

SECTION F - SURFACING

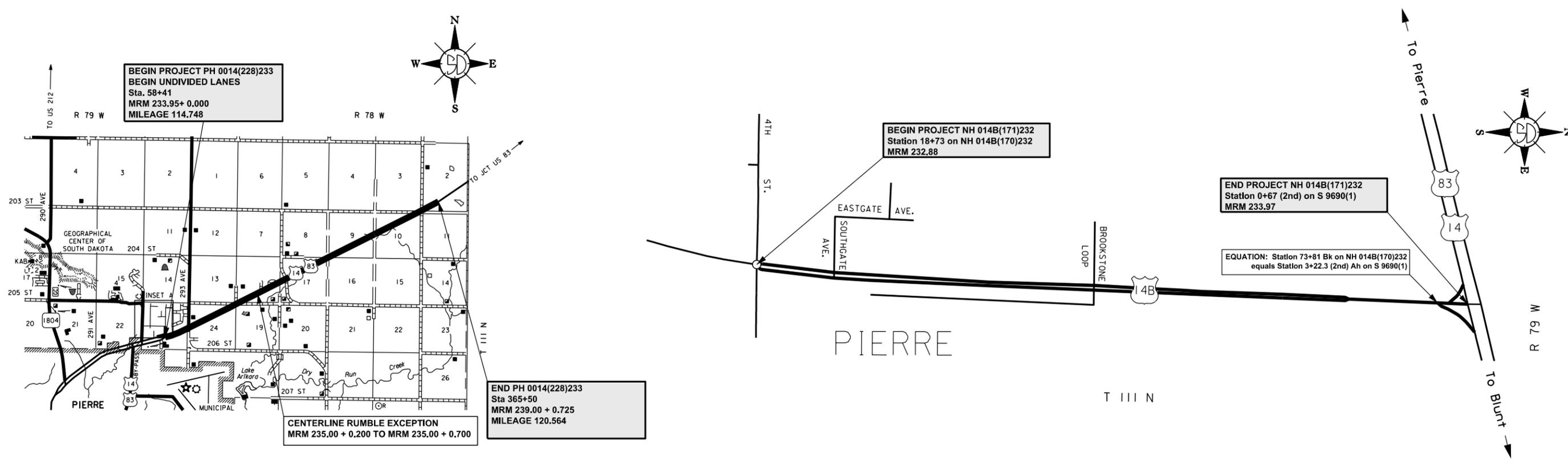
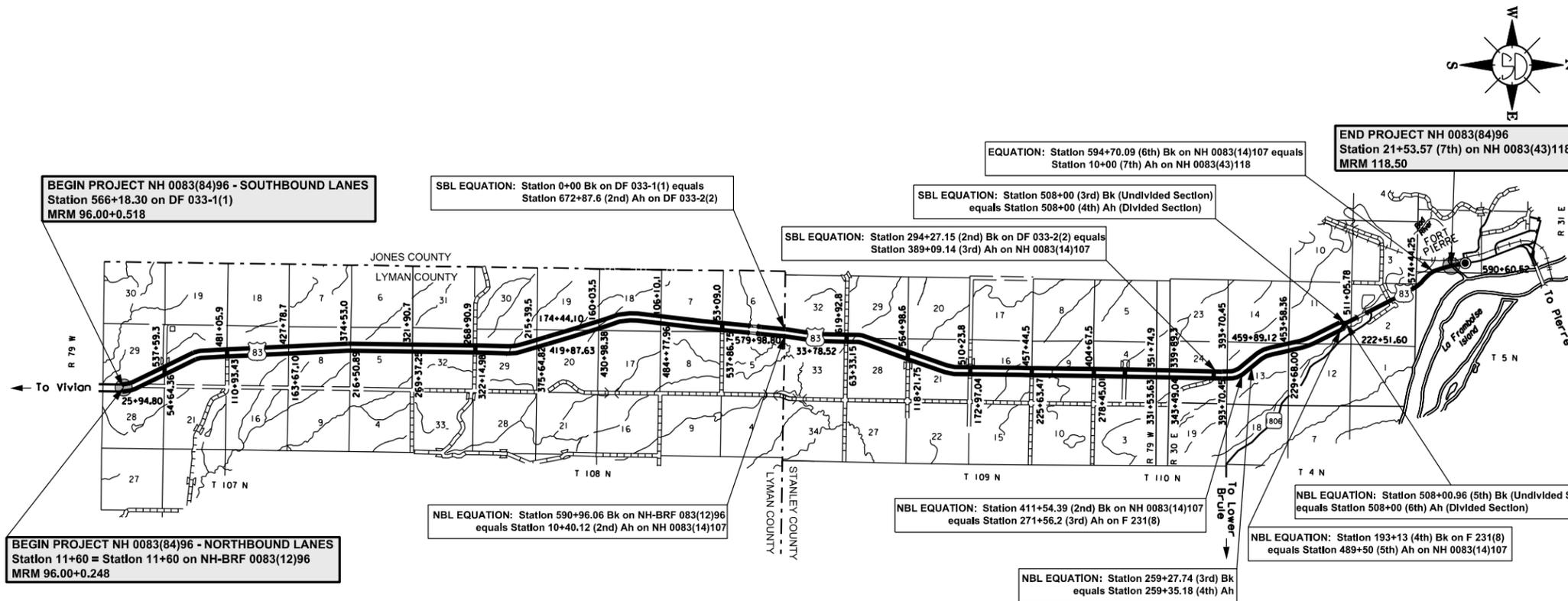
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(84)96, NH 014B(171)232, & PH 0014(228)233	F1	F69

Plotting Date: 07/20/2016

Revised by V. Martin on 07/20/16

INDEX OF SHEETS

Sheet F1	Layout Map & Index of Sheets
Sheet F2	Estimate of Quantities
Sheets F3 - F8	Plan Notes
Sheets F9 - F20	US Hwy 83 Typical Sections
Sheets F21 - F27	US Hwy 14B Typical Sections
Sheets F28 - F32	Rates of Materials
Sheets F33 - F36	Table of Project Stationing
Sheet F37	Table of Material Quantities
Sheet F38	Table of Additional Quantities
Sheets F39 - F41	Table of Superelevated Curves
Sheets F42 - F56	Table of Mainline Pipe & Erosion Repair
Sheets F57 - F59	Summary of Asphalt Concrete
Sheet F60	Airport Road Intersection Layout
Sheet F61	Intersection/Ramps onto US14 & US14B Layout
Sheet F62	Sinusoidal Centerline Rumble Stripe Detail
Sheets F63 - F69	Standard Plates



ESTIMATE OF QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F2	F69

Revised by V. Martin on 7/21/16

PCN 04WP – US HWY 83S, 83N, & 83

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3210	Construction Staking	42.393	Mile
009E3300	Three Man Survey Crew	20.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0500	Remove Pipe Culvert	32	Ft
110E0510	Remove Pipe End Section	2	Each
110E1700	Remove Silt Fence	175	Ft
110E7500	Remove Pipe for Reset	328	Ft
110E7510	Remove Pipe End Section for Reset	36	Each
120E0100	Unclassified Excavation, Diggouts	2,120	CuYd
120E4100	Reprofiling Ditch	8.0	Sta
120E6200	Water for Granular Material	57.6	MGal
260E1010	Base Course	6,011.8	Ton
* 270E0210	Haul and Stockpile Granular Material	46,107.8	Ton
320E0008	PG 64-34 Asphalt Binder	3,109.4	Ton
320E1080	Class S Asphalt Concrete	53,728.9	Ton
320E3100	Stabilizing Additive for Asphalt Concrete	173.6	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	81.1	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	531.5	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	28.7	Ton
332E4000	Micro-Milling Asphalt Concrete	761,480	SqYd
450E0122	18" RCP Class 2, Furnish	8	Ft
450E0130	18" RCP, Install	8	Ft
450E0182	36" RCP Class 2, Furnish	24	Ft
450E0190	36" RCP, Install	24	Ft
450E4699	Tie Bolts for RCP	16	Each
450E8300	Culvert Joint Cleaning	60.0	Ft
450E8305	Repair Culvert Joint	60.0	Ft
450E8310	Chemical Grout Void Fill	30.0	Gal
* 450E8900	Cleanout Pipe Culvert	10	Each
450E9000	Reset Pipe	328	Ft
450E9001	Reset Pipe End Section	36	Each
600E0300	Type III Field Laboratory	1	Each
720E1015	Bank and Channel Protection Gabion	15.0	CuYd
730E0100	Cover Crop Seeding	4.0	Bu
734E0010	Erosion Control	Lump Sum	LS
734E0133	Type 3 Turf Reinforcement Mat	55.6	SqYd
734E0604	High Flow Silt Fence	700	Ft
734E0610	Mucking Silt Fence	49	CuYd
734E0620	Repair Silt Fence	175	Ft
831E0110	Type B Drainage Fabric	123	SqYd
900E0010	Refurbish Single Mailbox	4	Each
900E0012	Refurbish Double Mailbox	1	Each

CONTINUED ---- PCN 04WP – US HWY 83S, 83N, & 83

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
900E1980	Storage Unit	1	Each
900E2030	Miscellaneous Work	6	Site

* - Denotes Non-Participating

ALTERNATE A --- PCN 04WP – US HWY 83S, 83N, & 83

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0007	PG 64-28 Asphalt Binder	3,315.0	Ton
320E1004	Class Q4 Hot Mixed Asphalt Concrete	57,872.6	Ton
320E4000	Hydrated Lime	568.7	Ton

ALTERNATE B ----PCN 04WP – US HWY 83S, 83N, & 83

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0007	PG 64-28 Asphalt Binder	2,941.8	Ton
320E1004	Class Q4 Hot Mixed Asphalt Concrete	59,192.7	Ton
320E4000	Hydrated Lime	587.2	Ton

PCN 04XR – US HWY 14B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
320E0008	PG 64-34 Asphalt Binder	158.4	Ton
320E1080	Class S Asphalt Concrete	2,736.4	Ton
320E3100	Stabilizing Additive for Asphalt Concrete	8.0	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	15.0	Ton
332E4000	Micro-Milling Asphalt Concrete	1,698	SqYd

PCN 05X4 – US HWY 14

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	5.3	Mile
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	1.1	Ton

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F3	F69

SCOPE OF WORK

Refer to "Section C" for Scope of Work.

GENERAL NOTES

The Contactor shall take care milling and paving around utilities (water valves, manholes, traffic sensors, etc.). The Contractor shall ensure when paving operations are completed that the utility lids/covers/sensors are still accessible and in working condition. Any damage done to the utilities by the Contractor's operation shall be repaired by the Contractor and no cost to the Utility Owner or the State of South Dakota.

The Contractor shall ensure at all Curb Ramp locations that final grade of the asphalt overlay is flush at the ramp/asphalt interface to where no lip will exist. This may require the Contractor to do hand work in these areas to achieve this.

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49 7A and Administrative Rule Article 20:25, the Contractor shall contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

SHOULDER PREPARATION

Prior to mainline paving the shoulders shall be bladed and broomed of all vegetation and loose/accumulated material to the satisfaction of the Engineer. Shoulder preparation shall not be measured for payment, and no separate payment will be made for this work.

Vegetation and accumulated material adjacent to the existing surface edge shall be removed to the satisfaction of the Engineer prior to placement of mainline surfacing. Any remaining windrow of accumulated material shall be re-spread evenly on the in-slope adjacent to the asphalt shoulder to the satisfaction of the Engineer prior to the application of the flush seal.

All costs associated with shoulder preparation shall be incidental to the various contract items.

The Contractor shall notify the Pierre Area (605) 773-5586 at least two weeks prior to beginning work on this project so SDDOT personnel can mow or spray along the shoulder in-slopes. The Department will not be responsible for the effectiveness of the mowing or spraying.

SURFACING THICKNESS DIMENSIONS

Material will be placed evenly, at the rates shown in the plans, even though the thickness may vary from that shown on the typical section. At those locations where material must be placed to achieve a required elevation, quantities may be varied to achieve the required elevations, as approved by the Engineer.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances shall be satisfactorily cleared of vegetation, shaped, and compacted prior to placement of mainline surfacing. Separate measurement and payment will not be made for this work. All costs associated with intersecting roads and entrances preparation shall be incidental to the various contract items.

WATER FOR GRANULAR MATERIAL

The moisture content for compaction of the Base Course material shall be approximately optimum moisture for the material or as directed by the Engineer. The quantity for Water for Granular Material is based on 4% of the quantity of the aforementioned material. All costs for furnishing and placing the water shall be paid for at the contract unit price per MGal for "Water for Granular Material".

EXCAVATION OF UNSTABLE MATERIAL

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts shall be Base Course paid for at the contract unit price per ton.

Included in the Estimate of Quantities are 2,120 cubic yards of Unclassified Excavation – Digouts for the removal of unstable material throughout the project.

The digout shall be extended to the shoulder and the granular material backfill shall daylight to the inslope to allow water to escape the subgrade.

A copy of the surfacing/subgrade investigation report for this project is available from the Pierre Area and the Pierre Region offices.

REPROFILING DITCH

The Contractor shall reprofile the ditch to restore drainage profile into/out of the pipe. This work will require removing sedimentation along with placing the removed material where areas need borrow material. The quantities and locations of reprofiling may change depending on the degree of erosion/sedimentation that has taken place from time of the survey to the time of construction. All work shall be within the Right-of-Way limits. Pipe cleanout material may be used on the project as borrow material for filling in erosion. Placement and location of the cleanout material shall be approved by the Engineer. Refer to the "Table of Mainline Pipe and Erosion Repair" for locations of reprofiling.

All costs associated with clearing and reshaping of the existing ditch, labor, excavation, placing material, equipment, and incidentals shall be paid for at the contract unit price per station for "Reprofiling Ditch".

BASE COURSE

Base Course shall be furnished by the Contractor and be utilized for backfilling digouts at 100 tons per mile and for placing on intersecting roads, residential entrances, and farm & field entrances as detailed in the "Table of Additional Quantities".

Base Course shall be compacted to the satisfaction of the Engineer.

REMOVING, STOCKPILING, AND REPLACING TOPSOIL

The Contractor shall windrow/stockpile topsoil material at areas to be reprofiled, at all pipe reset/removal areas, and all other disturbed areas as determined by the Engineer during construction.

The Contractor shall remove 4" of topsoil within the aforementioned areas. The Contractor shall stockpile the material at a site approved by the Engineer, and/or windrow the material near the disturbed areas to control potential sediment runoff as determined by the Engineer. The replacement of topsoil shall be spread evenly throughout all disturbed areas upon completion of the work. Any clumps larger than 3 inches shall be broken up prior to seeding the areas.

All topsoil removal, stockpiling, salvaging, windrowing, and replacement shall be done as according to the plans and/or as directed by the Engineer.

Measurement of topsoil quantities will not be made. All costs associated with removing, salvaging, stockpiling, windrowing, and replacing topsoil shall be incidental to various contract items.

HAUL AND STOCKPILE GRANULAR MATERIAL

Excess micro-milled material estimated (for informational purposes only) at 46,107.8 tons, excluding the amount used for transitions, shall be hauled and stockpiled in Stockpile Site 3952 located 1 mile south of I90 adjacent to US183 in the E1/2 of Section 22 - T105N - R77W in Lyman County, South Dakota. The Contractor shall have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

The Contractor shall use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the weighing of the salvage material.

The RAP shall be crushed to meet the requirements of Section 884.2 C.1 prior to incorporation into the stockpile.

Screening or scalping of the RAP stockpile(s) will not be allowed.

All other costs for hauling and stockpiling the remaining cold milled material shall be incidental to the contract unit price per ton for "Haul And Stockpile Granular Material".

MICRO- MILLING ASPHALT CONCRETE

Micro-milling asphalt concrete shall be done according to the typical sections. The depth or width of milling may need to be adjusted due to rutting, maintenance patches, or roadway irregularities. Additional asphalt concrete shall be milled in these areas to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas may also include farm & field entrances and intersecting roads. Any additional costs associated with this additional milling shall be incidental to the contract unit price per square yard for "Micro-Milling Asphalt Concrete". No adjustments in quantity or price will be made.

The Contractor shall utilize some of the generated milled material to construct a 20:1 temporary on/off transition at the begin/end of the project or at locations deemed necessary by the Engineer where the milled surface meets the existing surface to allow a safe traveled way for the traveling public. This material shall be removed once paving commences. The material shall become the property of the Contractor once it is determined by the Engineer that it is no longer needed on the project. All costs associated constructing and removing the transitions shall be incidental to the contract unit price per square yard for "Micro-Milling Asphalt Concrete".

After completion of the milling operation, the Contractor shall clean up and dispose of any remaining debris to the satisfaction of the Engineer.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete was 23 percent. This value was obtained from testing during construction of the in place asphalt concrete.

PCN 04WP:

Micro-Milling Asphalt is estimated to produce 46,107.8 tons of RAP. All RAP material produced, excluding the amount used for transitions and the milled material from entrances, shall be hauled and stockpiled at Site 3952 adjacent to US183 1 mile south of I90 in the E ½- S22- T 105N-R77W in Lyman County, South Dakota.

PCN 04XR:

Micro-Milling Asphalt is estimated to produce 55.7 tons of RAP. This material may be used on the project at the discretion of the Engineer and any material remaining shall become the property of the Contractor for their disposal.

CLASS S ASPHALT CONCRETE

Mineral aggregate for the Class S shall conform to the requirements for Class S, Type 1

FLUSH SEAL

Application of Flush Seal shall be completed within 10 working days following completion of the asphalt concrete surfacing.

FLEXIBLE PAVEMENT SMOOTHNESS

The Special Provision for Flexible Pavement Smoothness will be followed with the following exceptions: Northbound Lanes will be evaluated as 3 opportunity and Southbound Lanes will be evaluated as 2 opportunity.

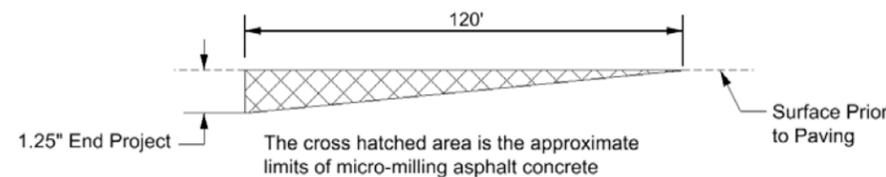
MILLING ASPHALT CONCRETE TRANSITIONS

In order to construct the new surfacing flush with the existing Asphalt Concrete Pavement at begin/end project and intersections it will be necessary to transition the depth of milling as shown in the drawings below.

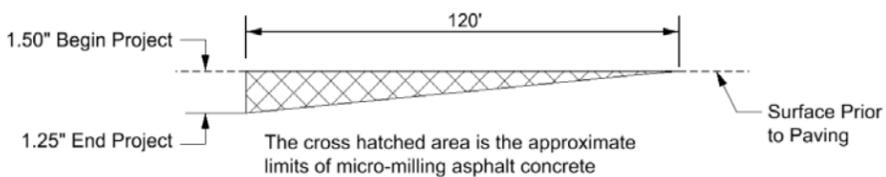
The surface shall be milled full roadway width.

All costs associated with this work shall be incidental to the contract unit price per square yard for "Micro-Milling Asphalt Concrete".

PCN 04WP:



PCN 04XR:



Refer to "Airport Road Intersection Layout" sheet for milling transitions for Begin Project.

TYPE III FIELD LABORATORY

The lab shall be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection shall be provided with a multi-port wireless router. The internet connection shall be a minimum speed of 512 Kb unless limited by job location and approved by the DOT. Prior to installing the wireless router the Contractor shall submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer.

The Contractor shall submit a copy of each monthly bill for data charged to this internet connection at the end of each month. The Project Engineer will then audit the bills to ensure all charges are legitimate and then initiate a Construction Change Order (CCO) to reimburse the Contractor for the actual approved usage. Reimbursement will not be made for fees associated with the purchase, installation, disconnection, monthly charges, and incidentals involved in the installation, maintenance, and disconnection of the internet connection (including attachments). These items shall be incidental to the contract unit price per each for "Type III Field Laboratory".

The lab will only be paid for once on this Contract regardless if it is relocated during construction or if a second lab is required due to the Contractor's operations.

CLASS Q4 HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

Mineral aggregate for Class Q4 Hot Mixed Asphalt Concrete - Alternate A shall conform to the requirements of Class Q4.

Mineral aggregate for Class Q4 Hot Mixed Asphalt Concrete - Alternate B shall consist of a minimum of 80 percent crushed limestone ledgerock and shall conform to the requirements of Class Q4.

Mix Design Criteria:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q4 Hot Mixed Asphalt Concrete – Alternate B shall conform to the requirements of Class Q4 except as modified by the following:

Gyratory Compactive Effort

	N _{initial}	N _{design}	N _{maximum}
Class Q4	6	65	100

Voids in Mineral Aggregate (VMA)

	Minimum VMA (%):
Class Q4	13.0

Fine Aggregate Angularity

	Minimum Uncompacted Void Content (%):
Class Q4	43.0

Pay Factor Attributes:

Air Voids

	Air Voids (%):
Class Q4	3.5 ±1.0

All remaining requirements for Class Q4 shall apply.

ADDITIONAL QUANTITIES

Included in the Table of Additional Quantities for Alternative A are 200 tons of Class Q4 Hot Mixed Asphalt Concrete, 11.6 tons of PG 64-28 Asphalt Binder, and 2.0 ton of Hydrated Lime per mile and for Alternative B are 200 tons of Class Q4 Hot Mixed Asphalt Concrete, 10.0 tons of PG 64-28 Asphalt Binder, and 2.0 ton of Hydrated Lime per mile for spot leveling, strengthening and repair of the existing surface. Also included in the Table of Additional Quantities are 22.0 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack for repair and leveling areas throughout the project. The aforementioned materials shall be placed as directed by the Engineer.

STORAGE UNIT

The Contractor shall provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6' std
All Gyrotory Controlled QC/QA Projects	2,360	40' x 8' x 8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit shall be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit shall be weather proof and shall be set in a level position. The storage unit shall be able to be locked with a padlock.

The storage unit shall be placed adjacent to the QA lab, as approved by the Engineer.

The following shall apply when the storage unit provided on the project is a portable storage container:

The portable storage container shall be constructed of steel.

The portable storage container shall be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following shall apply when the storage unit provided on the project is a semi-trailer:

A set of steps and hand railings shall be provided at the exterior door. If the floor of the semi-trailer is 18 inches or more above the ground, a landing shall be constructed at the exterior door. The minimum dimensions for the landing shall be 4 feet by 5 feet. The top of the landing shall be level with the threshold or opening of the doorway.

The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway shall be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway shall be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction shall be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails shall be included in the contract unit price per each for "Storage Unit".

REFURBISH MAILBOXES

The Contractor shall reset the existing mailboxes on new posts with the necessary support hardware for single assemblies (See Standard Plate No's. 900.02 and 900.03). The Contractor may submit documentation of an alternate NCHRP 350 crashworthy compliant mailbox support system to the Department for review and approval. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor shall coordinate with the Engineer on the proper postal representative to contact.

The mailboxes shall be removed and reset on the nearest approach and/or as determined by the Engineer at a minimum of 20 feet from the roadway edgeline.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware shall be incidental to the contract unit price per each for "Refurbish Single Mailbox".

Table of Refurbish Mailbox

Station	Location	Single (Each)	Double (Each)
378+42 (2 nd)	SBL	1	-
671+00 (2 nd)	SBL	1	-
550+60 (6 th)	Rt	1	-
551+27 (6 th)	Lt	1	1
Total:		4	1

PIPE NOTES

The Contractor is responsible for verifying the size of each pipe prior to ordering any pipe or pipe ends. The Contractor shall obtain the approval of the Engineer before ordering any pipe or pipe end section.

Pipe culverts and end sections that are removed and not reset shall become the property of the Contractor. They shall be disposed of as per the Environmental Commitment Notes and shall not be in view from the project upon completion of the project.

The excavation required to expose the remove/reset existing pipe and end sections throughout the project shall be incidental to the remove/reset pipe and end section bid items. Refer to the "Table of Mainline Pipe and Erosion Repair" for work associated at each site.

CULVERT CLEANOUT

Material in existing mainline culverts as listed in the "Table of Mainline Pipe and Erosion Repair" shall be cleaned out by water flushing or other approved methods. Each culvert shall be cleaned such that the bottom of the pipe is visible throughout its length so as to re-establish the flow line.

It is the responsibility of the Contractor to visit the site to determine the extent of pipe cleaning work required.

The Contractor shall implement appropriate sediment control measures prior to water flushing in order to prevent discharges beyond the project boundaries.

All costs for this work shall be included in the contract unit price per each for "Cleanout Pipe Culvert".

TIE BOLTS FOR RCP

All joints for RCP installed both new and reset, shall be tied together. This includes connection from existing culvert sections to new or reset sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer. The cost for furnishing and installing the tie bolts for new and reset sections shall be incidental to corresponding pipe items.

All joints for the pipe at Sta 32+68 (SBL) as listed in the "Table of Reinforced Concrete Pipe Joint Repair and Void Grouting" in the plan notes shall have tie bolts installed. The Contractor shall drill holes at an angle as to cause the legs of the tie bolt to bind against the outside face of the hole upon tie bolt tightening. Bending of the tie bolt legs may need to be done in order to achieve this. Prior to inserting the tie bolt the Contractor shall fill the hole with epoxy resin. The epoxy resin mixture shall be of a type for bonding steel to hardened concrete and shall conform to AASHTO M235 Type IV, (Equivalent to ASTM C881, Type IV). The Contractor shall allow the resin to properly set-up prior to the final tightening of the tie bolts. All cost for drilling tie bolt holes, epoxy resin, and furnishing and installing the tie bolts shall be incidental to the contract unit price per each for "Tie Bolts for RCP".

For informational purposes: Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends, existing culvert when installing a new/reset end section, and on existing cattle pass culvert sections. All cost for removing/resetting existing tie bolts, drilling tie bolt holes, and furnishing and installing the tie bolts shall be incidental to the respective remove/reset or furnish/install bid items for that location.

MISCELLANEOUS WORK

The Contactor shall remove approximately two feet off the end of the culvert after removing the elbow and end section. The elbow and end section shall be reset onto the existing culvert. Reshaping around the area will be needed to have the adjacent slopes tie into the culvert to the satisfaction of the Engineer. All work associated with removing and replacing material and cutting off approximately two feet of culvert from the end shall be incidental to the contract unit price per site for "Miscellaneous Work". Refer to "Table of Mainline Pipe & Erosion Repair" for locations.

HIGH FLOW SILT FENCE

The high flow silt fence fabric provided shall be from the approved product list. The approved product list for high flow silt fence may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

High flow silt fence shall be placed at the locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

The anticipated areas for the placement of silt fence will be at inlets at pipe repair locations.

A quantity of high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

EROSION CONTROL

The areas disturbed as a result of work on this project shall be restored and/or reshaped to the satisfaction of the Engineer. All disturbed areas shall be seeded and mulched. Disturbed areas anticipated on the project include reprofiling limits and mainline pipe repair sites along with all other areas disturbed as a result of the Contractor's operations.

The varieties listed for the seed mixture are preferred varieties. Native harvest seed will be allowed.

Type C Permanent Seed Mixture shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana	16
Canada Wildrye	Mandan	2
Total:		18

It is estimated that 2.0 acres of cumulative disturbed area will require seeding and mulching throughout the project limits. Limits of the work shall be determined by the Engineer at the time of construction.

Application of grass hay or straw mulch at a rate of 2 ton per acre will be required throughout the disturbed areas as directed by the Engineer on this Contract.

Application of fertilizer will not be required on this project.

All costs associated with furnishing/placing the seed, mulch, and inoculum, along with all labor, equipment shall be incidental to the contract lump sum price for "Erosion Control".

TURF REINFORCEMENT MAT

Turf Reinforcement Mat shall be installed at locations shown in the "Table of Mainline Pipe & Erosion Repair" at the widths specified, and at locations determined by the Engineer during construction. The Contractor shall use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

<http://sddot.com/business/certification/products/Default.aspx>

COVER CROP SEEDING

Cover crop seeding may be used on this project as a temporary erosion control measure. The actual limits and use of cover crop seeding shall be determined by the Engineer during construction.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum shall consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier shall provide certification of the fungal species claimed and the live propagule count. The inoculum shall include the following fungal species:

- Glomus intraradices* 25%
- Glomus aggregatu* 25%
- Glomus mosseae* 25%
- Glomus etunicatum* 25%

All seed shall be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed shall be incidental to the contract lump sum price for "Erosion Control".

The mycorrhizal inoculum shall be as shown below or an approved equal:

<u>Product</u>	<u>Manufacturer</u>
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com

RUMBLE STRIP/SINUSOIDAL CENTERLINE RUMBLE STRIPES ROADWAY CLEANING

The Contractor shall be required to remove loose material from the driving surface and/or asphalt shoulders of the roadway. Loose material may be swept to the edge of shoulders and it shall be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas and/or waterways.

All costs associated with the work shall be incidental to the contract unit price per mile for grinding Rumble Strips or Stripes for that project.

RUMBLE STRIPS/SINUSOIDAL CENTERLINE RUMBLE STRIPES

Rumble strips/sinusoidal stripes shall be installed in rural areas with posted speeds greater than 50 M.P.H., shall not be placed on any bridge deck or within 25 feet of the approach slab or within 50 feet of any railroad crossing, and also will not be required in urban areas or where there is development in close proximity to the highway.

The Engineer shall provide the exact start and stop locations for the rumble strips/ sinusoidal stripes installation. The Contractor is responsible for inspecting project locations prior to letting to identify potential installation problems.

Any damage to the existing shoulders and/or roadway during construction of rumble strips/strips shall be repaired by the Contractor at no cost to the State of South Dakota.

Following installation, the rumble strips shall be flush sealed with SS-1h or CSS-1h Asphalt for Flush Seal. The Flush Seal shall be applied 20 inches wide for rumble stripes at the rate of 0.05 gallons per square yard. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

Rumble strip/stripe installation shall be completed prior to application of the Flush Seal and Permanent Pavement Markings.

PCN 04WP: (Rumble Strips)

The placement of rumble strips from the driving lane may vary depending on the existing typical section of the roadway as directed by the Engineer. The Contractor shall install rumble strips as per the standard plate shown in the plans. The rumble strips must be grooved into the asphalt concrete surfacing. The gaps for the rumble strip installation as detailed on the standard plates shall be included with the measurement and payment.

PCN 05X4: (Sinusoidal Centerline Rumble Stripes)

The Contractor shall install sinusoidal stripes as per detail as shown in "Sinusoidal Centerline Rumble Stripe Detail" sheet.

The Engineer shall mark the starting and stopping points noted in the "Sinusoidal Centerline Rumble Stripe Detail" sheet. The Contractor shall be responsible for marking minor exceptions, such as approaches.

Milling shall be the only acceptable method of constructing the sinusoidal rumble strips. Construct rumble strips within 2 inches of the specified alignment. The grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment. Indentations must comply with the specified dimensions in the plans within 0.06 inch in depth and 10 percent in length and width.

Do not disturb any pavement marking tape or durable markings within the exception area. Any pavement marking tape or durable marking damaged shall be replaced by the Contractor at no cost to the State of South Dakota.

A guide installed on the distributor equipment shall be used to follow the alignment of the existing pavement marking. If there is any damage to the existing pavement marking, the Contractor shall replace in kind, at no additional cost to the State. Extra care shall be taken on routes with durable pavement markings.

REINFORCED CONCRETE PIPE JOINT REPAIR AND VOID GROUTING

The Contractor shall provide a notarized statement, from the Manufacturer, that the products used for culvert joint repair meet the specified requirements, along with the Manufacturer's current product specification and installation instructions.

The Contractor shall be an Approved Contractor of the Manufacturer of the specified product and shall provide written certification from the Manufacturer attesting to their Approved Contractor status. The Contractor shall follow the Manufacturer's installation instructions and specifications throughout the repair process

All product documentation and Contractor submittals must be submitted to the Engineer prior to or at the preconstruction conference. The Contractor must have the Engineer's approval prior to commencing any of this work.

Temperature of the specified products is critical from the point of pumping to the point of injection. All polyurethanes react faster at higher temperatures. Drum heaters and heated hoses are required when ambient or ground temperatures are below 70 degrees Fahrenheit. The optimum hose temperature will vary with the weather conditions and the particular job site conditions with the minimum hose temperature being 75 degrees Fahrenheit and the maximum hose temperature being 95 degrees Fahrenheit and the drum temperature not to exceed 90 degrees Fahrenheit.

The Contractor shall provide worker and inspector safety and worker protective gear in accordance with the manufacturer, including but not limited to chemical goggles, face shields, eye wash system and NBR gloves.

The Contractor shall provide safe storage and handling of materials prior to delivery and at the project site. All material installation, handling and storage shall be in accordance with the Manufacturer's recommendations.

The Contractor shall visit the project to determine the extent of culvert joints to be cleaned and filled, prior to bidding.

CULVERT JOINT CLEANING

This work shall consist of cleaning of the culvert joints, washing the entire culvert and joints with a high pressure washer, and if needed, wire brush cleaning of each joint to be repaired as directed by the Engineer. The entire culvert shall be clean and dry and most notably the specified joints shall be thoroughly cleaned to the satisfaction of the Engineer using a power washer with water pressure of at least 2500 psi. The culvert must be in a clean condition so that no deleterious material is trapped in the joints that are being repaired. The Contractor shall dispose of all debris removed from the culverts during the cleaning operation as approved by the Engineer.

All costs for equipment, material and labor for the culvert joint cleaning work shall be incidental to the contract unit price per foot for "Culvert Joint Cleaning". Culvert Pipe Cleaning will be measured to the nearest 0.1 foot of joint which is cleaned for joint repair.

REPAIR CULVERT JOINT

The culvert joints shall be repaired in accordance with the Chemical Grout Manufacturer's directions to prevent future infiltration/exfiltration of soils and water and to keep the chemical grout from expanding back into the structure during injection.

The culvert joint will be repaired with a sealant comprised of water reactive

hydrophilic polyurethane resin and dry oil free oakum. All grout will be injected under such pressure so as not to damage the existing drainage structure or roadway structure.

The Contractor shall submit to the Engineer for approval a detailed procedure for the installation of the polyurethane grout.

The work shall include, but is not limited to sealing each pipe joint with a hydrophilic polyurethane grout meeting the following specifications:

- GEL FOAM II (Saturated Oakum Rope Joint Packing) as manufactured by Green Mountain International, LLC or equal.
- ULTRA (Single Component Grout for Joint Injection) as manufactured by Green Mountain International, LLC or equal.

Excess grout and oakum shall be trimmed from the interior face of the joint prior to applying the UV Protection (Gel Coat). The epoxy gel compound shall be recommended by the Manufacturer for both surface sealing and protecting the hydrophilic grout from UV exposure. The epoxy gel compound shall be mixed and handled in accordance with the Manufacturer's recommendations and shall meet the following requirements:

- Epoxy gel sealant compounds manufactured by Green Mountain Grouts, LLC or equal.

All costs for all equipment, material and labor required to complete the work shall be incidental to the contract unit price per foot for Repair Culvert Joint. Completion of the work includes initial saturated oakum rope packing of each joint, follow up injection of grout into the back side of each joint, trimming the excess grout and oakum from the interior face of the joint, application of the epoxy gel coat and site clean-up. Payment will be made per 0.1 foot of culvert joint repaired.

DUAL COMPONENT CHEMICAL GROUT FOR VOID FILLING

The external voids surrounding the culvert will be filled with an injected high expansion chemical grout compound. Holes shall be strategically drilled as required and grout injected throughout the structure to effectively fill all voids that have developed outside of the structure due to the infiltration of external soils and materials into the culvert and "piping" (water running outside and under the structure due to separated joints). It is the Contractor's responsibility to locate reinforcing bars and conduit prior to drilling any grout holes. All grout shall be injected under such pressure so as not to damage the existing drainage structure or roadway structure. All joints shall be appropriately cleaned and sealed, with appropriate recommended cure time, prior to the injection of the void grouting. After completion of the void filling, all holes shall be properly sealed.

The Contractor must supply the Engineer with three (3) prior job references of projects where they have successfully injected urethane resin for subgrade void filling applications, or soil stabilization.

The chemical grout shall be a dual component hydrophobic polyurethane grout compound which is non-flammable and non-toxic when cured.

The chemical grout mixture shall have expansion properties listed in the

data sheets of greater than twenty (20) times its original volume and cure to rigid closed cell polyurethane foam. The grout shall expand to fill any voids and must bond to the exterior surface of the structure. The chemical grout shall be VF dual component polyurethane grouts as manufactured by Green Mountain International, LLC or equal.

The typical method consists of placing a layer of chemical grout behind or around the structure. The Contractor shall submit for approval by the Engineer a detailed grouting plan showing the spacing, orientation and depth of the grout holes, as well as type of polyurethane grout to be used, range of gel times, equipment, mixing procedures, recommended injection pressure, technique for monitoring grout travel and any other pertinent information. The grouting plan should address the prevention of overfilling and prevention of damage to structures or roadway. The Contractor shall submit this detailed procedure for the installation of the expansion grout to the Engineer for approval. The holes are drilled with a rotary percussion hammer drill using a sharp masonry bit with a minimum diameter of 3/8 inch to a maximum diameter of 5/8 inch. Care must be taken to prevent holes from causing damage to reinforcing bars or utility conduits. Drilled holes should be vacuumed and flushed. Use injection grout and methods as recommended by Manufacturer.

Injection can be monitored by either applicator's visual inspection or by pumping a specific amount of injection grout into each hole. The work will start at the inlet end of the pipe and proceed downstream to the outlet. Inject bottom row every other hole. When material appears at the adjacent port, discontinue injection at entry port and begin injection at the adjacent port. Continue injection process section by section from bottom of pipe to top of pipe in a continuous manner to next pipe section. Injection pressure will vary from 200 psi to 3000 psi depending on the width of the joint, thickness of the structure, and condition of the concrete. After the grout cures, excess material shall be trimmed to be flush with the pipe interior wall and the pipe left clean.

All costs for equipment, material, and labor required to fill external voids surrounding the culvert shall be incidental to the contract unit price per gallon for "Chemical Grout Void Fill". Any overfilling of voids that results in damage to overlying pavement, highway user ride quality, or drainage structure integrity shall be corrected and paid for by the Contractor. All corrections shall be approved by the Engineer. Payment shall be to the 0.1 gallon of chemical grout used, prior to expansion of the material.

Table of Reinforced Concrete Pipe Joint Repair and Void Grouting

Location	Remarks	Tie Bolts	Culvert Joint Cleaning	Repair Culvert Joint	Chemical Grout Void Fill
		(Each)	(Feet)	(Feet)	(Gallon)
Sta. 32+68 (SBL)	36" RCPA	16	60.0	60.0	30.0

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F8	F69

CHECKING SPREAD RATES

The Contractor shall be responsible for checking the Asphalt Concrete spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor shall compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread shall be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor shall verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item shall be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor shall correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor shall be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of $\pm 1/2$ inch of the plan shown depth, the Contractor shall correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

All costs for providing the Contractor furnished checker and performing all related duties shall be incidental to the contract lump sum price for "Checker". No allowances will be made to the contract lump sum price for "Checker" due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker shall then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

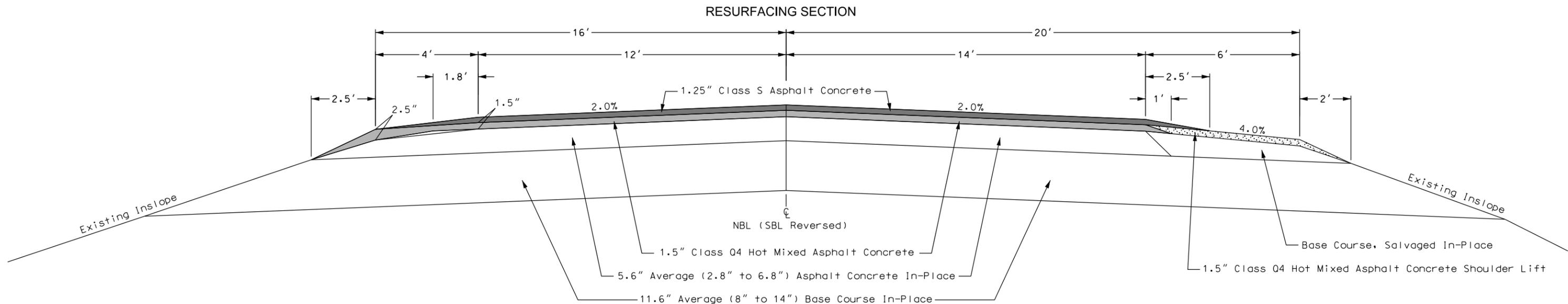
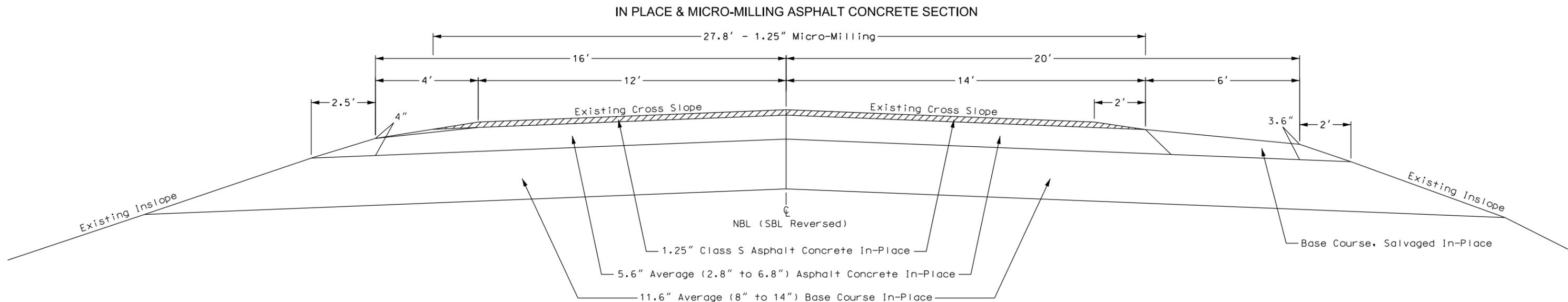
TYPICAL SECTION

Section 1 (US Hwy 83)

NBL
 Sta 11+60 to Sta 12+32.63
 Sta 35+95.81 to Sta 77+17.94
 Sta 96+10.63 to Sta 202+72.19
 Sta 217+91.06 to Sta 346+35.82
 Sta 367+98.78 to Sta 447+59.17

NBL
 Sta 467+49.73 to Sta 590+96.06
 Sta 10+40.12 (2nd) to Sta 38+38.14 (2nd)
 Sta 52+90.53 (2nd) to Sta 68+34.79 (2nd)
 Sta 85+41.82 (2nd) to Sta 147+41.77 (2nd)
 Sta 164+78.97 (2nd) to Sta 389+68.91 (2nd)

SBL
 Sta 389+09.14 (4th) to Sta 389+70.94 (4th)
 Sta 410+83.90 (4th) to Sta 420+59.92 (4th)
 Sta 437+12.80 (4th) to Sta 460+77.62 (4th)
 Sta 473+70.79 (4th) to Sta 493+00 (4th)



TYPICAL SECTION

Section 2 (US Hwy 83)

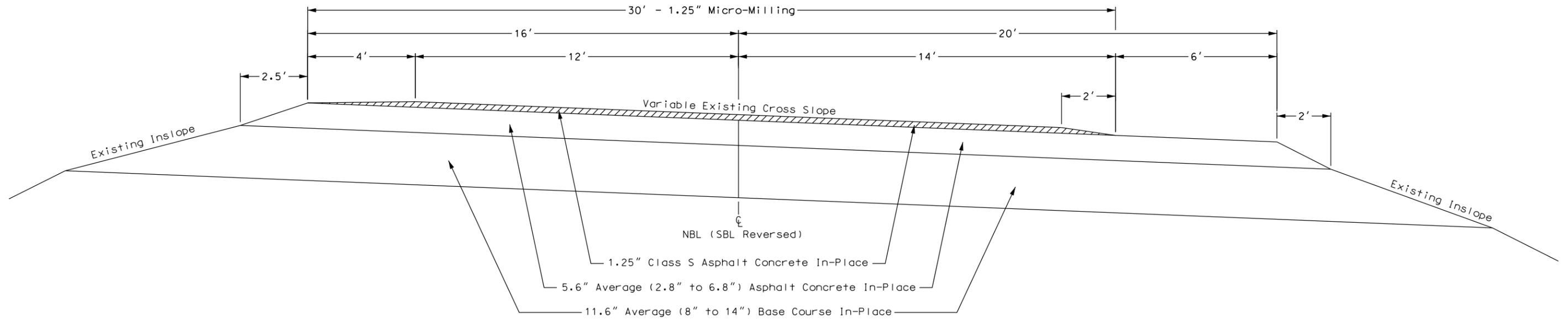
NBL
 Sta 12+32.63 to Sta 35+95.81 - *
 Sta 77+17.94 to Sta 96+10.63
 Sta 202+72.19 to Sta 217+91.06
 Sta 346+35.82 to Sta 367+98.78 - *
 Sta 447+59.17 to Sta 467+49.73

NBL
 Sta 38+38.14 (2nd) to Sta 52+90.53 (2nd) - *
 Sta 68+34.79 (2nd) to Sta 85+41.82 (2nd)
 Sta 147+41.77 (2nd) to Sta 164+78.97 (2nd) - *
 Sta 389+68.91 (2nd) to Sta 411+54.39 (2nd) - *

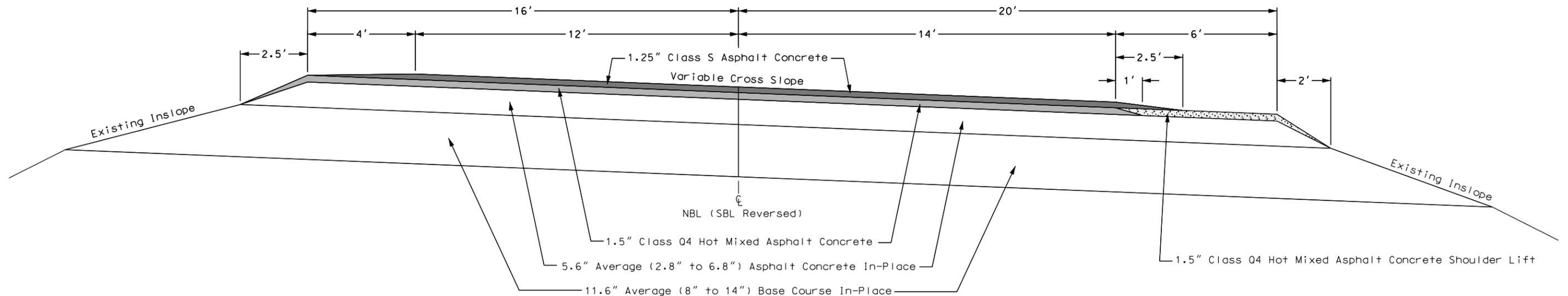
SBL
 Sta 389+70.94 (3rd) to Sta 410+83.90 (3rd)
 Sta 420+59.92 (3rd) to Sta 437+12.80 (3rd) - *
 Sta 460+77.62 (3rd) to Sta 473+70.79 (3rd)
 Sta 493+00 (3rd) to Sta 495+00 (3rd) - *

* - Reverse Superelevation

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



TYPICAL SECTION

Section 3 (US Hwy 83)

SBL

Sta 556+23.30 to Sta 513+69
 Sta 496+17.30 to Sta 385+26.50
 Sta 373+83.20 to Sta 244+40.30
 Sta 223+28.60 to Sta 159+00
 Sta 157+00 to Sta 142+93.70
 Sta 124+09.30 to Sta 27+86
 Sta 25+86 to Sta 0+00

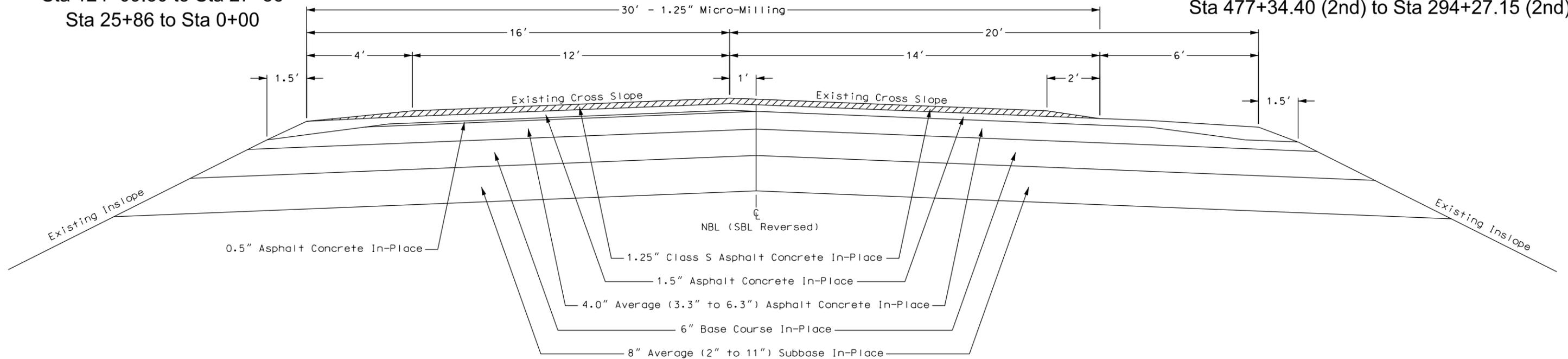
NBL

Sta 271+56.2 (3rd) to Sta 262+05.20 (3rd)
 Sta 245+45.10 (4th) to Sta 222+84.90 (4th)
 Sta 208+26 (4th) to Sta 193+13 (4th)

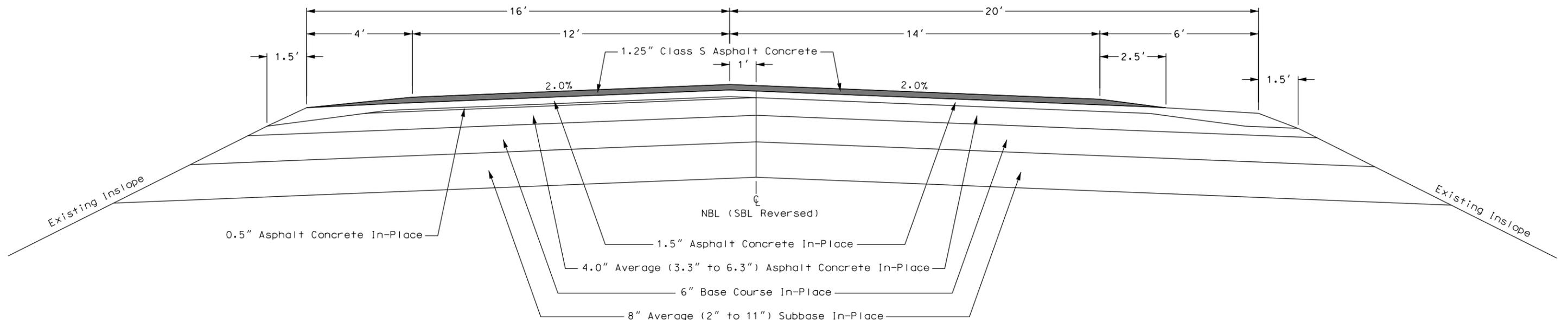
SBL

Sta 672+87.60 (2nd) to Sta 667+47.73 (2nd)
 Sta 663+87.77 (2nd) to Sta 646+10.60 (2nd)
 Sta 641+80.60 (2nd) to Sta 615+85.90 (2nd)
 Sta 597+60.30 (2nd) to Sta 536+10.80 (2nd)
 Sta 517+82.50 (2nd) to Sta 480+34.34 (2nd)
 Sta 477+34.40 (2nd) to Sta 294+27.15 (2nd)

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION

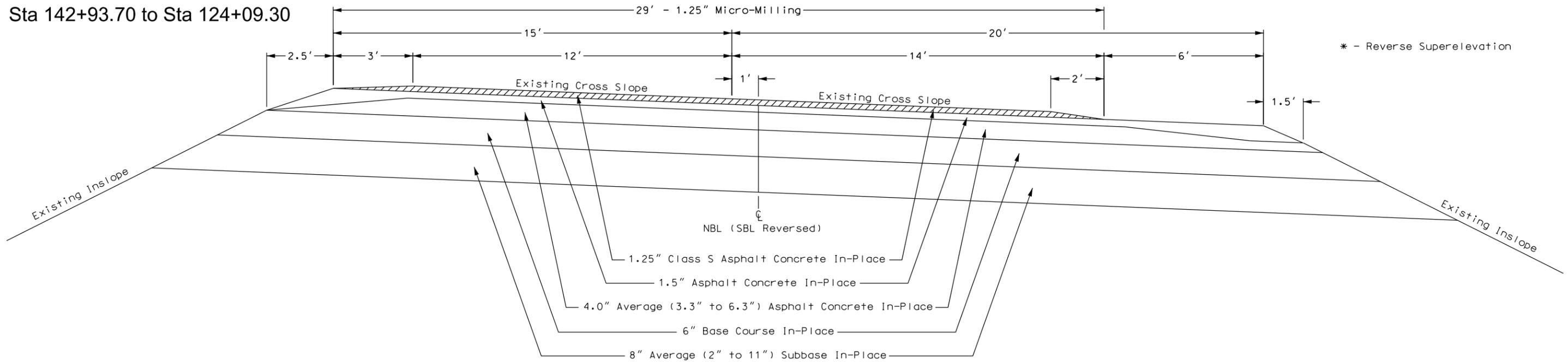


TYPICAL SECTION

Section 4 (US Hwy 83)

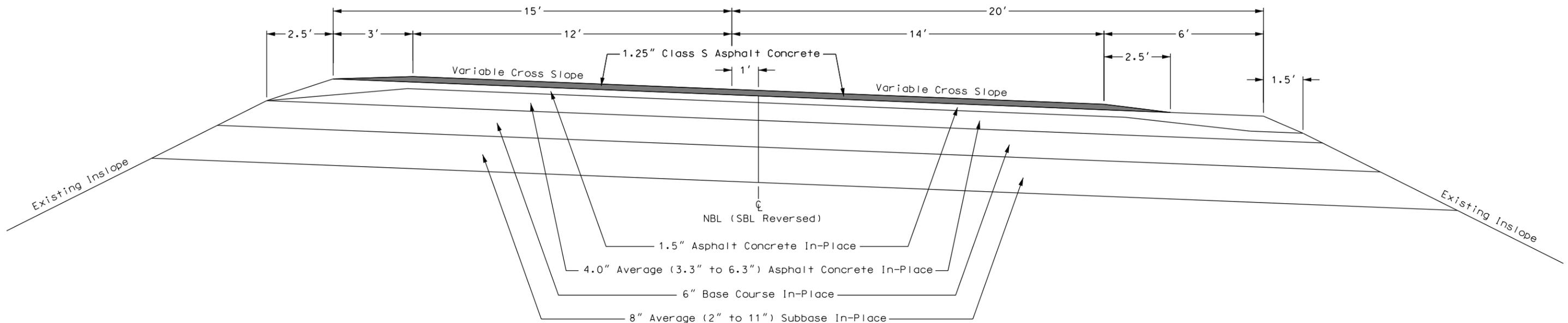
<p>SBL</p> <p>Sta 566+18.30 to Sta 556+23.30 - *</p> <p>Sta 513+69 to Sta 496+17.30</p> <p>Sta 385+26.50 to Sta 373+83.20</p> <p>Sta 244+40.30 to Sta 223+28.60 - *</p> <p>Sta 142+93.70 to Sta 124+09.30</p>	<p>NBL</p> <p>Sta 222+84.90 (4th) to Sta 208+26 (4th) - *</p>	<p>SBL</p> <p>Sta 646+10.60 (2nd) to Sta 641+80.60 (2nd) - *</p> <p>Sta 615+85.90 (2nd) to Sta 597+60.30 (2nd)</p> <p>Sta 536+10.80 (2nd) to Sta 517+82.50 (2nd) - *</p>
--	--	---

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



* - Reverse Superelevation

RESURFACING SECTION



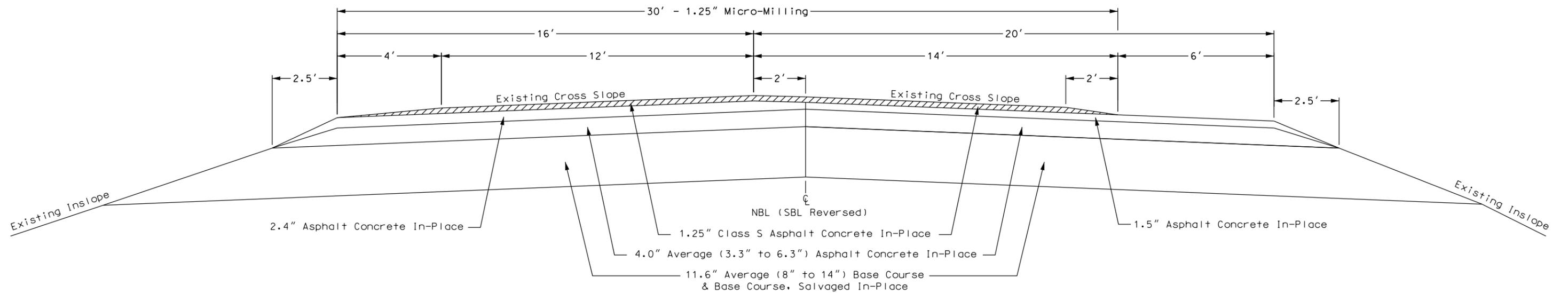
TYPICAL SECTION

Section 5 (US Hwy 83)

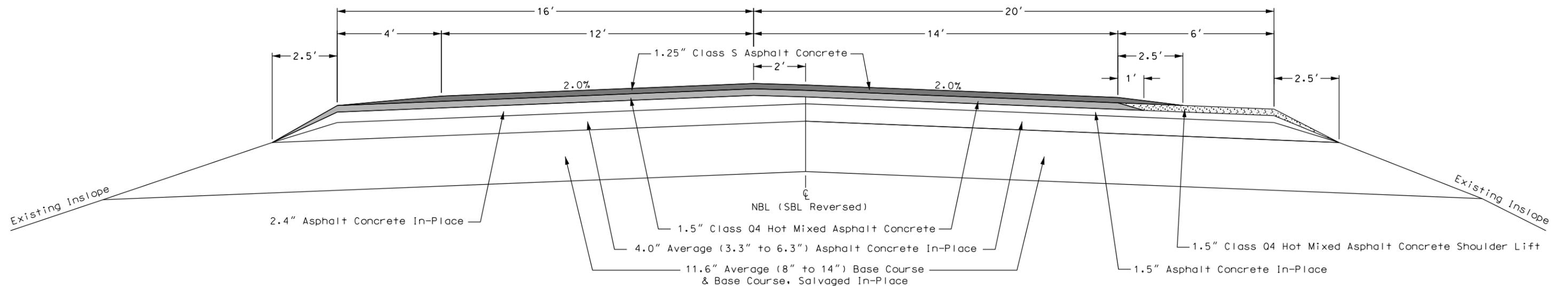
NBL
Sta 489+50 (5th) to Sta 493+00 (5th)

SBL
Sta 667+47.73 (2nd) to Sta 663+87.77 (2nd)
Sta 480+34.34 (2nd) to Sta 477+34.40 (2nd)

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



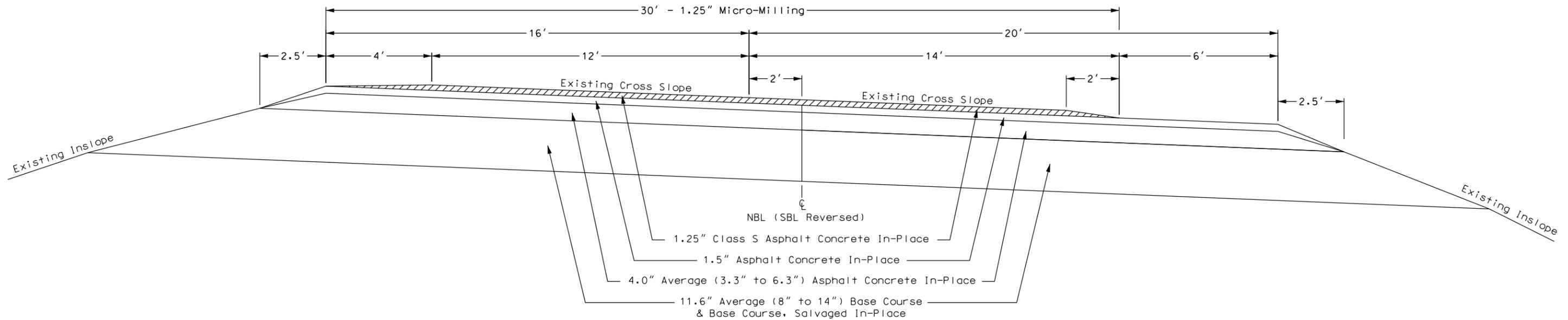
TYPICAL SECTION

Section 6 (US Hwy 83)

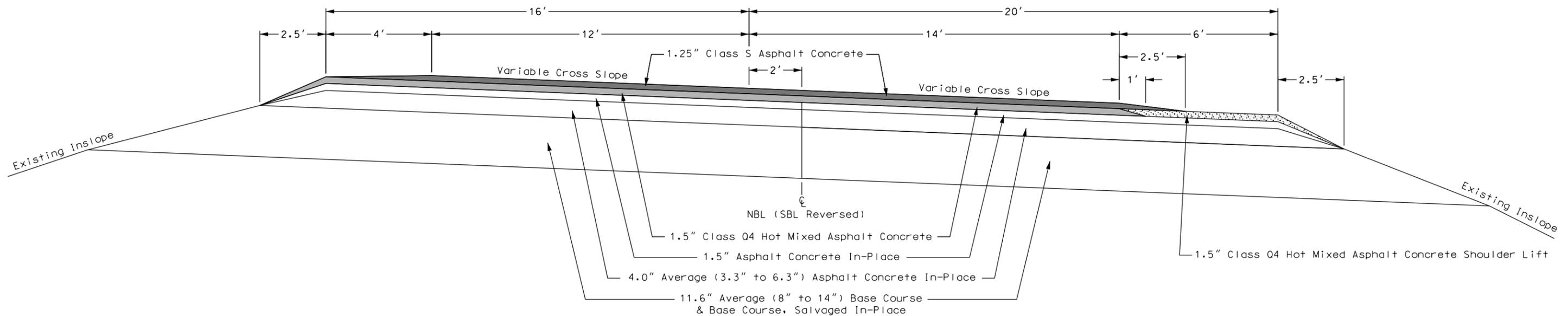
NBL
Sta 262+05.20 (3rd) to Sta 245+45.10 (4th) - Thru Equation

NBL
Sta 493+00 (5th) to Sta 495+00 (5th)

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION

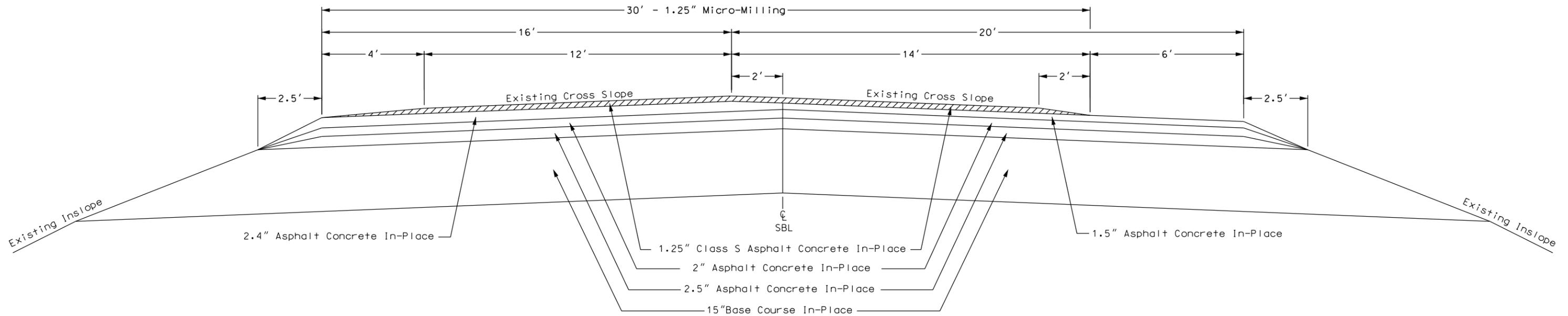


TYPICAL SECTION

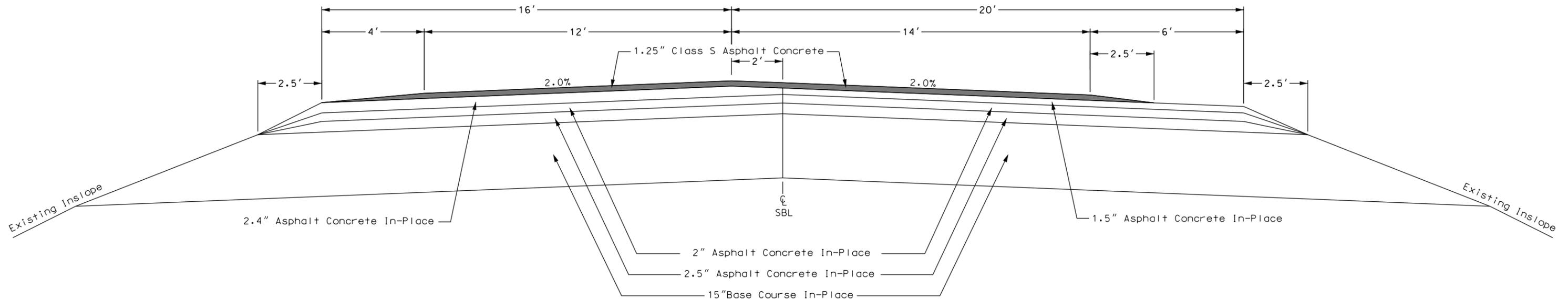
Section 7 (US Hwy 83)

SBL
 Sta 159+00 to Sta 157+00
 Sta 27+86 to Sta 25+86

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



TYPICAL SECTION

Section 8 (US Hwy 83)

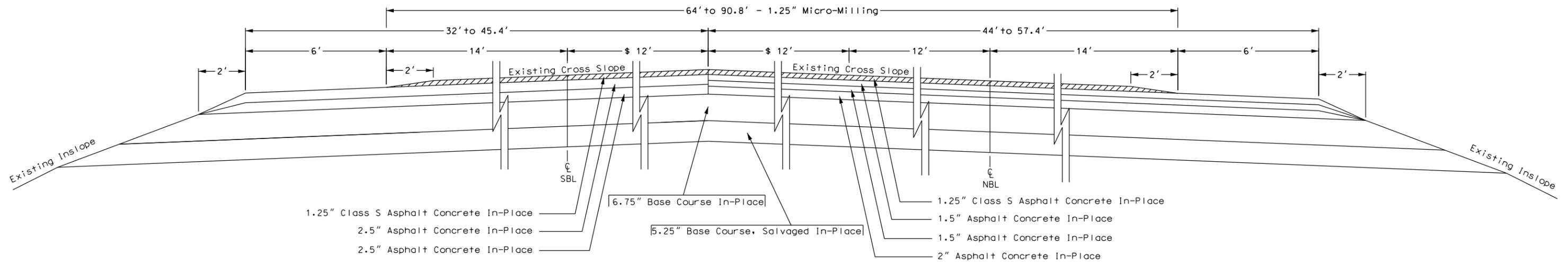
NOTE: MATERIAL RATES ARE NOT CALCULATED DUE TO THE VARIABILITY OF THE SECTION REFER TO "TABLE OF MATERIAL QUANTITIES" FOR QUANTITIES

SBL
Sta 495+00 (3rd) to Sta 508+00 (3rd)

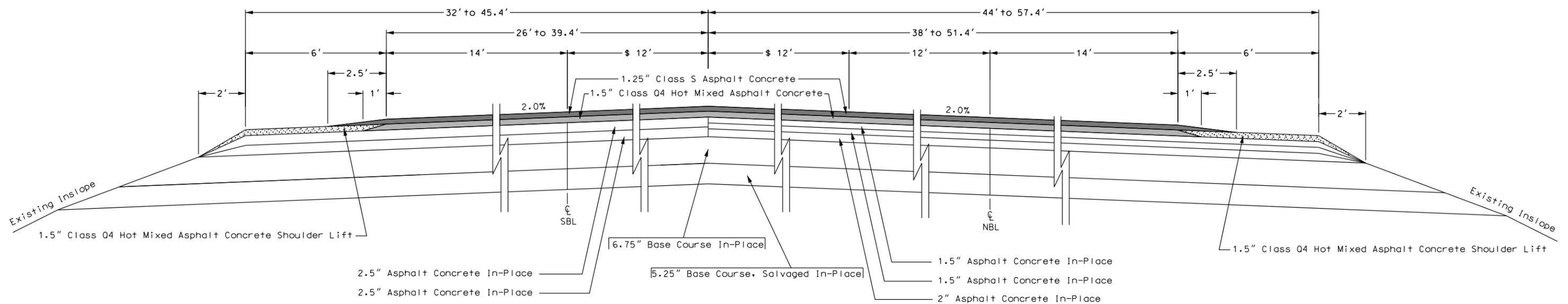
NBL
Sta 495+00 (5th) to 508+00.96 (5th)

\$ Transition:
25.4' to 12'

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



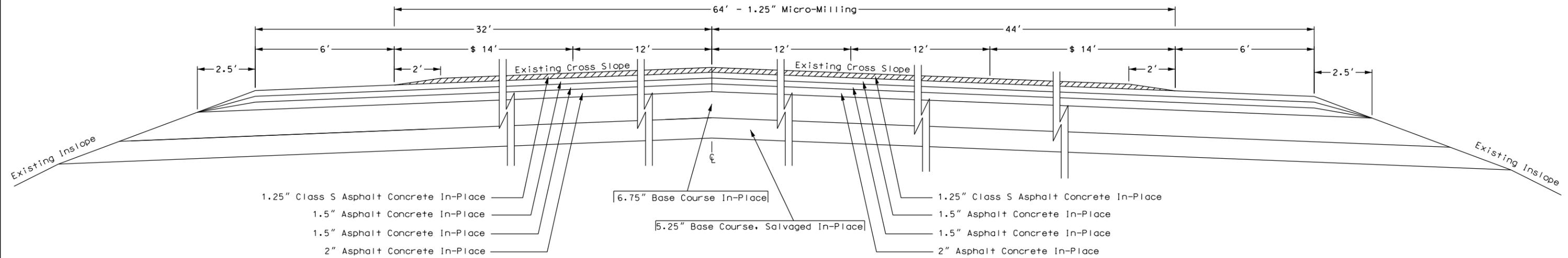
TYPICAL SECTION

Section 9 (US Hwy 83)

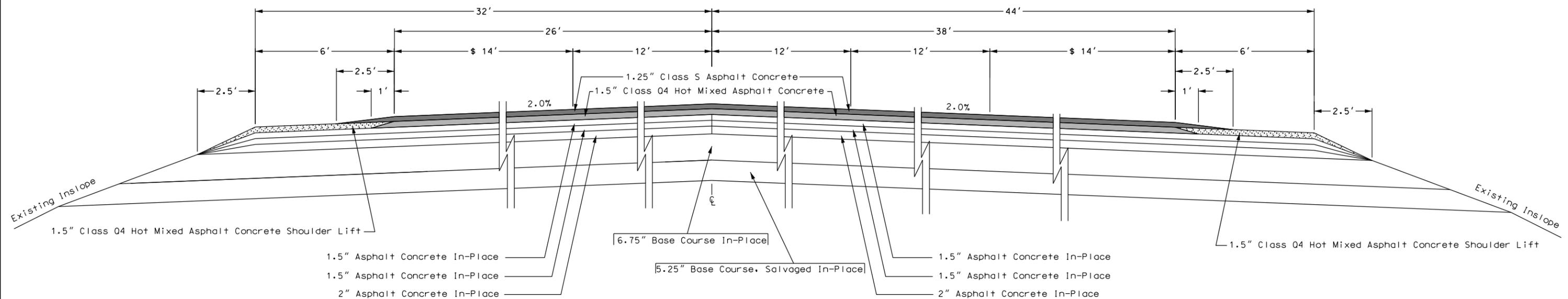
UNDIVIDED SECTION
Sta 508+00 (6th) to Sta 565+10 (6th)

\$ Transition:
14' at Station 565+10 (6th) to 2' at Station 573+50 (6th)

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



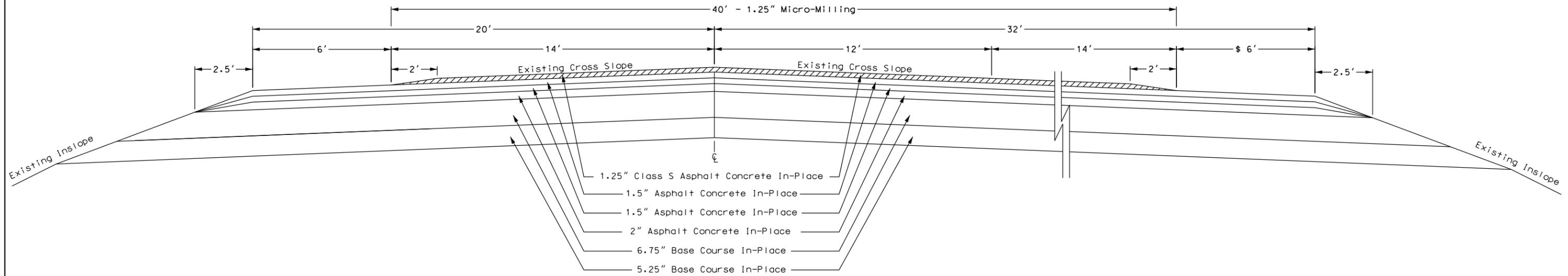
TYPICAL SECTION

Section 10 (US Hwy 83)

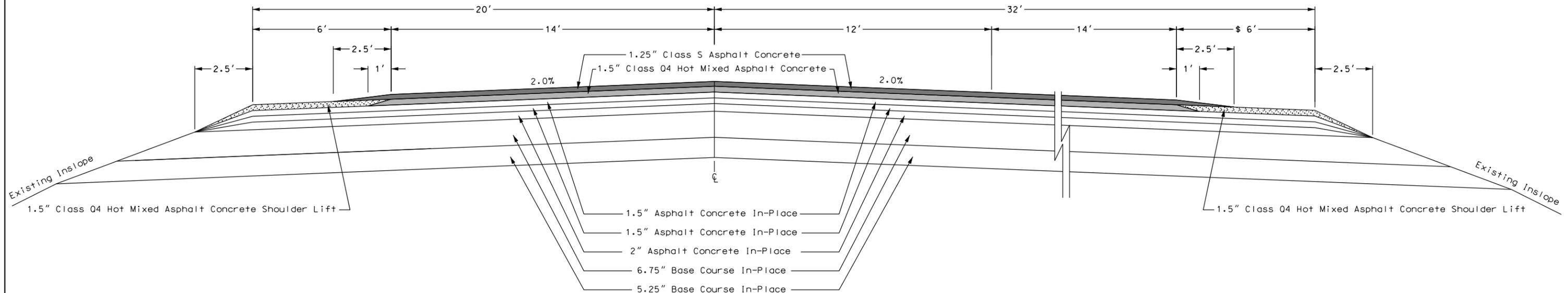
UNDIVIDED SECTION
Sta 573+50 (6th) to Sta 590+94 (6th)

\$ Transition:
6' at Station 590+94 (6th) to 2' at Station 591+44 (6th)

IN PLACE & MICRO-MILLING ASPHALT CONCRETE SECTION



RESURFACING SECTION



TYPICAL SECTION

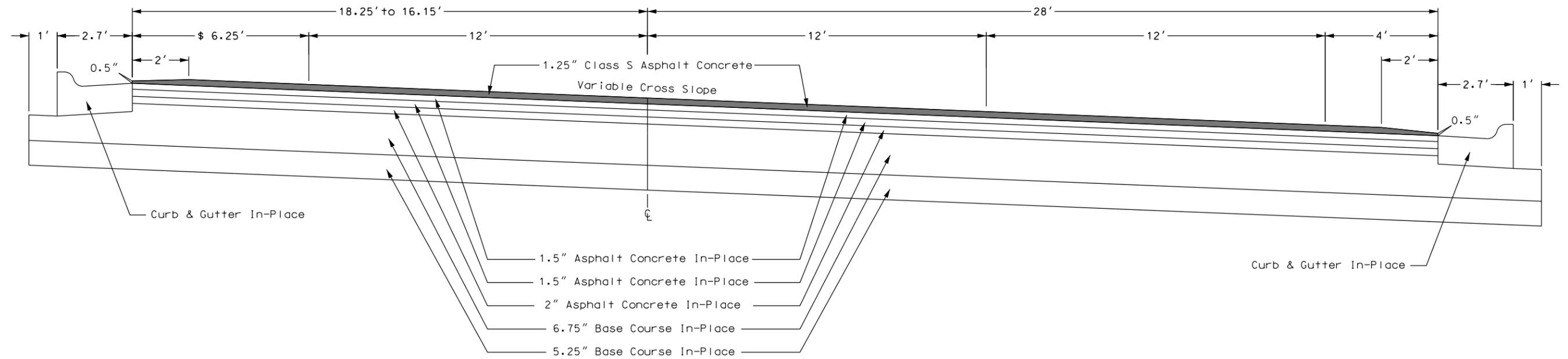
Section 11 (US Hwy 83)

NOTE: MATERIAL RATES ARE NOT CALCULATED FOR THE SECTION REFER TO "TABLE OF MATERIAL QUANTITIES" FOR QUANTITIES

UNDIVIDED SECTION Sta 591+44 (6th) to Sta 594+70.09 (6th)

\$ Transition:
6.25' to 4.15'

IN PLACE & RESURFACING SECTION



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96, +..	F20	F69

TYPICAL SECTION

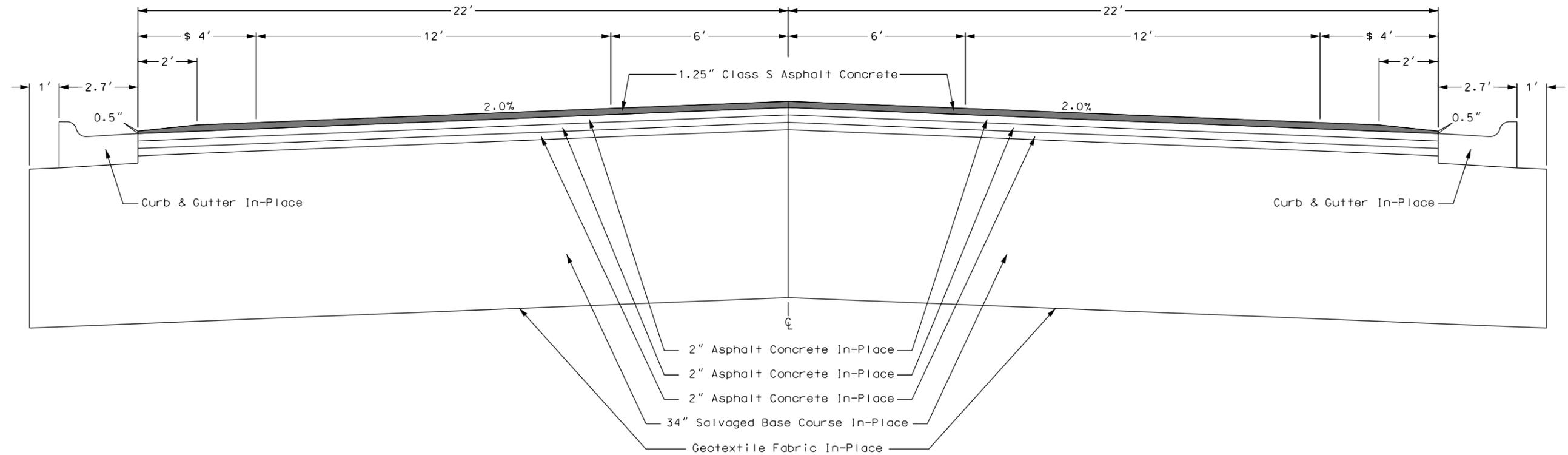
Section 12 (US Hwy 83)

UNDIVIDED SECTION
Sta 10+00 (7th) to Sta 20+42 (7th)

\$ Transition:

Lt. - 4' at Station 20+42 (7th) to 6.06' at Station 21+53.57 (7th)
Rt. - 4' at Station 20+42 (7th) to 6.14' at Station 21+53.57 (7th)

IN PLACE & RESURFACING SECTION



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96, +..	F21	F69

TYPICAL SECTION

Section 1 (US Hwy 14B)

SOUTHBOUND LEFT TURN LANE

Sta 20+70 to Sta 23+60

Sta 26+09 to Sta 28+50

Sta 41+11 to Sta 41+33

Sta 47+17 to Sta 51+33

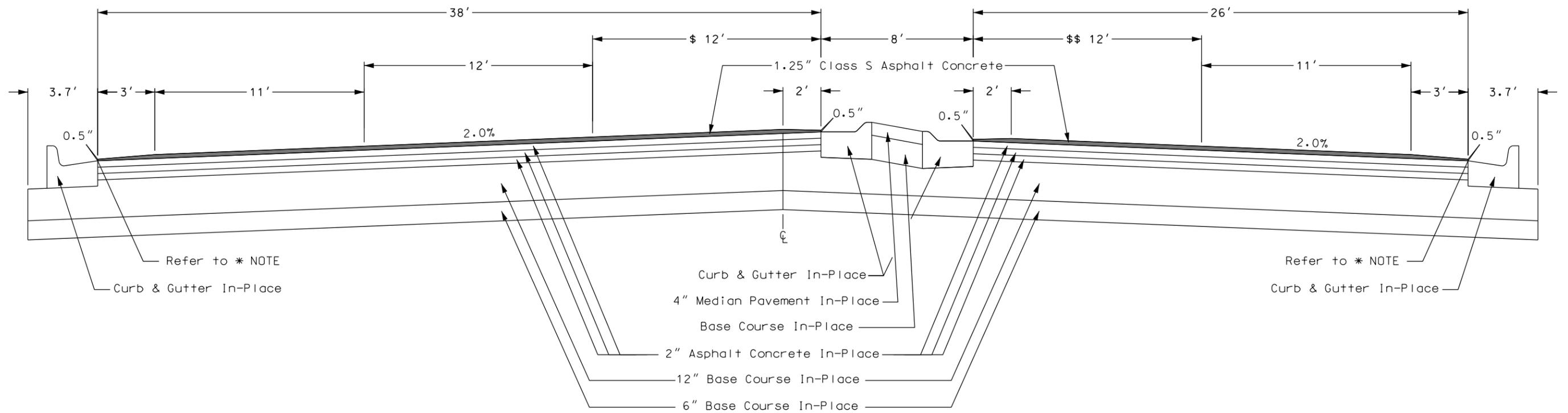
Sta 56+20 to Sta 60+20

* NOTE: The Contractor shall ensure at all Curb Ramp locations that final grade of the asphalt overlay is flush at the ramp/asphalt interface to where no lip will exist. This may require the Contractor to do hand work in these areas to achieve this.

\$ Transition (12' to 0'):
 Sta 23+60 to Sta 24+20
 Sta 28+50 to Sta 29+10
 Sta 41+33 to Sta 41+93
 Sta 51+33 to Sta 51+93
 Sta 60+20 to Sta 60+80

\$\$ Transition (12' to 24'):
 Sta 23+63 to Sta 24+21
 Sta 51+60 to Sta 52+20

IN PLACE & RESURFACING SECTION



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96, +..	F22	F69

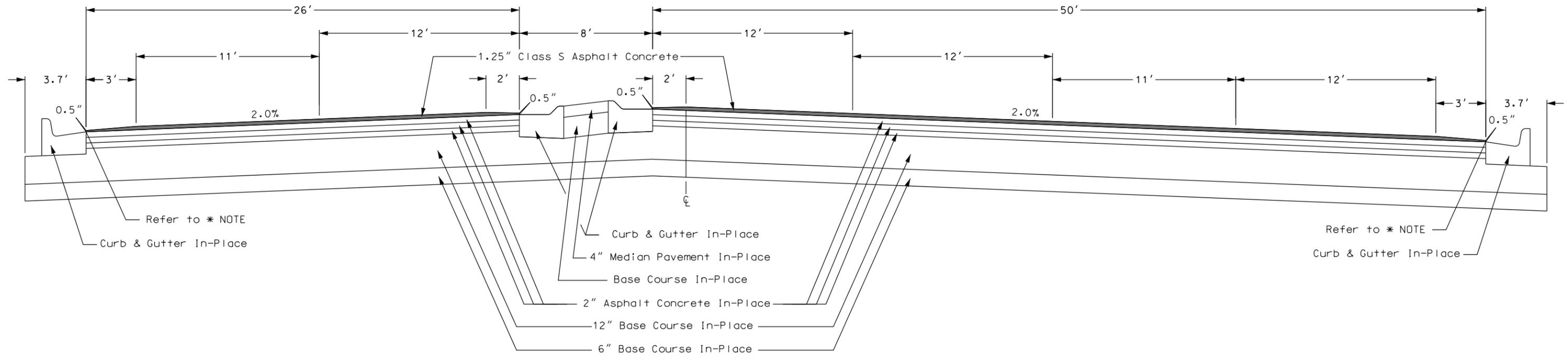
TYPICAL SECTION

Section 2 (US Hwy 14B)

NORTHBOUND RIGHT & LEFT TURN LANE Sta 36+55 to Sta 38+48

* NOTE: The Contractor shall ensure at all Curb Ramp locations that final grade of the asphalt overlay is flush at the ramp/asphalt interface to where no lip will exist. This may require the Contractor to do hand work in these areas to achieve this.

IN PLACE & RESURFACING SECTION



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96. +..	F23	F69

TYPICAL SECTION

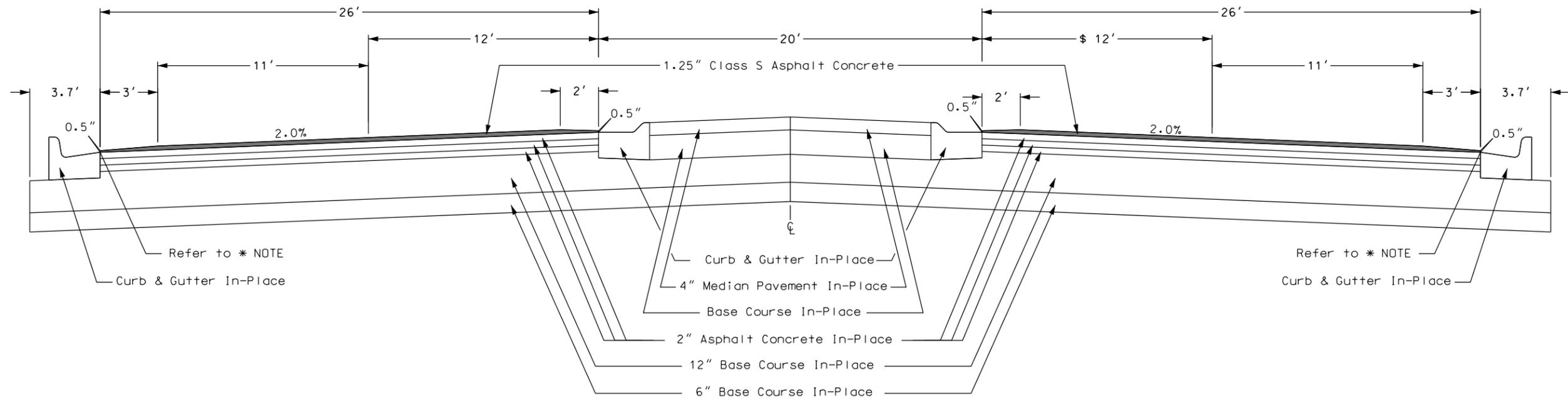
Section 3 (US Hwy 14B)

Sta 29+10 to Sta 34+97
 Sta 41+93 to Sta 44+20
 Sta 60+80 to Sta 61+61

\$ Transition (12' to 24'):
 Sta 34+97 to Sta 35+57
 Sta 44+20 to Sta 44+80

* NOTE: The Contractor shall ensure at all Curb Ramp locations that final grade of the asphalt overlay is flush at the ramp/asphalt interface to where no lip will exist. This may require the Contractor to do hand work in these areas to achieve this.

IN PLACE & RESURFACING SECTION



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96, +..	F24	F69

TYPICAL SECTION

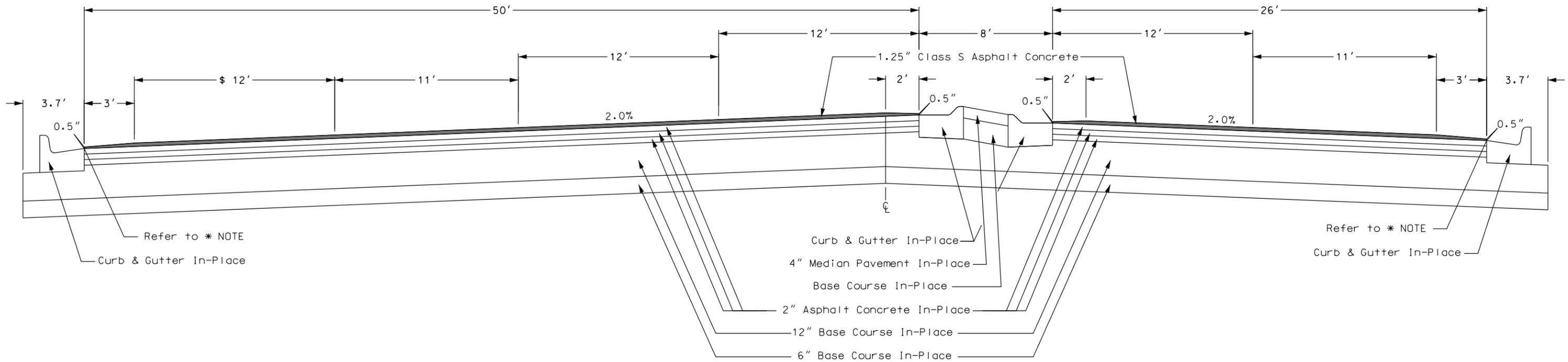
Section 4 (US Hwy 14B)

SOUTHBOUND RIGHT & LEFT TURN LANE Sta 38+48 to Sta 40+41

\$ Transition (12' to 0'):
Sta 40+41 to Sta 41+11

* NOTE: The Contractor shall ensure at all Curb Ramp locations that final grade of the asphalt overlay is flush at the ramp/asphalt interface to where no lip will exist. This may require the Contractor to do hand work in these areas to achieve this.

IN PLACE & RESURFACING SECTION



Refer to * NOTE

Curb & Gutter In-Place

Curb & Gutter In-Place

4" Median Pavement In-Place

Base Course In-Place

2" Asphalt Concrete In-Place

12" Base Course In-Place

6" Base Course In-Place

Refer to * NOTE

Curb & Gutter In-Place

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96, +..	F25	F69

TYPICAL SECTION

Section 5 (US Hwy 14B)

NORTHBOUND LEFT TURN LANE

Sta 24+20 to Sta 26+09

Sta 35+57 to Sta 35+85

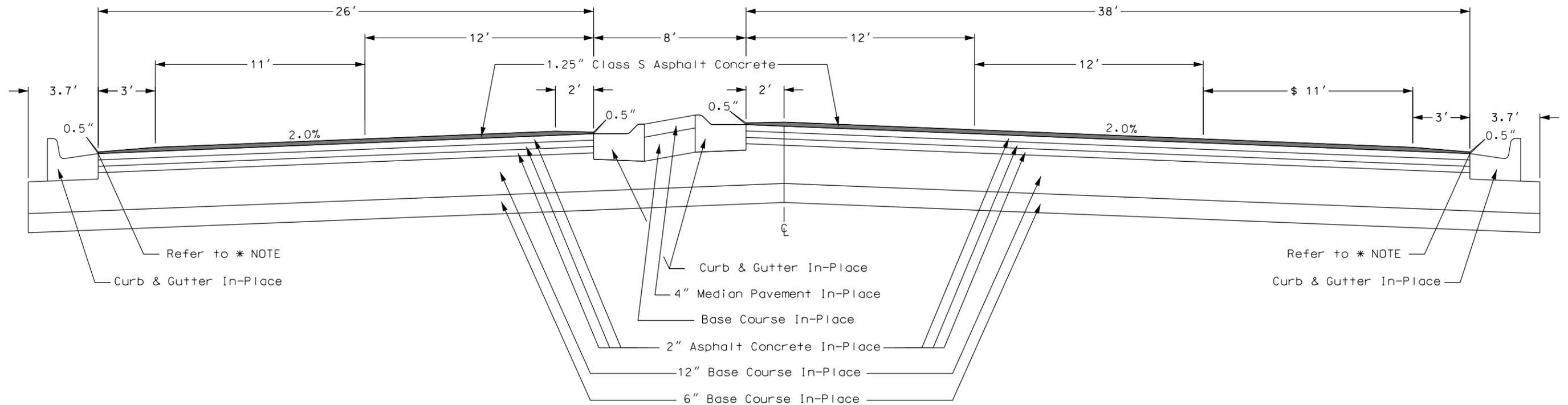
Sta 44+80 to Sta 47+17

Sta 52+20 to Sta 56+20

* NOTE: The Contractor shall ensure at all Curb Ramp locations that final grade of the asphalt overlay is flush at the ramp/asphalt interface to where no lip will exist. This may require the Contractor to do hand work in these areas to achieve this.

\$ Transition (11' to 23'):
Sta 35+85 to Sta 36+55

IN PLACE & RESURFACING SECTION

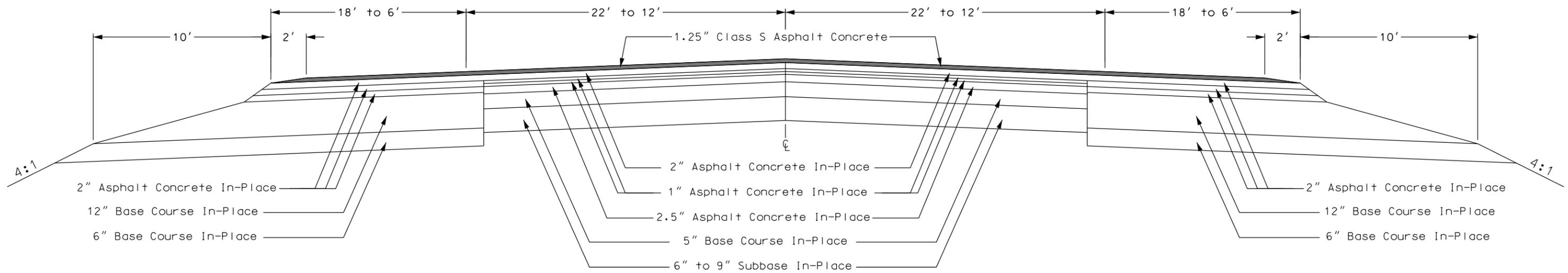


TYPICAL SECTION

Section 6 (US Hwy 14B)

Sta 61+61 to Sta 67+11

IN PLACE & RESURFACING SECTION



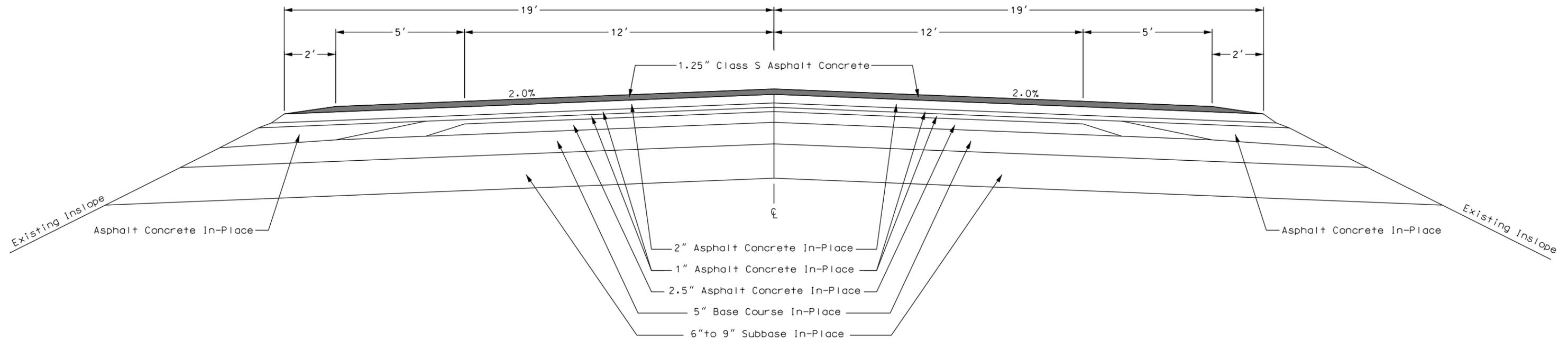
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96, +..	F27	F69

TYPICAL SECTION

Section 7 (US Hwy 14B)

Sta 67+11 to Sta 73+81

IN PLACE & RESURFACING SECTION



RATES OF MATERIALS

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F28	F69

US HWY 83

Revised by V. Martin on 07/20/16

SECTION 1 (per mile)

NBL
 Sta 96+10.63 to Sta 202+72.19
 Sta 217+91.06 to Sta 346+35.82
 Sta 367+98.78 to Sta 447+59.17
 Sta 467+49.73 to Sta 38+38.14 (2nd) – Thru Equation
 Sta 85+41.82 (2nd) to Sta 147+41.77 (2nd)
 Sta 164+78.97 (2nd) to Sta 389+68.91 (2nd)

Micro-Milling Asphalt Concrete is computed at the rate of 16,309 Square Yards, applied 27.8 feet wide.

CLASS Q4 HOT MIXED ASPHALT CONCRETE (1.5" Lift)				
MATERIALS	MAINLINE		OUTSIDE SHOULDER	
	ALT. A	ALT. B	ALT. A	ALT. B
Aggregate (Contractor Furnished)	1,518 Tons	1,571 Tons	300 Tons	310 Tons
PG 64-28 Asphalt Binder	93 Tons	83 Tons	18 Tons	16 Tons
TOTAL MIX	1,611 Tons	1,654 Tons	318 Tons	326 Tons
Hydrated Lime	16 Tons	17 Tons	3 Tons	3 Tons
TOTAL MIX WITH HYDRATED LIME	1,627 Tons	1,671 Tons	321 Tons	329 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 7.7 ton applied 34.5 feet wide (Rate = 0.09 gallon per square yard), prior to mainline application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 1.8 ton applied 8 feet wide (Rate = 0.09 gallon per square yard), prior to outside shoulder application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	1,122 Tons
PG 64-34 Asphalt Binder	69 Tons
TOTAL MIX	1,191 Tons
Stabilizing Additive	4 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	1,195 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.0 ton applied 33.5 feet wide (Rate = 0.06 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.70 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

SECTION 1 (per station)

NBL
 Sta 11+60 to Sta 12+32.63
 Sta 35+95.81 to Sta 77+17.94
 Sta 52+90.53 (2nd) to Sta 68+34.79 (2nd)

SBL
 Sta 389+09.14 (3rd) to 389+70.94 (3rd)
 Sta 410+83.90 (3rd) to 420+59.92 (3rd)
 Sta 437+12.80 (3rd) to 460+77.62 (3rd)
 Sta 473+70.79 (3rd) to 493+00 (3rd)

Micro-Milling Asphalt Concrete is computed at the rate of 309 Square Yards, applied 27.8 feet wide.

CLASS Q4 HOT MIXED ASPHALT CONCRETE (1.5" Lift)				
MATERIALS	MAINLINE		OUTSIDE SHOULDER	
	ALT. A	ALT. B	ALT. A	ALT. B
Aggregate (Contractor Furnished)	28.74 Tons	29.76 Tons	5.67 Tons	5.87 Tons
PG 64-28 Asphalt Binder	1.77 Tons	1.57 Tons	0.35 Tons	0.31 Tons
TOTAL MIX	30.51 Tons	31.33 Tons	6.02 Tons	6.18 Tons
Hydrated Lime	0.31 Tons	0.31 Tons	0.06 Tons	0.06 Tons
TOTAL MIX WITH HYDRATED LIME	30.82 Tons	31.64 Tons	6.08 Tons	6.24 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.15 ton applied 34.5 feet wide (Rate = 0.09 gallon per square yard), prior to mainline application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.03 ton applied 8 feet wide (Rate = 0.09 gallon per square yard), prior to outside shoulder application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	21.24 Tons
PG 64-34 Asphalt Binder	1.31 Tons
TOTAL MIX	22.55 Tons
Stabilizing Additive	0.07 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	22.62 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.09 ton applied 33.5 feet wide (Rate = 0.06 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.01 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

RATES OF MATERIALS

US HWY 83

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +.	F29	F69

Revised by V. Martin on 07/20/16

SECTION 2 (per station)

NBL

Sta 12+32.63 to Sta 35+95.81
 Sta 77+17.94 to Sta 96+10.63
 Sta 202+72.19 to Sta 217+91.06
 Sta 346+35.82 to Sta 367+98.78
 Sta 447+59.17 to Sta 467+49.73
 Sta 38+38.14 (2nd) to Sta 52+90.53 (2nd)
 Sta 68+34.79 (2nd) to Sta 85+41.82 (2nd)
 Sta 147+41.77 (2nd) to Sta 164+78.97 (2nd)
 Sta 389+68.91 (2nd) to Sta 411+54.39 (2nd)

SBL

Sta 389+70.94 (3rd) to 410+83.90 (3rd)
 Sta 420+59.92 (3rd) to 437+12.80 (3rd)
 Sta 460+77.62 (3rd) to 473+70.79 (3rd)
 Sta 493+00 (3rd) to 495+00 (3rd)

Micro-Milling Asphalt Concrete is computed at the rate of 333 Square Yards, applied 30 feet wide.

CLASS Q4 HOT MIXED ASPHALT CONCRETE (1.5" Lift)				
MATERIALS	MAINLINE		OUTSIDE SHOULDER	
	ALT. A	ALT. B	ALT. A	ALT. B
Aggregate (Contractor Furnished)	27.66 Tons	28.64 Tons	5.67 Tons	5.87 Tons
PG 64-28 Asphalt Binder	1.70 Tons	1.51 Tons	0.35 Tons	0.31 Tons
TOTAL MIX	29.36 Tons	30.15 Tons	6.02 Tons	6.18 Tons
Hydrated Lime	0.29 Tons	0.30 Tons	0.06 Tons	0.06 Tons
TOTAL MIX WITH HYDRATED LIME	29.65 Tons	30.45 Tons	6.08 Tons	6.24 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.15 ton applied 34.5 feet wide (Rate = 0.09 gallon per square yard), prior to mainline application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.03 ton applied 8 feet wide (Rate = 0.09 gallon per square yard), prior to outside shoulder application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	21.24 Tons
PG 64-34 Asphalt Binder	1.31 Tons
TOTAL MIX	22.55 Tons
Stabilizing Additive	0.07 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	22.62 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.09 ton applied 33.5 feet wide (Rate = 0.06 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.01 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

SECTION 3 (per mile)

SBL (South to North Stationing)

Sta 496+17.30 to Sta 385+26.50
 Sta 373.83.20 to Sta 244+40.30
 Sta 223+28.60 to Sta 159+00
 Sta 124+09.30 to Sta 27+86
 Sta 597+60.30 (2nd) to Sta 536+10.80 (2nd)
 Sta 477+34.40 (2nd) to Sta 294+27.15 (2nd)

Micro-Milling Asphalt Concrete is computed at the rate of 17,600 Square Yards, applied 30 feet wide.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	1,117 Tons
PG 64-34 Asphalt Binder	69 Tons
TOTAL MIX	1,186 Tons
Stabilizing Additive	4 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	1,190 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 7.5 ton applied 33.5 feet wide (Rate = 0.09 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.70 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

RATES OF MATERIALS

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F30	F69

US HWY 83

Revised by V. Martin on 07/20/16

SECTION 3 & 7 (per station)

SECTION 4 (per station)

NBL (South to North Stationing)

Sta 271+56.20 (3rd) to Sta 262+05.20 (3rd)
 Sta 245+45.10 (4th) to Sta 222+84.90 (4th)
 Sta 208+26 (4th) to Sta 193+13 (4th)

SBL (South to North Stationing)

Sta 556+23.30 to Sta 513+69
 Sta 159+00 to Sta 157+00
 Sta 157+00 to Sta 142+93.70
 Sta 25+86 to Sta 0+00
 Sta 27+86 to Sta 25+86
 Sta 672+87.60 (2nd) to Sta 667+47.73 (2nd)
 Sta 663+87.77 (2nd) to Sta 646+10.60 (2nd)
 Sta 641+80.60 (2nd) to Sta 615+85.90 (2nd)
 Sta 517+82.50 (2nd) to Sta 480+34.34 (2nd)

NBL (South to North Stationing)

Sta 271+56.20 (3rd) to Sta 262+05.20 (3rd)
 Sta 245+45.10 (4th) to Sta 222+84.90 (4th)
 Sta 208+26 (4th) to Sta 193+13 (4th)

SBL (South to North Stationing)

Sta 556+23.30 to Sta 513+69
 Sta 157+00 to Sta 142+93.70
 Sta 25+86 to Sta 0+00
 Sta 672+87.60 (2nd) to Sta 667+47.73 (2nd)
 Sta 663+87.77 (2nd) to Sta 646+10.60 (2nd)
 Sta 641+80.60 (2nd) to Sta 615+85.90 (2nd)
 Sta 517+82.50 (2nd) to Sta 480+34.34 (2nd)

Micro-Milling Asphalt Concrete is computed at the rate of 333 Square Yards, applied 30 feet wide.

Micro-Milling Asphalt Concrete is computed at the rate of 322 Square Yards, applied 29 feet wide.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	21.24 Tons
PG 64-34 Asphalt Binder	1.31 Tons
TOTAL MIX	22.55 Tons
Stabilizing Additive	0.07 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	22.62 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.14 ton applied 33.5 feet wide (Rate = 0.09 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.01 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	20.87 Tons
PG 64-34 Asphalt Binder	1.29 Tons
TOTAL MIX	22.16 Tons
Stabilizing Additive	0.07 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	22.23 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.14 ton applied 32.5 feet wide (Rate = 0.09 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.01 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

RATES OF MATERIALS

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F31	F69

US HWY 83

Revised by V. Martin on 07/20/16

SECTION 5 & 6 (per station)

NBL

Sta 489+50 (5th) to Sta 493+00 (5th)
Sta 493+00 (5th) to Sta 495+00 (5th)

SBL (South to North Stationing)

Sta 667+47.73 (2nd) to Sta 663+87.77 (2nd)
Sta 480+34.34 (2nd) to Sta 477+34.40 (2nd)

NBL (South to North Stationing)

Sta 262+05.20 (2nd) to Sta 245+45.10 (3rd) – Thru Equation

Micro-Milling Asphalt Concrete is computed at the rate of 333 Square Yards, applied 30 feet wide.

CLASS Q4 HOT MIXED ASPHALT CONCRETE (1.5" Lift)				
MATERIALS	MAINLINE		OUTSIDE SHOULDER	
	ALT. A	ALT. B	ALT. A	ALT. B
Aggregate (Contractor Furnished)	27.67 Tons	28.65 Tons	5.89 Tons	6.09 Tons
PG 64-28 Asphalt Binder	1.70 Tons	1.51 Tons	0.36 Tons	0.32 Tons
TOTAL MIX	29.37 Tons	30.16 Tons	6.25 Tons	6.41 Tons
Hydrated Lime	0.29 Tons	0.30 Tons	0.06 Tons	0.06 Tons
TOTAL MIX WITH HYDRATED LIME	29.66 Tons	30.46 Tons	6.31 Tons	6.47 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.15 ton applied 34.5 feet wide (Rate = 0.09 gallon per square yard), prior to mainline application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.04 ton applied 8.5 feet wide (Rate = 0.09 gallon per square yard), prior to outside shoulder application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	21.24 Tons
PG 64-34 Asphalt Binder	1.31 Tons
TOTAL MIX	22.55 Tons
Stabilizing Additive	0.07 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	22.62 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.09 ton applied 33.5 feet wide (Rate = 0.06 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.01 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

SECTION 9 (per mile)

UNDIVIDED SECTION

Sta 508+00 (6th) to Sta 565+10 (6th)

Micro-Milling Asphalt Concrete is computed at the rate of 37,547 Square Yards, applied 64 feet wide.

CLASS Q4 HOT MIXED ASPHALT CONCRETE (1.5" Lift)				
MATERIALS	MAINLINE		OUTSIDE SHOULDER (per shoulder)	
	ALT. A	ALT. B	ALT. A	ALT. B
Aggregate (Contractor Furnished)	2,991 Tons	3,097 Tons	311 Tons	322 Tons
PG 64-28 Asphalt Binder	184 Tons	163 Tons	19 Tons	17 Tons
TOTAL MIX	3,175 Tons	3,260 Tons	330 Tons	339 Tons
Hydrated Lime	32 Tons	33 Tons	3 Tons	3 Tons
TOTAL MIX WITH HYDRATED LIME	3,207 Tons	3,293 Tons	333 Tons	342 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 15.0 ton applied 67 feet wide (Rate = 0.09 gallon per square yard), prior to mainline application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 1.9 ton applied 8.5 feet wide per shoulder (Rate = 0.09 gallon per square yard), prior to outside shoulder application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	2,550 Tons
PG 64-34 Asphalt Binder	157 Tons
TOTAL MIX	2,707 Tons
Stabilizing Additive	8 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	2,715 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 10.5 ton applied 70 feet wide (Rate = 0.06 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.70 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

RATES OF MATERIALS

US HWY 83

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F32	F69

Revised by V. Martin on 07/20/16

SECTION 10 (per station)

UNDIVIDED SECTION
Sta 573+50 (6th) to Sta 590+94 (6th)

Micro-Milling Asphalt Concrete is computed at the rate of 444 Square Yards, applied 40 feet wide.

CLASS Q4 HOT MIXED ASPHALT CONCRETE (1.5" Lift)				
MATERIALS	MAINLINE		OUTSIDE SHOULDER (per shoulder)	
	ALT. A	ALT. B	ALT. A	ALT. B
Aggregate (Contractor Furnished)	35.73 Tons	37.00 Tons	5.89 Tons	6.09 Tons
PG 64-28 Asphalt Binder	2.20 Tons	1.95 Tons	0.36 Tons	0.32 Tons
TOTAL MIX	37.93 Tons	38.95 Tons	6.25 Tons	6.41 Tons
Hydrated Lime	0.38 Tons	0.39 Tons	0.06 Tons	0.06 Tons
TOTAL MIX WITH HYDRATED LIME	38.31 Tons	39.34 Tons	6.31 Tons	6.47 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.18 ton applied 43 feet wide (Rate = 0.09 gallon per square yard), prior to mainline application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.04 ton applied 8.5 feet wide (Rate = 0.09 gallon per square yard), prior to outside shoulder application of 1.5" lift of Class Q4 Hot Mixed Asphalt Concrete.

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	21.24 Tons
PG 64-34 Asphalt Binder	1.31 Tons
TOTAL MIX	22.55 Tons
Stabilizing Additive	0.07 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	22.62 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.13 ton applied 46 feet wide (Rate = 0.06 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.01 ton applied 5.5 feet wide for the shoulder (Rate = 0.05 gallon per square yard).

The exact proportions of the above materials will be determined on construction.

SECTION 12 (per station)

UNDIVIDED SECTION
Sta 10+00 (7th) to Sta 20+42 (7th)

CLASS S ASPHALT CONCRETE (1.25" Lift)	
MATERIALS	MAINLINE
Aggregate (Contractor Furnished)	31.08 Tons
PG 64-34 Asphalt Binder	1.91 Tons
TOTAL MIX	32.99 Tons
Stabilizing Additive	0.10 Tons
TOTAL MIX WITH STABILIZING ADDITIVE	33.09 Tons

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.19 ton applied 44 feet wide (Rate = 0.09 gallon per square yard), prior to application of 1.25" lift of Class S Asphalt Concrete.

TABLE OF PROJECT STATIONING

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F33	F69

NH 0083(84)96 PCN 04WP								
NORTHBOUND DIVIDED SECTION (fm South to North Stationing throughout)								
SECTION	STATION	TO	STATION	DESCRIPTION	PROJECT GROSS LENGTHS	EXCEPTION LENGTH	PROJECT NET LENGTHS	
1	Begin Project (NBL) 11+60.00	to	12+32.63	Tangent Section	72.63'	-	72.63'	
2	12+32.63	to	35+95.81	Superelevated Curve Section	2363.18'	-	2363.18'	
1	35+95.81	to	77+17.94	Tangent Section	4122.13'	-	4122.13'	
2	77+17.94	to	96+10.63	Superelevated Curve Section	1892.69'	-	1892.69'	
1	96+10.63	to	202+72.19	Tangent Section	10661.56'	-	10661.56'	
2	202+72.19	to	217+91.06	Superelevated Curve Section	1518.87'	-	1518.87'	
1	217+91.06	to	346+35.82	Tangent Section	12844.76'	-	12844.76'	
2	346+35.82	to	367+98.78	Superelevated Curve Section	2162.96'	-	2162.96'	
1	367+98.78	to	447+59.17	Tangent Section	7960.39'	-	7960.39'	
2	447+59.17	to	467+49.73	Superelevated Curve Section	1990.56'	-	1990.56'	
1	467+49.73	to	590+96.06	Tangent Section	12346.33'	-	12346.33'	
Equation	590+96.06 Bk =		10+40.12 (2nd) Ah	-	-	-	-	
1	10+40.12 (2nd)	to	38+38.14 (2nd)	Tangent Section	2798.02'	-	2798.02'	
2	38+38.14 (2nd)	to	52+90.53 (2nd)	Superelevated Curve Section	1452.39'	-	1452.39'	
1	52+90.53 (2nd)	to	68+34.79 (2nd)	Tangent Section	1544.26'	-	1544.26'	
2	68+34.79 (2nd)	to	85+41.82 (2nd)	Superelevated Curve Section	1707.03'	-	1707.03'	
1	85+41.82 (2nd)	to	147+41.77 (2nd)	Tangent Section	6199.95'	-	6199.95'	
2	147+41.77 (2nd)	to	164+78.97 (2nd)	Superelevated Curve Section	1737.20'	-	1737.20'	
1	164+78.97 (2nd)	to	389+68.91 (2nd)	Tangent Section	22489.94'	-	22489.94'	
2	389+68.91 (2nd)	to	411+54.39 (2nd)	Superelevated Curve Section	2185.48'	-	2185.48'	
Equation	411+54.39 (2nd) Bk =		271+56.20 (3rd) Ah	-	-	-	-	
3	271+56.20 (3rd)	to	262+05.20 (3rd)	Tangent Section	951.00'	-	951.00'	
6	262+05.20 (3rd)	to	259+27.74 (3rd)	Superelevated Curve Section	277.46'	-	277.46'	
Equation	259+27.74 (3rd) Bk =		259+35.18 (4th) Ah	-	-	-	-	
6	259+35.18 (4th)	to	245+45.10 (4th)	Superelevated Curve Section	1390.08'	-	1390.08'	
3	245+45.10 (4th)	to	222+84.90 (4th)	Tangent Section	2260.20'	-	2260.20'	
4	222+84.90 (4th)	to	208+26.00 (4th)	Superelevated Curve Section	1458.90'	-	1458.90'	
3	208+26.00 (4th)	to	193+13.00 (4th)	Tangent Section	1513.00'	-	1513.00'	
Equation	193+13.00 (4th) Bk =		489+50.00 (5th) Ah	-	-	-	-	
5	489+50.00 (5th)	to	493+00.00 (5th)	Tangent Section	350.00'	-	350.00'	
6	493+00.00 (5th)	to	495+00.00 (5th)	Superelevated Curve Section	200.00'	-	200.00'	
8	495+00.00 (5th)	to	508+00.96 (5th)	Transition fm Divided to Undivided Section	1300.96'	-	1300.96'	
Equation	508+00.96 (5th) Bk =		508+00.00 (6th) Ah End NBL Divided	-	-	-	-	
NORTHBOUND DIVIDED SECTION TOTALS =					107751.93'	0.00'	107751.93'	
					20.408 Miles	0.000 Miles	20.408 Miles	

TABLE OF PROJECT STATIONING

NH 0083(84)96 PCN 04WP							
SOUTHBOUND DIVIDED SECTION (fm South to North Stationing throughout)							
SECTION	STATION	TO	STATION	DESCRIPTION	PROJECT GROSS LENGTHS	EXCEPTION LENGTH	PROJECT NET LENGTHS
4	Begin Project (SBL) 566+18.30	to	556+23.30	Superelevated Curve Section	995.00'	-	995.00'
3	556+23.30	to	513+69.00	Tangent Section	4254.30'	-	4254.30'
4	513+69.00	to	496+17.30	Superelevated Curve Section	1751.70'	-	1751.70'
3	496+17.30	to	385+26.50	Tangent Section	11090.80'	-	11090.80'
4	385+26.50	to	373+83.20	Superelevated Curve Section	1143.30'	-	1143.30'
3	373+83.20	to	244+40.30	Tangent Section	12942.90'	-	12942.90'
4	244+40.30	to	223+28.60	Superelevated Curve Section	2111.70'	-	2111.70'
3	223+28.60	to	159+00.00	Tangent Section	6428.60'	-	6428.60'
7	159+00.00	to	157+00.00	Tangent Section	200.00'	-	200.00'
3	157+00.00	to	142+93.70	Tangent Section	1406.30'	-	1406.30'
4	142+93.70	to	124+09.30	Superelevated Curve Section	1884.40'	-	1884.40'
3	124+09.30	to	27+86.00	Tangent Section	9623.30'	-	9623.30'
7	27+86.00	to	25+86.00	Tangent Section	200.00'	-	200.00'
3	25+86.00	to	0+00.00	Tangent Section	2586.00'	-	2586.00'
Equation	0+00.00 Bk =		672+87.60 (2nd) Ah	-	-	-	-
3	672+87.60 (2nd)	to	667+47.73 (2nd)	Tangent Section	539.87'	-	539.87'
5	667+47.73 (2nd)	to	663+87.77 (2nd)	Tangent Section	359.96'	-	359.96'
3	663+87.77 (2nd)	to	646+10.60 (2nd)	Tangent Section	1777.17'	-	1777.17'
4	646+10.60 (2nd)	to	641+80.60 (2nd)	Superelevated Curve Section	430.00'	-	430.00'
3	641+80.60 (2nd)	to	615+85.90 (2nd)	Tangent Section	2594.70'	-	2594.70'
4	615+85.90 (2nd)	to	597+60.30 (2nd)	Superelevated Curve Section	1825.60'	-	1825.60'
3	597+60.30 (2nd)	to	536+10.80 (2nd)	Tangent Section	6149.50'	-	6149.50'
4	536+10.80 (2nd)	to	517+82.50 (2nd)	Superelevated Curve Section	1828.30'	-	1828.30'
3	517+82.50 (2nd)	to	480+34.34 (2nd)	Tangent Section	3748.16'	-	3748.16'
5	480+34.34 (2nd)	to	477+34.40 (2nd)	Tangent Section	299.94'	-	299.94'
3	477+34.40 (2nd)	to	294+27.15 (2nd)	Tangent Section	18307.25'	-	18307.25'
Equation	294+27.15 (2nd) Bk =		389+09.14 (3rd) Ah	-	-	-	-
1	389+09.14 (3rd)	to	389+70.94 (3rd)	Tangent Section	61.80'	-	61.80'
2	389+70.94 (3rd)	to	410+83.90 (3rd)	Superelevated Curve Section	2112.96'	-	2112.96'
1	410+83.90 (3rd)	to	420+59.92 (3rd)	Tangent Section	976.02'	-	976.02'
2	420+59.92 (3rd)	to	437+12.80 (3rd)	Superelevated Curve Section	1652.88'	-	1652.88'
1	437+12.80 (3rd)	to	460+77.62 (3rd)	Tangent Section	2364.82'	-	2364.82'
2	460+77.62 (3rd)	to	473+70.79 (3rd)	Superelevated Curve Section	1293.17'	-	1293.17'
1	473+70.79 (3rd)	to	493+00.00 (3rd)	Tangent Section	1929.21'	-	1929.21'
2	493+00.00 (3rd)	to	495+00.00 (3rd)	Superelevated Curve Section	200.00'	-	200.00'
8	495+00.00 (3rd)	to	508+00.00 (3rd)	Transition fm Divided to Undivided Section	1300.00'	-	1300.00'
Equation	508+00.00 (3rd) Bk =		508+00.00 (4th) Ah End SBL Divided	-	-	-	-
SOUTHBOUND DIVIDED SECTION TOTALS =					106369.61'	0.00'	106369.61'
					20.146 Miles	0.000 Miles	20.146 Miles

TABLE OF PROJECT STATIONING

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F35	F39

NH 0083(84)96 PCN 04WP							
UNDIVIDED SECTION (fm South to North Stationing throughout)							
SECTION	STATION	TO	STATION	DESCRIPTION	PROJECT GROSS LENGTHS	EXCEPTION LENGTH	PROJECT NET LENGTHS
9	Begin Undivided 508+00.00 (6th)	to	565+10.00 (6th)	Tangent Section	5710.00'	-	5710.00'
Transition	565+10.00 (6th)	to	573+50.00 (6th)	Section Transition	840.00'	-	840.00'
10	573+50.00 (6th)	to	590+94.00 (6th)	Tangent Section	1744.00'	-	1744.00'
Transition	590+94.00 (6th)	to	591+44.00 (6th)	Section Transition	50.00'	-	50.00'
11	591+44.00 (6th)	to	594+70.09 (6th)	Superelevated Curve Section/Curb & Gutter	326.09'	-	326.09'
Equation	594+70.09 (6th) Bk = 10+00.00 (7th) Ah			-	-	-	-
12	10+00.00 (7th)	to	20+42.00 (7th)	Tangent Section/Curb & Gutter	1042.00'	-	1042.00'
Transition	20+42.00 (7th)	to	21+53.57 (7th) End Divided/Project	Section Transition	111.57'	-	111.57'
NORTHBOUND DIVIDED SECTION TOTALS =					9712.09'	0.00'	9386.00'
					1.839 Miles	0.000 Miles	1.839 Miles

TABLE OF PROJECT STATIONING

NH 014B(171)232 - PCN 04XR - US HWY 014B EB & WB DIVIDED SECTION								
SECTION	STATION	TO	STATION	DESCRIPTION	PROJECT GROSS LENGTHS	EXCEPTION LENGTH	PROJECT NET LENGTHS	
Intersection	Begin Project/Divided 18+98.00	to	20+70.00	Airport Road Intersection	172.00'	-	172.00'	
1	20+70.00	to	23+60.00	-	290.00'	-	290.00'	
Transition	23+60.00	to	24+20.00	-	60.00'	-	60.00'	
5	24+20.00	to	26+09.00	-	189.00'	-	189.00'	
1	26+09.00	to	28+50.00	-	241.00'	-	241.00'	
Transition	28+50.00	to	29+10.00	-	60.00'	-	60.00'	
3	29+10.00	to	34+97.00	-	587.00'	-	587.00'	
Transition	34+97.00	to	35+57.00	-	60.00'	-	60.00'	
5	35+57.00	to	35+85.00	-	28.00'	-	28.00'	
Transition	35+85.00	to	36+55.00	-	70.00'	-	70.00'	
2	36+55.00	to	38+48.00	-	193.00'	-	193.00'	
4	38+48.00	to	40+41.00	-	193.00'	-	193.00'	
Transition	40+41.00	to	41+11.00	-	70.00'	-	70.00'	
1	41+11.00	to	41+33.00	-	22.00'	-	22.00'	
Transition	41+33.00	to	41+93.00	-	60.00'	-	60.00'	
3	41+93.00	to	44+20.00	-	227.00'	-	227.00'	
Transition	44+20.00	to	44+80.00	-	60.00'	-	60.00'	
5	44+80.00	to	47+17.00	-	237.00'	-	237.00'	
1	47+17.00	to	51+33.00	-	416.00'	-	416.00'	
Transition	51+33.00	to	52+20.00	-	87.00'	-	87.00'	
5	52+20.00	to	56+20.00	-	400.00'	-	400.00'	
1	56+20.00	to	60+20.00	-	400.00'	-	400.00'	
Transition	60+20.00	to	60+80.00	-	60.00'	-	60.00'	
3	60+80.00	to	61+61.00 End Divided	End EB & WB Divided Section	81.00'	-	81.00'	
EB & WB DIVIDED SECTION TOTALS =					4263.00' 0.807 Miles	0.00' 0.000 Miles	4263.00' 0.807 Miles	

NH 014B(171)232 - PCN 04XR - US HWY 014B UNDIVIDED SECTION								
SECTION	STATION	TO	STATION	DESCRIPTION	PROJECT GROSS LENGTHS	EXCEPTION LENGTH	PROJECT NET LENGTHS	
6	Begin Undivided 61+61.00	to	67+11.00	Begin Undivided Section	550.00'	-	550.00'	
7	67+11.00	to	73+81.00	-	670.00'	-	670.00'	
Equation	73+81.00 Bk =		3+22.30 (2nd) Ah	-	-	-	-	
Intersection	3+22.30 (2nd)	to	0+67.00 (2nd) End Project	Intersection/Ramps onto US14 & US14B	255.30'	-	255.30'	
UNDIVIDED SECTION TOTALS =					1475.30' 0.279 Miles	0.00' 0.000 Miles	1475.30' 0.279 Miles	

TABLE OF MATERIAL QUANTITIES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F37	F69

NH 0083(84)96 PCN 04WP US HWY 83	Water For Granular Material (Gal)	Micro-Milling Asphalt Concrete (SqYd)	Base Course (Ton)	Haul And Stockpile Granular Material (Ton)	Class S Asphalt Concrete (Ton)	PG 64-34 Asphalt Binder (Ton)	Stabilizing Additive for Asphalt Concrete (Ton)	Class Q4 Hot Mixed Asphalt Concrete (Alt. A) (Ton)	Class Q4 Hot Mixed Asphalt Concrete (Alt. B) (Ton)	PG 64-28 Asphalt Binder (Alt. A) (Ton)	PG 64-28 Asphalt Binder (Alt. B) (Ton)	Hydrated Lime (Alt. A) (Ton)	Hydrated Lime (Alt. B) (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)
Section 1	-	266,808	-		19,547.2	1,129.1	64.7	31,867.6	32,717.6	1,817.8	1,620.0	311.9	326.2	236.7	11.1
Section 2	-	74,157	-		5,037.3	291.7	15.6	7,956.9	8,170.6	456.5	405.3	78.0	80.2	60.1	2.2
Section 3	-	287,172	-		19,439.5	1,126.9	64.0	-	-	-	-	-	-	122.0	10.8
Section 4	-	43,241	-		2,985.2	173.2	9.4	-	-	-	-	-	-	18.8	1.3
Section 5	-	3,363	-		228.4	13.2	0.7	363.2	372.9	20.8	18.4	3.5	3.6	2.8	0.1
Section 6	-	6,219	-		422.4	24.5	1.3	671.7	689.6	38.4	34.2	6.5	6.7	5.2	0.2
Section 7	-	1,332	-		90.5	5.2	0.3	-	-	-	-	-	-	0.6	0.1
Section 8	-	22,369	-		1,606.7	92.9	4.7	2,221.4	2,281.1	127.7	113.0	22.2	22.4	16.7	0.6
Section 9	-	40,588	-		2,934.9	169.7	8.6	4,186.8	4,299.1	239.9	213.0	41.0	42.1	31.8	1.6
Section 10	-	7,743	-		573.0	33.1	1.7	888.1	911.7	51.0	45.2	8.6	8.8	6.8	0.4
Section 11	-	-	-		110.9	6.4	0.3	-	-	-	-	-	-	0.4	-
Section 12	-	-	-		344.8	19.9	1.0	-	-	-	-	-	-	2.0	-
Subtotal =	-	752,992	-	↓	53,320.8	3,085.8	172.3	48,155.7	49,442.6	2,752.1	2,449.1	471.7	490.0	503.9	28.4
Table of Additional Quantities Totals =	57.6	8,488	6,011.8	46,107.8	408.1	23.6	1.3	9,716.9	9,750.1	562.9	492.7	97.0	97.2	27.6	0.3
TOTALS =	57.6	761,480	6,011.8	46,107.8	53,728.9	3,109.4	173.6	57,872.6	59,192.7	3,315.0	2,941.8	568.7	587.2	531.5	28.7

NH 014B(171)232 PCN 04XR US HWY 014B	Micro-Milling Asphalt Concrete (SqYd)	Class S Asphalt Concrete (Ton)	PG 64-34 Asphalt Binder (Ton)	Stabilizing Additive for Asphalt Concrete (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)
Airport Road Intersection	680	184.5	10.7	0.6	0.6
Section 1	-	645.6	37.4	1.9	3.8
Transitions	-	188.7	10.9	0.5	1.2
Section 2	-	108.7	6.3	0.3	0.6
Section 3	-	335.2	19.4	1.0	1.9
Transitions	-	51.0	3.0	0.2	0.3
Section 4	-	108.9	6.3	0.3	0.6
Transition	-	36.3	2.1	0.1	0.2
Section 5	-	402.7	23.3	1.2	2.4
Transition	-	36.3	2.1	0.1	0.2
Section 6	-	238.1	13.8	0.7	1.4
Section 7	-	186.5	10.8	0.5	1.1
Bookstone Loop Intersection (east entrance only)	151	10.5	0.6	0.1	0.1
Intersection/Ramps (onto US14 & US14B)	867	203.4	11.8	0.6	0.6
COMBINED TOTALS =	1,698	2,736.4	158.4	8.0	15.0

Rates of Materials were not established for the Sections in the table.
Tonnage shown in the table above for Class S Asphalt Concrete is based on a compacted depth as detailed in the plans.

TABLE OF ADDITIONAL QUANTITIES

NH 0083(84)96 PCN 04WP US HWY 83	Water For Granular Material (MGal)	Micro-Milling Asphalt Concrete (SqYd)	Base Course (Ton)	Haul And Stockpile Granular Material (Ton)	Class S Asphalt Concrete (Ton)	PG 64-34 Asphalt Binder (Ton)	Stabilizing Additive for Asphalt Concrete (Ton)	Class Q4 Hot Mixed Asphalt Concrete (Alt. A) (Ton)	Class Q4 Hot Mixed Asphalt Concrete (Alt. B) (Ton)	PG 64-28 Asphalt Binder (Alt. A) (Ton)	PG 64-28 Asphalt Binder (Alt. B) (Ton)	Hydrated Lime (Alt. A) (Ton)	Hydrated Lime (Alt. B) (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)
Crossovers															
10 Asphalt (40' wide) fm NBL Stationing: Sta 110+91, Sta 322+15, Sta 537+85, Sta 11+20 (2nd), Sta 63+32 (2nd), Sta 118+22 (2nd), Sta 172+97 (2nd), Sta 216+58 (2nd), Sta 225+56 (2nd), & Sta 278+43 (2nd)	-	-	-	-	-	-	-	336.3	345.4	19.3	19.8	3.3	3.4	1.0	-
4 Asphalt (24' wide) fm NBL Stationing: Sta 304+67 (2nd), Sta 349+06 (2nd), & Sta 381+28 (2nd) fm SBL Stationing: Sta 397+52 (3rd)	-	-	-	-	-	-	-	104.6	107.5	6.0	6.2	1.0	1.1	0.3	-
9 Base Course (40' wide) fm NBL Stationing: Sta 28+75, Sta 54+69, Sta 163+86, Sta 369+74, Sta 396+33, Sta 484+79, Sta 100+50 (2nd), & Sta 193+19 (2nd) fm SBL Stationing: Sta 428+44 (3rd)	2.7	-	283.5	-	-	-	-	-	-	-	-	-	-	-	-
12 Base Course (24' wide) fm NBL Stationing: Sta 84+84, Sta 143+76, Sta 194+20, Sta 235+55, Sta 278+12, Sta 577+88, Sta 22+53 (2nd), Sta 52+68 (2nd), Sta 90+32 (2nd), Sta 138+13 (2nd), & Sta 323+88 (2nd) fm SBL Stationing: Sta 444+97 (3rd)	2.8	-	294.0	-	-	-	-	-	-	-	-	-	-	-	-
Intersecting Roads															
11 Intersecting Roads at Crossover (Asphalt to Radius/Base Course) fm NBL Stationing: Sta 110+91 - NBL, Sta 322+15 - NBL & SBL, Sta 537+85 - NBL, Sta 63+32 (2nd) - NBL & SBL, Sta 118+22 (2nd) - NBL, Sta 172+97 (2nd) - SBL, Sta 225+56 (2nd) - NBL, Sta 278+43 (2nd) - NBL, & Sta 381+28 (2nd) - NBL	1.6	2,200.0	165.0	-	-	-	-	154.1	158.3	8.9	9.1	1.5	1.6	0.6	-
1 Intersecting Road at Antelope Ck Rd Sta 526+34 (6th) Rt. (Asphalt to ROW)	-	344.4	-	-	-	-	-	29.0	29.7	1.7	1.7	0.3	0.3	0.1	-
1 Intersecting Road at Bad River Rd Sta 546+04 (6th) Lt. (Asphalt to ROW)	-	288.9	-	-	-	-	-	24.3	25.0	1.4	1.4	0.2	0.3	0.1	-
Farm & Field Entrances															
42 Farm & Field Entrances at Crossover (Base Course) Note: location of entrances would encompass all approaches that are at the crossovers aside from the intersecting roads and farm/field entrances as denoted in this table	6.0	-	630.0	-	-	-	-	-	-	-	-	-	-	-	-
1 Farm & Field Entrances at Crossover (Asphalt to ROW) fm NBL Stationing: Sta 11+20 (2nd) - SBL	-	200.0	-	-	-	-	-	16.8	17.3	1.0	1.0	0.2	0.2	0.1	-
2 Farm & Field Entrances at Crossover (Asphalt to Radius/Base Course) fm NBL Stationing: Sta 304+67 (2nd) - SBL & Sta 349+06 (2nd) - SBL	0.2	400.0	20.0	-	-	-	-	28.0	28.8	1.6	1.7	0.3	0.3	0.1	-
16 Farm & Field Entrances within Undivided Section (Base Course) on SBL side fm SBL Stationing: Sta 549+30, Sta 529+60, Sta 496+00, Sta 412+30, Sta 321+91, Sta 290+26, Sta 280+00, Sta 251+80, Sta 182+00, Sta 146+50, Sta 66+80, Sta 38+75, Sta 668+50(2nd), Sta 504+75 (2nd), & Sta 317+75 (2nd)	2.3	-	240.0	-	-	-	-	-	-	-	-	-	-	-	-
Residential Entrances															
7 Approaches within Undivided Section (Base Course) Sta 546+04 (6th) Rt, Sta 550+60 (6th) Rt, Sta 551+27 (6th) Lt, Sta 555+92 (6th) Rt, Sta 556+06 (6th) Lt, Sta 576+97 (6th) Rt, & Sta 583+78 (6th) Lt	1.3	-	140.0	-	-	-	-	-	-	-	-	-	-	-	-
Spot Leveling, Strengthening, & Repair															
** Mainline Transition fm Section 9 to 10 (Sta 565+10 (6th) to Sta 573+50 (6th))	-	4,855.0	-	-	354.0	20.5	1.1	522.0	535.7	29.9	26.6	5.1	5.2	3.3	0.2
** Mainline Transition fm Section 10 to 11 (Sta 590+94 (6th) to Sta 591+44 (6th))	-	200.0	-	-	15.4	0.9	0.1	23.2	23.9	1.4	1.3	0.2	0.2	0.1	0.1
** Mainline Transition fm Section 12 to End Project (Sta 20+42 (7th) to Sta 21+53.57 (7th))	-	-	-	-	38.7	2.2	0.1	-	-	-	-	-	-	-	-
Haul & Stockpile Micro-Milled Material															
	-	-	-	46,107.8	-	-	-	-	-	-	-	-	-	-	-
Backfill for Dugouts															
	40.7	-	4,239.3	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS =	57.6	8,488.3	6,011.8	46,107.8	408.1	23.6	1.3	9,716.9	9,750.1	562.9	492.7	97.0	97.2	27.6	0.3

** A portion of the quantity shall be to a Specified Density Compaction Effort (refer to "Table of Summary of Asphalt Concrete").
Base Course for Farm & Field Entrances is estimated at 15 tons per approach and 20 tons per Intersecting Road and Residential Entrance
Tonnage shown in the tables above for Class Q4 Hot Mixed Asphalt Concrete and Class S Asphalt Concrete is based on a compacted depth as detailed in the plans.
The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.

TABLE OF SUPERELEVATED CURVES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F39	F69

US83N - NORTHBOUND DIVIDED SECTION (fm South to North Stationing throughout)

Begin Project/NBL Divided Section

Station	To	Station	Remarks
11+60.00		12+32.63	Normal Crown Section
12+32.63		16+37.63	Superelevation Transition
16+37.63		31+90.81	1° 27' 48" Curve Lt. 0.050 Superelevation Rate Point of Rotation – 0' Right
31+90.81		35+95.81	Superelevation Transition
35+95.81		77+17.94	Normal Crown Section
77+17.94		81+22.94	Superelevation Transition
81+22.94		92+05.63	1° 42' 00" Curve Rt. 0.050 Superelevation Rate Point of Rotation – 0' Right
92+05.63		96+10.63	Superelevation Transition
96+10.63		202+72.19	Normal Crown Section
202+72.19		206+77.19	Superelevation Transition
206+77.19		213+86.06	0° 24' 00" Curve Rt. 0.020 Superelevation Rate Point of Rotation – 0' Right
213+86.06		217+91.06	Superelevation Transition
217+91.06		346+35.82	Normal Crown Section
346+35.82		350+40.82	Superelevation Transition
350+40.82		363+93.78	1° 04' 30" Curve Lt. 0.040 Superelevation Rate Point of Rotation – 0' Right
363+93.78		367+98.78	Superelevation Transition
367+98.78		447+59.17	Normal Crown Section
447+59.17		451+64.17	Superelevation Transition
451+64.17		463+44.73	1° 34' 48" Curve Rt. 0.050 Superelevation Rate Point of Rotation – 0' Right
463+44.73		467+49.73	Superelevation Transition
467+49.73		590+96.06	Normal Crown Section
Equation 590+96.06 Bk = 10+40.12 (2nd) Ah			

(NBL Divided Section Continued)

Station	To	Station	Remarks
10+40.12 (2 nd)		38+38.14 (2 nd)	Normal Crown Section
38+38.14 (2 nd)		41+08.14 (2 nd)	Superelevation Transition
41+08.14 (2 nd)		50+20.53 (2 nd)	0° 30' 00" Curve Lt. 0.020 Superelevation Rate Point of Rotation – 12' Left
50+20.53 (2 nd)		52+90.53 (2 nd)	Superelevation Transition
52+90.53 (2 nd)		68+34.79 (2 nd)	Normal Crown Section
68+34.79 (2 nd)		71+64.79 (2 nd)	Superelevation Transition
71+64.79 (2 nd)		82+11.82 (2 nd)	1° 30' 00" Curve Rt. 0.046 Superelevation Rate Point of Rotation – 12' Left
82+11.82 (2 nd)		85+41.82 (2 nd)	Superelevation Transition
85+41.82 (2 nd)		147+41.77 (2 nd)	Normal Crown Section
147+41.77 (2 nd)		150+71.77 (2 nd)	Superelevation Transition
150+71.77 (2 nd)		161+48.97 (2 nd)	1° 30' 00" Curve Lt. 0.046 Superelevation Rate Point of Rotation – 12' Left
161+48.97 (2 nd)		164+78.97 (2 nd)	Superelevation Transition
164+78.97 (2 nd)		389+68.91 (2 nd)	Normal Crown Section
389+68.91 (2 nd)		393+73.91 (2 nd)	Superelevation Transition
393+73.91 (2 nd)		407+49.39 (2 nd)	2° 38' 00" Curve Lt. 0.060 Superelevation Rate Point of Rotation – 12' Left
407+49.39 (2 nd)		411+54.39 (2 nd)	Superelevation Transition
Equation 411+54.39 (2nd) Bk = 271+56.20 (3rd) Ah			
271+56.20 (3 rd)		262+05.20 (3 rd)	Normal Crown Section
262+05.20 (3 rd)		259+27.74 (3 rd)	Superelevation Transition
Equation 259+27.74 (3rd) Bk = 259+35.18 (4th) Ah			
259+35.18 (4 th)		257+92.74 (4 th)	Superelevation Transition

(NBL Divided Section Continued)

Station	To	Station	Remarks
257+92.74 (4 th)		249+50.10 (4 th)	2° 45' 00" Curve Rt. 0.060 Superelevation Rate Point of Rotation – 12' Left
249+50.10 (4 th)		245+45.10 (4 th)	Superelevation Transition
245+45.10 (4 th)		222+84.90 (4 th)	Normal Crown Section
222+84.90 (4 th)		218+64.90 (4 th)	Superelevation Transition
218+64.90 (4 th)		212+46.00 (4 th)	1° 30' 00" Curve Lt. 0.046 Superelevation Rate Point of Rotation – Centerline
212+46.00 (4 th)		208+26.00 (4 th)	Superelevation Transition
208+26.00 (4 th)		193+13.00 (4 th)	Normal Crown Section
Equation 193+13.00 (4th) Bk = 489+50.00 (5th) Ah			
489+50.00 (5 th)		493+00.00 (5 th)	Normal Crown Section
493+00.00 (5 th)		495+00.00 (5 th)	Superelevation Transition 0.020 Superelevation Rate Point of Rotation – Centerline
495+00.00 (5 th)		508+00.96 (5 th)	Normal Crown Section
Equation 508+00.96 (5th) Bk = 508+00.00 (6th) Ah			
End NBL Divided Section			

TABLE OF SUPERELEVATED CURVES

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F40	F69

US83S - SOUTHBOUND DIVIDED SECTION (fm South to North Stationing throughout)

Begin Project/SBL Divided Section

Station	To	Station	Remarks
566+18.30		559+53.30	1° 30' 00" Curve Lt. 0.046 Superelevation Rate Point of Rotation – 0' Left
559+53.30		556+23.30	Superelevation Transition
556+23.30		513+69.00	Normal Crown Section
513+69.00		507+69.00	Superelevation Transition
507+69.00		502+17.30	2° 00' 00" Curve Rt. 0.053 Superelevation Rate Point of Rotation – 0' Left
502+17.30		496+17.30	Superelevation Transition
496+17.30		385+26.50	Normal Crown Section
385+26.50		382+56.50	Superelevation Transition
382+56.50		376+53.20	0° 30' 00" Curve Rt. 0.020 Superelevation Rate Point of Rotation – 0' Left
376+53.20		373+83.20	Superelevation Transition
373+83.20		244+40.30	Normal Crown Section
244+40.30		241+70.30	Superelevation Transition
241+70.30		225+98.60	1° 00' 00" Curve Lt. 0.033 Superelevation Rate Point of Rotation – 0' Left
225+98.60		223+28.60	Superelevation Transition
223+28.60		142+93.70	Normal Crown Section
142+93.70		140+23.70	Superelevation Transition
140+23.70		126+79.30	1° 30' 00" Curve Rt. 0.046 Superelevation Rate Point of Rotation – 0' Left
126+79.30		124+09.30	Superelevation Transition
124+09.30		0+00.00	Normal Crown Section

Equation 0+00.00 Bk = 672+87.60 (2nd) Ah

(SBL Divided Section Continued)

Station	To	Station	Remarks
672+87.60 (2 nd)		646+10.60 (2 nd)	Normal Crown Section
646+10.60 (2 nd)		644+30.60 (2 nd)	Superelevation Transition
644+30.60 (2 nd)		643+60.60 (2 nd)	0° 30' 00" Curve Lt. 0.020 Superelevation Rate Point of Rotation – Centerline
643+60.60 (2 nd)		641+80.60 (2 nd)	Superelevation Transition
641+80.60 (2 nd)		615+85.90 (2 nd)	Normal Crown Section
615+85.90 (2 nd)		611+65.90 (2 nd)	Superelevation Transition
611+65.90 (2 nd)		601+80.30 (2 nd)	1° 30' 00" Curve Rt. 0.046 Superelevation Rate Point of Rotation – Centerline
601+80.30 (2 nd)		597+60.30 (2 nd)	Superelevation Transition
597+60.30 (2 nd)		536+10.80 (2 nd)	Normal Crown Section
536+10.80 (2 nd)		531+90.80 (2 nd)	Superelevation Transition
531+90.80 (2 nd)		522+02.50 (2 nd)	1° 30' 00" Curve Lt. 0.046 Superelevation Rate Point of Rotation – Centerline
522+02.50 (2 nd)		517+82.50 (2 nd)	Superelevation Transition
517+82.50 (2 nd)		294+27.15 (2 nd)	Normal Crown Section
Equation 294+27.15 (2nd) Bk = 389+09.14 (3rd) Ah			
389+09.14 (3 rd)		389+70.94 (3 rd)	Normal Crown Section
389+70.94 (3 rd)		393+75.94 (3 rd)	Superelevation Transition
393+75.94 (3 rd)		406+78.90 (3 rd)	2° 45' 00" Curve Lt. 0.060 Superelevation Rate Point of Rotation – 12' Right
406+78.90 (3 rd)		410+83.90 (3 rd)	Superelevation Transition
410+83.90 (3 rd)		420+59.92 (3 rd)	Normal Crown Section
420+59.92 (3 rd)		424+64.92 (3 rd)	Superelevation Transition
424+64.92 (3 rd)		433+07.08 (3 rd)	2° 45' 00" Curve Rt. 0.060 Superelevation Rate Point of Rotation – 12' Right

(SBL Divided Section Continued)

Station	To	Station	Remarks
433+07.08 (3 rd)		437+12.08 (3 rd)	Superelevation Transition
437+12.08 (3 rd)		460+77.62 (3 rd)	Normal Crown Section
460+77.62 (3 rd)		464+07.62 (3 rd)	Superelevation Transition
464+07.62 (3 rd)		470+40.79 (3 rd)	1° 35' 00" Curve Lt. 0.048 Superelevation Rate Point of Rotation – 12' Right
470+40.79 (3 rd)		473+70.79 (3 rd)	Superelevation Transition
473+70.79 (3 rd)		493+00.00 (3 rd)	Normal Crown Section
493+00.00 (3 rd)		495+00.00 (3 rd)	Superelevation Transition
495+00.00 (3 rd)		508+00.00 (3 rd)	0.02 Superelevation Rate Lt. Point of Rotation – Centerline

Equation 508+00.00 (3rd) Bk = 508+00.00 (4th) Ah

End SBL Divided Section

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F41	F69

TABLE OF SUPERELEVATED CURVES

US83 - UNDIVIDED SECTION (fm South to North Stationing throughout)

Begin Undivided Section

<u>Station</u>	<u>To</u>	<u>Station</u>	<u>Remarks</u>
508+00.00 (6 th)	558+27.57 (6 th)		Normal Crown Section
558+27.57 (6 th)	561+57.57 (6 th)		Superelevation Transition
561+57.57 (6 th)	573+20.50 (6 th)		1° 00' 00" Curve Lt. 0.033 Superelevation Rate Point of Rotation – Centerline
573+20.50 (6 th)	576+50.50 (6 th)		Superelevation Transition
576+50.50 (6 th)	588+05.00 (6 th)		Normal Crown Section
588+05.00 (6 th)	590+15.00 (6 th)		Superelevation Transition
590+15.00 (6 th)	594+47.25 (6 th)		3° 30' 00" Curve Rt. 0.044 Superelevation Rate Point of Rotation – Centerline
594+47.25 (6 th)	594+67.25 (6 th)		Superelevation Transition
Equation 594+67.25 (6th) Bk = 10+00.00 (7th) Ah			
10+00.00 (7 th)	11+90.00 (7 th)		Superelevation Transition
11+90.00 (7 th)	21+53.64 (7 th)		Normal Crown Section

End Project

TABLE OF MAINLINE PIPE AND EROSION REPAIR

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F55	F69

Revised by V. Martin on 7/21/16

Stationing	472+05	474+79	479+20	482+74	487+26	488+00	494+50										
Location of Mainline Pipe	SBL	SBL/NBL	SBL	SBL/NBL	SBL/NBL	SBL	SBL										
Structure Type	18" RCP (56')/CMP (40') Dwnspt	24" RCP (236')/CMP Dwnspt?	18" RCP (54')/CMP (80') Dwnspt	24" RCP (222')/CMP Dwnspt?	24" RCP (94')/CMP (46') Dwnspt	24" RCP (48')/CMP (80') Dwnspt	18" RCP (62')/CMP (98') Dwnspt										
End Treatment	Safety/Flared	Sloped	Safety/Flared	Sloped	Sloped/Flared	Sloped/Flared	Flared										
NH 0083(84)96 PCN 04WP US HWY 83	WEST SIDE - remove/reset end section & elbow section -remove 2' of downspout pipe to raise outlet elevation	WEST SIDE - remove/reset end section & elbow section -remove 2' of downspout pipe to raise outlet elevation	WEST SIDE - remove/reset end section & elbow section -remove 2' of downspout pipe to raise outlet elevation	WEST SIDE - remove/reset end section & elbow section -remove 2' of downspout pipe to raise outlet elevation	WEST SIDE - remove/reset end section & elbow section -remove 2' of downspout pipe to raise outlet elevation	WEST SIDE - remove/reset end section & elbow section -remove 2' of downspout pipe to raise outlet elevation	WEST SIDE - remove/reset end section & elbow section -remove 2' of downspout pipe to raise outlet elevation	no work									
Bid Item	Bid Item Description	Unit	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Subtotal
110E0500	Remove Pipe Culvert	(Ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110E0510	Remove Pipe End Section	(Each)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110E7500	Remove Pipe for Reset	(Ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110E7510	Remove Pipe End Section for Reset	(Each)	2	-	2	-	2	-	2	-	2	-	2	-	-	-	12
120E4100	Reprofiling Ditch	(Sta)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E0122	18" RCP Class 2, Furnish	(Ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E0130	18" RCP, Install	(Ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E0182	36" RCP Class 2, Furnish	(Ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E0190	36" RCP, Install	(Ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E2304	18" RCP Safety End, Furnish	(Each)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E2307	18" RCP Safety End, Install	(Each)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E8900	Cleanout Pipe Culvert	(Each)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E9000	Reset Pipe	(Ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
450E9001	Reset Pipe End Section	(Each)	2	-	2	-	2	-	2	-	2	-	2	-	-	-	12
720E1015	Bank and Channel Protection Gabion	(CuYd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
734E0133	Type 3 Turf Reinforcement Mat	(SqYd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
831E0110	Type B Drainage Fabric	(SqYd)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
900E2030	Miscellaneous Work	(Site)	1	-	1	-	1	-	1	-	1	-	1	-	-	-	6

SUMMARY OF ASPHALT CONCRETE

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F57	F69

NH 0083(84)96 PCN 04WP US HWY 83	Class Q4 Hot Mixed Asphalt Concrete With Specified Density Compaction - Alt. A - (Ton)	Class Q4 Hot Mixed Asphalt Concrete Without Specified Density Compaction - Alt. A - (Ton)	Class Q4 Hot Mixed Asphalt Concrete With Specified Density Compaction - Alt. B - (Ton)	Class Q4 Hot Mixed Asphalt Concrete Without Specified Density Compaction - Alt. B - (Ton)	Class S Asphalt Concrete (Ton)
Section 1					
Class Q4 Lift - 26' Finished Roadway Width w/1' Rt. Bevel 4' Lt. Shoulder w/2.5' Bevel 6' Rt. Shoulder w/2' Bevel	20,980.1	-	21,547.2	-	-
Class S Lift - 26' Finished Roadway Width w/4' Lt. Bevel & 2.5' Rt. Bevel	-	5,636.3	-	5,787.4	-
	-	5,251.2	-	5,383.0	-
Section 1 Totals =	20,980.1	10,887.5	21,547.2	11,170.4	19,547.2
Section 2					
Class Q4 Lift - 26' Finished Roadway Width w/1' Rt. Bevel 4' Lt. Shoulder w/2.5' Bevel 6' Rt. Shoulder w/2' Bevel	5,409.3	-	5,555.5	-	-
Class S Lift - 26' Finished Roadway Width w/4' Lt. Bevel & 2.5' Rt. Bevel	-	1,193.6	-	1,225.5	-
	-	1,354.0	-	1,389.6	-
Section 2 Totals =	5,409.3	2,547.6	5,555.5	2,615.1	5,037.3
Section 3					
Class S Lift - 26' Finished Roadway Width w/4' Lt. Bevel & 2.5' Rt. Bevel	-	-	-	-	19,439.5
Section 3 Totals =	-	-	-	-	19,439.5
Section 4					
Class S Lift - 26' Finished Roadway Width w/3' Lt. Bevel & 2.5' Rt. Bevel	-	-	-	-	2,985.2
Section 4 Totals =	-	-	-	-	2,985.2
Section 5					
Class Q4 Lift - 26' Finished Roadway Width w/1' Rt. Bevel 4' Lt. Shoulder w/2.5' Bevel 6' Rt. Shoulder w/2.5' Bevel	245.3	-	251.9	-	-
Class S Lift - 26' Finished Roadway Width w/4' Lt. Bevel & 2.5' Rt. Bevel	-	54.2	-	55.7	-
	-	63.7	-	65.3	-
Section 5 Totals =	245.3	117.9	251.9	121.0	228.4
Section 6					
Class Q4 Lift - 26' Finished Roadway Width w/1' Rt. Bevel 4' Lt. Shoulder w/2.5' Bevel 6' Rt. Shoulder w/2.5' Bevel	453.6	-	465.9	-	-
Class S Lift - 26' Finished Roadway Width w/4' Lt. Bevel & 2.5' Rt. Bevel	-	100.3	-	102.9	-
	-	117.8	-	120.8	-
Section 6 Totals =	453.6	218.1	465.9	223.7	422.4
Section 7					
Class S Lift - 26' Finished Roadway Width w/4' Lt. Bevel & 2.5' Rt. Bevel	-	-	-	-	90.5
Section 7 Totals =	-	-	-	-	90.5
Section 8					
Class Q4 Lift - 64' to 90.8' Finished Roadway Width w/1' Bevel 6' Shoulders w/2' Bevel	1,880.8	-	1,939.1	-	-
Class S Lift - 64' to 90.8' Finished Roadway Width w/2.5' Bevel	-	340.6	-	342.0	-
	-	-	-	-	1,606.7
Section 8 Totals =	1,880.8	340.6	1,939.1	342.0	1,606.7

SUMMARY OF ASPHALT CONCRETE

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F58	F69

NH 0083(84)96 PCN 04WP US HWY 83	Class Q4 Hot Mixed Asphalt Concrete With Specified Density Compaction - Alt. A - (Ton)	Class Q4 Hot Mixed Asphalt Concrete Without Specified Density Compaction - Alt. A - (Ton)	Class Q4 Hot Mixed Asphalt Concrete With Specified Density Compaction - Alt. B - (Ton)	Class Q4 Hot Mixed Asphalt Concrete Without Specified Density Compaction - Alt. B - (Ton)	Class S Asphalt Concrete (Ton)
Section 9					
Class Q4 Lift - 64' Finished Roadway Width w/1' Bevel 6' Shoulders w/2.5' Bevel	3,414.1	-	3,506.4	-	-
Class S Lift - 64' Finished Roadway Width w/2.5' Bevel	-	772.7	-	792.7	-
Table of Additional Quantities (Mainline Transition fm Section 9 to 10)					
Class Q4 Lift - 64' to 40' Finished Roadway Width w/1' Bevel 6' Shoulders w/2.5' Bevel	425.7	-	439.4	-	-
Class S Lift - 64' to 40' Finished Roadway Width w/2.5' Bevel	-	96.3	-	98.9	-
Section 9 Totals =	3,414.1	772.7	3,506.4	792.7	2,934.9
Section 10					
Class Q4 Lift - 40' Finished Roadway Width w/1' Bevel 6' Shoulders w/2.5' Bevel	651.7	-	669.3	-	-
Class S Lift - 40' Finished Roadway Width w/2.5' Bevel	-	236.4	-	242.4	573.0
Table of Additional Quantities (Mainline Transition fm Section 10 to 11)					
Class Q4 Lift - 40' Finished Roadway Width w/1' Bevel 6' to 2' Shoulder w/2.5' Bevel	17.7	-	18.2	-	-
Class S Lift - 40' Finished Roadway Width w/2.5' Bevel	-	5.5	-	5.7	-
Section 10 Totals =	651.7	236.4	669.3	242.4	573.0
Section 11					
Class S Lift - 42.3' to 40.2' Finished Roadway Width w/2' Bevel	-	-	-	-	110.9
Section 11 Totals =	-	-	-	-	110.9
Section 12					
Class S Lift - 40' Finished Roadway Width w/2' Bevel	-	-	-	-	344.8
Table of Additional Quantities (Mainline Transition fm Section 12 to End Project)					
Class S Lift - 40' to 44' Finished Roadway Width w/2' Bevel	-	-	-	-	38.7
Section 12 Totals =	-	-	-	-	344.8
Subtotals =	33,035.1	15,120.6	33,935.4	15,507.2	53,320.8
Table of Additional Quantities Totals =	-	9,716.9	-	9,750.1	408.1
COMBINED TOTALS =	33,035.1	24,837.6	33,935.4	25,257.3	53,728.9

SUMMARY OF ASPHALT CONCRETE

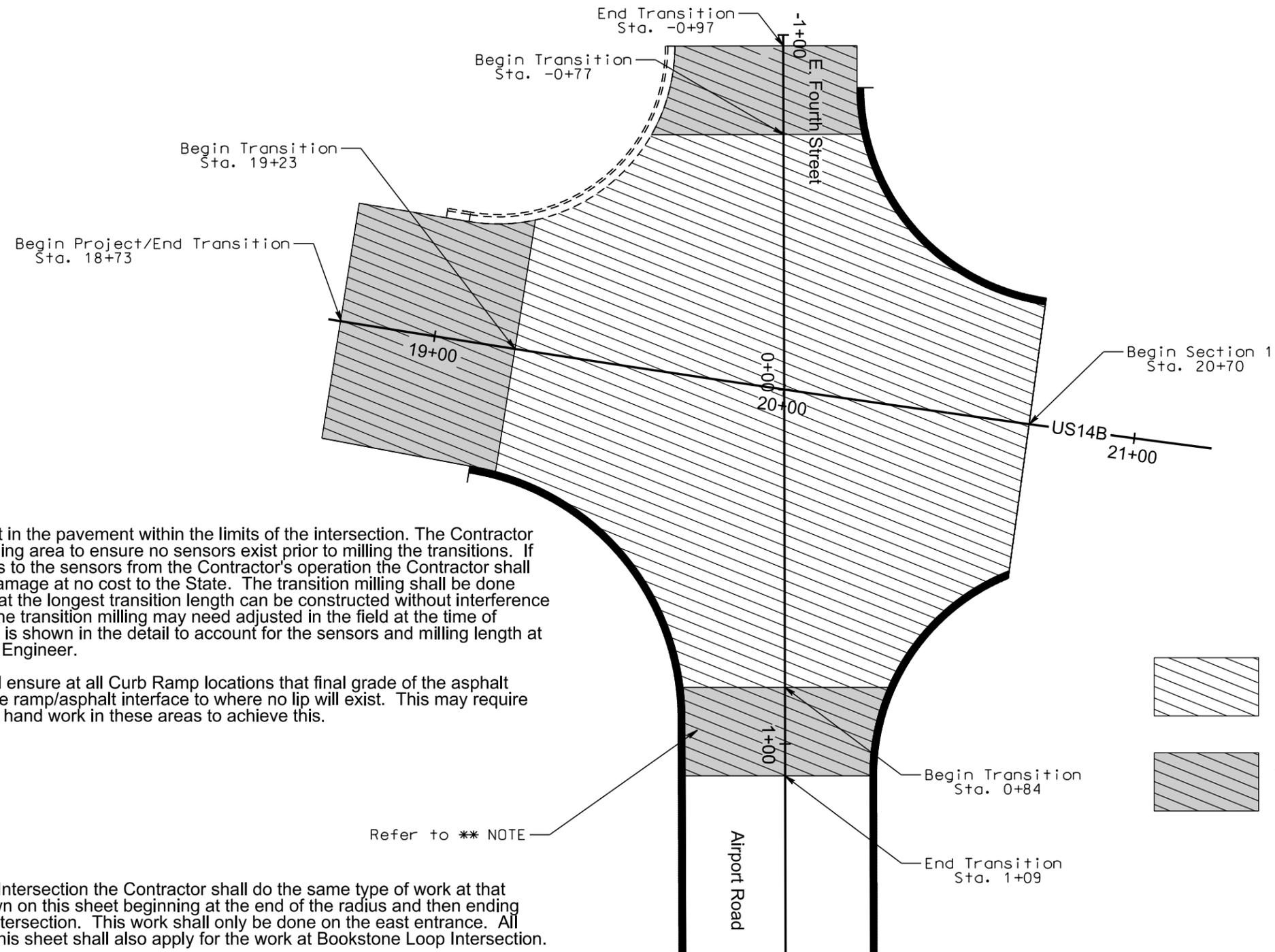
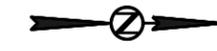
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F59	F69

NH 014B(171)232 PCN 04XR US HWY 014B	Class S Asphalt Concrete (Ton)
Airport Road Intersection	
Finished Roadway Width	184.5
Airport Road Intersection Total =	184.5
Section 1	
Finished Roadway Width	834.3
Section 1 Total =	834.3
Section 2	
Finished Roadway Width	108.7
Section 2 Total =	108.7
Section 3	
Finished Roadway Width	386.2
Section 3 Total =	386.2
Section 4	
Finished Roadway Width	145.2
Section 4 Total =	145.2
Section 5	
Finished Roadway Width	439.0
Section 5 Total =	439.0
Section 6	
Finished Roadway Width	238.1
Section 6 Total =	238.1
Section 7	
24' Finished Roadway Width	124.0
5' Shoulders w/2' Bevel	62.6
Section 7 Total =	186.5
Brookstone Loop Intersection	
east entrance only	10.5
Section 7 Totals =	10.5
Intersection/Ramps at End Project	
onto US14 & US14B	203.4
Section 7 Totals =	213.9
COMBINED TOTALS =	2,736.4

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(84)96, +..	F60	F69

AIRPORT ROAD INTERSECTION LAYOUT

US Hwy 14B



NOTE:

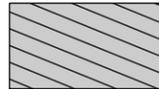
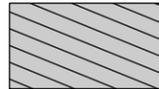
Traffic Sensors exist in the pavement within the limits of the intersection. The Contractor shall inspect the milling area to ensure no sensors exist prior to milling the transitions. If any damages occurs to the sensors from the Contractor's operation the Contractor shall replace/repair the damage at no cost to the State. The transition milling shall be done in such a manner that the longest transition length can be constructed without interference with the sensors. The transition milling may need adjusted in the field at the time of construction to what is shown in the detail to account for the sensors and milling length at the discretion of the Engineer.

The Contractor shall ensure at all Curb Ramp locations that final grade of the asphalt overlay is flush at the ramp/asphalt interface to where no lip will exist. This may require the Contractor to do hand work in these areas to achieve this.

Refer to ** NOTE

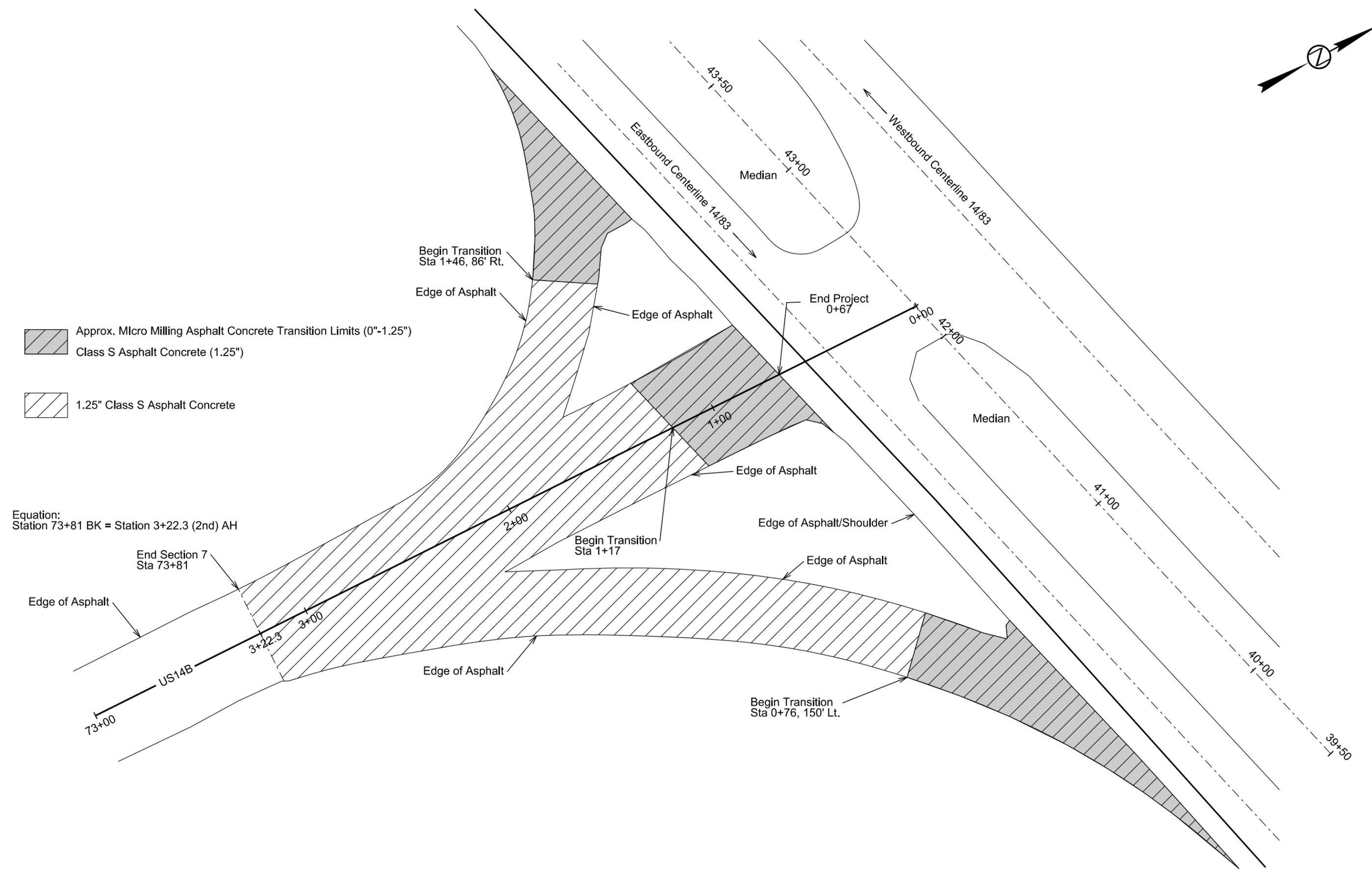
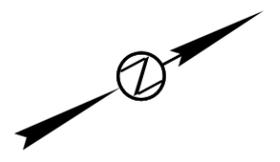
**** NOTE:**

At Bookstone Loop Intersection the Contractor shall do the same type of work at that intersection as shown on this sheet beginning at the end of the radius and then ending at 25' towards the intersection. This work shall only be done on the east entrance. All notes and work on this sheet shall also apply for the work at Bookstone Loop Intersection.

-  Class S Asphalt Concrete Limits (1.25")
-  Approx. Micro-Milling Asphalt Concrete Transition Limits (0" to 1.25")
-  Class S Asphalt Concrete (1.25")

INTERSECTION/RAMPS ONTO US14 & US14B LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(84)96, +..	F61	F69
Plotting Date: 07/14/2016			



- Approx. Micro Milling Asphalt Concrete Transition Limits (0"-1.25")
- Class S Asphalt Concrete (1.25")
- 1.25" Class S Asphalt Concrete

Equation:
Station 73+81 BK = Station 3+22.3 (2nd) AH

End Section 7
Sta 73+81

Edge of Asphalt

US14B
73+00

3+22.3

3+00

Edge of Asphalt

2+00

Begin Transition
Sta 1+17

Edge of Asphalt

Edge of Asphalt/Shoulder

Edge of Asphalt

Begin Transition
Sta 0+76, 150' Lt.

1+00

End Project
0+67

0+00

42+00

Median

41+00

40+00

39+50

Eastbound Centerline 14/83

Median

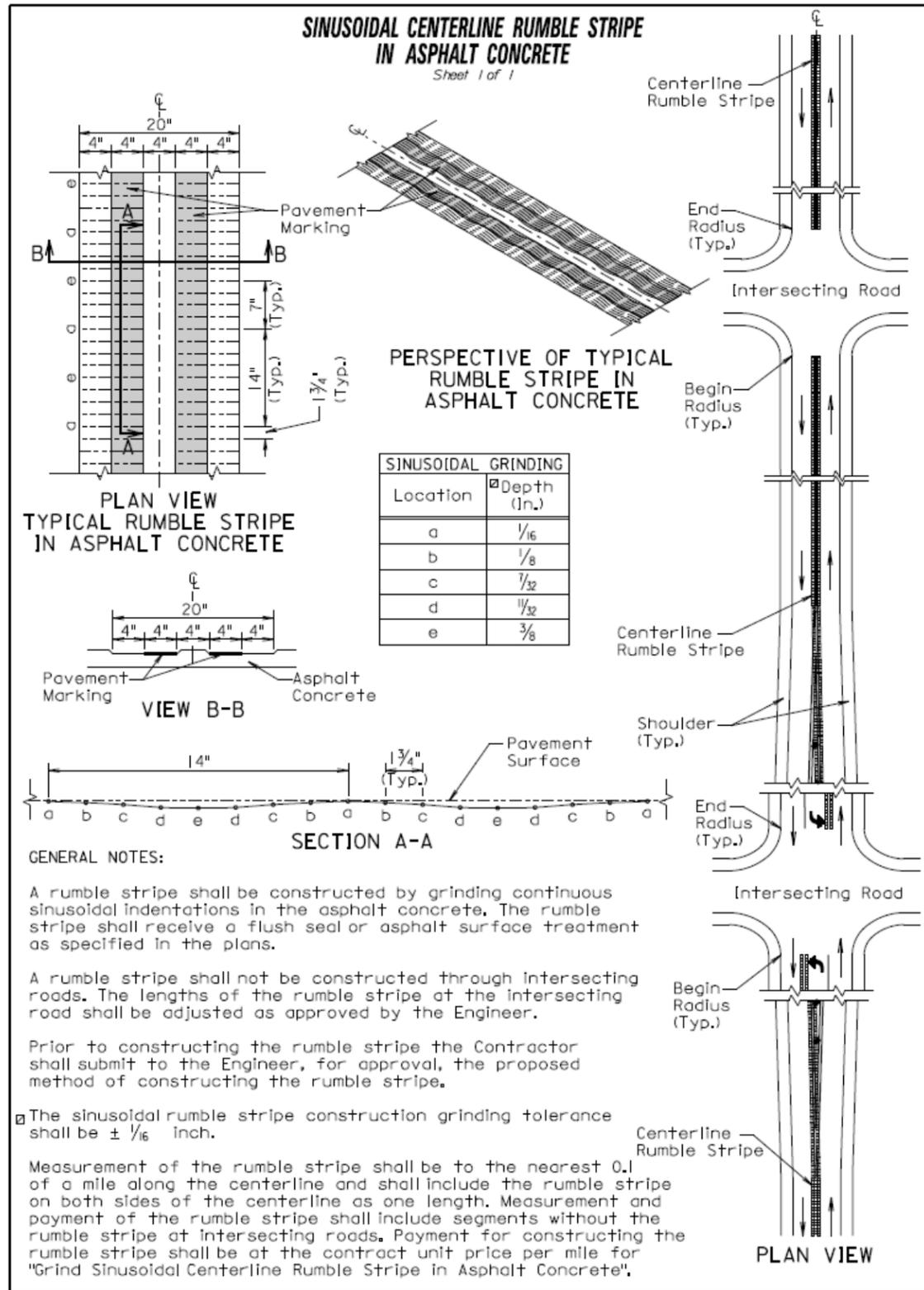
43+50

43+00

Westbound Centerline 14/83

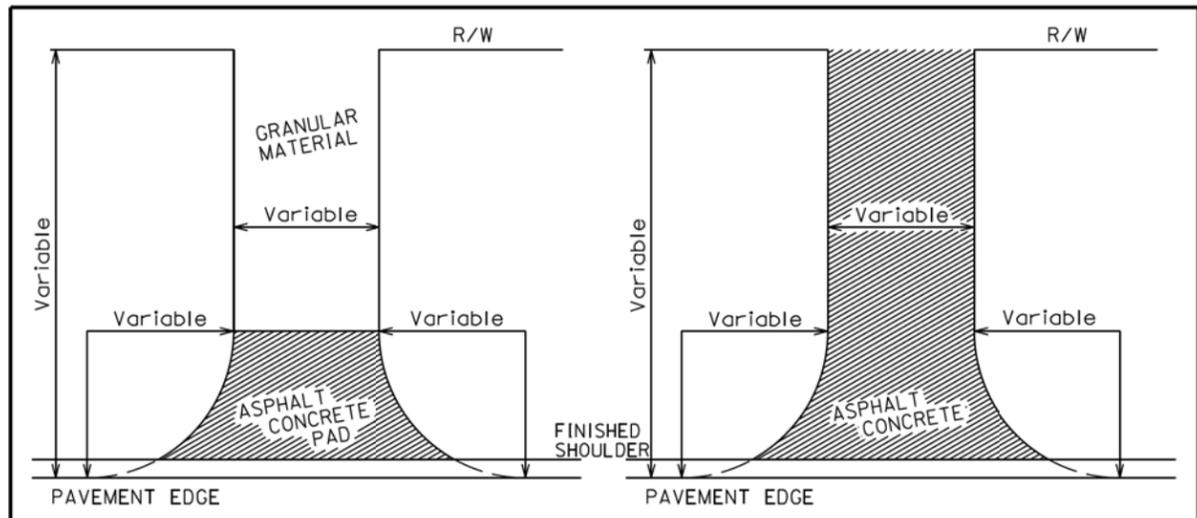
SINUSOIDAL CENTERLINE RUMBLE STRIPE DETAIL

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0083(84)96, +..	F62	F69



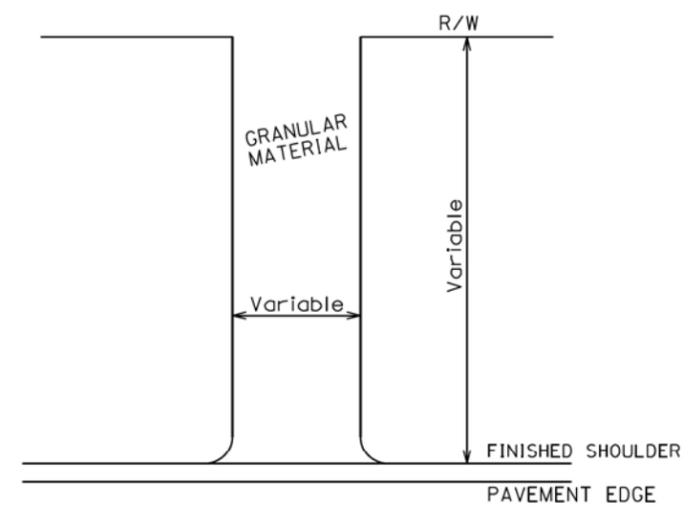
Grind Sinusoidal Centerline Rumble Stripes			
MRM	To	MRM	Distance (Mileage)
233.95+0.000		235.00+0.200	1.095
235.00+0.200		235.00+0.700	*Exception
235.00+0.700		239.00+0.725	4.221
Total Grind Length (Miles)			5.316

*Note: No grinding shall occur in centerline yellow tape locations



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND R/W

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND R/W



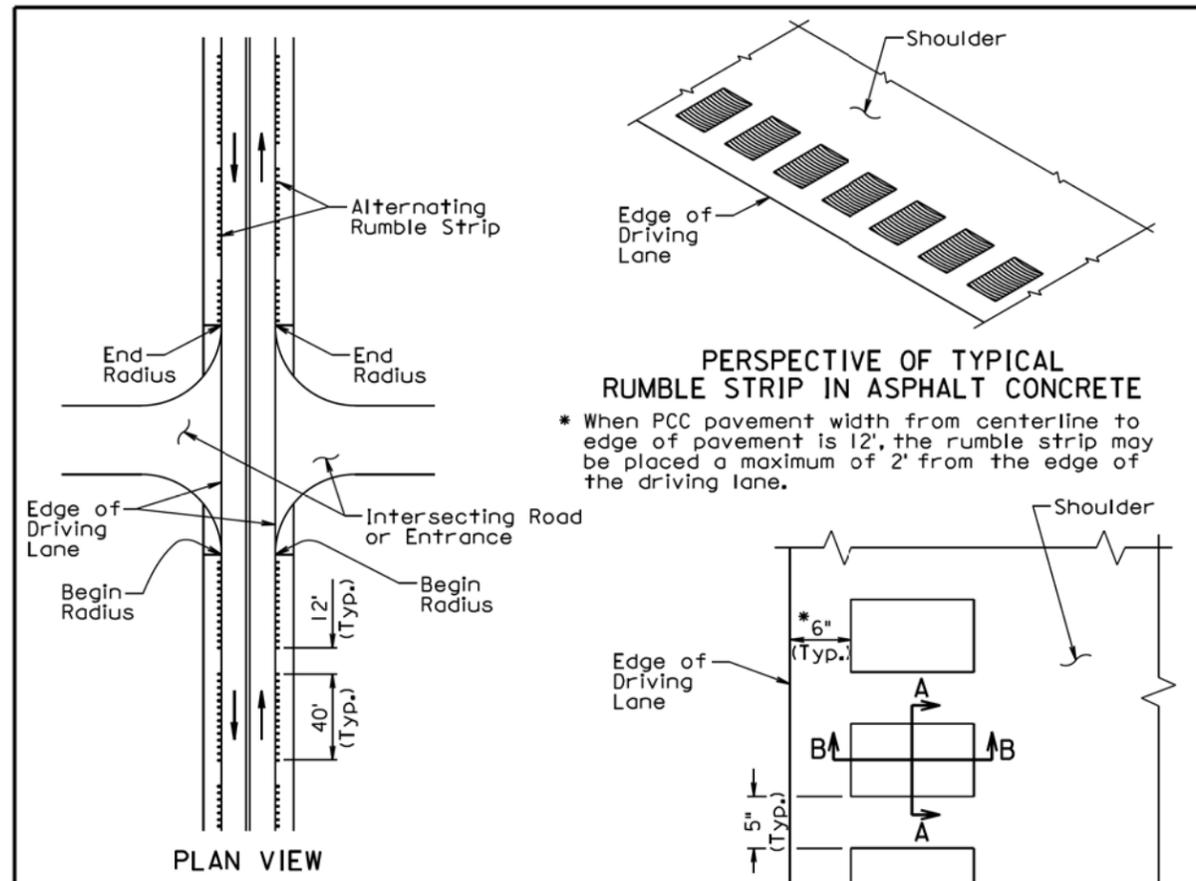
ENTRANCE

The surfacing details shown on this sheet are provided as a guide for surfacing these facilities. The precise construction limits for situations other than the standards shown will be determined by the Engineer, at the time of construction.

ROADWAY WITH SHOULDER

March 31, 2000

S D D O T	RESURFACING OF INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 320.11
		Sheet 1 of 1
	Published Date: 2nd Qtr. 2016	



PERSPECTIVE OF TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE

* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.

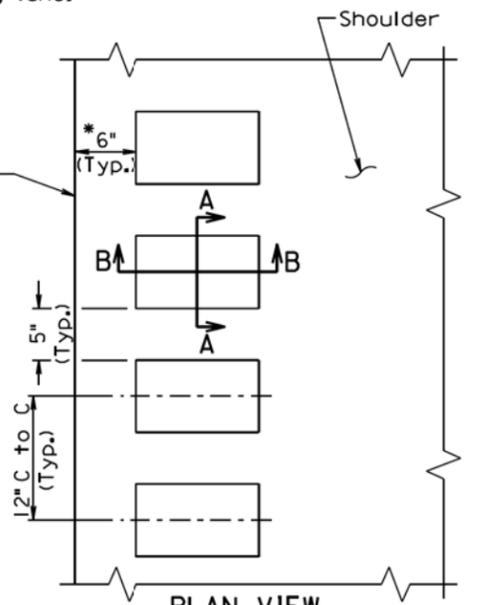
GENERAL NOTES:

A rumble strip shall be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

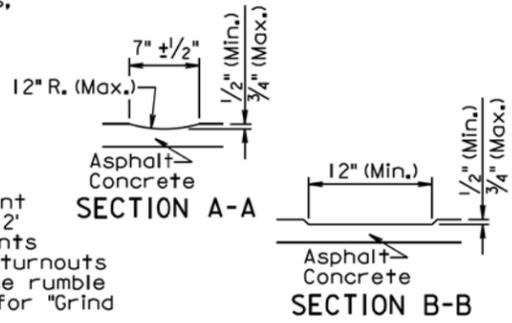
A rumble strip shall not be constructed through intersecting roads, entrances, and turnouts. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, and turnouts shall be adjusted as approved by the Engineer.

Prior to constructing the rumble strip the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

Measurement of the rumble strip shall be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip shall include the 12' long segments without rumble strips and the segments adjacent to the intersecting roads, entrances, and turnouts without rumble strips. Payment for constructing the rumble strip shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".



PLAN VIEW TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE



SECTION A-A

SECTION B-B

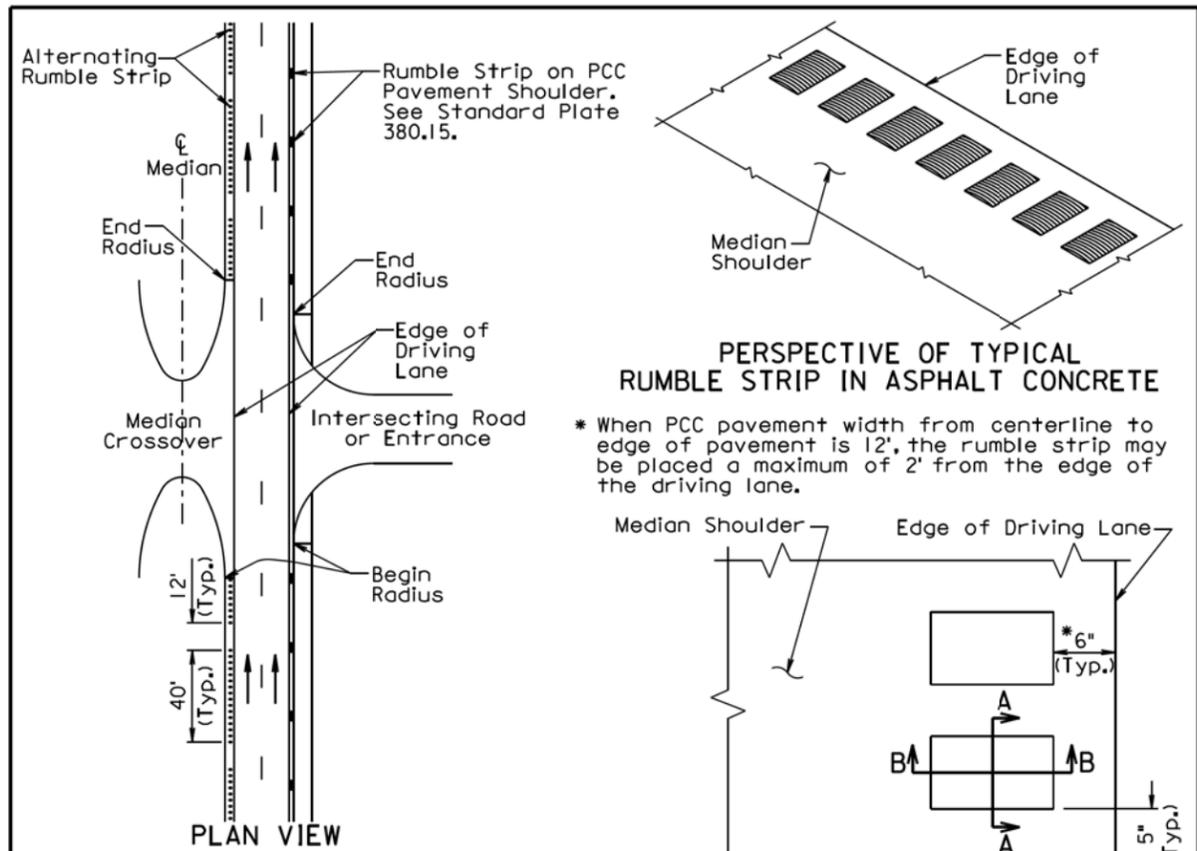
June 26, 2011

S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
		Sheet 1 of 1
	Published Date: 2nd Qtr. 2016	

Plot Scale - 1:200

Plotted From - TRPR26947

File - ...Section F63dPlatePages.dgn



* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.

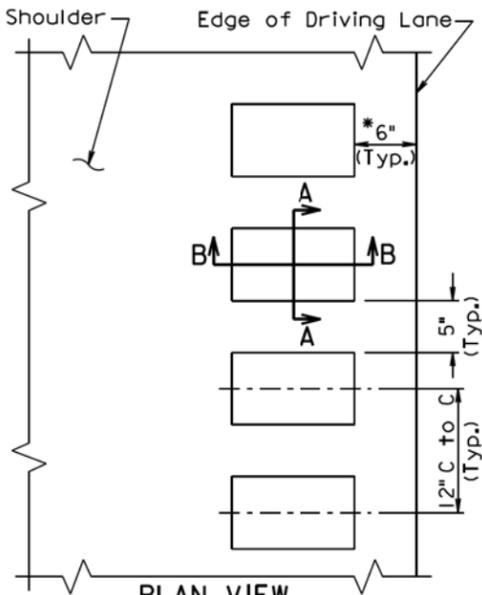
GENERAL NOTES:

A rumble strip shall be constructed on all of the asphalt concrete median shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

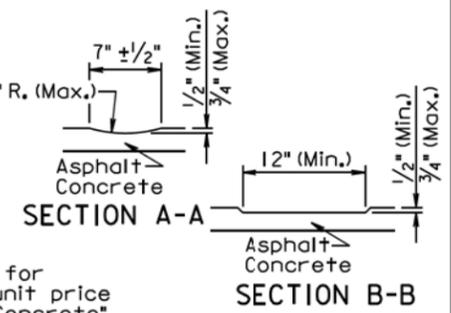
A rumble strip shall not be constructed through intersecting roads, entrances, median crossovers, entrance ramps, exit ramps, turnouts, and gore areas. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, median crossovers, entrance ramps, exit ramps, turnouts, and gore areas shall be adjusted as approved by the Engineer.

Prior to constructing the rumble strip the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

Measurement of the rumble strip in asphalt concrete shall be to the nearest 0.1 of a mile for each median shoulder. Measurement and payment of the rumble strip shall include the 12' long segments without rumble strips and the segments adjacent to intersecting roads, entrances, median crossovers, entrance ramps, exit ramps, turnouts, and gore areas without rumble strips. Payment for constructing the rumble strip shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".

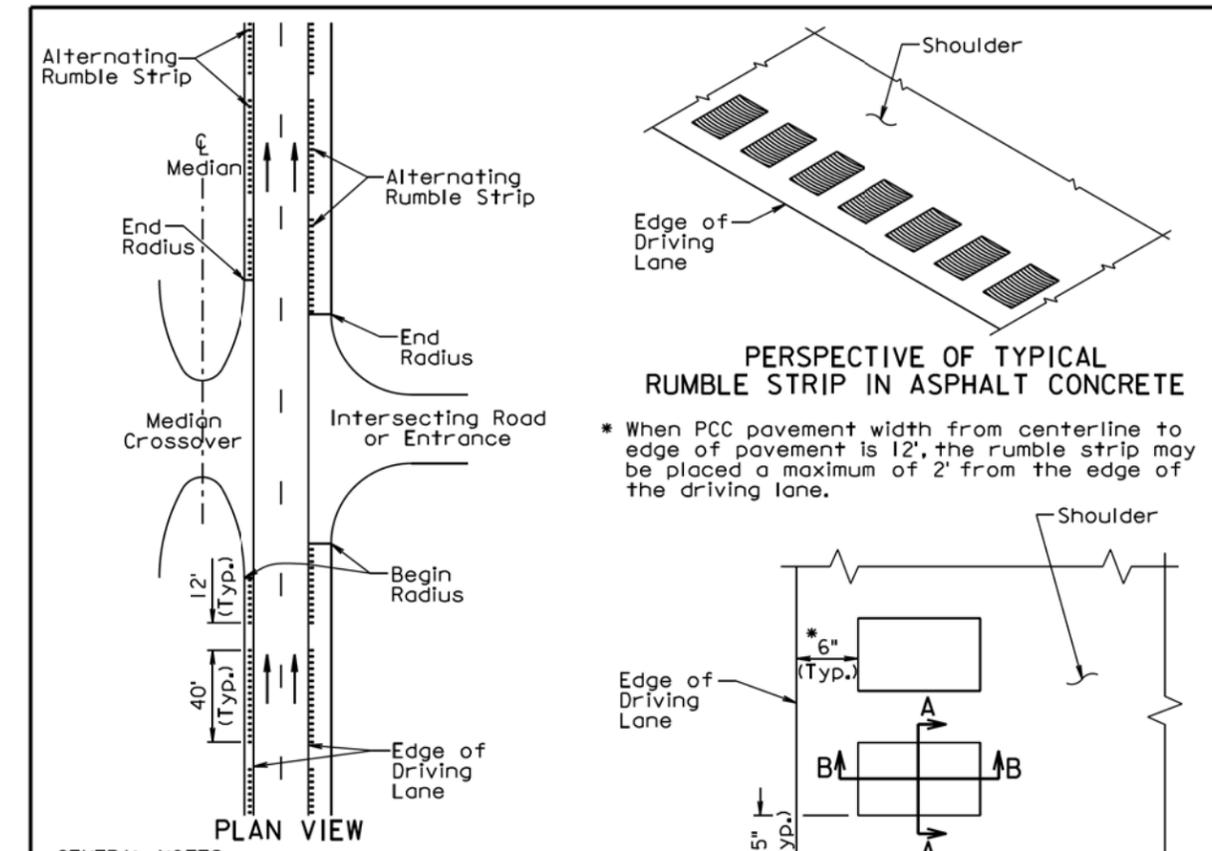


PLAN VIEW TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE



June 26, 2011

S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON DIVIDED HIGHWAY MEDIAN SHOULDER	PLATE NUMBER 320.26
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1



* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.

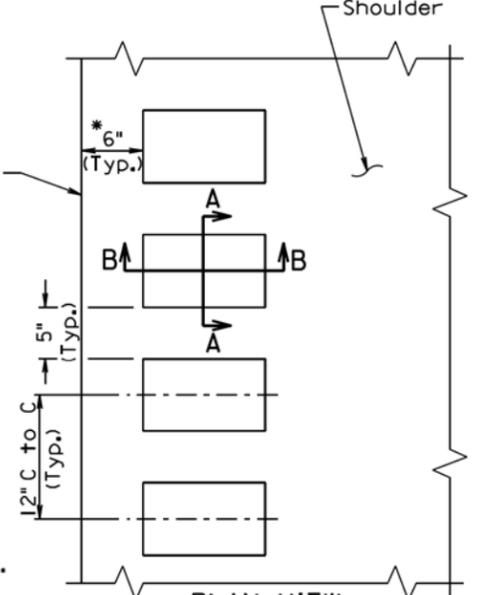
GENERAL NOTES:

A rumble strip shall be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip shall receive a flush seal with the shoulder flush sealing or asphalt surface treatment.

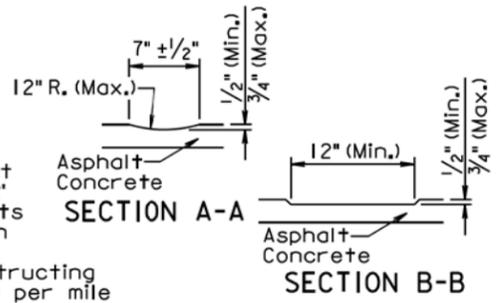
A rumble strip shall not be constructed through intersecting roads, entrances, median crossovers, entrance ramps, exit ramps, turnouts, and gore areas. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, median crossovers, entrance ramps, exit ramps, turnouts, and gore areas shall be adjusted as approved by the Engineer.

Prior to constructing the rumble strip the Contractor shall submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

Measurement of the rumble strip shall be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip shall include the 12' long segments without rumble strips and the segments adjacent to the intersecting roads, entrances, median crossovers, entrance ramps, exit ramps, turnouts, and gore areas without rumble strips. Payment for constructing the rumble strip shall be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".



PLAN VIEW TYPICAL RUMBLE STRIP IN ASPHALT CONCRETE

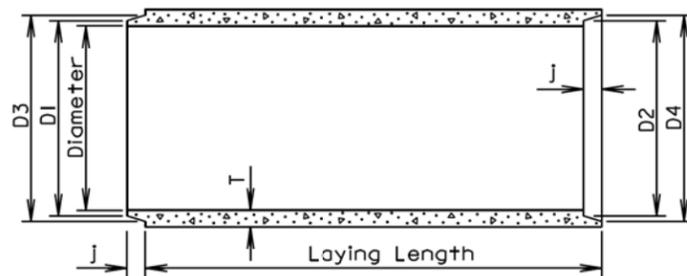
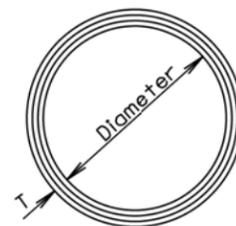


June 26, 2015

S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON DIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.28
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1

TOLERANCES IN DIMENSIONS

Diameter: $\pm 1.5\%$ for 24" Dia. or less and $\pm 1\%$ or $\frac{3}{8}$ " whichever is more for 27" Dia. or greater.
 Diameters at joints: $\pm \frac{3}{16}$ " for 30" Dia. or less and $\pm \frac{1}{4}$ " for 36" or greater.
 Length of joint (J): $\pm \frac{1}{4}$ ".
 Wall thickness (T): not less than design T by more than 5% or $\frac{3}{16}$ ", whichever is greater.
 Laying length: shall not underrun by more than $\frac{1}{2}$ ".


LONGITUDINAL SECTION

END VIEW
GENERAL NOTES:

Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

Diam. (in.)	Approx. Wt. / Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 3/8	14 1/4
15	127	2 1/4	2	16 1/2	16 3/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 1/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 3/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 1/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 3/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

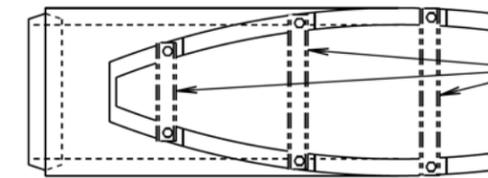
June 26, 2015

**S
D
D
O
T**
REINFORCED CONCRETE PIPE

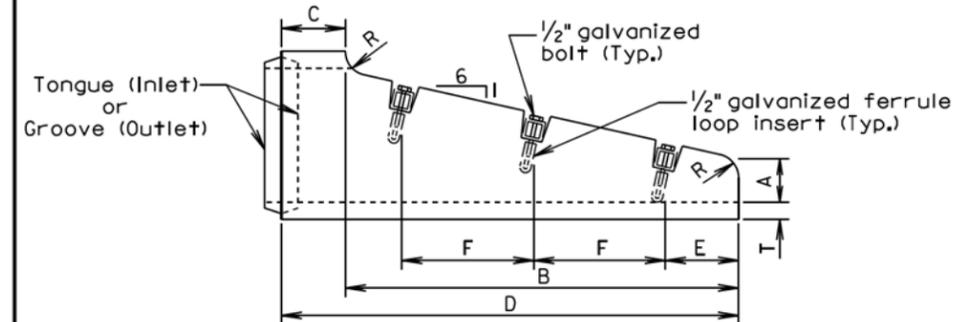
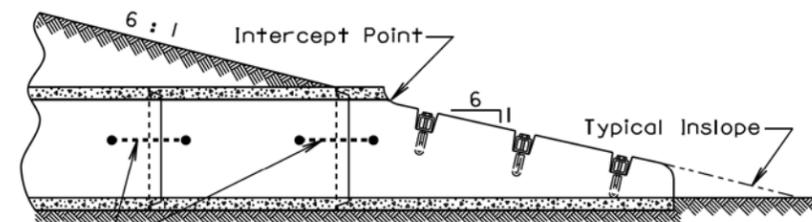
 PLATE NUMBER
450.01

Sheet 1 of 1

Published Date: 2nd Qtr. 2016


TOP VIEW

If bars are specified in the plans then provide HSS 2.5X2.5X.1875 Structural Steel Tubing in conformance with ASTM A500, Grade B or 3" Diameter Schedule 40 Pipe in conformance with ASTM A53, Grade B.


SIDE VIEW

ELEVATION VIEW

Dia. (in.)	T (in.)	R (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	No. Sections	No. Bars
FOR CIRCULAR PIPE										
15	2 1/4	3	6	48	9	57	6	18	1	3
18	2 1/2	3	6	69	9	78	9	24	1	3
*24	3	3	6	111	9	120	6	24	1 or 2	5
FOR ARCH PIPE										
**18	2 1/2	1	6	39	33	72	6	24	1	2

*The use of 2 sections must be an approved design.
 **Equivalent Diameter of Circular R.C.P.

GENERAL NOTES:

The length of concrete pipe shown on the plans is between safety ends.
 Safety ends without bars are acceptable with or without the bar notches.
 Bars shall be galvanized after fabrication in accordance with ASTM A123.

August 31, 2013

**S
D
D
O
T**
R. C. P. SAFETY ENDS WITH OR WITHOUT BARS

 PLATE NUMBER
450.12

Sheet 1 of 1

Published Date: 2nd Qtr. 2016

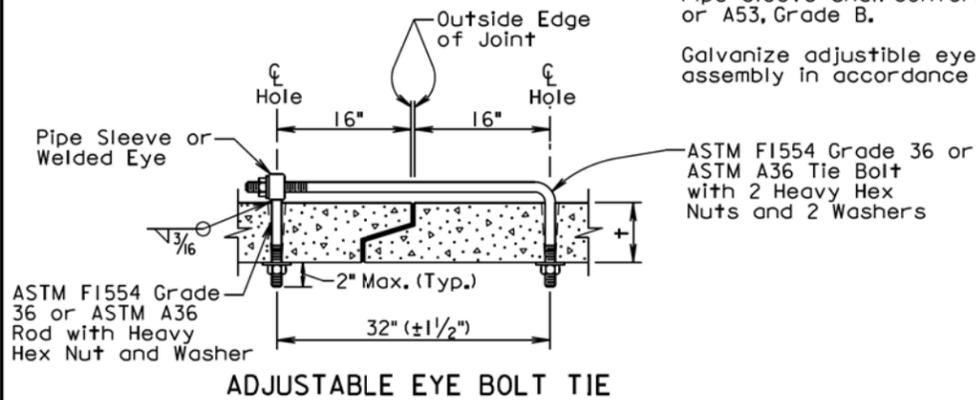
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3/4	5/8	3/4
3/2-6/2	3/4	1
≥ 7	1	1 1/4

GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.


ADJUSTABLE EYE BOLT TIE

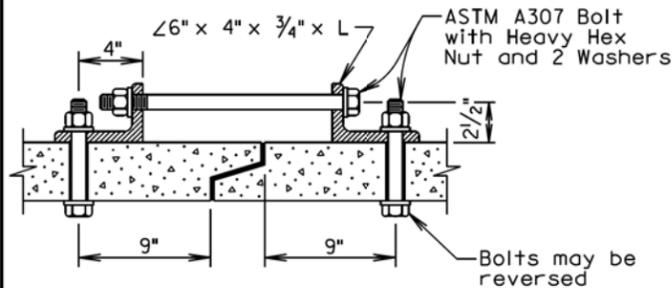
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

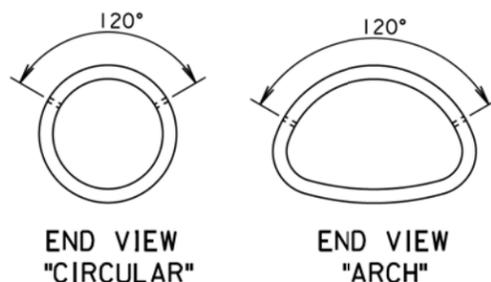
Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.


ANGLE AND BOLT TIE
GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

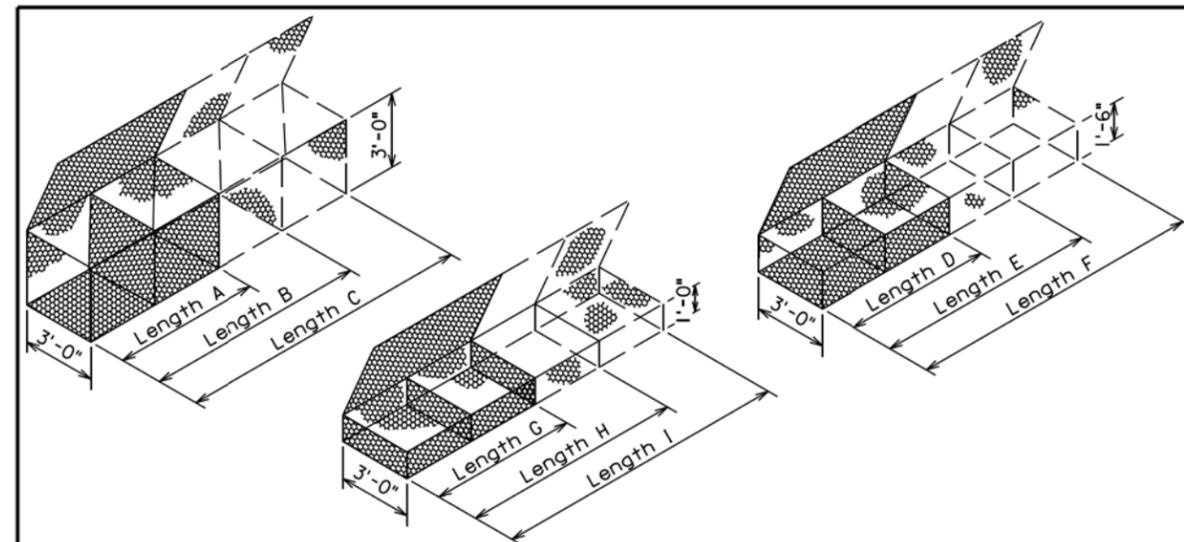
All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.


END VIEW "CIRCULAR"
END VIEW "ARCH"

February 28, 2013

S D D O T	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1


**GABION DETAILS
STANDARD SIZES**

SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY, Cu. Yd.
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

Above Dimensions subject to mill tolerances.

GENERAL NOTES:

Lacing and internal connecting wire shall be 0.0866 inch diameter steel wire ASTM A641 Class 3 soft temper measured after galvanizing and for PVC coated gabions shall be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1 1/2 times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

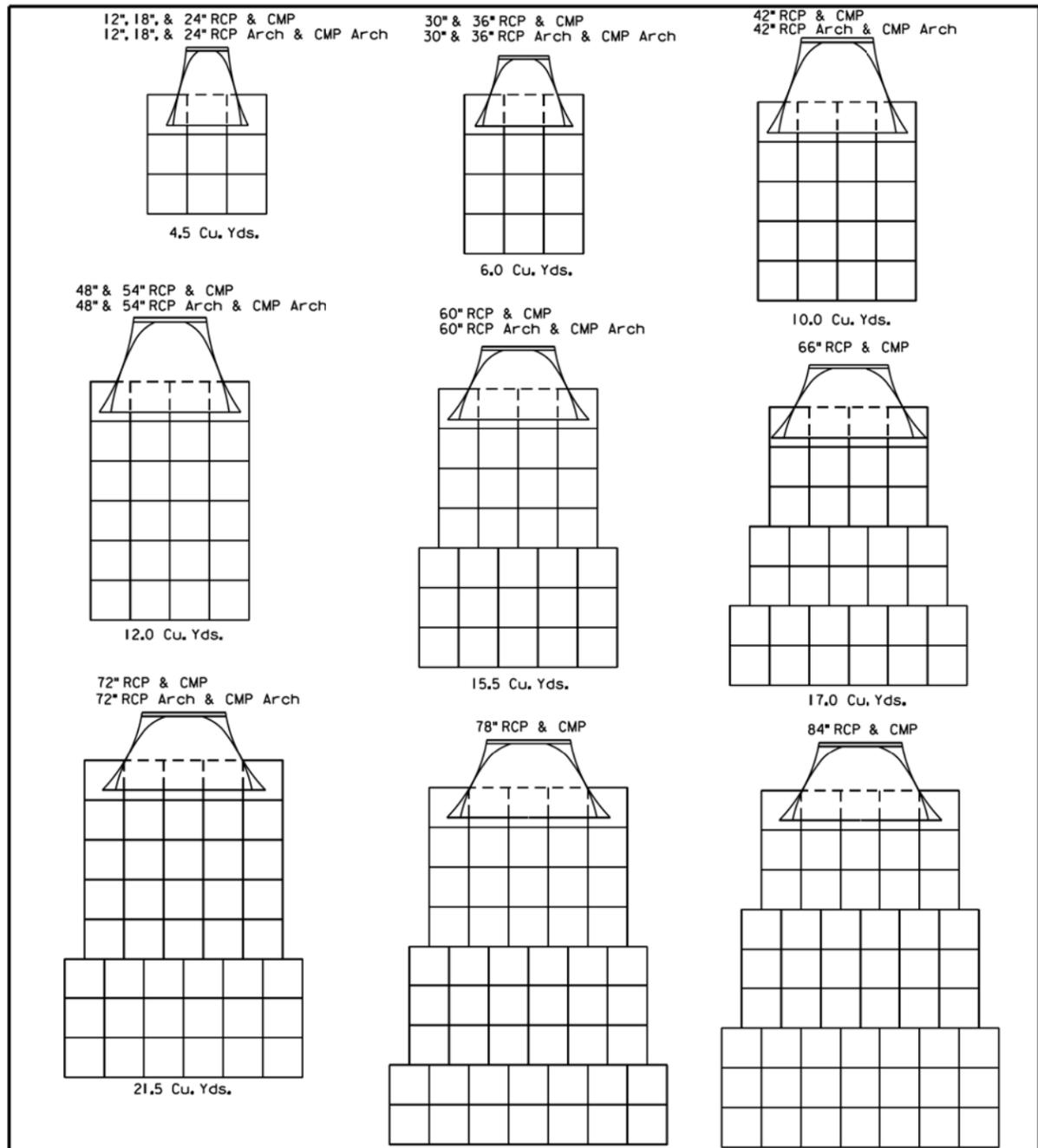
Wire lacing or interlocking type fasteners shall be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions shall be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing shall conform to ASTM A641-92 Class 3 coating. Fasteners shall also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions shall be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class I. The spacing of the interlocking fasteners during all phases of assembly and construction shall not exceed 6 inches. All fasteners shall be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

June 26, 2001

S D D O T	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1

Plot Scale - 1:200



GENERAL NOTES:

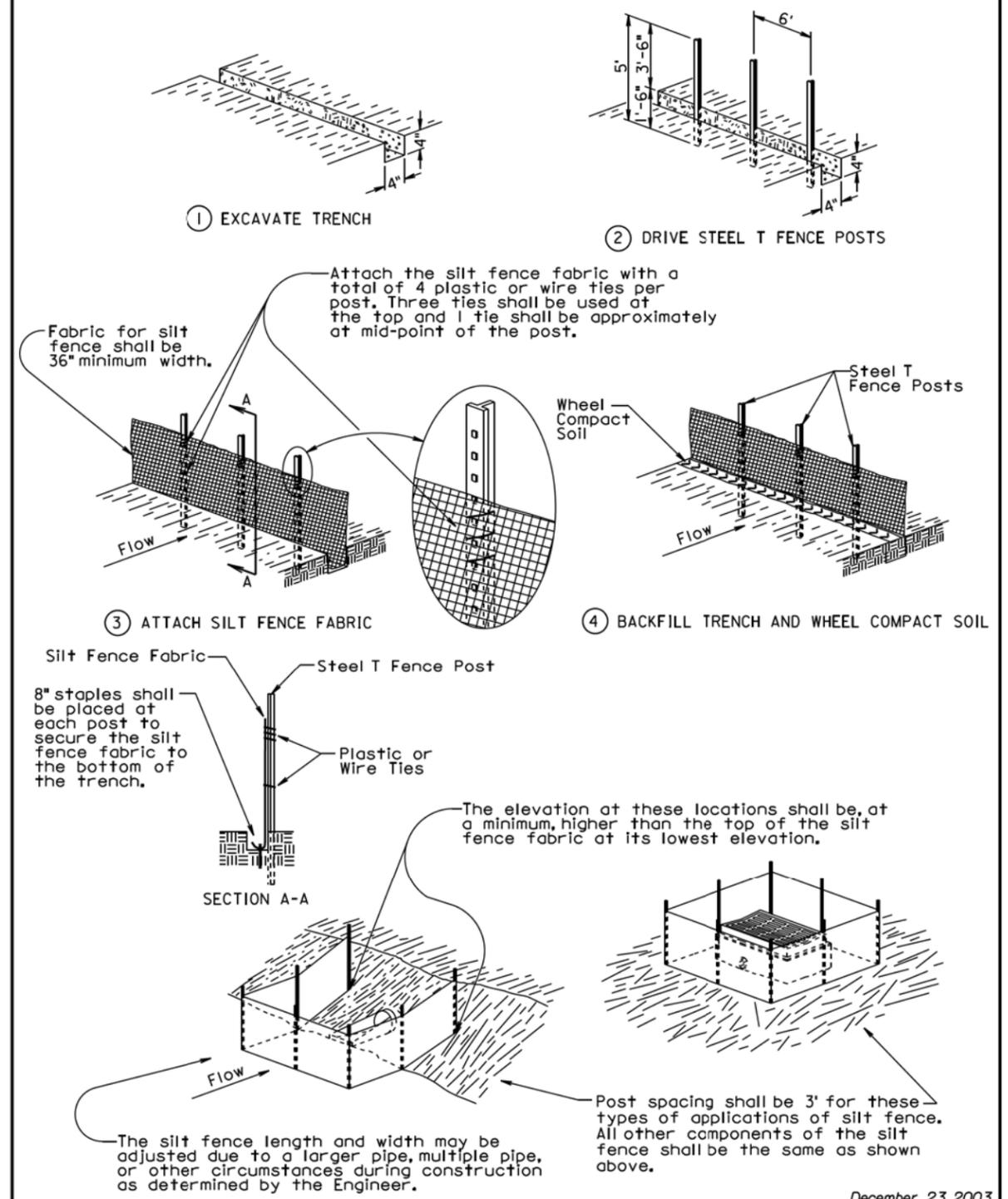
Gabions at outlets of C.M. pipe and R.C. pipe shall be placed under the end section a distance of 2' from the outlet end of the section. For C.M. pipe end section installations, the upper fabric of the gabions shall be modified to accommodate the metal end section in a manner approved by the Engineer.

Quantities shown on this standard plate are based on standard gabion sizes D, E, and F (See Standard Plate 720.01).

June 26, 2001

S D D O T	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
	Published Date: 2nd Qtr. 2016	Sheet 1 of 1

MANUAL HIGH FLOW SILT FENCE INSTALLATION

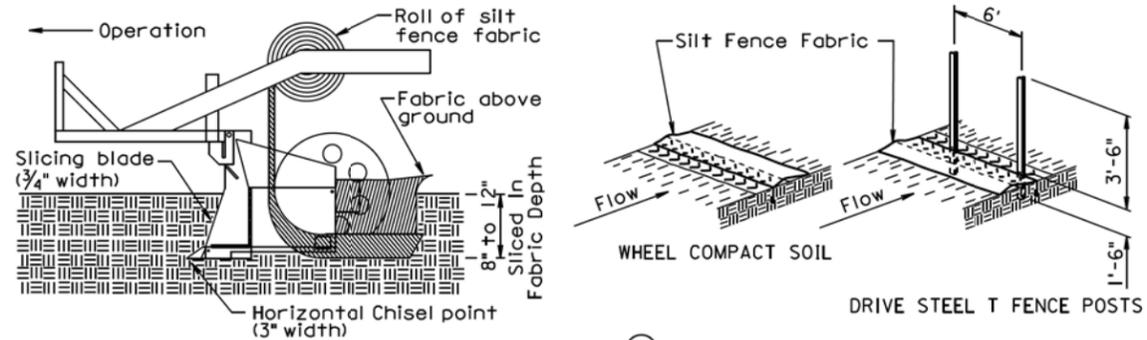


S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
	Published Date: 2nd Qtr. 2016	Sheet 1 of 2

December 23, 2003

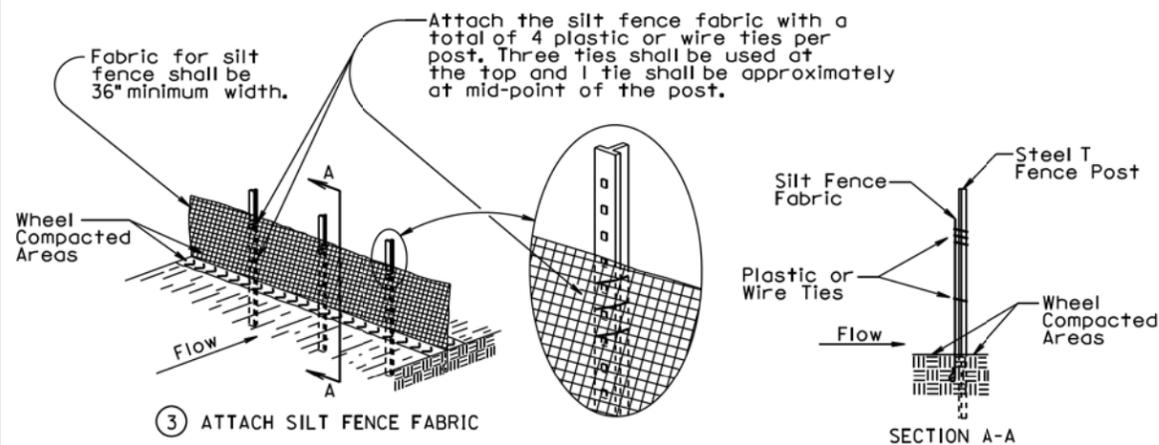
File - ...Section F:\Std\PlatePages.dgn

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION

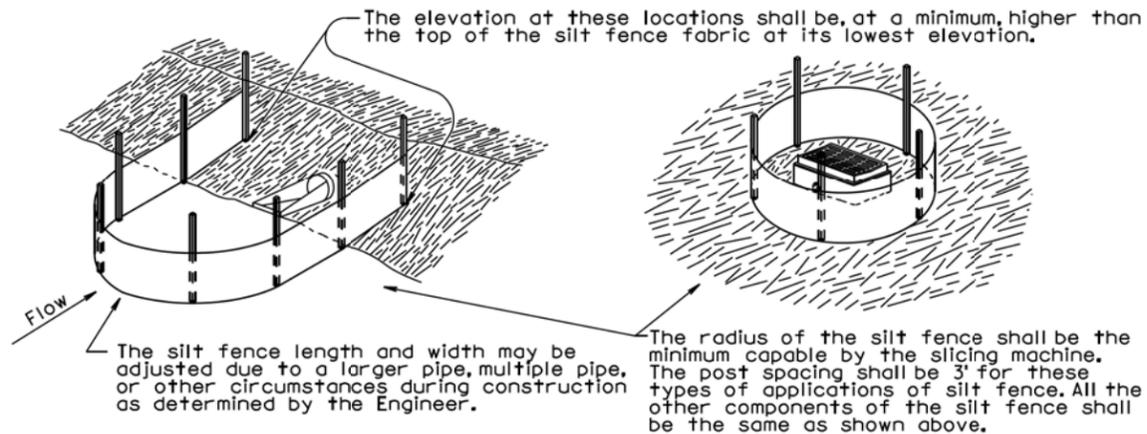


① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

② WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.



③ ATTACH SILT FENCE FABRIC



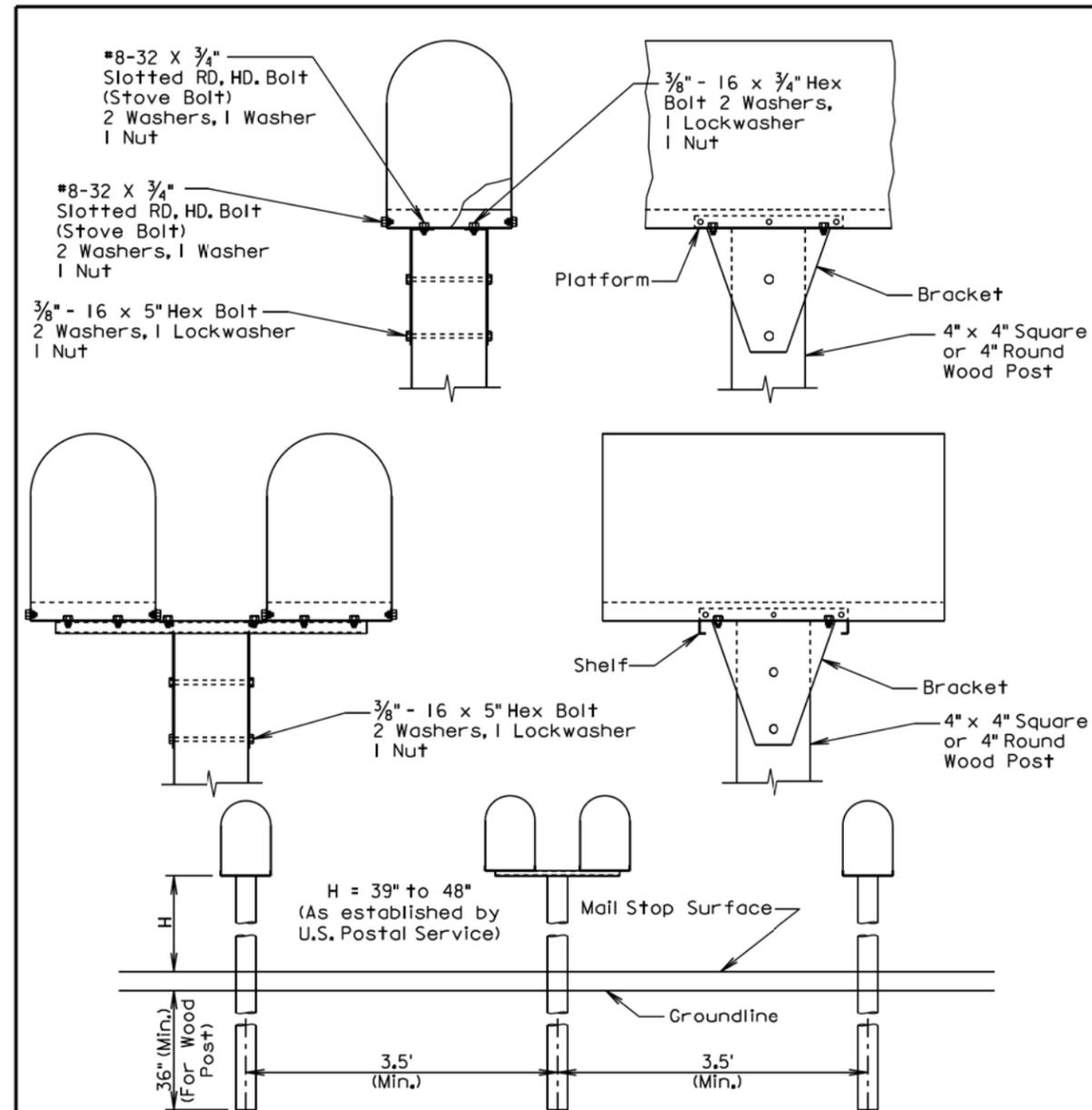
GENERAL NOTE:

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end shall be provided on top of the extra length of silt fence fabric to prevent underflow.

December 23, 2003

S D D O T	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05
		Sheet 2 of 2

Published Date: 2nd Qtr. 2016



GENERAL NOTES: SPACING FOR MULTIPLE POST INSTALLATION

The post support assemblies provided should be consistent throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

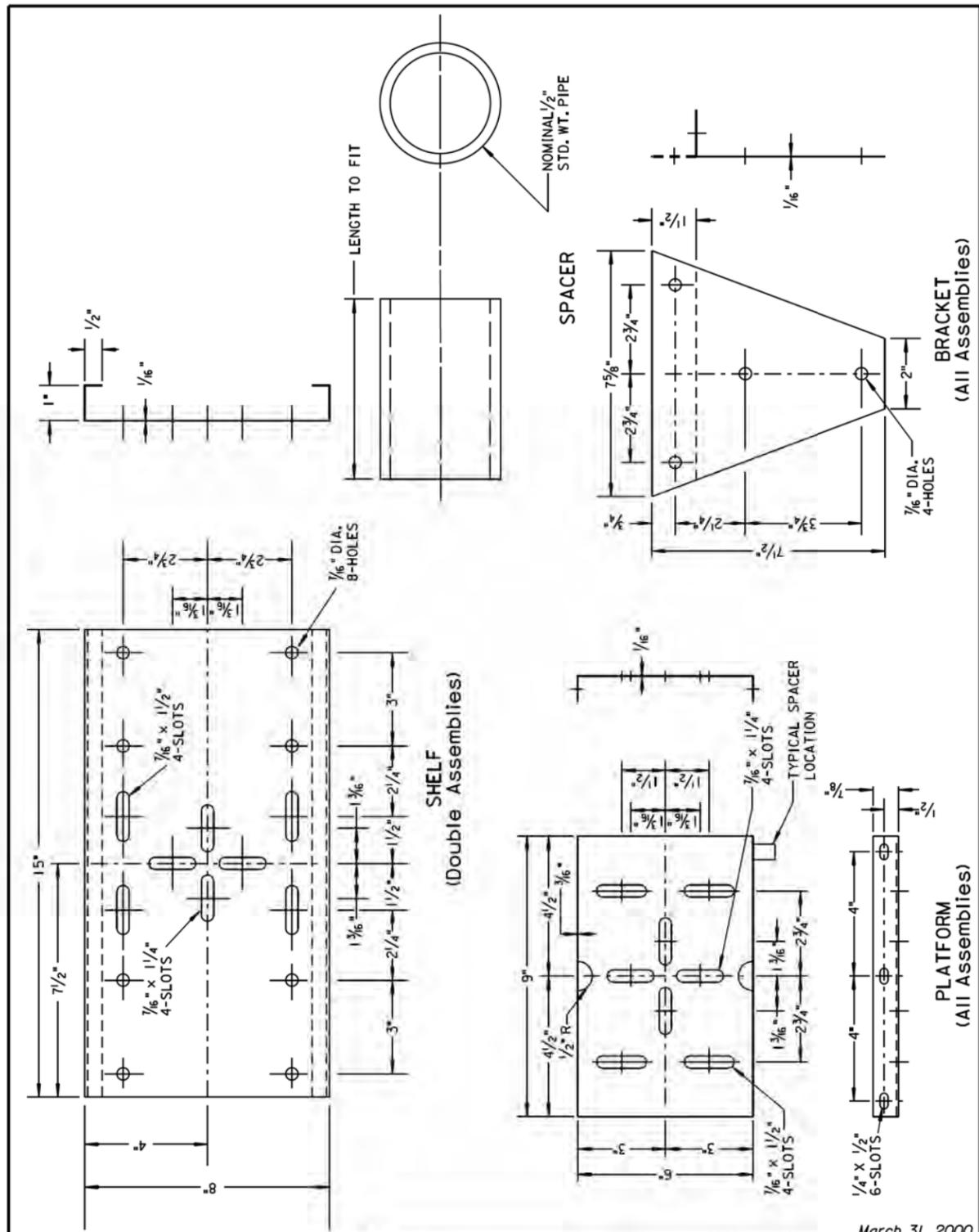
September 6, 2013

S D D O T	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
		Sheet 1 of 1

Published Date: 2nd Qtr. 2016

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(84)96, +..	F69	F69

Plotting Date: 07/14/2016



March 31, 2000

S D D O T	MAILBOX SUPPORT HARDWARE	PLATE NUMBER 900.03
		Sheet 1 of 1

Published Date: 2nd Qtr. 2016