

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL
ROUTE



18.7 km
I.D. No. N36430

NTS

PROJECT N9010(1)2&4

GRADE, DRAIN, AGGREGATE BASE COURSE, HOT ASPHALT
CONCRETE PAVEMENT, AND MISCELLANEOUS CONSTRUCTION

E.O.P. STA. 18+686.000

B.O.P. STA. 00+003.287

LEGEND

- STATE LINE
RESERVATION LINE
COUNTY LINE
TOWNSHIP or RANGE LINE
SECTION LINE
NATIONAL FOREST LINE
HIGHWAY RIGHT-OF-WAY LINE
UNFENCED PROPERTY
SECTION CORNER and 1/4 CORNER
CUT LIMITS
FILL LIMITS
OVERHEAD POWER LINE
TELEPHONE LINE
POLE GUY and ANCHOR
TRAFFIC SIGN
GUARDRAIL
DELINEATOR
BARBED WIRE FENCE
CHAIN LINK FENCE
WOVEN WIRE FENCE
CATTLE GUARD
CULVERTS
CONCRETE BOX CULVERTS
GROUND LINE - EARTH
GROUND LINE - ROCK
EXISTING ROAD
SIDE ROAD TURNOUT
TREES and SHRUBS
CHANNEL or DITCH
DIKE or DITCH BLOCK
RIPRAP
RAILROAD TRACK
WATER LINE
IRRIGATION LINE
WELL
DWELLING
SCHOOL
CHURCH
WINDMILL
RIGHT-OF-WAY MONUMENT
TEMPORARY BENCH MARK
CONTROL POINT
OBJECT MARKERS
DITCH BLOCK
- INDIAN SERVICE
COUNTY
STATE
FEDERAL
- PAVED
GRADED
UNIMPROVED

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PROJECT LENGTH			
STATION TO STATION		LIN. METERS	KILOMETERS
B.O.P. Station	0+003.287	18,682.713	18.682
E.O.P. Station	18+686.000		
TOTAL		18,682.713	18.682

RIGHT-OF-WAY			
LEFT OF CENTERLINE		RIGHT OF CENTERLINE	
STATION TO STATION	WIDTH	STATION TO STATION	WIDTH
0+019.820 to 1+800.000	23 m	0+019.820 to 0+205.000	23 m
1+800.000 to 1+860.000	30 m	0+205.000 to 0+225.000	18.5 m
1+860.000 to 3+582.591	23 m	0+225.000 to 1+790.000	23 m
3+582.591 to 3+810.000	50 m	1+790.000 to 1+900.000	30 m
3+810.000 to 9+120.000	23 m	1+900.000 to 9+130.000	23 m
9+120.000 to 9+180.000	30 m	9+130.000 to 9+230.000	30 m
9+180.000 to 10+750.000	23 m	9+230.000 to 9+400.000	23 m
10+750.000 to 10+880.000	30 m	9+400.000 to 9+510.000	15 m
10+880.000 to 11+390.000	23 m	9+510.000 to 12+010.000	23 m
11+390.000 to 11+500.000	30 m	12+010.000 to 12+780.000	17 m
11+500.000 to 13+313.277	23 m	12+780.000 to 13+240.000	13 m
13+313.277 to 13+560.000	15 m	13+240.000 to 14+357.526	23 m
13+560.000 to 15+638.799	23 m	14+357.526 to 15+527.682	19 m
15+638.799 to 15+770.000	10 m	15+527.682 to 15+672.828	15 m
15+770.000 to 16+000.000	15 m	15+672.828 to 15+783.155	7 m
16+000.000 to 16+220.000	*	15+783.155 to 15+885.669	23 m
16+220.000 to 16+260.000	**	15+885.669 to 16+065.307	15 m
16+260.000 to 18+260.000	23 m	16+065.307 to 17+840.000	23 m
18+260.000 to 18+308.489	15 m	17+840.000 to 17+900.000	17 m
18+308.489 to 18+786.000	23 m	17+900.000 to 18+786.000	23 m

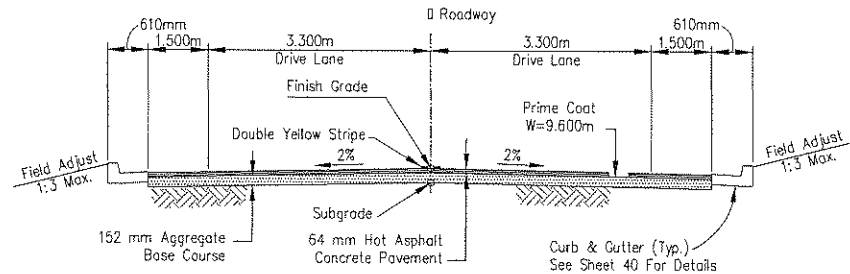
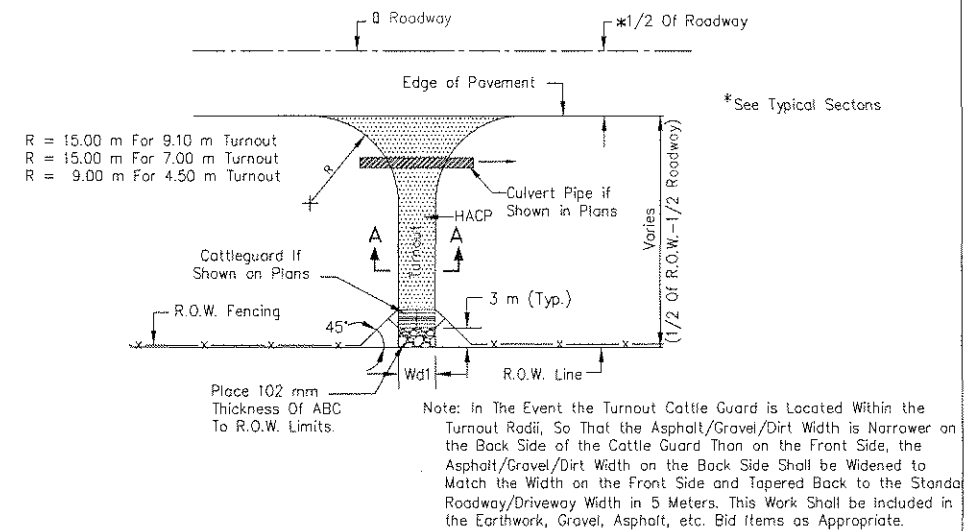
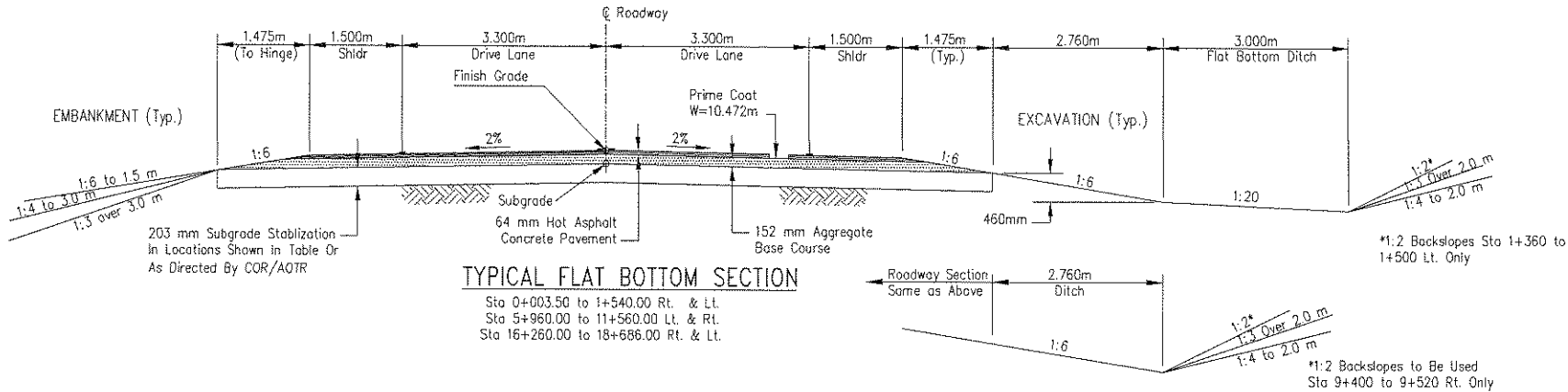
* R.O.W. Tapers from 15 m Lt. at Sta 16+000.000 to 9.5 m Lt. at Sta 16+220.000
** R.O.W. Tapers from 9.5 m Lt. @ Sta 16+220 to 23.0 m Lt. @ Sta 16+250

DESIGN DATA - N9010(1)2&4

2004 ADT	249 vpd	2024 Estimated ADT	304 vpd
Max. Superelevation	4%		
0+003.287 to 15+300.000 & 16+000.000 to 18+686.000		15+300.000 to 16+000.000	
Design Speed	80 km/h	Design Speed	50 km/h
Minimum Radius	280 m	Minimum Radius	86 m
Maximum Gradient	8%	Maximum Gradient	10%
Min. Stopping Sight Distance	130 m	Min. Stopping Sight Distance	65 m
Min. Passing Sight Distance	540 m	Min. Passing Sight Distance	345 m

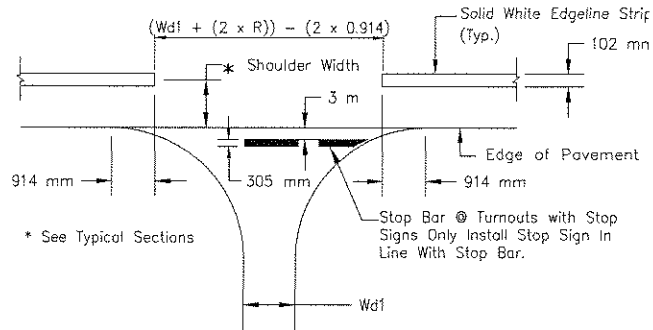
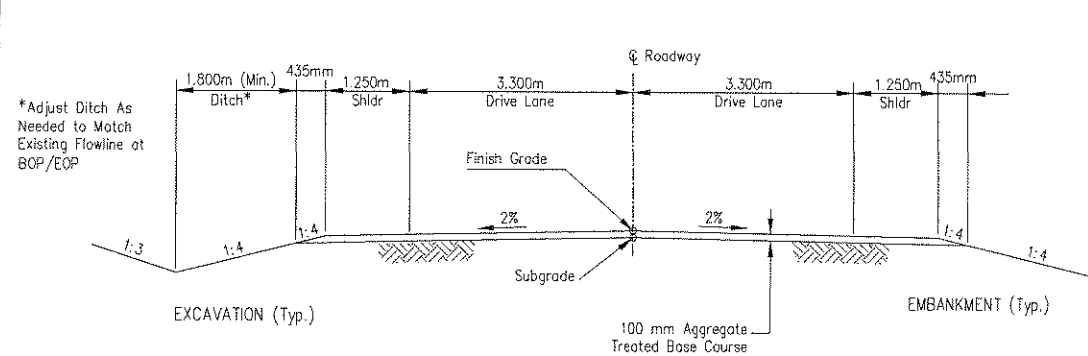
U.S. DEPARTMENT OF THE INTERIOR BUREAU OF INDIAN AFFAIRS NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION	
RECOMMENDED APPROVAL	APPROVAL
AGENCY ROAD ENGINEER	DATE
DIVISION MANAGER	DATE
PLANNING AND DESIGN BRANCH CHIEF	DATE
	REGIONAL DIRECTOR
	DATE

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	2	63



APPROXIMATE LIMITS OF SUBGRADE STABILIZATION	
Sta	1+050 to 1+350
Sta	2+550 to 2+850
Sta	3+150 to 3+450
Sta	4+050 to 4+350
Sta	5+850 to 6+200
Sta	6+750 to 7+150
Sta	7+950 to 8+250
Sta	8+850 to 10+650
Sta	10+950 to 11+300
Sta	11+550 to 11+850
Sta	17+550 to 17+850

NOTE: At Locations Where the R-value of the Subgrade Soils Is Less Than 50, Subgrade Stabilization Will Be Required. The Amount of Road Bond Required Will be approximately 4% by weight, in Accordance with Section 213 of the Supplemental Specifications. The Approximate Limits of Subgrade Stabilization As Shown on this Sheet Are For Reference Only. Subgrade Stabilization Will Be in Accordance With Section 213 of FP-03, And the Supplemental Specifications.



TURNOUT EXTENSION NOTE:

The Turnouts Listed Below Will Require Earthwork And Grading Outside The Road Right-Of-Way. This Work Is Necessary To Obtain Acceptable Turnout Grades of $\pm 8.0\%$ Maximum Or To Create Smooth Tie-ins To Existing Turnouts. The Specific Length Of Extensions Required To Meet Acceptable Grades Shall Be Determined By The C.O.R. The Width Of Extensions Shall Match The New Driveway Width Given On The Plans. The Cost Of The Extensions Shall Be Incidental To Earthwork Related Road Construction Items. No Earthwork Or Other Measurements Shall Be Taken. Specified Aggregate, Asphalt, Concrete, Or Other Pavement Related Structural Material Will Be Measured And Paid Under The Appropriate Bid Items.

Sta. 0+615.000 Lt.	Sta. 14+701.000 Rt.
Sta. 1+436.000 Rt.	Sta. 14+945.000 Lt.
Sta. 1+639.000 Lt.	Sta. 15+335.000 Rt.
Sta. 2+114.480 Rt. & Lt.	Sta. 15+474.500 Rt.
Sta. 3+435.000 Rt.	Sta. 15+543.000 Rt.
Sta. 7+335.000 Lt.	Sta. 15+643.000 Rt.
Sta. 9+515.000 Rt.	Sta. 15+715.000 Lt.
Sta. 11+654.000 Lt.	Sta. 15+760.000 Lt.
Sta. 12+140.000 Lt.	Sta. 15+770.000 Rt.
Sta. 12+741.000 Lt.	Sta. 15+839.000 Rt.
Sta. 13+035.000 Rt.	Sta. 17+240.000 Lt.
Sta. 13+047.500 Lt.	Sta. 17+860.000 Rt.
Sta. 13+605.000 Lt.	

N9405 Stationing
Sta. 20+100.000 Rt. (Place Gravel Only)

REVISED
9/8/09

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

TYPICAL ROADWAY SECTIONS & TURNOUTS

BASIS OF ESTIMATED QUANTITIES				
ITEM NO.	DESCRIPTION	GRADE	UNITS	APPLICATION
30101-2000	Untreated Aggregate Base Course (ABC)	"D"	2244 kg/m ³	Main Roadway & Turnouts: 152 mm
40201-0500	Hot Asphalt Concrete Pavement, Class "B"	"B"	2404 kg/m ³	Main Roadway & Turnouts: 64 mm (1-Lift)
40502-0800	Asphalt Cement	PG 58-28	0.9806 L/kg	6.0% By Weight of Total Mix
41101-5000	Prime Coat	MC-70	1.056 L/kg	1.36 L/m ² , Apply on Top of ABC

Designed by: RDL

Drawn by: Date: 05-05

Revised by: Design2 Date: 01/08/09

File Name: N9010_Typical & Notes



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	3	63

GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-03), 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 COR/AOTR, 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 635--TEMPORARY TRAFFIC CONTROL. THE CONTRACTOR SHALL ALSO SUBMIT A COPY OF HIS TRAFFIC CONTROL PLAN, RELATED TO CR7250, TO THE APACHE COUNTY ROAD DEPARTMENT (2)-WEEKS PRIOR TO START OF CONSTRUCTION.

4. THE DESIGN FEATURES (INCLUDING HORIZONTAL AND VERTICAL ALIGNMENTS, TYPICAL SECTIONS, AND OTHER DESIGN DETAILS SHOWN) SHALL NOT BE ALTERED OR MODIFIED IN ANYWAY DURING CONSTRUCTION WITHOUT THE EXPRESSED WRITTEN DIRECTION AND APPROVAL OF THE NAVAJO REGION OFFICE-DIVISION OF TRANSPORTATION (NRDOT) DIVISION MANAGER THROUGH THE AWARDOING OFFICIAL (AO), UNLESS OTHERWISE NOTED IN THESE PLANS OR SPECIFICATIONS. DRAINAGE STRUCTURES AND TURNOUTS SHALL BE INSTALLED AS SHOWN WITH ONLY MINOR CORRECTIONS IN LOCATION, SKEW, AND/OR INVERT ELEVATIONS AS NEEDED TO FIT FIELD CONDITIONS. TURNOUTS MAY NOT BE SHIFTED MORE THAN 5.0 METERS FROM THE LOCATIONS SHOWN ON THE PLANS WITHOUT THE APPROVAL OF THE NRDOT DIVISION MANAGER THROUGH THE AO.

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-03 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, 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-03 WITHOUT APPROVAL BY THE NRDOT MANAGER UNLESS OTHERWISE SHOWN ON THESE PLANS. IN NO CASE SHALL ANY WORK BE PERFORMED OUTSIDE THE DESIGNATED RIGHT-OF-WAY LIMITS WITHOUT WRITTEN APPROVAL FROM THE NRDOT DIVISION MANAGER. THE CONSTRUCTION LIMIT IS THE CATCH POINT EARTHWORK LIMIT PLUS 3.0 METERS, NOT TO EXCEED THE RIGHT-OF-ENTRY LIMITS.

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 SPECIFICATION AND SPECIAL CONTRACT REQUIREMENTS.

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 FAR 52.211-18, VARIATION IN ESTIMATED QUANTITY.

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 FOR ALL 4.5m WIDE TURNOUTS; PLACE AGGREGATE AND HOT ASPHALTIC CONCRETE FOR TURNOUTS WIDER THAN 4.5m TO MATCH THE STRUCTURAL SECTION. THIS WORK SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEMS FOR THIS WORK AS SHOWN IN THE BID SCHEDULE.

12. THE CONTRACTOR SHALL BE REQUIRED TO OBLITERATE ALL EXISTING ABANDONED TURNOUTS AND ROADWAYS WITHIN THE WORKING LIMITS AND/OR AS SHOWN IN THE PLANS. FP-03, SECTION 211, METHOD 1, SHALL BE USED FOR THE OBLITERATION METHOD. ALL OBLITERATION WORK SHALL BE APPROVED BY THE COR/AOTR AND CONSIDERED INCIDENTAL TO BID ITEM 21101-1000, AT ABANDONED TURNOUTS SPECIFIED ON THE PLANS TO BE BLOCKED, A TYPE "A" EARTHEN DITCH DIKE SHALL BE CONSTRUCTED ACROSS THE TURNOUT AS DIRECTED BY THE COR/AOTR. THE DIKES SHALL BE 1.0 METER IN HEIGHT AND PAID FOR UNDER BID ITEM 20425-2000. ALL OBLITERATED AREAS SHALL BE SEEDED AND MULCHED AS PER SPECIFICATIONS AND PAID FOR UNDER BID ITEM 62510-1000.

GENERAL NOTES (CONTINUED)

13. 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-03, 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 COR/AOTR.

14. ALL FURROW 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 COR/AOTR. 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 COR/AOTR. THIS WORK SHALL BE INCIDENTAL TO BID ITEMS UNDER SECTIONS 602, 603, AND 607.

15. IMMEDIATELY PRIOR TO PLACING EMBANKMENT, AGGREGATE BASE COURSE, THE TOP 152 mm OF FINISHED SUBGRADE (INCLUDING TURNOUTS) SHALL BE CHECKED FOR COMPACTION AND GRADE. IF COMPACTION DOES NOT MEET THE MINIMUM SPECIFIED COMPACTION AND TOLERANCE REQUIREMENTS, THE SUBGRADE SHALL BE 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. FURNISHING OF WATER SHALL BE INCLUDED IN THE UNIT PRICE BID ITEMS 30101-2000.

16. THE EARTHWORK TABLE SHOWN IS TO ASSIST THE CONTRACTOR IN ESTABLISHING A BID UNDER THE EARTHWORK ITEMS SHOWN IN THE BID SCHEDULE. ALL EXCAVATION, BORROW, WASTE AND EMBANKMENT MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS 20401-0000. IF MATERIAL IS APPROVED, THE WASTE MATERIAL SHOWN ON THESE PLANS SHALL BE USED AS NECESSARY TO CONSTRUCT TURNOUTS, DITCH BLOCKS, AND/OR BE PLACED AS EMBANKMENT ALONG THE SHOULDERS IN AREAS AS DIRECTED BY THE COR/AOTR. WASTE MATERIAL NOT USED WITHIN THE PROJECT LIMITS, SHALL BE DISPOSED OF AS PER FP-03, SECTION 204.14.

17. 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. THE CONTRACTOR SHALL CONTACT NAVAJO TRIBAL UTILITY AUTHORITY (NTUA) AT (928)-729-5721, AND FRONTIER COMMUNICATION COMPANY AT (928)-871-3748, PRIOR TO STARTING ANY CONSTRUCTION ACTIVITIES. 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.

18. THE CONTRACTOR SHALL REMOVE, CLEAN, AND STOCKPILE ALL SALVAGEABLE EXISTING CULVERTS, CATTLE GUARDS AND FENCING MATERIALS, ETC, AS CALLED FOR ON THESE PLANS AND SECTIONS 203 AND 607. ALL SALVAGEABLE MATERIALS AS DETERMINED BY THE COR/AOTR SHALL BE TAKEN TO THE FORT DEFIANCE MAINTENANCE YARD (LOCATED 48.3 km NORTH OF THE BOP), EXCEPT FOR THE CATTLEGUARD AT TURNOUT STATION 15+770. RIGHT, WHICH WILL BE GIVEN TO PINE SPRINGS SCHOOL, AND STOCKPILED IN A DESIGNATED AREA. ANY MATERIALS DETERMINED TO BE UNUSEABLE BY THE COR/AOTR 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.

19. 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 NRDOT PLANNING & DESIGN BRANCH CHIEF, THROUGH THE COR/AOTR, 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 COMPUTERIZED STAKING REPORT 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.

20. THE CONTRACTOR SHALL SAW CUT (FULL DEPTH) THE EXISTING ASPHALT PAVEMENT WHERE OLD ASPHALT IS TO TIE INTO THE NEW ASPHALT PAVEMENT AT THE PINE SPRINGS SCHOOL ENTRANCES, 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 COR/AOTR. ALL SAWED PAVEMENT EDGES TO RECEIVE ASPHALT TACK COAT. THIS WORK SHALL BE INCIDENTAL TO BID ITEM 40201-0500 AS SHOWN IN THE BID SCHEDULE.

21. 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.

22. 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 COR/AOTR.

GENERAL NOTES (CONTINUED)

23. THE CONTRACTOR SHALL REMOVE BIA ROUTE N9010 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 COR/AOTR AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF SUCH SIGN REMOVAL. THESE ROADSIDE SIGNS SHALL BE SALVAGED AND TAKEN TO THE FORT DEFIANCE MAINTENANCE YARD. SIGNS NEEDED FOR SAFETY/INFORMATION SHALL BE TEMPORARILY RESET AS DIRECTED BY THE COR/AOTR. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATION OF THE CONTRACTOR.

24. GRADE AND SHAPE THE SHOULDER AND DITCHES (AS DIRECTED BY COR/AOTR) 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.

25. ALL RIGHT-OF-WAY REFERENCE MARKERS SHALL BE LABELED IN THE METRIC UNITS OF MEASURE. ALL EXISTING AND NEW BRASS CAPS SHALL BE STAMPED WITH BOTH ALIGNMENT STATIONING AND ELEVATIONS IN METRIC, UNLESS OTHERWISE NOTED UNDER SECTION 152 OF THE SUPPLEMENTAL SPECIFICATIONS. ANY EXISTING R/W MONUMENTS AND BRASS CAPS MISSING SHALL BE RE-SURVEYED IN TO THEIR ORIGINAL POSITION AND LABELED AND STAMPED ACCORDINGLY. ALL EXISTING REFERENCE MARKERS SHALL BE SAND BLASTED, CLEAN, AND REPAINTED WITH ENGLISH STATIONS ON ONE SIDE AND METRIC STATIONS ON THE OTHER. ANY MISSING OR DAMAGED MARKERS SHALL BE RE-SURVEYED AND REPLACED. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS 62101-0000 AND 62102-0000.

26. DUE TO NARROW RIGHT-OF-WAY WIDTHS AT PINE SPRINGS SCHOOL ENTRANCES, THE COMPLETE TURNOUT RADIUS CAN NOT BE CONSTRUCTED AT NUMEROUS TURNOUTS. AT THESE LOCATIONS THE CONTRACTOR SHALL CONSTRUCT THE PLANNED RADIUS, BUT END THE RADIUS AT THE RIGHT-OF-WAY LIMIT. THE ACTUAL TURNOUT WIDTH (AT THE RIGHT-OF-WAY LINE) WILL BE WIDER THAN THE WIDTH GIVEN ON THE PLANS.

27. THERE ARE A NUMBER OF ARCHAEOLOGICAL SITE MITIGATIONS THAT ARE NOTED ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE NAVAJO NATION HISTORIC PRESERVATION DEPARTMENT (NNHPD) AS REQUIRED PRIOR TO STARTING CONSTRUCTION ACTIVITIES IN THESE LOCATIONS. SEE THE SPECIAL CONTRACT REQUIREMENT SECTION OF THE CONTRACT FOR ADDITIONAL INFORMATION, AND REQUIREMENTS. CONTACT PETER KAKOS AT (505) 327-2579 PRIOR TO INSTALLATION OF RIGHT-OF-WAY FENCE IN AREAS CALLED FOR ON THESE PLANS. NO FENCING OR CONSTRUCTION WORK MAY TAKE PLACE WITHOUT THE ARCHAEOLOGIST PRESENT AT THESE LOCATIONS.

28. THE GEO-TECHNICAL REPORT FOR THIS PROJECT SHALL BE PROVIDED UPON WRITTEN REQUEST FROM THE CONTRACTOR THRU COR/AOTR.

29. ROADWAY ENDAREA AND PIPE CROSS SECTION DRAWINGS WILL BE PROVIDED IN EITHER HARD COPY OR ELECTRONIC FORMAT UPON WRITTEN REQUEST FROM THE CONTRACTOR THRU CO/AO.

30. 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 COR/AOTR. 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.

31. AT THE COMPLETION OF THE CONSTRUCTION, THE CONTRACTOR SHALL INSPECT THE INTERIOR OF ALL NEWLY INSTALLED OR EXTENDED/CLEANED 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, 603, 607, AND 619.

32. THERE ARE NUMBER OF LOCATIONS WHERE RIPRAP, CHANNEL FLOWLINE GRADING, TURNOUTS, ETC., WILL REQUIRE WORK AND IMPROVEMENTS PLACED THROUGH AND BEYOND 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 COR/AOTR. THIS WORK TO BE INCIDENTAL TO BID ITEM 61901-1000, 62101-0000, AND 62102-0000, AND NO ADDITIONAL PAYMENT WILL BE MADE.

REVISED 9/09

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE • DIVISION OF TRANSPORTATION

GENERAL NOTES

Designed by: RDL

Drawn by: Date: 05-05

Revised by: NRDOT Date: 05/09

File Name: N9010_Typical & Notes



ESTIMATED QUANTITIES					REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
					NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	4	63
ITEM	DESCRIPTION	QUANTITY	UNIT	AS BUILT							
10901-0000	Miscellaneous Work - Section 109.02(m)	All Req'd	L.S.								
15101-0000	Mobilization	All Req'd	L.S.								
15201-0000	Construction Survey and Staking	All Req'd	L.S.								
15301-0000	Contractor Quality Control	20,000	Man Hr								
15701-0000	Temporary Soil Erosion Control	All Req'd	L.S.								
15708-1000	Temporary Straw Mulching	32	Ha								
20102-0000	Clearing and Grubbing	All Req'd	L.S.								
20304-1000	Removal of Structures and Obstructions	All Req'd	L.S.								
20401-0000	Roadway Excavation	281,184	m³								
20425-2000	Furrow Ditches and Ditch Blocks	1,275	m								
20601-0000	Development of Water Supply	115.0	M-Liter								
21101-1000	Roadway Obliteration, Method 1	41,520	m²								
21301-4000	Subgrade Stabilization with EN-1 Road Bond, 152 Millimeter Depth	62,730	m²								
25101-2000	Placed Riprap, Class 2	1,477	m³								
25110-2000	Grouted Riprap, Class 2	46	m³								
30101-2000	Untreated Aggregate Base, Grading D	76,350	t								
30110-0000	Aggregate Surface Course, Grading D	550	t								
40201-0500	Hot Asphalt Concrete Pavement, Class B, Grading B	30,113	t								
40502-0800	Asphalt Binder, Grade PG 58-28	1,797	t								
41101-5000	Prime Coat, Grade MC-70	310	t								
60101-0000	Minor Concrete class A(AE)	98.8	m³								
60201-0810	610 Millimeter Pipe Culvert	793	m								
60201-0910	762 Millimeter Pipe Culvert	303	m								
60201-1010	914 Millimeter Pipe Culvert	150	m								
60201-1810	2134 Millimeter Pipe Culvert	125	m								
60202-0510	711 Millimeter Span, 508 Millimeter Rise Pipe Arch Culvert	281	m								
60202-0610	889 Millimeter Span, 610 Millimeter Rise Pipe Arch Culvert	135	m								
60202-0710	1067 Millimeter Span, 737 Millimeter Rise Pipe Arch Culvert	253	m								
60210-0810	End Section for 610 Millimeter Pipe Culvert	41	Each								
60210-0910	End Section for 762 Millimeter Pipe Culvert	13	Each								
60210-1010	End Section for 914 Millimeter Pipe Culvert	5	Each								
60211-0910	End Section for 711 Millimeter Span, 508 Millimeter Rise Pipe Arch Culvert	39	Each								
60211-1010	End Section for 889 Millimeter Span, 610 Millimeter Rise Pipe Arch Culvert	6	Each								
60211-1110	End Section for 1067 Millimeter Span, 737 Millimeter Rise Pipe Arch Culvert	10	Each								
60701-1000	Removing, Cleaning, and Stockpiling Culvert	123	m								
60902-0400	Portland Cement Concrete Curb and Gutter, 152 Millimeter Depth	367	m								
60902-2000	Portland Cement Concrete Curb and Gutter, Rolled Type Curb	101	m								
60905-1000	Portland Cement Concrete, Valley Gutter	50	m								
61102-3750	305 mm Encasement Pipe, Steel	35	m								
61501-0100	PCC Sidewalk, 100 mm Depth	159	m²								
61901-0100	Fence, Woven Wire	805	m								
61901-1000	Fence, 5-Strand Barbed Wire	36,423	m								
61902-1400	Gate, Type I	18	Each								
61902-1401	Gate, Type II	42	Each								
61902-1402	Gate, Type III	2	Each								
61903-0310	Cattle Guard, 2-Unit, 4.90 m Wide	40	Each								
61903-0710	Cattle Guard, 3-Unit, 7.19 m Wide	7	Each								
61903-1010	Cattle Guard, 4-Unit, 9.48 m Wide	4	Each								
61903-1210	Cattle Guard, 5-Unit, 11.77 m Wide	2	Each								
61921-2020	Removal of Fence Barb Wire	2,273	m								
62101-0000	Right of Way Monument	149	Each								
62102-0000	Reference Markers	131	Each								
62510-1000	Seeding, Dry Method	32	Ha								
62901-1100	Erosion Control Mat Type IV	2,825	m²								
63302-0001	Sign Installation, 1 Post and hardware: 2.98 kg/m	2.4	m²								
63302-0003	Sign Installation, 1 Post and hardware: 4.10 kg/m	20.6	m²								
63302-0010	Sign Installation, 2 Posts and hardware: 2.98 kg/m	34.0	m²								
63302-0012	Sign Installation, 2 Posts and hardware: 4.10 kg/m	2.6	m²								
63308-2000	Object Markers, Type 2 with 1 Post and Hardware: 2.98 kg/m	88	Each								
63309-0010	Delineators, Type Glas Fiber, Type 1a	26	Each								
63309-0020	Delineators, Type Glas Fiber, Type 1b	180	Each								
63313-0000	Rumble Strip	6	Each								

ESTIMATED QUANTITIES (CONTINUATION)					REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
					NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	4	63
ITEM	DESCRIPTION	QUANTITY	UNIT	AS BUILT							
63318-1000	Milepost, 1-Post & Hardware: 2.98 kg/m	44	Each								
63401-1510	Pavement Markings, Type "H" Solid Yellow	5,469	m								
63401-1520	Pavement Markings, Type "H", Solid White	35,952	m								
63401-1610	Pavement Markings, Type "H", Broken Yellow	17,051	m								
63405-3260	Pavement Markings, "Stop Bar", Type "H", Solid White	10	Each								
63501-0000	Temporary Traffic Control	All Req'd	L.S.								
63502-3000	Temporary Traffic Control, Raise Pavement Marker	6,227	Man Hr								
63509-1000	Flaggers	15,000	Man Hr								

TBM DATA					
NUMBER	NORTHING	EASTING	ELEVATION	STATION	OFFSET
TBM-1	474660.704	294933.714	1859.099	0+138.269	32.496 Rt.
TBM-2	474801.414	294880.999	1860.831	0+288.526	31.464 Rt.
TBM-4	475082.584	294766.996	1869.433	0+591.757	21.265 Rt.
TBM-5	475235.512	294723.799	1872.384	0+750.207	33.377 Rt.
TBM-6	475386.621	294660.403	1878.219	0+913.905	25.898 Rt.
TBM-7	475523.822	294618.726	1882.488	1+057.066	34.021 Rt.
TBM-8	475650.627	294515.436	1887.057	1+211.666	19.281 Lt.
TBM-9	475813.344	294511.696	1893.466	1+365.737	33.245 Rt.
TBM-10	475953.818	294454.263	1896.263	1+514.970	33.059 Rt.
TBM-11	476059.256	294334.067	1893.852	1+662.368	27.138 Lt.
TBM-12	476199.653	294267.799	1902.528	1+817.498	21.021 Lt.
TBM-13	476363.653	294242.789	1899.575	1+974.492	32.583 Rt.
TBM-14	476497.896	294169.203	1900.137	2+127.546	29.377 Rt.
TBM-15	476631.443	294098.488	1906.136	2+278.657	28.385 Rt.
TBM-16	476732.816	293977.283	1909.161	2+420.283	38.550 Lt.
TBM-17	476892.894	293935.309	1915.329	2+582.036	33.006 Lt.
TBM-18	477052.211	293892.975	1922.653	2+746.881	32.645 Lt.
TBM-19	477186.817	293849.693	1927.196	2+888.104	39.598 Lt.
TBM-20	477330.875	293812.790	1931.328	3+036.804	37.942 Lt.
TBM-21	477487.406	293778.413	1936.197	3+196.898	30.616 Lt.
TBM-22	477629.614	293733.517	1937.969	3+349.909	33.466 Lt.
TBM-23	477799.103	293710.074	1941.094	3+509.879	30.266 Rt.
TBM-24	477912.365	293607.894	1943.385	3+658.696	32.139 Rt.
TBM-25	478016.487	293499.001	1946.022	3+809.289	27.585 Rt.
TBM-26	478080.034	293353.427	1949.161	3+956.701	31.573 Lt.
TBM-27	478175.088	293215.106	1948.654	4+121.478	63.460 Lt.
TBM-28	478283.476	293103.883	1952.626	4+276.745	66.681 Lt.
TBM-29	478393.141	293000.391	1955.840	4+427.500	63.497 Lt.
TBM-30	478524.695	292916.451	1959.409	4+580.136	31.024 Lt.
TBM-31	478613.334	292783.227	1962.785	4+732.763	64.866 Lt.
TBM-32	478745.928	292693.045	1965.729	4+874.662	68.695 Lt.
TBM-33	478905.899	292742.062	1967.665	5+007.870	26.041 Rt.
TBM-34	479052.773	292654.217	1971.002	5+165.691	42.141 Lt.
TBM-35	479203.836	292634.490	1975.828	5+318.036	42.570 Lt.
TBM-36	479356.233	292617.264	1980.278	5+471.387	40.350 Lt.
TBM-37	479508.212	292596.111	1984.061	5+624.822	42.078 Lt.
TBM-38	479638.941	292579.069	1987.517	5+756.656	42.420 Lt.
TBM-39	479807.864	292558.423	1989.280	5+927.403	41.170 Lt.
TBM-40	479964.783	292536.773	1993.816	6+087.266	37.058 Lt.
TBM-41	480117.977	292518.057	1998.574	6+241.347	28.228 Lt.
TBM-42	480265.821	292494.743	2002.612	6+390.980	24.875 Lt.
TBM-43	480414.692	292457.282	2005.703	6+544.140	35.260 Lt.
TBM-44	480577.969	292433.211	2008.348	6+709.095	29.906 Lt.
TBM-45	480721.207	292414.041	2010.853	6+851.159	27.843 Lt.
TBM-46	480881.128	292460.020	2013.438	7+006.756	30.023 Rt.
TBM-47	481025.256	292393.861	2017.408	7+155.384	25.291 Lt.
TBM-48	481171.693	292376.753	2019.981	7+302.124	31.632 Lt.
TBM-49	481337.792	292378.498	2022.000	7+460.366	39.394 Lt.
TBM-50	481486.781	292418.344	2024.952	7+607.698	41.105 Lt.
TBM-51	481630.502	292467.631	2029.316	7+759.612	43.783 Lt.
TBM-52	481778.932	292519.081	2035.156	7+916.690	46.033 Lt.
TBM-53	481919.720	292574.188	2040.820	8+067.831	42.240 Lt.
TBM-54	482063.115	292628.240	2044.506	8+220.381	42.207 Lt.
TBM-55	482188.567	292681.730	2047.722	8+357.236	32.824 Lt.
TBM-56	482350.214	292729.479	2051.677	8+525.477	43.061 Lt.
TBM-57	482467.343	292781.571	2055.423	8+653.349	34.034 Lt.
TBM-58	482632.556	292887.796	2060.808	8+844.883	9.484 Rt.
TBM-59	482782.369	292887.713	2068.779	8+985.688	41.682 Lt.
TBM-60	482922.412	292932.414	2078.215	9+142.908	31.698 Lt.
TBM-61	483063.537	292927.926	2078.509	9+293.384	21.373 Lt.
TBM-62	483248.527	292875.237	2081.566	9+485.721	23.399 Lt.
TBM-63	483367.574	292841.887	2081.118	9+599.703	26.804 Lt.
TBM-64	483444.879	292817.222	2083.798	9+690.422	27.566 Lt.
TBM-65	483646.333	292814.995	2087.344	9+884.363	23.162 Rt.
TBM-66	483762.813	292787.793	2087.495	10+004.858	27.913 Rt.
TBM-67	483903.489	292685.865	2091.976	10+172.129	22.283 Lt.
TBM-68	484026.694	292602.775	2094.439	10+321.975	34.984 Lt.
TBM-69	484184.890	292582.816	2097.382	10+469.203	26.238 Rt.
TBM-70	484278.573	292472.535	2102.976	10+605.279	22.974 Lt.
TBM-71	484421.185	292419.251	2108.847	10+749.779	22.868 Lt.
TBM-72	484594.122	292435.005	2110.857	10+916.891	24.277 Lt.
TBM-73	484730.865	292518.193	2111.609	11+063.598	35.799 Rt.
TBM-74	484890.399	292459.005	2113.780	11+221.126	24.507 Lt.
TBM-75	485045.979	292455.526	2116.222	11+376.711	21.271 Lt.
TBM-76	485195.432	292441.039	2116.516	11+526.650	29.298 Lt.
TBM-77	485362.848	292448.702	2115.693	11+688.140	25.422 Lt.
TBM-78	485502.424	292506.871	2113.878	11+833.365	24.476 Lt.
TBM-79	485623.203	292615.655	2113.411	11+990.215	18.181 Rt.

TBM DATA					
NUMBER	NORTHING	EASTING	ELEVATION	STATION	OFFSET
TBM-80	485780.113	292651.673	2111.894	12+146.514	20.402 Lt.
TBM-81	485913.192	292713.808	2108.791	12+293.314	24.931 Lt.
TBM-82	486049.317	292779.568	2107.075	12+444.467	27.596 Lt.
TBM-83	486161.200	292900.558	2109.300	12+598.879	29.966 Rt.
TBM-84	486297.623	292964.257	2105.096	12+750.494	20.078 Rt.
TBM-85	486431.441	293046.081	2104.296	12+907.271	24.908 Rt.
TBM-86	486561.641	293122.018	2105.292	13+057.554	26.652 Rt.
TBM-87	486691.858	293184.761	2104.382	13+200.025	24.940 Rt.
TBM-88	486841.943	293254.739	2102.995	13+363.543	34.624 Rt.
TBM-89	486975.410	293306.971	2102.871	13+506.843	37.173 Rt.
TBM-90	487128.986	293354.896	2105.544	13+667.500	28.689 Rt.
TBM-91	487258.453	293403.759	2106.859	13+805.878	29.470 Rt.
TBM-92	487415.890	293465.346	2106.447	13+974.906	32.453 Rt.
TBM-93	487566.068	293525.396	2109.130	14+136.594	36.519 Rt.
TBM-94	487692.956	293554.579	2111.040	14+265.710	19.746 Rt.
TBM-95	487842.772	293611.773	2113.104	14+425.642	21.928 Rt.
TBM-96	487992.343	293658.824	2111.347	14+581.854	20.031 Rt.
TBM-97	488138.272	293664.737	2114.302	14+722.684	18.662 Lt.
TBM-98	488306.524	293712.825	2114.819	14+897.594	23.954 Lt.
TBM-99	488446.779	293756.494	2116.776	15+044.486	24.951 Lt.
TBM-100	488591.282	293805.085	2117.918	15+196.921	22.550 Lt.
TBM-101	488738.360	293855.976	2119.067	15+352.508	18.739 Lt.
TBM-102	488879.541	293895.280	2120.534	15+498.957	24.176 Lt.
TBM-103	489032.242	293937.328	2123.766	15+657.568	13.853 Lt.
TBM-104	489154.502	294049.729	2122.950	15+813.234	23.498 Rt.
TBM-105	489353.393	293978.313	2127.051	16+014.106	26.775 Lt.
TBM-106	489608.520	293984.896	2131.838	16+263.801	27.846 Rt.
TBM-107	489754.635	293959.938	2137.371	16+412.476	23.675 Rt.
TBM-108	489906.278	293937.033	2141.924	16+566.826	21.696 Rt.
TBM-109	490079.081	293910.076	2143.930	16+740.691	18.592 Rt.
TBM-110	490219.506	293890.883	2139.825	16+882.422	18.758 Rt.
TBM-111	490361.256	293867.305	2144.939	17+026.064	14.761 Rt.
TBM-112	490542.678	293851.392	2146.606	17+207.959	23.775 Rt.
TBM-113	490690.621	293830.666	2146.186	17+357.347	23.449 Rt.
TBM-114	490801.057	293757.904	2148.471	17+476.685	33.548 Lt.
TBM-115	490963.824	293732.211	2152.011	17+641.436	36.770 Lt.
TBM-116	491112.777	293700.486	2152.670	17+793.326	47.854 Lt.
TBM-117	491258.279	293694.645	2158.236	17+938.263	33.768 Lt.
TBM-118	491412.277	293672.075	2157.438	18+093.900	35.094 Lt.
TBM-119	491584.618	293658.102	2160.418	18+266.535	25.398 Lt.
TBM-120	491682.468	293643.380	2161.479	18+363.275	28.853 Lt.
TBM-121	491896.745	293660.371	2160.478	18+575.138	18.430 Lt.
TBM-122	492029.255	293670.229	2161.174	18+707.978	15.330 Lt.

ITEM 20304-1000 REMOVAL OF STRUCTURES AND OBSTRUCTIONS		
STATION	LOCATION	REMARKS
0+614	Lt.	Remove & Reset Flagpole
0+615	Lt.	Salvage & Stockpile Gate & Gate Posts
12+026	Rt.	Place Ex. Gate & Gate Posts Outside R.O.W.
12+300	Rt.	Remove, Salvage, & Stockpile Posts & Cross Beam
15+335	Rt.	Remove Ex. Gate & Gate Posts Outside R.O.W.
15+770	Rt.	Remove & Salvage Cattle Guard For Delivery to School
17+324 to 17+358	Lt.	Remove Existing Wall

AGGREGATE BASE COURSES		ITEM 30101-2000		ITEM 30101-2000	
LOCATION		VOLUME (m³)	WEIGHT (t)	VOLUME (m³)	WEIGHT (t)
0+003.287 to 18+686.000		32,857	73,730	0	0
18+686.000 to 18+786.000		0	0	72	162
Turnouts		971	2,179	0	0
N9405/N9406		159	357	141	316
N28		37	84	32	72
TOTAL		34,024	76,350	245	550

ITEM 20425-2000 DITCH BLOCKS		
CULVERT STATION	LOCATION	APPROX. LENGTH(m)
0+285	Lt.	10
2+195	Rt.	10
2+393	Rt.	10
5+862.5	Lt.	15
6+780	Lt.	10
8+520	Lt.	10
9+563	Lt.	10
16+059	Lt.	10
TOTAL:		85

Note: Skew Ditch Blocks as Directed by the COR/AOTR.

ITEM 21101-1000 ROADWAY OBLITERATION

STATION - STATION	AREA (m²)
0+004 to 0+050 Lt.	400
0+003 to 0+140 Rt.	930
3+340 to 4+860 Lt.	9,605
4+960 to 6+100 Lt.	6,740
7+240 to 9+075 Lt.	10,335
9+400 to 9+760 Lt.	2,425
9+840 to 10+140 Rt.	2,085
11+655 to 11+685 Lt.	180
13+455 to 14+415 Rt.	3,530
15+840 to 15+880 Rt.	390
17+380 to 18+280 Lt.	4,900
TOTAL	41,520

ESTIMATED FENCING QUANTITIES

STATION to STATION	LOCATION	61901-1000 Fence, Barbed Wire(m)	61901-0100 Fence, Woven Wire (m)	61921-2020 Remove Fence (m)
0+019.820 to 15+549.075	Rt.	15,510		
0+019.820 to 15+527.682	Lt.	15,622		
15+774.000 to 16+065.307	Rt.		288	
15+527.682 to 16+065.307	Lt.		517	
16+065.307 to 18+680.000	Rt.	2,633		
16+065.307 to 18+680.000	Lt.	2,658		
0+082 to 1+072	Lt.			1,060
0+200 to 0+599	Rt.			418
12+852 to 12+875	Lt.			26
12+908 to 13+037	Lt.			139
14+479 to 14+587	Lt.			131
14+716 to 14+736	Lt.			22
15+112 to 15+407	Rt.			327
15+771 to 15+774	Rt.			20*
17+959 to 17+963	Rt. to Lt.			20
18+439 to 18+550	Rt.			130
TOTAL		36,423	805	2,273

ITEMS 63309--0010 & 63309--0020 DELINEATORS				
STATION	LOCATION	TYPE "1a"	TYPE "1b"	
PC Sta. 0+028.494	Lt.		1	
0+079.176	Lt.		1	
0+211.857	Lt.		1	
0+348.857	Lt.		1	
0+500.657	Lt.		1	
0+641.705	Lt. & Rt.	2		
0+782.554	Lt. & Rt.	2		
0+920.430	Rt.		1	
1+075.402	Rt.		1	
1+227.402	Rt.		1	
PC Sta. 1+379.403	Rt.		1	
1+491.935	Rt.		1	
PT Sta. 1+604.472	Rt.		1	
1+756.472	Rt.		1	
1+903.553	Lt.		1	
1+908.472	Rt.		1	
2+055.553	Lt.		1	
2+060.472	Rt.		1	
2+207.553	Lt.		1	
PC Sta. 2+317.553	Lt.		1	
2+381.174	Lt.		1	
2+444.794	Lt.		1	
PT Sta. 2+508.416	Lt.		1	
2+618.416	Lt.		1	
2+770.415	Lt.		1	
2+886.314	Rt.		1	
2+922.415	Lt.		1	
3+020.314	Rt.		1	
3+172.314	Rt.		1	
PC Sta. 3+282.314	Rt.		1	
3+342.369	Rt.		1	
3+402.425	Rt.		1	
3+462.480	Rt.		1	
3+522.536	Rt.		1	
PT Sta. 3+582.591	Rt.		1	
3+692.590	Rt.		1	
3+844.590	Rt.		1	
3+996.590	Rt.		1	
4+163.667	Lt. & Rt.	2		
4+330.743	Lt.		1	
4+482.743	Lt.		1	
4+619.743	Lt.		1	
PC Sta. 4+701.744	Lt.		1	
4+748.209	Lt.		1	
4+790.000	Lt.		1	
4+841.142	Lt.		1	
4+887.608	Lt.		1	
4+934.074	Lt.		1	
4+980.541	Lt.		1	
PT Sta. 5+027.008	Lt.		1	
5+115.000	Lt.		1	
5+246.007	Lt.		1	
5+398.007	Lt.		1	
5+423.252	Rt.		1	
5+575.252	Rt.		1	
5+727.252	Rt.		1	
PC Sta. 5+879.252	Rt.		1	
PT Sta. 6+060.162	Rt.		1	
6+212.162	Rt.		1	
6+293.405	Lt.		1	
6+364.162	Rt.		1	
6+445.405	Lt.		1	
6+516.162	Rt.		1	
6+597.405	Lt.		1	
PC Sta. 6+749.405	Lt.		1	
PT Sta. 6+871.408	Lt.		1	
7+025.550	Lt.		1	
7+177.550	Lt.		1	
PC Sta. 7+289.697	Lt.		1	
7+348.682	Lt.		1	
7+407.667	Lt.		1	
7+466.653	Lt.		1	
7+525.638	Lt.		1	
PT Sta. 7+584.623	Lt.		1	
7+694.623	Lt.		1	
7+846.623	Lt.		1	
7+998.623	Lt.		1	
8+161.426	Lt. & Rt.	2		
8+324.228	Lt. & Rt.	2		
8+487.031	Lt. & Rt.	2		
8+649.833	Rt.		1	
8+801.833	Rt.		1	
8+938.833	Rt.		1	
PC Sta. 9+020.834	Rt.		1	
9+065.595	Rt.		1	
9+110.356	Rt.		1	
9+155.118	Rt.		1	
9+199.879	Rt.		1	
9+244.641	Rt.		1	
PT Sta. 9+289.403	Rt.		1	
9+371.402	Rt.		1	
SUBTOTAL:		12	84	

ITEMS 63309--0010 & 63309--0020 DELINEATORS				
STATION	LOCATION	TYPE "1a"	TYPE "1b"	
9+508.400	Rt.		1	
9+660.402	Rt.		1	
9+783.859	Rt.		1	
9+935.859	Rt.		1	
PC Sta. 10+045.859	Rt.		1	
10+100.000	Rt.		1	
10+163.553	Rt.		1	
PT Sta. 10+222.401	Rt.		1	
10+261.256	Lt.		1	
10+332.400	Rt.		1	
10+413.256	Lt.		1	
10+484.400	Rt.		1	
10+550.256	Lt.		1	
PC Sta. 10+632.256	Lt. & Rt.		2	
10+685.925	Lt.		1	
10+739.594	Lt.		1	
10+793.262	Lt.		1	
PT Sta. 10+846.931	Lt.		1	
10+861.266	Rt.		1	
10+928.938	Lt.		1	
PC Sta. 10+971.266	Rt.		1	
11+040.828	Rt.		1	
11+110.390	Rt.		1	
PT Sta. 11+179.952	Rt.		1	
11+235.068	Lt.		1	
11+289.952	Rt.		1	
11+387.068	Lt.		1	
11+441.952	Rt.		1	
11+524.068	Lt.		1	
11+593.952	Rt.		1	
PC Sta. 11+606.068	Lt.		1	
11+668.000	Lt.		1	
11+717.803	Lt.		1	
PT Sta. 11+773.671	Lt.		1	
11+855.670	Lt.		1	
11+992.670	Lt.		1	
12+152.000	Lt.		1	
12+297.721	Lt.		1	
12+449.721	Lt.		1	
PC Sta. 12+601.722	Lt.		1	
PT Sta. 12+689.680	Lt.		1	
12+724.934	Rt.		1	
12+841.679	Lt.		1	
12+876.934	Rt.		1	
12+993.679	Lt.		1	
13+020.000	Rt.		1	
13+171.106	Rt.		1	
PT Sta. 13+313.277	Rt.		1	
13+465.277	Rt.		1	
13+617.277	Rt.		1	
13+769.277	Rt.		1	
13+901.525	Rt.		1	
14+053.525	Rt.		1	
14+205.525	Rt.		1	
PC Sta. 14+357.526	Rt.		1	
PT Sta. 14+520.383	Rt.		1	
14+672.383	Rt.		1	
14+826.420	Rt.		1	
14+976.383	Rt.		1	
15+128.533	Lt. & Rt.	2		
15+280.682	Rt.		1	
15+417.682	Rt.		1	
15+486.682	Rt.		1	
PC Sta. 15+527.682	Rt.		1	
15+565.798	Lt.		1	
15+607.340	Lt.		1	
PC Sta. 15+638.799	Lt.		1	
15+655.813	Lt.		1	
PT Sta. 15+672.828	Lt.		1	
15+673.155	Rt.		1	
15+699.828	Lt.		1	
15+742.155	Rt.		1	
15+745.828	Lt.		1	
PC Sta. 15+783.155	Rt.		1	
15+808.783	Rt.		1	
15+829.000	Rt.		1	
15+849.000	Rt.		1	
PT Sta. 15+885.669	Rt.		1	
15+913.306	Lt.		1	
15+926.668	Rt.		1	
15+995.668	Rt.		1	
PC Sta. 16+065.307	Lt.		1	
16+196.984	Lt.		1	
PT Sta. 16+328.661	Lt.		1	
16+480.661	Lt.		1	
16+632.661	Lt.		1	
16+784.661	Lt.		1	
16+928.490	Lt. & Rt.	2		
17+084.490	Lt. & Rt.	2		
17+250.490	Lt. & Rt.	2		
17+411.490	Lt. & Rt.	2		
SUBTOTAL:		10	87	

ITEMS 63309--0010 & 63309--0020 DELINEATORS				
STATION	LOCATION	TYPE "1a"	TYPE "1b"	
17+572.490	Lt. & Rt.	2		
17+733.490	Lt. & Rt.	2		
17+894.490	Lt.		1	
18+046.490	Lt.		1	
18+198.490	Lt.		1	
PC Sta. 18+308.489	Lt.		1	
18+374.150	Lt.		1	
PT Sta. 18+439.811	Lt.		1	
18+549.810	Lt.		1	
18+701.810	Lt.		1	
SUBTOTAL:		4	8	
GRAND TOTAL:		26	180	

ITEM 63308--2000 OBJECT MARKERS, TYPE 2				
CULVERT STATION	DESCRIPTION	LOCATION	EACH	
0+285.000	Pipe Loc.	Inlet & Outlet	2	
0+980.000	Pipe Loc.	Inlet & Outlet	2	
1+610.000	Cattle Pass Loc.	Inlet & Outlet	2	
2+013.000	Pipe Loc.	Inlet & Outlet	2	
2+195.000	Pipe Loc.	Inlet & Outlet	2	
2+393.000	Pipe Loc.	Inlet & Outlet	2	
3+308.000	Pipe Loc.	Inlet & Outlet	2	
4+090.000	Pipe Loc.	Inlet & Outlet	2	
4+165.000	Pipe Loc.	Inlet & Outlet	2	
4+247.000	Cattle Pass Loc.	Inlet & Outlet	2	
5+862.500	Pipe Loc.	Inlet & Outlet	2	
6+780.000	Pipe Loc.	Inlet & Outlet	2	
7+083.600	Pipe Loc.	Inlet & Outlet	2	
7+345.000	Pipe Loc.	Inlet & Outlet	2	
8+520.000	Cattle Pass Loc.	Inlet & Outlet	2	
9+563.000	Pipe Loc.	Inlet & Outlet	2	
9+665.000	Pipe Loc.	Inlet & Outlet	2	
9+960.000	Pipe Loc.	Inlet & Outlet	2	
10+018.000	Pipe Loc.	Inlet & Outlet	2	
11+110.000	Pipe Loc.	Inlet & Outlet	2	
11+965.000	Pipe Loc.	Inlet & Outlet	2	
12+499.000	Pipe Loc.	Inlet & Outlet	2	
12+905.000	Pipe Loc.	Inlet & Outlet	2	
13+170.000	Pipe Loc.	Inlet & Outlet	2	
13+280.000	Pipe Loc.	Inlet & Outlet	2	
13+380.000	Pipe Loc.	Inlet & Outlet	2	
13+456.000	Pipe Loc.	Inlet & Outlet	2	
14+000.000	Pipe Loc.	Inlet & Outlet	2	
14+358.000	Pipe Loc.	Inlet & Outlet	2	
14+535.000	Pipe Loc.	Inlet & Outlet	2	
14+830.000	Pipe Loc.	Inlet & Outlet	2	
15+420.000	Pipe Loc.	Inlet & Outlet	2	
15+785.000	Pipe Loc.	Inlet & Outlet	2	
16+059.000	Pipe Loc.	Inlet & Outlet	2	
16+834.000	Pipe Loc.	Inlet & Outlet	2	
16+906.000	Pipe Loc.	Inlet & Outlet	2	
17+126.000	Pipe Loc.	Inlet & Outlet	2	
17+330.000	Cattle Pass Loc.	Inlet & Outlet	2	
17+750.000	Pipe Loc.	Inlet & Outlet	2	
18+069.000	Pipe Loc.	Inlet & Outlet	2	
18+220.000	Pipe Loc.	Inlet & Outlet	2	
18+503.000	Pipe Loc.	Inlet & Outlet	2	
18+605.000	Pipe Loc.	Inlet & Outlet	2	
N9405/N9406 Stationing				
20+125.000	Pipe Loc.	Inlet & Outlet	2	
			TOTAL	88

ITEM 63401--1520 PAVEMENT MARKINGS, TYPE "H", SOLID WHITE				
STATION TO STATION	LOCATION	DESCRIPTION	LENGTH(m)	
0+003.287 to 15+532.000	Rt.	Solid White	15,528.713	
Minus (19) 4.50 m T.O. @ 20.67 m			-392.730	
Minus (1) 7.00 m T.O. @ 35.17 m			-35.170	
Minus 47.0 m on N9406			-47.000	
Plus 92.0 m on N9406			+92.000	
Minus 31.0 m on N28			-31.000	
Plus 54.0 m on N28			+54.000	
			SUB-TOTAL:	15,168.813
15+782.500 to 18+686.000	Rt.	Solid White	2,903.500	
Minus (4) 4.50 m T.O. @ 20.67 m			-82.680	
Minus (1) 7.00 m T.O. @ 35.17 m			-35.170	
			SUB-TOTAL:	2,785.650
0+003.287 to 15+604.500	Lt.	Solid White	15,601.213	
Minus (19) 4.50 m T.O. @ 20.67 m			-392.730	
Minus (1) 7.00 m T.O. @ 35.17 m			-35.170	
Minus (1) 9.10 m T.O. @ 37.27 m			-37.270	
Minus 47.0 m on N9405			-47.000	
Plus 92.0 m on N9405			+92.000	
			SUB-TOTAL:	15,181.143
15+772.500 to 18+686.000	Lt.	Solid White	2,913.500	
Minus (3) 4.50 m T.O. @ 20.67 m			-62.010	
Minus (1) 7.00 m T.O. @ 35.17 m			-35.170	
			SUB-TOTAL:	2,816.320
			GRAND-TOTAL:	35,951.826

ITEM 62101-0000 RIGHT OF WAY MONUMENT			REGION	
ITEM 62102-0000 REFERENCE MARKER			NAVAJO	ARIZONA
STATION	DESCRIPTION	LOCATION	MONUMENT	MARKER
0+019.820	Begin R.O.W.	23 m Rt. & Lt.	2	2
0+028.494	PC 1	23 m Rt. & Lt.	2	2
0+129.858	PT 1	23 m Rt. & Lt.	2	2
0+205.000	POT	23 m & 18.5 m Rt.	2	2
0+225.000	POT	18.5 m & 23 m Rt.	2	2
1+379.403	PC 2	23 m Rt. & Lt.	2	2
1+604.472	PT 2	23 m Rt. & Lt.	2	2
1+790.000	POT	23 m & 30 m Rt.	2	2
1+800.000	POT	23 m & 30 m Lt.	2	2
1+860.000	POT	30 m & 23 m Lt.	2	2
1+900.000	POT	30 m & 23 m Rt.	2	2
2+317.553	PC 3	23 m Rt. & Lt.	2	2
2+508.416	PT 3	23 m Rt. & Lt.	2	2
3+282.314	PC 4	23 m Rt. & Lt.	2	2
3+582.591	PT 4	23 m Rt.	1	1
3+582.591	PT 4	50 m & 23 m Lt.	2	2
3+810.000	POT	50 m & 23 m Lt.	2	2
4+701.744	PC 5	23 m Rt. & Lt.	2	2
5+027.008	PT 5	23 m Rt. & Lt.	2	2
5+879.252	PC 6	23 m Rt. & Lt.	2	2
6+060.162	PT 6	23 m Rt. & Lt.	2	2
6+749.405	PC 7	23 m Rt. & Lt.	2	2
6+871.408	PT 7	23 m Rt. & Lt.	2	2
7+289.697	PC 8	23 m Rt. & Lt.	2	2
7+584.623	PT 8	23 m Rt. & Lt.	2	2
9+020.834	PC 9	23 m Rt. & Lt.	2	2
9+120.000	POC	23 m & 30 m Lt.	2	2
9+130.000	POC	23 m & 30 m Rt.	2	2
9+180.000	POC	30 m & 23 m Lt.	2	2
9+230.000	POC	30 m & 23 m Rt.	2	2
9+289.403	PT 9	23 m Rt. & Lt.	2	2
9+400.000	POT	23 m & 15 m Rt.	2	2
9+510.000	POT	15 m & 23 m Rt.	2	2
10+045.859	PC 10	23 m Rt. & Lt.	2	2
10+222.401	PT 10	23 m Rt. & Lt.	2	2
10+632.256	PC 11	23 m Rt. & Lt.	2	2
10+750.000	POC	23 m & 30 m Lt.	2	2
10+846.931	PT 11	23 m Rt. & 30 m Lt.	2	2
10+880.000	POT	30 m & 23 m Lt.	2	2
10+971.266	PC 12	23 m Rt. & Lt.	2	2
11+179.952	PT 12	23 m Rt. & Lt.	2	2
11+390.000	POT	23 m & 30 m Lt.	2	2
11+500.000	POT	30 m & 23 m Lt.	2	2
11+606.068	PC 13	23 m Rt. & Lt.	2	2
11+773.671	PT 13	23 m Rt. & Lt.	2	2
12+010.000	POT	23 m & 17 m Rt.	2	2
12+601.722	PC 14	17 m Rt. & 23 m Lt.	2	2
12+689.680	PT 14	17 m Rt. & 23 m Lt.	2	2
12+780.000	POT	17 m & 13 m Rt.	2	2
13+028.934	PC 15	13 m Rt. & 23 m Lt.	2	2
13+240.000	POC	13 m Rt. & 23 m Rt.	2	2
13+313.277	PT 15	23 m Rt.	1	1
13+313.277	PT 15	23 m & 15 m Lt.	2	2
13+560.000	POT	15 m & 23 m Lt.	2	2
14+357.526	PC 16	23 m & 19 m Rt.	2	2
14+357.526	PC 16	23 m Lt.	1	1
14+520.383	PT 16	19 m Rt. & 23 m Lt.	2	2
15+527.682	PC 17	23 m Lt.	1	0
15+527.682	PC 17	19 m & 15 m Rt.	2	0
15+543.066	PT 17	23 m Lt.	1	0
15+638.799	PC 18	23 m & 10 m Lt.	2	0
15+672.828	PT 18	10 m & 7 m Rt.	2	0
15+672.828	PT 18	10 m Lt.	1	0
15+770.000	POT	10 m & 15 m Lt.	2	0
15+783.155	PC 19	7 m & 23 m Rt.	2	0
15+783.155	PC 19	15 m Lt.	1	0
15+885.669	PT 19	15 m Lt.	1	0
15+885.669	PT 19	23 m & 15 m Rt.	2	0
16+000.000	PI	15 m Lt.	1	0
16+065.307	PC 20	15 m & 23 m Rt.	2	2
16+065.307	PC 20	12,520 m Lt.	1	1
16+220.000	POC	9.5 m Lt.	1	1
16+260.000	POC	23 m Lt.	1	1
16+328.661	PT 20	23 m Rt. & Lt.	2	2
17+840.000	POT	23 m & 17 m Rt.	2	2
17+900.000	POT	17 m & 23 m Rt.	2	2
18+260.000	POT	23 m & 15 m Lt.	2	2
18+308.489	PC 21	23 m & 15 m Lt.	2	2
18+308.489	PC 21	23 m Rt.	1	1
18+439.811	PT 21	23 m Rt. & Lt.	2	2
18+786.000	End R.O.W.	23 m Rt. & Lt.	2	2
TOTAL			149	131

TURNOUTS AND OTHER LOCATIONS W/CATTLE GUARDS AND GATES

STATION	LOC.	TURNOUT SIZE	CATTLE GUARD				TYPE I GATE (EA)	TYPE II GATE (EA)	TYPE III GATE (EA)	REMARKS
			2-UNIT	3-UNIT	4-UNIT	5-UNIT				
N9010 STATIONS										
0+019.820		N/A				1		1		On N9010
0+068.000	Lt.	7.0 m x 18.5 m		1				1		
0+615.000	Rt.	4.5 m x 18.2 m	1					1		
0+615.000	Lt.	4.5 m x 20.7 m	1					1		Temporary Easement
1+040.000	Lt.	N/A					1			Utility Access
1+226.500	Rt.	4.5 m x 18.6 m	1					1		
1+436.000	Rt.	4.5 m x 25.2 m	1					1		Temporary Easement
1+639.000	Lt.	4.5 m x 50.2 m	1					1		Temporary Easement
1+951.000	Lt.	4.5 m x 18.2 m	1					1		
2+114.480	Rt.	4.5 m x 25.2 m	1					1		Temporary Easement
2+114.480	Lt.	4.5 m x 45.2 m	1					1		Temporary Easement
3+020.000	Lt.	N/A					1			Livestock Crossing
3+027.000	Rt.	4.5 m x 18.5 m	1					1		
3+435.000	Rt.	4.5 m x 27.2 m	1					1		
3+646.000	Lt.	4.5 m x 45.2 m	1					1		Temporary Easement
3+792.000	Lt.	4.5 m x 45.2 m	1					1		
4+795.772	Rt.	N/A								N9405 Intersection See Sht. 40
4+795.772	Lt.	N/A								N9406 Intersection See Sht. 40
5+106.000	Lt.	4.5 m x 18.2 m	1					1		
5+234.000	Rt.	4.5 m x 18.2 m					1			
6+033.000	Rt.	4.5 m x 18.2 m					1			Water Tank Access
6+457.000	Rt.	4.5 m x 18.2 m	1					1		
6+457.000	Lt.	4.5 m x 18.2 m	1					1		
6+710.000	Rt.	4.5 m x 18.2 m					1			
6+962.000	Rt.	4.5 m x 18.2 m	1					1		
6+962.000	Lt.	4.5 m x 18.2 m	1					1		
7+320.000	Rt.	N/A					1			Livestock Crossing
7+335.000	Lt.	4.5 m x 44.9 m					1			
9+515.000	Rt.	4.5 m x 32.4 m	1					1		Temporary Easement
11+580.000	Rt.	N/A					1			Utility Access
11+654.000	Lt.	9.1 m x 25.2 m			1			1		Temporary Easement, Country Road 322
12+026.000	Rt.	4.5 m x 12.2 m	1					1		
12+140.000	Lt.	4.5 m x 34.4 m	1					1		Temporary Easement
12+741.000	Lt.	4.5 m x 45.2 m					1			Temporary Easement
13+035.000	Rt.	7.0 m x 31.2 m		1			1			Temporary Easement
13+047.500	Lt.	4.5 m x 25.2 m	1					1		Temporary Easement
13+605.000	Rt.	4.5 m x 18.2 m					1			
13+605.000	Lt.	4.5 m x 27.1 m						1		Temporary Easement
13+926.500	Rt.	4.5 m x 18.2 m	1					1		
14+150.000	Rt.	4.5 m x 18.2 m	1					1		
14+460.000	Lt.	4.5 m x 18.2 m	1					1		
14+701.000	Rt.	4.5 m x 30.2 m	1					1		Temporary Easement
14+945.000	Lt.	4.5 m x 30.6 m	1					1		Temporary Easement
15+246.000	Lt.	4.5 m x 18.6 m	1					1		
15+335.000	Rt.	4.5 m x 18.2 m	1					1		Temporary Easement
15+335.000	Lt.	4.5 m x 18.6 m	1					1		
15+445.000	Lt.	4.5 m x 18.6 m	1					1		
15+474.500	Rt.	4.5 m x 20.2 m	1					1		Temporary Easement
15+543.000	Rt.	7.0 m x 15.2 m		1				1		Temporary Easement
15+575.195	Rt.	Match Existing								PCC Driveway, Match Existing
15+592.000	Rt.	4.5 m x 10.2 m								Relocate Existing Gate
15+610.000	Lt.	N/A							1	Pedestrian Gate Only
15+617.000	Lt.	7.0 m x 18.2 m		1						Construct PCC Curb & Gutter, Valley Gutter & Fillets
15+643.000	Rt.	6.52 m x 14.4 m								Ex. Cattle Guard & Gate to Remain, Temporary Easement, See Plan Note On Sht. 34
15+705.000	Lt.	N/A							1	Pedestrian Gate Only
15+715.000	Lt.	4.5 m x 10.2 m	1							Temporary Easement
15+760.000	Lt.	4.5 m x 10.2 m	1							Temporary Easement
15+770.000	Rt.	7.48 m x 30.2 m		1						See Plan Note On Sht. 35, Temporary Easement, Grade to Drain Through Cattle Guard
15+839.000	Rt.	4.5 m x 20.2 m	1				1			Temporary Easement
15+873.000	Rt.	N/A								N28 Intersection See Sht. 40
15+880.000	Lt.	4.5 m x 10.2 m	1					1		
15+923.000	Rt.	4.5 m x 10.2 m	1					1		Grade to Drain Through Cattle Guard
15+977.000	Lt.	4.5 m x 10.2 m	1					1		
16+672.000	Lt.	4.5 m x 18.2 m	1					1		
17+240.000	Lt.	7.0 m x 25.2 m		1				1		Temporary Easement
17+860.000	Rt.	4.5 m x 25.2 m	1					1		Temporary Easement
18+300.000	Rt.	4.5 m x 18.2 m	1					1		4.9 m Wide Type II Gate
18+660.000	Rt.	7.0 m x 18.2 m		1				1		On N9010
18+660.000	Lt.	N/A				1		1		
N9405/N9406 STATIONING										
20+100.000	Rt.	4.5 m x 15.7 m								Turnout On N9405, Temporary Easement
20+146.670	?	N/A			1			1		On N9405
20+227.520	?	N/A			1			1		On N9406
N28 STATIONING										
21+018.100	Rt.	N/A			1		1			On N28
TOTAL			40	7	4	2	18	42	2	

POWER POLE RELOCATIONS*

STATION	LOCATION
0+077.105	12.405 Rt.
0+166.122	16.165 Rt.
0+252.296	15.515 Rt.
0+381.724	15.575 Rt.
0+496.444	15.560 Rt.
0+604.477	15.210 Rt.
0+719.128	15.500 Rt.
0+834.092	15.050 Rt.
0+945.437	14.880 Rt.
1+073.388	15.825 Rt.
1+194.621	15.630 Rt.
1+308.955	15.390 Rt.
1+422.328	15.935 Rt.
1+489.286	19.085 Rt.
1+563.836	15.820 Rt.
1+696.052	15.445 Rt.
1+813.271	15.350 Rt.
1+873.865	15.440 Rt.
1+983.819	15.260 Rt.
2+101.172	15.490 Rt.
2+213.407	15.605 Rt.
2+328.617	15.295 Rt.
2+441.802	6.435 Rt.
2+551.640	15.120 Lt.
2+660.641	15.300 Lt.
2+770.462	15.490 Lt.
2+884.391	15.865 Lt.
2+998.484	16.155 Lt.
3+112.463	16.285 Lt.
3+222.364	16.735 Lt.
3+314.517	16.370 Lt.
3+404.109	3.975 Lt.
6+185.410	14.310 Lt.
6+299.289	8.265 Lt.
6+365.278	5.195 Lt.
6+456.055	6.285 Rt.
9+094.063	7.845 Lt.
10+149.161	17.040 Lt.
10+227.967	2.005 Rt.
11+088.559	9.800 Rt.
11+174.088	11.545 Lt.
11+265.385	8.640 Lt.
11+386.916	4.360 Lt.
11+485.316	1.005 Lt.
11+602.984	2.985 Rt.
11+605.503	13.265 Rt.
11+720.250	13.100 Lt.
11+828.441	8.710 Lt.
11+951.450	8.835 Lt.
12+056.676	8.710 Lt.
12+169.758	8.545 Lt.
12+281.609	8.730 Lt.
12+396.168	8.475 Lt.
12+610.724	8.385 Lt.
12+724.144	8.405 Lt.
12+838.073	10.225 Lt.
12+907.892	11.240 Lt.
12+951.438	11.865 Lt.
13+058.475	13.115 Lt.
13+172.446	9.880 Lt.
13+273.934	0.030 Rt.
13+377.917	15.420 Rt.

POWER POLE RELOCATIONS*

STATION	LOCATION
13+484.015	17.030 Rt.
14+573.289	14.595 Rt.
14+660.318	5.960 Lt.
14+751.649	6.005 Lt.
14+865.813	6.325 Lt.
14+865.813	6.325 Lt.
14+980.245	6.830 Lt.
15+094.005	7.030 Lt.
15+200.405	7.070 Lt.
15+313.177	7.445 Lt.
15+370.369	7.870 Lt.
15+370.441	18.645 Lt.
15+430.591	7.845 Lt.
15+552.832	5.200 Lt.
15+688.591	4.690 Rt.
15+799.777	7.560 Lt.
15+867.018	11.330 Rt.
15+874.457	17.075 Rt.
16+745.436	18.950 Rt.
16+849.775	17.295 Rt.
16+962.447	15.625 Rt.
17+060.134	14.320 Rt.
17+158.005	12.845 Rt.
17+255.500	11.395 Rt.
TOTAL	86

*The Power Poles Listed For Relocation Are Based on NRO-DOT Observations. The Utility Owner May Modify/Revise This List Based On Their Requirements. Power Pole Relocations by Others.

EXISTING UTILITY CROSSINGS

LOCATION	DESCRIPTION	SKEW	REMARKS*
0+075.630	Overhead Power Line Crossing	84'	
0+602.180	Overhead Power Line Crossing	82'	
0+995.630	Overhead Power Line Crossing	94'	Protect in Place
1+875.670	Overhead Power Line Crossing	97'	
2+099.120	Overhead Power Line Crossing	82'	To Be Raised
2+481.040	Overhead Power Line Crossing	171'	To Be Raised
3+108.700	Overhead Power Line Crossing	103'	
6+016.080	Overhead Power Line Crossing	92'	Protect in Place
6+406.420	Overhead Power Line Crossing	7'	
7+586.210	Overhead Power Line Crossing	157'	Protect in Place
10+221.190	Overhead Power Line Crossing	16'	
11+123.410	Overhead Power Line Crossing	165'	To Be Raised
11+514.950	Overhead Power Line Crossing	2'	
11+663.880	Overhead Power Line Crossing	172'	To Be Raised
12+915.270	Underground Water Line Crossing	90'	Protect in Place
13+058.610	Overhead Power Line Crossing	90'	
13+273.690	Overhead Power Line Crossing	7'	
14+635.080	Overhead Power Line Crossing	167'	To Be Raised
14+873.140	Underground Water Line Crossing	90'	Protect in Place
15+303.450	Underground Water Line Crossing	90'	Protect in Place
15+309.650	Overhead Power Line Crossing	115'	To Be Raised
15+429.260	Overhead Power Line Crossing	100'	To Be Raised
15+556.860	Overhead Power Line Crossing	52'	To Be Raised
15+581.500	Underground Water Line Crossing	95'	Protect in Place
15+673.500	Underground Water Line Crossing	70'	Protect in Place
15+684.290	Overhead Power Line Crossing	47'	
15+727.700	Overhead Power Line Crossing	173'	To Be Raised
15+806.710	Overhead Power Line Crossing	48'	To Be Raised
15+843.130	Overhead Power Line Crossing	19'	
15+969.400	Underground Water Line Crossing	94'	Protect in Place
16+176.330	Underground Water Line Crossing	88'	Protect in Place
17+255.180	Overhead Power Line Crossing	88'	
0+076 to 2+481 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
2+481 to 3+810 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
6+016 to 6+406 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
6+406 to 6+594 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
7+527 to 7+586 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
7+586 to 7+640 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
9+065 to 9+101 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
10+109 to 10+221 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
10+221 to 10+299 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
11+049 to 11+123 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
11+123 to 11+515 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
11+515 to 11+664 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
11+664 to 13+059 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
13+059 to 13+811 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
14+555 to 14+635 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
14+635 to 15+557 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
15+689 to 15+728 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
15+728 to 15+843 Lt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
15+843 to 15+882 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
16+456 to 17+256 Rt.	Overhead Power Line	N/A	Parallel Line Within R.O.W.
15+582 to 15+760 Rt.	Underground Water Line	N/A	Protect in Place

*Remarks Related to Work by Others is Work Assumed to be Required by BIA. Actual Work Required/Performed by Utility Owner May Vary.

ITEM 62901-1100 EROSION CONTROL MAT TYPE IV

STATIONS	LOCATION	QUANTITY(m ²)
1+360 to 1+500	Lt.	1,375
9+400 to 9+510	Rt.	605
12+090 to 12+190	Rt.	525
12+570 to 12+630	Rt.	320
TOTAL		2,825

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE • DIVISION OF TRANSPORTATION

TURNOUT AND EXISTING
UTILITIES SUMMARIES

Designed by: RDL

SIGN INSTALLATIONS										REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
STATION	LOC.	SIGN DETAIL NO.	DESCRIPTION	SIGN PANEL SIZE (mm)	AREA OF SIGN (m²)	NO. of POSTS	kg/m	TOTAL NO. SIGN PANELS		NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	8	63
Place at BOP In Location Visible to Southbound N9010 Traffic	N/A	W1-7 OM4-2		1219 x 610 457 x 457	0.74 0.21	2	2.98	3								
Place Signs On Co. Rte. 7250 ±50 m From N9010 Intersection, One Sign Facing WB Traffic & One Sign Facing EB Traffic		D1-1	 Arrow Rt. of Text For WB Traffic & Lt. of Text For EB Traffic	2003 x 439	0.88	2 2	2.98	1 1								
0+160	Rt.	Special		1853 x 658	1.22	2	2.98	1								
0+010	Lt.	R1-1		914 x 914	0.84	2	2.98	1								
11+645	Lt.			762 x 762	0.58	2	2.98	1								
Turnout 15+543	Rt.					2		1								
Turnout 15+617	Lt.					2		1								
Turnout 15+643	Rt.					2		1								
Turnout 15+770	Rt.					2		1								
Turnout 18+660	Rt.					2		1								
0+160	Lt.	W3-1a		762 x 762	0.58	2	2.98	1								
0+080	Rt.	R2-1(45)		610 x 762	0.46	1	4.10	1								
4+660	Lt.					1		1								
4+930	Rt.					1		1								
11+520	Lt.					1		1								
11+800	Rt.					1		1								
15+300	Lt.					1		1								
16+000	Rt.					1		1								
18+600	Lt.	R2-1(25)		610 x 762	0.46	1	4.10	1								
15+300	Rt.					1		1								
16+000	Lt.					1		1								
18+640	Rt.					1		1								
0+040	Rt.	Route N9010				1		1								
4+760	Lt.	Route N9010				1		1								
4+830	Rt.	Route N9010				1		1								
11+570	Lt.	Route N9010		457 x 610	0.28	1	2.98	1								
11+740	Rt.	Route N9010				1		1								
4+860	Rt.	D2-1		1897 x 439	0.83	2	2.98	1								
4+660	Rt.	W2-1		762 x 762	0.58	2	2.98	1								
4+960	Lt.					2		1								
11+530	Rt.	W1-10(R)		762 x 762	0.58	2	2.98	1								
11+860	Lt.	W1-10(L)				2		1								
15+440	Rt.	W1-5(L)		762 x 762	0.58	2	2.98	1								
15+920	Lt.	W1-5(R)				2		1								
10+560	Rt.	W1-4(R)		762 x 762	0.58	2	2.98	1								
11+260	Lt.	W1-4(R)				2		1								
0+130	Lt.	R4-1		610 x 762	0.46	1	4.10	1								
2+700	Rt.					1		1								
3+750	Lt.					1		1								
4+700	Rt.					1		1								
4+890	Lt.					1		1								
8+940	Rt.					1		1								
9+350	Lt.					1		1								
10+500	Rt.					1		1								
10+960	Lt.					1		1								
11+480	Rt.					1		1								
11+920	Lt.					1		1								
15+500	Rt.					1		1								
16+100	Lt.					1		1								
16+420	Rt.					1		1								
16+840	Lt.					1		1								
18+465	Rt.					1		1								
0+130	Rt.					1		1								
2+700	Lt.					1		1								
3+750	Rt.					1		1								
4+700	Lt.					1		1								
4+890	Rt.					1		1								
8+940	Lt.					1		1								
9+350	Rt.					1		1								
10+500	Lt.					1		1								
10+960	Rt.					1		1								
11+480	Lt.					1		1								
11+920	Rt.					1		1								
15+500	Lt.					1		1								
16+100	Rt.					1		1								
16+420	Lt.					1		1								
16+840	Rt.					1		1								
18+465	Lt.					1		1								
0+130	Rt.					1		1								
2+700	Lt.					1		1								
3+750	Rt.					1		1								
4+700	Lt.					1		1								
4+890	Rt.					1		1								
8+940	Lt.					1		1								
9+350	Rt.					1		1								
10+500	Lt.					1		1								
10+960	Rt.					1		1								
11+480	Lt.					1		1								
11+920	Rt.					1		1								
15+500	Lt.					1		1								
16+100	Rt.					1		1								
16+420	Lt.					1		1								
16+840	Rt.					1		1								
18+465	Lt.					1		1								
0+130	Rt.					1		1								
2+700	Lt.					1		1								
3+750	Rt.					1		1								
4+700	Lt.					1		1								
4+890	Rt.					1		1								
8+940	Lt.					1		1								
9+350	Rt.					1		1								
10+500	Lt.					1		1								
10+960	Rt.					1		1								
11+480	Lt.					1		1								
11+920	Rt.					1		1								
15+500	Lt.					1		1								
16+100	Rt.					1		1								
16+420	Lt.					1		1								
16+840	Rt.					1		1								
18+465	Lt.					1		1								
0+130	Rt.					1		1								
2+700	Lt.					1		1								
3+750	Rt.					1		1								
4+700	Lt.					1		1								
4+890	Rt.					1		1								
8+940	Lt.					1		1								
9+350	Rt.					1		1								
10+500	Lt.					1		1								
10+960	Rt.					1		1								
11+480	Lt.					1		1								
11+920	Rt.					1		1								
15+500	Lt.					1		1								
16+100	Rt.					1		1								
16+420	Lt.					1		1								
16+840	Rt.					1		1								
18+465	Lt.					1		1								
0+130	Rt.					1		1								
2+700	Lt.					1		1								
3+750	Rt.					1		1								
4+700	Lt.					1		1								
4+890	Rt.					1		1								
8+940	Lt.					1		1								

[illegible]

ITEM 60701-1000 REMOVE, CLEAN & STOCKPILE EXISTING CULVERTS

NOTE: All Culvert Pipe & End Sections Shall Be Aluminum Coated.

DRAINAGE STRUCTURE
QUANTITIES

* Install End Section on Inlet Side, Except @ Turnout Locations Where End Sections Will Be Installed at Both Ends.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	10	63

				ITEM NO.																																	
				25101-2000		25110-2000		60101-0000		60201-0810		60201-0910		60201-1010		60201-1810		60202-0510		60202-0610		60202-0710		60202-0810		60210-0910		60210-1010		60211-0910		60211-1010		60211-1110			
				Placed Riprap, Class 2		Grouted Riprap, Class 2		Minor Concrete		610 mm CSPC-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation		762 mm CSPC-1.63 mm Thickness 914 mm x 12.7 mm Corrugation		610 mm CSPC-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation		711 mm CSPC-1.63 mm Thickness 889 mm x 508 mm Corrugation		67.7 mm x 12.7 mm Corrugation 1067 mm x 610 mm Corrugation		End Section For 610 mm Thickness 1.63 mm Thickness		End Section For 762 mm CSPC • 2.01 mm Thickness		End Section For 914 mm CSPC • 1.63 mm Thickness		End Section For 711 mm CSPC • 2.01 mm Thickness		End Section For 889 mm x 508 mm CSPC • 2.01 mm Thickness		End Section For 1067 mm x 737 mm CSPC • 2.01 mm thickness							
STATION	Hc	STRUCTURE DESCRIPTION	SKEW NO.			m	m	m	m	m	m	m	m	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.																		
13+170.000	32.1	3-610 mm x 23.18 m CSPC	90°	21.8		69.54								3																							
13+280.000	64.1	3-762 mm x 22.57 m CSPC	90°	31.2			67.71								3																						
13+380.000	64.1	3-762 mm x 22.57 m CSPC	90°	21.4			67.71								3																						
13+456.000	8.4	1-762 mm x 22.57 m CSPC	90°			22.57									1																						
13+605.000 Rt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
13+605.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
14+000.000	9.6	1-762 mm x 22.57 m CSPC	90°	10.0		22.57									1																						
14+358.000	14.2	1-1067 mm x 737 mm x 20.74 m CSPA	90°	13.9								20.74																				1					
14+535.000	34.4	1-914 mm x 31.72 m CSPC	90°	13.1				31.72								1																					
14+830.000	64.5	2-914 mm x 33.55 m CSPC	115°	27.5				67.10								2																					
14+945.000 Lt.	N/A	1-610 mm x 12.81 m CSPC	N/A			12.81								2																							
15+246.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
15+335.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
15+420.000	143.6	4-1067 mm x 737 mm x 23.18 m CSPA	90°	44.2								92.72																				4					
15+445.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
15+785.000	160.6	5-889 mm x 610 mm x 22.57 m CSPA	90°	47.8						112.85									5																		
15+880.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
15+977.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
16+059.000	19.7	2-762 mm x 22.57 m CSPC	120°	13.5		45.14									2																						
16+834.000	152.9	2-914 mm x 25.62 m CSPC	67°	26.5				51.24									2																				
16+906.000	44.7	1-762 mm x 26.84 m CSPC	90°	10.9		26.84									1																						
17+126.000	10.6	1-889 mm x 610 mm x 21.96 m CSPA	85°	10.9								21.96																									
17+330.000	82.3	1-2134 m x 34.16 m CSPC Cattle Pass	110°		16.6	16.6			34.16																												
17+750.000	2.0	1-610 mm x 26.23 m CSPC	100°	6.0		26.23								1																							
17+860.000 Rt.	N/A	1-610 mm x 12.81 m CSPC	N/A			12.81								2																							
18+069.000	6.9	1-762 mm x 24.40 m CSPC	90°	9.3		24.40									1																						
18+220.000	18.7	2-1067 mm x 737 mm x 23.18 m CSPA	90°	27.2								46.36																				2					
18+300.000 Rt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A						11.59									2																			
18+503.000	10.9	1-1067 mm x 737 mm x 23.79 m CSPA	90°	13.9								23.79																				1					
18+605.000	22.7	2-1067 mm x 737 mm x 34.77 m CSPA	142°	29.4								69.54																					2				
N9405/N9406 STATIONING																																					
20+100.000 Rt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A									11.59						2																			
20+125.000	1.5	2-711 mm x 508 mm x 16.47 m CSPA	70°	9.0								32.94						2																			
SUBTOTAL				387.4	16.6	16.6	121.39	276.94	150.06	34.16	137.25	134.81	253.15	8	12	5	20	6	10																		
TOTAL				548.0	45.6	68.7	793.00	303.17	150.06	125.05	281.21	134.81	253.15	41	13	5	39	6	10																		

NOTE: All

* Install End Section on Inlet Side, Except @ Turnout Locations Where End Sections Will Be Installed at Both Ends.

NOTE: All Culvert Pipe & End Sections Shall Be Aluminum Coated.

Revised 01-22-09

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF INDIAN AFFAIRS NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION	
DRAINAGE STRUCTURE QUANTITIES	
Designed by: RDL	
Drawn by: BGC	
Revised by: Design2	
File Name: N9010_Quantities	Date: 12-06
	Date: 01/22/09

SUPERELEVATION GRADE TABULATIONS						REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
Alignment : N9010 Normal Crown Slope: 2.000% Maximum Superelevation: 4.000% Design Speed: 80 km/h - Sta 0+003.287 to 15+300.000 & 16+000.000 to 18+680.000 Design Speed: 50 km/h - Sta 15+300.000 to 16+000.000						NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	11	63
C1 Degree : 03°59'55" Radius : 436.743 m Full Super Rate : Normal Crown		C8 Degree : 02°29'57" Radius : 698.790 m Tangent Runout Back : 14.670 Runoff Length Back : 22.000 Transition Length Back : 36.670 Full Super Rate : 3.000%		C13 Degree : 05°19'21" Radius : 328.112 m Tangent Runout Back : 14.870 Runoff Length Back : 29.000 Transition Length Back : 43.870 Full Super Rate : 3.900%								
C2 Degree : 00°59'59" Radius : 1746.976 m Tangent Runout Back : 14.000 Runoff Length Back : 14.000 Transition Length Back : 28.000 Full Super Rate : RC		C9 Degree : 03°59'55" Radius : 436.744 m Tangent Runout Back : 15.000 Runoff Length Back : 27.000 Transition Length Back : 42.000 Full Super Rate : 3.600%		C14 Degree : 00°59'59" Radius : 1746.972 m Tangent Runout Back : 14.000 Runoff Length Back : 14.000 Transition Length Back : 28.000 Full Super Rate : RC								
Transition Station Station %e Left %e Right		Transition Station Station %e Left %e Right		Transition Station Station %e Left %e Right								
Normal Crown		Normal Crown		Normal Crown								
0% Super		0% Super		0% Super								
Reverse Crown		Reverse Crown		Reverse Crown								
PC 8		PC 8		PC 13								
Full Super		Full Super		Full Super								
Full Super		Full Super		Full Super								
PT 8		PT 8		PT 13								
Reverse Crown		Reverse Crown		Reverse Crown								
0% Super		0% Super		0% Super								
Normal Crown		Normal Crown		Normal Crown								
C3 Degree : 01°59'58" Radius : 873.487 m Tangent Runout Back : 14.810 Runoff Length Back : 20.000 Transition Length Back : 34.810 Full Super Rate : 2.700%		C10 Degree : 02°29'57" Radius : 698.790 m Tangent Runout Back : 14.670 Runoff Length Back : 22.000 Transition Length Back : 36.670 Full Super Rate : 3.000%		C15 Degree : 00°59'59" Radius : 1746.972 m Tangent Runout Back : 14.000 Runoff Length Back : 14.000 Transition Length Back : 28.000 Full Super Rate : RC								
Transition Station Station %e Left %e Right		Transition Station Station %e Left %e Right		Transition Station Station %e Left %e Right								
Normal Crown		Normal Crown		Normal Crown								
0% Super		0% Super		0% Super								
Reverse Crown		Reverse Crown		Reverse Crown								
PC 3		PC 9		PC 14								
Full Super		Full Super		Full Super								
Full Super		Full Super		Full Super								
PT 9		PT 9		PT 14								
Reverse Crown		Reverse Crown		0% Super								
0% Super		0% Super		Normal Crown								
Normal Crown		Normal Crown		C16 Degree : 00°29'59" Radius : 3493.951 m Full Super Rate : Normal Crown								
C4 Degree : 02°59'56" Radius : 582.325 m Tangent Runout Back : 15.000 Runoff Length Back : 24.000 Transition Length Back : 39.000 Full Super Rate : 3.200%		C11 Degree : 05°49'09" Radius : 300.102 m Tangent Runout Back : 14.500 Runoff Length Back : 29.000 Transition Length Back : 43.500 Full Super Rate : 4.000%		C17 Degree : 17°27'28" Radius : 100.034 m Full Super Rate : Normal Crown								
Transition Station Station %e Left %e Right		Transition Station Station %e Left %e Right		C18 Degree : 20°17'59" Radius : 86.029 m Full Super Rate : Normal Crown								
Normal Crown		Normal Crown		C19 Degree : 12°59'44" Radius : 134.383 m Full Super Rate : Normal Crown								
0% Super		0% Super		C20 Degree : 00°29'59" Radius : 3493.944 m Full Super Rate : Normal Crown								
Reverse Crown		Reverse Crown		C21 Degree : 02°29'57" Radius : 698.789 m Tangent Runout Back : 14.670 Runoff Length Back : 22.000 Transition Length Back : 36.670 Full Super Rate : 3.000%								
PC 4		PC 10		Transition Station Station %e Left %e Right								
Full Super		Full Super		Normal Crown								
Full Super		Full Super		0% Super								
PT 4		PT 10		Reverse Crown								
Reverse Crown		Reverse Crown		PC 21								
0% Super		0% Super		Full Super								
Normal Crown		Normal Crown		Full Super								
C5 Degree : 03°29'34" Radius : 500.000 m Full Super Rate : Normal Crown		C12 Degree : 01°59'58" Radius : 873.486 m Tangent Runout Back : 14.810 Runoff Length Back : 20.000 Transition Length Back : 34.810 Full Super Rate : 2.700%		PT 21								
C6 Degree : 00°29'59" Radius : 3493.951 m Full Super Rate : Normal Crown		Transition Station Station %e Left %e Right		Reverse Crown								
C7 Degree : 01°29'58" Radius : 1164.651 m Tangent Runout Back : 14.780 Runoff Length Back : 17.000 Transition Length Back : 31.780 Full Super Rate : 2.300%		Normal Crown		0% Super								
Transition Station Station %e Left %e Right		Normal Crown		Normal Crown								
Normal Crown		Normal Crown		0% Super								
0% Super		0% Super		Normal Crown								
PC 7		PC 12										
Reverse Crown		Reverse Crown										
Full Super		Full Super										
Full Super		Full Super										
Reverse Crown		Reverse Crown										
PT 7		PT 12										
0% Super		0% Super										
Normal Crown		Normal Crown										

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

SUPERELEVATION DATA

Designed by:
Drawn by: Date:
Revised by: Design2 Date: 01/08/09
File Name: N9010_Superelevation



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

SUPERELEVATION DATA

Designed by:

Drawn by: Date:

Revised by: Design2 Date: 01/08/09

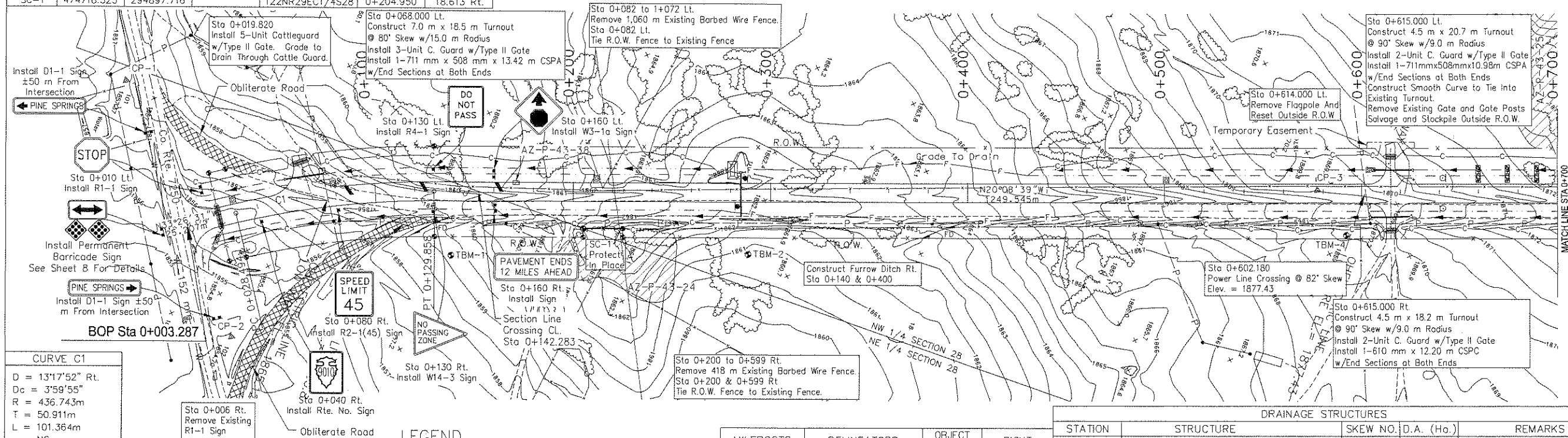
File Name: N9010_Superelevation



CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-1	474475.737	294907.877	1857.370	REBAR	N/A
CP-2	474571.051	295011.381	1854.700	REBAR	0+012.049
CP-3	475060.968	294750.542	1869.340	REBAR	0+577.130
SC-1	474718.525	294897.716		T22NR29EC1/4S28	0+204.950
					18.613 Rt.

Sta 0+088, 0+126 & 0+164 Lt.
Install Rumble Strips. See Sheet 57 For Details.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	12	63

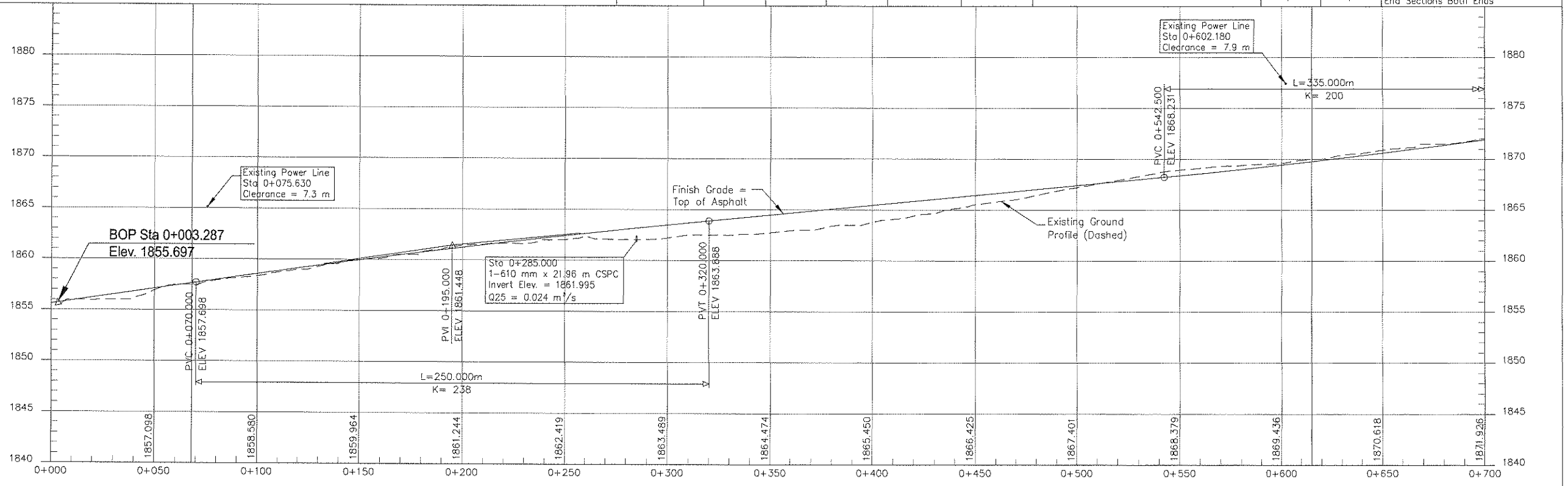
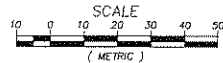


CURVE C1
D = 13'17"52" Rt.
D_c = 3'59"55"
R = 436.743m
T = 50.911m
L = 101.364m
e = NC
PI
STA = 0+076.405
N = 474593.819
E = 294923.636

Sta 0+075.630
Power Line Crossing @ 84° Skew
Elev. = 1865.12

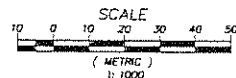
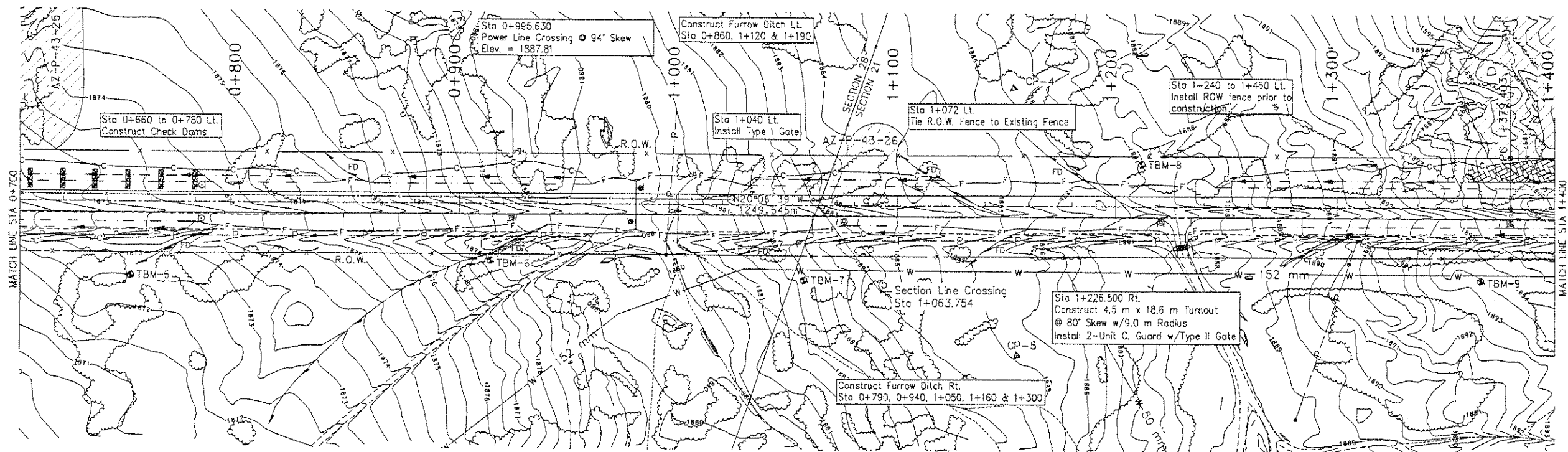
LEGEND

CULTURAL RESOURCE SITES

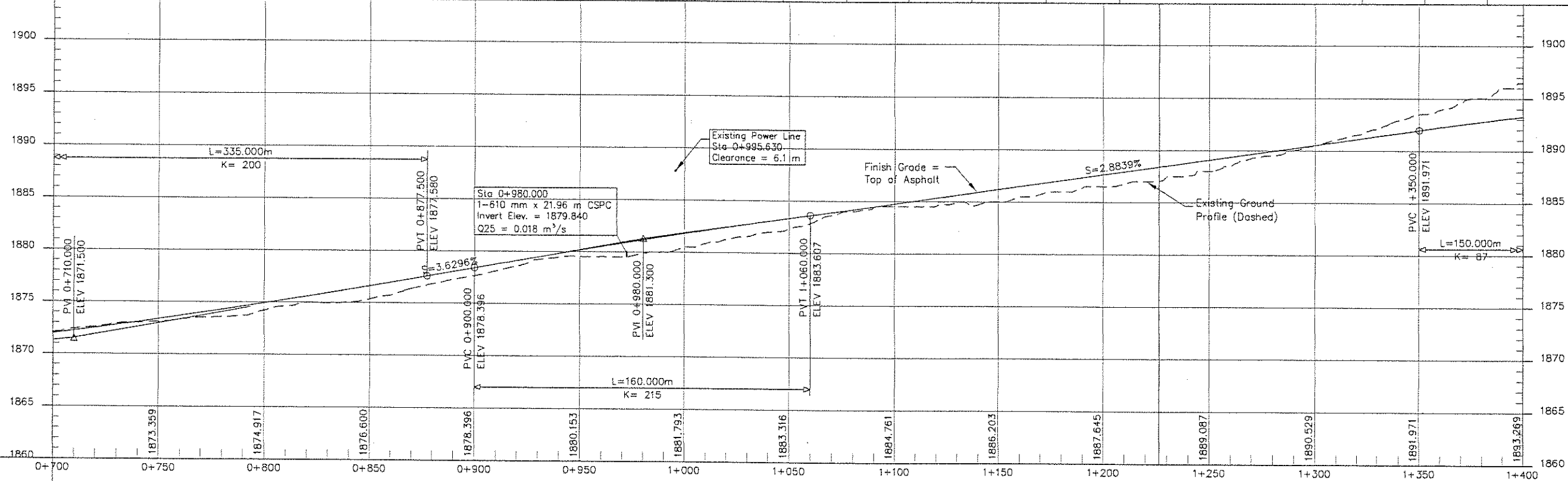


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-4	475583.959	294502.771	1885.480	REBAR	1+153.457	54.132 Lt.
CP-5	475627.349	294616.809	1885.070	REBAR	1+154.920	67.874 Rt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	13	63

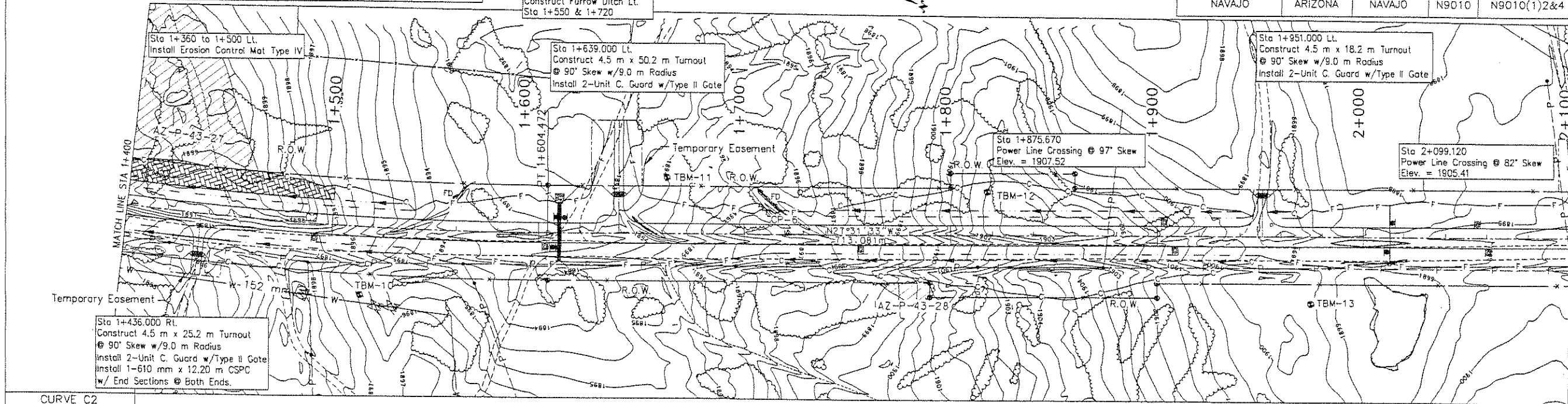


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES			
	Type "la"	Type "lb"	Type II		STATION	STRUCTURE	SKEW NO. D.A. (Ha.)	REMARKS
0	2	4	2	2	0+980.000	1-610 mm x 21.96 m CSPC	90° 2.9	End Section at inlet

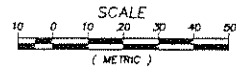


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-6	476124.143	294330.149	1896.910	REBAR	1+721.721	0.626 Lt.

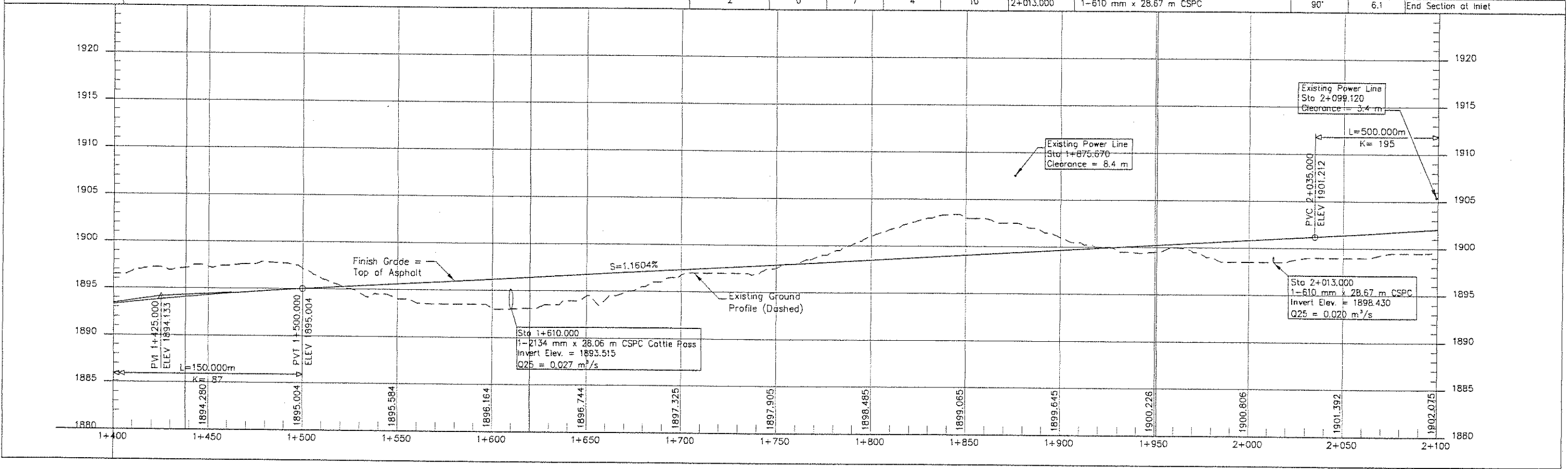
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	14	63



CURVE C2	
D = 7°22'54" Lt.	
Dc = 0°59'59"	
R = 1746.976m	
T = 112.691m	
L = 225.069m	
e = RC	
PI	
Sta = 1+492.093	
N = 475920.521	
E = 294436.970	

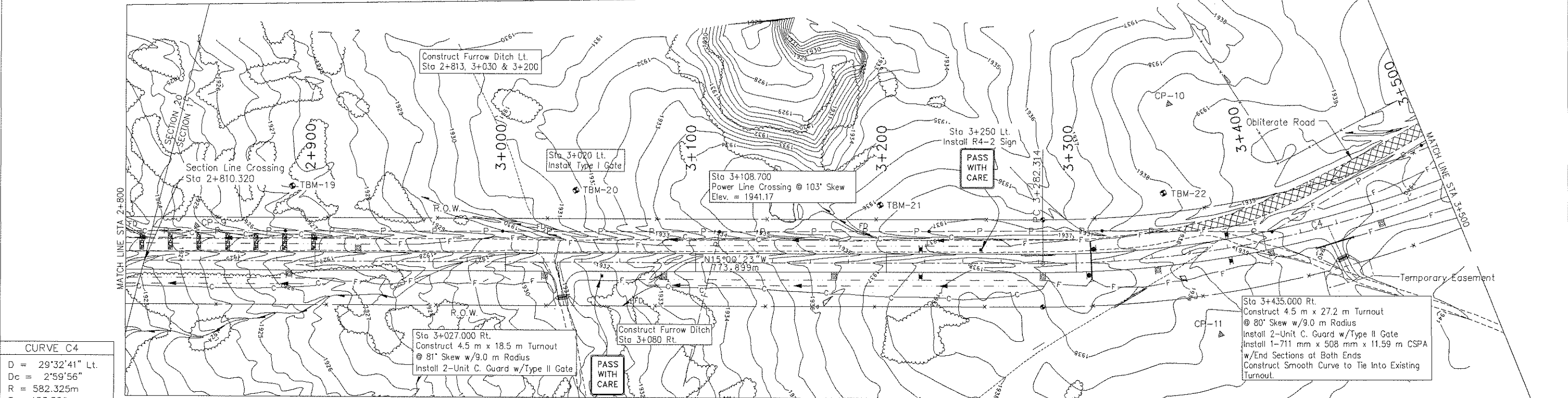


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	Type "1a"	Type "1b"			STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	
2	0	7	4	10	1+436.000 Rt.	1-610 mm x 12.20 m CSCP	N/A	N/A	Under Turnout, End Sections Both Ends
					1+610.000	1-2134 mm x 28.06 m CSCP Cattle Pass	90°	9.6	Concrete Slope Blankets @ Both Ends & Grouted Riprap @ Outlet
					2+013.000	1-610 mm x 28.67 m CSCP	90°	6.1	End Section at Inlet



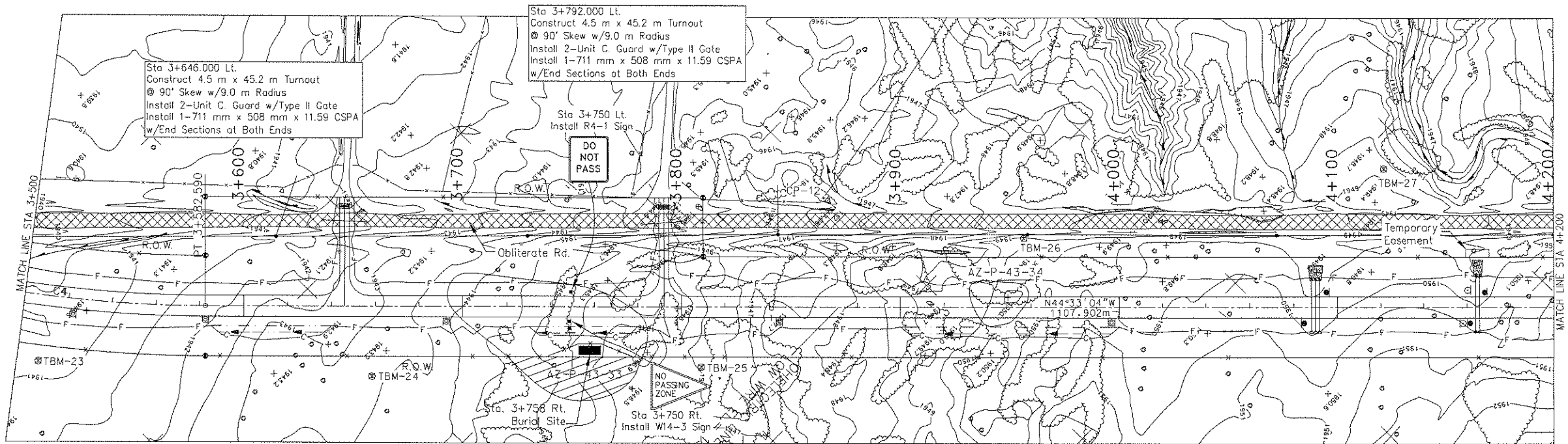
CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-9	477143.773	293883.309	1924.800	REBAR	2+837.824	18.273 Lt.
CP-10	477620.217	293687.335	1938.770	REBAR	3+359.539	79.787 Lt.
CP-11	477677.956	293797.748	1938.510	REBAR	3+369.633	44.431 Rt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	16	63

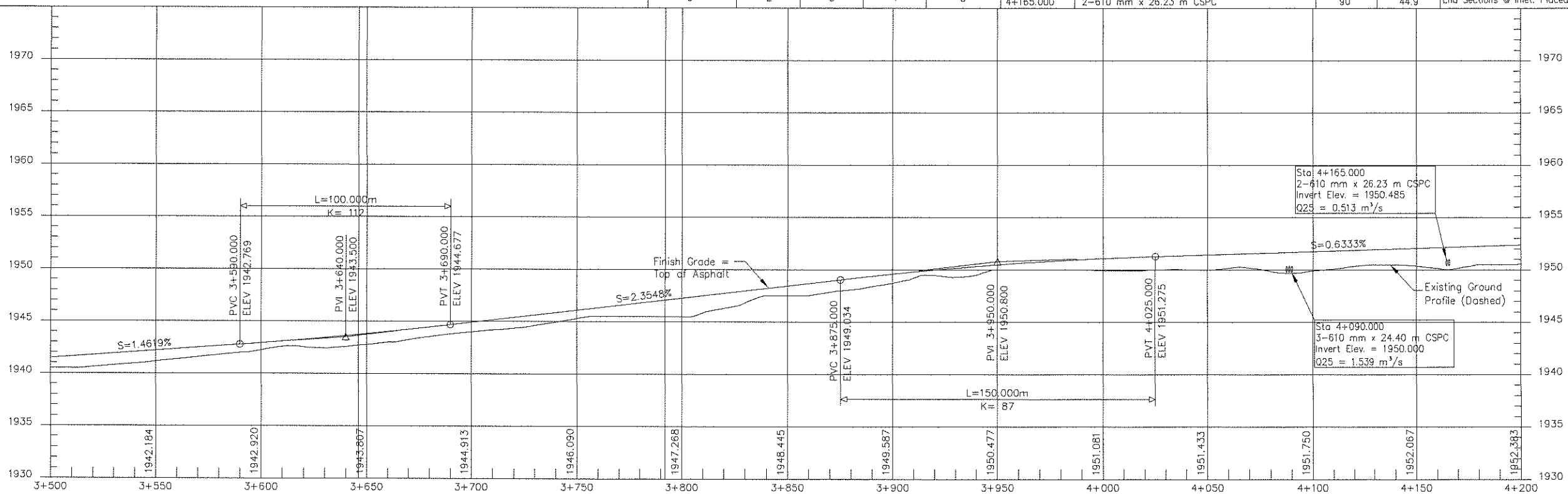


CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-12	478003.754	293404.176	1947.080	REBAR	3+866.739
					48.922 Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	17	63

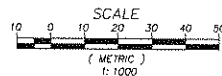
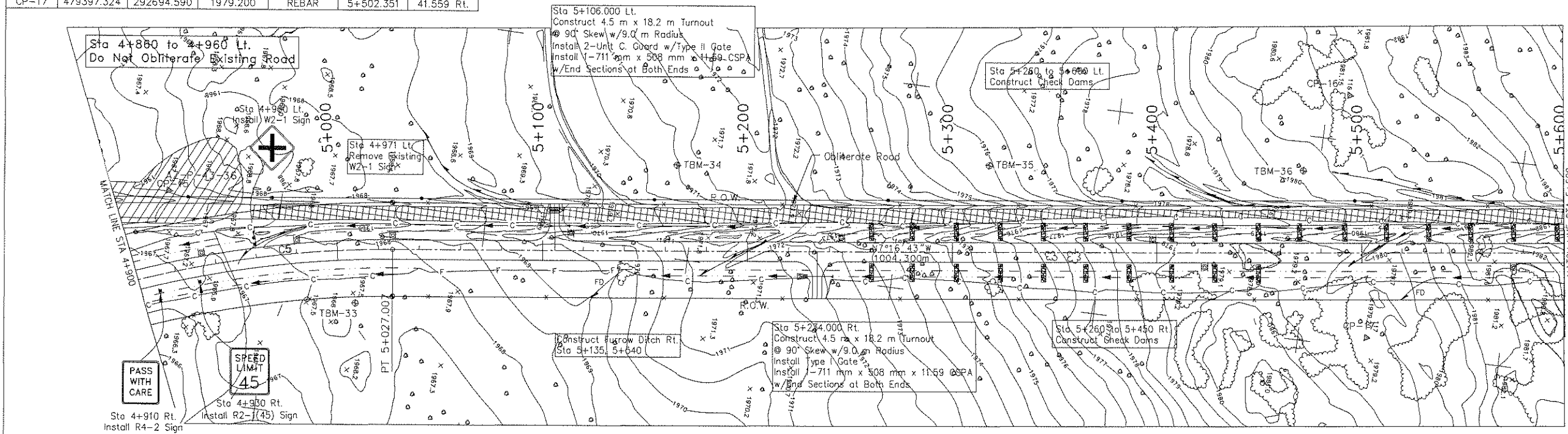


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	Type "1a"	Type "1b"			STATION	STRUCTURE	SKWE NO.	D.A. (Ha.)	
0	2	5	4	5	3+646.000 Lt.	1-711 mm x 508 mm x 11.59 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
					3+792.000 Lt.	1-711 mm x 508 mm x 11.59 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
					4+090.000	3-610 mm x 24.40 m CSPC	90°	134.8	End Sections @ Inlet. Placed Riprap @ Outlet.
					4+165.000	2-610 mm x 26.23 m CSPC	90°	44.9	End Sections @ Inlet. Placed Riprap @ Outlet.

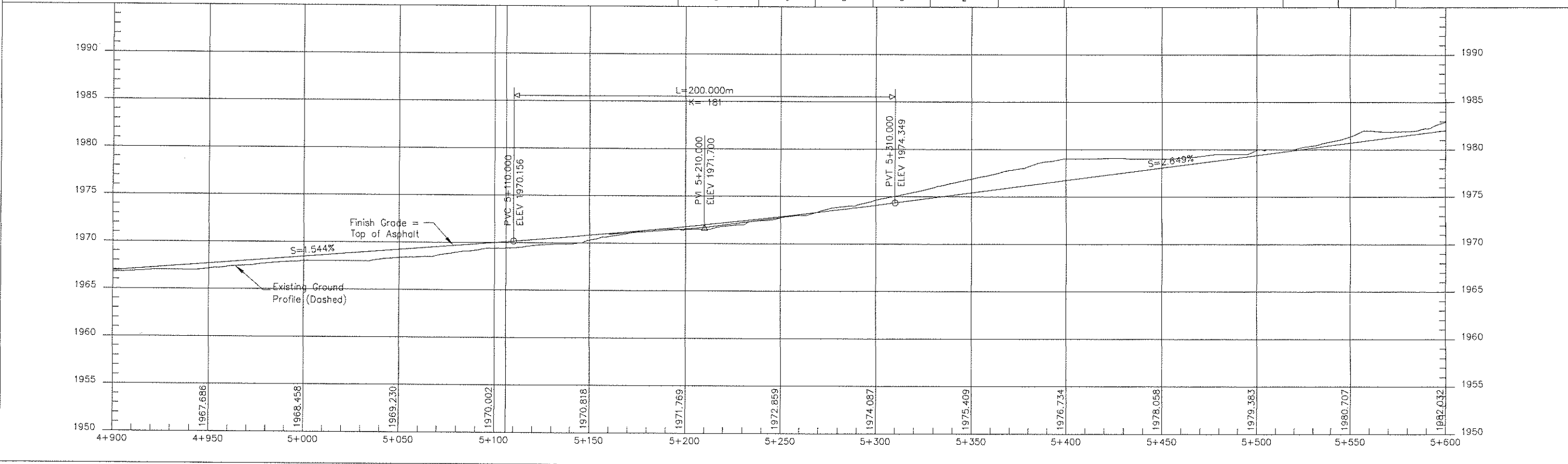


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-15	478808.279	292699.436	1967.050	REBAR	4+924.750	39.506 Lt.
CP-16	479374.222	292577.831	1981.150	REBAR	5+494.227	79.186 Lt.
CP-17	479397.324	292694.590	1979.200	REBAR	5+502.351	41.559 Rt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	19	63

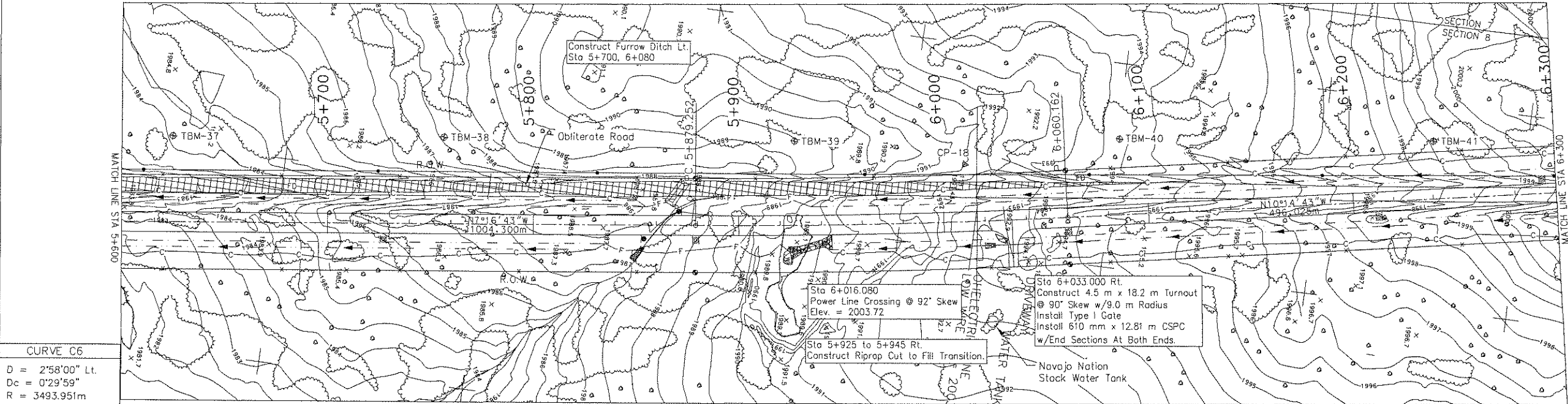


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				
	Q	W			STATION	STRUCTURE	SKEW NO.	D.A. (Hd.)	REMARKS
0	0	8	0	2	5+106.000 Lt.	1-711 mm x 508 mm x 11.59 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
					5+234.000 Rt.	1-711 mm x 508 mm x 11.59 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends. Placed Riprap at Outlet.

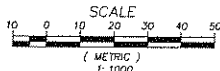


CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-18	479891.837	292558.825	1991.430	REBAR	6+011.167
					27.991 Lt.

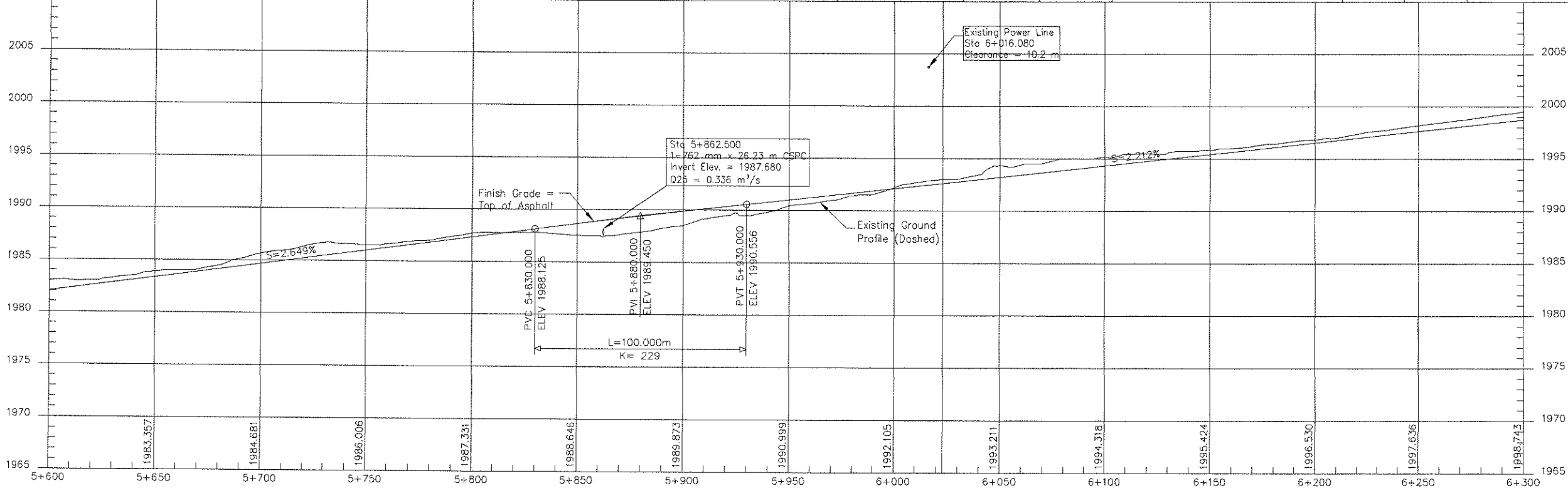
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	20	63



CURVE C6
D = 2°58'00" Lt.
Dc = 0°29'59"
R = 3493.951m
T = 90.475m
L = 180.910m
e = NC
PI
Sta = 5+969.727
N = 479855.669
E = 292584.153

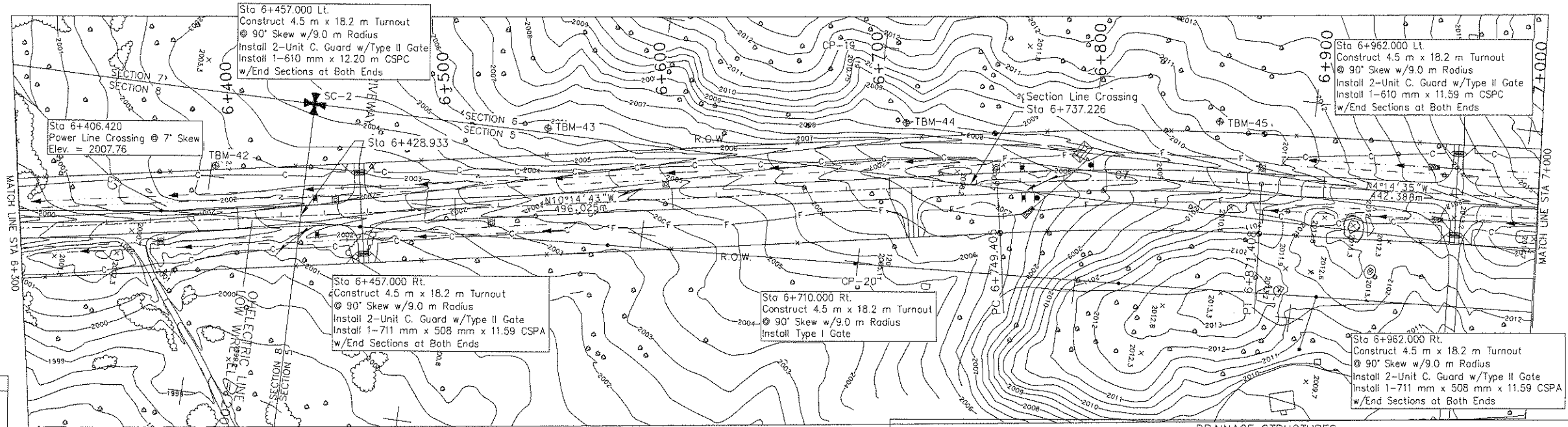


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	α	β			STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	
0	0	5	2	4	5+862.500	1-762 mm x 26.23 m CSPC	130'	11.5	End Section & Ditch Block at Inlet. Riprap At Outlet.
					6+033.000 Rt.	1-610 mm x 12.81 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends. Riprap at Outlet.

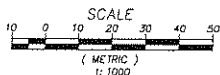


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-19	480552.719	292400.239	2010.750	REBAR	6+690.112	66.843 Lt.
CP-20	480568.974	292503.213	2005.110	REBAR	6+687.793	37.379 Rt.
SC-2	480307.193	292460.440		22NR29ES6/5/8/7	6+437.793	51.272 Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	21	63

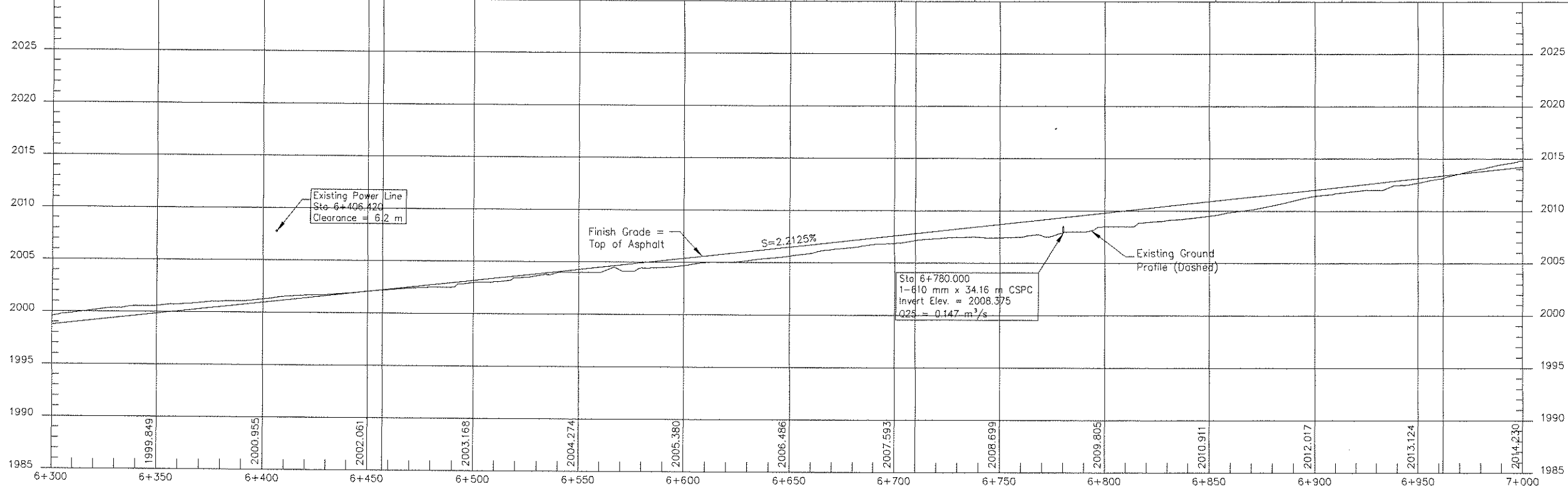


CURVE C7	
D = 6'00'07" Rt.	
Dc = 1'29'58"	
R = 1164.651m	
T = 61.057m	
L = 122.003m	
e = 2.300%	
PI	
Sta = 6+810.463	
N = 480683.039	
E = 292444.611	



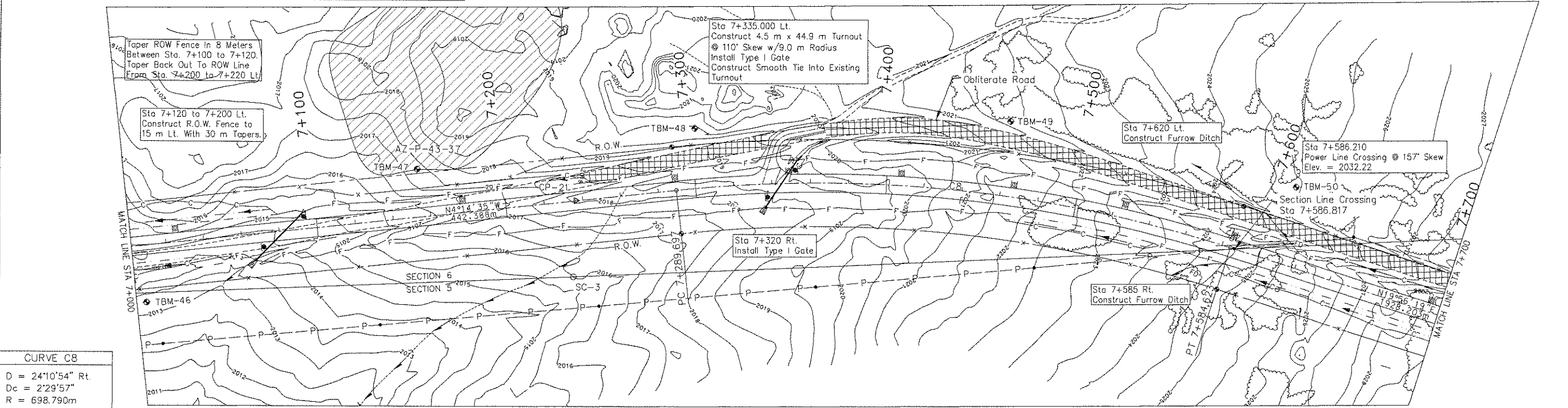
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "Ia"	Type "Ib"		
2	0	6	2	4

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Hq.)	REMARKS
6+457.000 Rt.	1-711 mm x 508 mm x 11.59 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
6+457.000 Lt.	1-610 mm x 12.20 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends.
6+780.000	1-610 mm x 34.16 m CSPC	140'	2.2	End Section & Ditch Block at Inlet. Riprap @ Outlet.
6+962.000 Rt.	1-711 mm x 508 mm x 11.59 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends. Placed Riprap at Outlet.
6+962.000 Lt.	1-610 mm x 11.59 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends. Placed Riprap at Outlet.

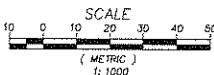


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-21	481107.939	292412.869	2018.110	REBAR	7+236.435	0.217 Lt.
SC-3	481105.294	292453.076		T22NR29EE1/456	7+230.822	39.685 Rt.

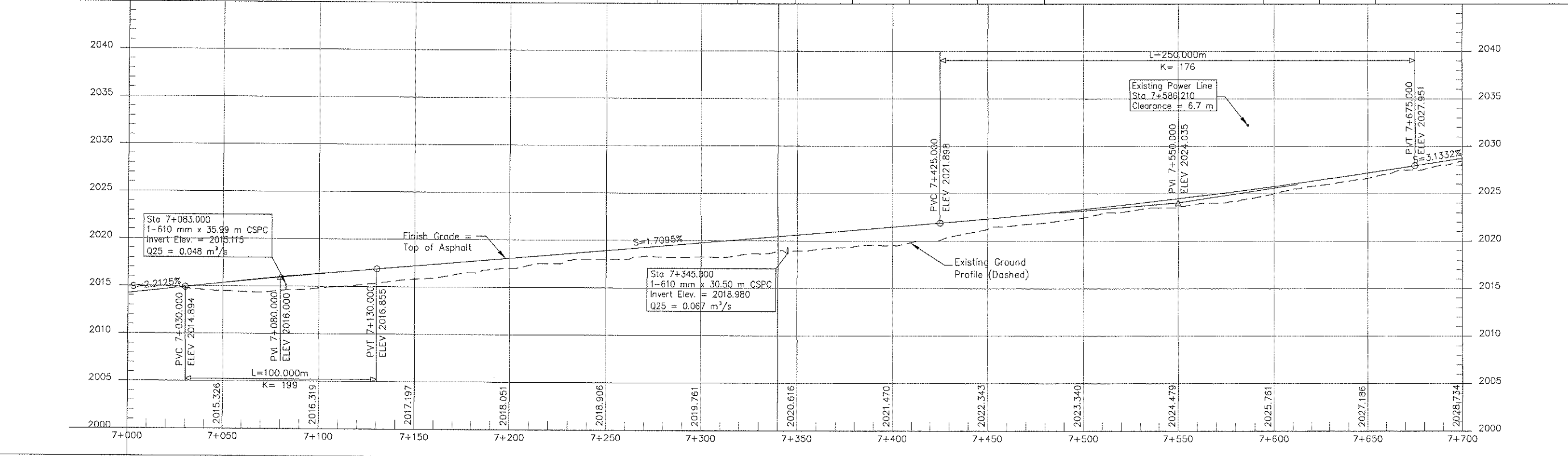
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	22	63



CURVE C8	
D = 24°10'54" Rt.	
Dc = 2°29'57"	
R = 698.790m	
T = 149.691m	
L = 294.926m	
e = 3.000%	
PI	
Sta = 7+439.389	
N = 481310.353	
E = 292398.069	

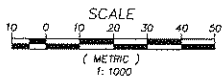
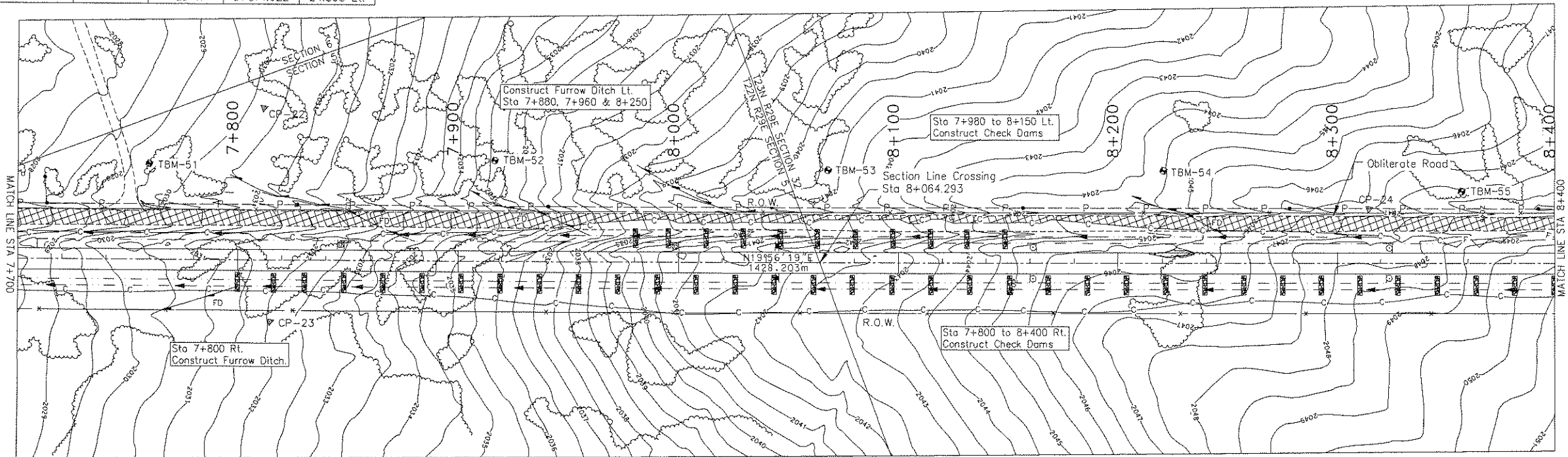


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	Type "1a"	Type "1b"	Type II		STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	
0	0	9	4	4	7+083.000	1-610 mm x 35.99 m CSPC	140°	0.6	End Section at Inlet. Placed Riprap at Outlet.
					7+345.000	1-610 mm x 30.50 m CSPC	125°	1.1	End Section at Inlet. Placed Riprap at Outlet.

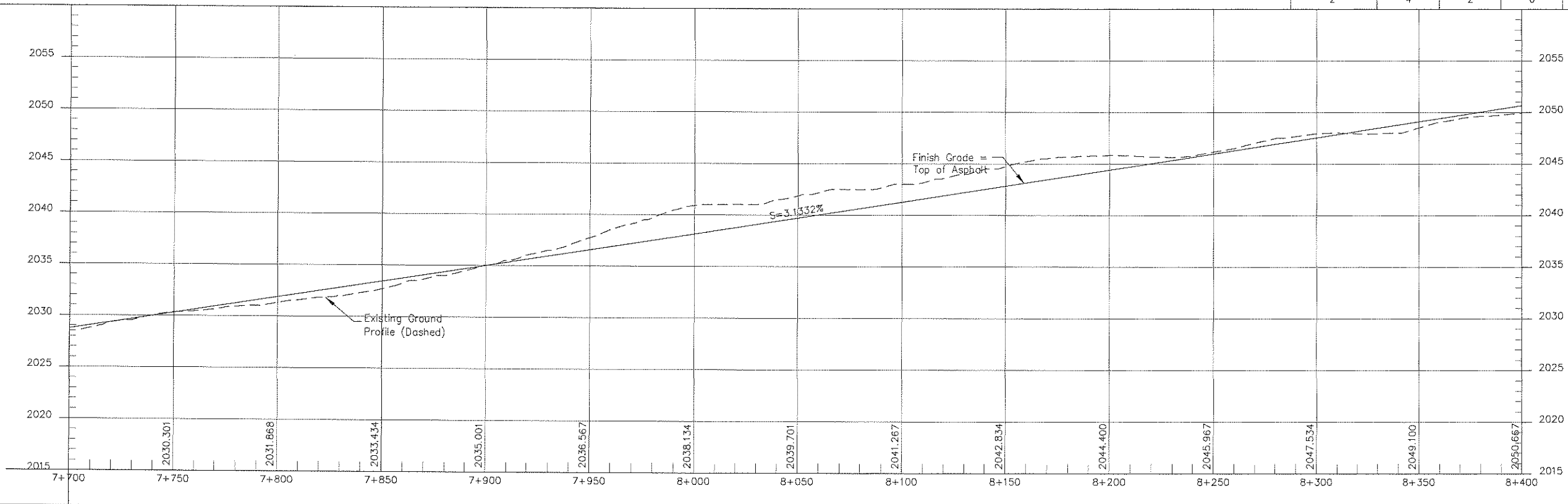


CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-22	481688.326	292461.354	2030.200	REBAR	7+811.829
CP-23	481657.846	292553.980	2032.020	REBAR	7+814.763
CP-24	482145.794	292674.677	2046.900	REBAR	8+314.622
					69.402 Lt.
					28.066 Rt.
					24.868 Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	23	63

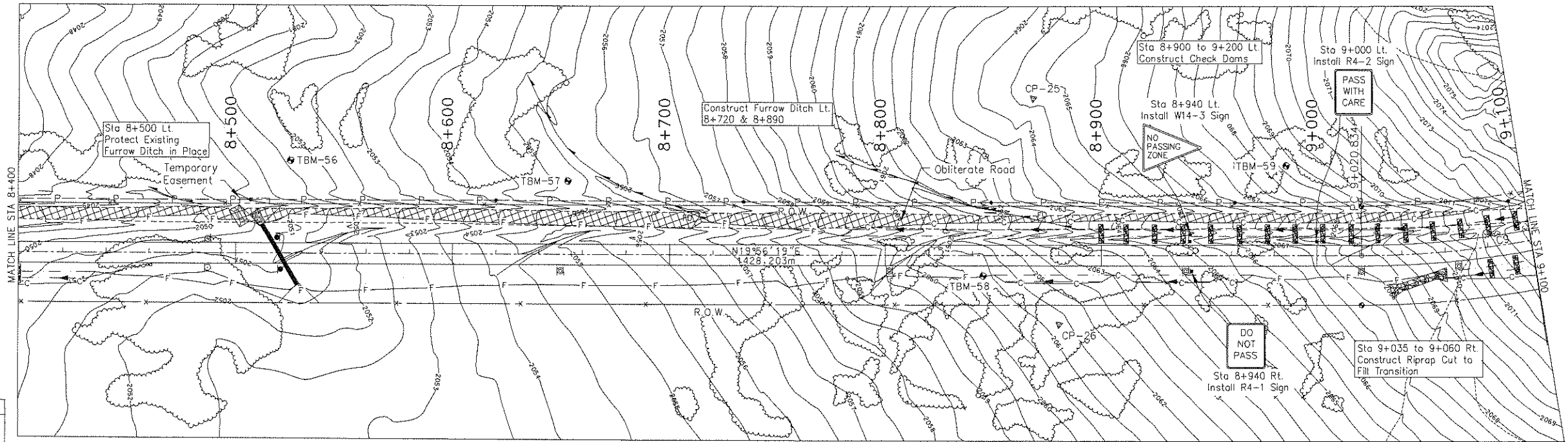


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
2	Type "1a"	Type "1b"	Type II	0
	4	2	0	0

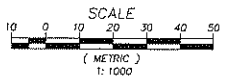


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-25	482682.602	292818.445	2064.590	REBAR	8+868.280	72.776 Lt.
CP-26	482658.250	292921.073	2061.240	REBAR	8+880.385	32.005 Rt.

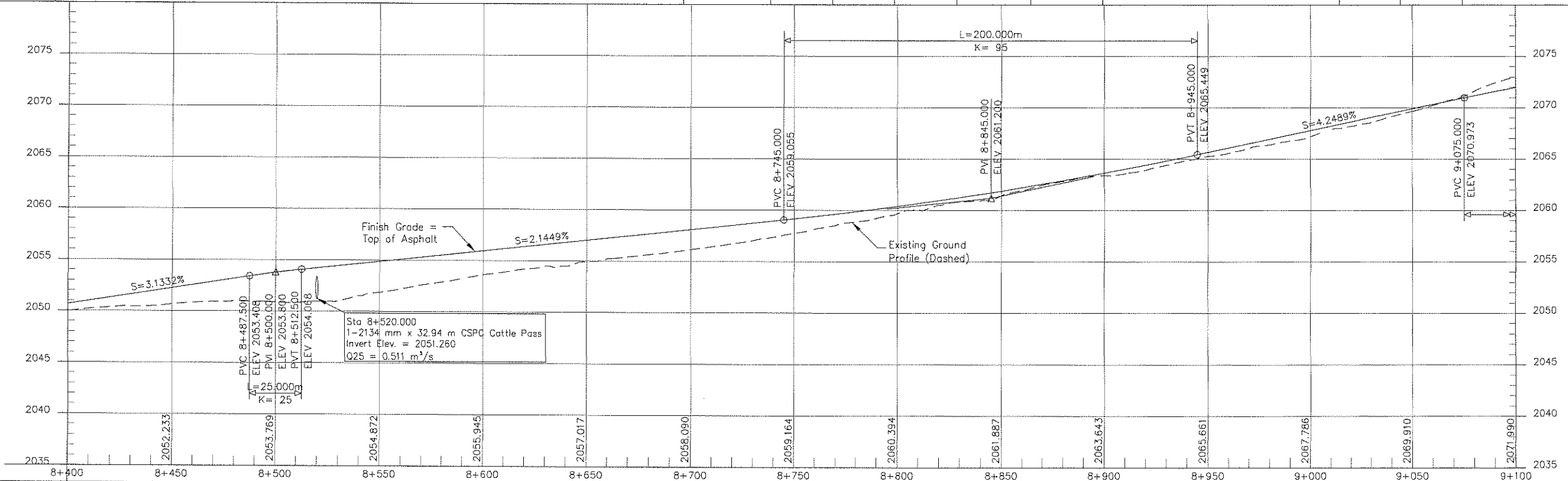
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	24	63



CURVE C9	
D =	35°13'59" Lt.
Dc =	3°59'55"
R =	436.744m
T =	138.682m
L =	268.569m
e =	3.600%
PI	
Sta =	9+159.516
N =	482391.563
E =	292986.174

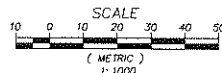
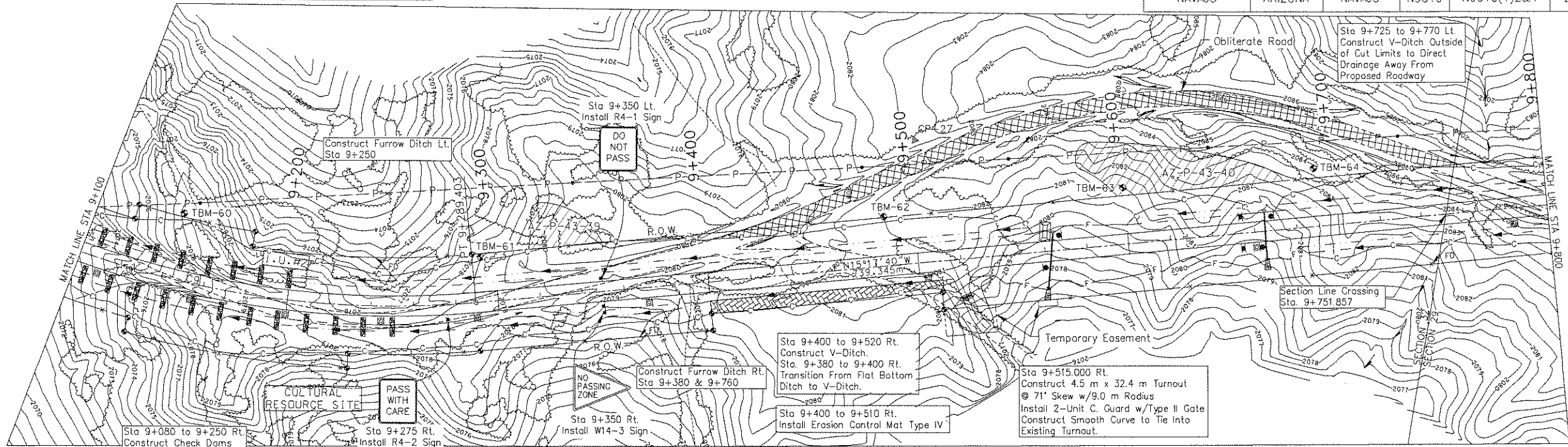


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	Type "1a"	Type "1b"			STATION	STRUCTURE	SKEW NO.	D.A. (H.A.)	
0	2	5	2	2	8+520.000	1-2134 mm x 32.94 m CSPC Cattle Pass	60°	1.5	Concrete Slope Blankets Both Ends. Grouted Riprap @ Outlet. Ditch Block @ Outlet

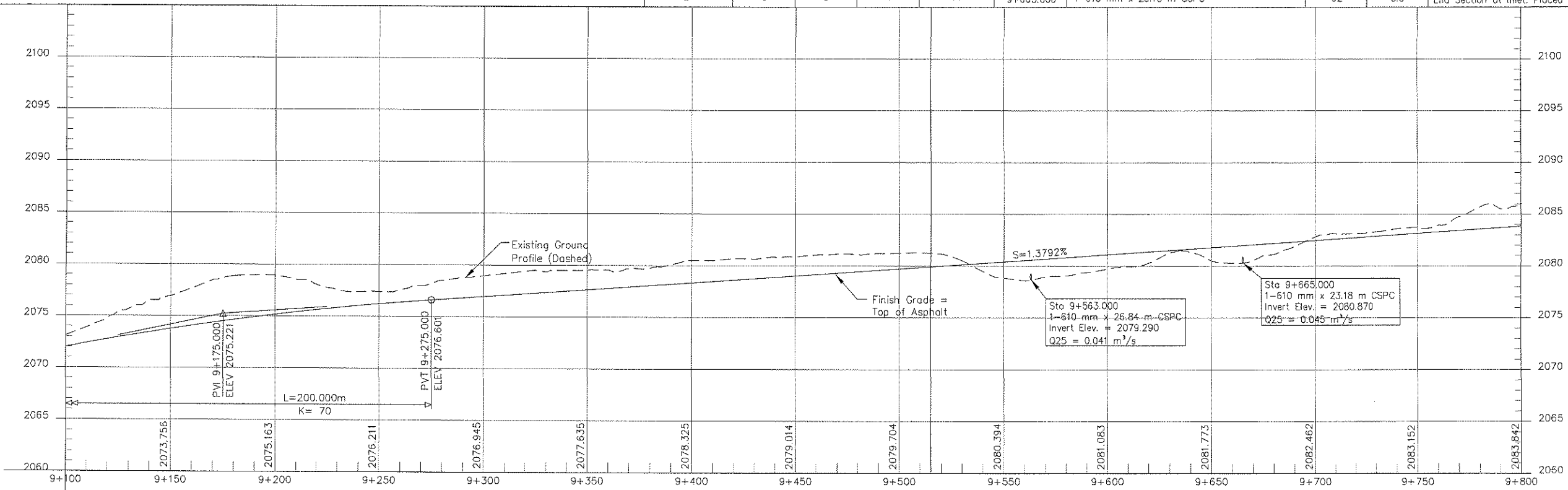


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-27	483256.517	292836.889	2082.660	REBAR	9+503.543	58.282 Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	25	63

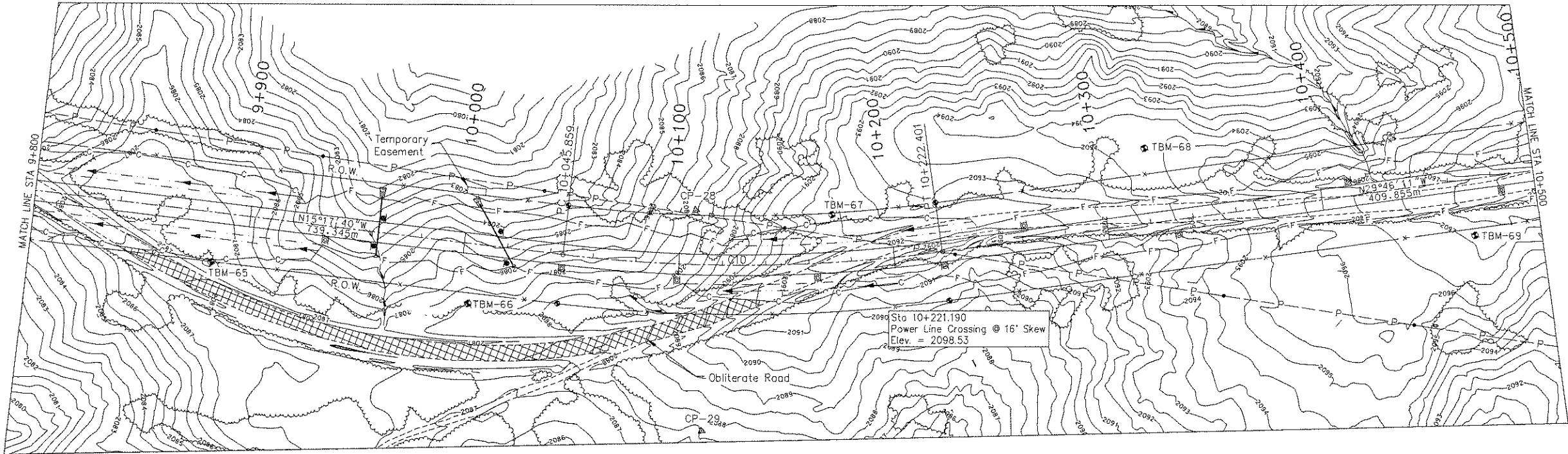


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	di	di			STATION	STRUCTURE	SKREW NO.	D.A. (Ha.)	
2	0	9	4	14	9+563.000	1-610 mm x 26.84 m CSPC	100'	0.5	End Section & Ditch Block at Inlet. Placed Riprap @ Outlet.
					9+665.000	1-610 mm x 23.18 m CSPC	92'	0.5	End Section at Inlet. Placed Riprap @ Outlet.

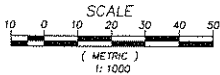


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-28	483844.437	292707.625	2087.420	REBAR	10+107.028	25.306 Lt.
CP-29	483885.576	292801.846	2087.560	REBAR	10+112.320	77.358 Rt.

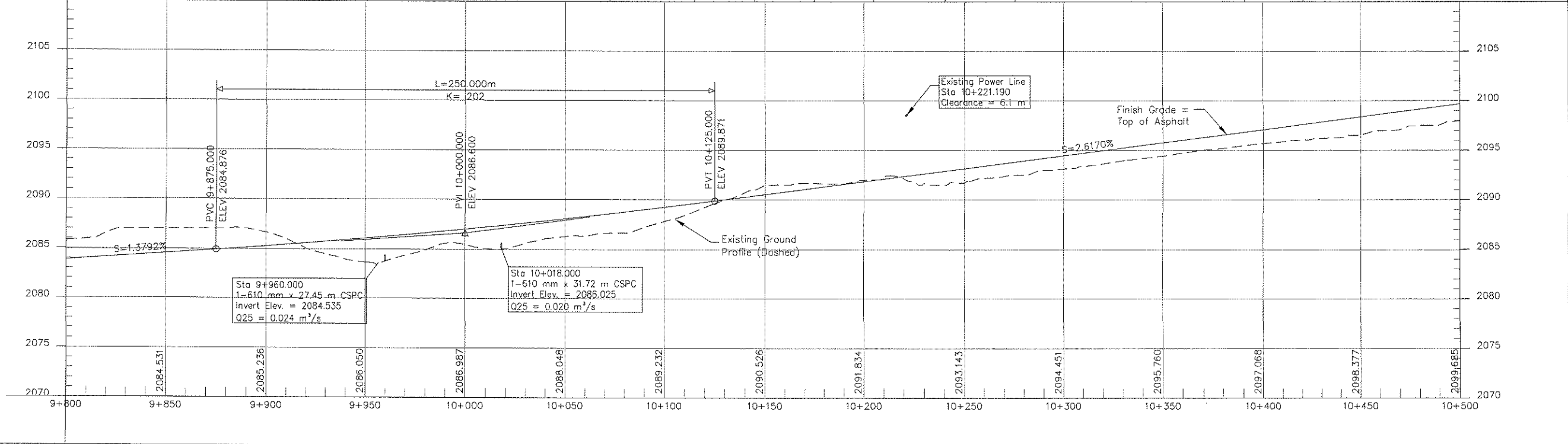
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	26	63



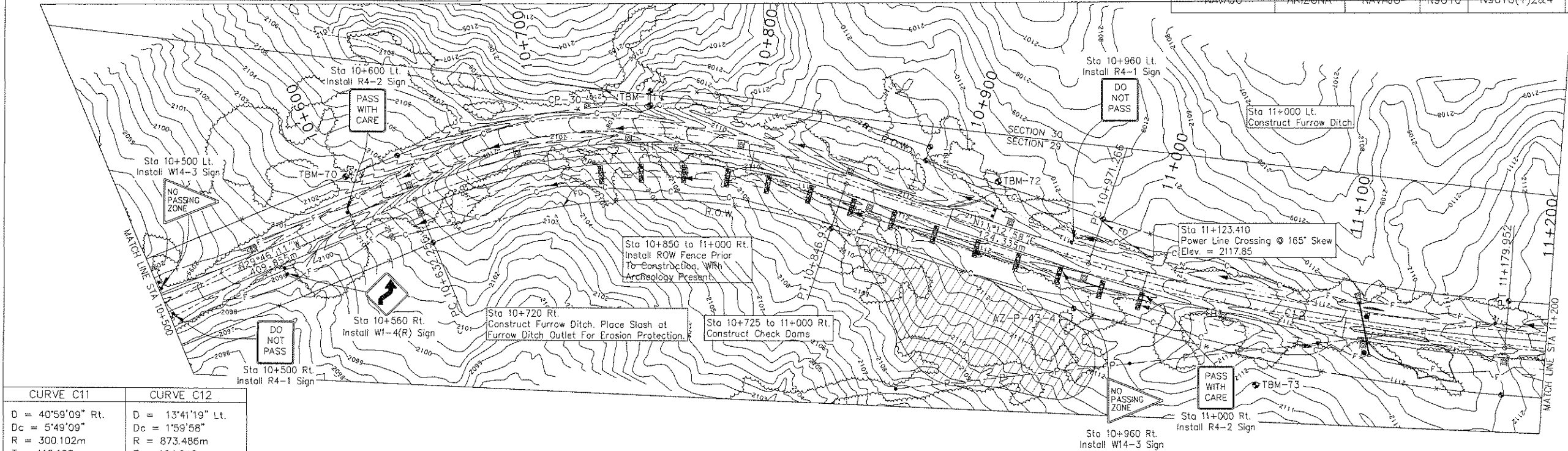
CURVE C10	
D =	14'28'31" Lt.
Dc =	2'29'57"
R =	698.790m
T =	88.743m
L =	176.542m
e =	3.000%
PI	
Sta =	10+134.603
N =	483880.599
E =	292726.645



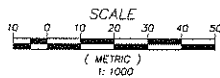
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				
	Ⓐ	Ⓑ	Ⓒ		STATION	STRUCTURE	SKEW NO.	D.A. (Ho.)	REMARKS
	Type "1a"	Type "1b"	Type II						
9					9+960.000	1-610 mm x 27.45 m CSPC	90°	0.3	End Section at Inlet. Placed Riprap @ Outlet.
					10+018.000	1-610 mm x 31.72 m CSPC	55°	0.2	End Section at Inlet. Placed Riprap @ Outlet.
0	0	9	4	4					



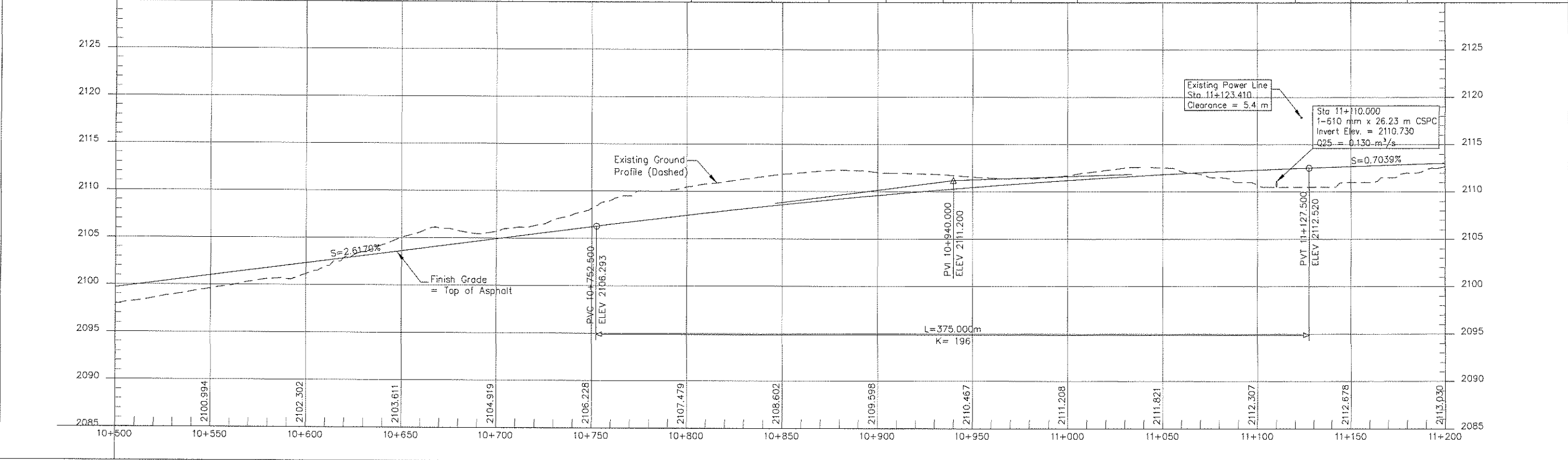
CONTROL POINTS						REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION							
CP-30	484390.592	292423.122	2107.680	REBAR	10+721.218	NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	27	63



CURVE C11	CURVE C12
D = 40°59'09" Rt.	D = 13°41'19" Lt.
Dc = 5'49'09"	Dc = 1'59'58"
R = 300.102m	R = 873.486m
T = 112.162m	T = 104.842m
L = 214.675m	L = 208.686m
e = 4.000%	e = 2.700%
PI	PI
Sta = 10+744.418	Sta = 11+076.108
N = 484410.756	N = 484745.576
E = 292423.393	E = 292489.788

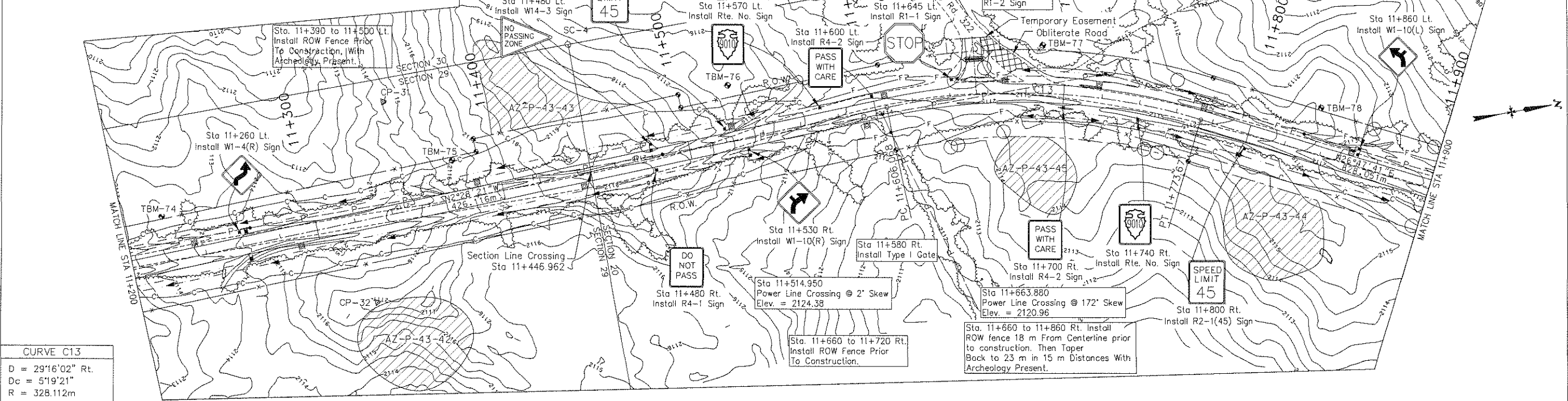


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	GL	BL			STATION	STRUCTURE	SKREW NO.	D.A. (Ha.)	
0	0	13	2	12	11+110.000	1-610 mm x 26.23 m CSPC	70'	1.6	End Section at Inlet. Placed Riprap at Outlet.

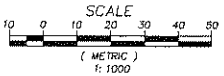


CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-31	485015.368	292418.902	2114.610	REBAR	11+347.709
CP-32	484994.611	292522.969	2117.020	REBAR	11+322.482
SC-4	485116.738	292405.585		T23NR29ESWS20	11+449.558
					68.113 Lt.

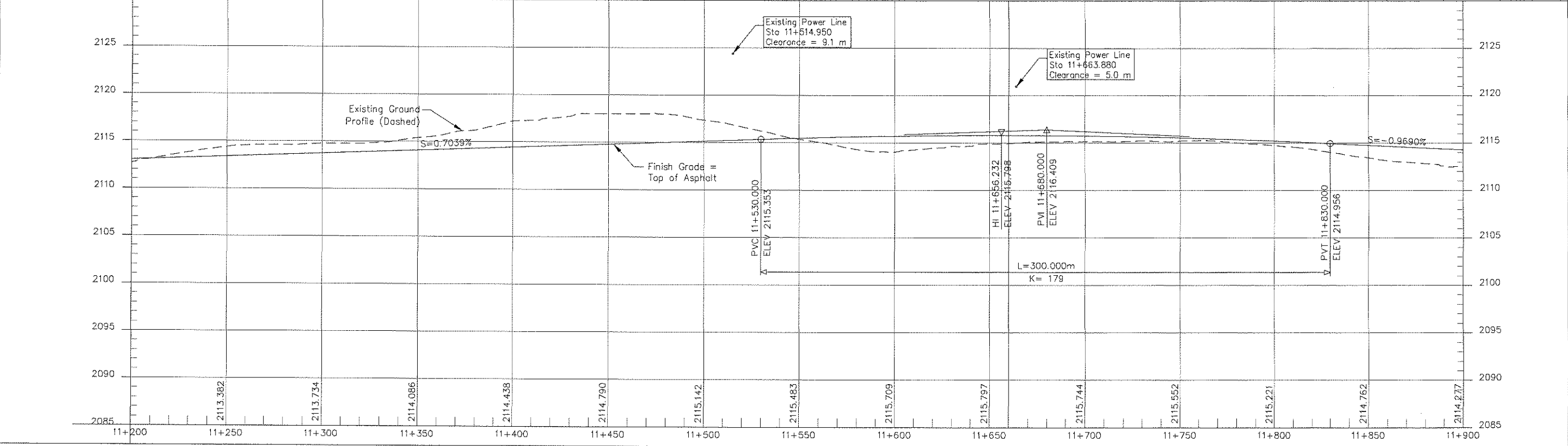
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	28	63



CURVE C13	
D = 29'16"02" Rt.	
Dc = 5'19"21"	
R = 328.112m	
T = 85.672m	
L = 167.602m	
e = 3.900%	
PI	
Sta = 11+691.741	
N = 485361.632	
E = 292463.188	

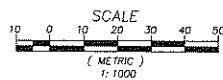
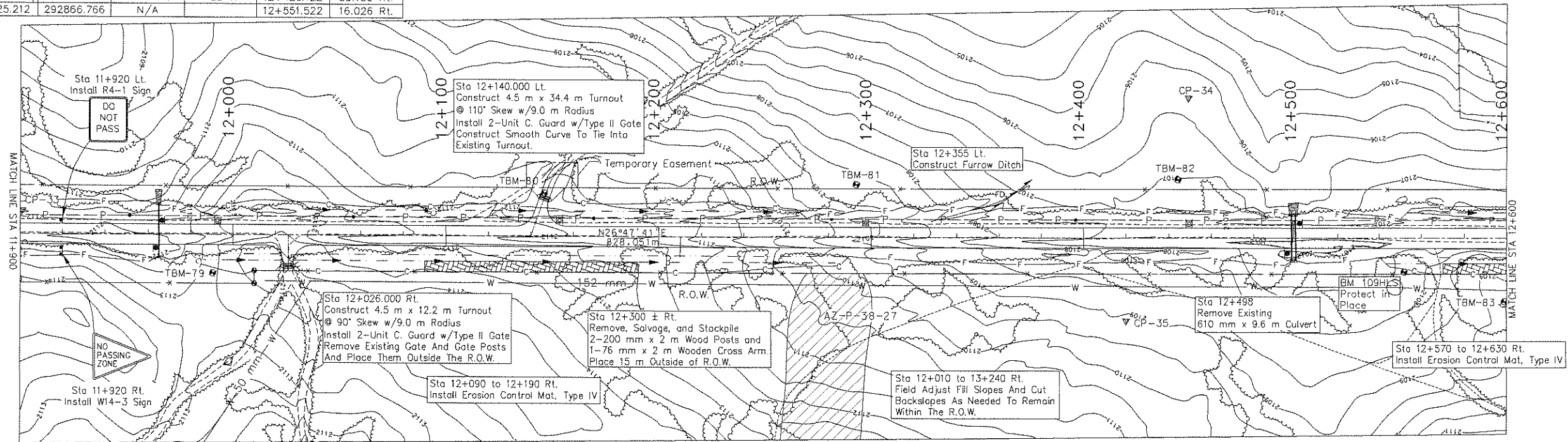


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	11	0	8

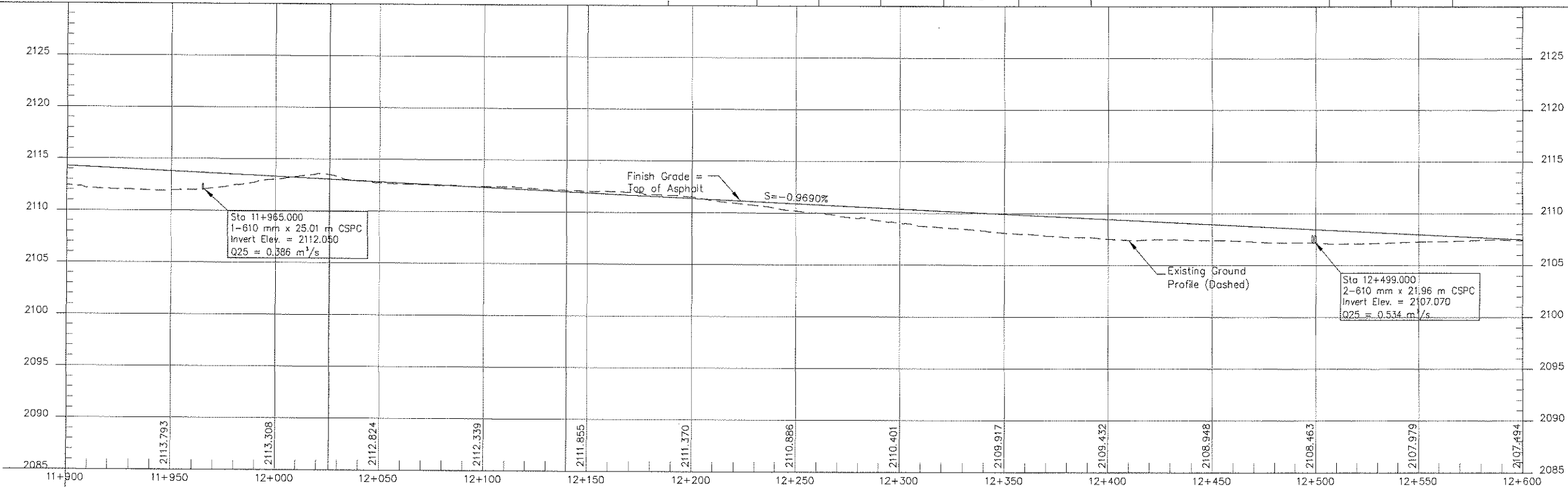


CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-33	485556.803	292549.321	2112.010	REBAR	11+901.042	11.097 Lt.
CP-34	486070.978	292747.296	2106.430	REBAR	12+449.255	66.168 Lt.
CP-35	485997.515	292828.136	2109.060	REBAR	12+420.122	39.109 Rt.
BM-109HLS	486125.212	292866.766	N/A		12+551.522	16.026 Rt.

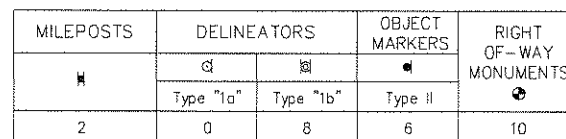
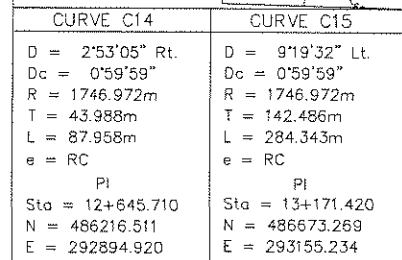
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	29	63



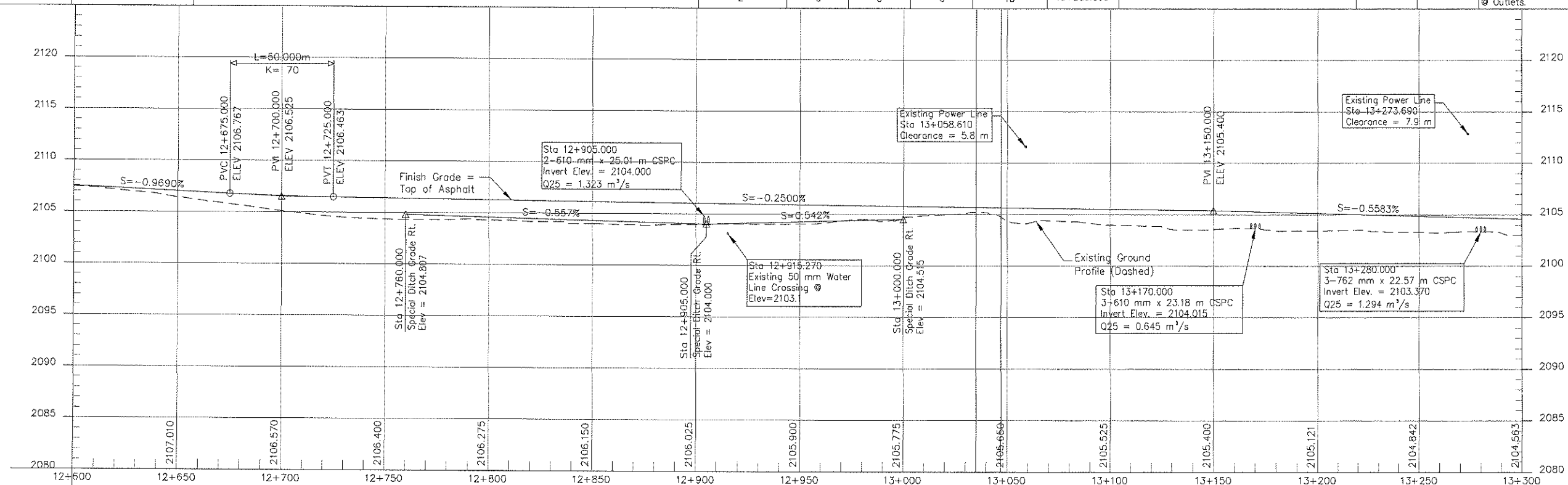
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES			
	Type "1a"	Type "1b"			STATION	STRUCTURE	SKREW NO.	REMARKS
0	0	4	4	2	11+965.000	1-610 mm x 25.01 m CSPC	90'	End Section at Inlet. Placed Riprap @ Outlet.
					12+499.000	2-610 mm x 21.96 m CSPC	90'	End Section at Inlet. Placed Riprap @ Outlet.



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	30	63

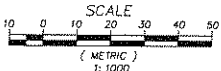
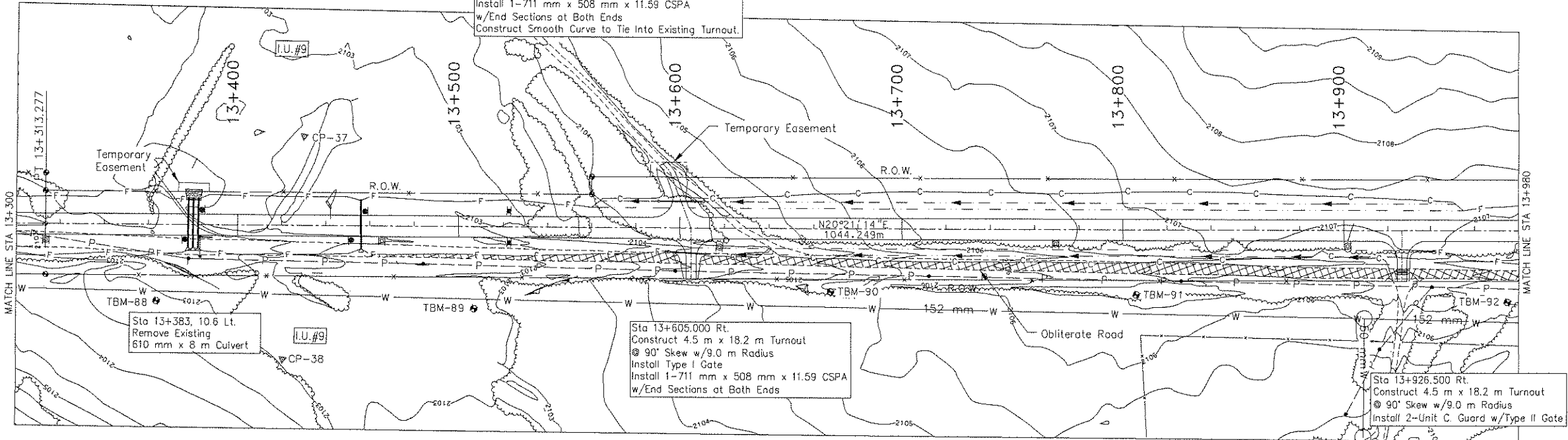


DRAINAGE STRUCTURES					
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS	
12+905.000	2-610 mm x 25.01 m CSPC	90°	53.5	End Sections @ Inlets. Placed Riprap @ Outlets.	
13+170.000	3-610 mm x 23.18 m CSPC	90°	32.1	End Sections @ Inlets. Placed Riprap @ Outlets.	
13+280.000	3-762 mm x 22.57 m CSPC	90°	64.1	End Sections @ Inlets. Placed Riprap @ Outlets.	



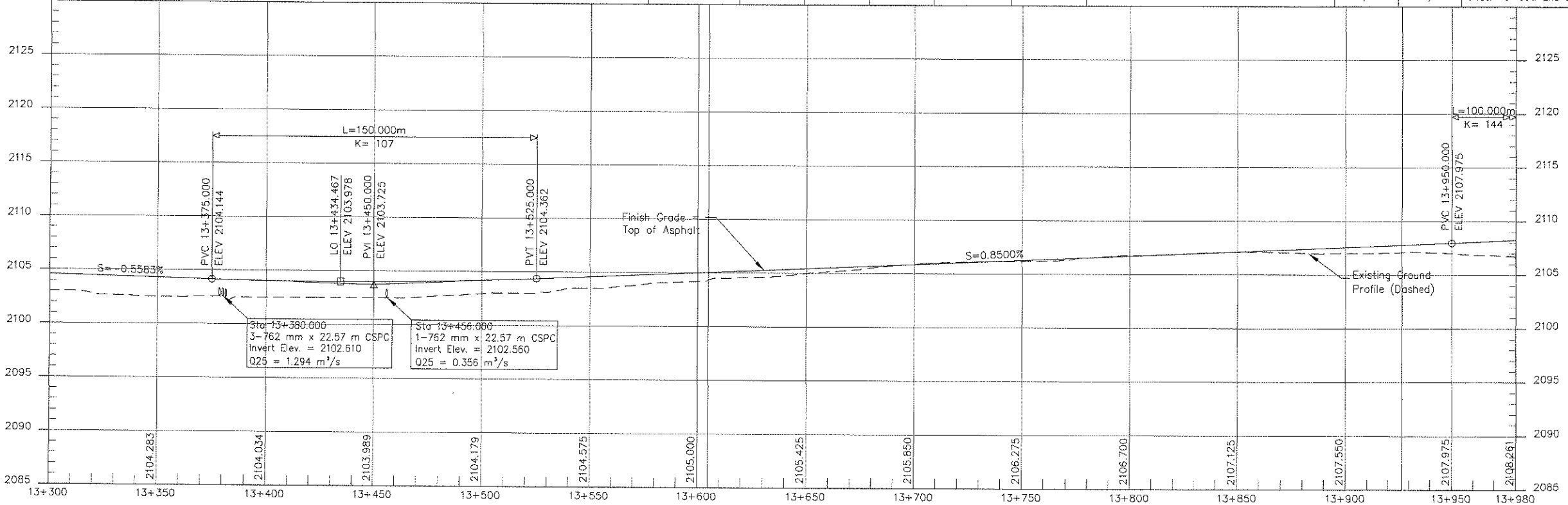
CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-37	486930.178	293207.453	2102.500	REBAR	13+429.821
CP-38	486886.257	293298.952	2103.030	REBAR	13+420.468

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	31	63



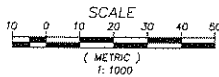
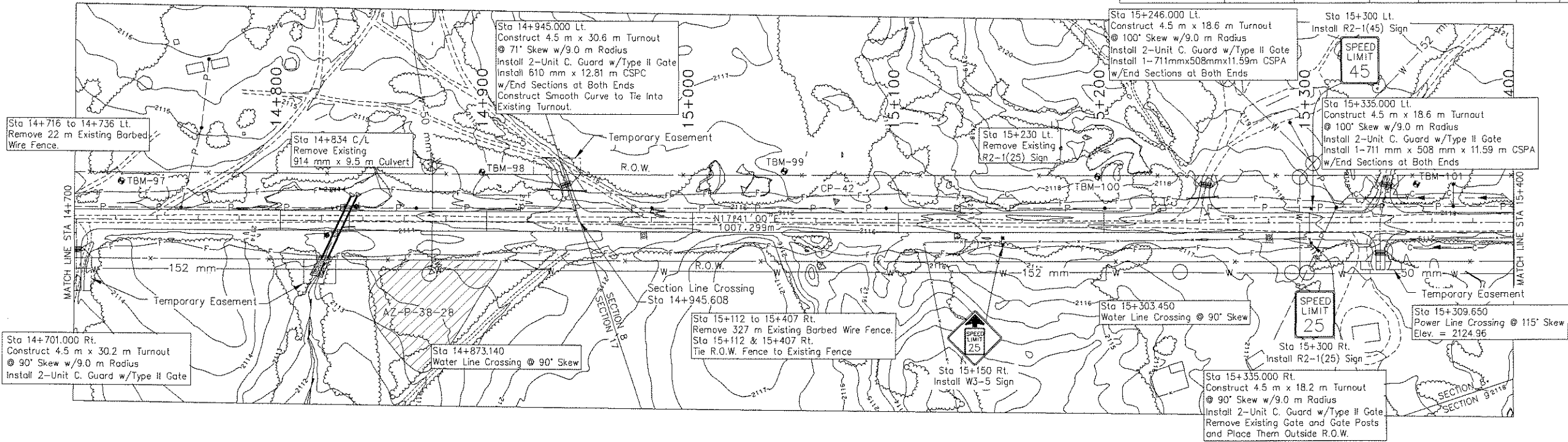
MILEPOSTS	DELINEATORS	OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
0	Type "1a" 0	Type "1b" 5	Type II 4

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
13+380.000	3-762 mm x 22.57 m CSCP	90°	64.1	End Section at Inlet. Placed Riprap @ Outlets.
13+456.000	1-762 mm x 22.57 m CSCP	90°	8.4	End Sections at Inlets.
13+605.000 Rt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
13+605.000 Lt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.



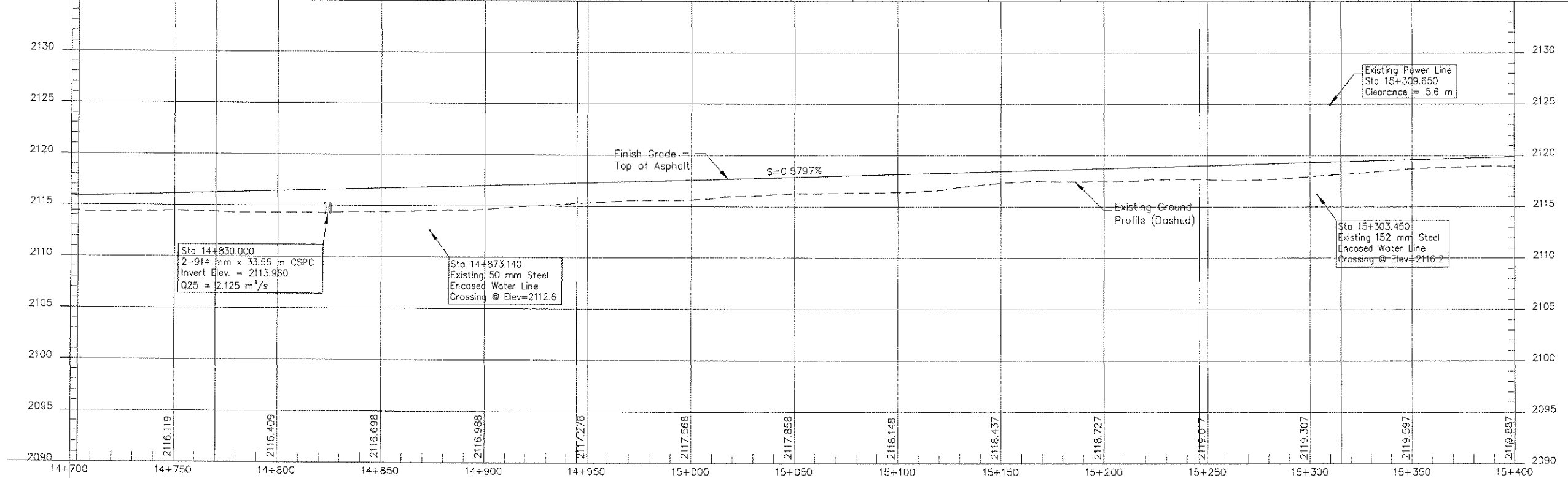
CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-42	488466.391	293777.960	2116.330	REBAR	15+069.692
					10.457 Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	33	63

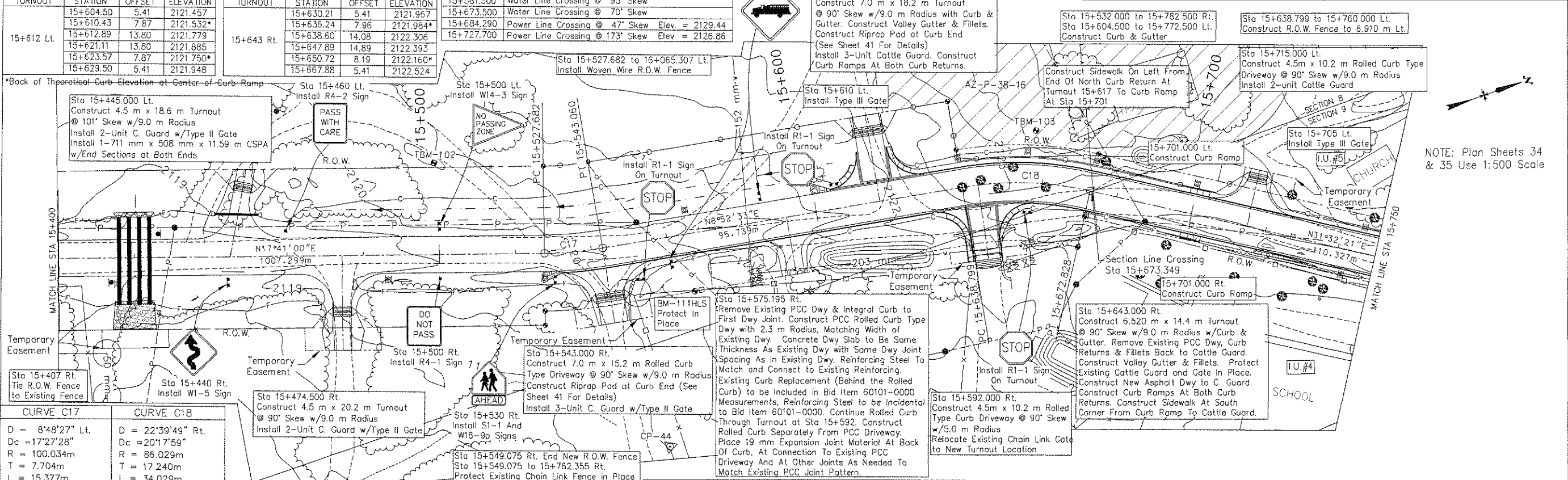


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Q	W	▲	●
	Type "1a"	Type "1b"	Type II	
0	2	3	2	0

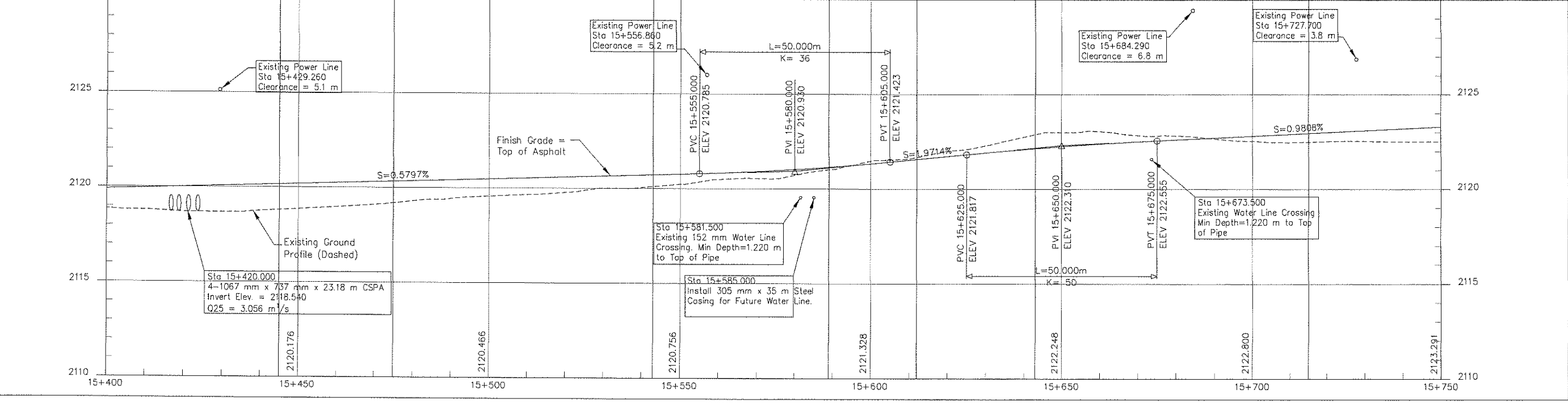
DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
14+830.000	2-914 mm x 33.55 m CSPC	115°	64.5	End Sections @ Inlets. Placed Riprap @ Outlets.
14+945.000 Lt.	1-610 mm x 12.81 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends.
15+246.000 Lt.	1-711 mm x 508 mm x 11.59 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends.
15+335.000 Lt.	1-711 mm x 508 mm x 11.59 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends.



CONTROL POINTS							EXISTING UTILITY CROSSINGS				Sta 15+560 Rt. & Sta 15+585 Lt. Install W11-8 Sign		REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET	STATION	DESCRIPTION											
CP-44	488914.700	293985.781	2119.550	REBAR	15+551.759	54.523 Rt.	15+429.260	Power Line Crossing @ 100° Skew	Elev. = 2125.11										
TURNOUT BACK-OF-CURB ELEVATION TABLE				TURNOUT BACK-OF-CURB ELEVATION TABLE				15+556.860	Power Line Crossing @ 52° Skew	Elev. = 2126.00									
TURNOUT LATERAL ELEVATION TABLE				TURNOUT LATERAL ELEVATION TABLE				15+593.600	Water Line Crossing @ 95° Skew										

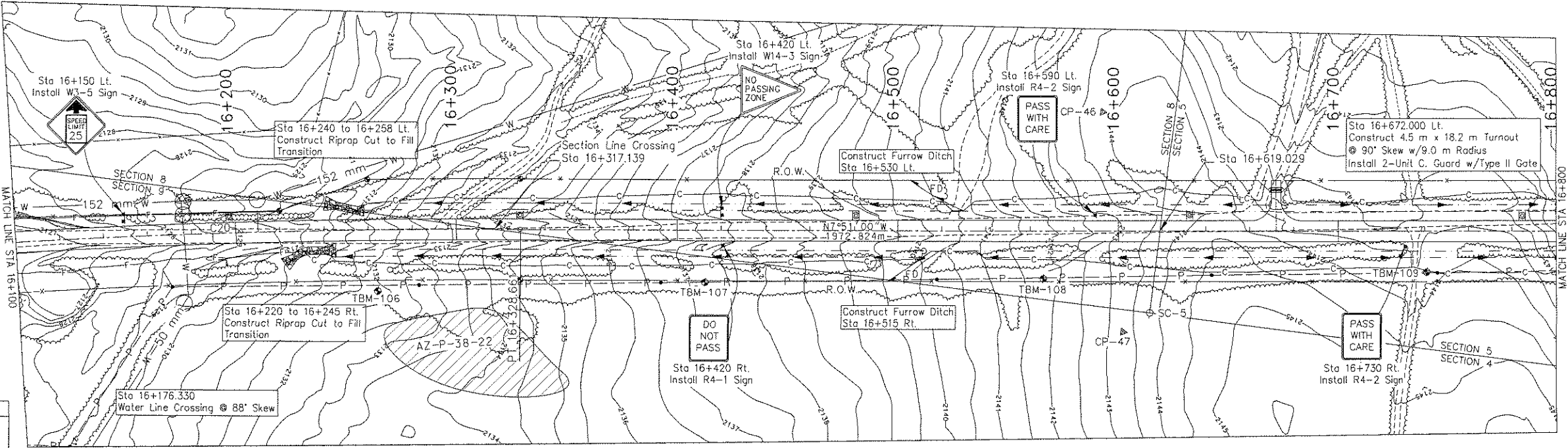


e = NC		e = NC				MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				
PI		PI					Cl	B	Type II		STATION	STRUCTURE	SKEW NO.	D.A. (Ho.)	REMARKS
STA = 15+535.386 N = 488906.905 E = 293929.379		STA = 15+656.039 N = 489026.142 E = 293948.000				1	Type "1a"	Type "1b"	Type II	9	15+420.000	4-1067 mm x 737 mm x 23.18 m CSPA	90°	143.6	End Sections @ inlets. Placed Riprap @ Outlets.
						2	0	11	2		15+445.000 Lt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.

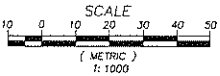


CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-46	489922.544	293858.175	2143.780	REBAR	16+592.710
CP-47	489945.458	293956.052	2143.330	REBAR	16+602.041
SC-5	489956.298	293945.749		T23NR29ENES8	16+614.187
					37.162 Rt.

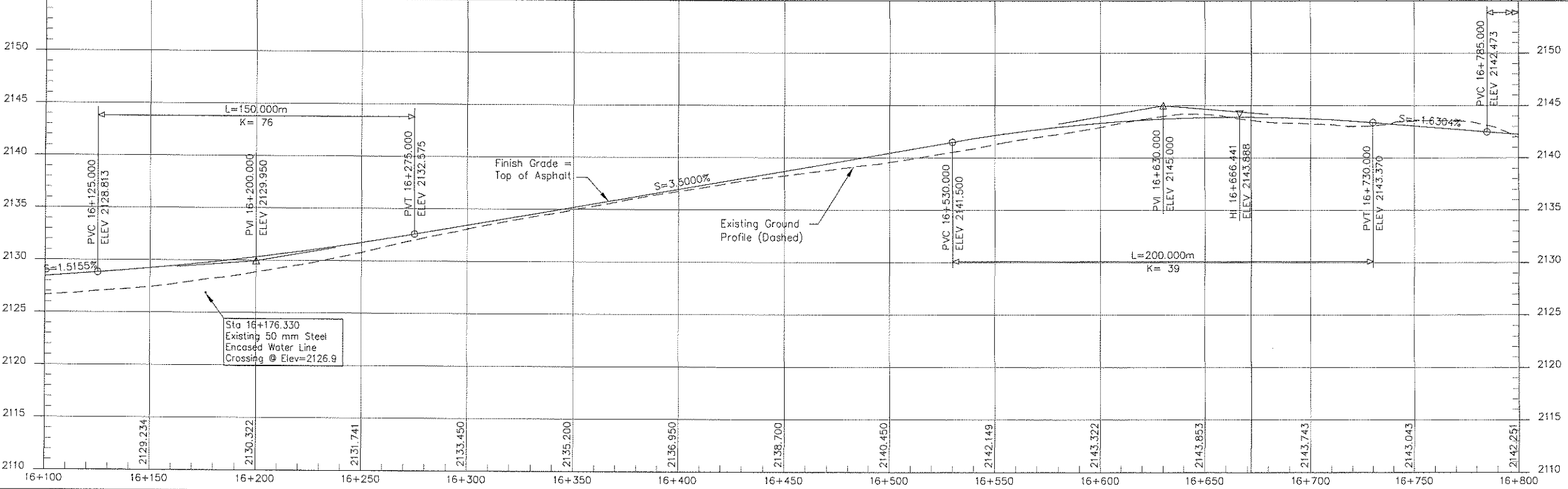
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	36	63



CURVE C20	
D = 4°19'07" Rt.	
Dc = 0°29'59"	
R = 3493.944m	
T = 131.740m	
L = 263.354m	
e = NC	
Pi	
STA = 16+197.047	
N = 489537.867	
E = 293965.925	

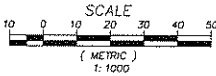
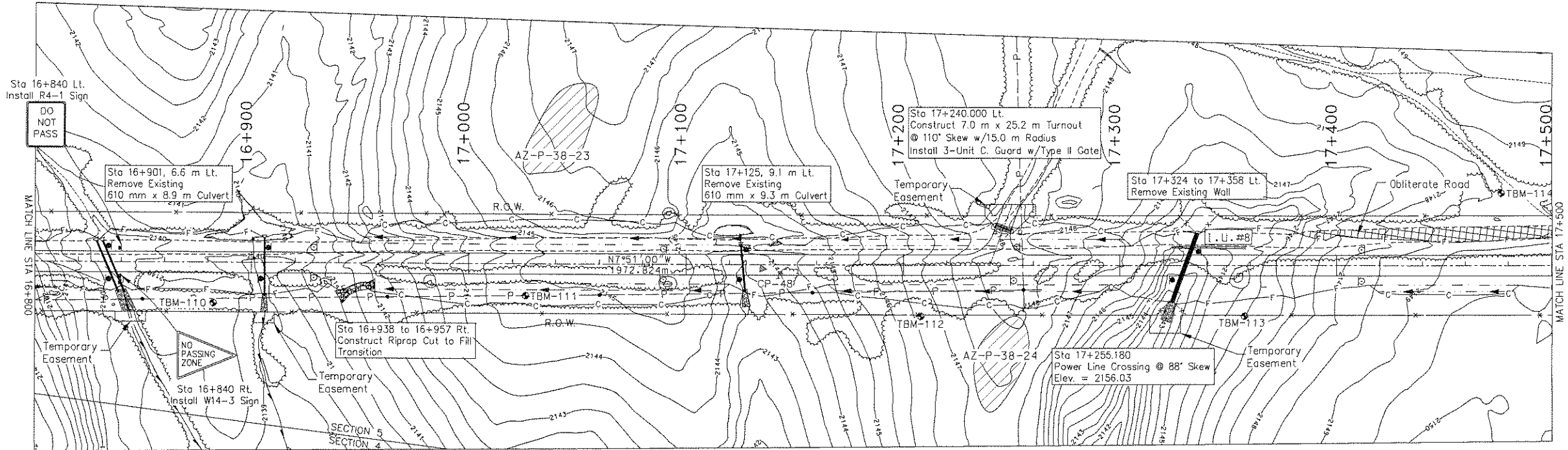


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"		
0	0	5	0	4



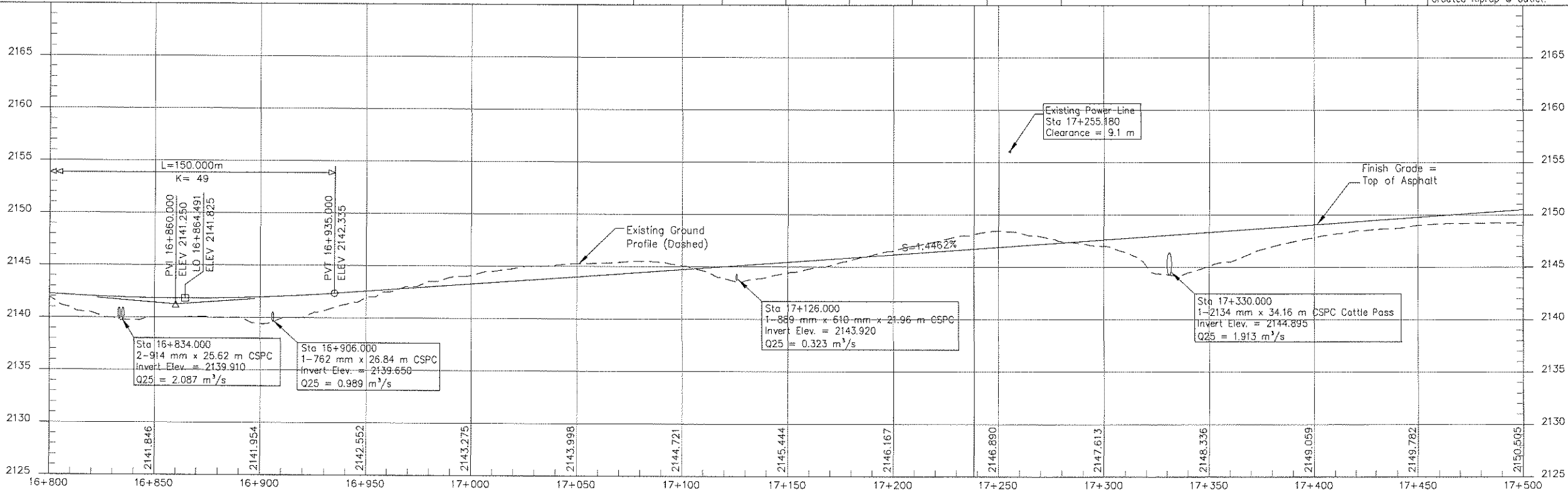
CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-48	490467.449	293839.669	2143.680	REBAR	17+135.036	1.887 Rt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	37	63



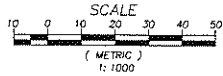
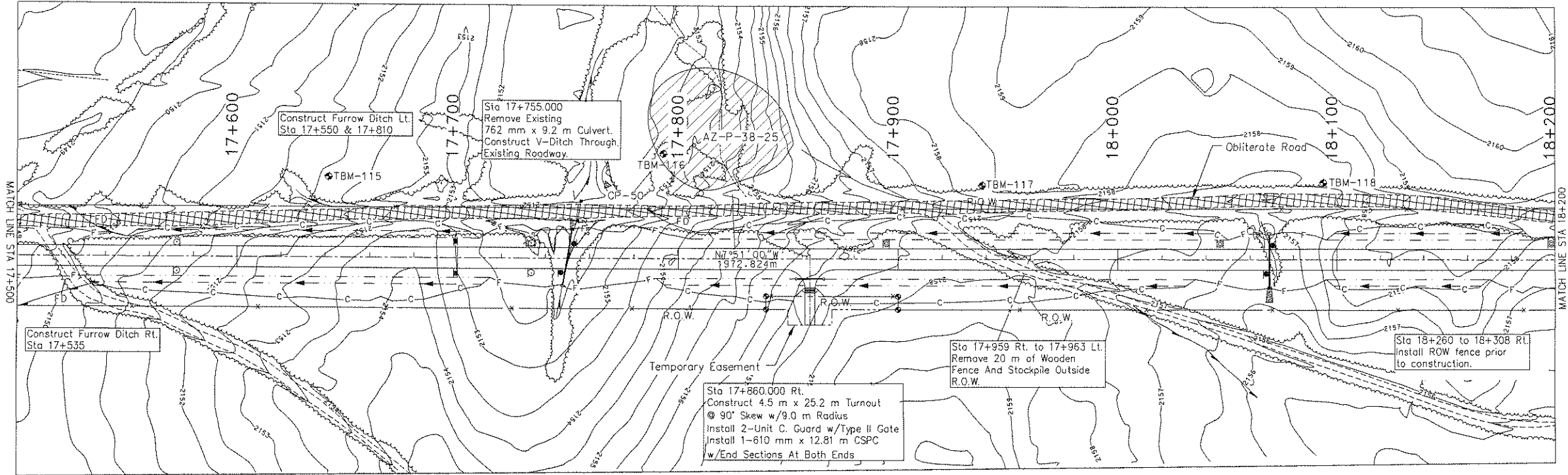
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Cl	Fl	Type II	
0	Type "1a"	Type "1b"	Type II	0
	8	0	8	0

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
16+834.000	2-914 mm x 25.62 m CSPC	67°	152.9	End Sections @ Inlets. Placed Riprap @ Outlets.
16+906.000	1-762 mm x 26.84 m CSPC	90°	44.7	End Section at Inlet. Placed Riprap @ Outlet.
17+126.000	1-889 mm x 610 mm x 21.96 m CSPC	85°	10.6	End Section at Inlet. Placed Riprap @ Outlet.
17+330.000	1-2134 mm x 34.16 m CSPC Cattle Pass	110°	82.3	Concrete Slope Blankets @ Both Ends. Grouted Riprap @ Outlet.

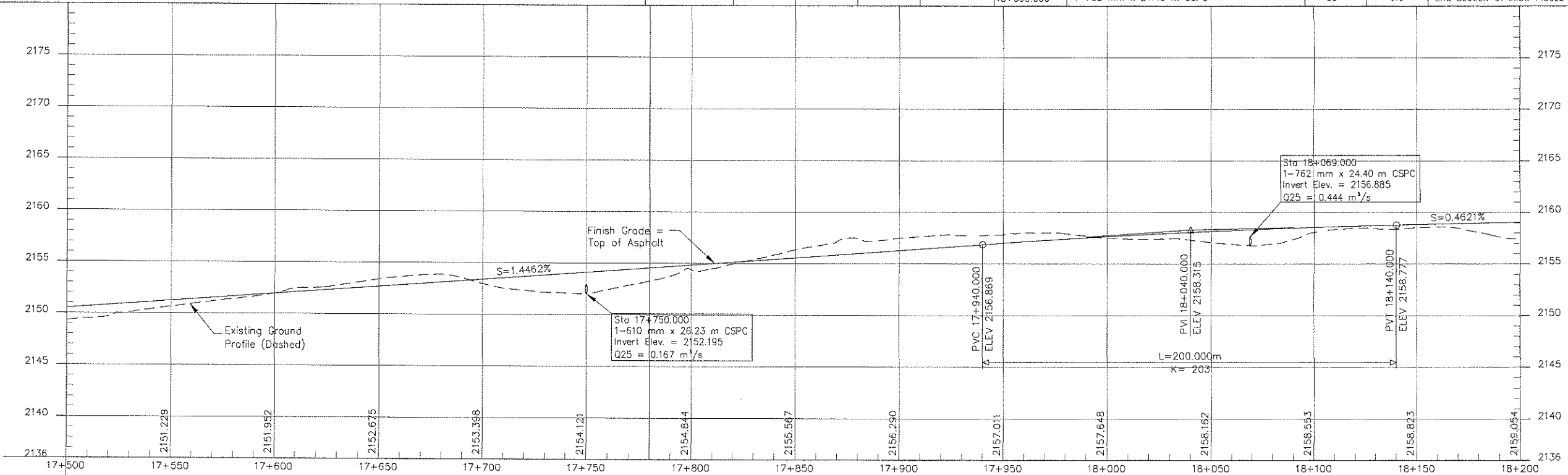


CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-50	491089.504	293718.253	2152.550	REBAR	17+767.845
					33.432 Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	38	63

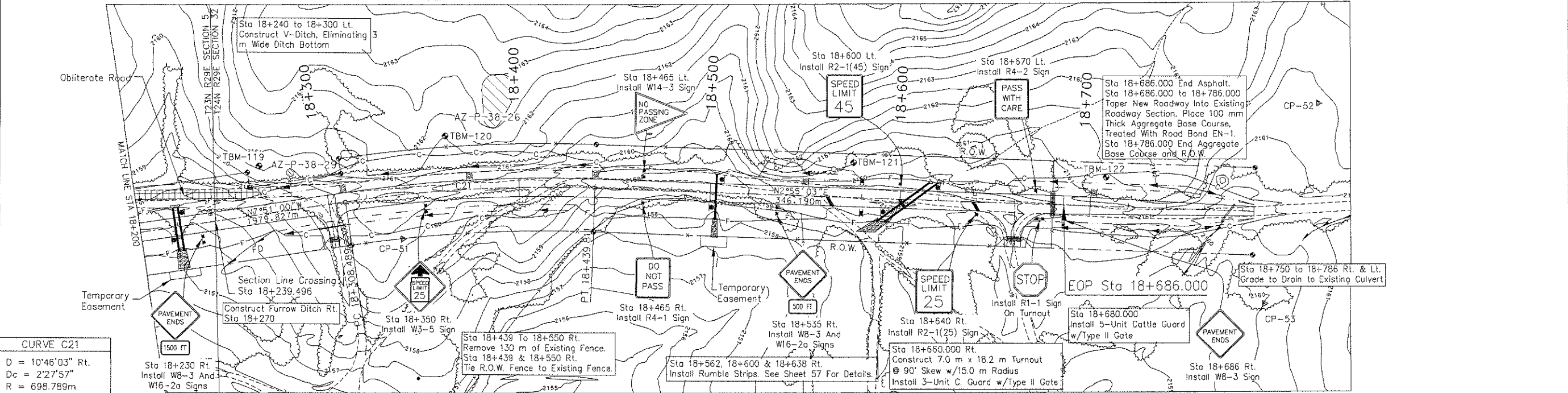


MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES				REMARKS
	CI	SI			STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	
2	4	3	4	4	17+750.000	1-610 mm x 26.23 m CSPC	100'	2.0	End Section at Inlet. Placed Riprap @ Outlet.
					17+860.000 Rt.	1-610 mm x 12.81 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends.
					18+069.000	1-762 mm x 24.40 m CSPC	90'	6.9	End Section at Inlet. Placed Riprap @ Outlet.



CONTROL POINTS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-51	491659.418	293697.370	2160.220	REBAR	18+336.428
CP-52	492142.146	293633.192	2161.330	REBAR	N/A
CP-53	492111.197	293738.165	2159.950	REBAR	N/A

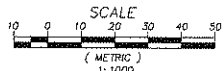
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	39	63



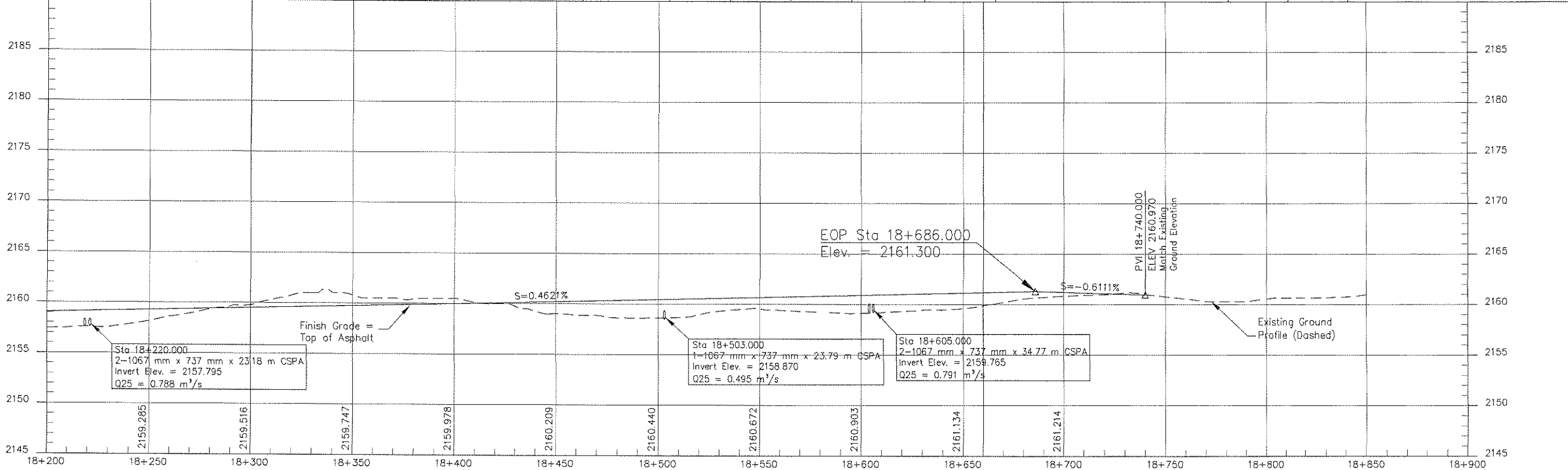
CURVE C21
D = 10'46'03" Rt.
Dc = 2'27'57"
R = 698.789m
T = 65.855m
L = 131.322m
e = 3.000%
PI
STA = 18+374.344
N = 491694.885
E = 293668.537

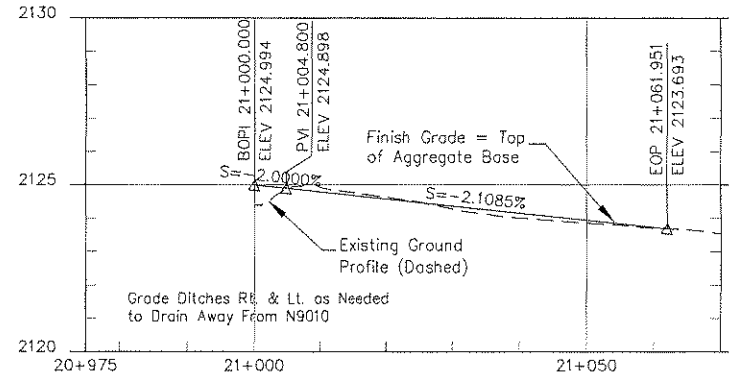
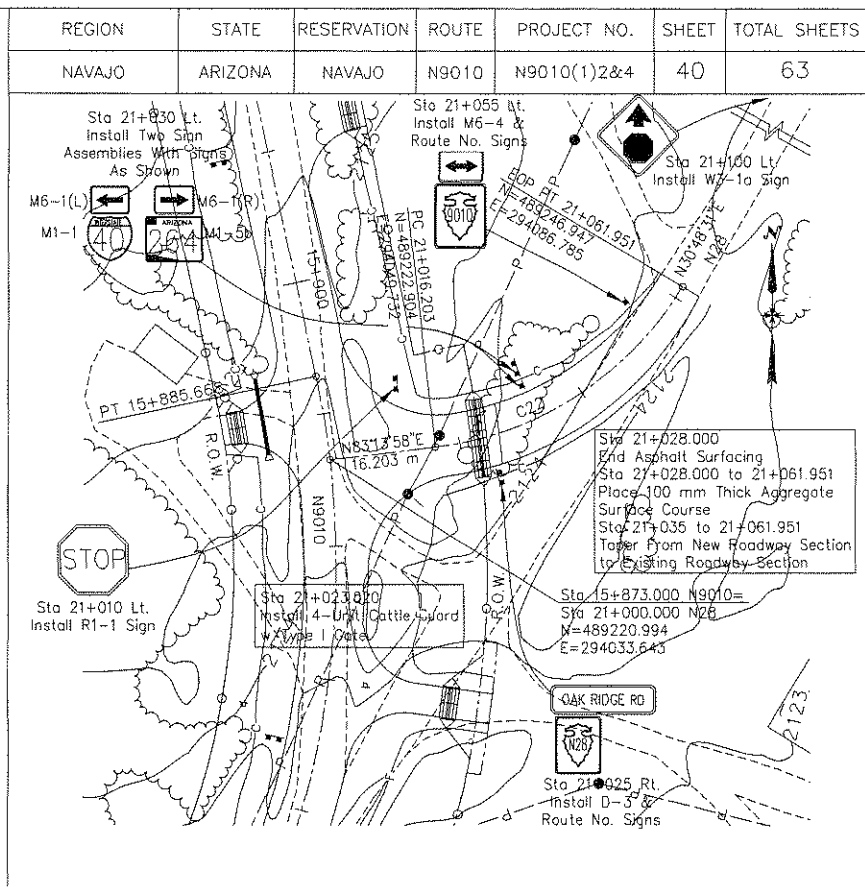
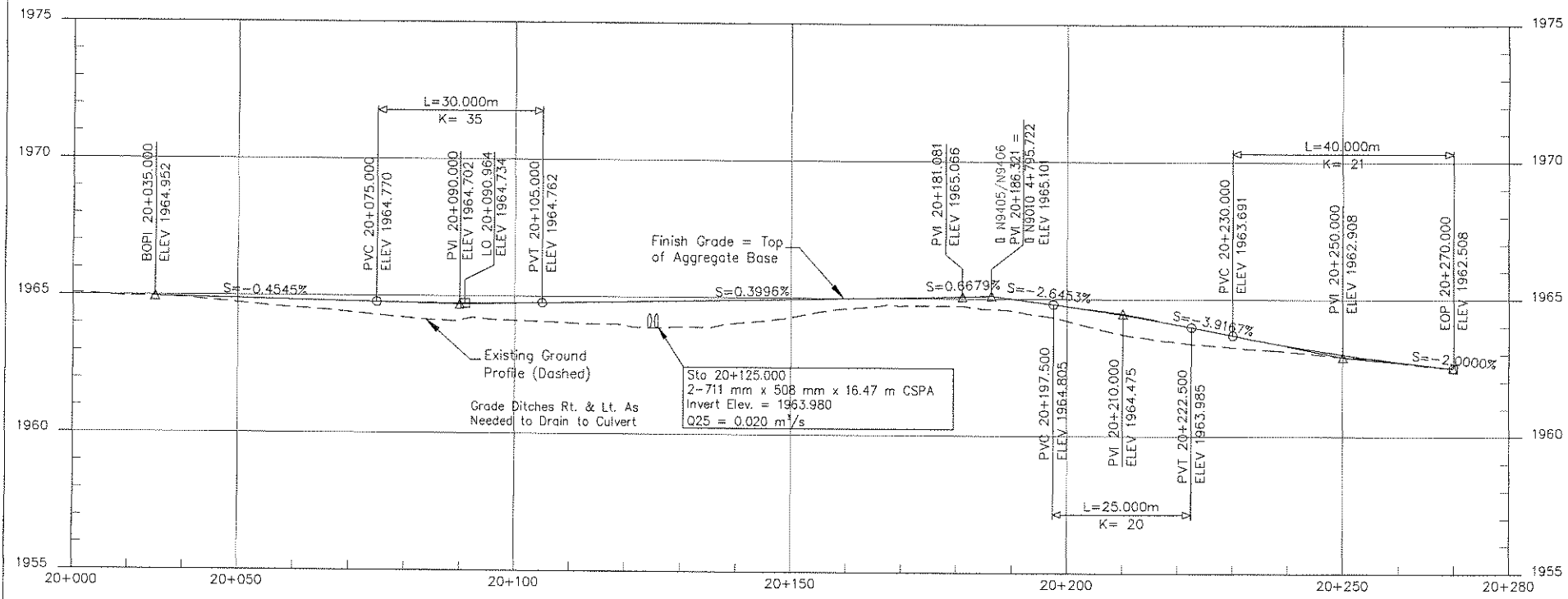
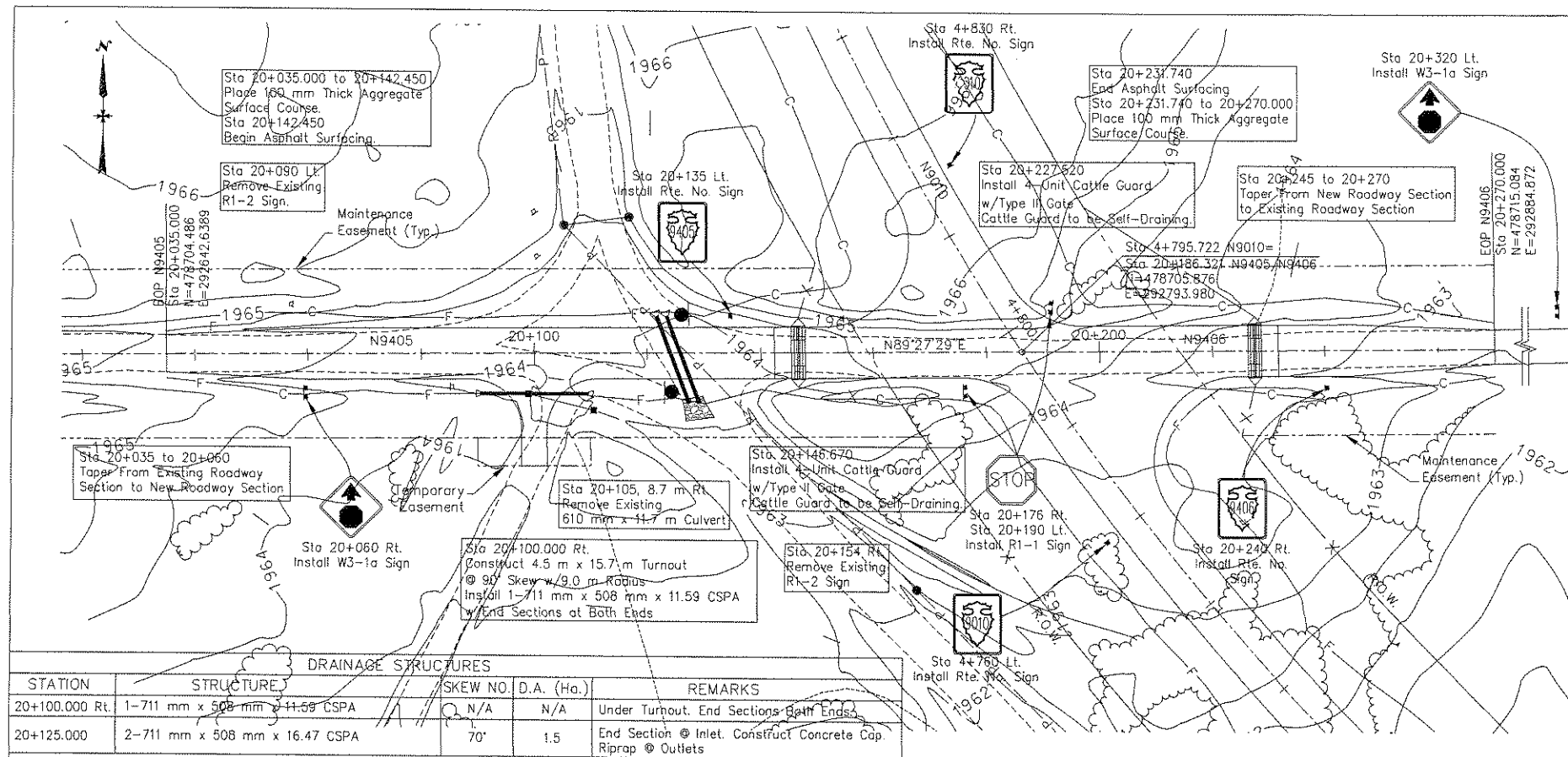
Sta 18+300.000 Rt.
Construct 4.5 m x 18.2 m Turnout
@ 90° Skew w/9.0 m Radius
Install 2-Unit C. Guard w/Type II Gate
(4.9 m Wide Gate)
Install 1-711 mm x 508 mm x 11.59 m CSPA
w/End Sections @ Both Ends

Sta. 18+260 to 18+308 Rt.
Install ROW Fence Prior
To Construction With
Archeology present.



MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS	DRAINAGE STRUCTURES			REMARKS
	Type "1a"	Type "1b"			STATION	STRUCTURE	SKREW NO. D.A. (Ha.)	
0	0	5	6	9	18+220.000	2-1067 mm x 737 mm x 23.18 m CSPA	90° 18.7	End Sections at inlets. Placed Riprap @ Outlets.
					18+300.000 Rt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A N/A	Under Turnout. End Sections Both Ends.
					18+503.000	1-1067 mm x 737 mm x 23.79 m CSPA	90° 10.9	End Section at Inlet. Placed Riprap @ Outlet.
					18+605.000	2-1067 mm x 737 mm x 34.77 CSPA	142° 22.7	End Section at Inlet. Placed Riprap @ Outlet.





UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

NAVAJO REGION OFFICE • DIVISION OF TRANSPORTATION

INTERSECTION CONSTRUCTION DETAILS

CURVE C22

D = 52°25'27" Lt.
Dc = 34°55'39"
R = 50.000m
T = 24.616m
L = 45.749m
e = NC

PI
Sta = 21+040.819
N = 489225.804
E = 294074.177

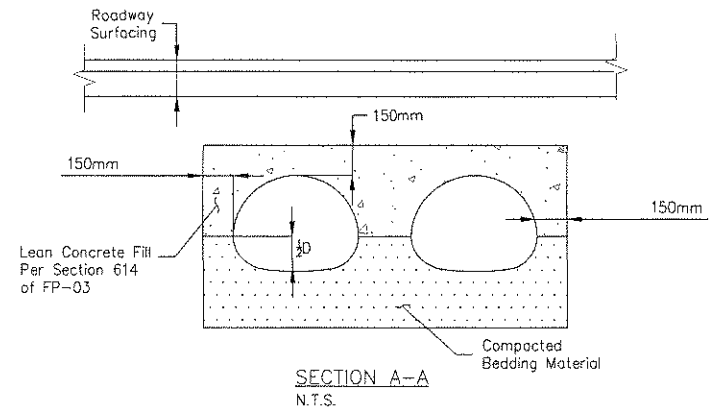
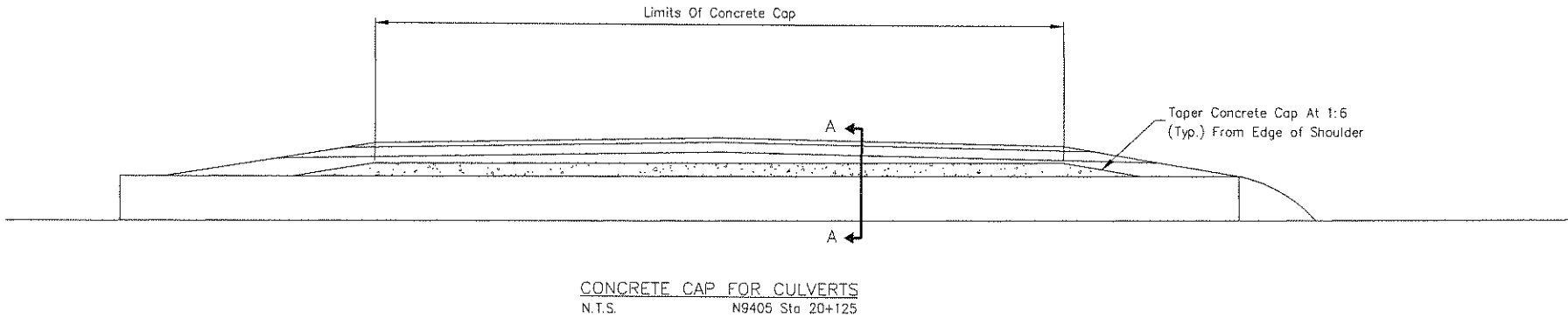
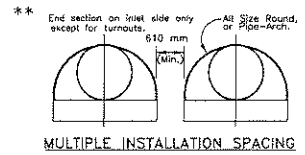
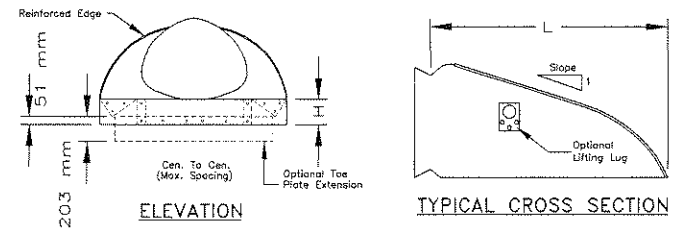
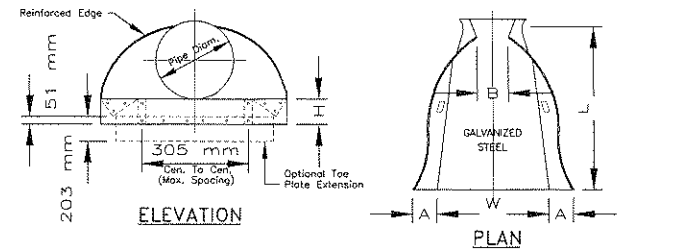
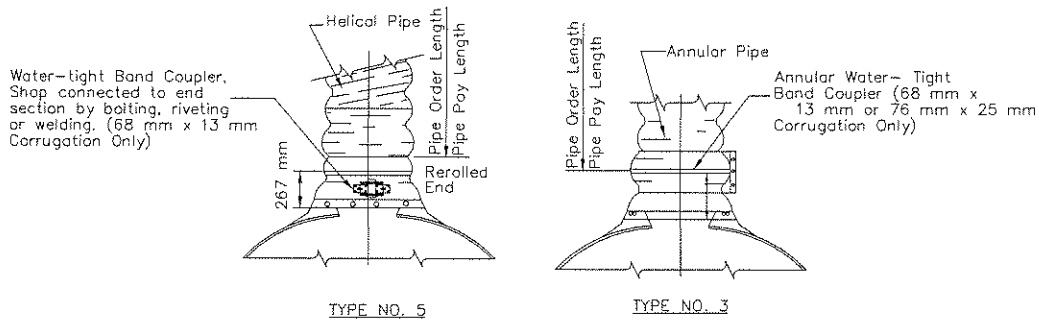
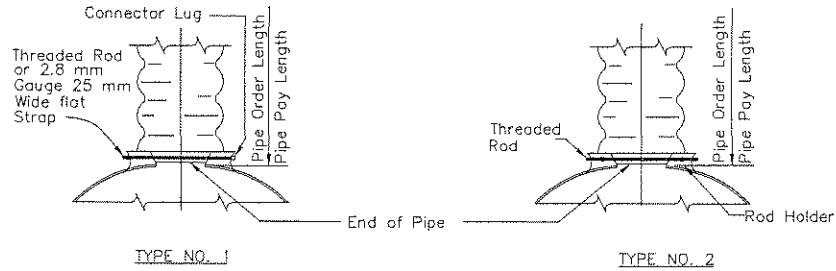
Designed by: RDL
Drawn by: RDL
Revised by: DESIGN 2
File Name: N9010_Construction Details

Date: 03-06
Date: 1/13/09

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	42	63

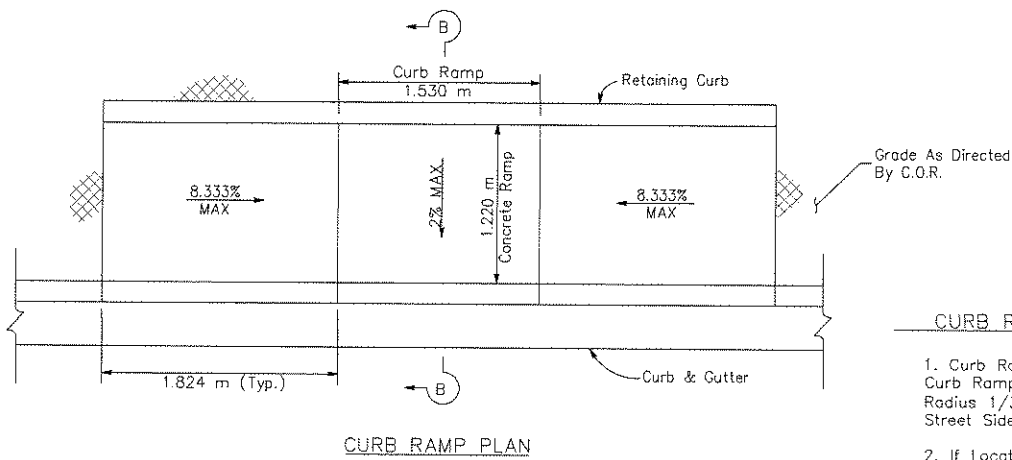
END SECTION NOTES

- For Multiple Installations of All Types, A minimum of a 610 mm spacing measured along the horizontal between flared end sections at their widest cross section shall be used.
- All Three (3) Piece Bodies to Have Side Thickness of 2.77 mm and 3.5 mm Thick Center Panels. Width of Center Panels To Be Greater Than 20% of The Pipe Periphery. Multiple Panel Bodies To Have Lap Seams Which Are To Be Tightly Joined By 9.53 mm Galvanized Rivets or Bolts.
- End Sections For Steel Pipe-Arches: For the 1956 mm x 1321 mm and 2108 mm x 1448 mm Sizes, Reinforced Edge To Be Supplemented By 51 mm x 51 mm x 6.35 mm Galvanized Angles. The Angles To Be Attached By 9.53 mm Dia. Galvanized Nuts And Bolts. Angle Reinforcement Will Be Placed Under The Center Panel Seams.
- End Sections For Steel Circular Pipes: For 1524 mm Thru 2134 mm Sizes, Reinforced Edge To Be Supplemented With Galvanized Stiffener Angles. The Angles Will Be 51 mm x 51 mm x 6.35 mm For 1524 mm Thru 1829 mm, and 64 mm x 64 mm x 6.35 mm for 1981 mm and 2134 mm. The Angles To Be Attached By 9.53 mm Galvanized Nuts And Bolts.
- Welding Shall Not Be Permitted in Connecting End Sections to Connector Sections or Connector Sections To Pipe.
- Type No. 1 Steel End Section: Connect End Section With Threaded Rod With Connector Lug, For 610 mm Pipe Only.
- Type No. 2 Steel End Section: Connect End Section With Threaded Rod With Rod Holder, For 762 mm And 914 mm Round Pipe; and 432 mm x 330 mm Thru 1448 mm x 965 mm CSPA.
- Type No. 3 Steel End Section: The Connection Includes 305 mm of the Pipe Length As a Connector Section For Pipe Arch Sizes 1626 mm x 1092 mm Thru 2108 mm x 1448 mm and Round Pipe Sizes 1067 mm Thru 2134 mm. Gages of Connector Sections Shall Be The Same As the End Sections As Mentioned Above. The Connector Section Will Be Attached to the End Section By 9.5 mm Galvanized Rivets or Bolts Spaced at Approximately 152 mm Centers.
- Helically Corrugated Pipe: For Type No. 5 and Type No. 3 Connections, the Dimble Band or Corrugated Pipe Connector Section Shall Be Attached To The End Section By 9.5 mm Galvanized Steel Rivets or Bolts Spaced at Approximately 152 mm Centers.
- Type No 1, Type No. 2, and Type No. 3 Connections May Be Used With Welded Seams Helically Corrugated Pipe With Re-Rolled Ends. Re-Rolled Ends Shall Include a Minimum of Two (2) Annular Corrugations of The Same Size As the Pipe Corrugations.



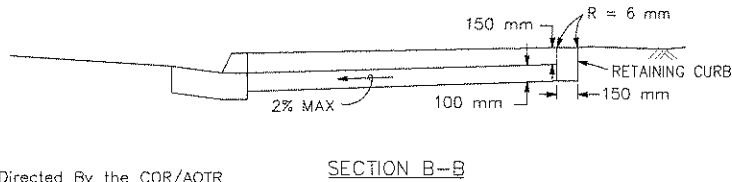
CONCRETE CAP NOTES

- All Materials and Labor Required To Cap Culverts Will Be Considered Incidental To The Culvert items.
- If Aluminum Coated Pipes Are Used, Coat Pipe Surfaces In Contact With The Concrete With Asphalt Mastic.



CURB RAMP NOTES

- Curb Ramps To Be Located As Directed By the COR/AOTR. Curb Ramps In Curb Returns Will Generally Be Between The Radius 1/3 And 1/2 Points As Measured From The Primary Street Side Of The Radius.
- If Located On A Curve, The Sides Of The Ramp Need Not Be Parallel But, The Minimum Width Of The Ramp Shall Be 1.22 m.
- See Sheet 41 For Additional Notes.



UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF INDIAN AFFAIRS NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION	
END SECTION, CURB RAMP & CONCRETE CAP DETAILS	
Designed by: NRO-DOT, ASCG	
Drawn by: _____ Date: _____	
Revised by: Design2 Date: 01/22/09	
File Name: STD-End Sections	

W20-1b
(1219 mm x 1219 mm)

200 mm to
300 mm



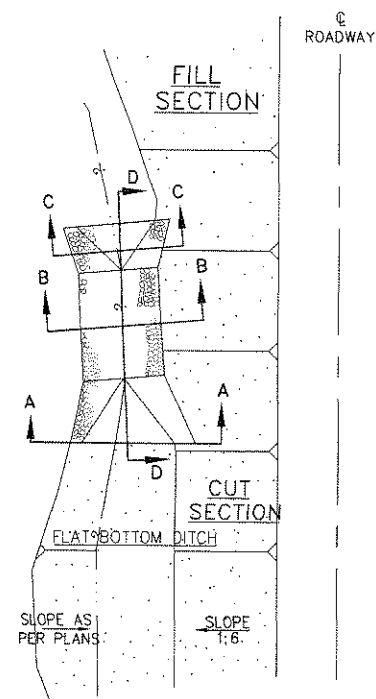
UNITED STATES
DEPARTMENT OF THE INTERIOR

TEMPORARY TRAFFIC CONTROL

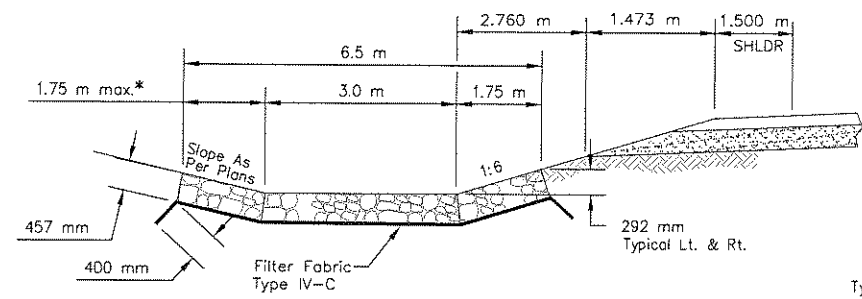
Journal of Management Education 36(7) 809–827

1. All Traffic Control Devices Shall Be in Accordance With the MUTCD (Latest Edition and Amendments) and the Supplemental Specifications for This Project.
2. The Traffic Control Details Shown Are Only a Guide. The Contractor Is Solely Responsible For Implementing a Traffic Control Plan (TCP) in Accordance With These Details, Section 635 of FP-03, 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 the Supplemental Specifications For Additional Requirements.
3. Signs G20-1 and G20-2a Shall Be Placed at the Project Limits and Remain in Place Through the Duration of the Project.
4. Flaggers Shall Be Stationed Left & Right As Shown When Equipment Is Crossing or Working Within the Existing Roadway Prism.
5. In Areas Open And/Or Crossed By The General Public, 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 1:6 Or Flatter Slope As Shown in the 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. Access to All Adjoining Properties and BIA/County 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 Traffic Control 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 Are Allowed.
10. The Contractor Has the Option to Utilize Detour Roads in Accordance With the MUTCD in Conjunction With or in Lieu of Using the "Traffic Thru Construction Zones" Details Shown on this Plan 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. It is the Responsibility of the Contractor to Maintain the Existing Roadway And/Or Detour in a Drivable Condition During Construction. This Work is Considered Incidental to Item: 63501-0000.
12. At Locations Where New Road Construction Intersects Existing Roadway And At Tie-Ins With Existing Roads at The End of the New Construction, Special Traffic Control Procedures Shall be Included as Needed in The Contractor's TCP. These Include But Are Not Necessarily Limited to The following: Type III Barricades With "Road Closed"/Detour Signs; Flaggers; Drums, Etc.
13. The Traffic Control on This Project Shall Be Coordinated With The Project Construction Schedule. The Contractor's TCP Shall Reflect This Coordination.
14. The Bureau of Indian Affairs, Pine Springs Elementary School, Pine Springs, AZ, Will Be in Operation During The Construction of The N9010(1) Road Improvement Project. This Includes Miscellaneous Summer Activities. The Contractor Shall Work With The School Principal - Ms. Lou Ann Jones - (928) 871-4311. To Schedule Work And Develop Traffic Control To Assist With School Access. This Work Shall Be Coordinated With And Approved By The COR. School Buses Shall Not Be Delayed at Construction Zone(s) for More Than 15 Minutes. The Two(2) Existing School Driveways Are Gated. The Contractor Shall Provide Temporary Driveway Gates as Needed During Construction, To Secure The School Accesses.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	44	63

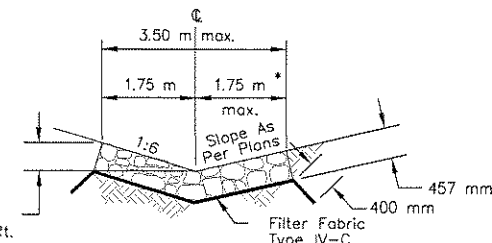


PLAN VIEW
CUT TO FILL TRANSITION
AT FLAT BOTTOM DITCH



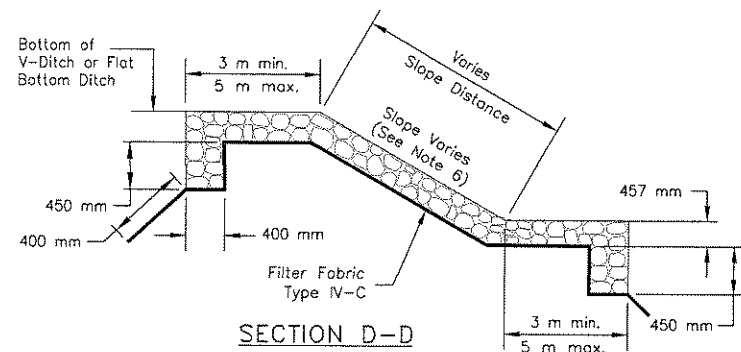
SECTION A-A & TYPICAL FLAT BOTTOM DITCH LINING DETAIL

*Width=Depth Divided By Backslope(As Per Plans)

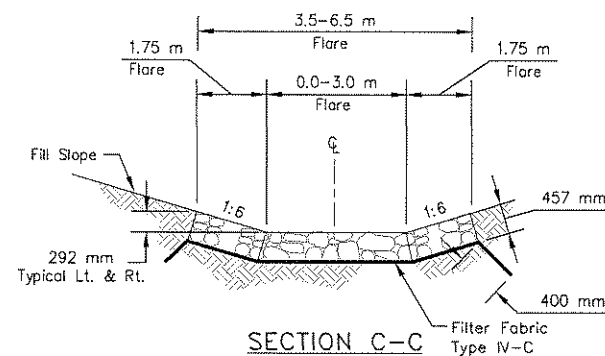


SECTION B-B

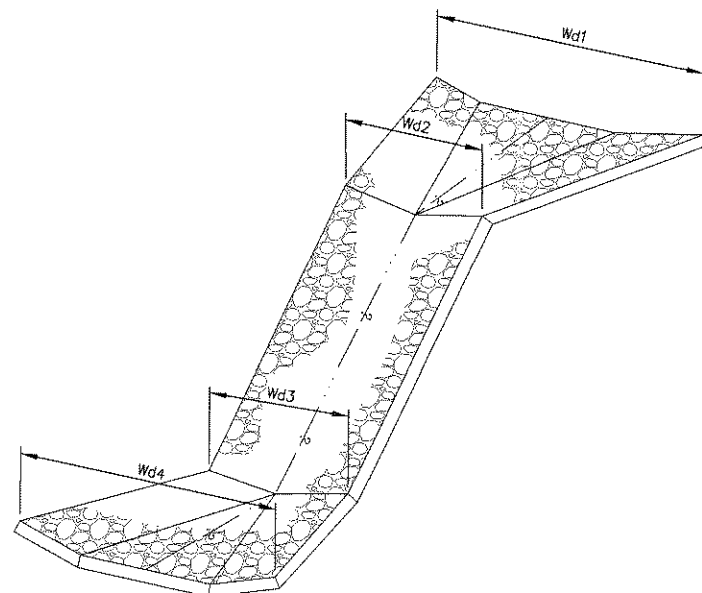
*Width=Depth Divided By Backslope(As Per Plans)



SECTION D-D



SECTION C-C



PERSPECTIVE VIEW
PLACED RIPRAP CUT TO FILL
TRANSITION AT FLAT BOTTOM DITCH

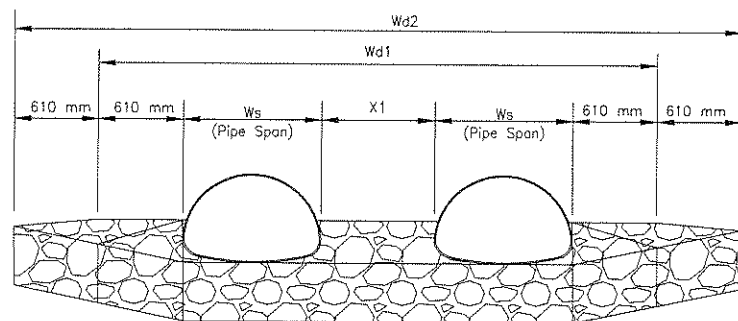
ITEM 25101-2000 PLACED RIPRAP, CLASS 2
LOCATION @ CUT TO FILL TRANSITION

STATION	LOCATION	Wd1 (m)	Wd2 (m)	Wd3 (m)	Wd4 (m)	THICKNESS (mm)	LENGTH (m)	VOLUME (m ³)
5+925 to 5+945 V-ditch	Rt.	3.50	3.50	3.50	6.50	457	20.0	35.42
9+035 to 9+060	Rt.	6.50	3.50	3.50	6.50	457	25.0	46.85
16+220 to 16+245	Rt.	6.50	3.50	3.50	6.50	457	25.0	46.85
16+240 to 16+258 V-ditch	Lt.	3.50	3.50	3.50	6.50	457	18.0	32.22
16+938 to 16+957	Rt.	6.50	3.50	3.50	6.50	457	19.0	35.90
TOTAL								197.24

REVISED 9/9/09

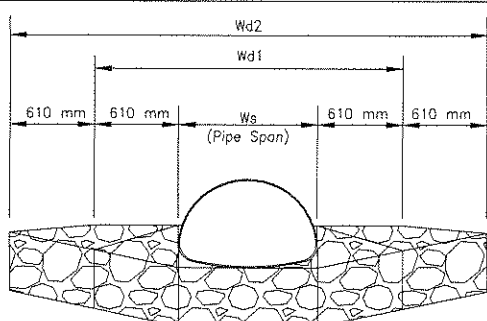
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF INDIAN AFFAIRS NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION	
PLACED RIPRAP DETAILS FOR CUT TO FILL TRANSITION AND DITCH LINING	
Designed by: NRO-DOT	
Drawn by: _____ Date: _____	
Revised by: Design2 Date: 01/08/09	
File Name: STD_Placed Riprap	

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	45	63

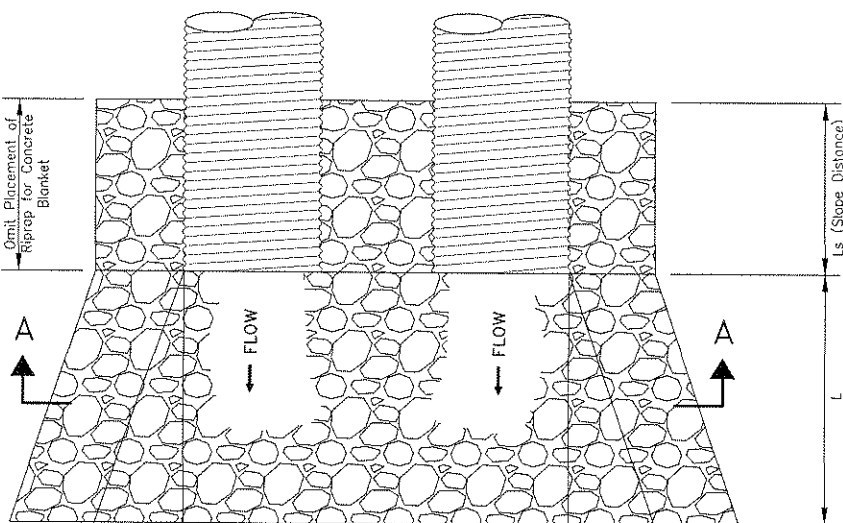


ELEVATION — MULTIPLE BARREL
SECTION A-A

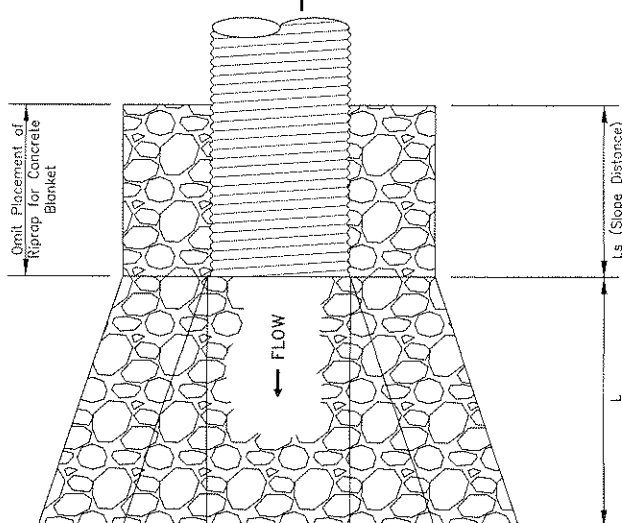
X1 = 1.23 m for 610 mm
X1 = 1.48 m for 762 mm
X1 = 1.73 m for 914 mm
X1 = 1.07 m for 711 mm x 508 mm
X1 = 1.27 m for 889 mm x 610 mm
X1 = 1.57 m for 1067 mm x 737 mm



ELEVATION — SINGLE BARREL
SECTION A-A



PLAN — MULTIPLE BARREL



PLAN — SINGLE BARREL

GENERAL NOTES

- WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-03).
- ALL STONE FOR RIPRAP SHALL BE CLASS 2 MEETING THE GRADING REQUIREMENTS OF TABLE 705-1 OF THE (FP-03).
- THE QUANTITIES SHOWN ARE ONLY AN ESTIMATE. ACTUAL QUANTITIES SHALL BE DETERMINED IN THE FIELD. THE CONTRACTOR WILL BE REQUIRED TO MAKE ANY NECESSARY ADJUSTMENTS IN THE FIELD TO MATCH EXISTING FIELD CONDITIONS. THESE FIELD ADJUSTMENTS ARE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR.
- EMBANKMENT SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY, AS DETERMINED BY AASHTO T-99, METHOD C AND CONFORM TO SECTION 204 OF (FP-03).
- ALL EXCAVATIONS AND BACKFILL OPERATIONS SHALL BE DONE TO NEAT LINES IN ACCORDANCE WITH SECTION 209 OF THE FP-03 AND WILL SPECS FOR ADDITIONAL REQUIREMENTS.
- ANY BORROW MATERIAL NEEDED TO BRING EXISTING CHANNELS UP TO GRADE SHALL BE INCLUDED IN BID ITEM 20401-0000.
- SUBGRADE TO BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO METHOD C.
- THE CONTRACTOR IS REQUIRED TO SHAPE ERODED AREAS OF THE CHANNEL HEAD CUT OR WASH AND COMPACT IN ACCORDANCE SECTION 204 TO RECEIVE RIPRAP PROTECTION. THIS WORK SHALL BE INCLUDED IN THE UNIT BID FOR RIPRAP ITEMS.

GENERAL NOTES

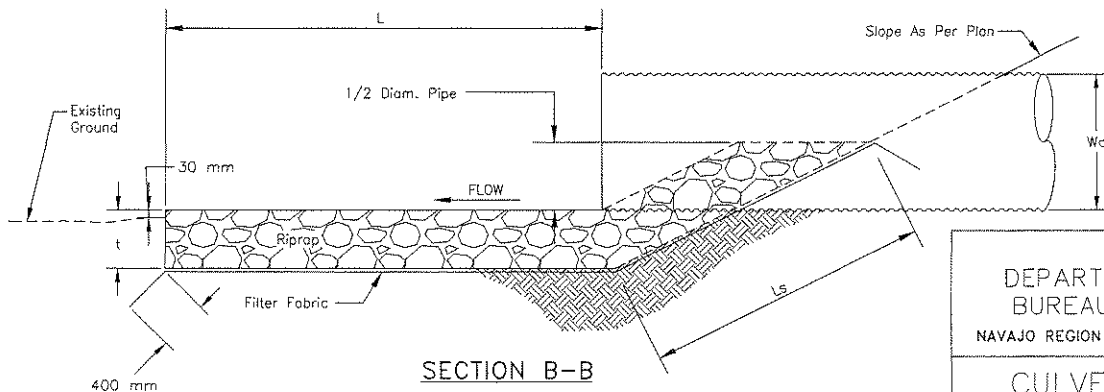
- WIRE ENCLOSED RIPRAP SHALL CONFORM TO SECTION 251 OF THE FP-03 AND THE SUPPLEMENTAL SPECIFICATIONS. WIRE MESH SHALL BE PLACED TO ENCLOSE THE STONE LAYER ON ALL SIDES AND FACES. THE WIRE MESH SHALL BE JOINED ON ALL FACES AND SHALL BE DRAWN TIGHTLY AGAINST THE STONE BY MEANS OF 3.8 mm WIRE TIES SPACED 0.61 METER LONGITUDINAL AND TRANSVERSELY.
- WIRE FABRIC SHALL BE GALVANIZED AND BE OF THE CONFIGURATION SHOWN ON THIS SHEET. AN ALTERNATE WIRE FABRIC MAY BE SUBMITTED FOR REVIEW AND APPROVAL ANY WIRE FABRIC USED SHALL HAVE A MINIMUM WIRE DIAMETER OF 2.8 mm, A CLASS 3 ZINC COATING (GALVANIZED), SHALL HAVE A MAXIMUM OPENING DIMENSION OF 100 mm, AND SHALL NOT ALLOW A 75 mm SPHERE TO PASS THROUGH WIRE FABRIC OPENING.
- RIPRAP SHALL BE ANCHORED AS SHOWN WITH L 102 mm x 102 mm x 9.5 mm STEEL ANGLES AND SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF THE WORK AND NO ADDITIONAL PAYMENT SHALL BE MADE. STEEL ANGLES SHALL EXTEND 100 mm ABOVE THE TOP OF THE RIPRAP.
- EXCAVATION OF RIPRAP TOE TRENCH TO PLACE RIPRAP BELOW FLOW LINE AND OTHER EXCAVATION NECESSARY TO PLACE RIPRAP AS SHOWN SHALL BE INCIDENTAL TO THE RIPRAP BID ITEMS.
- FILTER FABRIC SHALL BE INSTALLED UNDER ALL RIPRAP (UNLESS SPECIFICALLY DELETED) AND SHALL CONFORM TO SECTION 714, TYPE IV-B, AND SHALL BE CONSIDERED INCIDENTAL TO RIPRAP BID ITEMS.

ITEM: 25101-2000 PLACED RIPRAP, CLASS 2

STATION	STRUCTURE	LOCATION	Ws(m)	Wd1(m)	Wd2(m)	L(m)	ts(mm)	QUANTITY(m³)
0+615.000 Lt.	1-711 mm x 508 mm	Outlet	0.711	1.931	3.151	3.050	2.93	5.0
4+090.000	3-610 mm @ 90°	Outlet	0.610	5.510	6.730	5.490	3.14	20.1
4+165.000	2-610 mm @ 90°	Outlet	0.610	3.670	4.890	6.100	3.14	15.2
5+234.000 Rt.	1-711 mm x 508 mm	Outlet	0.711	1.931	3.151	3.050	2.93	5.0
5+862.500	1-762 mm @ 130°	Outlet	0.762	1.982	3.202	6.858	5.93	11.3
6+033.000 Rt.	1-610 mm	Outlet	0.610	1.830	3.050	3.050	3.14	5.0
6+786.000	1-610 mm @ 140°	Outlet	0.610	1.830	3.050	4.880	6.14	8.5
6+962.000 Rt.	1-711 mm x 508 mm	Outlet	0.711	1.931	3.151	3.050	2.93	5.0
6+962.000 Lt.	1-610 mm	Outlet	0.610	1.830	3.050	3.050	3.14	5.0
7+083.000	1-610 mm @ 140°	Outlet	0.610	1.830	3.050	4.270	5.82	7.7
7+345.000	1-610 mm @ 125°	Outlet	0.610	1.830	3.050	3.660	4.57	5.2
9+563.000	1-610 mm @ 100°	Outlet	0.610	1.830	3.050	4.880	3.14	7.0
9+665.000	1-610 mm @ 92°	Outlet	0.610	1.830	3.050	4.270	3.14	6.3
9+960.000	1-610 mm @ 90°	Outlet	0.610	1.830	3.050	4.270	2.41	6.0
10+018.000	1-610 mm @ 55°	Outlet	0.610	1.830	3.050	3.660	2.77	5.5
11+110.000	1-610 mm @ 70°	Outlet	0.610	1.830	3.050	4.270	3.29	6.4
11+965.000	1-610 mm @ 90°	Outlet	0.610	1.830	3.050	6.100	3.14	8.4
12+499.000	2-610 mm @ 90°	Outlet	0.610	3.670	4.890	4.880	3.14	12.8
12+905.000	2-610 mm @ 90°	Outlet	0.610	3.670	4.890	6.100	3.14	15.2
13+170.000	3-610 mm @ 90°	Outlet	0.610	5.510	6.730	6.100	3.14	21.8
13+280.000	3-762 mm @ 90°	Outlet	0.762	6.466	7.686	6.858	5.10	31.2
13+380.000	3-762 mm @ 90°	Outlet	0.762	6.466	7.686	3.810	5.10	21.4
14+000.000	1-762 mm @ 90°	Outlet	0.762	1.982	3.202	6.858	3.46	10.0
14+358.000	1-1067 mm x 737 mm @ 90°	Outlet	1.067	2.287	3.507	9.150	3.41	13.9
14+535.000	1-914 mm @ 90°	Outlet	0.914	2.134	3.354	9.150	2.89	13.1
14+830.000	2-914 mm @ 115°	Outlet	0.914	4.778	5.998	9.150	3.77	27.5
15+420.000	4-1067 mm x 737 mm @ 90°	Outlet	1.067	10.198	11.418	6.405	5.02	44.2
15+785.000	5-889 mm x 610 mm @ 90°	Outlet	0.889	10.745	11.965	6.858	4.64	47.8
16+059.000	2-762 mm @ 120°	Outlet	0.762	4.224	5.444	3.810	5.59	13.5
16+834.000	2-914 mm @ 67°	Outlet	0.914	4.778	5.998	9.150	4.04	26.5
16+906.000	1-762 mm @ 90°	Outlet	0.762	1.982	3.202	7.620	3.46	10.9
17+126.000	1-889 mm x 610 mm @ 80°	Outlet	0.889	2.109	3.329	6.858	4.64	10.9
17+750.000	1-610 mm @ 100°	Outlet	0.610	1.830	3.050	3.660	4.64	6.0
18+069.000	1-762 mm @ 90°	Outlet	0.762	1.982	3.202	6.096	5.10	9.3
18+220.000	2-1067 mm x 737 mm @ 90°	Outlet	1.067	4.924	6.144	9.150	3.41	27.2
18+503.000	1-1067 mm x 737 mm @ 90°	Outlet	1.067	2.287	3.507	9.150	3.41	13.9
18+605.000	2-1067 mm x 737 mm @ 142°	Outlet	1.067	4.924	6.144	9.150	5.27	29.4
N9405/N9406 STATIONING								
20+125.000	2-711 mm x 508 mm @ 70°	Outlet	0.711	3.712	4.932	3.050	3.14	8.9
TOTAL								548.0

ITEM: 25110-2000 GROUTED RIPRAP, CLASS 2

STATION	STRUCTURE	LOCATION	Ws(m)	Wd1(m)	Wd2(m)	L(m)	t(mm)	QUANTITY(m³)
1+610.000	1-2134 mm @ 90°	Outlet	2.134	3.354	4.574	4.575	457	8.3
4+247.000	1-2134 mm @ 65°	Outlet	2.134	3.354	4.574	4.575	457	8.3
8+520.000	1-2134 mm @ 60°	Outlet	2.134	3.354	4.574	6.858	457	12.4
17+330.000	1-2134 mm @ 110°	Outlet	2.134	3.354	4.574	9.150	457	16.6
Total								45.6



SECTION B-B

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE • DIVISION OF TRANSPORTATION

CULVERT RIPRAP DETAILS

Designed by: NRO-DOT

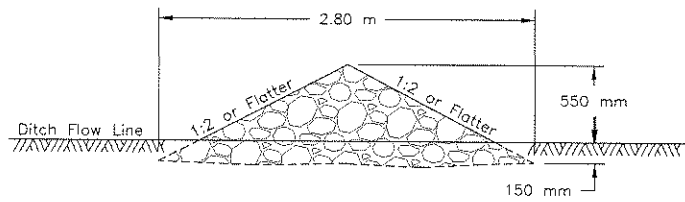
Drawn by: Date: 1/08/09

Revised by: NRODOT Date:

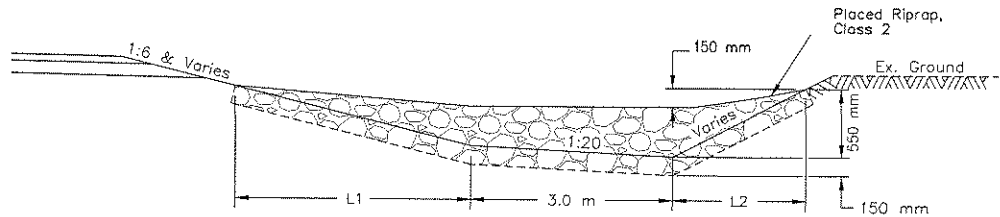
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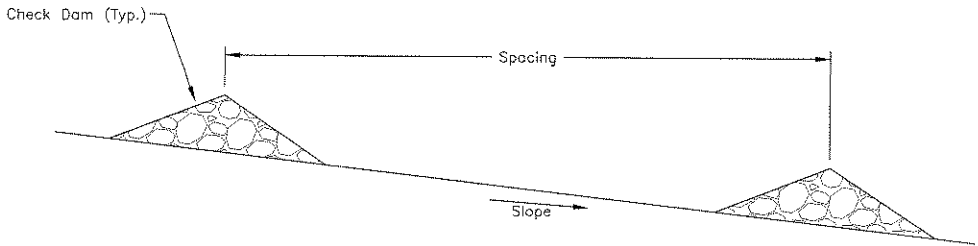
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	46	63



RIPRAP CHECK DAM PROFILE
(No Filter Fabric Required Under Check Dams)



RIPRAP CHECK DAM IN V-DITCH
CROSS SECTION



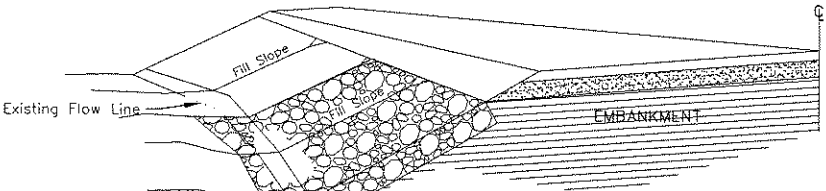
CHECK DAM SPACING
SIDE VIEW

ITEM 25101-2000: PLACED RIPRAP, CLASS 2 (CHECK DAM)

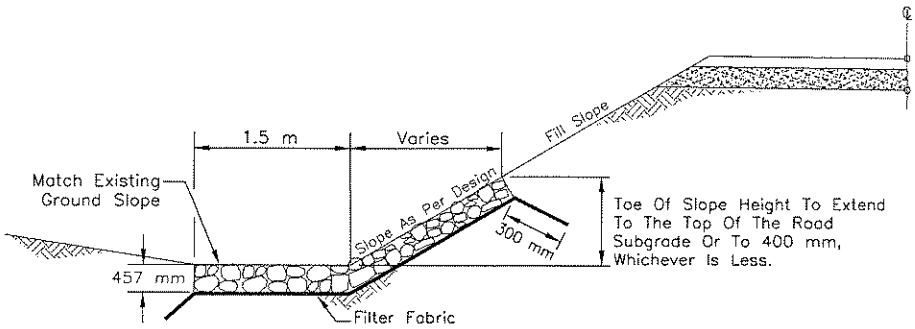
STATION	LOC.	LENGTH (m)		NUMBER OF CHECK DAMS	VOLUME PER CHECK DAM (m³)	TOTAL VOLUME (m³)
		L1	L2			
0+660 to 0+780	Lt.	2.40	2.20	9	4.30	38.7
2+600 to 2+900	Lt.	2.40	2.20	21	4.30	90.3
5+260 to 5+600	Lt.	2.40	2.20	17	4.30	73.1
5+260 to 5+450	Rt.	2.40	1.65	10	4.00	40.0
7+800 to 7+950	Rt.	2.40	2.20	9	4.30	38.7
7+950 to 8+230	Rt.	2.40	1.65	16	4.00	64.0
8+230 to 8+400	Rt.	2.40	2.20	10	4.30	43.0
7+980 to 8+150	Lt.	2.40	1.65	11	4.00	44.0
8+900 to 9+100	Lt.	2.40	2.20	16	4.30	68.8
9+100 to 9+200	Lt.	2.40	1.65	8	4.00	32.0
9+080 to 9+250	Rt.	2.40	1.65	14	4.00	56.0
10+725 to 11+000	Rt.	2.40	1.65	14	4.00	56.0
TOTAL:						644.6 m³

CHECK DAM NOTES

- Workmanship And Materials Shall Conform To The Standard Specifications For Construction Of Roads And Bridges On Federal Highway Projects, FP-03.
- Round All Sharp Contours As Required To Fit The Soil Erosion Material Flush With The Existing Ground.
- The Contractor Shall Be Required To Make Field Adjustments To Match Actual Field Conditions As Directed By The C.O.R./AOTR. No Additional Payment Shall Be Made For Such Adjustments.
- Embankment Shall Be Compacted To 95% Of Maximum Density As Determined By AASHTO T-99, Method C And Conform To Section 204 Of FP-03.
- Stone Size Shall Conform To Table 705-1, Section 705, Stone For Riprap, Class 2. No Filter Fabric Under Check Dams.
- Rock Check Dam Shall Be Included In Bid Item 25101-2000.



GENERAL OVERALL PERSPECTIVE VIEW
@ TOE OF EMBANKMENT



TOE OF SLOPE PROTECTION WITH PLACED RIPRAP, CLASS 2
LOCATIONS AS FIELD DETERMINED BY THE C.O.R./AOTR

NOTE: The Toe Of Slope And Ditch Lining Details Shown On This Sheet And On Sheet 44 Represent The Two (2) Types Of Riprap Protection To Be At The General Stations Shown. However, It Is The C.O.R./AOTR's Responsibility, In Consultation With The Regional Highway Design Engineer, To Field Determine The Type Of Riprap Protection For Specific Areas After Final Earthwork Is Completed. The C.O.R./AOTR. Shall Provide The Contractor With A Riprap Location And Type Plan Prior To Installation Of The Riprap.

ITEM 25101-2000: PLACED RIPRAP, CLASS 2
AT TOE OF SLOPE LOCATIONS

STATION	LOCATION	WIDTH(m)	THICKNESS (mm)	ESTIMATED LENGTH (m)	VOLUME (m³)
15+791.610 to 15+812.000	Rt.	3.90	457	20.39	36.34
15+791.225 to 15+812.000	Lt.	3.90	457	20.78	37.04
TOTAL					73.38

TOE OF SLOPE NOTES

- Workmanship and Materials Shall Conform to the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03), Along with All Supplemental Specifications for This Project.
- The Quantities Shown are Only an Estimate. Actual Quantities Shall Be Determined in the Field. The Project Manager, C.O.R./AOTR, and Contractor Shall Review All Rock Cut Areas After the Construction of Vee and/or Flat Bottom Ditches Have Been "Roughed In". If in the Opinion of the C.O.R./AOTR, the Rock Cut is Stable, the C.O.R./AOTR. May Elect to Delete Sections of the Placed Riprap. The Contractor Will Be Required to Make Adjustments to the Riprap as Necessary to Fit Actual Field Conditions. These Field Adjustments Will Be Incidental Obligations of the Contractor.
- Ditch and Back Slope Reshaping, Cleaning, and Excavation Shall Be Done in Accordance with the Plans and as Determined By the C.O.R./AOTR. All Ditch Excavation, Cleaning, and Reshaping Shall Be Considered Incidental to Completion of the Structure.
- The Size of All Stone For Placed Riprap Is to Be Class 2, Meeting the Grading Requirements of Table 705-1, and Section 251 of FP-03.
- Filter Fabric Shall Be Installed Under All Riprap and Shall Conform to Section 714, Type IV-C, of FP-03, and Shall Be Considered Incidental to Item 25101-2000. Filter Fabric Shall Be Tucked or Embedded 400 mm Into the Ground Along All Edges As Shown.
- The Finished Surface of All Placed Riprap Shall Be Set 30 mm Below the Ground Surface Except at Riprap Discharge Ends, Which Shall Be Set 30 mm Above the Ground Surface.

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF INDIAN AFFAIRS NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION	
CHECK DAMS & TOE OF SLOPE RIPRAP	
Designed by: NRO-DOT, ASCG	
Drawn by: NRO-DOT, ASCG Date: 10-06	
Revised by: NRODOT Date: 1/08/09	
File Name: Std-Check Dam	

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	47	63

GENERAL NOTES:

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

CHART TO DETERMINE SINGLE POST SIZE

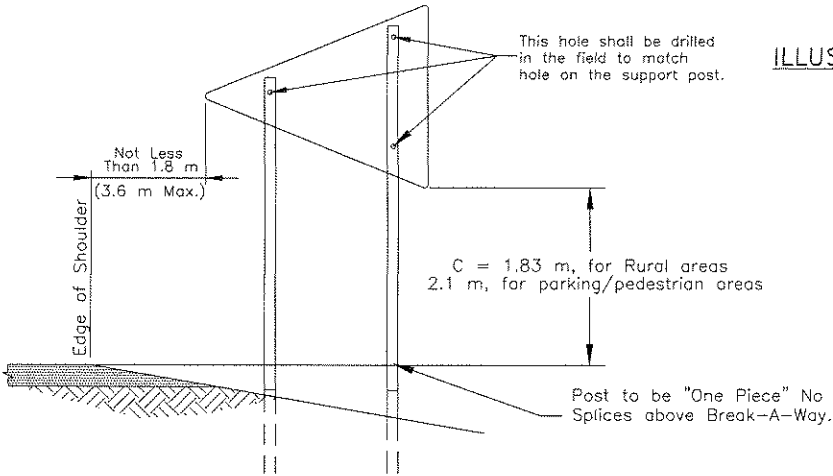
POST WEIGHT	K FACTOR (B x A)	B DIMENSION (Meter)												SIGN AREA A(m ²)
2.976 kg/m	DOES NOT APPLY	1.52	1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
3.348 kg/m		0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.34	0.32	0.30	0.27	0.26	
4.092 kg/m		0.47	0.47	0.47	0.47	0.47	0.47	0.43	0.39	0.36	0.33	0.32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

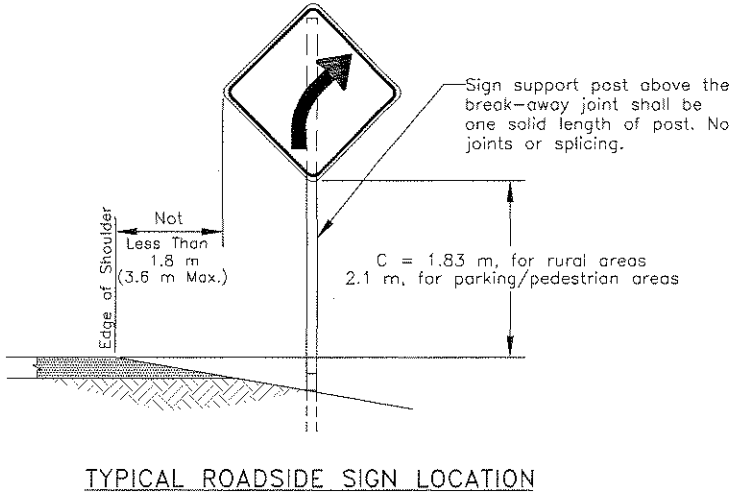
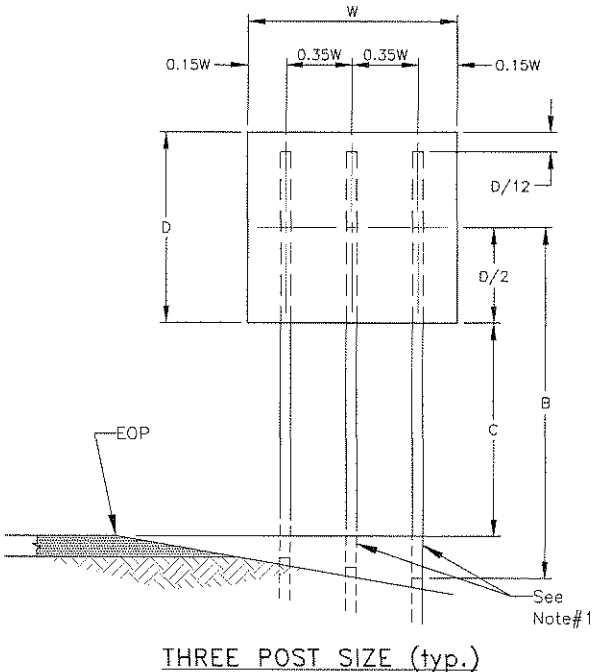
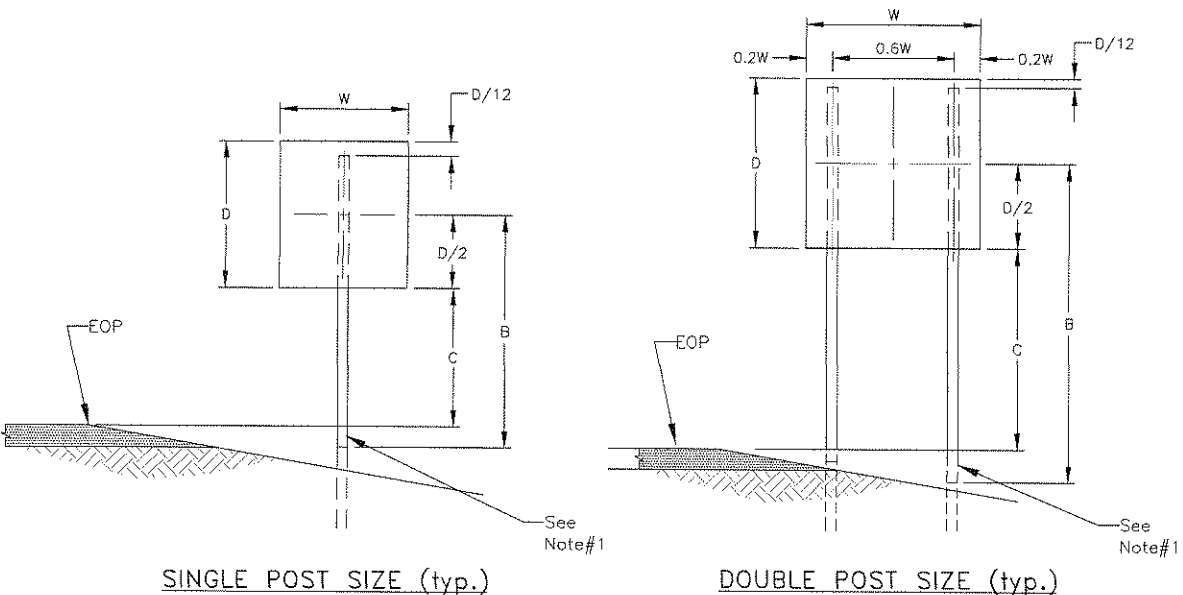
POST WEIGHT	K FACTOR (B x A)	B DIMENSION (Meter)												SIGN AREA A(m ²)
2.976 kg/m	4.12	2.69	2.25	1.92	1.68	1.50	1.35	1.23	1.12	1.04	0.97	0.90	0.85	
3.348 kg/m	4.65	3.05	2.54	2.17	1.90	1.69	1.52	1.38	1.27	1.17	1.09	1.01	0.96	
4.092 kg/m	6.02	3.96	3.30	2.82	2.47	2.19	1.98	1.79	1.64	1.52	1.41	1.32	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	



TYPICAL ROADSIDE SIGN LOCATION

EXAMPLE:

POST	B=2.44
4.09 kg/m	1.65
4.46 kg/m	2.03
5.95 kg/m	2.80



UNITED STATES
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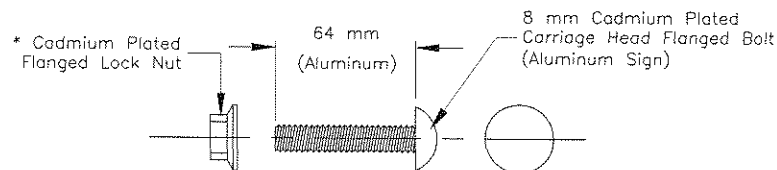
PERMANENT SIGNING DETAIL

DRAWN BY: NRODOT DATE: 1/05
DESIGNED BY: NRODOT DATE: 1/07
REVISED: 02/01/10 BY: DESIGN 2
SCALE: NTS
FILENAME: N9010_SGN1
SHEET MODEL NAME: PLOT SHEET



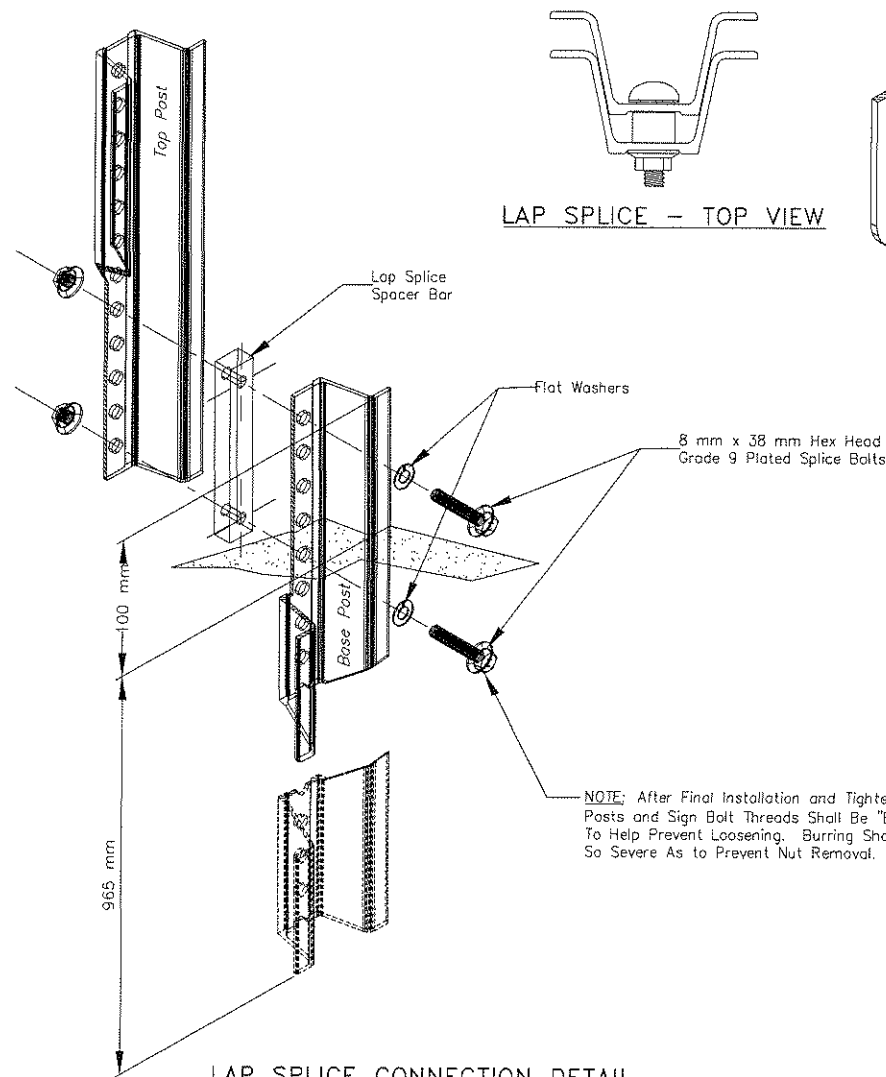
RIB-BAK U-CHANNEL SIGN SUPPORTS									
WEIGHT *kg/m	DIMENSIONS (mm)				AREA mm ²	X-X AXIS		Y-Y AXIS	
	A	B	C	D		I(mm ⁴)	S(mm ³)	I(mm ⁴)	S(mm ³)
2.97	38.30	76.91	33.12	16.10	54.83	81.99	42.27	195.62	50.96
3.71	38.68	79.35	33.15	18.33	51.28	103.22	51.29	249.73	62.92
4.08	39.47	78.77	32.72	16.94	55.74	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

* %

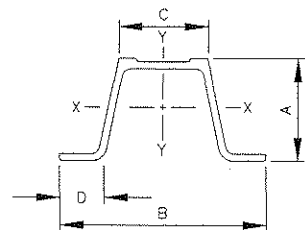
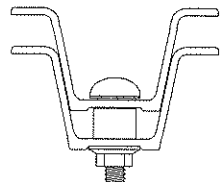


BOLTS AND LOCK NUT - SIGN ATTACHMENT

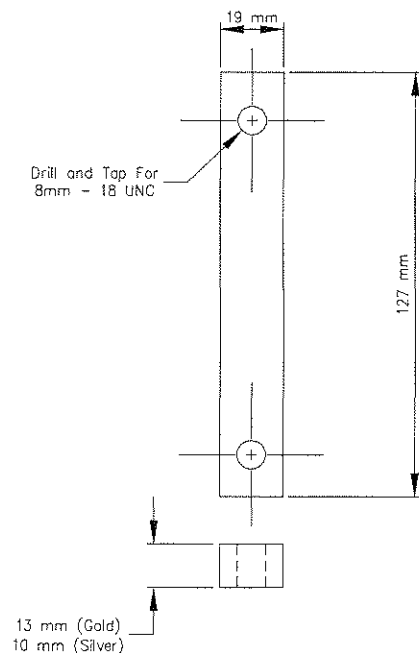
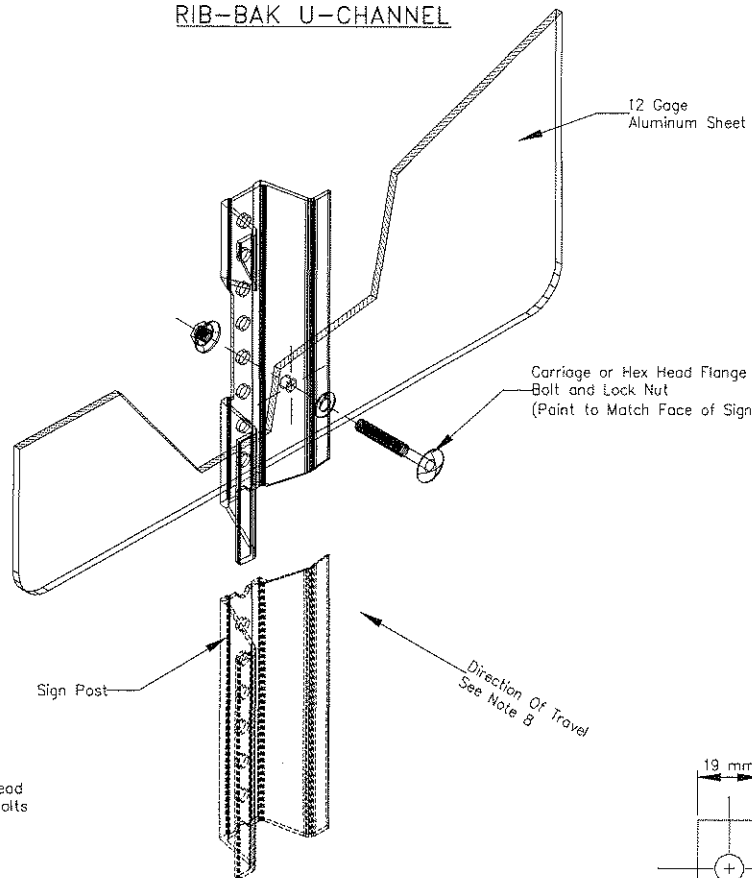
* Flanged Lock Nut Required For Carriage And Hex
NOTE: ALL THREAD BOLTS TO BE "BURRED" TO PREVENT LOOSEN.



LAP SPLICE - TOP VIEW



RIB-BAK U-CHANNEL



LAP SPLICE SPACER BAR

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	48	63

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. ALL 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, $\pm 5\%$ BEFORE PUNCHING. THE POSTS SHALL BE PUNCHED WITH WITH CONTINUOUS 9 mm HOLES ON 25 mm 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. BOLTS, NUTS, 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. BOLTS SHALL BE RED IN COLOR, WITH THE HEAD MARKING "M180".
6. BOLTS AND LOCK NUT HARDWARE FOR SIGN ATTACHMENT SHALL BE CARRIAGE HEAD FLANGE TYPE, SIZE SHALL BE 8 mm-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.R./AOTR FOR REVIEW AND APPROVAL PRIOR TO ITS USE.
8. SUPPLEMENTAL SIGNS ON THE OPPOSITE SIDE OF ROAD SHALL HAVE THE POST REVERSED SO THAT RIB-BAK IS FACING AWAY FROM THE OPPOSING TRAFFIC.
9. THE POST MAY BE COATED WITH A BAKED ON GREEN ALKYD RESIN, PAINT, PAINTED WITH A POLYESTER POWDER IN LIEU OF GALVANIZED PER NOTE 4 ABOVE.

INSTALLATION PROCEDURE

- STEP 1:
DRIVE BASE POST TO WITHIN APPROXIMATELY 300 mm ABOVE GROUND LEVEL. PLACE ONE BOLT AND CUT WASHER IN FIFTH HOLE FROM THE TOP, AND SECURELY TIGHTEN THREADED SPACER ONTO BOLT.
- STEP 2:
DRIVE BASE POST TO 100 mm ABOVE GROUND LEVEL. PLACE REMAINING BOLT AND CUT WASHER IN FIRST HOLE FROM THE END, AND SECURELY TIGHTEN THREADED SPACER ONTO BOLT.
- STEP 3:
DIG OUT APPROXIMATELY 50 mm FROM AROUND BACK OF GROUND POST TO ALLOW ROOM FOR TOP POST TO BE ATTACHED.
- STEP 4:
NEST TOP POST ONTO PROTRUDING BASE POST BOLTS, THROUGH THE FIRST AND FIFTH HOLES OF THE TOP POST.
- STEP 5:
PLACE A SELF-LOCKING FLANGE NUT ON EACH BOLT. TIGHTEN NUTS AND TAMP EARTH AROUND POST FIRMLY.

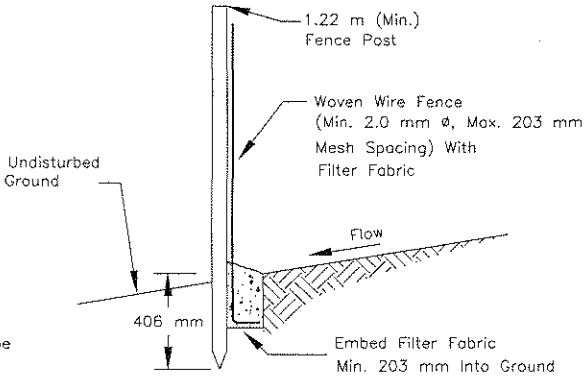
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF INDIAN AFFAIRS NAVAJO REGION OFFICE • DIVISION OF TRANSPORTATION	
SIGN POST AND HARDWARE DETAILS	
Designed by: NRO-DOT	
Drawn by: _____ Date: _____	
Revised by: Design2 Date: 01/09/09	
File Name: STD-Sign2	

REVISED 9/09

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	50	63

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 SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 152 mm AND FOLDED. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED BEFORE "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 EROSION 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 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 DIKS 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 15701-0000, AND/OR 15703-2000.
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
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 ACCEPTANCE, ALL PROJECT AREAS (AS DETERMINED BY AOTR/C.O.R.) SHOWING EROSION DAMAGE CAUSED BY THE CONTRACTOR'S FAILURE TO PROPERLY MAINTAIN HIS EROSION CONTROL STRUCTURES SHALL BE REPAIRED TO REMOVE DAMAGE, ANY SPECIFIED EROSION CONTROL MATERIALS, STRUCTURES, OR DEVICES DAMAGE OR LOST DUE TO IMPROPER INSTALLATION, THE CONTRACTOR'S NEGLIGENCE OR IMPROPER MAINTENANCE, SHALL ALSO BE REPAIRED AND/OR REPLACE PRIOR TO FINAL ACCEPTANCE AT THE CONTRACTOR'S ENTIRE EXPENSE.

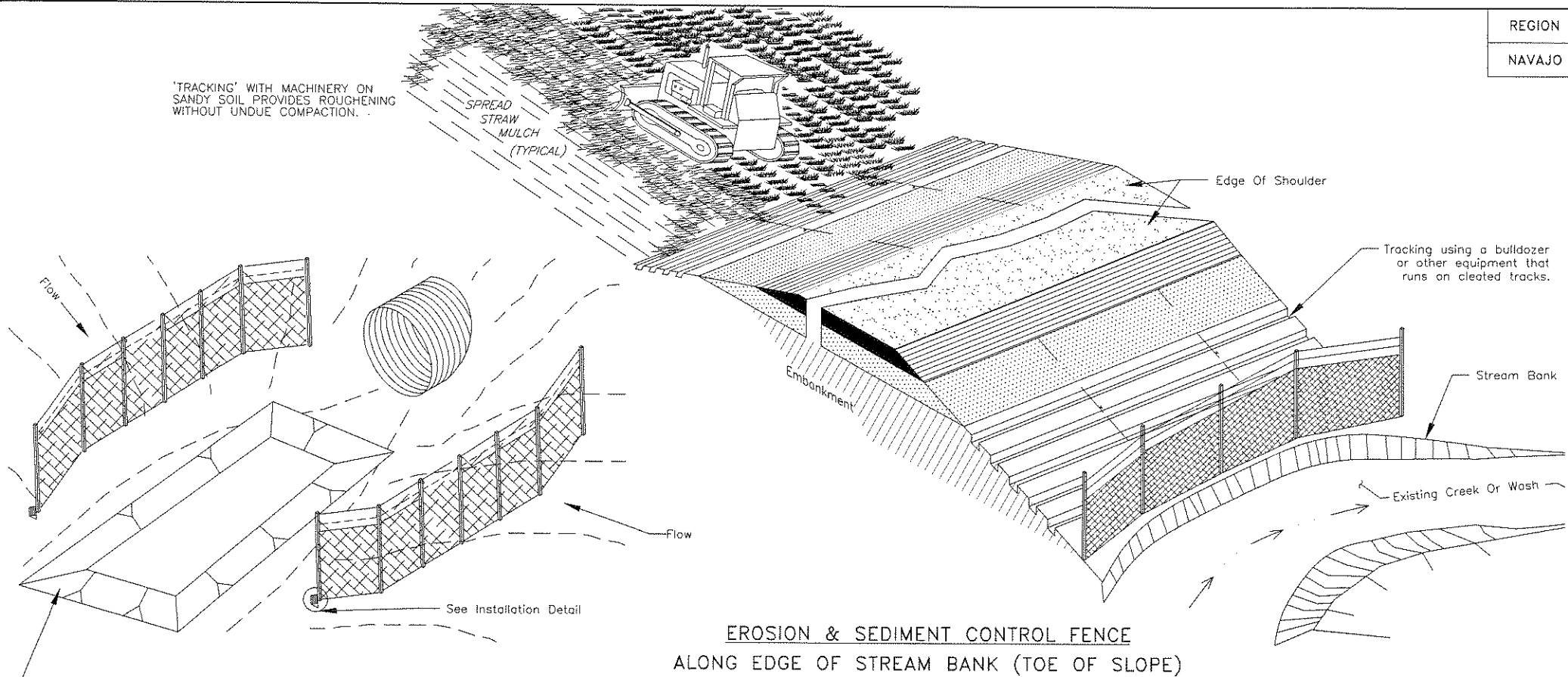


SECTION A-A

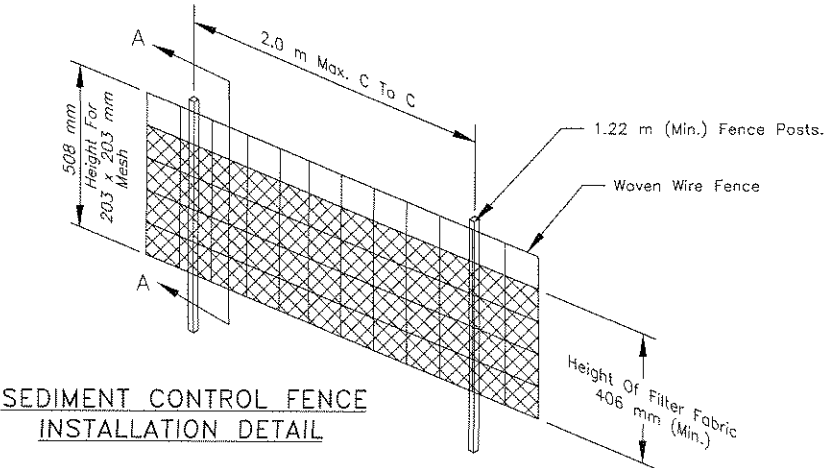
UNITED STATES
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NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

STORMWATER POLLUTION AND EROSION/SEDIMENT CONTROL DETAILS

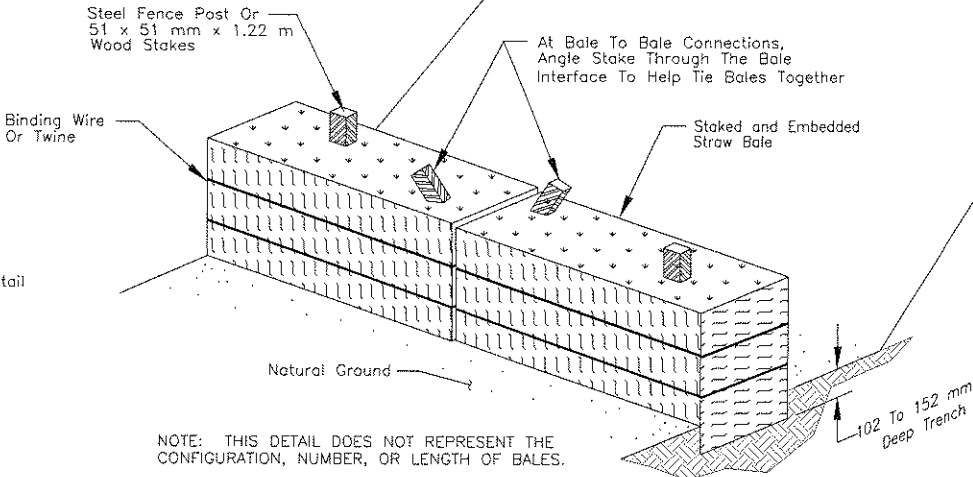
DRAWN BY: NRODOT DATE: 01/01
DESIGNED BY: NRODOT DATE: 01/01
REVISED: 6/08 BY: DESIGN 2
SCALE: NTS
FILENAME: N9010_ero1
SHEET MODEL NAME: PLOT SHEET



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



SEDIMENT CONTROL FENCE
INSTALLATION DETAIL



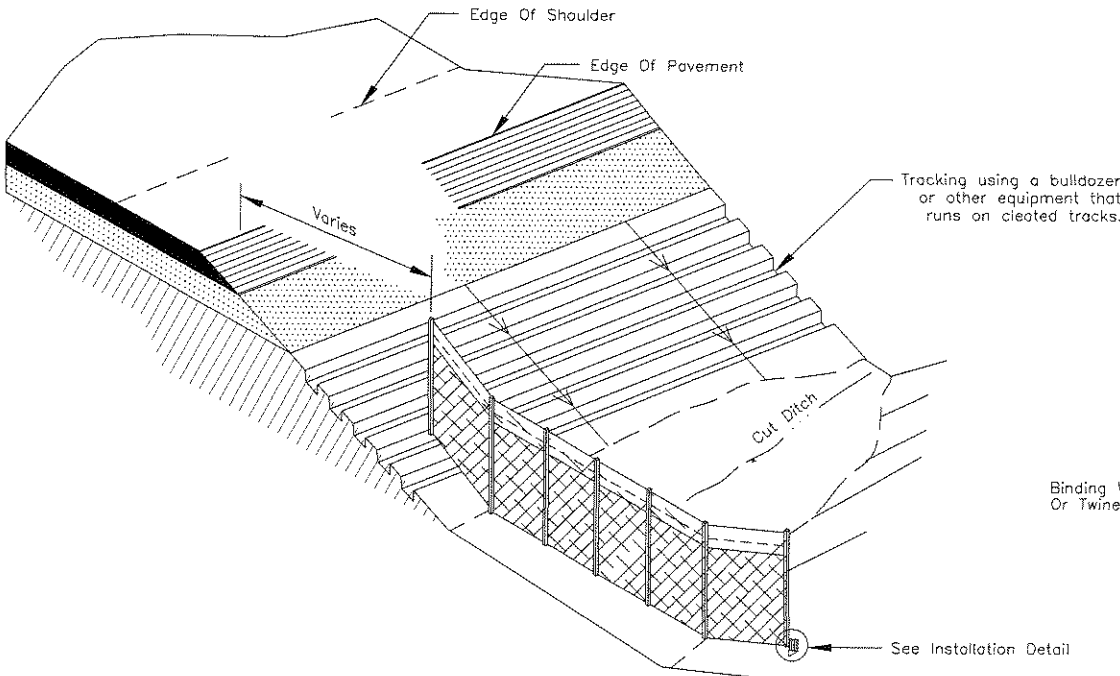
NOTE: THIS DETAIL DOES NOT REPRESENT THE CONFIGURATION, NUMBER, OR LENGTH OF BALES.

TYPICAL STRAW BALE STAKING
AND TRENCHING DETAIL

"TRACKING" WITH MACHINERY ON SANDY SOIL PROVIDES ROUGHENING WITHOUT UNDUE COMPACTION.

EROSION & SEDIMENT CONTROL FENCE
AT DRAINAGE STRUCTURE

Sediment Traps @ Outlet Ends
See Plan Sheet 51 for details

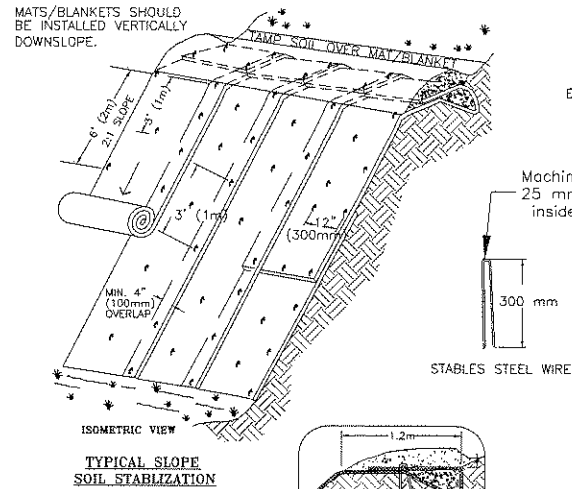


EROSION & SEDIMENT CONTROL FENCE
IN MINOR SWALES OR CUT DITCHES
(APPROX 60 m SPACING FOR FABRIC)

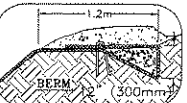
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	51	63

GENERAL NOTES

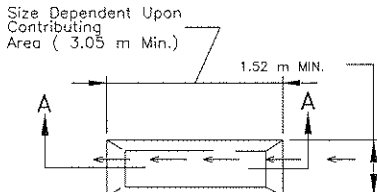
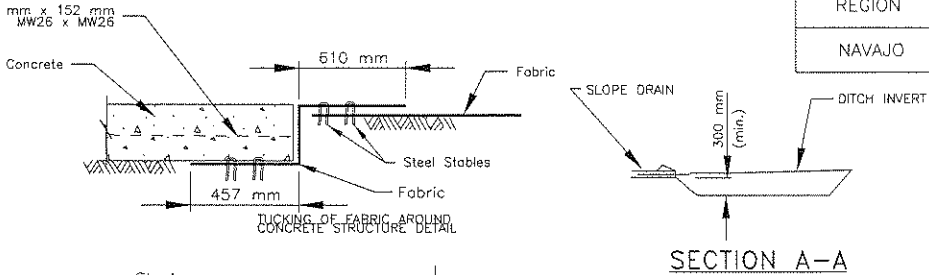
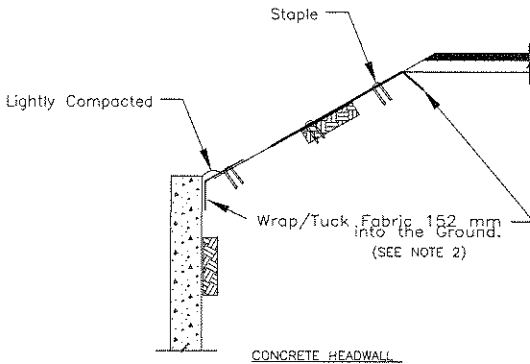
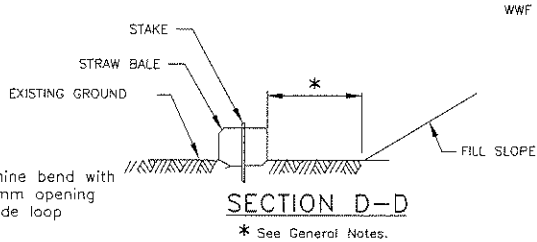
- SEE SHEET 50 OF 63 FOR ADDITIONAL NOTES AND DETAILS.
- THE CONTRACTOR SHALL INSTALL GEOTEXTILE FABRIC, TYPE IV, AROUND CONCRETE STRUCTURE, AS FOLLOWS:
 - CONSTRUCT FINISH GRADING AROUND STRUCTURE TO BE PLACED.
 - CUT TRENCHES FOR FOOTING OF SLAB.
 - INSTALL 1.22 m OF GEOTEXTILE FABRIC ANCHORED ON FLOOR AND TOP, ALONG THE CUT FACE OF TRENCH AS SHOWN.
 - PLACE CONCRETE FORMS, REINFORCEMENTS, AND SUBSEQUENT CONCRETE.
- 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 ENTERS A STREAM AS SHOWN IN THE APPROVED SWPPP.
- CLEAN ALL SEDIMENT BASIN AND TRAPS OF ACCUMULATED SEDIMENT WHEN HALF FULL OF SEDIMENT.
- USE DRAIN PIPE, RIPRAP, GEOTEXTILE FABRIC, OR GRASS-LINED WATERWAY FOR TEMPORARY SLOPE DRAINS TO 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.
- THE CONTRACTOR SHALL ADJUST THE DIMENSIONS AND/OR LOCATIONS OF TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES TO FIT ACTUAL FIELD CONDITIONS.
- REMOVE AND DISPOSE OF EROSION CONTROL MEASURES WHEN THE PERMANENT EROSION CONTROL MEASURES ARE SATISFACTORILY ESTABLISHED. DRAINAGE DITCHES, AND CHANNELS ARE LINED AND STABILIZED, IN ACCORDANCE WITH SECTION 157 OF FP-03.



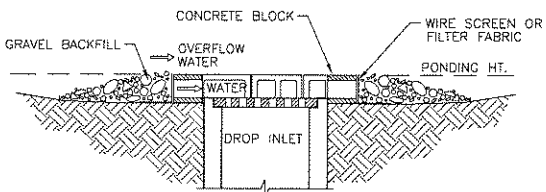
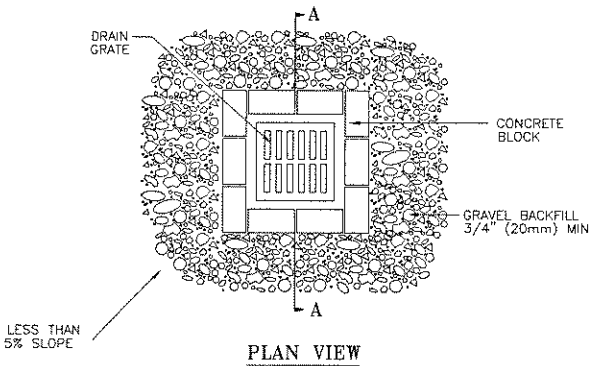
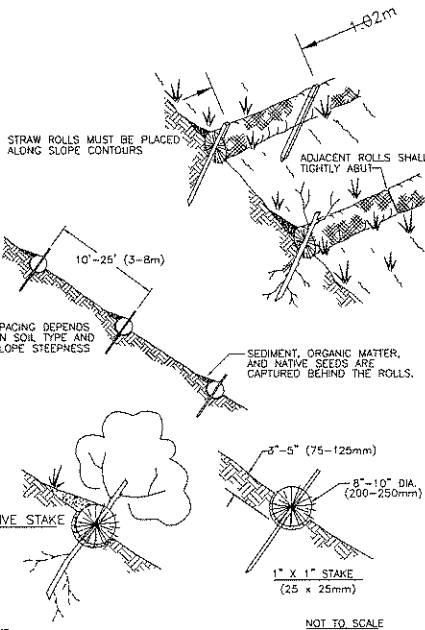
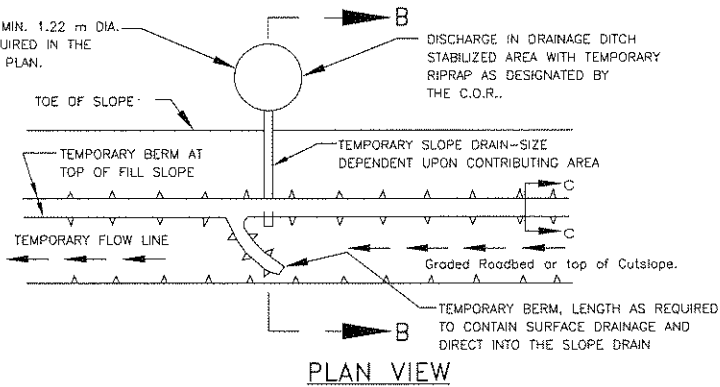
- NOTES:
- SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
 - APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
 - LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.



EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION



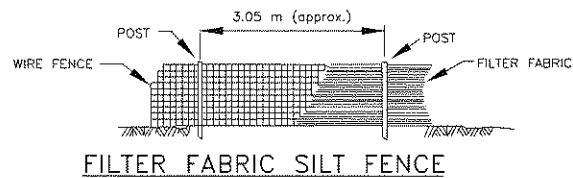
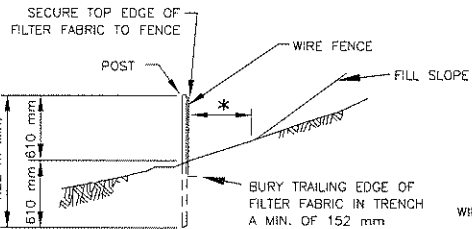
TEMPORARY CLASS I RIPRAP, MIN. 1.22 m DIA. AND 229 mm THICK, AS REQUIRED IN THE APPROVED EROSION CONTROL PLAN.



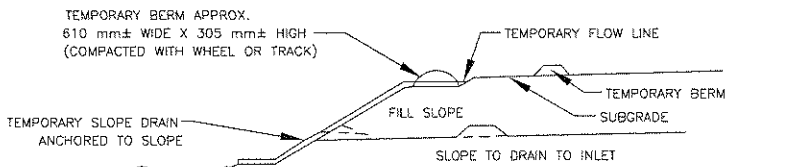
SECTION A - A

- NOTES:
- DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
 - EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.
 - 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.

BLOCK AND GRAVEL DROP INLET SEDIMENT BARRIER



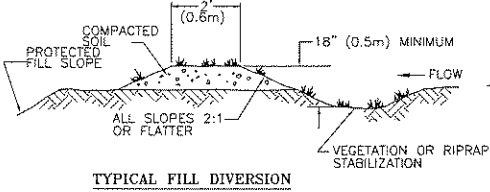
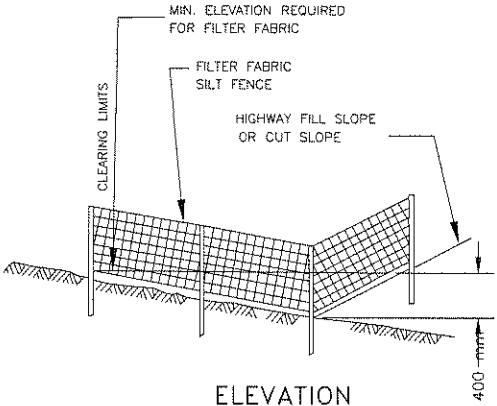
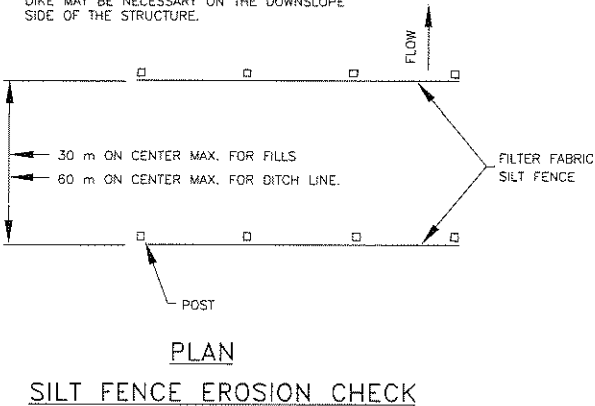
SECTION B-B



SECTION C-C

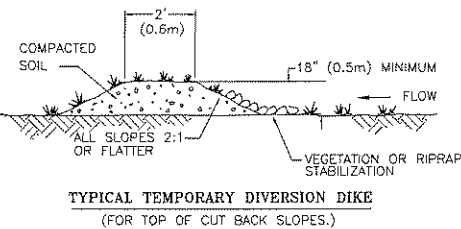
Temporary Slope Drain, Berm, (for fill and cut slopes)
[NOTE: Temporary berms may also be constructed of straw bales set 104-152mm into ground.]

REVISED
3-31-09



- NOTES:
- THE CHANNEL BEHIND THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET
 - THE DIKE SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
 - THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP
 - THE DIVERSION DIKE SHALL EXTEND TO THE BOTTOM OF CUT BACK SLOPE AND INTERCEPT THE CUT DITCH.

TEMPORARY DIVERSION DIKE



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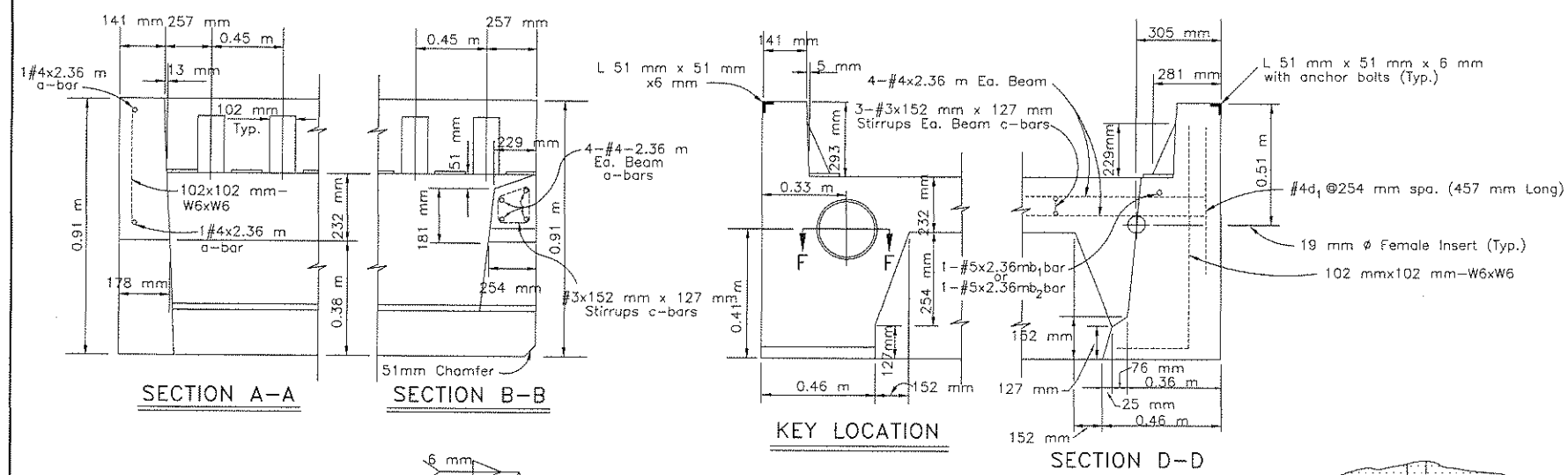
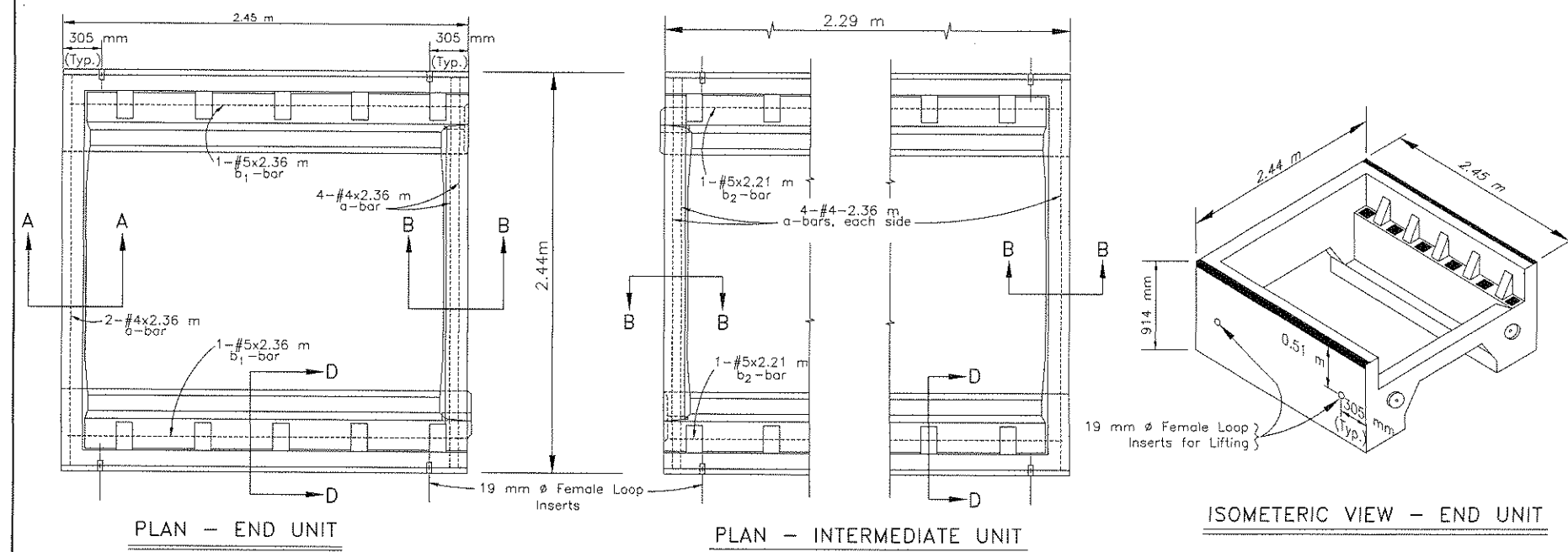
STORMWATER POLLUTION AND
EROSION/SEDIMENT CONTROL DETAILS

DRAWN BY: NRODOT DATE: 01/01
DESIGNED BY: NRODOT DATE: 01/01
REVISED: 1/14/09 BY: DESIGN 2
SCALE: NTS
FILENAME: N9010 eros2
SHEET MODEL NAME: PLOT SHEET



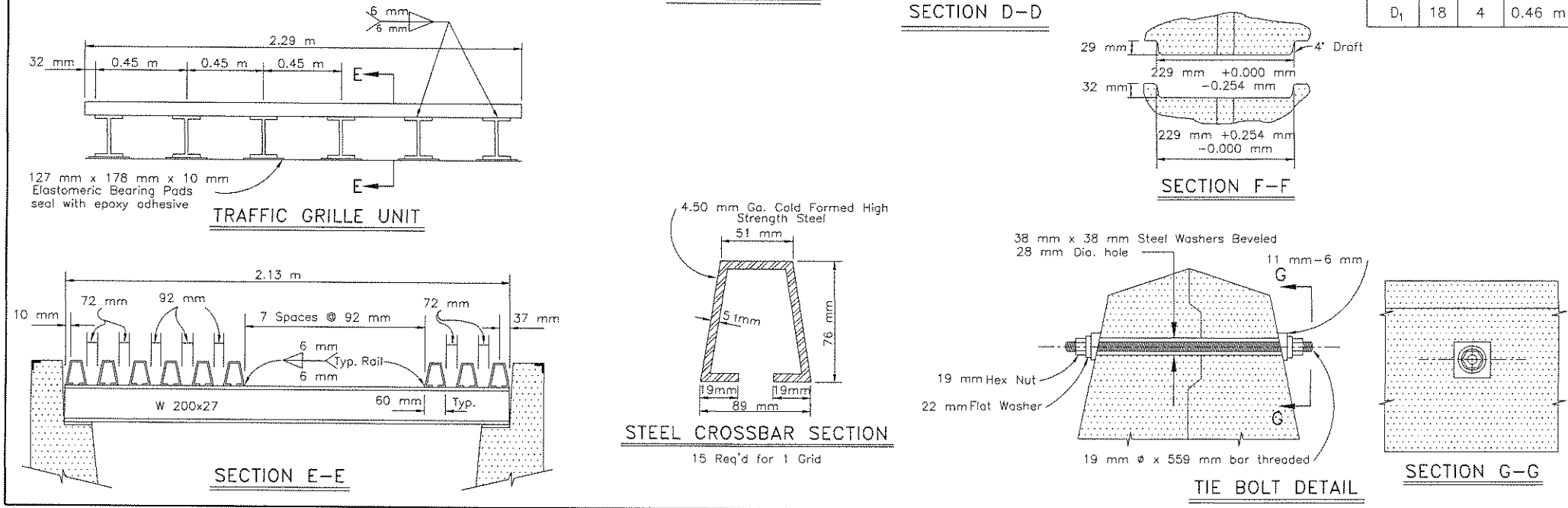
AREA	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)1.2&4	53	63

- GENERAL NOTES
1. PRECAST CONCRETE SHALL ATTAIN A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 27.62 MPa 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 A615, GRADE 420. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M-183.
 3. EACH UNIT SHALL CONFORM TO THE AASHTO MS-18 HIGHWAY LOADING REQUIREMENTS. DESIGNATED BY THE C.O.R./AOTR.
 4. BOLTS, WASHERS, NUTS, AND ANGLES SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M-111.
 5. ALL TRAFFIC GRILL UNIT, INCLUDING STEEL ANGLES SHALL BE SHOP PAINTED WITH ONE (1) PRIMER COAT, ONE (1) INTERMEDIATE COAT, AND ONE (1) FINISH COAT IN ACCORDANCE WITH SECTION 563, PAINT SYSTEM 2 OF FP-03.
 6. WING BRACES SHALL BE CONSIDERED SUBSIDIARY ITEMS TO THE CATTLEGUARD UNIT.
 7. THE CONTRACTOR HAS THE OPTION TO USE STEEL FRAME CATTLEGUARDS IF SHOWN TO BE COST EFFECTIVE. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND INSTALLATION DETAILS TO THE C.O.R./AOTR FOR APPROVAL. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR PATENT PROTECTION RIGHTS.
 8. ELASTOMERIC BEARING PADS SHALL BE SEAL WITH EPOXY ADHESIVE PRIOR TO THE INSTALLATION OF TRAFFIC GRILL UNITS.
 9. EACH UNIT SHALL BE FABRICATED TO CONFORM TO THE ROADWAY CROWN AS SHOWN ON THE PLANS OR AS DESIGNATED BY THE C.O.R./AOTR.



REINFORCING STEEL SCHEDULE

STRAIGHT BARS				BENT BARS				BENDING DIAGRAMS ALL DIMENSIONS ARE OUT TO OUT
MARK	NO.	SIZE	LENGTH	MARK	NO.	SIZE	LENGTH	
END UNIT								
a	6	4	2.36 m					
b ₁	2	5	2.36 m					
c				3	3	0.61 m		
D ₁	20	4	0.46 m					
INTERMEDIATE UNIT								
a	8	4	2.36 m					
b ₂	2	5	2.21 m					
c				6	3	0.61 m		
D ₁	18	4	0.46 m					



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DEPARTMENT OF THE INTERIOR

BUREAU OF INDIAN AFFAIRS

NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

PRECAST CONCRETE

CATTLEGUARD DETAILS

DRAWN BY: DESIGN 2

DESIGNED BY: NRODOT

REVISED: 1/22/09

SCALE: NTS

FILENAME: N9010-3pcg

SHEET MODEL NAME: PLOT SHEET

DATE:

DATE:

BY: DESIGN 2

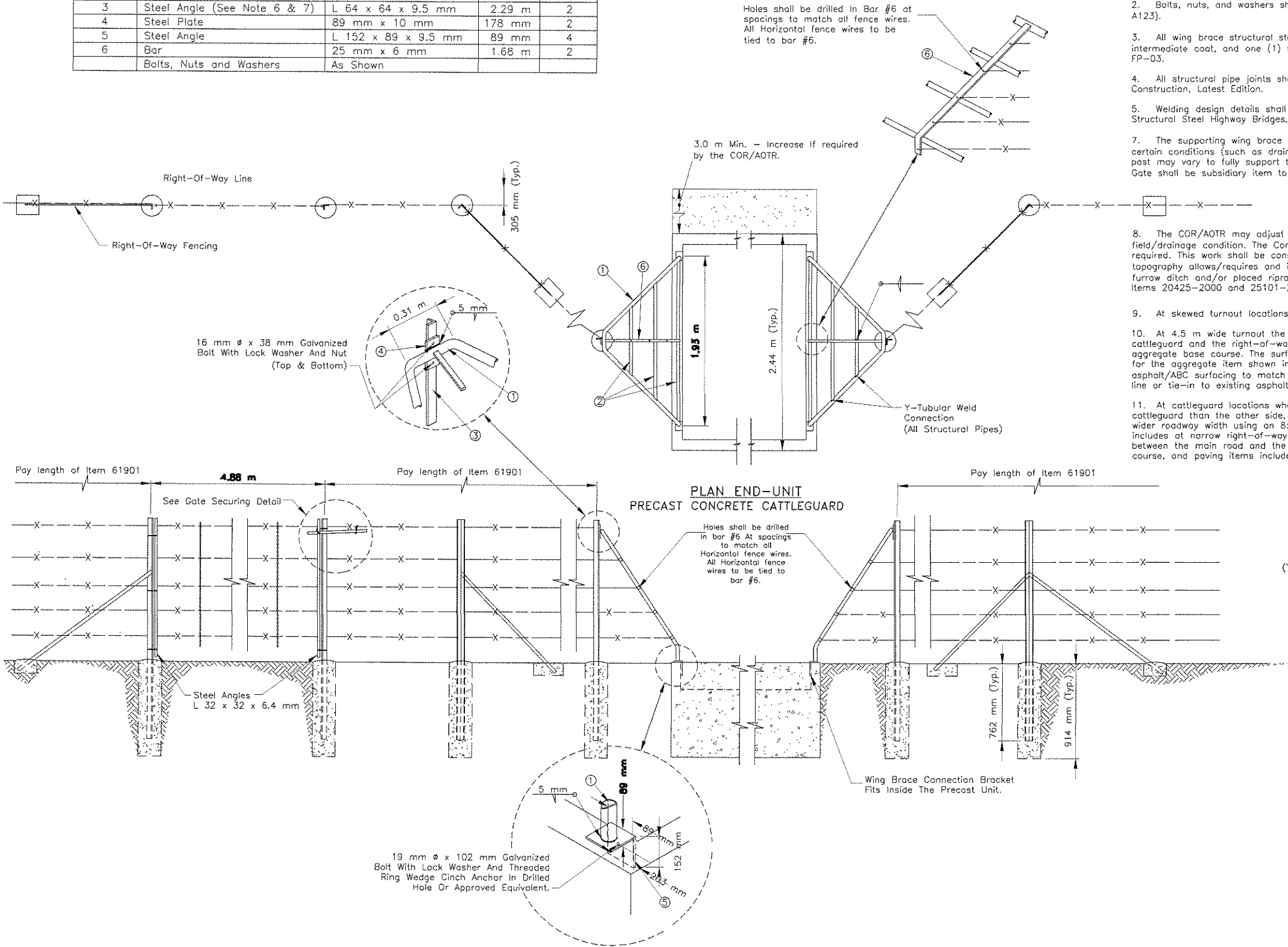
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	54	63

ESTIMATED MATERIAL LIST

PART NO.	MATERIAL	SIZE AND THICKNESS	LENGTH	QUANTITY
1	Structural Steel Pipe	64 mm Ø Nominal	4.23 m	2
2	Structural Steel Pipe	32 mm Ø Nominal	4.19 m	2
3	Steel Angle (See Note 6 & 7)	L 64 x 64 x 9.5 mm	2.29 m	2
4	Steel Plate	89 mm x 10 mm	178 mm	2
5	Steel Angle	L 152 x 89 x 9.5 mm	89 mm	4
6	Bar	25 mm x 6 mm	1.68 m	2
	Bolts, Nuts and Washers	As Shown		

GENERAL NOTES

- Structural pipe shall conform to ASTM A53-93a, Grade B. All other structural steel shall conform to ASTM-A36.
- Bolts, nuts, and washers shall be galvanized in accordance with AASHTO M111 (ASTM A123).
- All wing brace structural steel and 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 FP-03.
- All structural pipe joints shall be fabricated in accordance with AISC Manual of Steel Construction, Latest Edition.
- Welding design details shall conform to the AASHTO Standard Specifications for welding at Structural Steel Highway Bridges, Latest Edition.
- The supporting wing brace posts length (part 3) shall be 2.3 meter (minimum). Under certain conditions (such as drain through cattleguard, high embankment, etc) the length of the post may vary to fully support the wing braces. This work shall be incidental to item 61903. Gate shall be subsidiary item to the cattleguard item(s).
- The COR/AOTR may adjust the finished cattleguard elevation as needed to fit field/drainage condition. The Contractor shall re-grade the adjoining turnout approaches as required. This work shall be considered incidental to item 61903 of FP-03. If surrounding topography allows/requires and if directed by the COR/AOTR, the contractor shall construct a furrow ditch and/or placed riprap to drain the cattleguard. This work shall be paid under Bid Items 20425-2000 and 25101-2000.
- At skewed turnout locations, the cattleguard shall be installed perpendicular to turnout.
- At 4.5 m wide turnout the section of the turnout between the back edge of the cattleguard and the right-of-way limit shall be surfaced with a 100 mm thickness of aggregate base course. The surfacing material and work shall be included in the unit price bid for the aggregate item shown in the bid schedule. At 7.0 m wide and larger turnouts, place asphalt/ABC surfacing to match turnouts structural section from cattleguard to right-of-way line or tie-in to existing asphalt roadway.
- At cattleguard locations where the design roadway width is wider on one side of the cattleguard than the other side, the narrower roadway width shall flored out to match the wider roadway width using an 8:1 taper or to the length allow by the right-of-way width. This includes at narrow right-of-way with where the turnout radius cannot be completely install between the main road and the cattleguard. This work shall be paid under the earthwork, base course, and paving items included in the bid schedule.



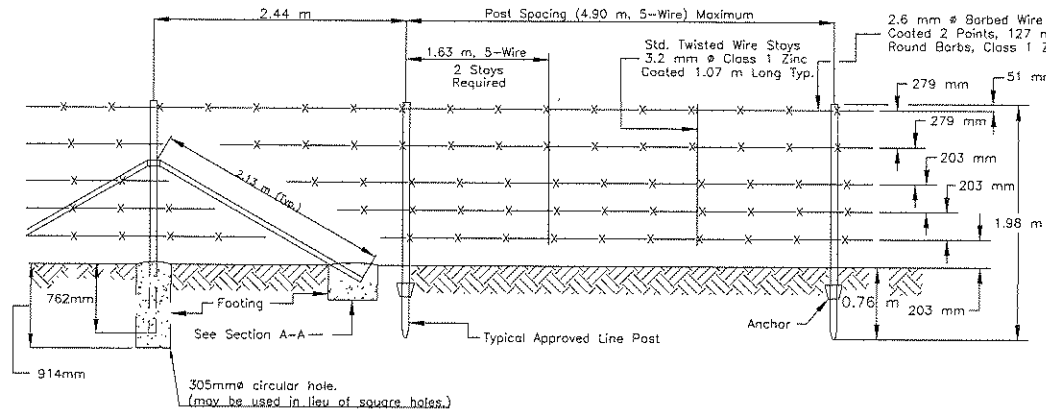
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NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

CATTLE GUARD
WING BRACE DETAILS

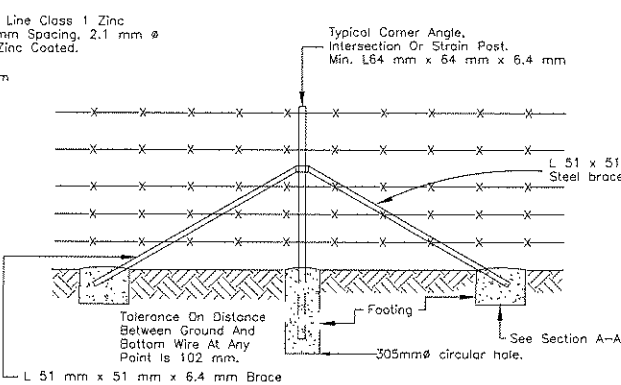
Designed by: NRO-DOT
Drawn by: _____ Date: _____
Revised by: Design2 Date: 01/22/09
File Name: STD-CGuard Wing Brace.dwg



REGIONAL AREA	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1),2&4	55	63

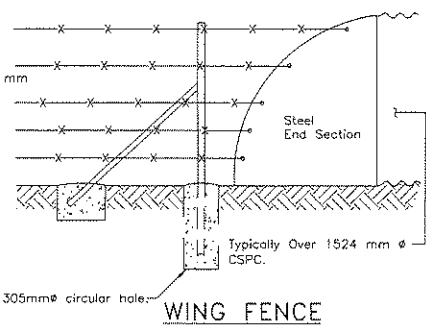


STANDARD 5 LINE GALVANIZED BARBED WIRE PANEL



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.

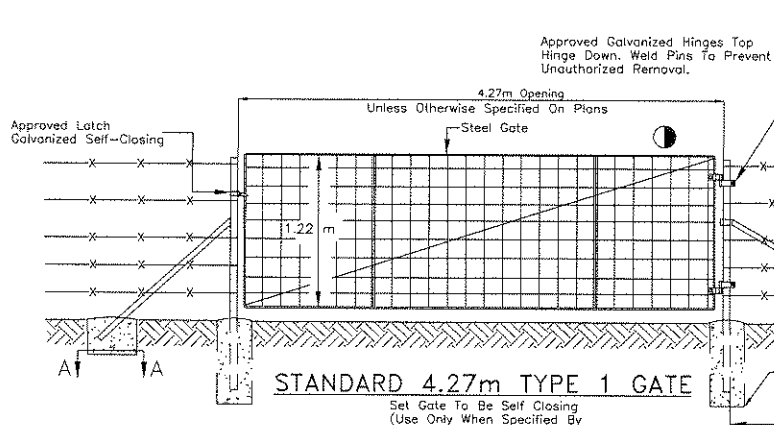


WING FENCE

Detail For Corr. Metal Culvert

GENERAL NOTES

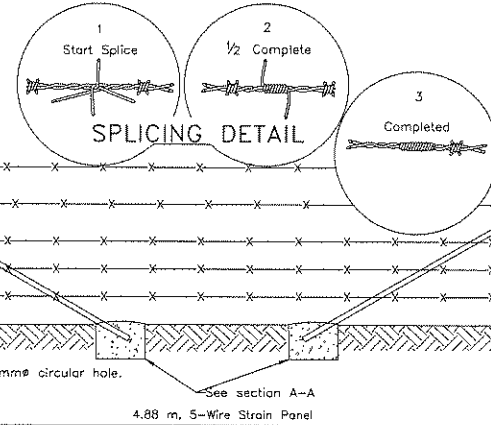
- CORNER, GATE, INTERMEDIATE BRACE POSTS AND LINE POSTS SHALL BE EITHER GALVANIZED OR PAINTED IN ACCORDANCE WITH AASHTO M 281-03. METAL POST AND BRACES SHALL BE FABRICATED FROM RAIL, BILLET, OR COMMERCIAL GRADE STEEL CONFORMING WITH THE REQUIREMENT OF ASTM A 702.
- LINE POSTS SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO M 281-95, AND SHALL 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.
- 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 61901-1000.
- 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 61901-1000.
- 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 PP-03. FURNISHING AND PLACEMENT OF CONCRETE SHALL BE INCLUDED WITH ITEM 61901-1000.
- 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 STRAIN POST ASSEMBLIES.
- 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./AOTR
- ANY CONFLICT IN PLACEMENT OF THE R/W FENCING AT DRAINAGE PIPE LOCATION, DUE TO NARROW R/W WIDTH OR OTHER CONSTRAINTS, THE FENCE MAY BE PLACED OVER THE DRAINAGE STRUCTURE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.
- 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.
- ALL DRILLING INTO ROCK MATERIAL, ETC. SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- TYPE 2 GATE CLOSURE DEVICE SHALL BE STEEL PIPE, NPS 26.7 mm 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.
- 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.



STANDARD 4.27m TYPE 1 GATE

NOTE: When Tubular Post Hangers And/Or Latches Are Used, It Shall Be Drilled For A Single 2.38 mm Min. Drive Pin To Prevent Rotation Of The Hangers And/Or Latches.

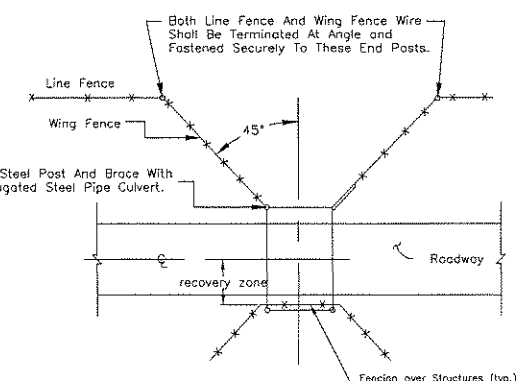
For Gate Details At Cattle guard Location See Standard Cattle guard Drawings.



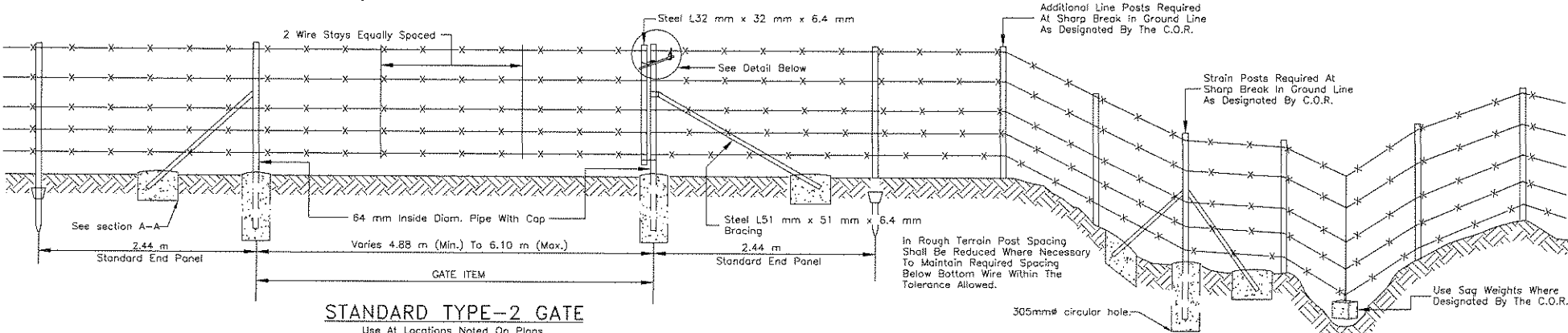
3.5 mm Tubing 2 Vert. Braces Mesh, 3.2 mm Line Wires 2.6 mm Crosswires, 1 Adjustable Diagonal Guy Fully Galvanized.

END POST

CONNECTION TO MAJOR STRUCTURES

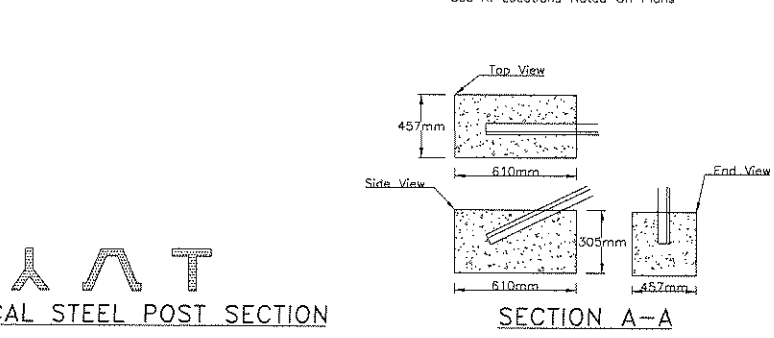


WING FENCE DETAIL

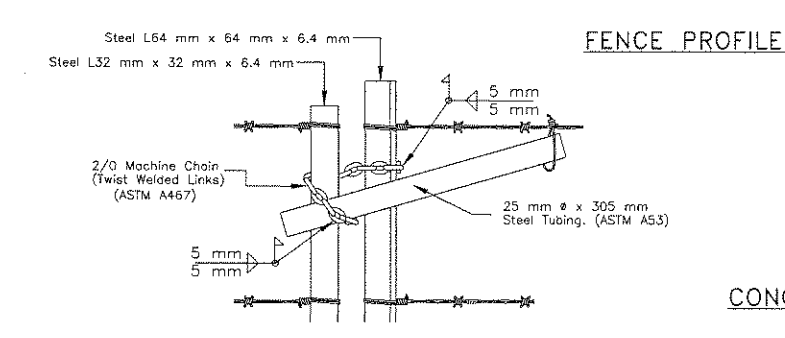


STANDARD TYPE-2 GATE

Use At Locations Noted On Plans



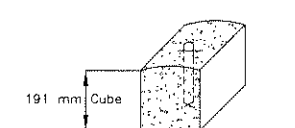
TYPICAL STEEL POST SECTION



GATE SECURING DETAIL

FENCE PROFILE IN ROUGH TERRAIN

38 mm x 127 mm Doubled And Twisted 3.8 mm (Diam.) 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.

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STANDARD FENCING DETAILS

DRAWN BY: NRODOT	DATE: 6/20/04
DESIGNED BY: NRODOT	DATE: 7/14/04
REVISED: 01/09	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010_fen	
SHEET MODEL NAME: PLOT SHEET	



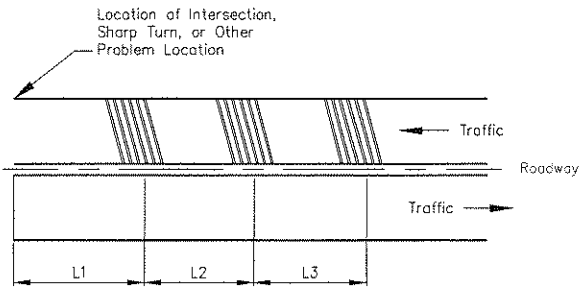
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	57	63

GENERAL NOTES:

- When Tubular Post Hangers And/Or Latches Are Used, It Shall Be Drilled For A Single 2.38 mm f9 Min. Drive Pin To Prevent Rotation Of The Hangers And/Or Latches.
- Where Called For In The Plans, Install a Type 1 Double Swing Gate With Two (2) 3.66 m Gate Panels, Similar to the Standard Gate Shown, Except No Gate Latch is Needed. Contractor to Furnish a 1.0 m Length of Grade 30, 8 mm Steel Chain, Meeting ASTM A 413/413M Standards, One End of Which is to be Welded to One Gate Panel as Directed by the COR/AOTR. The Welded Area to be Repainted to Match Original Gate Finish.
- See Sheet 55 For Additional Notes.

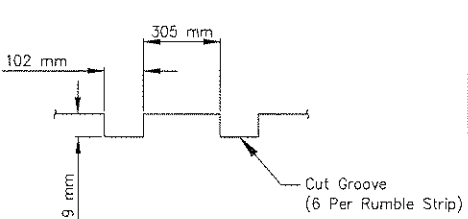
ITEM 63313: RUMBLE STRIP

STATION	LOCATION	QUANTITY
0+088	Lt.	1
0+126	Lt.	1
0+164	Lt.	1
18+562	Rt.	1
18+600	Rt.	1
18+638	Rt.	1
TOTAL		6



TYPICAL INSTALLATION

APPROACH SPEED	L1	L2	L3
≥ 90 km/h	USE TABLE 2C-4 SECTION 2c.05 IN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES	61 m	61 m
80 km/h		50 m	50 m
75 km/h		46 m	46 m
70 km/h		43 m	43 m
≤ 60 km/h	68 m	38 m	38 m

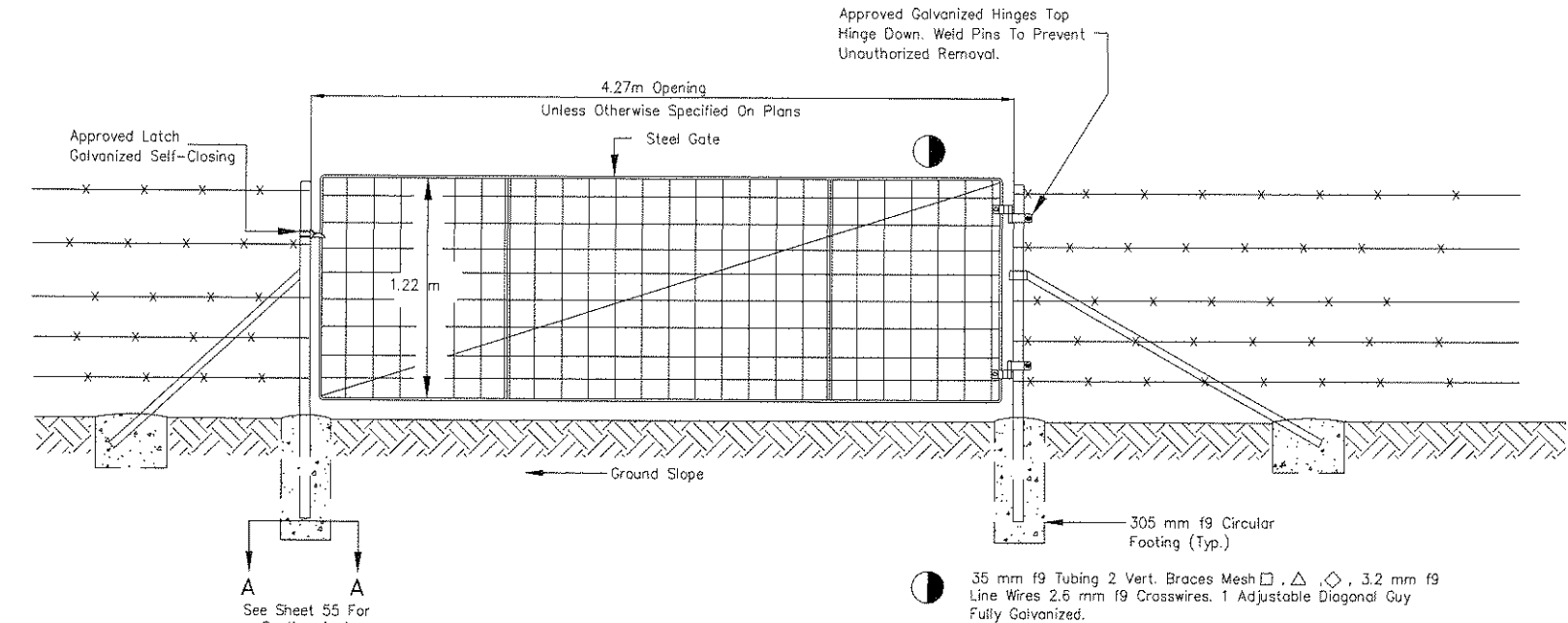


SECTION B-B

UNITED STATES
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STANDARD TYPE I GATE
DETAILS & RUMBLE STRIPS

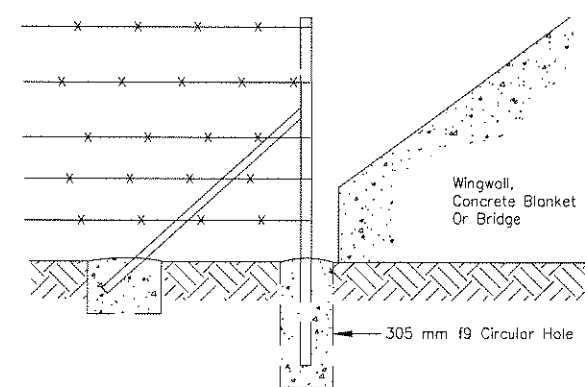
Designed by: NRO-DOT
Drawn by: Date:
Revised by: Design2 Date: 01/22/09
File Name: STD-Fence



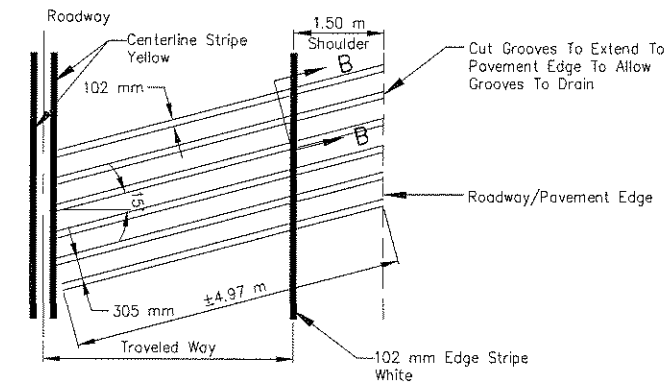
STANDARD 4.27m TYPE 1 GATE

Set Gate To Be Self Closing
(Use Only When Specified By
Special Note In The Plans)

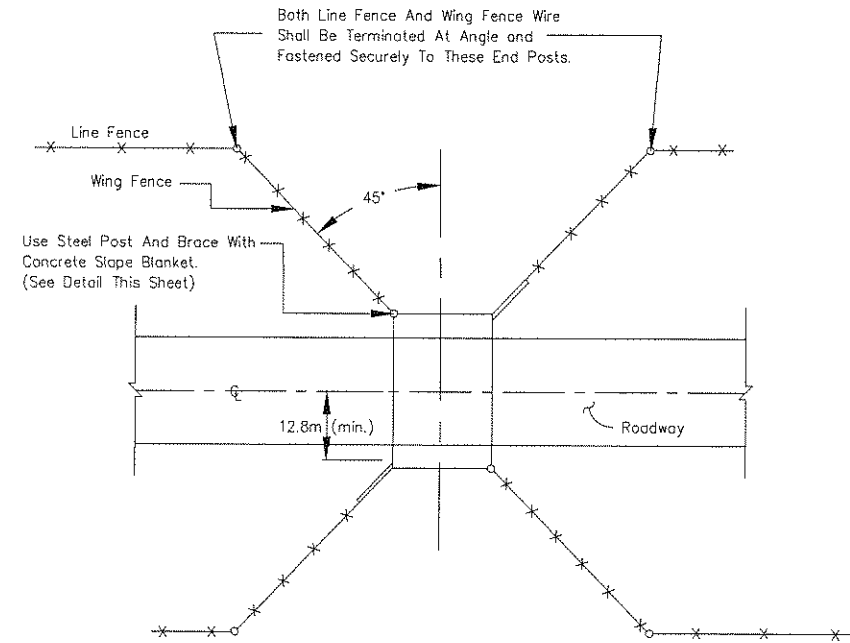
35 mm f9 Tubing 2 Vert. Braces Mesh $\square$, $\triangle$, $\diamond$, 3.2 mm f9
Line Wires 2.5 mm f9 Crosswires. 1 Adjustable Diagonal Guy
Fully Galvanized.



CONNECTION TO MAJOR STRUCTURES



CUT GROOVE RUMBLE STRIP



WING FENCE DETAIL

GLASS FIBER TYPE DELINEATOR AND OBJECT MARKER

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1),2&4	58	63

GENERAL NOTES

1. Survey monument and reference markers shall be placed as shown on the plans or as directed by the Contracting Officer Representative (COR/AOTR). The cost of supplying all materials and installation of Right-of-Way Monument and Markers shall be included in the unit price bid under Item 62101-0000 & 62102-0000.

2. If rock is encountered when installing the right-of-way monument and reference marker, drill a 152mm for R/W monument and 305mm for reference marker hole in the rock to the depth required to install the monument and marker to full depth. All hole drilling into rock material, shall be considered incidental to the completion of the work and no additional payment shall be made therefor.

3. Brass caps for the survey monument shall be supplied and installed by the Contractor conforming to the ASTM B-584 specification and shall be considered incidental to Item 62101-0000.

4. All concrete shall be class A(AE) and shall conform to Section 601 of the FP-03. Furnishing and placing of concrete and rebar shall be considered incidental to Items 62101-0000 & 62102-0000.

5. Roadway stationing and elevations shall be stamped on all brass caps by the Contractor after installation, unless otherwise directed in writing by the COR/AOTR.

6. The Contractor shall be required to paint the reference markers per Section 708 and subsection 708.04 of FP-03:

a) The primer coat shall conform to subsection 708.04(a) or (b) of FP-03.

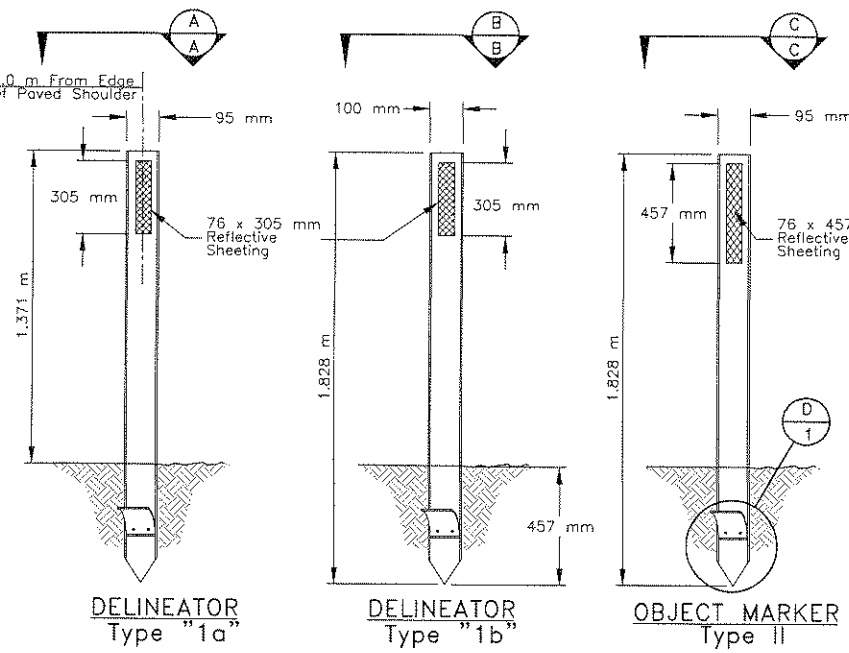
b) The white finish coat of paint shall conform to subsection 708.04(c), (d), or (e) of FP-03.

c) All letters, numerals, symbols, etc. shall be painted on the reference markers using the dimensions shown using Black Lamp paint conforming to ASTM D 209. The required information to place on the reference markers shall be furnished to the Contractor by the COR/AOTR.

7. The Contractor has the option to use an approved State paint specifications in lieu of that stated in Note (5) above. 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 COR/AOTR. Any painting performed by the Contractor without the proper approval shall cause the work to be rejected.

8. The Contractor shall use glass fiber type highway delineators. The cost of supplying materials and installation of U-channel shall be included in the unit price bid under Items 63308-2000, 63309-0010, and 63309-0020.

9. Set Right-of-Way monument at station and offset to match the right-of-way plat. These locations may vary from the stations and offsets shown on the construction plan and profile sheets.

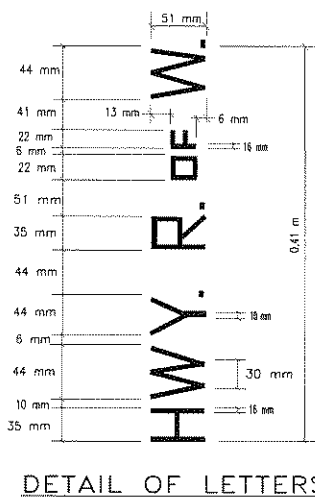
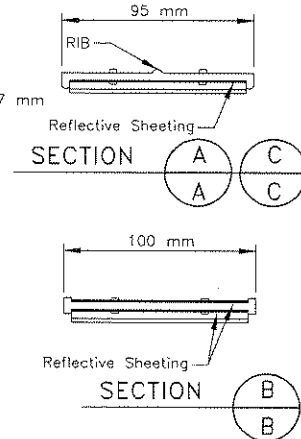
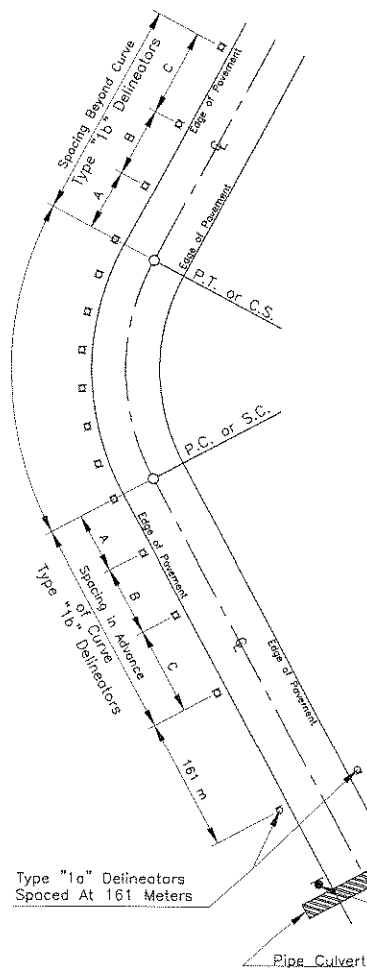


TYPE	POST COLOR	HIGH INTENSITY REFLECTIVE SHEETING
1a	White	White, One Side
1b	White	White, Both Sides
2	Yellow	Amber, One Side

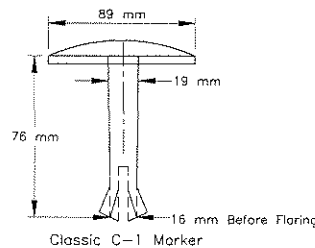
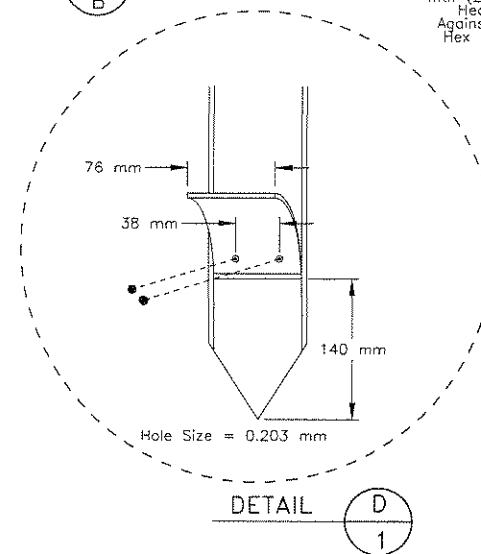
RADIUS OF CURVE (m)	APPROXIMATE SPACING (S) ON CURVE (m)	SPACING ON ADVANCE OF OR BEYOND A CURVE (m)		
		A (2S)	B (3S)	C (6S)
15	6	12	18	36
35	8	16	24	48
55	11	22	33	66
75	13	26	39	78
95	15	30	45	90
125	18	36	54	108
155	20	40	60	120
185	22	44	66	132
215	24	48	72	144
245	26	52	78	156
275	27	54	81	162
305	29	58	87	174
400	33	67	100	200
500	37	75	112	225
600	41	82	123	247
700	44	89	133	267
800	48	96	144	288
900	51	102	152	306
1000	53	107	160	320
1500	66	132	198	396
2000	76	152	228	456
2500	85	170	255	508
3000	93	186	279	557
3500	100	200	300	600
4000	107	214	322	644
4500	114	228	342	687
5000	120	240	360	720
5500	126	252	378	756
6000	132	264	396	792

$S = 1.7 \times \text{sq. rt.}(R-15)$
Spacing for specific radii may be interpolated from table.
The spacing on curves should not exceed 90 meters.
Shaded areas denotes to use 90 meter spacings.
Delineators should be spaced 60 to 160 meters apart on mainline tangent sections.

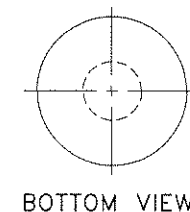
NOTE: When uniform spacing is interrupted by such features as culverts, signs, driveways, intersections, delineators which would ordinarily be located within the features may be relocated in either direction for a distance not exceeding one quarter of the uniform spacing. Delineators still falling within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



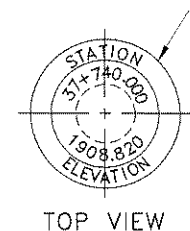
DETAIL OF LETTERS



BRASS CAP DETAIL

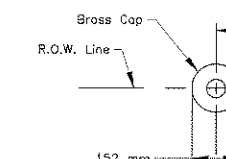


BOTTOM VIEW

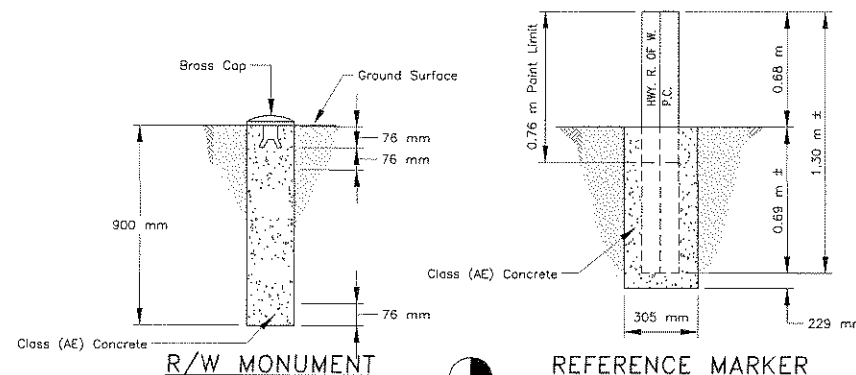


TOP VIEW

See Sheet ?? of 63 for Stations



TOP VIEW



R/W MONUMENT

REFERENCE MARKER

R/W MONUMENT SYMBOL

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NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

MISCELLANEOUS &
ROUTE SIGN DETAILS

DRAWN BY: NRODOT DATE:
DESIGNED BY: NRODOT DATE:
REVISED: 1/09/09 BY: DESIGN 2
SCALE: NTS
FILENAME: N9010_misc.
SHEET MODEL NAME: PLOT SHEET



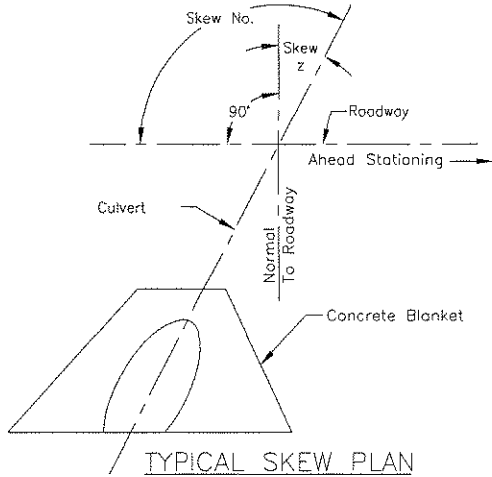
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	59	63

GENERAL NOTES

- All Workmanship And Materials Shall Conform To The Standard Specifications For Construction Of Roads And Bridges On Federal Highway Projects (FP-03).
- All Concrete Shall Be Class A(AE) With Class 1 Finish. Chamfer All Exposed Edges 19 mm. The Concrete Shall Conform To Section 552 "Table 552-1" Of The FP-03. $F'_c = 20.68$ MPa.
- Reinforcing Steel Shall Conform To AASHTO Specification M-31 (ASTM A 615M), Grade 420, And Section 554 Of FP-03. Furnishing And Placement Of Rebar, Anchor Bolts, Steel Eyebolt And Welded Wire Fabric Shall Be Considered Incidental To Contract Bid Item 60101=0000.
- See Standard Fencing Details Sheet For Wing Fence Connection To Concrete Blanket Detail.
- All Structure Excavation And Embankment Around The Concrete Blanket Shall Be Done To Neat Lines And Will Be Considered Incidental To Completion Of The Structure.
- The Contractor Shall Be Required To Make Any Necessary Field Adjustments To Fit Existing Field Conditions, As Directed By The Contracting Officer's Representative (C.O.R./AOTR). No Additional Payment Shall Be Made For Such Adjustments.
- If Unsuitable Material Is Found At The Footing Location And Elevations, The Material Shall Be Removed And Replaced With Approved Select Backfill As Determined By The C.O.R./AOTR. All Select Backfill Shall Be Compacted To 95% Of Maximum Density As Determined By AASHTO T99 Method C, Before And After Footings Are Placed. The Select Backfill Material Shall Conform To Section 704.07 Of The FP-03. Furnishing And Placement Of Structural Backfill Shall Be Paid For Under Bid Item 20401-0000.
- All Footing Excavations Shall Be Inspected And Approved By The C.O.R./AOTR Prior To Placement Of Forms, Rebar, And Subsequent Concrete.
- Channel Reshaping, Cleaning, And Excavation Shall Be Done In Accordance With The Plans And As Determined By The C.O.R./AOTR. Any Waste Material Shall Be Used As Borrow Where Needed In Other Project Locations As Designated And Approved By The C.O.R./AOTR. All Channel Excavation, Cleaning And Reshaping Shall Be Considered Incidental To Completion Of The Structure.
- In No Case Shall Any Backfill Be Placed Until The Concrete Has Attained A Compressive Strength Of 17.23 MPa.
- Erosion Control Matting Shall Conform To Sections 629 And 713.07(2) Of The FP-03 For Type IV Material And Shall Be Considered Incidental To Bid Item 60101-0000. Mats Shall Be Tucked Or Embedded Into The Embankment Along All Top Edges. See Sheet 51 For Erosion Control Mat Installation Details. Mats Abutting Slope Blankets Shall Be Installed As Shown.
- Tabulated Concrete And Reinforcing Steel Estimated Quantities Are For One (1) Slope Blanket At A Given Station And Size Of Structure. Concrete Blankets Are Required At Inlet And Outlet Sides Of The Drainage Structure.
- Where The Concrete Blanket Cannot Be Installed Due To Shallow Depth Of Cover Over The Pipe, And/Or The Parapet Height Is Above The Aggregate Hinge Point, The Contractor Shall Be Required To Adjust The Parapet Wall Height To 305 mm, And Shall Install Two (2) Additional #13 Rebar On The Top Wall Across The Entire Length Of The Structure. This Work Will Be Considered Incidental To Completion Of The Structure.

REINFORCING BAR LIST - PER 1 WALL

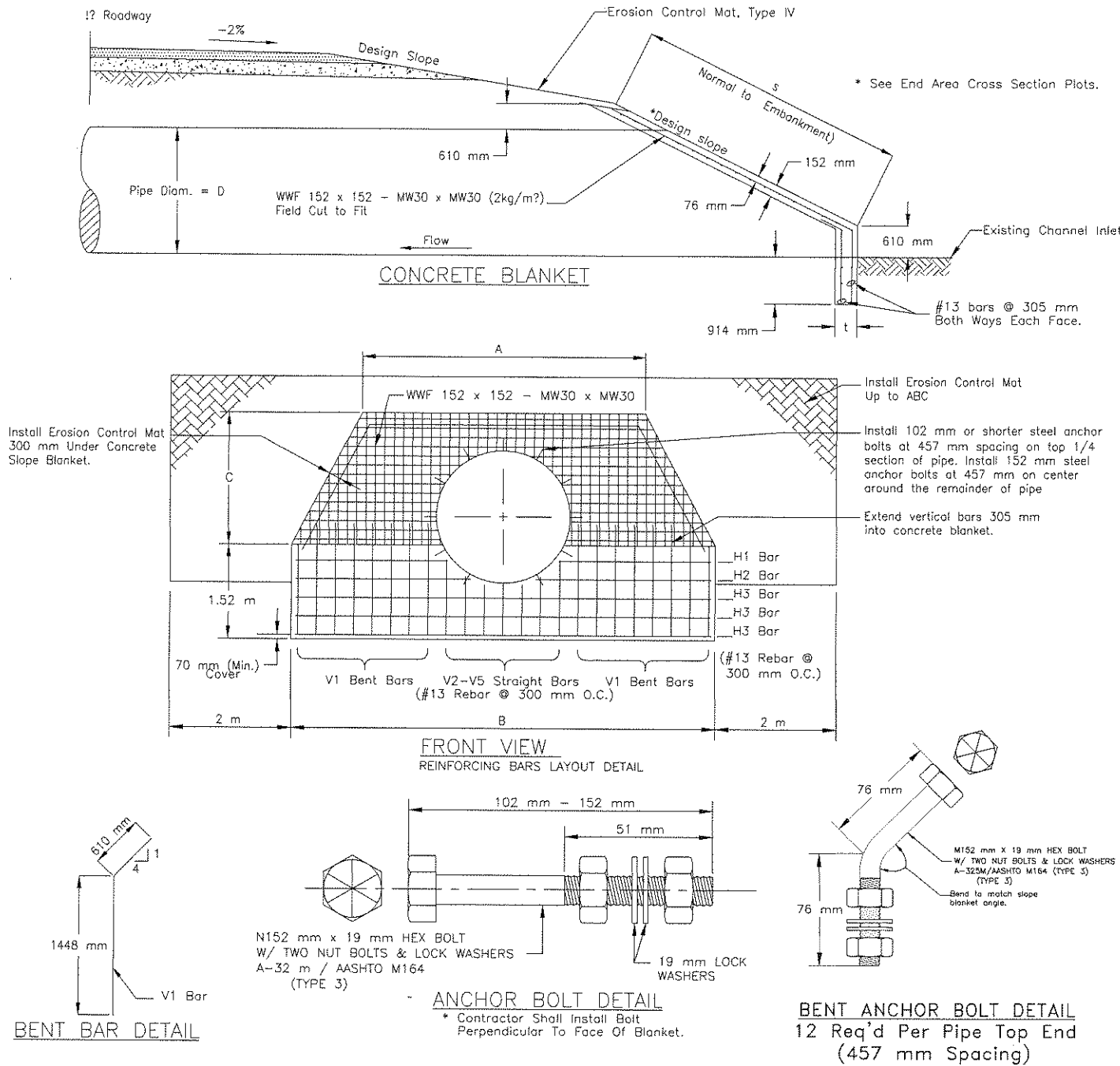
STATION	BAR TYPE	LENGTH (m)	No. OF BARS Per 1 WALL	SIZE	kg/m	TOTAL Wt. (kg)
1+610	V1	2.058	28	#13	0.994	57.278
	V2	1.218	4	#13	0.994	4.843
	V3	0.946	4	#13	0.994	3.761
	V4	0.815	4	#13	0.994	3.240
	V5	0.774	2	#13	0.994	1.539
	H1	2.244	4	#13	0.994	8.922
	H2	2.611	4	#13	0.994	10.381
	H3	6.262	6	#13	0.994	37.347
Subtotal						127.311
4+247	V1	2.058	32	#13	0.994	65.461
	V2	1.218	4	#13	0.994	4.843
	V3	0.946	4	#13	0.994	3.761
	V4	0.815	4	#13	0.994	3.240
	V5	0.774	2	#13	0.994	1.539
	H1	2.575	4	#13	0.994	10.238
	H2	2.942	4	#13	0.994	11.697
	H3	6.924	6	#13	0.994	41.295
Subtotal						142.074
8+520	V1	2.058	36	#13	0.994	73.643
	V2	1.218	4	#13	0.994	4.843
	V3	0.946	4	#13	0.994	3.761
	V4	0.815	4	#13	0.994	3.240
	V5	0.774	2	#13	0.994	1.539
	H1	2.739	4	#13	0.994	10.890
	H2	3.106	4	#13	0.994	12.349
	H3	7.252	6	#13	0.994	43.251
Subtotal						153.516
17+330	V1	2.058	32	#13	0.994	65.461
	V2	1.218	4	#13	0.994	4.843
	V3	0.946	4	#13	0.994	3.761
	V4	0.815	4	#13	0.994	3.240
	V5	0.774	2	#13	0.994	1.539
	H1	2.449	4	#13	0.994	9.737
	H2	2.816	4	#13	0.994	11.196
	H3	6.673	6	#13	0.994	39.798
Subtotal						139.575
Grand Total (2 Walls at Each Pipe)						1,124.952



UNITED STATES
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NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

CONCRETE SLOPE
BLANKET DETAILS

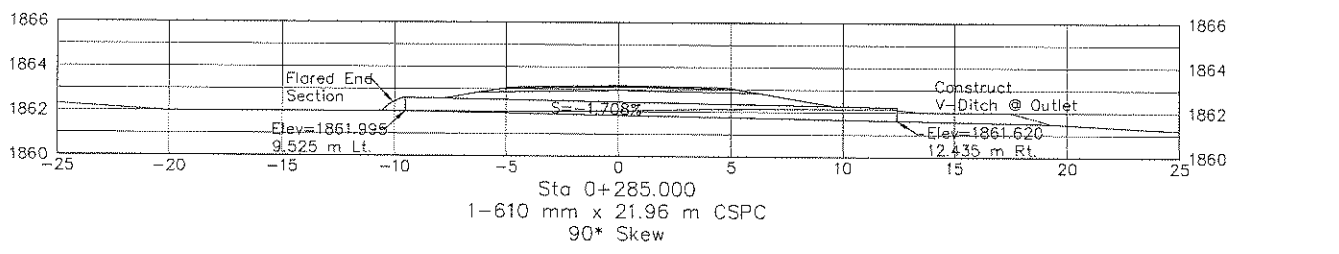
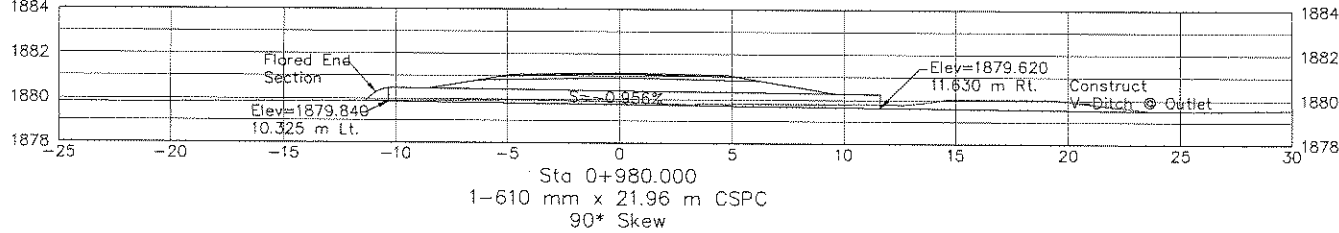
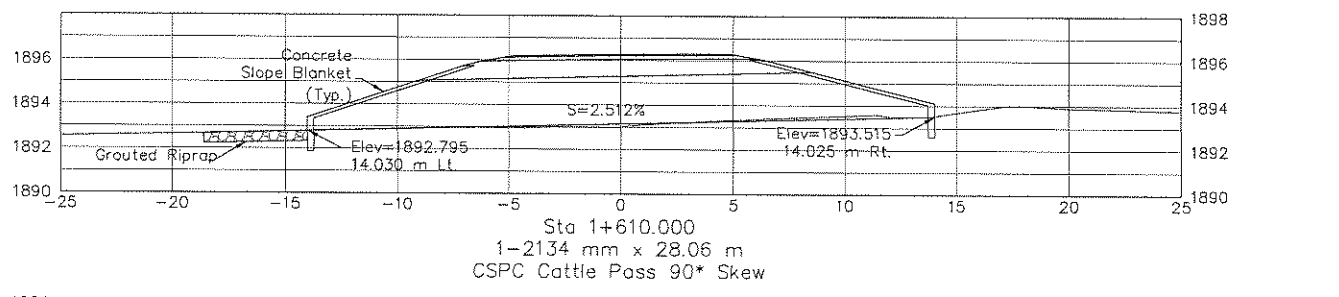
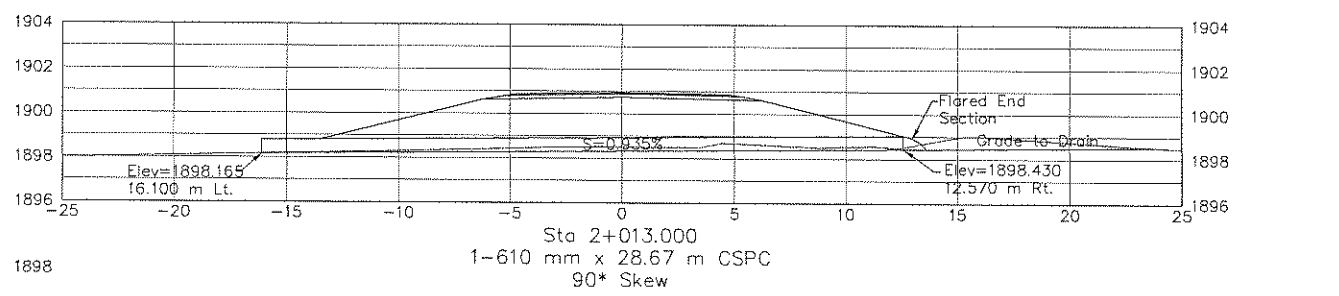
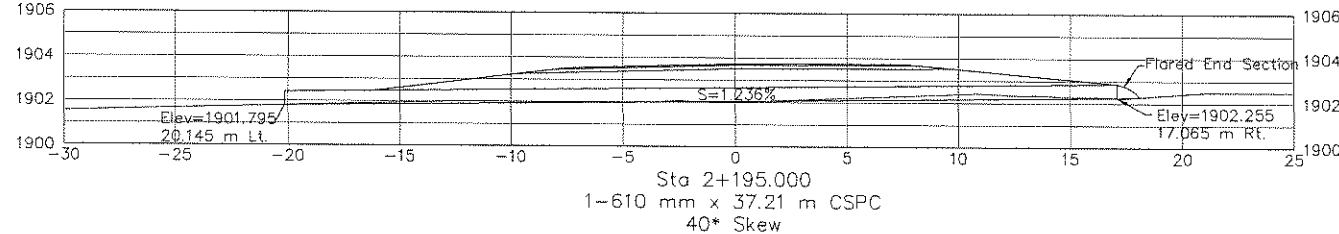
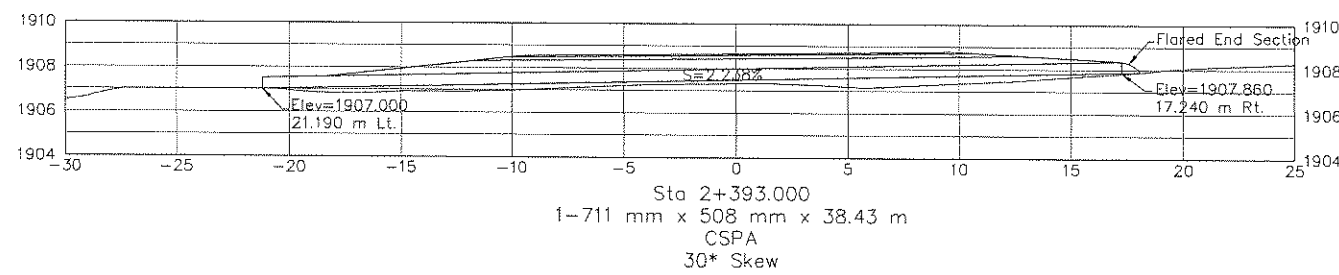
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Drawn by: _____ Date: _____
Revised by: DESIGN 2 Date: 1/09/09
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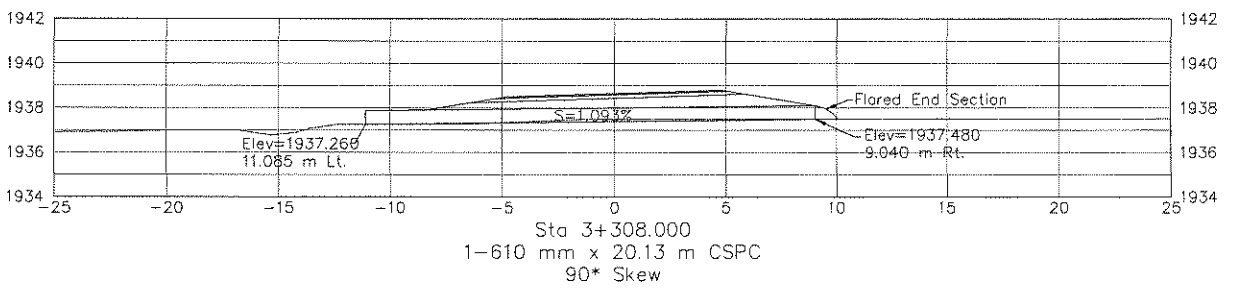
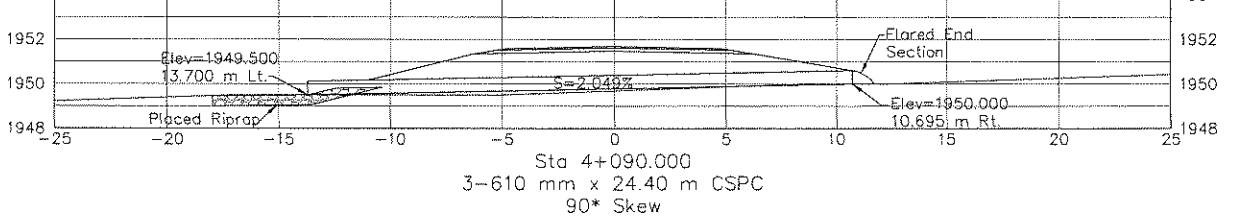
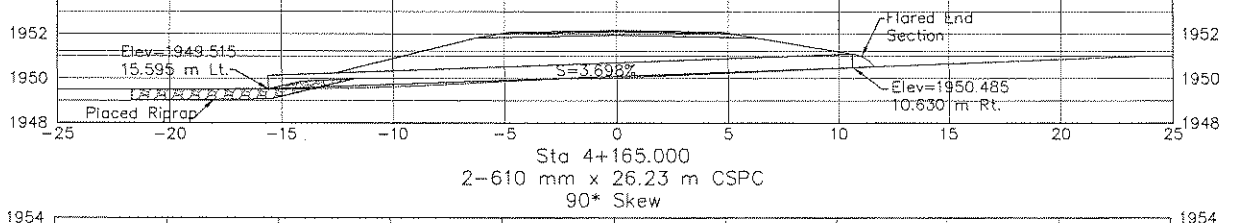
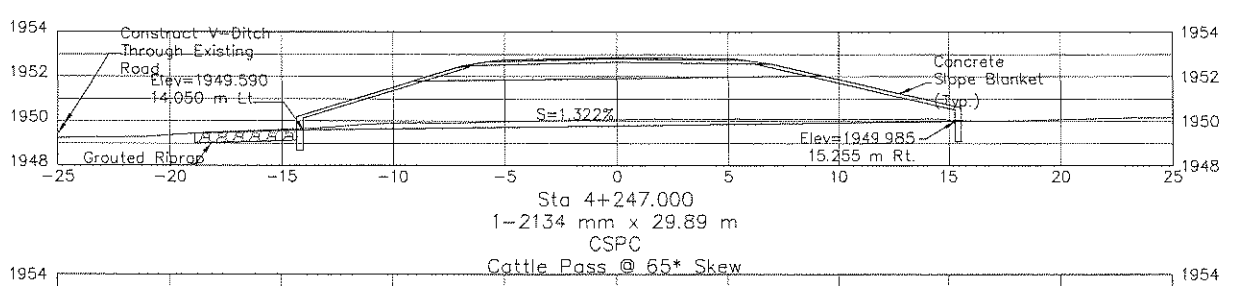
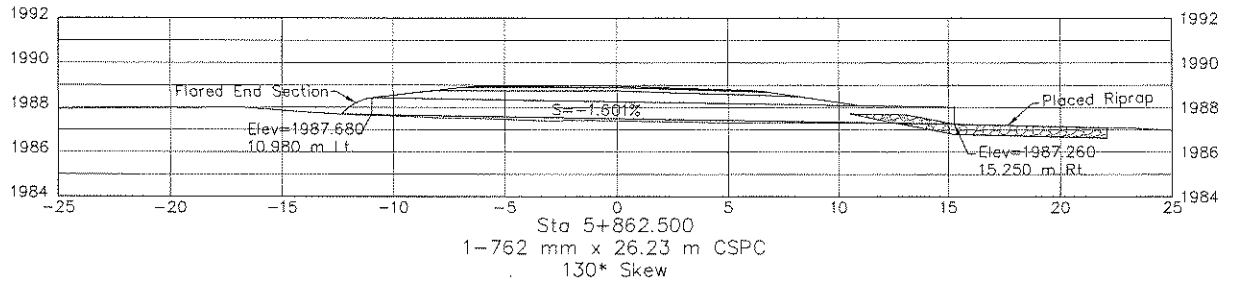
ESTIMATED QUANTITIES

STATION	PIPE SIZE (mm)	NUMBER OF PIPES D	SKEW No.	SLOPE	A (m)	B (m)	C (m)	S (m)	t (mm)	VOLUME OF CONC. (m³) ITEM NO. 60101 (See Note 2)	TOTAL WEIGHT OF REINFORCING BARS (kg)	TOTAL WEIGHT OF WWF @ 2 kg/m² (kg)	TOTAL AREA OF EROSION CONTROL MATTING TYPE IV (m²) ITEM NO. 62901
1+610-Inlet	2134	1	90	1:4.0	4.27	6.41	2.744	8.80	292	8.10	127.31	72.06	56.8
1+610-Outlet				1:3.0	4.27	6.41	2.744	6.75	292	6.80	127.31	67.67	50.9
4+247-Inlet	2134	1	65	1:4.4	4.71	7.06	2.744	8.80	292	8.96	142.07	80.54	59.5
4+247-Outlet				1:3.2	4.71	7.06	2.744	6.75	292	7.58	142.07	62.31	45.2
8+520-Inlet	2134	1	60	1:4.9	4.93	7.39	2.744	8.80	292	9.29	153.52	82.86	71.8
8+520-Outlet				1:3.3	4.93	7.39	2.744	6.75	292	7.97	153.52	65.55	57.4
17+330-Inlet	2134	1	110	1:4.3	4.54	6.81	2.744	8.80	292	8.61	139.58	77.34	79.3
17+330-Outlet				1:3.1	4.54	6.81	2.744	6.75	292	7.29	139.58	59.98	83.3
TOTAL:										64.60	1,124.96	568.31	504.2

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	60	63



LEGEND
 Placed Or Grouted Riprap



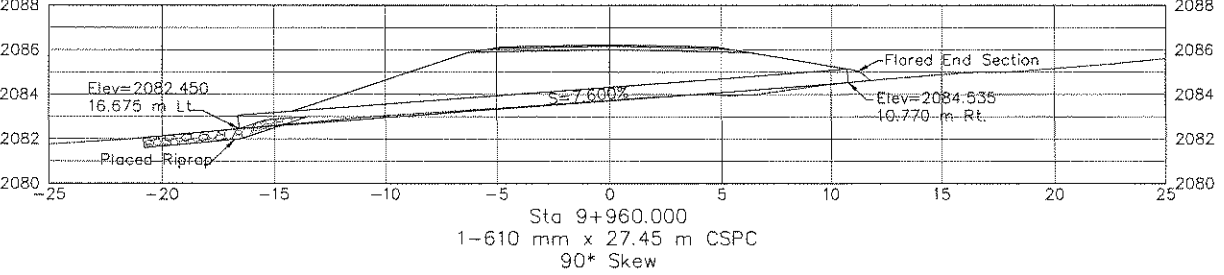
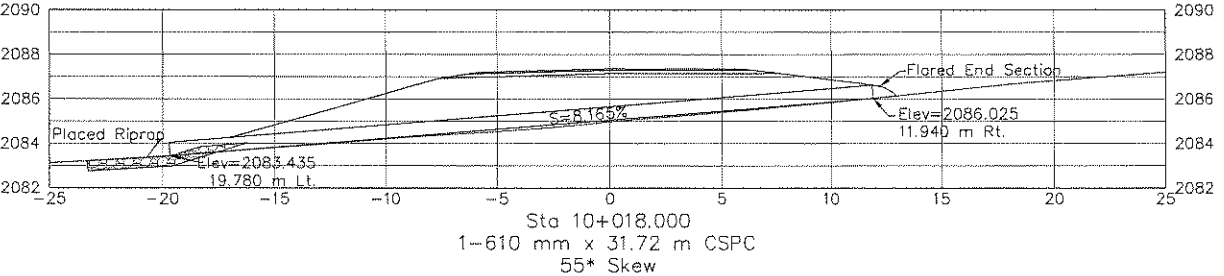
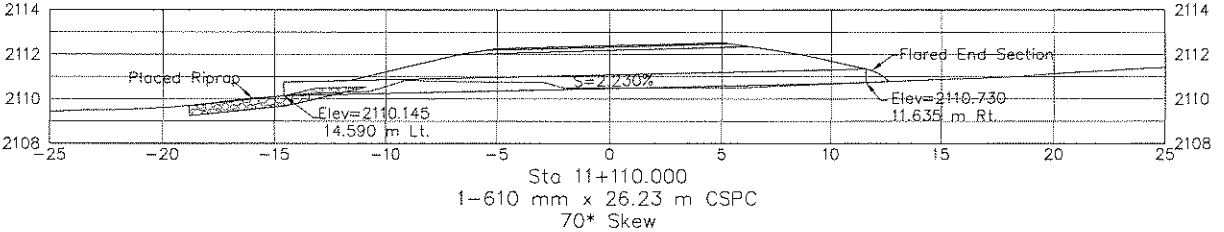
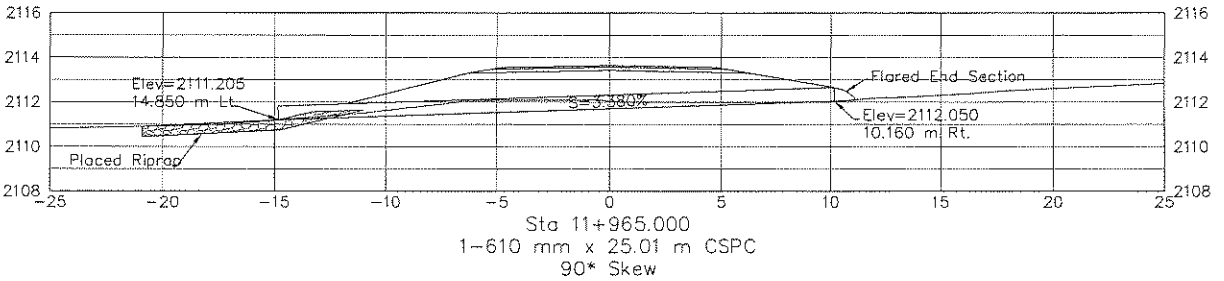
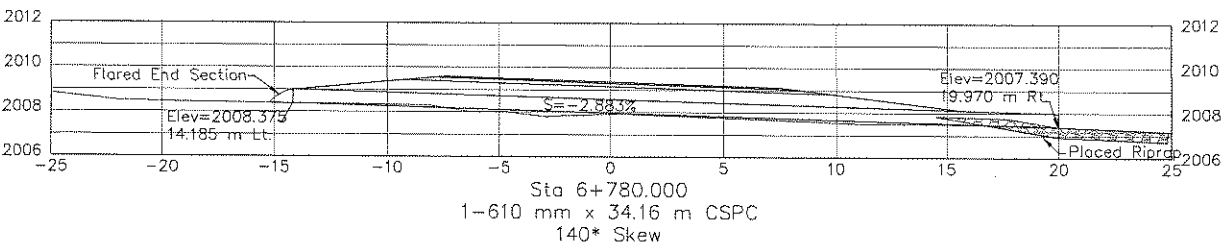
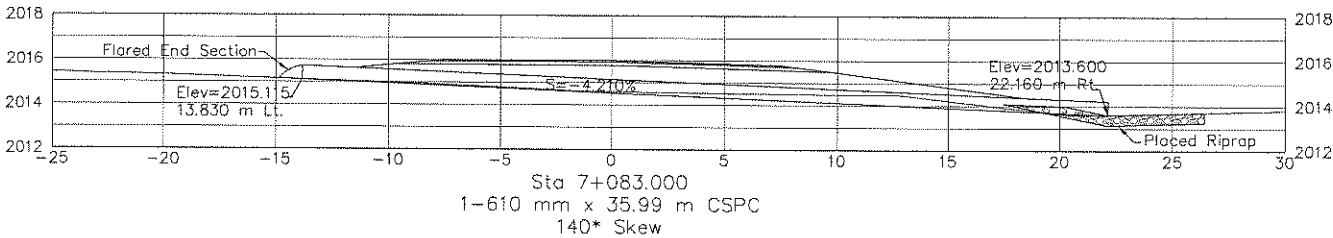
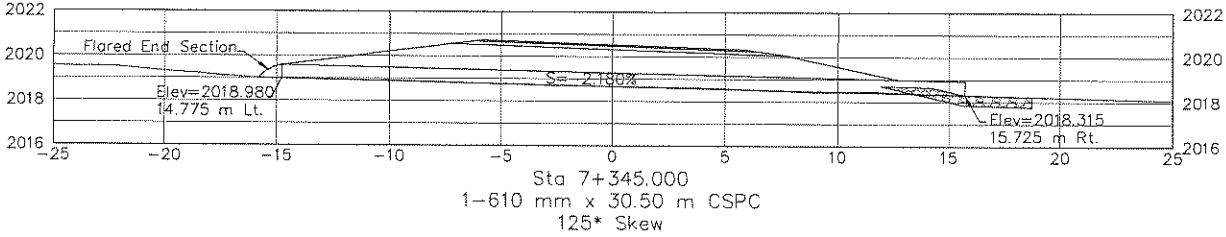
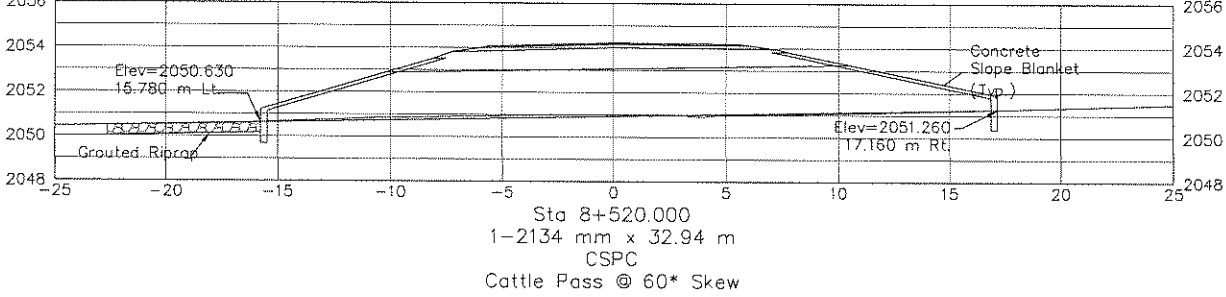
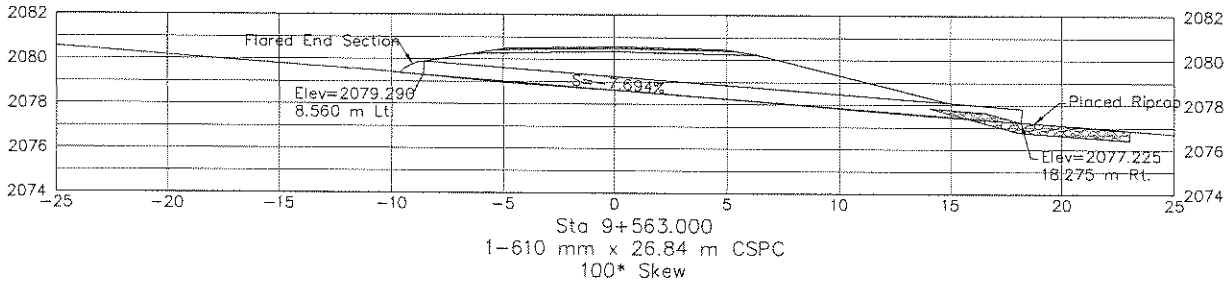
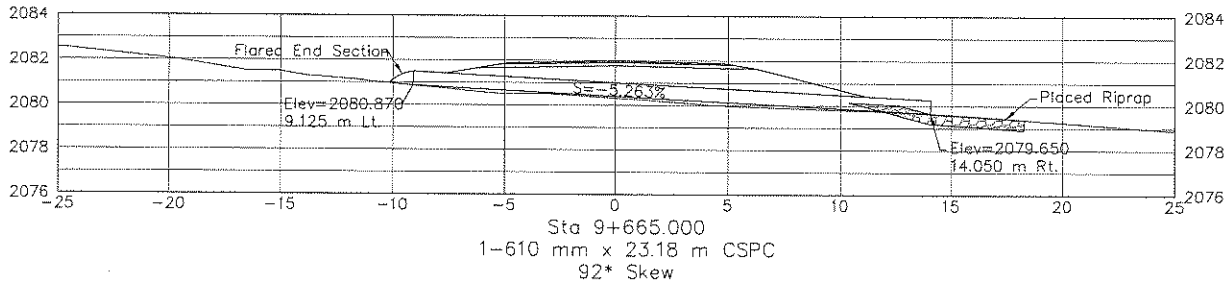
- GENERAL NOTES:
- DRAINAGE PIPE(S) INVERT ELEVATION AND LENGTHS ARE APPROXIMATE. FINAL ELEVATIONS AND LENGTHS TO BE FIELD DETERMINED BY THE CONTRACTOR AS PART OF THE REVISED PIPE LIST SUBMITTAL PACKAGE. GUIDANCE ON DEVELOPING A REVISED PIPE LIST CAN BE PROVIDED UPON REQUEST OF THE CONTRACTOR.
 - AT PIPE CROSS SECTIONS DRAWN ON A SKEW, THE RIGHT-OF-WAY LINE CANNOT BE MEASURED DIRECTLY ALONG THE VERTICAL SCALE, BUT IS "SHIFTED" AWAY (OUTWARD) FROM THE CENTERLINE A DISTANCE BASED ON THE SKEW ANGLE.
 - THE REVISED PIPE LIST SURVEY DATA SHALL BE VERIFIED BY THE COR/AOTR AND THE CONTRACTOR'S QCM PRIOR TO SUBMITTAL TO THE REGIONAL DIVISION OF TRANSPORTATION.
 - AT ALL CULVERT INLETS AND OUTLETS, THE CONTRACTOR SHALL GRADE AND SHAPE THE INLETS/OUTLETS AS NEEDED AND AS DIRECTED BY THE AOTR/COR TO IMPROVE DRAINAGE.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

PIPE CROSS SECTIONS

Designed by: RDL
Drawn by: RDL Date: 12-06
Revised by: DESING 2 Date: 1/12/09
File Name: N9010-Culverts

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	61	63



UNITED STATES
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PIPE CROSS SECTIONS

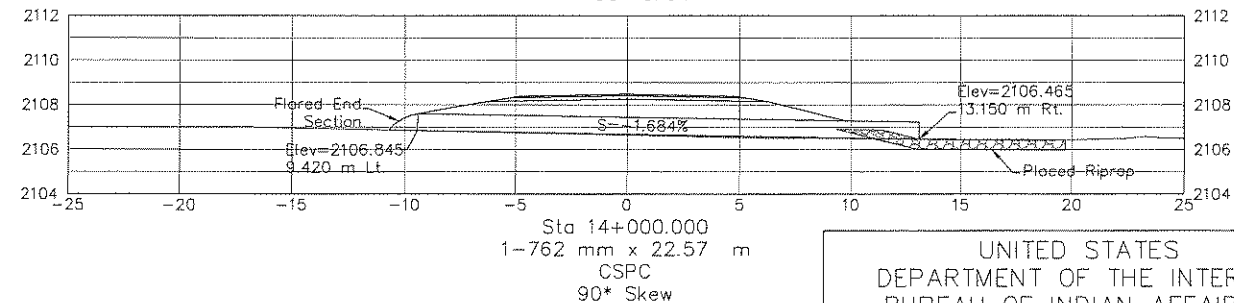
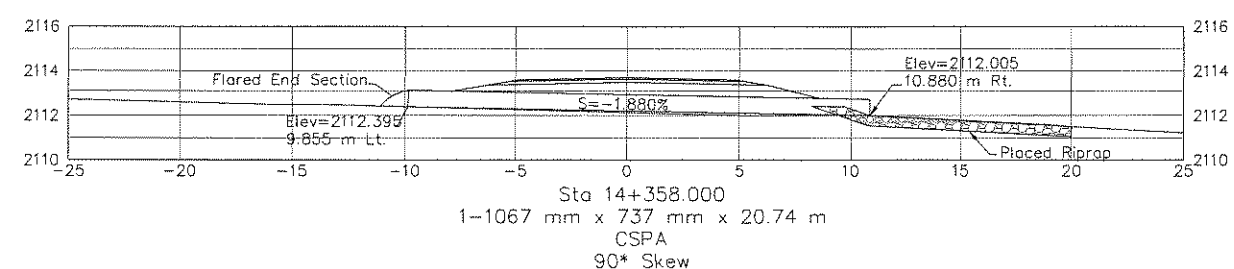
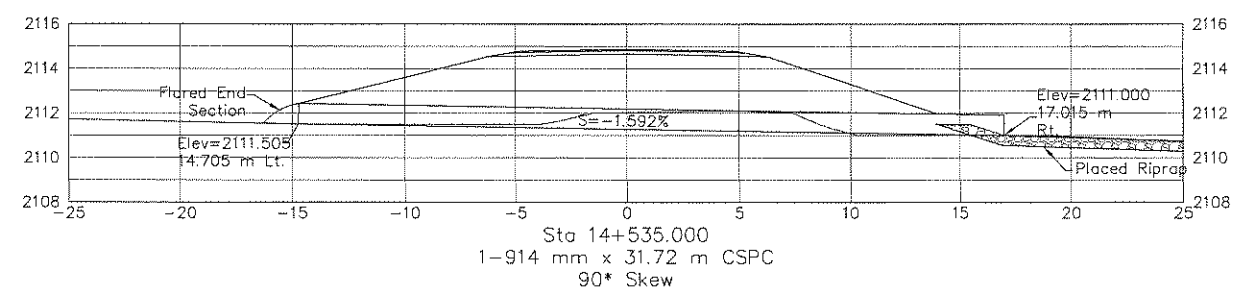
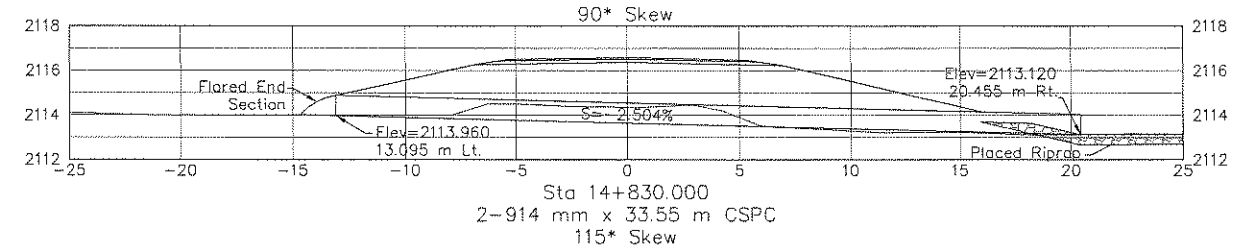
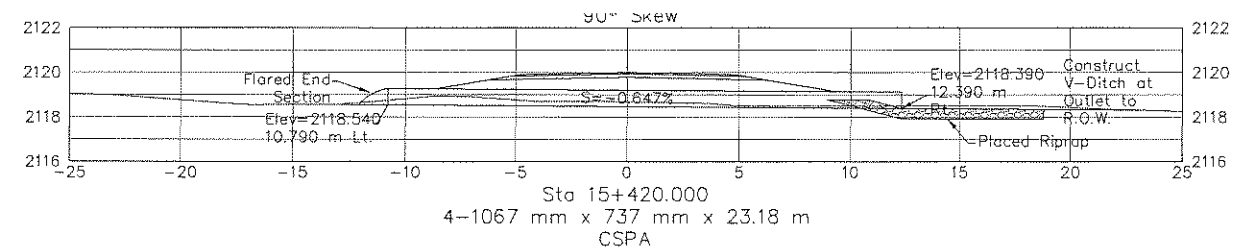
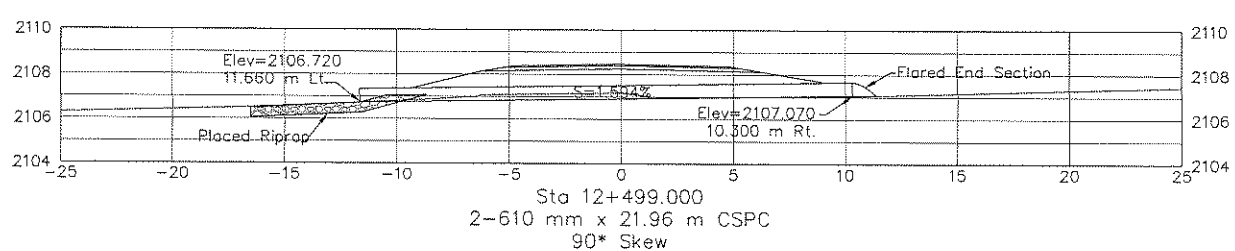
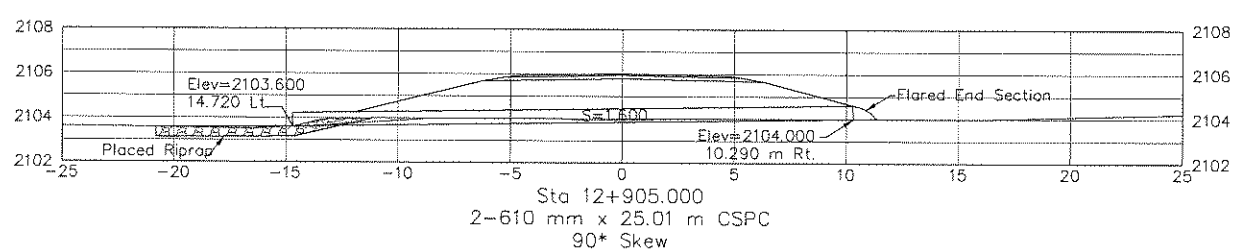
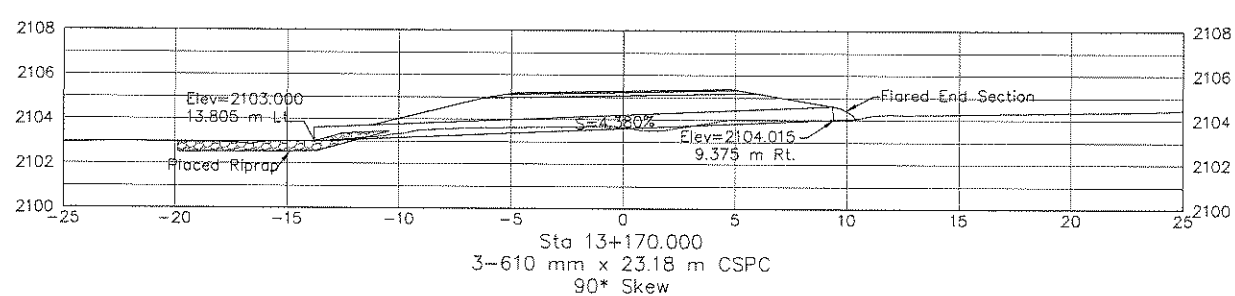
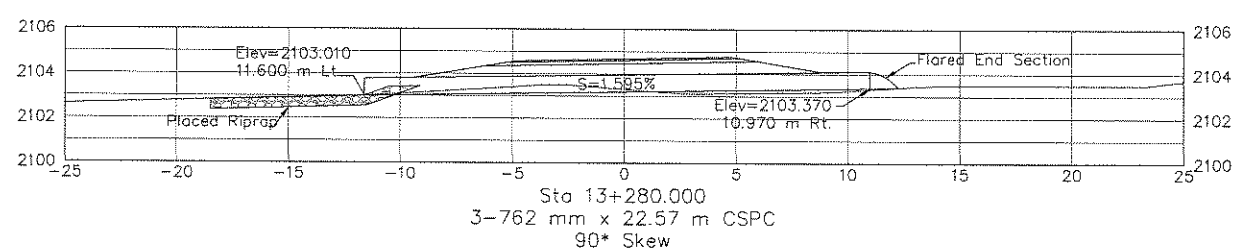
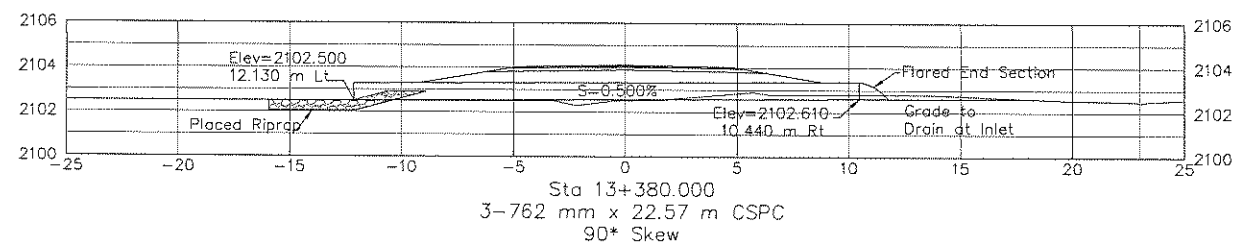
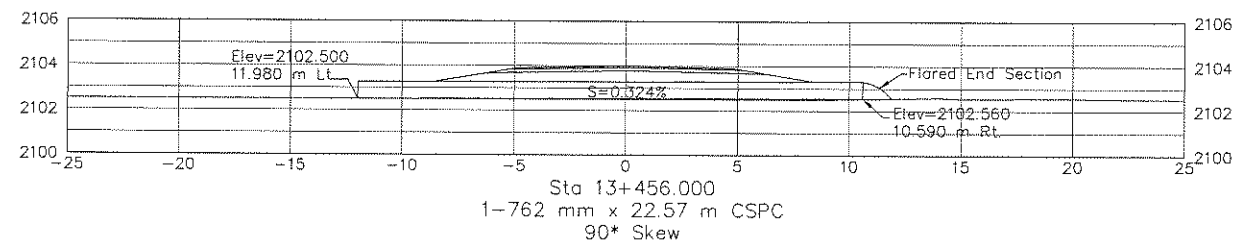
Designed by: RDL

Drawn by: RDL Date: 12-06

Revised by: DESIGN 2 Date: 1/12/09

File Name: N9010-Culverts

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	62	63

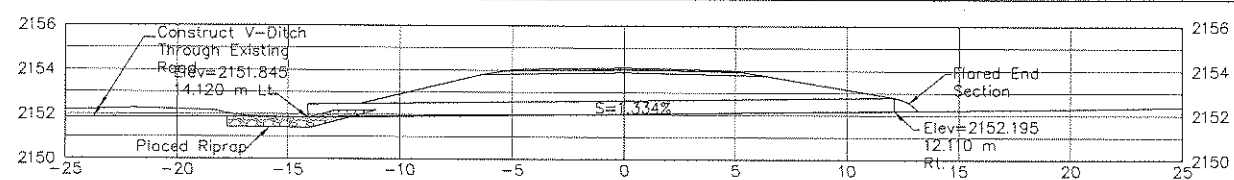


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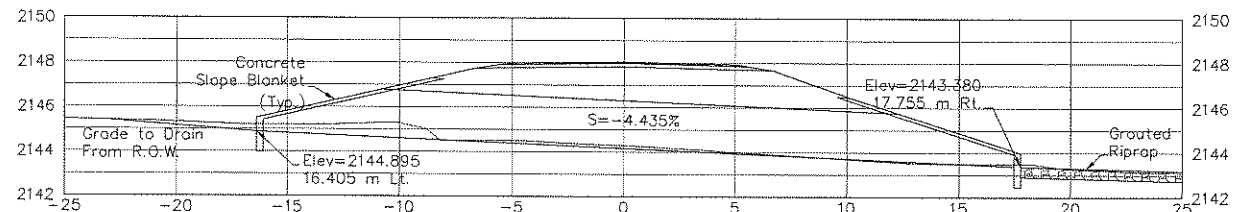
PIPE CROSS SECTIONS

Designed by: RDL
Drawn by: RDL Date: 12-06
Revised by: DESIGN 2 Date: 1/12/09
File Name: N9010-Culverts

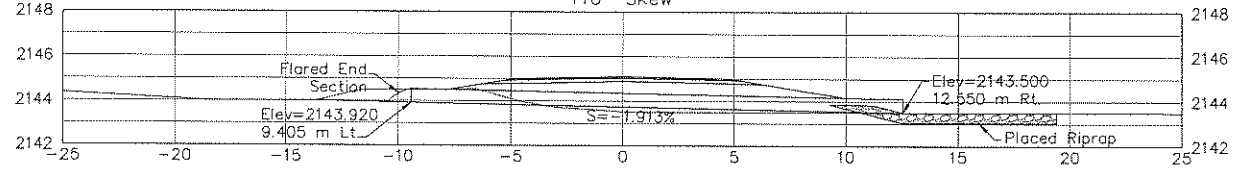
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	63	63



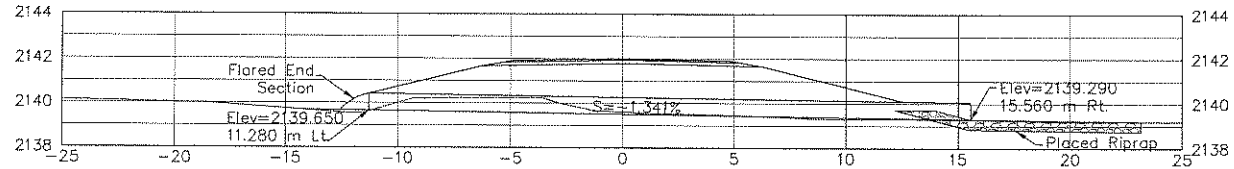
Sta 17+750.000
1-610 mm x 26.23 m CSPC
100* Skew



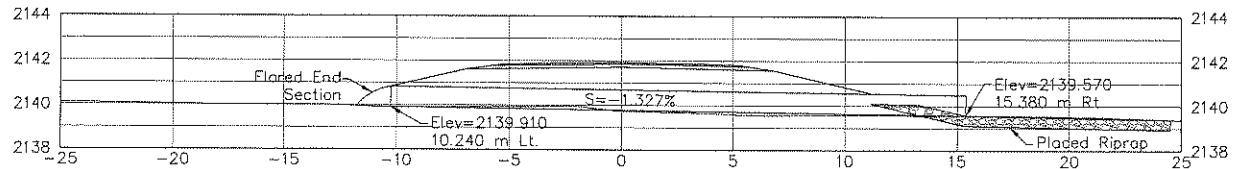
Sta 17+330.000
1-2134 mm x 34.16 m
CSPC Cattle Pass
110* Skew



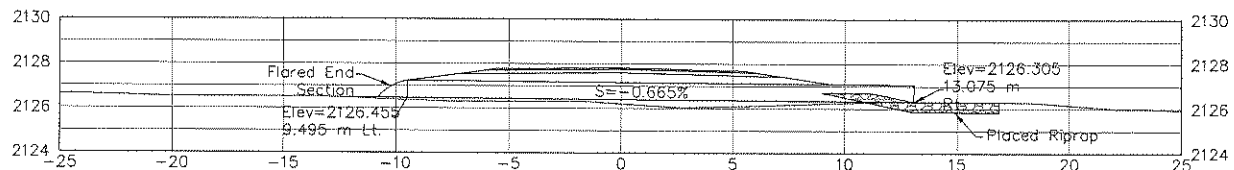
Sta 17+126.000
1-889 x 610 mm x 21.96 m CSPA
85* Skew



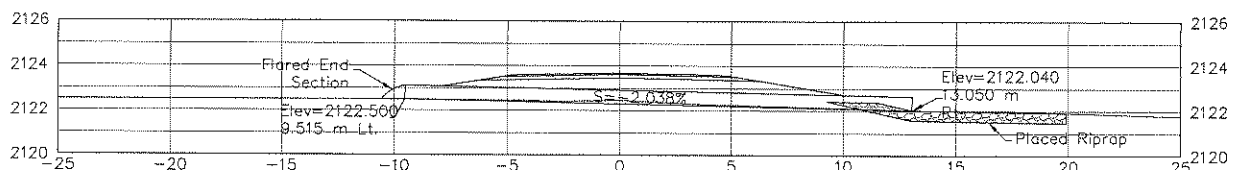
Sta 16+906.000
1-762 mm x 26.84 m CSPC
90* Skew



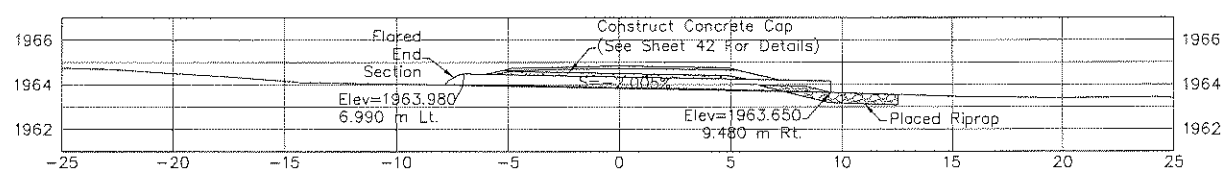
Sta 16+834.000
2-914 mm x 25.62 m CSPC
67* Skew



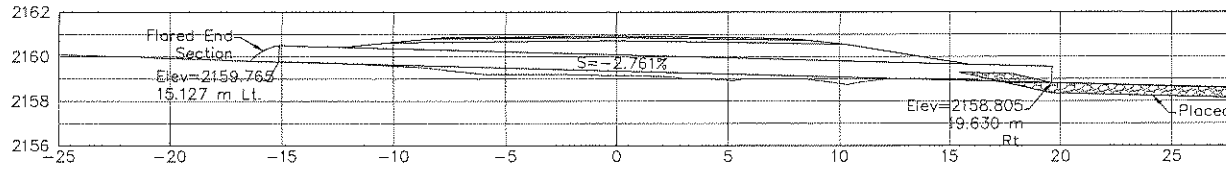
Sta 16+059.000
2-762 mm x 22.57 m CSPC
120* Skew



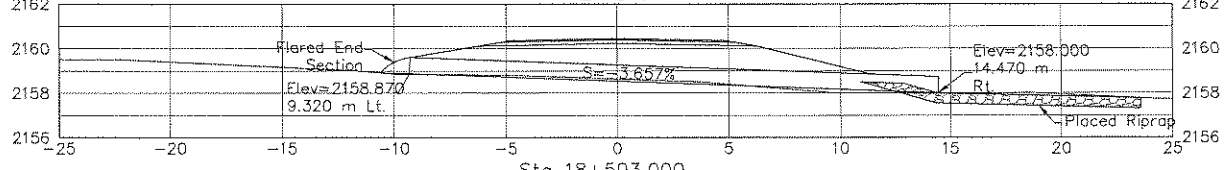
Sta 15+785.000
5-889 mm x 610 mm x 22.57 m
CSPA



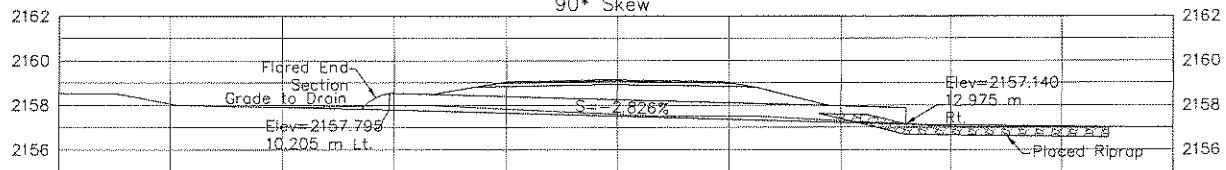
Sta 20+125.000 N9405 STATIONING
2-711 mm x 508 mm x 16.47 m
CSPA
10* Skew



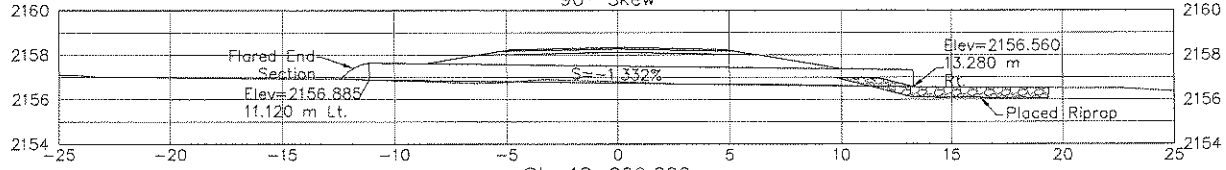
Sta 18+605.000
2-1067 mm x 737 mm x 34.77 m
CSPA
142* Skew



Sta 18+503.000
1-1067 mm x 737 mm x 23.79 m
CSPA
90* Skew



Sta 18+220.000
2-1067 mm x 737 mm x 23.18 m
CSPA
90* Skew



Sta 18+069.000
1-762 mm x 24.40 m CSPC
90* Skew

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