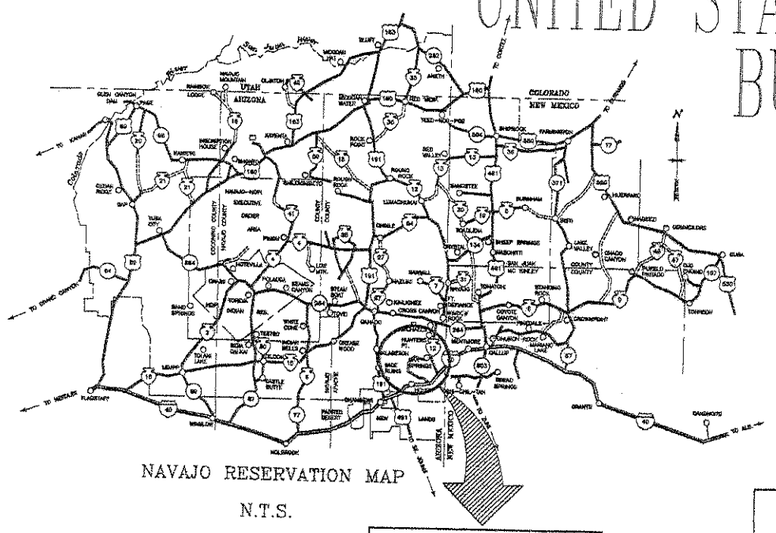
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL
ROUTE

9010

18.7 km

I.D. No. N36430

NTS



NAVAJO RESERVATION MAP

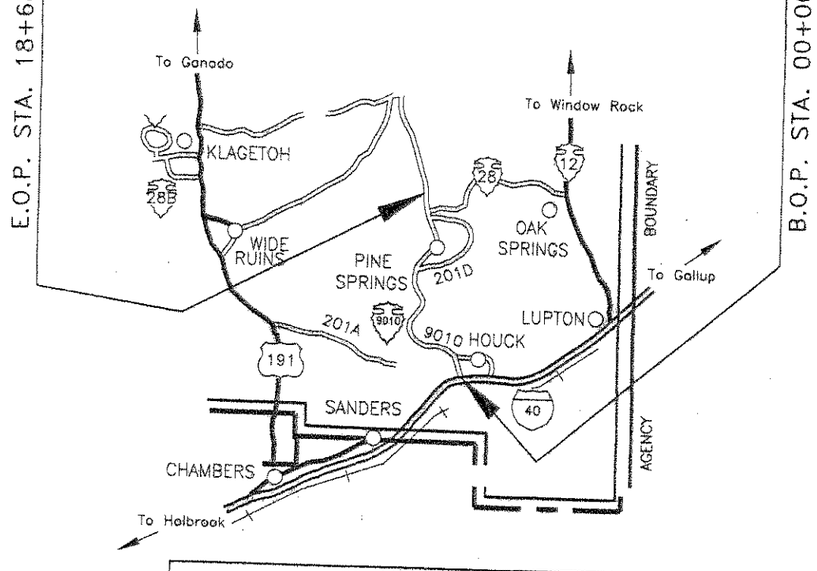
N.T.S.

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



INDEX TO SHEETS

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	16.5 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+636.799	23 m	14+357.526 to 15+627.682	19 m
15+636.799 to 15+770.000	10 m	15+627.682 to 15+672.826	16 m
15+770.000 to 16+000.000	15 m	15+672.826 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+085.307	15 m
16+260.000 to 16+280.000	23 m	16+085.307 to 17+840.000	23 m
18+280.000 to 18+306.489	15 m	17+840.000 to 17+900.000	17 m
18+306.489 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 8.5 m Lt. at Sta 16+220.000

** R.O.W. Tapers from 8.5 m Lt. @ Sta 16+220 to 23.0 m Lt. @ Sta 16+250

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

...\N9010-Title#1.dgn 6/12/2009 8:24:29 AM

DESIGN DATA - N9010(1)2&4

2004 ADT 249 vpd — 2024 Estimated ADT 384 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	85 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

AGENCY ROAD ENGINEER — DATE 6/24/09

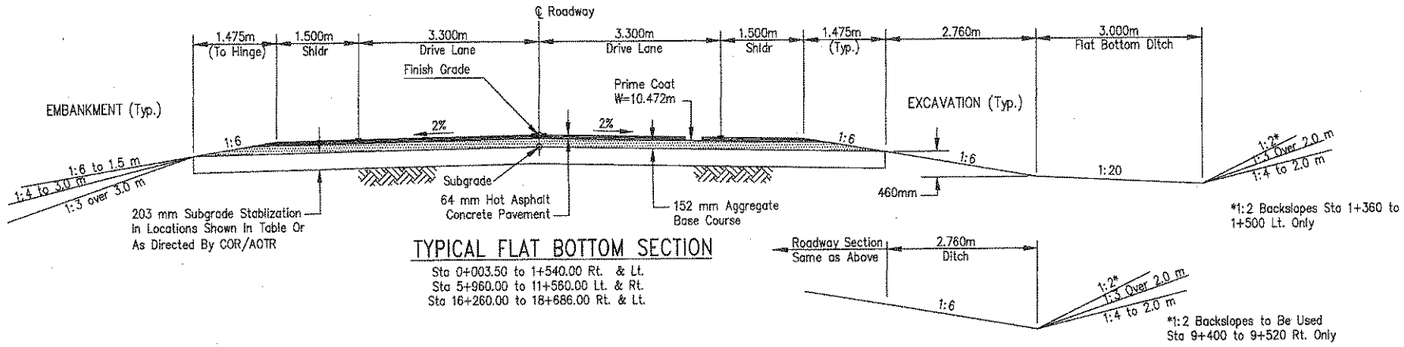
DIVISION MANAGER — DATE 8/24/09

PLANNING AND DESIGN BRANCH CHIEF — DATE 8/20/09

APPROVAL

REGIONAL DIRECTOR — DATE 8/28/09

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

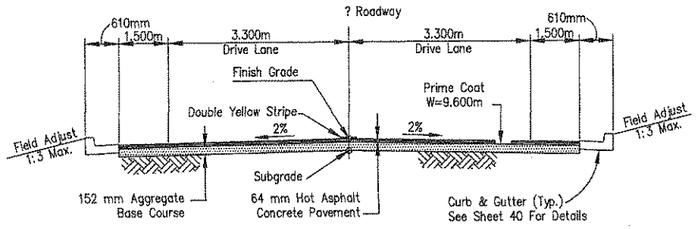


TYPICAL FLAT BOTTOM SECTION

Sta 0+003.50 to 1+540.00 Rt. & Lt.
Sta 5+960.00 to 11+560.00 Lt. & Rt.
Sta 16+260.00 to 18+686.00 Rt. & Lt.

TYPICAL V-DITCH SECTION

Sta 1+560.00 to 5+940.00 Rt.& Lt.
Sta 11+580.00 to 16+240.00 Lt.& Rt.



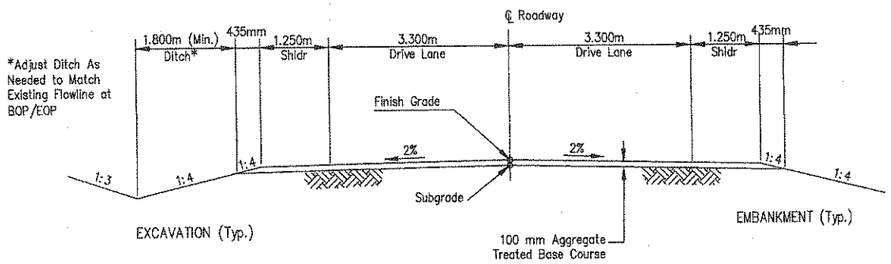
TYPICAL ROADWAY SECTION

Sta 15+532.000 to 15+782.500 Rt.
Sta 15+604.500 to 15+772.500 Lt.

Construct 1.220 m Wide PCC Sidewalk & Curb Ramps Where Shown On Sheets 34 & 35 And Summarized On Sheet 5.
See Sheet 41 For Sidewalk Details.

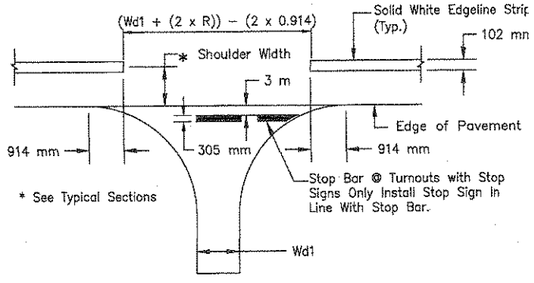
APPROXIMATE LIMITS OF SUBGRADE STABILIZATION
Sta 1+050 to 1+350
Sta 2+550 to 2+850
Sta 3+150 to 3+450
Sta 4+050 to 4+350
Sta 5+850 to 6+200
Sta 6+750 to 7+150
Sta 7+950 to 8+250
Sta 8+850 to 10+650
Sta 10+950 to 11+300
Sta 11+550 to 11+650
Sta 17+550 to 17+850

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 in 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.

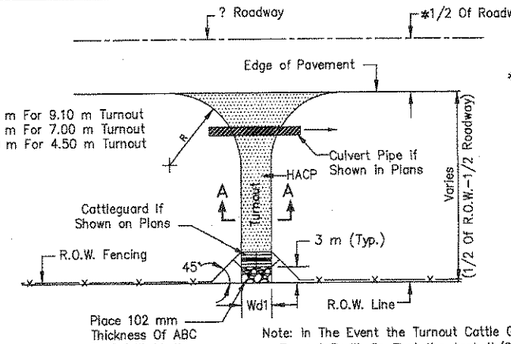


TYPICAL ROADWAY SECTION

N9405/N9406: Sta 20+035.000 to 20+142.450
Sta 20+231.740 to 20+270.000
N28: Sta 21+028.000 to 21+061.951

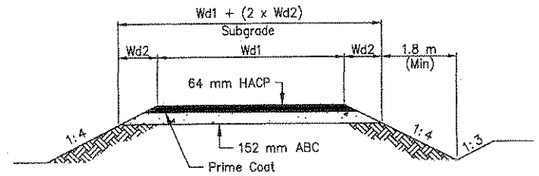


TYPICAL PAVEMENT MARKING @ TURNOUT



Note: In The Event the Turnout Cattle Guard is Located Within the Turnout Radii, So That the Asphalt/Gravel/Dirt Width is Narrower on the Back Side of the Cattle Guard Than on the Front Side, the Asphalt/Gravel/Dirt Width on the Back Side Shall be Widened to Match the Width on the Front Side and Tapered Back to the Standard Roadway/Driveway Width in 5 Meters. This Work Shall be Included in the Earthwork, Gravel, Asphalt, etc. Bid Items as Appropriate.

TYPICAL TURNOUT



Wd2 = (HACP + ABC Thickness in mm) x 4 / 1000

SECTION A-A

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 ±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

Designed by: RDL
Drawn by: Date: 05-05
Revised by: Design2 Date: 01/08/09
File Name: N9010_Typical & Notes

BASIS OF ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	GRADE	UNITS	APPLICATION
30101-2000	Untreated Aggregate Base Course (ABC)	"D"	2244 kg/m³	Main Roadway & Turnouts: 152 mm
40201-0500	Hot Asphalt Concrete Pavement, Class "B"	"B"	2404 kg/m³	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/m², Apply on Top of ABC

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 AWARDING 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 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 20601-0000.

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 LINE. 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 INSTALLTION 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, ADVERIZING 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 819.

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 6/09/10

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: NRODOT	Date: 05/09
File Name: N9010_Typical & Notes	

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

ESTIMATED QUANTITIES

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	m^3	
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	m^2	
21301-4000	Subgrade Stabilization with EN-1 Road Bond, 152 Millimeter Depth	62,730	m^2	
25101-2000	Placed Riprap, Class 2	1,477	m^3	
25110-2000	Grouted Riprap, Class 2	46	m^3	
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	m^3	
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	m^2	
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	m^2	
63302-0001	Sign Installation, 1 Post and hardware: 2.98 kg/m	2.4	m^2	
63302-0003	Sign Installation, 1 Post and hardware: 4.10 kg/m	20.6	m^2	
63302-0010	Sign Installation, 2 Posts and hardware: 2.98 kg/m	34.0	m^2	
63302-0012	Sign Installation, 2 Posts and hardware: 4.10 kg/m	2.6	m^2	
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)

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	Each	
63509-1000	Flaggers	15,000	Man Hr	

ALIGNMENT DATA

ALIGN POINT	STATION	BEARING	NORTHING	EASTING
BOP	0+003.287	N33°26'31"W	474530.304	294965.584
PC C1	0+028.494	N33°26'31"W	474551.337	294951.692
PI C1	0+079.405	N20°08'39"W	474593.819	294923.636
PT C1	0+129.858	N20°08'39"W	474641.616	294906.103
PC C2	1+379.403	N20°08'39"W	475814.724	294475.779
PI C2	1+492.093	N27°31'33"W	475920.521	294436.970
PT C2	1+604.472	N27°31'33"W	476020.456	294384.890
PC C3	2+317.553	N27°31'33"W	476652.818	294055.340
PI C3	2+413.366	N15°00'23"W	476737.785	294011.060
PT C3	2+508.416	N15°00'23"W	476830.330	293986.252
PC C4	3+282.314	N15°00'23"W	477577.836	293785.869
PI C4	3+435.870	N44°33'04"W	477726.155	293746.109
PT C4	3+582.591	N44°33'04"W	477835.583	293638.383
PC C5	4+701.744	N44°33'04"W	478633.120	292853.247
PI C5	4+870.365	N 7°16'43"W	478753.284	292734.952
PT C5	5+027.008	N 7°16'43"W	478920.546	292713.589
PC C6	5+879.252	N 7°16'43"W	479765.923	292605.615
PI C6	5+969.727	N10°14'43"W	479855.669	292594.153
PT C6	6+060.162	N10°14'43"W	479944.702	292578.061
PC C7	6+749.405	N10°14'43"W	480622.955	292455.471
PI C7	6+810.463	N 4°14'35"W	480683.039	292444.611
PT C7	6+871.408	N 4°14'35"W	480743.929	292440.094
PC C8	7+289.697	N 4°14'35"W	481161.072	292409.145
PI C8	7+439.389	N19°56'19"E	481310.353	292398.069
PT C8	7+584.623	N19°56'19"E	481451.072	292449.116
PC C9	9+020.834	N19°56'19"E	482801.194	292938.882
PI C9	9+159.516	N15°17'40"W	482931.563	292986.174
PT C9	9+289.403	N15°17'40"W	483065.334	292949.593
PC C10	10+045.859	N15°17'40"W	483764.999	292750.054
PI C10	10+134.603	N29°46'11"W	483880.599	292726.645
PT C10	10+222.401	N29°46'11"W	483957.631	292682.582
PC C11	10+632.256	N29°46'11"W	484313.397	292479.083
PI C11	10+744.418	N11°12'58"E	484410.756	292423.393
PT C11	10+846.931	N11°12'58"E	484520.776	292445.210
PC C12	10+971.266	N11°12'58"E	484642.736	292469.395
PI C12	11+076.108	N 2°28'21"W	484745.576	292489.788
PT C12	11+179.952	N 2°28'21"W	484850.320	292485.265
PC C13	11+606.068	N 2°28'21"W	485276.040	292466.883
PI C13	11+691.741	N26°47'41"E	485361.632	292463.188
PT C13	11+773.671	N26°47'41"E	485438.105	292501.808
PC C14	12+601.722	N26°47'41"E	486177.246	292875.091
PI C14	12+645.710	N29°40'46"E	486216.511	292894.920
PT C14	12+689.680	N29°40'46"E	486254.729	292916.701
PC C15	13+028.934	N29°40'46"E	486549.476	293084.682
PI C15	13+171.420	N20°21'14"E	486673.269	293155.234
PT C15	13+313.277	N20°21'14"E	486806.859	293204.793
PC C16	14+357.526	N20°21'14"E	487785.907	293568.001
PI C16	14+438.969	N17°41'00"E	487862.265	293596.329
PT C16	14+520.383	N17°41'00"E	487939.860	293621.068

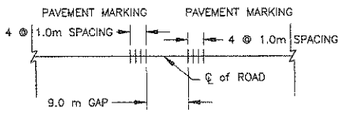
ALIGNMENT DATA

PC C17	15+527.682	N17°41'00"E	488889.565	293927.039
PI C17	15+535.386	N 8°52'33"E	488906.905	293929.379
PT C17	15+543.060	N 8°52'33"E	488914.516	293930.568
PC C18	15+638.799	N 8°52'33"E	489009.109	293945.340
PI C18	15+656.039	N31°32'21"E	489026.142	293948.000
PT C18	15+672.828	N31°32'21"E	489040.836	293957.018
PC C19	15+783.155	N31°32'21"E	489134.866	294014.728
PI C19	15+837.051	N12°10'07"W	489180.800	294042.920
PT C19	15+885.669	N12°10'07"W	489233.485	294031.560
PC C20	16+065.307	N12°10'07"W	489409.088	293993.694
PI C20	16+197.047	N 7°51'00"W	489537.867	293965.925
PT C20	16+328.661	N 7°51'00"W	489668.372	293947.832
PC C21	18+308.489	N 7°51'00"W	491629.647	293677.531
PI C21	18+374.344	N 2°55'03"E	491694.885	293668.537
PT C21	18+439.811	N 2°55'03"E	491760.654	293671.889
EOP	18+686.000	N 2°55'03"E	492006.525	293684.420
End R.O.W.	18+786.000	N 2°55'03"E	492106.395	293689.510

ITEM 61921-2020 REMOVAL OF EXISTING BARBED WIRE FENCE

0+082.00 to 1+072.00	Left	1,060 m	Existing Barbed Wire
0+200.00 to 0+599.00	Right	418 m	Existing Barbed Wire
12+852.00 to 12+875.00	Left	26 m	Existing Barbed Wire
12+908.00 to 13+037.00	Left	139 m	Existing Barbed Wire
14+479.00 to 14+587.00	Left	131 m	Existing Barbed Wire
14+716.00 to 17+736.00	Left	22 m	Existing Barbed Wire
15+112.00 to 15+407.00	Right	327 m	Existing Barbed Wire
17+959.00 to 17+963.00	Left	20 m	Existing Wooded Fence
18+439.00 to 18+550.00	Right	130 m	Existing Barbed Wire
TOTAL 2,273			

ITEM 63502-3000 TEMP. TRAFFIC CONTROL
RAISED PAVEMENT MARKER, YELLOW



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

QUANTITY SUMMARY AND ALIGNMENT DATA

Designed by: RDL
Drawn by: BGC Date: 12-06
Revised by: Design2 Date: 01/08/10
File Name: N9010_Quantities

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	5	63

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+211.686	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	32.593 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	292626.240	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	483357.574	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	483645.333	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+565.826	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

LOCATION	ITEM 30101-2000		ITEM 30101-2000	
	VOLUME (m^3)	WEIGHT (t)	VOLUME (m^3)	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 (m^2)
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

*The Cost to Reset This Fence as Noted on Plans, Shall be Included in Bid Item 61907

ESTIMATED EARTHWORK QUANTITIES

STATION - STATION	CUT (m^3)	FILL (m^3)	*Waste (m^3)**	Borrow (m^3)
0+003.287 to 0+439.825	4,912.24	4,912.24	0	0
0+439.825 to 0+487.605	273.10	273.10	0	0
0+487.605 to 3+529.388	45,375.38	45,375.38	0	0
3+529.388 to 6+276.180	27,741.11	27,741.11	0	0
6+276.180 to 7+367.028	14,099.59	14,099.59	0	0
7+367.028 to 7+991.849	5,083.67	5,083.67	0	0
7+991.849 to 16+116.907	146,832.75	146,832.75	0	0
16+116.907 to 16+743.456	5,032.26	5,032.26	0	0
16+743.456 to 16+854.488	1,956.31	1,956.31	0	0
16+854.488 to 17+043.256	3,385.08	3,385.08	0	0
17+043.256 to 17+399.139	7,329.00	7,329.00	0	0
17+399.139 to 17+663.634	2,152.83	2,152.83	0	0
17+663.634 to 17+745.710	1,284.87	1,284.87	0	0
17+745.710 to 17+863.166	1,365.64	1,365.64	0	0
17+863.166 to 18+686.000	12,319.54	10,450.02	1869.52	0
N28	40	25	15	0
N9405	135	770	0	635
N9406	115	115	0	0
Turnouts	1,750	4,200	0	2,450
TOTAL	281,183.37	282,383.85	1884.52	3,085

A 25% Shrinkage Factor was applied to the Fill quantities.

ITEM 40201-0500 HOT ASPHALT CONCRETE PAVEMENT, CLASS B, GRADING B

LOCATION	VOLUME (m^3)	WEIGHT (t)
0+003.287 to 18+686.000	12,064	29,002
Turnouts	462	1,111
TOTAL	12,526	30,113

ITEM 63318-1000 MILEPOST 1-POST & HARDWARE: 2.98 kg/m

STATION	LOCATION	DESCRIPTION		QUANTITY (Ea.)	
		MILES	KILOMETERS	ENGLISH	METRIC
1+609.000	Lt. & Rt.	MP 1	1.61	2	2
3+218.000	Lt. & Rt.	MP 2	3.22	2	2
4+827.000	Lt. & Rt.	MP 3	4.83	2	2
6+436.000	Lt. & Rt.	MP 4	6.44	2	2
8+045.000	Lt. & Rt.	MP 5	8.05	2	2
9+654.000	Lt. & Rt.	MP 6	9.65	2	2
11+263.000	Lt. & Rt.	MP 7	11.26	2	2
12+872.000	Lt. & Rt.	MP 8	12.87	2	2
14+481.000	Lt. & Rt.	MP 9	14.40	2	2
16+090.000	Lt. & Rt.	MP 10	16.09	2	2
17+699.000	Lt. & Rt.	MP 11	17.70	2	2
		TOTAL		22	22

ITEM 61501-0100 PCC SIDEWALK w/CURB RAMPS

STATIONS	LOCATION	AREA(m²)	REMARKS
Turnout 15+617 South Side	Lt.	8.6	Curb Ramp
15+621.0 to 15+703.6 ±	Lt.	107.5	Sidewalk With Two Curb Ramps
Turnout 15+643 South Side	Rt.	18.0	Sidewalk With Curb Ramp
Turnout 15+643 North Side	Rt.	8.6	Curb Ramp
15+701	Rt.	7.9	Curb Ramp
Turnout 15+770 South Side	Rt.	8.6	Curb Ramp
TOTAL		159.2	

ITEM 20425-2000 FURROW DITCHES

STATION	LOCATION	LENGTH(m)
0+140	Rt.	27
0+400	Rt.	25
0+790	Rt.	30
0+860	Lt.	26
0+940	Rt.	31
1+050	Rt.	27
1+120	Lt.	23
1+160	Rt.	28
1+190	Lt.	19
1+300	Rt.	21
1+550	Lt.	15
1+720	Lt.	18
2+580	Rt.	24
2+700	Rt.	22
2+800	Rt.	22
2+813	Lt.	22
3+030	Lt.	37
3+080	Rt.	22
3+200	Lt.	28
5+135	Rt.	22
5+540	Rt.	24
5+700	Lt.	54
6+080	Lt.	57
7+585	Rt.	30
7+620	Lt.	28
7+800	Rt.	36
7+880	Lt.	33
7+960	Lt.	40
8+250	Lt.	23
8+720	Lt.	20
8+890	Lt.	51
9+250	Lt.	16
9+380	Rt.	20
9+760	Rt.	21
10+720	Rt.	20
11+000	Lt.	32
12+355	Lt.	18
16+515	Rt.	24
16+530	Lt.	28
17+535	Rt.	37
17+550	Lt.	31
17+810	Lt.	28
18+270	Rt.	30
	TOTAL	1,190

ESTIMATED CURB & GUTTER & VALLEY GUTTER

STATIONS	VERTICAL CURB (m)	ROLLED CURB (m)	VALLEY GUTTER (m)
15+532.000 to 15+555.500 Rt.		23.50	
15+555.500 to 15+567.935 Rt.	12.44		
15+567.935 to 15+599.250 Rt.		31.32	
15+599.250 to 15+630.740 Rt.	31.49		
15+630.740 to 15+655.260 Rt.			24.52
15+655.260 to 15+757.260 Rt.	102.00		
Turnout 15+643.000 Rt.	32.93		
Turnout 15+770.000 Rt.	64.40		
15+604.500 to 15+629.500 Lt.			25.00
15+629.500 to 15+703.750 Lt.	74.25		
15+703.750 to 15+726.250 Lt.		22.50	
15+726.250 to 15+748.750 Lt.	22.50		
15+748.750 to 15+772.500 Lt.		23.75	
Turnout 15+617.000 Lt.	26.84		
TOTAL	366.85	101.07	49.52

REVISED 9\8\09

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

TEMPORARY BENCH MARKS & QUANTITY TABLES

Designed by: RDL

Drawn by: BGC Date: 12-06

Revised by: Design2 Date: 01/08/10

File Name: N9010_Quantities

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	6	63

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+500.857	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+618.415	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

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+083.000	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 @ N9406			-47.000
Plus 92.0 m on N9406			+92.000
Minus 31.0 m @ 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 @ 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			-62.01
Minus (1) 7.00 m T.O. @ 35.17 m			-35.17
		SUB-TOTAL:	2,816.320
		GRAND-TOTAL:	35,951.826

ITEM 62101-0000 RIGHT OF WAY MONUMENT
ITEM 62102-0000 REFERENCE MARKER

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+543.060	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

ITEM 60101-0000 MINOR CONCRETE

LOCATION	AREA(m^3)	REMARKS
See Sheet 59 of 63 for Slope Blankets	64.60	At Cattle Passes
Turnout at Sta 15+575.195 Rt.	7.2	Fire House Turnout
Turnout at Sta 15+770.000 Rt.	27.0	North School Turnout
TOTAL	98.8	

ITEM 63401-1610 PAVEMENT MARKINGS, TYPE "H", BROKEN YELLOW

STATION TO STATION	LOCATION	DESCRIPTION	LENGTH(m)
0+130 to 2+700		Two-Way Passing	2,570
2+700 to 3+050	Lt. ?	One-Way Passing	350
3+050 to 3+250	?	Two-Way Passing	200
3+250 to 3+750	Rt. ?	One-Way Passing	500
3+750 to 4+680	?	Two-Way Passing	930
4+680 to 4+700	Rt. ?	One-Way Passing	20
4+890 to 4+910	Lt. ?	One-Way Passing	20
4+910 to 8+940	?	Two-Way Passing	4,030
8+940 to 9+000	Lt. ?	One-Way Passing	60
9+275 to 9+350	Rt. ?	One-Way Passing	75
9+350 to 10+500	?	Two-Way Passing	1,150
10+500 to 10+600	Lt. ?	One-Way Passing	100
10+960 to 11+000	Lt. ?	One-Way Passing	40
11+000 to 11+480	?	Two-Way Passing	480
11+480 to 11+600	Lt. ?	One-Way Passing	120
11+700 to 11+920	Rt. ?	One-Way Passing	220
11+920 to 15+460	?	Two-Way Passing	3,540
15+460 to 15+500	Rt. ?	One-Way Passing	40
15+940 to 16+100	Rt. ?	One-Way Passing	160
16+100 to 16+420	?	Two-Way Passing	320
16+420 to 16+590	Lt. ?	One-Way Passing	170
16+730 to 16+840	Rt. ?	One-Way Passing	110
16+840 to 18+465	?	Two-Way Passing	1,625
18+465 to 18+686	Lt. ?	One-Way Passing	221
		TOTAL	17,051

ITEM 63401-1510 PAVEMENT MARKINGS, TYPE "H", SOLID YELLOW

STATION TO STATION	LOCATION	DESCRIPTION	LENGTH(m)
0+003.287 to 0+130	Rt. & Lt. ?	Two-Way No Passing	253
2+700 to 3+050	Rt. ?	One-Way No Passing	350
3+250 to 3+750	Lt. ?	One-Way No Passing	500
4+680 to 4+700	Lt. ?	One-Way No Passing	20
4+700 to 4+890	Rt. & Lt. ?	Two-Way No Passing	380
4+890 to 4+910	Rt. ?	One-Way No Passing	20
8+940 to 9+000	Rt. ?	One-Way No Passing	60
9+000 to 9+275	Rt. & Lt. ?	Two-Way No Passing	550
9+275 to 9+350	Lt. ?	One-Way No Passing	75
10+500 to 10+600	Rt. ?	One-Way No Passing	100
10+600 to 10+960	Rt. & Lt. ?	Two-Way No Passing	720
10+960 to 11+000	Rt. ?	One-Way No Passing	40
11+480 to 11+600	Rt. ?	One-Way No Passing	120
11+600 to 11+700	Rt. & Lt. ?	Two-Way No Passing	200
11+700 to 11+920	Lt. ?	One-Way No Passing	220
15+460 to 15+500	Lt. ?	One-Way No Passing	40
15+500 to 15+940	Rt. & Lt. ?	Two-Way No Passing	880
15+940 to 16+100	Lt. ?	One-Way No Passing	160
16+420 to 16+590	Rt. ?	One-Way No Passing	170
16+590 to 16+730	Rt. & Lt. ?	Two-Way No Passing	280
16+730 to 16+840	Lt. ?	One-Way No Passing	110
18+465 to 18+686	Rt. ?	One-Way No Passing	221
		TOTAL	5,469

ITEM 63405-3260 PAVEMENT MARKINGS, "STOP BAR", TYPE "H", SOLID WHITE

STATION	LOCATION	DESCRIPTION	QUANTITY (EA.)
N9010 Stationing			
0+010	Lt.	Stop Bar	1
11+654	Lt.	Stop Bar	1
15+543	Rt.	Stop Bar	1
15+617	Lt.	Stop Bar	1
15+643	Rt.	Stop Bar	1
15+770	Rt.	Stop Bar	1
18+660	Rt.	Stop Bar	1
N9405/N9406 Stationing			
20+176	Rt.	Stop Bar	1
20+190	Lt.	Stop Bar	1
N28 Stationing			
21+010	Lt.	Stop Bar	1
		TOTAL	10

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

QUANTITY TABLES

Designed by: RDL

Drawn by: BGC Date: 12-06

Revised by: Design2 Date: 01/08/09

File Name: N9010_Quantities

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	7	63

TURNOUTS AND OTHER LOCATIONS W/CATTLE GUARDS AND GATES

STATION	LOC.	TURNOUT SIZE	CATTLE GUARD 2-UNIT	CATTLE GUARD 3-UNIT	CATTLE GUARD 4-UNIT	CATTLE GUARD 5-UNIT	TYPE I GATE (EA)	TYPE II GATE (EA)	TYPE III GATE (EA)	REMARKS
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		Temporary Easement
3+646.000	Lt.	4.5 m x 45.2 m	1					1		
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+680.000		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(m²)
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

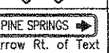
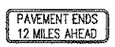
Designed by: RDL

Drawn by: BGC Date: 12-06

Revised by:Design2 Date: 01/08/09

File Name: N9010_Quantities

SIGN INSTALLATIONS

STATION	LOC.	SIGN DETAIL NO.	DESCRIPTION	SIGN PANEL SIZE (mm)	AREA OF SIGN (m^2)	NO. of POSTS	kg/m	TOTAL NO. SIGN PANELS
Place at BOP In Location Visible to Southbound N9010 Traffic	N/A	W1-7 OM4-2 OM4-2		1219 x 610 457 x 457 457 x 457	0.74 0.21 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			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.					1		1
15+300	Rt.	R2-1(25)		610 x 762	0.46	1	4.10	1
16+000	Lt.					1		1
18+640	Rt.					1		1
0+040	Rt.	Route N9010		457 x 610	0.28	1	2.98	1
4+760	Lt.	Route N9010				1		1
4+830	Rt.	Route N9010				1		1
11+570	Lt.	Route N9010				1		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

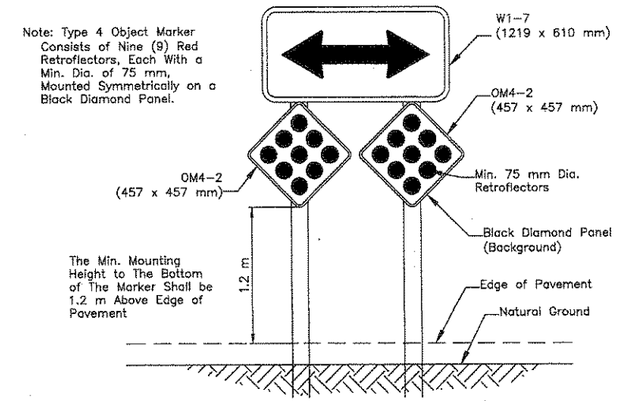
STATION	LOC.	SIGN DETAIL NO.	DESCRIPTION	SIGN PANEL SIZE (mm)	AREA OF SIGN (m^2)	NO. of POSTS	kg/m	TOTAL NO. SIGN PANELS
0+130	Rt.	W14-3		914 x 1219 x 1219	0.56	2	2.98	1
2+700	Lt.					2		1
3+750	Rt.					2		1
4+700	Lt.					2		1
4+890	Rt.					2		1
8+940	Lt.					2		1
9+350	Rt.					2		1
10+500	Lt.					2		1
10+960	Rt.					2		1
11+480	Lt.					2		1
11+920	Rt.					2		1
15+500	Lt.					2		1
16+100	Rt.					2		1
16+420	Lt.					2		1
16+840	Rt.					2		1
18+465	Lt.					2		1
3+050	Rt.	R4-2		610 x 762	0.46	1	4.10	1
3+250	Lt.					1		1
4+680	Lt.					1		1
4+910	Rt.					1		1
9+000	Lt.					1		1
9+275	Rt.					1		1
10+600	Lt.					1		1
11+000	Rt.					1		1
11+600	Lt.					1		1
11+700	Rt.					1		1
15+460	Lt.					1		1
15+940	Rt.					1		1
16+590	Lt.					1		1
16+730	Rt.					1		1
18+670	Lt.					1		1
15+150	Rt.	W3-5		914 x 914	0.84	2	2.98	1
16+150	Lt.					2		1
18+350	Rt.					2		1
15+530	Rt.	S1-1 W16-9p		914 x 914 914 x 508	0.84 0.46	2 2	4.10	2 2
15+830	Lt.							
15+560	Rt.	W11-8		762 x 762	0.58	2	2.98	2
15+585	Lt.					2		2
18+686	Rt.	W8-3		762 x 762	0.58	2	2.98	1
18+535	Rt.	W8-3 W16-2a		762 x 762 610 x 305	0.58 0.19	2	2.98	2
18+230	Rt.	W8-3 W16-2a		762 x 762 610 x 305	0.58 0.19	2	2.98	2
N9405/N9406 STATIONING								
20+176	Rt.	R1-1		914 x 914	0.84	2	2.98	1
20+190	Lt.					2		1
20+060	Rt.	W3-1a		762 x 762	0.58	2	2.98	1
20+320	Lt.					2		1
20+135	Lt.	Route N9405		457 x 610	0.28	1	2.98	1
20+240	Rt.	Route N9406				1		1

SIGN	DIMENSION (mm)					F NUMERALS				
	A	B	C	D	E	DIGITS IN ROUTE	1	2	3	4
MIN.	610	457	13	495	343	SIZE & SERIES (mm)	370	296	237	198

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	8	63

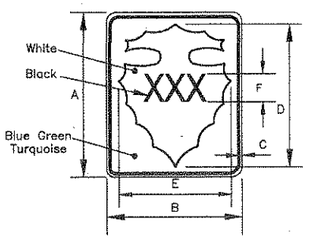
STATION	LOC.	SIGN DETAIL NO.	DESCRIPTION	SIGN PANEL SIZE (mm)	AREA OF SIGN (m^2)	NO. of POSTS	kg/m	TOTAL NO. SIGN PANELS
N28 STATIONING								
21+010	Lt.	R1-1		914 x 914	0.84	2	2.98	1
21+100	Lt.	W3-1a		762 x 762	0.58	2	2.98	1
21+055	Lt.	M6-4 Route No.		533 x 381 457 x 610	0.20 0.28	1	2.98	2
21+025	Rt.	D-3 Route No.		1067 x 439 457 x 610	0.47 0.28	2	2.98	2
21+030	Lt.	M6-1(R) M1-5b		533 x 381 762 x 610	0.20 0.46	1	4.10	2
21+030	Lt.	M6-1(L) M1-1		533 x 381 610 x 610	0.20 0.37	1	4.10	2

63302:-0001 Sign Installation, 1-POST, 2.98 kg/m	TOTAL	2.44 m^2
63302-0003 Sign Installation, 1-POST, 4.10 kg/m	TOTAL	20.55 m^2
63302-0010 Sign Installation, 2-POSTS, 2.98 kg/m	TOTAL	34.02 m^2
63302-0012 Sign Installation, 2-POSTS, 4.10 kg/m	TOTAL	2.60 m^2



PERMANENT BARRICADE SIGN

Intersection of N9010 with County Rd 7250



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

ROADWAY SIGN SUMMARY AND DETAILS

Designed by: RDL	
Drawn by: BGC	Date: 12-06
Revised by: RDL&Design2	Date:04/07,01/09
File Name: N9010_Quantities	

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	9	63

ESTIMATED DRAINAGE STRUCTURE QUANTITIES

STATION	Ha	STRUCTURE DESCRIPTION	SKEW NO	Placed Riprap, Class 2	Grouted Riprap, Class 2	Minor Concrete	25101-2000 610 mm CSPC-1.63 mm Thickness	25110-2000 67.7 mm x 12.7 mm Corrugation 762 mm CSPC-1.63 mm Thickness	60101-0000 67.7 mm x 12.7 mm Corrugation 914 mm CSPC-1.63 mm Thickness	60201-0810 67.7 mm x 12.7 mm Corrugation 2134 mm CSPC-1.63 mm Thickness	60201-0910 67.7 mm x 12.7 mm Corrugation 711 mm x 508 mm CSPA-1.63mm Thickness	60201-1010 67.7 mm x 12.7 mm Corrugation 868 mm x 610 mm CSPA-1.63mm Thickness	60201-1810 67.7 mm x 12.7 mm Corrugation 1067 mm x 737 mm CSPA-1.63mm Thickness	60202-0510 End Section For 610 mm CSPC * 1.63 mm Thickness	60202-0610 End Section For 762 mm CSPC * 2.01 mm Thickness	60202-0710 End Section For 914 mm CSPC * 2.01 mm Thickness	60210-0810 End Section For 711 mm x 508 mm CSPA * 1.63 mm Thickness	60210-0910 End Section For 868 mm x 610 mm CSPA * 2.01 mm Thickness	60210-1010 End Section For 1067 mm x 737 mm CSPA * 2.01 mm Thickness	60211-0910	60211-1010	60211-1110
				m	m	m	m	m	m	m	m	m	m	m	Ea.	Ea.	Ea.	Ea.	Ea.	Ea.			
0+068.000 Lt.	N/A	1-711 mm x 508 mm x 13.42 m CSPA	N/A								13.42							2				
0+285.000	8.1	1-610 mm x 21.96 m CSPC	90°				21.96								1							
0+615.000 Rt.	N/A	1-610 mm x 12.20 m CSPC	N/A				12.20								2							
0+615.000 Lt.	N/A	1-711 mm x 508 mm x 10.98 m CSPA	N/A	5.0							10.98							2				
0+980.000	2.9	1-610 mm x 21.96 m CSPC	90°				21.96								1							
1+436.000 Rt.	N/A	1-610 mm x 12.20 m CSPC	N/A				12.20								2							
1+610.000	9.6	1-2134 mm x 28.06 m CSPC Cattle Pass	90°		8.3	14.9				28.06												
2+013.000	6.1	1-610 mm x 28.67 m CSPC	90°				28.67								1							
2+195.000	1.5	1-610 mm x 37.21 m CSPC	40°				37.21								1							
2+393.000	7.6	1-711 mm x 508 mm x 38.43 m CSPA	30°								38.43							1				
3+308.000	4.4	1-610 mm x 20.13 m CSPC	90°				20.13								1							
3+435.000 Rt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A								11.59							2				
3+646.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A								11.59							2				
3+792.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A								11.59							2				
4+090.000	134.8	3-610 mm x 24.40 m CSPC	90°	20.1			73.20								3							
4+165.000	44.9	2-610 mm x 26.23 m CSPC	90°	15.2			52.46								2							
4+247.000	6.6	1-2134 mm x 29.89 m CSPC Cattle Pass	65°		8.3	17.6				29.89												
5+106.000 Lt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A								11.59							2				
5+234.000 Rt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A	5.0							11.59							2				
5+862.500	11.5	1-762 mm x 26.23 m CSPC	130°	11.3				26.23								1						
6+033.000 Rt.	N/A	1-610 mm x 12.81 m CSPC	N/A	5.0			12.81								2							
6+457.000 Rt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A								11.59							2				
6+457.000 Lt.	N/A	1-610 mm x 12.20 m CSPC	N/A				12.20								2							
6+780.000	2.2	1-610 mm x 34.16 m CSPC	140°	8.5			34.16								1							
6+962.000 Rt.	N/A	1-711 mm x 508 mm x 11.59 m CSPA	N/A	5.0							11.59							2				
6+962.000 Lt.	N/A	1-610 mm x 11.59 m CSPC	N/A	5.0			11.59								2							
7+083.000	0.6	1-610 mm x 35.99 m CSPC	140°	7.7			35.99								1							
7+345.000	1.1	1-610 mm x 30.50 m CSPC	125°	5.2			30.50								1							
8+520.000	1.5	1-2134 mm x 32.94 m CSPC Cattle Pass	60°		12.4	19.6				32.94												
9+563.000	0.5	1-610 mm x 26.84 m CSPC	100°	7.0			26.84								1							
9+665.000	0.5	1-610 mm x 23.18 m CSPC	92°	6.3			23.18								1							
9+960.000	0.3	1-610 mm x 27.45 m CSPC	90°	6.0			27.45								1							
10+018.000	0.2	1-610 mm x 31.72 m CSPC	55°	5.5			31.72								1							
11+110.000	1.6	1-610 mm x 28.23 m CSPC	70°	6.4			26.23								1							
11+965.000	4.6	1-610 mm x 25.01 m CSPC	90°	8.4			25.01								1							
12+499.000	11.3	2-610 mm x 21.96 m CSPC	90°	12.8			43.92								2							
12+905.000	53.5	2-610 mm x 25.01 m CSPC	90°	15.2			50.02								2							
		SUBTOTAL		160.6	29.0	52.1	671.61	26.23	0	90.89	143.96	0	0	33	1	0	19	0	0			

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

ITEM 60701-1000 REMOVE, CLEAN & STOCKPILE EXISTING CULVERTS

LOCATION	SIZE (m)	REMARKS
4+227, 38.7 Lt.	1-914 mm x 12.2 m	Remove and Salvage Existing CSPC
12+498	1-610 mm x 9.6 m	Remove and Salvage Existing CSPC
12+880	1-610 mm x 8.0 m	Remove and Salvage Existing CSPC
13+163	1-914 mm x 8.8 m	Remove and Salvage Existing CSPC
13+383, 10.6 Lt.	1-610 mm x 8.0 m	Remove and Salvage Existing CSPC
13+995 21.6 Rt.	1-610 mm x 9.5 m	Remove and Salvage Existing CSPC
14+527	1-914 mm x 9.0 m	Remove and Salvage Existing CSPC
14+834	1-914 mm x 9.5 m	Remove and Salvage Existing CSPC
15+782	1-610 mm x 9.6 m	Remove and Salvage Existing CSPC
16+901, 6.6 Lt.	1-610 mm x 8.9 m	Remove and Salvage Existing CSPC
17+125, 9.1 Lt.	1-610 mm x 9.3 m	Remove and Salvage Existing CSPC
17+755	1-762 mm x 9.2 m	Remove and Salvage Existing CSPC
N9405/N9406 Stationing		
20+105, 8.7 Rt.	1-610 mm x 11.7 m	Remove and Salvage Existing CSPC
TOTAL	123.3 m	

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

Revised 06-09-10

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	Date: 12-06
Revised by:DESIGN2	Date: 01/08/09
File Name: N9010_Quantities	

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

ESTIMATED DRAINAGE STRUCTURE QUANTITIES

STATION	Ha	STRUCTURE DESCRIPTION	SKEW NO.	ITEM NO.	25101-2000	25110-2000	60101-0000	60201-0810	60201-0910	60201-1010	60201-1810	60202-0510	60202-0610	60202-0710	60210-0810	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 67.7 mm x 12.7 mm Corrugation	914 mm CSPC-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation	2134 mm CSPC-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation	711 mm x 508 mm CSPA-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation	889 mm x 508 mm CSPA-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation	1067 mm x 610 mm CSPA-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation	1067 mm x 737 mm CSPA-1.63 mm Thickness 67.7 mm x 12.7 mm Corrugation	End Section For 610 mm CSPC * 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 x 508 mm CSPA * 2.01 mm Thickness	End Section For 889 mm x 610 mm CSPA * 2.01 mm Thickness	End Section For 1067 mm x 737 mm CSPA * 2.01 mm Thickness
					m	m	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								1	
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	

* 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 06-09-10

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	Date: 12-06
Revised by: Design2	Date: 01/22/09
File Name: N9010_Quantities	

SUPERELEVATION GRADE TABULATIONS

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	11	63

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

C1 Degree : 03°59'55" Radius : 436.743 m
Full Super Rate : Normal Crown

C2 Degree : 00°59'59" Radius : 1746.976 m
Tangent Runout Back : 14.000 Tangent Runout Ahead : 14.000
Runoff Length Back : 14.000 Runoff Length ahead : 14.000
Transition Length Back : 28.000 Transition Length ahead : 28.000
Full Super Rate : RC

Transition Station	Station	%e Left	%e Right
Normal Crown	1+356.023	–2.000%	–2.000%
0% Super	1+370.023	–2.000%	0.000%
PC 2	1+379.403	–2.000%	1.304%
Full Super	1+384.023	–2.000%	2.000%
Full Super	1+599.852	–2.000%	2.000%
PT 2	1+604.472	–2.000%	1.304%
0% Super	1+613.852	–2.000%	0.000%
Normal Crown	1+627.852	–2.000%	–2.000%

C3 Degree : 01°59'58" Radius : 873.487 m
Tangent Runout Back : 14.810 Tangent Runout Ahead : 14.810
Runoff Length Back : 20.000 Runoff Length ahead : 20.000
Transition Length Back : 34.810 Transition Length ahead : 34.810
Full Super Rate : 2.700%

Transition Station	Station	%e Left	%e Right
Normal Crown	2+289.343	–2.000%	–2.000%
0% Super	2+304.153	0.000%	–2.000%
PC 3	2+317.553	1.809%	–2.000%
Reverse Crown	2+318.963	2.000%	–2.000%
Full Super	2+324.153	2.700%	–2.700%
Full Super	2+501.816	2.700%	–2.700%
Reverse Crown	2+507.006	2.000%	–2.000%
PT 3	2+508.416	1.809%	–2.000%
0% Super	2+521.816	0.000%	–2.000%
Normal Crown	2+536.626	–2.000%	–2.000%

C4 Degree : 02°59'56" Radius : 582.325 m
Tangent Runout Back : 15.000 Tangent Runout Ahead : 15.000
Runoff Length Back : 24.000 Runoff Length ahead : 24.000
Transition Length Back : 39.000 Transition Length ahead : 39.000
Full Super Rate : 3.200%

Transition Station	Station	%e Left	%e Right
Normal Crown	3+251.234	–2.000%	–2.000%
0% Super	3+266.234	–2.000%	0.000%
Reverse Crown	3+281.234	–2.000%	2.000%
PC 4	3+282.314	–2.144%	2.144%
Full Super	3+290.234	–3.200%	3.200%
Full Super	3+574.671	–3.200%	3.200%
PT 4	3+582.591	–2.144%	2.144%
Reverse Crown	3+583.671	–2.000%	2.000%
0% Super	3+598.671	–2.000%	0.000%
Normal Crown	3+613.671	–2.000%	–2.000%

C5 Degree : 03°29'34" Radius : 500.000 m
Full Super Rate : Normal Crown

C6 Degree : 00°29'59" Radius : 3493.951 m
Full Super Rate : Normal Crown

C7 Degree : 01°29'58" Radius : 1164.651 m
Tangent Runout Back : 14.780 Tangent Runout Ahead : 14.780
Runoff Length Back : 17.000 Runoff Length ahead : 17.000
Transition Length Back : 31.780 Transition Length ahead : 31.780
Full Super Rate : 2.300%

Transition Station	Station	%e Left	%e Right
Normal Crown	6+723.235	–2.000%	–2.000%
0% Super	6+738.015	0.000%	–2.000%
PC 7	6+749.405	1.541%	–2.000%
Reverse Crown	6+752.795	2.000%	–2.000%
Full Super	6+755.015	2.300%	–2.300%
Full Super	6+865.798	2.300%	–2.300%
Reverse Crown	6+868.018	2.000%	–2.000%
PT 7	6+871.408	1.541%	–2.000%
0% Super	6+882.798	0.000%	–2.000%
Normal Crown	6+897.578	–2.000%	–2.000%

C8 Degree : 02°29'57" Radius : 698.790 m
Tangent Runout Back : 14.670 Tangent Runout Ahead : 14.670
Runoff Length Back : 22.000 Runoff Length ahead : 22.000
Transition Length Back : 36.670 Transition Length ahead : 36.670
Full Super Rate : 3.000%

Transition Station	Station	%e Left	%e Right
Normal Crown	7+260.287	–2.000%	–2.000%
0% Super	7+274.957	0.000%	–2.000%
Reverse Crown	7+289.627	2.000%	–2.000%
PC 8	7+289.697	2.010%	–2.010%
Full Super	7+296.957	3.000%	–3.000%
Full Super	7+577.363	3.000%	–3.000%
PT 8	7+584.623	2.010%	–2.010%
Reverse Crown	7+584.693	2.000%	–2.000%
0% Super	7+598.363	0.000%	–2.000%
Normal Crown	7+614.033	–2.000%	–2.000%

C9 Degree : 03°59'55" Radius : 436.744 m
Tangent Runout Back : 15.000 Tangent Runout Ahead : 15.000
Runoff Length Back : 27.000 Runoff Length ahead : 27.000
Transition Length Back : 42.000 Transition Length ahead : 42.000
Full Super Rate : 3.600%

Transition Station	Station	%e Left	%e Right
Normal Crown	8+987.744	–2.000%	–2.000%
0% Super	9+002.744	–2.000%	0.000%
Reverse Crown	9+017.744	–2.000%	2.000%
PC 9	9+020.834	–2.412%	2.412%
Full Super	9+029.744	–3.600%	3.600%
Full Super	9+280.493	–3.600%	3.600%
PT 9	9+289.403	–2.412%	2.412%
Reverse Crown	9+292.493	–2.000%	2.000%
0% Super	9+307.493	–2.000%	0.000%
Normal Crown	9+322.493	–2.000%	–2.000%

C10 Degree : 02°29'57" Radius : 698.790 m
Tangent Runout Back : 14.670 Tangent Runout Ahead : 14.670
Runoff Length Back : 22.000 Runoff Length ahead : 22.000
Transition Length Back : 36.670 Transition Length ahead : 36.670
Full Super Rate : 3.000%

Transition Station	Station	%e Left	%e Right
Normal Crown	10+016.449	–2.000%	–2.000%
0% Super	10+031.119	–2.000%	0.000%
Reverse Crown	10+045.789	–2.000%	2.000%
PC 10	10+045.859	–2.010%	2.010%
Full Super	10+053.119	–3.000%	3.000%
Full Super	10+215.141	–3.000%	3.000%
PT 10	10+222.401	–2.010%	2.010%
Reverse Crown	10+222.471	–2.000%	2.000%
0% Super	10+237.141	–2.000%	0.000%
Normal Crown	10+251.811	–2.000%	–2.000%

C11 Degree : 05°49'09" Radius : 300.102 m
Tangent Runout Back : 14.500 Tangent Runout Ahead : 14.500
Runoff Length Back : 29.000 Runoff Length ahead : 29.000
Transition Length Back : 43.500 Transition Length ahead : 43.500
Full Super Rate : 4.000%

Transition Station	Station	%e Left	%e Right
Normal Crown	10+598.326	–2.000%	–2.000%
0% Super	10+612.826	0.000%	–2.000%
Reverse Crown	10+627.326	2.000%	–2.000%
PC 11	10+632.256	2.680%	–2.680%
Full Super	10+641.826	4.000%	–4.000%
Full Super	10+837.361	4.000%	–4.000%
PT 11	10+846.931	2.680%	–2.680%
Reverse Crown	10+851.861	2.000%	–2.000%
0% Super	10+866.361	0.000%	–2.000%
Normal Crown	10+880.861	–2.000%	–2.000%

C12 Degree : 01°59'58" Radius : 873.486 m
Tangent Runout Back : 14.810 Tangent Runout Ahead : 14.810
Runoff Length Back : 20.000 Runoff Length ahead : 20.000
Transition Length Back : 34.810 Transition Length ahead : 34.810
Full Super Rate : 2.700%

Transition Station	Station	%e Left	%e Right
Normal Crown	10+943.056	–2.000%	–2.000%
0% Super	10+957.866	–2.000%	0.000%
PC 12	10+971.266	–2.000%	1.809%
Reverse Crown	10+972.676	–2.000%	2.000%
Full Super	10+977.866	–2.700%	2.700%
Full Super	11+173.352	–2.700%	2.700%
Reverse Crown	11+178.542	–2.000%	2.000%
PT 12	11+179.952	–2.000%	1.809%
0% Super	11+193.352	–2.000%	0.000%
Normal Crown	11+208.162	–2.000%	–2.000%

C13 Degree : 05°19'21" Radius : 328.112 m
Tangent Runout Back : 14.870 Tangent Runout Ahead : 14.870
Runoff Length Back : 29.000 Runoff Length ahead : 29.000
Transition Length Back : 43.870 Transition Length ahead : 43.870
Full Super Rate : 3.900%

Transition Station	Station	%e Left	%e Right
Normal Crown	11+571.768	–2.000%	–2.000%
0% Super	11+586.638	0.000%	–2.000%
Reverse Crown	11+601.508	2.000%	–2.000%
PC 13	11+606.068	2.613%	–2.613%
Full Super	11+615.638	3.900%	–3.900%
Full Super	11+764.101	3.900%	–3.900%
PT 13	11+773.671	2.613%	–2.613%
Reverse Crown	11+778.231	2.000%	–2.000%
0% Super	11+793.101	0.000%	–2.000%
Normal Crown	11+807.971	–2.000%	–2.000%

C14 Degree : 00°59'59" Radius : 1746.972 m
Tangent Runout Back : 14.000 Tangent Runout Ahead : 14.000
Runoff Length Back : 14.000 Runoff Length ahead : 14.000
Transition Length Back : 28.000 Transition Length ahead : 28.000
Full Super Rate : RC

Transition Station	Station	%e Left	%e Right
Normal Crown	12+578.342	–2.000%	–2.000%
0% Super	12+592.342	0.000%	–2.000%
PC 14	12+601.722	1.304%	–2.000%
Full Super	12+606.342	2.000%	–2.000%
Full Super	12+685.060	2.000%	–2.000%
PT 14	12+689.680	1.304%	–2.000%
0% Super	12+699.060	0.000%	–2.000%
Normal Crown	12+713.060	–2.000%	–2.000%

C15 Degree : 00°59'59" Radius : 1746.972 m
Tangent Runout Back : 14.000 Tangent Runout Ahead : 14.000
Runoff Length Back : 14.000 Runoff Length ahead : 14.000
Transition Length Back : 28.000 Transition Length ahead : 28.000
Full Super Rate : RC

Transition Station	Station	%e Left	%e Right
Normal Crown	13+005.554	–2.000%	–2.000%
0% Super	13+019.554	–2.000%	0.000%
PC 15	13+028.934	–2.000%	1.304%
Full Super	13+033.554	–2.000%	2.000%
Full Super	13+308.657	–2.000%	2.000%
PT 15	13+313.277	–2.000%	1.304%
0% Super	13+322.657	–2.000%	0.000%
Normal Crown	13+336.657	–2.000%	–2.000%

C16 Degree : 00°29'59" Radius : 3493.951 m
Full Super Rate : Normal Crown

C17 Degree : 17°27'28" Radius : 100.034 m
Full Super Rate : Normal Crown

C18 Degree : 20°17'59" Radius : 86.029 m
Full Super Rate : Normal Crown

C19 Degree : 12°59'44" Radius : 134.383 m
Full Super Rate : Normal Crown

C20 Degree : 00°29'59" Radius : 3493.944 m
Full Super Rate : Normal Crown

C21 Degree : 02°29'57" Radius : 698.789 m
Tangent Runout Back : 14.670 Tangent Runout Ahead : 14.670
Runoff Length Back : 22.000 Runoff Length ahead : 22.000
Transition Length Back : 36.670 Transition Length ahead : 36.670
Full Super Rate : 3.000%

Transition Station	Station	%e Left	%e Right
Normal Crown	18+279.079	–2.000%	–2.000%
0% Super	18+293.749	0.000%	–2.000%
Reverse Crown	18+308.419	2.000%	–2.000%
PC 21	18+308.489	2.010%	–2.010%
Full Super	18+315.749	3.000%	–3.000%
Full Super	18+432.551	3.000%	–3.000%
PT 21	18+439.811	2.010%	–2.010%
Reverse Crown	18+439.881	2.000%	–2.000%
0% Super	18+454.551	0.000%	–2.000%
Normal Crown	18+469.221	–2.000%	–2.000%

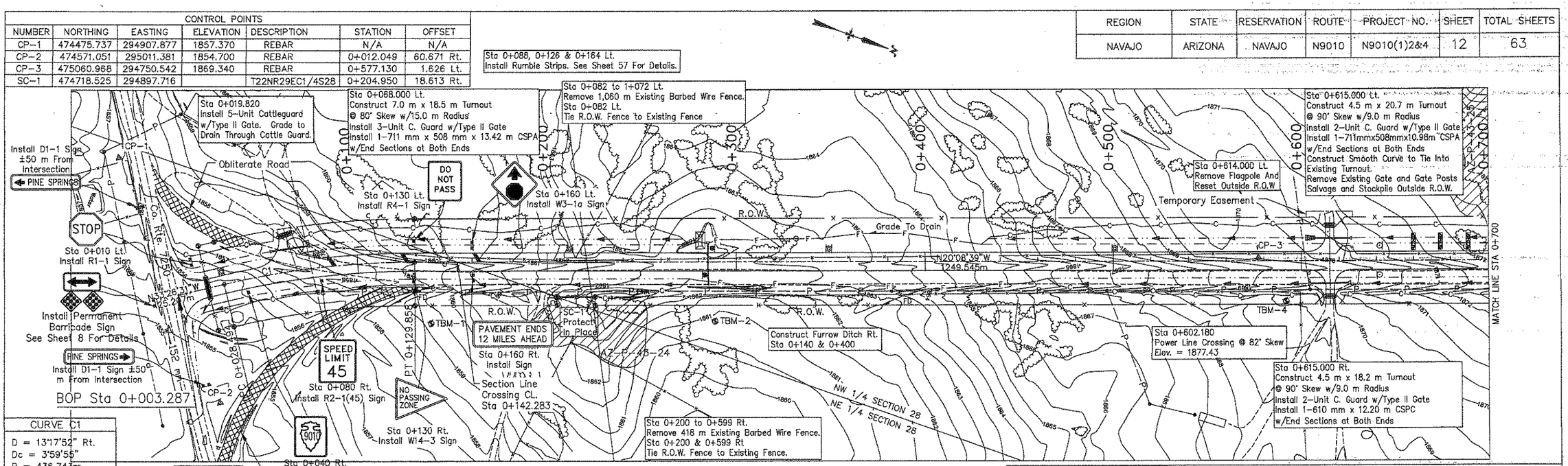
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

SUPERELEVATION DATA

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

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

CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-1	474475.737	294907.877	1857.370	REBAR	N/A	N/A
CP-2	474571.051	295011.381	1854.700	REBAR	0+012.049	60.671 Rt.
CP-3	475060.968	294750.542	1869.340	REBAR	0+577.130	1.626 Lt.
SC-1	474718.525	294897.716		T22NR29EC1/4S28	0+204.950	18.613 Rt.



CURVE C1
D = 13°17'52" Rt.
Dc = 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

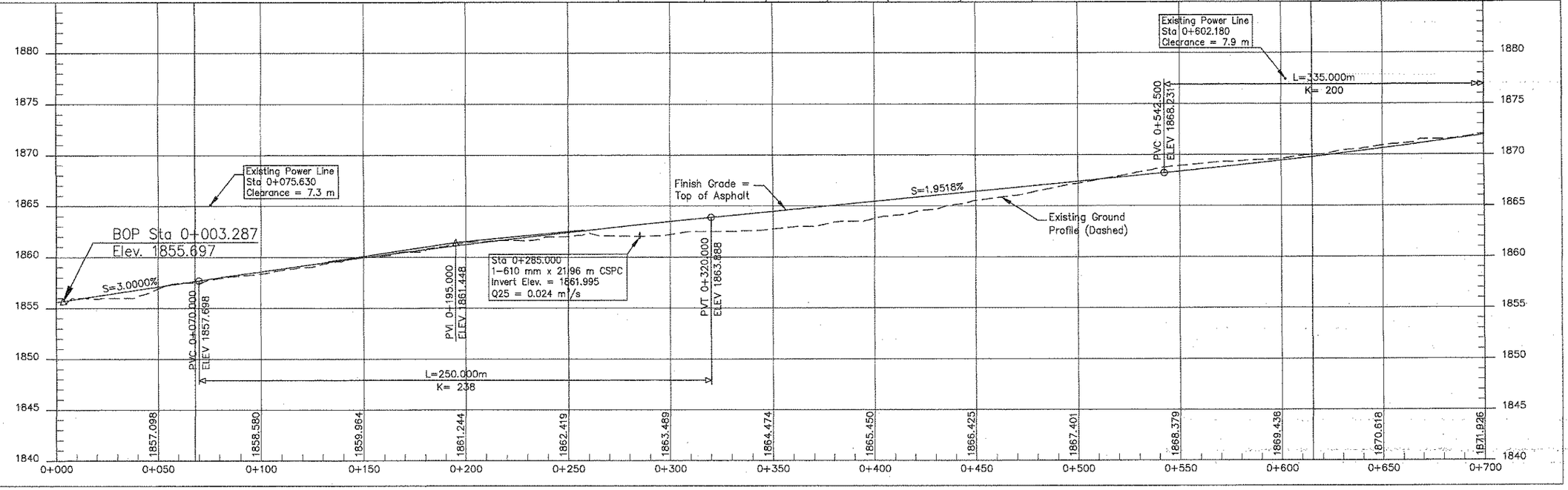
LEGEND

CULTURAL RESOURCE SITES

SCALE 10 0 10 20 30 40 50 (METRIC) 1: 1000

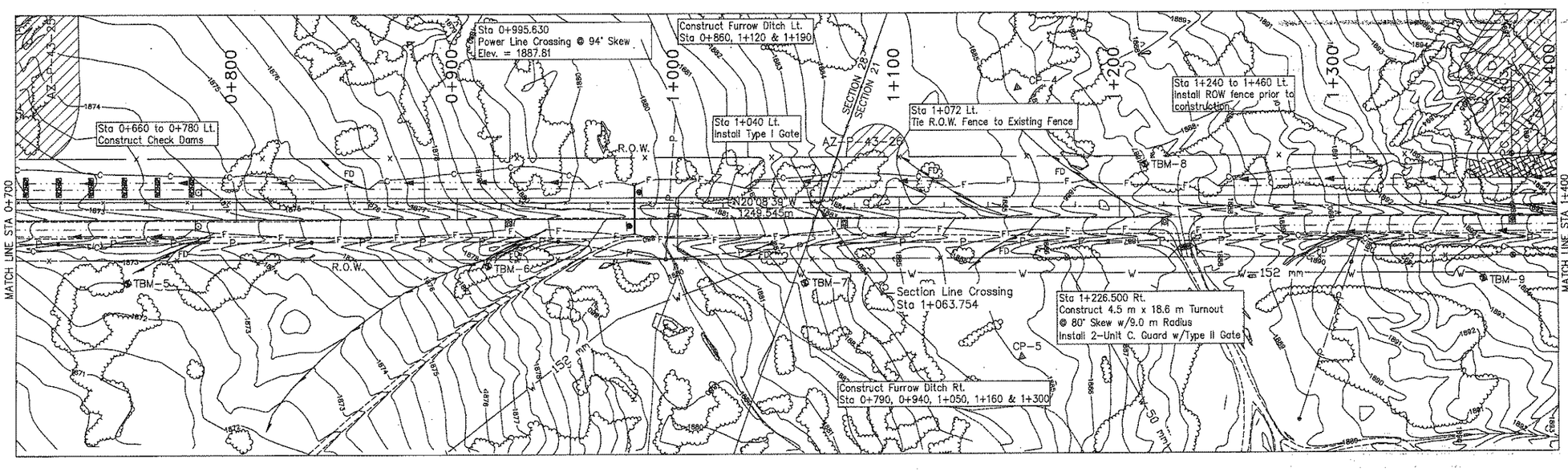
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	2	5	2	10

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
0+068.000 Lt.	1-711 mm x 508 mm x 13.42 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends
0+285.000	1-610 mm x 21.96 m CSPC	90°	8.1	End Section and Ditch Block at Inlet
0+615.000 Rt.	1-610 mm x 12.20 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends
0+615.000 Lt.	1-711 mm x 508 mm x 10.98 m CSPA	N/A	N/A	Under Turnout. Placed Riprap at Outlet End Sections Both Ends



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.

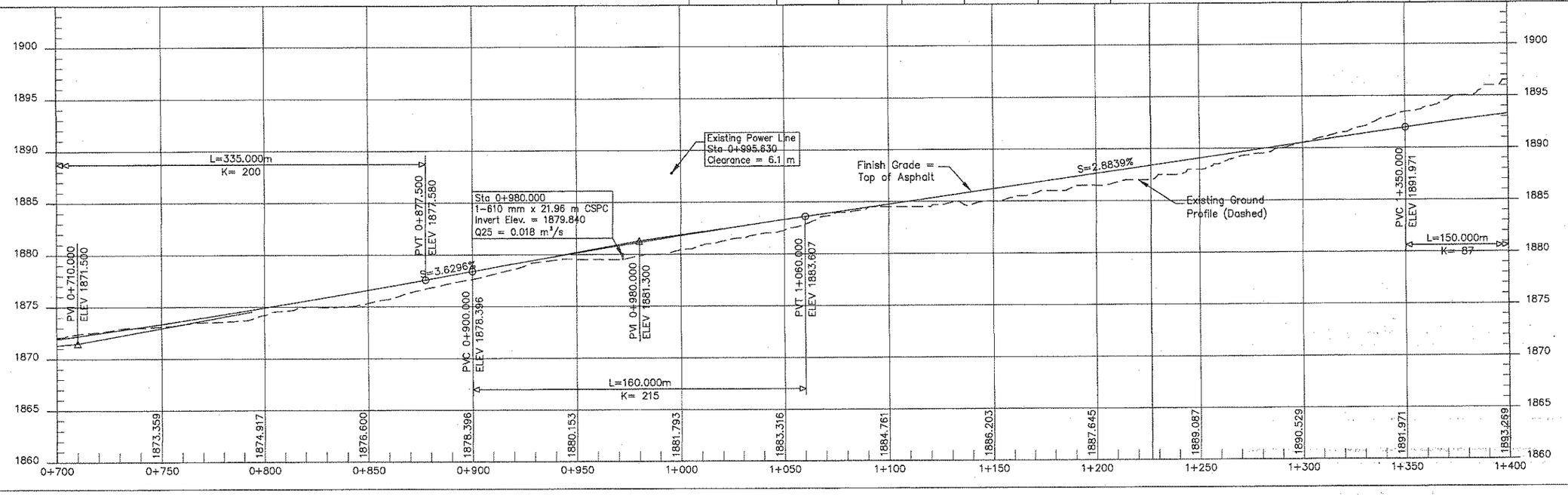
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	13	63



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

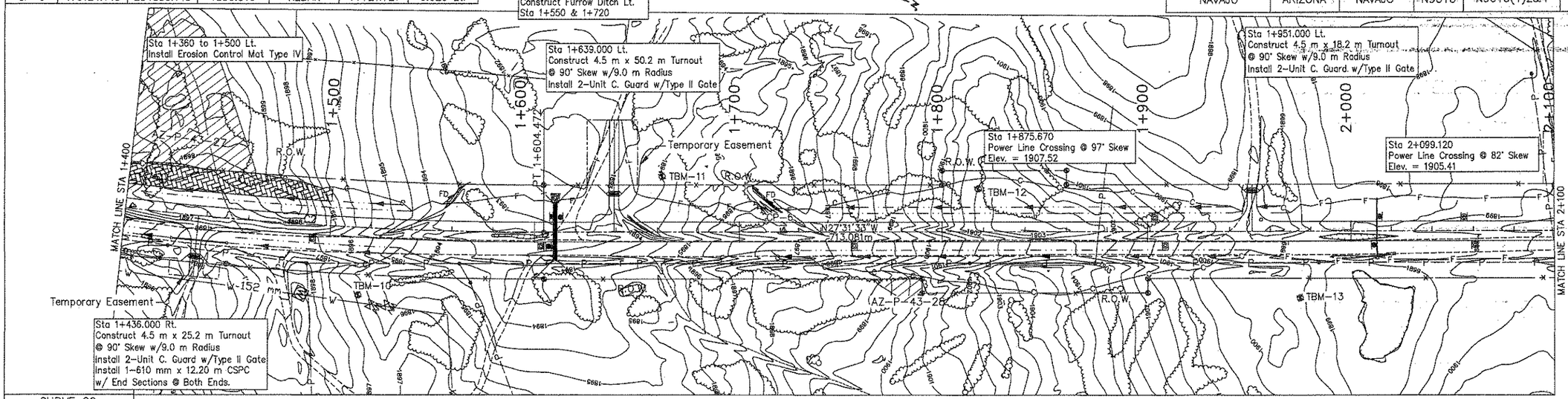
DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
0+980.000	1-610 mm x 21.96 m CSPC	90°	2.9	End Section at Inlet

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000



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

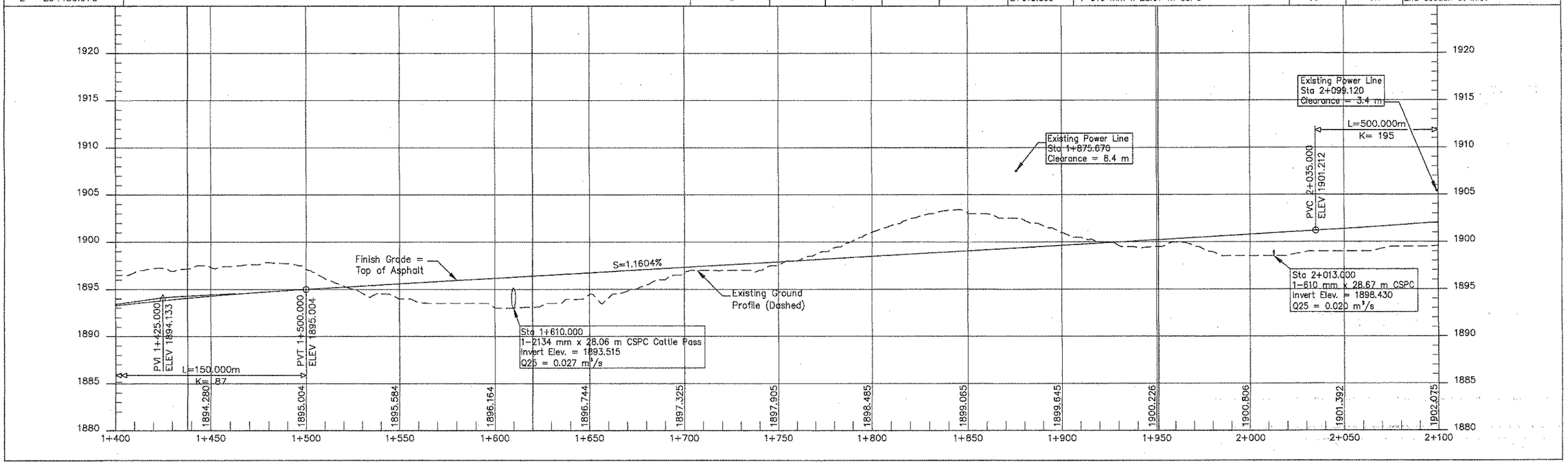


CURVE C2
D = 7°22'54" Lt.
Dc =0°59'59"
R = 1746.976m
T = 112.691m
L = 225.069m
e = RC
PI
Sta = 1+492.093
N = 475920.521
E = 294436.970

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	7	4	10

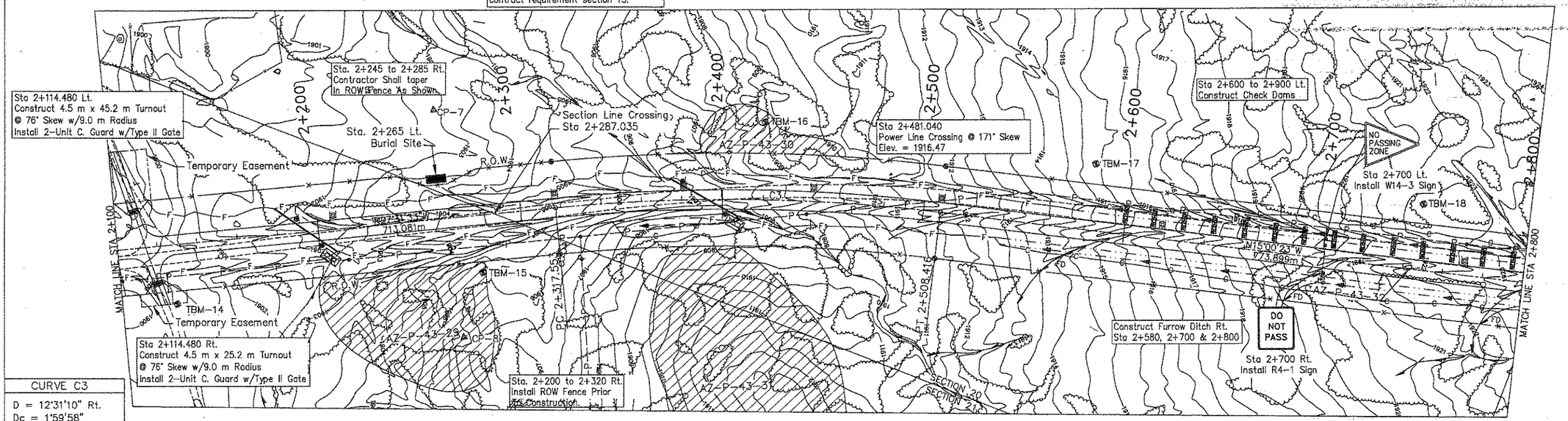
DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
1+436.000 Rt.	1-610 mm x 12.20 m CSPC	N/A	N/A	Under Turnout. End Sections Both Ends
1+610.000	1-2134 mm x 28.06 m CSPC Cattle Pass	90°	9.6	Concrete Slope Blankets @ Both Ends & Grouted Riprap @ Outlet
2+013.000	1-610 mm x 28.67 m CSPC	90°	6.1	End Section at Inlet



CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-7	476578.611	294033.016	1902.970	REBAR	2+262.064	54.091 Lt.
CP-8	476634.693	294131.862	1906.380	REBAR	2+266.115	59.485 Rt.

Sta. 2+255 to 2+271 Install temporary plastic fence 4.5m in from R/W line. Install temp & permanent R/W fence prior to any construction. See special contract requirement section 15.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	15	63

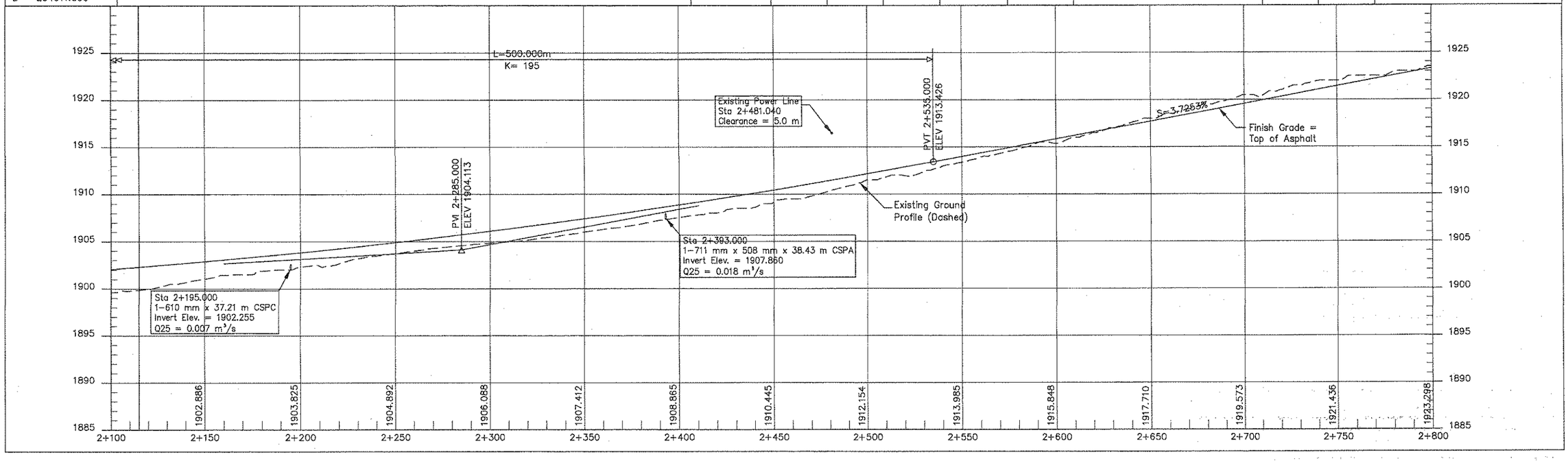


CURVE C3
D = 12°31'10" Rt.
Dc = 1°59'58"
R = 873.487m
T = 95.813m
L = 190.862m
e = 2.700%
PI
Sta = 2+413.366
N = 476737.785
E = 294011.060

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

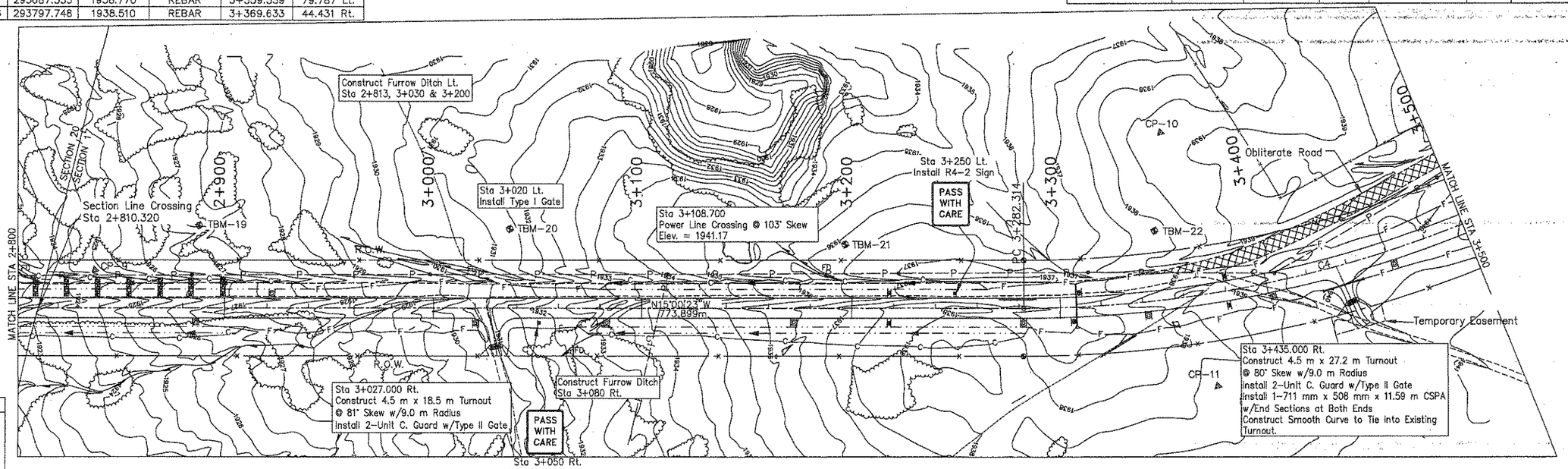
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	0	7	4	4

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
2+195.000	1-610 mm x 37.21 m CSPC	40°	1.5	End Section & Ditch Block at Inlet
2+393.000	1-711 mm x 508 mm x 38.43 m CSPA	30°	7.6	End Section & Ditch Block 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

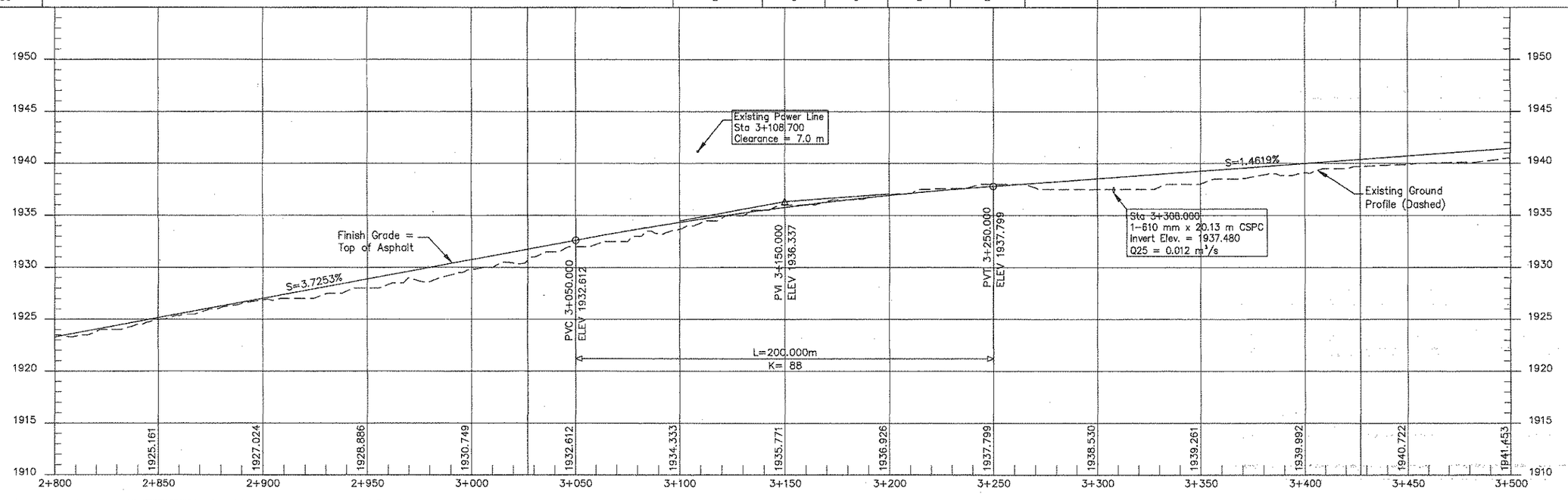


CURVE C4
D = 29°32'41" Lt.
Dc = 2°59'56"
R = 582.325m
T = 153.556m
L = 300.277m
e = 3.200%
PI
Sta = 3+435.870
N = 477726.155
E = 293746.109

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

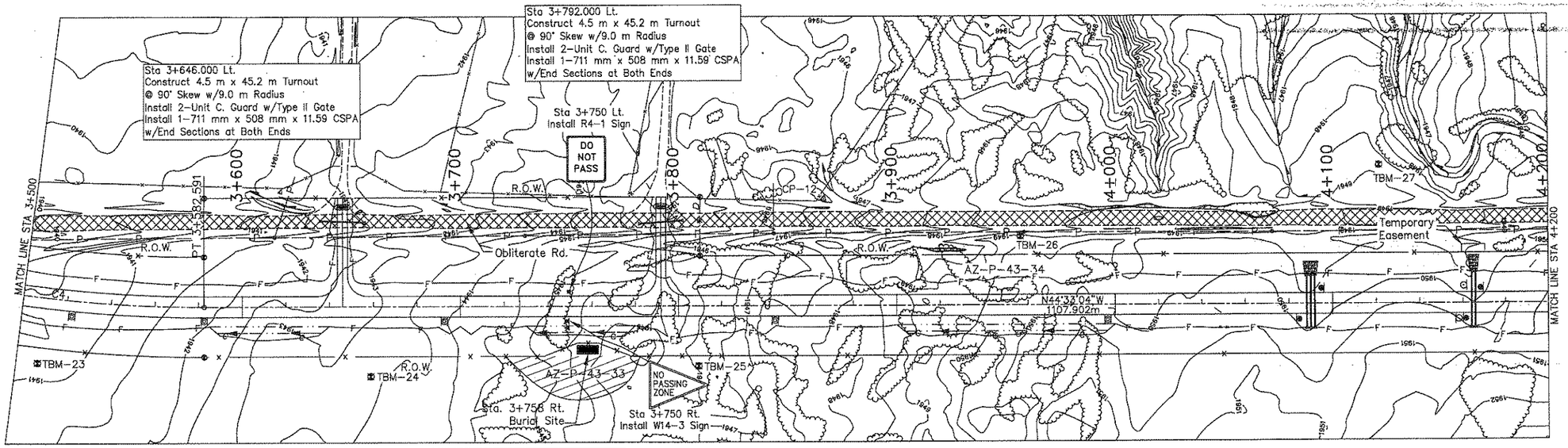
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF–WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	9	2	2

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
3+308.000	1–610 mm x 20.13 m CSPC	90°	4.4	End Section at Inlet
3+435.000 Rt.	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	OFFSET
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



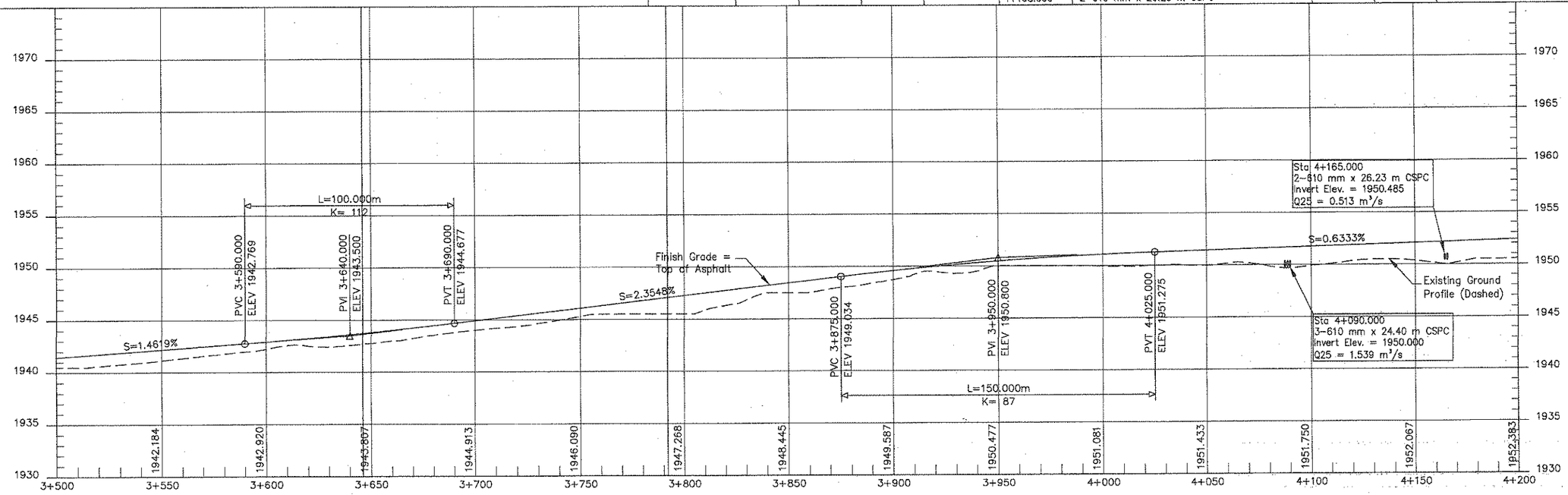
Sta. 3+738 to 3+778 Rt. Contractor Shall Taper in ROW Fence As Shown.

Sta. 3+740 to 3+758 Install temporary plastic fence 4.5m in from R/W line. Install temp & permanent R/W fence prior to any construction.

(METRIC) 1: 1000

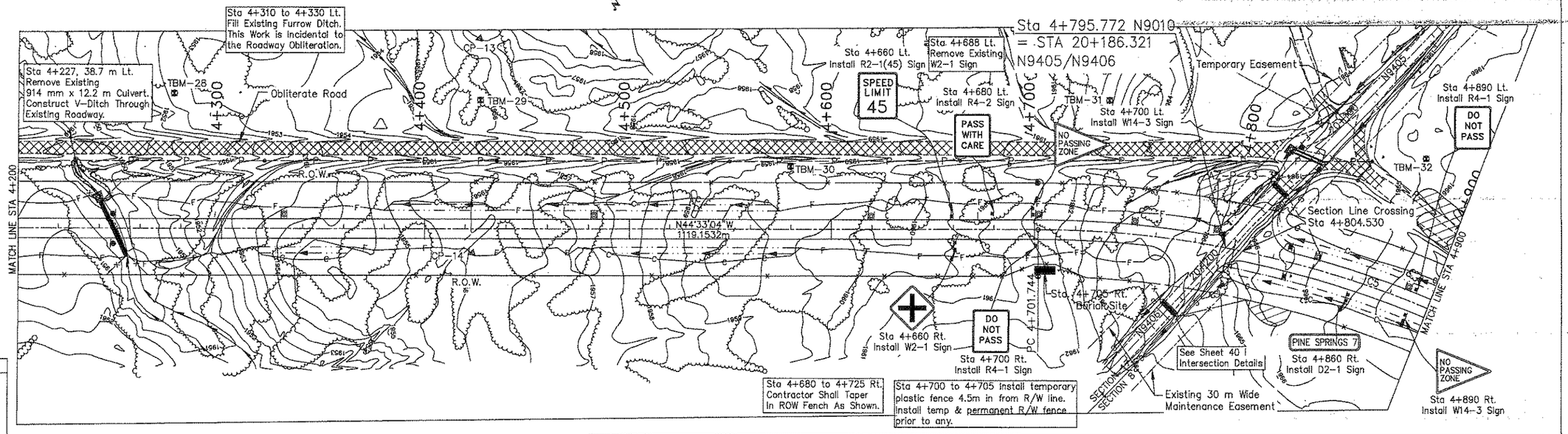
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	2	5	4	5

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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–13	478371.505	292979.062	1956.630	REBAR	4+427.044	93.876 Lt.
CP–14	478443.185	293056.933	1956.000	REBAR	4+423.496	11.904 Rt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	18	63

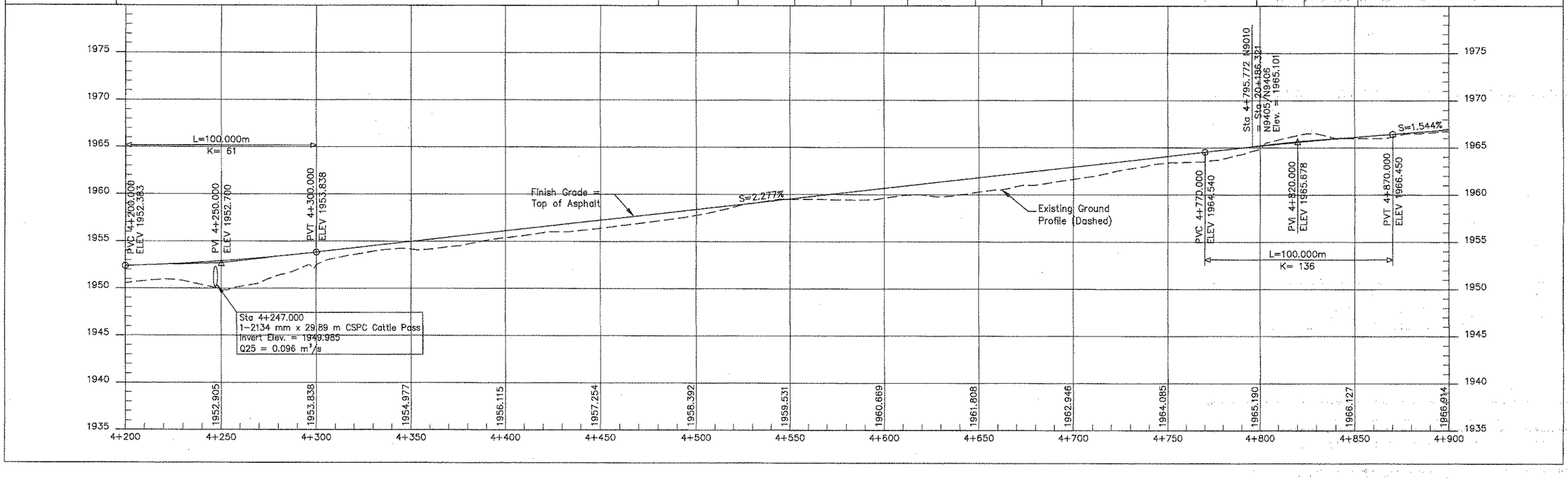


CURVE C5
D = 37°16'21" Rt.
Dc = 3°29'34"
R = 500.000m
T = 168.621m
L = 325.264m
e = NC
PI
Sta = 4+870.365
N = 478753.284
E = 292734.952

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

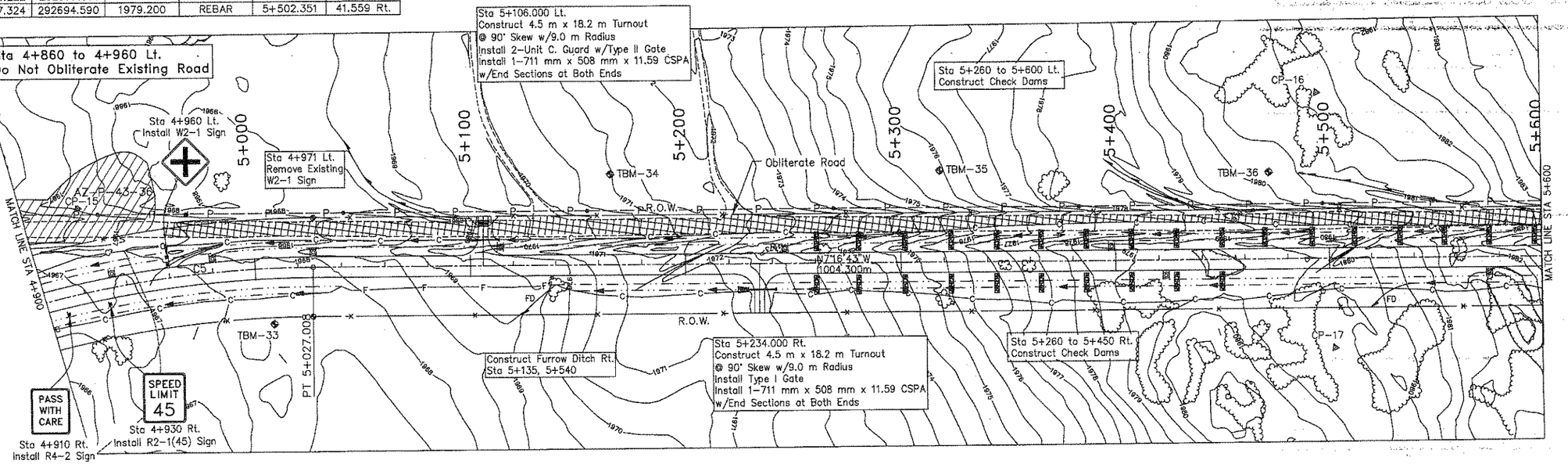
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF–WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	8	4	2

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
4+247.000	1–2134 mm x 29.89 m CSPC Cattle Pass	65°	6.6	Concrete Slope Blankets Both Ends. Grouted 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.

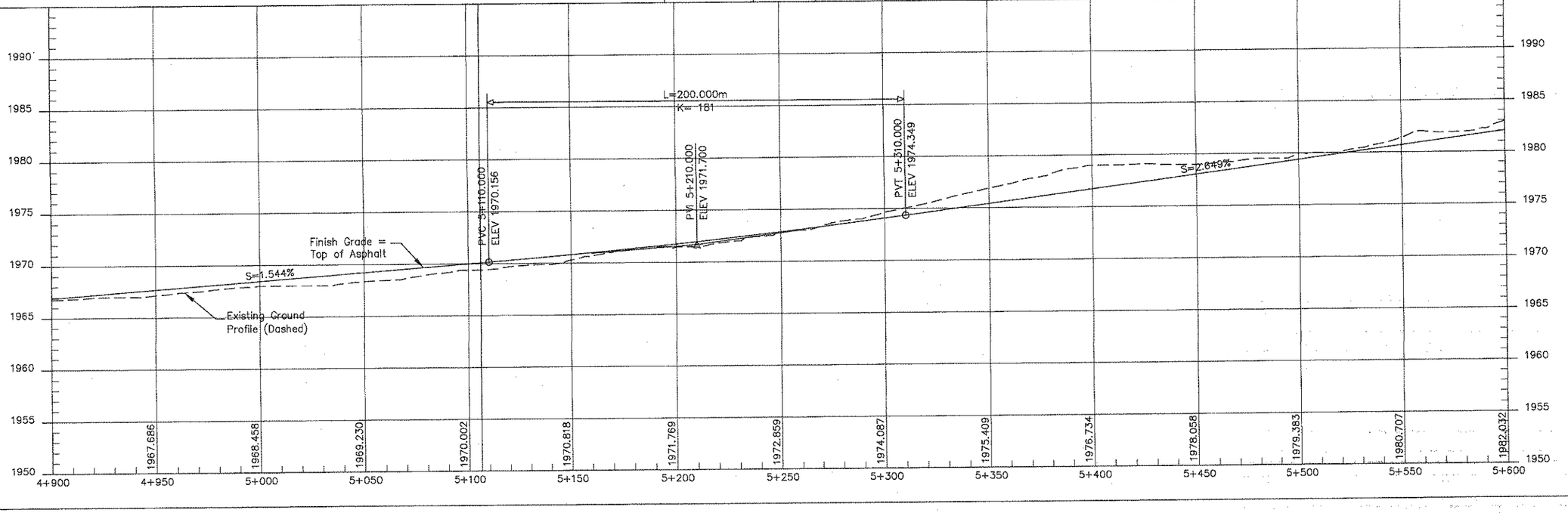
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	19	63



SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

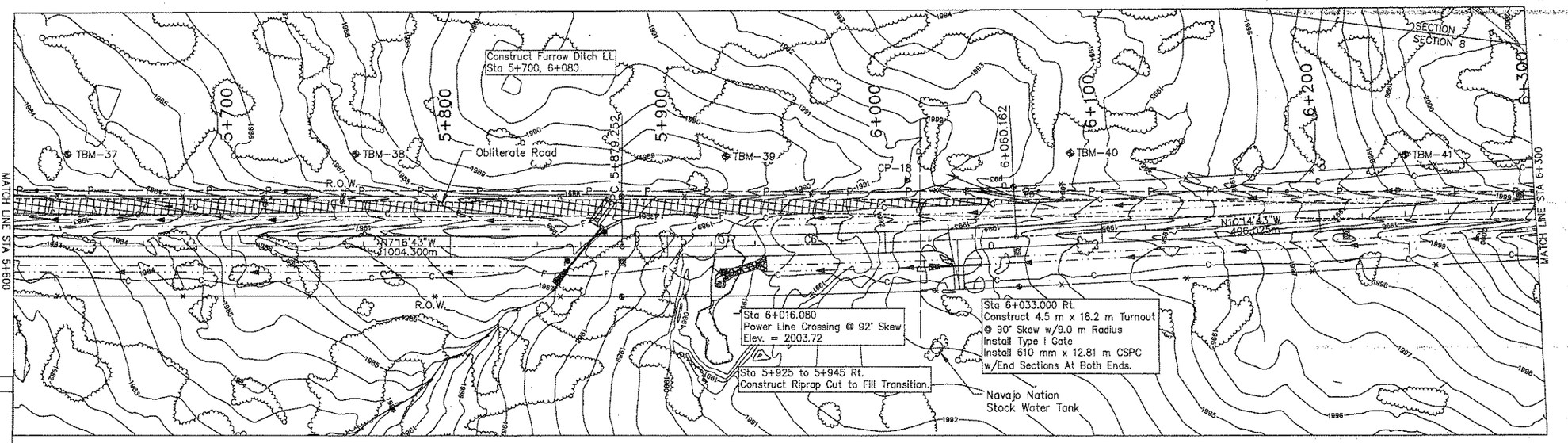
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	0	8	0	2

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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	OFFSET
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

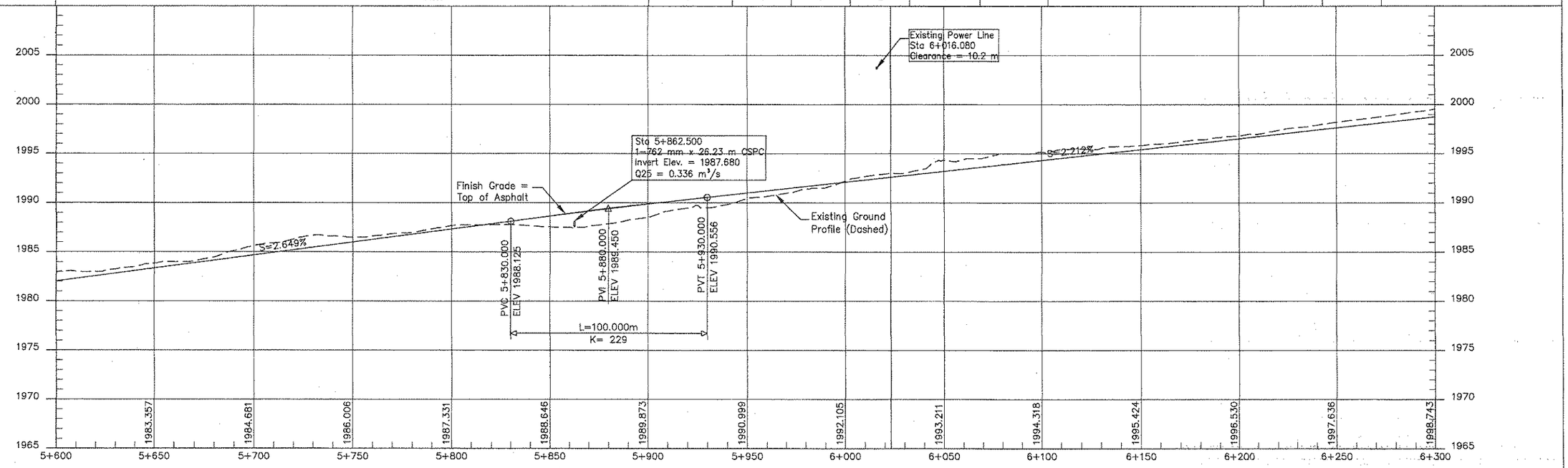


CURVE C6
D = 2°58'00" Lt.
Dc = 0°29'59"
R = 3493.951m
T = 90.475m
L = 180.910m
e = NC
PI
Sta = 5+969.727
N = 479855.669
E = 292584.153

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

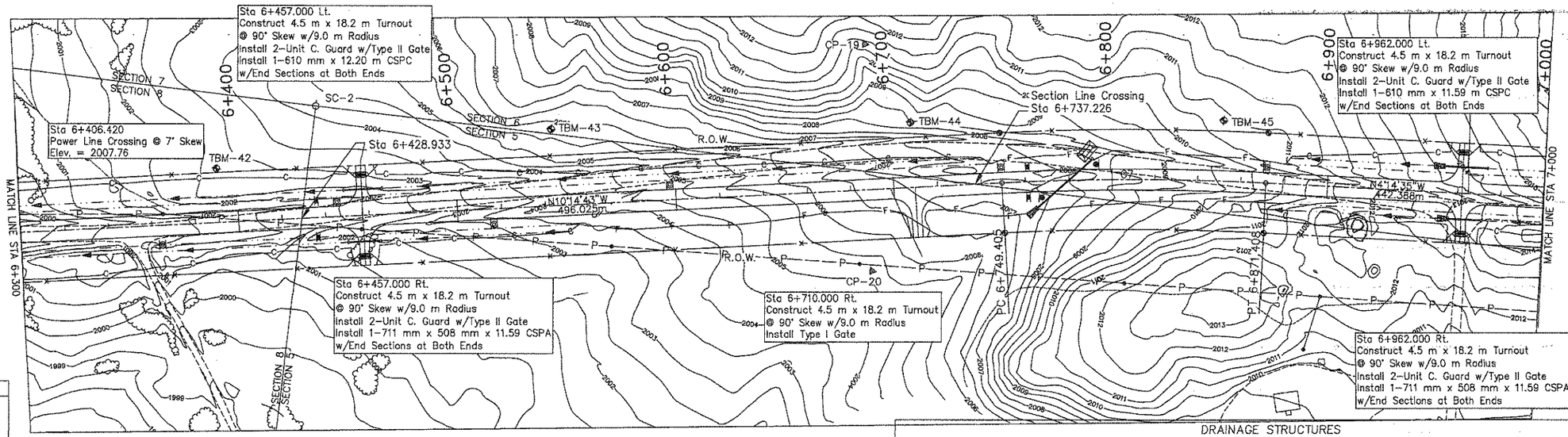
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	0	5	2	4

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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

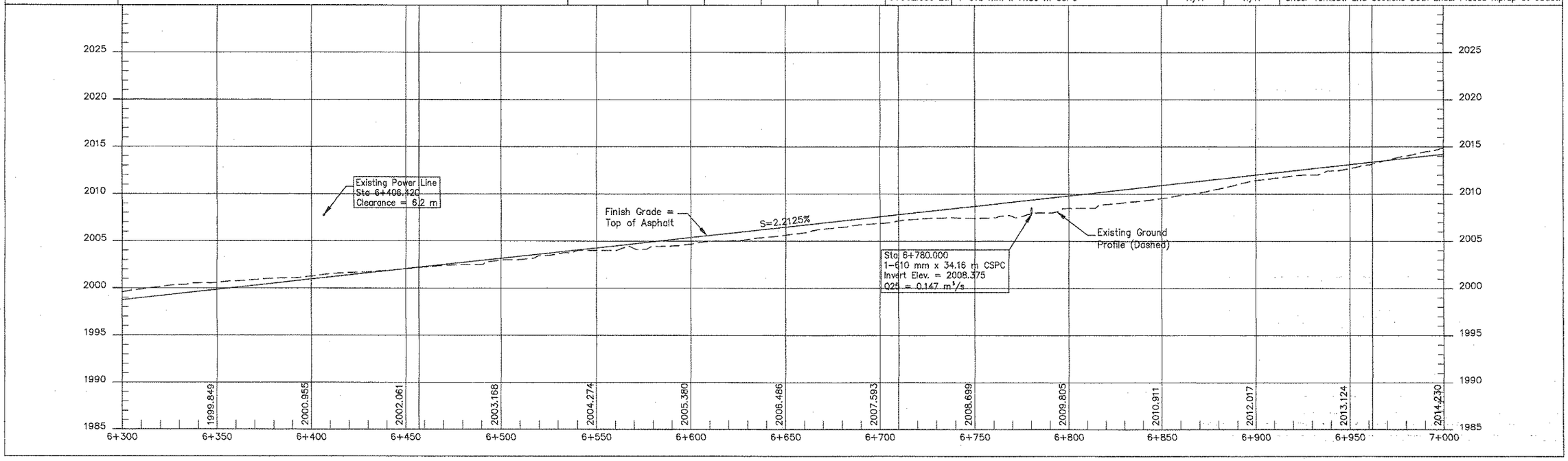


CURVE C7
D = 6°00'07" Rt.
Dc = 1°29'58"
R = 1164.651m
T = 61.057m
L = 122.003m
e = 2.300%
PI
Sta = 6+810.463
N = 480683.039
E = 292444.611

MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	6	2	4

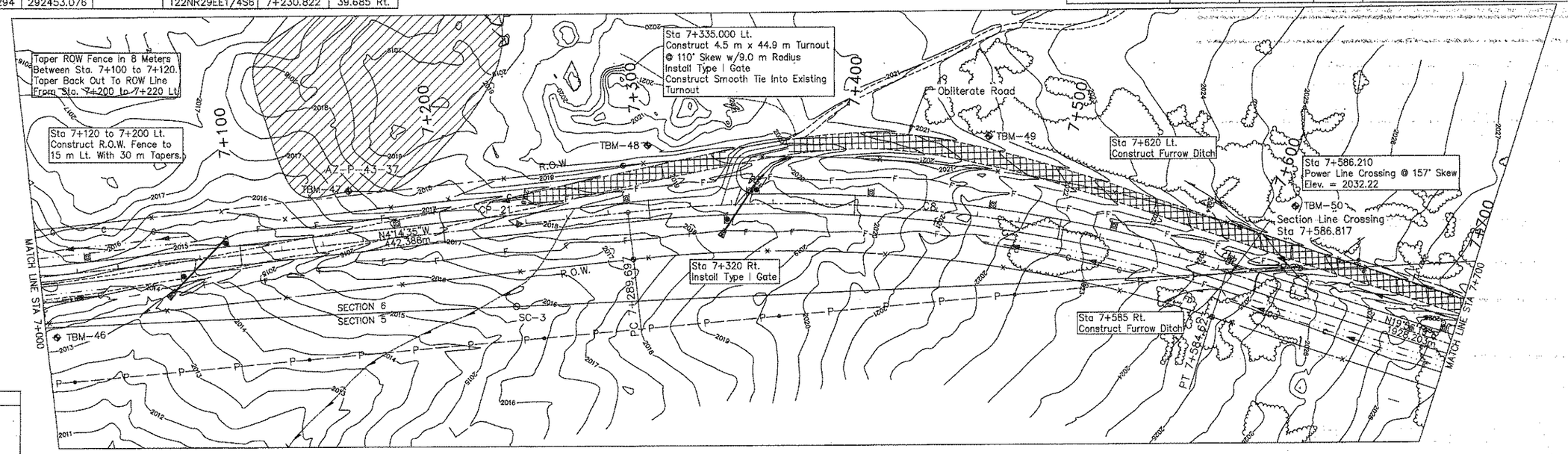
DRAINAGE STRUCTURES

STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	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		T22NR29EE1/4S6	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

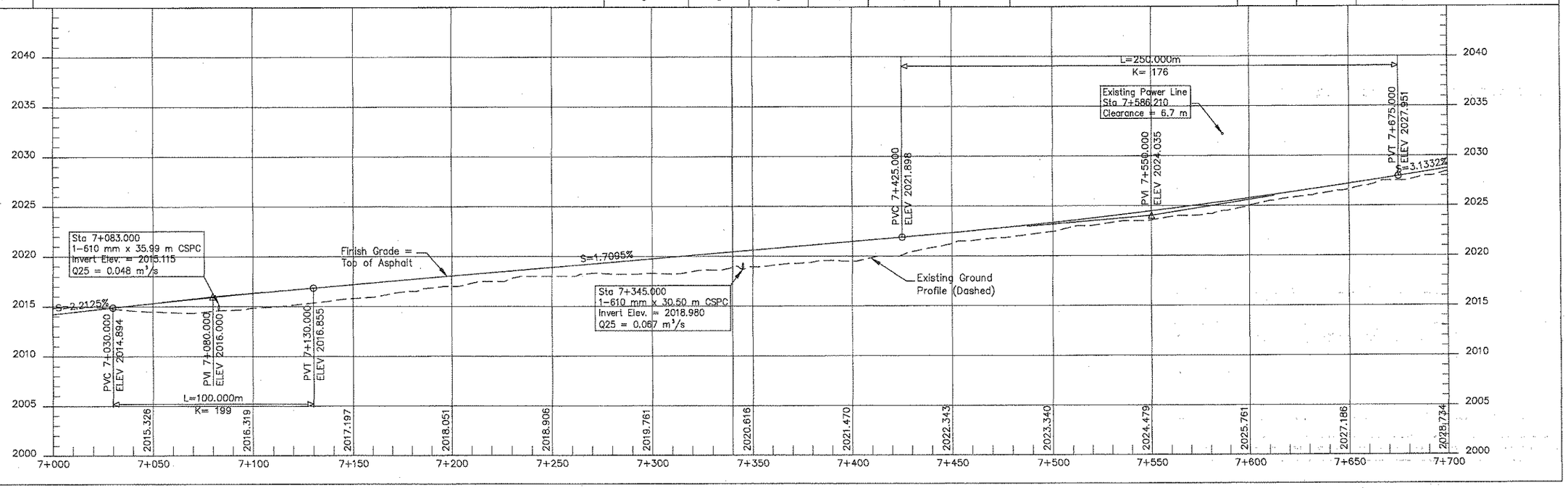


CURVE C8
D = 24°10'54" Rt.
Dc = 2°29'57"
R = 698.790m
T = 149.691m
L = 294.926m
e = 3.000%
PI
Sta = 7+439.389
N = 481310.353
E = 292398.069

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

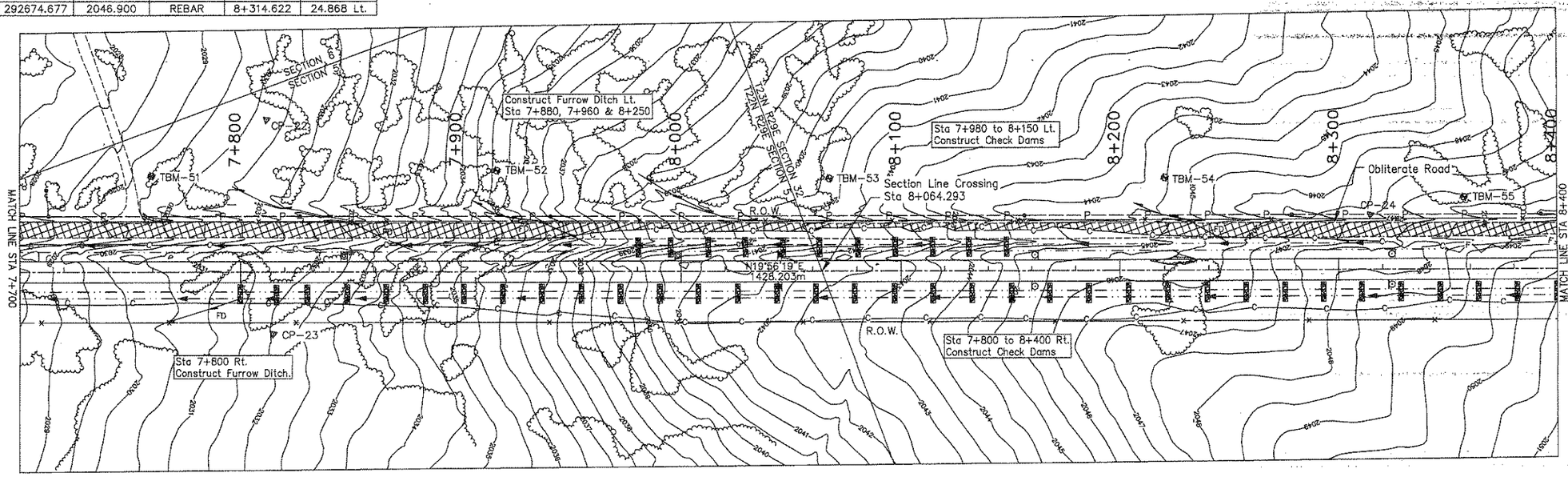
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	0	9	4	4

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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.



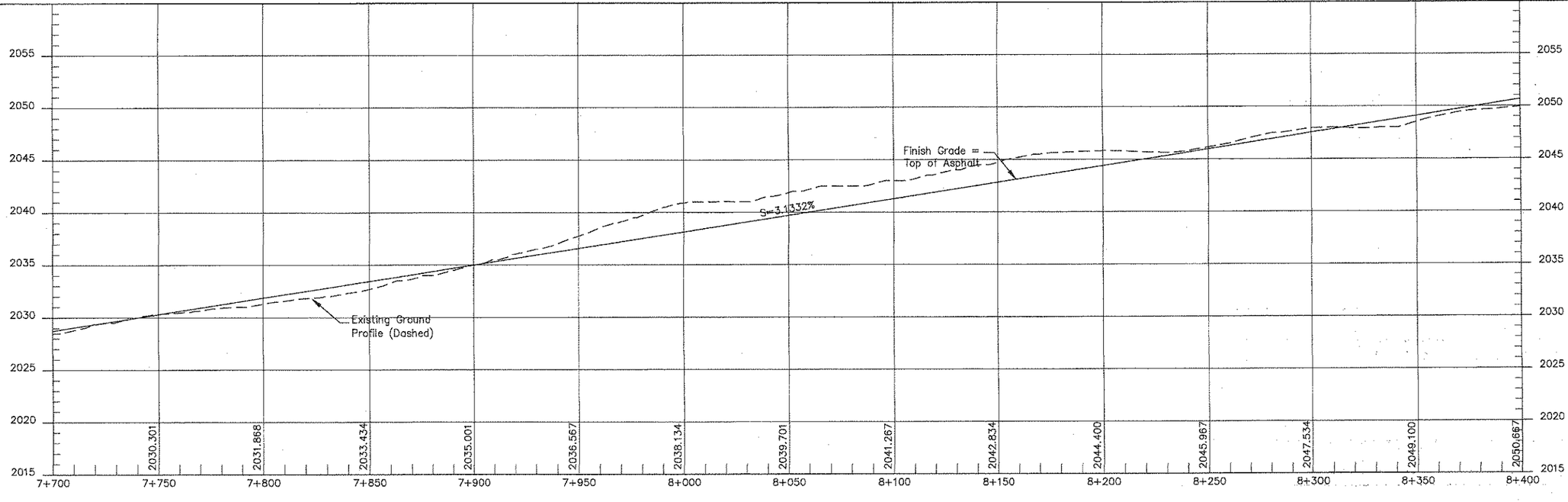
CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-22	481688.326	292461.354	2030.200	REBAR	7+811.829	69.402 Lt.
CP-23	481657.846	292553.980	2032.020	REBAR	7+814.763	28.066 Rt.
CP-24	482145.794	292674.677	2046.900	REBAR	8+314.622	24.868 Lt.

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



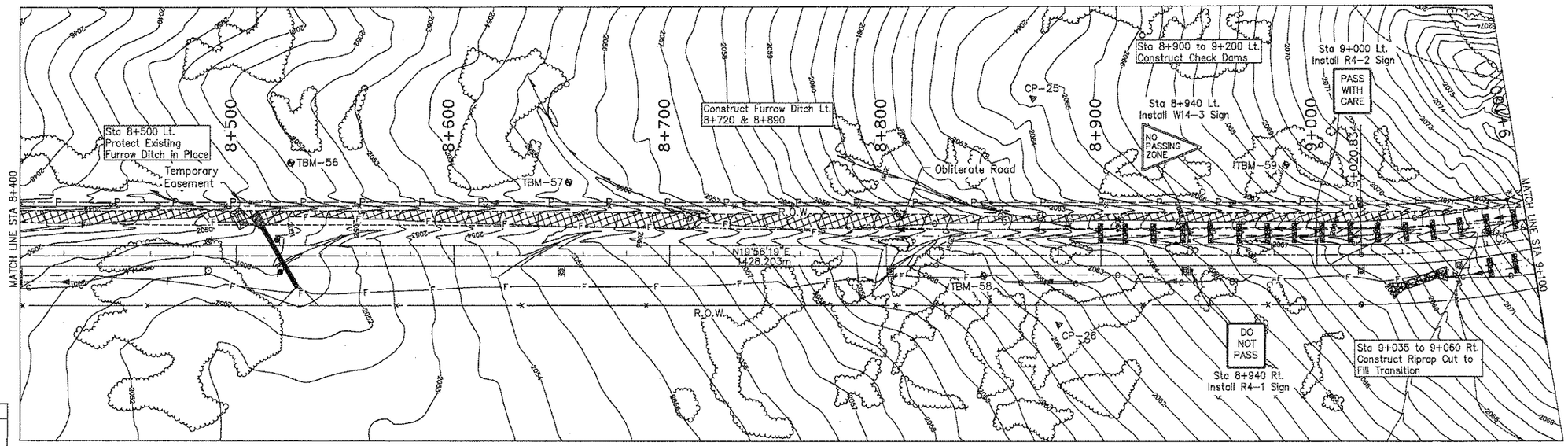
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	4	2	0	0

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000



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

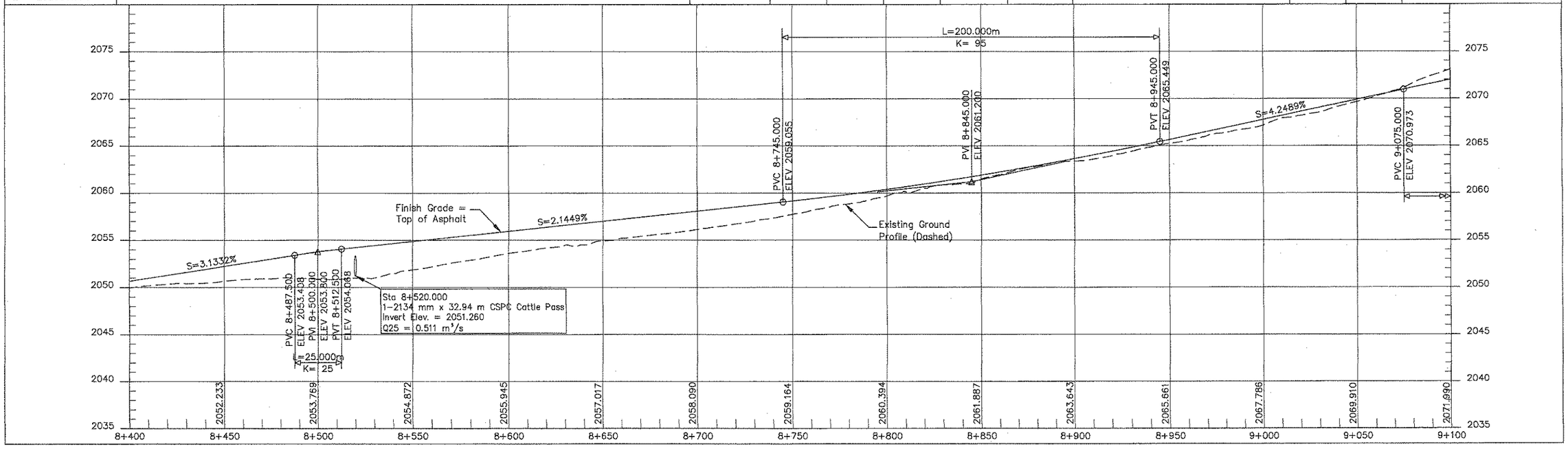


CURVE C9
D = 35°13'59" Lt.
Dc = 3°59'55"
R = 436.744m
T = 138.682m
L = 268.569m
e = 3.600%
PI
Sta = 9+159.516
N = 482391.563
E = 292986.174

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

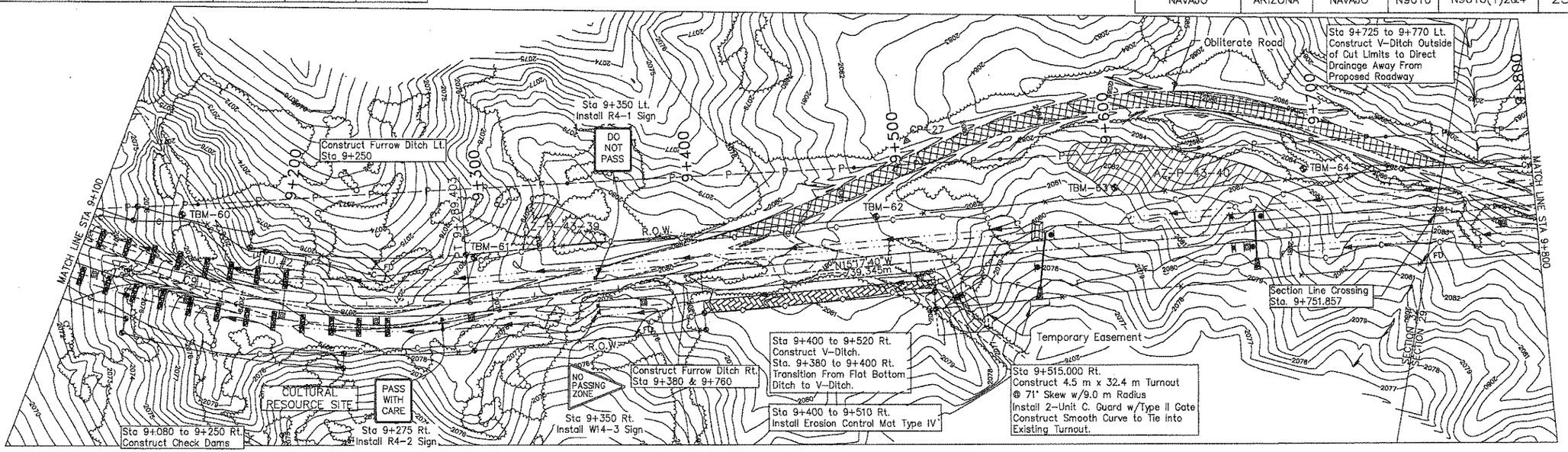
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	2	5	2	2

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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.

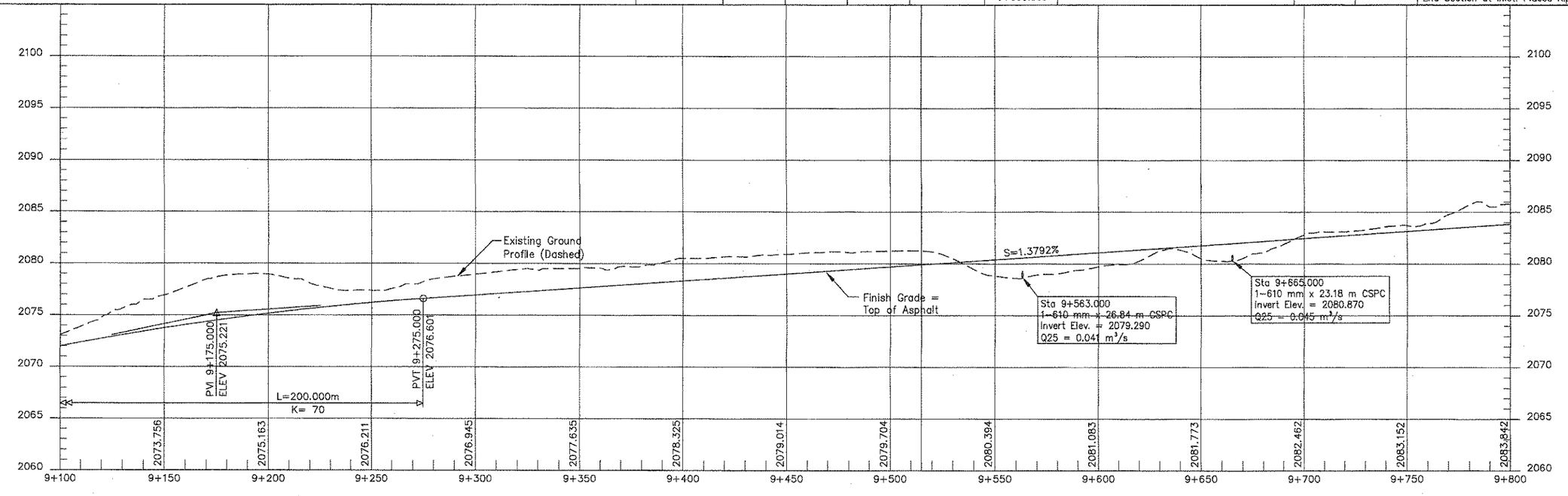
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	25	63



SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

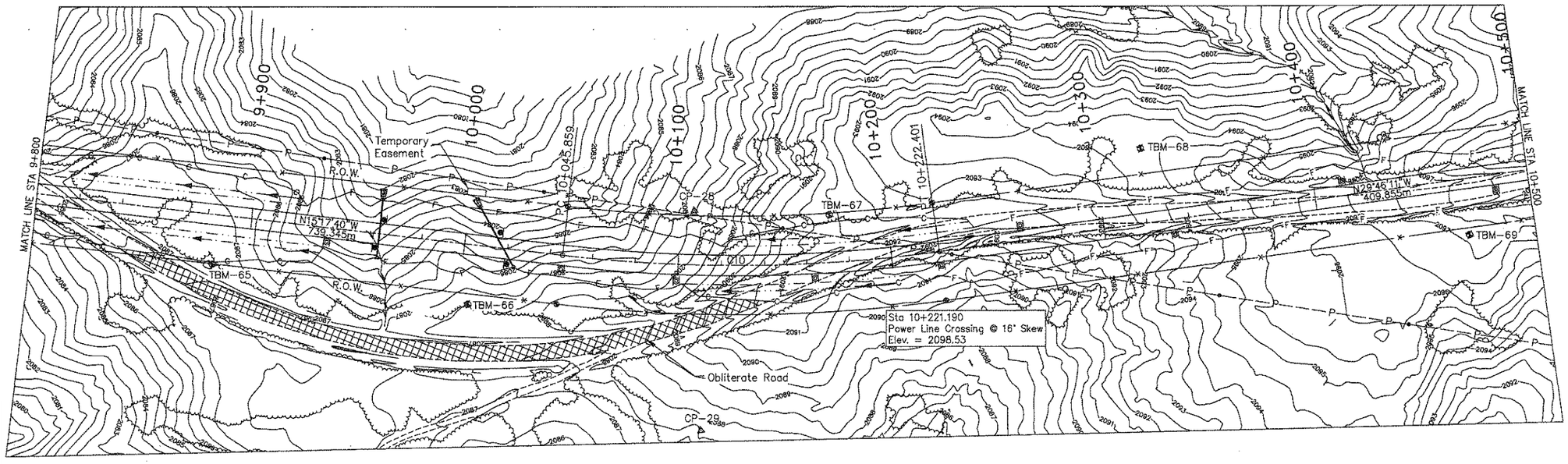
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	9	4	14

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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

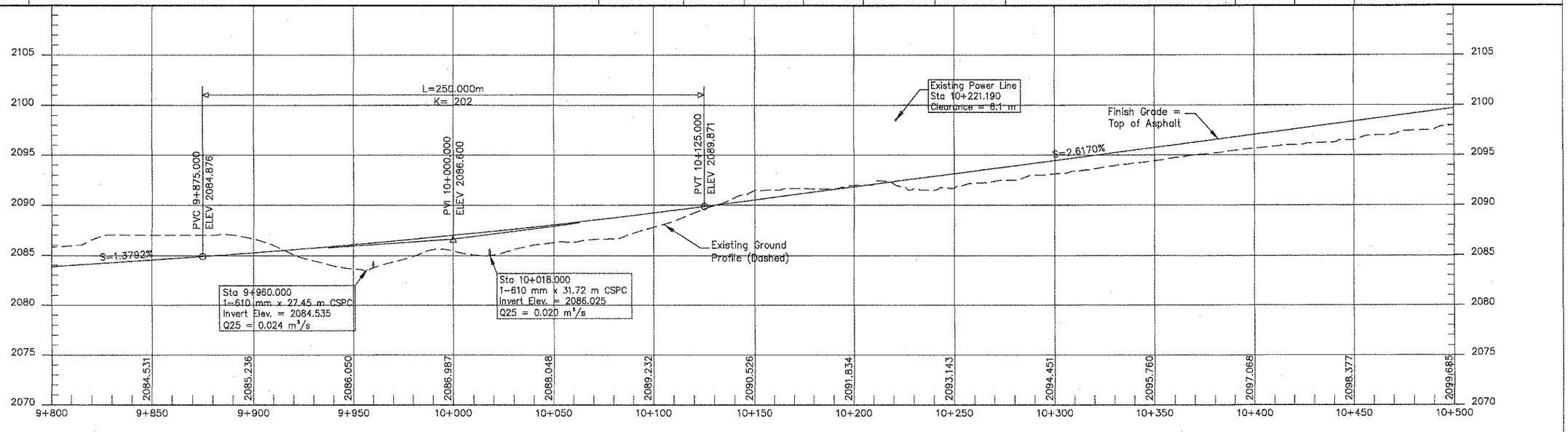


CURVE C10
D = 14°28'31" Lt.
Dc = 2°29'57"
R = 698.790m
T = 88.743m
L = 176.542m
e = 3.000%
PI
Sta = 10+134.603
N = 483880.599
E = 292726.645

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

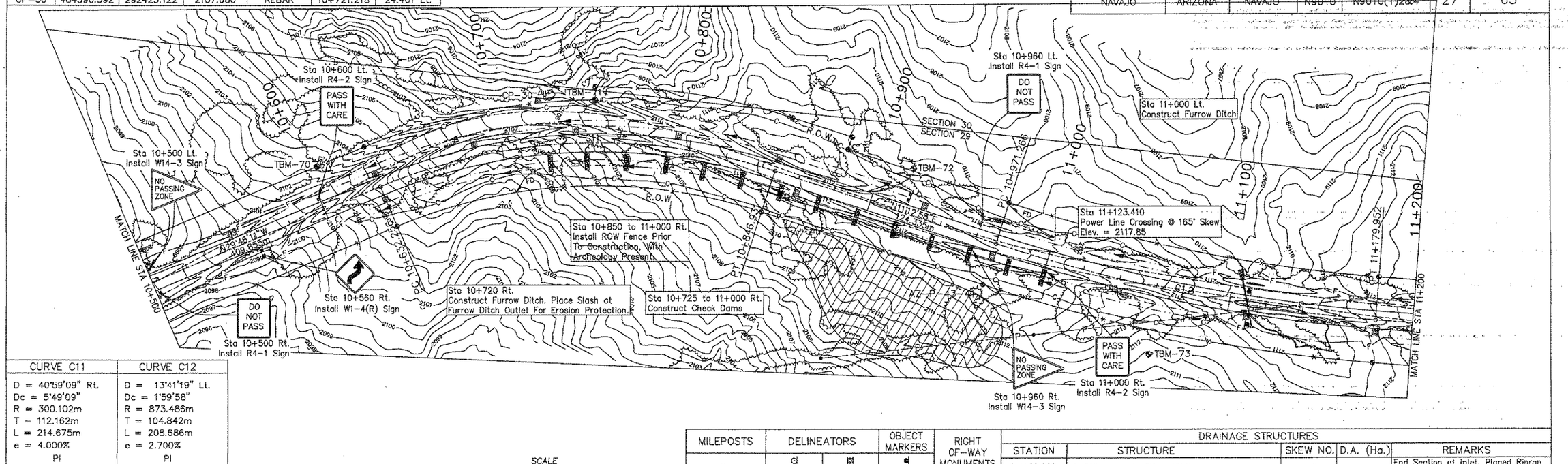
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	0	9	4	4

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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.



CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-30	484390.592	292423.122	2107.680	REBAR	10+721.218	24.401 Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	27	63

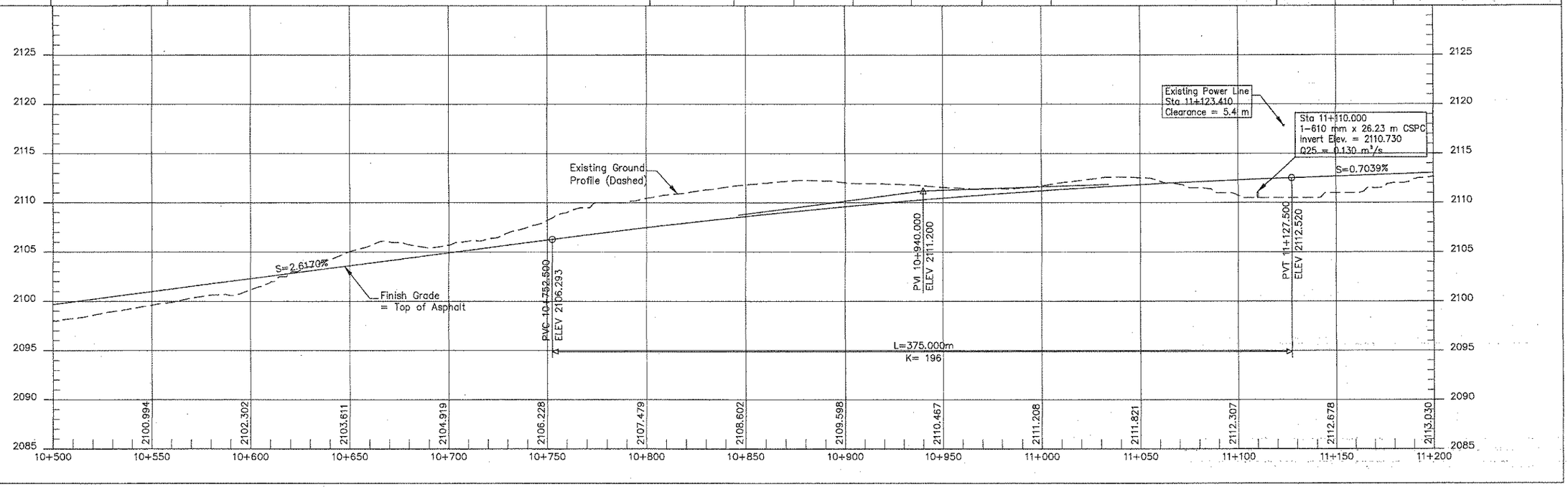


CURVE C11	CURVE C12
D = 40°59'09" Rt.	D = 13°41'19" Lt.
Dc = 5°49'09"	Dc = 1°59'58"
R = 300.102m	R = 873.486m
T = 112.162m	T = 104.842m
L = 214.675m	L = 208.686m
e = 4.000%	e = 2.700%
PI	PI
Sta = 10+744.418	Sta = 11+076.108
N = 484410.756	N = 484745.576
E = 292423.393	E = 292489.788

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

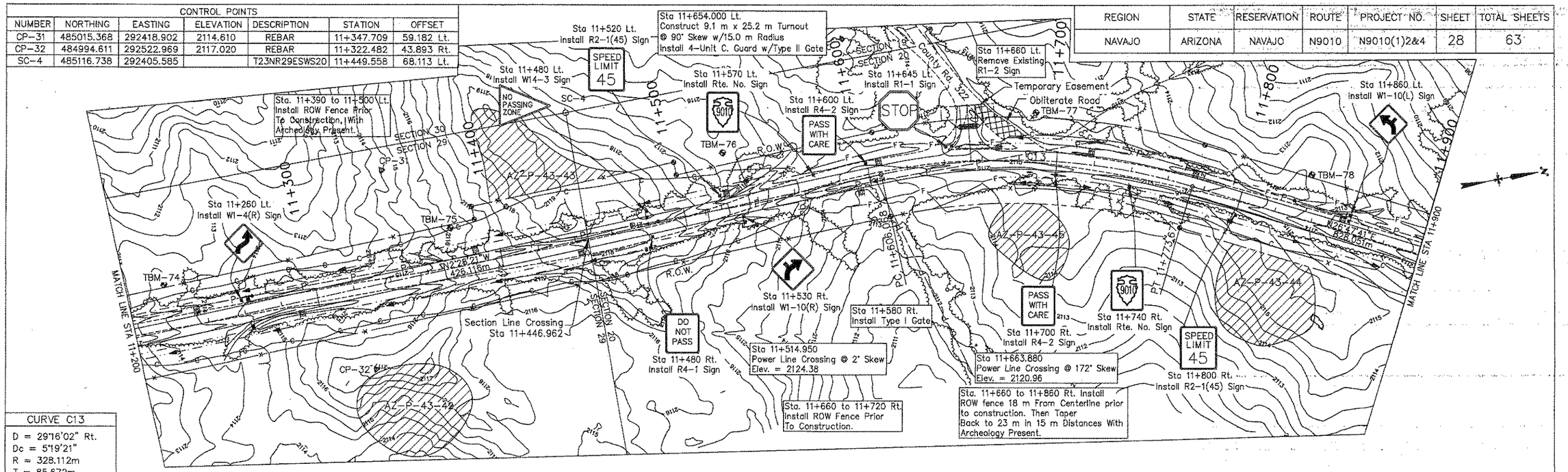
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	0	13	2	12

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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	OFFSET
CP-31	485015.368	292418.902	2114.610	REBAR	11+347.709	59.182 Lt.
CP-32	484994.611	292522.969	2117.020	REBAR	11+322.482	43.893 Rt.
SC-4	485116.738	292405.585		T23NR29ESWS20	11+449.558	68.113 Lt.

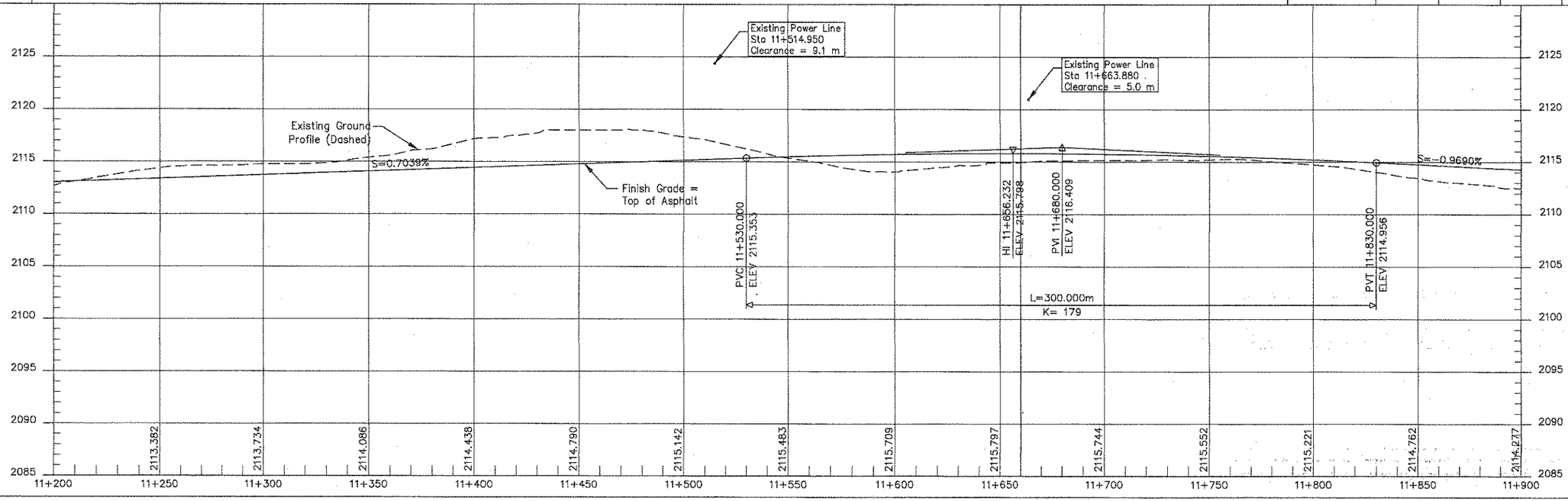
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	28	63



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

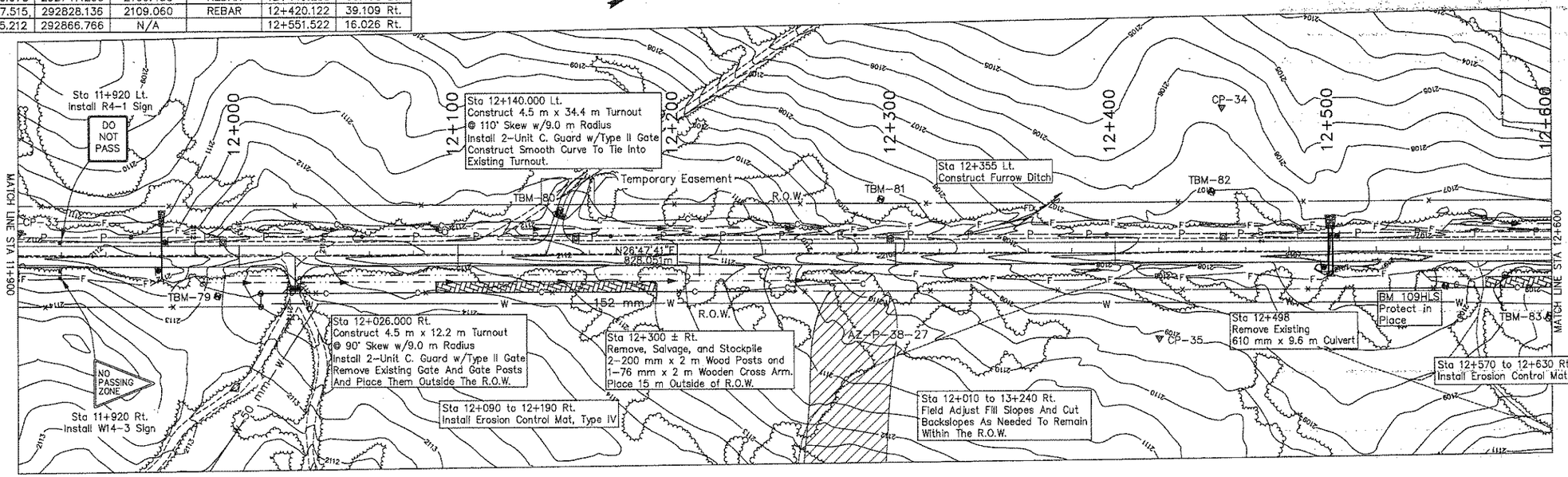
SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

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.

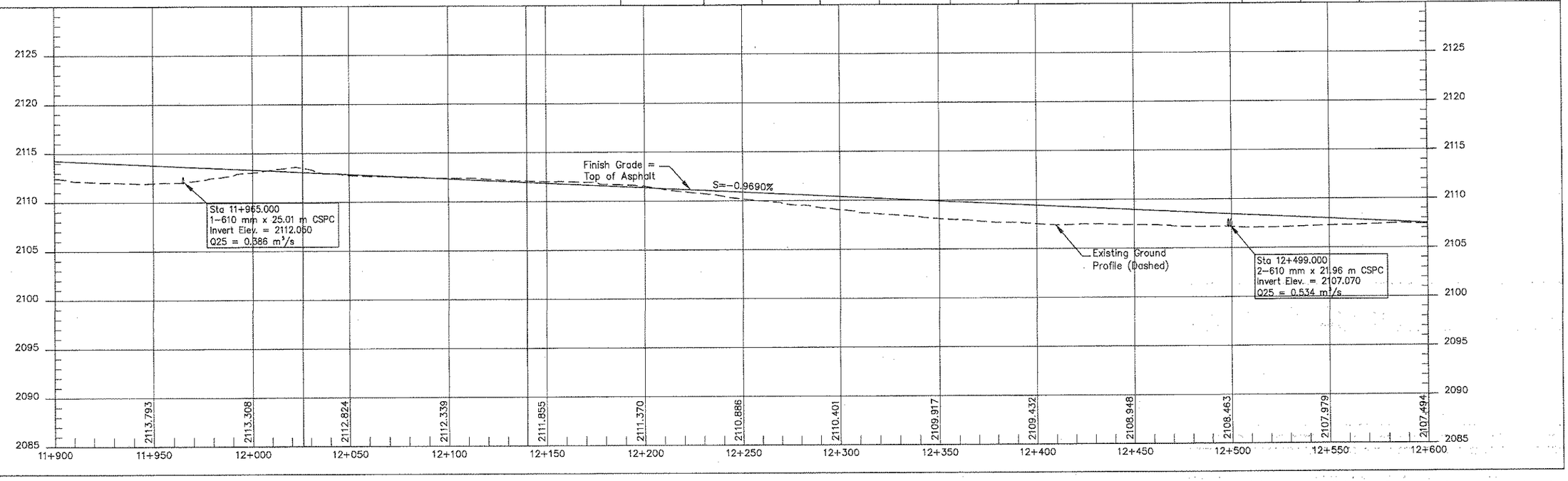
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	29	63



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

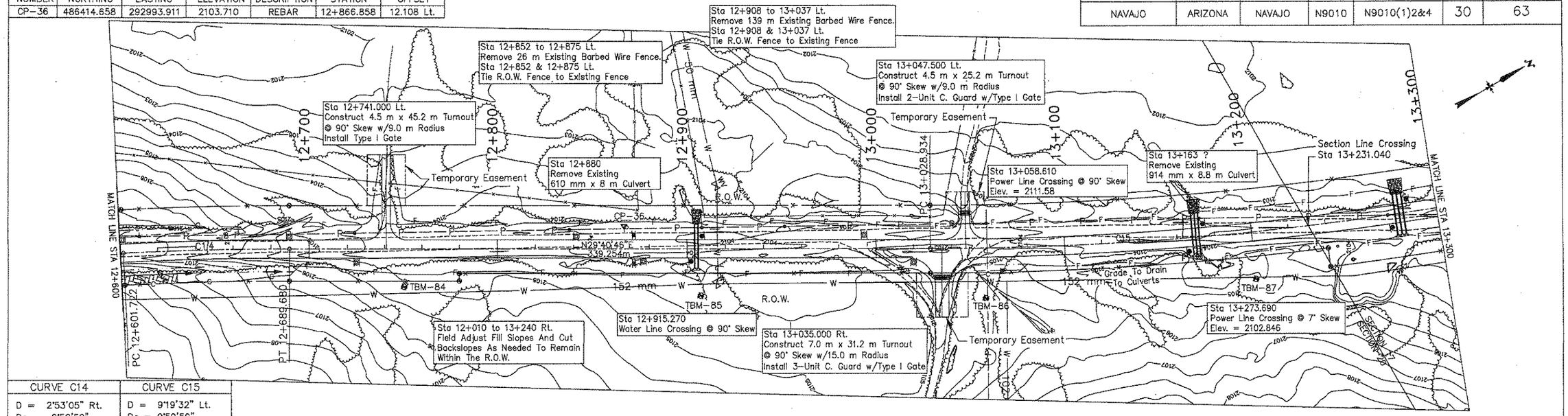
SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
11+965.000	1-610 mm x 25.01 m CSPC	90°	4.6	End Section at Inlet. Placed Riprap @ Outlet.
12+499.000	2-610 mm x 21.96 m CSPC	90°	11.3	End Section at Inlet. Placed Riprap @ Outlet.



CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-36	486414.658	292993.911	2103.710	REBAR	12+866.858	12.108 Lt.

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

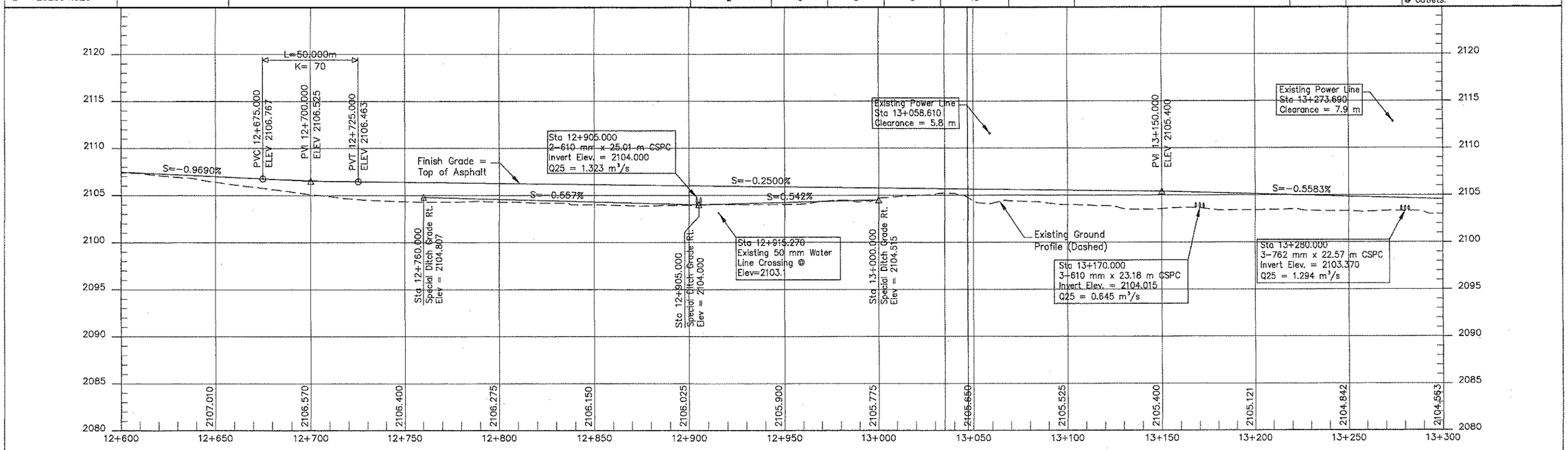


CURVE C14	CURVE C15
D = 2°53'05" Rt.	D = 9°19'32" Lt.
Dc = 0°59'59"	Dc = 0°59'59"
R = 1746.972m	R = 1746.972m
T = 43.988m	T = 142.486m
L = 87.958m	L = 284.343m
e = RC	e = RC
PI	PI
Sta = 12+645.710	Sta = 13+171.420
N = 486216.511	N = 486673.269
E = 292894.920	E = 293155.234

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

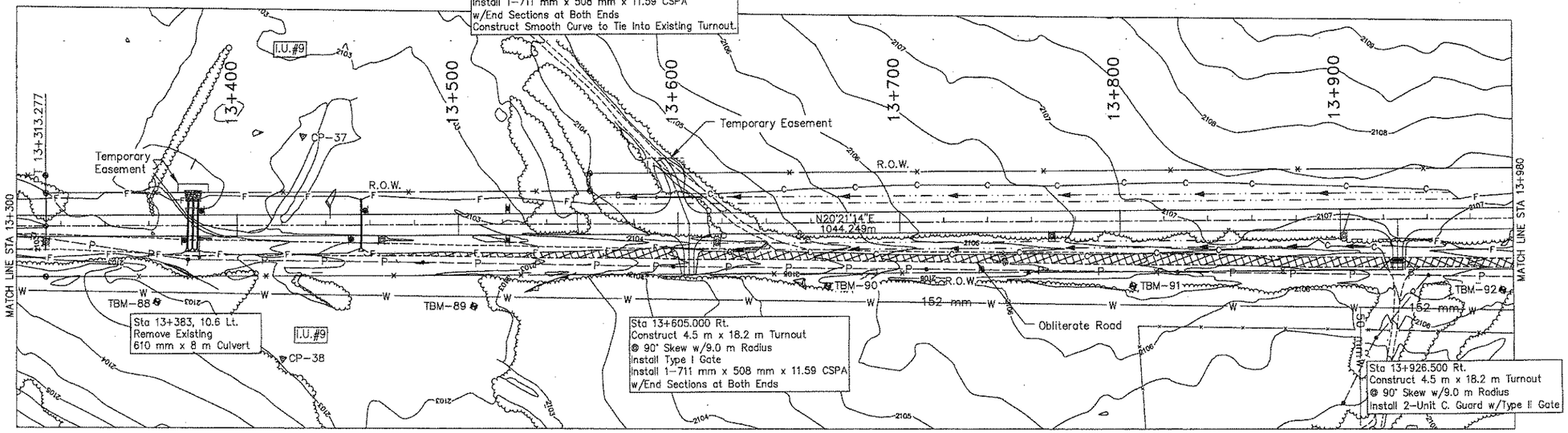
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	8	6	10

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	OFFSET
CP-37	486930.178	293207.453	2102.500	REBAR	13+429.821	40.399 Lt.
CP-38	486886.257	293298.952	2103.030	REBAR	13+420.468	60.664 Rt.

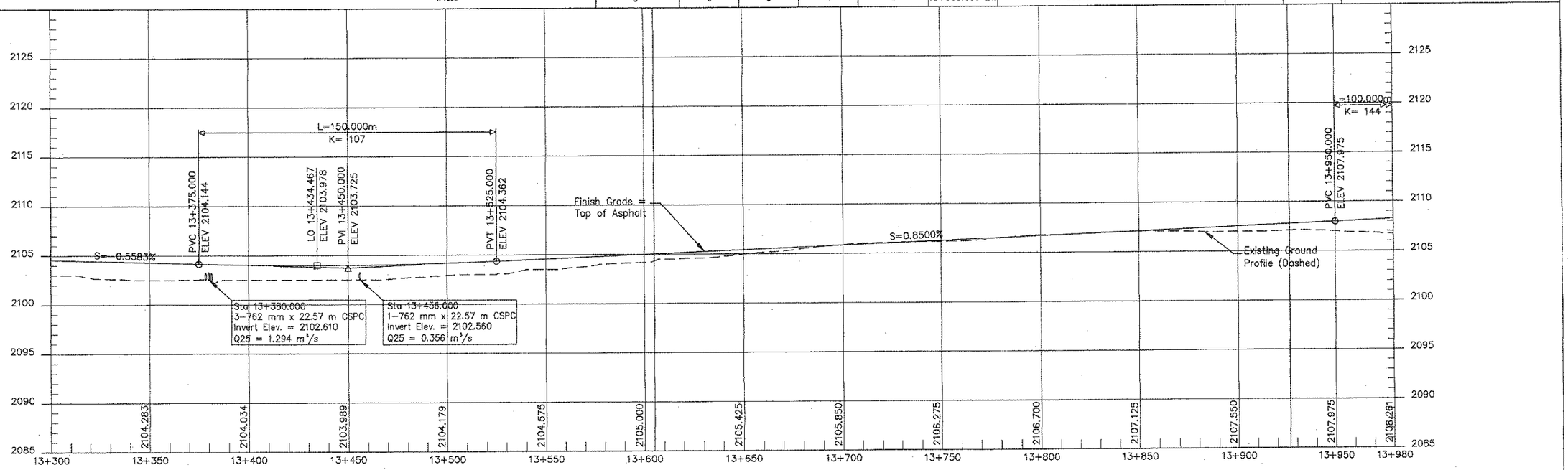
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	31	63



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

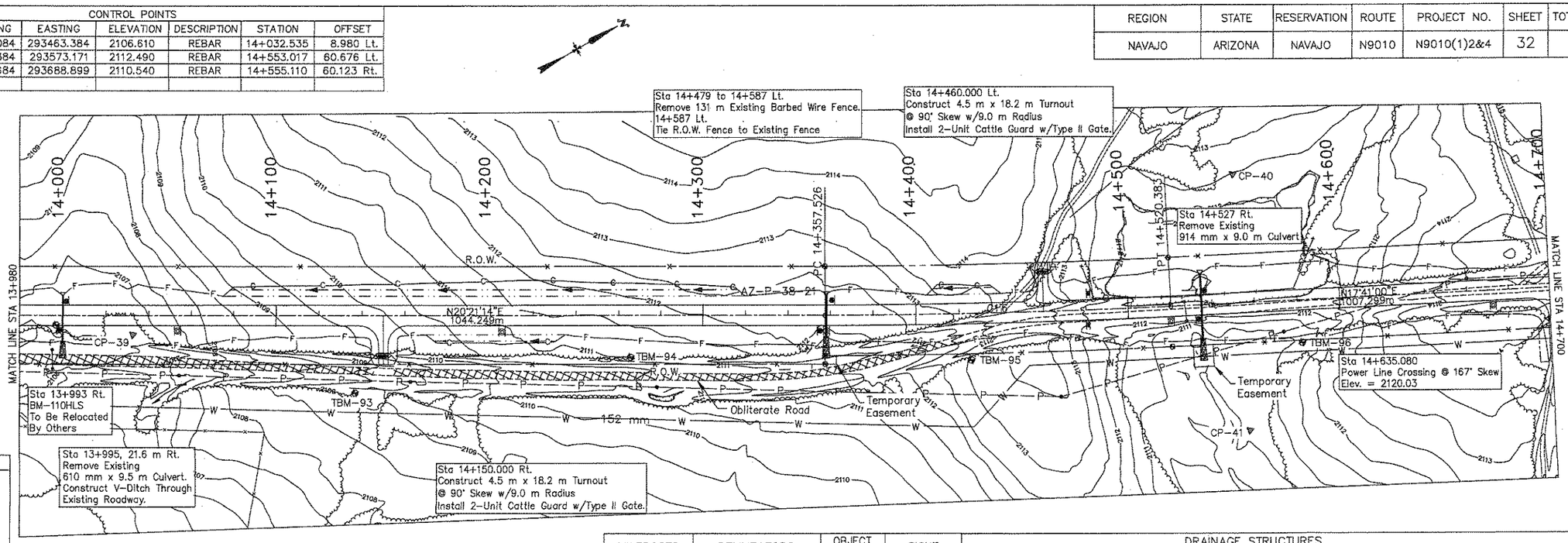
SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
13+380.000	3-762 mm x 22.57 m CSPC	90°	64.1	End Section at Inlet. Placed Riprap @ Outlets.
13+456.000	1-762 mm x 22.57 m CSPC	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	OFFSET
CP-39	487478.084	293463.384	2106.610	REBAR	14+032.535	8.980 Lt.
CP-40	487989.384	293573.171	2112.490	REBAR	14+553.017	60.676 Lt.
CP-41	487954.684	293688.899	2110.540	REBAR	14+555.110	60.123 Rt.
BM-110HLS						

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	32	63

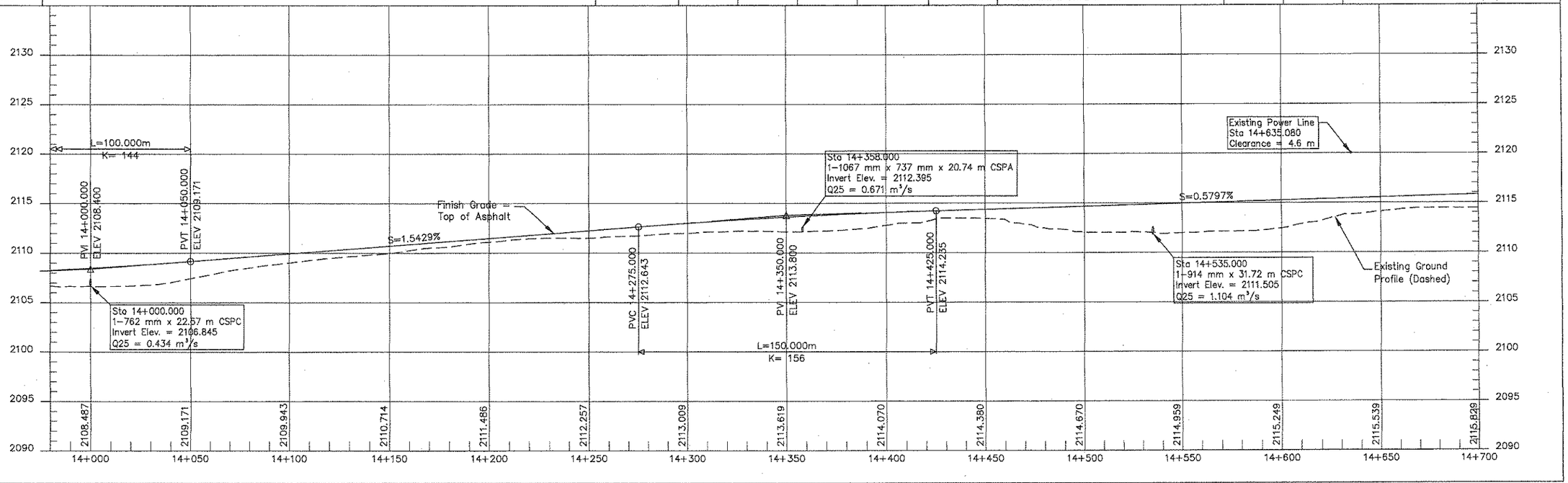


CURVE C16
D = 2°40'14" Lt.
Dc = 0°29'59"
R = 3493.951m
T = 81.443m
L = 162.857m
e = NC
PI
Sta = 14+438.969
N = 487862.265
E = 293596.329

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

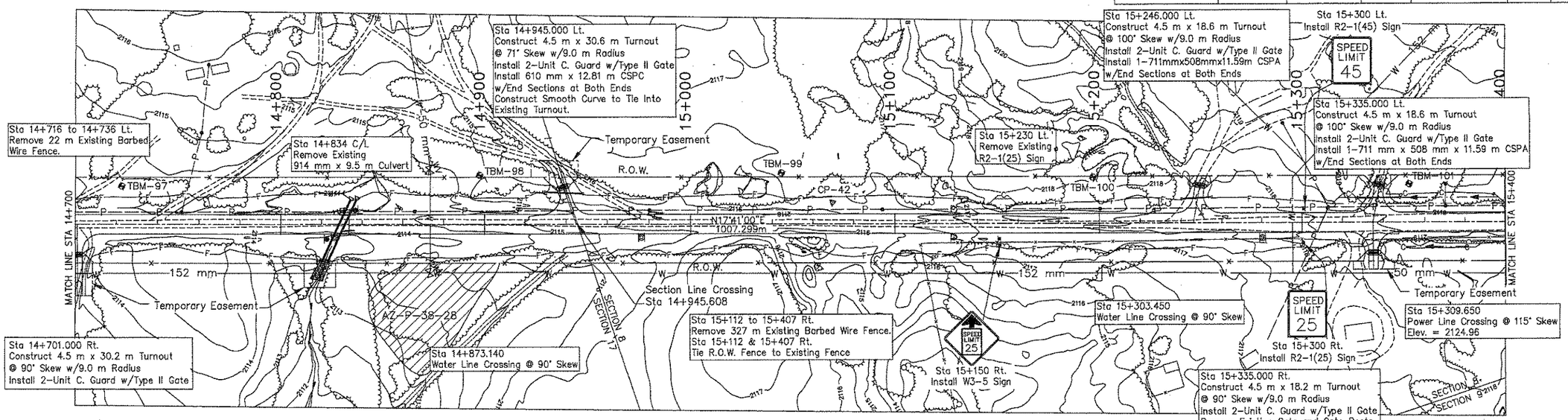
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	5	6	5

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
14+000.000	1-762 mm x 22.57 m CSPC	90°	9.6	End Section at Inlet. Placed Riprap @ Outlet.
14+358.000	1-1067 mm x 737 mm x 20.74 m CSPA	90°	14.2	End Sections at Inlets. Placed Riprap @ Outlets.
14+535.000	1-914 mm x 31.72 m CSPC	90°	34.4	End Section at Inlet. Placed Riprap @ Outlet.



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

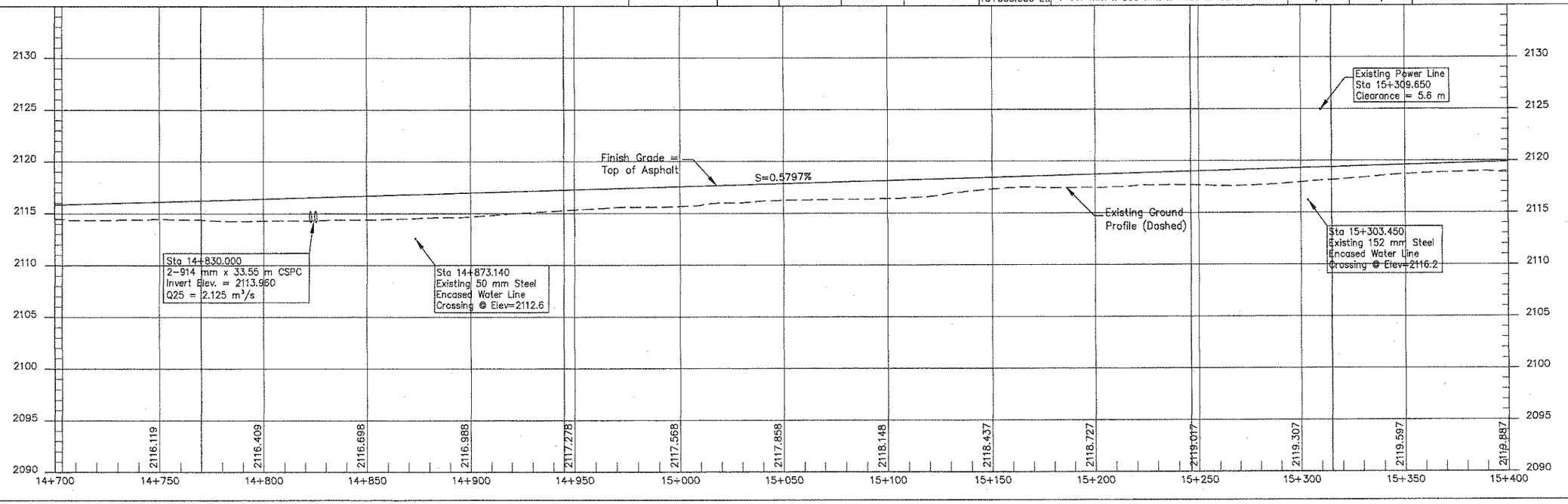
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	33	63



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

SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

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 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
15+335.000 Lt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	34	63

CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-44	488914.700	293985.781	2119.550	REBAR	15+551.759	54.523 Rt.

TURNOUT BACK-OF-CURB ELEVATION TABLE			
TURNOUT	STATION	OFFSET	ELEVATION
15+612 Lt.	15+604.50	5.41	2121.457
	15+610.43	7.87	2121.532*
	15+612.89	13.80	2121.779
	15+621.11	13.80	2121.885
	15+623.57	7.87	2121.750*
	15+629.50	5.41	2121.948

TURNOUT BACK-OF-CURB ELEVATION TABLE			
TURNOUT	STATION	OFFSET	ELEVATION
15+643 Rt.	15+630.21	5.41	2121.967
	15+636.24	7.96	2121.984*
	15+638.60	14.08	2122.306
	15+647.89	14.89	2122.393
	15+650.72	8.19	2122.160*
	15+667.88	5.41	2122.524

*Back of Theoretical Curb Elevation at Center of Curb Ramp

EXISTING UTILITY CROSSINGS	
STATION	DESCRIPTION
15+429.260	Power Line Crossing @ 100° Skew Elev. = 2125.11
15+556.860	Power Line Crossing @ 52° Skew Elev. = 2126.00
15+581.500	Water Line Crossing @ 95° Skew
15+673.500	Water Line Crossing @ 70° Skew
15+684.290	Power Line Crossing @ 47° Skew Elev. = 2129.44
15+727.700	Power Line Crossing @ 173° Skew Elev. = 2126.86

Sta 15+560 Rt. & Sta 15+585 Lt. Install W11-8 Sign

Sta 15+617.000 Lt. Construct 7.0 m x 18.2 m Turnout @ 90° Skew w/9.0 m Radius with Curb & Gutter. Construct Valley Gutter & Fillets. Construct Riprap Pad at Curb End (See Sheet 41 For Details) Install 3-Unit Cattle Guard. Construct Curb Ramps At Both Curb Returns.

Sta 15+532.000 to 15+782.500 Rt.
Sta 15+604.500 to 15+772.500 Lt.
Construct Curb & Gutter

Sta 15+638.799 to 15+760.000 Lt.
Construct R.O.W. Fence to 6.910 m Lt.

Sta 15+527.682 to 16+065.307 Lt.
Install Woven Wire R.O.W. Fence

Sta 15+610 Lt.
Install Type III Gate

Construct Sidewalk On Left From End Of North Curb Return At Turnout 15+617 To Curb Ramp At Sta 15+701

Sta 15+715.000 Lt.
Construct 4.5m x 10.2 m Rolled Curb Type Driveway @ 90° Skew w/9.0 m Radius
Install 2-unit Cattle Guard

Sta 15+445.000 Lt.
Construct 4.5 m x 18.6 m Turnout @ 101° Skew w/9.0 m Radius
Install 2-Unit C. Guard w/Type II Gate
Install 1-711 mm x 508 mm x 11.59 m CSPA w/End Sections at Both Ends

Sta 15+460 Lt.
Install R4-2 Sign

Sta 15+500 Lt.
Install W14-3 Sign

Sta 15+705 Lt.
Install Type III Gate

Sta 15+701.000 Lt.
Construct Curb Ramp

Sta 15+701.000 Rt.
Construct Curb Ramp

Sta 15+643.000 Rt.
Construct 6.520 m x 14.4 m Turnout @ 90° Skew w/9.0 m Radius w/Curb & Gutter. Remove Existing PCC Dwy, Curb Returns & Fillets Back to Cattle Guard. Construct Valley Gutter & Fillets. Protect Existing Cattle Guard and Gate in Place. Construct New Asphalt Dwy to C. Guard. Construct Curb Ramps At Both Curb Returns. Construct Sidewalk At South Corner From Curb Ramp To Cattle Guard.

Sta 15+575.195 Rt.
Remove Existing PCC Dwy & Integral Curb to First Dwy Joint. Construct PCC Rolled Curb Type Dwy with 2.3 m Radius, Matching Width of Existing Dwy. Concrete Dwy Slab to Be Same Thickness As Existing Dwy with Same Dwy Joint Spacing As In Existing Dwy. Reinforcing Steel To Match and Connect to Existing Reinforcing. Existing Curb Replacement (Behind the Rolled Curb) to be Included in Bid Item 60101-0000 Measurements, Reinforcing Steel to be Incidental to Bid Item 60101-0000. Continue Rolled Curb Through Turnout at Sta 15+592. Construct Rolled Curb Separately From PCC Driveway. Place 19 mm Expansion Joint Material At Back Of Curb, At Connection To Existing PCC Driveway And At Other Joints As Needed To Match Existing PCC Joint Pattern.

Sta 15+592.000 Rt.
Construct 4.5m x 10.2 m Rolled Type Curb Driveway @ 90° Skew w/5.0 m Radius
Relocate Existing Chain Link Gate to New Turnout Location

Sta 15+543.000 Rt.
Construct 7.0 m x 15.2 m Rolled Curb Type Driveway @ 90° Skew w/9.0 m Radius. Construct Riprap Pad at Curb End (See Sheet 41 For Details)
Install 3-Unit C. Guard w/Type II Gate

Sta 15+474.500 Rt.
Construct 4.5 m x 20.2 m Turnout @ 90° Skew w/9.0 m Radius
Install 2-Unit C. Guard w/Type II Gate

Sta 15+530 Rt.
Install S1-1 And W16-9p Signs

Sta 15+549.075 Rt. End New R.O.W. Fence
Sta 15+549.075 to 15+762.355 Rt.
Protect Existing Chain Link Fence in Place

Sta 15+407 Rt.
Tie R.O.W. Fence to Existing Fence

Sta 15+440 Rt.
Install W1-5 Sign

BM-111HLS
Protect In Place

Section Line Crossing
Sta 15+673.349

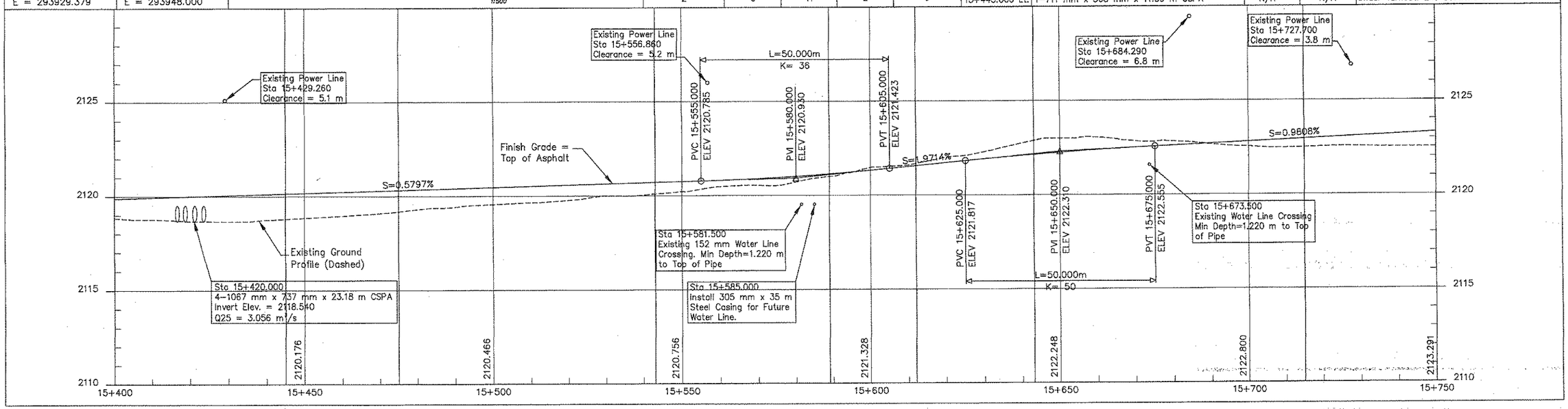
NOTE: Plan Sheets 34 & 35 Use 1:500 Scale

CURVE C17	CURVE C18
D = 8°48'27" Lt.	D = 22°39'49" Rt.
Dc = 17°27'28"	Dc = 20°17'59"
R = 100.034m	R = 86.029m
T = 7.704m	T = 17.240m
L = 15.377m	L = 34.029m
e = NC	e = NC
PI	PI
STA = 15+535.386	STA = 15+656.039
N = 488906.905	N = 489026.142
E = 293929.379	E = 293948.000

SCALE
5 0 5 10 15 20
(METRIC) 1:500

MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	11	2	9

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
15+420.000	4-1067 mm x 737 mm x 23.18 m CSPA	90°	143.6	End Sections @ Inlets. Placed Riprap @ Outlets.
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.



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	35	63

CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-45	489261.212	293939.515	2127.200	REBAR	15+932.858	83.984 Lt.

EXISTING UTILITY CROSSINGS	
STATION	DESCRIPTION
15+806.710	Power Line Crossing @ 48° Skew Elev. = 2129.45
15+843.130	Power Line Crossing @ 19° Skew Elev. = 2131.25
15+969.400	Water Line Crossing @ 94° Skew

TURNOUT BACK-OF-CURB ELEVATION TABLE			
TURNOUT	STATION	OFFSET	ELEVATION
15+770 Rt.	15+757.75	5.41	2123.411
	15+763.68	7.87	2123.185*
	15+766.16	13.80	2123.305
	15+773.98	13.80	2123.305
	15+776.46	7.87	2123.500
	15+782.50	5.41	2123.694

*Back of Theoretical Curb Elevation at Center of Curb Ramp

Sta 15+760.000 Lt.
Construct 4.5m x 10.2 m Rolled Curb Type Driveway @ 90° Skew w/9.0 m Radius
Install 2-unit C. Guard. Grade to Drain Through Cattle Guard. Construct Riprap Pad at Curb End. (See Sheet 41 Details)

Sta 15+782 ?
Remove Existing 610 mm x 9.6 m Culvert

Sta 15+880.000 Lt.
Construct 4.5 m x 10.2 m Turnout @ 90° Skew w/9.0 m Radius
Install 2-Unit C. Guard w/Type I Gate
Install 1-711 mm x 508 mm x 11.59 m CSPA w/End Sections at Both Ends

Sta 15+977.000 Lt.
Construct 4.5 m x 10.2 m Turnout @ 90° Skew w/9.0 m Radius
Install 2-Unit C. Guard w/Type I Gate
Install 1-711 mm x 508 mm x 11.59 m CSPA w/End Sections at Both Ends

Relocate Existing Drug Free School Zone Sign From Sta 15+762 Rt. to Sta 15+780 Rt.

Sta 15+791.225 to 15+812 Lt.
Install Toe of Fill Riprap

Sta 15+830 Lt.
Install S1-1 And W16-9p Signs

Sta 15+834 Lt.
Existing Sign to Remain

Sta 15+920 Lt.
Install W1-5 Sign

Sta 15+962 Lt.
Remove Existing R2-1(15) Sign

Sta 16+000 Lt.
Install R2-1(25) Sign

Sta 16+100 Lt.
Install R4-1 Sign

NOTE: Plan Sheets 34 & 35 Use 1:500 Scale

Grade To Drain To Cattle Guard

Temporary Easement

Install R1-1 Sign On Turnout

Sta 15+770.000 Rt.
Construct 7.480 m x 30.2 m Turnout @ 90° Skew w/9.0 m Radius. Remove & Salvage Existing Cattle Guard. Install New 3-Unit C. Guard at End of Curb Returns. Remove Existing PCC Dwy As Required to Install New Cattle Guard. Grade Cattle Guard to Drain to the North. Relocate Existing Gate to New Cattle Guard Location. Remove 20 m of Existing Chain Link Fence & Reset On South Side of Turnout. Tie Cattle Guard to Existing School Fence. Place Asphalt From Edge of Roadway to Cattle Guard. Place PCC Pavement & Curb (Bid Item 60101-0000) From Back of Cattle Guard to Match Existing Concrete Driveway. Reinforcing Steel To Match and Connect to Existing Reinforcing. Existing Curb and Gutter Replacement (Behind the Rolled Curb) to be Included in Bid Item 60101-0000 Measurements, Reinforcing Steel to be Incidental to Bid Item 60101-0000. Concrete Thickness To Be The Greater of Existing Dwy Thickness or 180 mm. Construct Curb Ramp At South Curb Return. No Valley Gutter Or Fillets.

Sta 15+839.000 Rt.
Construct 4.5 m x 20.2 m Turnout @ 90° Skew w/9.0m Radius. Install 2-Unit C. Guard w/Type I Gate

Sta 15+791.610 to 15+812 Rt.
Install Toe of Fill Riprap

Sta 15+774.000 to 16+065.307 Rt.
Install Woven Wire R.O.W. Fence At Sta 15+774 Tie New R.O.W Fence To Existing School Fence At New Cattle Guard. Angle New R.O.W. Fence To Sta 15+783.155, 23 m Rt.

Obliterate Road

Sta 15+840 Rt.
Remove Existing Intersection Sign

Sta 15+873.000 N9010 = STA 21+000.000 N28

See Sheet 40 For Intersection Details

I.U.#6
I.U.#7

PASS WITH CARE

Sta 15+923.000 Rt.
Construct 4.5 m x 10.2 m Turnout @ 90° Skew w/9.0 m Radius
Install 2-Unit C. Guard w/Type I Gate
Grade to Drain Through Cattle Guard

Sta 15+940 Rt.
Install R4-2 Sign

Sta 16+000 Rt.
Install R2-1(45) Sign

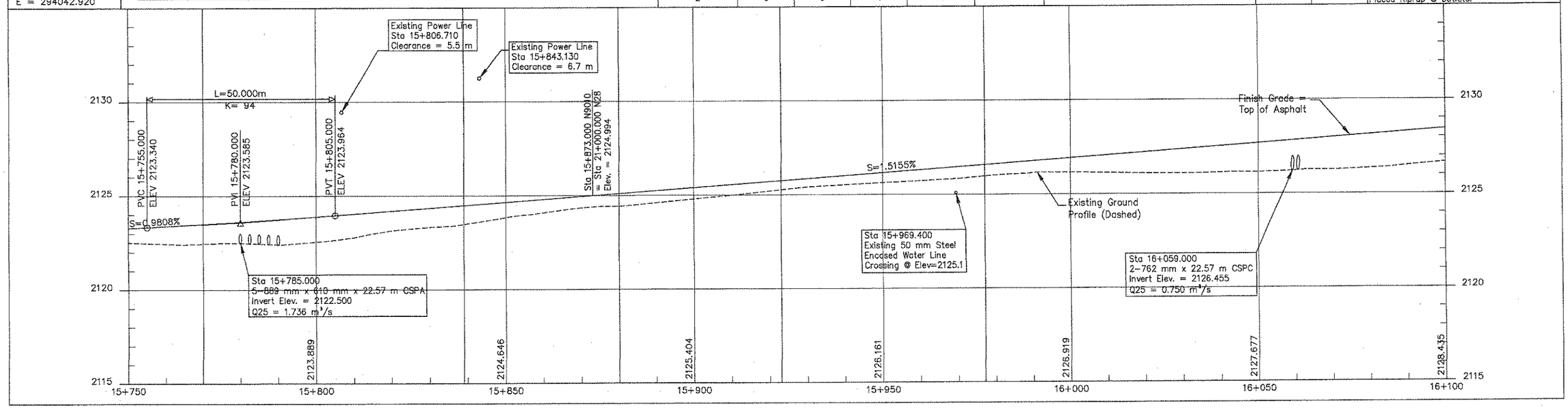
Sta 16+100 Rt.
Install W14-3 Sign

SCALE 5 0 5 10 15 20 (METRIC) 1:500

CURVE C19
D = 43°42'28" Lt.
Dc = 12°59'44"
R = 134.383m
T = 53.896m
L = 102.513m
e = NC
PI
STA = 15+837.051
N = 489180.800
E = 294042.920

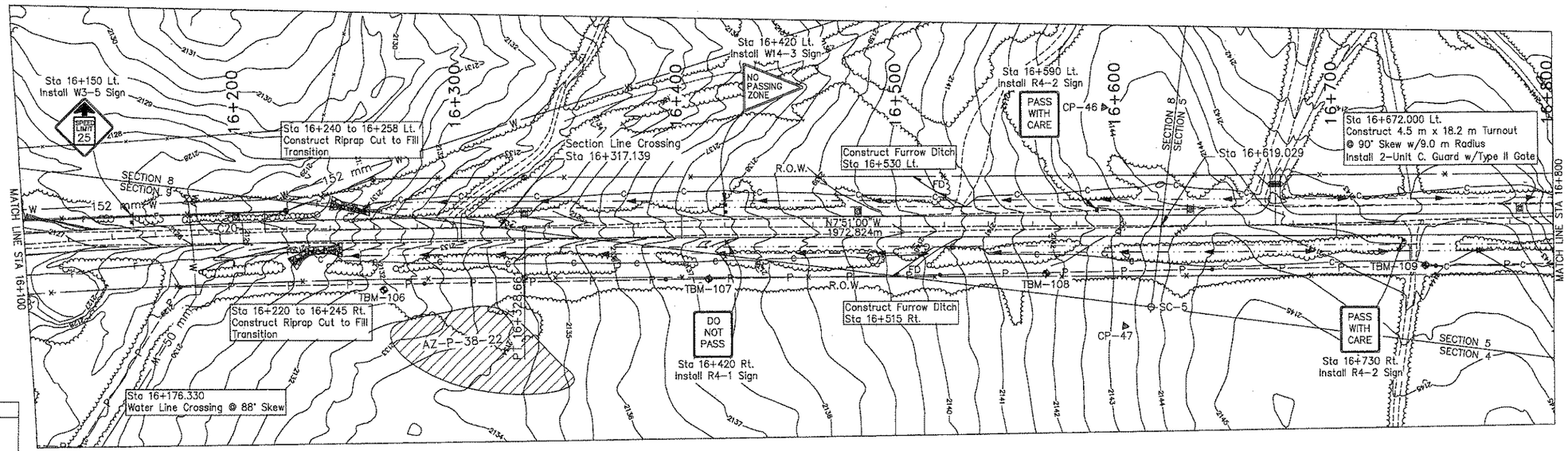
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	0	9	4	10

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
15+785.000	5-889 mm x 610 mm x 22.57 m CSPA	90°	160.6	End Sections @ Inlets. Placed Riprap @ Outlets.
15+880.000 Lt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
15+977.000 Lt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
16+059.000	2-762 mm x 22.57 m CSPC	120°	19.7	End Sections & Ditch Block at Inlets. Placed Riprap @ Outlets.



CONTROL POINTS						
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION	OFFSET
CP-46	489922.544	293858.175	2143.780	REBAR	16+592.710	54.202 Lt.
CP-47	489945.458	293956.052	2143.330	REBAR	16+602.041	45.887 Lt.
SC-5	489956.298	293945.749		T23NR29ENES8	16+614.187	37.162 Rt.

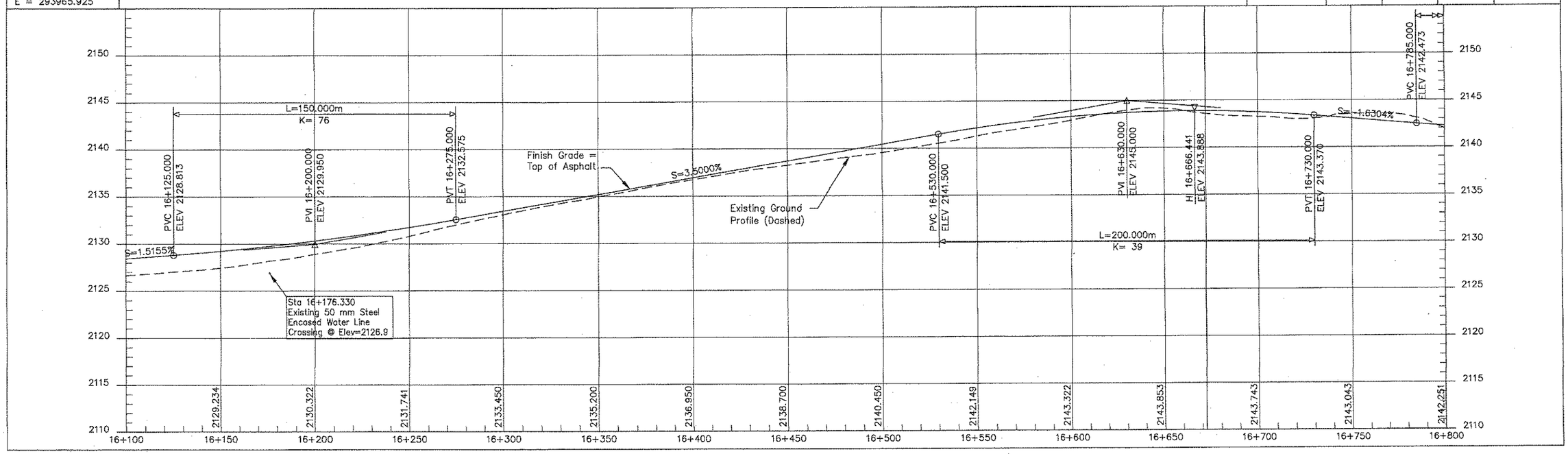
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	36	63



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

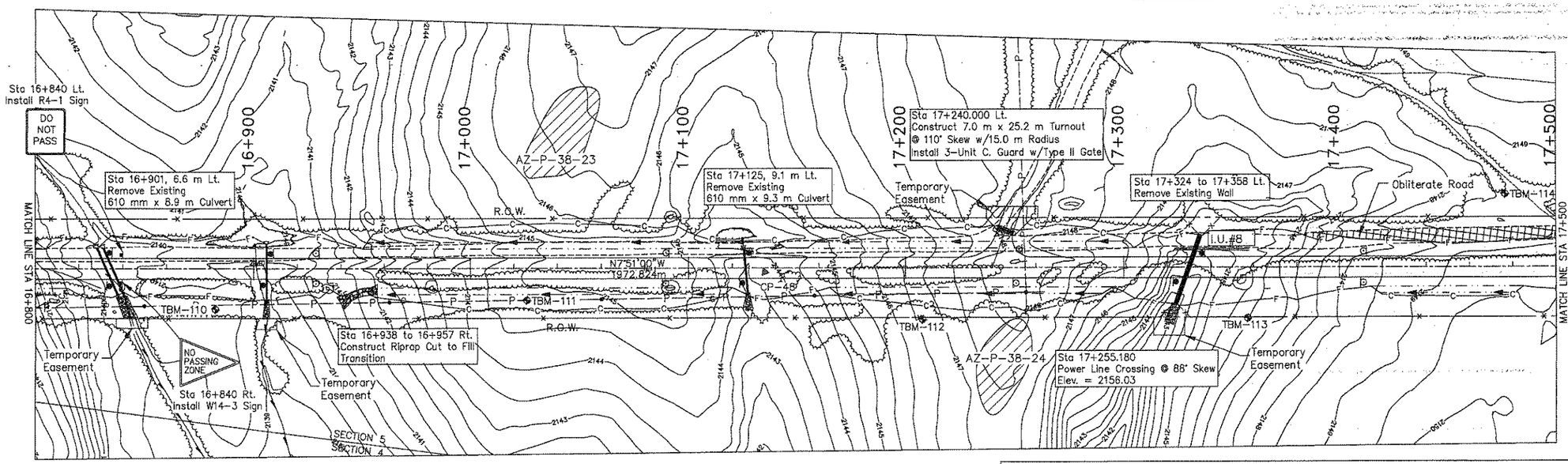
SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
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.

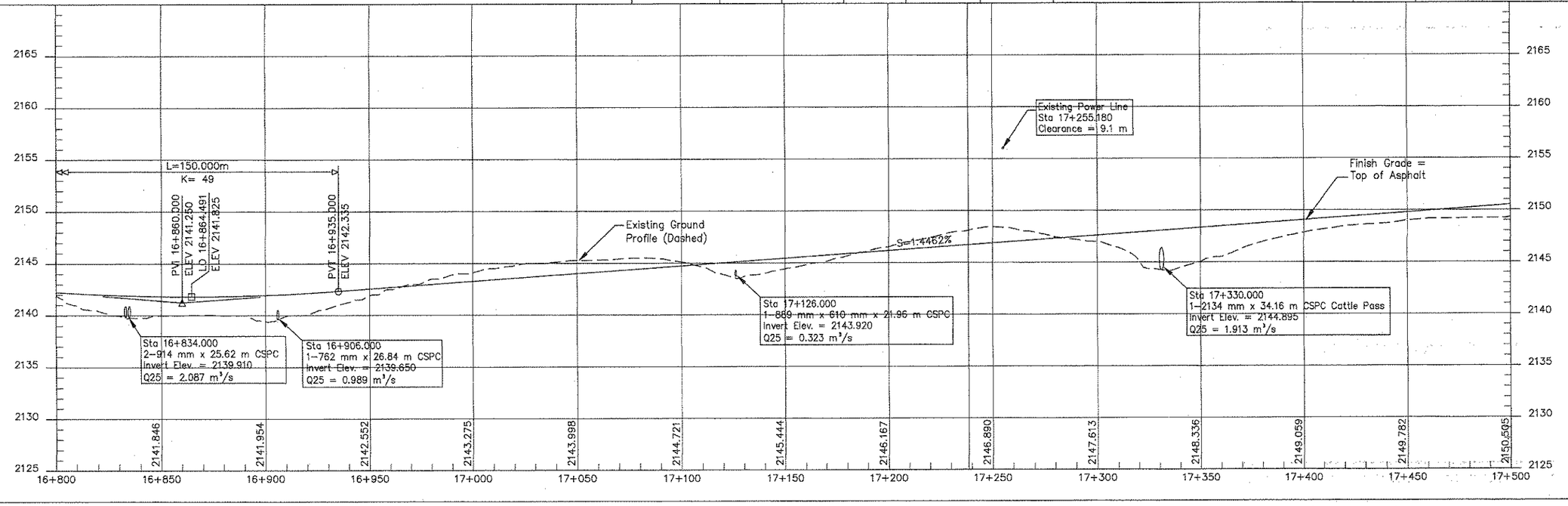
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	37	63



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

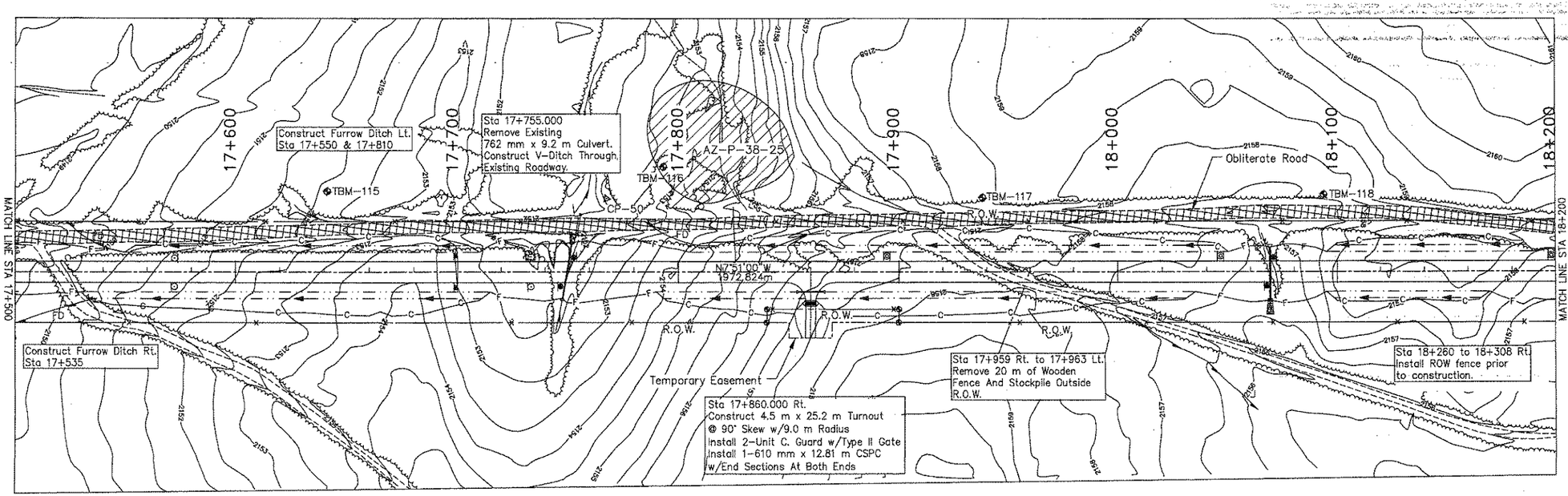
SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

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 CSPA	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	OFFSET
CP-50	491089.504	293718.253	2152.550	REBAR	17+767.845	33.432 Lt.

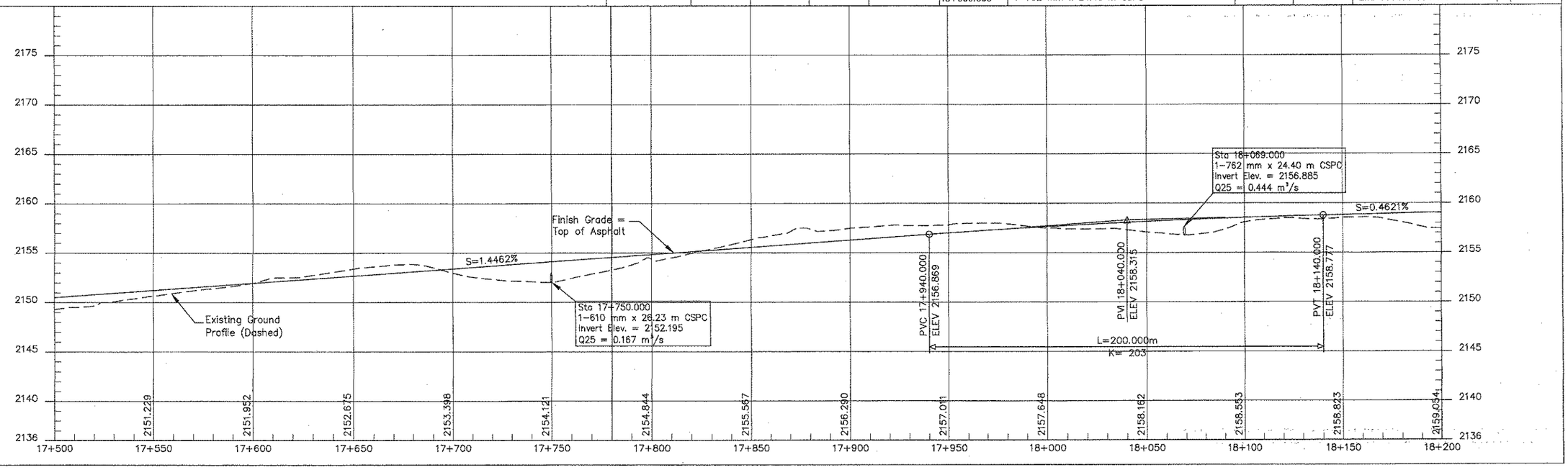
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	38	63



SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

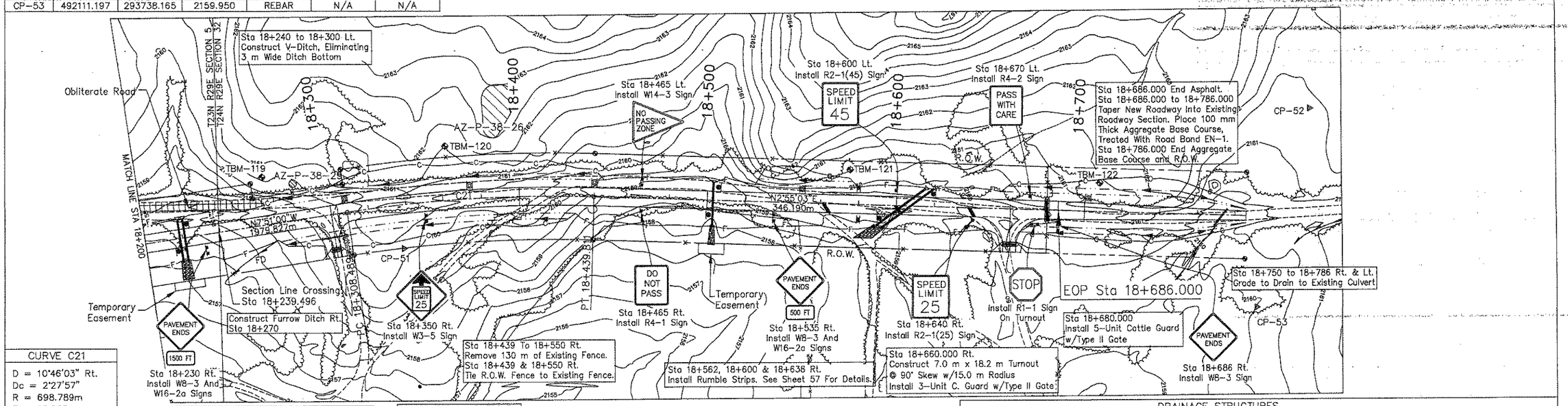
MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
2	4	3	4	4

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
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	OFFSET
CP-51	491659.418	293697.370	2160.220	REBAR	18+336.428	22.874 Rt.
CP-52	492142.146	293633.192	2161.330	REBAR	N/A	N/A
CP-53	492111.197	293738.165	2159.950	REBAR	N/A	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

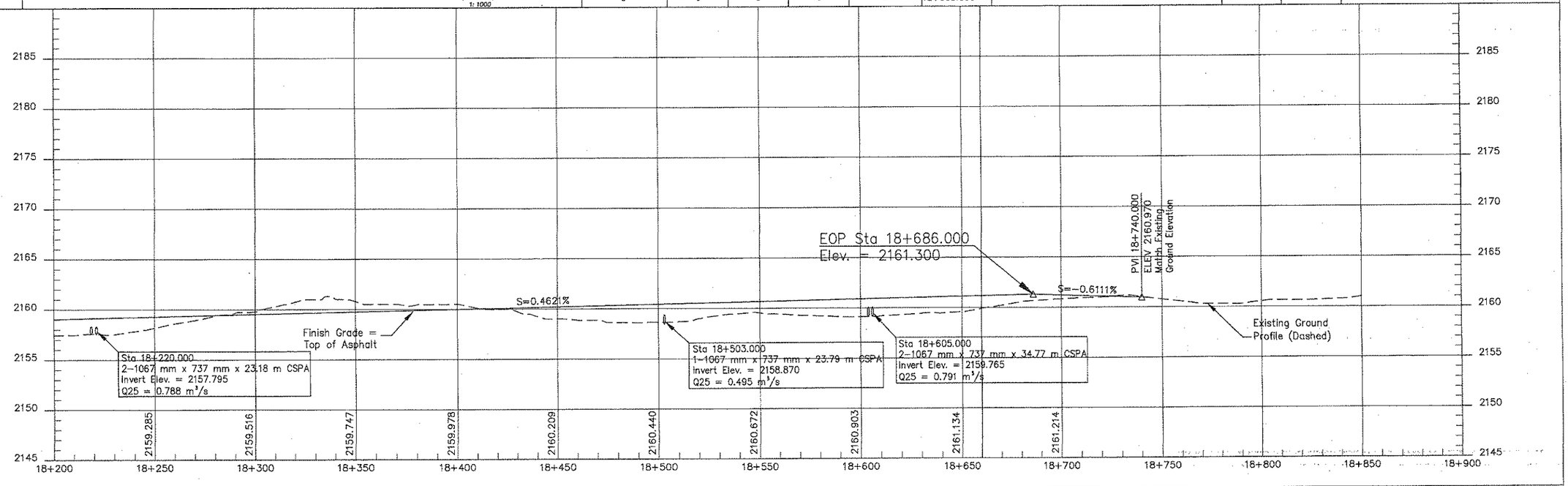
Sta 18+300.000 Rt
Construct 4.5 m x 18.2 m Turnout @ 90° Skew w/9.0 m Radius
Install 2-Unit C. Guard w/Type II Gate (4.9 m Wide Gate)
Install 1-711 mm x 508 mm x 11.59 m CSPA w/End Sections @ Both Ends

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

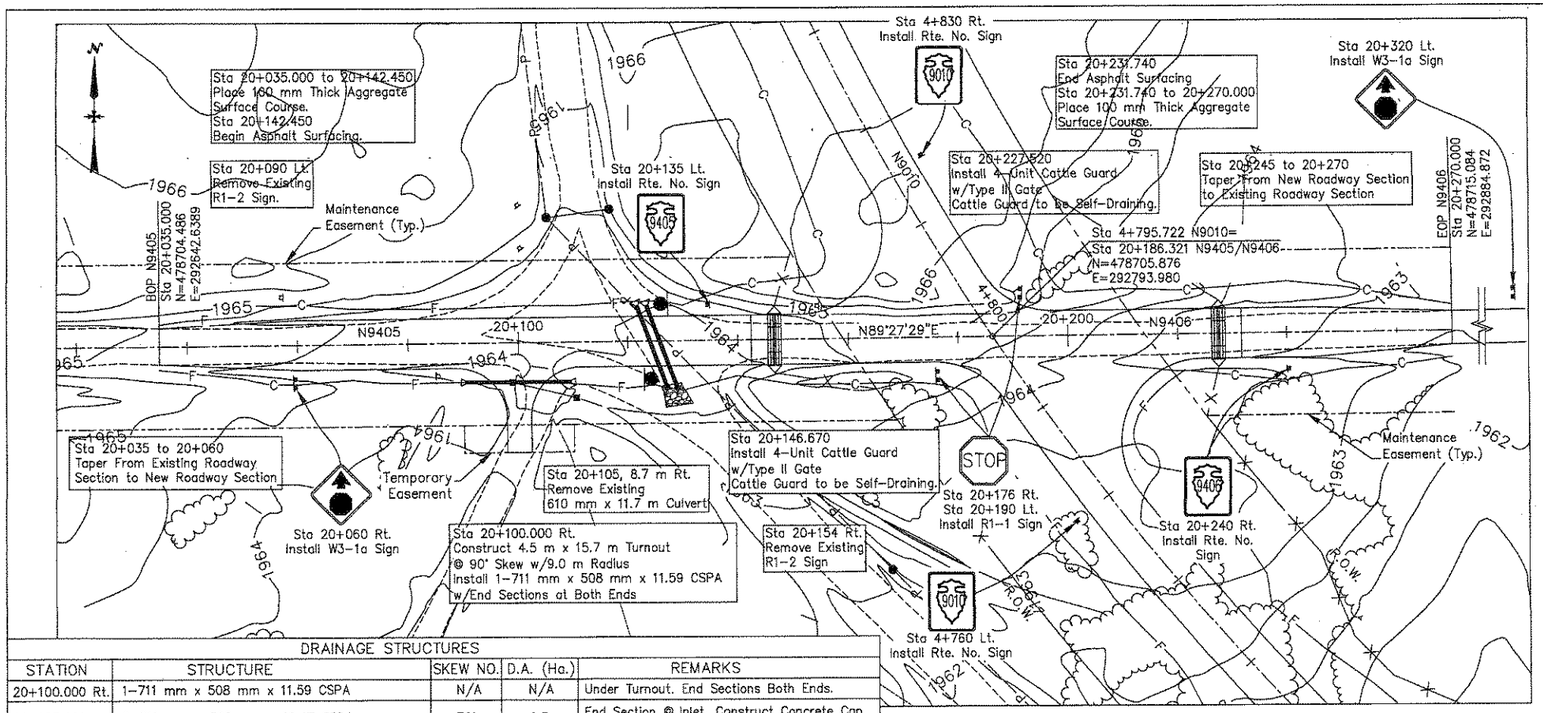
SCALE
10 0 10 20 30 40 50
(METRIC)
1: 1000

MILEPOSTS	DELINEATORS		OBJECT MARKERS	RIGHT OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type II	
0	0	5	6	9

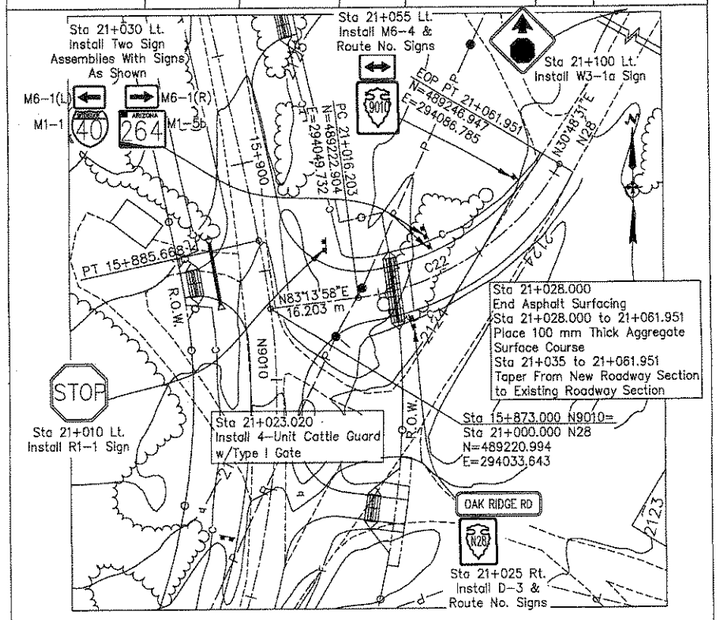
DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
18+220.000	2-1067 mm x 737 mm x 23.18 m CSPA	90°	18.7	End Sections at Inlets. Placed Riprap @ Outlets.
18+300.000 Rt.	1-711 mm x 508 mm x 11.59 m CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
18+503.000	1-1067 mm x 737 mm x 23.79 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.

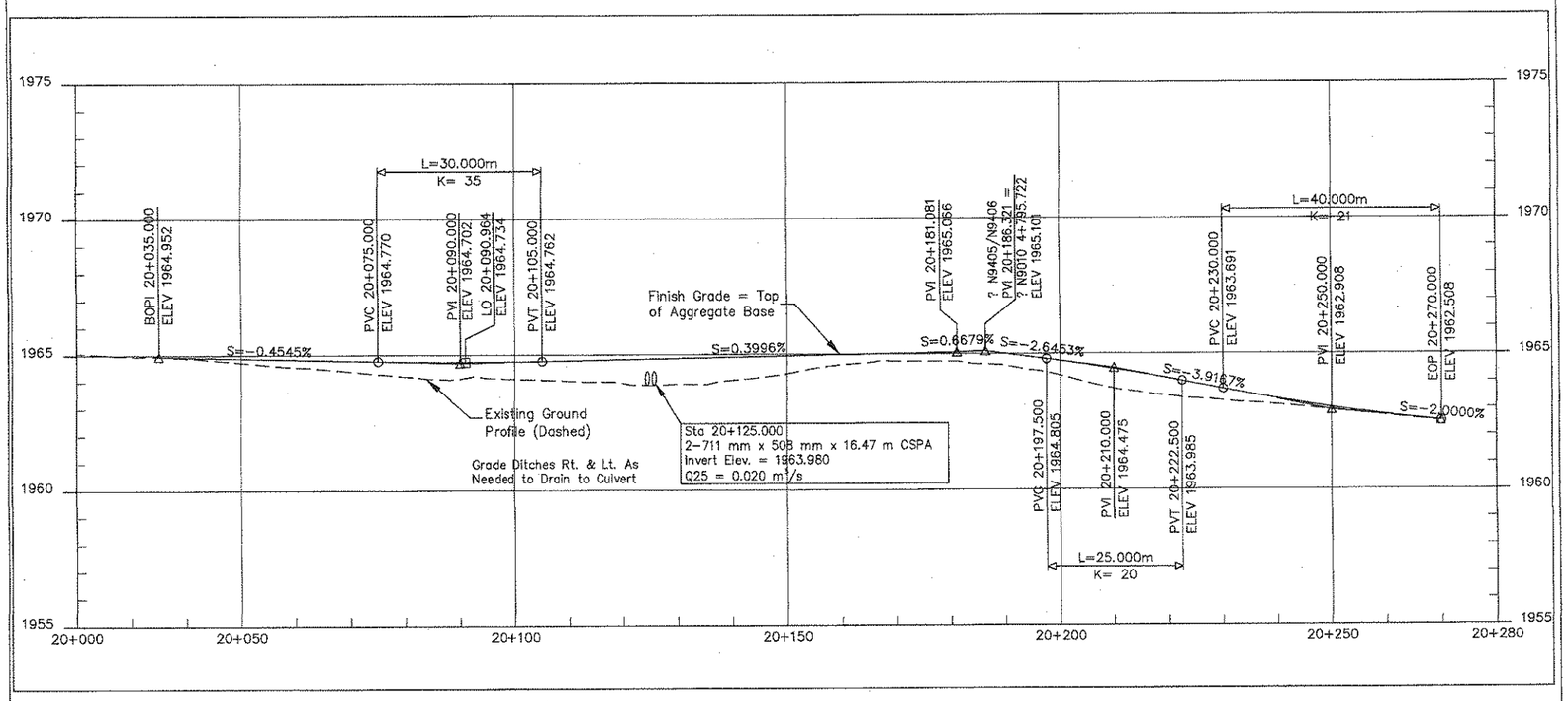


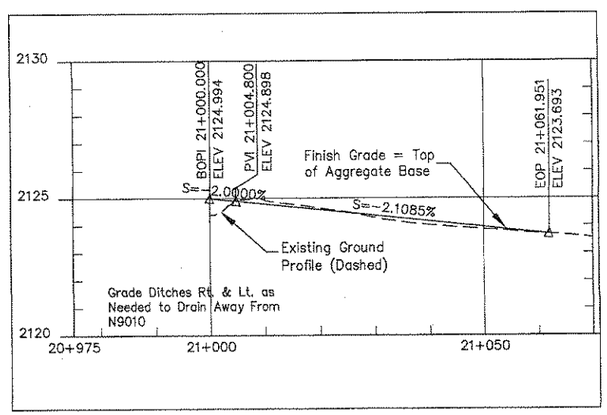
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	40	63



DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW NO.	D.A. (Ha.)	REMARKS
20+100.000 Rt.	1-711 mm x 508 mm x 11.59 CSPA	N/A	N/A	Under Turnout. End Sections Both Ends.
20+125.000	2-711 mm x 508 mm x 16.47 CSPA	70°	1.5	End Section @ Inlet. Construct Concrete Cap. Riprap @ Outlets







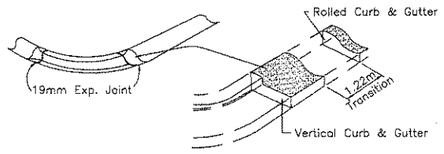
CURVE C22
D = 52°25'27" Lt.
Dc =34°55'39"
R = 50.000m
T = 24.616m
L = 45.749m
e = NC
PI
Sta = 21+040.819
N = 489225.804
E = 294074.177

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

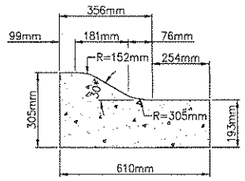
INTERSECTION CONSTRUCTION DETAILS

Designed by: RDL	
Drawn by: RDL	Date: 03-06
Revised by: DESIGN 2	Date: 1/13/09
File Name: N9010_Construction Details	

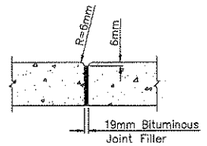
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	41	63



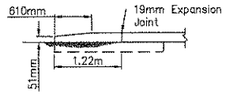
TRANSITION FROM VERTICAL TO ROLLED CURB



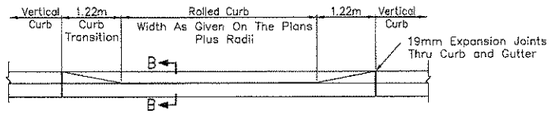
CONCRETE ROLLED CURB & GUTTER



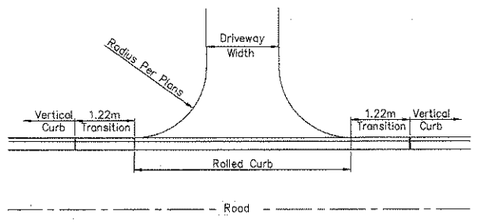
EXPANSION JOINT



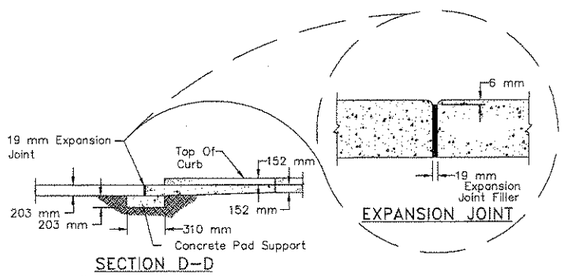
CURB TERMINAL SECTION



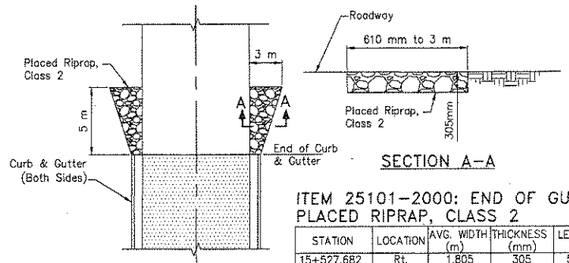
ROLLED CURB TYPE DRIVEWAY



ROLLED CURB TYPE DRIVEWAY PLAN



SECTION D–D
Curb Return & Valley Gutter
EXPANSION JOINT



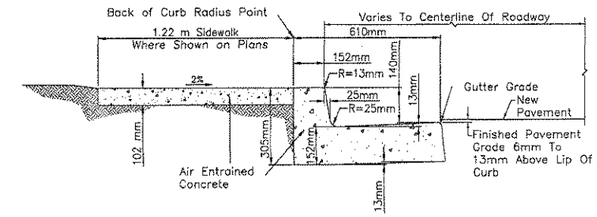
SECTION A–A

PLAN VIEW

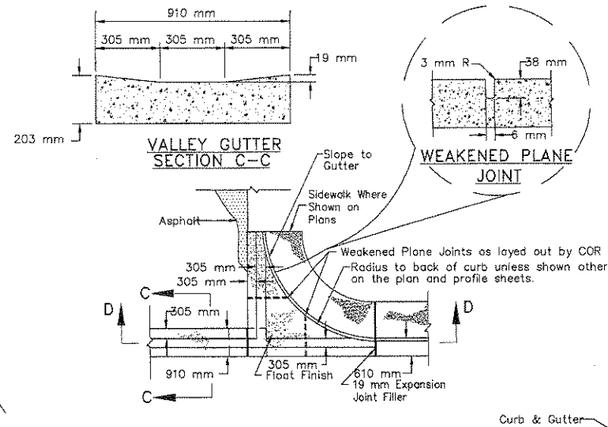
ITEM 25101–2000: END OF GUTTER PLACED RIPRAP, CLASS 2

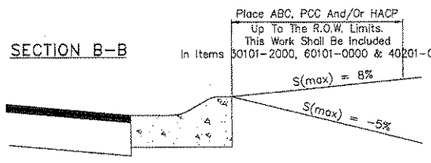
STATION	LOCATION	AVG. WIDTH (m)	THICKNESS (mm)	LENGTH (m)	VOLUME (m^3)
15+527.682	Rt.	1.805	305	5.0	2.75
15+600.000	Lt.	1.805	305	5.0	2.75
15+777.000	Lt.	1.805	305	5.0	2.75
				TOTAL	8.25

END CURB & GUTTER DETAIL

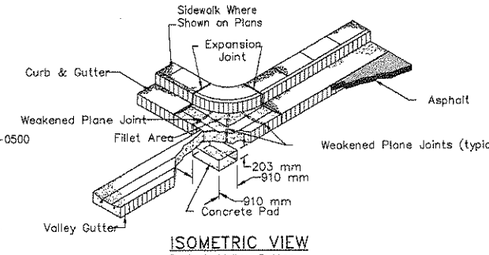


VERTICAL CURB & GUTTER AND SIDEWALK





SECTION B–B



ISOMETRIC VIEW
Curb & Valley Gutter

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).

2. ALL CONCRETE TO BE AIR ENTRAINED AND SHALL CONFORM TO SECTION 601– MINOR CONCRETE STRUCTURES OF THE FP–03.

3. IN NO CASE SHALL ANY BACKFILLING OR PAVING BE ALLOWED UNTIL THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSSIVE STRENGTH OF 17.23 MPa.

4. ALL SUBGRADE SOILS IN AREAS WHERE CONCRETE CURB & GUTTER, VALLEY GUTTER PLACED SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T–99, METHOD (c). ANY UNSUITABLE SUBGRADE MATERIALS ENCOUNTERED SHALL BE REMOVED AND REPLACED WITH SELECT BACKFILLL MATERIAL CONFORMING TO AASHTO (A–2–4) OR BETTER. THIS WORK SHALL BE IN ACCORDANCE WITH SECTION 109.02 (m) OF THE SUPPLEMENTAL SPECIFICATIONS.

5. AT WING–TYPE DRIVEWAYS, THE CURB SHALL BE DEPRESSED AND 4.50m WIDE DRIVEWAY APPROACHES SHALL BE CONSTRUCTED AS PER THIS DETAIL SHEET. THE WING DRIVEWAY CONCRETE SHALL BE PAID FOR UNDER ITEM 60101–0000, MINOR CONCRETE.

6. AT CURB RETURN/VALLEY GUTTER INTERSECTIONS, THE CURB RETURN, VALLEY GUTTER, AND FILLET SECTION SHALL BE CONSTRUCTED AS PER THIS DETAIL SHEET. THE CONCRETE FILLET SECTION SHALL BE PLACED INTEGRALLY WITH THE ADJOINING CONCRETE CURB. THE FILLET SECTION AND PAD SUPPORT CONCRETE MATERIAL AND INSTALLATION SHALL BE INCIDENTAL TO ITEMS 60902–0400 AND 60905–1000, AND NO ADDITIONAL PAYMENT SHALL BE MADE. THE VALLEY GUTTER PAY LIMIT MEASUREMENTS SHALL BE FROM INSIDE FACES OF FILLET SECTION.

7. ALL PREFORM JOINT FILLER SHALL BE IN ACCORDANCE WITH SECTION 712.01 OF THE FP–03. THE CONTRACTOR SHALL SUBMIT A PROPOSAL ON THE TYPE OF FILLER AND METHOD OF INSTALLATION TO BE USED FOR REVIEW AND APPROVAL. THIS MATERIAL AND INSTALLATION THERE OF SHALL BE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR UNDER ITEMS 60902–0400, AND 60905–1000.

8. THE CONTRACTOR SHALL BE REQUIRED TO MAKE ANY AND ALL NECESSSARY FIELD ADJUSTMENTS TO MATCH FIELD CONDITIONS, AS DIRECTED BY THE COR/AOTR. AFTER THE CURBS, CURB RETURN, AND VALLEY GUTTERS ARE STAKED, FORMED, AND PRIOR TO CONCRETE POUR, THE CONTRACTOR SHALL NOTIFY THE COR/AOTR, AND ALLOW TIME FOR THE FIELD INSPECTORS TO CHECK DRAINAGE. IF INADEQUATE DRAINAGE FOUND, THE ELEVATIONS SHALL BE ADJUSTED TO ENSURE POSITIVE DRAINAGE AROUND THE CURB RETURNS, ALONG CURBS, AND VALLEY GUTTERS. THESE FIELD ADJUSTMENTS SHALL BE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR UNDER ITEMS 60902–0400, AND 60905–1000.

9. SURFACE TEXTURE OF WING TYPE DRIVEWAYS SHALL BE OBTAINED BY HEAVY BROOMING (TEXTURE DEPTH OF 2.0mm), TRAVERSE TO SLOPES. THIS WORK SHALL BE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR UNDER ITEMS 60902–0400, AND 60905–1000.

10. INTERSECTION RADII MEASUREMENTS TAKEN AT BACK OF CURBS, UNLESS AS OTHERWISE AS NOTED BY THE COR/AOTR.

Revised 06–09–10

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

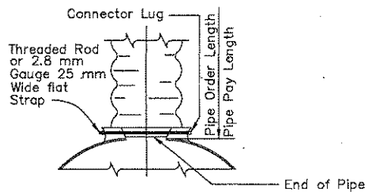
CURB & GUTTER AND DRIVEWAY DETAILS

Designed by:	NRO–DOT	
Drawn by:		Date: 03–06
Revised by:	DESIGN 2	Date: 1/22/09
File Name:	N9010_Curb & Gutter	

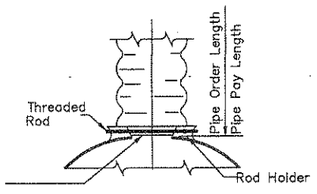
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	42	63

END SECTION NOTES

1. 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.
2. 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.
3. 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.
4. 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.
5. Welding Shall Not Be Permitted in Connecting End Sections to Connector Sections or Connector Sections To Pipe.
6. Type No. 1 Steel End Section: Connect End Section With Threaded Rod With Connector Lug, For 610 mm Pipe Only.
7. 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.
8. 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.
9. 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.
10. 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.



TYPE NO. 1



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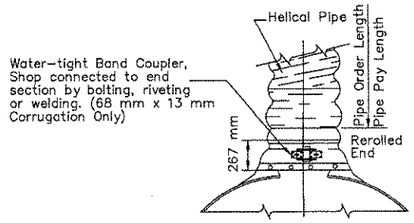

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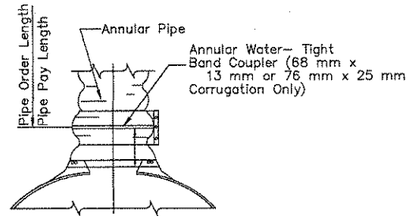
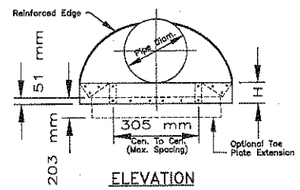
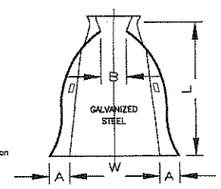


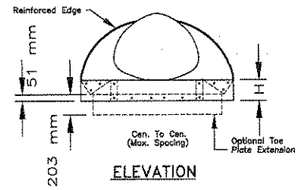
TYPE NO. 3



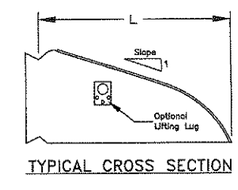
ELEVATION



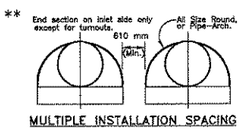
PLAN



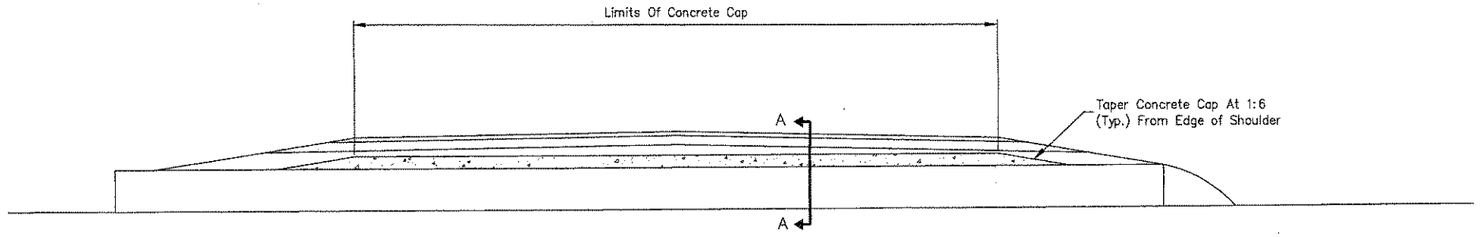
ELEVATION



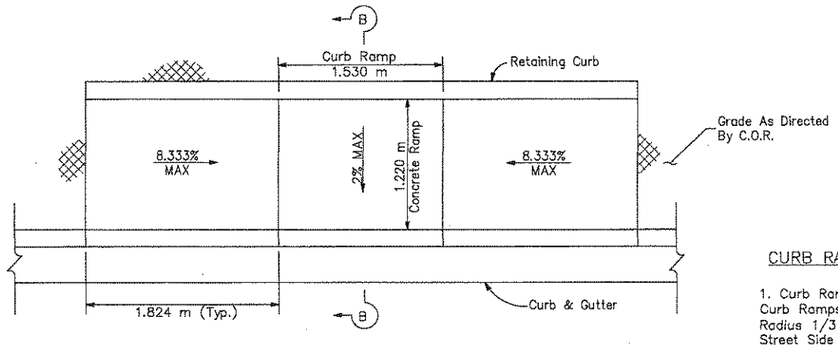
TYPICAL CROSS SECTION



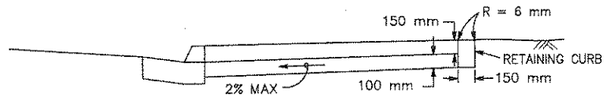
MULTIPLE INSTALLATION SPACING



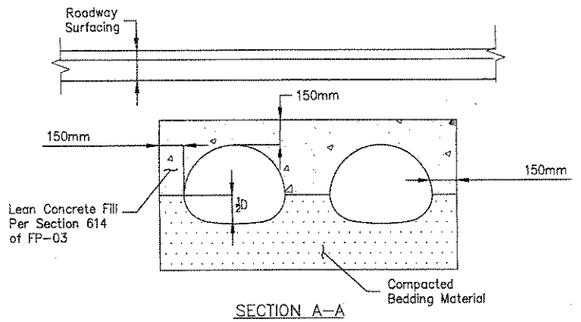
CONCRETE CAP FOR CULVERTS
N.T.S. NS405 Sta 20+125



CURB RAMP PLAN



SECTION B-B



SECTION A-A
N.T.S.

CONCRETE CAP NOTES

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

CURB RAMP NOTES

1. 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.
2. 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.
3. See Sheet 41 For Additional Notes.

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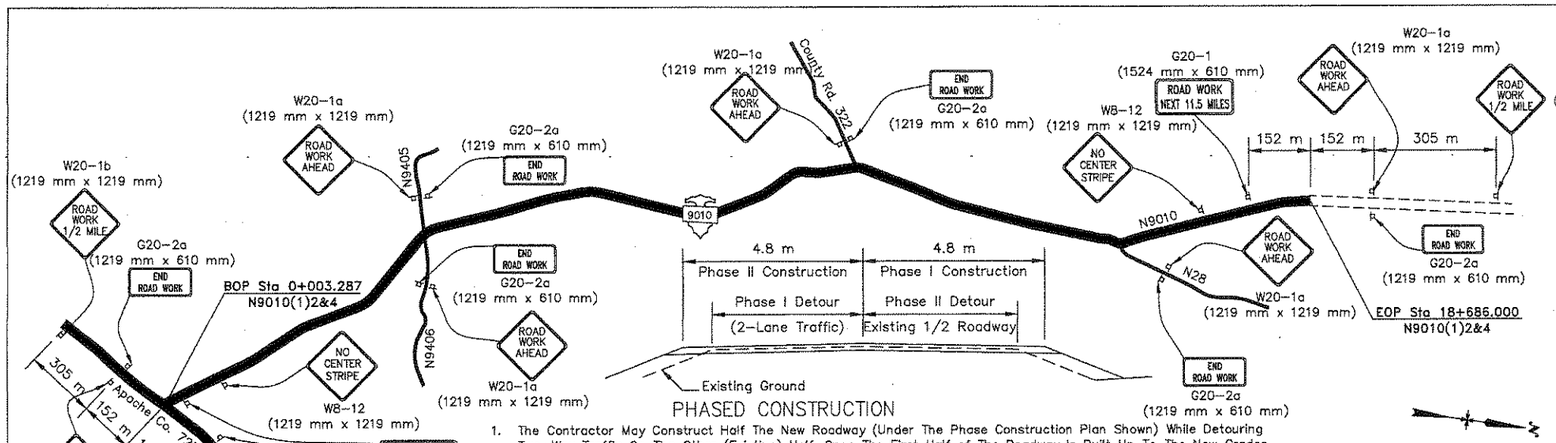
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

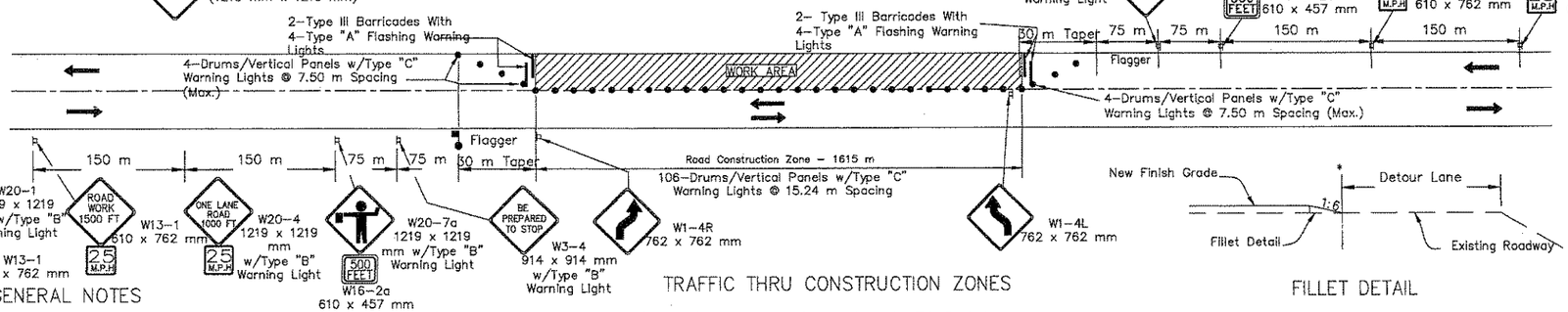
END SECTION, CURB RAMP & CONCRETE CAP DETAILS

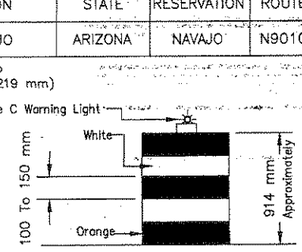
Designed by: NRO-DOT, ASCG	
Drawn by:	Date:
Revised by: Design2	Date: 01/22/09
File Name: STD-End Sections	

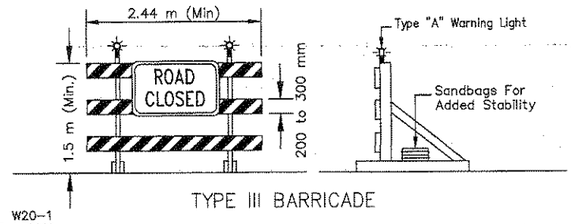
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	43	63



1. The Contractor May Construct Half The New Roadway (Under The Phase Construction Plan Shown) While Detouring Two-Way Traffic On The Other (Existing) Half. Once The First Half of The Roadway Is Built Up To The New Grades, Then Traffic Shall Be Channeled To The New Half of Roadway While The Other (Existing) Half Is Reconstructed.
2. All (New) Drainage Pipe Installations Shall Be In Accordance With The Phased Construction Plan Above, As Well As Removal Of Existing Pipes. This may Require Cutting Half of All Existing Pipe At One Time. All the Pipe Installation And Removal Shall Be Considered Incidental To Pipe Items Shown And No Additional Payment Will Be Made.
3. This Phased Construction Shall Be Considered Incidental To The TCP Shown And No Additional Payment Shall Be Made.
4. The Contractor's Construction Sequence And Storm Water Pollution Plan Prevention Shall Reflect This Phased Construction.







TEMPORARY TRAFFIC CONTROL DEVICES

DESIGNATION	DETAIL	MINIMUM SIZE (mm)	DESIGNATION	DETAIL	MINIMUM SIZE (mm)
W20-1	ROAD WORK 1500 FT	1219 x 1219	W1-4R W1-4L		762 x 762 762 x 762
W20-1a	ROAD WORK AHEAD	1219 x 1219	W16-2a	500 FEET	610 x 457
W20-1b	ROAD WORK 1/2 MILE	1219 x 1219	G20-2a	END ROAD WORK	1219 x 610
W20-4	ONE LANE ROAD 1000 FT	1219 x 1219	Type III Barricade		As Shown
W20-7a		1219 x 1219	R11-2	ROAD CLOSED	1219 x 762
W13-1	25 M.P.H.	610 x 762	W8-12	NO CENTER STRIPE	1219 x 1219
Drums or Vertical Panels		As Shown	G20-1	ROAD WORK NEXT 11.5 MILES	1524 x 610
Type A Warning Lights		N/A			
Type C Warning Lights		N/A	W3-4	BE PREPARED TO STOP	914 x 914

GENERAL NOTES

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 B 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 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.

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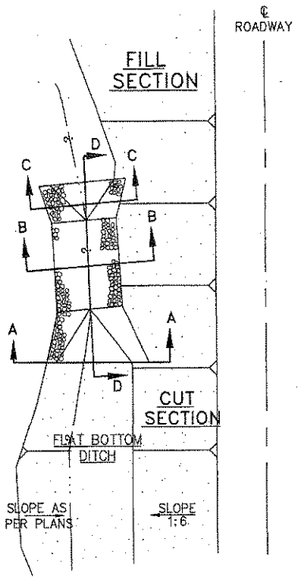
BUREAU OF INDIAN AFFAIRS
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

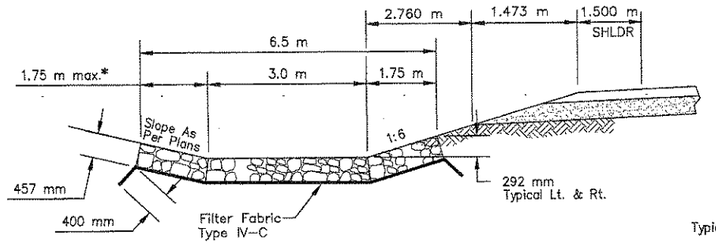
TEMPORARY TRAFFIC CONTROL

Designed by: RDL	
Drawn by: BGC	Date: 10/06
Revised by: DESIGN 2	Date: 1/09/09
File Name: N9010_Trafcntrol	

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

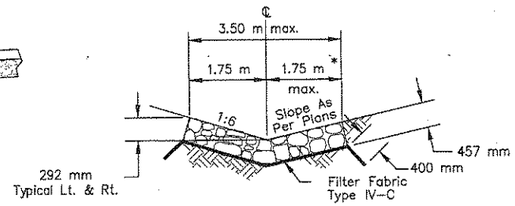


PLAN VIEW
CUT TO FILL TRANSITION
AT FLAT BOTTOM DITCH



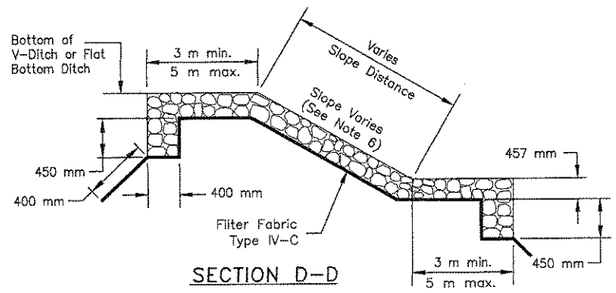
SECTION A–A & TYPICAL FLAT BOTTOM DITCH LINING DETAIL

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

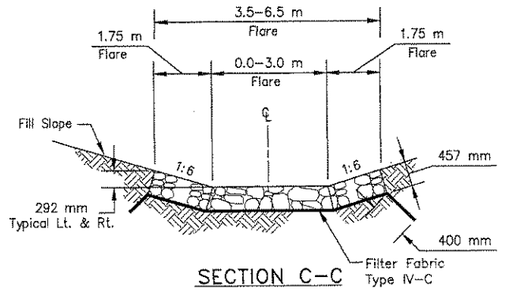


SECTION B–B

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



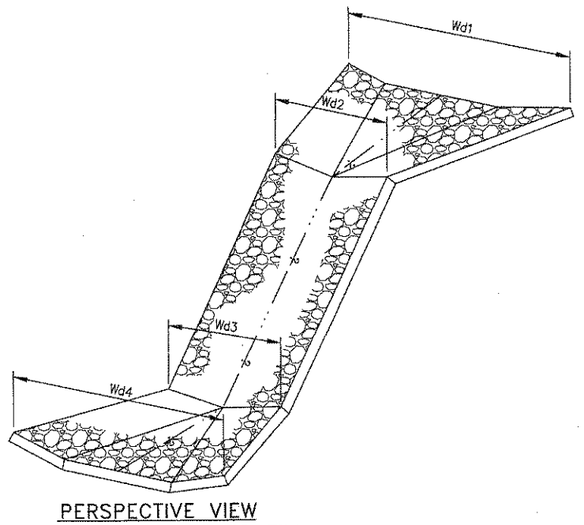
SECTION D–D



SECTION C–C

GENERAL NOTES

1. 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.
2. The Quantities Shown are Only an Estimate. Actual Quantities Shall Be Determined in the Field. The Project Manager, COR/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 COR/AOTR the Rock Cut is Stable, the COR/AOTR May Elect to Delete Sections of the Placed Riprap. The Contractor Will Be Required to Make Adjustments to the Placed Riprap as Necessary to Fit Actual Field Conditions. These Field Adjustments Will Be Incidental Obligations of the Contractor.
3. Ditch and Back Slope Reshaping, Cleaning, and Excavation Shall Be Done in Accordance with the Plans and as Determined By the COR/AOTR All Ditch Excavation, Cleaning, and Reshaping Shall Be Considered Incidental to Completion of the Structure.
4. 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.
5. 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.
6. Riprap Downdrains Shall Be Carried Down Slope to the Intersection of the Fill Slope and Extended Until a 2% or Lower Slope Is Achieved Before Termination.
7. The Finished Surface of All 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.



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 (m³)
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

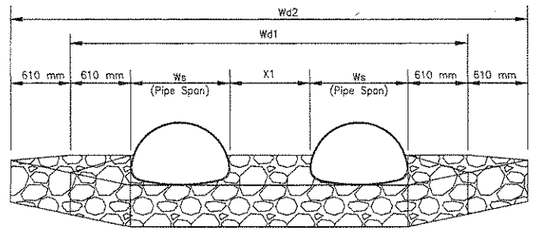
REVISED 9\9\09

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

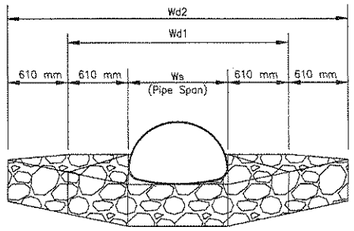
Designed by: NRO-DOT	
Drawn by:	Date:
Revised by: Design2	Date: 01/08/09
File Name: STD_Placed Riprap	

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

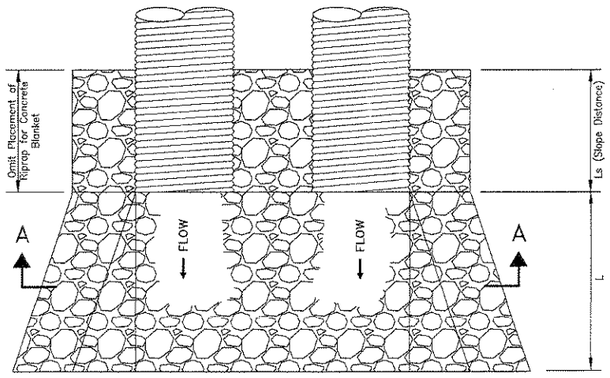


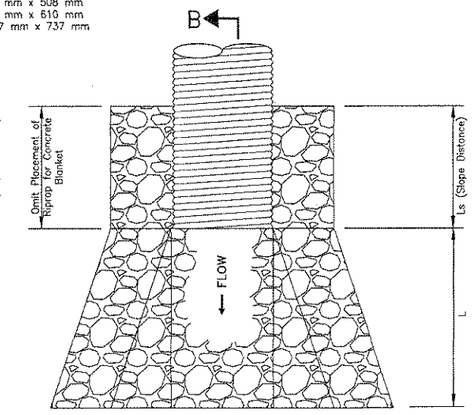
ELEVATION – MULTIPLE BARREL
SECTION A–A

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

ITEM: 25101–2000 PLACED RIPRAP, CLASS 2

STATION	STRUCTURE	LOCATION	Ws(m)	Wd1(m)	Wd2(m)	L(m)	Ls(m)	t(mm)	QUANTITY(m^3)
0+615.000 Lt.	1–711 mm x 508 mm	Outlet	0.711	1.931	3.151	3.050	2.93	457	5.0
4+090.000	3–610 mm @ 90°	Outlet	0.610	5.510	6.730	5.490	3.14	457	20.1
4+165.000	2–610 mm @ 90°	Outlet	0.610	3.670	4.890	6.100	3.14	457	15.2
5+234.000 Rt.	1–711 mm x 508 mm	Outlet	0.711	1.931	3.151	3.050	2.93	457	5.0
5+862.500	1–762 mm @ 130°	Outlet	0.762	1.982	3.202	6.858	5.93	457	11.3
6+033.000 Rt.	1–610 mm	Outlet	0.610	1.830	3.050	3.050	3.14	457	5.0
6+780.000	1–610 mm @ 140°	Outlet	0.610	1.830	3.050	4.880	6.14	457	8.5
6+962.000 Rt.	1–711 mm x 508 mm	Outlet	0.711	1.931	3.151	3.050	2.93	457	5.0
6+962.000 Lt.	1–610 mm	Outlet	0.610	1.830	3.050	3.050	3.14	457	5.0
7+083.000	1–610 mm @ 140°	Outlet	0.610	1.830	3.050	4.270	5.82	457	7.7
7+345.000	1–610 mm @ 125°	Outlet	0.610	1.830	3.050	3.050	3.66	457	5.2
9+563.000	1–610 mm @ 100°	Outlet	0.610	1.830	3.050	4.880	3.14	457	7.0
9+665.000	1–610 mm @ 92°	Outlet	0.610	1.830	3.050	4.270	3.14	457	6.3
9+960.000	1–610 mm @ 90°	Outlet	0.610	1.830	3.050	4.270	2.41	457	6.0
10+018.000	1–610 mm @ 55°	Outlet	0.610	1.830	3.050	3.660	2.77	457	5.5
11+110.000	1–610 mm @ 70°	Outlet	0.610	1.830	3.050	4.270	3.29	457	6.4
11+965.000	1–610 mm @ 90°	Outlet	0.610	1.830	3.050	6.100	3.14	457	8.4
12+499.000	2–610 mm @ 90°	Outlet	0.610	3.670	4.890	4.880	3.14	457	12.8
12+905.000	2–610 mm @ 90°	Outlet	0.610	3.670	4.890	6.100	3.14	457	15.2
13+170.000	3–610 mm @ 90°	Outlet	0.610	5.510	6.730	6.100	3.14	457	21.8
13+280.000	3–762 mm @ 90°	Outlet	0.762	6.466	7.686	6.858	5.10	457	31.2
13+380.000	3–762 mm @ 90°	Outlet	0.762	6.466	7.686	3.810	5.10	457	21.4
14+000.000	1–762 mm @ 90°	Outlet	0.762	1.982	3.202	6.858	3.46	457	10.0
14+358.000	1–1067 mm x 737 mm @ 90°	Outlet	1.067	2.287	3.507	9.150	3.41	457	13.9
14+535.000	1–914 mm @ 90°	Outlet	0.914	2.134	3.354	9.150	2.89	457	13.1
14+830.000	2–914 mm @ 115°	Outlet	0.914	4.778	5.998	9.150	3.77	457	27.5
15+420.000	4–1067 mm x 737 mm @ 90°	Outlet	1.067	10.198	11.418	6.405	5.02	457	44.2
15+785.000	5–889 mm x 610 mm @ 90°	Outlet	0.889	10.745	11.965	6.858	4.64	457	47.8
16+059.000	2–762 mm @ 120°	Outlet	0.762	4.224	5.444	3.810	5.59	457	13.5
16+834.000	2–914 mm @ 67°	Outlet	0.914	4.778	5.998	9.150	4.04	457	26.5
16+906.000	1–762 mm @ 90°	Outlet	0.762	1.982	3.202	7.620	3.46	457	10.9
17+126.000	1–889 mm x 610 mm @ 80°	Outlet	0.889	2.109	3.329	6.858	4.64	457	10.9
17+750.000	1–610 mm @ 100°	Outlet	0.610	1.830	3.050	3.660	4.64	457	6.0
18+069.000	1–762 mm @ 90°	Outlet	0.762	1.982	3.202	6.096	5.10	457	9.3
18+220.000	2–1067 mm x 737 mm @ 90°	Outlet	1.067	4.924	6.144	9.150	3.41	457	27.2
18+503.000	1–1067 mm x 737 mm @ 90°	Outlet	1.067	2.287	3.507	9.150	3.41	457	13.9
18+605.000	2–1067 mm x 737 mm @ 142°	Outlet	1.067	4.924	6.144	9.150	5.27	457	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	457	8.9
								TOTAL	548.0

ITEM: 25110–2000 GROUTED RIPRAP, CLASS 2

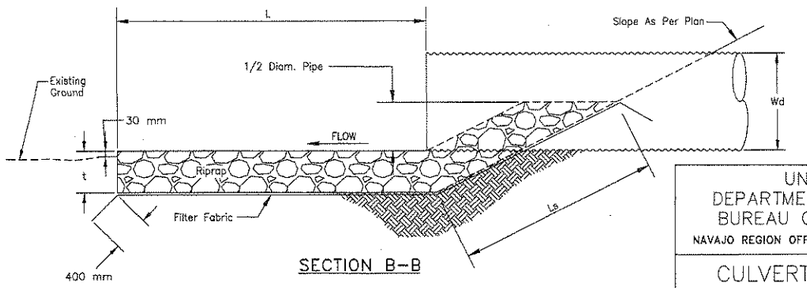
STATION	STRUCTURE	LOCATION	Ws(m)	Wd1(m)	Wd2(m)	L(m)	t(mm)	QUANTITY(m^3)
1+610.000	1–2134 mm @ 90°	Outlet	2.134	3.354	4.574	4.575	457	8.3
4+247.000	1–2134 mm @ 65°	Outlet	2.134	3.354	4.574	4.575	457	8.3
8+520.000	1–2134 mm @ 60°	Outlet	2.134	3.354	4.574	6.858	457	12.4
17+330.000	1–2134 mm @ 110°	Outlet	2.134	3.354	4.574	9.150	457	16.6
							Total	45.6

GENERAL NOTES

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP–03).
2. ALL STONE FOR RIPRAP SHALL BE CLASS 2 MEETING THE GRADING REQUIREMENTS OF TABLE 705–1 OF THE (FP–03).
3. 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.
4. 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).
5. 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.
6. ANY BORROW MATERIAL NEEDED TO BRING EXISTING CHANNELS UP TO GRADE SHALL BE INCLUDED IN BID ITEM 20401–0000.
7. SUBGRADE TO BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO METHOD C.
8. 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

9. 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.
10. 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.
11. 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.
12. 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.
13. 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.



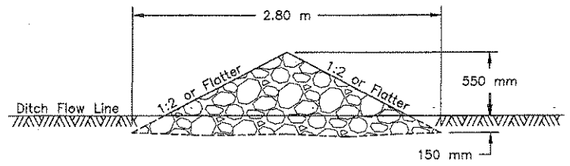
SECTION B–B

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

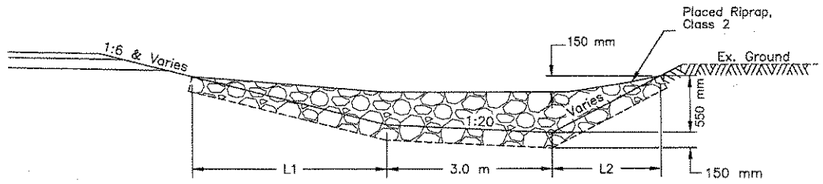
CULVERT RIPRAP DETAILS

Designed by: NRO–DOT	
Drawn by:	Date: 1/08/09
Revised by: NRODOT	Date:
File Name: N9010–Riprap	

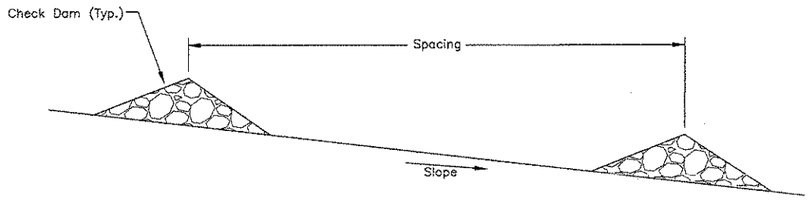
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	46	63



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



RIPRAP CHECK DAM IN V-DITCH
CROSS SECTION



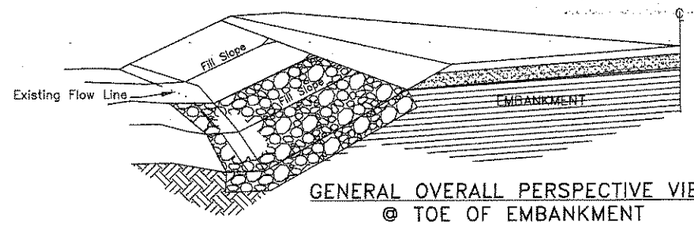
CHECK DAM SPACING
SIDE VIEW

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

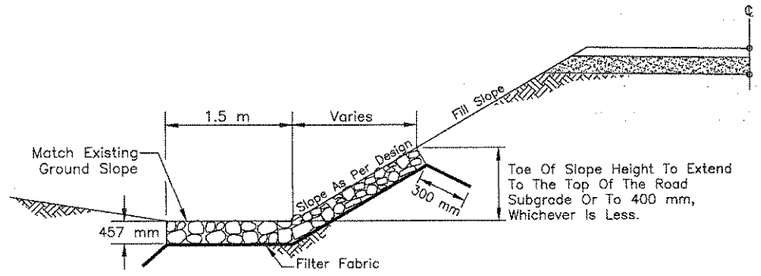
STATION	LOC.	LENGTH (m)		NUMBER OF CHECK DAMS	VOLUME PER CHECK DAM (m^3)	TOTAL VOLUME (m^3)
		L1	L2			
0+660 to 0+780	Lt.	2.40	2.20	9	4.30	38.7
2+600 to 2+900	Lt.	2.40	2.20	21	4.30	90.3
5+260 to 5+600	Lt.	2.40	2.20	17	4.30	73.1
5+260 to 5+450	Rt.	2.40	1.65	10	4.00	40.0
7+800 to 7+950	Rt.	2.40	2.20	9	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 m^3

CHECK DAM NOTES

1. Workmanship And Materials Shall Conform To The Standard Specifications For Construction Of Roads And Bridges On Federal Highway Projects, FP-03.
2. Round All Sharp Contours As Required To Fit The Soil Erosion Material Flush With The Existing Ground.
3. 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.
4. 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.
5. Stone Size Shall Conform To Table 705-1, Section 705, Stone For Riprap, Class 2. No Filter Fabric Under Check Dams.
6. 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 (m^3)
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

1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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

CHART TO DETERMINE SINGLE POST SIZE

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

CHART TO DETERMINE DOUBLE POST SIZE

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

CHART TO DETERMINE THREE POST SIZE

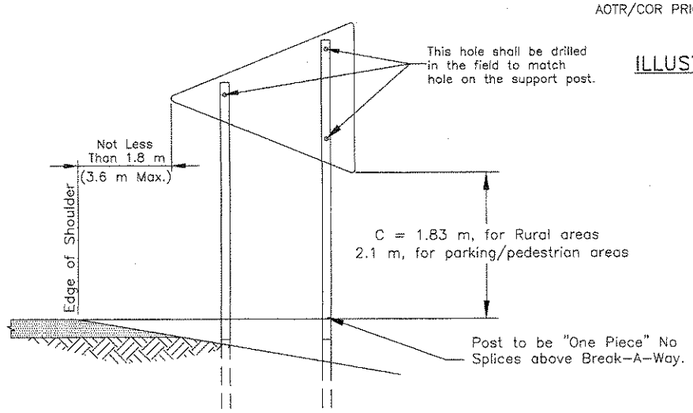
POST WEIGHT	K FACTOR (B x A)	B DIMENSION (Meter) 1.52	1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
2.976 kg/m	4.12	2.69	2.25	1.92	1.68	1.50	1.35	1.23	1.12	1.04	0.97	0.90	0.85	$A(m^2)$ SIGN AREA
3.348 kg/m	4.65	3.05	2.54	2.17	1.90	1.69	1.52	1.38	1.27	1.17	1.09	1.01	0.96	
4.092 kg/m	6.02	3.96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

GENERAL NOTES:

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

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

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



TYPICAL ROADSIDE SIGN LOCATION

ILLUSTRATION OF POSTS/WEIGHT DETERMINATION:

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

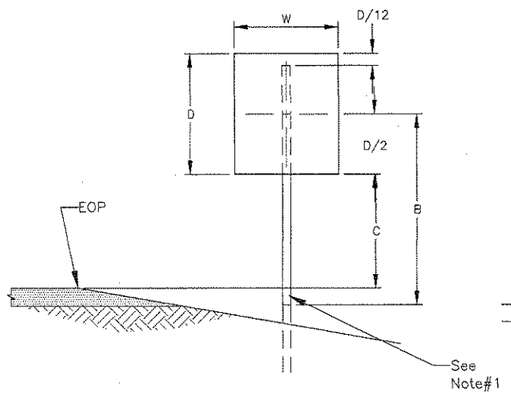
GIVEN: W=1.52 m
D=1.22 m
C= 1.83 m for Rural Area

SOLUTION:
1. D/2=0.61 m; K factor=4.51
2. B=Dimension To Centroid of sign, above Breakaway Section. 2
3. A=WxD=1.52x0.61=1.85 m
4. Begin with single post chart for column of B=2.44 m, and continue down until area of sign equal or exceed 1.85 m . The area exceeds the single post chart, so go to the double post table.

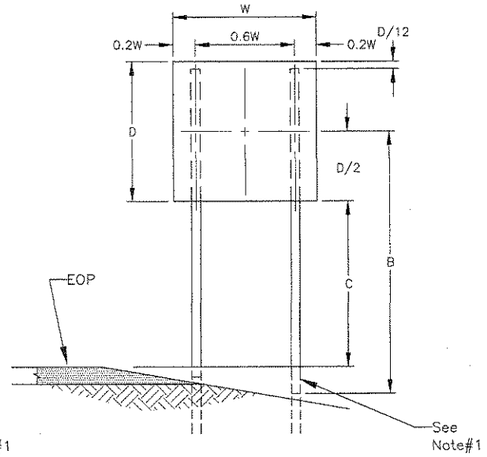
Select two(2) Posts of 4.46 kg/m Yield a factor of 4.91 which is optimum.

EXAMPLE:

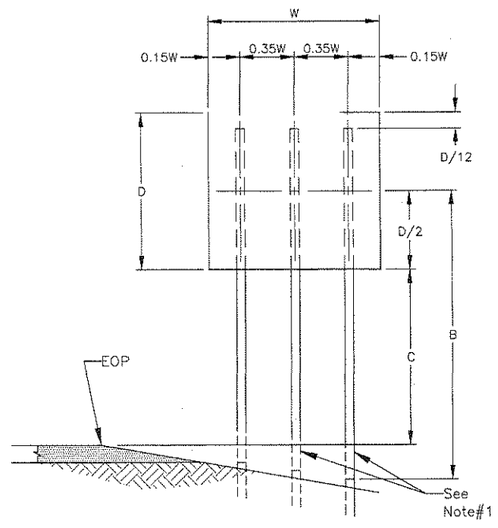
POST	B=2.44
4.09 kg/m	1.65 ←
4.46 kg/m	2.03
5.95 kg/m	2.80



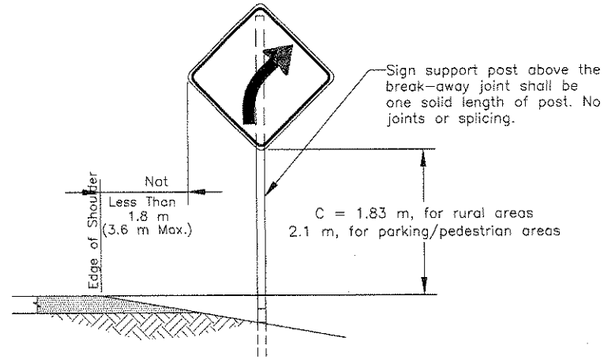
SINGLE POST SIZE (typ.)



DOUBLE POST SIZE (typ.)



THREE POST SIZE (typ.)



TYPICAL ROADSIDE SIGN LOCATION

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

PERMANENT SIGNING DETAIL

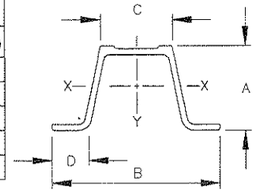
DRAWN BY: NRODOT	DATE: 1/05
DESIGNED BY: NRODOT	DATE: 1/07
REVISED: 02/01/10	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010_SGN1	
SHEET MODEL NAME: PLOT SHEET	

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

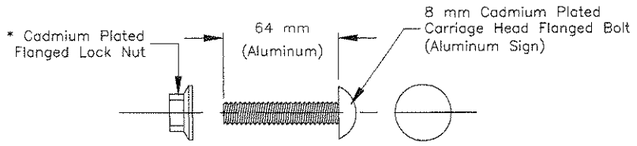
RIB-BAK U-CHANNEL SIGN SUPPORTS

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

* ±5%



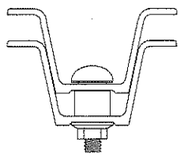
RIB-BAK U-CHANNEL



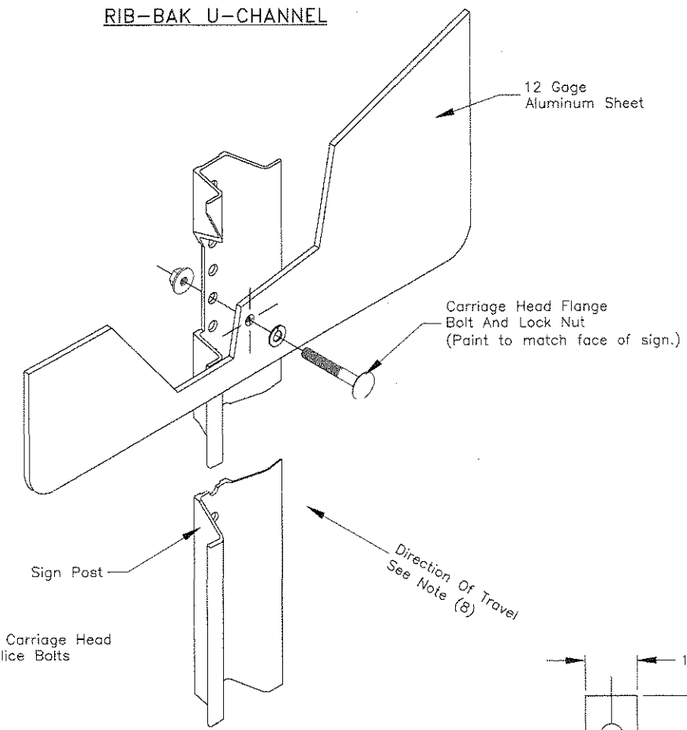
BOLTS AND LOCK NUT - SIGN ATTACHMENT

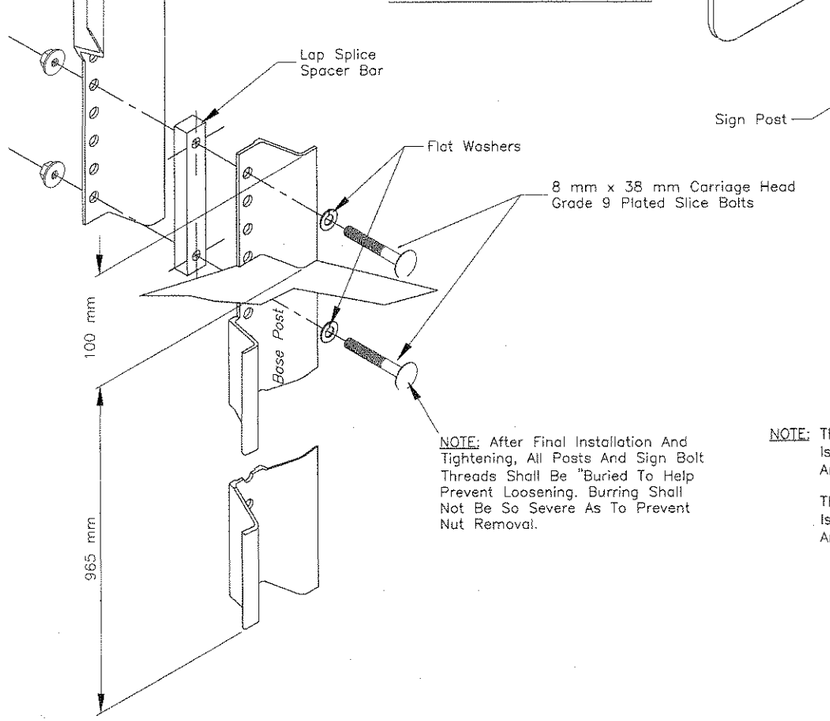
* Flanged Lock Nut Required For Carriage And Hex

NOTE: ALL THREAD BOLTS TO BE "BURRED" TO PREVENT LOOSEN.



LAP SPLICE - TOP VIEW

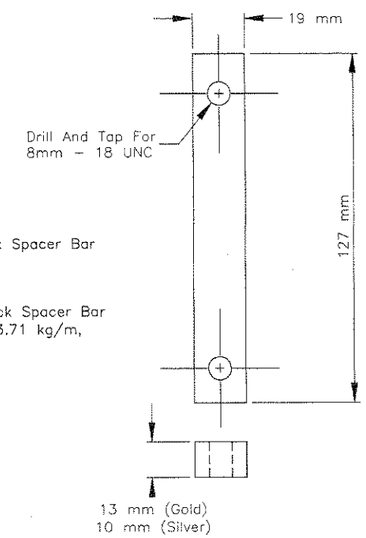




LAP SPLICE CONNECTION DETAIL

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

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



LAP SPLICE SPACER BAR

Revised 09/09

GENERAL NOTE:

1. STEEL 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 AND TENSILE STRENGTH OF STEEL SHALL BE 550 AND 689.47 MPa (MINIMUM), RESPECTIVELY.
2. STEEL POSTS SHALL BE UNIFORM, MODIFIED, FLANGED CHANNEL SECTION OF RIB-BAK DESIGN. WEIGHT OF THE STEEL POSTS SHALL BE AS SPECIFIED BY THE USER, ±5% BEFORE PUNCHING. THE POST SHALL BE PUNCHED WITH CONTINUOUS 9mm? HOLES ON 25mm INTERVAL ON CENTERS FOR THE ENTIRE LENGTH OF POST.
3. STEEL POSTS SHALL BE MACHINE STRAIGHTENED TO HAVE A SMOOTH UNIFORM FINISH, FREE FROM DEFECTS AFFECTING STRENGTH, DURABILITY, AND APPEARANCE. ALL HOLES AND EDGES SHALL BE FREE OF BURRS. THE PERMISSIBLE TOLERANCE FOR STRAIGHTNESS SHALL BE WITHIN 6.35mm IN 1.52 METER.
4. STEEL POSTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM 123 OR PAINTED WITH A BAKED-ON ALKYD RESIN, OR PAINTED WITH A POLYESTER POWDER. BOLTS, NUTS, AND WASHERS SHALL BE CADMIUM PLATED IN ACCORDANCE WITH ASTM A-165 OR ZINC PLATED IN ACCORDANCE WITH ASTM B-633.
5. SPLICE HARDWARE SHALL CONSIST OF TWO FULLY THREADED, 8mm X 38mm GRADE-9 PLATED HEX HEAD BOLTS, FLAT WASHERS, AND SELF LOCKING HEX NUTS PER POST. IN ADDITION, ONE 19mm X 127mm PLATED SPACER BAR PER POST, TO STIFFEN THE SPLICE CONNECTION. EACH SPACER SHALL BE DRILLED AND TAPPED WITH 8mm-18 UNC THREADS. THE SPACER SHALL BE FABRICATED FROM HOT ROLLED CARBON STEEL BAR CONFORMING TO ASTM A-36 OR M-1020.
6. BOLTS AND LOCK NUT HARDWARE FOR SIGN ATTACHMENT SHALL BE CARRIAGE HEAD TYPE, 8mm-18 UNC, AND SHALL BE CADMIUM PLATED CONFORMING TO ASTM B-766.
7. AN APPROVED ALTERNATE BREAKAWAY SYSTEM AND SIGN SUPPORT POST ASSEMBLY MAY BE SUBMITTED TO THE COR/AOTR FOR REVIEW AND APPROVAL PRIOR TO IT'S USE.
8. THE CONTRACTOR HAS THE OPTION TO USE "ANTI-THIEF" NUTS IN LIEU OF JAMMING THE BOLT THREADS. NO ADDITIONAL PAYMENT WILL BE MADE IN RELATION TO USING ANTI-THIEF BOLTS.
9. SUPPLEMENTAL SIGNS ON THE OPPOSITE SIDE OF ROADWAY SHALL HAVE THE U-CHANNEL REVERSED SO THAT RIB-BAK IS FACING AWAY FROM THE OPPOSING TRAFFIC.

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
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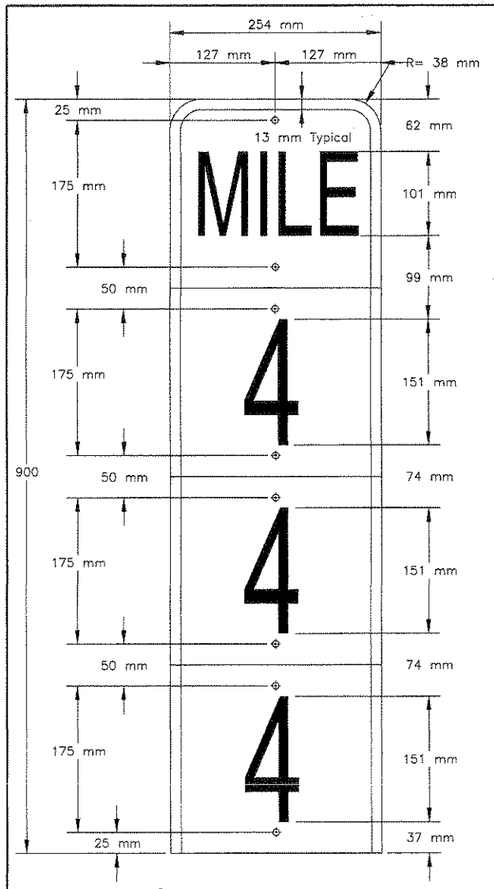
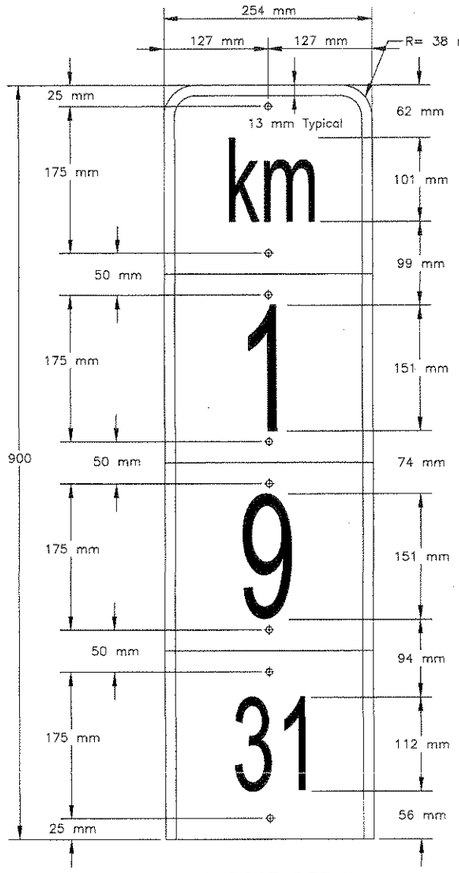
BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

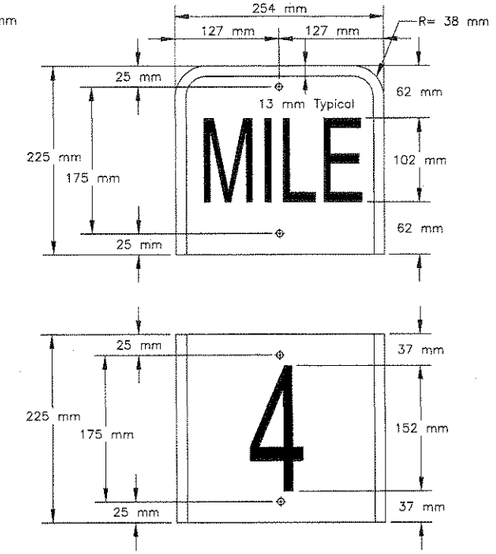
LAP SPLICE U-CHANNEL
BREAKAWAY SYSTEM POST
AND HARDWARE DETAILS

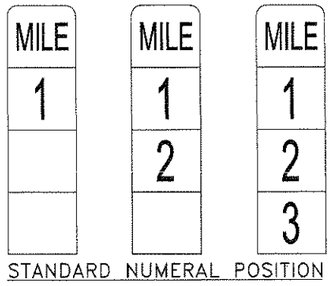
DRAWN BY: NRODOT	DATE: 7/05
DESIGNED BY: NRODOT	DATE: 7/05
REVISED: 04/09	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010 Sign2	
SHEET MODEL NAME: PLOT SHEET	





TYPICAL MILEPOST DETAIL



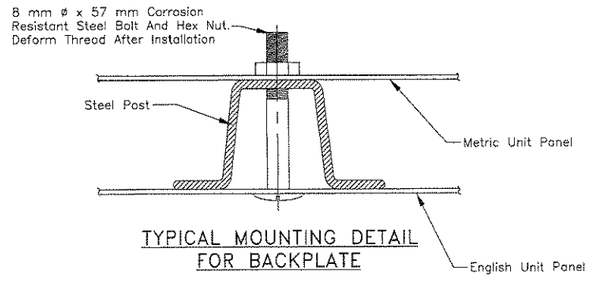


STANDARD NUMERAL POSITION

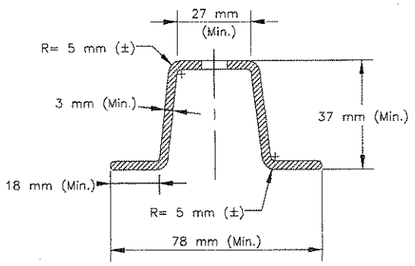
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	49	63

GENERAL NOTE

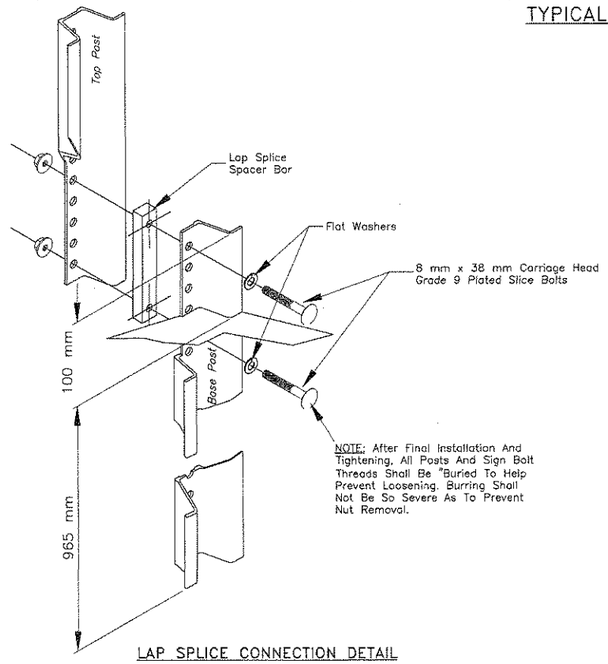
1. THE MILE POST MARKER SHALL BE PLACED ON BOTH SIDE OF THE ROADWAY WITH IMPERIAL UNITS PANEL ON APPROACHING TRAFFIC, AND THE METRIC UNITS PANEL ON OPPOSING TRAFFIC.
2. MILE POST PLATES SHALL BE FABRICATED FROM 16 GAGE MINIMUM THICKNESS 5052–H38 OR 6061–T6 ALUMINUM ALLOY.
3. ALL SURFACE TO BE COVERED WITH REFLECTIVE SHEETING, AND SHALL BE PREPARED IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION SECTION 718.11, TABLE 718–3.
4. THE BORDER AND LEGEND SHALL BE STANDARD SILVER–WHITE COLOR. THE BACKGROND COLOR SHALL BE STANDARD GREEN AND/OR REVERSE SILK–SCREENED.
5. THE BACK SIDE OF THE ALUMINUM SHEET SHALL BE ETCHED BY APPROVED METHOD TO REDUCE GLARE FROM REFLECTED LIGHT.
6. STEEL POSTS SHALL CONFORM TO ASTM A570 GRADE 30, 36 OR 40 AND SHALL NOT WEIGHT LESS THAN 2.98 kg/m. AN APPROVED ALTERNATE BREAKAWAY ASSEMBLY MAY BE SUBMITTED TO THE COR/AOTR FOR REVIEW AND APPROVAL PRIOR TO IT'S USE. THE POSTS SHALL BE GALVANIZED AFTER FABICATION IN ACCORDANCE WITH ASTM A–123, OR PAINTED WITH A BAKED–ON ALKYD RESIN, OR PAINTED WITH A POLYESTER POWDER.
7. INSTALL MILE POST MARKER 1.80 METER (MINUMUM) FROM ROADWAY SHOULDER. AT GUARDRAIL LOCATIONS, THE MILE POST MARKER SHALL LINE UP WITH THE GUARDRAIL POSTS.
8. THE POSTS LENGTH SHALL BE DETERMINED IN THE FIELD BASED ON FINISH GROUND ELEVATION WITH RESPECT TO EDGE OF PAVEMENT ELEVATION.



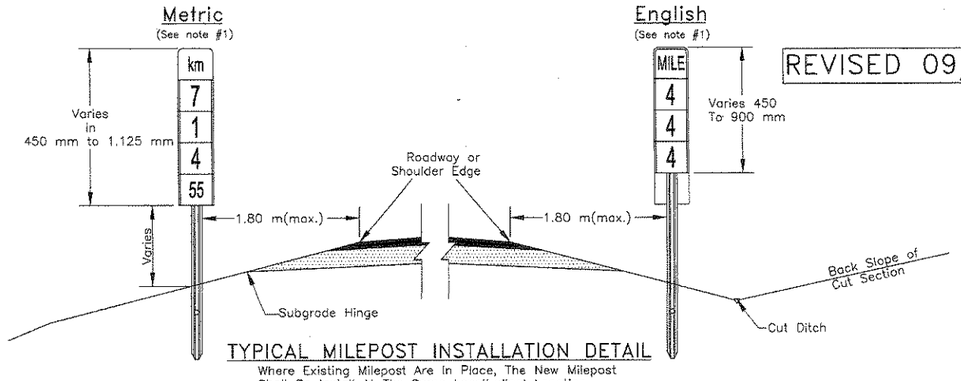
TYPICAL MOUNTING DETAIL FOR BACKPLATE



SECTION A–A



LAP SPLICE CONNECTION DETAIL



TYPICAL MILEPOST INSTALLATION DETAIL

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

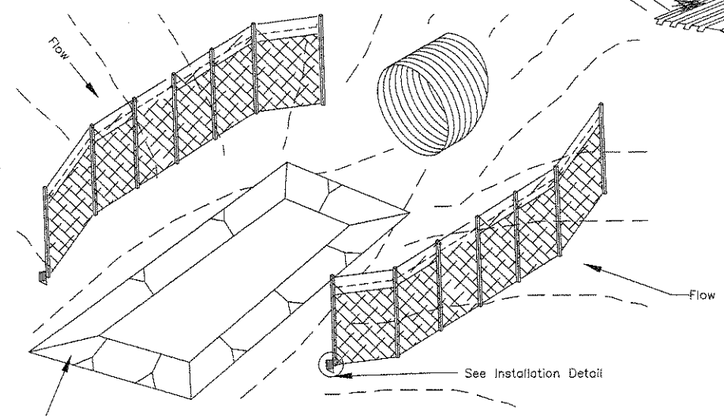
REVISED 09/09

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

STANDARD MILEPOST DETAIL

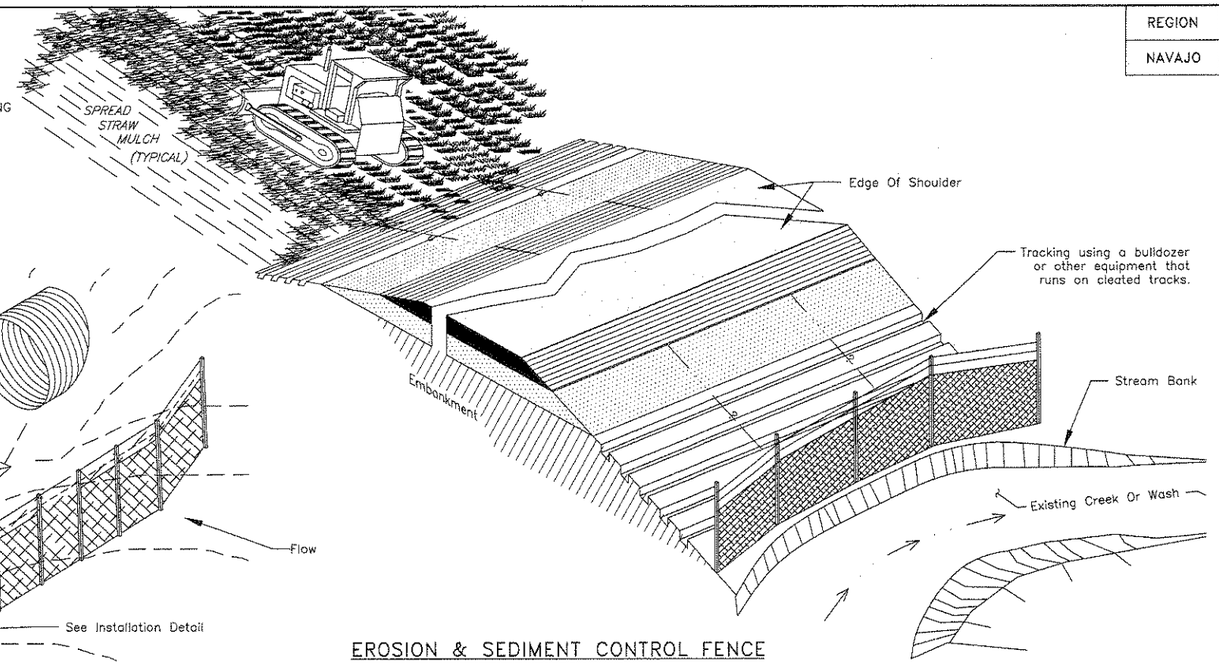
DRAWN BY: LRT	DATE: 01/01
DESIGNED BY: NRODOT	DATE: 01/01
REVISED: 6/09	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010 MilePost	
SHEET MODEL NAME: PLOT SHEET	

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

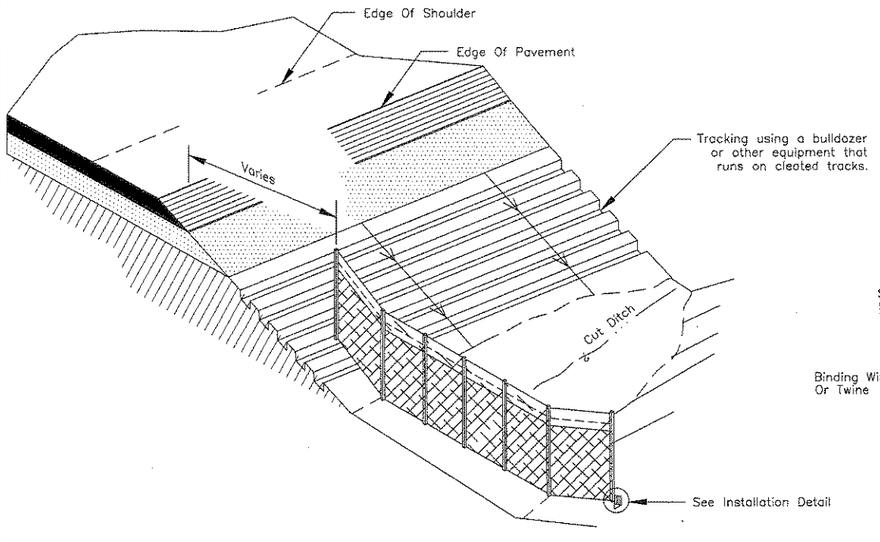


EROSION & SEDIMENT CONTROL FENCE
AT DRAINAGE STRUCTURE

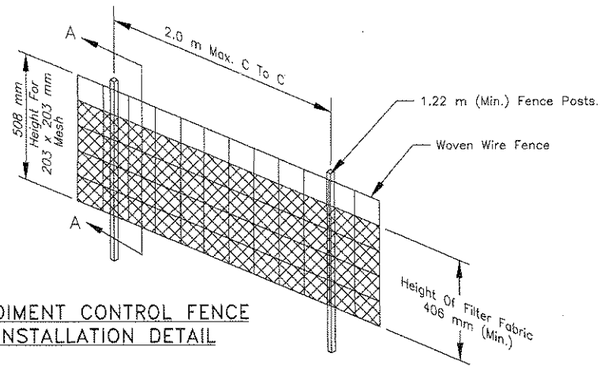
Sediment Traps @ Outlet Ends
See Plan Sheet 51 for details



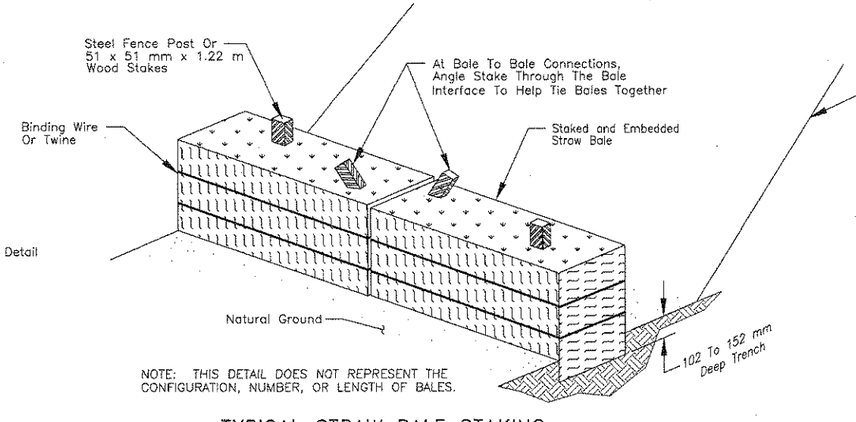
EROSION & SEDIMENT CONTROL FENCE
ALONG EDGE OF STREAM BANK (TOE OF SLOPE)



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

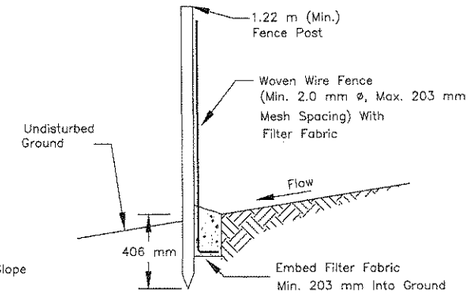


SEDIMENT CONTROL FENCE
INSTALLATION DETAIL



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

TYPICAL STRAW BALE STAKING
AND TRENCHING DETAIL



SECTION A–A

GENERAL NOTES

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

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

3. WOVEN WIRE FABRIC TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STABLES. 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 EROSIVE SOILS AND/OR WHERE EMBANKMENTS ARE AT A 1:3 OR STEEPER SLOPE. THE SILT FENCE SHALL BE PLACED 1 m TO 2 m DOWNHILL FROM THE TOE OF FILL AND IN ACCORDANCE WITH SECTION 157 OF THE FP-03 AND THE SUPPLEMENTAL SPECIFICATIONS.

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

7. FURNISHING AND PLACEMENT OF SILT FENCE MATERIAL AND OTHER EROSION CONTROL MEASURES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 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).

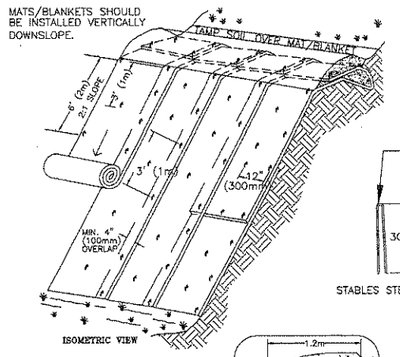
10. PRIOR TO ACCEPTANCE, ALL PROJECT AREAS (AS DETERMINED BY AOTR/C.O.R.) SHOWING EROSION DAMAGE CAUSED BY THE CONTRACTOR'S FAILURE TO PROPERLY MAINTAIN HIS EROSION CONTROL STRUCTURES SHALL BE REPAIRED TO REMOVE DAMAGE, ANY SPECIFIED EROSION CONTROL MATERIALS, STRUCTURES. OR DEVICES DAMAGE OR LOST DUE 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.

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

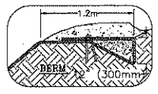
STORMWATER POLLUTION AND EROSION/SEDIMENT CONTROL DETAILS

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	

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



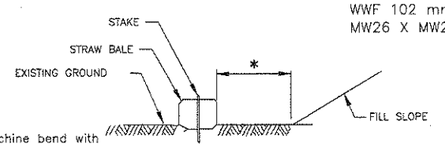
TYPICAL SLOPE SOIL STABILIZATION



NOT TO SCALE

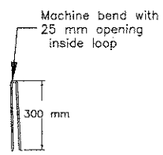
NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

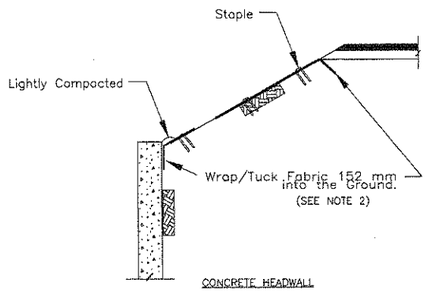
EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION



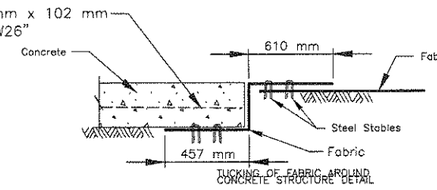
SECTION D–D

* See General Notes.

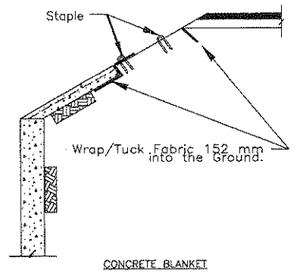




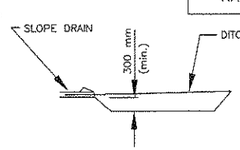
CONCRETE HEADWALL



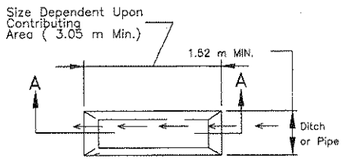
TUCKING OF FABRIC AROUND CONCRETE STRUCTURE DETAIL



CONCRETE BLANKET



SECTION A–A

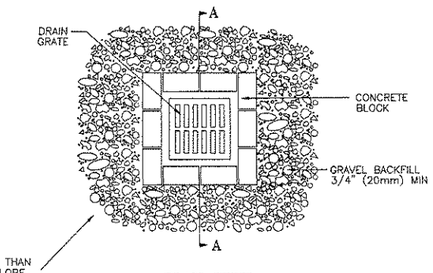


SEDIMENT TRAP

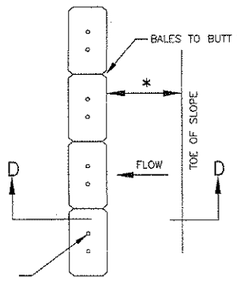
(Traps shall not fill to beyond one–half capacity prior to cleaning)

GENERAL NOTES

1. SEE SHEET 50 OF 63 FOR ADDITIONAL NOTES AND DETAILS.
2. THE CONTRACTOR SHALL INSTALL GEOTEXTILE FABRIC, TYPE IV, AROUND CONCRETE STRUCTURE, AS FOLLOWS:
   a) CONSTRUCT FINISH GRADING AROUND STRUCTURE TO BE PLACED.
   b) CUT TRENCHES FOR FOOTING OF SLAB.
   c) INSTALL 1.22 m OF GEOTEXTILE FABRIC ANCHORED ON FLOOR AND TOP, ALONG THE CUT FACE OF TREACH AS SHOWN.
   d) PLACE CONCRETE FORMS, REINFORCEMENTS, AND SUBSEQUENT CONCRETE.
3. 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.
4. CLEAN ALL SEDIMENT BASIN AND TRAPS OF ACCUMULATED SEDIMENT WHEN HALF FULL OF SEDIMENT.
5. 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.
6. THE CONTRACTOR SHALL ADJUST THE DIMENSIONS AND/OR LOCATIONS OF TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES TO FIT ACTUAL FIELD CONDITIONS.
7. 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.



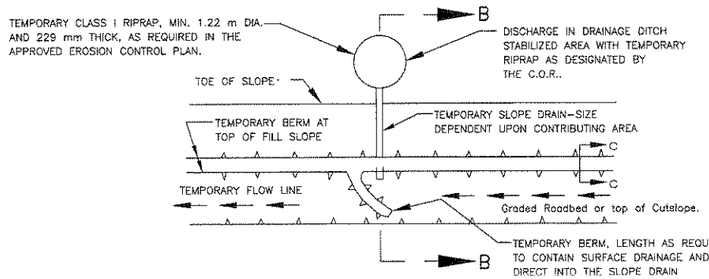
PLAN VIEW



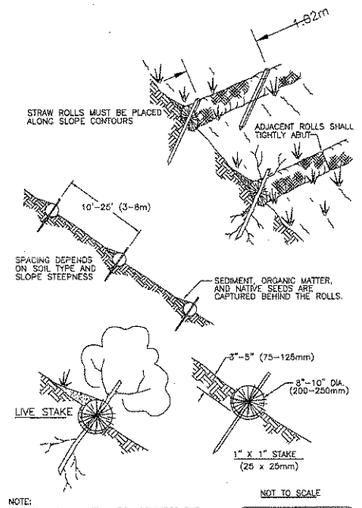
PLAN

STRAW BALE SILT BARRIER

* See general notes.



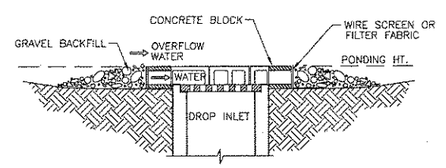
PLAN VIEW



NOTE:
1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"–5" (75–125mm) DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

NOT TO SCALE

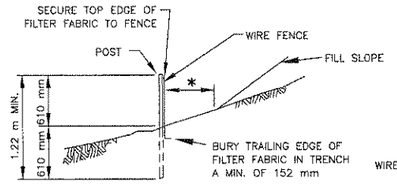
STRAW ROLLS

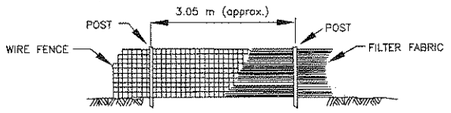


SECTION A – A

NOTES:
1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)
2. EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.
3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

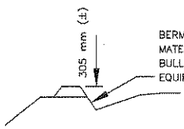
BLOCK AND GRAVEL DROP INLET SEDIMENT BARRIER





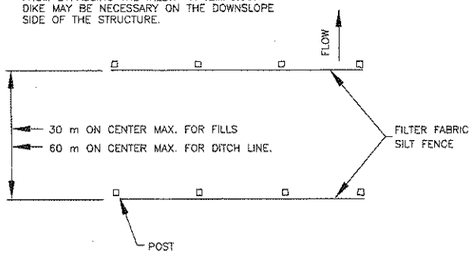
FILTER FABRIC SILT FENCE

* See General Notes.



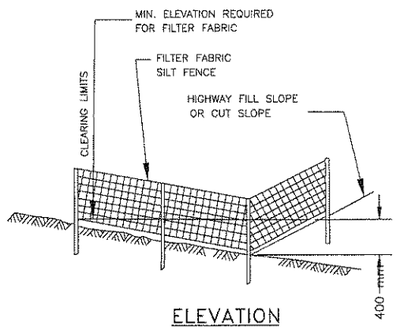
SECTION C–C

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

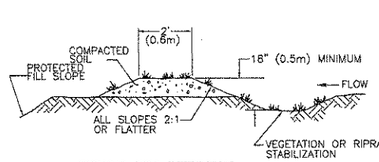


PLAN

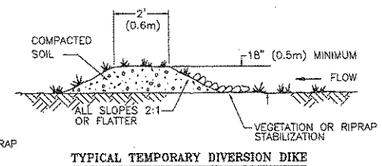
SILT FENCE EROSION CHECK



ELEVATION



TYPICAL FILL DIVERSION



TYPICAL TEMPORARY DIVERSION DIKE

(FOR TOP OF CUT BACK SLOPES.)

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

TEMPORARY DIVERSION DIKE

SECTION B–B

RECEIVED
JUN 23 2010
NECA-ENGINEERING DEPT.

REVISED 06/21/2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
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: 1/14/09	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010 eros2	
SHEET MODEL NAME: PLOT SHEET	

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	52	63

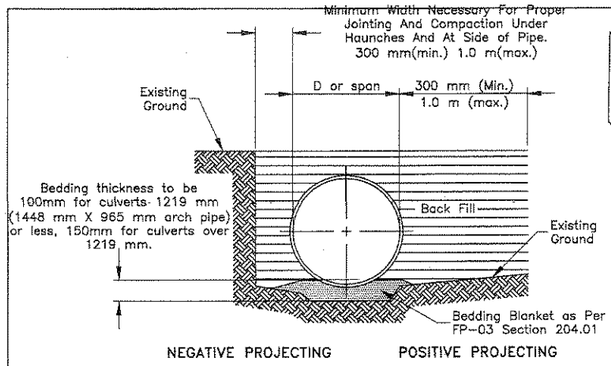


FIGURE A: BEDDING

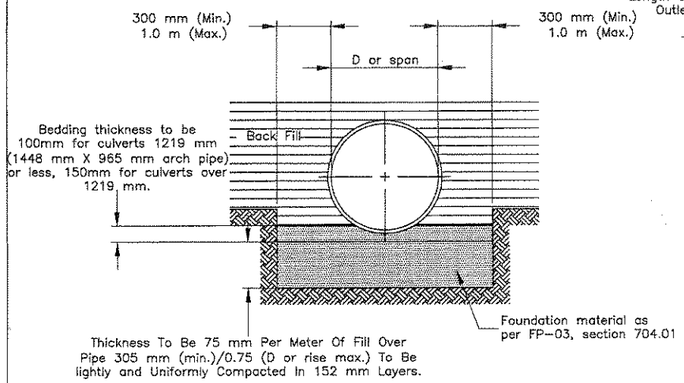


FIGURE B: ROCK BEDDING

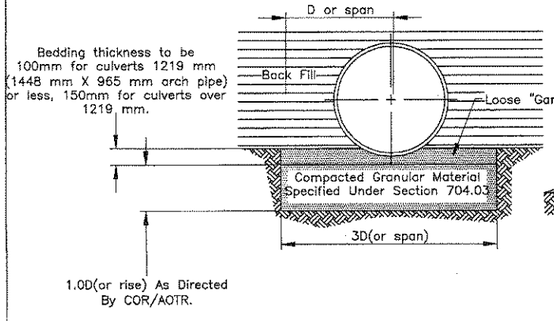
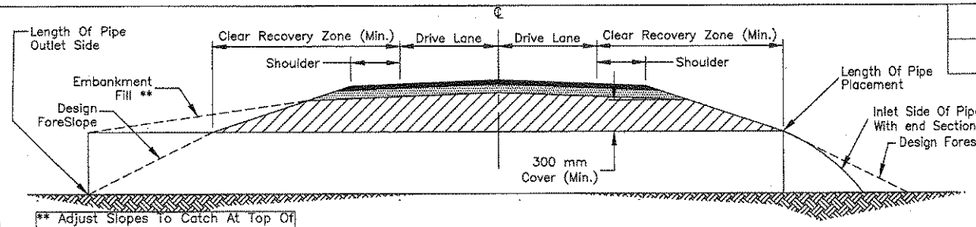
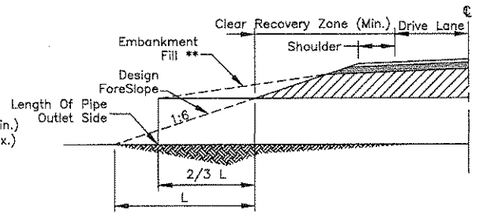


FIGURE C: FOUNDATION STABILIZATION BEDDING

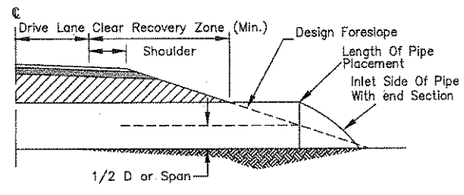


TYPICAL PIPE INSTALLATION- MAINLINE SHOWN

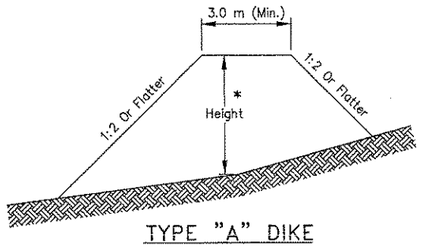
Turnout/Driveway, use 2-End Sections



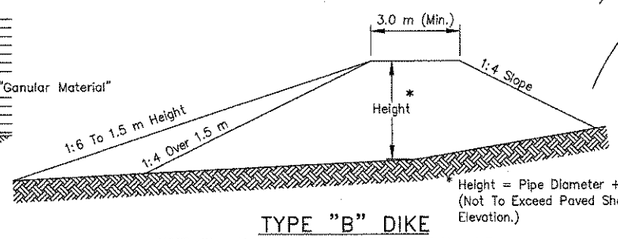
FOR PIPES WITH 1:6 FORESLOPE



FOR PIPE COVER 300 mm TO 610 mm

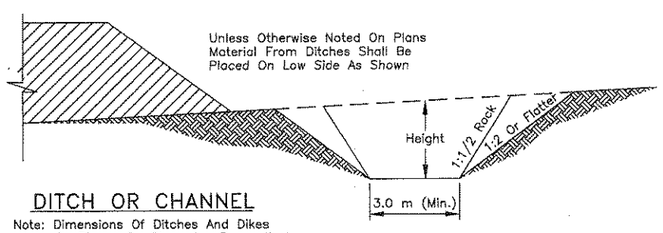


TYPE "A" DIKE



TYPE "B" DIKE

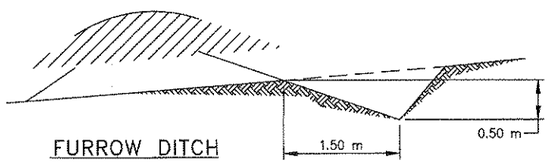
NOTE: When Necessary The Slope May Be Flattened To 1:6 With Riprap Protection As Called For On Plans.



DITCH OR CHANNEL

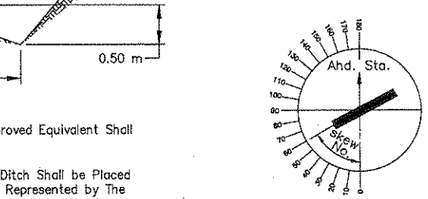
Note: Dimensions Of Ditches And Dikes As Shown On Plans Are Respectively Width Depth Or Height And Length.

DITCH BLOCK DETAILS

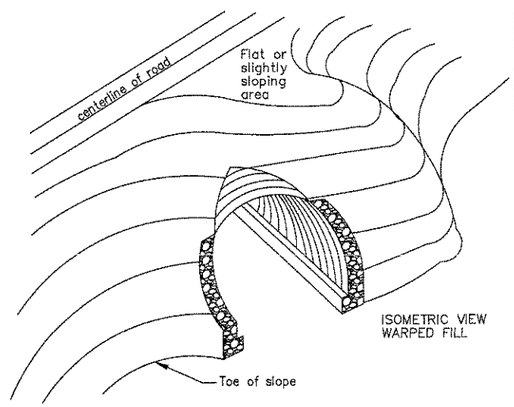


FURROW DITCH

1. To Be Paid For By The Meter.
2. Furrow Ditch Sections As Shown Above Or An Approved Equivalent Shall Be Built As Directed By The C.O.R./AOTR
3. Material Excavated to Cut And Shape The Furrow Ditch Shall be Placed on The Down Stream Side of The Furrow Ditch as Represented by The Cross Hatched Area Shown in the Detail. If Directed by The COR/AOTR, Most of The Excavated Material Shall be Placed at The Upstream End of The Furrow Ditch to Block Runoff From Flowing Past The Furrow Ditch.

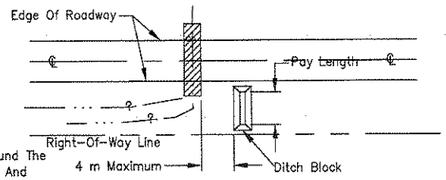


STRUCTURE SKEW DIAGRAM



SKEWED PIPE WARPING DETAIL

1. The Contractor Shall Be Required To Build The Warped Embankment Around The Skewed Drainage Pipe(s). This Work Shall Be Incidental To The Earthwork And Installation Of Drainage Pipe Items Shown.



DITCH BLOCK INSTALLATION AT STRUCTURE

1. Ditch Block At Structures To Be So Placed That They Create A Water Cushion. Elevation Top Of Ditch Block Shall Be 305 mm Above Elevation Of Top Of Pipe Unless Otherwise Shown Or Directed by the C.O.R./AOTR.
2. Ditch Block Shall Be Located A Distance Equal To The Largest Dimension Of Box Culvert Or Pipe from the Face of the Drainage Structure. In No Case Shall The Distance Exceed 6.0 m.

GENERAL NOTES

1. PLACE LOOSE BEDDING ROUGHLY SHAPED TO FIT BOTTOM OF PIPE, THEN COMPACT UNDER HAUNCHES AFTER PIPE PLACEMENT.
2. SEE SECTIONS 204, 209, 602, AND 704 OF FP-03, INCLUDING THE SUPPLEMENTAL SPECIFICATION FOR ADDITIONAL NOTES.
3. ALL DRAINAGE STRUCTURE MATERIAL SHALL BE UNLOADED AND HANDLED WITH REASONABLE CARE. NO STRUCTURE SHALL BE DRAGGED OR ALLOWED TO STRIKE ANY HARD SURFACE DURING PLACEMENT. ANY DAMAGED STRUCTURE SHALL BE REPAIRED OR REPLACED, BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE GOVERNMENT.
4. ALL STRUCTURAL PLATE PIPE STRUCTURES SHALL BE ASSEMBLED AND INSTALLED IN ACCORDANCE WITH THE FABRICATOR'S RECOMMENDATION.
5. BACKFILL MATERIAL SHALL BE PLACED 300 mm(min.) 1.0 m(max) PIPE DIAMETER WIDTH ON THE SIDES AND 0.30 m OVER THE PIPE. BACKFILL MATERIAL BEYOND THE LIMITS SHALL BE REGULAR EARTHWORK EMBANKMENT MATERIAL. THE BACKFILL MATERIAL SHALL BE APPROVED BY THE COR/AOTR PRIOR TO IT'S USE AND SHALL BE PLACED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
6. PONDING OR JETTING PIPE BACKFILL SHALL NOT BE PERMITTED.
7. ALL PIPE EXCAVATION, BACKFILLING, DE-WATERING, PUMPING OR COFFERDAMS REQUIRED TO PROPERLY INSTALL THE DRAINAGE PIPE SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE PROJECT AND NO ADDITIONAL PAYMENT SHALL BE MADE.
8. MULTIPLE PIPE INSTALLATIONS SHALL BE PLACED 610 mm BETWEEN END SECTIONS UNLESS OTHERWISE DIRECTED BY THE COR/AOTR OR AS SHOWN ON THE PLANS.
9. ALL PIPES SHALL BE PROTECTED BY A COVER OF NOT LESS THAN 0.91m OF EMBANKMENT ABOVE PIPE BEFORE ANY HEAVY EQUIPMENT IS ALLOWED TO PASS OVER THE STRUCTURE(S) DURING CONSTRUCTION.
10. ALL CULVERTS UNDER TURNOUT AND DRIVEWAYS SHALL BE PLACED AT THE PROPOSED DITCH FLOWLINE. THE CONTRACTOR SHALL BE REQUIRED TO FIELD ADJUST THE PROFILE GRADES OVER THE PIPE AS DIRECTED BY THE COR/AOTR TO PROVIDE FOR THE MINIMUM COVER.
11. TYPE "B" DIKE SHALL BE USED ON THIS PROJECT UNLESS OTHERWISE NOTED ON THE PLANS. DIKE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF FP-03 SECTION 204, FOR EMBANKMENT. EMBANKMENT MATERIAL NEEDED TO BUILD EARTHEN DIKE SHALL BE CONSIDERED INCIDENTAL TO ITEM 20425-2000.

UNITED STATES
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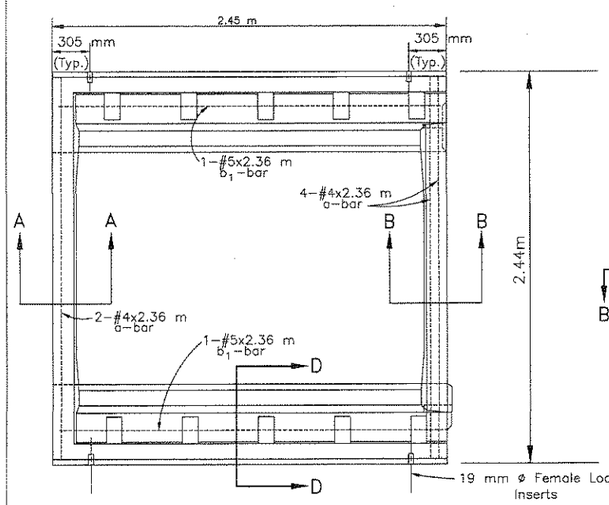
NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

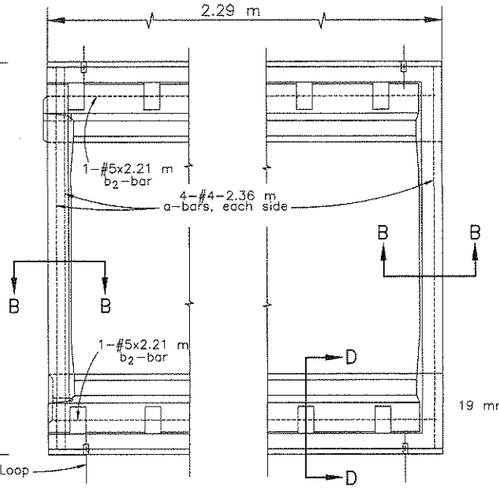
STANDARD PIPE INSTALLATION AND DITCH DETAILS

DRAWN BY: NRODOT	DATE: 9/91
DESIGNED BY: NRODOT	DATE: 9/91
REVISED: 02/03/2010	BY: DESIGN 2
SCALE: NTS	
FILENAME: Pipe Install_Ditch Details	
SHEET MODEL NAME: PLOT SHEET	

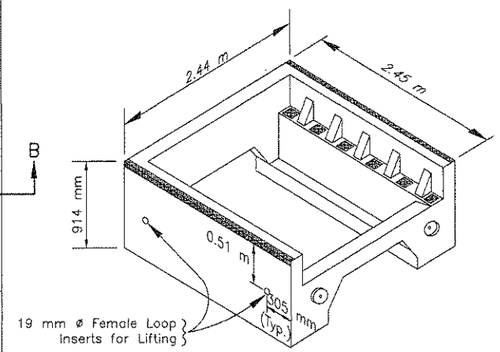
AREA	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)1,2&4	53	63



PLAN – END UNIT



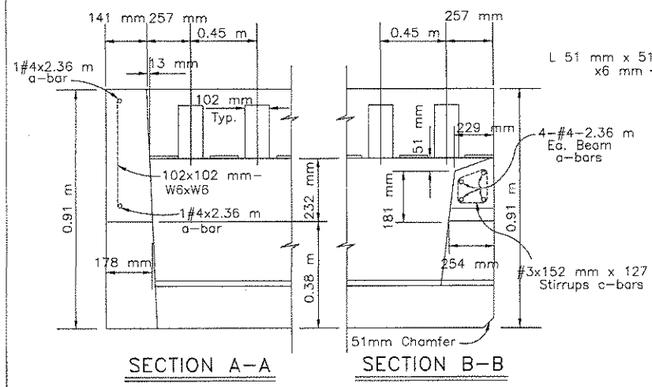
PLAN – INTERMEDIATE UNIT



ISOMETERIC VIEW – END UNIT

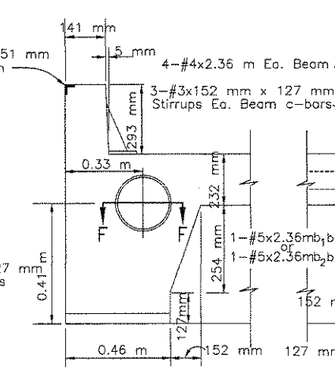
GENERAL NOTES

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

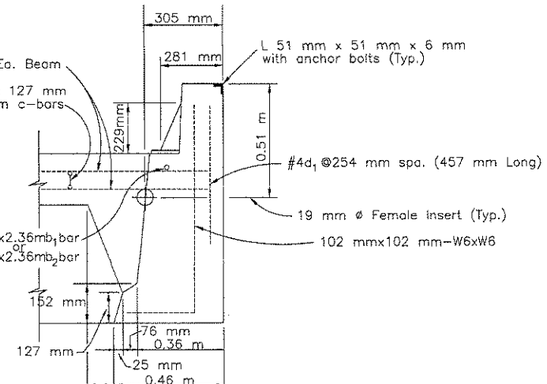


SECTION A–A

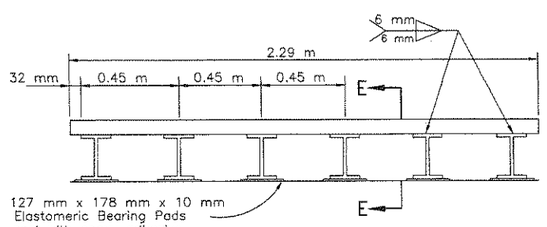
SECTION B–B



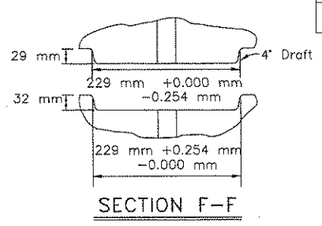
KEY LOCATION



SECTION D–D



TRAFFIC GRILLE UNIT

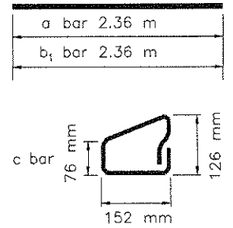


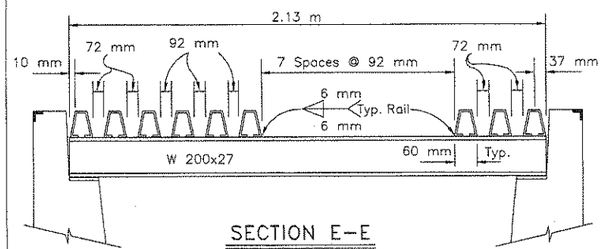
SECTION F–F

REINFORCING STEEL SCHEDULE

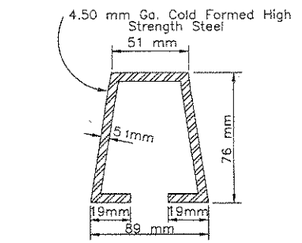
STRAIGHT BARS				BENT BARS			
MARK	NO.	SIZE	LENGTH	MARK	NO.	SIZE	LENGTH
END UNIT							
a	6	4	2.36 m				
b_1	2	5	2.36 m				
c					3	3	0.61 m
D_1	20	4	0.46 m				
INTERMEDIATE UNIT							
a	8	4	2.36 m				
b_2	2	5	2.21 m				
c					6	3	0.61 m
D_1	18	4	0.46 m				

BENDING DIAGRAMS
ALL DIMENSIONS ARE OUT TO OUT

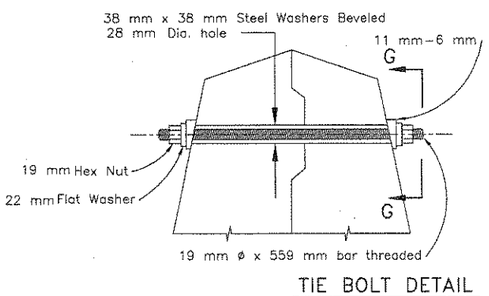




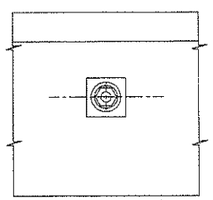
SECTION E–E



STEEL CROSSBAR SECTION
15 Req'd for 1 Grid



TIE BOLT DETAIL



SECTION G–G

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

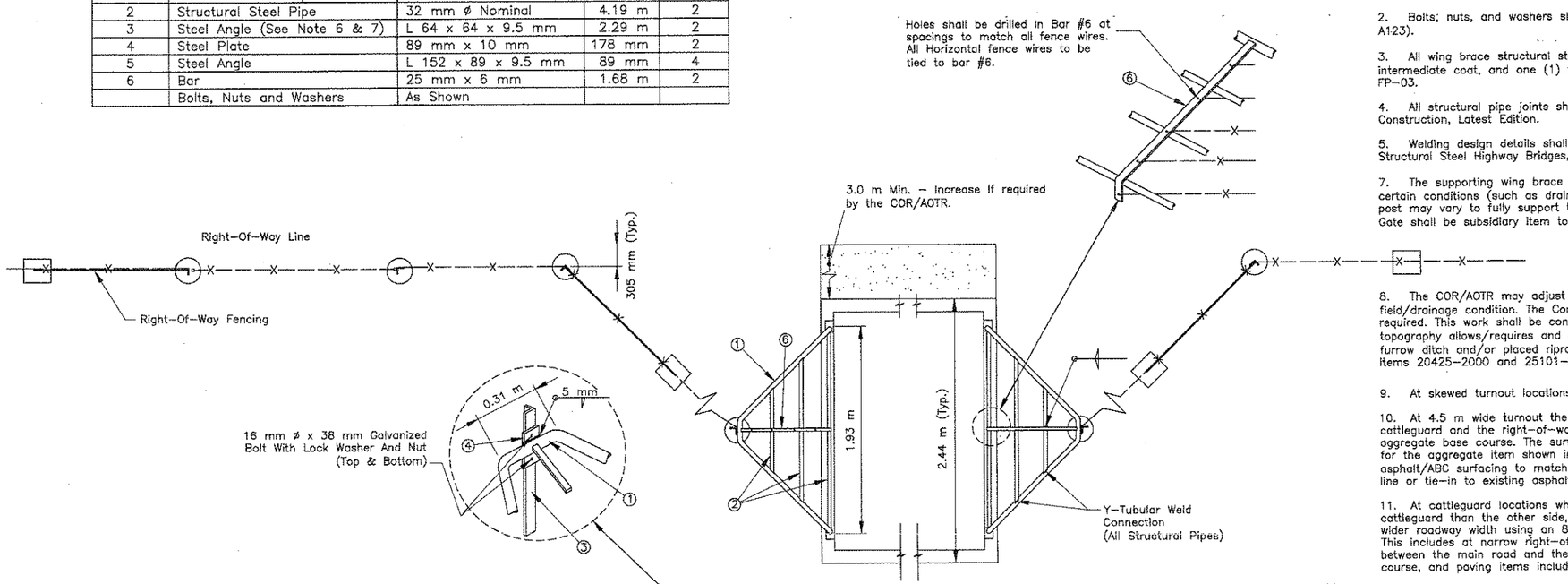
PRECAST CONCRETE CATTLEGUARD DETAILS

DRAWN BY: DESIGN 2	DATE:
DESIGNED BY: NRODOT	DATE:
REVISED: 1/22/09	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010-3pcg	
SHEET MODEL NAME: PLOT SHEET	

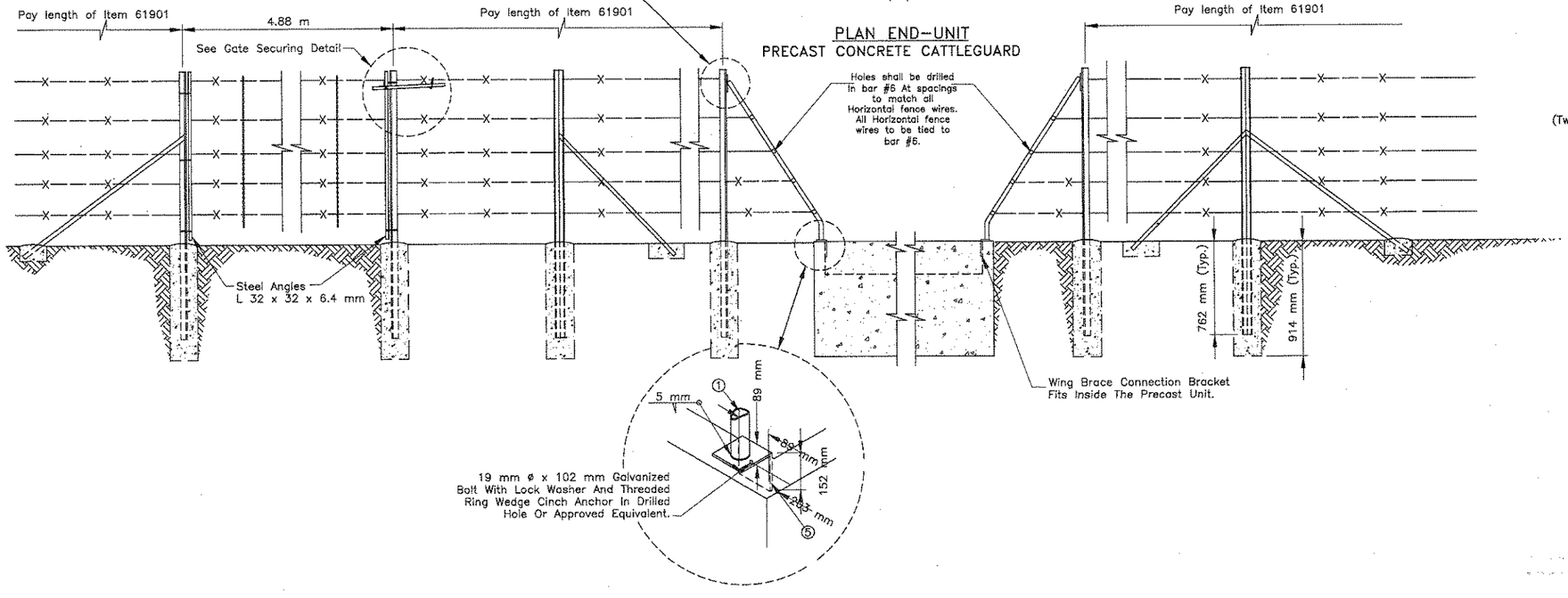
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	54	63

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		



PLAN END–UNIT
PRECAST CONCRETE CATTLEGUARD



GENERAL NOTES

1. Structural pipe shall conform to ASTM A53–93a, Grade B. All other structural steel shall conform to ASTM–A36.

2. Bolts, nuts, and washers shall be galvanized in accordance with AASHTO M111 (ASTM A123).

3. All wing brace structural steel 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.

4. All structural pipe joints shall be fabricated in accordance with AISC Manual of Steel Construction, Latest Edition.

5. Welding design details shall conform to the AASHTO Standard Specifications for welding at Structural Steel Highway Bridges, Latest Edition.

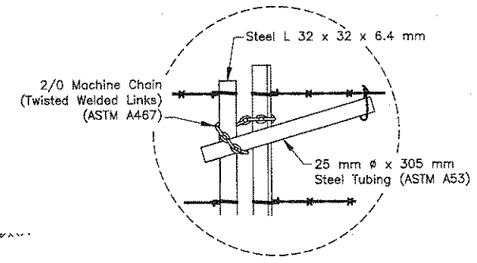
7. The supporting wing brace posts length (part 3) shall be 2.3 meter (minimum). Under certain conditions (such as drain through cattleguard, high embankment, etc) the length of the post may vary to fully support the wing braces. This work shall be incidental to item 61903. Gate shall be subsidiary item to the cattleguard item(s).

8. 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.

9. At skewed turnout locations, the cattleguard shall be installed perpendicular to turnout.

10. 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.

11. 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 flared 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.



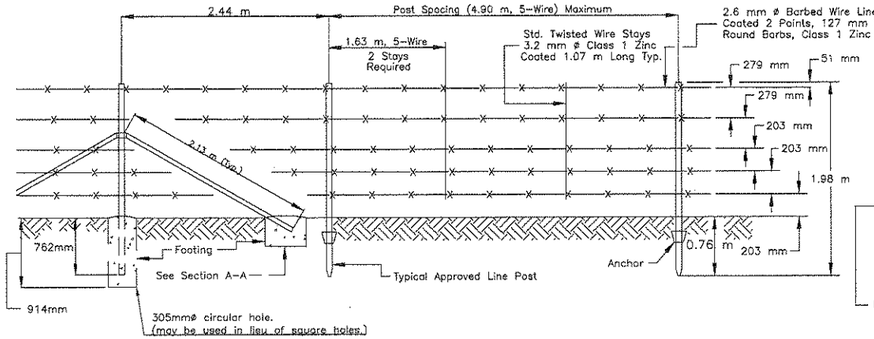
GATE SECURING DETAIL

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

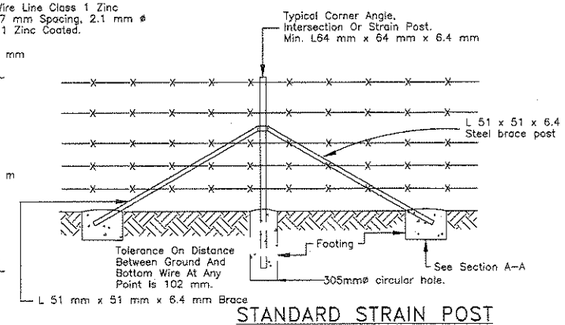
CATTLE GUARD WING BRACE DETAILS

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

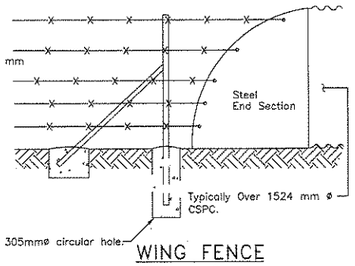


STANDARD 5 LINE GALVANIZED BARBED WIRE PANEL



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

1. 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.

2. LINE POSTS SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO M 281-96, 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.

3. WHEN LINE POST ANCHORS ARE OMITTED, DUE TO CHANGE IN SOIL CONDITIONS SUCH AS ROCK, THEN THE POSTS SHALL BE SET IN CONCRETE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.

4. TIE WIRE, WIRE FASTENERS OR WIRE CLIPS FOR FASTENING BARBED AND WOVEN FABRIC FENCING TO THE STEEL POSTS SHALL BE 3.0 mm DIA. STEEL WIRE, CLASS 1 (ZINC COATED), SOFT TEMPER AND MEET THE REQUIREMENTS OF ASTM A 641. FURNISHING AND PLACEMENT OF FASTENERS SHALL BE INCLUDED WITH ITEM 61901-1000.

5. CONCRETE FOR ANCHORS, POST HOLES, ETC. SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa IN 28 DAYS AND SHALL CONFORM TO SECTION 601 OF THE FP-03. FURNISHING AND PLACEMENT OF CONCRETE SHALL BE INCLUDED WITH ITEM 61901-1000.

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

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

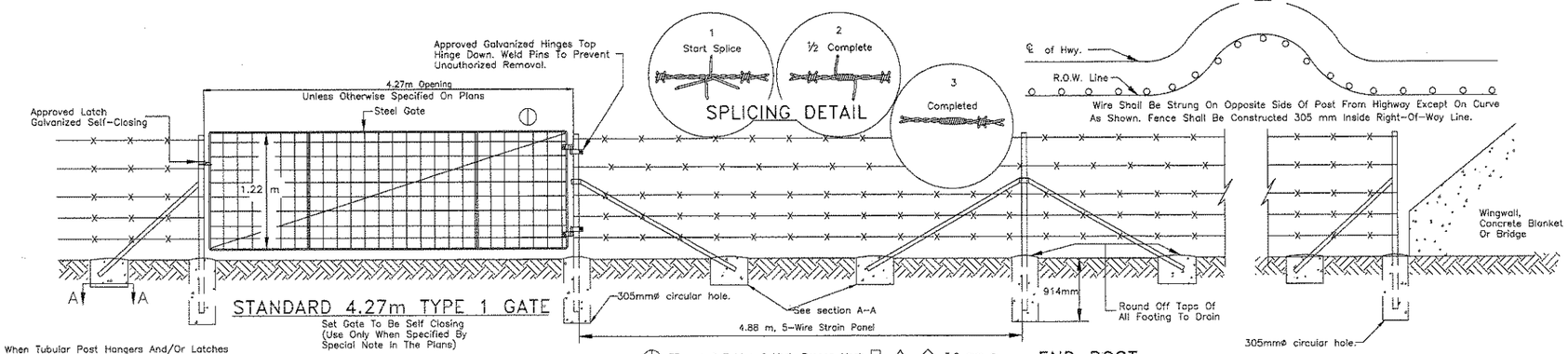
8. ANY CONFLICT IN PLACEMENT OF THE R/W FENCING AT DRAINAGE PIPE LOCATION, DUE TO NARROW R/W WIDTH OR OTHER CONSTRICTIONS, THE FENCE MAY BE PLACED OVER THE DRAINAGE STRUCTURE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.

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

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

11. TYPE 2 GATE CLOSURE DEVICE SHALL BE STEEL PIPE, NPS 26.7 mmø SCHEDULE 40, CONFORMING TO THE REQUIREMENT OF ASTM A 53. THE GATE CLOSURE STEEL CHAIN SHALL BE WELDED TO THE STEEL PIPE AND ANGLE IRON FENCE POST. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.

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



STANDARD 4.27m TYPE 1 GATE

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

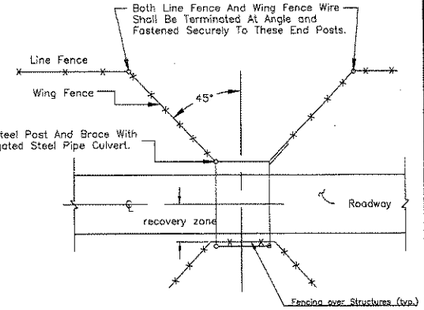
NOTE: When Tubular Post Hangers And/Or Latches Are Used, It Shall Be Drilled For A Single 2.38 mm ø Min. Drive Pin To Prevent Rotation Of The Hangers And/Or Latches.

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

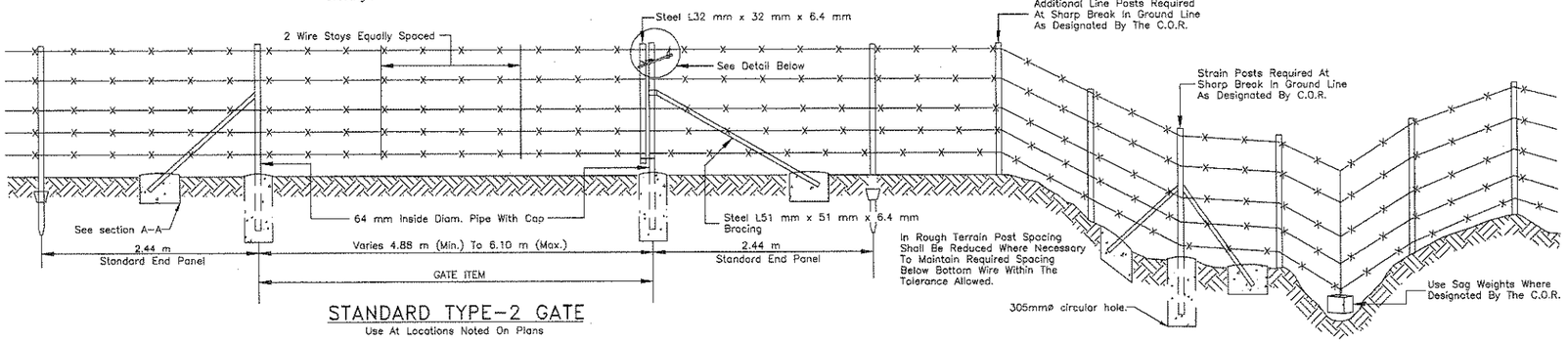
① 35 mm ø Tubing 2 Vert. Braces Mesh □, △, ◇, 3.2 mm ø Line Wires 2.6 mm ø Crosswires. 1 Adjustable Diagonal Guy Fully Galvanized.

END POST

CONNECTION TO MAJOR STRUCTURES



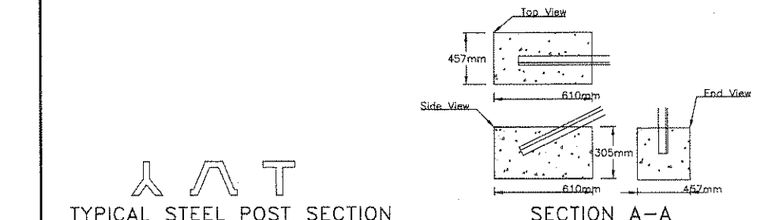
WING FENCE DETAIL



STANDARD TYPE-2 GATE

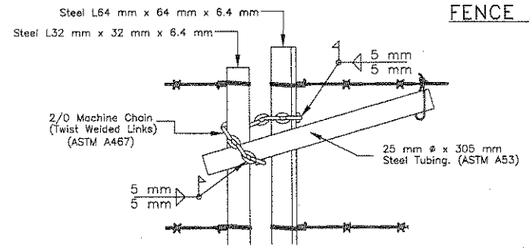
Use At Locations Noted On Plans

FENCE PROFILE IN ROUGH TERRAIN

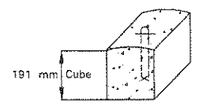


SECTION A-A

Concrete Footing for Corner and Strain Posts.



GATE SECURING DETAIL



CONCRETE SAG WEIGHT DETAIL

Min. Weight Of Concrete Sag Shall Be 16 kg.

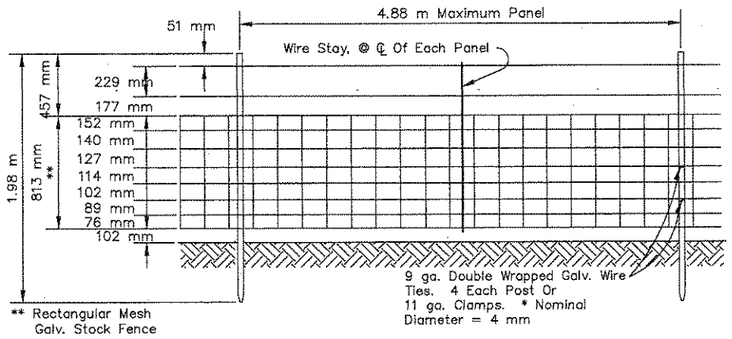
TYPICAL STEEL POST SECTION

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

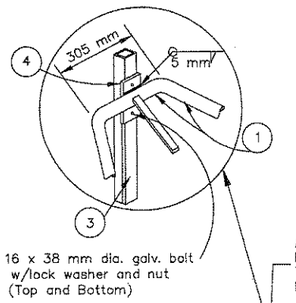
STANDARD FENCING DETAILS

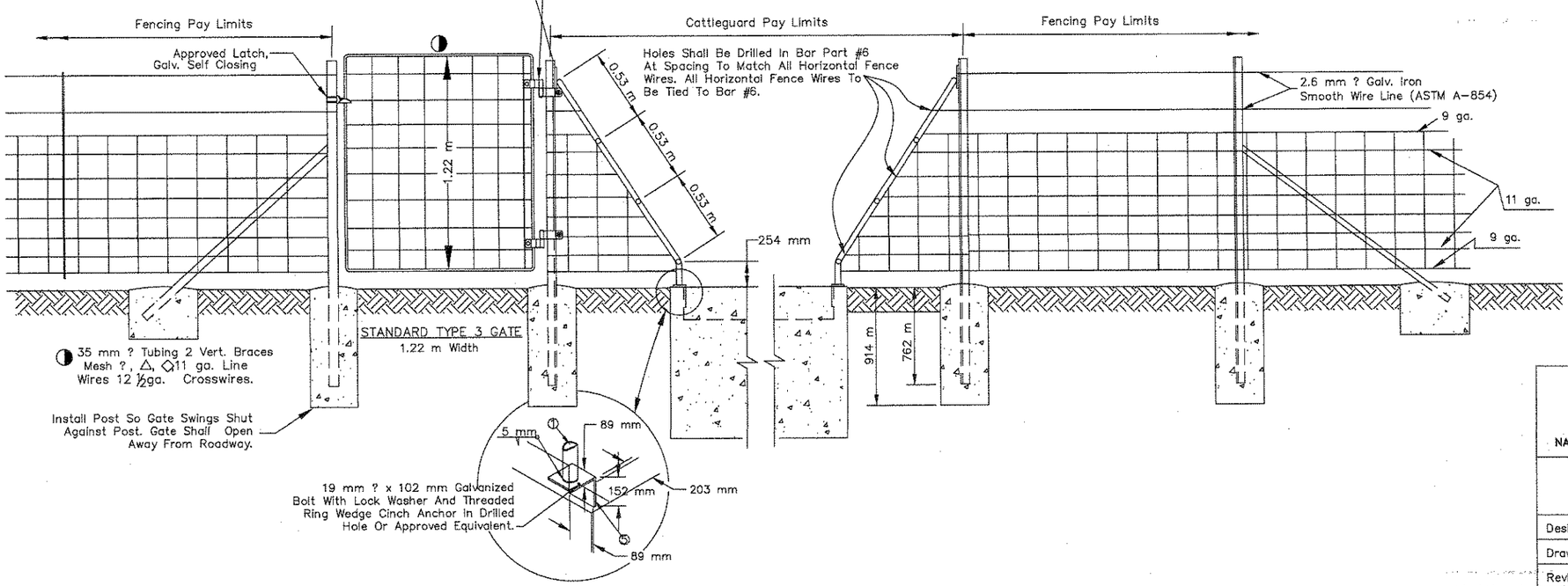
DRAWN BY: NRODOT	DATE: 6/20/04
DESIGNED BY: NRODOT	DATE: 7/14/04
REVISED: 01/09	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010_fen	
SHEET MODEL NAME: PLOT SHEET	

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	56	63



STANDARD WOVEN WIRE PANEL





GENERAL NOTES

1. Structural Pipe Shall Conform To ASTM A53-93A, Grade B. All Other Structural Steel Shall Conform To ASTM-A36.

2. Structural Steel/Pipe For Wing Braces 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.

3. All Structural Pipe Joints Shall Be Fabricated In Accordance With The AISC Manual of Steel Construction, Ninth Edition.

4. Welding Design Details Shall Conform To The AASHTO Standard Specifications For Welding At Structural Steel Highway Bridges, 1983, Section 1.7.21.

5. The Two Supporting Wing Brace Posts (Part 3) Shall Be A Subsidiary Item To The Cattle Guard Item(s).

6. The Typical Length Of The Supporting Wing Braces (Part 3) Shall Be 2.3 Meter (Mininum). Under Certain Conditions The Length Of The Post May Vary To Fully Support The Braces. This Work Shall Be Incidental To The Cattle Guard Installation.

7. At Type 3 Gates, Install A 305 mm Torsion Spring Closure Device With Adjustable Tension. This Device Should Be Installed Between The Hinges.

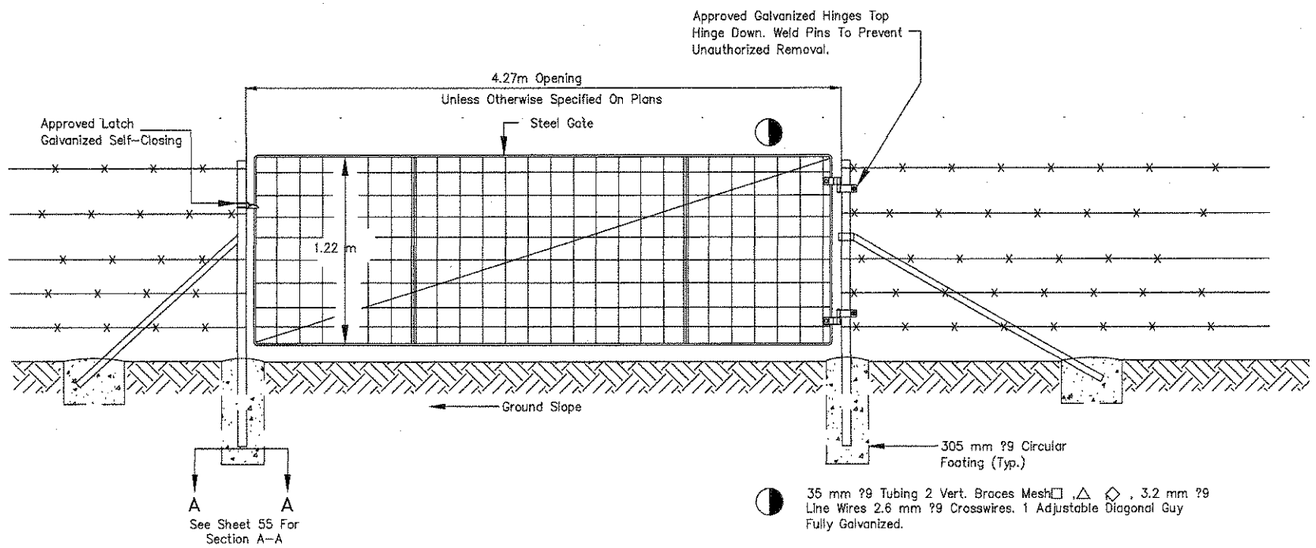
8. See Sheet 55 For Additional Notes.

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

WOVEN WIRE FENCE & PEDESTRIAN GATE DETAILS

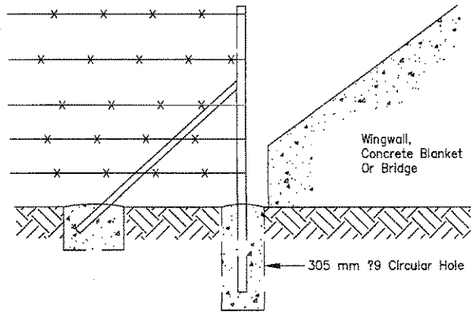
Designed by: NRO-DOT	
Drawn by:	Date:
Revised by:Design2	Date:01/08/09
File Name: STD-Fence	

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

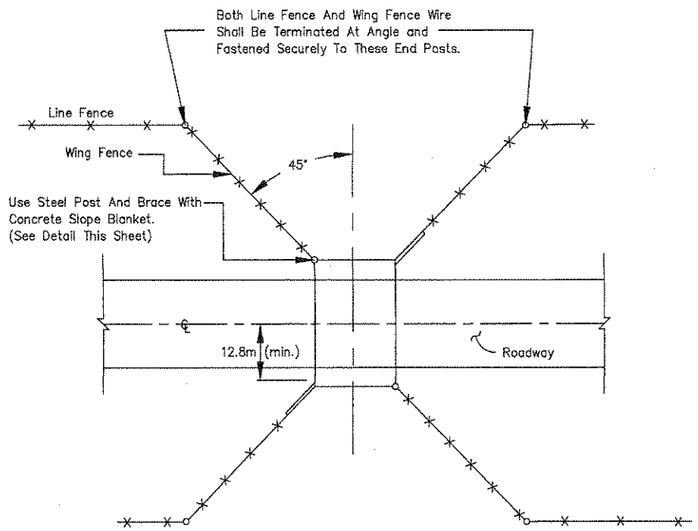


STANDARD 4.27m TYPE 1 GATE

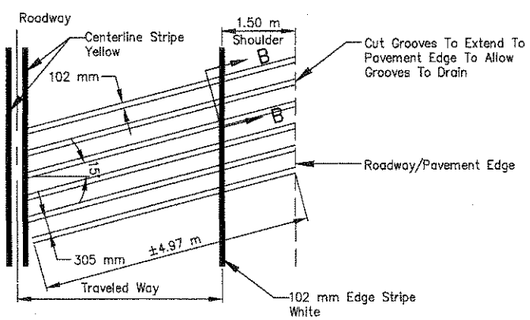
Set Gate To Be Self Closing
(Use Only When Specified By Special Note In The Plans)



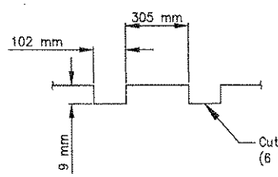
CONNECTION TO MAJOR STRUCTURES



WING FENCE DETAIL



CUT GROOVE RUMBLE STRIP



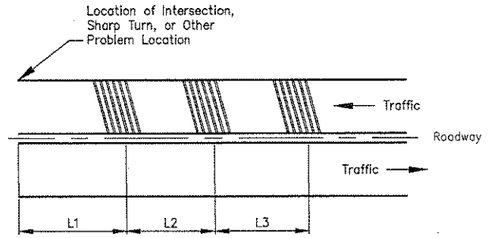
SECTION B-B

GENERAL NOTES:

1. When Tubular Post Hangers And/Or Latches Are Used, It Shall Be Drilled For A Single 2.38 mm ?9 Min. Drive Pin To Prevent Rotation Of The Hangers And/Or Latches.
2. 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.
3. 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

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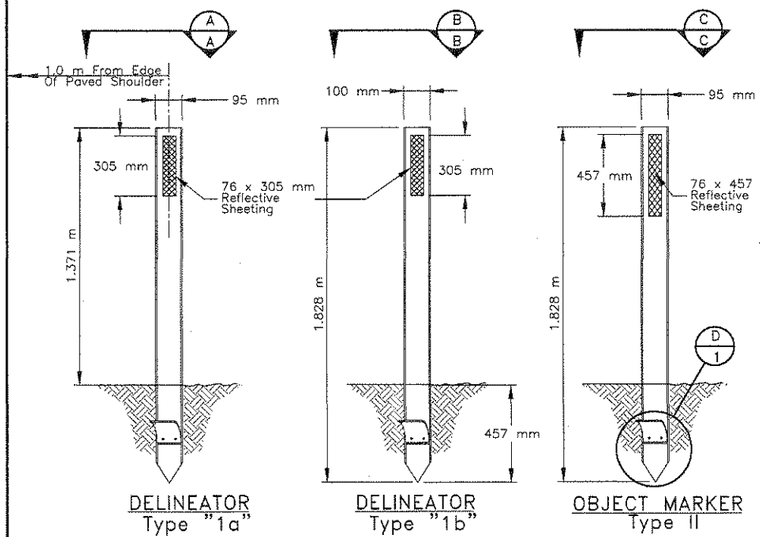
STANDARD TYPE I GATE DETAILS & RUMBLE STRIPS

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

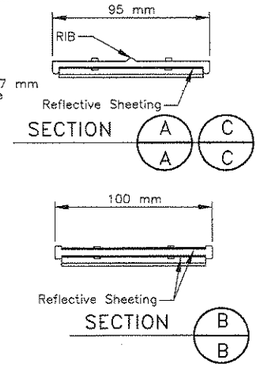
GLASS FIBER TYPE DELINEATOR AND OBJECT MARKER

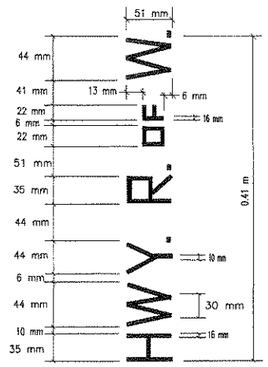


DELINEATOR
Type "1a"

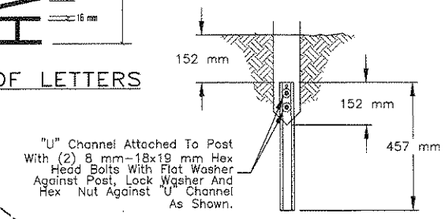
DELINEATOR
Type "1b"

OBJECT MARKER
Type II

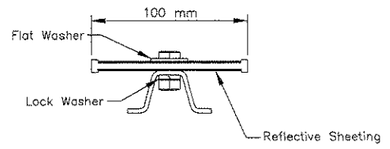


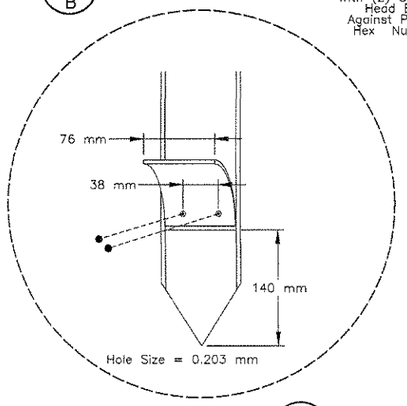


DETAIL OF LETTERS

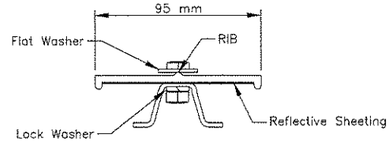


ALTERNATE DETAIL

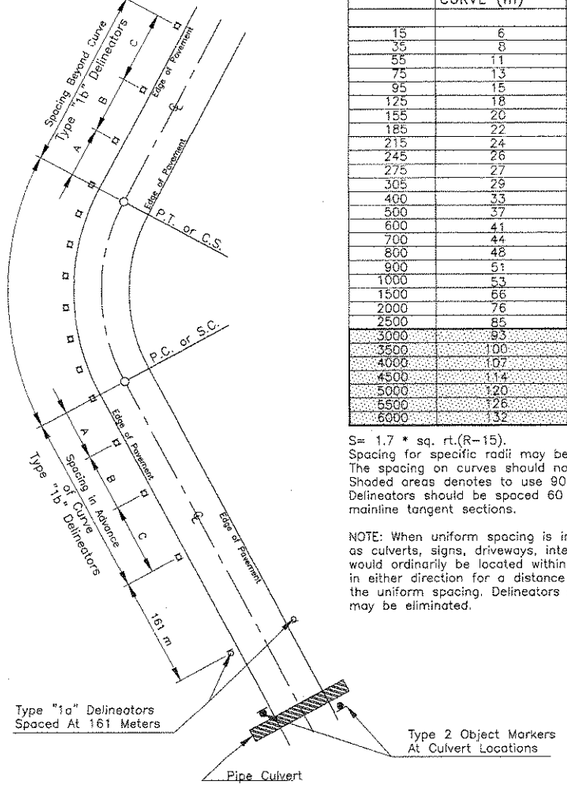




DETAIL D/1



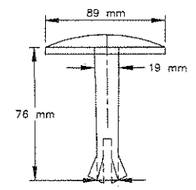
TYPE	POST COLOR	HIGH INTENSITY REFLECTIVE SHEETING
1a	White	White, One Side
1b	White	White, Both Sides
2	Yellow	Amber, One Side



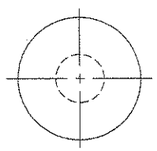
RADIUS OF CURVE (m)	APPROXIMATE SPACING (S) ON CURVE (m)	SPACING ON ADVANCE OF OR BEYOND A CURVE (m)		
		A (2S)	B (3S)	C (6S)
15	6	12	18	36
35	8	16	24	48
55	11	22	33	66
75	13	26	39	78
95	15	30	45	90
125	18	36	54	108
155	20	40	60	120
185	22	44	66	132
215	24	48	72	144
245	26	52	78	156
275	27	54	81	162
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	95	143	286
900	51	101	152	303
1000	53	107	160	320
1500	66	131	197	393
2000	76	151	227	454
2500	85	169	254	508
3000	93	186	279	557
3500	100	201	301	602
4000	107	215	322	644
4500	114	228	342	683
5000	120	240	360	720
5500	126	252	378	755
6000	132	263	395	789

S= 1.7 * 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.

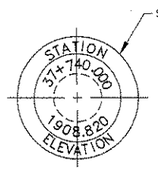


BRASS CAP DETAIL

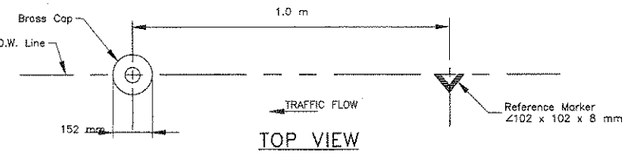


16 mm Before Pouring

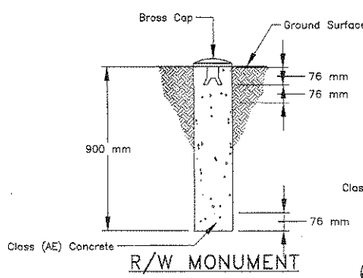
BOTTOM VIEW



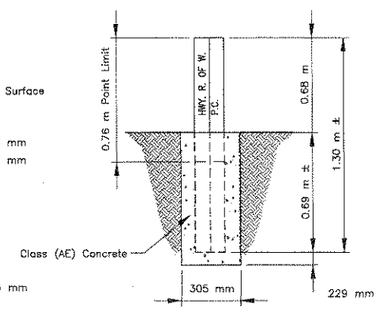
TOP VIEW



TOP VIEW



R/W MONUMENT



REFERENCE MARKER

R/W MONUMENT SYMBOL

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 maker, drill a 152mmø for R/W monument and 305mmø 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.

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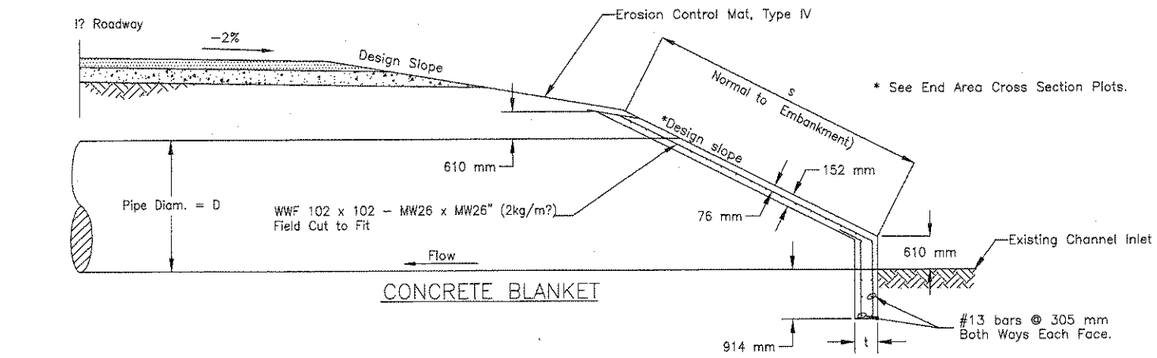
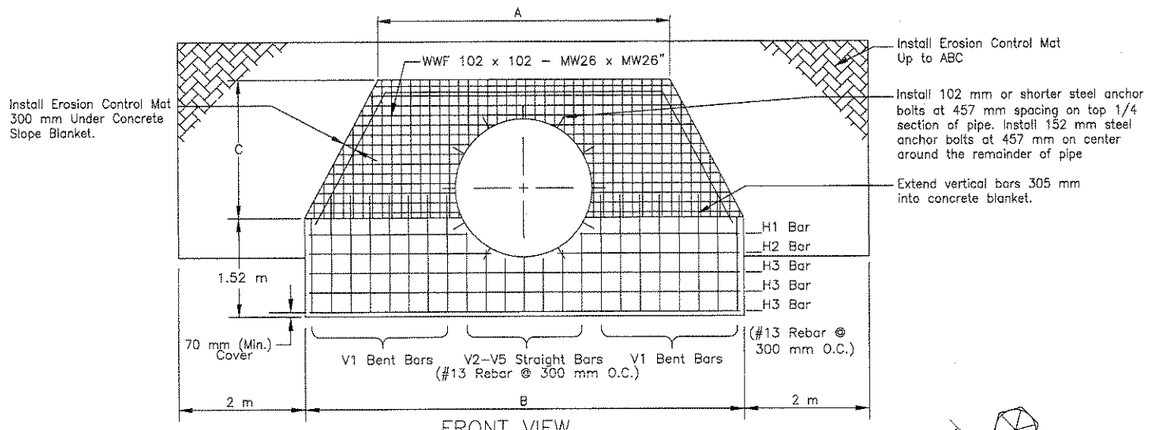
MISCELLANEOUS & ROUTE SIGN DETAILS

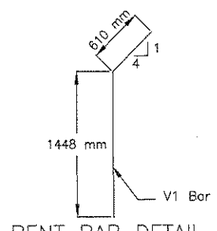
DRAWN BY: NRODOT	DATE:
DESIGNED BY: NRODOT	DATE:
REVISED: 1/09/09	BY: DESIGN 2
SCALE: NTS	
FILENAME: N9010_misc.	
SHEET MODEL NAME: PLOT SHEET	

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

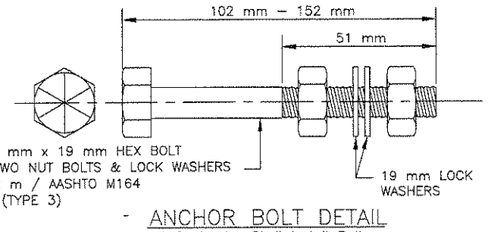




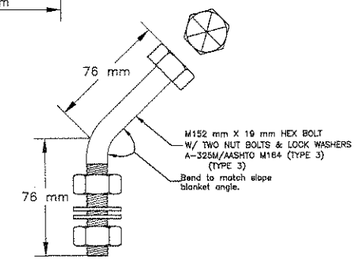
FRONT VIEW
REINFORCING BARS LAYOUT DETAIL



BENT BAR DETAIL



ANCHOR BOLT DETAIL
* Contractor Shall Install Bolt Perpendicular To Face Of Blanket.



BENT ANCHOR BOLT DETAIL
12 Req'd Per Pipe Top End
(457 mm Spacing)

ESTIMATED QUANTITIES

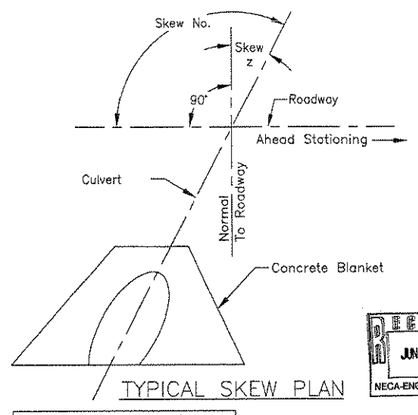
STATION	PIPE SIZE (mm)	NUMBER OF PIPES D	SKEW No.	SLOPE	A (m)	B (m)	C (m)	S (m)	t (mm)	VOLUME OF CONC. (m^3) ITEM NO. 60101 (See Note 2)	TOTAL WEIGHT OF REINFORCING BARS (kg)	TOTAL WEIGHT OF WWF @ 2 kg/m^2 (kg)	TOTAL AREA OF EROSION CONTROL MATTING TYPE IV (m^2) ITEM NO. 62901
1+610-Inlet	2134	1	90	1:4.0	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

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).
2. 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.
3. 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.
4. See Standard Fencing Details Sheet For Wing Fence Connection To Concrete Blanket Detail.
5. 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.
6. 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.
7. 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.
8. All Footing Excavations Shall Be Inspected And Approved By The C.O.R./AOTR Prior To Placement Of Forms, Rebar, And Subsequent Concrete.
9. 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.
10. In No Case Shall Any Backfill Be Placed Until The Concrete Has Attained A Compressive Strength Of 17.23 MPa.
11. 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.
12. 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.
13. 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



TYPICAL SKEW PLAN

Revised 06/21/2010

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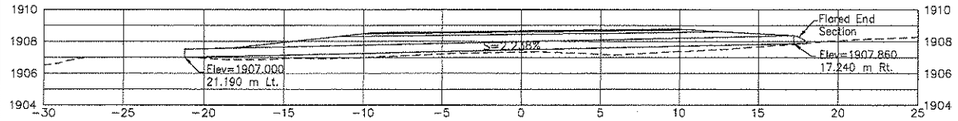
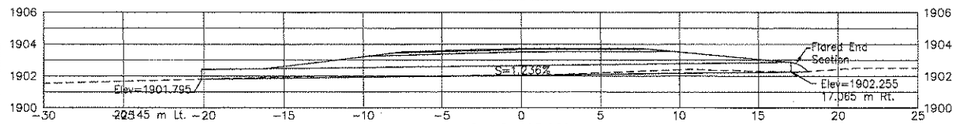
CONCRETE SLOPE BLANKET DETAILS

Designed by:	NRO-DOT
Drawn by:	Date:
Revised by:	DESIGN 2 Date: 1/09/09
File Name:	N9010-Slope Pave

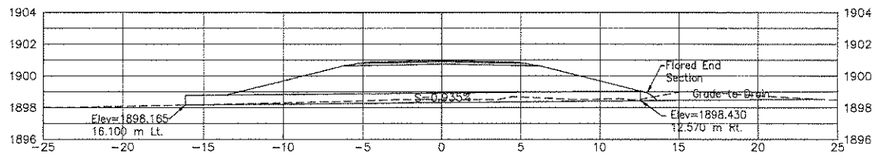
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	60	63



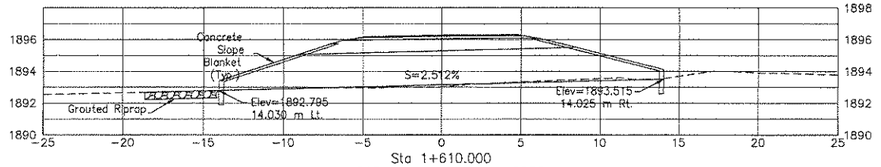
Sta 2+393.000
1-711 mm x 508 mm x 38.43 m CSPA
30* Skew



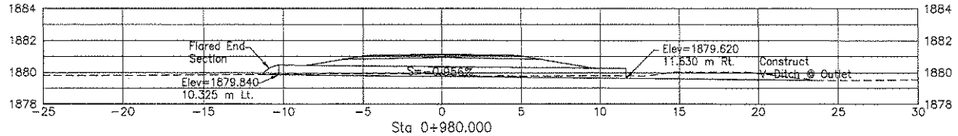
Sta 2+195.000
1-610 mm x 37.21 m CSPC
40* Skew



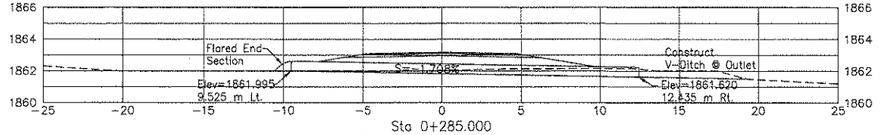
Sta 2+013.000
1-610 mm x 28.67 m CSPC
90* Skew



Sta 1+610.000
1-2134 mm x 28.06 m CSPC
Cattle Pass 90* Skew



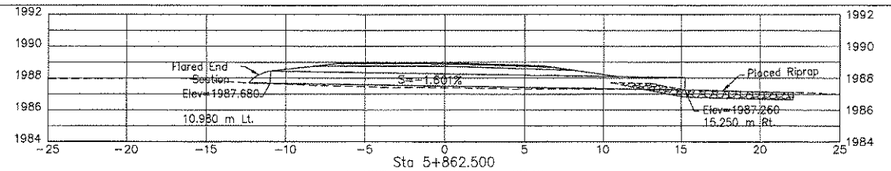
Sta 0+980.000
1-610 mm x 21.96 m CSPC
90* Skew



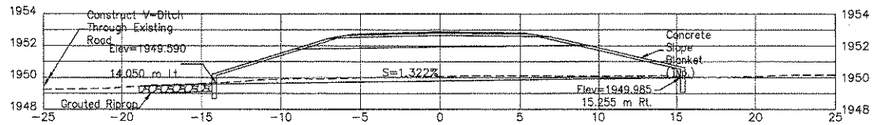
Sta 0+285.000
1-610 mm x 21.96 m CSPC
90* Skew

LEGEND

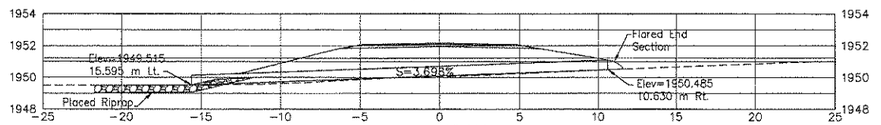
Placed Or Grouted Riprap



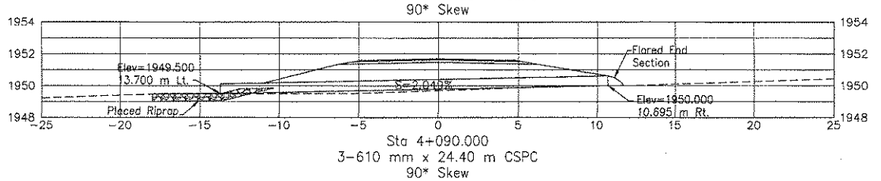
Sta 5+862.500
1-762 mm x 26.23 m CSPC
130* Skew



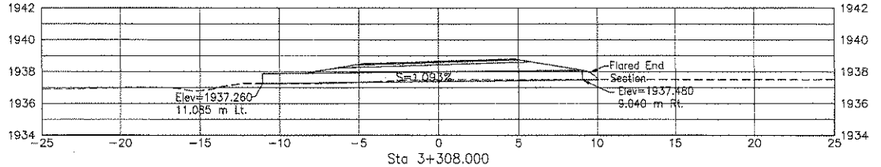
Sta 4+247.000
1-2134 mm x 29.89 m CSPC
Cattle Pass @ 65* Skew



Sta 4+165.000
2-610 mm x 26.23 m CSPC
90* Skew



Sta 4+090.000
3-610 mm x 24.40 m CSPC
90* Skew



Sta 3+308.000
1-610 mm x 20.13 m CSPC
90* Skew

GENERAL NOTES:

1. 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.
2. 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.
3. 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.
4. 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
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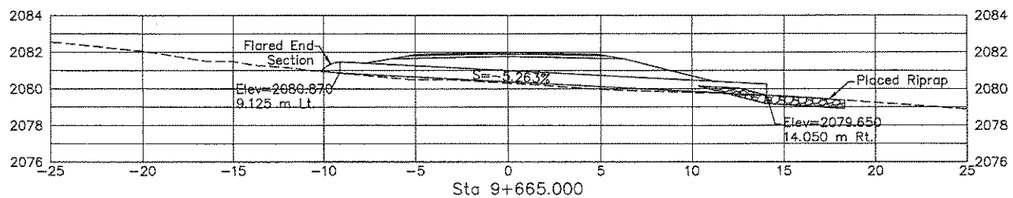
NAVAJO REGION OFFICE * DIVISION OF TRANSPORTATION

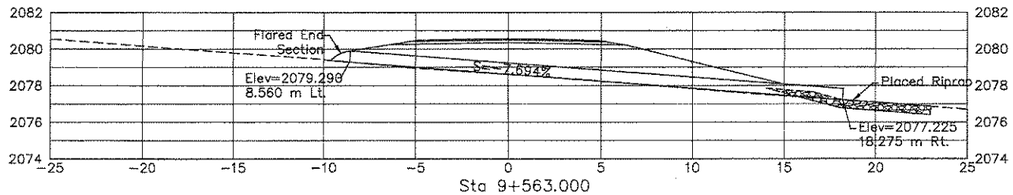
PIPE CROSS SECTIONS

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

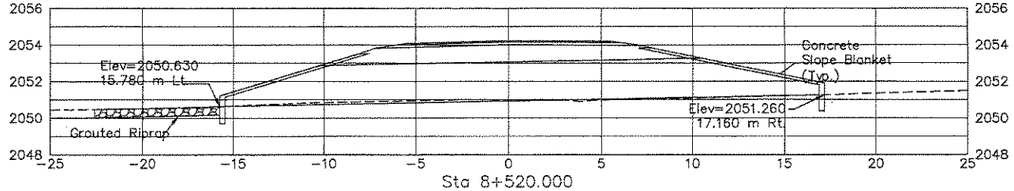
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	61	63



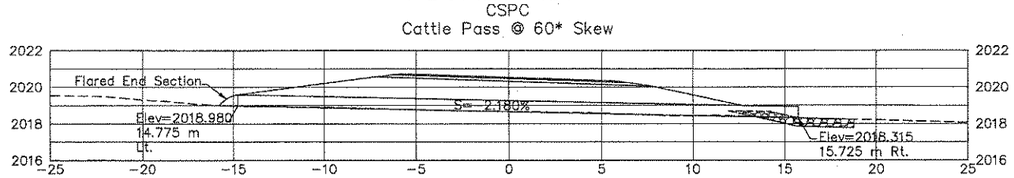
Sta 9+665.000
1-610 mm x 23.18 m CSPC
92* Skew



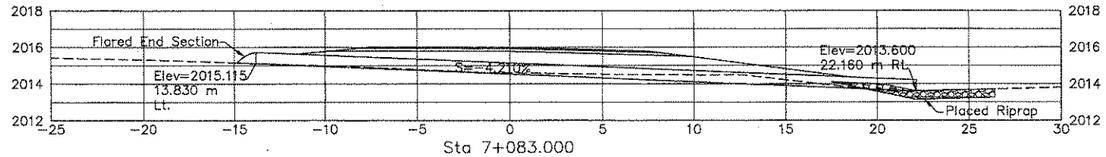
Sta 9+563.000
1-610 mm x 26.84 m CSPC
100* Skew



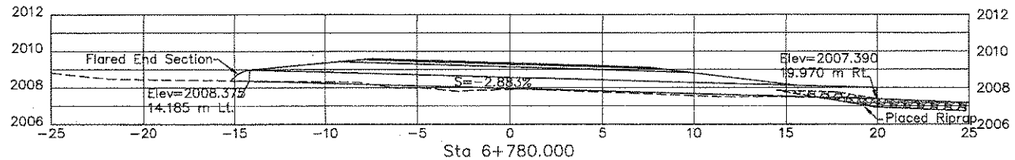
Sta 8+520.000
1-2134 mm x 32.94 m
CSPC
Cattle Pass @ 60* Skew



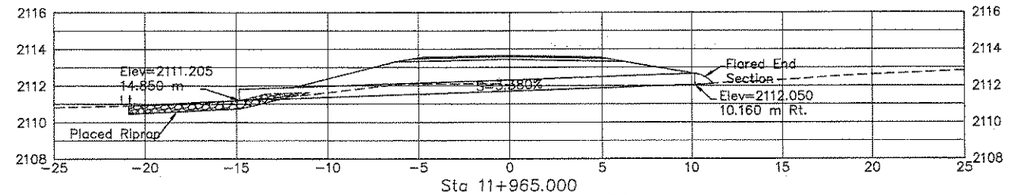
Sta 7+345.000
1-610 mm x 30.50 m CSPC
125* Skew



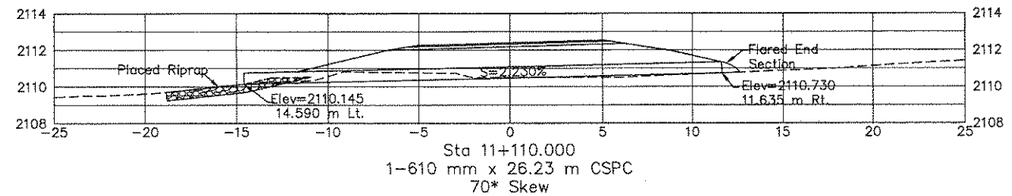
Sta 7+083.000
1-610 mm x 35.99 m CSPC
140* Skew



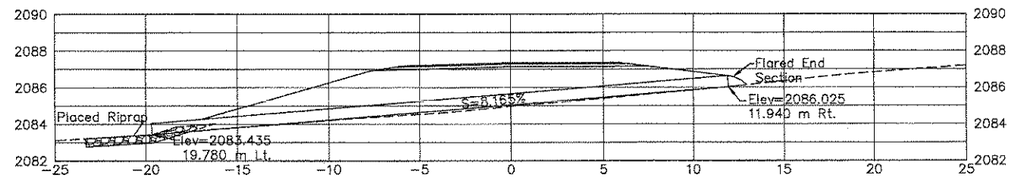
Sta 6+780.000
1-610 mm x 34.16 m CSPC
140* Skew



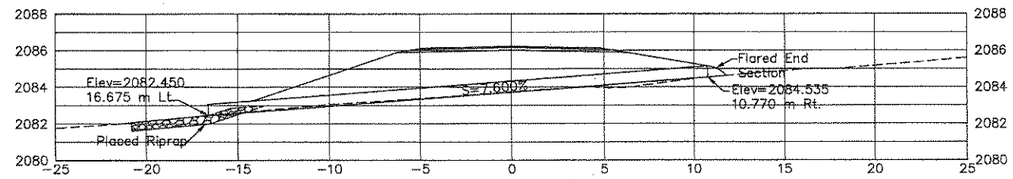
Sta 11+965.000
1-610 mm x 25.01 m CSPC
90* Skew



Sta 11+110.000
1-610 mm x 26.23 m CSPC
70* Skew



Sta 10+018.000
1-610 mm x 31.72 m CSPC
55* Skew



Sta 9+960.000
1-610 mm x 27.45 m CSPC
90* Skew

UNITED STATES
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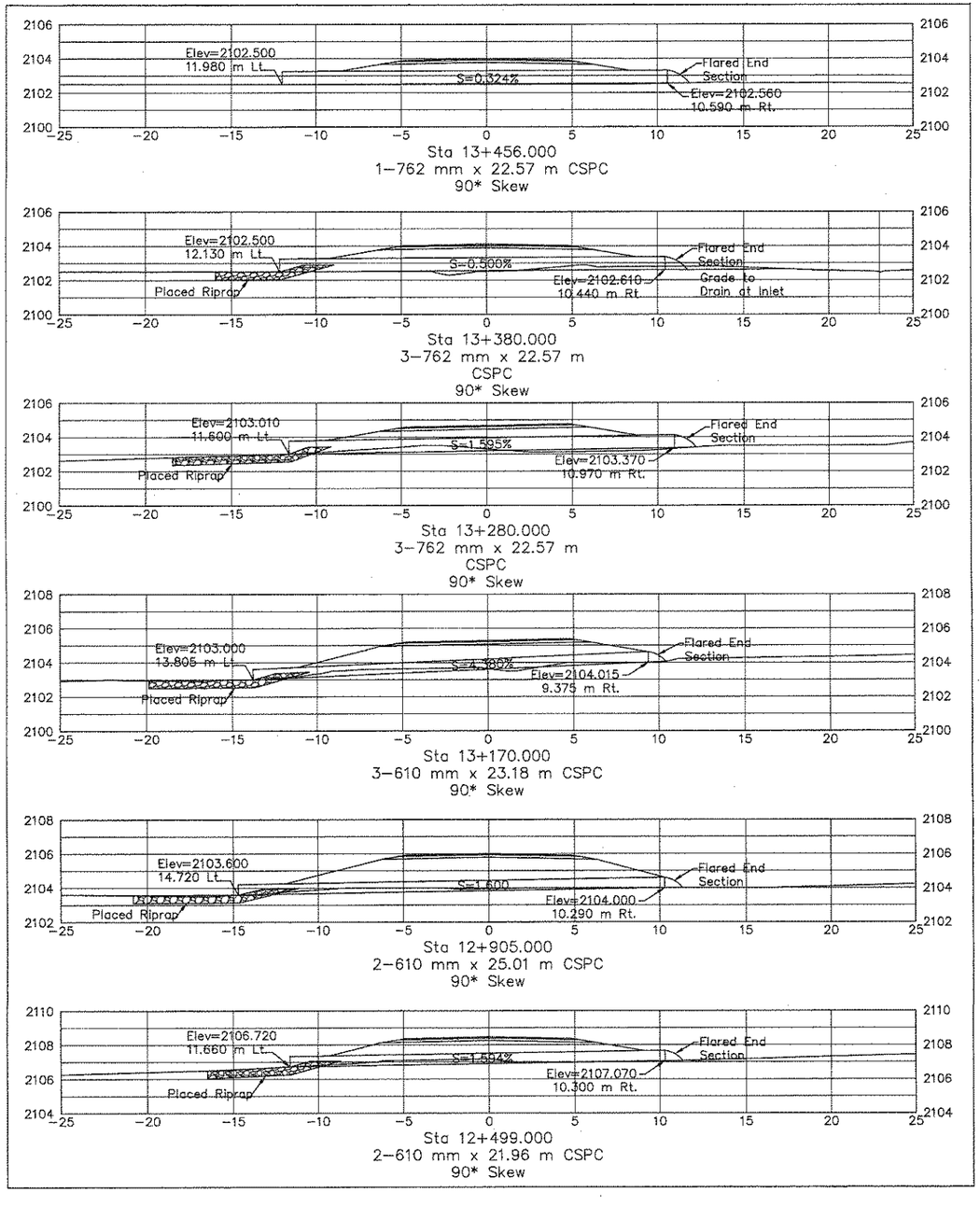
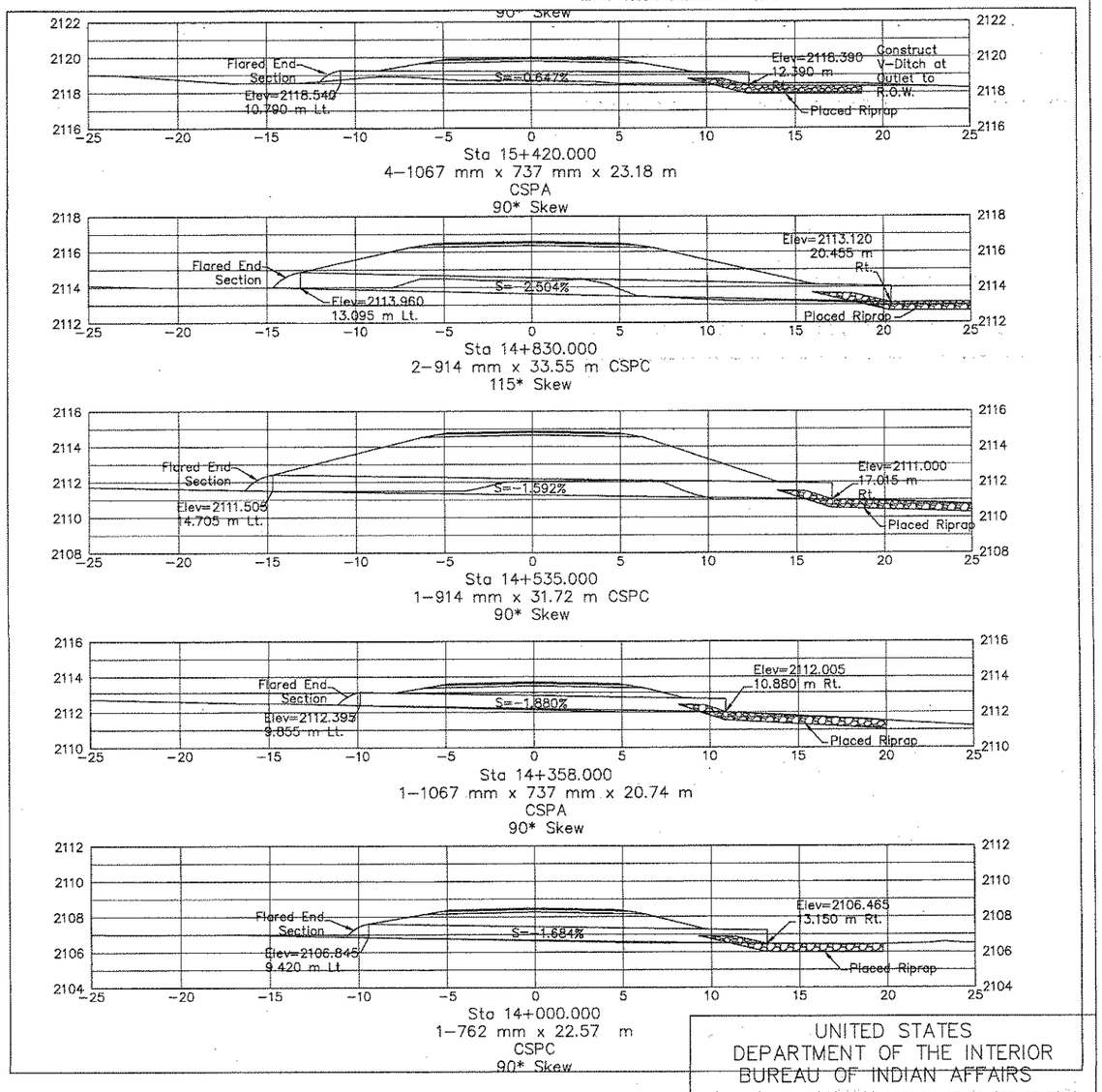
PIPE CROSS SECTIONS

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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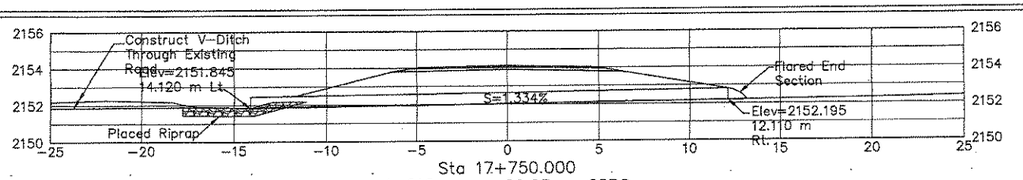
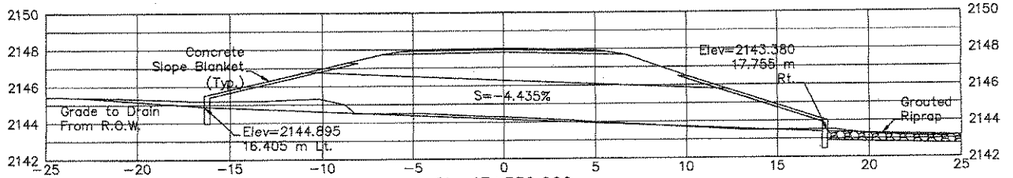
File Name:	N9010-Culverts	

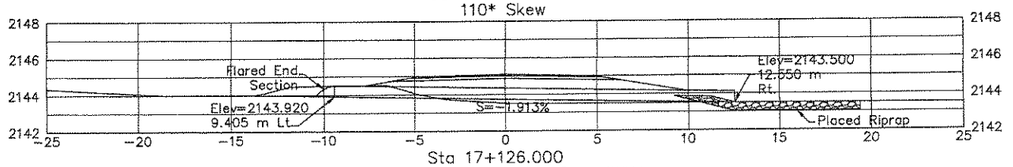
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9010	N9010(1)2&4	63	63



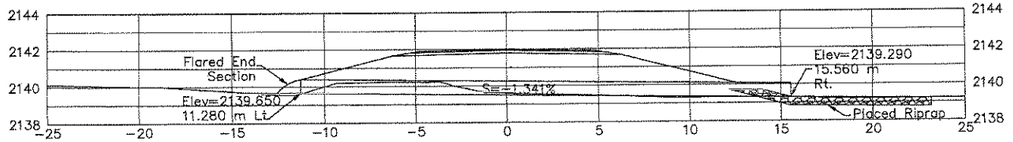
Sta 17+750.000
1-610 mm x 26.23 m CSPC
100* Skew



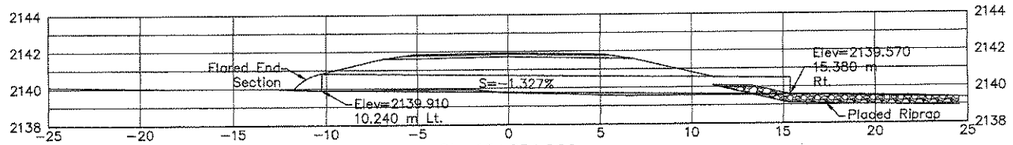
Sta 17+330.000
1-2134 mm x 34.16 m
CSPC Cattle Pass
110* Skew



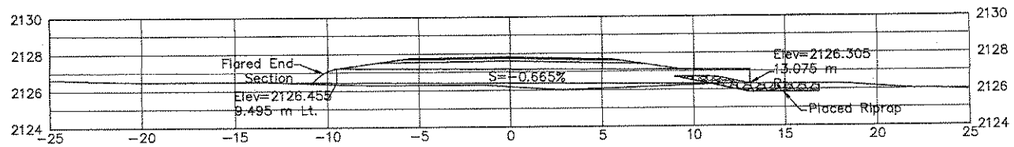
Sta 17+126.000
1-889 x 610 mm x 21.96 m CSPA
85* Skew



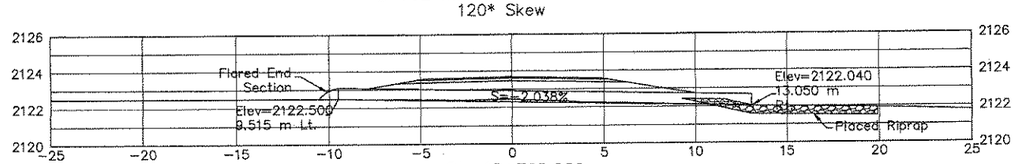
Sta 16+906.000
1-762 mm x 26.84 m CSPC
90* Skew



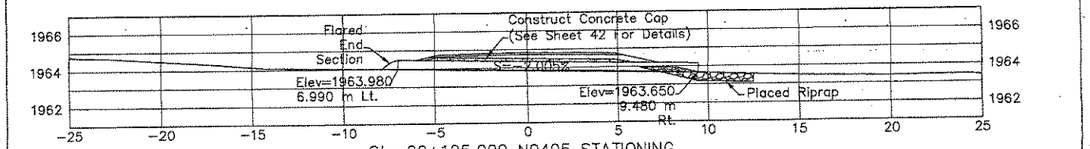
Sta 16+834.000
2-914 mm x 25.62 m CSPC
67* Skew



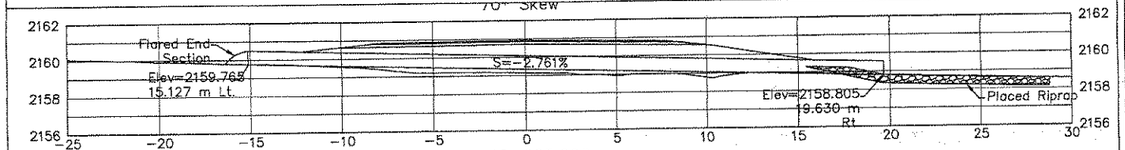
Sta 16+059.000
2-762 mm x 22.57 m CSPC
120* Skew



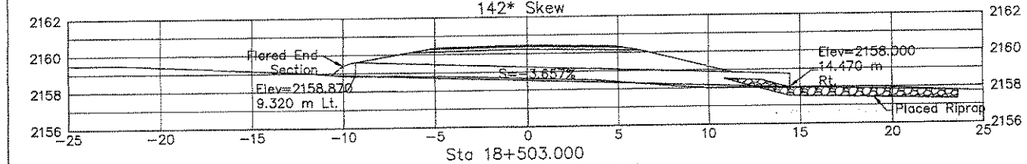
Sta 15+785.000
5-889 mm x 610 mm x 22.57 m
CSPA



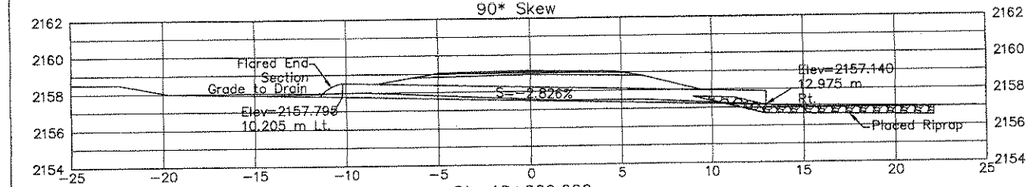
Sta 20+125.000 N9405 STATIONING
2-711 mm x 508 mm x 16.47 m
CSPA
70* Skew



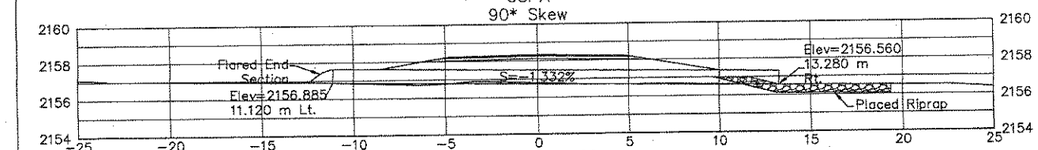
Sta 18+605.000
2-1067 mm x 737 mm x 34.77 m
CSPA
142* Skew



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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