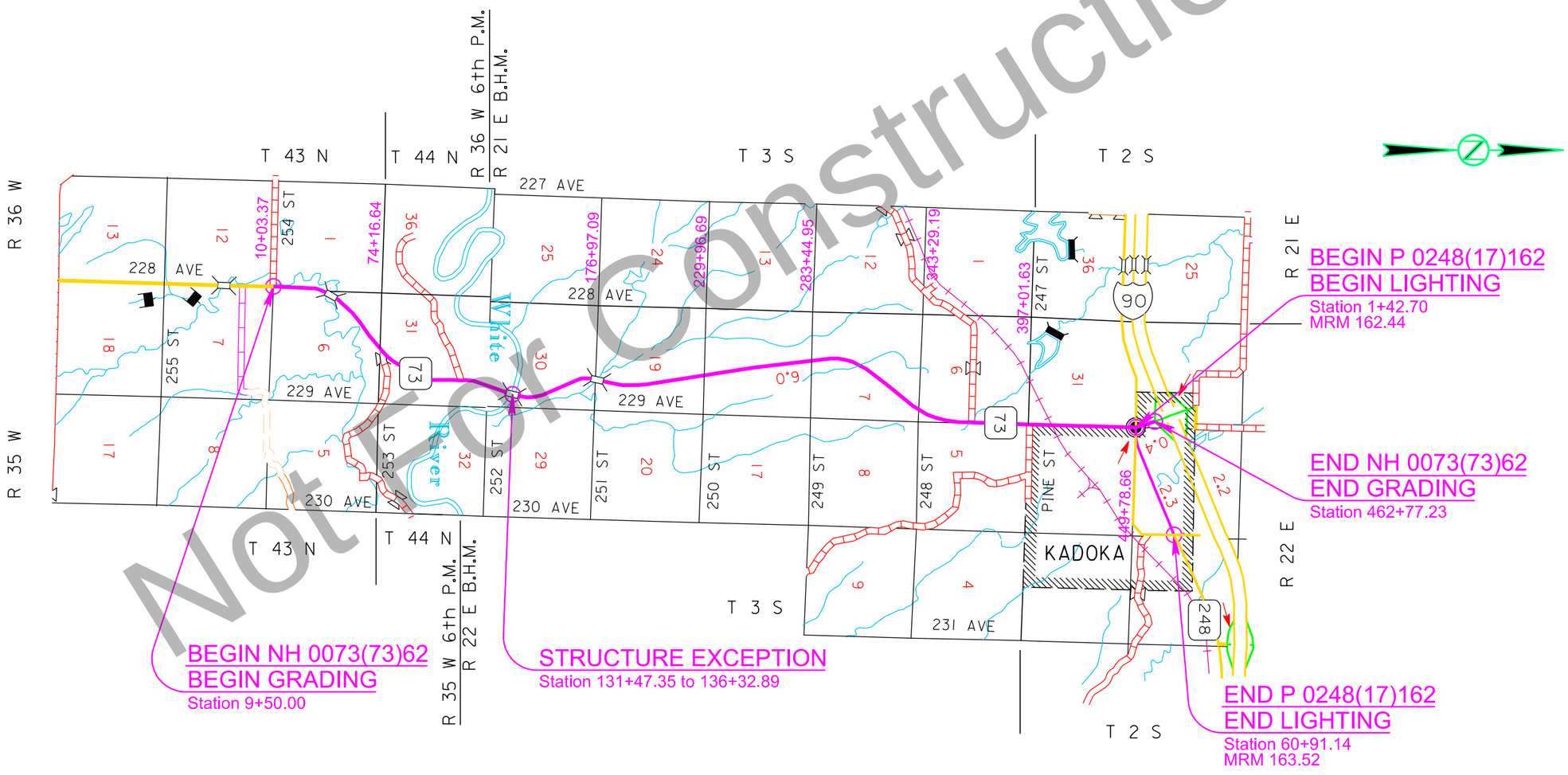
Section F: Surfacing Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F1	F16

Plotting Date: 11/03/2022

INDEX OF SHEETS



PLOT NAME - 1

FILE ....\PRJ\JACK05HV\05HV_TITLEF.DGN

SECTION F ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
120E6200	Water for Granular Material	1,756.0	MGal
260E1010	Base Course	468.7	Ton
260E1030	Base Course, Salvaged	145,855.2	Ton
* 270E0210	Haul and Stockpile Granular Material	50,834.8	Ton
320E1200	Asphalt Concrete Composite	1,043.7	Ton
330E0010	MC-70 Asphalt for Prime	250.5	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	32.0	Ton
330E1000	Blotting Sand for Prime	621.0	Ton
330E3000	Sand for Fog Seal	10.0	Ton
360E0020	AE150S Asphalt for Surface Treatment	174.9	Ton
360E1020	Type 1B Cover Aggregate	1,624.5	Ton

*** - Denotes Non-Participating**

SURFACING THICKNESS DIMENSIONS

Plans tonnage will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, plans tonnage may be varied to achieve the required elevation.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 28. This value was obtained from testing during construction of the in-place asphalt concrete.

An estimated 12,500 tons of cold milled asphalt concrete material will be salvaged from the existing highway and stockpiled at the Kadoka SDDOT Maintenance Yard to be used as RAP in the asphalt concrete for PCN 05U4.

The quantity of salvaged RAP is based on the dimensions given in the in place typical section(s). Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, to provide the quantity of RAP specified by the plans.

TABLE OF COLD MILLING ASPHALT CONCRETE

Location	Cold Milling Asphalt Concrete SqYd
Sta. 30+27.83 to Sta. 89+77.83	15,866.7
Sta. 109+09.23 to Sta. 115+64.68	1,747.9
Sta. 207+18.22 to Sta. 449+81.79	64,702.9
Total:	82,317.5

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, Salvaged spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will 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 will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will 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 will 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 will 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 will 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 ±1/2 inch of the plan shown depth, the Contractor will 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 will be incidental to the contract lump sum price for the 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 will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

SALVAGED MATERIAL

The quantity of salvaged asphalt mix and granular base material may vary from the plans. The Contractor will be required to use all of the salvaged material on this project or as directed by the Engineer.

No adjustment in the contract unit prices will be allowed as a result of a variation in salvage material quantities.

TABLE OF SALVAGED MATERIAL
(For Informational Purposes Only, See Typical Sections & Section B)

Location	Salvage and Stockpile Asphalt Mix and Granular Base Material Tons
Base Course, Salvaged – This Project	145,855.2
Base Course, Salvaged – Kadoka SDDOT Maintenance Yard	38,334.8
Total:	184,190.0

BASE COURSE, SALVAGED

The Base Course, Salvaged will be obtained from the stockpile site(s) provided by the Contractor and may be used without further testing.

The Contractor will ensure the Base Course, Salvaged material contains no more than 50% salvaged asphalt mix material and at least 50% granular material (salvaged or virgin). Blended material will be to the satisfaction of the Engineer.

All other requirements for Base Course, Salvaged will apply.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will include MC-70 Asphalt for Prime placed at the rate of 0.30 gallons per square yard. The Asphalt for Prime will be applied to the Base Course, Salvaged for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

BLOTTING SAND FOR PRIME

Included in the Estimate of Quantities are 10 tons of Blotting Sand for Prime to be used where necessary for maintenance of traffic as directed by the Engineer. (Rate = 10 pounds per square yard)

COVER AGGREGATE

Cover Aggregate will conform to the requirements of the Specifications for Type 1B and will be furnished by the Contractor.

FOG SEAL

The fog seal will be placed following the completion of the asphalt surface treatment. Prior to the application of the fog seal, the Contractor will be required to broom the asphalt surface treatment. A CSS-1h or SS-1h emulsion will be used for the fog seal application. A water-to-emulsion rate of 1:1 should be used for the Fog Seal application.

The Contractor will fog seal the entire asphalt surface treatment surface.

The Contractor will plan the fog seal operation to allow adequate cure time for the fog seal and to minimize/eliminate the need to apply Sand for Fog Seal.

If adequate cure time for the Fog Seal is not available, to facilitate traffic, the Contractor will be allowed to place a minimum sufficient amount of blotting sand on the fog seal to allow traffic to cross the uncured portion of the fog seal, as permitted by the Engineer.

Sand for Fog Seal is only intended to be placed for accesses to businesses, intersection crossings, and as determined by the Engineer to facilitate traffic movements. Sand for Fog Seal will not be placed to accelerate the Contractor's schedule.

Sand that is applied will be broomed off the surface of the roadway once the fog seal has sufficiently cured as determined by the Engineer.

Sand for Fog Seal will conform to Section 879.1.B.

Prior to hauling, Sand for Fog Seal will be screened to minimize segregation, eliminate oversize, and effectively breakup or discard material bonded into chunks. All costs for supplying, hauling, placing, and brooming the blotting sand will be incidental to the contract unit price per ton for Sand for Fog Seal.

HAUL AND STOCKPILE GRANULAR MATERIAL

12,500 tons of salvaged asphalt concrete material and 38,334.8 tons of Salvage Asphalt Mix and Granular Base Material will be hauled and stockpiled in the Northwest ¼ of Section 32, Township 2 South, Range 22 East of the 5th P.M., Jackson County, South Dakota at the Kadoka SDDOT Maintenance Yard to be used as RAP in the asphalt concrete for PCN 05U4. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to stockpiling.

The salvaged asphalt concrete material will be crushed to meet the requirements of Section 884.2 C.1 prior to stockpiling.

The Salvage Asphalt Mix and Granular Base Material will be crushed to meet the requirements of Section 884.2 D.7 prior to stockpiling.

The salvaged asphalt concrete material will be used as RAP and must be stockpiled at a location preventing any contamination from the adjacent stockpiles.

No further gradation testing of the material will be required.

All other costs for crushing, hauling, and stockpiling the salvaged asphalt concrete material will be incidental to the contract unit price per ton for Haul and Stockpile Granular Material.

RATES OF MATERIALS

The Estimate of Surfacing Quantities is based on the following quantities of materials per mile.

MAINLINE

Sta. 11+50 to Sta. 129+47.35
Sta. 138+32.89 to Sta. 460+77.23

Base Course, Salvaged 16,635 tons

Water for Granular Material at the rate of 199.6 M Gallons

MC-70 Asphalt for Prime at the Rate of 29.2 tons applied 42 feet wide (Rate = 0.30 gallon per square yard).

Blotting Sand for Prime at the rate of 70 tons applied 24 feet wide (Rate = 10 lbs. per square yard).

ASPHALT SURFACE TREATMENT

Asphalt for Surface Treatment AE 150S at the rate of 19.5 tons applied 28 feet wide (Rate = 0.28 gallon per square yard).

Cover Aggregate at the rate of 181 Tons applied 28 feet wide (Rate = 22 lbs. per square yard).

FOG SEAL

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 3.5 ton applied 28 feet wide (Rate = 0.05 gallon per square yard).

The Estimate of Surfacing Quantities is based on the following quantities of materials per station.

TRAFFIC DIVERSION – DIV39

Sta. 1+40.72 to Sta. 9+12.97

Base Course 60.69 tons

Water for Granular Material at the rate of 0.73 M Gallons

TABLE OF ADDITIONAL QUANTITIES

Location	Water for Granular Material	Base Course, Salvaged	Asphalt Concrete Composite	MC-70 Asphalt for Prime	Blotting Sand for Prime	AE150S Asphalt for Surface Treatment	Type 3 Cover Aggregate	SS-1h or CSS-1h Asphalt for Fog Seal
Mainline – Driving Surface Transitions	MGal	Ton	Ton	Ton	Ton	Ton	Ton	Ton
Sta. 9+50 to Sta. 11+50	7.1	590.0	152.0	---	---	---	---	---
Sta. 129+47.35 to Sta. 131+47.35	7.1	590.0	152.0	---	---	---	---	---
Sta. 136+32.89 to Sta. 138+32.89	7.1	590.0	152.0	---	---	---	---	---
Sta. 460+77.23 to Sta. 462+77.23	7.1	590.0	152.0	---	---	---	---	---
Intersecting Roads								
Sta. 438+00 R. – SDDOT Maintenance Yard	0.6	50.0	---	0.3	1.5	---	---	---
Sta. 449+86 L – SD248	8.2	681.4	189.2	---	---	---	---	---
Sta. 449+86 R – SD248	10.9	908.0	246.5	---	---	---	---	---
5 – Intersecting Roads – Gravel to ROW	2.9	245.0	---	1.1	4.6	1.5	13.9	0.30
4 – Intersecting Streets	2.2	180.0	---	1.0	4.4	1.3	12.5	0.20
Entrance Sta. 411+00 L.	1.7	140.0	---	---	---	0.1	0.7	0.01
8 Entrances – AST Pad to Radius	3.6	300.0	---	1.5	6.3	2.1	19.6	0.40
7 Entrances – AST Pad to ROW	4.2	350.0	---	2.4	10.3	3.0	28.0	0.60
46 Entrances – AST Shoulder Pad	17.8	1,480.0	---	---	---	3.4	32.2	0.60
5 Mailbox Turnouts	0.4	30.3	---	0.1	---	0.8	7.8	0.20
Maintenance of Traffic	---	---	---	---	10.0	---	---	---
Additional Surfacing at Bridge Ends								
Structure No. 38-309-168								
Begin Bridge L.	0.7	62.3		0.1	---	---	---	---
Begin Bridge R.	1.5	125.5	---	0.2	---	---	---	---
End Bridge L.	1.5	127.9	---	0.2	---	---	---	---
End Bridge R.	0.7	62.3		0.1	---	---	---	---
Totals:	85.3	7,102.7	1.043.7	7.0	37.1	12.2	114.7	2.3

See TYPICAL SURFACING SECTIONS, SURFACING LAYOUTS and DRIVING SURFACE TRANSITION DETAILS located elsewhere in these plans for additional details for surfacing limits and depths of surfacing.

IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F5	F16

Plotting Date: 11/03/2022

Cold Milling Asphalt Concrete - RAP to be stockpiled for future surfacing project. See notes located elsewhere in these plans.

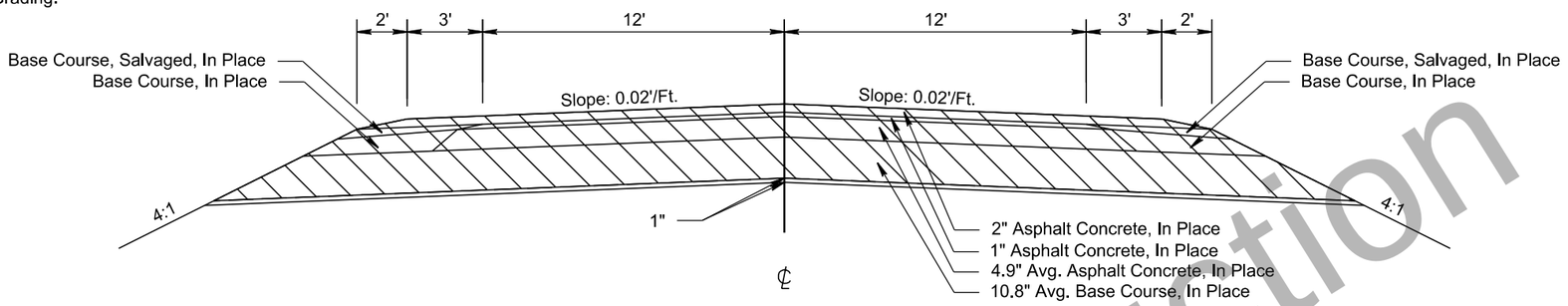
Unclassified Excavation - Salvage and Stockpile Asphalt Mix and Granular Base Material. See Section B - Grading.

See DRIVING SURFACE TRANSITION DETAILS located elsewhere in these plans for additional surfacing removal details.

Stationings shown on this page are approximate.

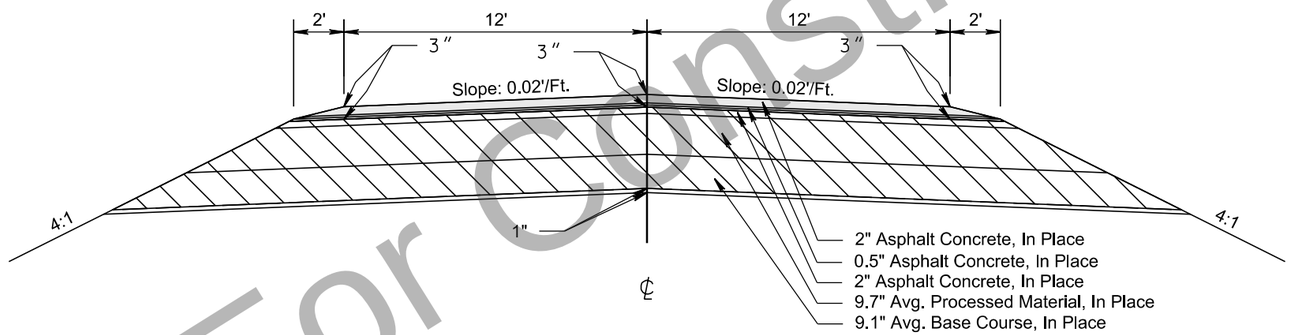
MAINLINE

Sta. 9+50 to Sta. 30+27.83



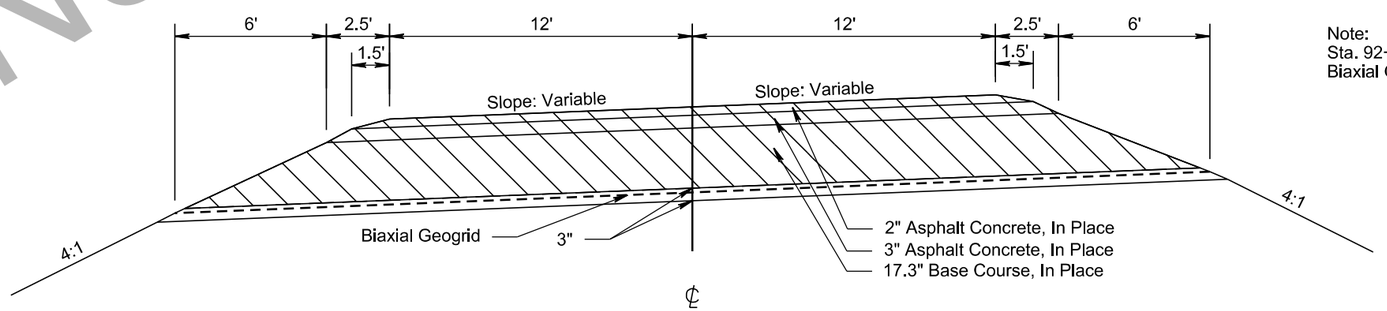
MAINLINE

Sta. 30+27.83 to Sta. 89+77.83
Sta. 109+09.23 to Sta. 115+64.68
Sta. 207+18.22 to Sta. 449+81.79



MAINLINE

Sta. 89+77.83 to Sta. 109+09.23



Note:
Sta. 92+77.83 to Sta. 96+77.83
Biaxial Geogrid in this location only

PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388

PLOT NAME - 2

FILE - ...\05HV_TYPICAL SECTIONS.DGN

IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F6	F16

Plotting Date: 11/03/2022

Unclassified Excavation - Salvage and Stockpile Asphalt Mix and Granular Base Material. See Section B - Grading.

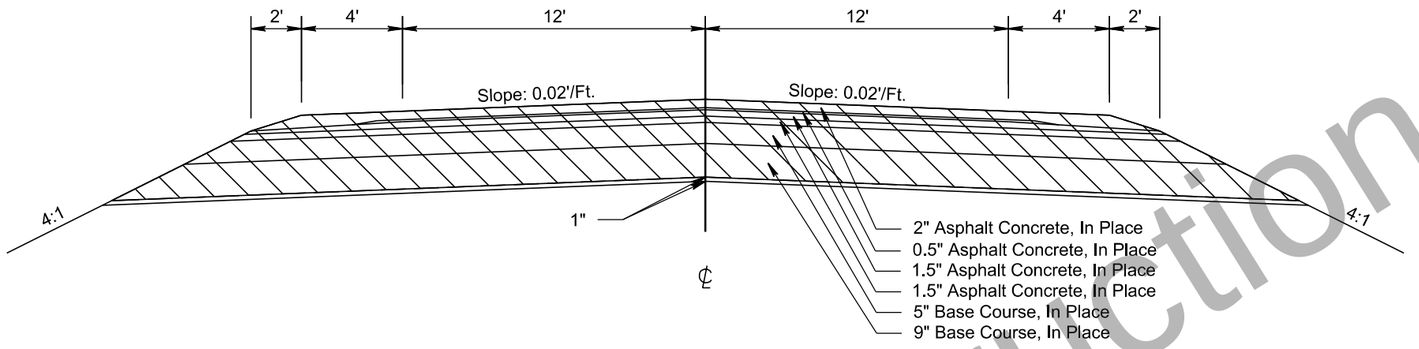
See DRIVING SURFACE TRANSITION DETAILS located elsewhere in these plans for additional surfacing removal details.

Stationings shown on this page are approximate.

Bridge and Approach Slabs
Sta. 131+47.35 to Sta. 136+32.89

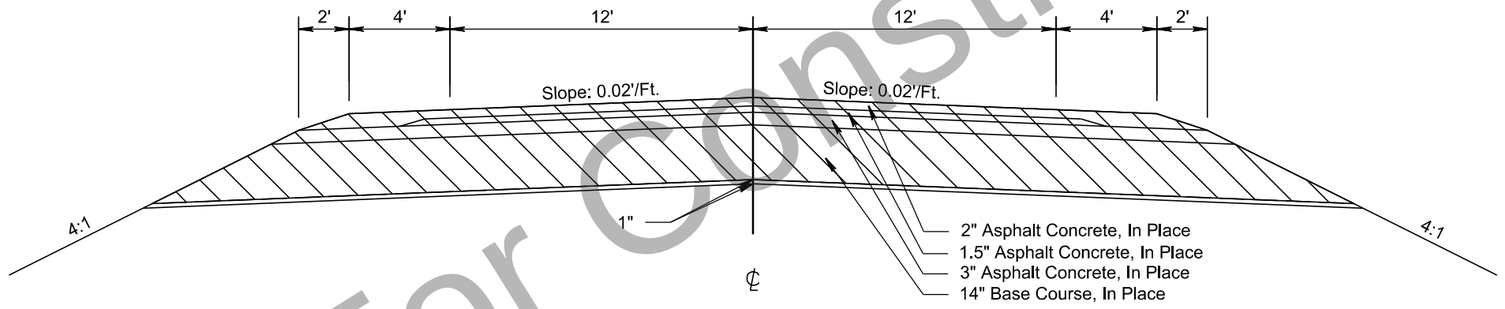
MAINLINE

Sta. 115+64.68 to Sta. 131+47.35
Sta. 136+32.89 to Sta. 154+17.35



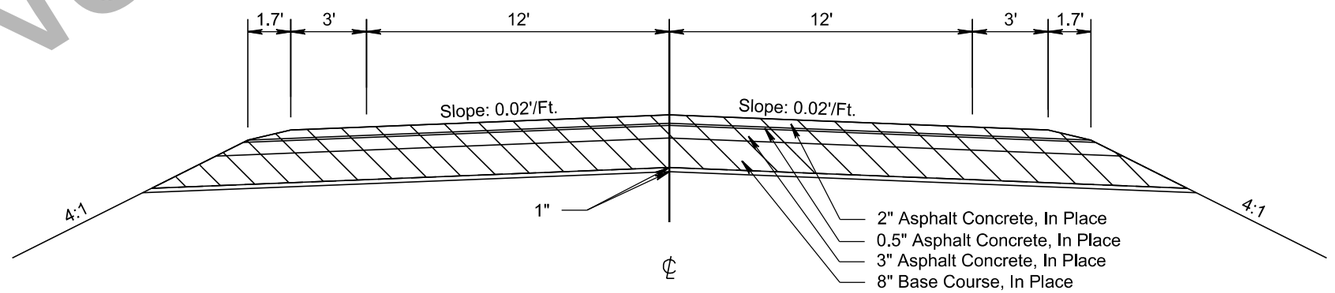
MAINLINE

Sta. 154+17.35 to Sta. 207+18.22



MAINLINE

Sta. 449+81.79 to Sta. 462+77.23



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PLOTTED FROM - TRPR18388

PLOT NAME - 3

FILE - ...\05HV_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F7	F16

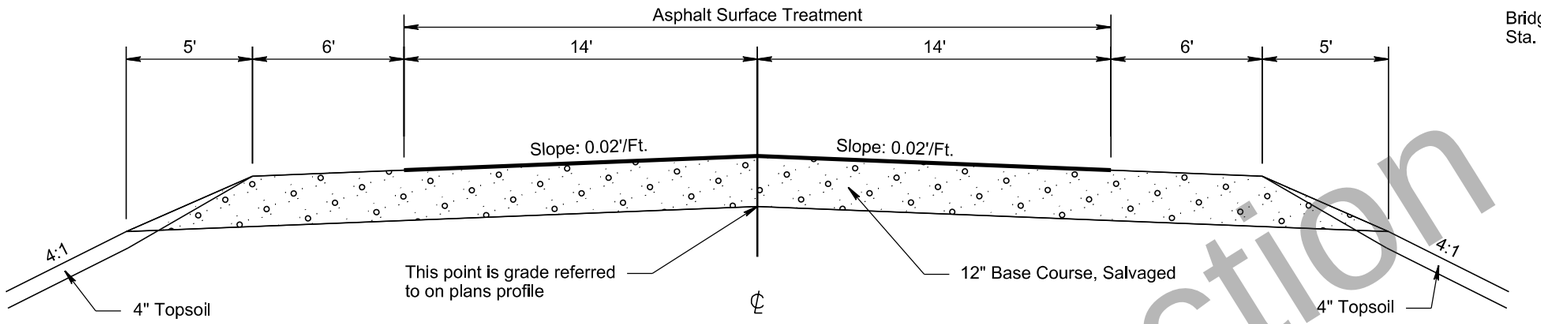
Plotting Date: 11/03/2022

See DRIVING SURFACE TRANSITION DETAILS located elsewhere in these plans for additional surfacing details.

Bridge and Approach Slabs
Sta. 131+47.35 to Sta. 136+32.89

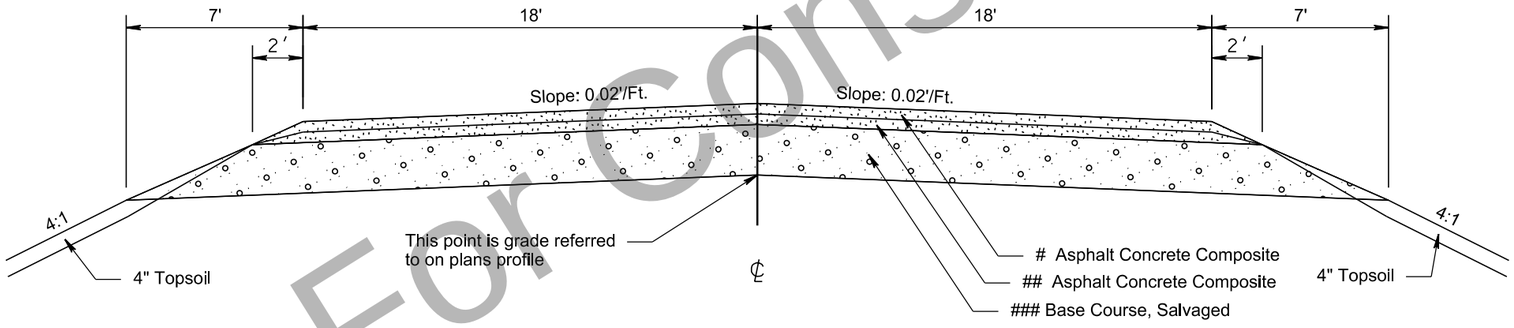
MAINLINE

Sta. 11+50 to Sta. 129+47.35
Sta. 138+32.89 to Sta. 460+77.23



MAINLINE

Sta. 9+50 to Sta. 11+50 - # 2.5" to 1.5", ## 2.5" to 0" & ### 12" to 10.5"
Sta. 129+47.35 to Sta. 131+47.35 - # 1.5" to 2.5", ## 0" to 2.5" & ### 10.5" to 12"
Sta. 136+32.89 to Sta. 138+32.89 - # 2.5" to 1.5", ## 2.5" to 0" & ### 12" to 10.5"
Sta. 460+77.23 to Sta. 462+77.23 - # 1.5" to 2.5", ## 0" to 2.5" & ### 10.5" to 12"



TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F8	F16

Plotting Date: 11/03/2022

MAINLINE

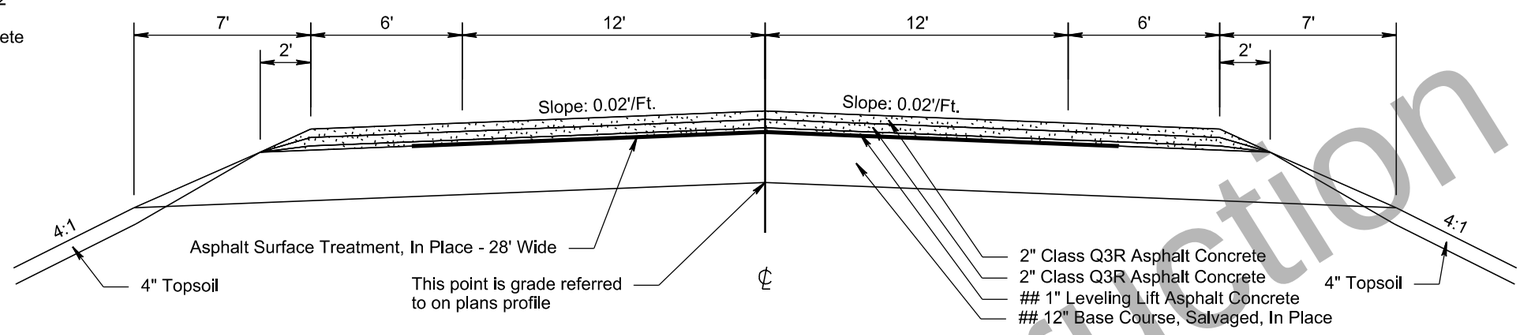
Sta. 9+50 to Sta. 131+47.35
Sta. 136+32.89 to Sta. 462+77.23

FUTURE SURFACING PROJECT - FOR IMFORMATION PURPOSES ONLY

Surfacing Depths:
Sta. 129+47.52 to Sta. 131+47.52
Sta. 136+32.72 to Sta. 138+32.72

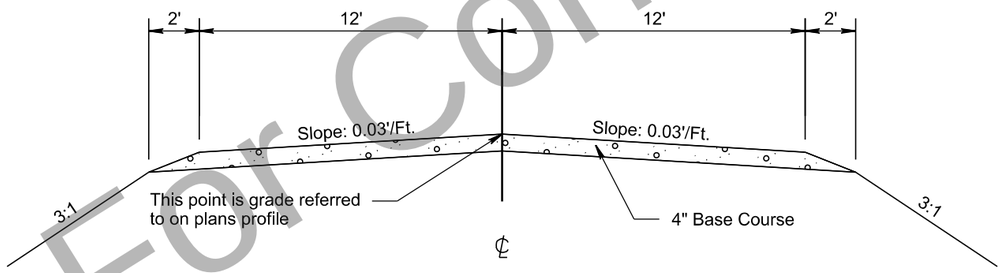
2" Class Q3R Asphalt Concrete
11" Base Course

Bridge and Approach Slabs
Sta. 131+47.35 to Sta. 136+32.89



TRAFFIC DIVERSION

Sta. 1+40.72 to Sta. 9+12.97
(Lt. of Mainline Sta. 40+00)



DRIVING SURFACE TRANSITION DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F9	F16

Plotting Date: 11/03/2022

Sheet 1 of 5 Sheets

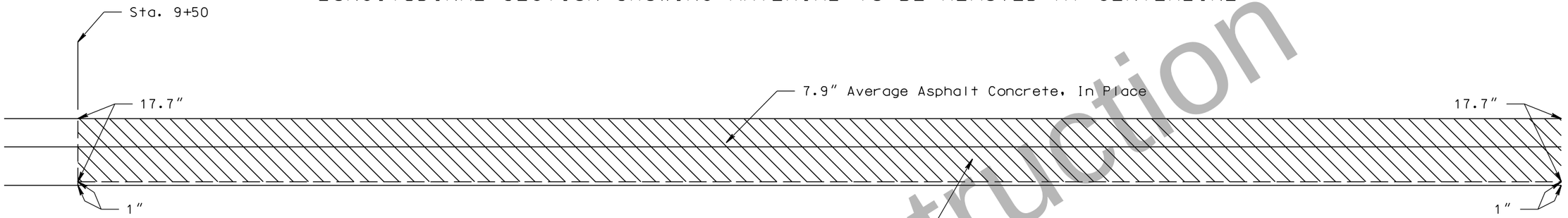
NOT TO SCALE

Unclassified Excavation - Salvage and Stockpile Asphalt Mix Material and Granular Base Material. See Section B - Grading.

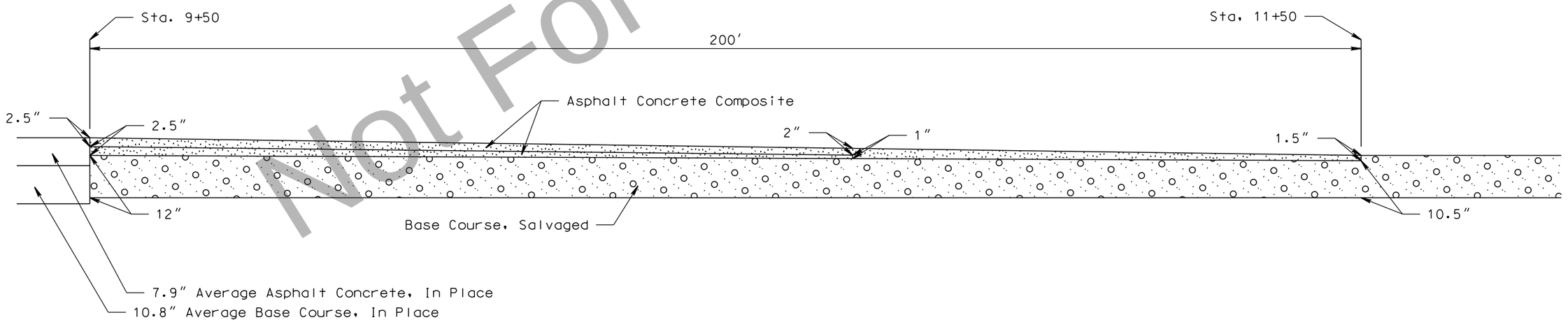
See IN PLACE TYPICAL SECTIONS and TYPICAL SURFACING SECTIONS located elsewhere in these plans for additional removal and surfacing details.

MAINLINE - SD73 - BEGIN PROJECT

LONGITUDINAL SECTION SHOWING MATERIAL TO BE REMOVED AT CENTERLINE



LONGITUDINAL SECTION SHOWING SURFACING AT CENTERLINE



PLOT SCALE - 1:15

PLOTTED FROM - TRPR18388

PLOT NAME - 6

FILE - ...\DRIVING SURF TRANS 05HV.DGN

DRIVING SURFACE TRANSITION DETAILS

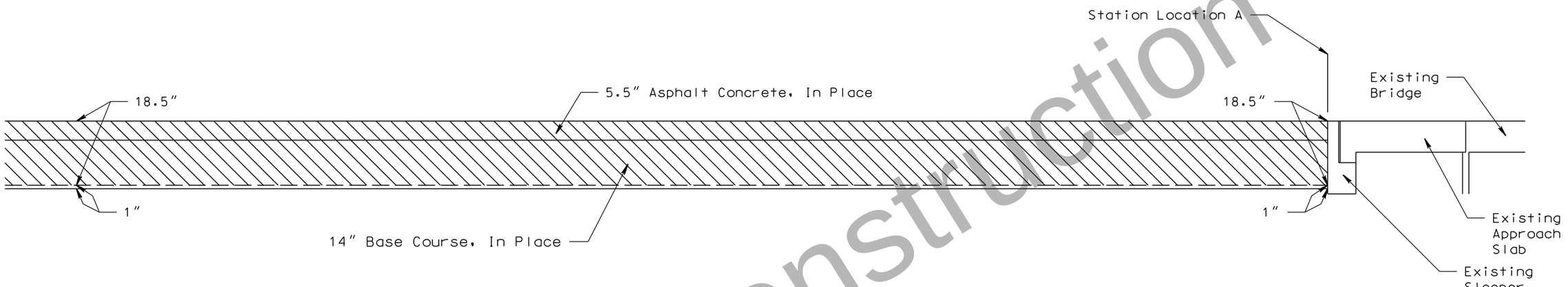
Sheet 2 of 5 Sheets

NOT TO SCALE

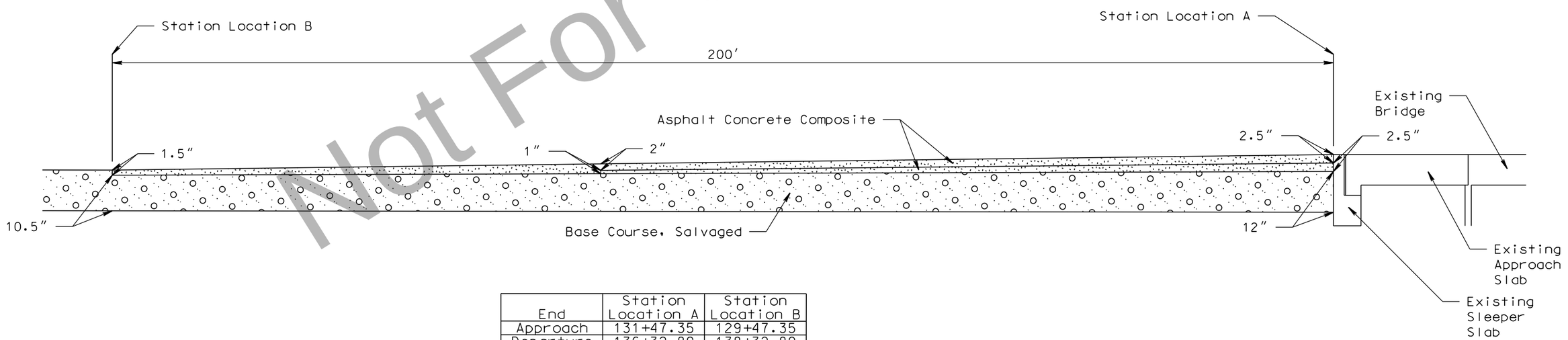
Unclassified Excavation - Salvage and Stockpile Asphalt Mix Material and Granular Base Material. See Section B - Grading.

See IN PLACE TYPICAL SECTIONS and TYPICAL SURFACING SECTIONS located elsewhere in these plans for additional removal and surfacing details.

MAINLINE - SD73 - AT BRIDGE ENDS
STRUCTURE NO. 36-109-168
LONGITUDINAL SECTION SHOWING MATERIAL TO BE REMOVED AT CENTERLINE



LONGITUDINAL SECTION SHOWING SURFACING AT CENTERLINE



End	Station Location A	Station Location B
Approach	131+47.35	129+47.35
Departure	136+32.89	138+32.89

DRIVING SURFACE TRANSITION DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F11	F16

Plotting Date: 11/03/2022

Sheet 3 of 5 Sheets

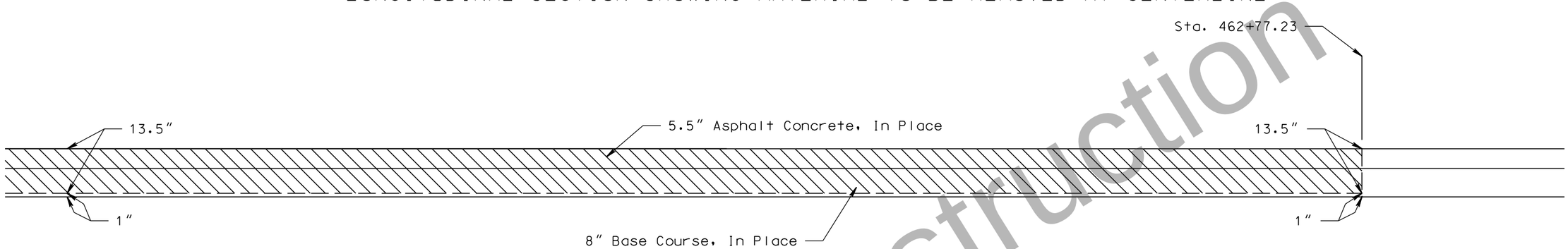
NOT TO SCALE

Unclassified Excavation - Salvage and Stockpile Asphalt Mix Material and Granular Base Material. See Section B - Grading.

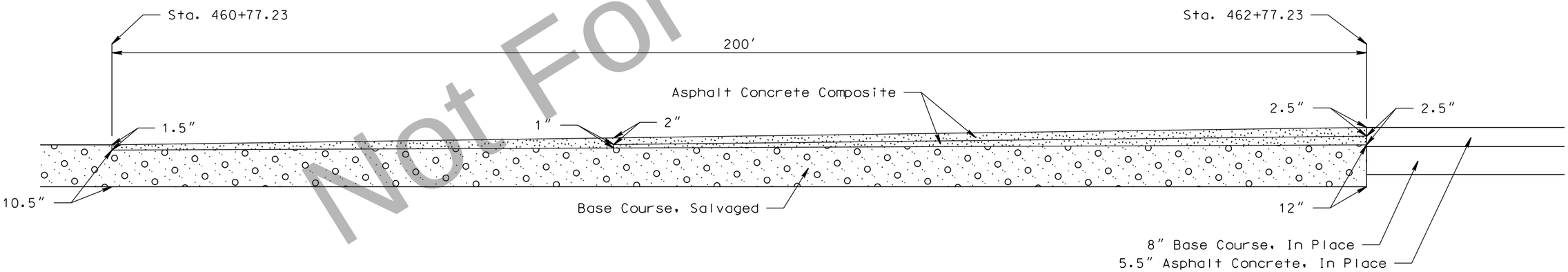
See IN PLACE TYPICAL SECTIONS and TYPICAL SURFACING SECTIONS located elsewhere in these plans for additional removal and surfacing details.

MAINLINE - SD73 - END PROJECT

LONGITUDINAL SECTION SHOWING MATERIAL TO BE REMOVED AT CENTERLINE



LONGITUDINAL SECTION SHOWING SURFACING AT CENTERLINE



PLOT SCALE - 1:1.5

PLOTTED FROM - TRPR18388

PLOT NAME - 8

FILE - ...\DRIVING SURF TRANS 05HV.DGN

DRIVING SURFACE TRANSITION DETAILS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F12	F16

Plotting Date: 11/03/2022

Sheet 4 of 5 Sheets

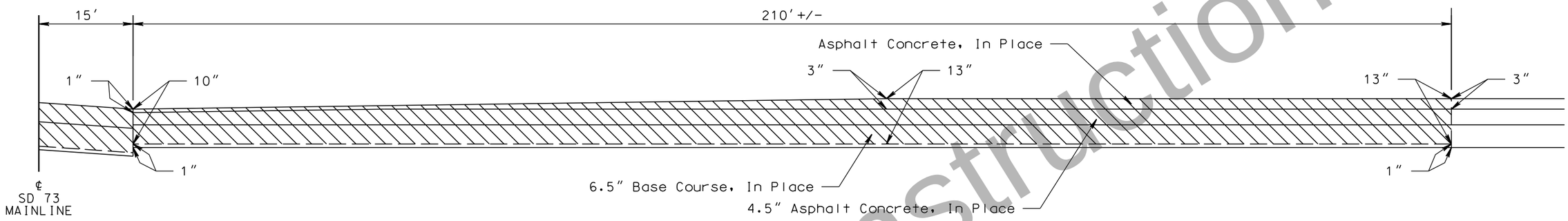
NOT TO SCALE

Unclassified Excavation - Salvage and Stockpile Asphalt Mix Material and Granular Base Material. See Section B - Grading.

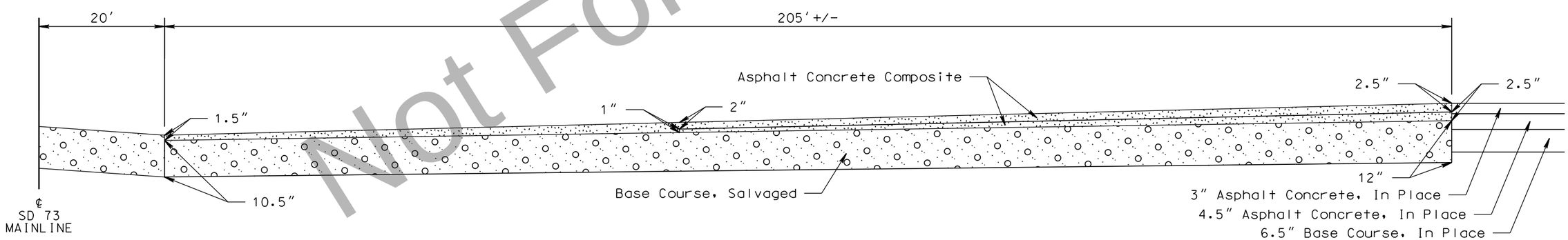
See IN PLACE SURFACING REMOVAL LAYOUT AND SURFACING LAYOUT located elsewhere in these plans for additional removal and surfacing details.

SD248 - MAINLINE STA. 449+86 RT.

LONGITUDINAL SECTION SHOWING MATERIAL TO BE REMOVED AT CENTERLINE



LONGITUDINAL SECTION SHOWING SURFACING AT CENTERLINE



PLOT SCALE - 1:15

PLOTTED FROM - TRPR18388

PLOT NAME - 9

FILE - ...\DRIVING SURF TRANS 05HV.DGN

DRIVING SURFACE TRANSITION DETAILS

Sheet 5 of 5 Sheets

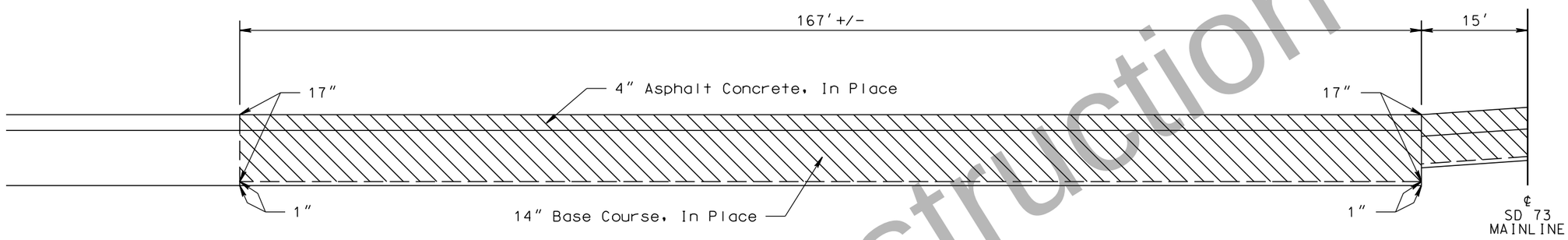
NOT TO SCALE

Unclassified Excavation - Salvage and Stockpile Asphalt Mix Material and Granular Base Material. See Section B - Grading.

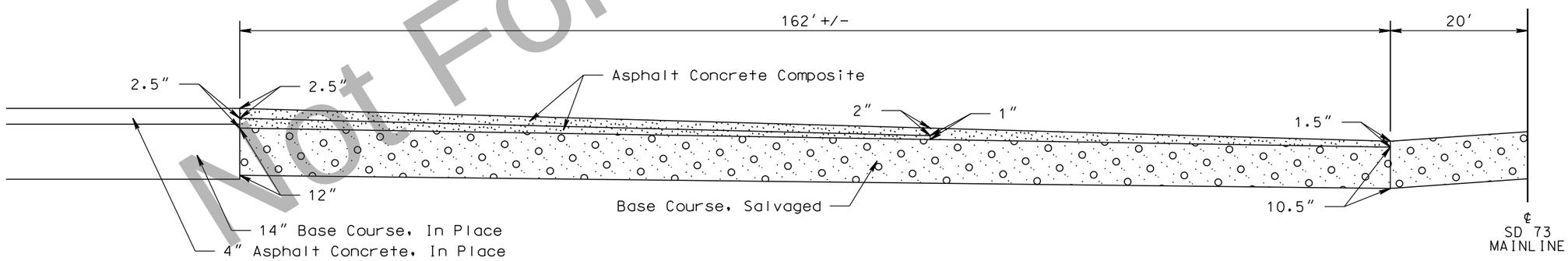
See IN PLACE SURFACING REMOVAL LAYOUT AND SURFACING LAYOUT located elsewhere in these plans for additional removal and surfacing details.

SD248 - MAINLINE STA. 449+86 Lt.

LONGITUDINAL SECTION SHOWING MATERIAL TO BE REMOVED AT CENTERLINE



LONGITUDINAL SECTION SHOWING SURFACING AT CENTERLINE



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F14	F16

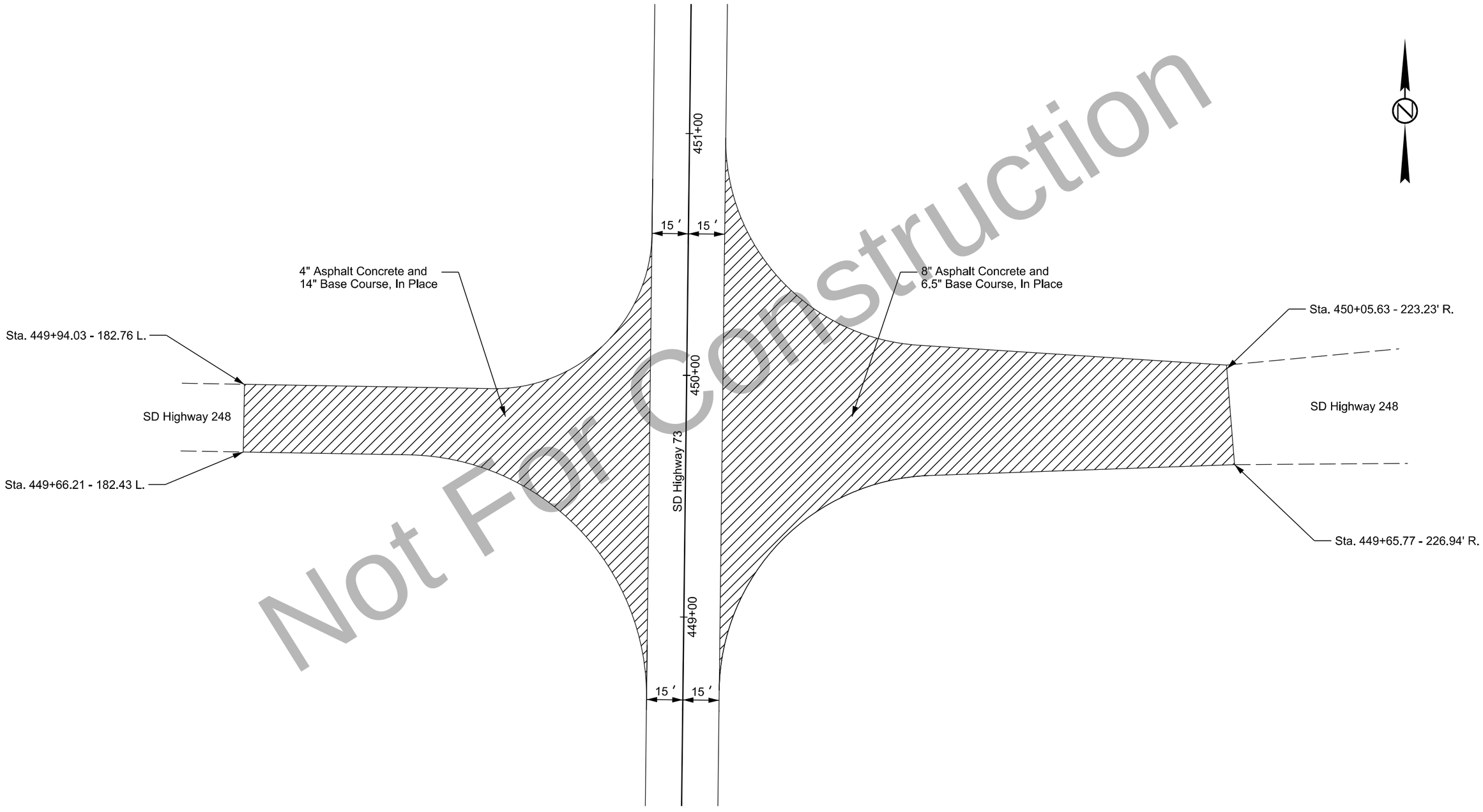
Plotting Date: 11/03/2022

IN PLACE SURFACING REMOVAL LAYOUT

Unclassified Excavation - Salvage & Stockpile Asphalt Mix and Granular Base Material

Scale 1 Inch = 40 Feet
Sheet 1 of 1 Sheets

See DRIVING SURFACE TRANSITION DETAILS located elsewhere in the plans for additional removal details



Plot Scale - 1:40

Plotted From - trpr18388

File - ...\Surfacing Layouts 05HV.dgn

SURFACING LAYOUT

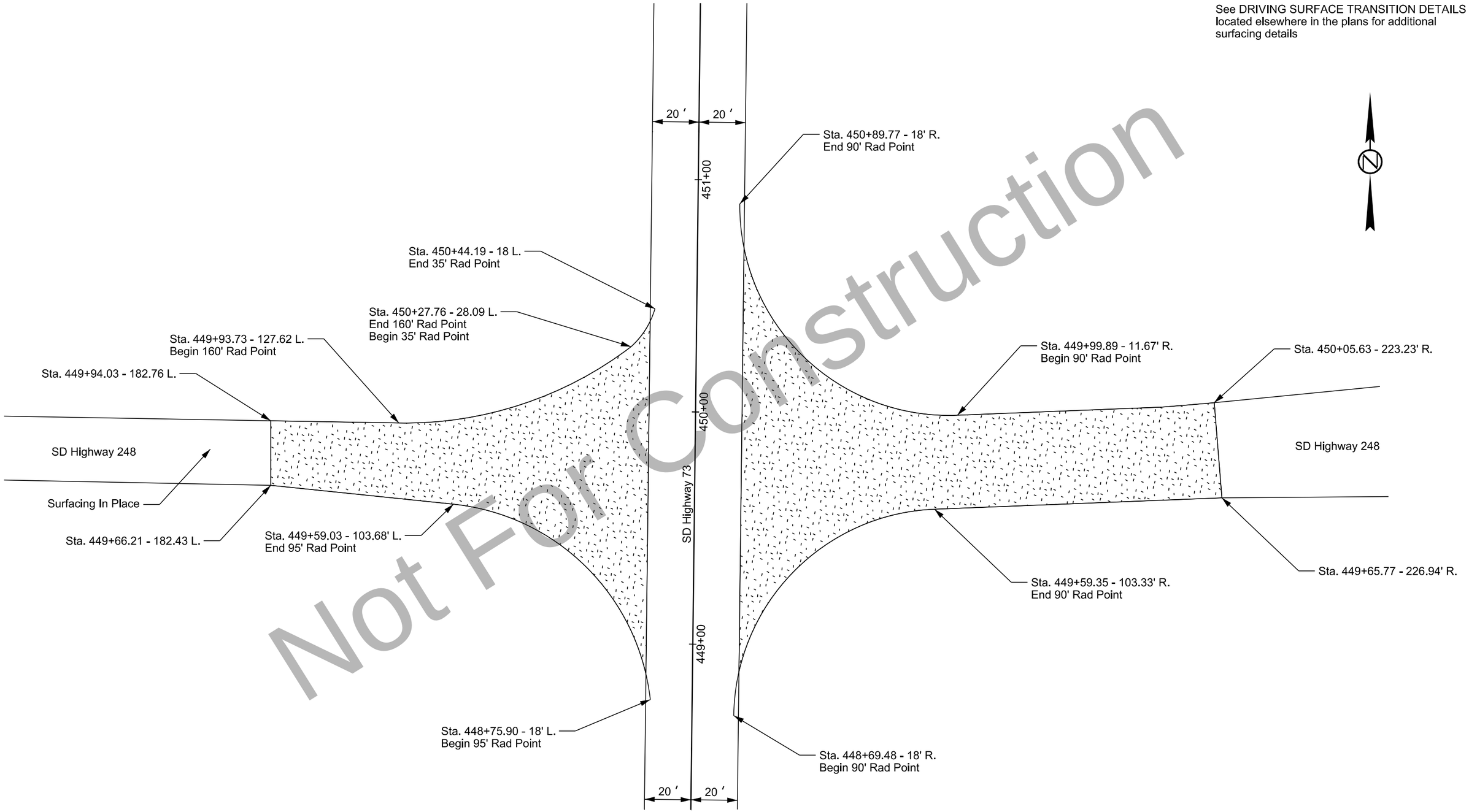
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0073(73)62	F15	F16

Plotting Date: 11/03/2022

Scale 1 Inch = 40 Feet
Sheet 1 of 1 Sheets

Area to be surfaced with 10.5" to 12" Base Course, Salvaged and 1.5" to 5" Asphalt Concrete Composite

See DRIVING SURFACE TRANSITION DETAILS located elsewhere in the plans for additional surfacing details



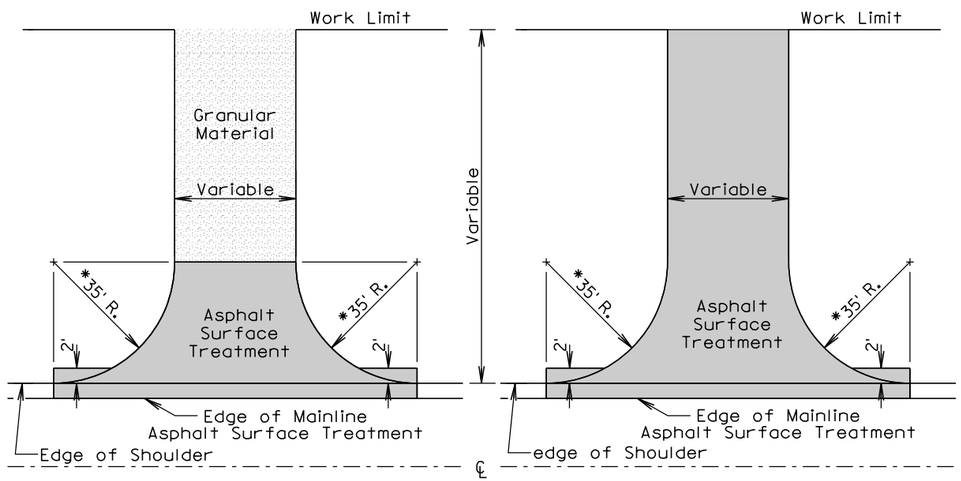
Plot Scale - 1:40

Plotted From - tmp18388

File - ...\Surfacing Layouts 05HV.dgn

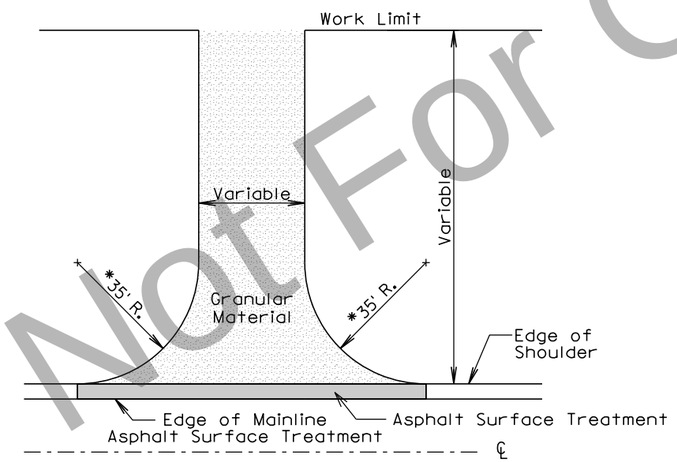
SPECIAL DETAIL

INTERIM SURFACING OF INTERSECTING ROADS AND ENTRANCES



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND RIGHT OF WAY

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND RIGHT OF WAY



ENTRANCE

GENERAL NOTES:

The details shown are provided as a guide for surfacing. The precise construction limits for situations other than the standards shown will be determined by the Engineer during construction.

*35' Radius except as noted elsewhere in plans.