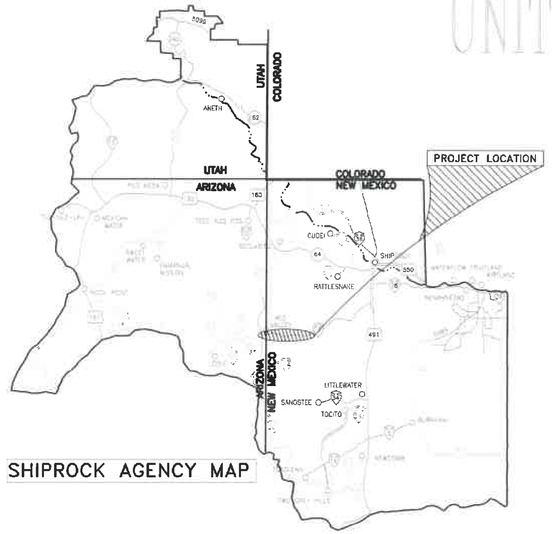
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION D.O.T.
ROUTE

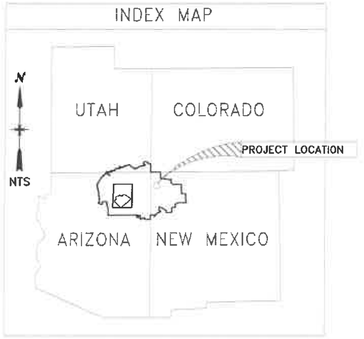


SHIPROCK AGENCY MAP

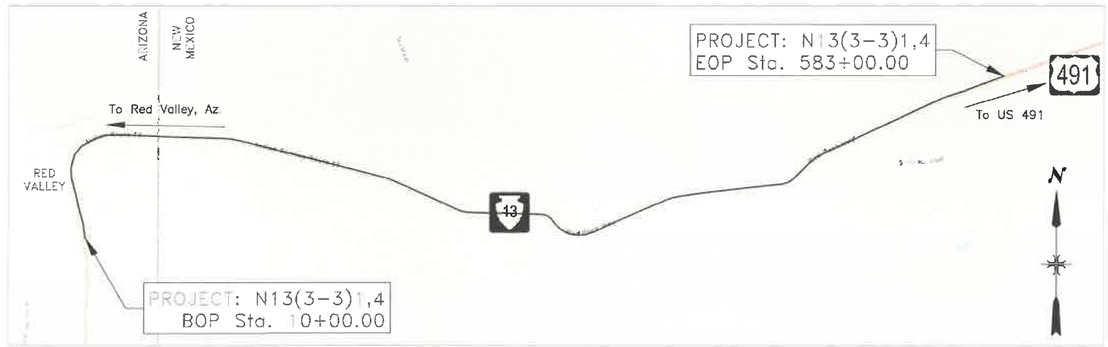
NAVAJO D.O.T

13

PROJECT N13(3-3)1,4
RED VALLEY CHAPTER
APACHE COUNTY, AZ AND SAN JUAN COUNTY, NM
PROJECT LENGTH = 10.825 MILES



INDEX OF SHEETS



SCALE: NONE

TYPE OF CONSTRUCTION:
PAVEMENT REHABILITATION AND RECONSTRUCTION, BRIDGE AND CONCRETE BOX CULVERT REHABILITATION, GUARDRAIL, FENCING, CATTLE GUARDS, AND MISCELLANEOUS CONSTRUCTION

U.S.CUSTOMARY DIMENSIONS:
Slopes are expressed in RUN:RISE

SPECIFICATIONS:
"STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14"

PLANS PREPARED BY

WILSON & COMPANY
4401 MASTHEAD ST. N.E.
SUITE 105
ALBUQUERQUE, NEW MEXICO
87109
(505) 348-4000

MYRA K. CANDELARIA
NEW MEXICO
25660
PROFESSIONAL ENGINEER
6/09/2025

PROJECT LENGTH

PROJECT: N13(3-3)1,4 MAINLINE

STATION	LENGTH (ft)	LENGTH (mi)
BOP 10+00.00		
	57,300.00	10.852
EOP 583+00.00		
TOTAL	57,300.00	10.852

DESIGN DATA - N13(3-3)1,4

DESIGN SPEED	60 mi/hr
MINIMUM RADIUS	1330 ft
MAXIMUM GRADIENT	5.0 %
MINIMUM STOPPING SIGHT DISTANCE	570 ft
MINIMUM PASSING SIGHT DISTANCE	1000 ft
AVERAGE DAILY TRAFFIC 2024 (N13-West)	1674 vpd
AVERAGE DAILY TRAFFIC 2024 (N13-East)	2054 vpd
TRUCK TRAFFIC	15%
MAXIMUM SUPERELEVATION (e max)	6.0%
RIGHT-OF-WAY WIDTH	100 ft LT. & RT.

LEGEND

STATE LINE
RESERVATION LINE
COUNTY LINE
TOWNSHIP or RANGE LINE
SECTION LINE
NATIONAL FOREST LINE (BARBS ON SIDE OF LINE)
HIGHWAY RIGHT-OF-WAY LINE
UNFENCED PROPERTY
SECTION CORNER AND 1/4 CORNER
POWER LINE AND POLES
TELEPHONE LINE AND POLES
POLE GUY AND ANCHOR
TRAFFIC SIGN
GUARD RAIL (PLANNED / EXISTING)
DELINEATORS (PLANNED ONE WAY / EXISTING TWO WAY)
BARBED WIRE FENCE (GATE)
WOVEN WIRE FENCE
CATTLE GUARD (PLANNED / EXISTING)
CULVERTS (PLANNED / EXISTING)
CONCRETE BOX CULVERTS (PLANNED / EXISTING)
GROUND LINE - EARTH
GROUND LINE - ROCK
EXISTING ROAD (WIDTH & TYPE)
SIDE ROAD TURNOUT (PLANNED / EXISTING)
TREES and SHRUBS (PLANNED / EXISTING)
CHANNEL or DITCH
DIKE or DITCH BLOCK
RIPRAP
RAILROAD TRACK
GAS LINE
IRRIGATION LINE
WELL
DWELLING
SCHOOL
CHURCH
WINDMILL
RIGHT-OF-WAY MONUMENT (PLANNED / EXISTING)
TELEPHONE PEDESTAL
IRRIGATION DITCH (F.D.)
FURROW DITCH (F.D.)

INDIAN SERVICE | COUNTY | STATE | FEDERAL

PAVED | GRADED | UNIMPROVED

RECOMMENDED:

PRINCIPAL ENGINEER
NAVAJO DIVISION OF TRANSPORTATION

DATE: 6/13/25

APPROVED:

DIRECTOR
NAVAJO DIVISION OF TRANSPORTATION

DATE: 6/16/2025

GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-14), AND THE SUPPLEMENTAL SPECIFICATIONS FOR THIS PROJECT.

2. ALL PERMANENT AND TEMPORARY ROADSIDE SIGNS, AND PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION) AND IN ACCORDANCE WITH THE DETAILS ON THESE PLANS. PLACEMENT OF "STOP" BAR, PERMANENT TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL BE FIELD ADJUSTED AS DIRECTED BY THE CM, AT NO ADDITIONAL COST TO THE GOVERNMENT.

3. THE TEMPORARY TRAFFIC CONTROL DETAILS SHOWN REFLECTS GENERAL REQUIREMENTS FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND SUBMITTING A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH THESE DETAILS, TAKING INTO ACCOUNT THE CONTRACTOR'S CONSTRUCTION SEQUENCING PLAN, MUTCD, AND THE SUPPLEMENTAL SPECIFICATIONS FOR SECTION 63501-TEMPORARY TRAFFIC CONTROL.

4. THE DESIGN FEATURES INCLUDING HORIZONTAL AND VERTICAL ALIGNMENTS, TYPICAL SECTIONS, AND OTHER DESIGN DETAILS SHOWN ON THESE DESIGN PLANS SHALL NOT BE ALTERED OR MODIFIED IN ANY WAY DURING CONSTRUCTION WITHOUT THE EXPRESSED WRITTEN DIRECTION AND APPROVAL OF THE ENGINEER OF RECORD, UNLESS OTHERWISE NOTED IN THESE PLANS OR SPECIFICATIONS. DRAINAGE STRUCTURES AND TURNOUTS SHALL BE INSTALLED AS SHOWN ON THE PLANS WITH ONLY MINOR CORRECTIONS IN LOCATION, SKEW, AND/OR INVERT ELEVATIONS AS NEEDED TO FIT FIELD CONDITIONS. TURNOUTS MAY NOT BE SHIFTED MORE THAN 15 FEET FROM THE LOCATIONS SHOWN ON THE PLANS WITHOUT THE APPROVAL OF CM.

5. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY AND EXPENSE FOR DISPOSAL OF TRASH AND/OR CONSTRUCTION DEBRIS IN ACCORDANCE WITH SECTIONS 107 AND 203 OF THE FP-14 AS WELL AS ANY AND ALL PERMIT REQUIREMENTS. THIS WORK SHALL BE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR.

6. THE BIDDER SHALL READ AND MAKE CAREFUL EXAMINATION OF THE PLANS, SPECIFICATIONS, QUANTITIES, MATERIAL, SURVEYING REQUIREMENTS, AND VISIT THE SITE OF THE PROPOSED CONSTRUCTION TO BECOME FAMILIAR WITH THE SITE CONDITIONS AND LIMITATIONS BEFORE MAKING A PROPOSAL. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL ERRORS RESULTING FROM THE FAILURE TO MAKE SUCH AN EXAMINATION. ANY INFORMATION DERIVED FROM THE MAPS, PLANS, SPECIFICATIONS, PROFILES, DRAWINGS OR THE ENGINEER, SHALL NOT RELIEVE THE CONTRACTOR FROM ANY RISK OR FROM FULFILLING THE TERMS OF THE CONTRACT. THERE ARE SEVERAL AREAS WITH LIMITED WORKING ROOM WITHIN THE PROJECT RIGHT-OF-WAY, AND/OR WITH EXISTING FEATURES WITHIN OR NEAR THE PROJECT RIGHT-OF-WAY, THAT WILL REQUIRE 'SPECIAL' CONSTRUCTION PROCEDURES.

7. THE CONTRACTOR IS REQUIRED TO SUBMIT A REVISED PIPE LIST TO THE CM BASED ON THE FIELD STAKING IN ACCORDANCE WITH SECTION 152 OF THE CONTRACT SUPPLEMENTAL SPECIFICATION. THE APPROVAL OF ANY AND ALL REVISED PIPE LISTS WITH ACCOMPANYING DRAWINGS IS RENDERED AS A SERVICE ONLY AND IS NOT CONSIDERED A GUARANTEE OF MEASUREMENTS, QUANTITIES, INSTALLATION PROCEDURES, AND/OR DIMENSIONS, NOR SHALL IT BE CONSIDERED AS RELIEVING THE CONTRACTOR FROM COMPLYING WITH THE CONTRACT SPECIFICATIONS AND DESIGN PLANS. THE CONTRACTOR IS HEREBY NOTIFIED THAT UNDER NO CIRCUMSTANCE SHALL ANY DRAINAGE STRUCTURE(S) BE INSTALLED BELOW THE NATURAL FLOW LINE OF THE WASH, CHANNEL, ARROYO, OR DITCH LINE.

8. NO WORK SHALL BE PERFORMED OR GROUND DISTURBED OUTSIDE OF THE DESIGNATED CONSTRUCTION LIMITS IN ACCORDANCE WITH SECTION 107 OF THE FP-14 WITHOUT APPROVAL BY THE CM UNLESS OTHERWISE SHOWN AND LABELED ON THESE PLANS AS "CONSTRUCTION ZONE". IN NO CASE SHALL ANY WORK BE PERFORMED OUTSIDE THE DESIGNATED RIGHT-OF-WAY LIMITS WITHOUT WRITTEN APPROVAL FROM THE CM UNLESS OTHERWISE SHOWN AND LABELED ON THESE PLANS AS "CONSTRUCTION ZONE".

9. THE DETAILS SHOWN ON THE STORM WATER POLLUTION AND EROSION/SEDIMENT CONTROL DETAILS ARE GENERAL REQUIREMENTS TO BE USED BY THE CONTRACTOR IN PREPARING A STORM WATER POLLUTION PREVENTION PLAN ALONG WITH THE REQUIREMENTS IN SECTION 157 OF THE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL CONTRACT REQUIREMENTS. THE CONTRACTOR IS REQUIRED TO SUBMIT A COURTESY COPY OF THE APPROVED SWPPP TO THE NAVAJO NATION WATER QUALITY EPA OFFICE.

10. THE QUANTITIES SHOWN ARE FOR ESTIMATING PURPOSES ONLY AND TO COMPARE AND CANVAS BIDS. ACTUAL PAY QUANTITIES WILL BE DETERMINED IN THE FIELD FOR AUTHORIZED CHANGES THAT AFFECT THE QUANTITIES. ANY OVER-RUN OR UNDER-RUN OF QUANTITIES SHALL BE SUBJECT TO STANDARD GENERAL CONDITIONS, ARTICLE 11.3,D,4, VARIATION IN ESTIMATED QUANTITIES.

11. ALL TURNOUT/DRIVEWAYS, AS CALLED FOR ON THESE PLANS, SHALL EITHER BE CONSTRUCTED, REBUILT, RESHAPED AND/OR REMOVED UP TO THE RIGHT-OF-WAY LIMITS. ALL TURNOUTS SHALL BE PAVED TO THE CATTLEGUARD, THEN FROM THE BACK OF CATTLEGUARD TO THE R/W LINE, PLACE AGGREGATE BASE, REQUIRED GRADING, SHAPING, AND EARTH COMPACTION OUTSIDE OF THE RIGHT-OF-WAY, TO CONNECT NEW TURNOUTS TO THE EXISTING ROADWAY/DRIVEWAY (AS SHOWN ON THE PLANS OR AS DIRECTED BY THE CM) SHALL BE INCIDENTAL TO THE BID ITEM 20414-0000. ANY AGGREGATE BASE AND/OR ASPHALT MATERIAL SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEMS FOR THIS WORK AS SHOWN IN THE BID SCHEDULE.

12. STRUCTURAL EXCAVATION AND BEDDING/BACKFILL OF ALL DRAINAGE STRUCTURES (CULVERTS AND CONCRETE HEAD/WING WALLS) SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF STRUCTURES. BEDDING AND BACKFILL MATERIAL SHALL MEET ALL REQUIREMENTS OF FP-14, SECTIONS 209 AND 704. APPROVED EXCESS EXCAVATION MATERIAL MAY BE USED TO REBUILD TURNOUTS, DITCH BLOCKS, AND/OR PLACED ALONG ROADWAY SHOULDERS ONLY AS EMBANKMENT IN AREAS ADJACENT TO THE REMOVAL AND AS DIRECTED BY THE CM.

13. ALL FURROW DITCHES AND DRAINAGE DITCHES SHALL BE STAKED AND GRADED TO DRAIN UP TO THE RIGHT-OF-WAY LIMITS. EARTHEN DITCH BLOCKS, DIKES AND DITCHES SHALL BE CONSTRUCTED AS SHOWN ON THESE PLANS AND/OR ADDED AT LOCATIONS DESIGNATED BY THE CM. ALL DITCH BLOCKS, DIKES AND FURROW DITCHES SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEMS FOR THIS WORK AS SHOWN IN THE BID SCHEDULE. AT ALL DRAINAGE PIPE REPLACEMENTS, EXTENSIONS, AND IN-PLACE PIPE CLEANING LOCATIONS, THE CONTRACTOR SHALL CLEAN, REGRADE, AND RESHAPE THE INLET AND OUTLET CHANNELS TO THE RIGHT-OF-WAY LINE AS DIRECTED BY THE CM. THIS WORK SHALL BE INCIDENTAL TO BID ITEM 607.

14. IMMEDIATELY PRIOR TO PLACING EMBANKMENT, AGGREGATE BASE AND/OR RECYCLED MATERIAL, THE TOP 6 INCHES OF THE ORIGINAL IMMEDIATELY PRIOR TO PLACING EMBANKMENT, AGGREGATE BASE AND/OR RECYCLED MATERIAL, THE TOP 6 INCHES OF THE ORIGINAL GROUND, OR FINISHED SUBGRADE (INCLUDING TURNOUTS) SHALL BE CHECKED FOR COMPACTION AND GRADE. IF COMPACTION DOES NOT MEET THE MINIMUM SPECIFIED COMPACTION AND TOLERANCE REQUIREMENTS, THE ORIGINAL GROUND AND/OR SUBGRADE SHALL BE RE-WATERED AND/OR SCARIFIED AS NEEDED AND RE-COMPACTED TO THE REQUIRED DENSITY AND TOLERANCE, AT THE CONTRACTOR'S EXPENSE. IN NO CASE SHALL ANY EMBANKMENT OR SURFACING MATERIAL BE PLACED ON FROZEN, MUDDY OR UNSTABLE NATURAL GROUND OR SUBGRADE. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATION OF THE CONTRACTOR.

GENERAL NOTES (Continued)

15. THE LOCATION OF UTILITIES AS SHOWN IN THESE PLANS ARE APPROXIMATE AND ARE ONLY TO ASSIST THE CONTRACTOR IN COMPLETING THE WORK. THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS PRIOR TO STARTING ANY CONSTRUCTION ACTIVITIES. THIS INCLUDES THE NAVAJO TRIBAL UTILITY AUTHORITY (NTUA) AT (928)-729-5721, FRONTIER COMMUNICATION COMPANY AT (928)-871-3748. THE CONTRACTOR SHALL VERIFY ALL UTILITIES AND THEIR LOCATIONS WITH THE UTILITY OWNERS PRIOR TO CONSTRUCTION. ANY UTILITIES DAMAGED DUE TO NEGLIGENCE OF THE CONTRACTOR SHALL BE RESTORED TO CODE REQUIREMENTS AT THE CONTRACTOR'S EXPENSE.

16. THE CONTRACTOR SHALL REMOVE, CLEAN, AND STOCKPILE ALL SALVAGEABLE EXISTING CULVERTS, GUARDRAIL, CATTLE GUARDS AND FENCING MATERIALS, ETC, AS CALLED FOR ON THESE PLANS UNDER SECTIONS 203 AND 607. ALL SALVAGEABLE MATERIALS AS DETERMINED BY THE CM SHALL BE TAKEN TO THE SHIPROCK MAINTENANCE YARD (LOCATED 7.5 km NORTH OF THE EOP). ANY MATERIALS DETERMINED TO BE UNUSABLE BY THE CM SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH SECTIONS 107, AND 203. THE SALVAGE WORK SHALL BE INCLUDED IN THE APPROPRIATE UNIT PRICE BID ITEMS FOR SECTIONS 203 AND/OR 607.

17. THE CONTRACTOR SHALL BE REQUIRED TO REPAIR ALL DENTED, BENT OR OTHERWISE DAMAGED PIPE EDGES FOR THE SECTION AS CALLED FOR REPAIR WORK. THIS WORK SHALL MEET THE APPROVAL OF THE CM, AND IS EXPECTED TO INCLUDE STRAIGHTENING OF DENTED/BENTED CULVERT EDGES, WELDING OF CUTS/TEARS IN THE EXISTING CULVERTS, TRIMMING BACK THE EXISTING CULVERT TO CREATE AN END SUITABLE FOR AN EXTENSION COLLAR, ETC. NO SEPARATE PAYMENT FOR THIS WORK WILL BE MADE. THE CONTRACTOR SHALL CONSIDER THESE REPAIRS INCIDENTAL TO THE DRAINAGE PIPE BID ITEMS UNDER SECTION 602, AND 603.

18. THE ROADWAY TYPICAL SECTION SHOWN IS THE BASIC TEMPLATE TO WHICH THE PROJECT IS TO BE STAKED AND BUILT. HOWEVER, THERE WILL BE LOCATIONS WHERE, DUE TO EXISTING GROUND CONDITIONS, TURNOUTS, CULVERTS OR OTHER STRUCTURES, ETC., THE SHOWN TYPICAL SLOPES CANNOT BE CONSTRUCTED. IN THIS CASE, THE ENGINEER OF RECORD, THROUGH THE CM, SHALL BE CONSULTED FOR CHANGES IN THE TYPICAL SECTIONS, DESIGN SLOPES, AND/OR OTHER ADJUSTMENTS BEFORE PROCEEDING WITH THE WORK UNLESS NOTED OTHERWISE ON THE PLANS. THE FINAL CONSTRUCTED ROAD SECTION SHALL BE BASED ON THE GOVERNMENT FURNISHED CROSS SECTIONS AS ADJUSTED TO FIT FIELD CONDITIONS. THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF CONSTRUCTION, UNLESS OTHERWISE APPROVED. IN NO CASE SHALL THE CUT AND FILL BACK SLOPES BE BUILT STEEPER THAN THE MAXIMUM ALLOWED IN THE ROADWAY TYPICAL SECTION SHOWN.

19. THE CONTRACTOR SHALL SAW CUT (FULL DEPTH) THE EXISTING ASPHALT PAVEMENT WHERE OLD ASPHALT IS TO TIE INTO THE NEW ASPHALT PAVEMENT AT THE BOP, EOP, CULVERT REPLACEMENTS, AND MISCELLANEOUS TURNOUTS. THE CONTRACTOR SHALL MATCH THE NEW ASPHALTIC CONCRETE PAVEMENT SURFACE TO EXISTING PAVEMENT SECTION AT TIE-IN POINTS AND TO PROVIDE FOR A SMOOTH TRANSITION AS DIRECTED BY THE CM ALL SAWED PAVEMENT EDGES TO RECEIVE ASPHALT TACK COAT. THIS WORK SHALL BE INCIDENTAL TO BID ITEMS 40401-0000, AND 41602-3000 AS SHOWN IN THE BID SCHEDULE.

20. THERE ARE ARCHEOLOGICAL SITES ALONG THE PROJECT CORRIDOR THAT REQUIRE AN ARCHEOLOGIST PRESENT DURING CONSTRUCTION IN THE AREA AND OTHER SITES REQUIRING TEMPORARY ORANGE SAFETY FENCE TO BE PLACED BEFORE ANY WORK IN THE AREA CAN BEGIN. THE CONTRACTOR AND CM SHALL COORDINATE THIS WORK WITH THE NDOT PROJECT MANAGEMENT OFFICE, ANJANETTE OWENS (505-371-8394). UNDER NO CIRCUMSTANCE CAN THE CONTRACTOR DO ANY CONSTRUCTION WORK IN AREAS REQUIRING THESE MITIGATION REQUIREMENTS UNTIL THE SAFETY FENCING AND/OR AN NDOT ARCHEOLOGIST IS PRESENT.

21. THE CONTRACTOR WILL INCLUDE THE COST OF WATER NEEDED IN ITEMS 20401 ROADWAY EXCAVATION, 30101 AGGREGATE BASE, AND 62501 SEEDING, IN HIS BID COST FOR THE INDIVIDUAL ITEMS. THE COST FOR WATER WHICH IS NEEDED DURING THE COURSE OF THE PROJECT FOR ALL OTHER BID ITEMS/PURPOSES, INCLUDING DUST CONTROL AND FOUNDATION COMPACTION, WILL ALSO BE INCLUDED IN THE OVERALL BID COST FOR THE PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR COMPUTING HIS OWN WATER QUANTITIES AND THEN BASING HIS BID ON HIS OWN COMPUTED QUANTITIES. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE.

22. ANY EXISTING OR NEW ROADSIDE FEATURES OR OTHER IMPROVEMENTS NEGLIGENTLY DAMAGED BY THE CONTRACTOR, DURING CONSTRUCTION, SHALL BE RESTORED/REPLACED IN EQUAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.

23. REMOVAL AND RE-ATTACHMENT OF FENCING REQUIRED TO COMPLETE SPECIFIED WORK AT DRAINAGE STRUCTURES, CATTLE GUARDS, GATES, TURNOUTS, RIPRAP, ETC, SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEMS RELATED TO THE WORK REQUIRING SAID FENCE REMOVAL/RE-ATTACHMENT. FENCING REPAIRS, TEMPORARY FENCING AND/OR REMOVAL AND RE-ATTACHMENT OF FENCING, SHALL BE COMPLETED IN THE SAME WORK DAY SO AS NOT TO ALLOW LIVESTOCK ONTO THE PROJECT. IF TENSION IS LOST IN THE EXISTING FENCE, THE CONTRACTOR SHALL RE-TIGHTEN THE FENCE AS DIRECTED BY THE CM.

24. SEE SHEET 5 FOR ALL EXISTING RIGHT-OF-WAY FENCE AND POST THAT ARE TO BE REPLACED UNDER BID ITEM 61901-1000. FENCE POSTS ARE TO BE REPLACED AS PER FP-14, SECTION 619.

25. THE CONTRACTOR SHALL REMOVE BIA ROUTE N13 EXISTING ROADSIDE SIGNS THAT INTERFERE WITH ROAD CONSTRUCTION AND/OR CONTRADICT THE CONTRACTOR'S TEMPORARY TRAFFIC CONTROL PLAN, AT THE START OF THE CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE CM AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF SUCH SIGN REMOVAL. THESE ROADSIDE SIGNS SHALL BE SALVAGED AND TAKEN TO THE SHIPROCK MAINTENANCE YARD. SIGNS NEEDED FOR SAFETY/INFORMATION SHALL BE TEMPORARILY RESET AS DIRECTED BY THE CM. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATION OF THE CONTRACTOR.

26. GRADE AND SHAPE THE SHOULDER AND DITCHES (AS DIRECTED BY CM) FROM THE SUBGRADE HINGE POINTS TO AND INCLUDING THE EXISTING DITCH LINE AREAS FOR THE CONSTRUCTION OF RIPRAP DITCH LININGS, SLOPE PROTECTION, AND RUNDOWNS. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE RIPRAP ITEMS SHOWN IN THE BID SCHEDULE.

27. AT ALL CONCRETE BOX CULVERT (CBC) LOCATIONS THAT SPECIFY REPLACING OR INSTALLING WING FENCES, THE CONTRACTOR SHALL TIE WING FENCES TO THE NEW CBC WALLS. IF NO CORNER FENCE POST/BRACE/STRAIN EXISTS AT TIE-IN TO RIGHT-OF-WAY FENCE, THE CONTRACTOR SHALL INSTALL A STRAIN POST ASSEMBLY. THIS WORK TO BE INCIDENTAL TO BID ITEM 61901-1000, AND NO ADDITIONAL PAYMENT SHALL BE MADE.

28. THE GEO-TECHNICAL REPORT FOR THIS PROJECT IS PROVIDED UNDER EXHIBIT B - PROJECT SPECIFIC SUPPLEMENTAL GENERAL CONDITIONS OF THE CONTRACT BOOK.

29. IF ANY EXISTING MAIL BOXES, ADVERTIZING BILLBOARDS, OR HOUSE ADDRESS SIGNS LOCATED ALONG THE ROADWAY PRISM SHALL BE REMOVED AND RE-INSTALLED OUTSIDE OF THE RIGHT-OF-WAY LIMIT OR AS DIRECTED BY THE CM. THE CONTRACTOR SHALL NOTIFY THE US-POSTAL SERVICE AND ATTEMPT TO CONTACT ALL EFFECTED RESIDENTS TEN (10) WORKING DAYS PRIOR TO RESETTING MAIL BOX(ES). THIS WORK SHALL BE INCIDENTAL TO BID ITEM 20304-1000.

STATE	PROJECT	SHEET NUMBER
NM	N13	2

GENERAL NOTES (Continued)

30. AT BRIDGES N232, N233 AND N234, GUARDRAIL REPLACEMENT WORK INCLUDES REPLACEMENT OF THE BRIDGE APPROACH GUARDRAIL AND BRIDGE TRANSITION GUARDRAIL. DETAILS FOR BOTH OF THESE GUARDRAIL TYPES ARE INCLUDED IN THESE PLANS. THE CONTRACTOR SHALL NOT REMOVE THE EXISTING APPROACH AND/OR TRANSITION GUARDRAILS UNTIL CM APPROVED PROVISIONS ARE IN-PLACE TO INSTALL PERMANENT OR TEMPORARY GUARDRAILS.

31. AT THE COMPLETION OF THE CONSTRUCTION, THE CONTRACTOR SHALL INSPECT THE INTERIOR OF ALL NEWLY INSTALLED CULVERTS, CATTLEGUARDS, AND/OR OTHER EXISTING DRAINAGE STRUCTURES. THESE STRUCTURES SHALL BE MAINTAINED IN A CLEAN CONDITION, FREE OF SILT AND OTHER DEBRIS UNTIL FINAL ACCEPTANCE OF THE PROJECT. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATIONS OF THE CONTRACTOR UNDER THE APPROPRIATE BID ITEMS, FOR SECTIONS 602, 607, AND 619.

32. AT A NUMBER OF THE TURNOUT LOCATIONS, EXISTING CATTLE GUARDS, GATES, AND/OR WING BRACES ASSEMBLIES ARE TO BE REPLACED, RESET OR RE-ATTACHED (SEE TURNOUT TABLES ON SHEET 4). THE CONTRACTOR IS ADVISED TO FIELD REVIEW EACH TURNOUT PRIOR TO SUBMITTING A BID. ALL WORK ASSOCIATED WITH RESETTING OR REATTACHING EXISTING CATTLE GUARDS, GATES, AND/OR WING BRACES, SHALL MATCH AS CLOSE AS POSSIBLE THE REQUIREMENTS FOR SIMILAR TYPES OF NEW CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE TURNOUT ASPHALT BID ITEMS. NEW AND REPLACEMENT WING BRACES ASSEMBLIES SHALL BE PAID UNDER BID ITEM 61903-0310. ALL REPLACEMENT, RESET OR REATTACHMENT WORK AT EXISTING CATTLE GUARDS AND/OR GATES TO MEET THE APPROVAL OF THE CM.

33. THERE ARE NUMBER OF LOCATIONS WHERE RIPRAP, CHANNEL FLOWLINE GRADING, TURNOUTS, ETC., WILL REQUIRE WORK AND IMPROVEMENTS PLACED ADJACENT TO THE RIGHT-OF-WAY FENCING LOCATIONS. IN THESE LOCATIONS, THE RIGHT-OF-WAY FENCING SHALL BE ADJUSTED (POST SPACING, VERTICAL ALIGNMENT, POST INSTALLATIONS THROUGH RIPRAP, RIGHT-OF-WAY MONUMENT/MARKER ADJUSTMENT, ETC.) AS DIRECTED BY THE CM. THIS WORK TO BE INCIDENTAL TO BID ITEM 61901-1000, AND NO ADDITIONAL PAYMENT WILL BE MADE.

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FAX: 505-348-4055
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MYRA K. CANDELARIA
NEW MEXICO
25660
PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO DOT

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

GENERAL NOTES

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		2 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	3

SUMMARY OF QUANTITIES

FP-14 ITEM NO.	ITEM DESCRIPTION	UNIT	ROADWAY		CONSTRUCTION ENGINEERING		PERMANENT SIGNING & STRIPING		BRIDGE		PROJECT TOTAL	
			USE	FINAL	USE	FINAL	USE	FINAL	USE	FINAL	USE	FINAL
15101-0000	MOBILIZATION	LS			LS						LS	
15201-0000	CONSTRUCTION SURVEY AND STAKING	LS			LS						LS	
20302-0100	REMOVAL OF BOX CULVERT	LF							10		10	
20304-1000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS			LS						LS	
20402-0000	SUBEXCAVATION	CUYD	3200								3200	
20419-0000	EMBANKMENT CONSTRUCTION (SUBGRADE PREPARATION)	SQYD	6,100								6100	
20801-0000	STRUCTURE EXCAVATION	CUYD							168		168	
20803-0000	STRUCTURE BACKFILL	CUYD							168		168	
25101-0300	PLACED RIPRAP, METHOD A, CLASS 3	CUYD							86		86	
25101-0700	PLACED RIPRAP, METHOD A, CLASS 7	CUYD							1500		1500	
30102-2000	AGGREGATE BASE GRADING D, 6-INCH DEPTH	SQYD	6,100								6100	
31002-1000	CONTINUOUS COLD RECYCLED ASPHALT COURSE (CCRAC) 2-1/2", TYPE A	SQYD	107,100								107100	
31002-1100	CONTINUOUS COLD RECYCLED ASPHALT COURSE (CCRAC) 3", TYPE A	SQYD	111,000								111000	
40301-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1 (HMA SP IV)	TON	29,500								29500	
40302-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1 (2.5" DEPTH FOR TURNOUTS)	SQYD	6,100								6100	
41101-1000	PRIME COAT, METHOD 1	TON	230								230	
41201-0000	TACK COAT	TON	37								37	
41402-3000	CRACKS, CLEANING AND FILLING	MILE	10.9								10.9	
40702-1100	CHIP SEAL, TYPE 2A	SQYD	111,000								111000	
55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD							333		333	
55220-0000	REPAIR CONCRETE	SQYD							36		36	
55401-1000	REINFORCING STEEL	LB							60875		60875	
56101-0000	STRUCTURAL CONCRETE INJECTION AND CRACK REPAIR	LINFT							120		120	
60704-0000	CLEANING CULVERT IN PLACE	EACH	22								22	
61701-5000	GUARDRAIL	LINFT	1,800								1,800	
61703-0000	TERMINAL END	EACH	10								10	
61707-0000	STRUCTURE TRANSITION RAILING	EACH	8								8	
61801-0000	CONCRETE BARRIER	LINFT							195		195	
61901-1000	FENCE, BARBED WIRE, 5 STRAND	LINFT	100								100	
61902-1400	GATE, METAL, 16 FEET WIDTH	EACH	2								2	
61903-0300	CATTLE GUARD 16 FEET (WITH TYPE 2 GATE)	EACH	9								9	
63309-0000	DELINEATOR, TYPE 1	EACH	245								245	
63316-1100	REMOVE SIGN AND REPLACE WITH NEW SIGN SYSTEM	SQ FT					350				350	
63318-1000	MILEPOST	EACH	22								22	
63401-1500	PAVEMENT MARKINGS, TYPE H THERMOPLASTIC, SOLID	LINFT					171700				171,700	
63405-3101	PAVEMENT MARKINGS, TYPE H, "STOP BAR", 24" SOLID WHITE	LINFT					230				230	
63501-0000	TEMPORARY TRAFFIC CONTROL	LS					LS				LS	
15701-0000	SOIL EROSION CONTROL, TEMPORARY	LS			LS						LS	

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MYRA A. CANDELARIA
NEW MEXICO
25660
PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

SUMMARY OF QUANTITIES

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		3 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	4

SURFACING SCHEDULE

STATION	TO	STATION	LENGTH	DESCRIPTION	41101-1000 PRIME COAT, METHOD 1			31002-1000 CONTINUOUS COLD RECYCLED ASPHALT COURSE (CCRAC) 2-1/2", TYPE A			31002-1100 CONTINUOUS COLD RECYCLED ASPHALT COURSE (CCRAC) 3", TYPE A			40301-0100 ASPHALT CONCRETE PAVEMENT, TYPE 1 (HMA SP IV)				41201-0000 TACK COAT			40702-1100 CHIP SEAL, TYPE 2A	
					WIDTH (FT)	S.Y.	TON	WIDTH (FT)	DEPTH (IN)	S.Y.	WIDTH (FT)	DEPTH (IN)	S.Y.	WIDTH (FT)	DEPTH (IN)	S.Y.	TONS	WIDTH (FT)	S.Y.	TON	WIDTH (FT)	S.Y.
N13																						
10+00.00		79+06.72	6906.72	2-11' Driving Lanes, 2 - 6' Shoulders	34.00	26,092.05	48.92	34.00	2.50	26,092.05	-	-	-	36.00	4.50	27,626.88	7,174.36	35.00	26859.47	8.95	-	-
79+06.72		86+94.59	787.87	4-11' Driving Lanes, 2 - 4' Shoulders	52.00	4,552.14	8.54	52.00	2.50	4,552.14	-	-	-	54.00	4.50	4,727.22	1,227.60	53.00	4639.68	1.55	-	-
86+94.59		289+20.00	20225.41	2-11' Driving Lanes, 2 - 6' Shoulders	34.00	76,407.10	143.26	34.00	2.50	76,407.10	-	-	-	36.00	4.50	80,901.64	21,009.14	35.00	78654.37	26.22	-	-
289+20.00		583+00.00	29380.00	2-11' Driving Lanes, 2- 6' Shoulders	-	-	-	-	-	-	34.00	3.00	110,991.11	-	-	-	-	-	-	-	34.00	110,991.11
				PROJECT TOTAL			201			107,051			110,991				29,411			36.72		110,991
				PROJECT USE			**210**			**107,100**			**111,000**				**29,500**			**37**		**111,000**

TURNOUT SCHEDULE

TURNOUT NUMBER	LOCATION		PAVED WIDTH (Wd1) [FT]	RADIUS (R) [FT]	PAVED LENGTH (LP) [FT]	PS NO 1 AREA (SF)	DESCRIPTION	20419-0000 EMBANKMENT CONSTRUCTION (SUBGRADE PREPARATION)	30102-2000 AGGREGATE BASE GRADING D, 6-INCH DEPTH		41101-1000 PRIME COAT, METHOD 1		40302-0100 ASPHALT CONCRETE PAVEMENT, TYPE 1 (2.5" DEPTH FOR TURNOUTS)	
								S.Y.	DEPTH (IN)	S.Y.	S.Y.	TON	DEPTH (IN)	S.Y.
TO-01	11+24.07	RT	12.00	30	80.60	1360.36	Turnout on Unmarked Road	151.15	6.00	151.15	151.15	0.28	2.50	151.15
TO-02	11+29.09	LT	16.00	30	74.00	1570.23	Turnout on Unmarked Road	174.47	6.00	174.47	174.47	0.33	2.50	174.47
TO-03	20+96.25	RT	28.00	40	85.49	3066.18	Turnout at Southern Entrance to Red-Rock School	340.69	6.00	340.69	340.69	0.64	2.50	340.69
TO-04	25+67.78	LT	16.00	30	79.68	1661.18	Turnout to Unmarked Road	184.58	6.00	184.58	184.58	0.35	2.50	184.58
TO-05	27+53.03	LT	16.00	30	80.18	1669.19	Turnout to residence/buisiness	185.47	6.00	185.47	185.47	0.35	2.50	185.47
TO-06	35+33.50	RT	24.00	40	87.55	2788.01	Turnout at Northern Entrance to Red-Rock School	309.78	6.00	309.78	309.78	0.58	2.50	309.78
TO-07	49+59.11	LT	30.00	35	25.13	1199.09	Turnout South of Trading Post	133.23	6.00	133.23	133.23	0.25	2.50	133.23
TO-08	52+04.41	LT	28.00	30	32.33	1296.14	Turnout North of Trading Post	144.02	6.00	144.02	144.02	0.27	2.50	144.02
TO-09	83+02.06	LT	28.00	40	82.93	3015.00	Turnout at N33	335.00	6.00	335.00	335.00	0.63	2.50	335.00
TO-10	99+59.56	LT	12.00	30	79.61	1360.10	Turnout at private property	151.12	6.00	151.12	151.12	0.28	2.50	151.12
TO-11	127+10.13	RT	16.00	35	78.43	1780.59	Turnout at Unmarked Road	197.84	6.00	197.84	197.84	0.37	2.50	197.84
TO-12	127+10.40	LT	18.00	30	77.40	1779.45	Turnout at Unmarked Road	197.72	6.00	197.72	197.72	0.37	2.50	197.72
TO-13	176+11.55	LT	16.00	30	77.35	1623.90	Turnout at Unmaked Road	180.43	6.00	180.43	180.43	0.34	2.50	180.43
TO-14	188+12.85	RT	16.00	30	81.18	1685.66	Turnout at Unmarked Road	187.30	6.00	187.30	187.30	0.35	2.50	187.30
TO-15	216+37.80	LT	16.00	30	78.59	1646.19	Turnout at Unmaked Road	182.91	6.00	182.91	182.91	0.34	2.50	182.91
TO-16	260+14.28	LT	16.00	30	77.31	1648.21	Turnout at Unmaked Road	183.13	6.00	183.13	183.13	0.34	2.50	183.13
TO-17	260+14.45	RT	16.00	30	77.71	1612.51	Turnout at Unmarked Road	179.17	6.00	179.17	179.17	0.34	2.50	179.17
TO-18	285+13.74	LT	16.00	30	79.55	1659.08	Turnout at Unmaked Road	184.34	6.00	184.34	184.34	0.35	2.50	184.34
TO-19	356+72.63	RT	28.00	40	78.60	2887.42	Turnout at Indian Service Road 5012	320.82	6.00	320.82	320.82	0.60	2.50	320.82
TO-20	375+22.96	LT	16.00	30	78.04	1629.50	Turnout at Unmaked Road	181.06	6.00	181.06	181.06	0.34	2.50	181.06
TO-21	405+23.13	RT	16.00	30	77.58	1628.34	Turnout at Indian Service Road 5021	180.93	6.00	180.93	180.93	0.34	2.50	180.93
TO-22	405+23.42	LT	16.00	35	79.40	1796.08	Turnout at Indian Service Road 5021	199.56	6.00	199.56	199.56	0.37	2.50	199.56
TO-23	437+95.50	RT	16.00	35	79.70	1764.59	Turnout at Unmarked Road	196.07	6.00	196.07	196.07	0.37	2.50	196.07
TO-24	452+24.04	RT	16.00	30	77.23	1622.00	Turnout at Mitten Rock Road	180.22	6.00	180.22	180.22	0.34	2.50	180.22
TO-25	452+24.47	LT	16.00	30	78.60	1643.85	Turnout at Mitten Rock Road	182.65	6.00	182.65	182.65	0.34	2.50	182.65
TO-26	462+57.26	LT	24.00	30	77.27	2240.66	Turnout at Unmaked Road	248.96	6.00	248.96	248.96	0.47	2.50	248.96
TO-27	479+73.98	RT	20.00	30	79.49	1976.23	Turnout at Indian Service Road 5021	219.58	6.00	219.58	219.58	0.41	2.50	219.58
TO-28	526+59.50	LT	20.00	30	78.27	1944.15	Turnout at Unmaked Road	216.02	6.00	216.02	216.02	0.41	2.50	216.02
TO-29	547+23.20	LT	16.00	30	77.92	1632.50	Turnout at Unmarked Road	181.39	6.00	181.39	181.39	0.34	2.50	181.39
TO-30	554+25.08	RT	16.00	30	78.26	1638.44	Turnout at Unmarked Road	182.05	6.00	182.05	182.05	0.34	2.50	182.05
							PROJECT TOTAL	6,092		6,092		11		6,092
							PROJECT USE	**6,100**		**6,100**		**20**		**6,100**

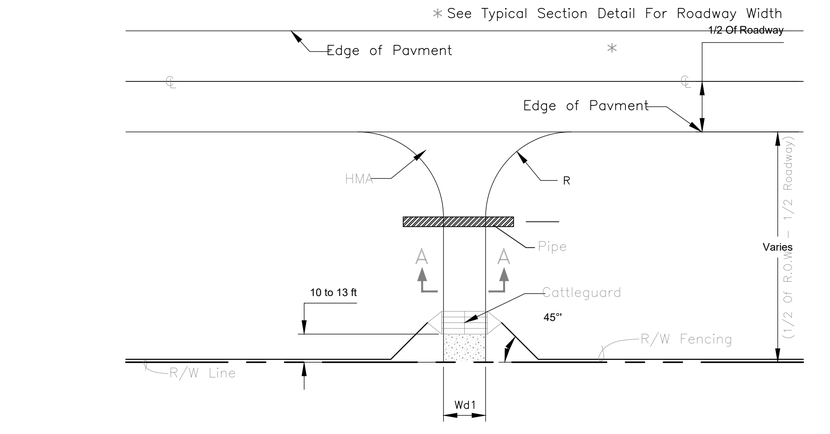
ITEM NO. 41402-3000 - CRACKS, CLEANING AND FILLING

STATION	TO	STATION	LENGTH (FT)	LENGTH (mi)	COMMENTS	REMARKS
N13						
10+00.00	-	583+00.00	57300	10.852		
		PROJECT TOTAL		10.852		
		PROJECT USE		**10.9**		

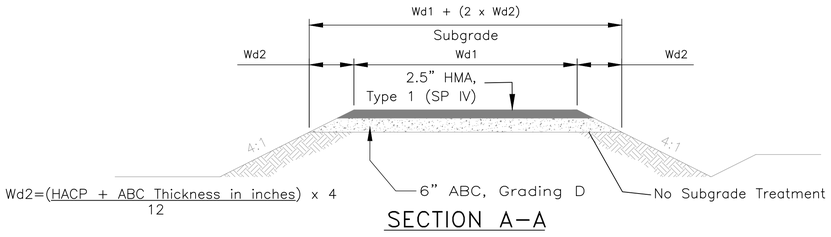
ITEM NO. 20402-0000 - SUBEXCAVATION

STATION	ASSUMED LENGTH (FT)	DEPTH (FT)	WIDTH (FT)	VOLUME (CY³)	COMMENTS	REMARKS
N13						
10+00.00	75	0.583	42	34	BOP PAVEMENT TRANSITION	
277+00.00	500	2	42	1556	SEE GEOTECH REPORT BORING B-06	
299+00.00	500	2	42	1556	SEE GEOTECH REPORT BORING B-02	
			PROJECT TOTAL	3145		
			PROJECT USE	**3200**		

NOTE: NEW SUITABLE BACKFILL MATERIAL COST AND PLACEMENT SHALL BE INCLUDED IN THE COST OF THE SUBEXCAVATION BID ITEM.



TYPICAL TYPE "A" TURNOUT



Wd2=(HACP + ABC Thickness in inches) x 4
12

SECTION A–A

BASIS OF ESTIMATED QUANTITIES

ITEM No.	DESCRIPTION	GRADE	UNITS	APPLICATION
30102-2000	Aggregate Base Grading D, 6-Inch Depth	"D"	3850 lbs/yd³	Place on Turnouts at 6" Depth; Quantity is paid by Square Yard
40301-0100	Asphalt Concrete Pavement, Type 1 (HMA SP IV)	SP IV	4155 lbs/yd³	Place on N13 mainline per Typical Section A
40302-0100	Asphalt Concrete Pavement, Type 1 (2.5" Depth for Turnouts)	SP IV	4155 lbs/yd³	Place on Turnouts at 2.5" Depth per Typical Section A
	Binder Grade for the HMA SP IV Mix	PG 64-22	5.6%	To be used on the 40301-0100 & 40302-0100 Bid Items
40702-1100	Chip Seal, Type 2A	"Special"	yd²	Typical Section B Only: Apply on top of CCRAC. See Supp. Spec. Section 703.09, Table 703-7 for Aggregate Gradation.
	Fog Seal, Emulsified Asphalt	CQS-1h		Apply on Top of Rubberized Asphalt Chip Seal. See FP-14 Table 407-2 for application rates.
	Fog Seal, Recycling Agent (Diluted 2:1)	Diluted 2:1		Apply On Top of Continuous Cold Recycled Asphalt Course. See FP-14 Table for 407-2 for application rates
41101-1000	Prime Coat, Method 1	AE-P	240gal/tons	Apply on top of Continuous Cold Recycled Asphalt Course. (Typical Section A) at rate of 0.45 gal/yd²
41201-0000	Tack Coat	EA	240gal/tons	Apply on top of Bottom HMA SP IV Lift (Typical Section A) at rate of 0.08 gal/yd²

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25660
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06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ESTIMATED QUANTITIES

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		4 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	5

REMOVAL OF SIGNS

STATION	LT/RT	EACH	DETAIL NO.	COMMENTS	REMARKS
N13					
14+11.18	LT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
14+11.76	RT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
18+69.05	LT	1	N-13	"N13"	Remove Existing Panel Sign
20+36.74	RT	1	R1-1	"STOP"	Remove Existing Panel Sign
35+55.68	RT	1	R1-1	"STOP"	Remove Existing Panel Sign
46+25.99	RT	1	W20-8	"SLOW"	Remove Existing Panel Sign
49+33.98	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
52+73.18	LT	1	S1-1	STUDENT CROSSWALK	Remove Existing Panel Sign
58+50.28	RT	1	SP-3	"WATCH FOR ICE ON BRIDGE"	Remove Existing Panel Sign
62+23.72	LT	1	SP-3	"WATCH FOR ICE ON BRIDGE"	Remove Existing Panel Sign
82+71.94	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
82+72.82	LT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
83+00.75	RT	1	W2-4	T-INTERSECTION	Remove Existing Panel Sign
83+30.09	LT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
85+97.15	RT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
94+84.80	LT	1	SP-4	"COVE/OAK SPRINGS /RED VALLEY"	Remove Existing Panel Sign
99+09.53	LT	1	SP-5	"YOU ARE LEAVING NM"	Remove Existing Panel Sign
99+10.63	RT	1	S-30	"WELCOME TO NM"	Remove Existing Panel Sign
99+38.70	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
126+92.43	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
127+30.55	RT	1	R1-1	"STOP"	Remove Existing Panel Sign
138+67.55	LT	1	S3-1	SCHOOL BUS LOADING ZONE	Remove Existing Panel Sign
145+04.17	RT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
145+04.39	LT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
163+48.59	LT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
163+48.99	RT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
210+75.59	RT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
210+77.17	LT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
216+18.38	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
239+11.82	RT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
239+13.15	LT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
273+63.81	RT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
336+81.25	LT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
336+81.56	RT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
357+03.28	RT	1	R1-1	"STOP"	Remove Existing Panel Sign
391+30.47	LT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
395+03.10	LT	1	W1-1L	LEFT TURN AHEAD	Remove Existing Panel Sign
404+98.91	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
405+57.82	RT	1	R1-1	"STOP"	Remove Existing Panel Sign
447+52.05	LT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
462+34.74	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
469+01.68	RT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
469+04.88	LT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
475+96.30	RT	1	S3-1	SCHOOL BUS LOADING ZONE	Remove Existing Panel Sign
494+11.20	RT	1	R2-1	"SPEED LIMIT 55"	Remove Existing Panel Sign
519+08.62	RT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
519+12.01	LT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
526+44.69	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
538+92.27	RT	1	W14-3	"NO PASSING ZONE"	Remove Existing Panel Sign
538+92.42	LT	1	R4-1	"DO NOT PASS"	Remove Existing Panel Sign
543+20.80	LT	1	W1-2R	CURVE AHEAD	Remove Existing Panel Sign
546+95.06	LT	1	R1-1	"STOP"	Remove Existing Panel Sign
554+51.69	RT	1	R1-1	"STOP"	Remove Existing Panel Sign
PROJECT TOTAL		53			
PROJECT USE		**53**			

REMOVAL OF CATTLE GUARD

STATION	LT/RT	EACH	WIDTH (IN)	REMARKS
N13				
11+29.20	LT	1	96	Remove Existing Cattle Guard
176+11.69	LT	1	113	Remove Existing Cattle Guard
405+25.13	RT	1	114	Remove Existing Cattle Guard
405+24.02	LT	1	114	Remove Existing Cattle Guard
437+92.44	RT	1	115	Remove Existing Cattle Guard
452+24.99	RT	1	114	Remove Existing Cattle Guard
452+23.83	LT	1	114	Remove Existing Cattle Guard
479+74.56	RT	1	114	Remove Existing Cattle Guard
547+23.73	LT	1	116	Remove Existing Cattle Guard
PROJECT TOTAL		9		
PROJECT USE		**9**		

REMOVAL OF GUARDRAIL

STATION	TO	STATION	LT/RT	LENGTH (FT)	REMARKS
49+75.77	-	51+87.03	LT	211.26	Remove Existing Guardrail
58+50.26	-	62+16.68	RT	366.42	Remove Existing Guardrail
58+65.17	-	62+29.70	LT	364.53	Remove Existing Guardrail
384+38.03	-	391+53.00	RT	714.97	Remove Existing Guardrail
383+97.18	-	390+61.18	LT	664.00	Remove Existing Guardrail
PROJECT TOTAL				2321.18	
PROJECT USE				**2330**	

REMOVAL OF FENCE

STATION	LT/RT	LENGTH (FT)	REMARKS
N13			
REMOVE EXISTING R/W FENCING AT CBC LOCATION			
99+54.11	LT	10	Remove Damaged Fencing
149+11.74	LT	10	Remove Damaged Fencing
149+10.54	RT	10	Remove Damaged Fencing
194+12.34	RT	10	Remove Damaged Fencing
242+25.11	LT/RT	20	Remove Damaged Fencing
405+25.13	RT	10	Remove Damaged Fencing
442+99.88	LT	10	Remove Damaged Fencing
479+74.56	RT	10	Remove Damaged Fencing
497+26.12	LT	10	Remove Damaged Fencing
PROJECT TOTAL		100	
PROJECT USE		**100**	

*Note: Exact location and length of damaged fence is approximated

ITEM NO. 20304-1000 REMOVAL OF STRUCTURES AND OBSTRUCTIONS — LUMP SUM

ITEM	UNIT	TOTAL	USE
REMOVAL OF BOX CULVERT	LIN FT	10	**10**
REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1	**1**
REMOVAL OF CATTLE GUARD	EACH	9	**9**
REMOVAL OF SIGNS	EACH	53	**53**
REMOVAL OF FENCE	LIN FT	100	**100**
REMOVAL OF GUARDRAIL	LIN FT	2321	**2330**

NOTE: ADDITIONAL REMOVALS NOT LISTED HEREIN SHALL BE REMOVED AS DIRECTED BY THE CM. ADDITIONAL REMOVALS SHALL BE CONSIDERED INCIDENTAL TO ITEM 20304-1000: REMOVALS OF STRUCTURES AND OBSTRUCTIONS, AND NO ADDITIONAL PAYMENT WILL BE MADE.

ITEM NO. 61902-1400 - GATE, METAL, 16 FEET WIDTH

STATION	LT/RT	EACH	REMARKS
N13			
11+16.69	RT	-	No work required
27+52.44	LT	-	No work required
99+54.11	LT	-	No work required
127+30.10	RT	-	No work required
216+58.07	LT	-	No work required
285+15.41	LT	1	Gate no longer in place, install new gate
356+72.92	RT	-	No work required
428+38.72	RT	-	No work required
437+92.44	RT	-	No work required
452+10.77	RT	-	No work required
452+07.41	LT	-	No work required
462+57.23	LT	-	No work required
479+74.56	RT	-	No work required
526+60.83	LT	-	No work required
547+23.73	LT	1	Gate no longer in place, install new gate
PROJECT TOTAL/USE		**2**	

ITEM NO. 61901-1000 - FENCE, BARBED WIRE, 5 STRAND

STATION	TO	STATION	LT/RT	LENGTH (FT)	REMARKS
N13					
10+00.00	-	99+54.11	LT	-	Fence to remain in place
10+00.00	-	149+10.54	RT	-	Fence to remain in place
99+54.11	-	99+64.11	LT	10.00	Install new fence where existing is damaged*; fence is damaged near gate
99+64.11	-	149+11.74	LT	-	Fence to remain in place
149+11.74	-	149+21.74	LT	10.00	Install new fence where existing is damaged*; there are some holes in fence near CMP pipe
149+21.74	-	242+25.11	LT	-	Fence to remain in place
149+10.54	-	149+20.54	RT	10.00	Install new fence where existing is damaged*; Fence near CMP Pipe is slightly damaged
149+20.54	-	194+12.34	RT	-	Fence to remain in place
194+12.34	-	194+22.34	RT	10.00	Install new fence where existing is damaged*; Fence near CMP Pipe is very damaged
194+22.34	-	242+25.11	RT	-	Fence to remain in place
242+25.11	-	242+45.11	LT/RT	20.00	Install new fence where existing is damaged*; fence built in front of the entrance/exit of both sides of the CMP pipe is damaged
242+45.11	-	405+25.13	RT	-	Fence to remain in place
242+45.11	-	442+99.88	LT	-	Fence to remain in place
405+25.13	-	405+35.13	RT	10.00	Install new fence where existing is damaged*; The fencing near the cattleguard is in poor condition
405+35.13	-	479+74.56	RT	-	Fence to remain in place
442+99.88	-	443+09.88	LT	10.00	Install new fence where existing is damaged*; Fence is in disrepair near CMP Pipe
443+09.88	-	479+74.56	LT	-	Fence to remain in place
479+74.56	-	479+84.56	RT	10.00	Install new fence where existing is damaged*; Fence is in disrepair near Cattle Guard
479+74.56	-	497+26.12	LT	-	Fence to remain in place
479+84.56	-	599+42.00	RT	-	Fence to remain in place
497+26.12	-	497+36.12	LT	10.00	Install new fence where existing is damaged*; There is a poorly constructed fence in front of the face of the CMP pipe
497+36.12	-	599+42.00	LT	-	Fence to remain in place
PROJECT TOTAL/USE				**100**	

*Note: Exact location and length of damaged fence is approximated

ITEM NO. 61903 - 0300: CATTLE GUARD 16 FEET (WITH TYPE 2 GATE)

ID	STATION	LOCATION	QUANTITY (EACH)	REMARKS
N13				
CG-01	11+29.09	LT	1	Replace Existing Cattle Guard at TO-02
CG-02	25+67.78	LT	-	No work Required at TO-04
CG-03	127+10.13	RT	-	No work Required at TO-11
CG-04	127+10.40	LT	-	No work Required at TO-12
CG-05	176+11.55	LT	1	Replace Existing Cattle Guard at TO-13
CG-06	216+37.80	LT	-	No work Required at TO-15
CG-07	260+14.28	LT	-	No work Required at TO-16
CG-08	260+14.45	RT	-	No work Required at TO-17
CG-09	356+72.63	RT	-	No work Required at TO-19
CG-10	375+22.96	LT	-	No work Required at TO-20
CG-11	405+23.13	RT	1	Replace Existing Cattle Guard at TO-21
CG-12	405+23.42	LT	1	Replace Existing Cattle Guard at TO-22
CG-13	437+95.50	RT	1	Replace Existing Cattle Guard at TO-23
CG-14	452+24.04	RT	1	Replace Existing Cattle Guard at TO-24
CG-15	452+24.47	LT	1	Replace Existing Cattle Guard at TO-25
CG-16	462+57.26	LT	-	No work Required at TO-26
CG-17	479+73.98	RT	1	Replace Existing Cattle Guard at TO-27
CG-18	526+59.50	LT	-	No work Required at TO-28
CG-19	547+23.20	LT	1	Replace Existing Cattle Guard at TO-29
CG-20	554+25.08	RT	-	No work Required at TO-30
PROJECT TOTAL/USE			**9**	

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MYRA K. CANDELARIA — NEW MEXICO — 25660 — PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ESTIMATED QUANTITIES

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		5 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	6

ITEM 60704-0000: CLEANING CULVERT IN PLACE

ID	STATION	LOCATION	TO	STATION	LOCATION	LENGTH (FT)	QUANTITY (EA)	SIZES	REMARKS
DS-01	10+98.36	RT		11+41.93	RT	44	1	Existing 24" CMP	Pipe to be cleaned
DS-02	11+35.99	LT		11+21.09	LT	15	1	Existing 24" CMP	Pipe to be cleaned
DS-03	19+32.84	LT		19+31.91	RT	75		Existing 24" CMP	No Work Required
DS-04	30+54.13	RT		30+53.70	LT	75		Existing 36" CMP	No Work Required
DS-05	34+82.49	RT		34+82.82	LT	75		Existing 36" CMP	No Work Required
DS-06	56+64.98	LT		56+67.75	RT	75	1	Existing 24" CMP	Pipe to be cleaned
DS-07	78+35.04	RT		78+34.46	LT	75		Existing 84" CMP	No Work Required
DS-08	99+54.11	LT		--	RT	--	1	Existing 24" CMP	Pipe to be cleaned
DS-09	126+91.37	LT		127+29.63	LT	38	1	Existing 24" CMP	Pipe to be cleaned
DS-10	126+94.58	RT		127+26.61	RT	32	1	Existing 24" CMP	Pipe to be cleaned
DS-11	149+10.54	RT		149+11.74	LT	75	1	Existing 84" CMP	Pipe to be cleaned
DS-12	175+93.39	LT		176+30.34	LT	37	1	Existing 24" CMP	Pipe to be cleaned
DS-13	187+93.88	RT		188+30.29	RT	36	1	Existing 24" CMP	Pipe to be cleaned
DS-14	194+12.34	RT		194+13.53	LT	75		Existing 84" CMP	No Work Required
DS-15	216+15.94	LT		216+57.15	LT	41	1	Existing 24" CMP	Pipe to be cleaned
DS-16	242+25.61	RT		242+25.11	LT	75		Existing 84" CMP	No Work Required
DS-17	262+13.58	RT		262+13.03	LT	75		Existing 36" CMP	No Work Required
DS-18	275+86.22	RT		275+86.94	LT	75		Existing 86" CMP	No Work Required
DS-19	280+05.22	RT		280+06.47	LT	75		Existing 36" CMP	No Work Required
DS-20	284+96.92	LT		285+29.69	LT	33	1	Existing 34" CMP	Pipe to be cleaned
DS-21	340+22.73	RT		340+22.51	LT	75		Existing 30" CMP	No Work Required
DS-22	389+32.07	RT		389+31.12	LT	75		Existing 72" CMP	No Work Required
DS-23	415+58.86	RT		415+70.37	LT	150	1	Existing 36" CMP	Pipe to be cleaned
DS-24	427+56.95	RT		427+56.92	LT	150	2	Existing 3.6' x 2.4' Elliptical Pipe	Pipe to be cleaned
DS-25	428+24.03	RT		428+43.81	RT	20	1	Existing 24" CMP	Pipe to be cleaned
DS-26	429+57.51	RT		429+58.05	LT	75	1	Existing 36" CMP	Pipe to be cleaned
DS-27	434+43.83	RT		434+42.49	LT	75		Existing 36" CMP	No Work Required
DS-28	442+99.49	RT		442+99.88	LT	75		Existing 84" CMP	No Work Required
DS-29	452+08.22	LT		452+40.45	LT	32	1	Existing 24" CMP	Pipe to be cleaned
DS-30	452+14.20	RT		452+34.26	RT	20	1	Existing 24" CMP	Pipe to be cleaned
DS-31	462+28.33	LT		462+81.57	LT	53		Existing 24" CMP	No Work Required
DS-32	466+58.42	RT		466+54.97	LT	150		Existing 30" CMP	No Work Required
DS-33	477+33.61	RT		477+29.04	LT	75		Existing 36" CMP	No Work Required
DS-34	479+55.96	RT		479+93.27	RT	37	1	Existing 24" CMP	Pipe to be cleaned
DS-35	497+27.03	RT		497+26.12	LT	75		Existing 84" CMP	No Work Required
DS-36	526+44.82	LT		526+76.92	LT	32	1	Existing 24" CMP	Pipe to be cleaned
DS-37	547+07.81	LT		547+39.55	LT	32	1	Existing 24" CMP	Pipe to be cleaned
DS-38	550+33.56	RT		550+74.73	LT	150		Existing 48" x 36" Elliptical Pipe	No Work Required
DS-39	554+06.38	RT		554+42.84	RT	36	1	Existing 24" CMP	Pipe to be cleaned
DS-40	571+58.67	RT		572+59.77	LT	150		Existing 36" x 30" Elliptical Pipe	No Work Required
					PROJECT TOTAL/USE	1011	22		

GUARDRAIL

BARRIER ID	STATION	TO	STATION	LOCATION	W-BEAMS NEEDED	TOTAL BARRIER SYSTEM LENGTH	61701-5000 GUARDRAIL	61703-0000 TERMINAL END	61707-0000 STRUCTURE TRANSITION RAILING	REMARKS
						LIN FT	LIN FT	EACH	EACH	
MB - 01	49+82.66	-	51+67.04	LT	13	184.38	162.5	2		REPLACE EXISTING GUARDRAIL
MB - 02	58+46.10	-	59+80.47	RT	9	134.38	112.5	1	1	REPLACE EXISTING GUARDRAIL
MB - 03	58+58.17	-	59+92.54	LT	9	134.38	112.5	1	1	REPLACE EXISTING GUARDRAIL
MB - 04	60+88.65	-	62+23.03	RT	9	134.38	112.5	1	1	REPLACE EXISTING GUARDRAIL
MB - 05	61+05.40	-	62+39.78	LT	9	134.38	112.5	1	1	REPLACE EXISTING GUARDRAIL
MB - 06	383+86.48	-	385+20.85	LT	9	134.38	112.5	1	1	REPLACE EXISTING GUARDRAIL
MB - 07	384+26.00	-	384+97.87	RT	4	71.88	50.0	1	1	REPLACE EXISTING GUARDRAIL
MB - 08	385+94.87	-	391+54.25	RT	43	559.38	537.5	1	1	REPLACE EXISTING GUARDRAIL
MB - 09	386+17.99	-	390+64.87	LT	34	446.88	425.0	1	1	REPLACE EXISTING GUARDRAIL
						PROJECT TOTAL	1737.5	10	8	
						PROJECT USE	**1800**	**10**	**8**	

FOR CONTRACTORS INFORMATION ONLY: STATION RANGES INCLUDE END TREATMENT LENGTHS

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25660
PROFESSIONAL ENGINEER
06/09/2025

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NAVAJO NATION
DIVISION OF TRANSPORTATION

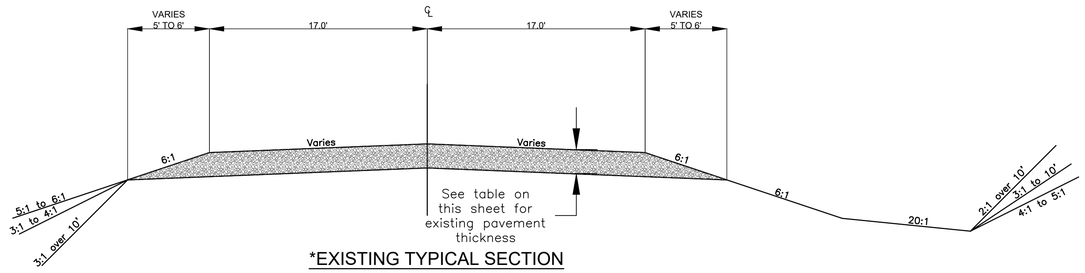
N13(3-3)1,4

DRAINAGE STRUCTURE QUANTITIES

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		6 OF 74
SCALE: 1"=100' H 1"=20' V			

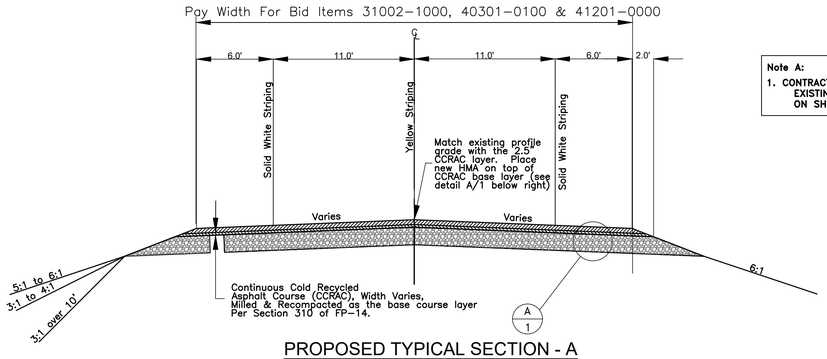
STATE	PROJECT	SHEET NUMBER
NM	N13	7

PROJECT: N13(3-3)1,4



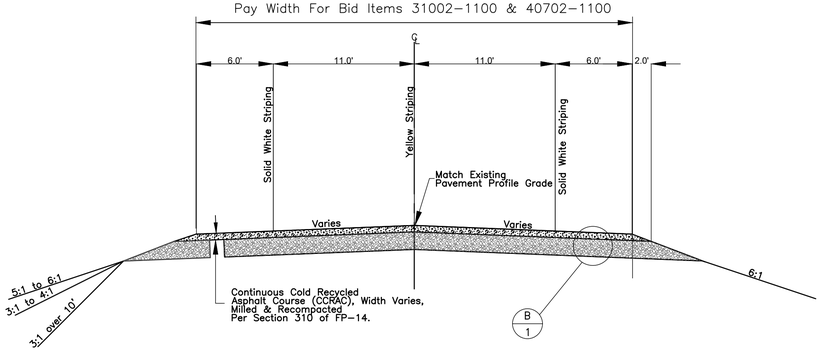
*EXISTING TYPICAL SECTION
AS SHOWN ON AS-BUILT PLANS
FROM Sta. 10+00.00 to 583+00.00

Pay Width For Bid Items 31002–1000, 40301–0100 & 41201–0000



PROPOSED TYPICAL SECTION - A
BOP Sta. 10+00.00 to 289+20.00

Pay Width For Bid Items 31002–1100 & 40702–1100



PROPOSED TYPICAL SECTION - B
Sta. 289+20.00 to 583+00.00 - EOP

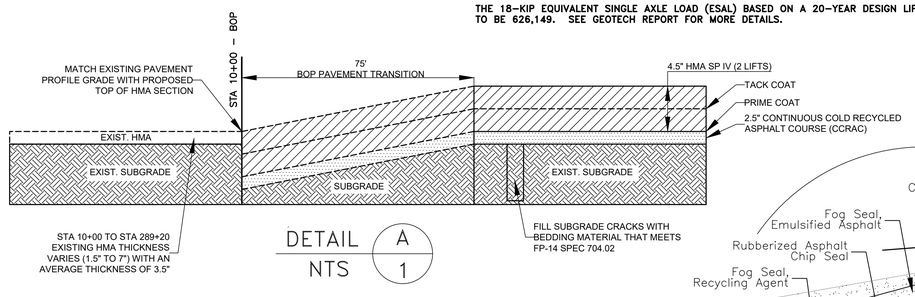
Note A:
1. CONTRACTOR SHALL MATCH THE CENTERLINE PROFILE. EXISTING POINT PROFILE DATA AND SUPER ELEVATION IS PROVIDED ON SHEETS 8 TO 11.

PAVEMENT THICKNESS AT BORING LOCATIONS

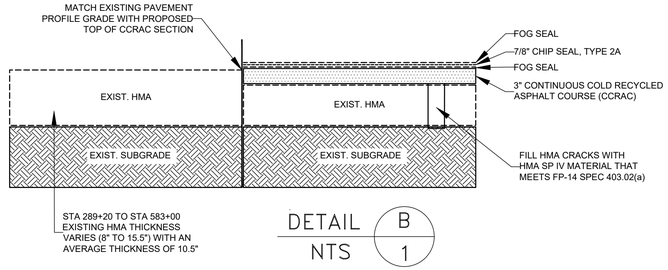
STATION	BORING	EXISTING ASPHALT PAVEMENT THICKNESS (IN)
11+00	B-53	2.5
16+00	B-52	1.5
19+00	B-51	3.5
23+00	B-50	3.5
28+00	B-49	3.5
34+00	B-48	3
39+00	B-47	3.5
44+00	B-46	3
50+00	B-45	3.5
55+00	B-44	2.5
61+00	B-43	3
66+00	B-42	3
72+00	B-41	3
77+00	B-40	2.5
85+00	B-39	3
92+00	B-38	3.5
97+00	B-37	3
105+00	B-36	4
112+00	B-35	5
117+00	B-34	4
125+00	B-33	4
132+00	B-32	4
136+00	B-31	4.5
141+00	B-30	3
145+00	B-29	4
150+00	B-28	2.5
154+00	B-27	3
158+00	B-26	3.5
163+00	B-25	3
172+00	B-24	3.5
173+00	B-23	2
181+00	B-22	4
186+00	B-21	3
189+00	B-20	4
193+00	B-19	7
198+00	B-18	3.5
206+00	B-17	3.5
217+00	B-16	3.5
223+00	B-15	2
226+00	B-14	6

STATION	BORING	EXISTING ASPHALT PAVEMENT THICKNESS (IN)
234+00	B-13	6
239+00	B-12	2
250+00	B-11	4.5
256+00	B-10	4.5
263+00	B-09	4.5
267+00	B-08	3.5
272+00	B-07	6
277+00	B-06	2.5
283+00	B-05	5
289+00	B-04	13.5
294+00	B-03	15.5
299+00	B-02	10
305+00	B-01	10
316+00	B-54	10
326+00	B-55	10
337+00	B-56	11
347+00	B-57	10
358+00	B-58	9.5
368+00	B-59	8
380+00	B-60	9
386+00	HA-02	0
387+00	HA-01	0
391+00	B-61	9
401+00	B-62	11
411+00	B-63	9
421+00	B-64	10
433+00	B-65	10
442+00	B-66	12
452+00	B-67	14
462+00	B-68	11
473+00	B-69	9.5
484+00	B-70	10
494+00	B-71	9.5
505+00	B-72	12
515+00	B-73	9
526+00	B-74	8.5
537+00	B-75	9.5
549+00	B-76	9
582+00	B-78	14

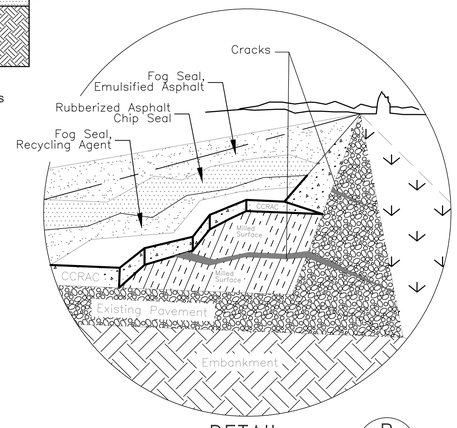
THE 18–KIP EQUIVALENT SINGLE AXLE LOAD (ESAL) BASED ON A 20–YEAR DESIGN LIFE IS CALCULATED TO BE 626,149. SEE GEOTECH REPORT FOR MORE DETAILS.



DETAIL A
NTS 1



DETAIL B
NTS 1



DETAIL B
Perspective View 1

SEQUENCE OF PAVEMENT RECONSTRUCTION

1. COMPLETE CRACK SEALING OPERATIONS PER BOTH TYPICAL SECTIONS, A & B. LIMIT THE CONSTRUCTION AREA TO 2 MILE LENGTHS.

   TYPICAL SECTION A (STA 10+00 TO 289+20):
   FILL SUBGRADE CRACKS WITH BEDDING MATERIAL THAT MEETS FP-14 SPEC 704.02

   TYPICAL SECTION B (STA 289+20 TO 583+00):
   FILL HMA CRACKS WITH HMA SP IV MATERIAL THAT MEETS FP-14 SPEC 403.02(a)

2. COMPLETE FINAL CCRAC AND/OR HMA OVERLAY OPERATIONS PER BOTH TYPICAL SECTIONS. LIMIT THE CONSTRUCTION AREA TO 2 MILE LENGTHS.

   TYPICAL SECTION A (STA 10+00 TO 289+20):
   A. CLEAN ROADWAY SURFACE OF DEBRIS AND DIRT.
   B. COLD MILL 75 FEET AT BOP AND EXCAVATE SUBGRADE TO ACCOUNT FOR PAVEMENT THICKNESS TRANSITION.
   C. 2.5" COLD MILL, MIX, PLACE AND COMPACT CCRAC BASE COURSE LAYER.
   D. PLACE PRIME COAT.
   E. PLACE AND COMPACT 2.5" HMA SP IV BOTTOM LIFT.
   F. PLACE TACK COAT.
   G. PLACE AND COMPACT 2" HMA SP IV TOP LIFT.

   TYPICAL SECTION B (STA 289+20 TO 583+00):
   A. CLEAN ROADWAY SURFACE OF DEBRIS AND DIRT.
   B. 3" COLD MILL, MIX, PLACE AND COMPACT CCRAC.
   C. PLACE FOG SEAL.
   D. PLACE 7/8" CHIP SEAL, TYPE 2A.
   E. PLACE FOG SEAL.

3. COMPLETE STRIPING OPERATIONS. CONDUCT USING A MOBILE TRAFFIC CONTROL OPERATION.

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06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY TYPICAL SECTION

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		7 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	8

N13(3-3)1,4 HORIZONTAL ALIGNMENT

TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	10+00.000	2038007.152	2364069.612
End:	13+74.742	2038380.151	2364033.505
PARAMETER	VALUE	PARAMETER	VALUE
Length:	374.742	Course:	N 05° 31' 44.7354" W
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	13+74.742	2038380.151	2364033.505
RP:		2038037.783	2360496.7
PT:	18+53.560	2038852.197	2363955.448
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	07° 43' 14.5344"	Type:	LEFT
Radius:	3553.337		
Length:	478.818	Tangent:	239.772
Mid-Ord:	8.062	External:	8.08
Chord:	478.456	Course:	N 09° 23' 22.0026" W
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	18+53.560	2038852.197	2363955.448
End:	40+36.418	2040976.947	2363455.143
PARAMETER	VALUE	PARAMETER	VALUE
Length:	2182.858	Course:	N 13° 14' 59.2698" W
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	40+36.418	2040976.947	2363455.143
RP:		2041305.255	2364849.438
PT:	50+06.188	2041922.835	2363556.984
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	38° 47' 23.7039"	Type:	RIGHT
Radius:	1432.426		
Length:	969.769	Tangent:	504.295
Mid-Ord:	81.287	External:	86.178
Chord:	951.355	Course:	N 06° 08' 42.5821" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	50+06.188	2041922.835	2363556.984
End:	53+05.983	2042193.336	2363686.238
PARAMETER	VALUE	PARAMETER	VALUE
Length:	299.796	Course:	N 25° 32' 24.4340" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	53+05.983	2042193.336	2363686.238
RP:		2041736.236	2364642.843
PT:	59+30.678	2042647.855	2364101.564
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	33° 45' 35.5449"	Type:	RIGHT
Radius:	1060.204		
Length:	624.695	Tangent:	321.709
Mid-Ord:	45.679	External:	47.735
Chord:	615.697	Course:	N 42° 25' 12.2065" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	59+30.678	2042647.855	2364101.564
End:	62+68.045	2042820.096	2364391.649
PARAMETER	VALUE	PARAMETER	VALUE
Length:	337.367	Course:	N 59° 17' 59.9789" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	62+68.045	2042820.096	2364391.649
RP:		2040833.153	2365571.41
PT:	76+07.595	2043141.725	2365672.766
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	33° 12' 50.1248"	Type:	RIGHT
Radius:	2310.795		
Length:	1339.55	Tangent:	689.184
Mid-Ord:	96.388	External:	100.584
Chord:	1320.873	Course:	N 75° 54' 25.0413" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	76+07.595	2043141.725	2365672.766
End:	132+43.335	2042894.529	2371303.082
PARAMETER	VALUE	PARAMETER	VALUE
Length:	5635.74	Course:	S87° 29' 09.8963" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	132+43.335	2042894.529	2371303.082
RP:		2039095.493	2371136.288
PT:	140+77.833	2042767.11	2372126.102
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	12° 34' 24.6068"	Type:	RIGHT
Radius:	3802.696		
Length:	834.498	Tangent:	418.932
Mid-Ord:	22.868	External:	23.007
Chord:	832.824	Course:	S81° 11' 57.5929" E

TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	140+77.833	2042767.11	2372126.102
End:	217+36.702	2040773.563	2379520.967
PARAMETER	VALUE	PARAMETER	VALUE
Length:	7658.869	Course:	S74° 54' 45.2895" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	217+36.702	2040773.563	2379520.967
RP:		2035293.015	2378043.493
PT:	227+48.059	2040424.942	2380468.915
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	10° 12' 31.2031"	Type:	RIGHT
Radius:	5676.208		
Length:	1011.358	Tangent:	507.021
Mid-Ord:	22.51	External:	22.6
Chord:	1010.02	Course:	S69° 48' 29.6879" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	227+48.059	2040424.942	2380468.915
End:	259+88.806	2039040.183	2383398.912
PARAMETER	VALUE	PARAMETER	VALUE
Length:	3240.746	Course:	S64° 42' 14.0863" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	259+88.806	2039040.183	2383398.912
RP:		2040354.337	2384019.999
PT:	265+71.558	2038902.003	2383961.034
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	22° 58' 16.0549"	Type:	LEFT
Radius:	1453.53		
Length:	582.752	Tangent:	295.343
Mid-Ord:	29.107	External:	29.702
Chord:	578.857	Course:	S76° 11' 22.1138" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	265+71.558	2038902.003	2383961.034
End:	303+44.740	2038748.936	2387731.11
PARAMETER	VALUE	PARAMETER	VALUE
Length:	3773.182	Course:	S87° 40' 30.1412" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	303+44.740	2038748.936	2387731.11
RP:		2037980.132	2387699.896
PT:	309+86.019	2038473.919	2388289.988
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	47° 45' 09.2124"	Type:	RIGHT
Radius:	769.437		
Length:	641.279	Tangent:	340.587
Mid-Ord:	65.847	External:	72.01
Chord:	622.88	Course:	S63° 47' 55.5350" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	309+86.019	2038473.919	2388289.988
End:	312+42.960	2038276.868	2388454.88
PARAMETER	VALUE	PARAMETER	VALUE
Length:	256.941	Course:	S39° 55' 20.9288" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	312+42.960	2038276.868	2388454.88
RP:		2039325.71	2389708.281
PT:	333+18.501	2037817.803	2390338.601
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	72° 45' 46.4962"	Type:	LEFT
Radius:	1634.345		
Length:	2075.541	Tangent:	1204.127
Mid-Ord:	318.557	External:	395.681
Chord:	1938.851	Course:	S76° 18' 14.1769" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	333+18.501	2037817.803	2390338.601
End:	373+87.722	2039387.184	2394093.013
PARAMETER	VALUE	PARAMETER	VALUE
Length:	4069.222	Course:	N 67° 18' 52.5750" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	373+87.722	2039387.184	2394093.013
RP:		2035812.652	2395587.201
PT:	384+60.777	2039659.527	2395127.389
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	15° 52' 09.2454"	Type:	RIGHT
Radius:	3874.258		
Length:	1073.055	Tangent:	539.984
Mid-Ord:	37.091	External:	37.45
Chord:	1069.628	Course:	N 75° 14' 57.1976" E

TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	384+60.777	2039659.527	2395127.389
End:	398+34.351	2039822.548	2396491.254
PARAMETER	VALUE	PARAMETER	VALUE
Length:	1373.573	Course:	N 83° 11' 01.8203" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	398+34.351	2039822.548	2396491.254
RP:		1998112.195	2401476.845
PT:	408+90.172	2039934.67	2397541.076
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	01° 26' 24.3108"	Type:	RIGHT
Radius:	42007.257		
Length:	1055.821	Tangent:	527.938
Mid-Ord:	3.317	External:	3.317
Chord:	1055.793	Course:	N 83° 54' 13.9757" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	408+90.172	2039934.67	2397541.076
End:	433+98.364	2040169.669	2400038.236
PARAMETER	VALUE	PARAMETER	VALUE
Length:	2508.193	Course:	N 84° 37' 26.1312" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	433+98.364	2040169.669	2400038.236
RP:		2041601.876	2399903.456
PT:	443+80.339	2040575.619	2400911.513
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	39° 06' 40.8595"	Type:	LEFT
Radius:	1438.534		
Length:	981.975	Tangent:	510.985
Mid-Ord:	82.979	External:	88.059
Chord:	963.02	Course:	N 65° 04' 05.7014" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	443+80.339	2040575.619	2400911.513
End:	453+81.436	2041277.14	2401625.699
PARAMETER	VALUE	PARAMETER	VALUE
Length:	1001.096	Course:	N 45° 30' 45.2717" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	453+81.436	2041277.14	2401625.699
RP:		2039601.357	2403271.764
PT:	462+17.649	2041745.753	2402312.94
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	20° 23' 47.7051"	Type:	RIGHT
Radius:	2348.995		
Length:	836.213	Tangent:	422.579
Mid-Ord:	37.112	External:	37.708
Chord:	831.805	Course:	N 55° 42' 39.1242" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	462+17.649	2041745.753	2402312.94
End:	526+27.517	2044362.162	2408164.505
PARAMETER	VALUE	PARAMETER	VALUE
Length:	6409.868	Course:	N 65° 54' 32.9768" E
CURVE POINT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
PC:	526+27.517	2044362.162	2408164.505
RP:		2039679.357	2410258.327
PT:	531+02.492	2044535.702	2408606.46
PARAMETER	VALUE	PARAMETER	VALUE
Delta:	05° 18' 19.0903"	Type:	RIGHT
Radius:	5129.595		
Length:	474.975	Tangent:	237.657
Mid-Ord:	5.497	External:	5.502
Chord:	474.805	Course:	N 68° 33' 42.5219" E
TANGENT DATA			
DESCRIPTION	PT STATION	NORTHING	EASTING
Start:	531+02.492	2044535.702	2408606.46
End:	583+00.000	2046209.440	2413527.100
PARAMETER	VALUE	PARAMETER	VALUE
Length:	5197.508	Course:	N 71° 12' 52.0128" E

SUPER ELEVATION TABLE

STATION*	DESCRIPTION	LEFT OUTSIDE LANE**	RIGHT OUTSIDE LANE**
BOP			
10+00.00'	Begin Alignment	-2.00%	-2.00%
CURVE 1			
12+24.54'	End Normal Shoulder	-2.00%	-2.00%
12+91.46'	End Normal Crown	-2.00%	-2.00%
13+36.07'	RUNOUT	-2.00%	0.00%
13+74.74	PC		
13+80.69'	RUNOFF	-2.00%	2.00%
13+94.07'	BEGIN FULL SUPER	-2.60%	2.60%
18+34.23'	END FULL SUPER	-2.60%	2.60%
18+47.61'	RUNOFF	-2.00%	2.00%
18+53.56	PT		
18+92.23'	RUNOUT	-2.00%	0.00%
CURVE 2			
39+68.41'	RUNOUT	0.00%	-2.00%
40+36.42	PC		
40+12.76'	RUNOFF	2.00%	-2.00%
40+70.41'	BEGIN FULL SUPER	4.60%	-4.60%
49+72.19'	END FULL SUPER	4.60%	-4.60%
50+29.84'	RUNOFF	2.00%	-2.00%
50+06.19	PT		
50+74.19'	RUNOUT	0.00%	-2.00%
CURVE 3			
52+25.98'	RUNOUT	0.00%	-2.00%
53+05.98	PC		
52+70.42'	RUNOFF	2.00%	-2.00%
53+37.09'	Low Shoulder Match	5.00%	-5.00%
53+45.98'	BEGIN FULL SUPER	5.40%	-5.40%
58+90.68'	END FULL SUPER	5.40%	-5.40%
58+99.57'	Low Shoulder Match	5.00%	-5.00%
59+66.24'	RUNOFF	2.00%	-2.00%
59+30.68	PT		
60+10.68'	RUNOUT	0.00%	-2.00%
CURVE 4			
62+14.71'	RUNOUT	0.00%	-2.00%
62+68.04	PC		
62+59.15'	RUNOFF	2.00%	-2.00%
62+94.71'	BEGIN FULL SUPER	3.60%	-3.60%
75+80.93'	END FULL SUPER	3.60%	-3.60%
76+16.49'	RUNOFF	2.00%	-2.00%
76+07.60	PT		
76+60.93'	RUNOUT	0.00%	-2.00%
CURVE 5			
131+76.00'	RUNOUT	0.00%	-2.00%
132+43.34	PC		
132+29.16'	RUNOFF	2.00%	-2.00%
132+77.00'	BEGIN FULL SUPER	3.80%	-3.80%
140+44.17'	END FULL SUPER	3.80%	-3.80%
140+92.01'	RUNOFF	2.00%	-2.00%
140+77.83	PT		
141+45.17'	RUNOUT	0.00%	-2.00%
CURVE 6			
216+86.70'	RUNOUT	0.00%	-2.00%
217+36.70	PC		
217+40.27'	RUNOFF	2.00%	-2.00%
217+61.70'	BEGIN FULL SUPER	2.80%	-2.80%
227+23.06'	END FULL SUPER	2.80%	-2.80%
227+44.49'	RUNOFF	2.00%	-2.00%
227+48.06'	PT		
227+98.06'	RUNOUT	0.00%	-2.00%
CURVE 7			
258+82.13'	RUNOUT	-2.00%	0.00%
259+88.81	PC		
259+35.47'	RUNOFF	-2.00%	2.00%
260+15.47'	Low Shoulder Match	-5.00%	5.00%
260+42.13'	BEGIN FULL SUPER	-6.00%	6.00%
265+18.23'	END FULL SUPER	-6.00%	6.00%
265+44.90'	Low Shoulder Match	-5.00%	5.00%
266+24.90'	RUNOFF	-2.00%	2.00%
265+71.56	PT		
266+78.23'	RUNOUT	-2.00%	0.00%

STATION*	DESCRIPTION	LEFT OUTSIDE LANE**	RIGHT OUTSIDE LANE**
CURVE 8			
302+56.07'	RUNOUT	0.00%	-2.00%
303+44.74	PC		
303+00.40'	RUNOFF	2.00%	-2.00%
303+66.90'	Low Shoulder Match	5.00%	-5.00%
303+89.07'	BEGIN FULL SUPER	6.00%	-6.00%
309+41.69'	END FULL SUPER	6.00%	-6.00%
309+63.86'	Low Shoulder Match	5.00%	-5.00%
310+30.36'	RUNOFF	2.00%	-2.00%
309+86.02	PT		
310+74.69'	RUNOUT	0.00%	-2.00%
CURVE 9			
311+36.29'	RUNOUT	-2.00%	0.00%
312+42.96	PC		
312+69.62'	Low Shoulder Match	-5.00%	5.00%
312+96.29'	BEGIN FULL SUPER	-6.00%	6.00%
332+65.17'	END FULL SUPER	-6.00%	6.00%
332+91.84'	Low Shoulder Match	-5.00%	5.00%
333+71.84'	RUNOFF	-2.00%	2.00%
333+18.50	PT		
334+25.17'	RUNOUT	-2.00%	0.00%
CURVE 10			
373+20.39'	RUNOUT	0.00%	-2.00%
373+87.72	PC		
374+21.39'	BEGIN FULL SUPER	3.80%	-3.80%
384+27.11'	END FULL SUPER	3.80%	-3.80%
384+74.96'	RUNOFF	2.00%	-2.00%
384+60.78	PT		
385+28.11'	RUNOUT	0.00%	-2.00%
CURVE 11			
432+91.69'	RUNOUT	-2.00%	0.00%
433+98.36	PC		
434+25.03'	Low Shoulder Match	-5.00%	5.00%
434+51.69'	BEGIN FULL SUPER	-6.00%	6.00%
443+27.01'	END FULL SUPER	-6.00%	6.00%
443+53.68'	Low Shoulder Match	-5.00%	5.00%
444+33.68'	RUNOFF	-2.00%	2.00%
443+80.34	PT		
444+87.01'	RUNOUT	-2.00%	0.00%
CURVE 12			
452+92.76'	RUNOUT	0.00%	-2.00%
453+81.44	PC		
454+25.76'	BEGIN FULL SUPER	5.00%	-5.00%
461+73.32'	END FULL SUPER	5.00%	-5.00%
462+53.12'	RUNOFF	2.00%	-2.00%
462+17.65	PT		
463+06.32'	RUNOUT	0.00%	-2.00%
CURVE 13			
525+74.18'	RUNOUT	0.00%	-2.00%
526+27.52	PC		
526+54.18'	BEGIN FULL SUPER	3.00%	-3.00%
530+75.83'	END FULL SUPER	3.00%	-3.00%
531+02.49'	RUNOFF	2.00%	-2.00%
531+02.49	PT		
531+55.83'	RUNOUT	0.00%	-2.00%
EOP			
583+00.00	End Alignment	-2.00%	-2.00%

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www.wilsonco.com

NYRA K. CANDELARIA — NEW MEXICO — 25660 — PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO D.O.T

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

HORIZONTAL ALIGNMENT & SUPERELEVATION TABLE

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		8 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	9

10+00 15+00 20+00 25+00 30+00 35+00 40+00 45+00 50+00 55+00 60+00 65+00 70+00 75+00 80+00

PC: 13+74.74
PT: 18+53.56
PC: 40+36.42
PT: 50+06.19
PC: 53+05.98
PT: 59+30.68
PC: 62+68.04
PT: 76+07.60

N5° 31' 44.74"W
374.74'

Δ=7.7207
L=478.818
R=3963.337

N13° 14' 59.27"W
2182.86'

Δ=38.7899
L=969.769
R=1432.426

N25° 32' 24.43"E
299.80'

Δ=33.7599
L=674.685
R=1000.204

N59° 17' 59.98"E
337.37'

Δ=39.2139
L=738.550
R=2410.795

S54° 04' 53.56"W
109.823'

N14° 06' 55.84"E
5327.346'

N14° 06' 55.84"E
5327.346'

S65° 51' 41.08"E
235.595'

CONTROL POINTS:

COORDINATES SHOWN ARE NAD83, NEW MEXICO STATE PLANE WEST ZONE. US SURVEY FEET

CONTROL POINT 1
NORTHING: 2038891.065'
EASTING: 2386370.222'
ELEVATION: 6100.524'
DESCRIPTION: REBAR w/ALUMN. CAP

CONTROL POINT 2
NORTHING: 2046881.268'
EASTING: 2415206.071'
ELEVATION: 5516.044'
DESCRIPTION: REBAR w/ALUMN. CAP

CONTROL POINT 3
NORTHING: 2042405.698'
EASTING: 2404029.73'
ELEVATION: 5677.31'
DESCRIPTION: REBAR w/ALUMN. CAP

CONTROL POINT 4
NORTHING: 2039804.988'
EASTING: 2397214.387'
ELEVATION: 5764.188'
DESCRIPTION: REBAR w/ALUMN. CAP

CONTROL POINT 5
NORTHING: 2041918.579'
EASTING: 2375639.767'
ELEVATION: 5971.956'
DESCRIPTION: REBAR w/ALUMN. CAP

CONTROL POINT 6
NORTHING: 2043238.07'
EASTING: 2365457.772'
ELEVATION: 5822.906'
DESCRIPTION: REBAR w/ALUMN. CAP

CONTROL POINT 7
NORTHING: 2038071.578'
EASTING: 2364158.552'
ELEVATION: 5855.719'
DESCRIPTION: REBAR w/ALUMN. CAP

SURVEY INFO.:

1. FIELD SURVEY WAS DONE ON SEPTEMBER-OCTOBER 2023.

MATCHLINE STA 80+00.00

85+00 90+00 95+00 100+00 105+00 110+00 115+00 120+00 125+00 130+00 135+00 140+00 145+00 150+00 155+00

PC: 132+43.34
PT: 140+77.83

S87° 29' 09.90"E
5635.74'

Δ=12.5735
L=834.498
R=3802.696

MATCHLINE STA 156+00.00

S82° 36' 58.16"E
10267.136'

MATCHLINE STA 156+00.00

160+00 165+00 170+00 175+00 180+00 185+00 190+00 195+00 200+00 205+00 210+00 215+00 220+00 225+00 230+00

PC: 217+36.70
PT: 227+48.06

S74° 54' 45.29"E
7658.87'

Δ=10.2087
L=1011.358
R=5676.208

MATCHLINE STA 234+00.00

HORIZONTAL CONTROL SHEET

SCALE: 1"=300'

0 150' 300'

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MYRA K. CANDELARIA NEW MEXICO 25660 PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

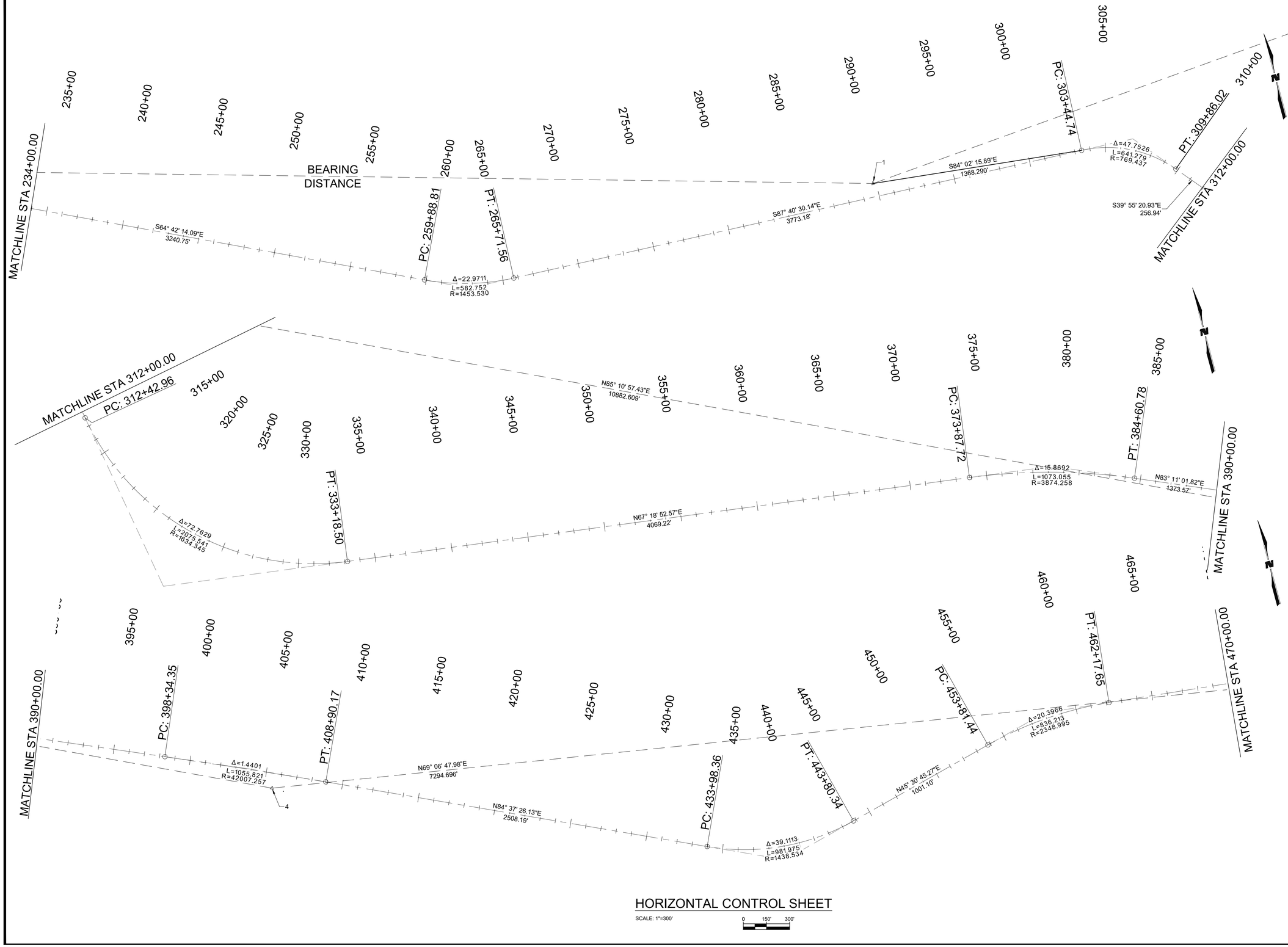
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

HORIZONTAL CONTROL SHEET

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		9 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	10



HORIZONTAL CONTROL SHEET

SCALE: 1"=300'

0 150' 300'

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MYRA K. CANDELARIA
NEW MEXICO
25660
PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

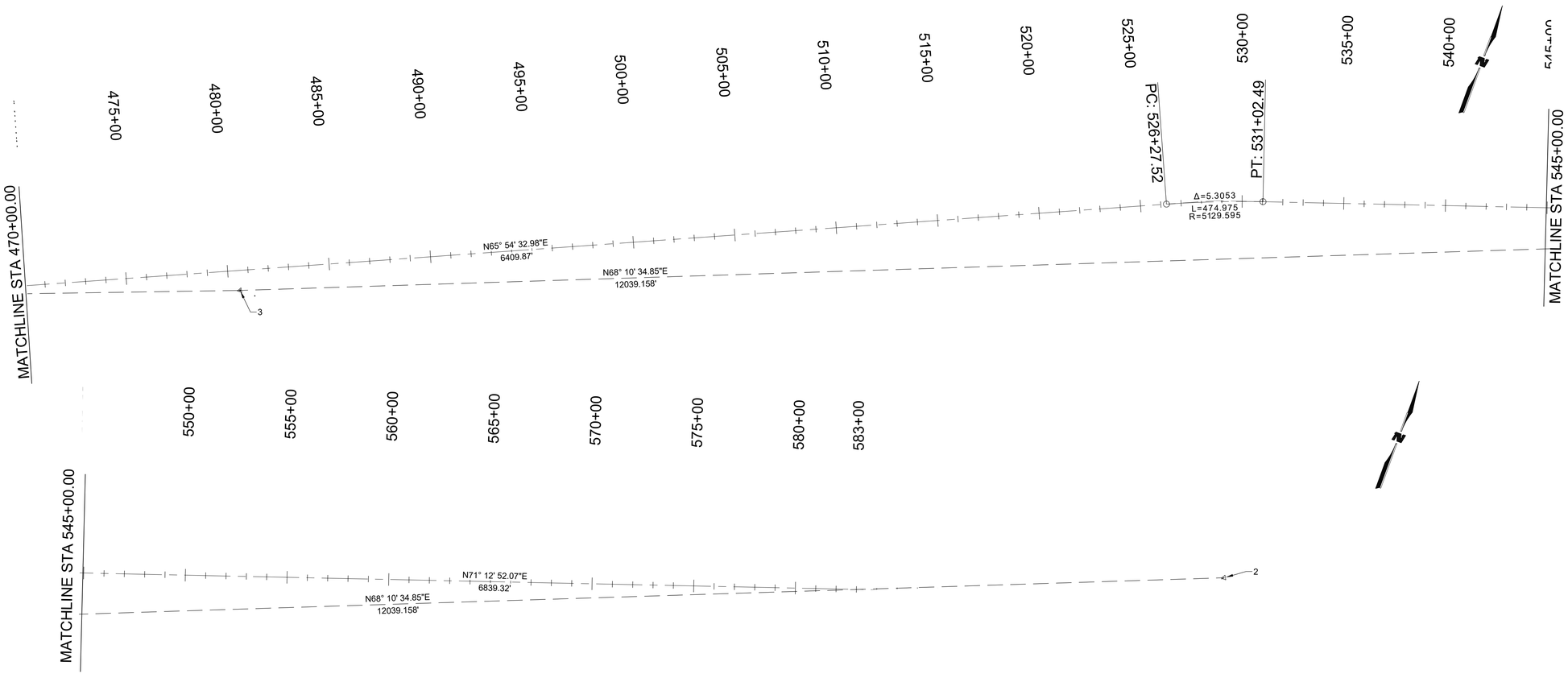
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

HORIZONTAL CONTROL SHEET

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		10 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	11



HORIZONTAL CONTROL SHEET

SCALE: 1"=300'

0 150' 300'

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MYRA K. CANDELARIA
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25660
PROFESSIONAL ENGINEER
06/09/2025

	REVISION	BY	DATE

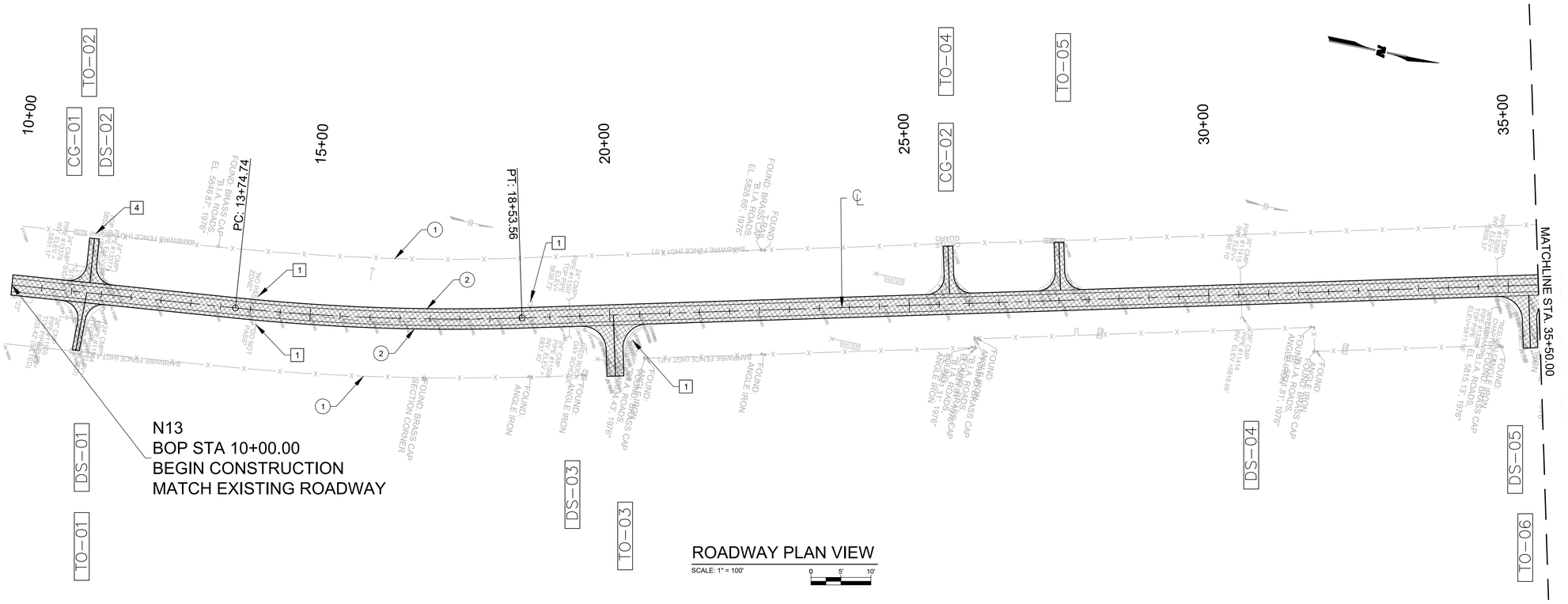
NAVAJO D.O.T

NAVAJO NATION
DIVISION OF TRANSPORTATION

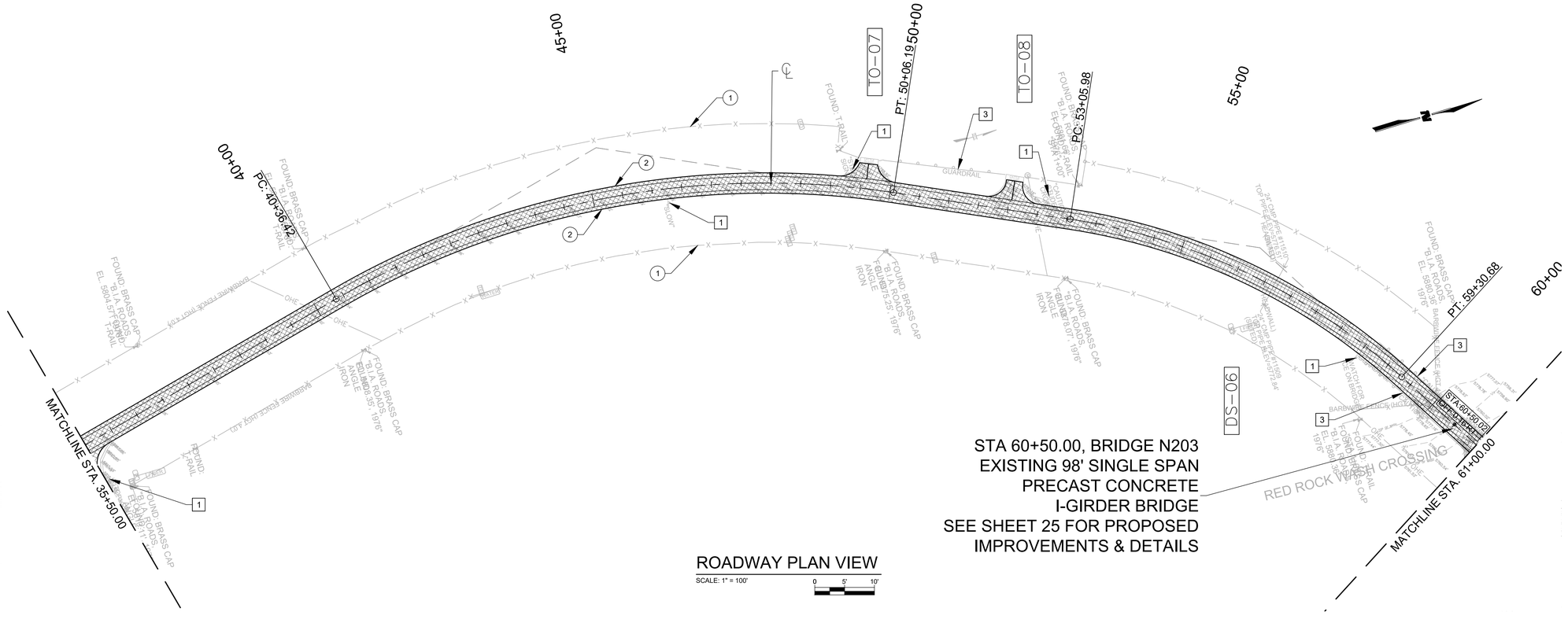
N13(3-3)1,4

HORIZONTAL CONTROL SHEET

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		11 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW
SCALE: 1" = 100'



STA 60+50.00, BRIDGE N203
EXISTING 98' SINGLE SPAN
PRECAST CONCRETE
I-GIRDER BRIDGE
SEE SHEET 25 FOR PROPOSED
IMPROVEMENTS & DETAILS

ROADWAY PLAN VIEW
SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	12

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
3. REMOVE & REPLACE EXISTING GUARDRAIL
4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

1. N13 APPARENT ROW
2. EDGE OF ROADWAY
3. INSTALL NEW GATE

REFERENCE NOTES

LEGEND

- 4.5" HMA & 2.5" CONTINOUS COLD RECYCLED ASPHALT COURSE (CCRAC)
- 3" CONTINOUS COLD RECYCLED ASPHALT COURSE (CCRAC) WITH DOUBLE CHIP SEAL, TYPE 2A
- CG-XX CATTLE GUARD
- TO-XX TURNOUT/DRIVEWAY
- DS-XX DRAINAGE STRUCTURE

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MYRA K. CANDELARIA
ARIZONA
83225
PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

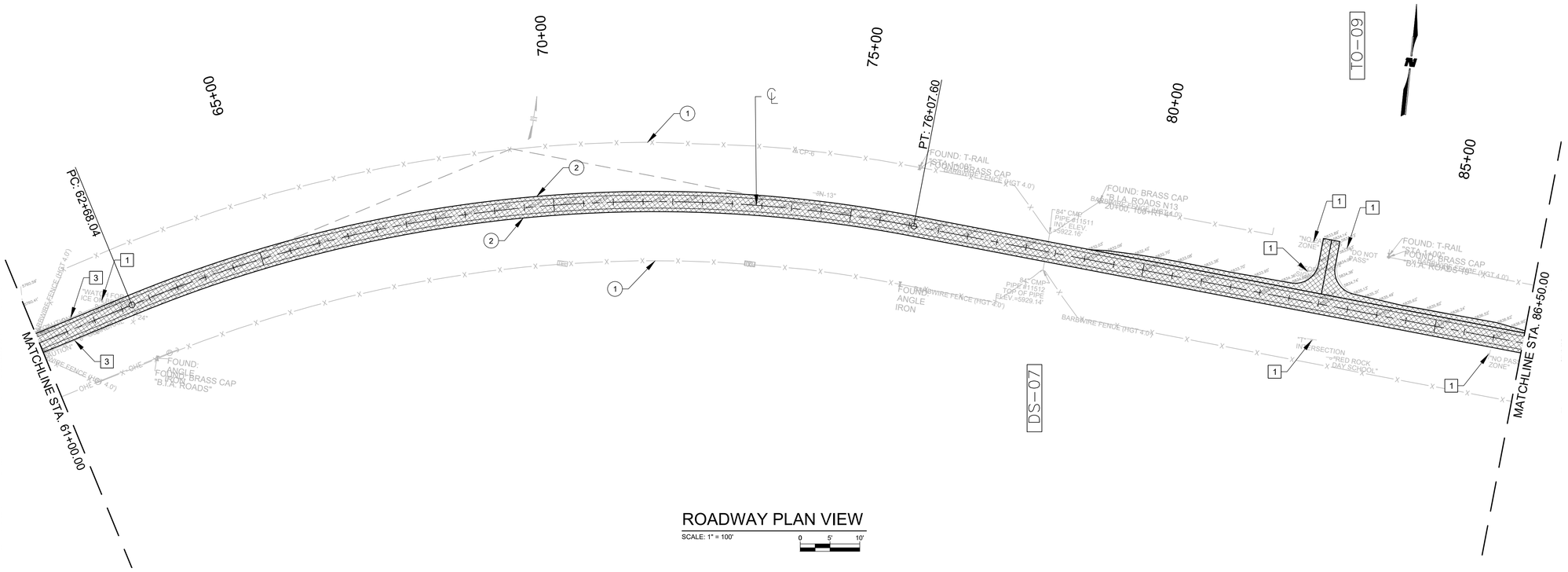
NAVAJO DOT

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

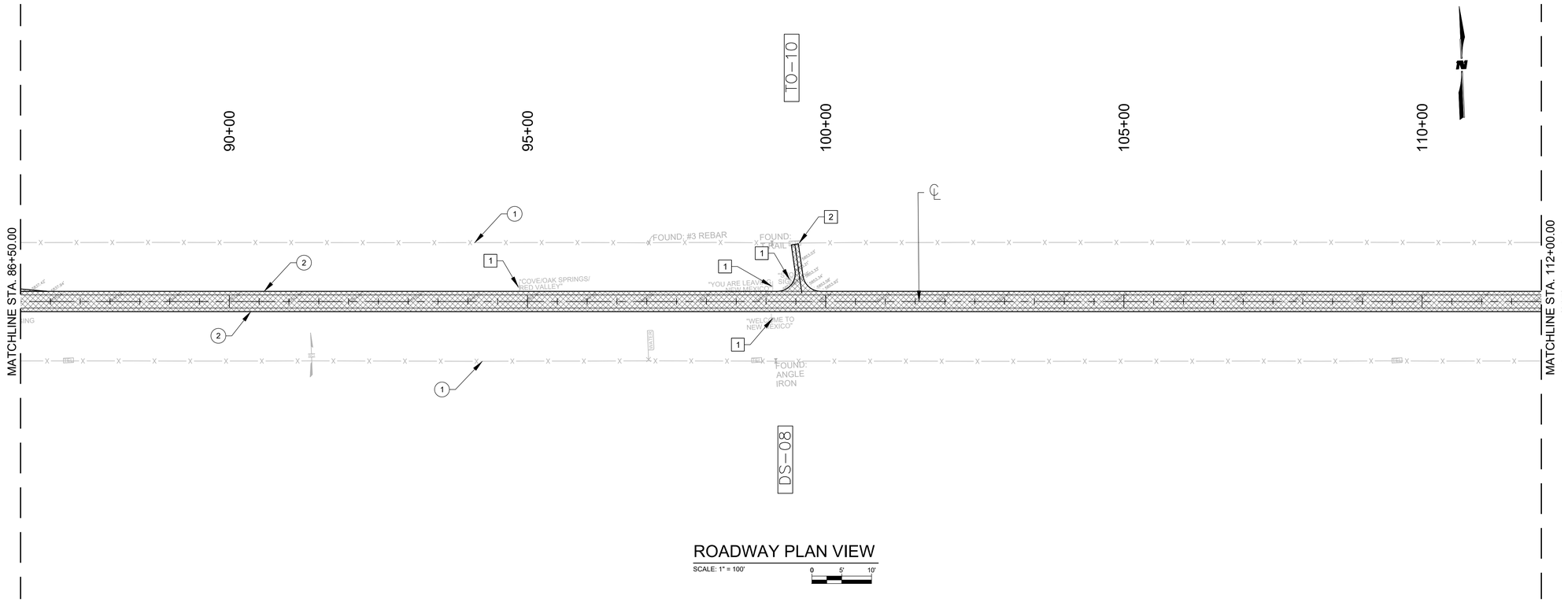
ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		12 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW

SCALE: 1" = 100'



ROADWAY PLAN VIEW

SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	13

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
3. REMOVE & REPLACE EXISTING GUARDRAIL
4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

1. N13 APPARENT ROW
2. EDGE OF ROADWAY
3. INSTALL NEW GATE

REFERENCE NOTES

LEGEND

- 4.5" HMA & 2.5" CONTINOUS COLD RECYCLED ASPHALT COURSE (CCRAC)
- 3" CONTINOUS COLD RECYCLED ASPHALT COURSE (CCRAC) WITH DOUBLE CHIP SEAL, TYPE 2A
- CG-XX CATTLE GUARD
- TO-XX TURNOUT/DRIVEWAY
- DS-XX DRAINAGE STRUCTURE

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ARIZONA
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PROFESSIONAL ENGINEER
06/09/2025

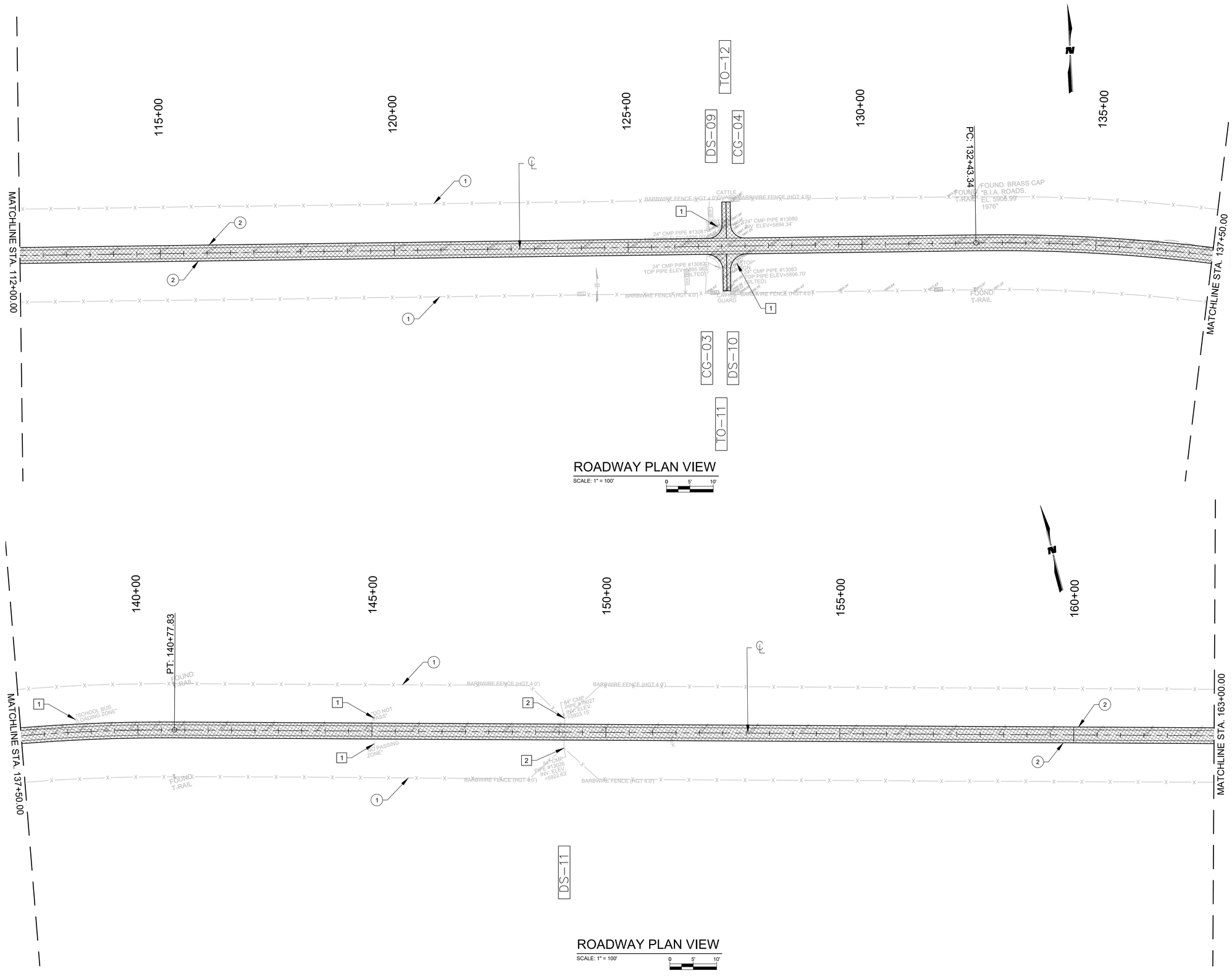
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		13 OF 74
SCALE: 1"=100' H 1"=20' V			



STATE	PROJECT	SHEET NUMBER
NM	N13	14

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
3. REMOVE & REPLACE EXISTING GUARDRAIL
4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

1. N13 APPARENT ROW
2. EDGE OF ROADWAY
3. INSTALL NEW GATE

REFERENCE NOTES

LEGEND

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06/09/2025

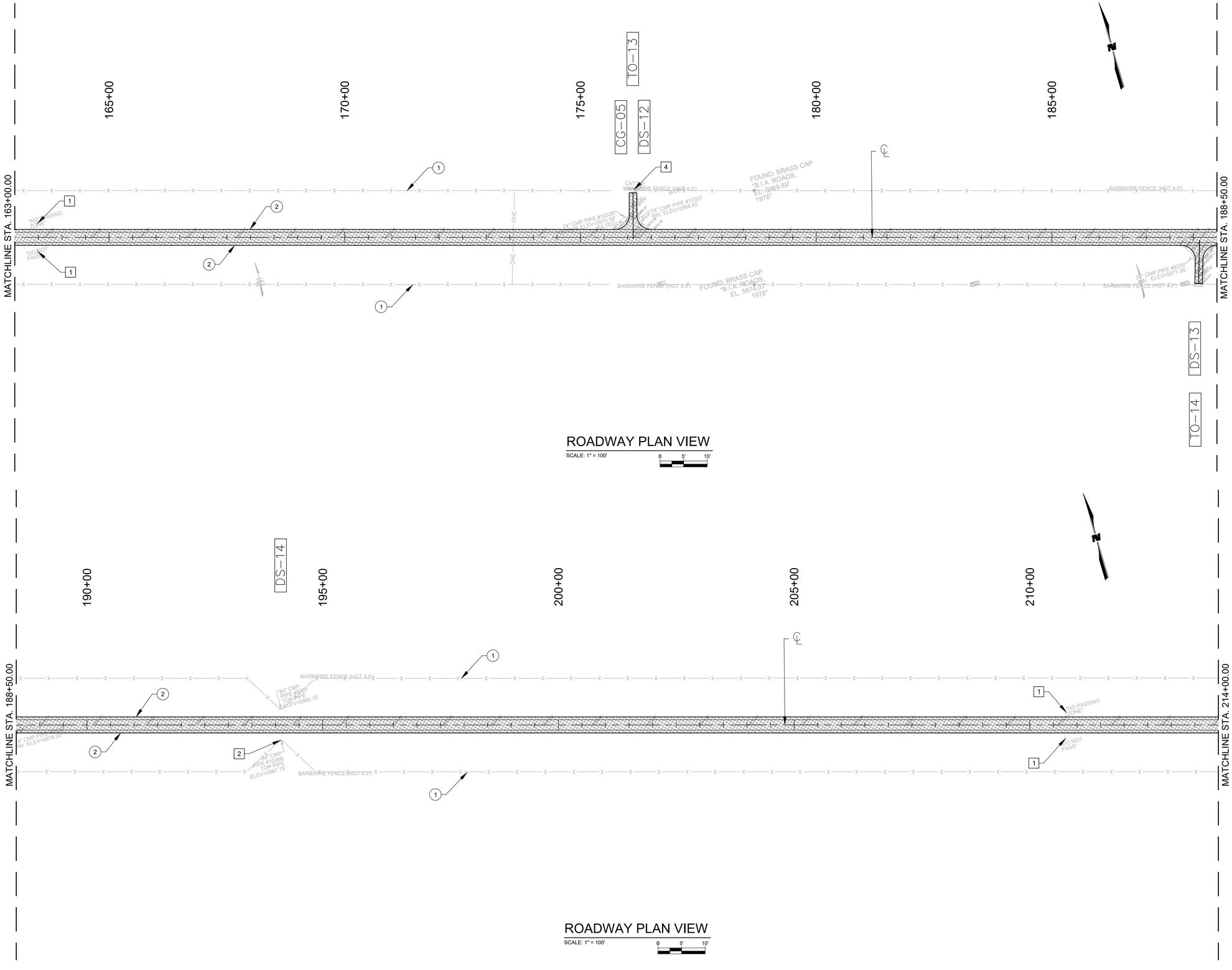
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		14 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW
SCALE: 1" = 100'

ROADWAY PLAN VIEW
SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	15

REMOVAL NOTES

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CONSTRUCTION NOTES

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3. INSTALL NEW GATE

REFERENCE NOTES

LEGEND

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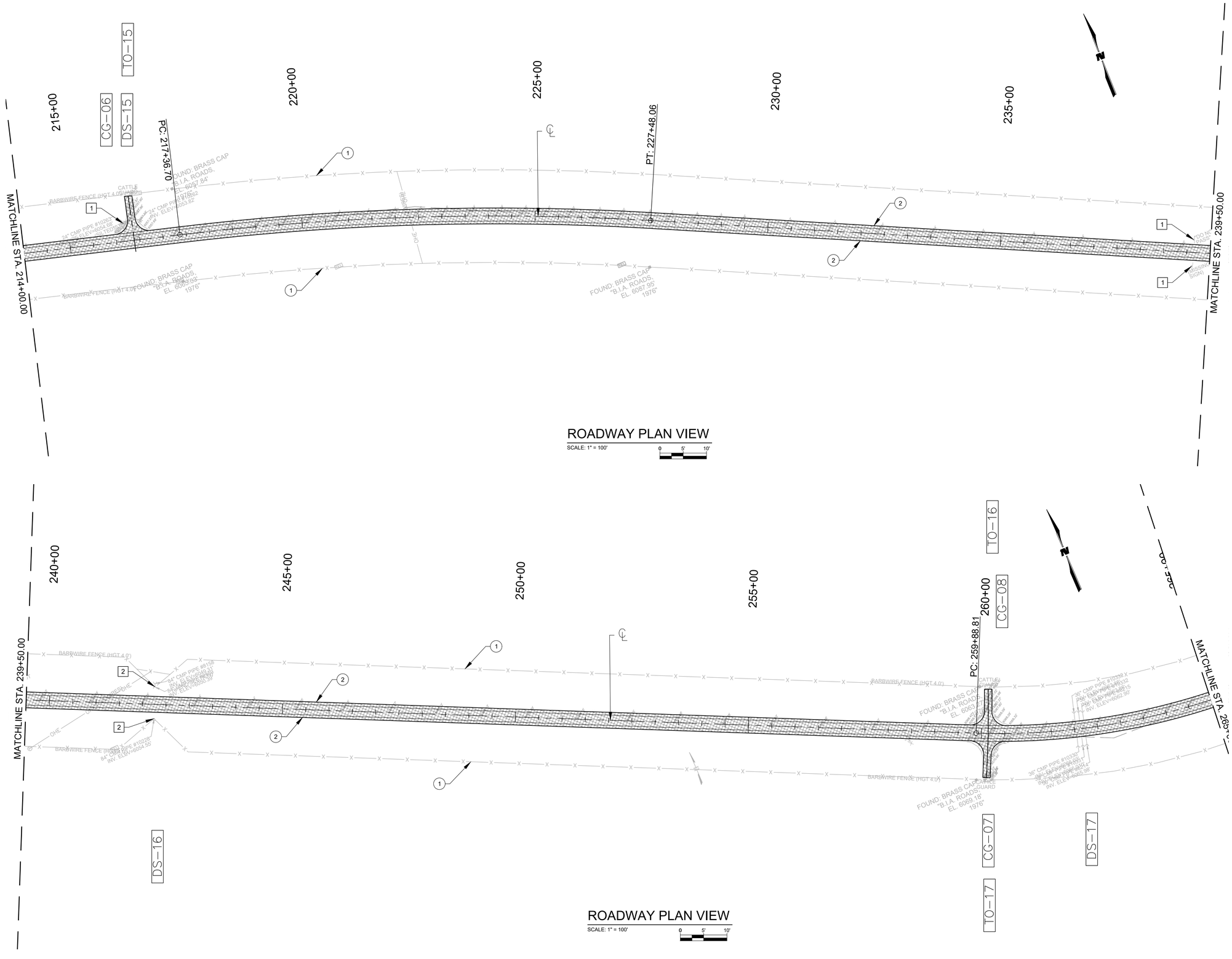
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		15 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW
SCALE: 1" = 100'
0 5' 10'

ROADWAY PLAN VIEW
SCALE: 1" = 100'
0 5' 10'

STATE	PROJECT	SHEET NUMBER
NM	N13	16

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
3. REMOVE & REPLACE EXISTING GUARDRAIL
4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

1. N13 APPARENT ROW
2. EDGE OF ROADWAY
3. INSTALL NEW GATE

REFERENCE NOTES

LEGEND

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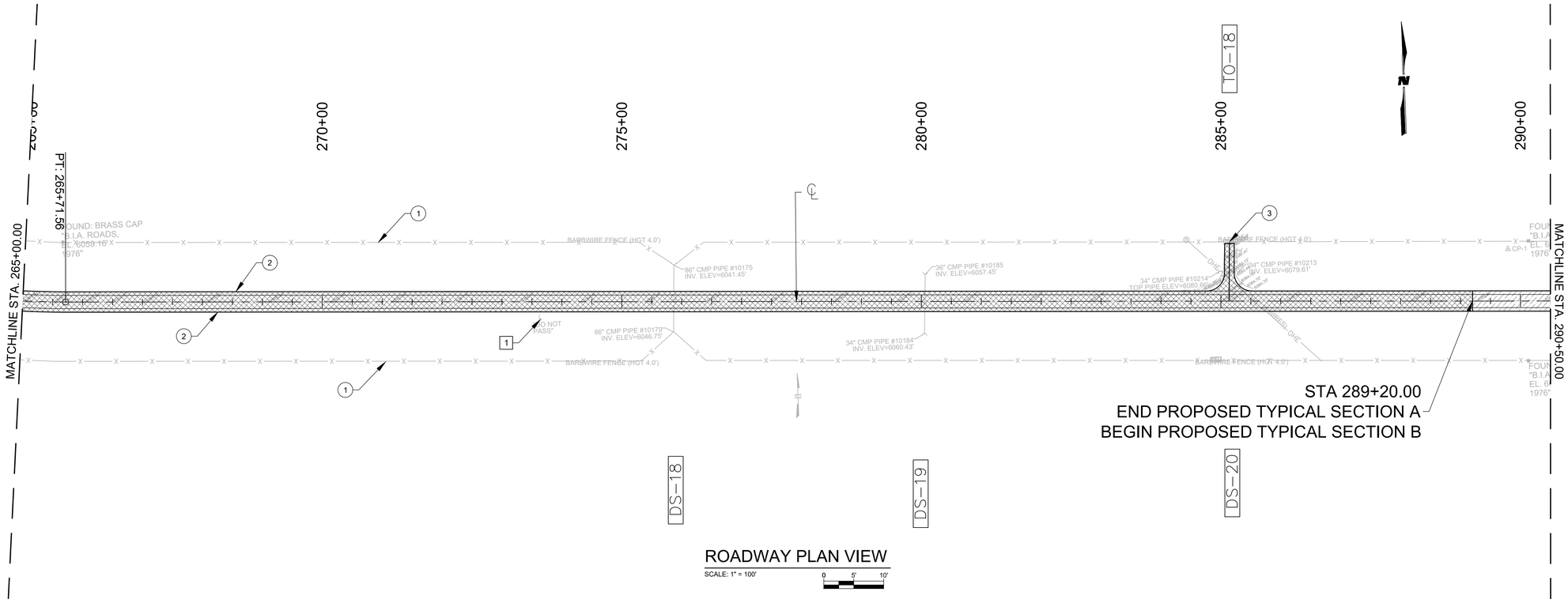
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

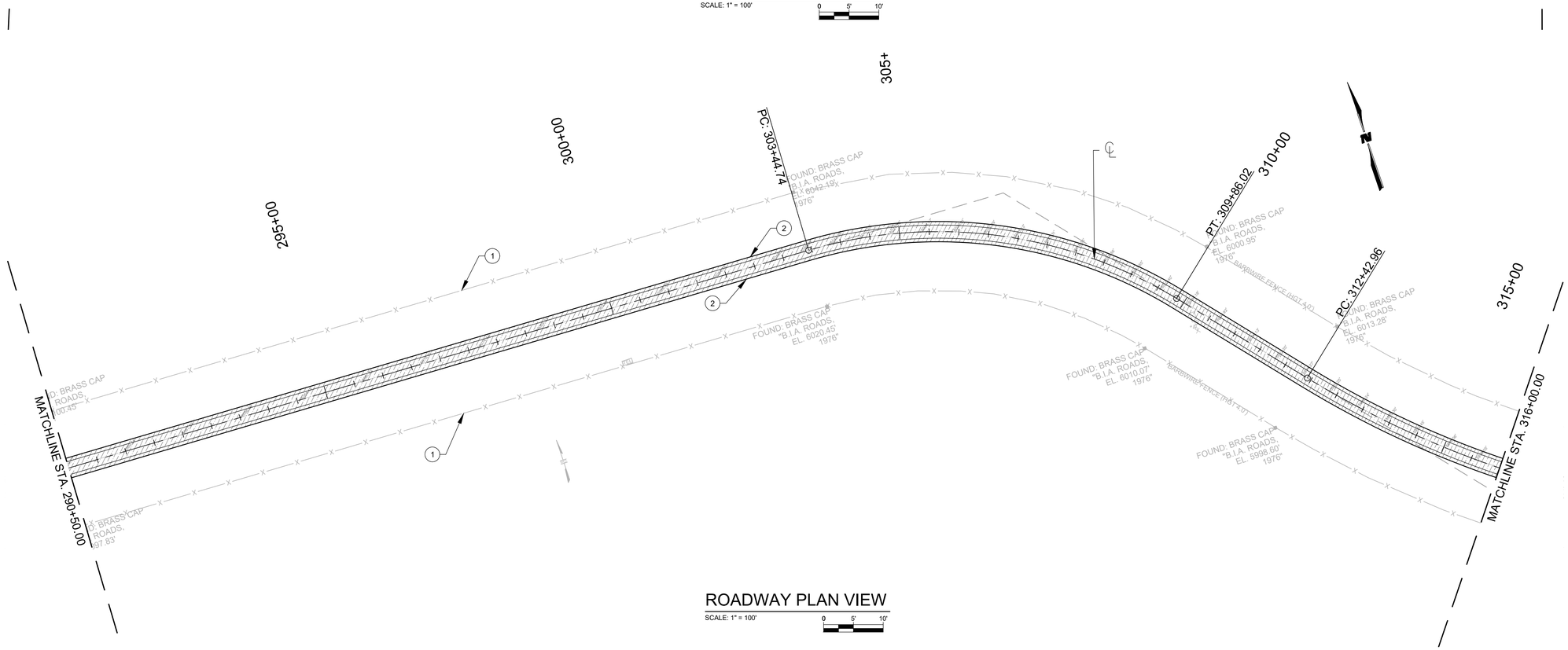
ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		16 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW

SCALE: 1" = 100'



ROADWAY PLAN VIEW

SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	17

REMOVAL NOTES

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2. REMOVE & REPLACE DAMAGED FENCE
3. REMOVE & REPLACE EXISTING GUARDRAIL
4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

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REFERENCE NOTES

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06/09/2025

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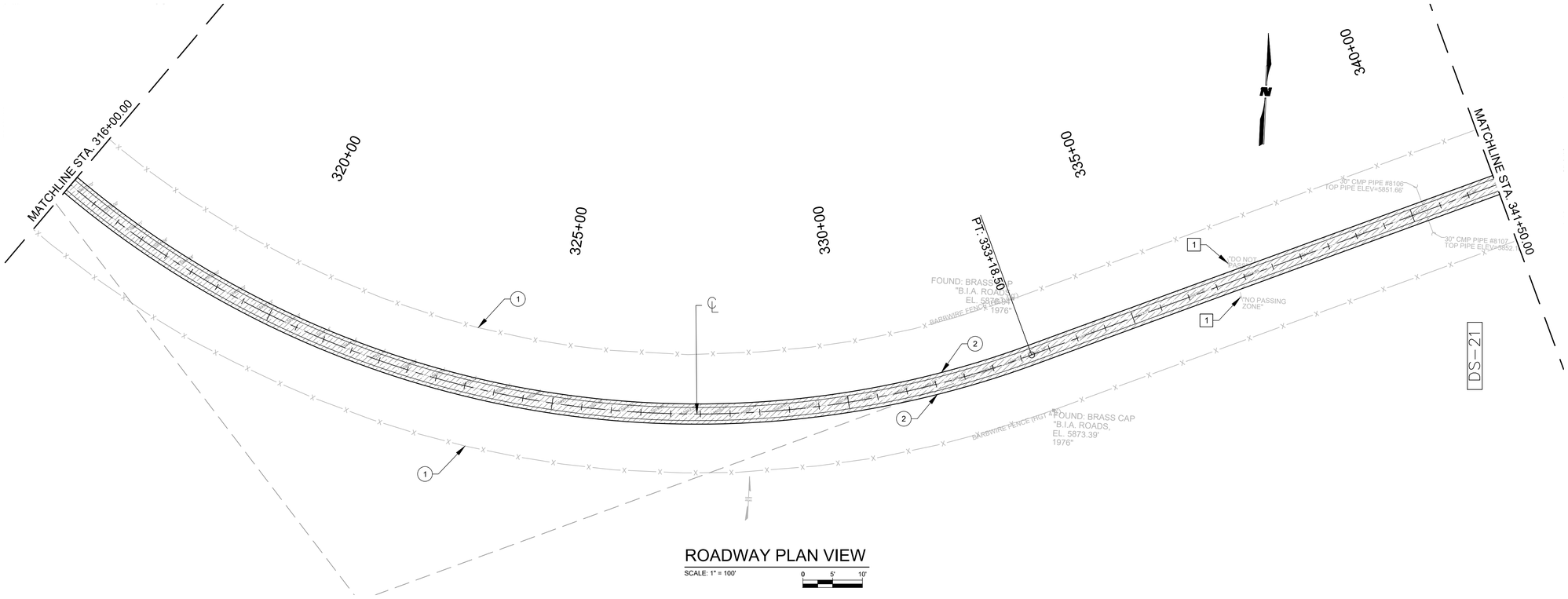
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

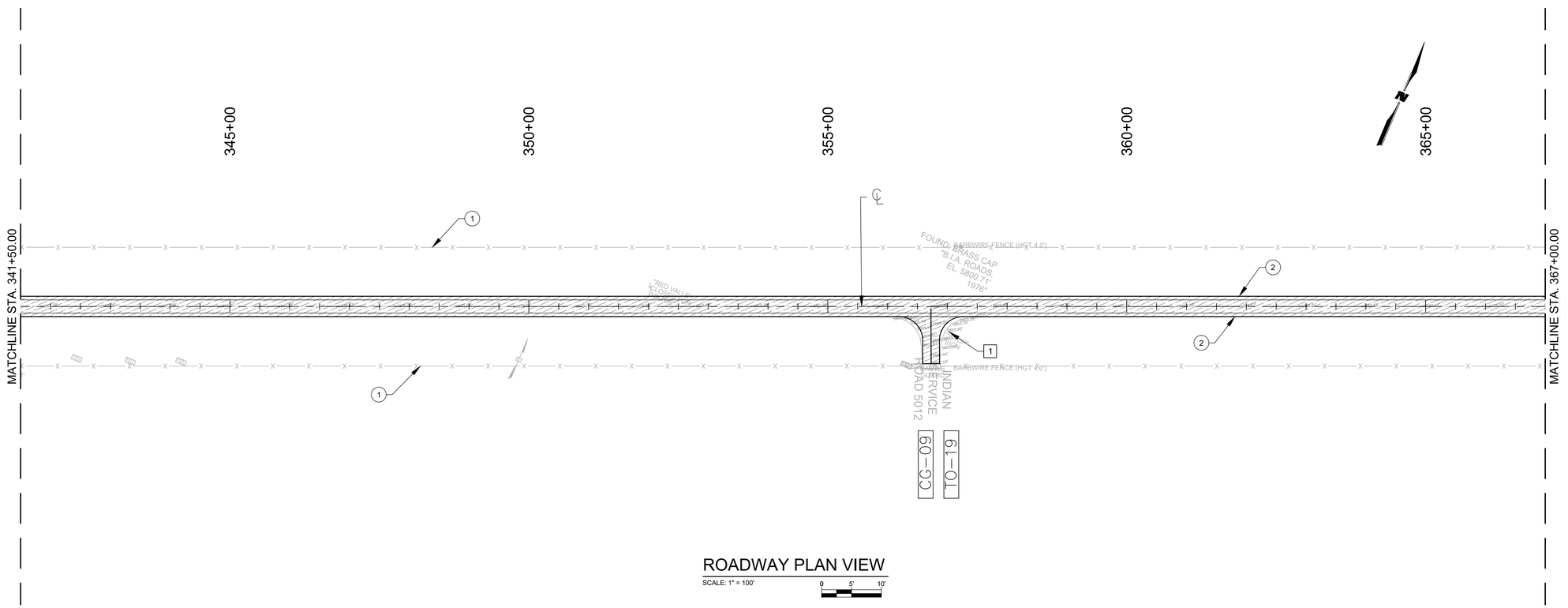
ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		17 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW

SCALE: 1" = 100'



ROADWAY PLAN VIEW

SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	18

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
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4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

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3. INSTALL NEW GATE

REFERENCE NOTES

LEGEND

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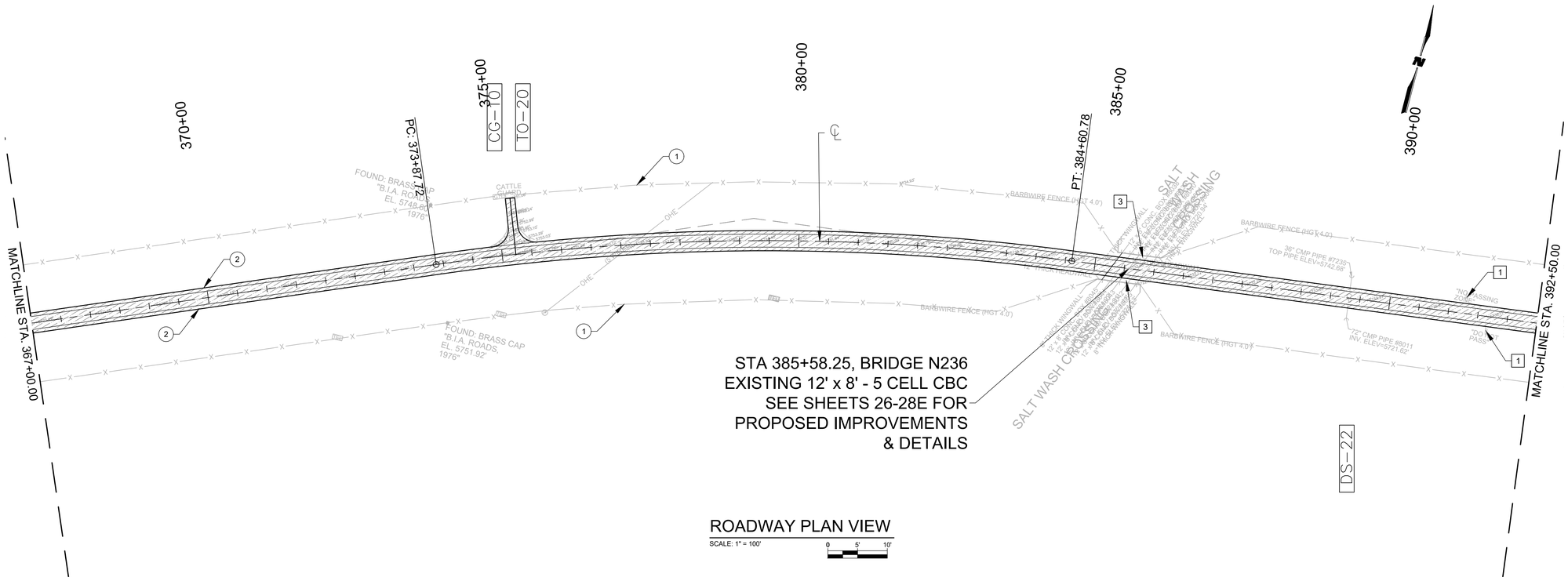
DIVISION OF TRANSPORTATION

N13(3-3)1,4

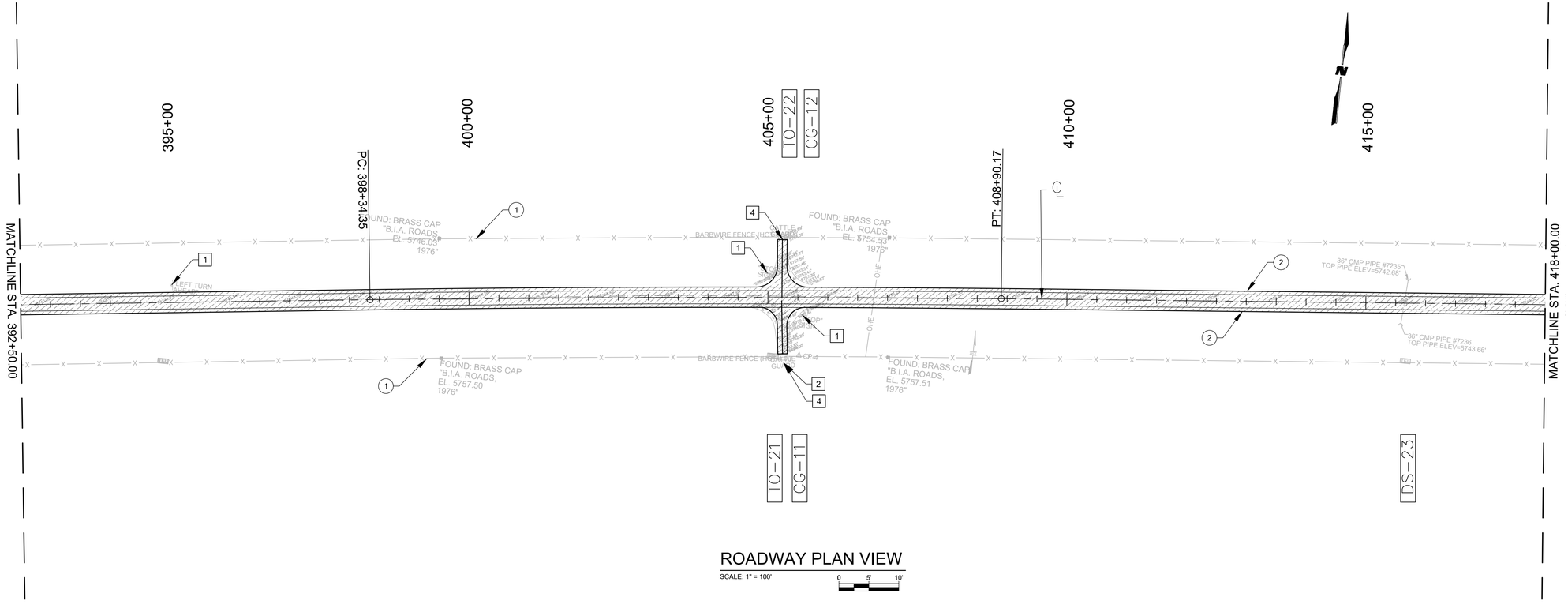
ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		18 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW

SCALE: 1" = 100'



ROADWAY PLAN VIEW

SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	19

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
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CONSTRUCTION NOTES

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REFERENCE NOTES

LEGEND

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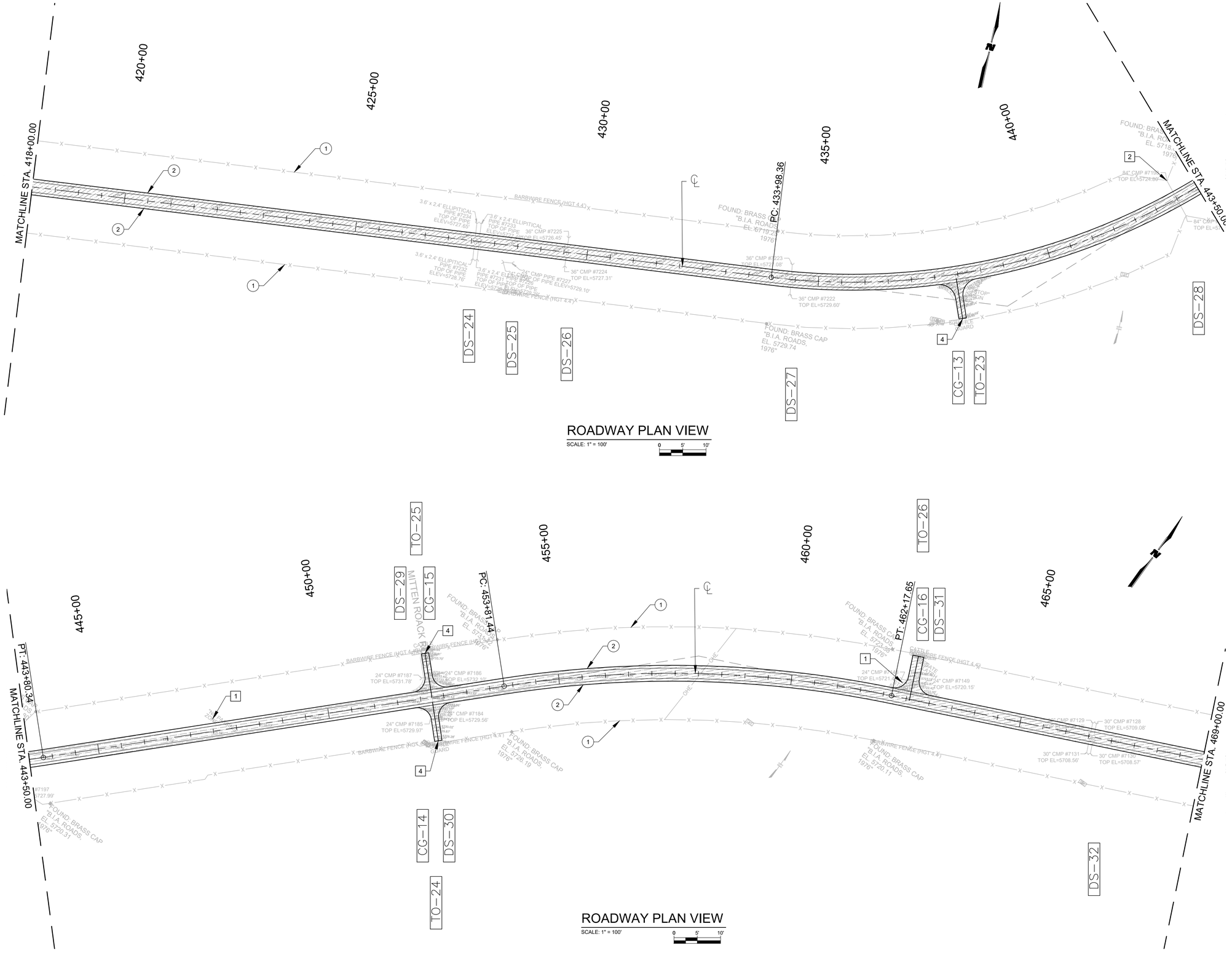
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		19 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW

SCALE: 1" = 100'

ROADWAY PLAN VIEW

SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	20

REMOVAL NOTES

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06/09/2025

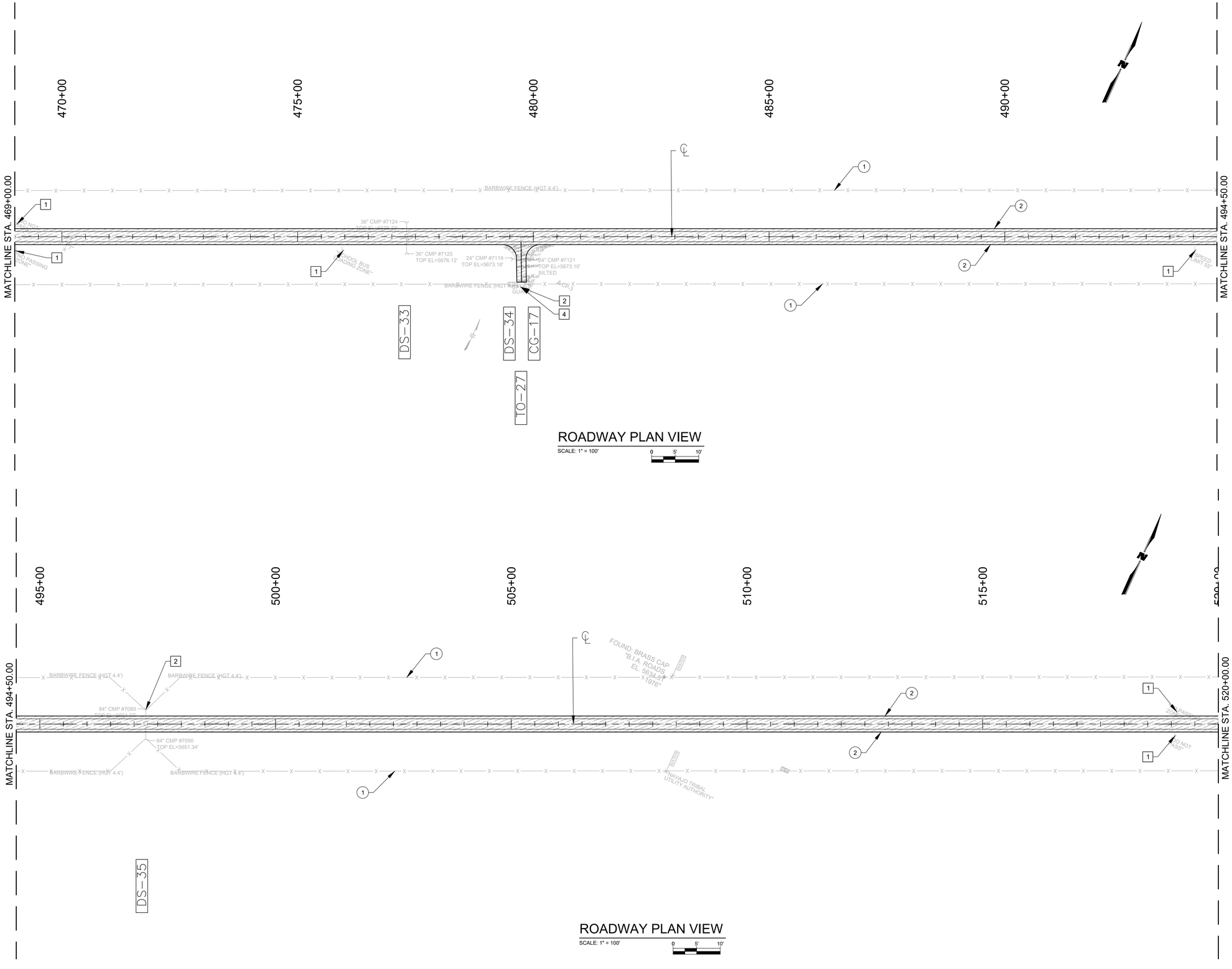
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		20 OF 74
SCALE: 1"=100' H 1"=20' V			



STATE	PROJECT	SHEET NUMBER
NM	N13	21

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
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4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

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2. EDGE OF ROADWAY
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REFERENCE NOTES

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06/09/2025

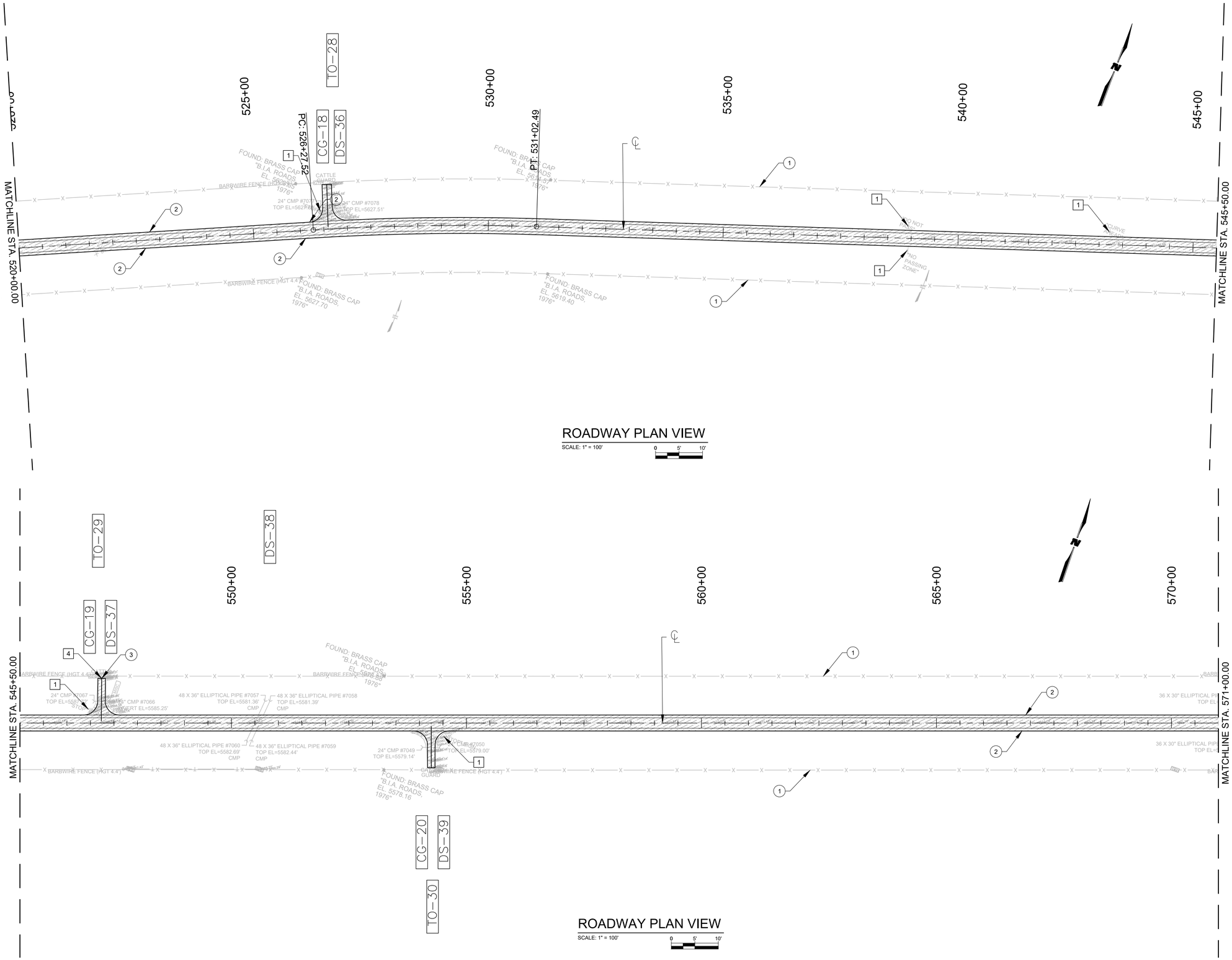
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		21 OF 74
SCALE: 1"=100' H 1"=20' V			



ROADWAY PLAN VIEW
SCALE: 1" = 100'
0 5' 10'

ROADWAY PLAN VIEW
SCALE: 1" = 100'
0 5' 10'

STATE	PROJECT	SHEET NUMBER
NM	N13	22

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
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4. REMOVE & REPLACE EXISTING CATTLE GUARD

CONSTRUCTION NOTES

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REFERENCE NOTES

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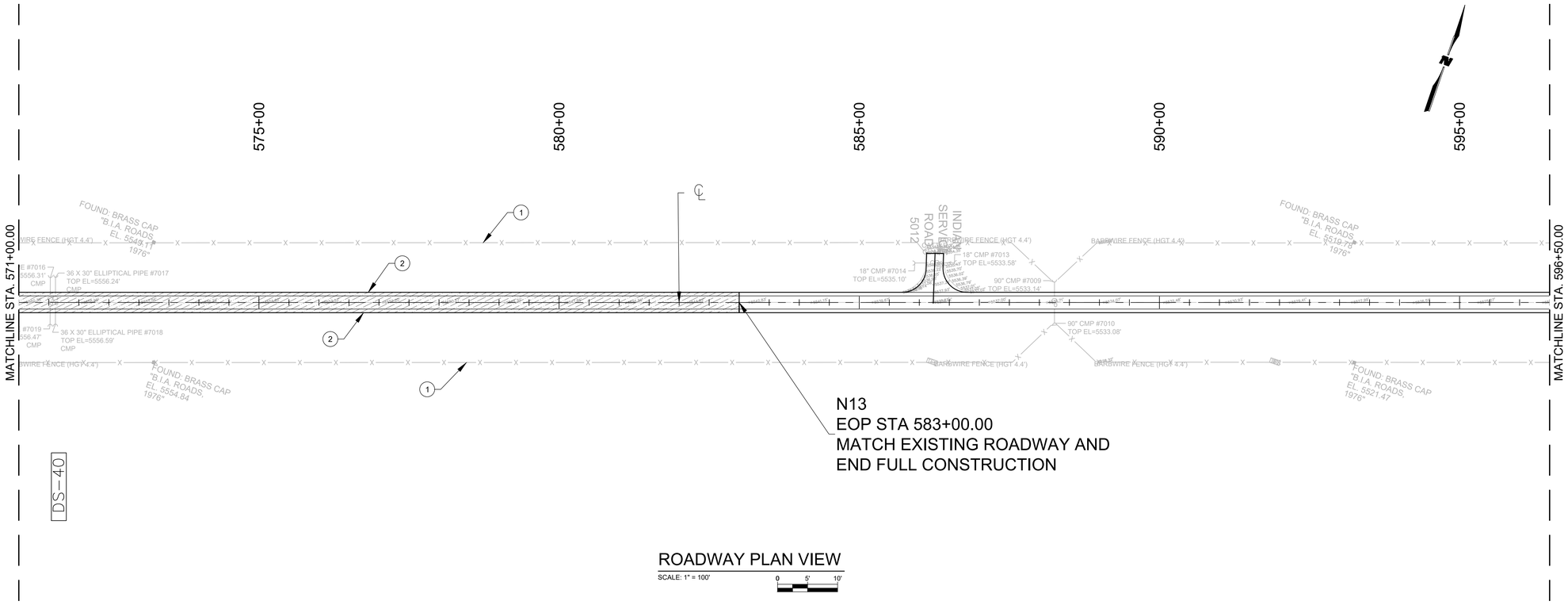
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

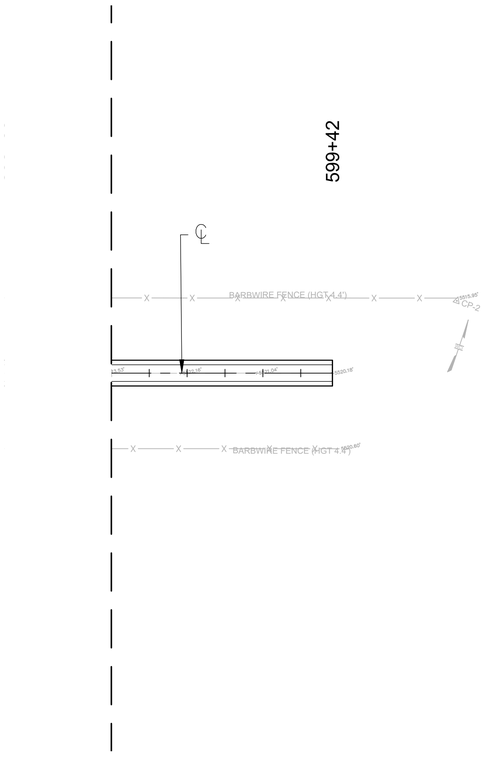
ROADWAY PLAN VIEW

		DRAWING	SHEET
PROJECT MANAGER: MKC	DATE: 9/20		
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		
SCALE: 1"=100' H 1"=20' V			22 OF 74



ROADWAY PLAN VIEW

SCALE: 1" = 100'



ROADWAY PLAN VIEW

SCALE: 1" = 100'

STATE	PROJECT	SHEET NUMBER
NM	N13	23

REMOVAL NOTES

1. REMOVE & REPLACE PANEL SIGN
2. REMOVE & REPLACE DAMAGED FENCE
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CONSTRUCTION NOTES

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NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

ROADWAY PLAN VIEW

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		23 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	24

GENERAL NOTES

1. SPECIFICATIONS: WORKMANSHIP AND MATERIALS SHALL CONFORM TO STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14 U.S. CUSTOMARY UNITS AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND NEW MEXICO DEPARTMENT OF TRANSPORTATION 2019 SPECIFICATIONS AND SPECIAL PROVISIONS. WHERE SPECIFICATIONS DIFFER, FP-14 SHALL GOVERN UNLESS OTHERWISE NOTED IN THE PLANS.

2. CONCRETE: ALL CONCRETE SHALL BE CLASS A WITH A 28 DAY MINIMUM STRENGTH OF 4,500 PSI. CHAMFER ALL EDGES ¾" UNLESS OTHERWISE NOTED. CURING CONCRETE SHALL BE IN ACCORDANCE WITH SUBSECTION 552.15 OF FP-14 U.S. CUSTOMARY UNITS. FINISHING FORMED CONCRETE SURFACES SHALL BE IN ACCORDANCE WITH SUBSECTION 552.16 OF FP-14 U.S. CUSTOMARY UNITS.

3. REINFORCING BARS: ALL BARS SHALL BE GRADE 60 UNLESS A DIFFERENT GRADE IS SPECIFIED ELSEWHERE IN THE PLANS. DIMENSIONS SHOWN REFER TO THE CENTERLINES OF BARS UNLESS NOTED OTHERWISE. ALL REINFORCING SHALL BE STORED ABOVE GROUND ON PLATFORM SKIDS OR OTHER SUPPORTS. REINFORCING SHALL BE KEPT FREE FROM DIRT, GREASE, AND OTHER FOREIGN MATTER. REINFORCING SHALL BE KEPT FREE OF CORROSION AS FAR AS PRACTICABLE. REFER TO SUBSECTIONS 554.06, 554.07 AND 709.01 OF FP-14 U.S. CUSTOMARY UNITS.

4. UNLESS OTHERWISE NOTED, DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM THE "AS CONSTRUCTED PLANS". THESE DIMENSIONS MAY BE ADJUSTED TO MEET THE EXISTING STRUCTURE. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

5. PENETRATING WATER REPELLANT TREATMENT: SATURATE THE EXPOSED SURFACES OF CONCRETE STRUCTURES WITH A PENETRATING WATER REPELLENT TREATMENT IN ACCORDANCE WITH SECTION 532 "PENETRATING WATER REPELLENT TREATMENT" OF THE NEW MEXICO DEPARTMENT OF TRANSPORTATION 2019 SPECIFICATIONS AND SPECIAL PROVISIONS. ALL LABOR AND MATERIALS WILL BE INCIDENTAL TO THE BID ITEM NO. 55201-0200 STRUCTURAL CONCRETE, CLASS A (AE).

6. CONTRACTOR SHALL SOUND ALL CONCRETE OF BRIDGE N236 FOR DELAMINATION ACCORDING TO ASTM D-4580 . ALL UNSOUND CONCRETE SHALL BE MARKED AND REMOVED AS DIRECTED BY THE ENGINEER. COSTS FOR SOUNDING CONCRETE SHALL BE INCLUDED IN THE BID ITEM NO. 55220-0000 - REPAIR CONCRETE.

7. CONCRETE REHABILITATION QUANTITIES ARE APPROXIMATE. FINAL LOCATION SHALL BE DETERMINED BY THE ENGINEER. PAYMENT WILL BE FOR THE ACTUAL AREA REPAIRED AND MATERIAL USED AS APPROVED BY THE ENGINEER. REHABILITATION QUANTITIES IN ADDITION TO PLAN QUANTITIES WILL BE MEASURED AND PAID FOR AT THE UNIT PRICE OF THE APPROPRIATE BID ITEM.

8. AFTER REMOVAL OF CONCRETE, ALL EXPOSED REBAR SHALL BE CLEANED OF ALL LOOSE CONCRETE BY CHIPPING AND/OR SANDBLASTING, AND THIS SHALL BE INCLUDED IN THE COST OF THE WORK. SANDBLASTING SHALL NOT BE PERFORMED ON EPOXY COATED REINFORCING STEEL.

9. AS DIRECTED BY THE ENGINEER, DETERIORATED OR CORRODED REBAR EXPOSED DURING THE CONCRETE REMOVAL SHALL BE REPLACED BY THE CONTRACTOR AND PAID FOR WITH ITEM NO. 55401-1000 - REINFORCING STEEL. REINFORCEMENT DAMAGED DURING THE CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

10. ALL SAW WATER, CORING WASTE, CONCRETE WASHOUT AND ANY OTHER CONSTRUCTION DEBRIS SHALL BE COLLECTED AND DISPOSED OF OFF SITE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS AT NO ADDITIONAL COST TO THE PROJECT. UNDER NO CIRCUMSTANCES SHALL SUCH MATERIAL BE ALLOWED TO ENTER ANY NATURAL OR MANMADE WATER WAY OR STORM DRAIN.

SCOPE OF WORK

1. CONSTRUCT CONCRETE RUNDOWN FLUMES FOR BRIDGE N203

2. REMOVE HEADWALL, WINGWALLS AND 5 FEET OF EXISTING CONCRETE BOX CULVERT AT BOTH ENDS OF BRIDGE N236. RECONSTRUCT 5 FEET OF BOX, WINGWALLS, HEADWALLS AND APRON ACCORDING TO NEW MEXICO DEPARTMENT OF TRANSPORTATION 2019 SPECIFICATIONS AND SPECIAL PROVISIONS.

3. SOUND ALL CONCRETE OF BRIDGE N236. REMOVE ANY UNSOUND CONCRETE AT THE DIRECTION OF THE ENGINEER. REMOVE AND REPLACE ANY DETERIORATED REINFORCING STEEL. INJECT CRACKS LARGER THAN 1/8" WITH EPOXY INJECTION.

DESIGN DATA

DESIGN IS IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATION 9TH EDITION AND CURRENT INTERIMS.

DESIGN STRESSES:
- REINFORCED CONCRETE: f'c = 4500 psi @ 28 DAYS
- REINFORCING STEEL: Fy = 60 ksi, GRADE 60

LIVE LOAD: HL-93

CBC FILL COVER: 0 - 10 FT.

HORIZONTAL EARTH PRESSURE:
- ACTIVE PRESSURE: 35 PSF EQUIVALENT FLUID PRESSURE
- AT-REST PRESSURE: 55 PSF EQUIVALENT FLUID PRESSURE
- PASSIVE PRESSURE: 250 PSF EQUIVALENT FLUID PRESSURE

DRAWING INDEX

ESTIMATED QUANTITIES

ITEM NO.	ITEM DESCRIPTION	UNIT	BRIDGE N203	BRIDGE N236	TOTAL QUANTITY
20302-0100	REMOVAL OF BOX CULVERT	LNFT		10	10
20304-1000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LPSM		1	1
20801-0000	STRUCTURE EXCAVATION	CUYD		168	168
20803-0000	STRUCTURAL BACKFILL	CUYD		168	168
25101-0300	PLACED RIPRAP, METHOD A, CLASS 3	CUYD	86		86
25101-0700	PLACED RIPRAP, METHOD A, CLASS 7	CUYD		1500	1500
55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD		333	333
55220-0000	REPAIR CONCRETE	SQYD		36	36
55401-1000	REINFORCING STEEL	LB		60875	60875
56101-0000	STRUCTURAL CONCRETE INJECTION AND CRACK REPAIR	LNFT		120	120
61801-0000	CONCRETE BARRIER	LNFT		195	195

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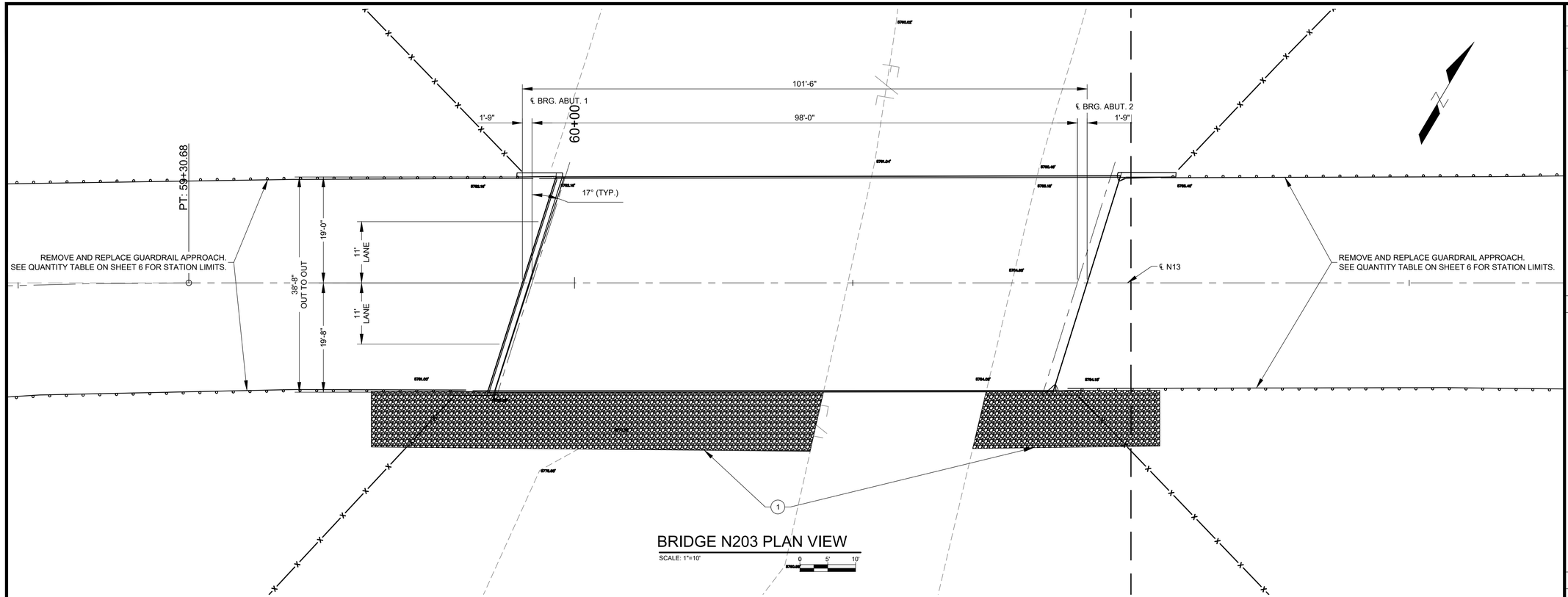
	REVISION	BY	DATE

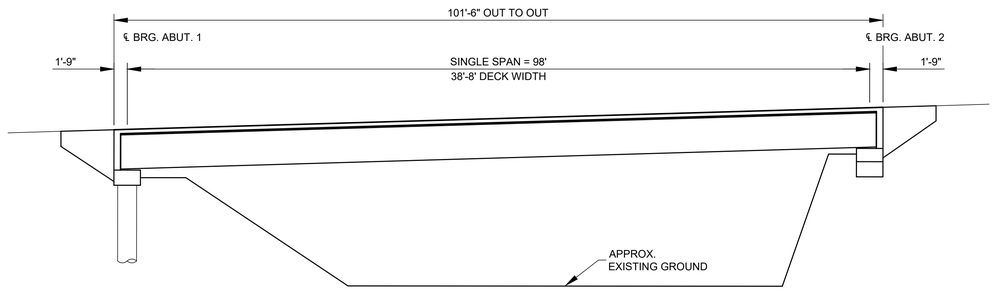
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

STRUCTURAL GENERAL NOTES & QUANTITIES

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		24 OF 74
SCALE: 1"=100' H 1"=20' V			





BRIDGE N203 ELEVATION
SCALE: 1"=10'
0 5' 10'

STATE	PROJECT	SHEET NUMBER
NM	N13	25

REMOVAL NOTES

CONSTRUCTION NOTES

1. FILL ERODED AREAS ADJACENT TO THE ABUTMENTS. CONSTRUCT PLACED RIPRAP, CLASS 3 (SEE TABLE 705-1 FOR CLASS 3 RIPRAP CLASSIFICATION).

REFERENCE NOTES

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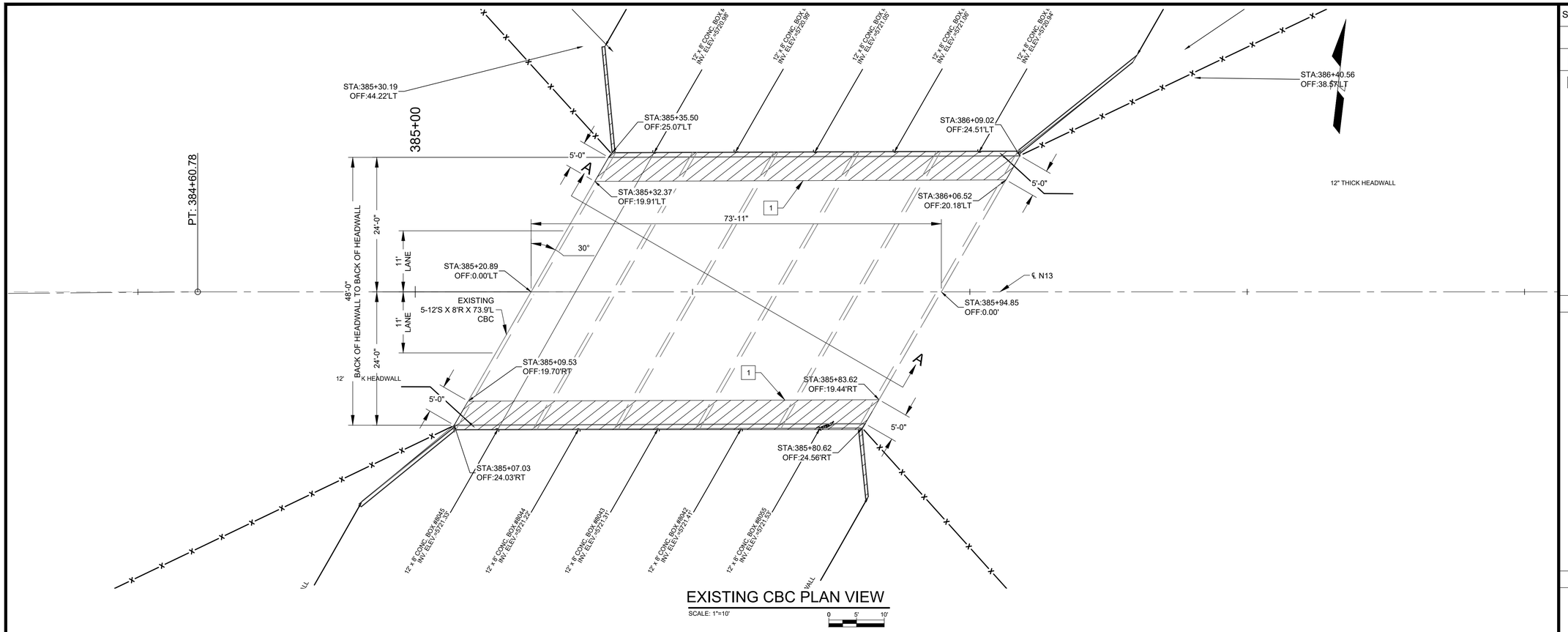
NAVAJO D.O.T

N13(3-3)1,4

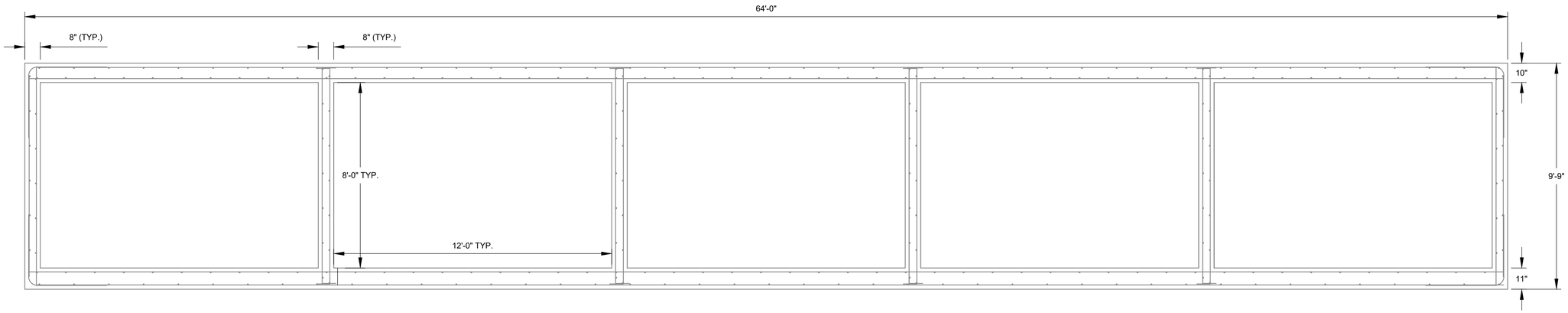
BRIDGE N203 PLAN & PROFILE

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		25 OF 74
SCALE: 1"=100' H 1"=20' V			



EXISTING CBC PLAN VIEW

SCALE: 1"=10'



SECTION A-A - EXISTING 12' x 8' - 5 CELL CBC ELEVATION

SCALE: 1"=2'-6"

STATE	PROJECT	SHEET NUMBER
NM	N13	26

REMOVAL NOTES

1. NEAT LINE SAW-CUT INSIDE AND OUT BEFORE DEMOLITION TO DEPTH OF REBAR. SAVE EXISTING BARS IN ALL SLABS AND WALLS 24" LONG TYP. CAST INTO NEW CONSTRUCTION. REMOVAL SHALL BE 5' FROM THE END OF CBC WALLS. SEE SHEET 28A FOR ADDITIONAL REMOVAL DETAILS.

CONSTRUCTION NOTES

REFERENCE NOTES

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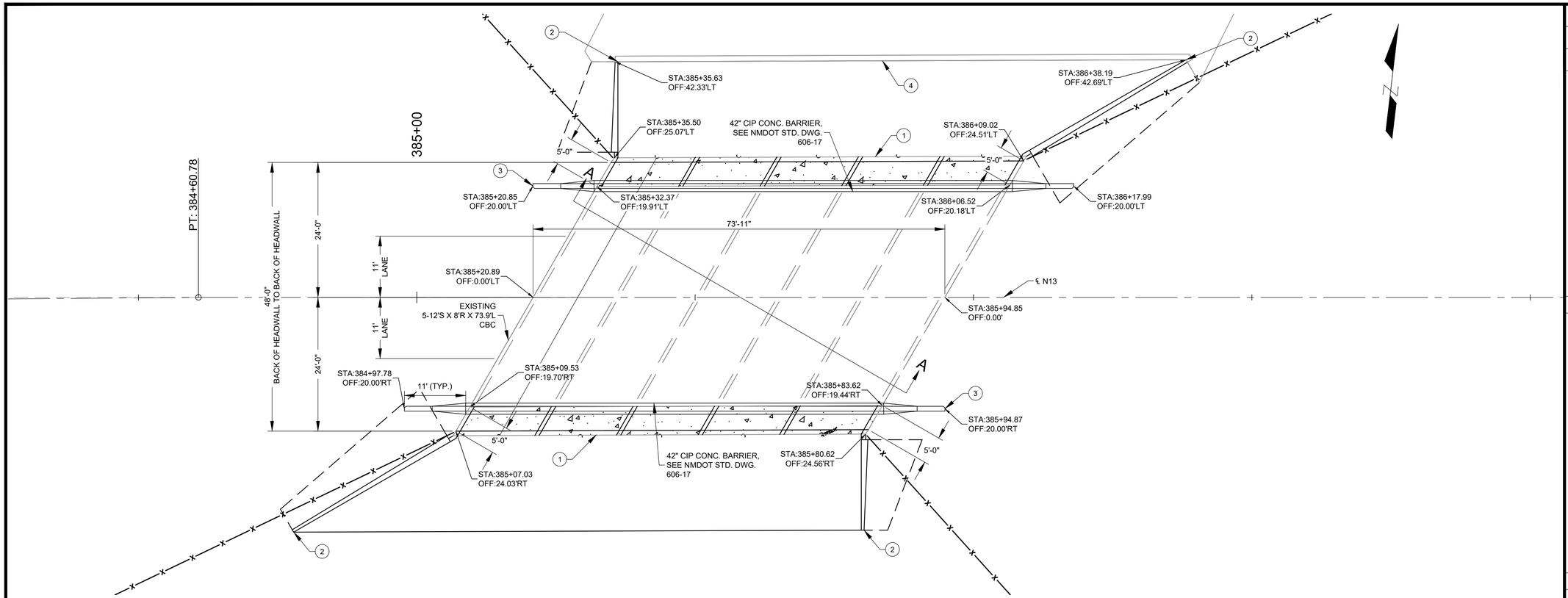
N13(3-3)1,4

BRIDGE N236 EXISTING PLAN & PROFILE

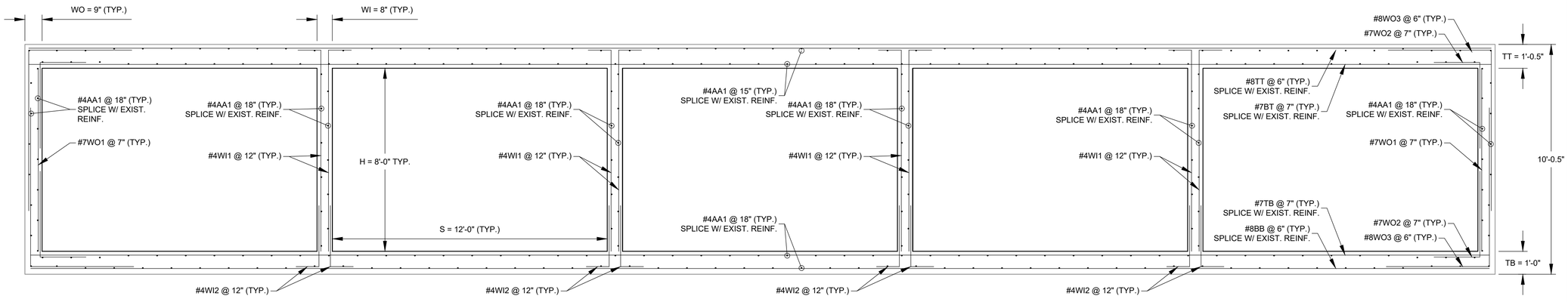
PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		26 OF 74
SCALE: 1"=100' H 1"=20' V			



PROPOSED CBC PLAN

SCALE: 1"=10'

0 5' 10'



SECTION A-A - PROPOSED 12' x 8' - 5 CELL CBC ELEVATION AT ENDS

SCALE: 1"=2'-6"

STATE	PROJECT	SHEET NUMBER
NM	N13	27A

REMOVAL NOTES

CONSTRUCTION NOTES

1. CONSTRUCT HEADWALL PER NMDOT STANDARD DRAWING 511-66.
2. CONSTRUCT NEW WINGWALLS AND APRONS PER NMDOT STANDARD DRAWING 511-67.
3. CONSTRUCT 42" CAST-IN-PLACE CONCRETE BARRIER PER NMDOT STANDARD DRAWING 606-17. REMOVE AND REPLACE GUARDRAIL APPROACHES. SEE QUANTITY TABLE ON SHEET 6 FOR STATION LIMITS.
4. CONSTRUCT NORTH APRON TOE WALL PER DETAIL 5 ON SHEET 28D.

REFERENCE NOTES

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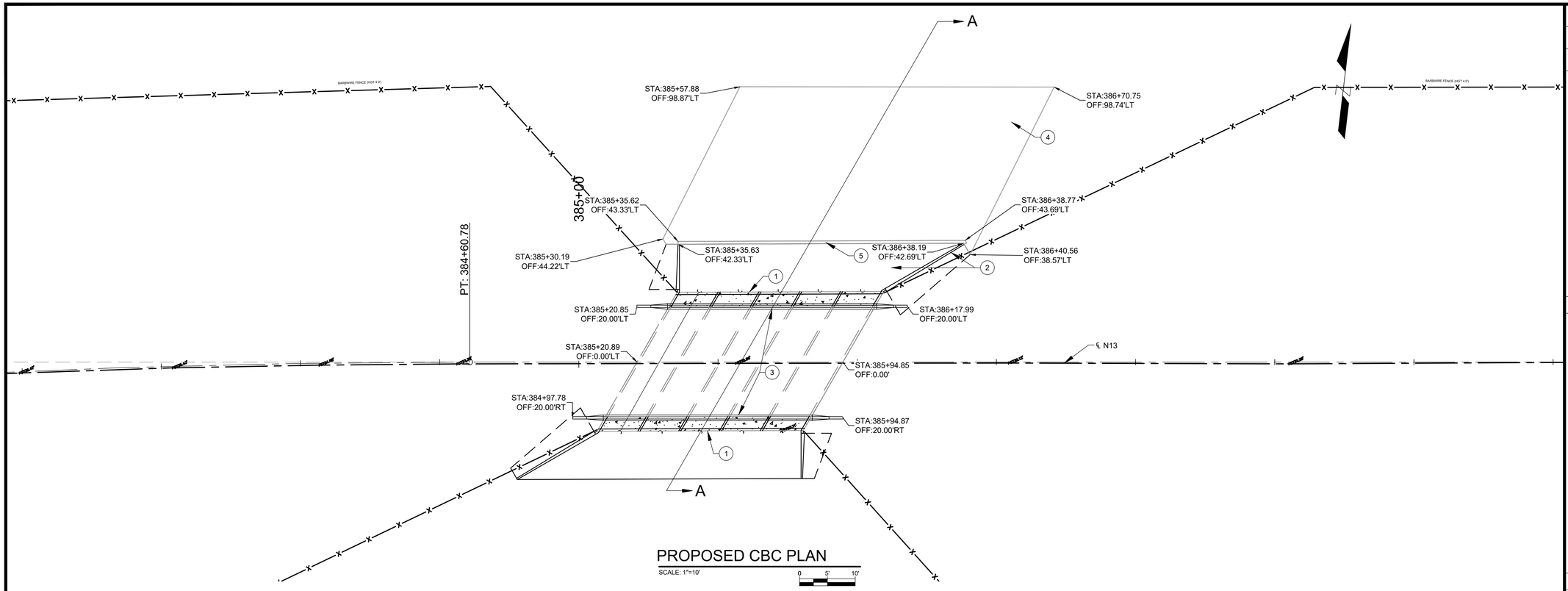
N13(3-3)1,4

BRIDGE N236 PROPOSED PLAN & PROFILE

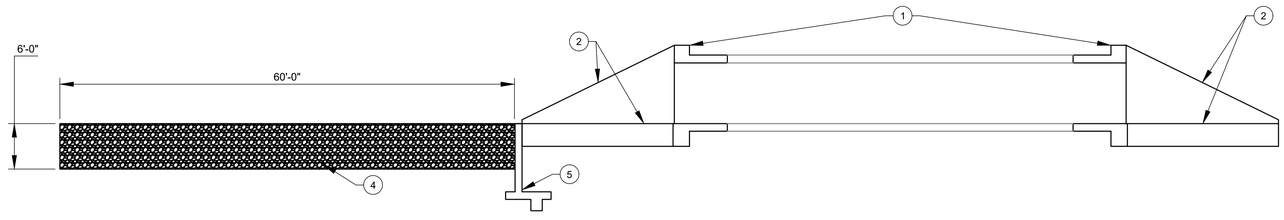
PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		27A OF 74
SCALE: 1"=100' H 1"=20' V			



PROPOSED CBC PLAN

SCALE: 1"=10'

0 5' 10'



SECTION A-A - PROPOSED 12' x 8' - 5 CELL CBC ELEVATION AT CENTERLINE

SCALE: 1"=10'

0 5' 10'

STATE	PROJECT	SHEET NUMBER
NM	N13	27B

REMOVAL NOTES

CONSTRUCTION NOTES

1. CONSTRUCT HEADWALL PER NMDOT STANDARD DRAWING 511-66.
2. CONSTRUCT NEW WINGWALLS AND APRONS PER NMDOT STANDARD DRAWING 511-67.
3. CONSTRUCT 42" CAST-IN-PLACE CONCRETE BARRIER PER NMDOT STANDARD DRAWING 606-17.
4. CONSTRUCT PLACED RIPRAP, CLASS 7, EROSION CONTROL PAD (SEE TABLE 705-1 FOR CLASS 7 RIPRAP CLASSIFICATION)
5. CONSTRUCT 9' CIP RETAINING WALL PER NMDOT STANDARD DRAWING 511-80.

REFERENCE NOTES

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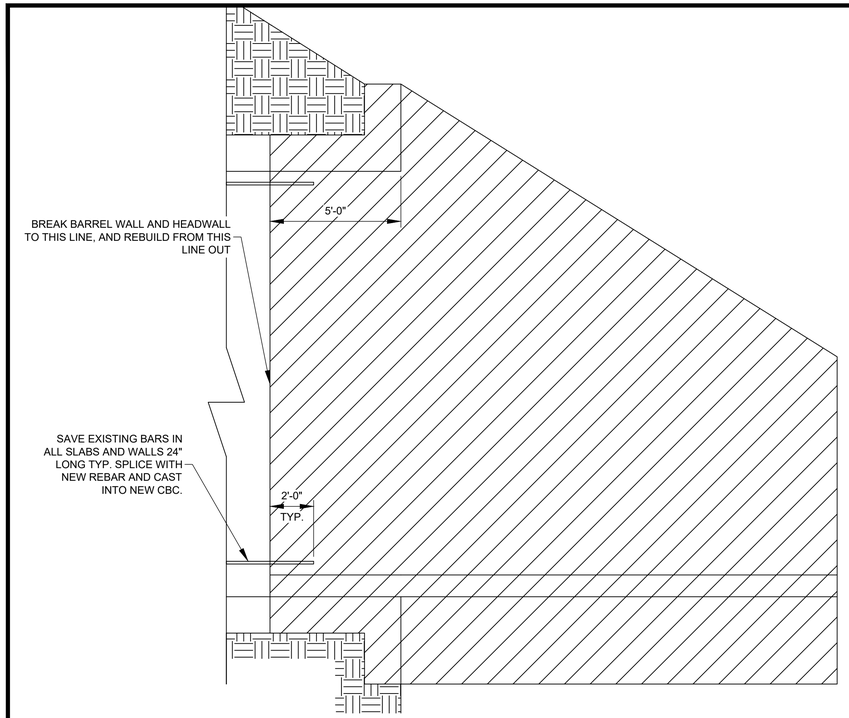
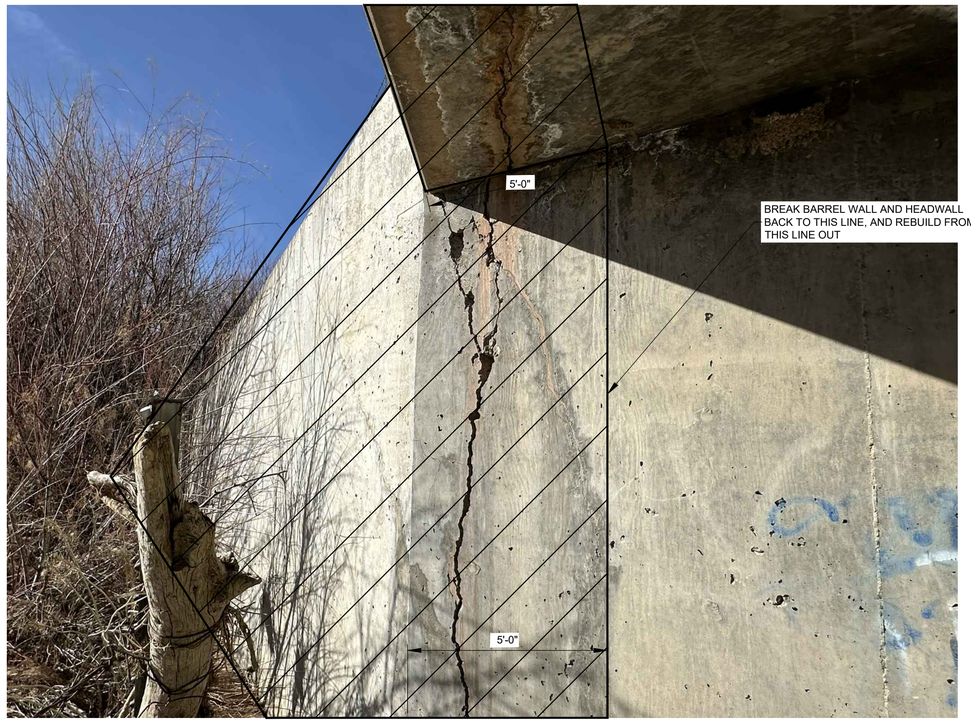
BRIDGE N236 PROPOSED SECTION PROFILE

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		27B OF 74
SCALE: 1"=100' H 1"=20' V			



LONGITUDINAL SECTION OF BOX AT WING

SCALE: NTS



LIMITS OF WING AND BARREL WALL REMOVAL

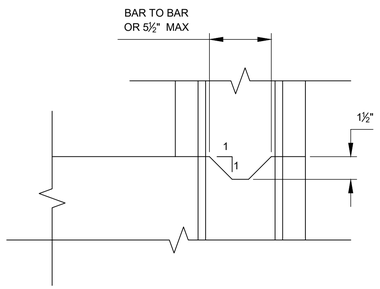
(SHOWING LIMITS EXPOSED ABOVE GRADE)

SCALE: NTS

STATE	PROJECT	SHEET NUMBER
NM	N13	28A

NOTES:

1. ALL CONCRETE SURFACES TO BE IN CONTACT WITH THE NEW WORK SHALL BE THOROUGHLY CLEANED BEFORE PLACING NEW CONCRETE.
2. AN APPROVED BONDING AGENT SHALL BE USED WHERE NEW CONCRETE IS PLACED AGAINST THE EXISTING CONCRETE SURFACES.
3. BEFORE ORDERING ANY MATERIALS, THE CONTRACTOR SHALL MAKE A DETAILED FIELD INSPECTION OF THE EXISTING STRUCTURES, VERIFYING ALL DIMENSIONS AND REPORTING TO THE ENGINEER ANY DISCREPANCIES BETWEEN THE FIELD MEASUREMENTS AND THOSE THAT ARE SHOWN ON THESE PLANS.
4. ALL MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE.
5. ALL FACES OF THE EXISTING BOX CULVERT THAT COME INTO CONTACT WITH THE NEW CONCRETE BOX CULVERT EXTENSION SHALL BE ROUGHENED BY MECHANICAL MEANS.



CONSTRUCTION JOINT DETAIL

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NAVAJO NATION
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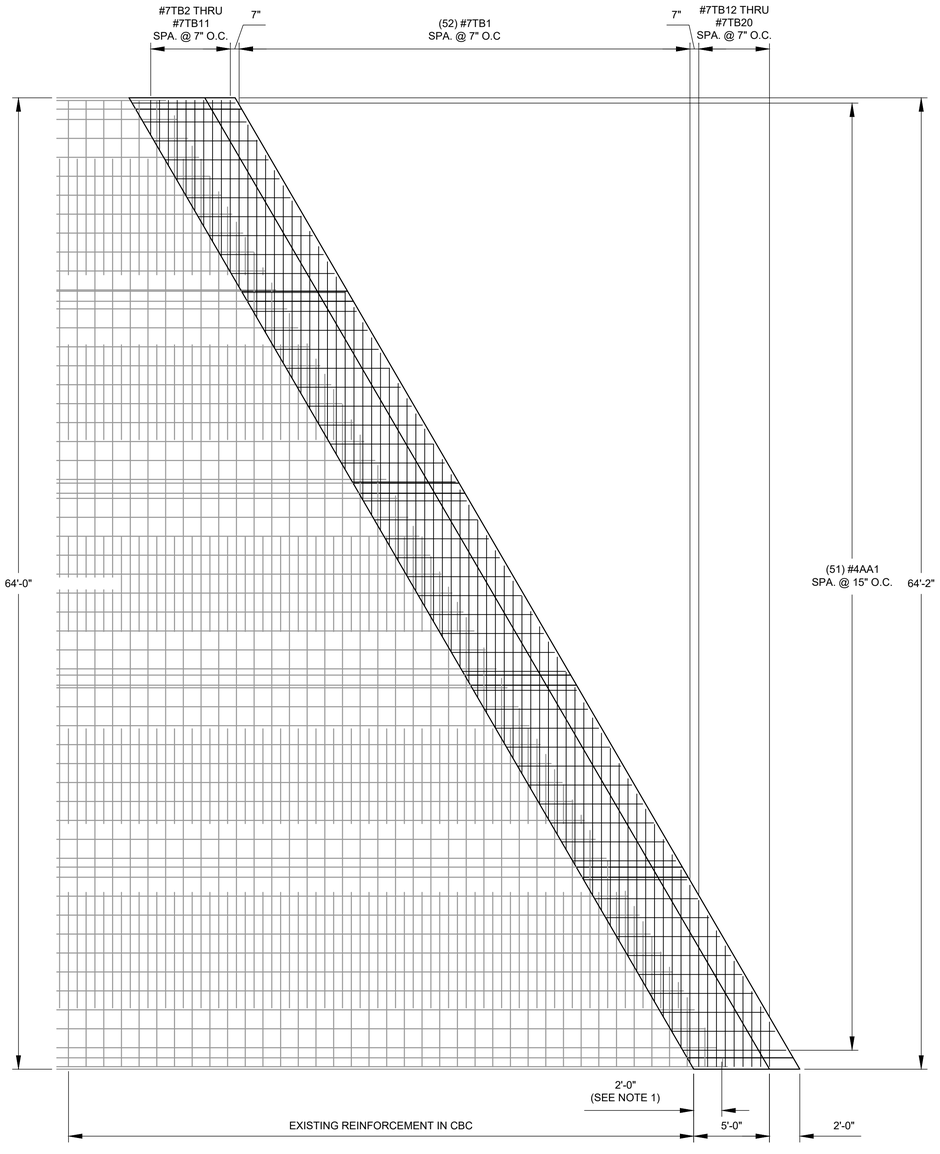
N13(3-3)1,4

BRIDGE N236 REMOVAL DETAILS

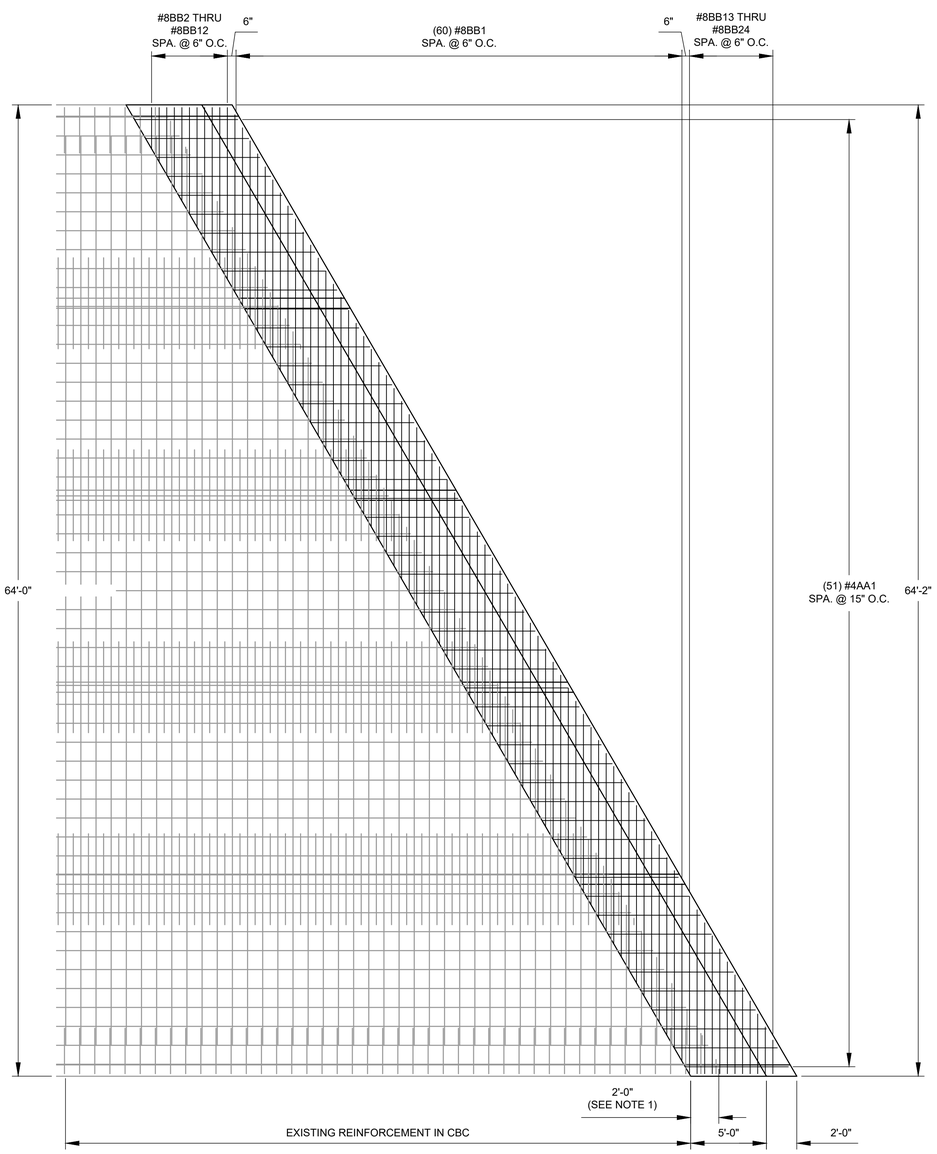
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		28A OF 74
SCALE: 1"=100' H 1"=20' V			



DETAIL 1 - CBC TOP MAT OF BOTTOM SLAB REINFORCEMENT PLAN

SCALE: 1" = 5'

0 2.5' 5'



DETAIL 2 - CBC BOTTOM MAT OF BOTTOM SLAB REINFORCEMENT PLAN

SCALE: 1" = 5'

0 2.5' 5'

STATE	PROJECT	SHEET NUMBER
NM	N13	28B

REMOVAL NOTES

1. NEAT LINE SAW-CUT INSIDE AND OUT BEFORE DEMOLITION TO DEPTH OF REBAR. SAVE EXISTING BARS IN ALL SLABS AND WALLS 24" LONG TYP. CAST INTO NEW CONSTRUCTION. REMOVAL SHALL BE 5' FROM THE END OF CBC WALLS. SEE SHEET 28A FOR ADDITIONAL REMOVAL DETAILS.

CONSTRUCTION NOTES

REFERENCE NOTES

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06/09/2025

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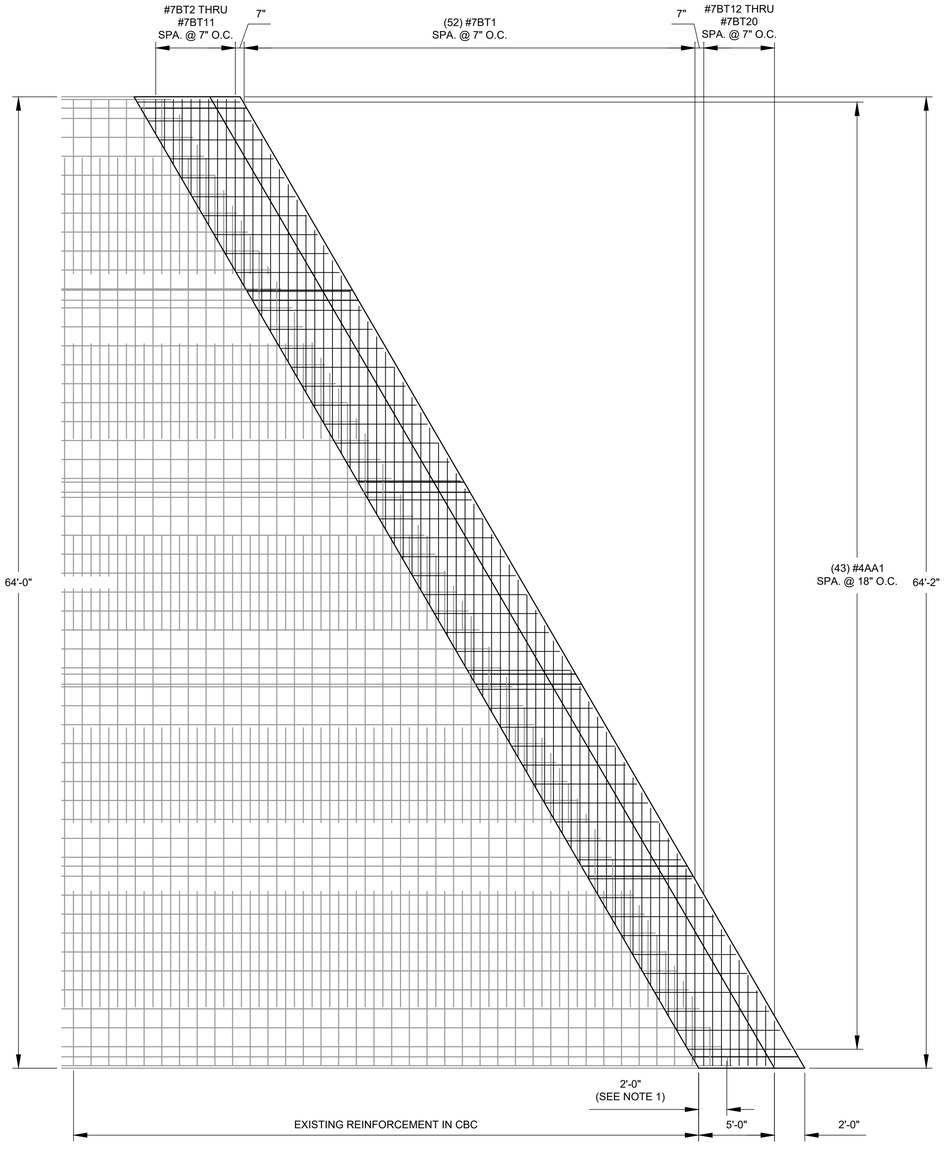
N13(3-3)1,4

BRIDGE N236 BOTTOM SLAB DETAILS

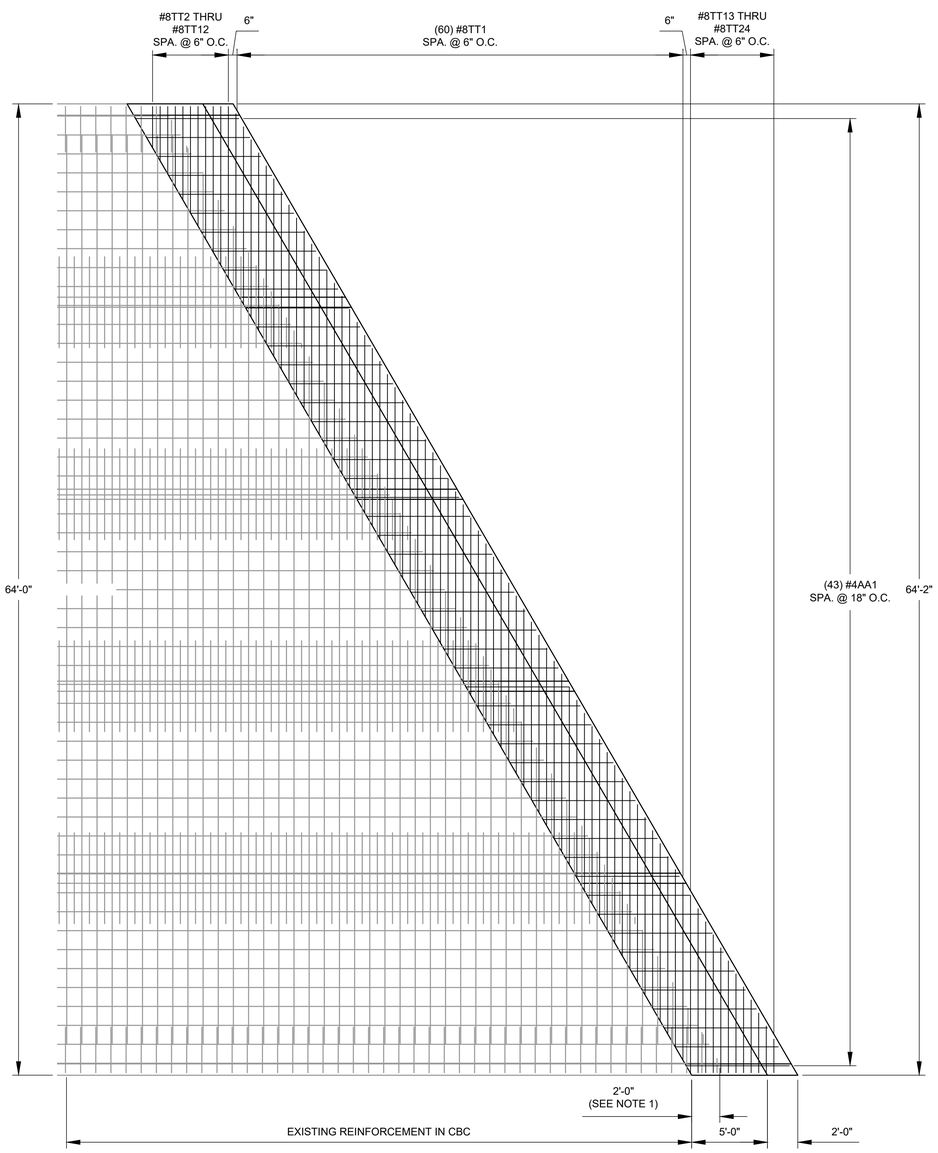
PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		28B OF 74
SCALE: 1"=100' H 1"=20' V			



DETAIL 3 - CBC BOTTOM MAT OF TOP SLAB REINFORCEMENT PLAN

SCALE: 1" = 5'

0 2.5' 5'



DETAIL 4 - CBC TOP MAT OF TOP SLAB REINFORCEMENT PLAN

SCALE: 1" = 5'

0 2.5' 5'

STATE	PROJECT	SHEET NUMBER
NM	N13	28C

REMOVAL NOTES

1. NEAT LINE SAW-CUT INSIDE AND OUT BEFORE DEMOLITION TO DEPTH OF REBAR. SAVE EXISTING BARS IN ALL SLABS AND WALLS 24" LONG TYP. CAST INTO NEW CONSTRUCTION. REMOVAL SHALL BE 5' FROM THE END OF CBC WALLS. SEE SHEET 28A FOR ADDITIONAL REMOVAL DETAILS.

CONSTRUCTION NOTES

REFERENCE NOTES

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06/09/2025

REVISION	BY	DATE

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DIVISION OF TRANSPORTATION

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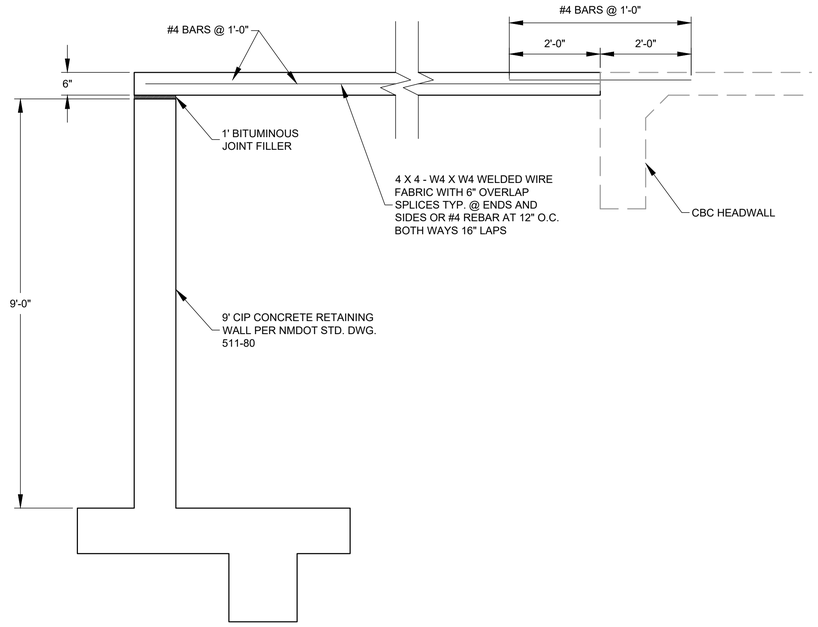
N13(3-3)1,4

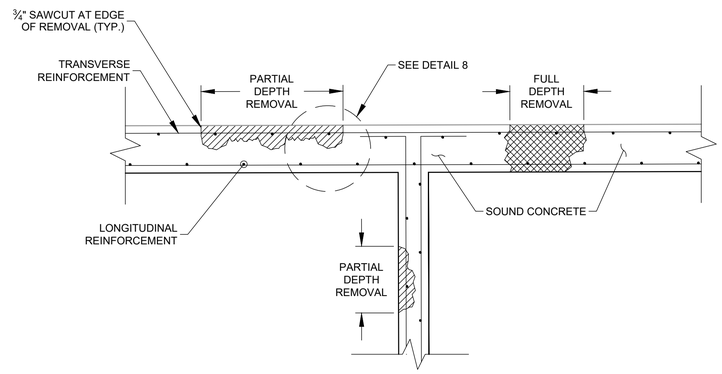
BRIDGE N236 TOP SLAB DETAILS

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		28C OF 74
SCALE: 1"=100' H 1"=20' V			



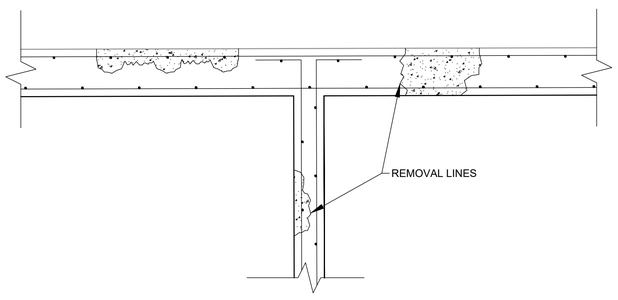
DETAIL 5 - CBC RETAINING WALL

NTS



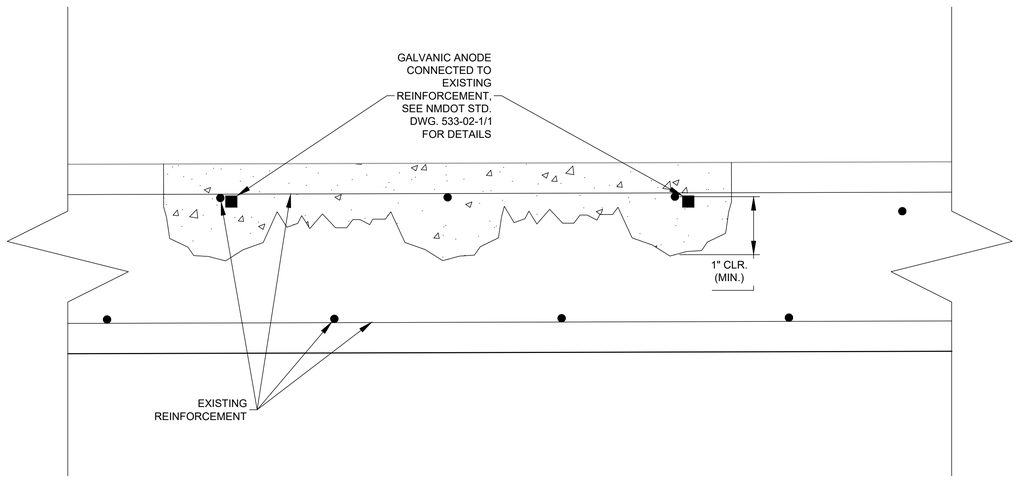
DETAIL 6 - CBC CONCRETE REMOVAL

NTS



DETAIL 7 - CBC CONCRETE REPLACEMENT

NTS



DETAIL 8 - CBC CONCRETE REPLACEMENT

NTS

STATE	PROJECT	SHEET NUMBER
NM	N13	28D

REMOVAL NOTES

1. THESE DETAILS REFLECT THE SCOPE AND THE NATURE OF THE WORK. THEY ARE NOT INTENDED TO REPRESENT THE ACTUAL STRUCTURE.
2. PLAN QUANTITIES ARE ESTIMATES. ACTUAL CONCRETE REMOVAL AND REPLACEMENT SHALL BE AS NEEDED TO REACH SOUND CONCRETE OR AS DIRECTED BY THE ENGINEER.
3. FORMING OPERATIONS SHALL BE COORDINATED WITH THE ENGINEER AND PERFORMED IN A MANNER AS REQUIRED TO ENSURE THE STRUCTURAL INTEGRITY OF THE CULVERT.
4. IF FALSEWORK IS REQUIRED, THE FALSEWORK LOAD CAPACITY REQUIRED TO SUPPORT THE CBC SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER UNLESS SPECIFIED OTHERWISE ON THE PLANS.
5. DAMAGED OR CORRODED NON-EPOXY COATED REINFORCING STEEL REQUIRES NEW NON-EPOXY COATED REINFORCING STEEL TO BE ADDED PER ITEM NO. 55220-0000 REPAIR CONCRETE. ALL EXPOSED NON-EPOXY COATED REINFORCING STEEL SHALL BE CLEANED WITH HAND TOOLS, SAND BLASTED AND SANDBLASTED PRIOR TO PLACING CONCRETE.

CONSTRUCTION NOTES

6. CONCRETE SURFACE CORROSION PROTECTION IS REQUIRED ON ALL AREAS OF EXPOSED NON-EPOXY OR SANDBLASTED EPOXY COATED REINFORCING PRIOR TO PLACING CONCRETE. GALVANIC ANODES SHALL BE USED PER THE MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH NMDOT STANDARD DRAWING 533-02-1/1. GALVANIC ANODES SHALL BE INCIDENTAL TO ITEM NO. 55220-0000 REPAIR CONCRETE.
7. HMA AND WATERPROOFING MEMBRANE SHALL NOT BE PLACED UNTIL THE NEW CONCRETE HAS CURED FOR FIVE FULL DAYS, OR HAS A MOISTURE METER READING OF 5 PERCENT OR LESS BASED ON A MOISTURE METER APPROVED BY THE ENGINEER.

REFERENCE NOTES

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

CARLOS V. AGUILAR NEW MEXICO 25656 PROFESSIONAL ENGINEER 9/26/09/2025

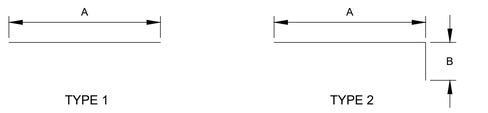
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

BRIDGE N236 CONCRETE REPAIR DETAILS

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		28D OF 74
SCALE: 1"=100' H 1"=20' V			



CBC REINFORCEMENT

BAR	TYPE	A	B	α	LENGTH	# REQ'D
#4AA1	1	6'-10"	0	0	6'-10"	516
#8BB1	1	11'-9"	0	0	11'-9"	120
#8BB2	1	11'-4"	0	0	11'-4"	2
THRU	DECREASE BY 0'-10 3/8"					
#8BB12	1	2'-9"	0	0	2'-9"	2
#8BB13	1	11'-9"	0	0	11'-9"	2
THRU	DECREASE BY 0'-10 3/8"					
#8BB24	1	2'-3"	0	0	2'-3"	2
#7TB1	1	11'-9"	0	0	11'-9"	104
#7TB2	1	11'-4"	0	0	11'-4"	2
THRU	DECREASE BY 1'-0"					
#7TB11	1	2'-4"	0	0	2'-4"	2
#7TB12	1	11'-0"	0	0	11'-0"	2
THRU	DECREASE BY 1'-0"					
#7TB20	1	3'-0"	0	0	3'-0"	2
#7BT1	1	11'-9"	0	0	11'-9"	104
#7BT2	1	11'-4"	0	0	11'-4"	2
THRU	DECREASE BY 1'-0"					
#7BT11	1	2'-4"	0	0	2'-4"	2
#7BT12	1	11'-0"	0	0	11'-0"	2
THRU	DECREASE BY 1'-0"					
#7BT20	1	3'-0"	0	0	3'-0"	2
#8TT1	1	11'-9"	0	0	11'-9"	120
#8TT2	1	11'-4"	0	0	11'-4"	2
THRU	DECREASE BY 0'-10 3/8"					
#8TT12	1	2'-9"	0	0	2'-9"	2
#8TT13	1	11'-9"	0	0	11'-9"	2
THRU	DECREASE BY 0'-10 3/8"					
#8TT24	1	2'-3"	0	0	2'-3"	2
#4WI1	2	8'-11"	1'-0"	0	9'-11"	64
#4WI2	2	2'-9"	1'-0"	0	3'-9"	64
#7WO1	1	8'-0"		0	8'-0"	44
#7WO2	2	3'-9"	2'-0"	0	5'-9"	88
#8WO3	2	7'-0"	4'-6"	0	11'-6"	88
TOTAL NON-EPOXY-COATED						**1480**

NOTE: FOR HEADWALL, WINGWALL AND APRON QUANTITIES, SEE NMDOT STD. DWGS. 511-66 AND 511-67.

STATE	PROJECT	SHEET NUMBER
NM	N13	28E

REMOVAL NOTES

CONSTRUCTION NOTES

REFERENCE NOTES

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
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CARLOS V. AGUILAR NEW MEXICO 25656 PROFESSIONAL ENGINEER 9/26/08/2025

	REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

BRIDGE N236 REBAR SCHEDULE

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		28E OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	29

GENERAL NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE MUTCD MANUAL (LATEST EDITION AND AMENDMENTS) AND THE SUPPLEMENTAL SPECIFICATION FOR THIS PROJECT.

2. THE TRAFFIC CONTROL DETAILS SHOWN ARE ONLY A GUIDE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PREPARING AND IMPLEMENTING A TRAFFIC CONTROL PLAN (TCP) IN ACCORDANCE WITH THESE DETAILS, SECTION 635, AND THE MUTCD UNDER CONTRACT ITEM 63501–0000. ANY ADDITIONAL TRAFFIC CONTROL DEVICES CALLED FOR ON THE CONTRACTOR'S TCP WILL NOT BE MEASURED FOR PAYMENT BUT SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEMS FOR TRAFFIC CONTROL SHOWN IN THE BID SCHEDULE. SEE SUPPLEMENTAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

3.SIGNS (G20–1, W20–1, W20–1A, AND G20–2) SHALL BE PLACED AT THE PROJECT LIMITS AND REMAIN IN PLACE THROUGH THE DURATION OF THE PROJECT.

4.FLAGGERS SHALL BE STATIONED LEFT & RIGHT WHEN EQUIPMENT IS CROSSING OR WORKING WITHIN EXISTING ROADWAY PRISM.

5.THE CONTRACTOR SHALL ENSURE THAT NO PAVEMENT DROP–OFFS ARE LEFT EXPOSED DURING NON–WORKING HOURS. THE CONTRACTOR SHALL INITIATE CORRECTIVE MEANS TO ACHIEVE A MINIMUM 1:3 SLOPE AS SHOWN ON FILLET DETAIL.

6.AT THE END OF EACH WORKING DAY, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DRIVING SURFACE FREE OF OBSTRUCTIONS AS SHOWN ON THE PHASED AND FILLET CONSTRUCTION DETAILS AS APPLICABLE, ACCESS TO ALL ADJOINING PROPERTIES AND BIA SYSTEM ROUTES SHALL BE MAINTAINED AT ALL TIMES (DAY AND NIGHT).

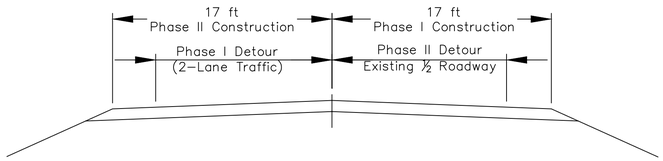
7.ALL TRAFFIC CONTROL DEVICES (EXCEPT AT DETOUR ROAD LOCATIONS AND AS NOTED IN ABOVE NOTE #3) SUCH AS CONSTRUCTION SIGNS, DRUMS, BARRICADES, ETC.. SHALL BE REMOVED TO A LOCATION AT LEAST NINE (9) METERS FROM THE EDGE OF THE SHOULDER WHEN CONSTRUCTION IS NOT IN PROGRESS.

8.DURING CONSTRUCTION OPERATIONS, TRAFFIC SHALL BE MOVED THROUGH THE WORK ZONE USING PILOT CARS (AS REQUIRED), APPLICABLE SIGNS AND OTHER ITEMS (TWO–WAY RADIO CONTACT) RELATED TO THE USE OF THE PILOT CARS AND SHALL BE CONSIDERED INCIDENTAL OBLIGATIONS OF THE CONTRACTOR.

9.THE CONTRACTOR HAS THE OPTION TO EITHER USE DRUMS OR VERTICAL PANELS; BUT SHALL NOT USE A COMBINATION OF BOTH. NO TRAFFIC CONES SHALL BE ALLOWED.

10.THE CONTRACTOR HAS THE OPTION TO UTILIZE DETOUR ROADS IN ACCORDANCE WITH THE MUTCD MANUAL IN CONJUNCTION WITH OR IN LIEU OF THE PHASE CONSTRUCTION DETAILS SHOWN AND IN ACCORDANCE WITH SECTION 107 AND 204, THE COST OF ANY DETOUR ROADS (INCLUDING ALL DETOUR RELATED EARTHWORK AND MAINTENANCE) SHALL BE CONSIDERED INCIDENTAL TO THE TEMPORARY TRAFFIC CONTROL BID ITEMS. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY PERMITS AND CLEARANCES FOR ANY DETOUR ROADS.

11.AT LOCATIONS WHERE NEW ROAD CONSTRUCTION CROSSES EXISTING ROADWAY AND AT TIE–INS WITH EXISTING ROADS AT THE END OF THE NEW CONSTRUCTION, SPECIAL TRAFFIC CONTROL PROCEDURES SHALL BE INCLUDED IN THE CONTRACTOR'S TCP TO INCLUDE THESE, BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING: TYPE III BARRICADES WITH "ROAD CLOSED" SIGNS, "DETOUR" SIGNS, FLAGGERS AND DRUMS.

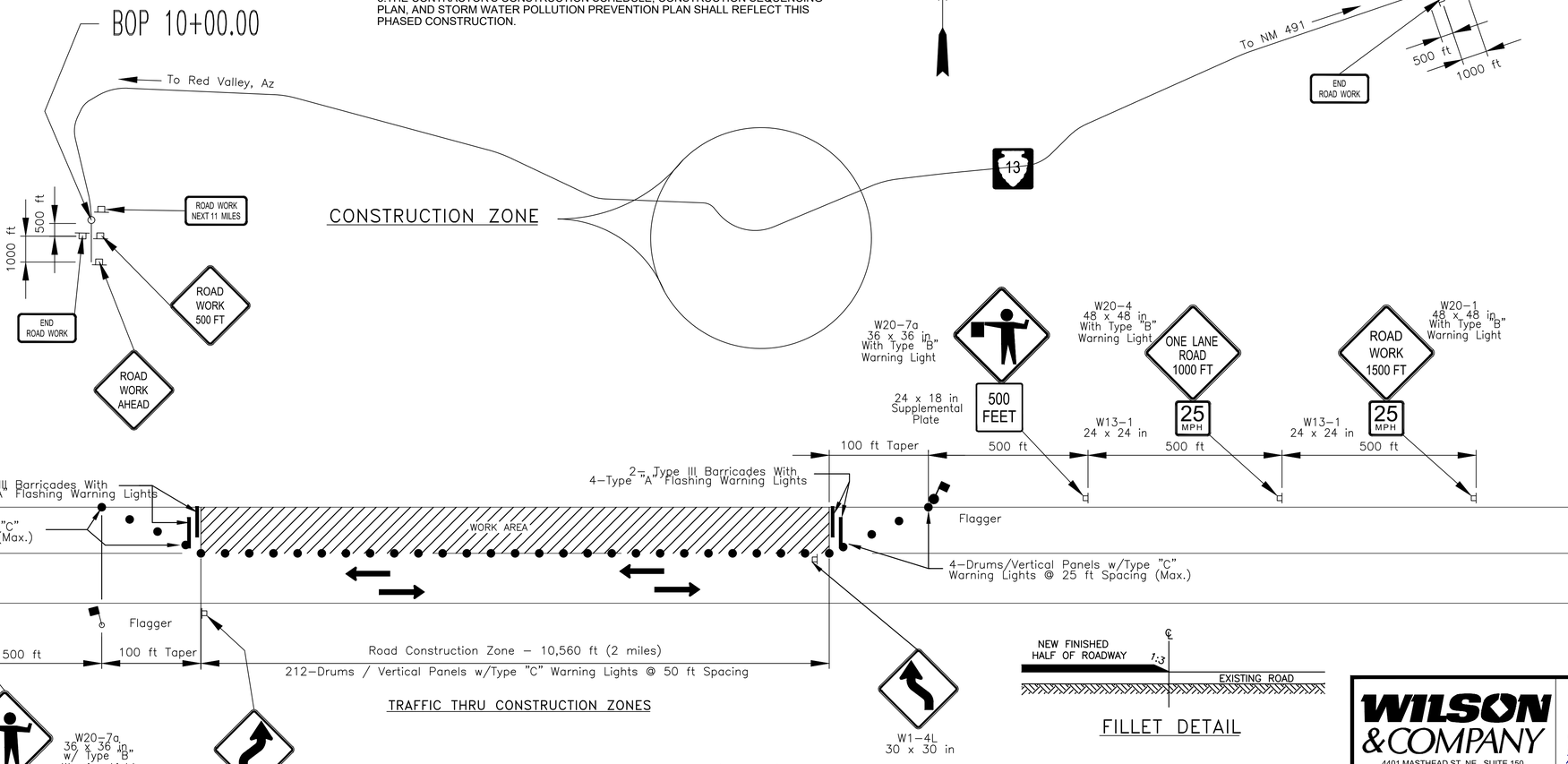


GENERAL NOTES/PHASE

1.THE CONTRACTOR MAY CONSTRUCT 1/2 THE NEW ROADWAY (UNDER THE PHASE CONSTRUCTION PLAN SHOWN) WHILE DETOURING TWO-WAY TRAFFIC ON THE OTHER (EXISTING) HALF ONCE THE FIRST 1/2 OF ROADWAY IS BUILD UP TO THE NEW GRADES; THEN TRAFFIC SHALL BE DIRECTED TO THE NEW HALF OF ROADWAY WHILE THE OTHER (EXISTING) HALF IS CONSTRUCTED.

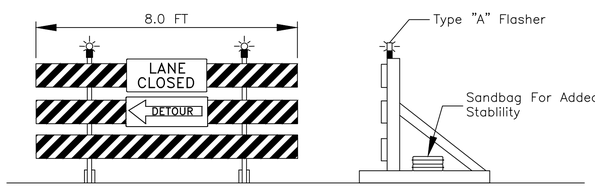
2.THIS PHASED CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO THE TCP AND NO ADDITIONAL PAYMENT SHALL BE MADE.

3.THE CONTRACTOR'S CONSTRUCTION SCHEDULE, CONSTRUCTION SEQUENCING PLAN, AND STORM WATER POLLUTION PREVENTION PLAN SHALL REFLECT THIS PHASED CONSTRUCTION.

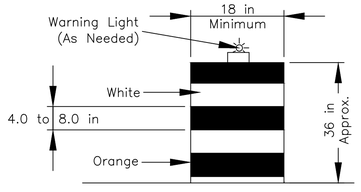


TRAFFIC THRU CONSTRUCTION ZONES

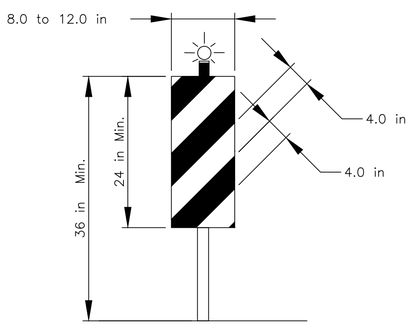
FILLET DETAIL



TYPE III BARRICADE



DRUM



VERTICAL PANEL
(ALTERNATE)

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

MYRA K. CANDELARIA
NEW MEXICO
25660
PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

TEMPORARY TRAFFIC CONTROL

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		29 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	30

N13(3-3) PERMANENT TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL SIGNS (Minimum)

TYPE	DESCRIPTION	Size (in)
W20-1		48 x 48
W20-4 W13-1		48 x 48 24 x 24
W20-7a Supplemental Plate		36 x 36 18 x 24
G20-2		60 x 24
W1_4L		30 x 30
W20-1a		48 x 48
G20-1		60 x 36
W8-12		36 x 36

BID ITEM 63316-1100: REMOVE SIGN AND REPLACE WITH NEW SIGN SYSTEM

	Station	Location	Detail No.	Description	Sign Panel Size (in)	Area of Sign (ft²)	No. of Panel	Total Area of Panel (ft²)
	18+69.05	LT	N-13		24 x 18	3.00	1	3.00
*	34+76.84	RT	SP-1	"RED VALLEY CHAPTER VETERANS"	-	-	1	-
*	19+58.01 83+38.02	RT RT	SP-2	"RED ROCK DAY SCHOOL"	-	-	2	-
	46+25.99	RT	W20-8		24 x 24	4.00	1	4.00
	52+73.18	LT	S1-1		36 x 36	9.00	1	9.00
	58+50.28 62+23.72	RT LT	W8-13		36 x 36	9.00	2	18.00
*	59+77.30 59+88.96	RT LT		"CAUTION" (ON BRIDGE)	-	-	2	-
	83+00.75	RT	W1-7		48 x 24	8.00	1	8.00
	83+00.75	RT	SP-7		24 x 96	16.00	1	16.00
	83+00.75	RT	OM4-1 (RED ON RED)		18 x 18	2.25	1	2.25
	94+84.80	LT	SP-4	"COVE/OAK SPRINGS/RED VALLEY"	52 x 25	9.03	1	9.03
	99+10.63	RT	S-30		78 x 48	26.00	1	26.00
	99+09.53	LT	SP-5		78 x 48	26.00	1	26.00
	138+67.55 475+96.30	LT RT	S3-1		36 x 36	9.00	2	18.00
*	352+02.01	LT	SP-6	"RED VALLEY CLOSED FOR WINTER"	-	-	1	-
	395+03.10 543+20.80	LT LT	W1-2L		30 x 30	6.25	2	12.50

BID ITEM 63316-1100: REMOVE SIGN AND REPLACE WITH NEW SIGN SYSTEM

Station	Location	Detail No.	Description	Sign Panel Size (in)	Area of Sign (ft²)	No. of Panel	Total Area of Panel (ft²)
14+11.76 83+30.09 145+04.39 163+48.99 210+75.59 239+13.15 273+63.81 336+81.25 391+37.48 469+04.88 519+08.62 538+92.42	RT LT LT RT RT LT RT LT RT LT RT LT	R4-1		24 x 30	5.00	12	60.00
14+11.18 85+97.15 145+04.17 163+48.59 210+77.17 239+11.82 336+81.56 391+30.47 447+52.05 469+01.68 519+12.01 538+92.27	LT RT RT LT LT RT RT LT LT RT LT RT	W14-3		36 x 48 x 48	6.00	12	72.00
20+36.74 35+55.68 49+33.98 82+71.94 99+38.70 126+92.43 127+30.55 216+18.38 357+03.28 404+98.91 405+57.82 462+34.74 526+44.69 546+95.06 554+51.69	RT RT LT LT LT LT RT LT RT LT RT LT LT LT RT	R1-1		30 x 30	3.12	15	46.80
494+11.20	RT	R2-1		24 x 30	5.00	1	5.00
						PROJECT TOTAL	335.58
						PROJECT USE	**350**

* SIGNS TO REMAIN IN PLACE

NOTE: STEEL POSTS FOR SIGNS SHALL BE INCLUDED IN BID ITEM 63316-1100 AND NO SEPARATE MEASUREMENT OR PAYMENT MADE

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
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PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

MYRA K. CANDELARIA NEW MEXICO 25660 PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION
NAVAJO D.O.T

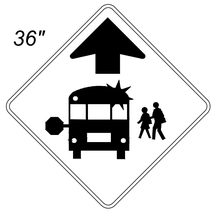
N13(3-3)1,4

TEMPORARY & PERMANENT SIGNING

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		30 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	31

W8-13-36
B/Y



S3-1
B/Y

W1-2L
B/Y

R4-1
B/W

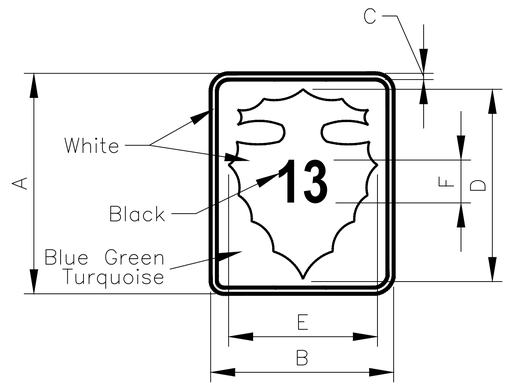
S1-1
B/Y

W20-8
B/O

W14-3
B/Y

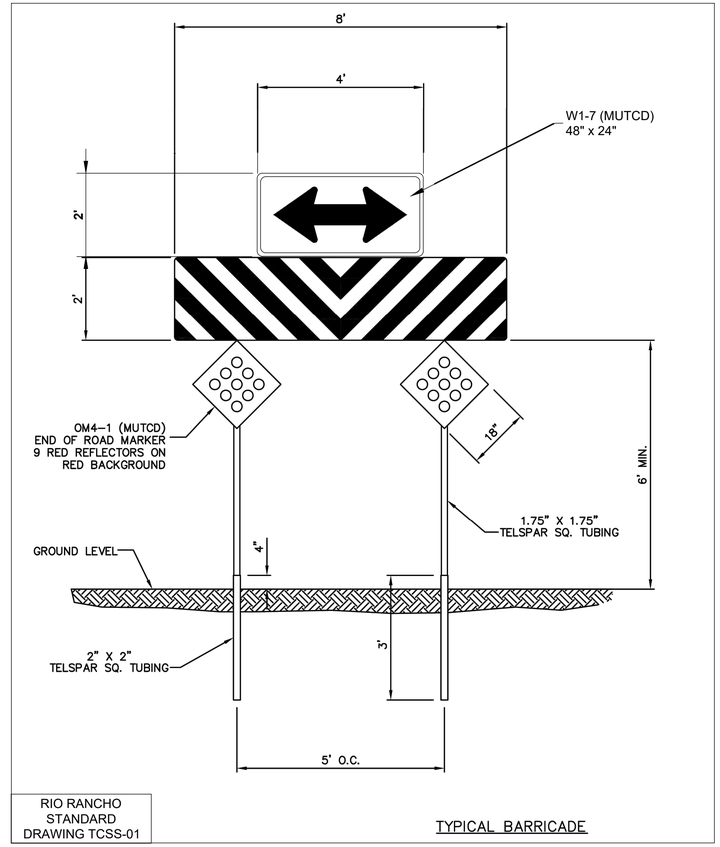
R1-1
W/R

R2-1-24-55
B/W



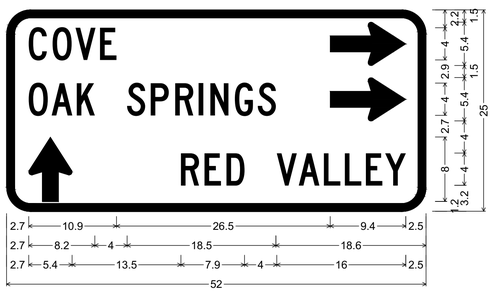
SIGN	DIMENSION					F NUMERALS				
	A	B	C	D	E	DIGITS IN ROUTE	1	2	2	4
Min.	24	18	0.5	19.5	13.5	SIZE & SERIES (in)	10E	9.5D	8C	6B

N13
B/W



RIO RANCHO
STANDARD
DRAWING TCSS-01

TYPICAL BARRICADE



SP-1;
3.0" Radius, 1.0" Border, White on, Green;
"COVE", C 2K; Standard Arrow Custom 9.4" X 5.4" 0';
"OAK SPRINGS", C 2K; Standard Arrow Custom 9.4" X 5.4" 0';
Standard Arrow Custom 8.0" X 5.4" 90'; "RED VALLEY", C 2K;

SP-4
W/G

6.0" Radius, 1.3" Border, White on, Yellow;
"Welcome" Red, Brush Script MT; 100% spacing;
"to" Black, E; "NEW MEXICO" Black, E 200% spacing; E;
"Land of Enchantment" Red, E;
Chile peppers, Black Border, Color Fill Left to Right: Red, Green, Green, Red

S-30

6.0" Radius, 1.3" Border, White on, Yellow;
"NEW MEXICO" Black, E 200% spacing; "Hasta la Vista" Red, E;
Chile peppers, Black Border, Color Fill Left to Right: Red, Green, Green, Red

SP-5

WILSON & COMPANY
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25660
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06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

SIGN FACE DETAIL

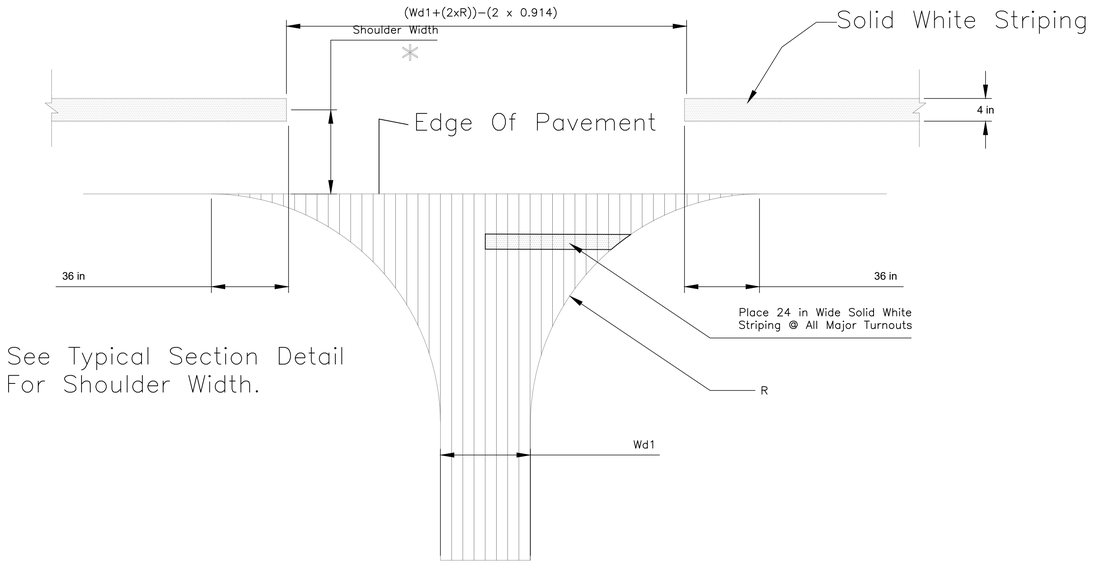
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		31 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	32

PAVEMENT MARKINGS

STATION	TO	STATION	LOCATION	63401-1500 PAVEMENT MARKINGS, TYPE H THERMOPLASTIC, SOLID			63405 - 3101 PAVEMENT MARKINGS, TYPE H, STOP BAR, 24" SOLID WHITE
				SOLID WHITE	BROKEN YELLOW (10' STRIPE, 30' GAP)	SOLID YELLOW	
				FT	FT	LF	FT
N13							
10+00.00		86+00.00	NO PASSING ZONE - DOUBLE SOLID CENTER LINE	15200		15200	
86+00.00		140+44.17	PASSING ZONE LT & RT - STRIPED CENTER LINE	10888	1361		
140+44.17		145+04.17	NO PASSING ZONE - DOUBLE SOLID CENTER LINE	920		920	
145+04.17		163+48.99	PASSING ZONE LT & RT - STRIPED CENTER LINE	3690	461		
163+48.99		175+00.00	PASSING ZONE LT - ONE SOLID, ONE STRIPED CENTER LINE	2302	288	1151	
175+00.00		182+84.00	PASSING ZONE RT - ONE SOLID, ONE STRIPED CENTER LINE	1568	196	784	
182+84.00		210+75.59	PASSING ZONE LT & RT - STRIPED CENTER LINE	5583	698		
210+75.59		239+11.82	NO PASSING ZONE - DOUBLE SOLID CENTER LINE	5672		5672	
239+11.82		273+64.34	PASSING ZONE LT & RT - STRIPED CENTER LINE	6905	863		
273+64.34		336+81.56	NO PASSING ZONE - DOUBLE SOLID CENTER LINE	12634		12634	
336+81.56		391+67.48	PASSING ZONE LT & RT - STRIPED CENTER LINE	10972	1371		
391+67.48		404+00.00	PASSING ZONE LT - ONE SOLID, ONE STRIPED CENTER LINE	2437	305	1218	
404+00.00		406+16.56	NO PASSING ZONE - DOUBLE SOLID CENTER LINE	433		433	
406+16.56		447+52.05	PASSING ZONE LT & RT - STRIPED CENTER LINE	8271	1034		
447+52.05		457+50.00	PASSING ZONE LT - ONE SOLID, ONE STRIPED CENTER LINE	1996	249	998	
457+50.00		462+00.00	NO PASSING ZONE - DOUBLE SOLID CENTER LINE	900		900	
462+00.00		469+01.68	PASSING ZONE RT - ONE SOLID, ONE STRIPED CENTER LINE	1403	175	702	
469+01.68		519+08.62	PASSING ZONE LT & RT - STRIPED CENTER LINE	10014	1252		
519+08.62		526+08.62	NO PASSING ZONE - DOUBLE SOLID CENTER LINE	1400		1400	
526+08.62		531+50.00	PASSING ZONE LT & RT - STRIPED CENTER LINE	1083	135		
531+50.00		538+75.00	PASSING ZONE RT - ONE SOLID, ONE STRIPED CENTER LINE	1450	181	725	
538+75.00		599+42.00	PASSING ZONE LT & RT - STRIPED CENTER LINE	12134	1517		
20+05.42		-	Rt. - STOP BAR AT SOUTH RED ROCK SCHOOL TURNOUT				15
35+55.68		-	Rt. - STOP BAR AT NORTH RED ROCK SCHOOL TURNOUT				15
49+60.09		-	Lt. - STOP BAR AT TRADING POST TURNOUT				15
80+51.73		85+51.73	N33 TURNOUT ACCEL/DECEL LANES	1000			
83+01.79		-	Lt. - STOP BAR AT N33 TURNOUT				15
99+56.26		-	Lt. - STOP BAR AT PRIVATE PROPERTY TURNOUT				15
127+10.36		-	Rt. - STOP BAR AT UNMARKED 4-WAY INTERSECTION				15
127+10.68		-	Lt. - STOP BAR AT UNMARKED 4-WAY INTERSECTION				15
216+37.17		-	Lt. - STOP BAR AT UNMARKED ROAD				15
356+72.92		-	Rt. - STOP BAR AT ISR 5012 TURNOUT				15
405+24.02		-	Lt - STOP BAR AT ISR 5021 TURNOUT				15
405+25.13		-	Rt - STOP BAR AT ISR 5021 TURNOUT				15
462+57.23		-	Lt. - STOP BAR AT UNMARKED ROAD				15
526+60.83		-	Lt - STOP BAR AT PRIVATE TURNOUT				15
547+23.73		-	Lt. - STOP BAR AT UNMARKED ROAD				15
554+24.76		-	Rt. - STOP BAR AT UNMARKED ROAD				15
			PROJECT SUBTOTAL	118856	10087	42738	225
			PROJECT USE		**171700**		**230**

NOTE: QUANTITIES SHOWN INCLUDE TWO APPLICATIONS



TYPICAL PAVEMENT MARKING @ TURNOUT

(See Table For Location)

TYPICAL PAVEMENT MARKING "BROKEN YELLOW"

(See Table For Location)

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NYRA K. CANDELARIA NEW MEXICO 25660 PROFESSIONAL ENGINEER
06/09/2025

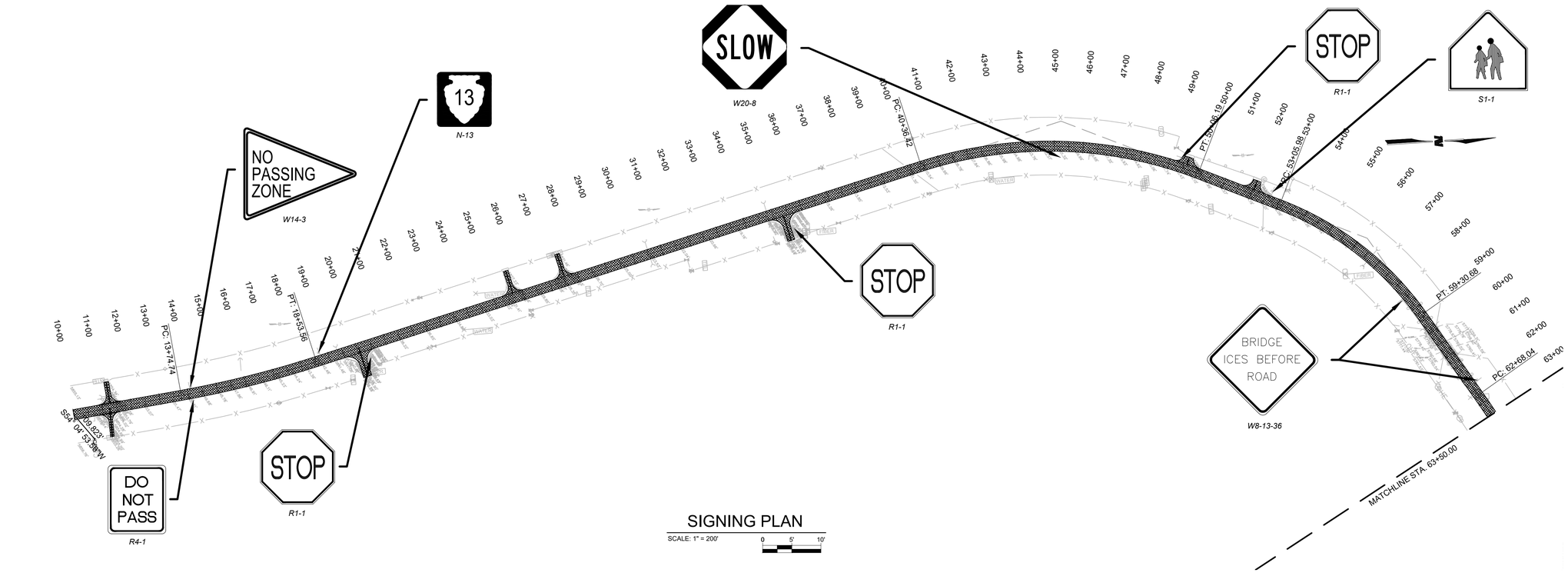
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

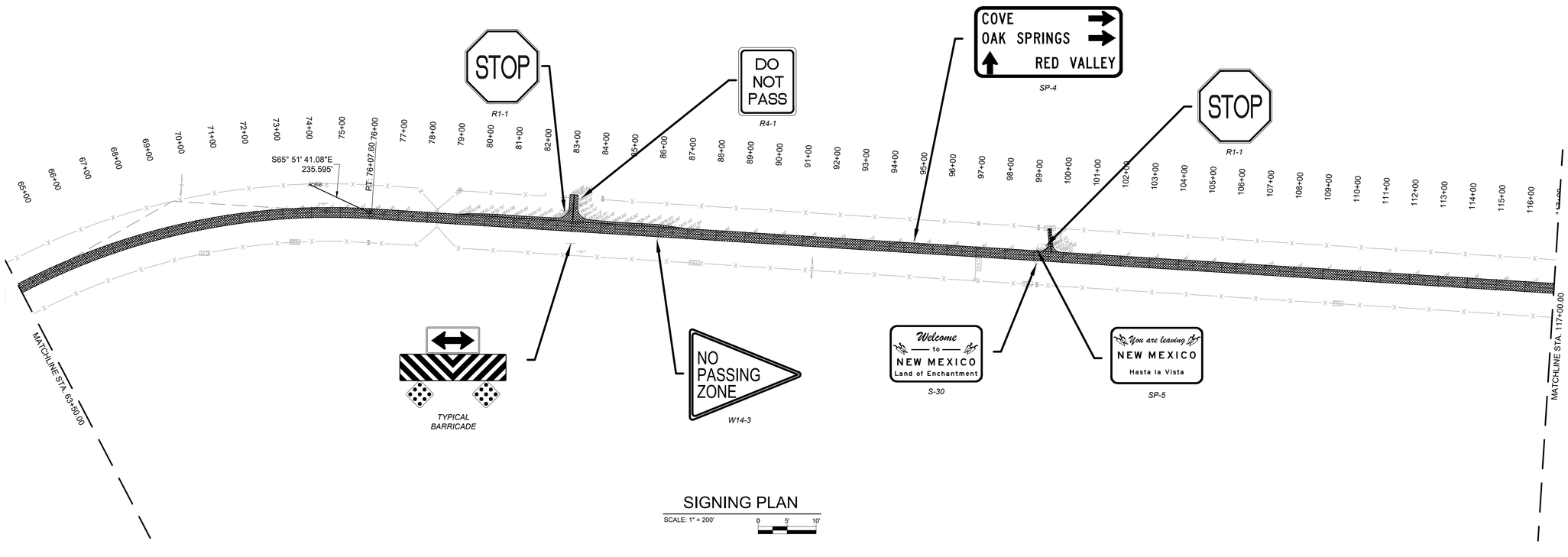
PERMANENT STRIPING

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		32 OF 74
SCALE: 1"=100' H 1"=20' V			



SIGNING PLAN

SCALE: 1" = 200' 0 5' 10'



SIGNING PLAN

SCALE: 1" = 200' 0 5' 10'

STATE	PROJECT	SHEET NUMBER
NM	N13	33

REMOVAL NOTES

CONSTRUCTION NOTES

REFERENCE NOTES

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06/09/2025

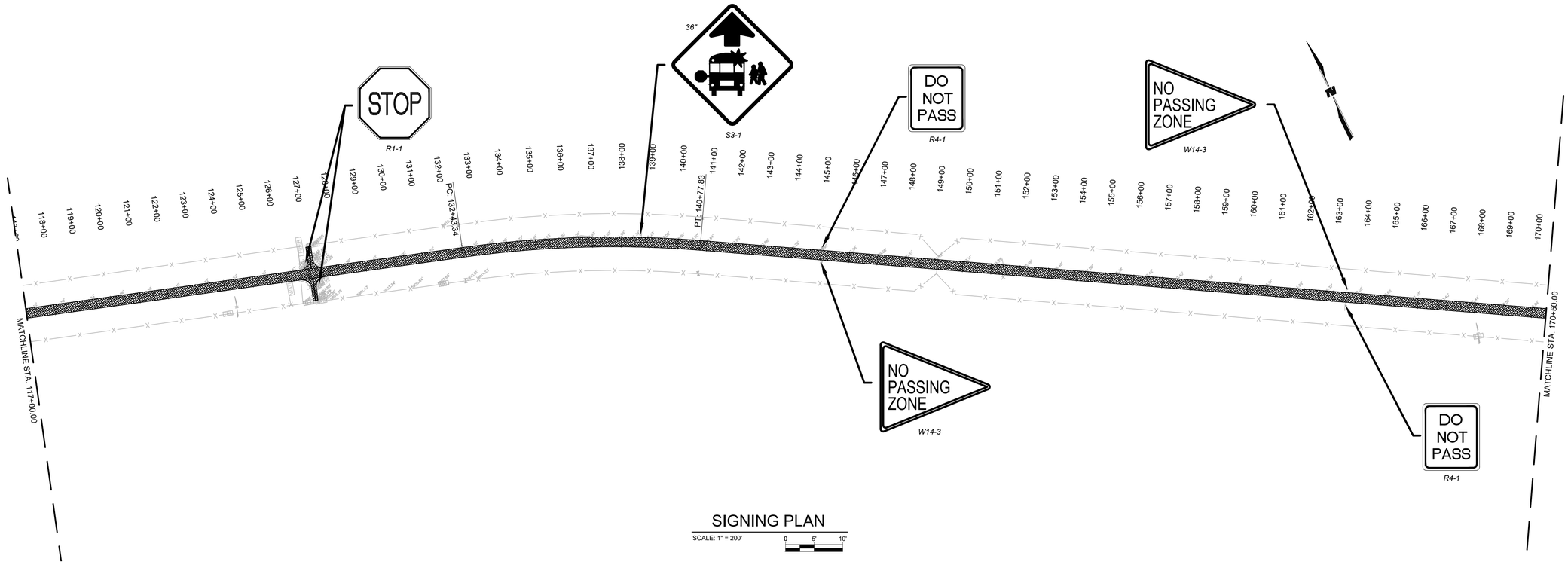
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

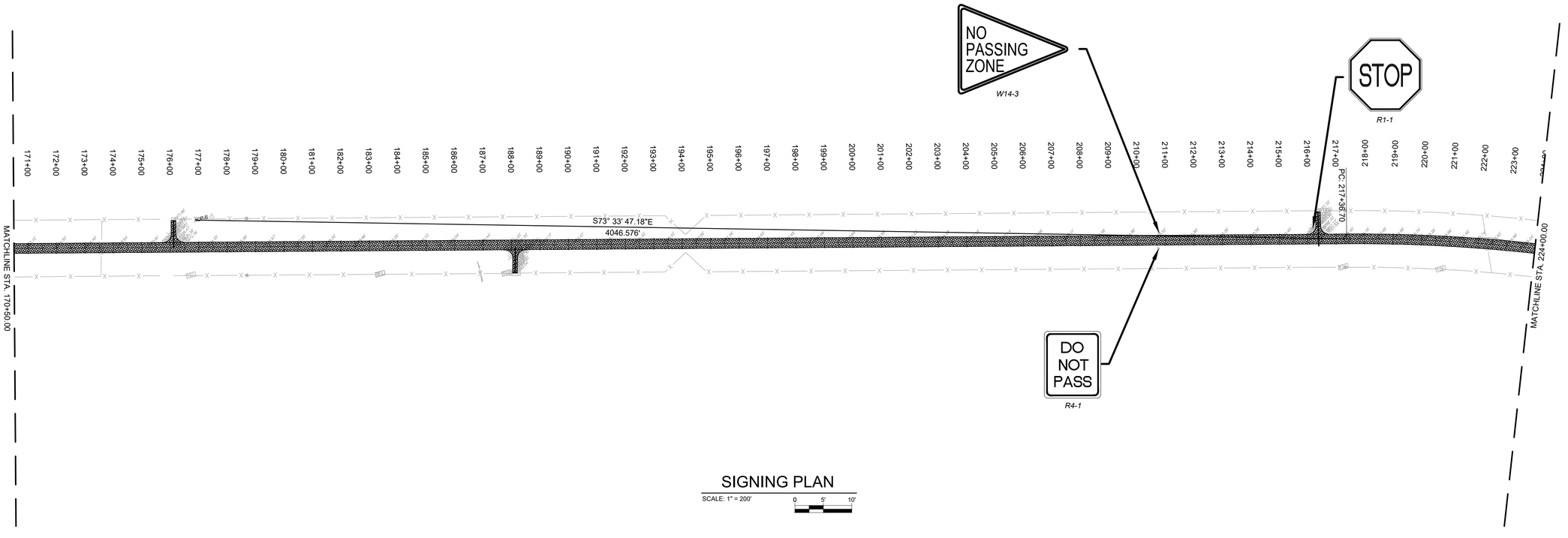
SIGNING PLAN

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		33 OF 74
SCALE: 1"=100' H 1"=20' V			



SIGNING PLAN

SCALE: 1" = 200'



SIGNING PLAN

SCALE: 1" = 200'

STATE	PROJECT	SHEET NUMBER
NM	N13	34

REMOVAL NOTES

CONSTRUCTION NOTES

REFERENCE NOTES

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06/09/2025

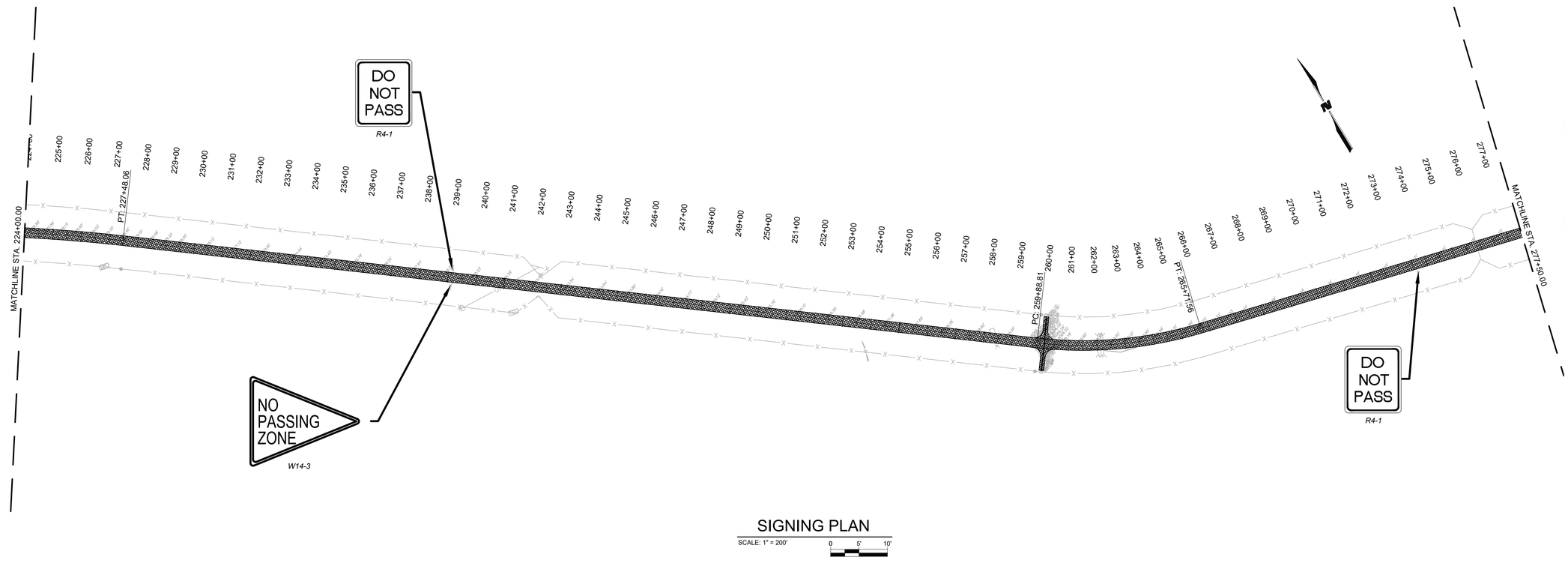
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

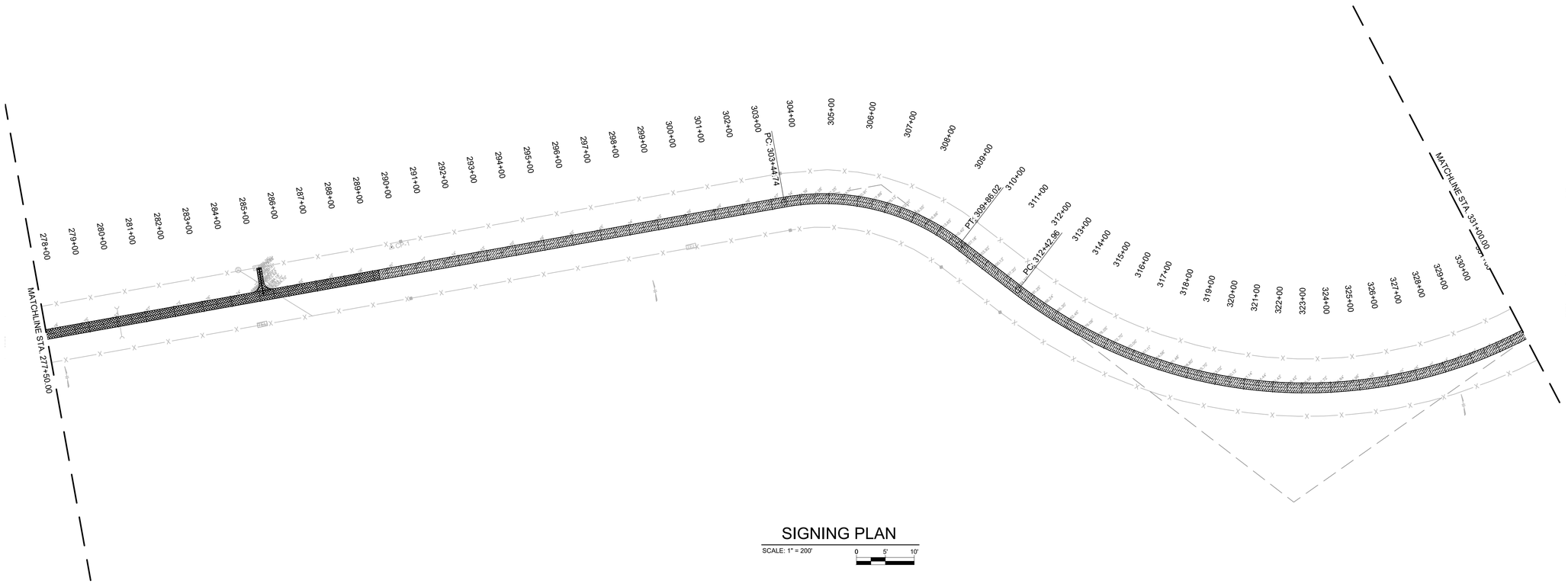
SIGNING PLAN

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		34 OF 74
SCALE: 1"=100' H 1"=20' V			



SIGNING PLAN

SCALE: 1" = 200' 0 5' 10'



SIGNING PLAN

SCALE: 1" = 200' 0 5' 10'

STATE	PROJECT	SHEET NUMBER
NM	N13	35

REMOVAL NOTES

CONSTRUCTION NOTES

REFERENCE NOTES

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06/09/2025

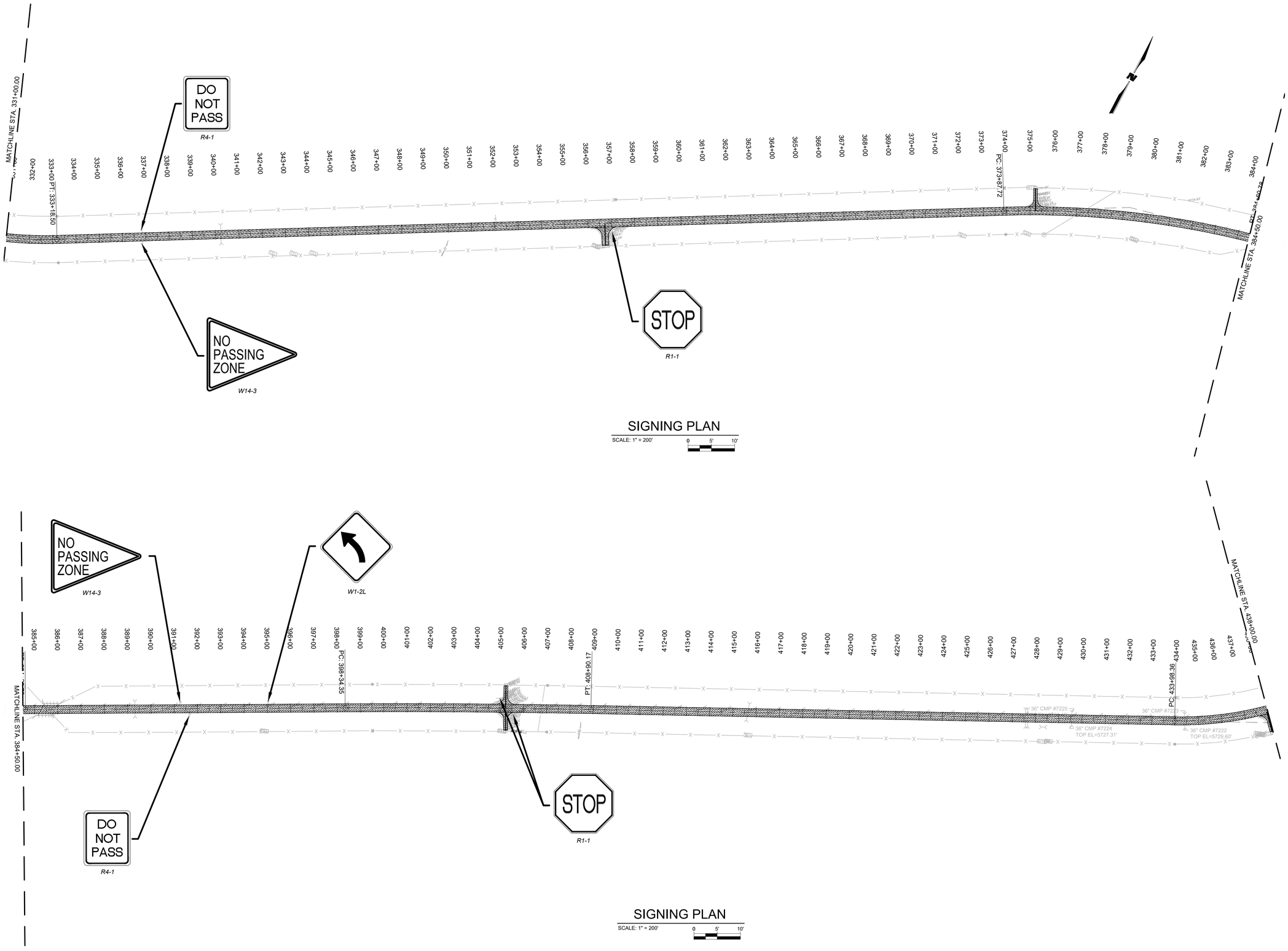
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

SIGNING PLAN

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		35 OF 74
SCALE: 1"=100' H 1"=20' V			



SIGNING PLAN

SCALE: 1" = 200'

SIGNING PLAN

SCALE: 1" = 200'

STATE	PROJECT	SHEET NUMBER
NM	N13	36

REMOVAL NOTES

CONSTRUCTION NOTES

REFERENCE NOTES

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06/09/2025

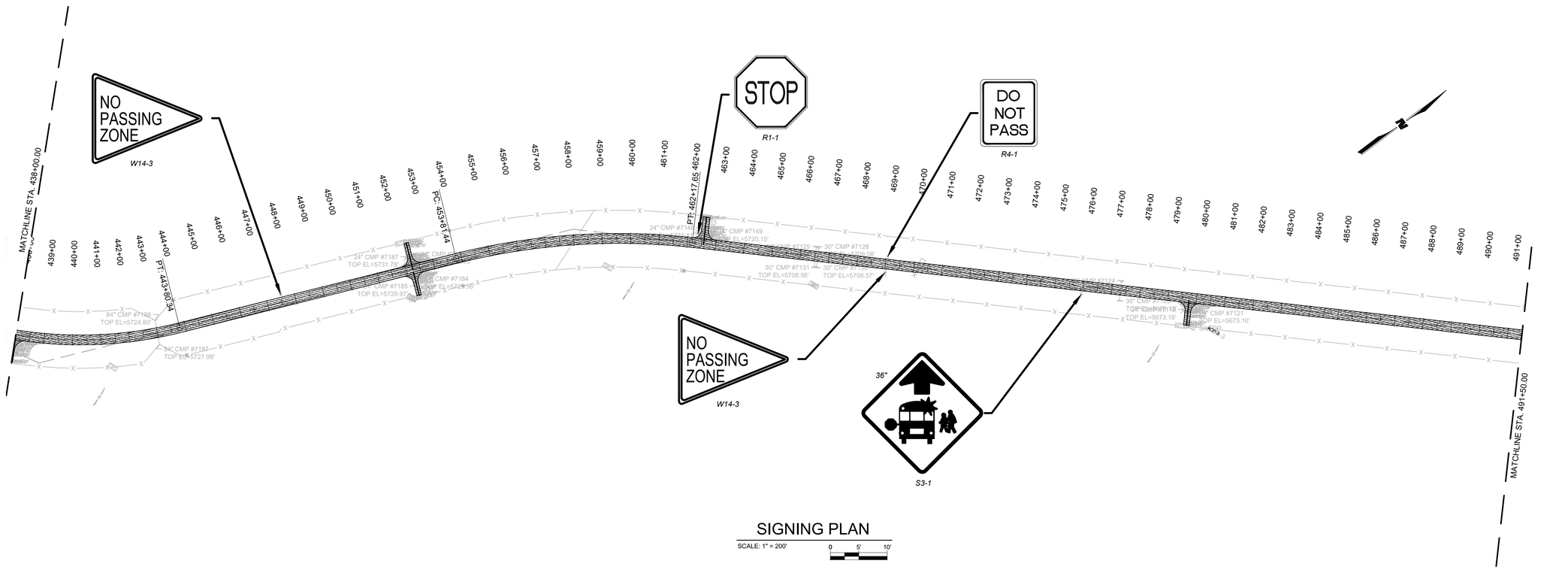
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

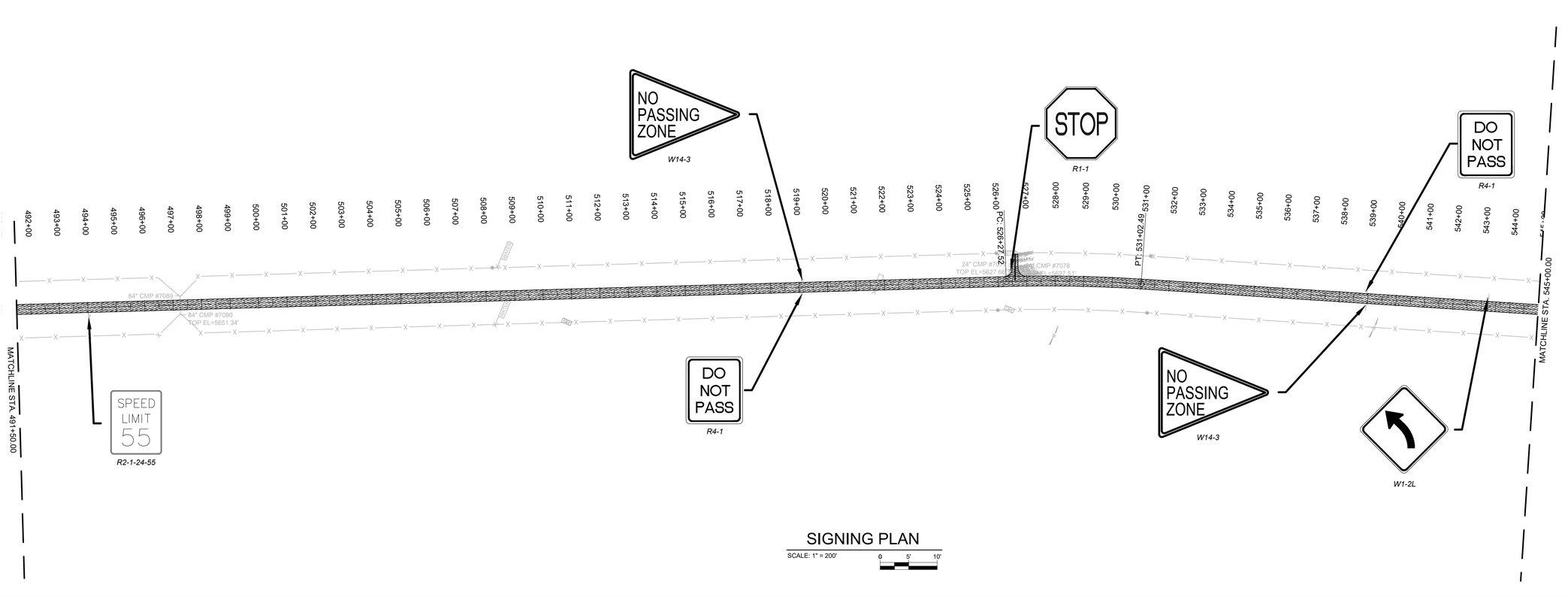
SIGNING PLAN

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		36 OF 74
SCALE: 1"=100' H 1"=20' V			



SIGNING PLAN

SCALE: 1" = 200'



SIGNING PLAN

SCALE: 1" = 200'

STATE	PROJECT	SHEET NUMBER
NM	N13	37

REMOVAL NOTES

CONSTRUCTION NOTES

REFERENCE NOTES

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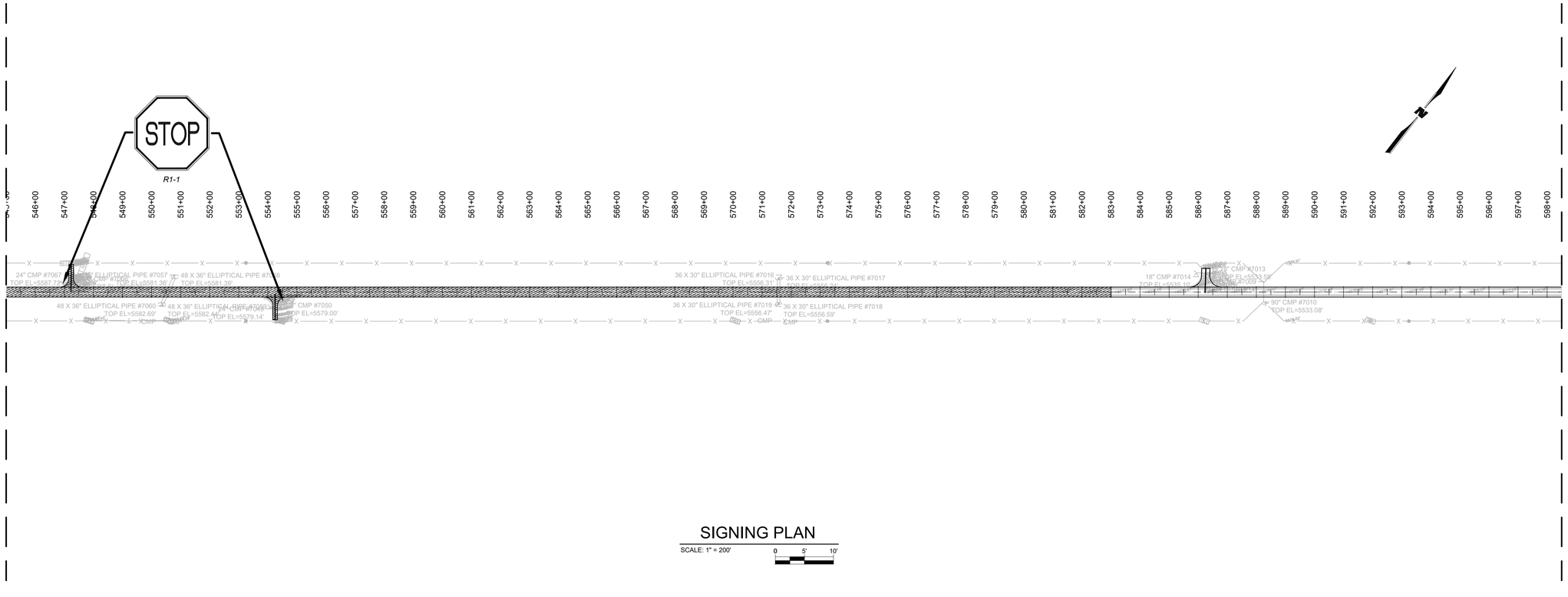
REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

SIGNING PLAN

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		37 OF 74
SCALE: 1"=100' H 1"=20' V			



SIGNING PLAN

SCALE: 1" = 200'

0 5' 10'

STATE	PROJECT	SHEET NUMBER
NM	N13	38

REMOVAL NOTES

CONSTRUCTION NOTES

REFERENCE NOTES

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REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

SIGNING PLAN

PROJECT MANAGER: MKC	DATE: 9/20	DRAWING	SHEET
LEAD DESIGNER: DDM	DATE: 9/20		
AS-BUILT BY:	DATE: 9/20		38 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	39

CHART TO DETERMINE SINGLE POST SIZE

POST WEIGHT	K FACTOR (B x A)	B DIMENSION (Meter)												
		1.52	1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
2.976 kg/m	DOES NOT APPLY	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.34	0.32	0.30	0.27	0.26	$A(m^2)$ SIGN AREA
3.348 kg/m		0.47	0.47	0.47	0.47	0.47	0.47	0.43	0.39	0.36	0.33	0.32	0.30	
4.092 kg/m		0.62	0.62	0.62	0.62	0.62	0.62	0.56	0.51	0.47	0.44	0.41	0.38	
4.464 kg/m		0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.62	0.58	0.52	0.47	0.46	
5.952 kg/m		0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.80	0.74	0.70	0.65	

CHART TO DETERMINE DOUBLE POST SIZE

POST WEIGHT	K FACTOR (B x A)	B DIMENSION (Meter)												
		1.52	1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
2.976 kg/m	2.74	1.80	1.50	1.28	1.12	1.00	0.90	0.82	0.75	0.70	0.64	0.60	0.57	$A(m^2)$ SIGN AREA
3.348 kg/m	3.08	2.03	1.69	1.45	1.27	1.13	1.01	0.92	0.85	0.78	0.72	0.68	0.63	
4.092 kg/m	4.03	2.64	2.20	1.89	1.65	1.47	1.32	1.20	1.10	1.01	0.94	0.88	0.83	
4.464 kg/m	4.91	3.23	2.69	2.31	2.03	1.79	1.62	1.47	1.35	1.24	1.15	1.08	1.01	
5.952 kg/m	6.83	4.48	3.73	3.20	2.80	2.49	2.24	2.03	1.87	1.72	1.60	1.50	1.40	

CHART TO DETERMINE THREE POST SIZE

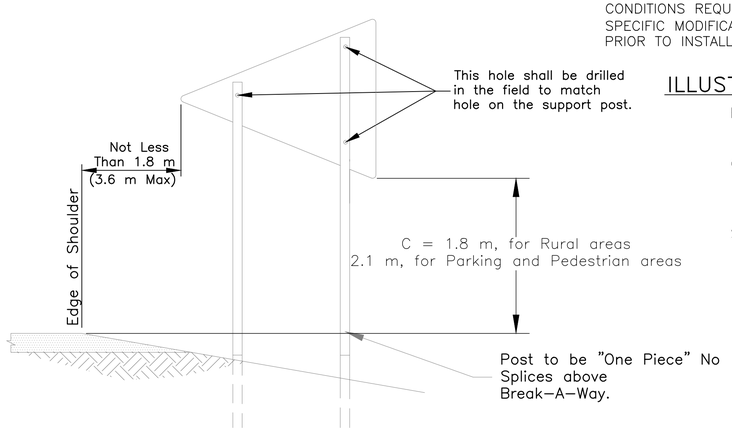
POST WEIGHT	K FACTOR (B x A)	B DIMENSION (Meter)												
		1.52	1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
2.976 kg/m	4.12	2.69	2.25	1.92	1.68	1.50	1.35	1.23	1.12	1.04	0.97	0.90	0.85	$A(m^2)$ SIGN AREA
3.348 kg/m	4.65	3.05	2.54	2.17	1.90	1.69	1.52	1.38	1.27	1.17	1.09	1.01	0.96	
4.092 kg/m	6.02	3.96	3.30	2.82	2.47	2.19	1.98	1.79	1.64	1.52	1.41	1.32	1.24	
4.464 kg/m	7.40	4.85	4.04	3.47	3.03	2.69	2.42	2.20	2.02	1.86	1.73	1.62	1.51	
5.952 kg/m	10.20	6.71	5.58	4.78	4.19	3.73	3.35	3.05	2.79	2.57	2.40	2.23	2.09	

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE REQUIRED TO ADJUST THE LENGTH OF SIGN SUPPORT POSTS. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR THE APPROPRIATE BID ITEMS SHOWN IN THE BID SCHEDULE.

2. SIGN DIMENSION EQUAL TO OR IN EXCESS OF 762mm X 762mm SIZE SHALL BE INSTALL WITH A MINIMUM OF TWO(2) STEEL POSTS.

3. SIGN OFFSETS FOR ANY PARTICULAR PROJECT TO BE THE SAME THROUGHOUT THE PROJECT, EXCEPT AT SPECIFIC LOCATIONS WHERE FINISH/EXISTING GROUND CONDITIONS REQUIRE A MODIFIED OFFSET. THE BASIC SIGN OFFSET AND ANY SPECIFIC MODIFICATIONS TO THIS OFFSET SHALL BE APPROVED BY THE AOTR/COR PRIOR TO INSTALLING SIGNS.



TYPICAL ROADSIDE SIGN LOCATION

ILLUSTRATION OF POSTS/WEIGHT DETERMINATION:

REQUIRED: Determine post requirement
For 1.52 m wide x 1.22 m high sign.
Location on a rural highway.

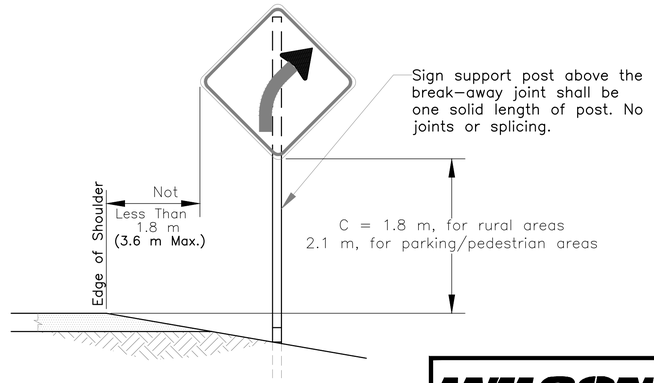
GIVEN: W=1.52 m
D=1.22 m
C= 1.8 m for Rural Area

SOLUTION:
1. D/2=0.61 m; K factor=3.90
2. B=Dimension To Centroid of Sign, above Breakaway Section.
3. A=WxD=1.52x0.61=1.85 m^2
4. Begin with single post chart for column of B=2.13 m, and continue down until area of sign equal or exceed 1.85 m^2. The area exceeds the single post chart, so go to the double post table.

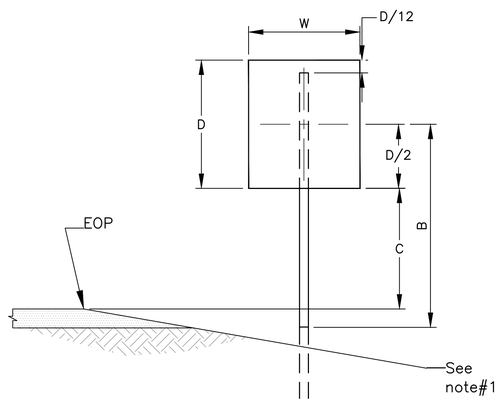
Select two(2) Posts of 4.09 kg/m Yield a factor of 4.03 which is optimum.

EXAMPLE:

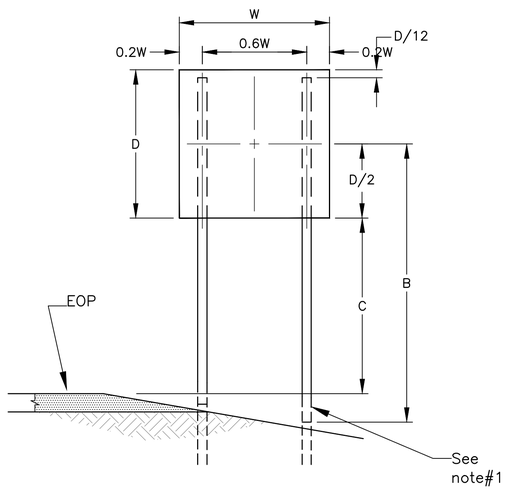
POST	B=2.13
4.09 kg/m	1.89 ←
4.46 kg/m	2.31
5.95 kg/m	3.20



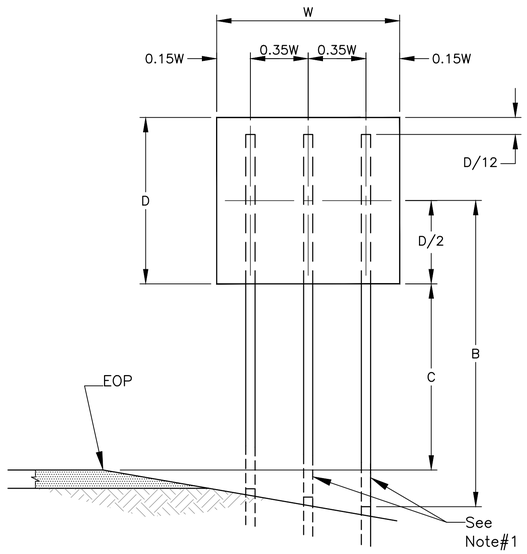
TYPICAL ROADSIDE SIGN LOCATION



SINGLE POST SIZE (typ.)



DOUBLE POST SIZE (typ.)



THREE POST SIZE (typ.)

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06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

SIGNING DETAIL

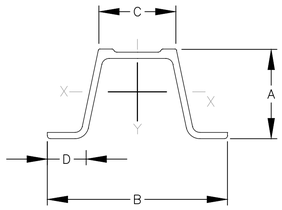
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		39 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	40

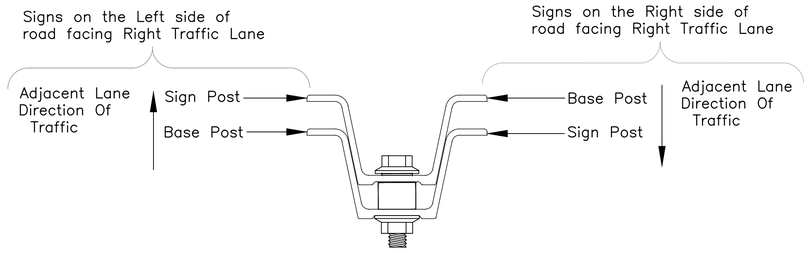
RIB–BAK U–CHANNEL SIGN SUPPORTS

WEIGHT	DIMENSIONS (mm)				AREA	X–X AXIS		Y–Y AXIS	
*kg/m	A	B	C	D	mm^2	$I(mm^4)$	$S(mm^3)$	$I(mm^4)$	$S(mm^3)$
2.97	38.30	76.91	33.12	16.10	54.83	81.99	42.27	195.62	50.96
3.71	38.68	79.35	33.15	18.33	51.28	103.22	51.29	249.73	62.92
4.08	39.47	78.77	32.72	16.94	55.74	112.38	54.89	278.04	70.62
4.45	48.34	85.85	33.73	18.42	62.45	188.65	73.24	374.60	87.34
5.94	50.27	85.78	34.04	19.10	80.77	260.14	97.99	476.58	111.10

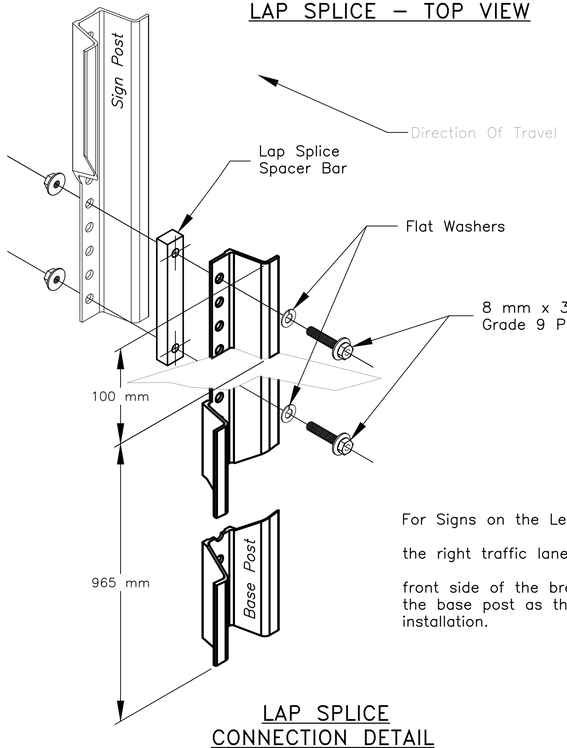
* ±5%



RIB–BAK U–CHANNEL



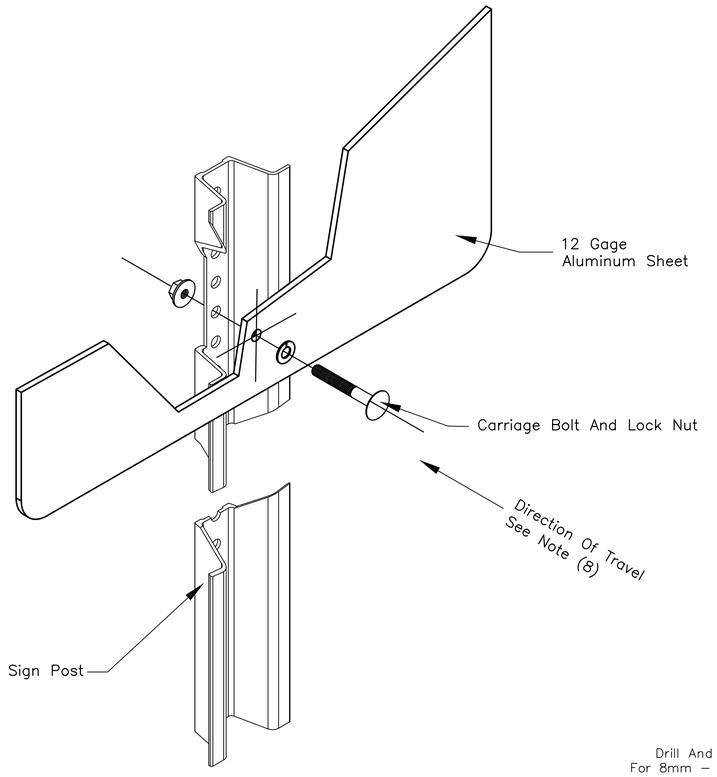
LAP SPLICE – TOP VIEW



For Signs on the Left side of the road which face the right traffic lane (NO PASSING ZONE) The sign post is place on the front side of the breakaway post, not on the back of the base post as this detail shows for standard sign installation.

LAP SPLICE CONNECTION DETAIL

NOTE: After Final Installation and Tigthen, All Posts and Sign Bolt Threads Shall Be "Jammed" To Help Prevent Loosening. Jamming Shall Not Be So Severe As To Prevent Nut Removal.



GENERAL NOTES

1. BASE POST AND SIGN POST SHALL BE RIB–BAK U–CHANNEL FABRICATED FROM HOT ROLLED CARBON STEEL BARS CONFORMING TO THE REQUIREMENTS OF ASTM A499. YIELD POINT OF THE STEEL SHALL BE 550 MPa (MINIMUM) TENSILE SHALL BE 689.47 MPa (MINIMUM).

2. POSTS SHALL BE A UNIFORM, MODIFIED, FLANGED CHANNEL SECTION OF THE RIB–BAK DESIGN. WEIGHT OF THE POSTS SHALL BE AS SPECIFIED BY THE USER, ±5% BEFORE PUNCHING. THE POSTS SHALL BE PUNCHED WITH CONTINUOUS 9 mm HOLES ON 25mm CENTERS FOR THE ENTIRE LENGTH OF THE POST.

3.THE POSTS SHALL BE MACHINE STRAIGHTENED TO HAVE A SMOOTH UNIFORM FINISH, FREE FROM DEFECTS AFFECTING THEIR STRENGTH, DURABILITY, OR APPEARANCE. ALL HOLES AND ROUGH EDGES SHALL BE FREE FROM BURRS. THE PERMISSIBLE TOLERANCE FOR STRAIGHTNESS SHALL BE WITHIN 6.35 mm IN 1.52 METER,

4.POSTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A 123 OR PAINTED PER NOTE 8. BOLTS, NUTS, AND WASHERS SHALL BE CADMIUM PLATED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A 165 OR ZINC PLATED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM B 633.

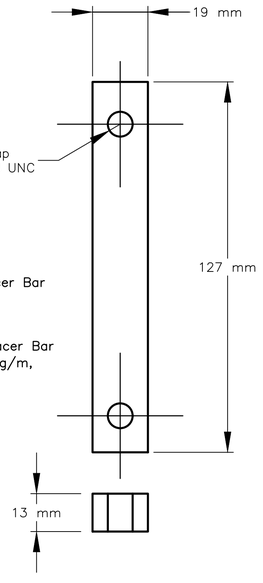
5.SPLICE HARDWARE SHALL CONSIST OF TWO FULLY THREADED, 8 mm X 38 mm GRADE 9 PLATED. HEX HEAD BOLTS, WITH FLAT WASHERS, AND SELF LOCKING HEX NUTS PER POST. IN ADDITION, ONE 19 mm x 127 mm PLATED SPACER BAR SHALL BE USED, PER POST, TO STIFFEN THE SPLICE CONNECTION. EACH SPACER BAR SHALL BE DRILLED AND TAPPED WITH 8 mm – 18 UNC THREADS. THE SPACER SHALL BE FABRICATED FROM HOT ROLLED CARBON STEEL BARS CONFORMING TO ASTM A 36 OR M 1020. BOLTSHALL BE RED IN COLOR, WITH THE HEAD MARKING "M180".

6.BOLTS AND LOCK NUT HARDWARE FOR SIGN ATTACHMENT SHALL BE CARRIAGE HEAD TYPE, SIZE SHALL BE 8mm–18 UNC. BOLTS AND NUTS SHALL BE CADMIUM PLATED TO ASTM B 766 SPECIFICATION.

7.AN APPROVED ALTERNATE BREAKAWAY AND SIGN SUPPORT POST ASSEMBLY MAY BE SUBMITTED TO THE C.O. FOR REVIEW AND APPROVAL PRIOR TO ITS USE.

8.POST MAY BE COATED WITH BAKED ON ALKYD RESIN PAINT, PAINTED WITH A POLYESTER POWDER COATING. THE ALTERNATE PAINT COLOR TO BE FOREST GREEN.

9.THE CONTRACTOR HAS THE OPTION TO USE 'ANTI–THIEF' NUTS IN LIEU OF JAMMING THE BOLT THREADS. NO ADDITIONAL PAYMENT WILL BE MADE IN RELATION TO USING ANTI–THIEF BOLTS.



NOTE: The GOLD ANODIZED 13 mm Thick Spacer Bar Is To Be Used With 4.45 kg/m And 5.94 kg/m Posts Only.

The SILVER ANODIZED 10 mm Thick Spacer Bar Is To Be Used With 2.97 kg/m, 3.71 kg/m, And 4.08 kg/m Posts Only.

LAP SPLICE SPACER BAR

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MYRA K. CANDELARIA NEW MEXICO 25660 PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

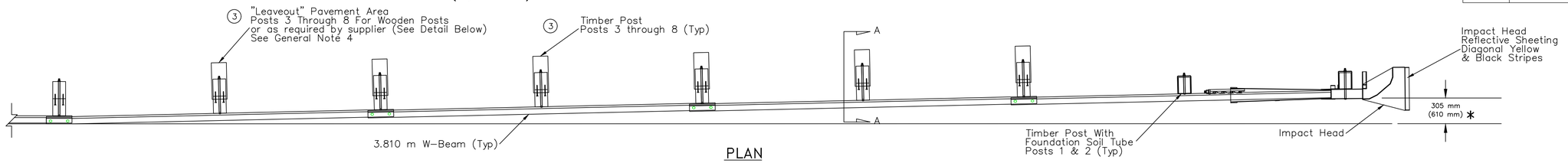
N13(3-3)1,4

SIGNING DETAIL

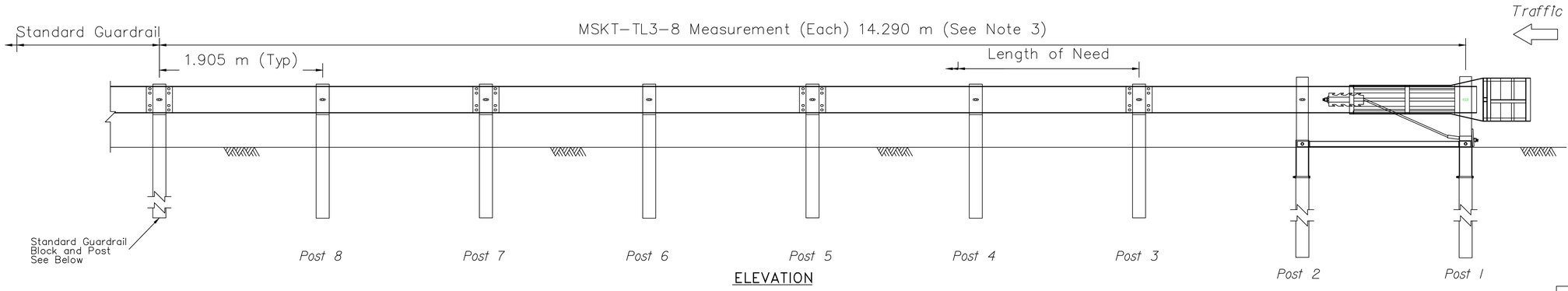
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		40 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	41

*FOR ELEVATIONS ABOVE (1,220 m) USE THE VALUES IN PARENTHESES



PLAN



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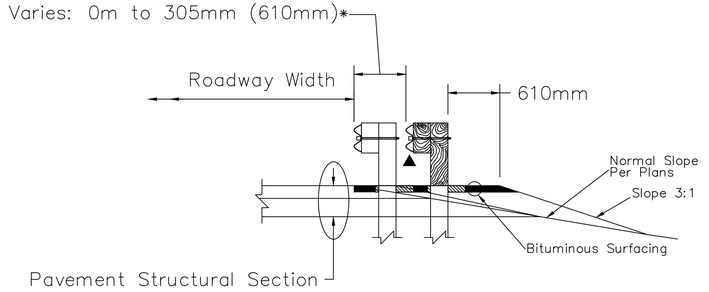
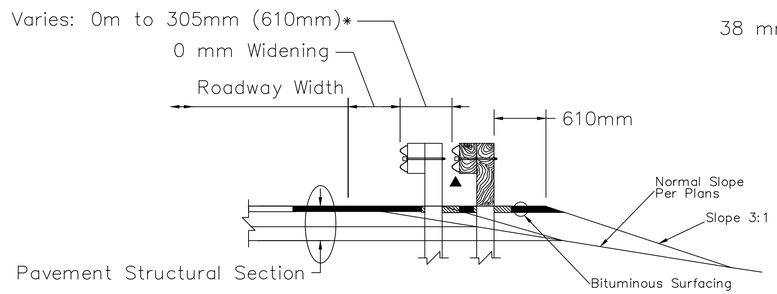
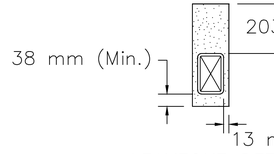


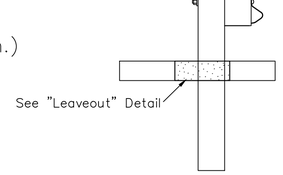
TYPE A SECTION



TYPE B SECTION

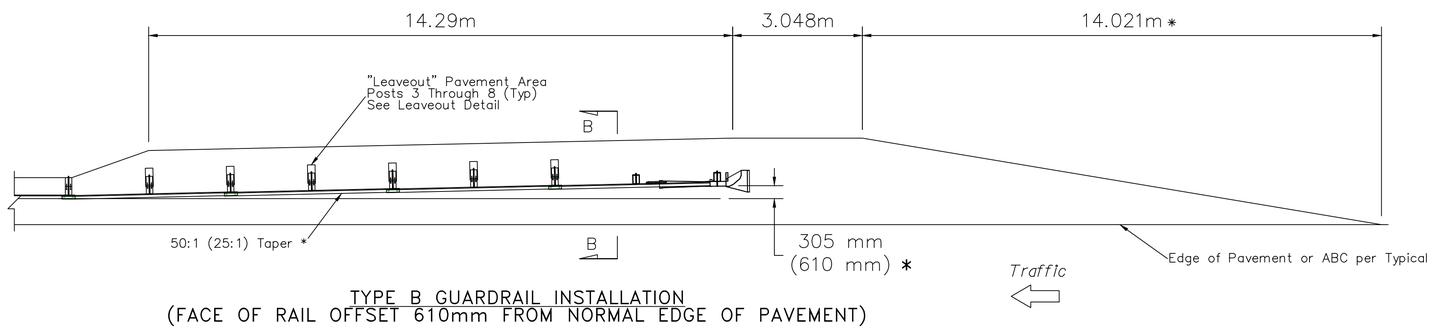


LEAVEOUT DETAIL



SECTION A-A
Typical At Post 3 Thru 8

See Sheet 53 For General Notes.



TYPE B GUARDRAIL INSTALLATION
(FACE OF RAIL OFFSET 610mm FROM NORMAL EDGE OF PAVEMENT)

GENERAL NOTES

1. THIS DETAIL IS FOR ROADWAY LAYOUT ONLY.
2. THE MSKT-TL3-8 SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND CURRENT APPROVED DRAWINGS INCLUDING ALL MATERIALS, HARDWARE, AND OTHER INFORMATION AS SHOWN IN THESE PLANS.
3. THE 14.290 m W-BEAM LENGTH SHALL CONSIST OF FOUR SECTIONS. THE END SECTION BEING A PROPRIETARY SPLIT RAIL.
4. IF SPECIFIED BY THE SUPPLIER, THE"LEAVEOUT" IN ASPHALTIC CONCRETE SHALL BE PROVIDED IN THE AC PAVEMENT AROUND THE GUARDRAIL POSTS AT THE LOCATIONS AND DIMENSIONS SPECIFIED BY SUPPLIER APPROVED SHOP DRAWING. "LEAVEOUT" MATERIAL SHALL CONSIST OF A 1-SACK GROUT MIX OR OTHER NON-COHESIVE MATERIAL AS APPROVED BY THE COR/COTR.

NOTE: THIS DETAIL IS METRIC

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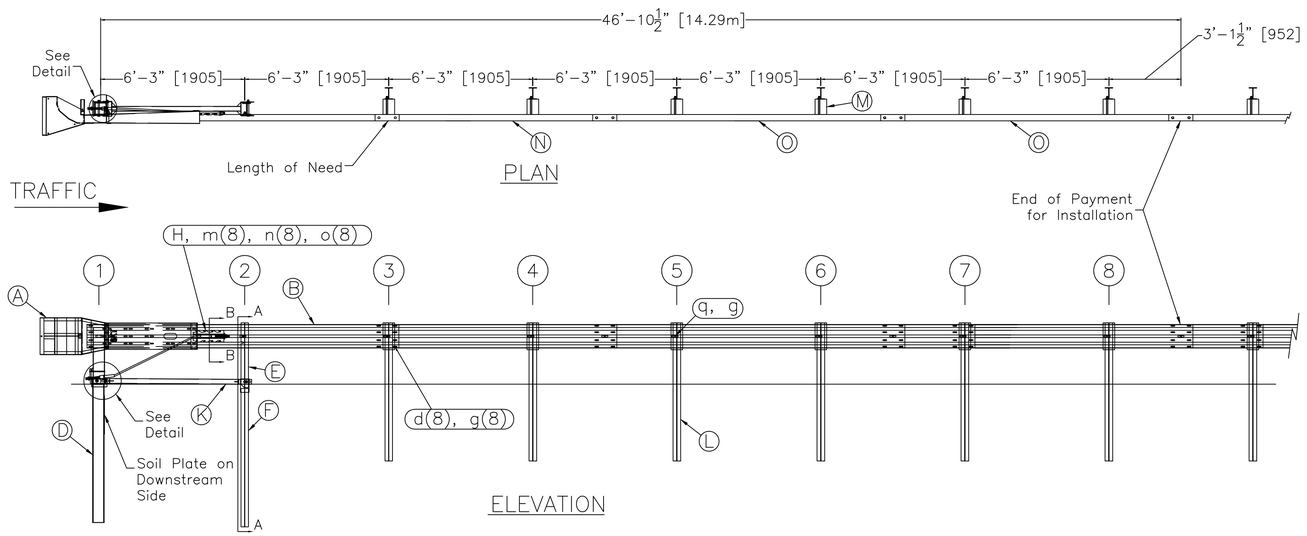
NAVAJO NATION
DIVISION OF TRANSPORTATION

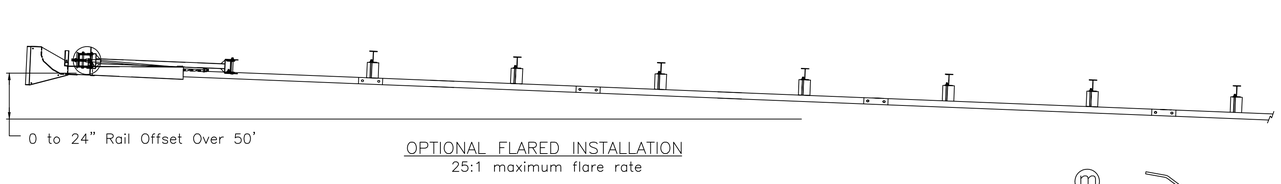
N13(3-3)1,4

STANDARD GUARDRAIL
END TREATMENT

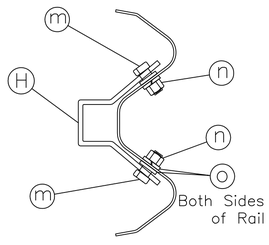
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		41 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	42

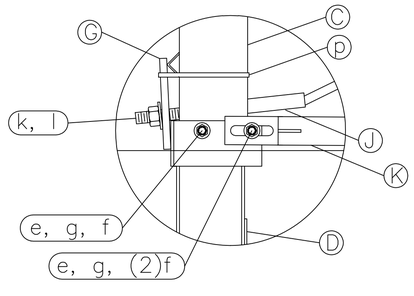




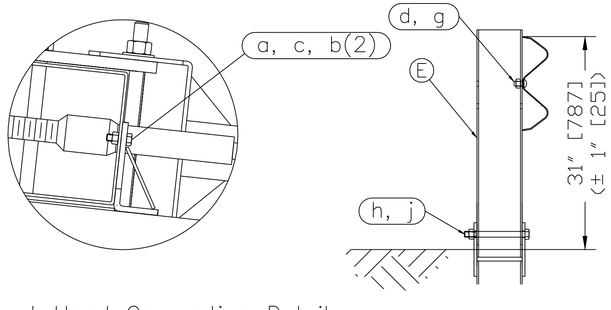
OPTIONAL FLARED INSTALLATION
25:1 maximum flare rate



SECTION B–B
Anchor Bracket



Post #1 Connection Detail



Impact Head Connection Detail

SECTION A–A
Post #2

ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	FIRST POST TOP (6X6X⅛" Tube)	MTPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	MTPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	STRUT	MS785
L	6	6x9 (6x8.5) STEEL POST	P621
M	6	RECYCLED PLASTIC BLOCK OR EQUIV.	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
HARDWARE (ALL DIMENSIONS IN INCHES)			
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	25	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	2	5/8 Dia. x 9 HEX BOLT A449	B580904A
f	3	5/8 WASHER	W050
g	33	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2 RSI SHOULDER BOLT W/WASHER	SB12A
n	8	1/2 STRUCTURAL NUT	N012A
o	8	1/2 STRUCTURAL WASHER	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	5/8" x 10" H.G.R. BOLT	B581002

NOTE: THIS DETAIL IS ENGLISH [METRIC]

NOTES:

1. BREAKAWAY POSTS ARE REQUIRED WITH SEQUENTIAL KINKING TERMINAL.
2. ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
3. THE MSKT-TL3-8 CAN BE FLARED AT A RATE OF 25:1 TO PREVENT THE IMPACT HEAD FROM ENCROACHING ON THE SHOULDER. THE FLARE IS NOT REQUIRED MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS.
4. THE SOIL TUBES SHALL NOT PROTRUDE MORE THAN 102 mm ABOVE GROUND (MEASURED ALONG A 1.5 m CHORD). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
5. THE SOIL TUBES MAY BE DRIVEN WITH AN APPROVED DRIVING HEAD. SOIL TUBES SHOULD NOT BE DRIVEN WITH THE POST IN THE TUBE. IF THE ARE PLACED IN DRILLED HOLES, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
6. WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 308 mm DIA. POST HOLE, 508 mm INTO ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL WILL BE PLACED IN THE BOTTOM OF THE HOLE APPROX. 64 mm DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES WILL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE, AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM HOLE.
7. THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT. A LOCKING DEVICE, (VICE-GRIPS OR CHANNEL-LOCK PLIERS) SHOULD BE USED TO PREVENT CABLE FROM TWISTING WHEN TIGHTENING NUTS.
8. A SPECIAL SITE EVALUATION SHOULD BE CONSIDERED PRIOR TO USING THE MSKT-TL3-8 WHERE THERE IS LESS THAN 7.620 m BETWEEN THE OUTLET SIDE AND ANY ADJACENT DRIVING LANE.
9. THE WOOD BLOCKOUTS SHOULD BE "TOE-NAILED" TO THE WOOD POSTS TO PREVENT THEM FROM TURNING WHEN WOOD SHRINKS.
10. GUARDRAIL SPLICE SHALL BE OVERLAPPED IN HE DIRECTION OF THE ADJACENT TRAFFIC.
11. BILL OF MATERIALS AND SOME OF THE DETAILS HEREIN WERE PROVIDED BY ROAD SYSTEMS INC.
12. ALL BOLTS, NUTS, CABLES ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
13. THE LOWER SECTION OF THE POSTS 1 & 2 SHALL NOT PROTRUDE MORE 4 in. (100 m) ABOVE THE GROUND (MEASURED ALONG A 5' [1.5M] CORD LONGITUDINAL TO THE SYSTEM). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
14. THE LOWER SECTION OF THE HINGED POST SHOULD NOT BE DRIVEN WITH THE UPPER POST ATTACHED. IF THE POST IS PLACED IN A DRILLED HOLE, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
15. THE TERMINAL BREAK-AWAY SYSTEM SHALL MEET THE CRASH TEST AND EVALUATION CRITERIA ASSHTO MASH (TL3).
16. THE DETAILS PROVIDED ARE FROM ROAD SYSTEMS INC. THE CONTRACTOR SHALL PROVIDE THE SKT IMPACT HEAD WITH 350 SKT TERMINALS OR EQUAL FROM ANY APPROVED VENDER.
17. DIMENSIONS IN BRACKETS [ ] ARE METRIC.
18. SEE THE CONTRACT SUPPLEMENTAL SPECIFICATION FOR SECTION 617 FOR ADDITIONAL REQUIREMENTS.

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25660
PROFESSIONAL ENGINEER
06/09/2025

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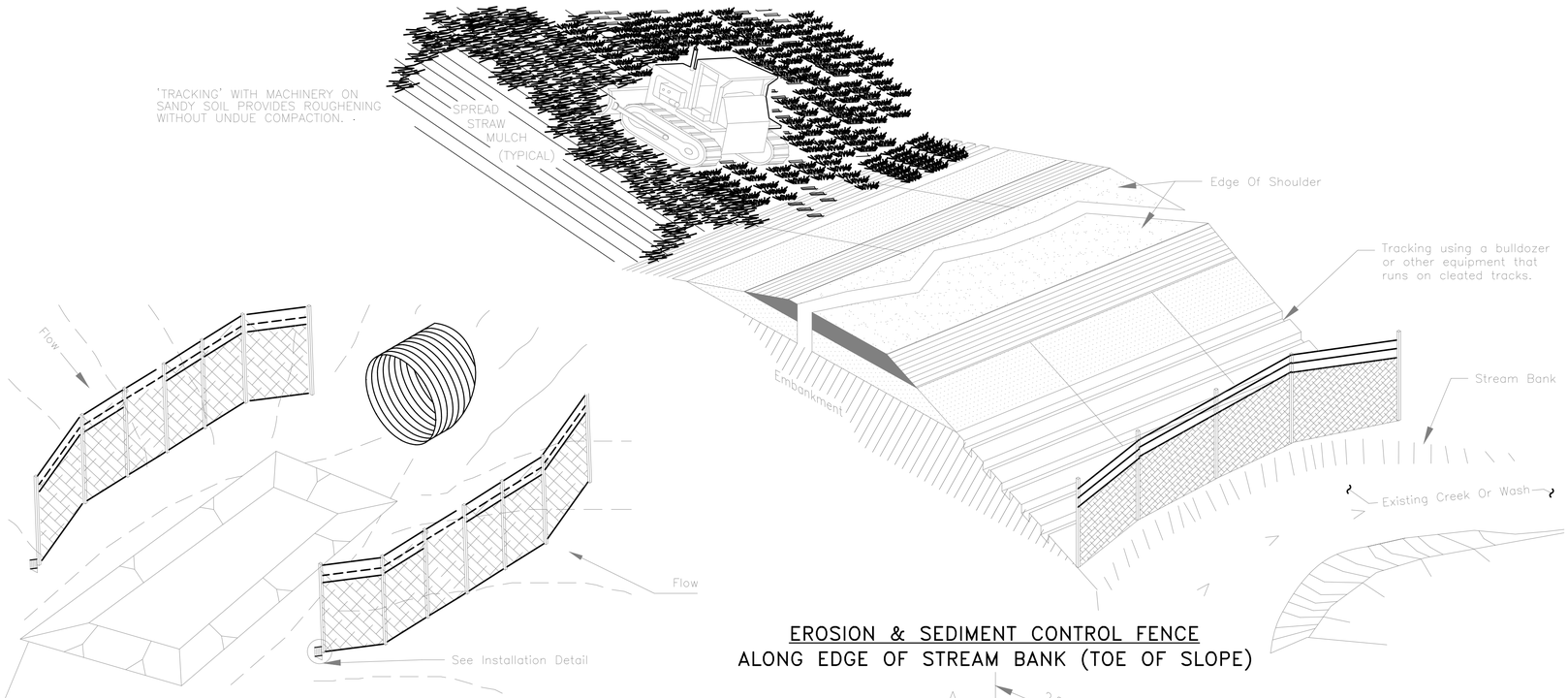
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

STANDARD GUARDRAIL

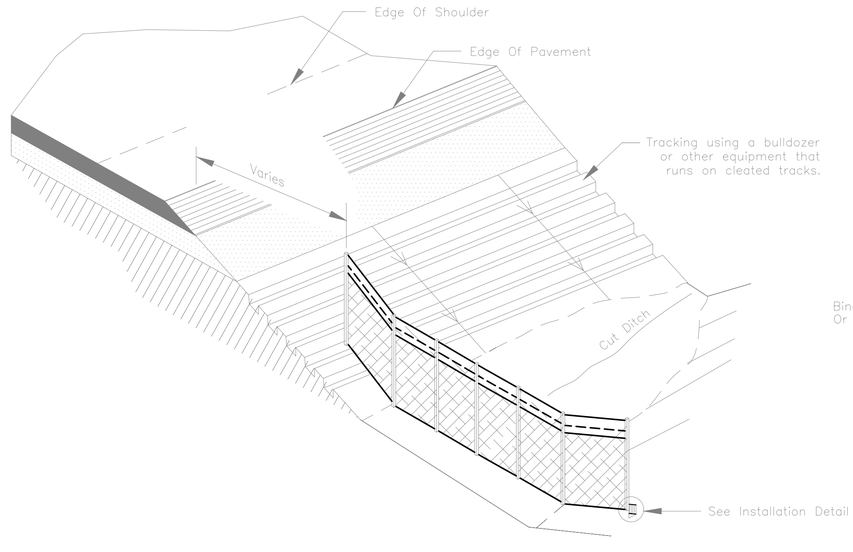
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		42 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	43

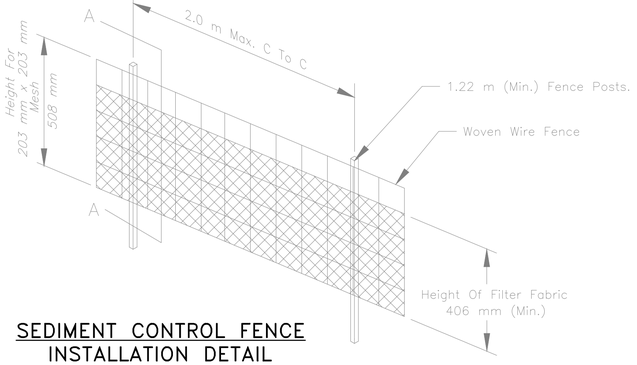


EROSION & SEDIMENT CONTROL FENCE
AT DRAINAGE STRUCTURE

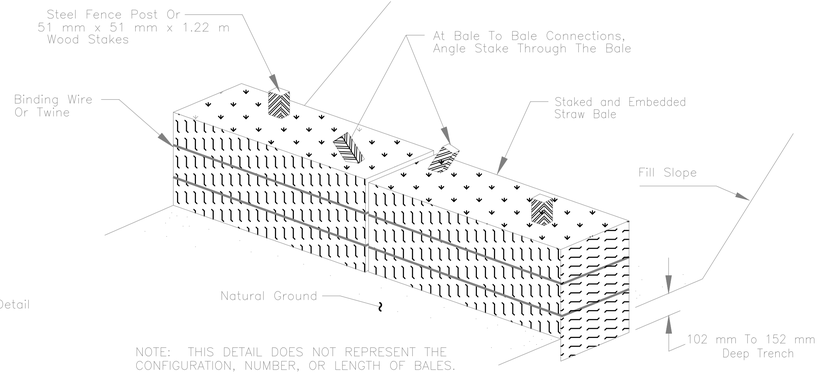
EROSION & SEDIMENT CONTROL FENCE
ALONG EDGE OF STREAM BANK (TOE OF SLOPE)



EROSION & SEDIMENT CONTROL FENCE
IN MINOR SWALES OR CUT DITCHES
(APPROX 60 m SPACING FOR FABRIC)

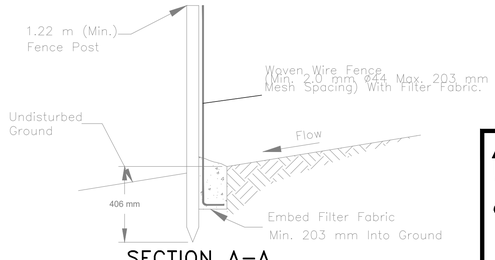


SEDIMENT CONTROL FENCE
INSTALLATION DETAIL



NOTE: THIS DETAIL DOES NOT REPRESENT THE CONFIGURATION, NUMBER, OR LENGTH OF BALES.

TYPICAL STRAW BALE STAKING
AND TRENCHING DETAIL



SECTION A–A

GENERAL NOTES

1.THE CONTRACTOR SHALL PREPARE AND SUBMIT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN FULL DETAIL FOR ALL PHASES OF THE WORK FOR REVIEW AND APPROVAL AT LEAST 14 CALENDAR DAYS BEFORE IMPLEMENTATION. THE PLAN SHALL MEET THE REQUIREMENTS HEREIN AND SECTION 157 OF THE FP–03 AS MODIFIED IN THE SUPPLEMENTAL SPECIFICATION. SEE SPECIAL CONTRACT REQUIREMENTS FOR NPDES PERMIT REQUIREMENTS.

2.THE SILT FENCING CONSISTS OF 914 mm SEDIMENT CONTROL FABRIC CLOTH WITH BURIED–TOE, AND STEEL POSTS (TEE OR U TYPE) SPACED AT 2.00 m WITH 2 mm SIZE WELDED WIRE BACK–UP FENCE.

3.WOVEN WIRE FABRIC TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 610 mm AT THE TOP AND MID–SECTION. GEOTEXTILE MATERIAL FOR SILT FENCING SHALL BE TYPE–V UNDER SUB–SECTION 714.01 OF FP–03.

4.WHEN TWO SECTION OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 152 mm AND FOLDED. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

5.SILT FENCE SHALL BE INSTALLED PARALLEL TO THE TOE OF ALL ROADWAY EMBANKMENT FILLS IN LOCATIONS WHERE THE TOE OF THE FILLS ARE WITHIN 2.0 m OF EXISTING STREAMS, CREEKS OR WASHES; IN AREAS WITH HIGHLY EROSIVE SOILS AND/OR WHERE EMBANKMENTS ARE AT A 1:3 OR STEEPER SLOPE. THE SILT FENCE SHALL BE PLACED 1 m TO 2 m DOWNHILL FROM THE TOE OF THE FILL AND IN ACCORDANCE WITH SECTION 157 OF THE FP–03 AND THE SUPPLEMENTAL SPECIFICATIONS.

6.STRAW BALES MAY BE USED AT THE TOP OF CUT BACKSLOPES AND FOR DIKES PROVIDED THEY ARE PROPERLY ANCHORED WITH STEEL FENCE POSTS OR 51 mm x 51 mm x 1.22 m WOOD STAKES (TWO PER BALE) ANCHORED 508 mm INTO THE NATURAL GROUND. STRAW BALES SHALL BE CERTIFIED 0.5% WEED FREE. DO NOT USE STRAW BALES IN AREAS OF CONCENTRATED FLOW AND CUT DITCHES.

7.FURNISHING AND PLACEMENT OF SILT FENCE MATERIAL AND OTHER EROSION CONTROL MEASURES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 15704–1000, AND/OR 15705–0100.

8.SEDIMENT/SILT FENCING SHALL BE PLACED AT ALL LOCATIONS WHERE EMBANKMENTS HAVE SLOPE DISTANCES OF 30.0 m OR GREATER. THE SEDIMENT FENCING WILL BE PLACED AT THE TOE OF SLOPES OFFSET 1–2 METERS.

9.THE CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SWPPP MEASURES WEEKLY AND AFTER EACH SIGNIFICANT STORM EVENT (I.E. 25 mm OF MOISTURE IN 24 HOURS).

10.PRIOR TO FINAL ACCEPTANCE, ALL PROJECT AREAS (AS DETERMINED BY C.O.R.) SHOWNING EROSION DAMAGE CAUSE BY THE CONTRACTOR'S FAILURE TO PROPERLY MAINTAIN HIS EROSION CONTROL STRUCTURES SHALL BE REPAIRED TO REMOVE SAID DAMAGE. ANY SPECIFIED EROSION CONTROL MATERIALS, STRUCTURES, OR DEVICES DAMAGED OR LOST DUE TO IMPROPER INSTALLATION, THE CONTRACTOR'S NEGLIGENCE OR IMPROPER MAINTENANCE, SHALL ALSO BE REPAIRED AND/OR REPLACED TO PROJECT REQUIREMENTS PRIOR TO FINAL ACCEPTANCE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO BID ITEM 15701–0000, NO ADDITIONAL PAYMENT WILL BE MADE.

11.THE STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED AT ALL DRAINAGE STRUCTURE EXTENSION AND REPLACEMENT.

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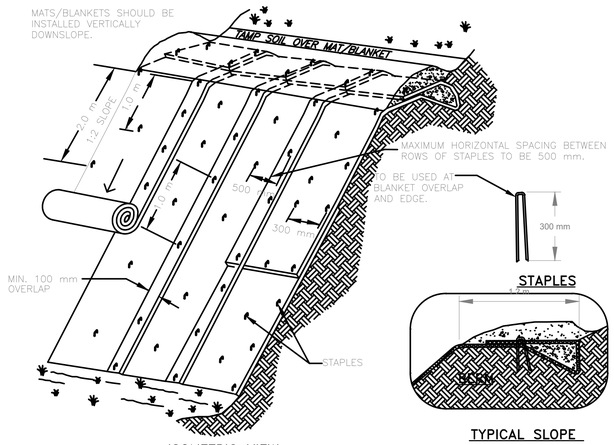
STORMWATER POLLUTION AND EROSION-SEDIMENT CONTROL DETAILS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		43 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	44



ISOMETRIC VIEW

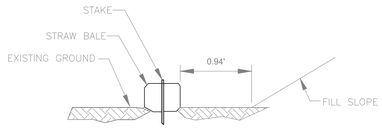
TYPICAL SLOPE SOIL STABLIZATION

EROSION BLANKETS & TURFREINFORCEMENT MATS SLOPE INSTALLATION

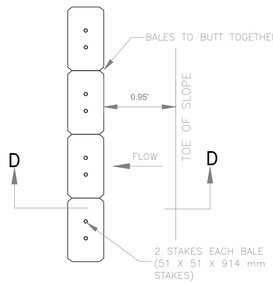
NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.

2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.

3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.



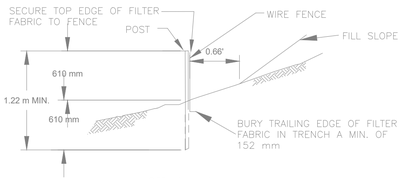
SECTION D–D
*See general notes.

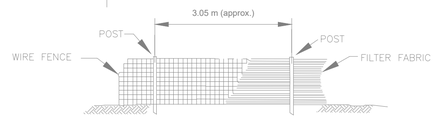


PLAN

STRAW BALE SILT BARRIER

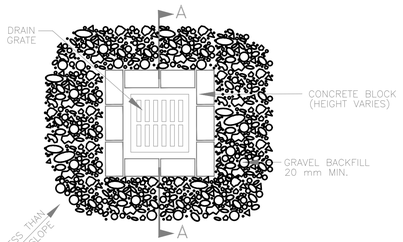
*See general notes.



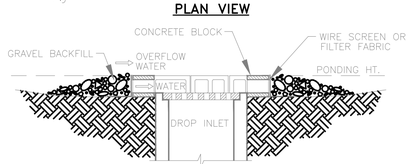


FILTER FABRIC SILT FENCE

* See general notes.



PLAN VIEW



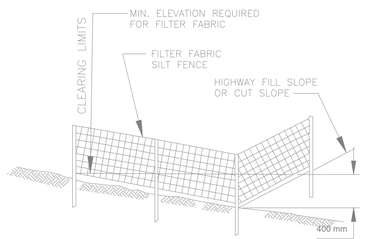
SECTION A–A

BLOCK AND GRAVEL DROP INLET SEDIMENT BARRIER

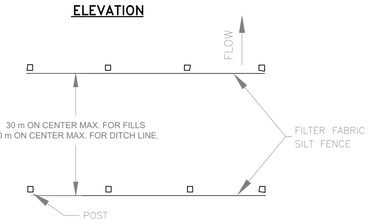
NOTES:
1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)

2. EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.

3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

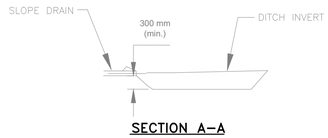


ELEVATION

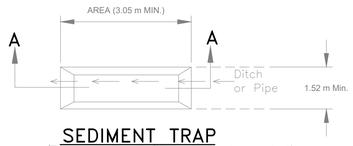


PLAN

SILT FENCE EROSION CHECK

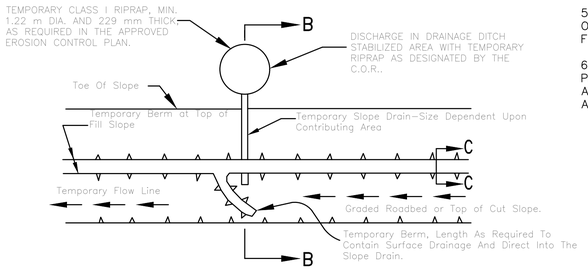


SECTION A–A
SIZE DEPENDENT UPON CONTRIBUTING

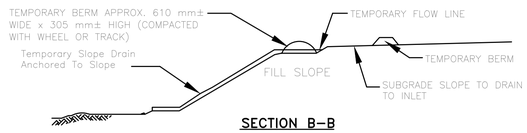


SEDIMENT TRAP

(Traps shall not fill to beyond one–half capacity prior to cleaning)



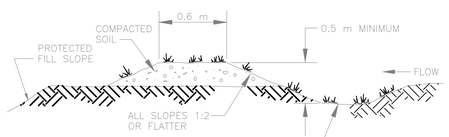
PLAN VIEW



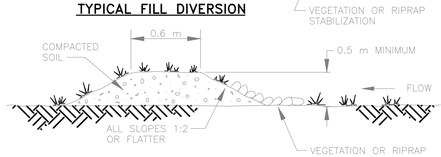
SECTION B–B

SECTION C–C

TEMPORARY SLOPE DRAIN, BERM. (FOR FILL AND CUT SLOPES) [NOTES: TEMPORARY BERMS MAY ALSO BE CONSTRUCTED OF STRAW BALES SET 104–152 mm INTO GROUND.]



TYPICAL FILL DIVERSION



TYPICAL TEMPORARY DIVERSION DIKE
(FOR TOP OF CUT BACK SLOPES.)

TEMPORARY DIVERSION DIKE

NOTES:
1. THE CHANNEL BEHINE THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET.

2. THE DIKE SHALL BE ADEQATELY COMPACTED TO PREVENT FAILURE.

3. THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP.

4. THE DIVERSION DIKE SHALL EXTEND TO THE BOTTOM OF CUT BACK SLOPE AND INTERCEPT THE CUT DITCH.

GENERAL NOTES

1. SEE SHEET 21 OF 29 FOR ADDITIONAL NOTES AND DETAILS.

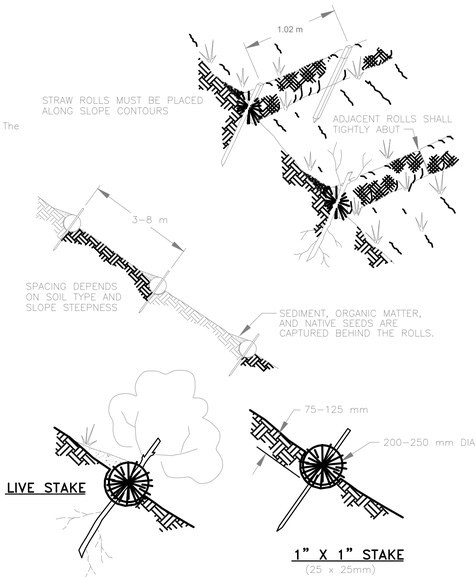
2. CONSTRUCT SEDIMENT BASIN AND TRAPS, EROSION CHECKS AND/OR FILTERS IN STRATEGIC LOCATIONS ON THE PROJECT TO FILTER STORM RUNOFF BEFORE IT LEAVES THE PROJECT CONSTRUCTION LIMITS OR ENTRIES A STREAM AS SHOWN IN THE APPROVED SWIPPP.

3. CLEAN ALL SEDIMENT BASIN AND TRAPS OF ACCUMULATED SEDIMENT WHEN HALF FULL OF SEDIMENT.

4. USE DRAIN PIPE, RIPRAP, GEOTEXTILE FABRIC, OR GRASS–LINED WATERWAY FOR TEMPORARY SLOPE DRAINS IT CHANNEL RUNOFF DOWN SLOPES, CHANNEL WATER INTO SLOPE DRAINS WITH STRAW BALES, WATTLES OR EARTH BERMS CONSTRUCTED AT THE TOP OF A CUT SLOPE. ANCHOR SLOPE DRAINS TO THE SLOPE.

5. THE CONTRACTOR SHALL ADJUST THE DIMENSIONS AND/OR LOCATIONS OF TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES TO FIT ACTUAL FIELD CONDITIONS.

6. REMOVE AND DISPOSE OF EROSION CONTROL MEASURES WHEN THE PERMANENT EROSION CONTROL MEASURES ARE SATISFACTORILY ESTABLISHED AND DRAINAGE DITCHES AND CHANNELS ARE LINED AND STABILIZED, IN ACCORDANCE WITH SECTION 157 OF FP–03.



NOTES:
1.STRAW ROLL INSTALLATION REQUIRED THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 75–125 mm DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

STRAW ROLLS

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
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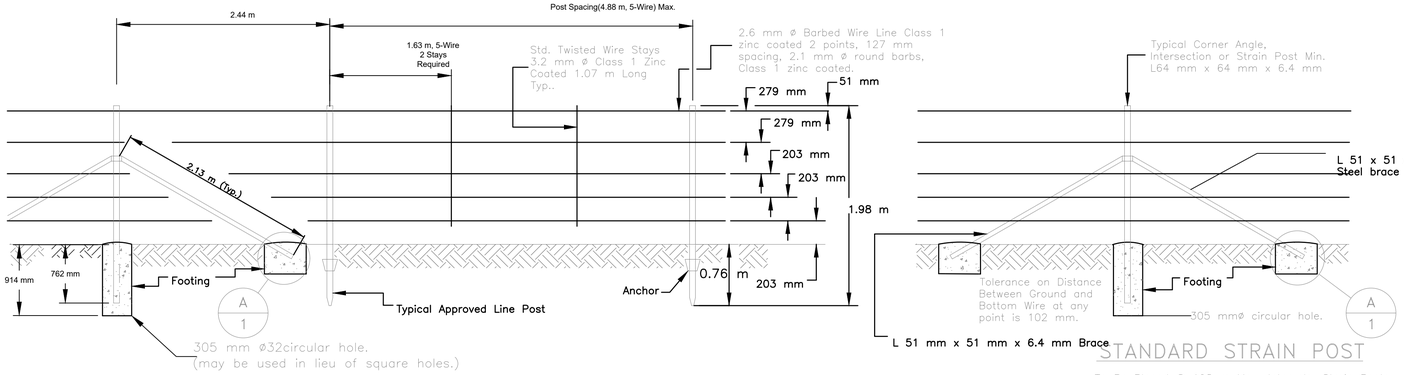
STORMWATER POLLUTION AND EROSION-SEDIMENT CONTOL DETAILS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		44 OF 74
SCALE: 1"=100' H 1"=20' V			

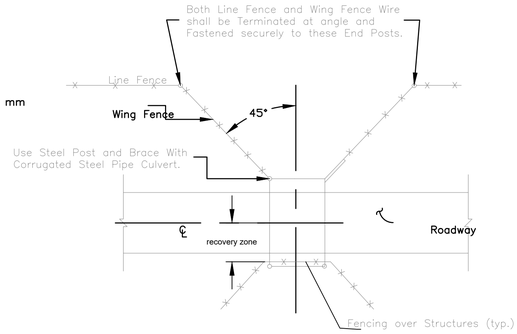
STATE	PROJECT	SHEET NUMBER
NM	N13	45



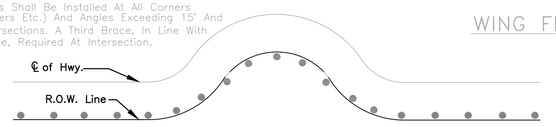
STANDARD 5 LINE GALVANIZED BARBED WIRE PANEL

STANDARD STRAIN POST

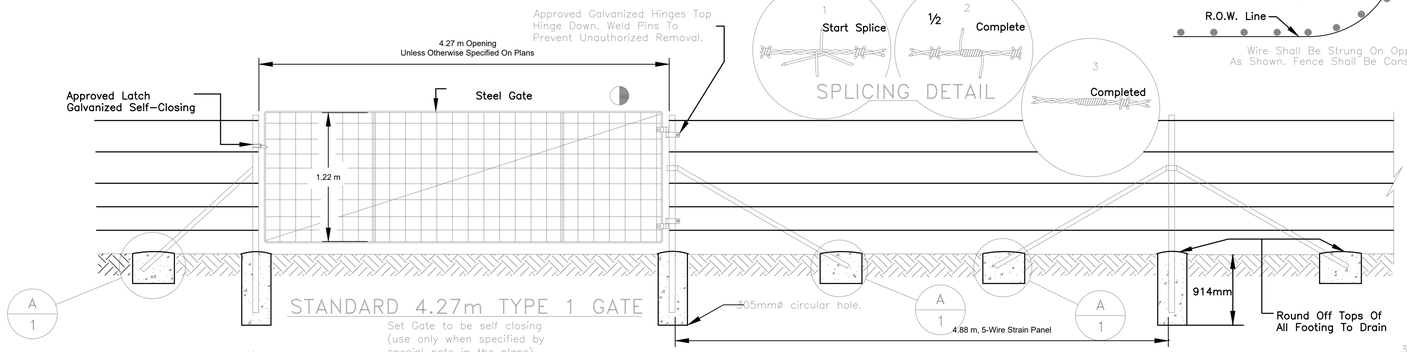
To Be Placed @ 198 m Max. Intervals. Strain Posts With Braces Shall Be Installed At All Corners (R/W Corners Etc.) And Angles Exceeding 15° And Fence Intersections. A Third Brace, In Line With Cross Fence, Required At Intersection.



WING FENCE DETAIL



Wire Shall Be Strung On Opposite Side Of Post From Highway Except On Curve As Shown. Fence Shall Be Constructed 305 mm Inside Right-Of-Way Line.



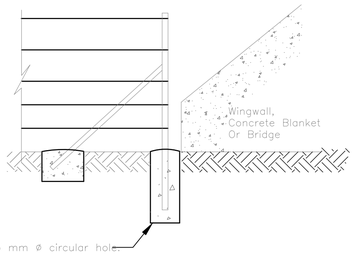
STANDARD 4.27m TYPE 1 GATE

Set Gate to be self closing (use only when specified by special note in the plans)

For Gate Details at Cattle guard location see standard cattle guard drawings.

SPLICING DETAIL

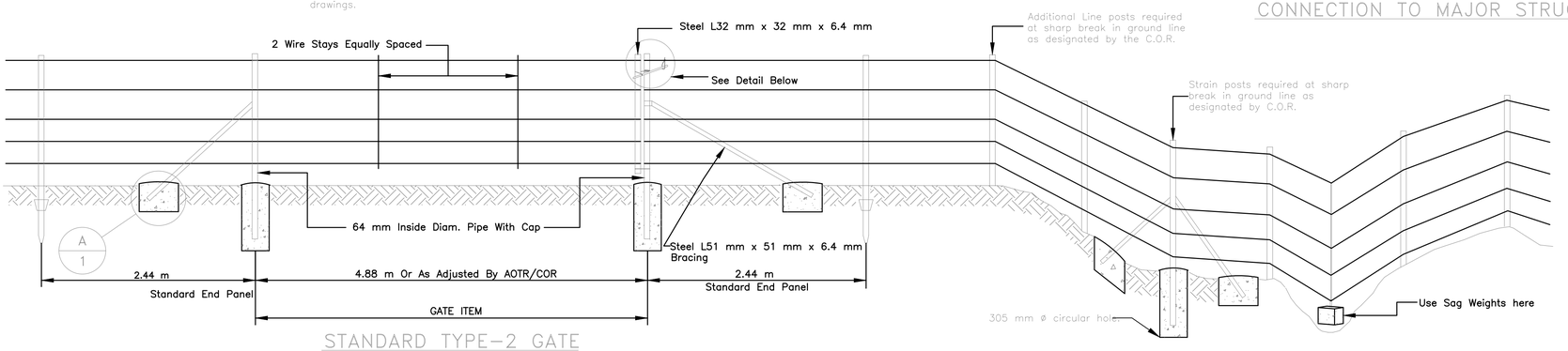
35 mm ø Tubing 2 Vert. Braces Mesh □, △, ◇, 3.2 mm ø Line Wires 2.6 mm ø Crosswires. 1 Adjustable Diagonal Guy Fully Galvanized.



END POST

CONNECTION TO MAJOR STRUCTURES

NOTES: When Tubular Post Hangers and/or Latches are used, It shall be drilled for a single 2.38 mm ø Min. drive pin to prevent rotation of the hangers and/or latches.

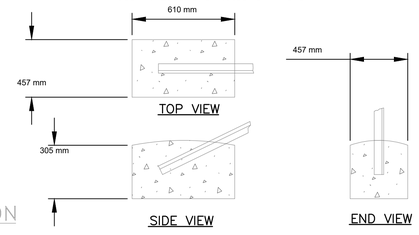


STANDARD TYPE-2 GATE

Use At Locations Noted On Plans

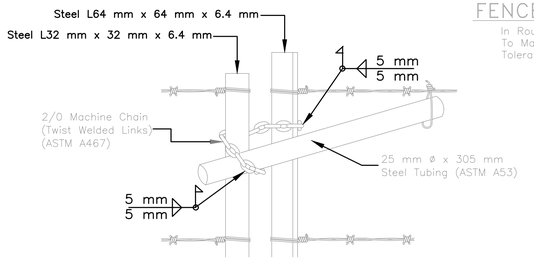
FENCE PROFILE IN ROUGH TERRAIN

In Rough Terrain Post Spacing Shall Be Reduced Where Necessary To Maintain Required Spacing Below Bottom Wire Within The Tolerance Allowed.

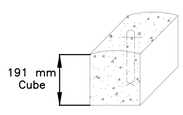


TYPICAL STEEL POST SECTION

CONCRETE FOOTING FOR CORNER & STRAIN POST (A 1)



GATE SECURING DETAIL



38 mm x 127 mm Doubled and Twisted 3.8 mm(dia.) Wire Loop Centered in Block. 25.4 mm Projection Twisted Ends Down.

CONCRETE SAG WEIGHT DETAIL

Min. Weight Of Concrete Sag Shall Be 16 kg.

GENERAL NOTES

1. CORNER, GATE, INTERMEDIATE BRACE POSTS AND LINE POSTS SHALL BE EITHER GALVANIZED OR PAINTED IN ACCORDANCE WITH AASHTO M 281-96. METAL POST AND BRACES SHALL BE FABRICATED FROM RAIL, BILLET, OR COMMERCIAL GRADE STEEL CONFORMING WITH THE REQUIREMENT OF ASTM A 702.

2. LINE POSTS SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO M 281-96, AND SHALL BE A NOMINAL WEIGHT OF 1.98 kg/m EXCLUSIVE OF ANCHOR PLATES. ANCHOR PLATES SHALL BE CLAMPED, WELDED OR RIVETED TO THE SECTION IN SUCH A MANNER AS TO PREVENT DISPLACEMENT WHEN THE POSTS ARE DRIVEN.

3. WHEN LINE POST ANCHORS ARE OMITTED, DUE TO CHANGE IN SOIL CONDITIONS SUCH AS ROCK, THEN THE POSTS SHALL BE SET IN CONCRETE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-0600.

4. TIE WIRE, WIRE FASTENERS OR WIRE CLIPS FOR FASTENING BARBED AND WOVEN FABRIC FENCING TO THE STEEL POSTS SHALL BE 3.0 mm DIA. STEEL WIRE, CLASS 1 (ZINC COATED), SOFT TEMPER AND MEET THE REQUIREMENTS OF ASTM A 641. FURNISHING AND PLACEMENT OF FASTENERS SHALL BE INCLUDED WITH ITEM 61901-0600.

5. CONCRETE FOR ANCHORS, POST HOLES, ETC. SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa IN 28 DAYS AND SHALL CONFORM TO SECTION 601 OF THE FP-03. FURNISHING AND PLACEMENT OF CONCRETE SHALL BE INCLUDED WITH ITEM 61901-0600.

6. TWO SPLICES ON THE SAME LINE BETWEEN THE STRAIN POST ASSEMBLIES SHALL NOT BE PERMITTED. NO SPLICES SHALL BE PLACED CLOSER THAN 30 METER OF ANY POST ASSEMBLIES.

7. CONNECT ALL R.O.W. FENCING TO CATTLE GUARDS, CULVERTS (GREATER THAN 1524 mm DIA.), AND CONCRETE STRUCTURES AS SHOWN ON THESE PLANS, AND/OR AS DIRECTED BY THE C.O.R.

8. ANY CONFLICT IN PLACEMENT OF THE R/W FENCING AT DRAINAGE PIPE LOCATION, DUE TO NARROW R/W WIDTH OR OTHER CONSTRICTIONS, THE FENCE MAY BE PLACED OVER THE DRAINAGE STRUCTURE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-0600.

9. CLEARING AND GRUBBING SHALL INCLUDE SHAPING AND/OR REMOVAL OF SMALL MOUNDS NECESSARY TO PRESENT A SMOOTH UNIFORM APPEARANCE OF BOTH GROUND AND FENCING LINE. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.

10. ALL DRILLING INTO ROCK MATERIAL, ETC. SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.

11. GATE CLOSURE DEVICE SHALL BE STEEL PIPE, NPS 3/4 (26.7 mmø) SCHEDULE 40, CONFORMING TO THE REQUIREMENT OF ASTM A 53. THE GATE CLOSURE STEEL CHAIN SHALL BE WELDED TO THE STEEL PIPE AND ANGLE IRON FENCE POST. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.

12. CONTRACTOR SHALL BE REQUIRED TO INSTALL SAG WEIGHTS WHERE VERTICAL CLEARANCE BETWEEN THE BOTTOM WIRE AND NATURAL GROUND IS 610 mm OR GREATER. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING.

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06/09/2025

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DIVISION OF TRANSPORTATION

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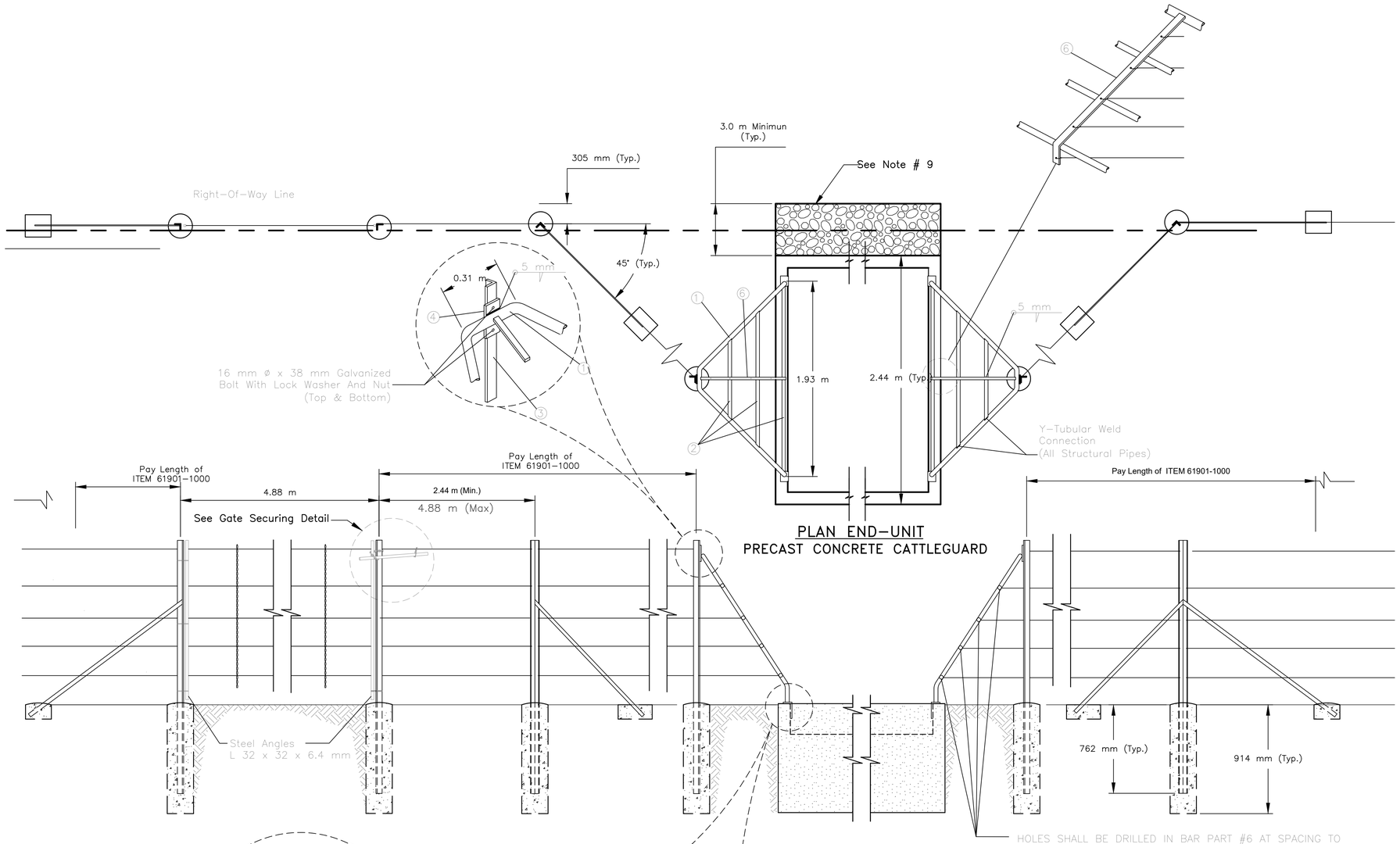
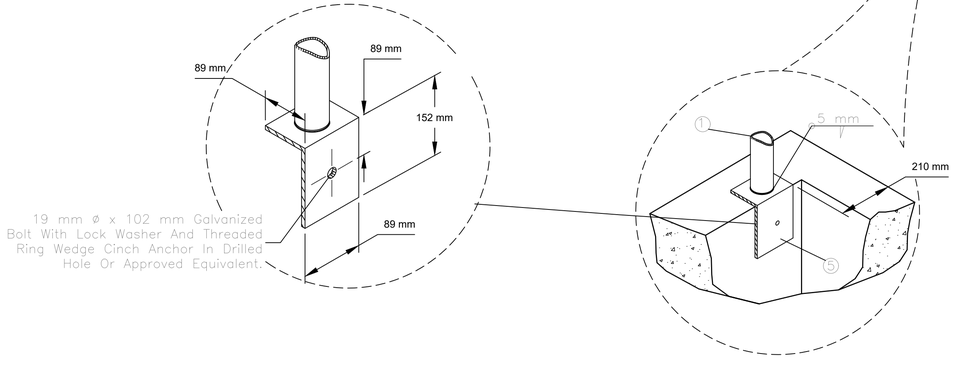
STANDARD FENCING DETAILS

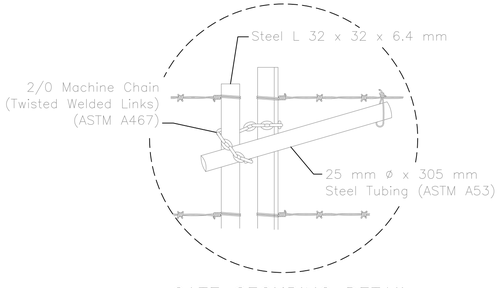
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		45 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	46



PLAN END-UNIT
PRECAST CONCRETE CATTLEGUARD





GATE SECURING DETAIL

GENERAL NOTES

1. STRUCTURAL PIPE SHALL CONFORM TO ASTM A53-93A, GRADE B. ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO ASTM-A36.

2. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111 (ASTM A123).

3. ALL WING-BRACE STRUCTURAL STEEL/PIPE SHALL RECEIVE ONE (1) PRIMER COAT, ONE (1) INTERMEDIATE COAT AND ONE (1) FINISH COAT IN ACCORDANCE WITH SECTION 563, PAINT SYSTEM 2, OF THE FP-03.

4. ALL STRUCTURAL PIPE JOINTS SHALL BE FABRICATED IN ACCORDANCE WITH AISC MANUAL OF STEEL CONSTRUCTION, NINTH EDITION.

5. WELDING: WELDING DESIGN DETAILS SHALL CONFORM TO AASHTO STANDARD SPECIFICATIONS FOR WELDING AT STRUCTURAL STEEL HIGHWAY BRIDGES, 1983. SECTION 1.7.21.

6. THE TWO SUPPORTING WING-BRACE POSTS (PART NO. 3) AND THE TYPE-II GATE SHALL BE SUBSIDIARY ITEMS TO THE CATTLE GUARD ITEM(S).

7. THE TYPICAL LENGTH OF THE SUPPORTING WING BRACE POSTS (PART NO. 3) SHALL BE 2.3 m. UNDER CERTAIN CONDITIONS THE LENGTH OF THE POST MAY NEED TO BE LENGTHENED TO FULLY SUPPORT THE WING BRACE. THE NEED FOR LONGER BRACE POST SHALL BE INCIDENTAL TO THE CATTLE GUARD BID ITEM.

8. THE C.O.R. MAY ADJUST THE FINISH CATTLE GUARD ELEVATIONS AS NEEDED TO FIT FIELD CONDITIONS. THE CONTRACTOR SHALL RE-GRADE THE ADJOINING TURNOUT APPROACHES AS REQUIRED. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61903-0310. IF SURROUNDING TOPOGRAPHY ALLOWS AND IF DIRECTED BY THE C.O.R., THE CONTRACTOR SHALL CONSTRUCT A FURROW DITCH TO DRAIN THE CATTLE GUARD. THIS WORK TO BE PAID UNDER BID ITEM 20425-2000.

9. PLACEMENT OF PAVEMENT SURFACING BEHIND CATTLEGUARD UP TO RIGHT-OF-WAY LINE.

a.CATTLEGUARD, 4900 mm WITH 4.5 m WIDE TURNOUTS. PLACE 102 mm AGGREGATE BASE COURSE ONLY.

b.CATTLEGUARD, 7190 mm WITH 7.0 m WIDE TURNOUTS. PLACE 51 mm AGGREGATE BASE WITH ASPHALT.

c.OVER CATTLEGUARD, 9480 mm WITH 9.1 m WIDE TURN-OUTS. PLACE AGGREGATE BASE WITH ASPHALT.

10. THE CONTRACTOR SHALL PLACE TAPERED SURFACING COURSES TO MATCH THE MAINLINE EDGE OF PAVEMENT ELEVATIONS THIS SURFACING PLACEMENT AND ADJUSTMENT SHALL BE PAID FOR UNDER ITEM 40401-0000.

11WING BRACE ASSEMBLIES SHALL INCLUDE PARTS NUMBERED 1 THROUGH 6, AND RELATED FENCING, BOLTS AND CONCRETE.

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DIVISION OF TRANSPORTATION

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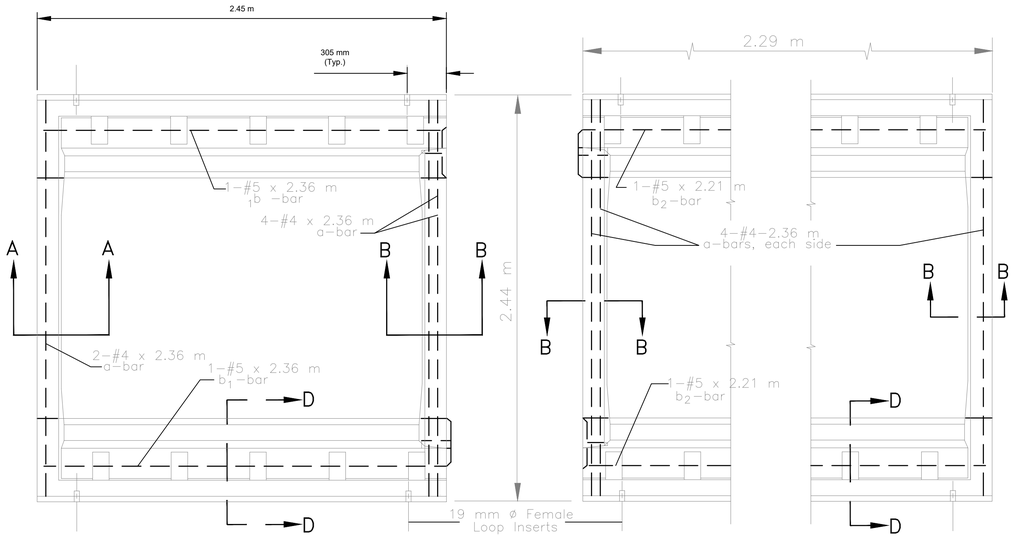
CATTLE GUARD AND WING BRACE DETAILS

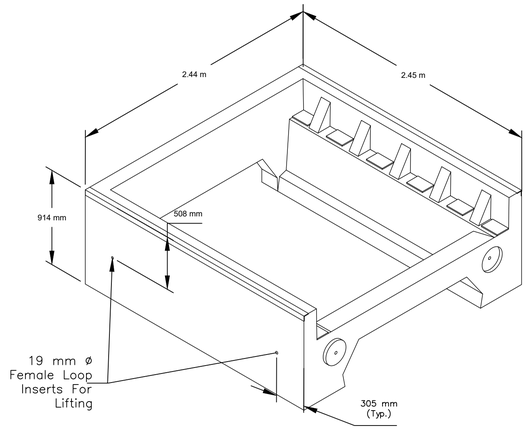
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		46 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	47



PLAN – END UNIT

PLAN – INTERMEDIATE UNIT

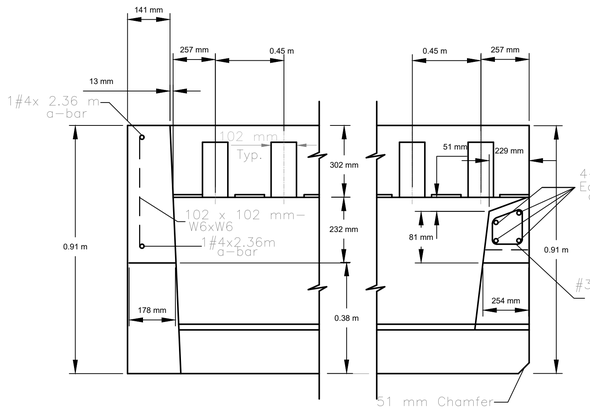


ISOMETRIC VIEW – END UNIT

GENERAL NOTES

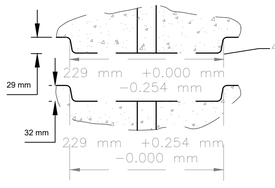
1. PRECAST CONCRETE SHALL ATTAIN A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 27.6 MPa AS DETERMINED IN ACCORDANCE WITH AASHTO T22 (ASTM C–39). THE CONCRETE SHALL BE CLASS A(AE) CONFORMING TO SECTION 552 OF THE FP–03.
2. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615 GRADE 40. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M–183.
3. EACH UNIT SHALL CONFORM TO THE AASHTO H20–44 LOADING REQUIREMENTS.
4. EACH UNIT SHALL BE FABRICATED TO CONFORM TO THE ROADWAY CROWN AS SHOWN ON THE PLANS AND/OR AS DESIGNATED BY THE COR/AOTR
5. BOLTS, WASHERS, NUTS, & ANGLES SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M–111.
6. ALL TRAFFIC GRILL UNITS SHALL BE SHOP PAINTED WITH ONE (1) PRIMER COAT, ONE (1) INTERMEDIATE COAT, ONE (1) FINISH COAT IN ACCORDANCE WITH SECTION 563, PAINT SYSTEM 2.
7. ALL WING BRACES SHALL BE CONSIDERED SUBSIDIARY ITEMS TO THE CATTLEGUARD UNITS.
8. FOUNDATION MATERIALS, & COMPACTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 208 AND SUBSECTION 204.11 OF THE FP–03.
9. THE FABRICATOR SHALL BE REQUIRED TO SUBMIT, AT LEAST FOUR (4) WEEKS PRIOR TO FABRICATION, ALL SHOP DRAWING DETAILS FOR THE CATTLEGUARD UNITS AND WING BRACING FOR REVIEW AND APPROVAL AS CALLED FOR IN SECTION 104.03 OF THE FP–03. THE CATTLEGUARD UNITS & WING BRACES MAY BE ACCEPTED BY A CERTIFICATE OF COMPLIANCE FROM THE FABRICATOR AT THE DISCRETION OF THE COR/AOTR. IF THE COR/AOTR DETERMINES THAT THE CATTLEGUARD UNITS APPEAR TO BE OUT OF COMPLIANCE, THEN THE COR/AOTR RESERVES THE RIGHT TO REQUEST THAT ALL MILL TEST REPORTS, PAINT TESTING DATA, CONCRETE MIX DESIGNS, CONCRETE TEST REPORTS, AND ANY OTHER CERTIFICATES OF COMPLIANCE BE SUBMITTED FOR REVIEW AND APPROVAL AS CALLED FOR UNDER SECTION 106.03. IF SUCH INFORMATION CANNOT BE SUPPLIED, THEN ALL CATTLEGUARD UNITS ARE SUBJECT TO REJECTION AND NO PAYMENT WILL BE MADE.
10. THE CONTRACTOR HAS THE OPTION TO USE ALL STEEL FRAME CATTLEGUARD, PROVIDED THE CONTRACTOR CAN SHOW THEM TO BE COST EFFECTIVE WITH COST/BENEFIT ANALYSIS.

REINFORCING STEEL SCHEDULE

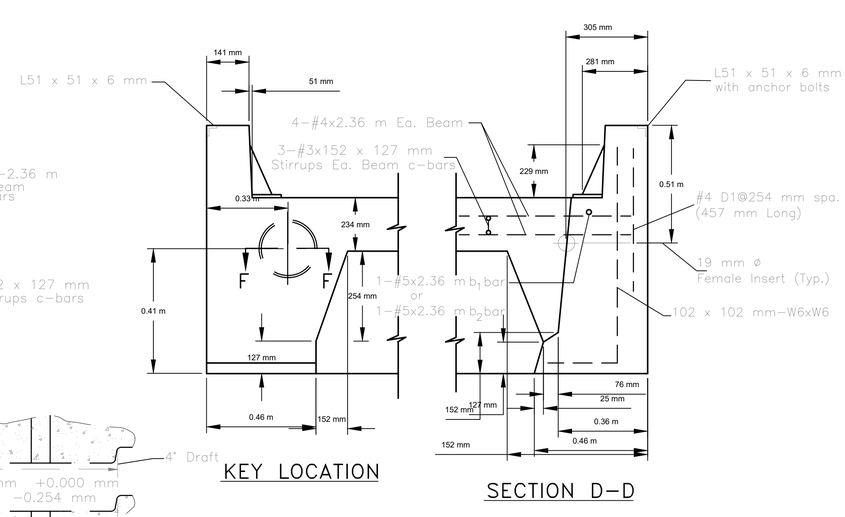


SECTION A–A

SECTION B–B

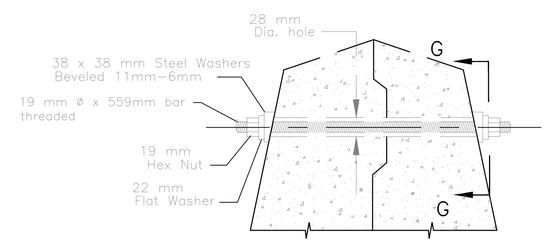


SECTION F–F

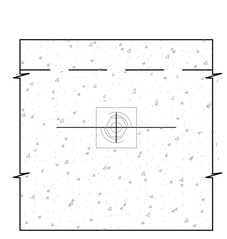


KEY LOCATION

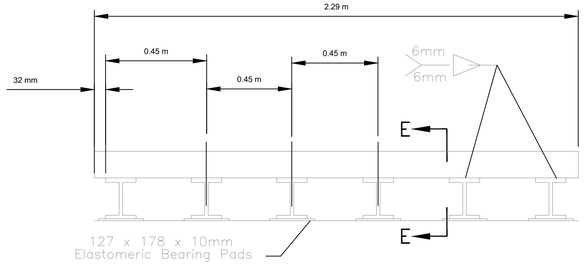
SECTION D–D



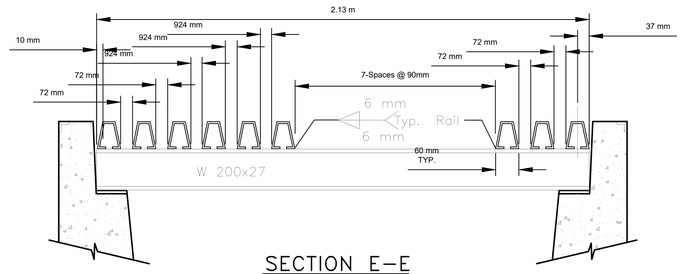
TIE BOLT DETAIL



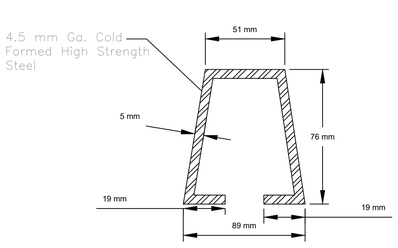
SECTION G–G



TRAFFIC GRILLE UNIT



SECTION E–E



STEEL CROSSBAR SECTION

15 Req'd for 1 Grid

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

MYRA K. CANDELARIA NEW MEXICO 25660 PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

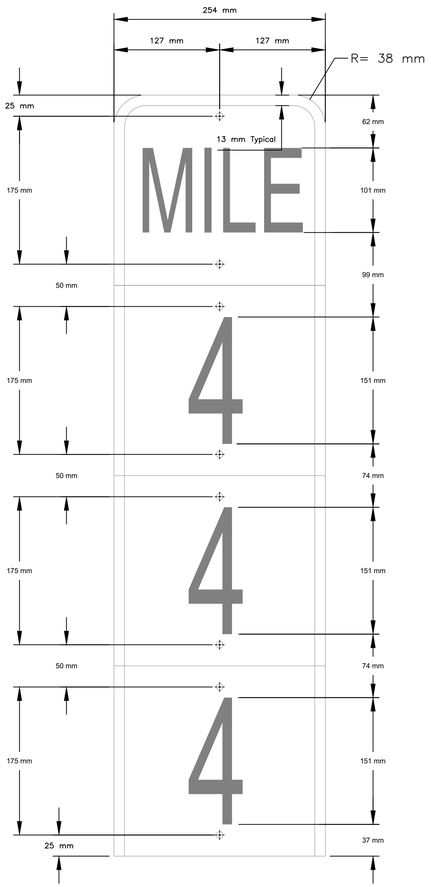
NAVAJO NATION
DIVISION OF TRANSPORTATION

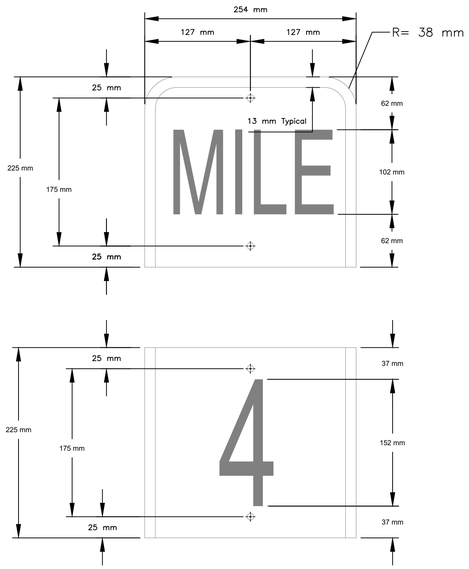
N13(3-3)1,4

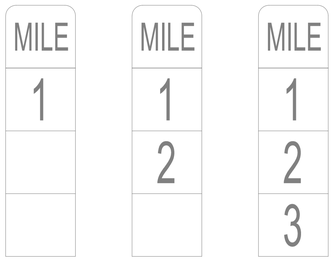
PRE-CAST CONCRETE CATTLE GUARD DETAIL

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		47 OF 74
SCALE: 1"=100' H 1"=20' V			

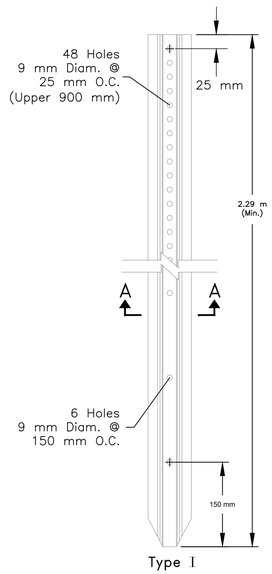
STATE	PROJECT	SHEET NUMBER
NM	N13	48







STANDARD NUMERAL POSITION



GALVANIZED STEEL POSTS

ITEM No 63318-1000 MILEPOST
1-POST & HARDWARE: 2.98 kg/m

STATION	LOCATION	DESCRIPTION	QUANTITY (Ea.)
		MILES	ENGLISH
10+04.52	Lt. & Rt.	23	2
62+59.32	Lt. & Rt.	24	2
151+98.94	Lt. & Rt.	1	2
204+78.94	Lt. & Rt.	2	2
257+58.94	Lt. & Rt.	3	2
310+38.94	Lt. & Rt.	4	2
363+18.94	Lt. & Rt.	5	2
415+98.94	Lt. & Rt.	6	2
468+78.94	Lt. & Rt.	7	2
521+58.94	Lt. & Rt.	8	2
574+38.94	Lt. & Rt.	9	2
		PROJECT TOTAL	22
		PROJECT USE	22

GENERAL NOTES

1. THE MILEPOSTS SHALL BE PLACED ON BOTH SIDE OF THE ROADWAY WITH ENGLISH UNITS PANEL ON APPROACHING TRAFFIC.

2. MILEPOST PLATES SHALL BE FABRICATED FROM 16 GAGE 3003 H14, 5052–H38 OR 6061–T6 ALUMINUM SHEET.

3. ALL SURFACES TO BE COVERED WITH REFLECTIVE SHEETING SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SHEETING MANUFACTURER.

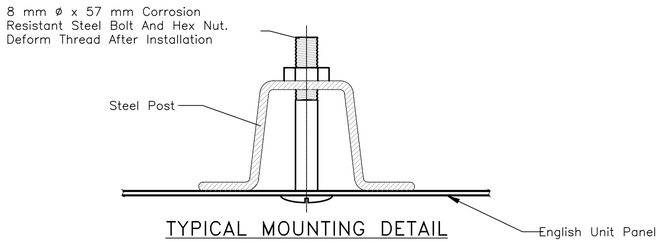
4. THE BORDER AND LEGEND SHALL BE STANDARD REFLECTIVITY SILVER–WHITE. THE BACKGROUND SHALL BE STANDARD REFLECTIVITY GREEN AND MAY BE REVERSE SILK–SCREENED.

5. THE BACK SIDE OF THE ALUMINUM SHEETS SHALL BE ETCHED BY APPROVED METHODS TO REDUCE GLARE FROM REFLECTED SUNLIGHT.

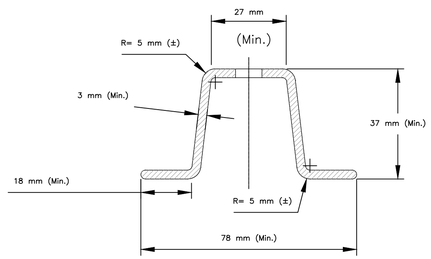
6. STEEL POSTS SHALL CONFORM TO A.S.T.M.–A570 GRADE 30,36 OR 40 AND SHALL NOT WEIGH LESS THAN 2.98 kg/m. THEY SHALL BE GALVANIZED TO CONFORM TO A.S.T.M.–A123 OR EPOXY COATED PER NOTE 8 OF SHEET 40.

7. THE OFFSET DISTANCE SHALL BE 305 mm BEHIND THE CUT DITCH ON THE BACK SLOPE BUT NOT MORE THAN 6.1 m FROM THE EDGE OF THE PAVEMENT. IN FILL SECTION THE OFFSET SHALL BE AT THE HINGE POINT (OR AT THE EDGE OF CLEAR RECOVERY ZONE). OFFSET DISTANCE MAY HAVE TO VARY TO FIT EXISTING CROSS SECTION. AT GUARDRAIL LOCATIONS, THE OFFSET SHALL LINE UP WITH THE GUARDRAIL POSTS.

8. POST LENGTH SHALL BE DETERMINED IN FIELD BASED ON FINISHED GROUND ELEVATIONS AT SPECIFIED POST LOCATION AND EDGE OF PAVEMENT ELEVATION.

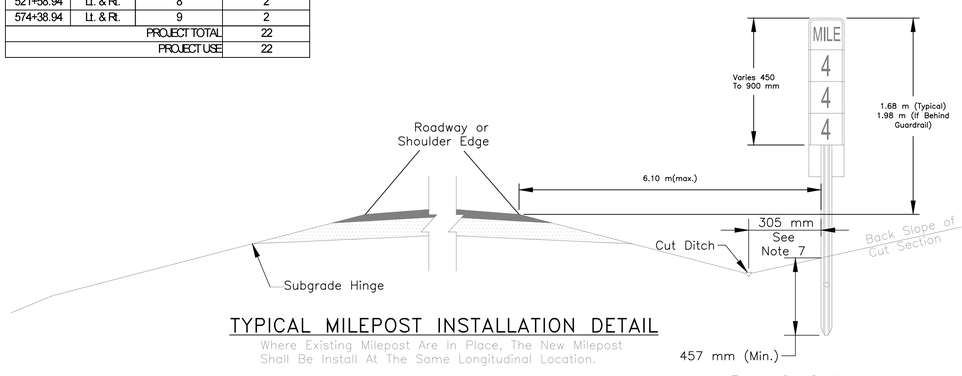


TYPICAL MOUNTING DETAIL
FOR BACKPLATE



SECTION A–A

English



TYPICAL MILEPOST INSTALLATION DETAIL

Where Existing Milepost Are In Place, The New Milepost Shall Be Install At The Same Longitudinal Location.

Typical Cut Section Installation

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

MYRA K. CANDELARIA NEW MEXICO 25660 PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

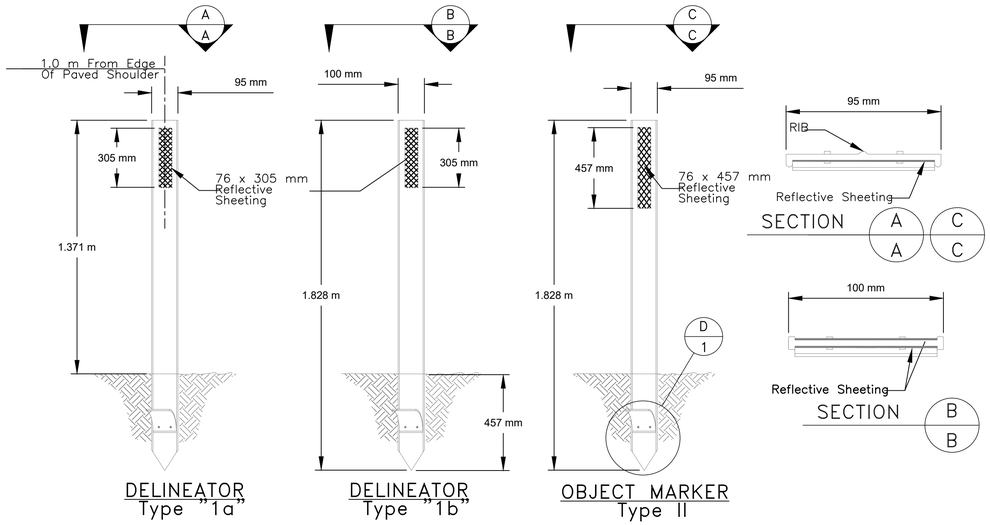
N13(3-3)1,4

STANDARD MILE POST DETAILS

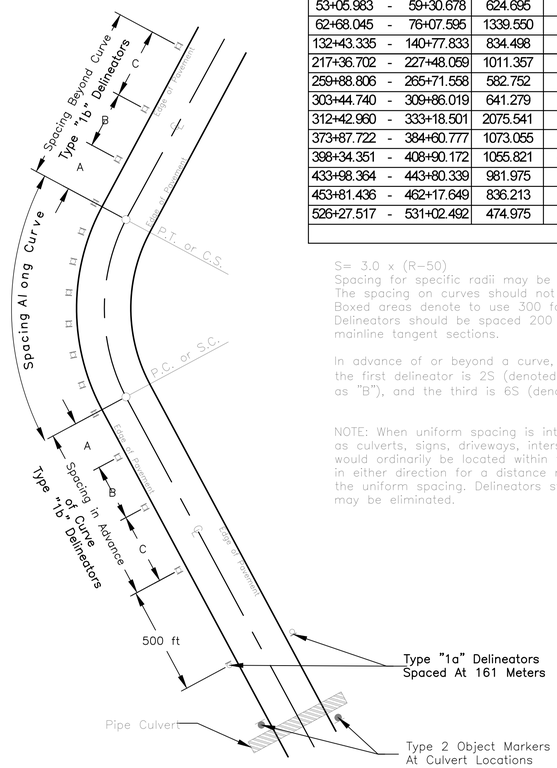
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		48 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	49

GLASS FIBER TYPE DELINEATOR AND OBJECT MARKER



TYPE	POST COLOR	HIGH INTENSITY REFLECTIVE SHEETING
1a	WHITE	WHITE, ONE SIDE
1b	WHITE	WHITE, BOTH SIDES
2	YELLOW	AMBER, ONE SIDE



63309-0000: DELINEATOR, TYPE 1

STATION	TO	STATION	LENGTH OF CURVE (FT)	RADIUS (R) OF CURVE (FT)	SPACING (S) ON CURVE (FT)	LOC.	TYPE 1a	TYPE 1b
13+74.740	-	18+53.560	478.820	3553.337	178	LT	4	9
40+36.418	-	50+06.188	969.770	1432.426	112	RT	4	15
53+05.983	-	59+30.678	624.695	1060.204	95	RT	4	13
62+68.045	-	76+07.595	1339.550	2310.795	143	RT	4	16
132+43.335	-	140+77.833	834.498	3802.696	184	RT	4	11
217+36.702	-	227+48.059	1011.357	1011.358	93	RT	4	17
259+88.806	-	265+71.558	582.752	1453.53	112	LT	4	12
303+44.740	-	309+86.019	641.279	769.437	80	RT	4	14
312+42.960	-	333+18.501	2075.541	1634.345	119	LT	4	24
373+87.722	-	384+60.777	1073.055	3874.258	186	RT	4	12
398+34.351	-	408+90.172	1055.821	42007.257	615	RT	4	10
433+98.364	-	443+80.339	981.975	1438.534	112	LT	4	15
453+81.436	-	462+17.649	836.213	2348.995	144	RT	4	12
526+27.517	-	531+02.492	474.975	5129.595	214	RT	4	9
						PROJECT TOTAL	56	189

S= 3.0 x (R−50)
Spacing for specific radii may be interpolated from table.
The spacing on curves should not exceed 300 feet.
Boxed areas denote to use 300 foot spacings.
Delineators should be spaced 200 to 530 feet apart on mainline tangent sections.

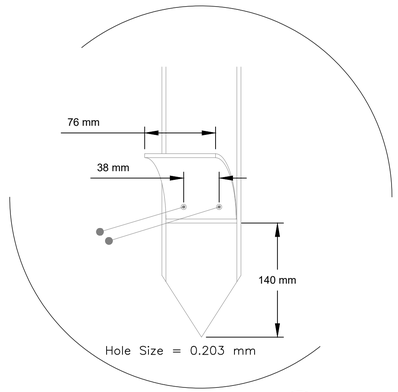
In advance of or beyond a curve, and proceeding away from a curve, the spacing of the first delineator is 2S (denoted as "A" in the diagram), the second is 3S (denoted as "B"), and the third is 6S (denoted as "C"), but not to exceed 300 feet.

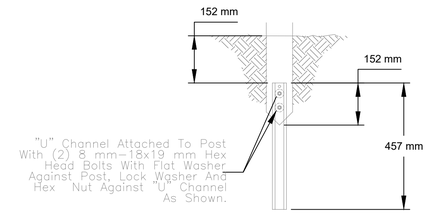
NOTE: When uniform spacing is interrupted by such features as culverts, signs, driveways, intersections, delineators which would ordinarily be located within the features may be relocated in either direction for a distance not exceeding one quarter of the uniform spacing. Delineators still falling within such features may be eliminated.

GENERAL NOTES

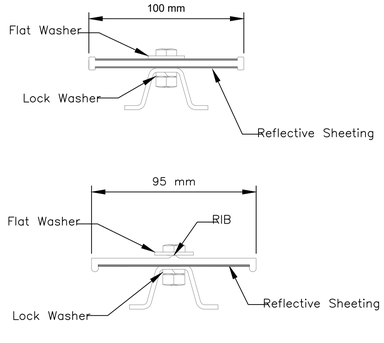
1..THE CONTRACTOR HAS THE OPTION TO USE AN APPROVED STATE PAINT SPECIFICATIONS IN LIEU OF THAT STATED. THE CONTRACTOR SHALL SUBMIT (IN WRITING) THE PAINT SPECIFICATIONS AND REQUEST FOR USE ON THE PROJECT AT LEAST 14 DAYS IN ADVANCE OF THE PAINT USE FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL NOT BE ALLOWED TO USE ANY PAINT UNTIL THE PROPER APPROVAL HAS BEEN GIVEN BY THE CONTRACTING OFFICER. ANY PAINTING PERFORMED BY THE CONTRACTOR WITHOUT THE PROPER APPROVAL SHALL BE CAUSE FOR THE WORK TO BE REJECTED.

2..THE CONTRACTOR HAS THE OPTION TO EITHER USE GLASS FIBER OR PLASTIC TYPE HIGHWAY DELINEATORS, BUT SHALL NOT USE A COMBINATION OF BOTH. THE COST OF SUPPLYING MATERIALS AND INSTALLATION OF U−CHANNEL SHALL BE INCLUDED IN THE UNIT PRICE BID UNDER ITEM 63308−2000, 63309−0010, AND 63309−0020.

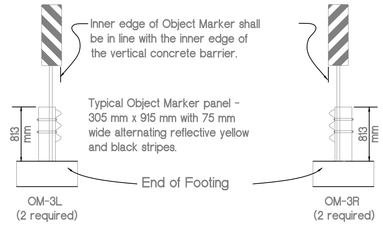




ALTERNATE DETAIL



NOTE: Place Type 3 Object Markers between Concrete Barrier Transition and first Thrie-beam Transition post. If this is not possible, place between first and second post.



TYPE 3 OBJECT MARKER INSTALLATION

63308-2000: OBJECT MARKERS, TYPE 2

DESCRIPTION	QUANTITY	UNIT
Object Markers, Type 2 with 1 post and hardware: 2.98 kg/m	84	EACH
TOTAL TYPE 3 OBJ. MARKERS	84	EACH

NOTE: Two Type 2 Object Markers at each Culvert

63308-3000: OBJECT MARKERS, TYPE 3

DESCRIPTION	QUANTITY	UNIT
Object Markers, Type 3 with 1 post and hardware: 2.98 kg/m	8	EACH
TOTAL TYPE 3 OBJ. MARKERS	8	EACH

NOTE: Four Type 3 Object Markers at each OBC.

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

MYRA K. CANDELARIA NEW MEXICO 25660 PROFESSIONAL ENGINEER
06/09/2025

REVISION	BY	DATE

NAVAJO NATION
DIVISION OF TRANSPORTATION

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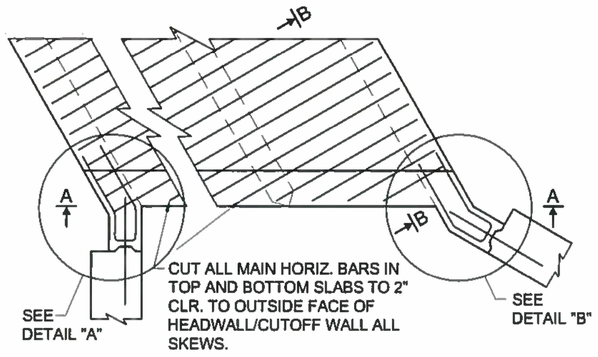
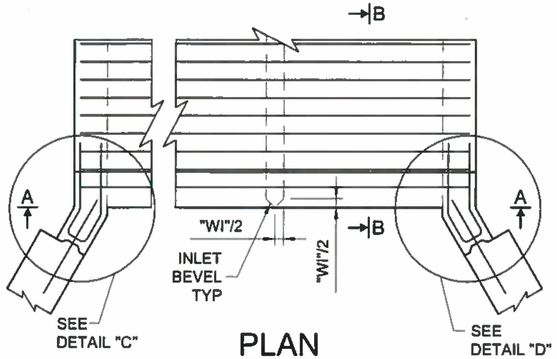
MISCELLANEOUS DETAILS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		49 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	50

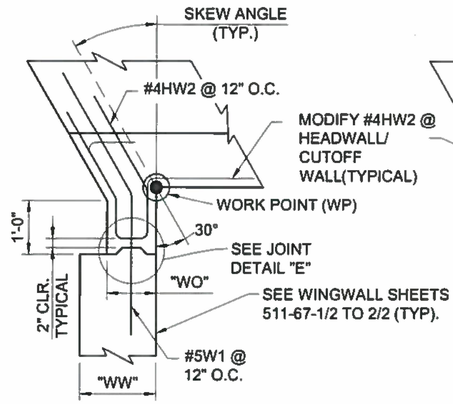


PLAN
(SKEWED)
SIMILAR FOR SINGLE BARREL
(NOT TO BE USED FOR SKEWS OVER 45°)

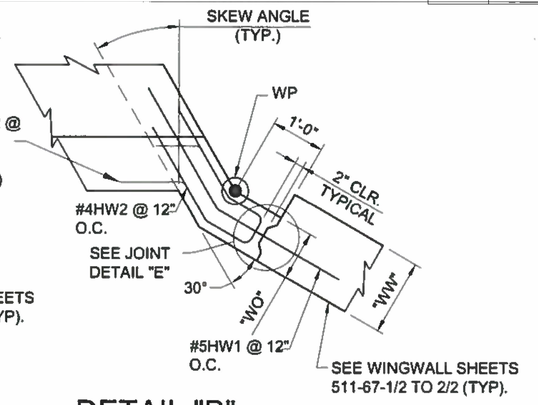


PLAN
(NORMAL)
SIMILAR FOR SINGLE BARREL

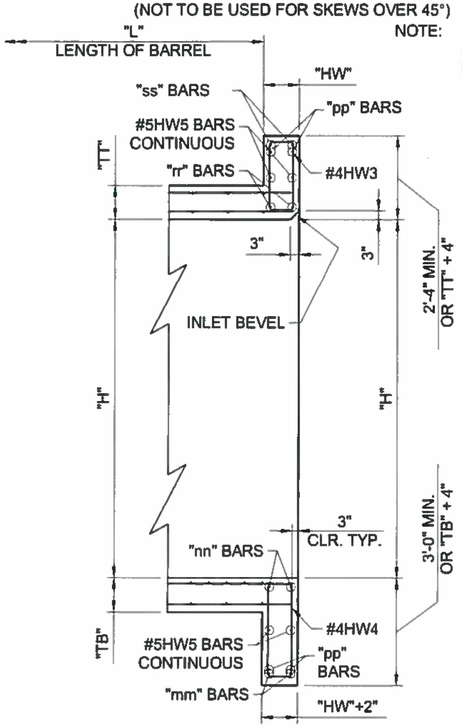
NOTE: SEE SHEET 511-66-2/6 FOR BAR SIZES, NUMBER OF BARS, AND BAR LENGTH FORMULAS.



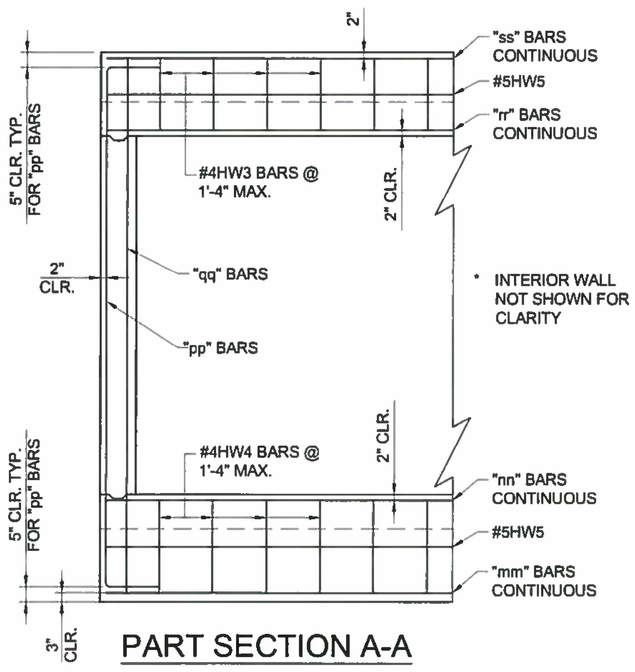
DETAIL "A"
(SKEWED)



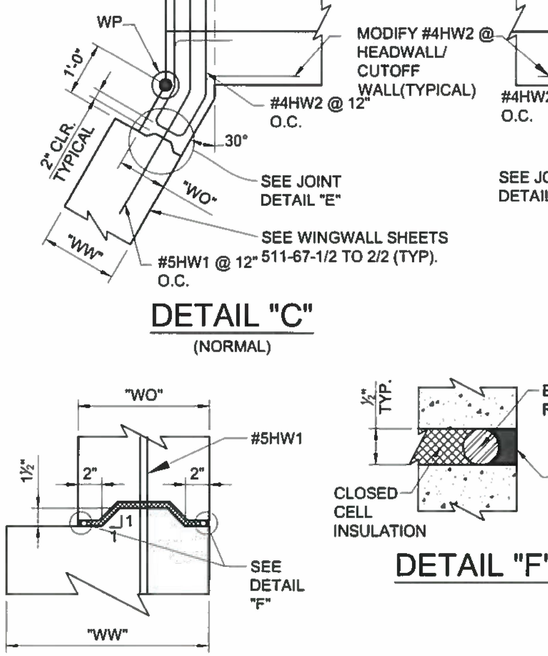
DETAIL "B"
(SKEWED)



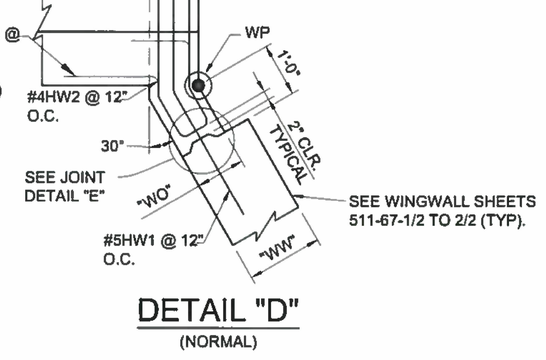
PART SECTION B-B



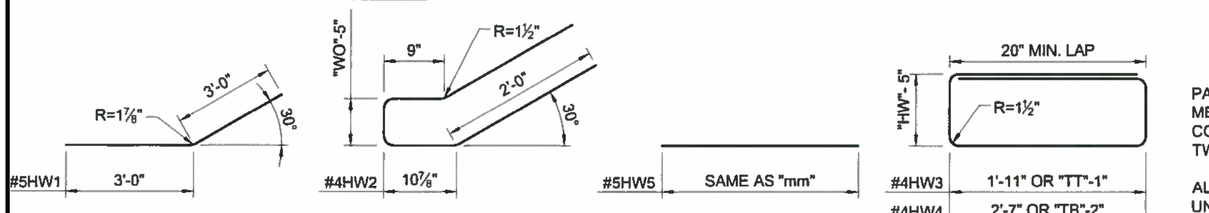
PART SECTION A-A



DETAIL "C"
(NORMAL)



DETAIL "D"
(NORMAL)



REINFORCING BARS

JOINT DETAIL "E"

DETAIL "F"

NOTE: DETAILS "A", "B", "C", & "D" EXTEND FULL HEIGHT FROM TOP OF PARAPET TO BOTTOM OF CUTOFF WALL. THESE EXTENSIONS SHALL BE CAST INTEGRALLY WITH HEADWALL/CUTOFF WALL (NO CONSTRUCTION JOINT). ELEVATION AT EXTENSION SHALL BE EQUAL TO PARAPET.

PAYMENT

PAYMENT FOR HEADWALL/CUTOFF WALL IS BASED ON "EACH" UNIT OF MEASUREMENT FOR EACH NEW BARREL CONSTRUCTED. IN CASE OF TYPE II CONNECTION EACH HEADWALL/CUTOFF WALL UNIT SHALL BE PAID FOR, I.E. TWO PER CULVERT EXTENSION.

ALTERNATIVELY, A COMPLETE CONCRETE BOX CULVERT MAY BE PAID FOR UNDER CLASS "AA" CONCRETE BY "CU.YD." ITEM 511030 AND GRADE 60 REBAR BY "LBS." ITEM 540060.

NMDOT STANDARD DRAWING 511-66-1/6

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
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CBC HEAD-CUTOFF WALLS ALL DESIGN FILLS 0°-45° SKEWS STR SECTIONS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		50 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	51

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)													
		0 DEGREE SKEW													
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"		
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	
4'	2'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	3'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	4'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	2'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	3'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	4'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	5'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	6'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	7'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
8'	4'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
8'	5'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
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10'	12'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
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12'	7'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
12'	8'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
12'	9'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
* 12'	10'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
12'	12'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
14'	8'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
14'	9'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
14'	10'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
14'	11'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
14'	12'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
14'	13'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
14'	14'	12''	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)													
		15 DEGREE SKEW													
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"		
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	
4'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	5'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	6'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	7'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
8'	4'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2	
8'	5'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2	
8'	6'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2	
8'	7'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2	
8'	8'	12"	#9	2	#9	2	#7	2	#4	2	#8	2	#8	2	
10'	3'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	4'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	5'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	6'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	7'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	8'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	9'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	10'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	11'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
10'	12'	12"	#10	2	#10	2	#8	2	#5	2	#10	2	#9	2	
12'	6'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3	
12'	7'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3	
12'	8'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3	
12'	9'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3	
* 12'	10'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3	
12'	12'	14"	#11	3	#10	3	#11	2	#6	2	#11	3	#10	3	
14'	8'	24''	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4	
14'	9'	24''	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4	
14'	10'	24''	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4	
14'	11'	24''	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4	
14'	12'	24''	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4	
14'	13'	24''	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4	
14'	14'	24''	#11	4	#11	4	#10	3	#8	3	#11	4	#10	4	

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)													
		30 DEGREE SKEW													
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"		
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	
4'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	2'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2	
6'	3'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2	
6'	4'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2	
6'	5'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2	
6'	6'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2	
6'	7'	12"	#8	2	#8	2	#7	2	#4	2	#8	2	#7	2	
8'	4'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2	
8'	5'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2	
8'	6'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2	
8'	7'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2	
8'	8'	12"	#10	2	#10	2	#7	2	#4	2	#10	2	#9	2	
10'	3'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	4'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	5'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	6'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	7'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	8'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	9'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	10'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	11'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
10'	12'	14"	#11	3	#11	3	#9	2	#6	2	#11	3	#11	3	
12'	6'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3	
12'	7'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3	
12'	8'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3	
12'	9'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3	
* 12'	10'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3	
12'	12'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3	
14'	8'	36''	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9	
14'	9'	36''	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9	
14'	10'	36''	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9	
14'	11'	36''	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9	
14'	12'	36''	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9	
14'	13'	36''	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9	
14'	14'	36''	#11	9	#11	9	#9	8	#6	8	#11	9	#11	9	

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION & GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)													
		45 DEGREE SKEW													
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"		
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	
4'	2'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	3'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
4'	4'	12"	#7	2	#7	2	#7	2	#4	2	#7	2	#7	2	
6'	2'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2	
6'	3'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2	
6'	4'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2	
6'	5'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2	
6'	6'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2	
6'	7'	12"	#10	2	#10	2	#7	2	#4	2	#9	2	#8	2	
8'	4'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3	
8'	5'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3	
8'	6'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3	
8'	7'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3	
8'	8'	14"	#11	3	#11	3	#9	2	#5	2	#11	3	#11	3	
10'	3'	24''	#11	3	#11	3	#11	2	#5	2	#11	3	#11	3	
10'	4'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	5'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	6'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	7'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	8'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	9'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	10'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	11'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
10'	12'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#11	3	
12'	6'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
12'	7'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
12'	8'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
12'	9'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
* 12'	10'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
12'	12'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
14'	8'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
14'	9'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
14'	10'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
14'	11'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
14'	12'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
14'	13'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	
14'	14'	48''	#11	12	#11	12	#8	11	#5	11	#11	12	#11	12	

* EXAMPLE OF USE OF THIS TABLE:
PROPOSED STRUCTURE – DOUBLE BARREL, 12 FT. SPAN/10 FT. HEIGHT, CBC WITH 30° SKEW.
USE THE FOLLOWING BUILD INFORMATION FROM THE TABLE ABOVE:

BOX CULVERT NOMINAL DIMENSIONS		HEADWALL AND CUTOFF WALL DIMENSION GRADE 60 REINFORCING BAR SCHEDULE (BAR SIZE AND NUMBER OF BARS REQUIRED)													
		30 DEGREE SKEW													
			"mm"		"nn"		"pp"		"qq"		"rr"		"ss"		
SPAN "S" INSIDE	HEIGHT "H" INSIDE	WIDTH HEAD WALL "HW"	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	SIZE	NUMBER OF BARS	
12'	10'	24''	#11	3	#11	3	#11	2	#6	2	#11	3	#9	3	

LENGTH OF BARS: THE LENGTH OF "mm", "nn", "rr", "ss", & #5HW5 SHALL BE DETERMINED BY:

LENGTH = [[[("WO"*2)+("S"*N)+["WI"*(N–1)]]/COS(SKEW ANGLE)] –4"
(ROUND DOWN TO NEAREST ½")

THESE BARS SHALL BE FURNISHED IN FULL LENGTHS CALCULATED OR BE MECHANICALLY COUPLED BY DEVICES LISTED ON THE NMDOT APPROVED PRODUCTS LIST.

N = NUMBER OF BARRELS (1, 2, 3, OR 4)

"qq" BAR LENGTH = "H" + 59"

"pp" BAR = ["H"+(5'–4" MIN. OR ("TT"+"TB"+8") IF LARGER)]–10"+ 2*STANDARD HOOK LENGTH

FOR EXTENSIONS OF EXISTING CBC'S OF S=5', S=7', AND S=9' SIZE SPANS NOT INCLUDED IN THIS TABLE, USE DIMENSIONS, BAR SIZES, AND NUMBER OF BARS FOR NEXT GREATER SPAN TO BUILD. FOR EXAMPLE, FOR S=5' USE DIMENSIONS AND BAR DETAILS FROM THE TABLE FOR S=6'. USE S=5' IN FORMULAS TO DETERMINE LENGTH OF BARS "mm", "nn", "ss", "rr", AND #5HW5. ANY OTHER SIZE OF BOX EXTENSIONS NOT COVERED BY THIS MODIFICATION SHALL BE DONE THROUGH SPECIAL DESIGNS INCLUDED IN THE PROJECT PLANS.

NOTE:
THIS TABLE IS FOR USE WITH ONE TO FOUR BARRELS. FOR FIVE OR MORE BARRELS USE COMBINATIONS OF ONE TO FOUR BARRELS REPEATING THIS DESIGN.

NMDOT STANDARD DRAWING 511-66-2/6

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

REVISION	BY	DATE

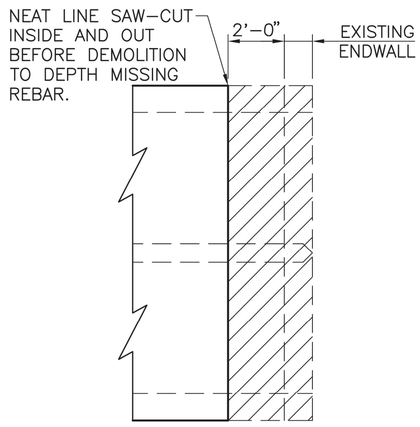
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

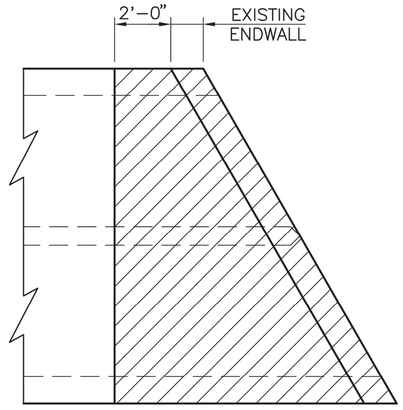
CBC HEADWALL ALL DESIGN FILLS 0°-45° SKEWS DIMS & REBAR SCHEDULE

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		51 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	52

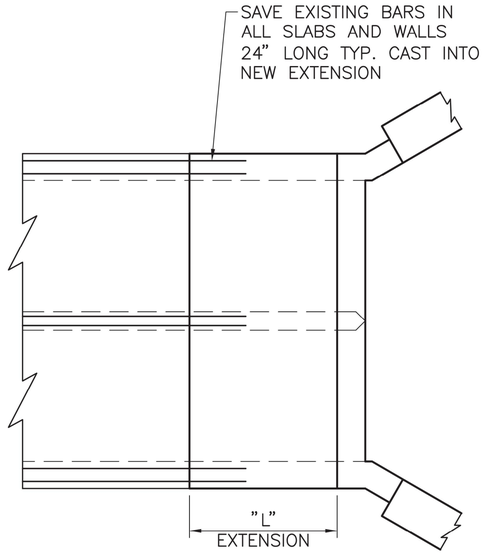


(NO SKEW)



(SKEW)

DEMOLITION

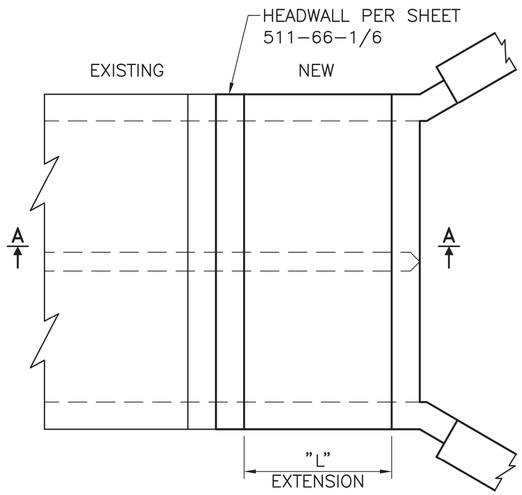


EXISTING NEW

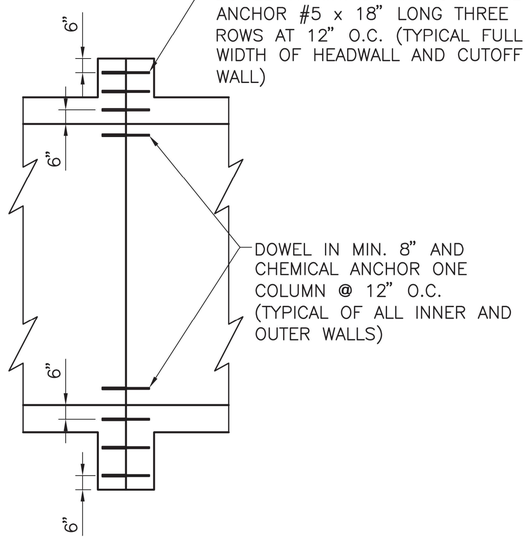
PLAN

TYPE I CONNECTION

SIMILAR FOR SINGLE AND MULTIPLE BARRELS



PLAN



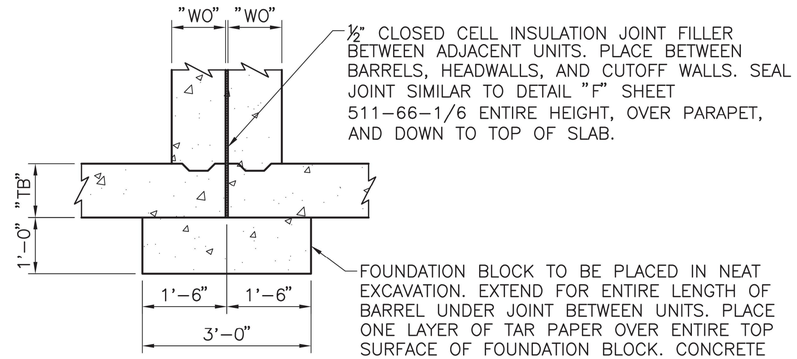
SECTION A–A

TYPE II CONNECTION

SIMILAR FOR SINGLE AND MULTIPLE BARRELS

NOTES

1. FOR CBC EXTENSIONS TYPE I CONNECTION IS RECOMMENDED. TYPE II CONNECTION SHALL BE USED WHERE EXISTING HEADWALL IS IN GOOD CONDITION AND DEMOLITION WOULD CAUSE TOO MANY PROJECT COMPLICATIONS. ROADWAY PLANS SHALL SPECIFY CONNECTION TYPE.
2. DEMOLITION, SAWCUTTING, REMOVAL AND DISPOSAL OF CULVERT END IN TYPE I EXTENSION SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF CBC.
3. ALL DRILLING, CHEMICAL ANCHORING, REBAR DOWELS AND RELATED WORK SHALL BE CONSIDERED INCIDENTAL TO TYPE II EXTENSION.



JOINT DETAIL FOR MULTIPLE UNIT BOXES

NMDOT STANDARD DRAWING 511-66-3/6

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

REVISION	BY	DATE

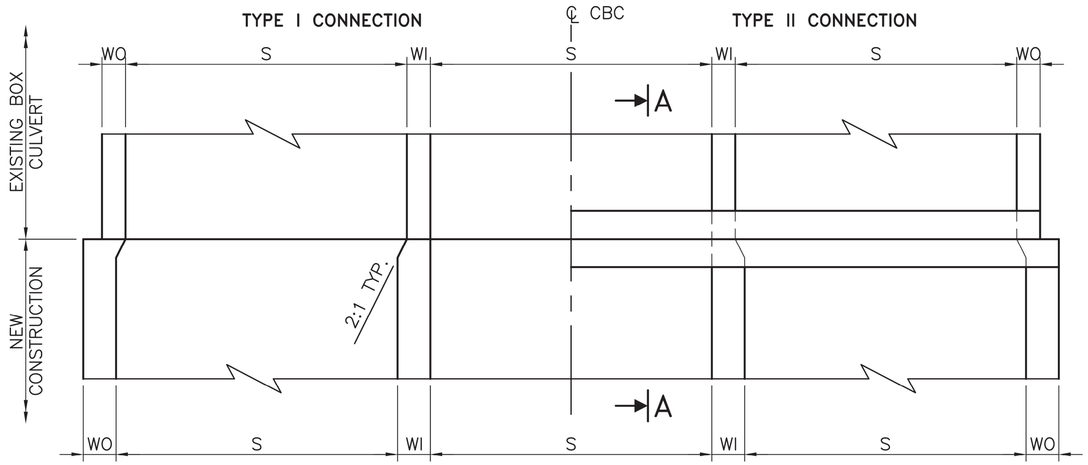
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

CBC EXT. ALL DESIGN FILLS 0°-45° SKEWS CBC EXT. MULTI-BARREL CBC

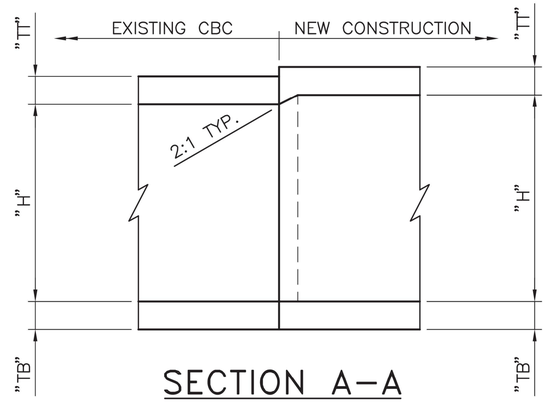
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		52 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	53

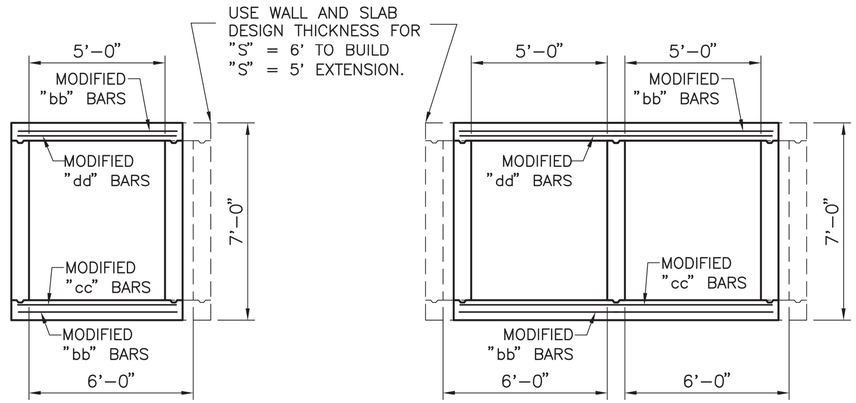


SECTION THRU CULVERT WALLS

(ODD NUMBER OF CELLS)
SIMALAR FOR SKEWED BOXES

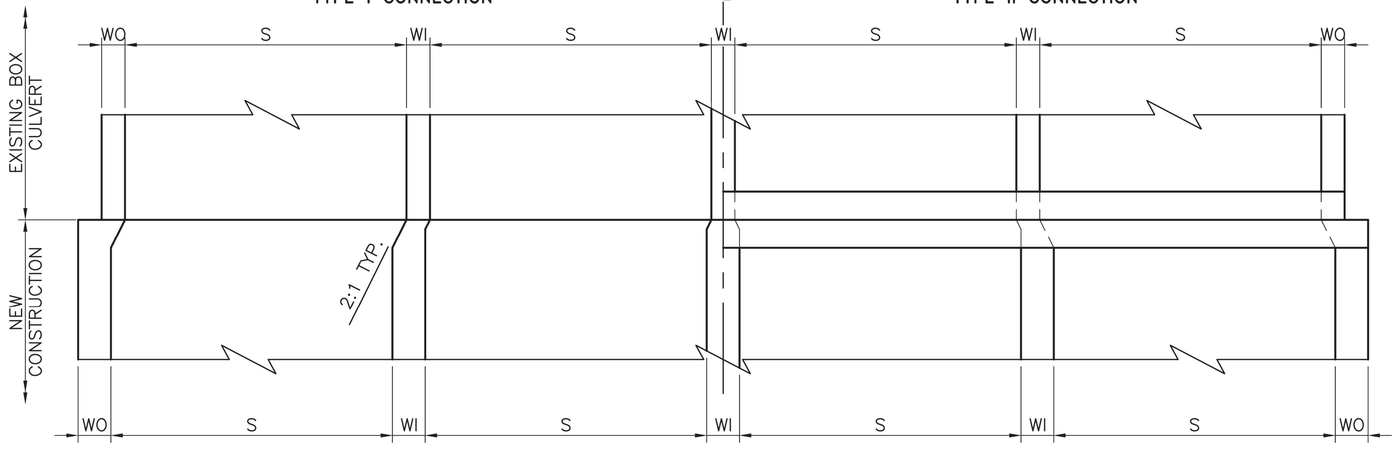


SECTION A–A



MODIFICATION OF DESIGN TABLES TO ACCOMODATE 5', 7' AND 9' SPAN CULVERTS

NOTE: MODIFY TABLE LENGTH OF "bb", "dd", AND "cc" BARS BY ONE FOOT LESS TO BUILD SHORTER SPAN CBC. THIS ONLY APPLIES TO SPAN THAT ARE ONE FOOT LESS, I.E. USE DESIGN TABLE FOR "S" = 6' FOR BUILDING "S" = 5'. ALL OTHER BARS ARE TO PROVIDED AT TABLE SIZE, LENGHT, AND SPACING.



SECTION THRU CULVERT WALLS

(EVEN NUMBER OF CELLS)
SIMALAR FOR SKEWED BOXES

NMDOT STANDARD DRAWING 511-66-4/6

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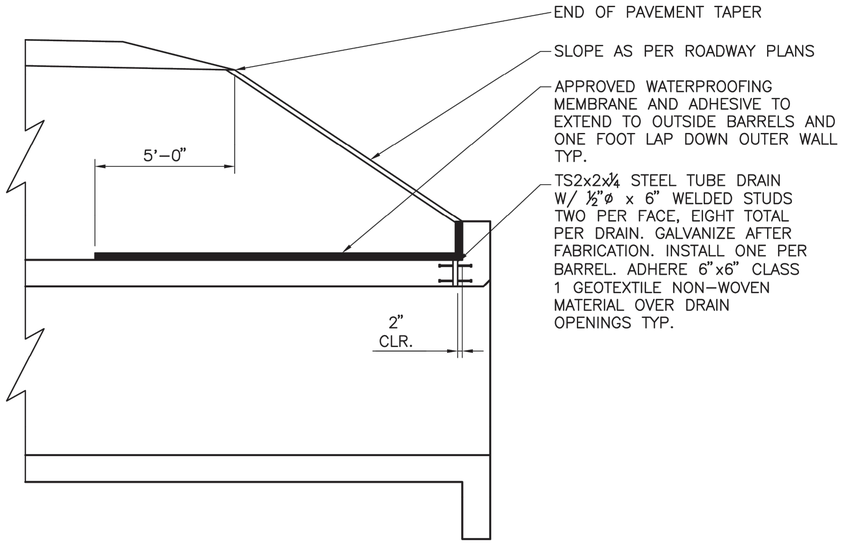
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

CBC EXT ALL DESIGN FILLS ALL SKEWS
METHOD OF EXTENDING CB-20&30

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		53 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	54



TOP SLAB MEMBRANE AND HEADWALL DRAIN DETAIL

NOTE: THIS DETAIL SHALL BE CONSTRUCTED FOR ANY NEW CBC OR CBC EXTENSION.

NMDOT STANDARD DRAWING 511-66-5/6

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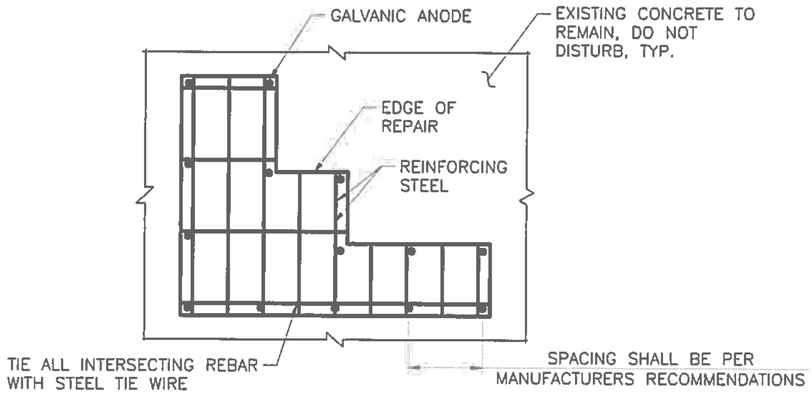
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

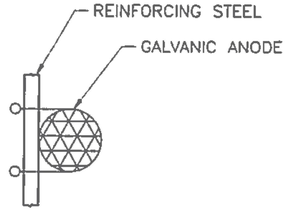
CBC EXT ALL DESIGN FILLS ALL SKEWS
MISCELLANEOUS DETAILS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		54 OF 74
SCALE: 1"=100' H 1"=20' V			

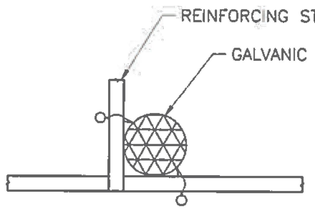
STATE	PROJECT	SHEET NUMBER
NM	N13	55



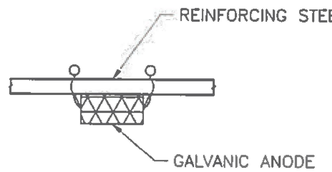
TYPICAL ANODE LAYOUT FOR CONCRETE REPAIR



TYPICAL INSTALL BESIDE BAR



TYPICAL INSTALL AT INTERSECTION



TYPICAL INSTALL BELOW BAR

GENERAL NOTES:

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION.
2. GALVANIC ANODES SHALL BE INSTALLED PER SPECIFICATION SECTION 533–B EMBEDDED GALVANIC ANODES.
3. INSTALL GALVANIC ANODE UNITS IMMEDIATELY FOLLOWING PREPARATION AND CLEANING OF THE STEEL REINFORCEMENT.
4. GALVANIC ANODES SHALL BE INSTALLED ALONG THE PERIMETER OF THE REPAIR AT A SPACING PER MANUFACTURERS RECOMMENDATIONS.
5. PLACE THE GALVANIC ANODES AS CLOSE AS POSSIBLE TO THE PATCH EDGE WHILE PROVIDING MINIMUM COVER PER MANUFACTURERS RECOMMENDATIONS.
6. GALVANIC ANODES SHALL BE INSTALLED ON BOTH THE TOP AND BOTTOM MATS OF REINFORCING FOR FULL DEPTH DECK REPAIRS.
7. A SPACING OF 20" SHALL BE USED FOR ESTIMATING PURPOSES. PAYMENT SHALL BE PER ACTUAL INSTALLATION.

NMDOT STANDARD DRAWING 533-02-1/1

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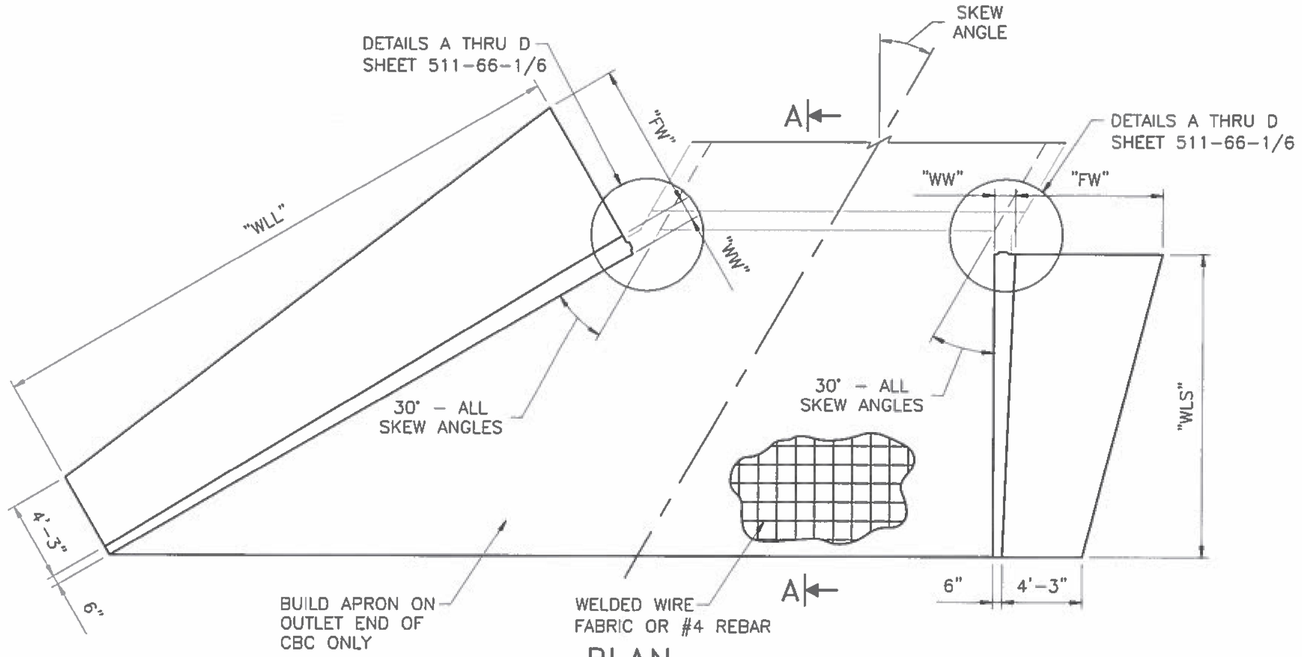
DIVISION OF TRANSPORTATION

N13(3-3)1,4

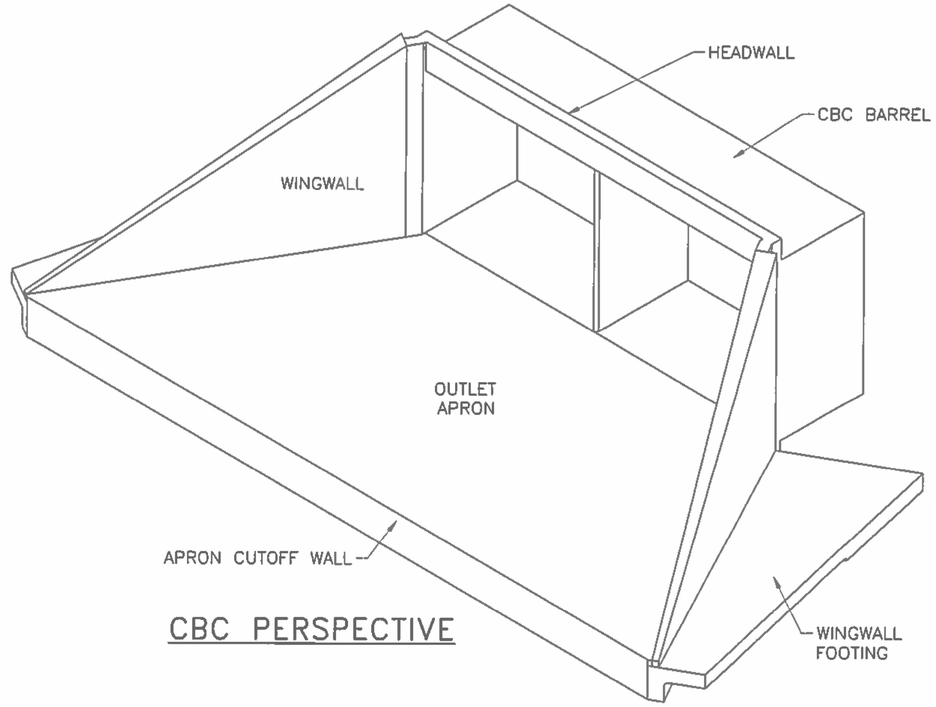
CONCRETE STRUCTURE REPAIR DETAILS (GALVANIC NODES)

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		55 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	56

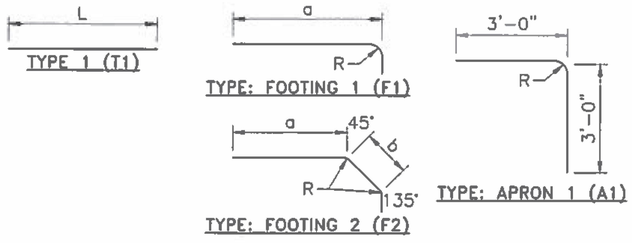


PLAN
SIMILAR ALL SKEWS



CBC PERSPECTIVE

REINFORCING BARS



NOTE:
CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL BAR LENGTHS DIMENSIONS FOR THE WINGWALL REINFORCEMENT.

R SHALL BE 1¾" FOR #4 BARS AND 2¼" FOR #5 BARS.

WINGWALL DIMENSIONS

WINGS A AND B			0° SKEW		15° SKEW		30° SKEW		45° SKEW	
"H"	"WW"	"FW"	"WLL"	"WLS"	"WLL"	"WLS"	"WLL"	"WLS"	"WLL"	"WLS"
2'-0"	0'-9½"	6'-8½"	8'-5"	8'-5"	10'-3"	7'-6"	14'-6"	7'-3"	28'-0"	7'-6"
3'-0"	0'-10¼"	7'-2½"	10'-1"	10'-1"	12'-5"	9'-1"	17'-6"	8'-9"	33'-10"	9'-1"
4'-0"	0'-11½"	7'-8½"	11'-10"	11'-10"	14'-6"	10'-8"	20'-6"	10'-3"	39'-8"	10'-8"
5'-0"	1'-0"	8'-2½"	13'-7"	13'-7"	16'-8"	12'-2"	23-'6"	11'-9"	45'-5"	12'-2"
6'-0"	1'-0¾"	8'-9"	15'-4"	15'-4"	18'-9"	13'-9"	26'-6"	13'-3"	51'-3"	13'-9"
7'-0"	1'-1½"	9'-3"	17'-1"	17'-1"	20'-11"	15'-3"	29'-6"	14'-9"	57'-0"	15'-3"
8'-0"	1'-2¼"	9'-9"	18'-9"	18'-9"	23'-0"	16'-10"	32'-6"	16'-3"	62'-10"	16'-10"
9'-0"	1'-3¼"	10'-3"	20'-6"	20'-6"	25'-1"	18'-5"	35'-6"	17'-9"	68'-7"	18'-5"
10'-0"	1'-4"	10'-9"	22'-3"	22'-3"	27'-3"	19'-11"	38'-6"	19'-3"	74'-5"	19'-11"
11'-0"	1'-4¾"	11'-3"	24'-0"	24'-0"	29'-4"	21'-6"	41'-6"	20'-9"	80'-2"	21'-6"
12'-0"	1'-5½"	11'-9"	25'-9"	25'-9"	31'-6"	23'-1"	44'-6"	22'-3"	86'-0"	23'-1"
13'-0"	1'-6¼"	12'-3"	27'-5"	27'-5"	33'-7"	24'-7"	47'-6"	23'-9"	91'-9"	24'-7"
14'-0"	1'-7"	12'-9"	29'-2"	29'-2"	35'-9"	26'-2"	50'-6"	25'-3"	97'-7"	26'-2"

NOTE: TABLE DIMENSIONS SHOWN ARE FOR SLOPES OF 1.5 TO 1. FOR OTHER SLOPES MULTIPLY TABLE VALUES OF "WLS" AND "WLS" BY (SLOPE/1.5).

DESIGNED BY: TLB DRAWN BY: SLG/BEE CHECKED BY: HDR

NOTES:

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION, AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
2. CONCRETE SHALL BE CLASS AA. CHAMFER ALL EDGES OF CONCRETE ¾".
3. REINFORCING BARS SHALL CONFORM TO REQUIREMENTS OF AASHTO M 31. REINFORCING BARS SHALL BE GRADE 60. DIMENSIONS SHOWN REFER TO CENTER LINES OF BARS UNLESS NOTED OTHERWISE.
4. MINIMUM SPLICE LENGTH SHALL BE 2'-0" ON ALL #4 BARS, AND 2'-6" ON ALL #5 BARS. LONGITUDINAL SPLICES SHOULD BE STAGGERED BY A MINIMUM OF TWO TIMES THE SPLICES LENGTH IN ADJACENT BARS. NO SPLICES SHALL BE ALLOWED IN VERTICAL BARS EXCEPT AS SHOWN ON THE DRAWINGS. SPLICES SHALL NOT BE ALLOWED IN TRANSVERSE DIRECTION.

NMDOT STANDARD DRAWING 511-67-1/2

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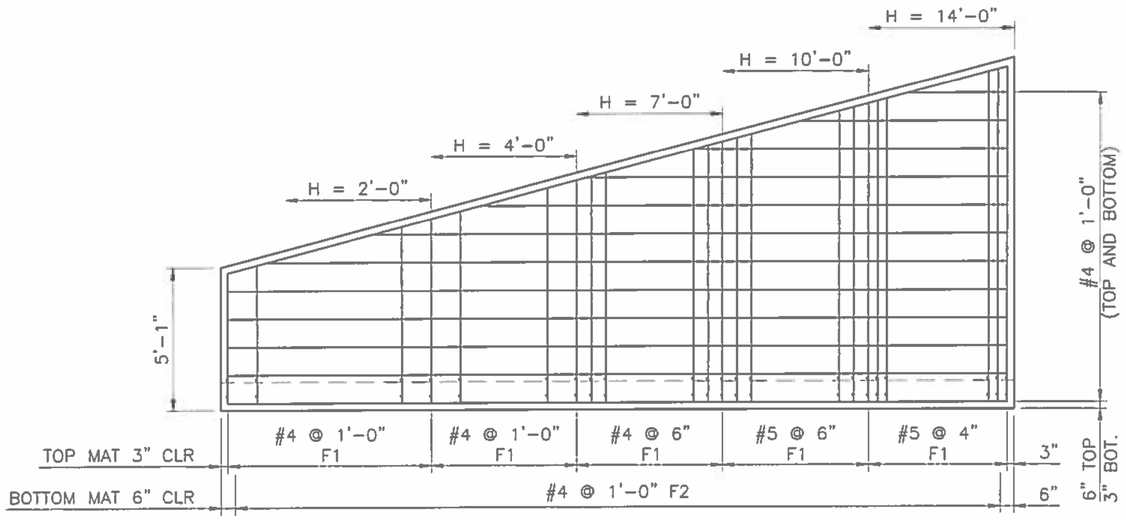
NAVAJO NATION
DIVISION OF TRANSPORTATION
NAVAJO D.O.T

N13(3-3)1,4

CBC WINGWALL & OUTLET APRON SKEWS PLAN, PERSPECTIVE, & DIMENSION

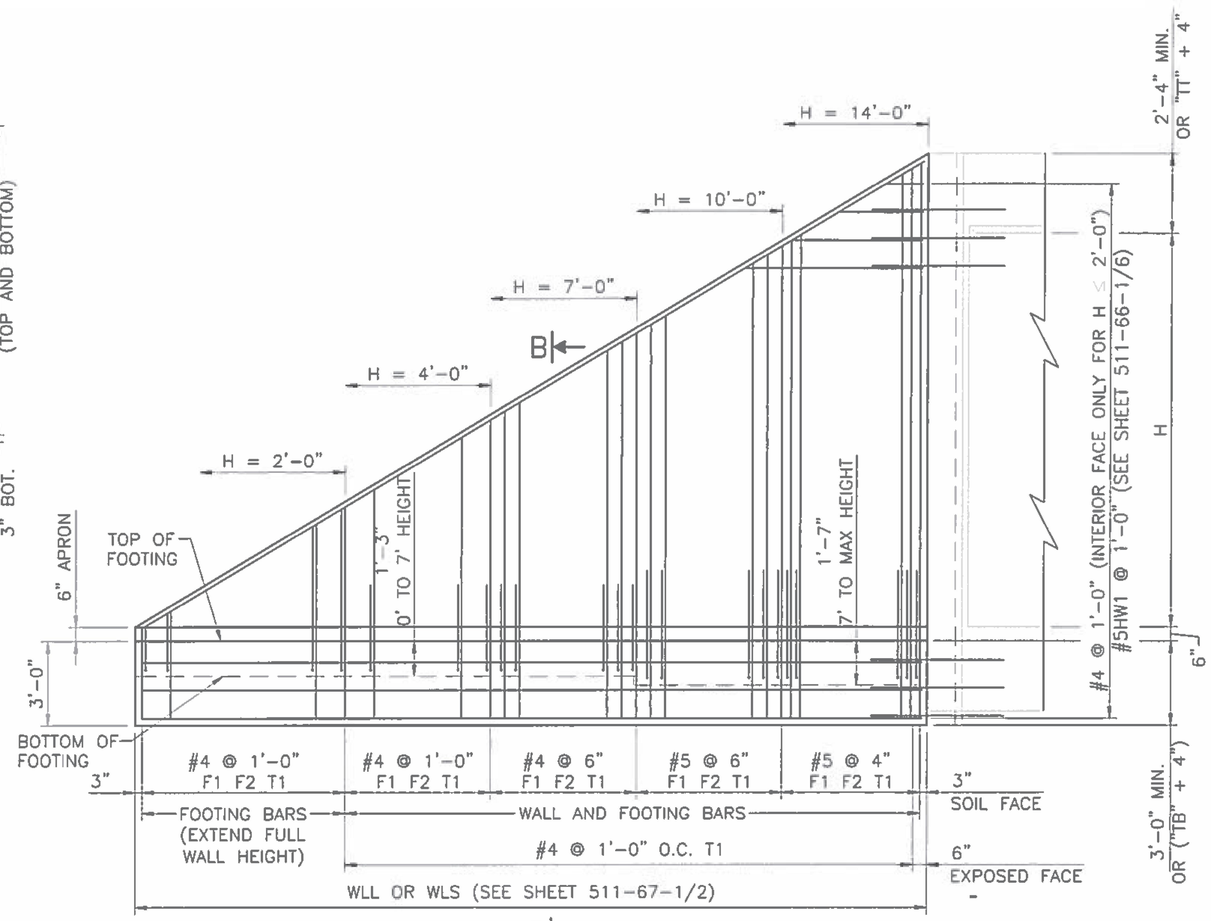
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		56 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	57



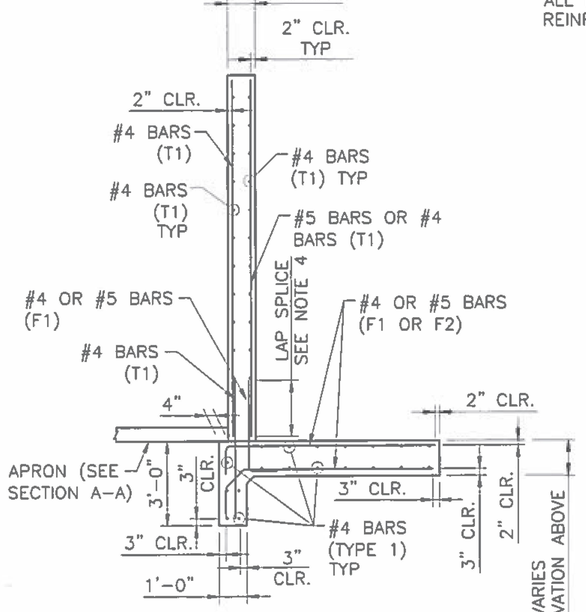
FOOTING PLAN

CONTRACTOR IS RESPONSIBLE FOR DETERMINING ALL BAR LENGTH DIMENSIONS FOR THE WINGWALL REINFORCEMENT.

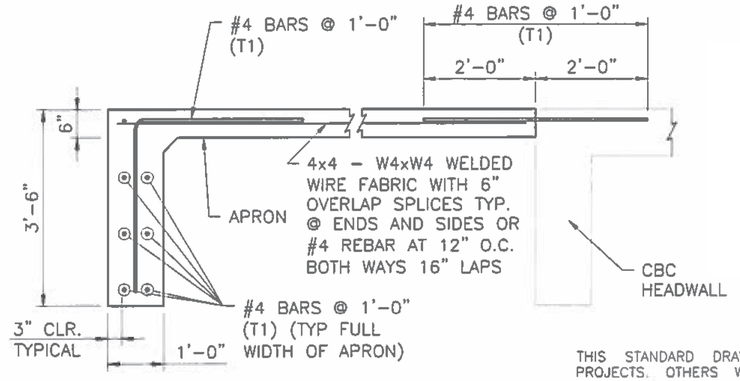


B

WINGWALL ELEVATION



SECTION B-B



SECTION A-A

NMDOT STANDARD DRAWING 511-67-2/2

THIS STANDARD DRAWING IS FOR USE ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK. STANDARD DRAWINGS THAT ARE APPLICABLE TO A SPECIFIC PROJECT WILL BE IDENTIFIED ON THE PROJECT PLANS BUT WILL NOT BE PHYSICALLY INCLUDED IN THOSE PLANS. THE DESIGNER WHO SPECIFIES A STANDARD DRAWING ACCEPTS THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY.

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NAVAJO NATION
DIVISION OF TRANSPORTATION

NAVAJO D.O.T

N13(3-3)1,4

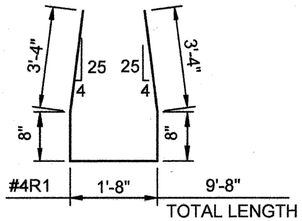
CBC WINGWALL & OUTLET APRON, SKEWS STRUCTURAL SECTIONS & REBAR

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		57 OF 74
SCALE: 1"=100' H 1"=20' V			

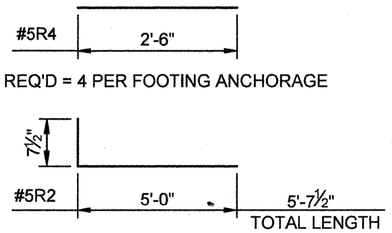
STATE	PROJECT	SHEET NUMBER
NM	N13	58

GENERAL NOTES:

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, (CURRENT EDITION) AND ALL APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
2. REINFORCING STIRRUP, R3 IS NOT REQUIRED FOR VERTICAL ROADWAY OFFSETS LESS THAN 1 FOOT, FOR OFFSETS LESS THAN 1 FOOT, WALL BARRIERS SHALL BE CAST MONOLITHIC.
3. CHAMFER ALL EXPOSED EDGES 3/4 INCH.
4. CONCRETE COVER FOR REINFORCING BARS SHALL BE A MINIMUM OF 2 INCHES CLEAR.
5. PROVIDE CRACK CONTROL JOINTS AT 15 FOOT INTERVALS. CRACK CONTROL JOINTS. SHALL BE MADE USING A CONSTRUCTION JOINT OR A SAW CUT JOINT.
6. ADDITIONAL STEEL REINFORCING REQUIRED BY THE CONTRACTOR FOR CONSTRUCTION OF THE CONCRETE BARRIER WALL SHALL BE INCIDENTAL TO THE UNIT PRICE FOR CONCRETE BARRIER WALL.
7. CONCRETE WALL BARRIER SHALL BE INSTALLED BY EITHER SLIP-FORMING OR CASTING-IN-PLACE. PRECAST SECTION INSTALLATION IS NOT PERMITTED.
8. 3/8" DIAMETER, ASTM A416 GRADE 270, AASHTO M 203M, UNCOATED SEVEN (7)-WIRE STRANDS MAY BE SUBSTITUTED FOR THE AASHTO M31, GRADE 60 DEFORMED BARS PROVIDED THAT THE STEEL STRANDS ARE UNCOATED, CLEAN AND FREE FROM DIRT, LOOSE RUST, OIL, GREASE OR OTHER DELETERIOUS MATERIAL, FOR SLIP-FORMED CWB.

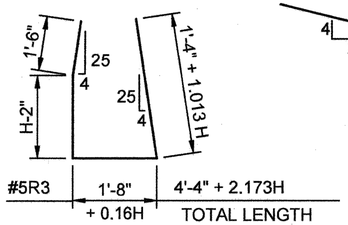


NO. REQ'D = 6 PER END ANCHORAGE
6 PER FOOTING ANCHORAGE
6 PER CONNECTON TO
CONCRETE WALL BARRIER END SECTION

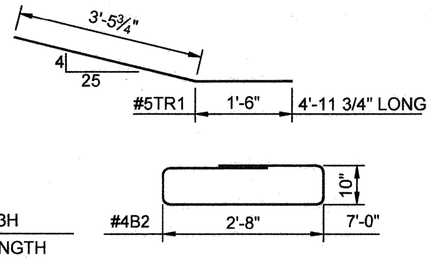


NO. REQ'D = 4 PER FOOTING ANCHORAGE

NO. REQ'D = 4 PER END ANCHORAGE
4 PER CONNECTION TO STRUCTURE

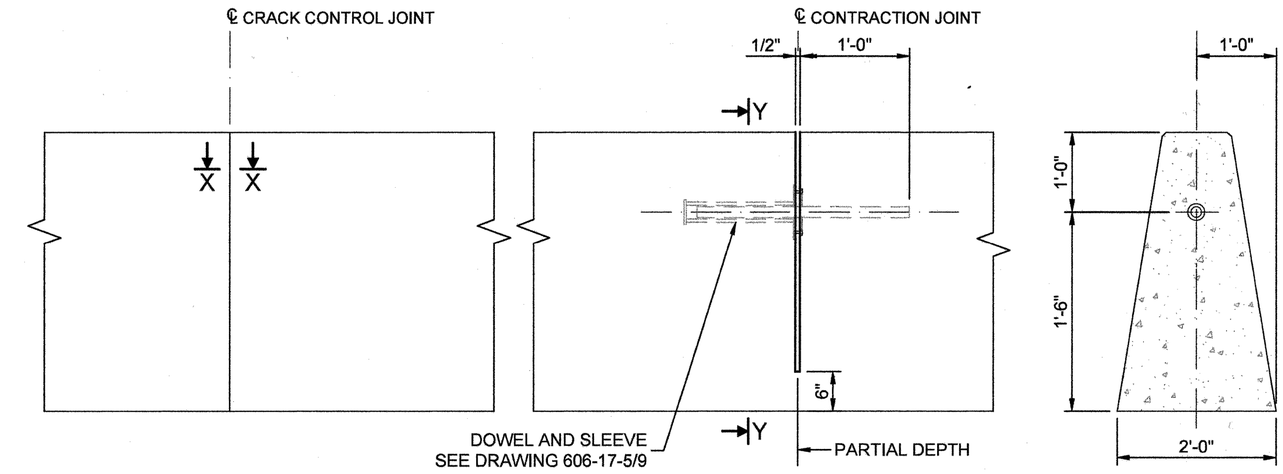


NO. REQ'D = 0.67 PER FOOT



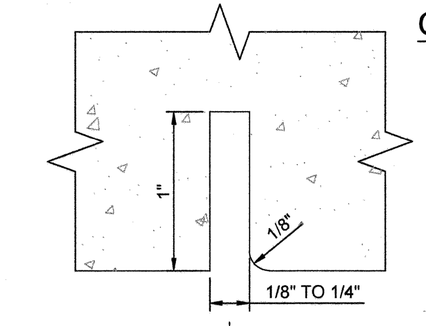
NO. REQ'D = 1 PER FOOT

REBAR SCHEDULE



ELEVATION

SECTION Y-Y



SECTION X-X

CRACK CONTROL AND CONTRACTION JOINT DETAILS

PROVIDE CONTRACTION JOINTS ON BRIDGE DECKS AT EQUALLY SPACED INTERVALS (15 FT. MAX) AND AT JOINT BETWEEN DECK AND APPROACH SLAB

NMDOT STANDARD DRAWING 606-17-1/9

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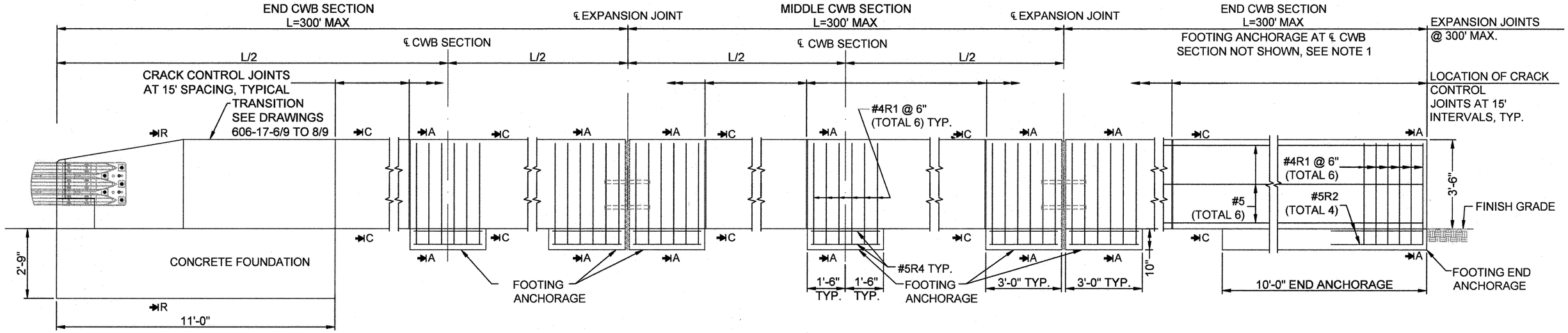
DIVISION OF TRANSPORTATION

N13(3-3)1,4

CONCRETE WALL BARRIER TYPE 42
GENERAL NOTES AND REBAR SCHEDULE

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		58 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	59



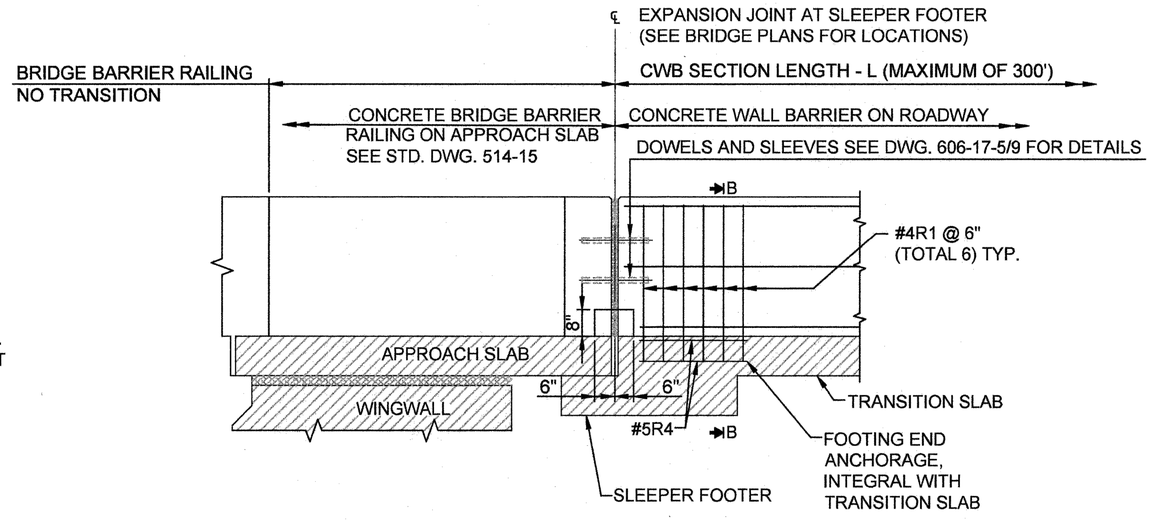
CWB END TRANSITION

TYPICAL LAYOUT & DETAIL OF FOOTING ANCHORAGE FOR CWB SECTIONS

END ANCHORAGE OF CWB END SECTIONS

GENERAL NOTES

1. CONCRETE WALL BARRIERS SHALL HAVE ANCHORS OR FOUNDATIONS AT ENDS AND INTERMEDIATE FOOTING ANCHORS AT THE CENTERLINE OF CWB SECTION AT A MAXIMUM SPACING OF L/2 OR 150' AS SHOWN. INTERMEDIATE FOOTING ANCHORS SHALL BE OMITTED WHEN THE SECTION L<150'.
2. IF CONCRETE WALL BARRIER IS LOCATED ON CONCRETE PAVEMENT, EXPANSION AND CRACK CONTROL JOINTS SHALL BE LOCATED AT THE CONCRETE PAVEMENT JOINTS. JOINT FILLER MATERIAL SHALL BE THE SAME SIZE AS JOINT OR 1/2 INCH MINIMUM.
3. HORIZONTAL BARS IN WALL BARRIER ARE NOT SHOWN FOR CLARITY.
4. SEE BRIDGE PLANS FOR SLEEPER AND TRANSITION SLAB DETAILS.



CONNECTION OF CWB TO BRIDGE BARRIER RAILING

BLOCKOUT RECESS AND COVER PLATE NOT SHOWN FOR CLARITY

NMDOT STANDARD DRAWING 606-17-2/9

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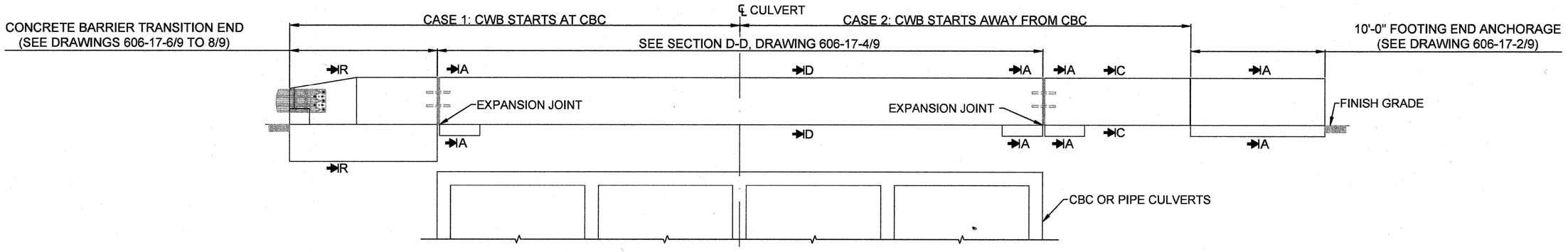
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

CONCRETE WALL BARRIER, TYPE 42

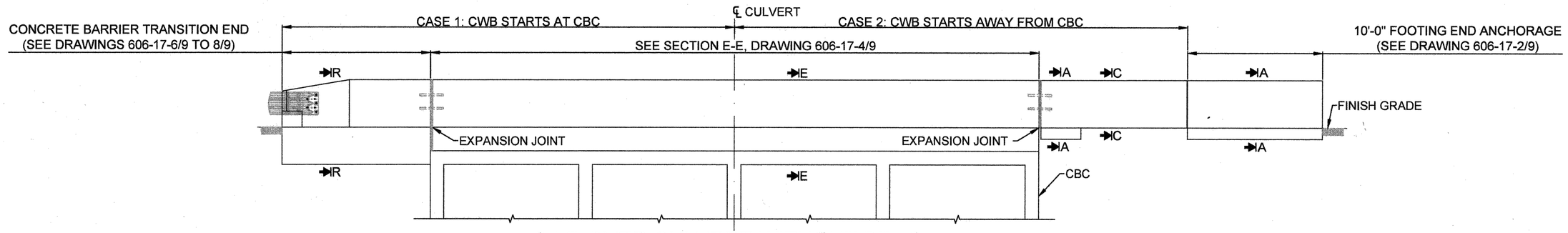
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		59 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	60



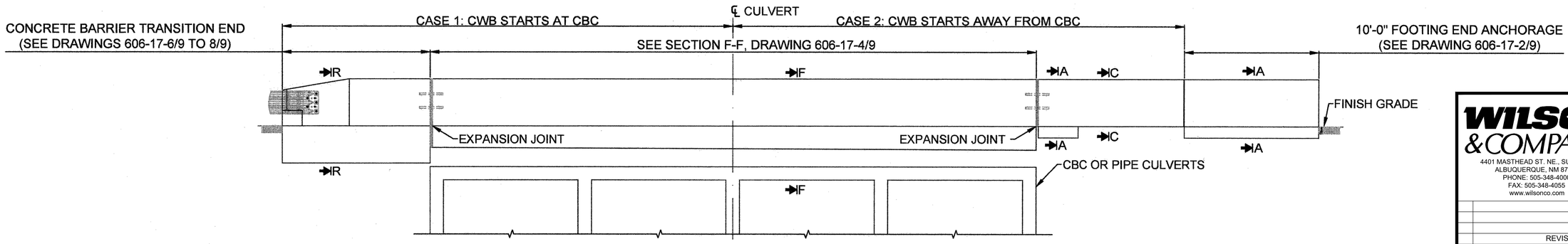
CWB OVER CULVERT WITH BENCH
ANY FILL HEIGHT

SEE DRAWING 606-17-4/9, SECTION D-D FOR BENCH DETAIL



CWB OVER CULVERT WITHOUT BENCH
0' TO 1'-9" FILL

NOTE: SECTION E-E APPLIES ACROSS THE ENTIRE CBC



CWB OVER CULVERT WITHOUT BENCH
1'-9" TO 3'-0" FILL

NOTE: SECTION F-F APPLIES ACROSS THE ENTIRE CBC

DRAWING SCALE: NTS

NMDOT STANDARD DRAWING 606-17-3/9

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
FAX: 505-348-4055
www.wilsonco.com

REVISION	BY	DATE

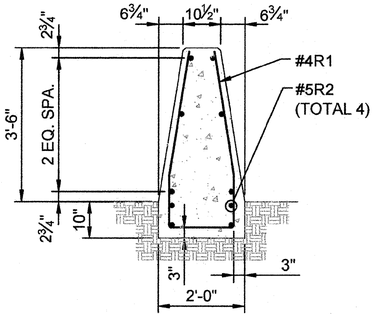
NAVAJO NATION
DIVISION OF TRANSPORTATION
NAVAJO D.O.T

N13(3-3)1,4

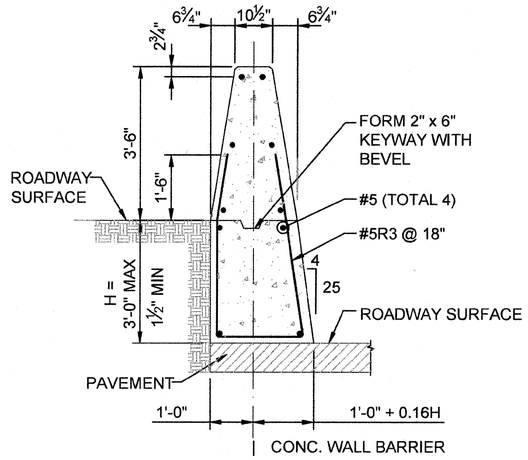
CONCRETE WALL BARRIER, TYPE 42
OVER CULVERT

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		60 OF 74
SCALE: 1"=100' H 1"=20' V			

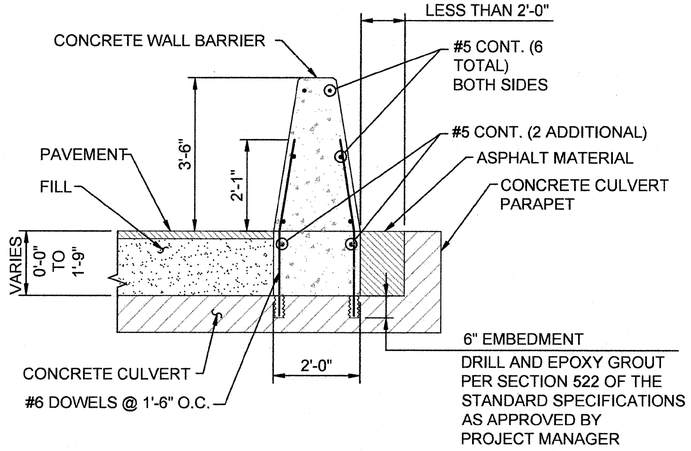
STATE	PROJECT	SHEET NUMBER
NM	N13	61



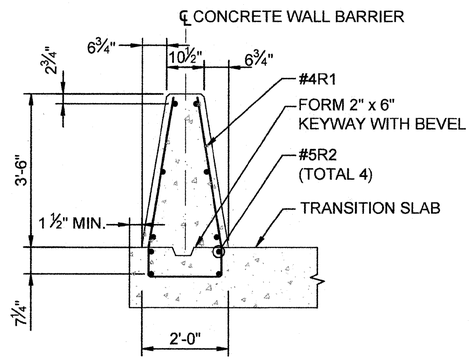
SECTION A-A



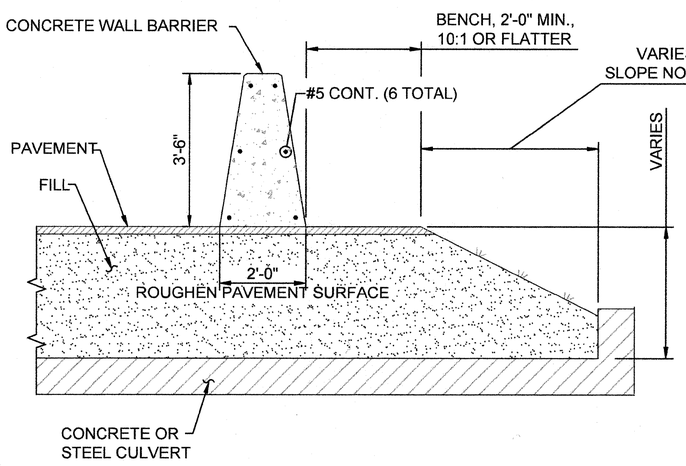
TYPICAL SECTION FOR VERTICAL ROADWAY OFFSETS



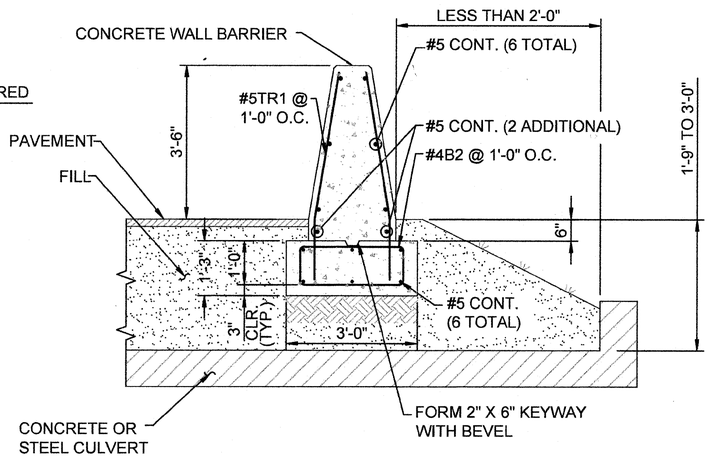
SECTION E-E CWB OVER CBC WITHOUT BENCH FOR 0'-0" TO 1'-9" FILL



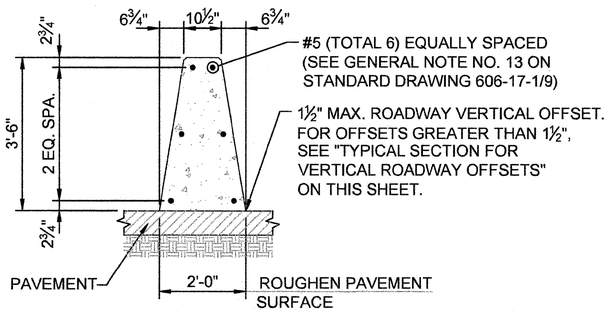
SECTION B-B



SECTION D-D CWB OVER CULVERT WITH BENCH FOR ANY FILL HEIGHT



SECTION F-F CWB OVER CBC WITHOUT BENCH FOR 1'-9" TO 3'-0" FILL



SECTION C-C
(TYPICAL SECTION)

NMDOT
STANDARD
DRAWING
606-17-4/9

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REVISION	BY	DATE

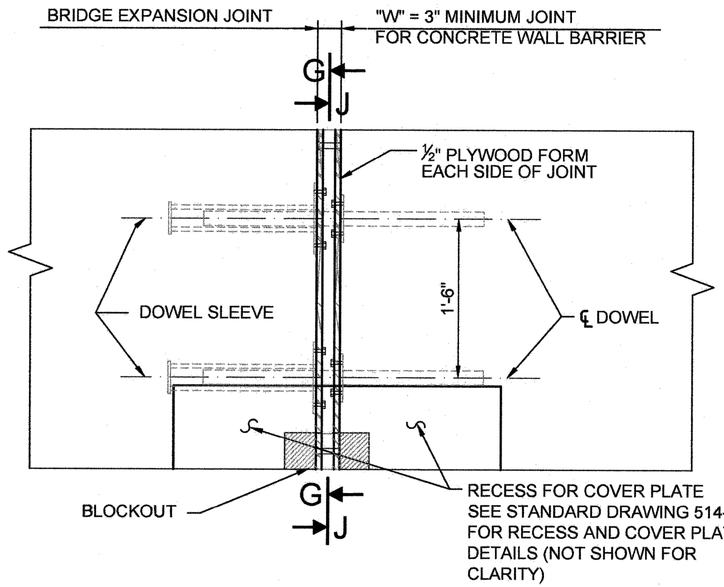
NAVAJO NATION
DIVISION OF TRANSPORTATION
NAVAJO D.O.T

N13(3-3)1,4

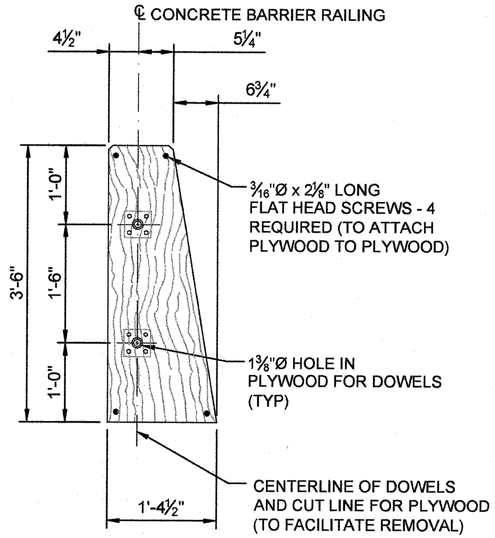
CONCRETE WALL BARRIER, TYPE 42
SECTIONS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		61 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	62

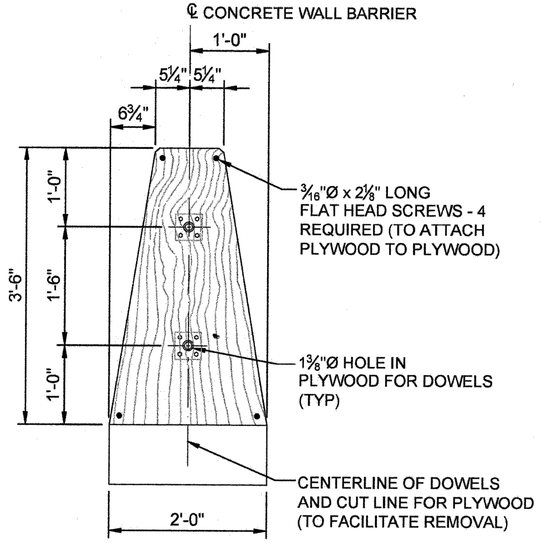


ASSEMBLY DETAIL



SECTION G-G

BRIDGE BARRIER RAILING



SECTION J-J

CONCRETE WALL BARRIER

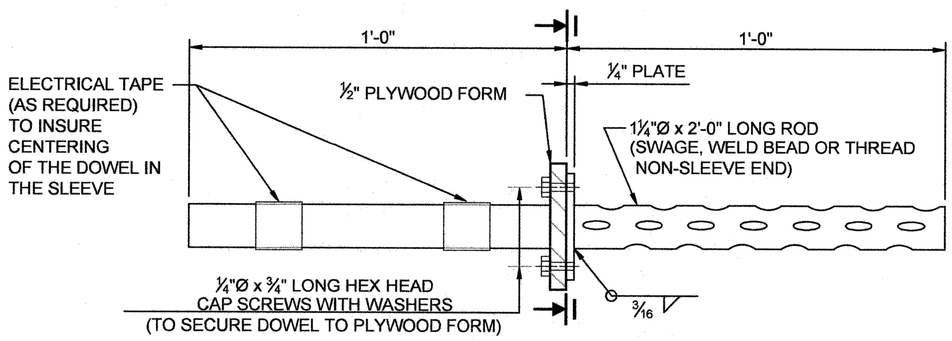
GENERAL NOTES

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE NEW MEXICO DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, (CURRENT EDITION) AND ALL APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.
2. STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270, GRADE 50 UNLESS OTHERWISE NOTED ON THE DETAILS, AND SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 545 OF THE STANDARD SPECIFICATIONS.
3. THE SLEEVE ASSEMBLY SHALL BE SET PARALLEL TO THE ROADWAY GRADE AND THE OUTSIDE FACE OF THE CONCRETE WALL BARRIER.
4. PLYWOOD FORMS AND STYROFOAM FILLER SHALL BE CUT TO THE CROSS SECTION OF THE CONCRETE WALL BARRIER. PLYWOOD FORMS SHALL BE COATED WITH AN APPROVED BOND-BREAKER.
5. AFTER CONCRETE HAS TAKEN INITIAL SET, REMOVE STYROFOAM FILLER AND PLYWOOD FORMING FROM THE JOINT.
6. FOR MOVEMENT LENGTHS IN EXCESS OF 300 FEET, INCREASE JOINT OPENING ("W") AS REQUIRED.
7. THE COST OF ALL MATERIALS AND INSTALLATION FOR THE JOINTS SHALL BE CONSIDERED INCIDENTAL TO THE COST TO THE CONCRETE WALL BARRIER. NO DIRECT PAYMENT WILL BE MADE.
8. HOT-DIP GALVANIZE DOWEL AND DOWEL SLEEVE ASSEMBLY.

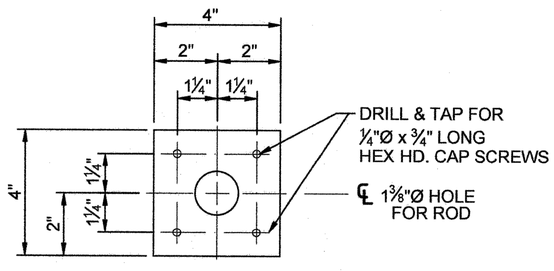
DOWEL SLEEVE DETAIL

SECTION H-H

1/4 IN. THICK PLATE



DOWEL DETAIL



SECTION I-I

1/4 IN. THICK PLATE

NMDOT STANDARD DRAWING 606-17-5/9

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REVISION	BY	DATE

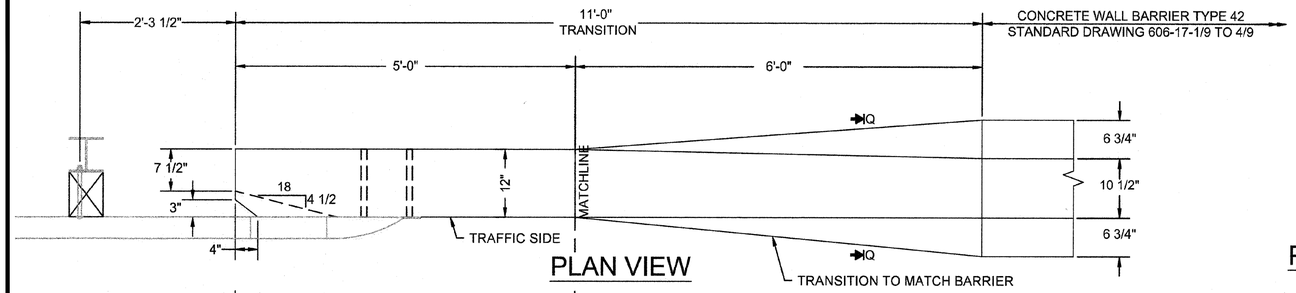
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

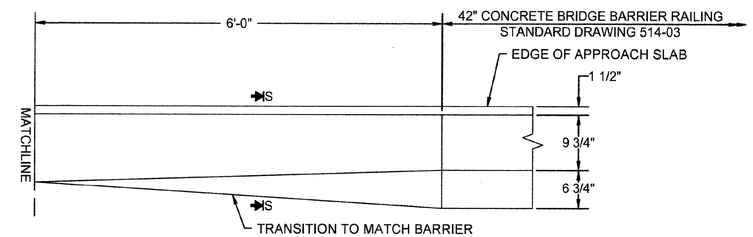
42" DOWEL ASSEMBLY FOR EXPANSION JOINTS IN CWB AND CB-RAILING

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		62 OF 74
SCALE: 1"=100' H 1"=20' V			

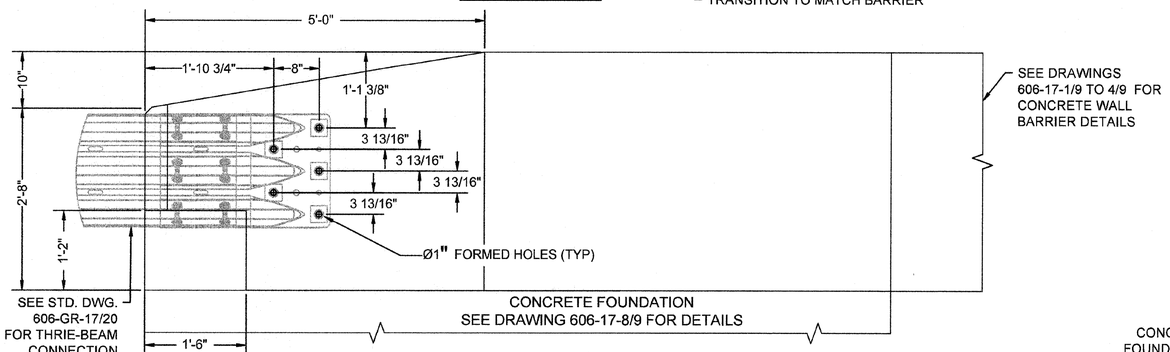
STATE	PROJECT	SHEET NUMBER
NM	N13	63



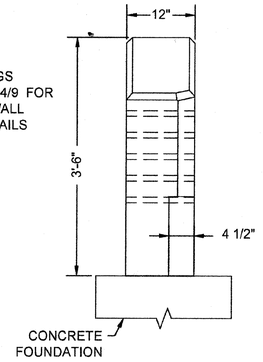
PLAN VIEW



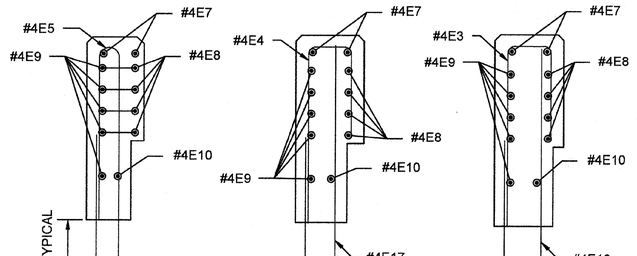
PLAN VIEW DETAIL - BRIDGE BARRIER TRANSITION



ELEVATION VIEW



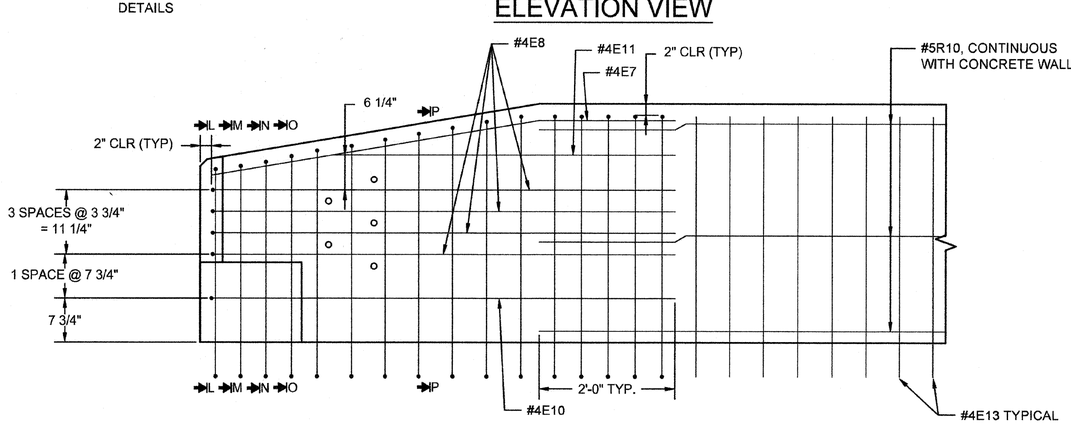
PROFILE VIEW



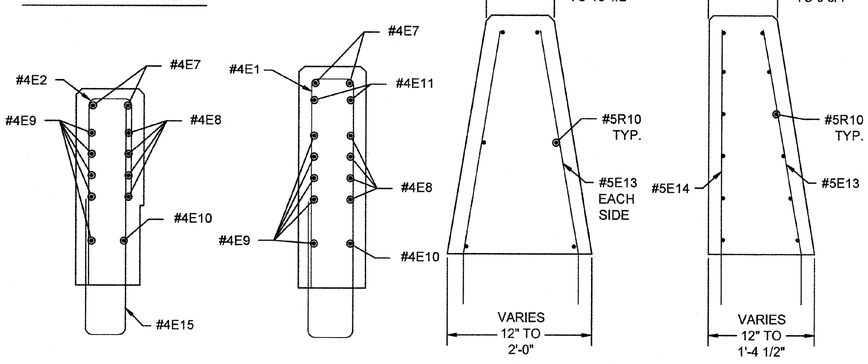
SECTION L-L

SECTION M-M

SECTION N-N



REBAR DETAIL

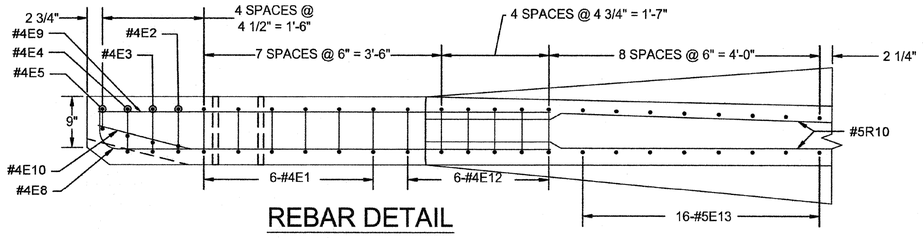


SECTION O-O

SECTION P-P

SECTION Q-Q

SECTION S-S



REBAR DETAIL

GENERAL NOTES:

1. CONCRETE SHALL BE CLASS AA (4,000 PSI MINIMUM).

2. CHAMFER EXPOSED EDGES 3/4" UNLESS NOTED OTHERWISE.

THIS STANDARD DRAWING IS FOR USE ONLY ON NMDOT PROJECTS. OTHERS WHO USE THE NMDOT STANDARD DRAWINGS DO SO AT THEIR OWN RISK AND ACCEPT THE RESPONSIBILITY OF DETERMINING THEIR APPLICABILITY AND ANY RESULTING LIABILITY.

DRAWING SCALE: NTS

NMDOT STANDARD DRAWING 606-17-6/9

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REVISION	BY	DATE

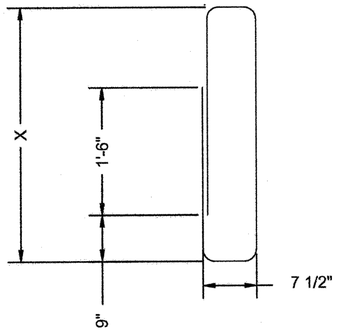
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

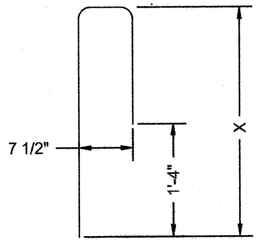
CONCRETE WALL BARRIER, TYPE 42 TRANSITION DETAILS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		63 OF 74
SCALE: 1"=100' H 1"=20' V			

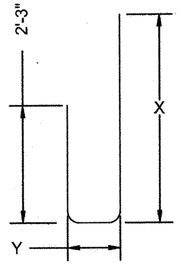
STATE	PROJECT	SHEET NUMBER
NM	N13	64



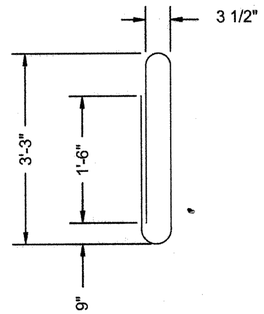
BAR E1, E12



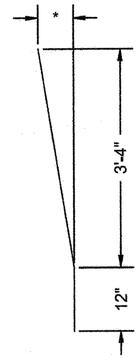
BARS E2, E3, E4



BARS E15, E16, E17

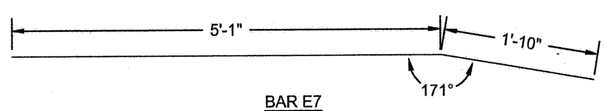


BAR E5

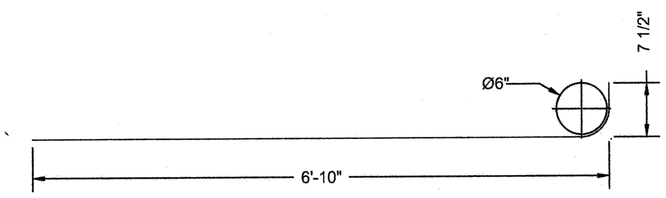


BAR E13

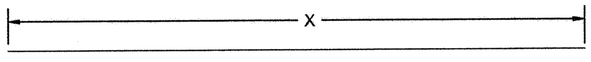
* = VARIES FROM 3 1/4" TO 6 3/4" IN 7 EQUAL INCREMENTS



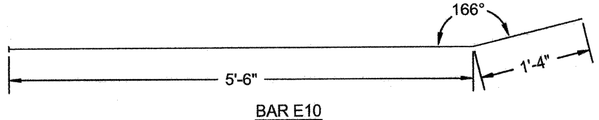
BAR E7



BAR E8



BAR E9, E11, E14



BAR E10

REINFORCING BAR LIST

BAR I.D.	SIZE	X	Y	LENGTH	NO. REQ'D
E1	#4	VARIES FROM 3'-6 1/2" TO 4'-0" IN (6) 1" INCREMENTS	--	VARIES FROM 9'-10" TO 10'-9"	6
E2	#4	2'-8 1/2"	--	4'-8 1/2"	1
E3	#4	2'-7 3/4"	--	4'-7"	1
E4	#4	2'-7"	--	4'-5 1/2"	1
E5	#4	--	--	8'-7"	1
E7	#4	--	--	6'-11"	2
E8	#4	--	--	7'-5 1/2"	4
E9	#4	6'-10"	--	6'-10"	5
E10	#4	6'-10"	--	6'-10"	1
E11	#4	5'-5"	--	5'-5"	2
E12	#4	4'-1"	--	10'-11"	6
E13	#5	--	--	4'-4 1/2"	16 OR 8**
E14	#5	4'-4"	--	4'-4"	8**
E15	#4	3'-4"	6 1/2"	6'-1 1/2"	1
E16	#4	3'-4"	5 7/8"	6'-0 7/8"	1
E17	#4	3'-4"	4 3/4"	5'-11 3/4"	1
R10	#5	--	--	CONTINUE INTO CWB	6 OR 12**

** FOR TRANSITION TO BRIDGE BARRIER RAILING ONLY

REBAR SCHEDULE

NMDOT STANDARD DRAWING 606-17-7/9

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
ALBUQUERQUE, NM 87109
PHONE: 505-348-4000
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REVISION	BY	DATE

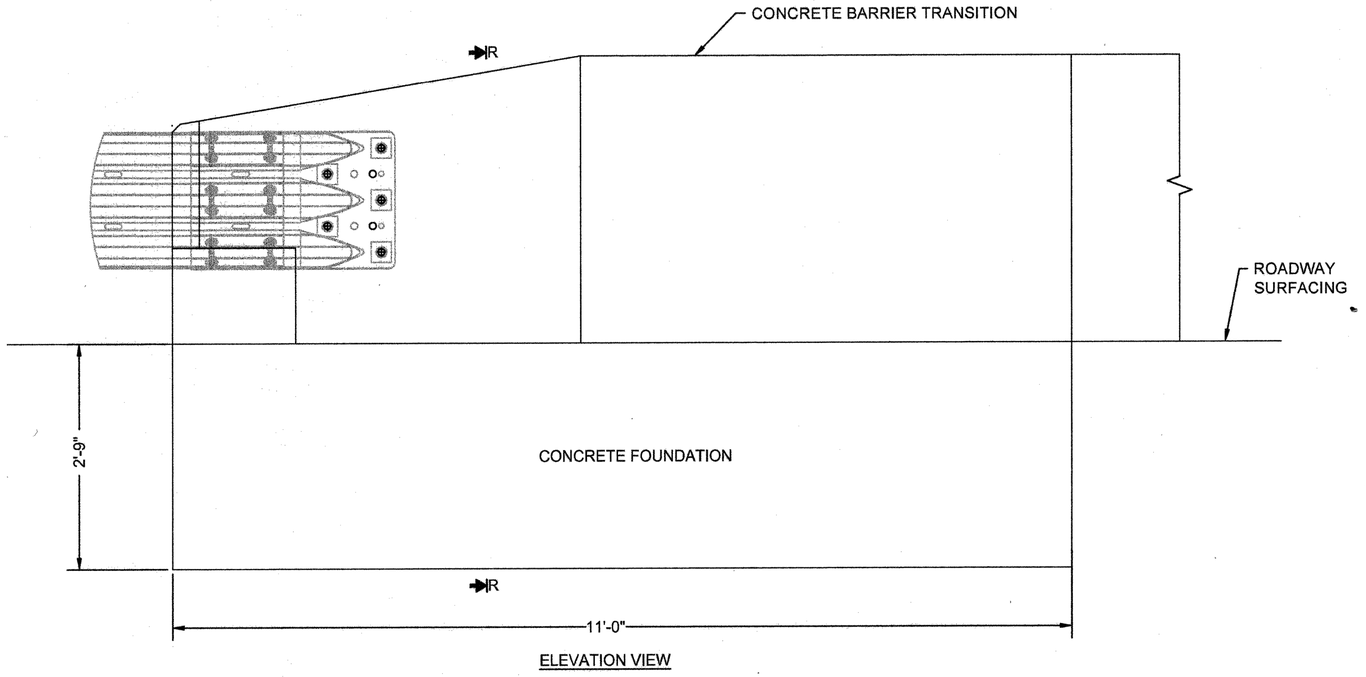
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

CONCRETE WALL BARRIER, TYPE 42
TRANSITION DETAILS

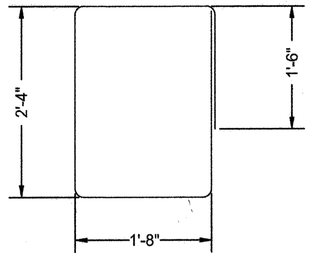
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		64 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	65

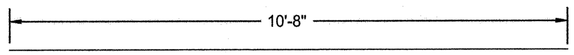


ELEVATION VIEW

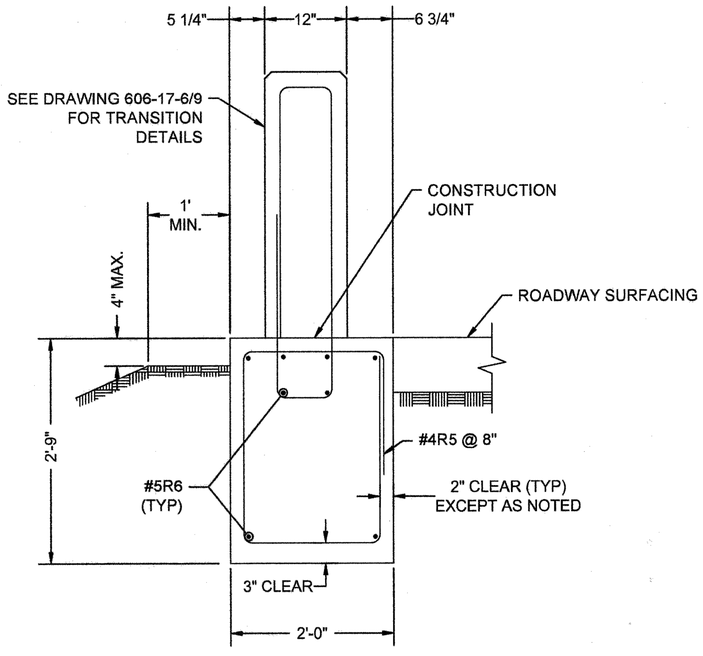
REINFORCING BAR LIST			
BAR I.D.	SIZE	LENGTH	NO. REQ'D
R5	#4	9'-6"	17
R6	#5	10'-8"	8



BAR R5



BAR R6



SECTION R-R

GENERAL NOTES:

1. CONCRETE SHALL BE CLASS AA (4,000 PSI MINIMUM).

2. CHAMFER EXPOSED EDGES 3/4" UNLESS NOTED OTHERWISE.

FOUNDATION DESIGN DATA:

DESIGN ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFCATIONS, 8TH EDITION, 2017.

TL-3 DESIGN FORCE, EQUIVALENT HORIZONTAL STATIC LOAD = 10 KIPS ASSUMED

HORIZONTAL EARTH PRESSURE = 36 LBS./CU. FT. EQUIVALENT FLUID PRESSURE

UNIT WEIGHT OF BACKFILL = 120 LBS./CU. FT

UNIT WEIGHT OF CONCRETE = 145 LBS./CU. FT.

ANGLE OF INTERNAL FRICTION OF SOIL = 29°

NMDOT STANDARD DRAWING 606-17-8/9

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REVISION	BY	DATE

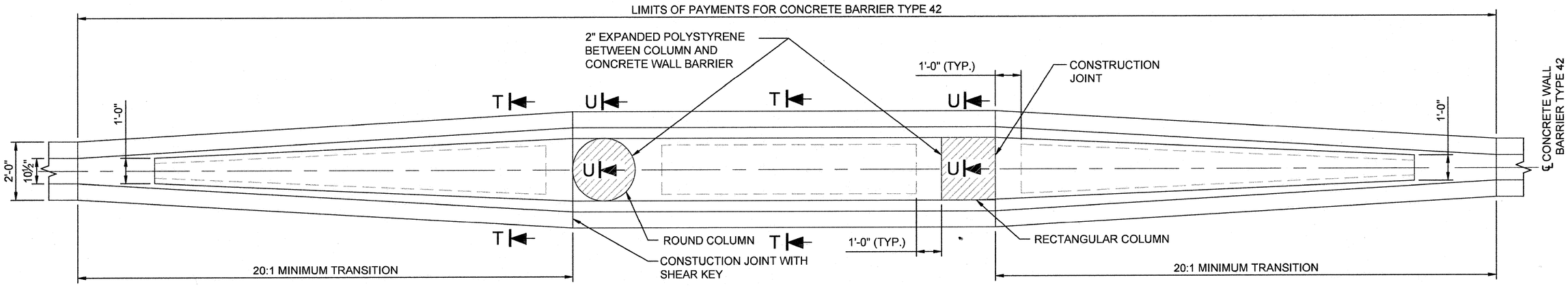
NAVAJO NATION
DIVISION OF TRANSPORTATION

N13(3-3)1,4

CONCRETE WALL BARRIER, TYPE 42
TRANSITION DETAILS

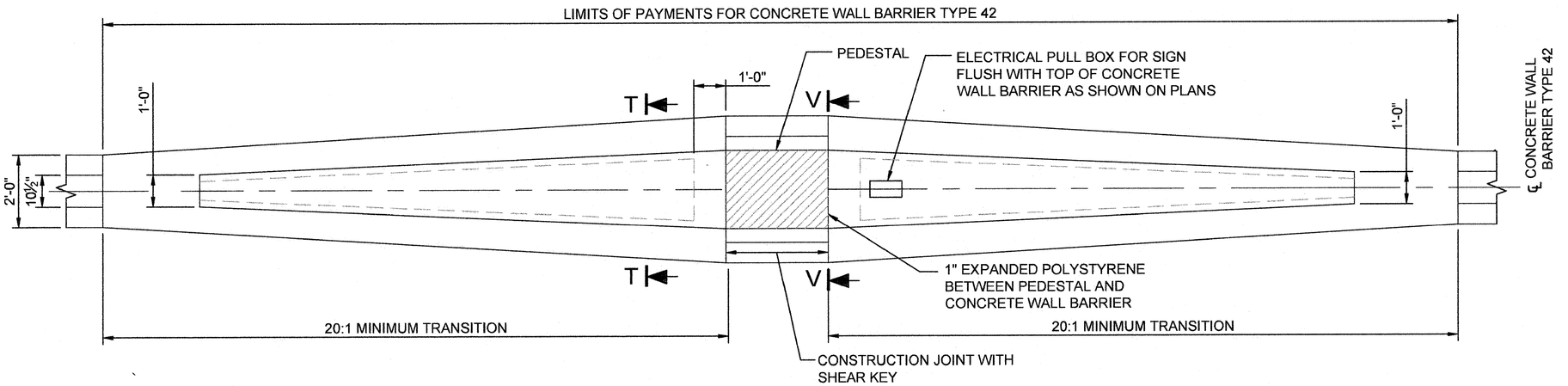
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		65 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	66



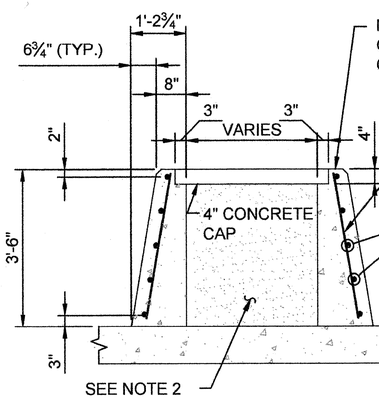
TRANSITION AT BRIDGE COLUMNS

NOT TO SCALE



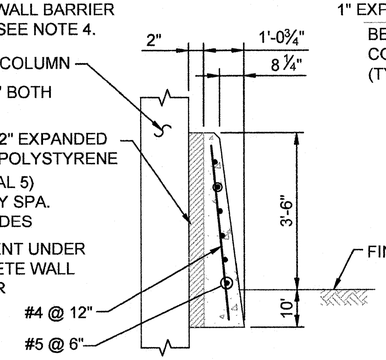
TRANSITION AT SIGN PEDESTAL

NOT TO SCALE



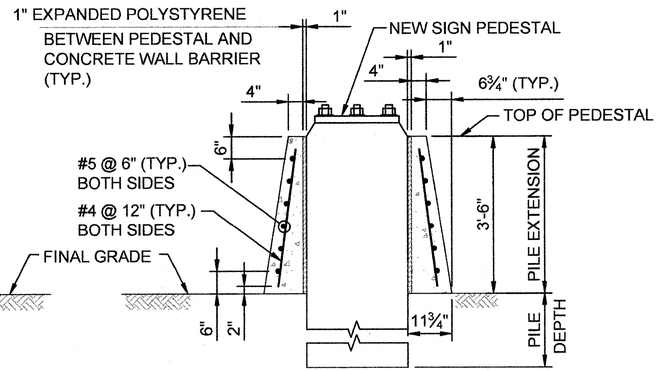
SECTION T-T

NOT TO SCALE



SECTION U-U

NOT TO SCALE



SECTION V-V

NOT TO SCALE

DESIGNED BY: NMDOT

GENERAL NOTES:

1. SEE STANDARD PLAN FOR CONCRETE WALL BARRIER TYPE 42.
2. PLACE GRANULAR MATERIAL FROM BASE TO BOTTOM OF 4 INCH CAP.
3. REINFORCING STEEL SHALL EXTEND CONTINUOUS THROUGH CONSTRUCTION JOINTS.
4. ADJUST HEIGHT OF CONCRETE WALL BARRIER ON LOW SIDE OF OFFSET OR SUPERELEVATED ROADWAYS TO PROVIDE LEVEL GRADE ACROSS TOP OF CONCRETE WALL BARRIER CAP.
5. CHAMFER ALL EXPOSED EDGES 3/4 INCHES.
6. CONCRETE COVER FOR REINFORCING BARS SHALL BE A MINIMUM OF 2 INCHES CLEAR.
7. CONCRETE WALL BARRIER TYPE 42 AT COLUMN AND SIGN PEDESTALS SHALL BE PAID PER LINEAR FOOT PER COMPLETE INSTALLATION, WHICH INCLUDES BOTH SIDES OF THE OBSTRUCTION.

NMDOT STANDARD DRAWING 606-17-9/9

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4401 MASTHEAD ST. NE., SUITE 150
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REVISION	BY	DATE

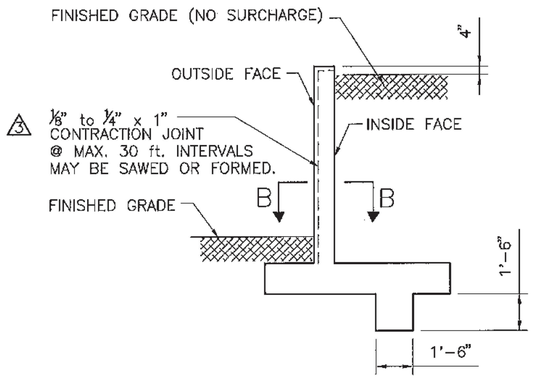
NAVAJO NATION DIVISION OF TRANSPORTATION

N13(3-3)1,4

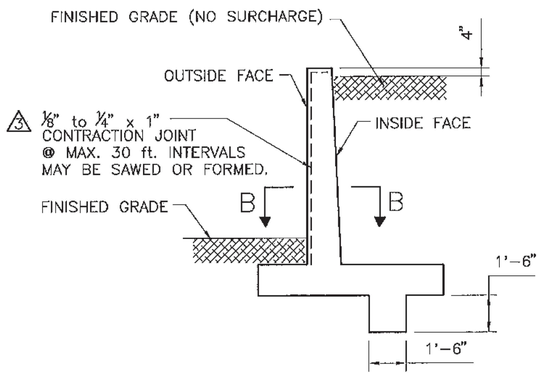
CONCRETE WALL BARRIER, TYPE 42 AT COLUMN & SIGN PEDESTALS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		66 OF 74
SCALE: T"=100' H 1"=20' V			

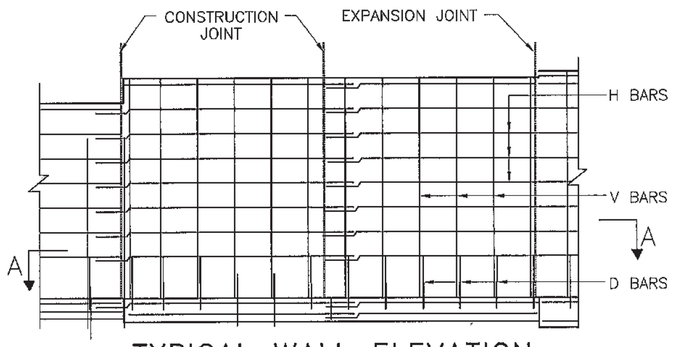
STATE	PROJECT	SHEET NUMBER
NM	N13	67



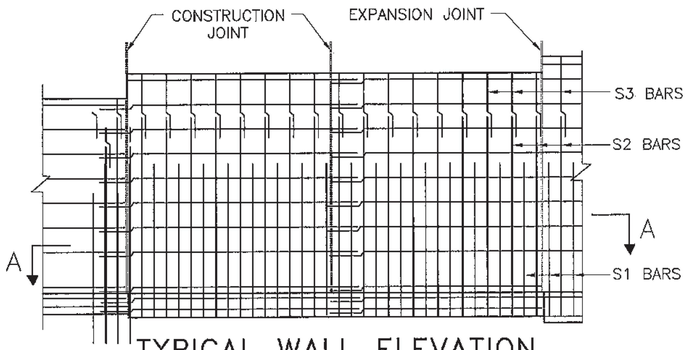
TYPICAL SECTION
(FOR H = 4' TO 12')



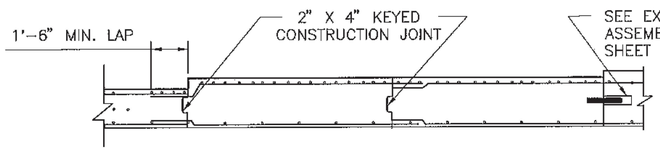
TYPICAL SECTION
(FOR H = 13' TO 16')



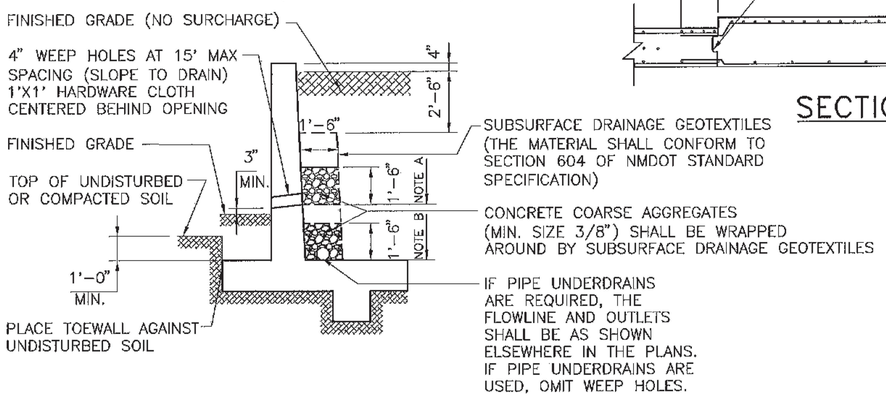
TYPICAL WALL ELEVATION
(OUTSIDE FACE ELEVATION)



TYPICAL WALL ELEVATION
(INSIDE FACE ELEVATION)

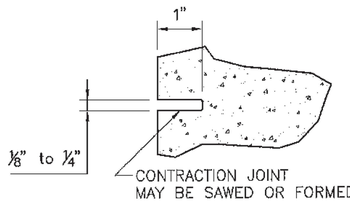


SECTION A-A



DRAINAGE DETAILS AND EXCAVATION DIAGRAM

NOTE A: STOP COURSE AGGREGATE AT THIS LEVEL WHEN WEEP HOLES ARE USED.
NOTE B: USE COURSE AGGREGATE TO HERE WITH SUBSURFACE DRAINAGE GEOTEXTILES ABOVE WHEN PIPE UNDERDRAIN IS USED.



⚠3 SECTION B-B

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO NMDOT STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS, CURRENT EDITION.
2. ALL CONCRETE SHALL BE CLASS "A." CHAMFER ALL EXPOSED EDGES 3/4", UNLESS OTHERWISE NOTED.
3. ALL REINFORCING BARS SHALL CONFORM TO AASHTO STANDARD SPECIFICATIONS M 31 GRADE 60 UNLESS OTHERWISE NOTED. DIMENSIONS REFER TO CENTER LINE OF BAR.
4. ALL REINFORCING BARS SHALL HAVE 2" CLEAR COVER UNLESS NOTED OTHERWISE.
5. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
6. ⚠1 ALL RETAINING WALLS SHALL HAVE CONTRACTION JOINTS SPACED AT NO MORE THAN 30'-0" APART OR AS SHOWN. REINFORCING BARS SHALL PROJECT THROUGH THE JOINT.
7. ALL RETAINING WALLS SHALL HAVE EXPANSION JOINTS PROVIDED AT INTERVALS NOT EXCEEDING 90'-0".
8. FOOTINGS MAY BE CONTINUOUS WITH NO JOINT.
9. SPECIAL DESIGN IS REQUIRED WHEN "H" DIMENSION IS ABOVE 16 FEET.
10. COHESIVE SOILS OF SILT, CLAY, ETC. SHALL NOT BE USED FOR BACKFILL. THE BACKFILL SHALL BE FREE-DRAINING.
11. APPROPRIATE DRAINAGE PROVISIONS SHALL BE PROVIDED AS SHOWN ON THE LAYOUT DRAWINGS.
12. ALL EARTH WORK INCLUDING BACKFILL MATERIAL AND COMPACTION SHALL CONFORM TO SECTION 210 OF NMDOT STANDARD SPECIFICATIONS, CURRENT EDITION.
13. FOR H GREATER THAN 8 FEET, FOUNDATION EXPLORATION WILL BE REQUIRED TO VERIFY ADEQUATE FOUNDATION CONDITIONS.
14. ⚠2 THE LOCATIONS OF NEEDED CONSTRUCTION JOINTS ARE EITHER SHOWN ON THE PLANS OR TO BE DIRECTED OR APPROVED BY THE PROJECT MANAGER.

⚠4 DESIGN DATA

DESIGN ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, THIRD EDITION, 2004.
DESIGN STRESS:
CLASS "A" CONCRETE: fc'=3000 psi
GRADE 60 REINFORCING STEEL: fy=60000 psi
HORIZONTAL EARTH PRESSURE = 36 LBS./CU. FT. EQUIVALENT FLUID PRESSURE.
WEIGHT OF BACKFILL = 120 LBS./CU. FT.
WEIGHT OF CONCRETE = 145 LBS./CU. FT.
ANGLE OF INTERNAL FRICTION OF EXISTING GROUND = 29°
FACTORED BEARING CAPACITY qr = 2.0 TONS/SQ. FT. IS USED FOR THE DESIGN ON THESE DRAWINGS.

NMDOT STANDARD DRAWING 511-80-1/3

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NAVAJO NATION
DIVISION OF TRANSPORTATION
NAVAJO D.O.T

N13(3-3)1,4

CANTILEVER RETAINING WALL GENERAL NOTES, SECTIONS, & ELEVATIONS

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		67 OF 74
SCALE: 1"=100' H 1"=20' V			

STATE	PROJECT	SHEET NUMBER
NM	N13	68

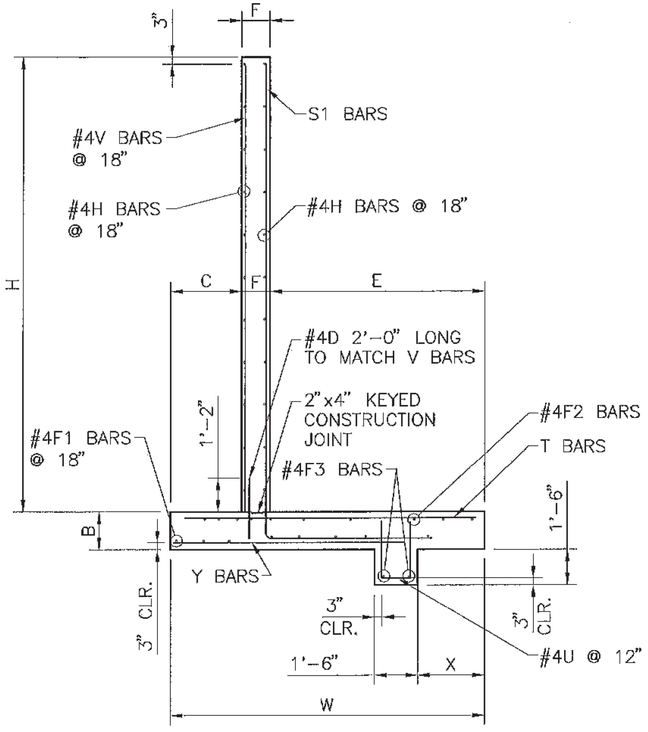
CASE I – LEVEL FILL

REINFORCING BAR LIST

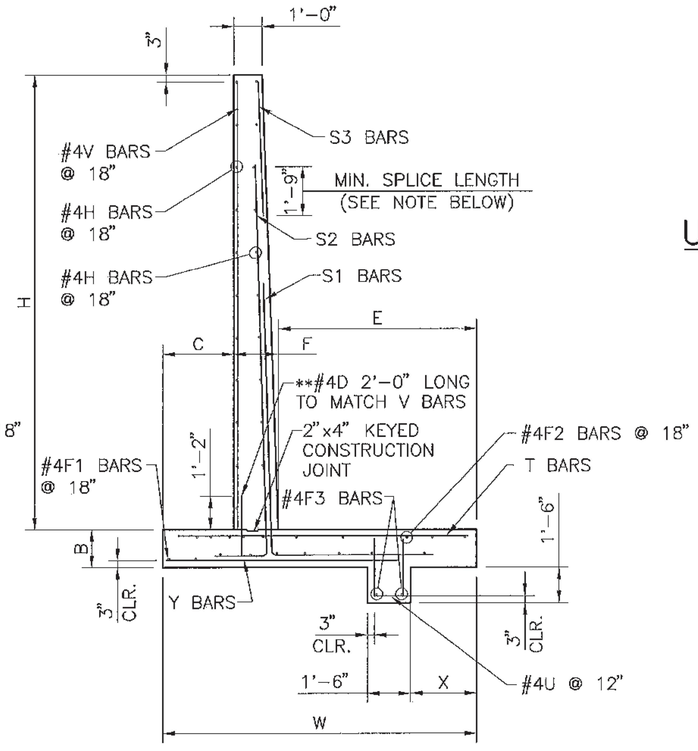
* DENOTES THE TOTAL NUMBERS OF BARS IN CROSS SECTION.

WALL DIMENSIONS							S1			S2			S3			#4H	#4V	#4D	#4U	Y			#4F1	T			#4F2	#4F3	MAX. TOE PRESSURE	ESTIMATED QUANTITY (PER LIN. FT. OF WALL)	
H	W	B	C	F	E	X	BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING	LENGTH	BAR SIZE	SPACING	LENGTH	NUM. *	LENGTH	LENGTH	LENGTH	BAR SIZE	SPACING	LENGTH	NUM. *	BAR SIZE	SPACING	LENGTH	NUM. *	NUM. *	TONS/SQ.FT.	CONCRETE CU.YD.	REBAR LBS.
4'	3'–0"	1'–0"	10"	10"	1'–4"	8"	#5	12"	5'–8"							6	3'–11"	2'–0"	2B+(2'–6")	#5	12"	2'–6"	3	#5	12"	2'–9"	3	2	0.58	0.32	26.6
5'	3'–6"	1'–0"	1'–0"	10"	1'–8"	9"	#5	12"	6'–8"							8	4'–11"	2'–0"	2B+(2'–6")	#5	12"	3'–0"	3	#5	12"	3'–3"	3	2	0.66	0.37	30.2
6'	4'–3"	1'–0"	1'–0"	10"	2'–5"	10"	#5	12"	7'–8"							10	5'–11"	2'–0"	2B+(2'–6")	#5	12"	3'–9"	3	#5	12"	4'–0"	3	2	0.75	0.43	34.6
7'	4'–9"	1'–0"	1'–0"	10"	2'–11"	11"	#5	12"	8'–8"							10	6'–11"	2'–0"	2B+(2'–6")	#5	12"	4'–0"	4	#5	12"	4'–6"	4	2	0.89	0.48	38.1
8'	5'–6"	1'–0"	1'–2"	10"	3'–6"	1'–0"	#5	12"	9'–8"							12	7'–11"	2'–0"	2B+(2'–6")	#5	12"	4'–9"	4	#5	12"	5'–3"	4	2	0.95	0.53	42.6
9'	6'–0"	1'–0"	1'–3"	11"	3'–10"	1'–2"	#5	12"	10'–8"							14	8'–11"	2'–0"	2B+(2'–6")	#5	12"	5'–0"	4	#5	12"	5'–9"	5	2	1.08	0.61	46.9
10'	6'–9"	1'–2"	1'–4"	1'–0"	4'–5"	1'–3"	#6	12"	11'–10"							14	9'–11"	2'–0"	2B+(2'–6")	#5	12"	5'–9"	5	#5	12"	6'–6"	5	2	1.22	0.75	56.4
11'	7'–6"	1'–2"	1'–5"	1'–0"	5'–1"	1'–4"	#6	12"	12'–10"							16	10'–11"	2'–0"	2B+(2'–6")	#5	12"	6'–6"	5	#6	12"	7'–3"	6	2	1.31	0.82	65.2
12'	8'–3"	1'–2"	1'–6"	1'–0"	5'–9"	1'–5"	#7	12"	14'–0"							18	11'–11"	2'–0"	2B+(2'–6")	#5	12"	7'–0"	6	#7	12"	8'–0"	6	2	1.40	0.88	82.9
13'	8'–9"	1'–3"	1'–7"	1'–2"	6'–0"	1'–6"	#7	12"	8'–8"				#5	12"	8'–3"	18	12'–11"	2'–0"	2B+(2'–6")	#5	12"	7'–6"	6	#7	12"	8'–6"	7	2	1.56	1.01	83.5
14'	9'–6"	1'–3"	1'–8"	1'–2"	6'–8"	1'–7"	#8	12"	9'–4"				#5	12"	8'–9"	20	13'–11"	2'–0"	2B+(2'–6")	#5	12"	8'–3"	6	#8	12"	9'–3"	7	2	1.64	1.09	101.1
15'	10'–0"	1'–5"	2'–1"	1'–3"	6'–8"	1'–8"	#7	12"	9'–10"	#5	12"	10'–9"	#5	12"	9'–3"	22	14'–11"	2'–0"	2B+(2'–6")	#6	12"	8'–6"	7	#8	12"	9'–9"	8	2	1.71	1.23	115.8
16'	11'–0"	1'–5"	2'–2"	1'–3"	7'–7"	1'–9"	#7	12"	10'–4"	#5	12"	11'–3"	#5	12"	9'–9"	22	15'–11"	2'–0"	2B+(2'–6")	#6	12"	9'–6"	7	#9	12"	10'–9"	8	2	1.96	1.33	130.5

(FOR ALL #4 BARS, THE REQUIRED MIN. SPLICE LENGTH SHALL BE 1'–6".)



TYPICAL WALL CROSS SECTION
(FOR H = 4' TO 12')

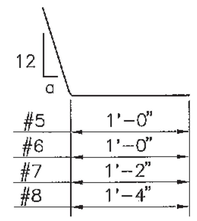


TYPICAL WALL CROSS SECTION
(FOR H = 13' TO 16')

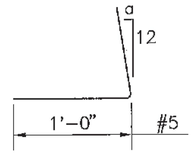
NOTE:
S3 BARS SHALL SPLICE WITH S1 BARS WHEREVER THERE IS NO S2 BARS SHOWN IN THE TABLE ABOVE FOR H FROM 13' TO 16'.

H (FT)	a
4–12	0.0000 (0)
13	0.1538(5/32)
14	0.1429(5/32)
15	0.2000(7/32)
16	0.1875(3/16)

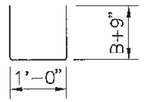
USE FOR S1 & S2 BARS



S1 BARS



S2 BARS



#4U BARS

S3,H,V,Y,F1,T,F2,F3,D BARS

REINFORCING BAR DETAIL

WILSON & COMPANY
4401 MASTHEAD ST. NE., SUITE 150
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DIVISION OF TRANSPORTATION

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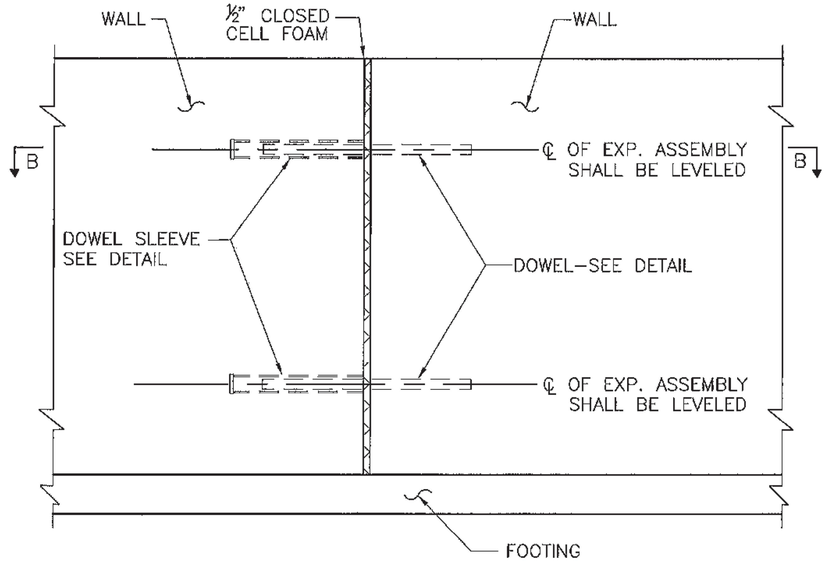
N13(3-3)1,4

CANTILEVER RETAINING WALL AND REINFORCING BAR DETAILS

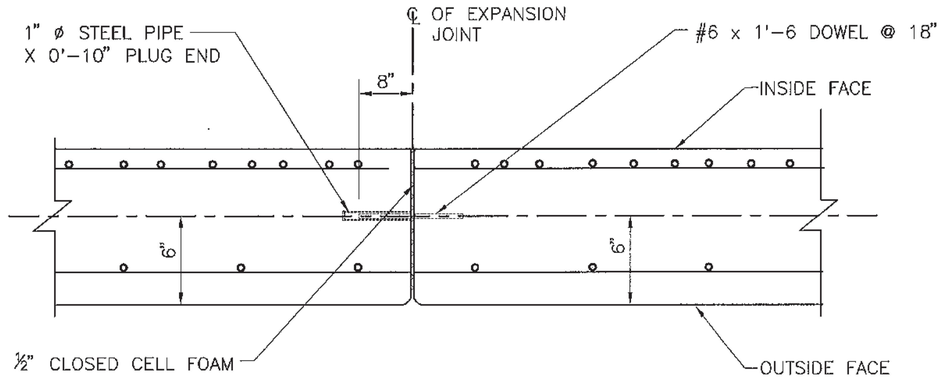
PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		68 OF 74
SCALE: 1"=100' H 1"=20' V			

NMDOT STANDARD DRAWING 511-80-2/3

STATE	PROJECT	SHEET NUMBER
NM	N13	69

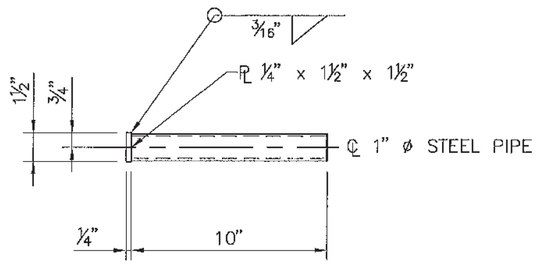


ELEVATION VIEW

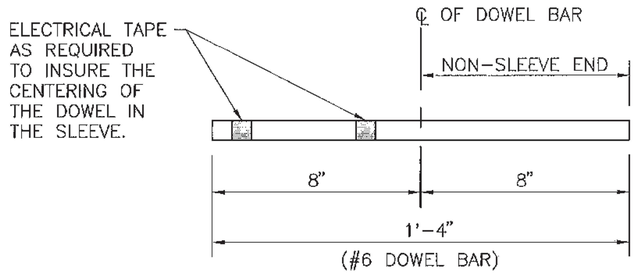


SECTION B–B

EXPANSION ASSEMBLY DETAIL



DOWEL SLEEVE DETAIL



DOWEL DETAIL

GENERAL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO ASTM A 36 UNLESS OTHERWISE NOTED ON THE DETAILS, AND SHALL BE HOT–DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M 111.
2. BEFORE AND AFTER THE CONCRETE OF THE WALL IS PLACED, THE CONTRACTOR SHALL ENSURE THAT THE CENTER LINES OF ALL EXPOSED ASSEMBLIES ARE ALWAYS KEPT LEVELED AND 6" AWAY FROM THE OUTSIDE FACE OF THE WALL, AS SHOWN ON THIS DRAWING.
3. THE MATERIAL AND INSTALLATION COST OF 1/2" CLOSED CELL FOAM AND EXPANSION ASSEMBLIES SHALL BE CONSIDERED INCIDENTAL TO THE COST OF RETAINING WALL CONSTRUCTION AND NO DIRECT PAYMENT WILL BE MADE THEREFOR.

NMDOT STANDARD DRAWING 511-80-3/3

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CANTILEVER RETAINING WALL
EXPANSION ASSEMBLY DETAIL

PROJECT MANAGER: MKC	DATE: 5/25	DRAWING	SHEET
LEAD DESIGNER: KAN	DATE: 5/25		
AS-BUILT BY:	DATE:		69 OF 74
SCALE: 1"=100' H 1"=20' V			