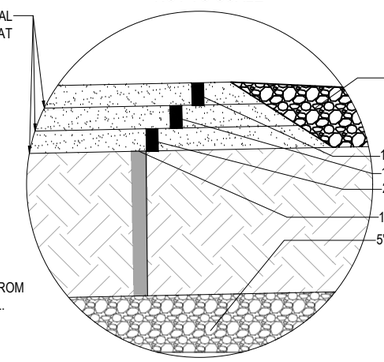
STA: 0+00 TO 272+00



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.

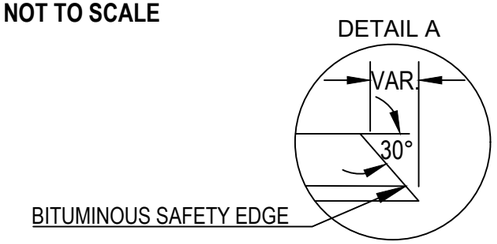
NOTE: NOT TO SCALE

INSET " A "
BASE & BITUMINOUS SECTION
NOT TO SCALE



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

DETAIL A



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REG. NO.: 47090

DATE: 4/14/25

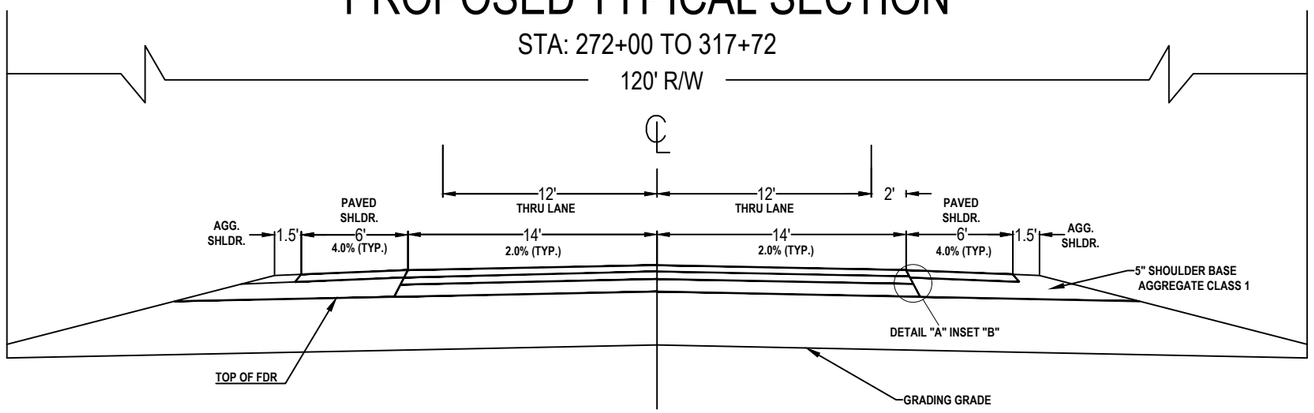
PROPOSED TYPICAL SECTIONS

SP 033-606-023

SHEET NO. 4 OF 21 SHEETS

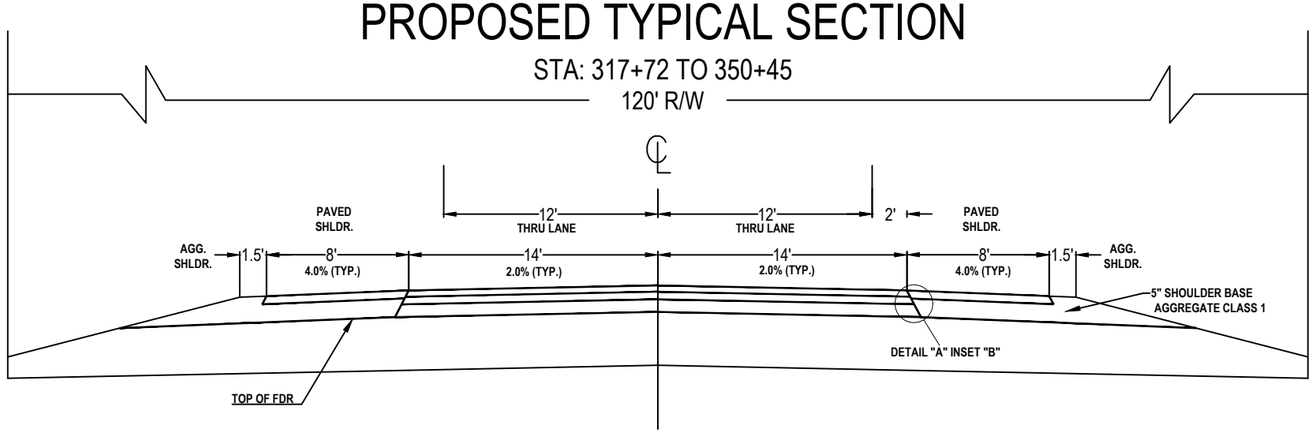
PROPOSED TYPICAL SECTION

STA: 272+00 TO 317+72



PROPOSED TYPICAL SECTION

STA: 317+72 TO 350+45

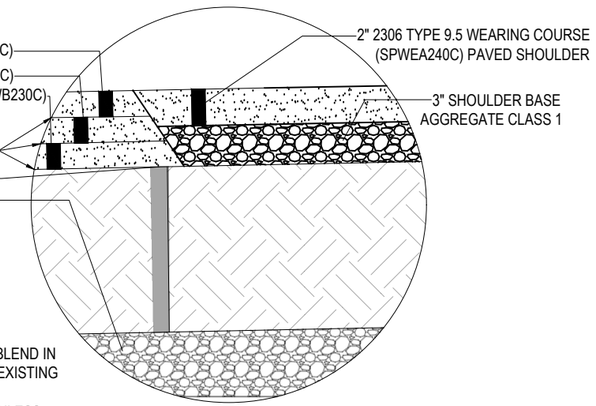


INSET " B "

BASE & BITUMINOUS SECTION

NOT TO SCALE

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



NOTES:

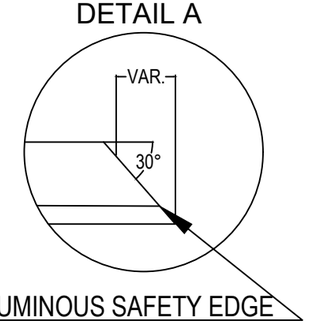
*GRAVEL SLOPE WILL VARY TO BLEND IN FROM PROPOSED BIT EDGE TO EXISTING GRAVEL.

*ALL DIMENSION ARE IN FEET, UNLESS OTHERWISE NOTED.

*GRADING GRADE WILL HAVE THE SAME SLOPE AS FINISHED ROAD SURFACE.

NOTE: NOT TO SCALE

DETAIL A



BITUMINOUS SAFETY EDGE

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SIGNATURE: COUNTY ENGINEER CHAD T. GRAMENTZ

REG. NO.: 47090

DATE: 4/14/25

PROPOSED TYPICAL SECTIONS

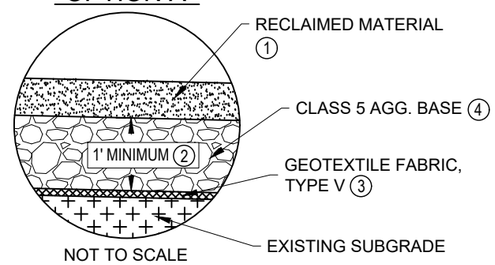
SP 033-606-023

SHEET NO. 5 OF 21 SHEETS

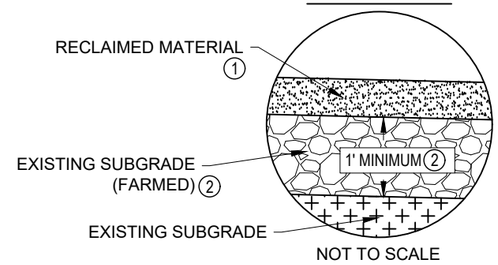
SUBGRADE CORRECTION

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

OPTION A



OPTION B



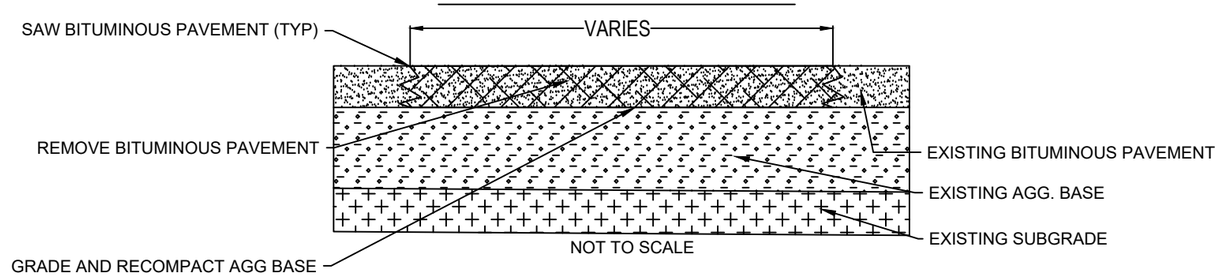
NOTES - OPTION A

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.

PARTIAL DEPTH PATCHING



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.

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REG. NO.: 47090

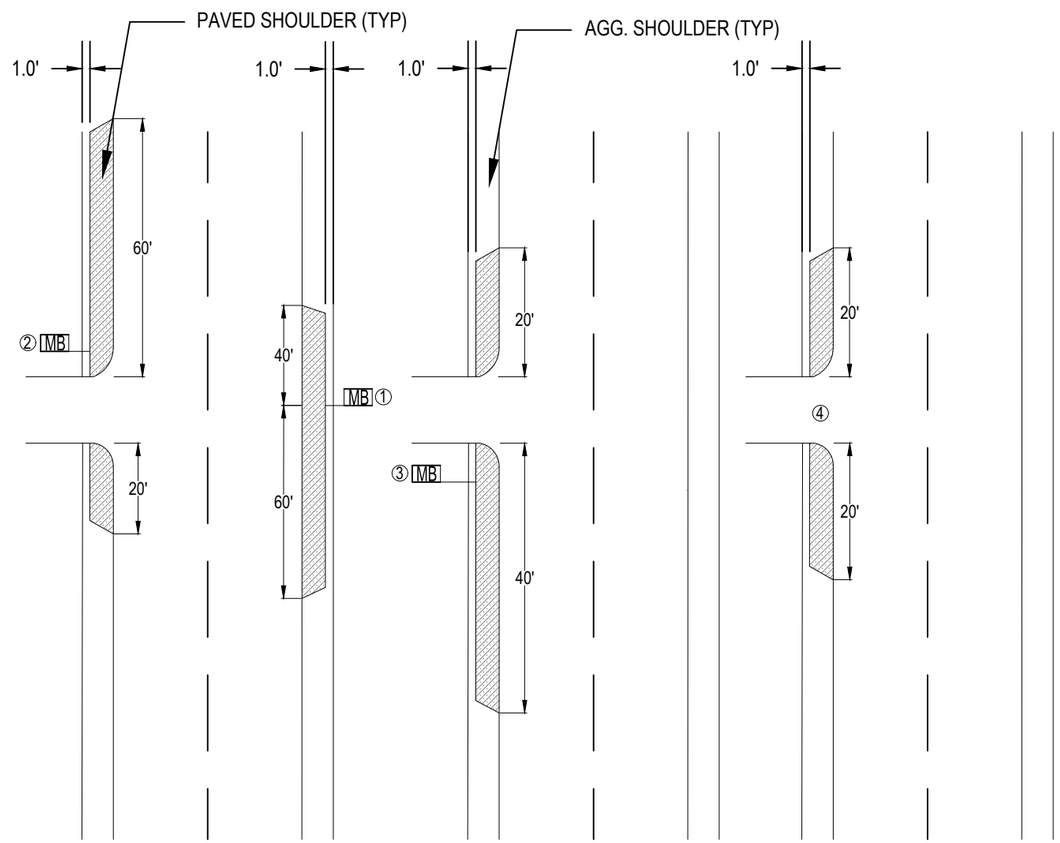
DATE: 4/14/25

SUBGRADE CORRECTION DETAIL

SP 033-606-023

SHEET NO. 6 OF 21 SHEETS

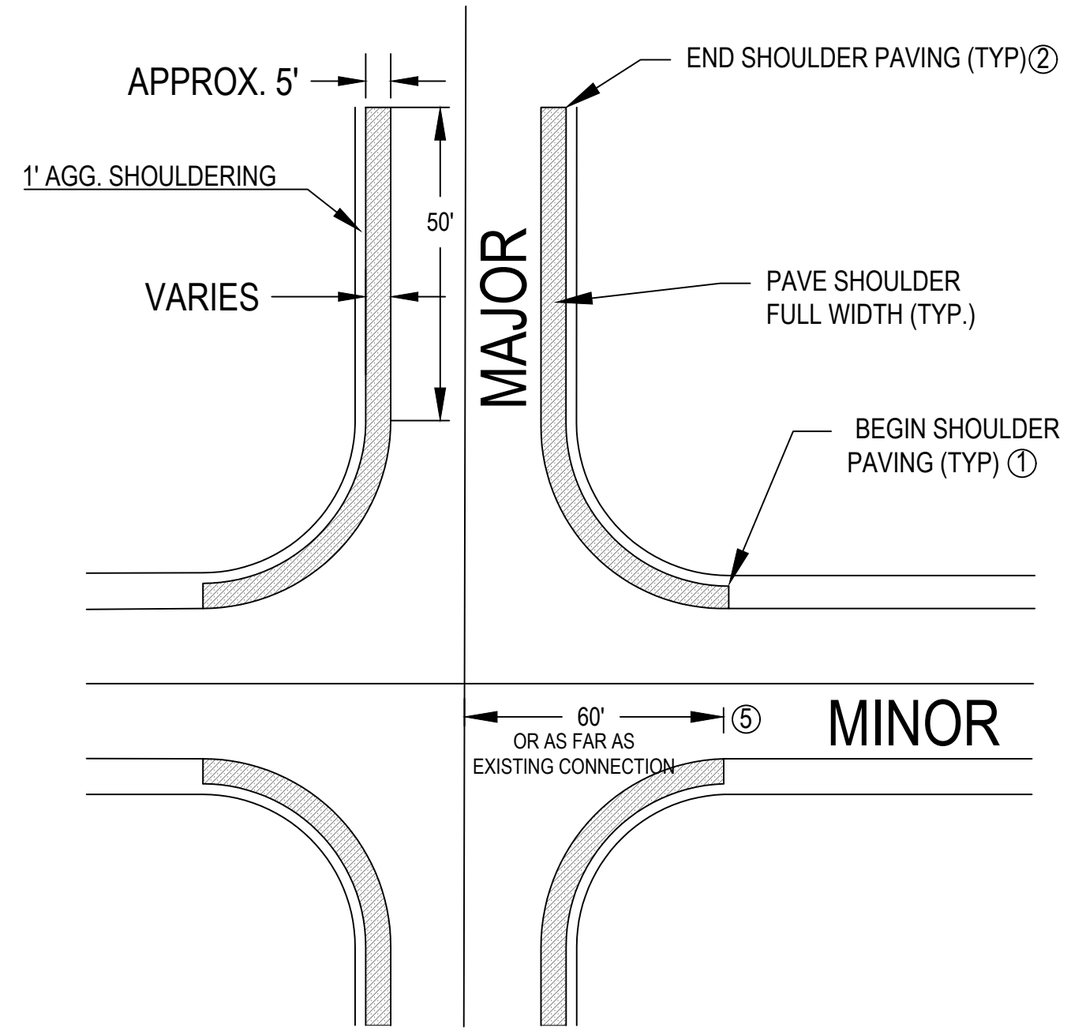
MAILBOX PAVING



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

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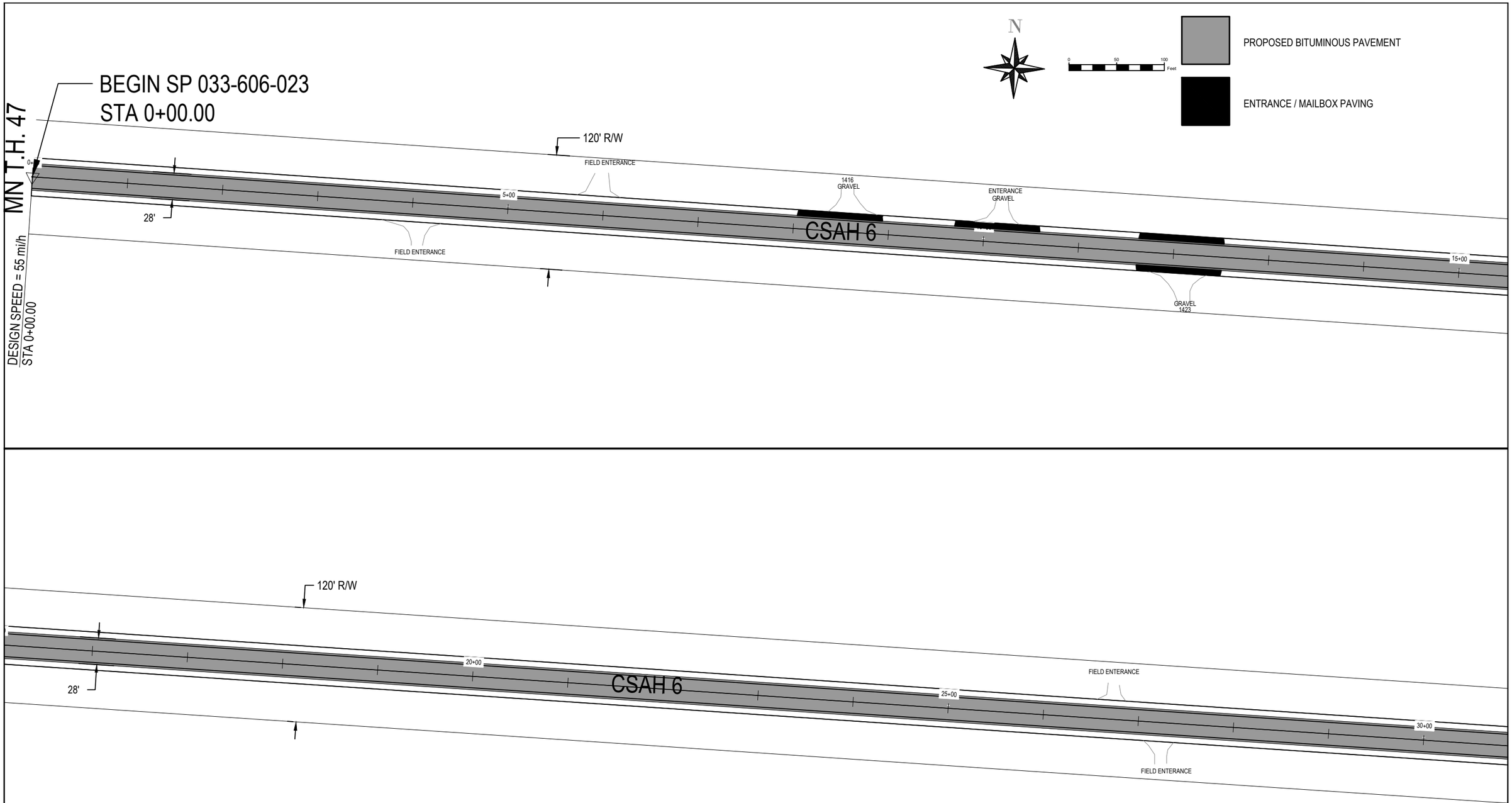
DATE: 4/14/25

MAILBOX PAVING / ROAD CONNECTION DETAIL

SP 033-606-023



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SIGNATURE: _____ COUNTY ENGINEER CHAD T. GRAMENTZ

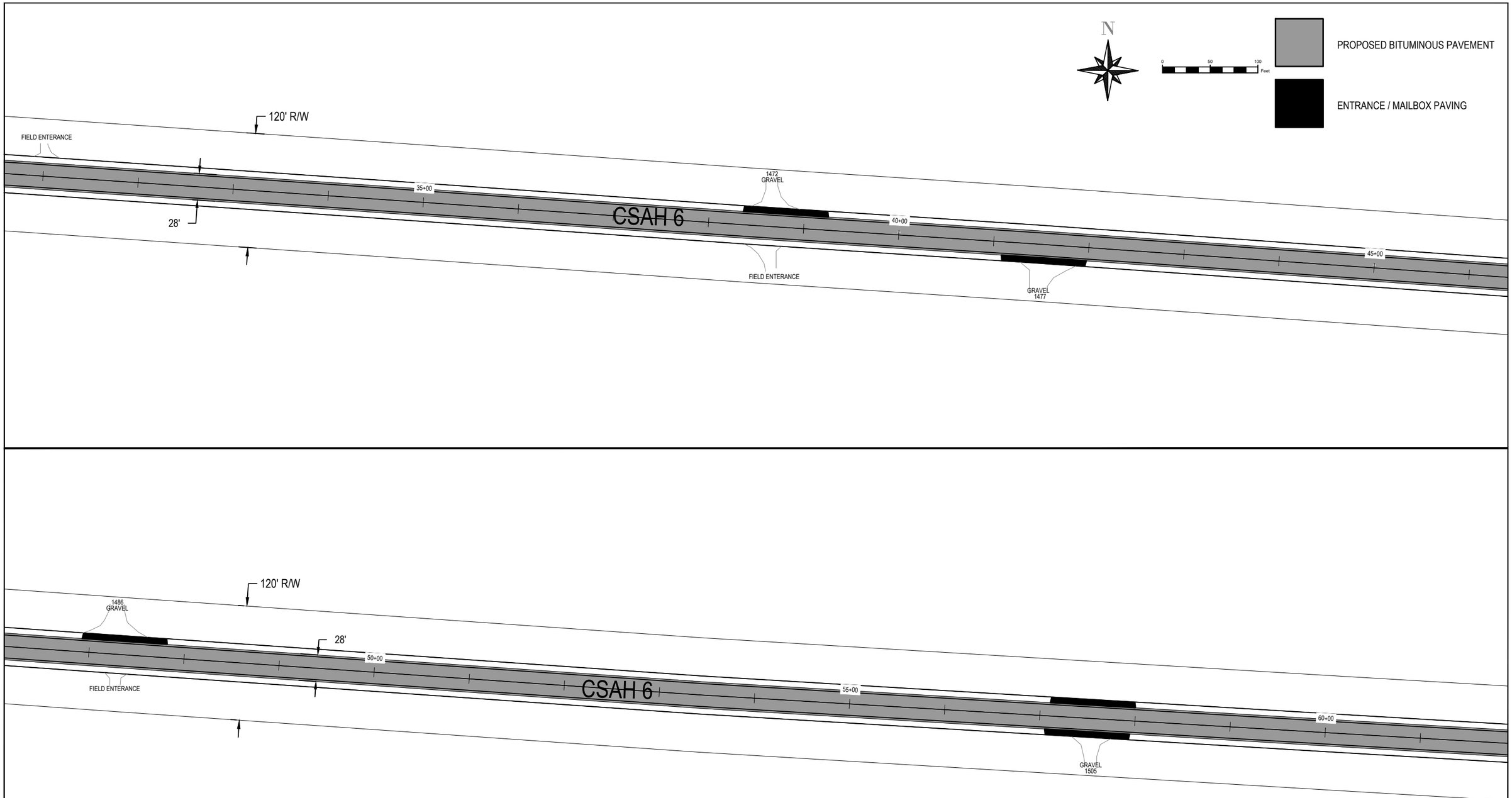
REG. NO.: 47090

DATE: 4/14/25

LAYOUT PLAN 1

SP 033-606-023

SHEET NO. 8 OF 21 SHEETS



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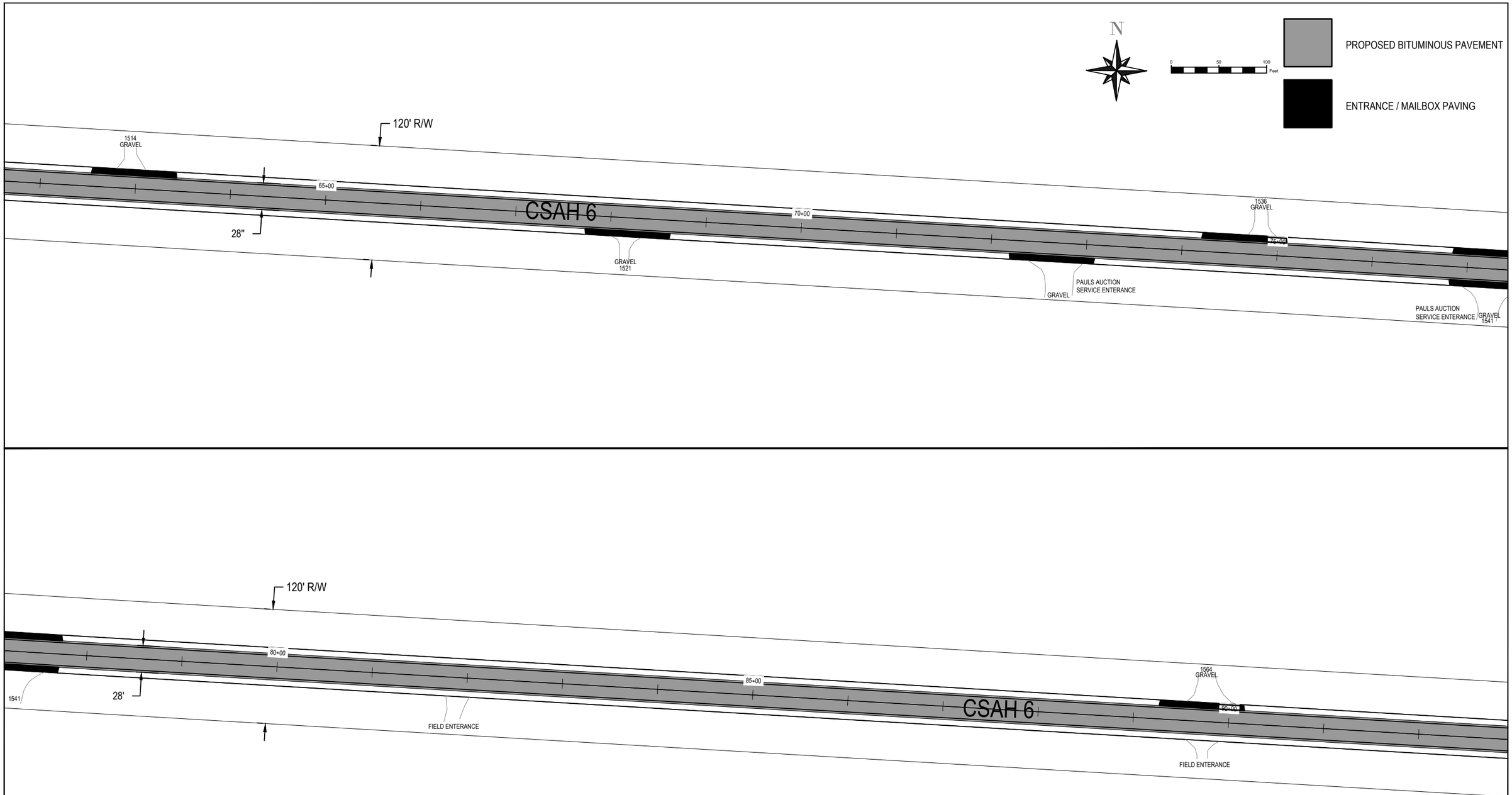
COUNTY ENGINEER CHAD T. GRAMENTZ DATE: 4/14/25

LAYOUT PLAN 2

SP 033-606-023

SHEET NO. 9 OF 21 SHEETS



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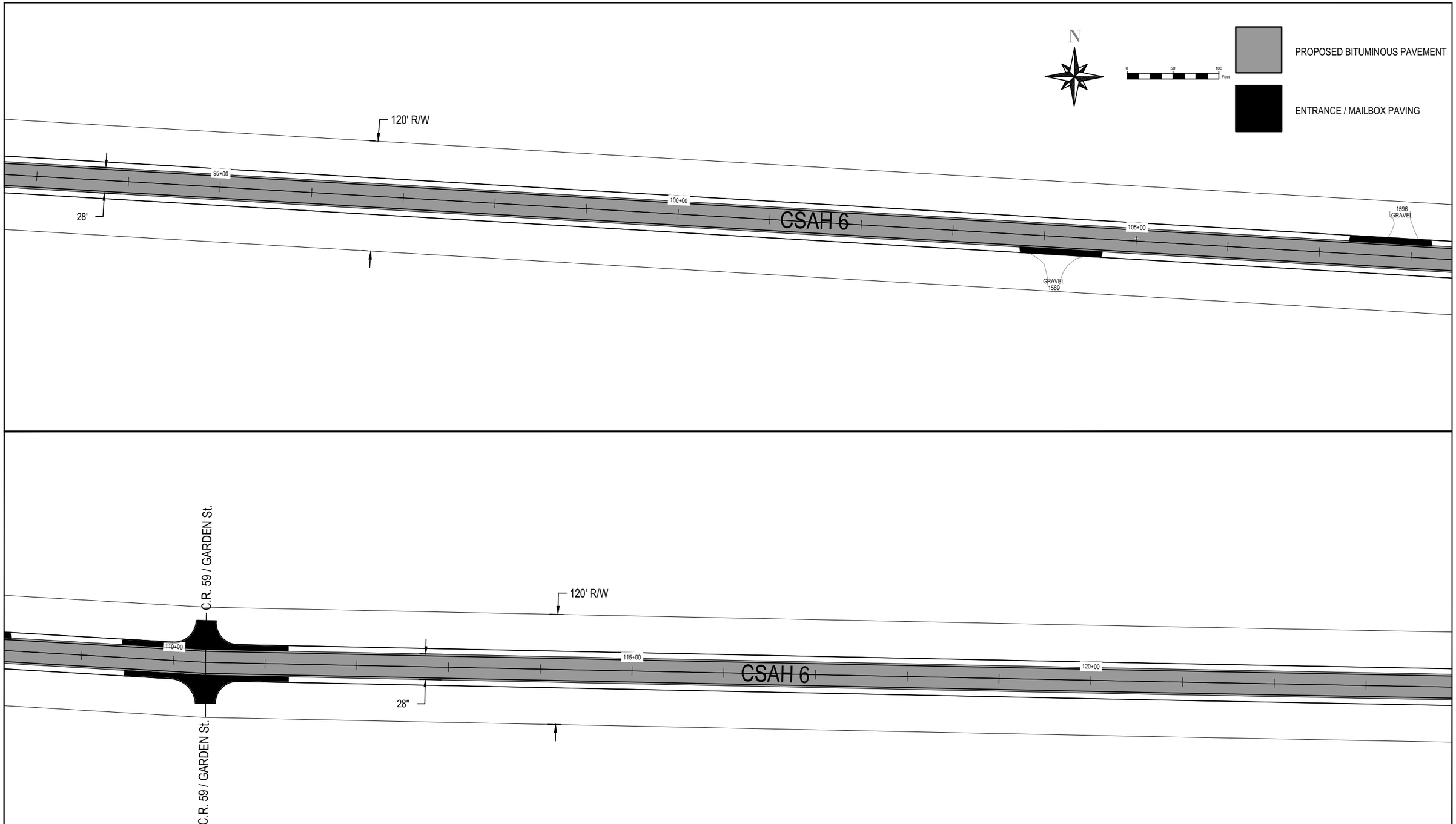
LAYOUT PLAN 3

SP 033-606-023

SHEET NO. 10 OF 21 SHEETS



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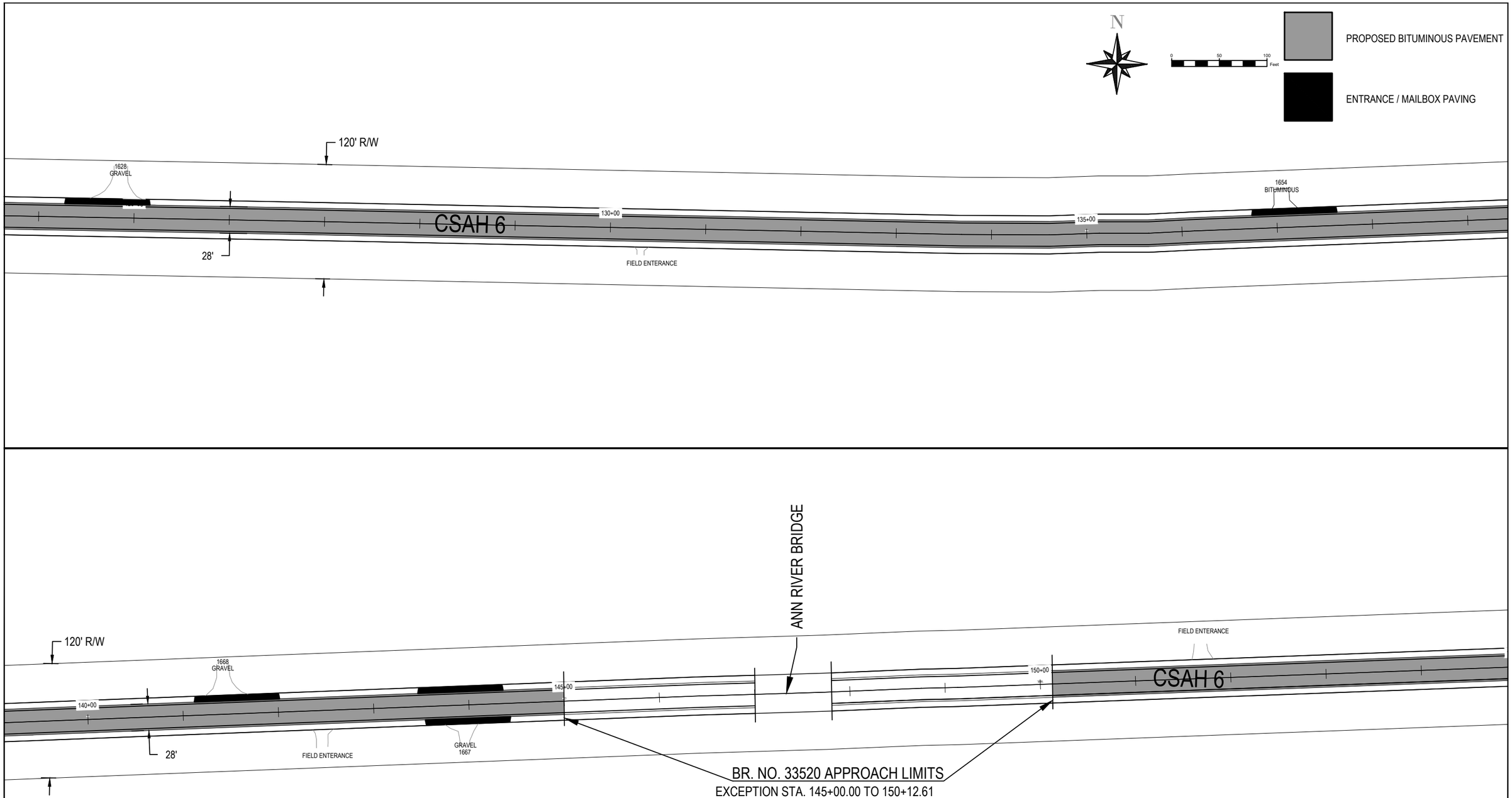
LAYOUT PLAN 4

SP 033-606-023

SHEET NO. 11 OF 21 SHEETS



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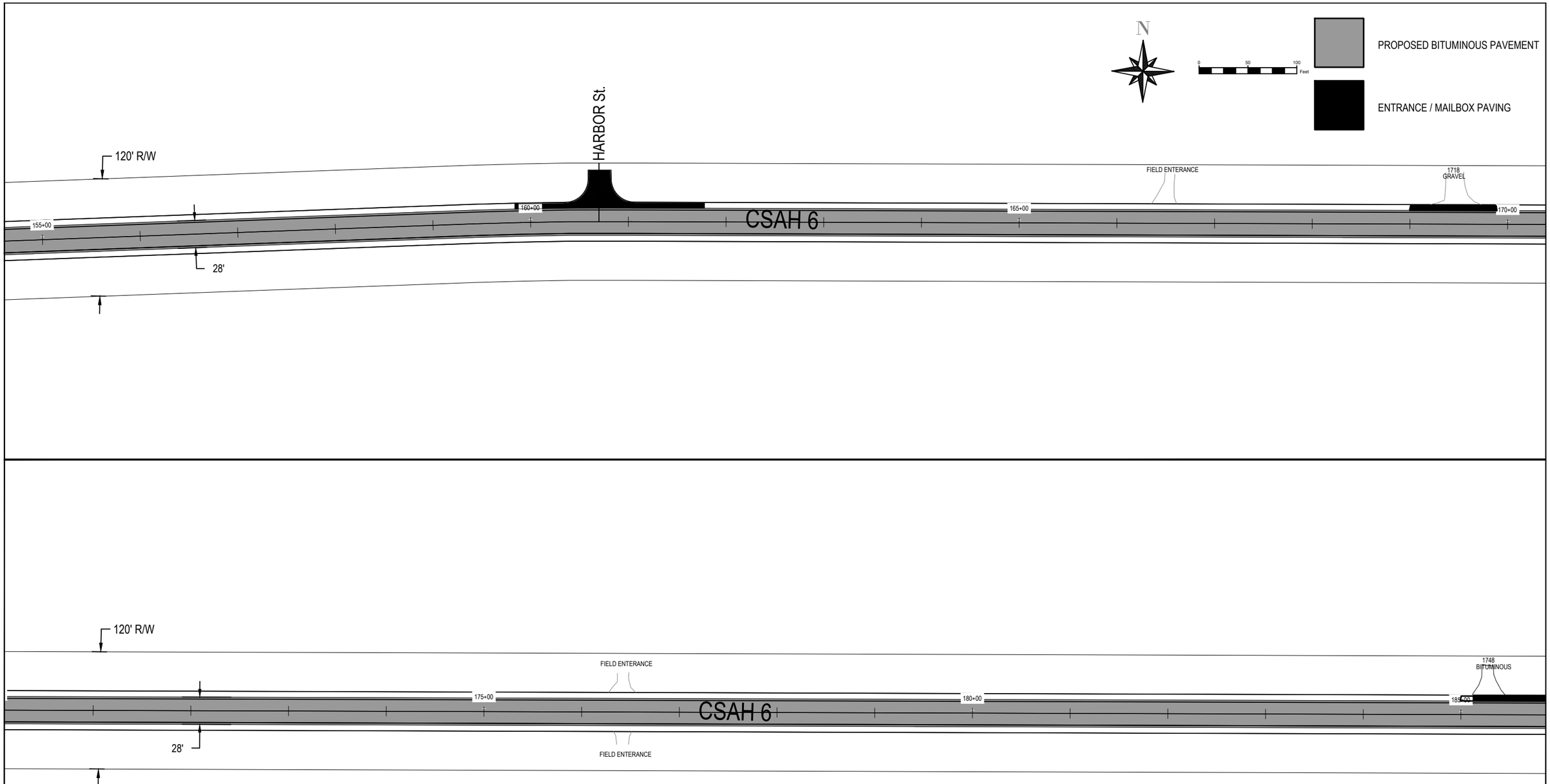
LAYOUT PLAN 5

SP 033-606-023

SHEET NO. 12 OF 21 SHEETS



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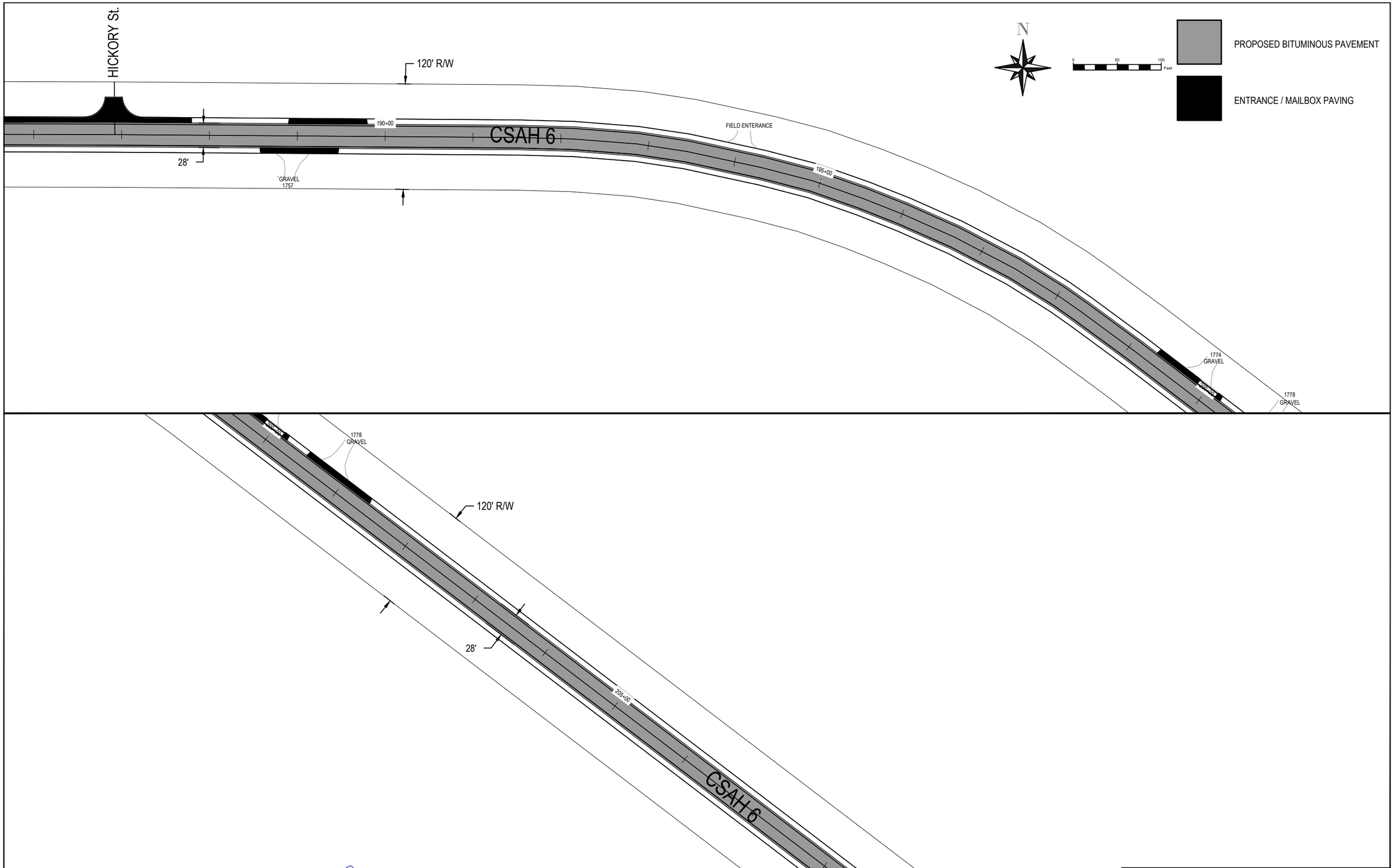
LAYOUT PLAN 6

SP 033-606-023

SHEET NO. 13 OF 21 SHEETS



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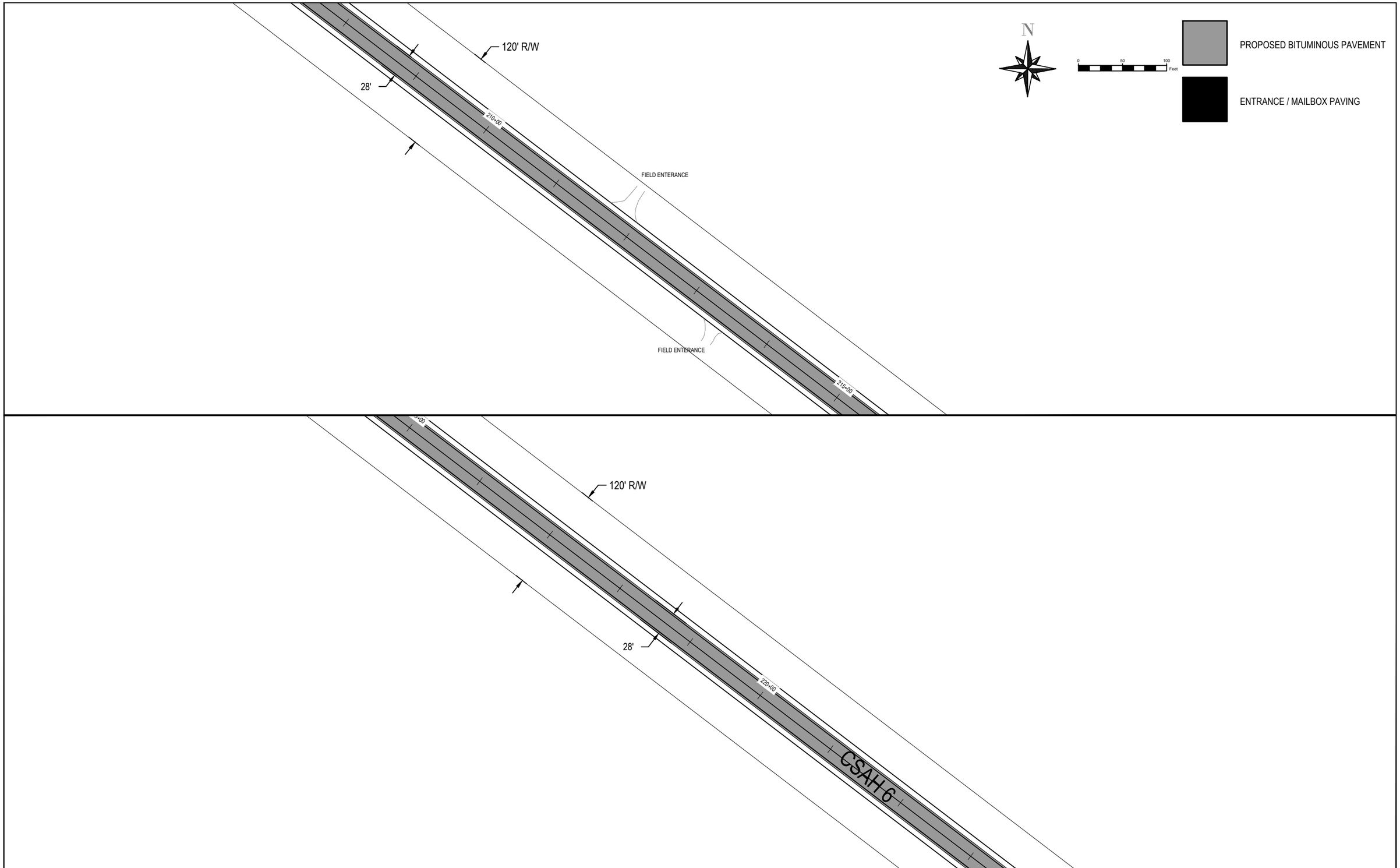
LAYOUT PLAN 7

SP 033-606-023

SHEET NO. 14 OF 21 SHEETS



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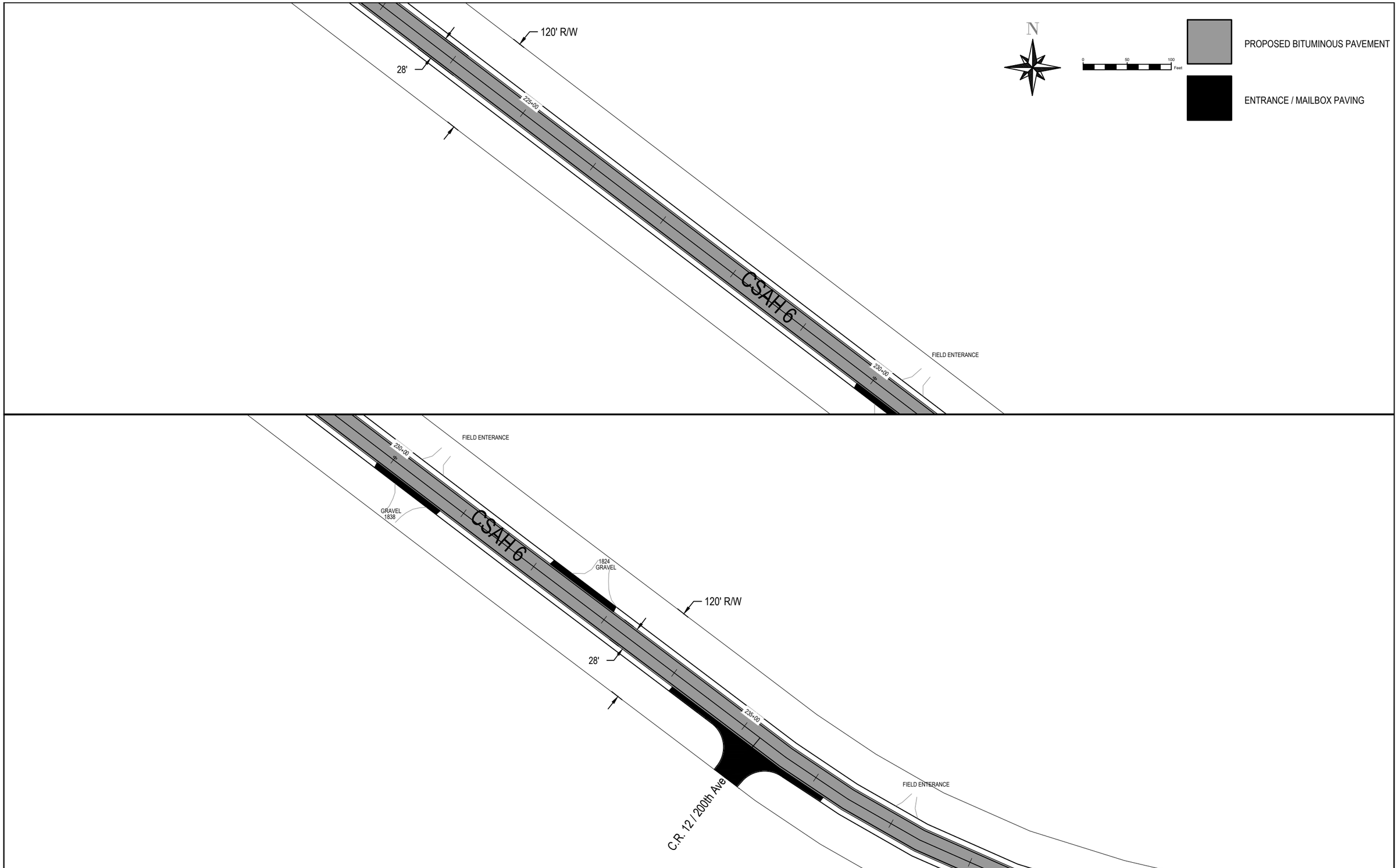
LAYOUT PLAN 8

SP 033-606-023

SHEET NO. 15 OF 21 SHEETS



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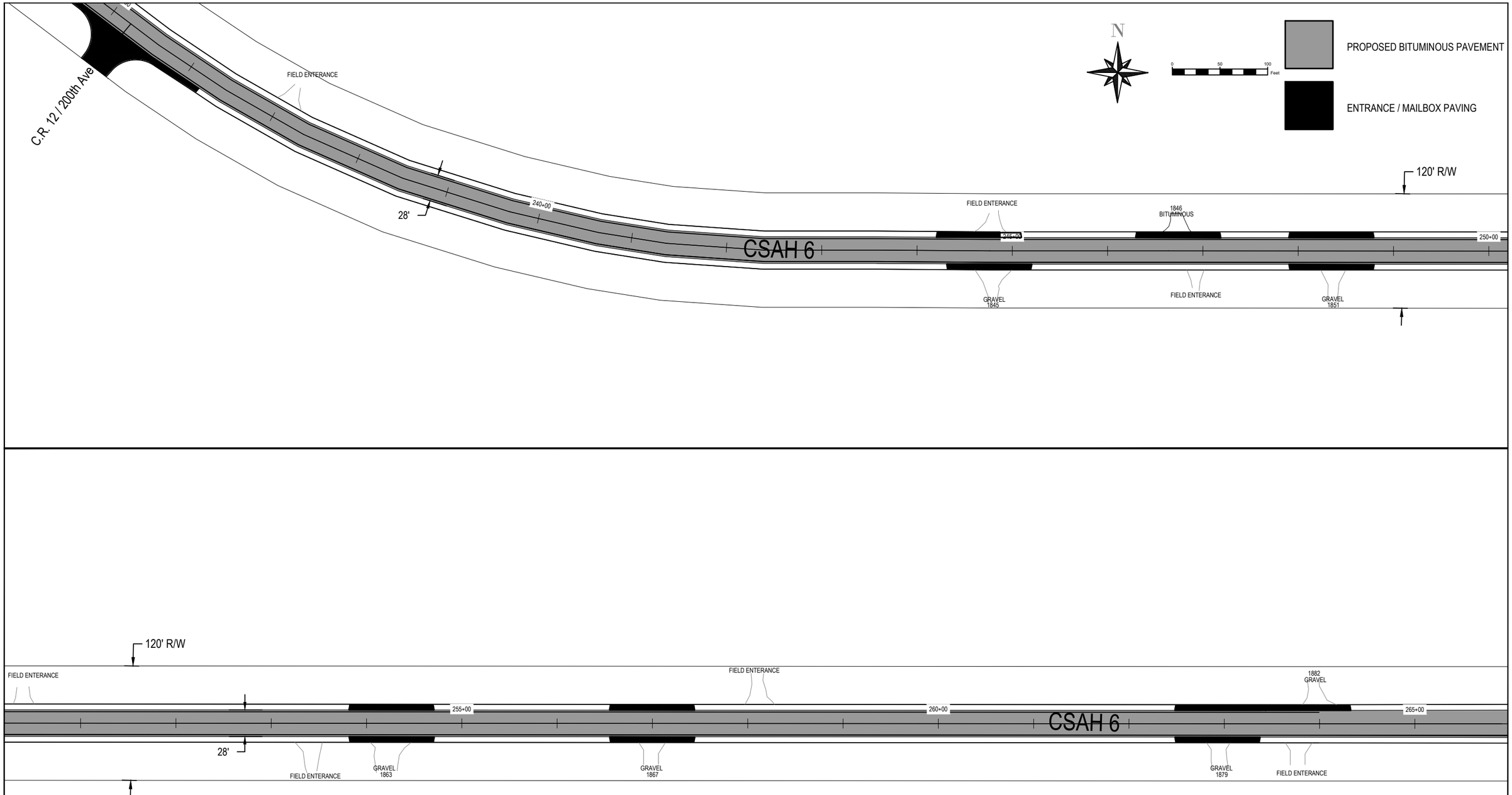
LAYOUT PLAN 9

SP 033-606-023

SHEET NO. 16 OF 21 SHEETS



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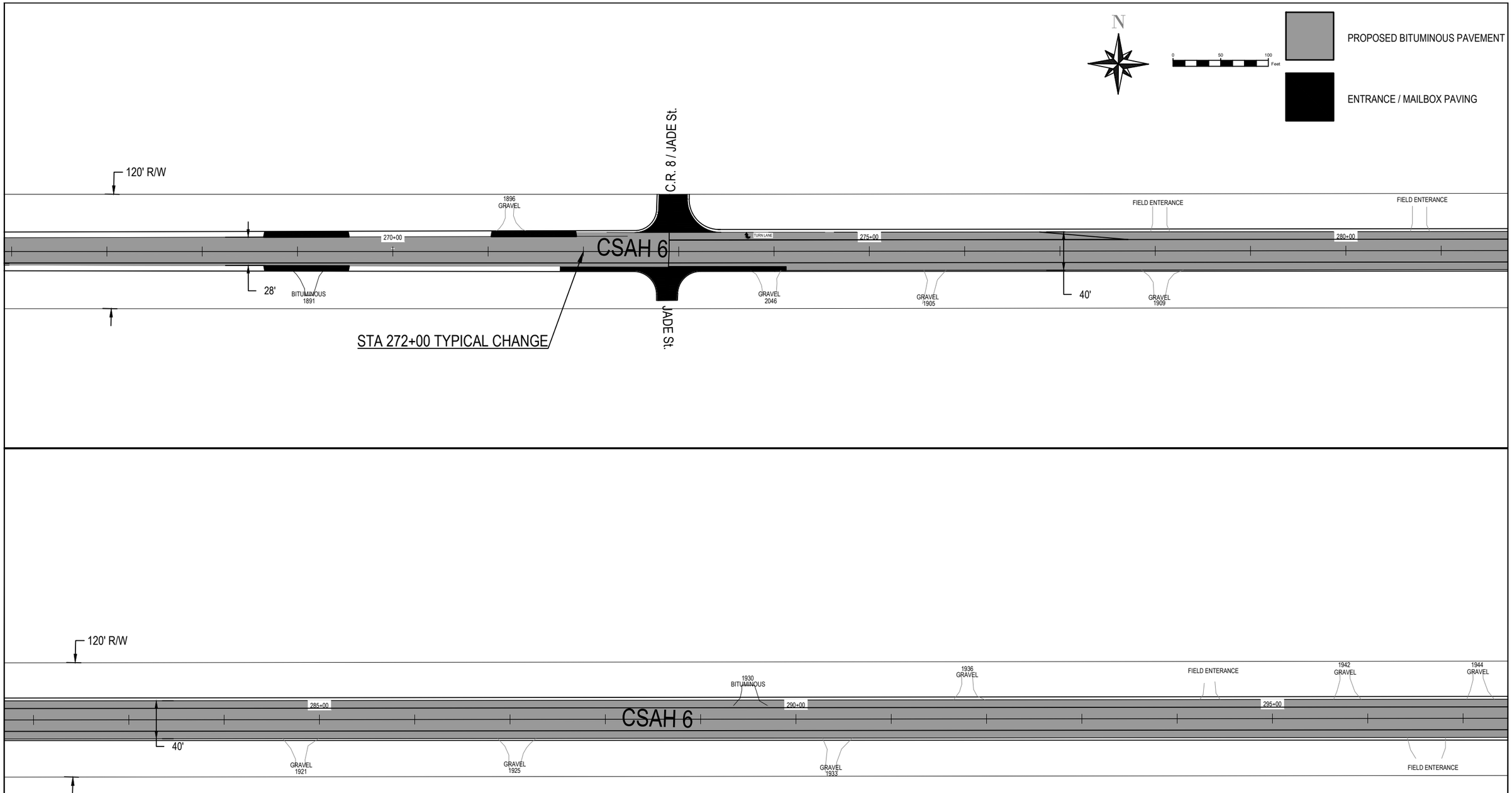
LAYOUT PLAN 10

SP 033-606-023

SHEET NO. 17 OF 21 SHEETS



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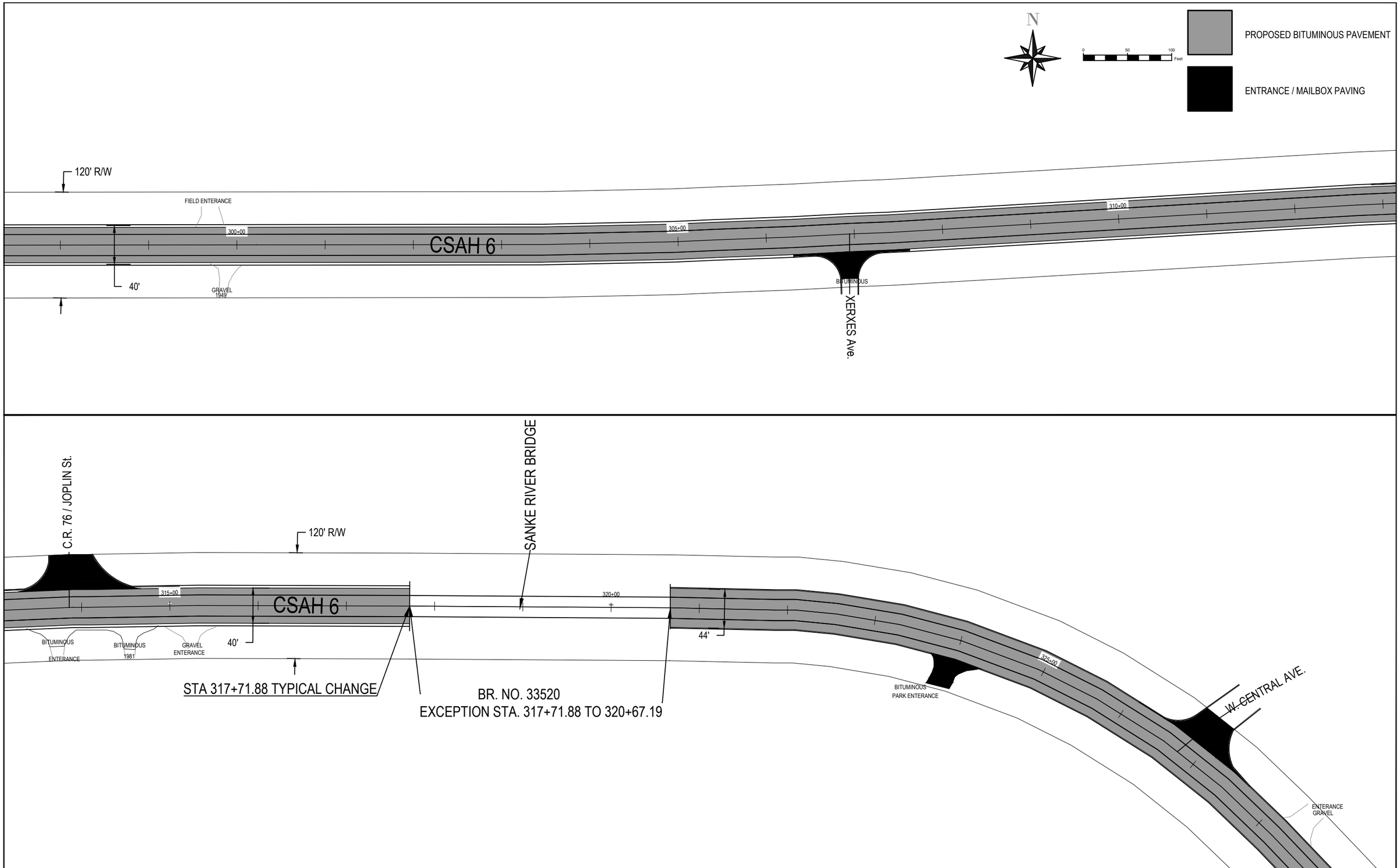
LAYOUT PLAN 11

SP 033-606-023

SHEET NO. 18 OF 21 SHEETS



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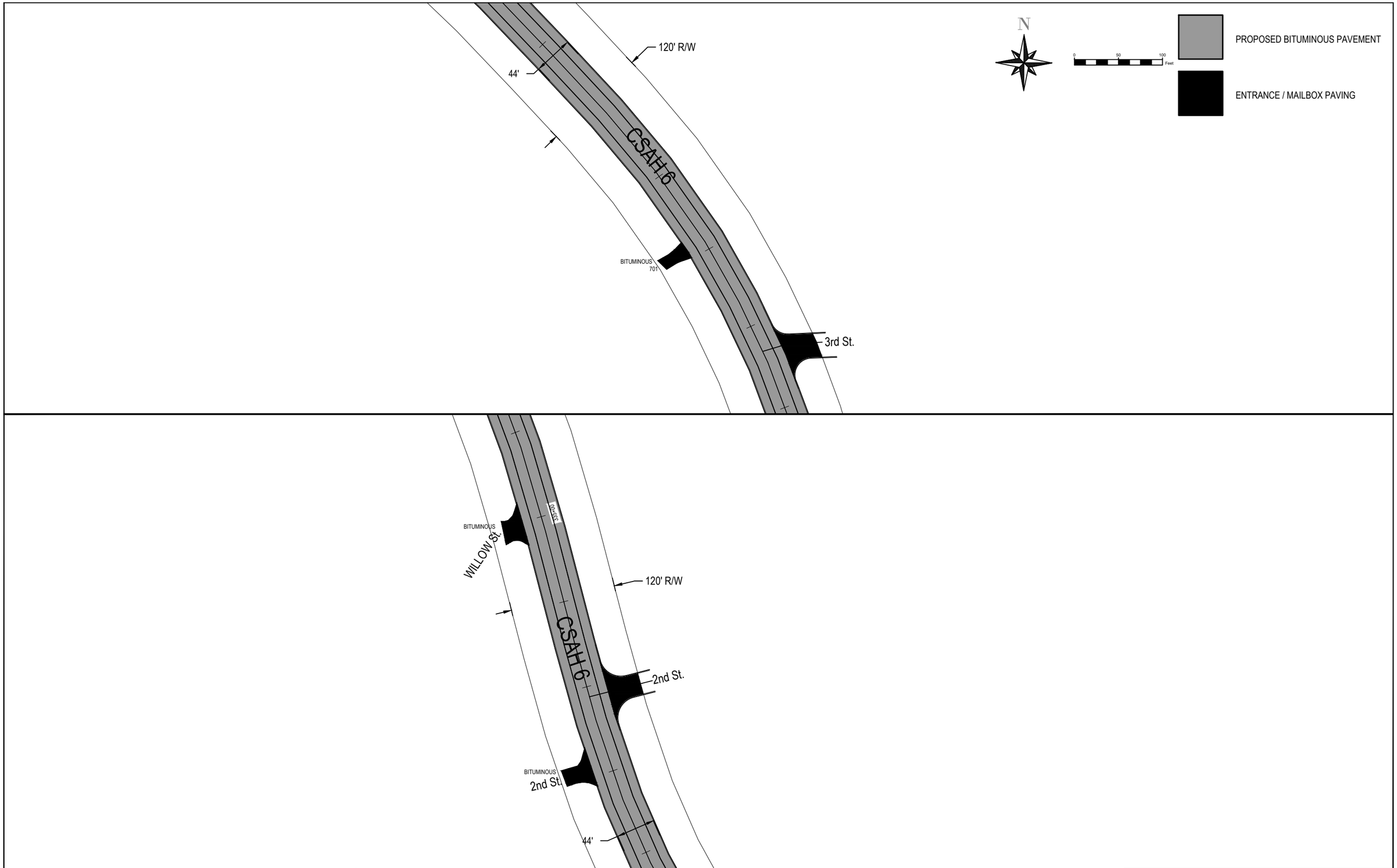
LAYOUT PLAN 12

SP 033-606-023

SHEET NO. 19 OF 21 SHEETS



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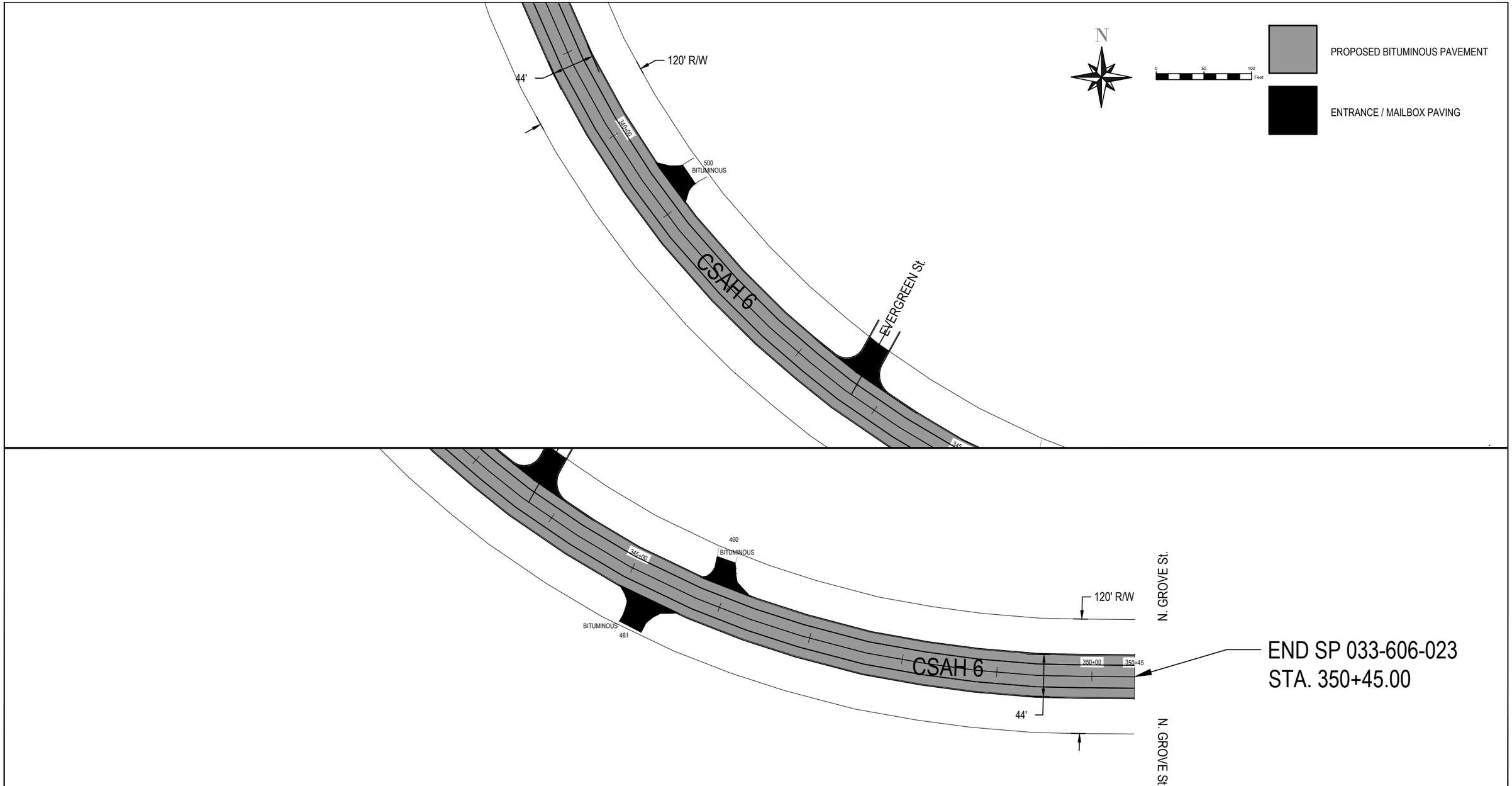
LAYOUT PLAN 13

SP 033-606-023

SHEET NO. 20 OF 21 SHEETS



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LAYOUT PLAN 14

SP 033-606-023

SHEET NO. 21 OF 21 SHEETS