

PROJECT ID: 1060-34-78

COUNTY: MILWAUKEE

ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections

TOTAL SHEETS =



DESIGN DESIGNATION

A.A.D.T.	=	NA
A.A.D.T.	=	NA
D.H.V.	=	NA
D.D.	=	NA
T.	=	NA
DESIGN SPEED	=	NA
ESALS	=	NA

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
OVERHEAD UTILITY	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

ZOO IC, DETENTION POND

AT NORTH AVENUE INTERCHANGE

NON HWY

MILWAUKEE COUNTY

STATE PROJECT NUMBER
1060-34-78

STATE PROJECT

FEDERAL PROJECT

PROJECT

CONTRACT

1060-34-78

APPROVED FOR DESIGN OF
UTILITY ADJUSTMENTS

AUGUST 9, 2019

NORTH AVENUE DETENTION POND
X=567896.52
Y=307566.49



LAYOUT
SCALE 0 2 MI.
TOTAL NET LENGTH OF CENTERLINE = 0.0

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MILWAUKEE COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD88 (2007)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	FORWARD 45
Designer	WISDOT
Project Manager	CHRIS ZACHARIAS, P.E.
Regional Examiner	
Regional Supervisor	WILLIAM S. MONE, P.E.

APPROVED FOR THE DEPARTMENT
DATE: (Signature)

E

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(CONTINUED ON NEXT SHEET)

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TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGOURND FACILITIES BEFORE YOU DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974) REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

DIGGERSHOTLINE

Dial 811 or (800) 242-8541

www.DiggersHotline.com

APPROVED FOR DESIGN
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AUGUST 9, 2019

UTILITY CONTACTS (CONTINUED)

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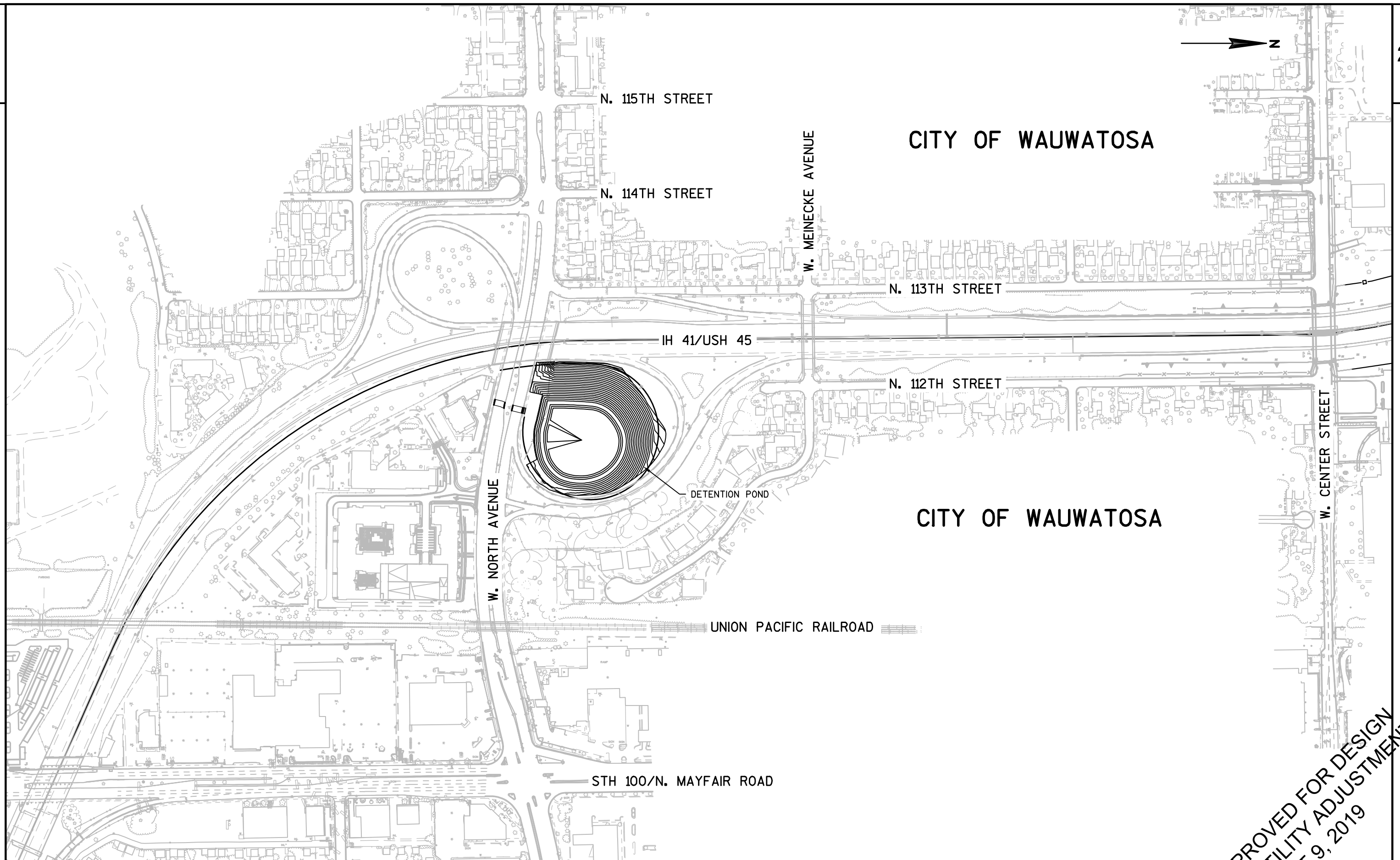
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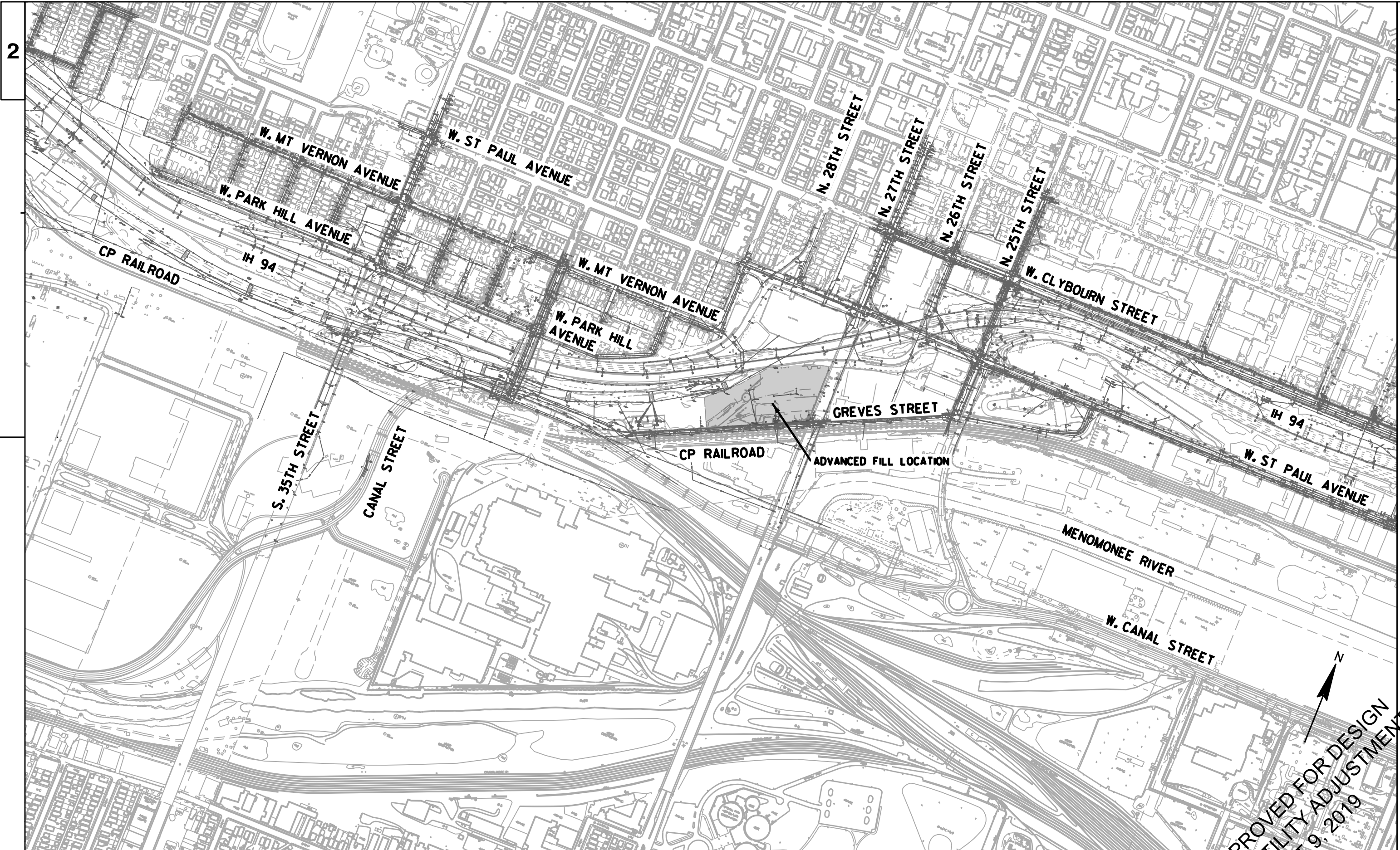
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JOHN.HAUG@DOT.WI.GOV

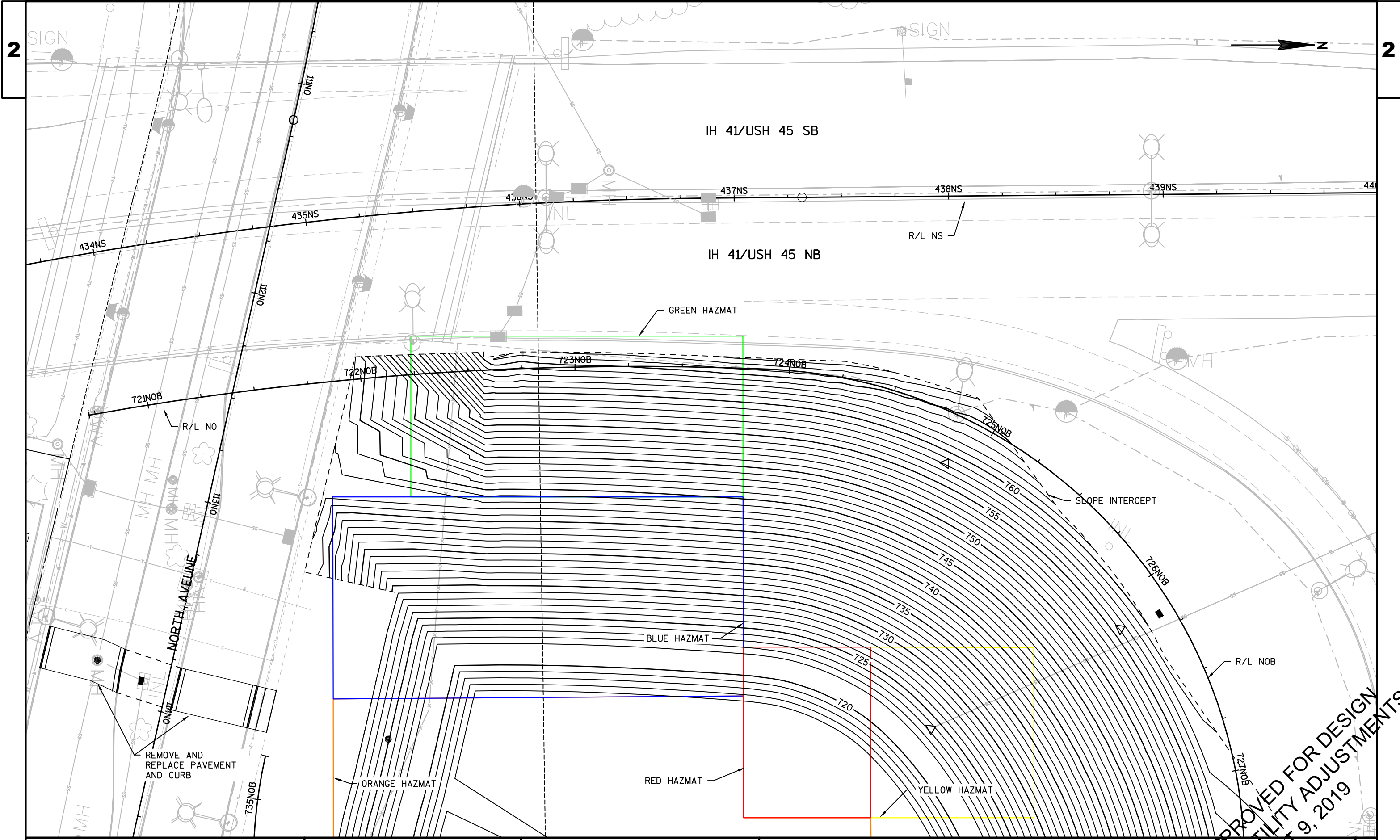
STANDARD ABBREVIATIONS

AEW	APRON ENDWALL	PCC	POINT OF COMPOUND CURVE
AGG	AGGREGATE	PE	PRIVATE ENTRANCE
BAD	BASE AGGREGATE DENSE	PI	POINT OF INTERSECTION
BM	BENCHMARK	PLE	PERMANENT LIMITED EASEMENT
C&G	CURB AND GUTTER	PT	POINT OF TANGENT
CL OR C _L	CENTER LINE OR CONSTRUCTION LINE	R	RADIUS OF CURVE
CMCP	CULVERT PIPE CORRUGATED METAL	R/L	REFERENCE LINE
CONC	CONCRETE	R/W	RIGHT OF WAY
CP	CULVERT PIPE	RC	REVERSE CROWN
CPRC	CULVERT PIPE REINFORCED CONCRETE	RCAEW	APRON END WALL FOR CULVERT PIPE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE		REINFORCED CONCRETE
	HORIZONTAL ELLIPTICAL	REQD	REQUIRED
CSD	CONCRETE SURFACE DRAIN	RHF	RIGHT HAND FORWARD
CY	CUBIC YARD	RO	RUN OFF LENGTH
D	DEGREE OF CURVE	RRSP	RAILROAD SPIKE
Δ	DELTA	RT	RIGHT
DISCH	DISCHARGE	SLV	SALVAGED
FE	FIELD ENTRANCE	SB	SOUTHBOUND
HMA	HOT MIX ASPHALTIC	SDD	STANDARD DETAIL DRAWING
INV	INVERT	SE	SUPER ELEVATION
L	LENGTH OF CURVE	SF	SQUARE FOOT
LHF	LEFT HAND FORWARD	STA	STATION
LT	LEFT	SY	SQUARE YARD
MIN	MINIMUM	T	TANGENT LENGTH
M/L	MAINLINE	TLE	TEMPORARY LIMITED EASEMENT
NB	NORTHBOUND	VCL	VERTICAL CURVE LENGTH
NC	NORMAL CROWN	VPC	POINT VERTICAL CURVE
PAVT	PAVEMENT	VPI	POINT OF VERTICAL INTERSECTION
PC	POINT OF CURVE	VPT	POINT OF VERTICAL TANGENT

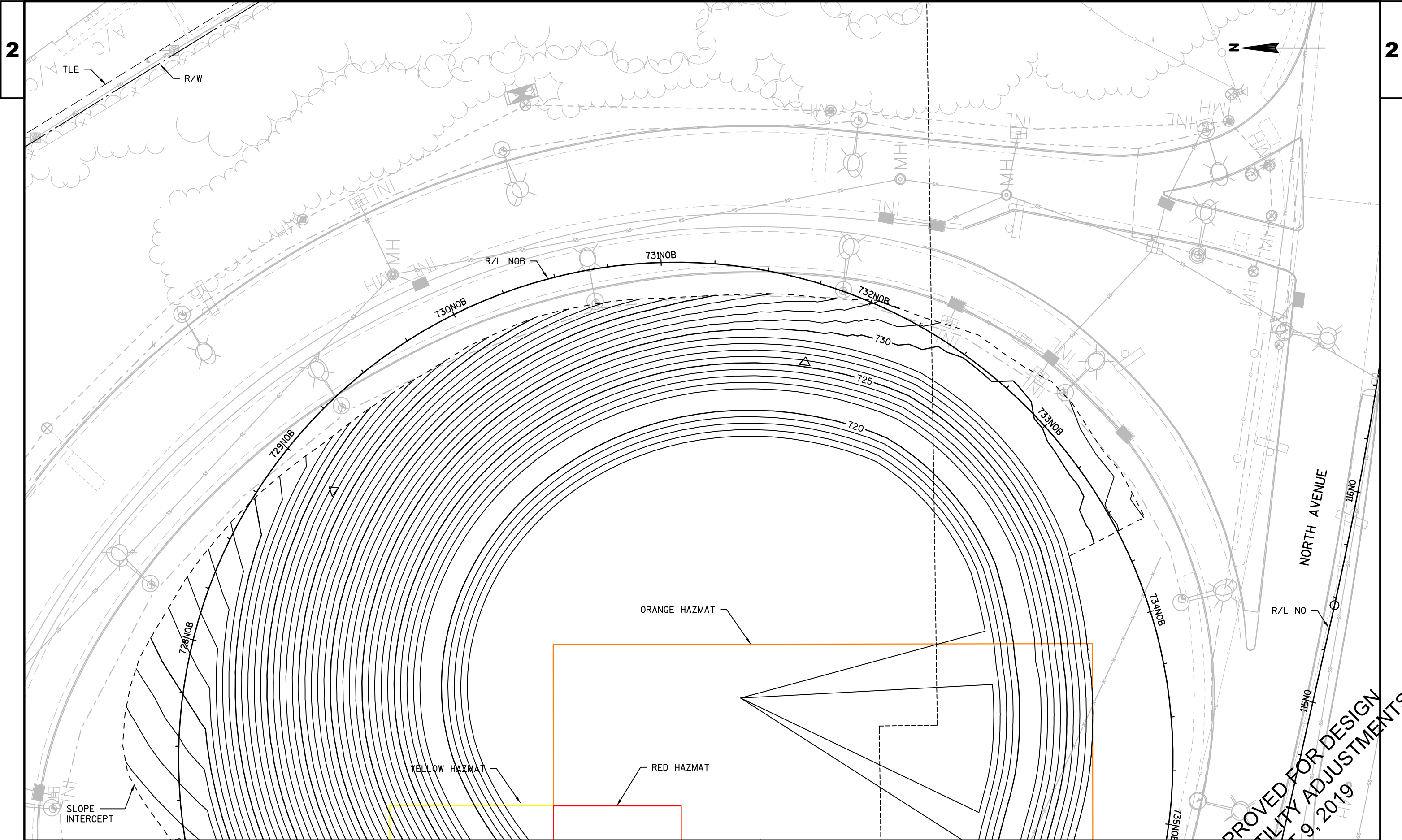
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OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



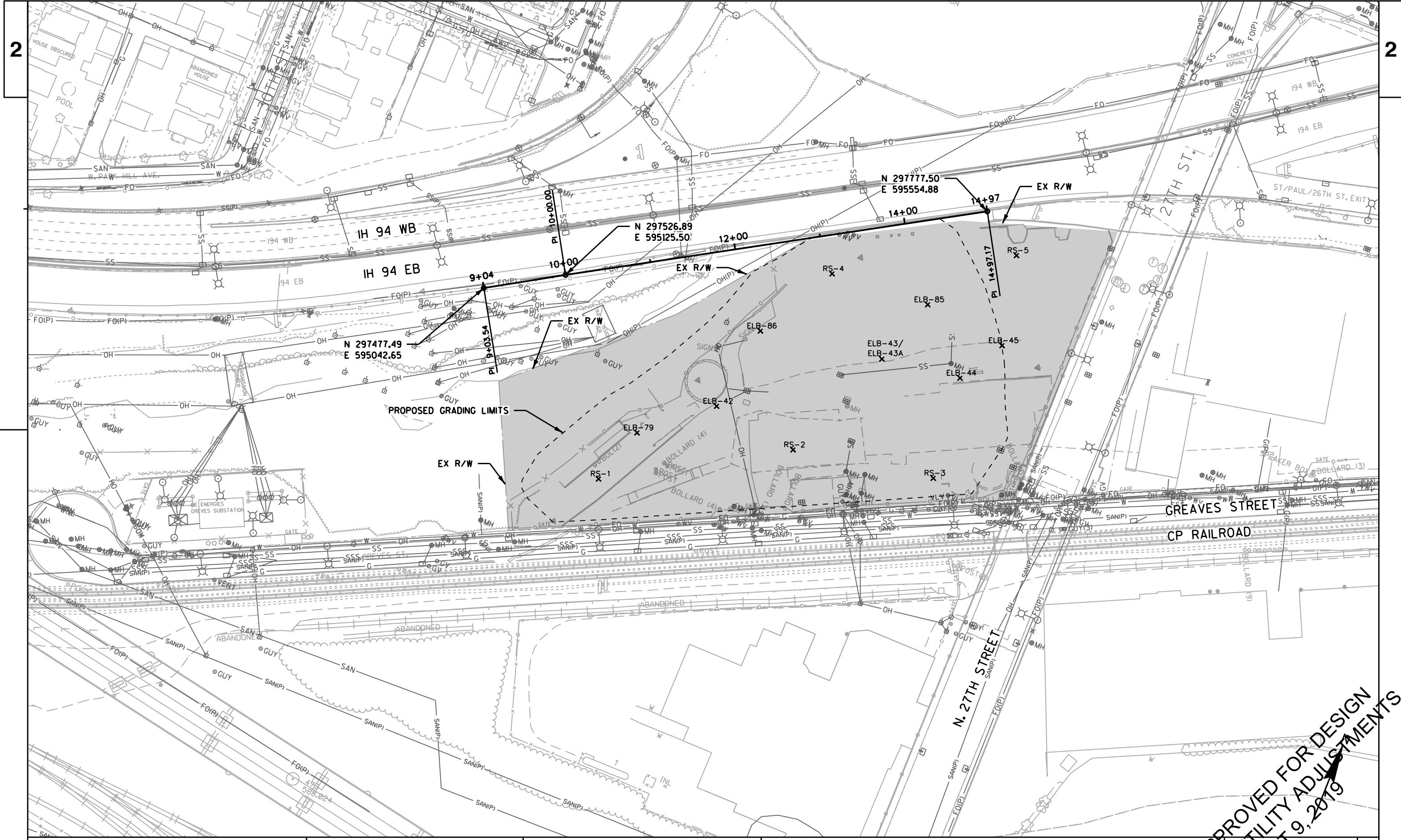




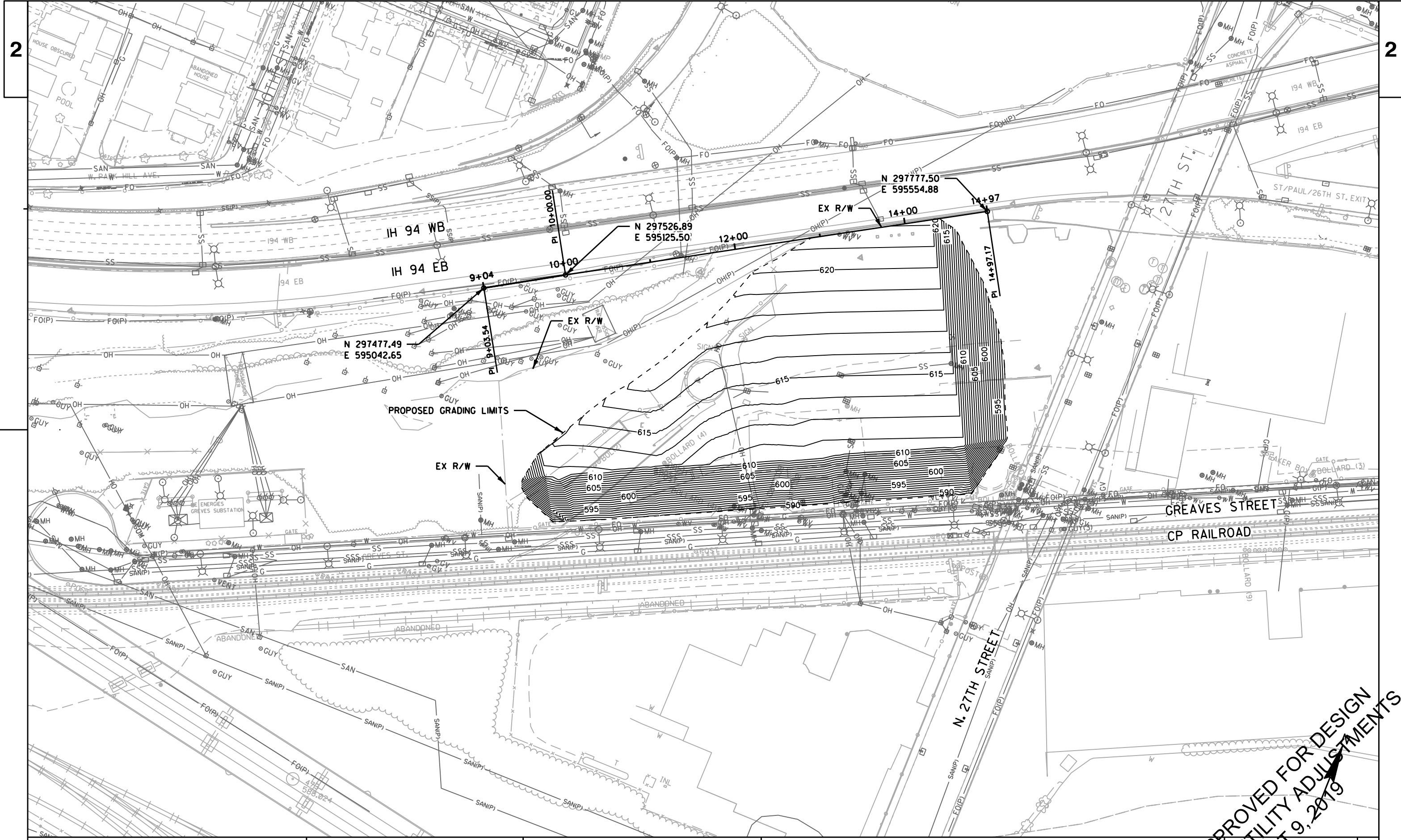
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GENERAL DRAINAGE NOTES

1. LOCATION OF STRUCTURES IN CURB AND GUTTER OR BARRIER SECTION REFERS TO CURB AND GUTTER OR BARRIER FLOW LINE. LOCATION OF STRUCTURES NOT IN CURB AND GUTTER OR BARRIER SECTION REFERS TO CENTER OF STRUCTURE OR AS NOTED ON PLAN.
2. RIM ELEVATIONS ARE GIVEN AT FLOW LINE OF INLET GRATE OR AT CENTER OF MANHOLE GRATE. SEE STRUCTURE LOCATION DETAIL.
3. PLAN LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE AND IS USED FOR ESTIMATING. PIPE LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM INSIDE FACE OF STRUCTURE TO INSIDE FACE OF STRUCTURE AND IS USED TO COMPUTE PIPE SLOPE.
4. UTILITY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE. LOCATIONS SHOWN ARE TAKEN FROM EXISTING RECORDS AND BEST INFORMATION AVAILABLE FROM EXISTING PLANS. IT IS EXPECTED THAT THERE MAY BE DISCREPANCIES AND OMISSIONS IN THE LOCATION OF UTILITIES AND STRUCTURES SHOWN. VERIFY ALL LOCATIONS IN THE FIELD.
5. UNDERDRAINS INSTALLED IN FRONT OF RETAINING WALLS MAY BE INSTALLED AT A DEPTH OTHER THAN 12" TYPICAL. SEE STRUCTURE PLANS FOR DETAILS.
6. STORM SEWER PLAN & PROFILE NOTE:
PLAN VIEW HIGHLIGHTS CORRESPOND TO PROFILES SHOWN IN PROFILE BELOW PLAN VIEW (SAME SHEET). STORM SEWER STRUCTURES AND PIPES LABELED IN PLAN VIEW WITHOUT HIGHLIGHT ARE SHOWN ON THE NEXT PROFILE ONLY SHEET(S).

STORM SEWER LEGEND

- EXISTING
NE###

EXISTING DRAINAGE STRUCTURE
- N###

PROPOSED DRAINAGE STRUCTURE
- NT###

TEMPORARY DRAINAGE STRUCTURE
- PROPOSED MANHOLE
- PROPOSED INLET
- △

PROPOSED ENDWALL
- ←

PROPOSED STORM SEWER
- EXISTING
PE###

EXISTING STORM SEWER PIPE
- P###

PROPOSED STORM SEWER PIPE
- PT###

TEMPORARY STORM SEWER PIPE
- ~~~~~

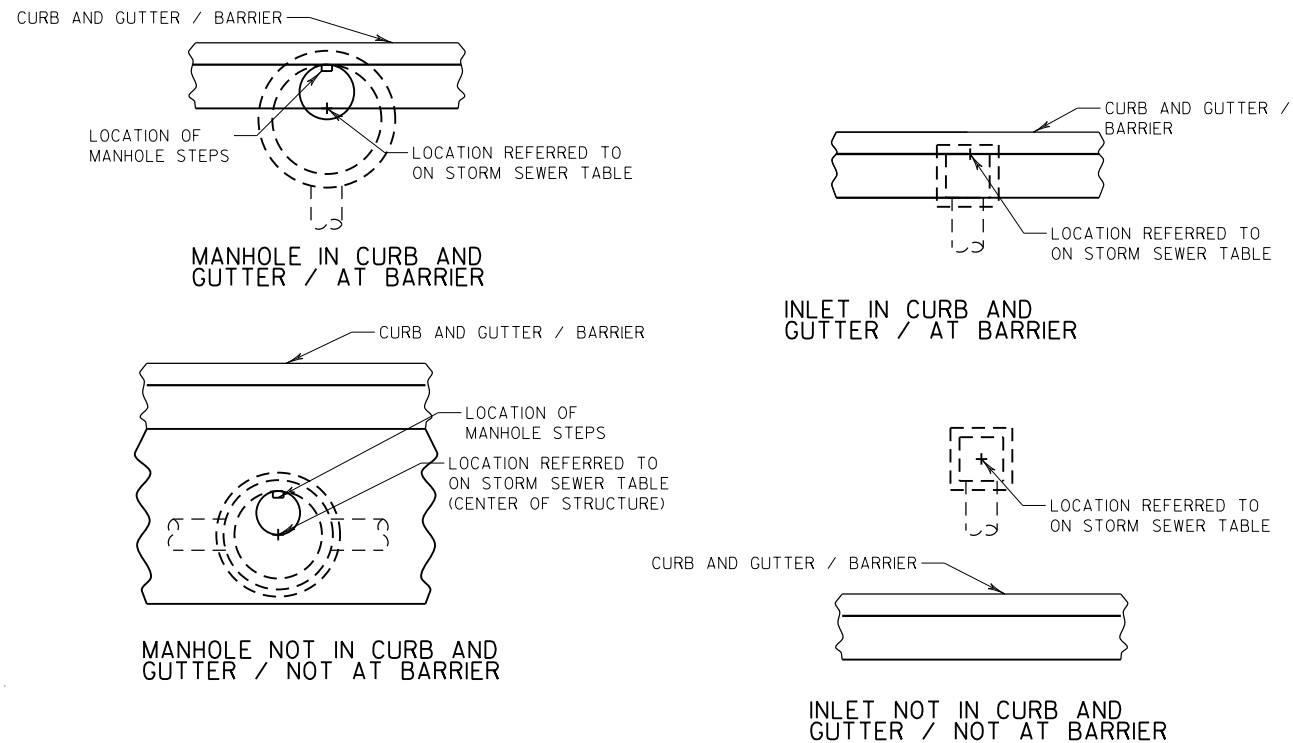
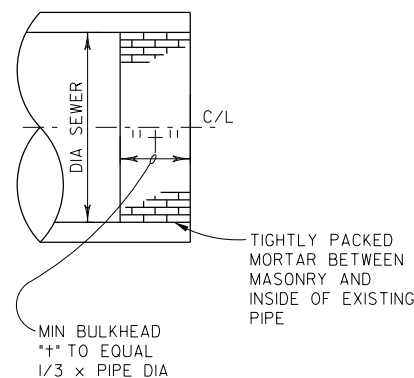
TEMPORARY SHORING

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AUGUST 9, 2019

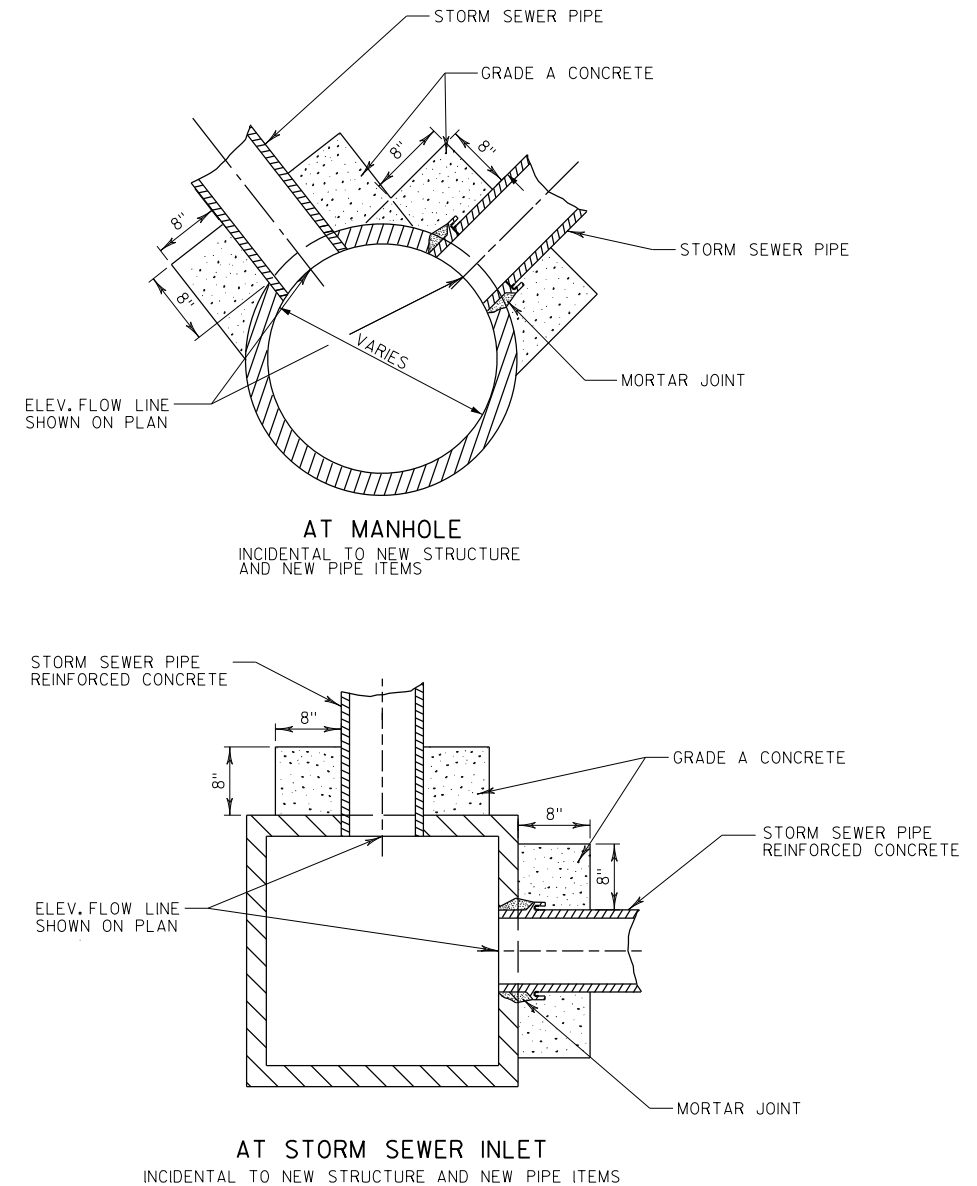
NOTE

1) LOCATION OF STRUCTURE MAY BE ADJUSTED TO FIT FIELD CONDITIONS.

2) LOCATION AND SIZE OF STRUCTURE COVER OPENINGS DEPENDS ON TYPE OF CASTING. CASTING TYPES ARE SHOWN ON THE STORM SEWER TABLE.

**STRUCTURE LOCATION DETAIL****BULKHEAD PIPE MASONRY**

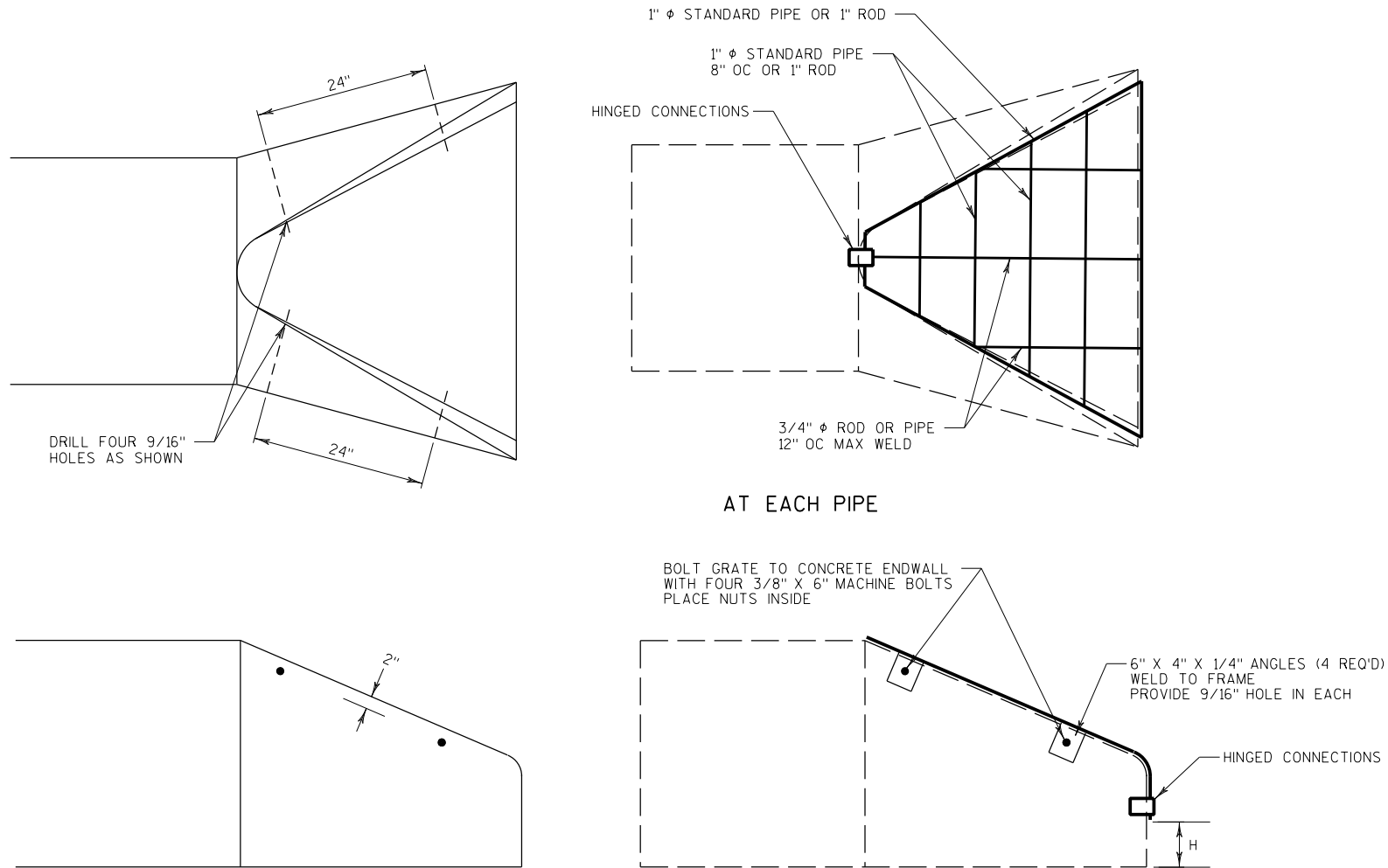
ITEM TO BE PAID FOR UNDER ITEM "SEALING PIPES" FOR LOCATIONS SEE MISCELLANEOUS QUANTITIES SHEETS

**NOTE**

CONCRETE COLLAR TO BE PAID AS A BID ITEM WHEN CONNECTING AN EXISTING PIPE TO A NEW STRUCTURE.

CONCRETE COLLAR DETAIL

FOR LOCATIONS SEE MISCELLANEOUS QUANTITIES SHEETS



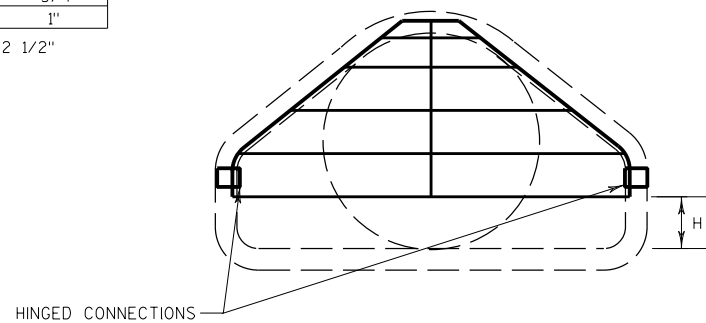
GRATE BAR SIZES
(STANDARD DESIGN)

ARCH PIPE	ROUND PIPE	PIPE SIZE	HOLE DIAMETER REQUIRED	BOLT DIAMETER	BAR SIZE
		12" - 24"	3/4"	5/8"	5/8"
		27" - 48"	7/8"	3/4"	3/4"
		54" - 90"	1 1/8"	1"	1"
		22" - 29"	3/4"	5/8"	5/8"
		36" - 59"	7/8"	3/4"	3/4"
		65" - 85"	1 1/8"	1"	1"

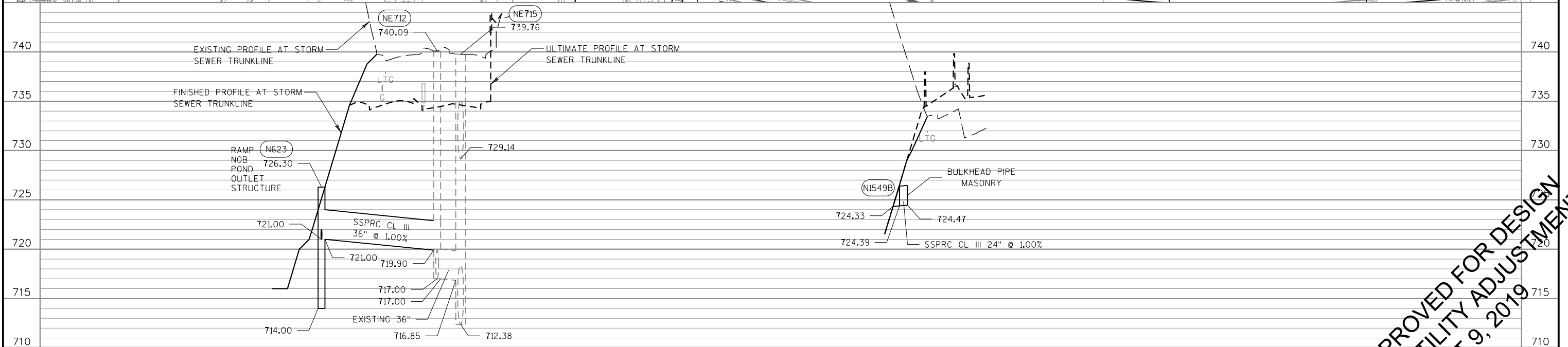
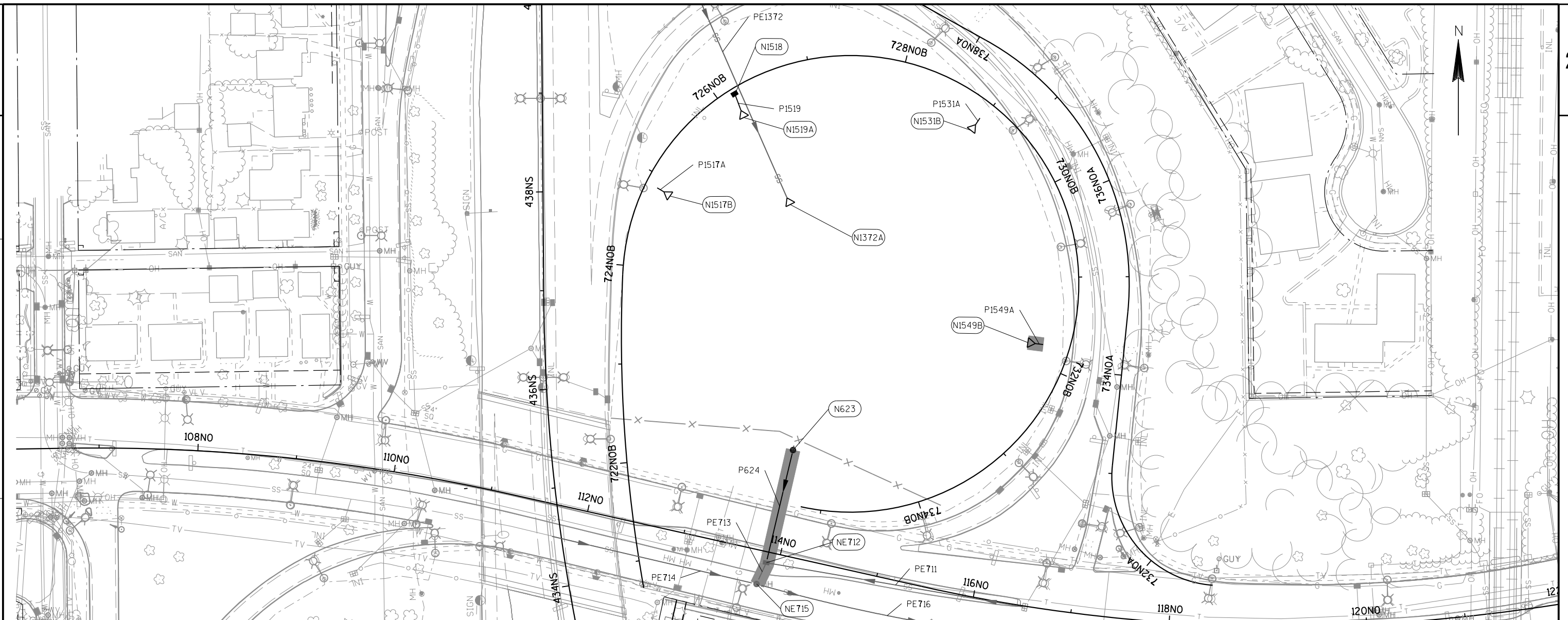
BOLT LENGTH = PIPE WALL THICKNESS + 2 1/2"

GRATE CLEARANCE HEIGHT

ROUND PIPE		ARCH PIPE	
PIPE SIZE	H	PIPE SIZE	H
12"	2 1/2"	22" - 29"	4"
15"	3"	36" - 44"	5"
18" - 24"	4"	51" - 65"	6"
27" - 36"	5"	73" - 85"	7"
42" - 54"	6"		
60" - 72"	7"		
78" - 90"	8"		



PIPE GRATE DETAIL

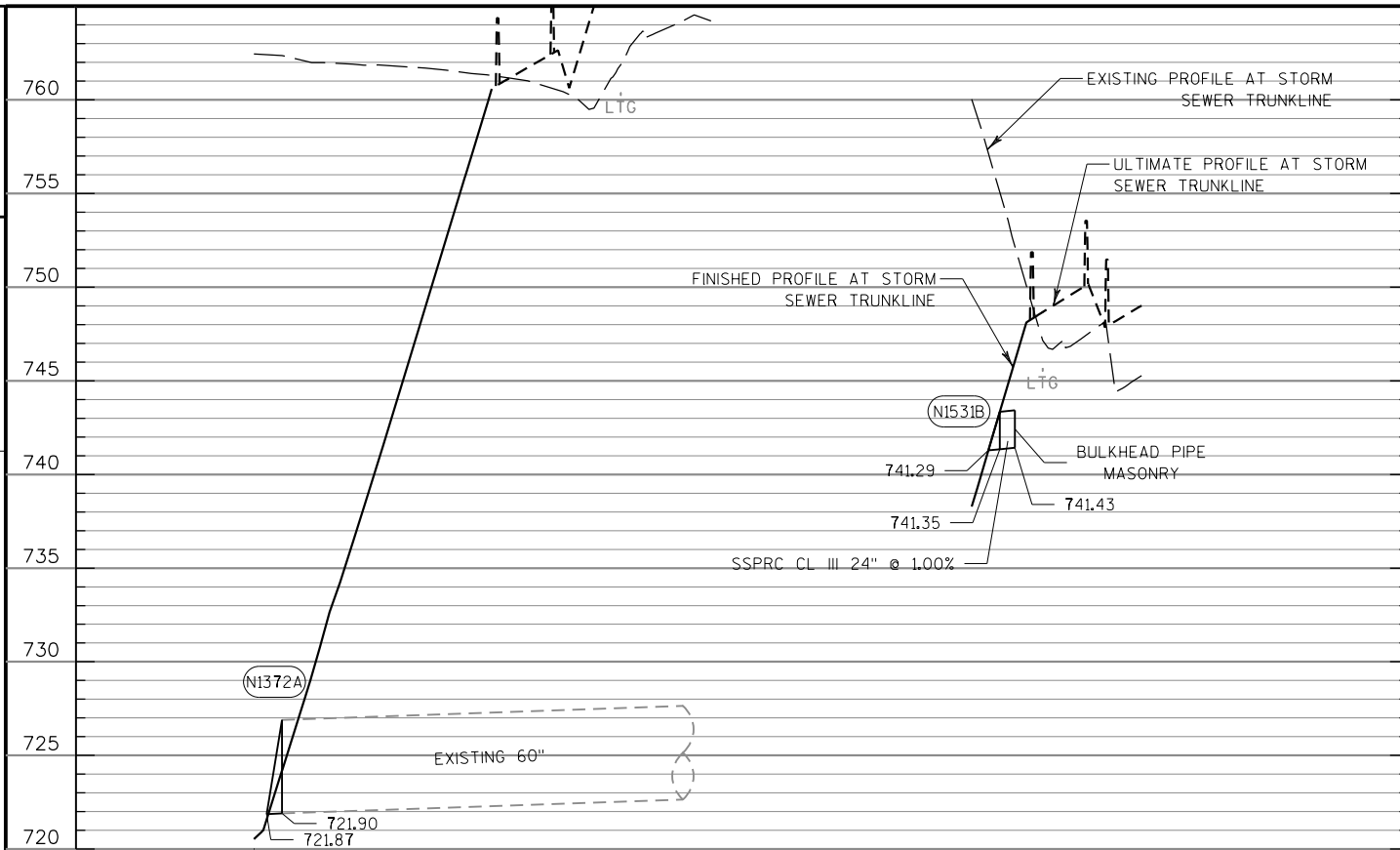


PROJECT NO: 1060-34-78 HWY: IH 41 COUNTY: MILWAUKEE STORM SEWER PLAN AND PROFILE SHEET 41

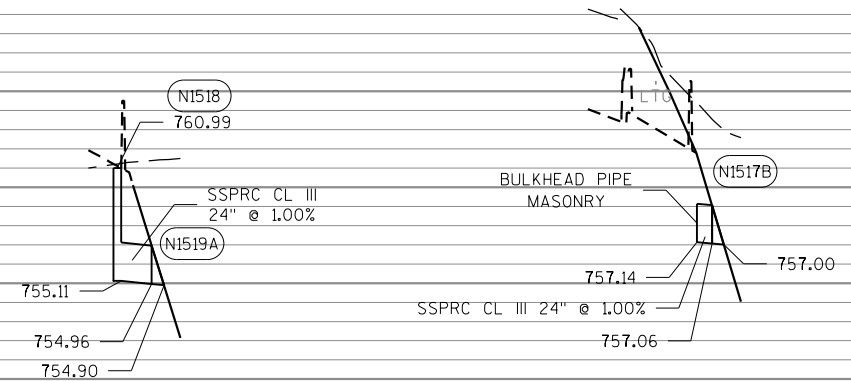
FILE NAME : s:\dot\dot_se\120293-zoo interchange\drainage\zoo_ic_drainage\zoo_design_files\north_north_leg\10603478_zn-pond\roads\cd\10603478.dwg PLOT BY : badams PLOT NAME : PLOT SCALE : 1:100 MSOT/CADDS SHEET 41

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019

2



760	780
755	775
750	770
745	765
740	760
735	755
730	750
725	745
720	740

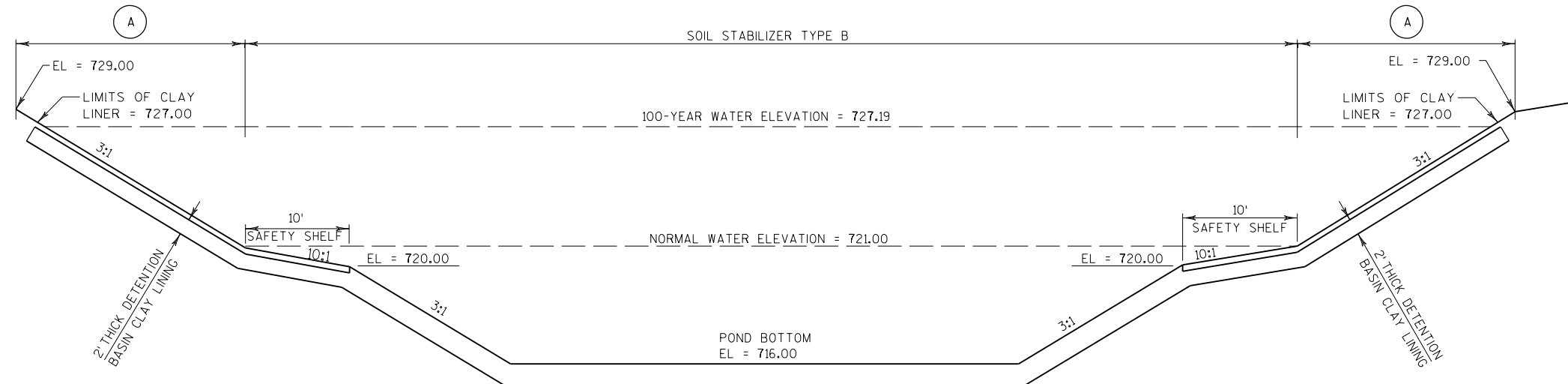


2

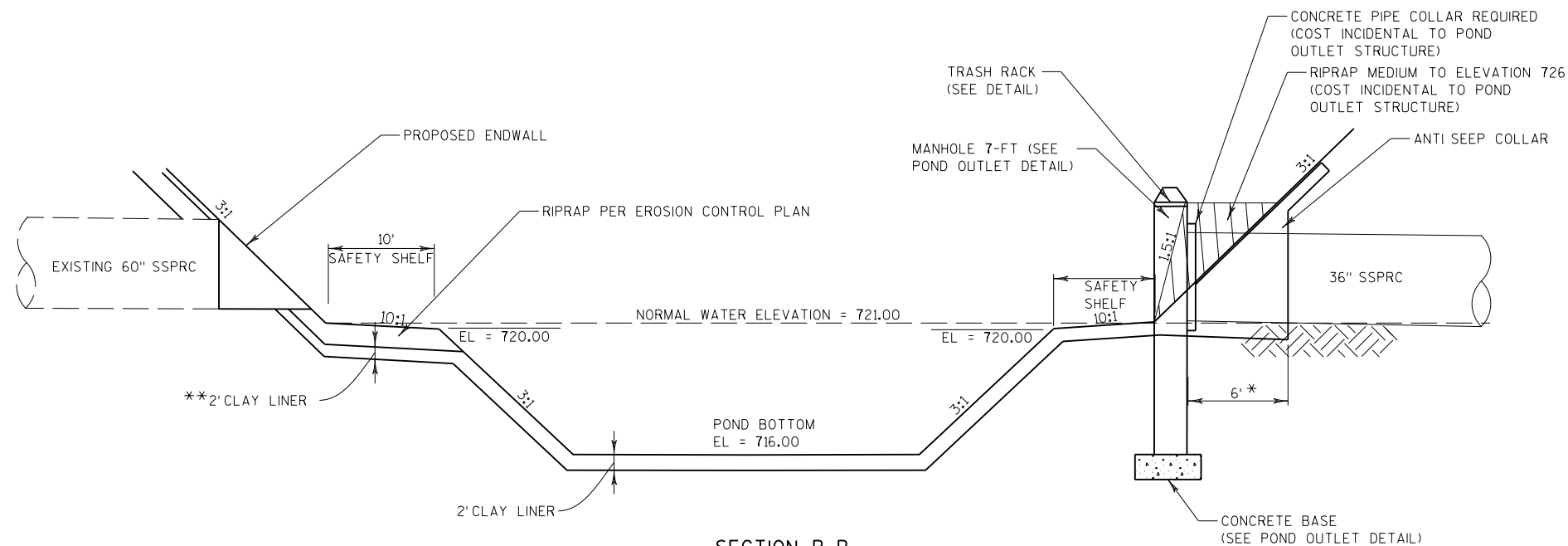
780
775
770
765
760
755
750
745
740

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AUGUST 9, 2019

2



SECTION A-A



SECTION B-B

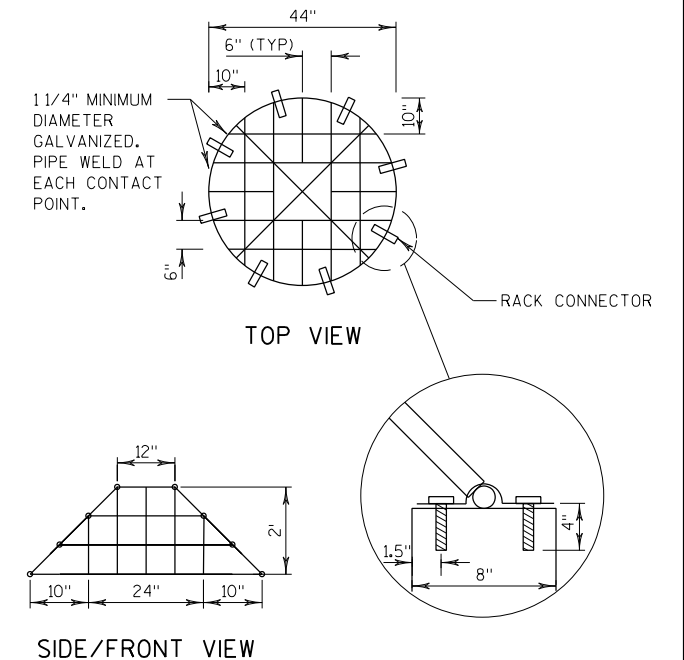
NOTES

1. REFER TO STANDARD DETAIL DRAWING FOR MANHOLE 7-FT FOR ADDITIONAL INFORMATION.
2. OUTLET STRUCTURE WILL BE PAID FOR AS RAMP NOB POND OUTLET STRUCTURE.
3. TRASH RACKS WILL BE GALVANIZED OR SIMILARLY PROTECTED FROM CORROSION AND APPROVED BY THE ENGINEER.
4. CONNECTOR DEVICE WILL BE REMOVABLE AND APPROVED BY THE ENGINEER.
5. ANTI-SEEP COLLAR OF CLAY OR BENTONITE REQUIRED AROUND POND OUTLET DISCHARGE PIPE TO PREVENT BACKFLOW OF WATER THROUGH THE SEWER TRENCH. ANTI-SEEP COLLARS MUST EXTEND FROM 1-FOOT ABOVE THE TOP OF PIPE TO THE BOTTOM OF EXCAVATED TRENCH AND BE CONNECTED WITH THE POND LINER PER DETAIL. ANTI-SEEP COLLAR IS INCIDENTAL TO PIPE AND INSTALLATION.

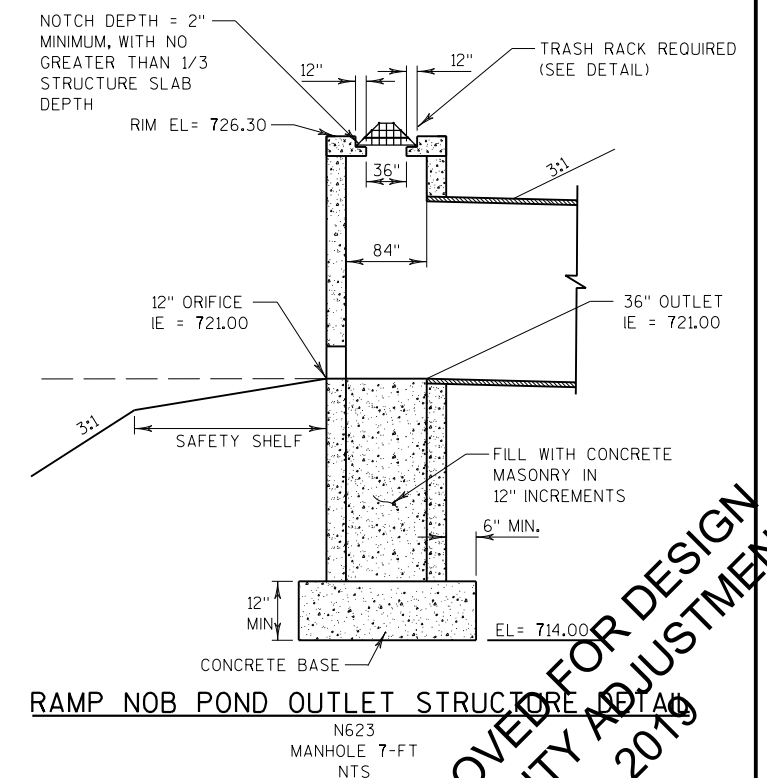
* ANTI-SEEP COLLAR TO BE MINIMUM 1-FOOT FROM OUTLET PIPE JOINT.
ANTI-SEEP COLLAR MAY COVER JOINT, SO LONG AS END OF COLLAR IS A MINIMUM
1-FOOT PAST JOINT. ANTI-SEEP COLLAR TO BE CONNECTED TO POND LINER.

** SHAPE CLAY LINER TO ACCOMODATE FABRIC & RIPRAP PER EROSION CONTROL PLAN

RAMP NOB POND
NTS

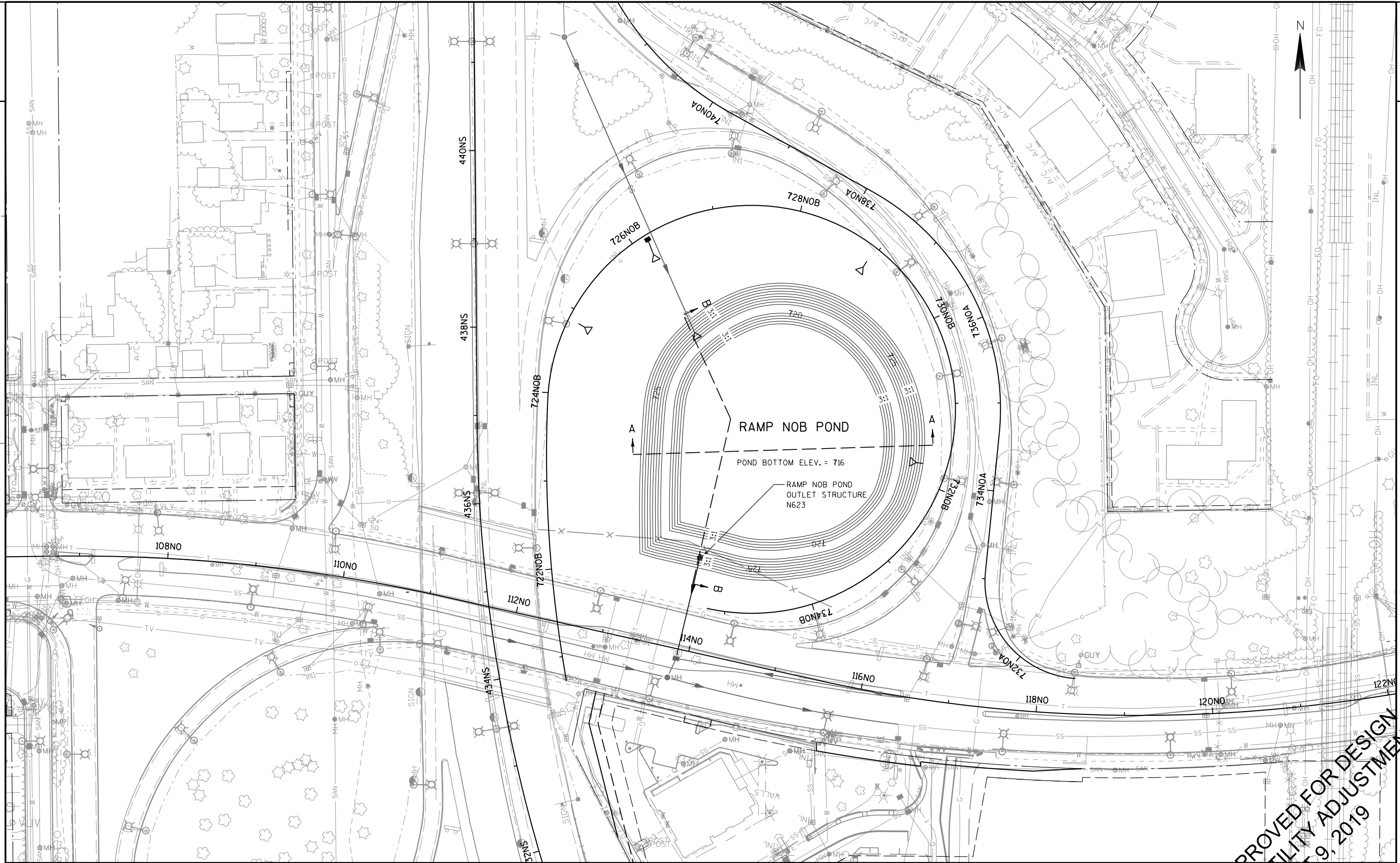


TRASH RACK
NTS



RAMP NOB POND OUTLET STRUCTURE DETAIL

N623
MANHOLE 7
NTS



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AUGUST 9, 2019

STORM SEWER STRUCTURES										STORM SEWER PIPES										
ROADWAY	STRUCTURE NO.	STATION	OFFSET (FT)	LOCATION	RIM OR FLOW ELEV	STRUCTURE TYPE	INLET/MANHOLE COVERS TYPE	DEPTH ¹ (FT)	STRUCTURE COMMENTS	PIPE ID	FROM STR	TO STR	INLET ELEV	DISCH ELEV	SLOPE ^A %	PIPE LENGTH ^B (FT)	PLAN LENGTH ^C (FT)	PIPE CLASS	PIPE SIZE (INCH)	PIPE COMMENTS
NORTH AVE	N623	113NO+89.41	106.2	LT	726.30	MANHOLES 7-FT DIAMETER	J-SPECIAL	5.30	RAMP NOB POND OUTLET STRUCTURE. SEE CONSTRUCTION DETAIL.	P624	N623	NE712	721.00	719.90	1.00	110	117	III	36	CONNECT TO EXISTING STRUCTURE
---	---	---	---	---	---	---	---	--	---	P1517A	P1517	N1517B	757.14	757.06	1.00	8	8	III	24	TO ENDWALL
RAMP NOB	N1518	726NOB+17.46	8.0	RT	760.99	INLETS 4-FT DIAMETER	V	5.88	---	P1519	P1518	N1519A	755.11	754.96	1.00	16	18	III	24	TO ENDWALL
---	---	---	---	---	---	---	---	--	---	P1531A	P1531	N1531B	741.43	741.35	1.00	8	8	III	24	TO ENDWALL
---	---	---	---	---	---	---	---	--	---	P1549A	P1549	N1549B	724.47	724.39	1.00	8	8	III	24	TO ENDWALL

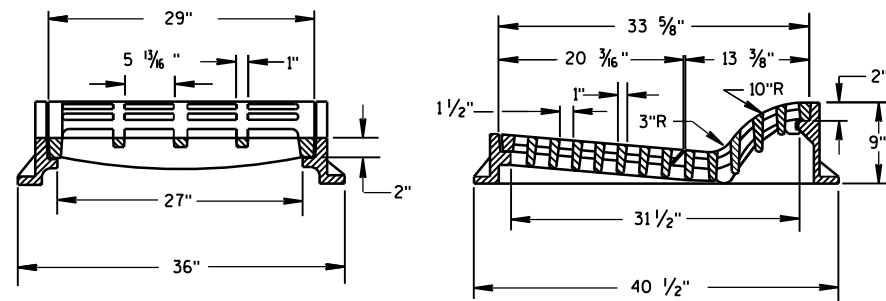
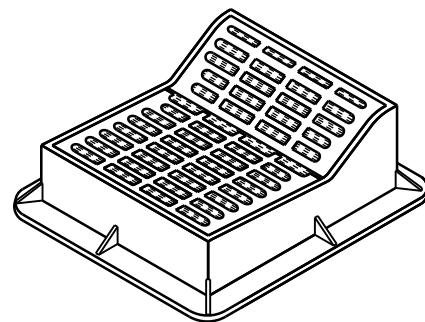
¹DEPTH = RIM OR FLOW ELEV - LOWEST PIPE INVERT ELEVATION

^A SLOPE CALCULATED BASED ON PIPE LENGTH. PIPE LENGTH REPRESENTS LENGTH OF PIPE MEASURED FROM INSIDE FACE OF STRUCTURE TO INSIDE FACE OF STRUCTURE

^B PIPE LENGTH SHOWN FOR SLOPE CALCULATION ONLY. NOT INTENDED FOR PAY QUANTITY.

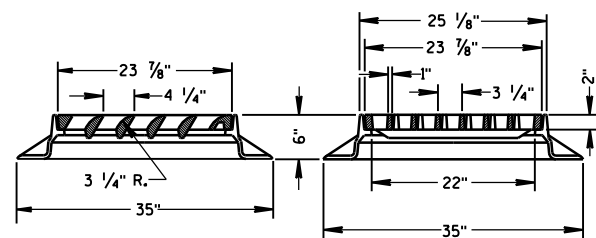
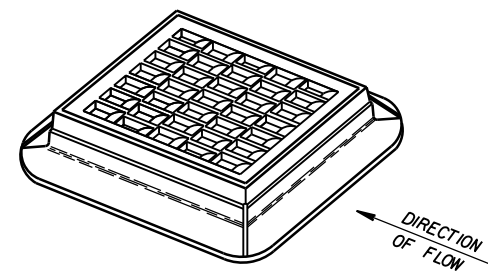
^C PLAN LENGTH SHOWN FOR PAY QUANTITY.

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019

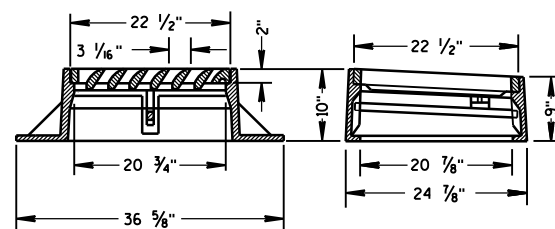
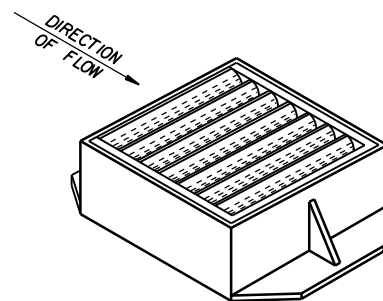


TYPE "F"

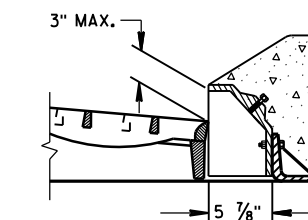
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



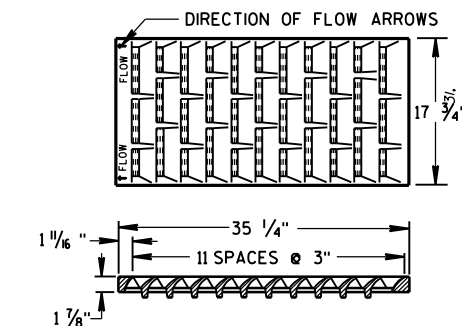
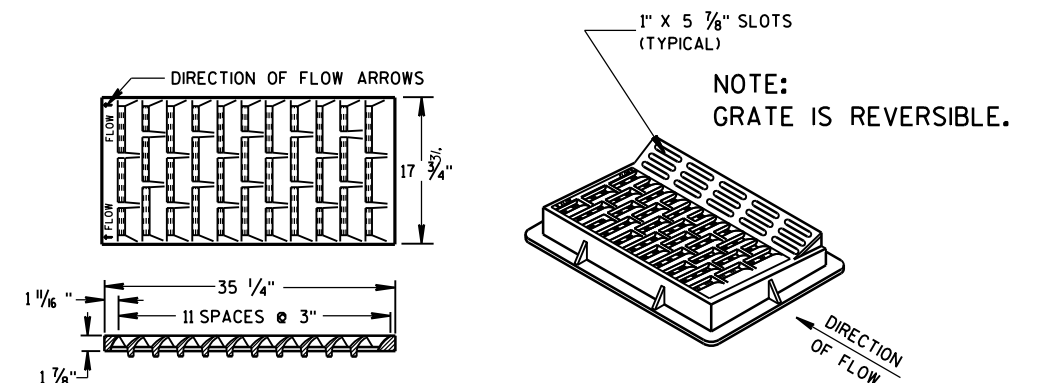
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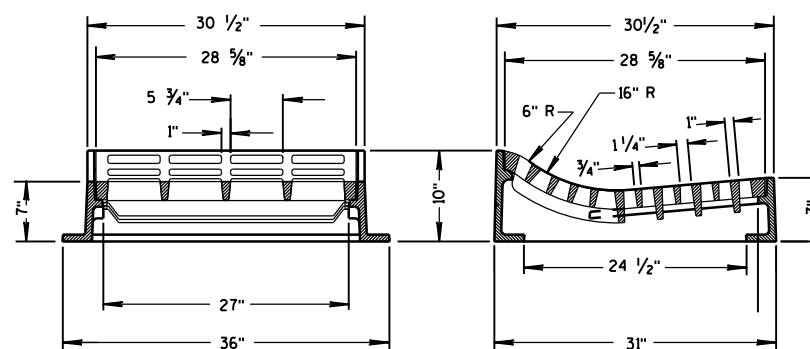
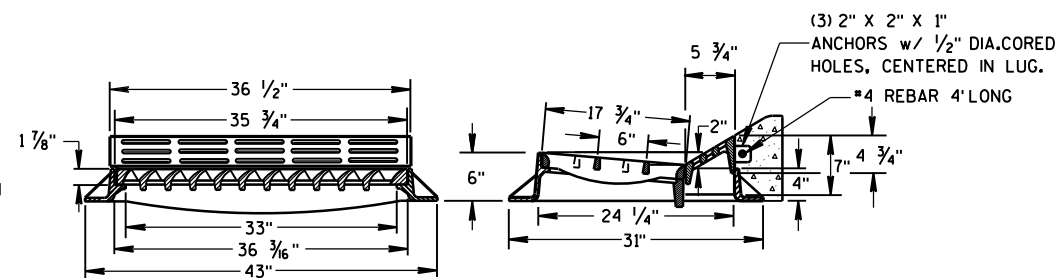
TYPE "V"

ALTERNATIVE CURB BOX
FOR TYPE "HM" COVERUSE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLENOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

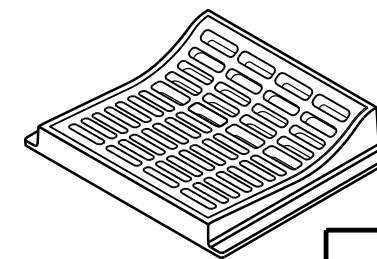
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION
FOR EQUIVALENT CAPACITY AND STRENGTH.

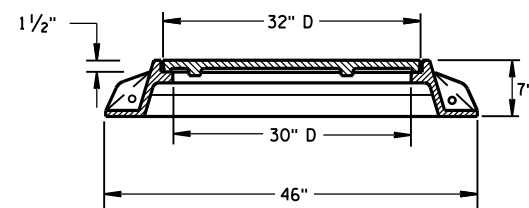
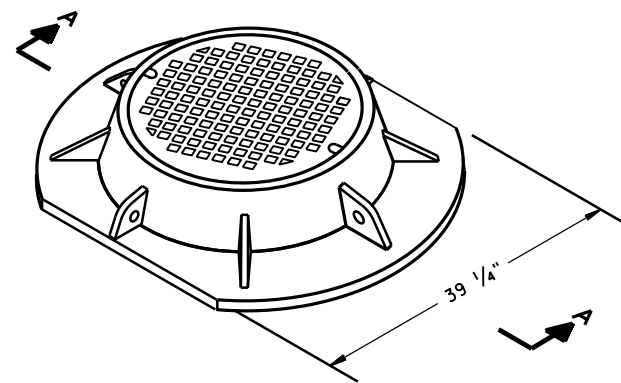
TYPE "HM"

USE WITH TYPES A & D CONCRETE
CURB & GUTTER, 36 INCH.NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

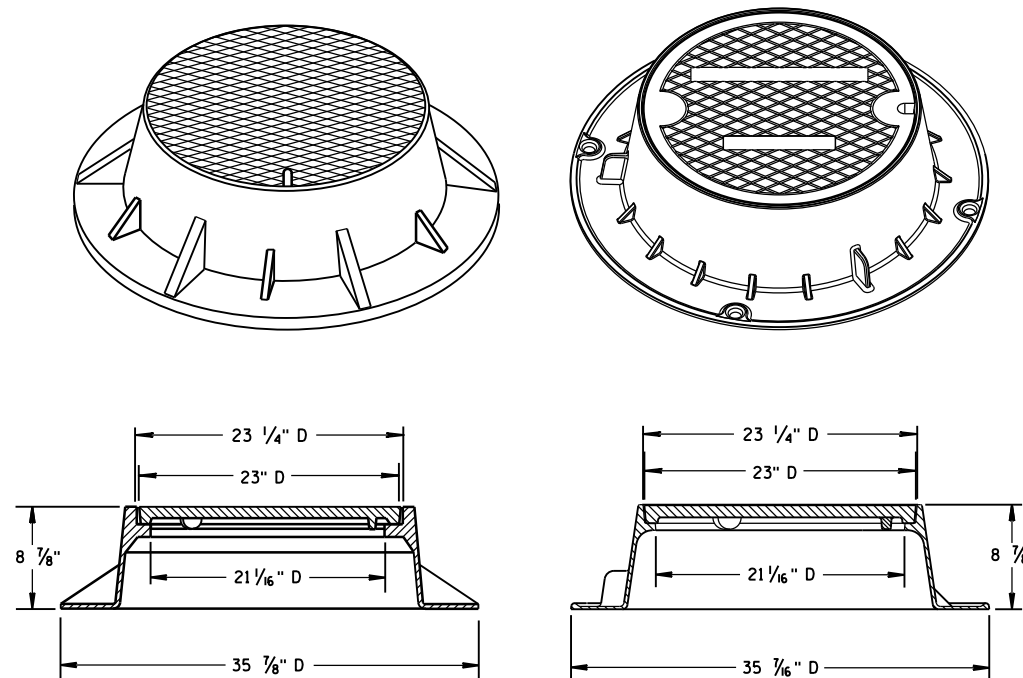
TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.

INLET COVERS
TYPE F, HM, HM-GJ, HM-GJ-S,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE
FHWA
J. H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

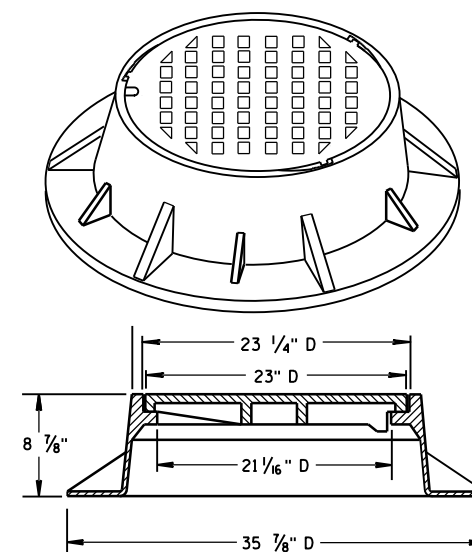
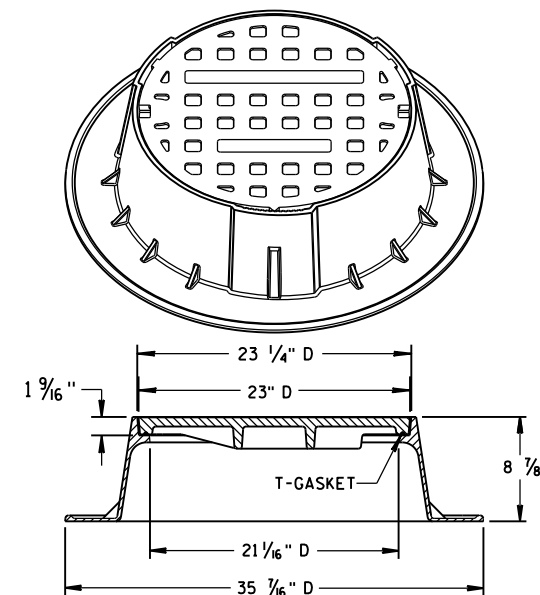


SECTION A-A
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

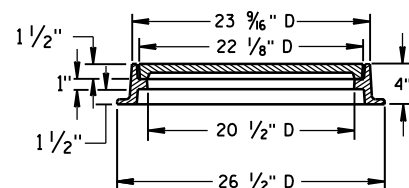
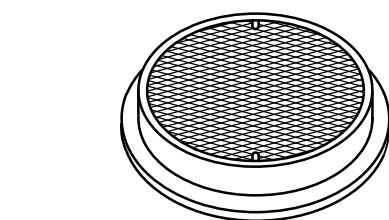


TYPE "J" SPECIAL

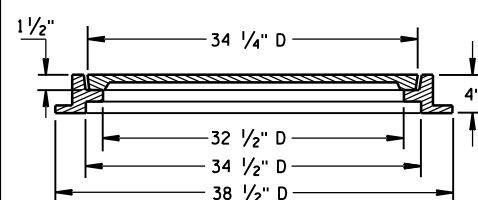
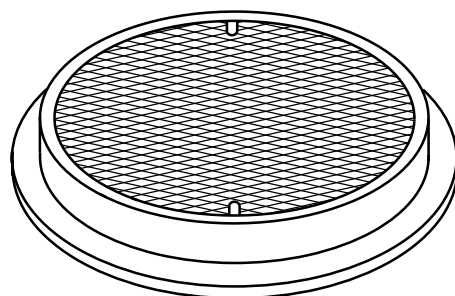
TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

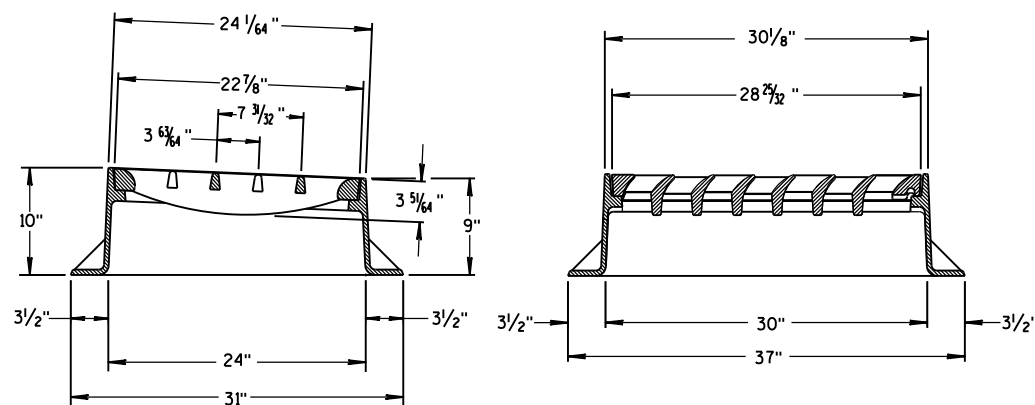
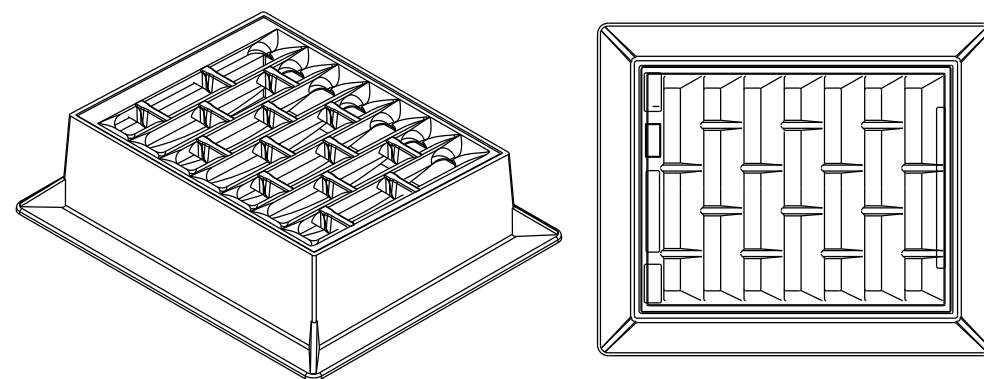
NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

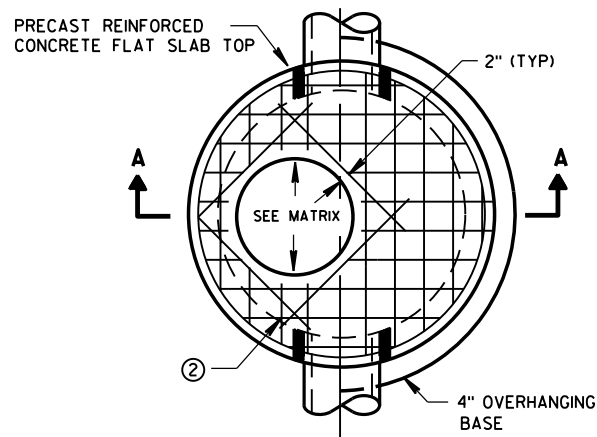
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

INLET COVER TYPE BW
MANHOLE COVER TYPE K,
J, J-S, & M

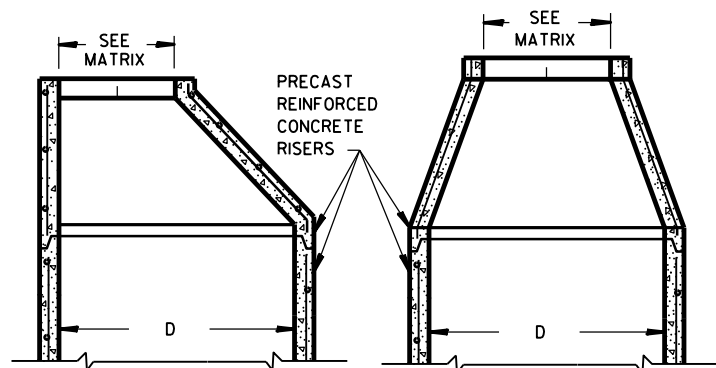
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2012
DATE
FHWA
AS/ JERRY H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

APPROVED FOR DESIGN
AUGUST 9, 2019
OF UTILITY ADJUSTMENTS

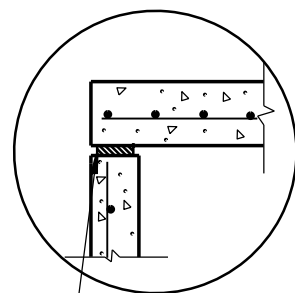


PLAN VIEW CIRCULAR OPENING

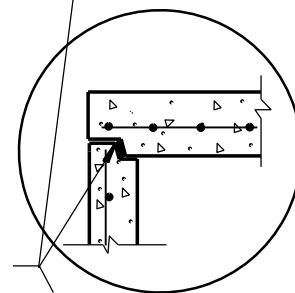


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

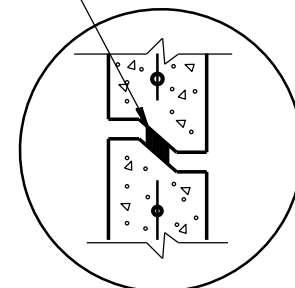
OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP



TOP WITH PLAIN END JOINT

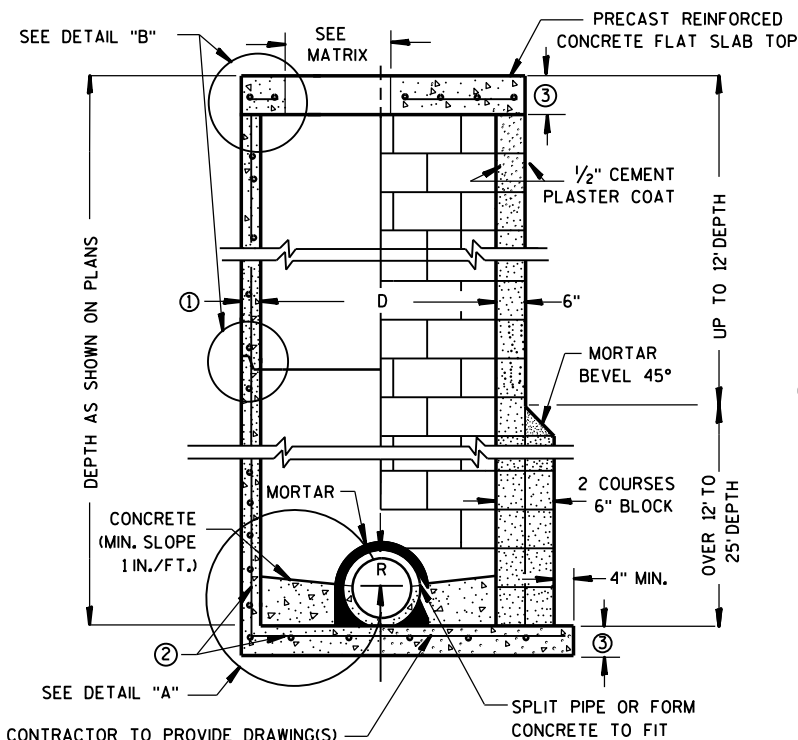


TOP WITH TONGUE AND GROOVE JOINT



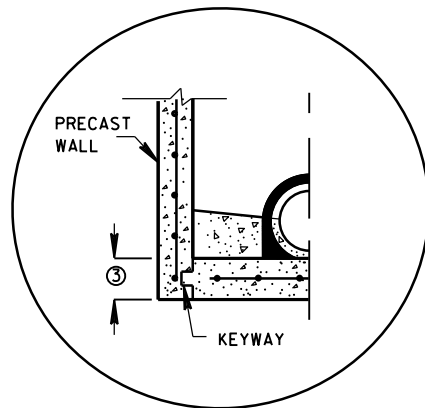
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

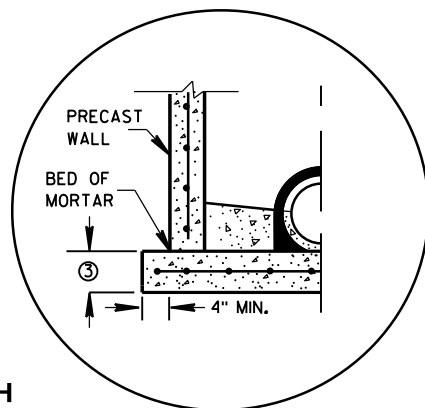


CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES

PRECAST REINFORCED CONCRETE BLOCK WITH CONCRETE WITH MONOLITHIC BASE CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

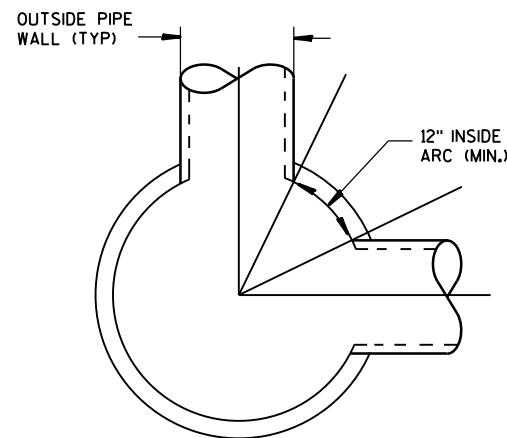


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS. UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.
- ② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

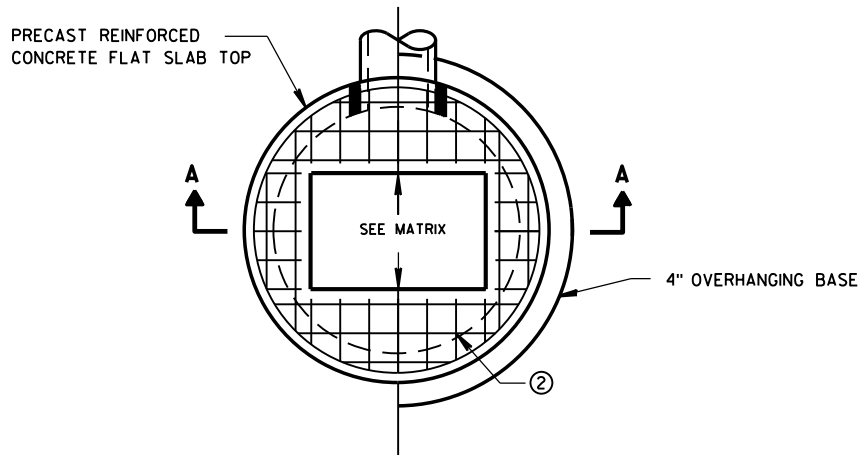
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

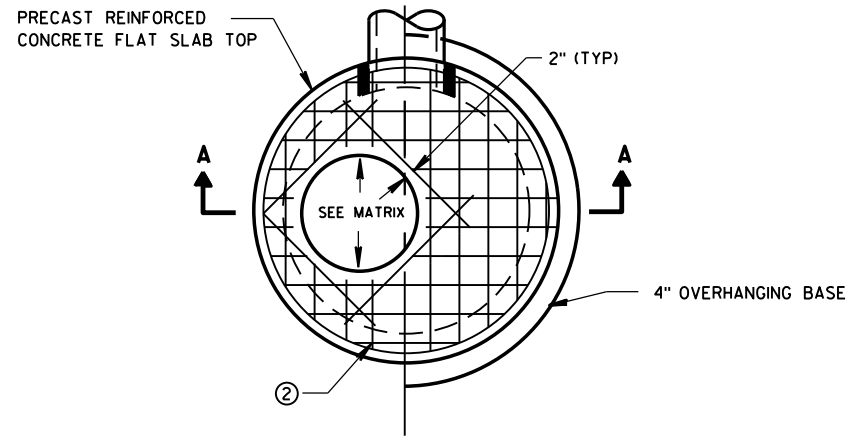
APPROVED
Sept., 2016
DATE
FHW
S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
SUPERVISOR

APPROVED FOR DESIGN
AUGUST 9, 2019
OF UTILITY ADJUSTMENTS

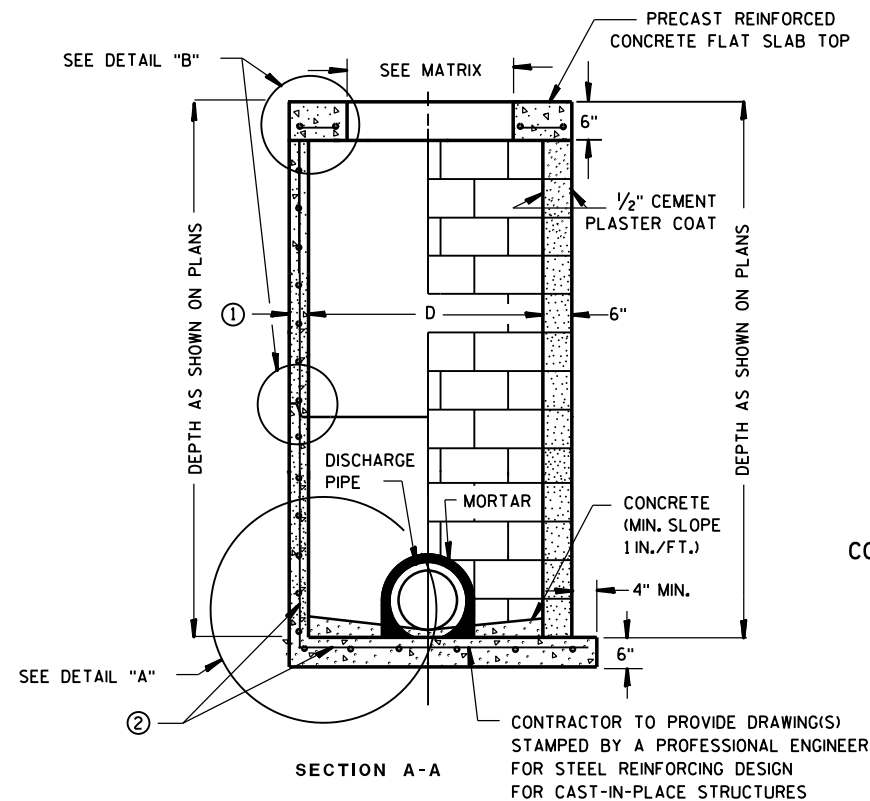
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER



PLAN VIEW RECTANGULAR OPENING



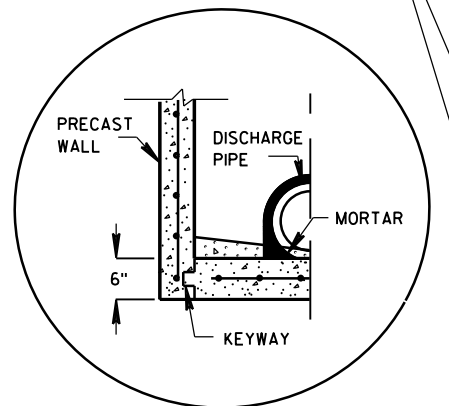
PLAN VIEW CIRCULAR OPENING



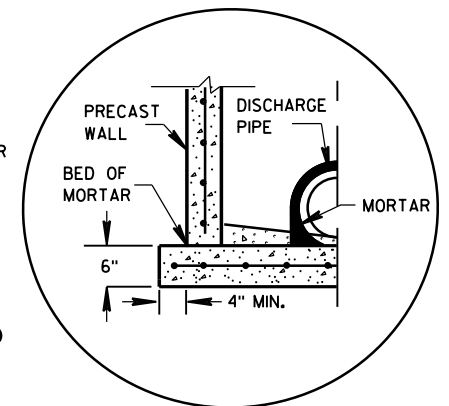
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

CIRCULAR INLETS W/ FLAT TOP

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

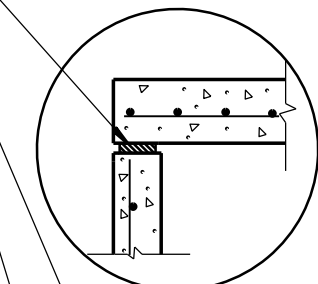


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

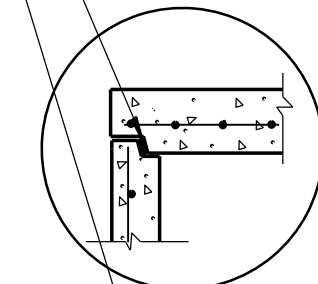


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

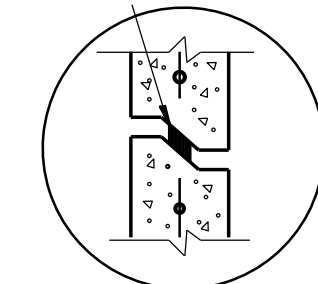
DETAIL "A"



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

INLETS 3-FT AND 4-FT DIAMETER

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

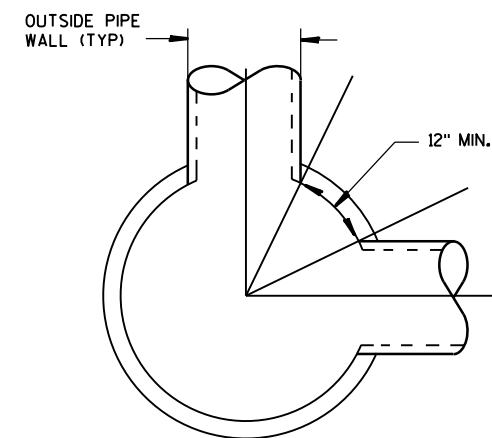
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X	X	X	X	
	2X2.5			X				X	X	X	X	
	2X3						X					
	2.5X3					X						



DETAIL "C"

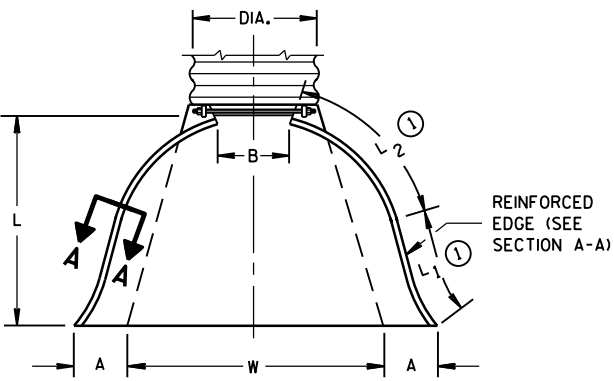
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

INLETS 3-FT AND 4-FT DIAMETER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Sept., 2016 DATE FHWA	SA Rodney Taylor ROADWAY SUPERVISOR JUN 10 2019 SUPERVISOR

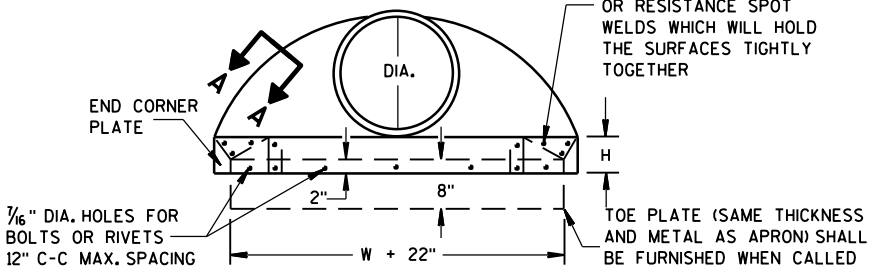
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.	

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

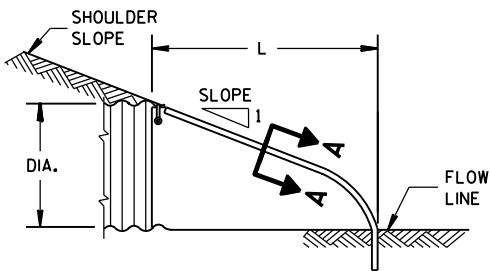


PLAN VIEW

END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



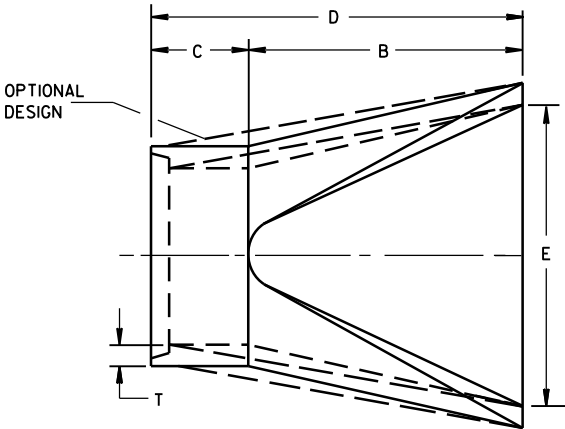
END VIEW



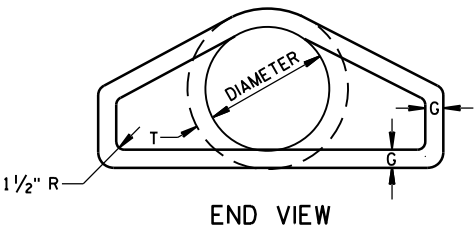
SIDE ELEVATION
METAL ENDWALLS

REINFORCED CONCRETE APRON ENDWALLS								
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE
	T	A	B	C	D	E	G	
12	2	4	24	48 ⁷ / ₈	72 ⁷ / ₈	24	2	3 to 1
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1
24	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	3 to 1
27	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	3 to 1
30	3 ¹ / ₂	12	54	19 ³ / ₄	73 ¹ / ₂	60	3 ¹ / ₂	3 to 1
36	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	3 to 1
42	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 ¹ / ₂	27	65	33 ¹ / ₄ -35	98 ¹ / ₄ -100	90	5 ¹ / ₂	2 ¹ / ₂ to 1
60	6	30-35	60	39	99	96	5	2 to 1
66	6 ¹ / ₂	30-35	72-78	21-27	99	102	5 ¹ / ₂	2 to 1
72	7	30-36	78	21	99	108	6	2 to 1
78	7 ¹ / ₂	30-36	78	21	99	114	6 ¹ / ₂	2 to 1
84	8	36	90 ¹ / ₂	21	111 ¹ / ₂	120	6 ¹ / ₂	1 ¹ / ₂ to 1
90	8 ¹ / ₂	41	87 ¹ / ₂	24	111 ¹ / ₂	132	6 ¹ / ₂	1 ¹ / ₂ to 1

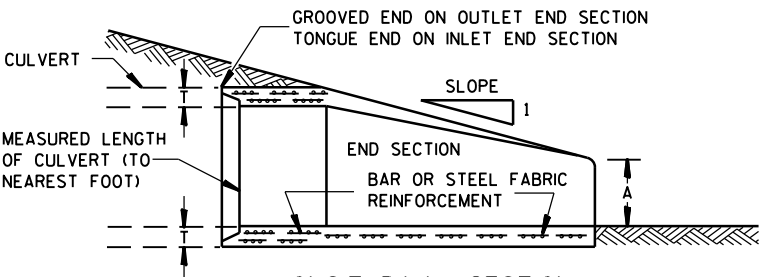
*MINIMUM
**MAXIMUM



PLAN

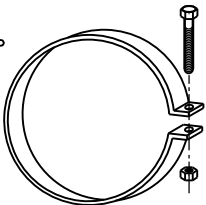


END VIEW



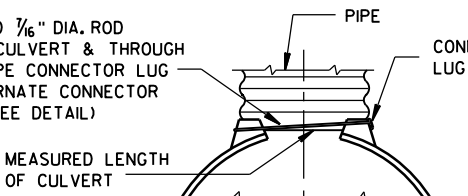
LONGITUDINAL SECTION
CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP

THREADED 1/8" DIA. ROD AROUND CULVERT & THROUGH TANK TYPE CONNECTOR LUG OR ALTERNATE CONNECTOR STRAP (SEE DETAIL)

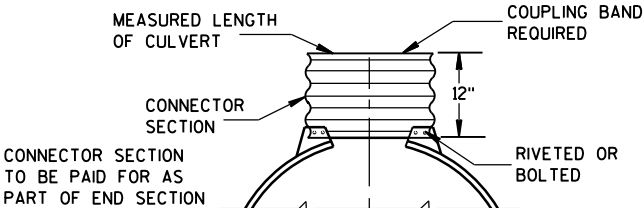


TYPE 1
FOR 12" THRU 24" CORR. PIPE

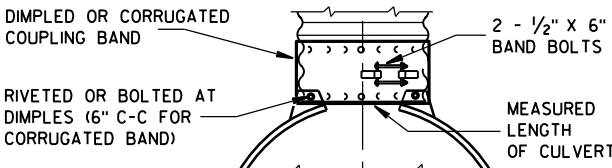
THREADED 1/8" DIA. ROD OVER TOP OF APRON, SIDE LUGS TO BE RIVETED TO APRON



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

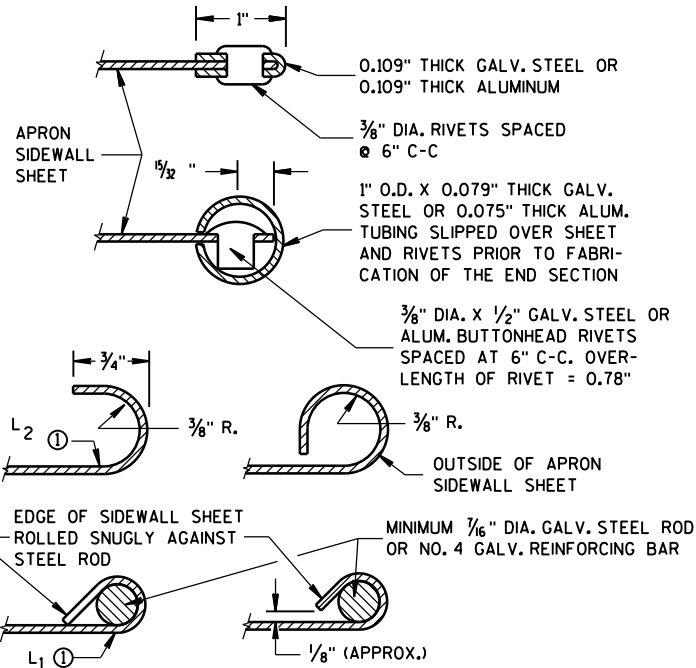
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

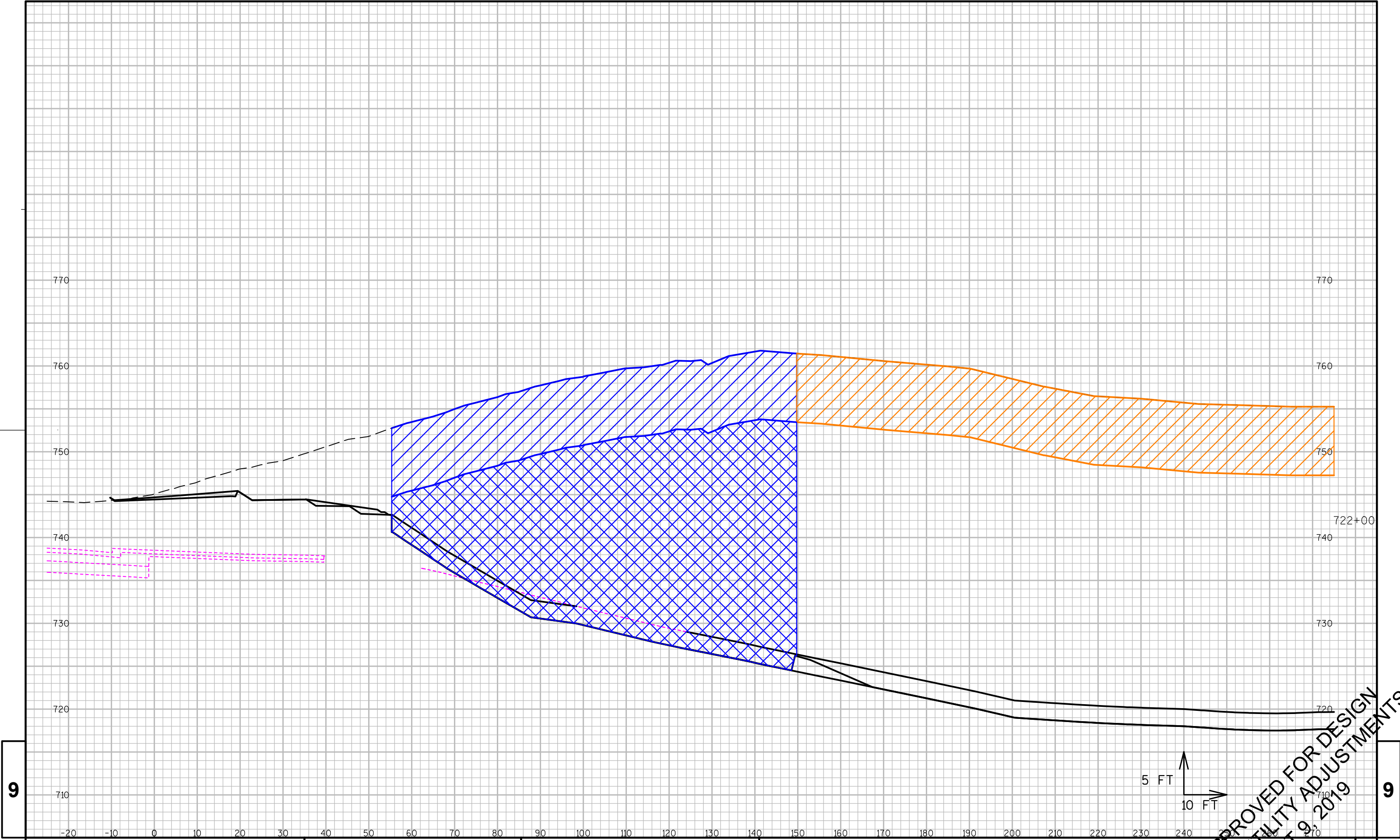
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

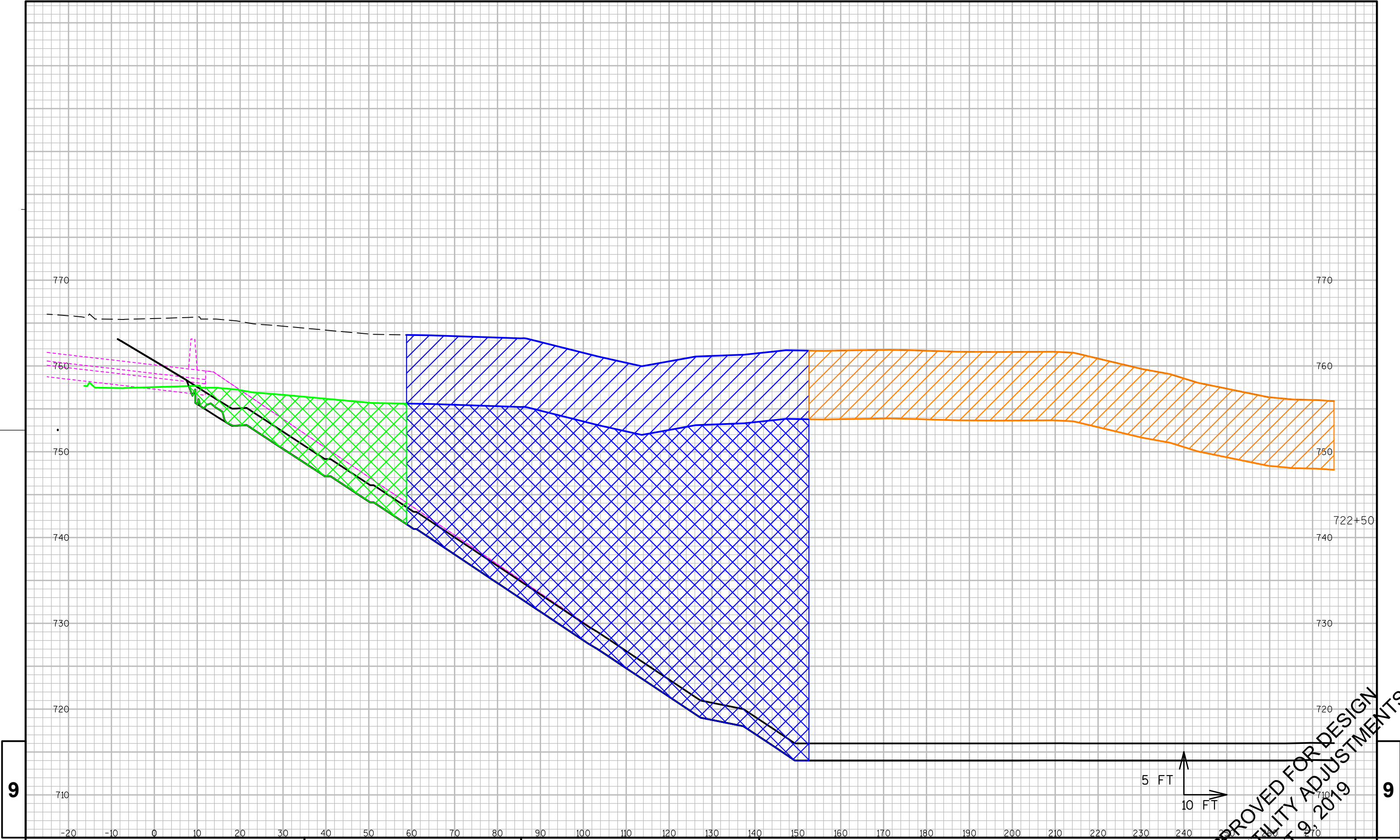
APRON ENDWALLS FOR CULVERT PIPE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8-30-94 DATE	FOR DESIGN AUGUST 9, 2019 FOR UTILITY ADJUSTMENTS
CHIEF ROADWAY DEVELOPMENT ENGINEER	



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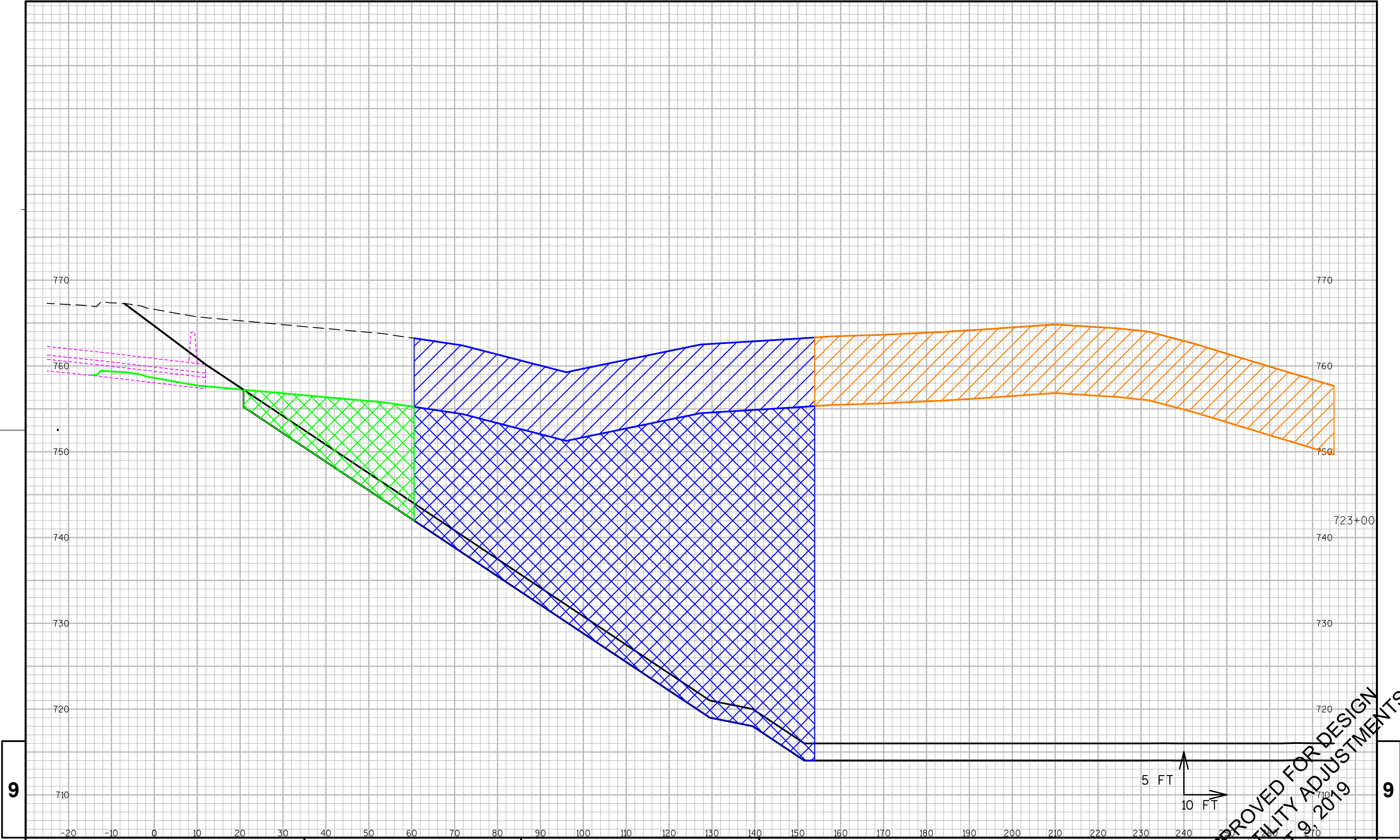
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OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



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AUGUST 9, 2019



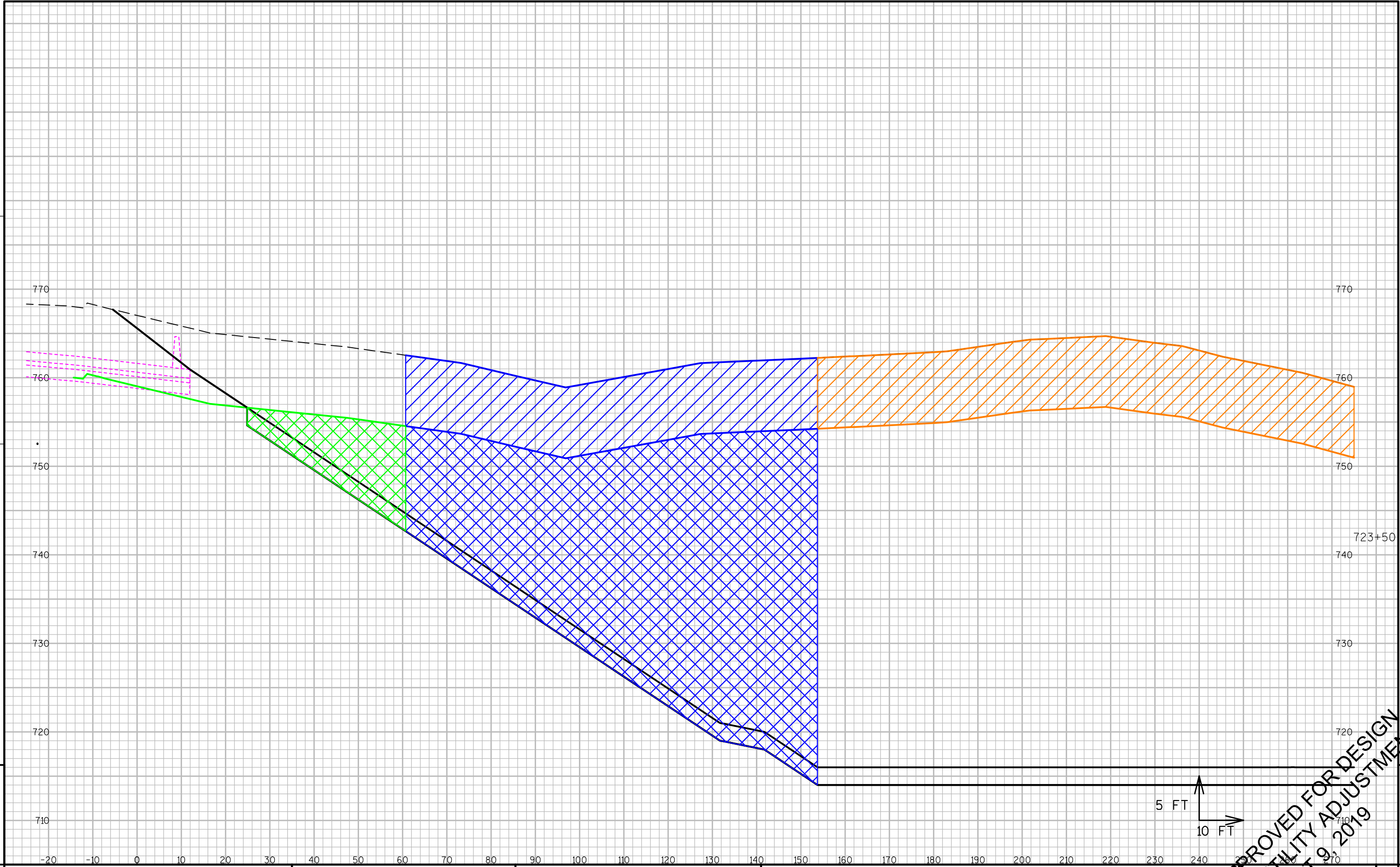
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PROJECT NO:1060-34-78	HWY:IH 41	COUNTY:MILWAUKEE	CROSS SECTIONS: NORTH AVE LOOP EXCAVATION	SHEET	E
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AUGUST 9, 2019



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PROJECT NO:1060-34-78	HWY:IH 41	COUNTY:MILWAUKEE	CROSS SECTIONS: NORTH AVE LOOP EXCAVATION	SHEET	E
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AUGUST 9, 2019
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AUGUST 9, 2019



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PROJECT NO:1060-34-78 HWY:IH 41 COUNTY:MILWAUKEE CROSS SECTIONS: NORTH AVE LOOP EXCAVATION SHEET E

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AUGUST 9, 2019
ISDOT/CADDs SHEET 49



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AUGUST 9, 2019



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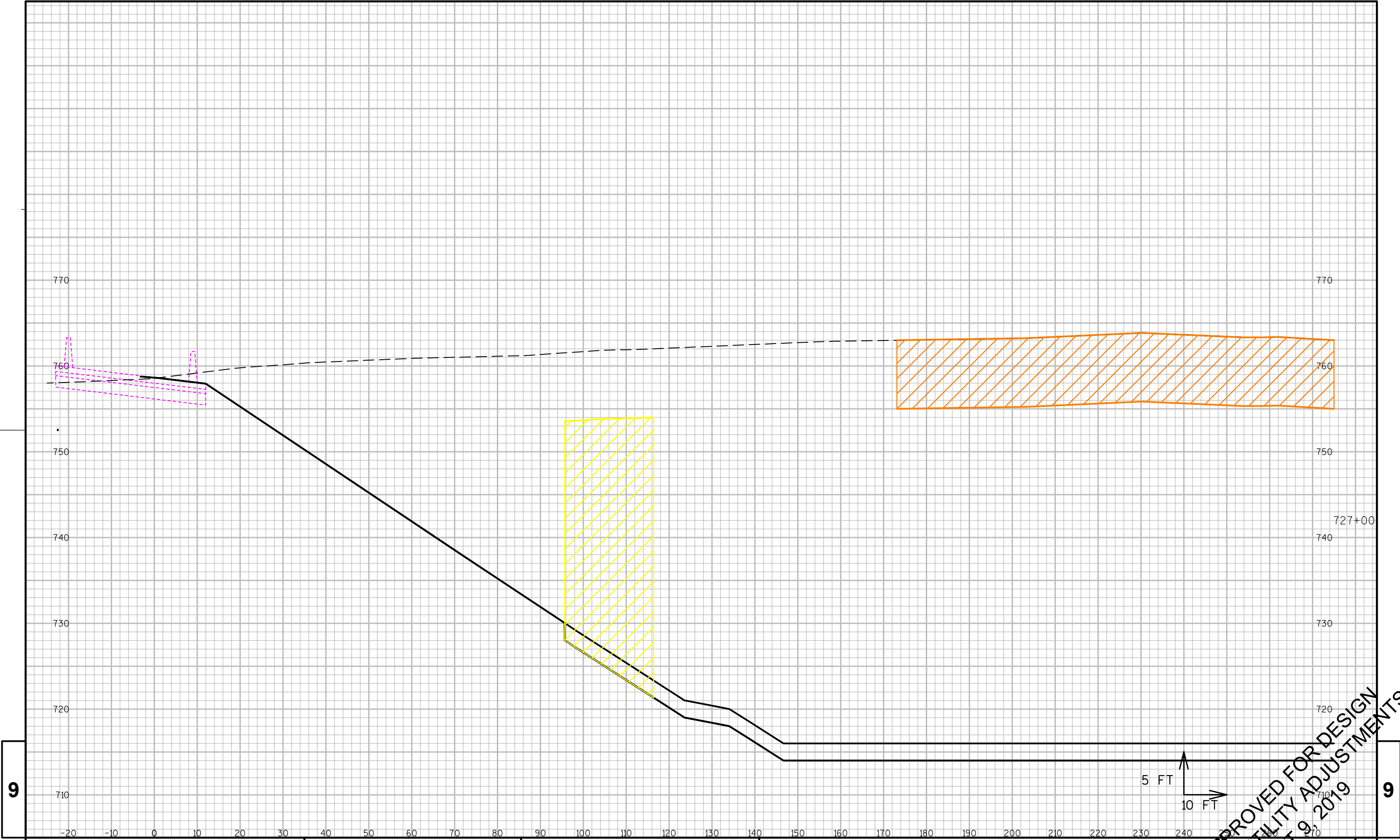
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AUGUST 9, 2019



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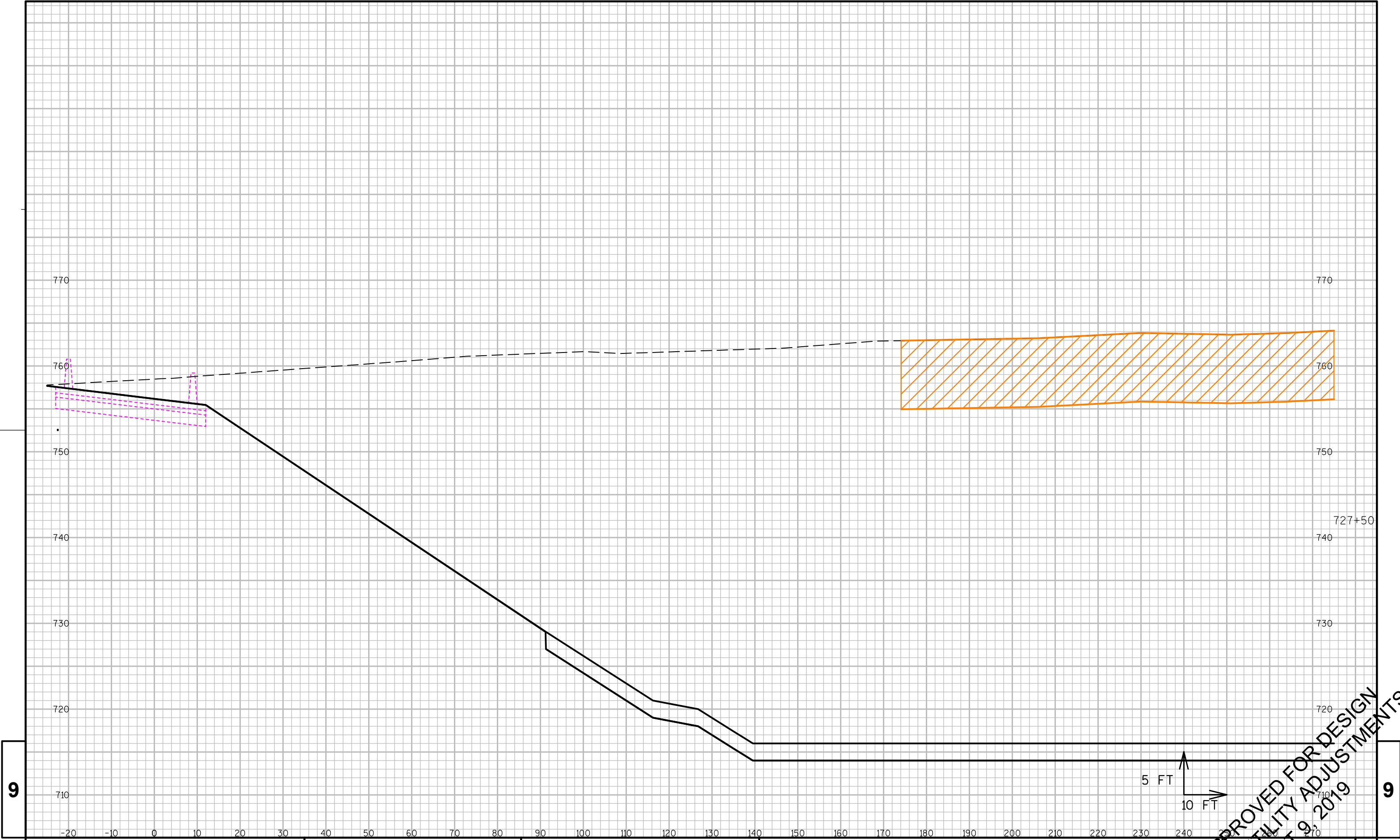
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OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



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AUGUST 9, 2019



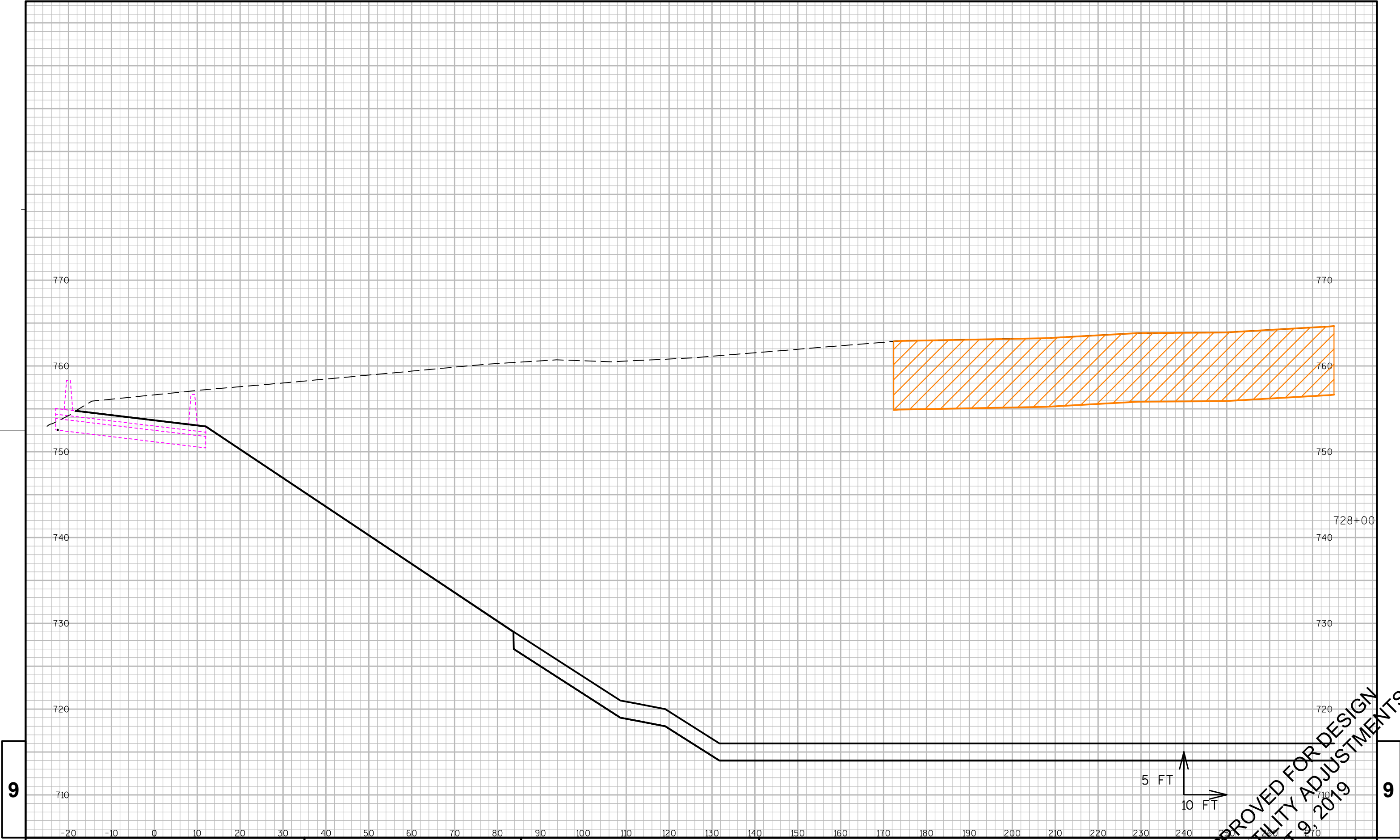
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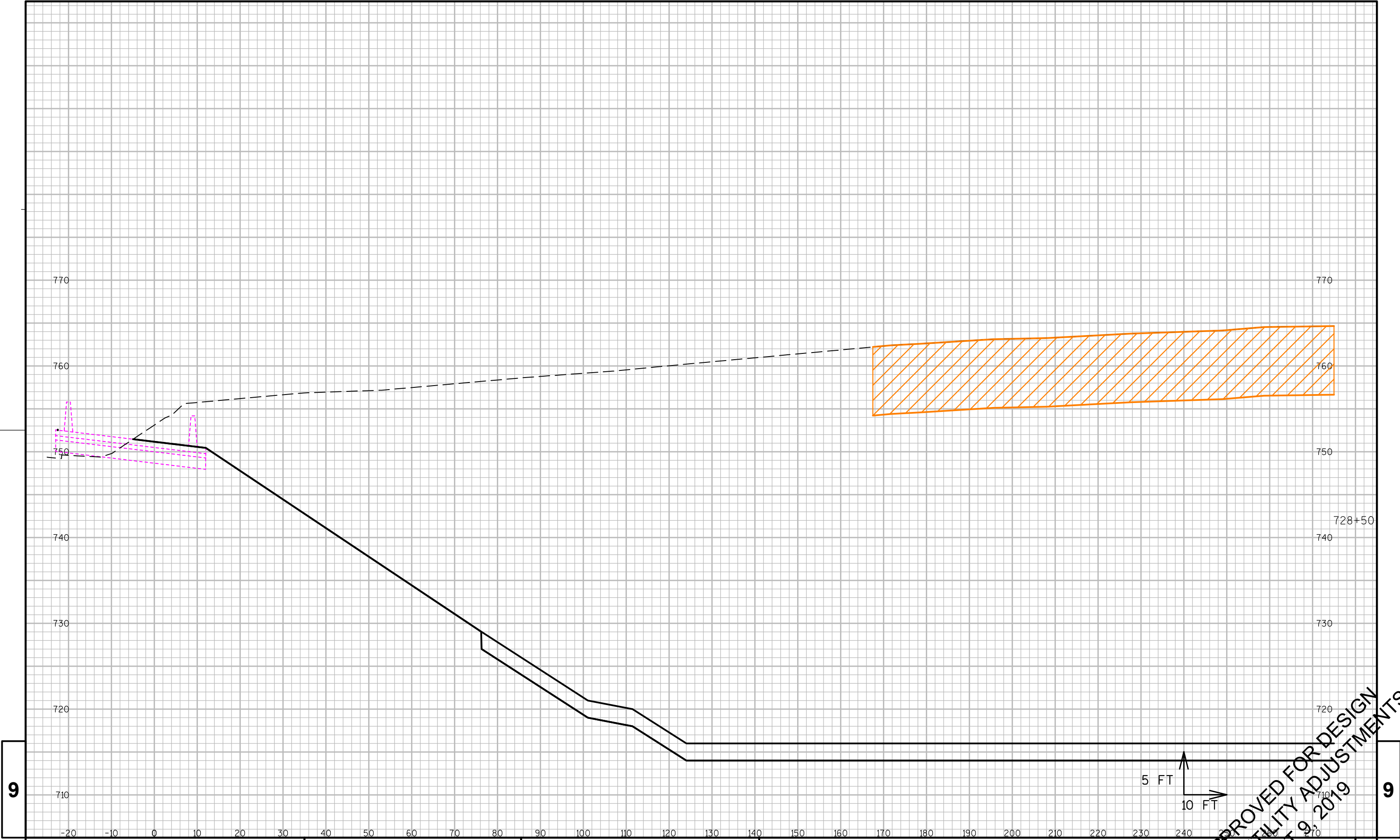
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OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



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 OF UTILITY ADJUSTMENTS
 AUGUST 9, 2019
 13 DOT/CADDs SHEET 49



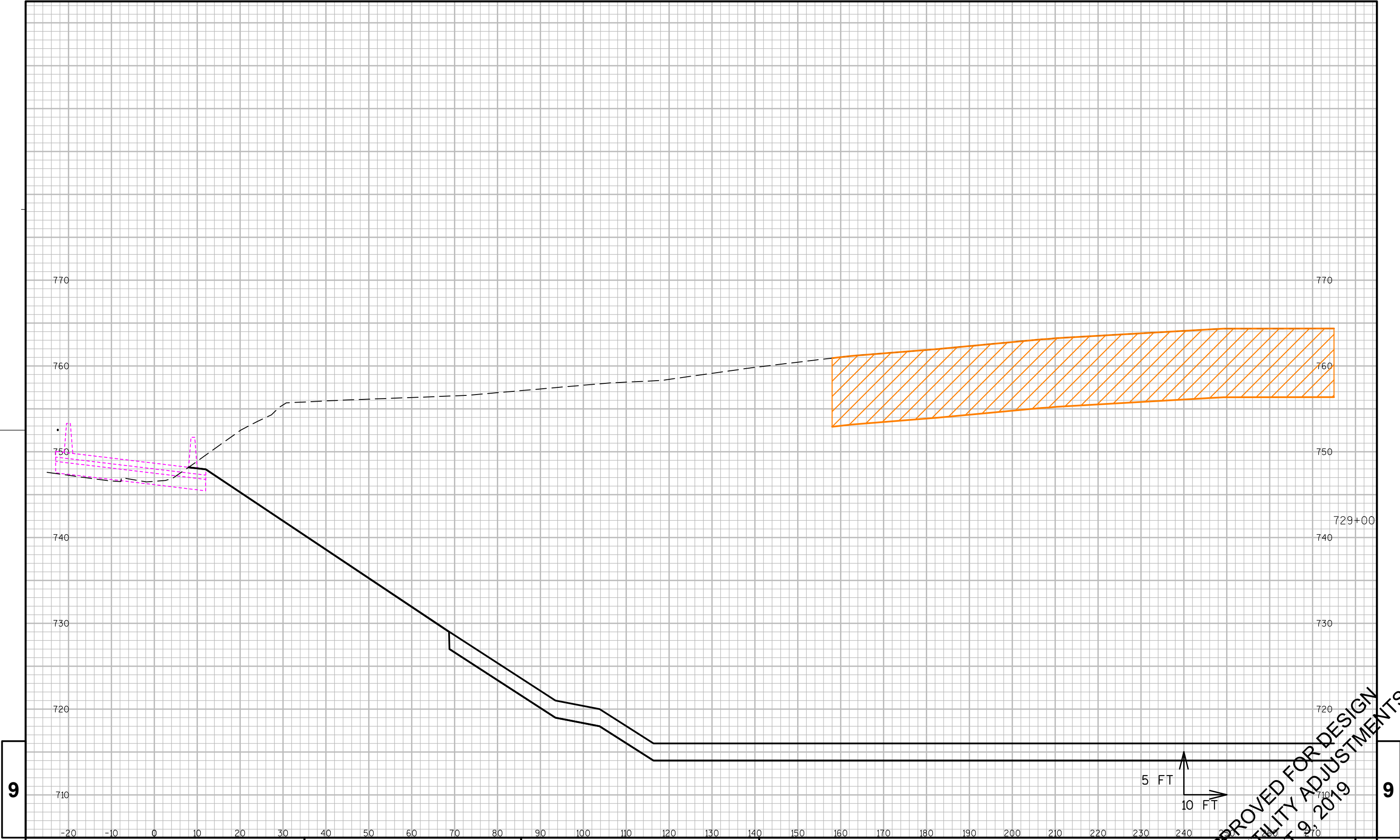
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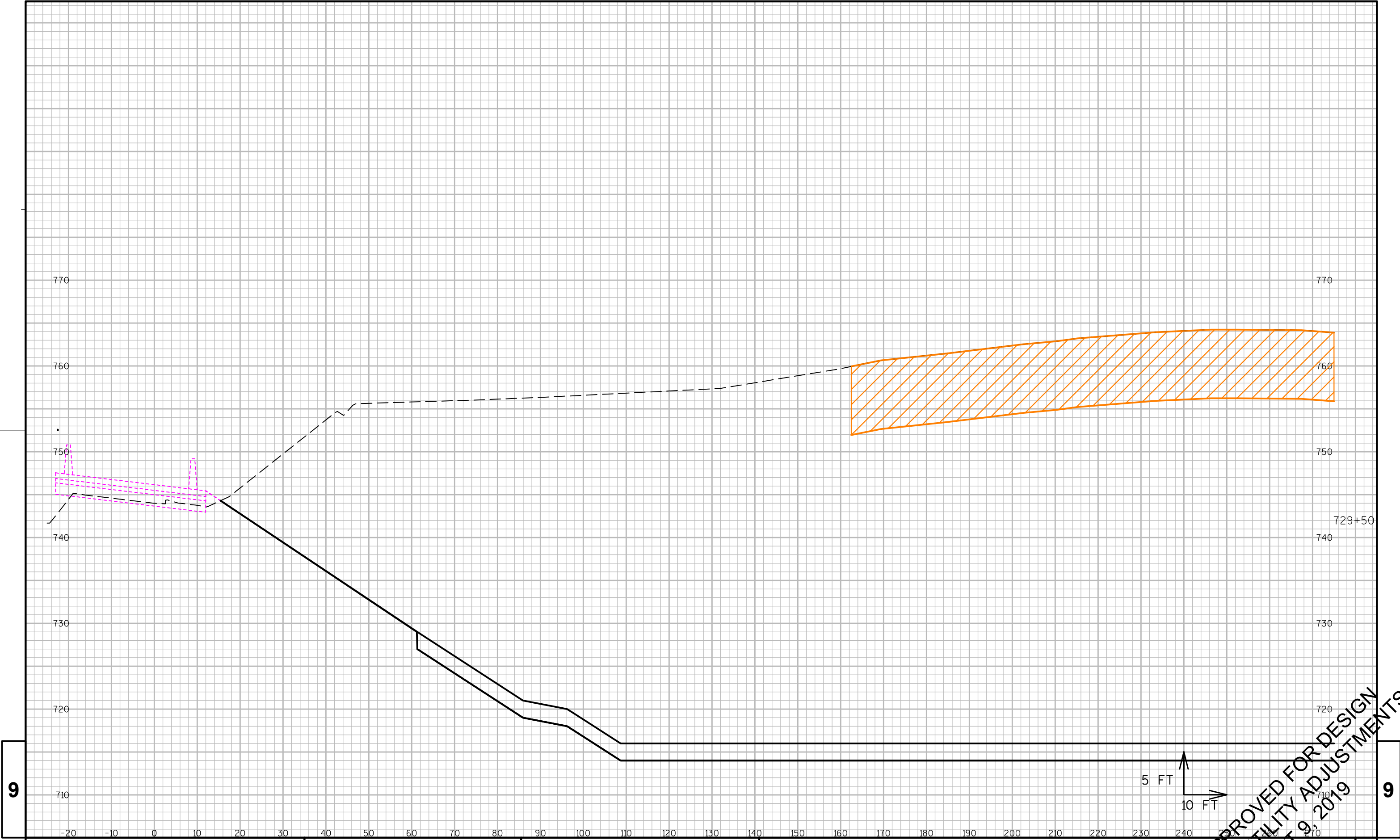
PROJECT NO:1060-34-78	HWY:IH 41	COUNTY:MILWAUKEE	CROSS SECTIONS: NORTH AVE LOOP EXCAVATION	SHEET	E
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ISDOT/CADDs SHEET 49

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OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



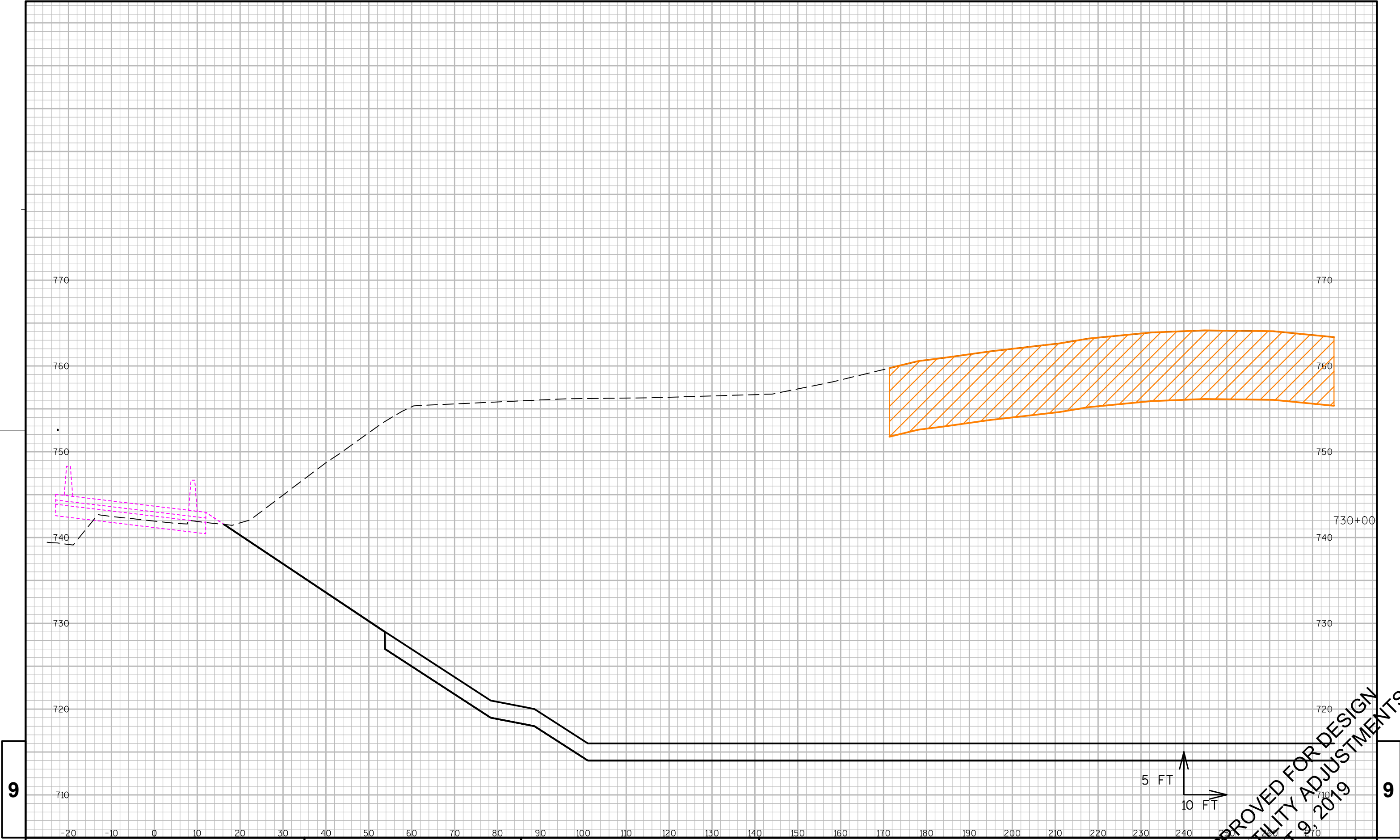
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AUGUST 9, 2019



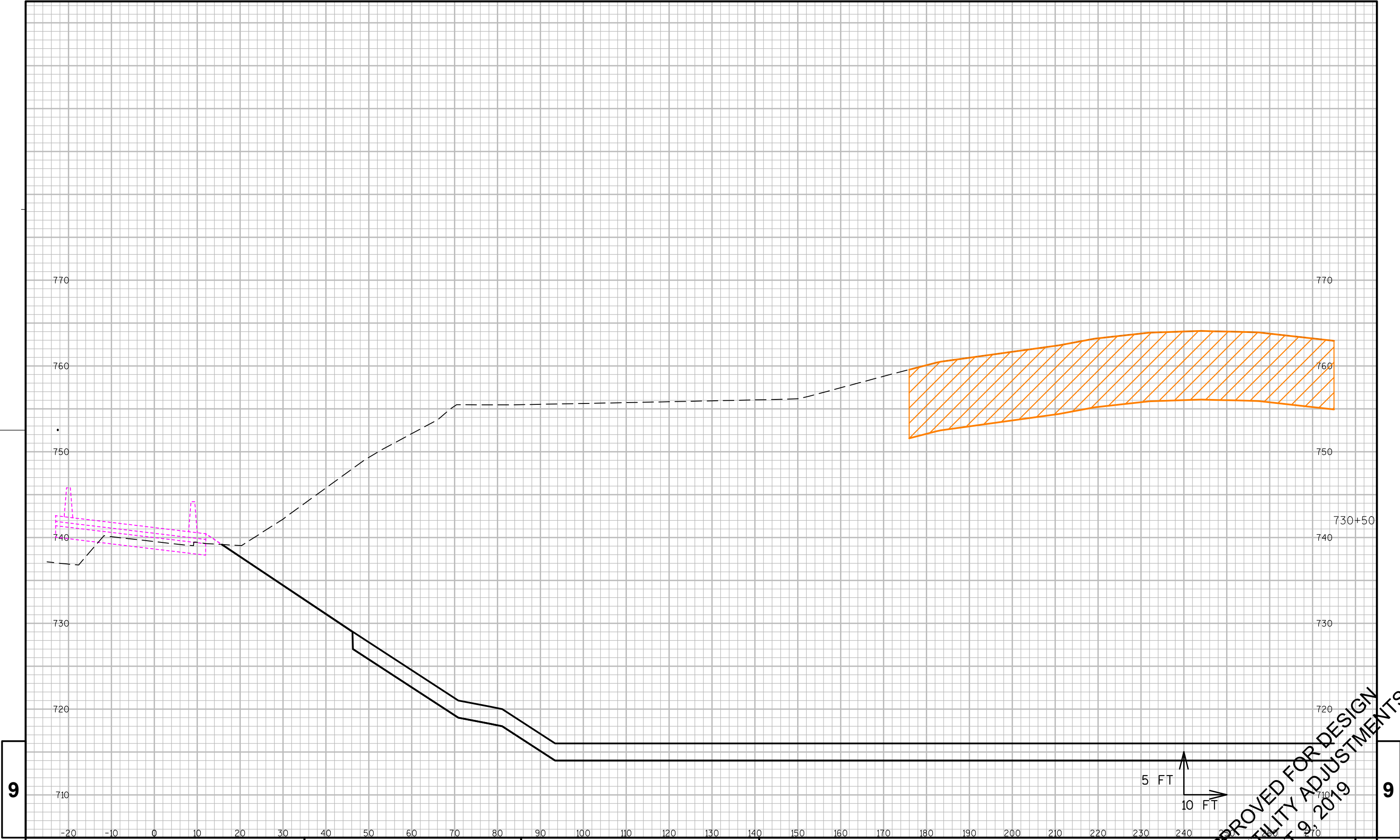
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PROJECT NO:1060-34-78	HWY:IH 41	COUNTY:MILWAUKEE	CROSS SECTIONS: NORTH AVE LOOP EXCAVATION	SHEET	E
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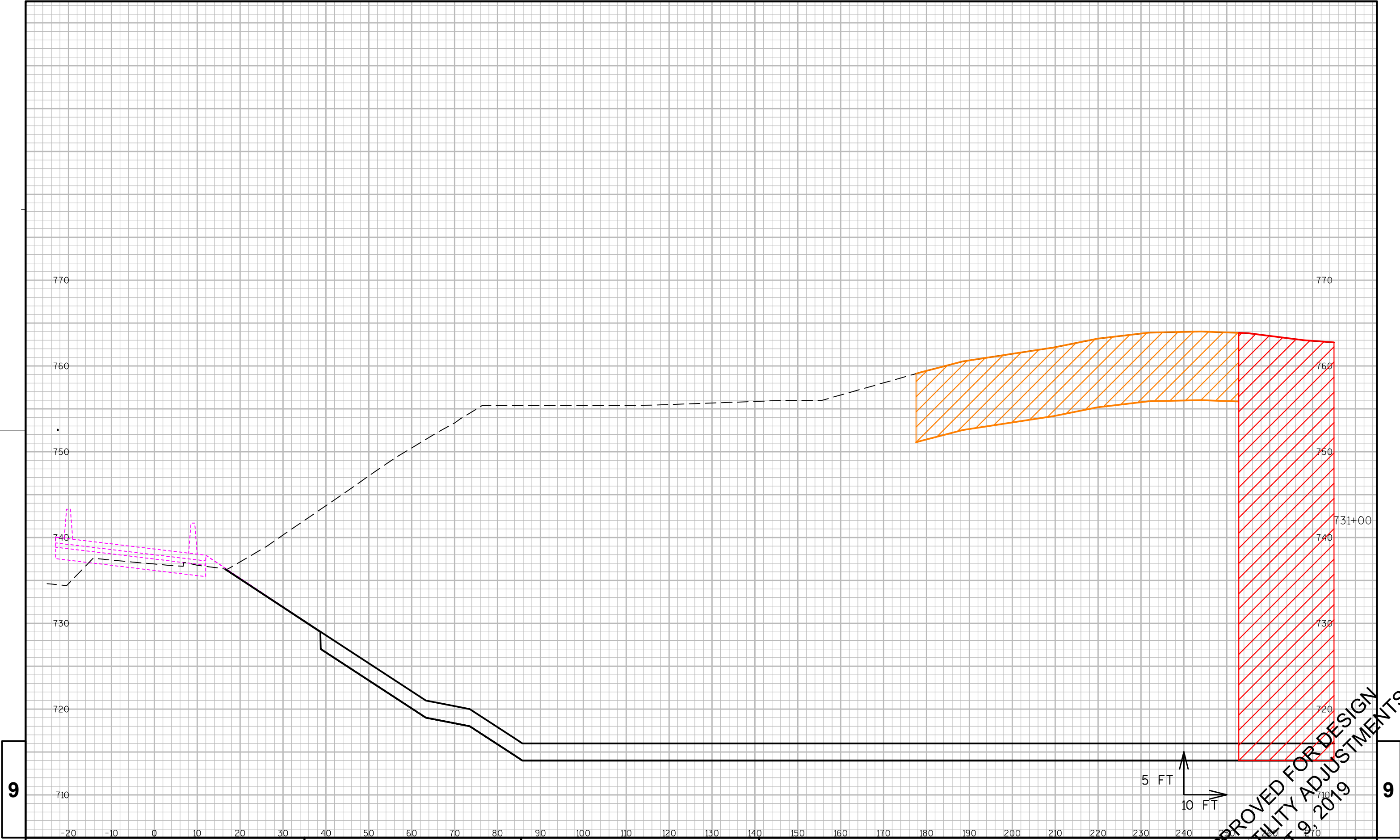
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AUGUST 9, 2019



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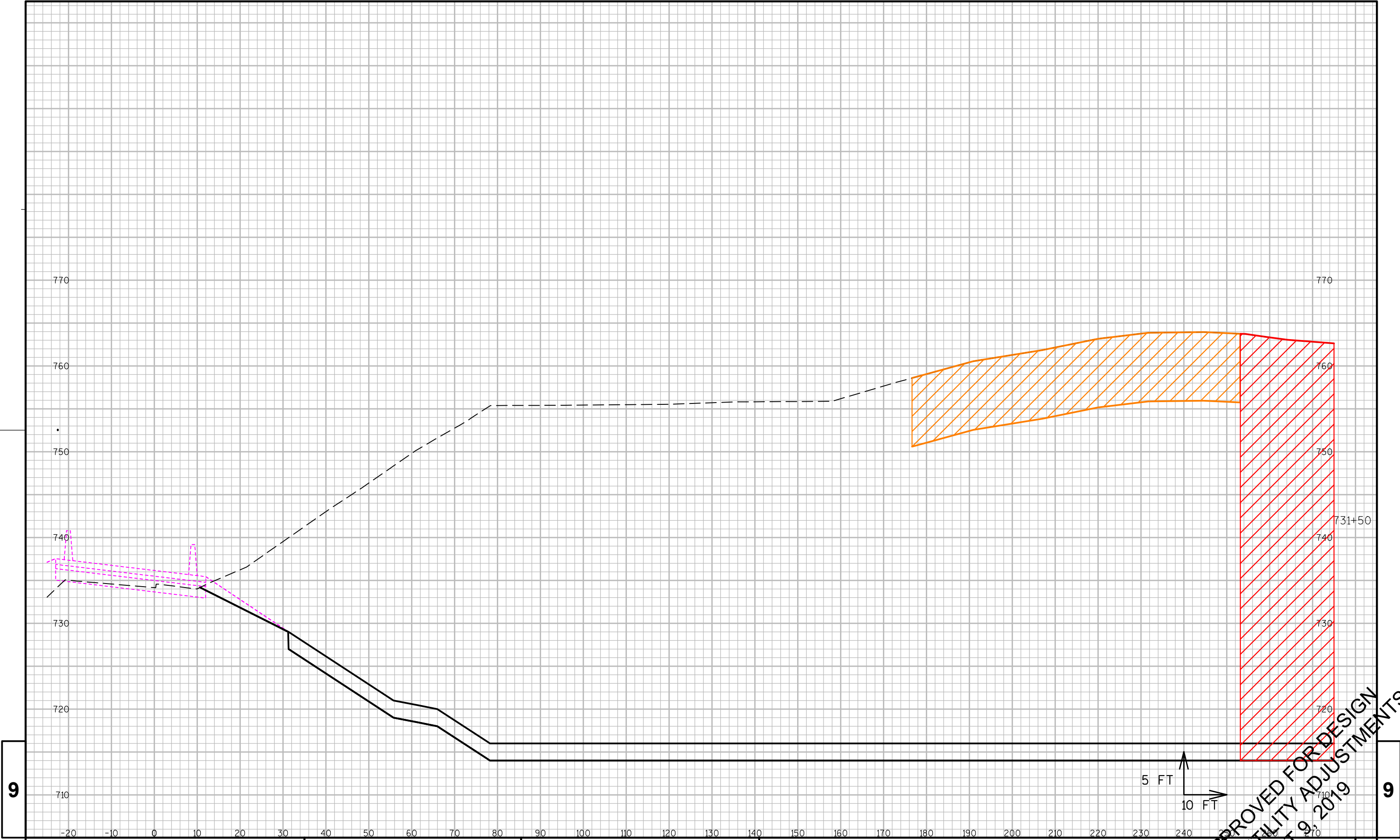
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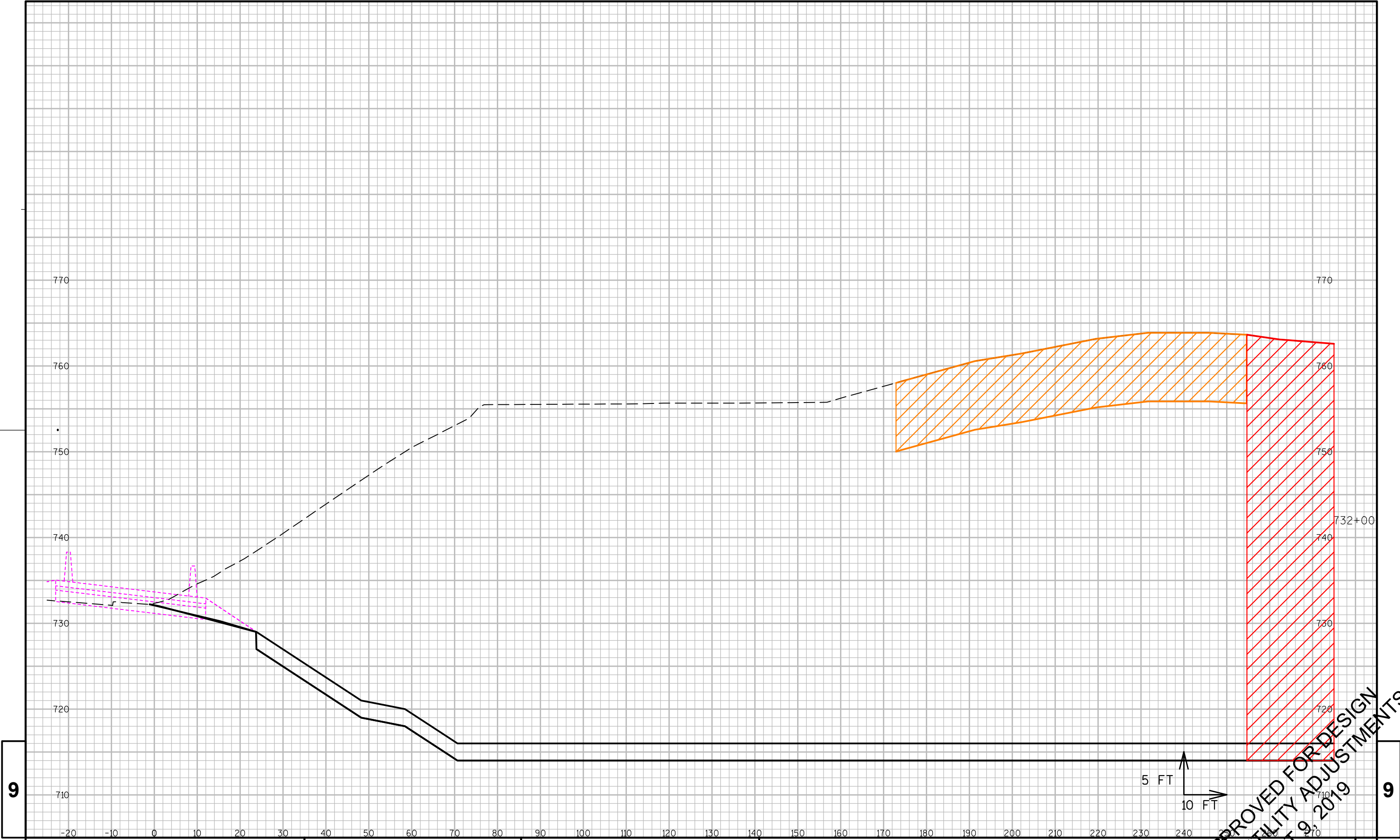
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PROJECT NO:1060-34-78	HWY:IH 41	COUNTY:MILWAUKEE	CROSS SECTIONS: NORTH AVE LOOP EXCAVATION	SHEET	E
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AUGUST 9, 2019



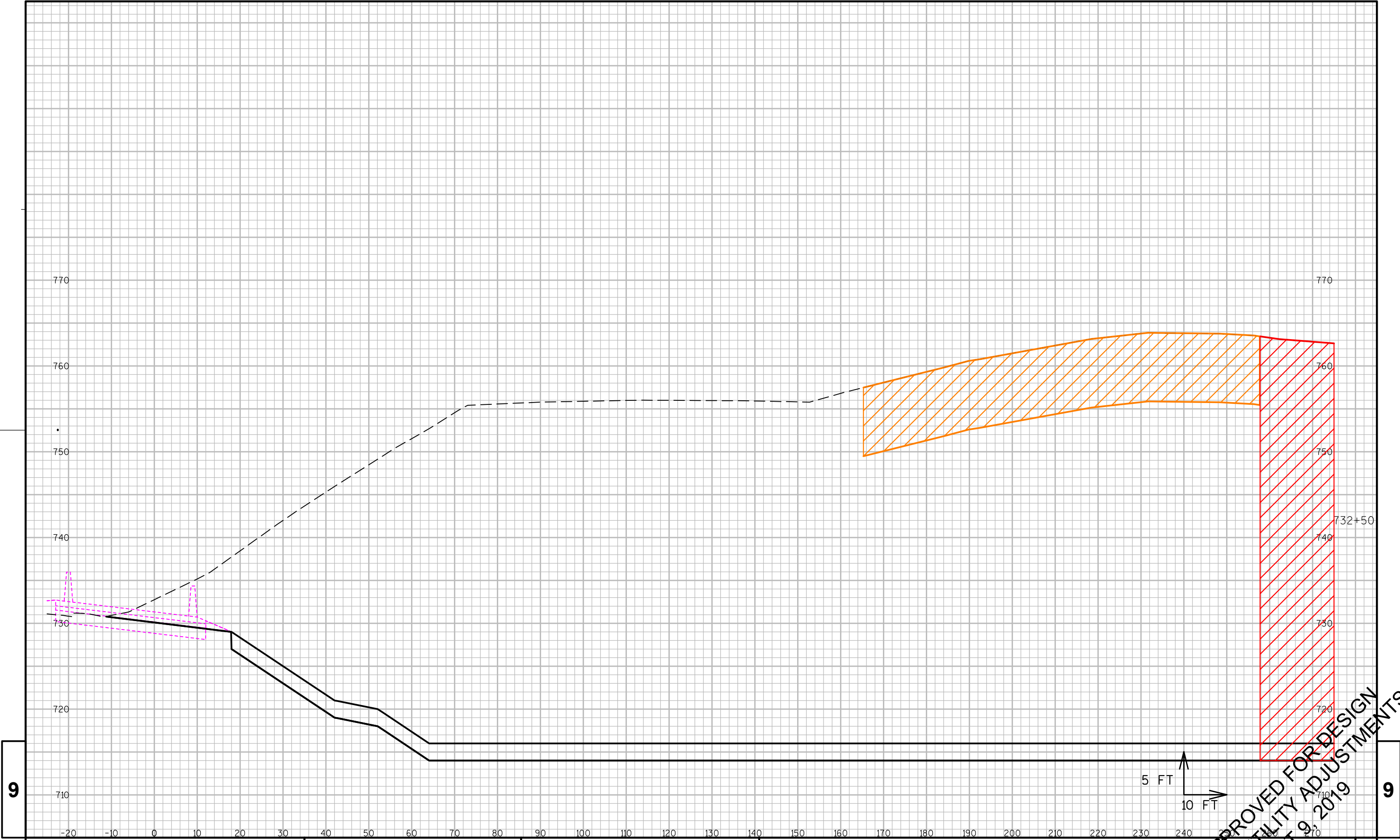
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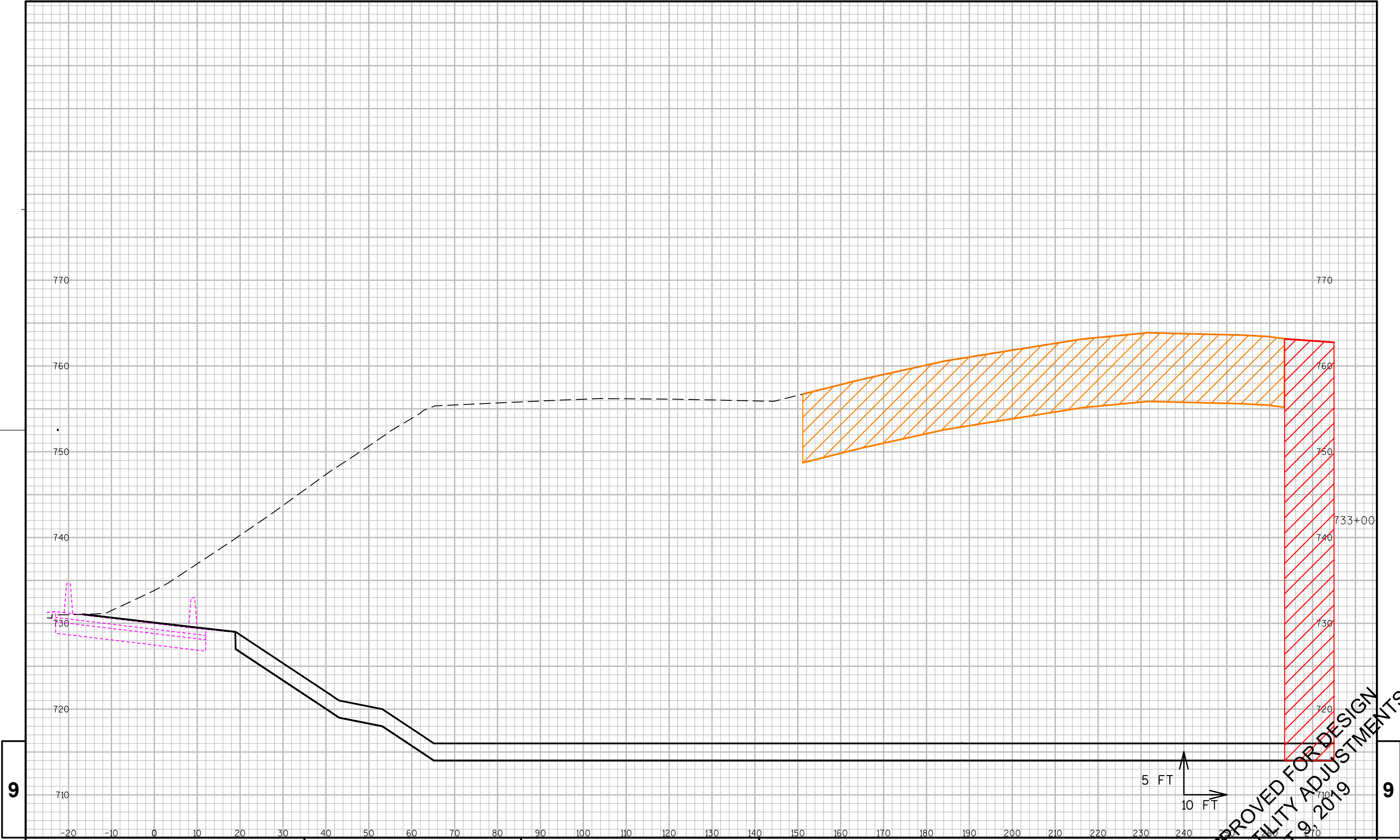
APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019
ISDOT/CADD SHEET 49



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OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



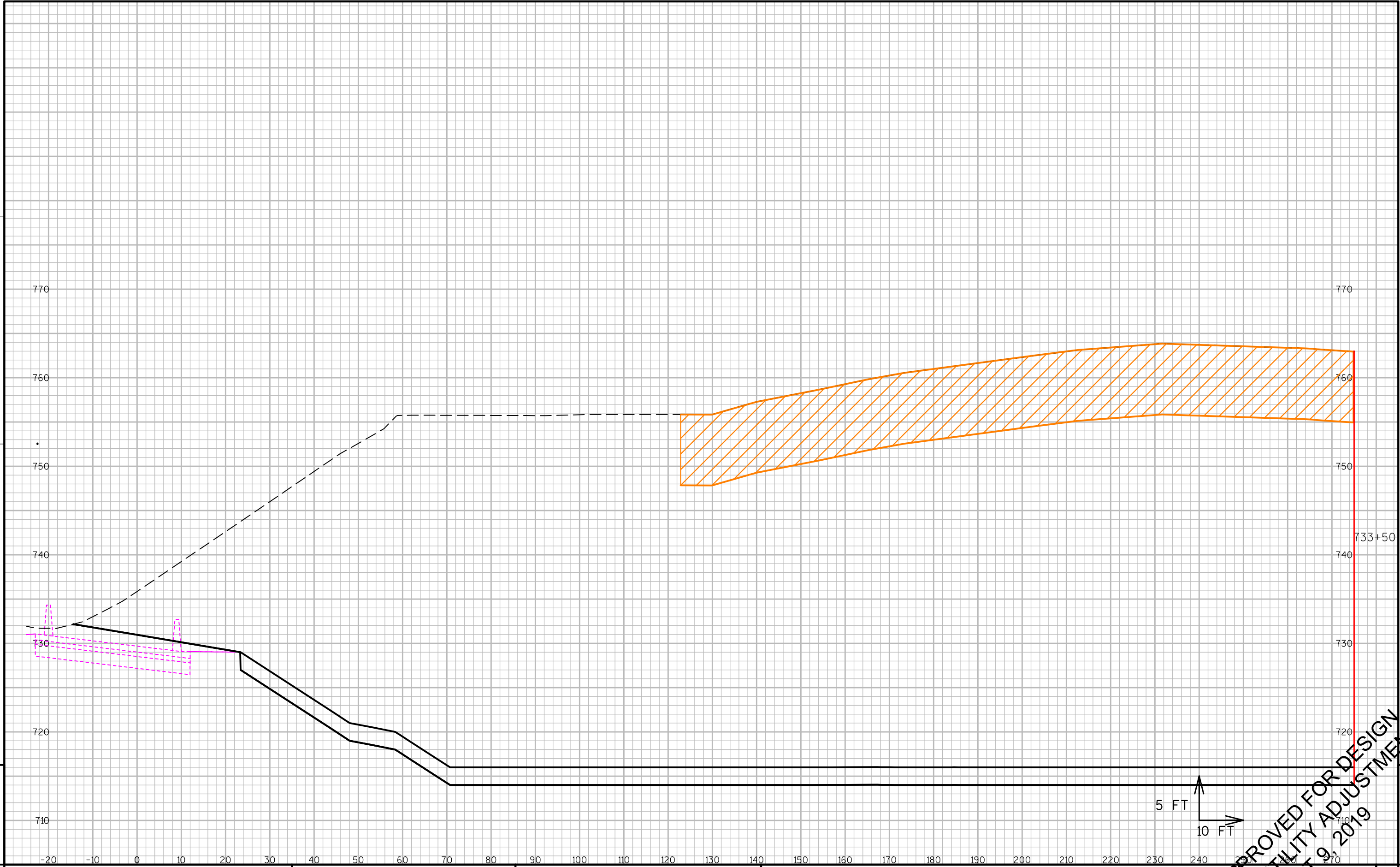
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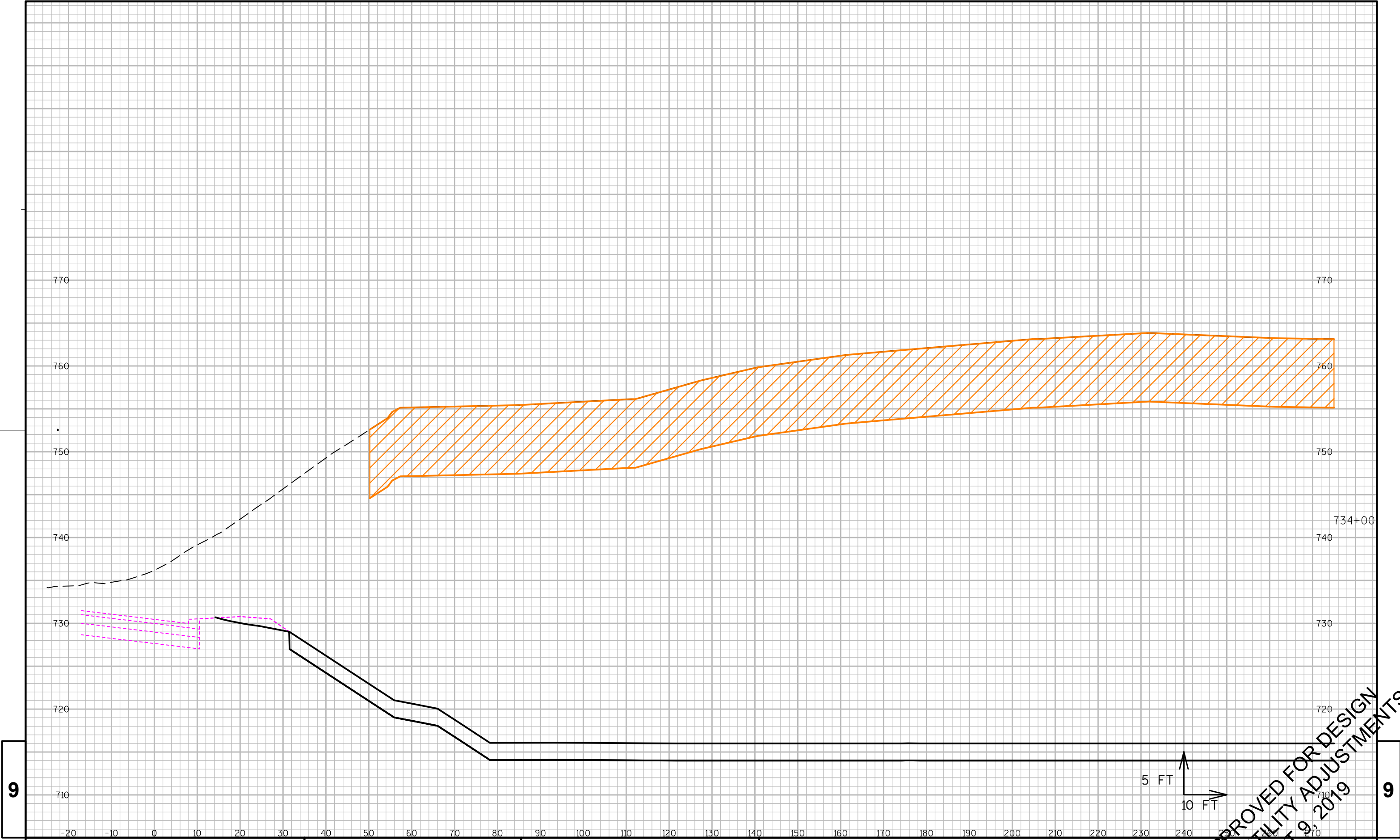
APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019
ISOT/CADDs SHEET 49



PROJECT NO:1060-34-78	HWY:IH 41	COUNTY:MILWAUKEE	CROSS SECTIONS: NORTH AVE LOOP EXCAVATION	SHEET 49	E
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ISDOT/CADDs SHEET 49

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AUGUST 9, 2019



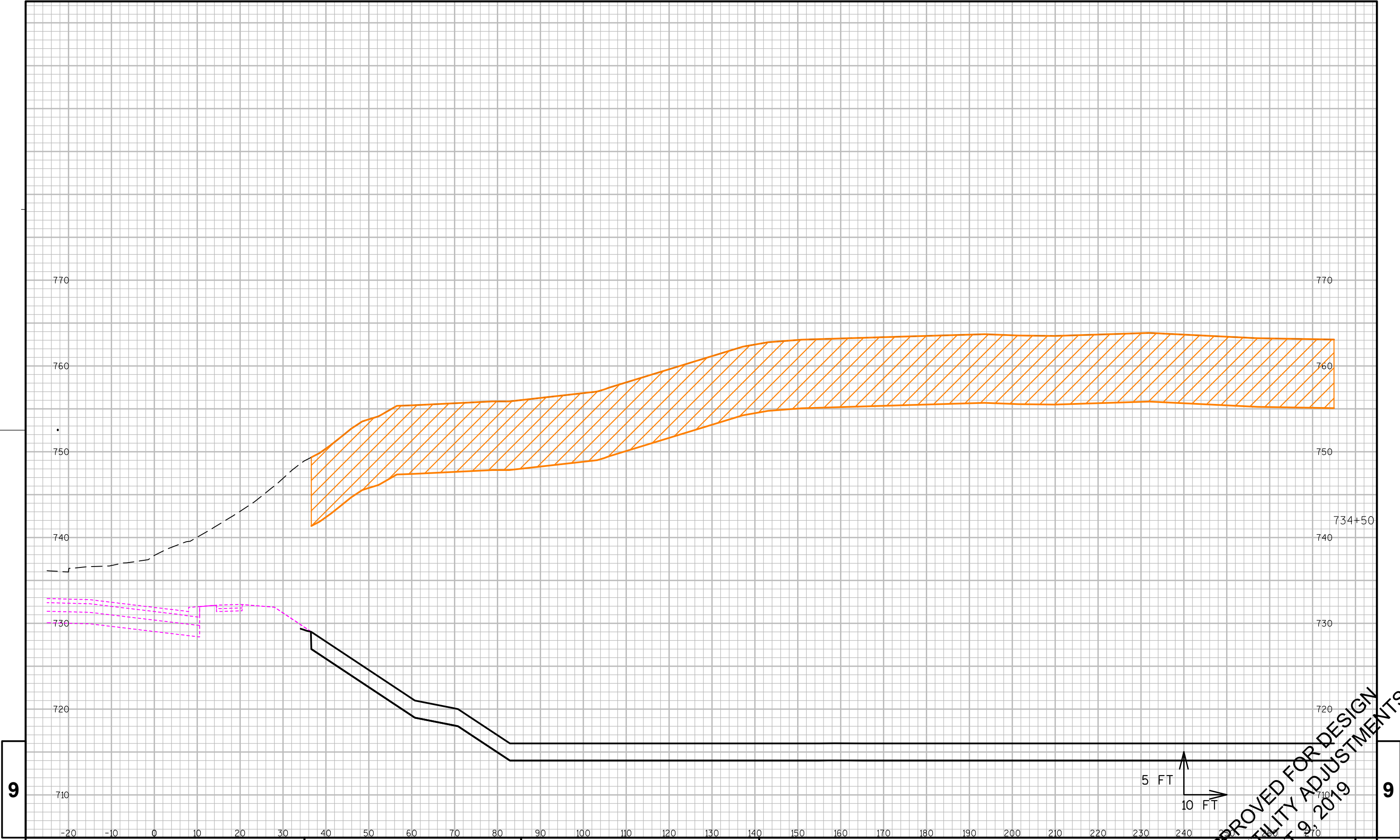
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AUGUST 9, 2019
ISDOT/CADDs SHEET 49



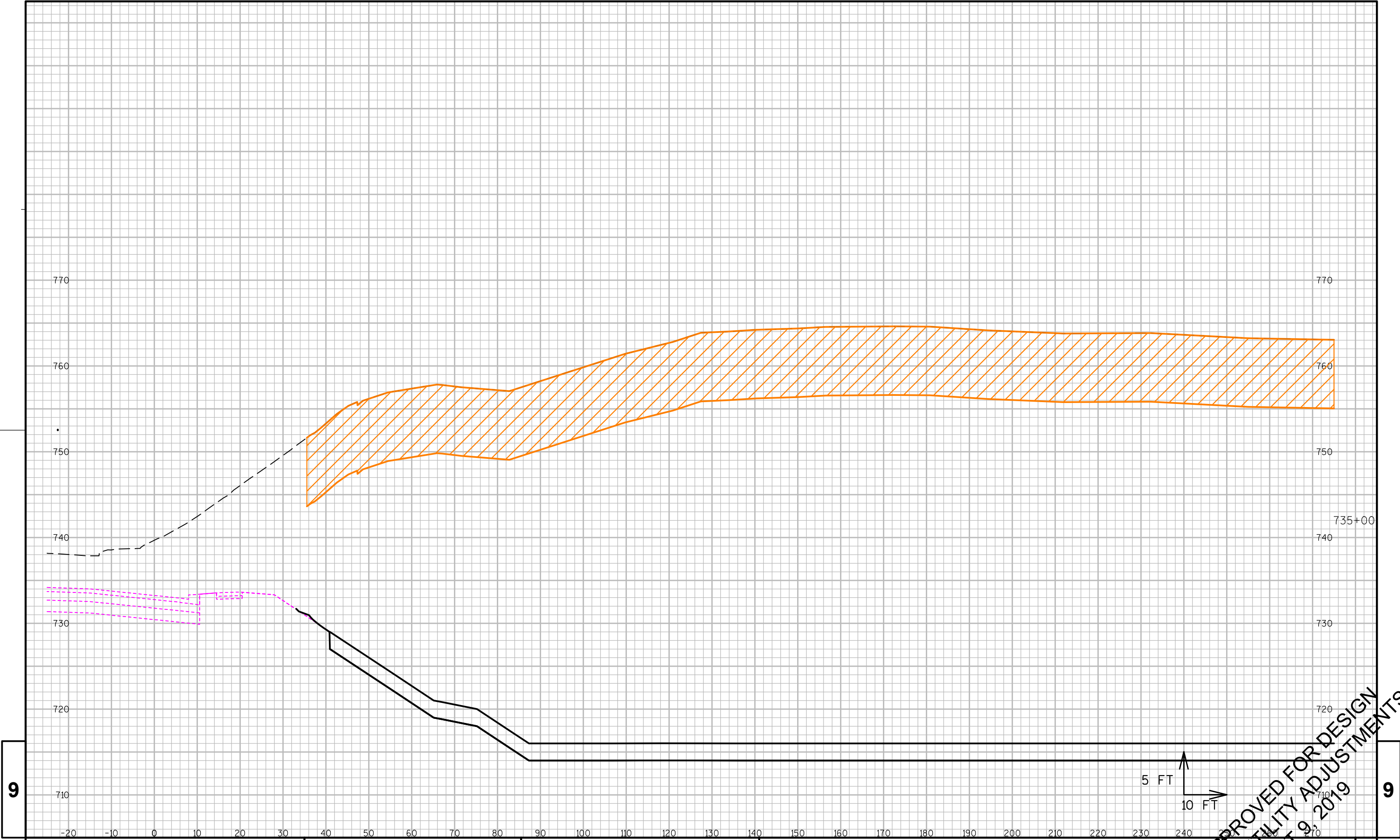
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PROJECT NO:1060-34-78 HWY:IH 41 COUNTY:MILWAUKEE CROSS SECTIONS: NORTH AVE LOOP EXCAVATION SHEET 49

FILE NAME : W:\PDS\C3D\10603316\78\DSN\XS\090401_XS-NOBPOND.DWG PLOT DATE : 12/9/2016 9:54 AM PLOT BY : AUSEN, CRAIG D PLOT NAME : PLOT SCALE : 1:20_XREF

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



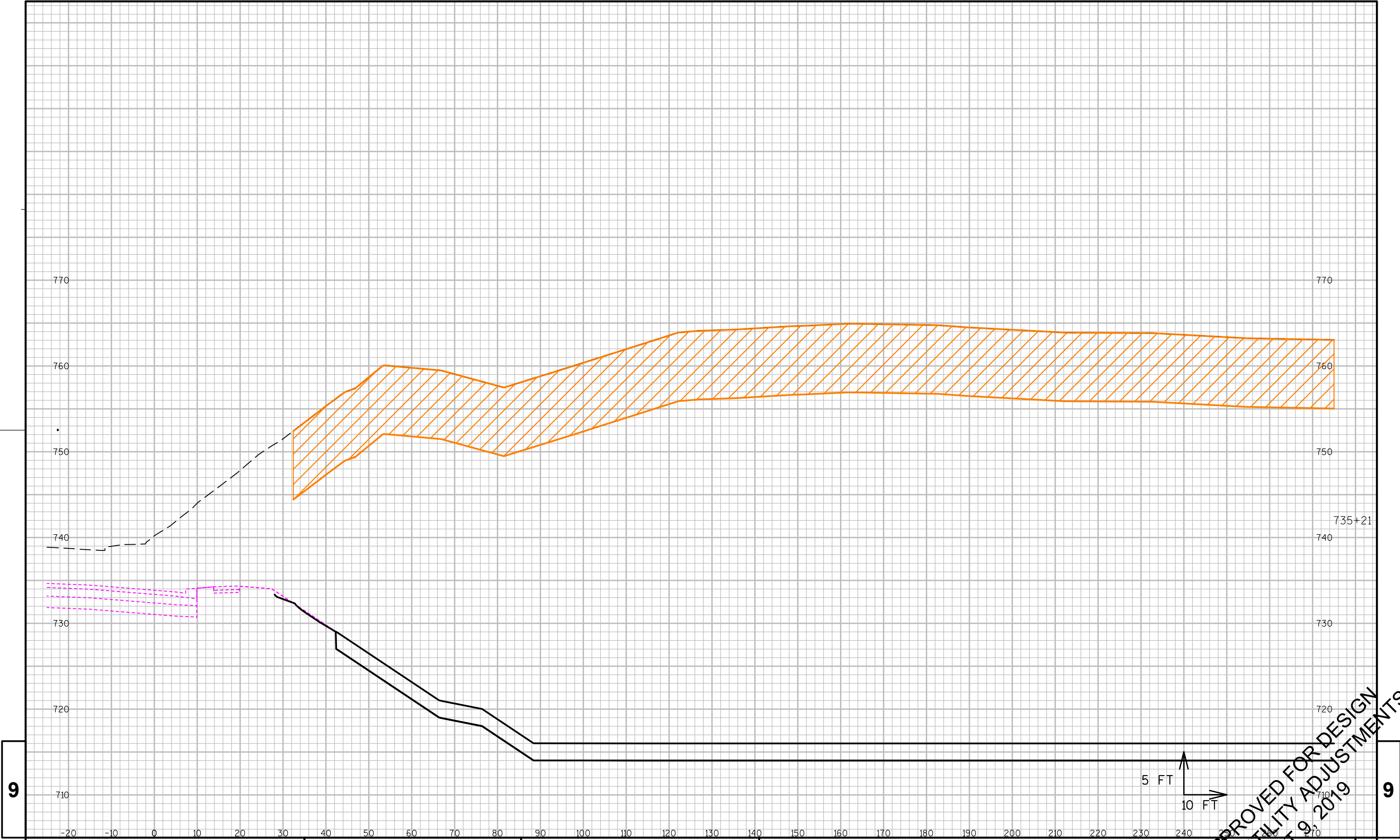
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9

PROJECT NO:1060-34-78 HWY:IH 41 COUNTY:MILWAUKEE CROSS SECTIONS: NORTH AVE LOOP EXCAVATION SHEET E

FILE NAME : W:\PDS\C3D\10603316\78\DSN\XS\090401_XS-NOBPOND.DWG PLOT DATE : 12/9/2016 9:54 AM PLOT BY : AUSEN, CRAIG D PLOT NAME : PLOT SCALE : 1:20_XREF

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019
ISDOT/CADDS SHEET 49



PROJECT NO:1060-34-78

HWY:IH 41

COUNTY:MILWAUKEE

CROSS SECTIONS: NORTH AVE LOOP EXCAVATION

SHEET

E

FILE NAME : W:\PDS\C3D\10603316\78\DSN\XS\090401_XS-NOBPOND.DWG
LAYOUT NAME - NOB - (28)

PLOT DATE : 12/9/2016 9:54 AM

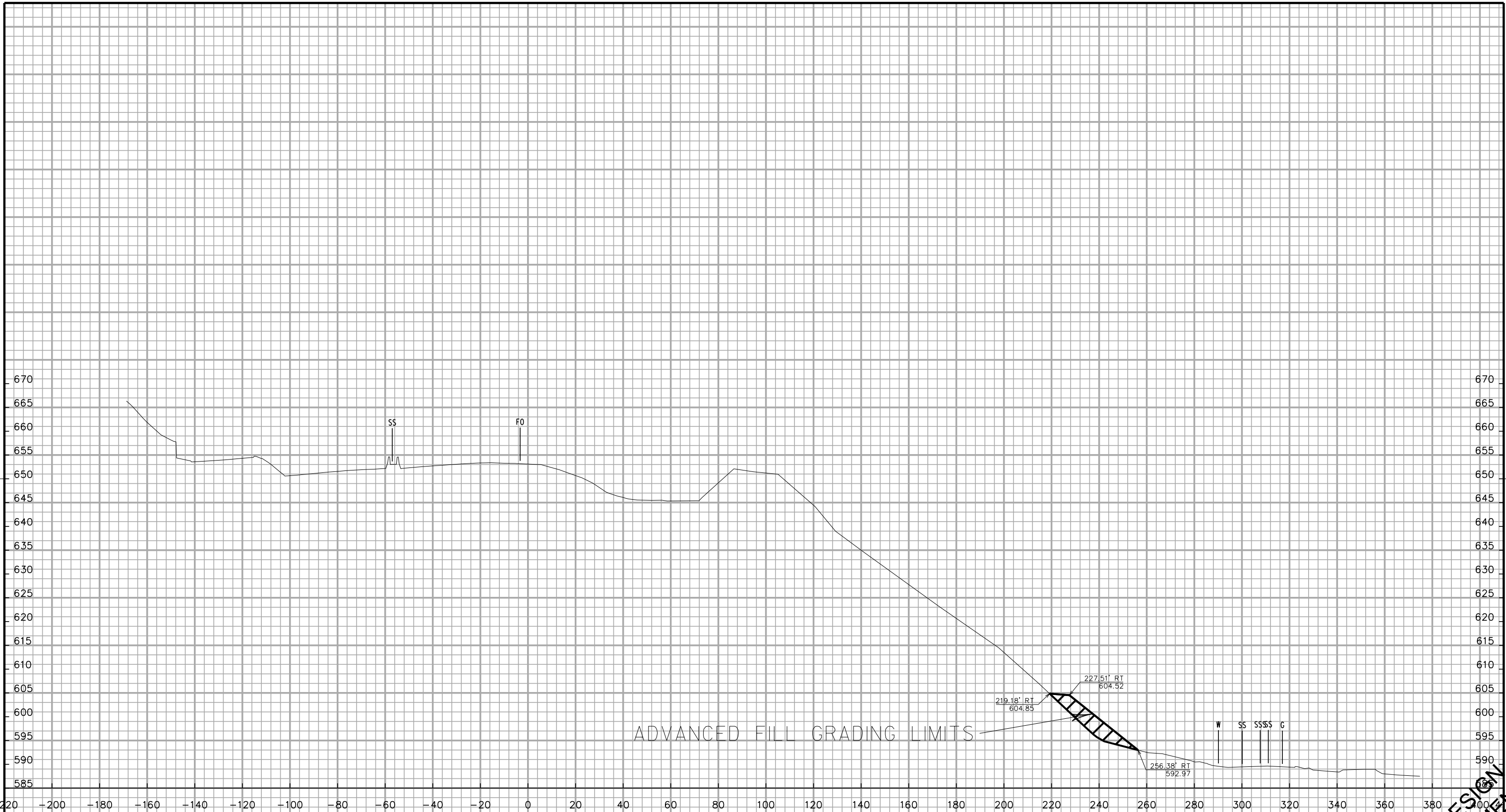
PLOT BY : AUSEN, CRAIG D

PLOT NAME :

PLOT SCALE : 1:20_XREF

ISDOT/CADDs SHEET 49

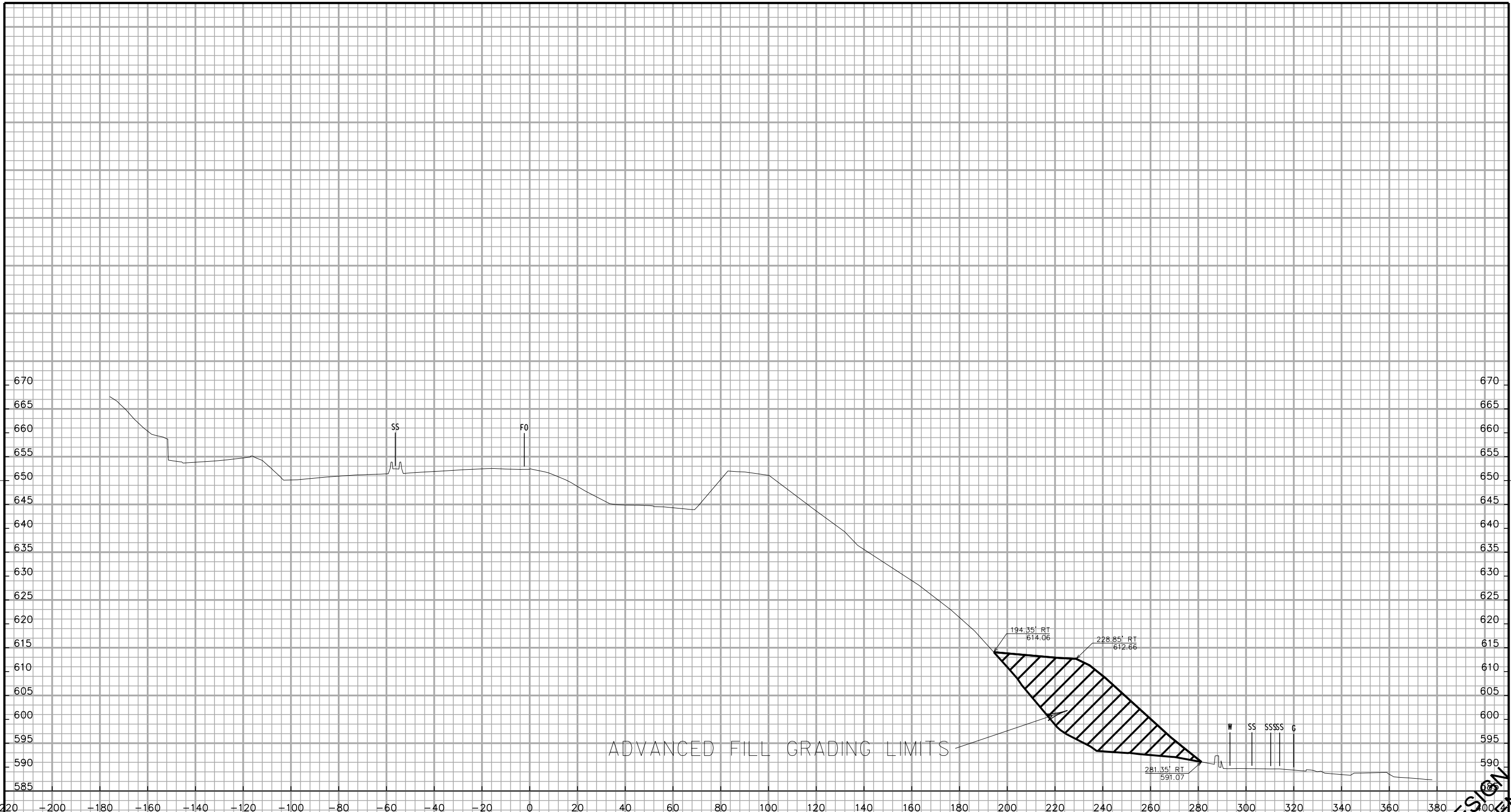
APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



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APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



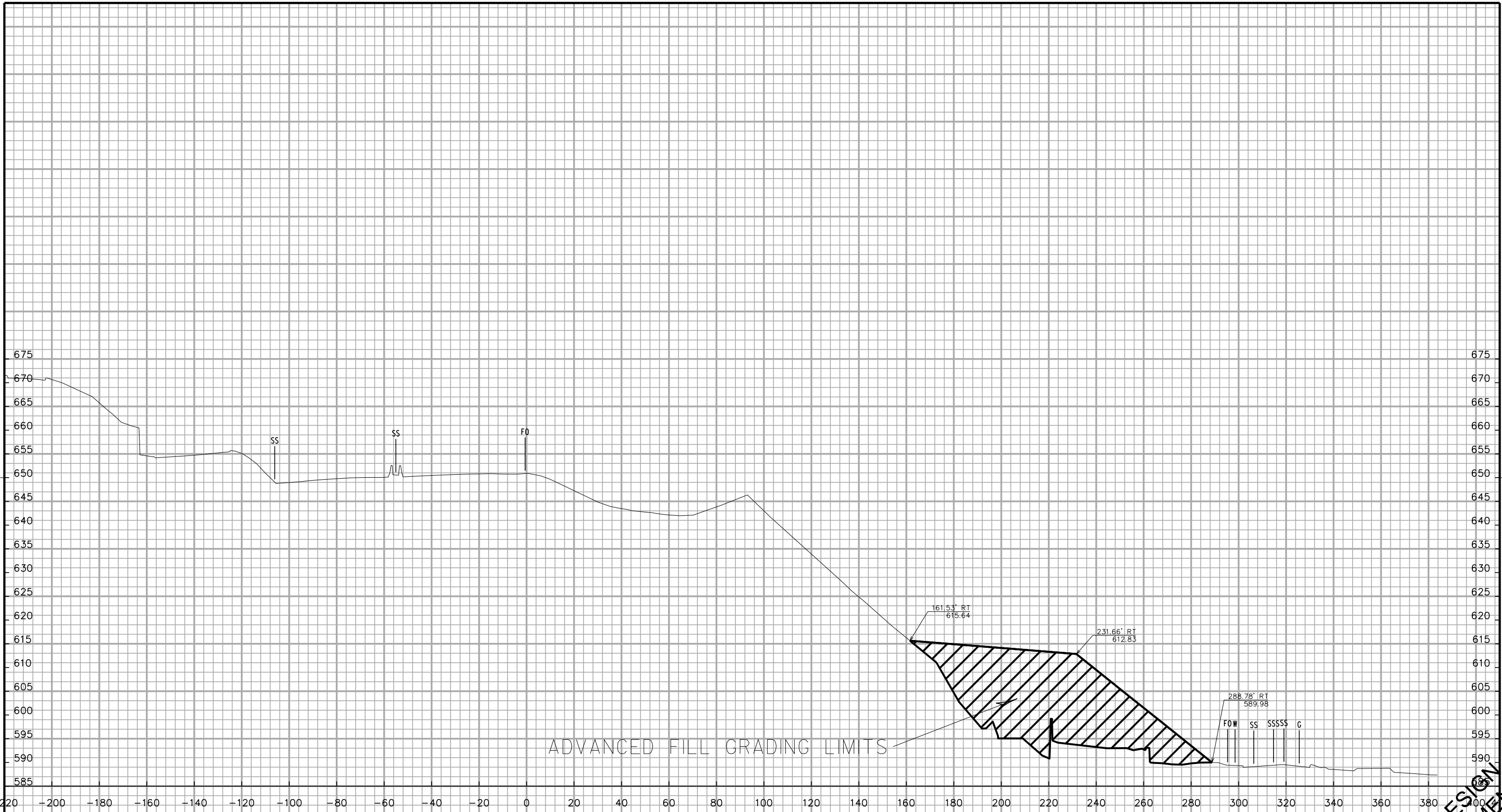
9

9

STA 9+50 TO 9+50

10 FT
20 FT

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OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



ADVANCED FILL GRADING LIMITS

161.53' RT
615.64

231.66' RT
612.83

288.78' RT
589.98

FOW SS SSSSS G

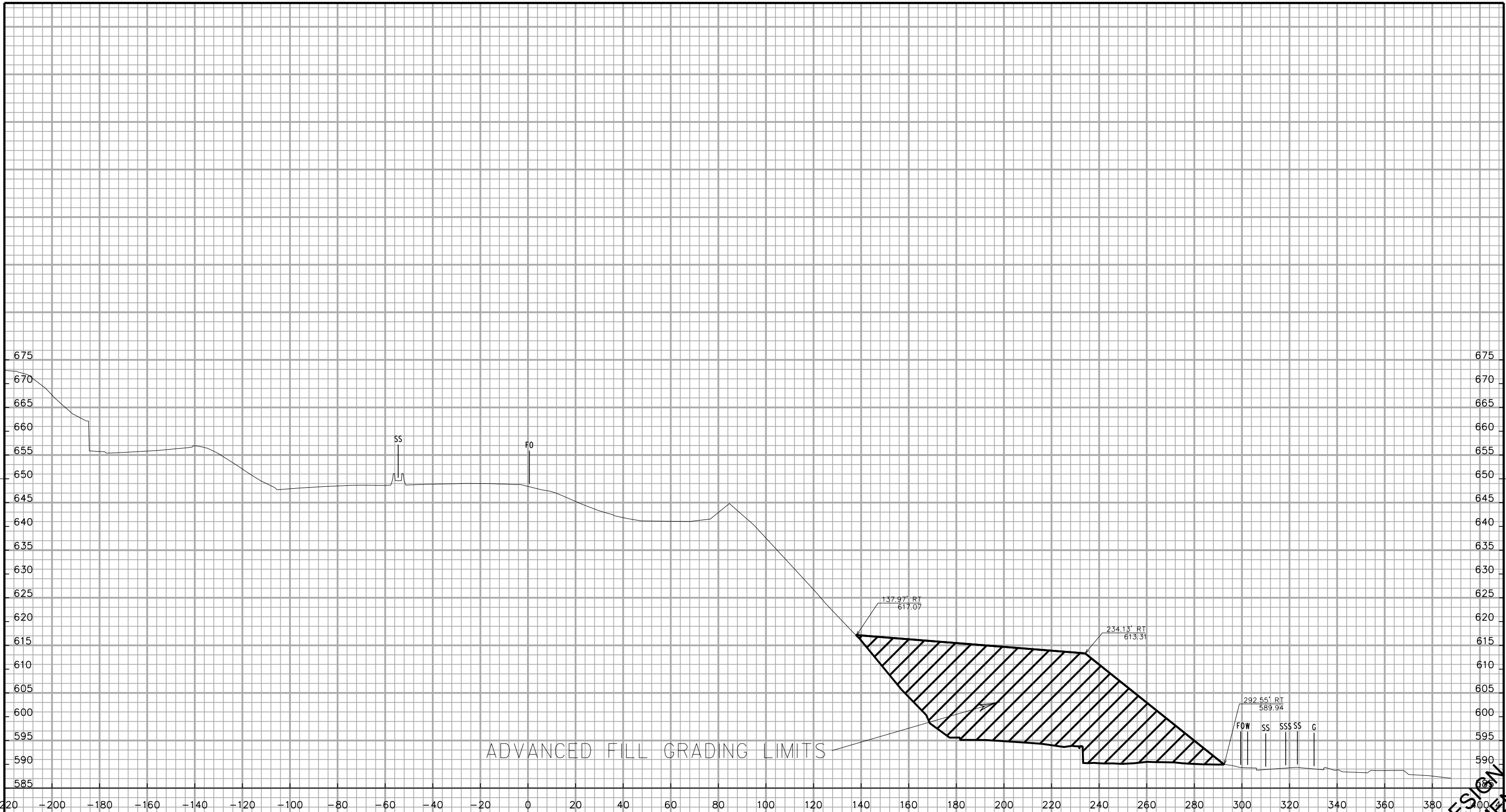
STA 10+00 TO 10+00

10 FT
20 FT

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019

9

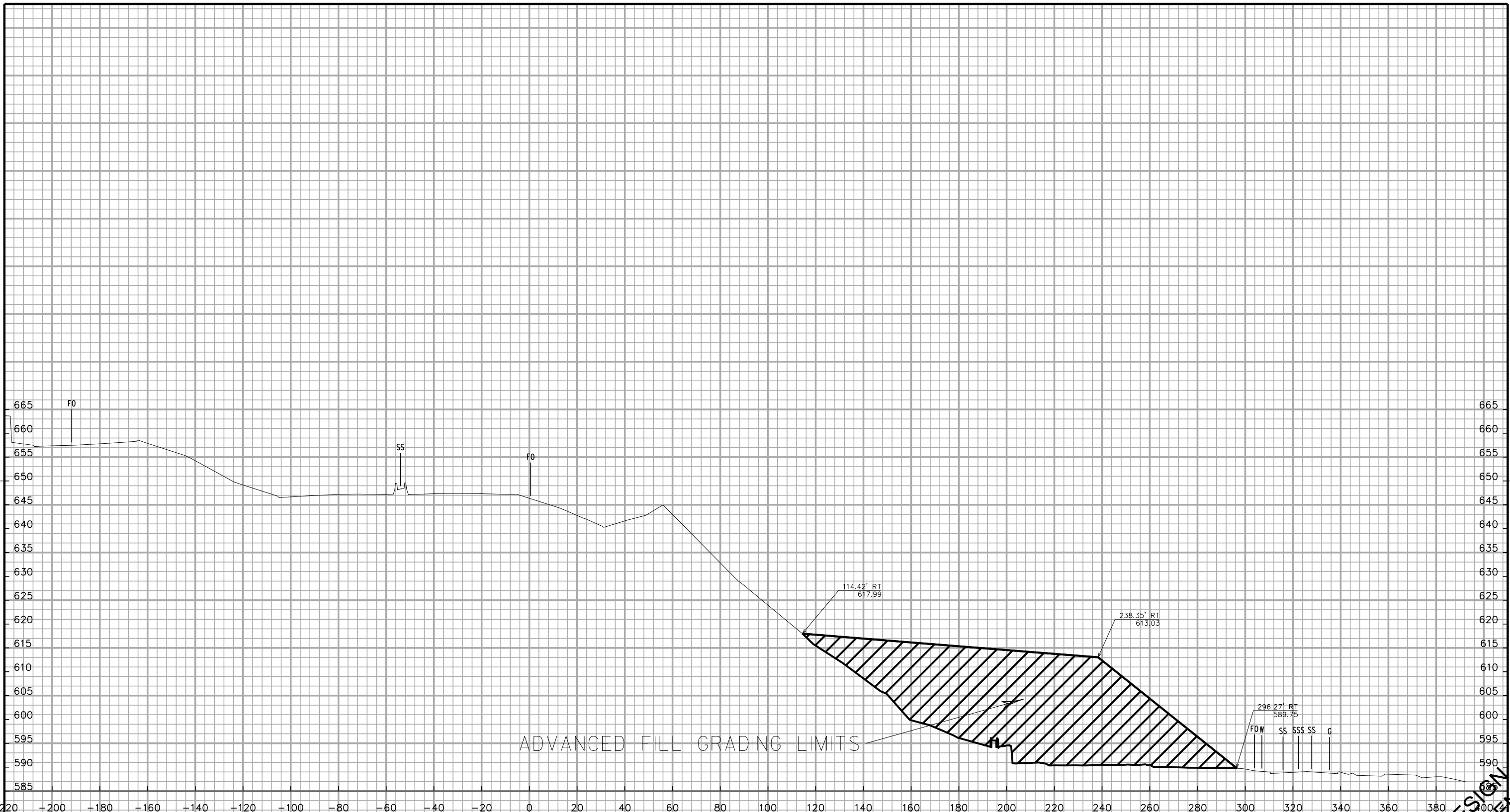
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9

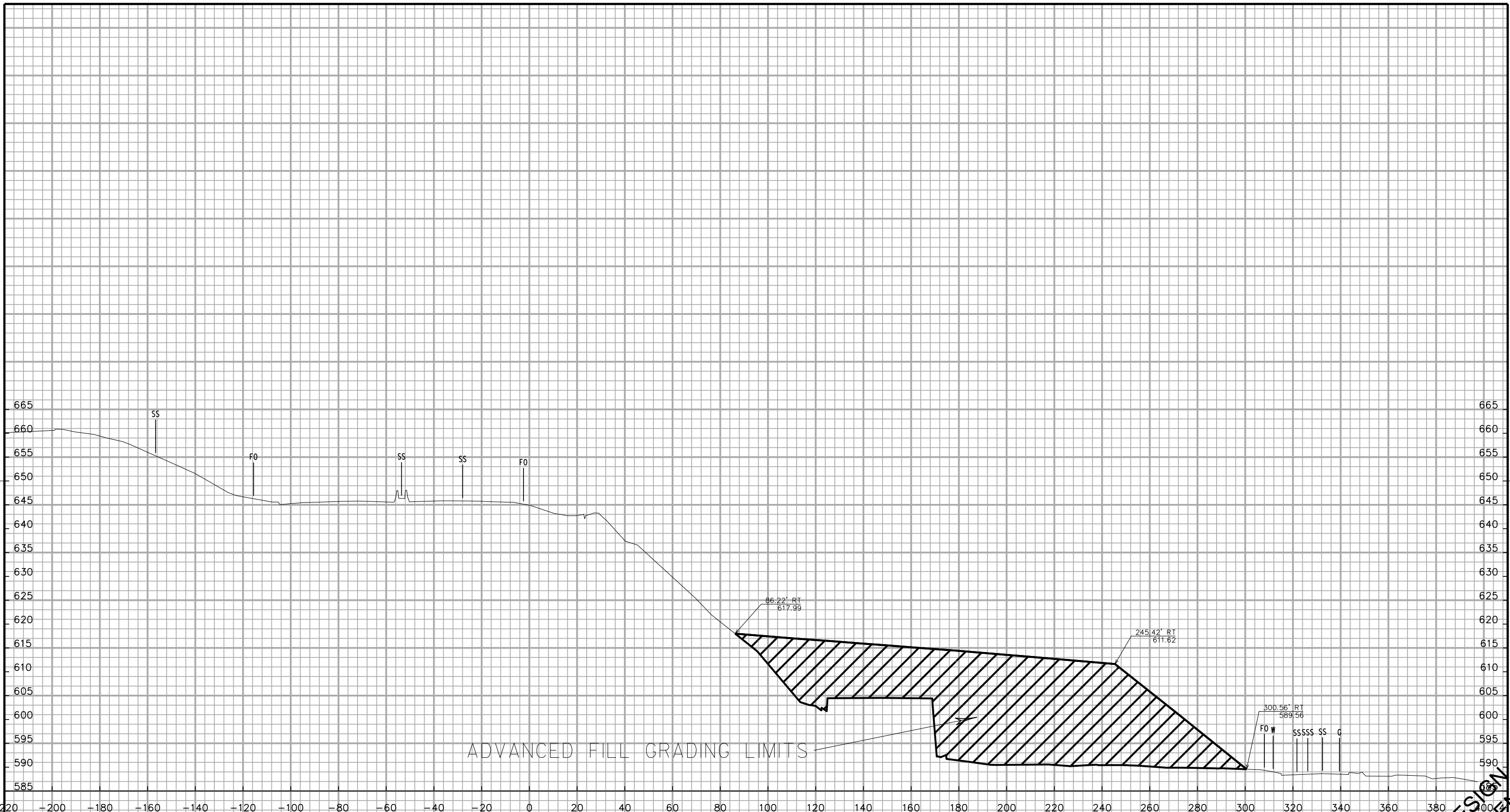
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APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019
MSDOT/CADDS SHEET 21



STA 11+00 TO 11+00

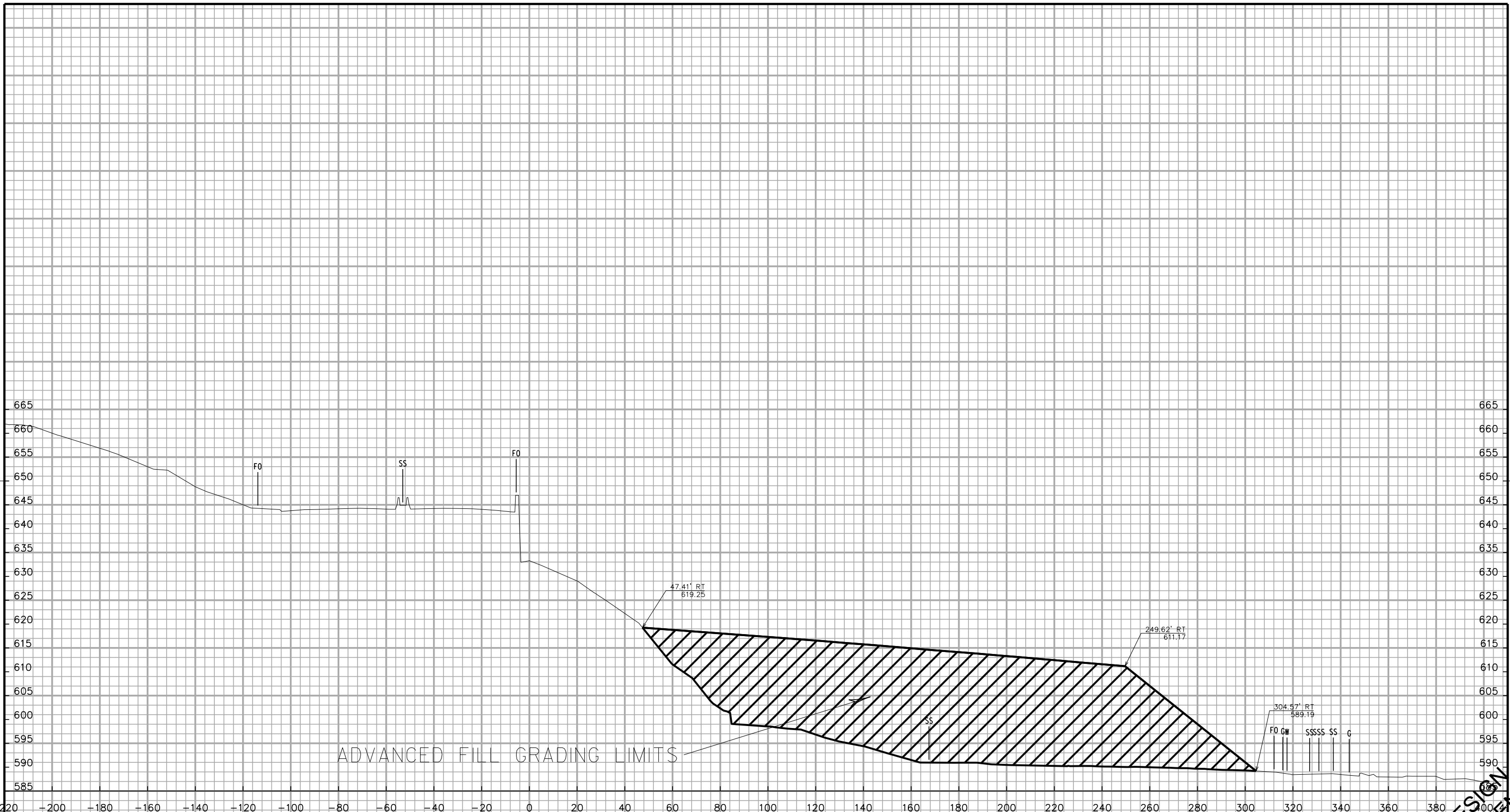
APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



9

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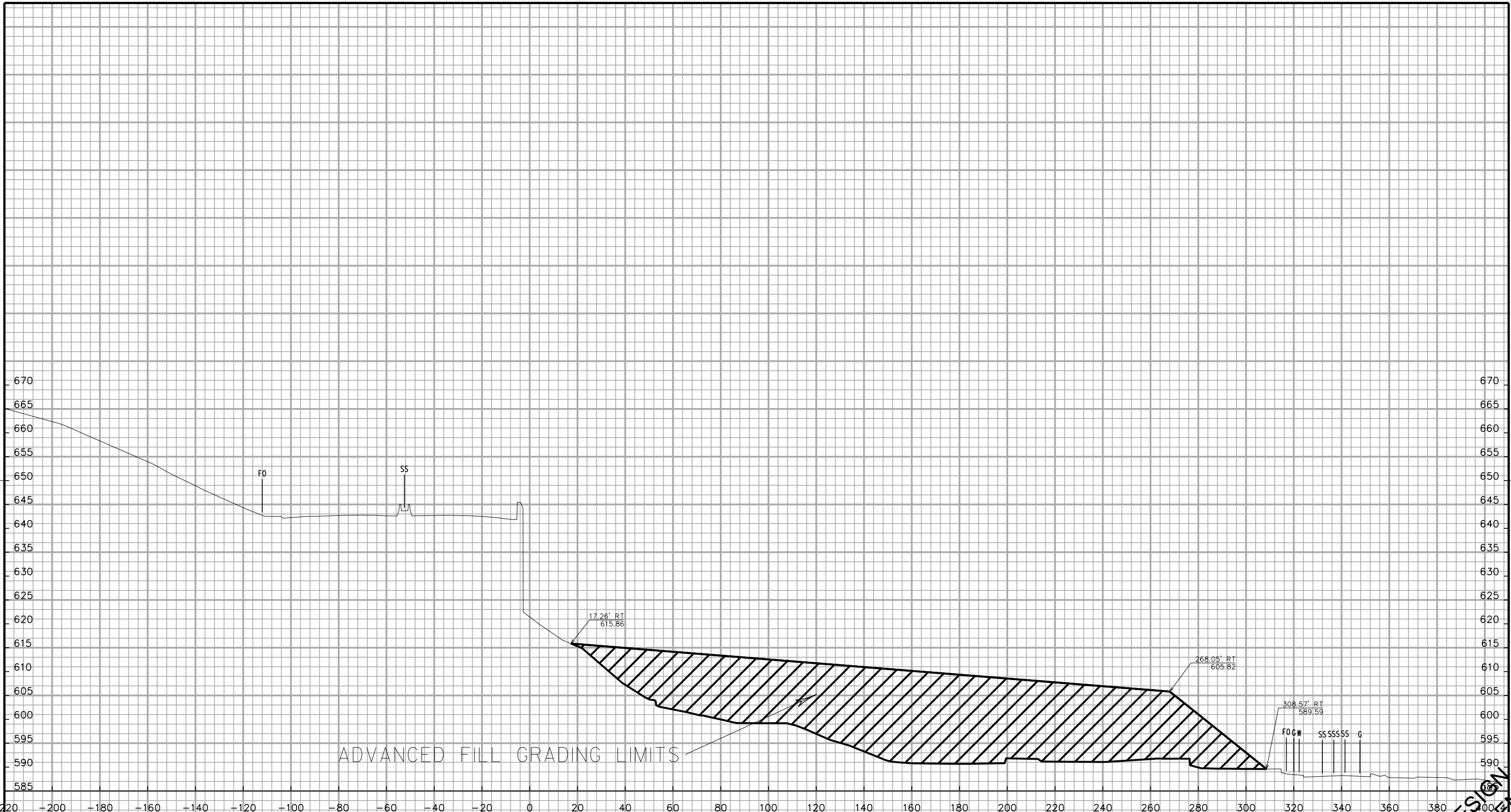
APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019
SHEET 21



9

9

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



ADVANCED FILL GRADING LIMITS

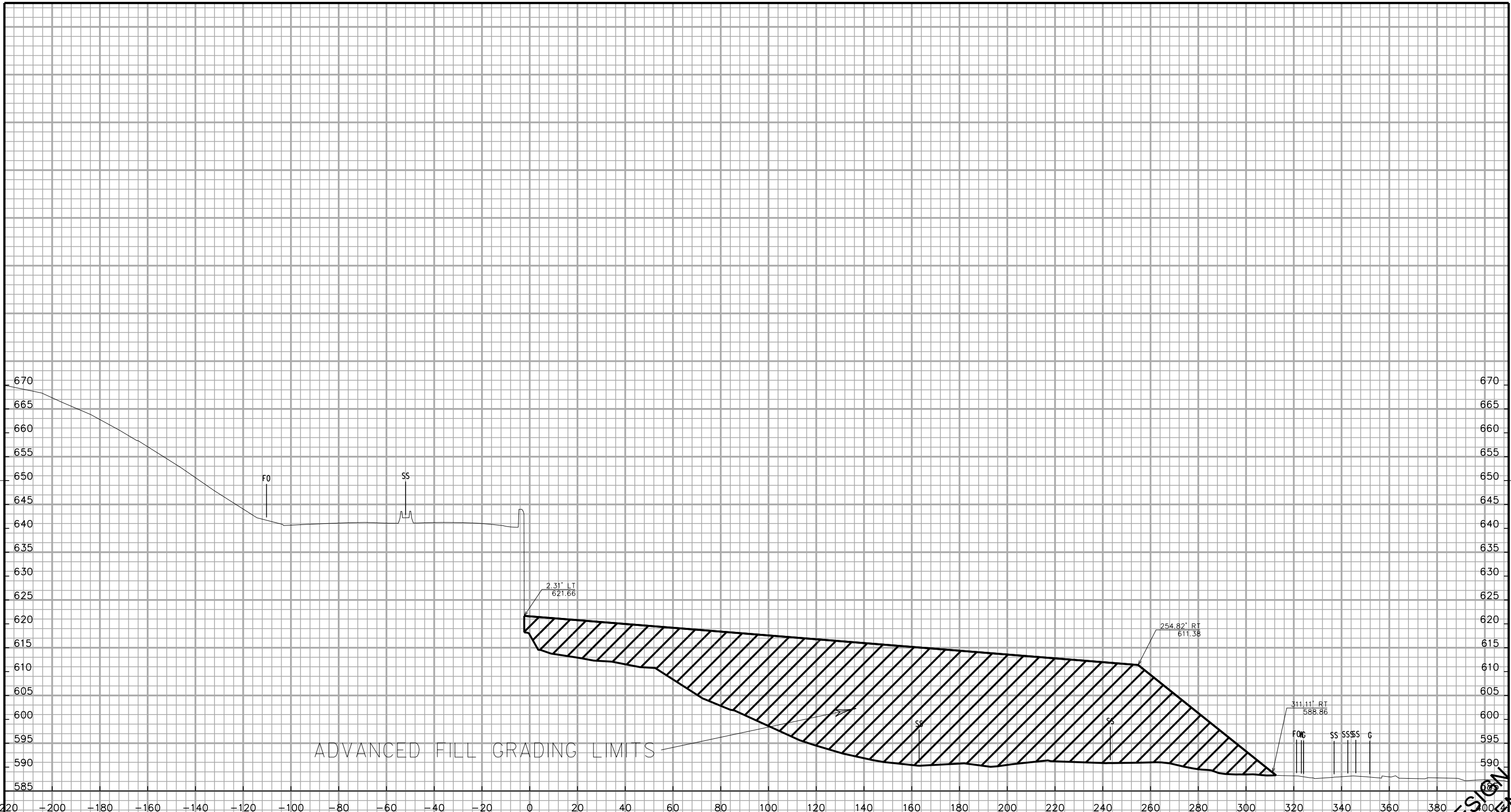
STA 12+50 TO 12+50

10 FT
20 FT

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019

9

9



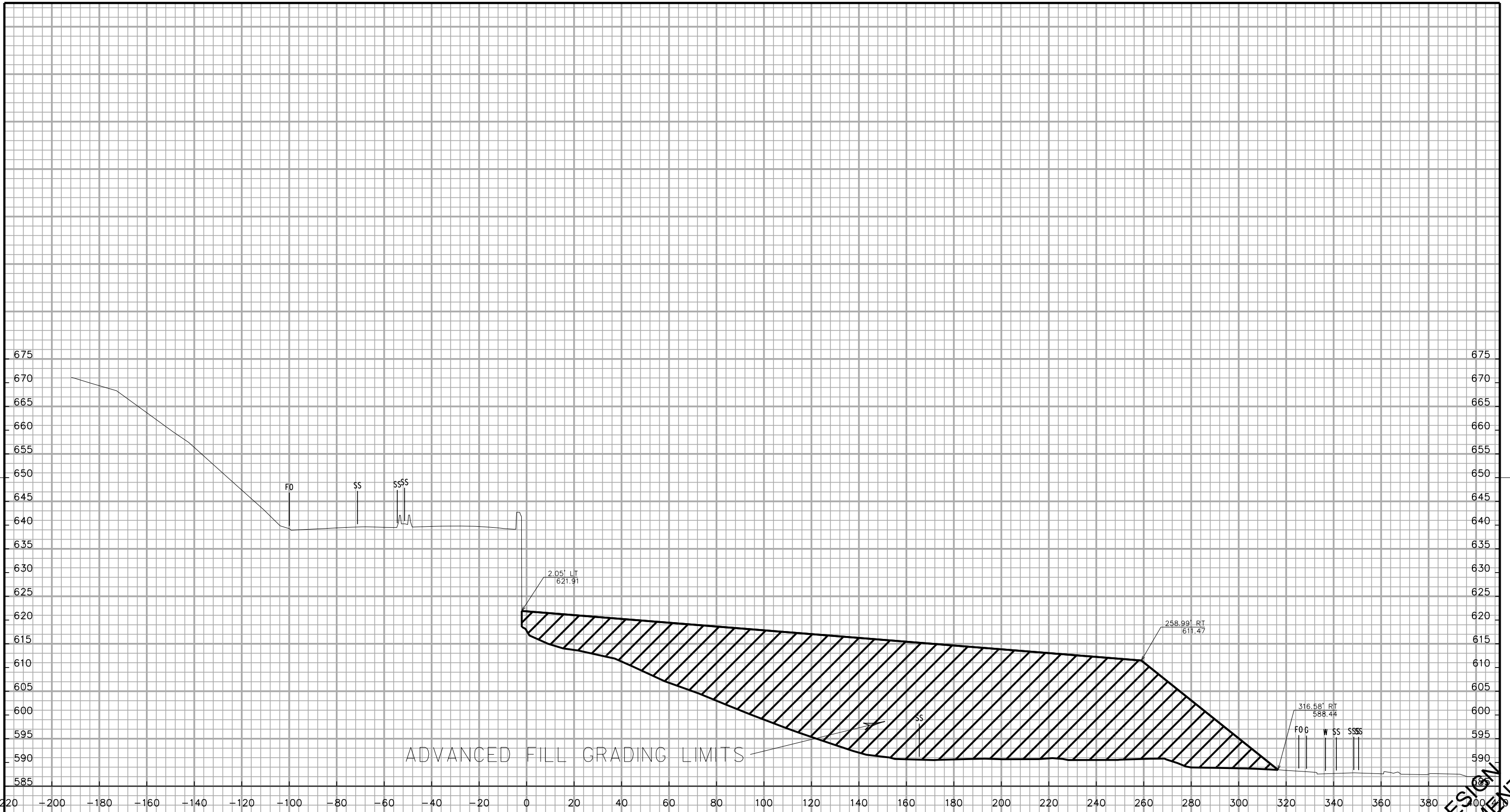
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9

PROJECT NO: 1060-34-78 HWY: IH 94 COUNTY: MILWAUKEE CROSS SECTIONS: ADVANCED FILL ALONG IH 94

FILE NAME : c:\pw_workdir\den001\gfergus1\d0803601\Red Star 1078.dgn PLOT DATE : 05-DEC-2016 12:22 PLOT BY : gfergus1 PLOT NAME : Red Star 1078 PLOT SCALE : 40:1

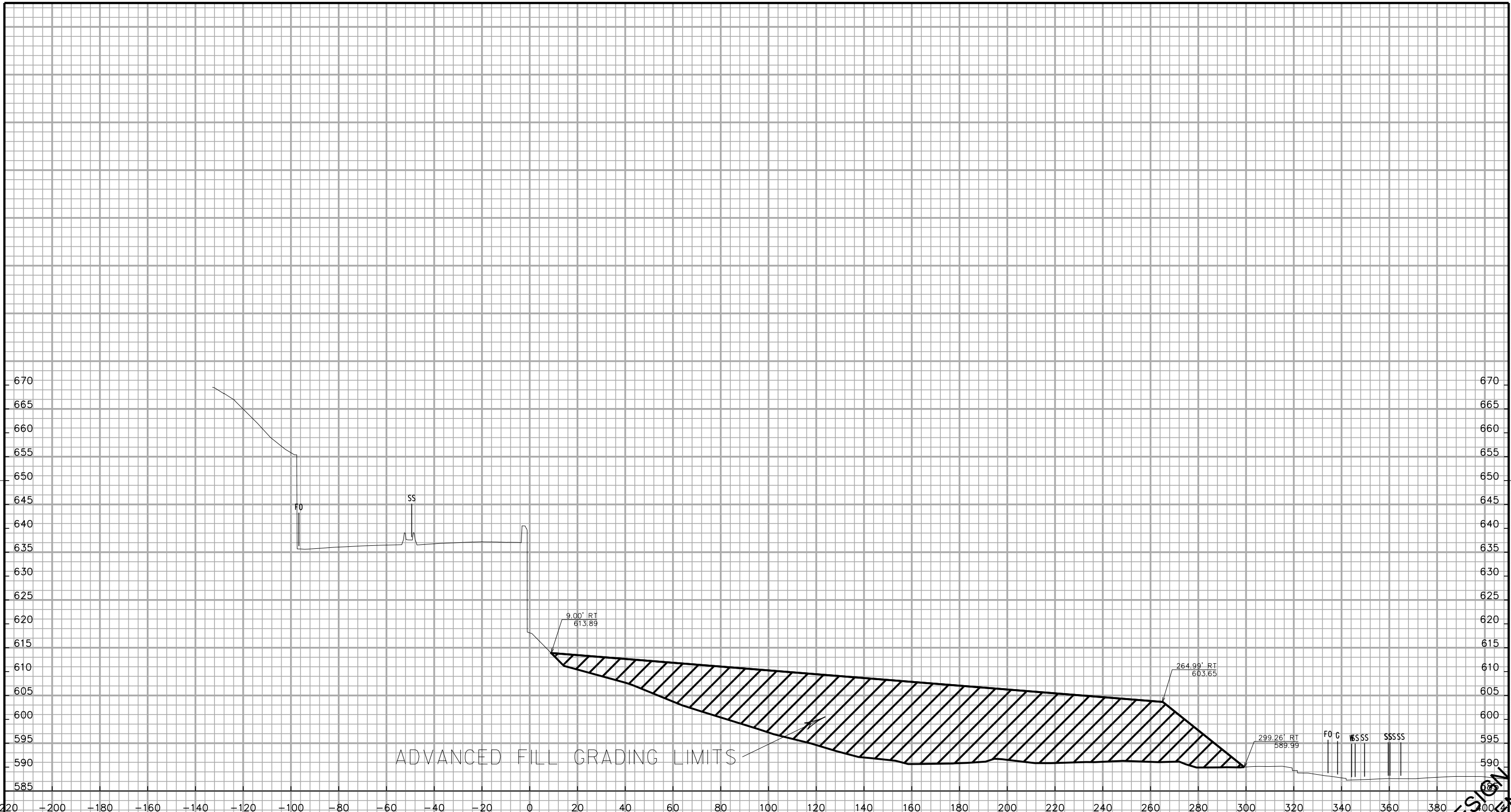
APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019
SHEET 21



9

9

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



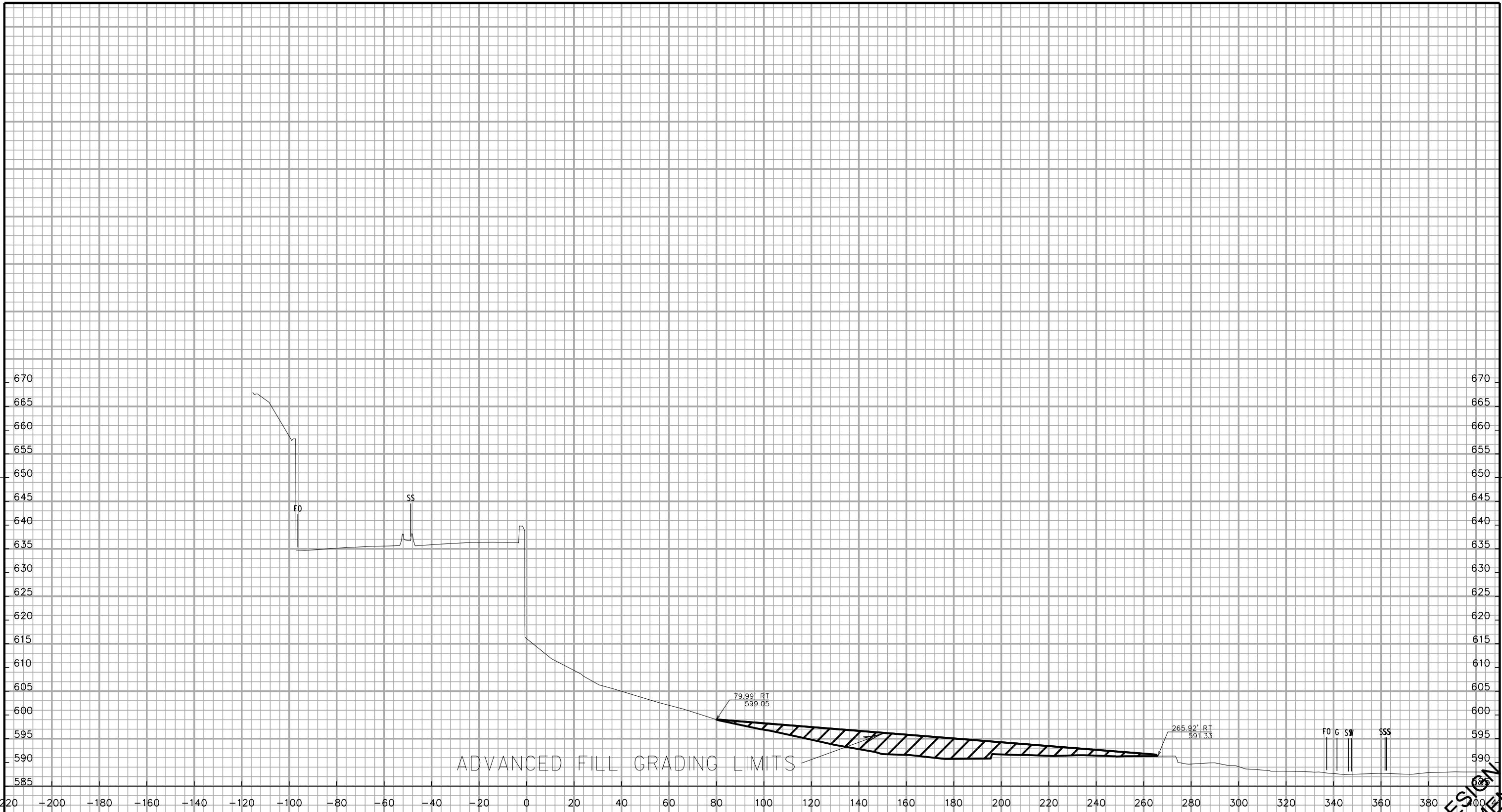
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9

STA 14+50 TO 14+50

10 FT
20 FT

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019



9

9

STA 14+80 TO 14+80

PROJECT NO: 1060-34-78	HWY: IH 94	COUNTY: MILWAUKEE	CROSS SECTIONS: ADVANCED FILL ALONG IH 94	SHEET	E
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FILE NAME : c:\pw_workdir\den001\gfergus1\d0803601\Red Star 1078.dgn PLOT DATE : 05-DEC-2016 12:29 PLOT BY : gfergus1 PLOT NAME : Red Star 1078 PLOT SCALE : 40:1 VISDOT/CADDS SHEET 21

APPROVED FOR DESIGN
OF UTILITY ADJUSTMENTS
AUGUST 9, 2019

EPlans Preliminary Sheet Numbering Tool

This sheet: ftp://ftp.dot.state.wi.us/transp/roads/eplans/prelim_sheet_numbers.pdf

Notes

- Acrobat 5 or higher is required to use this tool.
- The Bureau of Highway Construction places sheet numbers in the final plan.
- This sheet is for placing preliminary sheet numbers with a "PRE_" prefix.
- If a plan contains multiple projects, number each plan individually.
- Leave this sheet in the plan.

TO ADD PRELIMINARY SHEET NUMBERS

1. Insert this sheet at the end of the plan

- a. With the plan open in Acrobat, select Document > Insert Pages.
- b. In the Select File to Insert dialog box, select this file (prelim_sheet_numbers.pdf)
- c. In the Insert dialog box, choose After for Location and Last page for Page.
- d. Click OK.

2. Click the Place Preliminary Sheet Numbers button

- a. Go to the last sheet of the plan.
- b. Click the Place Preliminary Sheet Numbers button once.
(The preliminary sheet number appears in the bottom right corner of the sheets.
The number should match the page number in the Acrobat Status bar).

3. Re-Save the PDF

- a. Select File > Save As and save the PDF.

TO REMOVE PRELIMINARY SHEET NUMBERS

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