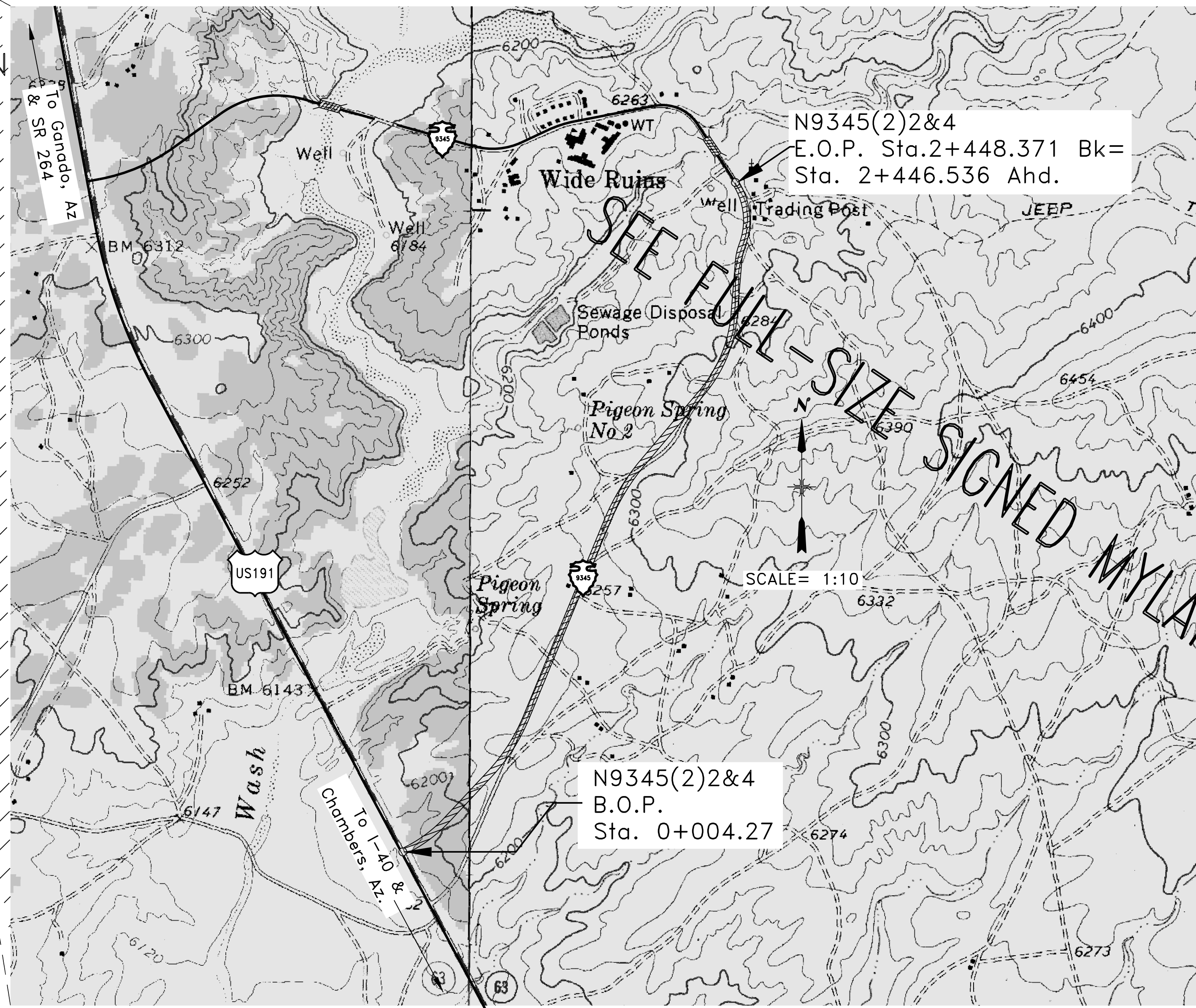


PROJECT N9345(2)2&4

PROJECT LOCATION



LENGTH OF PROJECT		
N9345(2)2&4 South		
STATION	METER	KILOMETER
B.O.P. STA. 0+004.27		
STA. 2+448.371 Bk =	2444.101	2.44
E.O.P. STA. 2+446.536 Ahd		
TOTAL:	2444.101	2.44

DESIGN DATA	
DESIGN SPEED	70 km/h
MINIMUM RADIUS	203 m
MAXIMUM GRADIENT	-6.79 %
MINIMUM STOPPING SIGHT DISTANCE	105 m
MINIMUM PASSING SIGHT DISTANCE	485 m
AVERAGE DAILY TRAFFIC (2002)	284 vpd
EST. AVERAGE DAILY TRAFFIC (2023)	431 vpd
DESIGN HOURLY VOLUME (DHV)	15 vph
MAXIMUM SUPERELEVATION (e max.)	Normal Crown
RIGHT-OF-WAY WIDTH	VARIABLE AS SHOWN
STA. 0+031.016 - STA. 0+800.00	30 m Lt.
STA. 0+031.016 - STA. 1+752.54	30 m Rt.
STA. 0+800.00 - STA. 1+140.00	15 m Lt.
STA. 1+140.00 - STA. 1+752.54	30 m Lt.
STA. 1+752.54 - E.O.P.	VARIABLE Rt.
STA. 1+752.54 - E.O.P.	VARIABLE Lt.

INDEX OF SHEETS	
SHEET No.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL CROSS SECTION & GENERAL NOTES
3	ESTIMATED QUANTITIES TABLES
4	DRAINAGE STRUCTURE QUANTITIES
5 – 8	PLAN & PROFILE SHEETS
9 – 16	CONCRETE RETAINING WALL PLAN, PROFILES & DETAILS
17	CONCRETE PANEL & COPING REINFORCING BAR LAYOUT DETAIL
18	TEMPORARY TRAFFIC CONTROL
19	TEMPORARY & PERMANENT TRAFFIC CONTROL DETAILS
20	PERMANENT SIGNING DETAIL
21	LAB SPLICE U-CHANNEL BREAKAWAY, POSTS AND HARDWARE DETAILS
22	STANDARD PIPE INSTALLATION AND DITCH DETAILS
23	PIPE-ARCH INSTALLATION AND ELBOW DETAILS
24	STANDARD FLEXIBLE PIPE INSTALLATION DETAILS
25	TURNOUTS AND GROUTED RIRAP DETAILS
26	OLD ROADWAY OBLITERATION PLAN/CHECK DAM DETAILS
27– 30	CATCH BASIN AND GROUTED RIRAP DETAILS
31 – 32	STORMWATER POLLUTION & EROSION/SEDIMENT CONTRL
33	STANDARD FENCING DETAILS
34	CATTLEGUARD AND WING BRACE DETAILS
35	PRE-CAST CONCRETE CATTLEGUARD DETAILS
36	MISCELLANEOUS DETAILS
37 – 39	PIPE CROSS SECTION SHEETS

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 _
 POWER LINE AND POLES _
 TELEPHONE LINE AND POLES _
 POLE GUY AND ANCHOR _
 TRAFFIC SIGN _
 GUARD RAIL _
 DELINEATORS _
 BARBED WIRE FENCE _
 WOVEN WIRE FENCE _
 TEMPORARY SAFETY 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 _
 GAS LINE _
 IRRIGATION LINE _
 WELL _
 DWELLING _
 SCHOOL _
 CHURCH _
 WINDMILL _
 RIGHT-OF-WAY MONUMENT _
 TELEPHONE PEDESTAL _
 FURROW DITCH _

SHADING ON INSIDE OF LINE
 PLANNED ONE WAY
 EXISTING TWO WAY
 GATE
 PLANNED BOX CULVERT
 EXISTING BOX CULVERT
 PLANNED BOX CULVERT
 EXISTING BOX CULVERT
 WIDTH & TYPE
 PLANNED SIDE ROAD TURNOUT
 EXISTING SIDE ROAD TURNOUT
 PLANNED DIKE OR DITCH BLOCK
 EXISTING DIKE OR DITCH BLOCK
 PLANNED RAILROAD TRACK
 EXISTING RAILROAD TRACK
 PLANNED GAS LINE
 EXISTING GAS LINE
 PLANNED IRRIGATION LINE
 EXISTING IRRIGATION LINE
 PLANNED WELL
 EXISTING WELL
 PLANNED DWELLING
 EXISTING DWELLING
 PLANNED SCHOOL
 EXISTING SCHOOL
 PLANNED CHURCH
 EXISTING CHURCH
 PLANNED WINDMILL
 EXISTING WINDMILL
 PLANNED RIGHT-OF-WAY MONUMENT
 EXISTING RIGHT-OF-WAY MONUMENT
 PLANNED TELEPHONE PEDESTAL
 EXISTING TELEPHONE PEDESTAL
 PLANNED FURROW DITCH
 EXISTING FURROW DITCH

INDIAN SERVICE
 COUNTY
 STATE
 FEDERAL

PAVED
 GRADED
 UNIMPROVED

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF INDIAN AFFAIRS NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION	
<u>RECOMMENDED APPROVAL</u>	<u>APPROVAL</u>
AGENCY ROAD ENGINEER DATE	
DIVISION MANAGER DATE	
PLANNING & DESIGN BRANCH CHIEF DATE	REGIONAL DIRECTOR DATE

\\CURRENT_PROJECTS\N36_Ft_Defiance\N9345(2)2&4_092908\DESIGN_DATA_082908\CADD_FILES_082908\Microstation_09282010\SHt_2_9345typ.dgn

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	2	39

PROJECT: N9345(2)2&4

CONSTRUCTION PLANS APPROVED
08/16/2011

RETAINING WALL LOCATION

STATION TO STATION	LOCATION	REMARKS
0+277.707 to 0+523.357	Lt.	See 9 of 39 For Typical Section Detail
2+177.647 to 2+339.970	Rt.	See 12 of 39 For Typical Section Detail
2+275.147 to 2+317.243	Lt.	See 12 of 39 For Typical Section Detail

GENERAL NOTES--CONTINUATION

23. THE CONTRACTOR SHALL REMOVE 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 NEW SHOULDER (AS REQUIRED) FROM THE NEW 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. ANY EXISTING R/W MONUMENTS AND BRASS CAPS MISSING SHALL BE RE-SURVEYED IN TO AS CLOSE TO THEIR ORIGINAL POSITION AS POSSIBLE 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, THE COMPLETE TURNOUT RADIUS CAN NOT BE CONSTRUCTED AT NUMEROUS TURNOUTS. AT THESE LOCATIONS THE CONTRACTOR SHALL CONSTRUCT THE PLANNED RADIUS, BUT END THE RADIUS AT THE RIGHT-OF-WAY LIMIT. THE ACTUAL TURNOUT WIDTH (AT THE RIGHT-OF-WAY LINE) WILL BE WIDER THAN THE WIDTH GIVEN ON THE PLANS.

27. THERE ARE A NUMBER OF ARCHAEOLOGICAL SITE MITIGATIONS THAT ARE NOTED ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE NAVAJO NATION HISTORIC PRESERVATION DEPARTMENT (NNHPD) AS REQUIRED PRIOR TO STARTING CONSTRUCTION ACTIVITY. SEE THE SPECIAL CONTRACT REQUIREMENT SECTION OF THE CONTRACT FOR ADDITIONAL INFORMATION, AND REQUIREMENTS. THE CONTRACTOR SHALL PLACE TEMPORARY FLEXIBLE SAFETY FENCE SYSTEMS AROUND THE ARCHAEOLOGY SITE(S) AS SHOWN ON THE PLANS. THE FENCING MATERIAL SHALL BE SQUARE LINK (ORANGE COLOR) PLASTIC TYPE MADE OF HI-DENSITY HDPE. ALL THE RETAINING WALLS MUST BE CONSTRUCTED BEFORE ANY FURTHER GRADING WORK CAN TAKE PLACE. SEE NOTE 34 BELOW FOR ADDITIONAL REQUIREMENTS.

28. THE GEO-TECHNICAL REPORT FOR THIS PROJECT SHALL BE PROVIDED UPON WRITTEN REQUEST TO THE CONTRACTING OFFICER.

29. ROADWAY AND PIPE CROSS SECTION DRAWINGS WILL BE PROVIDED IN EITHER HARD COPY OR ELECTRONIC FORMAT UPON WRITTEN REQUEST TO THE CONTRACTING OFFICER.

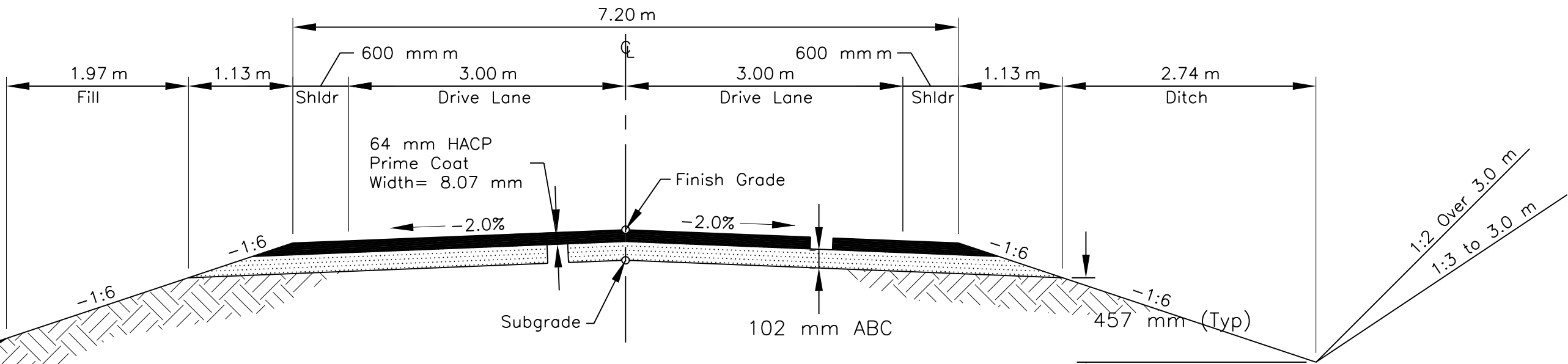
30. ANY EXISTING MAIL BOXES, ADVERTISING BILLBOARDS, OR HOUSE ADDRESS SIGNS LOCATED ALONG THE ROADWAY PRISM SHALL BE REMOVED AND RE-INSTALLED OUTSIDE OF THE RIGHT-OF-WAY LIMIT OR AS DIRECTED BY THE COR/AOTR. THE CONTRACTOR SHALL NOTIFY THE US-POSTAL SERVICE AND ATTEMPT TO CONTACT ALL AFFECTED RESIDENTS TEN (10) WORKING DAYS PRIOR TO RESETING 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 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, AND 607.

32. A NUMBER OF EXISTING TURNOUT RECONSTRUCTION REQUIRE EXISTING METAL GATES TO BE RELOCATED. THE CONTRACTOR IS ADVISED TO FIELD REVIEW EACH GATE RELOCATION PRIOR TO SUBMITTING A BID. GATE RELOCATIONS TO INCLUDE REMOVAL OF EXISTING GATE, SUPPORT POSTS, AND RESETING GATE POSTS IN LOCATION SELECTED BY THE COR. ALL GATE/SUPPORT POSTS TO BE SET IN CONCRETE (SEE R/W FENCING DETAILS FOR CONCRETE DIMENSIONS). ALL COST TO RELOCATE GATES AND POSTS SHALL BE INCIDENTAL TO THE ASSOCIATE CATTLEGUARD INSTALLATION AND NO ADDITIONAL PAYMENT SHALL BE MADE.

33. 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.

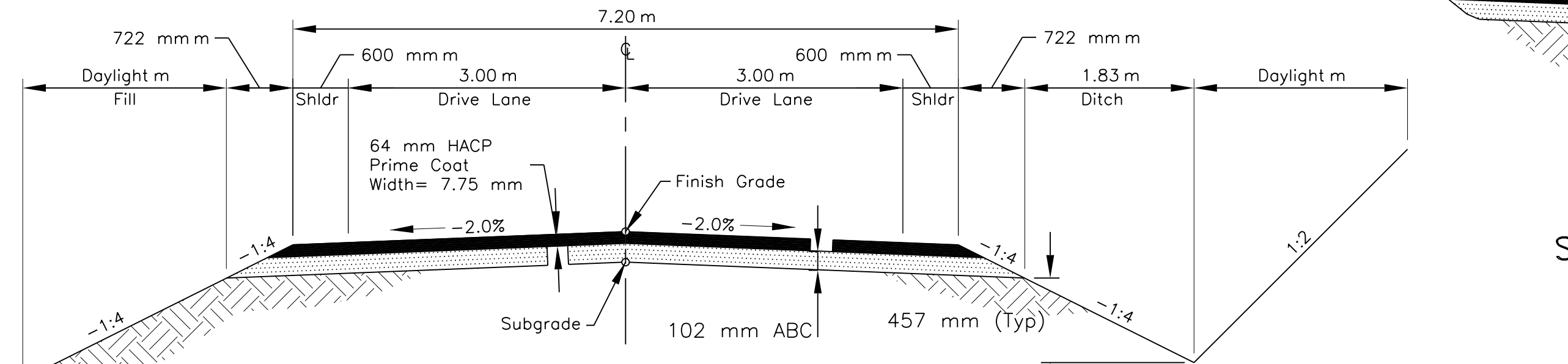
34. THE CONTRACTOR SHALL INSTALL ALL RETAINING WALLS ON THIS PROJECT BEFORE FULL EARTHWORK OPERATION CAN COMMENCE. THE RETAINING WALL CONSTRUCTION UNDER BID ITEMS 25701-0000 SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS INCLUDING CONCRETE, H-PILES, CONCRETE PANELS, HARDWARE, AND OTHER MATERIALS CALLED FOR IN THESE DESIGN PLANS.



TYPICAL CROSS SECTION

Sta. 0+004.27 to 2+317.243, Lt.

Sta. 0+004.27 to 2+340.000, Rt.



TYPICAL CROSS SECTION

Sta. 2+317.243 to 2+448.371 Bk.= 2+446.536 Ahd. Lt.

Sta. 2+340.000 to 2+448.371 Bk.= 2+446.536 Ahd. Rt.

SPECIAL DITCH SECTION

Sta. 2+070.00 to 2+177.647

Right Side Only

*Note: Width Tapers From 3.87 m @ Sta. 2+070.00 To 2.74 m @ 2+177.647, Rt. This Special Ditch Is To Drain Runoff Away From The Retaining Wall Into New Pipe @ Station 2+070.79.

GENERAL NOTES--CONTINUATION

12. THE CONTRACTOR SHALL BE REQUIRED TO OBLITERATE ALL EXISTING ABANDONED TURNOUTS AND ROADWAYS WITHIN THE RIGHT-OF-WAY LIMITS. ALSO, OBLITERATE THE EXISTING N9345 DIRT ROAD FROM US191 TOWARDS THE NEW ALIGNMENT. THE CONTRACTOR SHALL BE REQUIRED TO OBLITERATE ALL EXISTING/ABANDONED ROADS WITHIN THE RIGHT-OF-WAY LIMITS AS FOLLOWS: SCARIFY THE EXISTING ROAD TO A DEPTH OF 300 mm AND LEAVING THE SURFACE ROUGH (100 mm TO 150 mm HIGH RIDGES PERPENDICULAR TO THE EXISTING ROAD CENTERLINE). ROADWAY OBLITERATION INCLUDES GRADING DRAINAGE CHANNELS ACROSS THE OLD ROADBED AND/OR DRAINAGE PIPE OPENINGS, AS MAY BE REQUIRED BY THE COR. THIS APPLIES TO ALL EXISTING ROADS LOCATED BETWEEN THE CONSTRUCTION CATCH POINTS AND THE RIGHT-OF-WAY LIMITS. SEEDING AND STRAW MULCH SHALL BE APPLIED TO ALL DISTURBED AREAS OUTSIDE OF THE PAVED AREA. STRAW MULCHING TO BE PAID UNDER ITEM 15708-1000.

13. STRUCTURAL EXCAVATION AND BACKFILL OF DRAINAGE STRUCTURES SHALL BE CONSIDERED INCIDENTAL TO INSTALLATION OF STRUCTURES. EXCESS MATERIAL REMOVED MAY BE USED TO REBUILD TURNOUTS, EARTHERN DIKES/BERMS, AND/OR PLACED ALONG ROADWAY SHOULDERS AS EMBANKMENT IN AREAS DESIGNATED BY THE COR/AOTR.

14. ALL FURROW DITCHES AND DRAINAGE DITCHES SHALL BE STAKED AND GRADED TO DRAIN UP TO THE RIGHT-OF-WAY LIMITS. EARTHEN DIKES AND DITCHES SHALL BE CONSTRUCTED AS SHOWN ON THESE PLANS AND/OR ADDED AT LOCATIONS DESIGNATED BY THE COR/AOTR. ALL EARTHEN 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. THIS WORK SHALL BE INCIDENTAL TO BID ITEMS 602, 603, AND 607.

15. IMMEDIATELY PRIOR TO PLACING EMBANKMENT, AGGREGATE BASE AND/OR RECYCLED MATERIAL, 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 REQUIREMENTS, THE SUBGRADE SHALL BE WATERED AND/OR SCARIFIED AS NEEDED AND RE-COMPACTED TO THE REQUIRED DENSITY. IN NO CASE SHALL ANY EMBANKMENT OR SURFACING MATERIAL BE PLACED ON FROZEN, MUDDY OR UNSTABLE NATURAL GROUND OR SUBGRADE. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATION OF THE CONTRACTOR.

16. THE EARTHWORK TABLE SHOWN IS TO ASSIST THE CONTRACTOR IN ESTABLISHING A BID UNDER THE EARTHWORK ITEMS SHOWN IN THE BID SCHEDULE. ANY BORROW MATERIAL CALLED FOR ON THE PLANS SHALL BE TAKEN FROM CONTRACTOR IDENTIFIED SOURCES OUTSIDE THE RIGHT-OF-WAY LIMITS. IT IS THE SOLE RESPONSIBILITY AND EXPENSE OF THE CONTRACTOR TO PROVIDE ANY NECESSARY BORROW MATERIAL FOR THIS PROJECT INCLUDING ALL NECESSARY PERMITS. ALL EXCAVATION, BORROW, WASTE AND EMBANKMENT MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS 20401-0000 AND 20403-0000. ANY WASTE MATERIAL SHOWN ON THESE PLANS SHALL BE USED AS NECESSARY TO CONSTRUCT TURNOUTS, BACKFILL OLD N9345 DIRT ROAD, AND EARTHERN DIKES/BERMS AND/OR BE PLACED AS EMBANKMENT ALONG THE SHOULDERS IN AREAS AS DIRECTED BY THE C.O.R. WASTE MATERIAL NOT USED WITHIN THE PROJECT LIMITS, SHALL BE DISPOSED OF AS PER FP-03, SECTION 204.14.

17. THE LOCATION OF UTILITIES 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 THE ARIZONA BLUE STAKES-CALL AT (800)-782-5348 #17 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 100 km NORTHEAST OF THE BOP). ANY MATERIALS DETERMINED TO BE UNUSABLE 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 SECTION BACK AND FORE SLOPES CANNOT BE CONSTRUCTED. IN THIS CASE THE NRO-DOT DIVISION MANAGER, THROUGH THE COR/AOTR, SHALL BE CONSULTED FOR CHANGES IN THE TYPICAL SECTIONS AND/OR APPROVED PROFILES 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 BOP, EOP, AND STATIONS 26+600 TO 26+680, LEFT, 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 SAWN PAVEMENT EDGES TO RECEIVE ASPHALT TACK COAT. THIS WORK SHALL BE INCIDENTAL TO THE PAVING ITEMS 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-ATTACHMENTS OF FENCING AT ALL MAJOR DRAINAGE STRUCTURE, CATTLE GUARDS, GATES, ETC. SHALL BE CONSIDERED INCIDENTAL OBLIGATIONS OF THE CONTRACTOR UNDER ITEM 619 FOR WORK REQUIRING REMOVAL, REPLACEMENT, AND/OR MODIFICATION OF EXISTING STRUCTURES, INSTALLATION OF NEW GATES AND/OR TIE-INS TO EXISTING FENCES. ALL FENCING REPAIRS, TEMPORARY FENCING AND/OR REPLACEMENT SHALL BE COMPLETED IMMEDIATELY IN THE SAME WORK DAY SO AS NOT TO ALLOW LIVESTOCK ONTO THE PROJECT.

BASIS OF ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	GRADE	UNITS	APPLICATION
30101-2000	Untreated Aggregate Base Course	"D"	2 244 kg/m ³	102 mm - Mainline; 102 mm - Turnouts
40201-0500	Hot Asphalt Conc. Pavement, Class "B"	"B"	2 404 kg/m ³	64 mm - Mainline; 51 mm - Turnouts
40502-0800	Asphalt Binder	PG 58-28	0.98 L/kg	5.5% by Weight of Material Mix
41101-5000	Asphalt Prime Coat	MC-70	1.06 L/kg	1.36 L/m ² , Apply on top of ABC.

UNITED STATES
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NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

TYPICAL CROSS SECTION
AND GENERAL NOTES

DRAWN BY: NRDOT DATE: 02/97

DESIGNED BY: NRDOT DATE: 02/97

REVISED: 09/2010 BY: LRT

SCALE: n/a

FILENAME: Sh2_2_9345typ.dgn

SHEET MODEL NAME: PLOT SHEET



I:\CURRENT PROJECTS\N36_Ft Defiance\N9345(2)2&4_092908\CADD FILES_092908\Microstation_09282010\Sht 3_9345qnt.dgn

ESTIMATED QUANTITIES

ITEM No.	DESCRIPTION	QUANTITY	UNITS
10901 – 0000	EXTRA & MISCELLANEOUS WORK AUTHORIZED UNDER 109.2(m)	All Req'd.	Lump Sum
15101 – 0000	MOBILIZATION	All Req'd.	Lump Sum
15201 – 0000	CONSTRUCTION SURVEY AND STAKING	All Req'd.	Lump Sum
15301 – 0020	CONTRACTOR QUALITY CONTROL	3,658	MAN HR
15701 – 0000	TEMPORARY EROSION CONTROL	All Req'd.	Lump Sum
15708 – 1000	TEMPORARY STRAW MULCHING	3.06	Ha
20102 – 0000	CLEARING AND GRUBBING	All Req'd.	Lump Sum
20304 – 1000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	All Req'd.	Lump Sum
20401 – 0000	ROADWAY EXCAVATION	31,948.00	m
20443 – 1000	EARTHEN DIKES/BERMS	105	m
20601 – 0000	DEVELOPMENT OF WATER SUPPLY	7.57	m–Liter
21102 – 1000	ROADWAY AND TURNOUT OBLITERATION, METHOD 1	All Req'd.	Lump Sum
25101 – 2000	PLACED RIPRAP (CHECK DAM) CLASS – 2	44.80	m
25110 – 2000	GROUTED RIPRAP, CLASS – 2	2,915.79	m
25701 – 0000	H–PILE/CONCRETE RETAINING WALL (927.0 m ²)	All Req'd.	Lump Sum
30101 – 2000	UNTREATED AGGREGATE COURSE GRADING "D"	5,799	t
40201 – 0500	HOT ASPHALTIC CONC. PAVEMENT, CLASS "B", GRADE "B"	3,098	t
40502 – 0800	ASPHALT BINDER PG – 58 – 28	186	t
41101 – 5000	PRIME COAT, GRADE MC–70	28.20	t
60101 – 0000	MINOR CONCRETE, CLASS A (AE)	2.78	m
60201 – 0000	457 mm PLASTIC FLEXIBLE PIPE	6.71	m
60201 – 0810	610 mm CORRUGATED STEEL PIPE CULVERT	39.41	m
60201 – 0910	762 mm CORRUGATED STEEL PIPE CULVERT	154.22	m
60201 – 1010	914 mm CORRUGATED STEEL PIPE CULVERT	54.86	m
60202 – 0510	711 mm SPAN x 508 mm RISE CORRUGATED STEEL PIPE ARCH	107.28	m
60202 – 0810	1245 mm SPAN x 838 mm RISE CORRUGATED STEEL PIPE ARCH	66.25	m
60210 – 0810	END SECTION FOR 610 mm CORRUGATED STEEL PIPE CULVERT	2	Each
60210 – 0910	END SECTION FOR 762 mm CORRUGATED STEEL PIPE CULVERT	6	Each
60210 – 1010	END SECTION FOR 914 mm CORRUGATED STEEL PIPE CULVERT	2	Each
60211 – 0910	END SECTION FOR 711 mm x 508 mm, PIPE ARCH	14	Each
60212 – 1200	ELBOW, 1245 mm SPAN x 838 mm RISE, PIPE ARCH	2	Each
60404 – 0000	INLET, CONCRETE CATCH BASIN	1	Each
60701 – 1000	REMOVING, CLEANING, AND STOCKPILING CULVERT	76.20	m
60801 – 0100	PAVED WATERWAY, TYPE ASPHALT	1,189.83	m
61901 – 1000	FENCE, 5–STRAND, BARBED WIRE	824.03	m
61901 – 3400	TEMPORARY SAFTY FENCE, PLASTIC, HDPE–Type	694	m
61903 – 1011	CATTLEGUARD, 4–UNIT, 9.48m WIDE W\ FENCE–NO GATE	1	Each
62101 – 0000	RIGHT–OF WAY MONUMENT	22	Each
62102 – 0000	REFERENCE MARKER	22	Each
62510 – 1000	SEEDING, DRY METHOD	3.97	Ha
62901 – 1100	EROSION CONTROL MATTING, TYPE IV	1,868.22	m
63302 – 0002	SIGN INSTALLATION, 1–POST & HARDWARE, 3.35 Kg/m	2.35	m
63302 – 0003	SIGN INSTALLATION, 1–POST & HARDWARE, 4.10 Kg/m	3.87	m
63302 – 0010	SIGN INSTALLATION, 2–POST & HARDWARE, 2.98 Kg/m	12.15	m
63302 – 0012	SIGN INSTALLATION, 2–POST & HARDWARE, 4.10 Kg/m	3.24	m
63308 – 2000	OBJECT MARKER FLEXIBLE, TYPE 2	18	Each
63309 – 0020	FLEXIBLE DELINEATORS, TYPE " 1b"	38	Each
63401 – 1510	PAVEMENT MARKINGS, TYPE "H", SOLID YELLOW	3,822.20	m
63401 – 1520	PAVEMENT MARKINGS, TYPE "H", SOLID WHITE	4,622.90	m
63401 – 1610	PAVEMENT MARKINGS, TYPE "H", BROKEN YELLOW	960	m
63405 – 3260	PAVEMENT MARKINGS, TYPE "H", STOP BAR, SOLID WHITE	1	Each
63501 – 0000	TEMPORARY TRAFFIC CONTROL	All Req'd.	Lump Sum
63506 – 0500	FLAGGER	5,518	MAN HR

N9345(2) EARTHWORK

N9345–STATION TO STATION		CUT	FILL	BORROW	WASTE
0+004.270	TO 2+448.370	31,948.00	–24,484.00	0.00	7,464.00
TOTAL		31,948.00	–24,484.00	0.00	7,464.00

61903–1011: 9480 mm CATTLEGUARD WITHOUT GATE

STATION	LOC.	DESCRIPTION
0+038.26	CL	4–Unit Cattleguard w/Fence – No Gate (3.52 m Outside US 191 R.O.W.)

62510–1000; SEEDING, DRY METHOD

STATION	TO	STATION	AREA(Lt) m	AREA(Rt) m	TOTAL AREA (ha)
0+004.27	To	2+448.371 Bk. 2+446.536 Ahd	14,121.95	16,436.28	3.06 ha.
0+004.32	To	0+461.320	* Old N9345 Roadway		0.91 ha.
TOTAL:					3.97 ha

* See Roadway Obliteration & Seeding Table Sheet 27 of 39 for Details.

ITEM No. 21102–1000

ROADWAY AND TURNOUT OBLITERATION

STATION	TO	STATION	LOCATION	DESCRIPTION
0+004.32	–	0+461.32	Rt./Lt.	Old N9345 Rdwy.
0+578.00			Rt.	Existing Turnout @ Skew
0+940.00			Lt.	Existing Turnout @ Skew
0+960.00			Rt.	Existing Turnout @ Skew
1+007.00			Rt.	Existing Turnout @ Skew
1+105.00			Rt.	Existing Turnout @ Skew
1+167.00			Lt.	Existing Turnout
1+183.00			Rt.	Existing Turnout @ Skew
1+212.00			Lt.	Existing Turnout @ Skew
1+307.00			Lt.	Existing Turnout @ Skew
1+400.00			Lt.	Existing Turnout @ Skew
1+621.50			Lt.	Existing Turnout
1+785.00			Lt.	Existing Turnout
1+800.00			Rt.	Existing Turnout @ Skew
2+005.00			Rt.	Existing Turnout @ Skew
2+260.00			Lt.	Existing Turnout @ Skew
2+375.00			Rt.	Existing Turnout @ Skew
2+405.00			Rt.	Existing Turnout @ Skew

CONSTRUCTION PLANS APPROVED
08/16/2011

ITEM No. 20304–1000

REMOVAL OF STRUCTURE AND OBSTRUCTIONS

STATION TO STATION	LOCATION	DESCRIPTION
US 191 HWY		
35+509.96	RT.	EXISTING CATTLEGUARD AT US–191 TURNOUT AND STOP SIGN
35+298.31 to 35+358.31	RT.	EXISTING R.O.W. FENCE TO BE SALVAGE/STOCKPILED
N9345(2)2&4		
0+937.00 to 0+969.00	RT.	EXISTING FENCE TO BE SALVAGED AND STOCKPILED
1+90.00 to 1+137.00	LT.	EXISTING FENCE TO BE SALVAGED AND STOCKPILED
2+448.00	Lt/Rt.	EXISTING SIGNS, 'NO PASS ZONE' & 'DO NOT PASS, SALVAGE/STOCKPILE
2+540.00	LT.	EXISTING SIGNS, 'PAVEMENTS ENDS' & '25 MPH', SALVAGE/STOCKPILE

NEW TURNOUT LOCATIONS

STATION	LOC	SIZE	TYPE	REMARKS
0+552.00	Rt.	7.00 m x 26.40 m	A	Turnout Only
0+780.00	Rt.	4.50 m x 26.40 m	A	Turnout With 1–711 mm x 508 mm x 10.97 m CSPA
0+990.00	Rt.	7.00 m x 26.40 m	A	Turnout With 1–711 mm x 508 mm x 20.73 m CSPA
1+018.00	Lt.	4.50 m x 11.40 m	A	Turnout With 1–711 mm x 508 mm x 9.14 m CSPA
1+155.75	Rt.	7.00 m x 26.40 m	A	Turnout With 1–711 mm x 508 mm x 21.34 m CSPA
1+270.00	Lt.	4.50 m x 26.40 m	A	Turnout With 1–711 mm x 508 mm x 10.97 m CSPA
1+643.00	Lt.	4.50 m x 26.40 m	A	Turnout With 1–711 mm x 508 mm x 10.97 m CSPA
1+943.00	Rt.	7.00 m x 26.40 m	A	Turnout With 1–711 mm x 508 mm x 23.16 m CSPA
2+389.00	Rt.	7.00 m x 11.05 m	A	Turnout Only

EXISTING UTILITIES

STATION	LOCATION	REMARKS	OWNER	REMARKS
0+985.70	CL	Existing Power Line X–ing.	FCC & NTUA	Height To Be Adjusted By Owner
1+048.62	CL	Existing Power Line X–ing.	FCC & NTUA	Height To Be Adjusted By Owner
1+058.34	CL	Existing Waterline.	NTUA	Protect in Place.
2+196.68	CL	Existing Power Line X–ing.	NTUA	Protect in Place.
2+396.09	Rt.	Existing Power Pole	NTUA	Protect in Place.
2+412.00	Rt.	Existing Power Pole	NTUA	Protect in Place.
2+440.39	Lt.	Existing Power Line X–ing.	NTUA	Protect in Place.

61901–1000; 5–STRAND, BARBED WIRE

STATION	TO	STATION	LOC.	DESCRIPTION	LENGTH (m)
35+298.31	To	35+520.00	Lt.	Install New Fence On US 191 R/W between New And Old N9345 Turnouts	221.69
0+031.01	To	0+277.71	Lt.	Install New Fence @R/W to Retaining Wall	246.70
0+532.36	To	0+800.00	Lt.	Install New Fence @R/W From Retaining Wall To Existing Property Fence	276.64
0+937.00	To	0+969.00	Rt.	Install New Fence @ R/W	32.00
1+090.00	To	1+137.00	Lt.	Install New Fence @ R/W	47.00
TOTAL:					824.03

61901–3400; TEMPORARY SAFETY FENCING, PLASTIC, HDPE

STATION	to	STATION	LOCATION	DESCRIPTION	LENGTH (m)
0+040.00	to	0+094.00	22 m Rt.	Arch–Site, AZ–P–36–81	54.00
0+260.00	to	0+520.00	15 m Lt./Rt.	Arch–Site, AZ–P–37–42	520.00
0+790.00	to	0+910.00	15 m Rt.	Arch–Site, AZ–P–37–15	120.00
TOTAL:					694.00

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ESTIMATED QUANTITIES

DRAWN BY: NRODOT DATE: 2/93
DESIGNED BY: NRODOT DATE: 10/92
REVISED: 06/07 BY: NRODOT
SCALE: NTS
FILENAME: 9345QNT
SHEET MODEL NAME: PLOT SHEET



pharman.cheel\CURRENT PROJECTS\N36_FI_Defiance\N9345(2)2&4_092908\DESIGN DATA_082908\CADD FILES_092908\Microstation_09282010\Sht_4_9345Str.dgn

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	4	39

ESTIMATED STRUCTURE QUANTITIES		ITEM NO.	60201- 0000	60201- 0810	60201- 0910	60201- 1010	60202- 0510	60202- 0810	60210- 0810	60210- 0910	60210- 1010	60211- 0910	60212- 1200	
			457 mm Plastic Flexible Pipe	610 mm 68 mm x 13 mm Corrugation Plastic Flexible Pipe	762 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	814 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	868 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	914 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	968 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	1022 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	1076 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	1130 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	1184 mm 68 mm x 13 mm Corrugation Steel Pipe Culvert	Estimated Area Of Construction Disturbance
STATION	STRUCTURE SIZE	SKEW NO.	m	m	m	m	m	m	m	Ea.	Ea.	Ea.	Ea.	ha
0+192.00	1+762 mm x 20.12 m CSPC	80.00			20.12						1			0.0068
0+628.66	2-762 mm x 23.16 m CSPC	90.00			46.32						2			0.0127
0+780.00	1 - 711 mm Span x 508 mm Rise x 10.97 m CSPA Under T.O. , Rt.	N/A						10.97					2	N/A
0+990.00	1 - 711 mm Span x 508 mm Rise x 20.73 m CSPA Under T.O. , Rt.	N/A						20.73					2	N/A
1+018.00	1 - 711 mm Span x 508 mm Rise x 9.14 m CSPA Under T.O. , Lt.	N/A						9.14					2	N/A
1+155.75	1 - 711 mm Span x 508 mm Rise x 21.34 m CSPA Under T.O. , Rt.	N/A						21.34					2	N/A
1+270.00	1 - 711 mm Span x 508 mm Rise x 10.97 m CSPA Under T.O. , Lt.	N/A						10.97					2	N/A
1+520.00	1+762 mm x 34.14 m CSCP	90.00			34.14						1			0.0064
1+571.00	1+762 mm x 24.99 m CSCP	90.00			24.99						1			0.0047
1+631.00	1+762 mm x 28.65 m CSCP	45.00			28.65						1			0.0077
1+643.00	1 - 711 mm Span x 508 mm Rise x 10.97 m CSPA Under T.O. , Lt.	N/A						10.97					2	N/A
1+943.00	1 - 711 mm Span x 508 mm Rise x 23.16 m CSPA Under T.O. , Rt.	N/A						23.16					2	N/A
1+968.73	1 - 610 mm x 21.73 m CSCP	134.54		21.73						1				N/A
2+070.79	2 - 914 mm x 27.43 m CSCP	116.15					54.86						2	0.0167
2+267.00	1 - 610 mm x 6.71 m Flex Plastic Pipe, Thru Retaining Wall	N/A	6.71											
2+322.88	1-1245 mm Span x 838 mm Rise x 16.20 m CSPA	**								16.20				0.0202
2+322.88	1-1245 mm Span x 838 mm Rise x 17.48 m CSPA	**								17.48				
2+325.32	1-1245 mm Span x 838 mm Rise x 14.12 m CSPA	**								14.12				0.0202
2+325.32	1-1245 mm Span x 838 mm Rise x 18.45 m CSPA	**								18.45				
2+372.00	1 - 610 mm x 17.68 m CSCP	90.00		17.68						1				N/A
TOTAL			6.71	39.41	154.22	54.86	107.28	66.25	2	6	2	14	2	

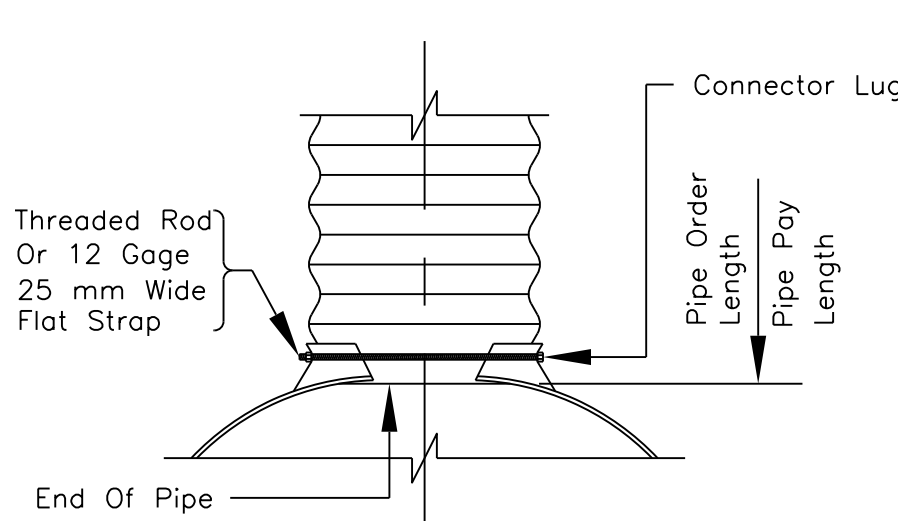
CONSTRUCTION PLANS APPROVED
08/16/2011

GENERAL NOTES

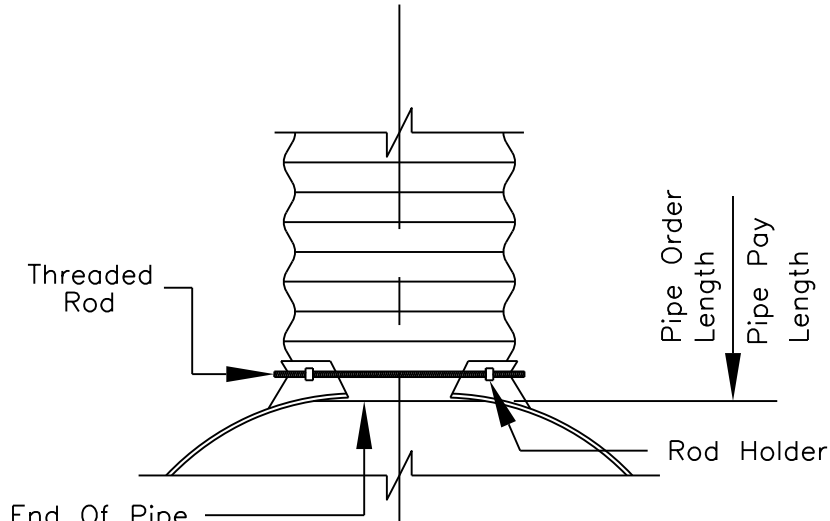
- FOR MULTIPLE INSTALLATION OF ALL TYPES, A MINIMUM OF A 610 mm SPACING MEASURED ALONG THE HORIZONTAL BETWEEN FLARED END SECTIONS AT THEIR WIDEST CROSS SECTION SHALL BE USED.
- ALL THREE (3) PIECE BODIES TO HAVE 2.77 mm THICKNESS SIDES AND 3.5 mm THICKNESS CENTER PANELS. WIDTH OF CENTER PANELS TO BE GREATER THAN 20% OF THE PIPE PERIPHERY. MULTIPLE PANEL BODIES TO HAVE LAP SEAMS WHICH ARE TO BE TIGHTLY JOINED BY 9.53 mmØ GALVANIZED RIVETS OR BOLTS.
- END SECTIONS FOR STEEL PIPE-ARCHES: FOR THE 1956 mm x 1321 mm AND 2108 mm x 1448 mm SIZES, REINFORCED EDGE TO BE SUPPLEMENTED BY 51 mm x 51 mm x 6.35 mm GALVANIZED ANGLES. THE ANGLES TO BE ATTACHED BY 9.53 mm dia. GALVANIZED NUTS AND BOLTS. ANGLE REINFORCEMENT WILL BE PLACED UNDER THE CENTER PANEL SEAMS.
- END SECTIONS FOR STEEL CIRCULAR PIPES: FOR 1524 mmØ THRU 2134 mmØ 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 mmØ THRU 1829 mmØ, AND 64 mm x 64 mm x 6.35 mm FOR 1981 mmØ AND 2134 mmØ. THE ANGLES TO BE ATTACHED BY 9.53 mmØ GALVANIZED NUTS AND BOLTS.
- WELDING SHALL NOT BE PERMITTED IN CONNECTING END SECTIONS TO CONNECTOR SECTIONS OR CONNECTOR SECTIONS TO PIPE.
- TYPE NO. 1 STEEL END SECTION. CONNECT END SECTION WITH THREADED ROD WITH CONNECTOR LUG, FOR 610 mmØ ROUND PIPE & 711 mm x 308 mm CSPA.
- TYPE NO. 2 STEEL END SECTION. CONNECT END SECTION WITH THREADED ROD WITH ROD HOLDER, FOR 762 mmØ AND 914 mmØ ROUND PIPE; AND 432 mm x 330 mm THRU 1448 mm x 965 mm CSPA.
- TYPE NO. 3 STEEL END SECTION. THE CONNECTION INCLUDES 305 mm OF THE PIPE LENGTH AS A CONNECTOR SECTION FOR PIPE ARCH SIZES 1626 mm x 1092 mm THRU 2108 mm x 1448 mm AND ROUND PIPE SIZES 1067 mmØ THRU 2134 mmØ. GAGES OF CONNECTOR SECTION SHALL BE THE SAME AS THE END SECTIONS AS MENTION ABOVE. THE CONNECTOR SECTION WILL BE ATTACHED TO THE END SECTION BY 9.5 mmØ GALVANIZED RIVETS OR BOLTS APPROXIMATELY 152mm CENTERS.
- HELICALLY-CORRUGATED PIPE FOR TYPE NO 5 AND TYPE NO.3 THE DIMPLE BAND OR CORRUGATED PIPE CONNECTOR SECTION SHALL BE ATTACHED TO THE END SECTION BY 9.5 mmØ GALVANIZED STEEL RIVETS OR BOLTS SPACED AT APPROXIMATELY 152mm CENTERS.
- TYPE NO. 1, TYPE NO. 2 AND TYPE NO. 3 CONNECTIONS MAY BE USED WITH WELDED SEAMS HELICALLY CORRUGATED PIPE WITH RE-ROLLED ENDS. RE-ROLLED ENDS SHALL INCLUDE A MINIMUM OF TWO (2) ANNULAR CORRUGATIONS OF THE SAME SIZE AS THE PIPE CORRUGATIONS

ROUND PIPE END SECTION - GALVANIZED STEEL									
PIPE DIAM. (mm)	THICK NESS (mm)	DIMENSIONS						APPROX. SLOPE	BODY
		A	B	H	F	L	W		
		(Min)	(Max.)	(Min)	(Min)	(51 mm±)	(Max)		
610	1.6	229	330	152	1168	1041	1829	2 1/8	1 Pc
762	2	279	406	203	1397	1295	2235	2 1/8	2 Pc
914	2	330	483	229	1778	1524	2267	2	2 Pc

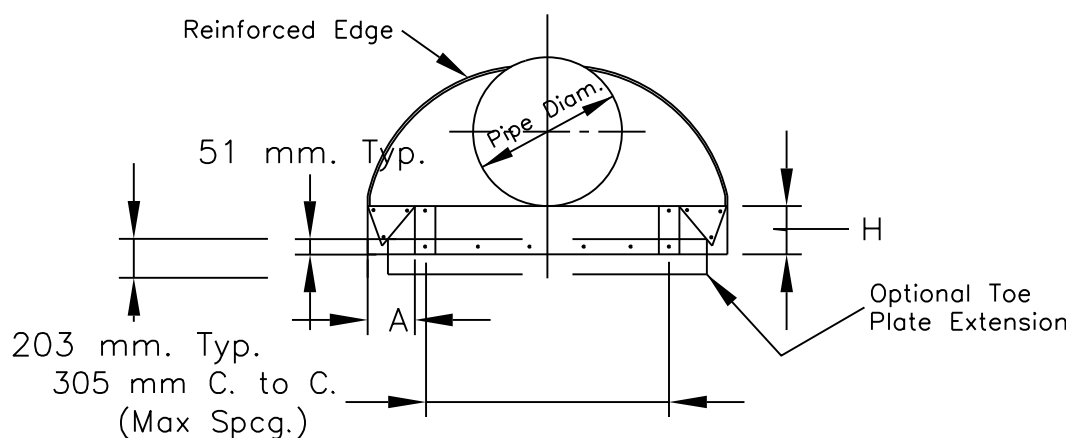
ARCH PIPE END SECTION – GALVANIZED STEEL										
PIPE DIAM.		THICK NESS (mm)	DIMENSIONS						APPROX. SLOPE	BODY
SPAN	RISE		A (Min)	B (Max.)	H (Min)	F (Min)	L (51 mm±)	W (Max)		
711 x 508		1.6	178	406	152	1168	813	4778	2	1 Pc
1245 x 838		2.8	343	508	229	1168	1346	2134	2 1/2	2 Pc



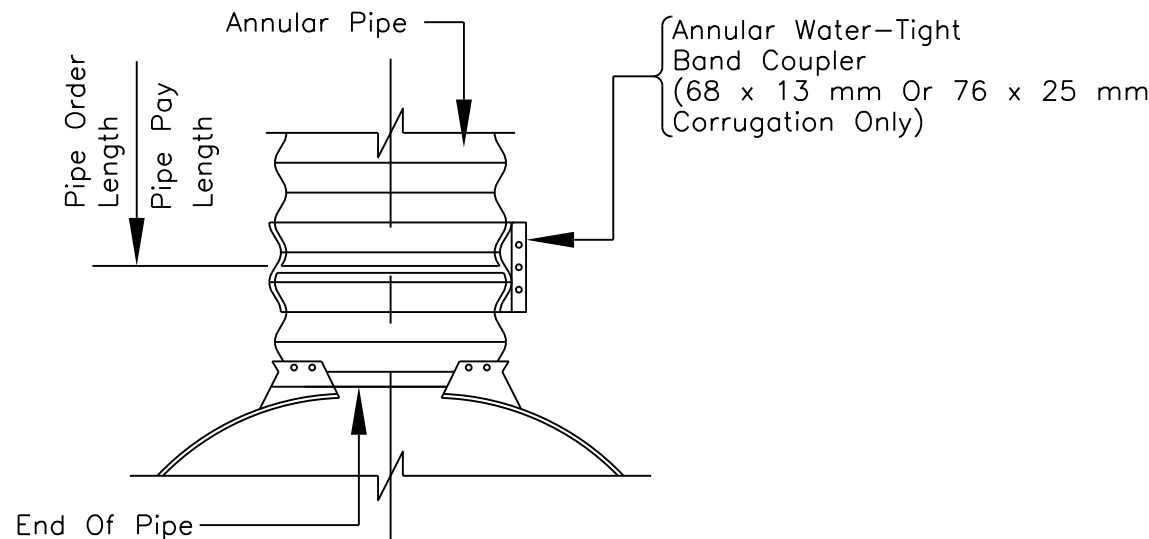
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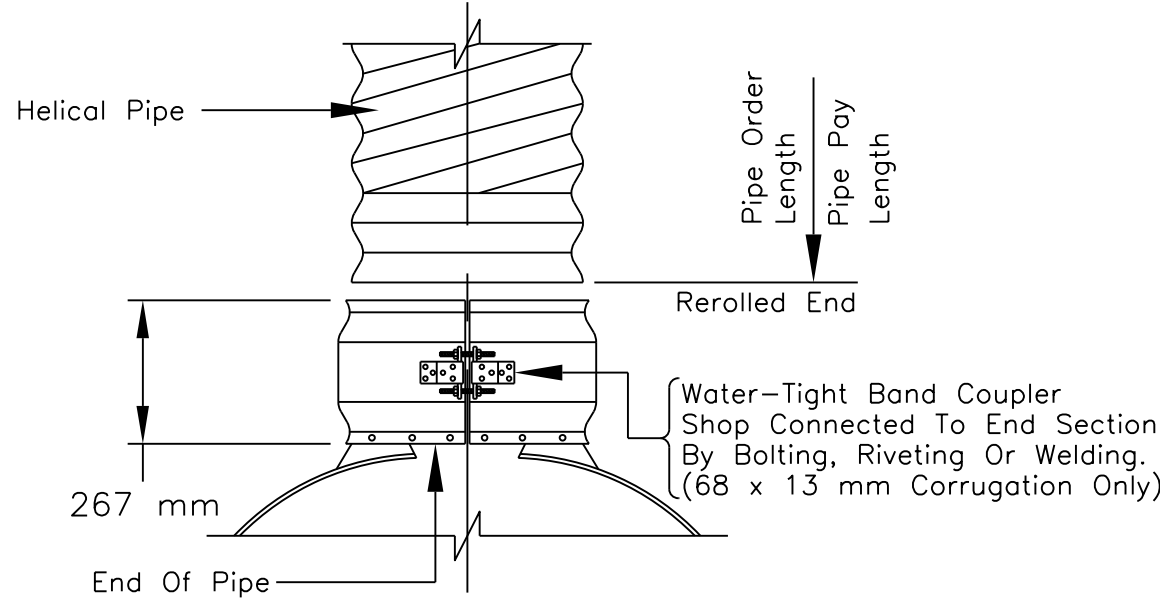
TYPE NO. 2



ELEVATION

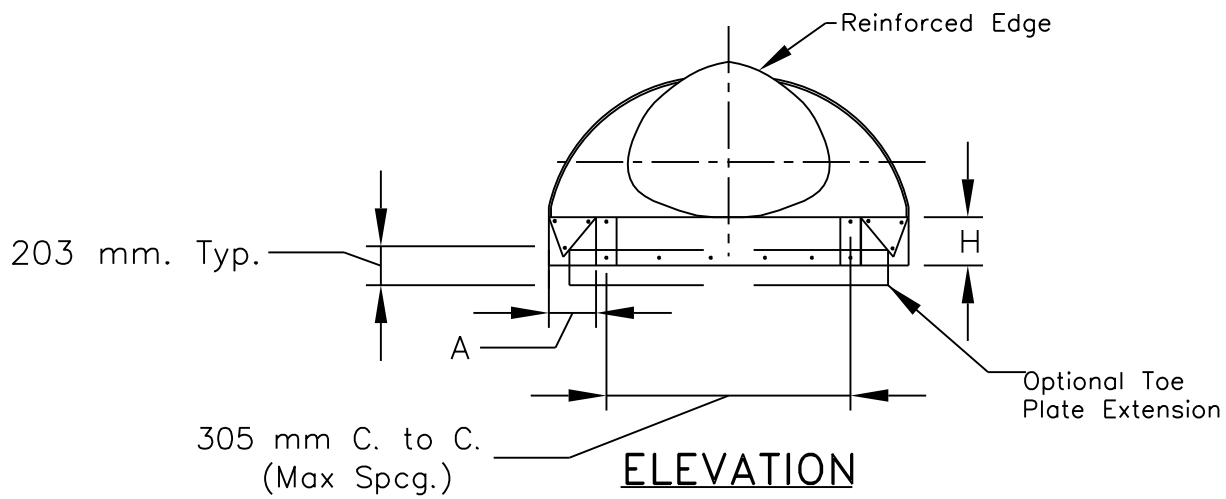


TYPE NO. 3

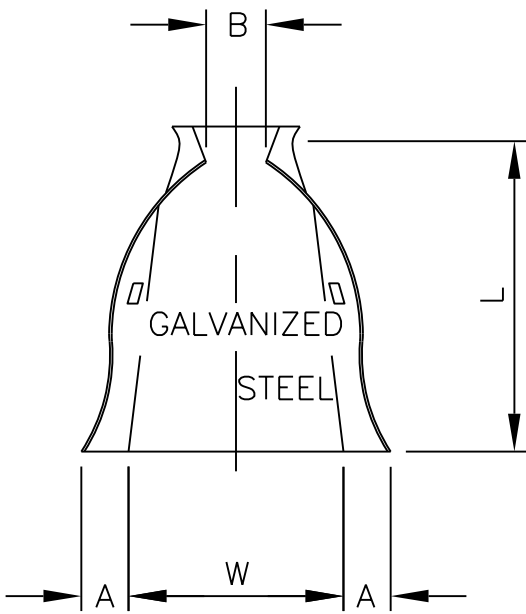


TYPE NO. 5

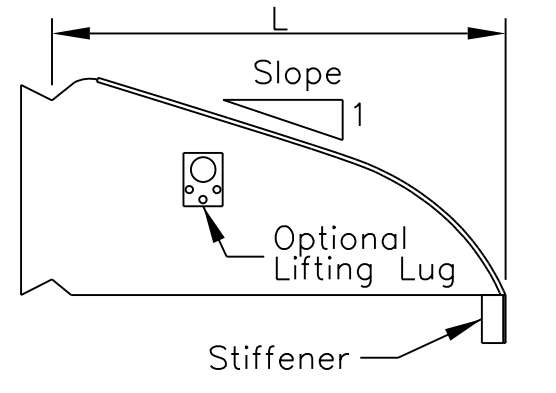
(See Note No.9)



ELEVATION



PLAN



TYPICAL CROSS SECTION

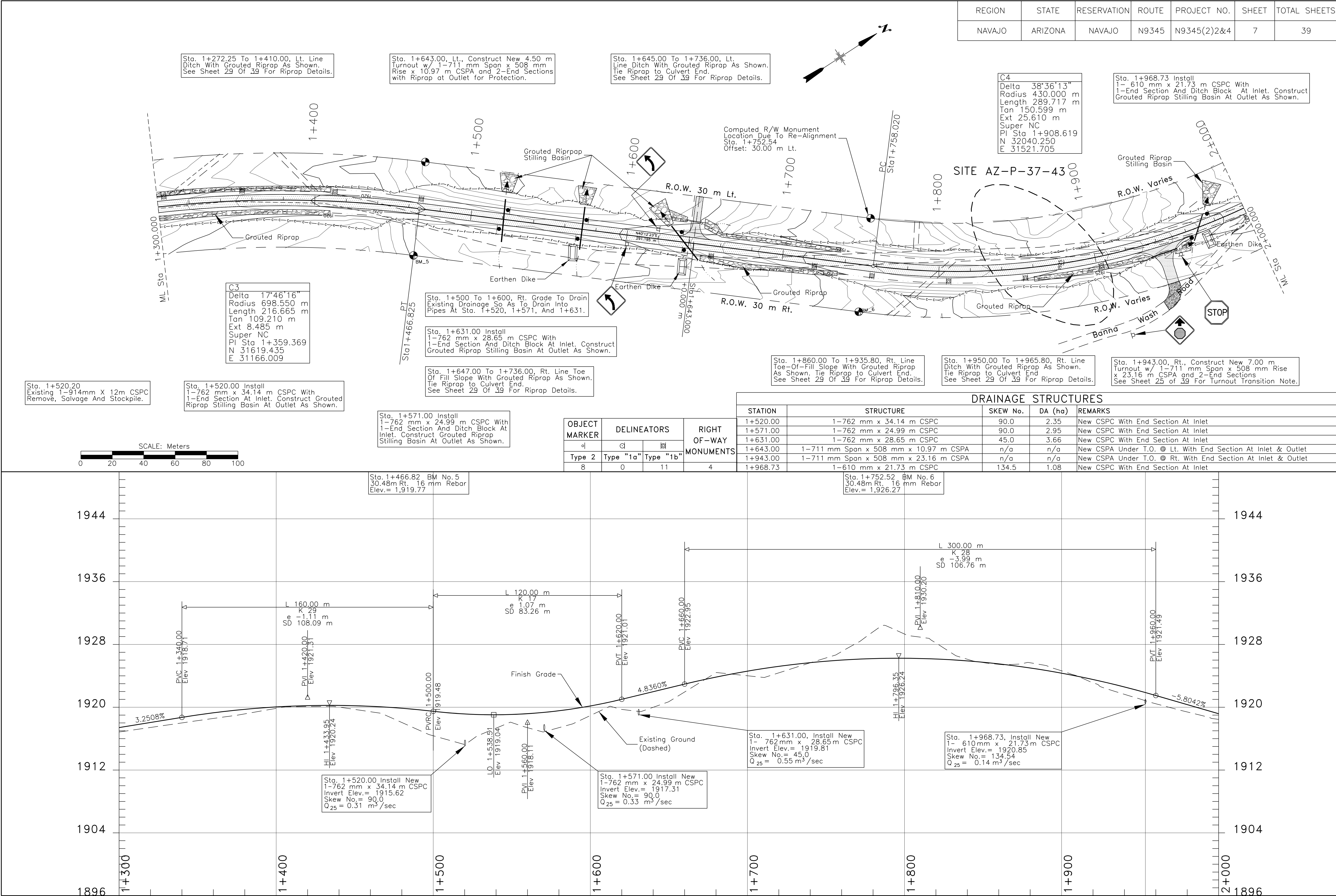
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DRAINAGE STRUCTURE
QUANTITIES

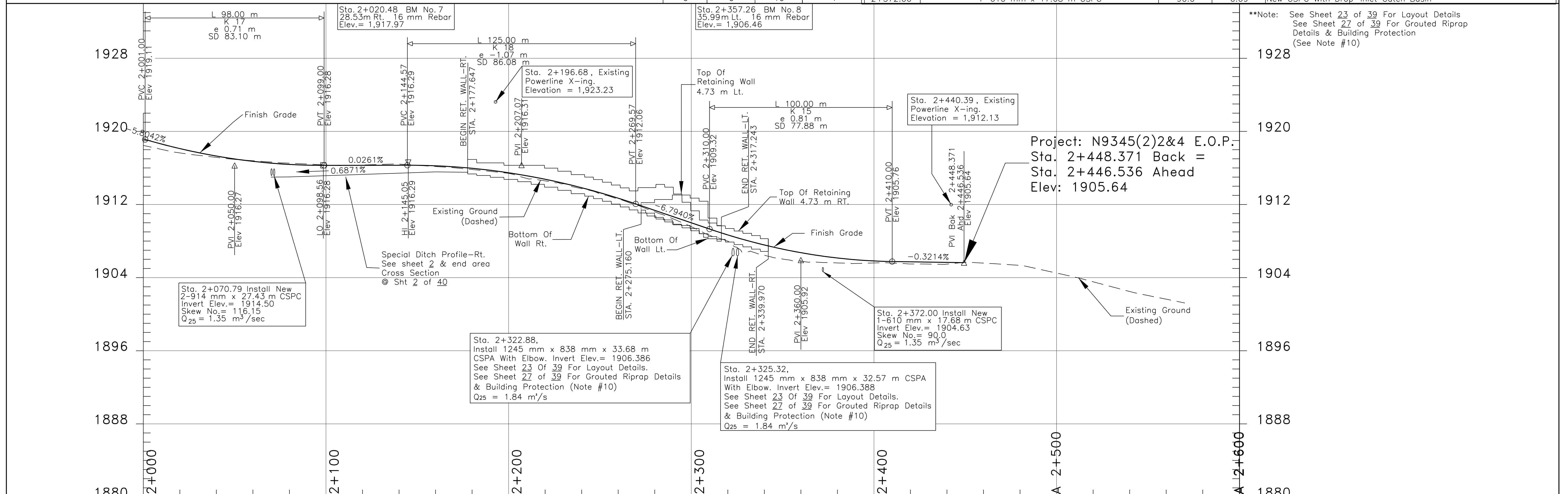
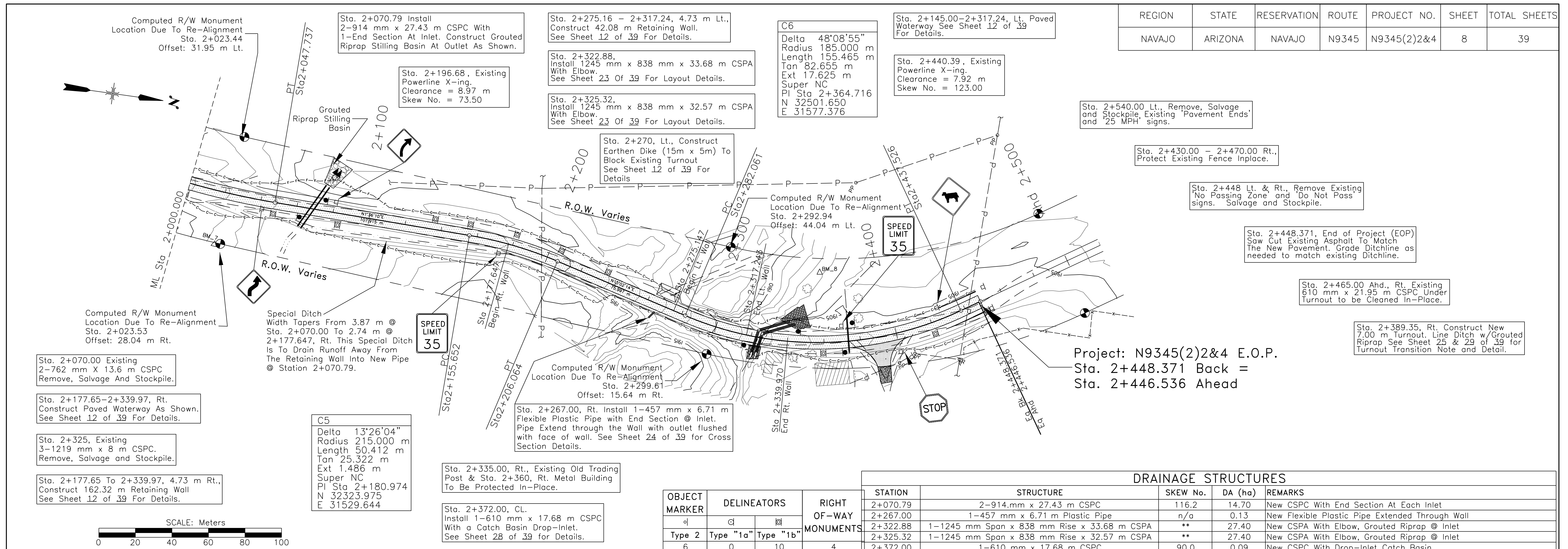
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DESIGNED BY: NRO DOT DATE: 10/92
REVISED: 01/06 BY: SC
SCALE: NTS
FILENAME: 9345STR
SHEET MODEL NAME: PLOT SHEET



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	7	39



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	8	39



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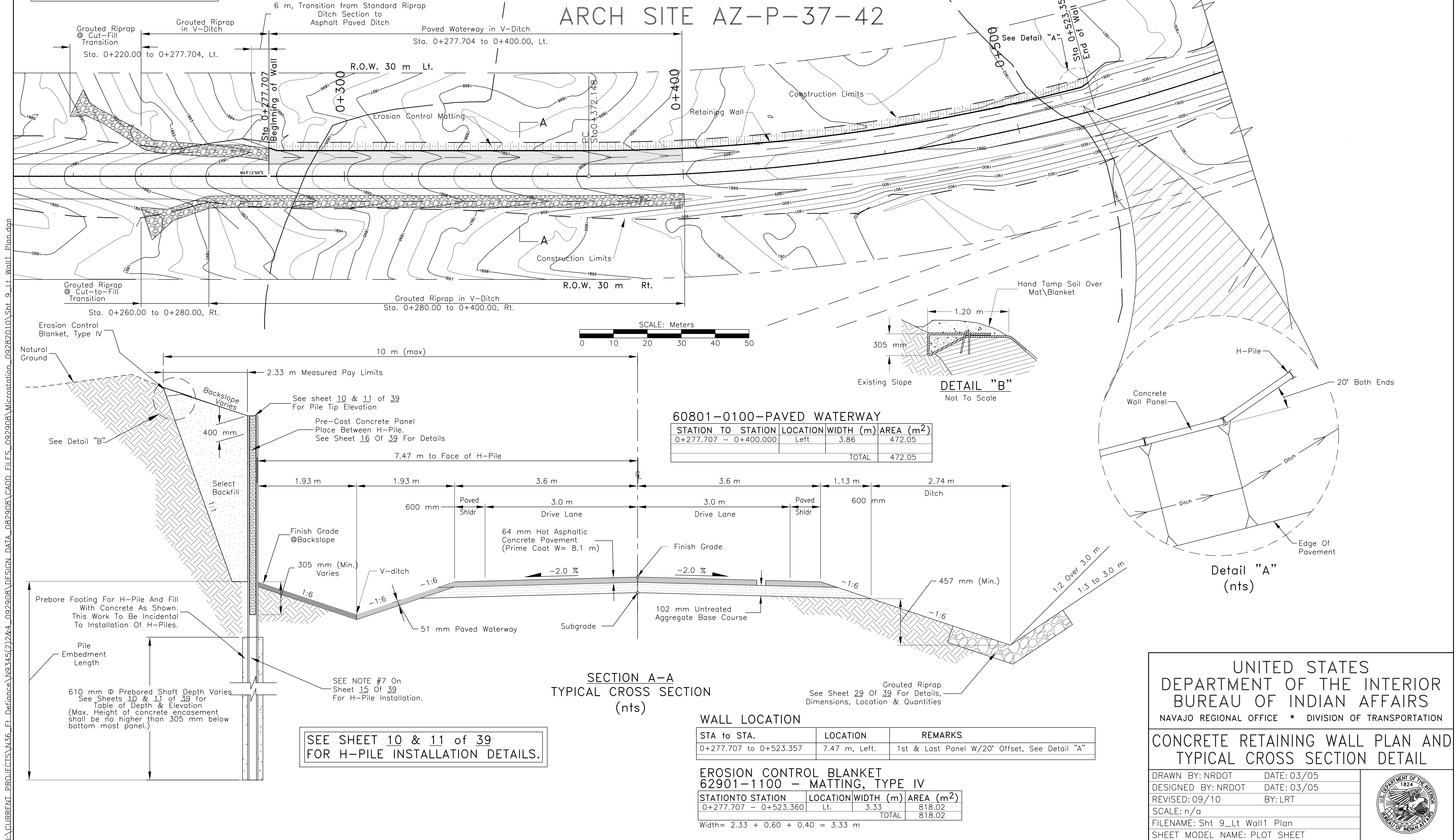
Legend	
Existing Road	---
Cut	- - - - -
Fill	- - - - -
Existing Drainage	---
Right-Of-Way Line	---
V-Ditch Bottom	---

PLAN VIEW

ARCH SITE AZ-P-37-42

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	9	39

CONSTRUCTION PLANS APPROVED
08/16/2011



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CONCRETE RETAINING WALL PLAN AND
TYPICAL CROSS SECTION DETAIL

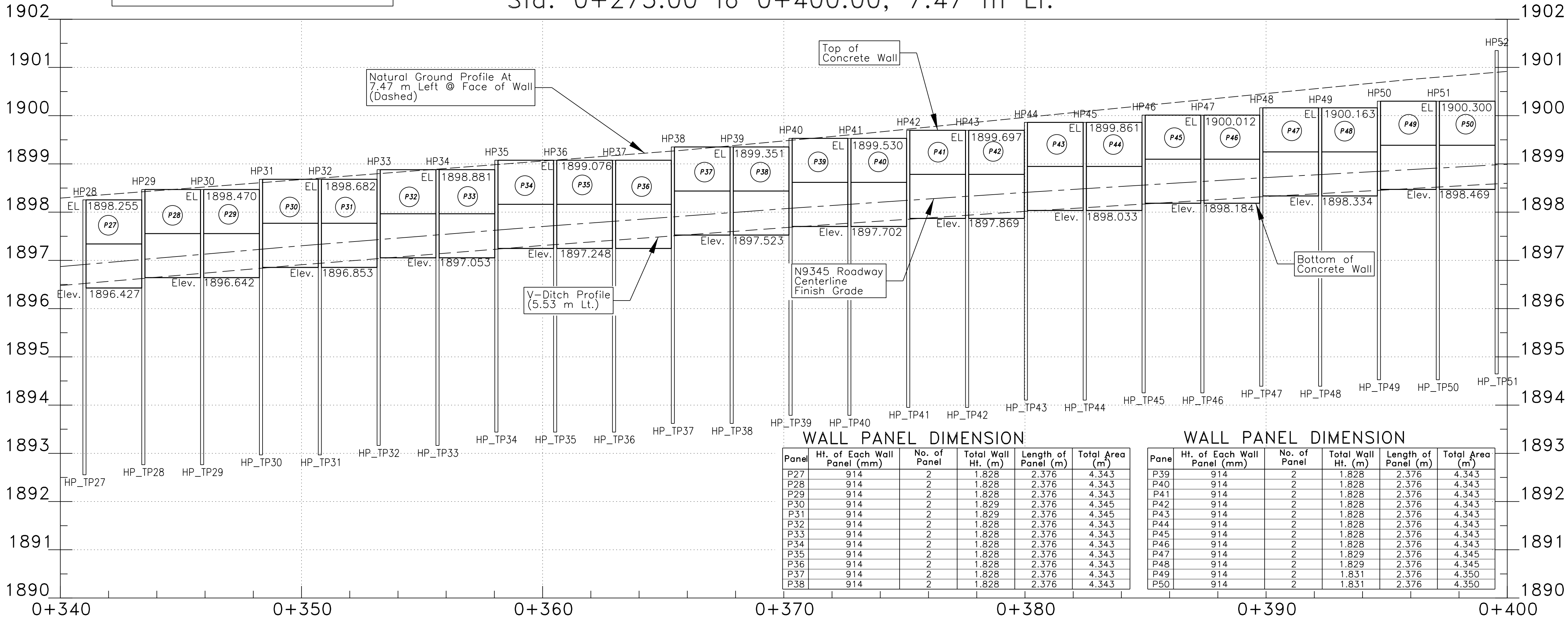
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SHEET MODEL NAME: PLOT SHEET	

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CONSTRUCTION PLANS APPROVED
08/16/2011

RETAINING WALL PROFILE
Sta. 0+275.00 to 0+400.00, 7.47 m Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	10	39



WALL PANEL DIMENSION

Panel	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P27	914	2	1.828	2.376	4.343
P28	914	2	1.828	2.376	4.343
P29	914	2	1.828	2.376	4.343
P30	914	2	1.829	2.376	4.345
P31	914	2	1.829	2.376	4.345
P32	914	2	1.828	2.376	4.343
P33	914	2	1.828	2.376	4.343
P34	914	2	1.828	2.376	4.343
P35	914	2	1.828	2.376	4.343
P36	914	2	1.828	2.376	4.343
P37	914	2	1.828	2.376	4.343
P38	914	2	1.828	2.376	4.343

WALL PANEL DIMENSION

Pane	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P39	914	2	1.828	2.376	4.343
P40	914	2	1.828	2.376	4.343
P41	914	2	1.828	2.376	4.343
P42	914	2	1.828	2.376	4.343
P43	914	2	1.828	2.376	4.343
P44	914	2	1.828	2.376	4.343
P45	914	2	1.828	2.376	4.343
P46	914	2	1.828	2.376	4.343
P47	914	2	1.829	2.376	4.345
P48	914	2	1.829	2.376	4.345
P49	914	2	1.831	2.376	4.350
P50	914	2	1.831	2.376	4.350

SCALE: 1:100 Horiz.
1:50 Vert.

LEFT WALL 1 H-PILE INSTALLATION DATA

Station	Offset (m)	Mark	Top Pile Tip Elevation	Mark	Bottom Pile Tip Elevation	Pile Length (m)
0+277.707	-8.300	HP2	1,895.223	HPT1	1,889.550	5.673
0+280.000	-7.470	HP3	1,895.461	HPT2	1,889.550	5.911
0+282.440	-7.470	HP4	1,895.461	HPT3	1,889.780	5.681
0+284.880	-7.470	HP5	1,895.699	HPT4	1,890.010	5.689
0+287.320	-7.470	HP6	1,895.699	HPT5	1,890.010	5.689
0+289.760	-7.470	HP7	1,895.933	HPT6	1,890.250	5.683
0+292.200	-7.470	HP8	1,895.933	HPT7	1,890.250	5.683
0+294.640	-7.470	HP9	1,896.166	HPT8	1,890.480	5.686
0+297.080	-7.470	HP10	1,896.166	HPT9	1,890.480	5.686
0+299.520	-7.470	HP11	1,896.402	HPT10	1,890.720	5.682
0+301.960	-7.470	HP12	1,896.402	HPT11	1,890.710	5.692
0+304.400	-7.470	HP13	1,896.633	HPT12	1,890.950	5.683
0+306.840	-7.470	HP14	1,896.633	HPT13	1,890.950	5.683
0+309.280	-7.470	HP15	1,896.687	HPT14	1,891.180	5.507
0+311.720	-7.470	HP16	1,896.867	HPT15	1,891.180	5.687
0+314.160	-7.470	HP17	1,897.100	HPT16	1,891.420	5.680
0+316.600	-7.470	HP18	1,897.100	HPT17	1,891.420	5.680
0+319.040	-7.470	HP19	1,897.334	HPT18	1,891.650	5.684
0+321.480	-7.470	HP20	1,897.334	HPT19	1,891.650	5.684
0+323.920	-7.470	HP21	1,897.568	HPT20	1,891.880	5.688
0+326.360	-7.470	HP22	1,897.568	HPT21	1,891.880	5.688
0+328.800	-7.470	HP23	1,897.801	HPT22	1,892.110	5.691
0+331.240	-7.470	HP24	1,897.801	HPT23	1,892.110	5.691
0+333.680	-7.470	HP25	1,898.029	HPT24	1,892.340	5.689
0+336.120	-7.470	HP26	1,898.029	HPT25	1,892.340	5.689
0+338.560	-7.470	HP27	1,898.255	HPT26	1,892.550	5.705
0+341.000	-7.470	HP28	1,898.255	HPT27	1,892.550	5.705
0+343.440	-7.470	HP29	1,898.470	HPT28	1,892.770	5.700
0+345.880	-7.470	HP30	1,898.470	HPT29	1,892.770	5.700
0+348.320	-7.470	HP31	1,898.682	HPT30	1,892.970	5.712
0+350.760	-7.470	HP32	1,898.682	HPT31	1,892.970	5.712
0+353.200	-7.470	HP33	1,898.881	HPT32	1,893.160	5.721
0+355.640	-7.470	HP34	1,898.881	HPT33	1,893.160	5.721
0+358.080	-7.470	HP35	1,899.076	HPT34	1,893.440	5.636
0+360.520	-7.470	HP36	1,899.076	HPT35	1,893.440	5.636
0+362.960	-7.470	HP37	1,899.076	HPT36	1,893.440	5.636
0+365.400	-7.470	HP38	1,899.351	HPT37	1,893.620	5.731
0+367.840	-7.470	HP39	1,899.351	HPT38	1,893.620	5.731
0+370.280	-7.470	HP40	1,899.530	HPT39	1,893.790	5.740
0+372.728	-7.470	HP41	1,899.530	HPT40	1,893.790	5.740
0+375.199	-7.470	HP42	1,899.697	HPT41	1,893.950	5.747
0+377.671	-7.470	HP43	1,899.697	HPT42	1,893.950	5.747
0+380.143	-7.470	HP44	1,899.861	HPT43	1,894.100	5.761
0+382.614	-7.470	HP45	1,899.861	HPT44	1,894.100	5.761
0+385.086	-7.470	HP46	1,900.012	HPT45	1,894.250	5.762
0+387.558	-7.470	HP47	1,900.012	HPT46	1,894.250	5.762
0+390.030	-7.470	HP48	1,900.163	HPT47	1,894.390	5.773
0+392.501	-7.470	HP49	1,900.163	HPT48	1,894.390	5.773
0+394.973	-7.470	HP50	1,900.300	HPT49	1,894.530	5.770
0+397.445	-7.470	HP51	1,900.300	HPT50	1,894.530	5.770
0+399.916	-7.470	HP52	1,901.350	HPT51	1,894.650	6.700

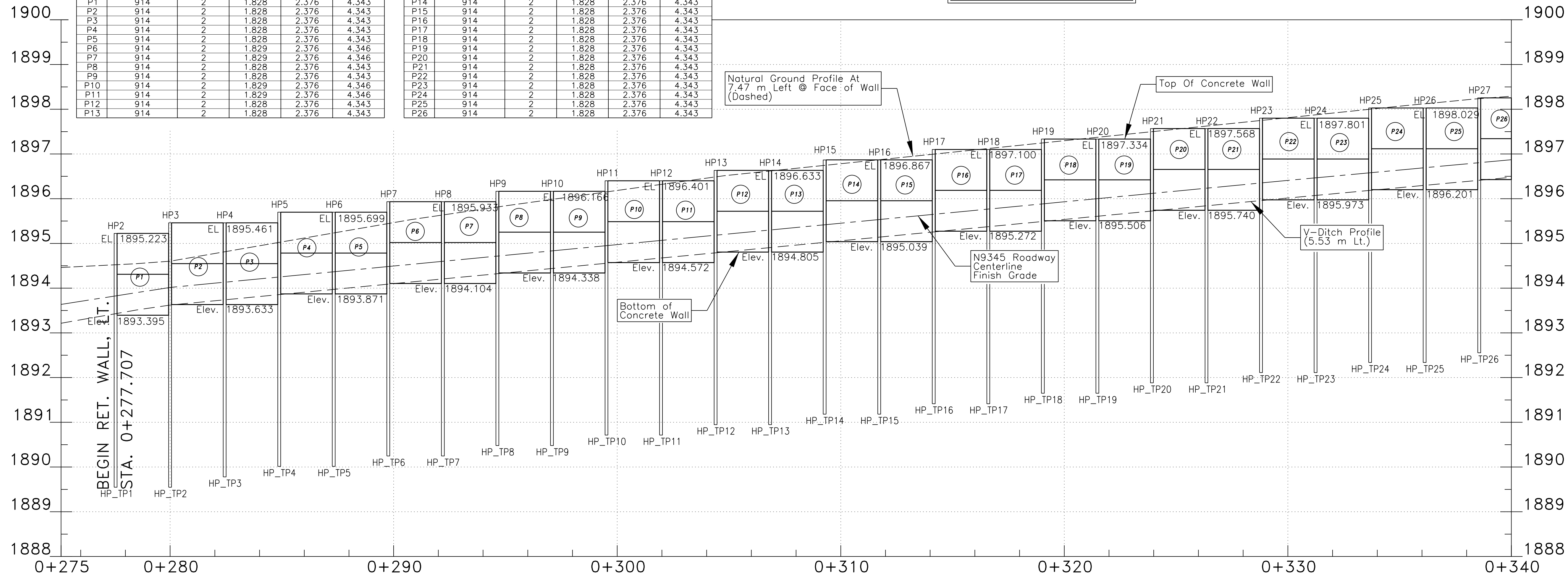
PILE DATA CONTINUES ON NEXT SHEET

WALL PANEL DIMENSION

Panel	Ht. of Each Wall Panel (m)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P1	914	2	1.828	2.376	4.343
P2	914	2	1.828	2.376	4.343
P3	914	2	1.828	2.376	4.343
P4	914	2	1.828	2.376	4.343
P5	914	2	1.828	2.376	4.343
P6	914	2	1.829	2.376	4.346
P7	914	2	1.829	2.376	4.346
P8	914	2	1.828	2.376	4.343
P9	914	2	1.828	2.376	4.343
P10	914	2	1.829	2.376	4.346
P11	914	2	1.829	2.376	4.346
P12	914	2	1.828	2.376	4.343
P13	914	2	1.828	2.376	4.343

WALL PANEL DIMENSION

Panel	Ht. of Each Wall Panel (m)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P14	914	2	1.828	2.376	4.343
P15	914	2	1.828	2.376	4.343
P16	914	2	1.828	2.376	4.343
P17	914	2	1.828	2.376	4.343
P18	914	2	1.828	2.376	4.343
P19	914	2	1.828	2.376	4.343
P20	914	2	1.828	2.376	4.343
P21	914	2	1.828	2.376	4.343
P22	914	2	1.828	2.376	4.343
P23	914	2	1.828	2.376	4.343
P24	914	2	1.828	2.376	4.343
P25	914	2	1.828	2.376	4.343
P26	914	2	1.828	2.376	4.343



NOTE:
Concrete for H-Pile
Encasement not shown.

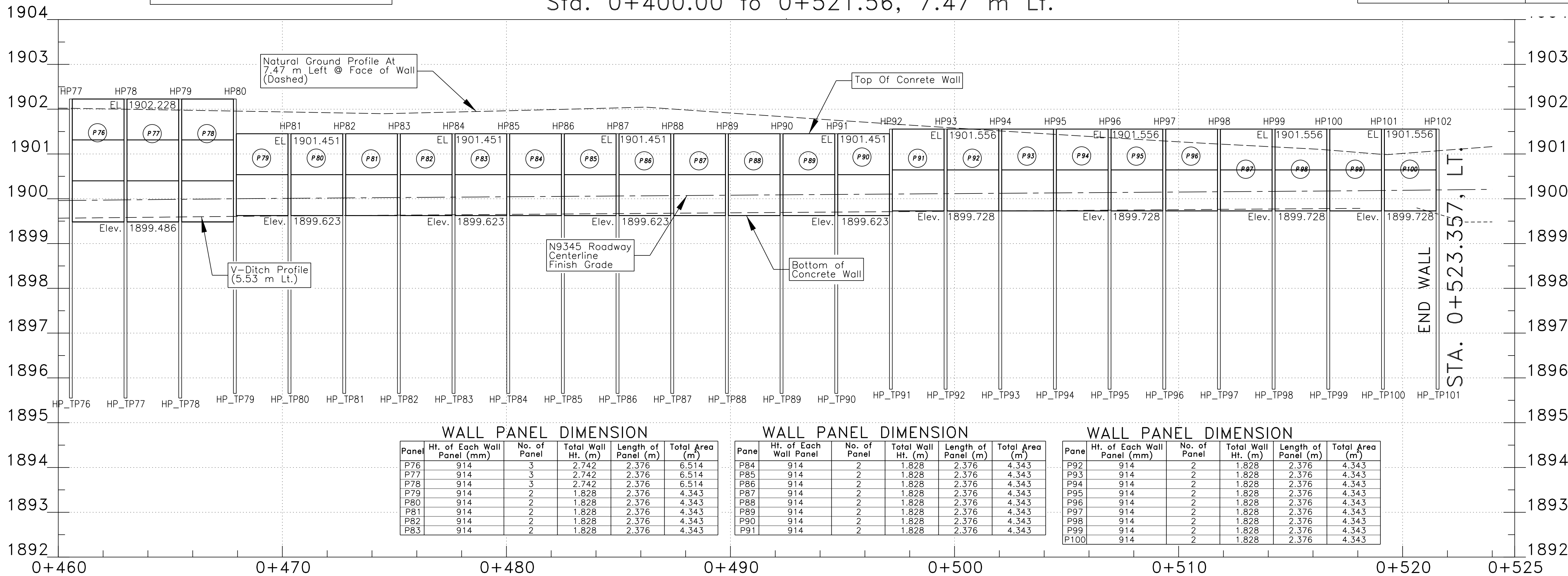
H-PILE INSTALLATION DATA
CONTINUES ON NEXT SHEET

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CONSTRUCTION PLANS APPROVED
08/16/2011

RETAINING WALL PROFILE
Sta. 0+400.00 to 0+521.56, 7.47 m Lt.

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	11	39



WALL PANEL DIMENSION

Panel	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P76	914	3	2.742	2.376	6.514
P77	914	3	2.742	2.376	6.514
P78	914	3	2.742	2.376	6.514
P79	914	2	1.828	2.376	4.343
P80	914	2	1.828	2.376	4.343
P81	914	2	1.828	2.376	4.343
P82	914	2	1.828	2.376	4.343
P83	914	2	1.828	2.376	4.343

WALL PANEL DIMENSION

Pane	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P84	914	2	1.828	2.376	4.343
P85	914	2	1.828	2.376	4.343
P86	914	2	1.828	2.376	4.343
P87	914	2	1.828	2.376	4.343
P88	914	2	1.828	2.376	4.343
P89	914	2	1.828	2.376	4.343
P90	914	2	1.828	2.376	4.343
P91	914	2	1.828	2.376	4.343

WALL PANEL DIMENSION

Pane	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P92	914	2	1.828	2.376	4.343
P93	914	2	1.828	2.376	4.343
P94	914	2	1.828	2.376	4.343
P95	914	2	1.828	2.376	4.343
P96	914	2	1.828	2.376	4.343
P97	914	2	1.828	2.376	4.343
P98	914	2	1.828	2.376	4.343
P99	914	2	1.828	2.376	4.343
P100	914	2	1.828	2.376	4.343

Note:
Concrete For H-Pile
Encasement not shown.

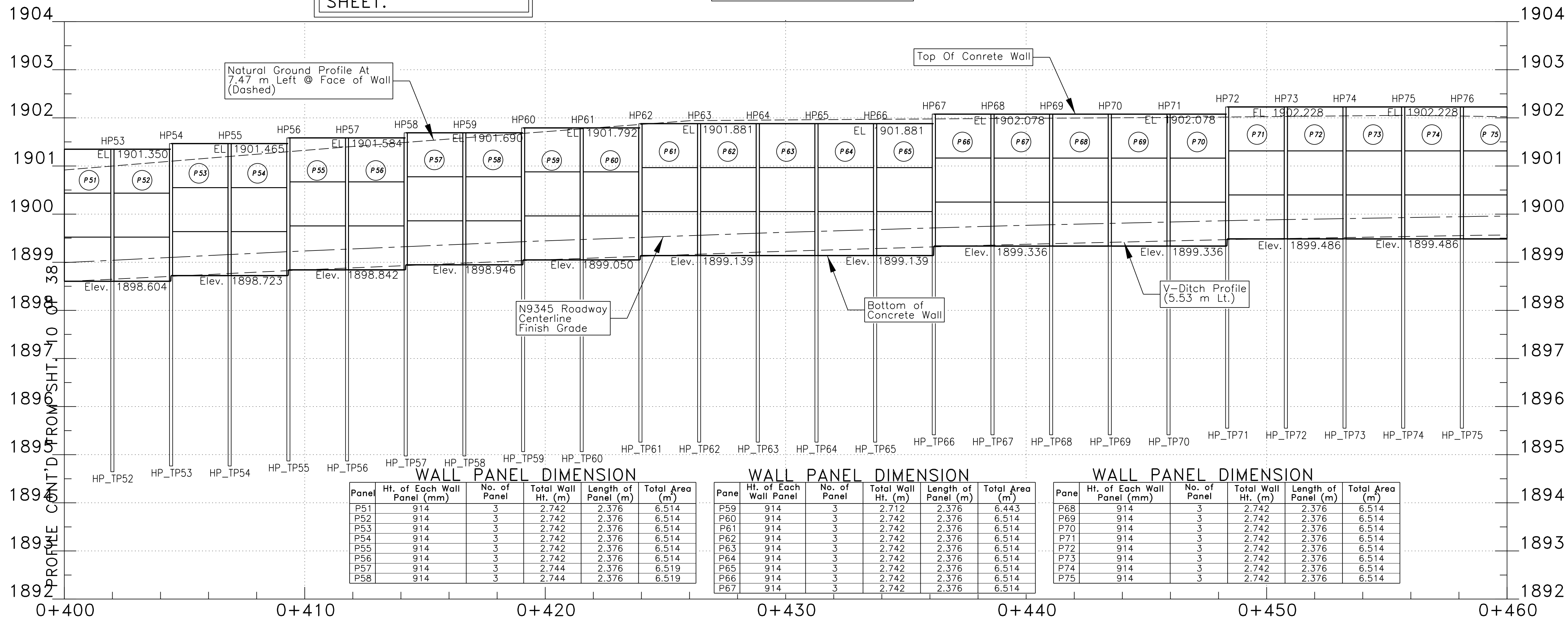
H-PILE INSTALLATION
BEGINS ON PREVIOUS
SHEET.

SCALE: 1:100 Horiz.
1:50 Vert.

H-PILE INSTALLATION DATA-LEFT

Station	Offset (m)	Mark	Top Pipe Tip Elevation	Mark	Bottom Pipe Tip Elevation	Pile Length (m)
0+399.916	-7.470	HP52	1,901.350	HPT51	1,894.650	6.700
0+402.388	-7.470	HP53	1,901.350	HPT52	1,894.650	6.700
0+404.860	-7.470	HP54	1,901.465	HPT53	1,894.770	6.695
0+407.332	-7.470	HP55	1,901.465	HPT54	1,894.770	6.695
0+409.803	-7.470	HP56	1,901.584	HPT55	1,894.870	6.714
0+412.275	-7.470	HP57	1,901.584	HPT56	1,894.870	6.714
0+414.747	-7.470	HP58	1,901.690	HPT57	1,894.970	6.720
0+417.219	-7.470	HP59	1,901.690	HPT58	1,894.970	6.720
0+419.690	-7.470	HP60	1,901.792	HPT59	1,895.060	6.732
0+422.162	-7.470	HP61	1,901.792	HPT60	1,895.060	6.732
0+424.634	-7.470	HP62	1,901.881	HPT61	1,895.260	6.621
0+427.105	-7.470	HP63	1,901.881	HPT62	1,895.260	6.621
0+429.577	-7.470	HP64	1,901.881	HPT63	1,895.260	6.621
0+432.049	-7.470	HP65	1,901.881	HPT64	1,895.260	6.621
0+434.521	-7.470	HP66	1,901.881	HPT65	1,895.260	6.621
0+436.992	-7.470	HP67	1,902.078	HPT66	1,895.410	6.668
0+439.464	-7.470	HP68	1,902.078	HPT67	1,895.410	6.668
0+441.936	-7.470	HP69	1,902.078	HPT68	1,895.410	6.668
0+444.407	-7.470	HP70	1,902.078	HPT69	1,895.410	6.668
0+446.879	-7.470	HP71	1,902.078	HPT70	1,895.410	6.668
0+449.351	-7.470	HP72	1,902.228	HPT71	1,895.550	6.678
0+451.823	-7.470	HP73	1,902.228	HPT72	1,895.550	6.678
0+454.294	-7.470	HP74	1,902.228	HPT73	1,895.550	6.678
0+456.766	-7.470	HP75	1,902.228	HPT74	1,895.550	6.678
0+459.238	-7.470	HP76	1,902.228	HPT75	1,895.550	6.678
0+461.710	-7.470	HP77	1,902.228	HPT76	1,895.550	6.678
0+464.181	-7.470	HP78	1,902.228	HPT77	1,895.550	6.678
0+466.653	-7.470	HP79	1,902.228	HPT78	1,895.550	6.678
0+469.125	-7.470	HP80	1,902.228	HPT79	1,895.660	6.568
0+471.596	-7.470	HP81	1,901.451	HPT80	1,895.660	5.791
0+474.068	-7.470	HP82	1,901.451	HPT81	1,895.660	5.791
0+476.540	-7.470	HP83	1,901.451	HPT82	1,895.660	5.791
0+479.012	-7.470	HP84	1,901.451	HPT83	1,895.660	5.791
0+481.483	-7.470	HP85	1,901.451	HPT84	1,895.660	5.791
0+483.955	-7.470	HP86	1,901.451	HPT85	1,895.660	5.791
0+486.427	-7.470	HP87	1,901.451	HPT86	1,895.660	5.791
0+488.898	-7.470	HP88	1,901.451	HPT87	1,895.660	5.791
0+491.370	-7.470	HP89	1,901.451	HPT88	1,895.660	5.791
0+493.842	-7.470	HP90	1,901.451	HPT89	1,895.660	5.791
0+496.314	-7.470	HP91	1,901.451	HPT90	1,895.660	5.791
0+498.785	-7.470	HP92	1,901.556	HPT91	1,895.750	5.806
0+501.257	-7.470	HP93	1,901.556	HPT92	1,895.750	5.806
0+503.729	-7.470	HP94	1,901.556	HPT93	1,895.750	5.806
0+506.200	-7.470	HP95	1,901.556	HPT94	1,895.750	5.806
0+508.672	-7.470	HP96	1,901.556	HPT95	1,895.750	5.806
0+511.144	-7.470	HP97	1,901.556	HPT96	1,895.750	5.806
0+513.616	-7.470	HP98	1,901.556	HPT97	1,895.750	5.806
0+516.087	-7.470	HP99	1,901.556	HPT98	1,895.750	5.806
0+518.559	-7.470	HP100	1,901.556	HPT99	1,895.750	5.806
0+521.031	-7.470	HP101	1,901.556	HPT100	1,895.750	5.806
0+523.357	-8.300	HP102	1,901.556	HPT101	1,895.750	5.806

PROFILE CONT'D ABOVE



WALL PANEL DIMENSION

Panel	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P51	914	3	2.742	2.376	6.514
P52	914	3	2.742	2.376	6.514
P53	914	3	2.742	2.376	6.514
P54	914	3	2.742	2.376	6.514
P55	914	3	2.742	2.376	6.514
P56	914	3	2.742	2.376	6.514
P57	914	3	2.744	2.376	6.519
P58	914	3	2.744	2.376	6.519

WALL PANEL DIMENSION

Pane	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P59	914	3	2.712	2.376	6.443
P60	914	3	2.742	2.376	6.514
P61	914	3	2.742	2.376	6.514
P62	914	3	2.742	2.376	6.514
P63	914	3	2.742	2.376	6.514
P64	914	3	2.742	2.376	6.514
P65	914	3	2.742	2.376	6.514
P66	914	3	2.742	2.376	6.514
P67	914	3	2.742	2.376	6.514

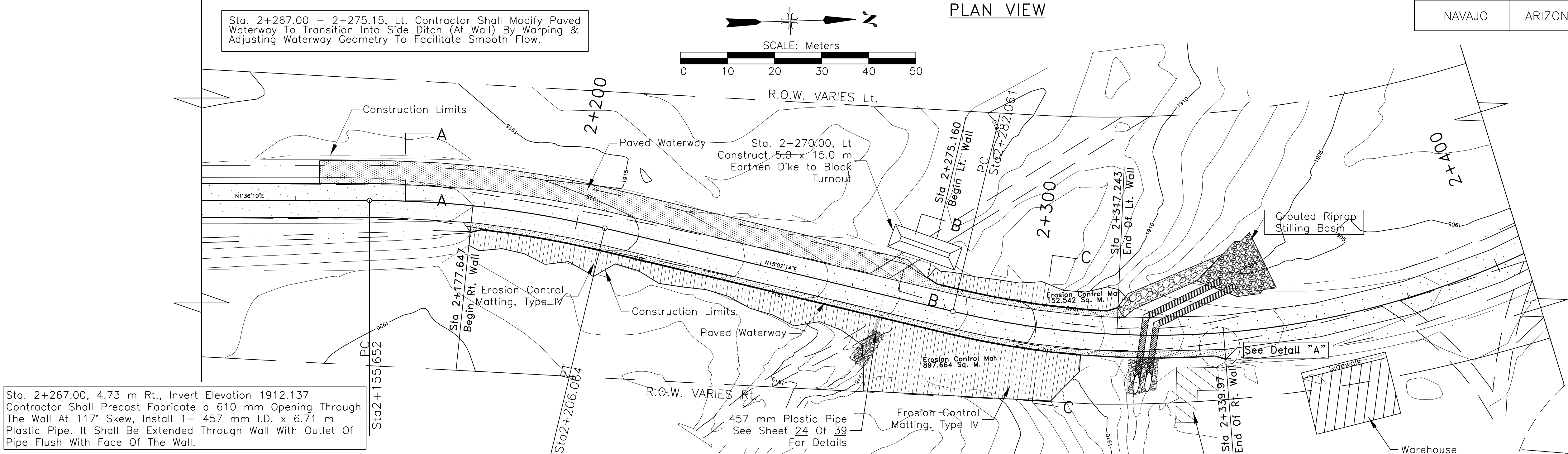
WALL PANEL DIMENSION

Pane	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P68	914	3	2.742	2.376	6.514
P69	914	3	2.742	2.376	6.514
P70	914	3	2.742	2.376	6.514
P71	914	3	2.742	2.376	6.514
P72	914	3	2.742	2.376	6.514
P73	914	3	2.742	2.376	6.514
P74	914	3	2.742	2.376	6.514
P75	914	3	2.742	2.376	6.514

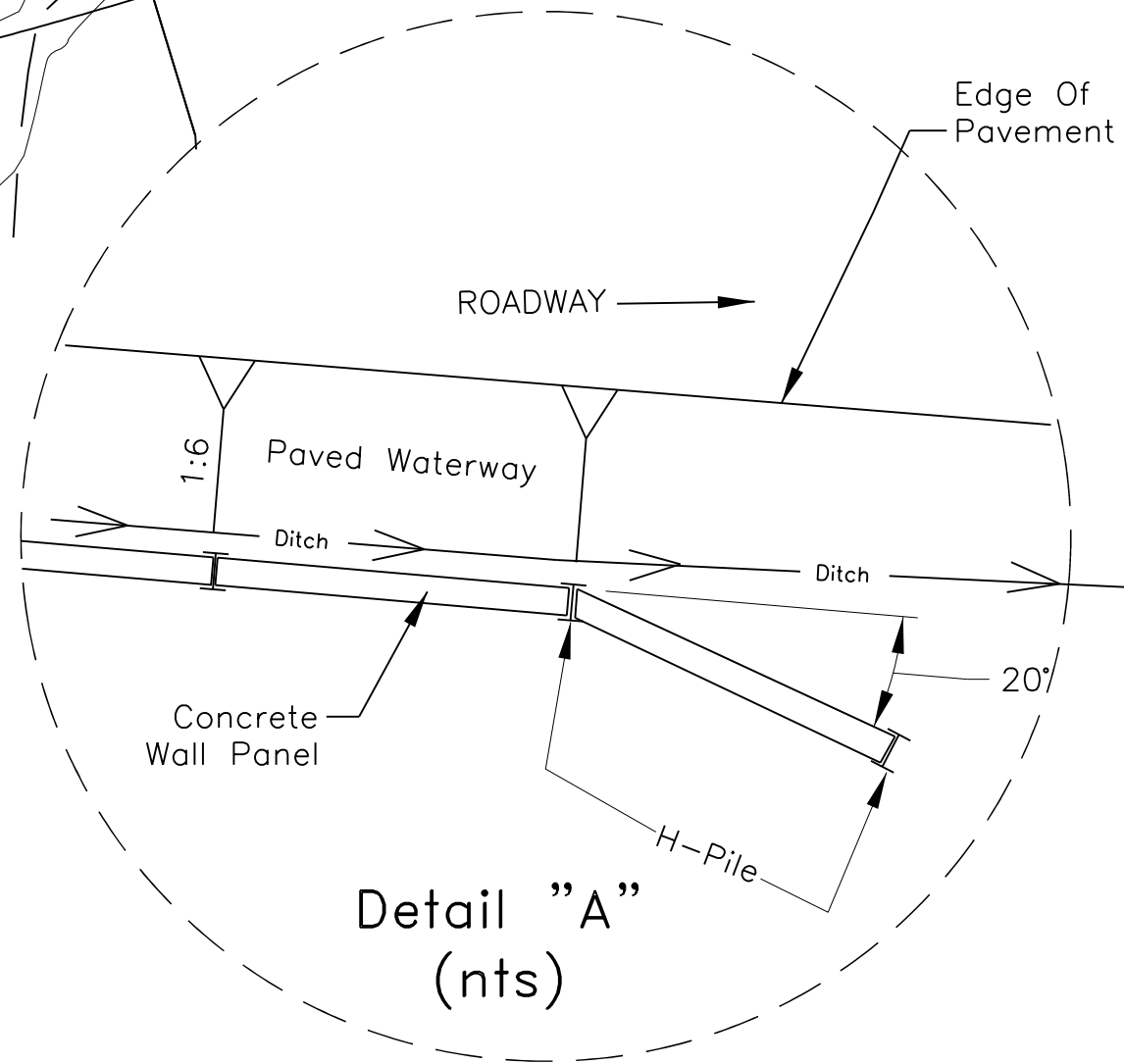
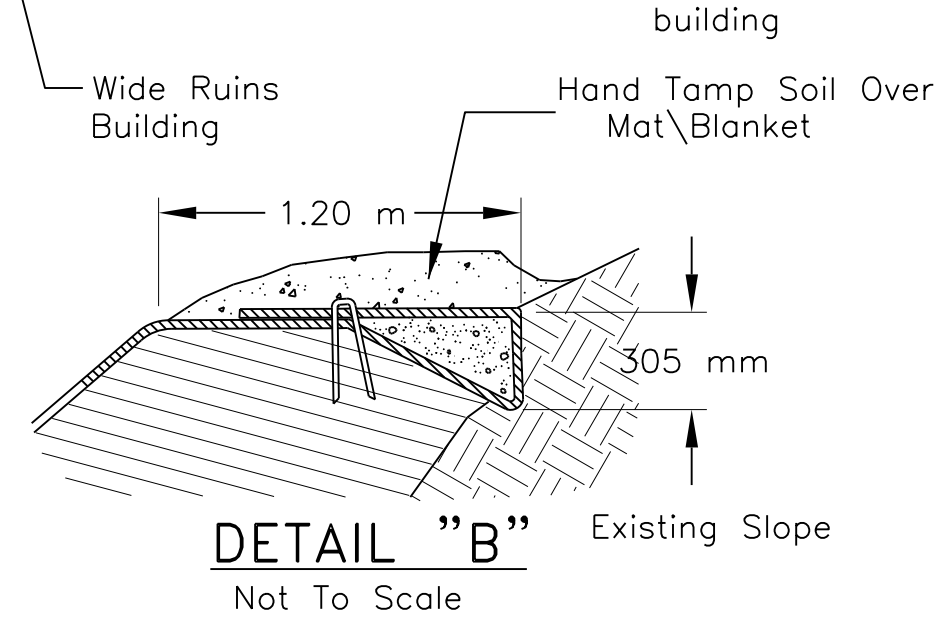
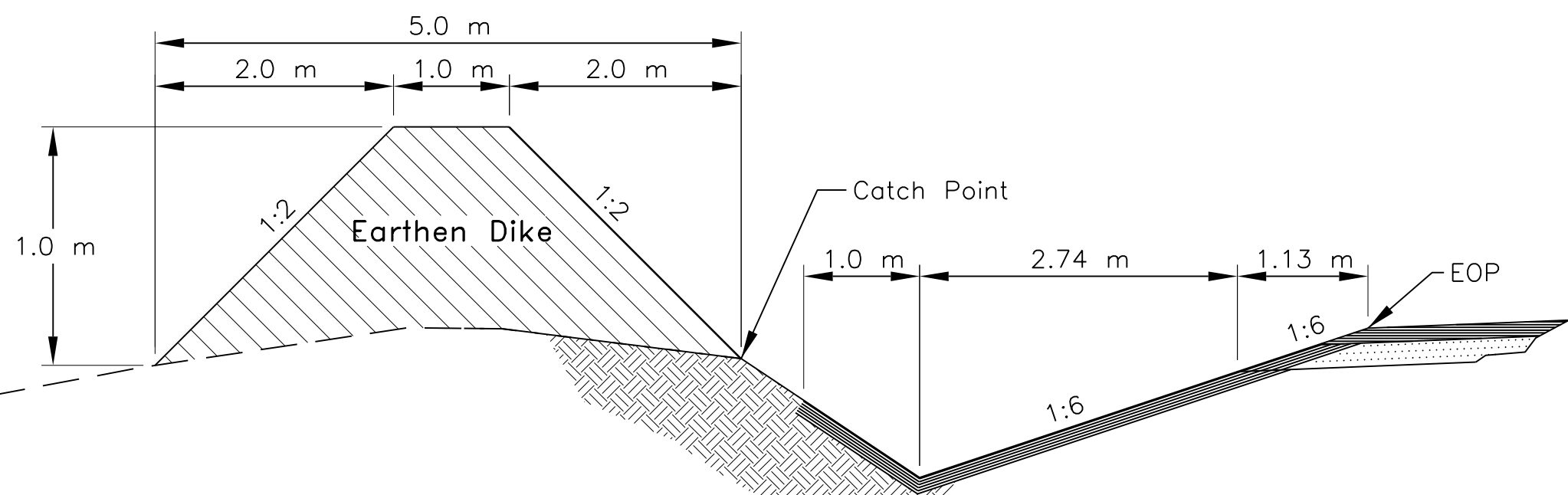
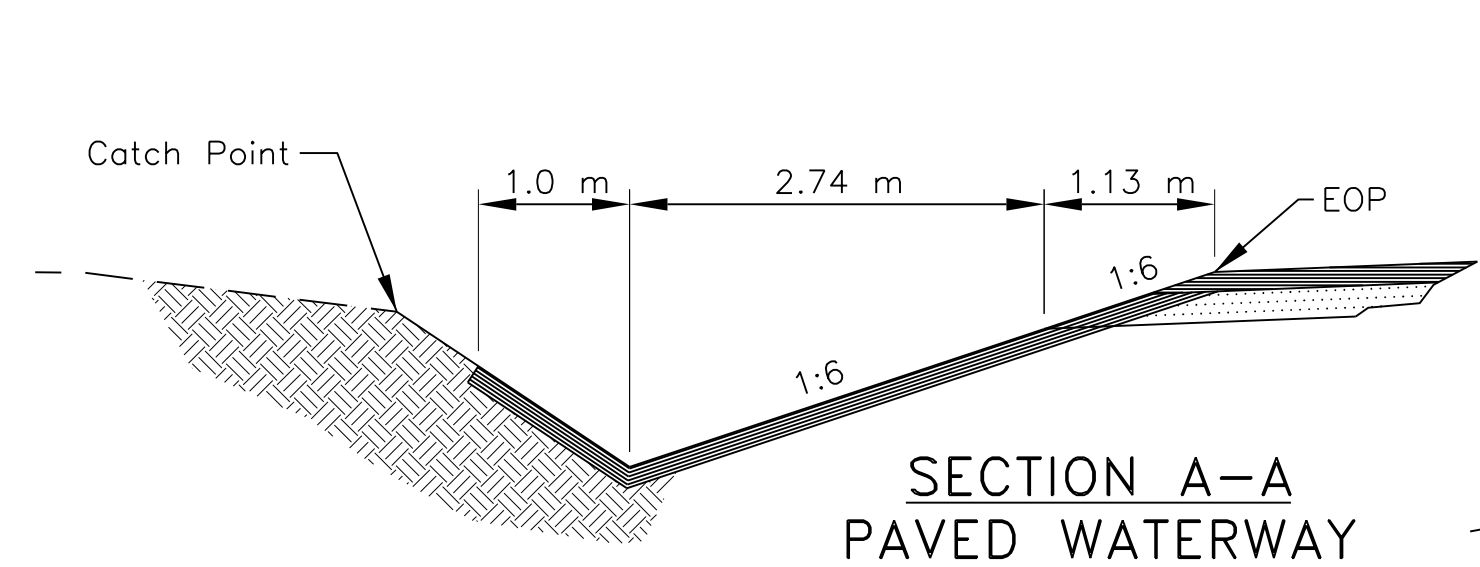
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REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	12	39

PLAN VIEW



Legend	
Existing Road	=====
Cut	-----
Fill	=====
Existing Drainage	-----
Right-Of-Way Line	-----
V-Ditch Bottom	-----



SEE SHEET 13 & 14 of 39
FOR H-PILE INSTALLATION DETAILS.

60801 - 0100 - PAVED WATERWAYS			
STATION-STATION	LOCATION	WIDTH(m)	AREA(m ²)
0+277.71 - 0+400.00	Lt.	3.91	478.17
2+177.65 - 2+339.97	Rt.	1.13	183.43
2+145.00 - 2+275.16	Lt.	3.74	486.80
2+275.16 - 2+317.24	Lt.	1.13	47.55
TOTAL:			1189.83

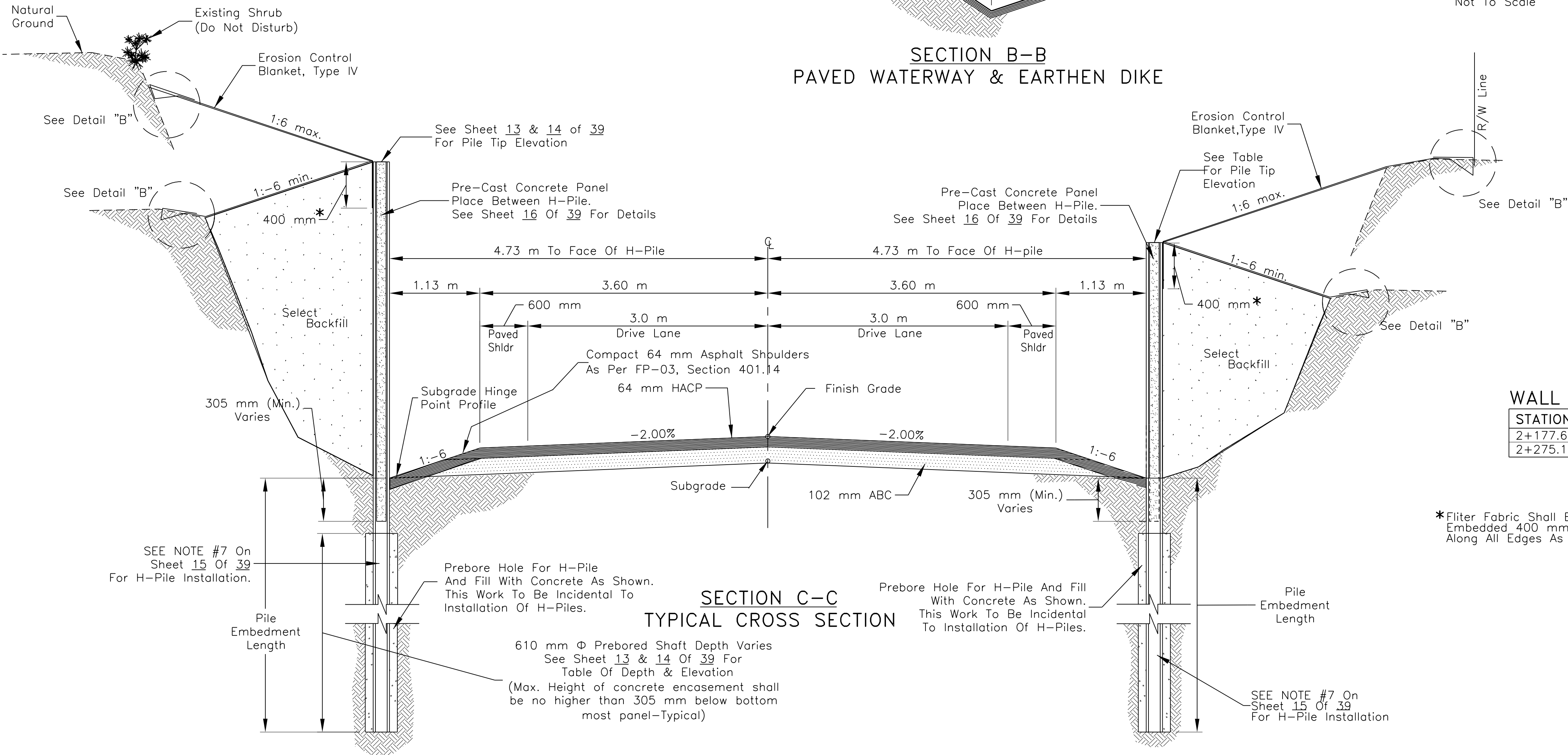
EROSION CONTROL BLANKET
62901 - 1100 - MATTING, TYPE IV

STATION	TO	STATION	LOCATION	WIDTH(M)	AREA(m ²)
0+277.71	-	0+523.36	Lt.	3.33	818.02
2+177.65	-	2+310.00	Rt.	3.33	897.66
2+275.16	-	2+318.84	Lt.	3.33	152.54
TOTAL:					1868.22

WALL LOCATION

STATION	TO	STATION	LOCATION	REMARKS
2+177.647	-	2+339.970	4.73 m Rt.	First & Last Wall Panel w/ 20" Offset, See Detail "A"
2+275.147	-	2+317.243	4.73 m Lt.	First & Last Wall Panel w/ 20" Offset, See Detail "A"

*Filter Fabric Shall Be Tucked Or Embedded 400 mm Into Embankment Along All Edges As Shown.



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

TYPICAL CROSS SECTION DETAIL
AND RETAINING WALL PLAN

DRAWN BY: NRDOT	DATE: 03/05
DESIGNED BY: NRDOT	DATE: 03/05
REVISED: 09/10	BY: LRT
SCALE: n/a	
FILENAME: Sht 12_Wall Plan2	
SHEET MODEL NAME: PLOT SHEET	



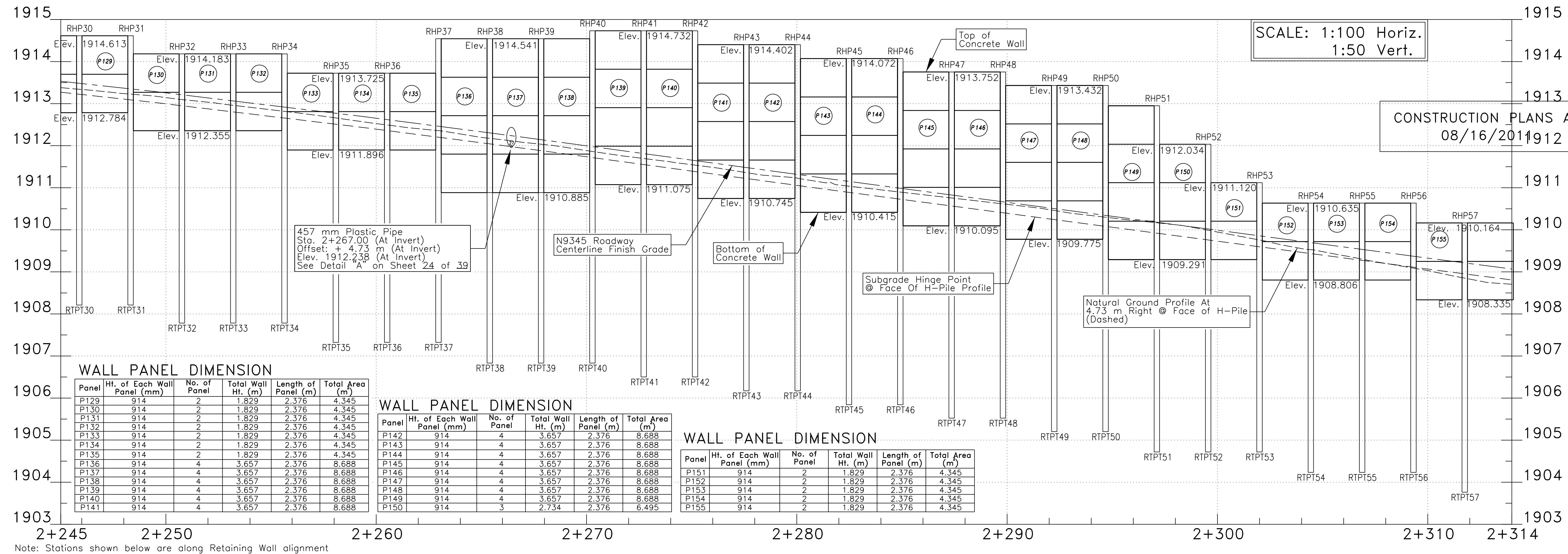
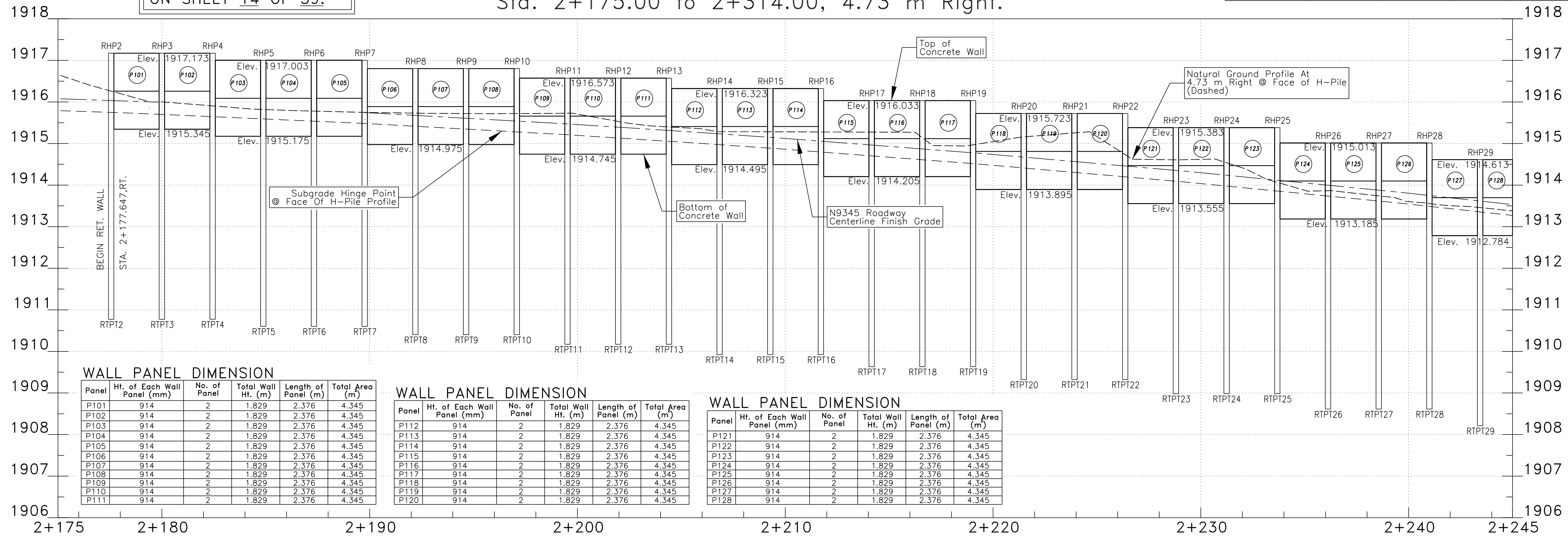
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See H-PILE DATA TABLE
ON SHEET 14 OF 39.

RETAINING WALL PROFILE

Sta. 2+175.00 to 2+314.00, 4.73 m Right.

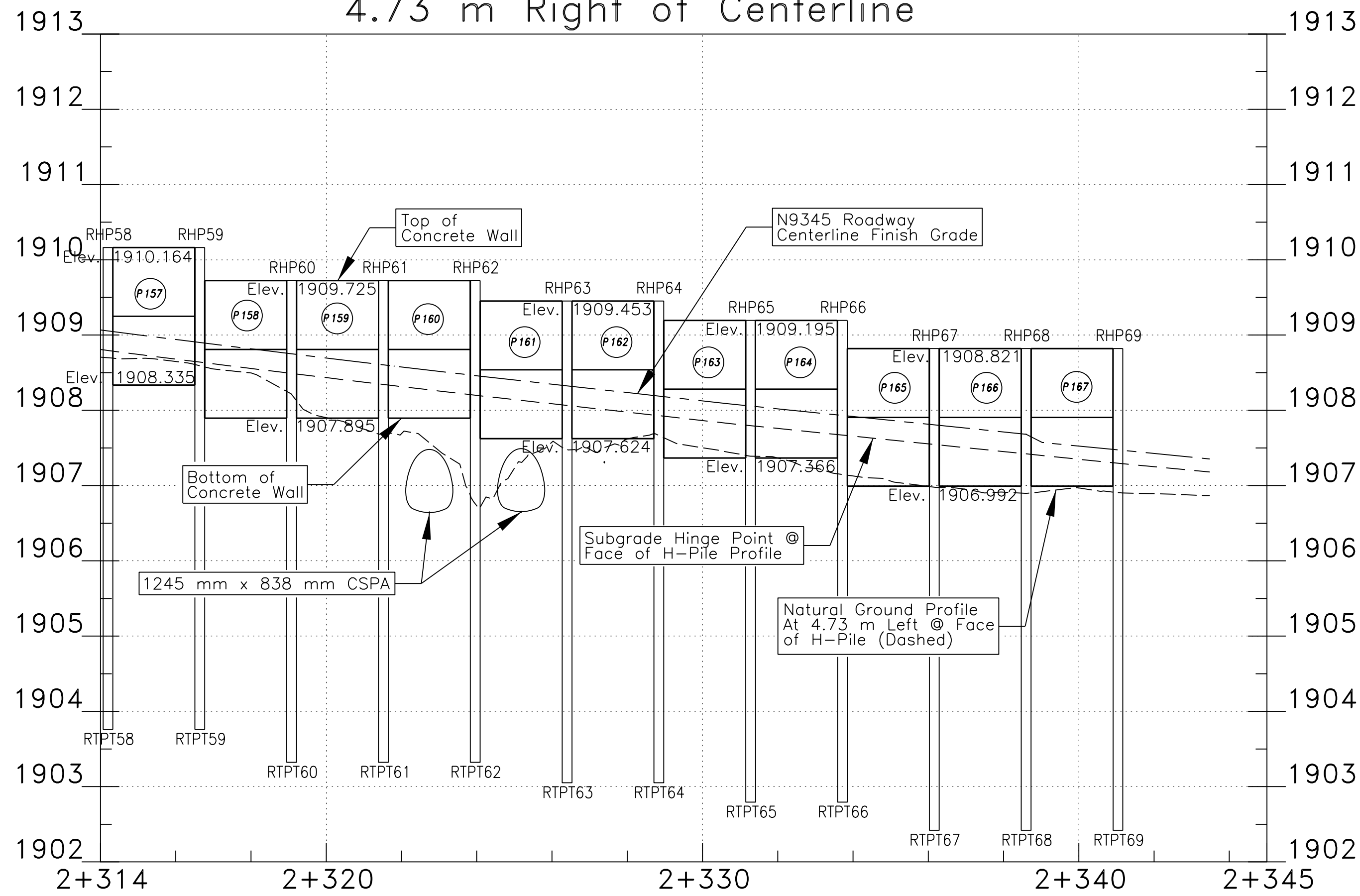
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	13	39



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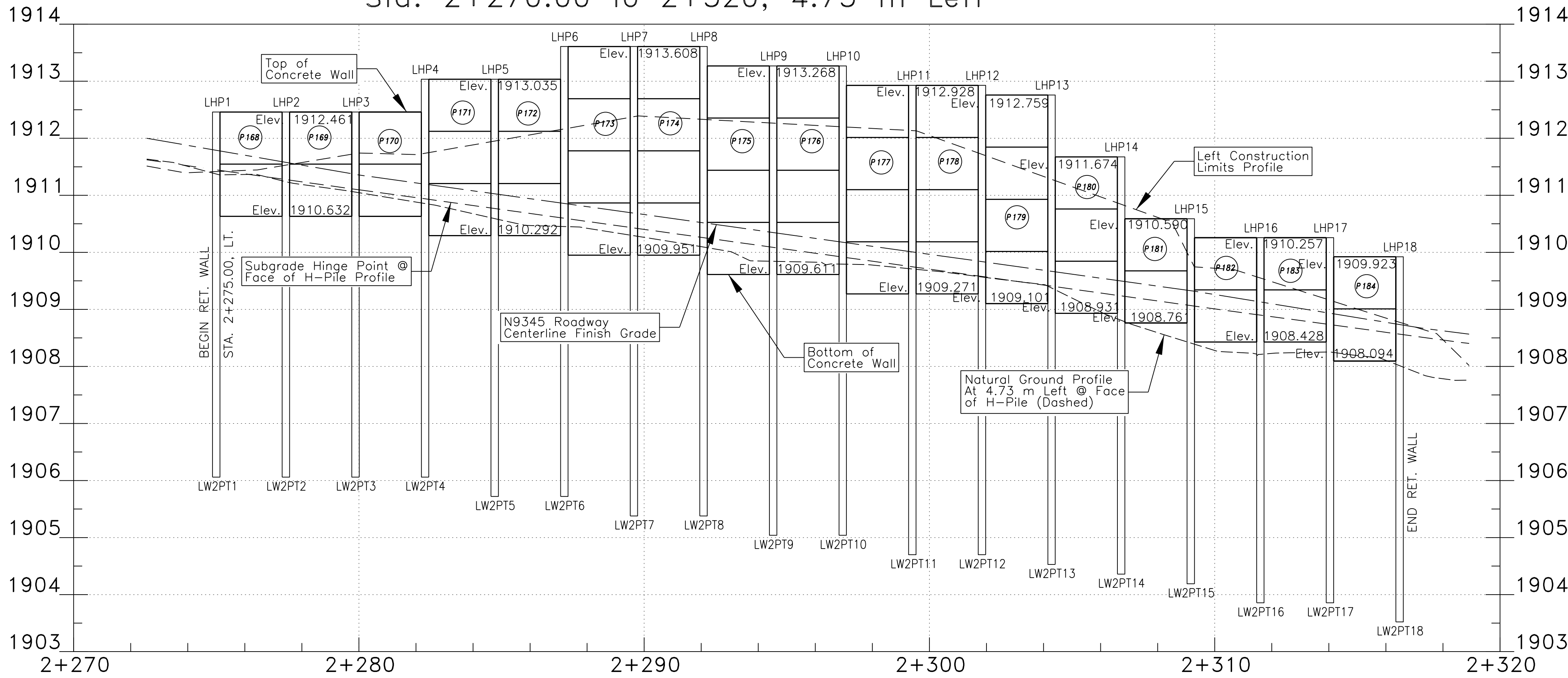
RETAINING WALL PROFILE (Cont.)

4.73 m Right of Centerline



RETAINING WALL PROFILE

Sta. 2+270.00 to 2+320, 4.73 m Left



CONSTRUCTION PLANS APPROVED
08/16/2011

WALL PANEL DIMENSION (Right Wall Continued)

Panel	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P157	914	2	1.829	2.376	4.345
P158	914	2	1.829	2.376	4.345
P159	914	2	1.829	2.376	4.345
P160	914	2	1.829	2.376	4.345
P161	914	2	1.829	2.376	4.345
P162	914	2	1.829	2.376	4.345
P163	914	2	1.829	2.376	4.345
P164	914	2	1.829	2.376	4.345
P165	914	2	1.829	2.376	4.345
P166	914	2	1.829	2.376	4.345
P167	914	2	1.829	2.376	4.345

Note:

Concrete for H-Pile
Encasement not shown.

Lt. WALL PANEL DIMENSION

Panel	Ht. of Each Wall Panel (mm)	No. of Panel	Total Wall Ht. (m)	Length of Panel (m)	Total Area (m ²)
P168	914	2	1.829	2.376	4.345
P169	914	2	1.829	2.376	4.345
P170	914	2	1.829	2.376	4.345
P171	914	3	2.743	2.376	6.516
P172	914	3	2.743	2.376	6.516
P173	914	4	3.657	2.376	8.688
P174	914	4	3.657	2.376	8.688
P175	914	4	3.657	2.376	8.688
P176	914	4	3.657	2.376	8.688
P177	914	4	3.657	2.376	8.688
P178	914	4	3.657	2.376	8.688
P179	914	4	3.658	2.376	8.690
P180	914	3	2.743	2.376	6.516
P181	914	2	1.829	2.376	4.345
P182	914	2	1.829	2.376	4.345
P183	914	2	1.829	2.376	4.345
P184	914	2	1.829	2.376	4.345

H-PILE INSTALLATION DATA-RIGHT (See Previous Sheet)

Station	Mark	*Offset (m)	Top Pile Tip Elevation	Mark	Bottom Pile Tip Elevation	H-pile Length (m)
2+177.647	RHP2	5.550	1,917.173	RTPT2	1,910.773	6.400
2+180.000	RHP3	4.730	1,917.173	RTPT3	1,910.773	6.400
2+182.495	RHP4	4.730	1,917.173	RTPT4	1,910.773	6.400
2+184.990	RHP5	4.730	1,917.003	RTPT5	1,910.603	6.400
2+187.485	RHP6	4.730	1,917.003	RTPT6	1,910.603	6.400
2+189.980	RHP7	4.730	1,917.003	RTPT7	1,910.603	6.400
2+192.475	RHP8	4.730	1,916.803	RTPT8	1,910.403	6.400
2+194.970	RHP9	4.730	1,916.803	RTPT9	1,910.403	6.400
2+197.464	RHP10	4.730	1,916.803	RTPT10	1,910.403	6.400
2+199.959	RHP11	4.730	1,916.573	RTPT11	1,910.173	6.400
2+202.454	RHP12	4.730	1,916.573	RTPT12	1,910.173	6.400
2+204.949	RHP13	4.730	1,916.573	RTPT13	1,910.173	6.400
2+207.414	RHP14	4.730	1,916.323	RTPT14	1,909.923	6.400
2+209.854	RHP15	4.730	1,916.323	RTPT15	1,909.923	6.400
2+212.294	RHP16	4.730	1,916.323	RTPT16	1,909.923	6.400
2+214.734	RHP17	4.730	1,916.033	RTPT17	1,909.633	6.400
2+217.174	RHP18	4.730	1,916.033	RTPT18	1,909.633	6.400
2+219.614	RHP19	4.730	1,916.033	RTPT19	1,909.633	6.400
2+222.053	RHP20	4.730	1,915.723	RTPT20	1,909.323	6.400
2+224.493	RHP21	4.730	1,915.723	RTPT21	1,909.323	6.400
2+226.933	RHP22	4.730	1,915.723	RTPT22	1,909.323	6.400
2+229.373	RHP23	4.730	1,915.383	RTPT23	1,908.983	6.400
2+231.813	RHP24	4.730	1,915.383	RTPT24	1,908.983	6.400
2+234.253	RHP25	4.730	1,915.383	RTPT25	1,908.983	6.400
2+236.693	RHP26	4.730	1,915.013	RTPT26	1,908.613	6.400
2+239.133	RHP27	4.730	1,915.013	RTPT27	1,908.613	6.400
2+241.573	RHP28	4.730	1,915.013	RTPT28	1,908.613	6.400
2+244.013	RHP29	4.730	1,914.613	RTPT29	1,908.212	6.401
2+246.453	RHP30	4.730	1,914.613	RTPT30	1,908.212	6.401
2+248.893	RHP31	4.730	1,914.613	RTPT31	1,908.212	6.401
2+251.333	RHP32	4.730	1,914.183	RTPT32	1,907.783	6.400
2+253.773	RHP33	4.730	1,914.183	RTPT33	1,907.783	6.400
2+256.213	RHP34	4.730	1,914.183	RTPT34	1,907.783	6.400
2+258.653	RHP35	4.730	1,913.725	RTPT35	1,907.324	6.401
2+261.093	RHP36	4.730	1,913.725	RTPT36	1,907.324	6.401
2+263.533	RHP37	4.730	1,914.541	RTPT37	1,907.324	7.217
2+265.973	RHP38	4.730	1,914.541	RTPT38	1,906.833	7.708
2+268.413	RHP39	4.730	1,914.541	RTPT39	1,906.833	7.708
2+270.853	RHP40	4.730	1,914.732	RTPT40	1,906.833	7.899
2+273.293	RHP41	4.730	1,914.732	RTPT41	1,906.503	8.229
2+275.733	RHP42	4.730	1,914.732	RTPT42	1,906.503	8.229
2+278.173	RHP43	4.730	1,914.402	RTPT43	1,906.173	8.229
2+280.613	RHP44	4.730	1,914.402	RTPT44	1,906.173	8.229
2+283.029	RHP45	4.730	1,914.072	RTPT45	1,905.843	8.229
2+285.408	RHP46	4.730	1,914.072	RTPT46	1,905.843	8.229
2+287.787	RHP47	4.730	1,913.752	RTPT47	1,905.523	8.229
2+290.166	RHP48	4.730	1,913.752	RTPT48	1,905.523	8.229
2+292.545	RHP49	4.730	1,913.432	RTPT49	1,905.203	8.229
2+294.924	RHP50	4.730	1,913.432	RTPT50	1,905.203	8.229
2+297.304	RHP51	4.730	1,912.949	RTPT51	1,904.719	8.230
2+299.683	RHP52	4.730	1,912.034	RTPT52	1,904.719	7.315
2+302.062	RHP53	4.730	1,911.120	RTPT53	1,904.719	6.401
2+304.441	RHP54	4.730	1,910.635	RTPT54	1,904.234	6.401
2+306.820	RHP55	4.730	1,910.635	RTPT55	1,904.234	6.401
2+309.199	RHP56	4.730	1,910.635	RTPT56	1,904.234	6.401
2+311.578	RHP57	4.730	1,910.164	RTPT57	1,903.763	6.401
2+313.958	RHP58	4.730	1,910.164	RTPT58	1,903.763	6.401
2+316.337	RHP59	4.730	1,910.164	RTPT59	1,903.763	6.401
2+318.716	RHP60	4.730	1,909.725	RTPT60	1,903.323	6.402
2+321.095	RHP61	4.730	1,909.725	RTPT61	1,903.323	6.402
2+323.474	RHP62	4.730	1,909.725	RTPT62	1,903.323	6.402
2+325.853	RHP63	4.730	1,909.453	RTPT63	1,903.052	6.401
2+328.233	RHP64	4.730	1,909.453	RTPT64	1,903.052	6.401
2+330.612	RHP65	4.730	1,909.195	RTPT65	1,902.794	6.401
2+332.991	RHP66	4.730	1,909.195	RTPT66	1,902.794	6.401
2+335.370	RHP67	4.730	1,908.821	RTPT67	1,902.420	6.401
2+337.749	RHP68	4.730	1,908.821	RTPT68	1,902.420	6.401
2+339.970	RHP69	5.590	1,908.821	RTPT69	1,902.420	6.401

* Offset Is To Face Of H-Pile.

** Note: Station shown are N9345 Centerline Alignment Stations

H-PILE INSTALLATION DATA-LEFT

Station	Mark	*Offset (m)	Top Pile Tip	Mark	Bottom Pile Tip	H-pile Length (m)
2+275.147	LHP1	-5.560	1,912.461	LW2PT1	1,906.060	6.401
2+277.440	LHP2	-4.730	1,912.461	LW2PT2	1,906.060	6.401
2+279.880	LHP3	-4.730	1,912.461	LW2PT3	1,906.060	6.401
2+282.327	LHP4	-4.730	1,913.035	LW2PT4	1,906.060	6.975
2+284.831	LHP5	-4.730	1,913.035	LW2PT5	1,905.720	7.315
2+287.335	LHP6	-4.730	1,913.608	LW2PT6	1,905.720	7.888
2+289.839	LHP7	-4.730	1,913.608	LW2PT7	1,905.379	8.229
2+292.343	LHP8	-4.730	1,913.608	LW2PT8	1,905.379	8.229
2+294.847	LHP9	-4.730	1,913.268	LW2PT9	1,905.039	8.229
2+297.351	LHP10	-4.730	1,913.268	LW2PT10	1,905.039	8.229
2+299.855	LHP11	-4.730	1,912.928	LW2PT11	1,904.699	8.229
2+302.359	LHP12	-4.730	1,912.928	LW2PT12	1,904.699	8.229
2+304.863	LHP13	-4.730	1,912.759	LW2PT13	1,904.529	8.230
2+307.367	LHP14	-4.730	1,911.674	LW2PT14	1,904.359	7.315
2+309.871	LHP15	-4.730	1,910.590	LW2PT15	1,904.189	6.401
2+312.375	LHP16	-4.730	1,910.257	LW2PT16	1,903.856	6.401
2+314.879	LHP17	-4.730	1,910.257	LW2PT17	1,903.856	6.401
2+317.243	LHP18	-5.550	1,909.923	LW2PT18	1,903.522	6.401

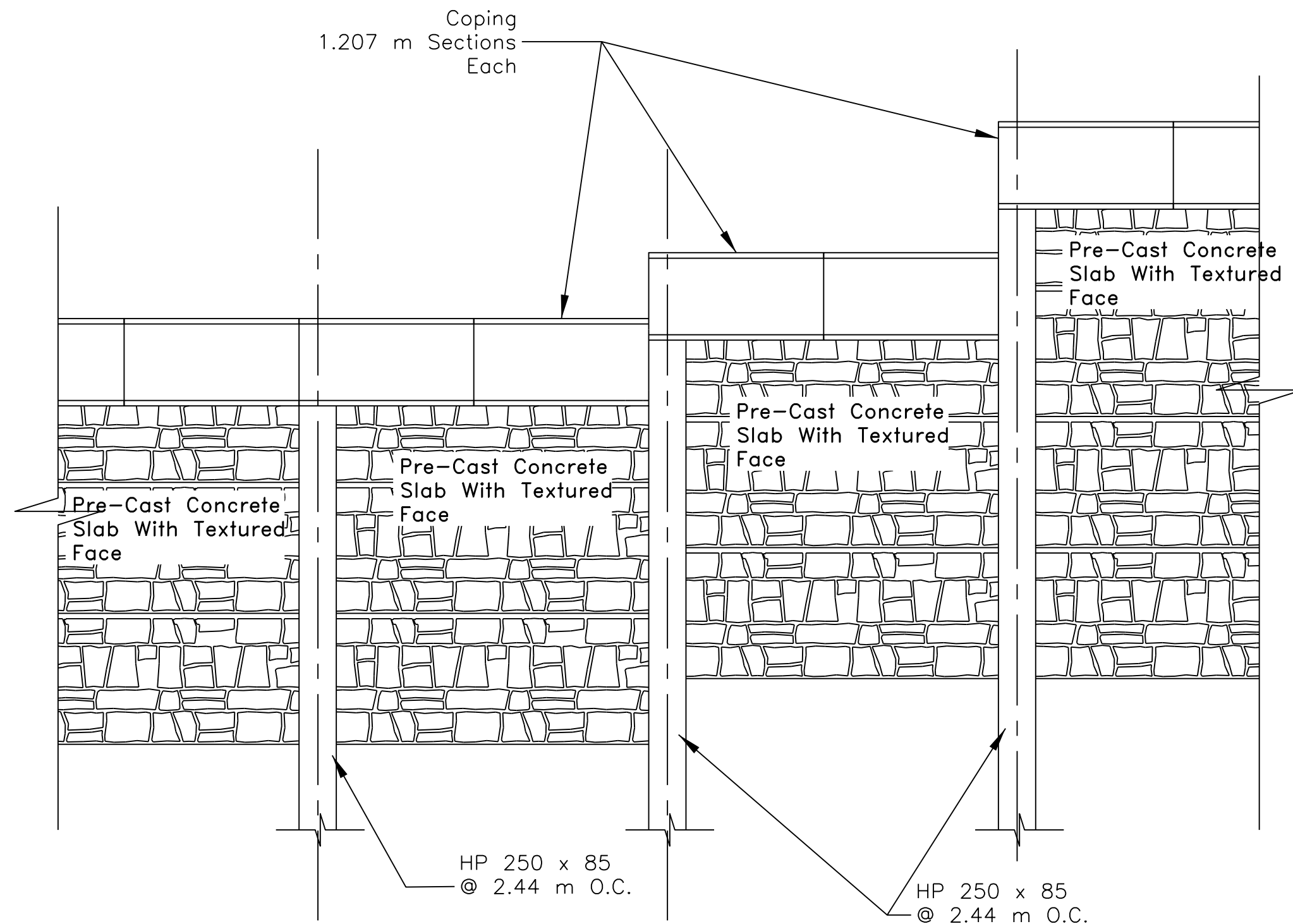
* Offset Is To Face Of H-Pile.

** Note: Station shown are N9345 Centerline Alignment Stations

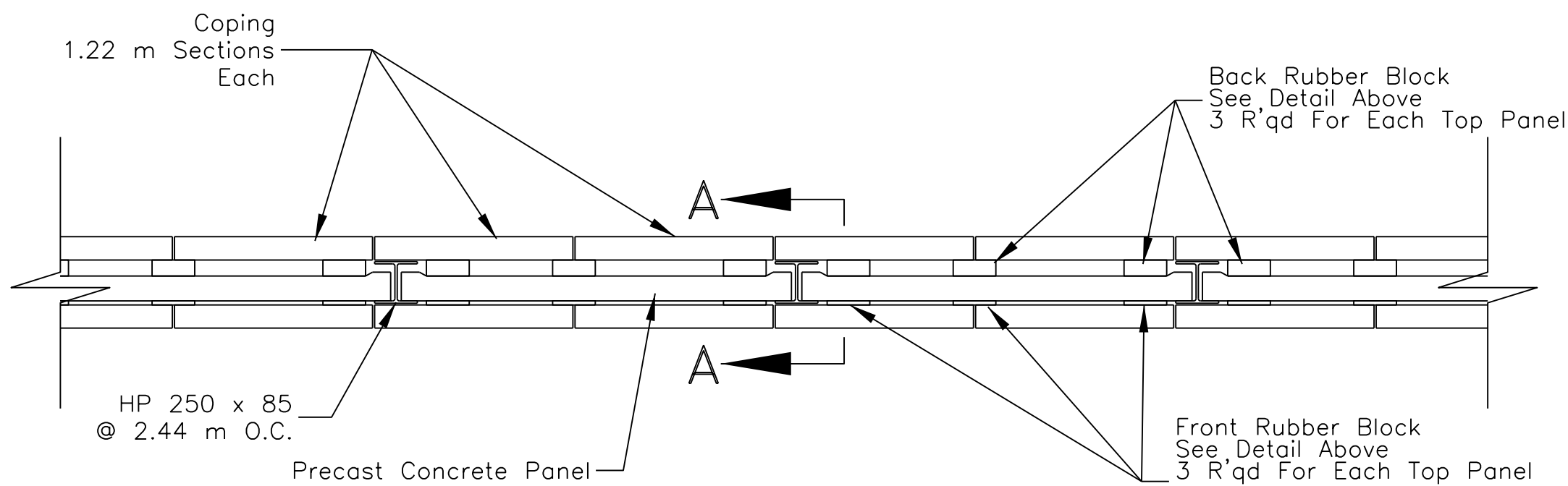
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1:50 Vert.

I:\CURRENT PROJECTS\N36_Ft Defiance\N9345(2)2&4_092908\DESIGN DATA_082908\Microstation_09282010\Sht 16_Panel InstallationAN2.14.11.dgn

CONSTRUCTION PLANS APPROVED
08/16/2011

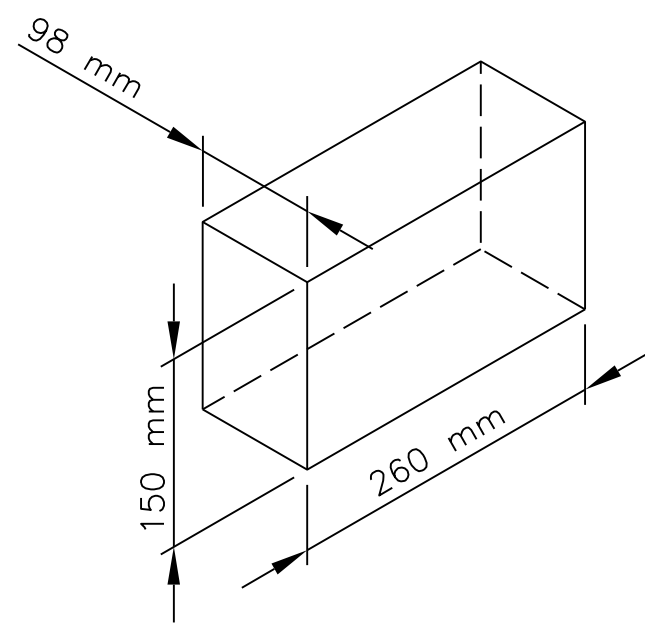
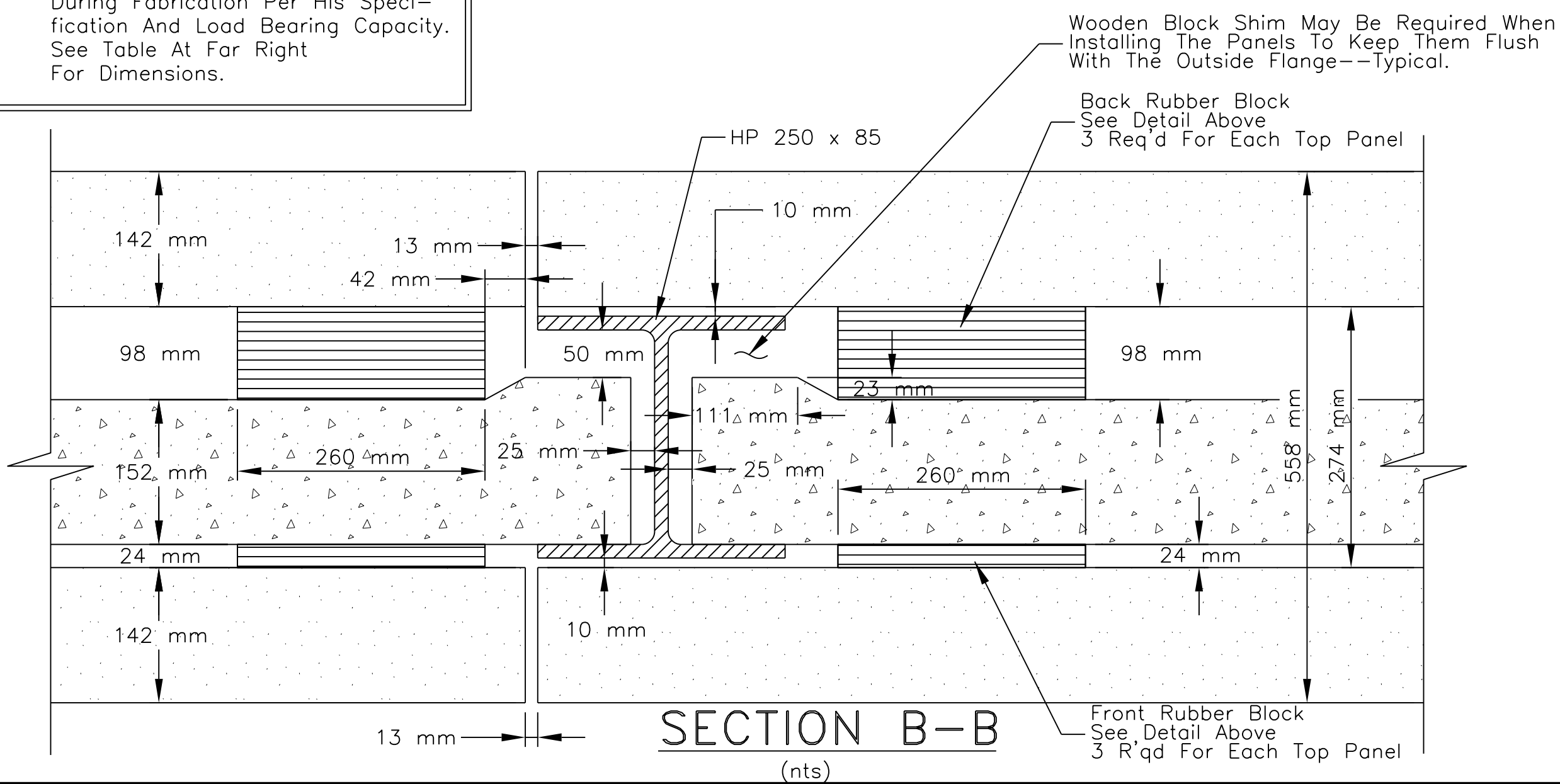


FRONT ELEVATION
(nts)



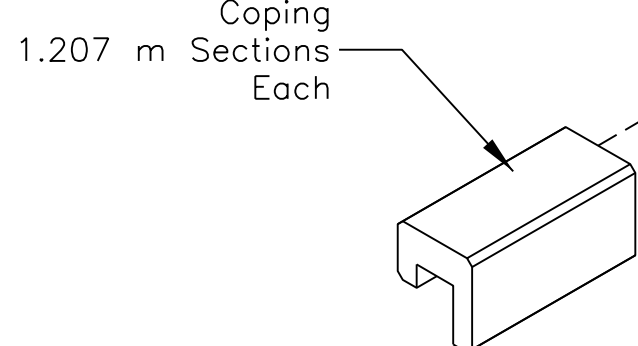
PLAN VIEW
(nts)

Note: Placement of P-52 SL Anchor To Be Determined By Manufacturer During Fabrication Per His Specification And Load Bearing Capacity. See Table At Far Right For Dimensions.

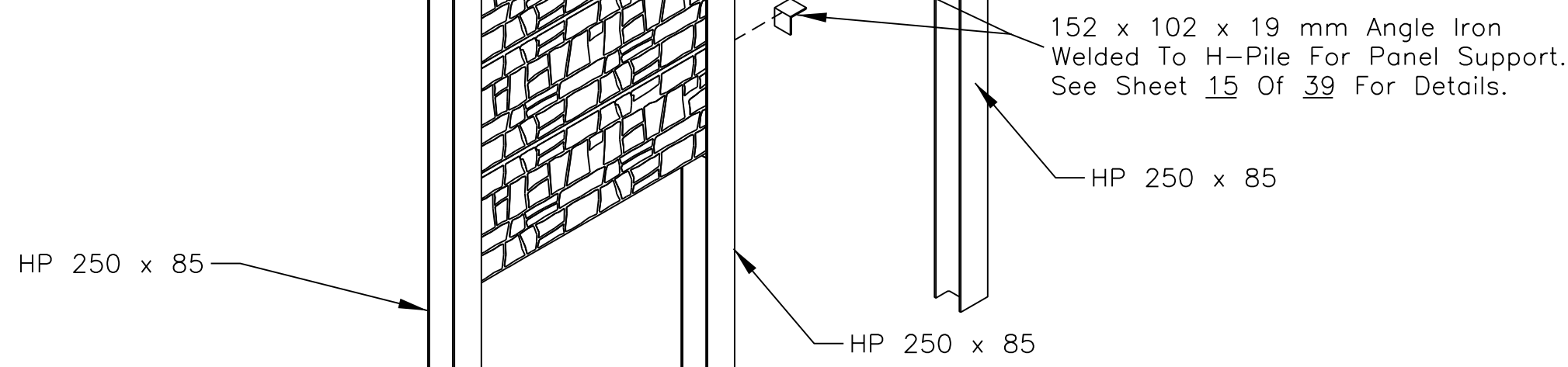


RUBBER BLOCK
BACK SIDE
(nts)

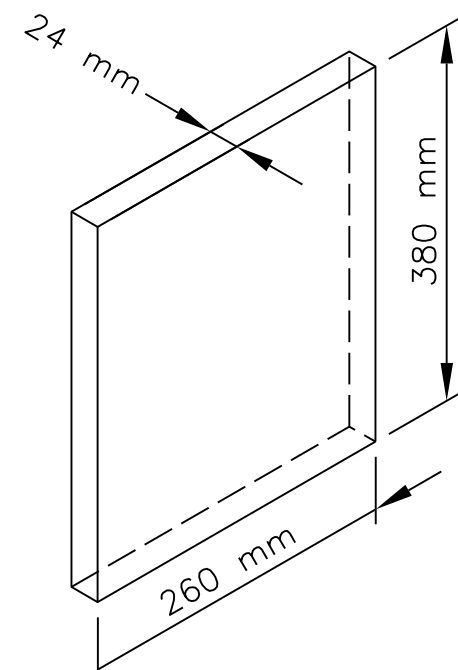
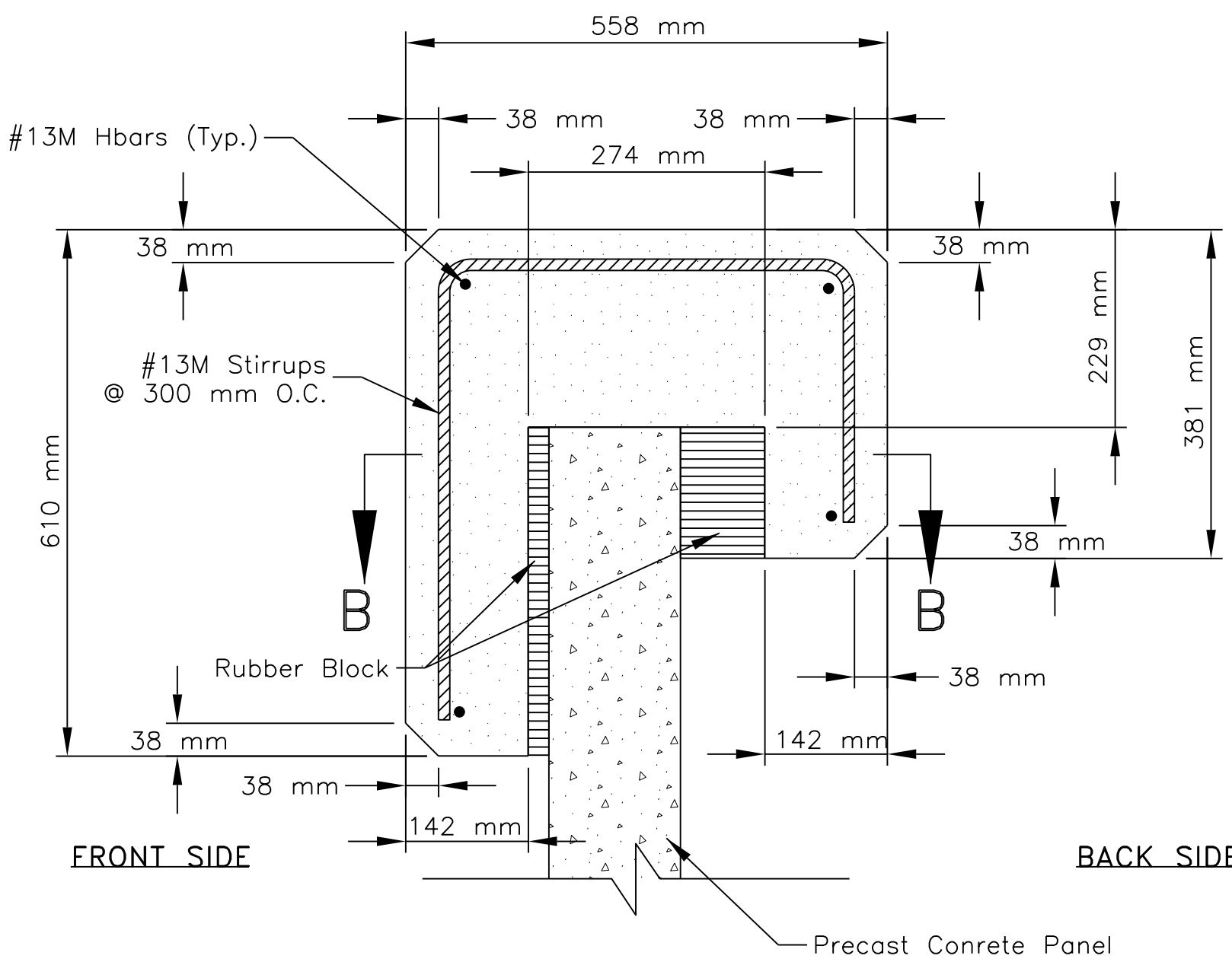
Rubber Block Attached To Back Of The Wall Panel With Adhesive Or Bolted, To Minimize Lateral Coping Movement On Top Of Wall Panel. 3 Req'd. Per Each Panel



ISOMETRIC EXPLODED VIEW
(nts)

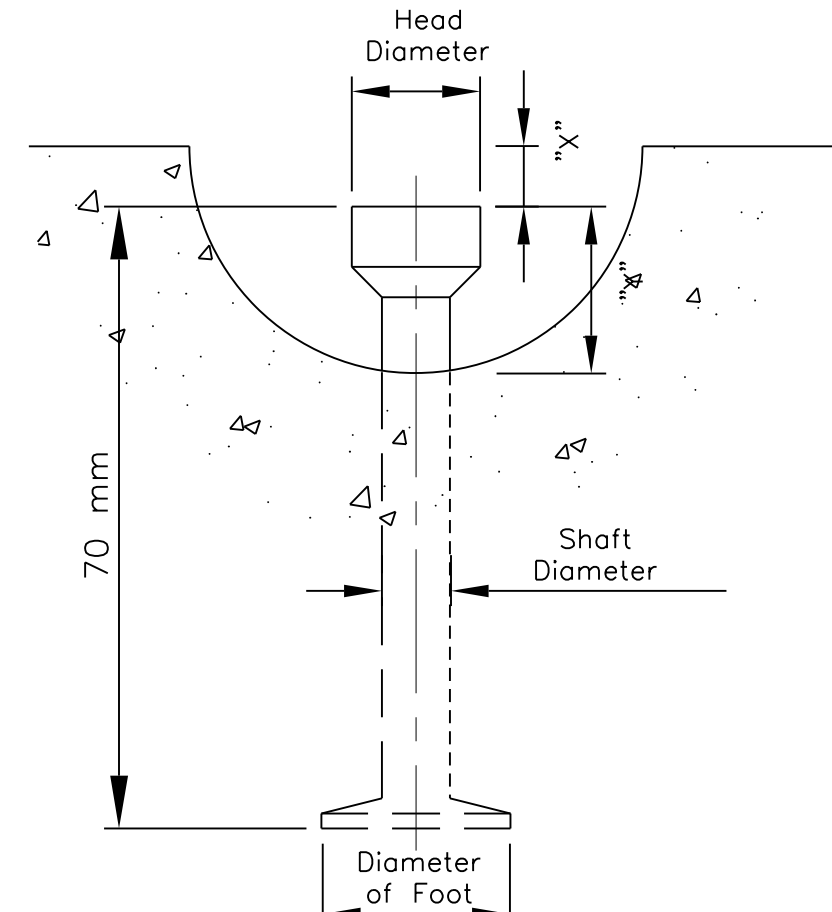


ISOMETRIC EXPLODED VIEW
(nts)

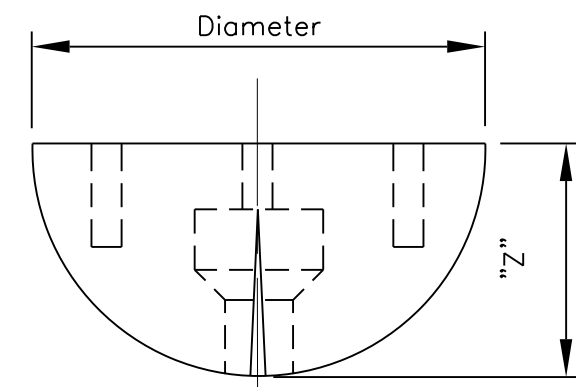


RUBBER BLOCK
FRONT SIDE
(nts)

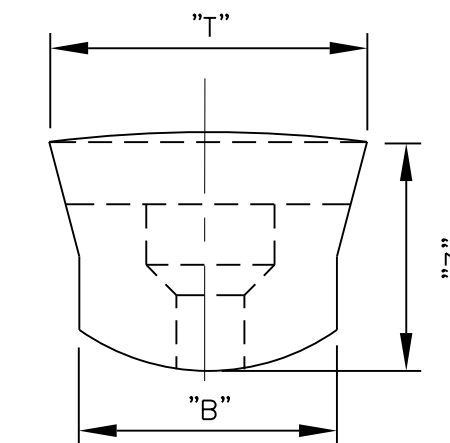
Rubber Block Attached To Back Of The Wall Panel With Adhesive Or Bolted, To Minimize Lateral Coping Movement On Top Of Wall Panel. 3 Req'd. Per Each Panel



P-52 SL ANCHOR



SL ROUND
RECESS PLUG



SL NARROW
RECESS PLUG

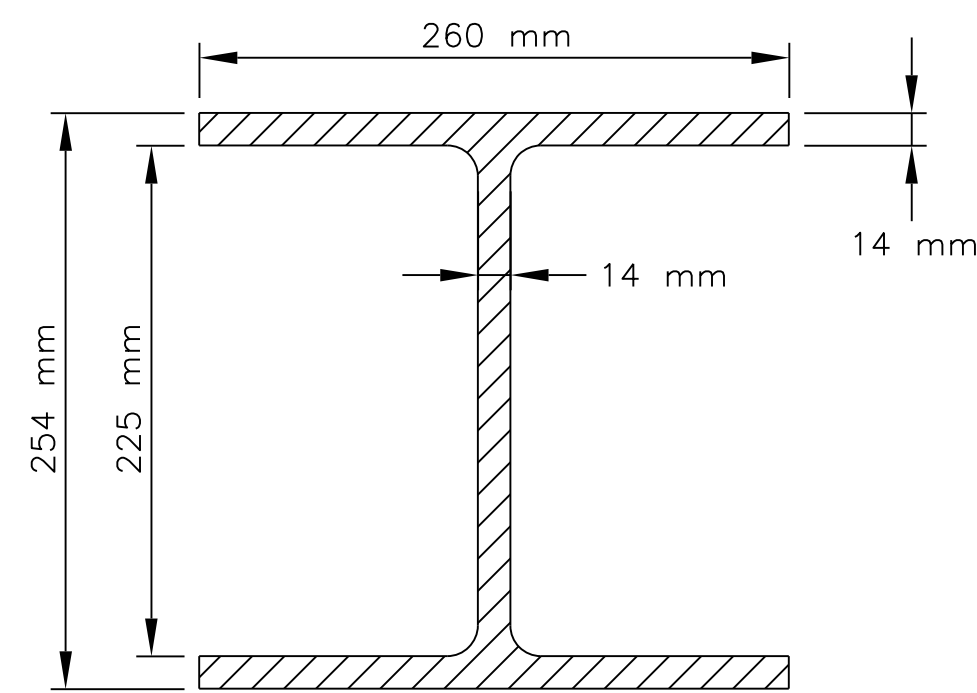
P-52 SL ANCHOR DIMENSIONS

Swift Lift anchor	Dimension "X"	Dimensions "Y"	Shaft Diameter	Foot Diameter	Head Diameter
1 or 1.3 Tons	8 mm	22 mm	9 mm	25 mm	17 mm
2 or 2.5 Tons	11 mm	27 mm	14 mm	35 mm	24 mm

SL RECESS PLUG DIMENSIONS

Swift Lift anchor	Dimension of Recess Plug	Dimension "Z"	Dimension "T"	Dimension "B"
2 or 2.5 Tons	76 mm	37 mm	52 mm	44 mm

Note: The length of the narrow recess plug is the same as the diameter of the round recess plug.



H-PILE
HP 250 x 85
(nts)

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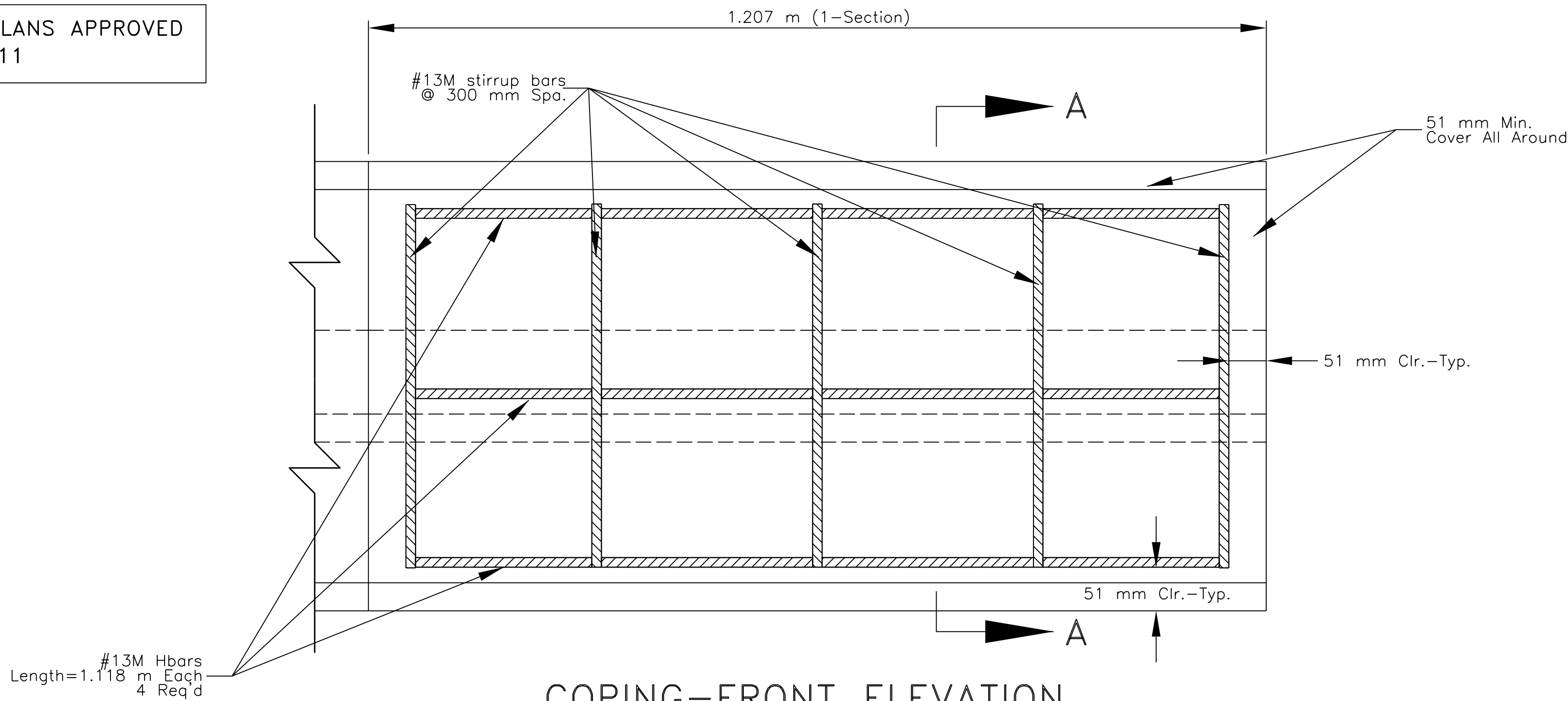
CONCRETE PANEL INSTALLATION
AND COPING DETAILS

DRAWN BY: NRDOT DATE: 05/06
DESIGNED BY: NRDOT DATE: 05/06
REVISED: 09/10 BY: LRT
SCALE: NTS
FILENAME: Sht 16_Panel Installation
SHEET MODEL NAME: PLOT SHEET

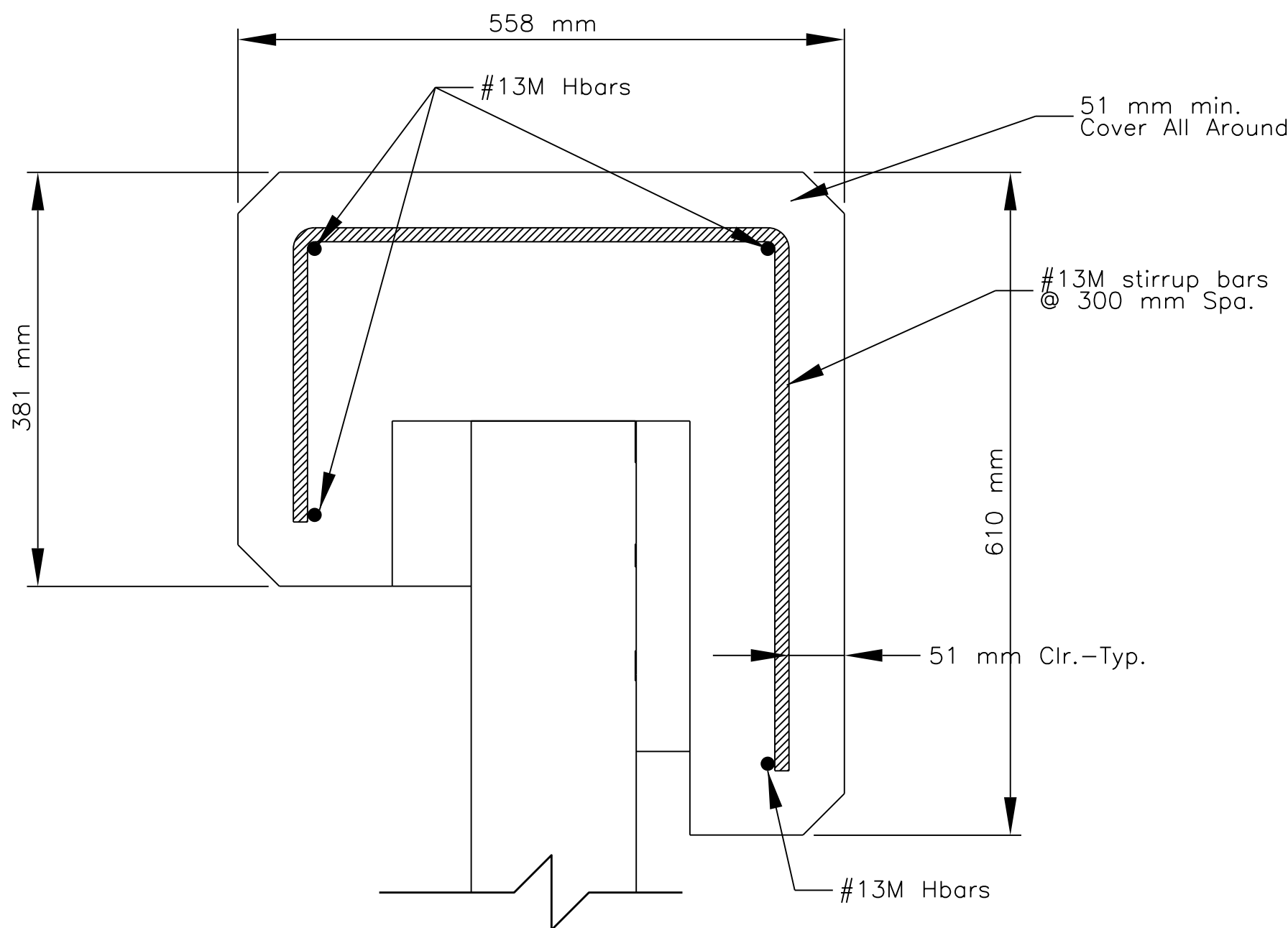


I:\CURRENT PROJECTS\N36_Ft. Defiance\N9345(2)2&4_092908\DESIGN DATA_082908\CADD FILES_092908\Microstation_09282010\Sht 17_Panel and Coping Detail.dgn

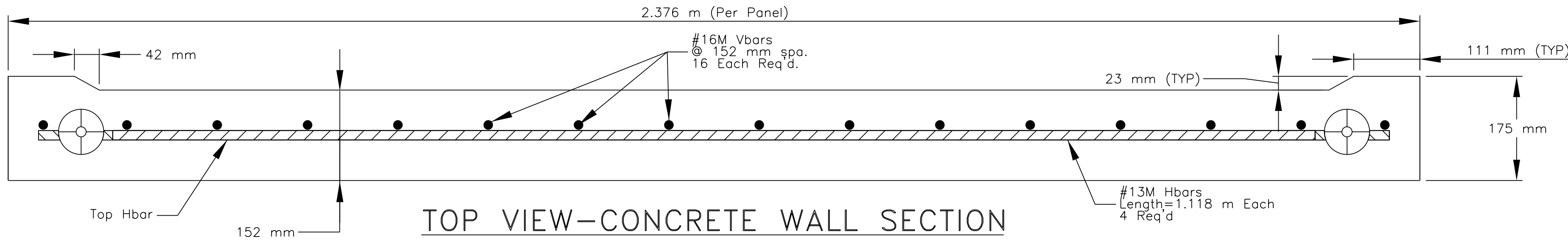
CONSTRUCTION PLANS APPROVED
08/16/2011



COPING-FRONT ELEVATION



SECTION A-A



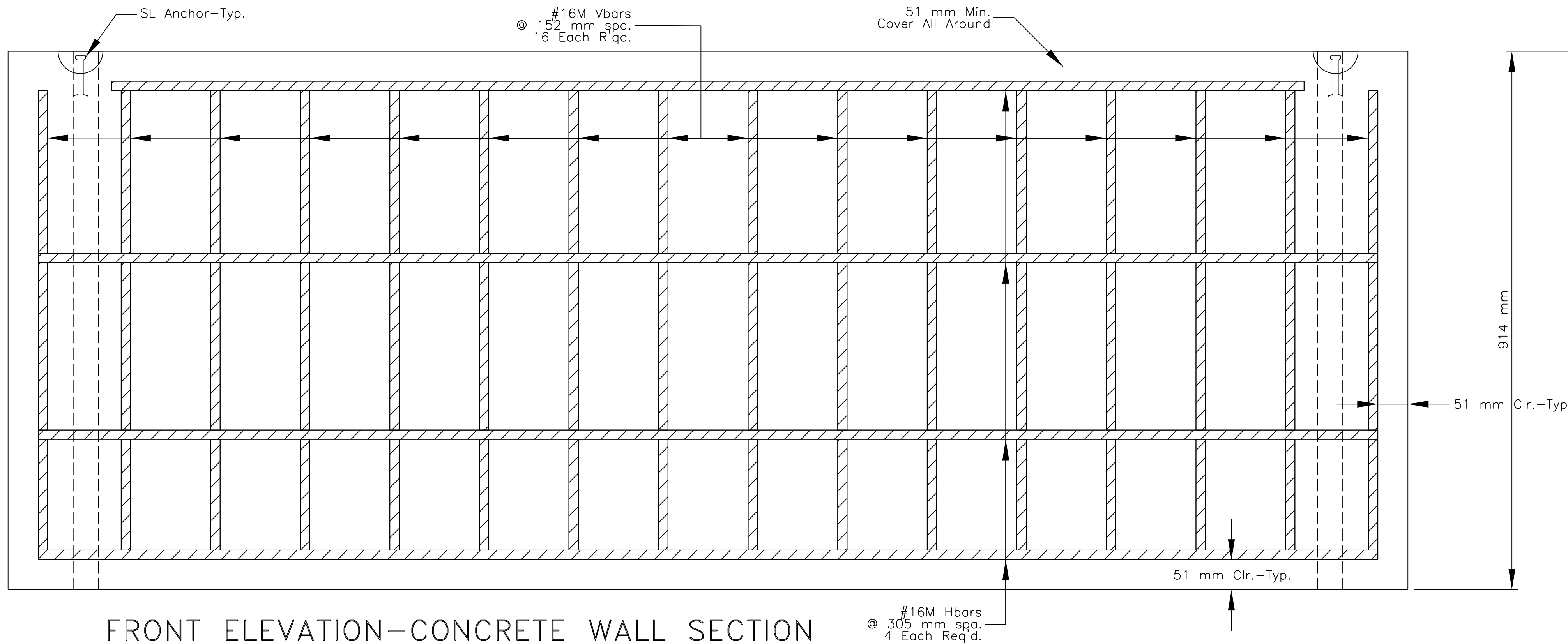
TOP VIEW-CONCRETE WALL SECTION

REINFORCING BAR SCHEDULE FOR COPING (per 1 coping)

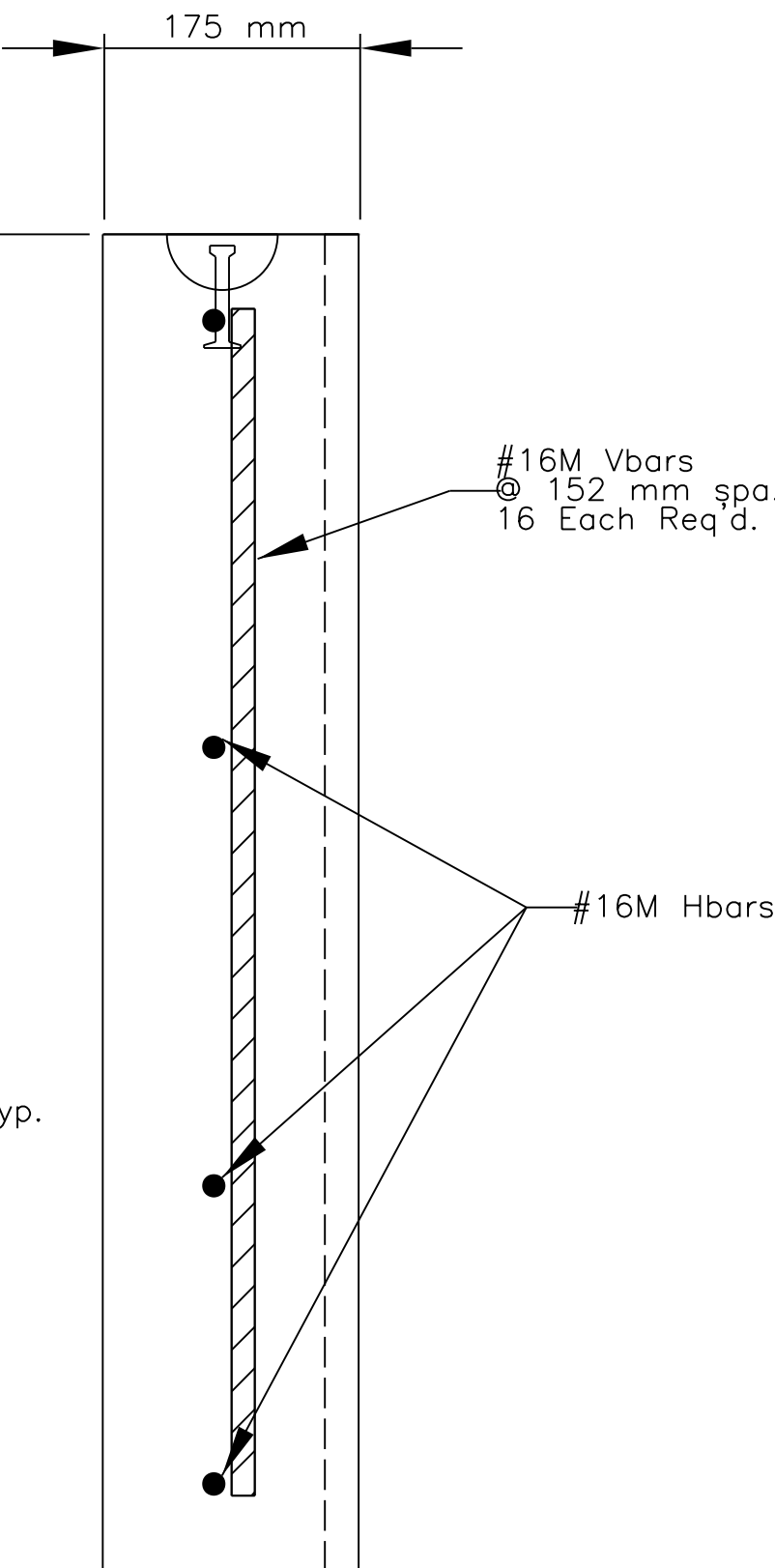
MARK	No. EACH	TYPE	SIZE	LENGTH (m)	kg/m	TOTAL Wt (kg)	Conc. Vol. (m ³)
#13M Hbars	4	1	13M	1.105	0.994	4.394	0.245
#13M Stirrup bars	5	n/a	13M	1.189	0.994	5.911	0.245
TOTAL						10.305	0.245

REINFORCING BAR SCHEDULE FOR WALL PANEL (per section)

MARK	No. EACH	TYPE	SIZE	LENGTH (m)	kg/m	TOTAL Wt (kg)	Conc. Vol. (m ³)
#16M Vbars	16	1	16M	0.812	1.552	20.164	0.336
#16M Hbars	4	1	16M	2.274	1.552	14.117	0.336
TOTAL						34.281	0.336



FRONT ELEVATION-CONCRETE WALL SECTION



SIDE VIEW

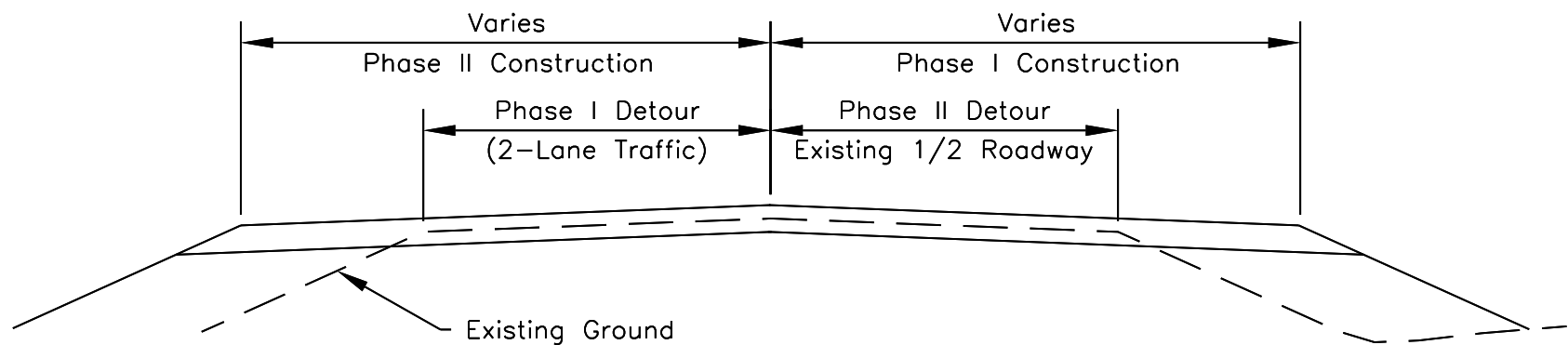
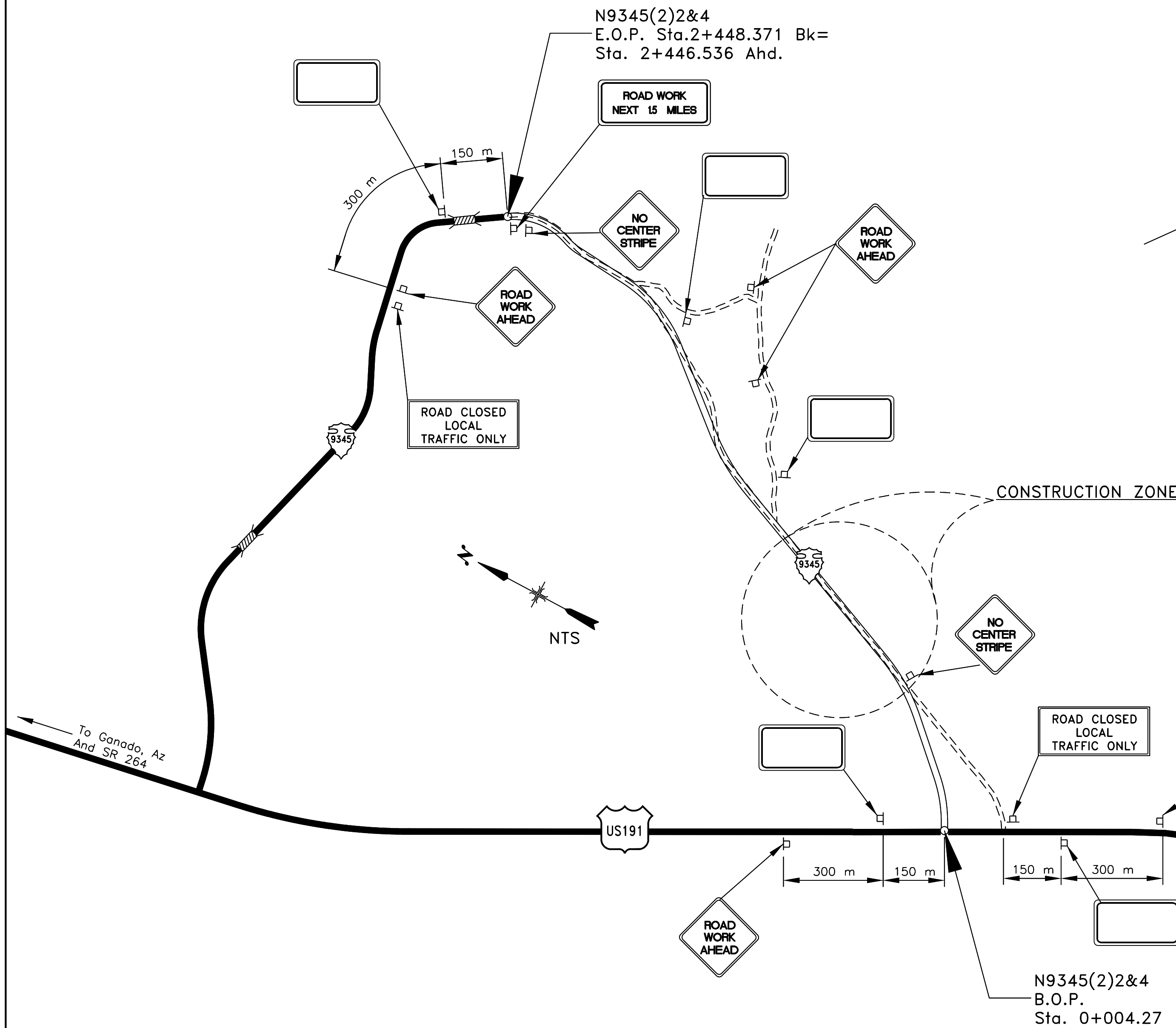
UNITED STATES
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BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

CONCRETE PANEL & COPING
REINFORCING BAR LAYOUT DETAIL

DRAWN BY: NRDOT DATE: 04/11
DESIGNED BY: NRDOT DATE: 04/11
REVISED: BY:
SCALE: 1:200
FILENAME: Sht 17_Panel and Coping Detail
SHEET MODEL NAME: PLOT SHEET



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	18	39

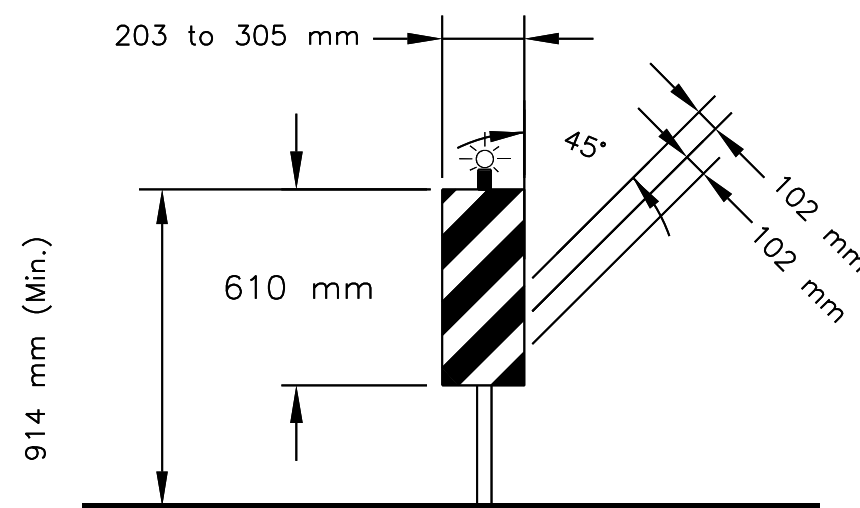
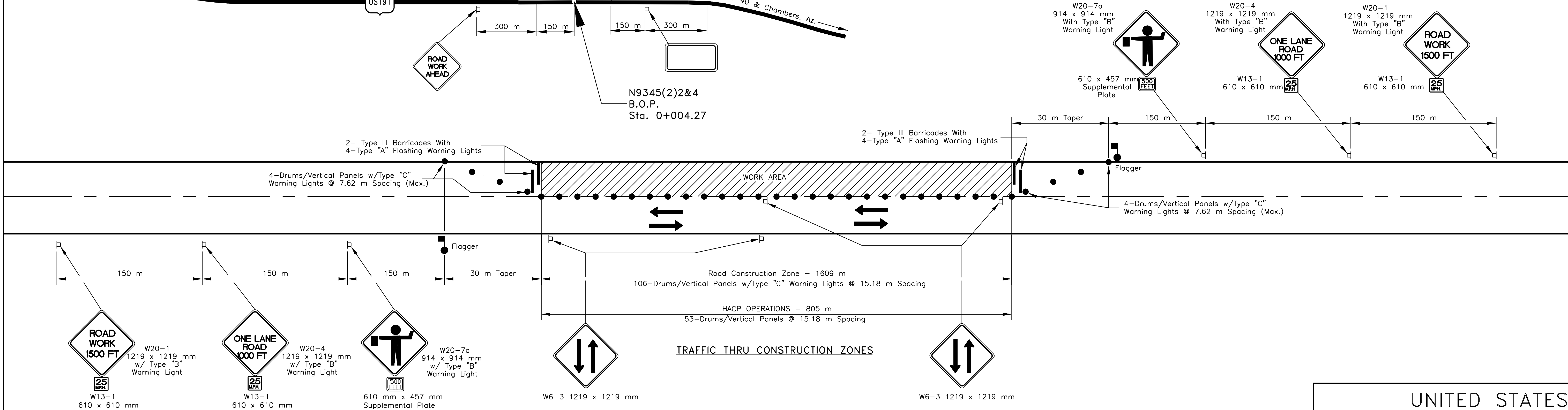


PHASED CONSTRUCTION

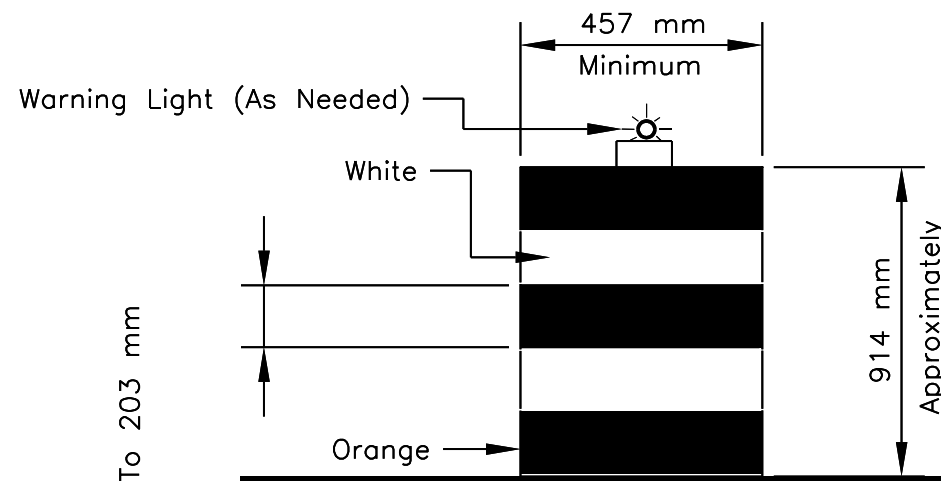
- NOTE:
1. THE CONTRACTOR SHALL BE REQUIRED TO CONSTRUCT 1/2 THE NEW ROADWAY UNDER PHASED CONSTRUCTION PLAN SHOWN WHILE DETOURING TWO-WAY TRAFFIC ON THE OTHER (EXISTING) HALF TYPICAL. ONCE THE FIRST 1/2 OF ROADWAY IS BUILT UP TO THE NEW GRADES, THEN TRAFFIC SHALL BE CHANNLED TO THE NEW HALF OF ROADWAY 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 OUT 1/2 OF ALL EXISTING PIPE AT ONE TIME. ALL THIS PIPE INSTALLATION & 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 SCHEDULE, CONSTRUCTION SEQUENCING PLAN AND STORM WATER POLLUTION PREVENTION PLAN SHALL REFLECT THIS PHASED CONSTRUCTION.

GENERAL NOTES

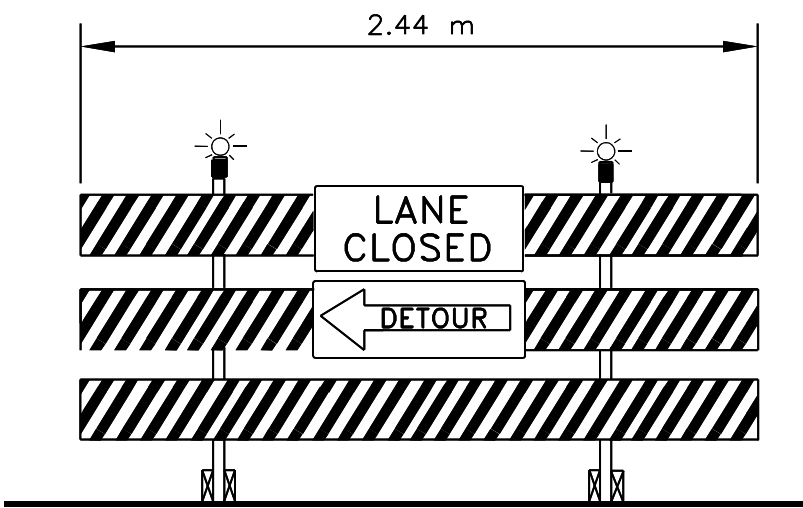
1. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE MUTCD MANUAL (LATEST EDITION AND AMENDMENTS) AND THE SUPPLEMENTAL SPECIFICATIONS FOR THIS PROJECT.
2. THE TRAFFIC CONTROL PLAN (TCP) SHOWN IS ONLY A GUIDE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR IMPLEMENTING HIS TCP IN ACCORDANCE WITH THIS PLAN 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 CONTRACT ITEM 63501-0000. THE CONTRACTOR SHALL ALSO SUBMIT A COPY OF HIS TRAFFIC CONTROL PLAN, RELATED TO US191 TO THE ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT) 2-WEEKS PRIOR TO START OF CONSTRUCTION. SEE SUPPLEMENTAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. SIGNS (G20-1, W20-1A, G20-2A AND W8-12) 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 EXISTING ROADWAY PRISM OR AT DETOURS.
5. AT THE END OF EACH WORKING DAY, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DRIVING SURFACE FREE OF OBSTRUCTIONS, AS SHOWN ON THE PHASED CONSTRUCTION DETAIL. ACCESS TO ALL BUSINESS AND B.I.A. SYSTEM ROUTES SHALL BE MAINTAINED AT ALL TIMES DAY OR NIGHT.
6. ALL TRAFFIC CONTROL DEVICES (EXCEPT AT DETOUR ROAD LOCATIONS) SUCH AS CONSTRUCTION SIGNS, DRUMS, BARRICADES, ETC., SHALL BE REMOVED TO A LOCATION AT LEAST NINE (9) METERS FROM EDGE OF THE SHOULDER WHEN CONSTRUCTION IS NOT IN PROGRESS.
7. DURING CONSTRUCTIONS OPERATIONS, TRAFFIC SHALL BE MOVED THROUGH THE WORK ZONE USING PILOT CARS (AS REQUIRED). APPLICABLE SIGNS AND OTHER ITEMS (TWO-WAY RADIO CONTACT) RELATED TO THE USE OF THE PILOT CARS SHALL BE CONSIDERED INCIDENTAL OBLIGATION OF THE CONTRACTOR.
8. THE CONTRACTOR HAS THE OPTION TO EITHER USE DRUMS OR VERTICAL PANELS; BUT SHALL NOT USE A COMBINATION OF BOTH.
9. THE CONTRACTOR HAS THE OPTION TO UTILIZE DETOUR ROADS IN ACCORDANCE WITH THE MUTCD MANUAL IN CONJUNCTION WITH OR IN LIEU OF THE PHASE CONSTRUCTION PLAN SHOWN. THE COST OF ANY DETOUR ROADS SHALL BE CONSIDERED INCIDENTAL TO CONTRACT ITEM 63501-0000.
10. THE CONTRACTOR HAS THE OPTION TO UTILIZE EXISTING ROADS AS DETOUR ROAD AS SHOWN. THE COST OF MAINTAINING EXISTING ROADS SHALL BE CONSIDERED INCIDENTAL TO ITEM 63501-0000.
11. AT LOCATIONS WHERE NEW ROAD CONSTRUCTION CROSSES EXISTING ROADWAYS AND AT TIE-INS WITH EXISTING ROADS AT END THE OF THE NEW CONSTRUCTIONS, SPECIAL TRAFFIC CONTROL PROCEDURES SHALL BE NEEDED AT VARIOUS TIMES THROUGH OUT THE CONSTRUCTION. THESE INCLUDE BUT ARE NOT NECESSARILY LIMITED TO THE FOLLOWING, TYPE 3 BARRICADES WITH "ROAD CLOSE", DETOUR SIGNS, FLAGMAN, DRUMS, AND/OR DETOURS, ETC.. THE CONTRACTOR SHALL SUBMIT TO THE C.O.R. (FOR APPROVAL) HIS TRAFFIC CONTROL PLAN(S) FOR THIS WORK PRIOR TO THE BEGINNING THE VARIOUS CONSTRUCTION PHASE IN THESE AREAS. THIS TRAFFIC CONTROL WORK IS TO BE INCLUDED IN THE CONTRACTOR'S BID PRICE FOR ITEM 63501-0000, TEMPORARY TRAFFIC CONTROL.



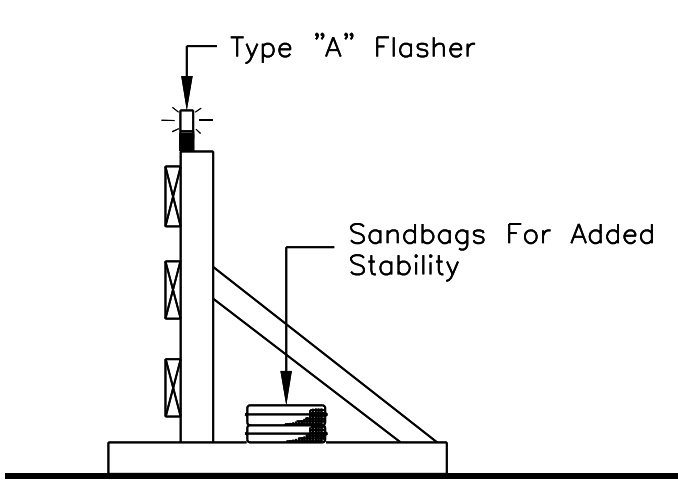
VERTICAL PANEL
(ALTERNATE)



DRUM



TYPE III BARRICADE



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BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

TEMPORARY TRAFFIC CONTROL

DRAWN BY: NRO DOT DATE: 10/96
DESIGNED BY: NRO DOT DATE: 10/96
REVISED: 10/10 BY: SC
SCALE: NTS
FILENAME: 9345TCP
SHEET MODEL NAME: PLOT SHEET



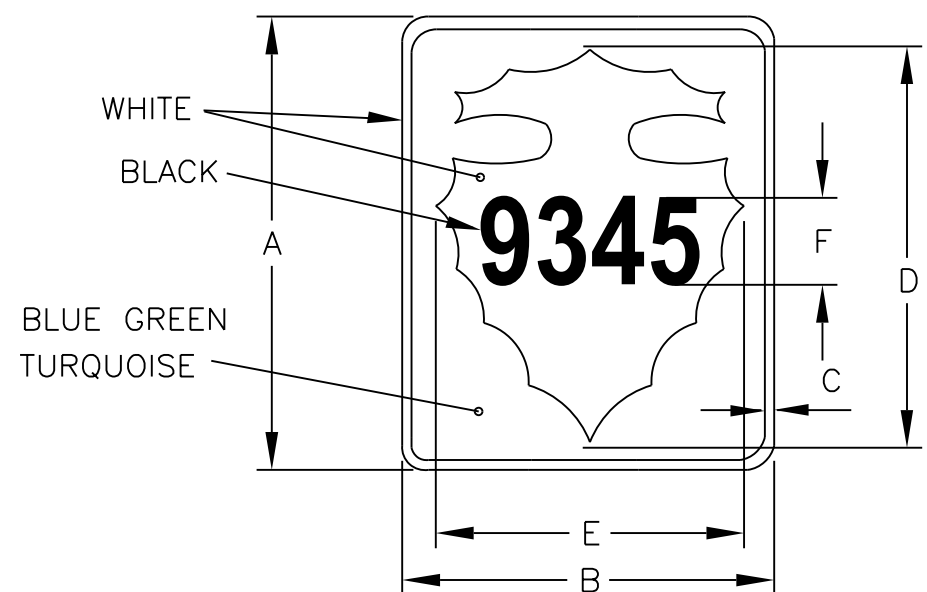
TEMPORARY TRAFFIC CONTROL SIGNS (MINIMUM)

TYPE	DESCRIPTION	SIZE (mm)
W20-1		1219 x 1219
W20-4		1219 x 1219
W13-1		610 x 610
W20-7a		914 x 914
Supplemental Plate		457 x 610
G20-2		457 x 914
W8-12		914 x 914
W20-1		1219 x 1219
G20-1		1524 x 610
W6-3		1219 x 1219
R11-4a		1524 x 762

63401-1510: PAVEMENT MARKINGS, SOLID YELLOW		
STATION TO STATION	LOCATION	LENGTH(m)
0+007.27 - 0+850.00	Lt. CL	842.73
0+007.27 - 0+460.00	Rt. CL	452.73
0+950.00 - 2+448.371 Bk.	Rt. CL	1,498.37
2+446.536 Ahd		
1+420.00 - 2+448.371 Bk.	Lt. CL	1,028.37
2+446.536 Ahd		
GRAND TOTAL:		3,822.20

63401-1520: PAVEMENT MARKINGS, SOLID WHITE		
STATION TO STATION	LOCATION	LENGTH(m)
0+007.27 - 2+448.371 Bk.	Lt. Shldr.	2,441.10
2+446.536 Ahd.	3-4.50 m T.O. @ 20.45 m	-61.35
SUB-TOTAL:		2,379.75
0+007.27 - 2+448.371 Bk.	Rt. Shldr.	2,441.10
2+446.536 Ahd.	1-4.50 m T.O. @ 20.45 m	-20.45
	5-7.0 m T.O. @ 35.50 m	-177.50
SUB-TOTAL:		2,243.15
GRAND-TOTAL:		4,622.90

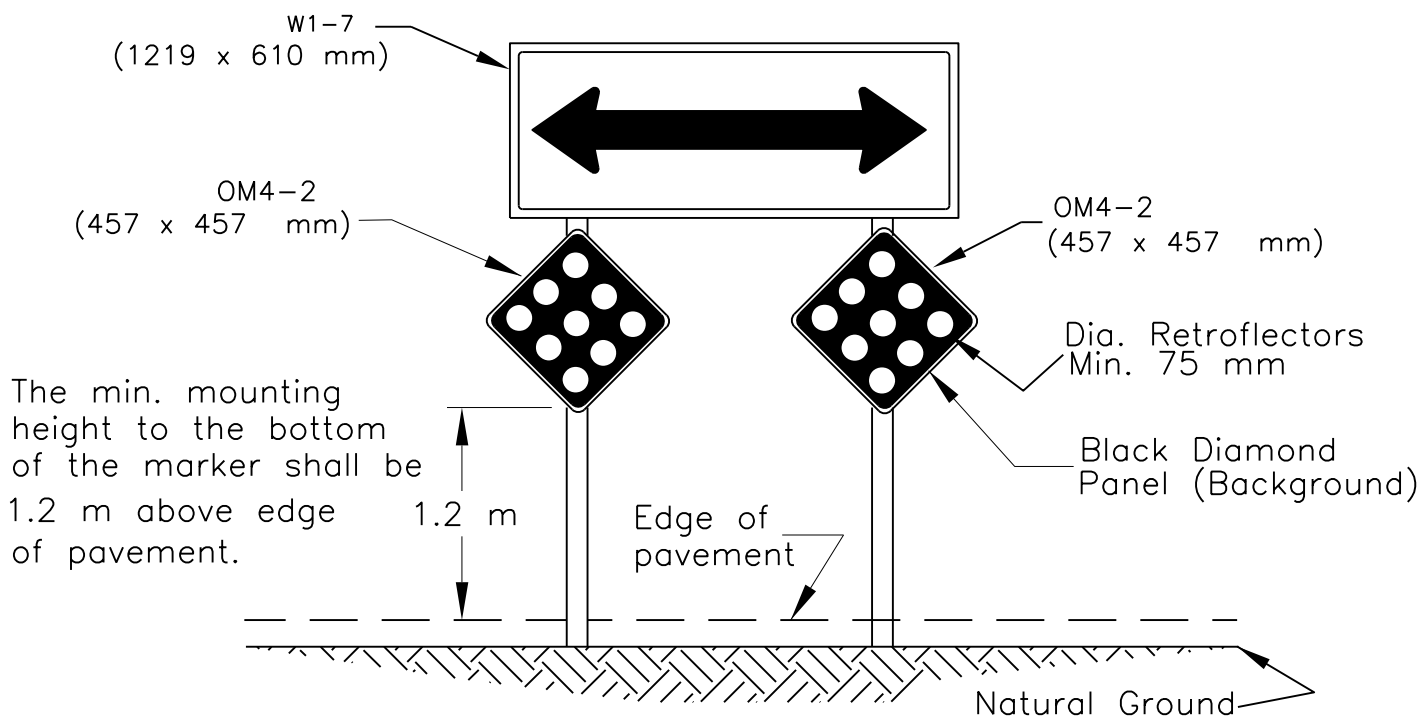
63401-1510: PAVEMENT MARKINGS, SOLID YELLOW		
STATION TO STATION	LOCATION	LENGTH(m)
0+007.27 - 0+850.00	Lt. Cl	842.73
0+007.27 - 0+460.00	Rt. Cl	452.73



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)	254E	254D	203C	152B

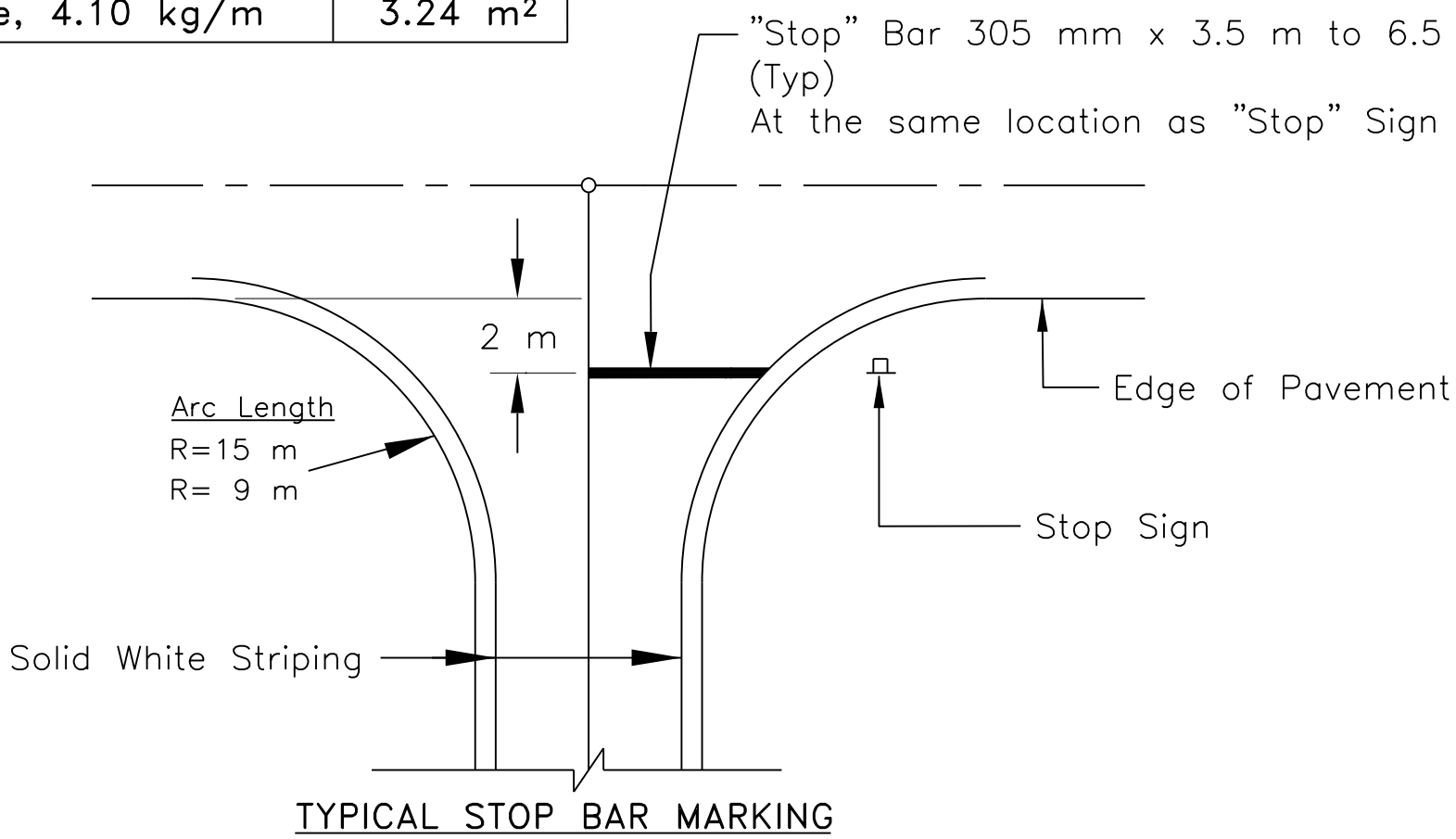
PERMANENT ROADSIDE SIGN, POSTS & HARDWARE

STATION	LOC.	SIZE DETAIL No.	DESCRIPTION	PANEL SIZE (mm)	PANEL AREA(m ²)	NO. Of POSTS	POST SIZE kg/m	TOTAL SIGN PANELS
0+007.27	Lt.	R1-1		914 x 914	0.67	2	2.98	1
0+560.00 1+003.00 1+165.00 1+958.00 2+400.00	Rt. Rt. Rt. Rt. Rt.	R1-1		762 x 762	0.47	1	3.35	5
0+160.00 BANANA RD. BANANA RD.	Lt. Rt. Rt.	W3-1A		762x 762	0.56	2	2.98	3
0+090.00	Rt.	SEE DETAIL		457 x 610	0.28	1	4.10	1
0+060.00 2+173.00 2+370.00 2+540.00	Rt. Lt. Lt. Lt.	R2-1		610 x 762	0.46	1	4.10	4
0+040.00 0+850.00 0+950.00 2+488.00	Lt. Rt. Lt. Rt.	W14-3		1219 x1219x 914	0.52	2	2.98	4
0+040.00 0+850.00 0+950.00 2+488.00	Rt. Lt. Rt. Lt.	R4-1		610 x 762	0.46	1	4.10	4
0+080.00	Lt.	D2-1		1219 x 610	0.72	2	2.98	1
0+120.00 2+428.00	Rt. Lt.	W11-4		762 x 762	0.56	2	2.98	2
0+638.00 1+090.00 2+078.00	Lt. Rt. Lt.	W1-2R		762 x 762	0.56	2	2.98	3
0+222.00 1+600.00 1+620.00	Rt. Rt. Lt.	W1-2L		762 x 762	0.56	2	2.98	3
2+040.00	Rt.	W1-4R		762 x 762	0.56	2	2.98	1
HWY. U.S.191								
35+135.00	Lt.	D1-1L		1842 x 914	1.62	2	4.10	1
35+518.00	Rt.	D1-1R		1842 x 914	1.62	2	4.10	1
35+328.31	Rt.	W1-7		1219 x 610	0.72			1
		OM4-2		457 x 457	0.20	2	2.98	2
			See Details Below					
35+296.00 (Lt. Arrow)	Rt.	SEE DETAIL		610 X 457	0.27			2
35+375.00 (Rt. Arrow)	Lt.	M6-1		357 x 510	0.18	2	2.98	2
63302-0002 Sign Installation, 1-Post & hardware, 3.35 kg/m								2.35 m ²
63302-0003 Sign Installation, 1-Post & hardware, 4.10 kg/m								3.87 m ²
63302-0010 Sign Installation, 2-Post & Hardware, 2.98 kg/m								12.15 m ²
63302-0012 Sign Installation, 2-Post & Hardware, 4.10 kg/m								3.24 m ²



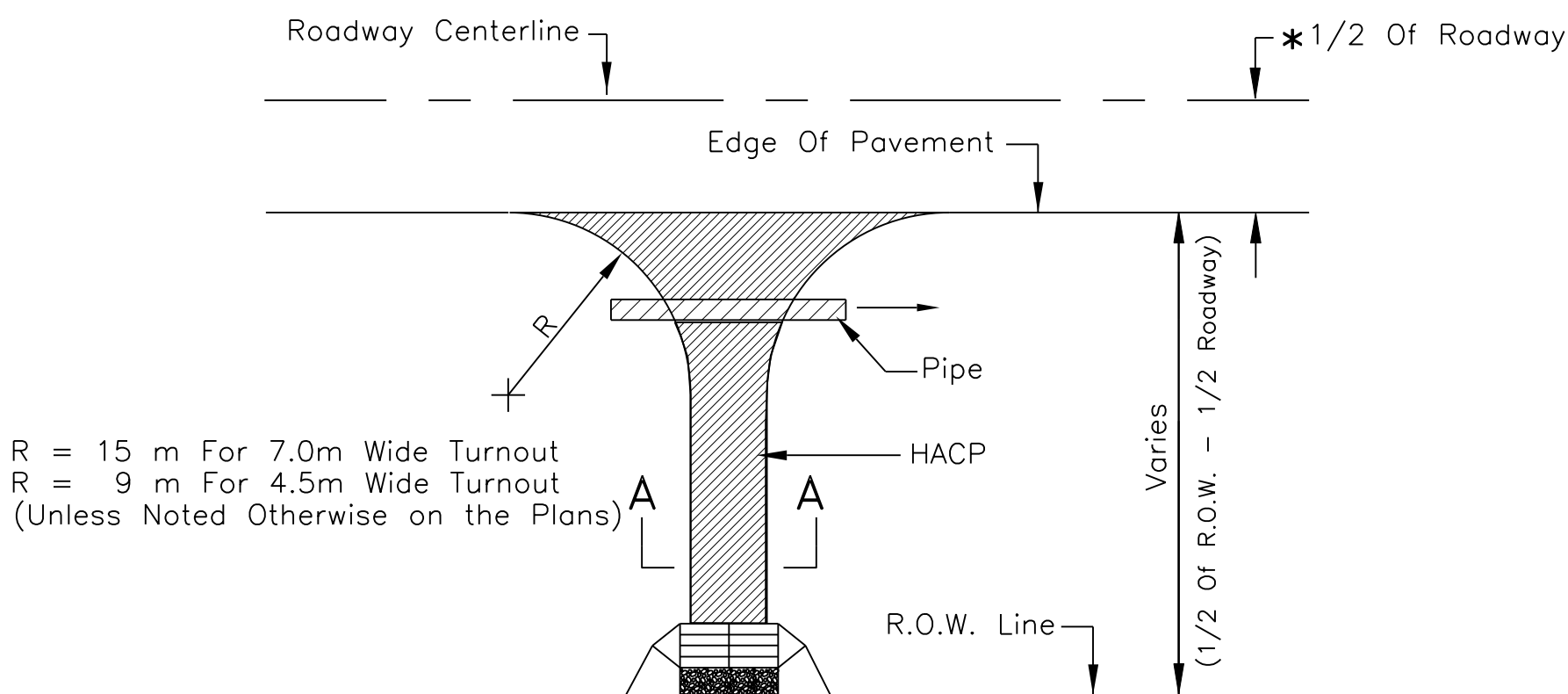
Note: Type 4 Object Marker consists of nine (9) red retroreflectors, each with a min. dia. of 75 mm, mounted symmetrically on a black diamond panel.

PERMANENT BARRICADE
STA. 35+328.31, Rt.
(US191)

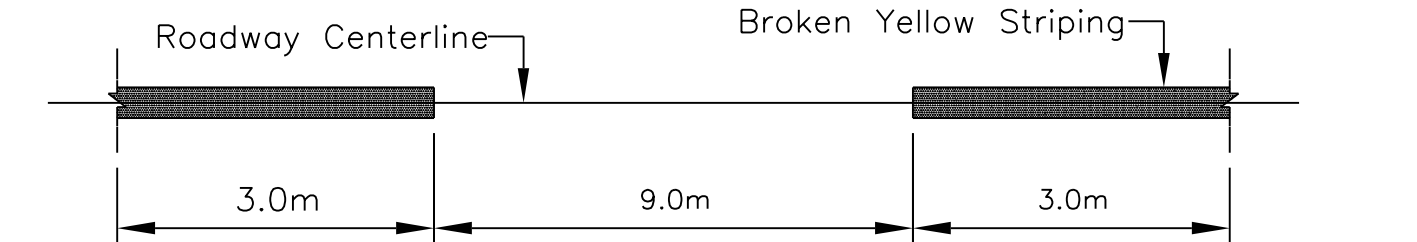
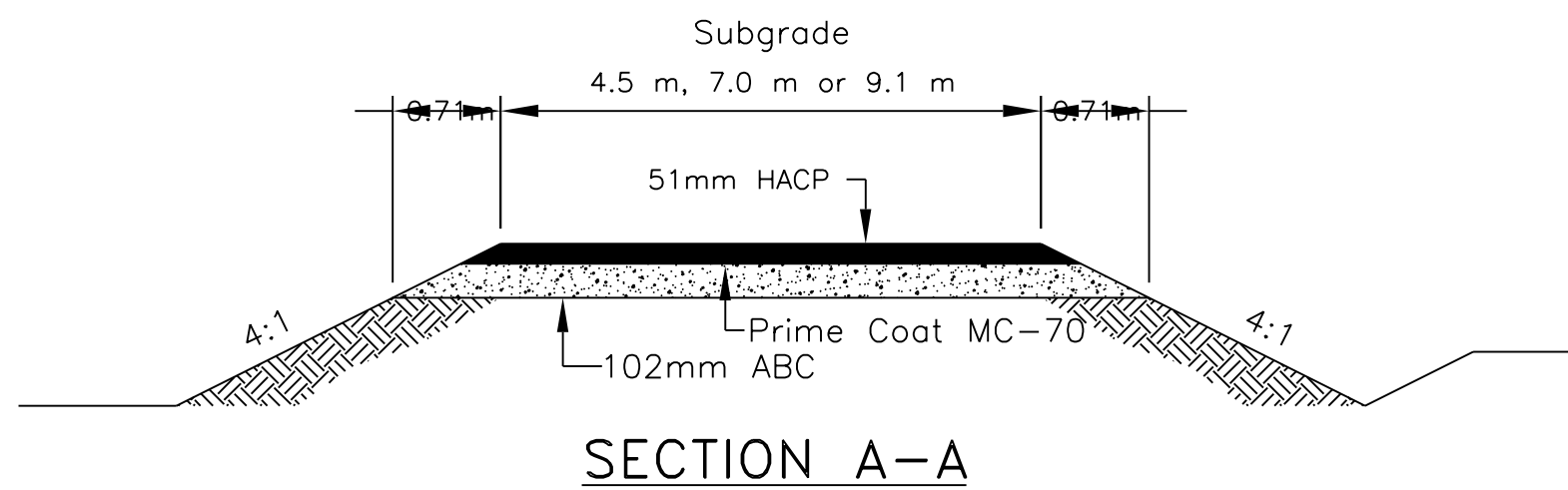


63405-3260: PAVEMENT MARKINGS, STOP BAR		
STATION	LOCATION	REMARKS
0+007.27	Lt.	Jct. w/US 191

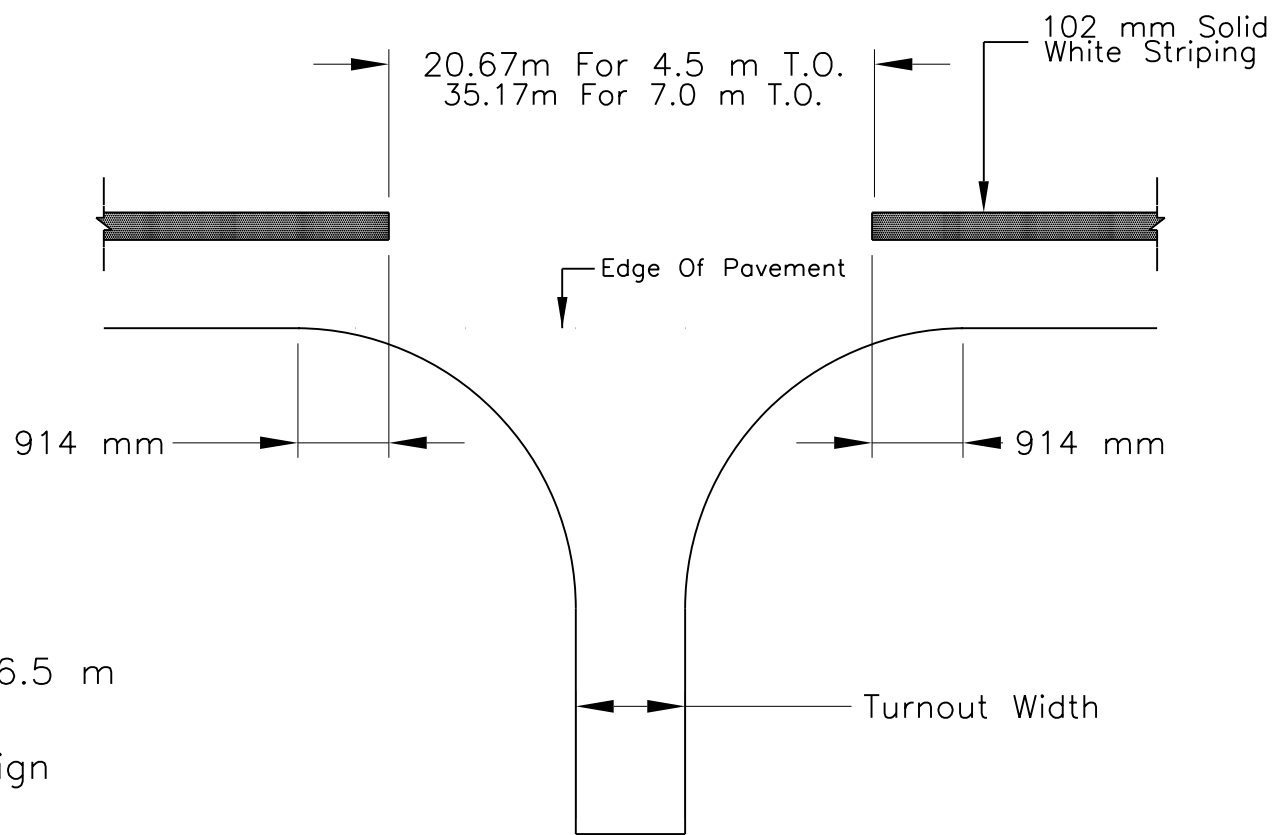
NOTE: Placement of Stop Sign according to MUTCD will vary from 3 m to 15 m and field adjusted as directed by C.O.R..



*See Typical Section On Sheet 2 Of 39
TYPICAL TYPE "A" TURNOUT



TYPICAL PAVEMENT MARKING "BROKEN YELLOW"
(See Table For Location)



TYPICAL PAVEMENT MARKING @ TURNOUT
ROADWAY SHOULDER STRIPING

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

TEMPORARY AND
PERMANENT ROADSIDE
TRAFFIC CONTROL DETAILS

DRAWN BY: NRO DOT DATE: 02/97
DESIGNED BY: NRO DOT DATE: 02/97
REVISED: 10/10 BY: SC
SCALE: NTS
FILENAME: 9345tfs
SHEET MODEL NAME: PLOT SHEET



SINGLE POST REQUIREMENT CHART													
K factor (B x A)	POST WEIGHT	B = Height To Bottom Of Traffic Sign + 1/2 Height Of Traffic Sign (Meter)											
		1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
DOES NOT APPLY	2.976 kg/m	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 (W x D)
	3.348 kg/m	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	0.56	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	0.62	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	0.80	0.74	0.70	0.65	

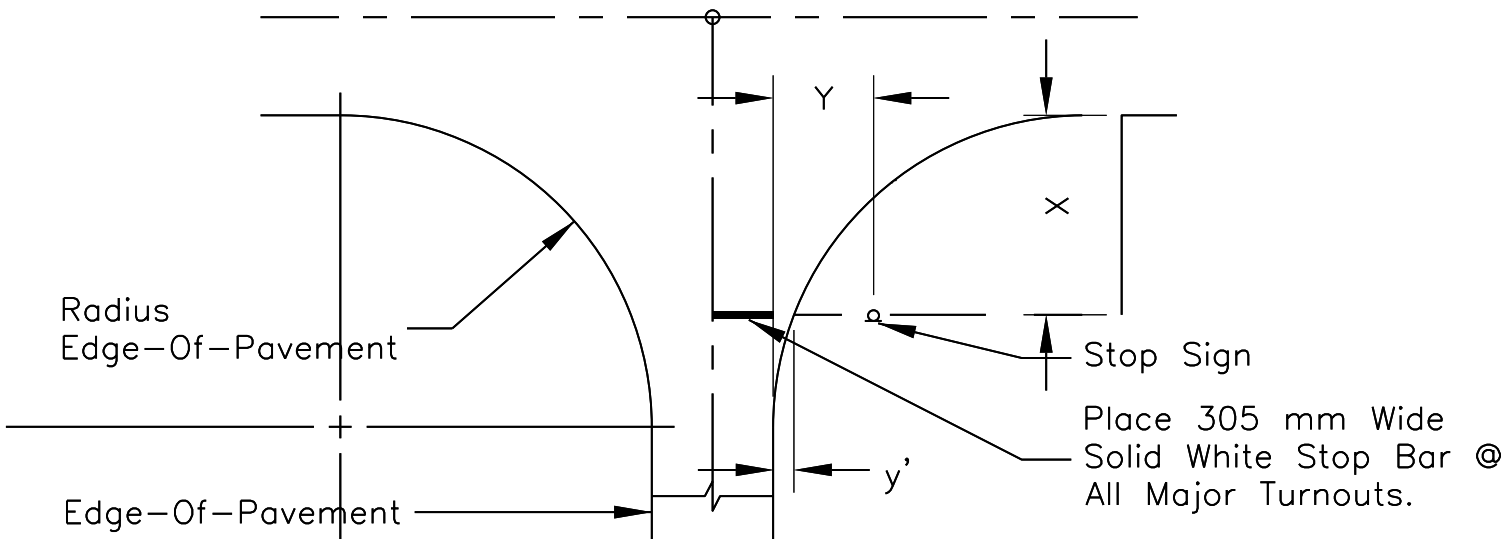
DOUBLE POST REQUIREMENT CHART													
K factor (B x A)	POST WEIGHT	B = Height To Bottom Of Traffic Sign + 1/2 Height Of Traffic Sign (Meter)											
		1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
2.74	2.976 kg/m	1.50	1.28	1.12	1.00	0.90	0.82	0.75	0.70	0.64	0.60	0.57	A (m ²) SIGN AREA (W x D)
3.08	3.348 kg/m	1.69	1.45	1.27	1.13	1.01	0.92	0.85	0.78	0.72	0.68	0.63	
4.03	4.092 kg/m	2.20	1.89	1.65	1.47	1.32	1.20	1.10	1.01	0.94	0.88	0.83	
4.91	4.464 kg/m	2.69	2.31	2.03	1.79	1.62	1.47	1.35	1.24	1.15	1.08	1.01	
6.83	5.952 kg/m	3.73	3.20	2.80	2.49	2.24	2.03	1.87	1.72	1.60	1.50	1.40	

THREE POST REQUIREMENT CHART													
K factor (B x A)	POST WEIGHT	B = Height To Bottom Of Traffic Sign + 1/2 Height Of Traffic Sign (Meter)											
		1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
4.12	2.976 kg/m	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 (W x D)
4.65	3.348 kg/m	2.54	2.17	1.90	1.69	1.52	1.38	1.27	1.17	1.09	1.01	0.96	
6.02	4.092 kg/m	3.30	2.82	2.47	2.19	1.98	1.79	1.64	1.52	1.41	1.32	1.24	
7.40	4.464 kg/m	4.04	3.47	3.03	2.69	2.42	2.20	2.02	1.86	1.73	1.62	1.51	
10.20	5.952 kg/m	5.58	4.78	4.19	3.73	3.35	3.05	2.79	2.57	2.40	2.23	2.09	

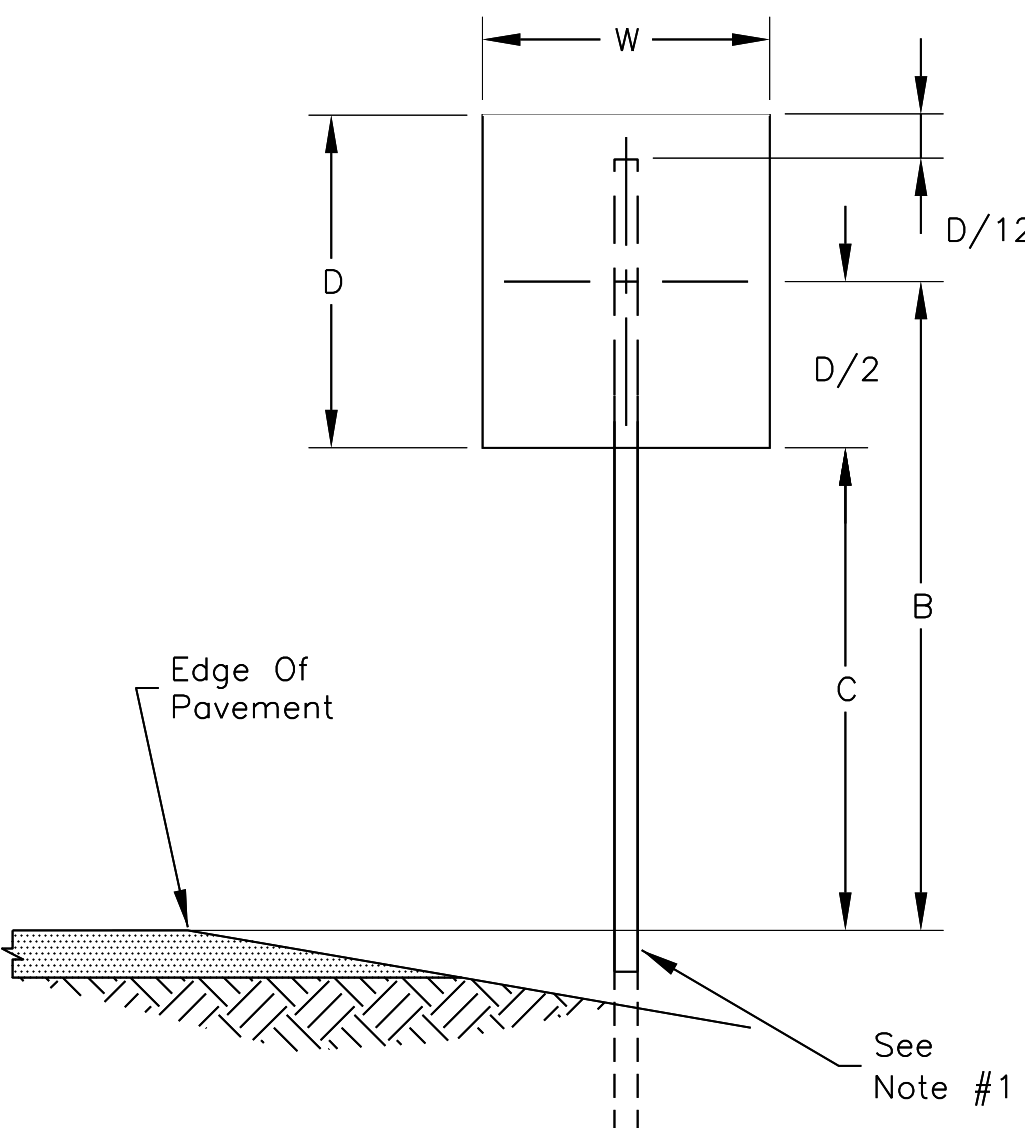
STOP SIGN AND LINE LOCATION TABLE

RADIUS OF TURNOUT (m)	X (m)	Y' (m)	Y (m)=		LENGTH of STOP BAR
			Y' (m)	Y'+LO(m)	
3.00	1.80	0.25	2.05	1/2 Roadway width + Y'	
6.00	3.00	0.80	2.60	1/2 Roadway width + Y'	
9.00	4.50	1.21	3.01	1/2 Roadway width + Y'	
12.00	6.00	1.61	3.41	1/2 Roadway width + Y'	
15.00	7.50	2.01	3.81	1/2 Roadway width + Y'	

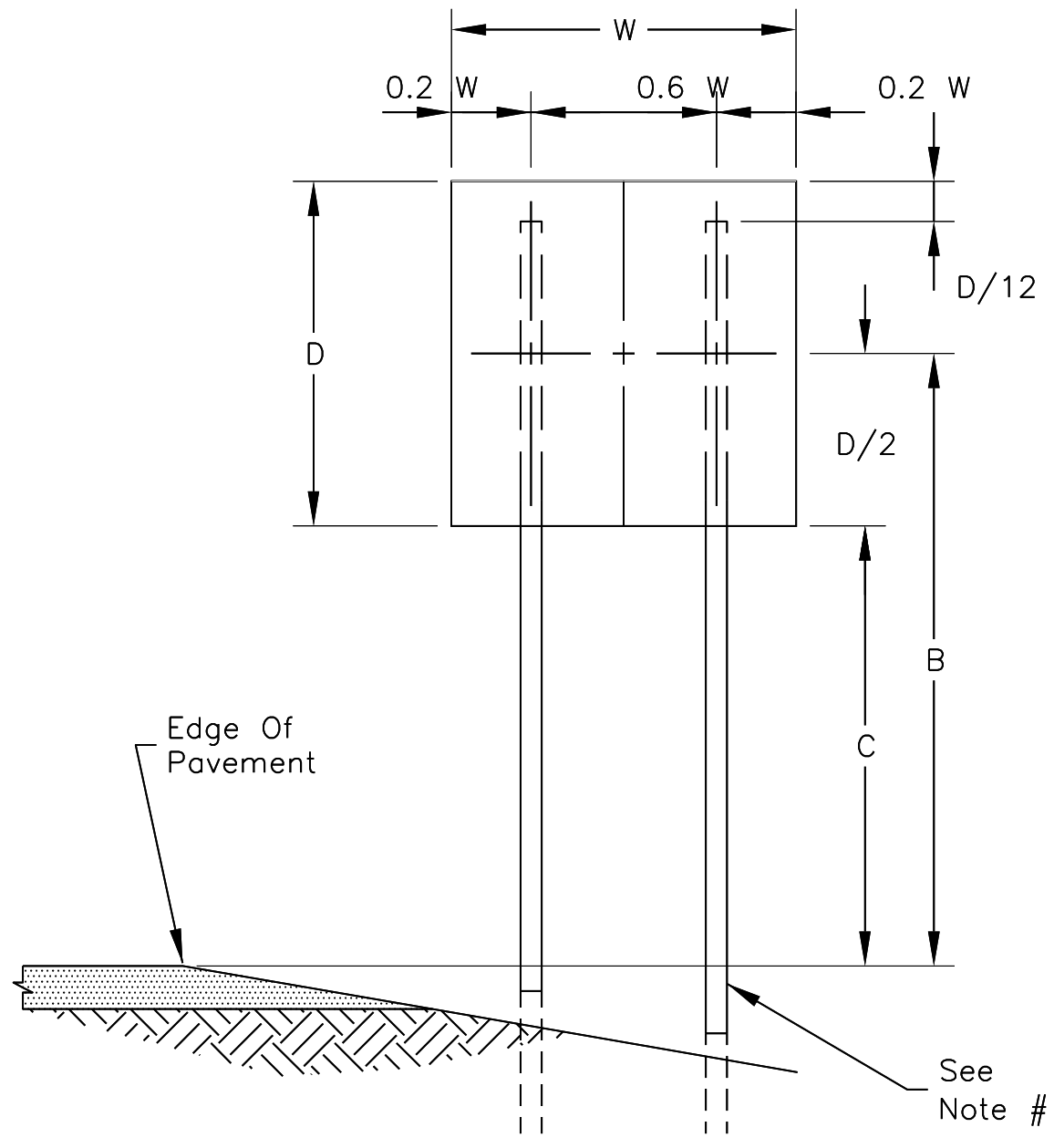
y' = Distance From Roadway EOP To Radius EOP
Lateral Offset(LO) From EOP (m)=1.80



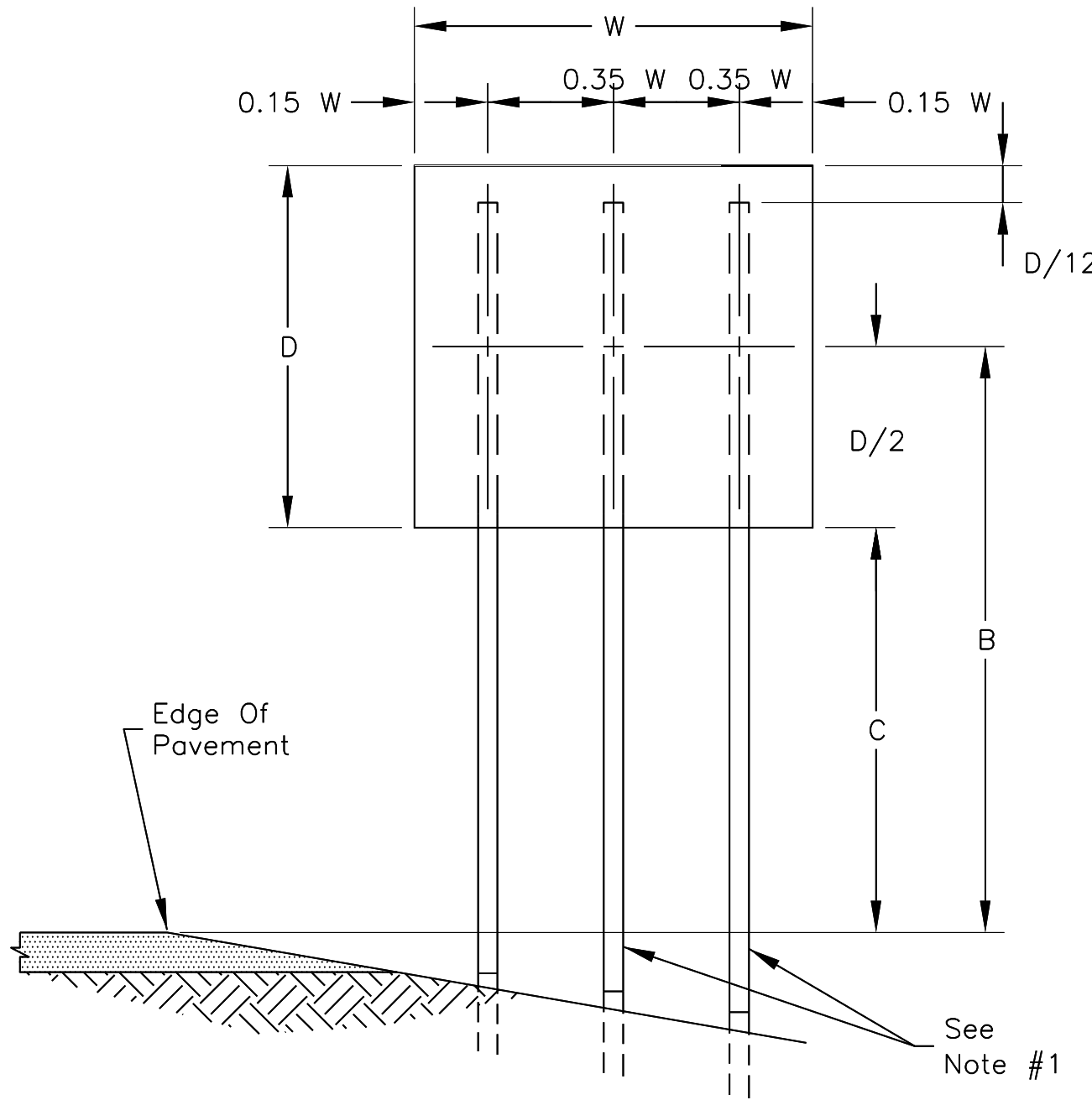
STOP SIGN LOCATION AT INTERSECTION



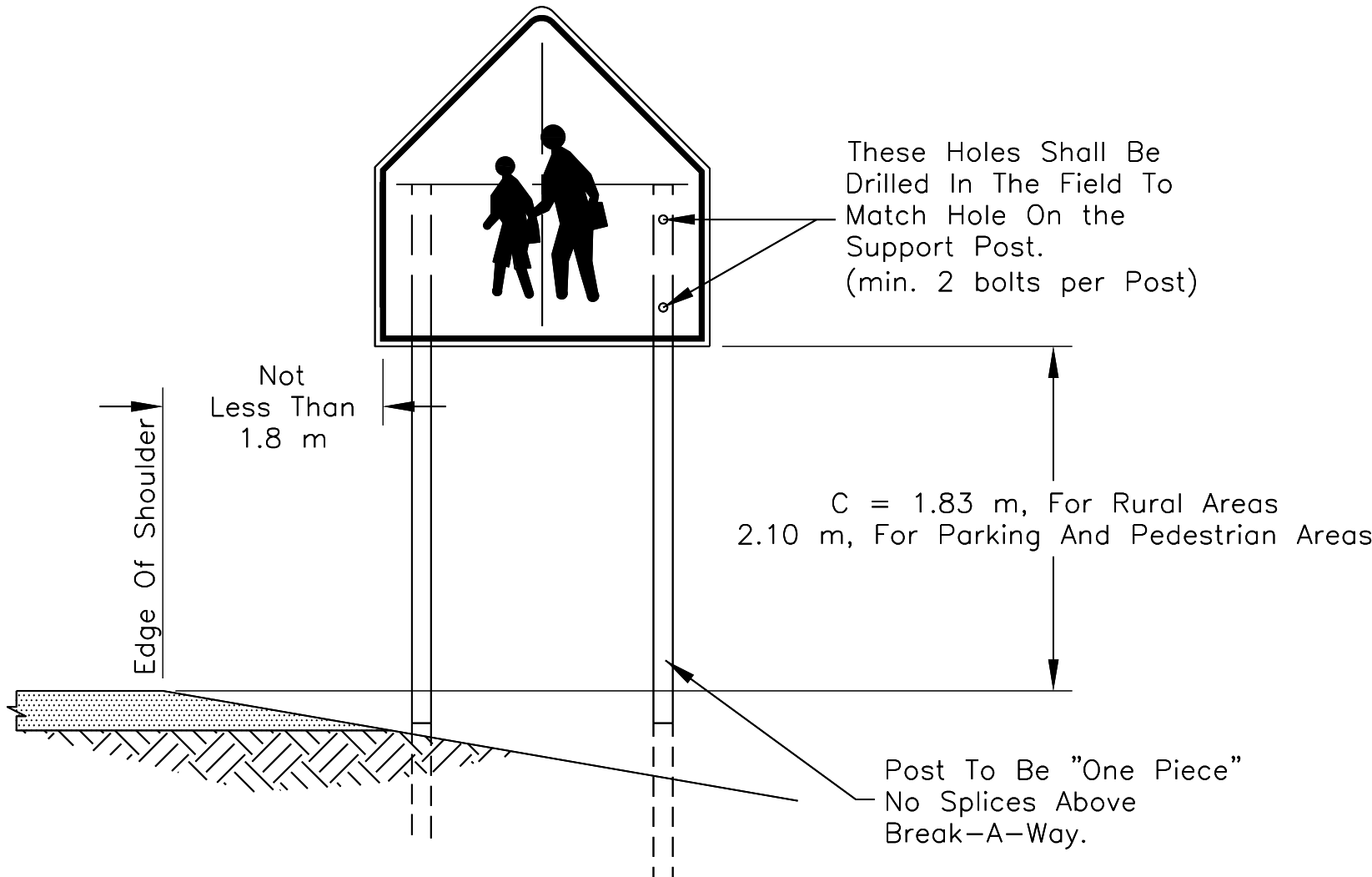
SINGLE POST SIZE (TYP.)



DOUBLE POST SIZE (TYP.)



THREE POST SIZE (TYP.)



TYPICAL ROADSIDE SIGN LOCATION

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE REQUIRED TO ADJUST THE LENGTH OF SIGN SUPPORT POSTS. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR THE APPROPRIATE BID ITEMS SHOWN IN THE BID SCHEDULE.
2. SIGN DIMENSION EQUAL TO OR IN EXCESS OF 762 MM X 762 MM SIZE SHALL BE INSTALLED WITH A MINIMUM OF TWO (2) STEEL POSTS.

METHOD TO DETERMINE NUMBER OF POST(S) & POST WEIGHT REQUIREMENT:

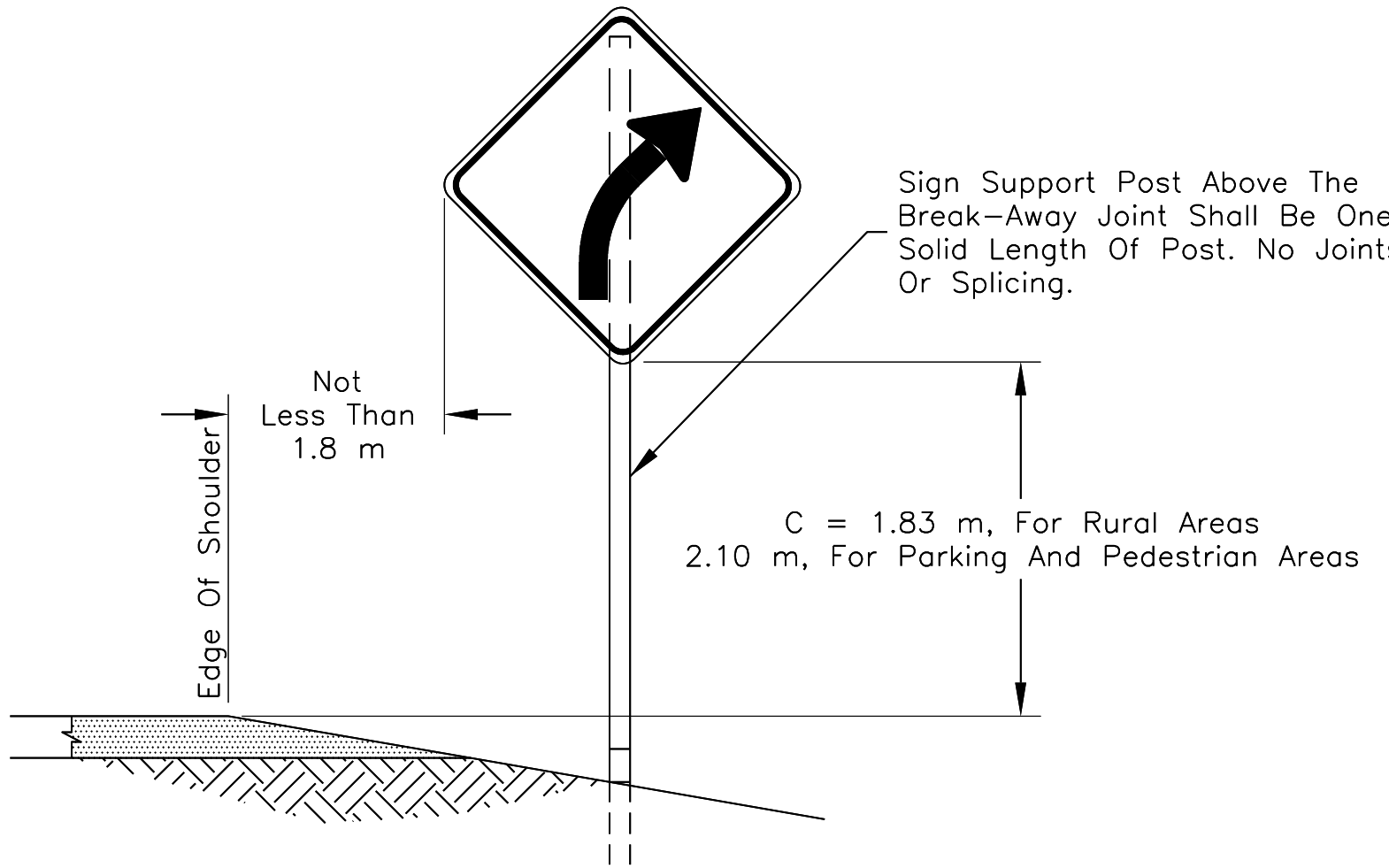
For A 1.52 m Wide x 1.22 m High Traffic Sign.
Located On A Rural Highway.
GIVEN: W= 1.52 m
D= 1.22 m
C= 1.83 m For Rural Areas

SOLUTION: 1.) B = C + D/2
B= 1.83 + (1.22/2)
B= 2.44 m
2.) A = W x D
A= 1.52 x 1.22
A= 1.85 sq. m
3.) K factor = A x B
K factor= 1.85 x 2.44
K factor= 4.51 cu. m
4.) Begin With The Single Post Chart For Column Of B= 2.44 m, And Continue Down Until The Area Of The Sign Equals Or Exceeds 1.85 sq. m, OR Down The K factor Column Until The Value Equals or Exceeds 4.51 cu. m. Both The Area & K factor Exceed The Single Post Chart So Go To The Double Post Chart.

Select Two (2) Posts Of 4.46 kg/m Yields A Factor Of 4.91 Which Is Optimum.

K factor	POST WEIGHT	2.44
4.03	4.09 kg/m	1.65
4.91	4.46 kg/m	2.03
6.83	5.95 kg/m	2.80

4.51 -> 1.85



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: 11/97
DESIGNED BY: NRODOT DATE: 11/97
REVISED: 10/10 BY: SC
SCALE: NTS
FILENAME: 9345sn1
SHEET MODEL NAME: PLOT SHEET

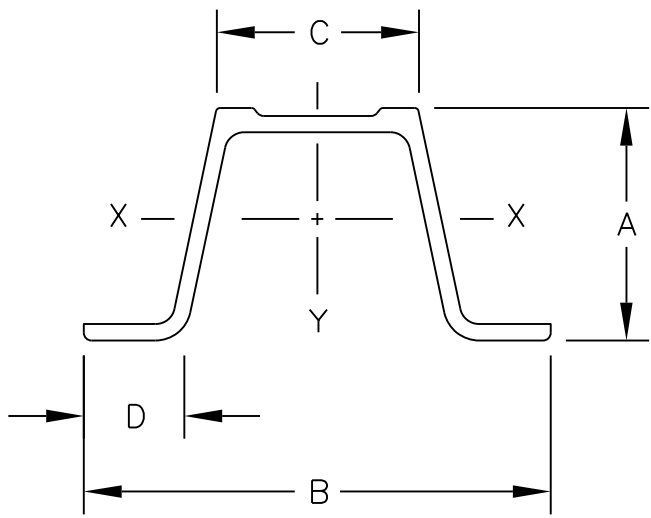


REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	21	39

RIB-BAK U-CHANNEL SIGN SUPPORTS

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

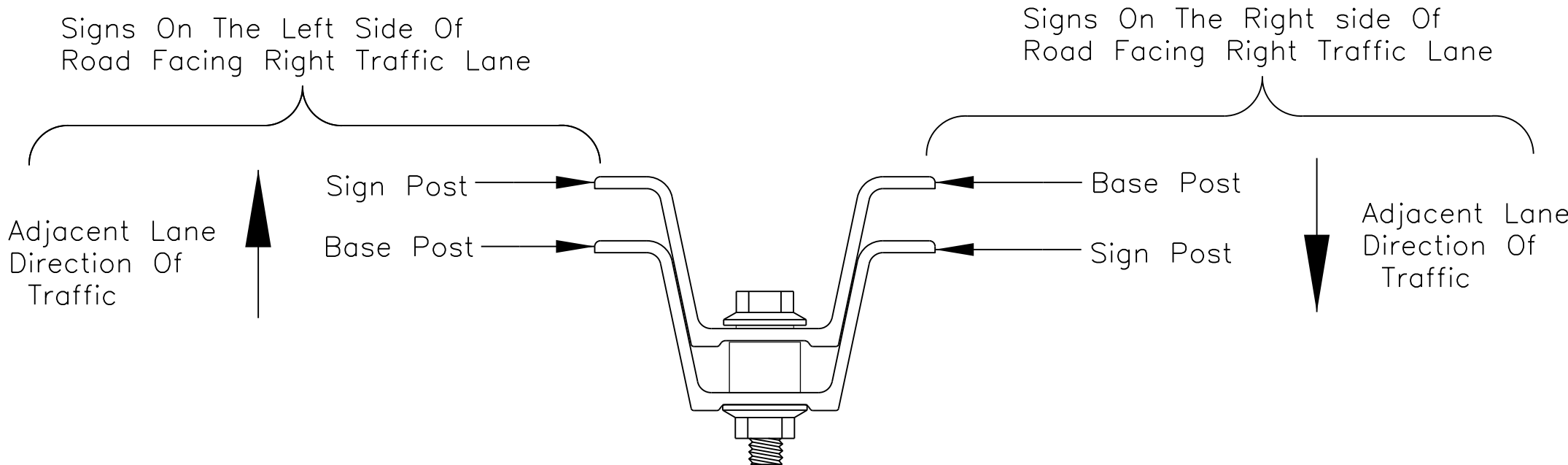
* ±5%



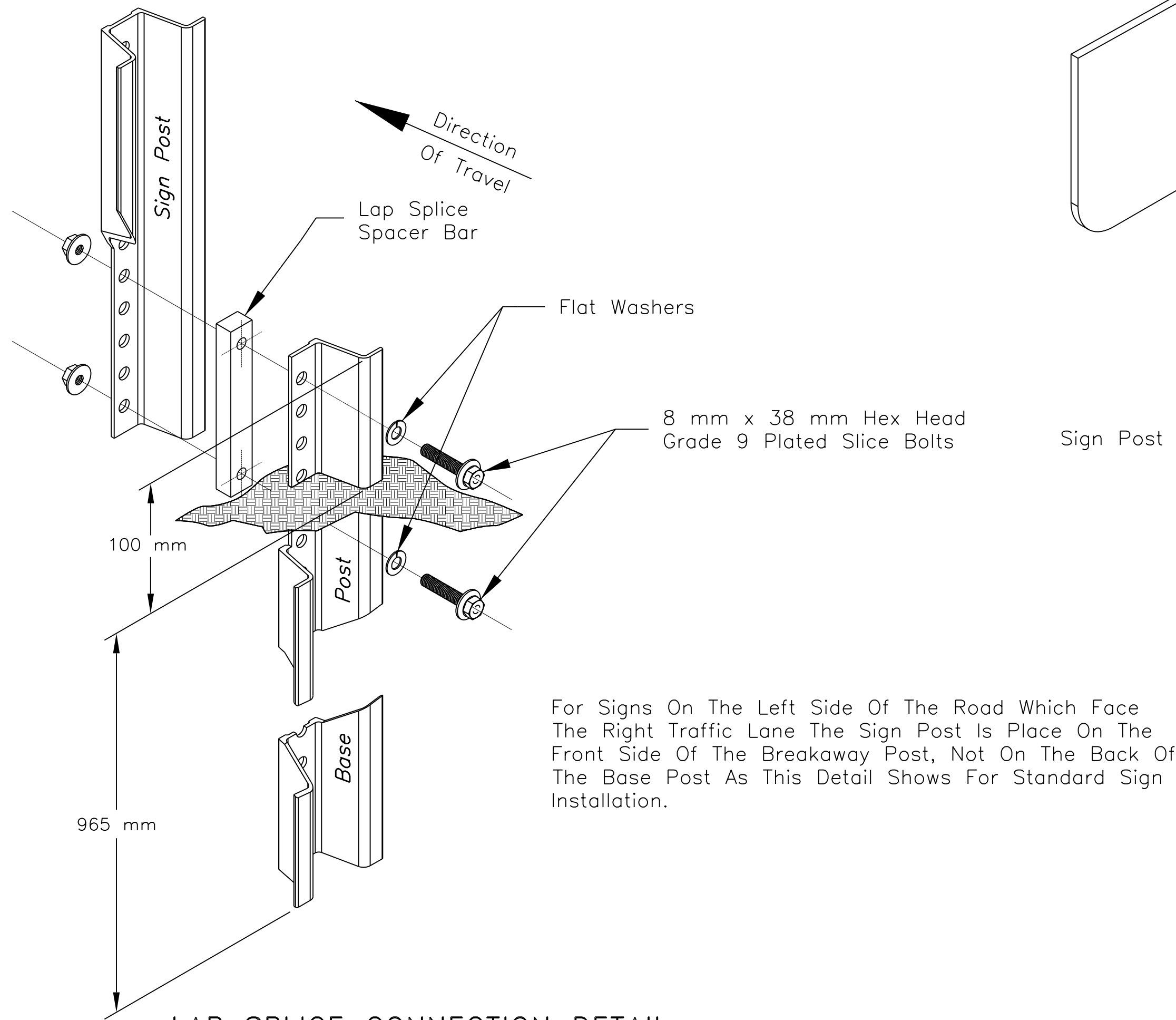
RIB-BAK U-CHANNEL

GENERAL NOTES

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 9mmØ 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. 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.

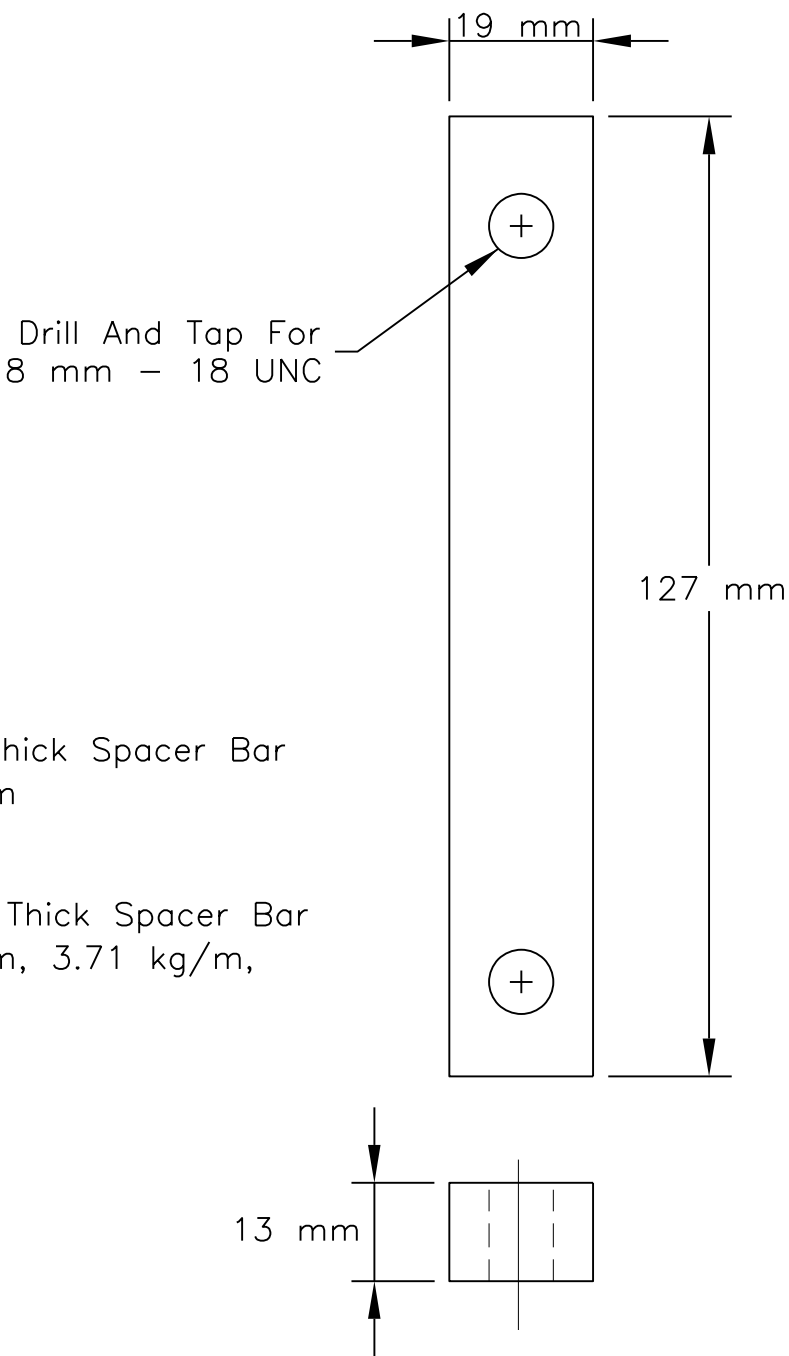
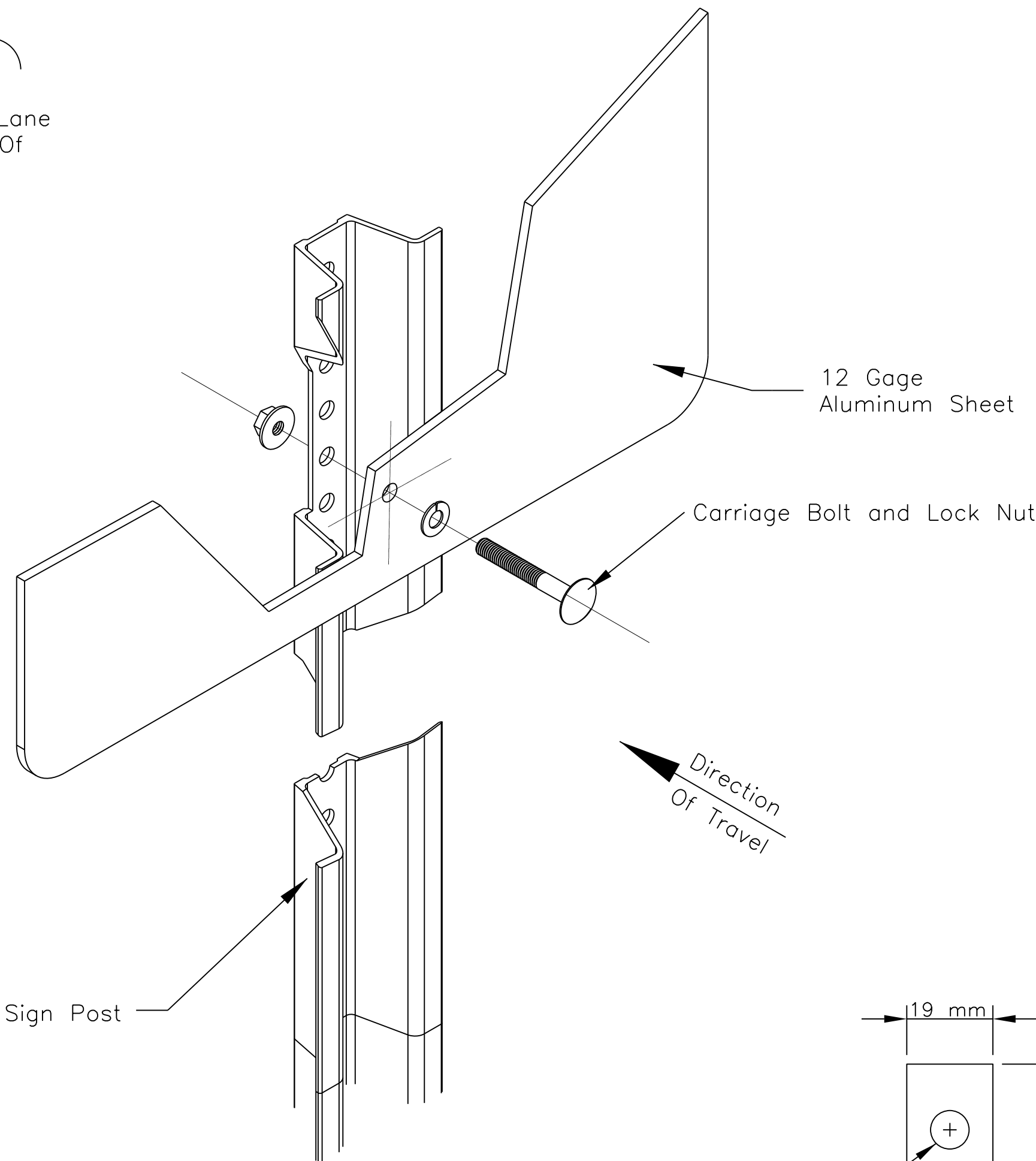


LAP SPLICE - TOP VIEW



LAP SPLICE CONNECTION DETAIL

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



LAP SPLICE SPACER BAR

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.

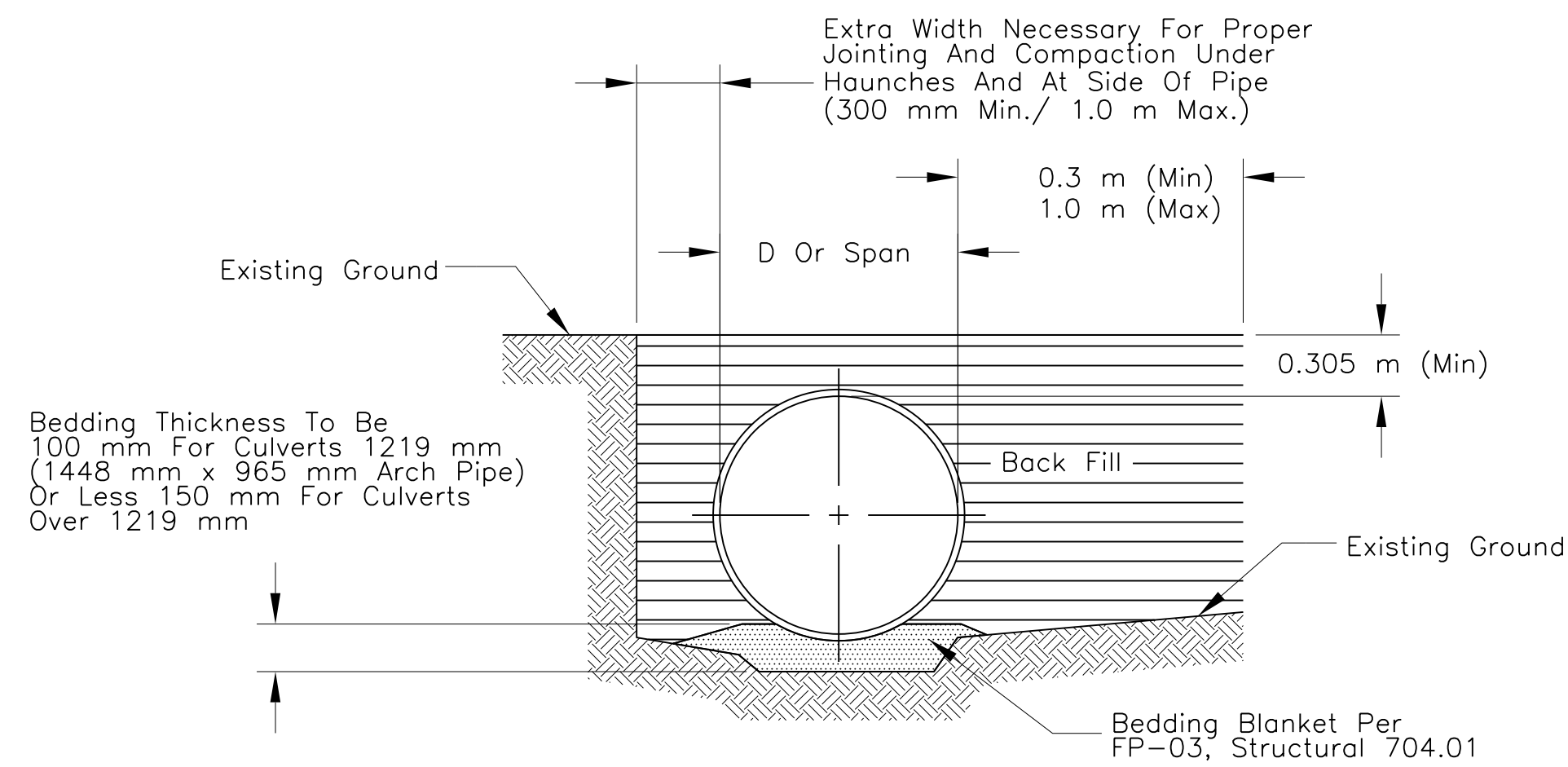
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

LAB SPLICE U-CHANNEL
BREAKAWAY SYSTEM
POST & HARDWARE DETAILS

DRAWN BY: NRDOT DATE: 07/2000
DESIGNED BY: NRDOT DATE: 07/2000
REVISED: 10/12/2010 BY: LRT
SCALE: n/a
FILENAME: Sht_20_9345sign2
SHEET MODEL NAME: PLOT SHEET



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	22	39



NEGATIVE PROJECTING POSITIVE PROJECTING
FIGURE A: BEDDING

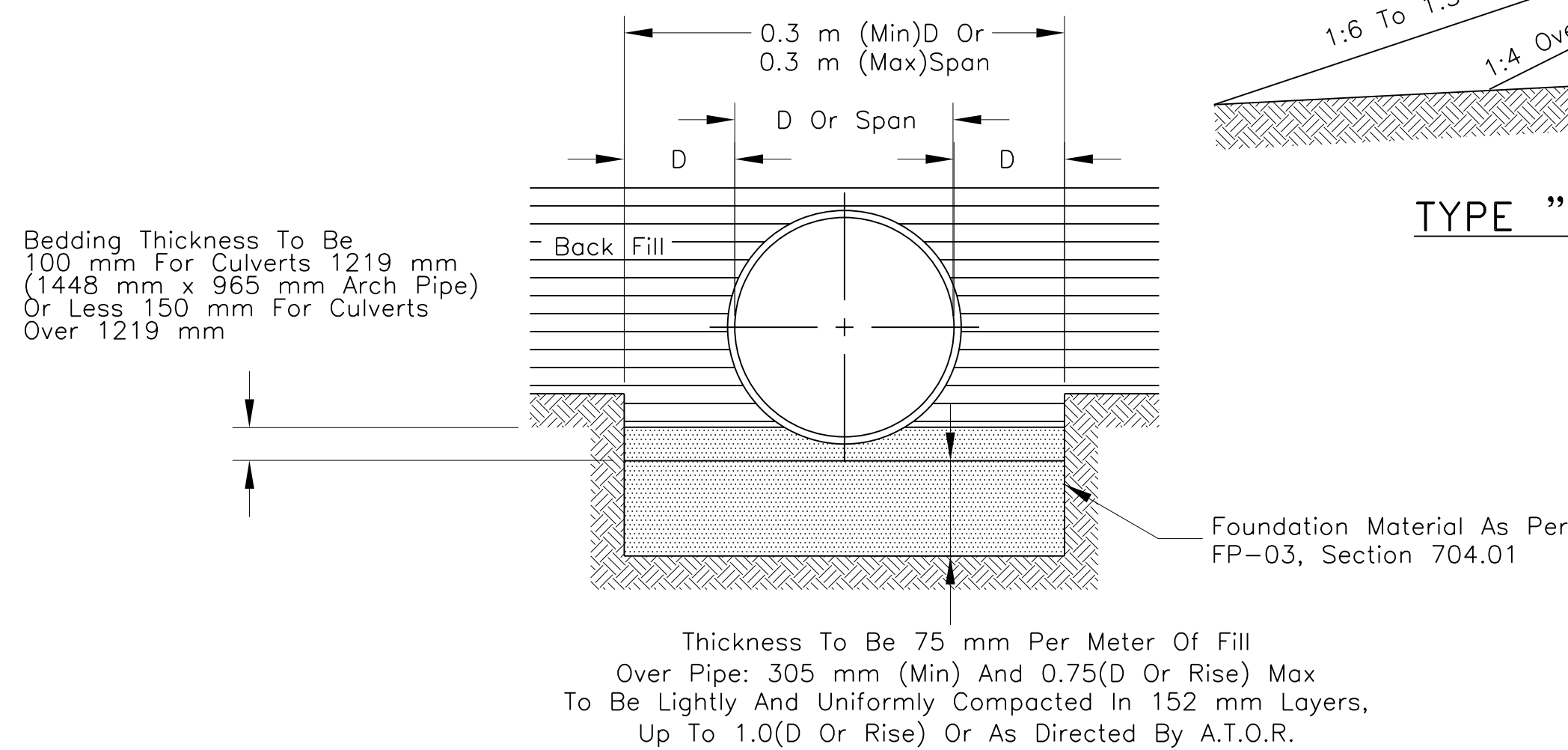


FIGURE B: ROCK BEDDING

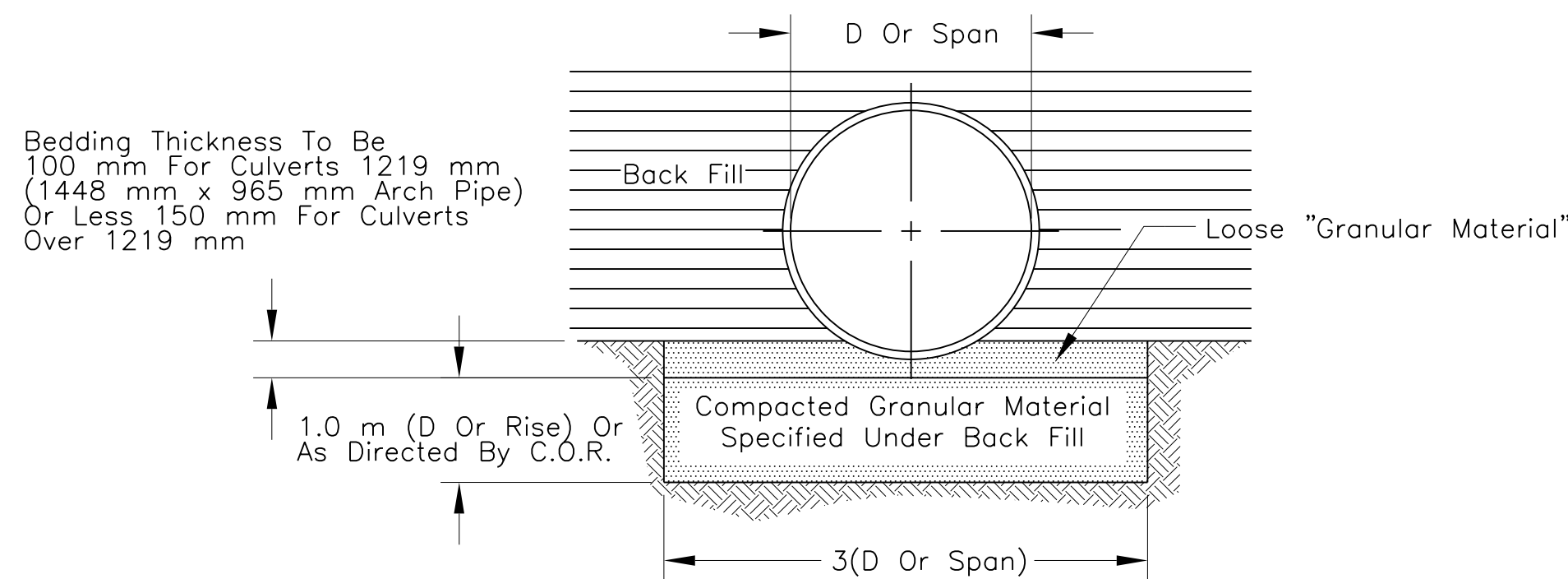
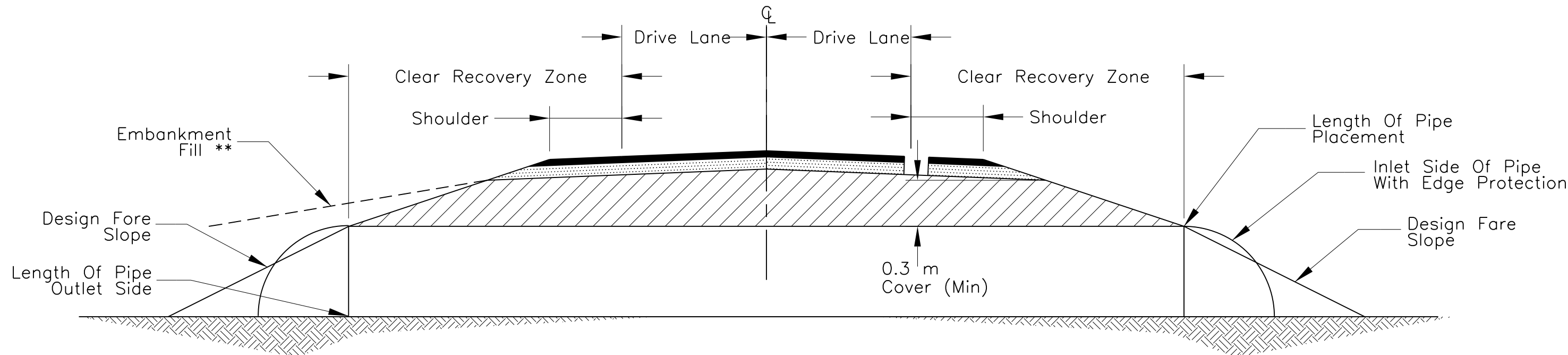
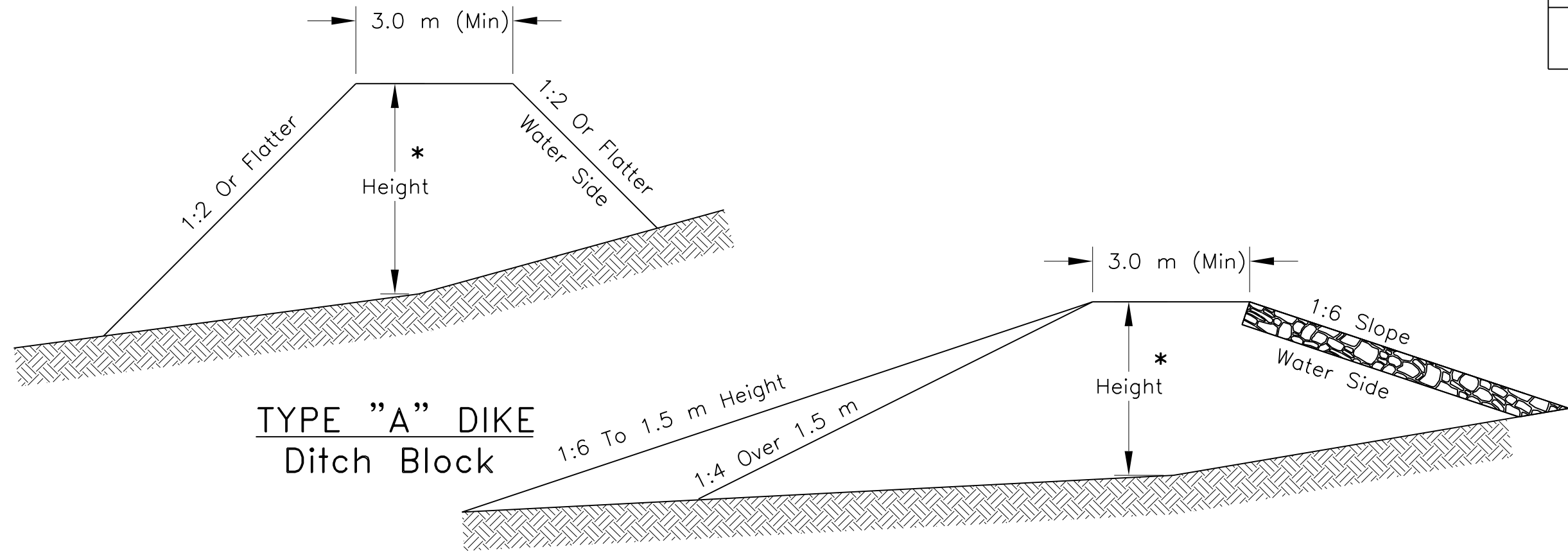


FIGURE C: FOUNDATION STABILIZATION BEDDING

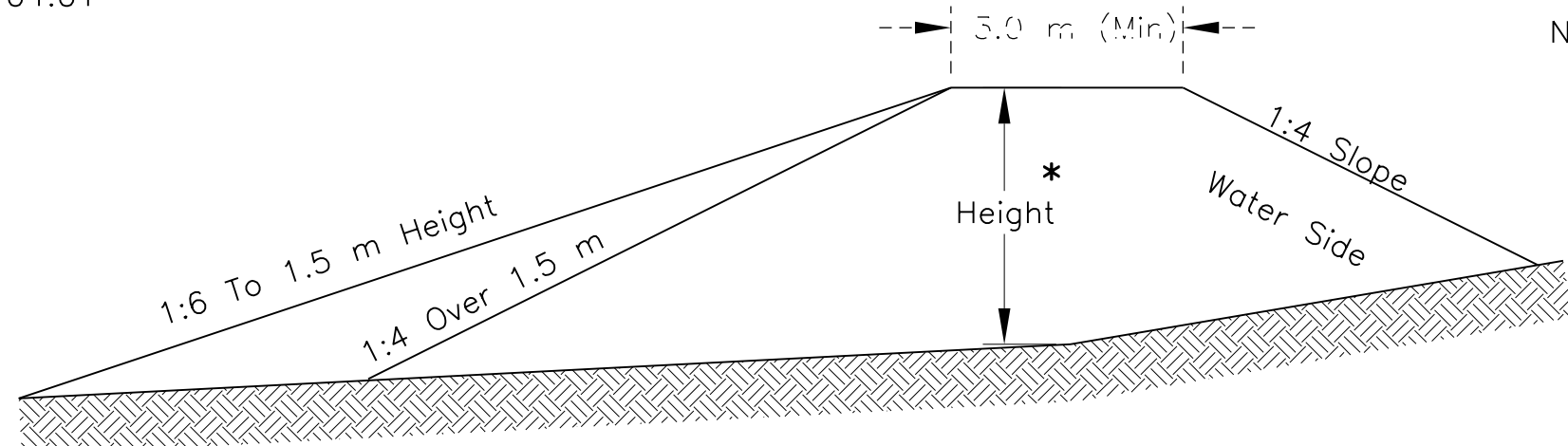


** Adjust Slopes To Catch At Top Of Pipe At Each Opening

TYPICAL PIPE INSTALLATION-(TURNOUT/DRIVEWAY, USE 2-END SECTIONS)



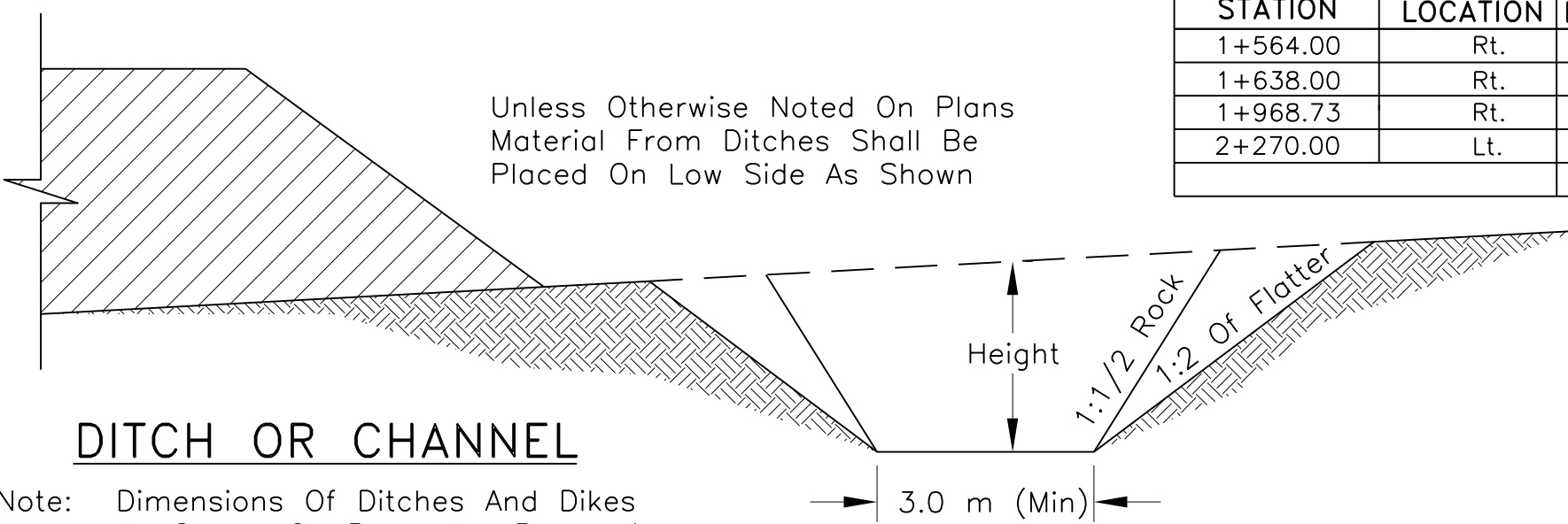
TYPE "A" DIKE
Ditch Block



TYPE "B" DIKE

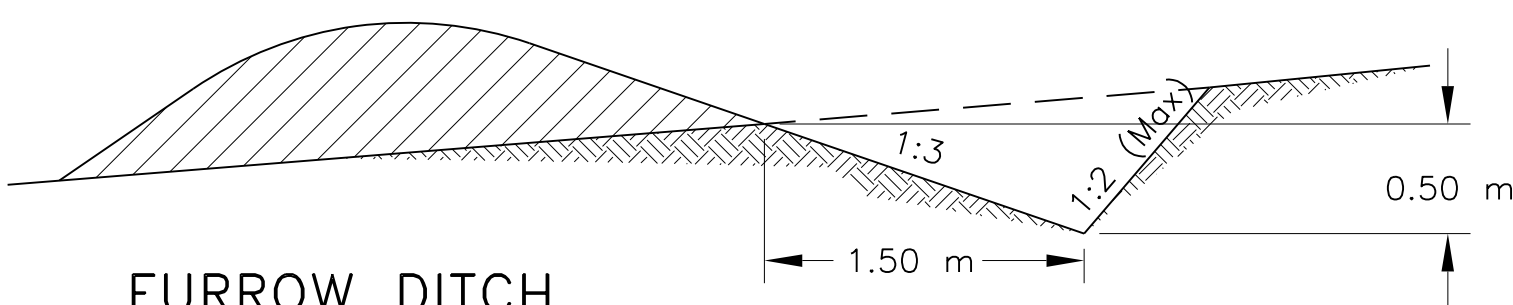
* Height = Pipe Diameter + 305 mm
(Not To Exceed Paved Shoulder And Elevation Or As Given On Plans.)

DITCH BLOCK DETAILS



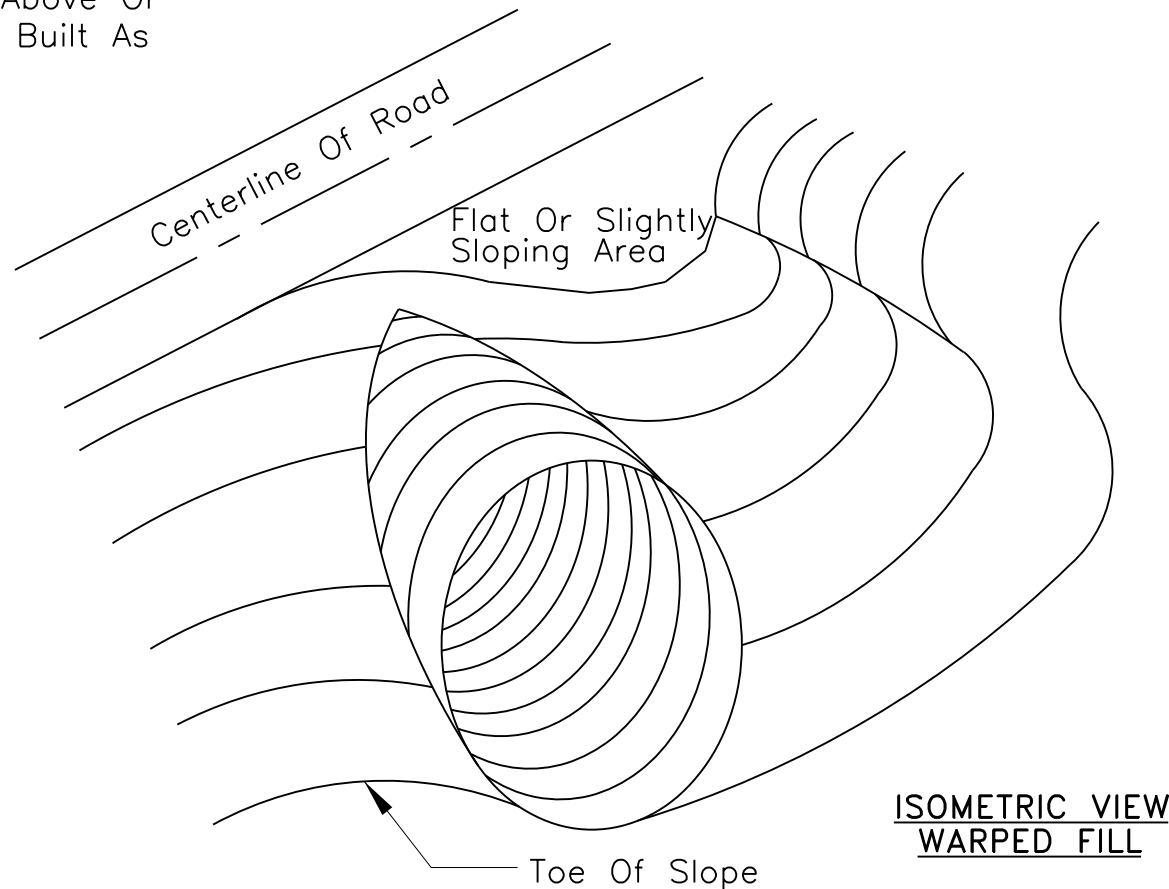
DITCH OR CHANNEL

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



FURROW DITCH

1. To Be Paid For By The Meter.
2. Furrow Ditch Sections As Shown Above Or And Approved Equivalent Shall Be Built As Directed By The C.O.R..
3. See Sheet 20 For Riprap Lined Furrow Ditch Dimensions.



PIPE SKEWS TO THE EMBANKMENT (TYP.)

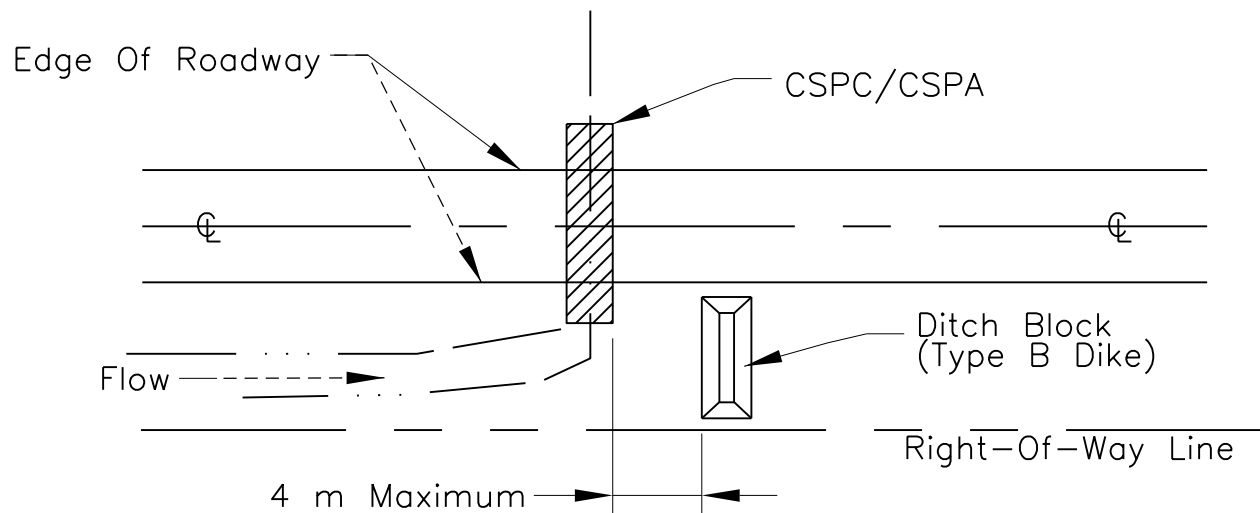
The Contractor Shall Be Required To Build The Warped Embankment Around The Skewed Drainage Pipe(s). This Work Shall Be Incidental To The Earthwork And Installation Of Drainage Pipe Items Shown.

GENERAL NOTES

1. PLACE LOOSE BEDDING ROUGHLY SHAPED TO AT BOTTOM OF PIPE, THEN COMPACT UNDER HAUNCHES AFTER PIPE PLACEMENT.
2. SEE SECTION 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 FABRICATORS RECOMMENDATION.
5. BACKFILL MATERIAL SHALL BE PLACED 300 mm (min) 1.0 m (max) PIPE DIAMETER WIDTH ON THE SIDES AND 300 mm COVER ABOVE 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. ALL PIPES SHALL BE PROTECTED BY A COVER OF NOT LESS THAN 0.91 m OF EMBANKMENT ABOVE PIPE BEFORE ANY HEAVY EQUIPMENT IS ALLOWED TO PASS OVER THE STRUCTURE(S) DURING CONSTRUCTION.
9. ALL CULVERTS SHALL BE INSTALLED AT THE ORIGINAL GROUND LINE AND SLOPE TO ASSURE POSITIVE DRAINAGE UP TO THE R.O.W. LIMITS. IN NO CASE SHALL THE PIPE BE PLACED BELOW THE ORIGINAL GROUND ELEVATIONS, UNLESS AS DIRECTED BY THE REGIONAL ROAD MANAGER. THIS SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF PROJECT AND NO ADDITIONAL PAYMENT SHALL BE MADE.
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 COR/AOTR TO PROVIDE FOR THE MINIMUM COVER.
11. TYPE "A" EARTHEN DIKE SHALL BE USED ON THIS PROJECT UNLESS OTHERWISE NOTED ON THE PLANS. EMBANKMENT MATERIAL NEEDED TO BUILD EARTHEN DIKE SHALL BE CONSIDERED INCIDENTAL TO ITEM 20443-1000.

20443-1000 EARTHEN DIKE/BERM, Type-A

STATION	LOCATION	ESTIMATED QUANTITY (m)	REMARKS
1+564.00	Rt.	30.00 m	Inlet Side
1+638.00	Rt.	30.00 m	Inlet Side
1+968.73	Rt.	30.00 m	Inlet Side
2+270.00	Lt.	15.00 m	Road Block
		TOTAL	105.00 m



DITCH BLOCK INSTALLATION AT STRUCTURE

1. Ditch Block At Structures To Be So Placed That They Create A Water Cushion. Elevation At Top Of Ditch Block Shall Be 305 mm Above Elevation Of Top Of Pipe Unless Otherwise Shown Or Directed By The C.O.R..
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 4.0 m.

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STANDARD PIPE INSTALLATION AND DITCH DETAILS

DRAWN BY: NRO DOT DATE: 05/04
DESIGNED BY: NRO DOT DATE: 05/04
REVISED: 10/10 BY: SC
SCALE: NTS
FILENAME: 9345pid
SHEET MODEL NAME: PLOT SHEET

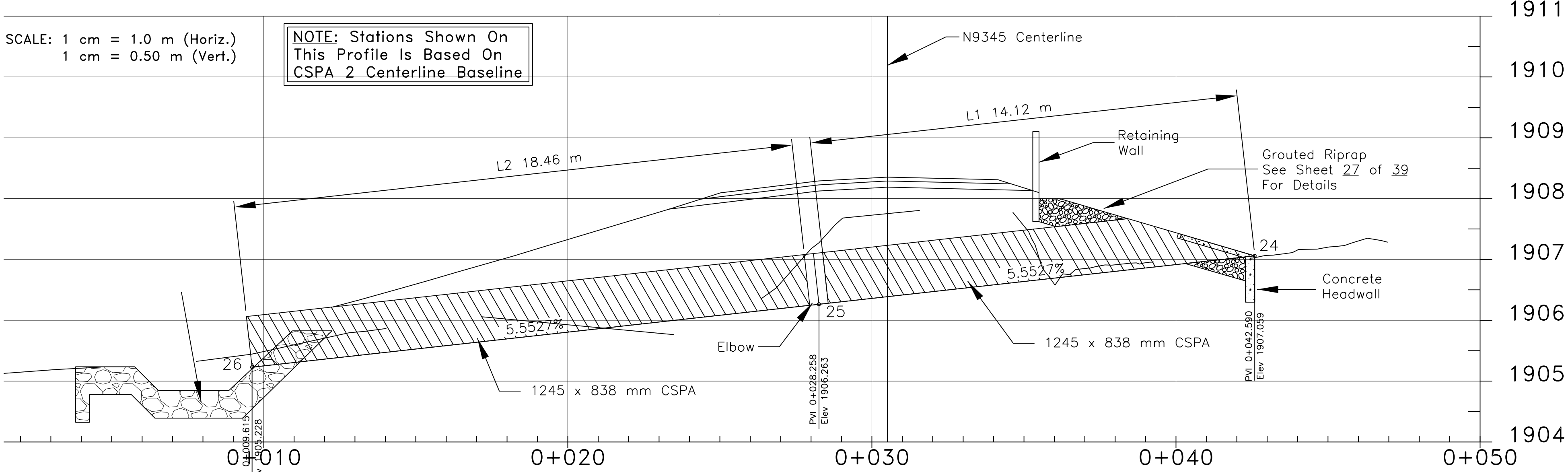


REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	23	39

CSPA 2 CENTERLINE PROFILE-STA. 2+325.32

SCALE: 1 cm = 1.0 m (Horiz.)
1 cm = 0.50 m (Vert.)

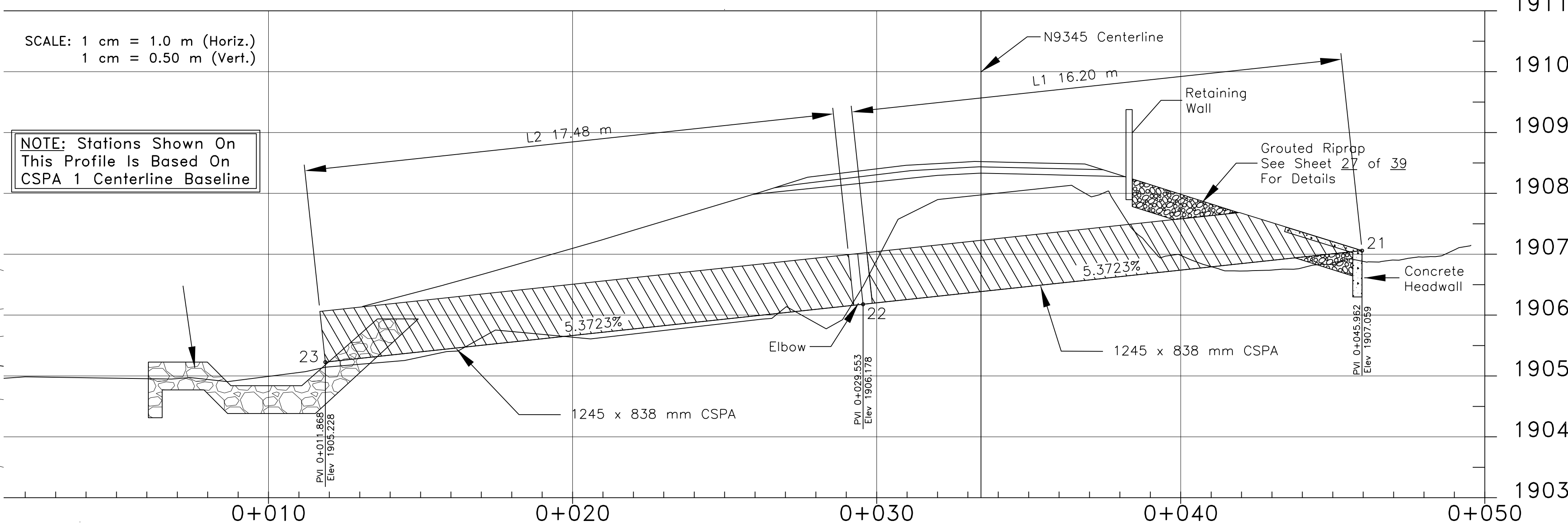
NOTE: Stations Shown On
This Profile Is Based On
CSPA 2 Centerline Baseline



CSPA 1 CENTERLINE PROFILE-STA. 2+322.88

SCALE: 1 cm = 1.0 m (Horiz.)
1 cm = 0.50 m (Vert.)

NOTE: Stations Shown On
This Profile Is Based On
CSPA 1 Centerline Baseline

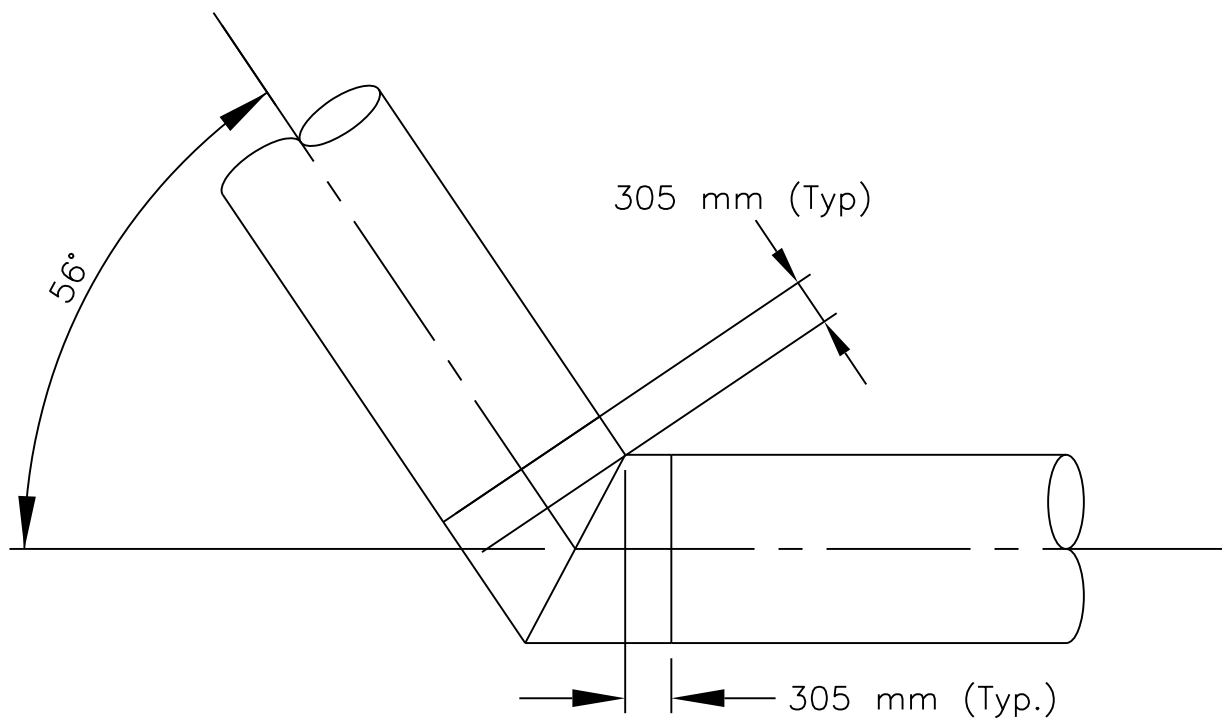


ESTIMATED STRUCTURE QUANTITY

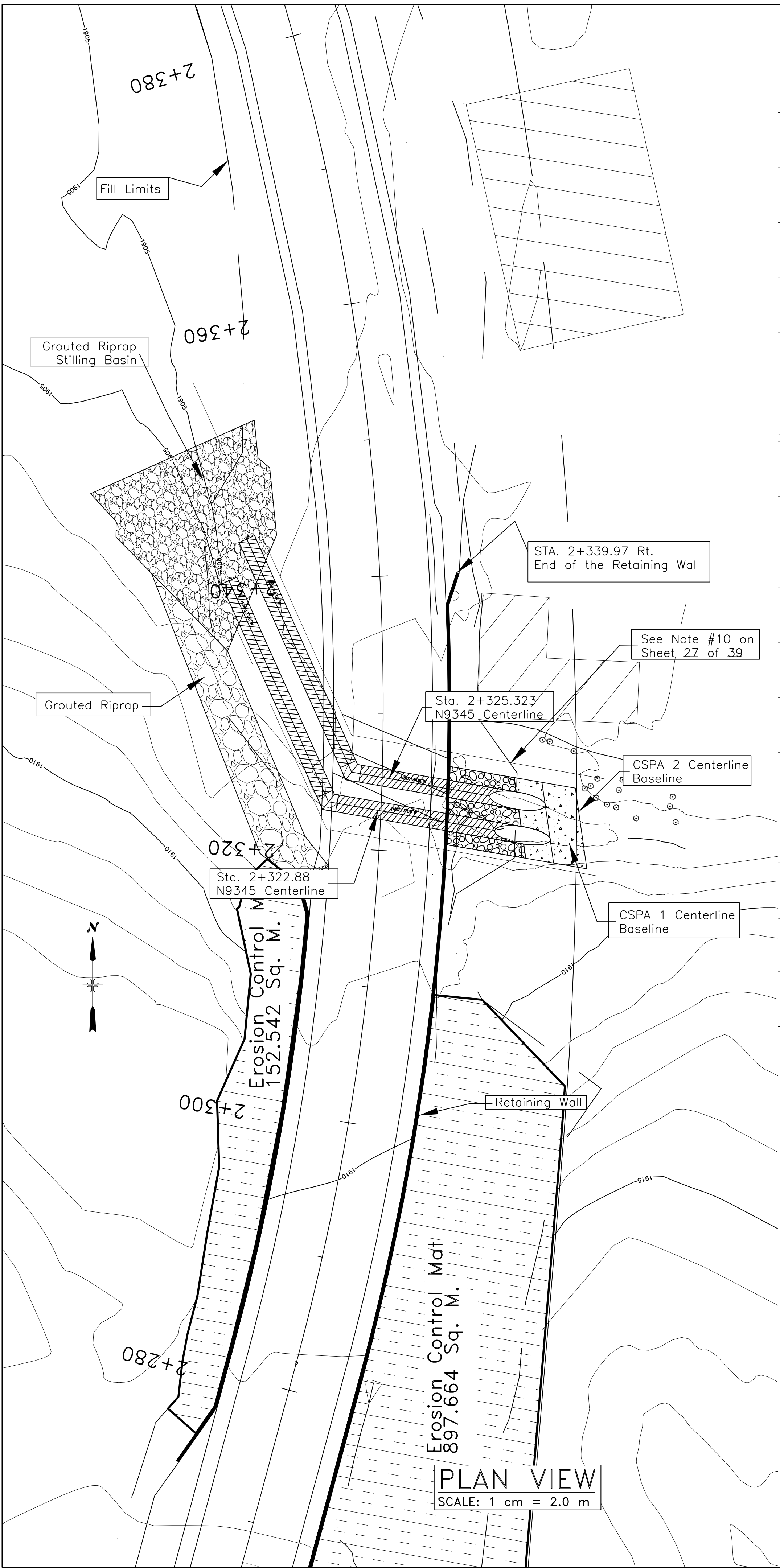
STATION - N9345	STRUCTURE	LENGTH (m)		TOTAL LENGTH (m)	ELBOW (Each)
		L1	L2		
2+322.88	1245 mm Span x 838 mm Rise CSPA	16.20	17.48	33.68	1
2+325.32	1245 mm Span x 838 mm Rise CSPA	14.12	18.45	32.57	1
		TOTAL		66.25	2

CSPA PIPE INVERT DATA

MARK	STATION - N9345	OFFSET (m)	ELEVATION	REMARKS
21	2+321.373	12.43	1,906.059	CSPA 1 Inlet Invert
22	2+323.391	-3.85	1,906.178	CSPA 1 Elbow Invert
23	2+340.249	11.00	1,905.228	CSPA 1 Outlet Invert
24	2+323.716	11.96	1,906.059	CSPA 2 Inlet Invert
25	2+325.646	-2.23	1,906.263	CSPA 2 Elbow Invert
26	2+343.376	-9.53	1,905.228	CSPA 2 Outlet Invert



TYPICAL ELBOW DETAIL
(nts)



PLAN VIEW
SCALE: 1 cm = 2.0 m

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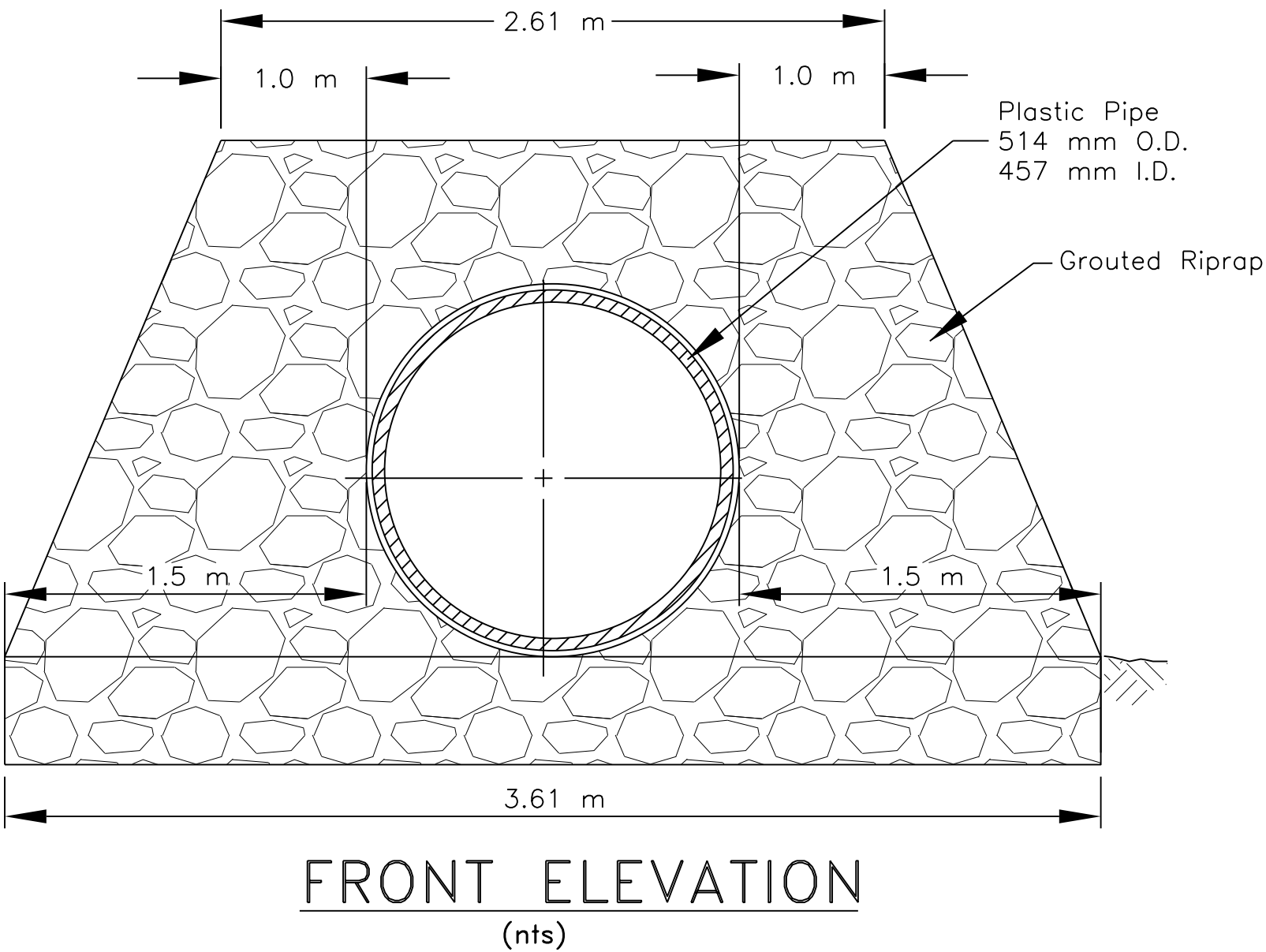
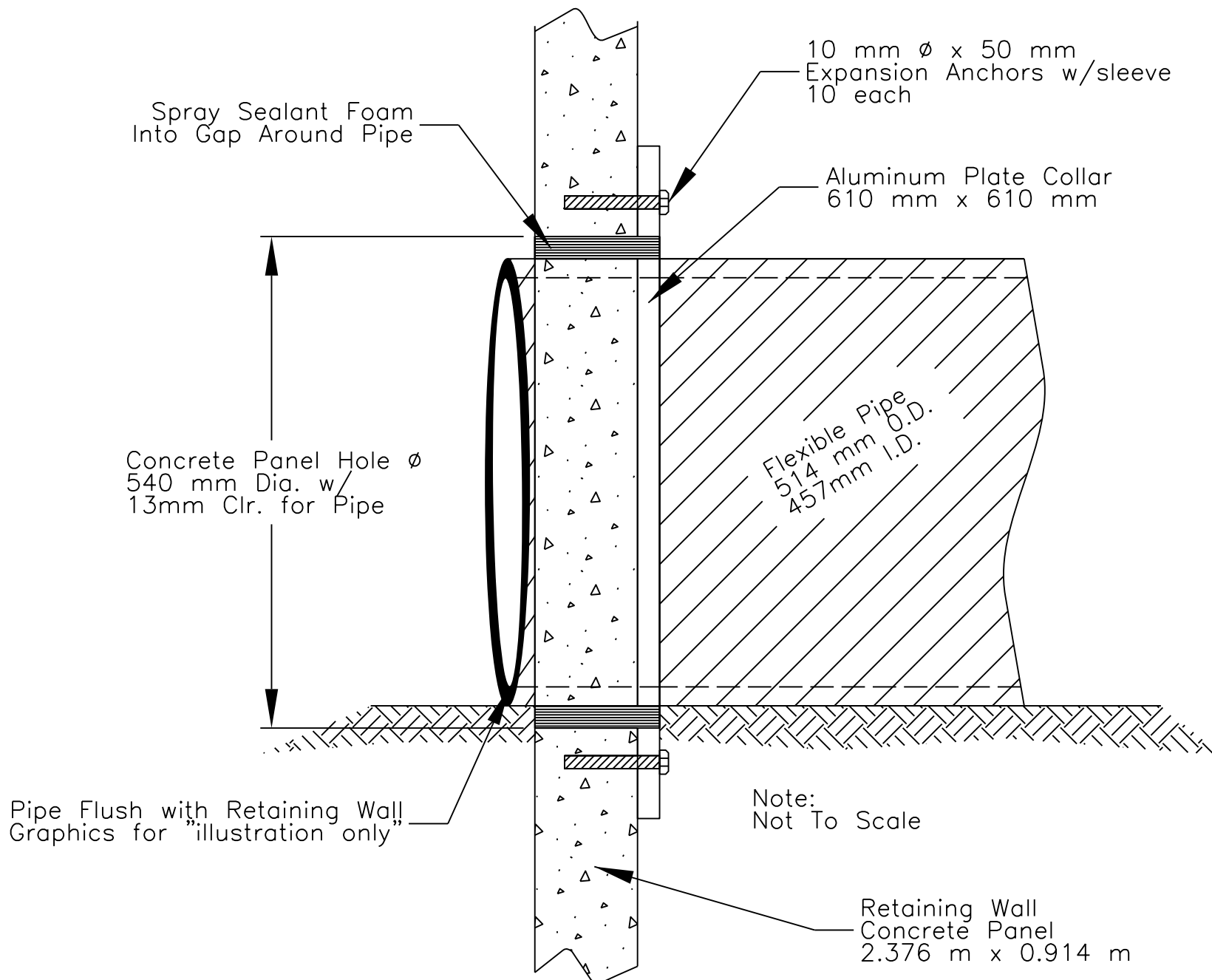
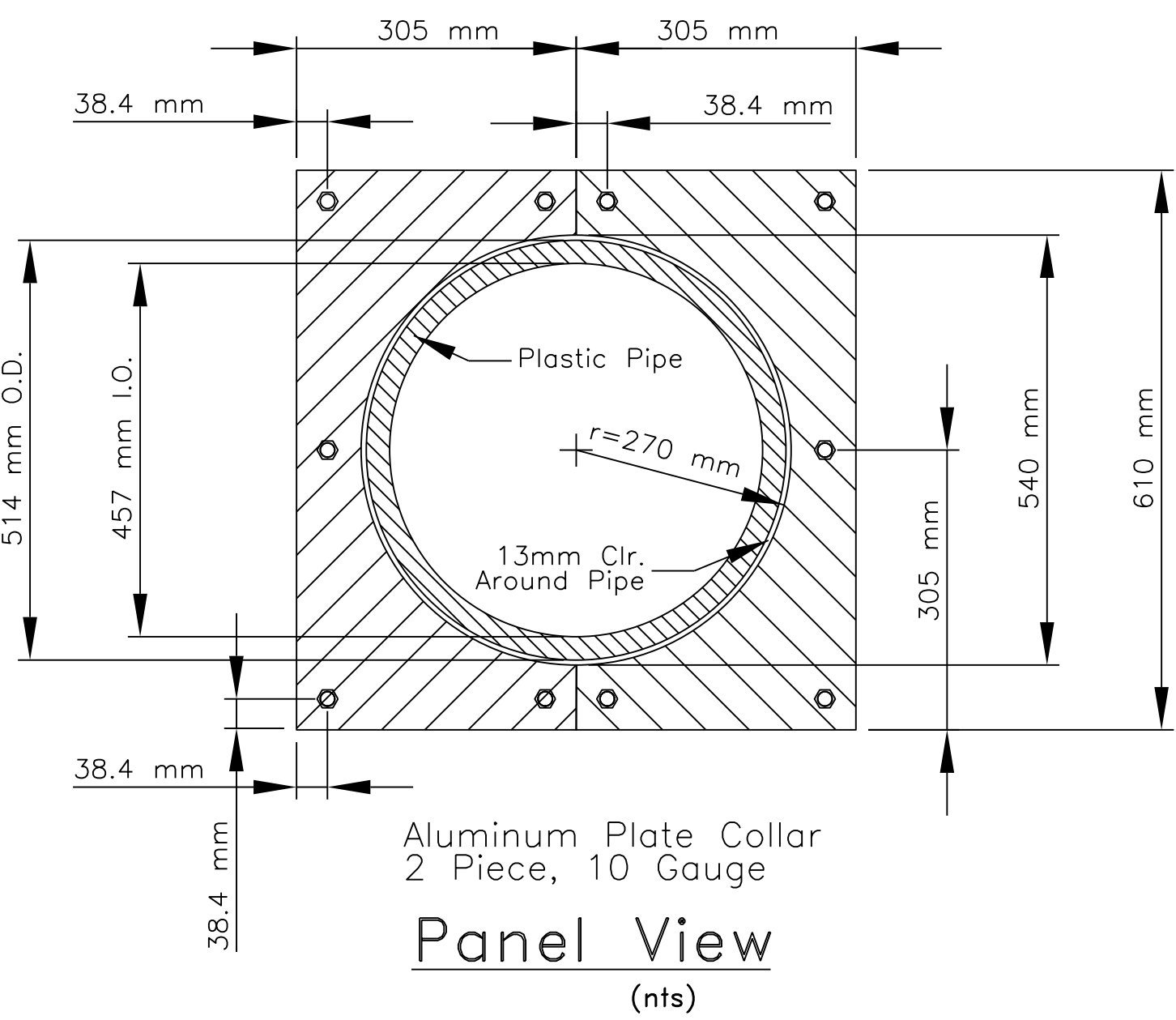
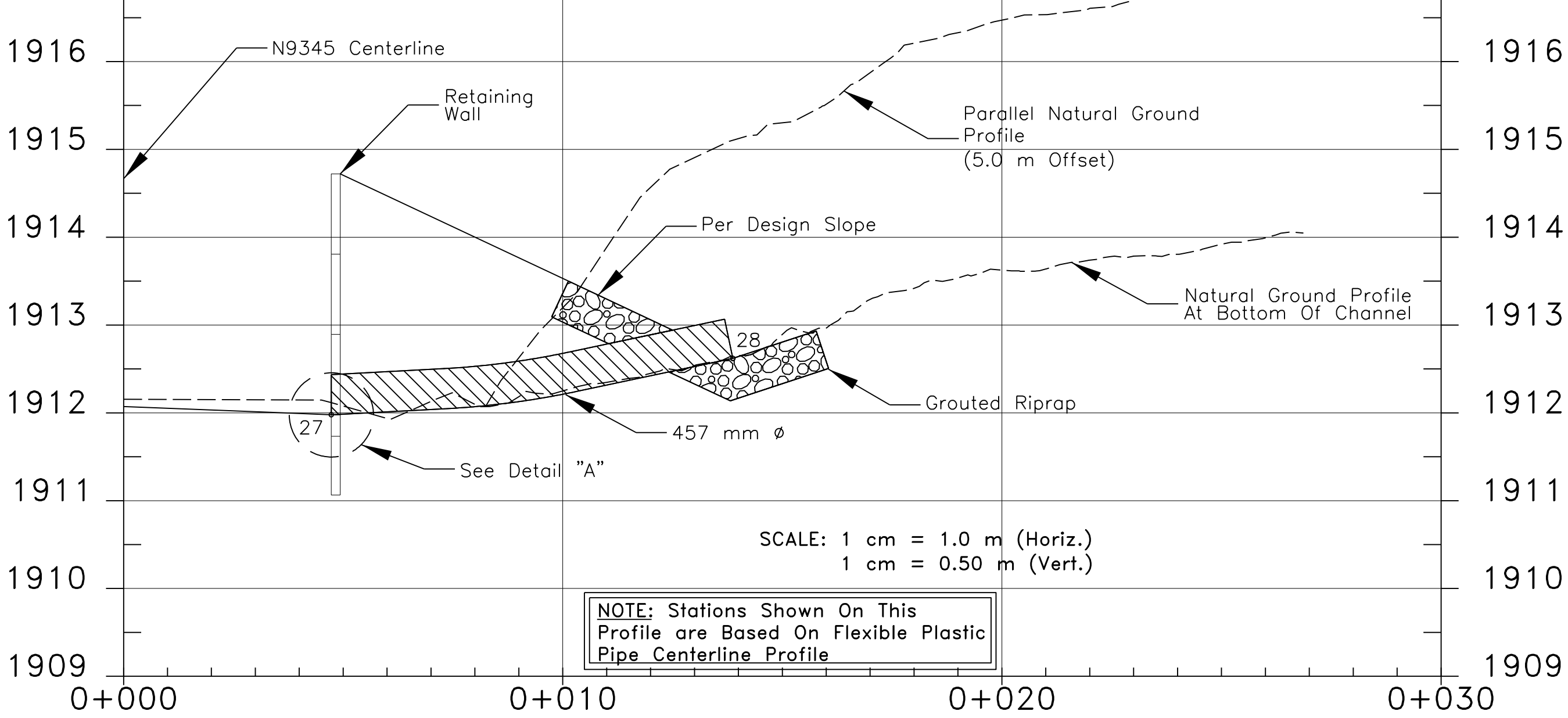
PIPE-ARCH INSTALLATION AND ELBOW DERAIL

DRAWN BY: NRDOT DATE: 00/05
DESIGNED BY: NRDOT DATE: 11/05
REVISED: 10/10 BY: LRT
SCALE: See Plan
FILENAME: Sht_22_Pipe_Elbow
SHEET MODEL NAME: PLOT SHEET



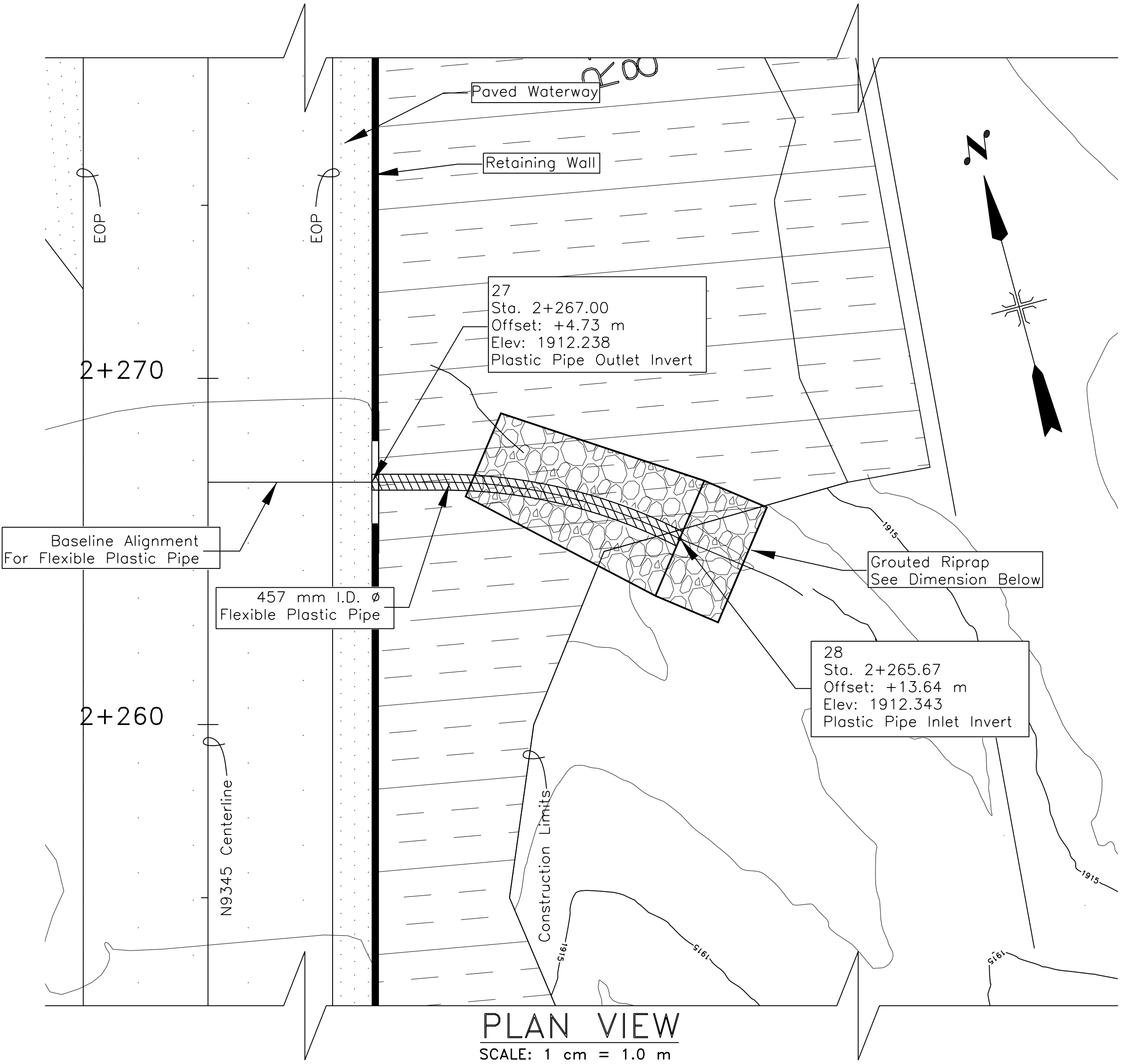
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	24	39

FLEXIBLE PLASTIC PIPE CENTERLINE PROFILE



Side View
(nts)

FRONT ELEVATION
(nts)

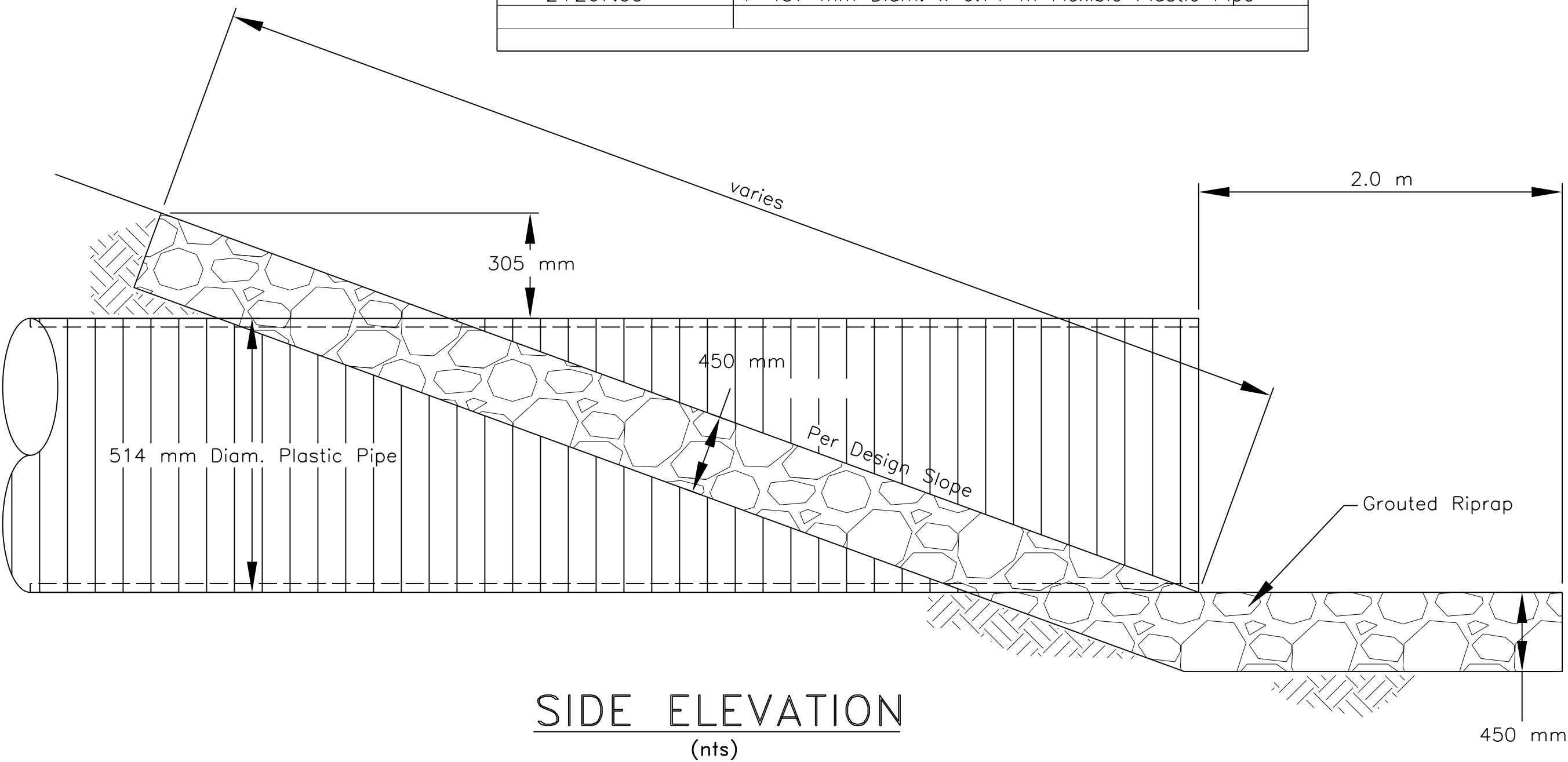


PLAN VIEW
SCALE: 1 cm = 1.0 m

ESTIMATED
GROUTED RIPRAP QUANTITIES
10.25 m³

MARK	STATION - N9345	OFFSET (m)	ELEVATION	REMARKS
27	2+267.00	+4.73	1,912.238	Outlet Invert
28	2+265.67	+13.64	1,912.343	Inlet Invert

STATION - N9345	STRUCTURE
2+267.00	1-457 mm Diam. x 6.71 m Flexible Plastic Pipe



SIDE ELEVATION
(nts)

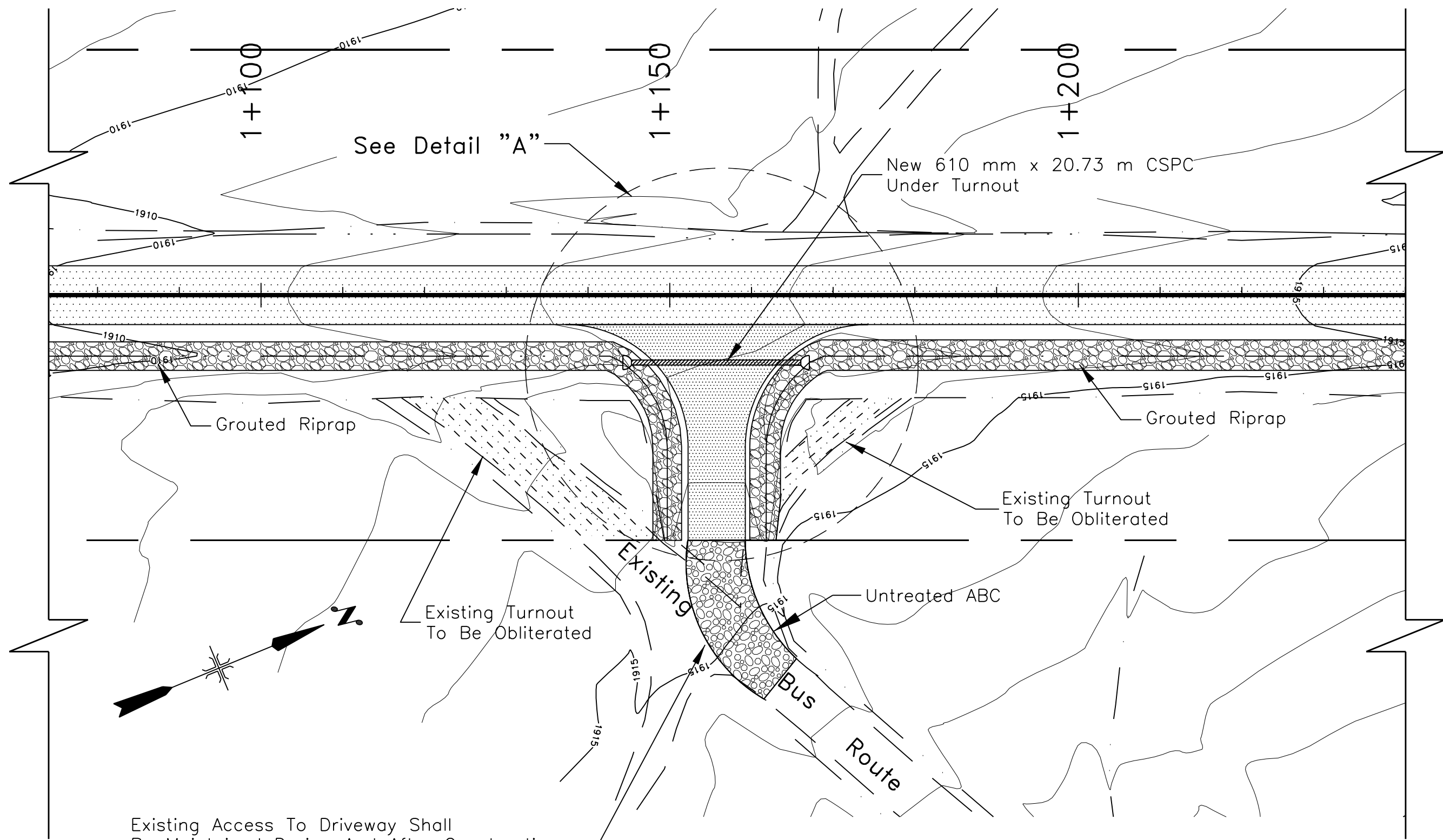
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FLEXIBLE PLASTIC PIPE
INSTALLATION DETAIL

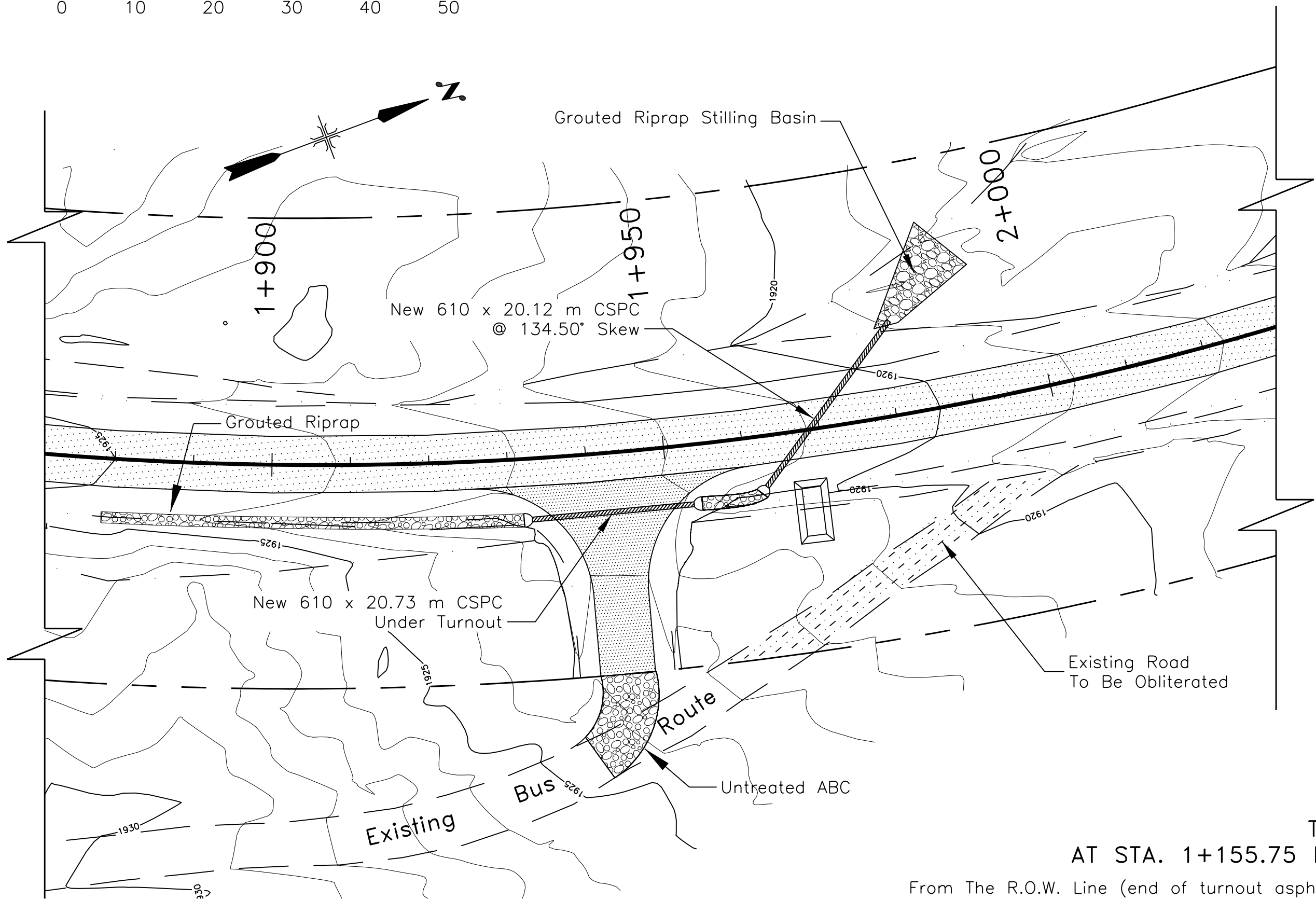
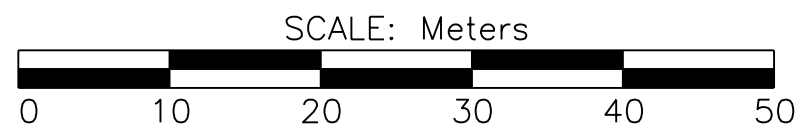
DRAWN BY: LRT DATE: 11/05
DESIGNED BY: NRO DOT DATE: 11/05
REVISED: 10/2010 BY: D-3
SCALE: NTS
FILENAME: PLASTICE PIPE
SHEET MODEL NAME: PLOT SHEET



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	25	39



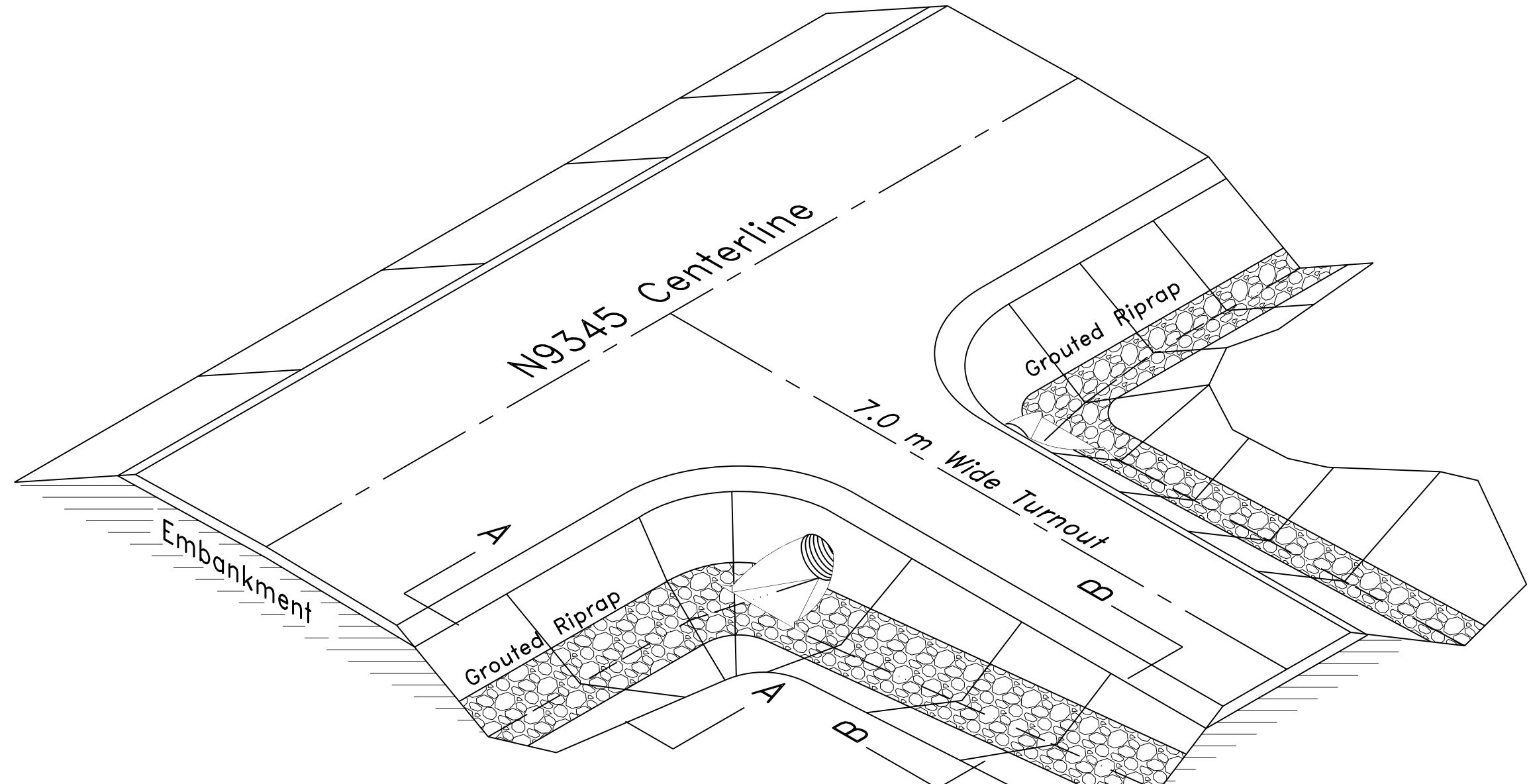
PLAN VIEW
7.0 m WIDE TURNOUT
@ Sta. 1+155.75, Rt.



PLAN VIEW
7.0 m WIDE TURNOUT
@ Sta. 1+943.00, Rt.

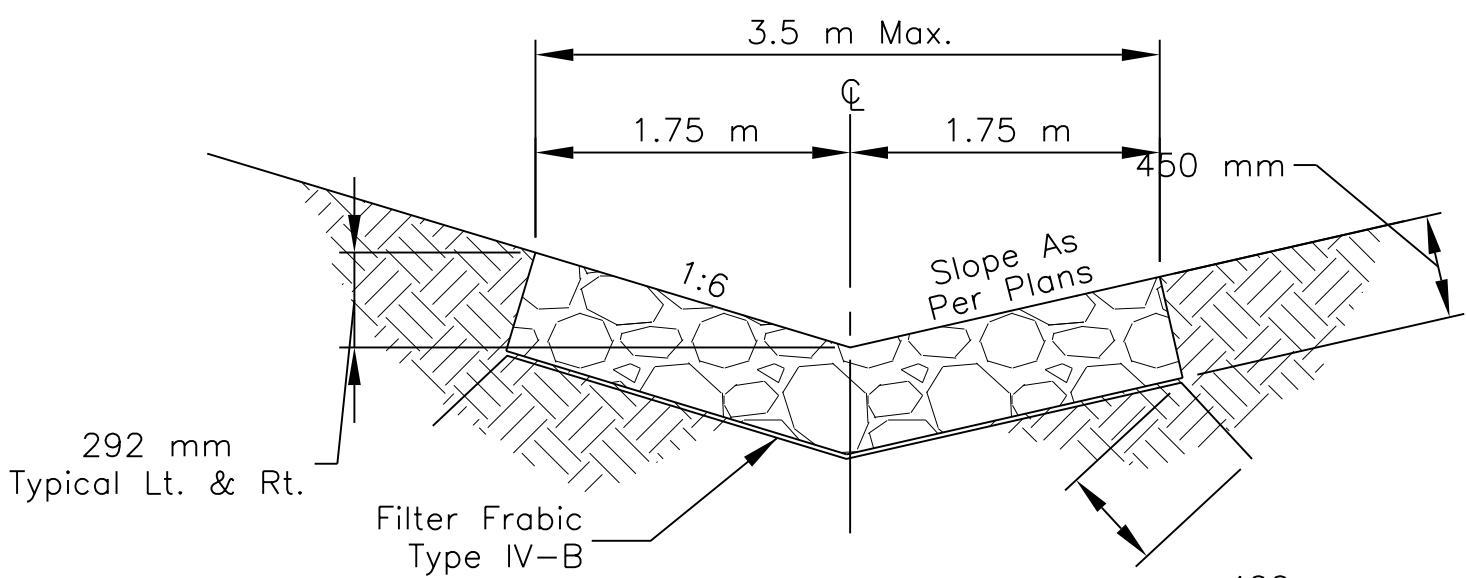
TURNOUT TRANSITIONS
AT STA. 1+155.75 RT, STA. 1+943 RT & STA. 2+389.35 RT.

From The R.O.W. Line (end of turnout asphalt) The Contractor Shall Construct A Smooth Transition To The Existing Road Including Any Excavation, Fill, Compaction, Ditch Grading, etc. Place 100 mm Of Compacted ABC For A Distance Of 20 m From The R.O.W. line And To A Width As Needed To Cover The Transition Driving Surface. The ABC Shall Be Paid Under Bid Item 30101-2000. All Other Turnout Transition Related Work Shall Be Considered Incidental To The Project And No Other Payments Will Be Made. The Turnout Transition Construction Shall Be As Directed And As Approved By The C.O.R.

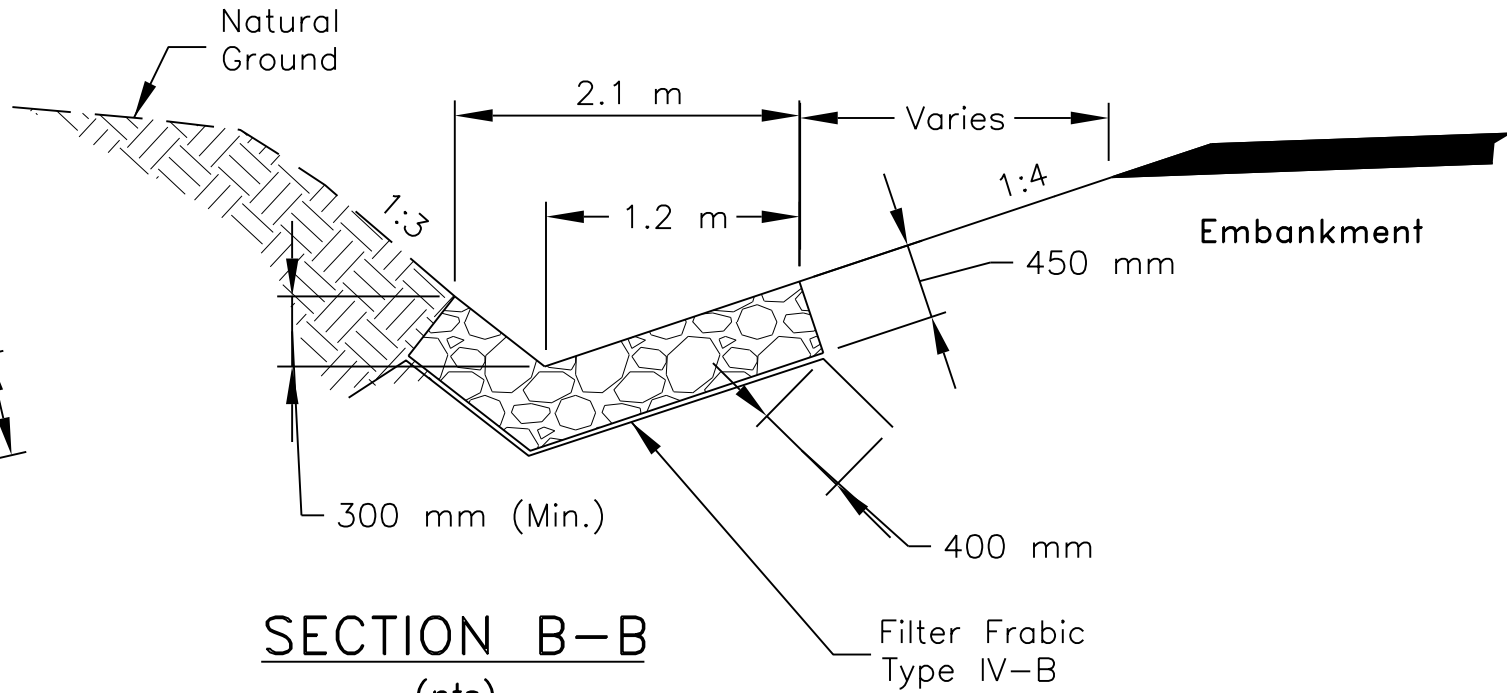


DETAIL "A"
(nts)

See Sheet 29 of 39 For Grouted
Riprap Quantity Table And General
Notes.



SECTION A-A
(nts)



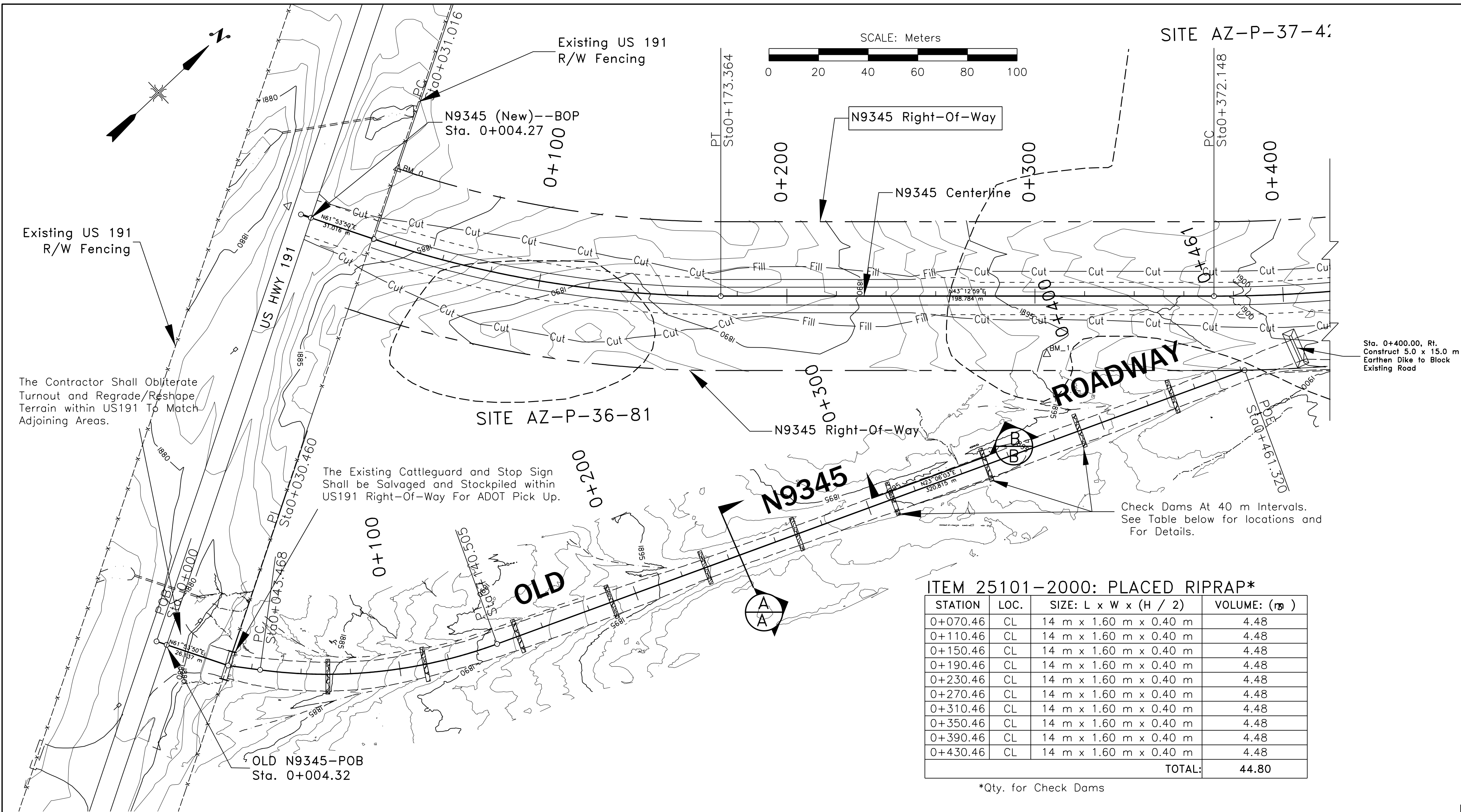
SECTION B-B
(nts)

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TURNOUT & GROUTED
RIPRAP DETAIL

DRAWN BY: NRDOT DATE: 09/05
DESIGNED BY: NRDOT DATE: 09/05
REVISED: 09/10 BY: LRT
SCALE: Varies
FILENAME: Sht 24_Turnout Plan
SHEET MODEL NAME: PLOT SHEET





REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	26	39

GENERAL NOTES

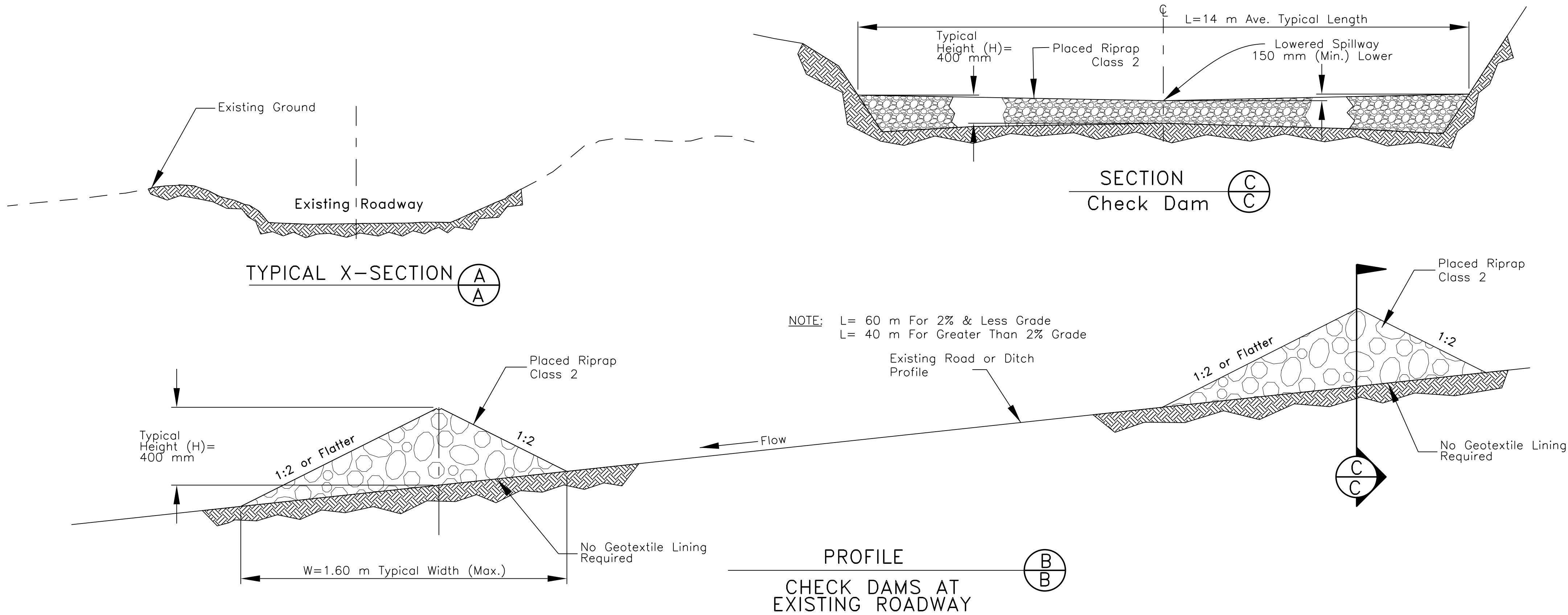
- AS PART OF THE N9345(2)2&4 PROJECT, THE CONTRACTOR SHALL OBLITERATE THE OLD N9345 WITH US191 (LOCATED 180 m SOUTH OF THE NEW N9345 INTERSECTION). THIS WORK SHALL INCLUDE ALL EXCAVATION AND GRADING WORK REQUIRED TO RESHAPE THE US191 RIGHT-OF-WAY TO MATCH THE ADJOINING AREAS. THE CATTLEGUARD AND STOP SIGN SHALL BE SALVAGED AND STOCKPILED WITHIN THE US191 RIGHT-OF-WAY FOR ADOT TO PICK UP. THIS WORK SHALL BE INCLUDED IN BID ITEM 21102-1000. ALL DISTURBED AREAS SHALL BE SEEDED UNDER BID ITEM 62510-1000.
- SEE SHEET 2 OF 39, NOTE #12 FOR ROADWAY SCARIFYING.
- WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECT(FP-03).
- ALL STONE FOR RIPRAP SHALL BE CLASS 2 MEETING THE GRADING REQUIREMENTS OF TABLE 705-1 OF THE FP-03.
- THE QUANTITIES SHOWN ARE ONLY AN ESTIMATE. ACTUAL QUANTITIES SHALL BE DETERMINED IN THE FIELD. THE CONTRACTOR WILL BE REQUIRED TO MAKE ANY NECESSARY ADJUSTMENTS IN THE FIELD TO MATCH EXISTING FIELD CONDITIONS AS DIRECTED BY THE COR/AOTR. THESE FIELD ADJUSTMENTS ARE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- ALL EXCAVATIONS SHALL BE DONE TO NEAT LINES IN ACCORDANCE WITH SECTION 209 OF THE FP-03.

OLD ROADWAY ALIGNMENT

POINT	STATION (m)	ELEMENT	DIRECTION	NORTHING (m)	EASTING (m)
POB	0+000.000			30319.752	30565.575
PI	0+004.323	Linear= 4.323 (m)	N 61°53'50" E	30321.788	30569.388
PI	0+030.460	Linear= 26.137 (m)	N 61°53'50" E	30334.1	30592.443
PC	0+043.468	Linear= 13.008 (m)	N 50°51'34" E	30342.311	30602.532
PI	0+092.958			30373.55	30640.917
		CURVE DATA			
		Delta = 27°45'31" Lt.			
		Deg. = 8°43'09"			
		R = 200.292 (m)			
		L = 97.037 (m)			
		T = 49.490 (m)			
		e = 6.024 (m)			
PT	0+140.505			30419.072	30660.335
POE	0+461.320	Linear= 320.815 (m)	N 23°06'03" E	30714.163	30786.207

ITEM 62510-1000: SEEDING and ITEM 21102-1000: ROADWAY AND TURNOUT OBLITERATION

STA to STA	LENGTH	WIDTH	AREA (ha)	REMARKS
0+004.32 to 0+030.46	26.14	20.00	0.05	Within The US191 Right-Of-Way
0+030.46 to 0+461.32	430.86	20.00	0.86	Outside The US191 & N9345 Rights-Of-Way.
		TOTAL:	0.91	

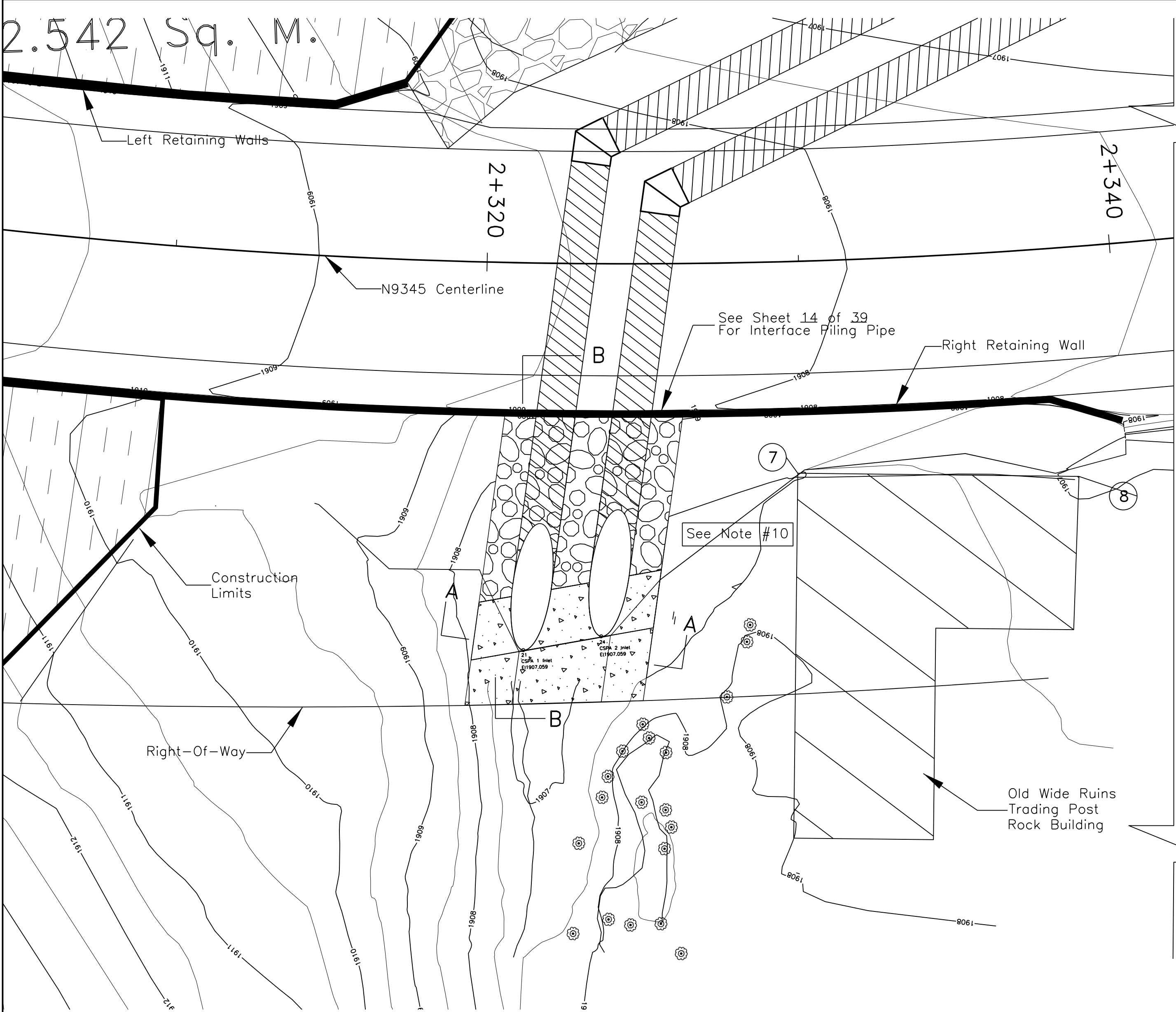


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OLD ROADWAY OBLITERATION PLAN/CHECK DAM DETAILS

DRAWN BY: LRT DATE: 12/05
DESIGNED BY: NRODOT DATE: 12/05
REVISED: 01/26/06 BY: DUY
SCALE: NTS
FILENAME: 9345 RW-OB
SHEET MODEL NAME: PLOT SHEET





PLAN VIEW
SCALE: 1:100

APPROXIMATE
WIDE RUINS BUILDING LOCATION

MARK	STATION	OFFSET (m)	REMARKS
7	2+329.79	6.80 Rt.	To be avoided during construction
8	2+338.47	7.37 Rt.	To be avoided during construction

ESTIMATED GROUTED RIPRAP VOLUME

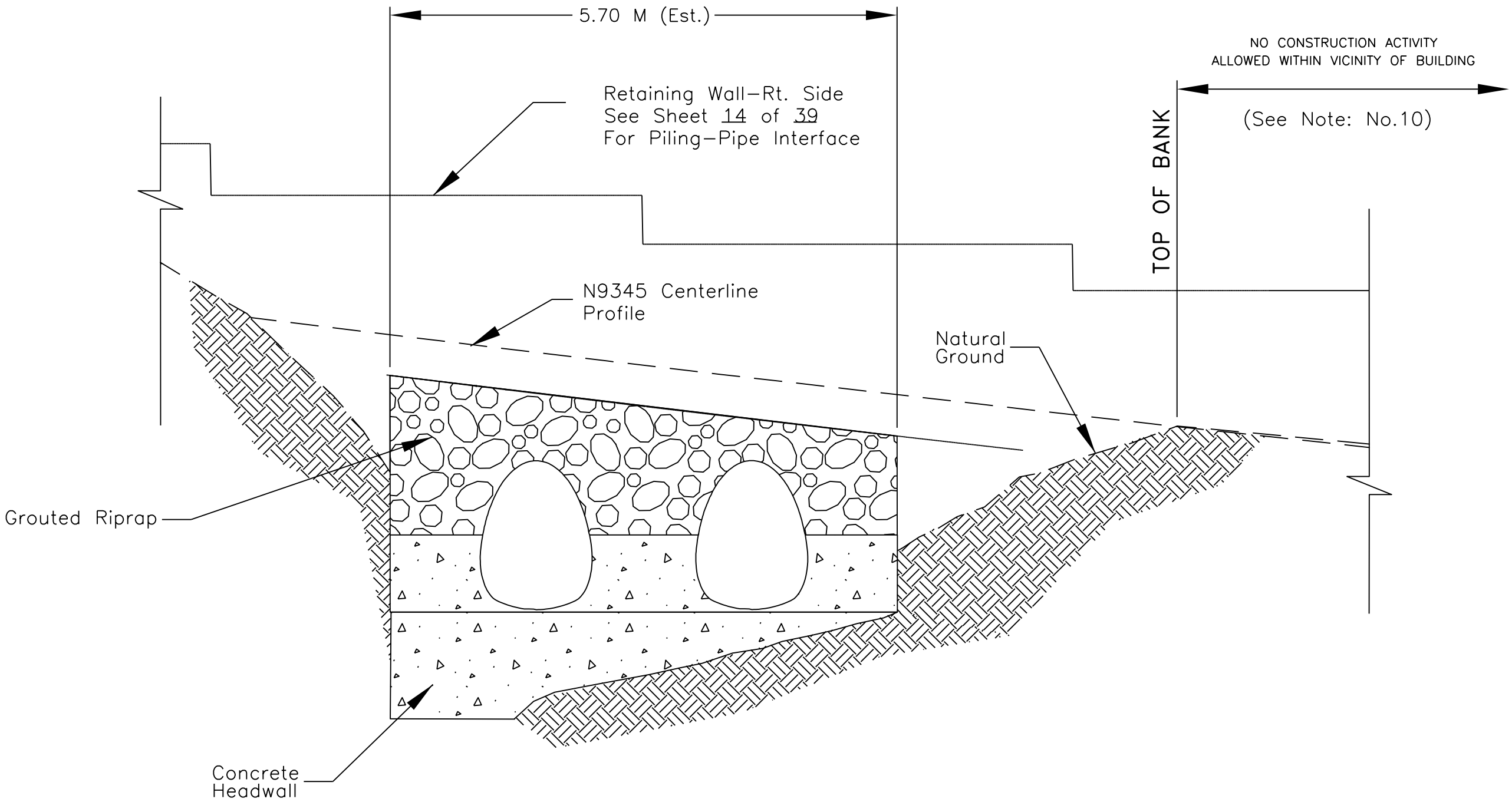
TOTAL: 12.70 m³

60101-0000 Minor Concrete, Class A(AE)

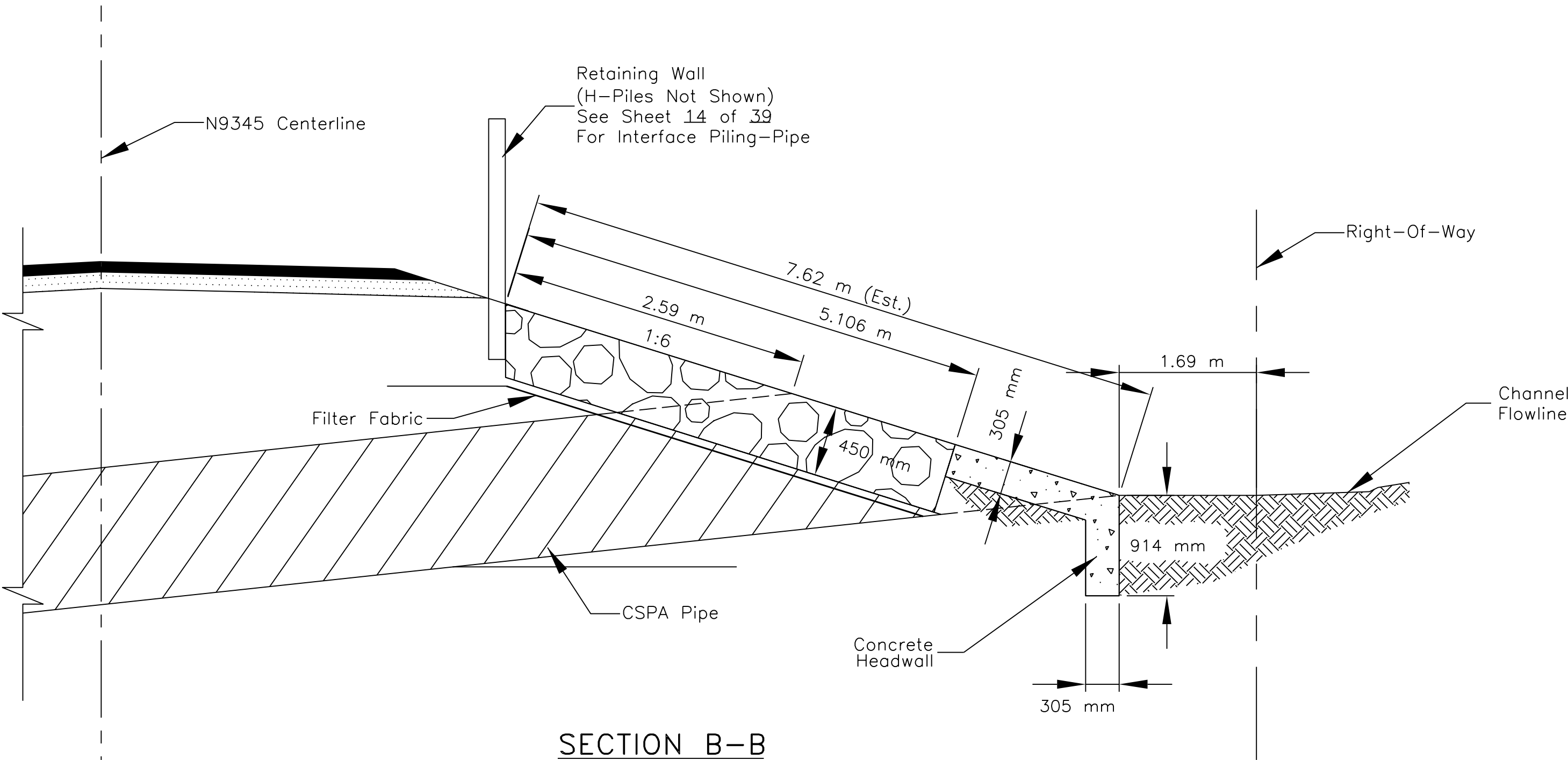
STATION	LOCATION	VOLUME	REMARKS
2+324.10	Right	2.78 m ³	Inlet

GENERAL NOTES

1. SPECIFICATION: STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-03; SPECIAL PROVISIONS AS INCLUDED IN THE SUPPLEMENTAL SPECIFICATIONS.
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 FIELD CONDITIONS AS DIRECTED BY THE C.O.R..
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. EXCAVATION FOR RIPRAP FOUNDATION BELOW THE FLOW LINE AND INTO EMBANKMENT AS SHOWN SHALL BE INCIDENTAL TO ITEM 25110-2000.
6. STONE SIZE SHALL CONFORM TO TABLE 705-1, SECTION 705, STONE FOR RIPRAP, CLASS 2.
7. LEAVE SURFACE ROCK EXPOSED 1/4 TO 1/2 OF ROCK DEPTH.
8. GEOTEXTILE FABRIC SHALL BE INSTALLED UNDER ALL RIPRAP AS SHOWN AND SHALL CONFORM TO SECTION 714, TABLE 714-4, TYPE IV, AND SHALL BE CONSIDERED INCIDENTAL TO BID ITEM 25110-2000.
9. GEOTEXTILE FABRIC SHALL BE TUCKED OR EMBEDDED 400 mm INTO EMBANKMENT ALONG ALL EDGES AS SHOWN.
10. THE CONTRACTOR SHALL USE DUE CARE TO PROTECT AND PRESERVE THE AREA BETWEEN THE EXISTING WASH BANK AND THE OLD WIDE RUINS TRADING POST ROCK BUILDING. THE BUILDING STRUCTURE IS TO BE PROTECTED IN-PLACE DURING THE INSTALLATION OF CULVERTS AND INLET PROTECTION STRUCTURE(S). ALL EQUIPMENT RELATED WORK REQUIRED TO EXCAVATE AND BACKFILL WITHIN THE "PRESERVATION ZONE" SHALL BE PERFORMED FROM THE WASH SIDE (SOUTH SIDE). ABSOLUTELY, NO WHEEL TRACK TRAFFIC ON THE WASH EMBANKMENT ALLOWED.
11. AFTER THE INSTALLATION OF CULVERTS AND INLET PROTECTION STRUCTURE(S) ARE COMPLETED, THE WASH FLOW LINE AND BANKS SHALL BE REGRADED AS DIRECTED BY COR/AOTR. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF THE CULVERTS AND INLET PROTECTION.



SECTION A-A



SECTION B-B
GROUTED RIPRAP @ INLET
(nts)

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GROUTED RIPRAP
AT PIPE INLET

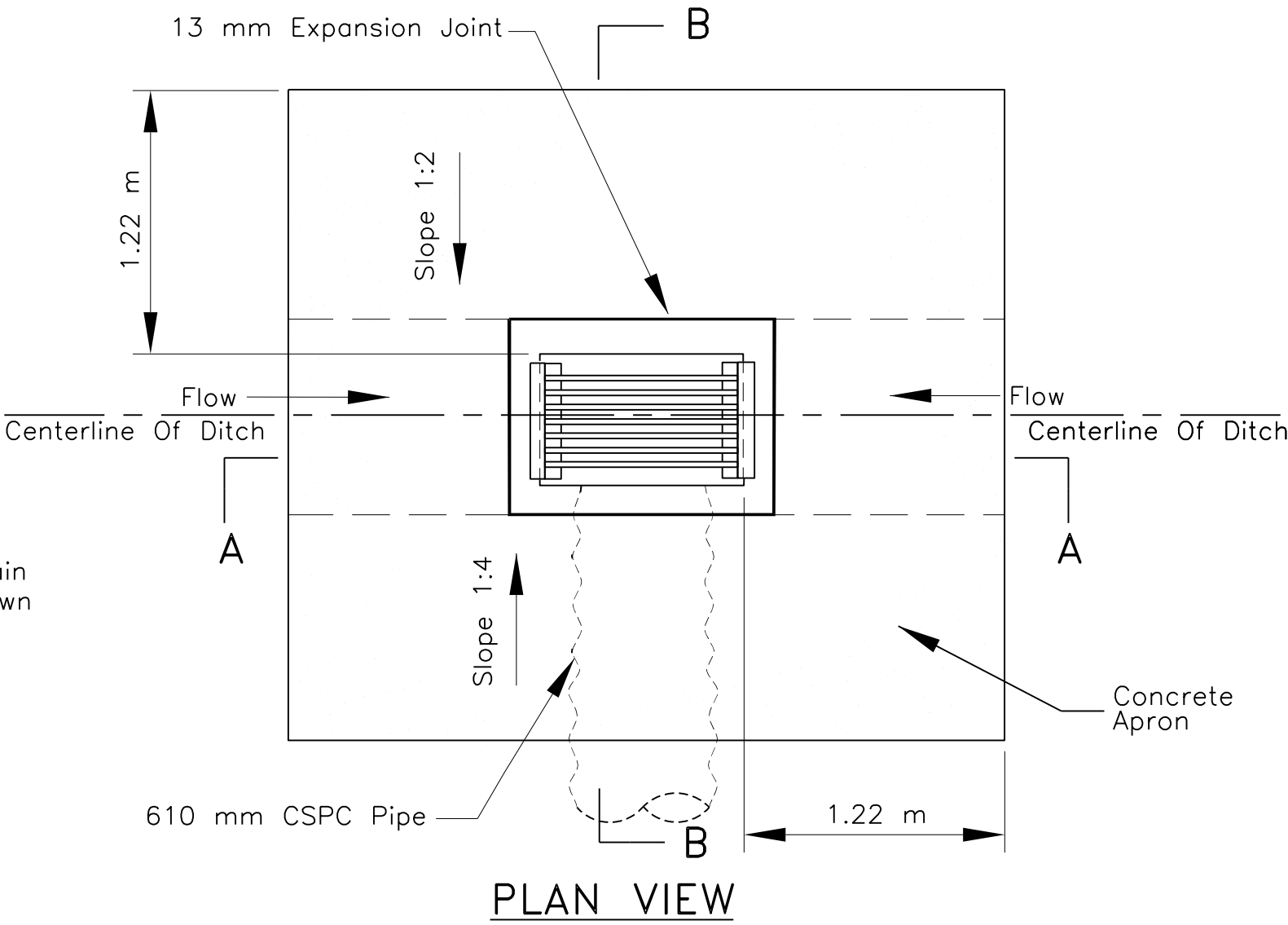
DRAWN BY: NRDOT DATE: 08/03
DESIGNED BY: NRDOT DATE: 08/05
REVISED: 01/26/06 BY: DESIGN 3
SCALE: NTS
FILENAME: 9345GROUT_RR
SHEET MODEL NAME: PLOT SHEET



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	28	39

GENERAL NOTES

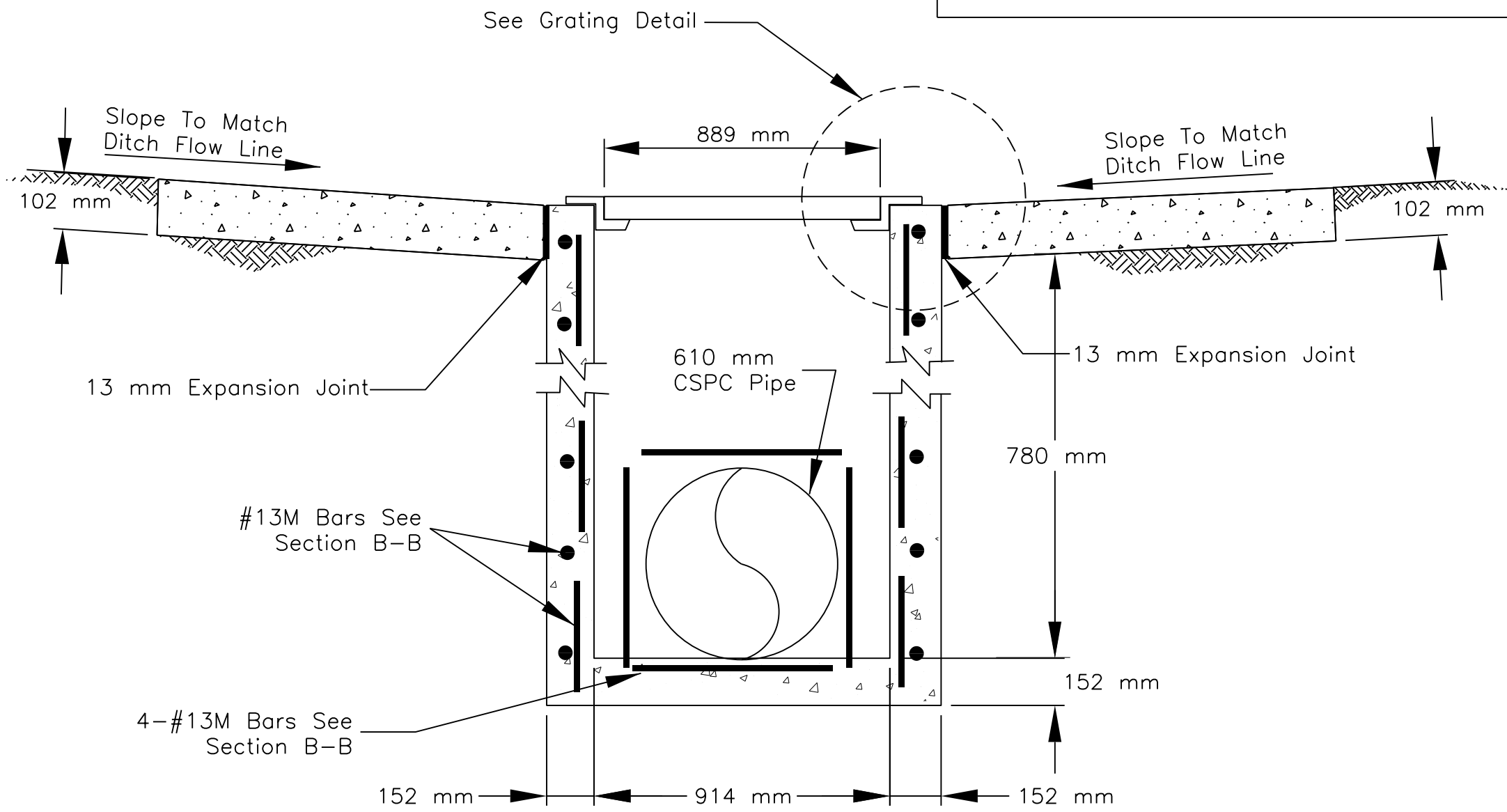
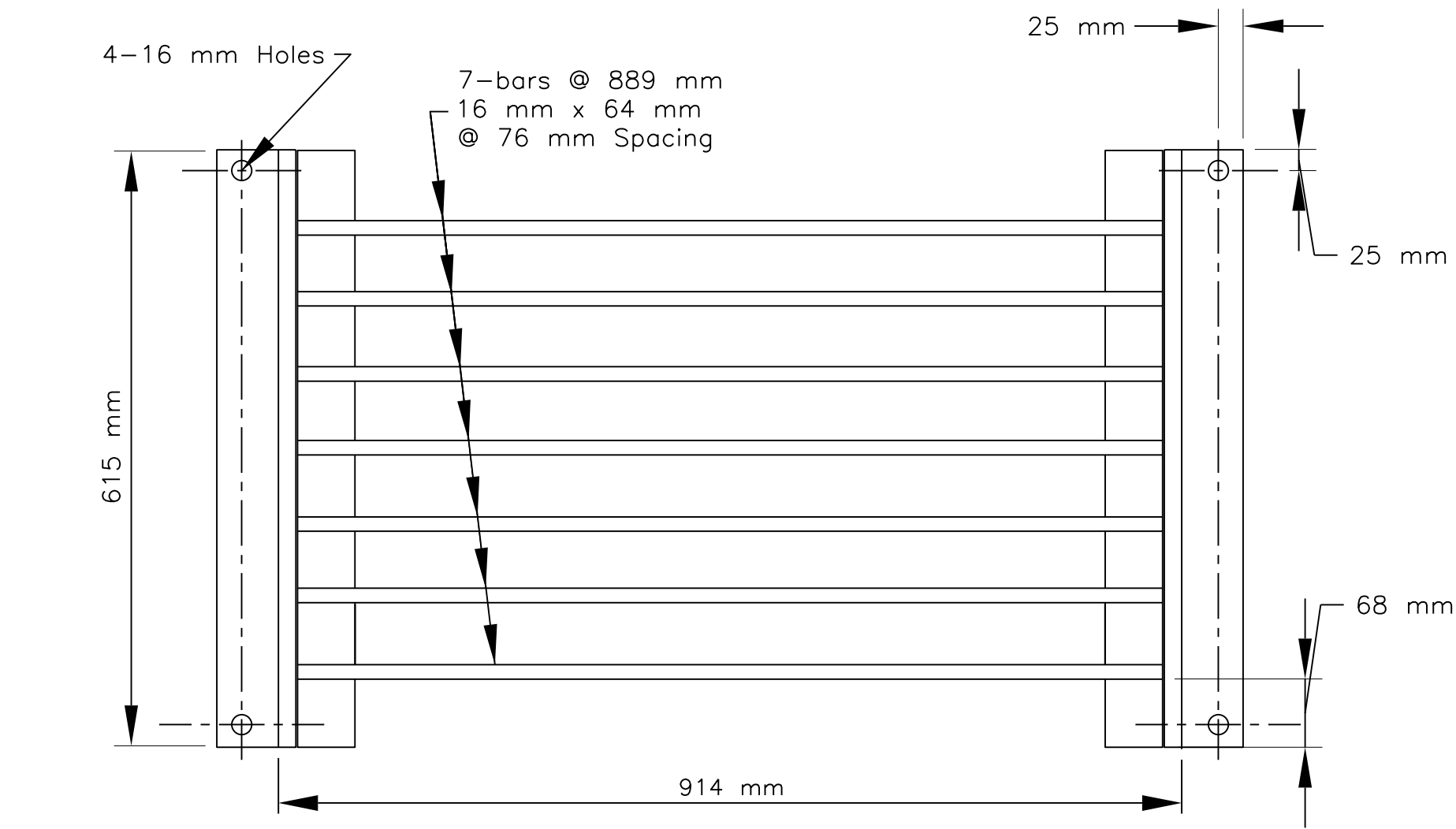
1. AT STATION 2+372, 6.60 m RT; INSTALL 610 mm x 914 mm CATCH BASIN WITH GRATE. CONSTRUCT CONCRETE BASIN, INCLUDING APRON, AS PER FP-03, SECTION 604. CONSTRUCT GRATE AND FRAME WITH STRUCTURE STEEL CONFORMING TO AASHTO M 183M AND AS PER FP-96, SECTION 725. WELDING SHALL CONFORM TO FP-03, SECTION 555.18.
2. THE CONCRETE CATCH BASIN AND APRON SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN ON THE PLANS. PLACE REINFORCING STEEL AND WIRE FABRIC AT LOCATIONS AND SPACING SHOWN. PREFORMED EXPANSION JOINT FILLERS SHALL MEET AASTO M 33.
3. GRATE AND FRAME SHALL BE FACTORY ASSEMBLED AND WELDED. GRATE AND FRAME SHALL BE PAINTED AS PER FP-03, SECTION 563, PAINT SYSTEM #4. ALL PAINTING TO BE SHOP APPLIED AFTER WELDING AND ASSEMBLY. TOP COAT TO BE BLACK IN COLOR. ANCHOR BOLTS AND NUTS SHALL BE CADMIUM PLATED AS PER ASTM B 766, CLASS 12, TYPE III.
4. 610 mm PIPE SHALL BE INSTALLED FLUSH WITH INSIDE WALL OF CATCH BASIN, WITH FLOW LINE MATCHING BASIN BOTTOM.
5. STATION 2+355 TO STATION 2+385 RT., CONSTRUCT AND GRADE NEW ROADWAY DITCHES TO DRAIN TO CATCH BASIN. WARP DITCH BACK SLOPE AS NEEDED AT CATCH BASIN TO MAINTAIN 1:2 SLOPE. STATION 2+394 TO STATION 2+415 RT., CONSTRUCT AND GRADE NEW ROADWAY DITCHES TO DRAIN TO THE NORTH. INSTALL GROUTED RIPRAP DITCH LINING AS SHOWN AND AS PER DETAILS ON SHEET 30 OF 39.
6. ALL LABOR AND MATERIALS RELATED TO THE CONSTRUCTION AND INSTALLATION OF THE CATCH BASIN AND APRON, INCLUDING BUT NOT NECESSARY LIMITED TO, EXCAVATION, CONCRETE FORMS/FORMING, REINFORCING STEEL/WIRE, CONCRETE, CONNECTION TO OUTLET PIPE, GRATE AND FRAME, BACKFILL, ETC., SHALL BE INCLUDED IN BID ITEM 60404-0000.



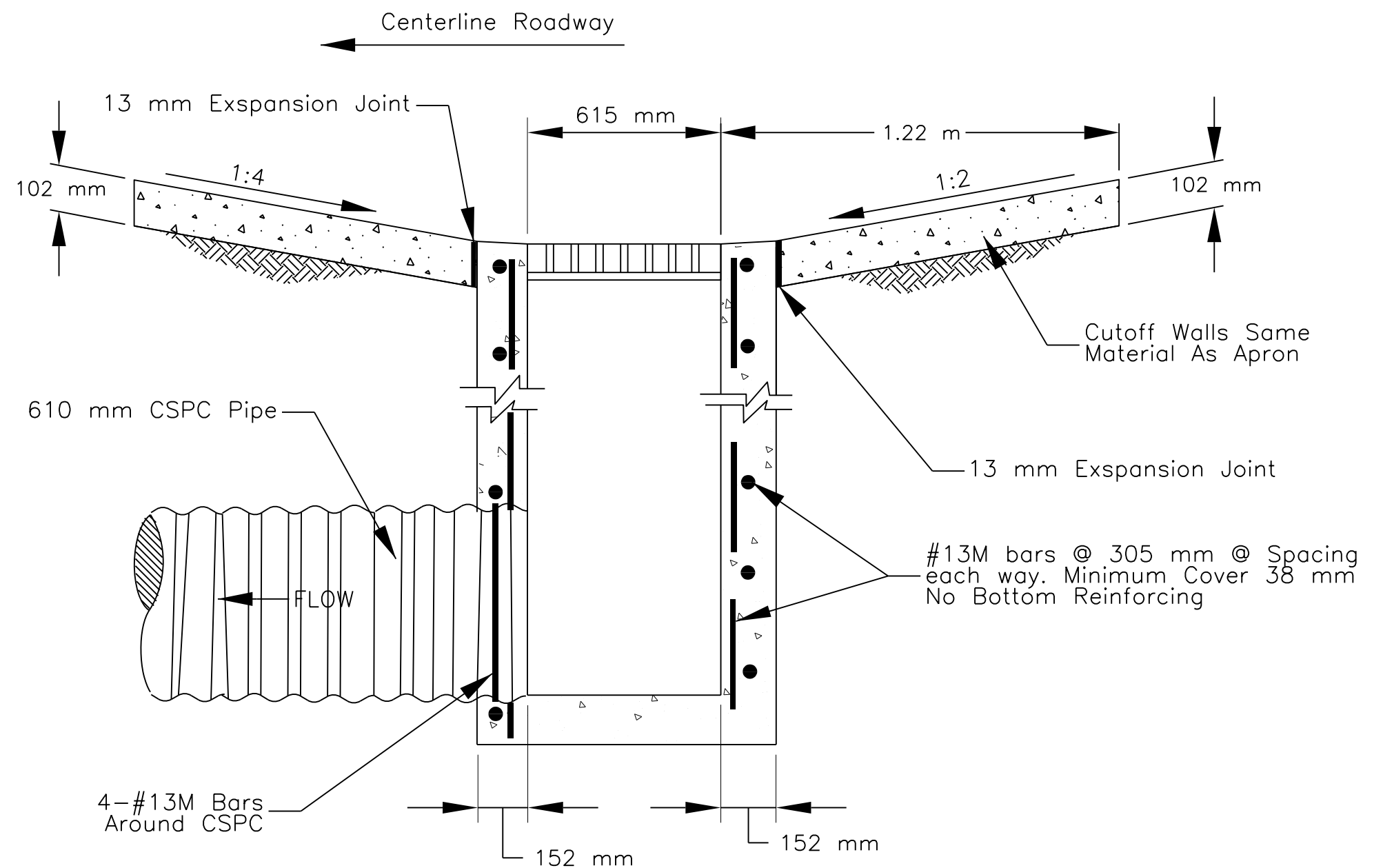
TYPICAL ISOMETRIC VIEW
© Sta. 2+389.35 Rt. Turnout Location

ESTIMATED QUANTITY: ITEM 25110-2000 - GROUTED RIPRAP, CLASS 2

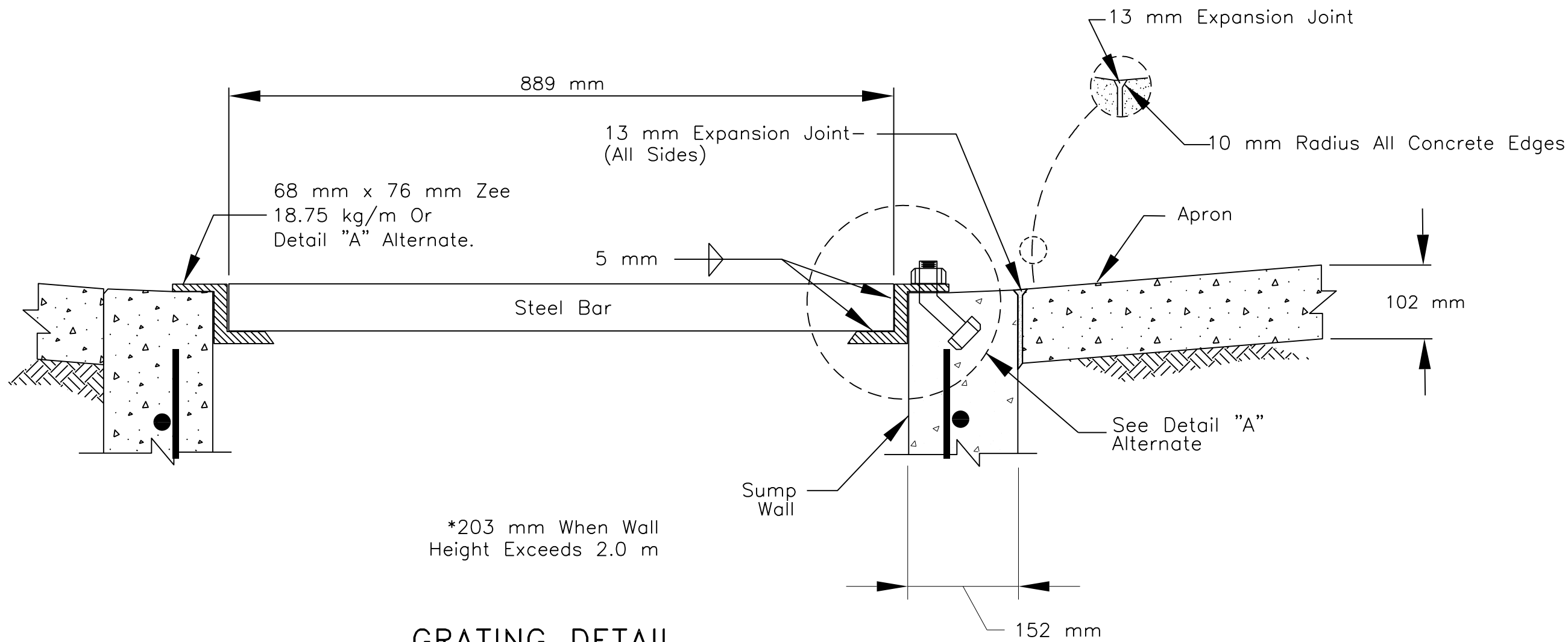
STATION TO STATION	LOCATION	ESTIMATED LENGTH (m)	WIDTH (m)	THICKNESS (mm)	VOLUME (m ³)	REMARKS
2+370.00 to 2+385.00	Rt.	15.00	3.50	450	24.00	Riprap Lined in Turnout V-Ditch
2+393.00 to 2+420.00	Rt.	27.00	3.50	450	43.00	Riprap Lined in Turnout V-Ditch
TOTAL:					67.00	



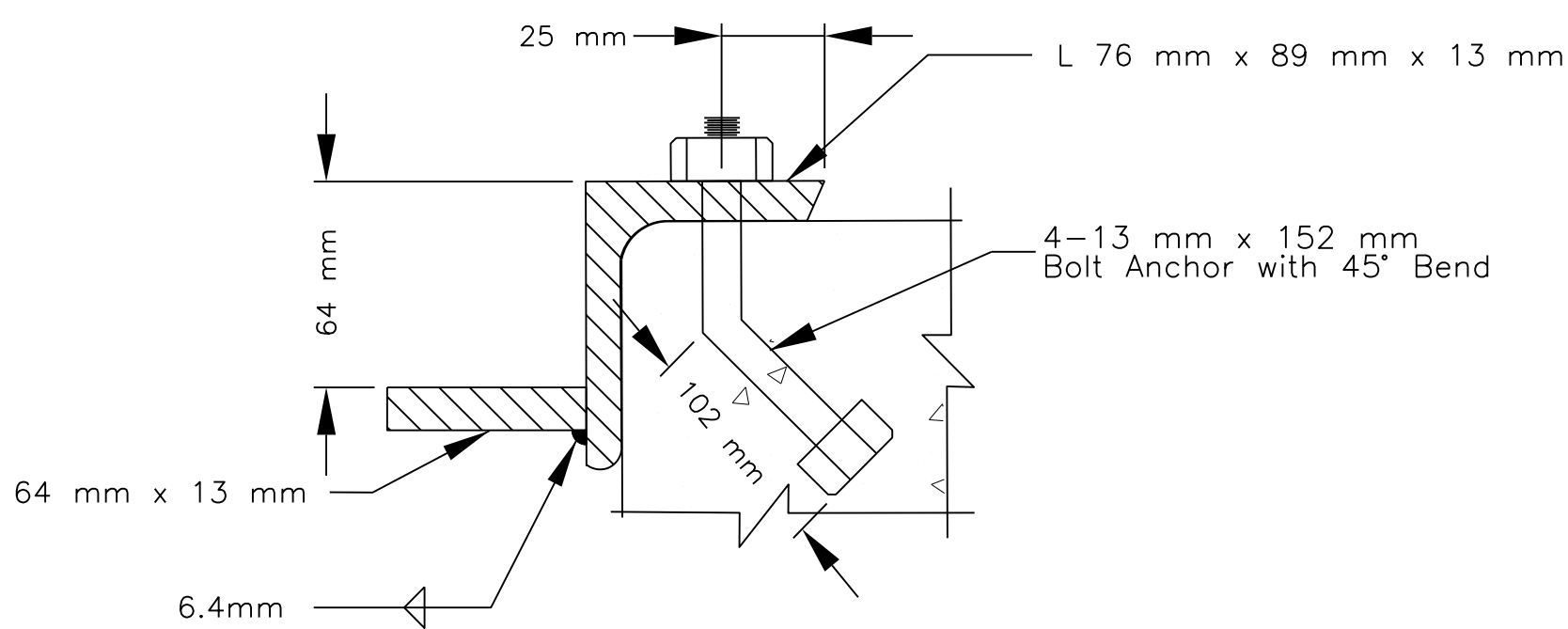
SECTION A-A



SECTION B-B



GRATING DETAIL



DETAIL "A" ALTERNATE

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

CATCH BASIN DETAILS
STA. 2+372.00-RT. SIDE

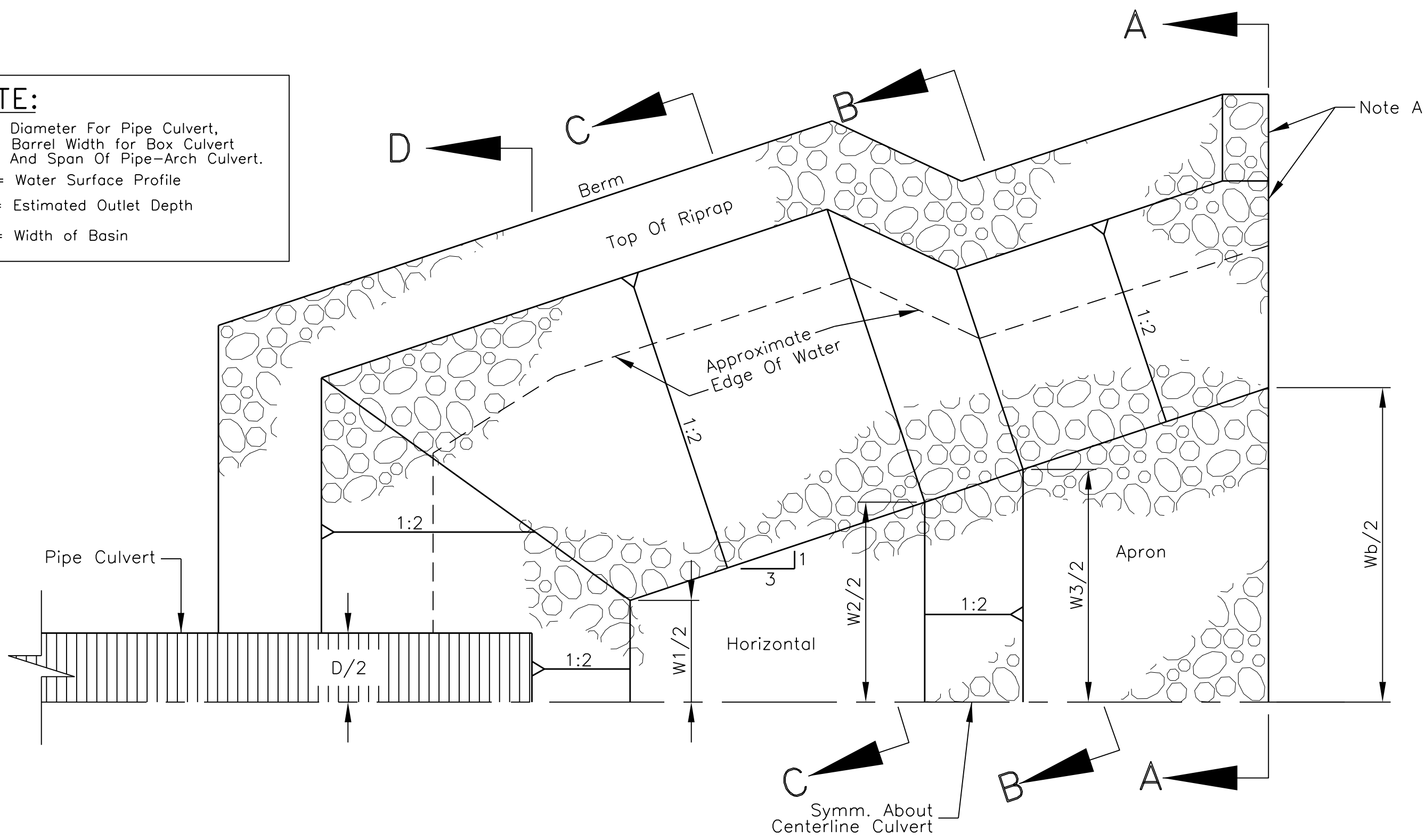
DRAWN BY: NRODOT DATE: 05/04
DESIGNED BY: NRODOT DATE: 05/04
REVISED: 09/06 BY: DESIGN 3
SCALE: NTS
FILENAME: Catchbasin
SHEET MODEL NAME: PLOT SHEET



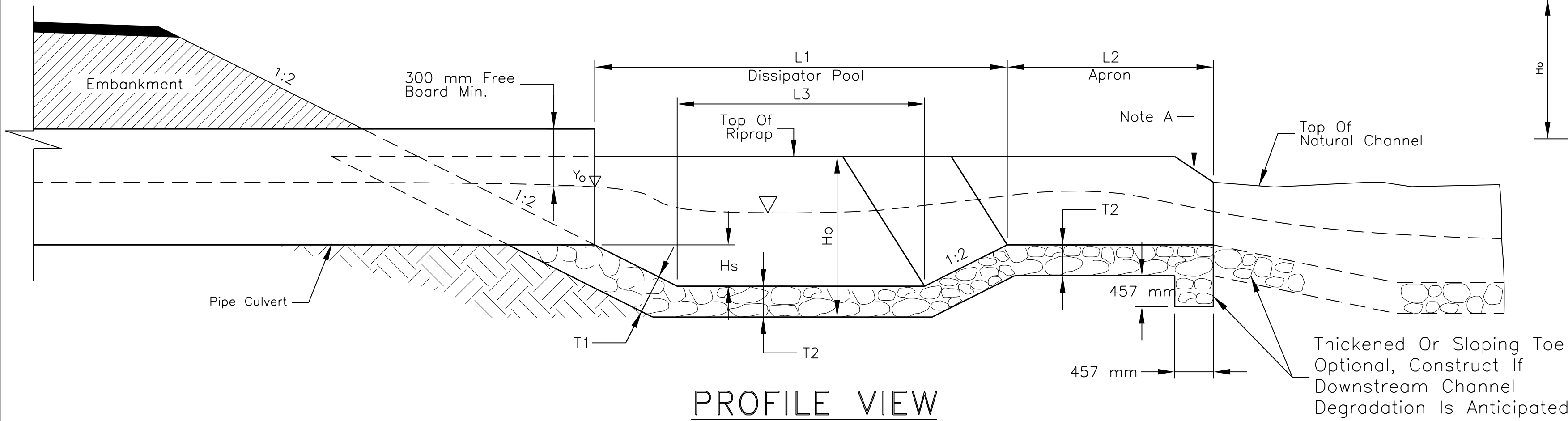
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	30	39

NOTE:

D = Diameter For Pipe Culvert,
Barrel Width for Box Culvert
And Span Of Pipe-Arch Culvert.
▽ = Water Surface Profile
Y_o▽ = Estimated Outlet Depth
W_b = Width of Basin



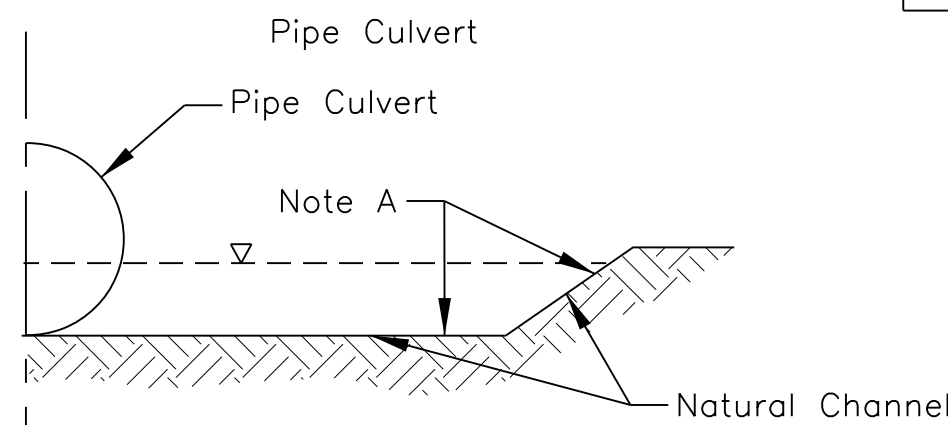
PLAN VIEW



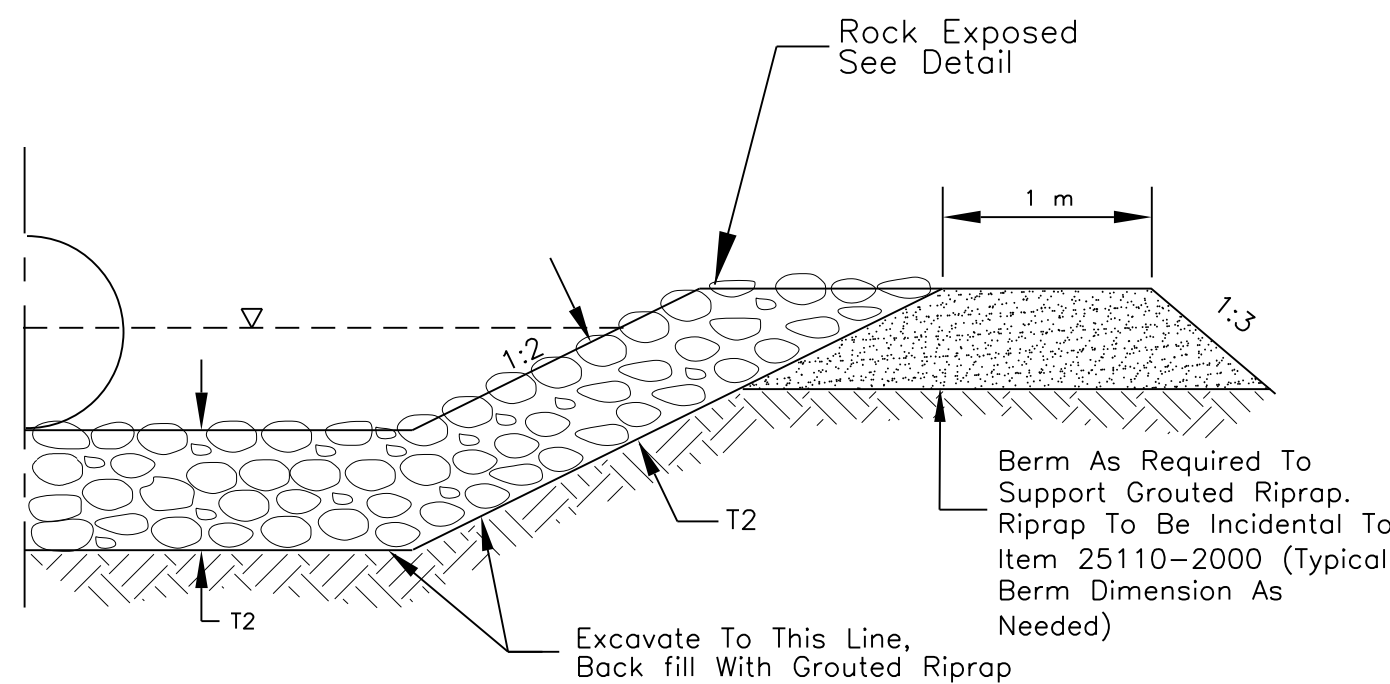
PROFILE VIEW

NOTE A: WARP THE HORIZONTAL ALIGNMENT IF REQUIRED TO FIT THE EXISTING CHANNEL. IF THE ELEVATION OF THE RIPRAP IS HIGHER THEN THE EXISTING STREAM BOTTOM AT SECTION A, INSTALL A SLOPING GROUTED RIPRAP APRON AT A SLOPE 1.5 TIMES THE PERCENT SLOPE OF THE EXISTING STREAM. LENGTH AS NEEDED TO REACH THE STREAM BOTTOM.

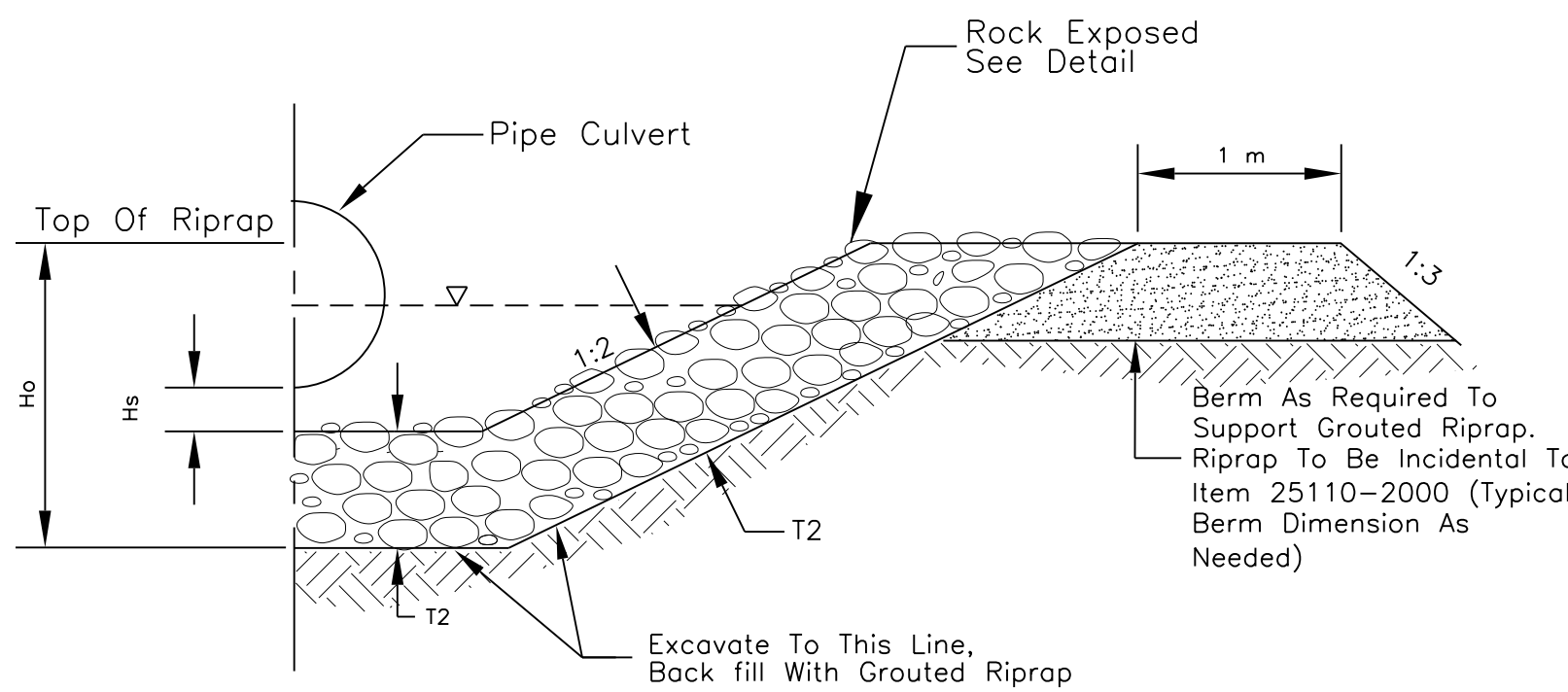
NOTE B: FOR MULTIPLE PIPES OR CULVERTS, (D)=SUM OF EACH PIPE (D)+ SPACING BETWEEN EACH PIPE OR CULVERT.



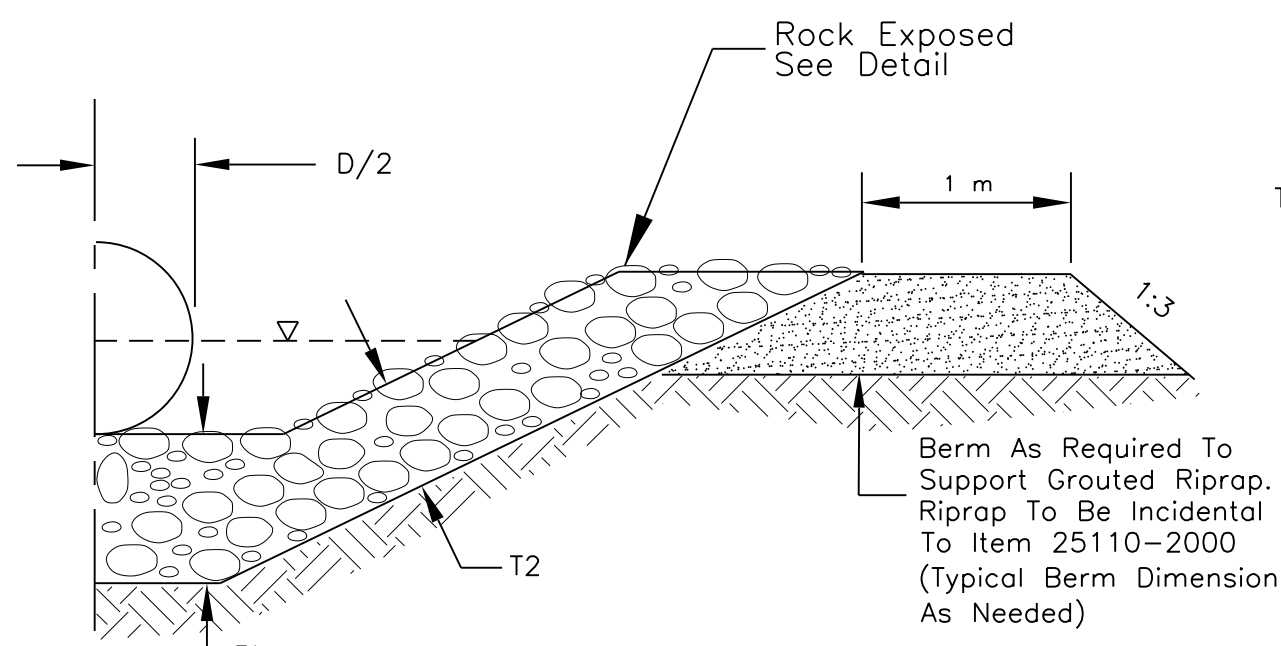
SECTION A-A



SECTION B-B



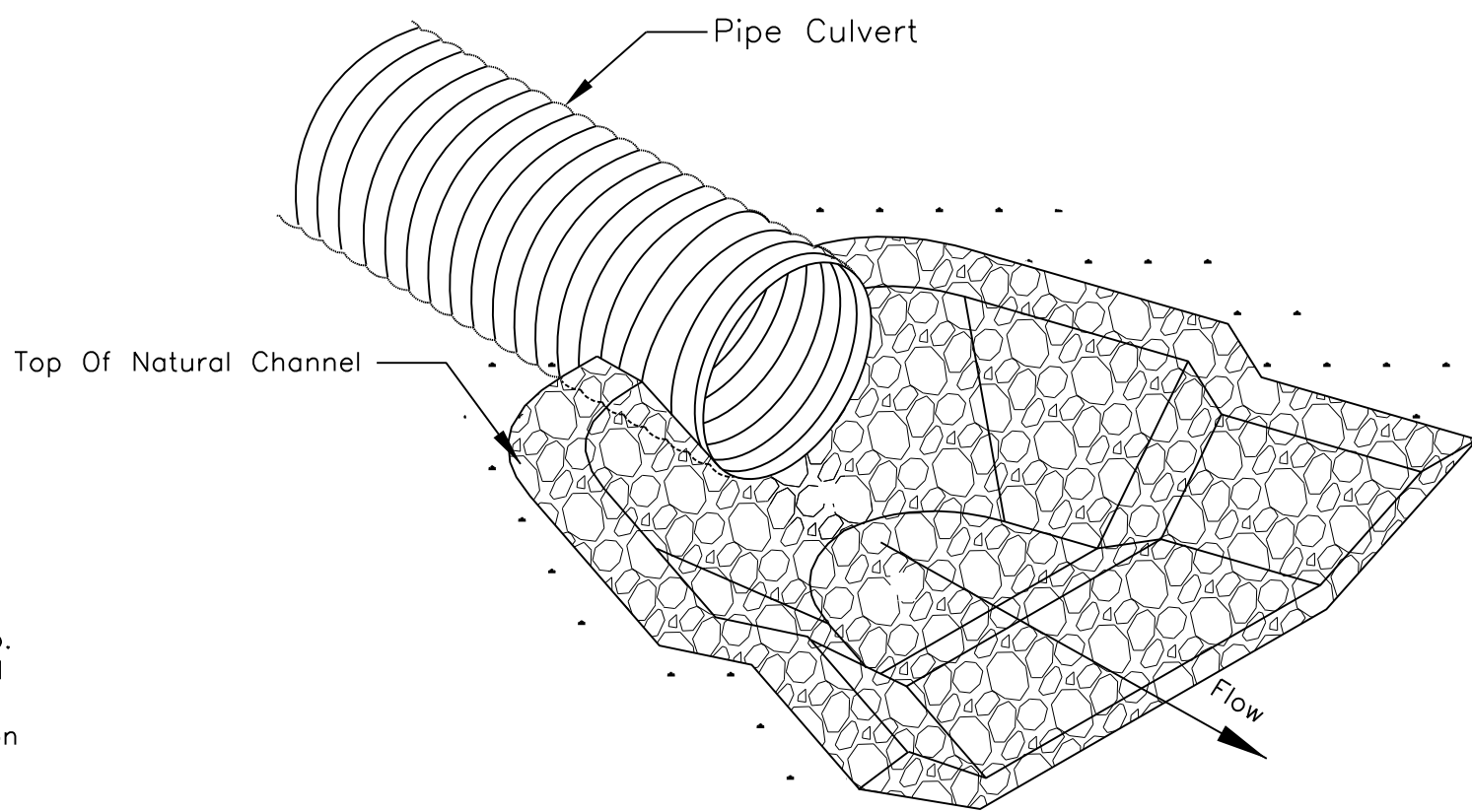
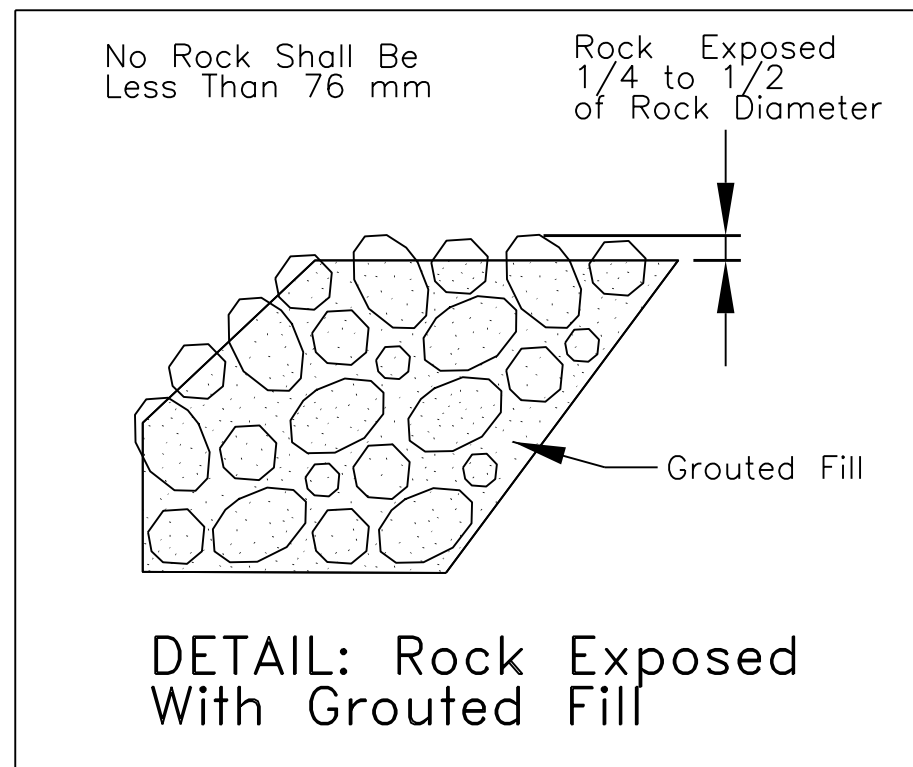
SECTION C-C



SECTION D-D

GENERAL NOTES

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-03).
2. 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.
3. EXCAVATE, CLEAN, AND RESHAPE INLET TO INSTALL ROCK BERM AS SHOWN. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 25110-2000.
4. STONE SIZE SHALL CONFORM TO FP-03, TABLE 705-1, CLASS 2, EXCEPT NO ROCK LESS THAN 76 MM SHALL BE USED.
5. FILL ROCK VOIDS WITH MORTAR PER SECTION 251 & 712.05. LEAVE ROCK ON SURFACE EXPOSED 1/4 TO 1/2 ROCK DIAMETER. SEE DETAIL BELOW.
6. ALL EXCAVATIONS AROUND THE ROCK BERM INLET STRUCTURES SHALL BE BACKFILLED WITH COMPACTED MATERIAL AS PER FP-03 SECTION 204.10.
7. THE CONTRACTOR SHALL BE REQUIRED TO MAKE ANY NECESSARY FIELD ADJUSTMENTS AS DIRECTED BY THE COR/ AOTR. THIS WORK SHALL BE INCIDENTAL TO ITEM 25110-2000.
8. ALL GROUND RIPRAP ROCK SHALL BE CLASS 2.



ISOMETRIC VIEW

ITEM No. 25110-2000: GROUTED RIPRAP, CLASS 2

Station:	Structure:	L1 (m)	L2 (m)	L3 (m)	Ho (m)	Hs (mm)	T1 (mm)	T2 (mm)	D (m)	W1 (m)	W2 (m)	W3 (m)	Wb (m)	Vol. (m ³)
0+192.00	1-762 mm CSPC	2.290	0.930	1.530	1.057	190	610	457	0.762	1.015	2.035	2.289	2.909	13.00
0+628.66	2-762 mm CSPC	2.290	0.762	1.070	1.486	315	610	457	3.506	3.913	4.626	5.033	5.541	26.47
1+520.20	1-762 mm CSPC	2.290	0.762	1.070	1.294	305	610	457	0.762	1.169	1.882	2.289	2.797	15.16
1+571.00	1-762 mm CSPC	2.290	0.762	1.070	1.303	305	610	457	0.762	1.169	1.882	2.289	2.797	15.30
1+631.00	1-762 mm CSPC	2.760	1.380	1.540	1.373	305	610	457	0.762	1.169	2.195	2.602	3.522	20.50
1+963.68	1-610 mm CSPC	2.720	1.070	1.500	1.212	305	610	457	0.610	1.169	2.169	2.575	3.289	16.50
2+070.79	2-914 mm CSPC	5.030	2.510	3.030	1.522	500	610	457	4.064	4.731	6.751	7.417	9.091	53.79
2+326.16	2-1245 mm S x 838 mm R CSPA	3.880	1.940	2.328	1.410	388	610	457	4.680	5.192	6.744	7.261	8.554	43.12
TOTAL:														203.84

UNITED STATES
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NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

**GROUTED RIPRAP
STILLING BASIN**

DRAWN BY: NRDOT DATE: 07/97
DESIGNED BY: NRDOT DATE: 07/98
REVISED: 09/10 BY: LRT
SCALE: n/a
FILENAME: Sht_29_9345_rrb
SHEET MODEL NAME: PLOT SHEET

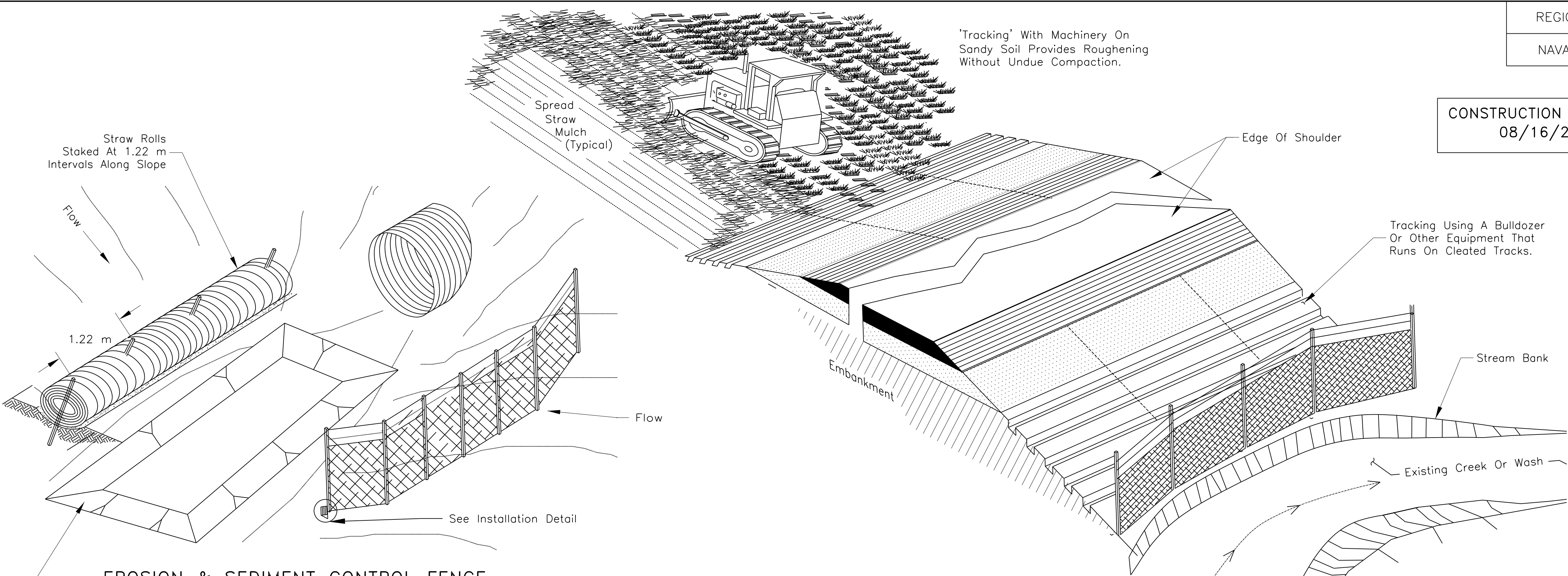


REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	31	39

CONSTRUCTION PLANS APPROVED
08/16/2011

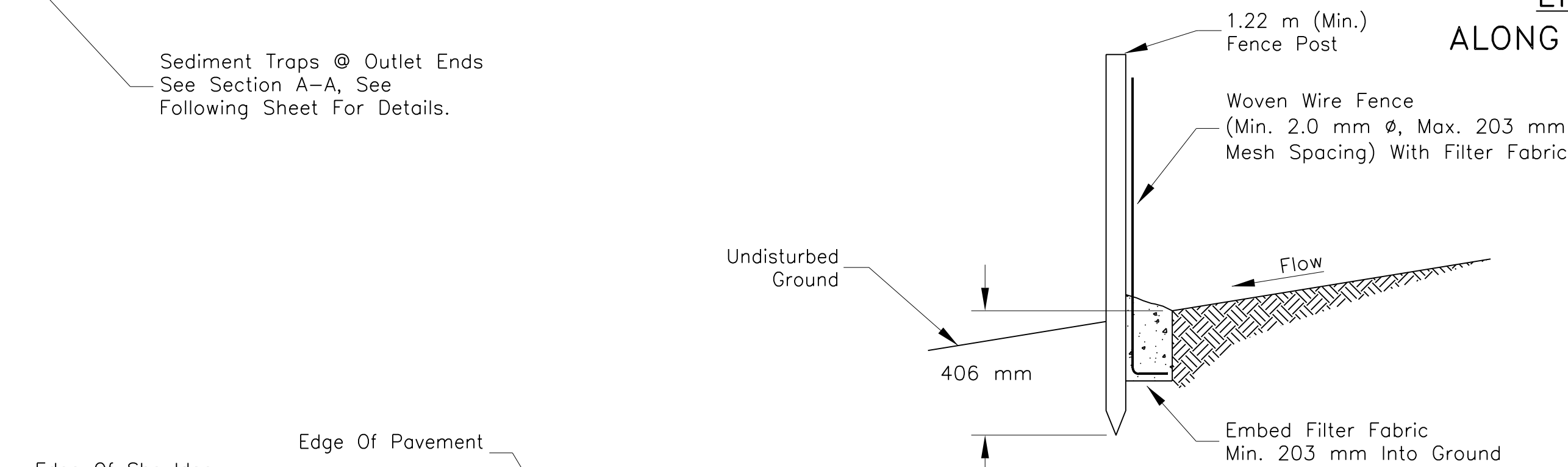
GENERAL NOTES

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 CALANDER DAYS BEFORE IMPLEMENTATION. THE PLAN SHALL MEET THE REQUIREMENTS HEREIN AND SECTION 157 OF THE FP-03 AS MODIFIED IN THE SUPPLEMENTAL SPECIFICATION. SEE SPECIAL CONTRACT REQUIREMENTS FOR NPDES PERMIT REQUIREMENTS.
2. THE SILT FENCING CONSISTS OF 914 mm SEDIMENT CONTROL FABRIC CLOTH WITH BURIED-TOE, AND STEEL POSTS (TEE OR U TYPE) SPACED AT 2.00 m WITH 2 mm SIZE WELDED WIRE BACK-UP FENCE.
3. WOVEN WIRE FABRIC TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 610 mm AT THE TOP AND MID-SECTION. GEOTEXTILE MATERIAL FOR SILT FENCING SHALL BE TYPE-V UNDER SUB-SECTION 714.01 OF FP-03.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 152 mm AND FOLDED. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED BEFORE "BULGES" DEVELOP IN THE SILT FENCE.
5. SILT FENCE SHALL BE INSTALLED PARALLEL TO THE TOE OF ALL ROADWAY EMBANKMENT FILLS IN LOCATIONS WHERE THE TOE OF THE FILLS ARE WITHIN 2.0 m OF EXISTING STREAMS, CREEKS OR WASHES; IN AREAS WITH HIGHLY EROSION SOILS AND/OR WHERE EMBANKMENTS ARE AT A 1:3 OR STEEPER SLOPE. THE SILT FENCE SHALL BE PLACED 1 m TO 2 m DOWNHILL FROM THE TOE OF FILL AND IN ACCORDANCE WITH SECTION 157 OF THE FP-03 AND THE SUPPLEMENTAL SPECIFICATIONS.
6. STRAW BALES MAY BE USED AT THE TOP OF CUT BACKSLOPES AND FOR 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 15708-1000.
8. SEDIMENT/SILT FENCING SHALL BE PLACED AT ALL LOCATIONS WHERE EMBANKMENTS HAVE SLOPE DISTANCES OF 30.0 m OR GREATER. THE SEDIMENT FENCING WILL BE PLACED AT THE TOE OF SLOPES OFFSET 1-2 METERS.
9. THE CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SWPPP MEASURES WEEKLY AND AFTER EACH SIGNIFICANT STORM EVENT (I.E. 25 mm OF MOISTURE IN 24 HOURS).
10. PRIOR TO ACCEPTANCE, ALL PROJECT AREAS (AS DETERMINED BY THE AO/AOTR) 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.

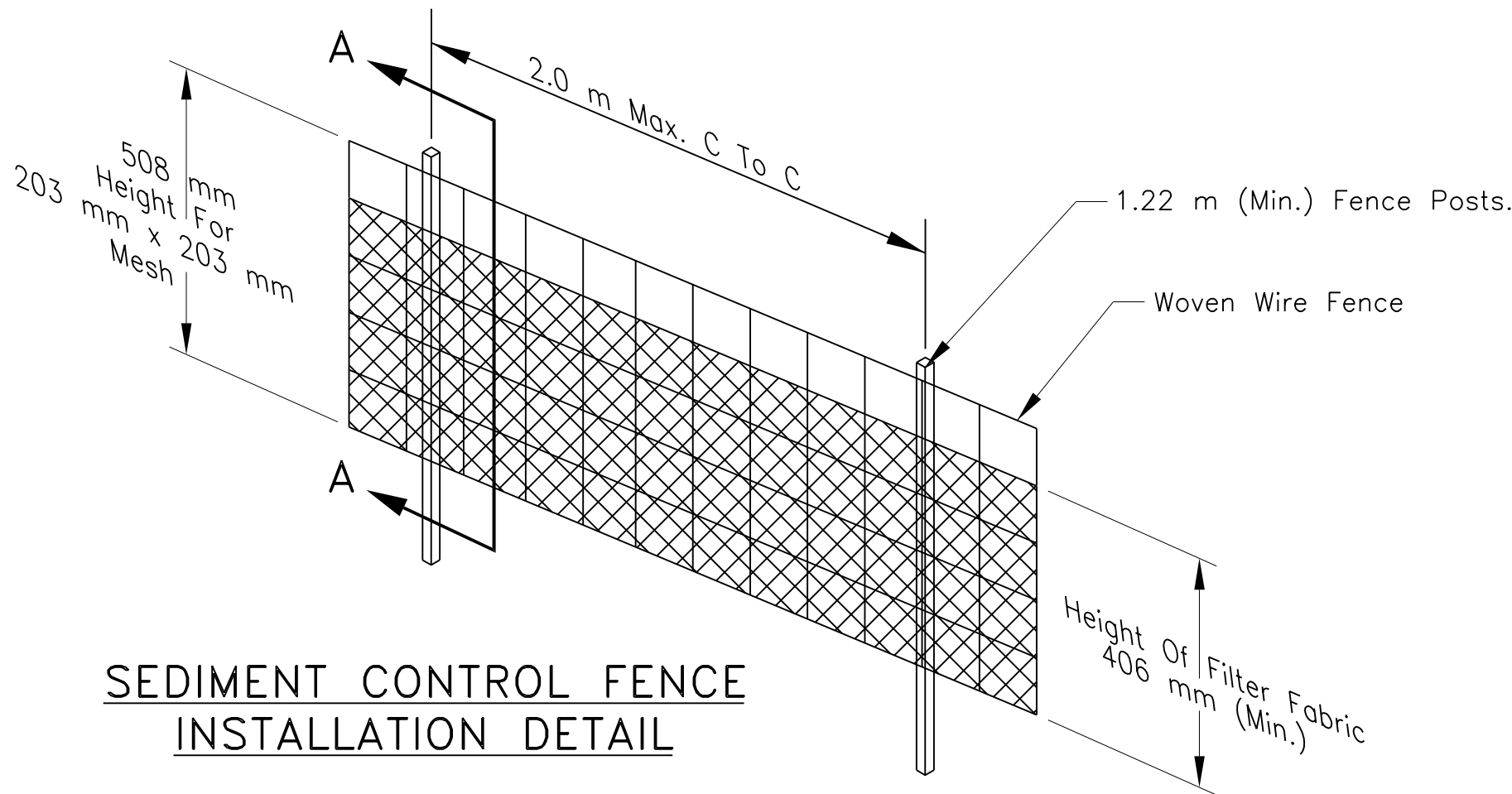


EROSION & SEDIMENT CONTROL FENCE
AT DRAINAGE STRUCTURE

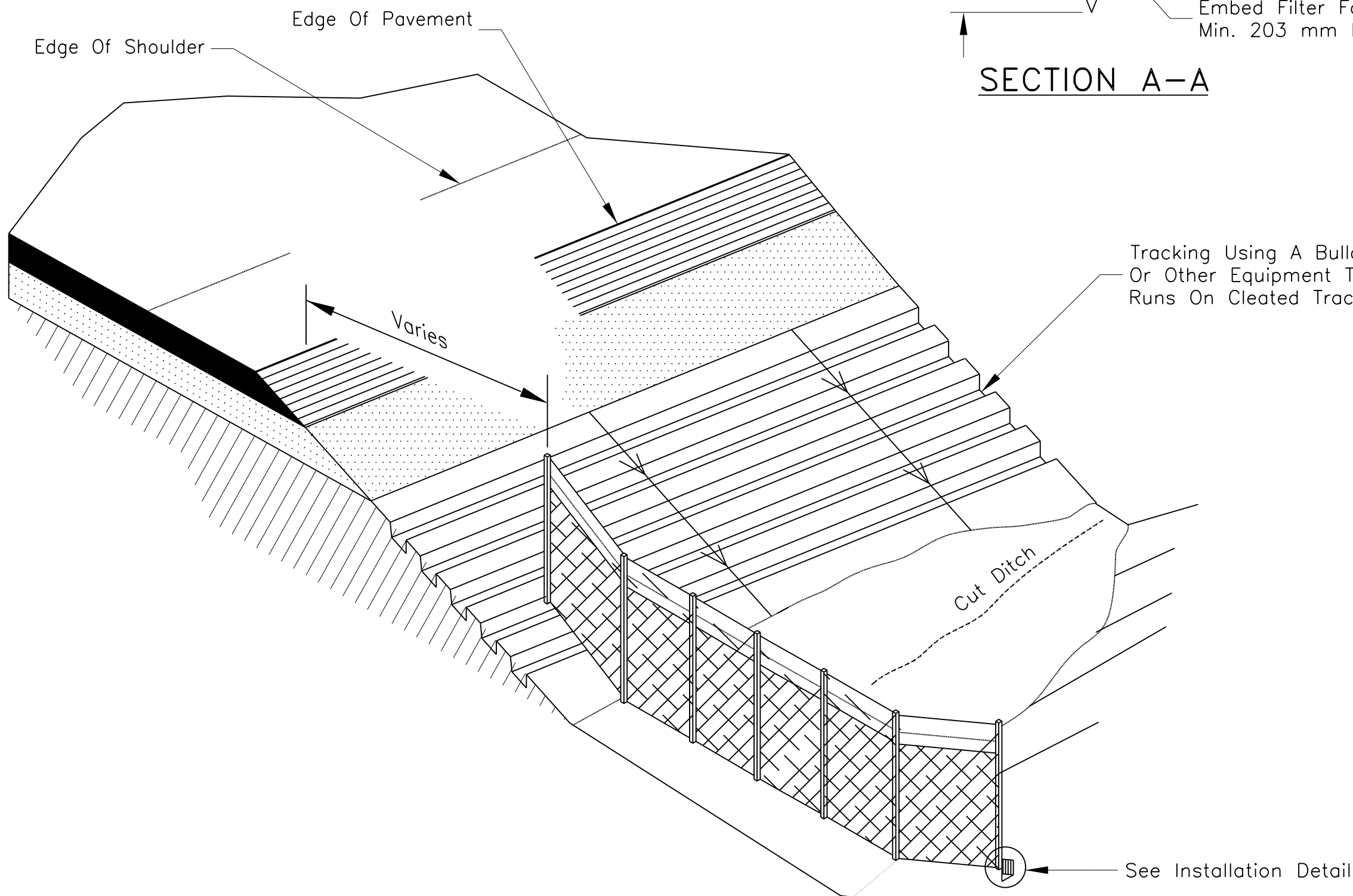
EROSION & SEDIMENT CONTROL FENCE
ALONG EDGE OF STREAM BANK (TOE OF SLOPE)



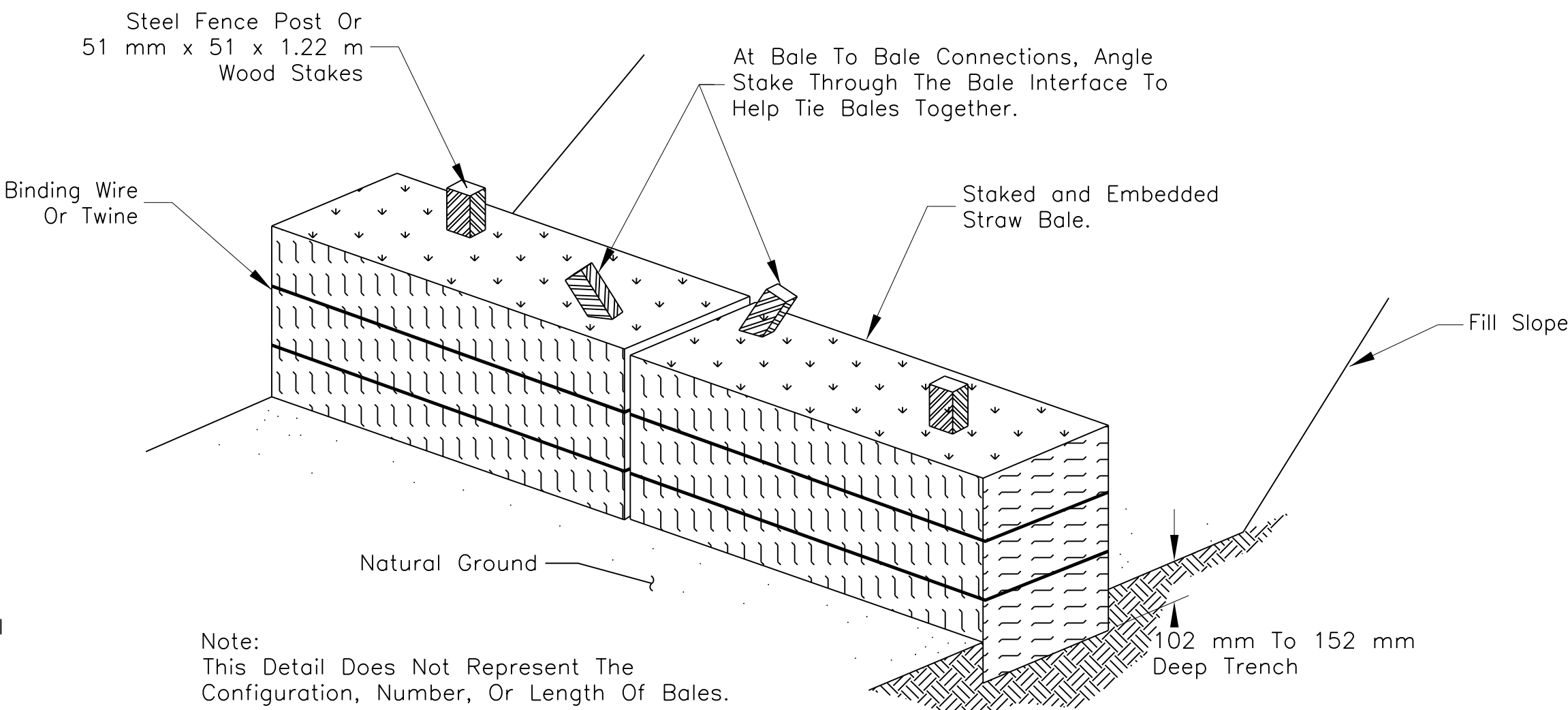
SECTION A-A



SEDIMENT CONTROL FENCE
INSTALLATION DETAIL



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



TYPICAL STRAW BALE STAKING
AND TRENCHING DETAIL

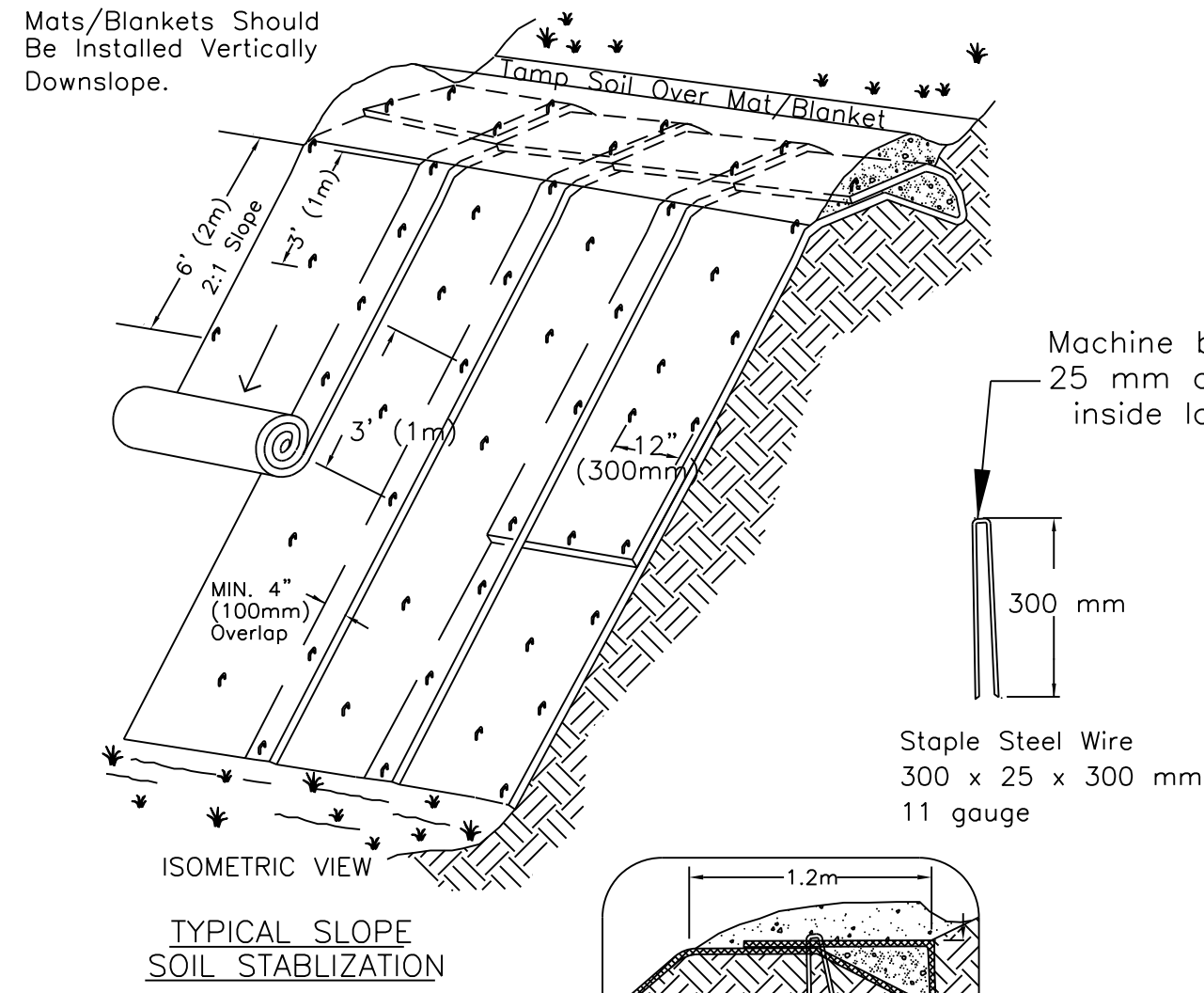
UNITED STATES
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NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

STORMWATER POLLUTION
AND EROSION/SEDIMENT
CONTROL DETAILS

DRAWN BY: NRODOT DATE: 08/11
DESIGNED BY: NRODOT DATE: 08/11
REVISED: 08/11 BY: NRODOT
SCALE: NTS
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SHEET MODEL NAME: PLOT SHEET

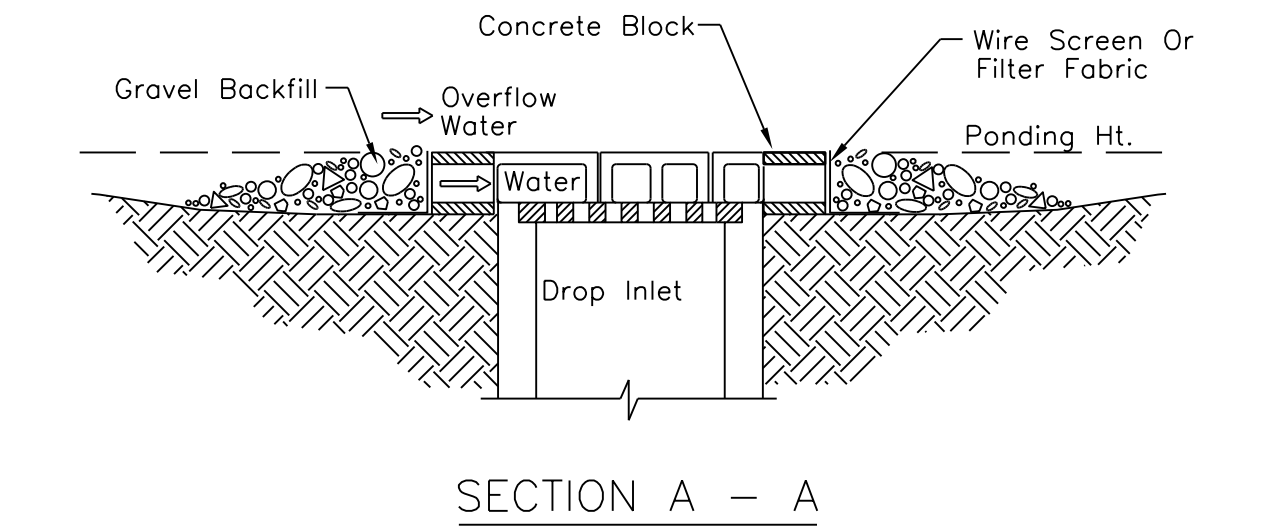
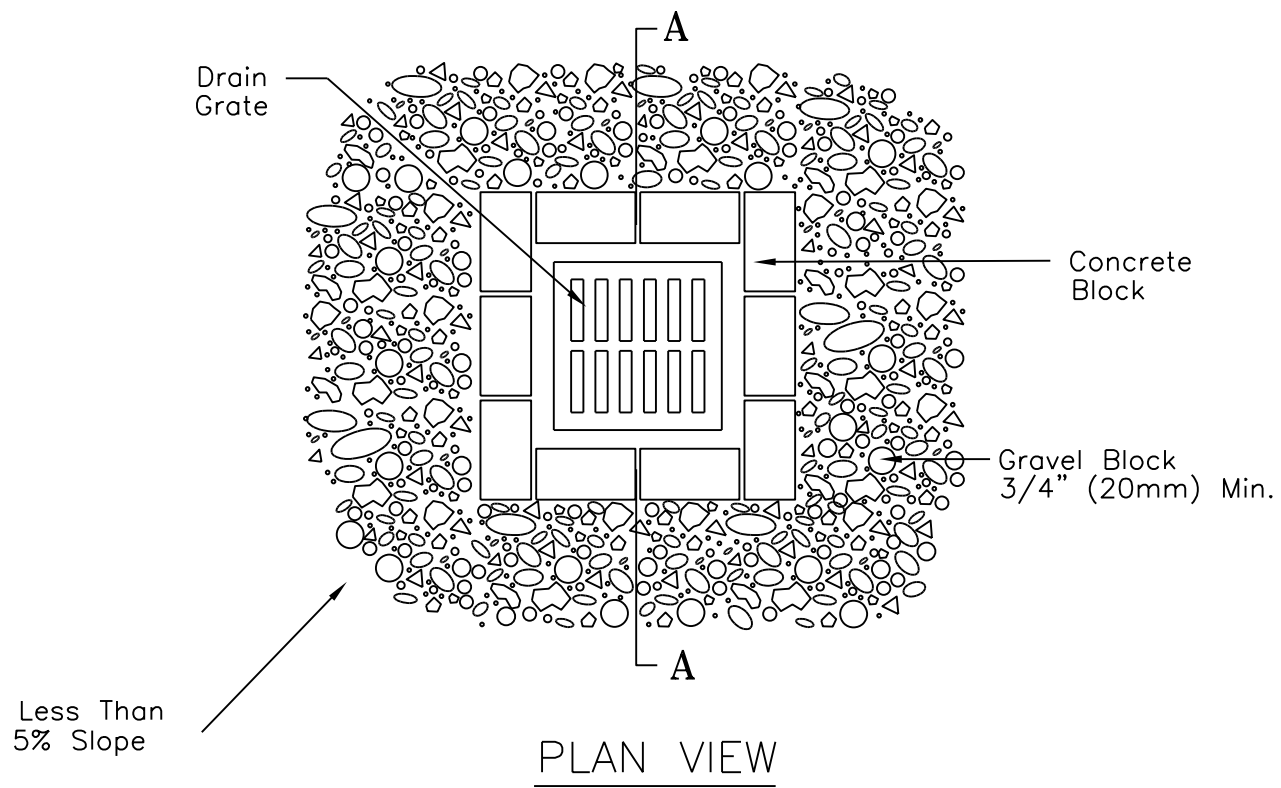


REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	32	39



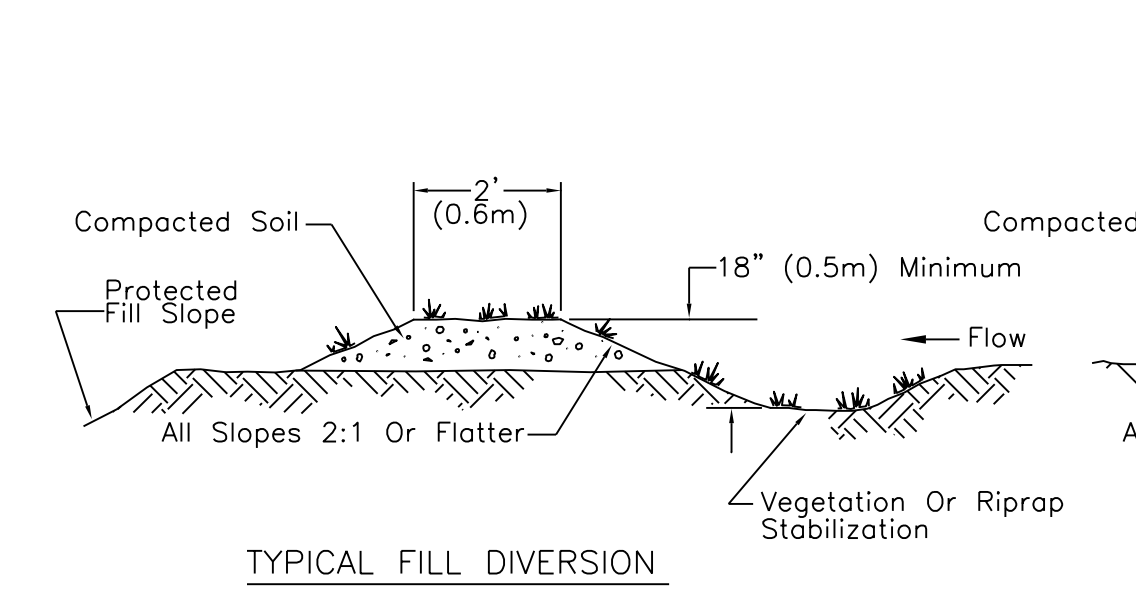
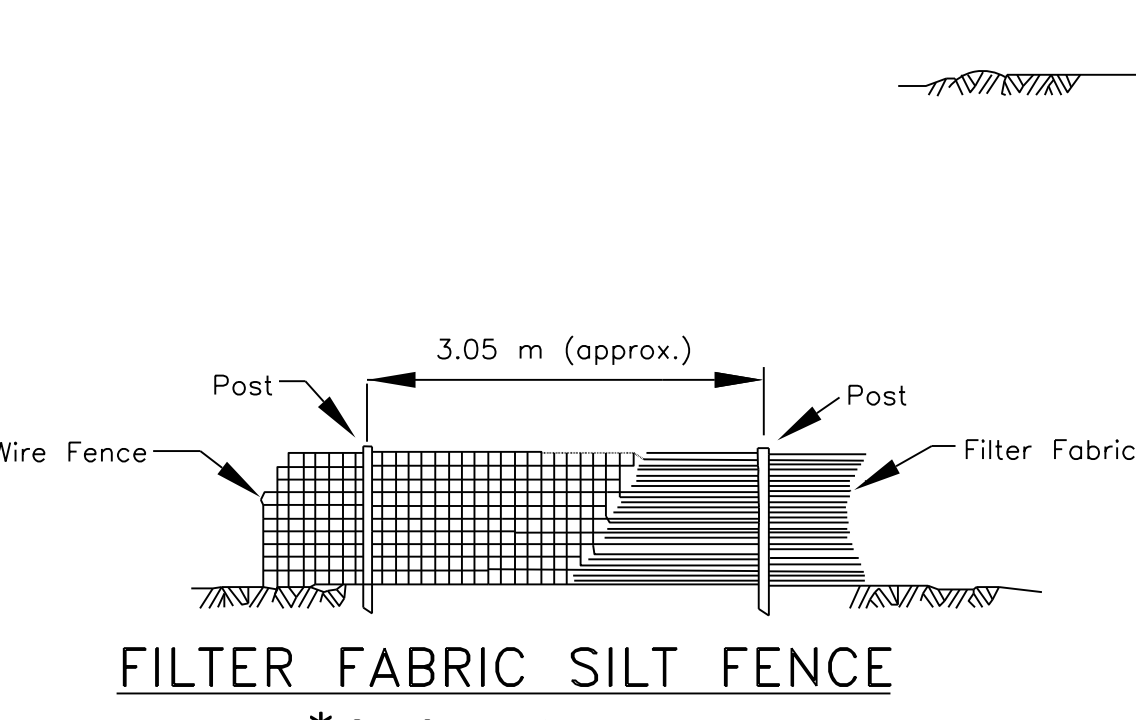
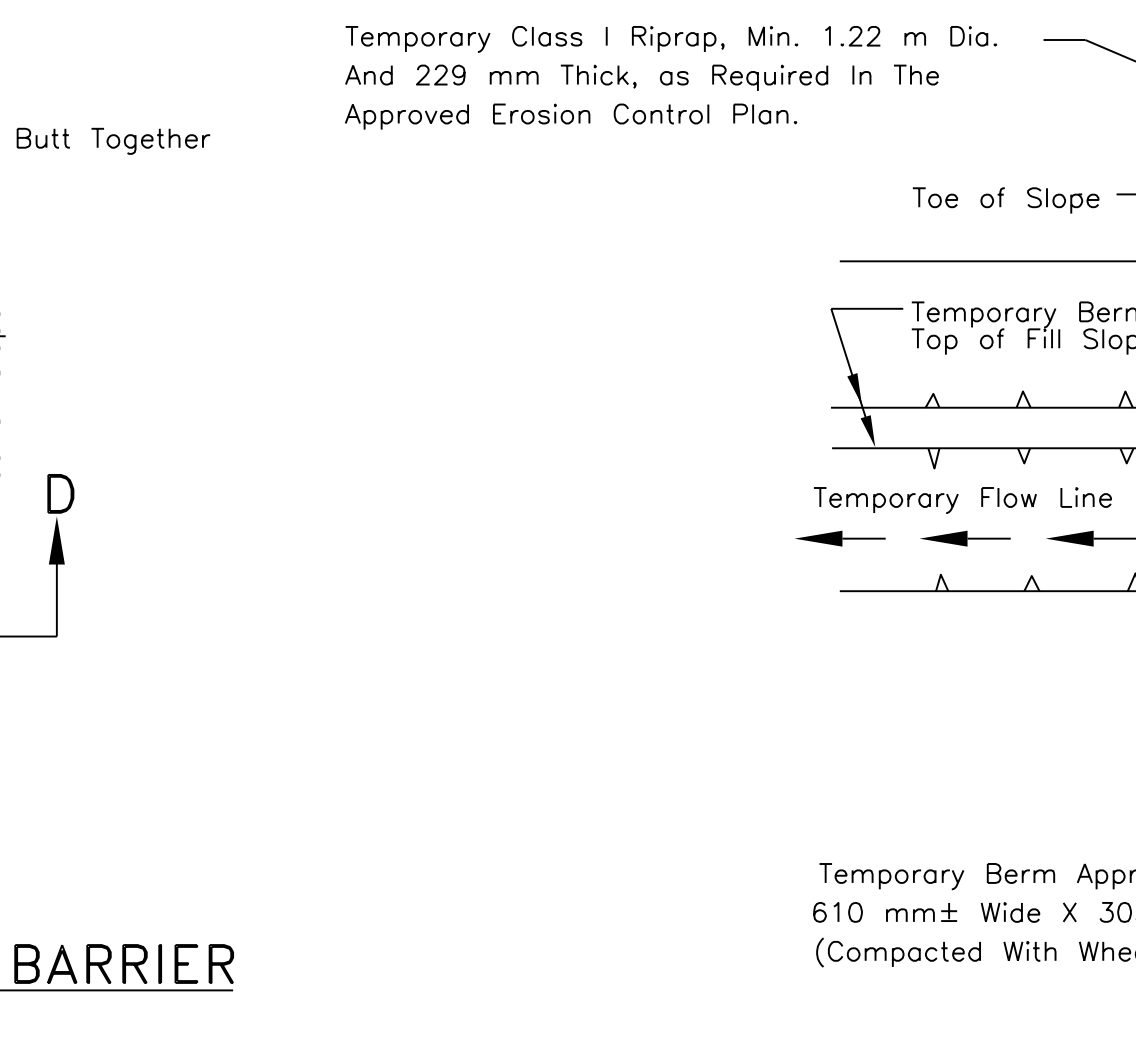
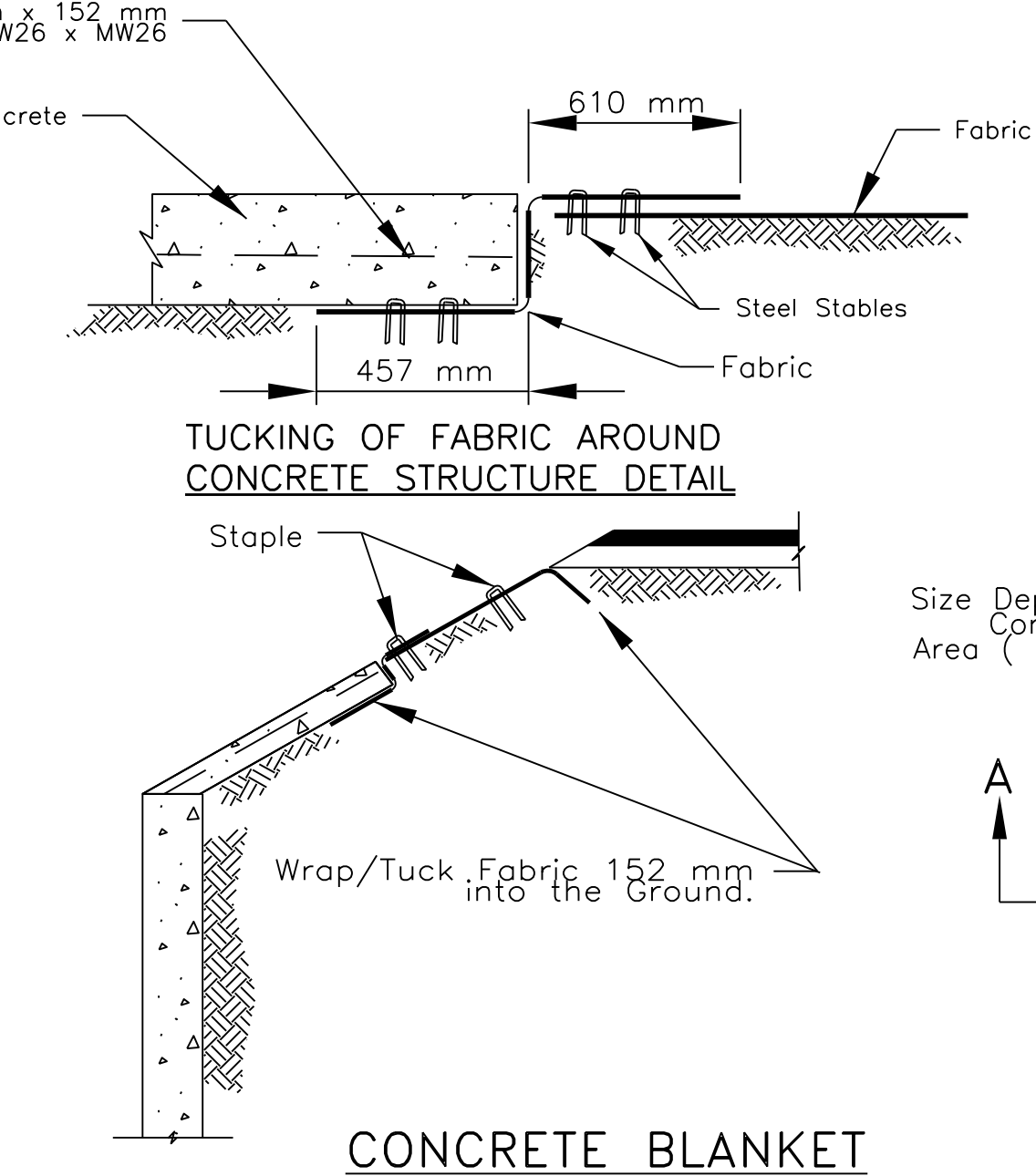
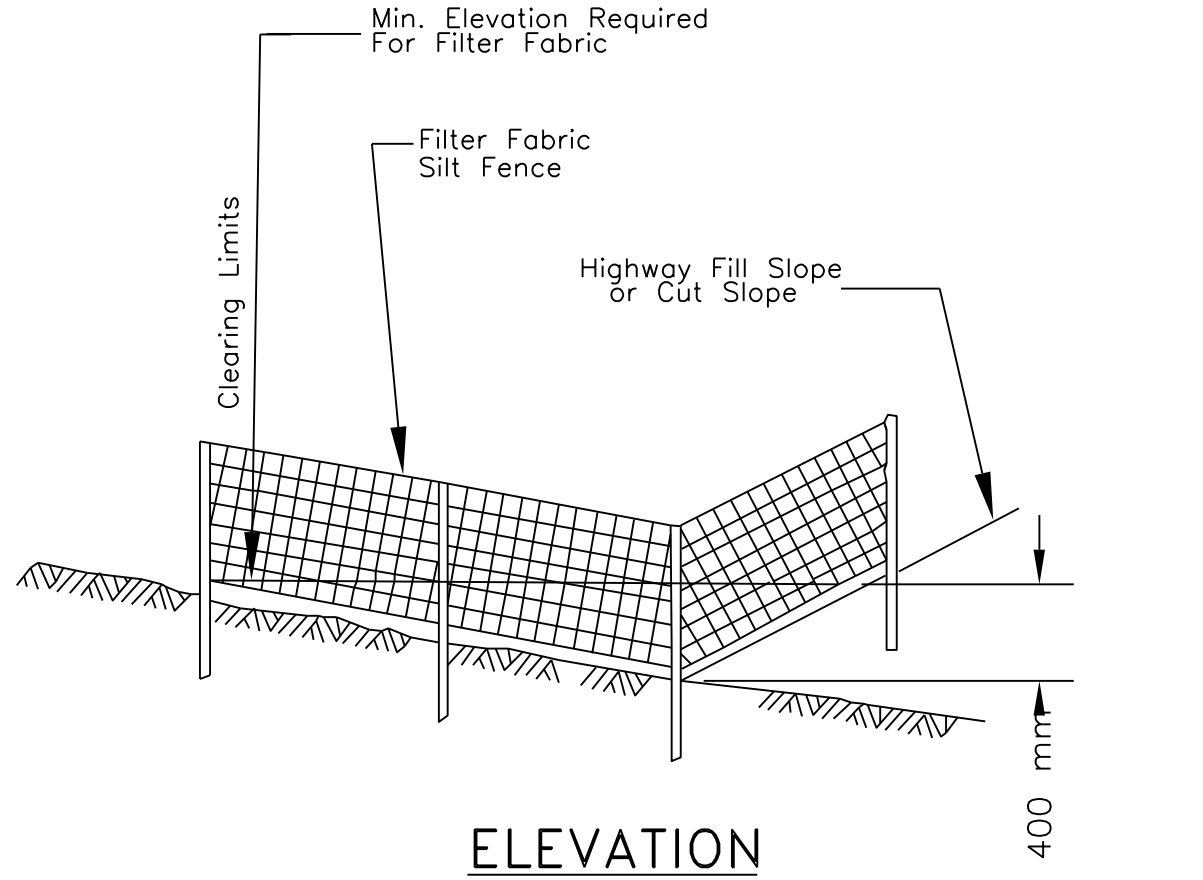
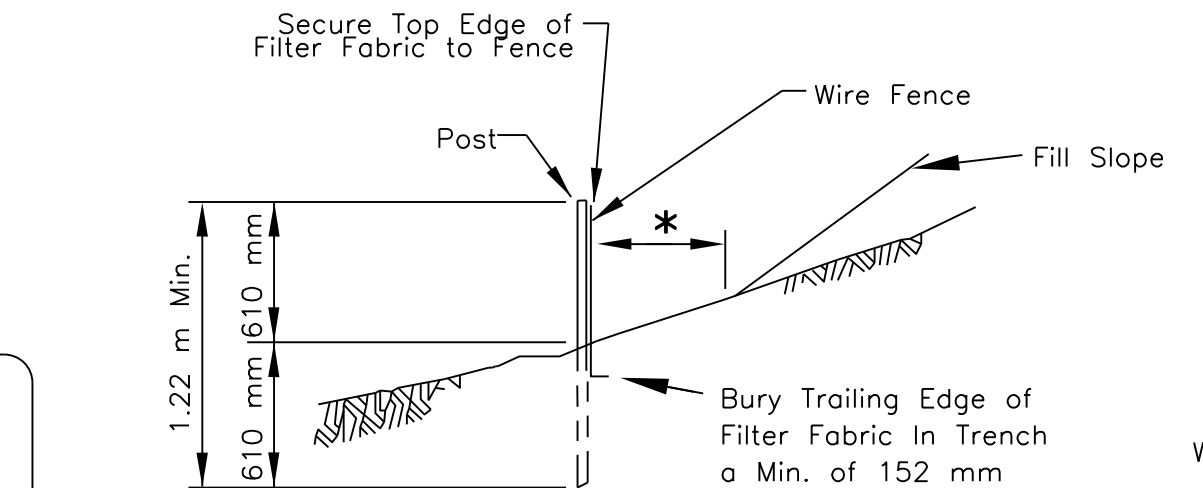
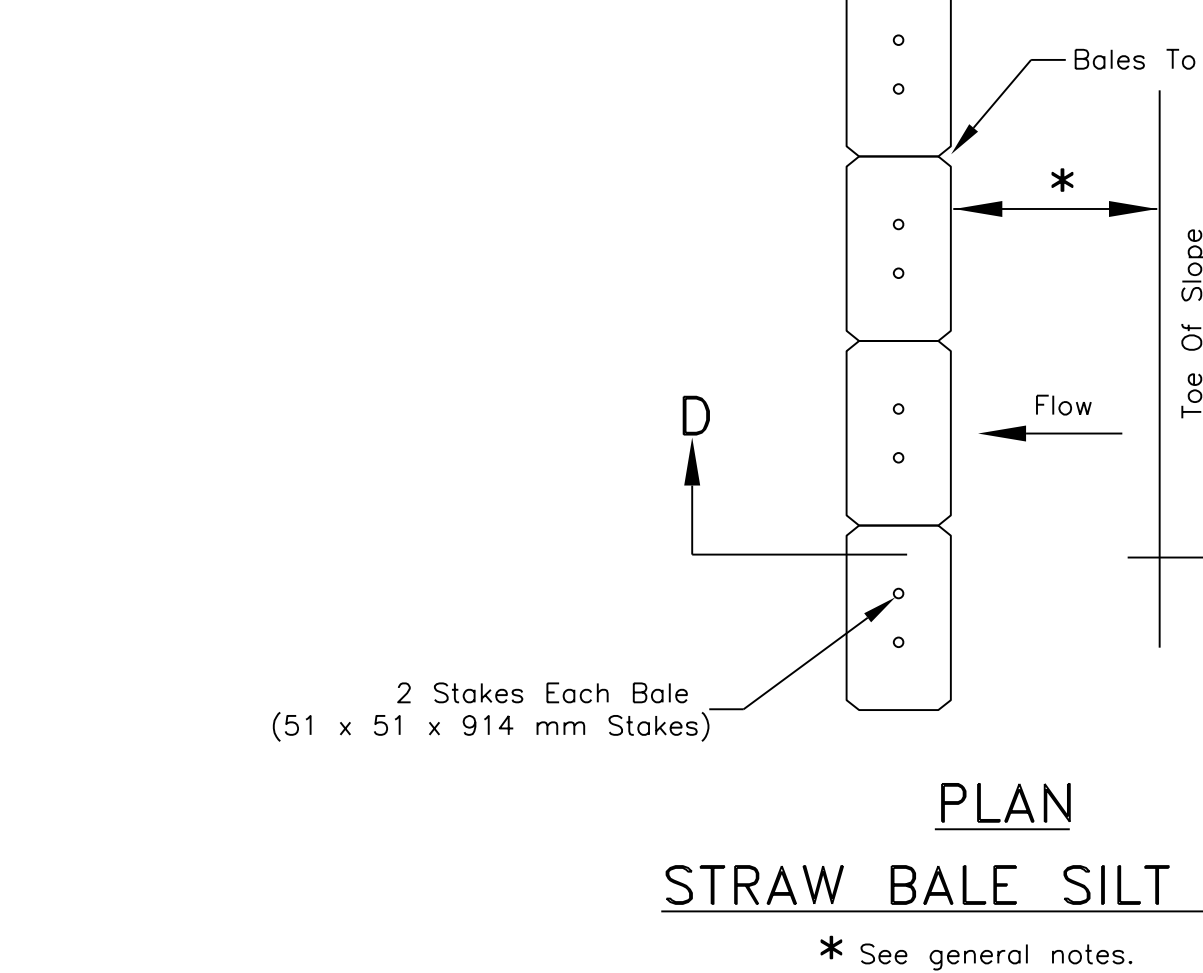
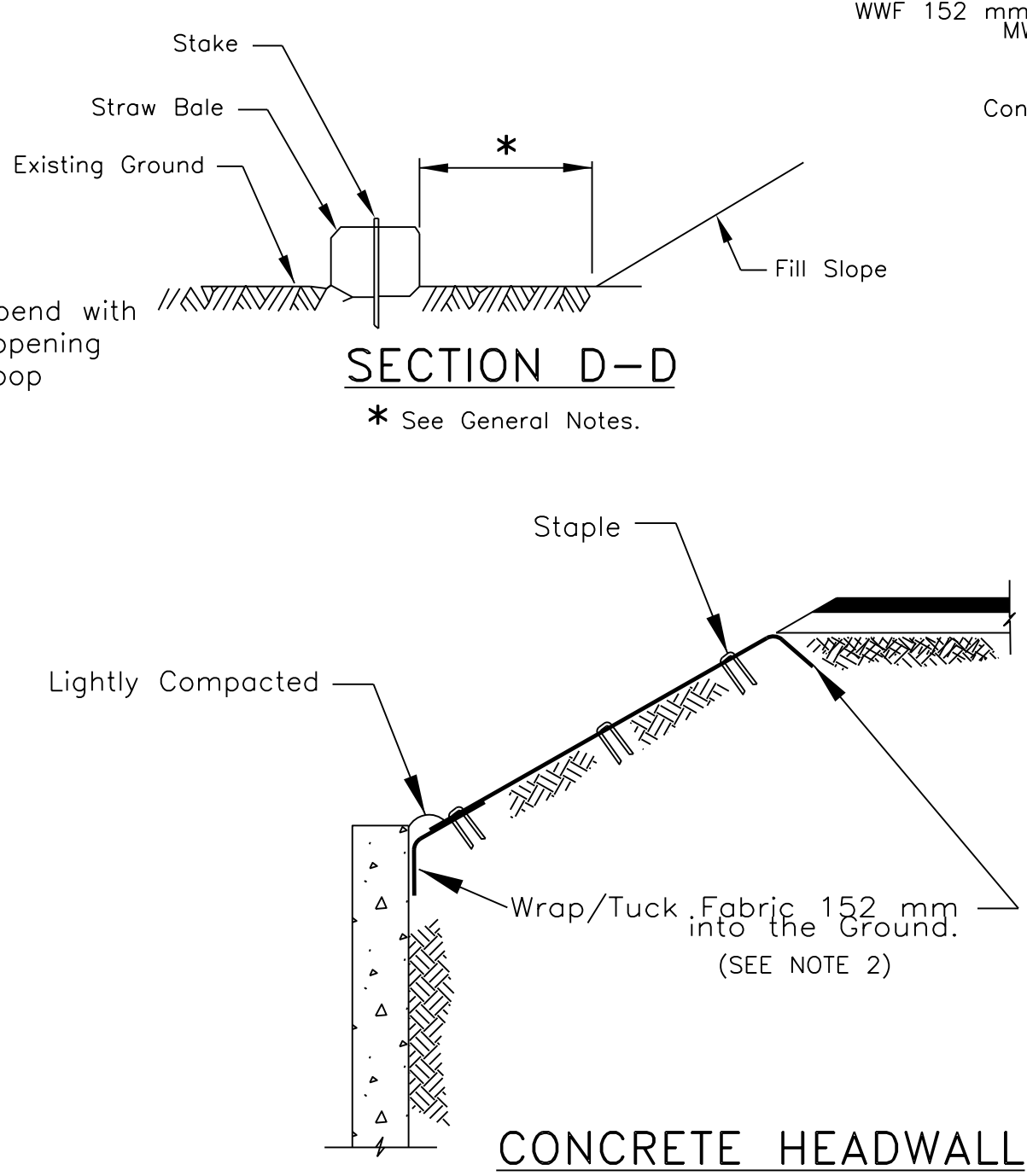
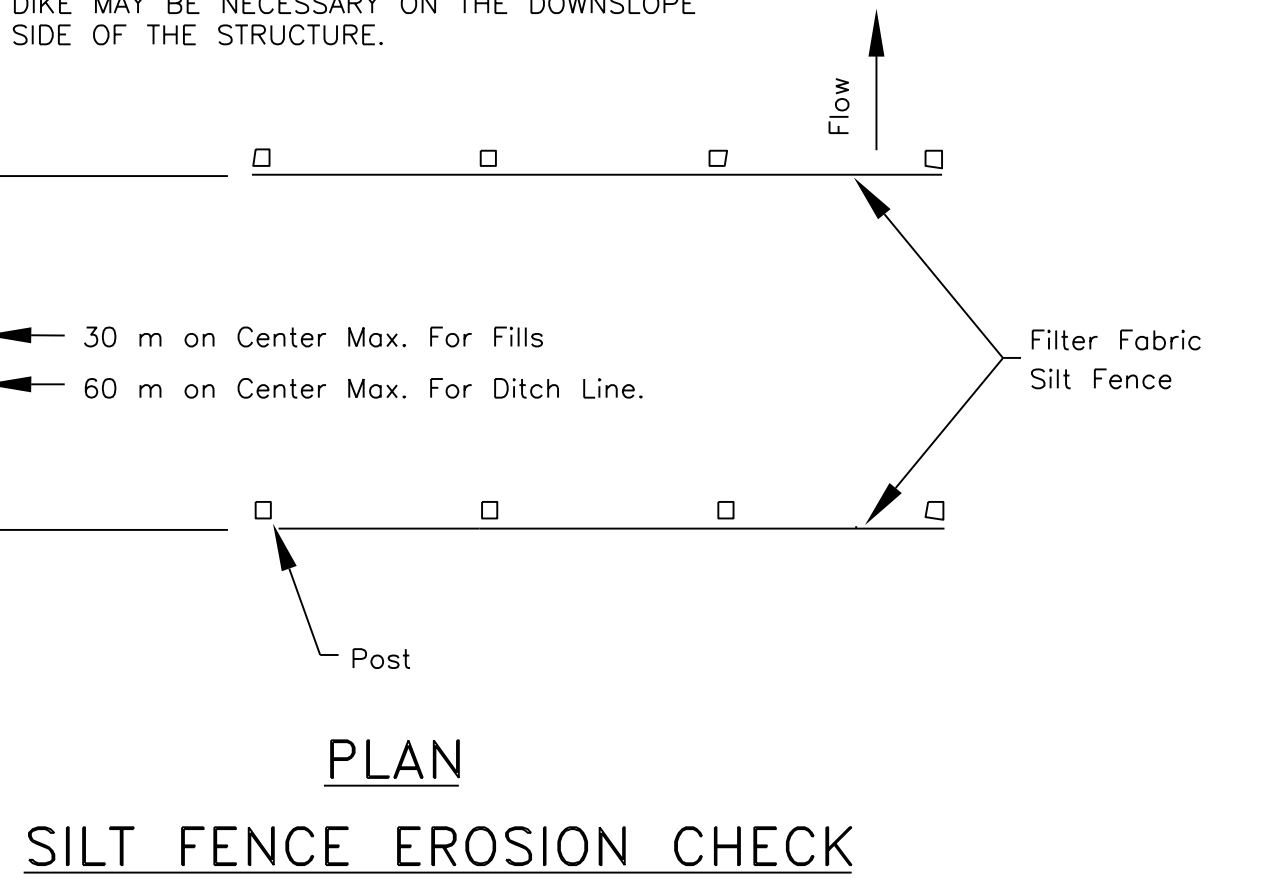
- NOTES:
- SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
 - APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
 - LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION

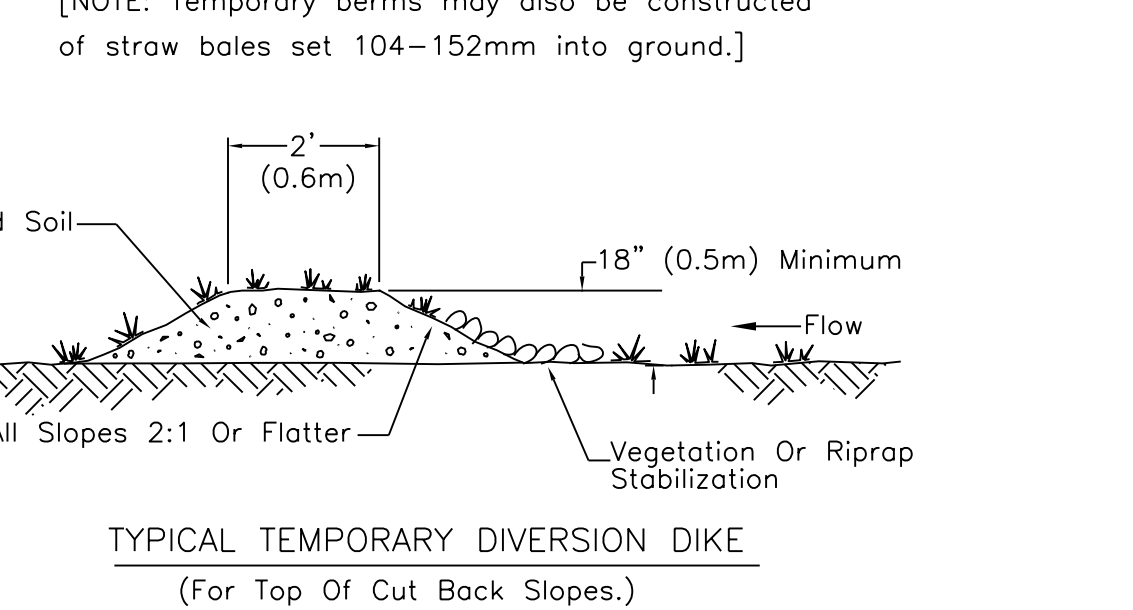
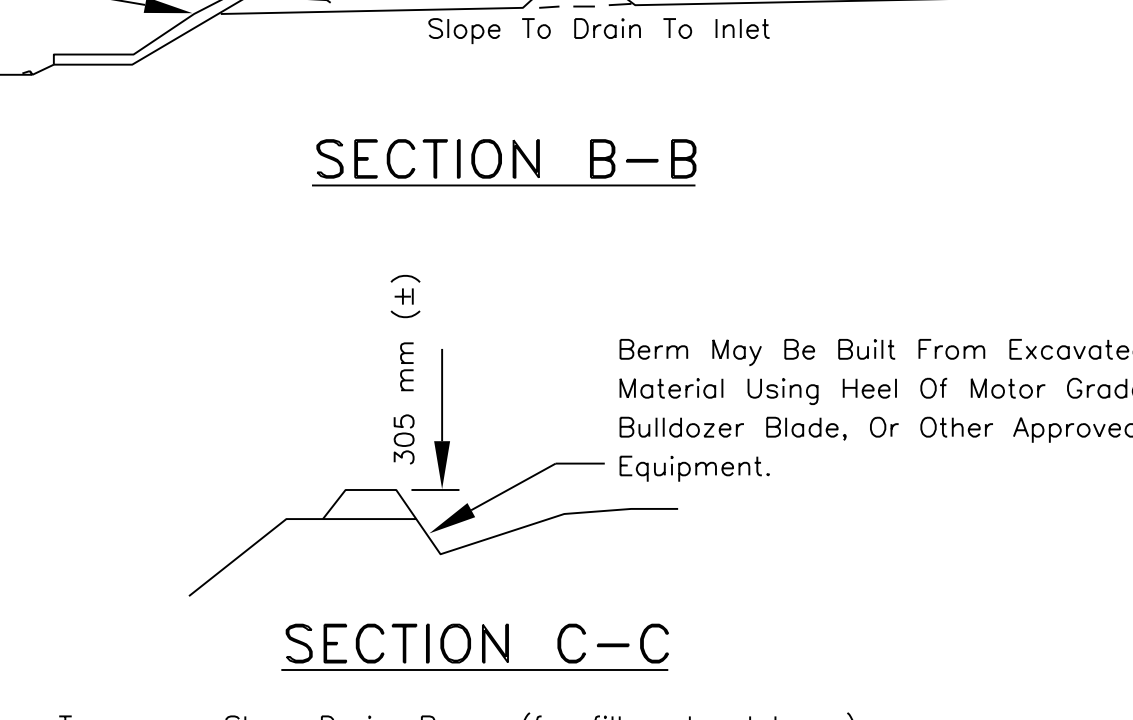
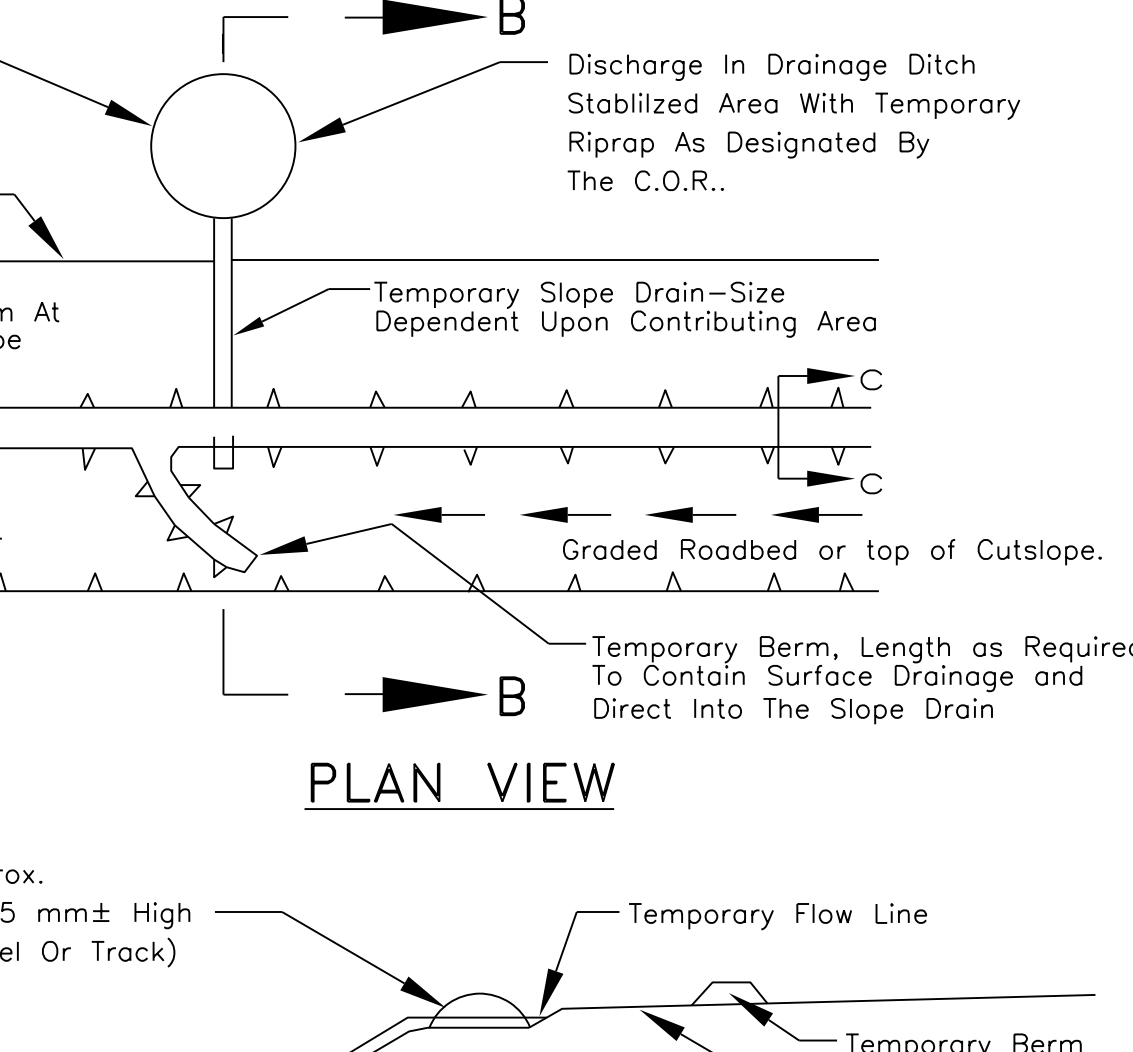
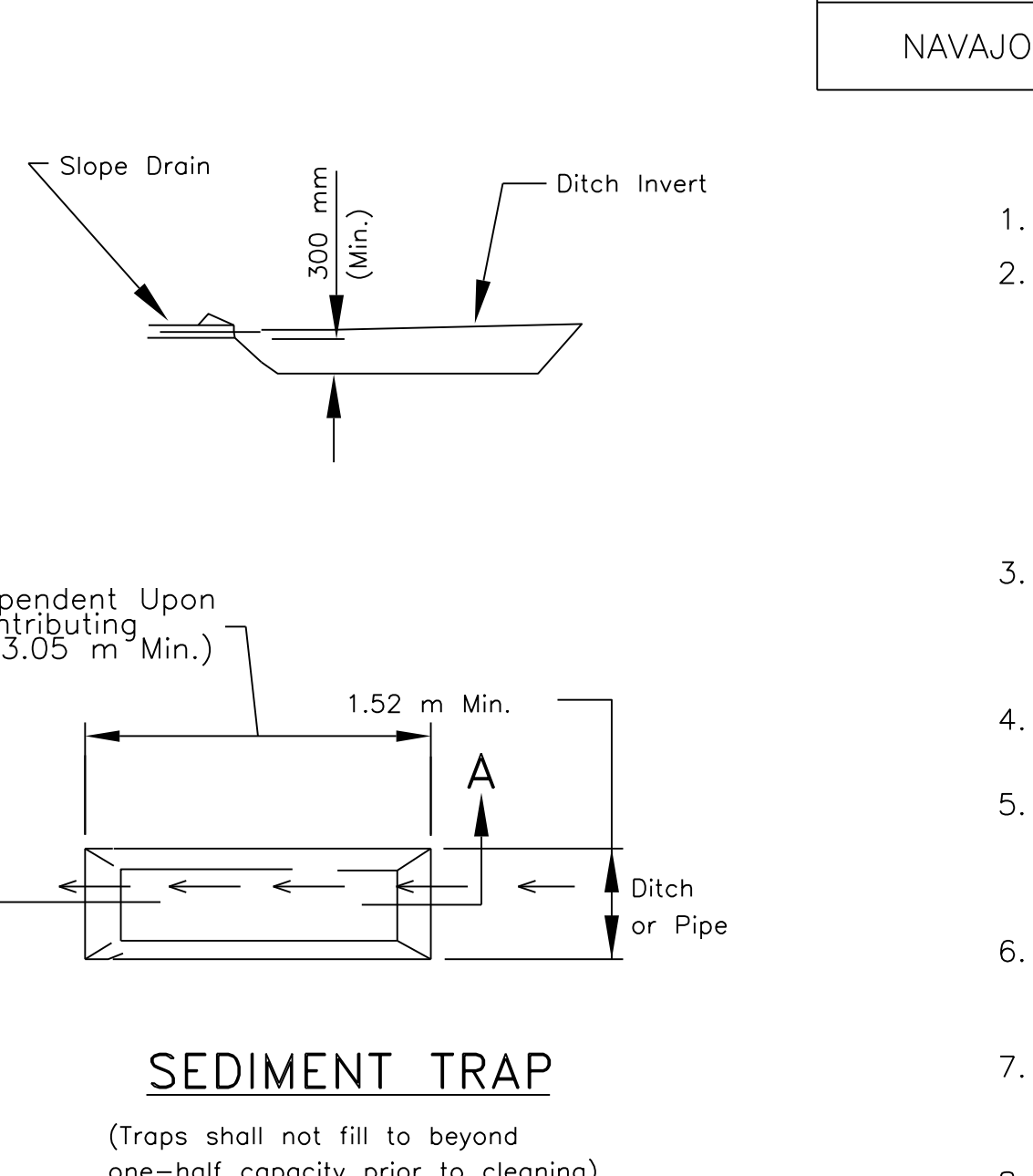


- NOTES:
- DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%).
 - EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.
 - THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING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

BLOCK AND GRAVEL DROP INLET SEDIMENT BARRIER

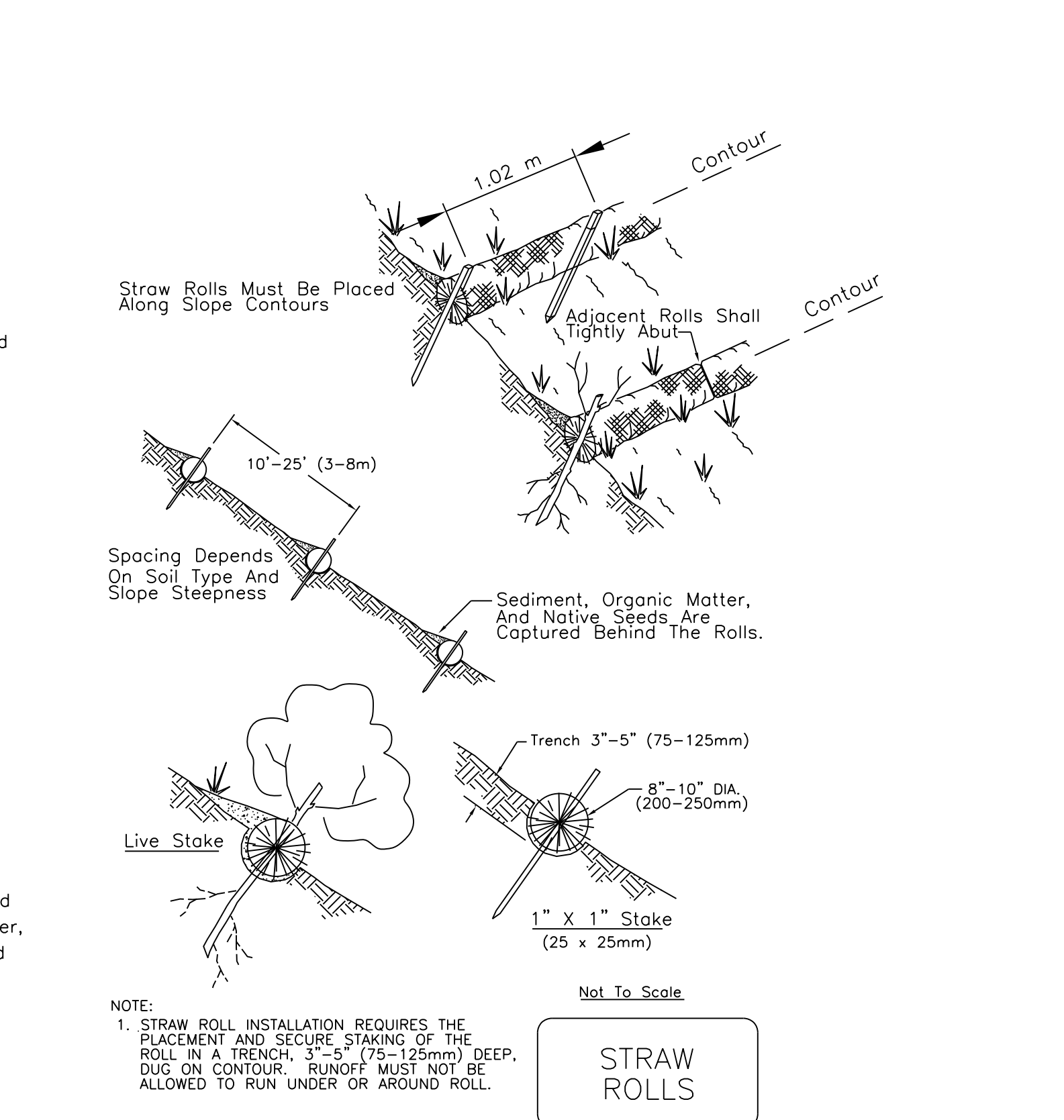


- NOTES:
- THE CHANNEL BEHIND THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET.
 - THE DIKE SHALL BE ADEQUATELY COMPACTED TO PREVENT FAILURE.
 - THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP.
 - THE DIVERSION DIKE SHALL EXTEND TO THE BOTTOM OF CUT BACK SLOPE AND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



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

- GENERAL NOTES
- SEE SHEET 31 OF 39 FOR ADDITIONAL NOTES AND DETAILS.
 - THE CONTRACTOR SHALL INSTALL GEOTEXTILE FABRIC, TYPE 4,
 - CONSTRUCT FINISH GRADING AROUND STRUCTURE TO BE PLACED.
 - CUT TRENCHES FOR FOOTING OF SLAB.
 - INSTALL 1.22m OF GEOTEXTILE FABRIC ANCHORED ON FLOOR AND TOP ALONG THE CUT FACE OF TRENCH AS SHOWN.
 - PLACE CONCRETE FORMS, REINFORCEMENTS AND SUBSEQUENT CONCRETE.
 - CONSTRUCT SEDIMENT BASIN AND TRAPS, EROSION CHECKS AND/OR FILTERS IN STRATEGIC LOCATIONS ON THE PROJECT TO FILTER STORM RUNOFF BEFORE IT LEAVES THE PROJECT CONSTRUCTION LIMITS OR ENTERS A STREAM AS SHOWN IN THE APPROVED SWPPP.
 - CLEAN ALL SEDIMENTS BASIN AND TRAPS OF ACCUMULATED SEDIMENT WHEN HALF FULL OF SEDIMENT.
 - USE DRAIN PIPE, RIPRAP, GEOTEXTILE FABRIC, OR GRASS-LINED WATERWAY FOR TEMPORARY SLOPE DRAINS TO CHANNEL RUNOFF DOWN SLOPES, CHANNEL WATER INTO SLOPE DRAINS WITH STRAW BALES, WATTLE, OR EARTH BERMS CONSTRUCTED AT THE TOP OF A CUT SLOPE. ANCHOR SLOPE DRAINS TO THE SLOPE.
 - THE CONTRACTOR SHALL ADJUST THE DIMENSIONS AND/OR LOCATIONS OF TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES TO FIT ACTUAL FIELD CONDITIONS.
 - REMOVE AND DISPOSE OF EROSION CONTROL MEASURES ARE SATISFACTORILY ESTABLISHED DRAINAGE DITCHES AND CHANNELS ARE LINED AND STABILIZED, IN ACCORDANCE WITH SECTION 157 OF FP-03.
 - AT CUT SLOPES SPECIFIED IN THESE PLANS TO BE COVERED WITH EROSION MATTING PROTECTION, THE COR/AOTR SHALL INSPECT THE SLOPES FOR EXISTING AND STABLE ROCK MATERIAL. IF IN THE OPINION OF THE COR/AOTR, THE CUT SLOPES ARE SUFFICIENTLY STABLE DUE TO THE NATURAL ROCK, THE COR/AOTR MAY DELETE THE MATTING IN THOSE AREAS.



REVISED 3-30-09

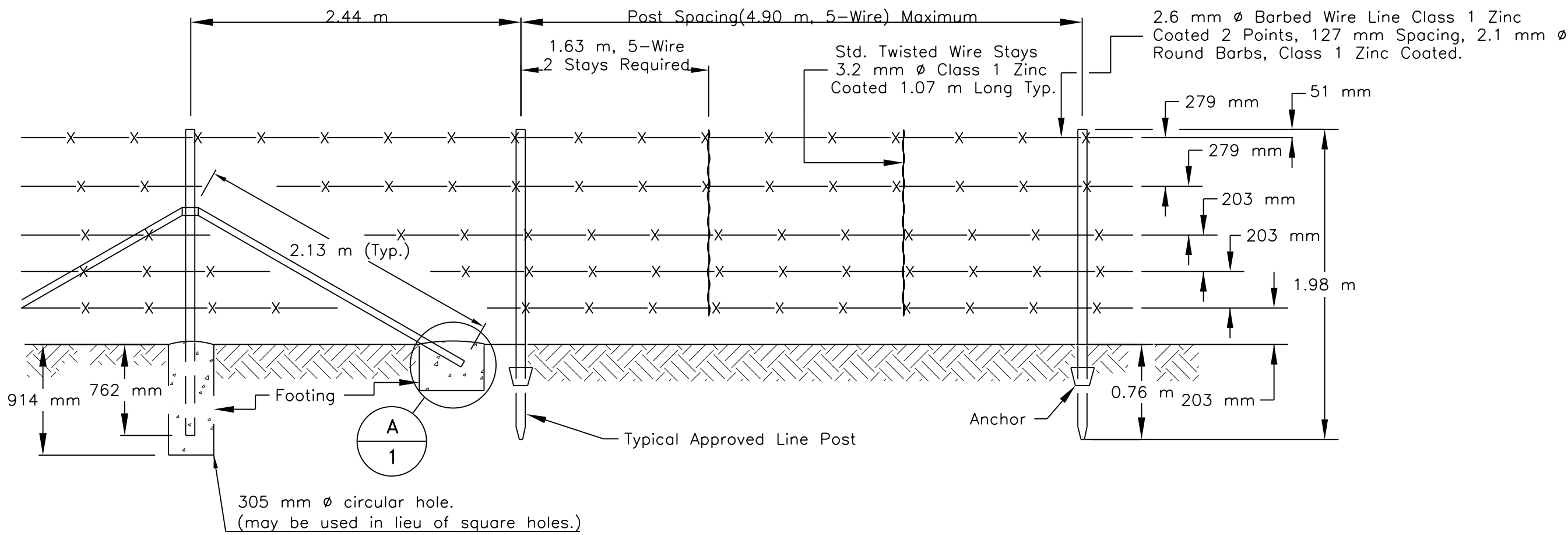
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

STORMWATER POLLUTION AND
EROSION/SEDIMENT CONTROL DETAILS

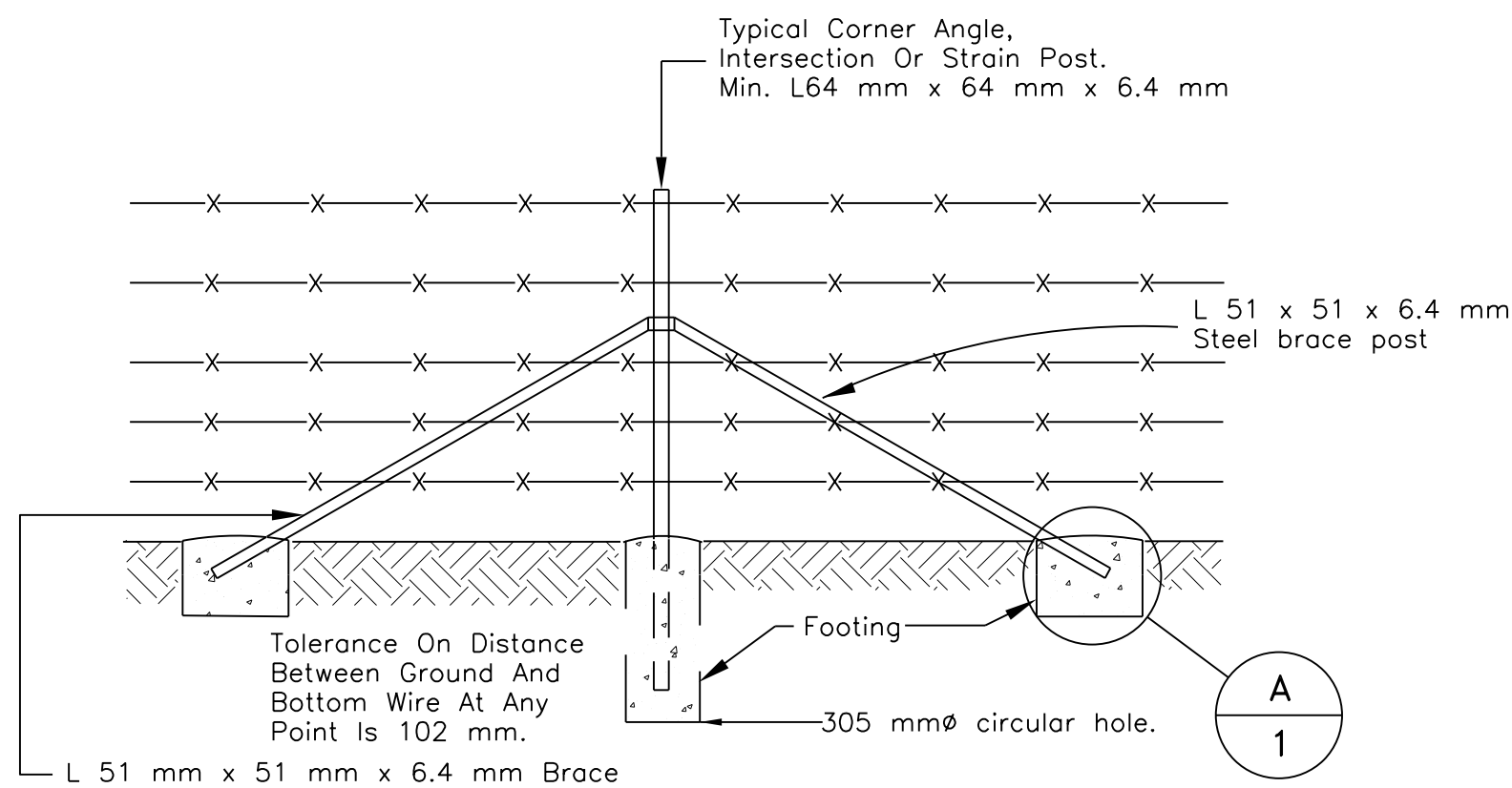
DRAWN BY: NRO DOT DATE: 01/01
DESIGNED BY: NRO DOT DATE: 01/01
REVISED: 10/10 BY: SC
SCALE: NTS
FILENAME: 9345ero2
SHEET MODEL NAME: Model

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	33	39

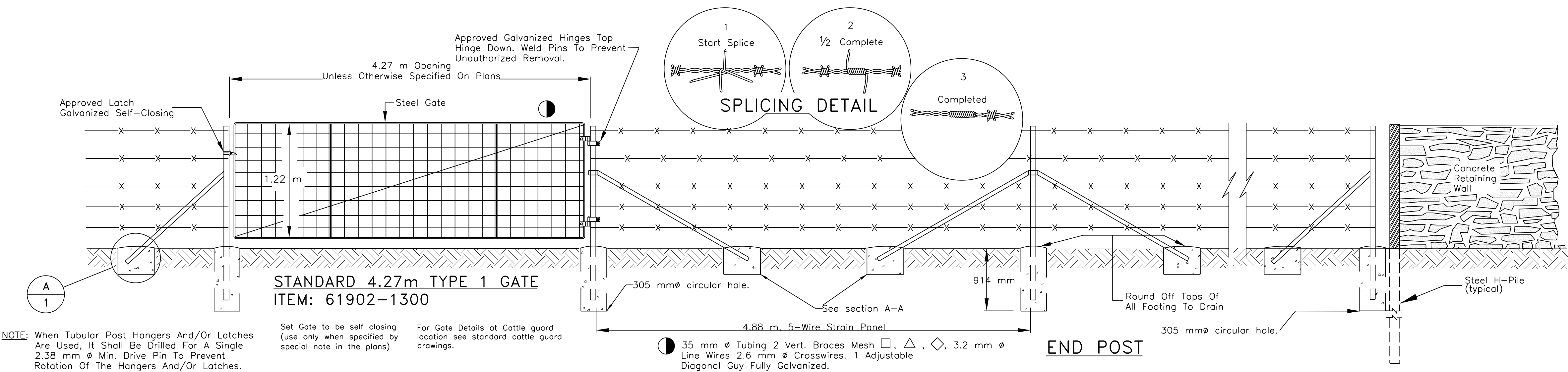


STANDARD 5 LINE GALVANIZED BARBED WIRE PANEL



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.



STANDARD 4.27m TYPE 1 GATE
ITEM: 61902-1300

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.

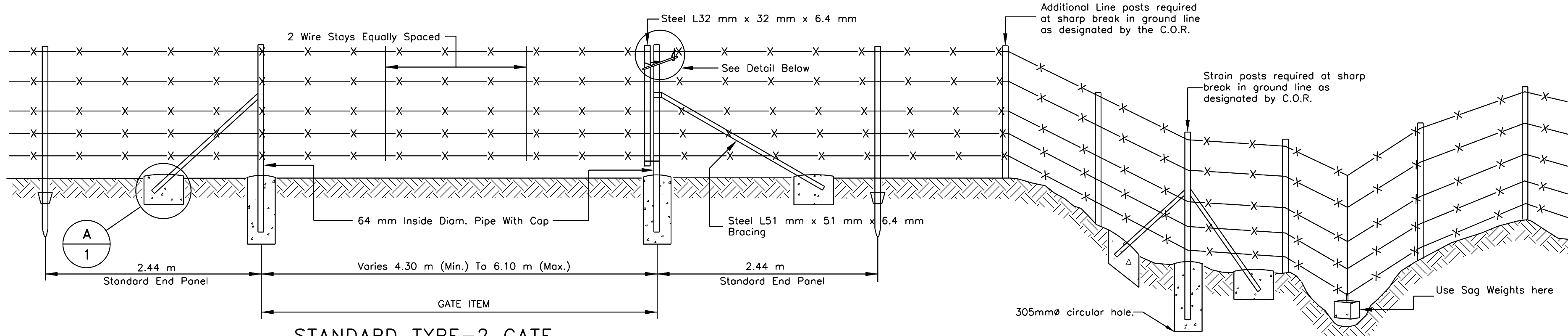
Set Gate to be self closing (use only when specified by special note in the plans)

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

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 CONCRETE RETAINING WALL

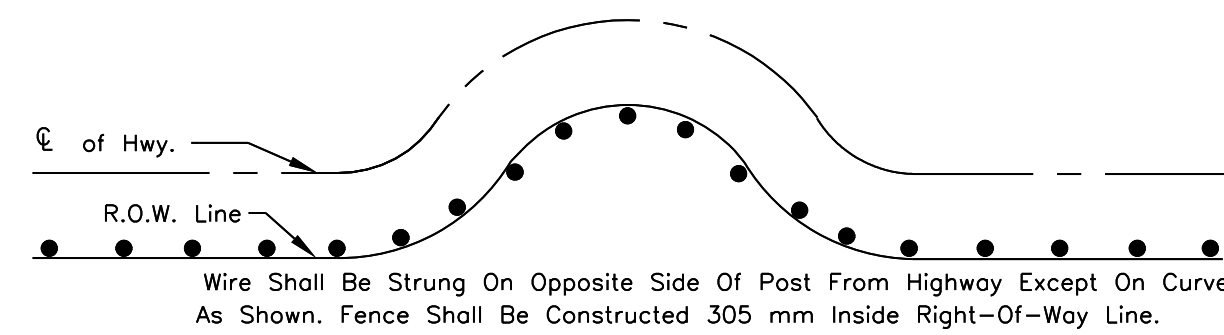


STANDARD TYPE-2 GATE
ITEM: 61902-2600

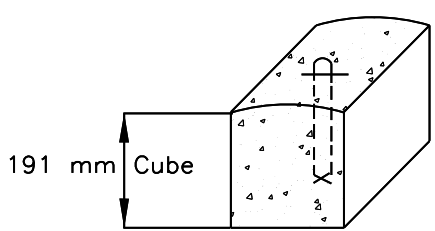
Use At Locations Noted On Plans

FENCE PROFILE IN ROUGH TERRAIN

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

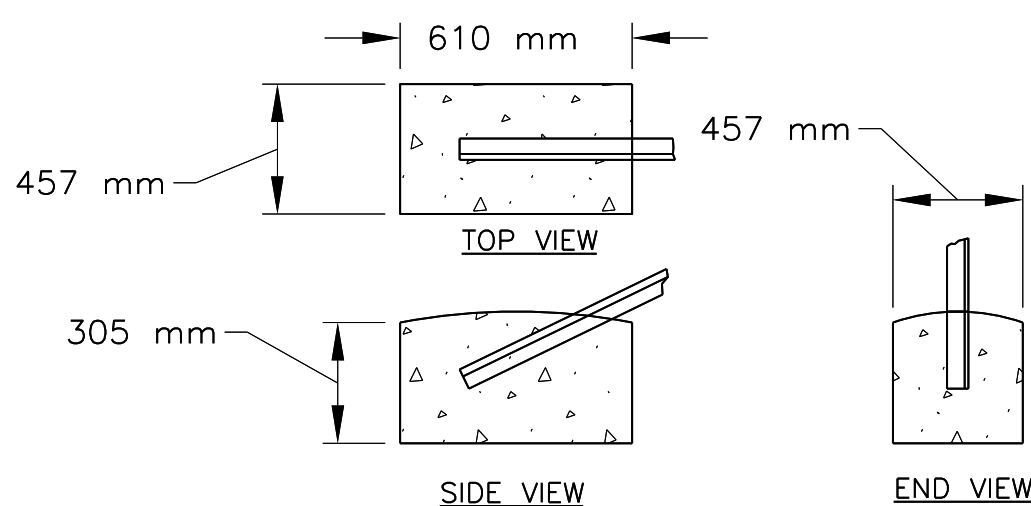


TYPICAL STEEL POST SECTION

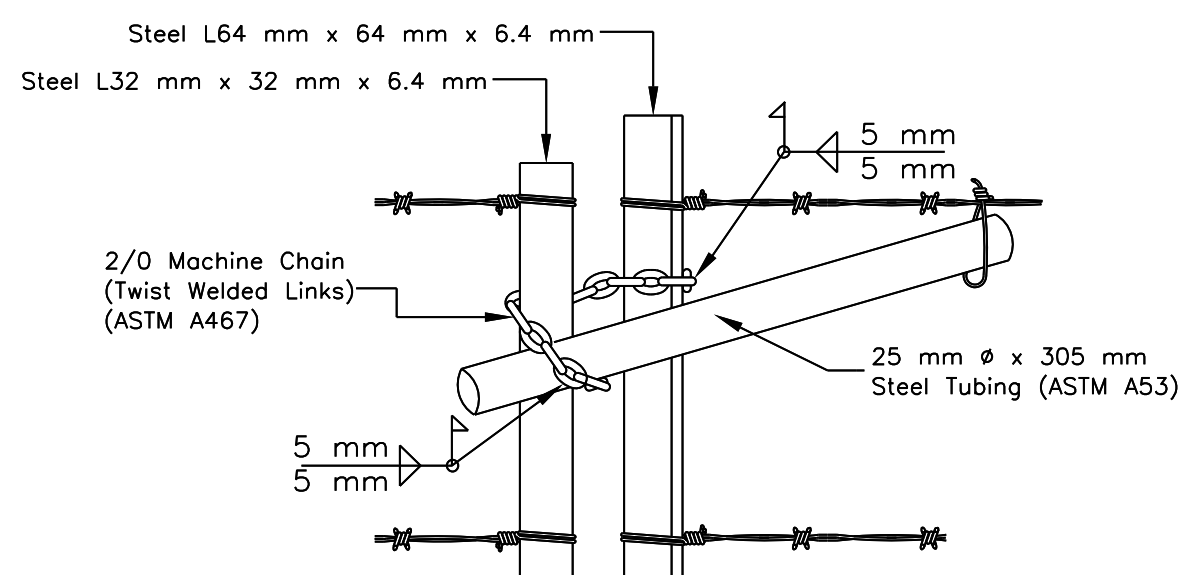


CONCRETE SAG WEIGHT DETAIL

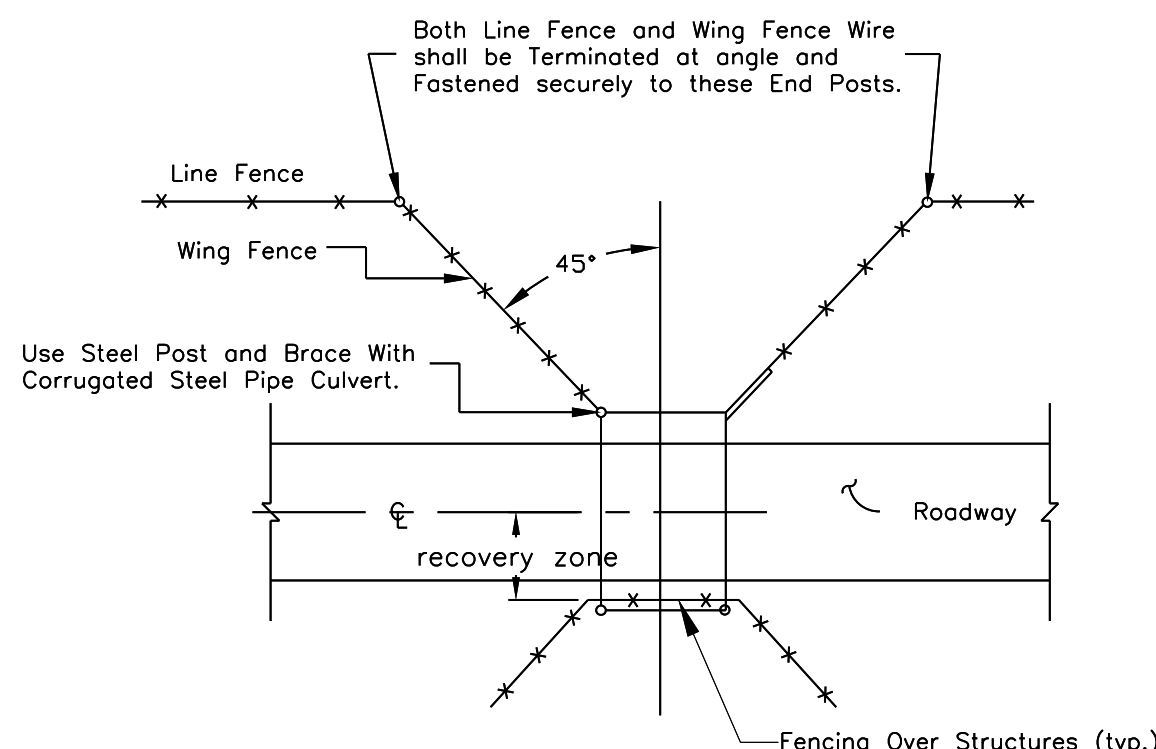
Min. Weight Of Concrete Sag Shall Be 16 kg.



CONCRETE FOOTING FOR
CORNER & STRAIN POST



GATE SECURING DETAIL



WING FENCE DETAIL

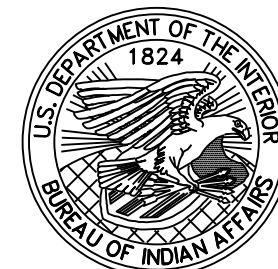
GENERAL NOTES

- CORNER, GATE, INTERMEDIATED BRACE POSTS AND LINE POSTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 281-96. METAL POST AND BRACES SHALL BE FABRICATED FROM RAIL, BILLET, OR COMMERCIAL GRADE STEEL CONFORMING WITH THE REQUIREMENT OF ASTM A 702.
- LINE POSTS SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO M 281-96, AND SHALL BE A NOMINAL WEIGHT OF 1.98 kg/m EXCLUSIVE OF ANCHOR PLATES. ANCHOR PLATES SHALL BE CLAMPED, WELDED OR RIVETED TO THE SECTION IN SUCH A MANNER AS TO PREVENT DISPLACEMENT WHEN THE POSTS ARE DRIVEN.
- 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.
- THE WIRE, WIRE FASTENERS, OR WIRE CLIPS FOR FASTENING BARBED AND WOVEN FENCING TO THE STEEL POSTS SHALL BE 3.0 mm DIA. STEEL WIRE, CLASS 1 (ZINC COATED) SOFT TEMPER AND MEET THE REQUIREMENTS OF ASTM A 641. FURNISHING AND PLACEMENT OF FASTENERS SHALL BE INCLUDED WITH ITEM 61901-1000.
- CONCRETE FOR ANCHORS, POST HOLES, ETC. SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa AT 28 DAYS AND SHALL CONFORM TO SECTION 601 OF THE FP-03. FURNISHING AND PLACEMENT OF CONCRETE SHALL BE INCLUDED WITH ITEM 61901-1000.
- TWO SPLICES ON THE SAME LINE BETWEEN THE STRAIN ASSEMBLES SHALL NOT BE PERMITTED. NO SPLICES SHALL BE PLACED CLOSER THAN 30m OF ANY POST ASSEMBLES.
- CONNECT ALL R.O.W. FENCING TO CATTLEGUARDS CULVERTS (GREATER THAN 1524 mm DIA.) AND CONCRETE STRUCTURES AS SHOWN ON THESE PLANS, AND/OR AS DIRECTED BY THE COR/AOTR.
- ANY CONFLICT IN PLACEMENT OF THE R/W FENCING AT DRAINAGE PIPE LOCATION, DUE TO NARROW R/W WIDTH OR OTHER CONSTRUCTIONS. THE FENCE MAY BE PLACED OVER THE DRAINAGE STRUCTURE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.
- CLEARING/GRUBBING SHALL INCLUDE SHAPING AND/OR REMOVAL OF SMALL MOUNDS NECESSARY TO PRESENT A SMOOTH UNIFORM APPEARANCE OF BOTH GROUND AND FENCING LINE. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- ALL DRILLING INTO ROCK MATERIAL, ETC. SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- GATE, CLOSURE DEVICE SHALL BE STEEL PIPE, NPS ? (26.7mm Ø) SCHEDULE 40, CONFORMING TO THE REQUIREMENT OF ASTM A 53. THE GATE CLOSURE STEEL CHAIN SHALL BE WELDED TO THE STEEL PIPE AND ANGLE IRON FENCE POST. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- CONTRACTOR SHALL BE REQUIRED TO INSTALL SAG WEIGHTS WHERE VERTICAL CLEARANCE BETWEEN THE BOTTOM WIRE AND NATURAL GROUND IS 610 mm OR GREATER. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING.
- THE CONTRACTOR SHALL SUBMIT COMPLETE DETAILED SHOP DRAWINGS FOR PEDESTRIAN GATE, HINGES AND LATCH TO PLANNING AND DESIGN CHIEF, THROUGH THE C.O. FOR REVIEW AND APPROVAL. GATE POSTS AND BRACES, HINGES AND LATCH TO MATCH STANDARD TYPE-1 GATES. MINIMUM GATE FRAME TO BE CONSTRUCTED WITH 30 mm DIAMETER PIPE, AND SHALL BE SELF CLOSING.

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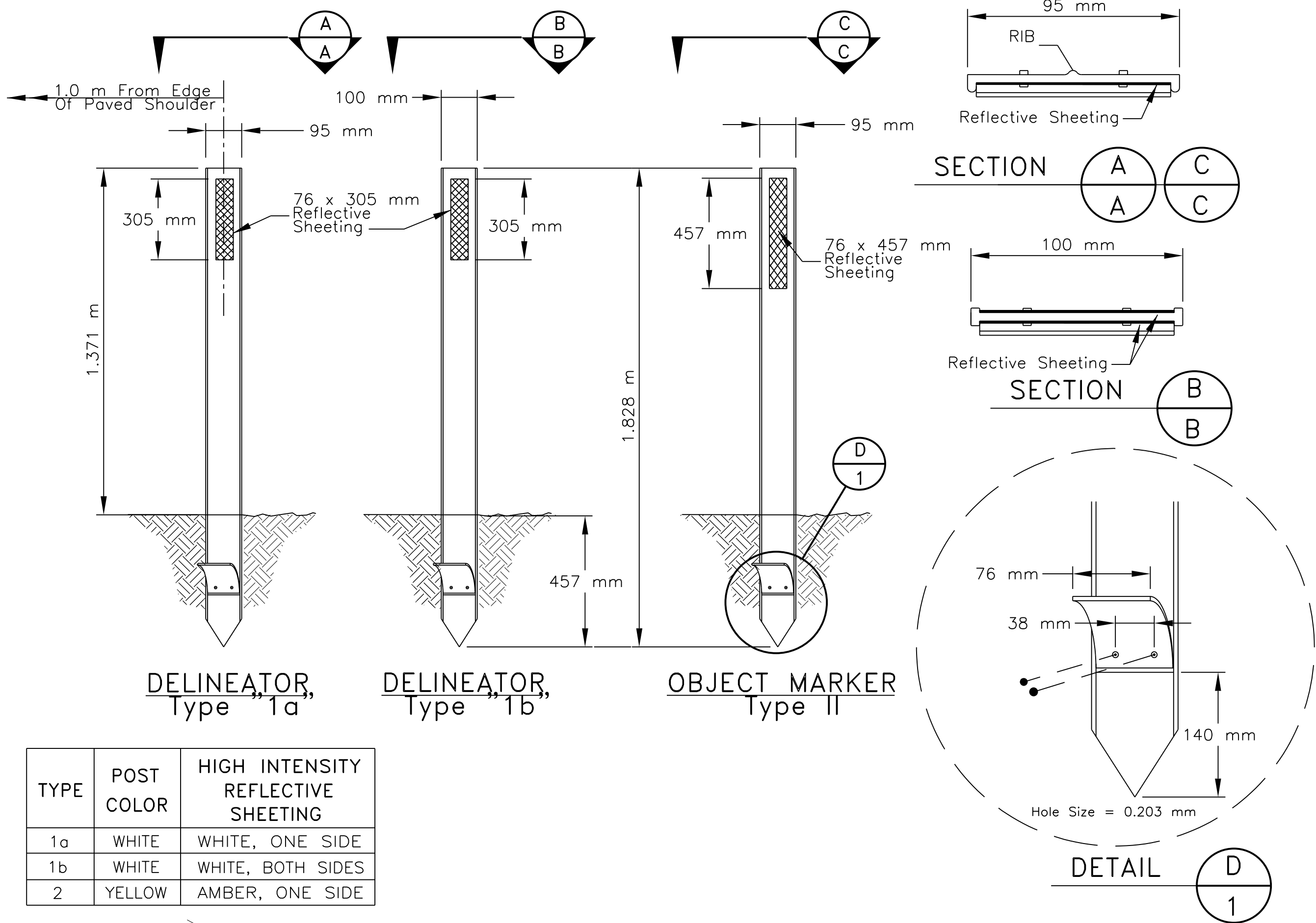
STANDARD FENCING DETAILS

DRAWN BY: NRODOT DATE: 01/01
DESIGNED BY: NRODOT DATE: 01/01
REVISED: 10/10 BY: SC
SCALE: NTS
FILENAME: 9345sfd
SHEET MODEL NAME: Model



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	36	39

GLASS FIBER TYPE DELINEATOR AND OBJECT MARKER



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

R.O.W. MONUMENT			
Station	Location	Each	
0+031.02	Lt.	1	
0+173.36	Lt.	1	
0+372.12	Lt.	1	
0+583.25	Lt.	1	
0+790.00	Lt.	2	
1+140.00	Lt.	2	
1+250.16	Lt.	1	
1+466.83	Lt.	1	
1+752.54	Lt.	1	
2+023.44	Lt.	1	
2+292.94	Lt.	1	
TOTAL		13	

REFERENCE MARKERS			
Station	Location	Each	
0+031.02	Lt.	1	
0+173.36	Lt.	1	
0+372.12	Lt.	1	
0+583.25	Lt.	1	
0+790.00	Lt.	2	
1+140.00	Lt.	2	
1+250.16	Lt.	1	
1+466.83	Lt.	1	
1+752.54	Lt.	1	
2+023.44	Lt.	1	
2+292.94	Lt.	1	
TOTAL		13	

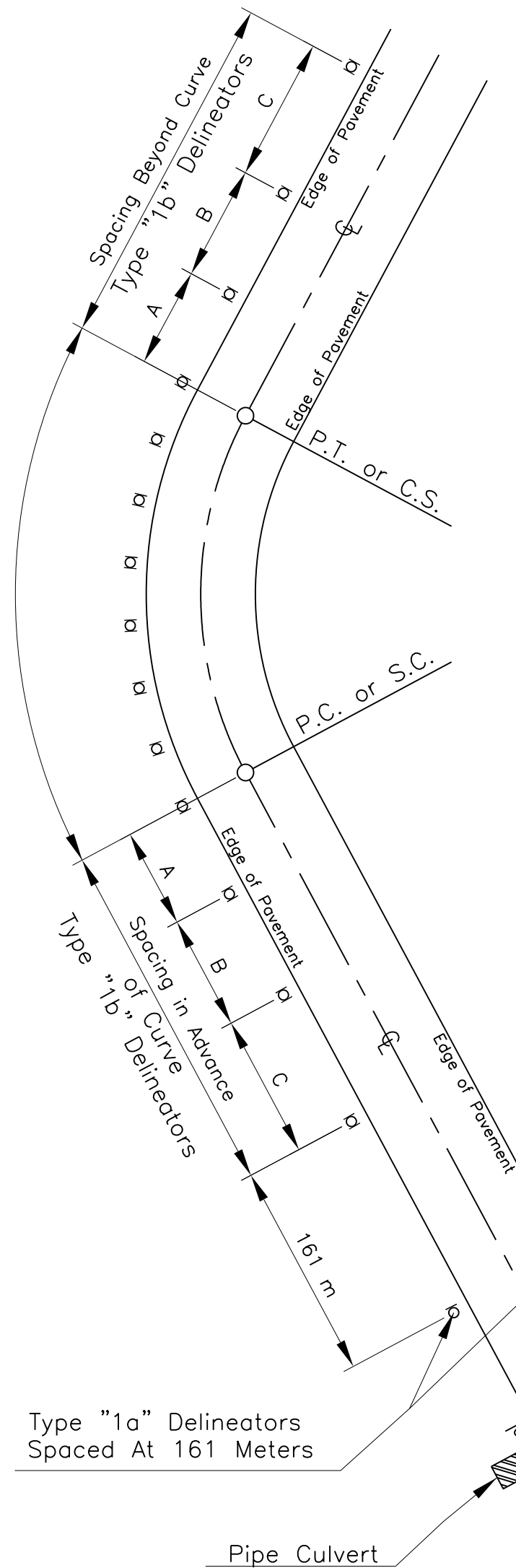
ROW MONUMENTS			
Station	Location	Each	
0+031.02	Rt.	1	
0+173.36	Rt.	1	
0+372.12	Rt.	1	
0+583.25	Rt.	1	
1+250.11	Rt.	1	
1+467.18	Rt.	1	
1+758.02	Rt.	1	
2+047.74	Rt.	1	
2+299.03	Rt.	1	
TOTAL		9	

REFERENCE MARKERS			
Station	Location	Each	
0+031.02	Rt.	1	
0+173.36	Rt.	1	
0+372.15	Rt.	1	
0+583.29	Rt.	1	
1+250.16	Rt.	1	
1+466.83	Rt.	1	
1+752.54	Rt.	1	
2+023.53	Rt.	1	
2+299.61	Rt.	1	
TOTAL		9	

DELINEATORS -TYPE 1b				
Station	Location	Each	Offset	
0+031.02	Rt.	1	6.3	
0+078.47	Rt.	1	6.3	
0+125.91	Rt.	1	6.3	
0+173.36	Rt.	1	6.3	
0+212.00	Rt.	1	6.24	
0+261.37	Rt.	1	6.24	
0+332.00	Rt.	1	6.24	
0+372.12	Rt.	1	6.24	
0+424.90	Rt.	1	6.24	
0+477.69	Rt.	1	6.24	
0+530.47	Rt.	1	6.24	
0+583.25	Rt.	1	6.24	
0+708.00	Rt.	1	6.24	
0+835.00	Rt.	1	6.24	
1+128.00	Lt.	1	-7.12	
1+208.00	Lt.	1	-7.12	
1+250.11	Lt.	1	-6.49	
1+304.29	Lt.	1	-6.16	
1+353.80	Lt.	1	-6.44	
1+412.54	Lt.	1	-6.22	
1+467.18	Lt.	1	-6.34	
1+655.00	Rt.	1	6.74	
1+722.00	Rt.	1	6.74	
1+758.02	Rt.	1	6.3	
1+806.31	Rt.	1	6.3	
1+854.59	Rt.	1	6.3	
1+902.88	Rt.	1	6.3	
1+999.45	Rt.	1	6.3	
2+047.74	Rt.	1	6.3	
2+086.00	Rt.	1	6.3	
2+135.00	Lt.	1	-6.31	
2+155.59	Lt.	1	-6.31	
2+180.80	Lt.	1	-6.31	
2+206.00	Lt.	1	-6.31	
2+232.00	Lt.	1	-6.31	
2+359.64	Rt.	1	3.45	
2+420.25	Rt.	1	4.94	
2+450.43	Rt.	1	6.31	
TOTAL		38		

GENERAL NOTES

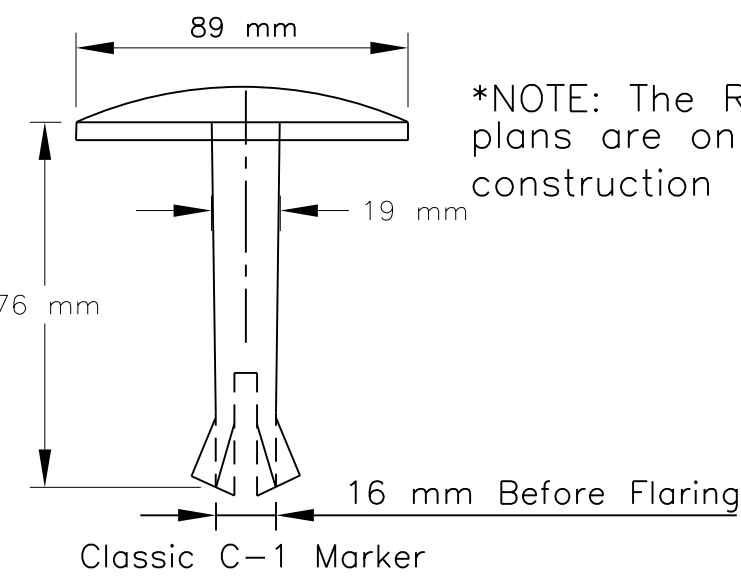
- SURVEY MONUMENT AND REFERENCE MARKERS SHALL BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY COR/AOTR. THE COST OF SUPPLYING ALL MATERIALS AND INSTALLATION OF RIGHT-OF-WAY MONUMENT AND MARKERS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 62101-0000 & 62102-0000.
- IF ROCK IS ENCOUNTERED WHEN INSTALLING THE RIGHT-OF-WAY MONUMENTS AND REFERENCE MARKERS, DRILL A 152mm ϕ FOR R/W MONUMENT AND 305mm ϕ 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 THEREOF.
- BRASS CAPS FOR THE SURVEY MONUMENTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR. THE BRASS CAPS SHALL CONFORM TO THE ASTM B-584 SPECIFICATION AND SHALL BE CONSIDERED INCIDENTAL TO ITEM 62101-0000. SEE SUPPLEMENTAL SPECIFICATION UNDER SECTION 152 FOR FURTHER REQUIREMENTS.
- 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.
- ROADWAY STATIONINGS AND ELEVATIONS SHALL BE STAMPED ON ALL BRASS CAPS BY THE CONTRACTOR AFTER INSTALLATION, UNLESS OTHERWISE DIRECTED IN WRITING BY THE COR/AOTR.
- THE CONTRACTOR SHALL BE REQUIRED TO PAINT THE REFERENCE MARKERS PER SECTION 708 AND SUBSECTION 708.04 OF FP-03:
 - THE PRIMER COAT SHALL CONFORM TO SUBSECTION 708.04(A) OR (B) OF FP-03.
 - THE WHITE FINISH COAT OF PAINT SHALL CONFORM TO SUBSECTION 708.04(C), (D), OR (E) OF FP-03.
 - 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 TO MATCH THE RIGHT-OF-WAY PLAT.
- THE CONTRACTOR HAS THE OPTION TO USE AN APPROVED STATE PAINT SPECIFICATIONS IN LIEU OF THAT STATED IN NOTE (6) 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. ANY PAINTING PERFORMED BY THE CONTRACTOR WITHOUT THE PROPER APPROVAL SHALL CAUSE THE WORK TO BE REJECTED.



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

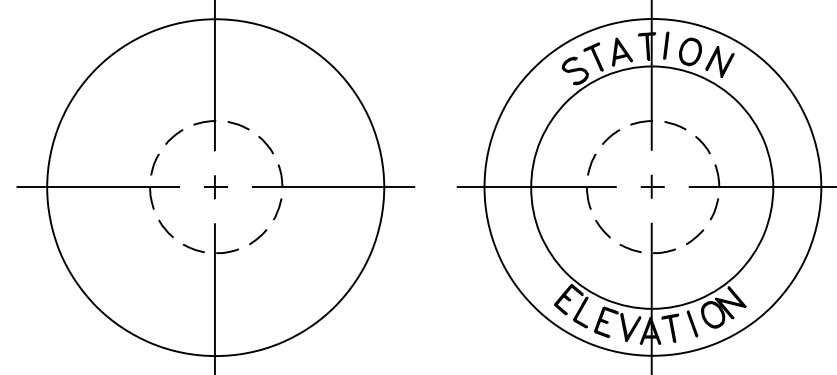
$S = 1.7 * \text{sq. rt.}(R-15)$
Spacing for specific radii may be interpolated from table.
The spacing on curves should not exceed 90 meters.
Shaded areas denotes to use 90 meter spacings.
Delineators should be spaced 60 to 160 meters apart on mainline tangent sections.

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

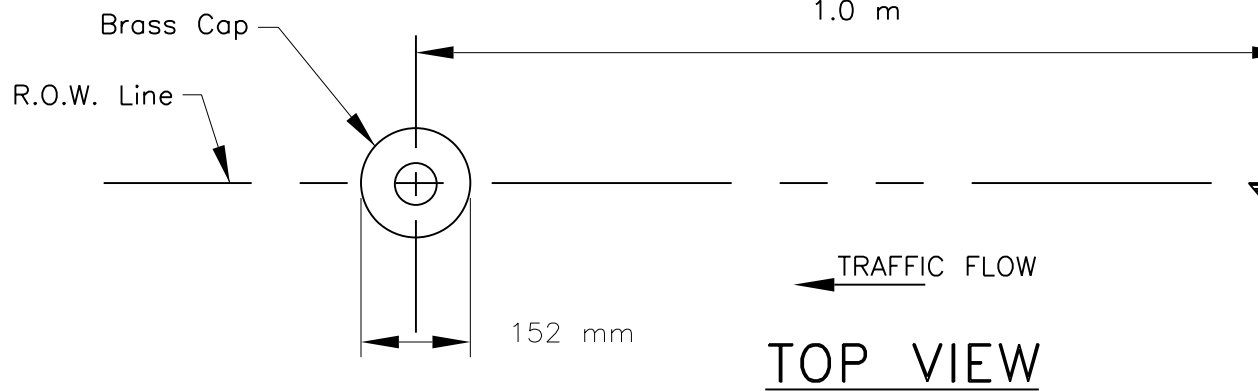


BRASS CAP DETAIL

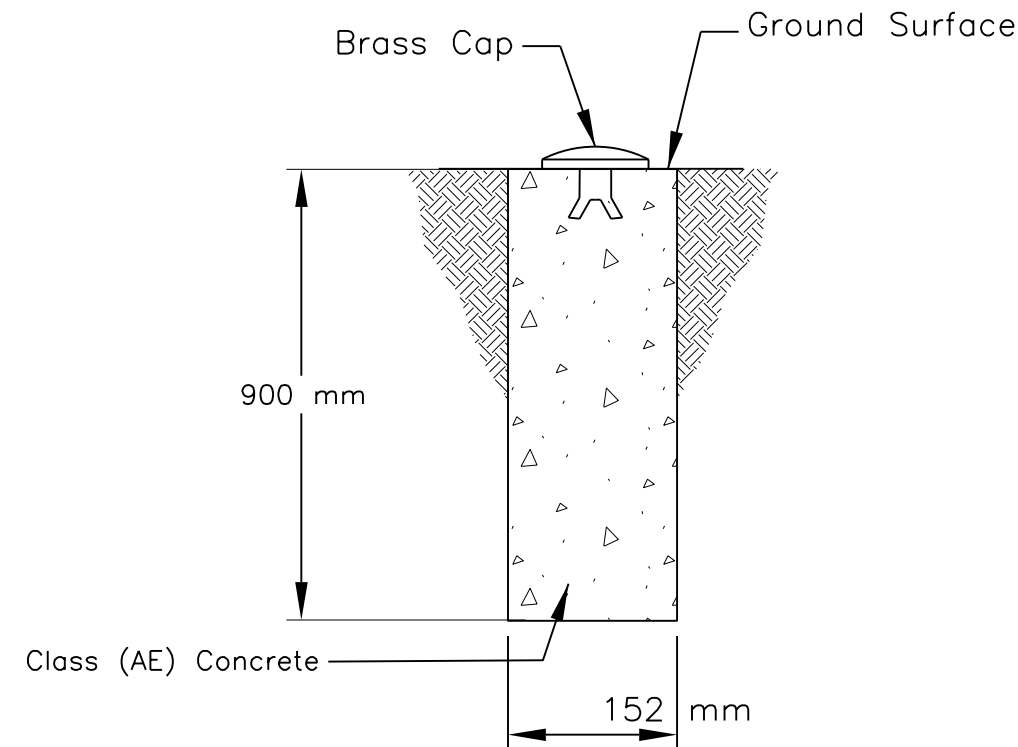
*NOTE: The R.O.W. monument locations given on these plans are only approximate and are based on the N9345 construction centerline, NOT on the R.O.W. centerline.



BOTTOM VIEW TOP VIEW



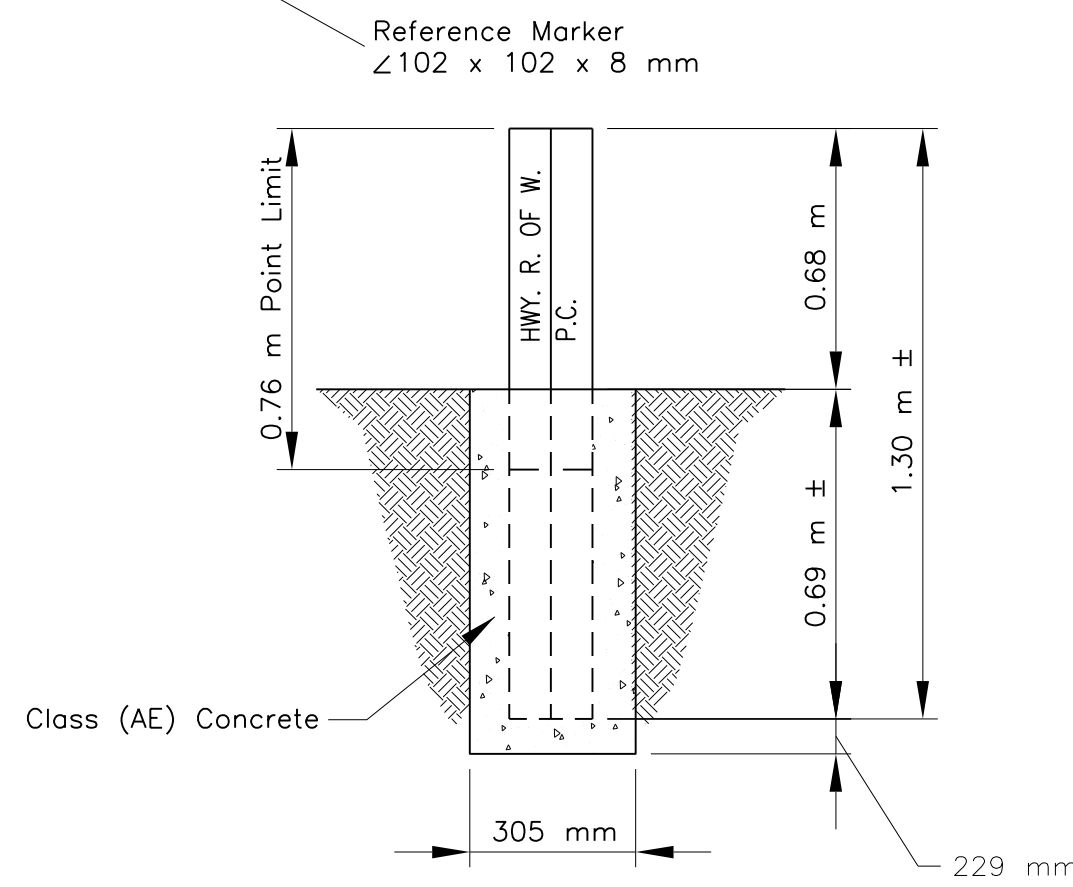
TOP VIEW



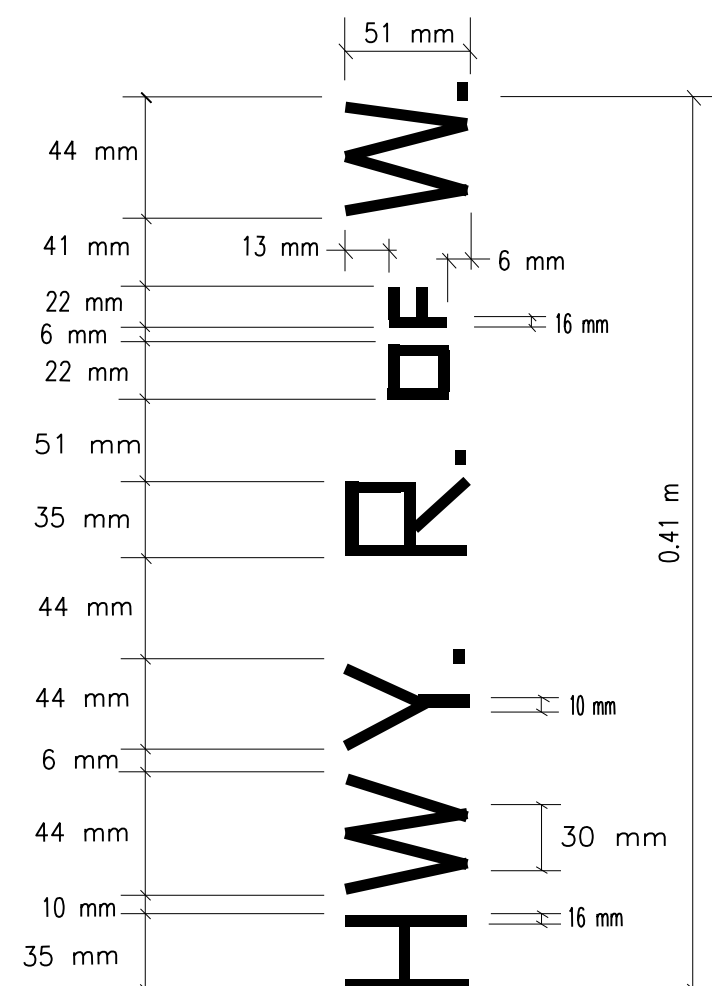
R/W MONUMENT

OBJECT MARKERS		
STATION	Location	Each
0+192.00	Rt./Lt.	2
0+628.66	Rt./Lt.	2
1+520.20	Rt./Lt.	2
1+571.00	Rt./Lt.	2
1+631.00	Rt./Lt.	2
1+968.73	Rt./Lt.	2
2+070.79	Rt./Lt.	2
2+322.88	Rt.	1
2+325.32	Lt.	1
2+372.00	Rt./Lt.	2
TOTAL		18

R/W MONUMENT SYMBOL



REFERENCE MARKER

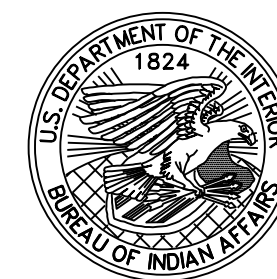


DETAIL OF LETTERS

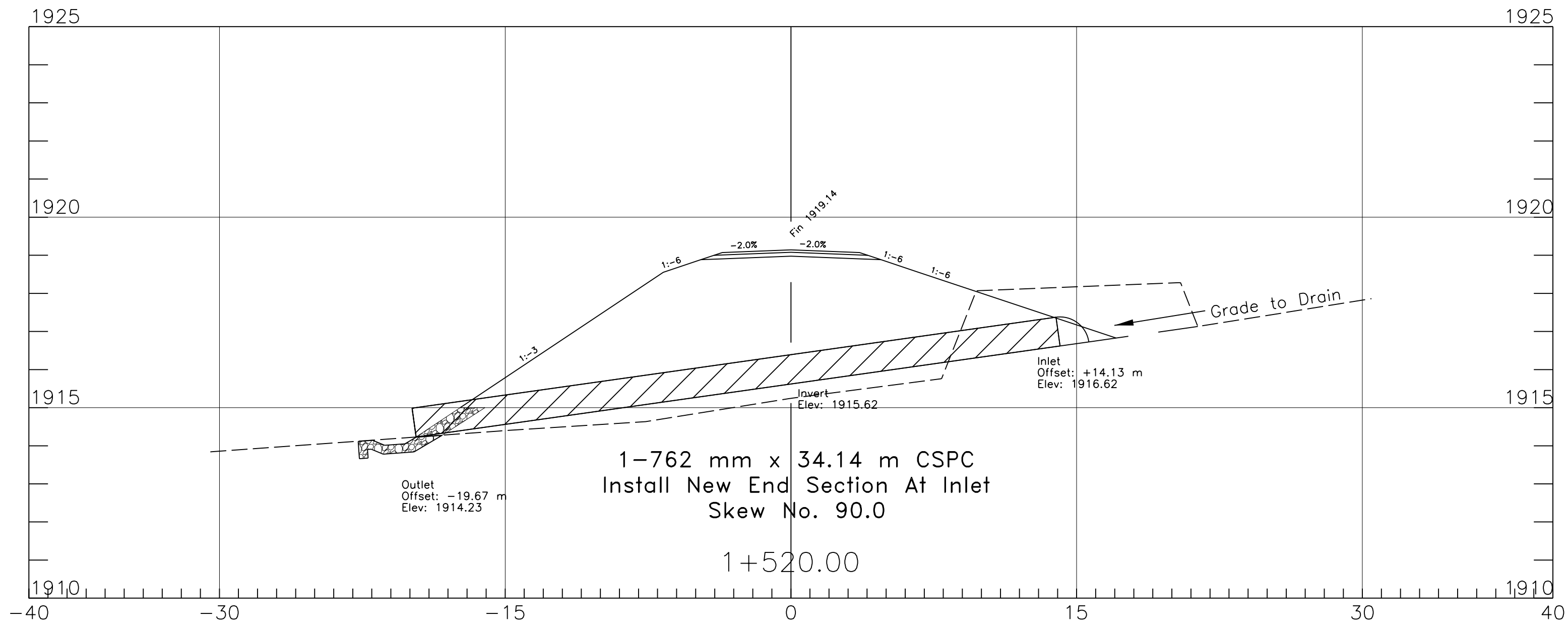
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MISCELLANEOUS

DRAWN BY: NRODOT DATE: 11/93
DESIGNED BY: NRODOT DATE: 11/93
REVISED: 10/05 BY: SC
SCALE: NTS
FILENAME: 9345MIS
SHEET MODEL NAME: MODEL



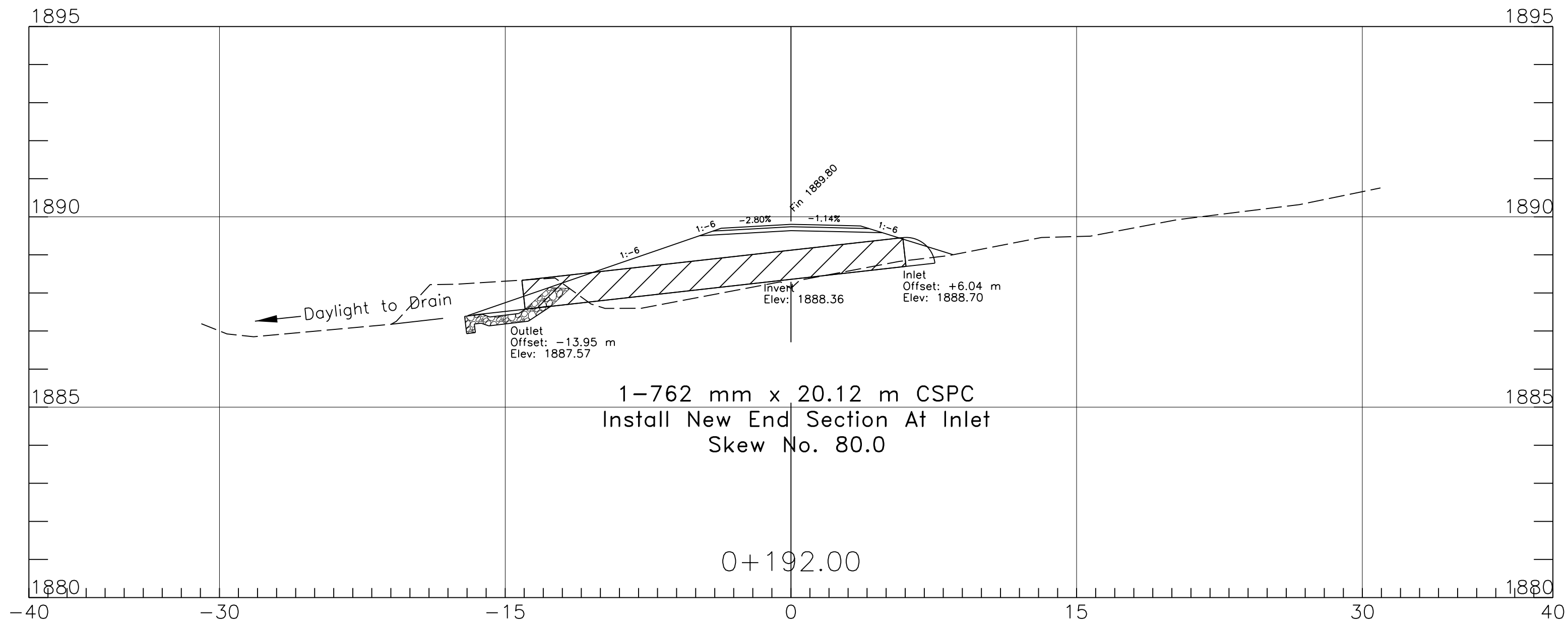
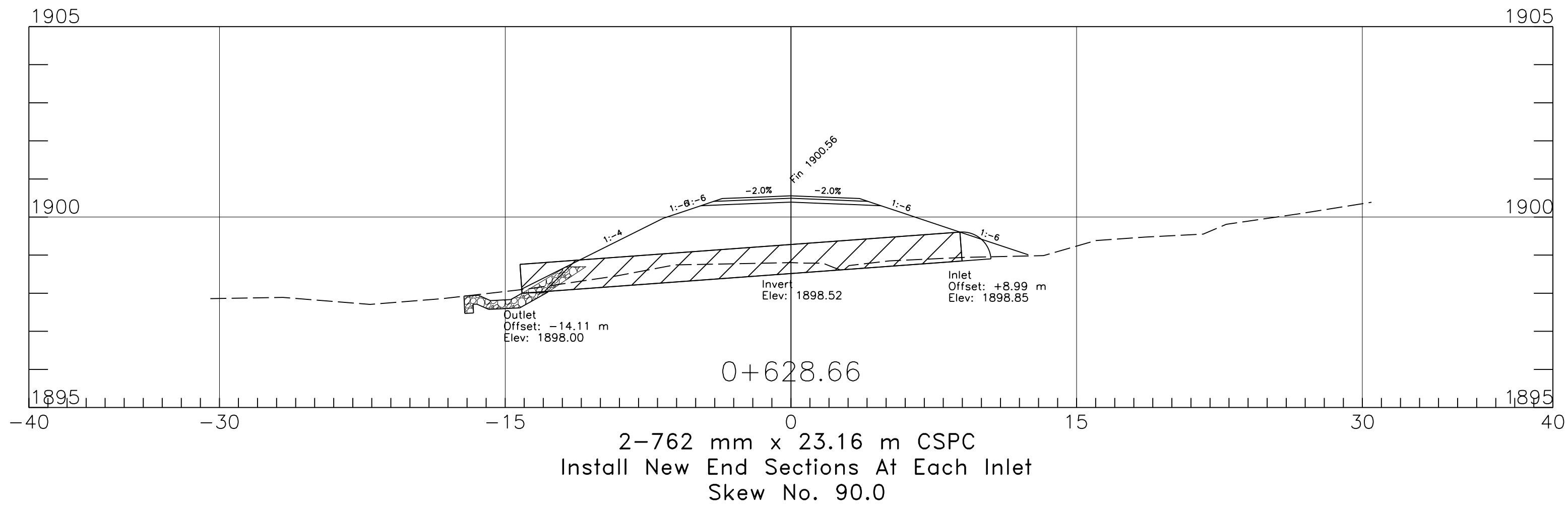
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	37	39



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 TO THE CONTRACTOR.
2. 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.
3. DO NOT INSTALL PIPE CULVERT(S) BELOW EXISTING CHANNEL BOTTOM
4. THE PIPE X-SECTIONS ARE SHOWN PARALLEL TO PIPE SKEW.

CONSTRUCTION PLANS APPROVED
08/16/2011



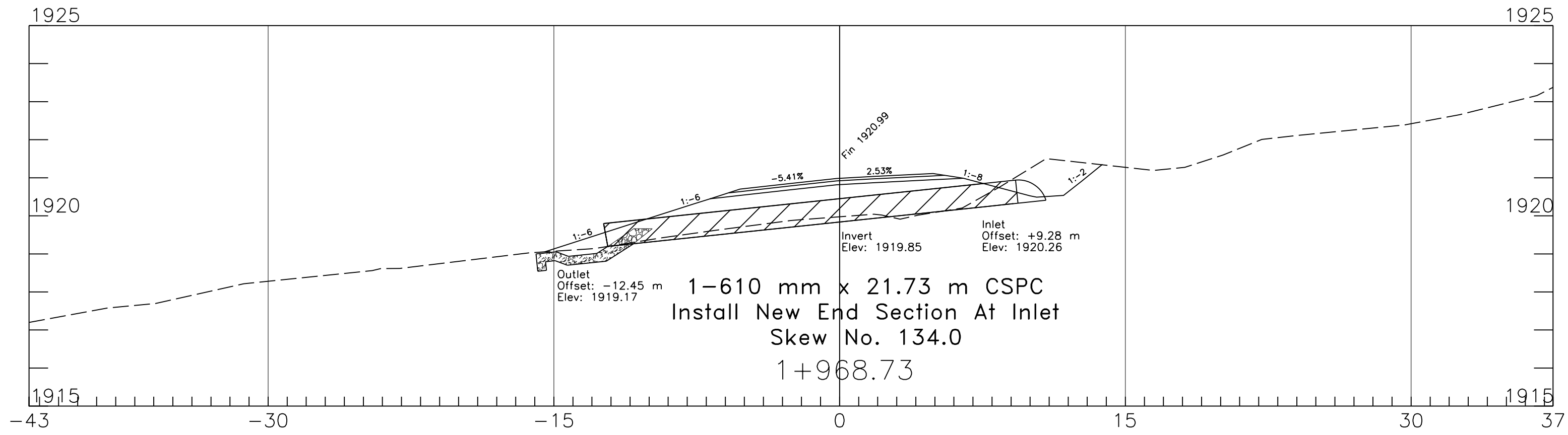
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PIPE CROSS SECTION

DRAWN BY: NRODOT DATE: 10/2002
DESIGNED BY: NRODOT DATE: 10/2002
REVISED: 10/2010 BY: NRODOT
SCALE: n/a
FILENAME: Sht_36_PIPE_XS
SHEET MODEL NAME: PLOT SHEET

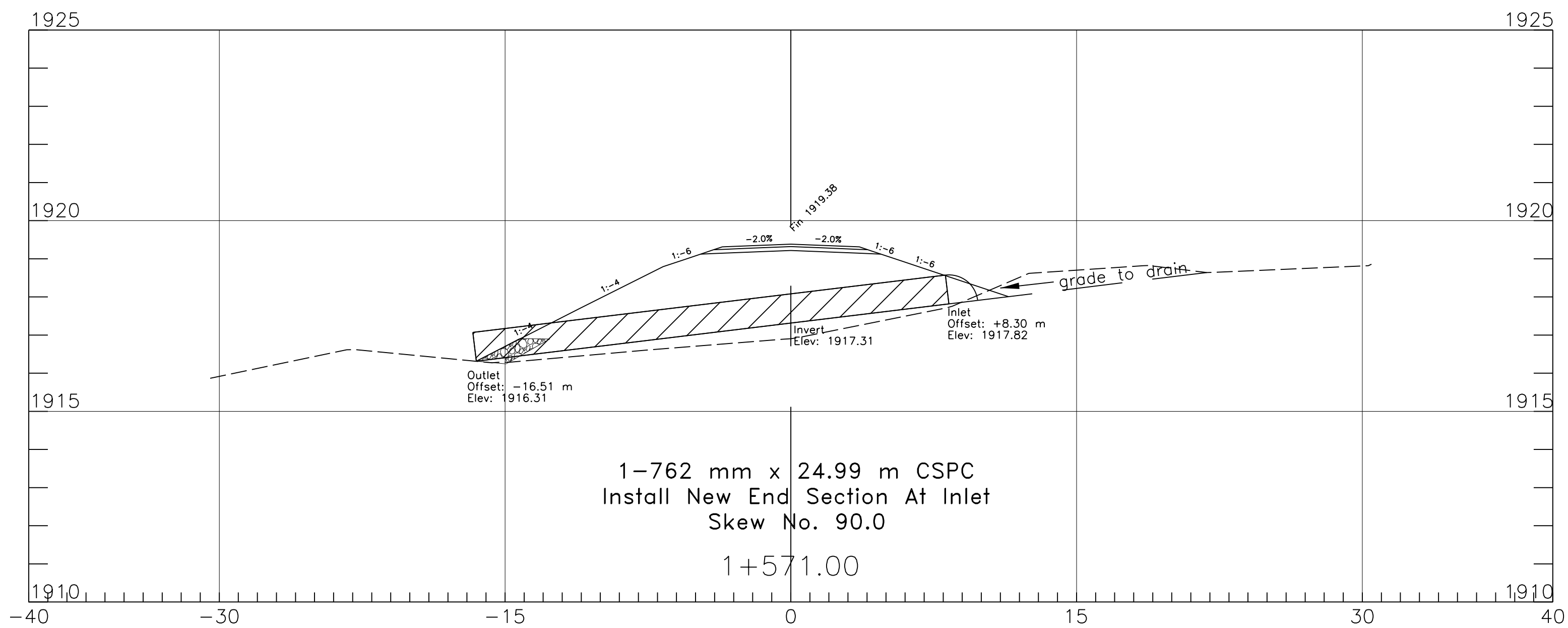
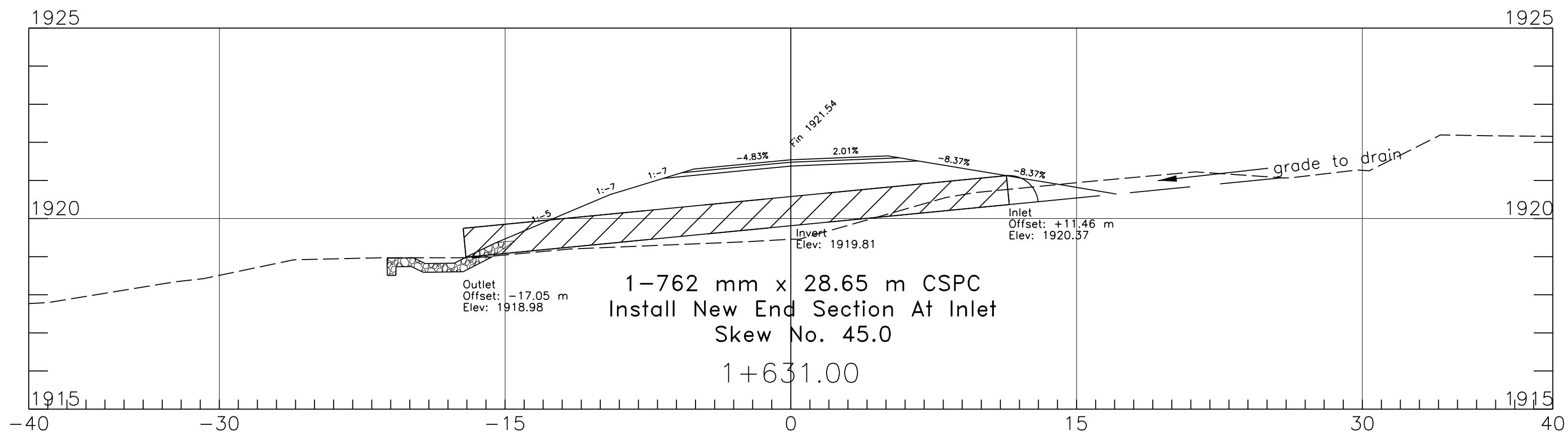


REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	38	39



GENERAL NOTES:
See Sheet 37 of 39 for Additional Notes.

CONSTRUCTION PLANS APPROVED
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PIPE CROSS SECTION

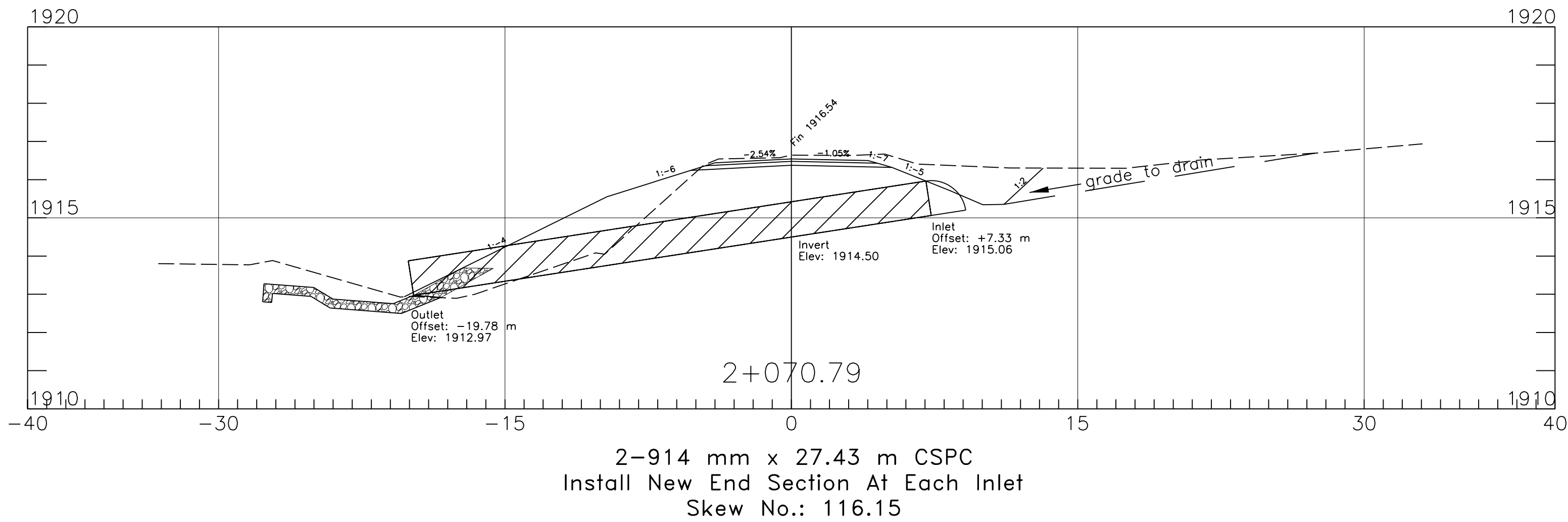
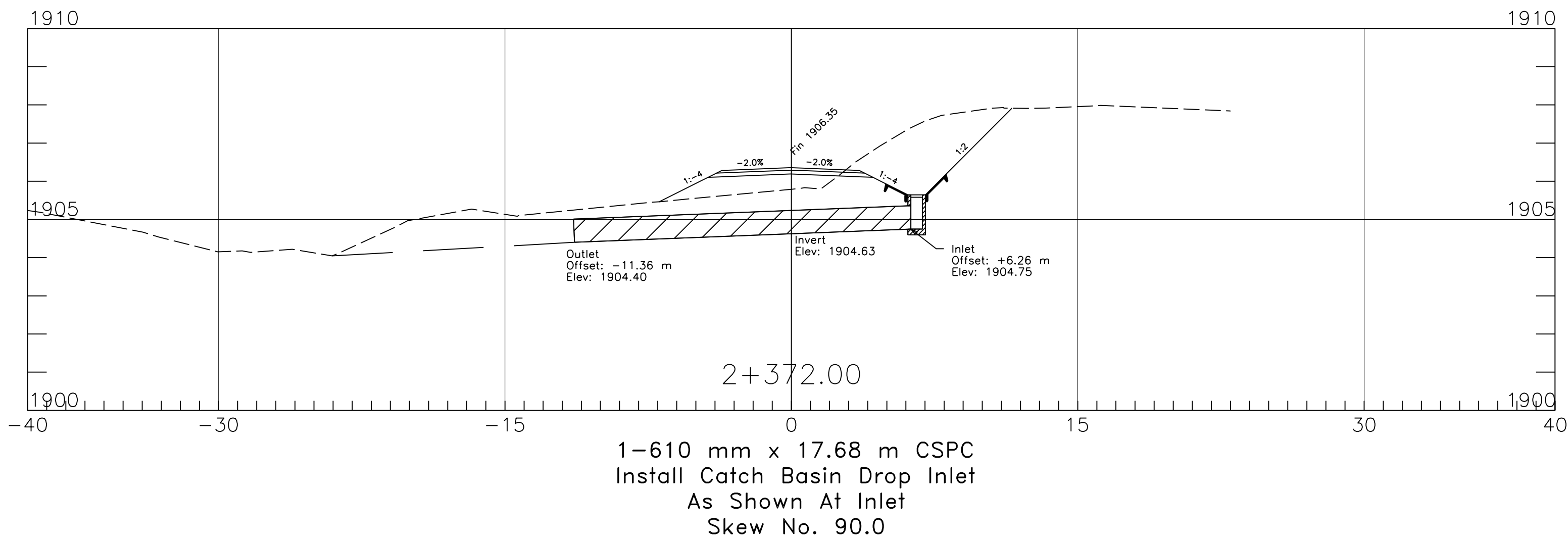
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SHEET MODEL NAME: PLOT SHEET



REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NAVAJO	ARIZONA	NAVAJO	N9345	N9345(2)2&4	39	39

* See Sheet 37 Of 39 For General Notes.

CONSTRUCTION PLANS APPROVED
08/16/2011



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DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
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PIPE CROSS SECTION

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DESIGNED BY: NRODOT	DATE: 10/2002
REVISED: 10/2010	BY: NRODOT
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