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DESIGN DATA: Interstate 29 (RP 101.328 to RP 110.933)				
Traffic	Average Daily			
Current 2018	Pass: 4,550	Trucks: 1,565	Total: 6,115	
Forecast 2038	Pass: 5,870	Trucks: 2,020	Total: 7,890	
Clear Zone Dist. 38 FT		Design Speed: 75 (80 mph Horiz. & Vert.)		
Minimum Sight Dist. for Stopping: 910 Ft		Bridges: Goose River = HL-93 (Deck) HS-25 (Super)		
Full Control of Access, No Point of Access Other Than at Interchange Ramps				
Pavement Design Life: 30 (years)				
Design Accumulated One-way Heavy Trucks: 18,677,100				

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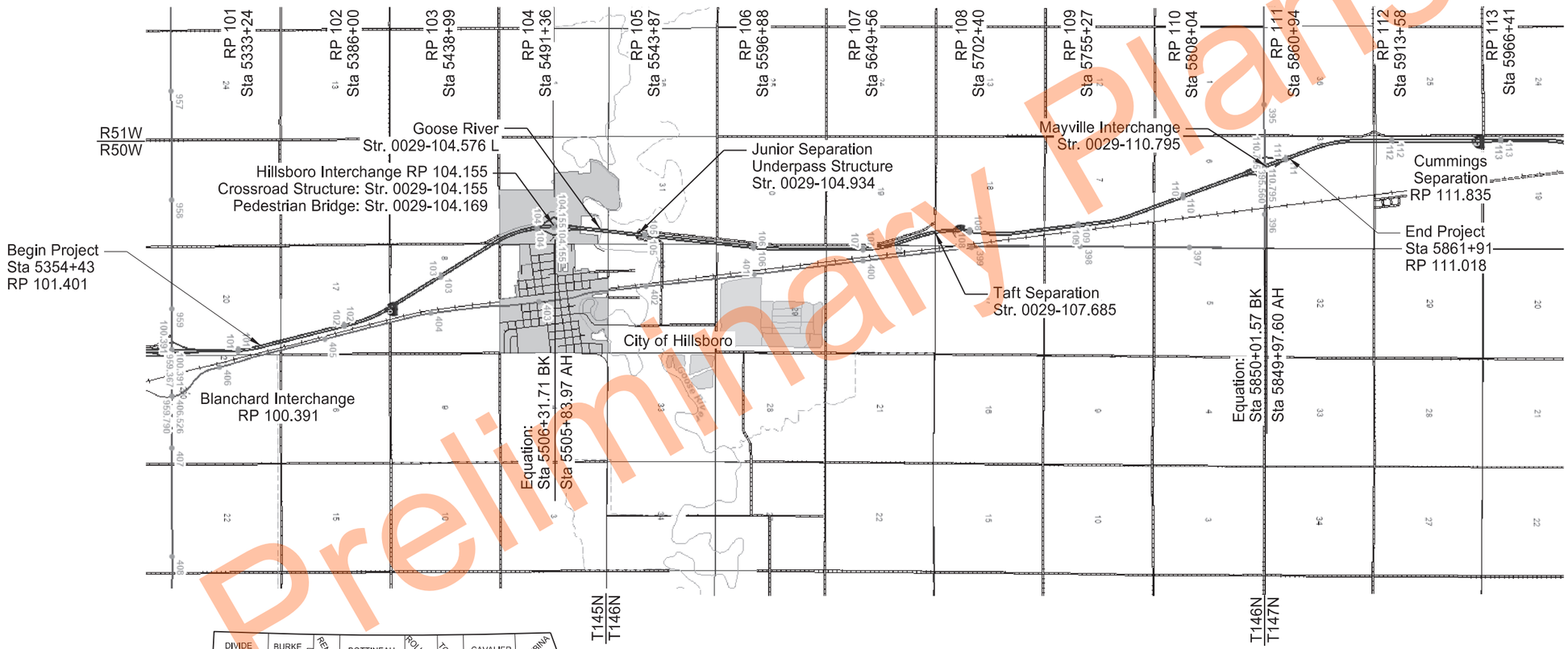
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

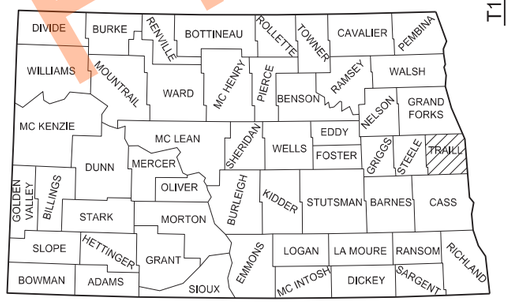
IM-8-029(204)101

Traill County
Interstate 29 Southbound
N of Kelso N to N of N Jct 200
Grading, Ditch Cleaning, PCC Pavement, Mill & HMA Overlay,
Slope Protection, Structure Repairs, Bridge Deck & Approach Slab Replacements,
Culverts, Fencing, & Guardrail

GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	7/1/2024
Supplemental Specifications	NONE

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
IM-8-029(204)101	9.617	9.617





STATE COUNTY MAP

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Samuel Westlund
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Casimir Simonson

ND DEPARTMENT OF TRANSPORTATION
OFFICE OF PROJECT DEVELOPMENT
Kirk Hoff
07/08/24

SRF CONSULTING GROUP, INC.

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 7/8/24
07/08/24
NORTH DAKOTA

Preliminary Plans

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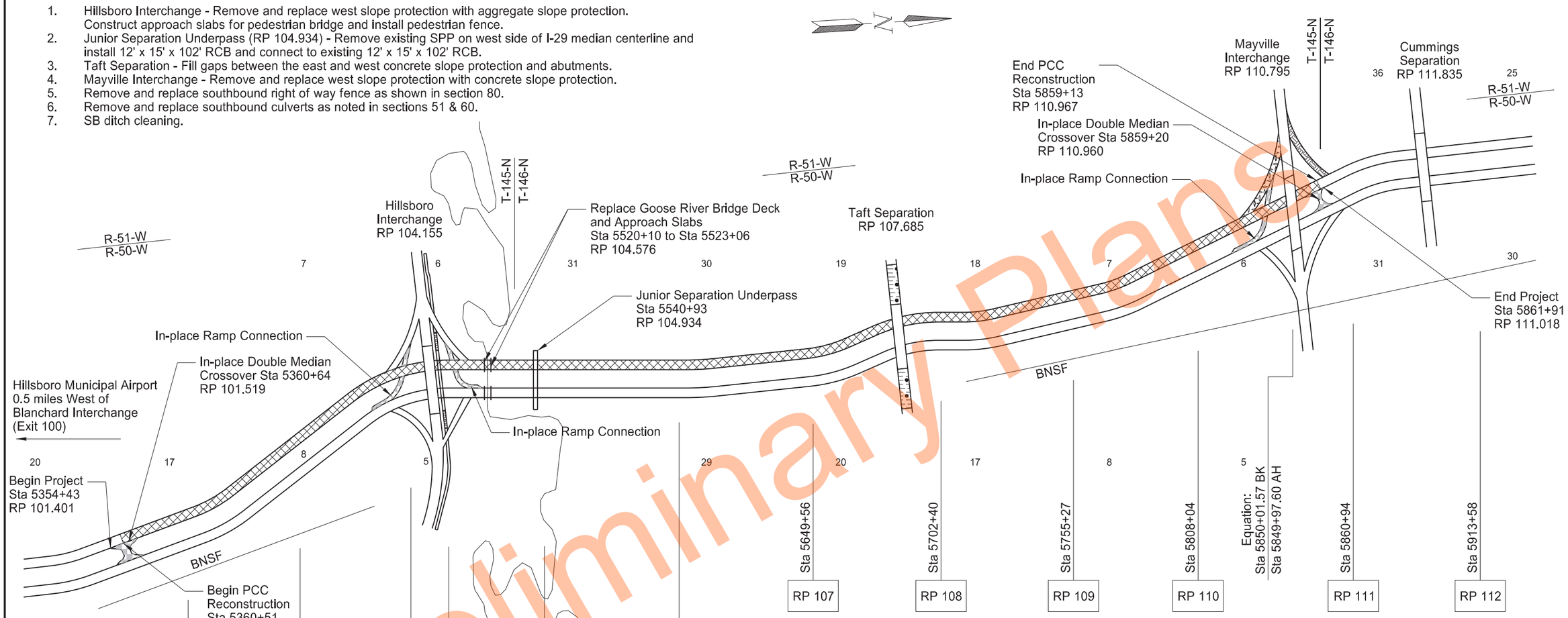
Other Work:

1. Hillsboro Interchange - Remove and replace west slope protection with aggregate slope protection. Construct approach slabs for pedestrian bridge and install pedestrian fence.
2. Junior Separation Underpass (RP 104.934) - Remove existing SPP on west side of I-29 median centerline and install 12' x 15' x 102' RCB and connect to existing 12' x 15' x 102' RCB.
3. Taft Separation - Fill gaps between the east and west concrete slope protection and abutments.
4. Mayville Interchange - Remove and replace west slope protection with concrete slope protection.
5. Remove and replace southbound right of way fence as shown in section 80.
6. Remove and replace southbound culverts as noted in sections 51 & 60.
7. SB ditch cleaning.



Note: Stationing is based off median ℄ alignment (SCL_I29).
Drawing is not to scale.

Legend

- 9" PCC on 8" Salvaged Base Course
- 1" Mill and 2" HMA Overlay
- 36" Subcut and Ramp Reconstruction
- 2" Mill and 2" HMA Overlay
- Shared Use Path
- In-Place Temporary Ramp Connections and Double Median Crossovers to be Removed After Completion of SB Mainline

Scope of Work

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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Preliminary Plans

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NOTES

GENERAL NOTES

100-P01 STATIONING: The stationing used in the plans is based off SCL_I29, I-29 median alignment, unless stated otherwise.

105-P01 UTILITIES: No utility relocations or adjustments are planned. All utilities on the project need to be protected and remain in existing location.

107-300 CONSTRUCTION TRAFFIC ACCESS: Access areas within the right of way only at interchanges. The Engineer may allow temporary access at other locations.

To obtain temporary access, provide an access plan containing the following information:

- A traffic control plan;
- A traffic impact analysis;
- A safety analysis;
- A COA; and
- An environmental impact analysis.

To be considered for approval, the following minimum conditions must be met in the access plan:

- Construction traffic will not be allowed to cross the interstate median or lanes of traffic being used by the public at grade;
- The access plan must show that there will be methods in place, at all times, to prevent public traffic from using the access;
- A plan to restore the area disturbed by the access, including right of way fences, to preexisting or better condition.

All work necessary to provide the access plan, comply with the plan, and to restore the area to its pre-exiting condition must be completed at no additional cost to the Department.

108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required.

109-P01 MEASUREMENT OF QUANTITIES: A prismoidal method was used for volume calculations of earthwork items.

201-P01 CLEARING & GRUBBING/REMOVAL OF TREES: Cut down trees that are 3 inches or larger in diameter measured at a point 4.5 feet above the ground after October 31st and before April 15th. Cut trees may be laid on the ground and removed at a later date.

Trees to be cut down during this time period are shown in Section 40.

202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removing and salvaging concrete pavement, reinforced concrete pavement, doweled jointed pavement, and approximately 5” aggregate base underneath the concrete.

Do not stockpile concrete chunks, rebar, or fabric on the highway right of way. Include the cost for removal of reinforcing steel in the contract unit price bid for “Removal of Pavement.”

The existing continuous reinforcement details are included in the supplemental data.

202-P02 REMOVAL OF TEMPORARY BYPASS: Remove the temporary ramp connections and ramp connection detours when no longer needed to maintain traffic.

This work consists of:

1. Saw cutting the pavement to be removed at the edge of the finished southbound shoulders and existing northbound and ramp shoulders.
2. Constructing an aggregate slough at the edge of the saw cut.
3. Shaping the median foreslopes to 6:1 and placing topsoil. This includes the topsoil stockpiled in the Interstate median and on the backslope left over from the previous, adjacent NB I-29 reconstruction project.
4. Removal, hauling, and disposal of pavement, base, and embankment materials.
5. Reshaping existing slopes on ditch blocks as shown on the Ditch Block Detail.

Include all labor and equipment costs for removing, hauling, and disposing of materials, removal and replacement of topsoil, and shaping of median slopes, foreslopes, and ditch block slopes in the contract unit price bid for, “Removal of Temporary Bypass”.

203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.

203-360 COMPACTION AND DENSITY CONTROL: Compact material as specified in Section 203.04 G.2.b, "ND T-99".

Manipulate embankment material with disking equipment.

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203-P01 CONTRACTOR FURNISHED PROCTORS: Determine the optimum moisture and density, as specified in ND T 99, for each type of material encountered that requires compaction control.

Perform a multi-point test using a minimum of 4 points. Submit the results to the Engineer along with a split sample of each material.

The Engineer will perform comparison tests using the same procedure on the split sample. The Engineer's results will be used for determining in place density of material.

Include the cost of testing in the contract unit price bid for "Common Excavation-Type A".

203-P02 COMMON EXCAVATION-WASTE: Do not use material removed during ditch cleaning operations as roadway embankment.

203-P03 SUBGRADE SURFACE TOLERANCE: Construct the final subgrade elevation to within 0.08 feet of the proposed subgrade elevation using low ground pressure equipment.

253-P01
261-P01 TEMPORARY EROSION CONTROL WITHIN WETLANDS: Fiber rolls and silt fence have been provided for placement at the back-side of earthen berm at the perimeter of the work area at wetlands. If there is no standing water within the adjacent wetland, immediate temporary seeding and mulching of the earthen berm may replace the fiber roll. If seed/mulch is not immediately applied, fiber rolls or silt fence are required. Fiber rolls will still be required at the weirs within the berm.

If there is standing water where the installation will occur, silt fence is required.

Temporary seed mix and mulch for this use will be paid for as "Temporary Cover Crop" and "Soil Stablization".

302-115 BASE COURSE: Trim base course as specified in 302.04 C.3, "Surface Tolerance Type C."

302-P01 CONTRACTOR FURNISHED PROCTORS: Determine the optimum moisture and density, as specified in ND T 180 Method A or D, for aggregate for pipe.

Perform a multi-point test using a minimum of 5 points. Submit the results to the Engineer along with a split sample of each material.

The Engineer will perform comparison tests using the same procedure on the split sample. The Engineer's results will be used for determining in place density of material.

The cost of testing will not be paid for separately but to be included in the contract unit price bid for the applicable size for Pipe Conduit pay items.

302-P02 HAULING: The shoulder of southbound I-29 can be used as a haul route. Do not drive on the base course and/or geosynthetic material, except when the haul vehicle is dumping. When dumping, the haul vehicle is allowed to drive on the base course in the immediate vicinity of where the load is dumped.

Repair any subgrade damage from hauling operations per 230.04.D. Scarify, shape, and compact the damaged subgrade to a depth specified by the Engineer. Re-establish subgrade tolerance per contract requirements prior to placement of the salvaged base course. Repair any base course damage from hauling operations per 302.04.B and re-establish base course tolerance per contractor requirements.

Repair any base course or subgrade damage from hauling operations at no additional cost to the Department.

411-P01 TEMPORARY ASPHALT WEDGES: Place a temporary asphalt or milled material wedge at the milled taper locations to allow for a smooth passage of vehicles. Sawing required to construct a straight vertical edge in milling areas is not paid for separately. Include all costs for labor, materials, and equipment to install, maintain, and remove the wedges in the unit price bid for "Milling Pavement Surface."

430-P01 MAINTENANCE OF TRAVELED ROADWAY USING HOT MIX ASPHALT: The Contractor will be fully responsible for monitoring the condition of the crossovers and ramp connections within the limits of the project.

Patch with an approved mix any areas that have subsided more than one inch from the adjacent pavement, any rutting, sponginess and/or breakups as directed by the Engineer. Compact patched areas in accordance with Section 430.04 I.3 of the Standard Specifications. Include all cost of equipment, labor, and materials, including asphalt cement and tack coat in the contract unit price bid for "Patching".

Provide a traffic control plan that minimizes disruption to traffic. Necessary traffic control devices and flagging will be paid for under the normal contract bid item.

Additionally, the contractor will be required to perform an initial inspection of the roadway, used by the traveling public before construction begins, and make all repairs in accordance with the above requirements or as directed by the Engineer. A quantity of 100 Tons of "Patching" has been provided for this purpose.

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550-P01 CONCRETE PAVEMENT: The Department will waive the requirement to place the reinforcing steel, tie bars and dowel bar assemblies a minimum of 2,000 feet ahead of the paving operation as stated in Sections 550.04 B.1 and 550.04 F.2 and allow the use of the roadway as a haul road at the Contractor's request, provided the following conditions are met:

- Repair all areas damaged from hauling operations at no additional cost to the Department.
- Provide an additional trimmer in advance of the paving operation.
- Construct the finished surface to within 0.10 feet of the proposed elevation with the first pass of trimming equipment.
- Construct the finished surface to the specified surface tolerance prior to the placement of reinforcing steel, tie bars and dowel bar assemblies.
- Place the reinforcing steel and tie bars on approved supports securely, properly and accurately in advancing of the paving operation.

550-P02 3IN EXPANSION JOINT: Install expansion joints consisting of a pre-compressed polymer impregnated self-expanding polyurethane foam joint seal coated with a silicone surface providing a permanent weather tight seal. The joint seal may be:

1. Wabo FS Bridge Seal (Watson Bowman Acme);
2. BEJS Bridge Expansion Joint System (EMSEAL);
3. Iso-Flex Silfast XL (LymTal International),

Prepare the joint opening and install the joint seal according to the manufacturer's recommendations.

Follow the manufacturer's recommendation for attaching the expansion joint seal to the concrete and for splicing foam together. Install the membrane sealant material into the joint, positioning it with the manufacturer's recommended recess from the top surface of the concrete. Do not stretch or compress the membrane sealant material.

Fabricate and install protection armor angles on each side of the expansion joint as shown in the Sec 20 Details. Galvanize the armor angles according to Section 854.01, "Galvanizing". Splices are permitted. Weld spliced ends. Coat weld splices or damaged coating areas with galvanizing paint according to Section 854.02, "Damaged Galvanized Coatings".

Include all work and materials associated with the expansion joint seal and protection armor angles in the contract unit price bid for "3 IN Expansion Joint."

550-P03 CONCRETE SLEEPER SLAB: This work consists of constructing a concrete sleeper slab at the location of an expansion joint in the PCC pavement.

Finish the surface of the sleeper slab smooth. Allow the sleeper slab to cure for 24 hours before performing additional work on or adjacent to the slab. Cover the sleeper slab with a double layer of 4 or 6 mil polyethylene sheeting before covering the slab with the concrete roadway.

Include all costs for any excavation, aggregate base, reinforcing steel, labor and equipment in the contract unit price bid for "Concrete Sleeper Slab".

704-100 TRAFFIC CONTROL SUPERVISOR: Provide a Traffic Control Supervisor.

704-200 STATE FURNISHED MEDIAN BARRIER: Obtain (204) 2.5' x 10' concrete barriers. They can be picked up and returned to the Casselton yard at 15482 37th St SE in Casselton, ND 58012. The hardware can be picked up and returned to the Fargo District yard at 503 38th St S in Fargo, ND 58103. Contact the Fargo District office at 701-239-8900 to facilitate the exchanges.

If returning barriers with connection components, coordinate the delivery location for the connecting components with the Engineer. Some 4 inch x 4 inch boards are available at the return location. Provide any additional 4 inch x 4 inch boards necessary to stack barriers. The boards will become property of the Department.

Include all costs associated with median barriers in the contract unit price for "State Furnished Median Barrier".

704-300 FLASHING BEACON: Provide solar powered flashing beacons that meet the requirements of the MUTCD and ITE. Provide beacons that are visible for a distance of 0.25 miles (1,320 feet) and are capable of operating for 20 days without a solar charge.

Include all costs for materials, equipment, labor, and incidentals in the contract unit price bid for "Flashing Beacon".

704-301 SEQUENCING ARROW PANEL – TYPE C – CROSSOVER: Provide solar powered arrow panels that meet the requirements of the MUTCD and ITE and that are capable of operating for 20 days without a solar charge.

Include all costs for materials, equipment, labor, and incidentals in the contract unit price bid for "Sequencing Arrow Panel – Type C – Crossover".

Preliminary Plans

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704-511 OBLITERATION OF PAVEMENT MARKINGS: Mask pavement markings designated for obliteration. Mask markings using removable, non-reflective preformed tape that is approximately the same color as the pavement surface and that overlaps the marking a minimum of 1 inch on each side.

704-P01 TRAFFIC CONTROL: The traffic control devices list has been developed using traffic control signing layouts (shown in Section 100 of the plans) and Standard Drawings listed below:

D-704-15, Layout Type A for milling and paving on the SW ramp of the Mayville Interchange.
D-704-22 and D-704-26, Layouts Type K, Type L, and Type Y for trucks entering and exiting the roadway as needed.
D-704-25, Type W and X for shared use path and pedestrian bridge approach slabs and pavement markings.
D-704-26, Layouts Type BB and EE, as needed.
D-704-35, for masking of the NB centerline and yellow edge line pavement marking, culvert work in the median, temporary guardrail removal along NB, NB & SB permanent pavement markings, and removal of the ramp connections, ramp connection detours, and double median crossovers.
D-704-45, for construction traffic to access the closed southbound roadway.
D-704-49, for exiting and entering median when removing ramp connections and double median crossovers.
D-704-57, for constructing junior separation underpass structure 029-104.934.

704-P02 TRAFFIC CONTROL FOR HMA MILL AND OVERLAYS: Provide traffic control consisting of a temporary lane closure and flagging.

For estimating purposes, the traffic control device list is based on the following list:
1. Standard D-704-22, Types K and L;
2. Standard D-704-26, Types BB, EE, and Y;
3. Standard D-704-15, Type A.
4. Section 100 sheets.

If all or portions of the lane closure are removed and uneven lanes exist, provide traffic control as specified in Section 704.04 O, "Traffic Control for Uneven Pavement".

Complete work in a manner such that lane closures can safely be removed if no work is to take place for more than 3 consecutive days. Remove lane closures if no work is to take place for more than 3 consecutive days.

704-P03 TRAFFIC CONTROL PHASING: The Contractor is responsible for removing and resetting devices for each phase of construction. The cost associated with removing and resetting each traffic control device is included in the contract unit price bid for the respective traffic control device. The traffic control details, as indicated in the plans, have been developed based on the premise that this project will be constructed as follows.

Mill and overlay of the SW Mayville interchange ramp and Taft separation crossroad will be performed with traffic being switched between the left and right sides of the roadway. This work can take place at any time during the project.

The construction phasing plan is listed below:

Phase 1: Close the inside lane of northbound I-29.
- Obliterate existing pavement marking and install new temporary traffic control striping.

Phase 2: Close southbound I-29, implement head-to-head traffic on northbound I-29.
- Activate the temporary ramp connections and double median crossovers for the reconstruction of southbound I-29.
- Reconstruct southbound I-29, construct junior separation underpass (0029-104.934), construct shared use path and pedestrian bridge approach slabs at the Hillsboro pedestrian bridge (0029-104.169), subcut and reconstruct NW Mayville Interchange ramp, and construct other structure work as shown in section 170.

Phase 3: Return southbound traffic to its normal flow.
- Install temporary pavement marking on I-29 southbound.
- Close the inside lane of southbound and northbound I-29.
- Remove temporary guardrail and end terminal at the Goose River (west side of 0029-104.576R).
- Remove SB temporary ramp connections and double median crossovers within the interstate median.
- Remove all excess embankment from the median and finish the embankment and topsoil over pipe locations.

Phase 4: Close the outside lanes of northbound and southbound I-29.
- Remove remaining southbound temporary ramp connections.
- Remove temporary guardrail and end terminals at the Goose River bridge (east side of 0029-104.576R) and outside pier protection locations.
- Install permanent pavement marking on northbound and southbound I-29.

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NOTES

704-P04 TUBULAR MARKERS: Remove the 144 existing weighted tubular markers located at existing double median crossovers and ramp connections. Remove just prior to changing the traffic flow. Tubular markers will become property of the Contractor.

704-P05 FRONTAGE ROAD CLOSURE: Existing detour signage and Type III barricades are in place for the junior separation underpass closure. Upon completion of the project, remove the four Type III barricades and two Road Closed signs on the frontage road near the junior separation underpass and all detour signage shown in Section 100. The barricades and signs will become property of the Contractor. Include all costs to remove detour signs and barricades in the contract unit price bid for “Traffic Control Signs” and “Type III Barricade”.

704-P06 SIDEWALK BARRICADE: Two sidewalk barricades mounted with one Sidewalk Closed sign on each barricade is located near the pedestrian ramp on the east side of the Hillsboro NW ramp and west side of the NE ramp. Upon completion of the project, remove the two sidewalk barricades and signs. The barricades and signs will become property of the Contractor.

704-P07 MAYVILLE NW RAMP SUBCUT: Complete subcut, backfill, and paving operations at the Mayville NW ramp in accordance with Section 100 and below:

- Maintain the vertical edge of newly placed aggregate when removing the adjacent existing pavement, base, and embankment by the following two methods:
  - Only removing the amount of existing materials that can be replaced in the same day.
  - Leaving a wedge of existing material to maintain the vertical edge while removing other material. Remove the wedge as needed when placing new aggregate.

- Include all costs for placing salvaged base course widening needed for maintaining a 12’ driving lane as shown in Section 100 in the contract unit price bid for “Salvaged Base Course”. Include all costs for removing or re-shaping the salvaged base course widening for later stages in the contract unit price bid for “Remove Aggregate Base & Surfacing”.

- At the ND Highway 200 intersection, ensure enough driving surface is available at the end of the day to allow for semi-truck and trailers to turn and enter the highway.

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:

1. Minimum total area of 800 square feet
2. Indoor bathroom facilities and supplies with weekly cleaning services
3. Hookups for heat, electricity, sewer, and potable water.
4. Minimum cabinet space of 32 cubic feet
5. Minimum counter space of 40 square feet
6. Air conditioner with a minimum of 20,000 BTUs
7. Lighting with a minimum of 110 foot-candles
8. DSL broadband internet and a router that broadcasts Wi-Fi and will allow for hard wiring of a computer.
9. Photocopy/Printer with scanning capabilities capable of 11x17 photocopies and toner to last the duration of the project. Other features to include digital copying and scanning. Copier/printer machine with operating software compatible with that used by the NDDOT.

Place the field office on the project, or as close to the project as possible. The Contractor is responsible for furnishing the office equipment and for the pay for the following:
- Rental fees;
- Heating;
- Electrical;
- Sewer, and
- Potable water.

Make the field office available for occupancy one week before the start of the project. The Engineer will approve the location and the condition of the office. Do not remove the field office until the Engineer releases the field office.

All requirements of the Field Office are subject to approval by the Engineer. Include the costs for the field office in the contract unit price bid for "Field Office".

Schedule for Payments:
- 25% when set up on site.
- 50% when 30% of the work is complete.
- 75% when 60% of the work is complete.
- 100% when project is complete.

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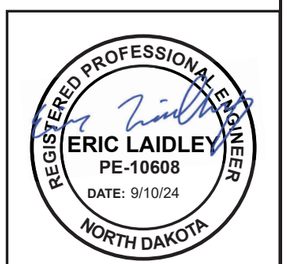

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NOTES

710-P01 INTERCHANGE RAMP CONNECTION DETOURS: Route public ramp traffic around gap paving areas with ramp connection detours during the gap reconstruction and paving at ramp connections. Construct detour roadway between ramp connection asphalt edge and new SB concrete shoulder edge with a minimum distance of 140 feet. Section 82 contains alignments for proposed detour locations shown in section 100. It is estimated that 200 feet of 24" PVC pipe per detour will be required for temporary drainage when detour is in place. Include all costs for detour embankment, salvaged base course, temporary PVC pipe, and water to construct and maintain ramp connection detours in the contract unit price bid for "Temporary Bypass".

714-P01 PIPE WORK: Provide dewatering if necessary according to site conditions. Include all costs associated with dewatering in the contract unit price bid for pipe installation.

750-P01 SHARED USE PATH, CURB RAMPS, AND LANDINGS: Strip topsoil and remove excess excavation in the location of the new shared use path. Construct and compact the entire base section before paving the shared use path. Include all costs for topsoil stripping and excavation in the contract unit price bid for "Topsoil" and "Common Excavation-Type A", respectively.

750-P02 SIDEWALK CONCRETE REINFORCED: Reinforce 6" concrete shared use path with a No. 4 deformed 24 inches reinforcing bar placed on center both ways. Include an 18-inch minimum overlap at splice locations. Use plastic chairs to support the bars at mid-depth of the slab and ensure a clearance of 3 inches to all side forms.

Saw a centerline longitudinal joint on concrete shared use path. Saw all transverse contraction joints. Saw joints in a timely manner to prevent any uncontrolled random cracking. If random cracking occurs, remove and replace all damaged panels at the Contractor's expense.

Include all costs for the labor, equipment, and material necessary to construct the shared use path in the price bid for "Sidewalk Concrete Reinf".

752-P01 FENCE SMOOTH WIRE 3 STRAND – STEEL POST: Install the top and bottom wires in accordance with Standard Drawing D-752-1. Evenly space the third wire in between the top and bottom wires. Include the cost of all equipment, material, and labor to install the fence in the contract unit price bid for "Fence Smooth Wire 3 Strand – Steel Post", "Corner Assembly Steel Post", and "Double Brace Assembly - Steel Post."

752-P02 VEHICLE GATE: Include the cost of all equipment, material, and labor to remove existing vehicle gates in the contract unit price bid for "Vehicle Gate."

754-P01 REMOVE SIGNS & SUPPORTS: Remove and dispose of all existing telescoping perforated tube, w-shape post supports, yellow faced signs and extruded aluminum sign panels. Deliver the existing round pipe supports to the Fargo District sign shop at 503 38th St South, Fargo. Contact the Fargo District sign shop 24 hours prior to delivery at (701) 239-8900. Include all costs associated with the removal and delivery of the sign panels and supports in the contract unit price bid for "Remove Sign Foundation."

754-P02 DELINEATORS: Remove the existing delineators along southbound I-29 within the project limits. Furnish and install new delineators per plans.

Include the cost for removal and disposal of the delineators in the contract unit price bid for "Delineators-Type_".

754-P03 DELINEATORS-TYPE A-SINGLE SIDED: Provide 3" x 9" reflectors on delineator posts. Install Delineators-Type A-Single Sided as shown on standard drawings D-754-21 and D-754-21A. The NDDOT currently owns a stockpile of type A delineator posts, white reflectors, and fastening hardware at the Hillsboro Maintenance Storage Yard. There is more than enough of this material available for the quantity required on this project. Obtain the delineators at the NDDOT Hillsboro Maintenance Storage Yard, 590 6th St NW, Hillsboro, ND 58045.

At least two weeks before obtaining the stockpiled materials, notify the Engineer and contact Joe Peyerl, (Assistant District Engineer) of the date that materials will be obtained. Contact the Fargo District Office at 701-239-8900. Notify the District staff 24 hours in advance to verify the time of pickup. Before obtaining materials, perform an inventory of materials to be received with the District staff, and document the results. Both parties must sign and date the inventory. Each party must retain a signed copy of the inventory. Provide necessary equipment to load and deliver the materials to the project work site. Include all costs for this described work in the price bid for "Delineators-Type A-Single Sided".

762-050 PAVEMENT MARKING: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items.

764-P01 REMOVED W-BEAM GUARDRAIL MATERIALS: Deliver the removed guardrail materials to the NDDOT Maintenance Storage Yard in Hillsboro, and neatly stack them at a location designated by the Engineer. The address of the NDDOT Maintenance Storage Yard is:

Hillsboro NDDOT
590 6th St NW
Hillsboro, ND 58045

Include all costs for delivery of the removed guardrail materials in the contract unit price bid for "Remove W-Beam Guardrail & Posts" and "Remove End Treatment & Transition."

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 9/10/24
NORTH DAKOTA

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ENVIRONMENTAL NOTES

ENVIRONMENTAL NOTES (EN): The North Dakota Department of Transportation and the Federal Highway Administration has made environmental commitments to secure approval of this project. The following environmental notes are requirements to comply with these commitments:

EN-1 SPAWNING RESTRICTION: Do not work within the Goose River from April 15 to June 1.

EN-2 THREATENED AND ENDANGERED SPECIES: The project is located near/within suitable habitat for the species listed in the following table:

SPECIES	HABITAT	PRESENCE
Northern Long-Eared Bat	Forested/Wooded Areas/Bridges/Box Culverts/Caves/Mines	Active Season: April 15 - October 31* Inactive Season: November 1 – April 14*

*Time frames can differ slightly, depending on the year

If any of the above threatened and endangered species are identified within 1 mile of the project, the Contractor will notify the Engineer immediately and cease construction activities in the vicinity until an avoidance area is established. The Engineer will establish an avoidance area that is at least a 0.5 mile and immediately coordinate with the USFWS (701-355-8513), FHWA (701-221-9464), and NDDOT Environmental and Transportation Services (701-328-2592). The Contractor will not resume work within the avoidance area until the Engineer has confirmed with the agencies that work may proceed (either the species have left the area, or approved avoidance/minimization measures have been implemented).

EN-3 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

NOTIFICATIONS TO BE FILED BY CONTRACTOR:

EN-4 FAA Notice: Notification is required for work within 3 nautical miles of the airport. Complete the Federal Aviation Administration Notice of Proposed Construction or Alteration Form 7460-1 in accordance with 14 CFR 77.7 and 77.9 (at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest) (online at http://oeaaa.faa.gov).

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 9/10/24
NORTH DAKOTA

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:				TOTAL
103	0100	CONTRACT BOND	L SUM	1				1
107	0100	RAILWAY PROTECTION INSURANCE	L SUM	1				1
107	0140	RAILROAD COORDINATION	L SUM	1				1
107	0145	RAILROAD FLAGGING	DAY	1600				1600
109	1000	E-TICKETING	L SUM	1				1
201	0330	CLEARING & GRUBBING	L SUM	1				1
201	0370	REMOVAL OF TREES 10IN	EA	11				11
201	0380	REMOVAL OF TREES 18IN	EA	4				4
202	0021	REMOVE AGGREGATE BASE & SURFACING	TON	6212				6212
202	0101	REMOVAL OF CONCRETE	EA	2				2
202	0105	REMOVAL OF STRUCTURE	L SUM	1				1
202	0111	REMOVAL OF CONCRETE	L SUM	1				1
202	0136	REMOVAL OF PAVEMENT	TON	179304				179304
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	1				1
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF	3476				3476
202	0312	REMOVE EXISTING FENCE	LF	50206				50206
202	0350	REMOVAL OF TEMPORARY BYPASS	EA	6				6
203	0101	COMMON EXCAVATION-TYPE A	CY	22019				22019
203	0109	TOPSOIL	CY	51568				51568
203	0113	COMMON EXCAVATION-WASTE	CY	51469				51469
203	0138	COMMON EXCAVATION-SUBCUT	CY	2806				2806
203	0140	BORROW-EXCAVATION	CY	2181				2181
203	0238	SUBCUT AGGREGATE	CY	2288				2288
210	0050	BOX CULVERT EXCAVATION	EA	1				1
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1				1
216	0100	WATER	M GAL	3213				3213
220	0100	PREPARE STOCKPILE SITE	L SUM	1				1
220	0200	RESTORE STOCKPILE SITE	L SUM	1				1
251	0200	SEEDING CLASS II	ACRE	124.7				124.7
251	2000	TEMPORARY COVER CROP	ACRE	123.7				123.7
253	0061	SOIL STABILIZATION	ACRE	248.4				248.4
255	0102	ECB TYPE 2	SY	797				797
255	0201	TRM TYPE 1	SY	312				312
260	0100	SILT FENCE UNSUPPORTED	LF	92765				92765
260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	92765				92765
261	0112	FIBER ROLLS 12IN	LF	102429				102429
261	0113	REMOVE FIBER ROLLS 12IN	LF	4174				4174
261	0120	FIBER ROLLS 20IN	LF	908				908
261	0121	REMOVE FIBER ROLLS 20IN	LF	454				454
262	0100	FLOTATION SILT CURTAIN	LF	583				583
262	0101	REMOVE FLOTATION SILT CURTAIN	LF	583				583
302	0101	SALVAGED BASE COURSE	CY	73322				73322
401	0050	TACK COAT	GAL	4704				4704
411	0100	MILLING PAVEMENT SURFACE	TON	638				638
430	0043	SUPERPAVE FAA 43	TON	11208				11208
430	1000	CORED SAMPLE	EA	12				12
430	2000	PATCHING	TON	100				100

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SPEC	CODE	ITEM DESCRIPTION	UNIT	Mainline:				TOTAL
430	5803	PG 58S-28 ASPHALT CEMENT	TON	722				722
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	173135				173135
550	1013	3IN EXPANSION JOINT	LF	80				80
550	1031	CONCRETE SLEEPER SLAB	SY	54				54
602	0130	CLASS AAE-3 CONCRETE	CY	345.9				345.9
602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	50.5				50.5
602	1134	PILE SUPPORTED APPROACH SLAB	SY	52.6				52.6
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	180.4				180.4
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1294				1294
602	2000	REMOVE AND RESET ANCHOR BOLTS	EA	3				3
612	0115	REINFORCING STEEL-GRADE 60	LBS	1102				1102
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	100477				100477
616	5890	STRUCTURAL STEEL	L SUM	1				1
702	0100	MOBILIZATION	L SUM	1				1
704	0100	FLAGGING	MHR	2610				2610
704	1000	TRAFFIC CONTROL SIGNS	UNIT	5624				5624
704	1038	ATTENUATION DEVICE-TYPE B-40	EA	1				1
704	1045	ATTENUATION DEVICE-TYPE B-75	EA	4				4
704	1052	TYPE III BARRICADE	EA	34				34
704	1060	DELINEATOR DRUMS	EA	251				251
704	1067	TUBULAR MARKERS	EA	676				676
704	1070	DELINEATOR	EA	285				285
704	1072	FLEXIBLE DELINEATORS	EA	610				610
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2				2
704	1088	SEQUENCING ARROW PANEL-TYPE C-CROSSOVER	EA	2				2
704	1090	FLASHING BEACON	EA	2				2
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	6618				6618
704	3511	STATE FURNISHED MEDIAN BARRIER	LF	2040				2040
704	8015	VEHICLE SPEED FEEBACK SIGN	EA	2				2
706	0400	FIELD OFFICE	EA	1				1
706	0500	AGGREGATE LABORATORY	EA	1				1
706	0550	BITUMINOUS LABORATORY	EA	1				1
706	0600	CONTRACTOR'S LABORATORY	EA	1				1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	318064				318064
710	0100	TEMPORARY BYPASS	EA	3				3
714	3033	END SECT-TRAVERSABLE REINF. CONC.30IN	EA	1				1
714	4099	PIPE CONDUIT 18IN-APPROACH	LF	262				262
714	4105	PIPE CONDUIT 24IN	LF	100				100
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	80				80
714	4115	PIPE CONDUIT 36IN	LF	309				309
714	4120	PIPE CONDUIT 42IN	LF	745				745
714	4227	PIPE CONDUIT ARCH 51IN X 31IN	LF	630				630
720	0110	RIGHT OF WAY MARKERS	EA	24				24
720	0125	ALIGNMENT MONUMENTS	EA	1				1
720	0130	IRON PIN R/W MONUMENTS	EA	14				14
720	0135	IRON PIN REFERENCE MONUMENTS	EA	18				18
750	0101	SIDEWALK CONCRETE REINF	SY	400				400

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION		UNIT	Mainline:				TOTAL
752	0126	FENCE SMOOTH WIRE 3 STRAND-STEEL POST		LF	51154				51154
752	0993	FENCE TERMINAL		EA	5				5
752	2100	VEHICLE GATE		EA	4				4
752	2996	CORNER ASSEMBLY-STEEL POST		EA	14				14
752	3996	DOUBLE BRACE ASSEMBLY-STEEL POST		EA	30				30
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING		SF	156				156
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING		SF	42				42
754	0154	DELINEATORS-TYPE A-SINGLE SIDED		EA	126				126
754	0160	DELINEATORS-TYPE B		EA	38				38
754	0168	DELINEATORS-TYPE D		EA	18				18
754	0210	GALV STEEL POST-STANDARD PIPE		LF	222				222
754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)		LF	499				499
754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING		SF	921				921
754	0557	INTERSTATE MILE POSTS-TYPE C		EA	9				9
754	0801	OBJECT MARKERS - TYPE I		EA	4				4
754	0803	OBJECT MARKERS - TYPE III		EA	4				4
754	0805	OBJECT MARKERS - CULVERTS		EA	34				34
754	1100	CLASS AE CONCRETE-SIGN FOUNDATIONS		CY	5				5
754	1104	REMOVE SIGN FOUNDATION		EA	29				29
760	0021	SINUSOIDAL RUMBLE STRIP - CONCRETE SHOULDER		MILE	18.26				18.26
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED		LF	239310				239310
762	0134	EPOXY PVMT MK 12IN LINE-GROOVED		LF	1780				1780
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		LF	60				60
762	0200	RAISED PAVEMENT MARKERS		EA	22350				22350
762	0432	SHORT TERM 6IN LINE-TYPE NR		LF	6045				6045
762	1106	PVMT MK PAINTED 6IN LINE		LF	54136				54136
764	0131	W-BEAM GUARDRAIL		LF	988				988
764	0145	W-BEAM GUARDRAIL END TERMINAL		EA	5				5
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS		LF	580				580
764	2081	REMOVE END TREATMENT & TRANSITION		EA	7				7
900	1000	TEMPORARY STREAM DIVERSION		EA	8				8
930	8230	SHORING		EA	2				2
930	8686	AGGREGATE SLOPE PROTECTION		SY	630				630
950	9712	JOINT TREATMENT		LF	98				98
210	0210	FOUNDATION FILL	Bid Alternate - A	CY	2800				2800
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	Bid Alternate - A	CY	232.9				232.9
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	Bid Alternate - A	LBS	42311				42311
709	0100	GEOSYNTHETIC MATERIAL TYPE G	Bid Alternate - A	SY	290				290
210	0210	FOUNDATION FILL	Bid Alternate - B	CY	2900				2900
606	1215	12FT X 15FT PRECAST RCB CULVERT	Bid Alternate - B	LF	102				102
606	5215	12FT X 15FT PRECAST RCB END SECTION	Bid Alternate - B	EA	1				1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	Bid Alternate - B	SY	270				270

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PERMANENT PAVEMENT MARKING

TYPE	BASIS		QUANTITY	UNIT
Interstate 29 Southbound Roadway (Sta 5346+42 to Sta 5874+88)				
EPOXY PVMT MK 6IN LINE-GROOVED	Centerline Skips (White)	1,320 LF/Mile	13,370	LF
	Outside Edge (White)	5,280 LF/Mile	49,263	LF
	Inside Edge (Yellow)	5,280 LF/Mile	53,481	LF
Interstate 29 Northbound Roadway (Sta 5332+18 to Sta 5864+39)				
EPOXY PVMT MK 6IN LINE-GROOVED	Centerline Skips (White)	1,320 LF/Mile	13,083	LF
	Outside Edge (White)	5,280 LF/Mile	48,015	LF
	Inside Edge (Yellow)	5,280 LF/Mile	52,331	LF
Mayville SB Exit Ramp (Area not Covered by Mainline Pavement Marking)				
EPOXY PVMT MK 6IN LINE-GROOVED	Outside Edge (White)	5,280 LF/Mile	863	LF
	Inside Edge (Yellow)	5,280 LF/Mile	861	LF
EPOXY PVMT MK 12IN LINE-GROOVED	Channel Line (White)	5,280 LF/Mile	420	LF
EPOXY PVMT MK 24IN LINE-GROOVED	Stop Line (White)	5,280 LF/Mile	60	LF
Mayville SB Entrance Ramp (Area not Covered by Mainline Pavement Marking)				
EPOXY PVMT MK 6IN LINE-GROOVED	Dotted Line (White)	1,320 LF/Mile	258	LF
EPOXY PVMT MK 12IN LINE-GROOVED	Channel Line (White)	5,280 LF/Mile	390	LF
EPOXY PVMT MK 6IN LINE-GROOVED	Outside Edge (White)	5,280 LF/Mile	1,466	LF
	Inside Edge (Yellow)	5,280 LF/Mile	1,223	LF
Hillsboro SB Entrance Ramp (Area not Covered by Mainline Pavement Marking)				
EPOXY PVMT MK 6IN LINE-GROOVED	Dotted Line (White)	1,320 LF/Mile	258	LF
EPOXY PVMT MK 12IN LINE-GROOVED	Channel Line (White)	5,280 LF/Mile	390	LF
EPOXY PVMT MK 6IN LINE-GROOVED	Outside Edge (White)	5,280 LF/Mile	1,270	LF
	Inside Edge (Yellow)	5,280 LF/Mile	1,075	LF
Hillsboro SB Exit Ramp (Area not Covered by Mainline Pavement Marking)				
EPOXY PVMT MK 6IN LINE-GROOVED	Dotted Line (White)	1,320 LF/Mile	148	LF
EPOXY PVMT MK 12IN LINE-GROOVED	Channel Line (White)	5,280 LF/Mile	580	LF
EPOXY PVMT MK 6IN LINE-GROOVED	Outside Edge (White)	5,280 LF/Mile	1,270	LF
	Inside Edge (Yellow)	5,280 LF/Mile	1,075	LF
Co Hwy 13 (Sta 5687+29 - 984' LT to Sta 5684+38 - 713' RT - SCL I29)				
PVMT MK PAINTED 6IN LINE	Outside Edges (White)	10,560 LF/Mile	3,294	LF
	Double Centerline Barrier (Yellow)	10,560 LF/Mile	3,444	LF

RUMBLE STRIPS

760-0021 SINUSOIDAL RUMBLE STRIP - CONCRETE SHOULDER			
Location - Interstate 29 Northbound Sta 5360+49 to Sta 5858+29	TYPE	QUANTITY	UNIT
	Outside Edge	8.88	MILE
	Inside Edge	9.38	MILE
	TOTAL	18.26	MILE

SPEC	CODE	BID ITEM	QTY	UNIT
754	0803	OBJECT MARKERS - TYPE III		
		0029-104.934 12' x 15' Box Culvert	2	EA

430 - 1000 CORED SAMPLE							
	A	B		C			
Specification Section	Distance (FT)/10	Lanes	Joints	Lifts	Quantity (A x B x C)	Quantity (1 per mile)	Unit
430.04 I.2.b(1), "General"							
Sta 13+25.00 to Sta 21+90.00 (SW Ramp at Mayville interchange - Ramp_111_SW)	1	1	N/A	1	1	N/A	EA
Sta 0+12.00 to Sta 8+34.00 (NW Ramp at Mayville interchange - Ramp_111_NW)	1	1	N/A	2	2	N/A	EA
Sta 5687+29 - 984' LT to Sta 5684+38 - 713' RT - Minus Bridge (Taft Crossroad Mill & Overlay - SCL_I29)	1	2	N/A	1	2	N/A	EA
430.04 I.2.b(3) "Pavement Thickness Determination Cores"							
1 per location					N/A	3	EA
SSP 4 Longitudinal Joint Density In HMA Pavements (Centerline)							
Sta 13+25.00 to Sta 21+90.00 (SW Ramp at Mayville interchange - Ramp_111_SW)	1	N/A	1	1	1	N/A	EA
Sta 0+12.00 to Sta 8+34.00 (NW Ramp at Mayville interchange - Ramp_111_NW)	1	N/A	1	2	2	N/A	EA
Sta 5687+29 - 984' LT to Sta 5684+38 - 713' RT - Minus Bridge (Taft Crossroad Mill & Overlay - SCL_I29)	1	N/A	1	1	1	N/A	EA
				Total	9	3	EA

MATERIALS

SALVAGED BASE COURSE @ 1.875 TON/CY
TACK COAT @ 0.05 GAL/SY
SUPERPAVE FAA 43 @ 2 TON/CY
PG 58S-28 ASPHALT CEMENT @ 6.0% SUPERPAVE FAA 43

WATER

25 MGAL/MILE + 25% for Dust Pallative
20 GAL/TON for Salvaged Base Course
10 GAL/CY for Embankment

REMOVE AGGREGATE BASE & SURFACING

Asphalt Pavement @ 2 TON/CY
Aggregate Base @ 1.5 TON/CY
Bituminous Base @ 1.875 TON/CY

REMOVAL OF PAVEMENT

Concrete Pavement @ 2 TON/CY
Bituminous Base @ 1.875 TON/CY

MILLING PAVEMENT SURFACE

Milling Pavement Surface @ 2 TON/CY

SPEC	CODE	BID ITEM	QTY	UNIT
754	0154	DELINEATORS-TYPE A-SINGLE SIDED		
		Sta 5355+13 to Sta 5859+13	120	EA
		Hillsboro Exit Ramp - End of Gore	3	EA
		Mayville Exit Ramp - End of Gore	3	EA
754	0160	DELINEATORS - TYPE B		
		Hillsboro Exit Ramp - Taper & Curve	11	EA
		Hillsboro Entrance Ramp - Curve & Taper	8	EA
		Mayville Exit Ramp - Taper & Curve	11	EA
		Mayville Entrance Ramp - Curve & Taper	8	EA
754	0168	DELINEATORS - TYPE D		
		Hillsboro SB Exit Ramp to Crossroad	3	EA
		Hillsboro Crossroad to SB Entrance Ramp	6	EA
		Mayville SB Exit Ramp to Crossroad	3	EA
		Mayville Crossroad to SB Entrance Ramp	6	EA

Preliminary Plans

Basis of Estimate

PCC Pavement Reconstruction
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TABLE 1 - PROPOSED MAINLINE QUANTITIES

Note: Mainline concrete quantity in Table 1 includes 8' concrete shoulder pavement starting at the end of the Hillsboro NW Ramp taper (Sta 5513+40) to the Goose River bridge and from the Goose River bridge to Sta 5525+91.

				I-29 Southbound - Tangent				I-29 Southbound - 4.2% Rt Curve				
				Sta 5360+68 to Sta 5391+19 Sta 5408+81 to Sta 5468+30 Sta 5505+84 R2 to Sta 5520+10 Sta 5523+06 to Sta 5599+40 Sta 5611+49 to Sta 5648+05 Sta 5665+86 to Sta 5677+86 Sta 5701+85 to Sta 5711+33 Sta 5724+64 to Sta 5767+62 Sta 5780+78 to Sta 5859+13				Sta 5468+30 to Sta 5505+84 R2 Sta 5677+86 to Sta 5701+85				
				Length (Ft) = 35,940				Length (Ft) = 6,201				
SPEC	CODE	BID ITEM	UNIT	Area (SF)	Depth (in)	Width (Ft)	SubTotal	Area (SF)	Depth (in)	Width (Ft)	SubTotal	SUBTOTAL TABLE 1
Mainline Concrete (Minus Ramp Taper Areas)												
302	0101	SALVAGED BASE COURSE	CY	33.74	8	46.04	43,857	32.80	8	44.96	7,140	51,095
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	--	9	30.00	119,800	--	9	30.00	20,669	141,489
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	--	--	55.20	214,963	--	--	53.47	34,858	250,208
Asphalt Outside Shoulder (Minus Ramp Taper Areas)												
302	0101	SALVAGED BASE COURSE	CY	4.29	5	10.42	5,333	4.41	5	9.60	816	6,149
401	0050	TACK COAT (1st Lift HMA) @ 0.05 GAL/SY	GAL	--	--	8.29	1,524	--	--	8.30	230	1,754
401	0050	TACK COAT (2nd Lift HMA) @ 0.05 GAL/SY	GAL	--	--	8.00	1,471	--	--	8.00	222	1,693
430	0043	SUPERPAVE FAA 43 @ 2 TON/CY	TON	2.76	4	8.00	6,766	2.76	4	8.00	1,021	7,787
430	5803	PG 58S-28 ASPHALT CEMENT @ 6.0% SUPERPAVE FAA 43	TON	2.76	4	8.00	406	2.76	4	8.00	61	467
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	--	9	8.00	650	--	--	--	--	650

TABLE 2 - PROPOSED MAINLINE QUANTITIES

				Sta 5391+19 to Sta 5408+81 Sta 5648+05 to Sta 5665+86 Sta 5711+33 to Sta 5724+64 Sta 5767+62 to Sta 5780+78				Sta 5599+40 to Sta 5611+49				
				Length (Ft) = 6,190				Length (Ft) = 1,209				
SPEC	CODE	BID ITEM	UNIT	Area (SF)	Depth (in)	Width (Ft)	SubTotal	Area (SF)	Depth (in)	Width (Ft)	SubTotal	SUBTOTAL TABLE 2
Mainline Concrete (Minus Ramp Taper Areas)												
302	0101	SALVAGED BASE COURSE	CY	34.41	8	47.34	7,889	33.57	8	46.30	1,503	9,392
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	--	9	30.00	20,633	--	9	30.00	4,030	24,663
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	--	--	55.88	38,433	--	--	54.46	7,316	45,749
Asphalt Outside Shoulder (Minus Ramp Taper Areas)												
302	0101	SALVAGED BASE COURSE	CY	5.14	5	10.67	1,178	4.53	5	10.42	203	1,381
401	0050	TACK COAT (1st Lift HMA) @ 0.05 GAL/SY	GAL	--	--	8.31	286	--	--	8.31	56	342
401	0050	TACK COAT (2nd Lift HMA) @ 0.05 GAL/SY	GAL	--	--	8.00	275	--	--	8.00	54	329
430	0043	SUPERPAVE FAA 43 @ 2 TON/CY	TON	2.77	4	8.00	1,270	2.76	4	8.00	247	1,517
430	5803	PG 58S-28 ASPHALT CEMENT @ 6.0% SUPERPAVE FAA 43	TON	2.77	4	8.00	76	2.76	4	8.00	15	91

TABLE 3 - GUARDRAIL SURFACING LOCATION QUANTITIES

SPEC	CODE	BID ITEM	UNIT	HILLSBORO INTERCHANGE OUTSIDE PIER PROTECTOIN	GOOSE RIVER BRIDGE - OUTSIDE	GOOSE RIVER BRIDGE - MEDIAN	TAFT SEPERATION OUTSIDE PIER PROTECTION	MAYVILLE INTERCHANGE OUTSIDE PIER PROTECTION	SUBTOTAL TABLE 3
				QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	
302	0101	SALVAGED BASE COURSE	CY	97	68	85	97	96	443
401	0050	TACK COAT (1st Lift HMA) @ 0.05 GAL/SY	GAL	26	17	22	26	26	117
430	0043	SUPERPAVE FAA 43 @ 2 TON/CY	TON	59	39	50	59	58	265
430	5803	PG 58S-28 ASPHALT CEMENT @ 6.0% SUPERPAVE FAA 43	TON	4	2	3	4	3	16

Basis of Estimate
SB Mainline Quantities

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ACCUMULATED PLAN TOTAL PAVING QUANTITIES

SPEC	CODE	BID ITEM	UNIT	Sheet 10-2 Table 1 QUANTITY	Sheet 10-2 Table 2 QUANTITY	Sheet 20-9 Emergency Median Crossovers QUANTITY	Sheet 60-29 Underpass Frontage Road QUANTITY	Sheets 90-1 thru 90-7 SB Ramps, Taft Separation, Shared Use Path QUANTITY	Sheet 100-18 Mayville NW Ramp Subcut & Reconstruction QUANTITY	Guardrail Surfacing Table 3 QUANTITY	PLAN SUBTOTAL QUANTITY	HMA Outside Shoulder Sheet 10-2 Table 1 QUANTITY	HMA Outside Shoulder Sheet 10-2 Table 2 QUANTITY	HMA Outside Shoulder PLAN SUBTOTAL QUANTITY
203	0238	SUBCUT AGGREGATE	CY	–	--	--	--	2,288	--	–	2,288	--	–	--
302	0101	SALVAGED BASE COURSE	CY	51,095	9,392	280	91	3,702	789	443	65,792	6,149	1,381	7,530
401	0050	TACK COAT @ 0.05 GAL/SY	GAL	–	--	--	--	469	--	117	586	3,447	671	4,118
411	0100	MILLING PAVEMENT SURFACE	TON	–	--	--	--	638	--	–	638	--	–	--
430	0043	SUPERPAVE FAA 43 @ 2 TON/CY	TON	–	--	--	--	1639	--	265	1904	7787	1517	9304
430	5803	PG 58S-28 ASPHALT CEMENT @ 6.0% SUPERPAVE FAA 43	TON	–	--	--	--	148	--	16	164	467	91	558
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	141,489	24,663	--	--	6,983	--	–	173,135	--	–	--
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	250,208	45,749	--	--	16,297	5810	–	318,064	--	–	--
750	0101	SIDEWALK CONCRETE REINF	SY	–	--	--	--	400	--	–	400	--	–	--

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Basis of Estimate
SB Plan Total Paving Quantities

PCC Pavement Reconstruction
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Pavement Removals Summary					Required Salvaged Base Course Summary
Location	Removal of Pavement	Remove Aggregate Base & Surfacing		Milling Pavement Surface	Salvaged Base Course Required
	Concrete & Bituminous Base	Aggregate or Bituminous Base	Asphalt		
	(TON)	(TON)	(TON)	(TON)	(TON)
During Southbound I-29 Construction					
Sta 5360+51 to Sta 5859+13 (I-29 Southbound Mainline)	175336	-	-	-	131379
SW Hillsboro Interchange Ramp	-	40	84	-	-
NW Hillsboro Interchange Ramp	-	2	3	-	-
Taft Separation Crossroad		-	-	485	-
SW Mayville Interchange Ramp	-	63	135	153	-
NW Mayville Interchange Ramp	-	2021	1153	-	8713
Guardrail Surfacing Locations	-	63	-	-	831
Shared Use Path	-	-	-	-	150
Frontage Road	-	27	-	-	171
Emergency Median Crossover Locations	-	191	-	-	525
*SW Hillsboro Termporary Ramp Connection Detour	-	-	-	-	83
*NW Hillsboro Temporary Ramp Connection Detour	-	-	-	-	81
*SW Mayville Temporary Ramp Connection Detour	-	-	-	-	81
TOTALS =	175336	2407	1375	638	142014

*Salvaged Base Course quantity paid for by part of the item "Temporary Bypass".

Location	Removal of Pavement	Remove Aggregate Base & Surfacing		Removal of Temporary Bypass	
	Concrete & Bituminous Base	Aggregate or Bituminous Base	Asphalt	Aggregate or Bituminous Base	Asphalt
	(TON)	(TON)	(TON)	(TON)	(TON)
After Southbound I-29 Construction is Complete					
SW Hillsboro Temporary Ramp Connection & Detour	-	-	-	728	287
NW Hillsboro Temporary Ramp Connection & Detour	-	-	-	615	238
SW Mayville Temporary Ramp Connection & Detour	-	-	-	728	288
Double Median Crossovers	3968	1632	798	-	-
TOTALS =	3968	1632	798	2071	813

Location	Removal Subtotal	10% Losses of Removals	Total Material Available	Salvaged Base Course Required	Balance
	A	B	C=A-B	D	E=C-D
	(TON)	(TON)	(TON)	(TON)	(TON)
During Southbound I-29 Construction	179756	17976	161780	137723	24057
After Southbound I-29 Construction is Complete	9281	928	8353	-	8353

Earthwork & Topsoil Summary							
Location	Common Excavation - Type A (CY)	Embankment (CY)	Borrow Excavation (CY)	Common Excavation - Waste (CY)	Common Excavation - Subcut (CY)	Topsoil from Stripping (CY)	Temp Ramp Connection & Detour Embankment Removal (CY)
	Pay Item	Not a Pay Item	Pay Item	Pay Item	Pay Item	Pay Item	Not a Pay Item
	A	B	C				
During Southbound I-29 Construction							
Sta 5360+51 to Sta 5859+13 (I-29 Southbound Mainline Reconstruction)	16312	18501	2189		-	51568	-
Mayville NW Ramp Subcut Location	-	106	106	-	2806	-	-
Hillsboro Shared Use Path	115	1	-114		-	-	-
Ditch Cleaning	-	-	-	51469	-	-	-
TOTALS - During SB I-29 Construction	16427	18608	2181	51469	2806	51568	-
After Southbound I-29 Construction							
Removal of three temporary SB ramp connections	-	-	-	-	-	-	7557
Removal of three temporary SB ramp connection detours	-	-	-	-	-	-	1793
Removal of double median crossovers	5592	103	-	-	-	-	-
TOTALS - After SB I-29 Construction	5592	103	-	-	-	-	9350
PROJECT TOTALS	22019	18711	2181	51469	2806	51568	9350

Note 1: Quantity shown for embankment has been increased by 25% to account for shrinkage.
Note 2: Ditch cleaning excavation material is not to be used as roadway embankment.
Note 3: Topsoil stripping for temporary ramp connections included in mainline quantity.
Note 4: Removal of embankment material for temporary ramp connections and ramp connection detours shown for informational purposes only. See Section 6, note 202-P02 for more details.

Salvaged Base Course Summary and
Earthwork & Topsoil Summary

PCC Pavement Reconstruction
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Preliminary Plans

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Preliminary Plans

Total for Balance 1

Haul = 13,001 CY Sta
Excavation Hauled = 1056 CY

Total for Balance 2

Haul = 2,236,167 CY Sta
Excavation Hauled = 11,653 CY

Total for the Project

Haul = 2,249,168 CY Sta
Excavation Hauled = 12,709 CY
Average Haul Distance for the Project = 177 Sta

Mass Diagram

PCC Pavement Reconstruction
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Curve SCL_I292	
P.C. Station	5391+19.09
P.I. Station	5400+07.24
Delta =	17° 37' 21.60"
Degree =	01° 00' 00.00"
Tangent =	888.15
Length =	1762.27
Radius =	5729.58
P.T. Station	5408+81.36

Station	Left Shoulder	Left Driving Lane	Right Driving Lane/Shoulder
5389+17.26	-2.90%	-2.10%	-2.10%
5390+03.76	-2.90%	-2.10%	0.00%
5390+90.26	-2.90%	-2.10%	2.10%
5391+23.25	-2.90%	-2.90%	2.90%
5391+77.29	-4.20%	-4.20%	4.20%
5408+23.16	-4.20%	-4.20%	4.20%
5408+77.20	-2.90%	-2.90%	2.90%
5409+10.19	-2.90%	-2.10%	2.10%
5409+96.69	-2.90%	-2.10%	0.00%
5410+83.19	-2.90%	-2.10%	-2.10%

Curve SCL_I293	
P.C. Station	5468+30.04
P.I. Station	5488+03.83
Delta =	38° 00' 59.85"
Degree =	01° 00' 00.01"
Tangent =	1973.78
Length =	3801.66
Radius =	5729.58
P.T. Station	5506+31.71

Station	Left Shoulder	Left Driving Lane	Right Driving Lane/Shoulder
5465+95.26	-2.90%	-2.10%	-2.10%
5466+28.22	-2.10%	-2.10%	-2.10%
5467+14.72	0.00%	0.00%	-2.10%
5468+01.22	2.10%	2.10%	-2.10%
5468+87.20	4.20%	4.20%	-4.20%
5505+74.55	4.20%	4.20%	-4.20%
5506+12.80 R2	2.10%	2.10%	-2.10%
5506+99.30 R2	0.00%	0.00%	-2.10%
5507+85.80 R2	-2.10%	-2.10%	-2.10%
5508+18.76 R2	-2.90%	-2.10%	-2.10%

Curve SCL_I294	
P.C. Station	5599+40.34 R2
P.I. Station	5605+45.20 R2
Delta =	06° 02' 34.78"
Degree =	00° 30' 00.00"
Tangent =	604.86
Length =	1208.6
Radius =	11459.19
P.T. Station	5611+48.94 R2

Station	Left Shoulder	Left Driving Lane	Right Driving Lane/Shoulder
5597+87.73 R2	-2.90%	-2.10%	-2.10%
5598+74.40 R2	-2.90%	-2.10%	0.00%
5599+61.07 R2	-2.90%	-2.10%	2.10%
5599+73.50 R2	-2.90%	-2.40%	2.40%
5611+15.79 R2	-2.90%	-2.40%	2.40%
5611+28.23 R2	-2.90%	-2.10%	2.10%
5612+14.90 R2	-2.90%	-2.10%	0.00%
5613+01.57 R2	-2.90%	-2.10%	-2.10%

Curve SCL_I295	
P.C. Station	5648+05.30 R2
P.I. Station	5657+02.81 R2
Delta =	17° 48' 20.20"
Degree =	01° 00' 00.00"
Tangent =	897.52
Length =	1780.56
Radius =	5729.58
P.T. Station	5665+85.86 R2

Station	Left Shoulder	Left Driving Lane	Right Driving Lane/Shoulder
5646+03.47 R2	-2.90%	-2.10%	-2.10%
5646+89.97 R2	-2.90%	-2.10%	0.00%
5647+76.47 R2	-2.90%	-2.10%	2.10%
5648+09.46 R2	-2.90%	-2.90%	2.90%
5648+63.50 R2	-4.20%	-4.20%	4.20%
5665+27.66 R2	-4.20%	-4.20%	4.20%
5665+81.70 R2	-2.90%	-2.90%	2.90%
5666+14.69 R2	-2.90%	-2.10%	2.10%
5667+01.19 R2	-2.90%	-2.10%	0.00%
5667+87.69 R2	-2.90%	-2.10%	-2.10%

Curve SCL_I296	
P.C. Station	5677+85.65 R2
P.I. Station	5690+03.03 R2
Delta =	23° 59' 27.24"
Degree =	01° 00' 00.01"
Tangent =	1217.38
Length =	2399.09
Radius =	5729.58
P.T. Station	5701+84.74 R2

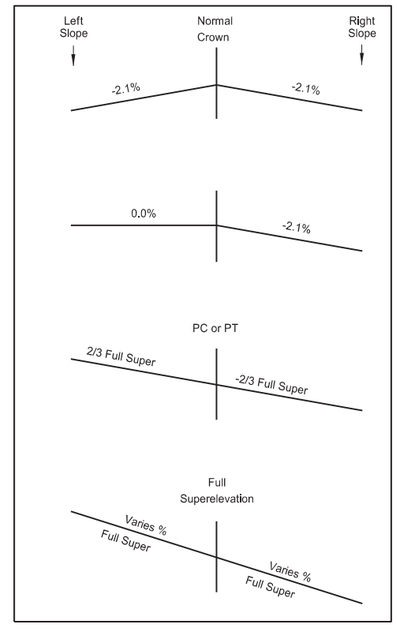
Station	Left Shoulder	Left Driving Lane	Right Driving Lane/Shoulder
5675+50.86 R2	-2.90%	-2.10%	-2.10%
5675+83.82 R2	-2.10%	-2.10%	-2.10%
5676+70.32 R2	0.00%	0.00%	-2.10%
5677+56.82 R2	2.10%	2.10%	-2.10%
5678+42.80 R2	4.20%	4.20%	-4.20%
5701+27.58 R2	4.20%	4.20%	-4.20%
5702+13.57 R2	2.10%	2.10%	-2.10%
5703+00.07 R2	0.00%	0.00%	-2.10%
5703+86.57 R2	-2.10%	-2.10%	-2.10%
5704+19.53 R2	-2.90%	-2.10%	-2.10%

Curve SCL_I297	
P.C. Station	5711+32.50 R2
P.I. Station	5718+01.14 R2
Delta =	13° 18' 45.04"
Degree =	01° 00' 00.01"
Tangent =	668.64
Length =	1331.25
Radius =	5729.58
P.T. Station	5724+63.75 R2

Station	Left Shoulder	Left Driving Lane	Right Driving Lane/Shoulder
5709+30.67 R2	-2.90%	-2.10%	-2.10%
5710+17.17 R2	-2.90%	-2.10%	0.00%
5711+03.67 R2	-2.90%	-2.10%	2.10%
5711+36.65 R2	-2.90%	-2.90%	2.90%
5711+90.69 R2	-4.20%	-4.20%	4.20%
5724+05.55 R2	-4.20%	-4.20%	4.20%
5724+59.59 R2	-2.90%	-2.90%	2.90%
5724+92.58 R2	-2.90%	-2.10%	2.10%
5725+79.08 R2	-2.90%	-2.10%	0.00%
5726+65.58 R2	-2.90%	-2.10%	-2.10%

Curve SCL_I298	
P.C. Station	5767+62.41 R2
P.I. Station	5774+23.33 R2
Delta =	13° 09' 37.12"
Degree =	01° 00' 00.01"
Tangent =	660.92
Length =	1316.03
Radius =	5729.58
P.T. Station	5780+78.44 R2

Station	Left Shoulder	Left Driving Lane	Right Driving Lane/Shoulder
5765+60.58 R2	-2.90%	-2.10%	-2.10%
5766+47.08 R2	-2.90%	-2.10%	0.00%
5767+33.58 R2	-2.90%	-2.10%	2.10%
5767+66.57 R2	-2.90%	-2.90%	2.90%
5768+20.61 R2	-4.20%	-4.20%	4.20%
5780+20.24 R2	-4.20%	-4.20%	4.20%
5780+74.28 R2	-2.90%	-2.90%	2.90%
5781+07.27 R2	-2.90%	-2.10%	2.10%
5781+93.77 R2	-2.90%	-2.10%	0.00%
5782+80.27 R2	-2.90%	-2.10%	-2.10%



Superelevation Table

PCC Pavement Reconstruction
Interstate 29 - Southbound
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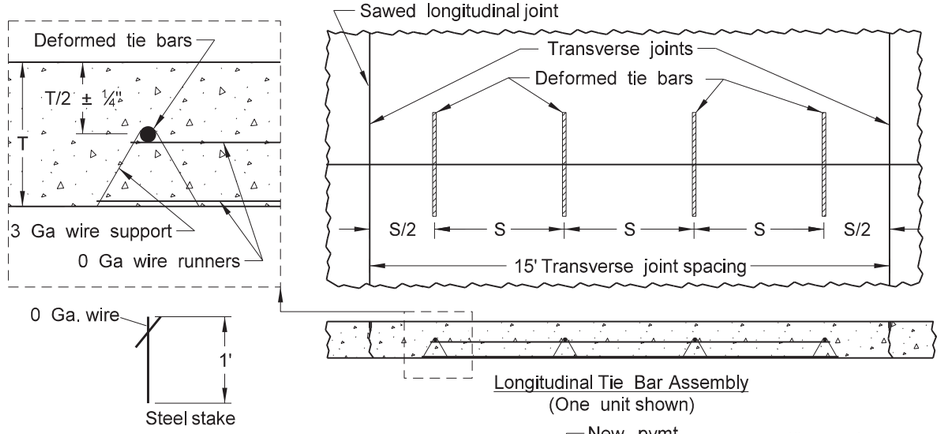
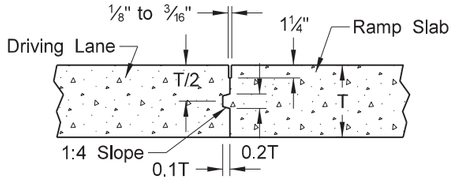
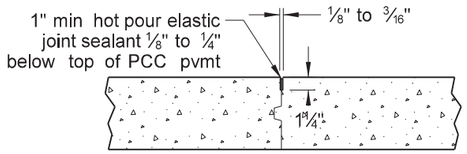


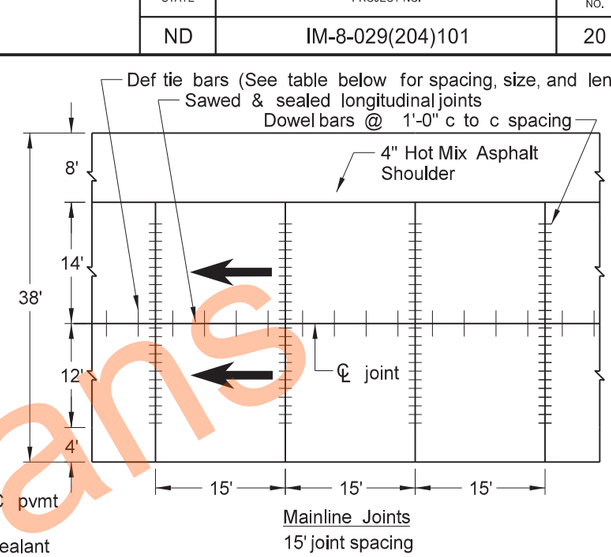
Longitudinal Tie Bar Assembly
(One unit shown)



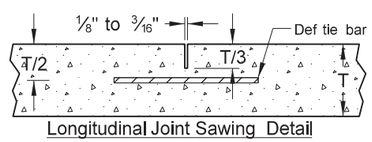
Longitudinal Joint Sawing Detail
(at ramps - non-tied keyed joints)



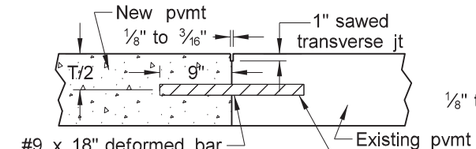
Longitudinal Joint Sealing Detail
(non-tied keyed joints)



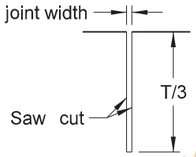
Mainline Joints
15' joint spacing



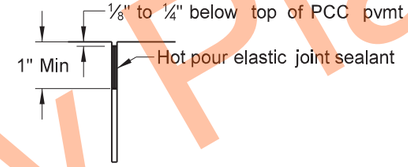
Longitudinal Joint Sawing Detail
(sawed and tied joints)



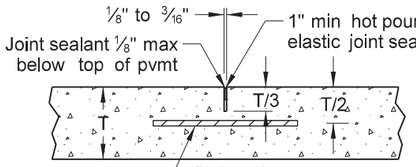
Deformed Bar Installation (2'-0" c to c)
(Transverse Joints)



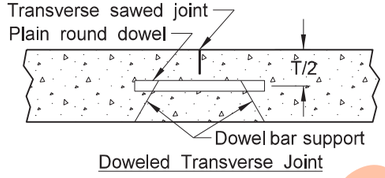
Transverse Joint Sawing



Transverse Joint Sealing



Longitudinal Joint Sealing Detail
(sawed and tied joints)



Doweled Transverse Joint

Notes:

1. S = Tiebar spacing
2. T = Pavement thickness
3. Place dowels in ramp tapers also.
4. Place no tie bar within 15" of a transverse joint.

Grade 40 Longitudinal Joint Tie Bars	
PCC Depth	9"
Mainline Centerline	
Bar Size x Length (S=30")	#5 x 30"
Bar Size x Length (S=45")	#6 x 36"
Ramp/Loop Centerline	
Bar Size x Length (S=30")	#5 x 30"
Bar Size x Length (S=45")	#5 x 30"

Grade 60 Longitudinal Joint Tie Bars	
PCC Depth	9"
Mainline Centerline	
Bar Size x Length (S=30")	#4 x 36"
Bar Size x Length (S=45")	#5 x 42"
Ramp/Loop Centerline	
Bar Size x Length (S=30")	#4 x 36"
Bar Size x Length (S=45")	#4 x 36"

Transverse Joint Dowel Bars

Joint Location	Dia x Length
ML	1.25" x 18"

PCC Pavement - Perpendicular Joints @ 15' Spacing

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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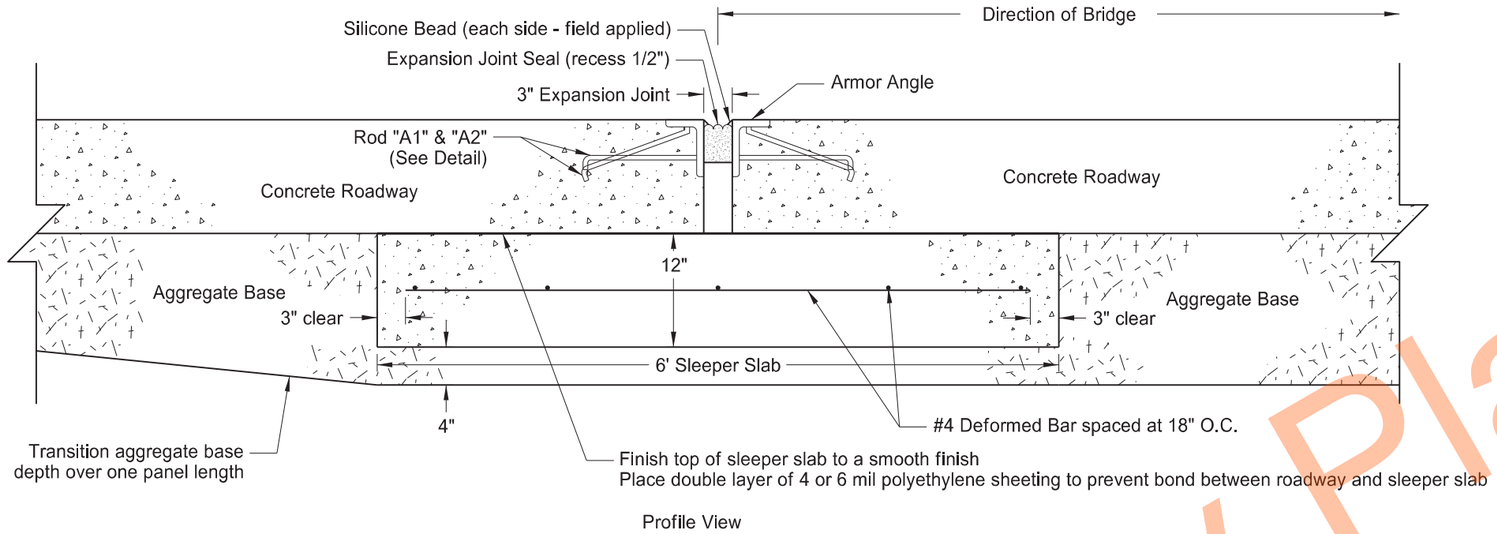
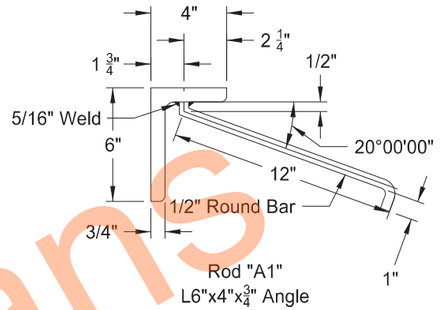
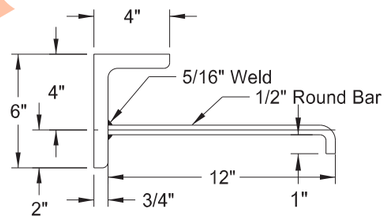
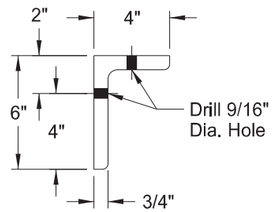
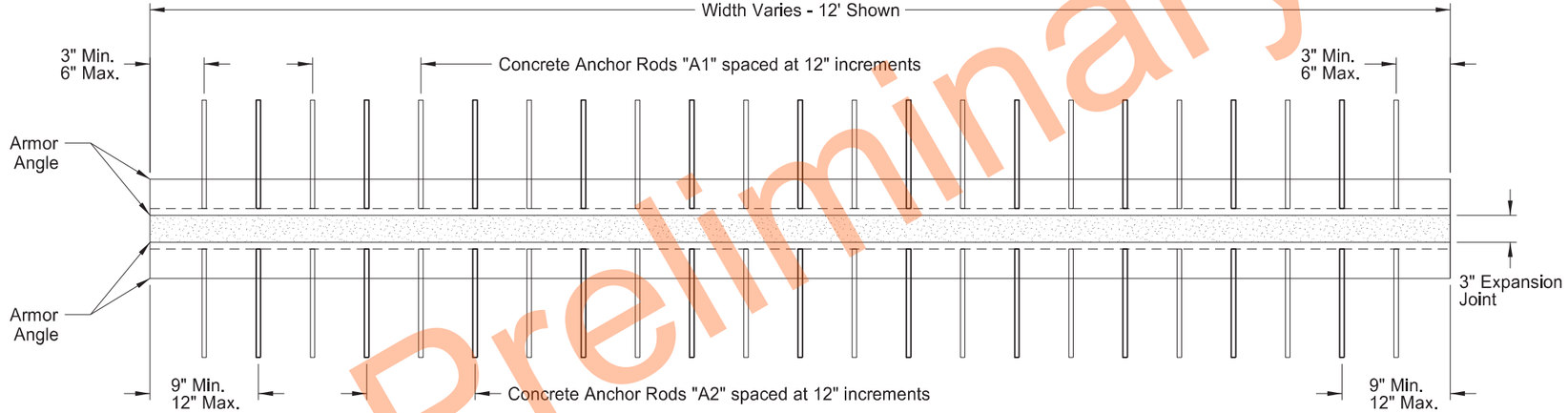


Profile View

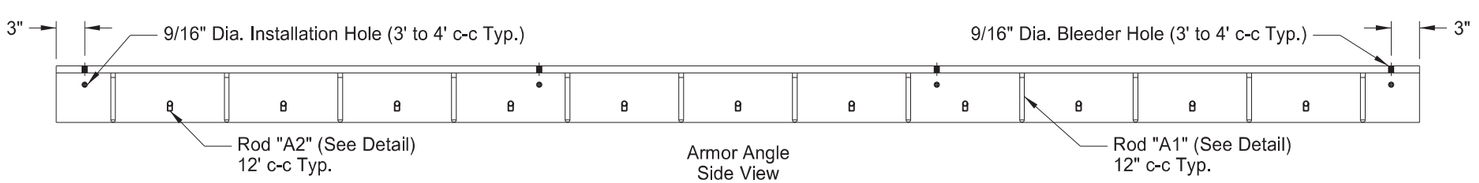








Armor Angle
Top View



Armor Angle
Side View

3 Inch Expansion Joint Detail
Goose River Bridge - Str. 0029-104.576 L

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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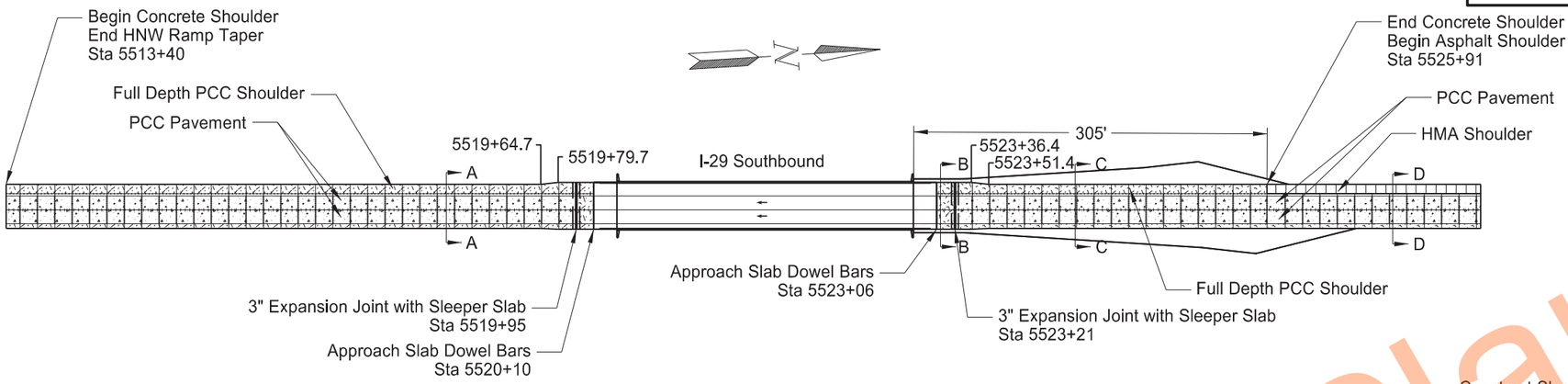
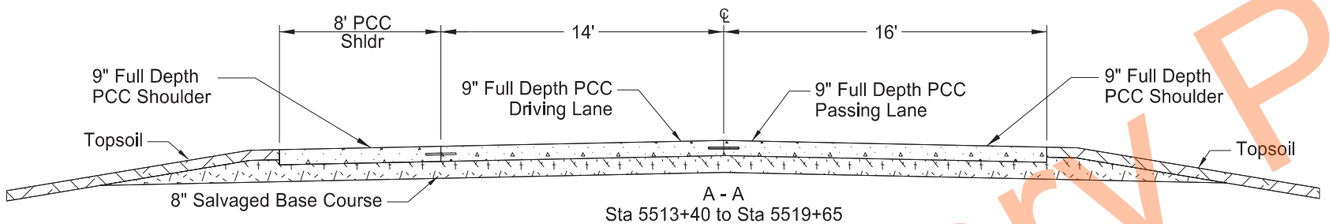
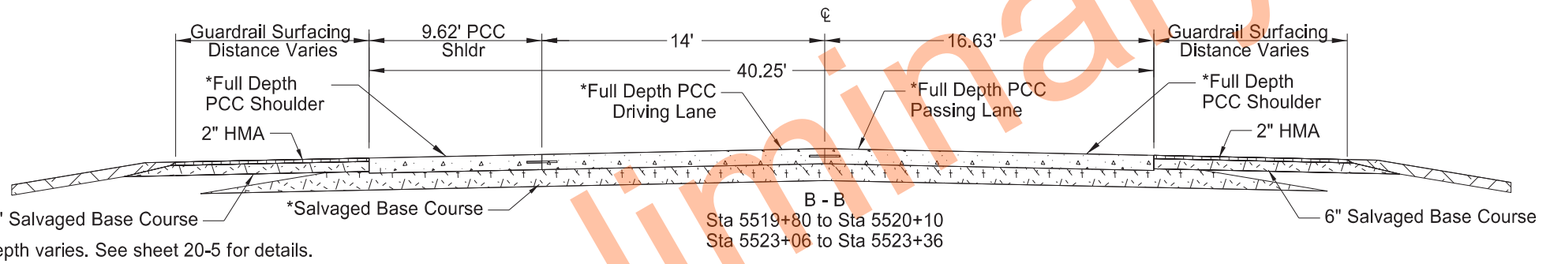
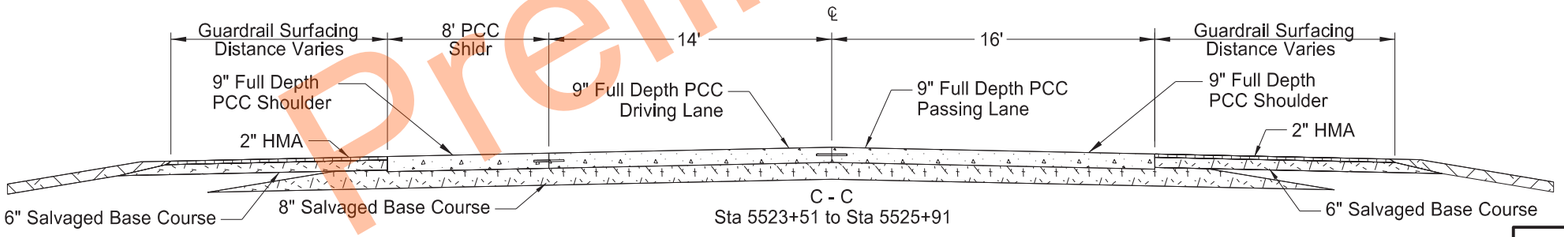
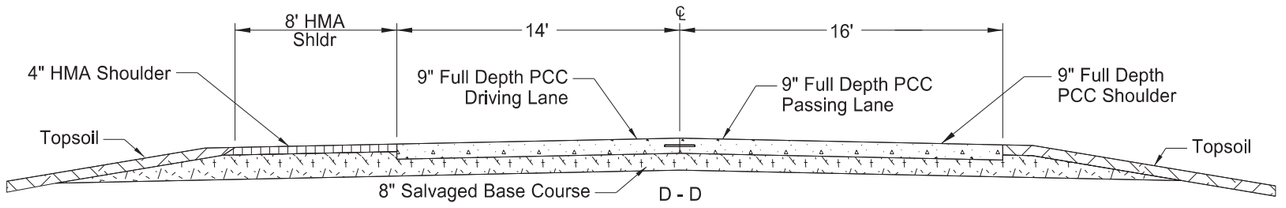




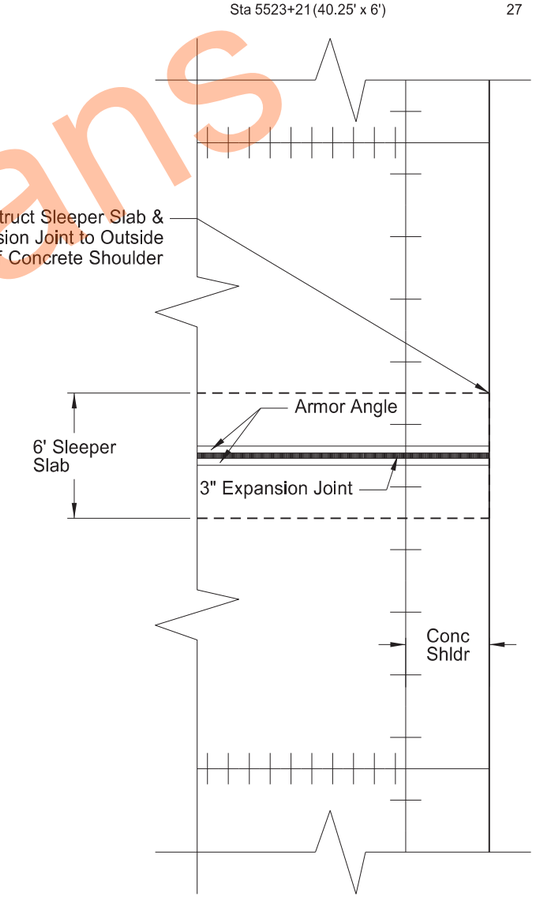


*Depth varies. See sheet 20-5 for details.





SPEC	CODE	BID ITEM	QTY	UNIT
550	1013	3IN EXPANSION JOINT		
		Sta 5519+95	40	LF
		Sta 5523+21	40	LF
550	1031	CONCRETE SLEEPER SLAB		
		Sta 5519+95 (40.25' x 6')	27	SY
		Sta 5523+21 (40.25' x 6')	27	SY



Top View
Roadway w/ Concrete Shoulder

Interstate Paving at Bridge Ends Detail
& Sleeper Slab Detail
Goose River Bridge - Str. 0029-104.576 L

PCC Pavement Reconstruction
Interstate 29 - Southbound
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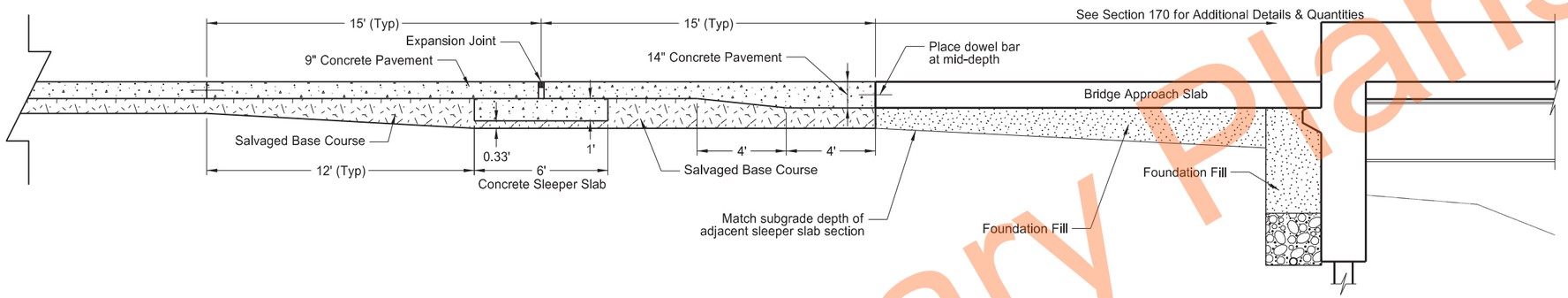

Preliminary Plans

Concrete Pavement to Bridge Approach Panel
Transition Detail
Goose River Bridge - Str. 0029-104.576 L

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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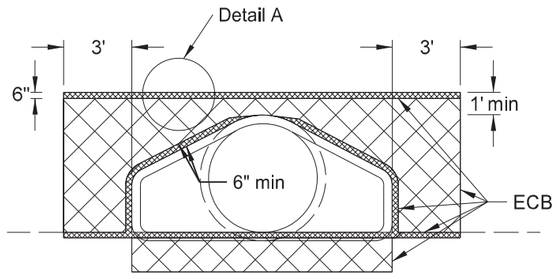
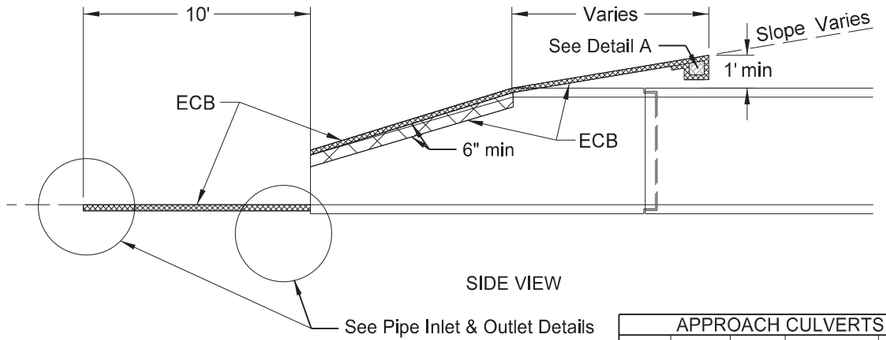
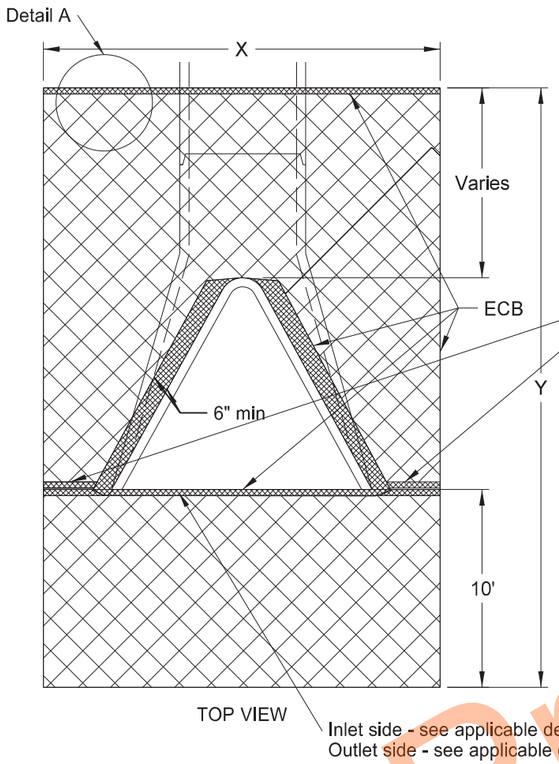
*See Section 77 for ECB locations and quantities.



FRONT VIEW



SIDE VIEW

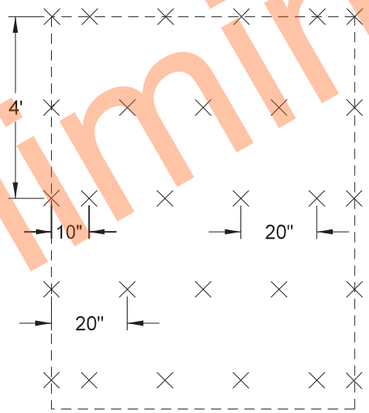


TOP VIEW

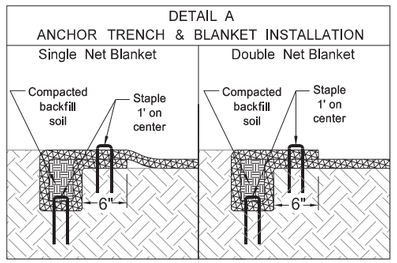
NOTE: Tuck the ECB a minimum of 6" into the embankment (against the flared end section) around the opening of the flared end section.

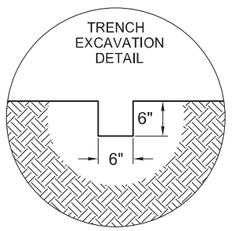
APPROACH CULVERTS				
DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
15	9.0	20.0	176.0	20
18	9.5	20.7	190.7	22
21	9.5	21.0	190.9	22
24	10.5	21.6	214.1	24
27	11.0	22.0	226.3	25
30	11.6	22.5	241.5	27
36	12.7	23.3	268.8	30
42	13.3	23.3	279.7	31
48	13.8	24.0	293.2	33
54	14.5	23.4	300.6	34
60	15.0	23.0	307.5	35
66	15.6	24.0	325.6	37
72	16.2	24.5	340.6	38

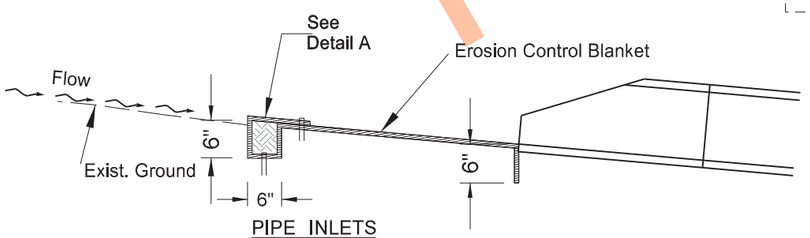
Note: Quantities based on 8:1 slope.



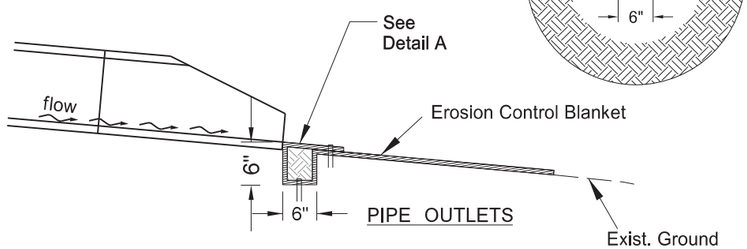
STAPLE PATTERN







PIPE INLETS



PIPE OUTLETS

CENTERLINE CULVERTS										
DIA	X	Y	Surface area to be protected	ECB	DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY	In	Ft	Ft	SF	SY
24	10.5	19.6	193.1	22	24	10.5	17.6	172.1	20
27	11.0	20.0	204.3	23	27	11.0	18.0	182.3	21
30	11.6	20.5	218.3	25	30	11.6	18.5	195.1	22
36	12.7	21.2	242.1	27	36	12.7	19.2	216.7	24
42	13.3	21.2	251.8	28	42	13.3	19.2	225.2	25
48	13.8	22.0	265.6	30	48	13.8	20.0	238.0	27
54	14.5	21.5	273.7	31	54	14.5	19.5	244.7	28
60	15.0	21.0	278.3	31	60	15.0	19.0	248.3	28
66	15.6	22.0	295.7	33	66	15.6	20.0	264.5	30
72	16.2	22.5	309.2	35	72	16.2	20.5	276.8	31
Note: Quantities based on 6:1 slope.					Note: Quantities based on 4:1 slope.				

Erosion Control at Culvert Flared End Sections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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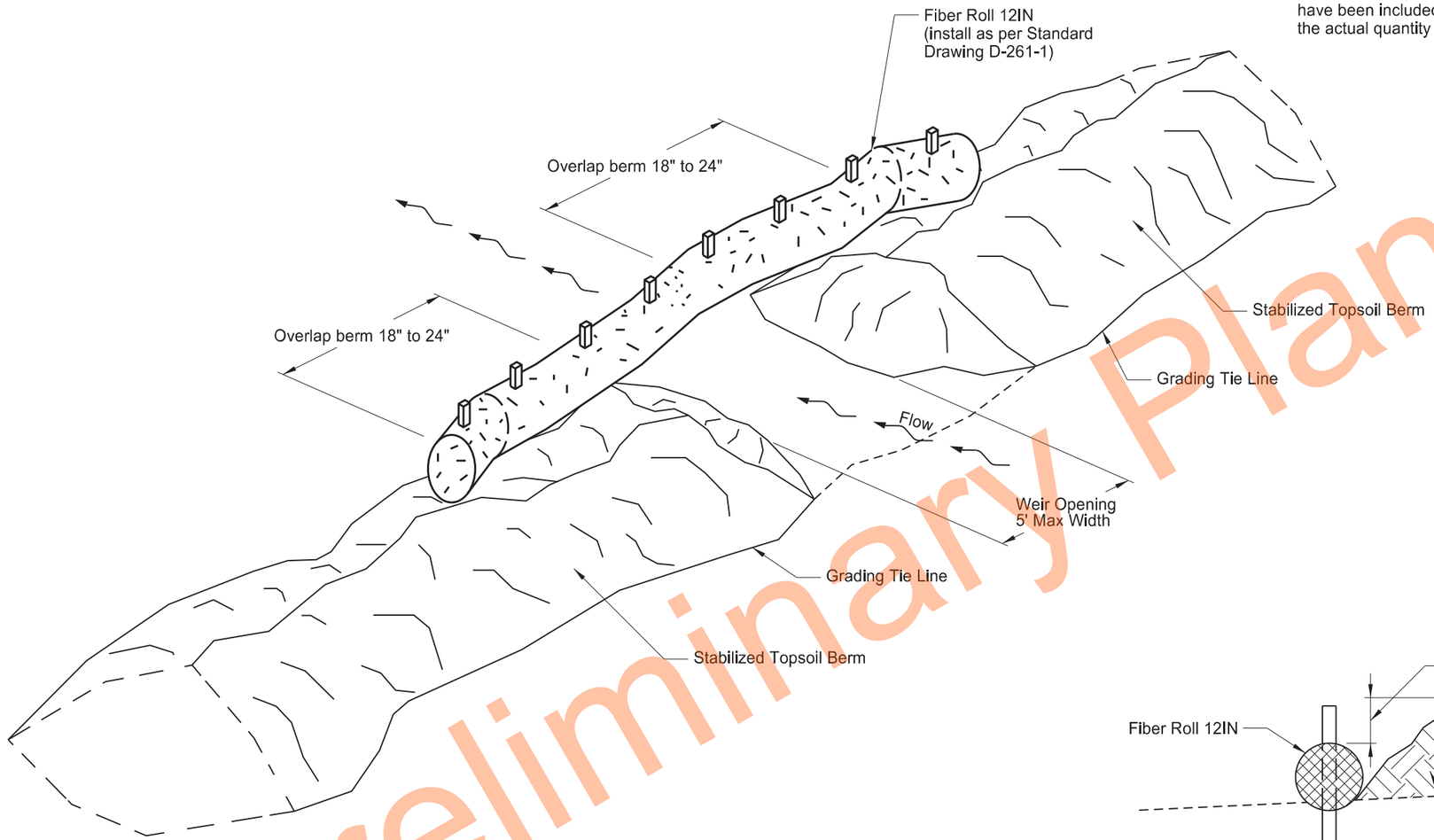
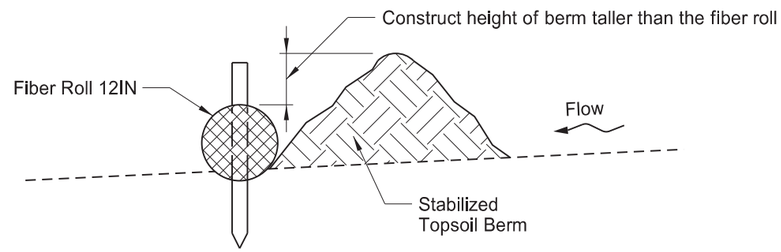
Quantities of 1,000 LF of Fiber Roll 12IN and 1,000 LF of Remove Fiber Roll 12IN have been included in the quantities for use at weirs. The Engineer will measure the actual quantity required in the field.





Topsoil Berm Detail

Notes:

1. Windrow the existing topsoil from the foreslope to create a berm at the grading tie line.
2. Stabilize berms in accordance with the Construction General Permit.
3. Place weirs intermittently throughout the length of the berm to allow stormwater to drain through the berm.
4. Avoid placing weirs adjacent to waterbodies.
5. Install fiber rolls as the weirs are created in the topsoil berm.
6. The Engineer will measure and pay for fiber rolls separately
7. The Engineer will measure and pay for removal of fiber rolls separately when required by the specifications.
8. The Engineer will measure and pay for soil stabilization and temporary cover crop separately.
9. Include the costs to create, maintain, and dismantle the berm in the unit price bid for "Topsoil".

Temporary Topsoil Berm and Weir Detail

PCC Pavement Reconstruction
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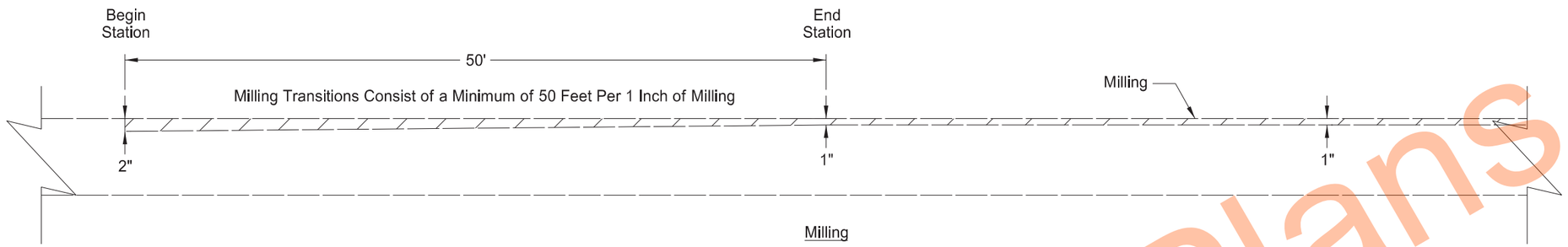

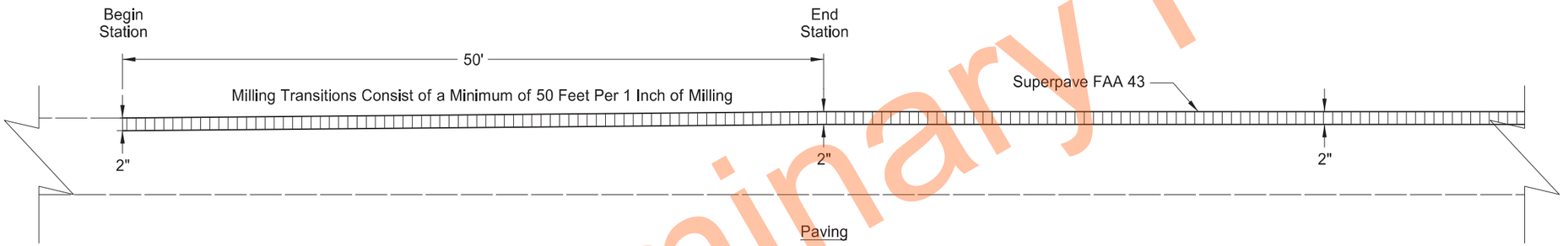

Location	Alignment	Begin Station	End Station
Mayville Interchange Ramps	Ramp_111_SW	13+25	13+75
	Ramp_111_SW	21+90	21+40

Preliminary Plans

Milling and Paving End Transitions
Mayville Interchange Ramps

PCC Pavement Reconstruction
Interstate 29 - Southbound
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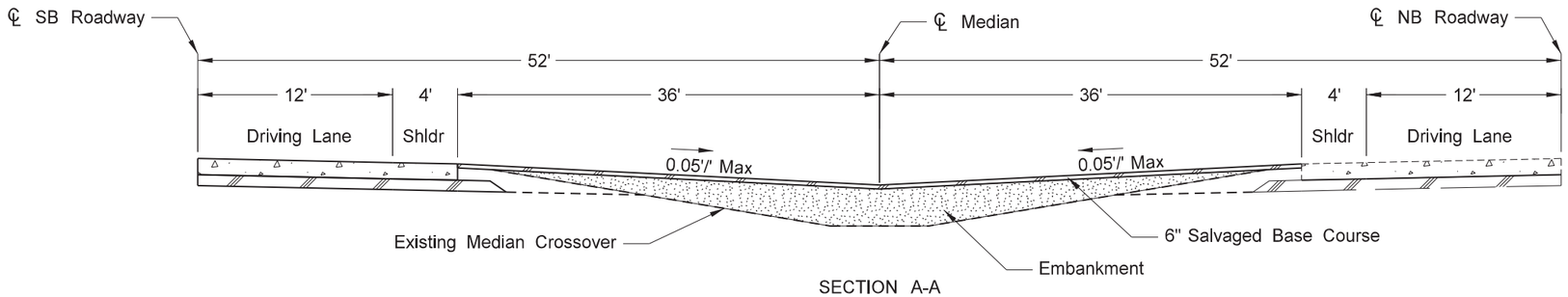
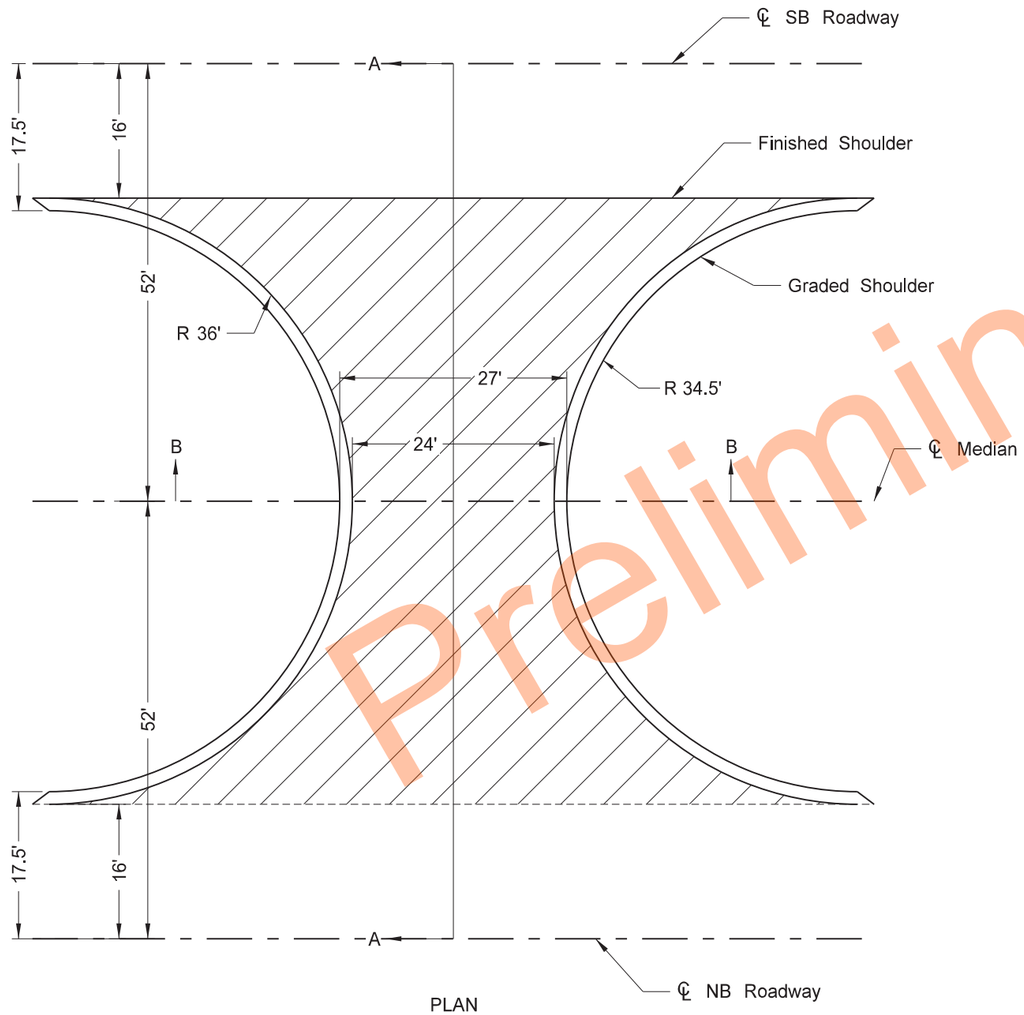
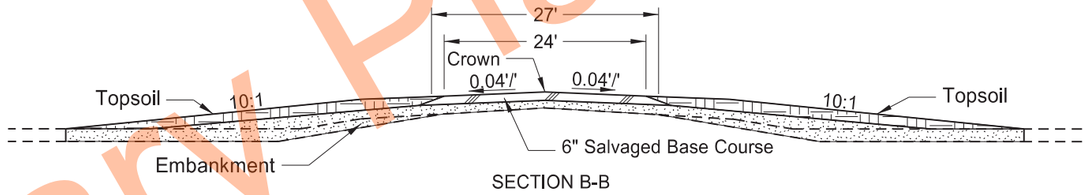


SECTION A-A

Note: Construct emergency median crossovers as shown in Section 60. Include the cost of the labor, equipment and materials to install emergency median crossovers except for the salvaged base course in the price bid for "Common Excavation Type - A."



PLAN



SECTION B-B

SPEC	CODE	BID ITEM	QTY	UNIT
302	0101	SALVAGED BASE COURSE		
		Sta 5368+01.84	56	CY
		Sta 5434+38.52	56	CY
		Sta 5644+93.98	56	CY
		Sta 5739+35.19	56	CY
		Sta 5793+26.83	56	CY

Emergency Median Crossover

PCC Pavement Reconstruction
Interstate 29 - Southbound
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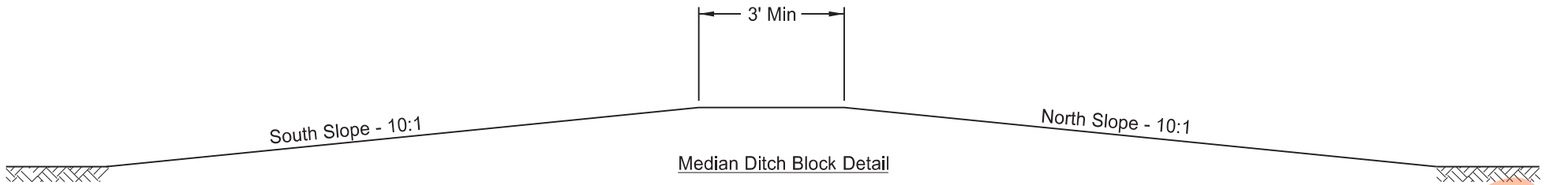

Median Ditch Block Detail

Median Ditch Block	
Location	Top Elevation
Sta 5396+33 CL	902.6
Sta 5410+44 CL	902.9
Sta 5420+95 CL	902.9
Sta 5631+48 CL	904.7
Sta 5723+99 CL	907.6
Sta 5766+63 CL	912.1
Sta 5778+90 CL	914.0
Sta 5810+57 CL	918.5
Sta 5838+40 CL	928.4

Note: Include the cost of labor, equipment, and materials to re-establish existing ditch blocks in the price bid for "Common Excavation Type-A" and "Topsoil". Do not alter the existing top elevation.

Outside Ditch Block Detail

Outside Ditch Block	
Location	Top Elevation
Sta 5354+77 LT	901.70
Sta 5366+73 LT	899.90
*Sta 5544+12 LT	899.00
Sta 5644+18 LT	903.75
Sta 5702+33 LT	906.95
Sta 5738+91 LT	909.15
Sta 5778+45 LT	912.30
Sta 5792+91 LT	913.50

Note: Include the cost of labor, equipment, and materials to construct ditch blocks in the price bid for "Common Excavation Type-A" and "Topsoil".

*Sta 5544+12 LT ditch block is an existing ditch block to remain. Do not alter the existing top elevation.

Preliminary Plans

Ditch Block Detail

PCC Pavement Reconstruction
Interstate 29 - Southbound
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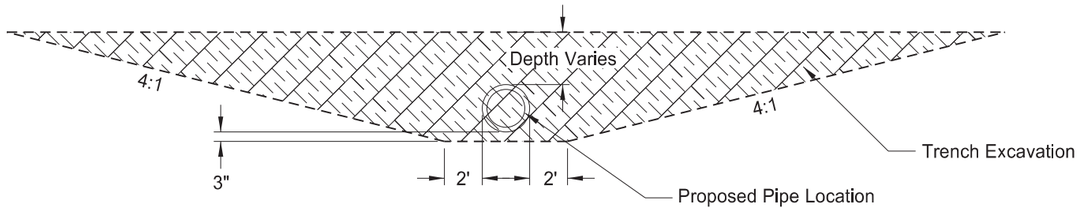
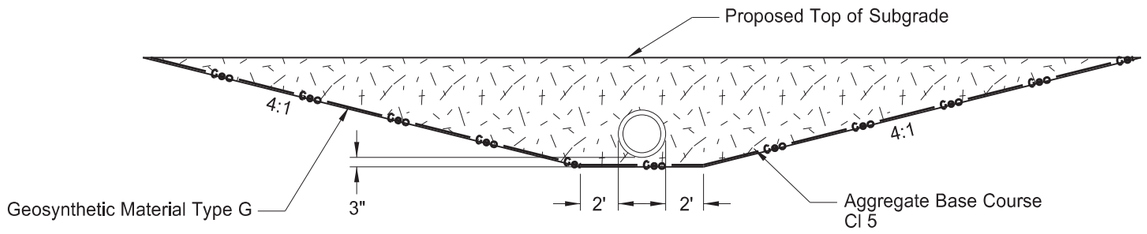
ERIC LAIDLEY
PE-10608
DATE: 9/10/24
NORTH DAKOTA

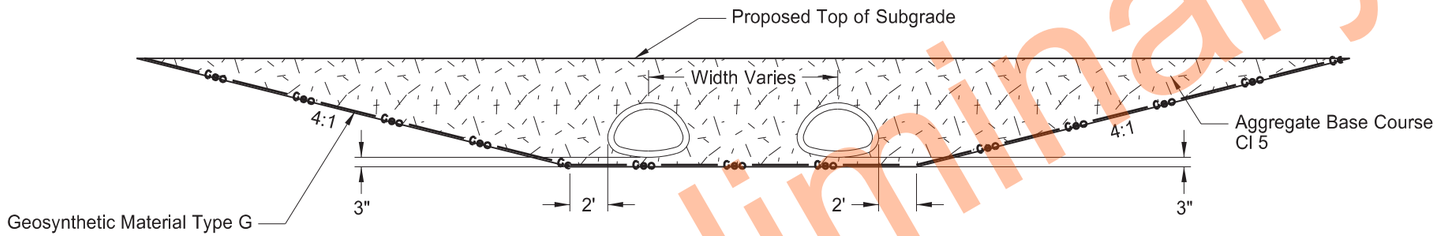
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	20	11



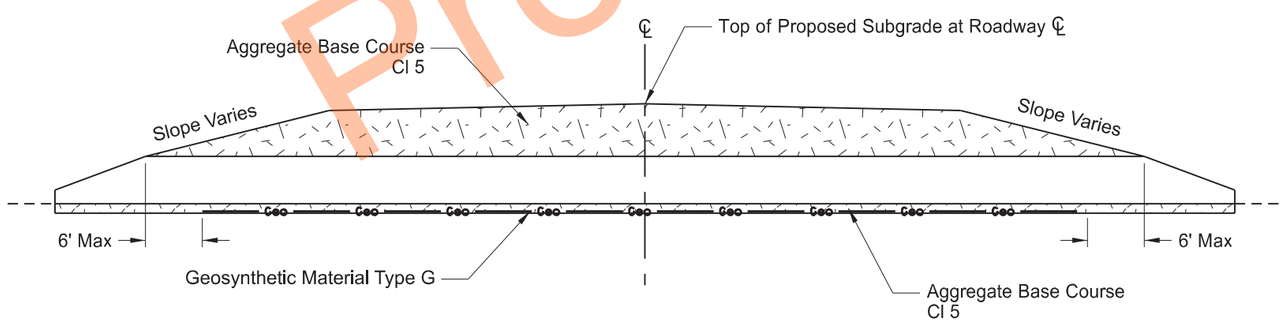
EXCAVATION DETAIL



INSTALLATION DETAIL



MULTIPLE PIPE INSTALLATION DETAIL



CROSS SECTION

Pay Items
1) Pipe*
2) Geosynthetic Material Type G
3) Removal of Pipe (if required)

*Included in Pipe Pay Item
1) Pipe
2) Trench Excavation
3) Aggregate Base Course Cl 5

Transverse Mainline Pipe Excavation & Backfill Detail for Single or Multiple Concrete Centerline Pipes

PCC Pavement Reconstruction
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Preliminary Plans

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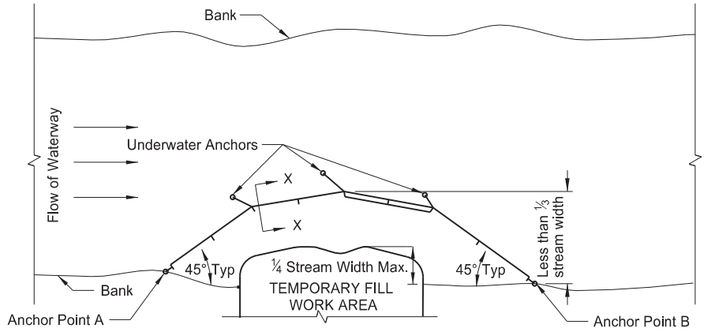
	ND	IM-8-029(204)101	20	12

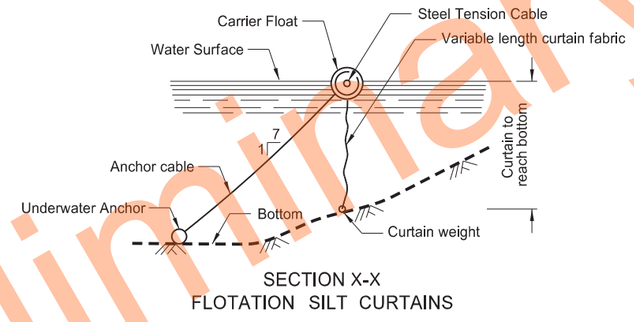
TYPICAL INSTALLATIONS
May vary with conditions



PLAN VIEW

FLOTATION SILT CURTAIN - TYPE WORK AREA

DESIGN GUIDELINES:
When temporary work encroaches less than ¼ of the width of stream.



SECTION X-X
FLOTATION SILT CURTAINS

Note:
Maximum water velocity for moving water = 5 ft/sec

Temporary Erosion Control - Flotation Silt Curtain

PCC Pavement Reconstruction
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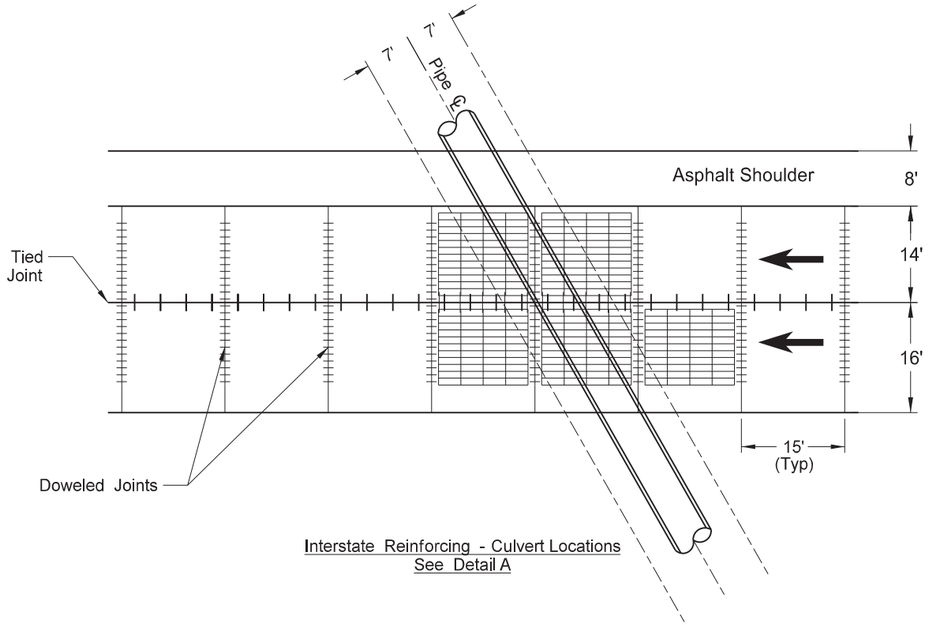
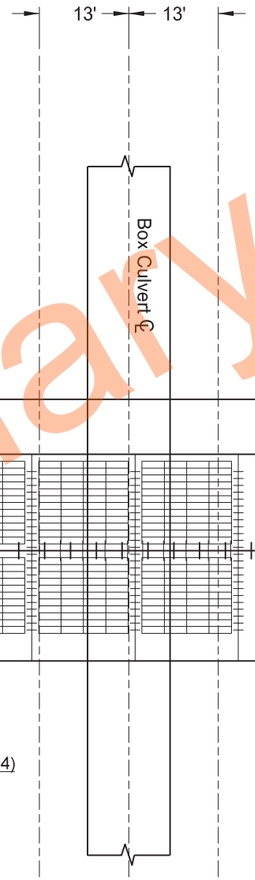
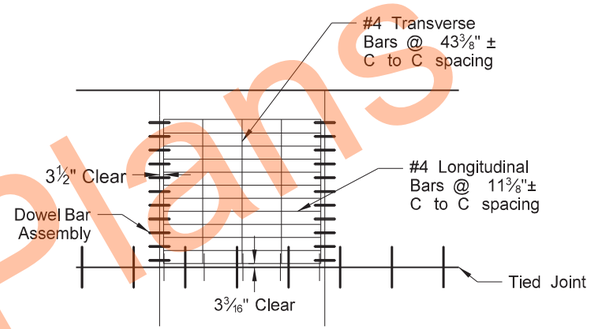


Interstate Reinforcing - Culvert Locations
See Detail A



Interstate Reinforcing - 15'X12' RCBC
Junior Separation Underpass Location (RP 104.934)
See Detail A



Detail A Reinforcing Layout

NOTES:
1. Place reinforcing steel above dowel bars and longitudinal centerline tie bars.
2. Provide a 1 foot minimum overlap of transverse reinforcing steel across the longitudinal tied joints.
3. Reinforce the complete panel if any part of the panel lies within 7 feet of the pipe centerline and 13 feet from box culvert centerline.
4. Include all costs to furnish and install the reinforcing steel as shown in the price bid for "9 IN NON-REINF CONCRETE PVMT CL AE-DOWELED".

Concrete Reinforcement Detail at Culvert Locations
& Junior Separation Underpass (RP 104.934)

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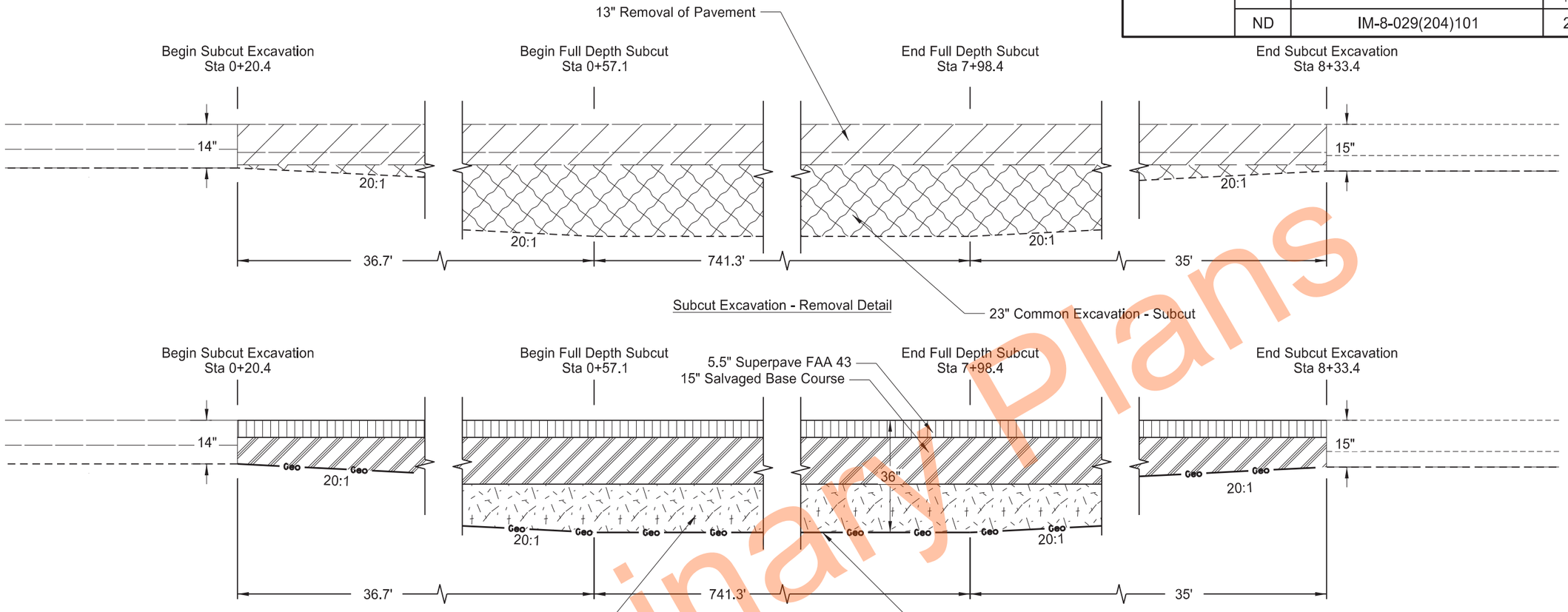
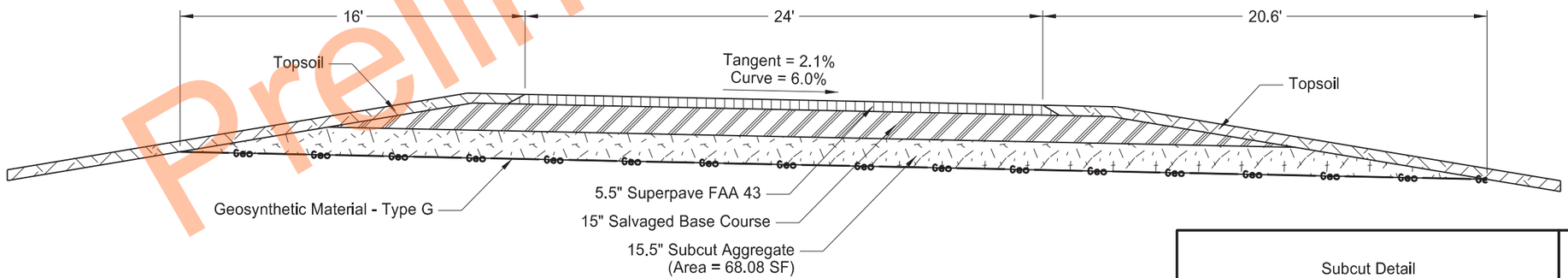
	ND	IM-8-029(204)101	20	14



Subcut Excavation - Removal Detail

Subcut Excavation - Paving Detail



Subcut Excavation - Typical Section Detail

Subcut Detail
Mayville NW Ramp

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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Note: Stationing based on Mayville NW Ramp CL alignment (Ramp_111_NW).

Preliminary Plans

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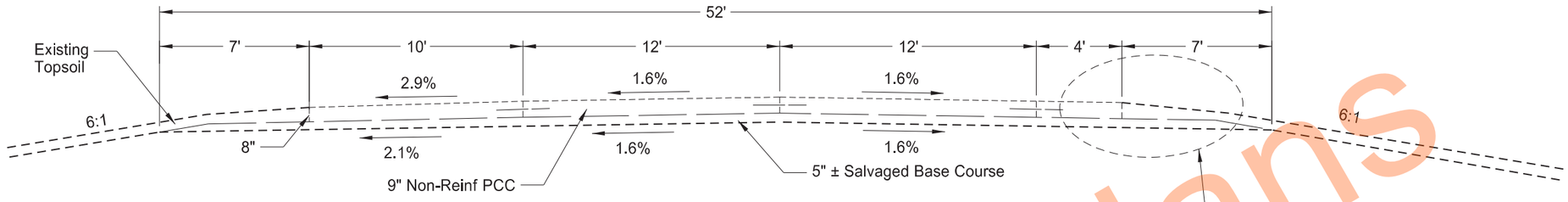
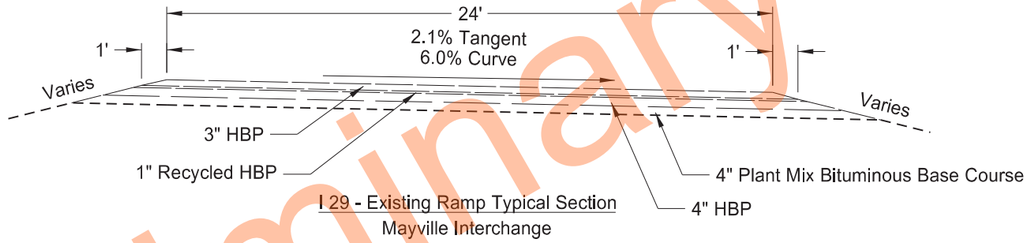
Note: Stationing based off of Interstate 29 median alignment (SCL_I29) unless stated otherwise.



Southbound

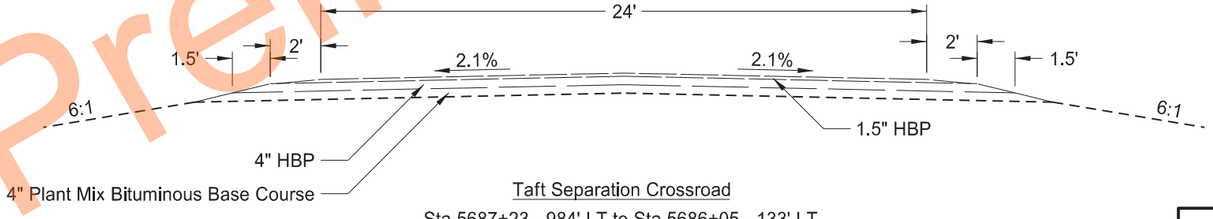
I 29 - Existing Typical Section - Tangent

*Sta 5360+51 to Sta 5859+13



I 29 - Existing Ramp Typical Section

Mayville Interchange



Taft Separation Crossroad

Sta 5687+23 - 984' LT to Sta 5686+05 - 133' LT
Sta 5687+59 - 133' RT to Sta 5684+38 - 713' LT

*Existing curves included in station range:
3% superelevated LT curve from PC Sta 5391+19 to PT Sta 5408+81
3% superelevated RT curve from PC Sta 5468+30 to PT Sta 5505+84 R2
0% superelevated LT curve from PC Sta 5599+40 to PT Sta 5611+49
3% superelevated LT curve from PC Sta 5648+05 to PT Sta 5665+86
3% superelevated RT curve from PC Sta 5677+86 to PT Sta 5701+85
3% superelevated LT curve from PC Sta 5711+33 to PT Sta 5724+65
3% superelevated LT curve from PC Sta 5767+62 to PT Sta 5780+78

Existing Typical Sections
I-29, Interchange Ramps,
and Taft Separation Crossroad

PCC Pavement Reconstruction
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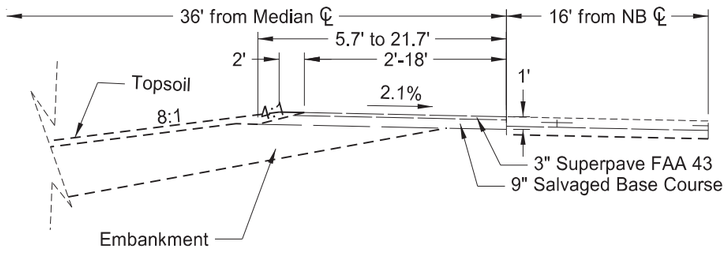
NORTH DAKOTA

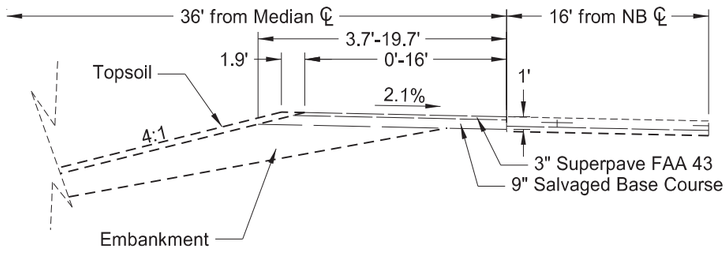
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	30	2



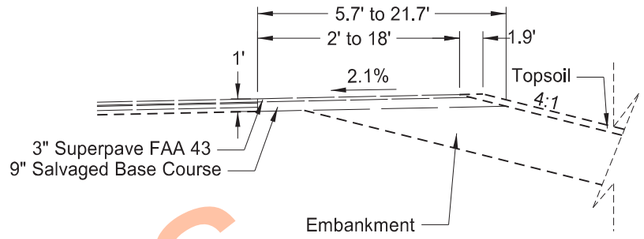
I 29 - Existing Ramp Connection Typical Section - Northbound Median Shoulder (Curve)

Sta 0+16 To Sta 7+95 (Ramp_HSW_Enter)



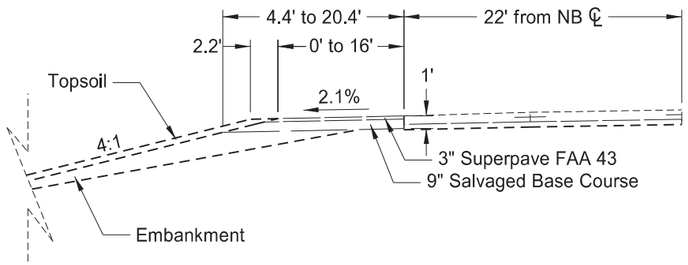
I 29 - Existing Ramp Connection Typical Section - Southbound Outside Shoulder (Curve)

Sta 2+78 To Sta 3+04 (Ramp_HNW_Exit)
Sta 10+54 To Sta 10+80 (Ramp_HSW_Enter)



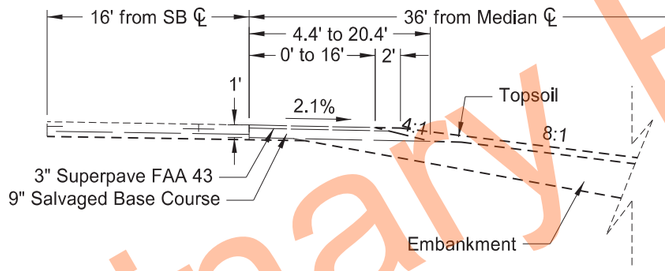
I 29 - Existing Ramp Connection Typical Section - Existing Ramps

Sta 12+19 To Sta 13+44 (Ramp_HSW_Enter)
Sta 0+42 To Sta 1+52 (Ramp_HNW_Exit)
Sta 12+26 To Sta 13+45 (Ramp_MSW_Enter)



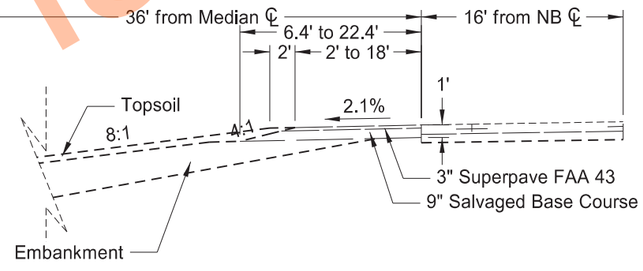
I 29 - Existing Ramp Connection Typical Section - Southbound Outside Shoulder

Sta 10+75 To Sta 11+02 (Ramp_MSW_Enter)



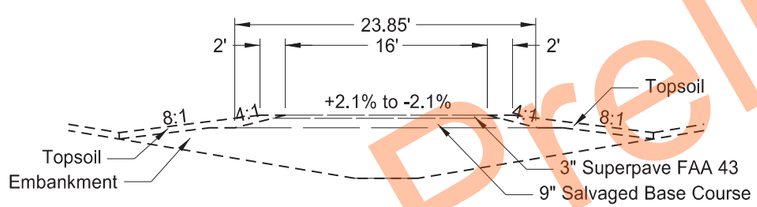
I 29 - Existing Ramp Connection Typical Section - Southbound Median Shoulder

Sta 9+78 To Sta 10+08 (Ramp_HSW_Enter)
Sta 3+51 To Sta 3+83 (Ramp_HNW_Exit)
Sta 9+96 To Sta 10+27 (Ramp_MSW_Enter)



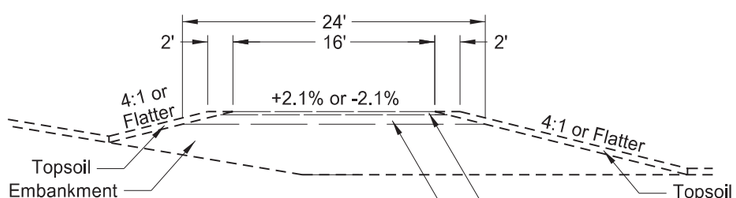
I 29 - Existing Ramp Connection Typical Section - Northbound Median Shoulder (Tangent)

Sta 5+76 To Sta 11+83 (Ramp_HNW_Exit)
Sta 0+16 To Sta 8+00 (Ramp_MSW_Enter)



I 29 - Existing Ramp Connection Typical Section in the Median

Sta 7+95 to Sta 9+78 (Ramp_HSW_Enter)
Sta 3+83 to Sta 5+76 (Ramp_HNW_Exit)
Sta 8+00 to Sta 9+96 (Ramp_MSW_Enter)



I 29 - Existing Ramp Connection Typical Section in the Existing Ramp Infield

Sta 10+80 to Sta 12+19 (Ramp_HSW_Enter)
Sta 1+52 to Sta 2+78 (Ramp_HNW_Exit)
Sta 11+02 to Sta 12+26 (Ramp_MSW_Enter)

Existing Typical Sections
Hillsboro and Mayville Temporary Ramp Connections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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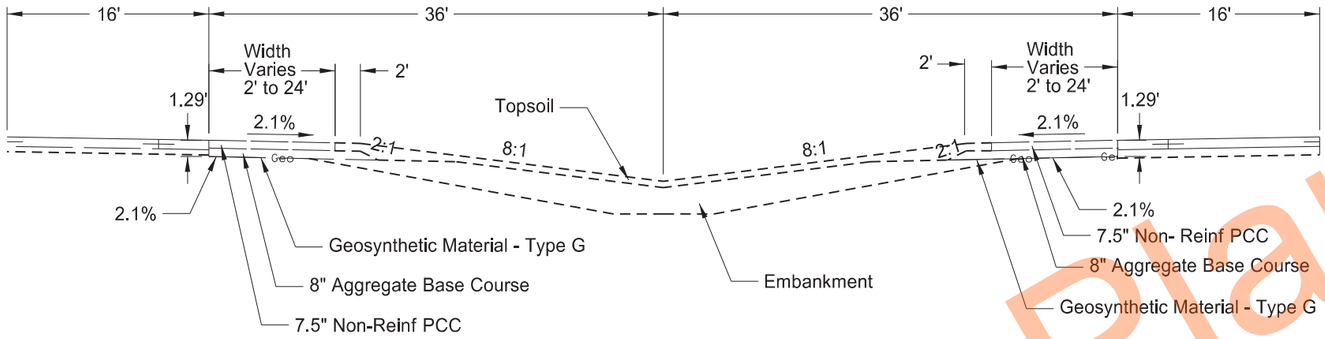
Note: Stationing based off of Interstate 29 Median alignment (SCL_I29) unless stated otherwise.

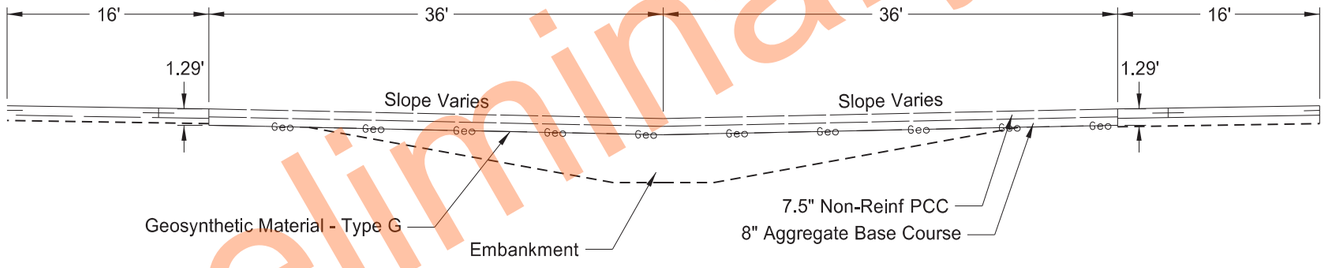


Southbound

I 29 - Existing Typical Section - South Double Median Crossover

Sta 5355+13 to Sta 5359+13
Sta 5362+16 to Sta 5366+15

Northbound



Southbound

I 29 - Existing Typical Section - South Double Median Crossover

Sta 5359+13 to Sta 5362+16

Northbound

Preliminary Plans

Existing Typical Sections

PCC Pavement Reconstruction
Interstate 29 - Southbound
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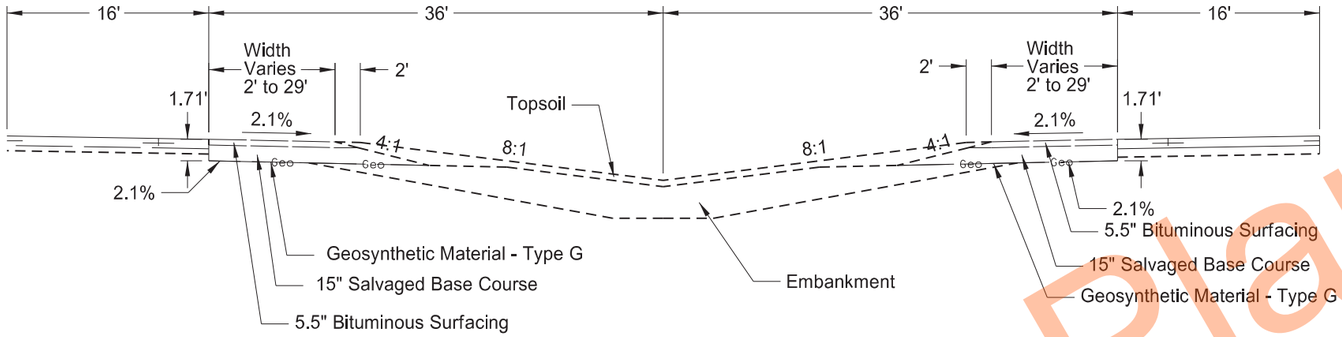
	ND	IM-8-029(204)101	30	4

Note: Stationing based off of Interstate 29 Median alignment (SCL_I29) unless stated otherwise.

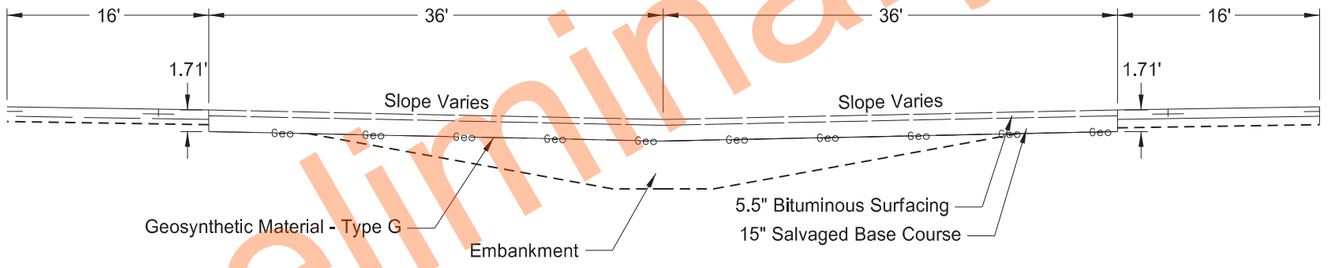


Southbound

I 29 - Existing Typical Section - North Double Median Crossover

Sta 5853+88 to Sta 5857+93
Sta 5859+41 to Sta 5861+91

Northbound



Southbound

I 29 - Existing Typical Section - North Double Median Crossover

Sta 5857+93 to Sta 5859+41

Northbound

Preliminary Plans

Existing Typical Sections
North Double Median Crossover

PCC Pavement Reconstruction
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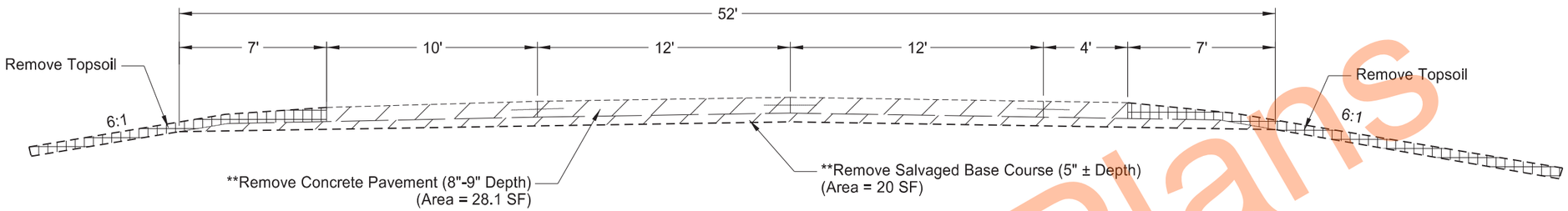
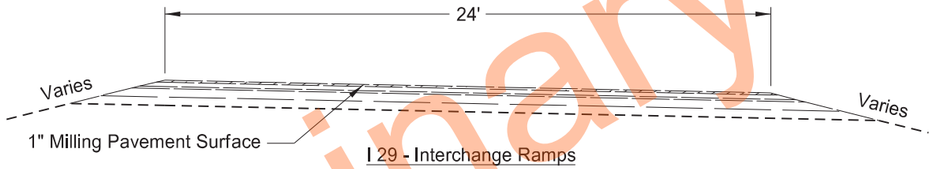
	ND	IM-8-029(204)101	30	5

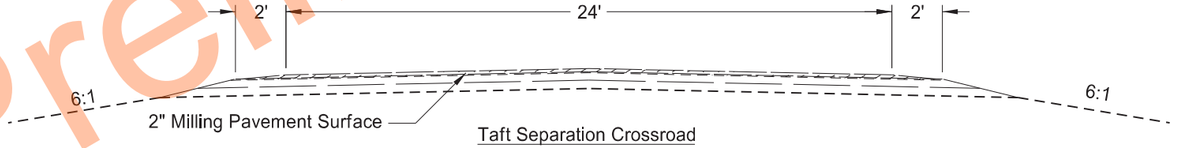
Note: Actual depths may vary.
Stationing based off of Interstate 29 median alignment (SCL_I29) unless stated otherwise.



SB - Removal Typical Mainline - Tangent
*Sta 5360+51 to Sta 5859+13



I 29 - Interchange Ramps
Sta 13+25 to Sta 21+90 (Ramp_111_SW)



Taft Separation Crossroad
Sta 5687+23 - 984' LT to Sta 5686+05 - 133' LT
Sta 5685+59 - 133' RT to Sta 5684+38 - 713' RT

*Existing curves included in station range:
3% superelevated LT curve from PC Sta 5391+19 to PT Sta 5408+81
3% superelevated RT curve from PC Sta 5468+30 to PT Sta 5505+84 R2
0% superelevated LT curve from PC Sta 5599+40 to PT Sta 5611+49
3% superelevated LT curve from PC Sta 5648+05 to PT Sta 5665+86
3% superelevated RT curve from PC Sta 5677+86 to PT Sta 5701+85
3% superelevated LT curve from PC Sta 5711+33 to PT Sta 5724+65
3% superelevated LT curve from PC Sta 5767+62 to PT Sta 5780+78
**Removal to be Included In the bid Item "Removal of Pavement."

Removal Typical Sections
I29, Interchange Ramps,
and Taft Separation Crossroad

PCC Pavement Reconstruction
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NORTH DAKOTA

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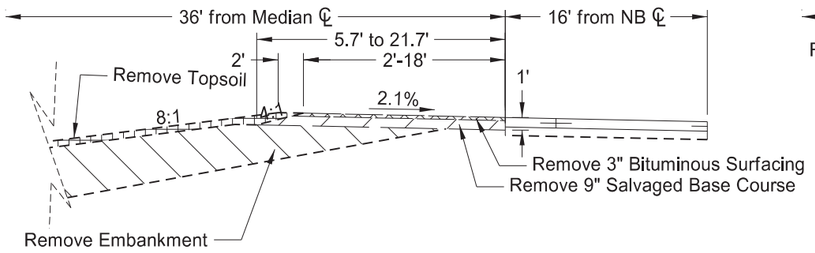
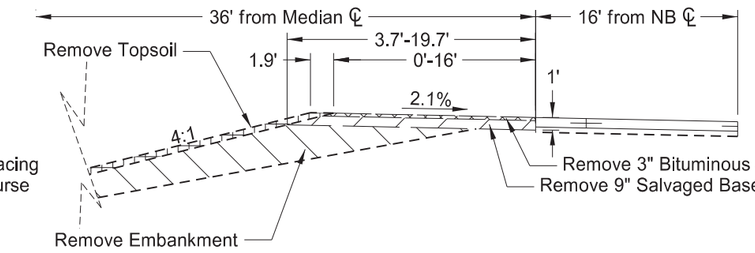


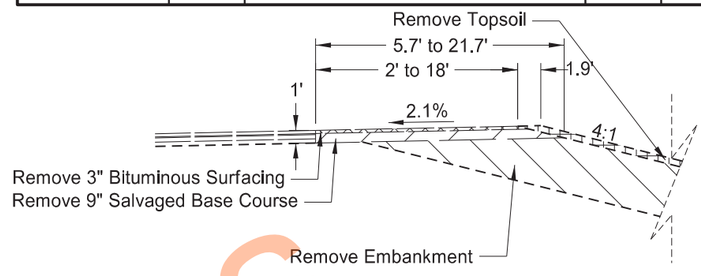
I 29 - Removal Typical Section - Northbound Median Shoulder (Curve)

Sta 0+16 To Sta 7+95 (Ramp_HSW_Enter)



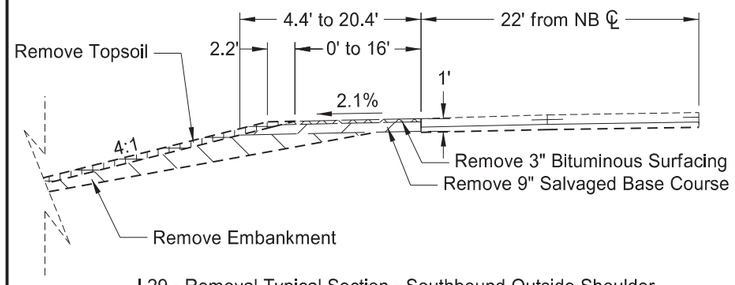
I 29 - Removal Typical Section - Southbound Outside Shoulder (Curve)

Sta 2+78 To Sta 3+04 (Ramp_HNW_Exit)
Sta 10+54 To Sta 10+80 (Ramp_HSW_Enter)



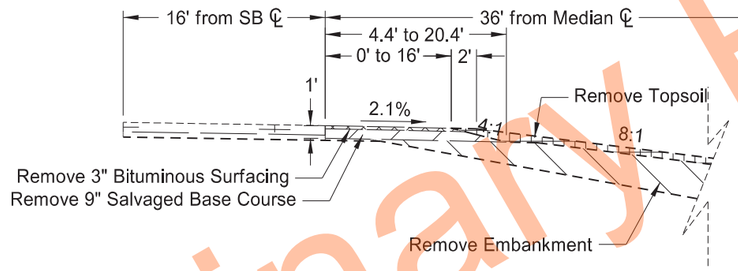
I 29 - Removal Typical Section - Existing Ramps

Sta 12+19 To Sta 13+44 (Ramp_HSW_Enter)
Sta 0+42 To Sta 1+52 (Ramp_HNW_Exit)
Sta 12+26 To Sta 13+45 (Ramp_MSW_Enter)



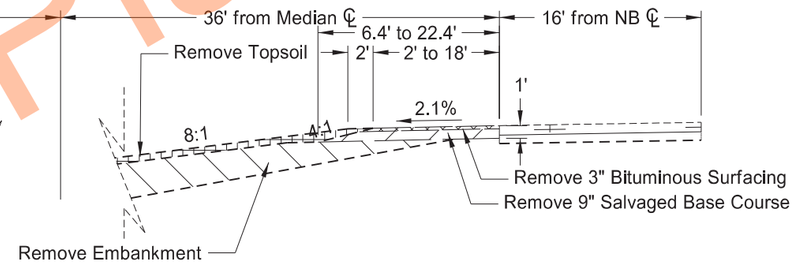
I 29 - Removal Typical Section - Southbound Outside Shoulder

Sta 10+75 To Sta 11+02 (Ramp_MSW_Enter)



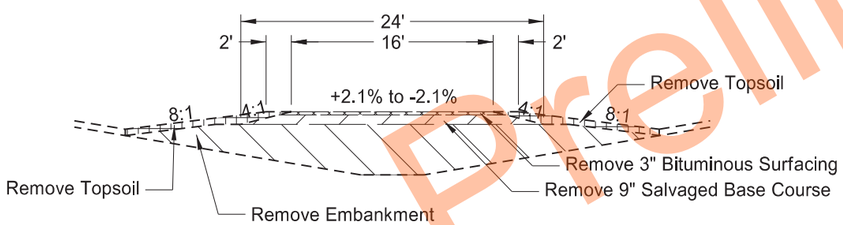
I 29 - Removal Typical Section - Southbound Median Shoulder

Sta 9+78 To Sta 10+08 (Ramp_HSW_Enter)
Sta 3+51 To Sta 3+83 (Ramp_HNW_Exit)
Sta 9+96 To Sta 10+27 (Ramp_MSW_Enter)



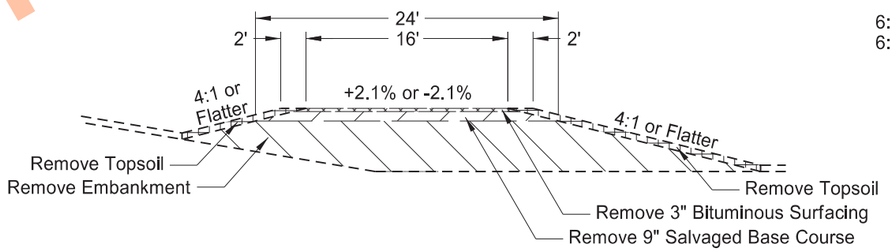
I 29 - Removal Typical Section - Northbound Median Shoulder (Tangent)

Sta 5+76 To Sta 11+83 (Ramp_HNW_Exit)
Sta 0+16 To Sta 8+00 (Ramp_MSW_Enter)



I 29 - Removal Typical Section in the Median

Sta 7+95 to Sta 9+78 (Ramp_HSW_Enter)
Sta 3+83 to Sta 5+76 (Ramp_HNW_Exit)
Sta 8+00 to Sta 9+96 (Ramp_MSW_Enter)



I 29 - Removal Typical Section in the Existing Ramp Infield

Sta 10+80 to Sta 12+19 (Ramp_HSW_Enter)
Sta 1+52 to Sta 2+78 (Ramp_HNW_Exit)
Sta 11+02 to Sta 12+26 (Ramp_MSW_Enter)

6:1 inslope from Sta 7+50 to Sta 13+00 (Ramp_HNE_Enter)
6:1 inslope at Sta 5+08.45 (Ramp_MSE_Exit)

Note: Include removal of salvaged base course and removal of bituminous surfacing in the bid item "Removal of Temporary Bypass."

Removal Typical Sections
Hillsboro and Mayville Temporary Ramp Connections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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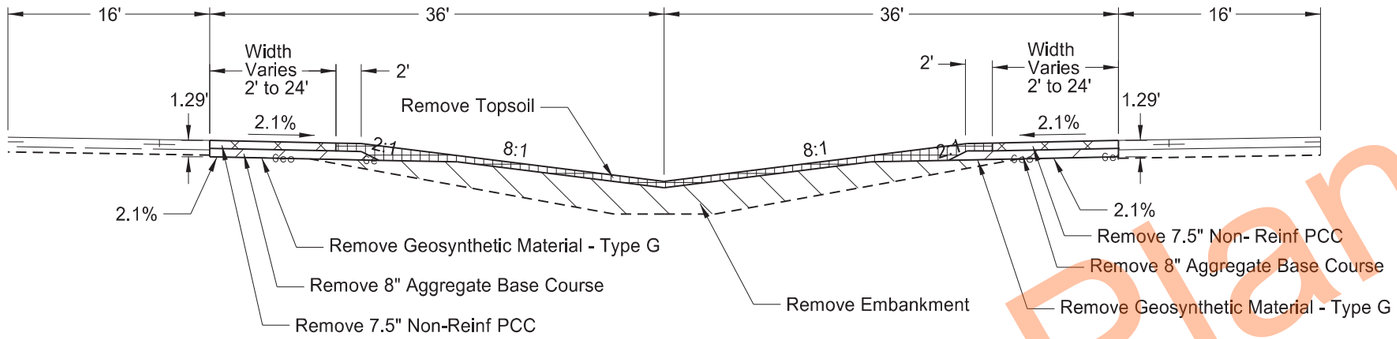
	ND	IM-8-029(204)101	30	7

Note: Stationing based off of Interstate 29 Median alignment (SCL_I29) unless stated otherwise.
Note: Include removal of Geosynthetic Material - Type G, removal of aggregate base course, and removal of non-reinf PCC in the bid item "Removal of Pavement."

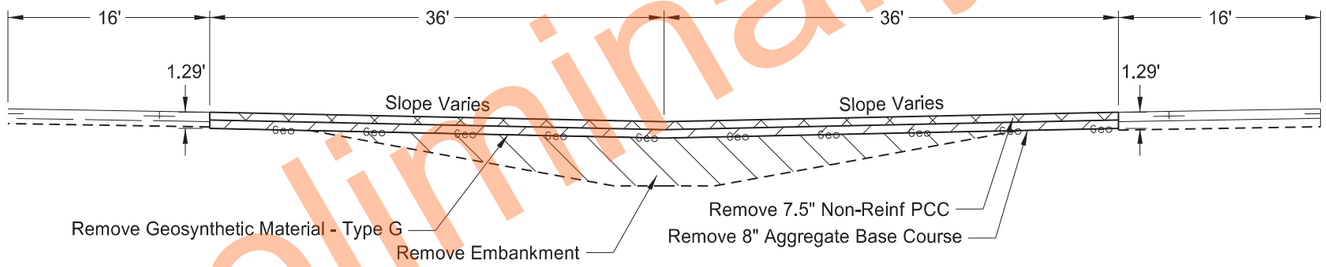


Southbound

I 29 - Removal Typical Section - South Double Median Crossover

Sta 5355+13 to Sta 5359+13
Sta 5362+16 to Sta 5366+15

Northbound



Southbound

I 29 - Removal Full Typical Section - South Double Median Crossover

Sta 5359+13 to Sta 5362+16

Northbound

Preliminary Plans

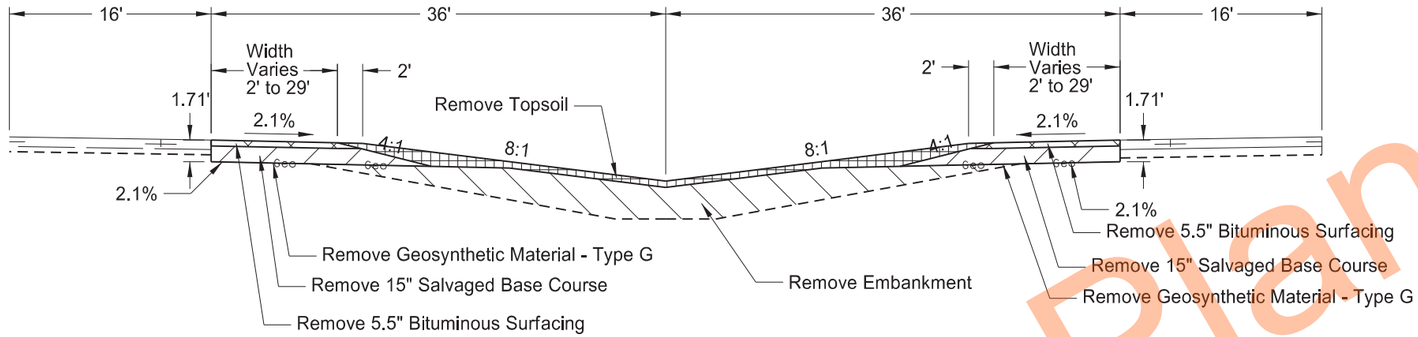
Removal Typical Sections
South Double Median Crossover

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	30	8

Note: Stationing based off of Interstate 29 Median alignment (SCL_I29) unless stated otherwise.
Note: Include removal of Geosynthetic Material - Type G, removal of salvaged base course, and removal of bituminous surfacing in the bid item "Remove Aggregate Base & Surfacing."

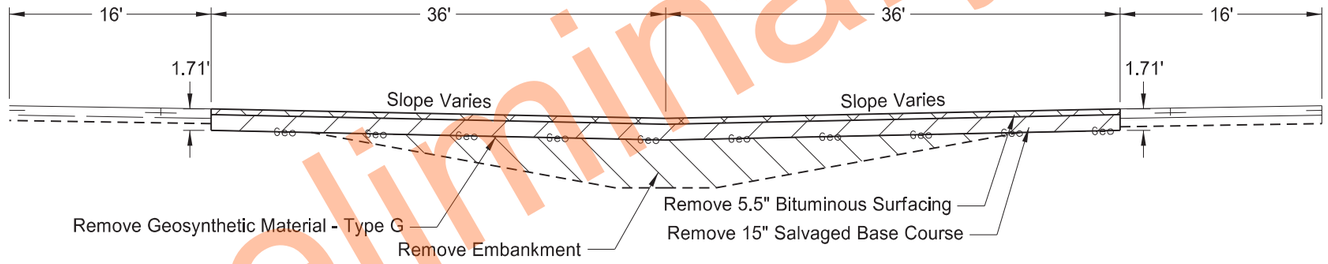


Southbound

I 29 - Removal Typical Section - North Double Median Crossover

Sta 5853+88 to Sta 5857+93
Sta 5859+41 to Sta 5861+91

Northbound



Southbound

I 29 - Removal Typical Section - North Double Median Crossover

Sta 5857+93 to Sta 5859+41

Northbound

Removal Typical Sections
North Double Median Crossover

PCC Pavement Reconstruction
Interstate 29- Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
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NORTH DAKOTA

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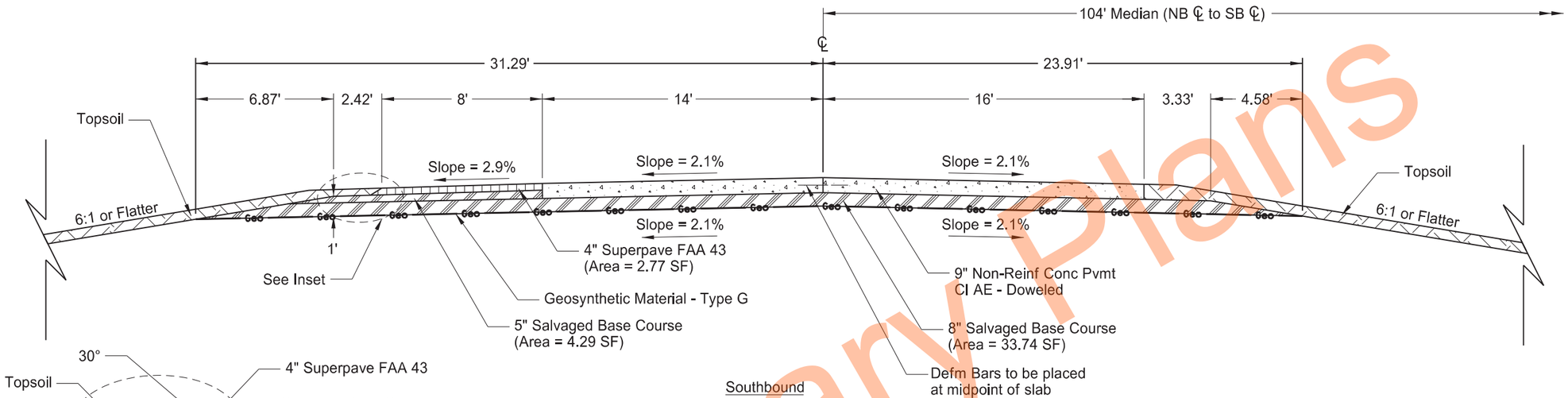
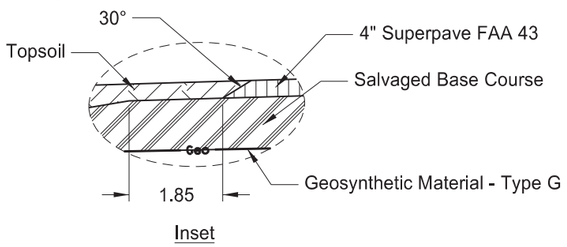
Note: Stationing based off of Interstate 29 median alignment (SCL_I29) unless stated otherwise.



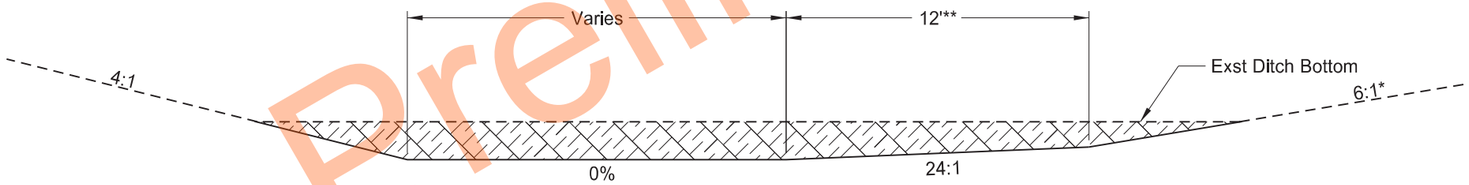


Inset

Southbound

Proposed Typical Section: I-29 Mainline - Tangent

Sta 5360+51 to Sta 5391+19
Sta 5408+81 to Sta 5468+30
Sta 5505+84 R2 to Sta 5520+10
Sta 5523+06 to Sta 5599+40
Sta 5611+49 to Sta 5648+05
Sta 5665+86 to Sta 5677+86
Sta 5701+85 to Sta 5711+33
Sta 5724+64 to Sta 5767+62
Sta 5780+78 to Sta 5859+13



*3:1 inslope outside the clear zone and 3:1 Backslope from Sta 5522+40 to Sta 5539+50.
**6' from Sta 5522+40 to Sta 5539+50.

I 29 - Proposed Southbound Ditch Cleaning

Sta 5355+55 to Sta 5366+42
Sta 5367+24 to Sta 5470+25
Sta 5509+84 to Sta 5516+50
Sta 5522+40 to Sta 5539+50
Sta 5553+00 to Sta 5588+25
Sta 5644+50 to Sta 5683+50
Sta 5687+80 to Sta 5702+16
Sta 5702+61 to Sta 5738+71
Sta 5739+23 to Sta 5778+25
Sta 5778+77 to Sta 5792+71
Sta 5794+50 to Sta 5826+40
Sta 5828+50 to Sta 5845+00

Proposed Typical Sections
Ditch Cleaning

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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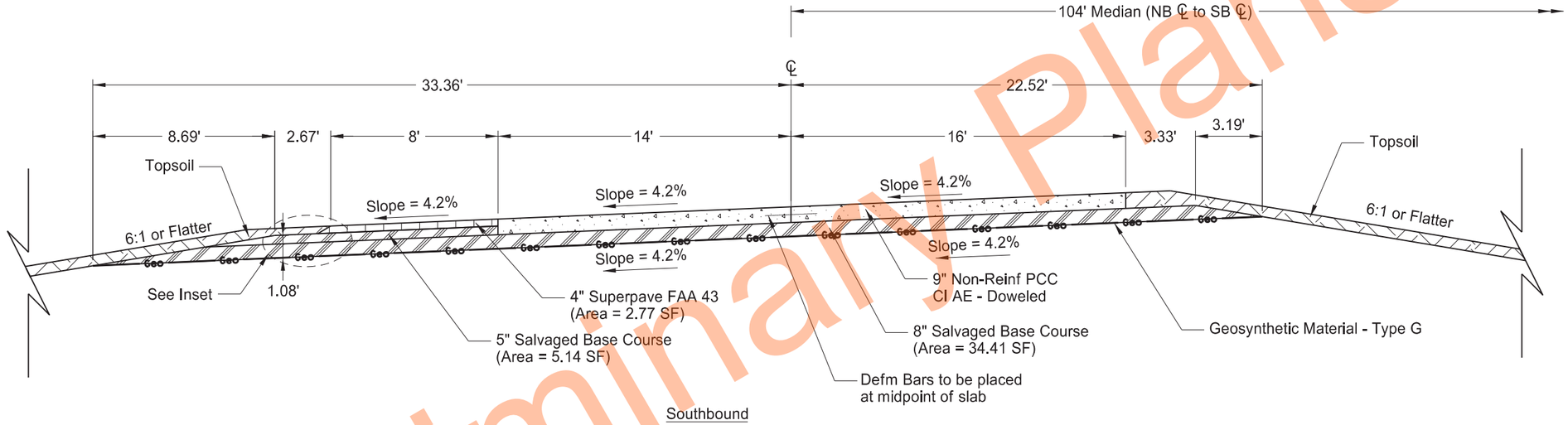
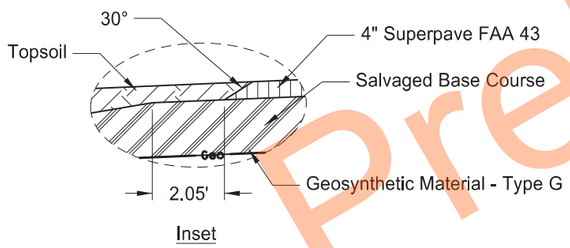
Note: Stationing based off of Interstate 29 median alignment (SCL_I29) unless stated otherwise.
All stationing for curves is from PC to PT. Refer to Section 20 superelevation tables for exact locations of the transition areas.



Southbound

Proposed Typical Section: I-29 Mainline - Superelevated Curve - 4.2% LT

Sta 5391+19 to Sta 5408+81
Sta 5648+05 to Sta 5665+86
Sta 5711+33 to Sta 5724+64
Sta 5767+62 to Sta 5780+78



Inset

Preliminary Plans

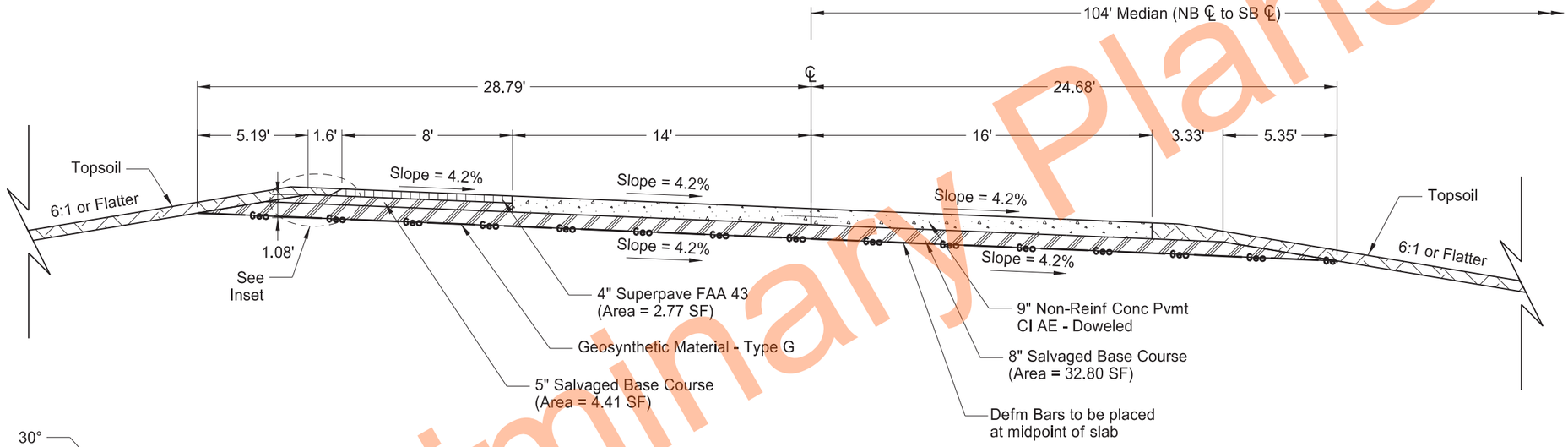
Proposed Typical Sections

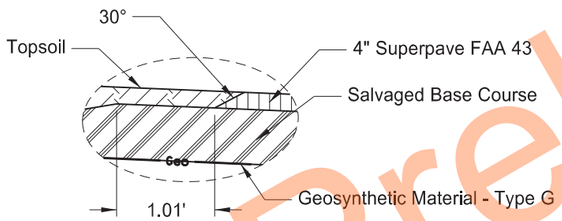
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	30	11

Note: Stationing based off of Interstate 29 median alignment (SCL_I29) unless stated otherwise.
All stationing for curves is from PC to PT. Refer to Section 20 superelevation tables for exact locations of the transition areas.





Inset

Southbound

Proposed Typical Section: I-29 Mainline - Superelevated Curve - 4.2% RT

Sta 5468+30 to Sta 5505+84 R2
Sta 5677+86 to Sta 5701+85

Preliminary Plans

Proposed Typical sections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

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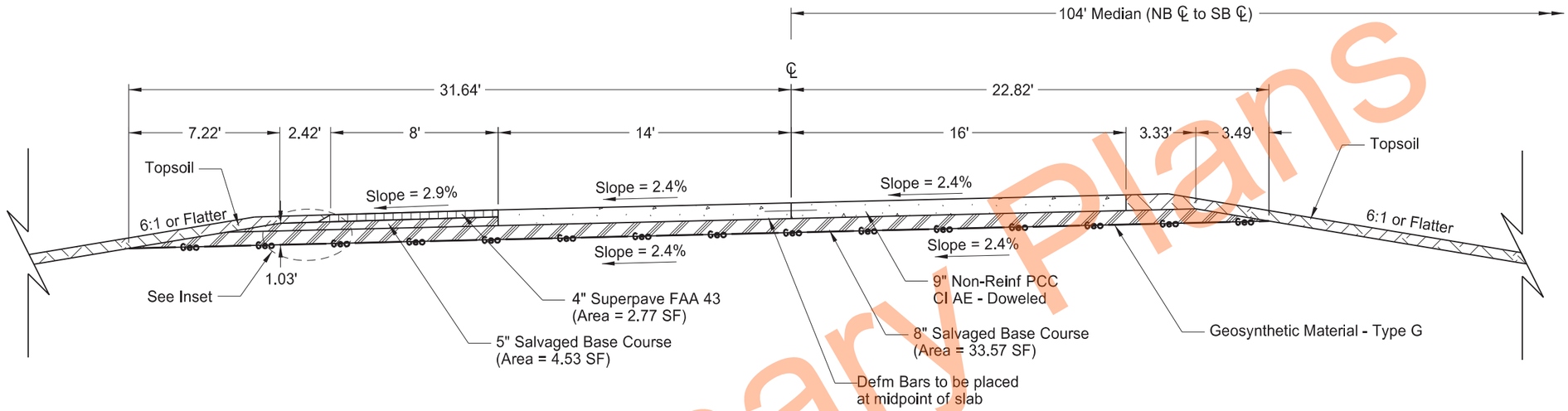
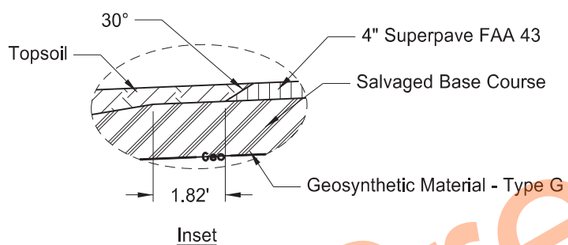
Note: Stationing based off of Interstate 29 median alignment (SCL_I29) unless stated otherwise.
All stationing for curves is from PC to PT. Refer to Section 20 superelevation tables for exact locations of the transition areas.





Inset

Southbound

Proposed Typical Section: I-29 Mainline - Superelevated Curve - 2.4% LT

Sta 5599+40 to Sta 5611+49

Preliminary Plans

Proposed Typical Sections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

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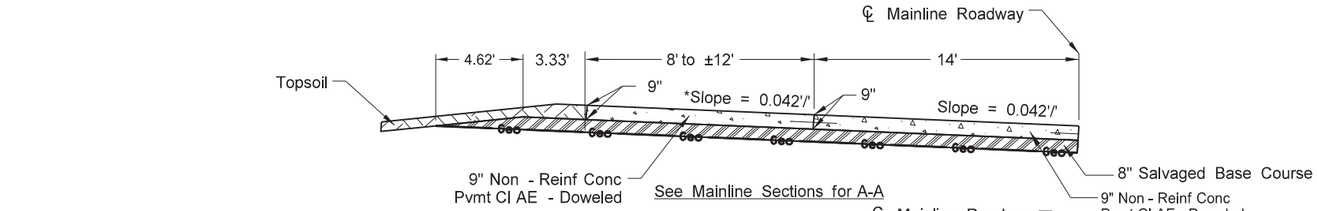
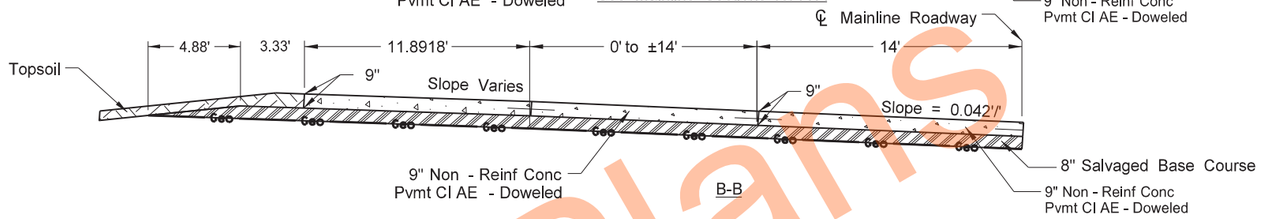
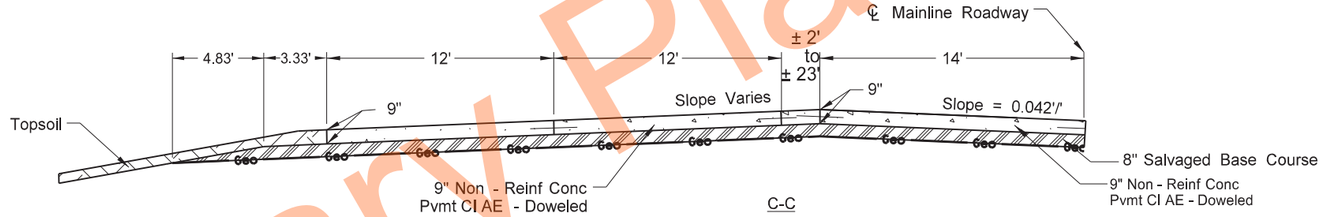
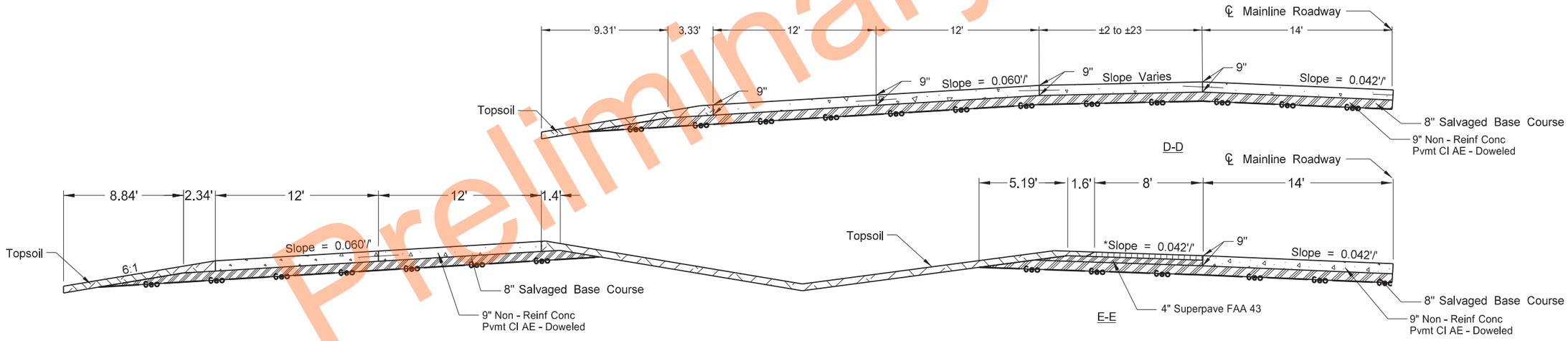
RAMP SUPERELEVATION		
SW HILLSBORO INTERCHANGE ENTER RAMP (Ramp_104_SW)		
SECTION	STATION	SUPERELEVATION
	00+00.00	4.20%
A-A	02+02.53	4.20%
B-B	04+06.16	4.20%
BEGIN TRANSITION	07+37.06	4.20%
C-C	10+54.98	-5.24%
FULL SUPER	10+80.46	-6.00%
D-D	11+88.13	-6.00%
E-E	12+20.20	-6.00%
	13+00.00	-6.00%









Note: See Ramp Layout sheets for location of typical sections
*Note: Transition HMA shoulder slope over 40' to tie into ramp transition and gore concrete pavement.

Proposed Typical Sections
Hillsboro SW Entrance Ramp

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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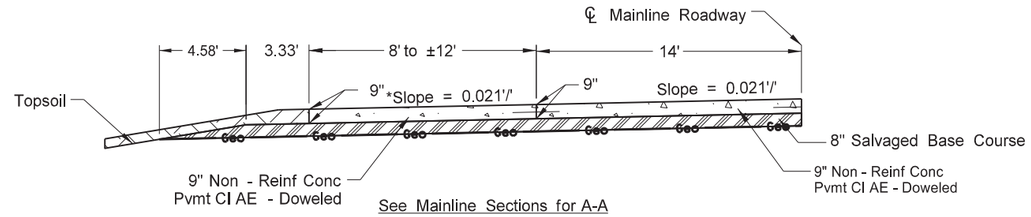
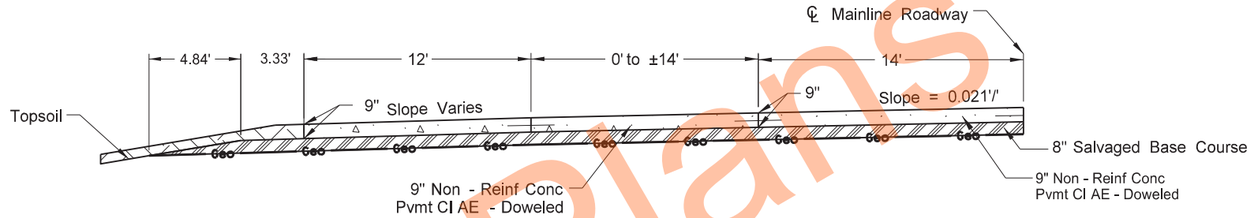
RAMP SUPERELEVATION		
NW HILLSBORO INTERCHANGE EXIT RAMP (Ramp_104_NW)		
SECTION	STATION	SUPERELEVATION
	07+99.00	-6.00%
E-E	08+05.75	-6.00%
D-D	09+19.10	-6.00%
C-C	09+49.25	-6.00%
FULL SUPER	09+74.43	-6.00%
END TRANSITION	11+20.03	-2.10%
B-B	13+66.10	-2.10%
A-A	16+09.27	-2.10%
	16+89.30*	-2.10%

*Note: Continue concrete shoulder to the Goose River bridge approach slabs as shown in Section 90

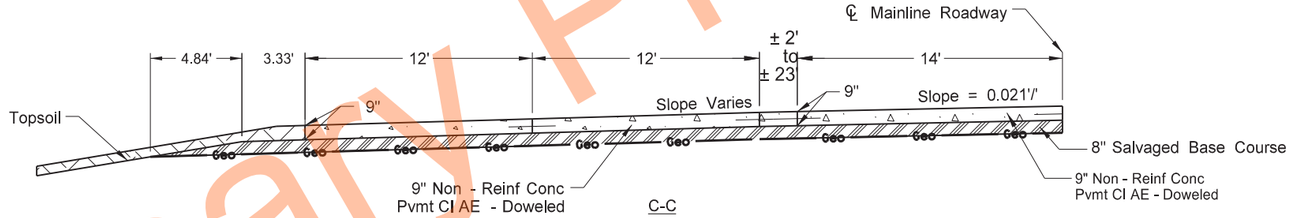
RAMP SUPERELEVATION		
SW MAYVILLE INTERCHANGE ENTER RAMP (Ramp_111_SW)		
SECTION	STATION	SUPERELEVATION
	00+00.04	-2.10%
A-A	01+99.98	-2.10%
B-B	04+00.02	-2.10%
BEGIN TRANSITION	09+29.31	-2.10%
C-C	10+49.73	-5.33%
FULL SUPER	10+74.91	-6.00%
D-D	11+75.24	-6.00%
E-E	12+28.84	-6.00%
	13+25.13	-6.00%



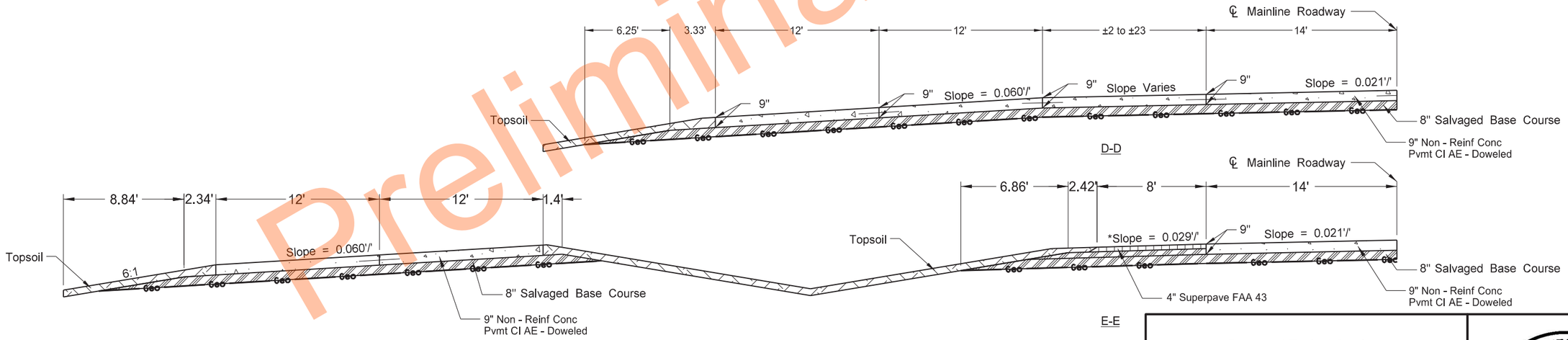
See Mainline Sections for A-A



B-B



C-C



D-D

E-E

Note: See section 90 for location of typical sections.
*Note: Transition HMA shoulder slope over 40' to tie into ramp transition and gore concrete pavement.

Proposed Typical Sections
NW Hillsboro Exit and SW Mayville
Entrance Ramps

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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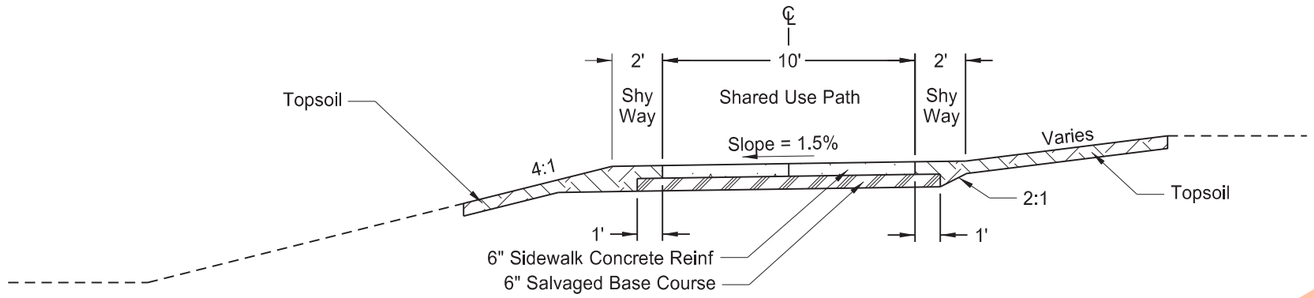
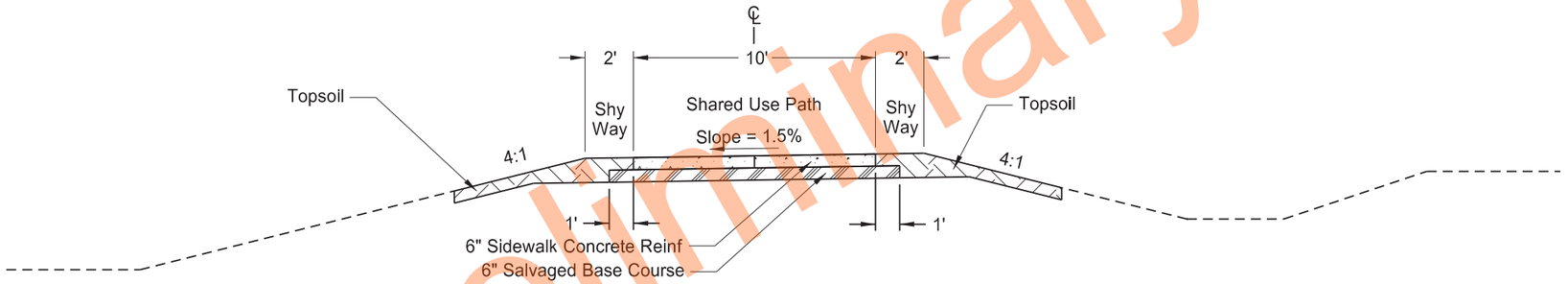
Note: Gaps in shared use path stationing are at the pedestrian bridge.



Shared Use Path

Sta 22+50 to Sta 23+70 (PRPATH)
Sta 29+20 to Sta 29+76 (PRPATH)



Shared Use Path

Sta 23+70 to Sta 24+29 (PRPATH)
Sta 27+95 to Sta 29+20 (PRPATH)

Preliminary Plans

Proposed Typical Sections
Shared Use Path

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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PE-10608
DATE: 6/25/24
NORTH DAKOTA

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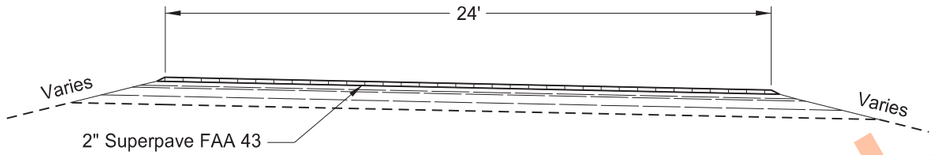
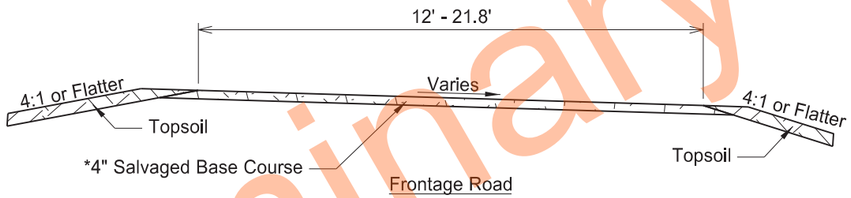


I 29 - Interchange Ramps

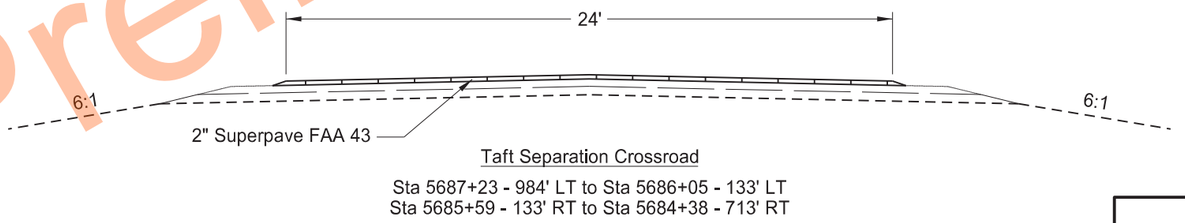
Sta 13+25 to Sta 21+90 (Ramp_111_SW)



Frontage Road

Sta 6+90 to Sta 8+04 (PRFRONTAGE)

*Taper depth of salvaged base course from
4" to 12" at a 20:1 from Sta 6+90 to Sta 7+04



Taft Separation Crossroad

Sta 5687+23 - 984' LT to Sta 5686+05 - 133' LT
Sta 5685+59 - 133' RT to Sta 5684+38 - 713' RT

Preliminary

Proposed Typical Section
Mayville SW Ramp Overlay
Frontage Road and Taft Separation Crossroad

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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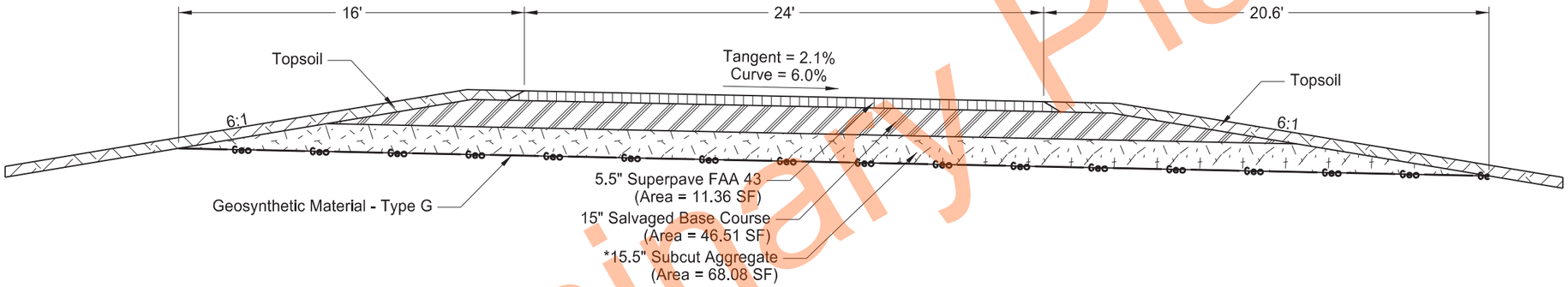
Note: Stationing based off of Mayville NW Ramp CL alignment (Ramp_111_NW).
*See Section 20 for subcut details.

Superelevation Table		
Mayville Interchange NW Ramp		
Section	Station	Superelevation
Begin Transition	00+20.38	-1.91%
End Transition	00+60.38	-2.10%
Begin Transition	03+77.60	-2.10%
Full Super	05+23.20	-6.00%
Full Super	07+93.41	-6.00%
End Transition	08+33.41	-5.02%



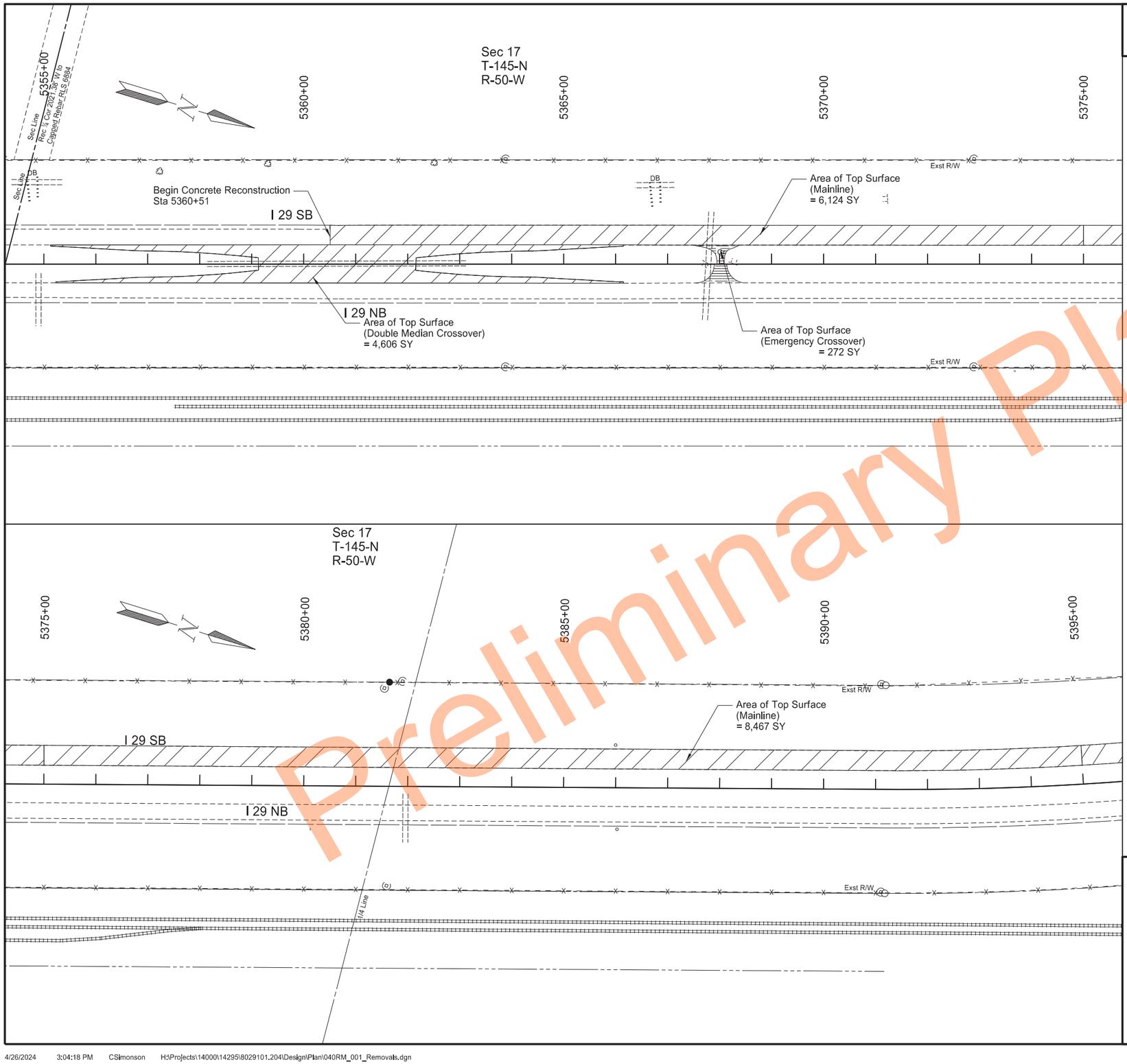
I 29 - Mayville Interchange NW Ramp
Sta 0+20 to Sta 8+33

Preliminary Plans

Proposed Typical Section
Mayville Interchange NW Ramp

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA



Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	1

SPEC	CODE	BID ITEM	QTY	UNIT
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5368+02 - Emergency Crossover (3" Depth)	35	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5355+13 to Sta 5366+15		
		Double Median Crossover Concrete (7.5" Depth)	1920	TON
		Double Median Crossover Aggregate Base (8" Depth)	2048	TON
		Sta 5355+00 to Sta 5375+00		
		Mainline Concrete (9" Depth)	3062	TON
		Mainline Aggregate Base (5" Depth)	1923	TON
		Sta 5375+00 to Sta 5395+00		
		Mainline Concrete (9" Depth)	4234	TON
		Mainline Aggregate Base (5" Depth)	2783	TON

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5355+00 to Sta 5375+00
Sta 5375+00 to Sta 5395+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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DATE: 6/25/24
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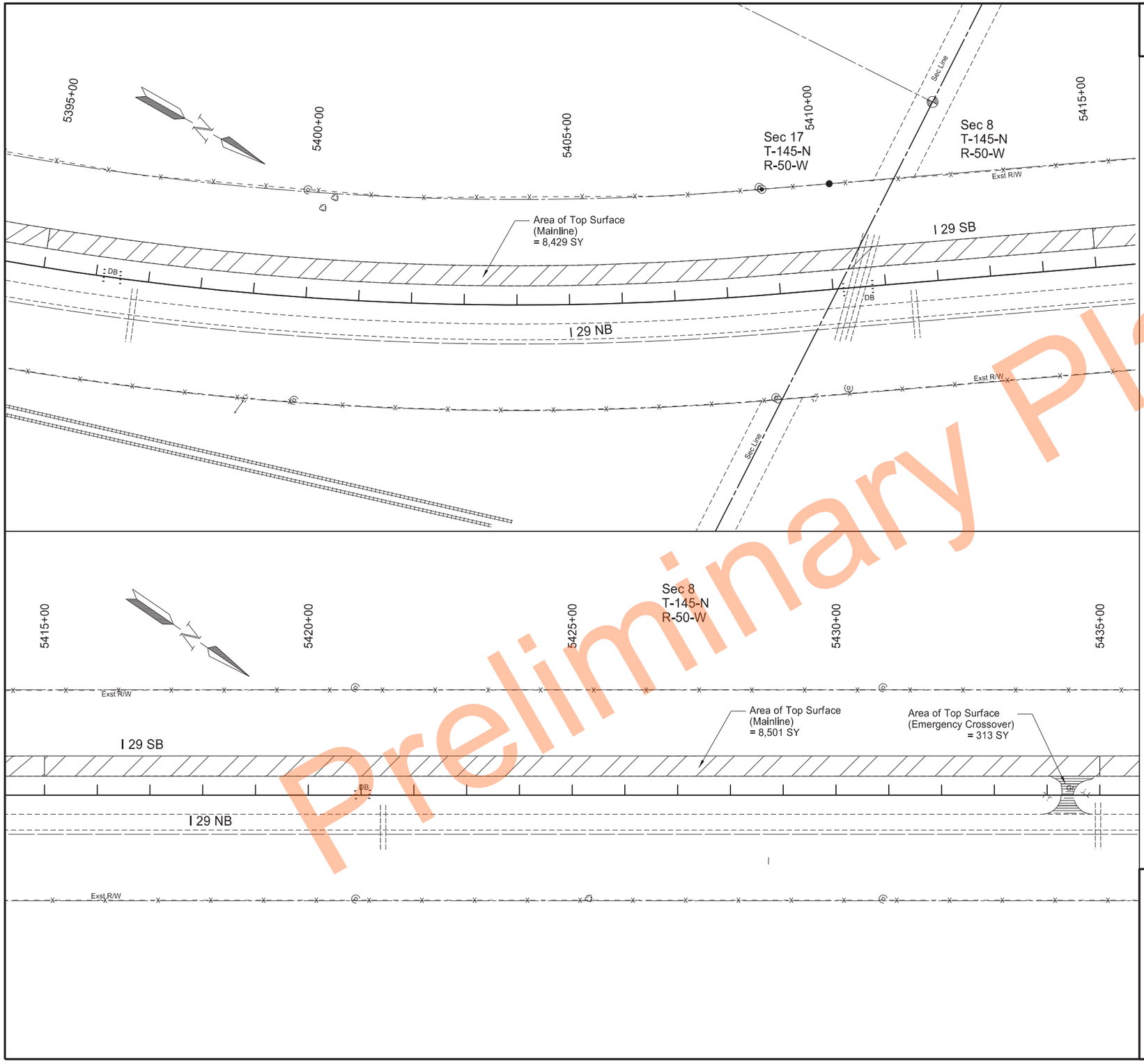
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	2



SPEC	CODE	BID ITEM	QTY	UNIT
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5434+39 - Emergency Crossover (3" Depth)	40	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5395+00 to Sta 5415+00		
		Mainline Concrete (9" Depth)	4215	TON
		Mainline Aggregate Base (5" Depth)	2770	TON
		Sta 5415+00 to Sta 5435+00		
		Mainline Concrete (9" Depth)	4251	TON
		Mainline Aggregate Base (5" Depth)	2782	TON

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5395+00 to Sta 5415+00
Sta 5415+00 to Sta 5435+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
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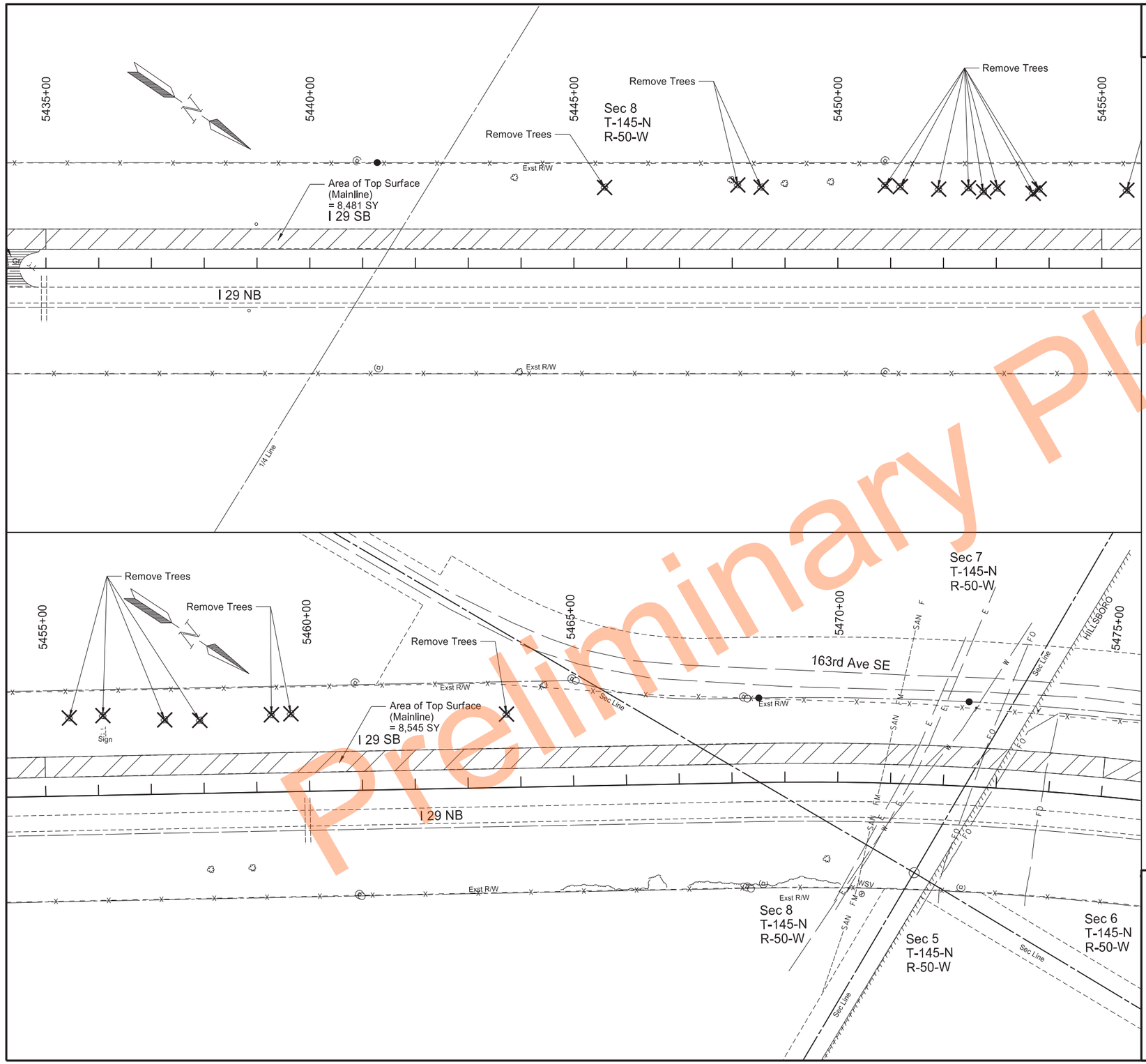
Preliminary Plans



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	3

SPEC CODE	BID ITEM	QTY	UNIT
	REMOVAL OF TREES*		
	Sta 5445+58 - 153' Lt		
	Sta 5448+11 - 158' Lt		
	Sta 5448+55 - 154' Lt		
	Sta 5450+90 - 157' Lt		
	Sta 5451+18 - 155' Lt		
	Sta 5451+91 - 150' Lt		
	Sta 5452+91 - 150' Lt		
	Sta 5453+70 - 142' Lt		
	Sta 5453+81 - 150' Lt		
	Sta 5455+47 - 148' Lt		
	Sta 5457+28 - 140' Lt		
	Sta 5457+94 - 138' Lt		
	Sta 5459+30 - 146' Lt		
	Sta 5463+75 - 139' Lt		
201 0370	REMOVAL OF TREES 10IN		
	Sta 5452+48 - 152' Lt	1	EA
	Sta 5453+03 - 152' Lt	1	EA
	Sta 5456+11 - 151' Lt	1	EA
	Sta 5459+67 - 148' Lt	1	EA
202 0136	REMOVAL OF PAVEMENT		
	Sta 5435+00 to Sta 5455+00		
	Mainline Concrete (9" Depth)	4241	TON
	Mainline Aggregate Base (5" Depth)	2788	TON
	Sta 5455+00 to Sta 5475+00		
	Mainline Concrete (9" Depth)	4273	TON
	Mainline Aggregate Base (5" Depth)	2806	TON

*Included in the pay item for Clearing and Grubbing

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5435+00 to Sta 5455+00
Sta 5455+00 to Sta 5475+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
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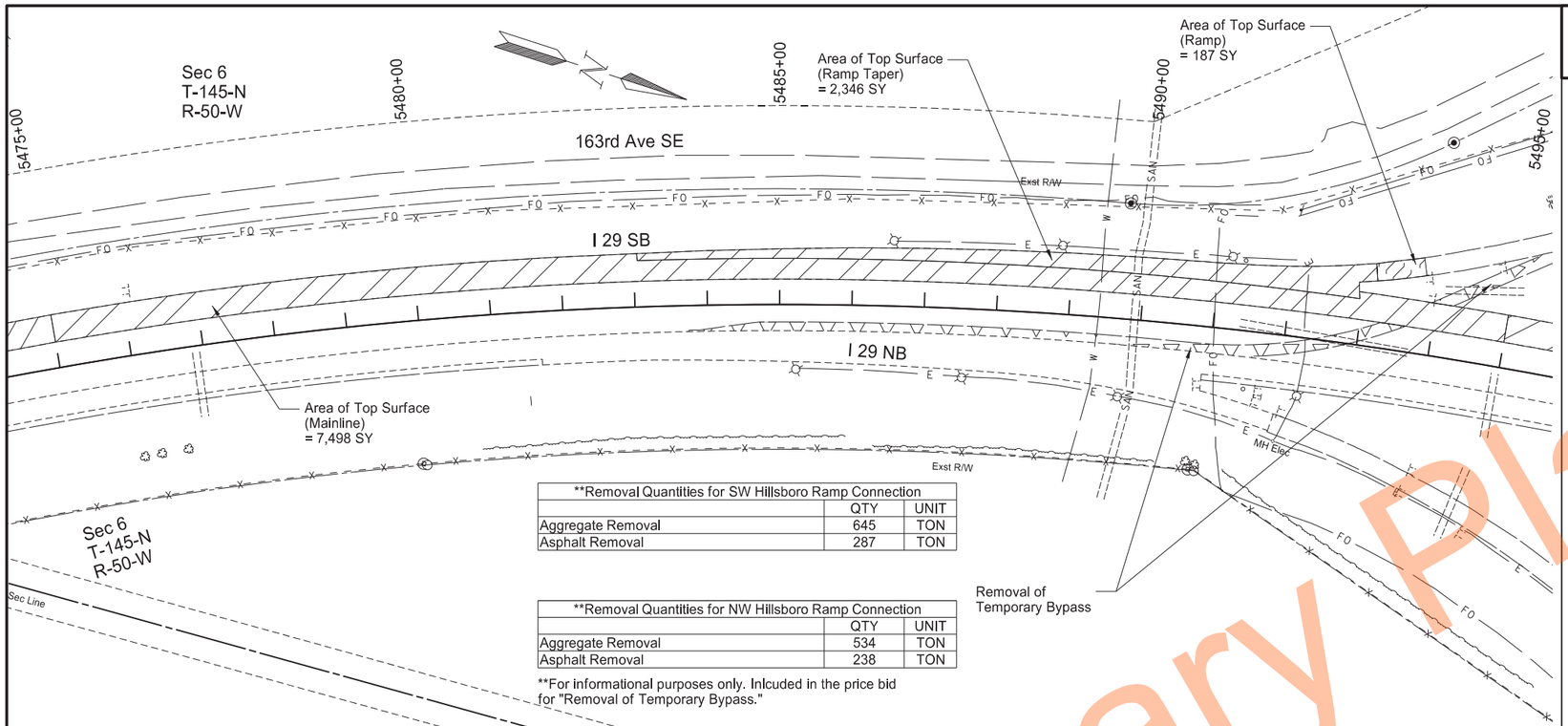
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	4



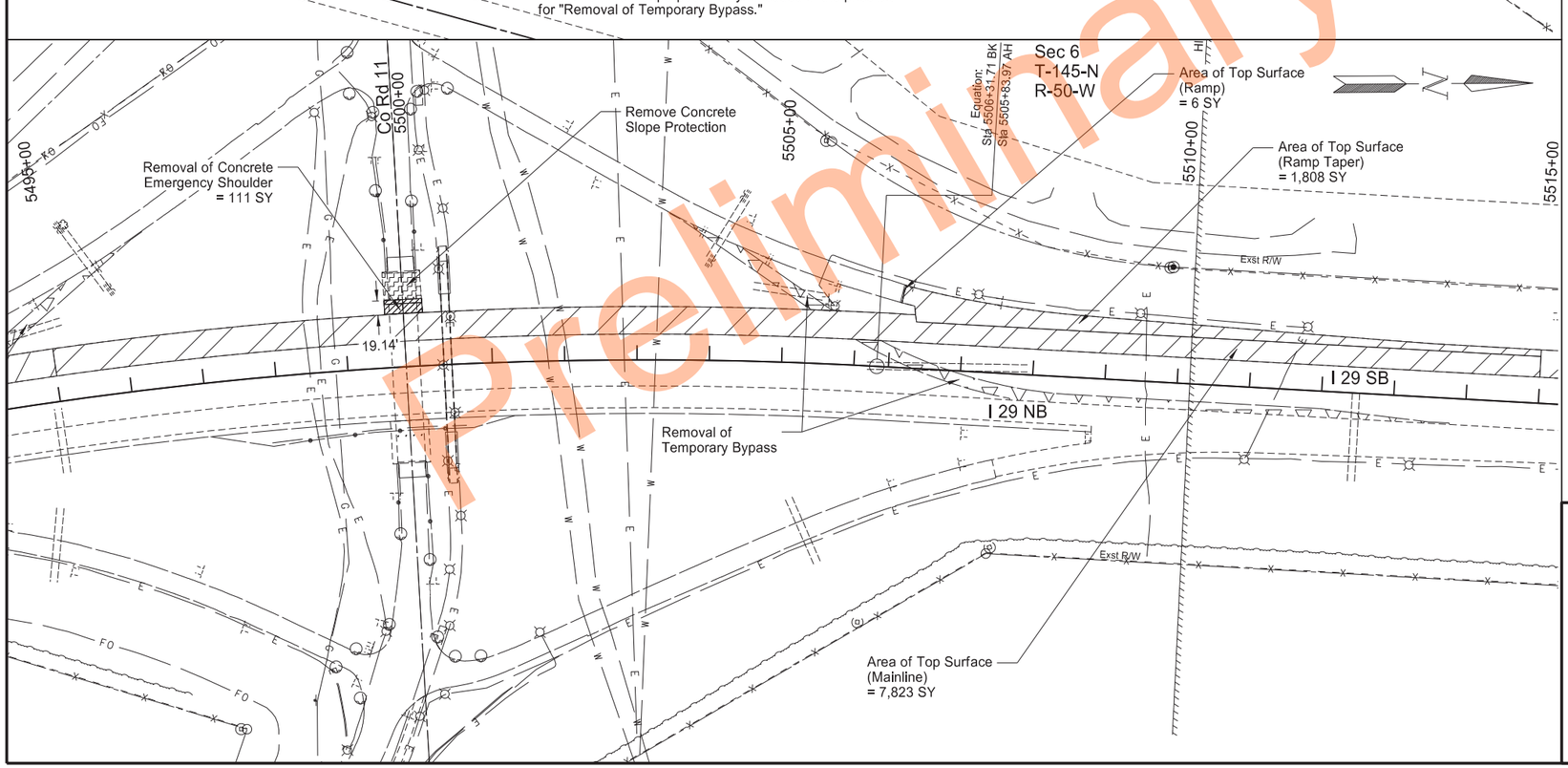
**Removal Quantities for SW Hillsboro Ramp Connection

	QTY	UNIT
Aggregate Removal	645	TON
Asphalt Removal	287	TON

**Removal Quantities for NW Hillsboro Ramp Connection

	QTY	UNIT
Aggregate Removal	534	TON
Asphalt Removal	238	TON

**For informational purposes only. Inlcuded in the price bid for "Removal of Temporary Bypass."



SPEC	CODE	BID ITEM	QTY	UNIT
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5493+12 to Sta 5493+82		
		Ramp Bituminous (8" Depth)	84	TON
		Ramp Bituminous Base (4" Depth)	40	TON
		Sta 5505+79 to Sta 5506+19		
		Ramp Bituminous (8" Depth)	3	TON
		Ramp Bituminous Base (4" Depth)	2	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5475+00 to Sta 5495+00		
		Mainline Concrete (9" Depth)	3749	TON
		Mainline Aggregate Base (5" Depth)	2392	TON
		Sta 5483+05 to Sta 5493+17		
		Ramp Taper Concrete (8" Depth)	1043	TON
		Ramp Taper Bituminous Base (3" Depth)	367	TON
		Sta 5495+00 to Sta 5515+00		
		Mainline Concrete (9" Depth)	3912	TON
		Mainline Aggregate Base (5" Depth)	2504	TON
		Sta 5499+55 to Sta 5500+07		
		Emergency Concrete Shoulder (6" Depth)	38	TON
		Sta 5506+14 to Sta 5515+00		
		Ramp Taper Concrete (8" Depth)	804	TON
		Ramp Taper Bituminous Base (3" Depth)	283	TON
202	0350	REMOVAL OF TEMPORARY BYPASS		
		Sta 5483+74 to Sta 5496+39		
		SW Hillsboro Temporary Ramp Connection	1	EA
		Sta 5503+44 to Sta 5513+79		
		NW Hillsboro Temporary Ramp Connection	1	EA

Note:
See Section 60 for pipe removal quantities.
See Section 170 for slope protection removal details.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5475+00 to Sta 5495+00
Sta 5495+00 to Sta 5515+00

PCC Pavement Reconstruction
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N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
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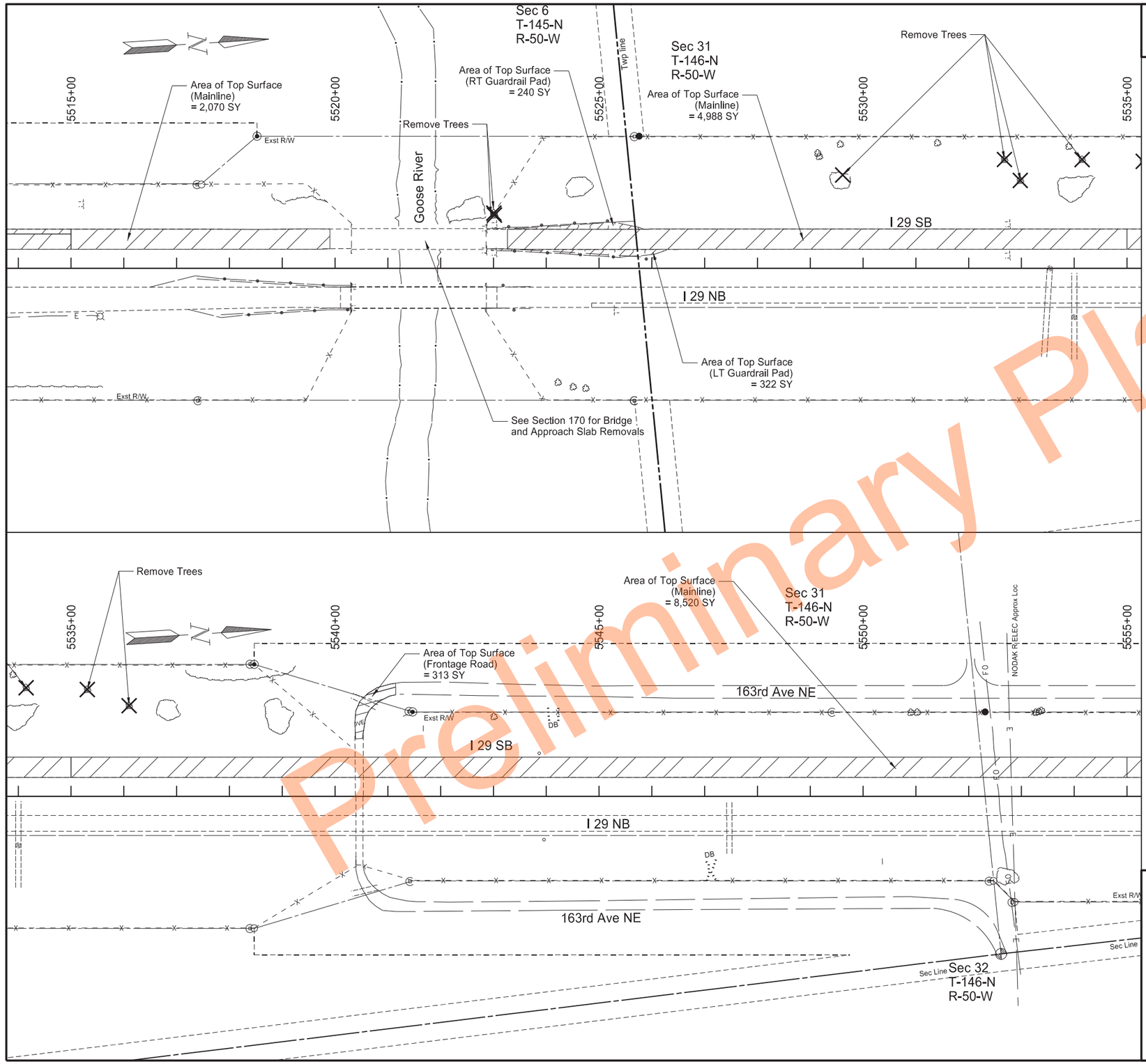
Preliminary Plans



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	5

SPEC	CODE	BID ITEM	QTY	UNIT
		REMOVAL OF TREES*		
		Sta 5532+98 - 166' Lt		
201	0370	REMOVAL OF TREES 10IN		
		Sta 5523+01 - 104' Lt	1	EA
		Sta 5532+68 - 206' Lt	1	EA
		Sta 5535+31 - 202' Lt	1	EA
		Sta 5536+10 - 172' Lt	1	EA
201	0380	REMOVAL OF TREES 18IN		
		Sta 5523+02 - 101' Lt	1	EA
		Sta 5529+61 - 177' Lt	1	EA
		Sta 5534+15 - 206' Lt	1	EA
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5522+96 to Sta 5526+32		
		LT Guardrail Pad (2" Depth)	36	TON
		Sta 5523+05 to Sta 5525+85		
		RT Guardrail Pad (2" Depth)	27	TON
		Sta 5540+42 to Sta 5540+87		
		Frontage Road (2" Depth)	27	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5515+00 to Sta 5535+00		
		Mainline Concrete (9" Depth)	3529	TON
		Mainline Aggregate Base (5" Depth)	2246	TON
		Sta 5535+00 to Sta 5555+00		
		Mainline Concrete (9" Depth)	4260	TON
		Mainline Aggregate Base (5" Depth)	2798	TON

*Included in the pay item for Clearing and Grubbing

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5515+00 to Sta 5535+00
Sta 5535+00 to Sta 5555+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
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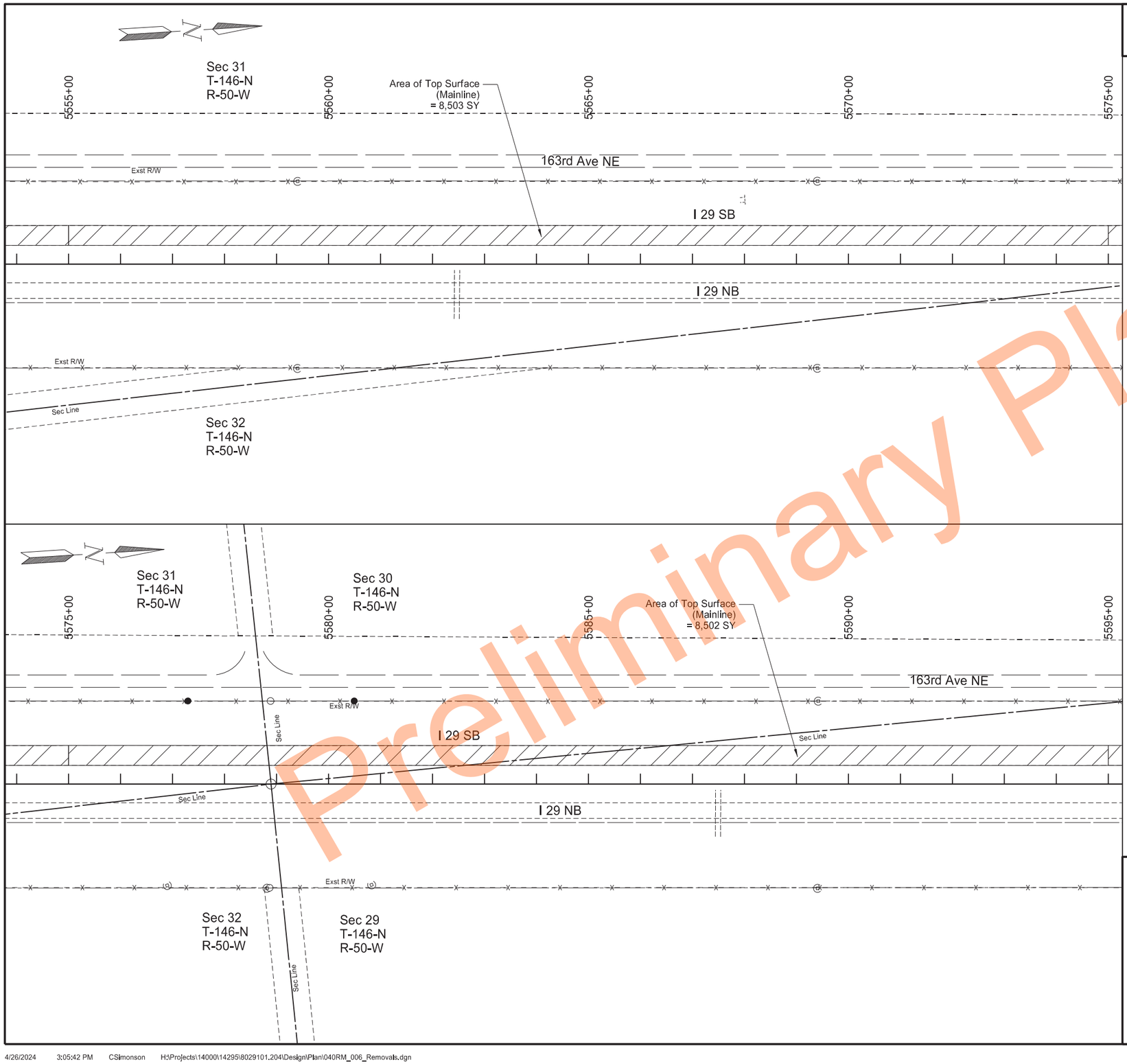
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	40	6



SPEC CODE	BID ITEM	QTY	UNIT
202 0136	REMOVAL OF PAVEMENT		
	Sta 5555+00 to Sta 5575+00		
	Mainline Concrete (9" Depth)	4252	TON
	Mainline Aggregate Base (5" Depth)	2793	TON
	Sta 5575+00 to Sta 5595+00		
	Mainline Concrete (9" Depth)	4252	TON
	Mainline Aggregate Base (5" Depth)	2793	TON

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5555+00 to Sta 5575+00
Sta 5575+00 to Sta 5595+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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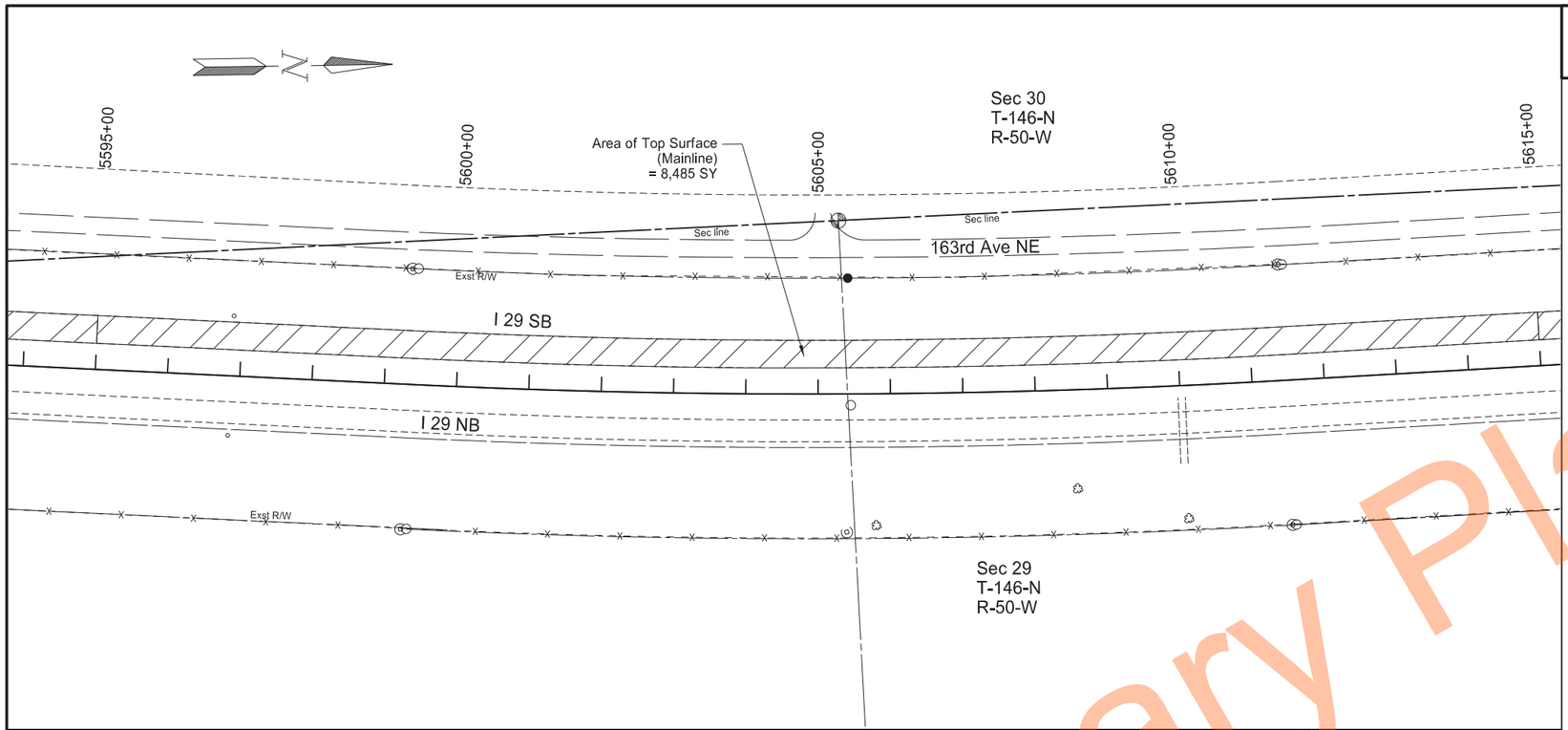
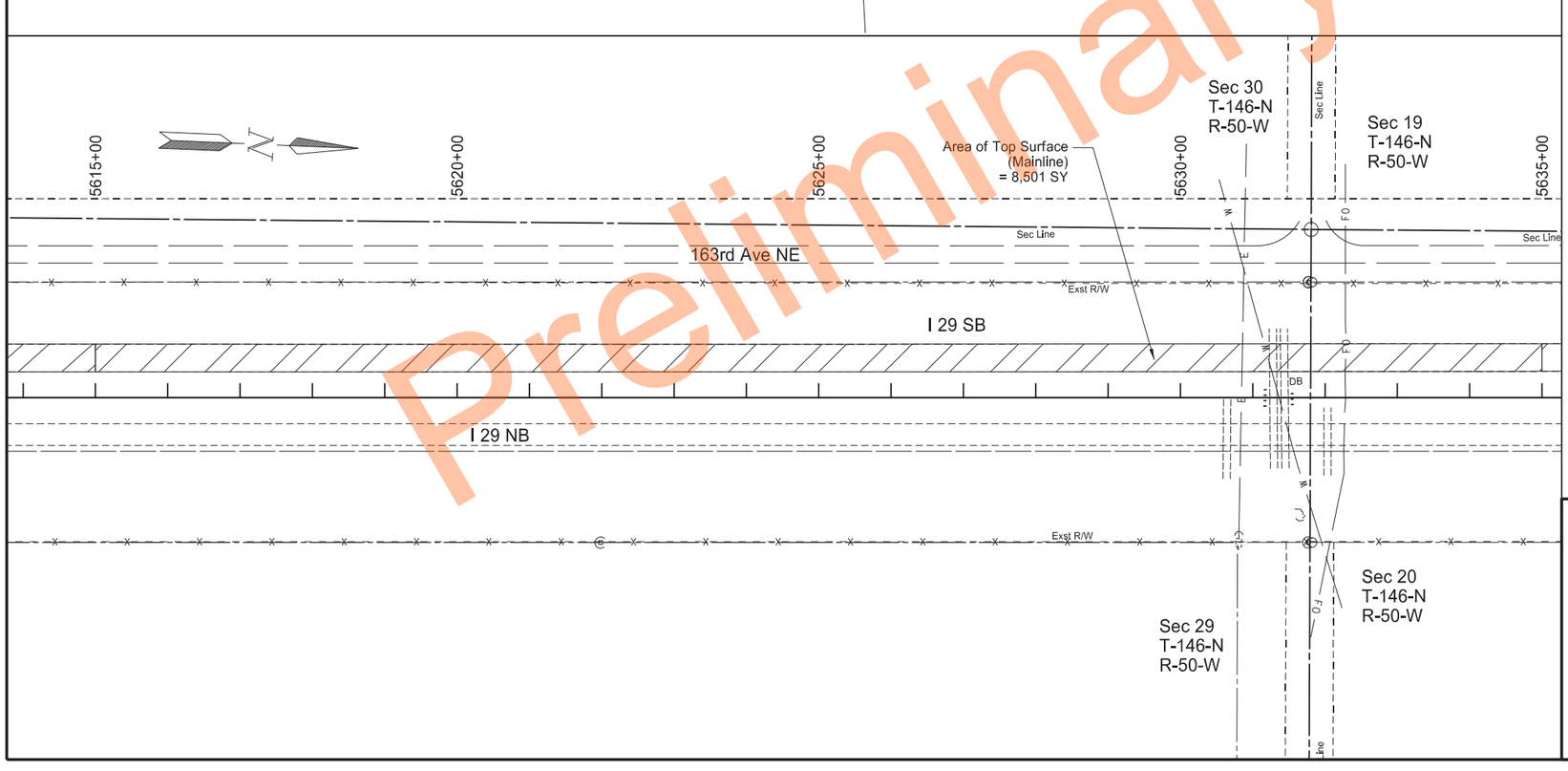
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	7





SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 5595+00 to Sta 5615+00		
		Mainline Concrete (9" Depth)	4243	TON
		Mainline Aggregate Base (5" Depth)	2787	TON
		Sta 5615+00 to Sta 5635+00		
		Mainline Concrete (9" Depth)	4251	TON
		Mainline Aggregate Base (5" Depth)	2793	TON

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5595+00 to Sta 5615+00
Sta 5615+00 to Sta 5635+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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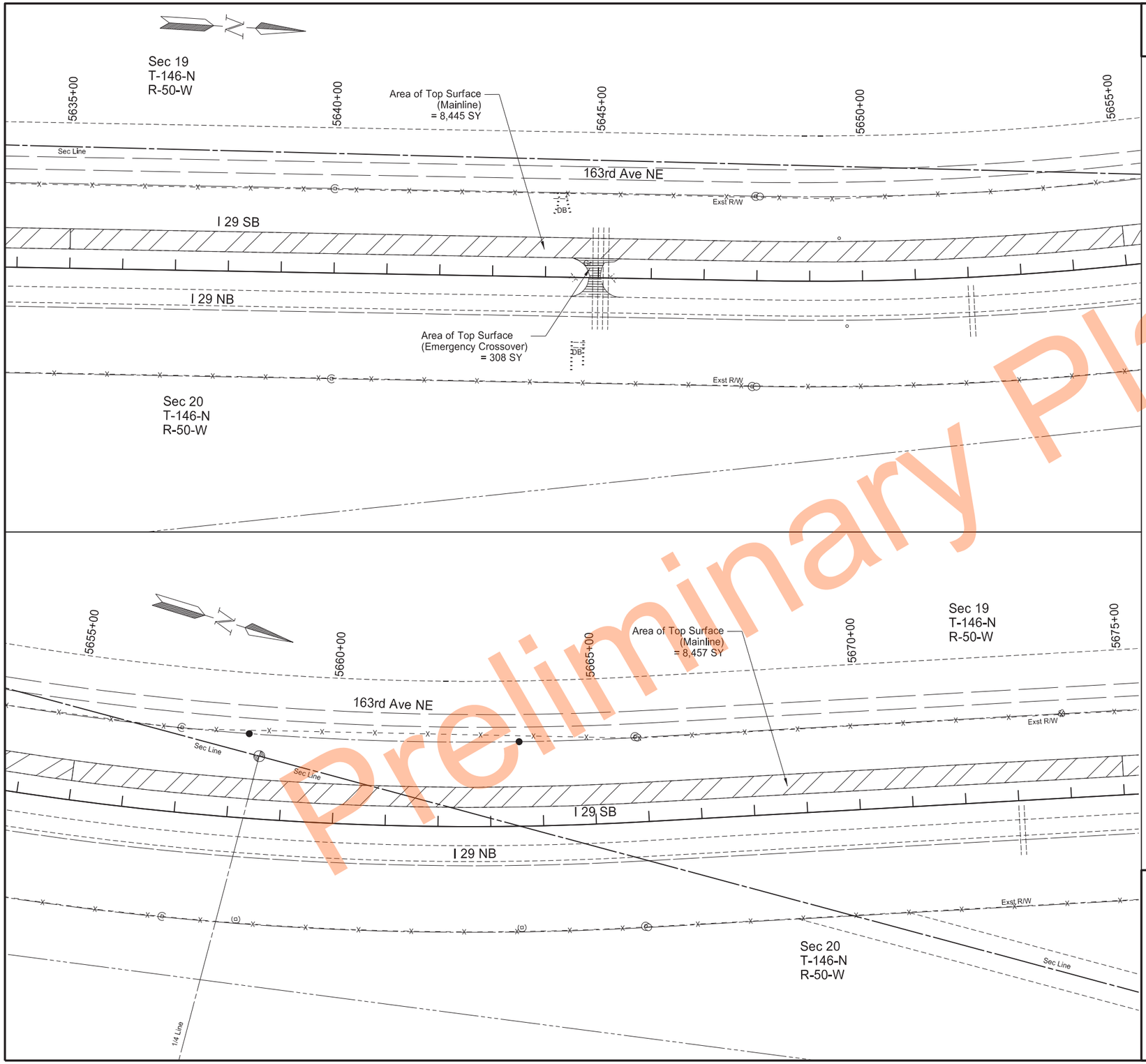
Preliminary Plans



Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	8

SPEC	CODE	BID ITEM	QTY	UNIT
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5644+94 - Emergency Crossover (3" Depth)	39	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5635+00 to Sta 5655+00		
		Mainline Concrete (9" Depth)	4223	TON
		Mainline Aggregate Base (5" Depth)	2765	TON
		Sta 5655+00 to Sta 5675+00		
		Mainline Concrete (9" Depth)	4229	TON
		Mainline Aggregate Base (5" Depth)	2779	TON

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5635+00 to Sta 5655+00
Sta 5655+00 to Sta 5675+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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DATE: 6/25/24
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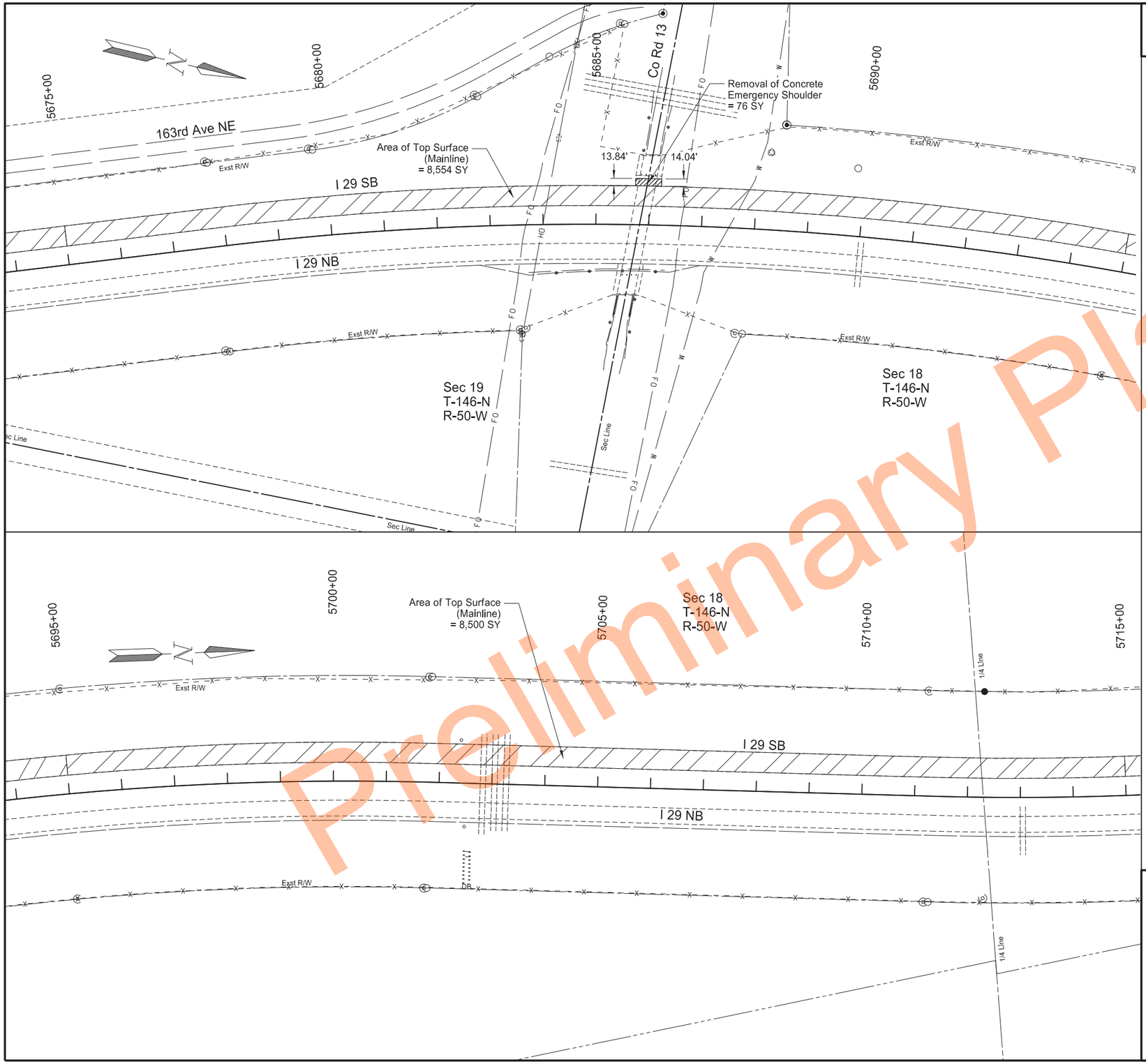
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	9



SPEC CODE	BID ITEM	QTY	UNIT
202 0136	REMOVAL OF PAVEMENT		
	Sta 5675+00 to Sta 5695+00		
	Mainline Concrete (9" Depth)	4278	TON
	Mainline Aggregate Base (5" Depth)	2766	TON
	Sta 5685+74 to Sta 5686+22		
	Emergency Concrete Shoulder (6" Depth)	26	TON
	Sta 5695+00 to Sta 5715+00		
	Mainline Concrete (9" Depth)	4250	TON
	Mainline Aggregate Base (5" Depth)	2794	TON

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5675+00 to Sta 5695+00
Sta 5695+00 to Sta 5715+00

PCC Pavement Reconstruction
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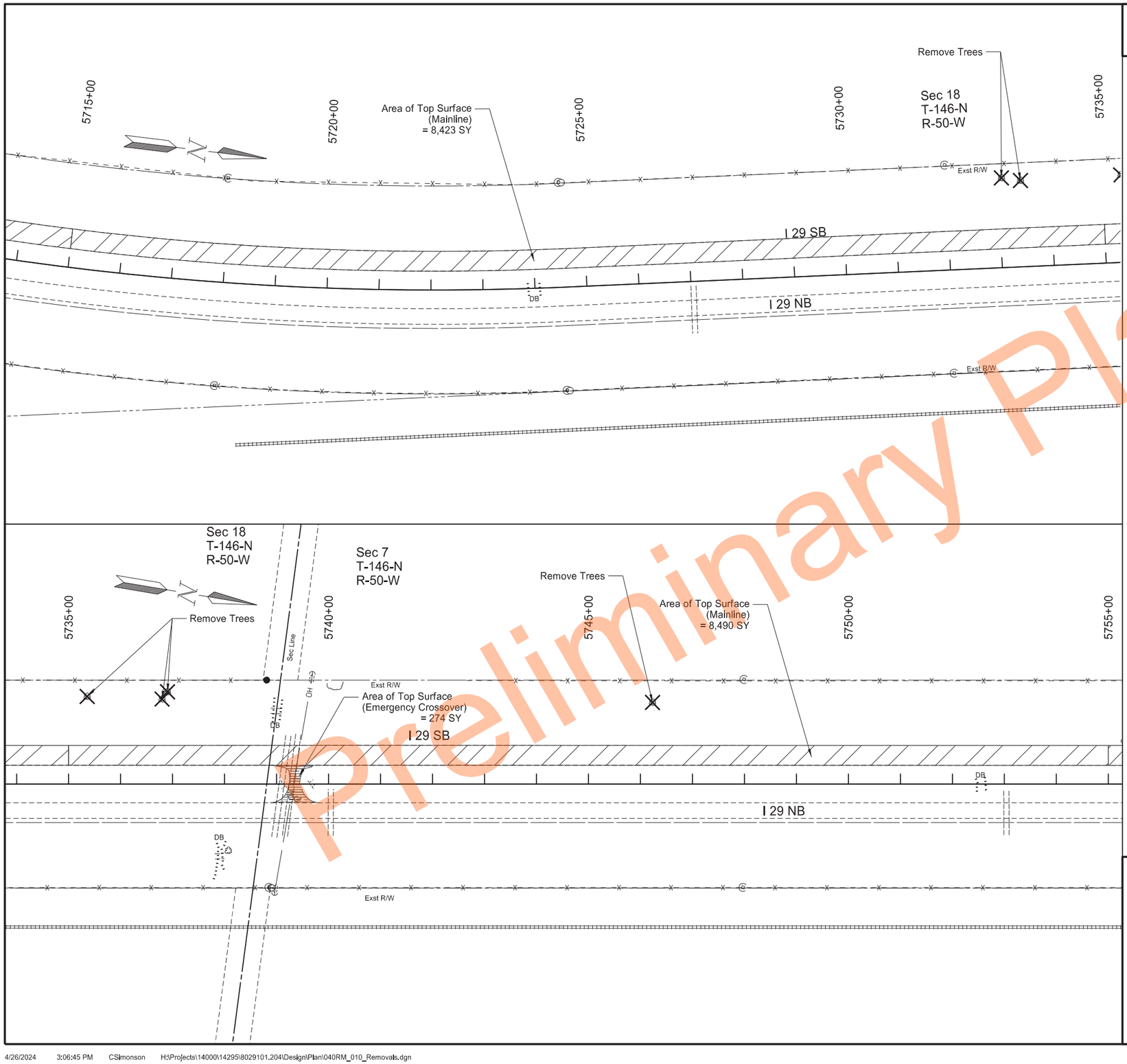

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	10

SPEC	CODE	BID ITEM	QTY	UNIT
		REMOVAL OF TREES*		
		Sta 5733+06 - 173' Lt		
		Sta 5733+42 - 166' Lt		
		Sta 5735+36 - 168' Lt		
		Sta 5736+80 - 164' Lt		
		Sta 5736+90 - 178' Lt		
		Sta 5746+23 - 157' Lt		
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5739+35 - Emergency Crossover (3" Depth)	35	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5715+00 to Sta 5735+00		
		Mainline Concrete (9" Depth)	4212	TON
		Mainline Aggregate Base (5" Depth)	2770	TON
		Sta 5735+00 Sta 5755+00		
		Mainline Concrete (9" Depth)	4245	TON
		Mainline Aggregate Base (5" Depth)	2781	TON

*Included in the pay item for Clearing and Grubbing
Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5715+00 to Sta 5735+00
Sta 5735+00 to Sta 5755+00

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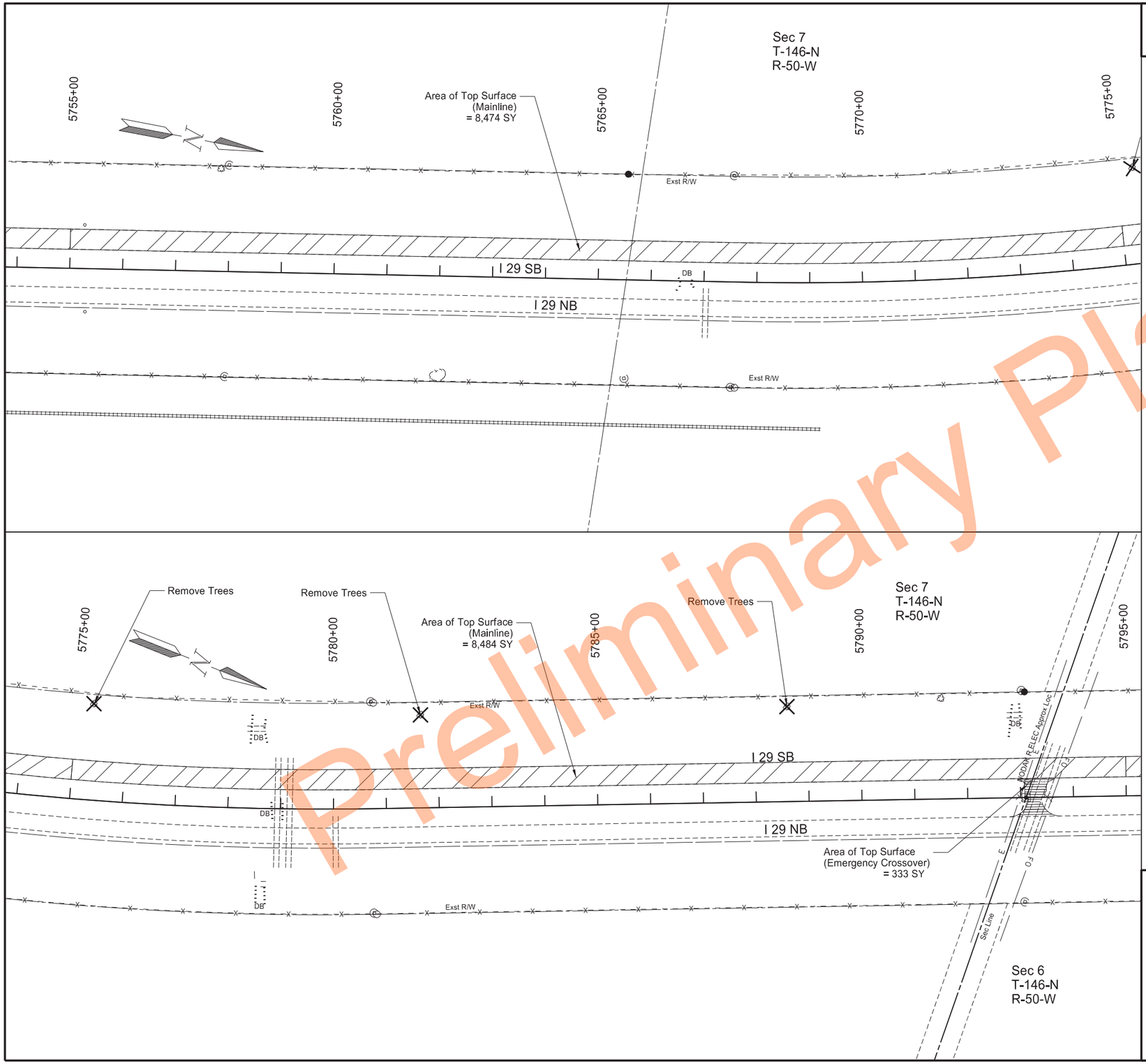
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	11



SPEC	CODE	BID ITEM	QTY	UNIT
		REMOVAL OF TREES*		
		Sta 5775+32 - 183' Lt		
201	0370	REMOVAL OF TREES 10IN		
		Sta 5781+67 - 176' Lt	1	EA
		Sta 5788+61 - 180' Lt	1	EA
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5793+27 - Emergency Crossover (3" Depth)	42	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5755+00 to Sta 5775+00		
		Mainline Concrete (9" Depth)	4238	TON
		Mainline Aggregate Base (5" Depth)	2784	TON
		Sta 5775+00 to Sta 5795+00		
		Mainline Concrete (9" Depth)	4242	TON
		Mainline Aggregate Base (5" Depth)	2778	TON

*Included in the pay item for Clearing and Grubbing
Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5755+00 to Sta 5775+00
Sta 5775+00 to Sta 5795+00

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Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
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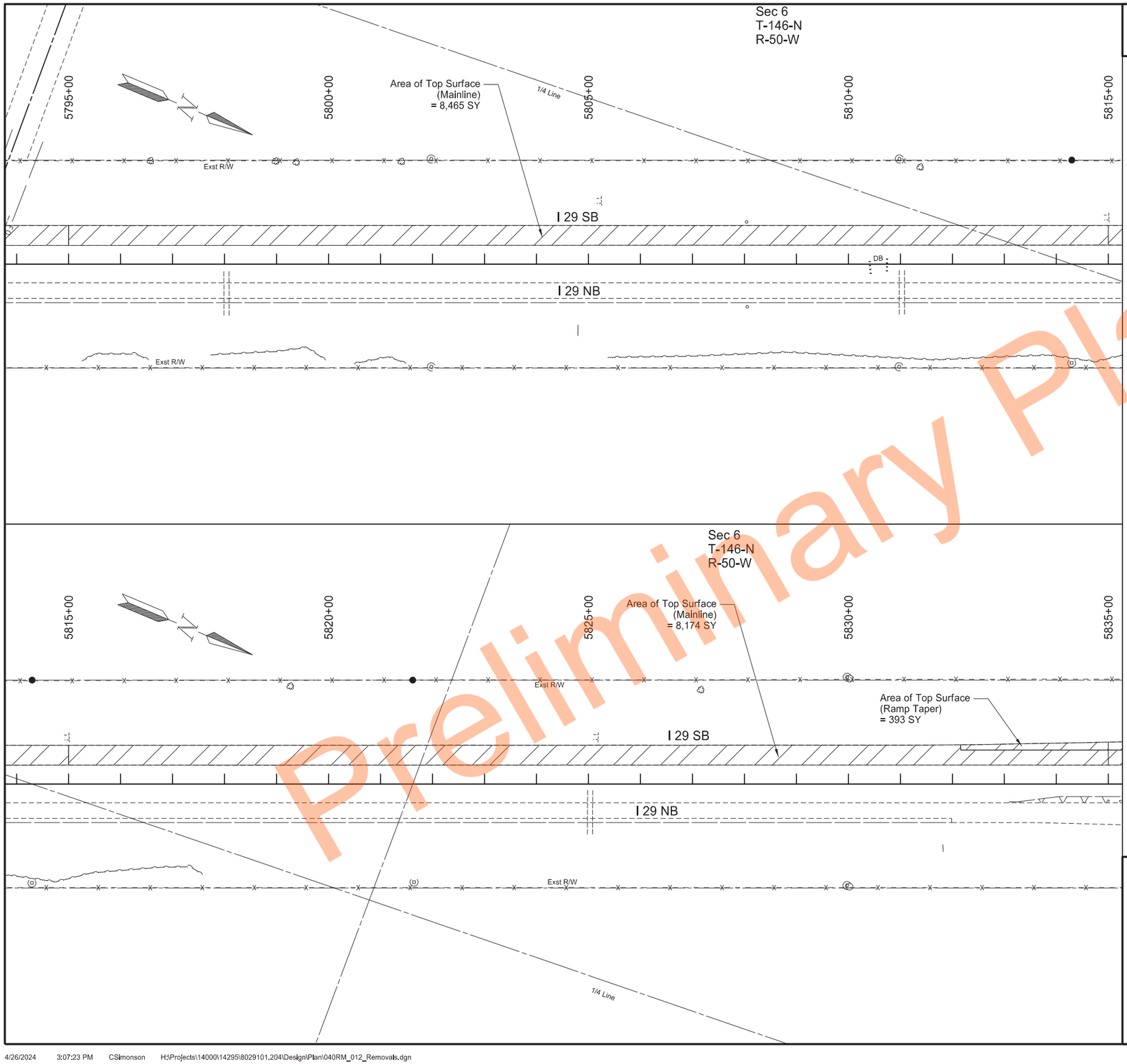
Preliminary Plans



Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	40	12

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT		
		Sta 5795+00 to Sta 5815+00		
		Mainline Concrete (9" Depth)	4233	TON
		Mainline Aggregate Base (5" Depth)	2784	TON
		Sta 5815+00 to Sta 5835+00		
		Mainline Concrete (9" Depth)	4087	TON
		Mainline Aggregate Base (5" Depth)	2667	TON
		Sta 5832+16 to Sta 5835+00		
		Ramp Taper Concrete (8" Depth)	175	TON
		Ramp Taper Bituminous (3" Depth)	62	TON

Note:
See Section 60 for pipe removal quantities.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5795+00 to Sta 5815+00
Sta 5815+00 to Sta 5835+00

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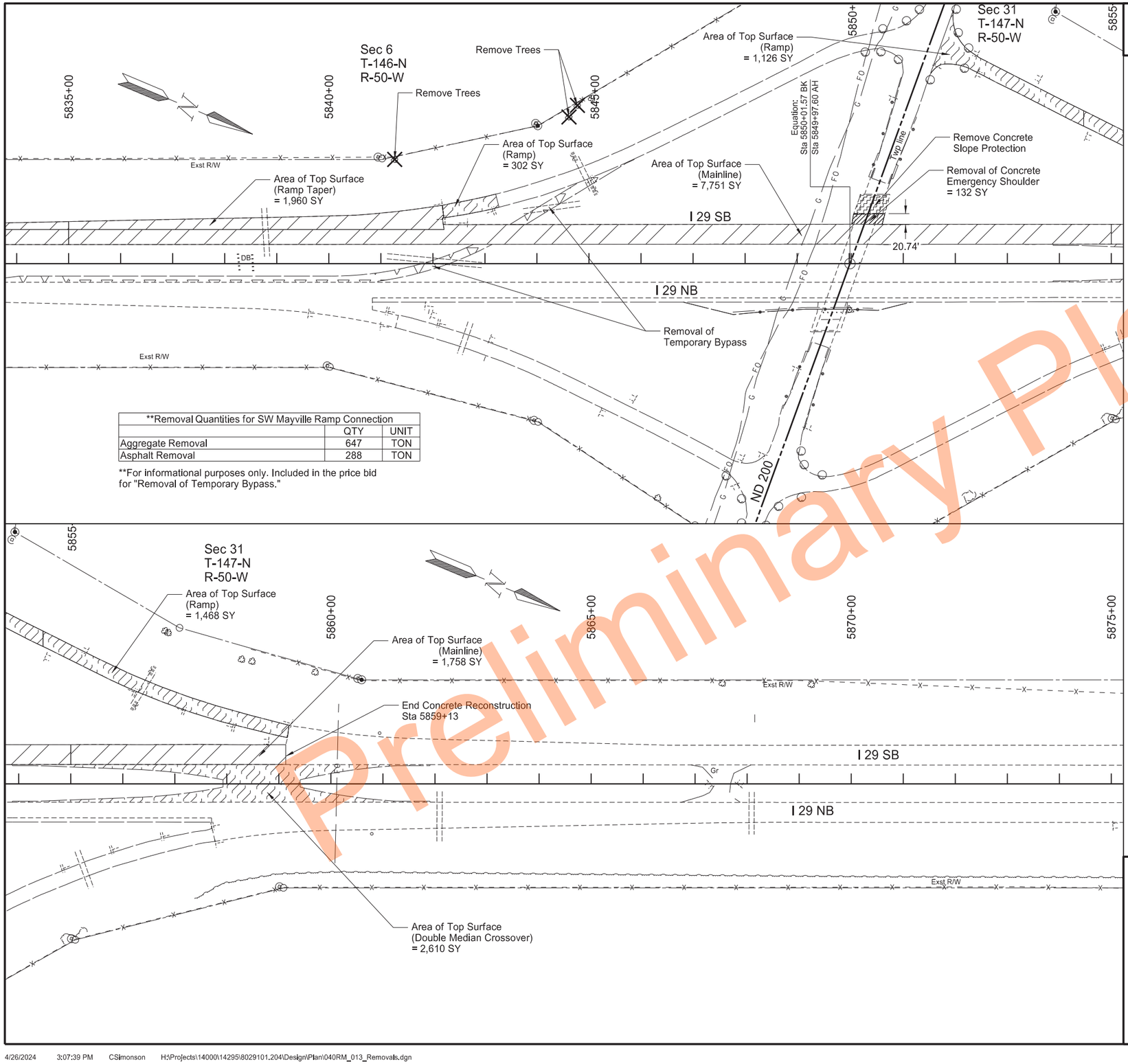

**Removal Quantities for SW Mayville Ramp Connection

	QTY	UNIT
Aggregate Removal	647	TON
Asphalt Removal	288	TON

**For informational purposes only. Included in the price bid for "Removal of Temporary Bypass."

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	40	13

SPEC	CODE	BID ITEM	QTY	UNIT
		REMOVAL OF TREES*		
		Sta 5844+62 - 282' Lt		
201	0370	REMOVAL OF TREES 10IN		
		Sta 5841+27 - 200' Lt	1	EA
201	0380	REMOVAL OF TREES 18IN		
		Sta 5844+78 - 304' Lt	1	EA
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 5842+21 to Sta 5843+27		
		Ramp Bituminous (8" Depth)	135	TON
		Ramp Bituminous Base (4" Depth)	63	TON
		Sta 5851+73 to Sta 5859+19		
		Ramp Bituminous (8" Depth)	1153	TON
		Ramp Bituminous Base (4" Depth)	541	TON
		Sta 5853+88 to Sta 5861+91		
		Double Median Crossover Asphalt Pavement (5.5" Depth)	798	TON
		Double Median Crossover Aggregate Base (15" Depth)	1632	TON
202	0136	REMOVAL OF PAVEMENT		
		Sta 5835+00 to Sta 5855+00		
		Mainline Concrete (9" Depth)	3876	TON
		Mainline Aggregate Base (5" Depth)	2455	TON
		Sta 5835+00 to Sta 5842+21		
		Ramp Taper Concrete (8" Depth)	871	TON
		Ramp Taper Bituminous Base (3" Depth)	307	TON
		Sta 5850+01 to Sta 5850+65		
		Emergency Concrete Shoulder (6" Depth)	44	TON
		Sta 5855+00 to Sta 5859+13		
		Mainline Concrete (9" Depth)	880	TON
		Mainline Aggregate Base (5" Depth)	518	TON
202	0350	REMOVAL OF TEMPORARY BYPASS		
		Sta 5833+09 to Sta 5845+87		
		SW Mayville Temporary Ramp Connection	1	EA

*Included in the pay item for Clearing and Grubbing

Note:
See Section 60 for pipe removal quantities.
See Section 170 for slope protection removal details.

LEGEND

- Removal of Tree
- Remove Concrete Slope Protection
- Removal of Temporary Bypass

Remove Aggregate Base & Surfacing

- Emergency Crossovers & Frontage Road
- Ramps, Guardrail Pads, & Double Median Crossover (Asphalt)

Removal of Pavement

- Mainline, Ramp Tapers, & Double Median Crossover (Concrete)
- Emergency Concrete Shoulder

Removals
Sta 5835+00 to Sta 5855+00
Sta 5855+00 to Sta 5875+00

PCC Pavement Reconstruction
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	50	1

Hydraulic Data for IM-8-029(204)101(A)

Alignment	Station	Existing Pipe	Proposed Pipe Size (IN)	Drainage Area (AC)	50-Year Data				100-Year Data		Notes
					Design Discharge (CFS)	Design Headwater (FT)	Design Velocity (FPS)	Design Stage (NAVD 88)	100-Year Discharge (CFS)	100-Year Stage (NAVD 88)	
I-29	5367+78	42IN x 210FT RCP	42	1218.2	409.1	6.97	8.7	901.87	488.7	902.18	(B)
I-29	5410+35	42IN x 212FT RCP	42	1031.3	208.4	3.30	6.9	901.70	245.4	901.93	
I-29	5410+57	42IN x 208FT RCP	42								
I-29	5631+29	42IN x 194FT RCP	42	927.1	1037.8	6.34	6.9	905.54	1313.0	906.05	(B)
I-29	5631+44	42IN x 194FT RCP	42								
I-29	5644+94	42IN x 194FT RCP	42	1094.9	854.2	5.98	7.0	905.98	1069.6	906.40	(B)
I-29	5645+14	42IN x 194FT RCP	42								
I-29	5702+83	36IN x 190FT RCP	36	1224.3	554.3	3.56	1.3	907.26	708.6	907.72	(B)
I-29	5703+05	36IN x 183FT RCP	36								
I-29	5703+27	36IN x 183FT RCP	36								
I-29	5739+10	51x31IN x 200FT RCP	51x31	986.4	354.3	4.24	6.0	910.14	448.5	910.39	(B)
I-29	5739+29	51x31IN x 200FT RCP	51x31								
I-29	5778+94	51x31IN x 208FT RCP	51x31	351.4	243.9	3.94	8.1	913.04	304.0	913.31	(B)
I-29	5779+17	51x31IN x 208FT RCP	51x31								
I-29	5793+20	51x31IN x 219FT RCP	51x31	968.3	248.0	3.89	8.7	914.09	292.7	914.22	
I-29	5793+46	51x31IN x 211FT RCP	51x31								
I-29	5838+79	24IN x 94FT RCP	24	4.8	5.0	1.11	5.2	925.75	5.4	925.80	
Frontage	7+41	18IN x 52FT CSP	24	1.2	7.3	1.39	7.4	890.97	11.4	891.42	(C)

Notes: (A) Hydraulic data provided is for smooth-walled type conduits.
(B) Discharges include bypass flows from upstream ditch blocks.
(C) Not a major centerline culvert, design event = 10 year.

Preliminary Plans

Culvert Hydraulic Data

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	51	1

Begin Alignment	Begin Station/ Location	Begin Offset	End Alignment	End Station/ Location	End Offset	Pipe Installation (Pay Item) IN	Bid Item	LF	Allowable Material	Required Diameter IN	Steel Pipe Coatings Type	Steel Pipe Corrugations or Spiral Ribs IN	Steel Pipe Minimum Thickness IN	(*) End Treatments Begin EA	End EA	Type G (Pay Item) (A) SY	Applicable Backfill Detail	Notes
I-29	5367+85	110.6' LT	I-29	5367+78	0.0' CL	42	Pipe Conduit	111	Reinforced Concrete Pipe - Class III (Barrel Length = 108 LF)	42				FES		340	Sheet 20-11	
I-29	5410+72	104.3' LT	I-29	5410+35	0.0' CL	42	Pipe Conduit	111	Reinforced Concrete Pipe - Class III (Barrel Length = 108 LF)	42				FES		600	Sheet 20-11	(A)
I-29	5410+95	103.9' LT	I-29	5410+57	0.0' CL	42	Pipe Conduit	111	Reinforced Concrete Pipe - Class III (Barrel Length = 108 LF)	42				FES			Sheet 20-11	(A)
I-29	5631+28	102.7' LT	I-29	5631+29	0.0' CL	42	Pipe Conduit	103	Reinforced Concrete Pipe - Class III (Barrel Length = 100 LF)	42				FES		490	Sheet 20-11	(A)
I-29	5631+43	102.7' LT	I-29	5631+44	0.0' CL	42	Pipe Conduit	103	Reinforced Concrete Pipe - Class III (Barrel Length = 100 LF)	42				FES			Sheet 20-11	(A)
I-29	5644+94	102.7' LT	I-29	5644+94	0.0' CL	42	Pipe Conduit	103	Reinforced Concrete Pipe - Class III (Barrel Length = 100 LF)	42				FES		540	Sheet 20-11	(A)
I-29	5645+14	102.7' LT	I-29	5645+14	0.0' CL	42	Pipe Conduit	103	Reinforced Concrete Pipe - Class III (Barrel Length = 100 LF)	42				FES			Sheet 20-11	(A)
I-29	5702+84	102.7' LT	I-29	5702+83	0.0' CL	36	Pipe Conduit	103	Reinforced Concrete Pipe - Class III (Barrel Length = 100 LF)	36				FES		770	Sheet 20-11	(A)
I-29	5703+05	102.7' LT	I-29	5703+05	0.0' CL	36	Pipe Conduit	103	Reinforced Concrete Pipe - Class III (Barrel Length = 100 LF)	36				FES			Sheet 20-11	(A)
I-29	5703+27	102.7' LT	I-29	5703+27	0.0' CL	36	Pipe Conduit	103	Reinforced Concrete Pipe - Class III (Barrel Length = 100 LF)	36				FES			Sheet 20-11	(A)
I-29	5739+24	102.0' LT	I-29	5739+10	0.0' CL	51 x 31	Pipe Conduit Arch	103	Reinforced Concrete Arch Pipe - Class III (Barrel Length = 100 LF)	51 x 31				FES		500	Sheet 20-11	(A)
I-29	5739+43	102.1' LT	I-29	5739+29	0.0' CL	51 x 31	Pipe Conduit Arch	103	Reinforced Concrete Arch Pipe - Class III (Barrel Length = 100 LF)	51 x 31				FES			Sheet 20-11	(A)
I-29	5778+95	103.0' LT	I-29	5778+94	0.0' CL	51 x 31	Pipe Conduit Arch	103	Reinforced Concrete Arch Pipe - Class III (Barrel Length = 100 LF)	51 x 31				FES		540	Sheet 20-11	(A)
I-29	5779+18	103.0' LT	I-29	5779+17	0.0' CL	51 x 31	Pipe Conduit Arch	103	Reinforced Concrete Arch Pipe - Class III (Barrel Length = 100 LF)	51 x 31				FES			Sheet 20-11	(A)
I-29	5793+57	102.6' LT	I-29	5793+20	0.0' CL	51 x 31	Pipe Conduit Arch	109	Reinforced Concrete Arch Pipe - Class III (Barrel Length = 106 LF)	51 x 31				FES		590	Sheet 20-11	(A)
I-29	5793+84	102.3' LT	I-29	5793+46	0.0' CL	51 x 31	Pipe Conduit Arch	109	Reinforced Concrete Arch Pipe - Class III (Barrel Length = 106 LF)	51 x 31				FES			Sheet 20-11	(A)
I-29	5838+82	11.0' LT	I-29	5838+75	111.0' LT	24	Pipe Conduit	100	Reinforced Concrete Arch Pipe - Class III (Barrel Length = 96 LF)	24				TES	FES	300	Sheet 20-11	

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section
TES = Traversable End Section

Notes: (A) Geosynthetic Material Type G calculated and tabulated once for dual and triple culverts.

Allowable Pipe List
Centerline Pipes

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	51	2

Begin Alignment	Begin Station/ Location	Begin Offset	End Alignment	End Station/ Location	End Offset	Pipe Installation (Pay Item) IN	Bid Item	LF	Allowable Material	Required Diameter IN	Steel Pipe Coatings Type	Steel Pipe Corrugations or Spiral Ribs IN	Steel Pipe Minimum Thickness IN	(*) End Treatments Begin EA	End EA	Geogrid Type G (Pay Item) SY	Applicable Backfill Detail	Notes
I-29	5355+39	152.4' LT	I-29	5354+39	160.1' LT	18	Pipe Conduit - Approach	100	Reinforced Concrete Pipe - Class III (Barrel Length = 92 LF)	18				FES	FES		Specification 714.04 A	(A)
I-29	5367+06	136.5' LT	I-29	5366+52	136.5' LT	18	Pipe Conduit - Approach	54	Reinforced Concrete Pipe - Class III (Barrel Length = 46 LF)	18				FES	FES		Specification 714.04 A	(A)
I-29	5644+33	142.8' LT	I-29	5644+08	142.8' LT	24	Pipe Conduit - Approach	25	Reinforced Concrete Pipe - Class III (Barrel Length = 20 LF)	24				FES	FES		Specification 714.04 A	(A)
I-29	5702+49	151.8' LT	I-29	5702+24	151.8' LT	18	Pipe Conduit - Approach	26	Reinforced Concrete Pipe - Class III (Barrel Length = 18 LF)	18				FES	FES		Specification 714.04 A	(A)
I-29	5739+09	149.3' LT	I-29	5738+80	149.9' LT	18	Pipe Conduit - Approach	30	Reinforced Concrete Pipe - Class III (Barrel Length = 22 LF)	18				FES	FES		Specification 714.04 A	(A)
I-29	5778+61	149.7' LT	I-29	5778+35	149.7' LT	18	Pipe Conduit - Approach	26	Reinforced Concrete Pipe - Class III (Barrel Length = 18 LF)	18				FES	FES		Specification 714.04 A	(A)
I-29	5793+07	143.6' LT	I-29	5792+81	143.6' LT	18	Pipe Conduit - Approach	26	Reinforced Concrete Pipe - Class III (Barrel Length = 18 LF)	18				FES	FES		Specification 714.04 A	(A)
Frontage	7+46	18.0' RT	Frontage	7+36	32.0' LT	24	Pipe Conduit - Approach	55	Reinforced Concrete Pipe - Class III (Barrel Length = 50 LF) Spiral Rib Steel Pipe Corrugated Steel Pipe	24	Z, A, P	3/4, 1 2	0.064	FES	FES		Specification 714.04 A	

Notes: (A) Pipe installed beneath proposed Ditch Block

(*) The price bid for "Pipe Conduit" bid items includes end treatments.
FES = Flared End Section

Preliminary Plans

Allowable Pipe List
Median & Ditch Block Pipes

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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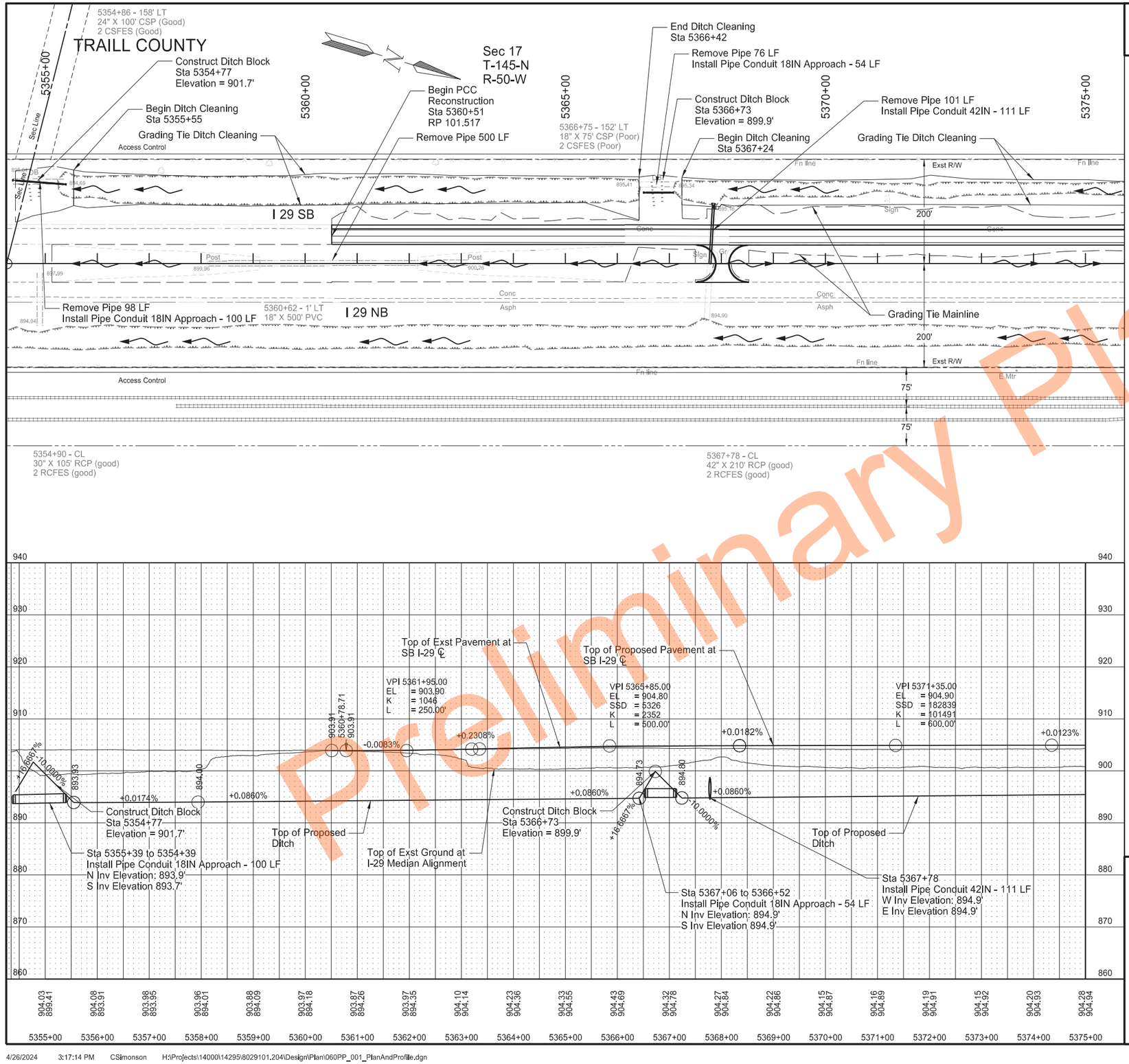
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	1



SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5355+35 - LT	98	LF
		5360+62 - CL	500	LF
		5366+70 - LT	76	LF
		5367+78 - CL	101	LF
714	4099	PIPE CONDUIT 18IN - APPROACH		
		5355+39 - 152' LT to 5354+39 - 160' LT	100	LF
		5367+06 - 137' LT to 5366+52 - 137' LT	54	LF
714	4120	PIPE CONDUIT 42IN		
		5367+78 - CL	111	LF
754	0805	OBJECT MARKERS - CULVERTS		
		5367+85 - LT	1	EA
		5355+39 - 153' LT & 5354+39 - 160' LT	2	EA
		5367+06 - 137' LT & 5366+52 - 137' LT	2	EA

Note:
Remove temporary culverts with median crossover after no longer needed for traffic control

Plan and Profile
Sta 5355+00 to Sta 5375+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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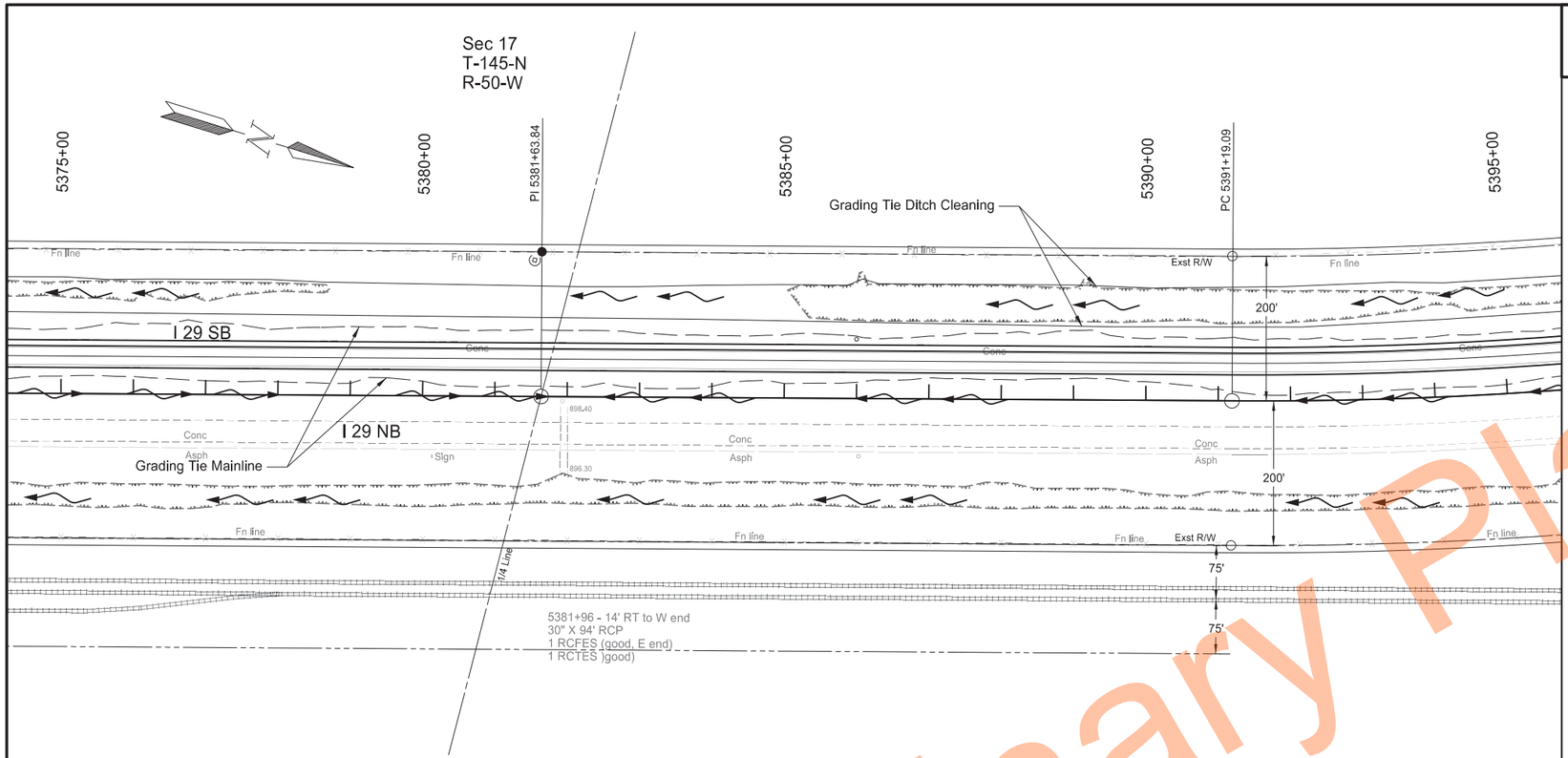
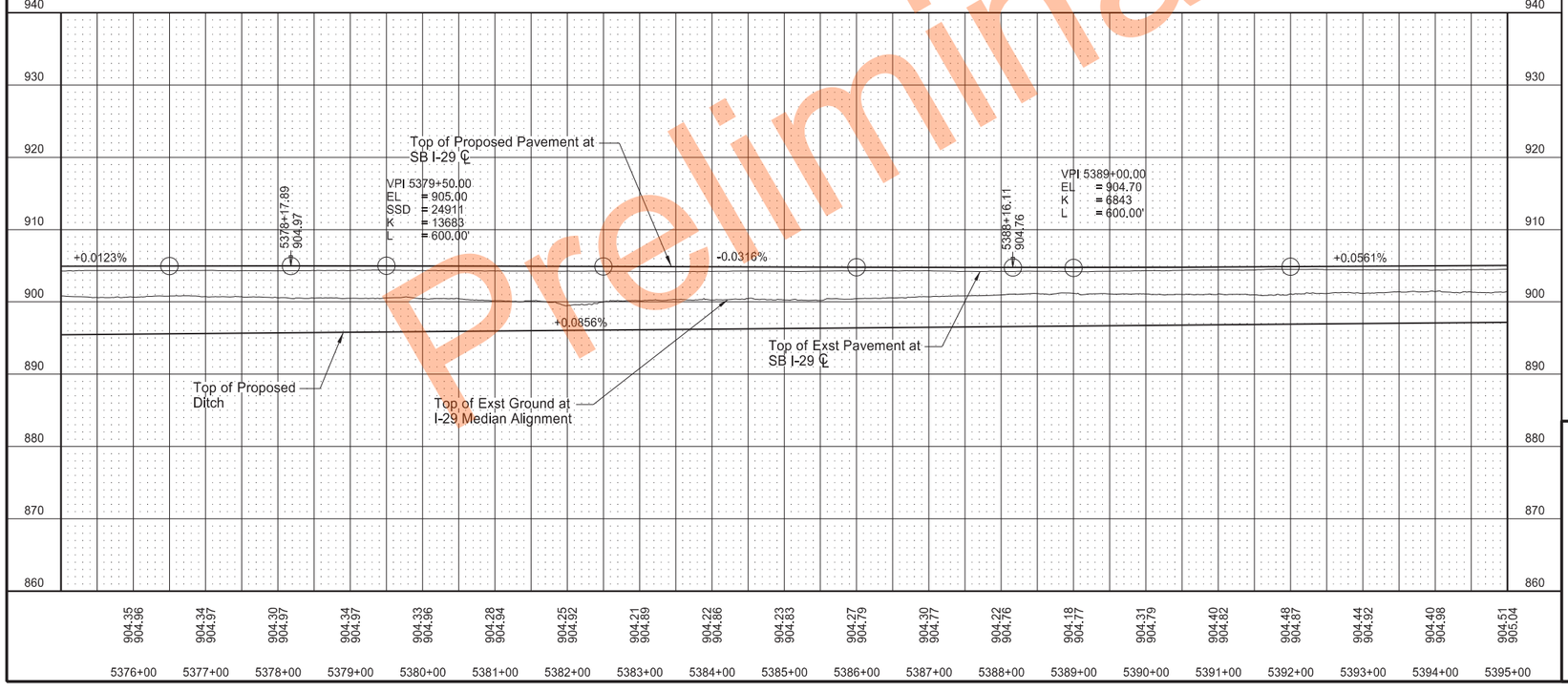
Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	2





Preliminary Plans

Plan and Profile
Sta 5375+00 to Sta 5395+00

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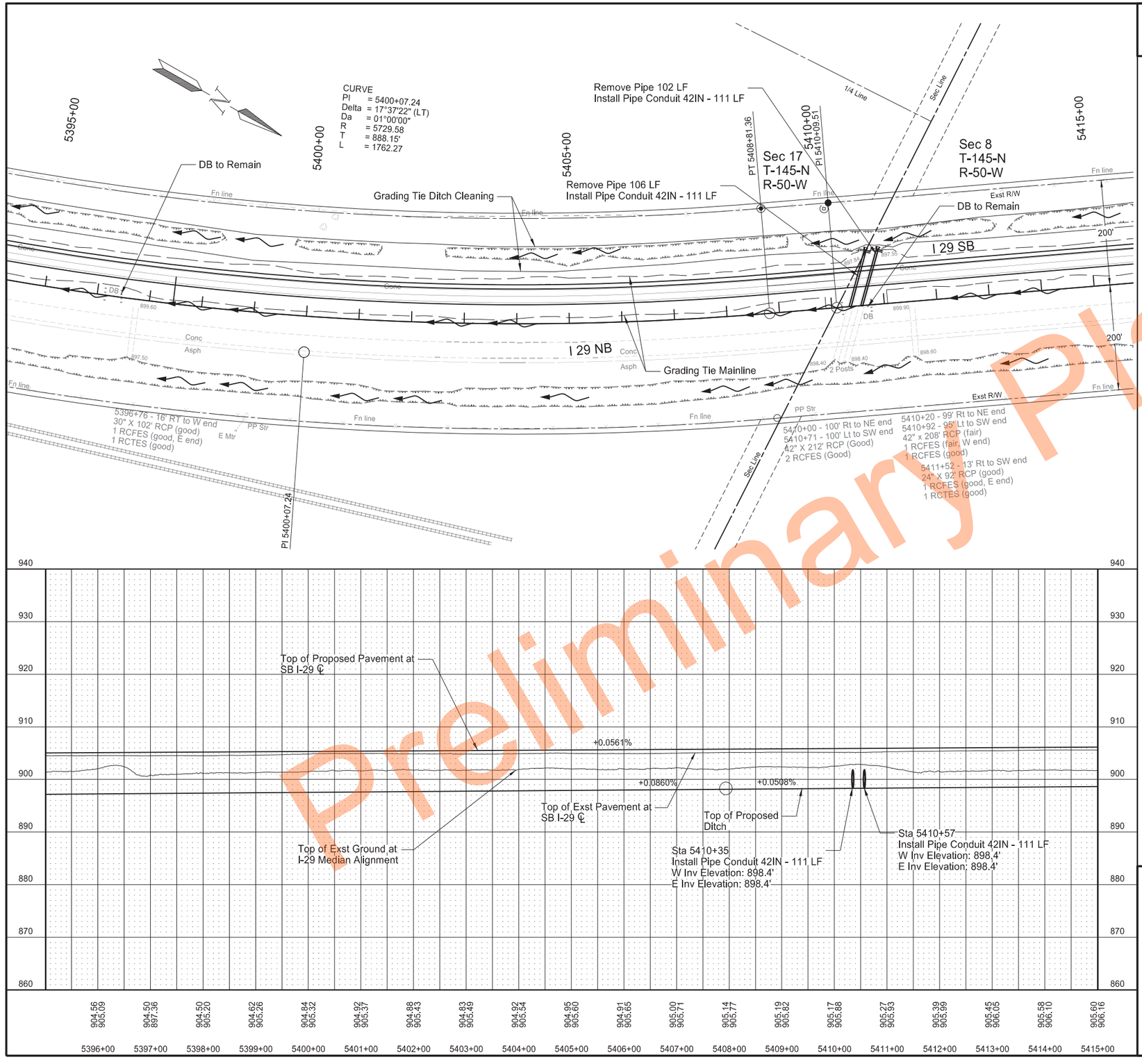
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	3

SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5410+35 - CL	106	LF
		5410+57 - CL	102	LF
714	4120	PIPE CONDUIT 42IN		
		5410+35 - CL	111	LF
		5410+57 - CL	111	LF
754	0805	OBJECT MARKERS - CULVERTS		
		5410+72 - LT	1	EA
		5410+95 - LT	1	EA



Plan and Profile
Sta 5395+00 to Sta 5415+00

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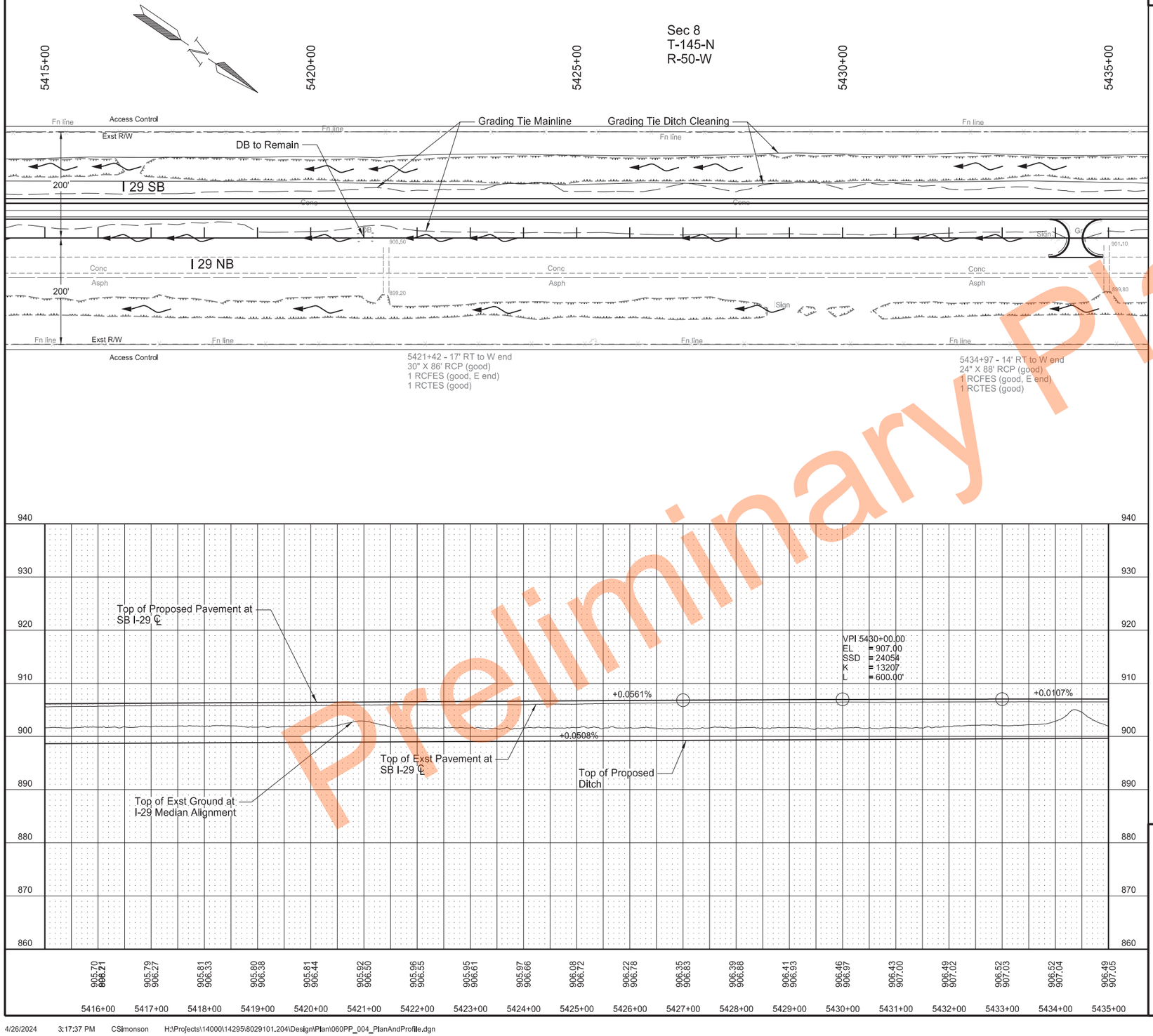
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	60	4



Preliminary Plans

Plan and Profile
Sta 5415+00 to Sta 5435+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
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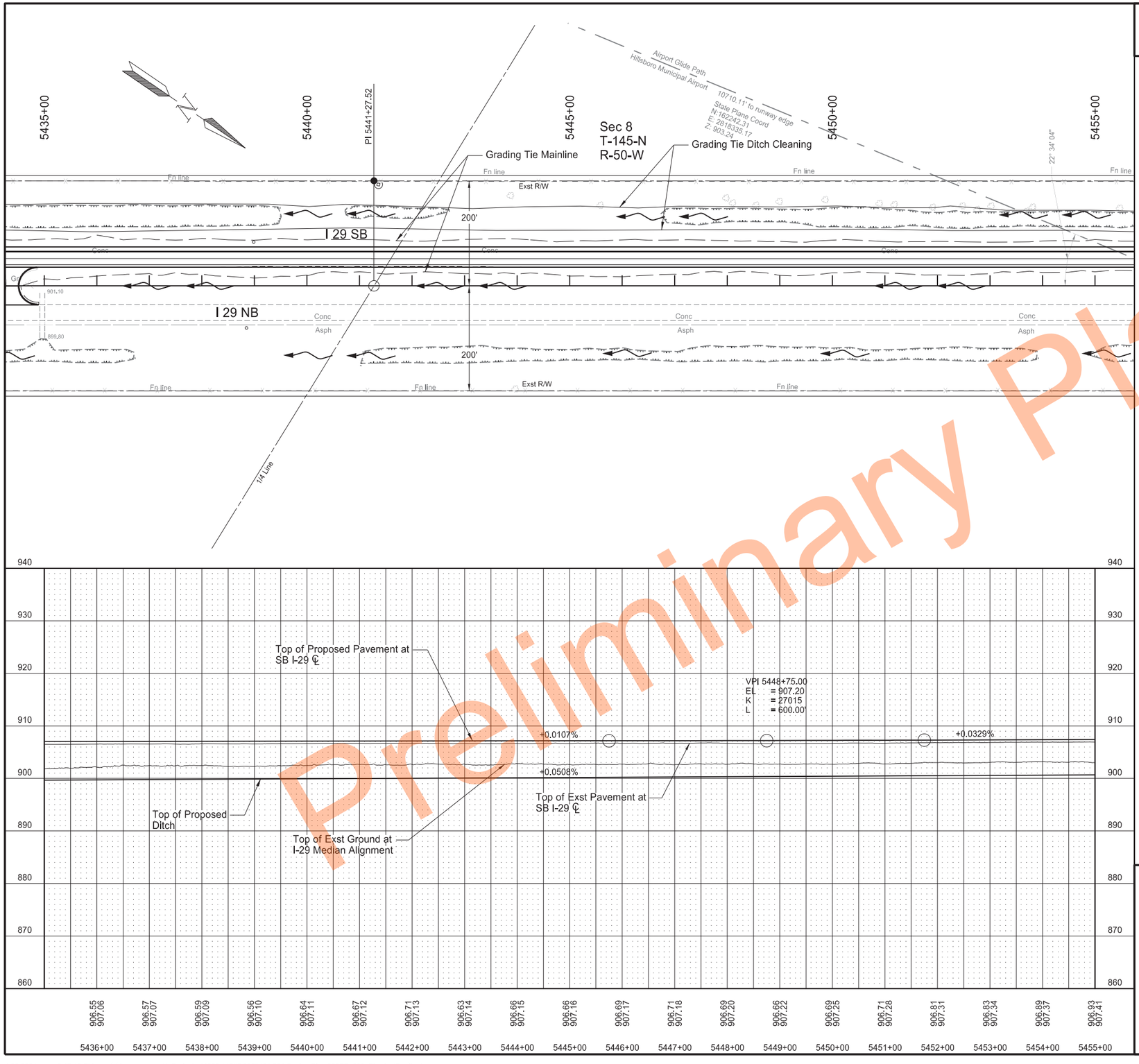
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	5



Preliminary Plans

Plan and Profile
Sta 5435+00 to Sta 5455+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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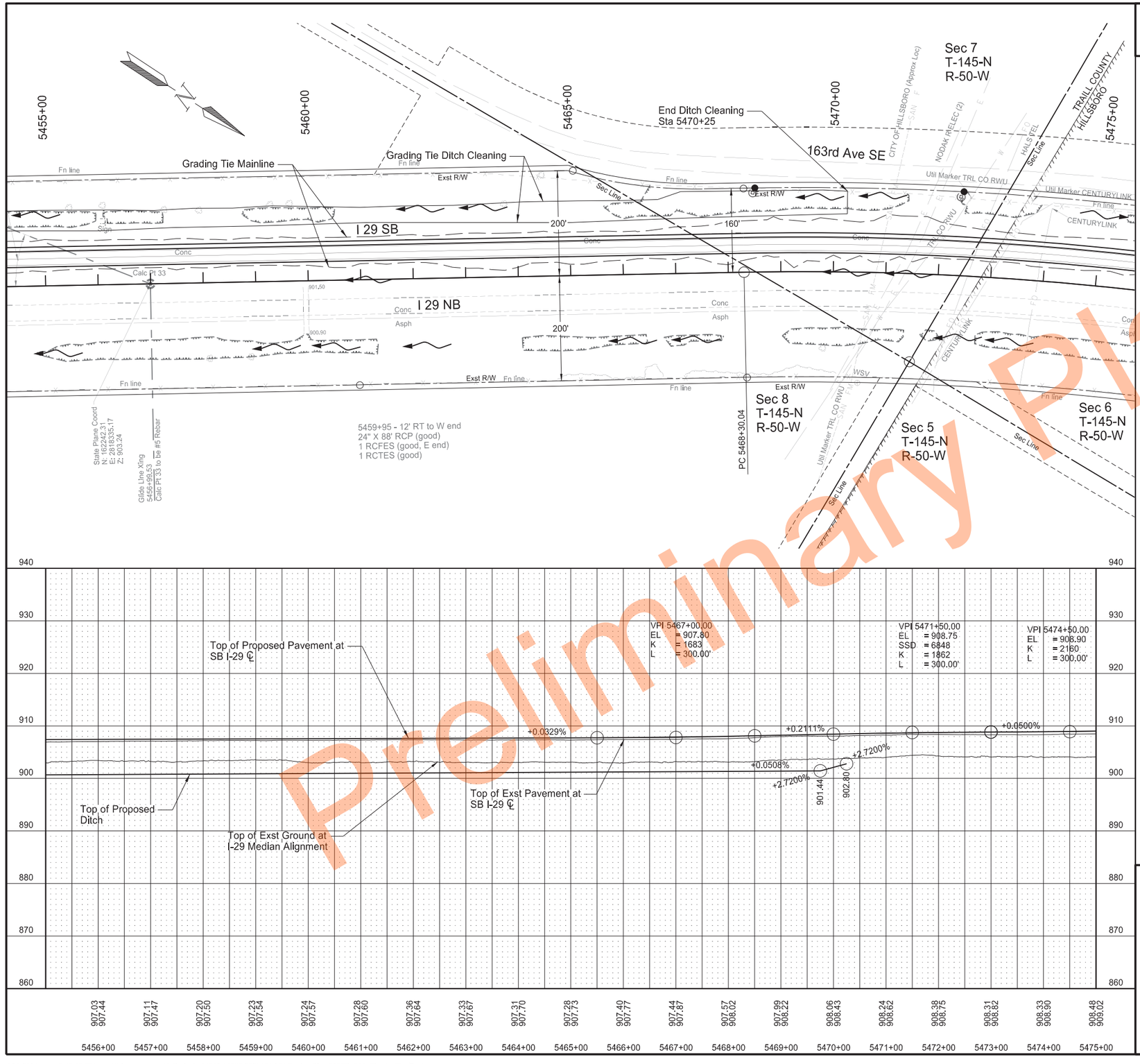
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	6



Preliminary Plans

Plan and Profile
Sta 5455+00 to Sta 5475+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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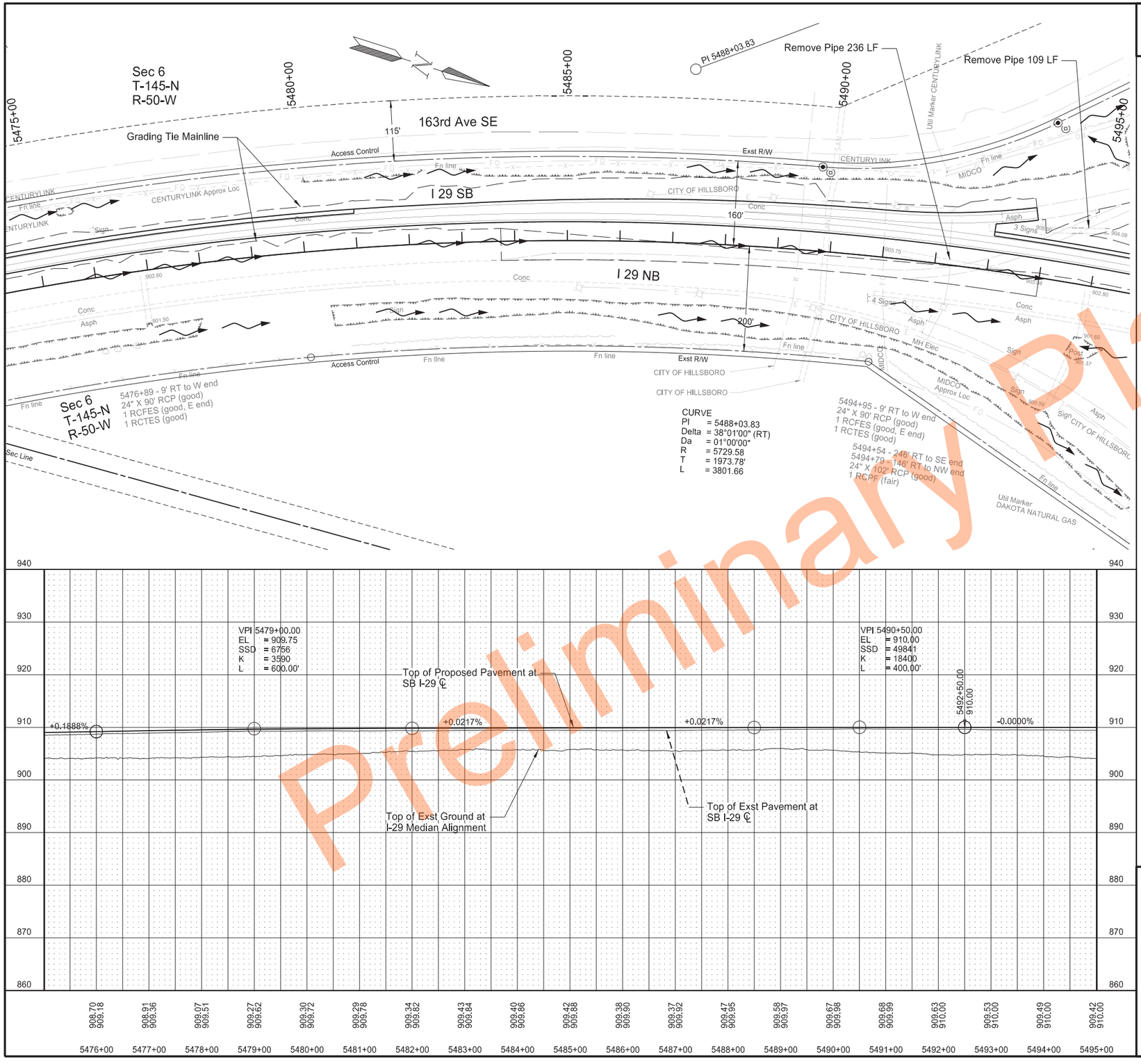
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	7

SPEC CODE	BID ITEM		QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5492+64 - 3' LT	236	LF
		5494+68 - 101' LT	109	LF

Note:
Remove temporary culverts with ramp connections after no longer needed for traffic control



Plan and Profile
Sta 5475+00 to Sta 5495+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	60	8

SPEC CODE	BID ITEM	QTY	UNIT
202 0169	REMOVAL OF END SECTION-ALL TYPES & SIZES		
	5512+47 - 2' LT	1	EA
202 0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
	5505+10 - 97' LT	98	LF
	5506+98 - 5' LT	222	LF
	5512+47 - 2' LT	8	LF
714 3033	END SECT-TRAVERSABLE REINF. CONC. 30IN		
	5512+47 - 7' RT	1	EA

Note:
Remove temporary culverts with ramp connections after no longer needed for traffic control

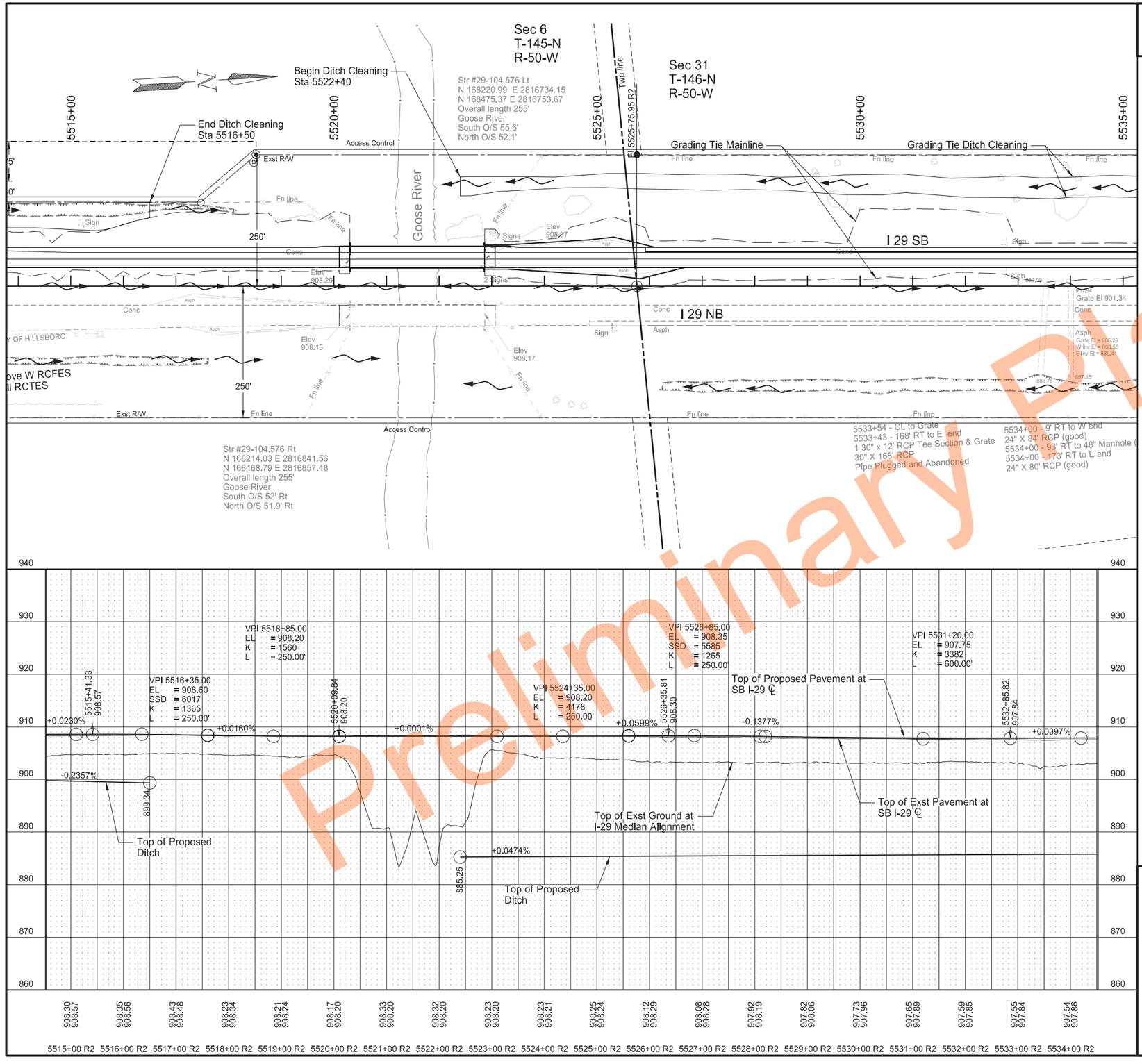
Plan and Profile
Sta 5495+00 to Sta 5515+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	9



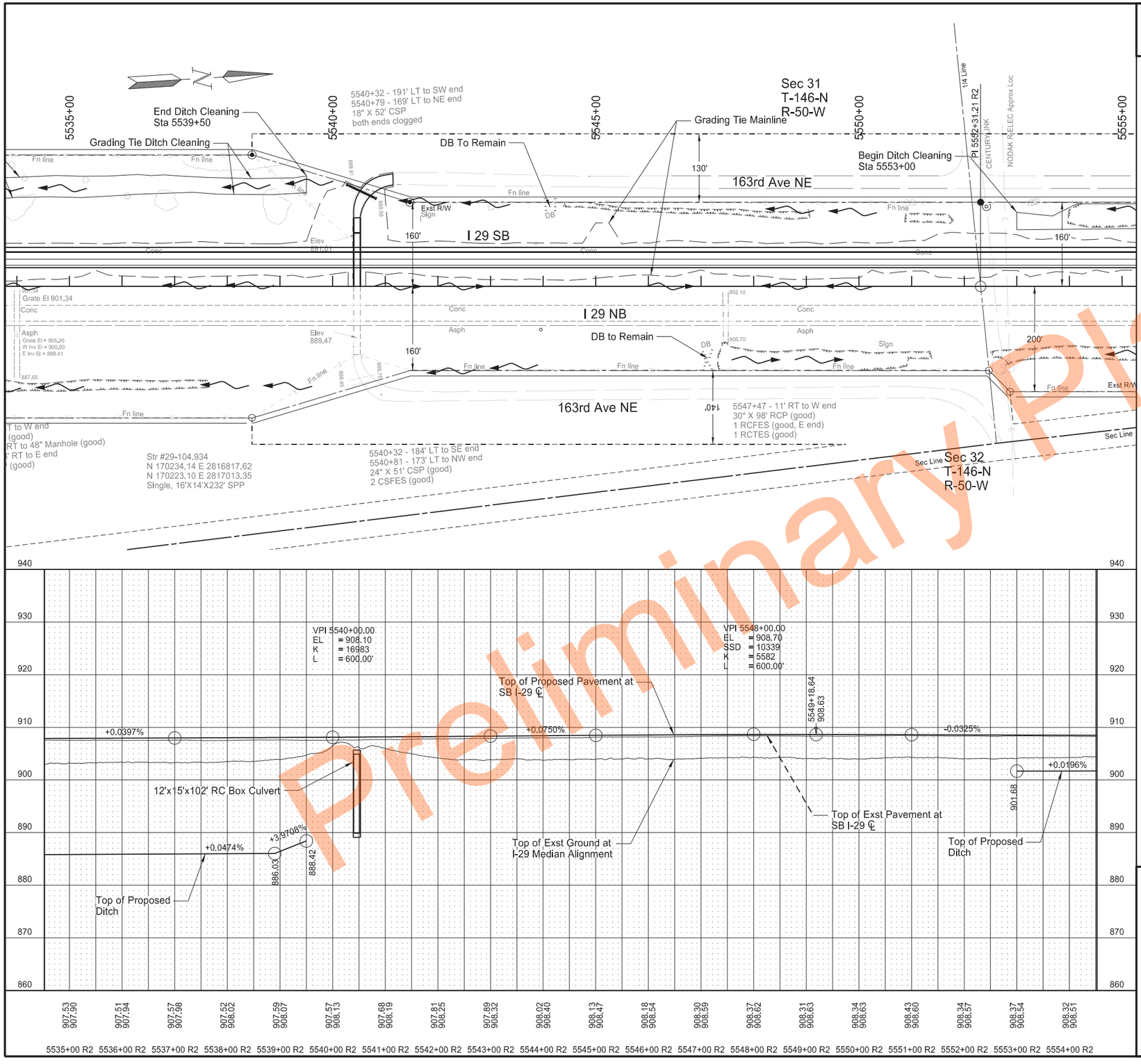
Preliminary Plans

Plan and Profile
Sta 5515+00 to Sta 5535+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	10



Preliminary Plans

Plan and Profile
Sta 5535+00 to Sta 5555+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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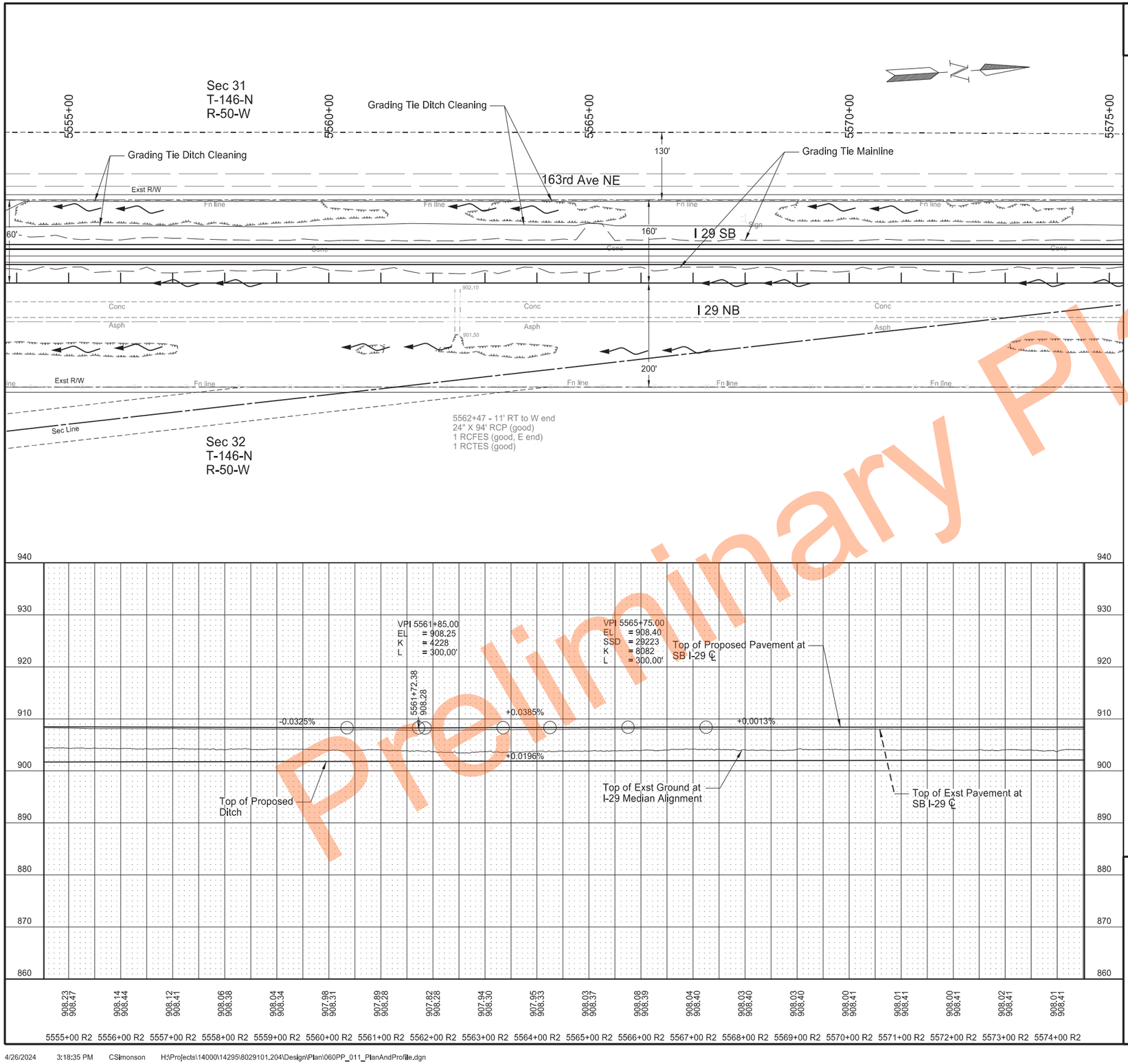

Preliminary Plans

Plan and Profile
Sta 5555+00 to Sta 5575+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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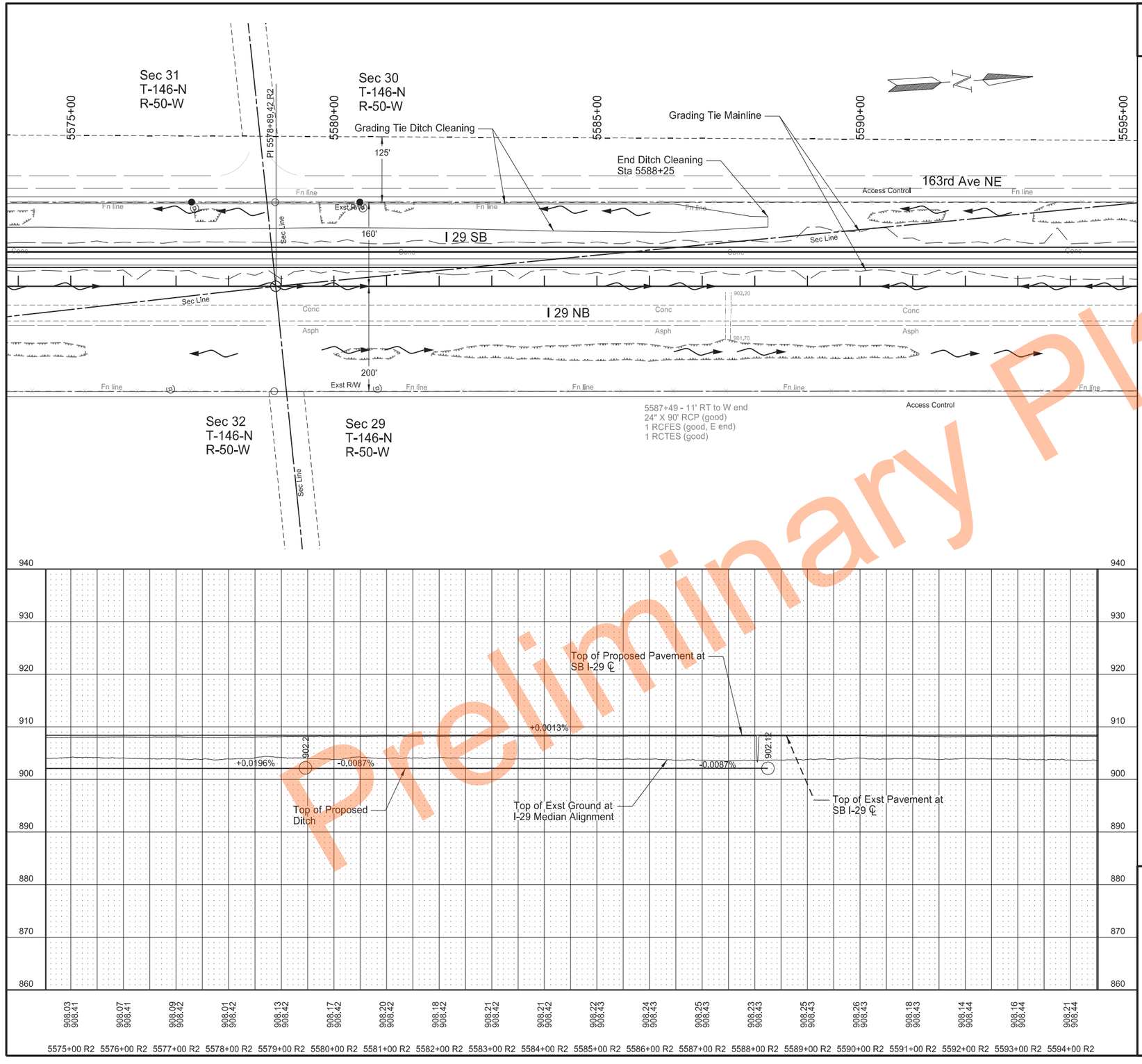
ND	IM-8-029(204)101	60	12



Preliminary Plans

Plan and Profile
Sta 5575+00 to Sta 5595+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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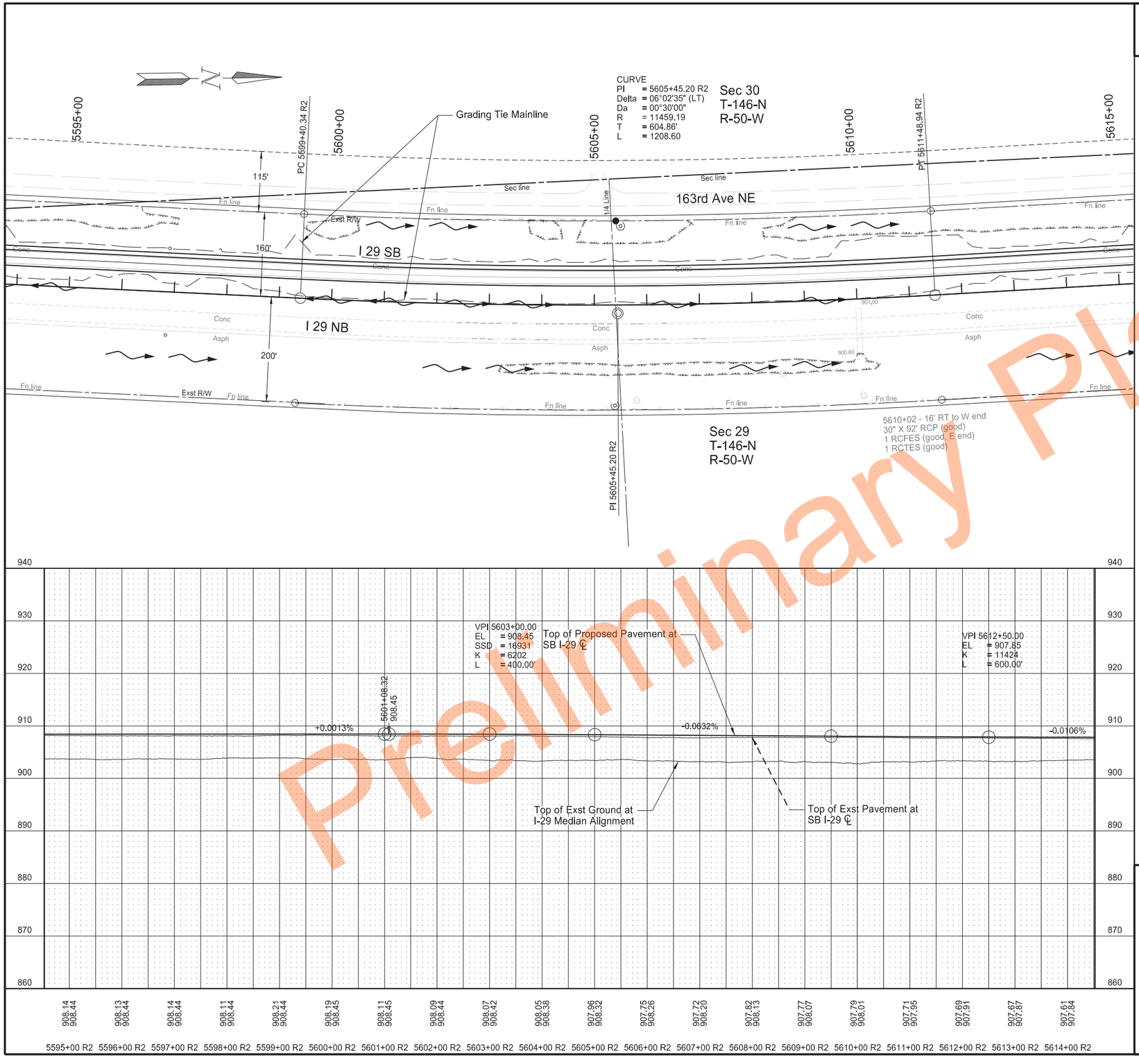

Preliminary Plans

Plan and Profile
Sta 5595+00 to Sta 5615+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
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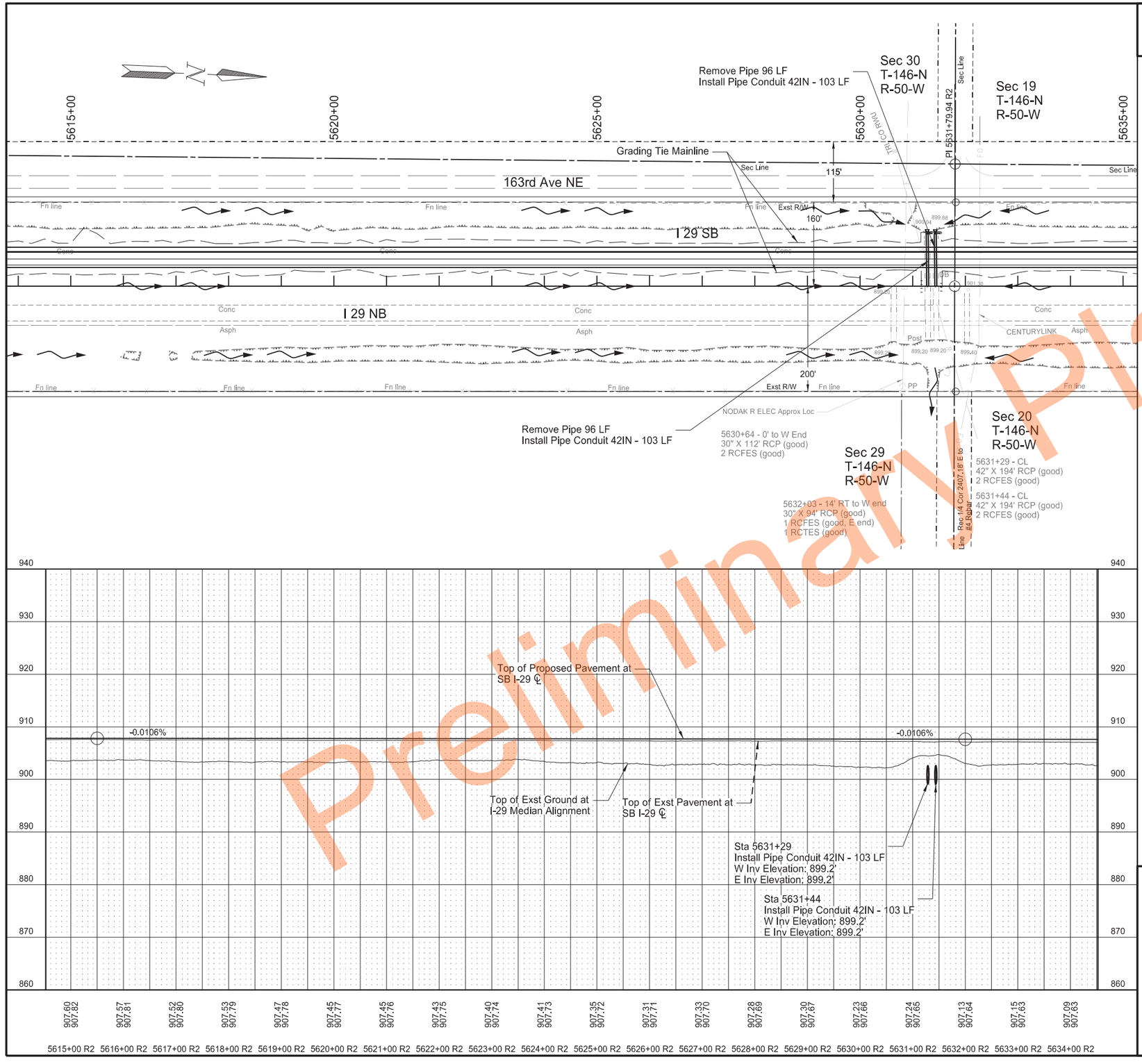
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	60	14

SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5631+29 - CL	96	LF
		5631+44 - CL	96	LF
714	4120	PIPE CONDUIT 42IN		
		5631+29 - CL	103	LF
		5631+44 - CL	103	LF
754	0805	OBJECT MARKERS - CULVERTS		
		5631+28 - LT	1	EA
		5631+43 - LT	1	EA



Plan and Profile
Sta 5615+00 to Sta 5635+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
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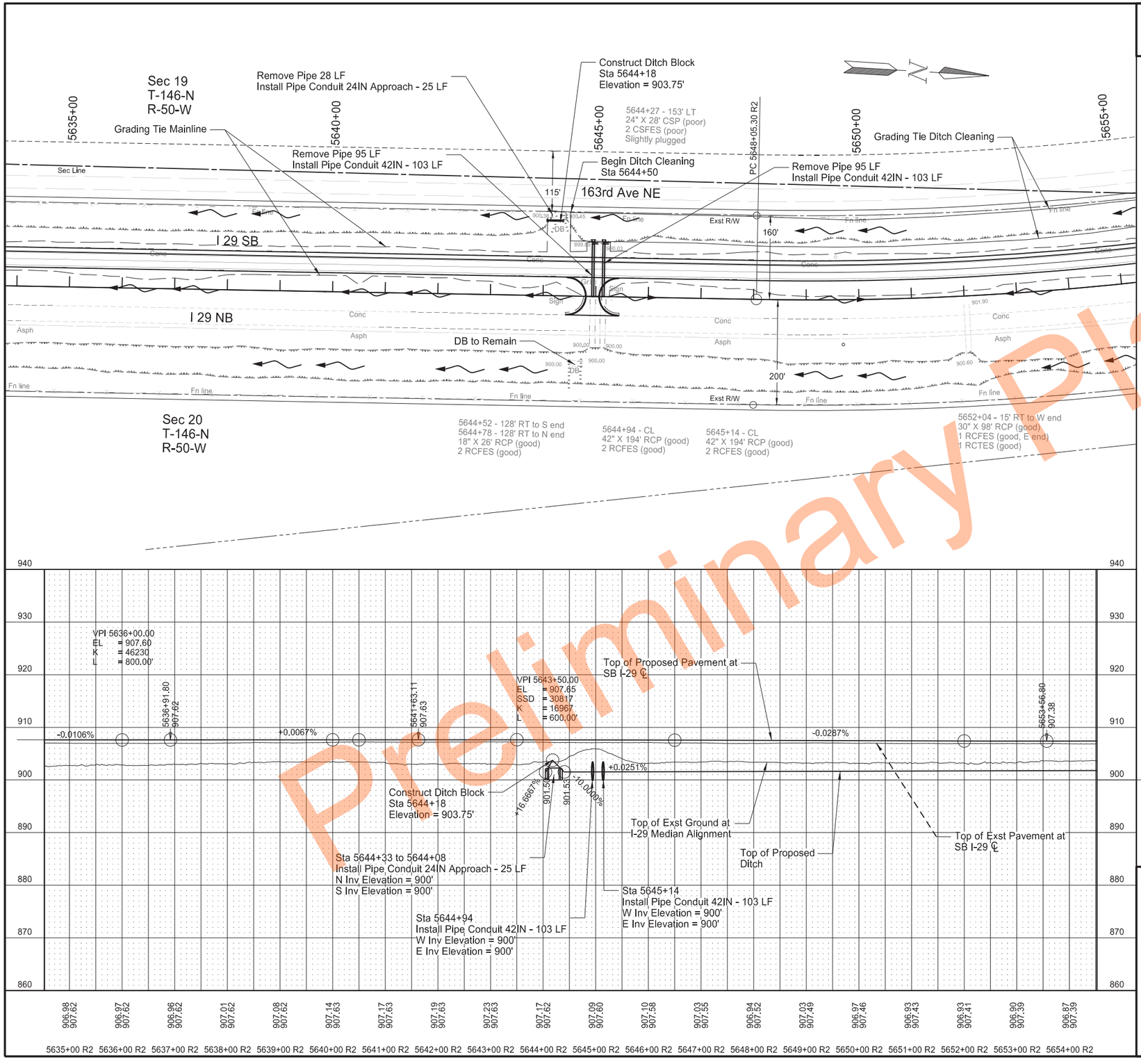
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans



Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	60	15

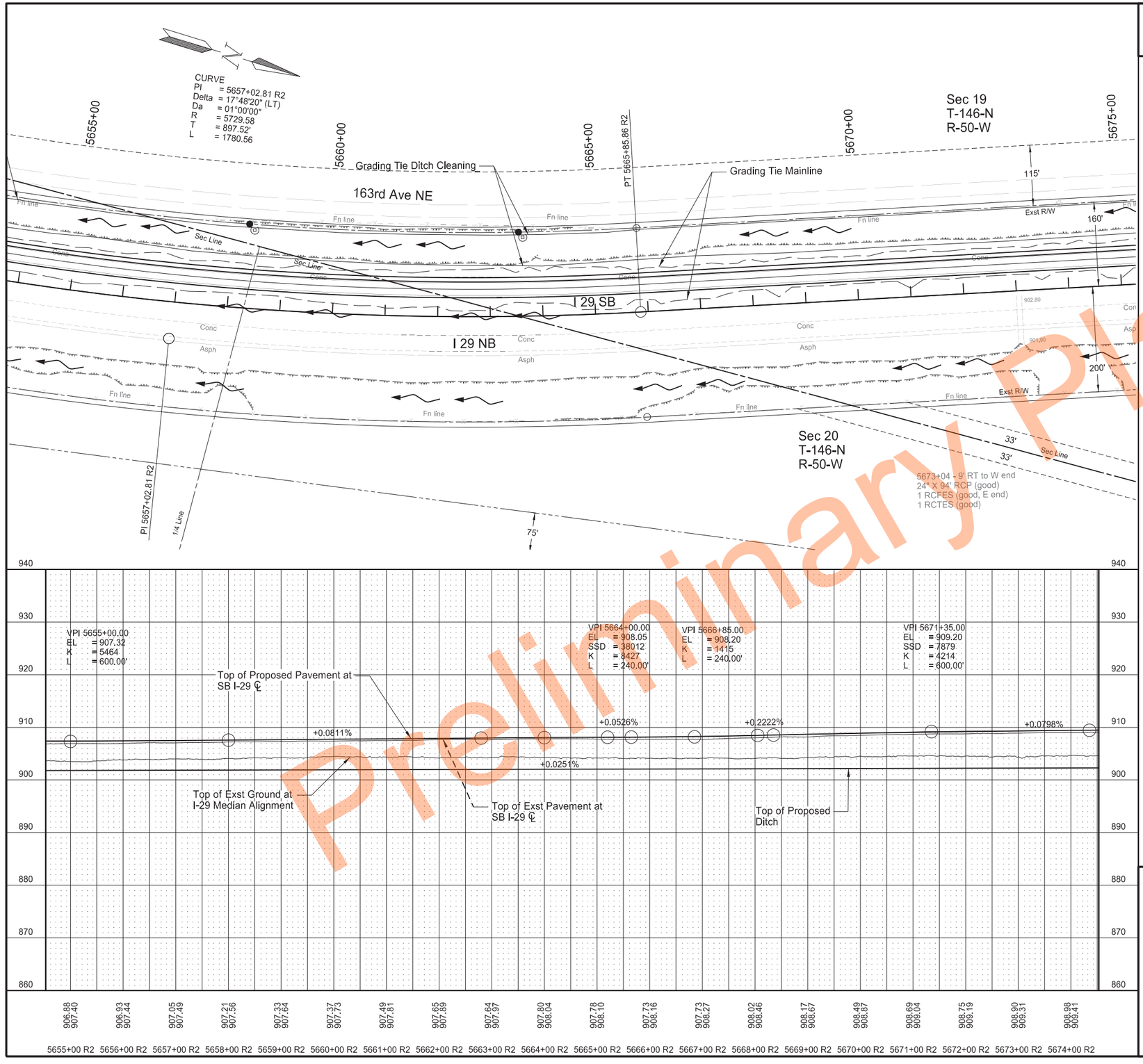
SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5644+29 - LT	28	LF
		5644+94 - CL	95	LF
		5645+14 - CL	95	LF
714	4106	PIPE CONDUIT 24N - APPROACH		
		5644+33 - 143' LT to 5644+08 - 143' LT	25	LF
714	4120	PIPE CONDUIT 42IN		
		5644+94 - CL	103	LF
		5645+14 - CL	103	LF
754	0805	OBJECT MARKERS - CULVERTS		
		5644+33 - 143' LT & 5644+08 - 143' LT	2	EA
		5644+94 - LT	1	EA
		5645+14 - LT	1	EA

Plan and Profile
Sta 5635+00 to Sta 5655+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	16



Preliminary Plans

Plan and Profile
Sta 5655+00 to Sta 5675+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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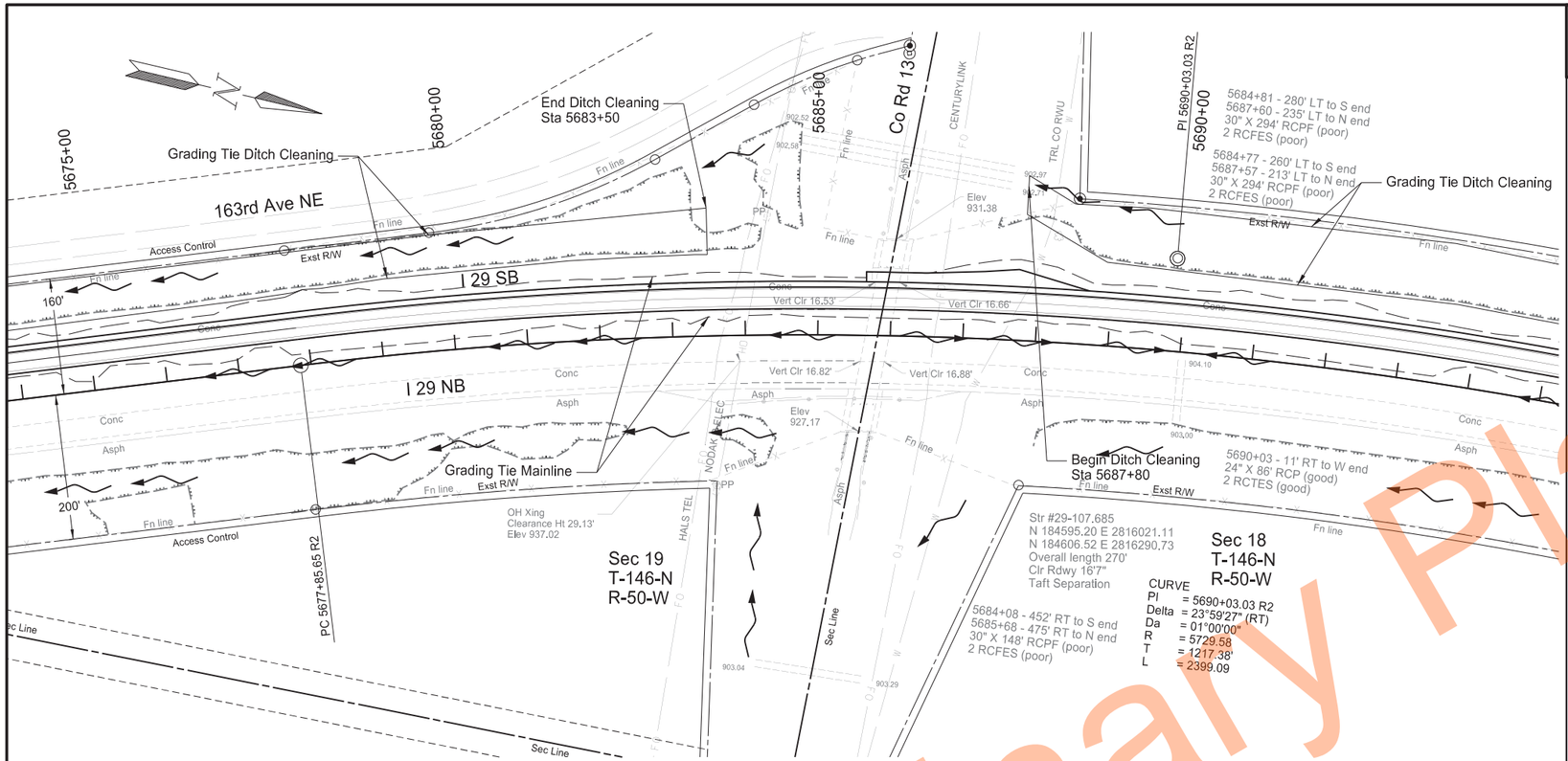
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	17



Preliminary Plans

Plan and Profile
Sta 5675+00 to Sta 5695+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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NORTH DAKOTA

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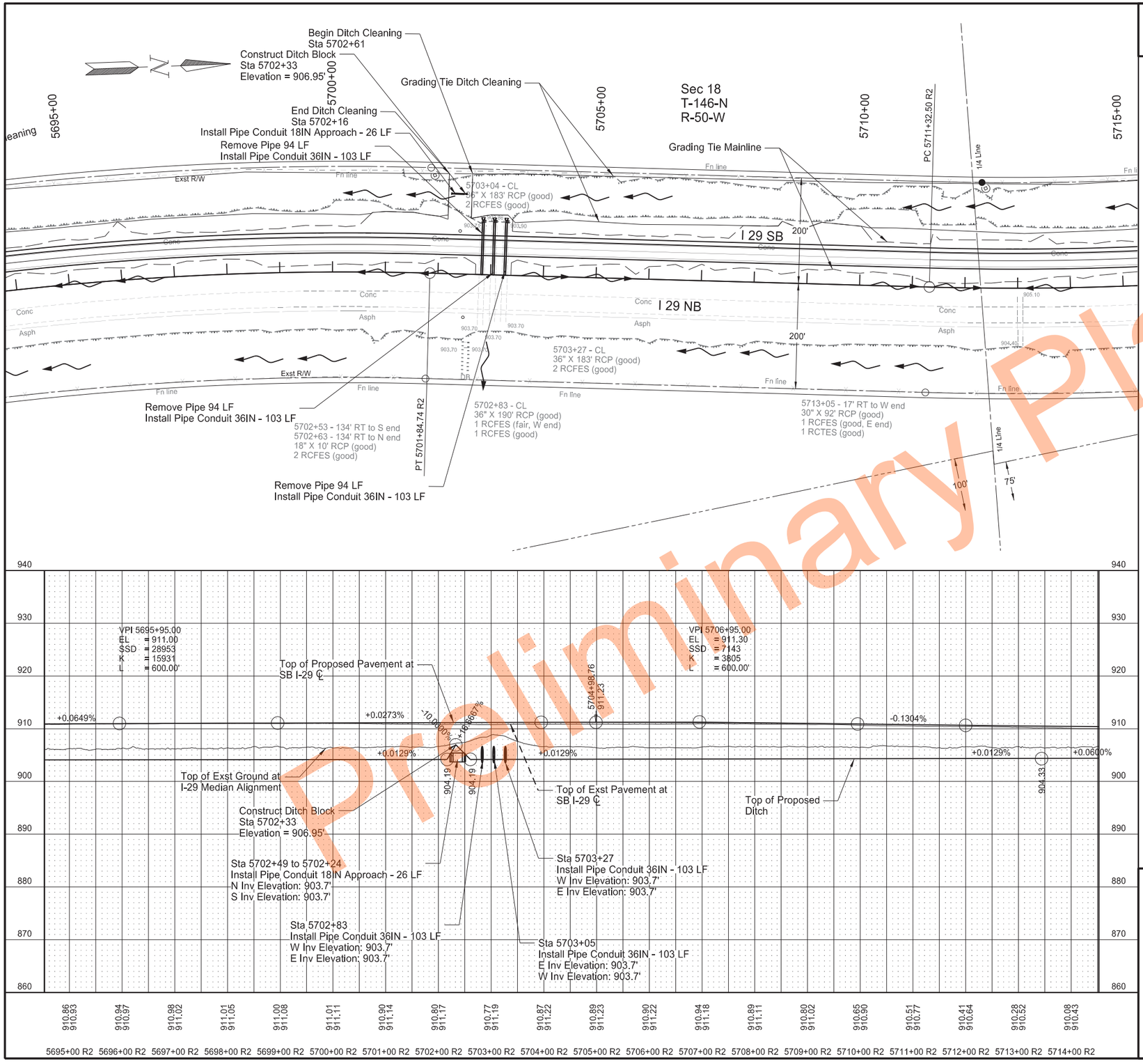
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	60	18

SPEC CODE	BID ITEM	QTY	UNIT
202 0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
	5702+83 - CL	94	LF
	5703+05 - CL	94	LF
	5703+27 - CL	94	LF
714 4099	PIPE CONDUIT 18IN - APPROACH		
	5702+49 - 152' LT to 5702+24 - 152' LT	26	LF
714 4115	PIPE CONDUIT 36IN		
	5702+83 - CL	103	LF
	5703+05 - CL	103	LF
	5703+27 - CL	103	LF
754 0805	OBJECT MARKERS - CULVERTS		
	5702+49 - 152' LT & 5702+24 - 152' LT	2	EA
	5702+84 - LT	1	EA
	5703+05 - LT	1	EA
	5703+27 - LT	1	EA



Plan and Profile
Sta 5695+00 to Sta 5715+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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ERIC LAIDLEY
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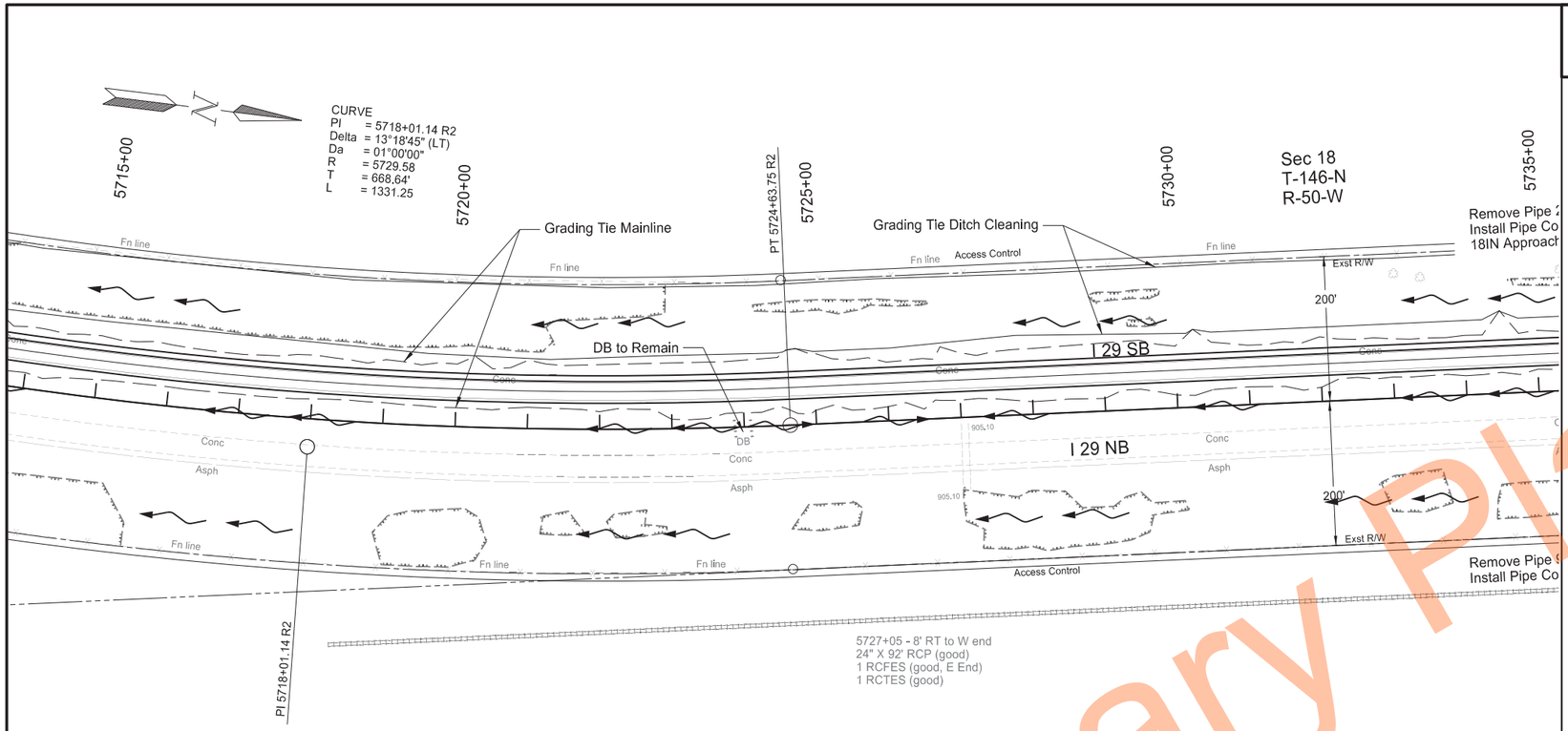
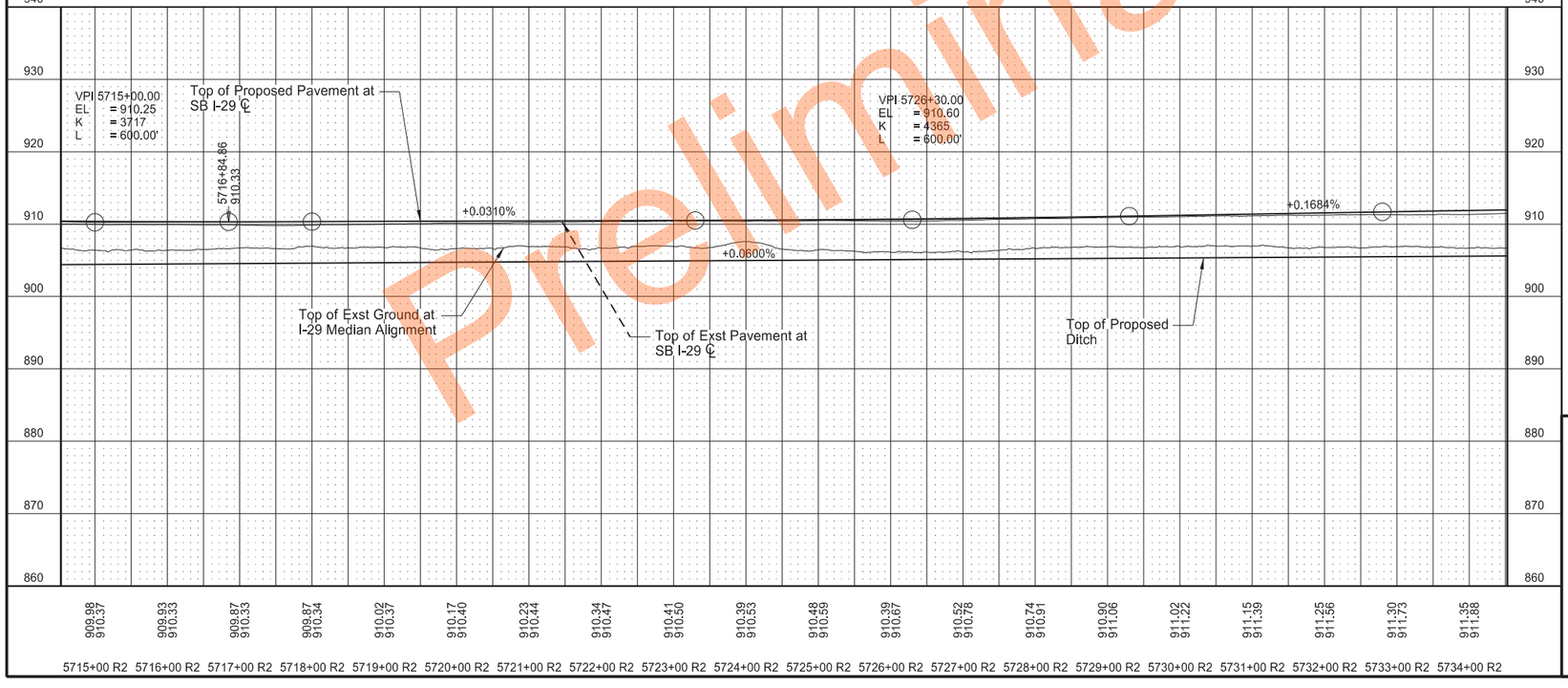
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	60	19





Preliminary Plans

Plan and Profile
Sta 5715+00 to Sta 5735+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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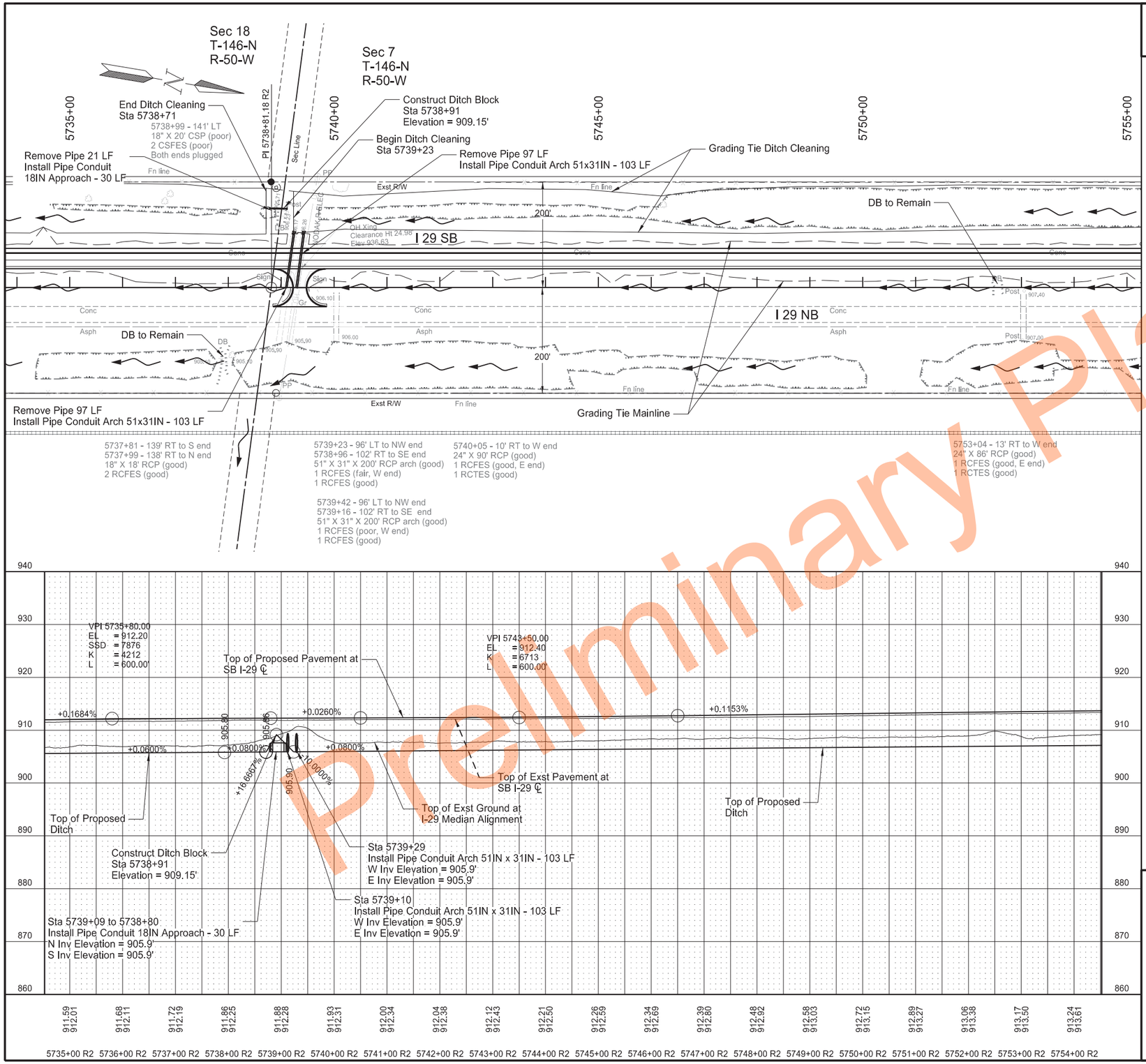
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	60	20

SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5738+97 LT	21	LF
		5739+10 - CL	97	LF
		5739+29 - CL	97	LF
714	4099	PIPE CONDUIT 18IN - APPROACH		
		5739+09 - 149' LT & 5738+80 - 150' LT	30	LF
714	4227	PIPE CONDUIT ARCH 51IN X 31IN		
		5739+10 - CL	103	LF
		5739+29 - CL	103	LF
754	0805	OBJECT MARKERS - CULVERTS		
		5739+09 - 149' LT & 5738+80 - 150' LT	2	EA
		5739+24 - LT	1	EA
		5739+43 - LT	1	EA



Plan and Profile
Sta 5735+00 to Sta 5755+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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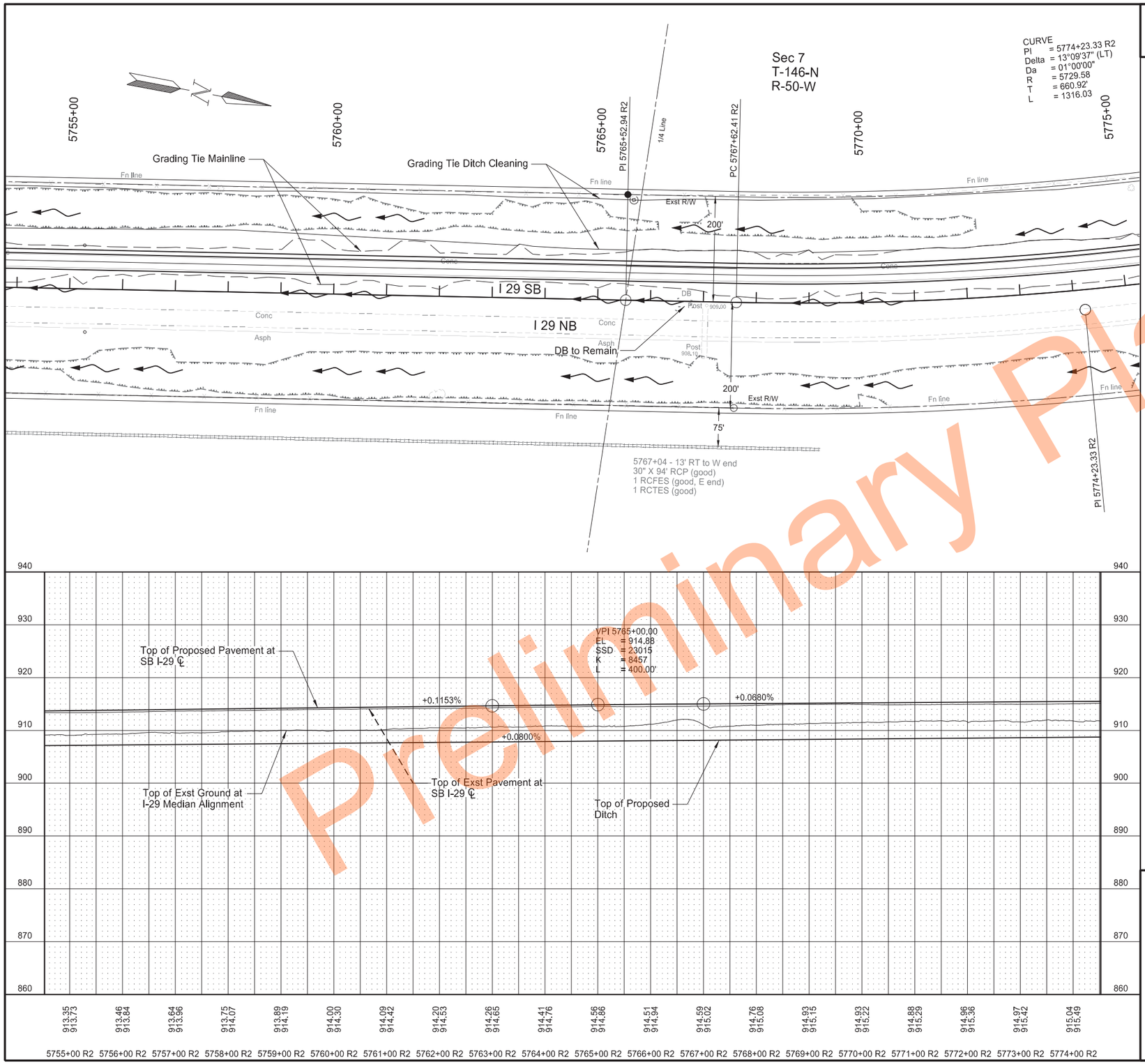
Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	21



Preliminary Plans

Plan and Profile
Sta 5755+00 to Sta 5775+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	22

SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5778+52 - LT	36	LF
		5778+94 - CL	97	LF
		5779+17 - CL	97	LF
		5792+91 - LT	30	LF
		5793+20 - CL	110	LF
		5793+46 - CL	102	LF
714	4099	PIPE CONDUIT 18IN - APPROACH		
		5778+61 - 150' LT to 5778+35 - 150' LT	26	LF
		5793+07 - 144' LT to 5792+81 - 144' LT	26	LF
714	4227	PIPE CONDUIT ARCH 51IN X 31IN		
		5778+94 - CL	103	LF
		5779+17 - CL	103	LF
		5793+20 - CL	109	LF
		5793+46 - CL	109	LF
754	0805	OBJECT MARKERS - CULVERTS		
		5778+61 - 150' LT & 5778+35 - 150' LT	2	EA
		5778+95 - LT	1	EA
		5779+18 - LT	1	EA
		5793+07 - 144' LT & 5792+81 - 144' LT	2	EA
		5793+57 - LT	1	EA
		5793+84 - LT	1	EA

Plan and Profile
Sta 5775+00 to Sta 5795+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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Preliminary Plans

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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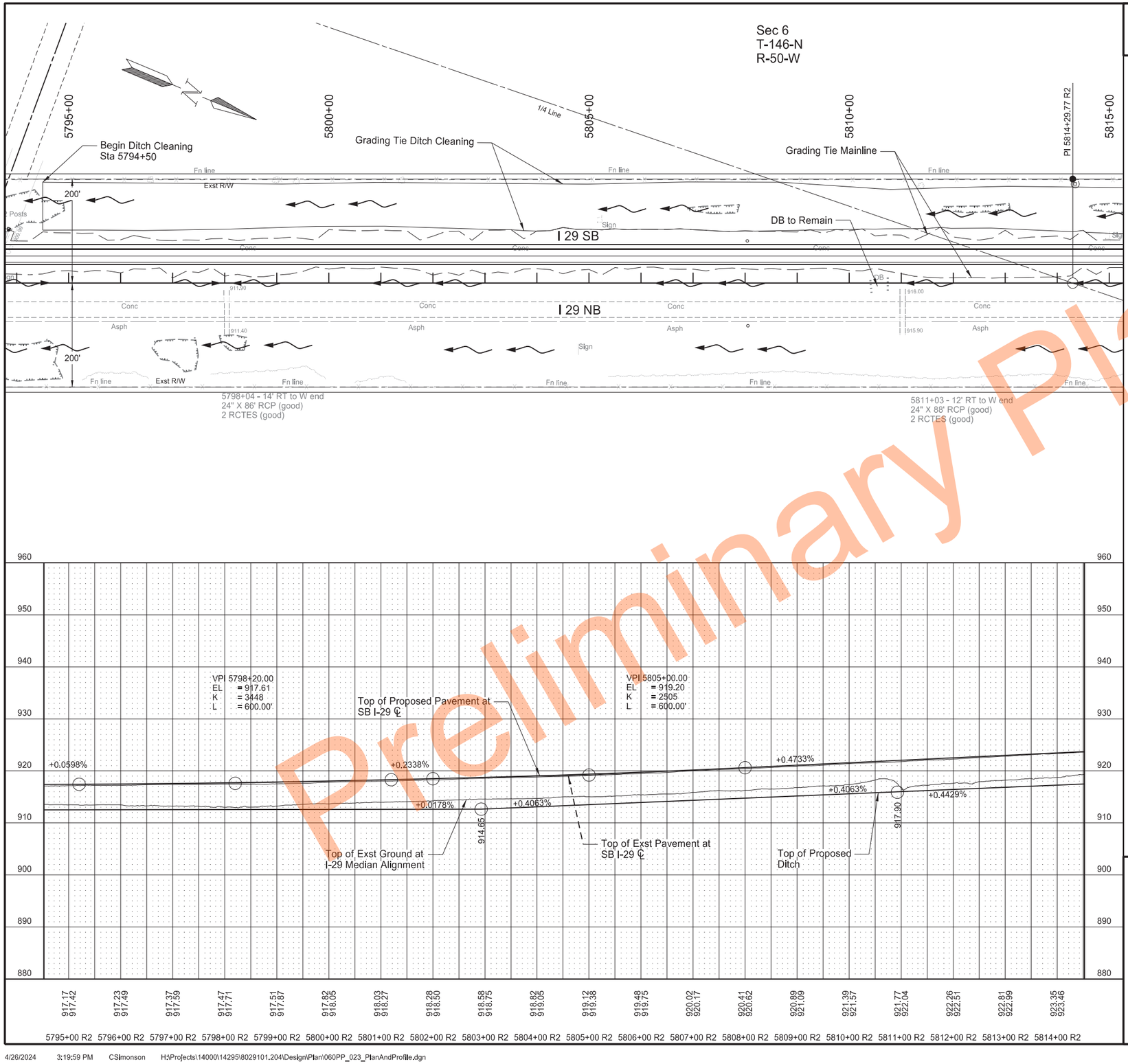

Preliminary Plans

Plan and Profile
Sta 5795+00 to Sta 5815+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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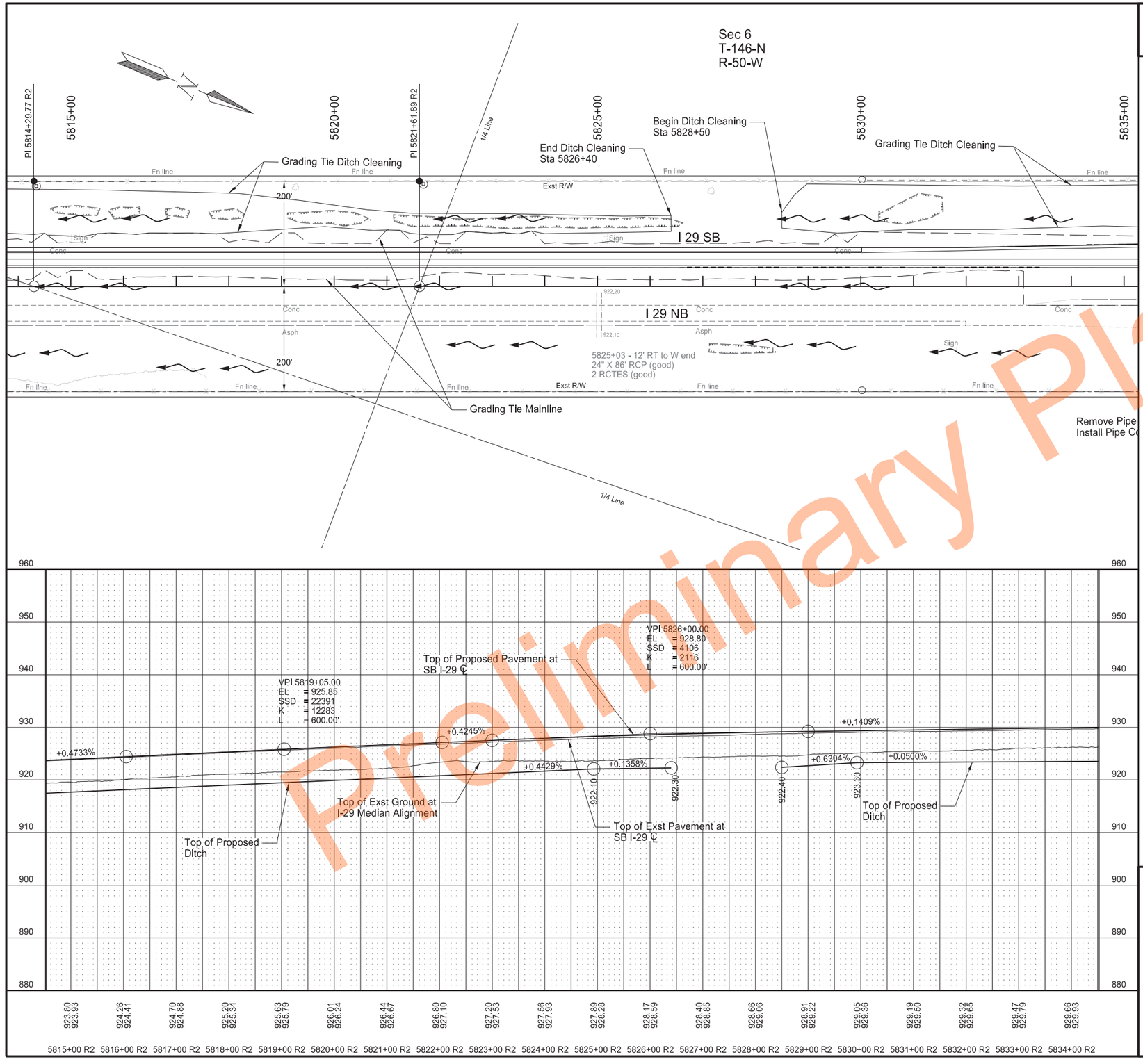

Preliminary Plans

Plan and Profile
Sta 5815+00 to Sta 5835+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	25

SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES		
		5838+82 - LT	94	LF
		5841+12 - LT	183	LF
		5843+72 - RT	112	LF
714	4105	PIPE CONDUIT 24IN		
		5838+79 - CL	100	LF
754	0805	OBJECT MARKERS - CULVERTS		
		5838+79 - CL - LT & RT	2	EA

Note:
Remove temporary culverts with ramp connections after no longer needed for traffic control

Plan and Profile
Sta 5835+00 to Sta 5855+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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Preliminary Plans

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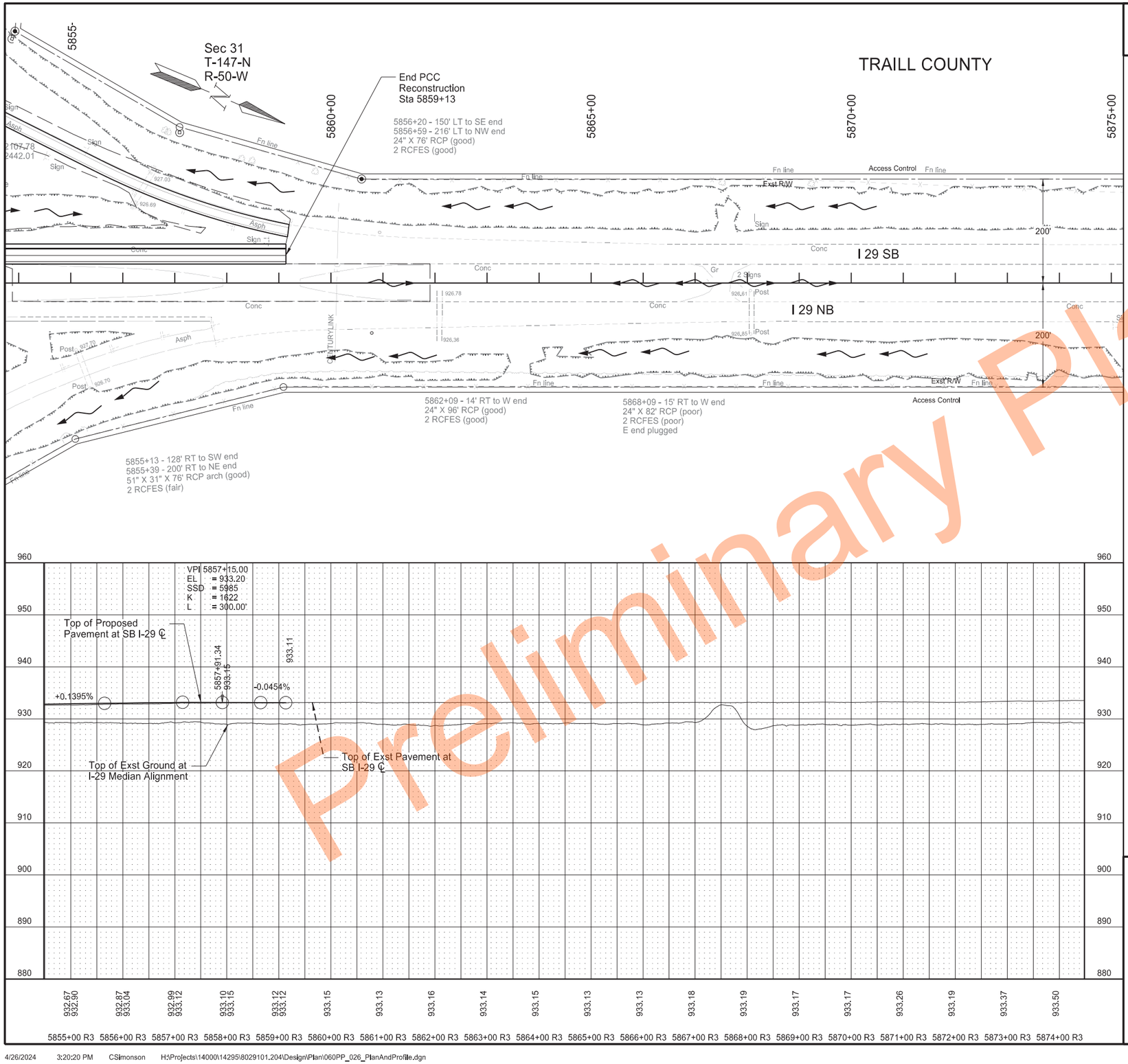

Preliminary Plans

Plan and Profile
Sta 5855+00 to Sta 5875+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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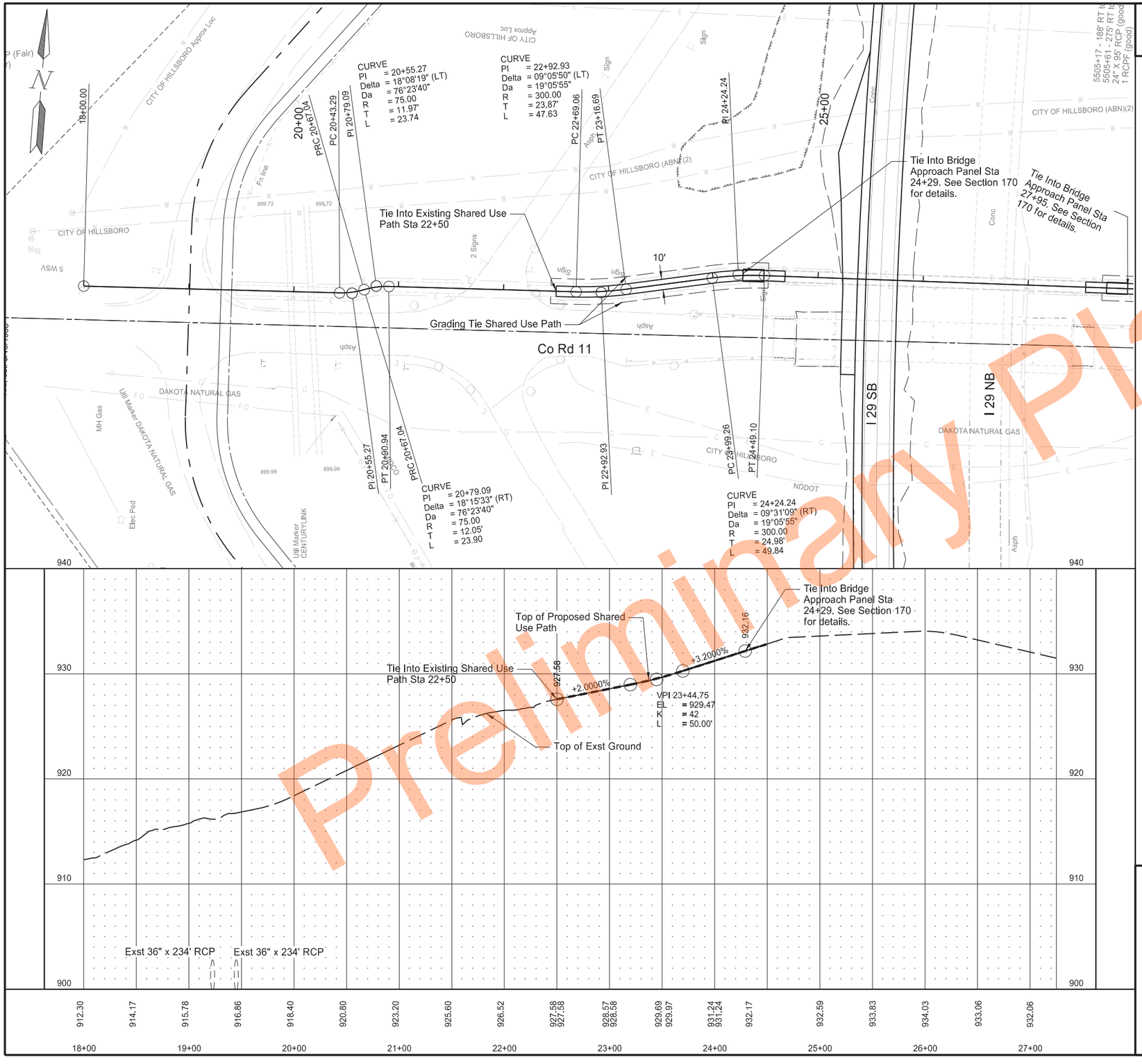

*Note: Stationing based off of shared use path alignment (PRPATH) unless otherwise noted.

Plan & Profile
Shared Use Path
Sta 18+00 to Sta 28+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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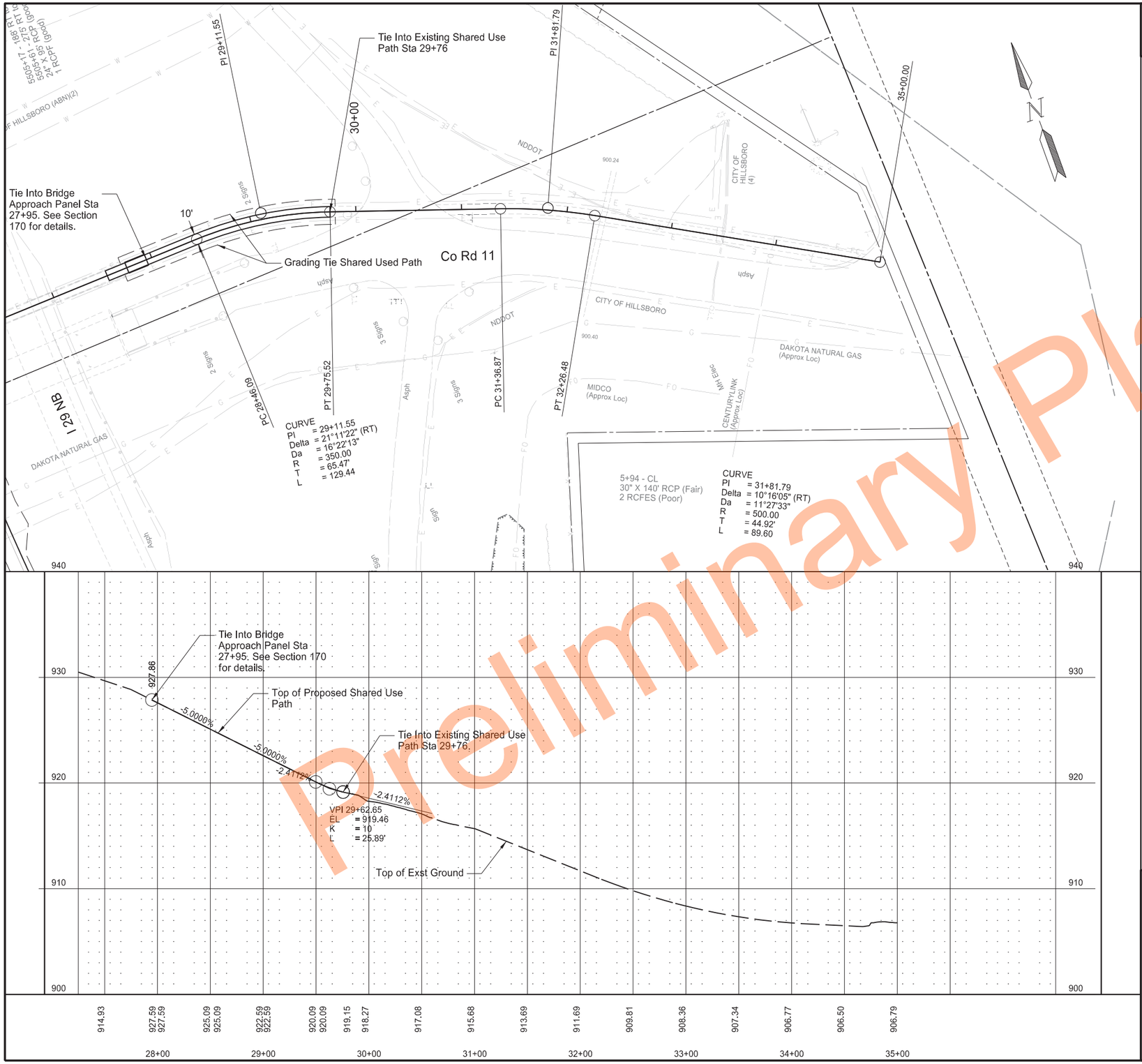

Preliminary Plans

*Note: Stationing based off of shared use path alignment (PRPATH) unless otherwise noted.

Plan & Profile
Shared Use Path
Sta 28+00 to Sta 35+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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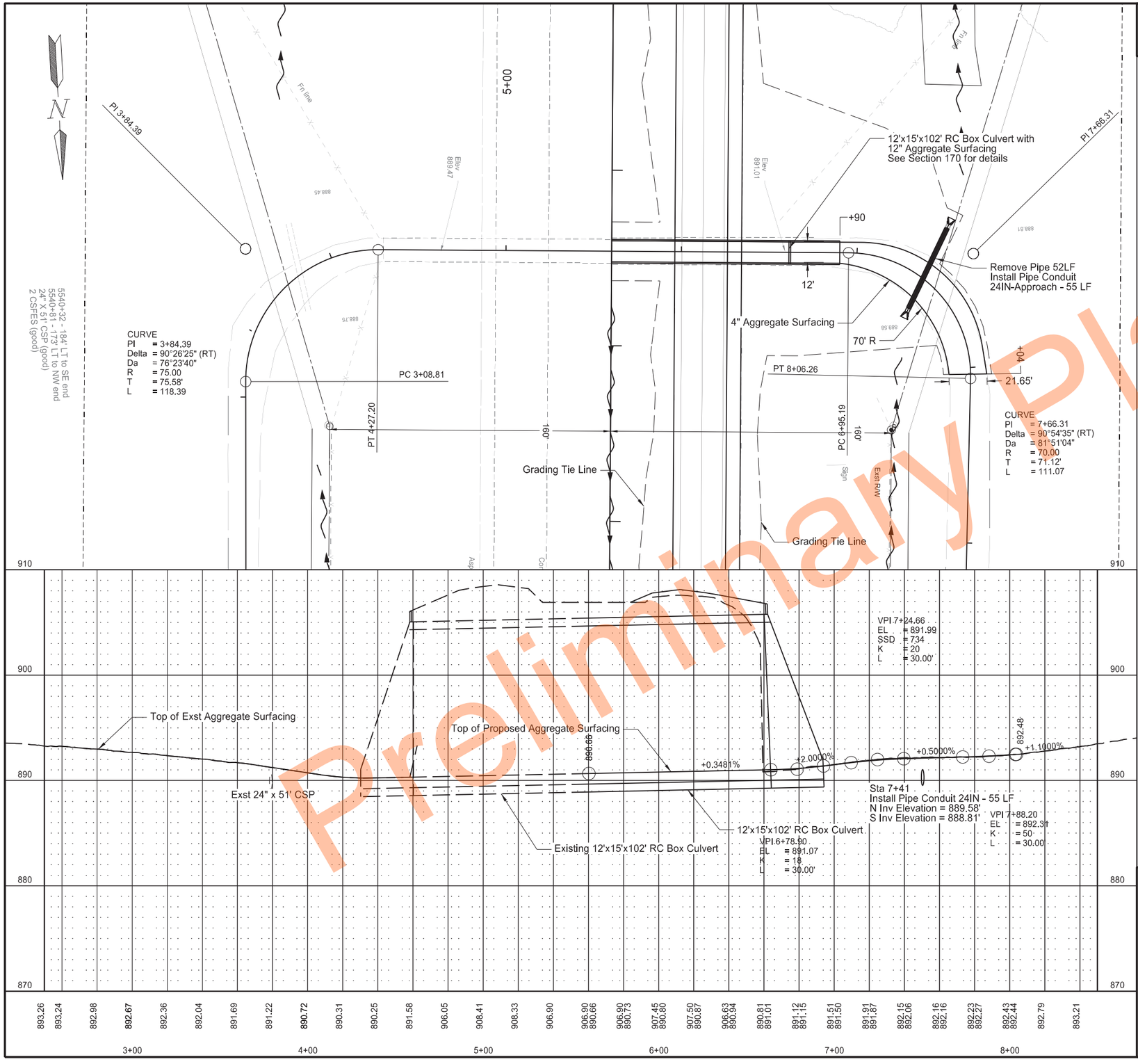
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	29

SPEC	CODE	BID ITEM	QTY	UNIT
202	0170	REMOVAL OF CULVERTS - ALL TYPES & SIZES 7+41 - CL	52	LF
302	0101	SALVAGED BASE COURSE 6+90 to 8+04	91	CY
714	4106	PIPE CONDUIT 24IN-APPROACH 7+46 - 18' RT to 7+36 - 32' LT	55	LF
754	0805	OBJECT MARKERS - CULVERTS 7+46 - 18' RT & 7+36 - 32' LT	2	EA



Plan & Profile
Junior Separation Underpass Frontage Road

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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ERIC LAIDLEY
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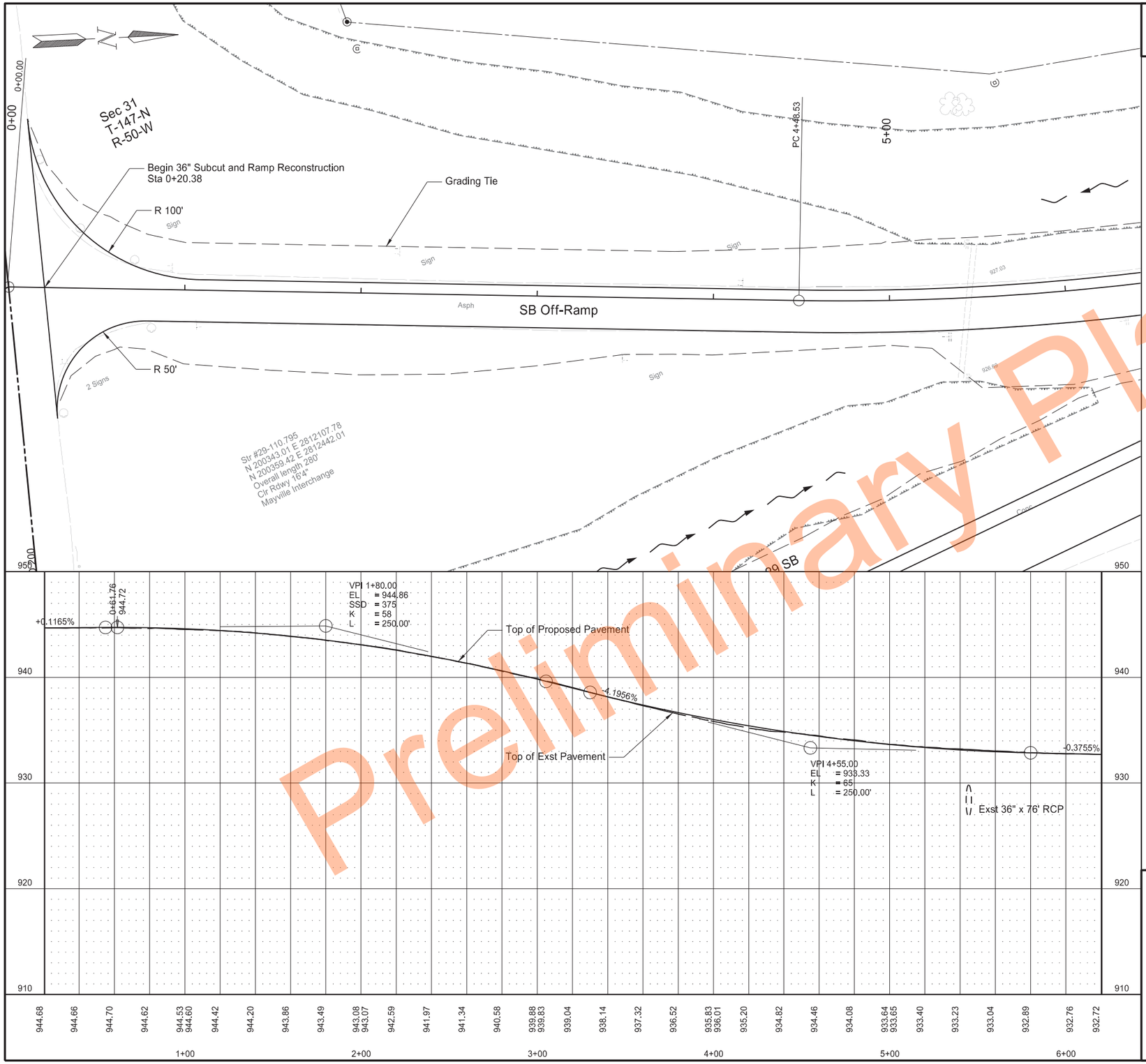
Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	30

Note: See Section 6 Note 704-P08 and Section 100 for additional details.



Mayville NW Ramp Subcut & Reconstruction

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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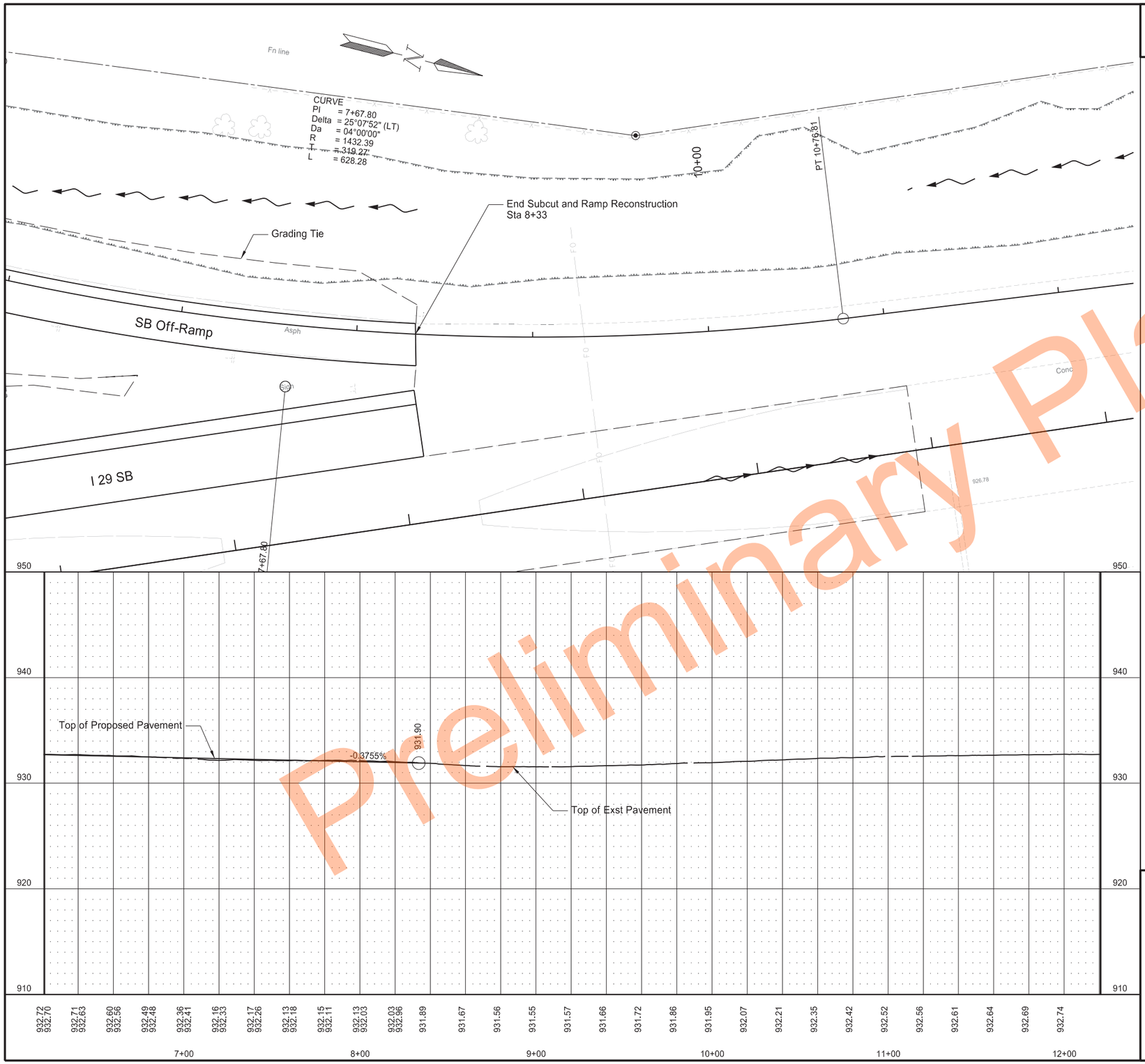
Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	60	31



Preliminary Plans

Mayville NW Ramp Subcut & Reconstruction

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	1

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact						Wetland Mitigation		
					Wetland Impacts Acre(s)			Mitigation Proposed			Mitigation Method		
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)
1a	Sec.20, T145N, R50W	Ditch	Created	Y	0.011	0.002		N	N	N			
1b	Sec.8, 17, 20, T145N, R50W	Ditch	Created	Y	0.000	0.000		N	N	N			
1c	Sec.17, T145N, R50W	Ditch	Created	Y	1.211	0.032		N	N	N			
1d	Sec.17, T145N, R50W	Ditch	Created	N	0.005	0.103		N	N	N			
1e	Sec.6, 7, 8, 17, T145N, R50W	Ditch	Created	Y	7.829	0.020		N	N	N			
1f	Sec.17, T145N, R50W	Ditch	Created	N	0.146	0.003		N	N	N			
1g	Sec.17, T145N, R50W	Ditch	Created	N	0.173	0.005		N	N	N			
1h	Sec.8, T145N, R50W	Ditch	Created	N	0.038	0.006		N	N	N			
1i	Sec.8, T145N, R50W	Ditch	Created	N	0.189	0.005		N	N	N			
1j	Sec.6, T145N, R50W	Ditch	Created	Y	0.568	0.000		N	N	N			
1k	Sec.6, T145N, R50W	Ditch	Created	N	0.017	0.000		N	N	N			
2a	Sec.8, T145N, R50W	Ditch	Created	Y	0.000	0.000		N	N	N			
2b	Sec.6, 7, 8, T145N, R50W	Ditch	Created	N	0.053	0.021		N	N	N			
2c	Sec.8, T145N, R50W	Ditch	Created	Y	0.000	0.000		N	N	N			
2d	Sec.6, 7, 8, T145N, R50W	Ditch	Created	Y	0.000	0.000		N	N	N			
2e	Sec.6, T145N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
2f	Sec.6, T145N, R50W	Ditch	Created	Y	0.000	0.000		N	N	N			
3	Sec.6, T145N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
5	Sec.6, T145N, R50W	Ditch	Created	Y	0.000	0.000		N	N	N			
6	Sec.6, T145N, R50W; Sec. 31, T146N, R50W	Ditch	Created	Y	0.704	0.000		N	N	N			
7	Sec. 31, T146N, R50W	Ditch	Created	N	0.028	0.000		N	N	N			
8a	Sec. 29, 30, 31, T146N, R50W	Ditch	Created	N	0.343	0.080		N	N	N			
8b	Sec. 20, 26, 29, 30, 31, T146N, R50W	Ditch	Created	Y	3.104	0.005		N	N	N			
8c	Sec. 31, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8d	Sec. 31, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8e	Sec. 29, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8f	Sec. 20, 29, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8g	Sec. 20, 29, T146N, R50W	Ditch	Created	N	0.006	0.000		N	N	N			
8h	Sec. 19, 20, T146N, R50W	Ditch	Created	Y	4.198	0.002		N	N	N			

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Wetlands, Mitigation, and Environmental

PCC Pavement Reconstruction
Interstate 29 – Southbound
N of Kelso N to N of N Jct 200

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	2

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact						Wetland Mitigation		
					Wetland Impacts Acre(s)			Mitigation Proposed			Mitigation Method		
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)
8i	Sec. 19, 20, T146N, R50W	Ditch	Created	N	0.158	0.000		N	N	N			
8j	Sec. 20, T146N, R50W	Basin	Natural	N	0.000	0.000		N	N	N			
8k	Sec. 19, 20, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8l	Sec. 19, T146N, R50W	Basin	Natural	N	0.000	0.000		N	N	N			
8m	Sec. 19, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8n	Sec. 18, T146N, R50W	Basin	Natural	N	2.421	0.004		Y	N	N	Anderson Bank		0.004
8o	Sec. 18, T146N, R50W	Basin	Natural	N	0.000	0.000		N	N	N			
8p	Sec. 18, T146N, R50W	Ditch	Natural	N	0.051	0.000		N	N	N			
8q	Sec. 18, T146N, R50W	Ditch	Created	N	2.335	0.091		N	N	N			
8r	Sec. 18, T146N, R50W	Ditch	Created	N	0.093	0.001		N	N	N			
8s	Sec. 18, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8t	Sec. 18, T146N, R50W	Basin	Natural	N	1.255	0.000		N	N	N			
8u	Sec. 18, T146N, R50W	Ditch	Created	N	1.122	0.000		N	N	N			
8v	Sec. 18, T146N, R50W	Ditch	Created	N	0.855	0.022		N	N	N			
8w	Sec. 7, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8x	Sec. 7, T146N, R50W	Ditch	Created	N	3.502	0.005		N	N	N			
8y	Sec. 7, T146N, R50W	Ditch	Created	N	0.155	0.007		N	N	N			
8z	Sec. 7, T146N, R50W	Basin	Natural	N	0.688	0.000		N	N	N			
8aa	Sec. 7, T146N, R50W	Ditch	Created	N	0.782	0.002		N	N	N			
8ab	Sec. 7, T146N, R50W	Basin	Natural	N	0.000	0.000		N	N	N			
8ac	Sec. 7, T146N, R50W	Ditch	Created	N	1.659	0.005		N	N	N			
8ad	Sec. 7, T146N, R50W	Ditch	Created	N	0.041	0.011		N	N	N			
8ae	Sec. 7, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8af	Sec. 7, T146N, R50W	Basin	Natural	N	0.000	0.000		N	N	N			
8ag	Sec. 6, 7, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8ah	Sec. 6, 7, T146N, R50W	Ditch	Created	N	3.384	0.009		N	N	N			
8ai	Sec. 6, T146N, R50W	Ditch	Created	N	0.065	0.020		N	N	N			
8aj	Sec. 6, T146N, R50W; Sec. 31, T147N, R50W	Ditch	Created	N	0.006	0.052		N	N	N			
8al	Sec.31, T147N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			

Preliminary Plans

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PE-10608
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NORTH DAKOTA

Wetlands, Mitigation, and Environmental

PCC Pavement Reconstruction
Interstate 29 – Southbound
N of Kelso N to N of N Jct 200

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	3

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands[1]	Wetland Impact						Wetland Mitigation		
					Wetland Impacts Acre(s)			Mitigation Proposed			Mitigation Method		
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Mitigation Location; Ratio	Ditch Shift Acre(s)	Acre(s)
8am	Sec. 31, T147N, R50W; Sec.36, T147N, R51W	Ditch	Created	N	0.074	0.040		N	N	N			
8ao	Sec.31, T147N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
8ar	Sec.31, T147N, R50W	Ditch	Created	N	0.137	0.077		N	N	N			
8as	Sec.31, T147N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
9	Sec.31, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
10	Sec.31, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
11	Sec.31, 32, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
12	Sec.29, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
13	Sec.29, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
14	Sec.7, T146N, R50W	Ditch	Created	N	0.017	0.000		N	N	N			
15a	Sec.6, T146N, R50W	Ditch	Created	N	0.009	0.000		N	N	N			
15b	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
16	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
17	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
18	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
19	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
20	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
21	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
22a	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
22b	Sec.6, T146N, R50W	Ditch	Created	N	0.000	0.000		N	N	N			
				Totals	**37.432**	**0.630**	**0.000**					**0.000**	**0.004**

Preliminary Plans

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NORTH DAKOTA

Wetlands, Mitigation, and Environmental

PCC Pavement Reconstruction
Interstate 29 – Southbound
N of Kelso N to N of N Jct 200

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Other Waters-d Impact Table

Number	Location	Type	Feature	USACE Jurisdictional[1]	Impacts to Other Waters						Other Water Mitigation		
					Acres			Linear Feet			Mitigation Proposed		
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS
OW 4-d	Sec.6, T145N, R50W	River	Natural	Y							N	N	N
				Totals	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**			

[1] A wetland Jurisdictional Determination was issued by the USACE on 11/18/2021; NWO-2017-01711-BIS.

Impact Summary Table

Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	Total Acre(s)	WaterType	Total Acre(s)
Natural/JD (Fill/Drain)		Temporary Wetland JD	17.625
Natural/Non-JD (Fill/Drain)	0.004	Non-JD Wetland Temporary	19.807
Artificial/JD (Fill/Drain)	0.061		
Artificial /Non-JD (Fill/Drain)	0.565	Permanent OW	
Total	**0.630**	Temporary OW	
JD Natural (Cut)		Permanent OW-d	
JD Artificial (Cut)		Temporary OW-d	
Non-JD Natural (Cut)			
Non-JD Artificial (Cut)			
Total	**0.000**		

Mitigation Summary Table

	Location	Ditch Shift Acre(s)	11990 Bank Acre(s)
USACE Only			
EO 11990 Only	Anderson Bank		0.004
USACE/11990			
USFWS			
	Total	0.000	0.004

Preliminary Plans

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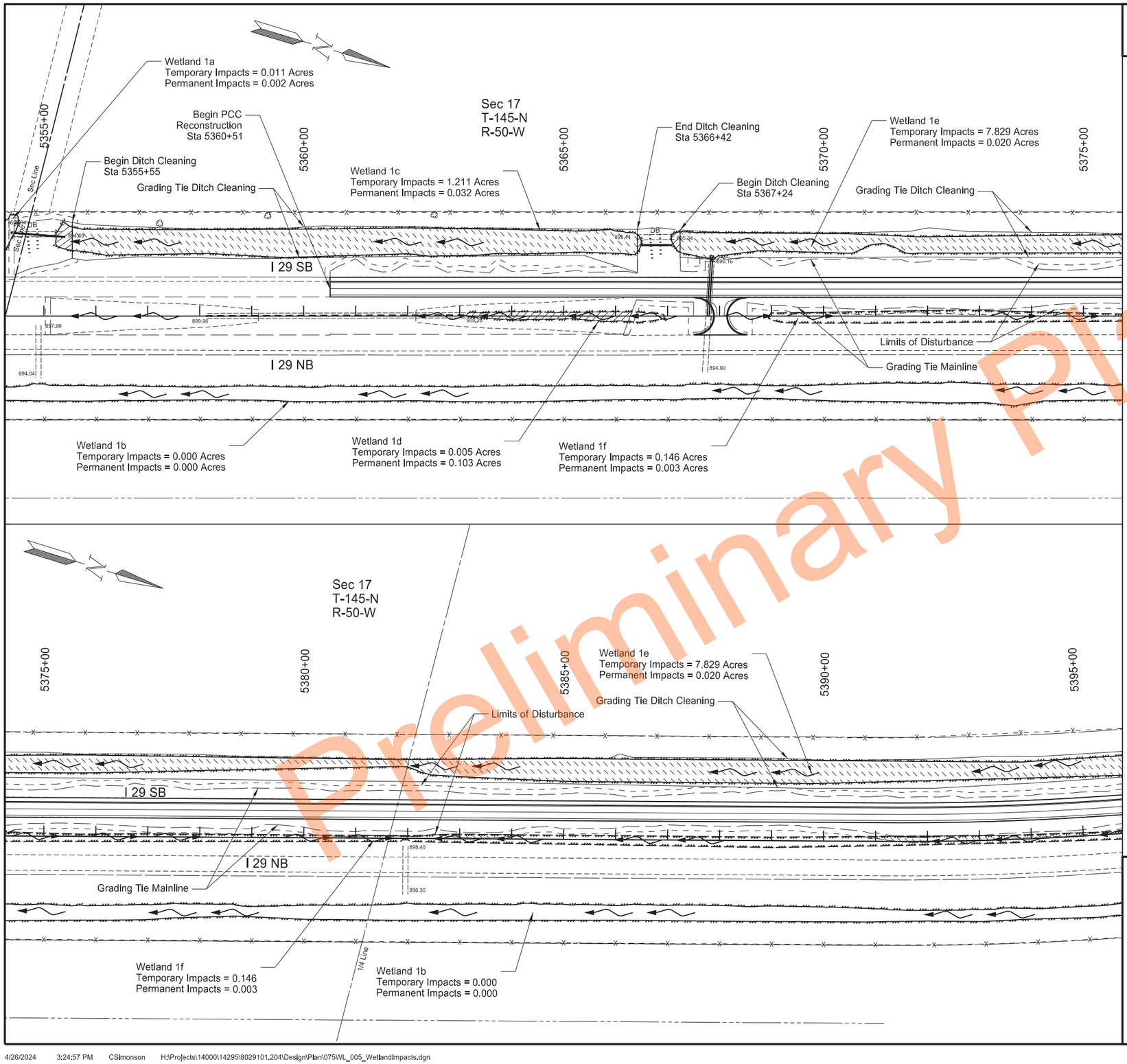
Interstate 29 – Southbound
N of Kelso N to N of N Jct 200

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	75	5



LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5354+33 to Sta 5375+00
Sta 5375+00 to Sta 5395+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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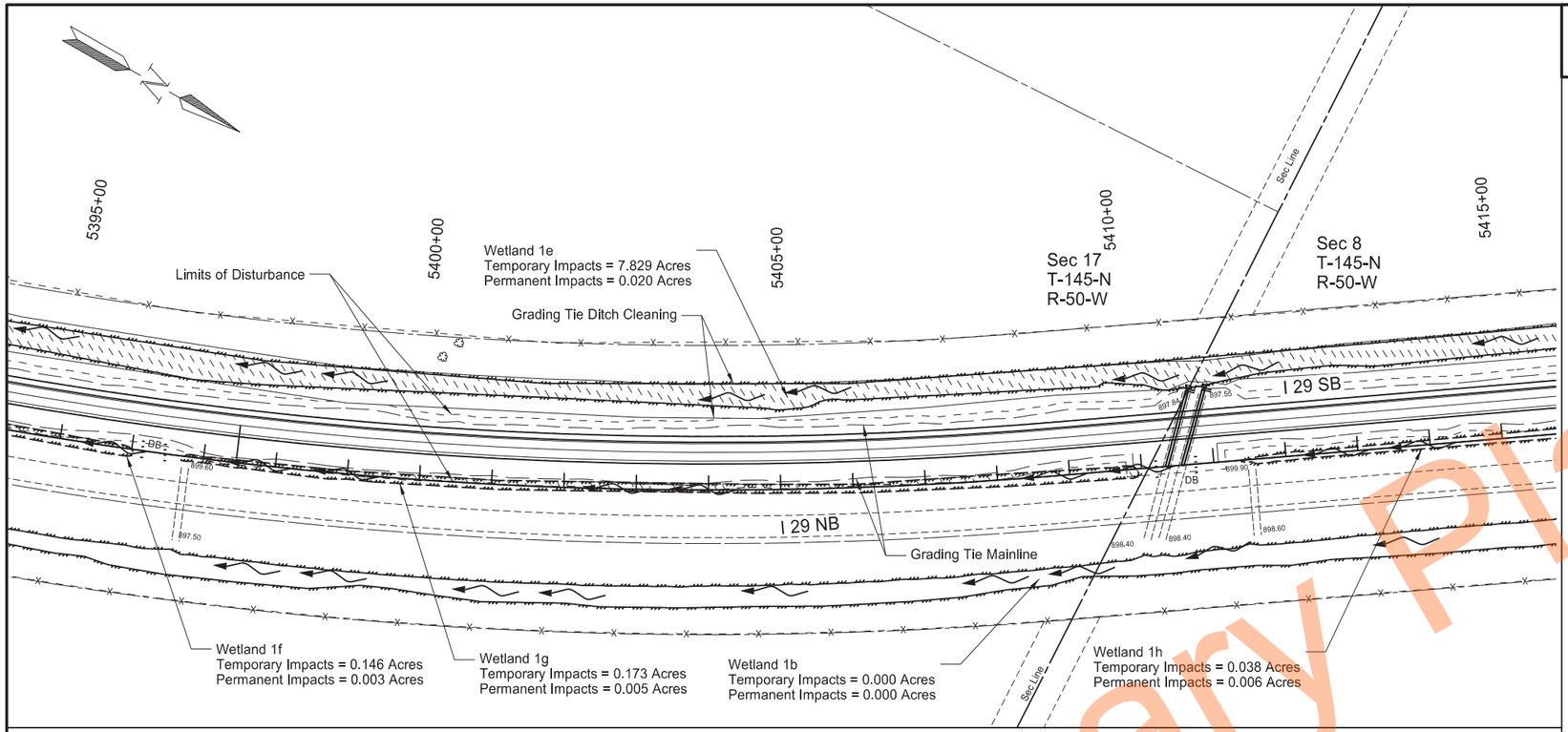
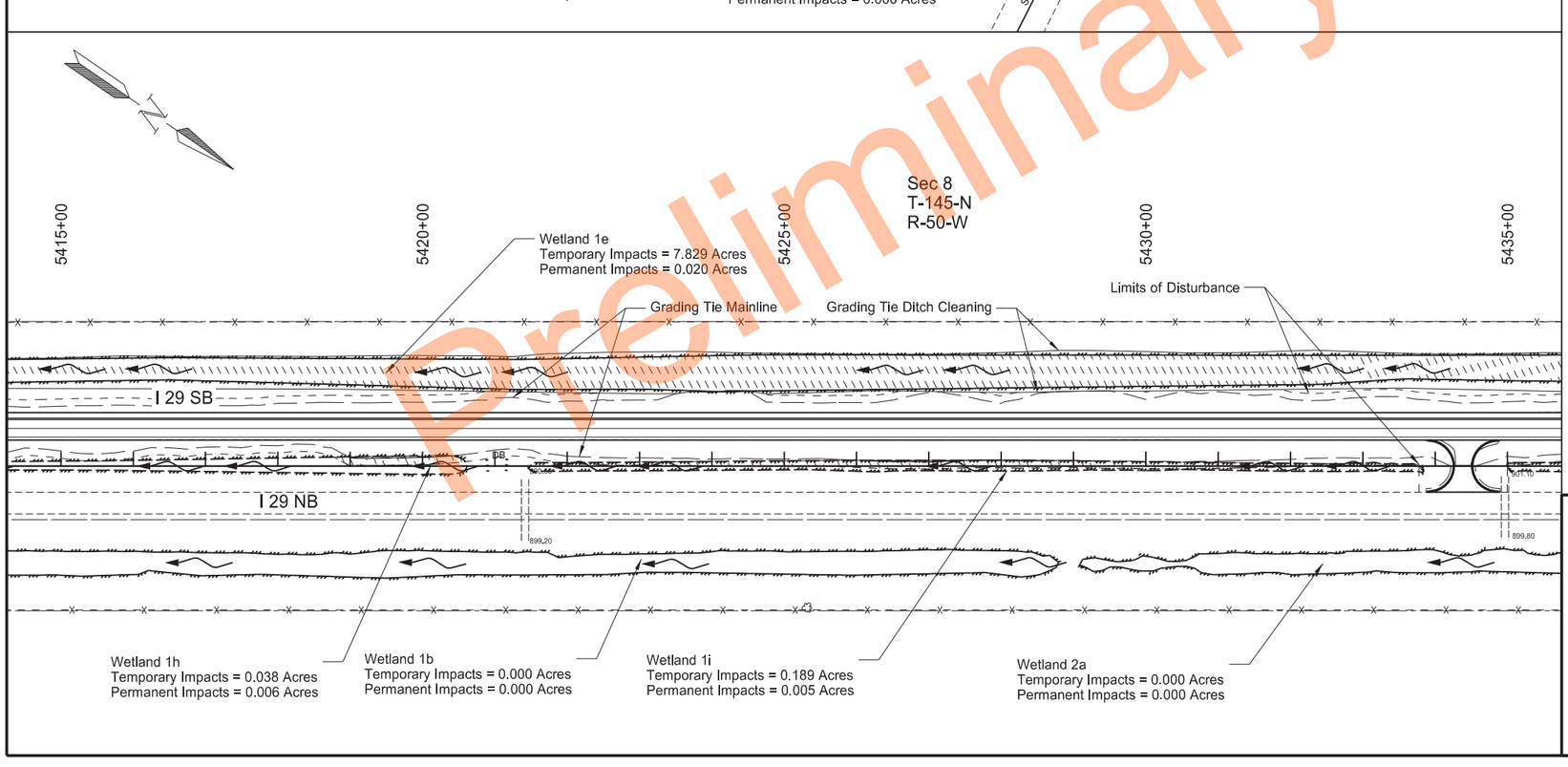
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	75	6





LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5395+00 to Sta 5415+00
Sta 5415+00 to Sta 5435+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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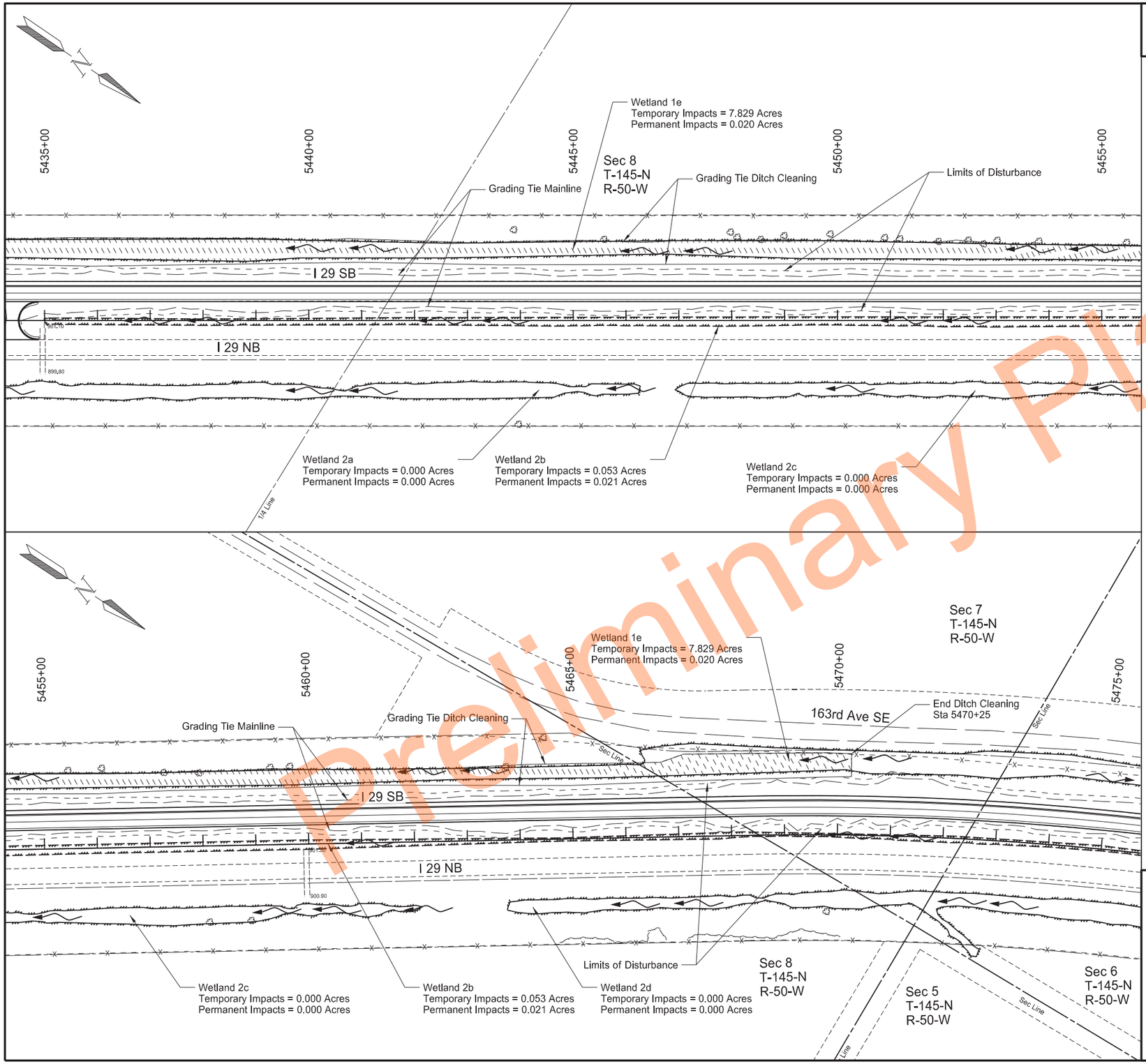
Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	7



LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5435+00 to Sta 5455+00
Sta 5455+00 to Sta 5475+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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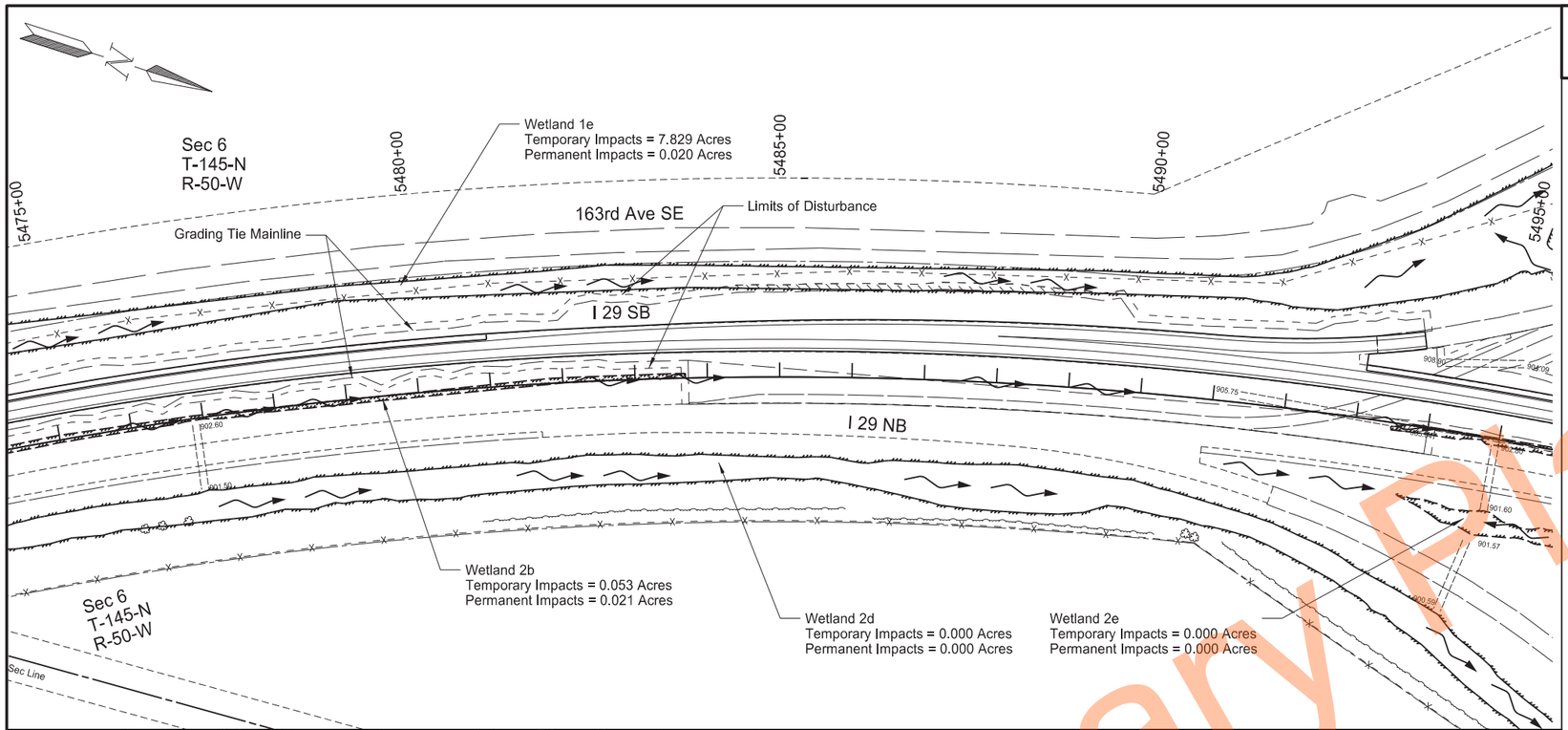
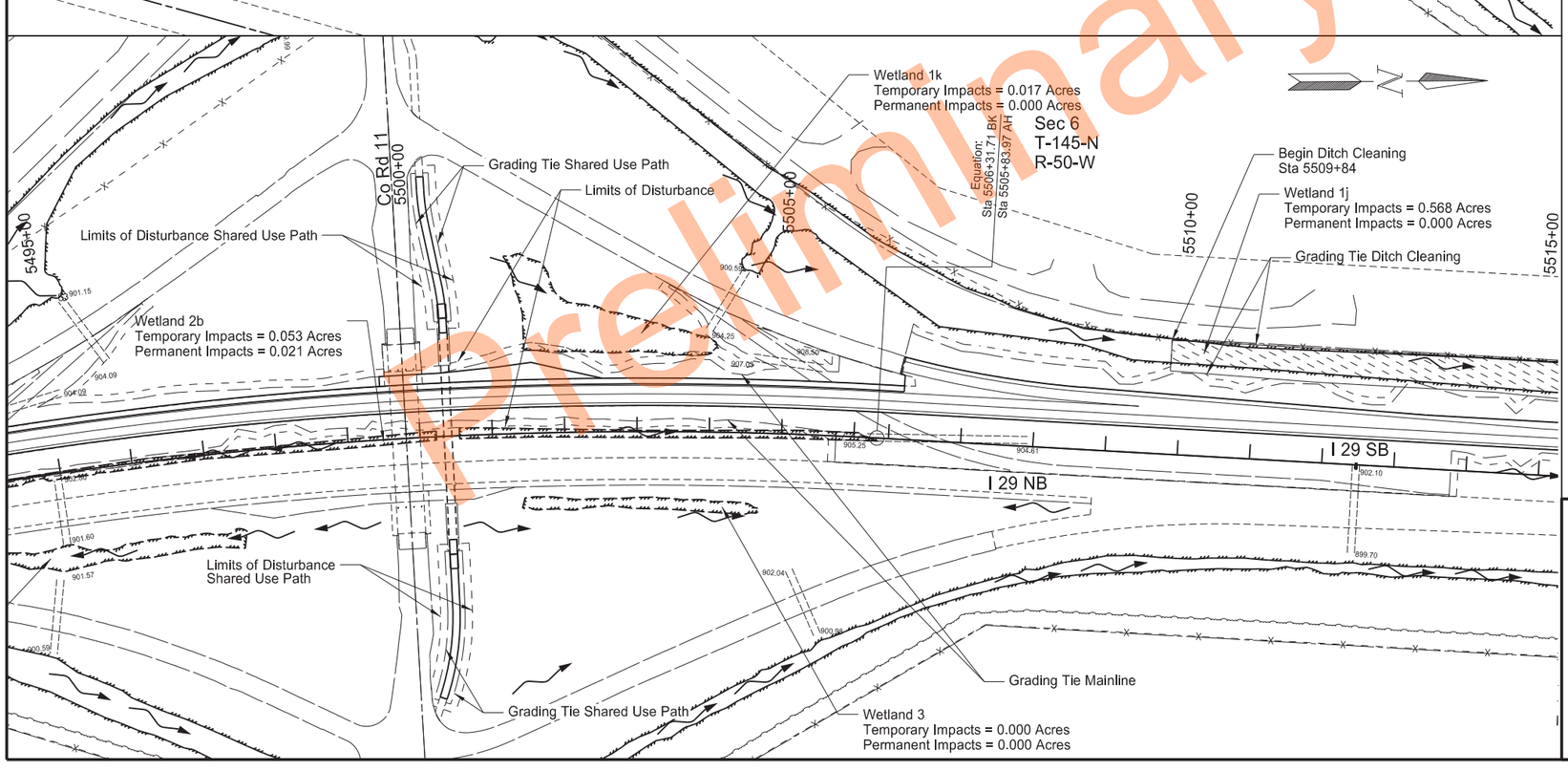
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	75	8





LEGEND

- Temporary Wetland Impact
- Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5475+00 to Sta 5495+00
Sta 5495+00 to Sta 5515+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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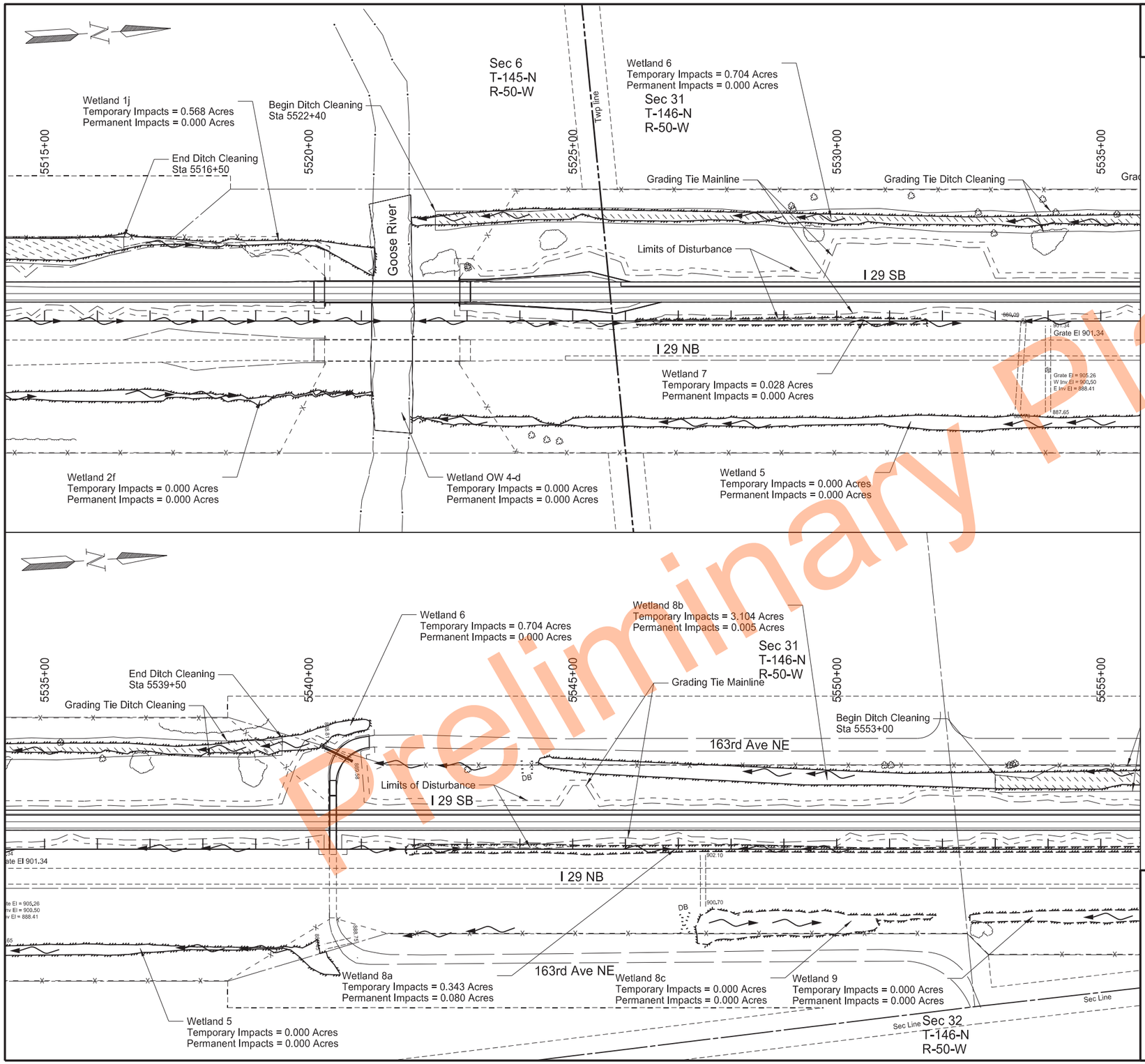
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	9



LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5515+00 to Sta 5535+00
Sta 5535+00 to Sta 5555+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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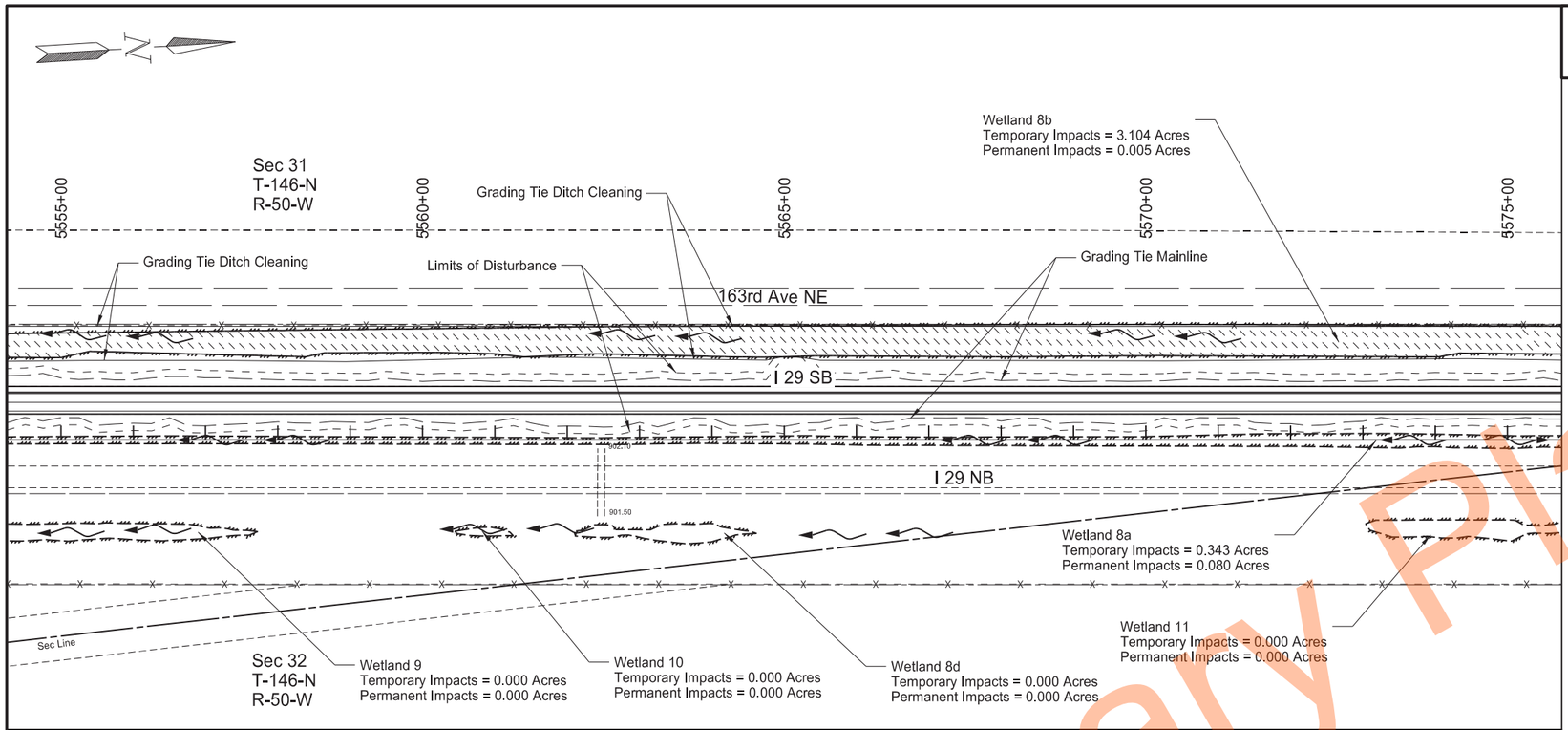
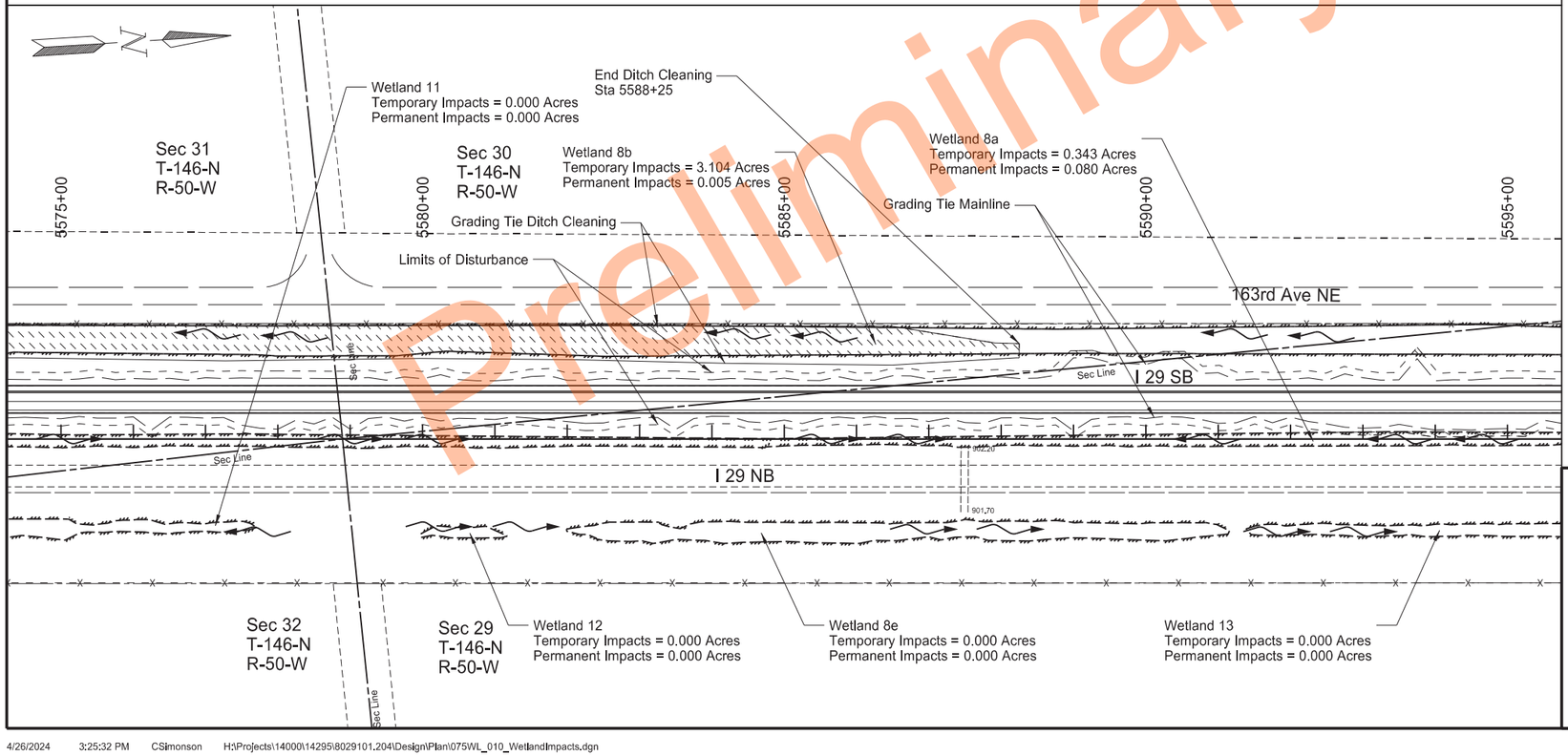
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	10





LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5555+00 to Sta 5575+00
Sta 5575+00 to Sta 5595+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
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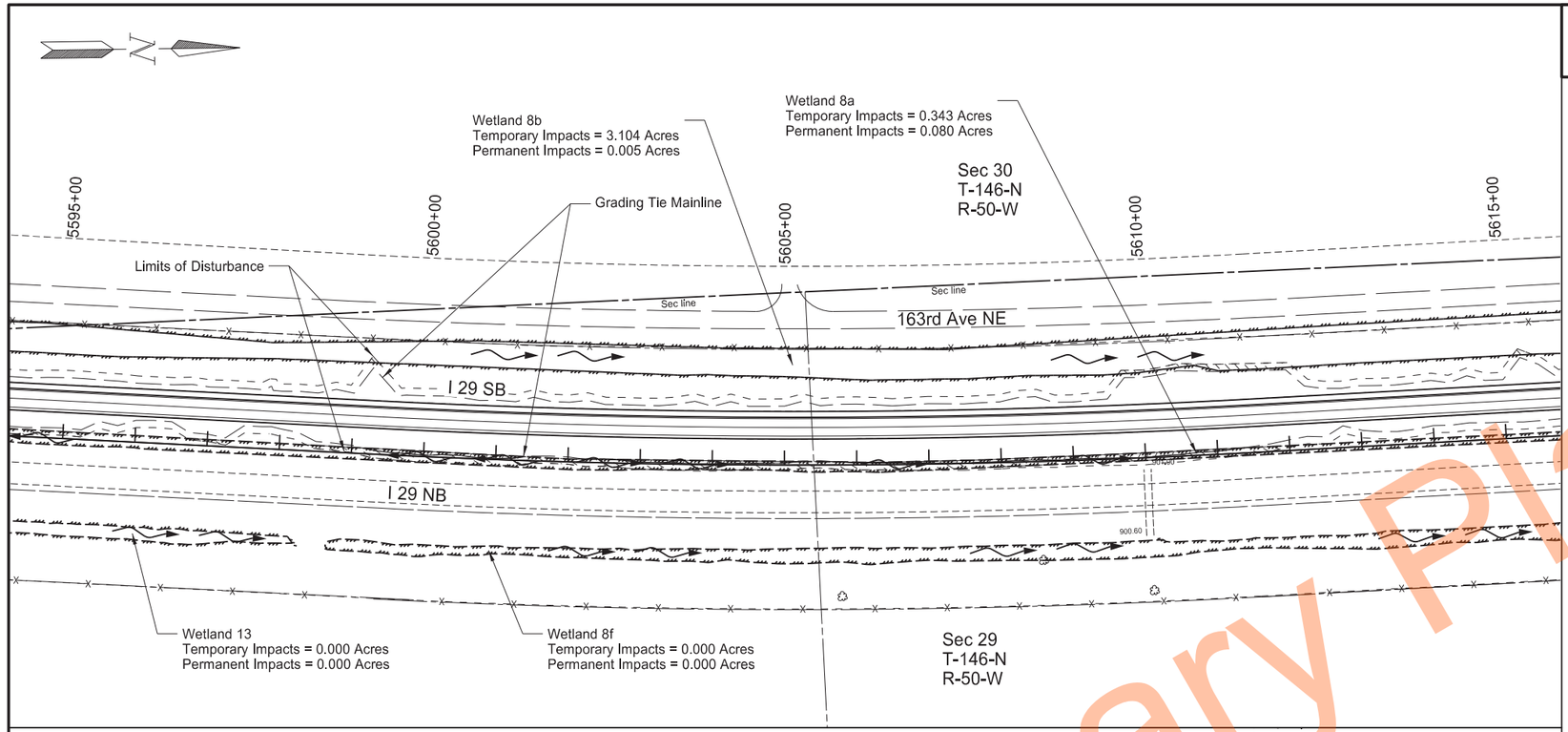
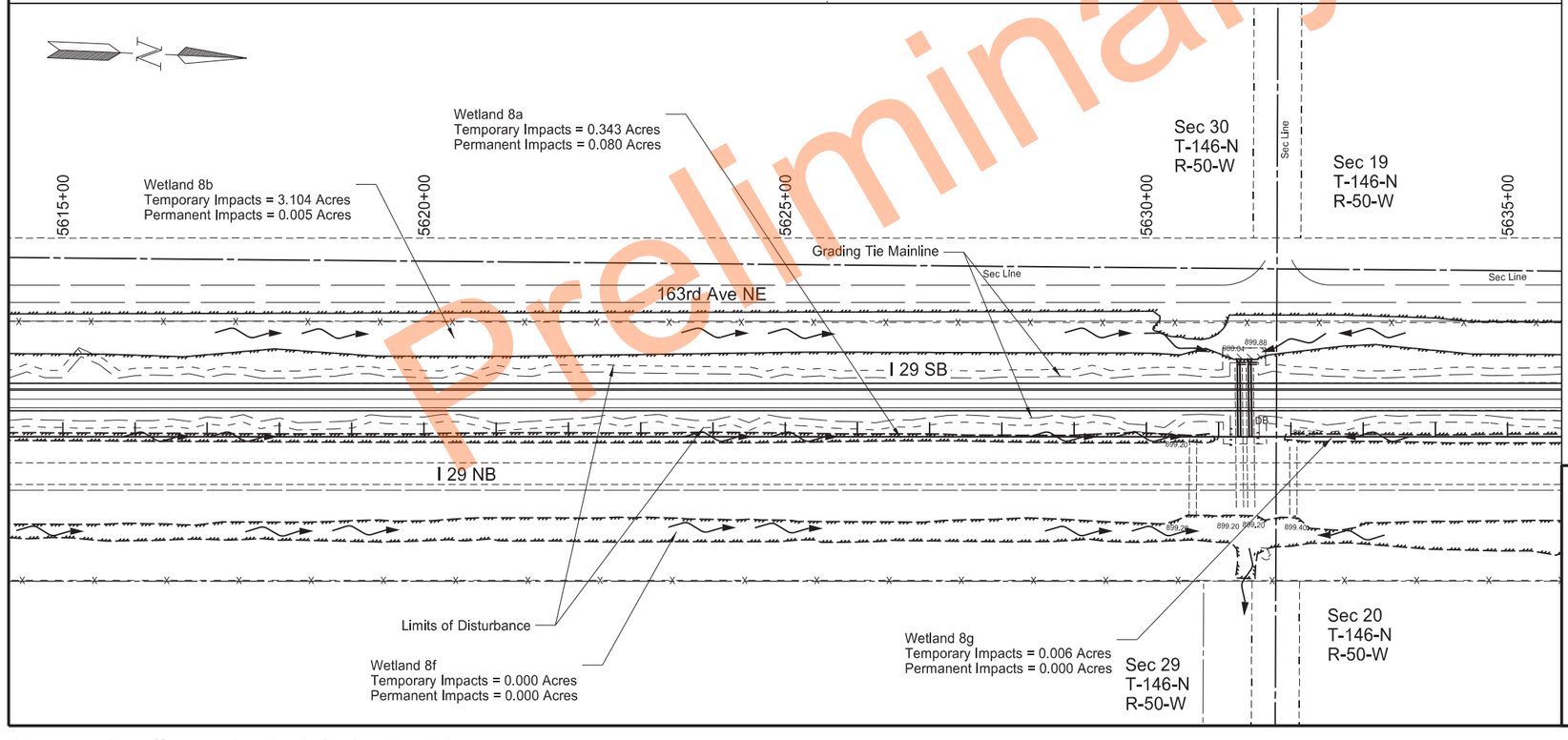
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	75	11





LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5595+00 to Sta 5615+00
Sta 5615+00 to Sta 5635+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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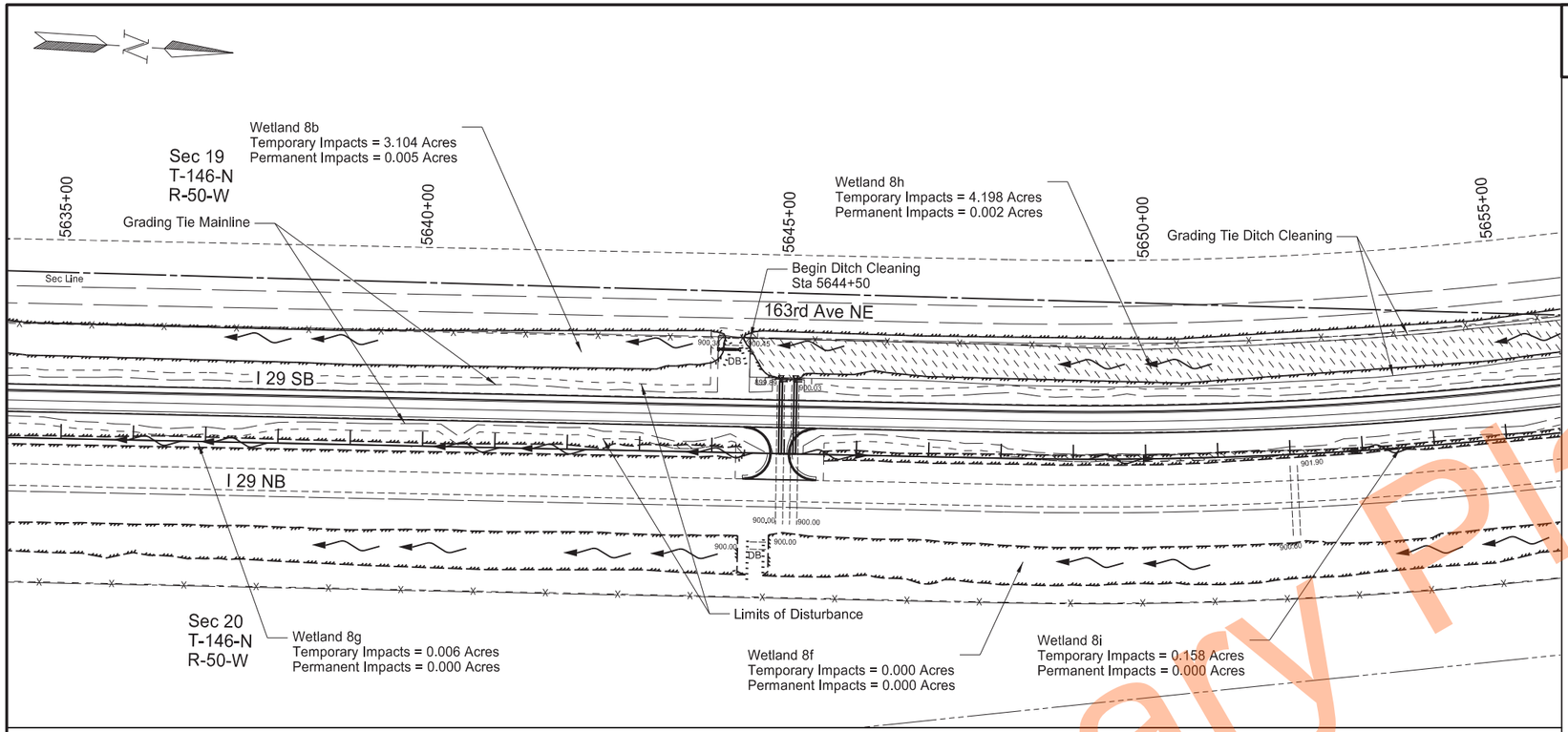
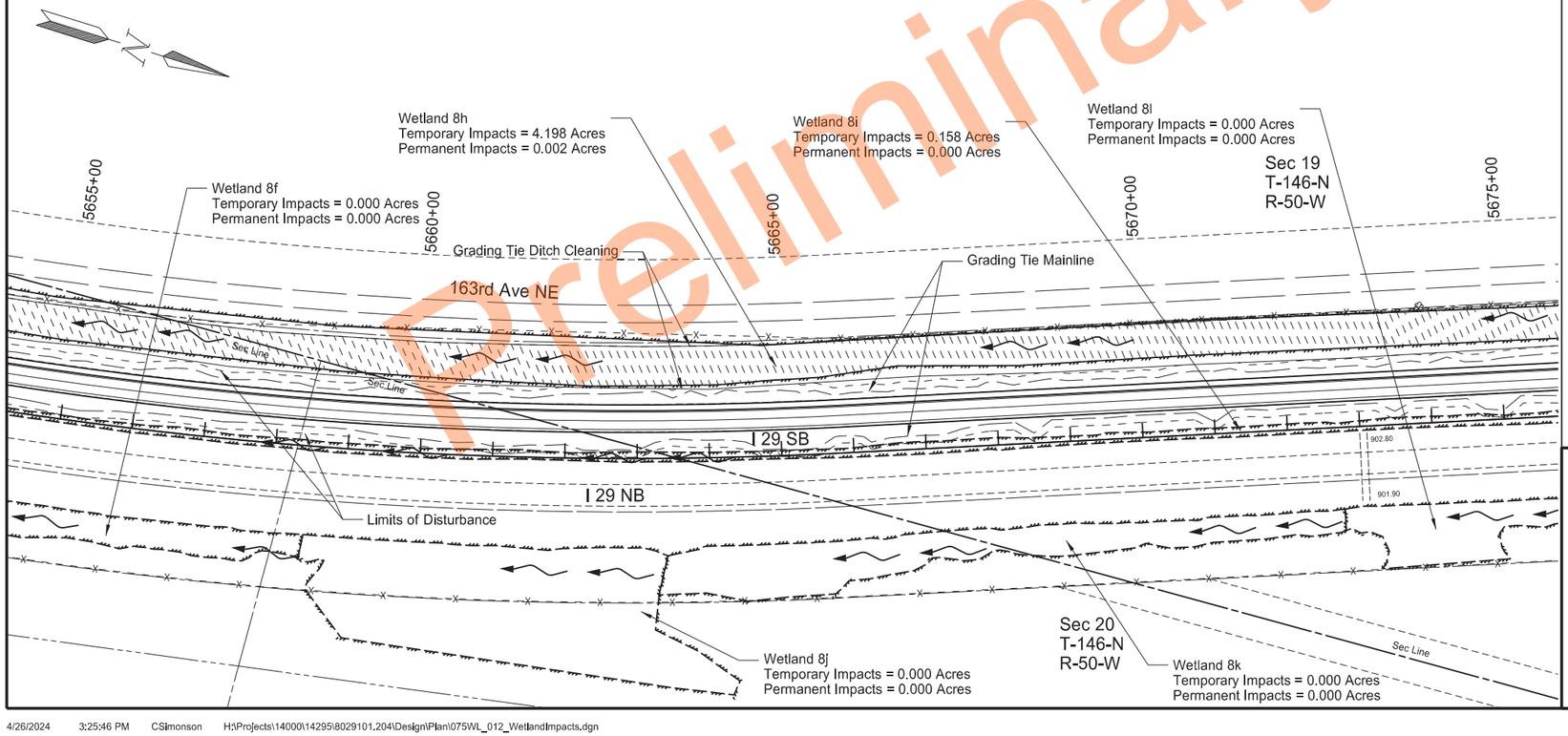
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	75	12





LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5635+00 to Sta 5655+00
Sta 5655+00 to Sta 5675+00

PCC Pavement Reconstruction
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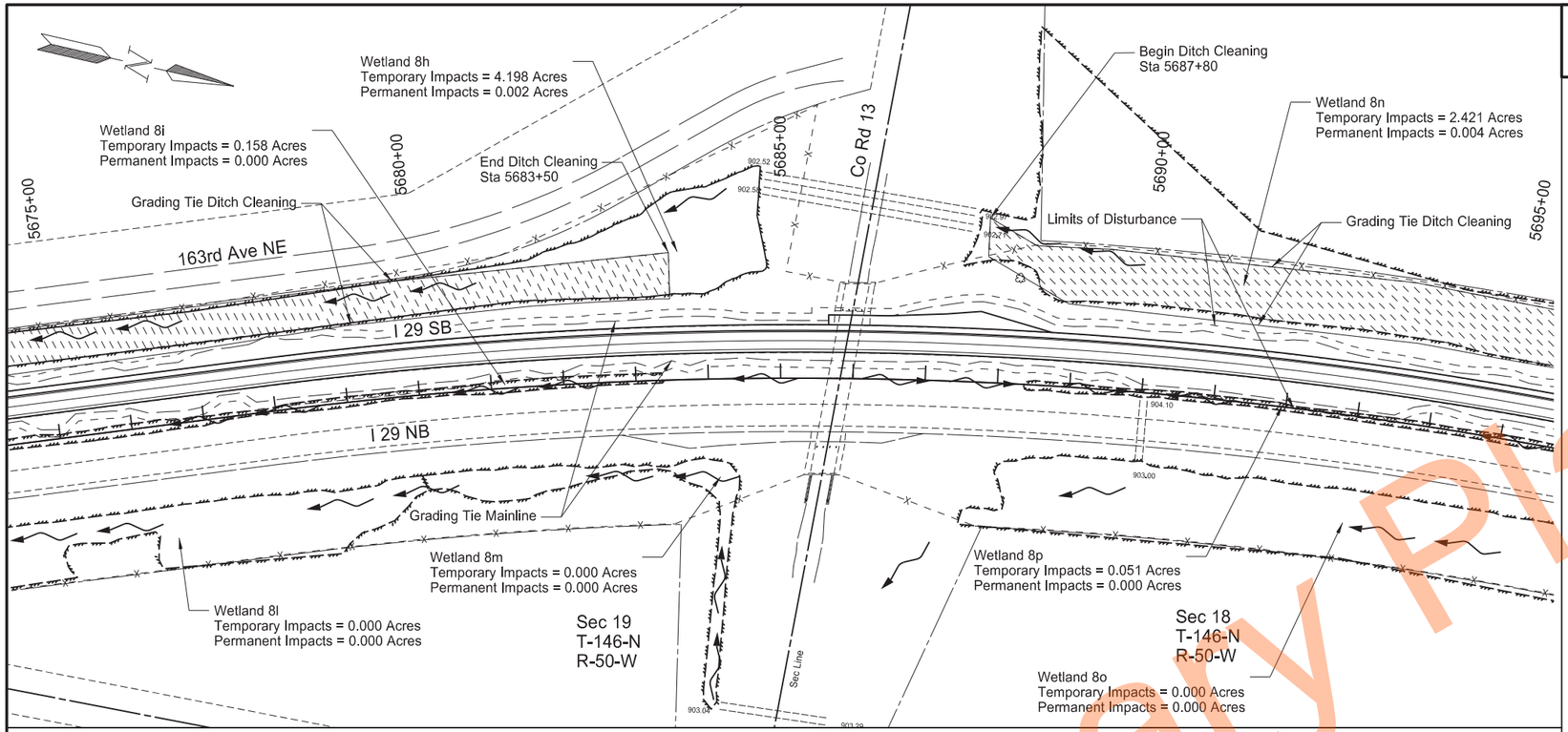
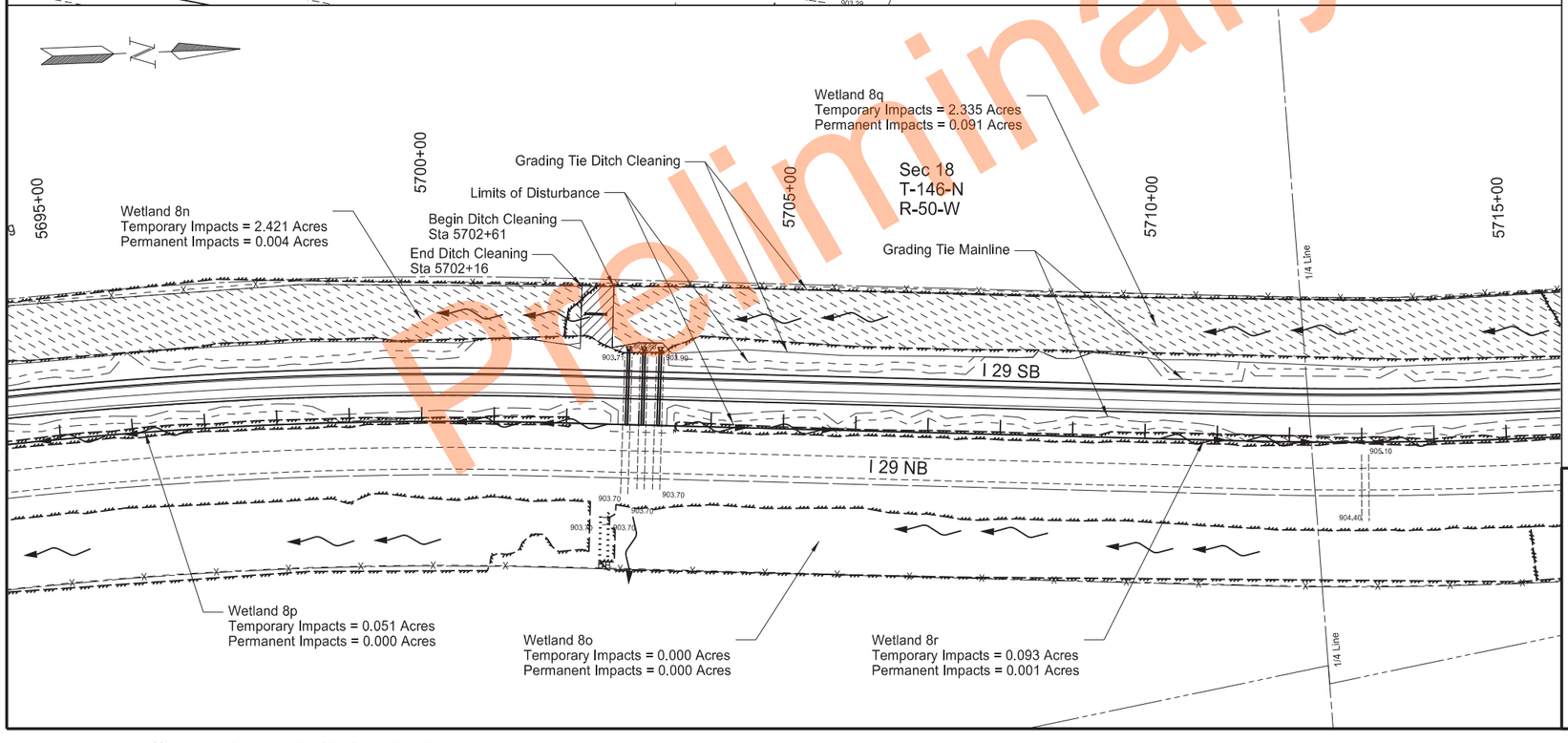
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	13





LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5675+00 to Sta 5695+00
Sta 5695+00 to Sta 5715+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
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DATE: 6/25/24
NORTH DAKOTA

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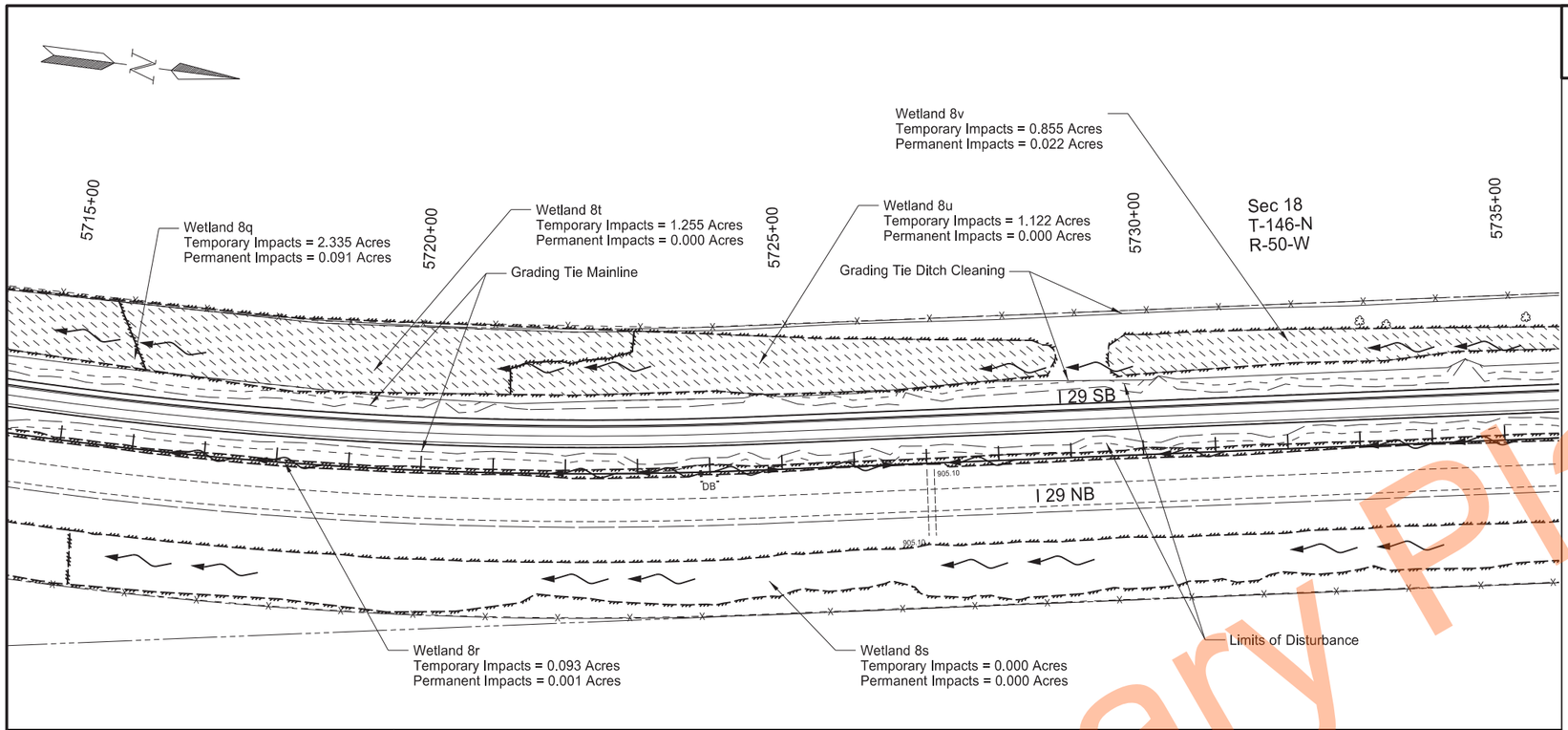
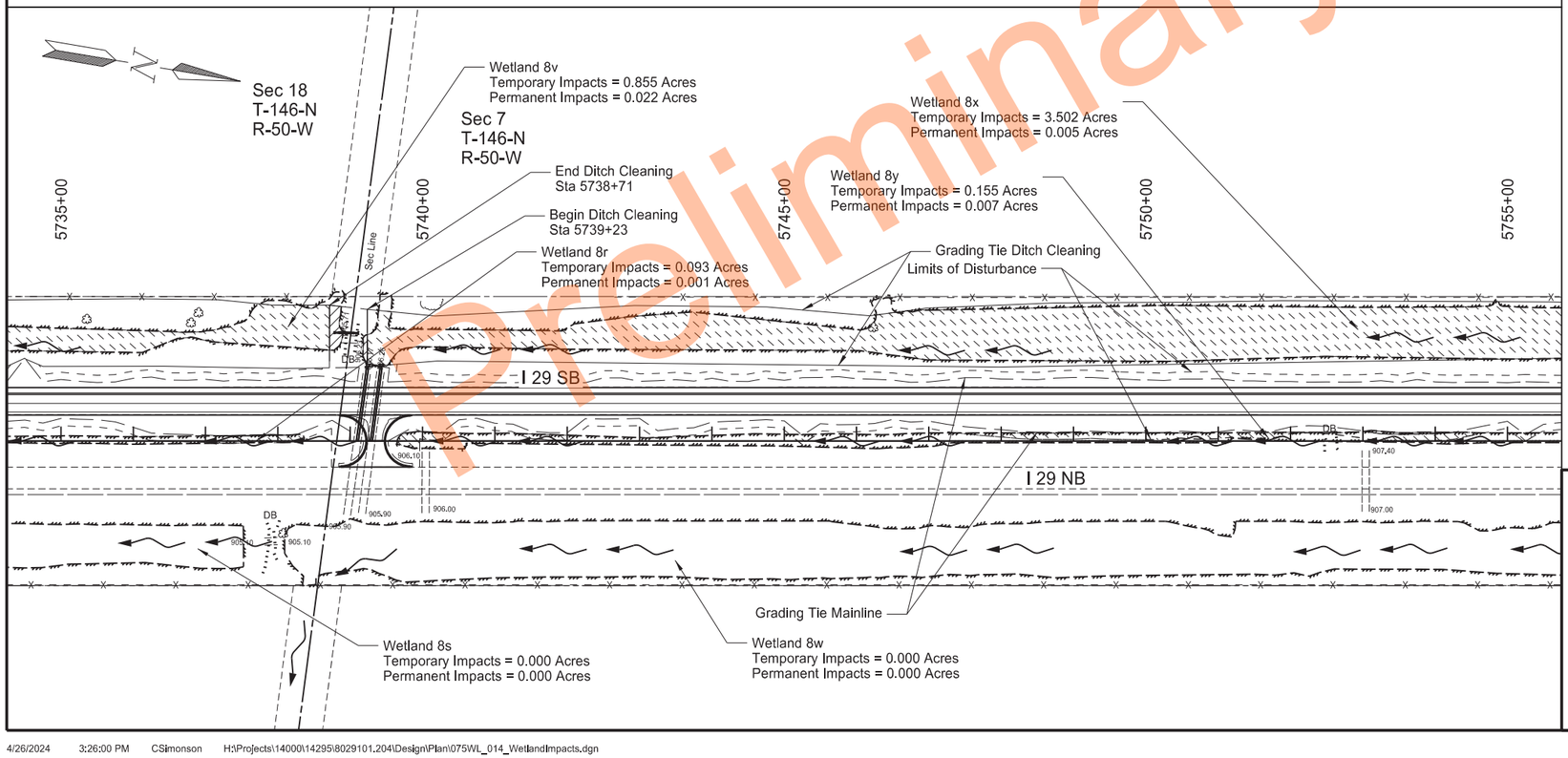
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	75	14





LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5715+00 to Sta 5735+00
Sta 5735+00 to Sta 5755+00

PCC Pavement Reconstruction
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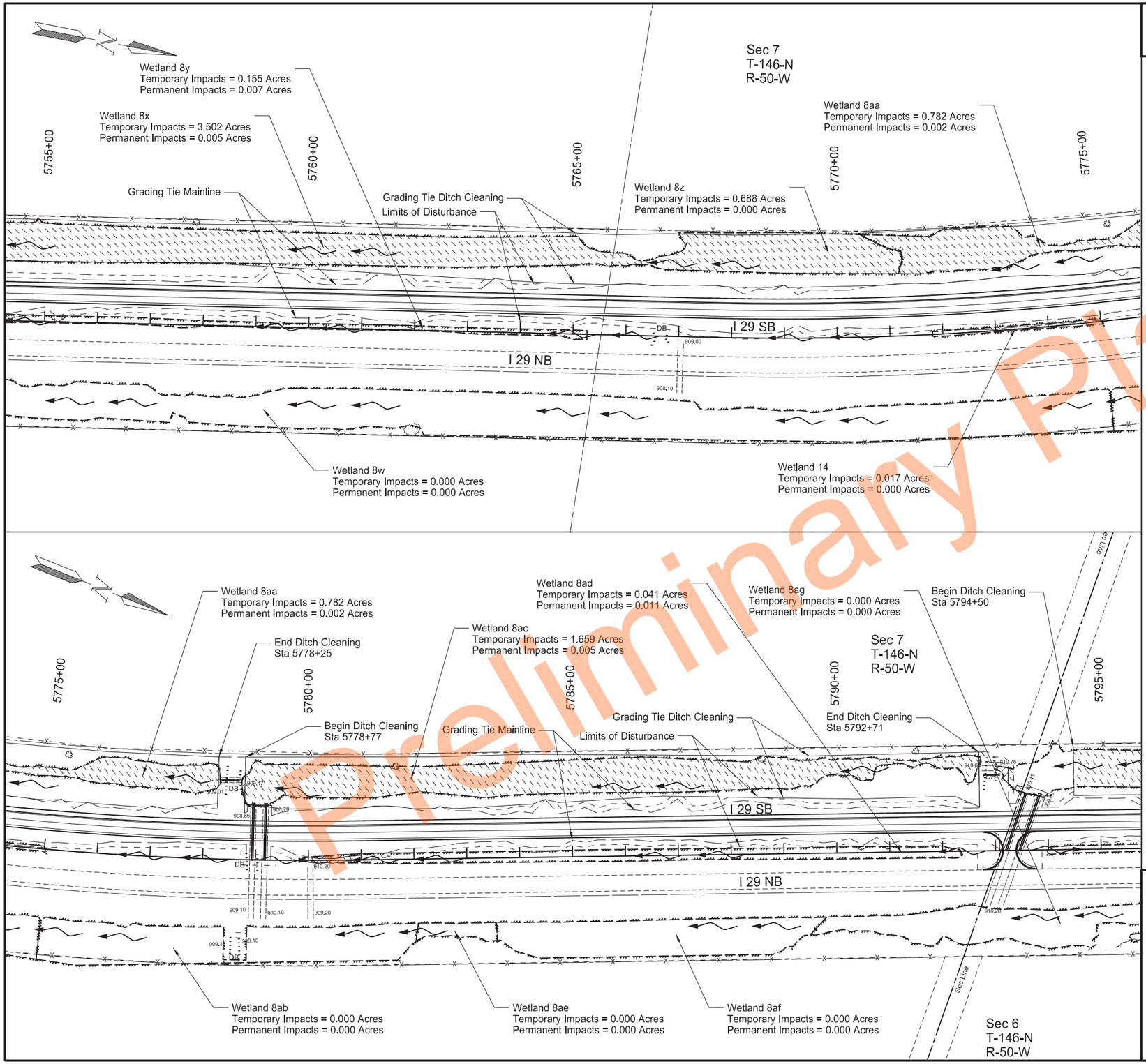
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	15



LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5755+00 to Sta 5775+00
Sta 5775+00 to Sta 5795+00

PCC Pavement Reconstruction
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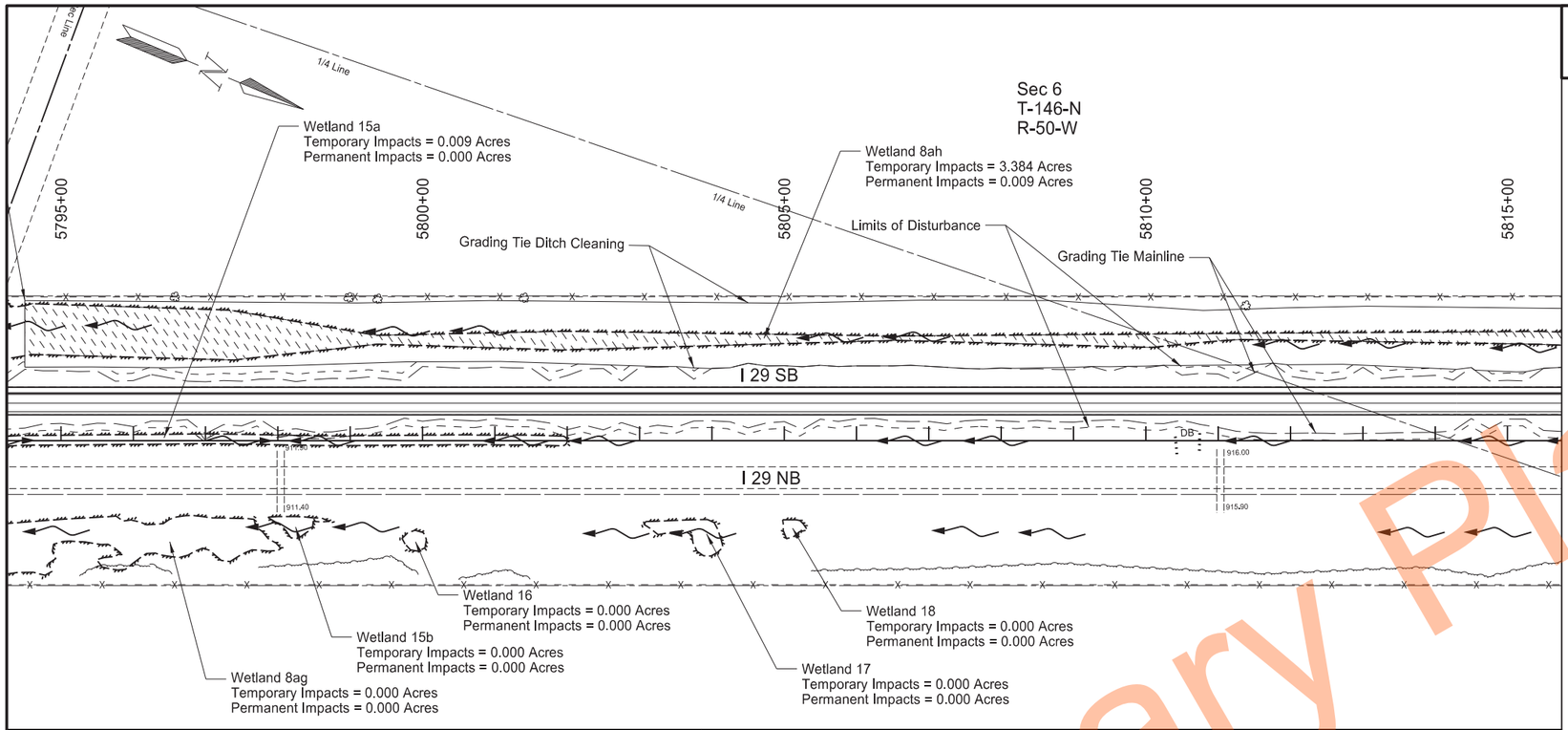
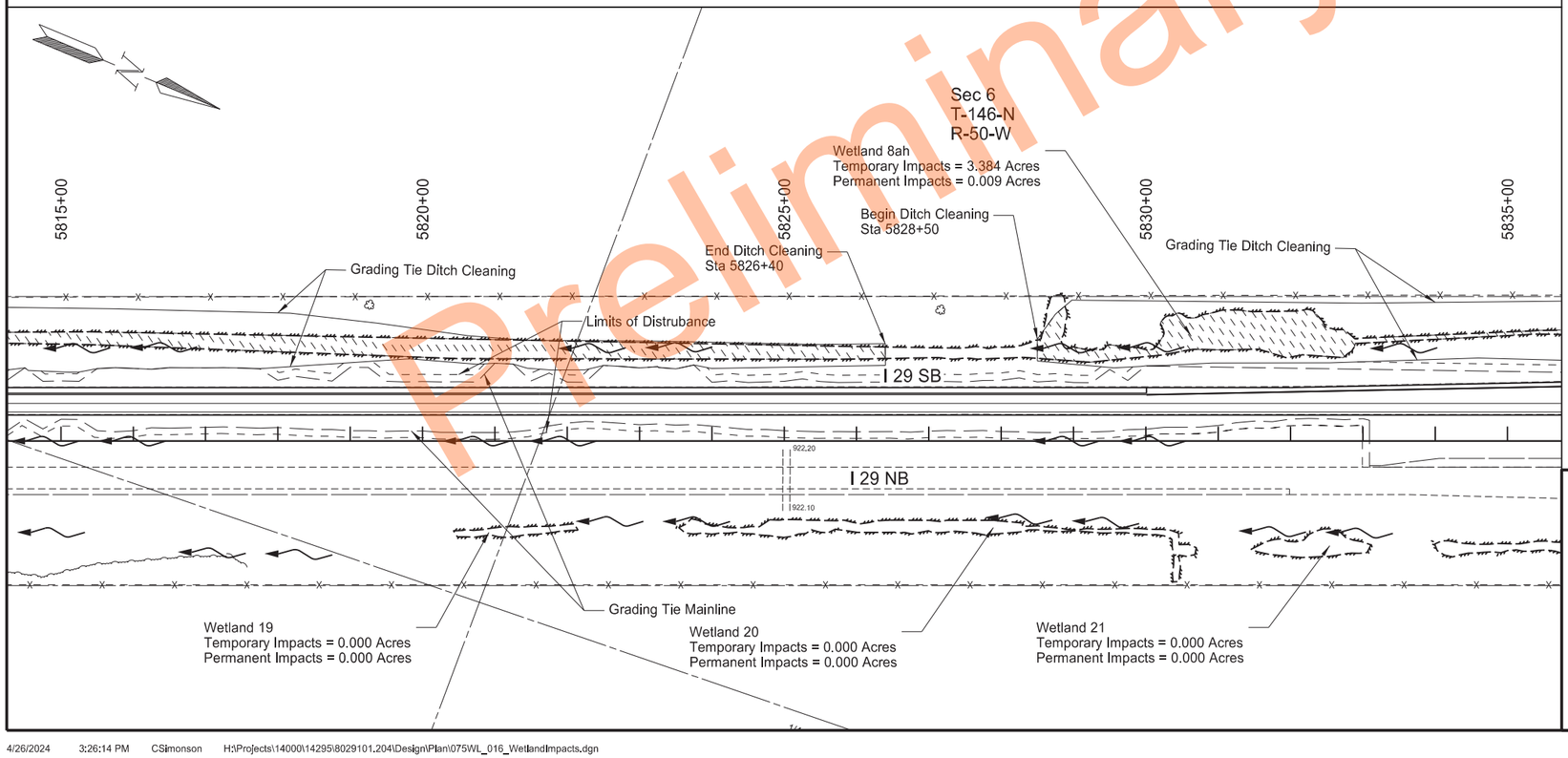
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	16





LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5795+00 to Sta 5815+00
Sta 5815+00 to Sta 5835+00

PCC Pavement Reconstruction
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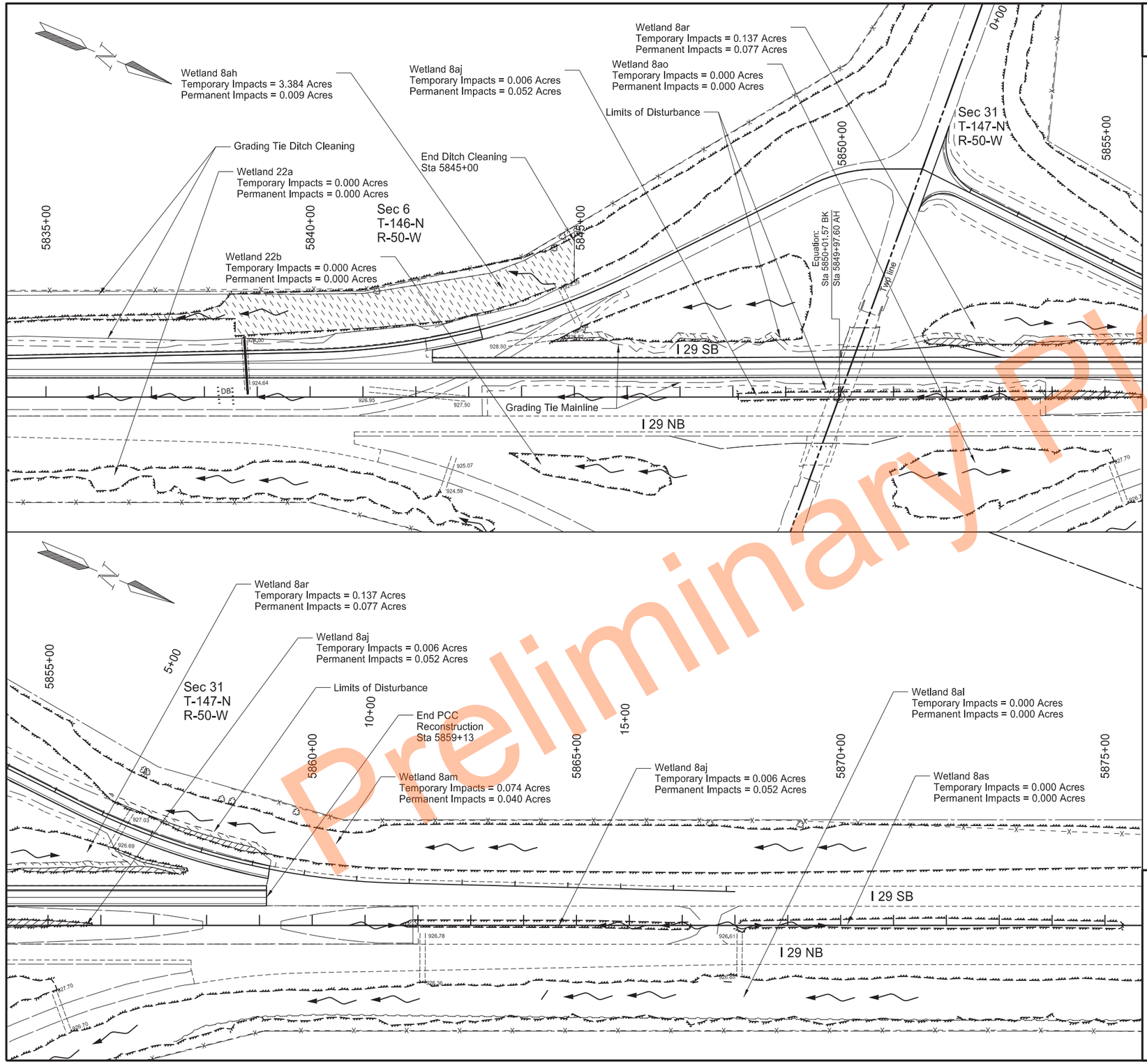
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	75	17



LEGEND

Temporary Wetland Impact

Permanent Wetland Impact

Wetlands, Mitigation, and Environmental
Sta 5835+00 to Sta 5855+00
Sta 5855+00 to Sta 5875+00

PCC Pavement Reconstruction
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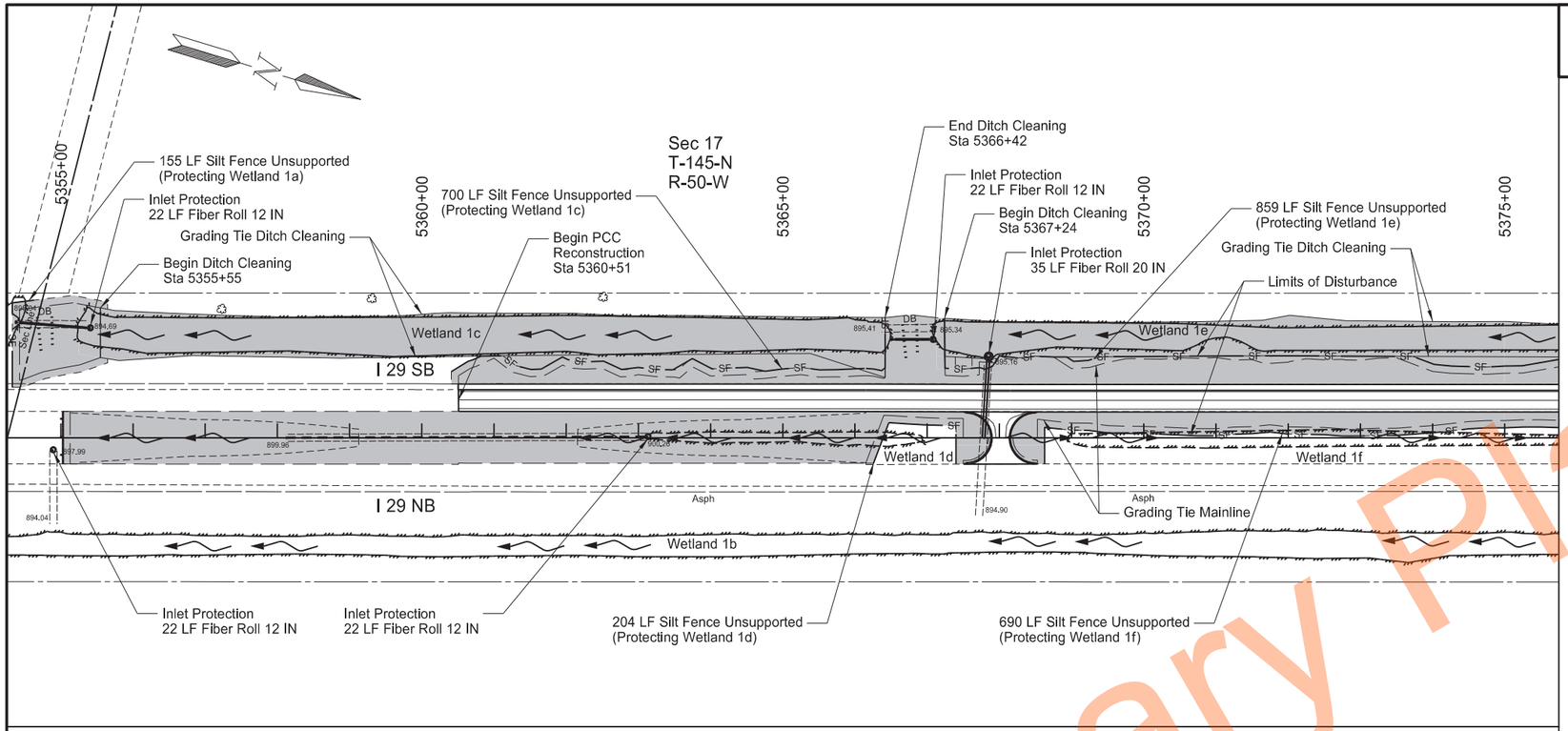
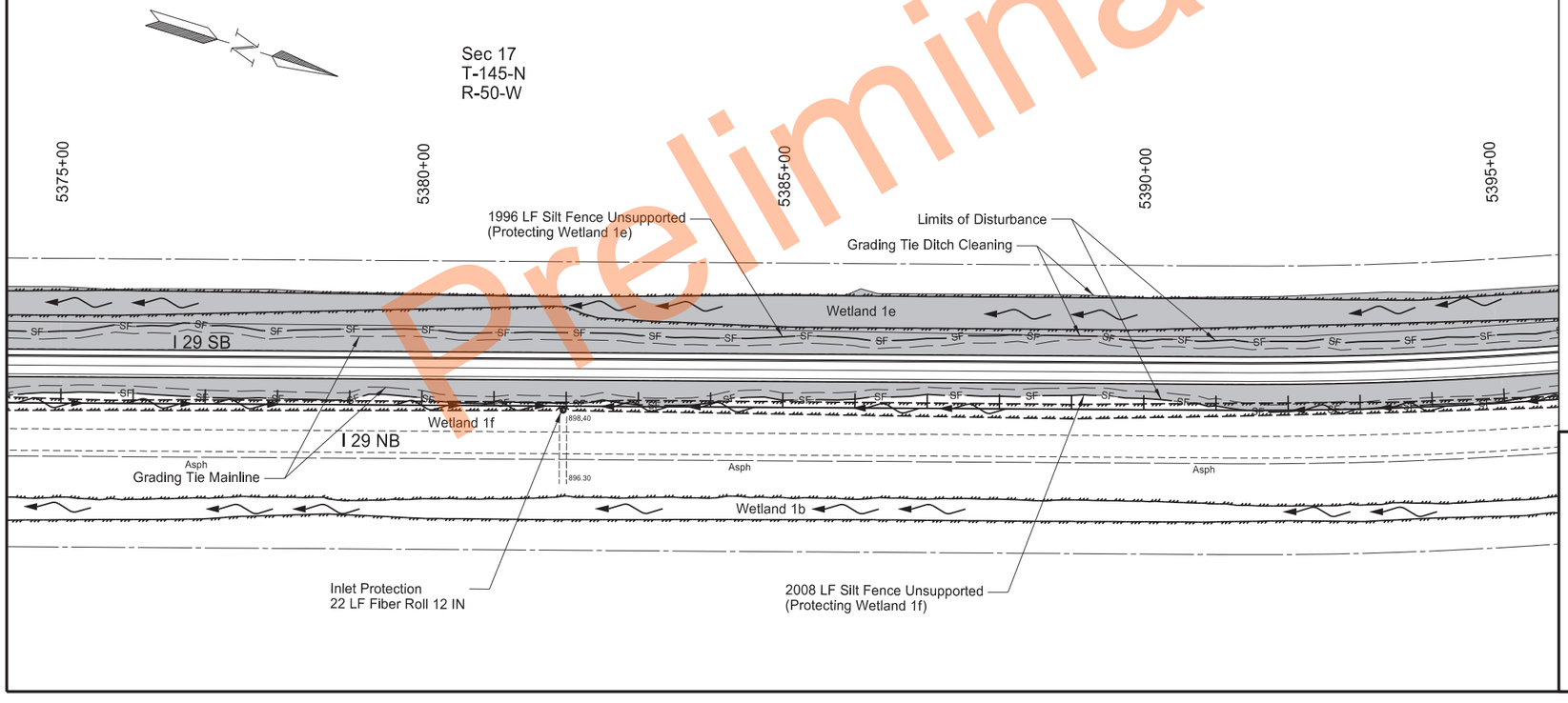
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	76	1





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5354+33 to Sta 5395+00	11.4	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5354+33 to Sta 5395+00	11.4	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 1c, 1d, 1e, and 1f	6610	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 1c, 1d, 1e, and 1f	6610	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5355+00 to Sta 5395+00	205	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5355+00 to Sta 5395+00	205	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5355+00 to Sta 5395+00	35	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 5355+00 to Sta 5395+00	35	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5354+33 to Sta 5375+00
Sta 5375+00 to Sta 5395+00

PCC Pavement Reconstruction
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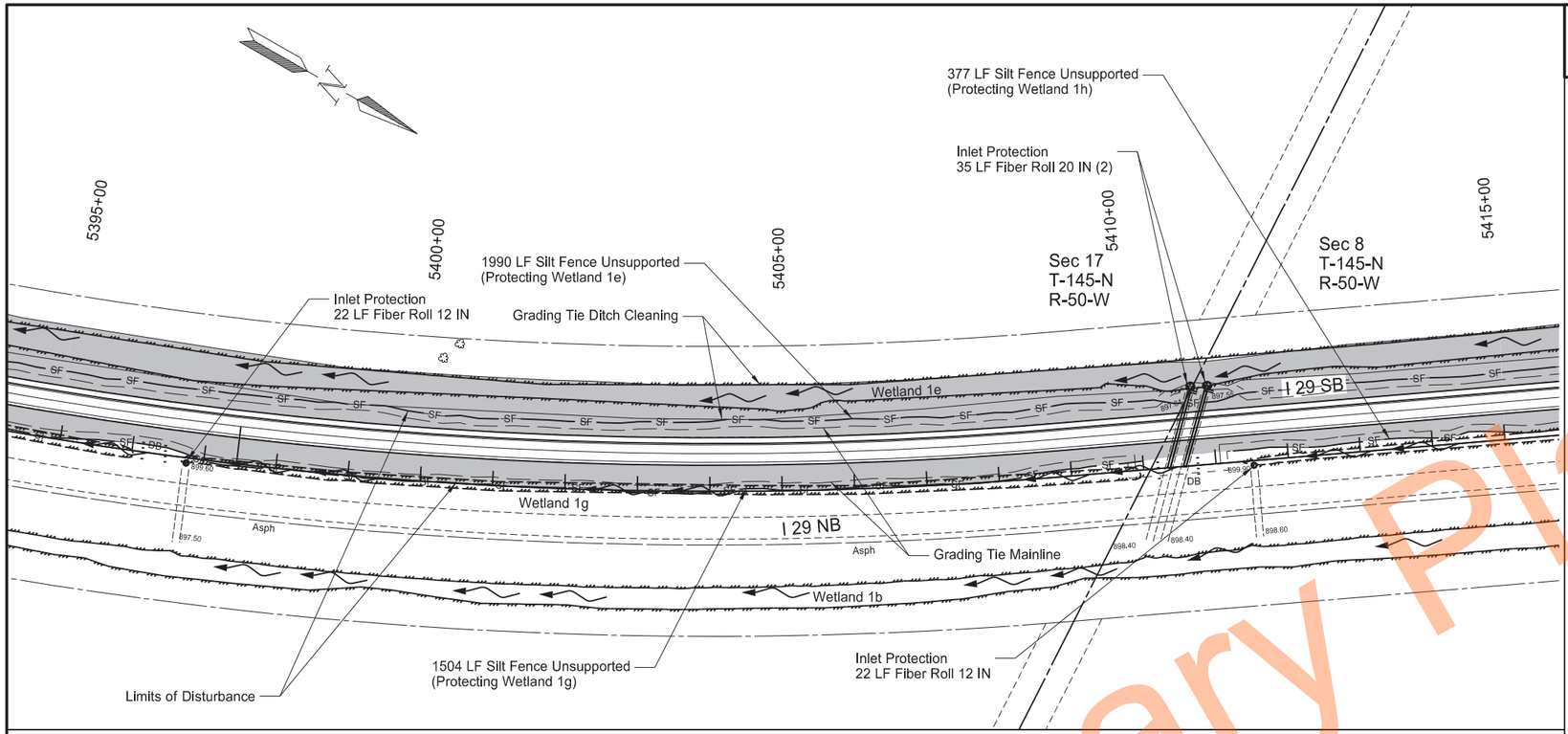

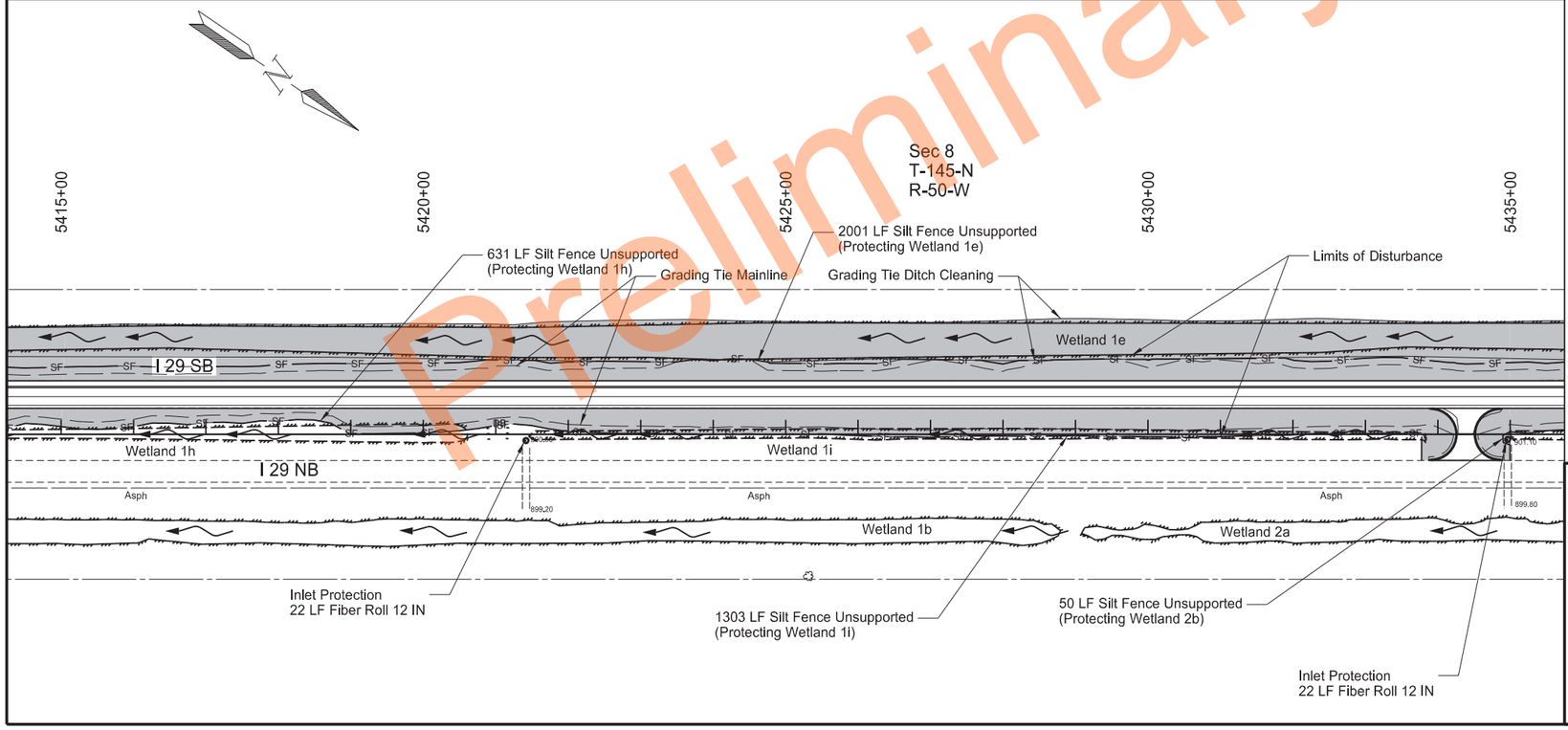

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	76	2

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5395+00 to Sta 5435+00	10.0	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5395+00 to Sta 5435+00	10.0	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 1e, 1g, 1h, 1i, and 2b	7856	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 1e, 1g, 1h, 1i, and 2b	7856	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5395+00 to Sta 5435+00	88	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5395+00 to Sta 5435+00	88	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5395+00 to Sta 5435+00	70	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 5395+00 to Sta 5435+00	70	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5395+00 to Sta 5415+00
Sta 5415+00 to Sta 5435+00

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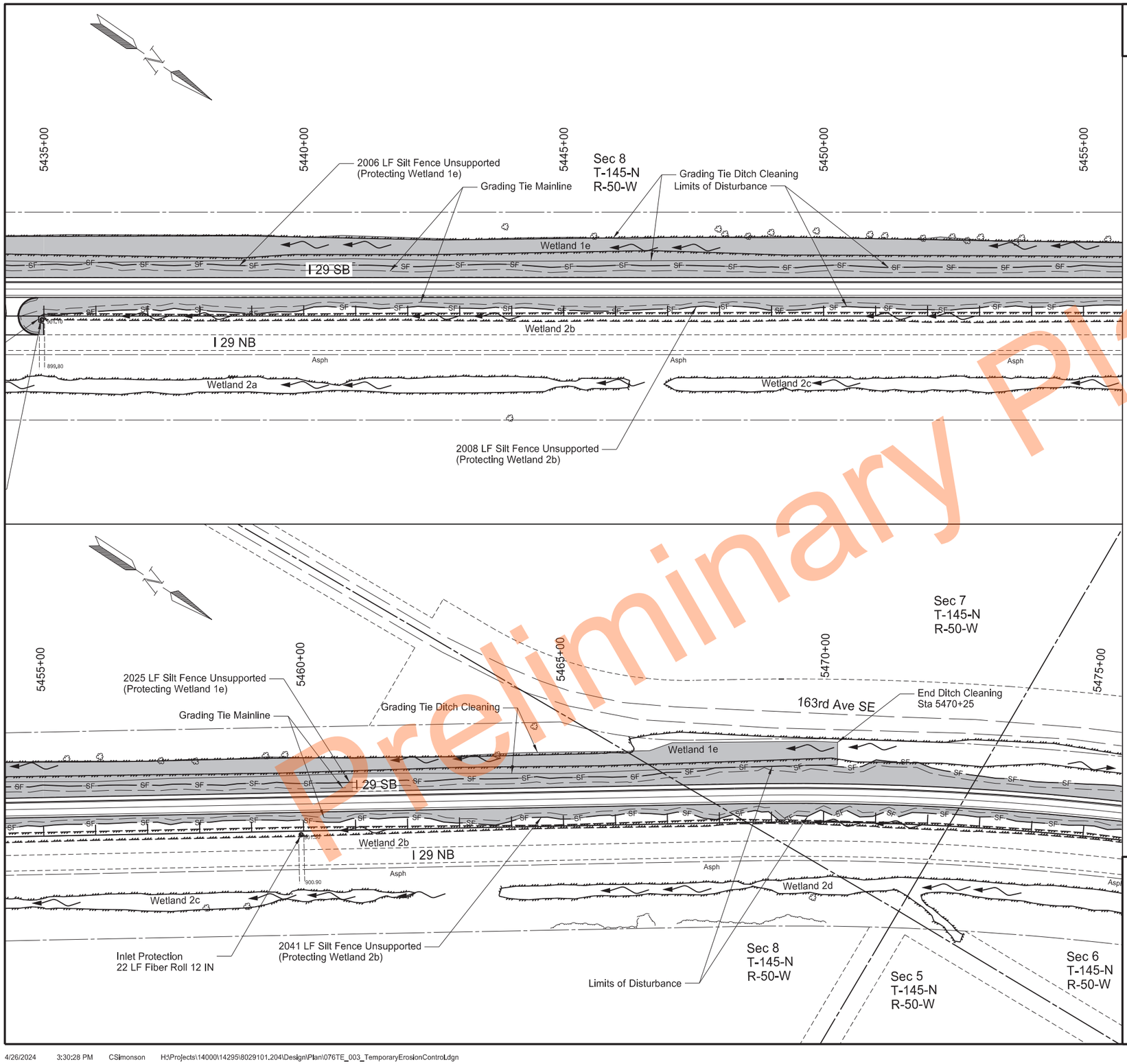
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	76	3



SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5435+00 to Sta 5475+00	8.2	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5435+00 to Sta 5475+00	8.2	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 1e and 2b	8080	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 1e and 2b	8080	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5435+00 to Sta 5475+00	22	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5435+00 to Sta 5475+00	22	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5435+00 to Sta 5455+00
Sta 5455+00 to Sta 5475+00

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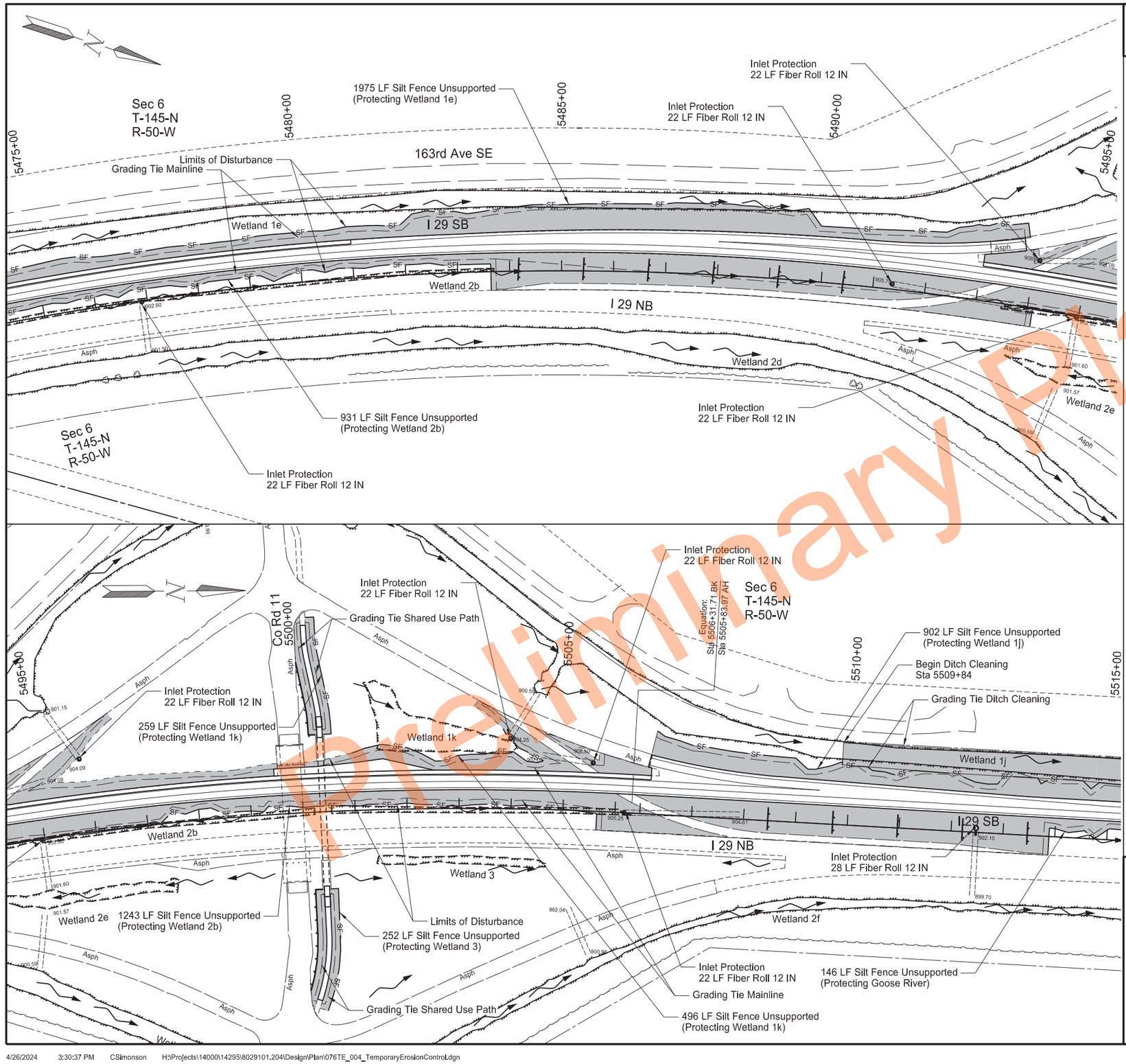
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	76	4

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5475+00 to Sta 5515+00	7.9	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5475+00 to Sta 5515+00	7.9	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 1e, 2b, 1k, and 1j	6057	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 1e, 2b, 1k, and 1j	6057	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5475+00 to Sta 5515+00	1054	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5475+00 to Sta 5515+00	1054	LF



LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5475+00 to Sta 5495+00
Sta 5495+00 to Sta 5515+00

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ND	IM-8-029(204)101	76	5

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5515+00 to Sta 5555+00	7.3	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5515+00 to Sta 5555+00	7.3	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 1j, 6, 7, 8a, 8b, and Goose River	6858	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 1j, 6, 7, 8a, 8b, and Goose River	6858	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5515+00 to Sta 5555+00	248	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5515+00 to Sta 5555+00	248	LF
262	100	FLOTATION SILT CURTAIN		
		Protecting Goose River	583	LF
262	101	REMOVE FLOTATION SILT CURTAIN		
		Protecting Goose River	583	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5515+00 to Sta 5535+00
Sta 5535+00 to Sta 5555+00

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NORTH DAKOTA

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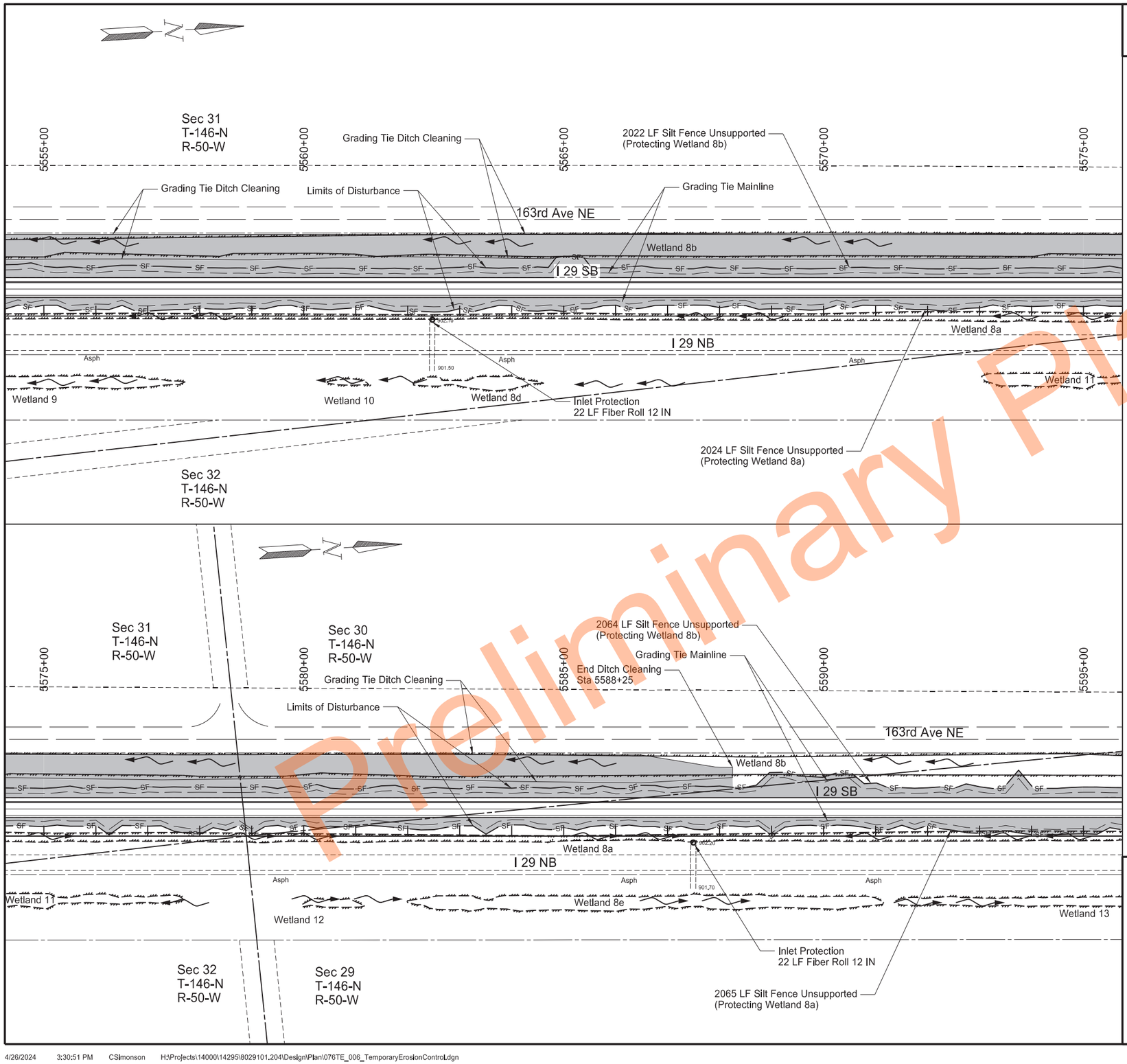
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	76	6



SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5555+00 to Sta 5595+00	8.6	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5555+00 to Sta 5595+00	8.6	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8a and 8b	8175	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8a and 8b	8175	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5555+00 to Sta 5595+00	44	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5555+00 to Sta 5595+00	44	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5555+00 to Sta 5575+00
Sta 5575+00 to Sta 5595+00

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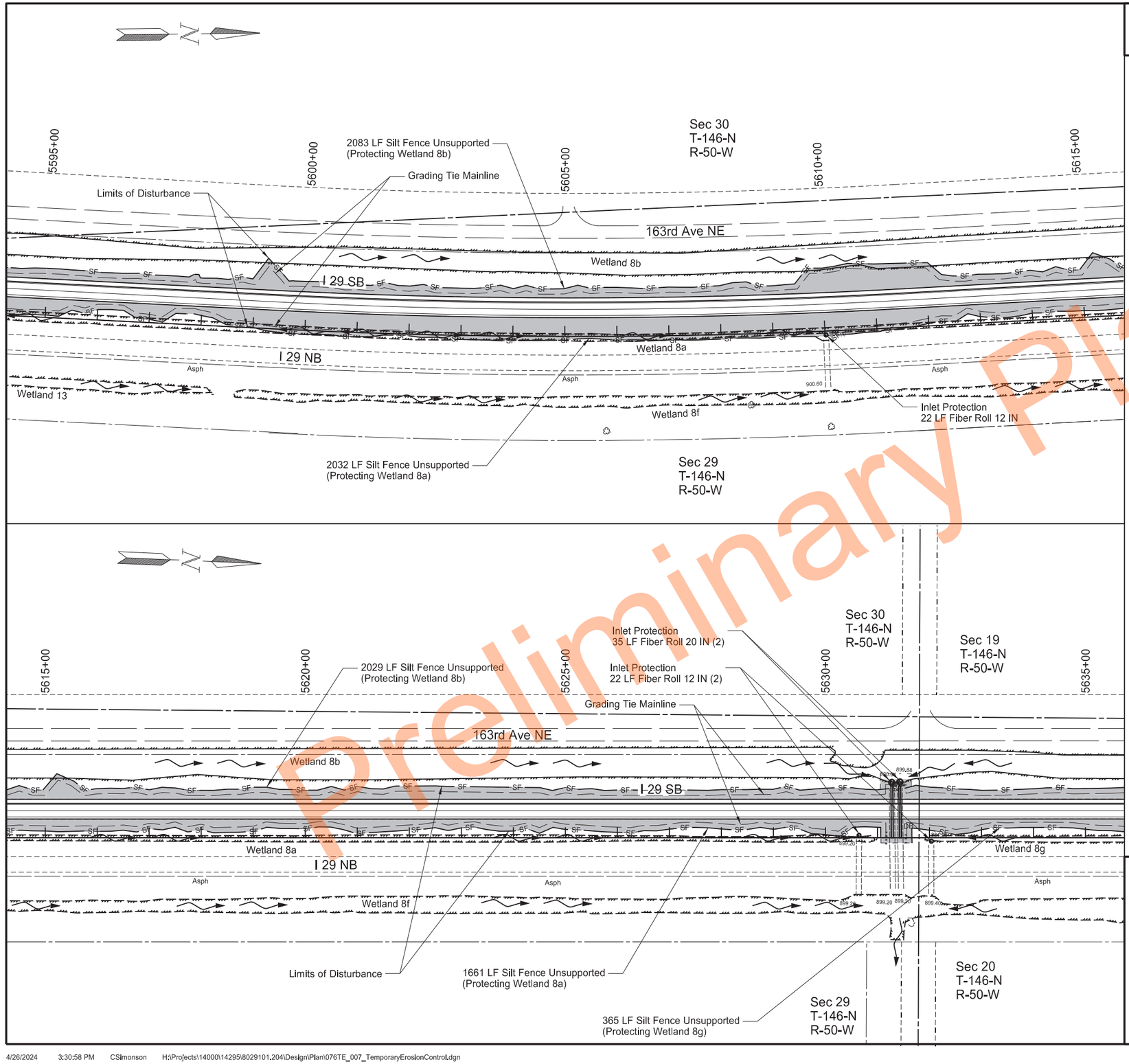
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	76	7



SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5595+00 to Sta 5635+00	4.8	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5595+00 to Sta 5635+00	4.8	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8a, 8b, and 8g	8170	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8a, 8b, and 8g	8170	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5595+00 to Sta 5635+00	66	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5595+00 to Sta 5635+00	66	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5595+00 to Sta 5635+00	70	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 5595+00 to Sta 5635+00	70	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5595+00 to Sta 5615+00
Sta 5615+00 to Sta 5635+00

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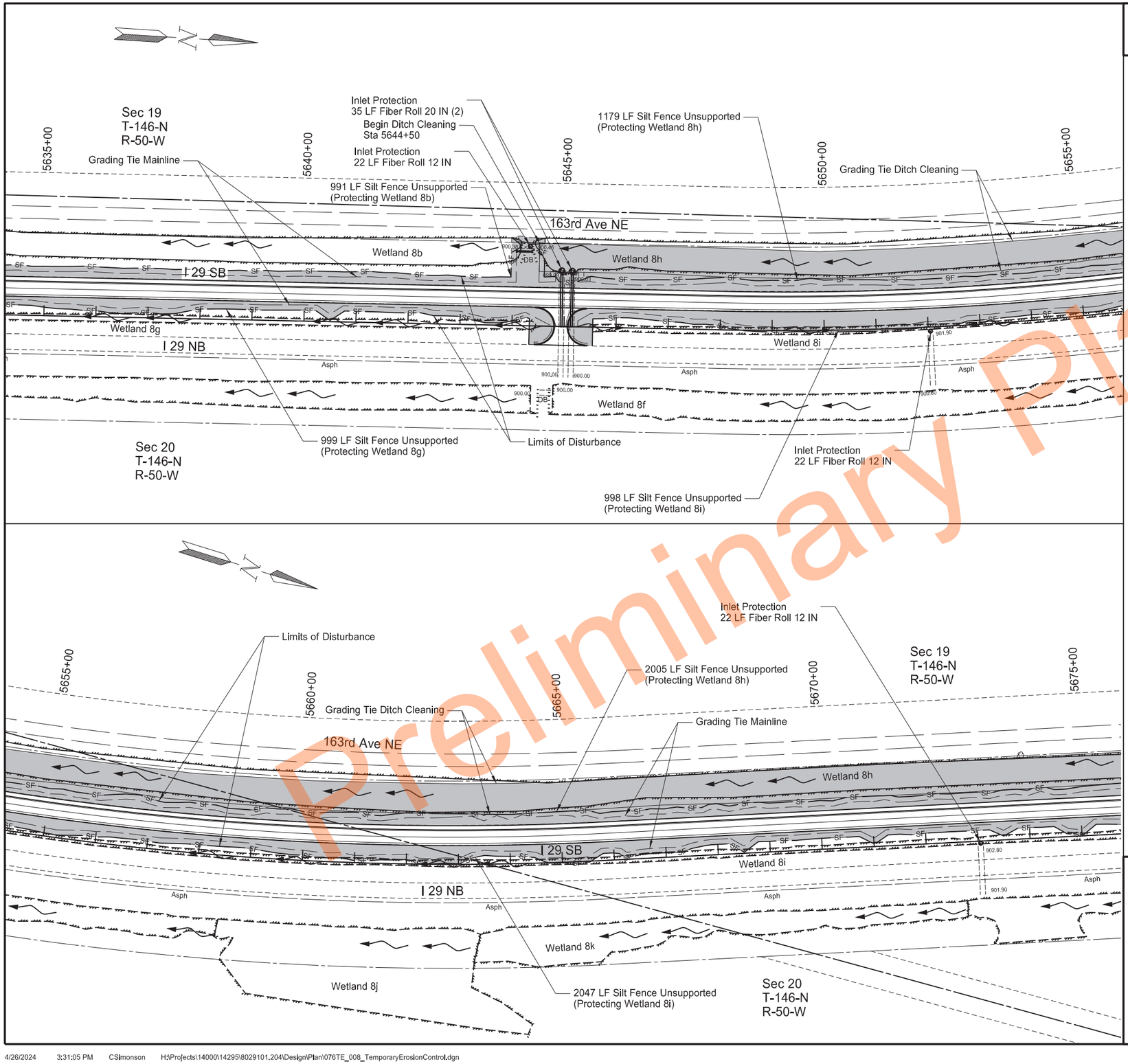

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	76	8

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5635+00 to Sta 5675+00	8.5	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5635+00 to Sta 5675+00	8.5	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8b, 8g, 8h, and 8i	8218	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8b, 8g, 8h, and 8i	8218	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5635+00 to Sta 5675+00	66	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5635+00 to Sta 5675+00	66	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5635+00 to Sta 5675+00	70	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 5635+00 to Sta 5675+00	70	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5635+00 to Sta 5655+00
Sta 5655+00 to Sta 5675+00

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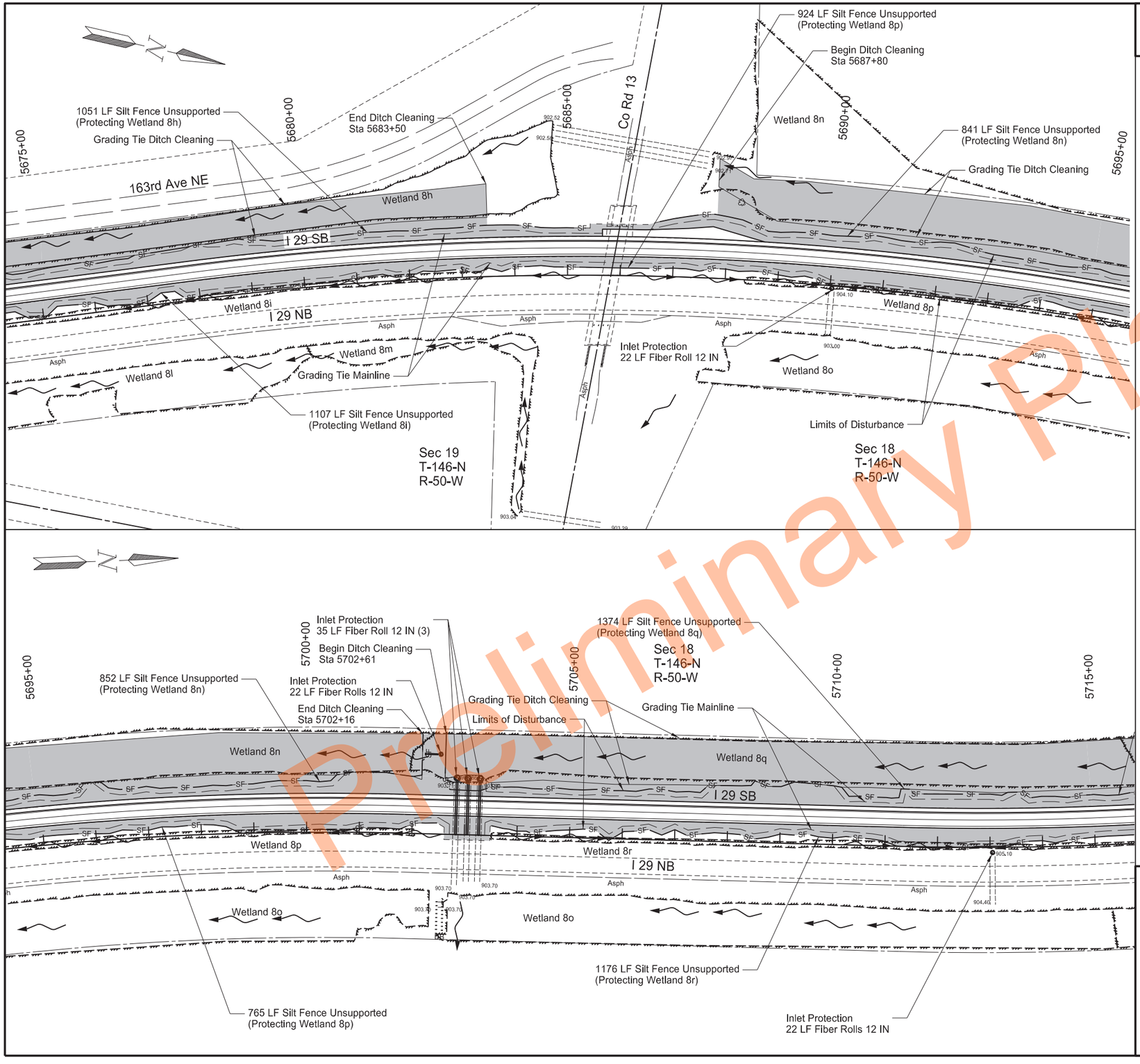

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	76	9

SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5675+00 to Sta 5715+00	11.7	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5675+00 to Sta 5715+00	11.7	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8h, 8i, 8n, 8p, 8q, and 8r	8090	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8h, 8i, 8n, 8p, 8q, and 8r	8090	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5675+00 to Sta 5715+00	171	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5675+00 to Sta 5715+00	171	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5675+00 to Sta 5695+00
Sta 5695+00 to Sta 5715+00

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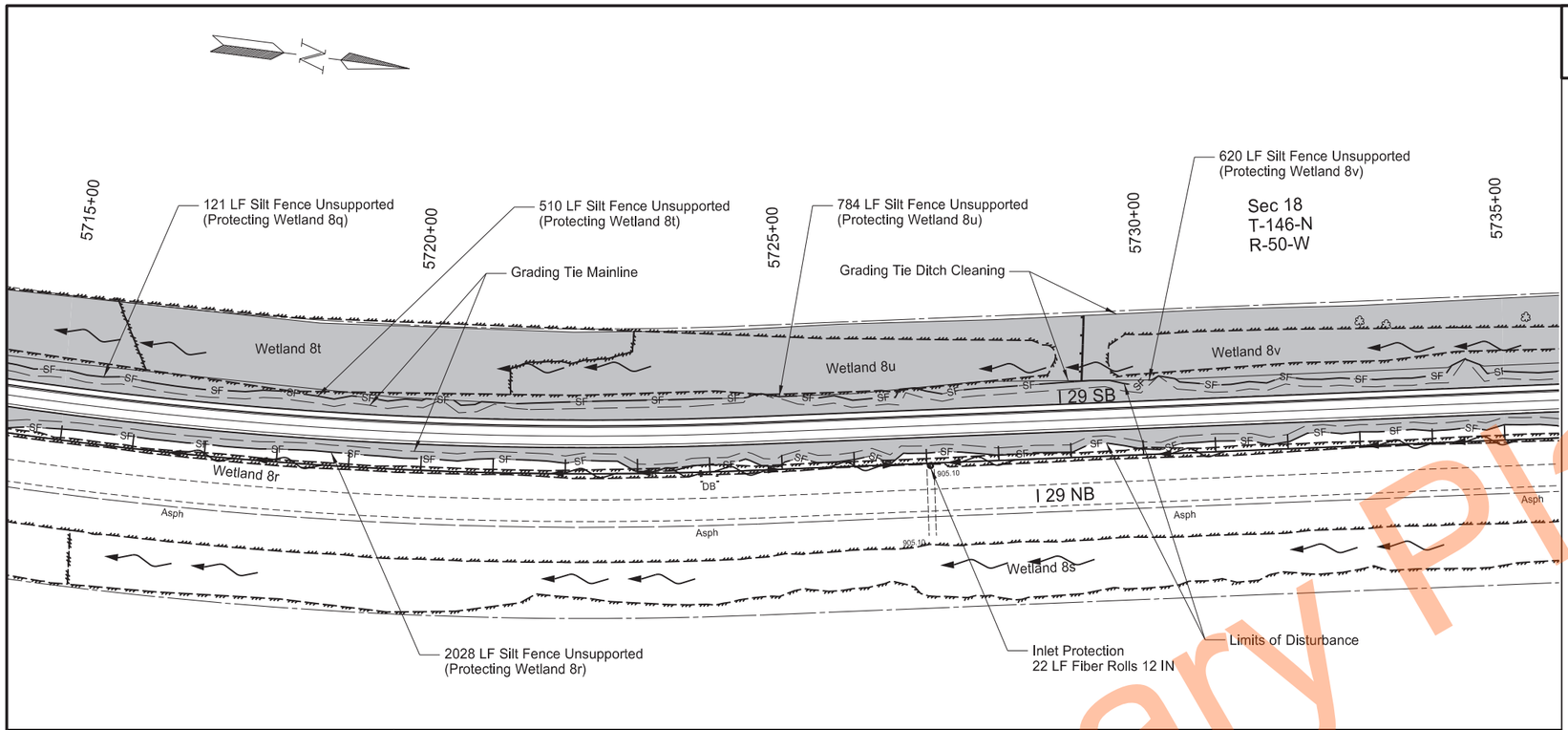
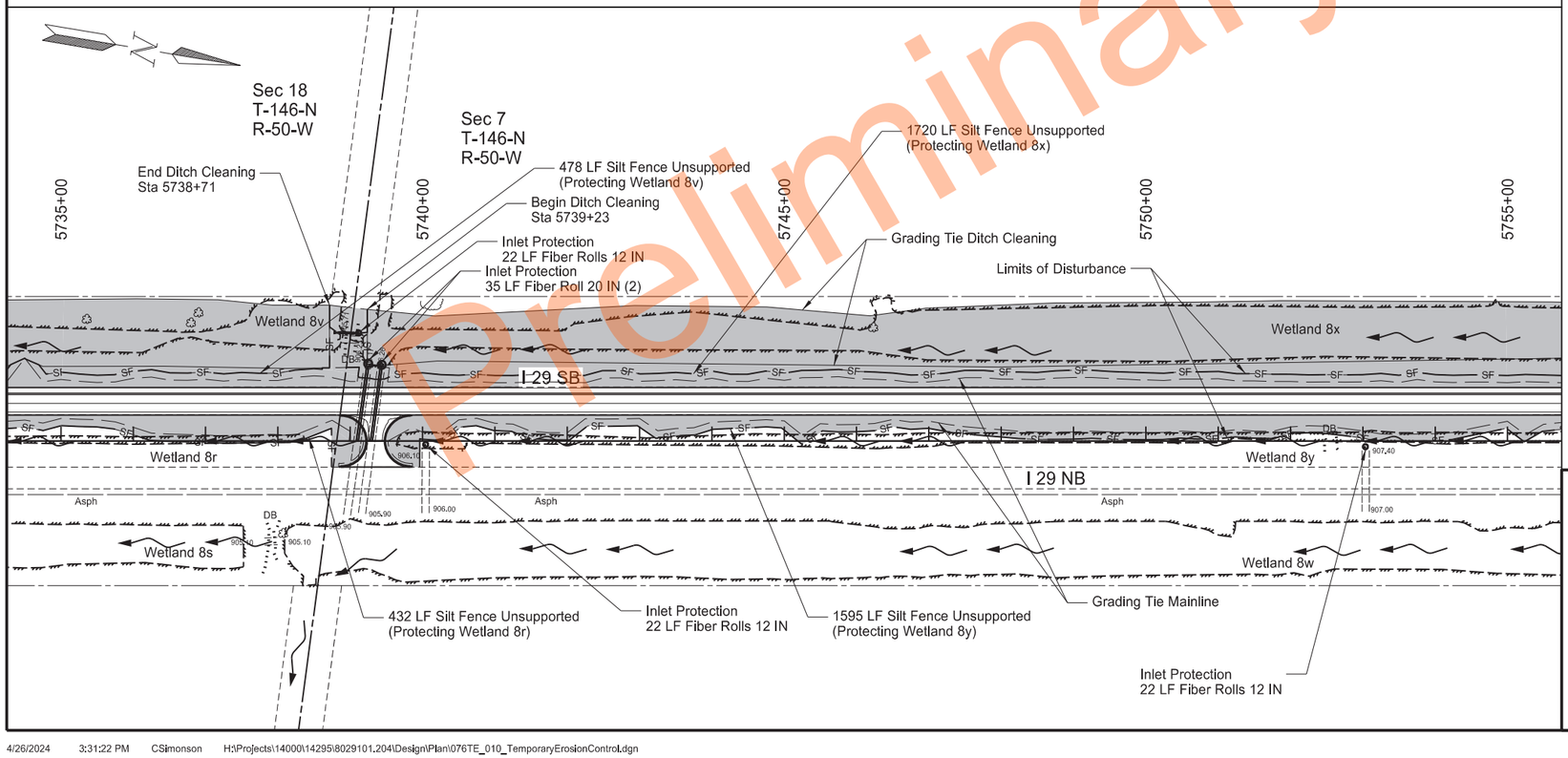
ND	IM-8-029(204)101	76	10





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5715+00 to Sta 5755+00	13.1	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5715+00 to Sta 5755+00	13.1	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8q, 8r, 8t, 8u, 8v, 8x, and 8y	8288	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8q, 8r, 8t, 8u, 8v, 8x, and 8y	8288	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5715+00 to Sta 5755+00	156	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5715+00 to Sta 5755+00	156	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5715+00 to Sta 5755+00	70	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 5715+00 to Sta 5755+00	70	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5715+00 to Sta 5735+00
Sta 5735+00 to Sta 5755+00

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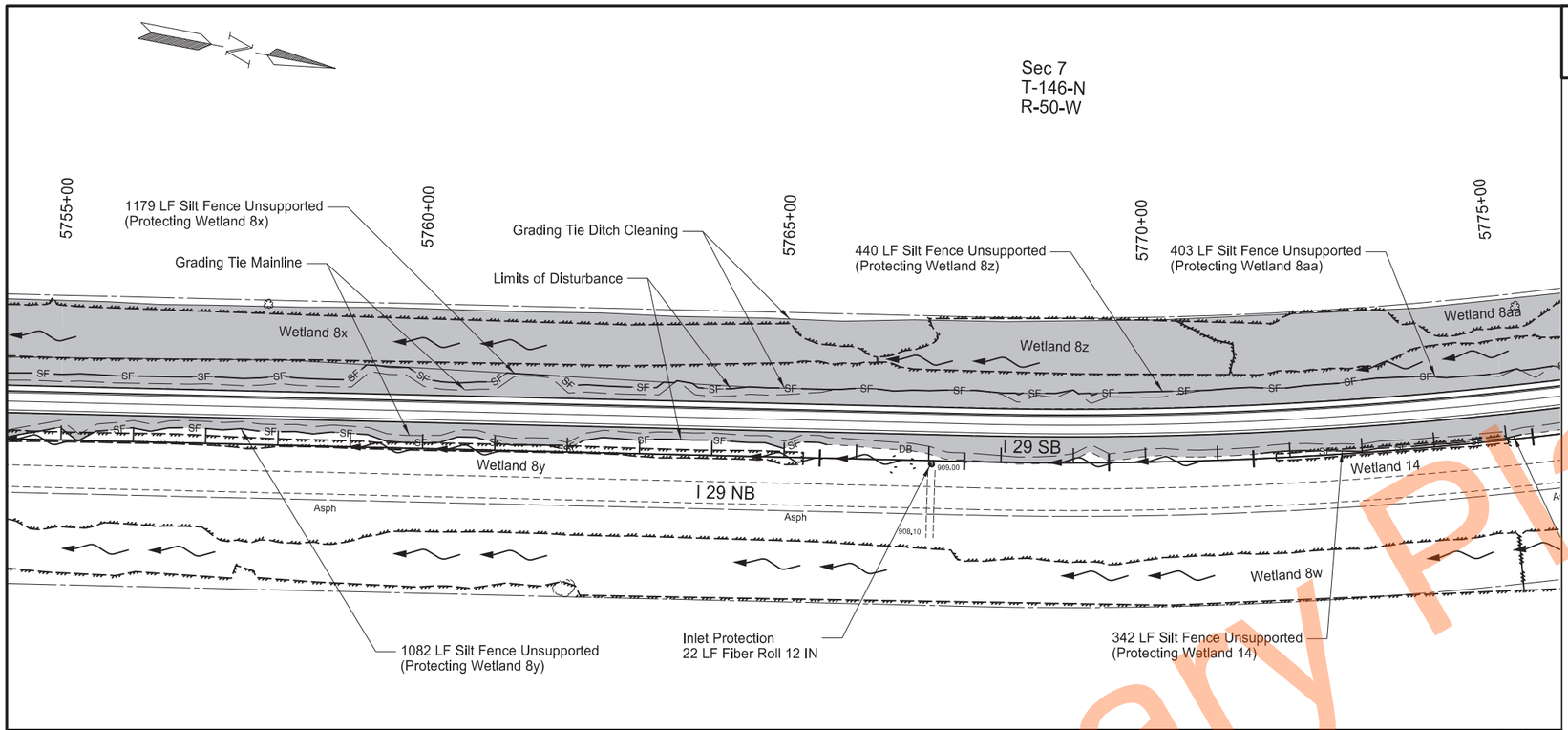
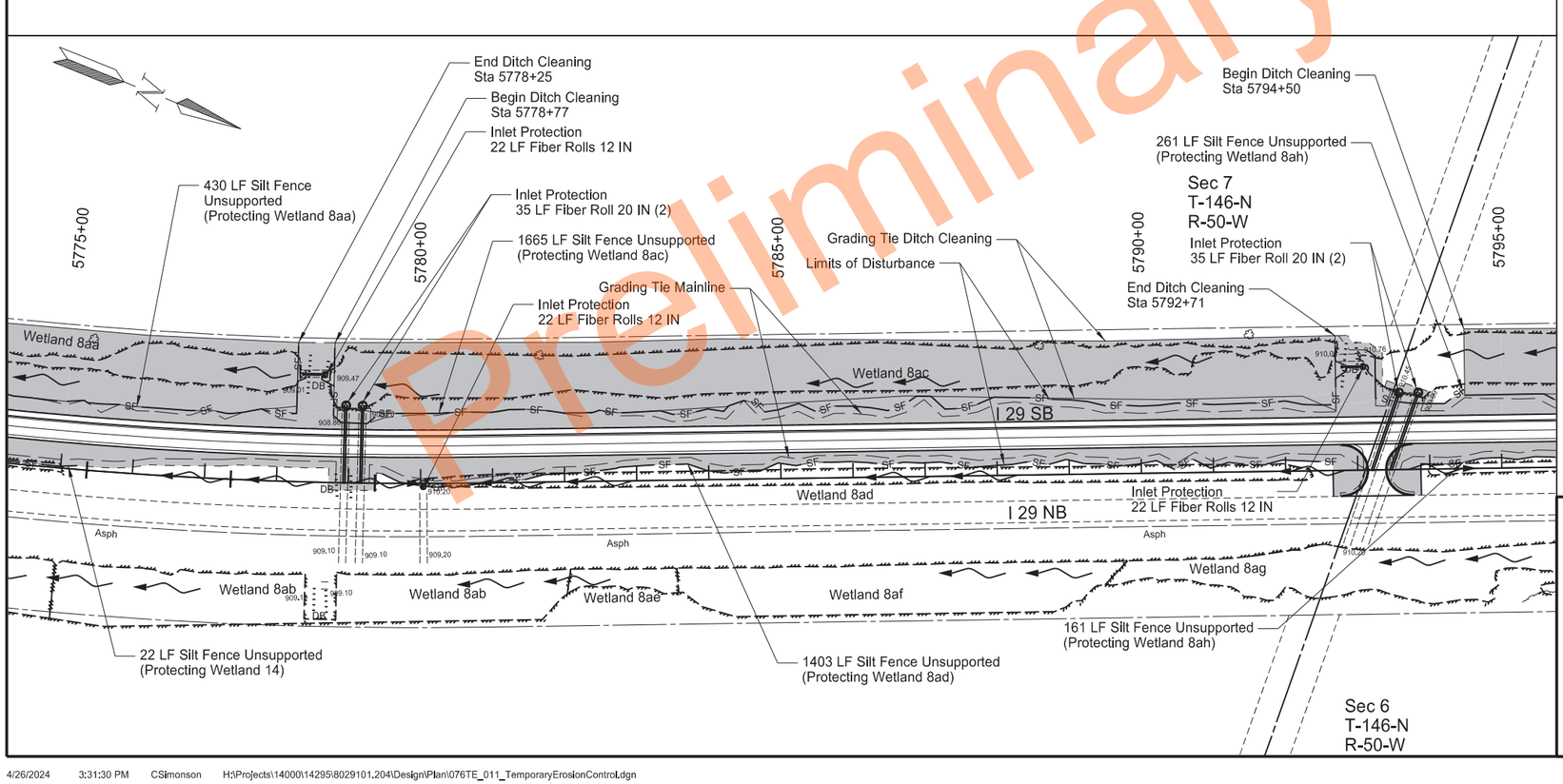
ND	IM-8-029(204)101	76	11





SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5755+00 to Sta 5795+00	12.8	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5755+00 to Sta 5795+00	12.8	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8x, 8y, 8z, 8aa, 8ac, 8ad, 8ah, 14, and 15a	7388	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8x, 8y, 8z, 8aa, 8ac, 8ad, 8ah, 14, and 15a	7388	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5755+00 to Sta 5795+00	256	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5755+00 to Sta 5795+00	256	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5755+00 to Sta 5795+00	139	LF
261	0121	REMOVE FIBER ROLLS 20IN		
		Sta 5755+00 to Sta 5795+00	139	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5755+00 to Sta 5775+00
Sta 5775+00 to Sta 5795+00

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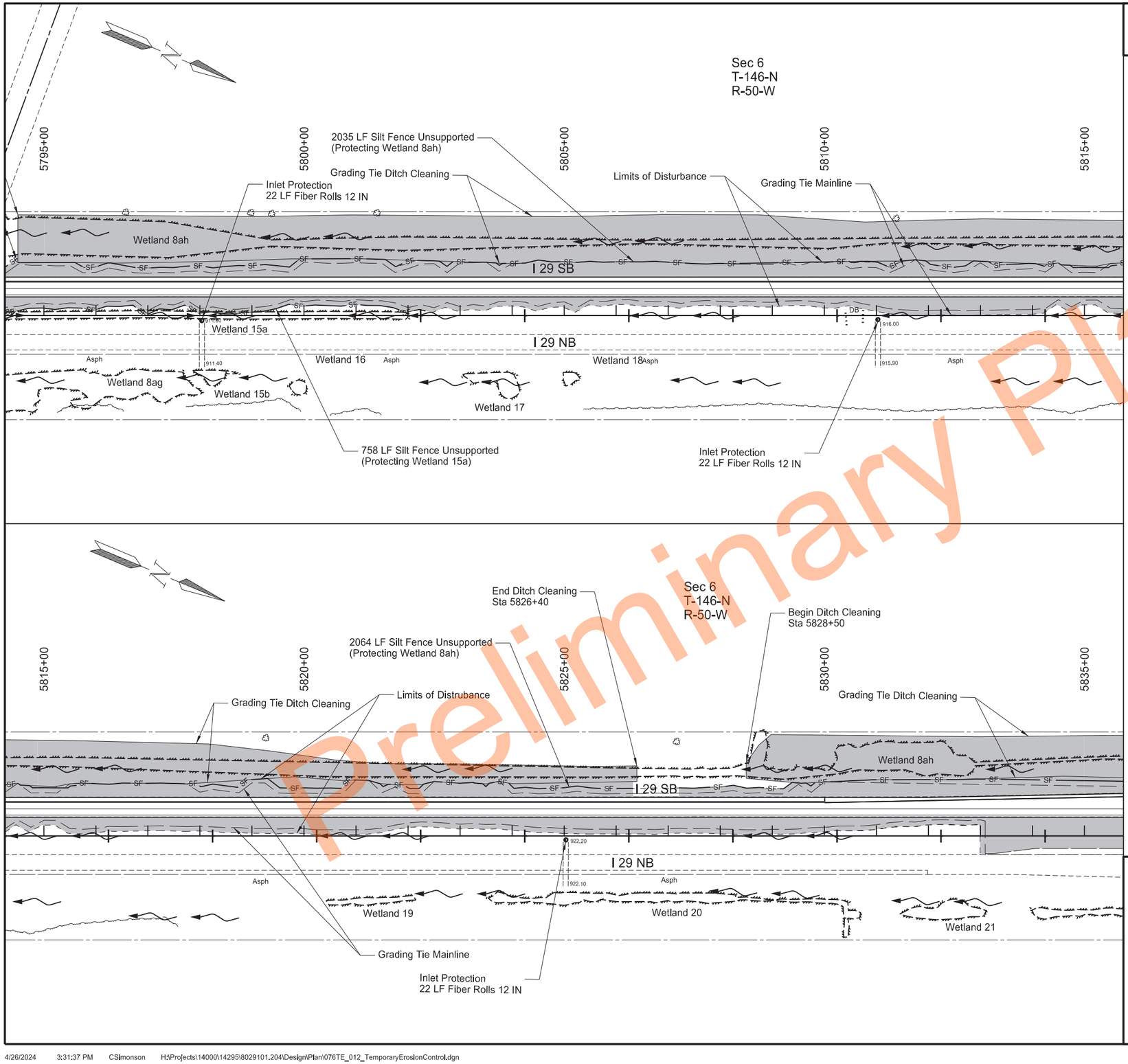

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5795+00 to Sta 5835+00	12.8	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5795+00 to Sta 5835+00	12.8	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8ah and 15a	4857	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8ah and 15a	4857	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5795+00 to Sta 5835+00	491	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5795+00 to Sta 5835+00	491	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5795+00 to Sta 5815+00
Sta 5815+00 to Sta 5835+00

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SPEC	CODE	BID ITEM	QTY	UNIT
251	2000	TEMPORARY COVER CROP		
		Sta 5835+00 to Sta 5862+00	6.6	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5835+00 to Sta 5862+00	6.6	ACRE
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 8ah, 8ai, 8aj, and 8ar	4118	LF
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 8ah, 8ai, 8aj, and 8ar	4118	LF
261	0112	FIBER ROLLS 12IN		
		Sta 5835+00 to Sta 5862+14	307	LF
261	0113	REMOVE FIBER ROLLS 12IN		
		Sta 5835+00 to Sta 5862+14	307	LF

LEGEND

- Temporary Cover Crop and Soil Stabilization
- SF — Silt Fence
- S — Flotation Silt Curtain
- Fiber Rolls
- Direction of Flow

Temporary Erosion Control
Sta 5835+00 to Sta 5855+00
Sta 5855+00 to Sta 5875+00

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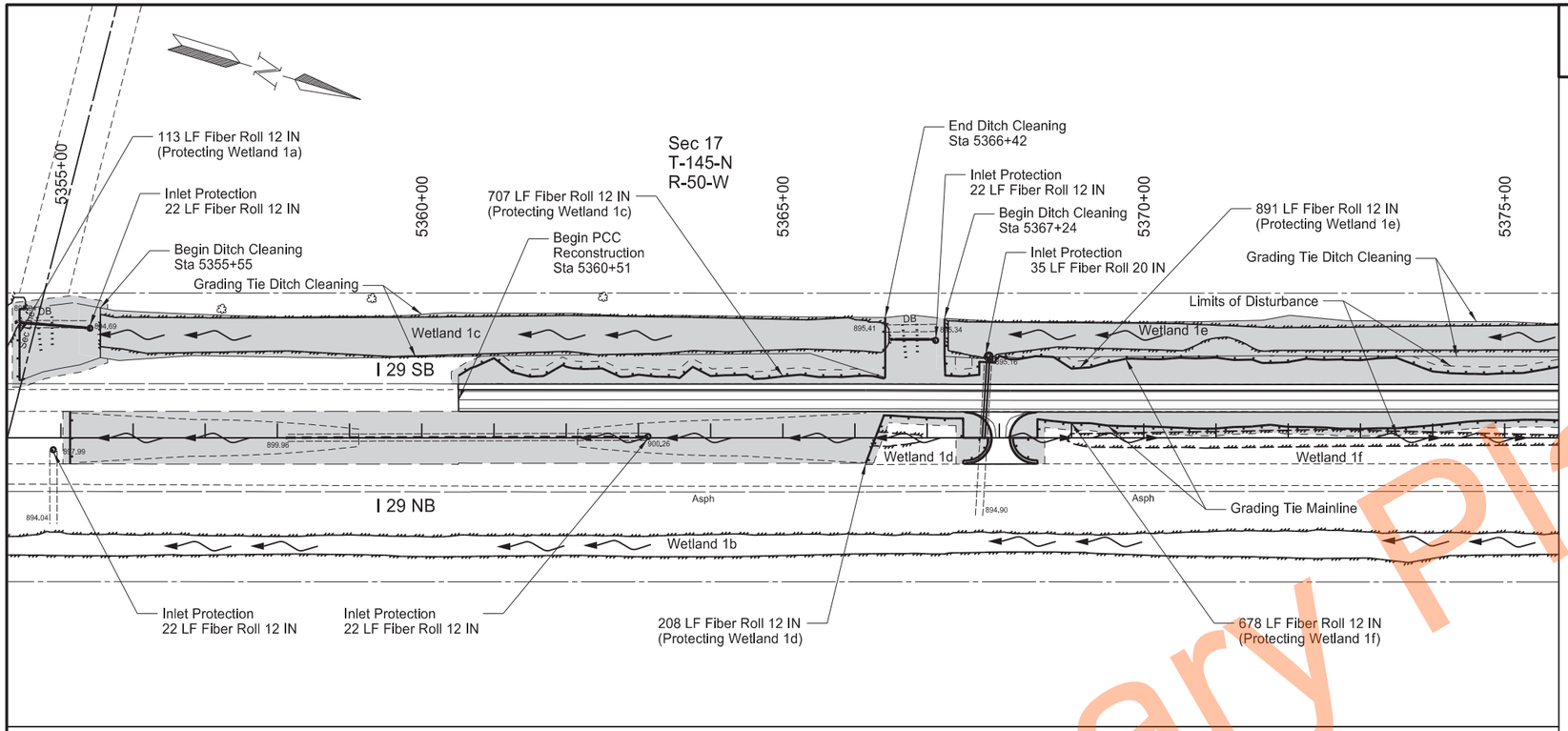
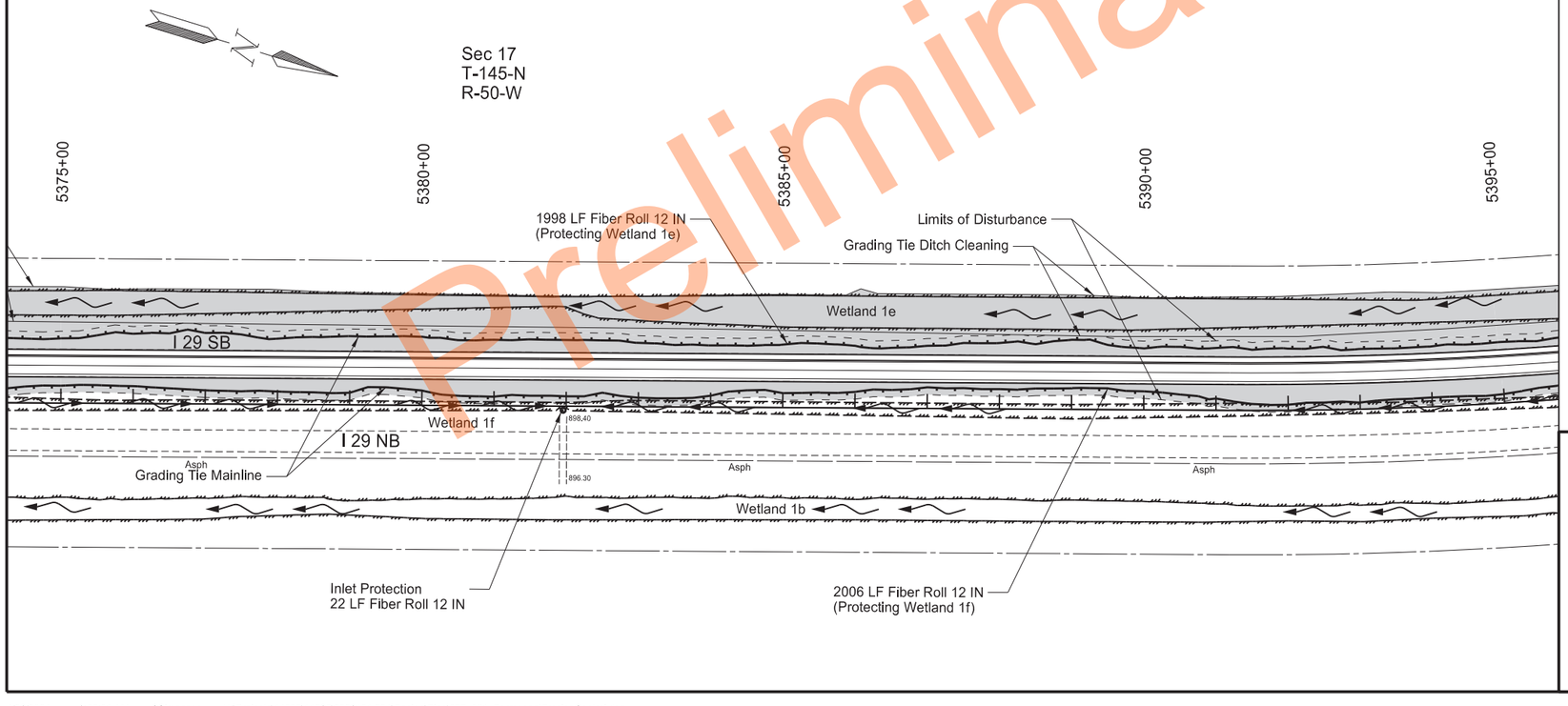
ND	IM-8-029(204)101	77	1





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5354+33 to Sta 5395+00	11.5	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5354+33 to Sta 5395+00	11.5	ACRE
255	0102	ECB TYPE 2		
		Sta 5354+77 - Lt	44	SY
		Sta 5366+86 - Lt	44	SY
		Sta 5367+78 - CL	28	SY
261	0112	FIBER ROLLS 12IN		
		Sta 5354+33 to Sta 5395+00	6806	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5354+33 to Sta 5395+00	35	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5354+33 to Sta 5375+00
Sta 5375+00 to Sta 5395+00

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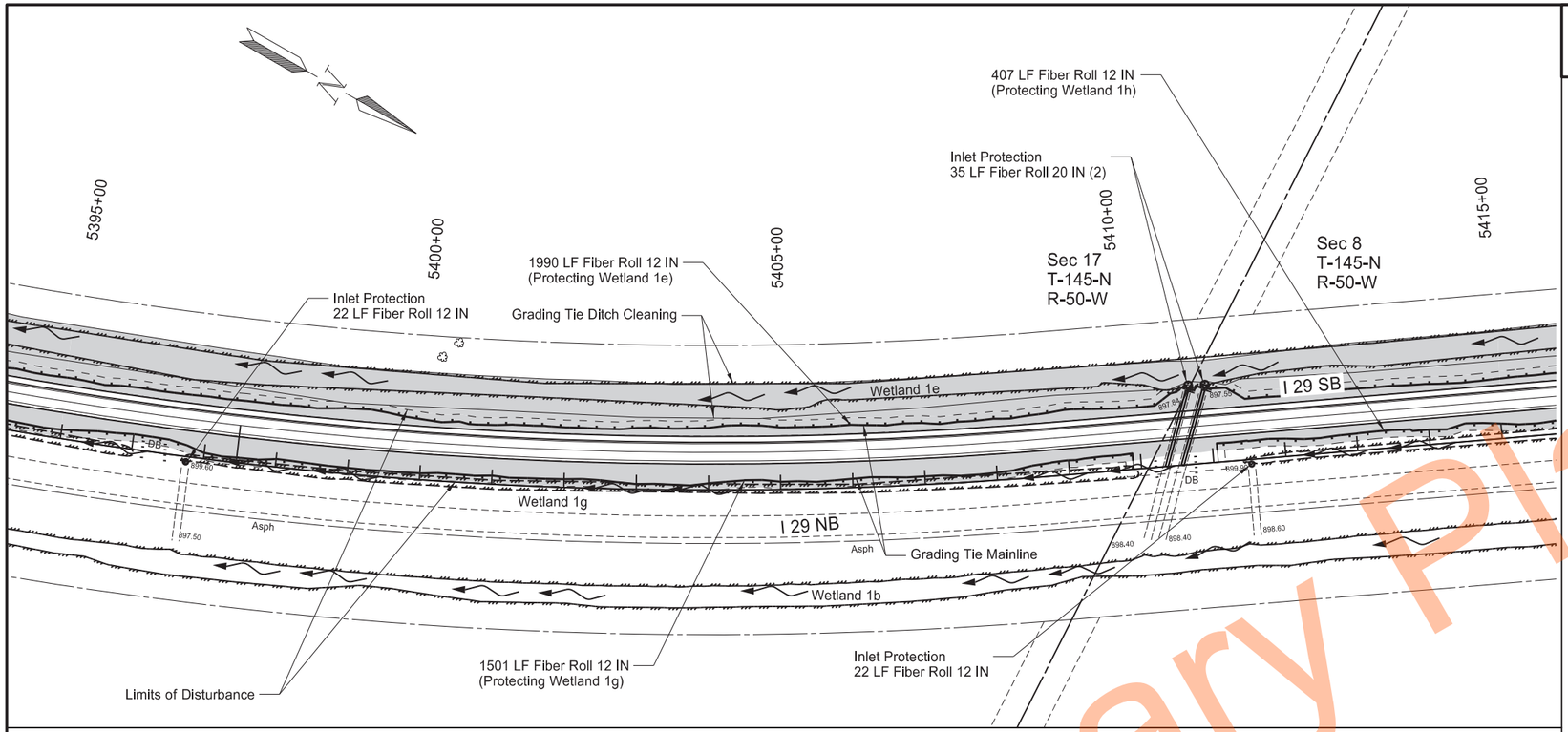

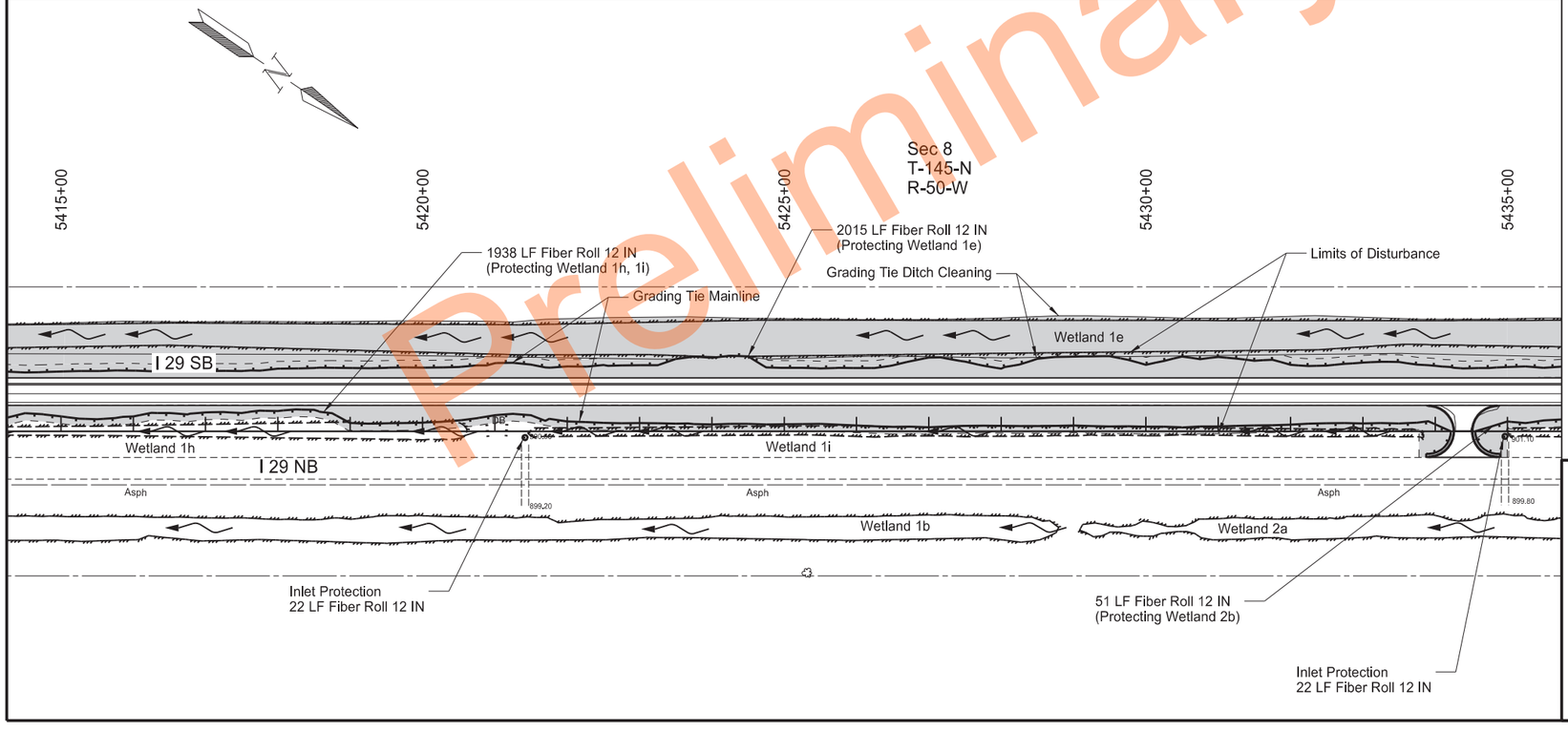

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SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5395+00 to Sta 5435+00	10.0	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5395+00 to Sta 5435+00	10.0	ACRE
255	0102	ECB TYPE 2		
		Sta 5410+35 - CL	28	SY
		Sta 5410+57 - CL	28	SY
261	0112	FIBER ROLLS 12IN		
		Sta 5395+00 to Sta 5435+00	8013	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5395+00 to Sta 5435+00	70	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5395+00 to Sta 5415+00
Sta 5415+00 to Sta 5435+00

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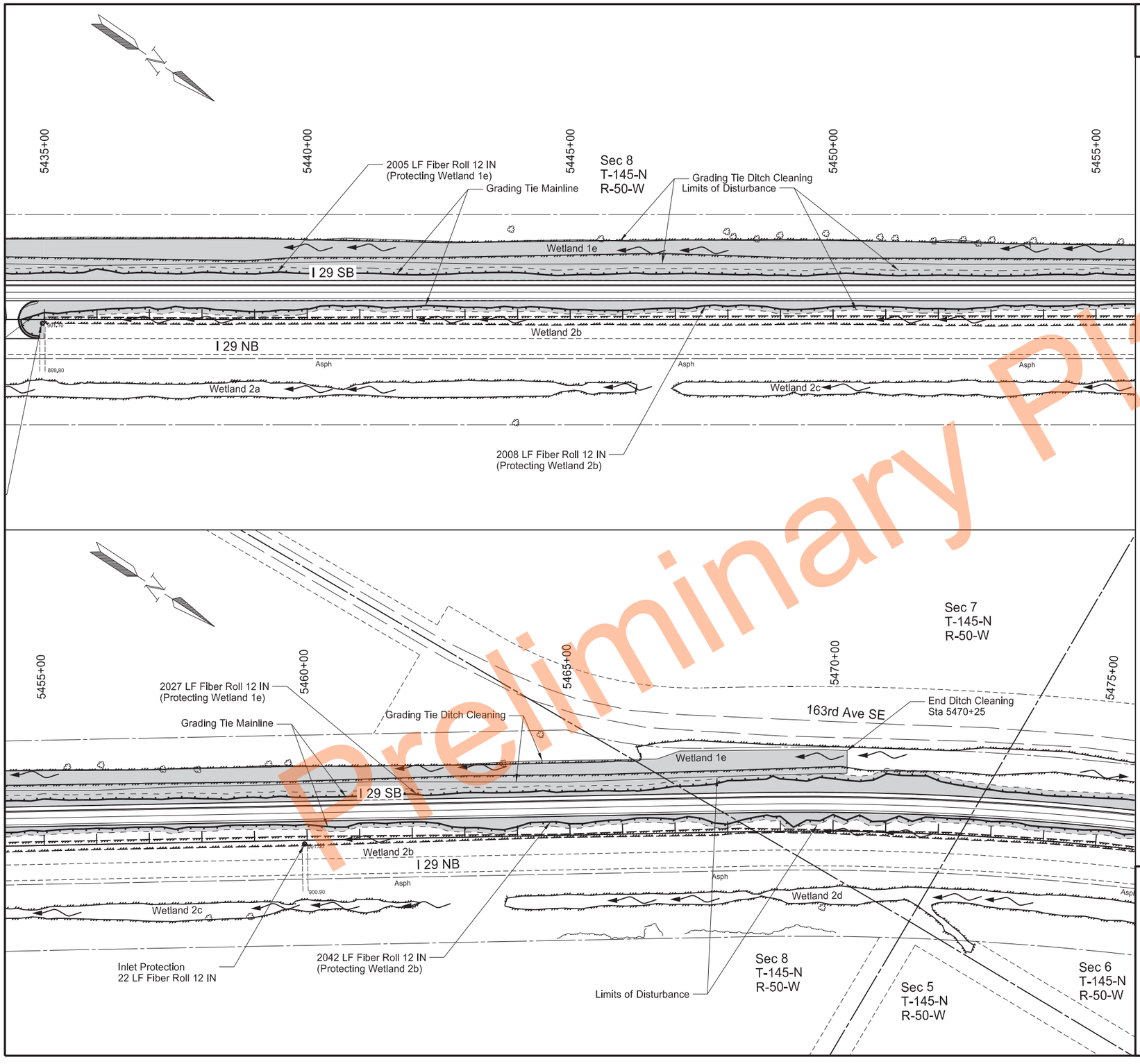

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	77	3

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5435+00 to Sta 5475+00	8.2	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5435+00 to Sta 5475+00	8.2	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 5435+00 to Sta 5475+00	8105	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5435+00 to Sta 5455+00
Sta 5455+00 to Sta 5475+00

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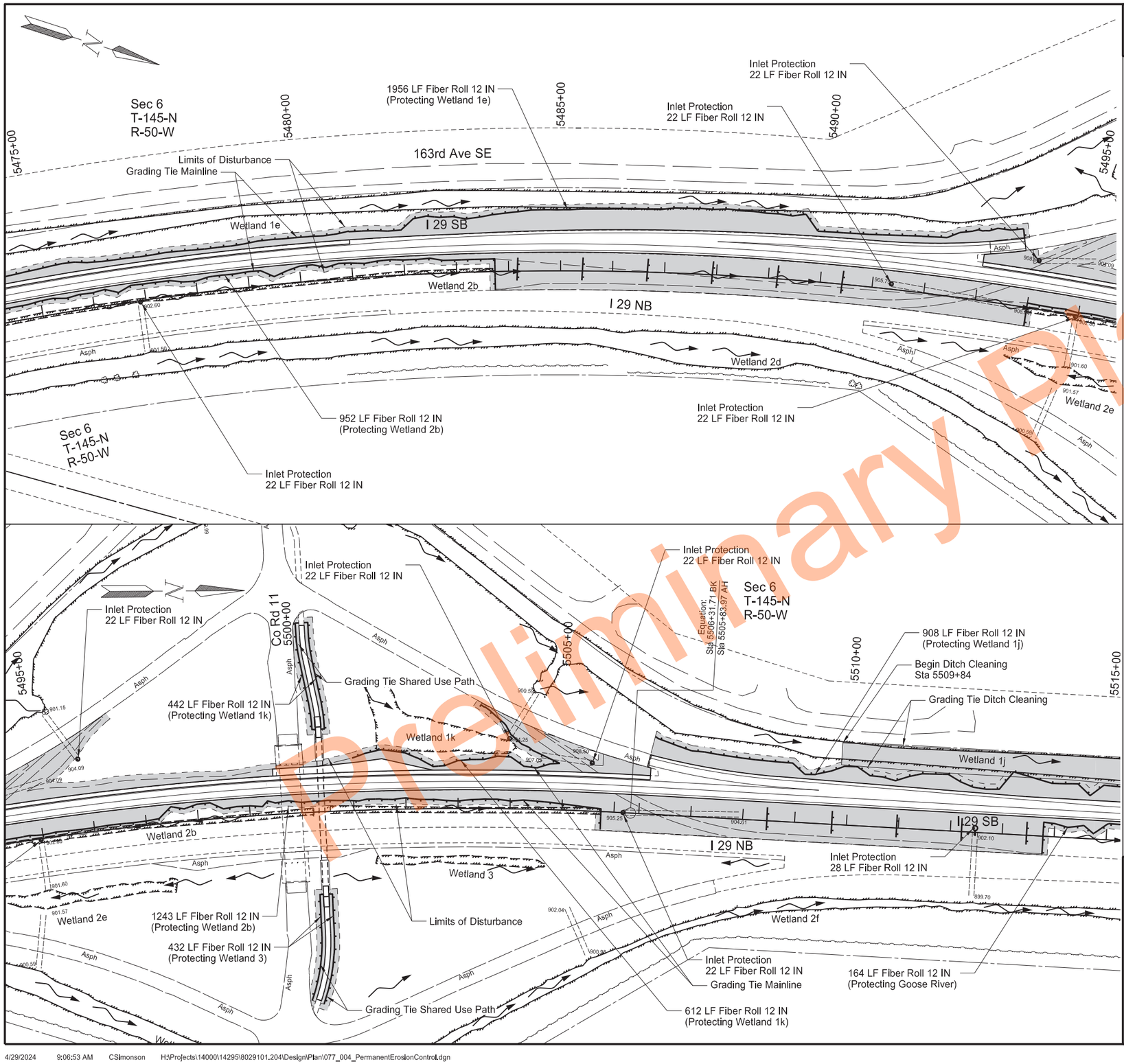
	ND	IM-8-029(204)101	77	4

SPEC CODE	BID ITEM	QTY	UNIT
251 0200	SEEDING CLASS II		
	Sta 5475+00 to Sta 5515+00	8.5	ACRE
253 0061	SOIL STABILIZATION		
	Sta 5475+00 to Sta 5515+00	8.5	ACRE
261 0112	FIBER ROLLS 12IN		
	Sta 5475+00 to Sta 5515+00	7656	LF



LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5475+00 to Sta 5495+00
Sta 5495+00 to Sta 5515+00

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ND	IM-8-029(204)101	77	5

SPEC CODE	BID ITEM	QTY	UNIT
251 0200	SEEDING CLASS II		
	Sta 5515+00 to Sta 5555+00	7.3	ACRE
253 0061	SOIL STABILIZATION		
	Sta 5515+00 to Sta 5555+00	7.3	ACRE
255 0201	TRM TYPE 1		
	5520+15 - SE Goose River Bridge	43	SY
	5520+15 - SW Goose River Bridge	89	SY
	5523+01 - NE Goose River Bridge	37	SY
	5523+01 - NW Goose River Bridge	143	SY
261 0112	FIBER ROLLS 12IN		
	Sta 5515+00 to Sta 5555+00	6996	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5515+00 to Sta 5535+00
Sta 5535+00 to Sta 5555+00

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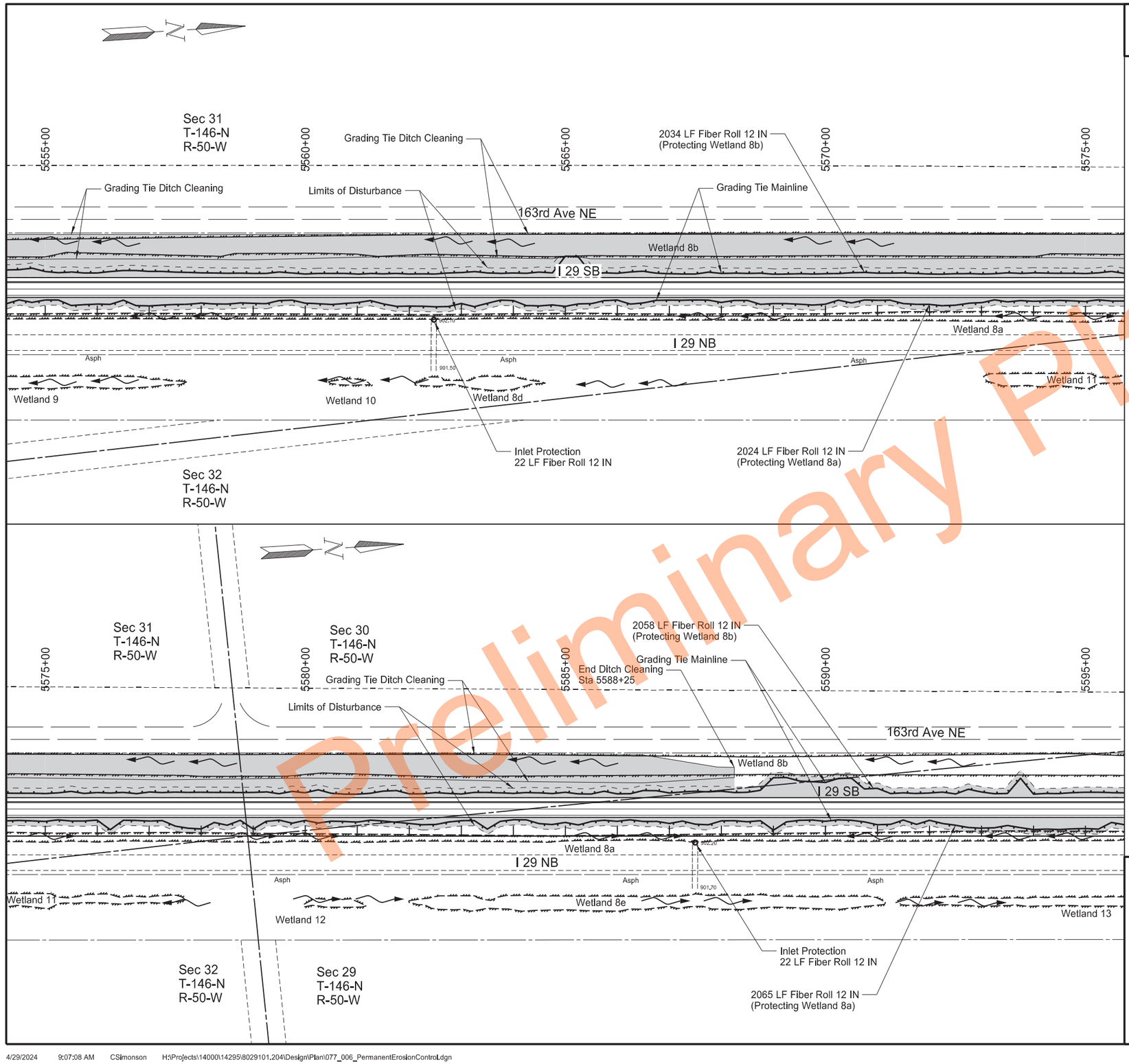
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	77	6



SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5555+00 to Sta 5595+00	8.6	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5555+00 to Sta 5595+00	8.6	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 5555+00 to Sta 5595+00	8226	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5555+00 to Sta 5575+00
Sta 5575+00 to Sta 5595+00

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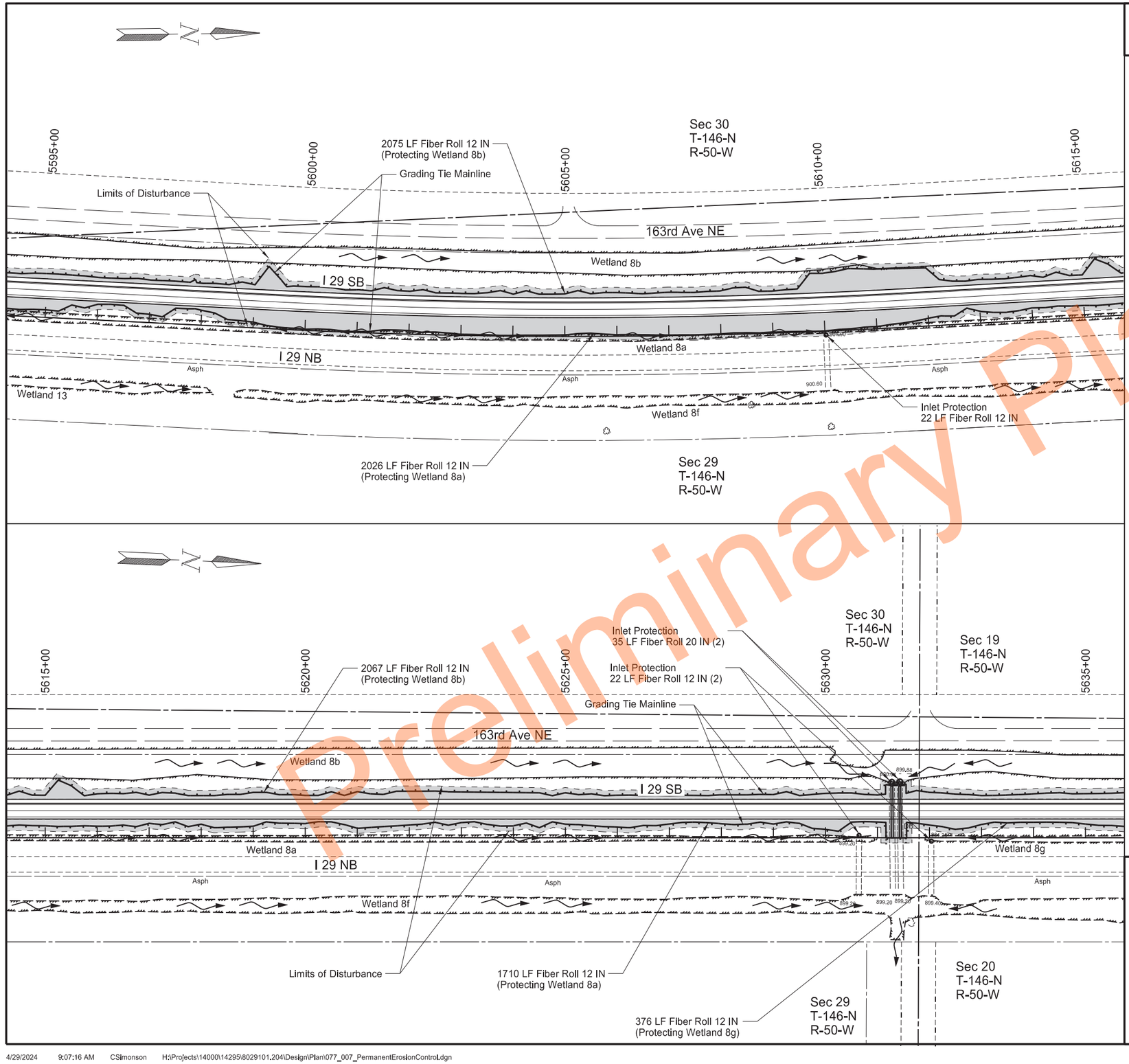

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5595+00 to Sta 5635+00	4.8	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5595+00 to Sta 5635+00	4.8	ACRE
255	0102	ECB TYPE 2		
		Sta 5631+29 - CL	28	SY
		Sta 5631+44 - CL	28	SY
261	0112	FIBER ROLLS 12IN		
		Sta 5595+00 to Sta 5635+00	8320	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5595+00 to Sta 5635+00	70	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5595+00 to Sta 5615+00
Sta 5615+00 to Sta 5635+00

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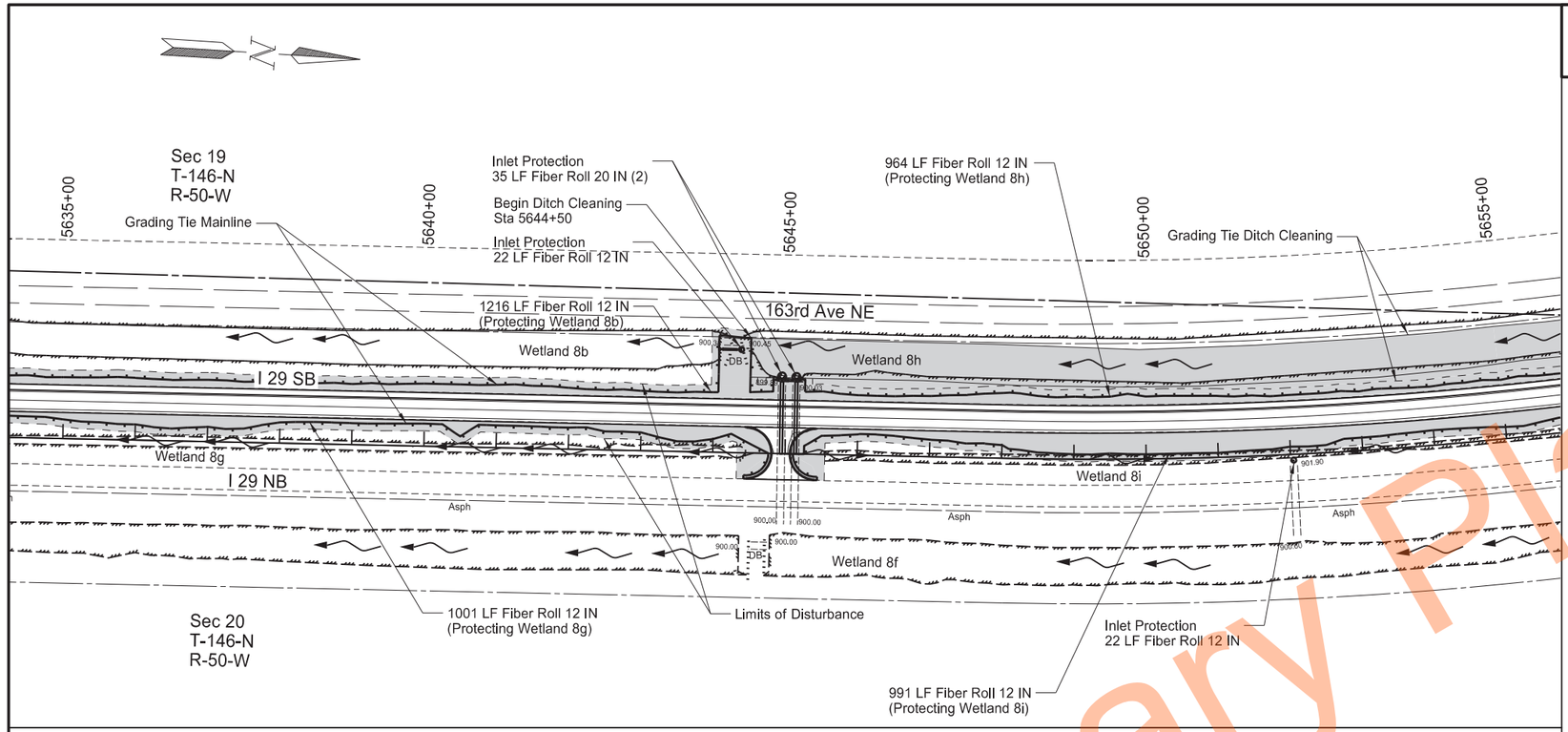

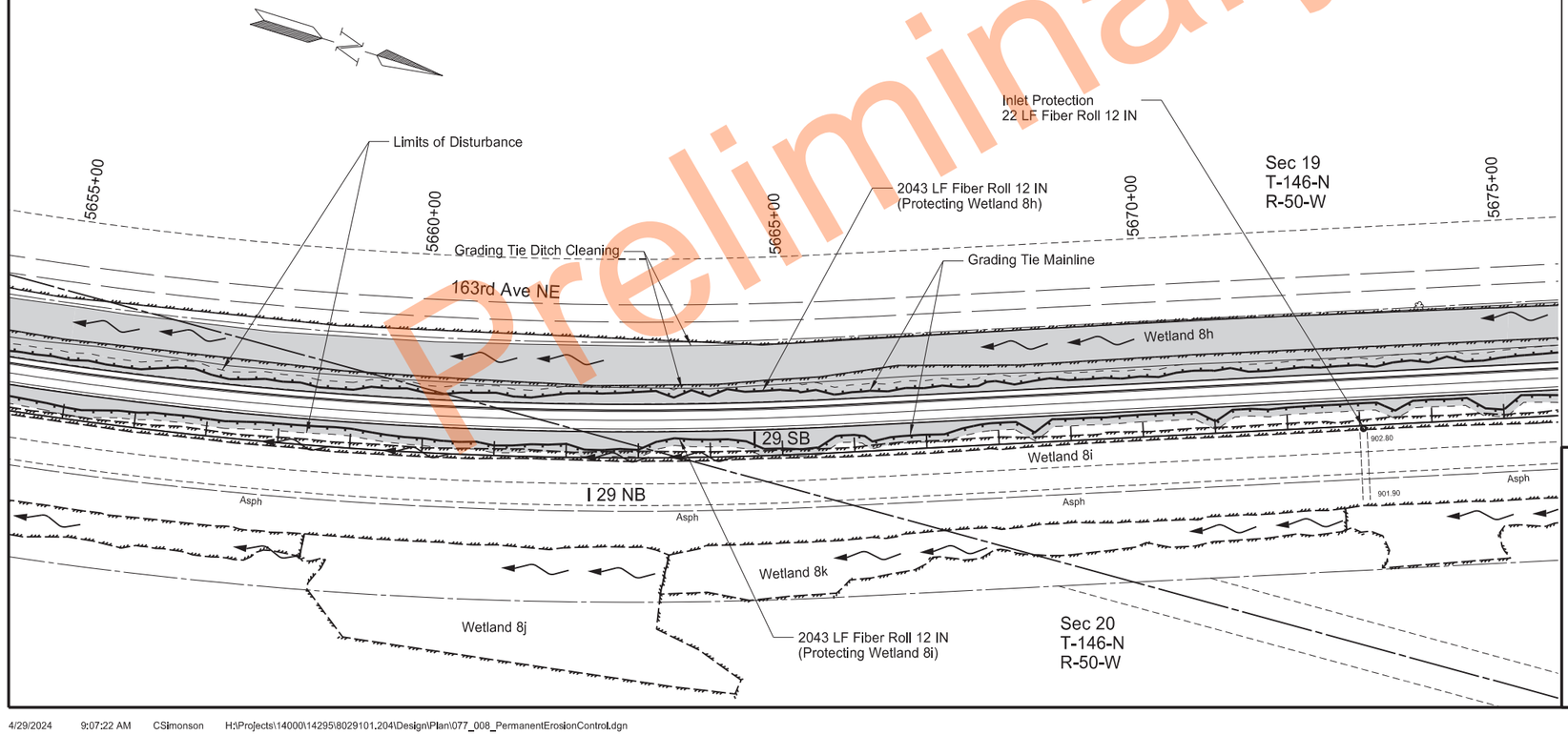

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5635+00 to Sta 5675+00	8.5	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5635+00 to Sta 5675+00	8.5	ACRE
255	0102	ECB TYPE 2		
		Sta 5644+21 - Lt	44	SY
		Sta 5644+94 - CL	28	SY
		Sta 5645+14 - CL	28	SY
261	0112	FIBER ROLLS 12IN		
		Sta 5635+00 to Sta 5675+00	8297	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5635+00 to Sta 5675+00	70	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5635+00 to Sta 5655+00
Sta 5655+00 to Sta 5675+00

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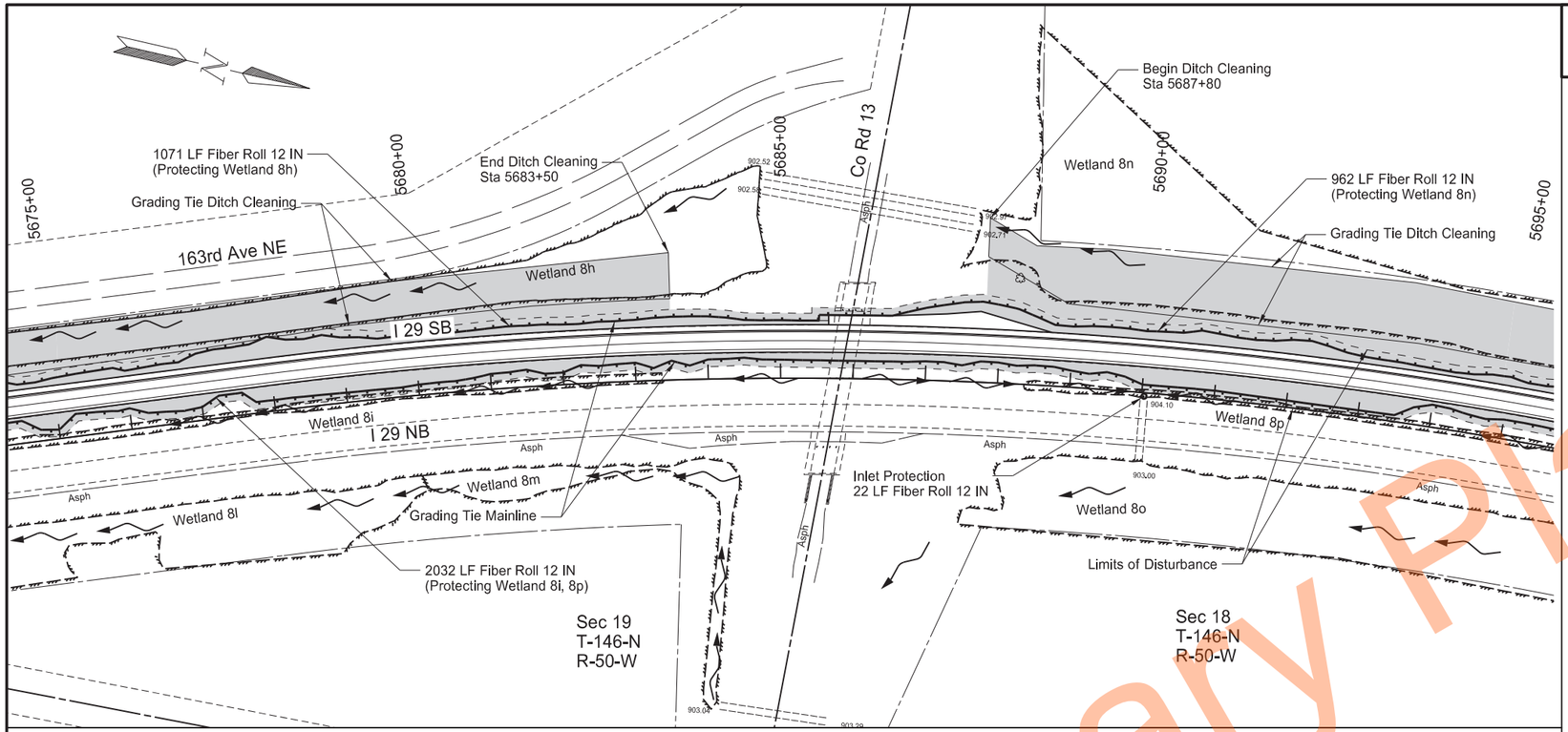

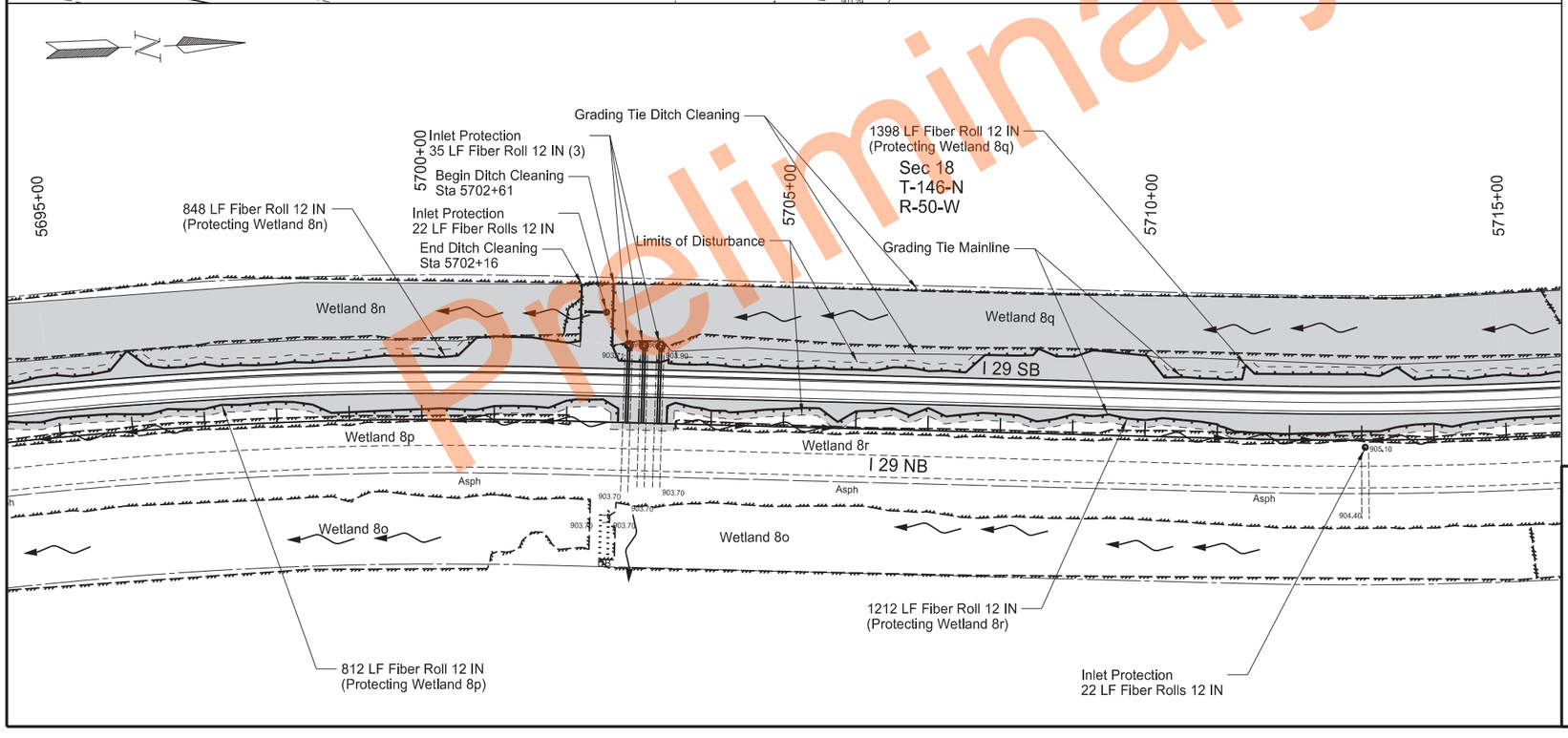

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5675+00 to 5715+00	11.7	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5675+00 to 5715+00	11.7	ACRE
255	0102	ECB TYPE 2		
		Sta 5702+35 - Lt	44	SY
		Sta 5702+83 - CL	27	SY
		Sta 5703+05 - CL	27	SY
		Sta 5703+27 - CL	27	SY
261	0112	FIBER ROLLS 12IN		
		Sta 5675+00 to 5715+00	8506	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5675+00 to Sta 5695+00
Sta 5695+00 to Sta 5715+00

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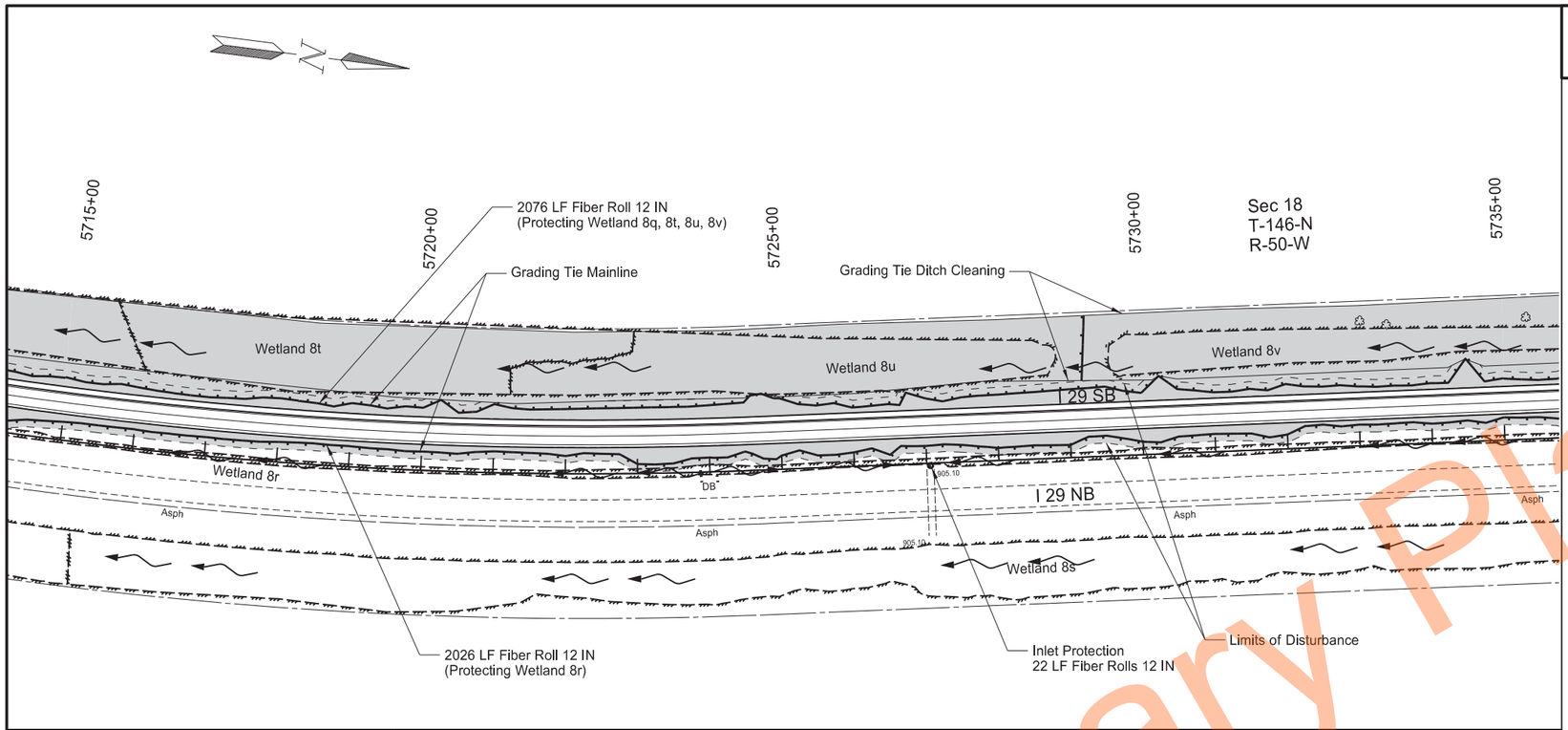

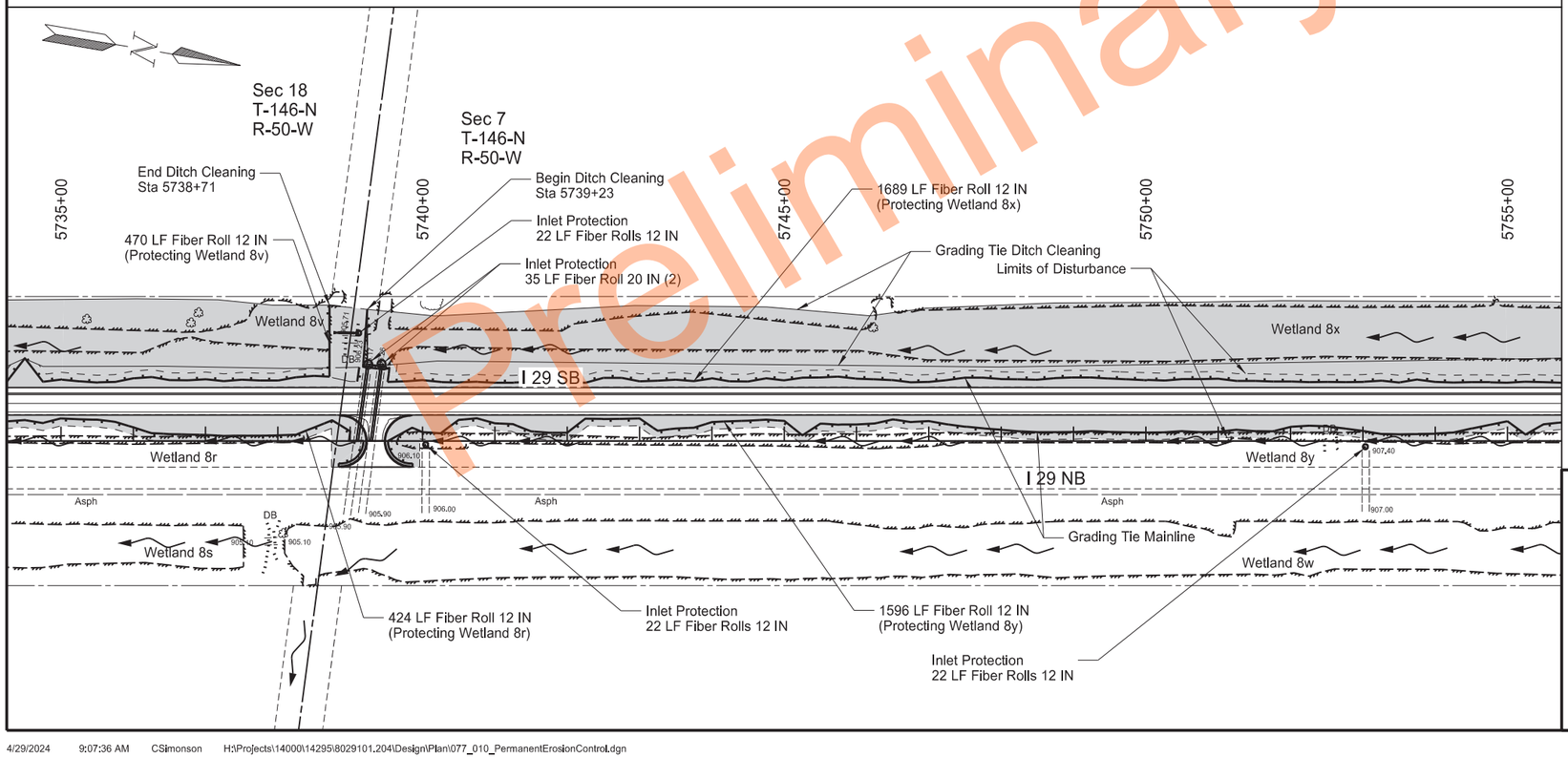

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5715+00 to Sta 5755+00	13.1	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5715+00 to Sta 5755+00	13.1	ACRE
255	0102	ECB TYPE 2		
		Sta 5738+93 - Lt	44	SY
		Sta 5738+93 - CL	28	SY
		Sta 5738+93 - CL	28	SY
261	0112	FIBER ROLLS 12IN		
		Sta 5715+00 to Sta 5755+00	8480	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5715+00 to Sta 5755+00	70	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5715+00 to Sta 5735+00
Sta 5735+00 to Sta 5755+00

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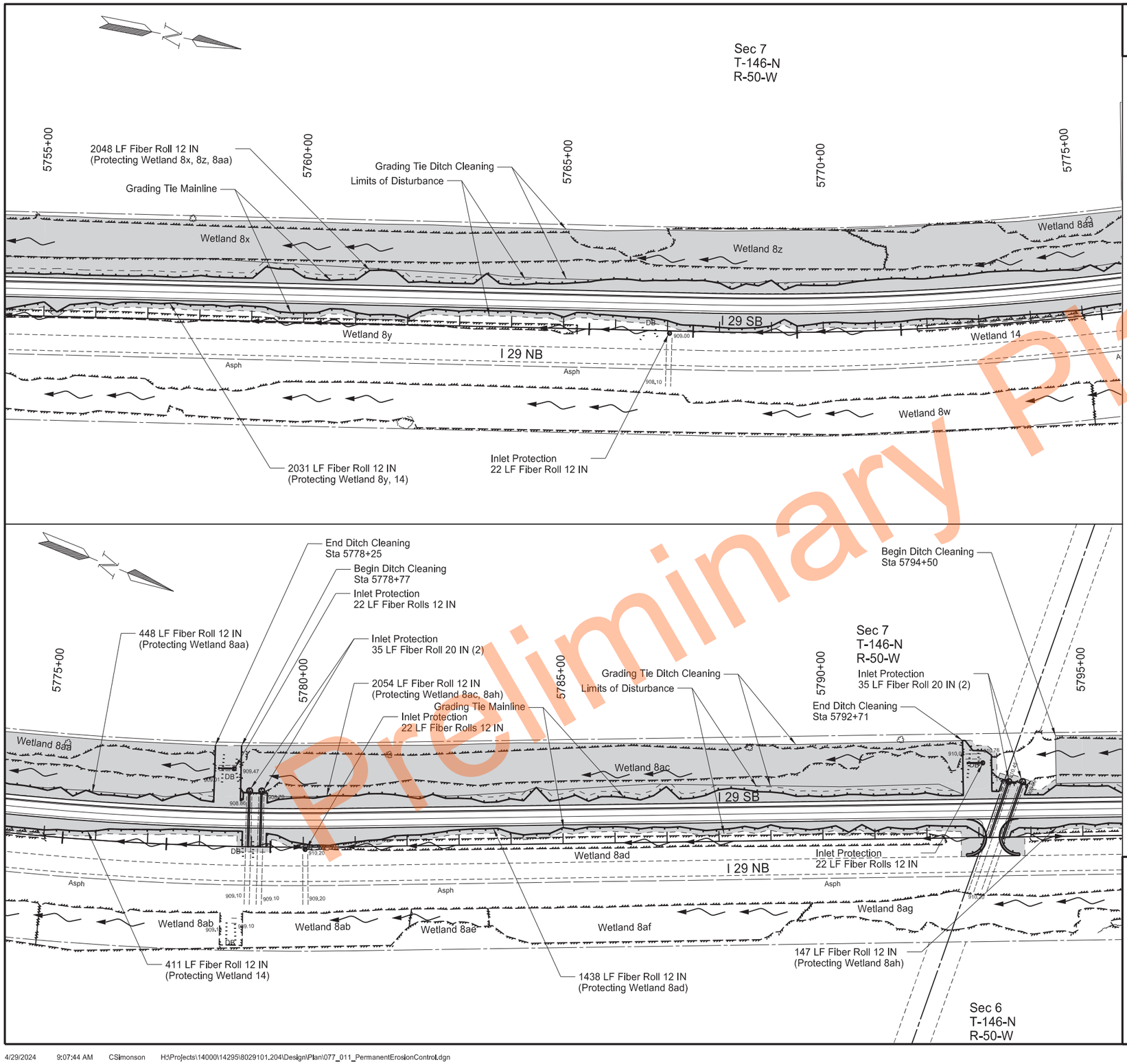

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5755+00 to 5795+00	12.8	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5755+00 to 5795+00	12.8	ACRE
255	0102	ECB TYPE 2		
		Sta 5778+49 - Lt	44	SY
		Sta 5778+94 - CL	28	SY
		Sta 5779+17 - CL	28	SY
		Sta 5792+93 - Lt	44	SY
		Sta 5793+20 - CL	28	SY
		Sta 5793+46 - CL	28	SY
261	0112	FIBER ROLLS 12IN		
		Sta 5755+00 to 5795+00	8834	LF
261	0120	FIBER ROLLS 20IN		
		Sta 5755+00 to 5795+00	139	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5755+00 to Sta 5775+00
Sta 5775+00 to Sta 5795+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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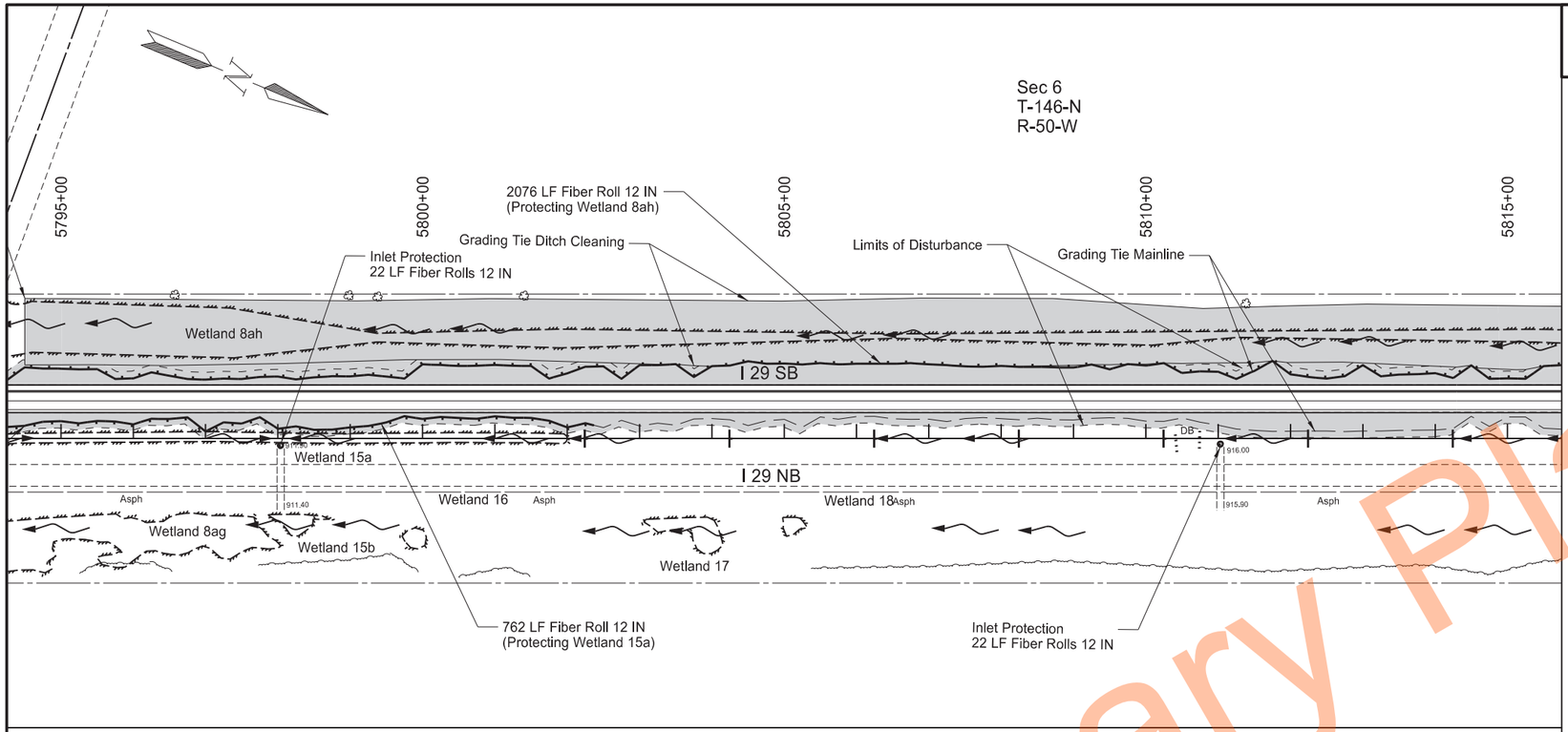
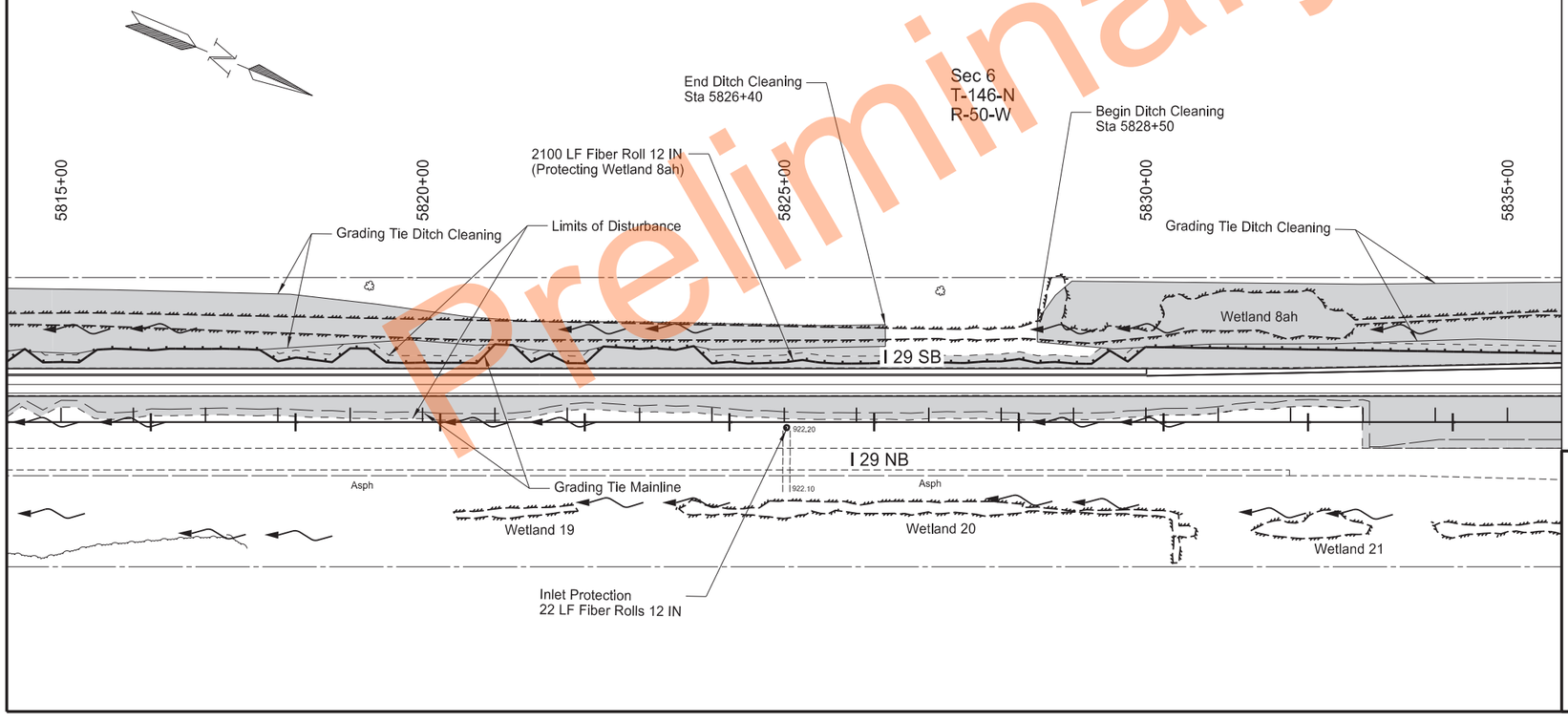
Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	77	12





SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II		
		Sta 5795+00 to Sta 5835+00	12.7	ACRE
253	0061	SOIL STABILIZATION		
		Sta 5795+00 to Sta 5835+00	12.7	ACRE
261	0112	FIBER ROLLS 12IN		
		Sta 5795+00 to Sta 5835+00	5429	LF

LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5795+00 to Sta 5815+00
Sta 5815+00 to Sta 5835+00

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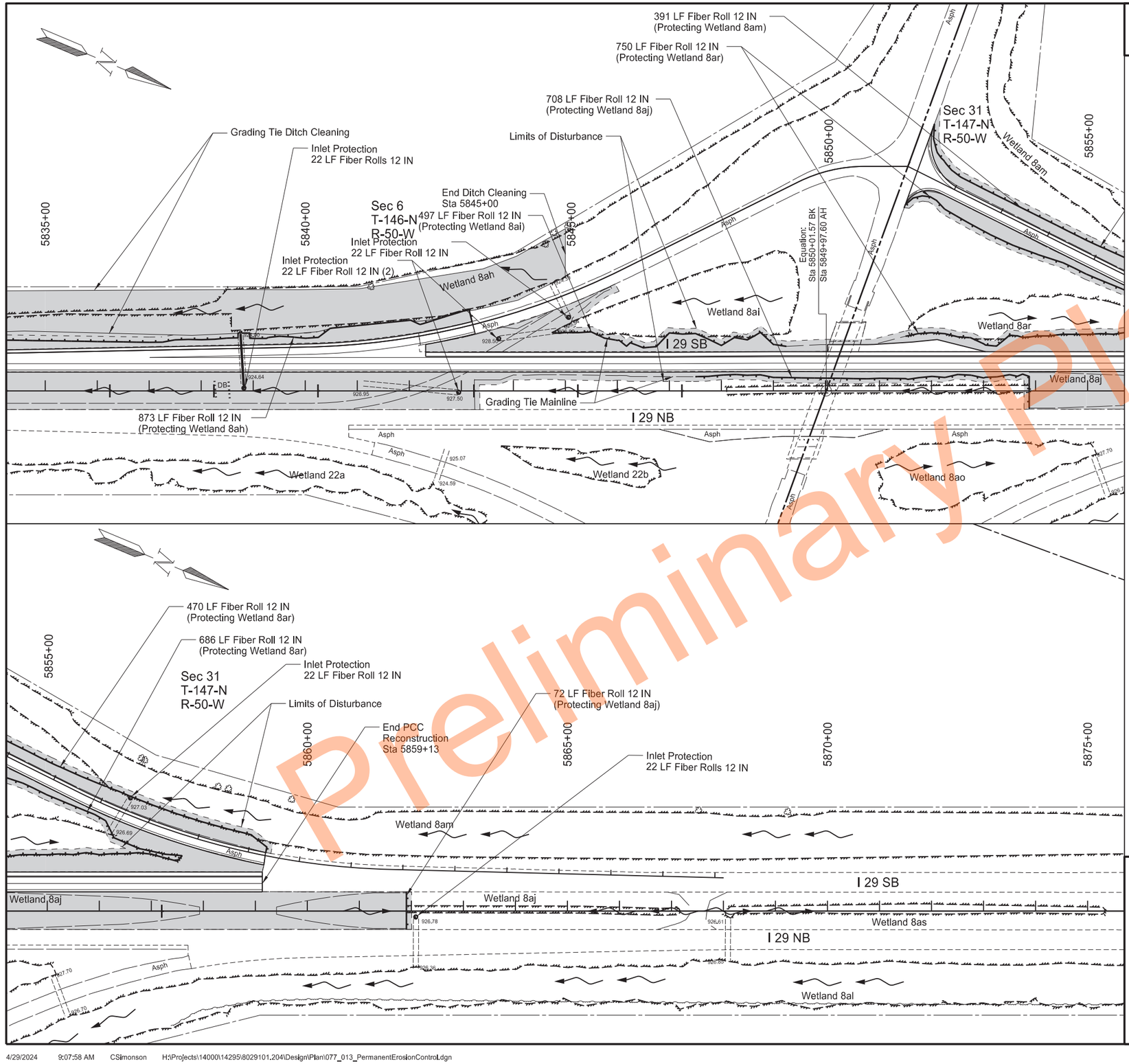
ND	IM-8-029(204)101	77	13

SPEC CODE	BID ITEM	QTY	UNIT
251 0200	SEEDING CLASS II		
	Sta 5835+00 to Sta 5875+00	7.0	ACRE
253 0061	SOIL STABILIZATION		
	Sta 5835+00 to Sta 5875+00	7.0	ACRE
255 0102	ECB TYPE 2		
	Sta 5838+79 - Lt	44	SY
261 0112	FIBER ROLLS 12IN		
	Sta 5835+00 to Sta 5875+00	4587	LF



LEGEND

- Seeding Class II and Soil Stabilization
- Fiber Rolls
- Direction of Flow

Permanent Erosion Control
Sta 5835+00 to Sta 5855+00
Sta 5855+00 to Sta 5875+00

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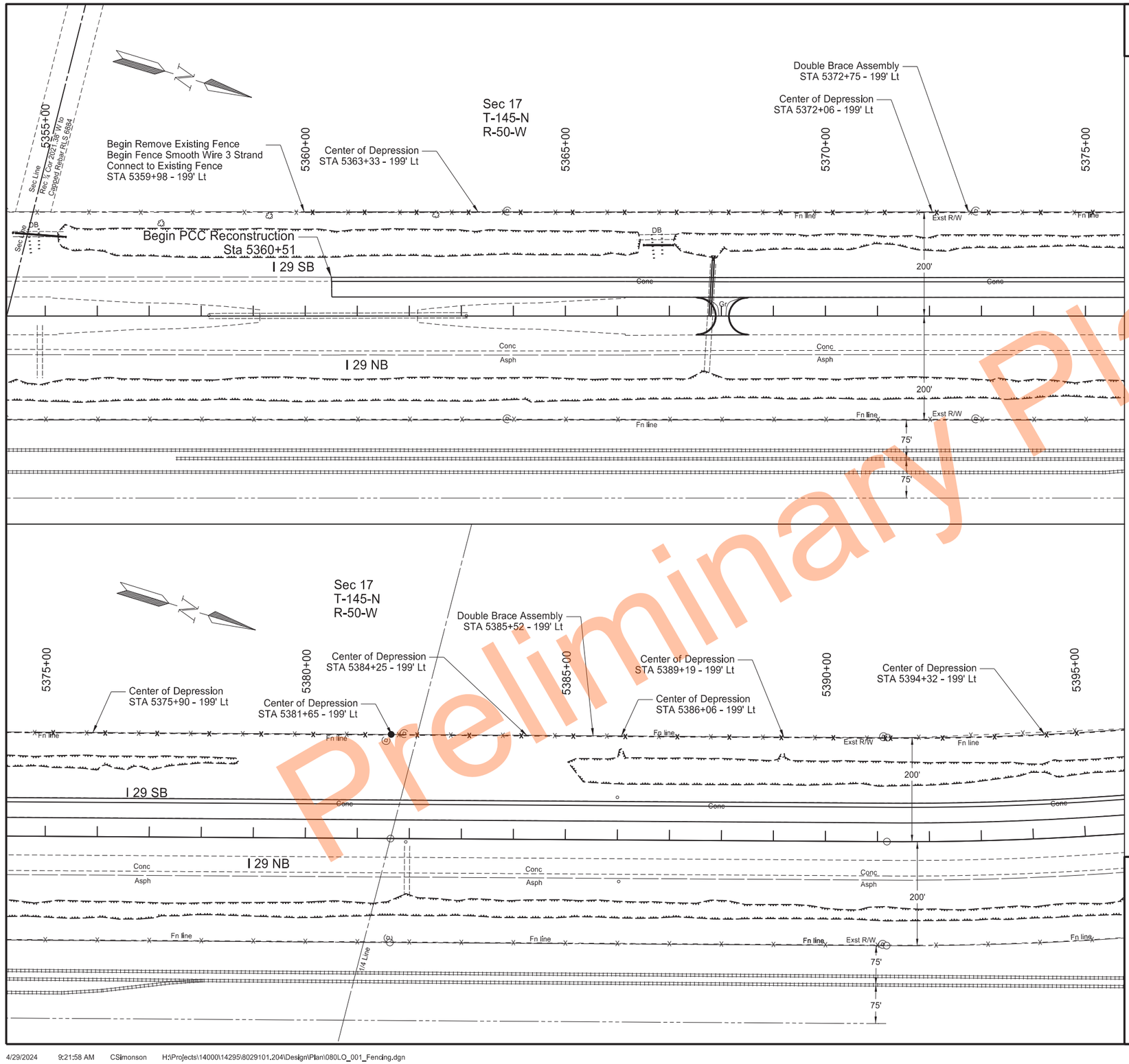

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	80	1

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5359+98 Lt to Sta 5395+00 Lt	3479	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5359+98 -199' Lt to Sta 5372+75 - 199' Lt	1277	LF
		Sta 5372+75 -199' Lt to Sta 5385+52 - 199' Lt	1277	LF
		Sta 5385+52 - 199' Lt to Sta 5395+00 - 199' Lt	925	LF
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5372+75 - 199' Lt	1	EA
		Sta 5385+52 - 199' Lt	1	EA

Fencing Layout
Sta 5355+00 to Sta 5375+00
Sta 5375+00 to Sta 5395+00

PCC Pavement Reconstruction
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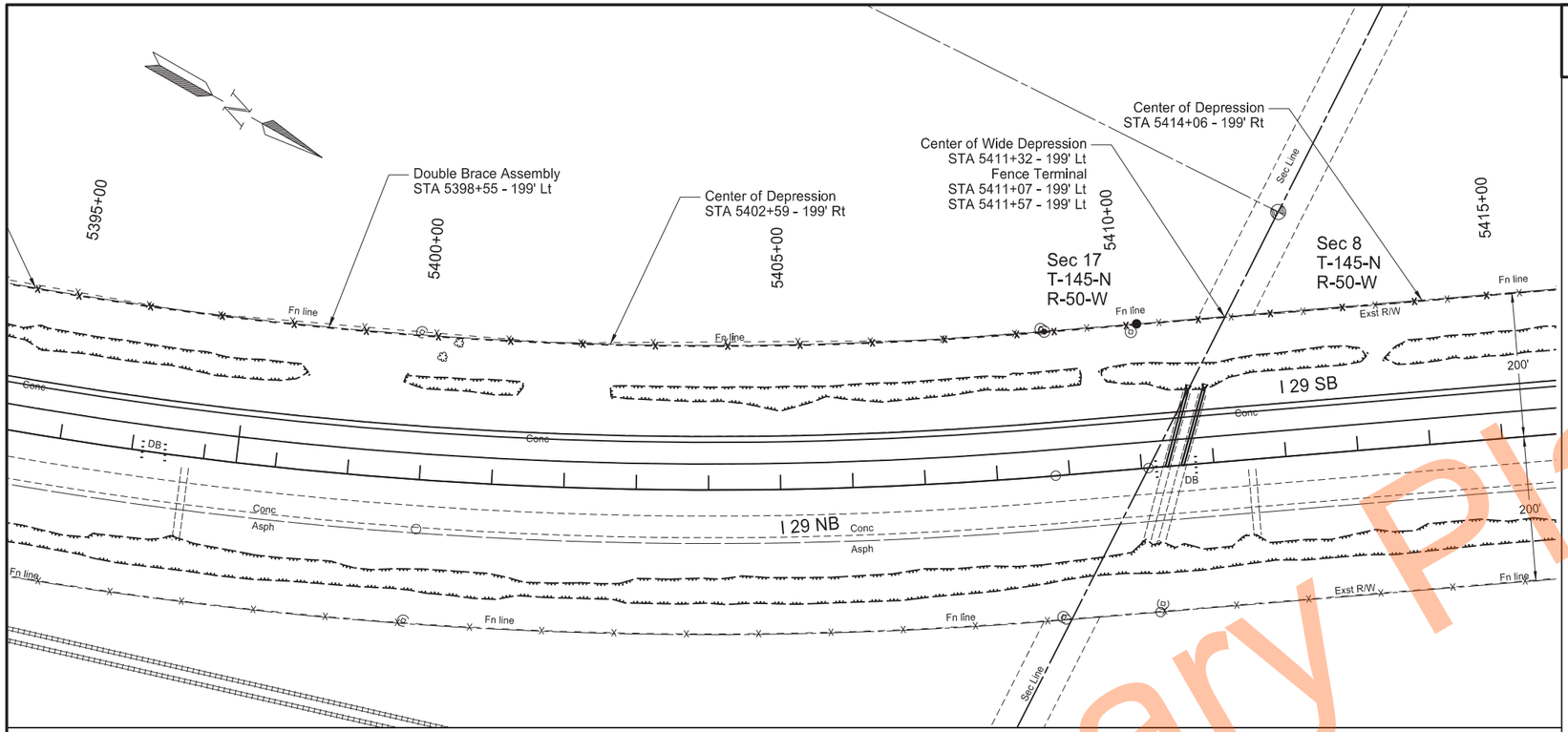
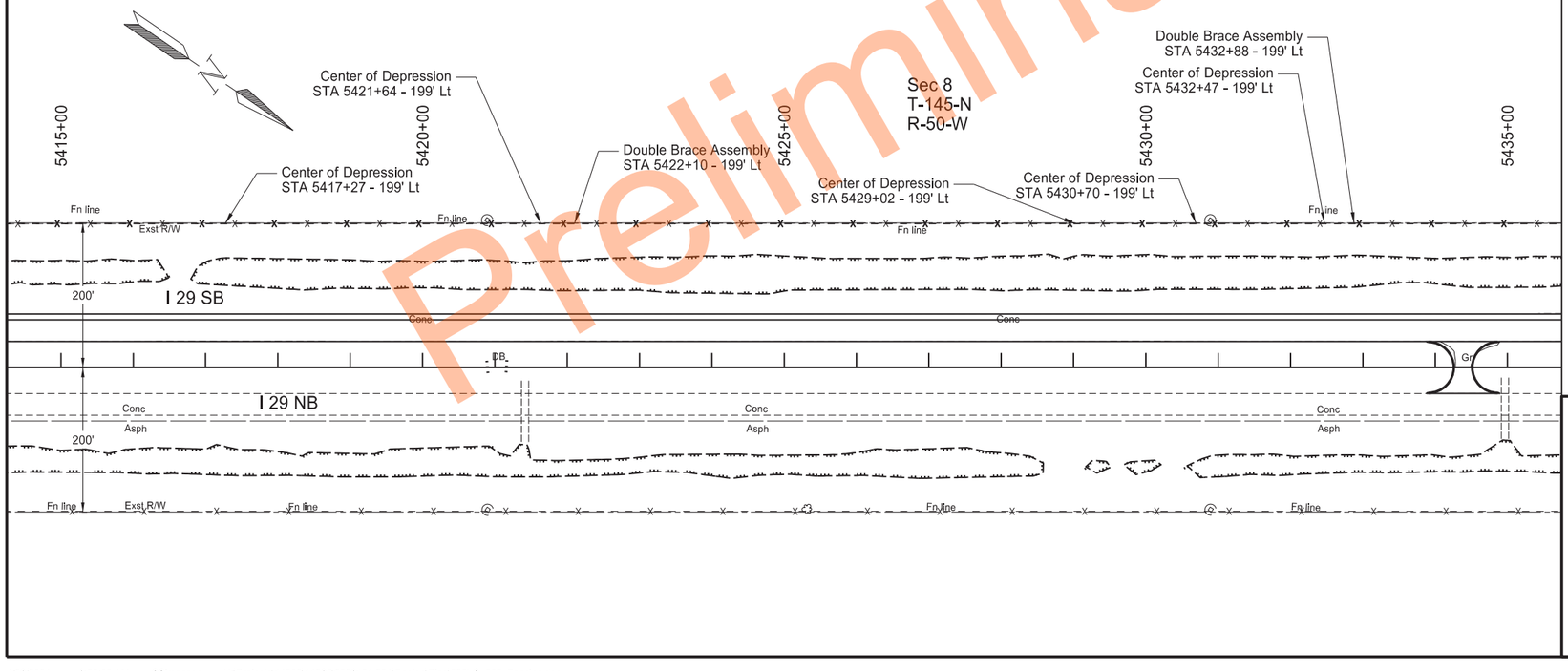
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	80	2





SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5395+00 Lt to Sta 5435+00 Lt	3962	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5395+00 - 199' Lt to Sta 5398+55 - 199' Lt	352	LF
		Sta 5398+55 - 199' Lt to Sta 5422+10 - 199' Lt	2319	LF
		Sta 5422+10 - 199' Lt to Sta 5432+88 - 199' Lt	1078	LF
		Sta 5432+88 - 199' Lt to Sta 5435+00 - 199' Lt	212	LF
752	0993	FENCE TERMINAL		
		Sta 5411+07 - 199' Lt	1	EA
		Sta 5411+57 - 199' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5398+55 - 199' Lt	1	EA
		Sta 5422+10 - 199' Lt	1	EA
		Sta 5432+88 - 199' Lt	1	EA

Fencing Layout
Sta 5395+00 to Sta 5415+00
Sta 5415+00 to Sta 5435+00

PCC Pavement Reconstruction
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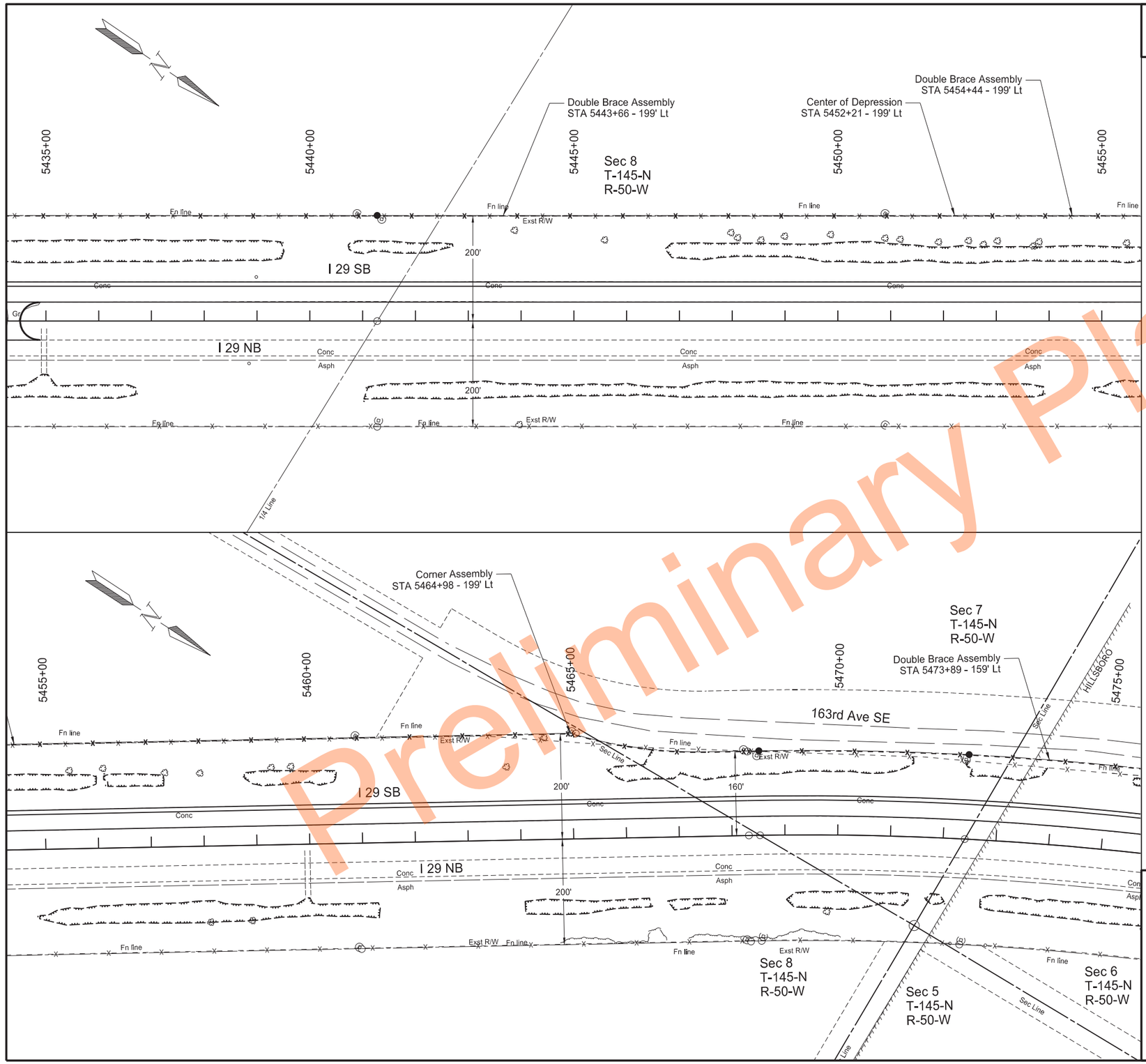
Preliminary Plans



Preliminary

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	80	3

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5435+00 Lt to Sta 5475+00 Lt	4026	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5435+00 - 199' Lt to Sta 5443+66 - 199' Lt	866	LF
		Sta 5443+66 - 199' Lt to Sta 5454+44 - 199' Lt	1078	LF
		Sta 5454+44 - 199' Lt to Sta 5464+98 - 199' Lt	1054	LF
		Sta 5464+98 - 199' Lt to Sta 5473+89 - 159' Lt	911	LF
		Sta 5473+89 - 159' Lt to Sta 5475+00 - 159' Lt	120	LF
752	2996	CORNER ASSEMBLY - STEEL POST		
		Sta 5464+98 - 199' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5443+66 - 199' Lt	1	EA
		Sta 5454+44 - 199' Lt	1	EA
		Sta 5473+89 - 159' Lt	1	EA

Fencing Layout
Sta 5435+00 to Sta 5455+00
Sta 5455+00 to Sta 5475+00

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	80	4

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5475+00 Lt to Sta 5499+03 Lt	2583	LF
		Sta 5500+61 Lt to Sta 5515+00 Lt	1679	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5475+00 - 159' Lt to Sta 5482+75 - 159' Lt	791	LF
		Sta 5482+75 - 159' Lt to Sta 5491+62 - 165' Lt	911	LF
		Sta 5491+62 - 165' Lt to Sta 5499+03 - 568' Lt	885	LF
		Sta 5500+61 - 668' Lt to Sta 5508+83 - 165' Lt	1063	LF
		Sta 5508+83 - 165' Lt to Sta 5515+00 - 160' Lt	618	LF
752	0993	FENCE TERMINAL		
		Sta 5496+16 - 393' Lt	1	EA
752	2996	CORNER ASSEMBLY - STEEL POST		
		Sta 5491+62 - 165' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5482+75 - 159' Lt	1	EA
		Sta 5508+83 - 165' Lt	1	EA

Fencing Layout
Sta 5475+00 to Sta 5495+00
Sta 5495+00 to Sta 5515+00

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N of Kelso N to N of N Jct 200

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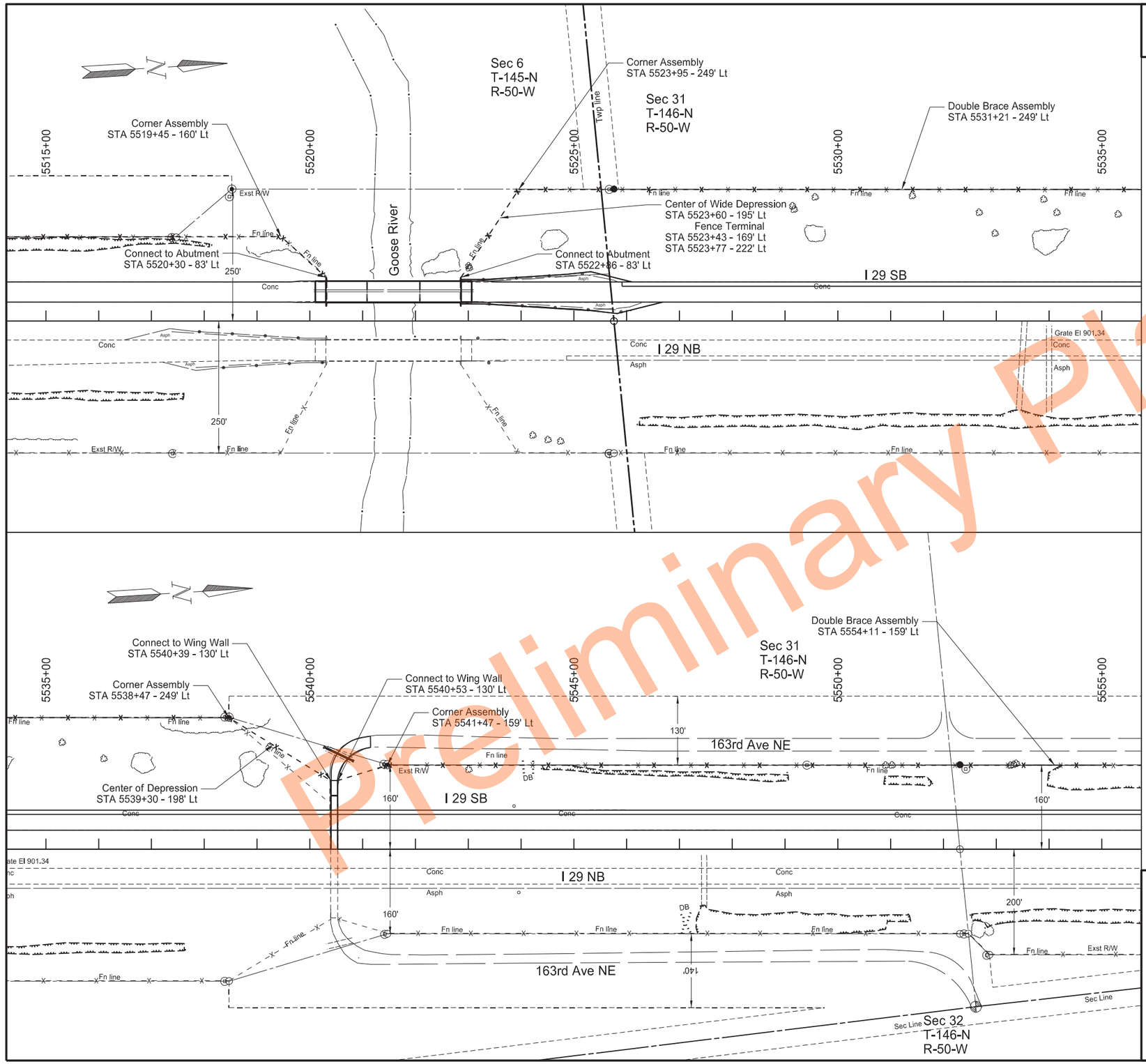

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	80	5

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5515+00 Lt to Sta 5520+30 Lt	560	LF
		Sta 5522+86 Lt to Sta 5540+29 Lt	1888	LF
		Sta 5541+29 Lt to Sta 5555+00 Lt	1373	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5515+00 - 160' Lt to Sta 5519+45 - 160' Lt	445	LF
		Sta 5519+45 - 160' Lt to Sta 5520+30 - 83' Lt	115	LF
		Sta 5522+86 - 83' Lt to Sta 5523+95 - 249' Lt	199	LF
		Sta 5523+95 - 249' Lt to Sta 5531+21 - 249' Lt	726	LF
		Sta 5531+21 - 249' Lt to Sta 5538+47 - 249' Lt	726	LF
		Sta 5538+47 - 249' Lt to Sta 5540+39 - 130' Lt	226	LF
		Sta 5540+53 - 130' Lt to Sta 5541+47 - 159' Lt	98	LF
		Sta 5541+47 - 159' Lt to Sta 5554+11 - 159' Lt	1264	LF
		Sta 5554+11 - 159' Lt to Sta 5555+00 - 159' Lt	89	LF
752	0993	FENCE TERMINAL		
		Sta 5523+43 - 169' Lt	1	EA
		Sta 5523+77 - 222' Lt	1	EA
752	2996	CORNER ASSEMBLY - STEEL POST		
		Sta 5519+45 - 160' Lt	1	EA
		Sta 5523+95 - 249' Lt	1	EA
		Sta 5538+47 - 249' Lt	1	EA
		Sta 5541+47 - 159' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5531+21 - 249' Lt	1	EA
		Sta 5554+11 - 159' Lt	1	EA

Fencing Layout
Sta 5515+00 to Sta 5535+00
Sta 5535+00 to Sta 5555+00

PCC Pavement Reconstruction
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N of Kelso N to N of N Jct 200

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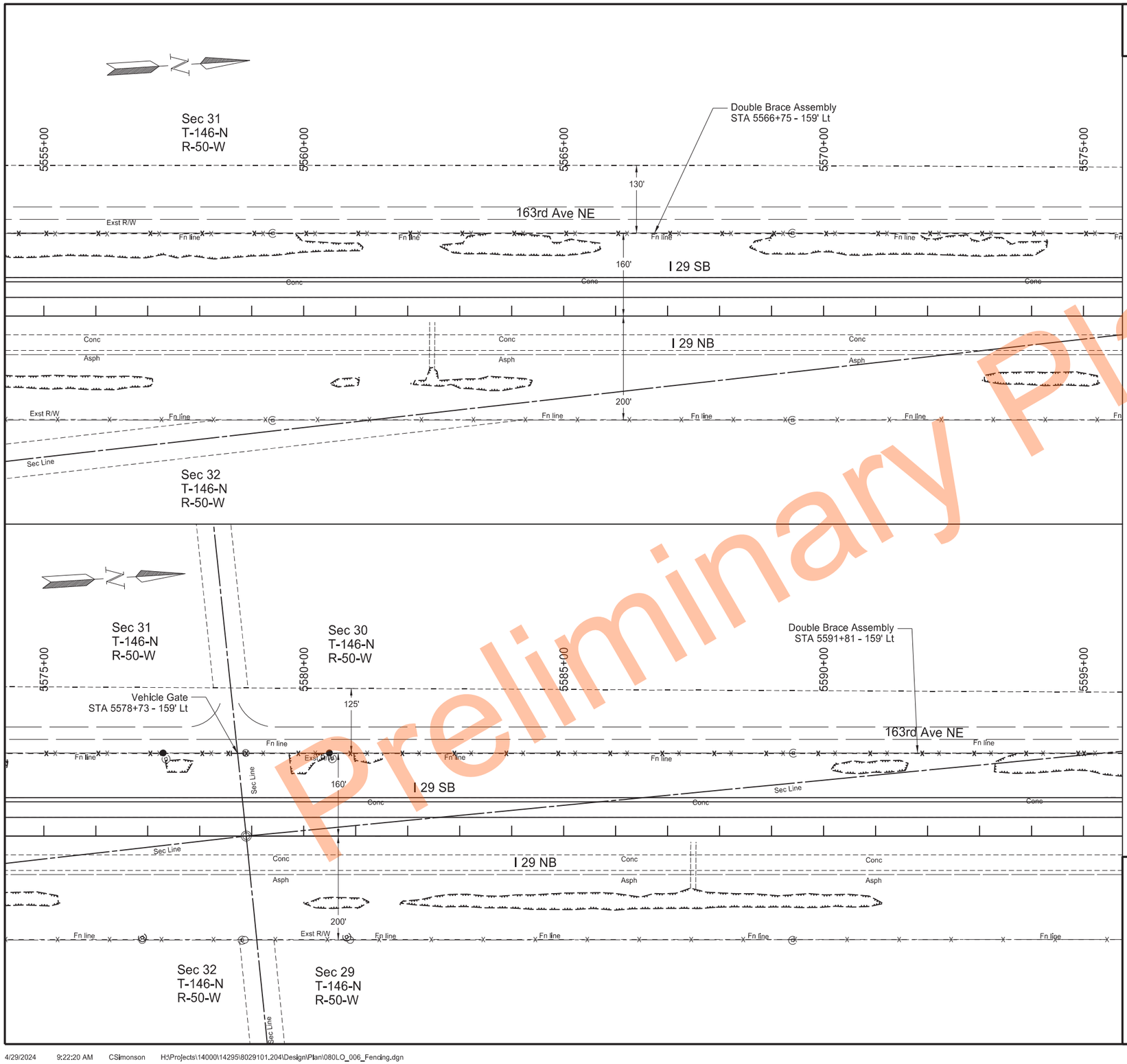

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	80	6

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5555+00 Lt to Sta 5595+00 Lt	3996	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5555+00 - 159' Lt to Sta 5566+75 - 159' Lt	1175	LF
		Sta 5566+75 - 159' Lt to Sta 5578+73 - 159' Lt	1198	LF
		Sta 5578+73 - 159' Lt to Sta 5591+81 - 159' Lt	1308	LF
		Sta 5591+81 - 159' Lt to Sta 5595+00 - 159' Lt	315	LF
752	2100	VEHICLE GATE		
		Sta 5578+73 - 159' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5566+75 - 159' Lt	1	EA
		Sta 5591+81 - 159' Lt	1	EA

Fencing Layout
Sta 5555+00 to Sta 5575+00
Sta 5575+00 to Sta 5595+00

PCC Pavement Reconstruction
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N of Kelso N to N of N Jct 200

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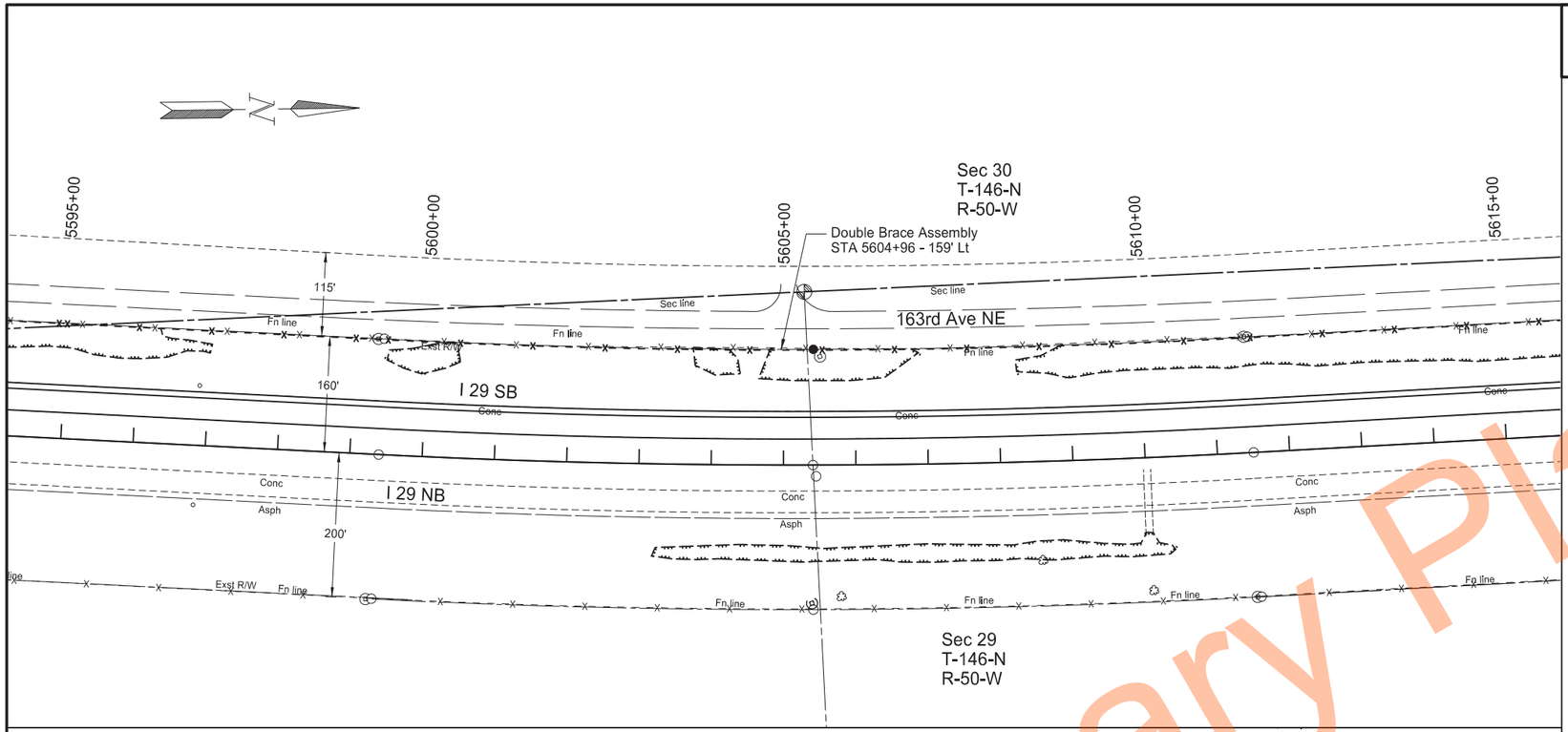

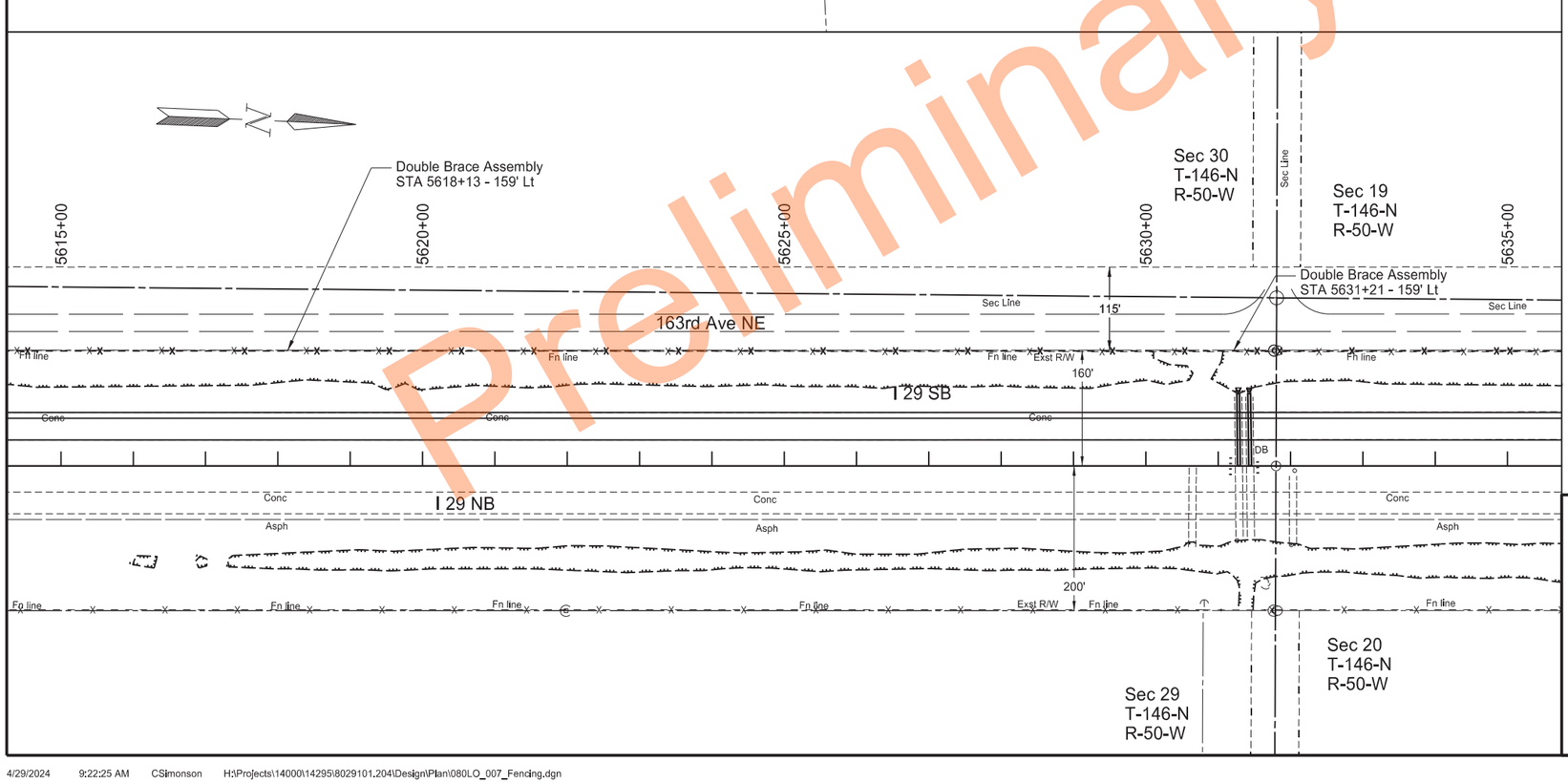

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	80	7

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5595+00 Lt to Sta 5635+00 Lt	3986	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5595+00 - 159' Lt to Sta 5604+96 - 159' Lt	993	LF
		Sta 5604+96 - 159' Lt to Sta 5618+13 - 159' Lt	1308	LF
		Sta 5618+13 - 159' Lt to Sta 5631+21 - 159' Lt	1308	LF
		Sta 5631+21 - 159' Lt to Sta 5635+00 - 159' Lt	377	LF
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5604+96 - 159' Lt	1	EA
		Sta 5618+13 - 159' Lt	1	EA
		Sta 5631+21 - 159' Lt	1	EA

Fencing Layout
Sta 5595+00 to Sta 5615+00
Sta 5615+00 to Sta 5635+00

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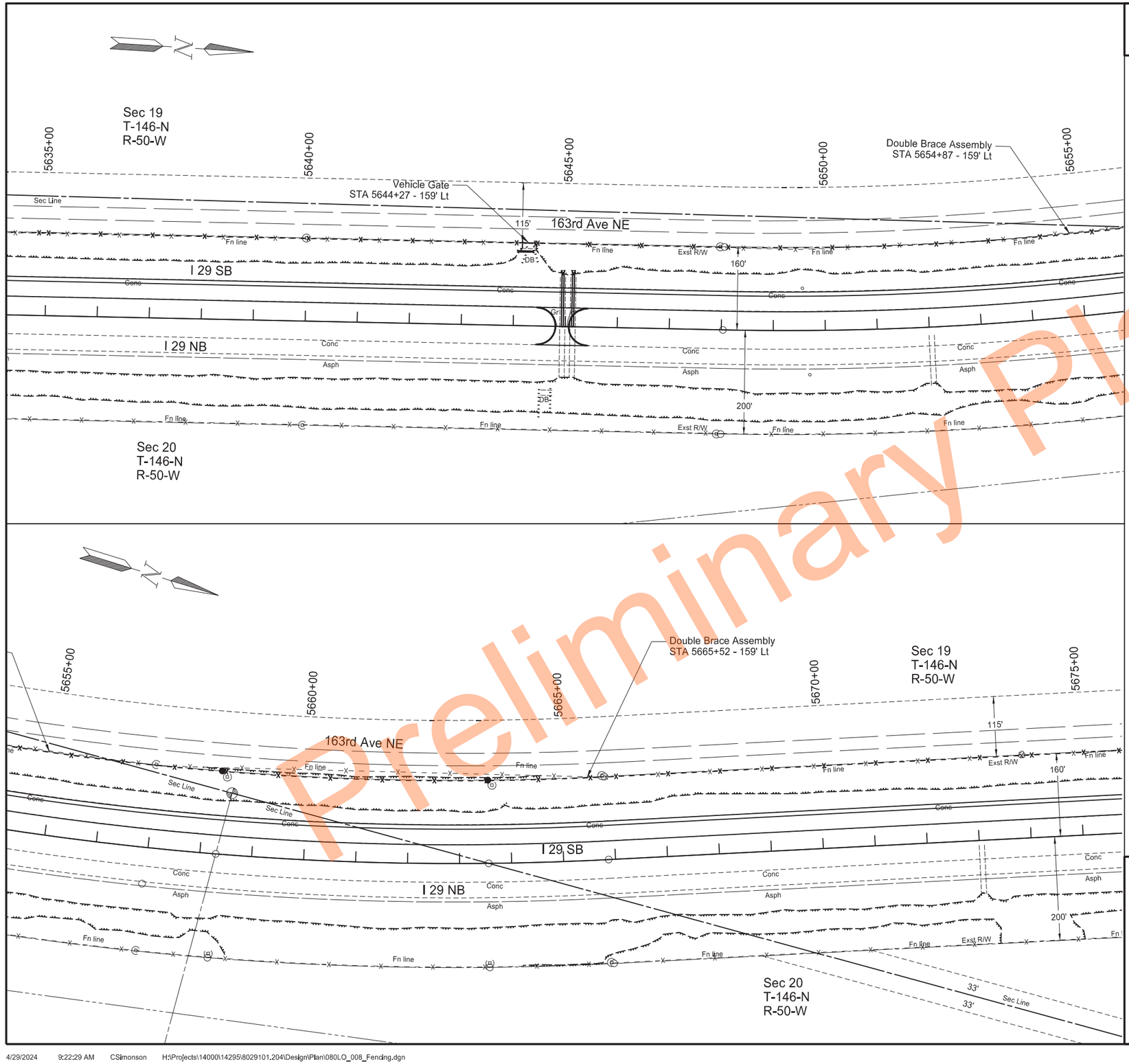
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	80	8

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5635+00 Lt to Sta 5675+00 Lt	3966	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5635+00 - 159' Lt to Sta 5644+27 - 159' Lt	929	LF
		Sta 5644+27 - 159' Lt to Sta 5654+87 - 159' Lt	1041	LF
		Sta 5654+87 - 159' Lt to Sta 5665+52 - 159' Lt	1036	LF
		Sta 5665+52 - 159' Lt to Sta 5675+00 - 159' Lt	961	LF
752	2100	VEHICLE GATE		
		Sta 5644+27 - 159' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5654+87 - 159' Lt	1	EA
		Sta 5665+52 - 159' Lt	1	EA



Fencing Layout
Sta 5635+00 to Sta 5655+00
Sta 5655+00 to Sta 5675+00

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5675+00 Lt to Sta 5685+81 Lt	1417	LF
		Sta 5686+30 Lt to Sta 5715+00 Lt	2909	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5675+00 - 159' Lt to Sta 5675+89 - 159' Lt	75	LF
		Sta 5675+89 - 159' Lt to Sta 5685+49 - 378' Lt	1034	LF
		Sta 5685+49 - 378' Lt to Sta 5685+08 - 148' Lt	234	LF
		Sta 5685+08 - 148' Lt to Sta 5685+81 - 133' Lt	76	LF
		Sta 5686+30 - 133' Lt to Sta 5688+49 - 199' Lt	234	LF
		Sta 5688+49 - 199' Lt to Sta 5700+65 - 199' Lt	1259	LF
		Sta 5700+65 - 199' Lt to Sta 5713+27 - 199' Lt	1259	LF
		Sta 5713+27 - 199' Lt to Sta 5715+00 - 199' Lt	159	LF
752	2996	CORNER ASSEMBLY - STEEL POST		
		Sta 5685+49 - 378' Lt	1	EA
		Sta 5685+08 - 148' Lt	1	EA
		Sta 5688+49 - 199' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5675+89 - 159' Lt	1	EA
		Sta 5700+65 - 199' Lt	1	EA
		Sta 5713+27 - 199' Lt	1	EA

Fencing Layout
Sta 5675+00 to Sta 5695+00
Sta 5695+00 to Sta 5715+00

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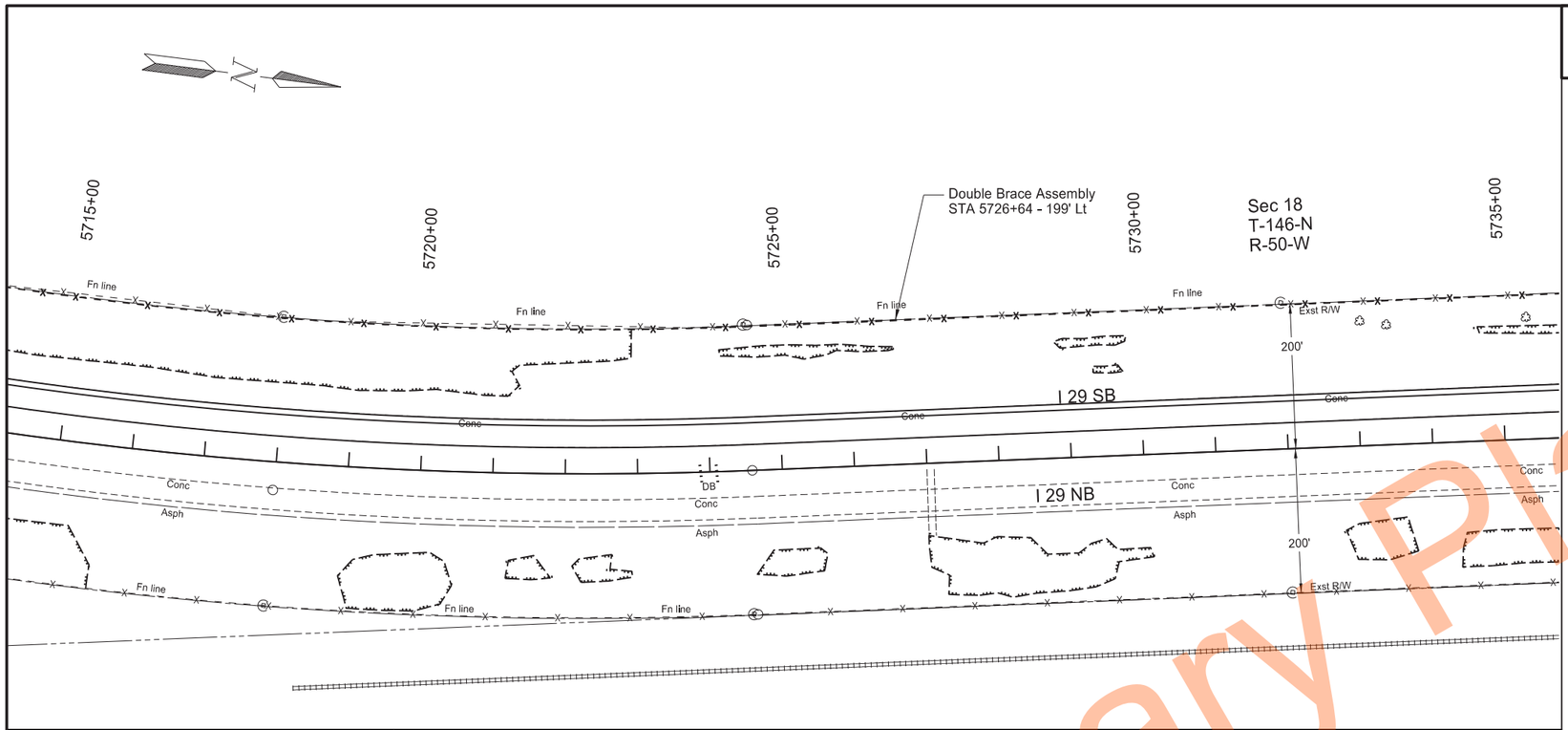

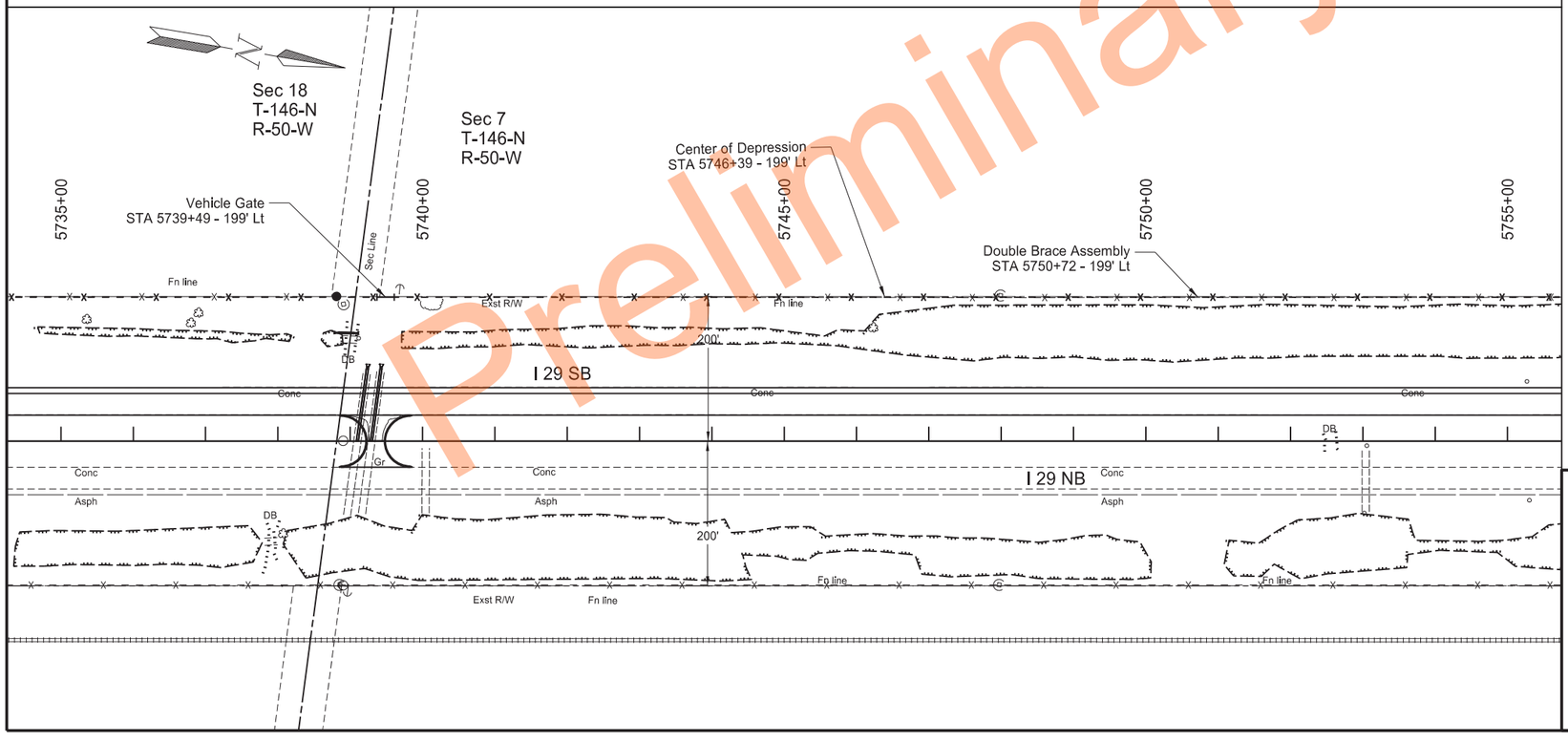

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	80	10

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5715+00 Lt to Sta 5755+00 Lt	3619	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5715+00 - 199' Lt to Sta 5726+64 - 199' Lt	1139	LF
		Sta 5726+64 - 199' Lt to Sta 5739+49 - 199' Lt	1285	LF
		Sta 5739+49 - 199' Lt to Sta 5750+72 - 199' Lt	1124	LF
		Sta 5750+72 - 199' Lt to Sta 5755+00 - 199' Lt	426	LF
752	2100	VEHICLE GATE		
		Sta 5739+49 - 199' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5726+64 - 199' Lt	1	EA
		Sta 5750+72 - 199' Lt	1	EA

Fencing Layout
Sta 5715+00 to Sta 5735+00
Sta 5735+00 to Sta 5755+00

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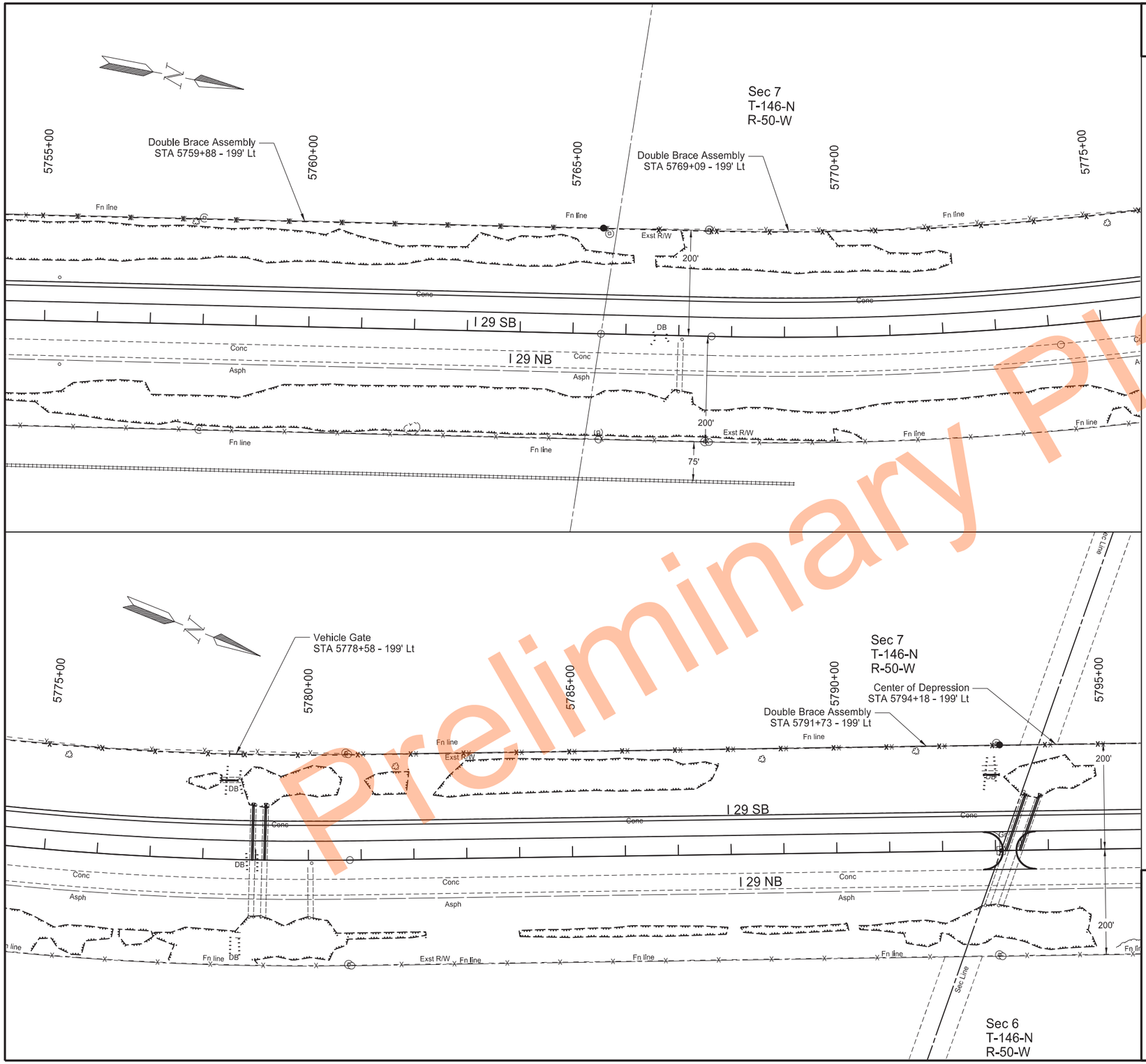
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	80	11



SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5755+00 Lt to Sta 5795+00 Lt	3958	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5755+00 - 199' Lt to Sta 5759+88 - 199' Lt	490	LF
		Sta 5759+88 - 199' Lt to Sta 5769+09 - 199' Lt	916	LF
		Sta 5769+09 - 199' Lt to Sta 5778+58 - 199' Lt	916	LF
		Sta 5778+58 - 199' Lt to Sta 5791+73 - 199' Lt	1307	LF
		Sta 5791+73 - 199' Lt to Sta 5795+00 - 199' Lt	329	LF
752	2100	VEHICLE GATE		
		Sta 5778+58 - 199' Lt	1	EA
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5759+88 - 199' Lt	1	EA
		Sta 5769+09 - 199' Lt	1	EA
		Sta 5791+73 - 199' Lt	1	EA

Fencing Layout
Sta 5755+00 to Sta 5775+00
Sta 5775+00 to Sta 5795+00

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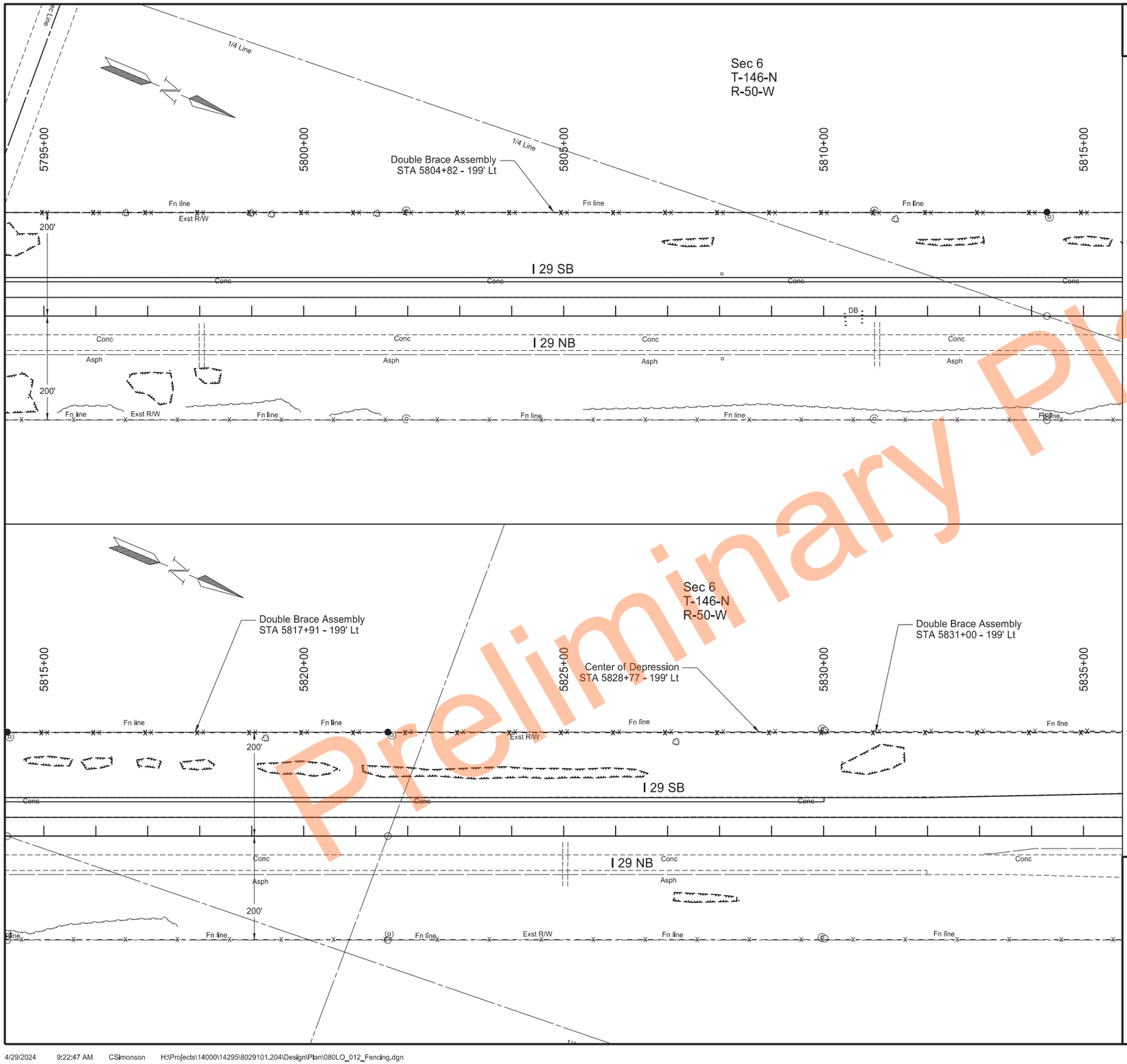
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans



Preliminary

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	80	12

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5795+00 Lt to 5835+00 Lt	3999	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5795+00 - 199' Lt to Sta 5804+82 - 199' Lt	981	LF
		Sta 5804+82 - 199' Lt to Sta 5817+91 - 199' Lt	1309	LF
		Sta 5817+91 - 199' Lt to Sta 5831+00 - 199' Lt	1309	LF
		Sta 5831+00 - 199' Lt to Sta 5835+00 - 199' Lt	400	LF
752	3996	DOUBLE BRACE ASSEMBLY - STEEL POST		
		Sta 5804+82 - 199' Lt	1	EA
		Sta 5817+91 - 199' Lt	1	EA
		Sta 5831+00 - 199' Lt	1	EA

Fencing Layout
Sta 5795+00 to Sta 5815+00
Sta 5815+00 to Sta 5835+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	80	13

SPEC	CODE	BID ITEM	QTY	UNIT
202	0312	REMOVE EXISTING FENCE		
		Sta 5835+00 Lt to Sta 5853+06 Lt	2102	LF
		Sta 5853+74 Lt to Sta 5860+58 Lt	704	LF
752	0126	FENCE SMOOTH WIRE 3 STRAND - STEEL POST		
		Sta 5835+00 - 199' Lt to Sta 5844+02 - 264' Lt	909	LF
		Sta 5844+02 - 264' Lt to Sta 5850+16 - 632' Lt	719	LF
		Sta 5850+16 - 632' Lt to Sta 5852+47 - 973' Lt	412	LF
		Sta 5852+47 - 973' Lt to Sta 5853+06 - 951' Lt	64	LF
		Sta 5853+74 - 926' Lt to Sta 5854+33 - 906' Lt	62	LF
		Sta 5854+33 - 906' Lt to Sta 5853+92 - 484' Lt	424	LF
		Sta 5853+92 - 484' Lt to Sta 5860+58 - 198' Lt	729	LF
752	2996	CORNER ASSEMBLY - STEEL POST		
		Sta 5844+02 - 264' Lt	1	EA
		Sta 5850+16 - 632' Lt	1	EA
		Sta 5852+47 - 973' Lt	1	EA
		Sta 5853+92 - 484' Lt	1	EA
		Sta 5854+33 - 906' Lt	1	EA

Fencing Layout
Sta 5835+00 to Sta 5855+00
Sta 5855+00 to Sta 5875+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - N of Kelso N to N of N JCT 200 - Southbound

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
I 29 (Chain: SCL_I29)			
BEG	5232+00.00	141004.59	2823924.43
PI	5232+74.85	141079.31	2823920.06
Sec Xing	5301+08.85	147904.16	2823566.48
¼ Xing	5327+44.19	150535.97	2823430.12
PC	5329+93.13	150784.57	2823417.27
PI SCL_I291	5336+85.34	151475.86	2823381.53
PT	5343+70.88	152138.75	2823182.18
PI Sec Xing	5354+25.90	153149.08	2822878.36
1/4 Xing	5381+63.84	155770.25	2822087.29
PC	5391+19.09	156684.76	2821811.29
PI SCL_I292	5400+07.24	157535.02	2821554.68
PT	5408+81.36	158267.70	2821052.69
Sec Xing	5410+09.51	158373.42	2820980.26
1/4 Xing	5441+27.52	160945.62	2819217.95
PC	5468+30.04	163175.07	2817690.47
Sec Xing	5472+49.39 (Bk Tan)	163521.01	2817453.45
PI SCL_I293	5488+03.83	164803.35	2816574.87
¼ Xing	653.68' From PT(AhdTan)	166120.85	2816657.77
Station equation I 29 (SCL_I29) & Co Rd 11 (SCL_CR11)			
I-29	5499+80.86	166122.75	2816694.89
Co Rd 11 Bk	14+99.97	166122.75	2816694.89
Co Rd 11 Ahd	0+00.00	166122.75	2816694.89
PT	5506+31.71	166773.24	2816698.81
Station equation I 29 (SCL_I29)			
I-29 Bk	5506+31.71	166773.24	2816698.81
I-29 AHD	5505+83.97	166773.24	2816698.81
Twp Xing	5525+75.96	168761.29	2816823.90
1/4 Xing	5552+31.21	171411.30	2816990.63
Sec Xing	5578+89.42	174064.27	2817157.52

CURVE DATA

ARC DEFINITION

SCL_I291			
PI STA	= 5336+85.34		
Delta	= 13° 46' 38"		
Da	= 1° 00' 00"		
R	= 5729.65		
T	= 692.21		
L	= 1377.75		
SCL_I292			
PI STA	= 5400+07.24		
Delta	= 17° 37' 22"		
Da	= 1° 00' 00"		
R	= 5729.58		
T	= 888.15		
L	= 1762.27		
SCL_I293			
PI STA	= 5488+03.83		
Delta	= 38° 01' 00"		
Da	= 1° 00' 00"		
R	= 5729.58		
T	= 1973.78		
L	= 3801.67		

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING
T-145-N R-50-W			
SE Cor Sec 20	5-J	147914.27	2823799.00
SW Cor Sec 20	3-J	147685.15	2818528.39
W¼ Cor Sec 20	3-H	150311.30	2818371.92
Center Sec 20	4-H	150428.52	2821011.47
E¼ Cor Sec 20	5-H	150545.77	2823650.70
NE Cor Sec 20	5-G	153177.10	2823502.25
N¼ Cor Sec 20	4-G	153058.37	2820859.01
NW Cor Sec 20	3-G	152939.72	2818215.61
W¼ Cor Sec 17	3-F	155581.81	2818074.48
E¼ Cor Sec 17	5-F	155830.52	2823370.69
N¼ Cor Sec 17	4-E	158353.93	2820583.78
SW Cor Sec 8	3-E	158223.94	2817933.33
SE Cor Sec 8	5-E	158484.21	2823234.23
W¼ Cor Sec 8	3-D	160877.85	2817796.66
E¼ Cor Sec 8	5-D	161130.68	2823099.11
SW Cor Sec 6	1-C	163260.38	2812515.72
S¼ Cor Sec 6	2-C	163394.38	2815032.79
SE Cor Sec 6	3-C	163531.83	2817660.14
SE Cor Sec 5	5-C	163777.34	2822963.74
Center Sec 6	2-B	166031.83	2814920.13
E¼ Cor Sec 6	3-B	166166.90	2817556.65
NW Cor Sec 6	1-A	168602.46	2812240.20
NE Cor Sec 5	5-A	169014.93	2822724.55
N¼ Cor Sec 5	4-A	168893.72	2820053.23
T-146-N R-50-W			
SE Cor Sec 31	3-N	168782.83	2817445.38
E¼ Cor Sec 31	3-M	171422.70	2817290.07
NW Cor Sec 31	1-L	173848.54	2811981.12
N¼ Cor Sec 31	2-L	173955.13	2814536.35
NE Cor Sec 31	3-L	174064.27	2817157.52
N¼ Cor Sec 32	4-L	174164.93	2819795.77

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION
PRIMARY CONTROL (Station and offset referenced from SCL_I29)						
GPS 1	147893.12	2821872.86	904.72	5301+85	1692' Lt	#5 Rebar 30" Long 2" Aluminum Cap Marked GPS CONTROL
GPS 2	166144.33	2817174.23	916.03	5499+78	480' Rt	#5 Rebar 30" Long 2" Aluminum Cap Marked GPS CONTROL
GPS 3	202943.32	2810717.90	931.40	5879+60	450' Lt	#5 Rebar 30" Long 2" Aluminum Cap Marked GPS CONTROL
SECONDARY CONTROL (Station and offset referenced from SCL_I29)						
CP 906	168784.39	2817417.65	895.38	5526+36	591' Rt	Iron Pipe Control Cap
CP 907	168870.68	2817389.39	896.13	5527+21	558' Rt	Iron Pipe Control Cap

NOTES: Alignment SCL_I29 was created from previous project HEN-X-8-029(200)069

NOTES: Sheet 1 of 5

Date Survey Completed 09/20/21

☐ Assumed Coordinates

☒ All coordinates on this sheet are Traill County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9999525

All coordinates and measurements on this document derived from the International Foot definition.

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

☒ NAVD-88

☐ _____

☐ GEOID12B ☐ _____

☒ GEOID18

REGISTERED PROFESSIONAL LAND SURVEYOR
GREGG STROEING
LS-6703
01/26/22
NORTH DAKOTA

Preliminary Plans

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - N of Kelso N to N of N JCT 200 - Southbound

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	81	2

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
PC	5599+40.34	176111.14	2817286.32
1/4 Xing	5605+42.06 (Bk Tan)	176711.68	2817324.11
PI SCL_I294	5605+45.20	176714.81	2817324.31
PT	5611+48.94	177319.12	2817298.52
Sec Xing	5631+79.94	179348.27	2817211.96
PC	5648+05.30	180972.16	2817142.68
PI SCL_I295	5657+02.82	181868.86	2817104.42
1/4 Xing	128.30 From PI (Ahd Tan)	181989.23	2817060.02
Sec Xing	215.79' From PT (Ahd Tan)	182508.46	2816868.48
PT	5665+85.86	182710.91	2816793.80
PC	5677+85.65	183836.55	2816378.56
Station equation I 29 (SCL_I29) & Co Rd 13 (SCL_CR13)			
I 29	5685+82.28	184600.69	2816155.61
Co Rd 13	46+57.02	184600.69	2816155.61
Sec Xing	5685+97.69 (Bk Tan)	184598.41	2816097.52
PI SCL_I296	5690+03.03	184978.70	2815957.23
PT	5701+84.74	186193.49	2816036.69
PC	5711+32.50	187139.23	2816098.56
1/4 Xing	5712+30.25 (Bk Tan)	187236.77	2816104.94
PI SCL _I297	5718+01.14	187806.44	2816142.20
PT	5724+63.75	188465.77	2816031.03
Sec Xing	5738+81.18	189863.47	2815795.38
1/4 Xing	5765+52.94	192498.05	2815351.19
PC	5767+62.41	192704.60	2815316.37
PI SCL_I298	5774+23.33	193356.33	2815206.48
PT	5780+78.44	193965.92	2814951.11
Sec Xing	5793+10.55	195102.34	2814475.02
1/4 Xing	5814+29.77	197056.96	2813656.17
1/4 Xing	5821+61.90	197732.22	2813373.28
Station equation I-29 (SCL_I29) & ND 200 (SCL_ND200)			
I-29 BK	5850+01.57	200351.35	2812276.04
I-29 AHD	5849+97.60	200351.35	2812276.04
ND 200	565+00.00	200351.35	2812276.04
Twp Xing	5849+97.60	200351.35	2812276.04

NOTES: Alignment SCL_I29 was created from previous project HEN-X-8-029(200)069

NOTES: Sheet 2 of 5

CURVE DATA

ARC DEFINITION

SCL_I29 4			
PI STA	= 5605+45.20		
Delta	= 6° 02' 35"		
Da	= 0° 30' 00"		
R	= 11459.19	SCL_I29 5	
T	= 604.86	PI STA	= 5657+02.81
L	= 1208.60	Delta	= 17° 48' 20"
		Da	= 1° 00' 00"
		R	= 5729.58
		T	= 897.52
		L	= 1780.56
SCL_I29 6			
PI STA	= 5690+03.03		
Delta	= 23° 59' 27"		
Da	= 1° 00' 00"		
R	= 5729.58	SCL_I29 7	
T	= 1217.38	PI STA	= 5718+01.14
L	= 2399.09	Delta	= 13° 18' 45"
		Da	= 1° 00' 00"
		R	= 5729.58
		T	= 668.64
SCL_I29 8		L	= 1331.25
PI STA	= 5774+23.33		
Delta	= 13° 09' 37"		
Da	= 1° 00' 00"		
R	= 5729.58		
T	= 660.92		
L	= 1316.03		

Date Survey Completed 09/20/21

US PUBLIC LAND SURVEY DATA

T-146-N R-50-W

CORNER	IRN	NORTHING	EASTING
NE Cor Sec 32	5-L	174265.41	2822434.17
E¼ Cor Sec 30	3-K	176701.89	2817068.60
E¼ Cor Sec 29	5-K	176904.02	2822344.95
NW Cor Sec 30	1-J	179132.89	2811744.13
N¼ Cor Sec 30	2-J	179235.22	2814340.44
NE Cor Sec 30	3-J	179339.27	2816979.71
N¼ Cor Sec 29	4-J	179441.55	2819617.33
NE Cor Sec 29	5-J	179543.37	2822255.29
E¼ Cor Sec 19	3-H	181982.51	2816886.93
E¼ Cor Sec 20	5-H	182187.29	2822159.48
Nw Cor Sec 19	1-G	184418.50	2811502.16
NE Cor Sec 19	3-G	184625.69	2816794.22
N¼ Cor Sec 20	4-G	184728.60	2819428.61
NE Cor Sec 20	5-G	184831.29	2822063.31
W½ Cor Sec 18	1-F	187059.68	2811382.33
E¼ Cor Sec 18	3-F	187259.03	2816698.74
NW Cor Sec 18	1-E	189701.02	2811262.49
NE Cor Sec 18	3-E	189892.42	2816603.15
NW Cor Sec 7	1-C	194993.03	2811035.08
W¼ Cor Sec 7	1-D	192347.02	2811148.78
E¼ Cor Sec 7	3-D	192539.66	2816508.94
N¼ Cor Sec 7	2-C	195072.32	2813786.54
NE Cor Sec 7	3-C	195186.90	2816414.73
W¼ Cor Sec 6	1-B	197636.61	2810910.47
E¼ Cor Sec 6	3-B	197846.63	2816320.01
NW Cor Sec 6	1-A	200280.19	2810785.86
N¼ Cor Sec 6	2-A	200406.75	2813436.11
NE Cor Sec 6	3-A	200539.60	2816224.11

☐ Assumed Coordinates

☒ All coordinates on this sheet are Traill County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9999525

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION

All coordinates and measurements on this document derived from the International Foot definition.

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

☒ NAVD-88

☐ _____

☐ GEOID12B ☐ _____

☒ GEOID18

REGISTERED PROFESSIONAL LAND SURVEYOR
GREGG STROEING
LS-6703
DATE 01/26/22
NORTH DAKOTA

Preliminary Plans

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - N of Kelso N to N of N JCT 200 - Southbound

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	81	3

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
PC	5875+73.06	202726.78	2811280.89
1/4 Xing	5878+14.83 (Bk Tan)	202949.77	2811187.47
PI SCL_I299	5885+84.52	203659.69	2810890.07
PT	5895+75.36	204670.03	2810842.29
Sec Xing	5904+89.09	205582.73	2810799.13
PI	5987+14.63	213799.10	2810410.59
END	5987+48.29	213832.72	2810409.13
CR 11 (Chain: OCL_SWR_CR11)			
BEG Sec Xing	0+00.00	166099.27	2816236.52
PC	4+24.09	165756.46	2816486.19
PI OCL_SWR_3	7+18.09	165518.82	2816659.27
PT END	10+04.03	165232.21	2816724.78
CR 11 (Chain: OCL_SER_CR11)			
BEG Sec Xing	0+00.00	166146.24	2817153.37
PC	2+49.68	165920.03	2817047.68
PI OCL_SER_3	7+46.36	165470.04	2816837.44
PT	12+05.89	164986.48	2816950.84
CR 11 (Chain: OCL_NWR_CR11)			
BEG	0+80.01	167615.45	2816685.97
PC	6+40.43	167057.21	2816636.63
PI OCL_NWR_3	9+59.58	166739.30	2816608.54
PT	12+68.48	166463.37	2816448.15
END 1/4 Xing	16+89.62	166099.27	2816236.52
CR 11 (Chain: OCL_NER_CR11)			
BEG	1+00.24	168196.79	2816854.56
POT	4+50.24	167847.11	2816839.60
PC	10+00.24	167297.62	2816816.08
PI OCL_5	13+23.29	166974.86	2816802.27
PT	16+35.72	166677.40	2816928.31
END1/4 Xing	22+12.60	166146.24	2817153.37

CURVE DATA

ARC DEFINITION

SCL_I29 9	
PI STA	= 5885+84.52
Delta	= 20° 01' 23"
Da	= 1° 00' 00"
R	= 5729.58
T	= 1011.47
L	= 2002.30

OCL_SWR_CR11_3	
PI STA	= 7+18.09
Delta	= 23° 11' 34"
Da	= 3° 59' 57"
R	= 1432.69
T	= 294.00
L	= 579.94

OCL_SER_3	
PI STA	= 7+46.36
Delta	= 38° 14' 26"
Da	= 3° 59' 57"
R	= 1432.69
T	= 496.68
L	= 956.21

OCL_NWR_3	
PI STA	= 9+59.58
Delta	= 25° 07' 00"
Da	= 3° 59' 57"
R	= 1432.69
T	= 319.15
L	= 628.05

OCL_5	
PI STA	= 13+23.29
Delta	= 25° 24' 50"
Da	= 3° 59' 57"
R	= 1432.69
T	= 323.05
L	= 635.48

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING
T-147-N R-50-W			
W¼ Cor Sec 31	1-M	202926.20	2810676.30
E¼ Cor Sec 31	3-M	203176.96	2816113.18
NW Cor Sec 31	1-L	205572.40	2810566.84
N¼ Cor Sec 31	2-L	205697.22	2813373.31
NE Cor Sec 31	3-L	205814.31	2816002.25

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION

NOTES: Alignment OCL_SWR_CR11 was created from previous project I-29-2(36)99

NOTES: Alignments OCL_NWR_CR11 & OCL_NER_CR11 & OCL_SER_CR11 were created using previous project I-29-2(36)99

NOTES: Sheet 3 of 5

Date Survey Completed 09/20/21

☐ Assumed Coordinates

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All coordinates and measurements on this document derived from the International Foot definition.

INITIALIZING BENCH MARK NDGPS Stations (OPUS)

☒ NAVD-88

☐ _____

☐ GEOID12B ☐ _____

☒ GEOID18

REGISTERED PROFESSIONAL LAND SURVEYOR
GREGG A. STROEING
LS-6703
DATE: 01/26/22
NORTH DAKOTA

Preliminary Plans

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - N of Kelso N to N of N JCT 200 - Southbound

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	81	4

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
Co Rd 11 (Chain: SCL_CR11)			
BEG¼ Xing	0+97.43	166051.00	2815294.19
Station equation CR11(SCL_CR11) at I29 (SCL_I29)			
CR 11 BK	14+99.97	166122.75	2816694.89
CR 11 AHD	0+00.00	166122.75	2816694.89
I-29	5499+80.86	166122.75	2816694.89
POT	0+28.79	166124.22	2816723.64
PC	1+95.36	166132.75	2816889.99
PI SCL_CR11_5	4+00.89	166143.26	2817095.25
PT	5+95.68	166043.41	2817274.90
PC	9+04.89	165893.18	2817545.16
PI SCL_CR11_8	11+56.49	165770.95	2817765.07
PT	13+88.83	165812.97	2818013.13
END	16+37.23	165854.47	2818258.05
CR 13 (Chain: SCL_CR13)			
BEG Sec Cor	0+00.00	184418.50	2811502.16
PI	26+48.06	184522.09	2814148.19
Station equation Co Rd 13 (SCL_CR13) & I 29 (SCL_I29)			
Co Rd 13	46+57.02	184600.69	2816155.61
I 29	5685+82.28	184600.69	2816155.61
END Sec Cor	52+96.11	184625.69	2816794.22
ND 200 (Chain: OCL_SWR_ND200)			
BEG	0+00.00	200329.46	2811817.56
PC	0+82.00	200253.83	2811849.25
PI OCL_SWR_ND200_3	1+50.00	200191.04	2811875.36
PT	2+15.56	200146.56	2811926.80
PC	5+86.46	199903.95	2812207.35
PI OCL_SWR_ND200_6	9+12.71	199691.06	2812454.57
PT	12+28.02	199392.12	2812585.23
END	22+28.22	198477.51	2812990.08

CURVE DATA

ARC DEFINITION

SCL_CR11_5	
PI STA	= 4+00.89
Delta	= 32° 00' 00"
Da	= 7° 59' 37"
R	= 716.78
T	= 205.5
L	= 400.33

SCL_CR11_8	
PI STA	= 11+56.49
Delta	= 38° 41' 00"
Da	= 7° 59' 37"
R	= 716.78
T	= 252.00
L	= 483.94

OCL_SWR_ND200_3	
PI STA	= 1+50.00
Delta	= 26° 34' 45"
Da	= 19° 54' 05"
R	= 287.90
T	= 68.00
L	= 133.56

OCL_SWR_ND200_6	
PI STA	= 9+12.71
Delta	= 25° 39' 26"
Da	= 3° 59' 57"
R	= 1432.70
T	= 326.25
L	= 641.57

REFERENCE MARKERS

All R Mkrs stationed to I 29 (Chain: SCL_I29)

R Mkr #	NORTHING	EASTING	STATION	OFFSET
RM 102	156163.79	2821882.91	5386+00	82' Lt
RM 102	156213.87	2822036.83	5386+03	80' Rt
RM 103	160709.57	2819278.44	5438+99	84' Lt
RM 103	160790.68	2819421.10	5438+85	80' Rt
RM 104	165265.87	2816705.17	5491+36	96' Lt
RM 104	165315.57	2816875.51	5491+51	80' Rt
RM 105	170573.63	2816856.07	5543+87	82' Lt
RM 105	170572.34	2817019.93	5543+96	82' Rt
RM 106	175864.56	2817187.74	5596+88	83' Lt
RM 106	175853.19	2817352.65	5596+87	82' Rt
RM 107	181117.47	2817053.12	5649+56	81' Lt
RM 107	181142.44	2817218.16	5649+70	85' Rt
RM 108	186253.93	2815959.24	5702+40	81' Lt
RM 108	186252.92	2816122.76	5702+50	82' Rt
RM 109	191472.51	2815440.30	5755+27	82' Lt
RM 109	191472.51	2815601.73	5755+30	82' Rt
RM 110	196448.66	2813823.08	5808+04	81' Lt
RM 110	196512.73	2813973.00	5808+05	82' Rt
RM 111	201324.53	2811762.50	5860+94	98' Lt
RM 111	201385.43	2811946.72	5860+79	96' Rt
RM 112	206447.08	2810677.12	5913+58	81' Lt
RM 112	206454.36	2810837.95	5913+58	80' Rt
RM 113	211723.62	2810426.57	5966+41	82' Lt
RM 113	211729.46	2810590.89	5966+39	82' Rt

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION

NOTES: Alignment SCL_CR11 was created using previous project I-29-2(15), Plat # 7
NOTES: Alignment OCL_SWR_ND200 was created from previous project I-29-2(36)99
NOTES: Alignment SCL_CR13 was created from previous project I-29-2(15), Plat #3
NOTES: Sheet 4 of 5

Date Survey Completed 09/20/21

☐ Assumed Coordinates

☒ All coordinates on this sheet are Traill County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9999525

All coordinates and measurements on this document derived from the International Foot definition.

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

☒ NAVD-88
☐ _____
☐ GEOID12B ☐ _____
☒ GEOID18

REGISTERED PROFESSIONAL LAND SURVEYOR
GREGG A. STROEING
LS-6703
DATE: 01/26/22
NORTH DAKOTA

Preliminary Plans

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - N of Kelso N to N of N JCT 200 - Southbound

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	81	5

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
ND 200 (Chain: OCL_SER_ND200)			
BEG	0+00.00	200373.24	2812734.52
PC	4+48.03	199926.22	2812704.57
PI OCL_SER_ND200_3	7+67.40	199607.56	2812683.22
PT	10+76.50	199310.01	2812799.23
END	17+13.34	198716.67	2813030.57
ND 200 (Chain: OCL_NWR_ND200)			
BEG	0+00.00	201989.13	2811520.30
PC	6+40.20	201392.65	2811752.82
PI OCL_NWR_ND200_3	9+59.57	201095.10	2811868.86
PT	12+68.66	200776.45	2811847.51
END	17+16.65	200329.46	2811817.56
ND 200 (Chain: OCL_NER_ND200)			
BEG	0+00.00	202218.58	2811563.15
PC	10+00.19	201303.98	2811967.99
PI OCL_NER_ND200_3	13+23.32	201008.52	2812098.81
PT	16+35.82	200797.81	2812343.79
PC	20+06.76	200555.92	2812625.01
PI OCL_NER_ND200_6	20+73.90	200509.14	2812673.18
PT	21+39.73	200448.89	2812702.82
END	22+21.75	200373.24	2812734.52
ND 200 (Chain: OCL_ND200)			
BEG Sec Cor	550+08.12	200280.19	2810785.86
Station equation ND 200 (SCL_200) & I 29 (SCL_I29)			
ND 200	565+00.00	200351.35	2812276.04
I-29 BK	5850+01.57	200351.35	2812276.04
I-29 AHD	5849+97.60	200351.35	2812276.04
PI¼ Cor	576+61.40	200406.75	2813436.11
END Sec Cor	604+52.55	200539.60	2816224.11

CURVE DATA

ARC DEFINITION	
OCL_SER_ND200_3	
PI STA	= 7+67.40
Delta	= 25° 08' 00"
Da	= 3° 59' 57"
R	= 1432.70
T	= 319.37
L	= 628.47
OCL_NWR_ND200_3	
PI STA	= 9+59.57
Delta	= 25° 08' 00"
Da	= 3° 59' 57"
R	= 1432.69
T	= 319.37
L	= 628.46
OCL_NER_ND200_3	
PI STA	= 13+23.32
Delta	= 25° 25' 11"
Da	= 3° 59' 57"
R	= 1432.69
T	= 323.13
L	= 635.63
OCL_NER_ND200_6	
PI STA	= 20+73.90
Delta	= 19° 38' 20"
Da	= 14° 46' 09"
R	= 387.94
T	= 67.14
L	= 132.97

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET	MONUMENT DESCRIPTION

NOTES: Alignment OCL_NER_ND200 & OCL_NWR_ND200 was created from previous project I-IG-29-3(25)110
NOTES: Alignments SCL_ND200 was created from existing section line
NOTES: Alignments OCL_SER_ND200 was created from previous project I-29-2(36)99

NOTES: Sheet 5 of 5

Date Survey Completed 09/20/21

☐ Assumed Coordinates

☒ All coordinates on this sheet are Traill County ground coordinates. They are derived from the NAD83(2011) reference frame; North Dakota North Zone Combination Factor (cf) = 0.9999525

All coordinates and measurements on this document derived from the International Foot definition.

INITIALIZING BENCH MARK
NDGPS Stations (OPUS)

☒ NAVD-88
☐ _____

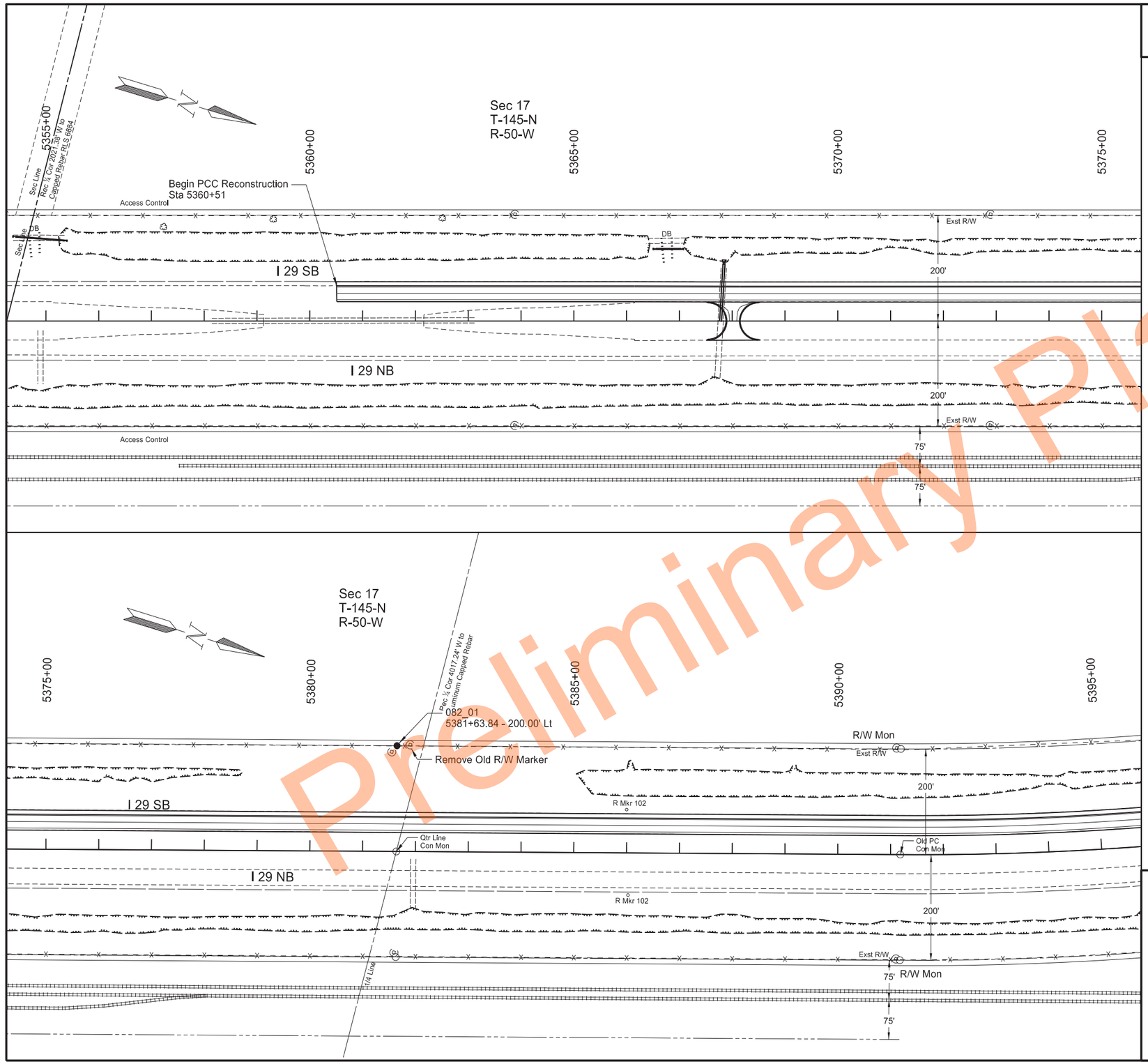
☐ GEOID12B ☐ _____
☒ GEOID18

REGISTERED PROFESSIONAL LAND SURVEYOR
GREGG A. STROEING
LS-6703
DATE: 01/26/22
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	82	1

SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5381+63.84 - 200.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5381+63.84 - 200.00' Lt	1	EA

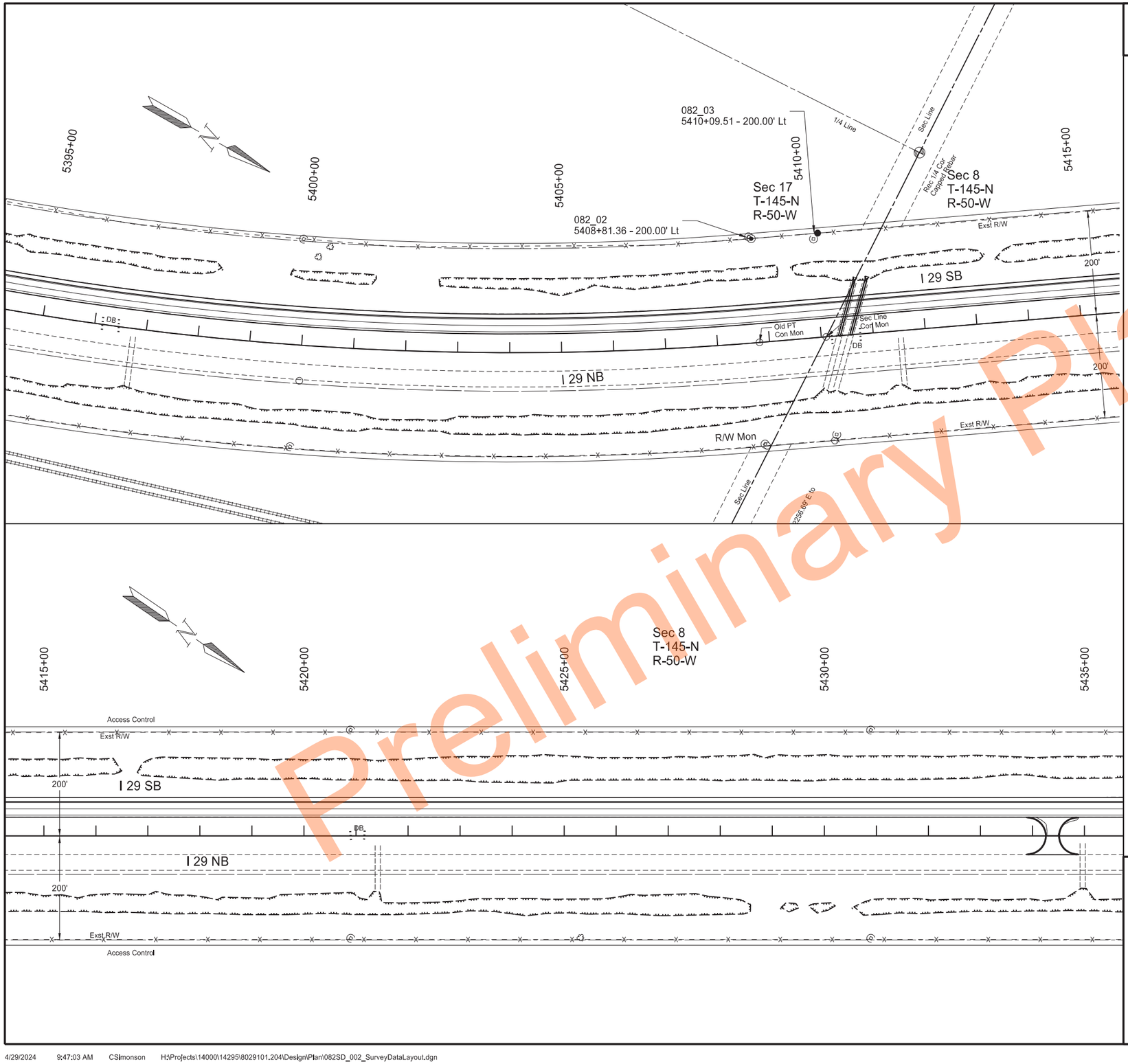


Right of Way Markers and Monuments
Sta 5355+00 to Sta 5375+00
Sta 5375+00 to Sta 5395+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans



Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	2

SPEC CODE	BID ITEM	QTY	UNIT
720 0110	RIGHT OF WAY MARKERS		
	5410+09.51 - 200.00' Lt	1	EA
720 0130	IRON PIN R/W MONUMENTS		
	5408+81.36 - 200.00' Lt	1	EA
720 0135	IRON PIN REFERENCE MONUMENTS		
	5410+09.51 - 200.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5395+00 to Sta 5415+00
Sta 5415+00 to Sta 5435+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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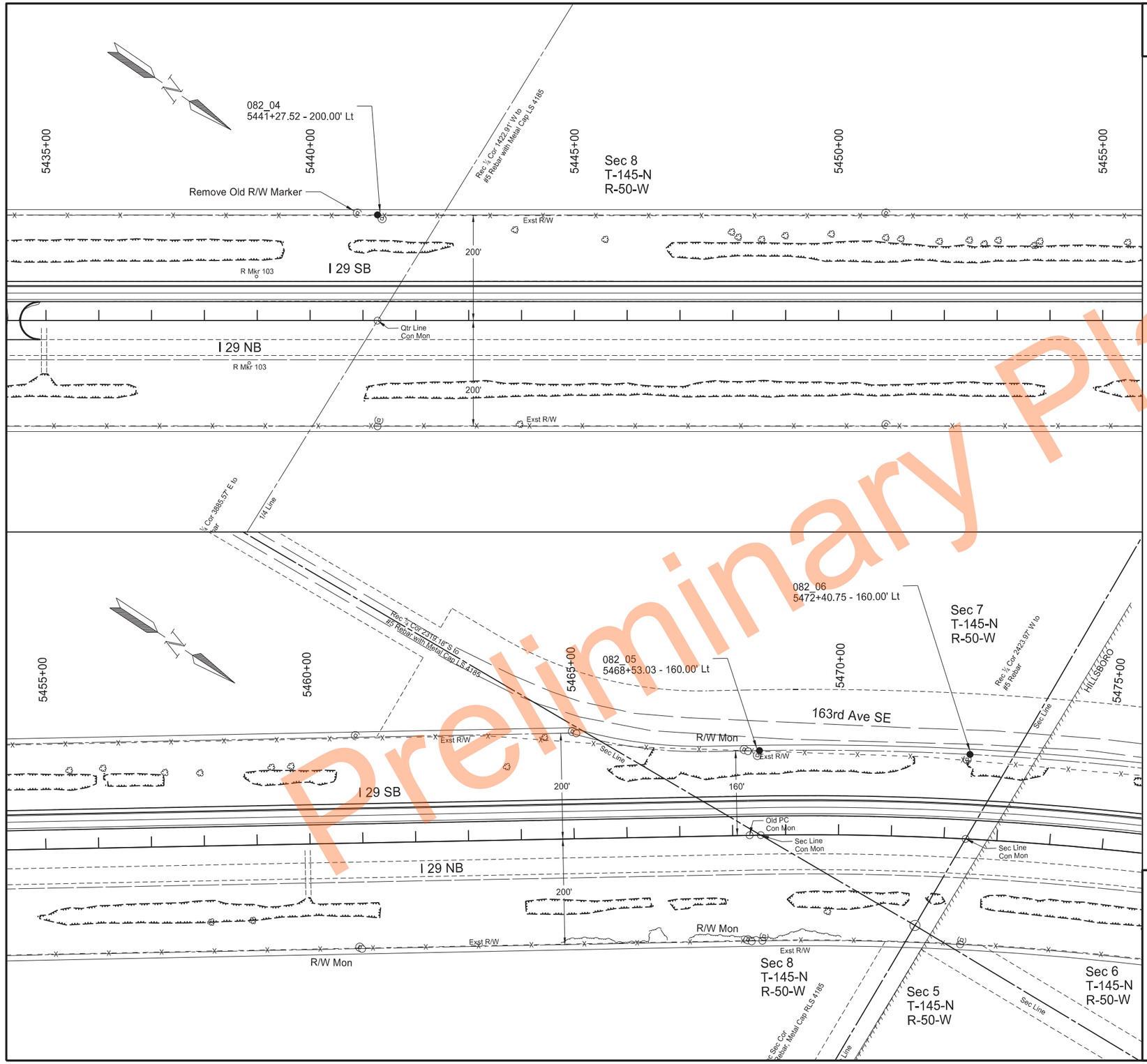

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	3

SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5441+27.52 - 200.00' Lt	1	EA
		5468+53.03 - 160.00' Lt	1	EA
		5472+40.75 - 160.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5441+27.52 - 200.00' Lt	1	EA
		5468+53.03 - 160.00' Lt	1	EA
		5472+40.75 - 160.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5435+00 to Sta 5455+00
Sta 5455+00 to Sta 5475+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	82	4

SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5489+73.00 - 160.00' Lt	1	EA
		5493+90.08 - 296.16' Lt	1	EA
720	0130	IRON PIN R/W MONUMENTS		
		5489+73.00 - 160.00' Lt	1	EA
		5493+90.08 - 296.16' Lt	1	EA
		5509+85.97 - 160.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5475+00 to Sta 5495+00
Sta 5495+00 to Sta 5515+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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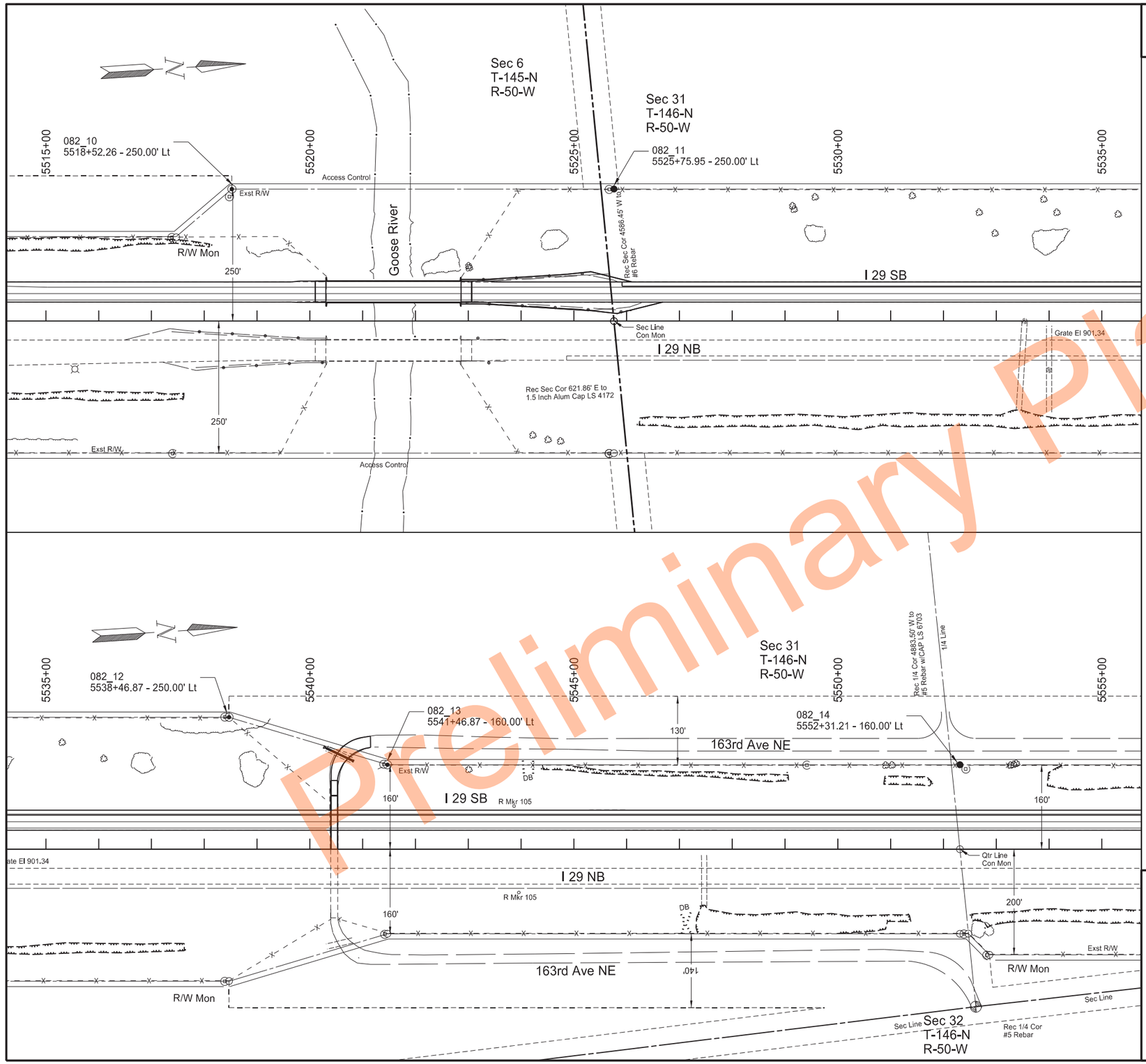
PE-10608
DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	82	5

SPEC CODE	BID ITEM	QTY	UNIT
720 0110	RIGHT OF WAY MARKERS		
	5518+52.26 - 250.00' Lt	1	EA
	5552+31.21 - 160.00' Lt	1	EA
720 0130	IRON PIN R/W MONUMENTS		
	5518+52.26 - 250.00' Lt	1	EA
	5538+46.87 - 250.00' Lt	1	EA
	5541+46.87 - 160.00' Lt	1	EA
720 0135	IRON PIN REFERENCE MONUMENTS		
	5525+75.95 - 250.00' Lt	1	EA
	5552+31.21 - 160.00' Lt	1	EA



Right of Way Markers and Monuments
Sta 5515+00 to Sta 5535+00
Sta 5535+00 to Sta 5555+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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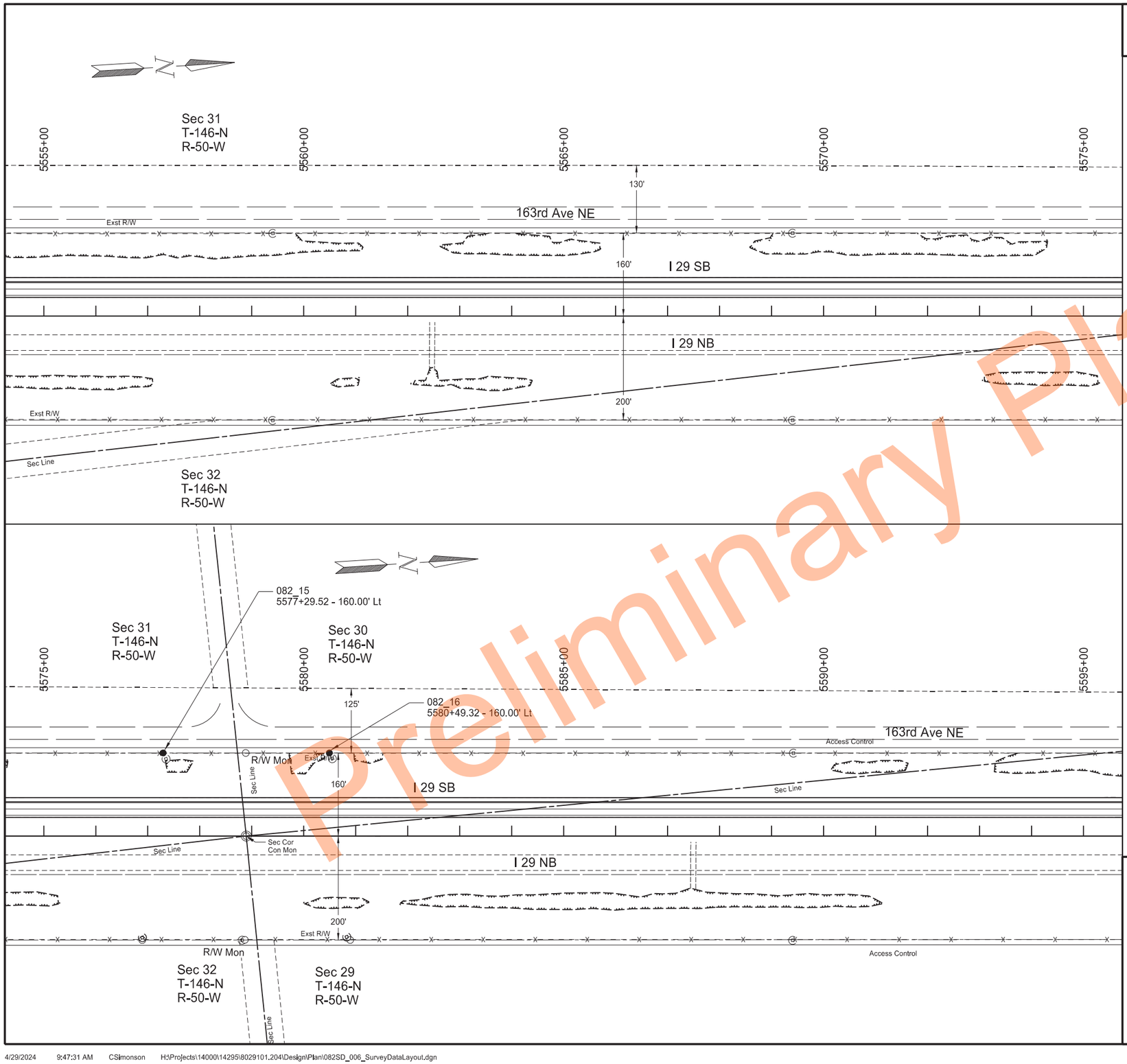
Preliminary Plans



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	6

Sheet 6 10

SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5577+29.52 - 160.00' Lt	1	EA
		5580+49.32 - 160.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5577+29.52 - 160.00' Lt	1	EA
		5580+49.32 - 160.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5555+00 to Sta 5575+00
Sta 5575+00 to Sta 5595+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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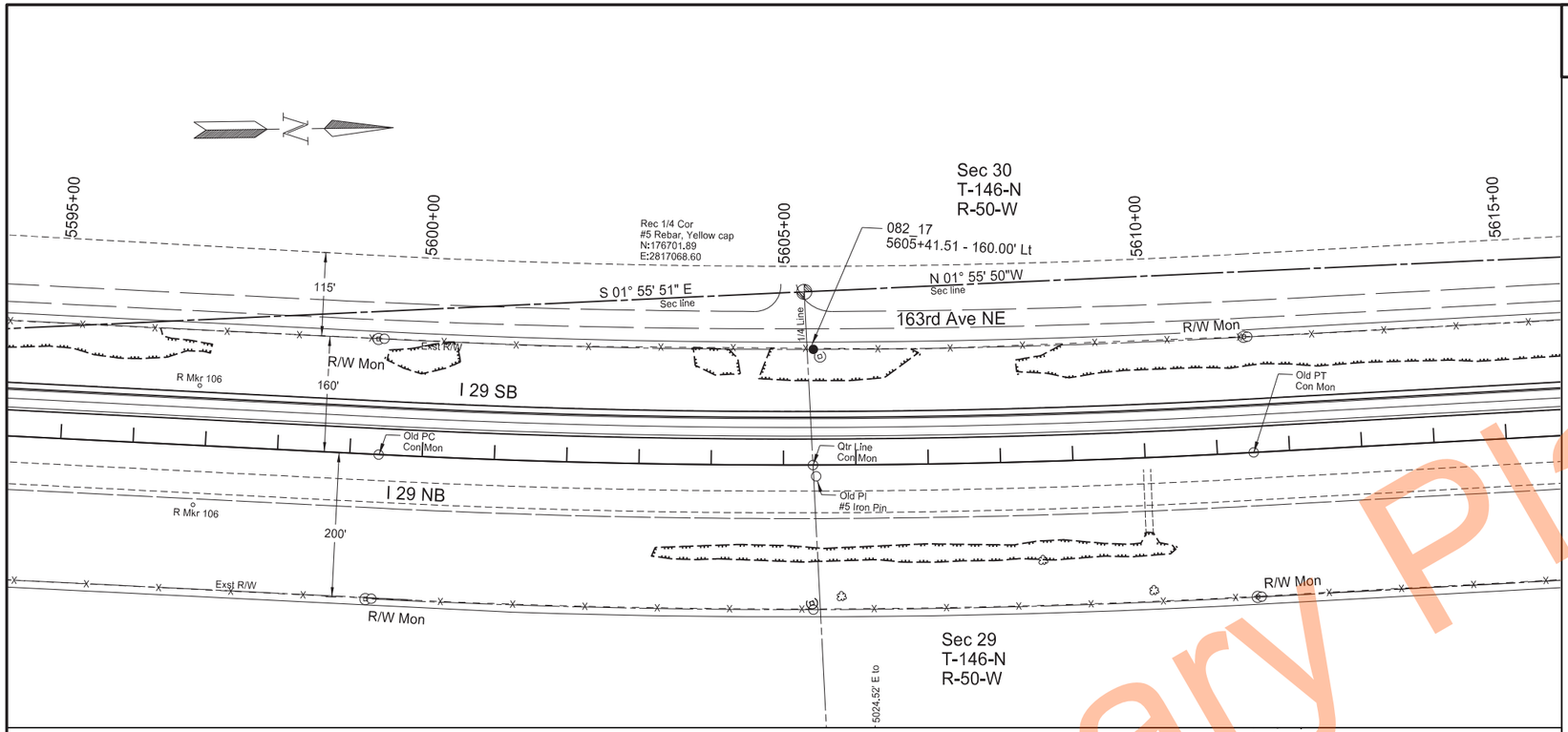
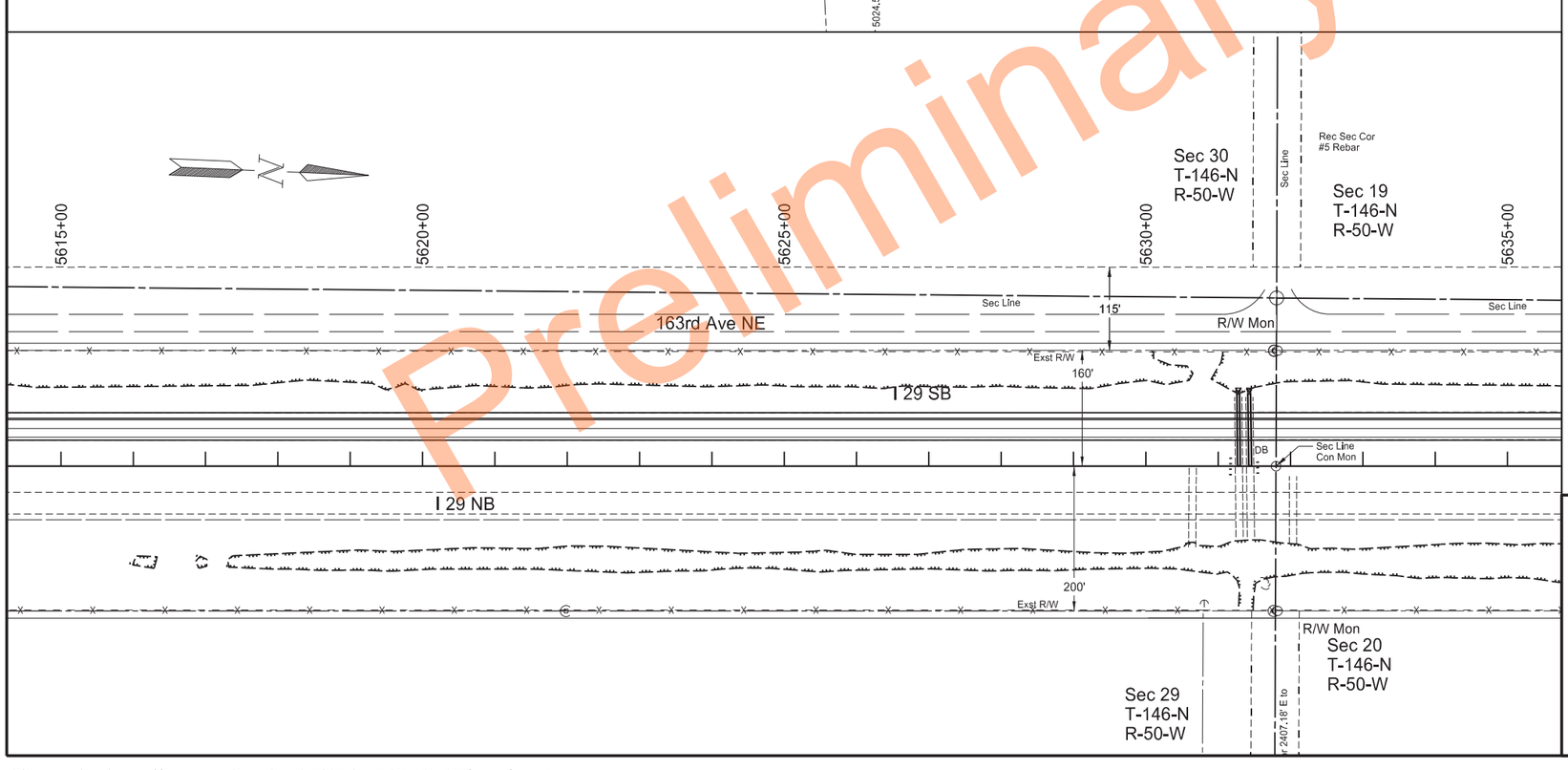
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	82	7





SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5605+41.51- 160.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5605+41.51- 160.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5595+00 to Sta 5615+00
Sta 5615+00 to Sta 5635+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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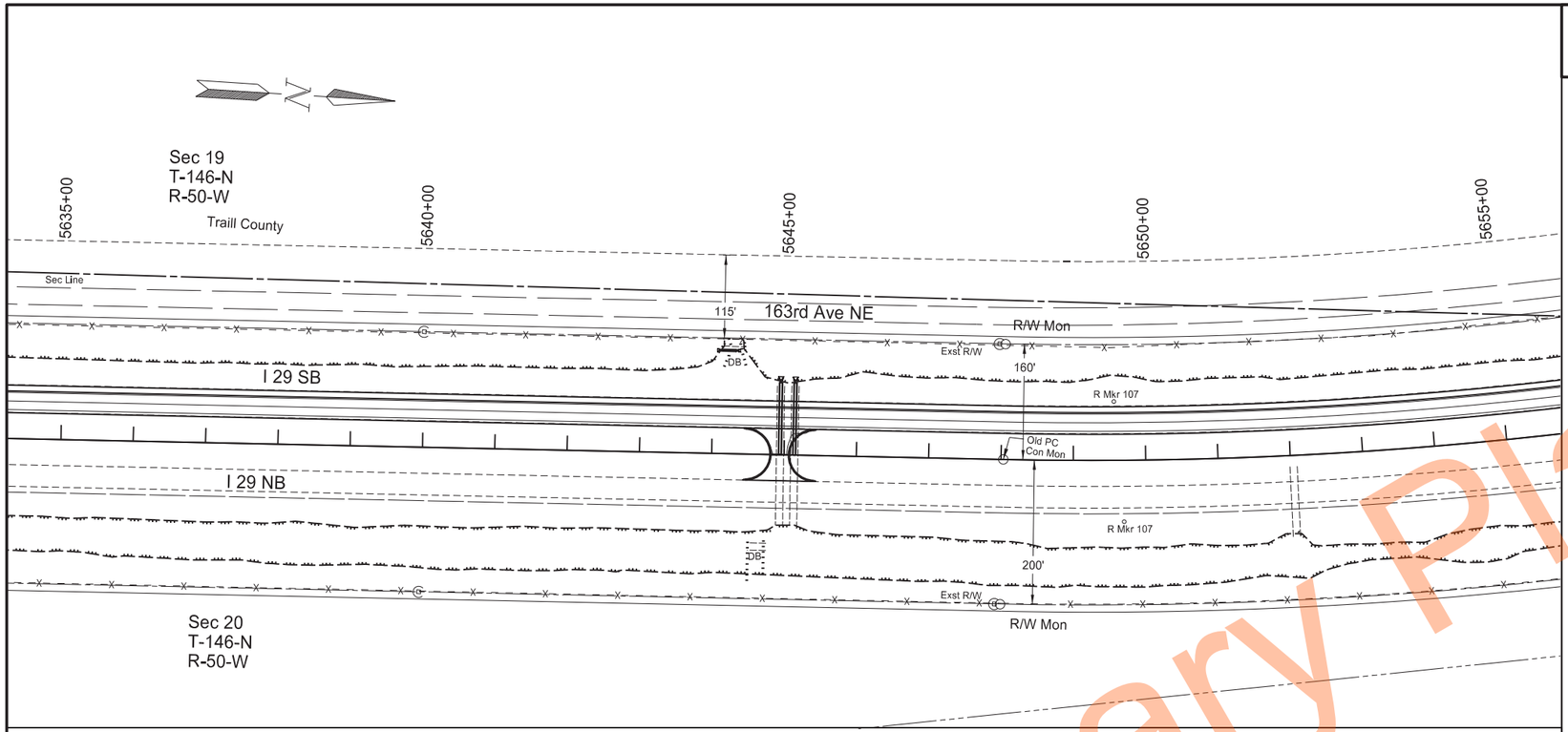
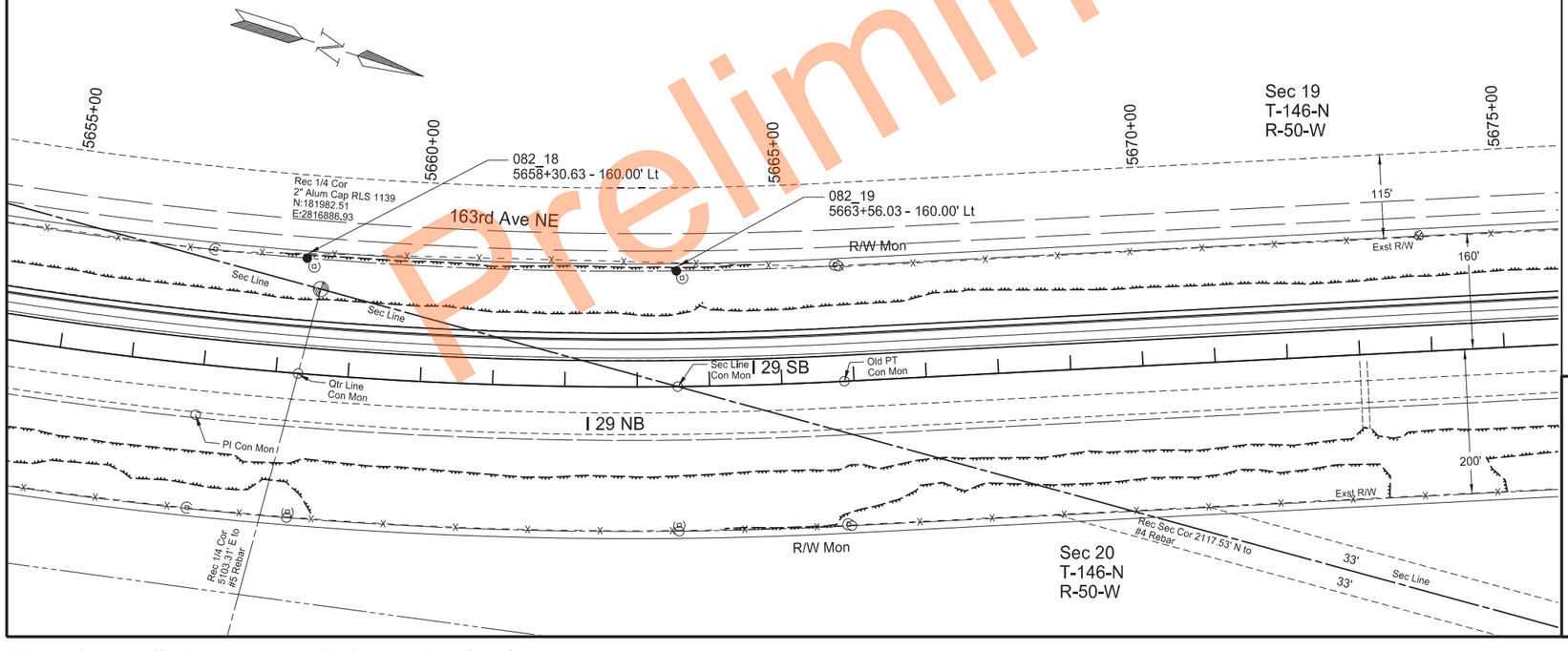
PE-10608
DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	82	8





SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5658+30.63 - 160.00' Lt	1	EA
		5663+56.03 - 160.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5658+30.63 - 160.00' Lt	1	EA
		5663+56.03 - 160.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5635+00 to Sta 5655+00
Sta 5655+00 to Sta 5675+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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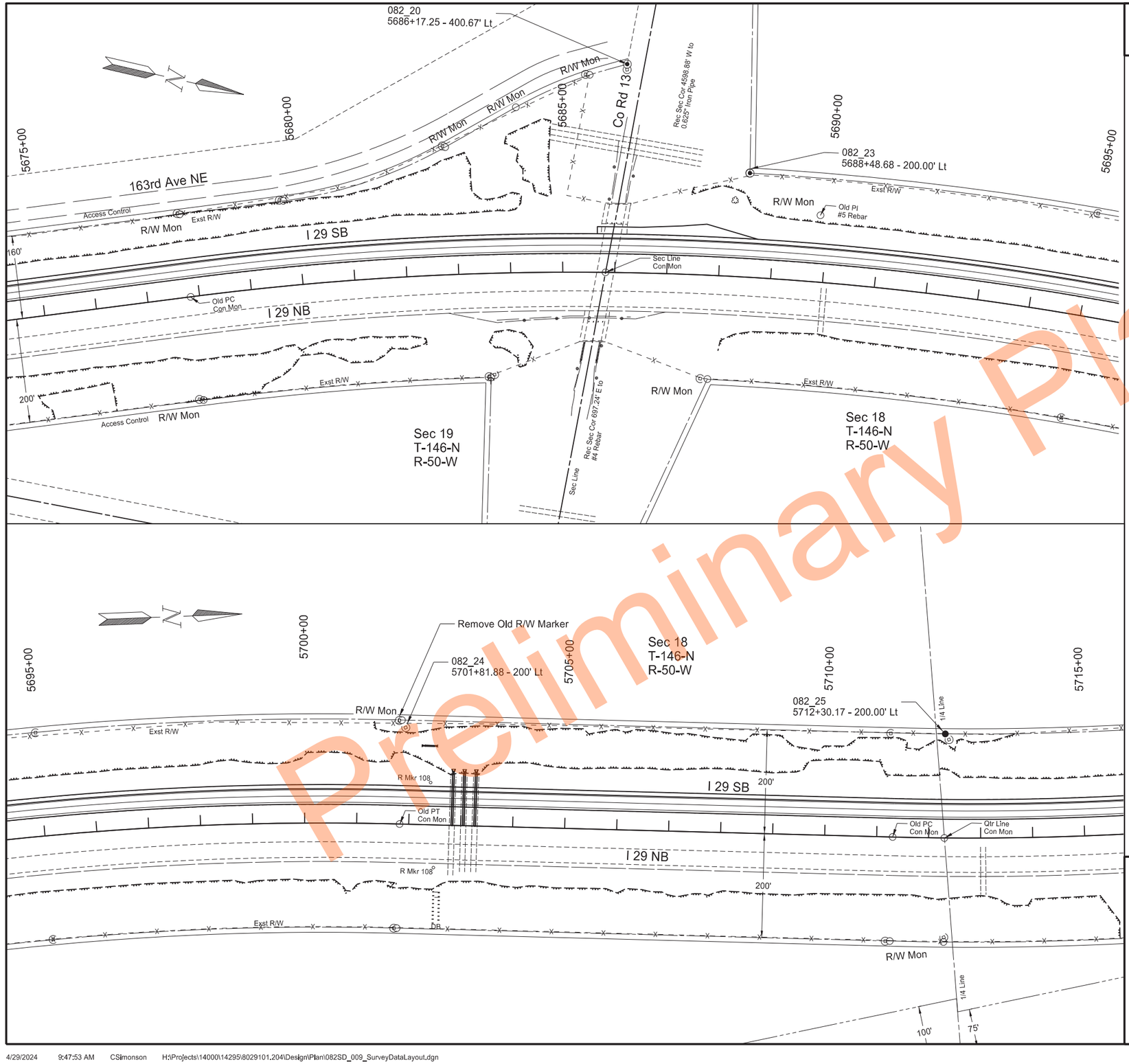
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	9

SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5686+17.25 - 400.67' Lt	1	EA
		5687+64.57 - 1028.26' Lt	1	EA
		5688+20.87 - 1019.00' Lt	1	EA
		5701+81.88 - 200.00' Lt	1	EA
		5712+30.17 - 200.00' Lt	1	EA
720	0130	IRON PIN R/W MONUMENTS		
		5686+17.25 - 400.67' Lt	1	EA
		5687+64.57 - 1028.26' Lt	1	EA
		5688+20.87 - 1019.00' Lt	1	EA
		5688+48.68 - 200.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5712+30.17 - 200.00' Lt	1	EA



Right of Way Markers and Monuments
Sta 5675+00 to Sta 5695+00
Sta 5695+00 to Sta 5715+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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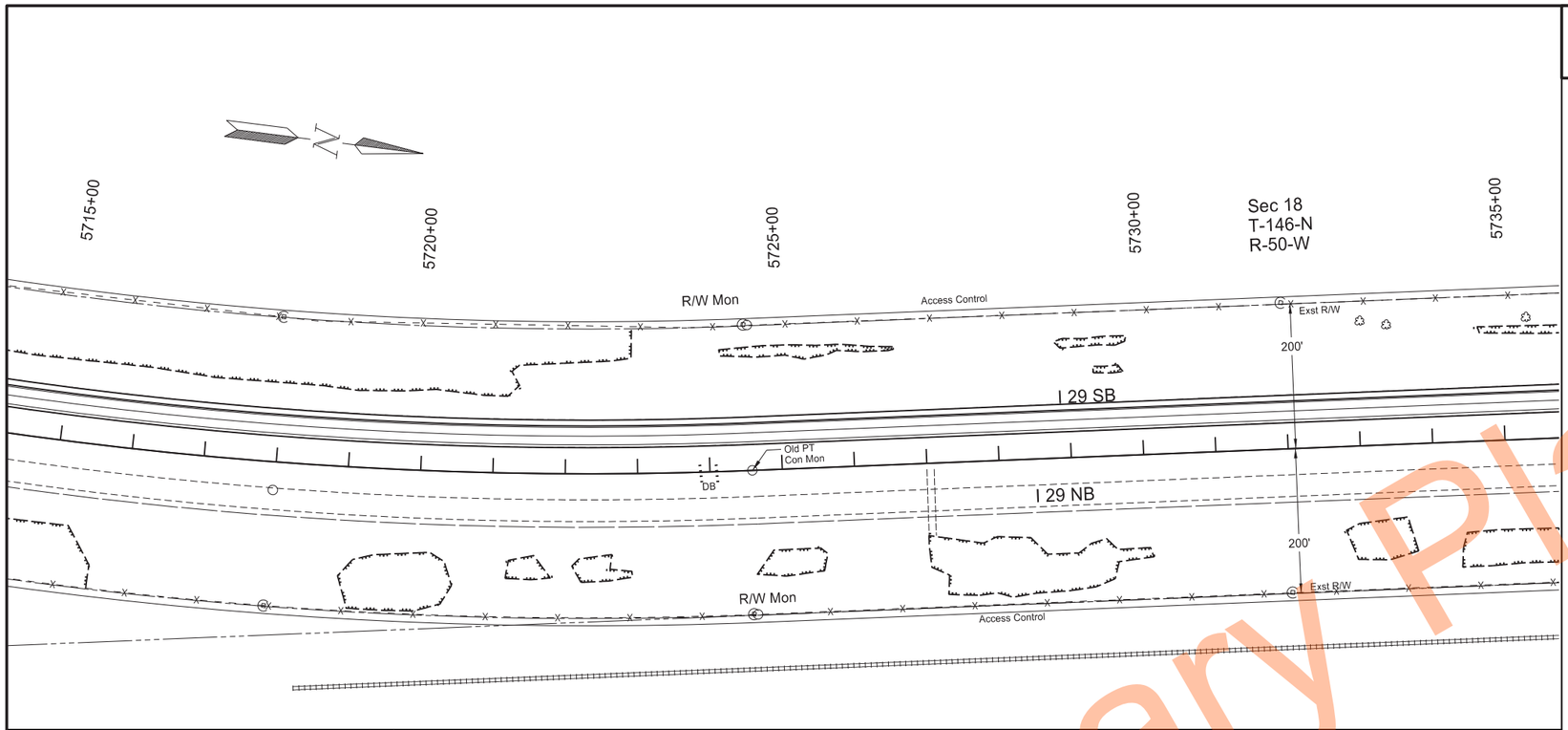
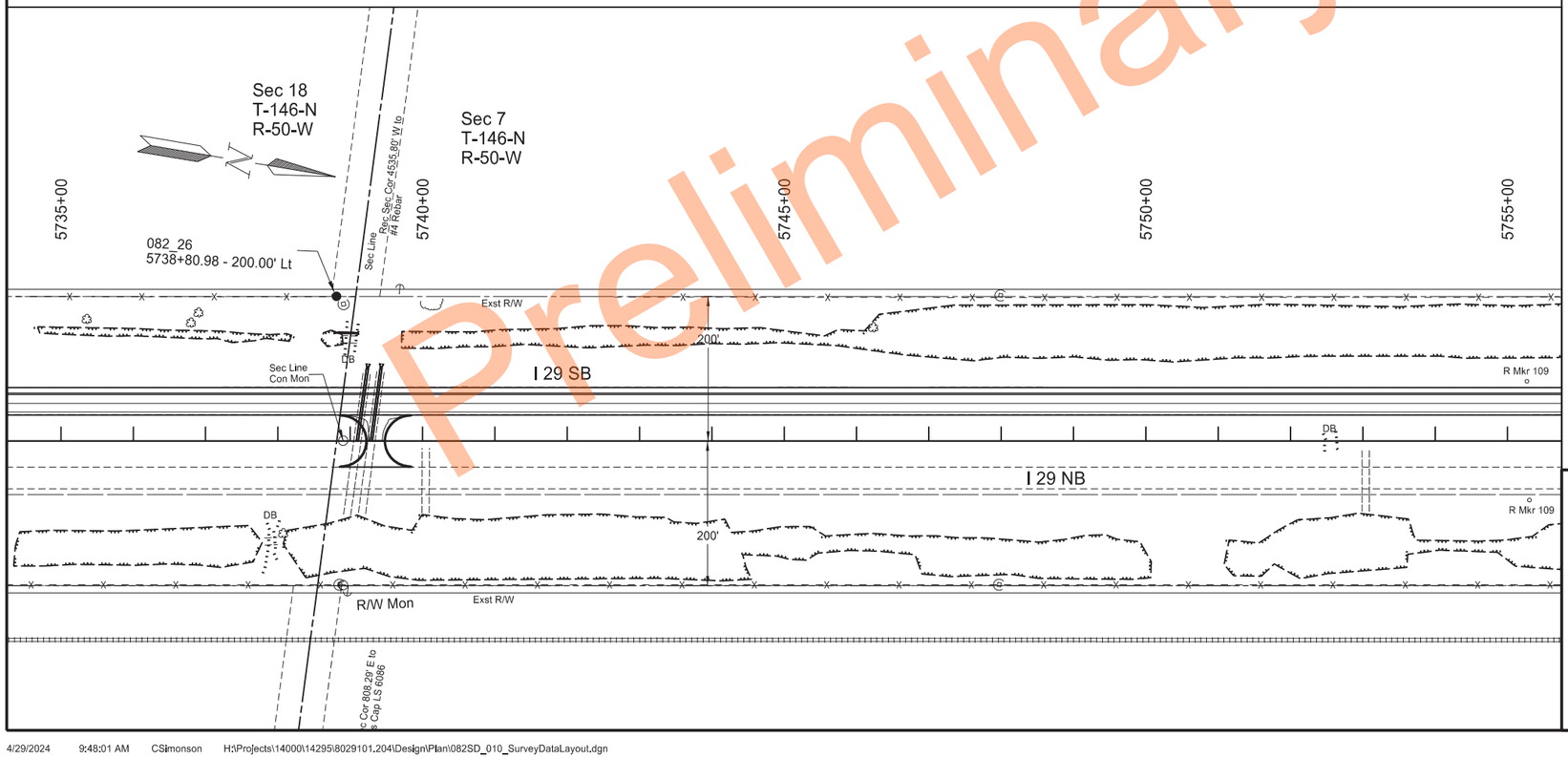
Preliminary Plans





	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	10

SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5738+80.98 - 200.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5738+80.98 - 200.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5715+00 to Sta 5735+00
Sta 5735+00 to Sta 5755+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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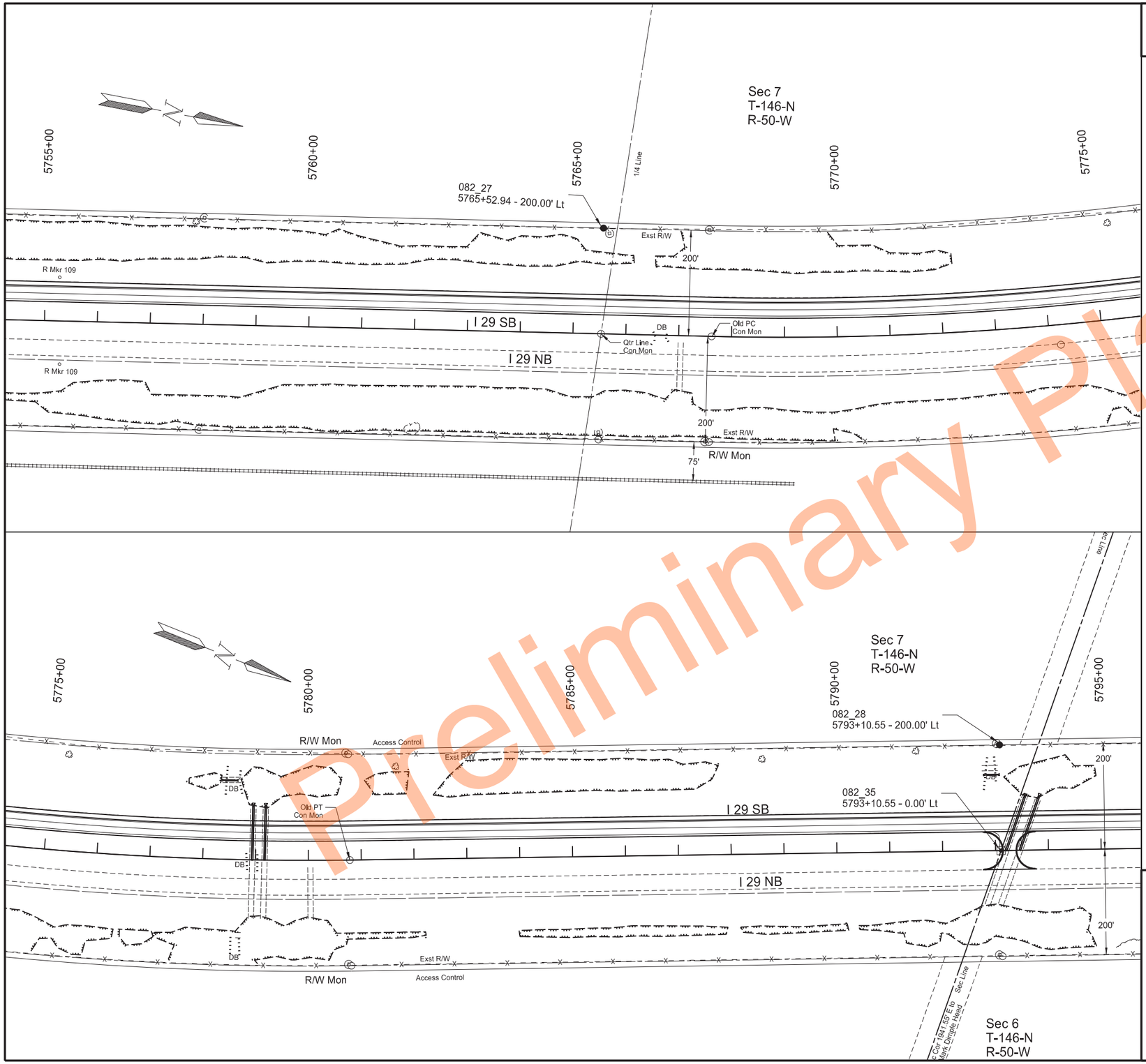
DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	82	11

SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5765+52.94 - 200.00' Lt	1	EA
720	0125	ALIGNMENT MONUMENTS		
		5793+10.55 - 0.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5765+52.94 - 200.00' Lt	1	EA
		5793+10.55 - 200.00' Lt	1	EA



Preliminary Plans

Right of Way Markers and Monuments
Sta 5755+00 to Sta 5775+00
Sta 5775+00 to Sta 5795+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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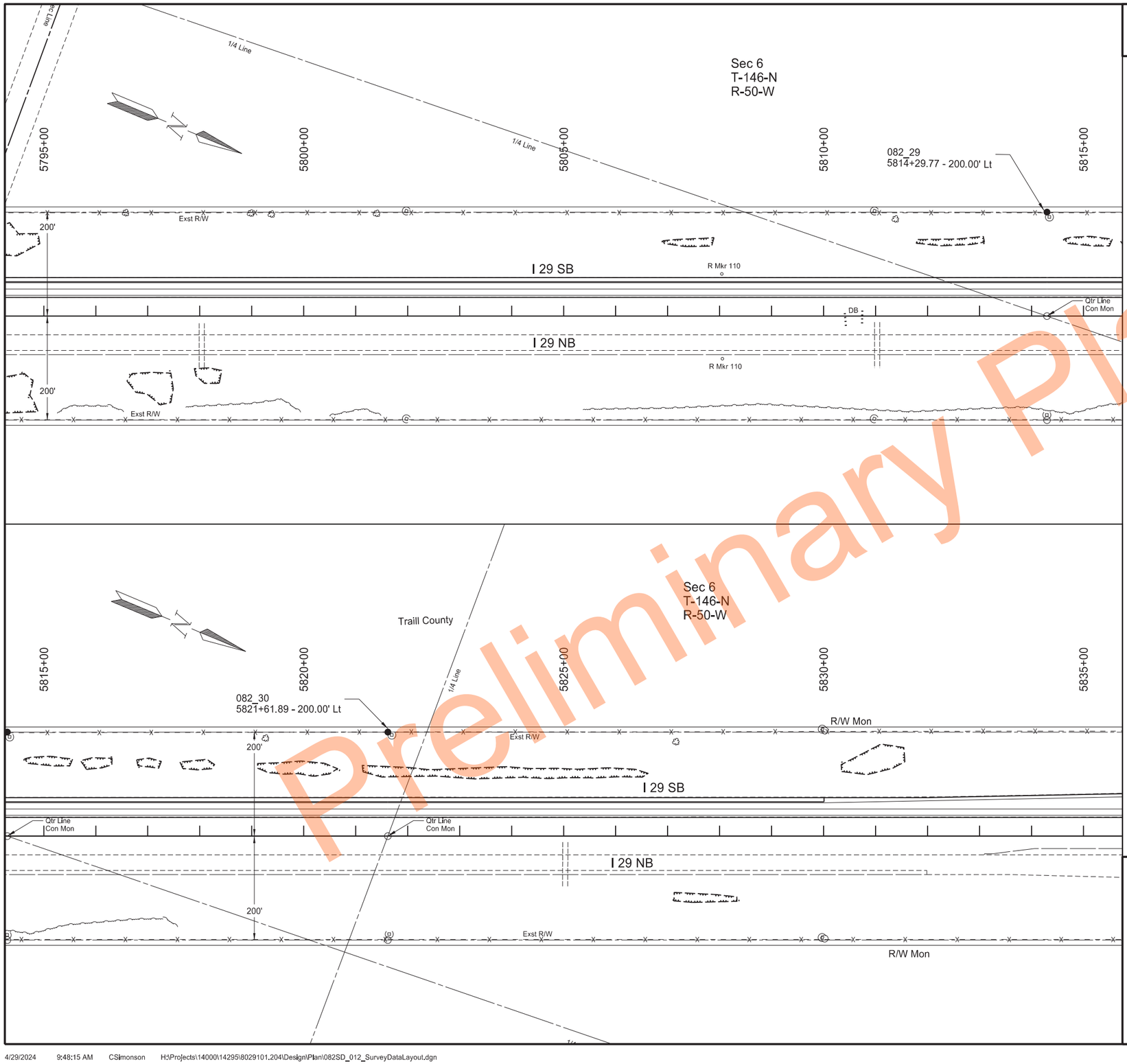
PE-10608
DATE: 6/27/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	82	12



SPEC	CODE	BID ITEM	QTY	UNIT
720	0110	RIGHT OF WAY MARKERS		
		5814+29.77 - 200.00' Lt	1	EA
		5821+61.89 - 200.00' Lt	1	EA
720	0135	IRON PIN REFERENCE MONUMENTS		
		5814+29.77 - 200.00' Lt	1	EA
		5821+61.89 - 200.00' Lt	1	EA

Right of Way Markers and Monuments
Sta 5795+00 to Sta 5815+00
Sta 5815+00 to Sta 5835+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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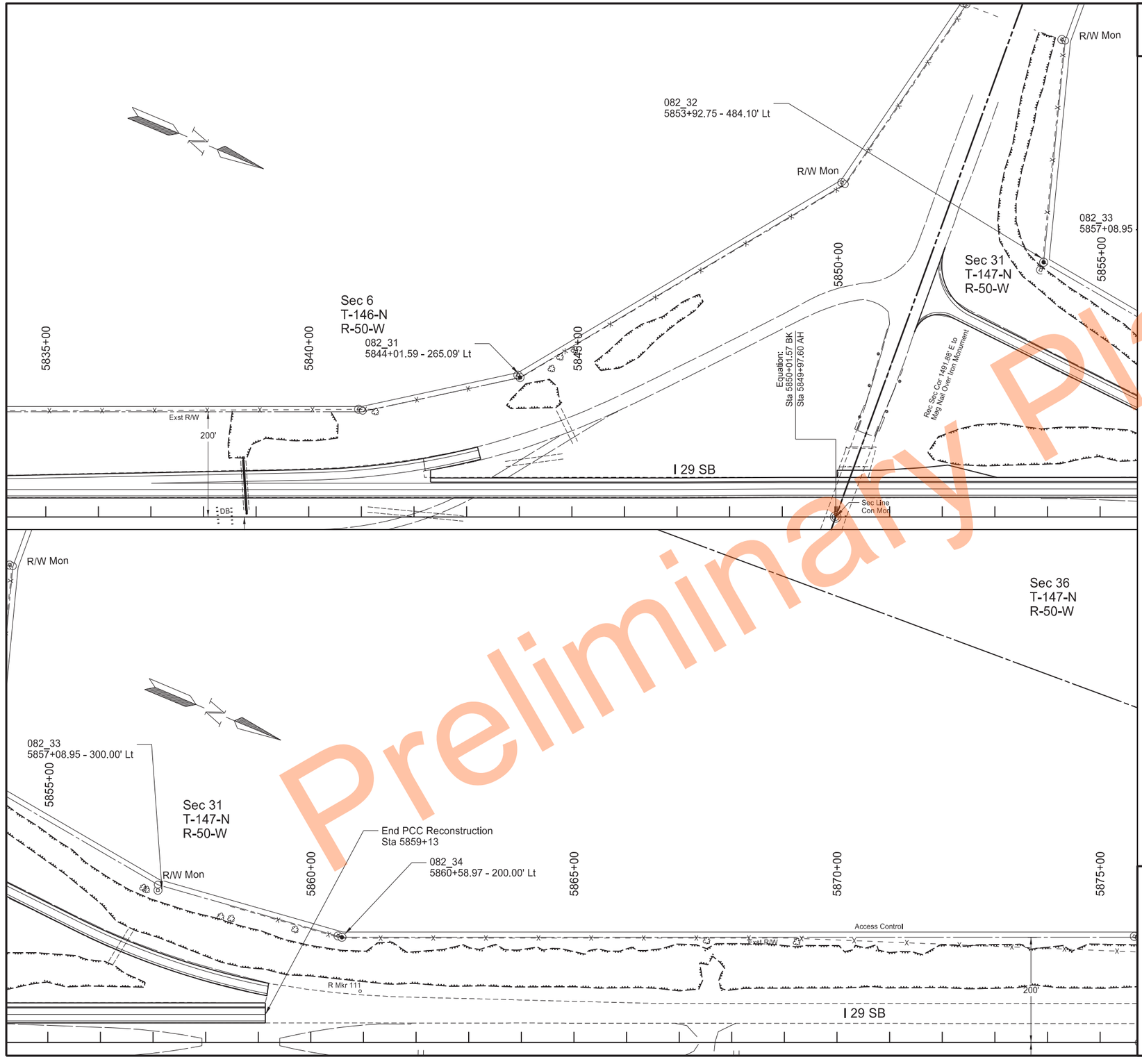
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	13

SPEC CODE	BID ITEM	QTY	UNIT
720 0110	RIGHT OF WAY MARKERS		
	5857+08.95 - 300.00' Lt	1	EA
720 0130	IRON PIN R/W MONUMENTS		
	5844+01.59 - 265.09' Lt	1	EA
	5853+92.75 - 484.10' Lt	1	EA
	5860+58.97 - 200.00' Lt	1	EA



Right of Way Markers and Monuments
Sta 5835+00 to Sta 5855+00
Sta 5855+00 to Sta 5875+00

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	14

EXISTING SW HILLSBORO TEMPORARY RAMP CONNECTION ALIGNMENT

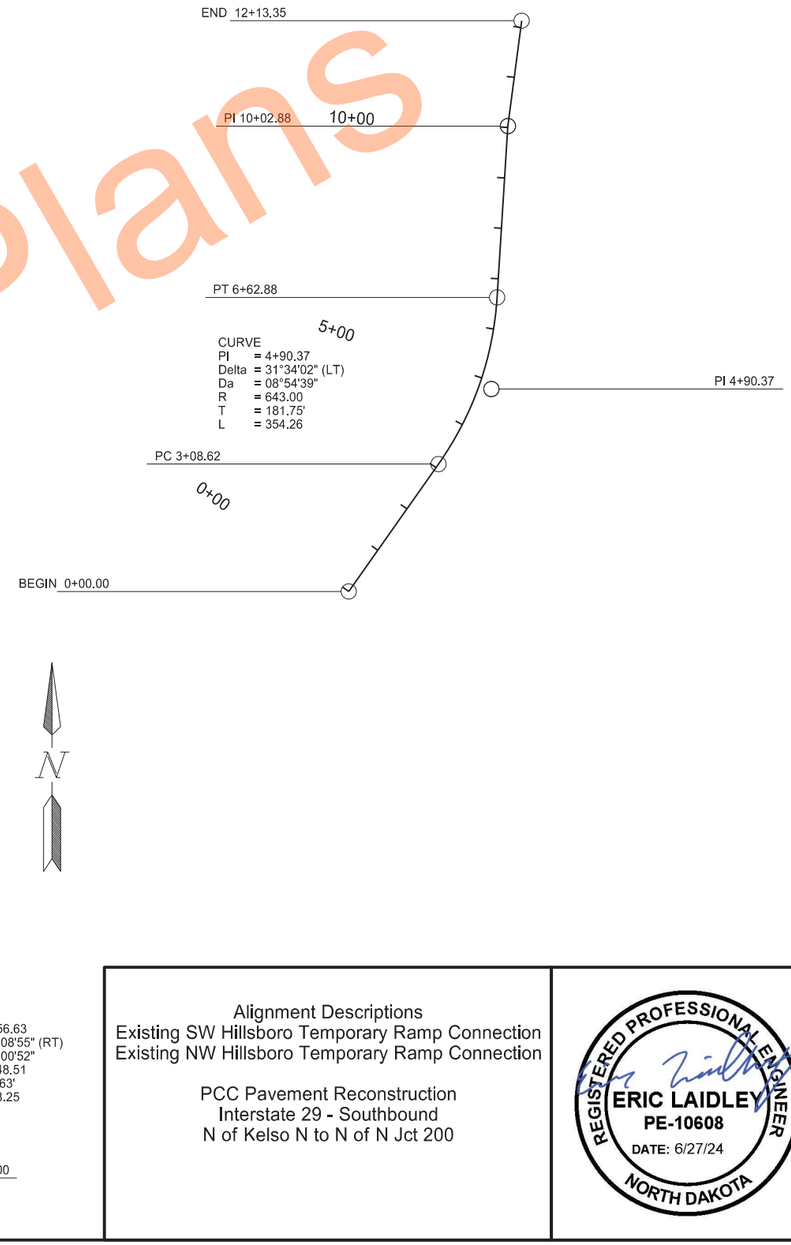
Alignment Name: Ramp_HSW_Enter
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Circular				
PC		0+00.00	164548.2	2817041.95
PI		0+56.63	164598.99	2817016.9
CC			167046.28	2822108.04
PCC		1+13.25	164650.27	2816992.88
	Radius:	5648.51		
	Delta:	01°08'55" Right		
	Degree of Curvature (Arc):	01°00'52"		
	Length:	113.25		
	Tangent:	56.63		
	Chord:	113.25		
	Middle Ordinate:	0.28		
	External:	0.28		
	Back Tangent Direction:	N26°14'52"W		
	Back Radial Direction:	N63°45'08"E		
	Chord Direction:	N25°40'24"W		
	Ahead Radial Direction:	N64°54'04"E		
	Ahead Tangent Direction:	N25°05'56"W		
Element: Circular				
PCC		1+13.25	164650.27	2816992.88
PI		4+13.53	164935.84	2816900.06
CC			166413.46	2822417.09
PRC		7+13.25	165229.58	2816837.73
	Radius:	5703.58		
	Delta:	06°01'38" Right		
	Degree of Curvature (Arc):	01°00'16"		
	Length:	600.00		
	Tangent:	300.28		
	Chord:	599.72		
	Middle Ordinate:	7.89		
	External:	7.90		
	Back Tangent Direction:	N18°00'26"W		
	Back Radial Direction:	N71°59'34"E		
	Chord Direction:	N14°59'37"W		
	Ahead Radial Direction:	N78°01'12"E		
	Ahead Tangent Direction:	N11°58'48"W		
Element: Circular				
PRC		7+13.25	165229.58	2816837.73
PI		8+80.06	165392.75	2816803.1
CC			165096.11	2816208.73
PT		10+39.67	165518.52	2816693.52
	Radius:	643.00		
	Delta:	29°05'12" Left		
	Degree of Curvature (Arc):	08°54'39"		
	Length:	326.42		
	Tangent:	166.81		
	Chord:	322.93		
	Middle Ordinate:	20.60		
	External:	21.28		
	Back Tangent Direction:	N11°58'48"W		
	Back Radial Direction:	N78°01'12"E		
	Chord Direction:	N26°31'24"W		
	Ahead Radial Direction:	N48°56'00"E		
	Ahead Tangent Direction:	N41°04'00"W		
Element: Linear				
PT		10+39.67	165518.52	2816693.52
END		13+55.27	165756.46	2816486.19
	Tangential Direction:	N41°04'00"W		
	Tangential Length:	315.60		

EXISTING NW HILLSBORO TEMPORARY RAMP CONNECTION ALIGNMENT

Alignment Name: Ramp_HNW_Exit
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Linear				
START		0+00.00	166463.37	2816448.15
PC		3+08.62	166715.66	2816625.91
	Tangential Direction:	N35°10'02"E		
	Tangential Length:	308.62		
Element: Circular				
PC		3+08.62	166715.66	2816625.91
PI		4+90.37	166864.24	2816730.59
CC			167086	2816100.27
PT		6+62.88	167045.63	2816742
	Radius:	643.00		
	Delta:	31°34'02" Left		
	Degree of Curvature (Arc):	08°54'39"		
	Length:	354.26		
	Tangent:	181.75		
	Chord:	349.80		
	Middle Ordinate:	24.24		
	External:	25.19		
	Back Tangent Direction:	N35°10'02"E		
	Back Radial Direction:	S54°49'58"E		
	Chord Direction:	N19°23'01"E		
	Ahead Radial Direction:	S86°24'00"E		
	Ahead Tangent Direction:	N03°36'00"E		
Element: Linear				
PT		6+62.88	167045.63	2816742
PI		10+02.88	167384.96	2816763.35
	Tangential Direction:	N03°36'00"E		
	Tangential Length:	340.00		
Element: Linear				
PI		10+02.88	167384.96	2816763.35
END		12+13.35	167593.66	2816790.51
	Tangential Direction:	N07°24'51"E		
	Tangential Length:	210.47		



Alignment Descriptions
Existing SW Hillsboro Temporary Ramp Connection
Existing NW Hillsboro Temporary Ramp Connection

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

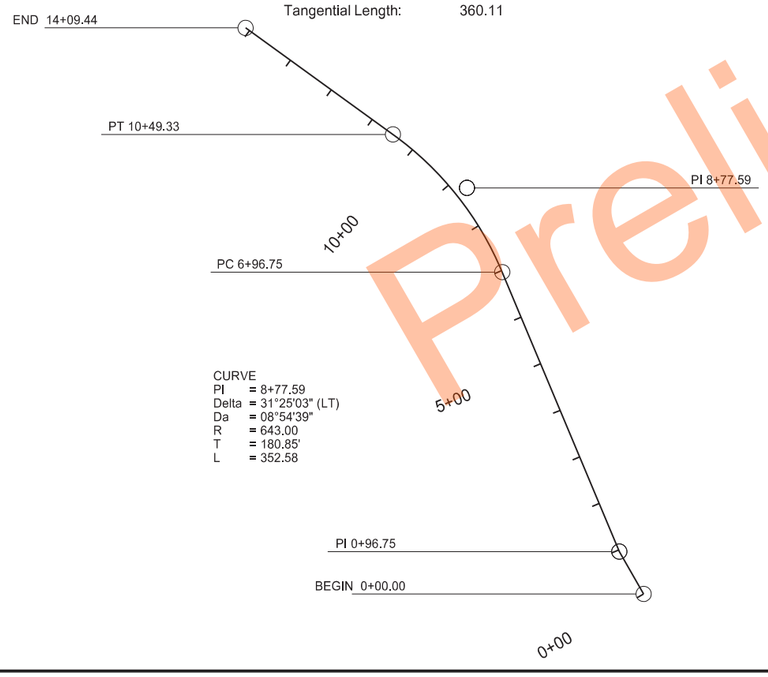
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	15

EXISTING SW MAYVILLE TEMPORARY RAMP CONNECTION ALIGNMENT

Alignment Name: Ramp_MSW_Enter
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

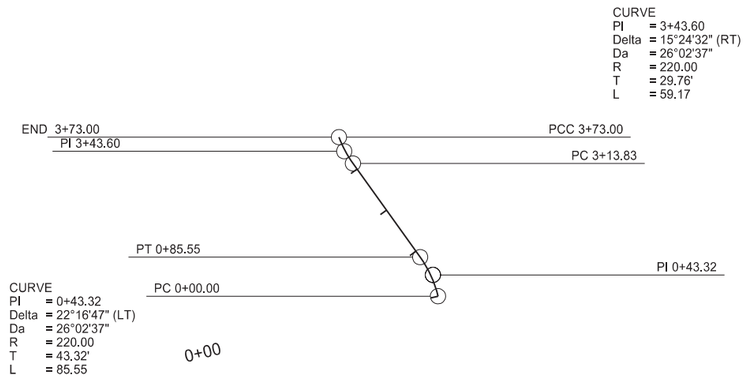
		Station	Northing	Easting
Element: Linear				
START		0+00.00	198805.21	2812964.97
PI		0+96.75	198889.12	2812916.81
	Tangential Direction:	N29°51'20"W		
	Tangential Length:	96.75		
Element: Linear				
PI		0+96.75	198889.12	2812916.81
PC		6+96.75	199442.52	2812684.97
	Tangential Direction:	N22°43'49"W		
	Tangential Length:	600.00		
Element: Circular				
PC		6+96.75	199442.52	2812684.97
PI		8+77.59	199609.31	2812615.09
CC			199194.06	2812091.91
PT		10+49.33	199715.23	2812468.51
	Radius:	643.00		
	Delta:	31°25'03" Left		
	Degree of Curvature (Arc):	08°54'39"		
	Length:	352.58		
	Tangent:	180.85		
	Chord:	348.18		
	Middle Ordinate:	24.02		
	External:	24.95		
	Back Tangent Direction:	N22°43'49"W		
	Back Radial Direction:	N67°16'11"E		
	Chord Direction:	N38°26'21"W		
	Ahead Radial Direction:	N35°51'07"E		
	Ahead Tangent Direction:	N54°08'53"W		
Element: Linear				
PT		10+49.33	199715.23	2812468.51
END		14+09.44	199926.15	2812176.63
	Tangential Direction:	N54°08'53"W		
	Tangential Length:	360.11		



SW HILLSBORO TEMPORARY RAMP CONNECTION DETOUR ALIGNMENT

Alignment Name: HSW_Detour
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Circular				
PC		0+00.00	165093.92	2816868.25
PI		0+43.32	165136.07	2816858.22
CC			165043.02	2816654.21
PT		0+85.55	165171.26	2816832.97
	Radius:	220.00		
	Delta:	22°16'47" Left		
	Degree of Curvature (Arc):	26°02'37"		
	Length:	85.55		
	Tangent:	43.32		
	Chord:	85.01		
	Middle Ordinate:	4.15		
	External:	4.22		
	Back Tangent Direction:	N13°22'36"W		
	Back Radial Direction:	N76°37'24"E		
	Chord Direction:	N24°31'00"W		
	Ahead Radial Direction:	N54°20'37"E		
	Ahead Tangent Direction:	N35°39'23"W		
Element: Linear				
PT		0+85.55	165171.26	2816832.97
PC		3+13.83	165356.75	2816699.9
	Tangential Direction:	N35°39'23"W		
	Tangential Length:	228.28		
Element: Circular				
PC		3+13.83	165356.75	2816699.9
PI		3+43.60	165380.93	2816682.55
CC			165485	2816878.65
PT		3+73.00	165408.86	2816672.25
	Radius:	220.00		
	Delta:	15°24'32" Right		
	Degree of Curvature (Arc):	26°02'37"		
	Length:	59.17		
	Tangent:	29.76		
	Chord:	58.99		
	Middle Ordinate:	1.99		
	External:	2.00		
	Back Tangent Direction:	N35°39'23"W		
	Back Radial Direction:	N54°20'37"E		
	Chord Direction:	N27°57'07"W		
	Ahead Radial Direction:	N69°45'09"E		
	Ahead Tangent Direction:	N20°14'51"W		



Alignment Descriptions
Existing SW Mayville Temporary Ramp Connection
SW Hillsboro Temporary Ramp Connection Detour

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	16

NW HILLSBORO TEMPORARY RAMP CONNECTION DETOUR ALIGNMENT

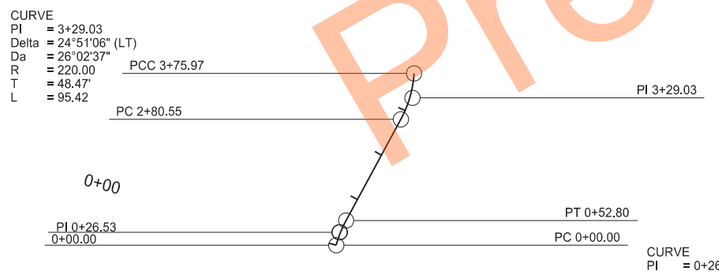
Alignment Name: HNW_Detour
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

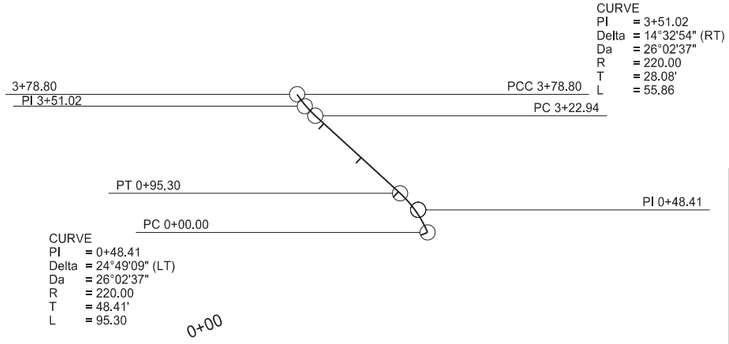
		Station	Northing	Easting
Element: Circular				
PC		0+00.00	166819.53	2816595.17
PI		0+26.53	166845.19	2816601.9
CC			166763.7	2816807.97
PT		0+52.80	166868.51	2816614.54
	Radius:	220.00		
	Delta:	13°45'04" Right		
	Degree of Curvature (Arc):	26°02'37"		
	Length:	52.80		
	Tangent:	26.53		
	Chord:	52.67		
	Middle Ordinate:	1.58		
	External:	1.59		
	Back Tangent Direction:	N14°42'02"E		
	Back Radial Direction:	S75°17'58"E		
	Chord Direction:	N21°34'34"E		
	Ahead Radial Direction:	S61°32'54"E		
	Ahead Tangent Direction:	N28°27'06"E		
Element: Linear				
PT		0+52.80	166868.51	2816614.54
PC		2+80.55	167068.75	2816723.05
	Tangential Direction:	N28°27'06"E		
	Tangential Length:	227.75		
Element: Circular				
PC		2+80.55	167068.75	2816723.05
PI		3+29.03	167111.37	2816746.14
CC			167173.56	2816529.62
PT		3+75.97	167159.75	2816749.18
	Radius:	220.00		
	Delta:	24°51'06" Left		
	Degree of Curvature (Arc):	26°02'37"		
	Length:	95.42		
	Tangent:	48.47		
	Chord:	94.68		
	Middle Ordinate:	5.15		
	External:	5.28		
	Back Tangent Direction:	N28°27'06"E		
	Back Radial Direction:	S61°32'54"E		
	Chord Direction:	N16°01'33"E		
	Ahead Radial Direction:	S86°24'00"E		
	Ahead Tangent Direction:	N03°36'00"E		

SW MAYVILLE TEMPORARY RAMP CONNECTION DETOUR ALIGNMENT

Alignment Name: MSW_Detour
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Circular				
PC		0+00.00	199322.86	2812735.1
PI		0+48.41	199367.51	2812716.39
CC			199237.86	2812532.18
PT		0+95.30	199400.19	2812680.67
	Radius:	220.00		
	Delta:	24°49'09" Left		
	Degree of Curvature (Arc):	26°02'37"		
	Length:	95.30		
	Tangent:	48.41		
	Chord:	94.56		
	Middle Ordinate:	5.14		
	External:	5.26		
	Back Tangent Direction:	N22°43'49"W		
	Back Radial Direction:	N67°16'11"E		
	Chord Direction:	N35°08'24"W		
	Ahead Radial Direction:	N42°27'01"E		
	Ahead Tangent Direction:	N47°32'59"W		
Element: Linear				
PT		0+95.30	199400.19	2812680.67
PC		3+22.94	199553.83	2812512.7
	Tangential Direction:	N47°32'59"W		
	Tangential Length:	227.64		
Element: Circular				
PC		3+22.94	199553.83	2812512.7
PI		3+51.02	199572.79	2812491.98
CC			199716.16	2812661.19
PT		3+78.80	199596.34	2812476.69
	Radius:	220.00		
	Delta:	14°32'54" Right		
	Degree of Curvature (Arc):	26°02'37"		
	Length:	55.86		
	Tangent:	28.08		
	Chord:	55.71		
	Middle Ordinate:	1.77		
	External:	1.78		
	Back Tangent Direction:	N47°32'59"W		
	Back Radial Direction:	N42°27'01"E		
	Chord Direction:	N40°16'32"W		
	Ahead Radial Direction:	N56°59'55"E		
	Ahead Tangent Direction:	N33°00'05"W		





Alignment Descriptions
NW Hillsboro Temporary Ramp Connection Detour
SW Mayville Temporary Ramp Connection Detour

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	17

SW HILLSBORO RAMP ALIGNMENT

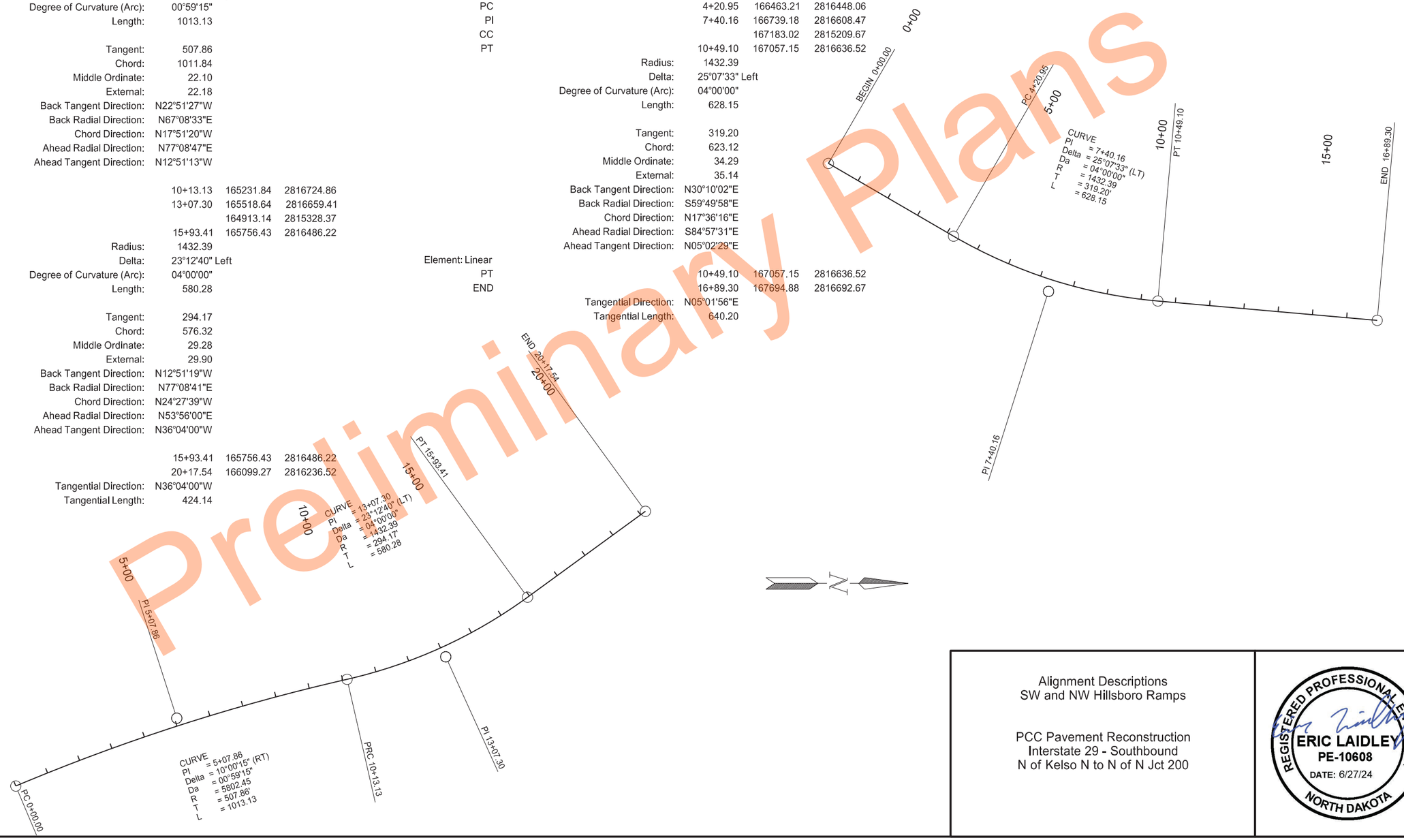
Alignment Name: Ramp_104_SW
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Circular				
PC		0+00.00	164268.73	2817035.11
PI		5+07.86	164736.71	2816837.83
CC			166522.65	2822381.91
PRC		10+13.13	165231.84	2816724.86
	Radius:	5802.45		
	Delta:	10°00'15" Right		
	Degree of Curvature (Arc):	00°59'15"		
	Length:	1013.13		
	Tangent:	507.86		
	Chord:	1011.84		
	Middle Ordinate:	22.10		
	External:	22.18		
	Back Tangent Direction:	N22°51'27"W		
	Back Radial Direction:	N67°08'33"E		
	Chord Direction:	N17°51'20"W		
	Ahead Radial Direction:	N77°08'47"E		
	Ahead Tangent Direction:	N12°51'13"W		
Element: Circular				
PRC		10+13.13	165231.84	2816724.86
PI		13+07.30	165518.64	2816659.41
CC			164913.14	2815328.37
PT		15+93.41	165756.43	2816486.22
	Radius:	1432.39		
	Delta:	23°12'40" Left		
	Degree of Curvature (Arc):	04°00'00"		
	Length:	580.28		
	Tangent:	294.17		
	Chord:	576.32		
	Middle Ordinate:	29.28		
	External:	29.90		
	Back Tangent Direction:	N12°51'19"W		
	Back Radial Direction:	N77°08'41"E		
	Chord Direction:	N24°27'39"W		
	Ahead Radial Direction:	N53°56'00"E		
	Ahead Tangent Direction:	N36°04'00"W		
Element: Linear				
PT		15+93.41	165756.43	2816486.22
END		20+17.54	166099.27	2816236.52
	Tangential Direction:	N36°04'00"W		
	Tangential Length:	424.14		

NW HILLSBORO RAMP ALIGNMENT

Alignment Name: Ramp_104_NW
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Linear				
START		0+00.00	166099.27	2816236.52
PC		4+20.95	166463.21	2816448.06
	Tangential Direction:	N30°10'02"E		
	Tangential Length:	420.95		
Element: Circular				
PC		4+20.95	166463.21	2816448.06
PI		7+40.16	166739.18	2816608.47
CC			167183.02	2815209.67
PT		10+49.10	167057.15	2816636.52
	Radius:	1432.39		
	Delta:	25°07'33" Left		
	Degree of Curvature (Arc):	04°00'00"		
	Length:	628.15		
	Tangent:	319.20		
	Chord:	623.12		
	Middle Ordinate:	34.29		
	External:	35.14		
	Back Tangent Direction:	N30°10'02"E		
	Back Radial Direction:	S59°49'58"E		
	Chord Direction:	N17°36'16"E		
	Ahead Radial Direction:	S84°57'31"E		
	Ahead Tangent Direction:	N05°02'29"E		
Element: Linear				
PT		10+49.10	167057.15	2816636.52
END		16+89.30	167694.88	2816692.67
	Tangential Direction:	N05°01'56"E		
	Tangential Length:	640.20		



Preliminary Plans

Alignment Descriptions
SW and NW Hillsboro Ramps

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	18

SW MAYVILLE RAMP ALIGNMENT

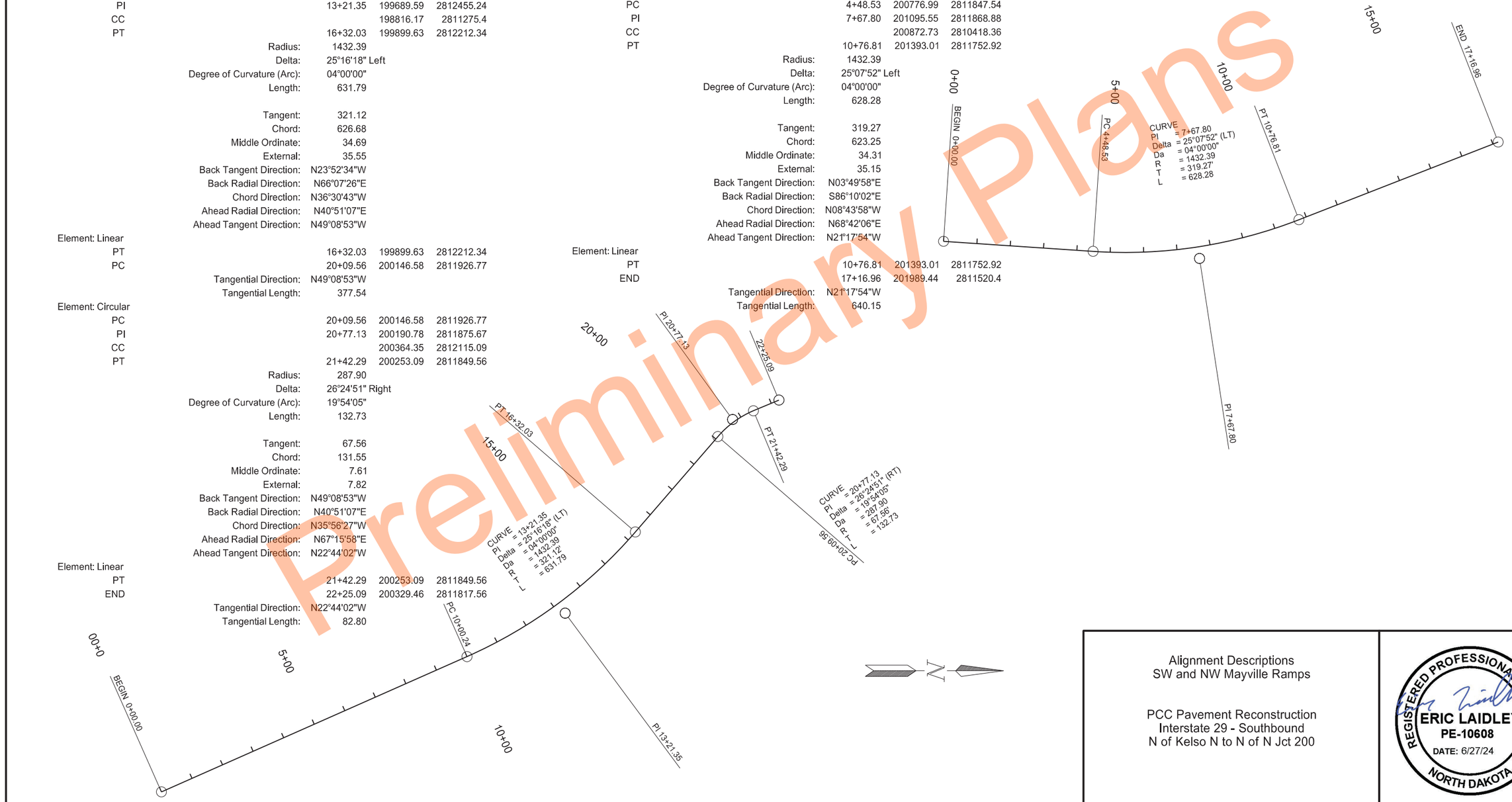
Alignment Name: Ramp 111_SW
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Linear				
START		0+00.00	198481.31	2812990.07
PC		10+00.24	199395.95	2812585.21
	Tangential Direction:	N23°52'34"W		
	Tangential Length:	1000.24		
Element: Circular				
PC		10+00.24	199395.95	2812585.21
PI		13+21.35	199689.59	2812455.24
CC			198816.17	2811275.4
PT		16+32.03	199899.63	2812212.34
	Radius:	1432.39		
	Delta:	25°16'18" Left		
	Degree of Curvature (Arc):	04°00'00"		
	Length:	631.79		
	Tangent:	321.12		
	Chord:	626.68		
	Middle Ordinate:	34.69		
	External:	35.55		
	Back Tangent Direction:	N23°52'34"W		
	Back Radial Direction:	N66°07'26"E		
	Chord Direction:	N36°30'43"W		
	Ahead Radial Direction:	N40°51'07"E		
	Ahead Tangent Direction:	N49°08'53"W		
Element: Linear				
PT		16+32.03	199899.63	2812212.34
PC		20+09.56	200146.58	2811926.77
	Tangential Direction:	N49°08'53"W		
	Tangential Length:	377.54		
Element: Circular				
PC		20+09.56	200146.58	2811926.77
PI		20+77.13	200190.78	2811875.67
CC			200364.35	2812115.09
PT		21+42.29	200253.09	2811849.56
	Radius:	287.90		
	Delta:	26°24'51" Right		
	Degree of Curvature (Arc):	19°54'05"		
	Length:	132.73		
	Tangent:	67.56		
	Chord:	131.55		
	Middle Ordinate:	7.61		
	External:	7.82		
	Back Tangent Direction:	N49°08'53"W		
	Back Radial Direction:	N40°51'07"E		
	Chord Direction:	N35°56'27"W		
	Ahead Radial Direction:	N67°15'58"E		
	Ahead Tangent Direction:	N22°44'02"W		
Element: Linear				
PT		21+42.29	200253.09	2811849.56
END		22+25.09	200329.46	2811817.56
	Tangential Direction:	N22°44'02"W		
	Tangential Length:	82.80		

NW MAYVILLE RAMP ALIGNMENT

Alignment Name: Ramp 111_NW
Alignment Description:
Alignment Style: Alignment\Horizontal\Large

		Station	Northing	Easting
Element: Linear				
START		0+00.00	200329.46	2811817.56
PC		4+48.53	200776.99	2811847.54
	Tangential Direction:	N03°49'58"E		
	Tangential Length:	448.53		
Element: Circular				
PC		4+48.53	200776.99	2811847.54
PI		7+67.80	201095.55	2811868.88
CC			200872.73	2810418.36
PT		10+76.81	201393.01	2811752.92
	Radius:	1432.39		
	Delta:	25°07'52" Left		
	Degree of Curvature (Arc):	04°00'00"		
	Length:	628.28		
	Tangent:	319.27		
	Chord:	623.25		
	Middle Ordinate:	34.31		
	External:	35.15		
	Back Tangent Direction:	N03°49'58"E		
	Back Radial Direction:	S86°10'02"E		
	Chord Direction:	N08°43'58"W		
	Ahead Radial Direction:	N68°42'06"E		
	Ahead Tangent Direction:	N21°17'54"W		
Element: Linear				
PT		10+76.81	201393.01	2811752.92
END		17+16.96	201989.44	2811520.4
	Tangential Direction:	N21°17'54"W		
	Tangential Length:	640.15		



Preliminary Plans

Alignment Descriptions
SW and NW Mayville Ramps

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

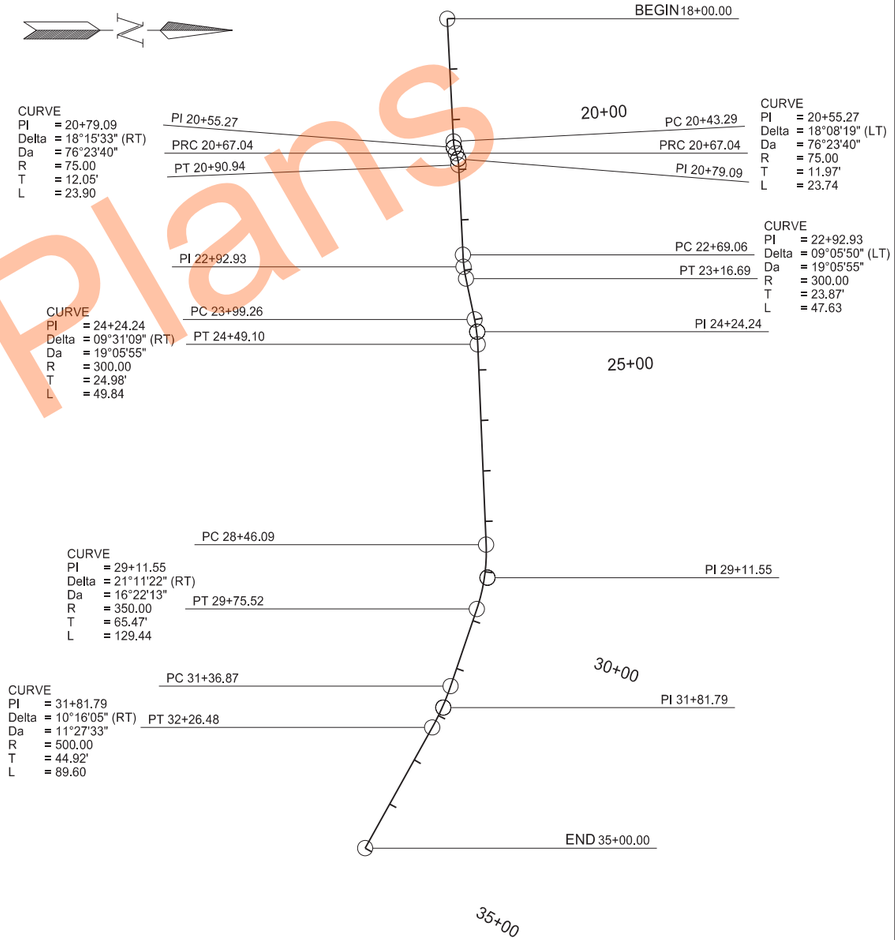
REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

SHARED USE PATH ALIGNMENT

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	19

Alignment Name: PRPATH
Alignment Description:
Alignment Style: Alignment\Horizontal\Small Scale\Alignment

		Station	Northing	Easting
Element: Linear				
START		18+00.00 R1	166113.31	2815885.19
PC		20+43.29 R1	166125.76	2816128.16
	Tangential Direction:	N87°04'02"E		
	Tangential Length:	243.29		
Element: Circular				
PC		20+43.29 R1	166125.76	2816128.16
PI		20+55.27 R1	166126.37	2816140.12
CC			166200.66	2816124.33
PRC		20+67.04 R1	166130.68	2816151.29
	Radius:	75.00		
	Delta:	18°08'19" Left		
	Degree of Curvature (Arc):	76°23'40"		
	Length:	23.74		
	Tangent:	11.97		
	Chord:	23.64		
	Middle Ordinate:	0.94		
	External:	0.95		
	Back Tangent Direction:	N87°04'02"E		
	Back Radial Direction:	S02°55'58"E		
	Chord Direction:	N77°59'53"E		
	Ahead Radial Direction:	S21°04'16"E		
	Ahead Tangent Direction:	N68°55'44"E		
Element: Circular				
PRC		20+67.04 R1	166130.68	2816151.29
PI		20+79.09 R1	166135.01	2816162.54
CC			166060.69	2816178.25
PT		20+90.94 R1	166135.6	2816174.57
	Radius:	75.00		
	Delta:	18°15'33" Right		
	Degree of Curvature (Arc):	76°23'40"		
	Length:	23.90		
	Tangent:	12.05		
	Chord:	23.80		
	Middle Ordinate:	0.95		
	External:	0.96		
	Back Tangent Direction:	N68°55'44"E		
	Back Radial Direction:	S21°04'16"E		
	Chord Direction:	N78°03'30"E		
	Ahead Radial Direction:	S02°48'43"E		
	Ahead Tangent Direction:	N87°11'17"E		
Element: Linear				
PT		20+90.94 R1	166135.6	2816174.58
PC		22+69.06 R1	166144.34	2816352.48
	Tangential Direction:	N87°11'17"E		
	Tangential Length:	178.12		
Element: Circular				
PC		22+69.06 R1	166144.34	2816352.48
PI		22+92.93 R1	166145.51	2816376.32
CC			166443.98	2816337.77
PT		23+16.69 R1	166150.44	2816399.67
	Radius:	300.00		
	Delta:	09°05'50" Left		
	Degree of Curvature (Arc):	19°05'55"		
	Length:	47.63		
	Tangent:	23.87		
	Chord:	47.58		
	Middle Ordinate:	0.94		
	External:	0.95		
	Back Tangent Direction:	N87°11'17"E		
	Back Radial Direction:	S02°48'43"E		
	Chord Direction:	N82°38'22"E		
	Ahead Radial Direction:	S11°54'33"E		
	Ahead Tangent Direction:	N78°05'27"E		
Element: Linear				
PT		23+16.69 R1	166150.44	2816399.67
PC		23+99.26 R1	166167.47	2816480.46
	Tangential Direction:	N78°05'27"E		
	Tangential Length:	82.56		
Element: Circular				
PC		23+99.26 R1	166167.47	2816480.46
PI		24+24.24 R1	166172.63	2816504.9
CC			165873.93	2816542.37
PT		24+49.10 R1	166173.67	2816529.86
	Radius:	300.00		
	Delta:	09°31'09" Right		
	Degree of Curvature (Arc):	19°05'55"		
	Length:	49.84		
	Tangent:	24.98		
	Chord:	49.79		
	Middle Ordinate:	1.03		
	External:	1.04		
	Back Tangent Direction:	N78°05'27"E		
	Back Radial Direction:	S11°54'33"E		
	Chord Direction:	N82°51'02"E		
	Ahead Radial Direction:	S02°23'24"E		
	Ahead Tangent Direction:	N87°36'36"E		
Element: Linear				
PT		24+49.10 R1	166173.67	2816529.86
PC		28+46.09 R1	166190.23	2816926.5
	Tangential Direction:	N87°36'36"E		
	Tangential Length:	396.99		
Element: Circular				
PC		28+46.09 R1	166190.23	2816926.5
PI		29+11.55 R1	166192.96	2816991.91
CC			165840.53	2816941.09
PT		29+75.52 R1	166171.86	2817053.88
	Radius:	350.00		
	Delta:	21°11'22" Right		
	Degree of Curvature (Arc):	16°22'13"		
	Length:	129.44		
	Tangent:	65.47		
	Chord:	128.7		
	Middle Ordinate:	5.97		
	External:	6.07		
	Back Tangent Direction:	N87°36'36"E		
	Back Radial Direction:	S02°23'24"E		
	Chord Direction:	S81°47'43"E		
	Ahead Radial Direction:	S18°47'58"W		
	Ahead Tangent Direction:	S71°12'02"E		
Element: Linear				
PT		29+75.52 R1	166171.86	2817053.88
PC		31+36.87 R1	166119.86	2817206.62
	Tangential Direction:	S71°12'02"E		
	Tangential Length:	161.35		
Element: Circular				
PC		31+36.87 R1	166119.86	2817206.62
PI		31+81.79 R1	166105.39	2817249.15
CC			165646.54	2817045.5
PT		32+26.48 R1	166083.56	2817288.41
	Radius:	500.00		
	Delta:	10°16'05" Right		
	Degree of Curvature (Arc):	11°27'33"		
	Length:	89.60		
	Tangent:	44.92		
	Chord:	89.48		
	Middle Ordinate:	2.01		
	External:	2.01		
	Back Tangent Direction:	S71°12'02"E		
	Back Radial Direction:	S18°47'58"W		
	Chord Direction:	S66°04'00"E		
	Ahead Radial Direction:	S29°04'02"W		
	Ahead Tangent Direction:	S60°55'58"E		
Element: Linear				
PT		32+26.48 R1	166083.56	2817288.41
END		35+00.00 R1	165950.67	2817527.49
	Tangential Direction:	S60°55'58"E		
	Tangential Length:	273.53		



Preliminary Plans

Alignment Descriptions
Shared Use Path

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

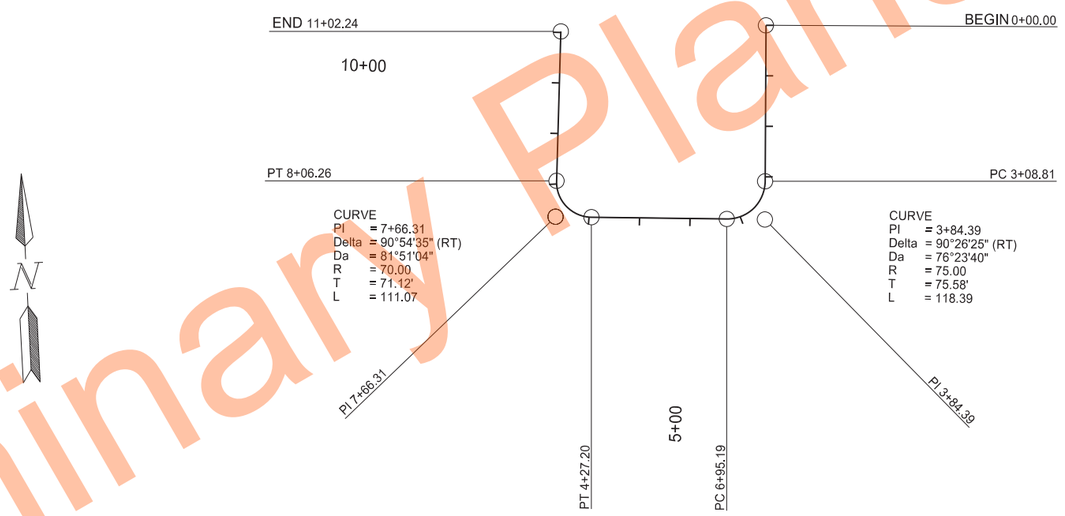
REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/27/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	82	20

FRONTAGE ROAD AND UNDERPASS ALIGNMENT

Alignment Name: PRFRONTAGE
Alignment Description:
Alignment Style: Alignment\Horizontal\Small Scale\Alignment

		Station	Northing	Easting
Element: Linear				
START		0+00.00	170599.28	2817145.62
PC		3+08.81	170290.94	2817128.6
	Tangential Direction:	S03°09'35"W		
	Tangential Length:	308.81		
Element: Circular				
PC		3+08.81	170290.94	2817128.6
PI		3+84.39	170215.48	2817124.43
CC			170295.08	2817053.71
PT		4+27.20	170220.22	2817049
	Radius:	75.00		
	Delta:	90°26'25" Right		
	Degree of Curvature (Arc):	76°23'40"		
	Length:	118.39		
	Tangent:	75.58		
	Chord:	106.47		
	Middle Ordinate:	22.17		
	External:	31.48		
	Back Tangent Direction:	S03°09'35"W		
	Back Radial Direction:	N86°50'25"W		
	Chord Direction:	S48°22'48"W		
	Ahead Radial Direction:	N03°36'00"E		
	Ahead Tangent Direction:	N86°24'00"W		
Element: Linear				
PT		4+27.20	170220.22	2817049
PC		6+95.19	170237.05	2816781.54
	Tangential Direction:	N86°24'00"W		
	Tangential Length:	268.00		
Element: Circular				
PC		6+95.19	170237.05	2816781.54
PI		7+66.31	170241.52	2816710.56
CC			170306.91	2816785.93
PT		8+06.26	170312.42	2816716.15
	Radius:	70.00		
	Delta:	90°54'35" Right		
	Degree of Curvature (Arc):	81°51'04"		
	Length:	111.07		
	Tangent:	71.12		
	Chord:	99.78		
	Middle Ordinate:	20.90		
	External:	29.79		
	Back Tangent Direction:	N86°24'00"W		
	Back Radial Direction:	N03°36'00"E		
	Chord Direction:	N40°56'42"W		
	Ahead Radial Direction:	S85°29'25"E		
	Ahead Tangent Direction:	N04°30'35"E		
Element: Linear				
PT		8+06.26	170312.42	2816716.15
END		11+02.24	170607.48	2816739.42
	Tangential Direction:	N04°30'35"E		
	Tangential Length:	295.98		



Preliminary Plans

Alignment Descriptions
Frontage Road and Underpass

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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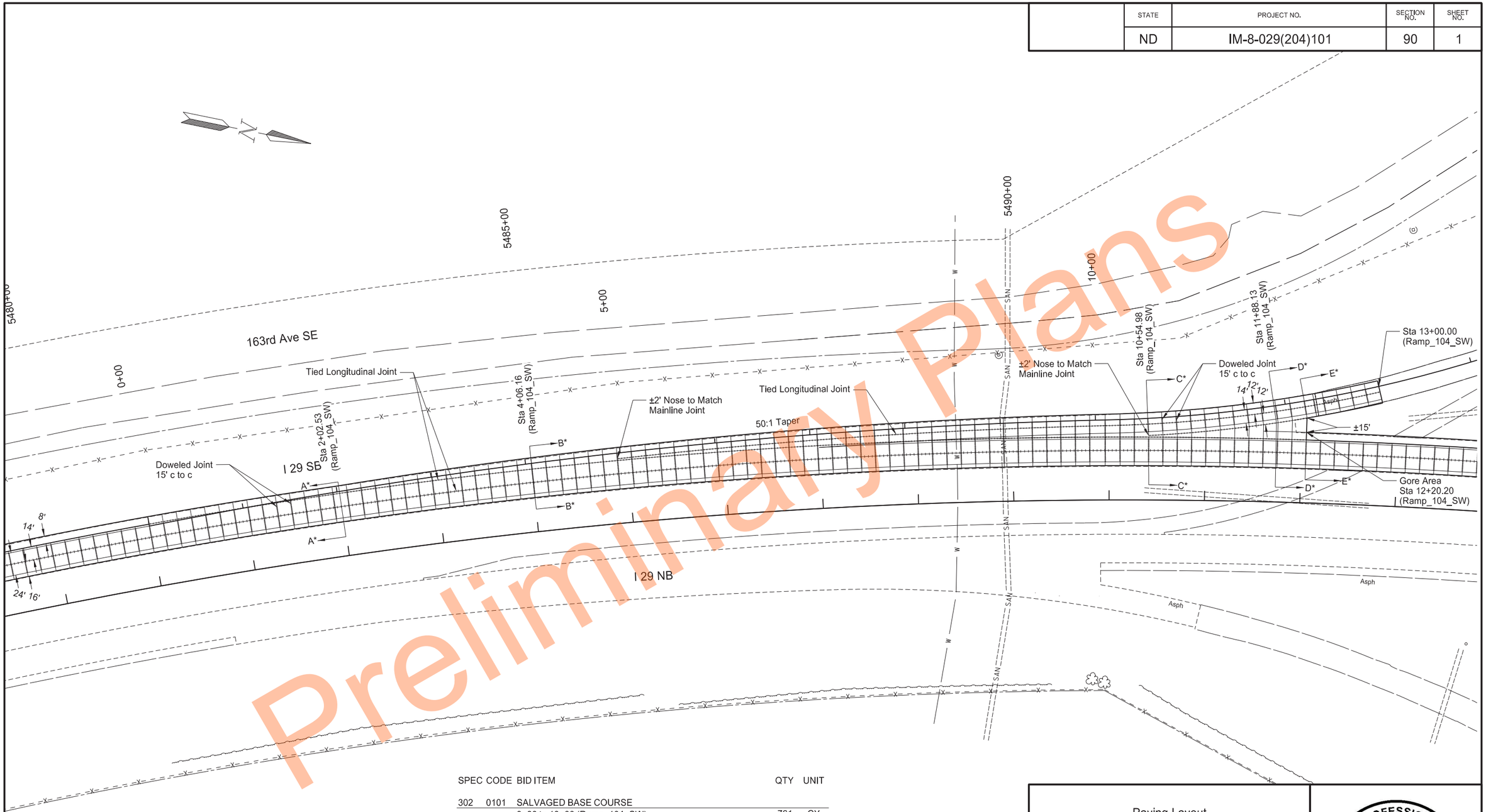
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	90	1



Preliminary Plans

SPEC	CODE	BID ITEM	QTY	UNIT
302	0101	SALVAGED BASE COURSE		
		0+00 to 13+00 (Ramp_104_SW)	761	CY
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED		
		0+00 to 13+00 (Ramp_104_SW)	2582	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		0+00 to 13+00 (Ramp_104_SW)	3785	SY

Note: Quantities are for the concrete ramp, ramp taper, and gore outside the 14' mainline concrete slab.
See Ramp Typical Section in section 30.

Paving Layout
Hillsboro Interchange SW Ramp Taper

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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ERIC LAIDLEY
PE-10608
DATE: 6/25/24
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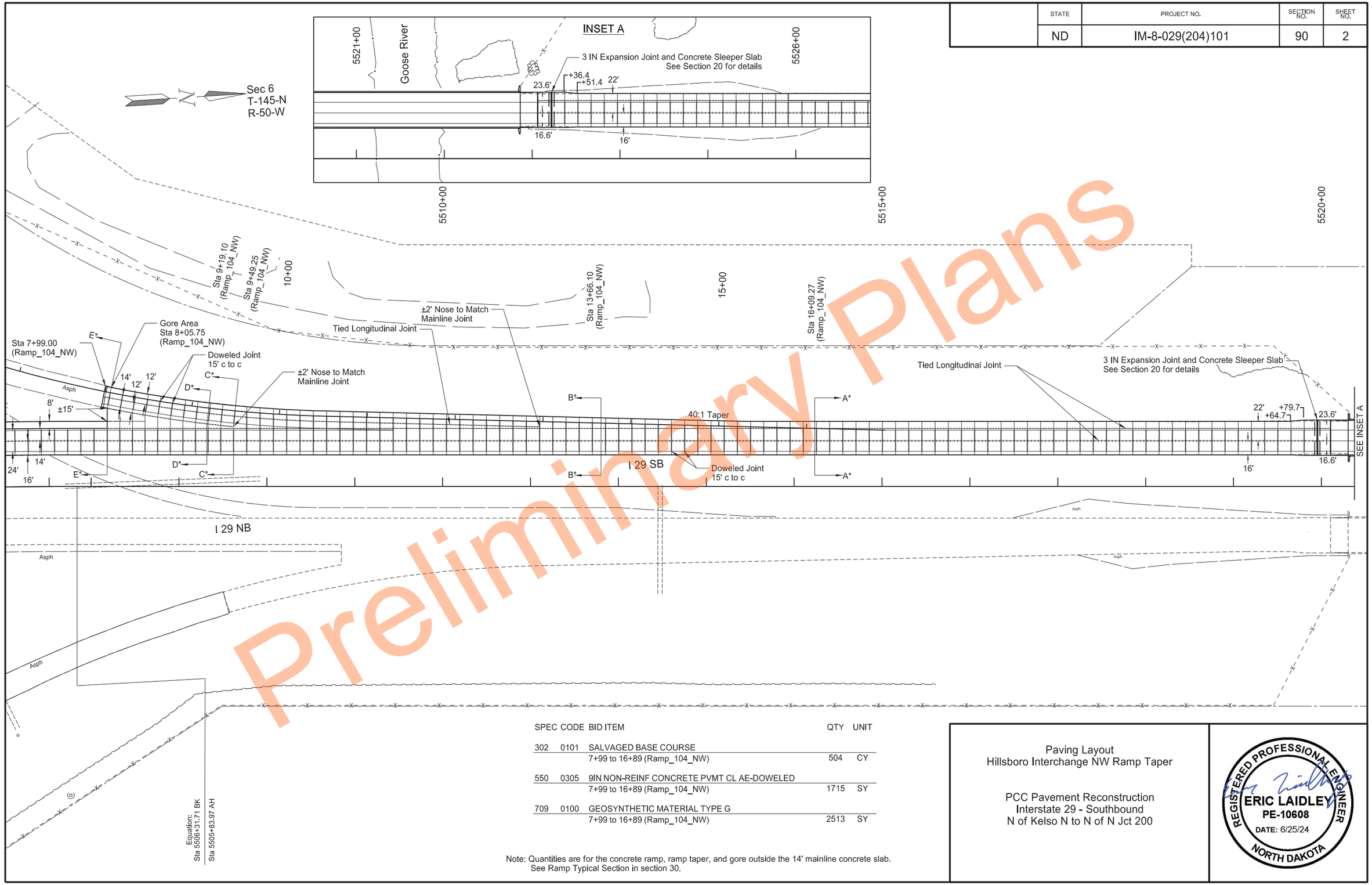
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	90	2



SPEC	CODE	BID ITEM	QTY	UNIT
302	0101	SALVAGED BASE COURSE		
		7+99 to 16+89 (Ramp_104_NW)	504	CY
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED		
		7+99 to 16+89 (Ramp_104_NW)	1715	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		7+99 to 16+89 (Ramp_104_NW)	2513	SY

Note: Quantities are for the concrete ramp, ramp taper, and gore outside the 14' mainline concrete slab. See Ramp Typical Section in section 30.

Paving Layout
Hillsboro Interchange NW Ramp Taper

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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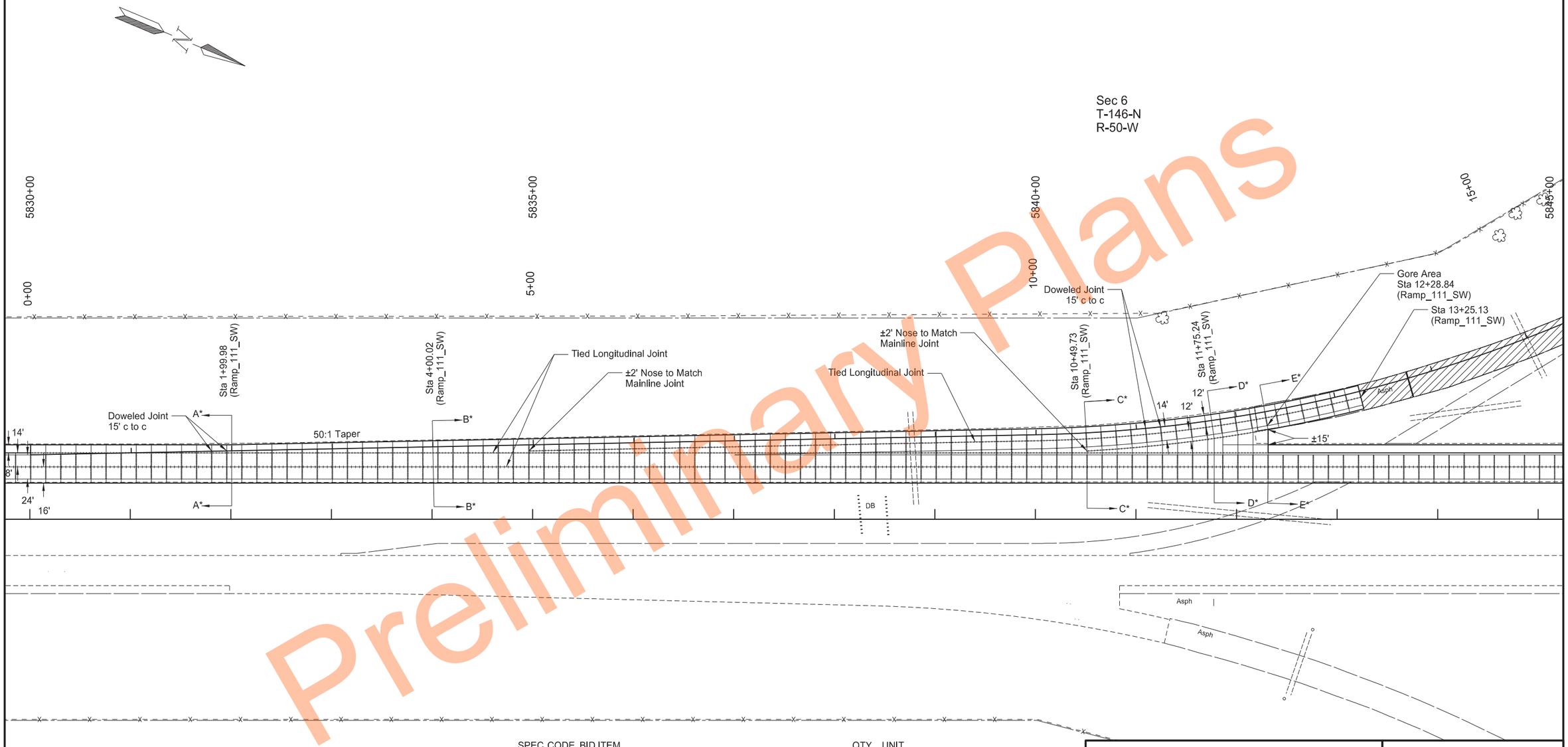
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	90	3



Preliminary Plans

SPEC	CODE	BID ITEM	QTY	UNIT
302	0101	SALVAGED BASE COURSE		
		0+00 to 13+25 (Ramp_111_SW)	787	CY
550	0305	9IN NON-REINF CONCRETE PVMT CL AE-DOWELED		
		0+00 to 13+25 (Ramp_111_SW)	2686	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		0+00 to 13+25 (Ramp_111_SW)	3915	SY

Note: Quantities are for the concrete ramp, ramp taper, and gore outside the 14' mainline concrete slab.
See Ramp Typical Section in section 30.

Paving Layout
Mayville Interchange SW Ramp Taper

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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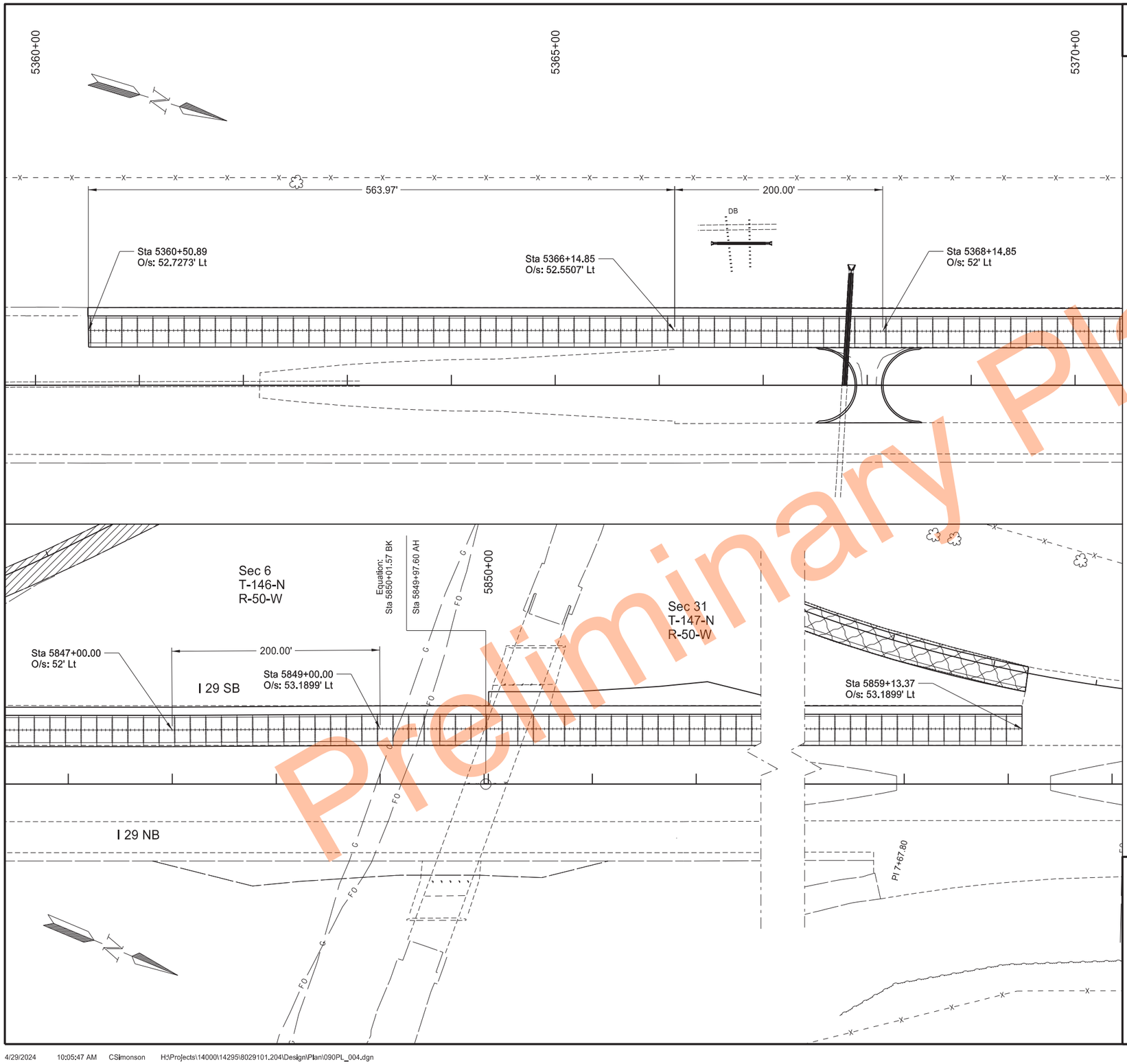
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	90	4



Preliminary Plans

Paving Layout
Begin and End of Project CL Shift Tie-Ins

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	90	5

SPEC	CODE	BID ITEM	QTY	UNIT
203	0238	SUBCUT AGGREGATE		
		0+20 to 8+33 (Ramp 111_NW)	2288	CY
302	0100	SALVAGED BASE COURSE		
		0+20 to 8+33 (Ramp 111_NW)	1570	CY
401	0050	TACK COAT		
		0+20 to 8+33 (Ramp 111_NW)	125	GAL
430	0043	SUPERPAVE FAA 43		
		0+20 to 8+33 (Ramp 111_NW)	768	TON
430	5803	PG 58S-28 ASPHALT CEMENT		
		0+20 to 8+33 (Ramp 111_NW)	94	TON
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		0+20 to 8+33 (Ramp 111_NW)	6084	SY

Sec 6
T-146-N
R-50-W

Sec 31
T-147-N
R-50-W

Sta 21+90
(Ramp_111_SW)

Sta 13+25
(Ramp_111_SW)

1" Mill and 2" HMA Overlay
(Area = 2,724 SY)

Sta 00+20
(Ramp 111_NW)

36" Subcut and Reconstruction
(Area = 2,599 SY)

Sta 8+33
(Ramp 111 NW)

5835+00 5+00
5840+00 10+00
5845+00
5850+00
5855+00
5860+00
10+00
5+00
15+00
20+00
0+00

Equation:
Sta 5850+01.57 BK
Sta 5849+97.60 AH

PI 5850+01.57 R2

I 29 SB

I 29 NB

ND 200

EQUATION:
Sta 5850+01.57 R2 BK =
Sta 5849+97.60 R3 AH

SPEC	CODE	BID ITEM	QTY	UNIT
401	0050	TACK COAT		
		13+25 to 21+90 (Ramp_111_SW)	139	GAL
411	0100	MILLING PAVEMENT SURFACE		
		13+25 to 21+90 (Ramp_111_SW)	153	TON
430	0043	SUPERPAVE FAA 43		
		13+25 to 21+90 (Ramp_111_SW)	307	TON
430	5803	PG 58S-28 ASPHALT CEMENT		
		13+25 to 21+90 (Ramp_111_SW)	19	TON

Paving Layout
Mayville Interchange Ramps
Mill and Overlay and Subcut/Reconstruction

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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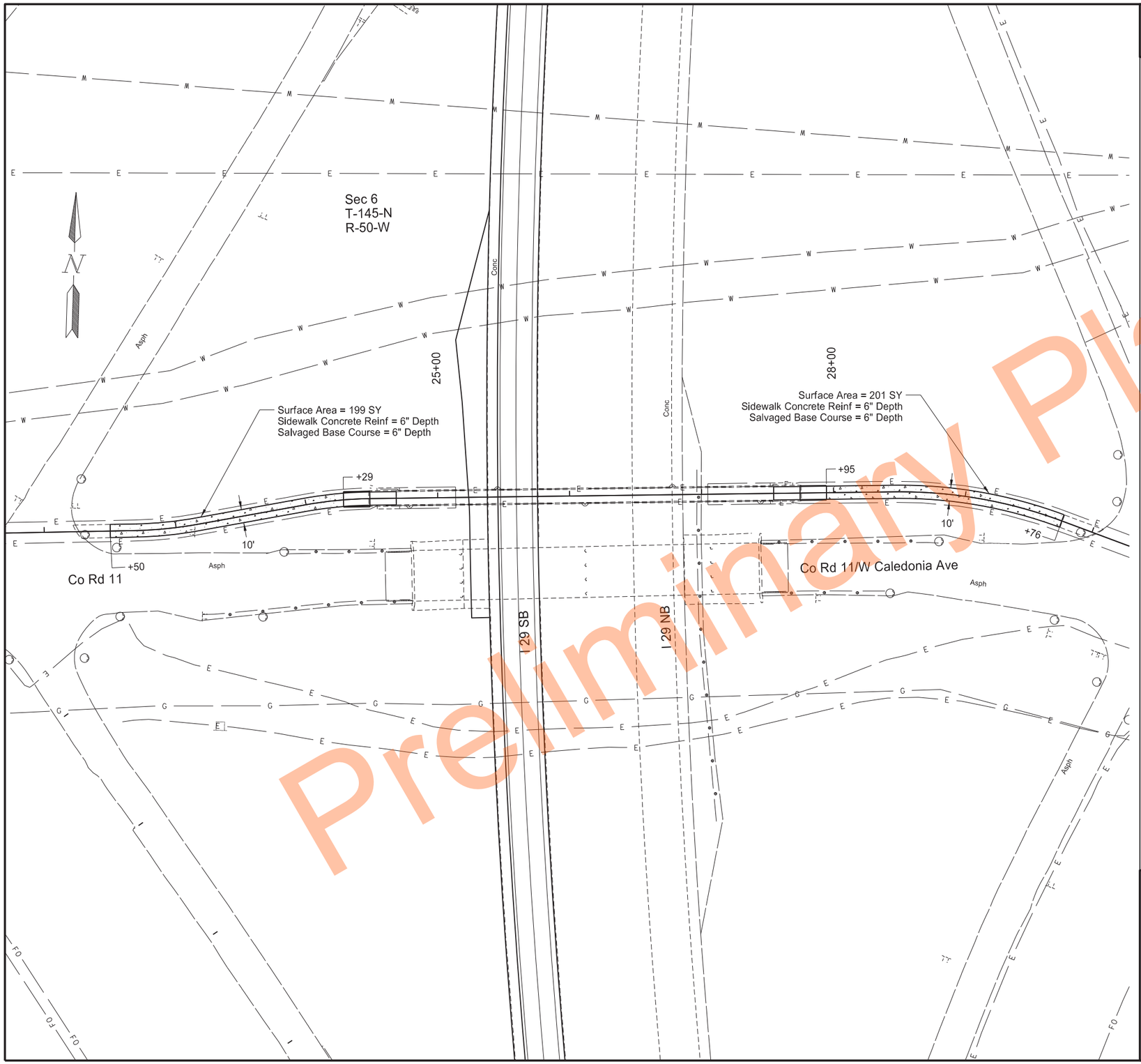
Preliminary Plans



Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	90	6

SPEC	CODE	BID ITEM	QTY	UNIT
302	0101	SALVAGED BASE COURSE		
		Shared Use Path - Sta 22+50 to Sta 24+49	40	CY
		Shared Use Path - Sta 27+75 to Sta 29+76	40	CY
750	0101	SIDEWALK CONCRETE REINF		
		Shared Use Path - Sta 22+50 to Sta 24+49	199	SY
		Shared Use Path - Sta 27+75 to Sta 29+76	201	SY

*Note: Stationing based off of shared use path alignment (PRPATH) unless otherwise noted.

Paving Layout
Hillsboro Interchange Shared Use Path

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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PE-10608
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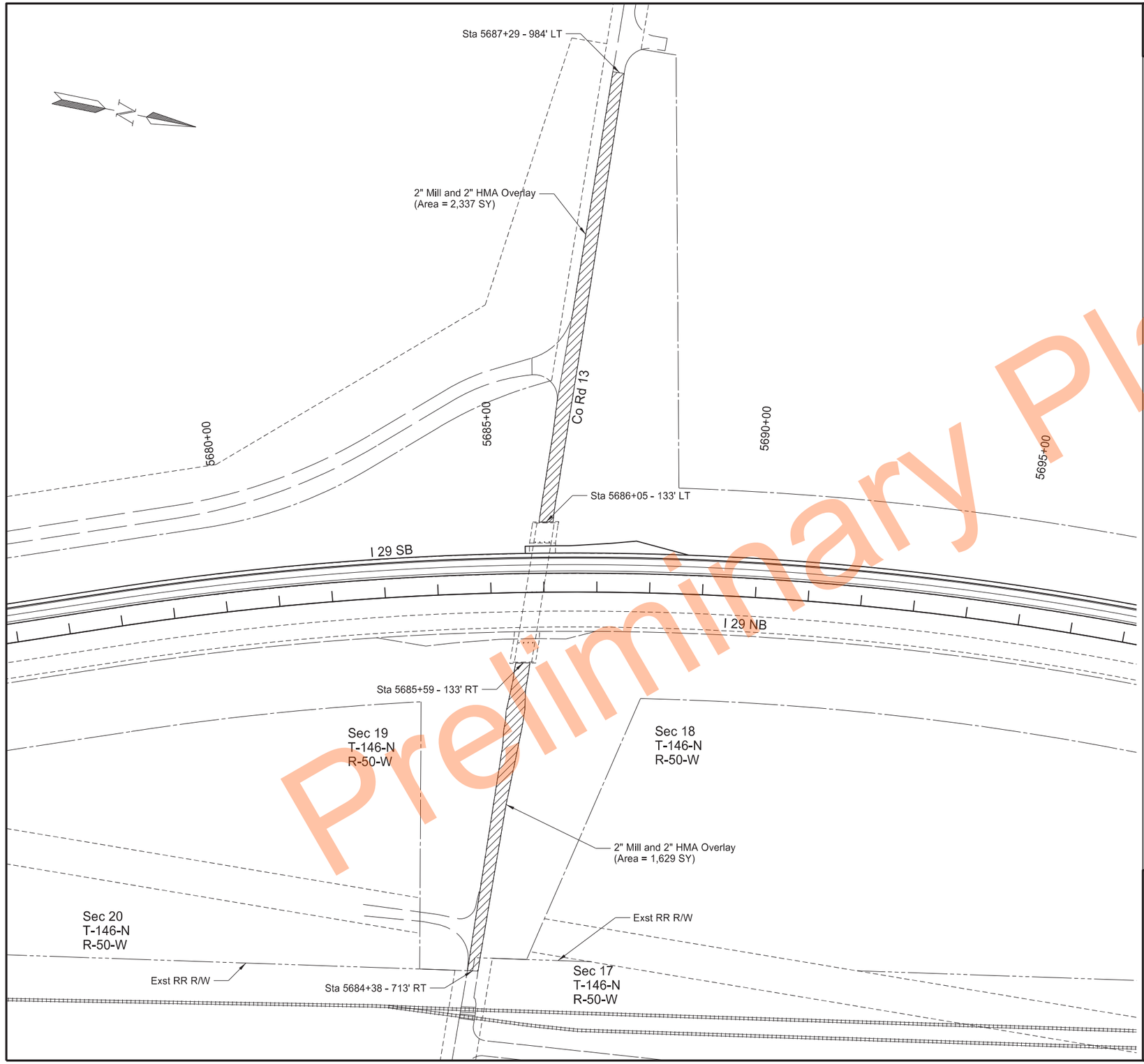

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	90	7

SPE	CODE	BID ITEM	QTY	UNIT
401	0050	TACK COAT		
		5687+29 - 984' LT to 5686+05 - 133' LT	123	GAL
		5685+59 - 133' RT to 5684+38 - 713' RT	82	GAL
411	0100	MILLING PAVEMENT SURFACE		
		5687+29 - 984' LT to 5686+05 - 133' LT	287	TON
		5685+59 - 133' RT to 5684+38 - 713' RT	198	TON
430	0043	SUPERPAVE FAA 43		
		5687+29 - 984' LT to 5686+05 - 133' LT	334	TON
		5685+59 - 133' RT to 5684+38 - 713' RT	230	TON
430	5803	PG 58S-28 ASPHALT CEMENT		
		5687+29 - 984' LT to 5686+05 - 133' LT	21	TON
		5685+59 - 133' RT to 5684+38 - 713' RT	14	TON

Paving Layout
Taft Separation Crossroad Mill & Overlay

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE							35	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES							28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)							18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**6**	**6**	**6**	**6**		**6**	**26**	**156**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)							18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR							18	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS							43	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW							36	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**2**	**2**	**2**		**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)							11	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)							10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)							10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)							7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)							7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)							7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)							7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)							7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT							15	
M4-10-48	**48"x18"**	**DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)**		**3**				**3**	**7**	**21**
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)							7	
R1-1-48	48"x48"	STOP							32	
R1-2-60	**60"x60"**	**YIELD**		**2**				**2**	**29**	**58**
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)							30	
R2-1-48	**48"x60"**	**SPEED LIMIT __**	**2**	**16**	**2**	**2**		**16**	**39**	**624**
R2-1aP-24	**24"x18"**	**MINIMUM FEE $80 (Mounted on Speed Limit post)**		**12**				**12**	**10**	**120**
R3-2-48	48"x48"	NO LEFT TURN							35	
R4-1-48	**48"x60"**	**DO NOT PASS**	**26**	**28**	**26**	**26**		**28**	**39**	**1092**
R4-7-48	**48"x60"**	**KEEP RIGHT**		**2**				**2**	**39**	**78**
R5-1-48	48"x48"	DO NOT ENTER							35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)							14	
R7-1-12	12"x18"	NO PARKING ANY TIME							11	
R10-6-24	24"x36"	STOP HERE ON RED							16	
R11-2-48	**48"x30"**	**ROAD CLOSED (Mounted on barricade)**		**10**				**10**	**12**	**120**
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)							12	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)							15	
W1-3-48	**48"x48"**	**REVERSE TURN RIGHT or LEFT**		**3**				**3**	**35**	**105**
W1-4-48	**48"x48"**	**REVERSE CURVE RIGHT or LEFT**		**2**				**2**	**35**	**70**
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT							35	
W1-6-48	**48"x24"**	**ONE DIRECTION LARGE ARROW**		**2**				**2**	**26**	**52**
W3-1-48	48"x48"	STOP AHEAD							35	
W3-3-48	48"x48"	SIGNAL AHEAD							35	
W3-4-48	**48"x48"**	**BE PREPARED TO STOP**		**3**				**3**	**35**	**105**
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**		**3**				**3**	**35**	**105**
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**		**2**				**2**	**35**	**70**
W5-1-48	48"x48"	ROAD NARROWS							35	
W5-4-48	**48"x48"**	**RAMP NARROWS**		**2**				**2**	**35**	**70**
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE							35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW							35	
W6-3-48	**48"x48"**	**TWO WAY TRAFFIC**	**26**	**28**	**26**	**26**		**28**	**35**	**980**
W8-1-48	48"x48"	BUMP							35	
W8-3-48	**48"x48"**	**PAVEMENT ENDS**		**1**				**1**	**35**	**35**
W8-7-48	48"x48"	LOOSE GRAVEL							35	
W8-11-48	48"x48"	UNEVEN LANES							35	
W8-12-48	48"x48"	NO CENTER LINE							35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL							35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY							35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE							35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE							35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY							35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL							35	
W13-1P-30	**30"x30"**	**__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)**		**3**				**3**	**14**	**42**
W13-4p-36	**36"x36"**	**ON RAMP (Mounted on other sign post)**		**5**				**5**	**17**	**85**
W14-3-64	64"x48"	NO PASSING ZONE							28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)							10	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**7**	**16**	**7**	**7**		**16**	**35**	**560**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT or _ MILE							35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT or _ MILE							35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE							35	
W20-5-48	**48"x48"**	**RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE**		**4**				**4**	**35**	**140**
W20-7-48	**48"x48"**	**FLAGGER**		**6**				**6**	**35**	**210**
W20-8-18	**18"x18"**	**STOP - SLOW PADDLE Back to Back**		**6**				**6**	**5**	**30**
W20-52P-54	**54"x12"**	**NEXT __ MILES (Mounted on warning sign post)**	**26**	**28**	**26**	**26**		**28**	**12**	**336**
W21-1-48	48"x48"	WORKERS							35	
W21-2-48	48"x48"	FRESH OIL							35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE							35	
W21-5-48	48"x48"	SHOULDER WORK							35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED							35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE							35	
W21-6-48	48"x48"	SURVEY CREW							35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT							35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY							35	
W21-52-48	48"x48"	PAVEMENT BREAKS							35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD							35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK							35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE							35	

SPECIAL SIGNS

Consign 1	**6'-6" x 4'-**	**HILLSBORO EXIT ARROW**		**1**				**1**	**50**	**50**
Consign 2	**7'-0" x 3'-**	**EXIT 104**		**1**				**1**	**40**	**40**
Consign 3	**6'-0" x 5'-**	**EXIT 104 GORE W ARROW**		**1**				**1**	**51**	**51**
Consign 4	**8'-0" x 4'-**	**HILLSBORO 1 MILE**		**1**				**1**	**53**	**53**
Consign 5	**5'-6" x 5'-**	**EXIT 111 GORE W ARROW**		**1**				**1**	**48**	**48**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS 5624**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2	3	4		TOTAL QUANTITY
704-0100	**FLAGGING**	MHR	**40**	**2490**	**40**	**40**		**2610**
704-1038	**ATTENUATION DEVICE-TYPE B-40**	EA		**1**				**1**
704-1045	**ATTENUATION DEVICE-TYPE B-75**	EA		**4**				**4**
704-1048	PORTABLE RUMBLE STRIPS	EACH						
704-1050	TYPE I BARRICADES	EACH						
704-1052	**TYPE III BARRICADES**	EACH		**34**				**34**
704-1060	**DELINEATOR DRUMS**	EACH		**251**				**251**
704-1065	TRAFFIC CONES	EACH						
704-1067	**TUBULAR MARKERS**	EACH	**338**	**165**	**676**	**676**		**676**
704-1070	**DELINEATOR**	EACH		**285**				**285**
704-1072	**FLEXIBLE DELINEATORS**	EACH		**610**				**610**
704-1080	STACKABLE VERTICAL PANELS	EACH						
704-1081	VERTICAL PANELS - BACK TO BACK	EACH						
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH						
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH						
704-1087	**SEQUENCING ARROW PANEL - TYPE C**	EACH	**2**	**2**				**2**
704-1088	**SEQUENCING ARROW PANEL - TYPE C - CROSSOVER**	EA		**2**				**2**
704-1090	**FLASHING BEACON**	EA		**2**				**2**
704-1500	**OBLITERATION OF PVMT MK**	SF		**6618**				**6618**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF						
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH						
704-3511	**STATE FURNISHED MEDIAN BARRIER**	LF		**2040**				**2040**
704-8015	**VEHICLE SPEED FEEDBACK SIGN**	EA		**2**				**2**
762-0200	**RAISED PAVEMENT MARKERS**	EACH		**22350**				**22350**
762-0420	SHORT TERM 4IN LINE - TYPE R	LF						
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF						
762-0432	**SHORT TERM 6IN LINE-TYPE NR**	LF		**6045**				**6045**
762-1106	**PVMT MK PAINTED 6IN LINE**	LF		**47398**				**47398**

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

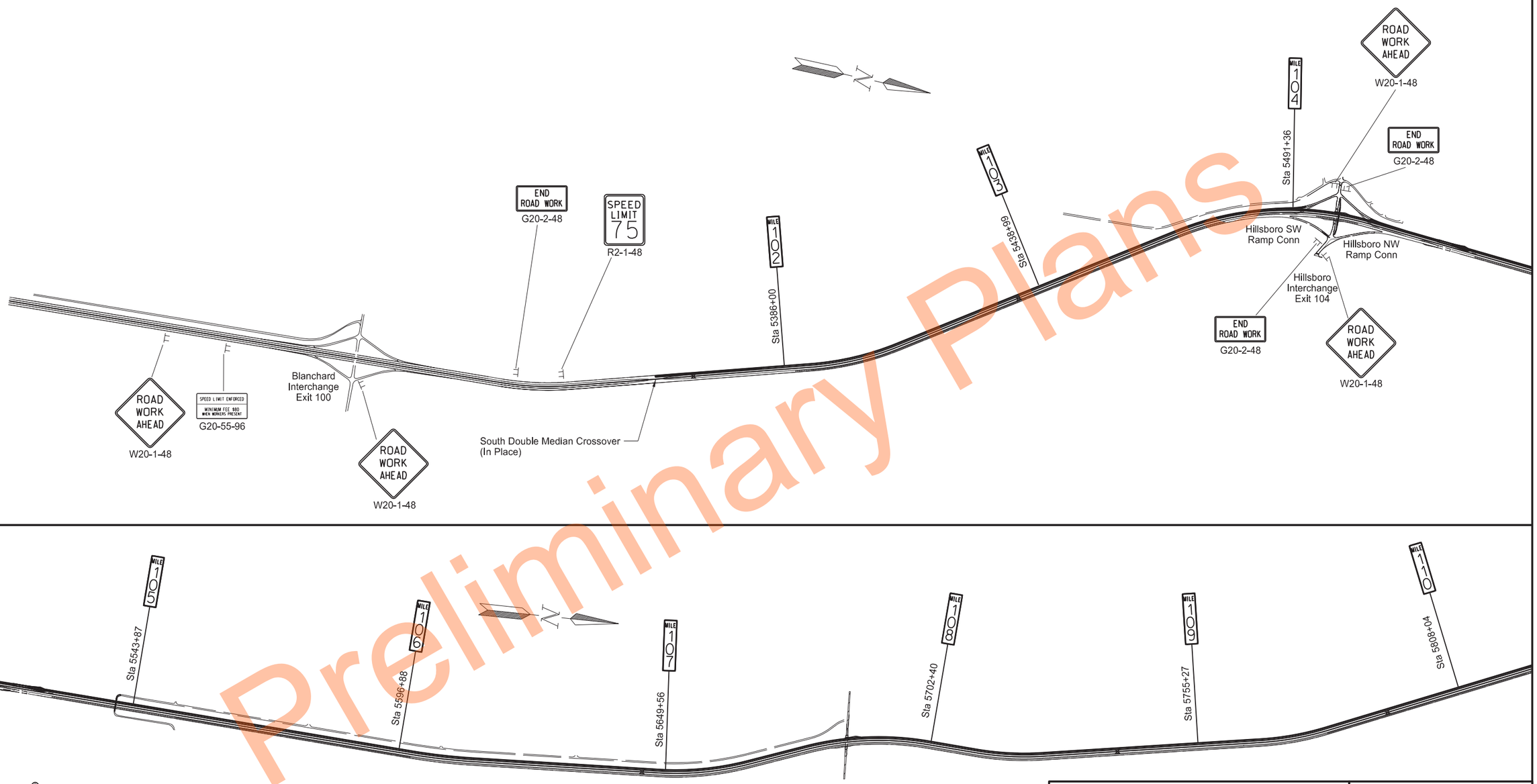
REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Traffic Control Devices List

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	2



NOTE: Install signs R4-1-48, W6-3-48 and W20-52P-54 at one mile increments and after each interchange. A project total quantity of 26 has been provided for each sign on the traffic control devices list.

Construction Sign Layout

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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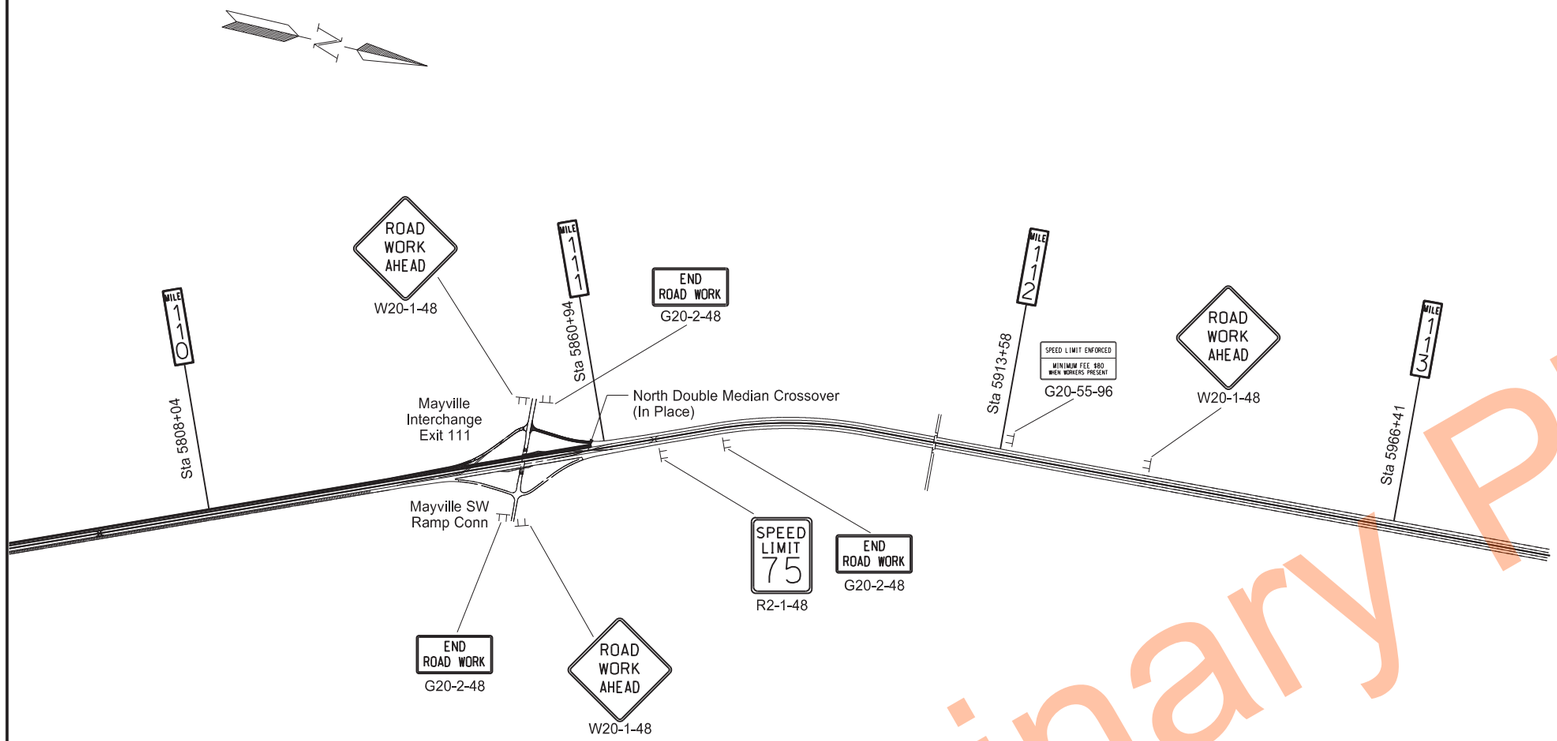
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	3



Preliminary Plans

W6-3-48

NEXT 00 MILES W20-52P-54

DO NOT PASS
R4-1-48

NOTE: Install signs R4-1-48, W6-3-48 and W20-52P-54 at one mile increments and after each interchange. A project total quantity of 26 has been provided for each sign on the traffic control devices list.

Construction Sign Layout

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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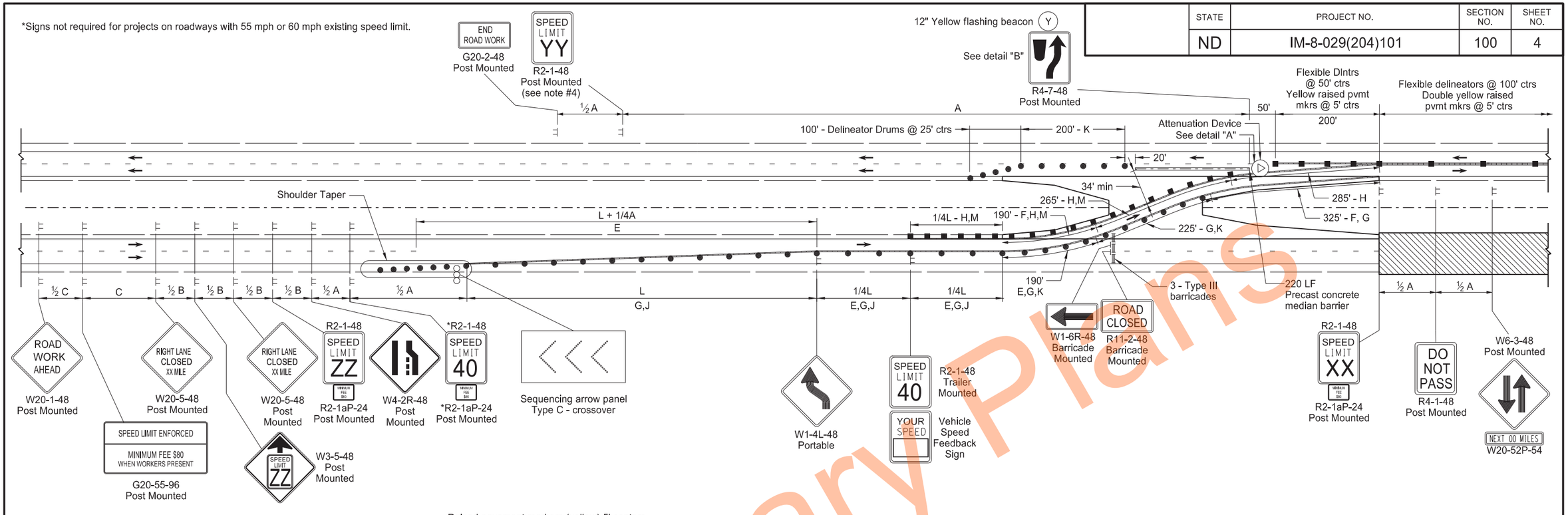
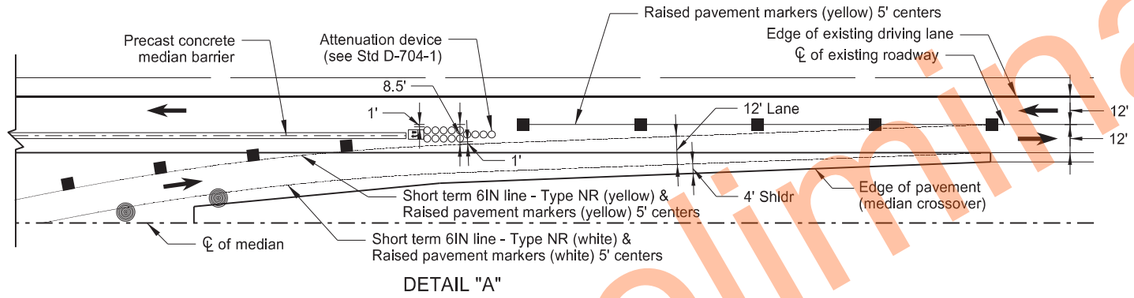
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	100	4

*Signs not required for projects on roadways with 55 mph or 60 mph existing speed limit.





DETAIL "A"

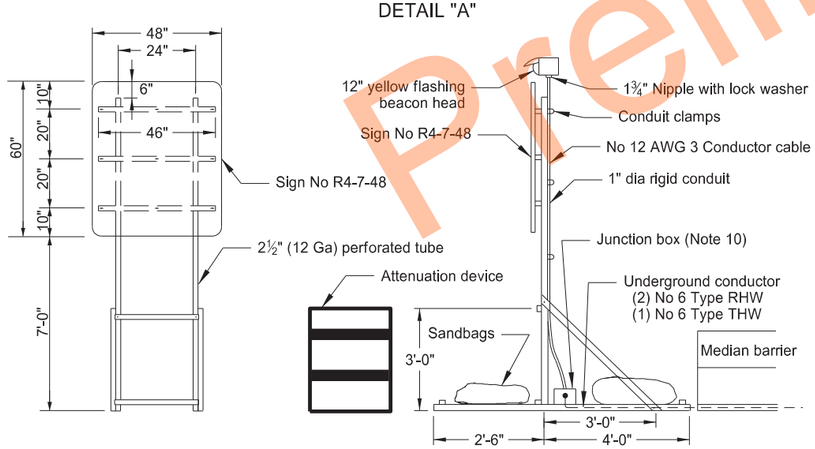
ROADWAY EXISTING SPEED LIMIT	SPEED LIMIT TO BE USED		
	XX	YY	ZZ
55	50	55	40
60	50	60	40
65	55	65	55
70	60	70	55
75	65	75	55

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	Minimum Distance Between Signs (ft)		
	A	B	C
Urban Expressway and Freeway (55 mph to 65 mph)	850	1,350	2,200
Rural Expressway and Freeway (70 mph to 75 mph)	1,000	1,500	2,640

KEY

Type III barricae	Work area
Sign	Sequencing arrow panel
Flagger	Delineator drum
	Flexible Delineator

LEGEND
E Obliteration of pavement marking (10' line, 30' skip, ℄)
F Obliteration of pavement marking (edge lines)
G Short Term 6IN Line - Type NR (white) & raised pavement markers (white) 5' centers
H Short Term 6IN Line - Type NR (yellow) & raised pavement markers (yellow) 5' centers
J Drums spaced @ "S" centers
K Drums spaced @ 40' centers
M Flexible Delineators spaced @ 40' centers (O/s 2' from edge of lane line)



Place conductor behind barricade away from traffic, tie at each barrier connection, and drape above the ground. Place conductors a minimum of 6" underground between the barrier and pole.

DETAIL "B"

Notes:

1. Variables:
   S=Numerical value of posted speed limit, off-peak 85th percentile speed prior to work starting, or anticipated operating speed in MPH.
   W=Width of offset in feet
   L=Taper length in feet. Speeds 45 mph or greater L=WS.
2. Place signs and barricades on the roadway on moveable assemblies.
   Mount signs on barricades with the sign bottom on the top of the top barricade bar.
3. Install signs R4-1-48, W6-3-48, and W20-52P-54 at one mile increments and after each interchange.
4. Place the speed limit sign only if the crossover is more than 1 mile from an interchange exit ramp.
5. Place Sequencing Arrow Panels at the beginning of the taper when possible. Where shoulder width does not provide sufficient room, move the panel closer to the work area and place on the roadway surface. Use Type C on roadways with high traffic speeds and volumes (over 40 mph or 5000 ADT or greater)
6. Cover existing speed limit signs within a reduced speed zone.
7. Upon approval, the Engineer will measure obliterated or covered pavement marking as Obliteration of Pavement Marking.
8. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
9. Reduce speed when placing traffic control devices. Place "Minimum Fee $80" signs below speed limit signs in reduced speed areas. Place "Work Zone Speed Limit Enforced" sign in advance of the project at the time traffic control devices are installed.
10. Determine proper size, waterproof junction box, and attach to skid or vertical brace assembly.

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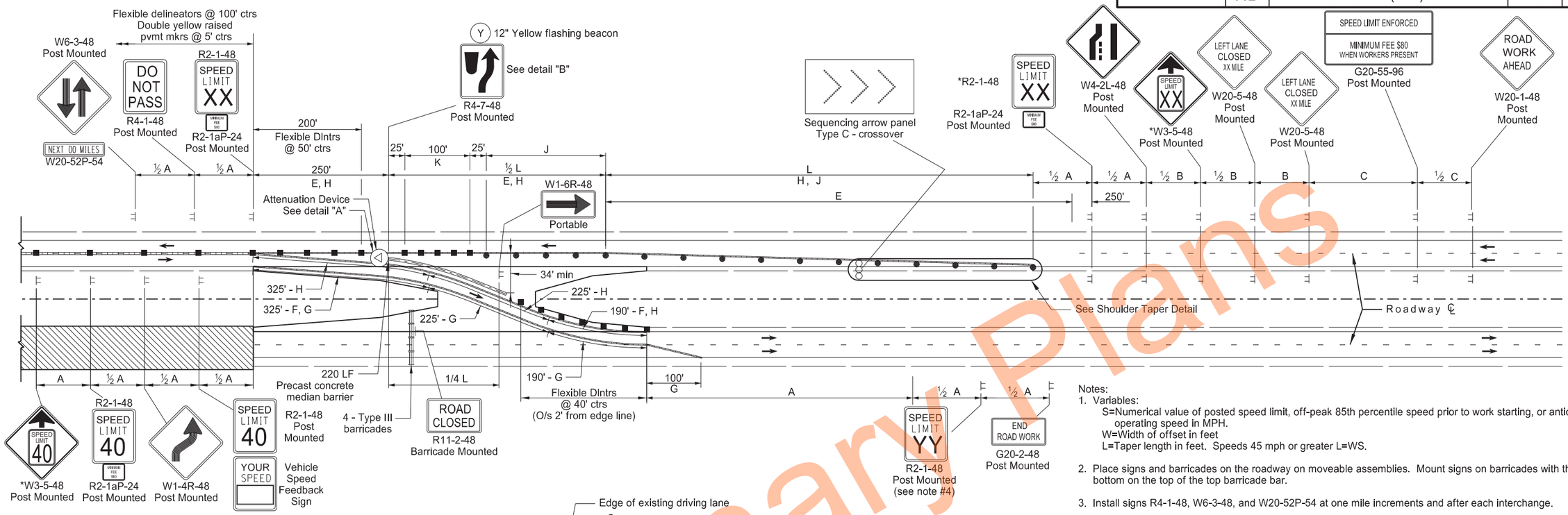
Project Entrance Crossover Detail
Attenuation Device and Median Barriers

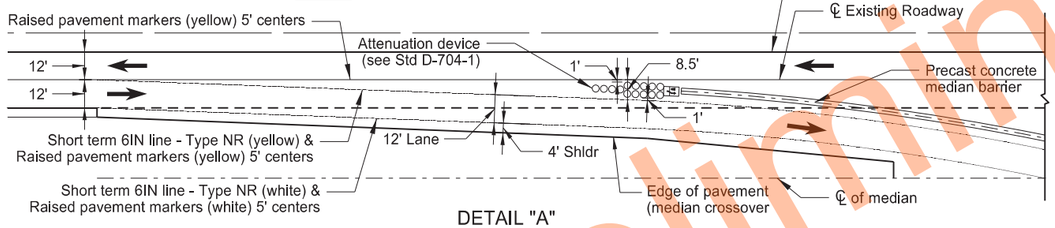
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

Preliminary Plans

*Not required for projects on roadways with 55 mph existing speed limit.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	100	5



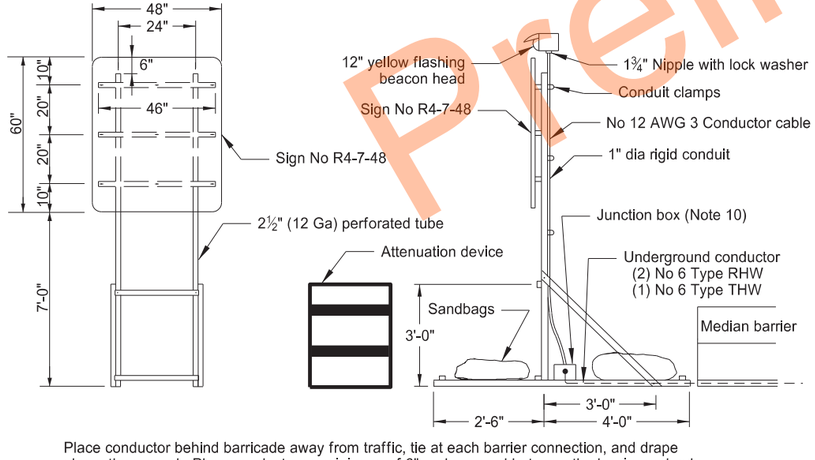


DETAIL "A"

KEY

Type III barricae	Work area
Sign	Sequencing arrow panel
Flagger	Delineator drum
	Flexible Delineator

LEGEND
E Obliteration of pavement marking (10' line, 30' skip, ℄)
F Obliteration of pavement marking (edge lines)
G Short Term 6IN Line - Type NR (white) & raised pavement markers (white) 5' centers
H Short Term 6IN Line - Type NR (yellow) & raised pavement markers (yellow) 5' centers
J Drums spaced @ "S" centers
K Flexible delineators-4 spaces @ 25'



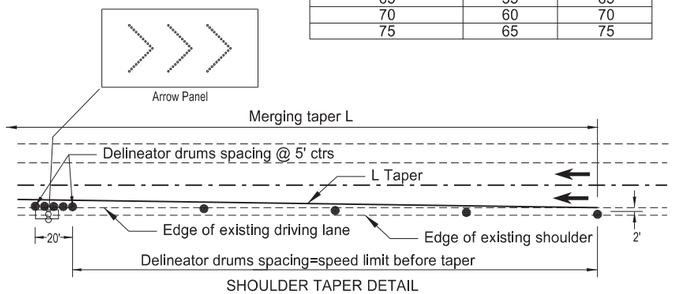
Place conductor behind barricade away from traffic, tie at each barrier connection, and drape above the ground. Place conductors a minimum of 6" underground between the barrier and pole.

DETAIL "B"

ADVANCE WARNING SIGN SPACING

ROAD TYPE	Minimum Distance Between Signs (ft) A	B	C
Urban Expressway and Freeway (55 mph to 65 mph)	850	1,350	2,200
Rural Expressway and Freeway (70 mph to 75 mph)	1,000	1,500	2,640

ROADWAY EXISTING SPEED LIMIT	SPEED LIMIT TO BE USED XX	YY
55	50	55
60	50	60
65	55	65
70	60	70
75	65	75



SHOULDER TAPER DETAIL

Notes:
1. Variables:
   S=Numerical value of posted speed limit, off-peak 85th percentile speed prior to work starting, or anticipated operating speed in MPH.
   W=Width of offset in feet
   L=Taper length in feet. Speeds 45 mph or greater L=WS.
2. Place signs and barricades on the roadway on moveable assemblies. Mount signs on barricades with the sign bottom on the top of the top barricade bar.
3. Install signs R4-1-48, W6-3-48, and W20-52P-54 at one mile increments and after each interchange.
4. Place the speed limit sign only if the crossover is more than 1 mile from an interchange exit ramp.
5. Place Sequencing Arrow Panels at the beginning of the taper when possible. Where shoulder width does not provide sufficient room, move the panel closer to the work area and place on the roadway surface. Use Type C on roadways with high traffic speeds and volumes (over 40 mph or 5000 ADT or greater)
6. Cover existing speed limit signs within a reduced speed zone.
7. Upon approval, the Engineer will measure obliterated or covered pavement marking as Obliteration of Pavement Marking.
8. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
9. Reduce speed when placing traffic control devices. Place "Minimum Fee $80" signs below speed limit signs in reduced speed areas. Place "Work Zone Speed Limit Enforced" sign in advance of the project at the time traffic control devices are installed.
10. Determine proper size, waterproof junction box, and attach to skid or vertical brace assembly.

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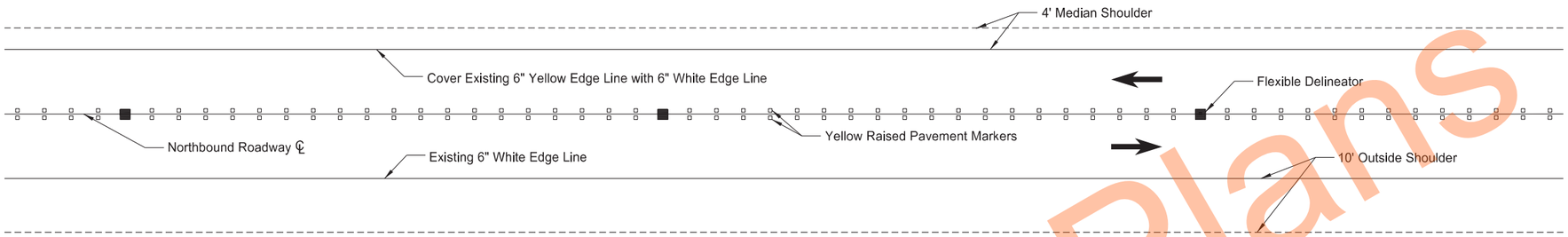
Project Exit Crossover Detail
Attenuation Device and Median Barriers

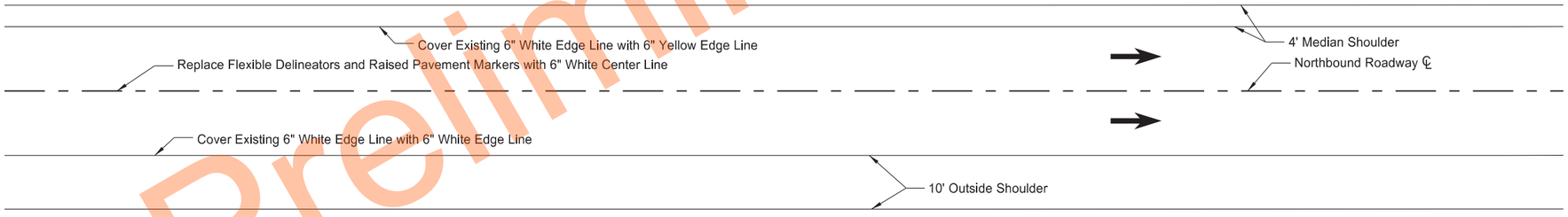
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	6



PREP INTERSTATE ROADWAY FOR TWO-WAY TRAFFIC CONTROL
Obliterate Existing Centerline Pavement Marking Skips.
Install Flexible Delineators @ 100' Centers on Centerline.
Install Two Rows of Yellow Raised Pavement Markers @ 5' Centers-4" Between on Centerline.
Place White Edge Line as Median Edge Line.



TO RETURN TRAFFIC TO NORMAL FOUR LANE DIVIDED OPERATION:
Remove Flexible Delineators and Raised Pvmt Mkrs.
Place 6" White Center Line.
Place 6" Yellow Edge Line over Median 6" White Edge Line.
Place 6" White Edge Line over Outside 6" White Edge Line.

SPEC	CODE	BID ITEM	QTY	UNIT
704	1072	FLEXIBLE DELINEATORS @ 100' CTRS		
		Sta 5360+68.07 to Sta 5859+13.37 (Minus Temporary Ramp Connection Areas)	472	EA
704	1500	OBLITERATION OF PAVEMENT MARKING		
		Sta 5360+68.07 to Sta 5859+13.37		
		(6" White Centerline Skips - centerline of northbound roadway for two-way traffic)	4158	SF
762	0200	RAISED PAVEMENT MARKERS @ 5' CTRS (CL DBL Yellow)		
		Sta 5360+68.07 to Sta 5859+13.37	19962	EA
762	1106	PVMT MK PAINTED 6IN LINE		
		Sta 5360+68.07 to Sta 5859+13.37 (Minus Temporary Ramp Connection Areas)	47398	LF
		(6" White Edge Lines - median side edge line on northbound roadway for two-way traffic)		

Traffic Control for Two-Way
Interstate Traffic on One Roadway

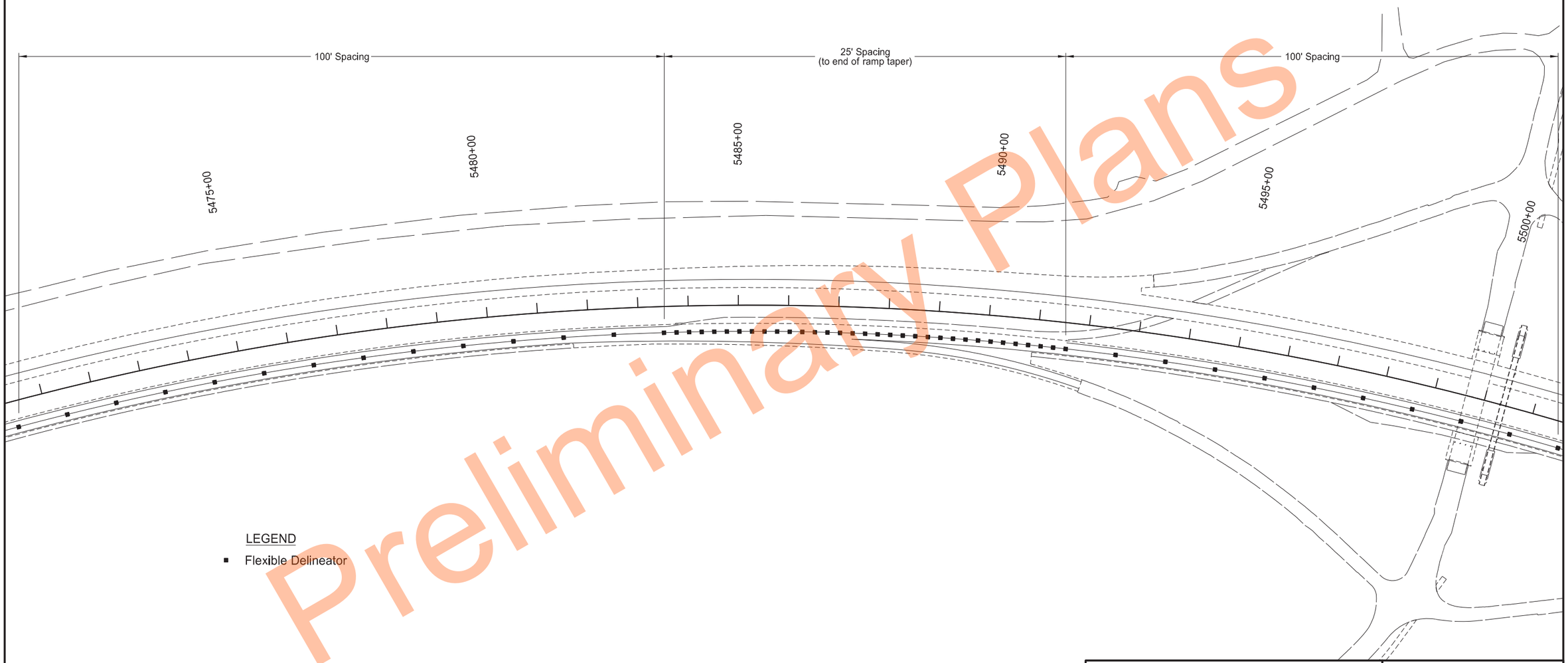
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	7

SPEC	CODE	BID ITEM	QTY	UNIT
704	1072	FLEXIBLE DELINEATORS		
		On Ramp Hillsboro Interchange	33	EA
		Off Ramp Hillsboro Interchange	37	EA
		On Ramp Mayville Interchange	33	EA



LEGEND

- Flexible Delineator

Preliminary Plans

Mainline Traffic Control at Intersections
Ramp Connections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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ERIC LAIDLEY
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DATE: 6/25/24
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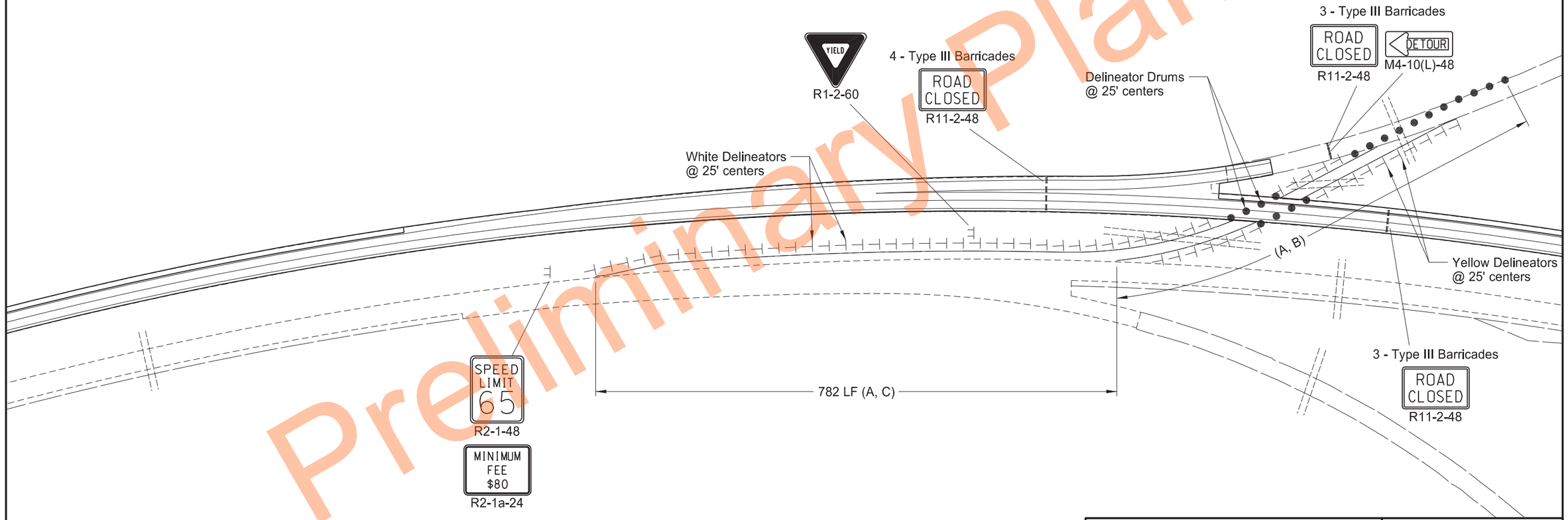
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	8

SPEC	CODE	BID ITEM	QTY	UNIT
704	1052	TYPE III BARRICADES		
			10	EA
704	1060	DELINEATOR DRUMS		
			19	EA
704	1070	DELINEATOR		
		White Delineators	43	EA
		Yellow Delineators	17	EA
704	1500	OBLITERATION OF PAVEMENT MARKING		
			262	SF
762	0200	RAISED PAVEMENT MARKERS		
		White Raised Pavement Markers	285	EA
		Yellow Raised Pavement Markers	112	EA



Note: See construction sign detail sheets for detailed images and dimensions of special signs.
See Section 82 for the alignment location/description of the NB temporary ramp connection.

LEGEND
A - White Raised Pavement Markers @ 5' ctrs
B - Yellow Raised Pavement Markers @ 5' ctrs

Hillsboro Interchange (Exit 104)
SW Ramp Connection Traffic Control

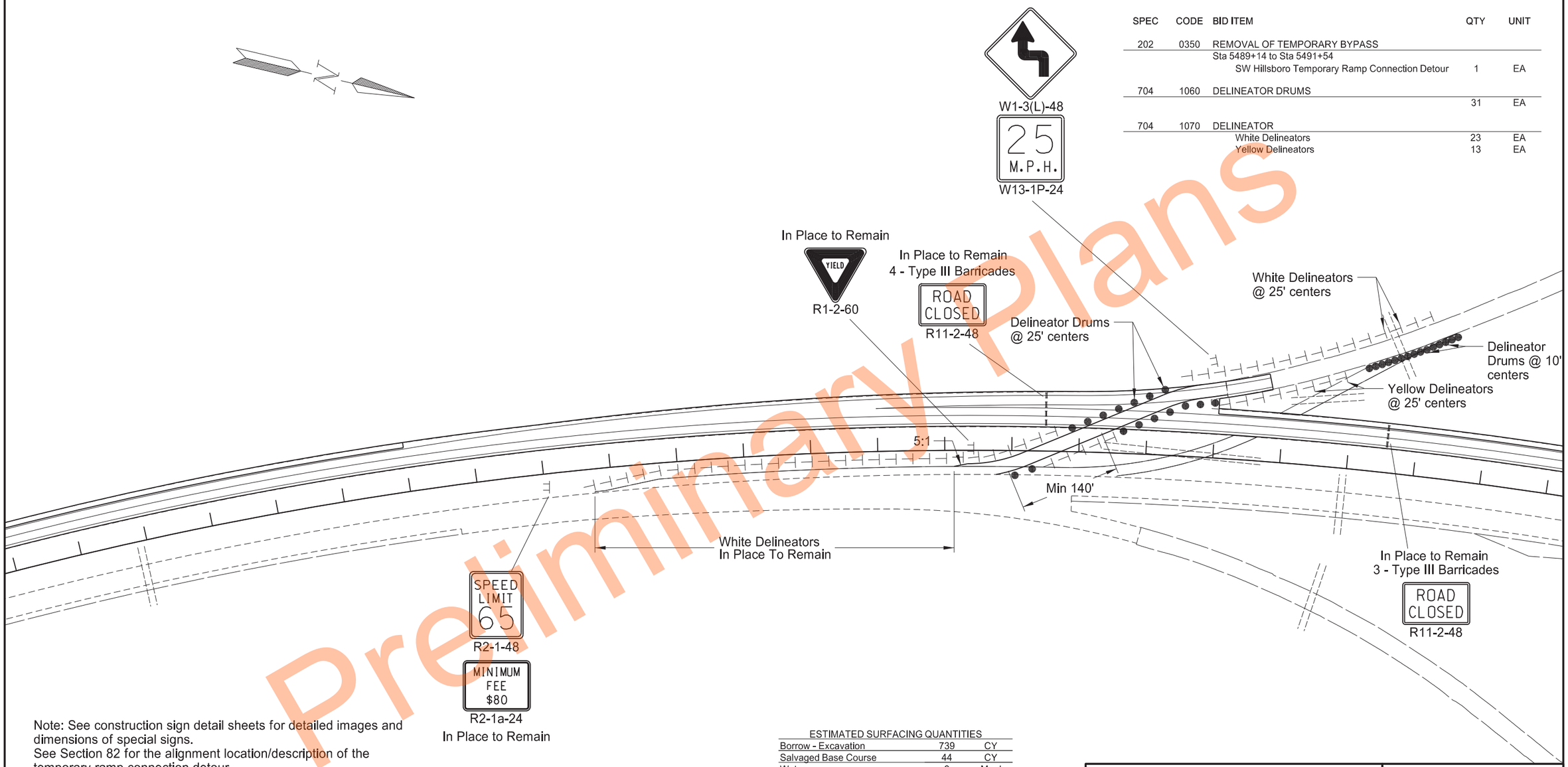
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

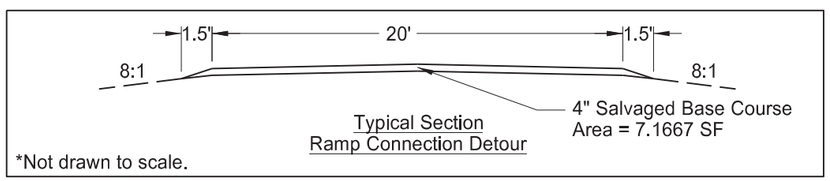
Preliminary
Delivery Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	9

SPEC	CODE	BID ITEM	QTY	UNIT
202	0350	REMOVAL OF TEMPORARY BYPASS		
		Sta 5489+14 to Sta 5491+54		
		SW Hillsboro Temporary Ramp Connection Detour	1	EA
704	1060	DELINEATOR DRUMS		
			31	EA
704	1070	DELINEATOR		
		White Delineators	23	EA
		Yellow Delineators	13	EA



Note: See construction sign detail sheets for detailed images and dimensions of special signs.
See Section 82 for the alignment location/description of the temporary ramp connection detour.
See Section 6 Note 710-P01 for additional details.



ESTIMATED SURFACING QUANTITIES

Borrow - Excavation	739	CY
Salvaged Base Course	44	CY
Water	9	Mgal

*These quantities are for informational purposes only.
See Section 6 Note 710-P01.

Hillsboro Interchange (Exit 104)
SW Ramp Connection Detour Traffic Control

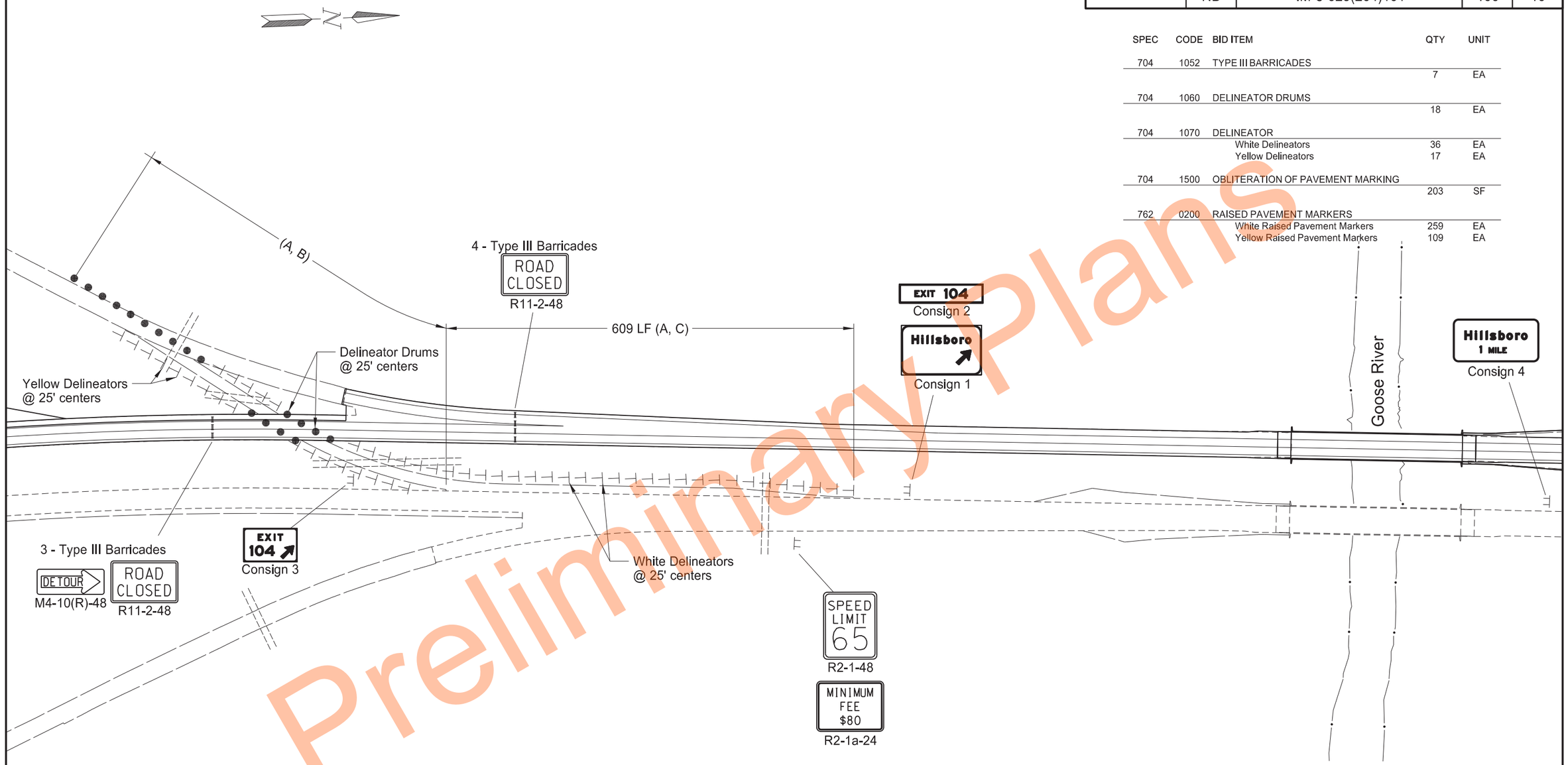
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	10

SPEC	CODE	BID ITEM	QTY	UNIT
704	1052	TYPE III BARRICADES		
			7	EA
704	1060	DELINEATOR DRUMS		
			18	EA
704	1070	DELINEATOR		
		White Delineators	36	EA
		Yellow Delineators	17	EA
704	1500	OBLITERATION OF PAVEMENT MARKING		
			203	SF
762	0200	RAISED PAVEMENT MARKERS		
		White Raised Pavement Markers	259	EA
		Yellow Raised Pavement Markers	109	EA



Note: See construction sign detail sheets for detailed images and dimensions of special signs.
See section 82 for the alignment location/description of the NB temporary ramp connection.

LEGEND
A - White Raised Pavement Markers @ 5' ctrs
B - Yellow Raised Pavement Markers @ 5' ctrs
C - Obliteration of Pavement Marking Edge Lines

Hillsboro Interchange (Exit 104)
NW Ramp Connection Traffic Control

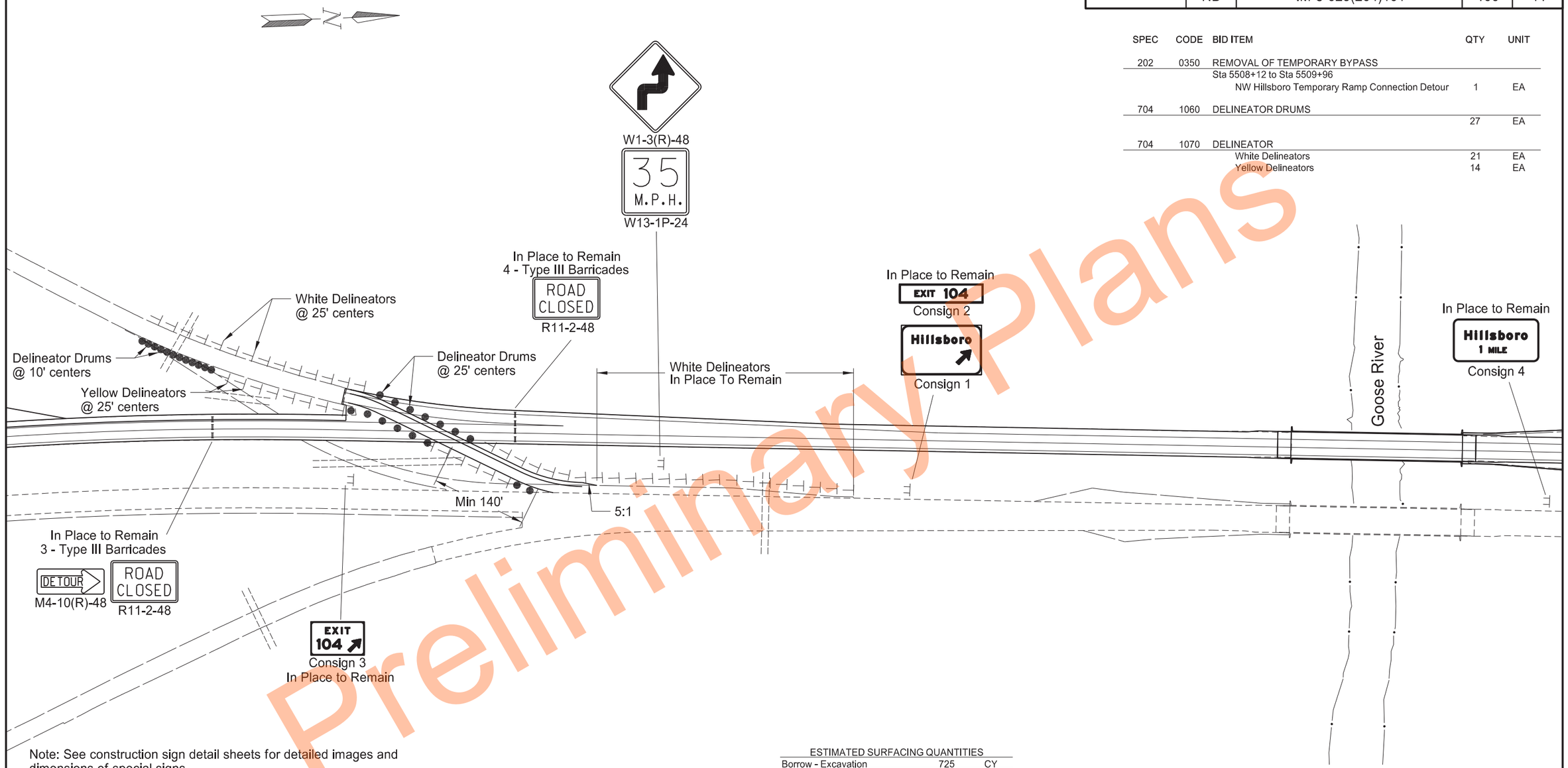
PCC Pavement Reconstruciton
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

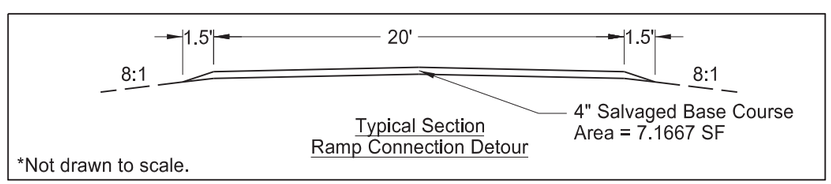
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	11

SPEC	CODE	BID ITEM	QTY	UNIT
202	0350	REMOVAL OF TEMPORARY BYPASS		
		Sta 5508+12 to Sta 5509+96		
		NW Hillsboro Temporary Ramp Connection Detour	1	EA
704	1060	DELINEATOR DRUMS		
			27	EA
704	1070	DELINEATOR		
		White Delineators	21	EA
		Yellow Delineators	14	EA



Note: See construction sign detail sheets for detailed images and dimensions of special signs.
See section 82 for the alignment location/description of the temporary ramp connection detour.
See Section 6 Note 710-P01 for additional details.



Typical Section
Ramp Connection Detour

*Not drawn to scale.

ESTIMATED SURFACING QUANTITIES

Borrow - Excavation	725	CY
Salvaged Base Course	43	CY
Water	9	Mgal

*These quantities are for informational purposes only.
See Section 6 Note 710-P01.

Hillsboro Interchange (Exit 104)
NW Ramp Connection Detour Traffic Control

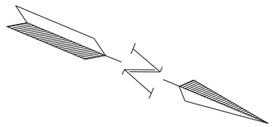
PCC Pavement Reconstruciton
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

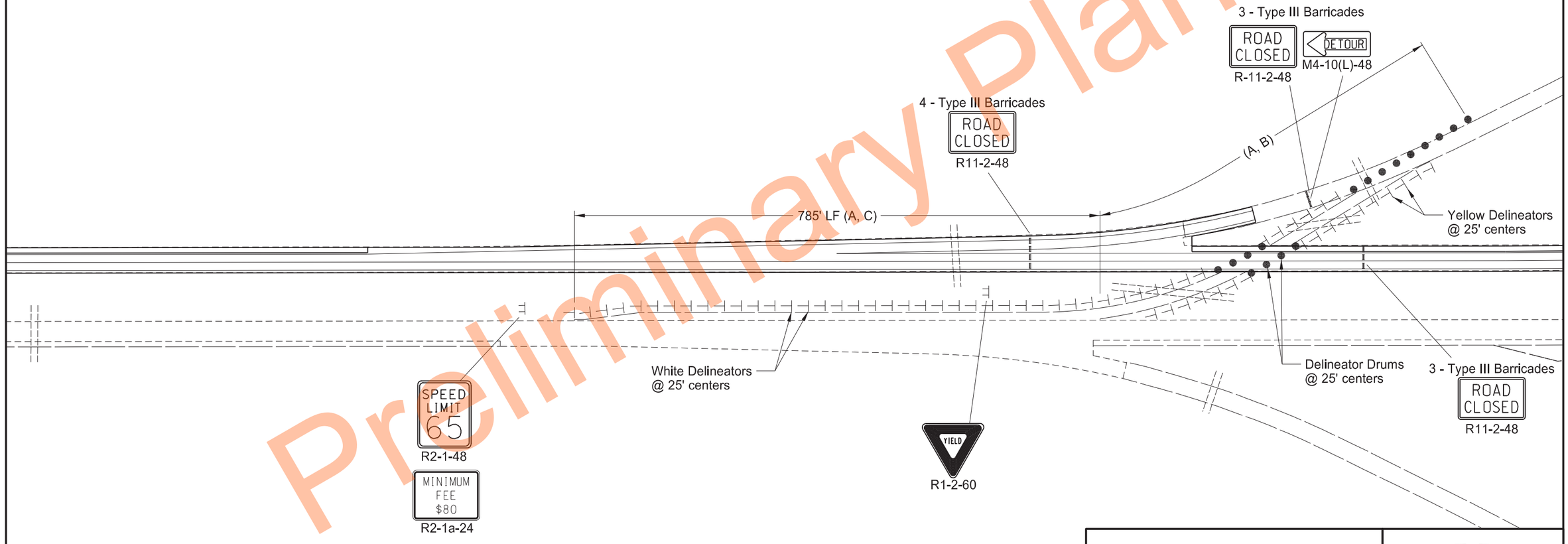
REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	12

SPEC	CODE	BID ITEM	QTY	UNIT
704	1052	TYPE III BARRICADES		
			10	EA
704	1060	DELINEATOR DRUMS		
			17	EA
704	1070	DELINEATOR		
		White Delineators	45	EA
		Yellow Delineators	17	EA
704	1500	OBLITERATION OF PAVEMENT MARKING		
			262	SF
762	0200	RAISED PAVEMENT MARKERS		
		White Raised Pavement Markers	283	EA
		Yellow Raised Pavement Markers	126	EA





Note: See construction sign detail sheets for detailed images and dimensions of special signs.
See Section 82 for the alignment location/description of the temporary ramp connection.

LEGEND
A - White Raised Pavement Markers @ 5' ctrs
B - Yellow Raised Pavement Markers @ 5' ctrs
C - Obliteration of Pavement Marking Edge Lines

Mayville Interchange (Exit 111)
SW Ramp Connection Traffic Control

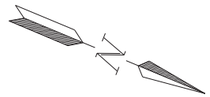
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

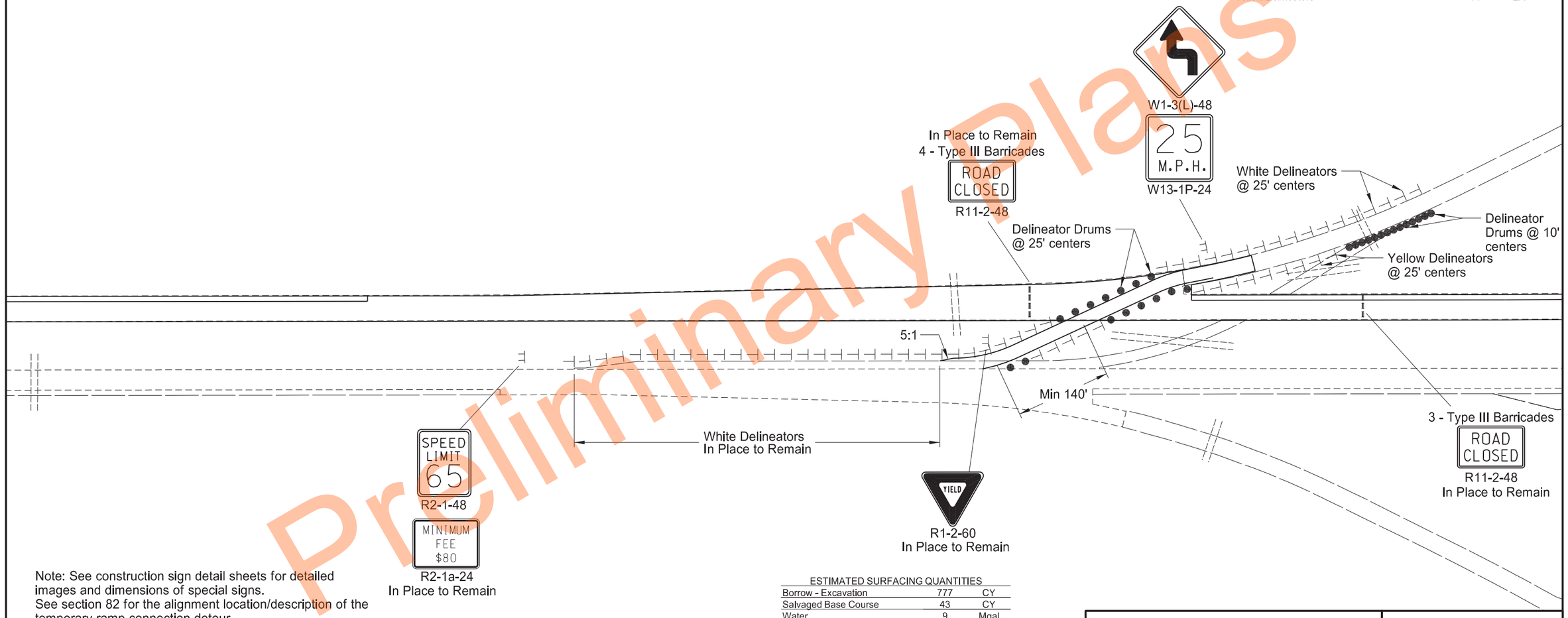
REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

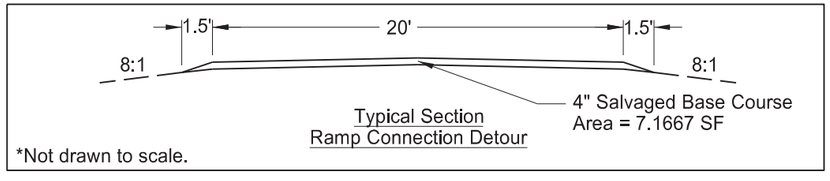
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	13

SPEC	CODE	BID ITEM	QTY	UNIT
202	0350	REMOVAL OF TEMPORARY BYPASS		
		Sta 5838+55 to Sta 5843+27		
		SW Mayville Temporary Ramp Connection Detour	1	EA
704	1060	DELINEATOR DRUMS		
			29	EA
704	1070	DELINEATOR		
		White Delineators	25	EA
		Yellow Delineators	14	EA





Note: See construction sign detail sheets for detailed images and dimensions of special signs.
See section 82 for the alignment location/description of the temporary ramp connection detour.
See Section 6 Note 710-P01 for additional details.



ESTIMATED SURFACING QUANTITIES

Borrow - Excavation	777	CY
Salvaged Base Course	43	CY
Water	9	Mgal

*These quantities are for informational purposes only.
See Section 6 Note 710-P01.

Mayville Interchange (Exit 111)
SW Ramp Connection Detour Traffic Control

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

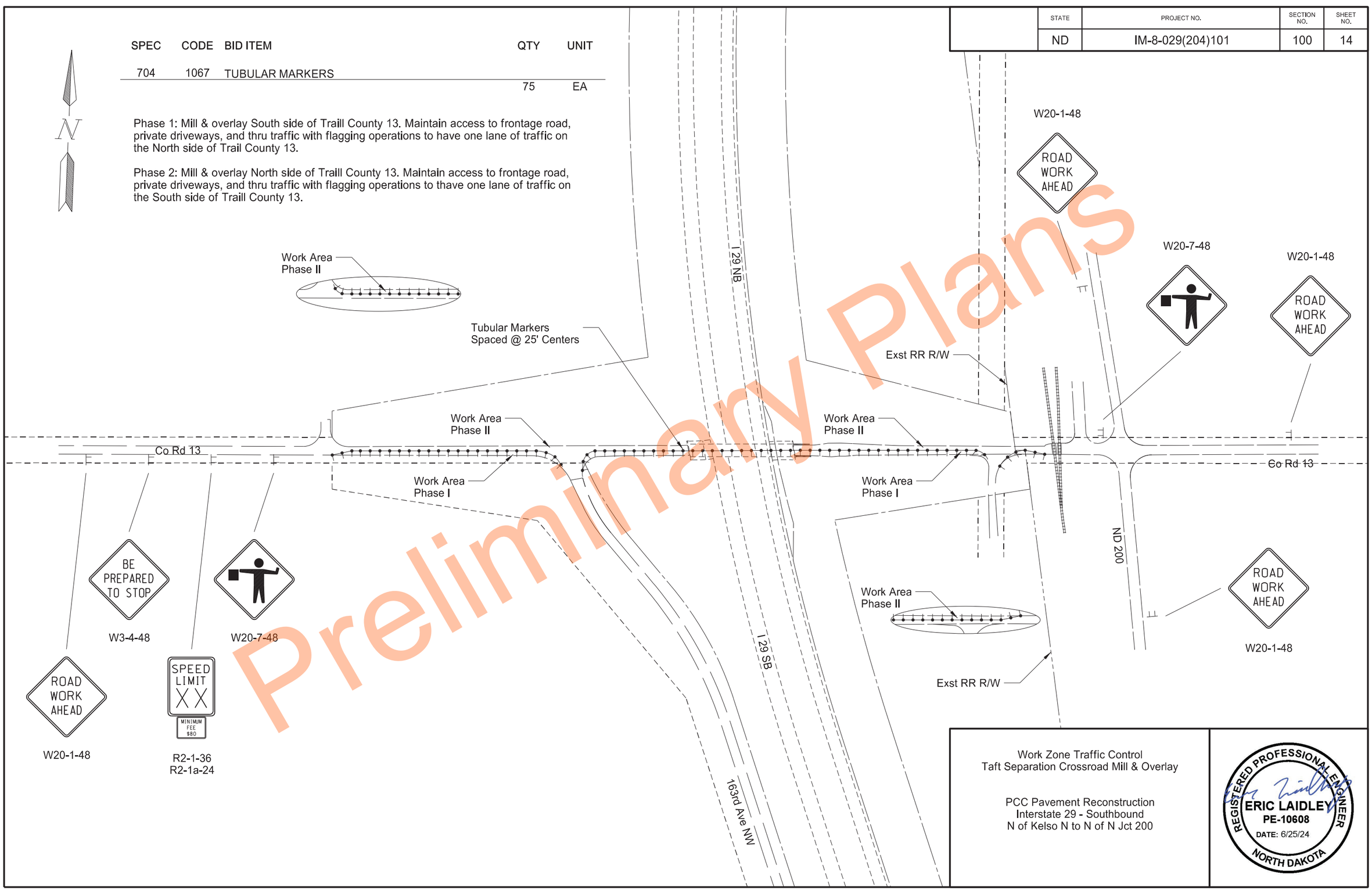
Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	100	14

SPEC	CODE	BID ITEM	QTY	UNIT
704	1067	TUBULAR MARKERS	75	EA

Phase 1: Mill & overlay South side of Traill County 13. Maintain access to frontage road, private driveways, and thru traffic with flagging operations to have one lane of traffic on the North side of Trail County 13.

Phase 2: Mill & overlay North side of Traill County 13. Maintain access to frontage road, private driveways, and thru traffic with flagging operations to thave one lane of traffic on the South side of Traill County 13.



Preliminary Plans

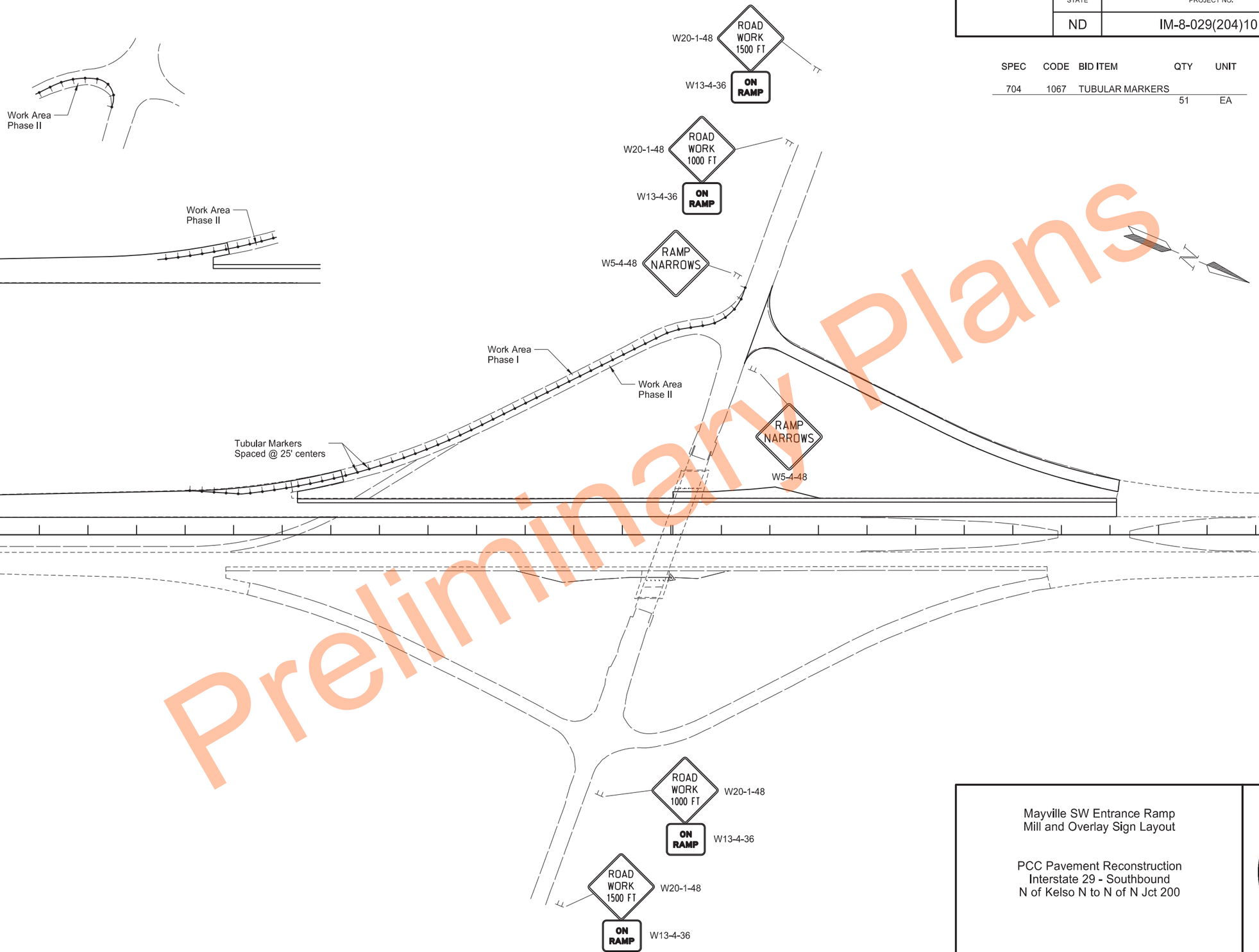
Work Zone Traffic Control
Taft Separation Crossroad Mill & Overlay

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	15

SPEC	CODE	BID ITEM	QTY	UNIT
704	1067	TUBULAR MARKERS	51	EA



Preliminary Plans

Mayville SW Entrance Ramp
Mill and Overlay Sign Layout

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

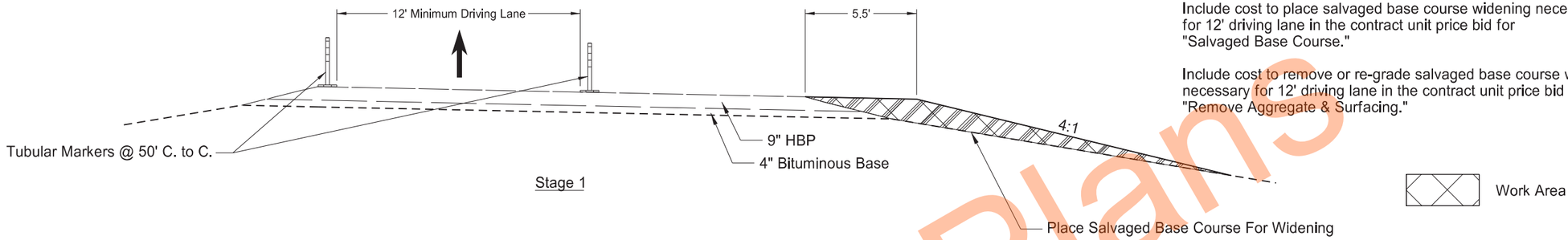
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	16

Notes: Refer to Section 6 Note 704-P07 for subcut construction operation requirements.

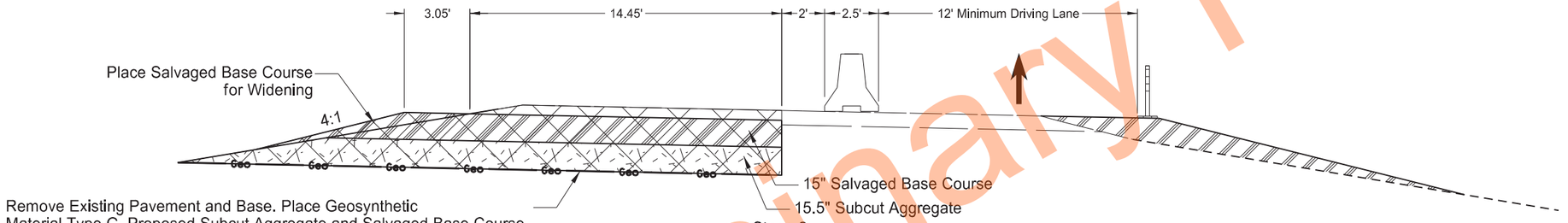
Compact all Salvaged Base Course in accordance with Section 302.04 B of the Standard Specifications.

Include cost to place salvaged base course widening necessary for 12' driving lane in the contract unit price bid for "Salvaged Base Course."

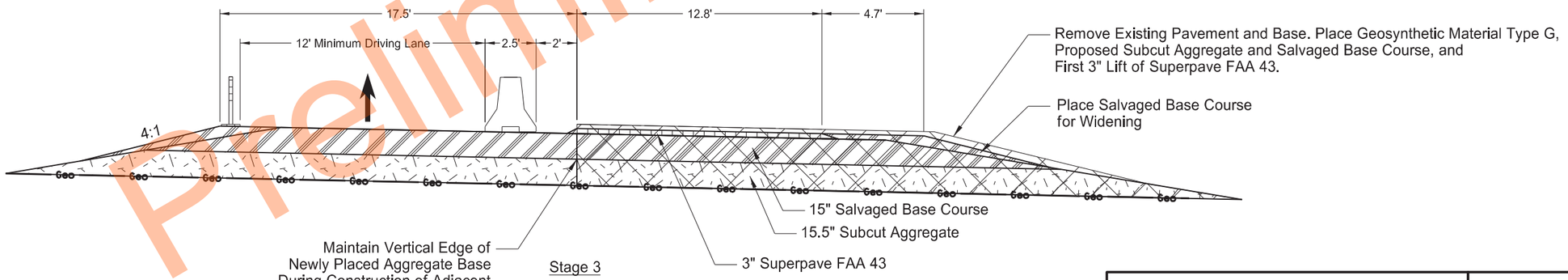
Include cost to remove or re-grade salvaged base course widening necessary for 12' driving lane in the contract unit price bid for "Remove Aggregate & Surfacing."



Stage 1



Stage 2



Stage 3

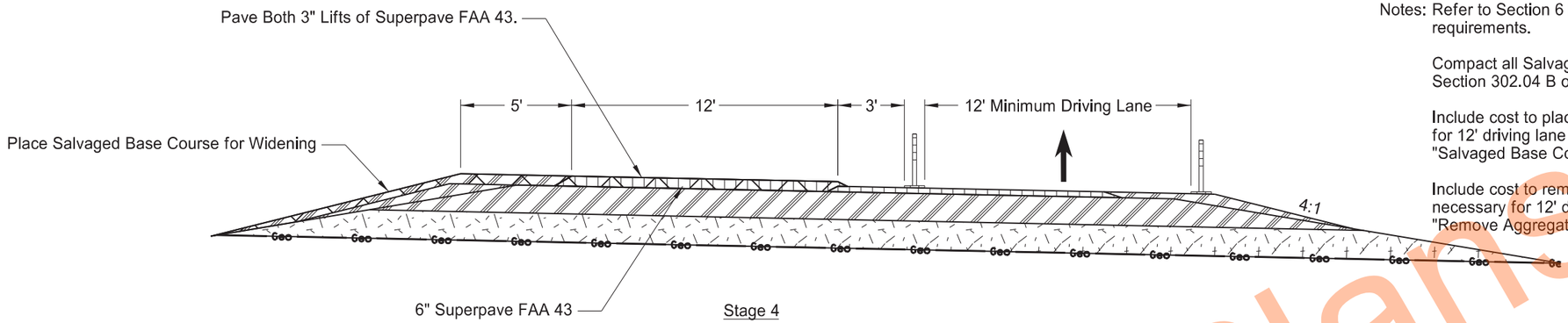
Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Typical Sections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	17



Stage 4

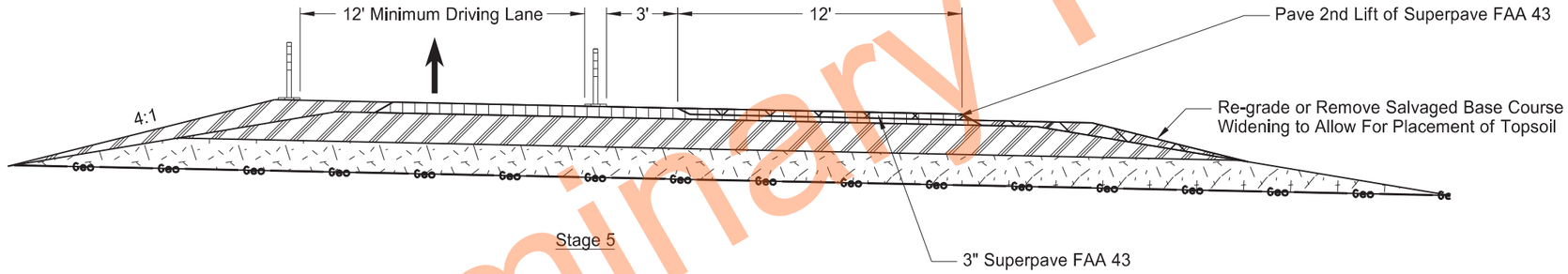
Notes: Refer to Section 6 Note 704-P07 for subcut construction operation requirements.

Compact all Salvaged Base Course in accordance with Section 302.04 B of the Standard Specifications.

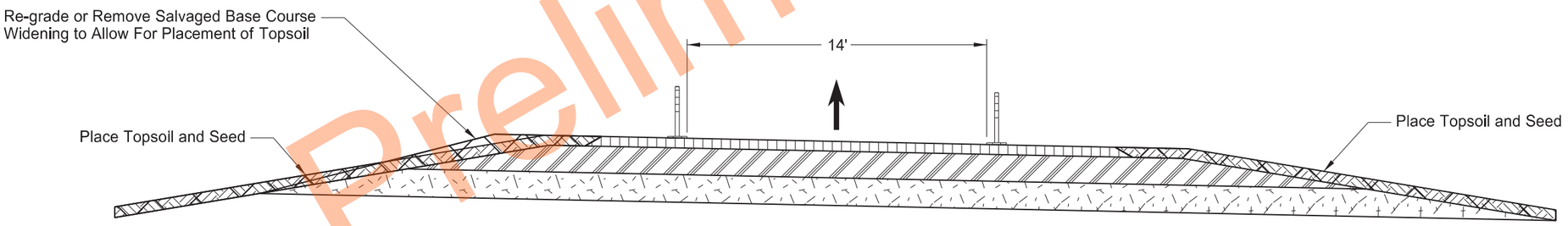
Include cost to place salvaged base course widening necessary for 12' driving lane in the contract unit price bid for "Salvaged Base Course."

Include cost to remove or re-grade salvaged base course widening necessary for 12' driving lane in the contract unit price bid for "Remove Aggregate & Surfacing."

Work Area



Stage 5



Stage 6

Preliminary Plans

Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Typical Sections

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

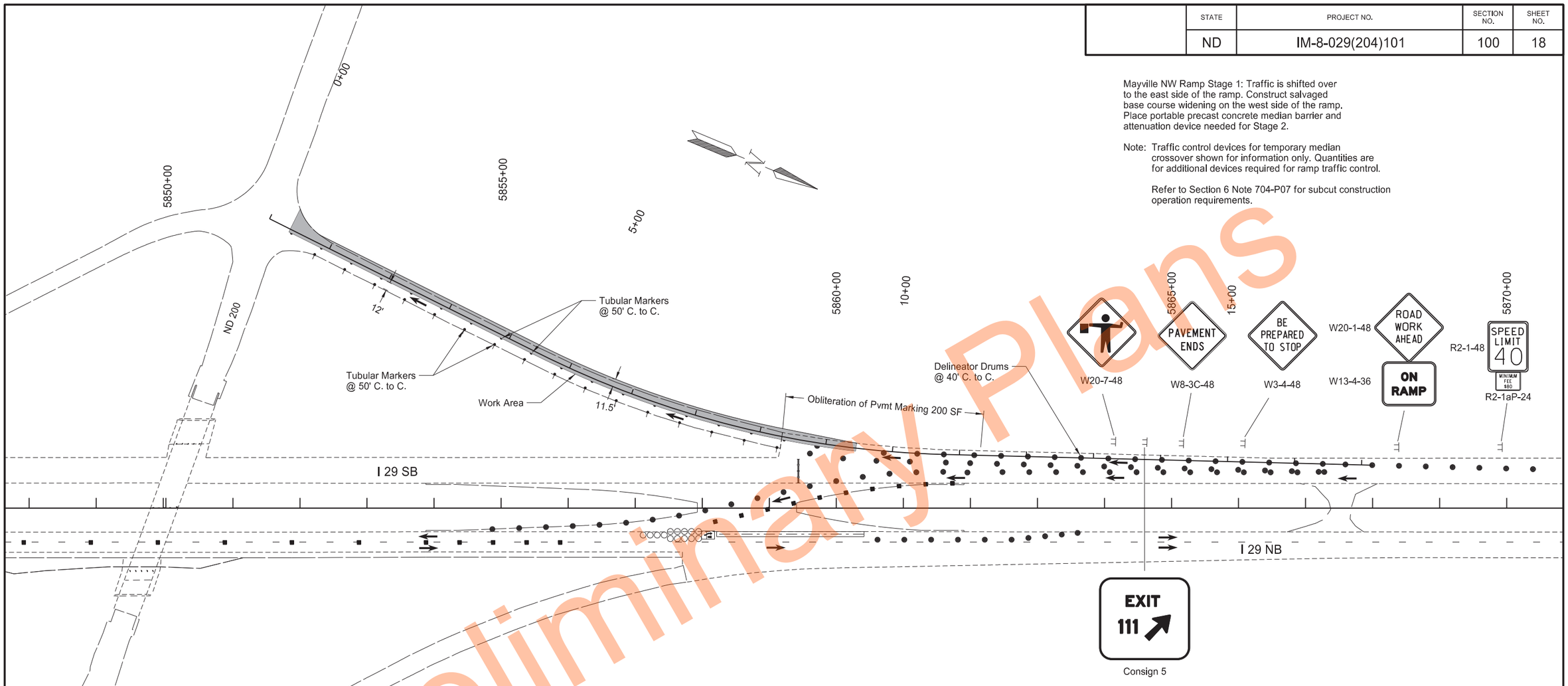
REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	18

Mayville NW Ramp Stage 1: Traffic is shifted over to the east side of the ramp. Construct salvaged base course widening on the west side of the ramp. Place portable precast concrete median barrier and attenuation device needed for Stage 2.

Note: Traffic control devices for temporary median crossover shown for information only. Quantities are for additional devices required for ramp traffic control.

Refer to Section 6 Note 704-P07 for subcut construction operation requirements.



Preliminary Plans

SPEC	CODE	BID ITEM	QTY	UNIT
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Stage 1 through 6	1480	TON
302	0101	SALVAGED BASE COURSE		
		Stage 1 through 6	789	CY
704	1038	ATTENUATION DEVICE TYPE B-40		
		Stage 1 through 6	1	EA
704	1060	DELINEATOR DRUMS		
		Stage 1 through 6	42	EA
704	1067	TUBULAR MARKERS		
		Stage 1 through 6	39	EA
704	1500	OBLITERATION OF PAVEMENT MARKING		
		Stage 1 through 6	280	SF
704	3511	STATE FURNISHED MEDIAN BARRIERS		
		Stage 1 through 3	840	LF
709	100	GEOSYNTHETIC MATERIAL TYPE G		
		Stage 1 through 6	5810	SY

LEGEND
- Tubular Marker
- Delineator Drum
- Flexible Delineator
- Type 3 Barricade
- Work Area

Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Layout Stage 1

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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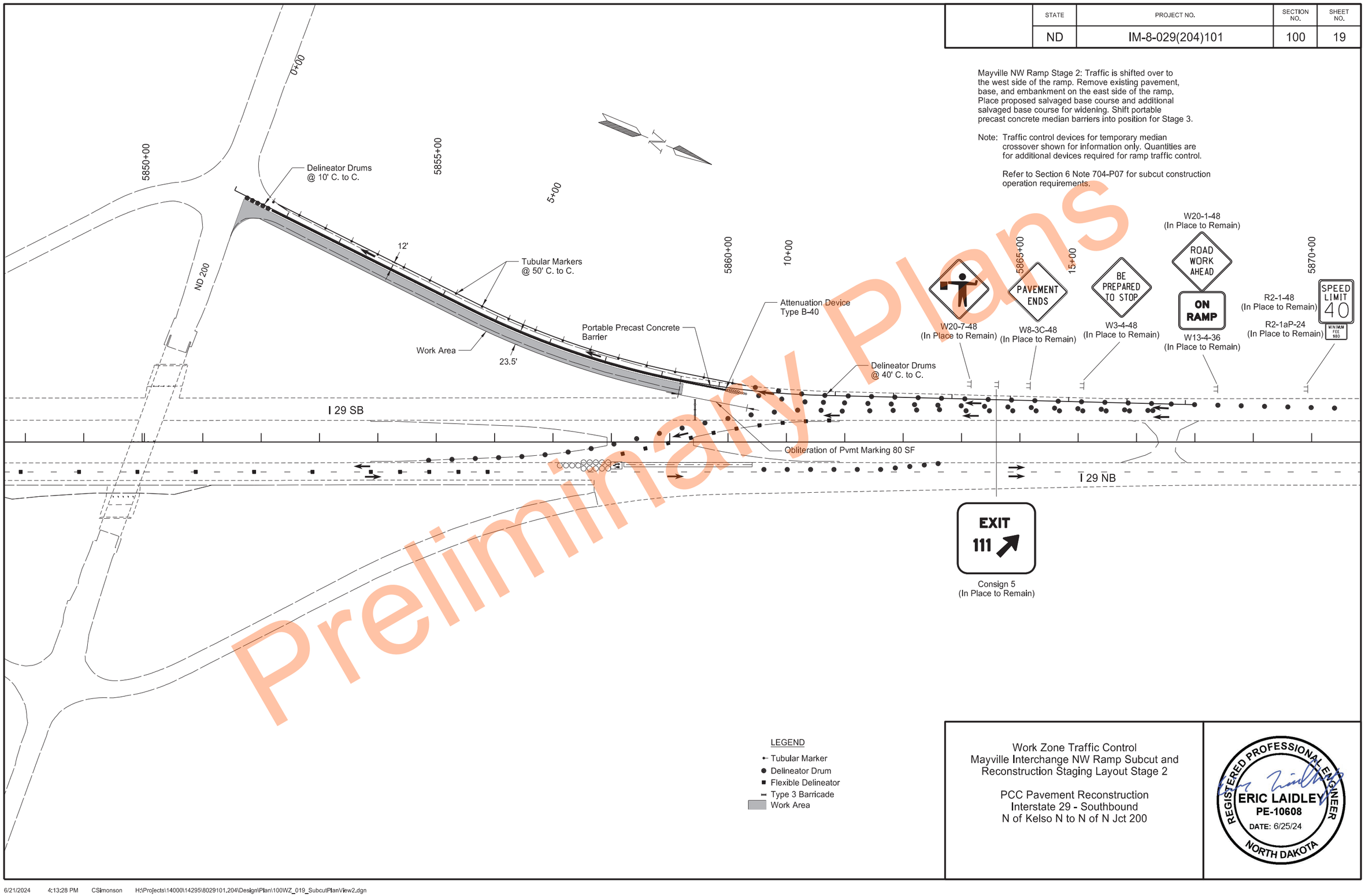
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	19

Mayville NW Ramp Stage 2: Traffic is shifted over to the west side of the ramp. Remove existing pavement, base, and embankment on the east side of the ramp. Place proposed salvaged base course and additional salvaged base course for widening. Shift portable precast concrete median barriers into position for Stage 3.

Note: Traffic control devices for temporary median crossover shown for information only. Quantities are for additional devices required for ramp traffic control.

Refer to Section 6 Note 704-P07 for subcut construction operation requirements.



Preliminary Plans

LEGEND

- Tubular Marker
- Delineator Drum
- Flexible Delineator
- Type 3 Barricade
- Work Area

Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Layout Stage 2

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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PE-10608
DATE: 6/25/24
NORTH DAKOTA

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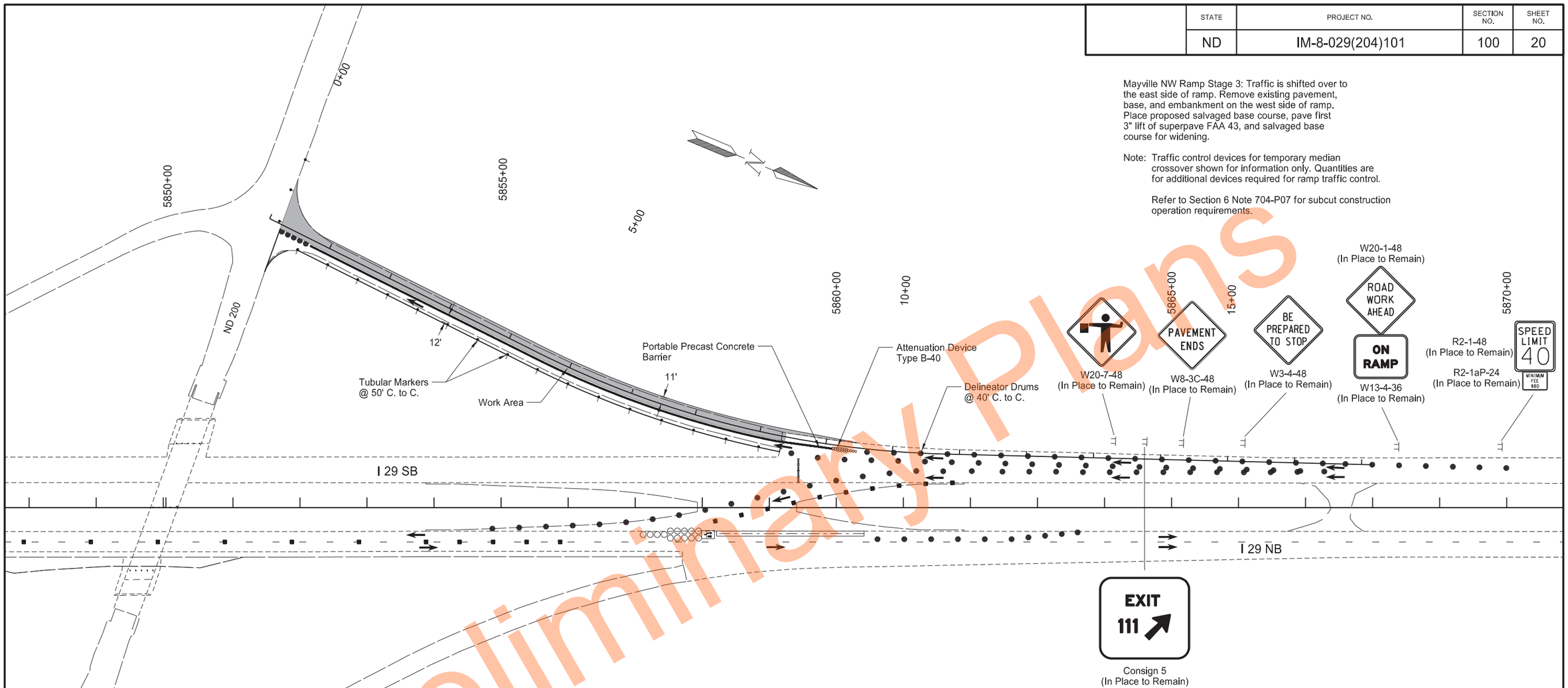
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	20

Mayville NW Ramp Stage 3: Traffic is shifted over to the east side of ramp. Remove existing pavement, base, and embankment on the west side of ramp. Place proposed salvaged base course, pave first 3" lift of superpave FAA 43, and salvaged base course for widening.

Note: Traffic control devices for temporary median crossover shown for information only. Quantities are for additional devices required for ramp traffic control.

Refer to Section 6 Note 704-P07 for subcut construction operation requirements.



Preliminary Plans

LEGEND

- Tubular Marker
- Delineator Drum
- Flexible Delineator
- Type 3 Barricade
- Work Area

Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Layout Stage 3

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

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PE-10608
DATE: 6/25/24
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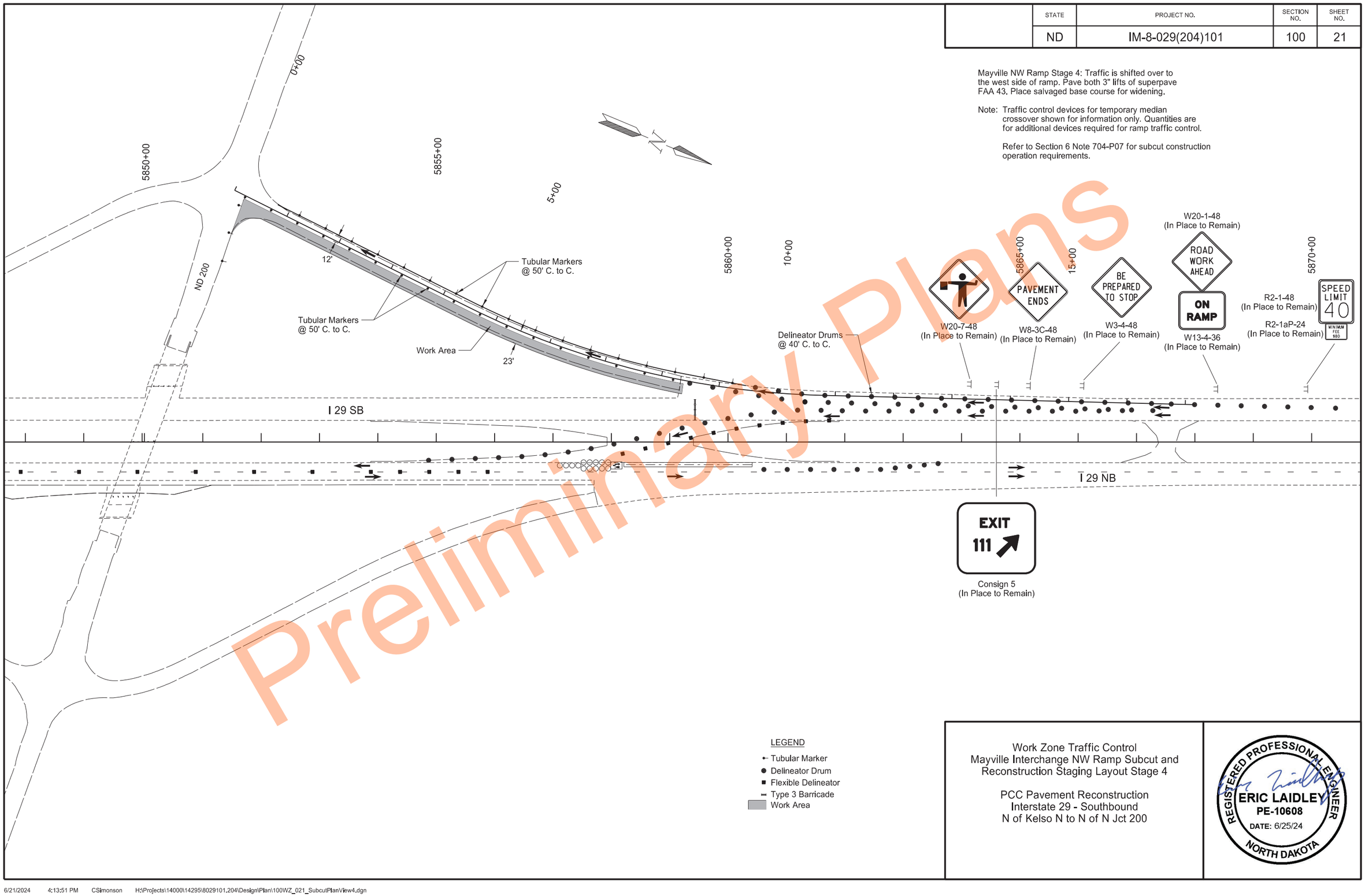
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	21

Mayville NW Ramp Stage 4: Traffic is shifted over to the west side of ramp. Pave both 3" lifts of superpave FAA 43. Place salvaged base course for widening.

Note: Traffic control devices for temporary median crossover shown for information only. Quantities are for additional devices required for ramp traffic control.

Refer to Section 6 Note 704-P07 for subcut construction operation requirements.



Preliminary Plans

LEGEND

- Tubular Marker
- Delineator Drum
- Flexible Delineator
- Type 3 Barricade
- Work Area

Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Layout Stage 4

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

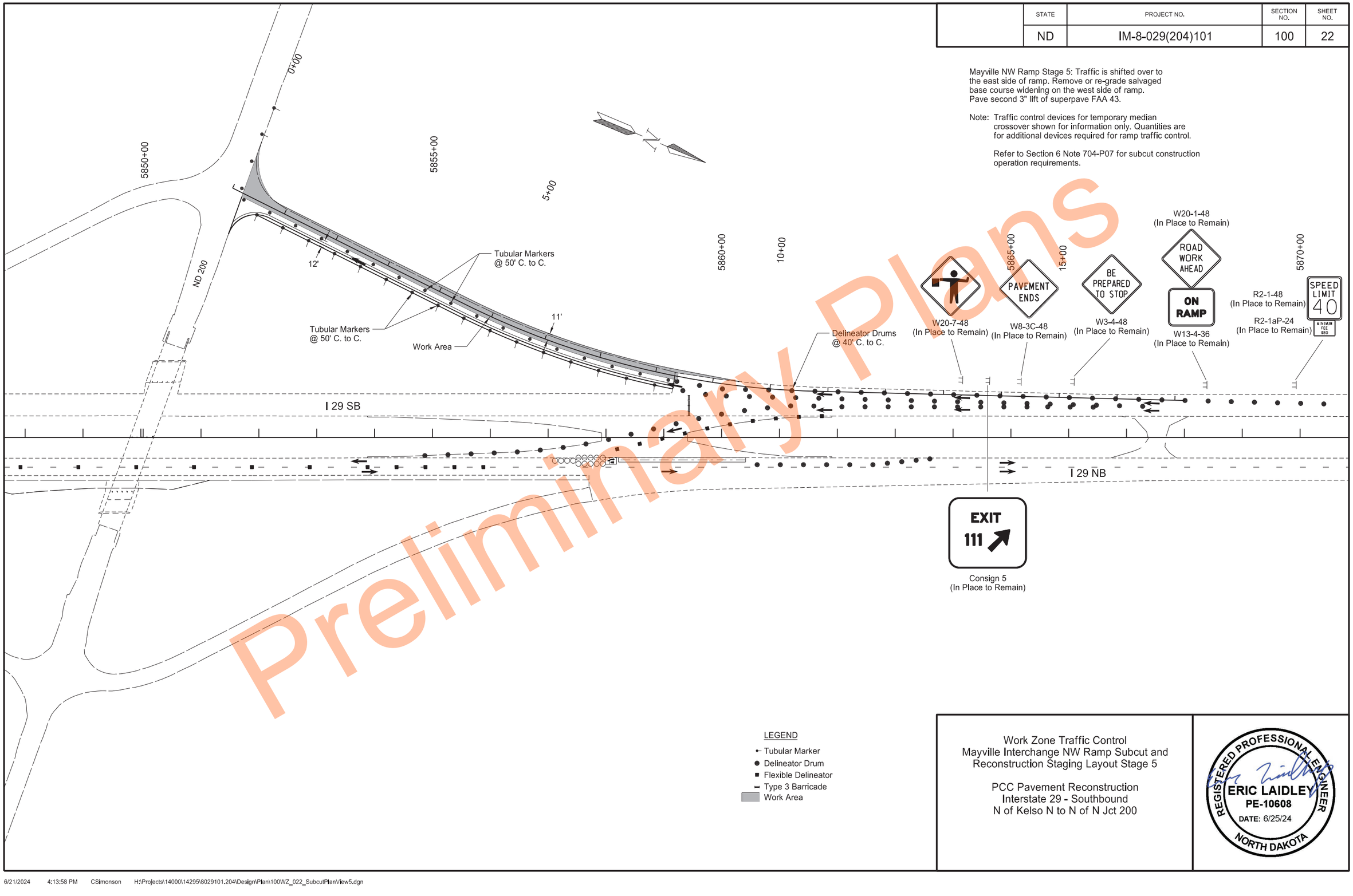
6/21/2024 4:13:51 PM CSimonson H:\Projects\14000\14295\8029101.204\Design\Plan\100WZ_021_SubcutPlanView4.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	22

Mayville NW Ramp Stage 5: Traffic is shifted over to the east side of ramp. Remove or re-grade salvaged base course widening on the west side of ramp. Pave second 3" lift of superpave FAA 43.

Note: Traffic control devices for temporary median crossover shown for information only. Quantities are for additional devices required for ramp traffic control.

Refer to Section 6 Note 704-P07 for subcut construction operation requirements.



Preliminary Plans

LEGEND

- Tubular Marker
- Delineator Drum
- Flexible Delineator
- Type 3 Barricade
- Work Area

Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Layout Stage 5

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

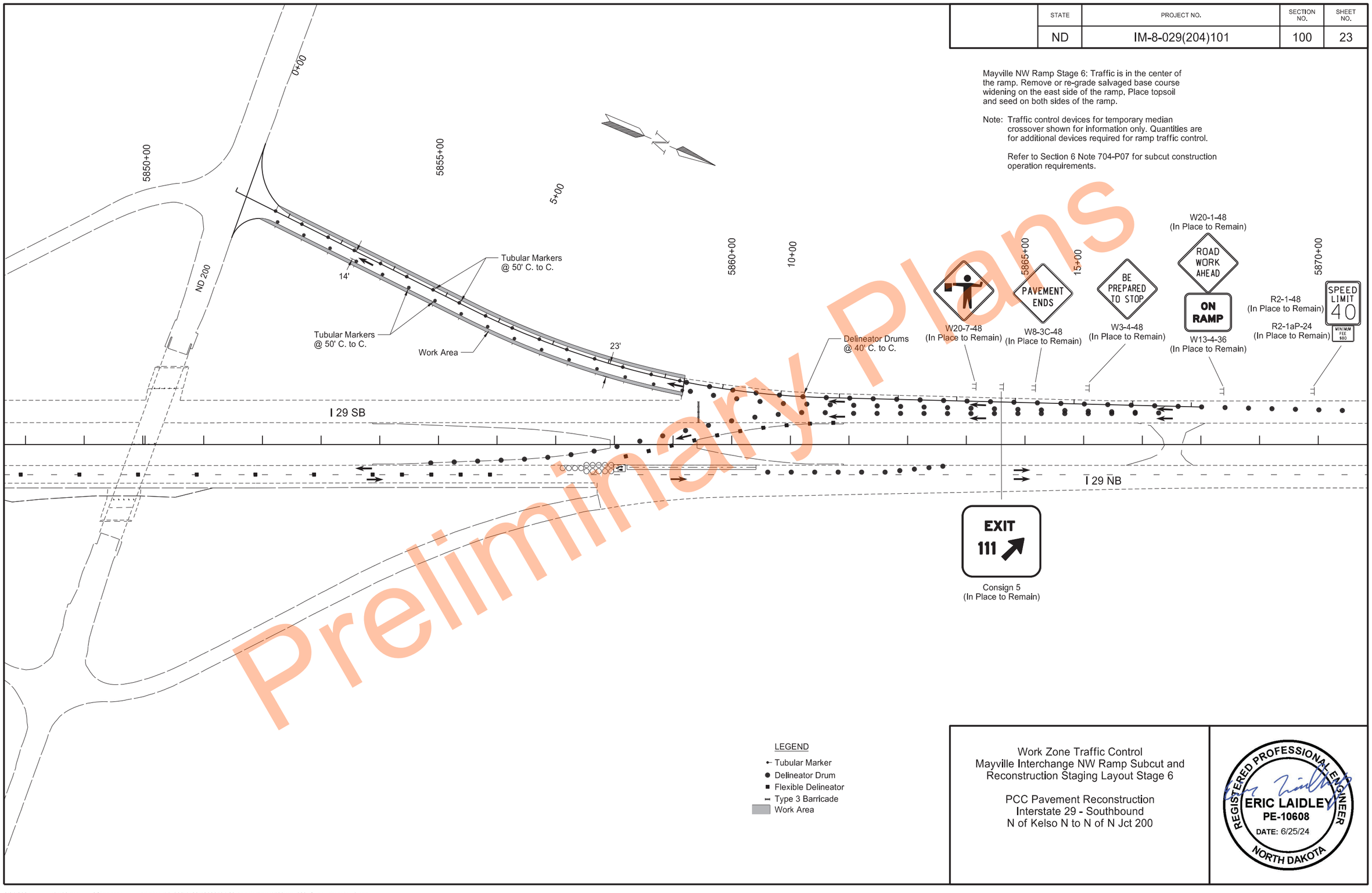
6/21/2024 4:13:58 PM CSimonson H:\Projects\14000\14295\8029101.204\Design\Plan\100WZ_022_SubcutPlanView5.dgn

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	23

Mayville NW Ramp Stage 6: Traffic is in the center of the ramp. Remove or re-grade salvaged base course widening on the east side of the ramp. Place topsoil and seed on both sides of the ramp.

Note: Traffic control devices for temporary median crossover shown for information only. Quantities are for additional devices required for ramp traffic control.

Refer to Section 6 Note 704-P07 for subcut construction operation requirements.



Preliminary Plans

LEGEND

- Tubular Marker
- Delineator Drum
- Flexible Delineator
- Type 3 Barricade
- Work Area

Work Zone Traffic Control
Mayville Interchange NW Ramp Subcut and Reconstruction Staging Layout Stage 6

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

6/21/2024 4:14:06 PM CSimonson H:\Projects\14000\14295\8029101.204\Design\Plan\100WZ_023_SubcutPlanView6.dgn

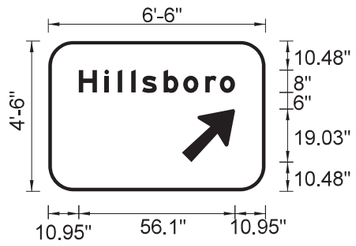
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	100	24

SIGN NUMBER	Consign 1
WIDTH X HEIGHT	6'-6" x 4'-6"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
Exit Arrow (Type A) 2012	48	10.5	15.1	24.2	315

STATION(S): none

AREA: 29.3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

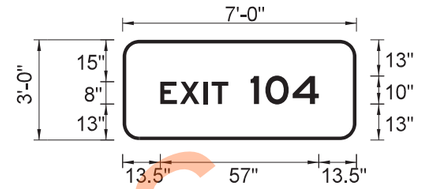
LETTER POSITION (X)																				LENGTH	SIZE	SERIES
H	i	l	l	s	b	o	r	o												56.1	8/6	EM 2000
11	20.2	25	29.8	33.7	41.4	48.5	56.4	61.6														

SIGN NUMBER	Consign 2
WIDTH X HEIGHT	7'-0" x 3'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 21.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

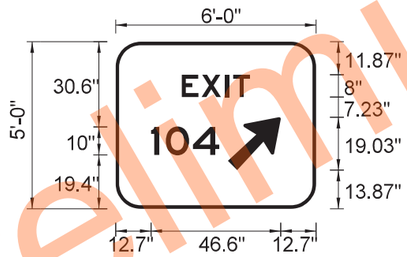
LETTER POSITION (X)																				LENGTH	SIZE	SERIES
E	X	I	T	1	0	4														57	8,10	E 2000
13.5	20.6	29.2	32	46	51.3	61.1																

SIGN NUMBER	Consign 3
WIDTH X HEIGHT	6'-0" x 5'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
Exit Arrow (Type A) 2012	40.3	13.9	15.1	24.2	315

STATION(S): none

AREA: 30.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

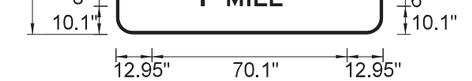
LETTER POSITION (X)																				LENGTH	SIZE	SERIES
E	X	I	T																	24.5	8	E 2000
23.8	30.9	39.4	42.2																			
1	0	4																		24.5	10	E 2000
12.7	18	27.8																				

SIGN NUMBER	Consign 4
WIDTH X HEIGHT	8'-0" x 4'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 32.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssl

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
H	i	l	l	s	b	o	r	o												70.1	10/7.5	EM 2000
13	24.5	30.5	36.5	41.4	51.1	59.9	69.8	76.3														
1	M	I	L	E																30.3	8,6	E 2000
29.6	40	47.2	49.8	55.3																		

Preliminary Plans

Construction Sign Details

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

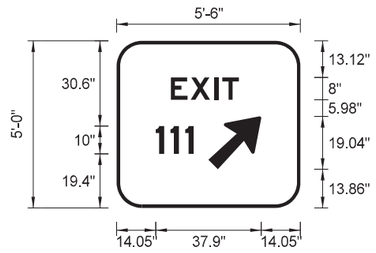
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	25

SIGN NUMBER	Consign
WIDTH X HEIGHT	5'-6" x 5'-0"
BORDER WIDTH	1.25" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
Exit Arrow (Type A) 2012	438.7	453.1	15.1	24.2	315

STATION(S):
none

AREA: 14760.3 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Guide.ssi

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
E	X	I	T																24.5	8	E 2000
425.3	432.4	440.9	443.7																		
1	1	1																	13.6	10	E 2000
419.9	425.2	430.5																			

Preliminary Plans

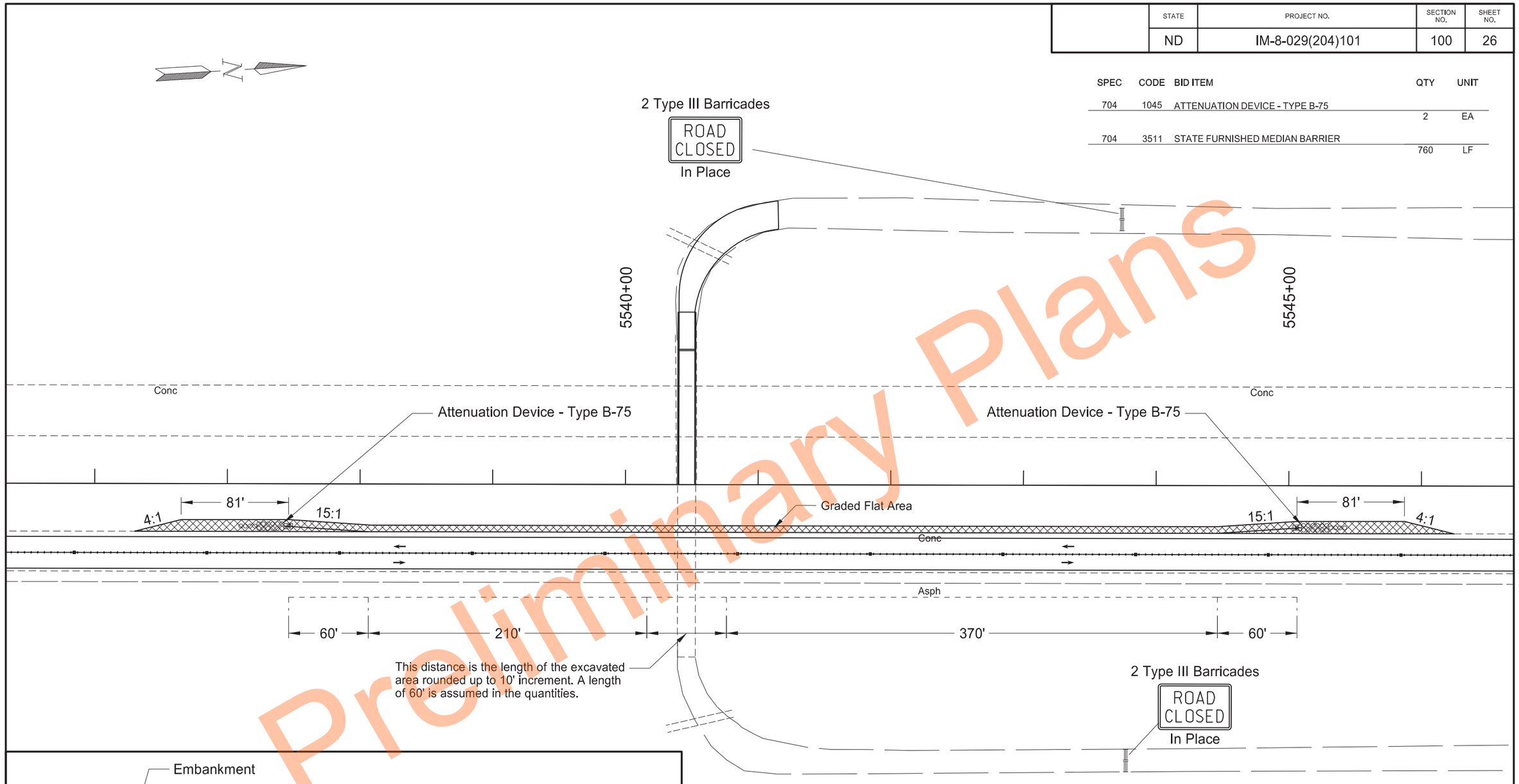
Construction Sign Details

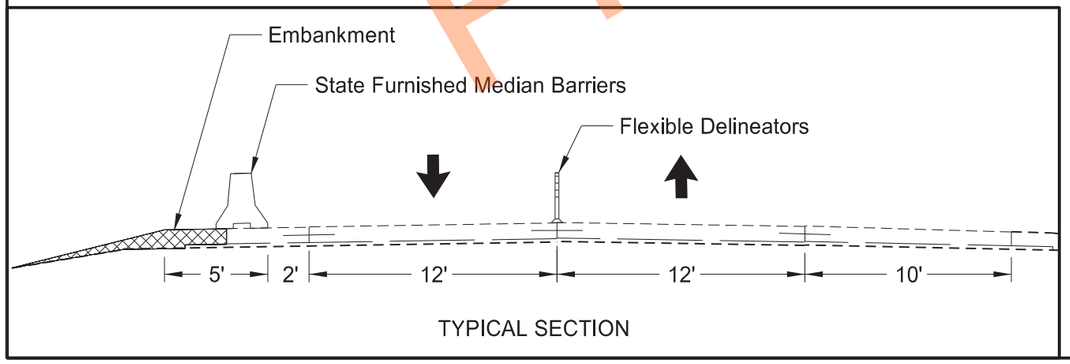
PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	100	26

SPEC	CODE	BID ITEM	QTY	UNIT
704	1045	ATTENUATION DEVICE - TYPE B-75	2	EA
704	3511	STATE FURNISHED MEDIAN BARRIER	760	LF





TYPICAL SECTION

See standard drawing D-704-57 for additional details

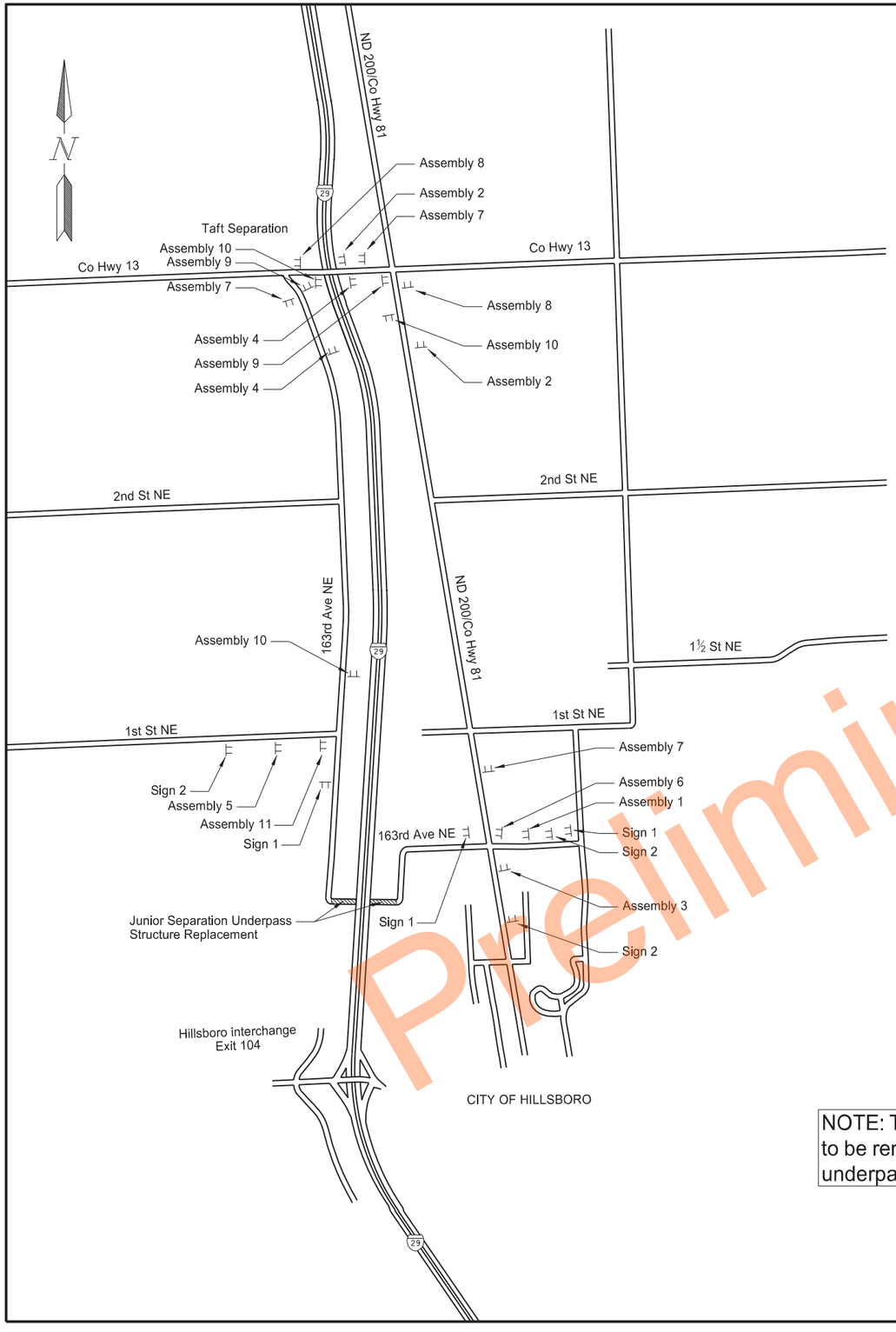
Portable Concrete Median Barrier Layout-RP 104.934
Box Culvert Underpass Construction

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	100	27



Sign 1
ROAD CLOSED AHEAD
Post Mounted

Sign 2
DETOUR AHEAD
Post Mounted

Assembly 1
DETOUR
WEST
163rd Ave NE
Post Mounted

Assembly 2
DETOUR
WEST
163rd Ave NE
Post Mounted

Assembly 3
DETOUR
WEST
163rd Ave NE
Post Mounted

Assembly 4
DETOUR
EAST
163rd Ave NE
Post Mounted

Assembly 5
DETOUR
EAST
163rd Ave NE
Post Mounted

Assembly 6
DETOUR
WEST
163rd Ave NE
Post Mounted

Assembly 7
DETOUR
WEST
163rd Ave NE
Post Mounted

Assembly 8
DETOUR
WEST
163rd Ave NE
Post Mounted

Assembly 9
DETOUR
EAST
163rd Ave NE
Post Mounted

Assembly 10
DETOUR
EAST
163rd Ave NE
Post Mounted

Assembly 11
DETOUR
EAST
163rd Ave NE
Post Mounted

NOTE: Traffic detour layout shown is in place. Detour signs to be removed upon completion of the junior separation underpass replacement and SB I-29 reconstruction.

In Place Detour Layout
163rd Ave NE Closure

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	IM-8-029(204)101	110	1

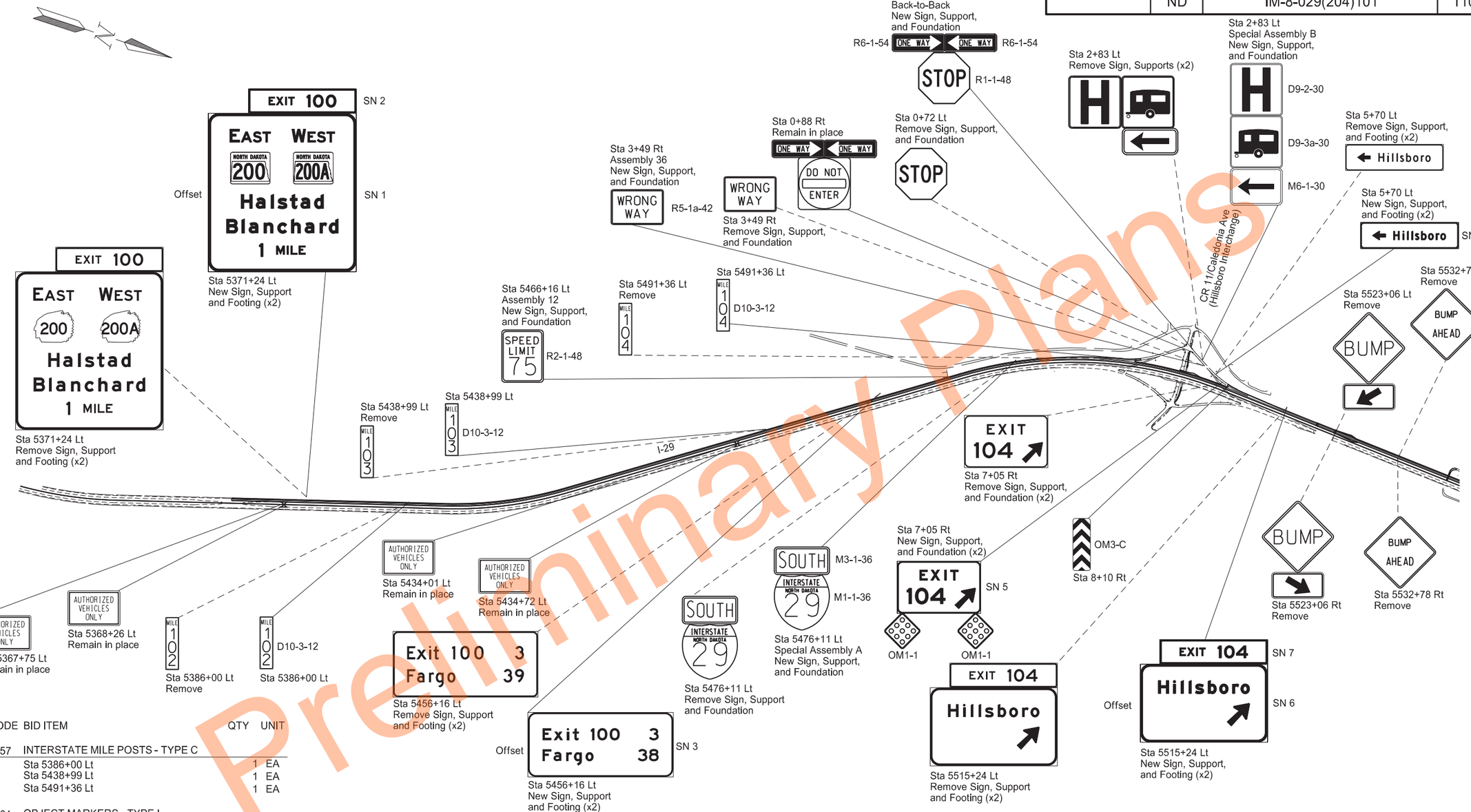
Station / RP	Sign / Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Panel For Signs IV SF	Panel For Signs XI SF	Overlay Panel IV SF	Overlay Panel XI SF	Vert Clear-ance FT	Galv Steel Sheet Standard Pipe 1st LF	Galv Steel Sheet Standard Pipe 2nd LF	Size	Galv Steel Post W-Shape Posts 1st LF	2nd LF	3rd LF	Max Post Len LF	Post Space FT	Revise Fuse Joint EA	Std Pipe Fdn Dia FT	Std Pipe Fdn Dep FT	Std Pipe Fdn Vol CY	W-Shape Pile LF	Remove Sign Fdns Conc Fdn EA	Remove Sign Fdns W-Shape Pile EA	Reset Sign Panel EA	Reset Sign Support EA	Stub Post EA	Multi Dir Base EA	Comments
I29																												
5371+24 Lt	SN 1 & SN 2			237.5				7.0			W8x31	24.4	25.6		26.4	7.0					28		2					
5456+16 Lt	SN 3			81.0				7.0			W5x16	15.4	16.5		17.1	6.8					28		2					
5466+16 Lt	12		20.0					7.0	14.2		4.0				14.9			1.3	7.5	0.4								
5476+11 Lt	S.A.A	12.5						7.0	13.6		3.5				15.9			1.3	6.0	0.3		1						
5515+24 Lt	SN 6 & SN 7			131.5				7.0			W6x20	17.4	18.5		21.5	6.5					28		2					
5541+67 Lt	SN 8 & SN 9			110.0				7.0			W6x20	16.8	17.7		25.8	5.5					28		2					
5568+01 Lt	SN 7 & SN 10			112.0				7.0			W6x20	15.9	17.0		24.6	6.5					28		2					
5805+25 Lt	SN 11			116.0				7.0			W6x20	17.4	18.7		19.7	7.3					28		2					
5815+01 Lt	12		20.0					7.0	14.2		4.0				14.9			1.3	7.5	0.4		1						
5825+19 Lt	S.A.A	12.5						7.0	13.6		3.5				15.9			1.3	6.0	0.3		1						
Sub Total		25.0	40.0	788.0					**Total** 55.6			**Total** 221.3								1.4	168	3	12	0	0	0	0	
Ramp 104 NW																												
0+72 Lt	S.A.D		26.7					7.0	15.7		3.5				18.6			1.3	6.0	0.3		1					1	
2+83 Lt	S.A.B	16.9						7.0	17.3		4.0				18.1			1.3	7.0	0.4								
3+49 Rt	36		8.8					7.0	13.2		3.5				21.2			1.3	5.0	0.3		1						
5+70 Lt	SN 4			15.0				7.0			W4x13	12.7	13.3		40.1	3.8					28		2					
7+05 Rt	SN 5			40.0				7.0	15.6	15.6	4.0				17.1	4.0		1.3	7.0	0.7		2						
Sub Total		16.9	35.5	55.0					**Total** 77.4			**Total** 26.0								1.7	28	4	2	0	0	0	1	
Ramp 111 NW																												
9+15 Lt	SN 13			40.0				7.0	15.6	15.6	4.0				17.1	4.0		1.3	7.0	0.7		2						
13+00 Rt	SN 12			38.0				7.0			W4x13	13.2	14.0		21.3	4.8					28		2					
13+68 Lt	36		8.8					7.0	13.2		3.5				21.2			1.3	5.0	0.3		1						
14+95 Rt	S.A.E		15.6					7.0	13.1		3.5				22.6			1.3	4.5	0.2		1						
16+10 Lt	S.A.C		29.5					7.0	15.7		3.5				18.6			1.3	6.0	0.3		1					1	
16+24 Rt	S.A.D		26.7					7.0	15.7		3.5				18.6			1.3	6.0	0.3		1					1	
Sub Total			80.6	78.0					**Total** 88.9			**Total** 27.2								1.8	28	6	2	0	0	0	2	
Grand Total		**41.9**	**156.1**	**921.0**					**Total** **221.9**			**Total** **274.5**								**4.9**	**224**	**13**	**16**	**0**	**0**	**0**	**3**	

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Sign Summary
Round Steel Pipe & W-Shape

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	2



SPEC	CODE	BID ITEM	QTY	UNIT
754	0557	INTERSTATE MILE POSTS - TYPE C		
		Sta 5386+00 Lt	1	EA
		Sta 5438+99 Lt	1	EA
		Sta 5491+36 Lt	1	EA
754	0801	OBJECT MARKERS - TYPE I		
		7+05 Rt	2	EA
754	0803	OBJECT MARKERS - TYPE III		
		8+10 Rt	1	EA

Note: See standard drawing D-754-1 for Object Markers - Type I details.

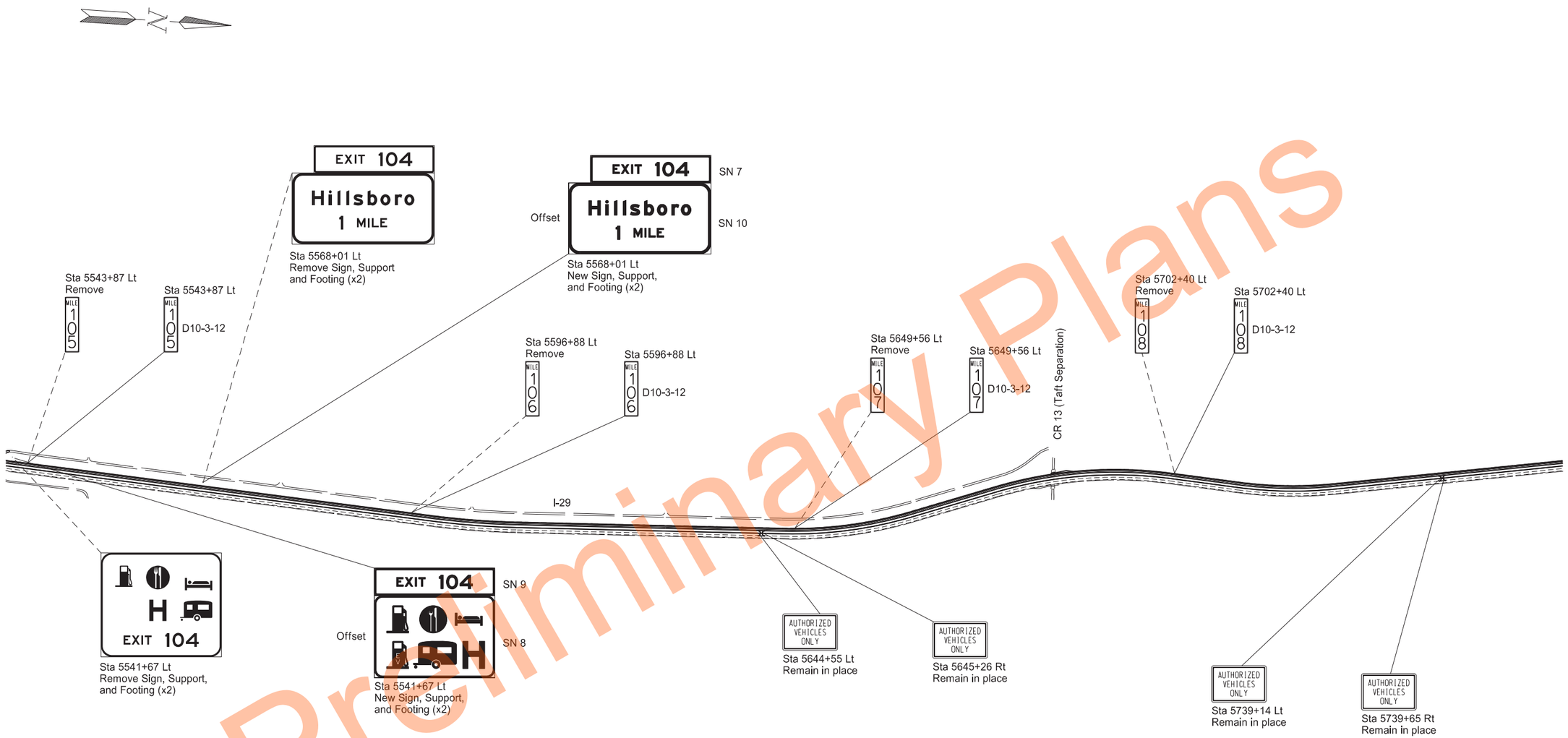
Signing Layout

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	3



Preliminary Plans

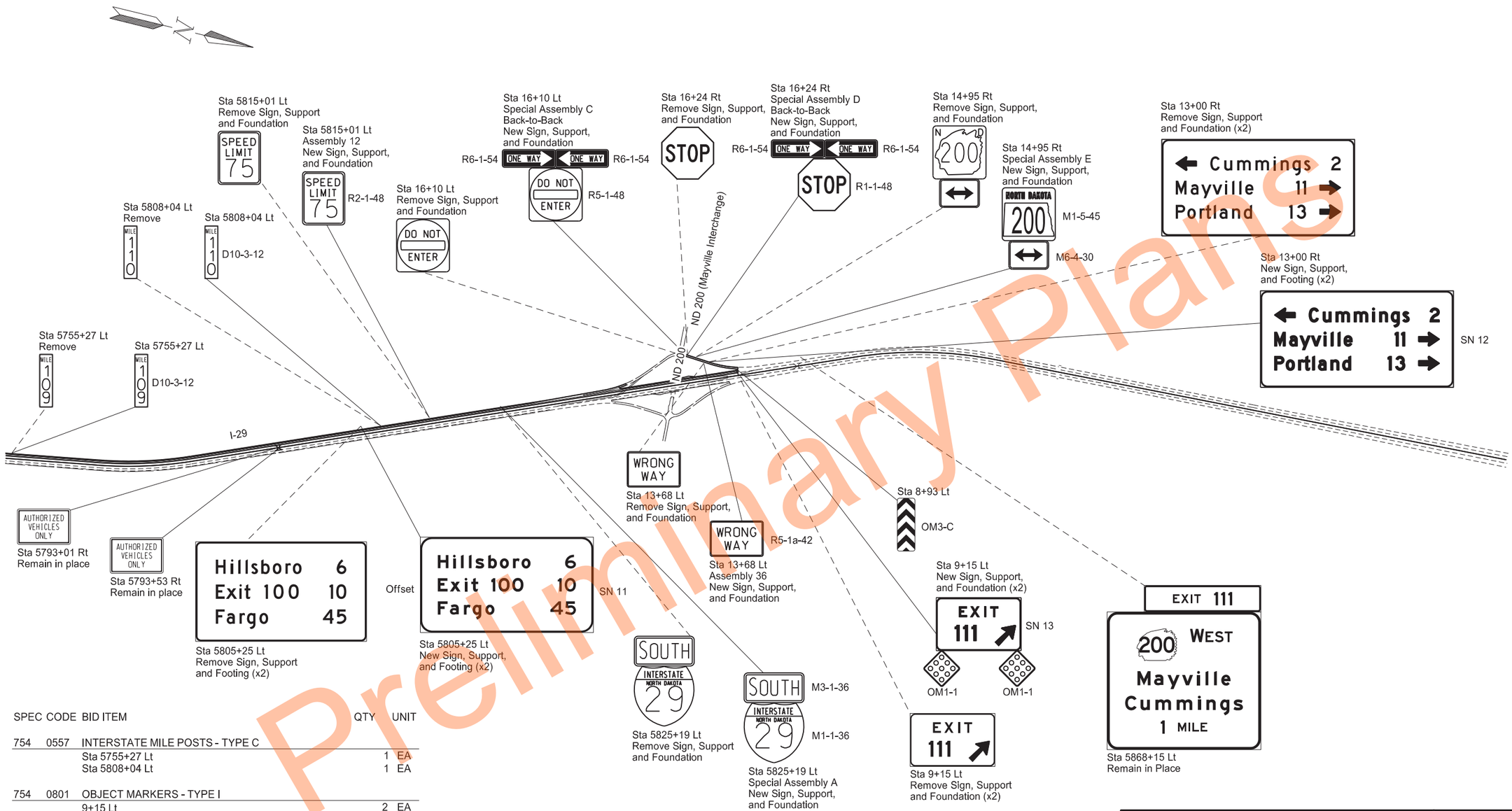
SPEC	CODE	BID ITEM	QTY	UNIT
754	0557	INTERSTATE MILE POSTS - TYPE C		
		Sta 5543+87 Lt	1	EA
		Sta 5596+88 Lt	1	EA
		Sta 5649+56 Lt	1	EA
		Sta 5702+40 Lt	1	EA

Signing Layout

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	4



SPEC	CODE	BID ITEM	QTY	UNIT
754	0557	INTERSTATE MILE POSTS - TYPE C		
		Sta 5755+27 Lt	1	EA
		Sta 5808+04 Lt	1	EA
754	0801	OBJECT MARKERS - TYPE I		
		9+15 Lt	2	EA
754	0803	OBJECT MARKERS - TYPE III		
		8+93 Lt	1	EA

Note: See standard drawing D-754-1 for Object Markers - Type I details .

Signing Layout

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

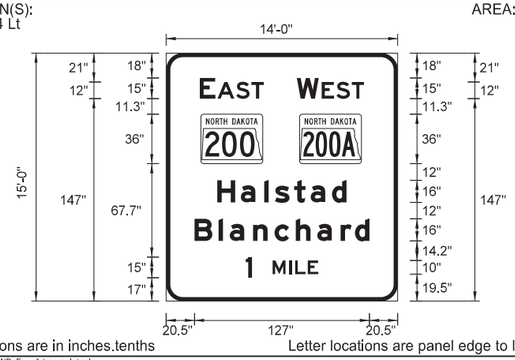
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	5

SIGN NUMBER	SN 1
WIDTH X HEIGHT	14'-0" x 15'-0"
BORDER WIDTH	3" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_M1-5_3	25.1	99.7	45	36	0
ND_M1-5_4	96.7	99.7	45	36	0

STATION(S):
5371+24 Lt

AREA: 210.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Advance_Int.ssl

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
E	A	S	T																	46.4	15,12	E 2000
24.4	37.2	50.8	61.8																			
W	E	S	T																	48.8	15,12	E 2000
94.8	112.9	123.5	134.6																			
H	a	l	s	t	a	d														93.8	16/12	EM 2000
37.1	54.1	71	78.9	92.8	104.8	120.3																
B	l	a	n	c	h	a	r	d												127	16/12	EM 2000
20.5	37.9	46.1	63	78.6	94.1	109.6	126.6	137														
1	M	I	L	E																52.6	15,10	E 2000
57.7	77.2	88.2	93.6	102.8																		

Preliminary Plans

Sign Details

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

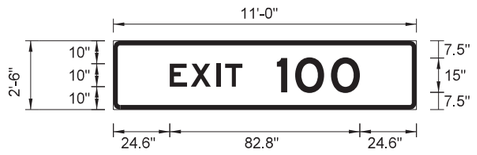
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	6

SIGN NUMBER	SN 2
WIDTH X HEIGHT	11'-0" x 2'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
5371+24 Lt

AREA: 27.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Exit Panel.bsl

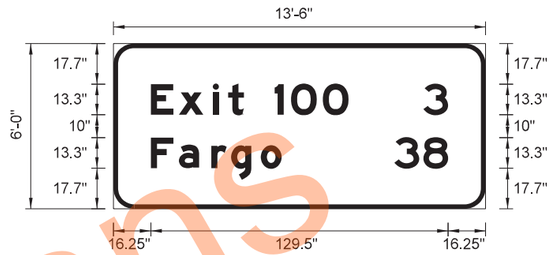
LETTER POSITION (X)																				LENGTH	SIZE	SERIES
E	X	I	T																	31.6	10	E 2000
24.6	33.8	44.9	48.7																			
1	0	0																		36.2	15	E 2000
71.2	79.2	94.8																				

SIGN NUMBER	SN 3
WIDTH X HEIGHT	13'-6" x 6'-0"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
5456+16 Lt

AREA: 81.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Distance_Post Inchg.ssl

LETTER POSITION (X)																				LENGTH	SIZE	SERIES
E	x	i	t		1	0	0													86.1	13.3/10	EM 2000
16.3	28.5	43.3	49.9	56.8	70.1	77.3	91.2															
3																				10.8	13.3	E 2000
135																						
F	a	r	g	o																56.9	13.3/10	EM 2000
16.3	28.5	42.6	51.3	64.2																		
3	8																			23.4	13.3	E 2000
122.3	135																					

Preliminary Plans

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PCC Pavement Reconstruction
Interstate 29 - Southbound
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NORTH DAKOTA

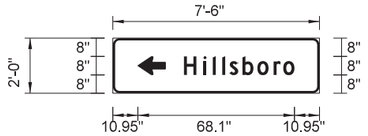
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	110	7

SIGN NUMBER	SN 4
WIDTH X HEIGHT	7'-6" x 2'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_8IN_TYPE D	10.9	8	8	12	90

STATION(S): 5+70 Lt (Ramp 104 NW)

AREA: 15.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Destination.ssl

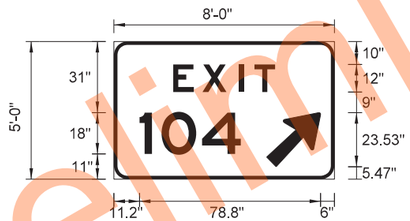
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
H	i	l	l	s	b	o	r	o										48.1	8/6	D 2000
30,9	39,5	43,5	47,6	50,9	56,4	62,9	70	74,2												

SIGN NUMBER	SN 5
WIDTH X HEIGHT	8'-0" x 5'-0"
BORDER WIDTH	1.5" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_12IN_TYPE A	66.5	5.5	18.2	30	315

STATION(S): 7+05 Rt (Ramp 104 NW)

AREA: 40.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Gore.ssl

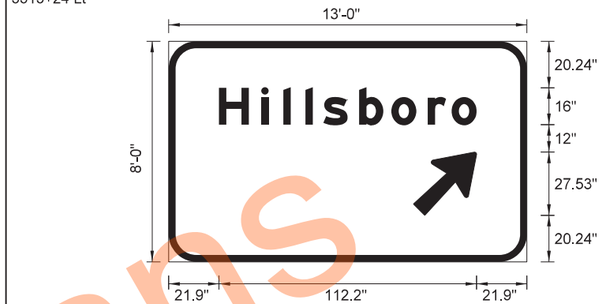
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
E	X	I	T															44.4	12	E 2000
25.8	38.6	54.4	61.2																	
1	0	4																44.1	18	E 2000
11.2	20.7	38.3																		

SIGN NUMBER	SN 6
WIDTH X HEIGHT	13'-0" x 8'-0"
BORDER WIDTH	3" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_16IN_TYPE A	106.6	20.2	22.2	35	315

STATION(S): 5515+24 Lt

AREA: 104.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Advance_Int.ssl

LETTER POSITION (X)																		LENGTH	SIZE	SERIES
H	i	l	l	s	b	o	r	o										112.2	16/12	EM 2000
21.9	40.3	49.9	59.5	67.4	82.9	97	112.8	123.2												

Preliminary Plans

Sign Details

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
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PE-10608
DATE: 6/25/24
NORTH DAKOTA

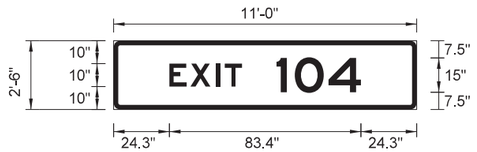
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	110	8

SIGN NUMBER	SN 7
WIDTH X HEIGHT	11'-0" x 2'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
5515+24 Lt
5568+01 Lt

AREA: 27.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Exit Panel.tbsl

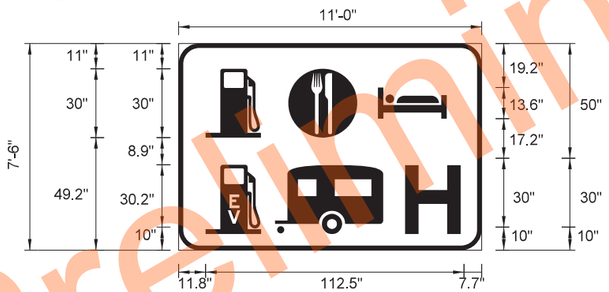
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
E	X	I	T															31.6	10	E 2000
24.3	33.5	44.6	48.4																	
1	0	4																36.8	15	E 2000
70.9	78.9	93.6																		

SIGN NUMBER	SN 8
WIDTH X HEIGHT	11'-0" x 7'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	9"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
Lodging	88.5	57.4	30	13.5	0
Gas	11.8	49.1	24.1	30	0
Food	47.8	49.1	30	30	0
Trailer Camping	45.2	10	47.1	30	0
Electric Vehicle Charging	11.8	10	24.1	30.2	0
Hospital	100.1	10	24.2	30	0

STATION(S):
5541+67 Lt

AREA: 82.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

ND_Fwy_Gen Serv_Services.tbl

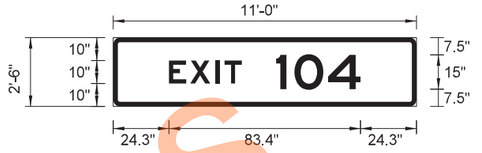
LETTER POSITION (X)	LENGTH	SIZE	SERIES

SIGN NUMBER	SN 9
WIDTH X HEIGHT	11'-0" x 2'-6"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
5541+67 Lt

AREA: 27.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Gen Serv_Exit Panel.tbsl

LETTER POSITION (X)																		LENGTH	SIZE	SERIES
E	X	I	T															31.6	10	E 2000
24.3	33.5	44.6	48.4																	
1	0	4																36.8	15	E 2000
70.9	78.9	93.6																		

Sign Details

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

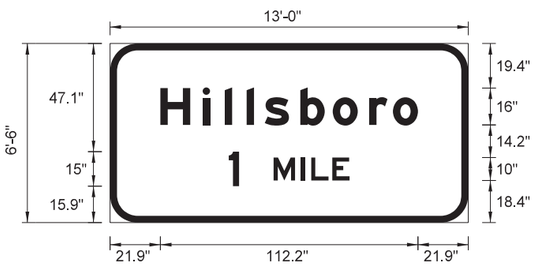
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	9

SIGN NUMBER	SN 10
WIDTH X HEIGHT	13'-0" x 6'-6"
BORDER WIDTH	3" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): 5568+01 Lt

AREA: 84.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Advance_Int.ssl

LETTER POSITION (X)																															LENGTH	SIZE	SERIES
H	i	l	l	s	b	o	r	o																							112.2	16/12	EM 2000
21.9	40.3	49.9	59.5	67.4	82.9	97	112.8	123.2																									
1	M	l	L	E																											52.6	15,10	E 2000
51.7	71.2	83.2	87.6	96.8																													

SIGN NUMBER	SN 11
WIDTH X HEIGHT	14'-6" x 8'-0"
BORDER WIDTH	2" (inset 0")
CORNER RADIUS	12"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): 5805+25 Lt

AREA: 116.0 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Distance_Post Intchg.ssl

LETTER POSITION (X)																															LENGTH	SIZE	SERIES
H	i	l	l	s	b	o	r	o																							93.2	13.3/10	EM 2000
17.6	32.9	40.9	48.9	55.4	68.3	80	93.2	101.8																									
6																															10.8	13.3	E 2000
145.6																																	
E	x	i	t		1	0	0																								86.1	13.3/10	EM 2000
17.6	29.9	44.6	51.3	58.2	71.5	78.7	92.5																										
1	0																														18.2	13.3	E 2000
138.2	145.2																																
F	a	r	g	o																											56.9	13.3/10	EM 2000
17.6	29.9	44	52.6	65.5																													
4	5																														25.5	13.3	E 2000
130.9	145.6																																

Preliminary Plans

Sign Details

PCC Pavement Reconstruction
Interstate 29 - Southbound
N of Kelso N to N of N Jct 200

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

4/29/2024 1:09:09 PM CSimonson H:\Projects\14000\14295\8029101.204\Design\Plan\110SN_009_DSIGNDET.dgn

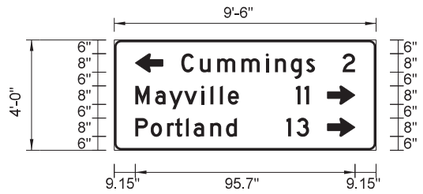
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	10

SIGN NUMBER	SN 12
WIDTH X HEIGHT	9'-6" x 4'-0"
BORDER WIDTH	1" (inset 0")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_8IN_TYPE D	57.2	53.2	8	12	90
ND_8IN_TYPE D	140.8	39.2	8	12	270
ND_8IN_TYPE D	140.8	25.2	8	12	270
	0	0	180.4	84	0

STATION(S):
13+00 Rt (Ramp 111 NW)

AREA: 38.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Destination.sst

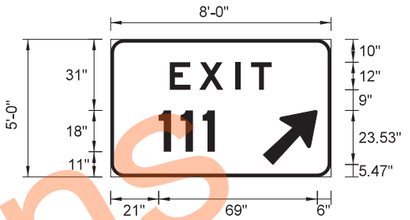
LETTER POSITION (X)																						LENGTH	SIZE	SERIES
C	u	m	m	i	n	g	s															58.2	8/6	D 2000
77.2	85.3	92.8	103.4	114	118	124.9	131.6																	
2																						5.4	8	D 2000
147.4																								
M	a	y	v	i	l	l	e															45	8/6	D 2000
57.2	65.8	71.9	78.5	85.8	89.9	94	97.5																	
1	1																					5.8	8	D 2000
127.1	130.8																							
P	o	r	t	l	a	n	d															44.2	8/6	D 2000
57.2	63.9	71	74.5	79.2	82.6	89.8	96.6																	
1	3																					9.8	8	D 2000
123	127.4																							

SIGN NUMBER	SN 13
WIDTH X HEIGHT	8'-0" x 5'-0"
BORDER WIDTH	1.5" (inset 0")
CORNER RADIUS	6"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE
ND_12IN_TYPE A	66.5	5.5	18.2	30	315

STATION(S):
9+15 Lt (Ramp 111 NW)

AREA: 40.0 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Fwy_Gore.sst

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
E	x	l	T																			44.4	12	E 2000
25.8	38.6	54.4	61.2																					
1	1	1																				24.5	18	E 2000
21	30.5	40.1																						

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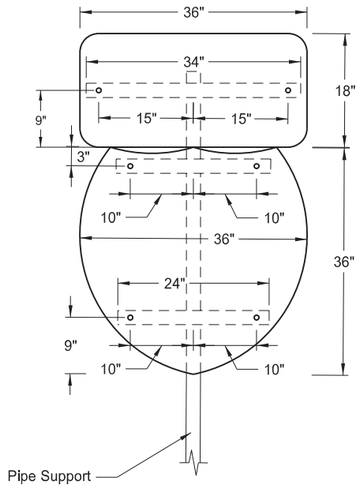
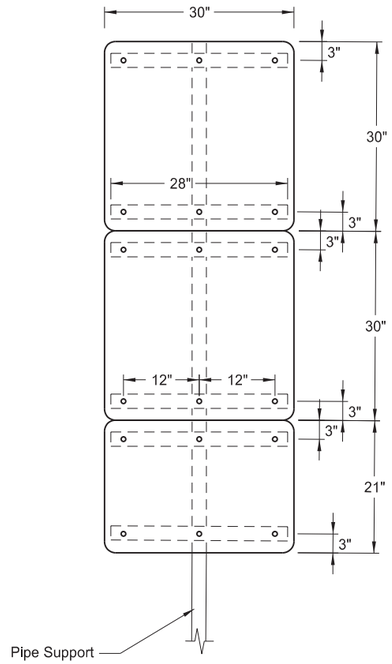
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	110	11



Special Assembly A
(Round Pipe)

Sta 5476+11 Lt
Sta 5825+19 Lt

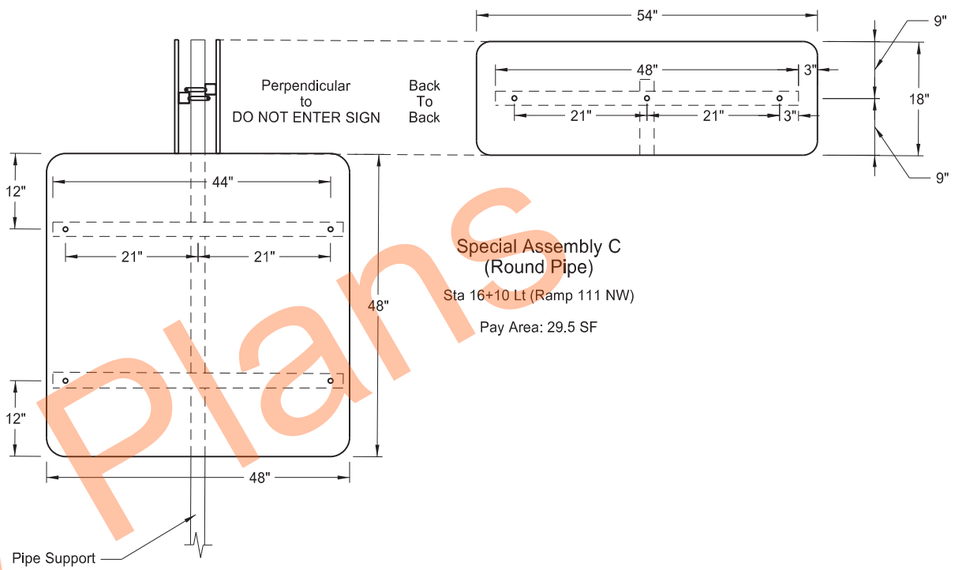
Pay Area: 12.5 SF



Special Assembly B
(Round Pipe)

Sta 2+83 Lt (Ramp 104 NW)

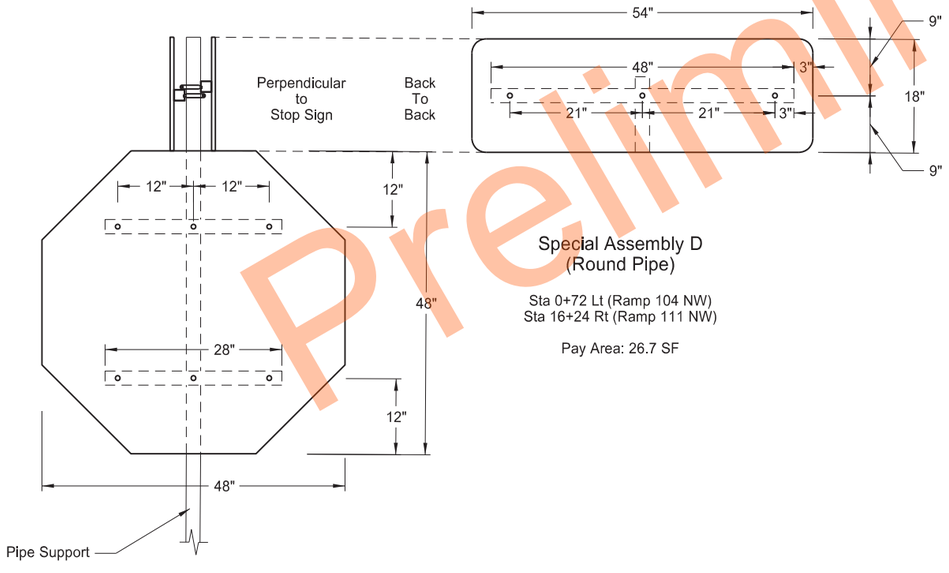
Pay Area: 16.9 SF



Special Assembly C
(Round Pipe)

Sta 16+10 Lt (Ramp 111 NW)

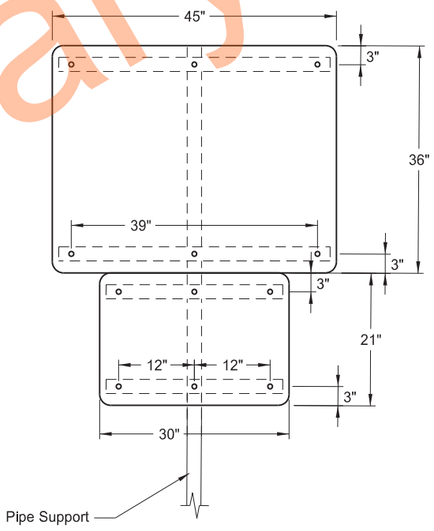
Pay Area: 29.5 SF



Special Assembly D
(Round Pipe)

Sta 0+72 Lt (Ramp 104 NW)
Sta 16+24 Rt (Ramp 111 NW)

Pay Area: 26.7 SF



Special Assembly E
(Round Pipe)

Sta 14+95 Rt (Ramp 111 NW)

Pay Area: 15.6 SF

Sign Assemblies

PCC Pavement Reconstruction
Interstate 29 - Southbound
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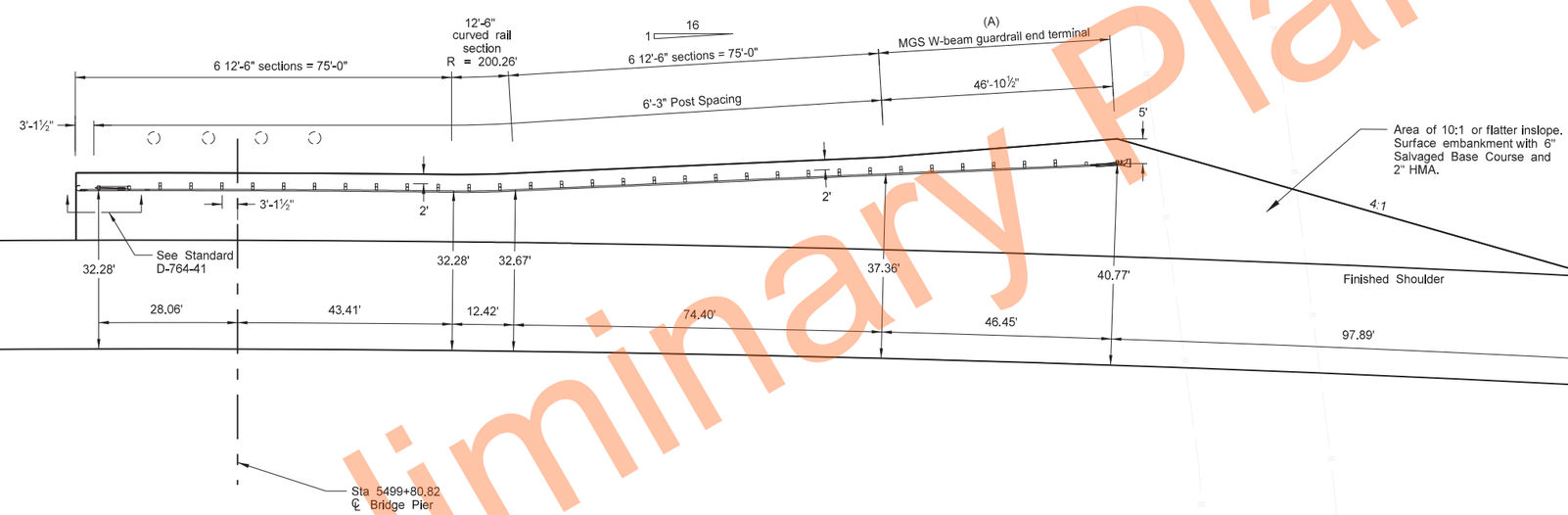
Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	130	1

23 USC § 407 Documents
NDDOT Reserves All Objections



(A) Install an MGS FLEAT End Terminal at this location. See Standard D-764-38.

MGS W-Beam Guardrail Layout
Outside Pier Protection

Hillsboro Interchange
RP 104.155

SB I-29

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	130	2

23 USC § 407 Documents
NDDOT Reserves All Objections

MGS W-BEAM GUARDRAIL SUMMARY OF QUANTITIES
MGS W-BEAM GUARDRAIL AT OBSTRUCTIONS

Location	(A) 5/8" ø X 18" LONG GUARDRAIL BOLT	(A) 5/8" ø X 1-1/4" LONG GUARDRAIL BOLT	(A) 6" X 8" X 6'-0" TIMBER POST	(A) 6" X 8" X 14" TIMBER BLOCK	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION	(A) 12'-6" CURVED W-BEAM RAIL SECTION	(A) W-BEAM END SECTION (ROUNDED)	(A) REFLECTORIZED PLATES	(A) BCT CABLE ASSEMBLY, SLEEVE, AND BEARING PLATE	(A) BCT ANCHOR BRACKET AND BEARING PLATE	(A) STRUT AND YOKE ASSEMBLY	(A) BCT TIMBER POST AND FOUNDATION TUBES	(A) 5/8" ø X 1-1/2" HEX HEAD BOLT	(A) 5/8" ø X 10" HEX HEAD BOLT GRADE 5	(A) 7/8" ø X 7-1/2" HEX HEAD BOLT GRADE 5
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 5499+48.47 to Sta 5501+55.98 Lt	24	108	24	24	12	1	1	9	1	1	1	2	8	2	2
Total	24	108	24	24	12	1	1	9	1	1	1	2	8	2	2

SPEC	CODE	BID ITEM	QTY	UNIT
764	0131	W-BEAM GUARDRAIL		
		Sta 5499+48.47 to Sta 5501+09.95 Lt	164.0	LF
764	0145	W-BEAM GUARDRAIL END TERMINAL		
		Sta 5501+09.95 to Sta 5501+55.98 Lt	1	EA

NOTES:
(A) Include these items in the contract unit price bid for "W-BEAM GUARDRAIL".

Preliminary Plans

MGS W-Beam Guardrail Quantities
Outside Pier Protection

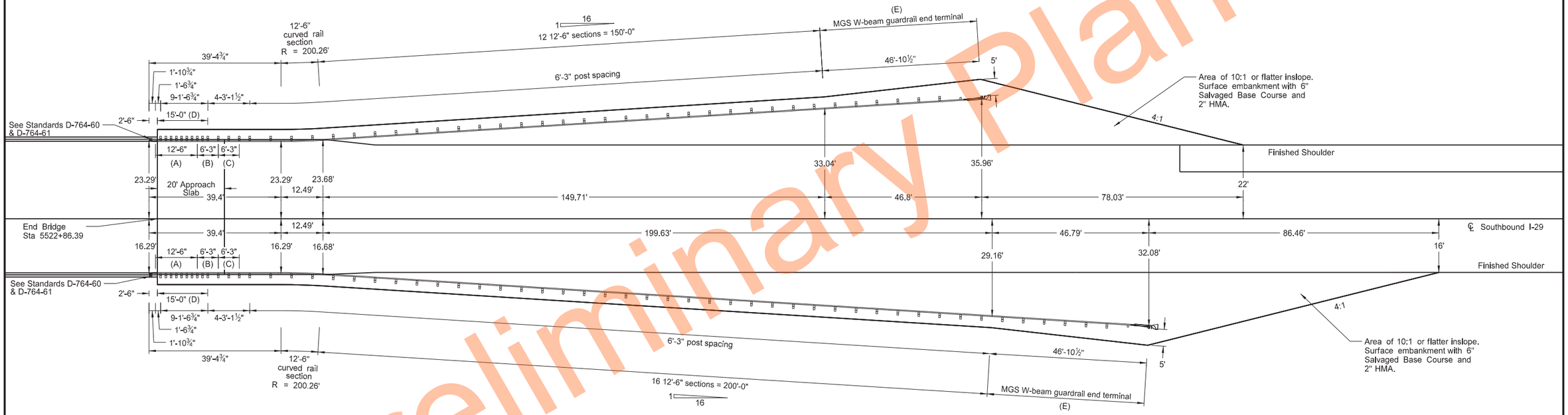
Hillsboro Interchange
RP 104.155

SB I-29

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	130	3

23 USC § 407 Documents
NDDOT Reserves All Objections



(A) Thrie beam rail section (double thickness)

(B) Thrie beam rail section

(C) Asymmetrical W-Thrie beam transition section

(D) Curb & gutter - type 1 special. See section 170 for details.

(E) Install either an MGS FLEAT or a MGS Slotted Rail Terminal at this location.

If a FLEAT is installed, install the end terminal as shown above. See Standard D-764-38.

If a Slotted Rail Terminal is installed, install it with the offset as shown on Standard D-764-39. Additional guardrail embankment required is at the contractor's expense.

Thrie/MGS W-Beam Guardrail Layout

Goose River Bridge
RP 104.576 L

SB I-29

REGISTERED PROFESSIONAL ENGINEER
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PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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23 USC § 407 Documents
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Preliminary Plans

MGS W-BEAM GUARDRAIL SUMMARY OF QUANTITIES
MGS THRIE/W-BEAM GUARDRAIL AT OBSTRUCTIONS

Location	(A) 5/8" ø X 18" LONG GUARDRAIL BOLT	(A) 5/8" ø X 1-1/4" LONG GUARDRAIL BOLT	(A) 5/8" ø X 2" LONG GUARDRAIL BOLT	(A) 6" X 8" X 6'-0" TIMBER POST	(A) 6" X 8" X 14" TIMBER BLOCK	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION	(A) 12'-6" CURVED W-BEAM RAIL SECTION	(A) REFLECTORIZED PLATES	(A) 6" X 8" X 7'-0" TIMBER POST	(A) 6" X 8" X 19" TIMBER OFFSET BLOCK	(A) 6'-3" W-THRIE BEAM SECTION	(A) 6'-3" W-THRIE BEAM TRANSITION SECTION	(A) 12'-6" DOUBLE THRIE BEAM SECTION	(A) 2'-6" THRIE BEAM TERMINAL CONNECTOR	(A) 7/8" ø X 15" LONG HEX HEAD BOLT	(A) SINGLE SLOPE TO THRIE BEAM CONNECTOR PLATE
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 5522+83.89 to Sta 5525+82.19 Lt Mdn	60	152	36	43	37	17	1	7	6	12	1	1	1	1	5	1
Sta 5522+83.89 to Sta 5525+32.28 Lt	52	120	36	35	29	13	1	11	6	12	1	1	1	1	5	1
Total	112	272	72	78	66	30	2	18	12	24	2	2	2	2	10	2

SPEC	CODE	BID ITEM	QTY	UNIT	
764	0131	W-BEAM GUARDRAIL			
		Sta 5522+83.89 to Sta 5525+35.40 Lt Mdn	251.9	LF	
		Sta 5522+83.89 to Sta 5524+85.48 Lt	201.9	LF	
764	0145	W-BEAM GUARDRAIL END TERMINAL			
		Sta 5525+35.40 to Sta 5525+82.19 Lt Mdn	1	EA	
		Sta 5524+85.48 to Sta 5525+32.28 Lt	1	EA	
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS			
		Sta 5522+83.89 to Sta 5523+23.28 Rt Mdn	39.4	LF	(B)
		Sta 5522+83.89 to Sta 5523+23.28 Rt	39.4	LF	(B)
		Sta 5522+87.42 to Sta 5525+58.78 Lt Mdn	271.7	LF	
		Sta 5522+89.08 to Sta 5525+18.36 Lt	229.6	LF	
764	2081	REMOVE END TREATMENT & TRANSITION			
		Sta 5523+23.28 to Sta 5523+70.16 Rt Mdn	1	EA	(B)
		Sta 5523+23.28 to Sta 5523+70.16 Rt	1	EA	(B)
		Sta 5525+58.78 to Sta 5526+09.10 Lt Mdn	1	EA	
		Sta 5525+18.36 to Sta 5525+68.35 Lt	1	EA	

NOTES:

(A) Include these items in the contract unit price bid for "W-BEAM GUARDRAIL".

(B) Keep existing W-beam guardrail and end terminals in place until no longer needed for 2-way traffic.

Thrie/MGS W-Beam Guardrail Quantities

Goose River Bridge
RP 104.576 L

SB I-29

REGISTERED PROFESSIONAL ENGINEER
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DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(204)101	130	5

23 USC § 407 Documents
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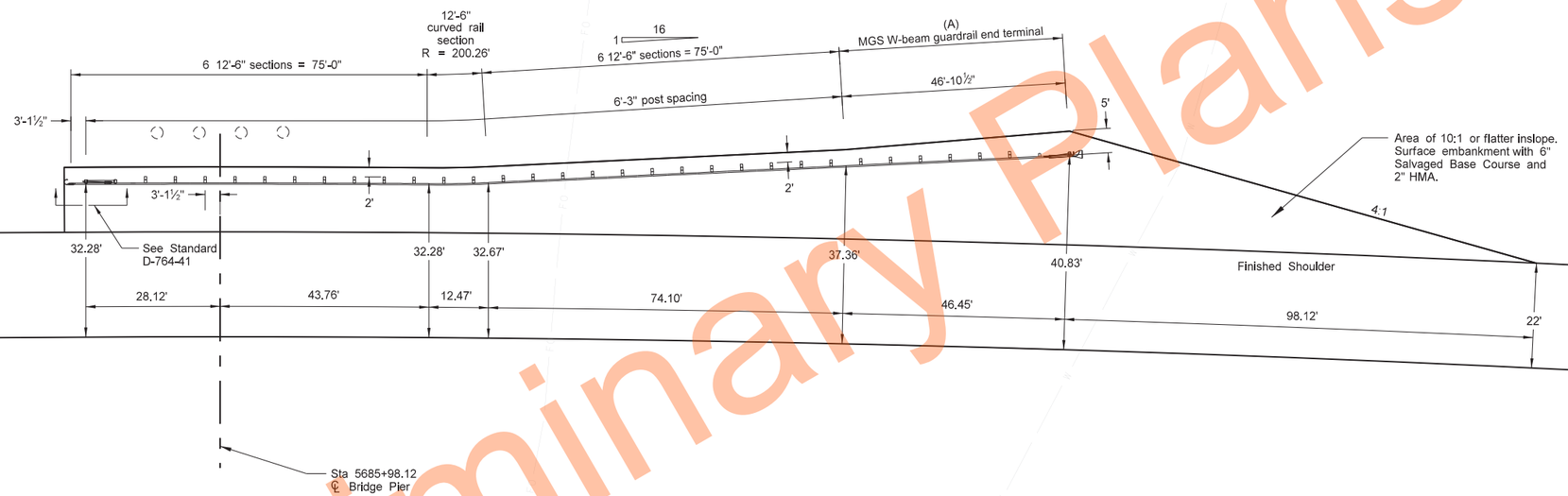

(A) Install an MGS FLEAT End Terminal at this location. See Standard D-764-38.

MGS W-Beam Guardrail Layout
Outside Pier Protection

Taft Separation
RP 107.685

SB I-29

REGISTERED PROFESSIONAL ENGINEER
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PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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23 USC § 407 Documents
NDDOT Reserves All Objections

MGS W-BEAM GUARDRAIL SUMMARY OF QUANTITIES
MGS W-BEAM GUARDRAIL AT OBSTRUCTIONS

Location	(A) 5/8" ø X 18" LONG GUARDRAIL BOLT	(A) 5/8" ø X 1-1/4" LONG GUARDRAIL BOLT	(A) 6" X 8" X 6'-0" TIMBER POST	(A) 6" X 8" X 14" TIMBER BLOCK	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION	(A) 12'-6" CURVED W-BEAM RAIL SECTION	(A) W-BEAM END SECTION (ROUNDED)	(A) REFLECTORIZED PLATES	(A) BCT CABLE ASSEMBLY, SLEEVE, AND BEARING PLATE	(A) BCT ANCHOR BRACKET AND BEARING PLATE	(A) STRUT AND YOKE ASSEMBLY	(A) BCT TIMBER POST AND FOUNDATION TUBES	(A) 5/8" ø X 1-1/2" HEX HEAD BOLT	(A) 5/8" ø X 10" HEX HEAD BOLT GRADE 5	(A) 7/8" ø X 7-1/2" HEX HEAD BOLT GRADE 5
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 5685+65.85 to Sta 5687+73.31 Lt	24	108	24	24	12	1	1	9	1	1	1	2	8	2	2
Total	24	108	24	24	12	1	1	9	1	1	1	2	8	2	2

SPEC	CODE	BID ITEM	QTY	UNIT
764	0131	W-BEAM GUARDRAIL		
		Sta 5685+65.85 to Sta 5687+27.28 Lt	164.0	LF
764	0145	W-BEAM GUARDRAIL END TERMINAL		
		Sta 5687+27.28 to Sta 5687+73.31 Lt	1	EA

NOTES:
(A) Include these items in the contract unit price bid for "W-BEAM GUARDRAIL".

Preliminary Plans

MGS W-Beam Guardrail Quantities
Outside Pier Protection

Taft Separation
RP 107.685

SB I-29

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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23 USC § 407 Documents
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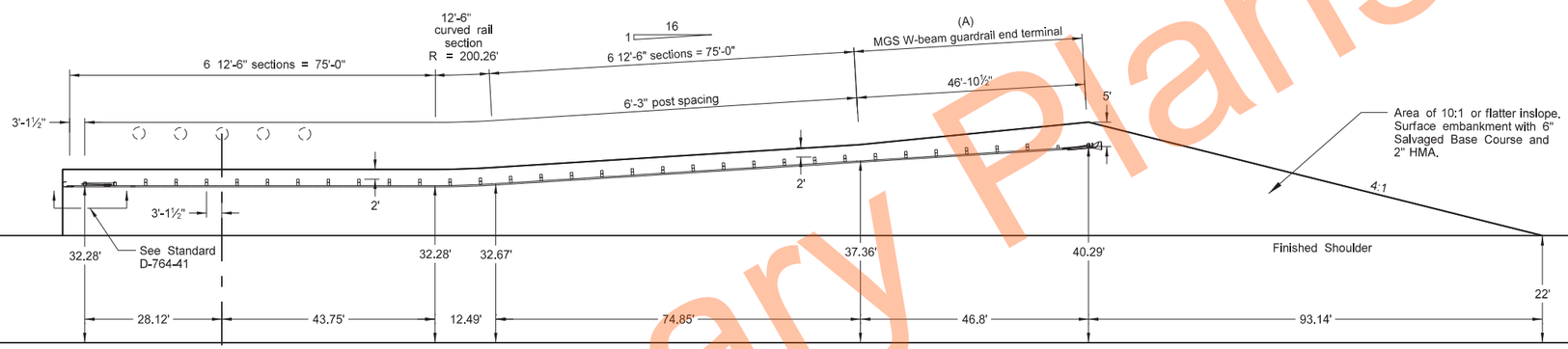

(A) Install an MGS FLEAT End Terminal at this location. See Standard D-764-38.

MGS W-Beam Guardrail Layout
Outside Pier Protection

Mayville Interchange
RP 110.795

SB I-29

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

Preliminary Plans

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23 USC § 407 Documents
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MGS W-BEAM GUARDRAIL SUMMARY OF QUANTITIES
MGS W-BEAM GUARDRAIL AT OBSTRUCTIONS

Location	(A) 5/8" ø X 18" LONG GUARDRAIL BOLT	(A) 5/8" ø X 1-1/4" LONG GUARDRAIL BOLT	(A) 6" X 8" X 6'-0" TIMBER POST	(A) 6" X 8" X 14" TIMBER BLOCK	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION	(A) 12'-6" CURVED W-BEAM RAIL SECTION	(A) W-BEAM END SECTION (ROUNDED)	(A) REFLECTORIZED PLATES	(A) BCT CABLE ASSEMBLY, SLEEVE, AND BEARING PLATE	(A) BCT ANCHOR BRACKET AND BEARING PLATE	(A) STRUT AND YOKE ASSEMBLY	(A) BCT TIMBER POST AND FOUNDATION TUBES	(A) 5/8" ø X 1-1/2" HEX HEAD BOLT	(A) 5/8" ø X 10" HEX HEAD BOLT GRADE 5	(A) 7/8" ø X 7-1/2" HEX HEAD BOLT GRADE 5
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Sta 5850+00.14 to Sta 5852+10.82 Lt	24	108	24	24	12	1	1	9	1	1	1	2	8	2	2
Total	24	108	24	24	12	1	1	9	1	1	1	2	8	2	2

SPEC	CODE	BID ITEM	QTY	UNIT
764	0131	W-BEAM GUARDRAIL		
		Sta 5850+00.14 to Sta 5851+64.03 Lt	164.0	LF
764	0145	W-BEAM GUARDRAIL END TERMINAL		
		Sta 5851+64.03 to Sta 5852+10.82 Lt	1	EA

NOTES:
(A) Include these items in the contract unit price bid for "W-BEAM GUARDRAIL".

Preliminary Plans

MGS W-Beam Guardrail Quantities
Outside Pier Protection

Mayville Interchange
RP 110.795

SB I-29

REGISTERED PROFESSIONAL ENGINEER
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PE-10608
DATE: 6/25/24
NORTH DAKOTA

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23 USC § 407 Documents
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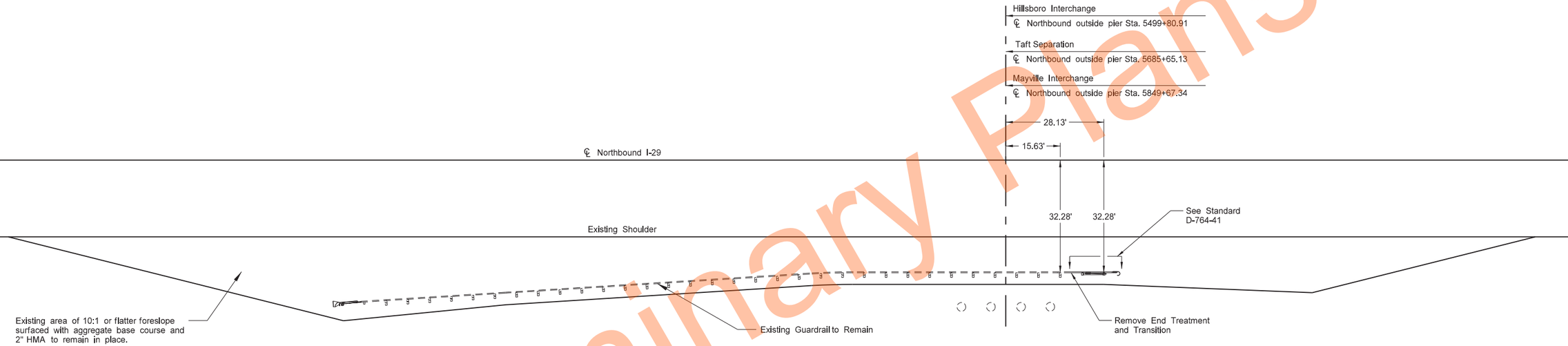

Preliminary Plans

Notes:

(1.) Install new reflectorized plates inbetween the existing reflectorized plates, and on the Trailing End Anchor. Space reflectorized plates at 25' OC.

(2.) Keep existing MGS W-beam guardrail end terminal in place until no longer needed for 2-way traffic.

MGS W-Beam Guardrail Layout
Outside Pier Protection Modification

Hillsboro Interchange, RP 104.155
Taft Separation, RP 107.685
Mayville Interchange, RP 110.795

NB I-29

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

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23 USC § 407 Documents
NDDOT Reserves All Objections

Preliminary Plans

MGS W-BEAM GUARDRAIL SUMMARY OF QUANTITIES
MGS W-BEAM GUARDRAIL AT OBSTRUCTIONS

Location	(A) 12'-6" STRAIGHT W-BEAM RAIL SECTION	(A) REFLECTORIZED PLATES	(A) W-BEAM END SECTION (ROUNDED)	(A) BCT CABLE ASSEMBLY, SLEEVE, AND BEARING PLATE	(A) BCT ANCHOR BRACKET AND BEARING PLATE	(A) STRUT AND YOKE ASSEMBLY	(A) BCT TIMBER POST AND FOUNDATION TUBES	(A) 5/8" ø X 1-1/2" HEX HEAD BOLT	(A) 5/8" ø X 10" HEX HEAD BOLT GRADE 5	(A) 7/8" ø X 7-1/2" HEX HEAD BOLT GRADE 5
	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH
Hillsboro Interchange, RP 104.155 Sta 5497+87.48 to Sta 5500+47.51 Rt	1	4	1	1	1	1	2	8	2	2
Taft Separation, RP 107.685 Sta 5683+71.69 to Sta 5686+31.74 Rt	1	4	1	1	1	1	2	8	2	2
Mayville Interchange, RP 110.795 Sta 5847+76.97 to Sta 5850+28.97 Rt	1	4	1	1	1	1	2	8	2	2
Total	3	12	3	3	3	3	6	24	6	6

SPEC	CODE	BID ITEM	QTY	UNIT
764	0131	W-BEAM GUARDRAIL		
		(Hillsboro Interchange) Sta 5499+96.76 to Sta 5500+10.76 Rt	14.0	LF
		(Taft Separation) Sta 5685+84.16 to Sta 5685+98.09 Rt	14.0	LF
		(Mayville Interchange) Sta 5849+82.97 to Sta 5850+96.97 Rt	14.0	LF
764	2081	REMOVE END TREATMENT & TRANSITION		
		(Hillsboro Interchange) Sta 5499+96.76 to Sta 5500+47.51 Rt	1	EA
		(Taft Separation) Sta 5685+84.16 to Sta 5686+31.74 Rt	1	EA
		(Mayville Interchange) Sta 5849+82.97 to Sta 5850+28.97 Rt	1	EA

NOTES:
(A) Include these items in the contract unit price bid for "W-BEAM GUARDRAIL".

MGS W-Beam Guardrail Quantities
Outside Pier Protection Modification

Hillsboro Interchange, RP 104.155
Taft Separation, RP 107.685
Mayville Interchange, RP 110.795

NB I-29

REGISTERED PROFESSIONAL ENGINEER
ERIC LAIDLEY
PE-10608
DATE: 6/25/24
NORTH DAKOTA

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23 U.S.C. 407
NDDOT Reserves All Objections

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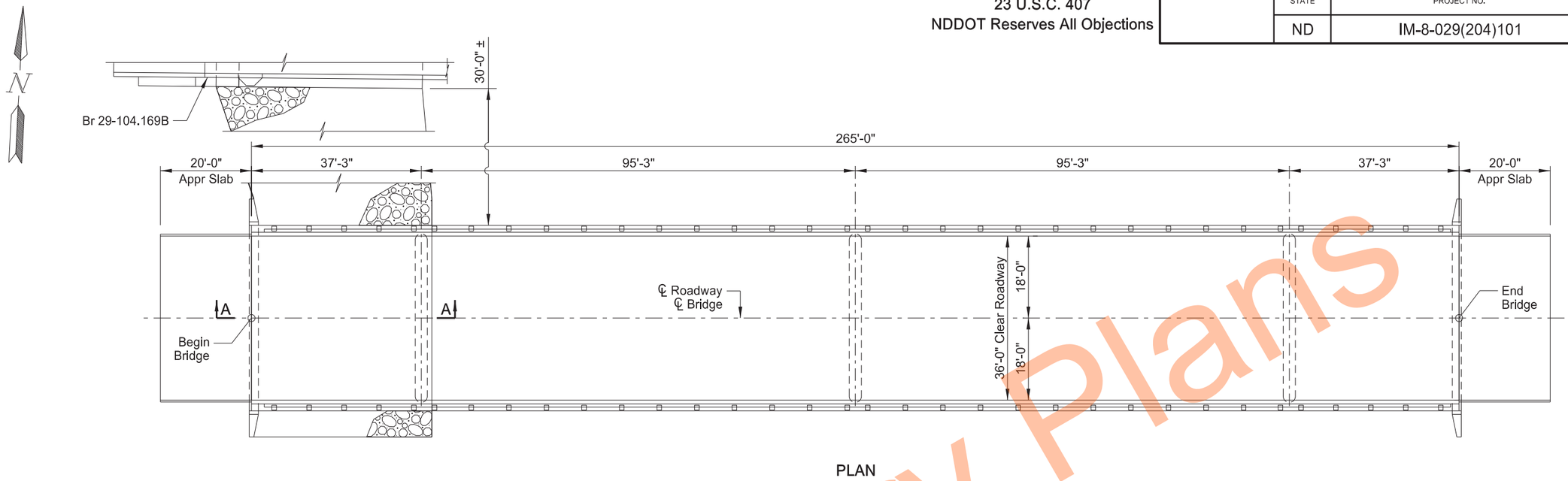
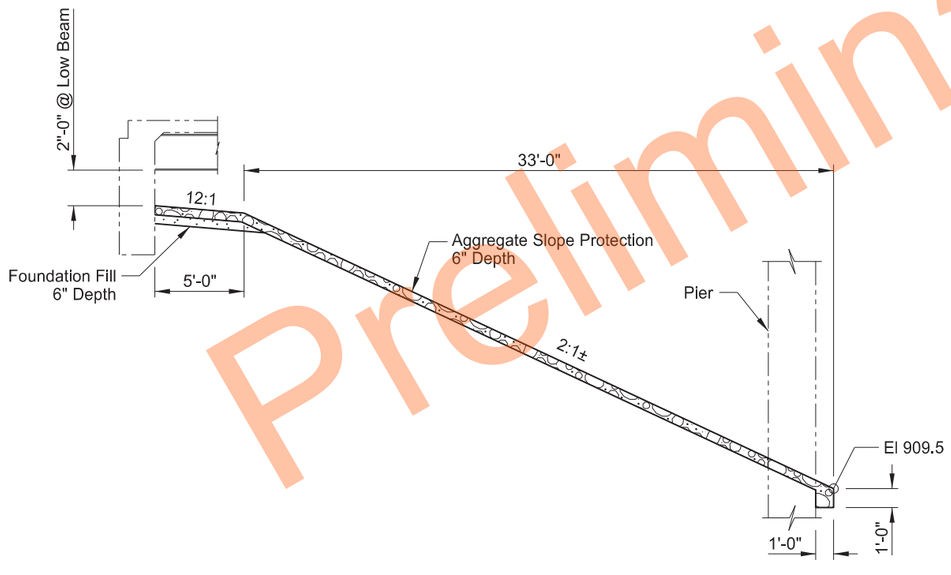


PLAN

Indicates Aggregate Slope Protection Area



A-A

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
930	8686	AGGREGATE SLOPE PROTECTION	SY	360

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

HILLSBORO INTERCHANGE

BRIDGE LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
05/24/24

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23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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NOTES

100 SCOPE OF WORK: Work at this site consists of removing and replacing the existing concrete slope protection at the west bridge end slope with aggregate slope protection, and extending the aggregate slope protection to tie into the existing aggregate slope protection on the west end slope of Bridge 29-104.169B.

930 AGGREGATE SLOPE PROTECTION: Remove the existing concrete slope protection and place foundation fill and aggregate slope protection on the embankment slopes as shown. Place the foundation fill in accordance with Section 210.

Clear the subgrade of rubbish and vegetation before placing the aggregate slope protection. Thoroughly compact all loose material. Excavate or backfill as required to obtain the plan cross-section or lines and grades established in the field.

The gradation of the material used to form the slope protection is given in the following chart:

Sieve Size	% Passing
2"	100%
¾"	5-35%
#4	0-5%

The minimum fractured face requirement of the aggregate is 50% by weight on the portion of the aggregate retained on the No. 4 sieve. To be considered fractured the rock must have at least one fractured face.

Deposit, spread, consolidate, and shape the aggregate by mechanical or hand methods to provide a uniform depth and density and produce a uniform surface appearance. Apply MC-250 that meets the requirements of Section 818.02 C, “Medium-Curing Cutback Asphalt” at an approximate rate of 1.8 gallons per square yard. Emulsified asphalts grade CSS-1, CSS-1H, RS-1, or CRS-2 that meet the requirements of Section 818.02 E, “Cationic Emulsified Asphalt,” or Section 818.02 F “Anionic Emulsified Asphalt,” can be substituted for MC-250. Apply the emulsified asphalts at a rate of 2.5 gallons per square yard based on a dilution ratio of 7 parts emulsion to 3 parts water.

The bituminous materials are to penetrate to a depth of not less than one-half the required thickness of the aggregate. Protect adjacent structure surfaces against bituminous splatter.

Include all costs for labor, materials, and equipment to complete this work, including the removals of the existing concrete slope protection and the foundation fill, in the unit price bid for “Aggregate Slope Protection.”

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
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NDDOT Reserves All Objections

BRIDGE CODE		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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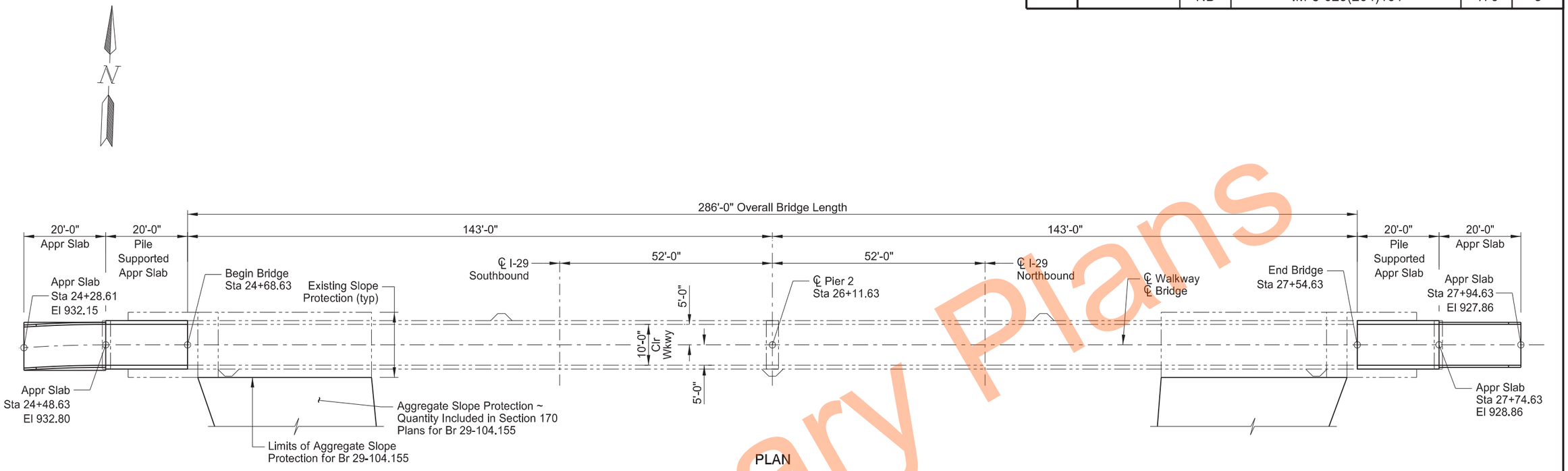

PLAN

Preliminary Plans

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	50.5
602	1134	PILE SUPPORTED APPROACH SLAB	SY	52.6

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

SPECIAL PROVISIONS	
SP 408(23)	ARCHITECTURAL SURFACE FINISH

I-29 PEDESTRIAN CROSSOVER
HILLSBORO INTERCHANGE

BRIDGE LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
05/24/24

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23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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NOTES

100 SCOPE OF WORK: Work at this site consists of constructing approach slabs and installing pedestrian fence.

602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.

602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent to the top of the approach slabs prior to crack sealing. Do not allow traffic on the surface until the solution has completely penetrated and the entire surface is dry.

602 CRACK SEALING: After the penetrating water repellent has been applied and is dry, the Engineer will perform a visual inspection of the approach slabs to determine the need for crack sealing. Mark and repair all visible cracks on the top surface measuring 0.02" or greater in width at the widest segment or as directed by the Engineer.

Immediately before applying the sealer, clean the cracks by removing all dust and debris with compressed air. Seal the cracks with a two-part epoxy in accordance with the manufacturer's recommendations. Chase crack with the sealant application to the limits of the crack, including those portions that are narrower than 0.02" wide. Use Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved equal epoxy sealer.

Include all material, labor, and equipment required to crack seal the approach slabs in the price bid for the Approach Slab bid items.

602 SPECIAL SURFACE FINISH: Clean the surfaces that are to receive the Tex-Cote surface finish using sandblasting, shot blasting, or water-washing equipment to remove all dirt, grease, oil, efflorescence and laitance. Fill cracks larger than 0.02" with Tex-Cote Skim Cote or an approved crack sealer compatible with Tex-Cote XL Bridge Cote.

In place of surface finish C, apply Tex-Cote XL 70 Bridge Cote with Silane to all approach slab barrier surfaces except for the recessed form liner areas. Use a sand textured finish. Use gray surface finish color number 36424 meeting Aerospace Material Specification (AMS) Standard 595 for the inside and top surfaces of the barriers, and Tex-Cote Whisper Gray surface finish color for the back face surface.

602 FORM LINERS: Include the cost to provide and install the form liners in the price bid for the appropriate Approach Slab bid items.

602 PEDESTRIAN WALLS: Construct V-grooves that are ¾ inch wide and ¾ inch deep in all faces, excluding the form liner areas, of the pedestrian walls at equal spaces of approximately 10-foot between the begin or end of bridge and the end of the pedestrian wall.

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
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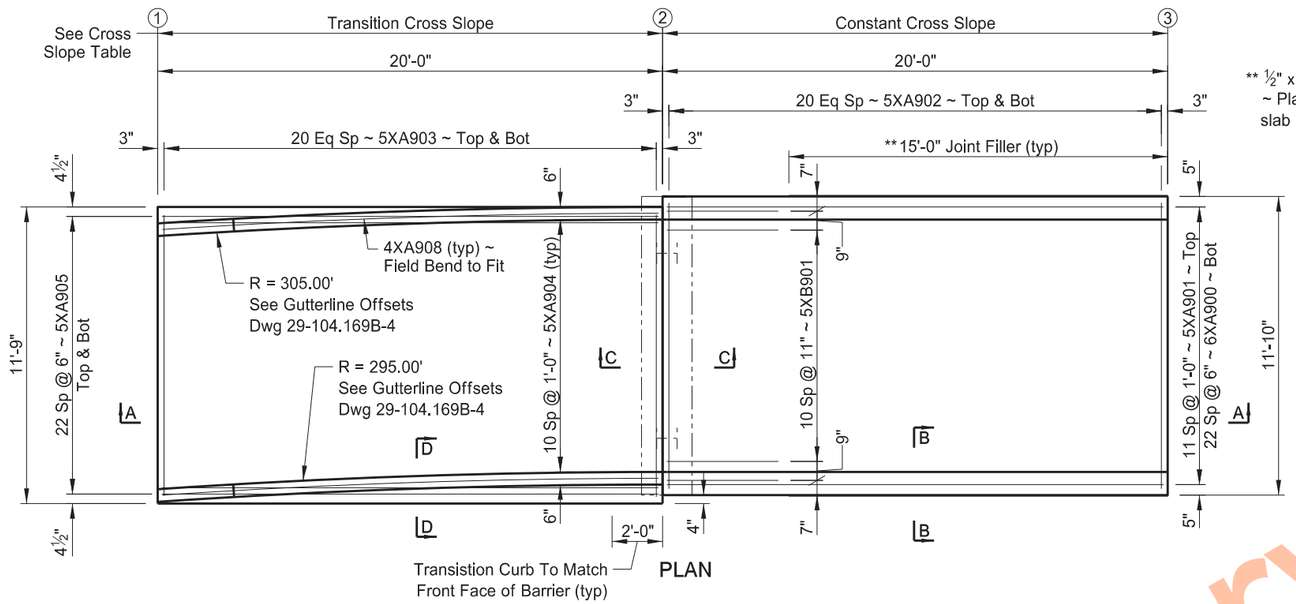
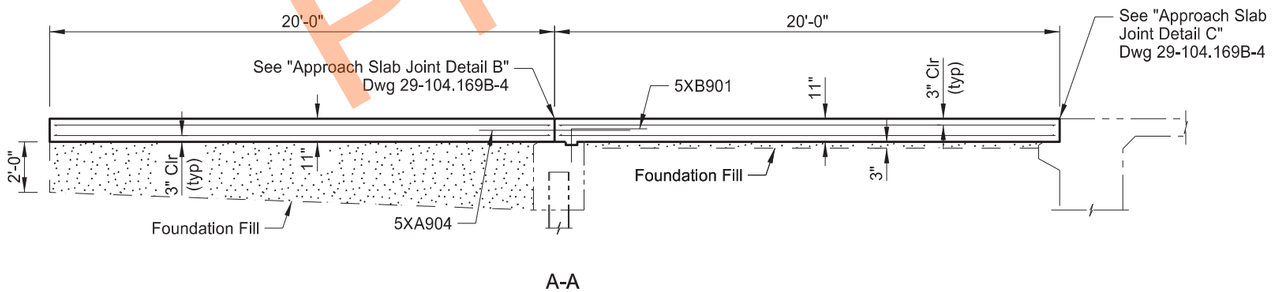


PLAN

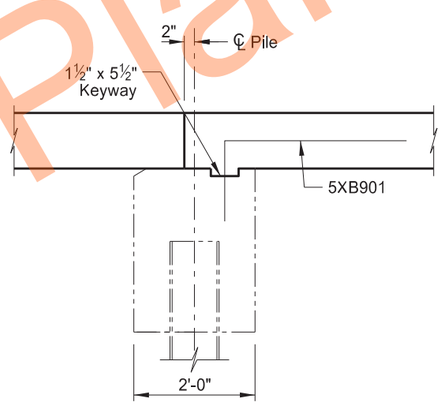
** ½" x 11" Pref Exp Joint Filler ~ Place between approach slab & abutment wing (typ).

CROSS SLOPE TABLE (LOOKING UPSTATION)	
LT ← Slope Full Super → RT	
LOCATION	SLOPE
①	1.5%
②	⅛" / Ft
③	⅛" / Ft

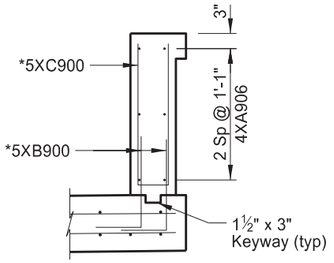
ELEVATION



A-A

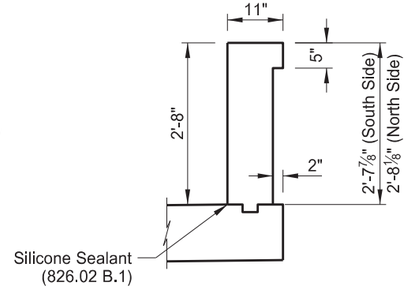


C-C



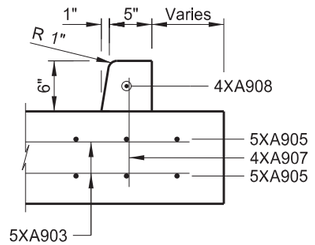
* Provide a 1½" clearance to the pedestrian wall reinforcing

SHOWING REINFORCING



SHOWING DIMENSIONS

B-B



D-D

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

QUANTITIES
SEE DWG 29-104.169B-7

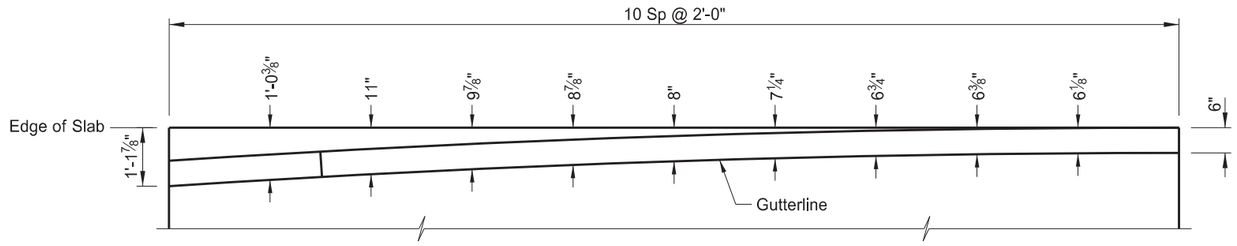
I-29 PEDESTRIAN CROSSOVER
HILLSBORO INTERCHANGE

WEST APPROACH SLAB DETAILS

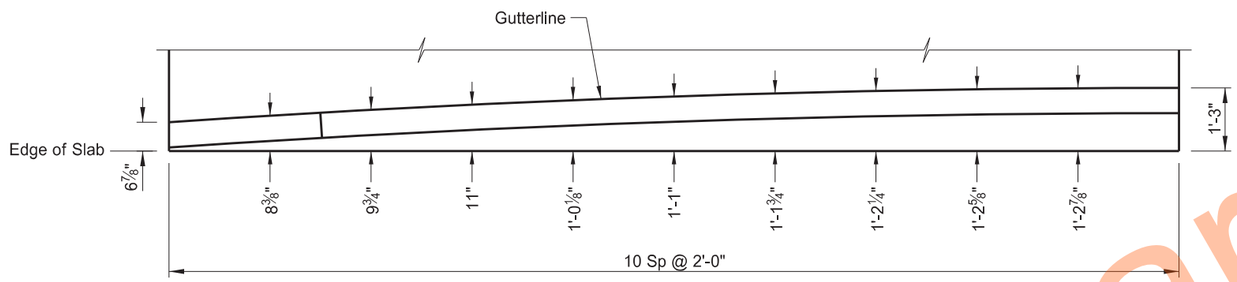
DocuSign Envelope ID: C7BF19B1-4934-4B31-8746-2FE73C80A4C5

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	6

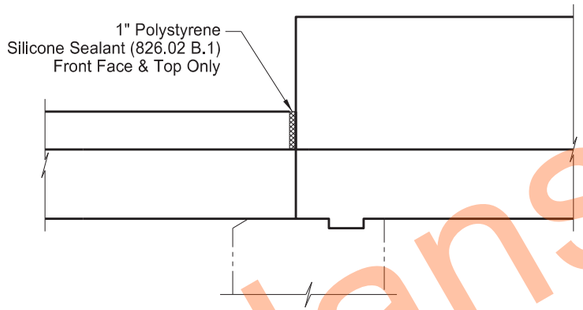


NORTH CURB PLAN

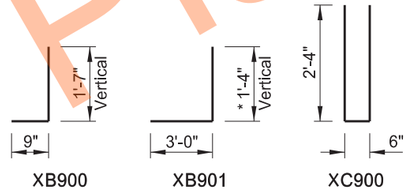


SOUTH CURB PLAN

GUTTERLINE OFFSETS



DETAIL "A"



BENT BAR DETAILS

SKEW ANGLE = 0°

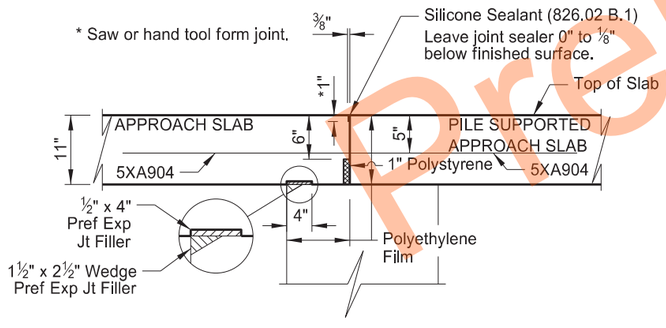
BAR LIST

SIZE	MARK	NO.	LENGTH
6	XA900	23	19'-8"
5	XA901	12	19'-8"
5	XA902	42	11'-6"
5	XA903	42	11'-5"
5	XA904	11	6'-0"
5	XA905	46	19'-8"
4	XA906	12	19'-8"
4	XA907	36	0'-11"
4	XA908	2	16'-7"
5	XB900	124	2'-4"
5	XB901	13	* 4'-4"
5	XC900	62	5'-2"

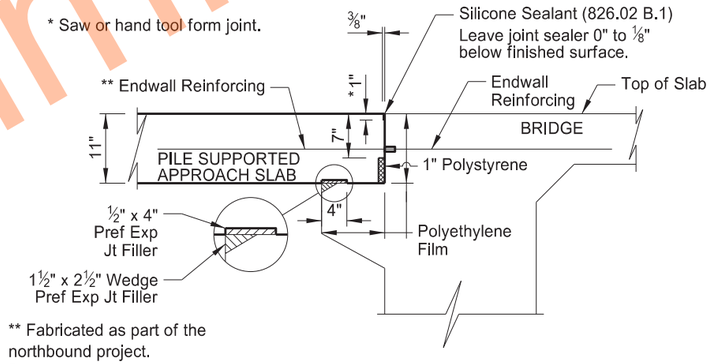
ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL (LBS)	CONCRETE (CY)
3,838	19.4

* Length may vary depending on manufacturer's recommendations for anchorage. Provide a minimum anchorage length of 9 inches.



APPROACH SLAB JOINT DETAIL B



** Fabricated as part of the northbound project. Bars to be delivered to site by NDDOT.

APPROACH SLAB JOINT DETAIL C

NOTES:

The estimated material quantities shown are for information purposes only. Include the concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, foundation fill, formliner, and labor required to build the approach slabs, barriers, and curbs in the pay items "Approach Slab" and "Pile Supported Approach Slab." Use Class AAE-3 concrete and Grade 60 reinforcing steel. Provide reinforcing steel that meets the requirements of Section 612. Use polyethylene film that meets the requirements of ASTM C171.

The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out.

Add a designation to the XA903 bar marks to differentiate between east and west approach slabs.

Install the 5XB901 bar according to the manufacturer's recommendations, with a high strength adhesive specifically intended for concrete anchorage (16k min. ultimate pullout) and that meets the requirements of Sec. 806.02. Provide a minimum anchorage length of 9 inches.

QUANTITIES

SEE DWG 29-104.169B-7

I-29 PEDESTRIAN CROSSOVER
HILLSBORO INTERCHANGE

WEST APPROACH SLAB DETAILS

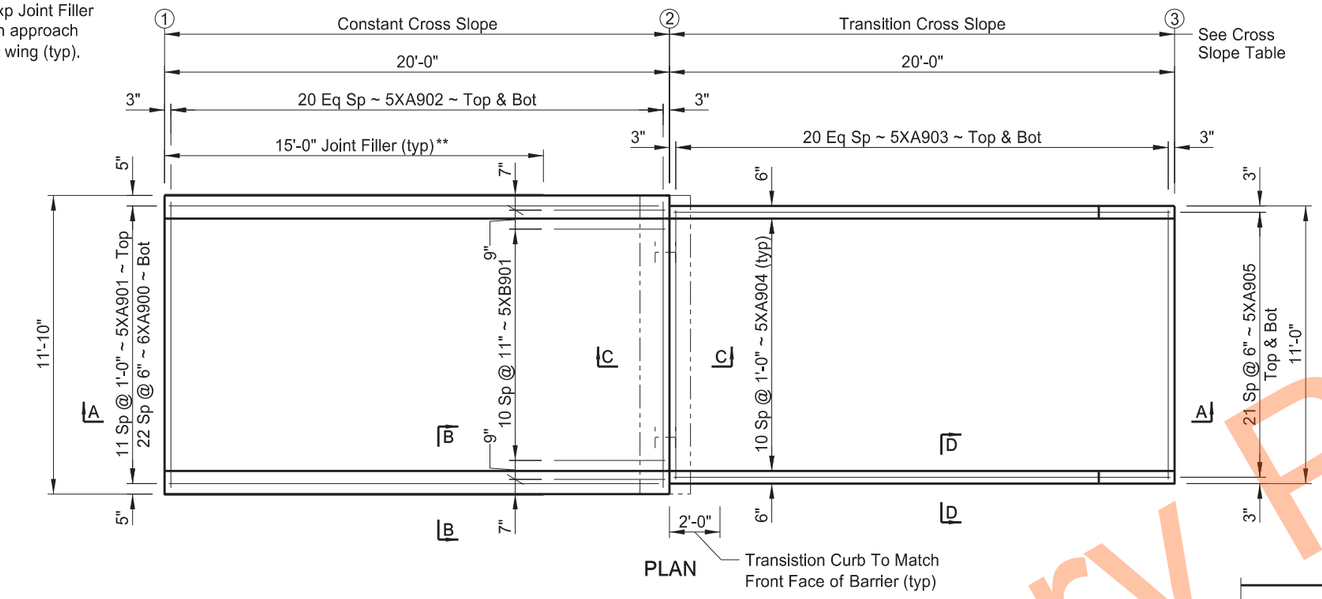
Preliminary Plans

DocuSign Envelope ID: C7BF19B1-4934-4B31-8746-2FE73C80A4C5

23 U.S.C. 407
NDDOT Reserves All Objections

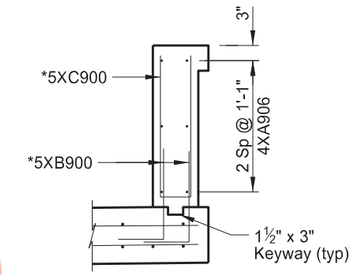
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	7

** ½" x 11" Pref Exp Joint Filler ~ Place between approach slab & abutment wing (typ).



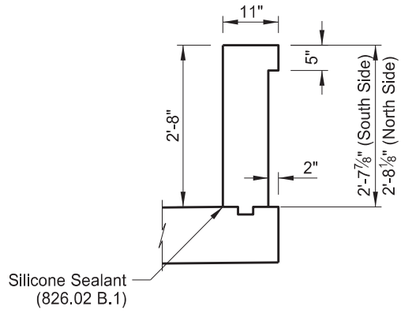
PLAN

CROSS SLOPE TABLE	
LT ← Slope Full Super → RT (LOOKING UPSTATION)	
LOCATION	SLOPE
①	⅛" / Ft
②	⅛" / Ft
③	1.5%



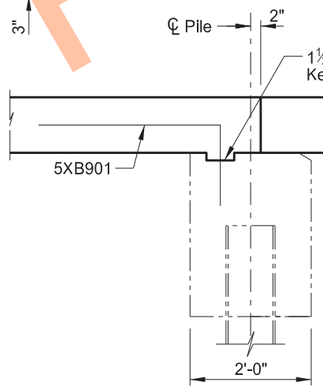
* Provide a 1½" clearance to the pedestrian wall reinforcing

SHOWING REINFORCING

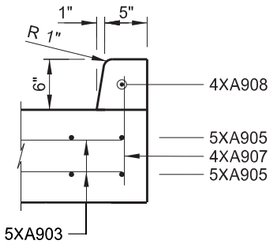


SHOWING DIMENSIONS

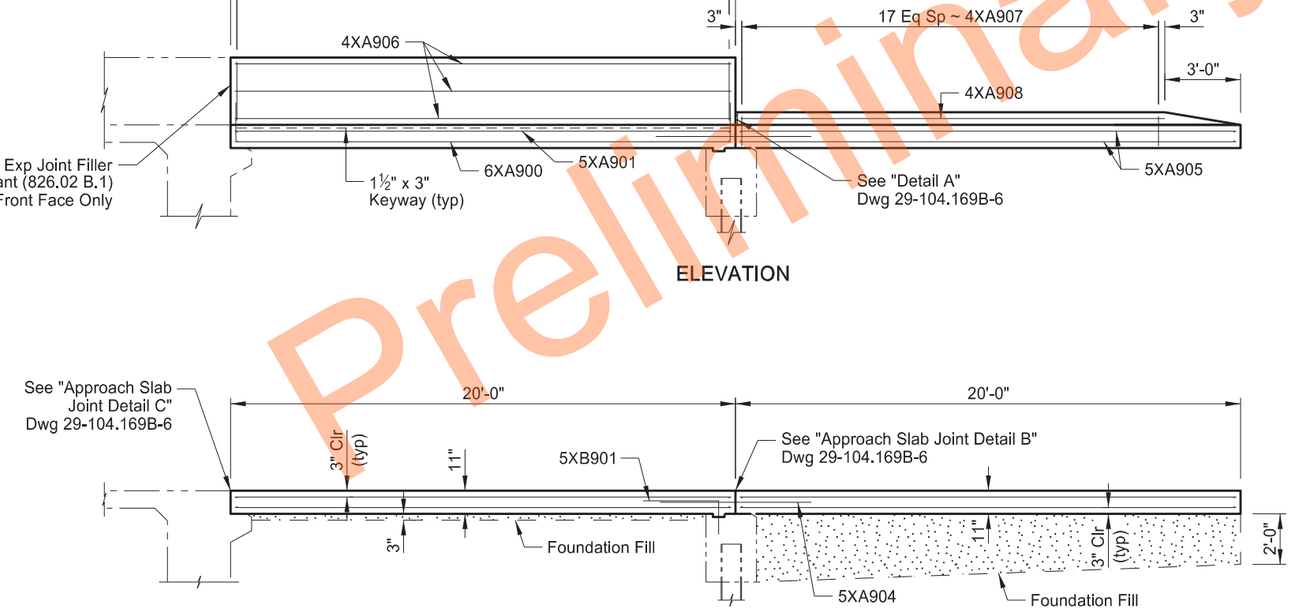
B-B



C-C



D-D



ELEVATION

A-A

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

QUANTITIES

SEE DWG 29-104.169B-7

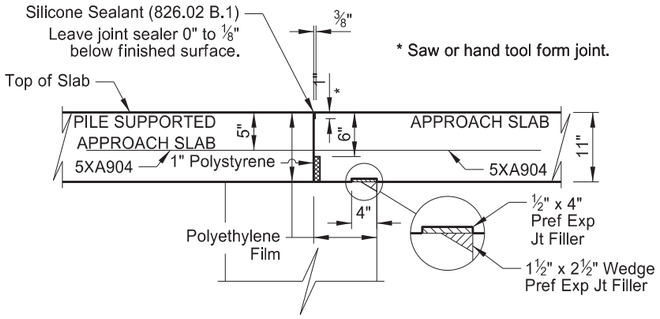
I-29 PEDESTRIAN CROSSOVER
HILLSBORO INTERCHANGE

EAST APPROACH SLAB DETAILS

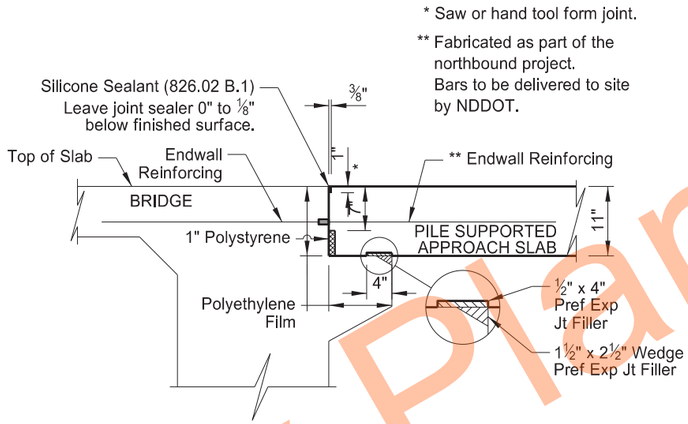
DocuSign Envelope ID: C7BF19B1-4934-4B31-8746-2FE73C80A4C5

23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	8



APPROACH SLAB JOINT DETAIL B



APPROACH SLAB JOINT DETAIL C

SKEW ANGLE = 0°

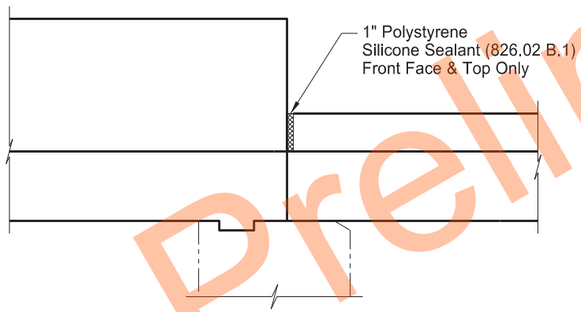
BAR LIST

SIZE	MARK	NO.	LENGTH
6	XA900	23	19'-8"
5	XA901	12	19'-8"
5	XA902	42	11'-6"
5	XA903	42	10'-8"
5	XA904	11	6'-0"
5	XA905	44	19'-8"
4	XA906	12	19'-8"
4	XA907	36	0'-11"
4	XA908	2	16'-7"
5	XB900	124	2'-4"
5	XB901	13	* 4'-4"
5	XC900	62	5'-2"

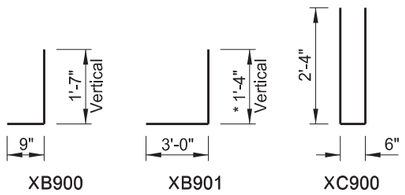
ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL (LBS)	CONCRETE (CY)
3,764	18.9

* Length may vary depending on manufacturer's recommendations for anchorage. Provide a minimum anchorage length of 9 inches.



DETAIL "A"



BENT BAR DETAILS

NOTES:

The estimated material quantities shown are for information purposes only. Include the concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, foundation fill, formliner, and labor required to build the approach slabs, barriers, and curbs in the pay items "Approach Slab" and "Pile Supported Approach Slab." Use Class AE-3 concrete and Grade 60 reinforcing steel. Provide reinforcing steel that meets the requirements of Section 612. Use polyethylene film that meets the requirements of ASTM C171.

The bar marks beginning with an "X" indicate an epoxy coated bar. The dimensions shown in the "Bent Bar Details" are out to out.

Add a designation to the XA903 bar marks to differentiate between east and west approach slabs.

Install the 5XB901 bar according to the manufacturer's recommendations, with a high strength adhesive specifically intended for concrete anchorage (16k min. ultimate pullout) and that meets the requirements of Sec. 806.02. Provide a minimum anchorage length of 9 inches.

QUANTITIES

SEE DWG 29-104.169B-7

I-29 PEDESTRIAN CROSSOVER
HILLSBORO INTERCHANGE

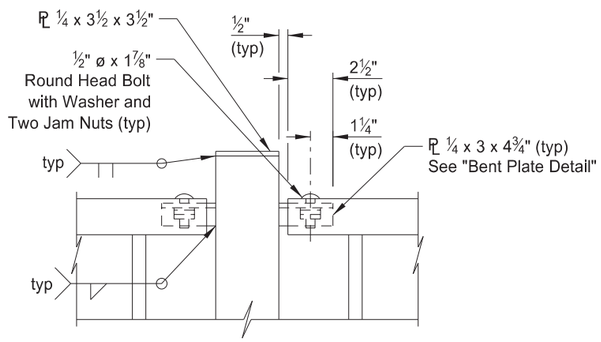
EAST APPROACH SLAB DETAILS

Preliminary Plans

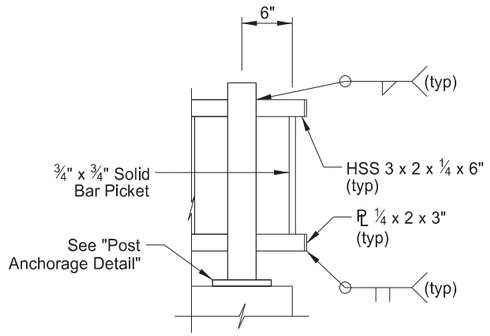
DocuSign Envelope ID: C7BF19B1-4934-4B31-8746-2FE73C80A4C5

23 U.S.C. 407
NDDOT Reserves All Objections

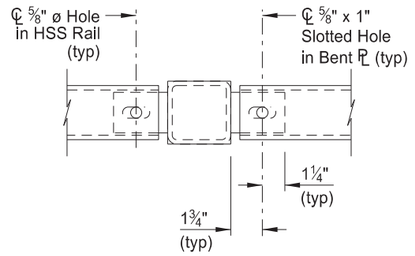
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	9



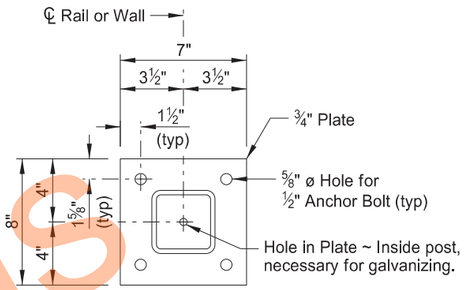
ELEVATION
DETAIL D



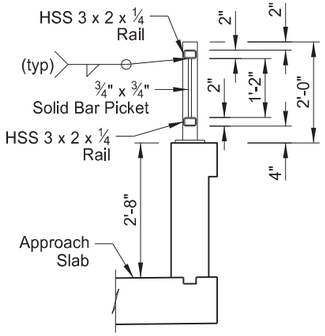
DETAIL E



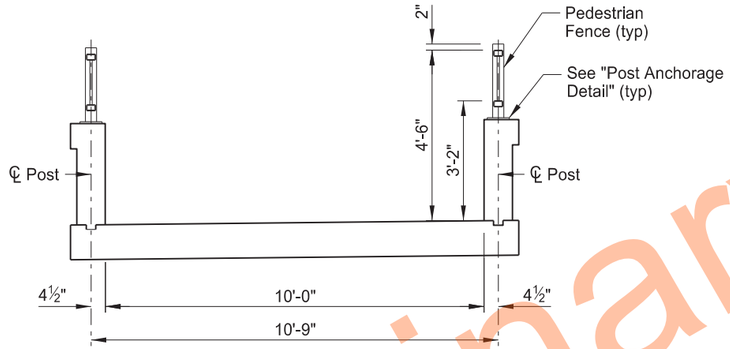
PLAN



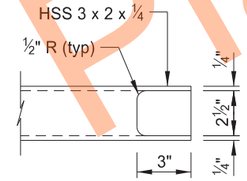
BASE PLATE PLAN



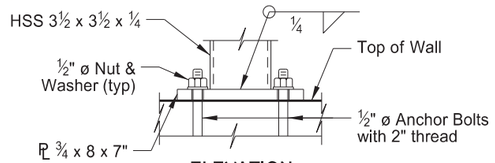
APPROACH SLAB



A-A

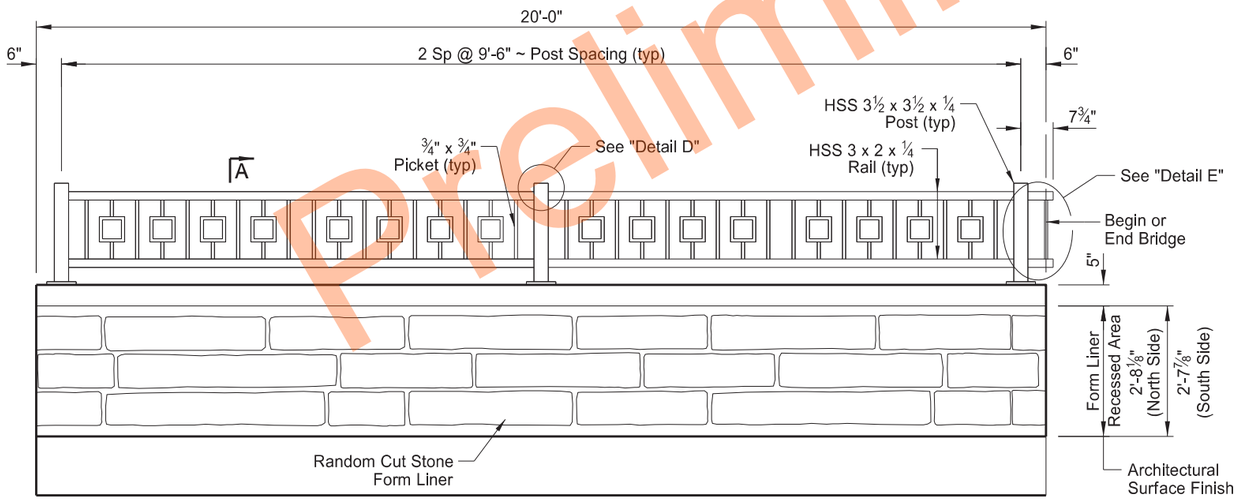


HORIZONTAL RAIL CUTOUT DETAIL



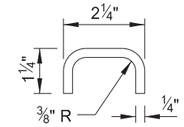
ELEVATION
POST ANCHORAGE DETAIL

PEDESTRIAN FENCE DETAIL



(SHOWING FORM LINER ~ BACK FACE)

PEDESTRIAN WALL & FENCE ELEVATION



BENT PLATE DETAIL

NOTES:

The pedestrian fence (including anchorages and hardware) for the approach slabs was fabricated and delivered to the NDDOT Maintenance Storage Yard in Hillsboro as part of the northbound project IM-8-029(203)101, PCN 23102. Include all costs required to transport and install the fence in the approach slab pay items.

Epoxy in ½" ø anchor bolts, or place them in the concrete at the time of pouring. Provide an adhesive with a minimum characteristic bond strength in uncracked concrete of 1.5 ksi, a minimum pullout capacity of 4,000 lbs, and a minimum embedment of 8" for each anchor bolt.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

QUANTITIES	
APPROACH SLAB	24.4 SY
PILE SUPPORTED APPROACH SLAB	26.3 SY

I-29 PEDESTRIAN CROSSOVER
HILLSBORO INTERCHANGE

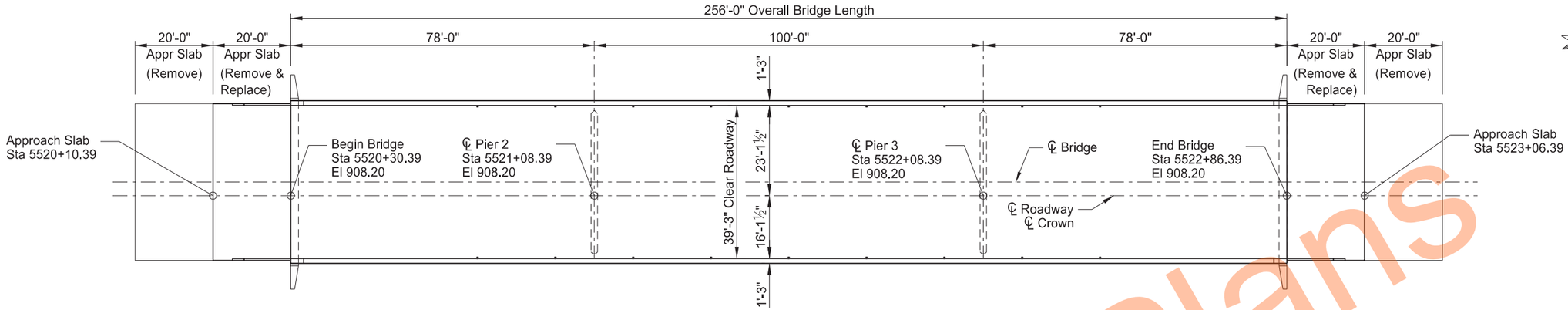
PEDESTRIAN FENCE DETAILS

Preliminary Plans

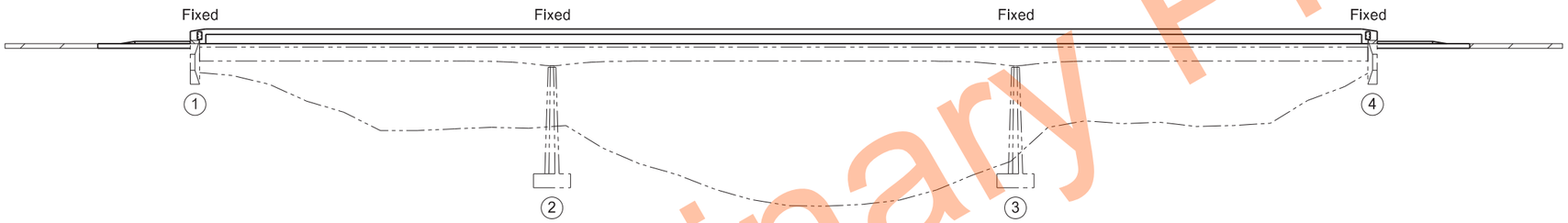
DocuSign Envelope ID: C7BF19B1-4934-4B31-8746-2FE73C80A4C5

23 U.S.C. 407
NDDOT Reserves All Objections

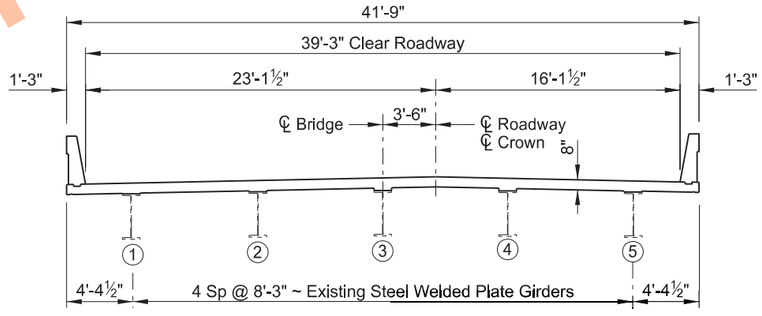
BRIDGE CODE		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
X031		ND	IM-8-029(204)101	170	10



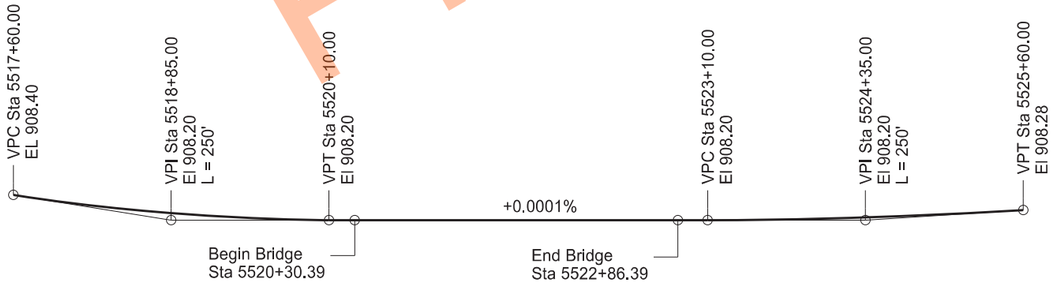
PLAN



ELEVATION



PROPOSED TYPICAL SECTION



VERTICAL CURVE DATA

DESIGN STRENGTHS:

f'c = 4,000 psi ~ Class AAE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load Factor Design

SPECIAL PROVISIONS	
SSP 2	MIGRATORY BIRD TREATY ACT

STANDARD DRAWINGS
D-900-1

F.W.S. 15 PSF

HS 20 DESIGN LOADING

GOOSE RIVER
4 NORTH OF ND 200

STATION: 5521+58.39

BRIDGE LAYOUT

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
05/24/24

Preliminary Plans

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23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	11

NOTES

100 SCOPE OF WORK: Work at this site consists of removing and replacing the concrete deck and endwall on a 3-span, steel welded plate girder bridge with an overall length of 255'-0". The clear roadway will be widened to 39'-3". The approach slabs will be removed and replaced at each end of the bridge.

100 GENERAL: Include the cost of furnishing and placing preformed expansion joint filler, concrete inserts, rebar couplers, silicone sealant, waterproof membrane, and other miscellaneous items in the price bid for Class AAE-3 concrete.

107 HAZARDOUS MATERIAL: The existing structural steel is painted with lead-based paint. Remove and dispose of any loose and peeling paint found on the existing structural steel according to the North Dakota Department of Health's management of lead-based paint debris.

202 REMOVAL OF CONCRETE (L SUM): Include the superstructure removal in the price bid for "Removal of Concrete", paid for by L SUM. Remove the concrete in a manner that prevents damage to the remaining structure.

202 REMOVAL OF CONCRETE (EA): Remove the outside 20'-0" concrete approach slab on both ends of the bridge. Include all material, labor, and equipment to remove the concrete approach slab in the price bid for "Removal of Concrete." A quantity of 1 EA will be paid for each end.

602 CLASS AAE-3 CONCRETE: Design a mix that meets the requirements of Section 802.01 A.2 and attains a minimum compressive strength of 4,000 psi at 28 days.

602 FALSEWORK: Brace exterior steel beams at a maximum of 10'-0" spacing, and provide temporary bracing of all girders near the abutments to prevent rotation. Design the strength of the bracing to be dependent on the forces induced by the weight of the concrete, forms, equipment, and workers. Assume that the diaphragms will not carry any of the load in the design. Submit a bracing plan and design, stamped by a Professional Engineer, to the Engineer for review.

602 ENDWALLS: Place the endwall concrete at the same time as the bridge deck concrete.

602 BRIDGE DECK AND APPROACH SLAB CURING: Do not cover the wet cure burlap with a waterproof material such as polyethylene during the curing period.

602 DECK PLACEMENT: Place the deck concrete at a minimum of 50 CY per hour.

602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.

602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent to the driving surface of the bridge deck and approach slabs prior to crack sealing. Do not allow traffic on the driving surfaces until the solution has completely penetrated and the entire driving surface is dry.

602 CRACK SEALING: After the penetrating water repellent has been applied and is dry, the Engineer will perform a visual inspection of the bridge deck and approach slabs to determine the need for crack sealing. Mark and repair all visible cracks on the top surface measuring 0.02" or greater in width at the widest segment or as directed by the Engineer.

Immediately before applying the sealer, clean the cracks by removing all dust and debris with compressed air. Seal the cracks with a two-part epoxy in accordance with the manufacturer's recommendations. Chase crack with the sealant application to the limits of the crack, including those portions that are narrower than 0.02" wide. Use Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved equal epoxy sealer.

Include all material, labor, and equipment required to crack seal the bridge deck and approach slabs in the price bid for Class AAE-3 concrete.

602 SPECIAL SURFACE FINISH: Clean the surfaces that are to receive the Tex-Cote surface finish using sandblasting, shot blasting, or water-washing equipment to remove all dirt, grease, oil, efflorescence and laitance. Fill cracks larger than 0.02" with Tex-Cote Skim Cote or an approved crack sealer compatible with Tex-Cote XL Bridge Cote.

In place of surface finish C, apply Tex-Cote XL 70 Bridge Cote with Silane to the outside edges of the bridge deck, the underside of the bridge deck overhang, the exposed endwall areas outside the exterior beams, and to all bridge barrier and approach slab curb surfaces. Use a medium textured finish and Tex-Cote Whisper gray surface finish color.

602 REMOVE AND RESET ANCHOR BOLTS: Replace the missing anchor bolts at Pier 3, Girder 2 (1 EA) and Pier 3, Girder 3 (1 EA) with 1 ½" ϕ x 2'-0" swedged anchor bolts that meet ASTM A449. Remove and reset the loose anchor bolt at Pier 3, Girder 4 (1 EA). Remove any debris from anchor bolt holes, and from anchor bolt being reset. Embed the anchor bolts into concrete using a chemical adhesive system in accordance with Section 806.02, Epoxy Resin Adhesives. Install in accordance with manufacturer's recommendations. Place the top of the anchor rod 8" from the top of the concrete bearing seat. Use double heavy hex nuts and leave a 1/8" gap between the sole plate and the lower nut.

Include all costs, labor, materials, and equipment to complete this work in the price bid for "Remove and Reset Anchor Bolts."

616 STRUCTURAL STEEL: Use ASTM A36 structural for the deck drain angles (L2 x 2 x ¼). Use ASTM A500 Grade B structural steel for the deck drain tubing (HSS 4 x 4 x ¼). Galvanize deck drains after fabrication according to Section 854.

The total weight of structural steel is approximately 918 pounds.

900 ELEVATION CHECK POINTS: Place eight bolts on the top of the barriers to serve as elevation check points. Include the cost for this item in the unit price bid for Class AAE-3 Concrete.

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

Preliminary Plans

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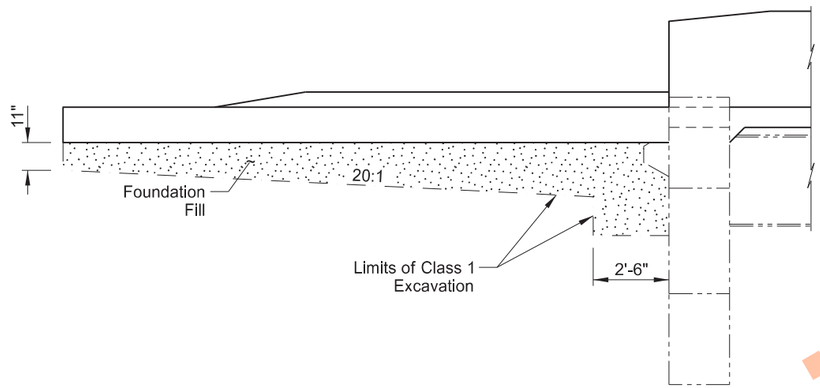
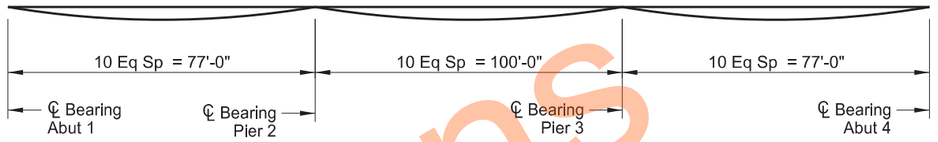
NOTE:

602 Include the cost of the Class 1 excavation required to construct the approach slab and endwall and the cost to furnish and place the foundation fill in the pay item "Bridge Approach Slab-Remove & Replace."



DETAIL AT ABUTMENT



* GIRDER SHOT LOCATIONS

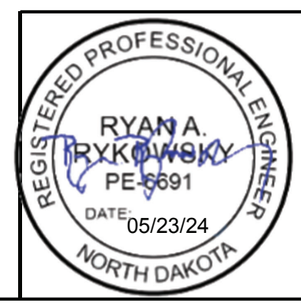
* After the existing concrete deck is removed, take elevations at the tops of the girders at the tenth point locations indicated in the Girder Shot Locations Diagram.

Prior to deck placement submit the elevations to the Engineer for review to see if any adjustments need to be made to the bridge profile. Allow the Engineer 3 days for review.

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0101	REMOVAL OF CONCRETE	EA	2
202	0111	REMOVAL OF CONCRETE	L SUM	1
602	0130	CLASS AAE-3 CONCRETE	CY	345.9
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	180.4
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1,294
602	2000	REMOVE AND RESET ANCHOR BOLTS	EA	3
612	0115	REINFORCING STEEL-GRADE 60	LBS	1,102
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	100,477
616	5890	STRUCTURAL STEEL	L SUM	1

Preliminary Plans



GOOSE RIVER
4 NORTH OF 200 SOUTH

GIRDER SHOT LOCATIONS &
BID ITEM QUANTITIES

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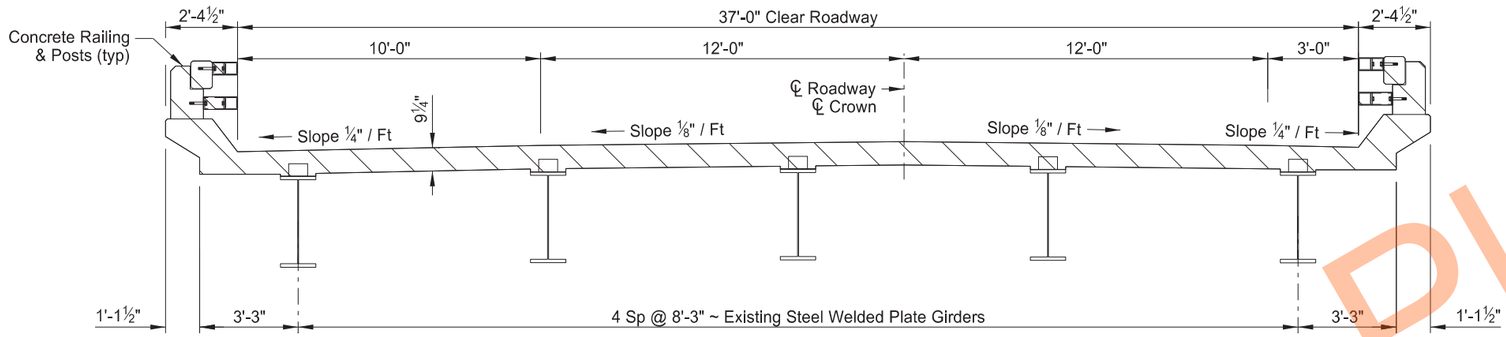
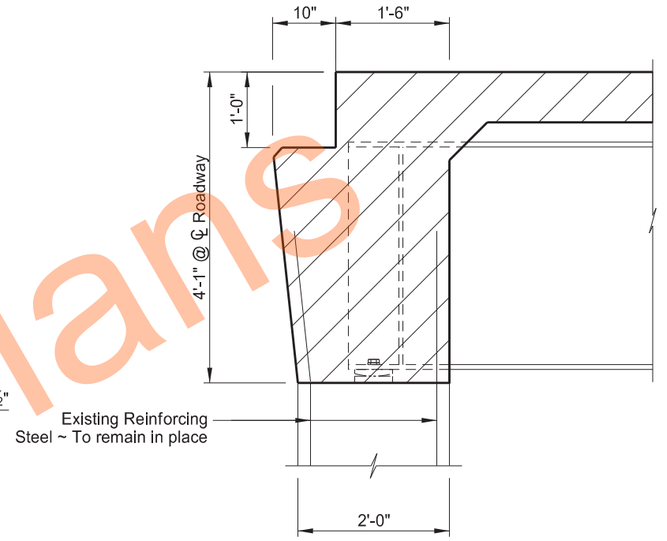
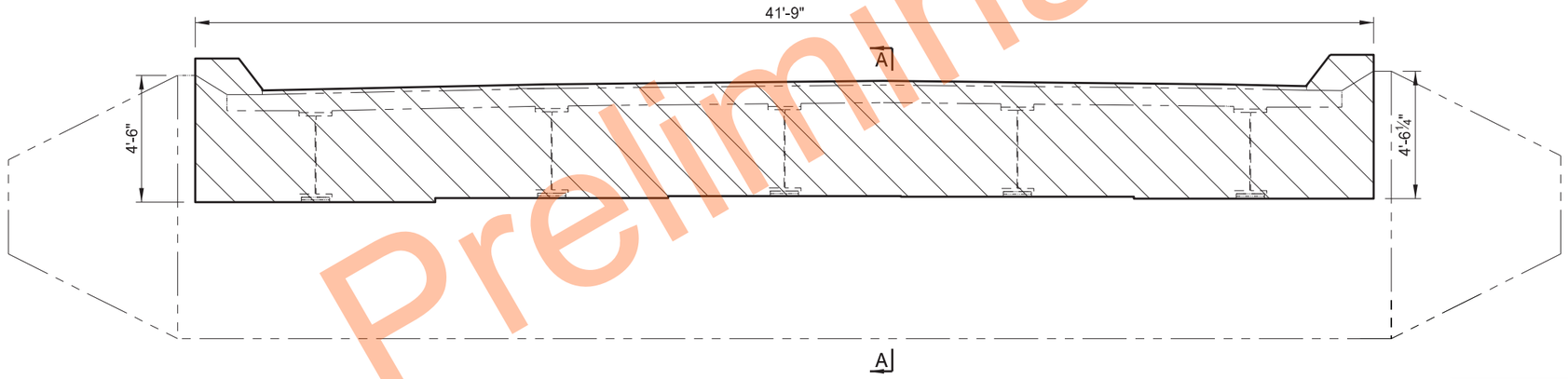


EXISTING SLAB SECTION



A-A



(ABUTMENT 1 SHOWN ~ APPROACH LEDGE NOT SHOWN FOR CLARITY)

EXISTING ENDWALL ELEVATION

The hatched areas indicate concrete to be removed. Carefully remove concrete to ensure no damage is done to the existing reinforcing steel to remain in place, abutment bearings, and shear connectors on top of beams that are to remain in place. Sand blast clean the exposed existing reinforcing bars from any rust scale.

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

GOOSE RIVER
4 NORTH OF 200 SOUTH

CONCRETE REMOVAL DETAILS

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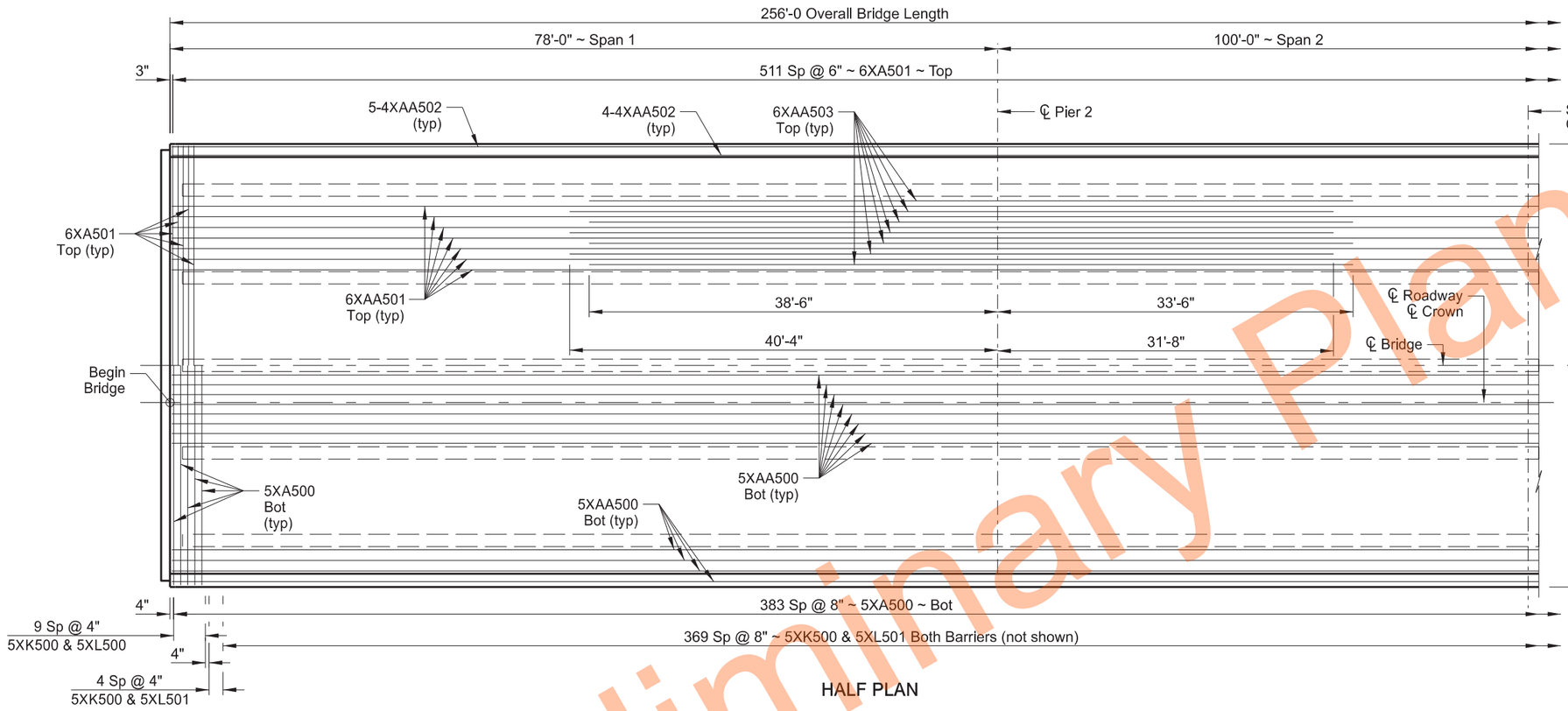
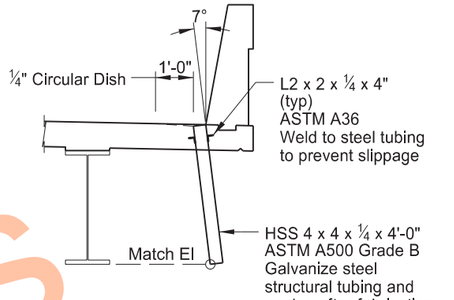


HALF PLAN



(18 REQUIRED)

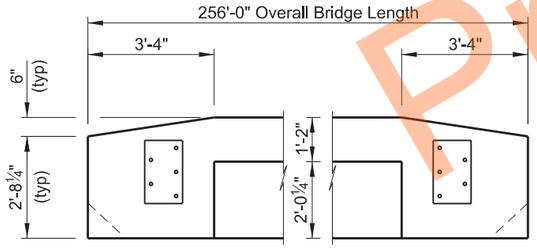
DECK DRAIN DETAIL

DECK DRAIN LOCATIONS
*STATION
5520+78.39
5520+98.39
5521+18.39
5521+38.39
5521+58.39
5521+78.39
5521+98.39
5522+18.39
5522+38.39

*Install deck drains at left and right gutter line at stations shown

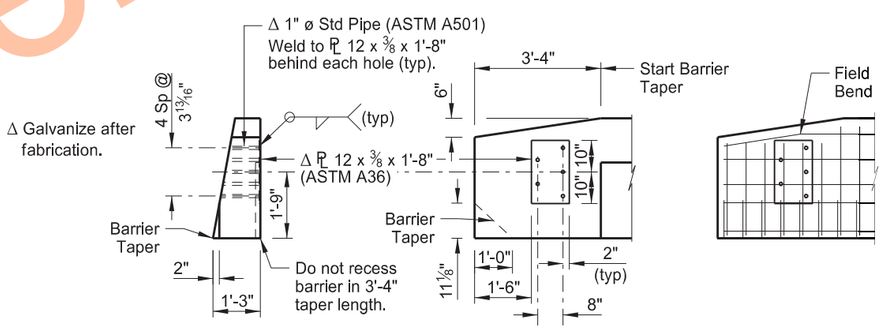
NOTE:

Include the connection plates and pipes in the pay item "Class AAE-3 Concrete."



(SHOWING DIMENSIONS ~ BACK FACE)

BARRIER ELEVATION



SHOWING DIMENSIONS

SHOWING REINFORCING

(SHOWING BACK FACE)

CONNECTION PLATE DETAILS

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

QUANTITIES

SEE DWG 29-104.576L-7

GOOSE RIVER
4 NORTH OF 200 SOUTH

HALF SLAB LAYOUT

Preliminary Plans

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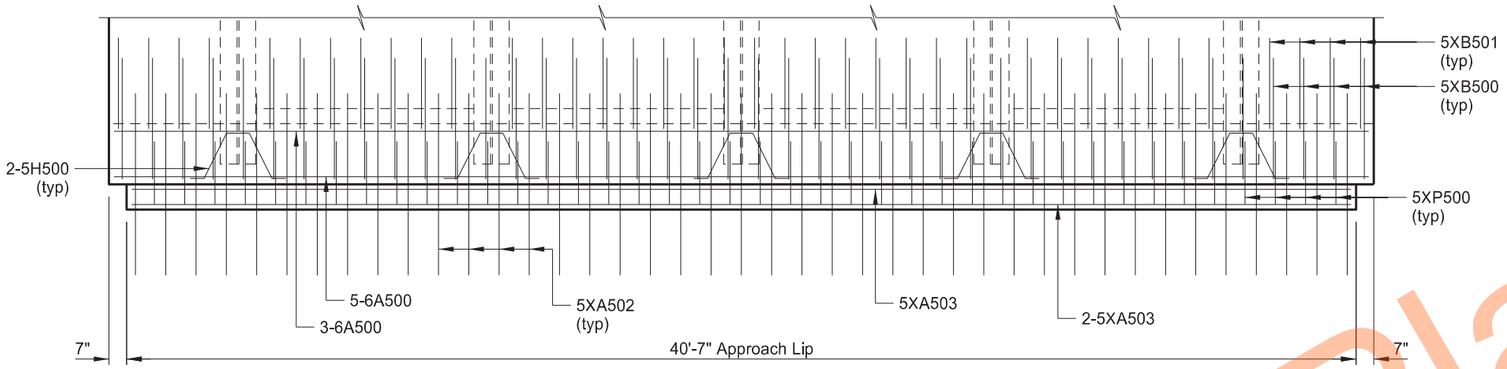
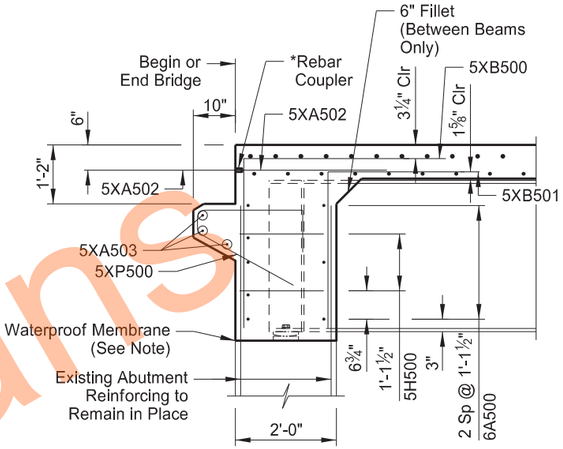
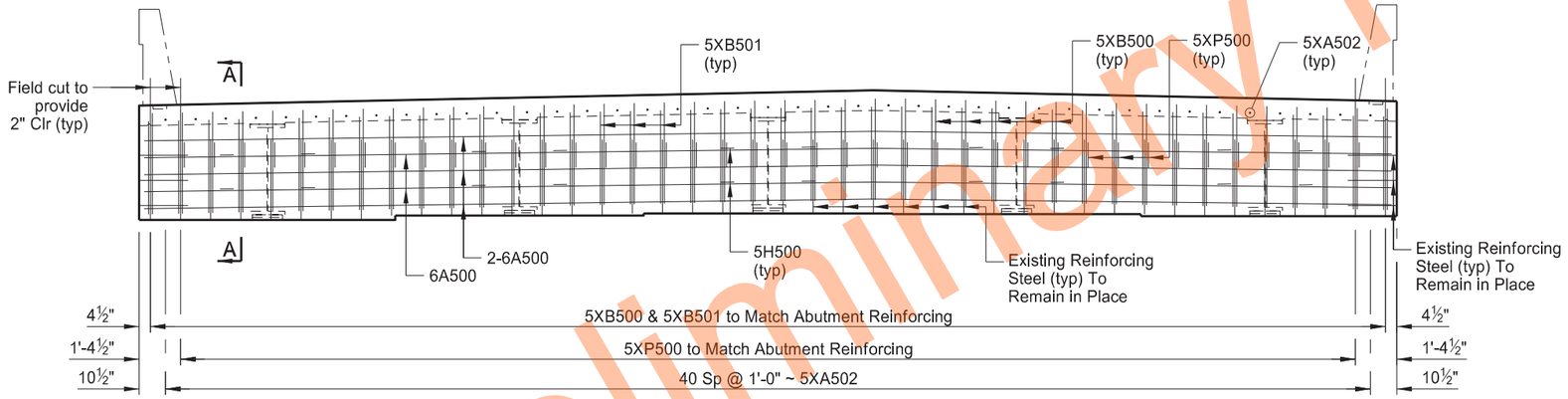


PLAN

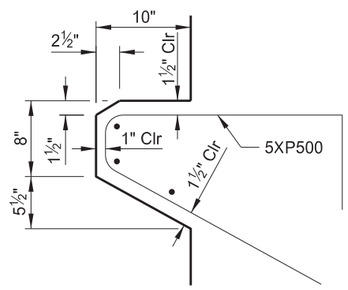


A-A



(APPROACH LIP NOT SHOWN)

ELEVATION



APPROACH LIP DETAIL

* Use approved mechanical connectors for the couplers capable of developing 125% of the reinforcing steel specified yield strength. Provide epoxy coated couplers according to Section 836.02 A and repair any damaged epoxy coating according to Section 612.04 E.

NOTES:

Do not install the 5XA502 bars into the approach slab until all of the foundation fill is in place.

Use waterproof membrane that meets the requirements of Section 602.03 B. Center the waterproof membrane (1'-0" minimum width) on the joint.

Existing abutment reinforcement to be bent such that they are straight in the final condition.

REGISTERED PROFESSIONAL ENGINEER
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DATE: 05/23/24
NORTH DAKOTA

QUANTITIES

SEE DWG 29-104.576L-7

GOOSE RIVER
4 NORTH OF 200 SOUTH

ENDWALL DETAILS

Preliminary Plans

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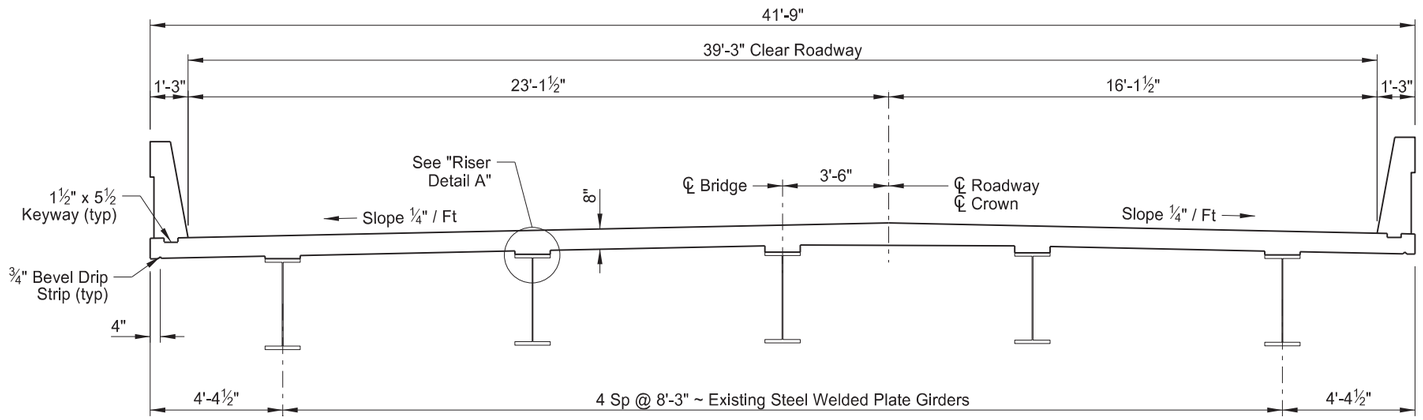
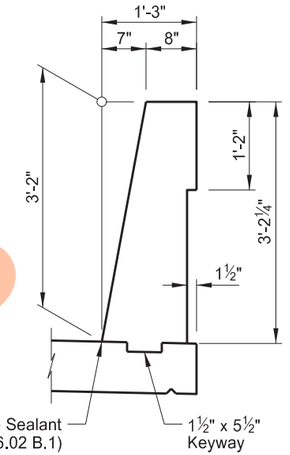


(SHOWING DIMENSIONS)

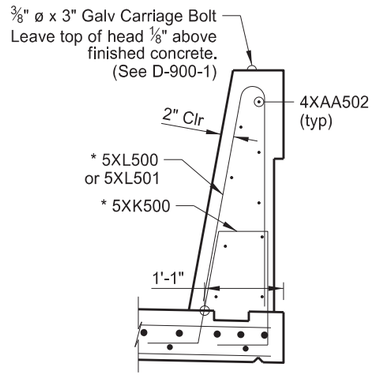
SLAB SECTION



SHOWING DIMENSIONS

(SHOWING REINFORCING OVER PIERS) (SHOWING REINFORCING BETWEEN SUPPORTS)

SLAB SECTION

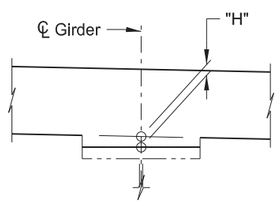


* Provide a 2" clearance from the front face to the barrier reinforcing.

SHOWING REINFORCING

BARRIER DETAIL

RISER HEIGHT	
GIRDER #	"H" (IN)
1	1⅛
2	1⅜
3	2½
4	2½
5	1¼



RISER DETAIL A

REGISTERED PROFESSIONAL ENGINEER
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PE-6691
DATE: 05/23/24
NORTH DAKOTA

QUANTITIES	
CLASS AAE-3 CONCRETE	345.9 CY
REINFORCING STEEL	1,102 LBS
REINFORCING STEEL (EPOXY)	100,477 LBS

GOOSE RIVER
4 NORTH OF 200 SOUTH

SLAB SECTION

Preliminary Plans

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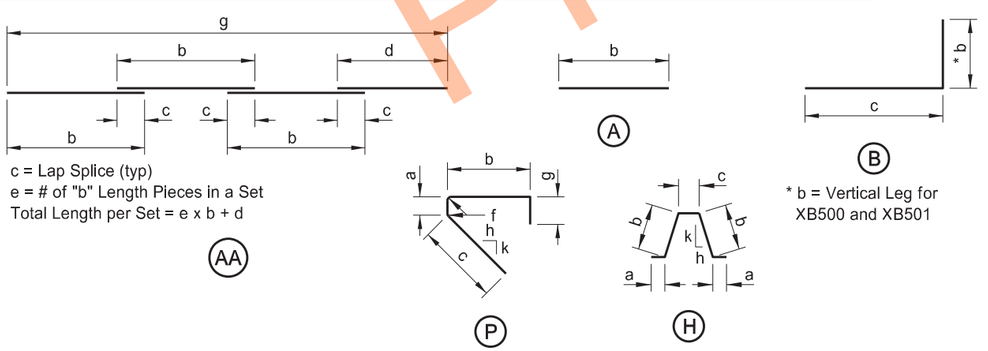
BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS								
						a	b	c	d	e	f	g	h	k
SUPERSTRUCTURE	REGULAR	6	A500	16	41'-5"		41"-5"							
		5	H500	20	5'-1"	6"	1'-8"	9"					6	12
	EPOXY	5	XA500	384	41'-5"		41'-5"							
		6	XA501	512	41'-5"		41'-5"							
		6	XA502	164	3'-0"		3'-0"							
		5	XA503	6	40'-3"		40'-3"							
		5	XB500	84	7'-4"		3'-4"	4'-0"						
		5	XB501	76	6'-1"		3'-1"	3'-0"						
		5	XK500	796	4'-11"	1'-6"	7"			10"		8"	2.2	12
		5	XL500	40	5'-3"	9"	2'-5"	5"			1.25"		2.2	12
		5	XL501	756	5'-11"	9"	2'-9"	5"			1.25"		2.2	12
		5	XP500	80	5'-6"	5"	2'-1"	2'-2"			1.25"	10"	12	6.5
		5	XAA500	40	265'-8"		60'-0"	2'-6"	25'-8"	4		255'-8"		
		6	XAA501	43	264'-8"		60'-0"	2'-3"	24'-8"	4		255'-8"		
		4	XAA502	18	264'-4"		60'-0"	2'-2"	24'-4"	4		255'-8"		
		6	XAA503	84	74'-3"		60'-0"	2'-3"	14'-3"	1		72'-0"		



c = Lap Splice (typ)
e = # of "b" Length Pieces in a Set
Total Length per Set = e x b + d

AA

* b = Vertical Leg for XB500 and XB501

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NOTES:

1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
5. The "f" dimension indicates the inside radius unless otherwise noted.
6. An "X" preceding a bar designation indicates an epoxy coated bar.

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

GOOSE RIVER
4 NORTH OF 200 SOUTH

REINFORCING BAR LIST & DETAILS

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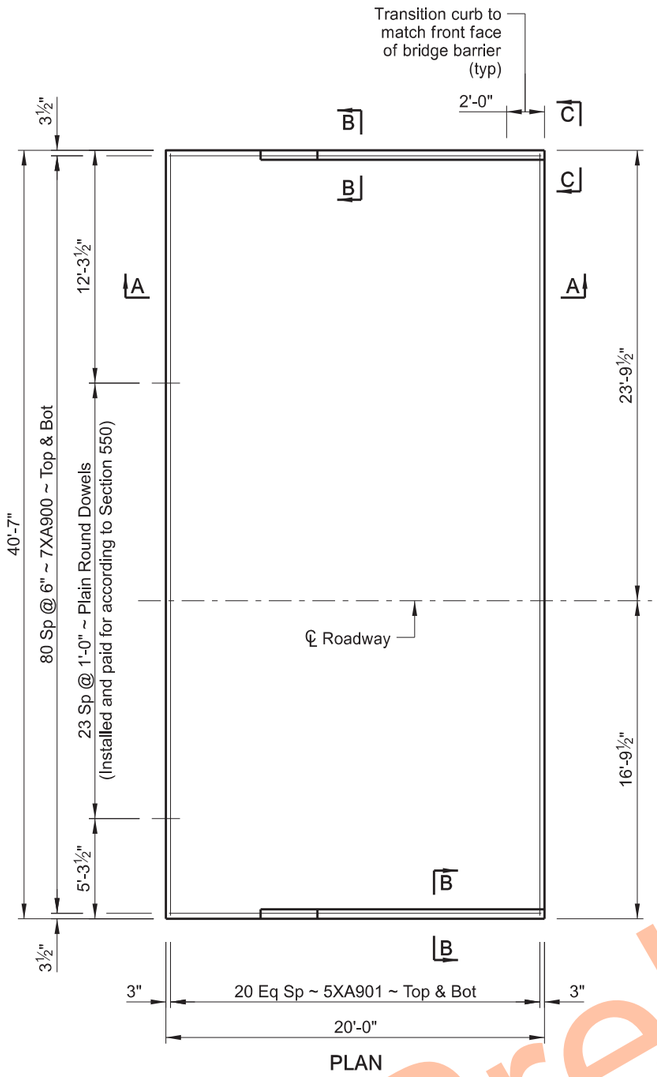
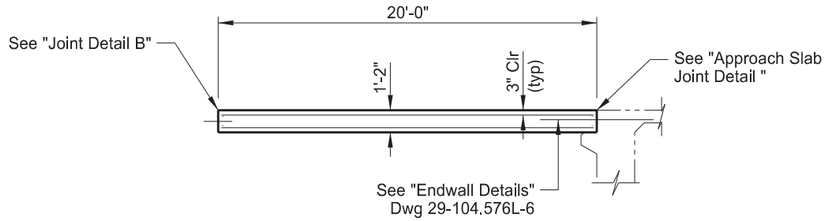
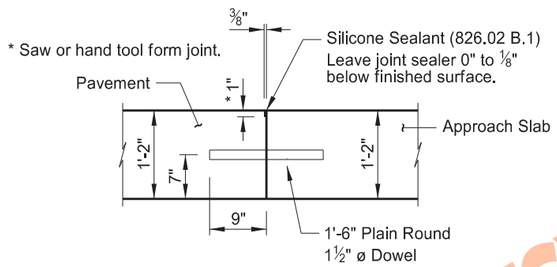


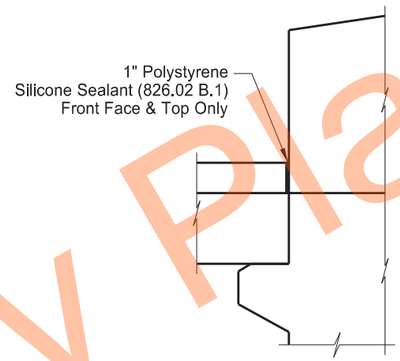
PLAN



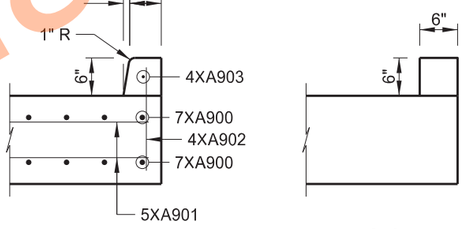
A-A



JOINT DETAIL B

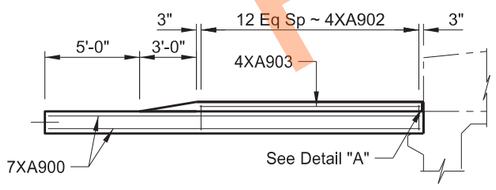


DETAIL "A"

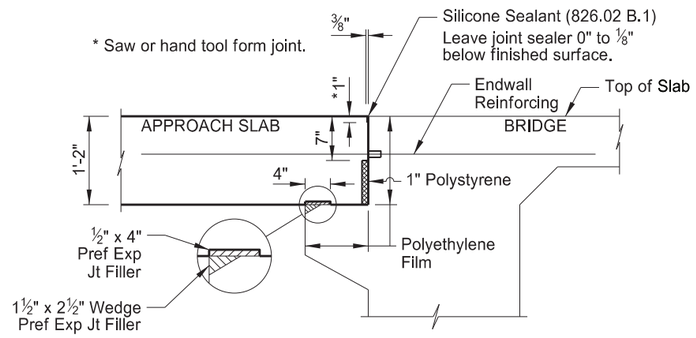


B-B

C-C



ELEVATION



APPROACH SLAB JOINT DETAIL

SKEW ANGLE = 0°

BAR LIST - ONE SLAB

SIZE	MARK	NO.	LENGTH
7	XA900	162	19'-8"
5	XA901	42	40'-3"
4	XA902	26	1'-3"
4	XA903	2	11'-8"

ESTIMATED MATERIAL QUANTITIES

REINFORCING STEEL (LBS)	CONCRETE (CY)
8,313	35.3

NOTES:

Remove and replace the inside 20'-0" approach slabs at each end of the bridge. Do not damage the parts of the structure to remain in place. Include all labor, material, and equipment to remove and replace the approach slabs in the price bid for "Bridge Approach Slab-Remove & Repalce."

The estimated material quantities shown are for information purposes only. Include the concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, and labor required to build the approach slabs and curbs in the pay item "Bridge Approach Slab-Remove & Replace." Use Class AAE-3 concrete and Grade 60 reinforcing steel. Provide reinforcing steel that meets the requirements of Section 612. Use polyethylene film that meets the requirements of ASTM C171.

The bar marks beginning with an "X" indicate an epoxy coated bar.

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
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PE-6691
DATE: 05/23/24
NORTH DAKOTA

QUANTITIES	(ONE APPROACH SLAB)
APPROACH SLAB-REMOVE & REPLACE	90.2 SY

GOOSE RIVER
4 NORTH OF 200 SOUTH

APPROACH SLAB DETAILS

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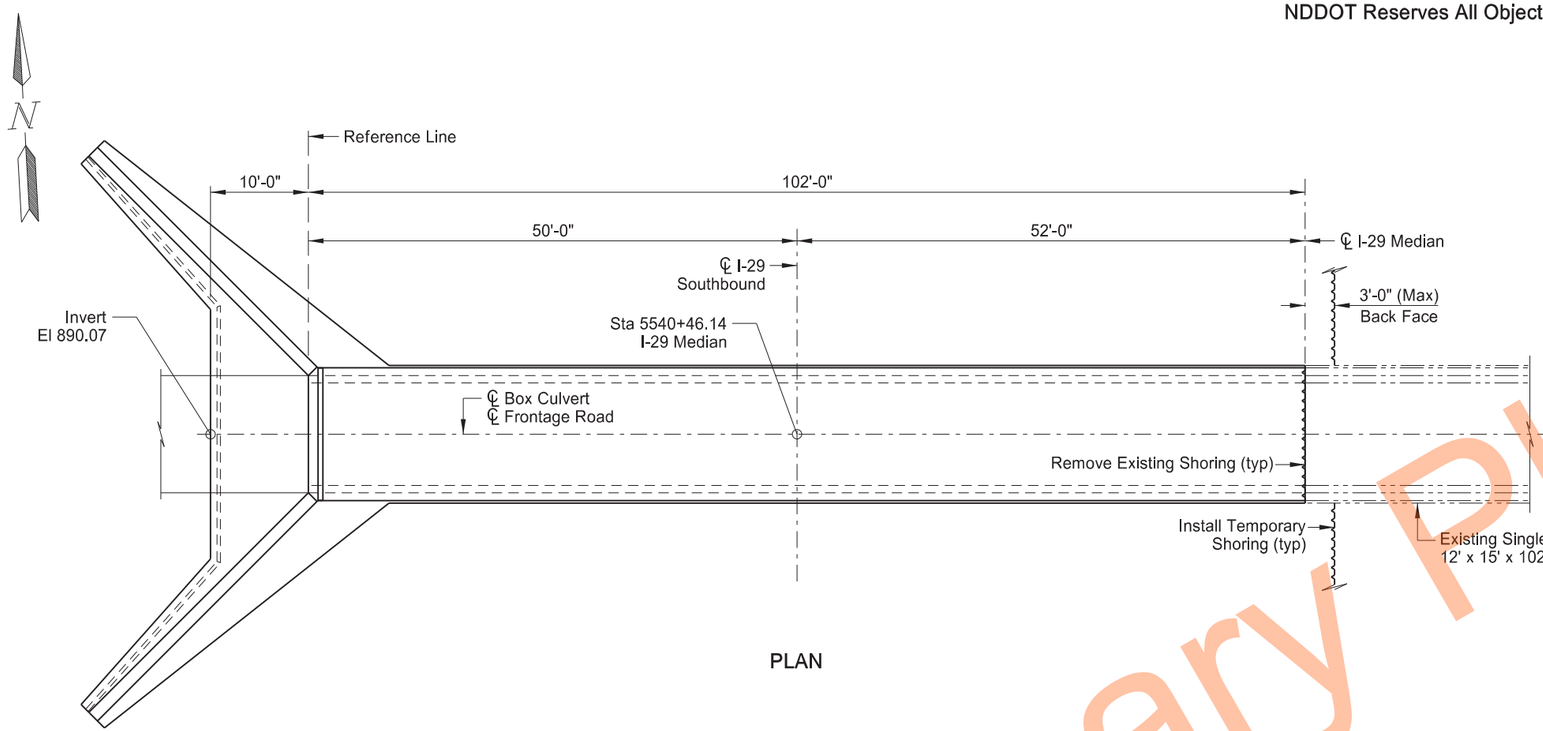
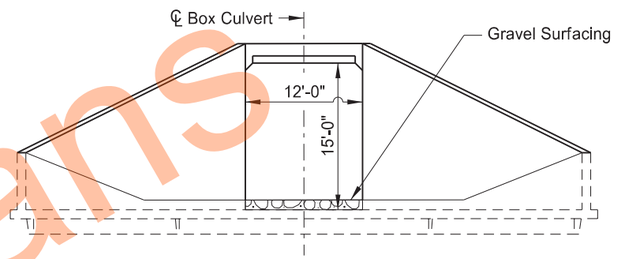
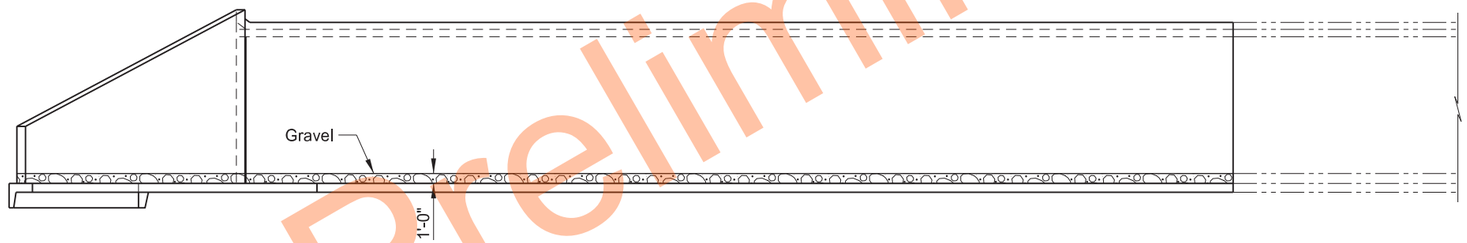
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	19



PLAN



END VIEW



ELEVATION

Preliminary Plans

BOX CULVERT BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0105	REMOVAL OF STRUCTURE	L SUM	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	2800
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	232.9
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	42,311
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	290
930	8230	SHORING	EA	2

DESIGN STRENGTHS:

f'c = 3,000 psi ~ Class AE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load & Resistance Factor Design

SPECIAL PROVISIONS	
SSP 2	MIGRATORY BIRD TREATY ACT

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

CLEAR SPAN 1 X 12' CLEAR HEIGHT 15'
MAXIMUM FILL 7' STATION: 5540+46.14

REINFORCED CONCRETE
SINGLE BOX CULVERT LAYOUT

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
05/24/24

5/8/2024 11:34:19 AM rrykowsky H:\Projects\14000\14295\8029101.204\Bridge\Plans\0029-104.934\Final\170BR_019_RCBLO.dgn DJV DJV

SRF

29-104.934-1

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NOTES

100 SCOPE OF WORK: Work at this site consists of removing an existing structure and extending a single 12' x 15' reinforced concrete box culvert 102'-0" to the west.

202 REMOVAL OF STRUCTURE: The existing structure is a 16' x 14' x 111' SPP. Include all work required to remove the structure in the contract unit price for "Removal of Structure".

602 CLASS AE-3 CONCRETE: Cast the following elements of each section in one continuous run:

1. Floor slab and wing footings
2. Each sidewall up to the bottom of fillets with its adjacent wings complete to the top
3. Roof slab and parapets

Allow the concrete in the walls to set at least two hours before the roof slab is poured.

602 CURING CONCRETE: Wet cure all concrete surfaces not covered by forms. Cover the concrete with a double thickness of burlap. Maintain surface moisture between the final finish and placement of burlap by periodic applications of a light fog spray of water. Keep the burlap continuously moist until the end of the curing period.

602 WEATHER LIMITATIONS: All requests in accordance with 602.04 C.4 "Weather Limitations" require approval from the NDDOT Bridge Division.

612 REINFORCING STEEL: When the distance between end bars is not evenly divisible by bar spacing, adjust the odd distance by a few irregular spaces near the center, not at the ends of the culvert.

Place bolsters and bar supports for the roof steel at a maximum of 4 foot spacing.

Dimensions of bent bars are given out to out.

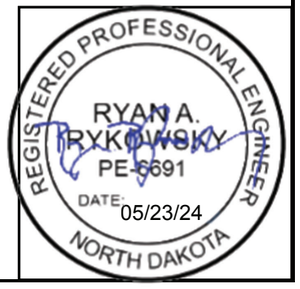
930 SHORING: Temporary shoring is required as shown on the Box Culvert Layout Sheet. The Contractor is responsible to design, construct, and maintain the shoring.

Design shoring in accordance with the AASHTO Guide Design Specifications for Temporary Works, or other design standard as approved by the Engineer. Submit design calculations certified by a professional engineer registered in the state of North Dakota to the Engineer and allow one week for review.

As shown on the Box Culvert Layout Sheet, remove the existing shoring at the median that was left in place on the northbound project.

Include all labor, equipment, and material needed for this work in the bid item, "Shoring".

Preliminary Plans



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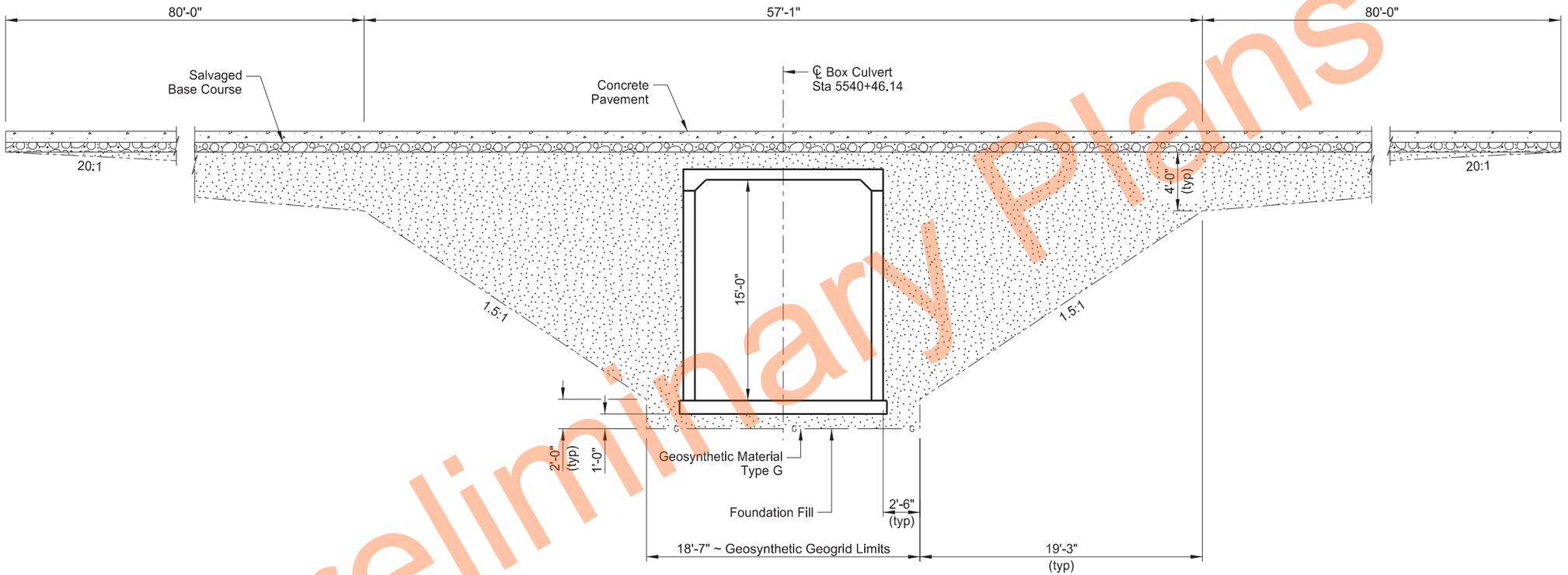
ND	IM-8-029(204)101	170	21



(SHOWING SECTION ALONG ℄ ROADWAY)

GEOSYNTHETIC GEOGRID PLACEMENT AND FOUNDATION FILL THROUGH EXISTING EMBANKMENT

NOTES:

Provide a 1'-0" minimum depth of foundation fill under the floor. Remove and replace all unsound material under the box with foundation fill. The engineer will determine the depth required.

Extend the geosynthetic material and foundation fill to the end of the apron.

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
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PE-6691
DATE: 05/23/24
NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

EXCAVATION & FOUNDATION FILL DETAIL

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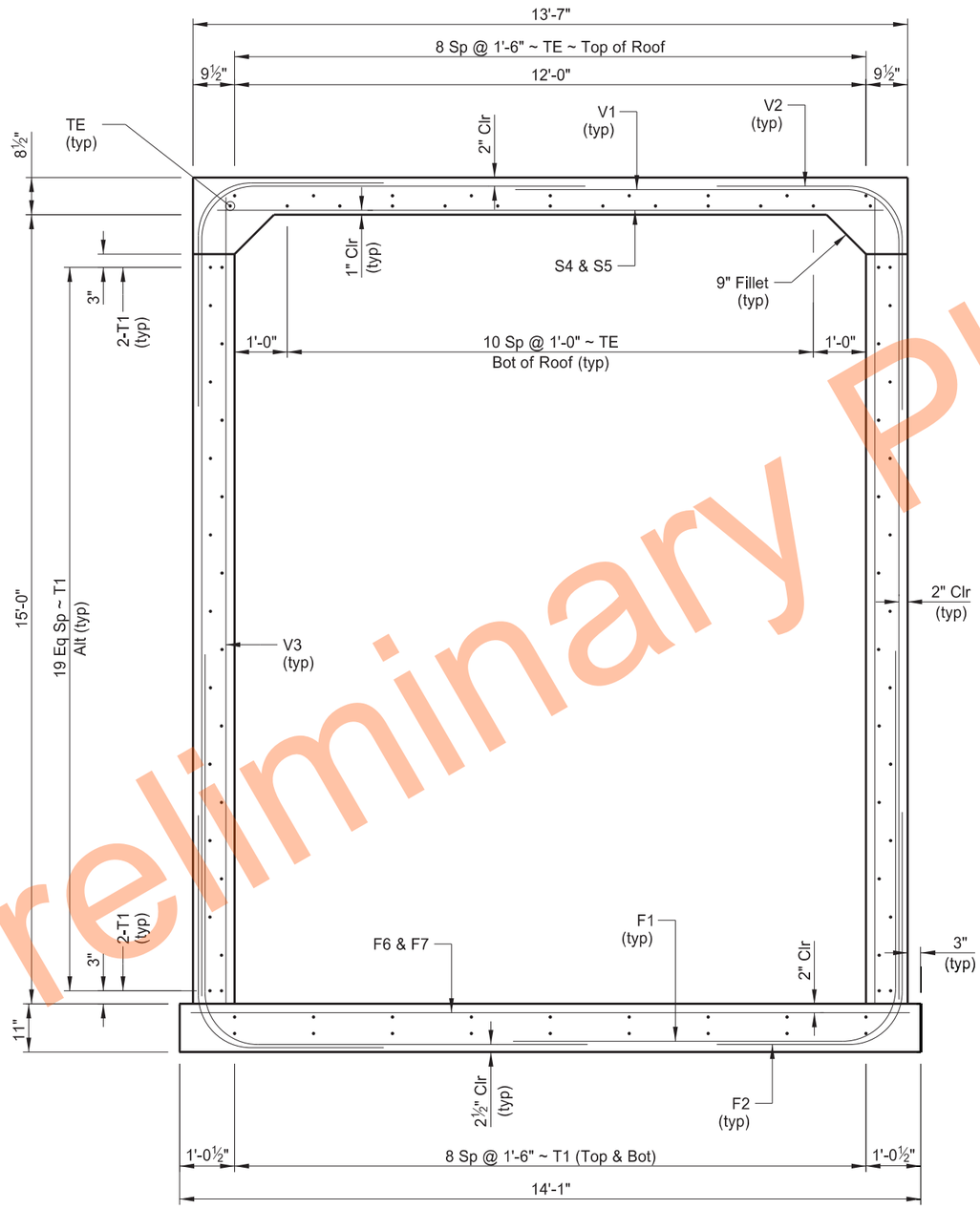
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	22



SECTION OF BARREL

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

BARREL SECTION

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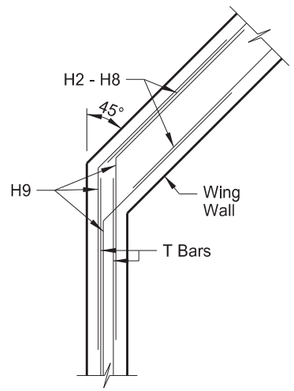
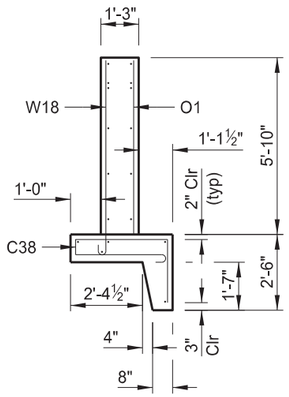
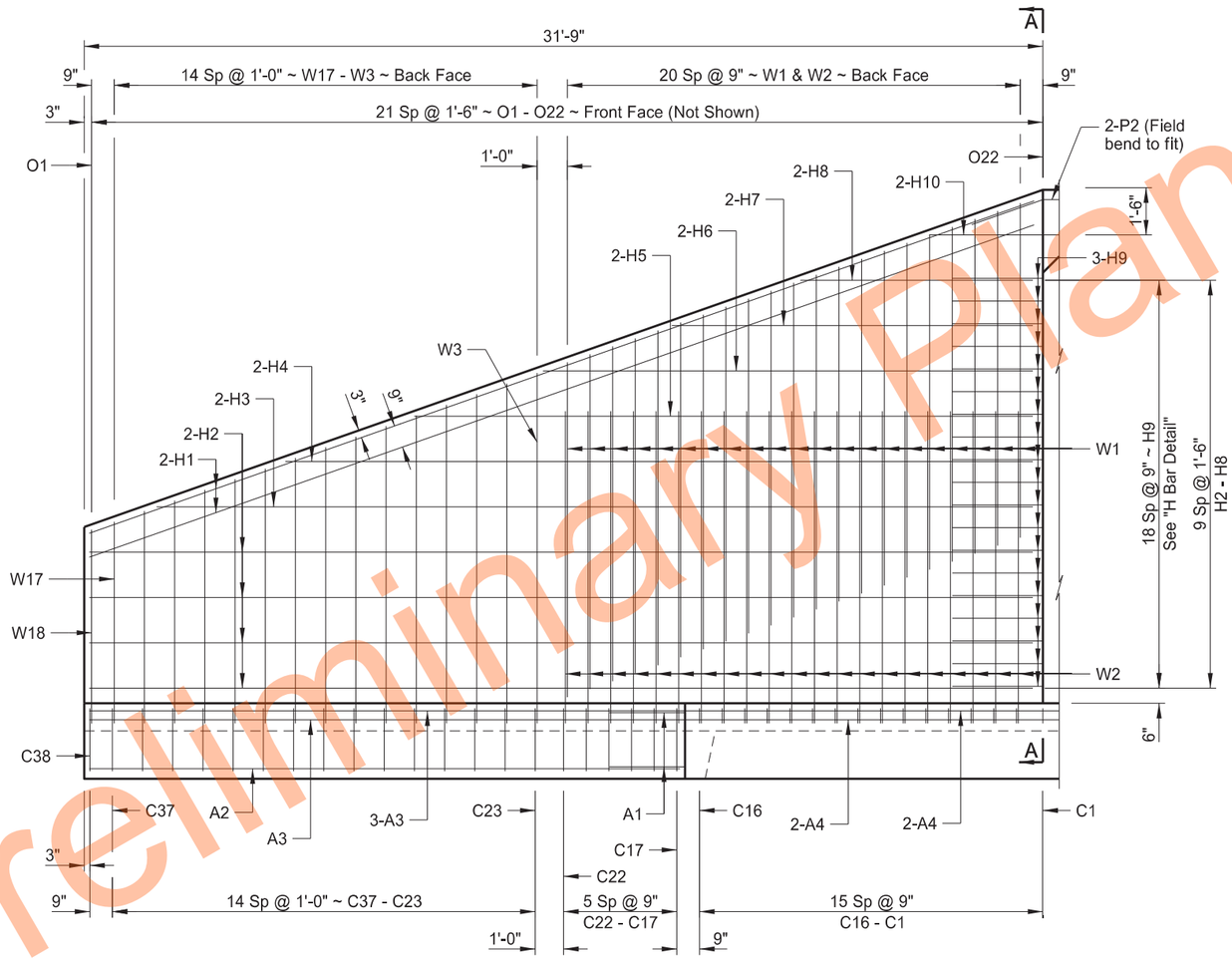
ND	IM-8-029(204)101	170	23



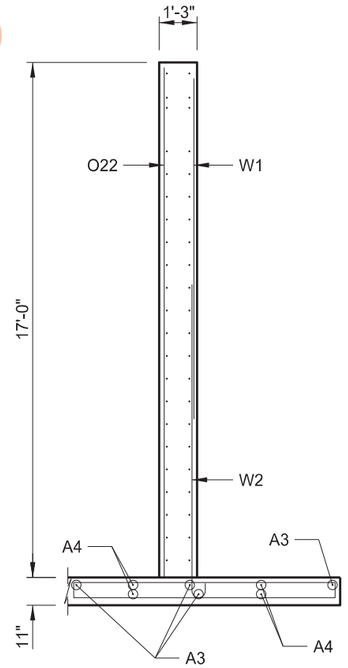
H BAR DETAIL



END VIEW



WING ELEVATION



A-A

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

WING DETAILS

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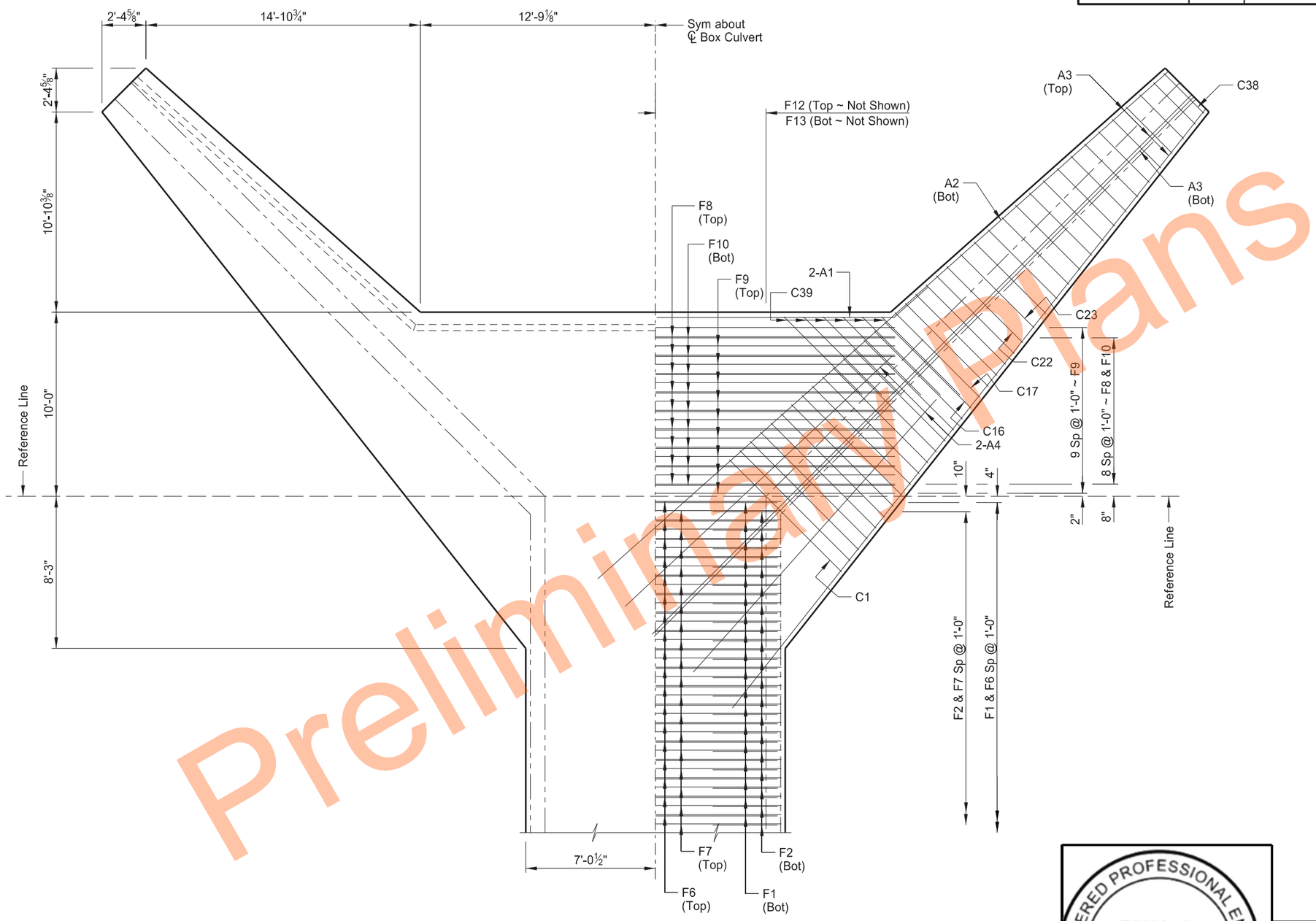
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	24



(SHOWING DIMENSIONS) (SHOWING REINFORCING)

FLOOR PLAN

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

FLOOR DETAIL

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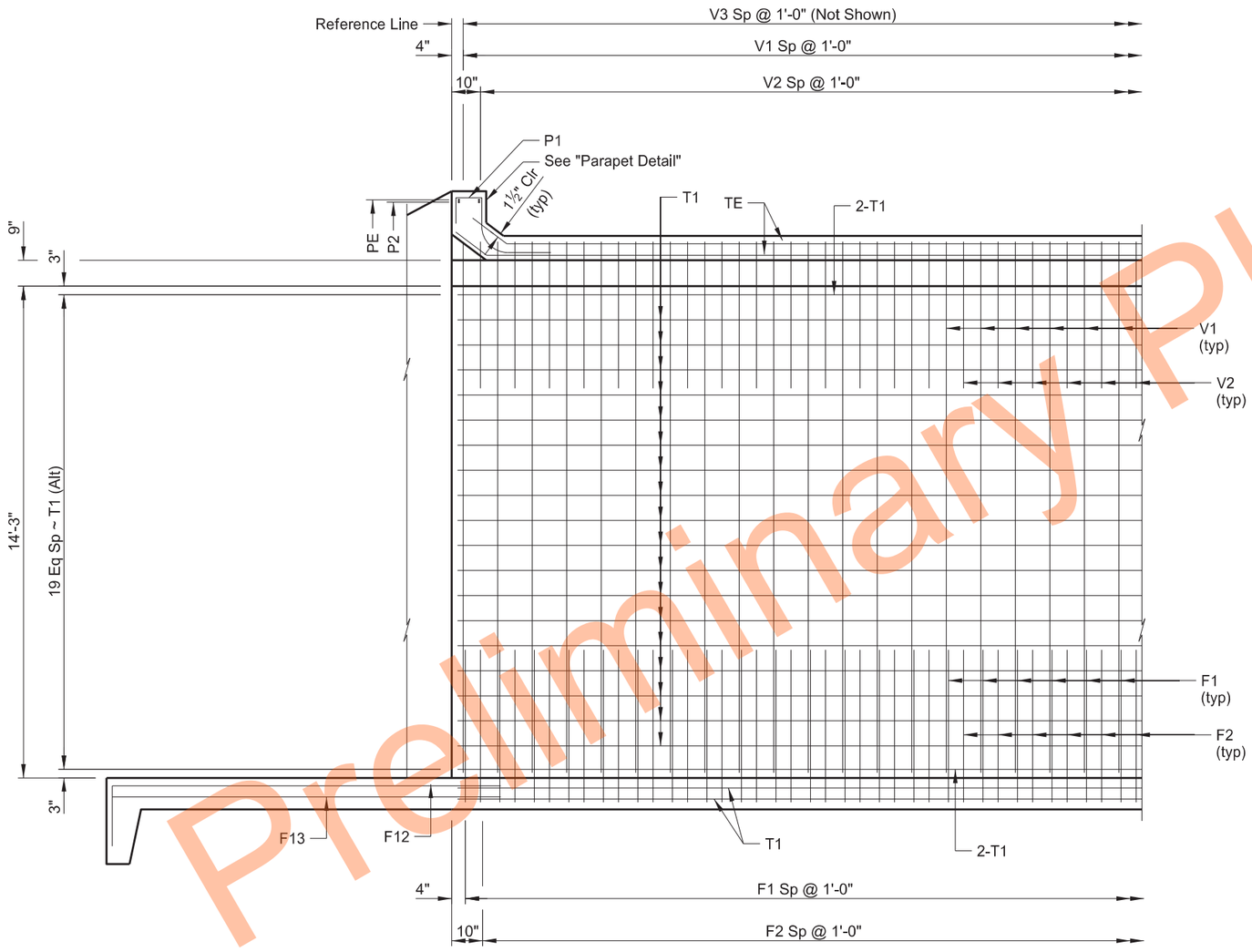
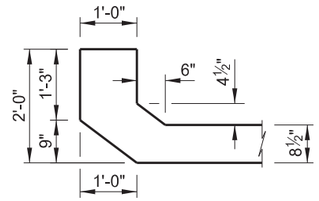
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	25



OUTER WALL
LONGITUDINAL SECTION



PARAPET DETAIL

Preliminary Plans

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PE-6691
DATE: 05/23/24
NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

WALL DETAILS &
PARAPET DETAIL

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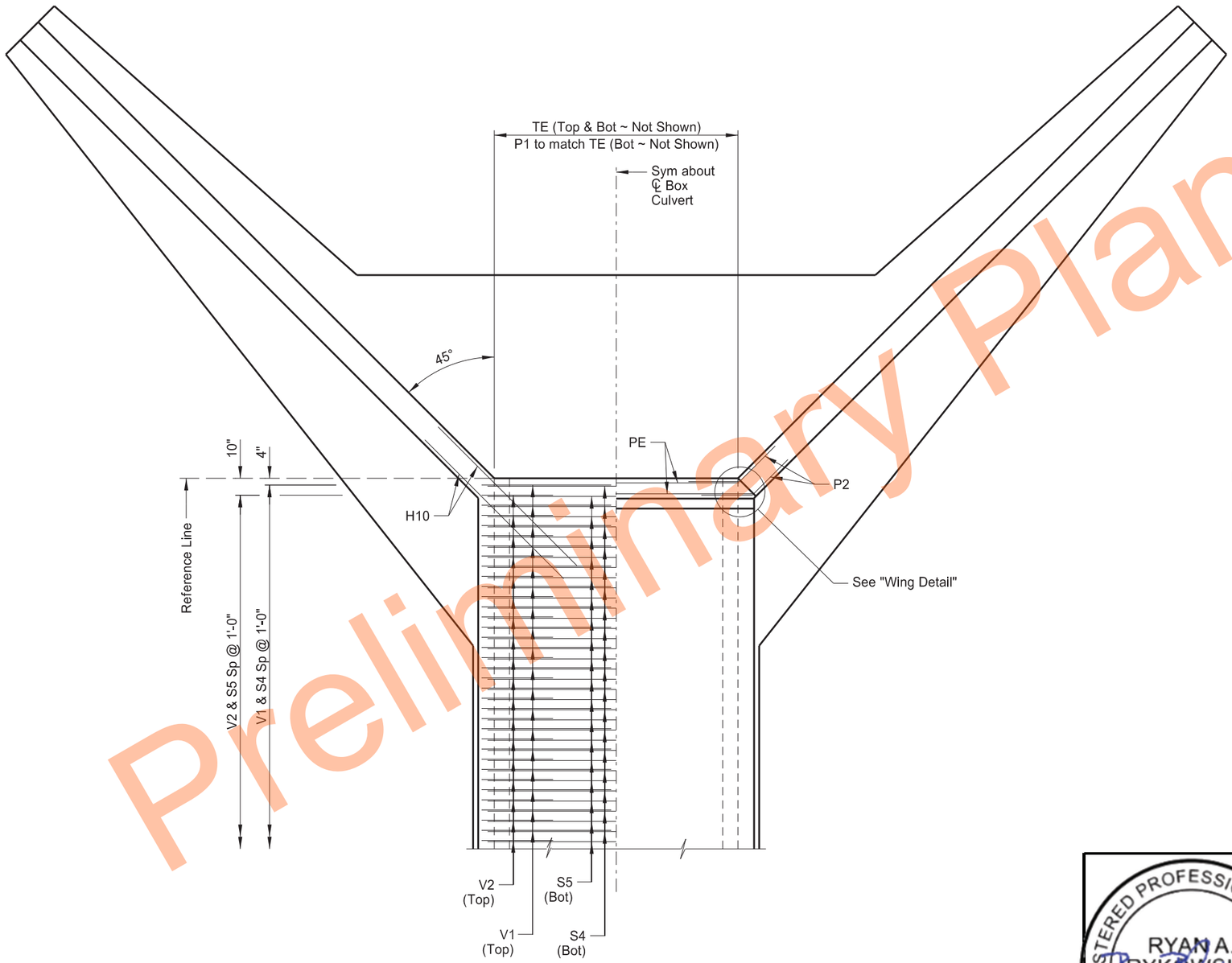
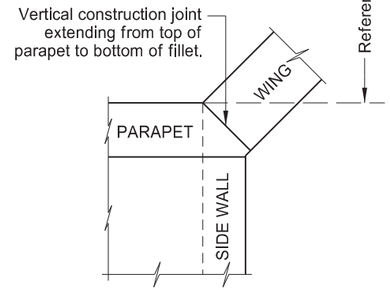
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	26



(SHOWING ROOF REINFORCING) (SHOWING PARAPET REINFORCING)

ROOF PLAN



WING DETAIL

Preliminary Plans

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RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

ROOF DETAILS

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BAR LIST (CONSTANT)				
MARK	SIZE	NO.	LENGTH	SHAPE
W1	7	42	11'-1"	BENT
W2	6	42	11'-3"	STR.
W3	7	2	12'-4"	BENT
W4	7	2	12'-0"	BENT
W5	7	2	11'-8"	BENT
W6	7	2	11'-4"	BENT
W7	7	2	10'-11"	BENT
W8	7	2	10'-7"	BENT
W9	6	2	10'-2"	BENT
W10	6	2	9'-10"	BENT
W11	6	2	9'-6"	BENT
W12	5	2	9'-0"	BENT
W13	5	2	8'-8"	BENT
W14	5	2	8'-4"	BENT
W15	4	2	7'-11"	BENT
W16	4	2	7'-6"	BENT
W17	4	2	7'-2"	BENT
W18	4	2	6'-11"	BENT
C1	6	2	18'-10"	BENT
C2	6	2	18'-8"	BENT
C3	6	2	18'-4"	BENT
C4	6	2	18'-2"	BENT
C5	6	2	17'-10"	BENT
C6	6	2	17'-8"	BENT
C7	6	2	17'-4"	BENT
C8	6	2	17'-0"	BENT
C9	6	2	16'-10"	BENT
C10	6	2	16'-6"	BENT
C11	6	2	16'-4"	BENT
C12	6	2	16'-0"	BENT
C13	6	2	15'-8"	BENT
C14	6	2	15'-6"	BENT
C15	6	2	15'-2"	BENT
C16	6	2	14'-10"	BENT
C17	6	2	16'-3"	BENT
C18	6	2	16'-1"	BENT
C19	6	2	15'-9"	BENT
C20	6	2	15'-5"	BENT
C21	6	2	15'-3"	BENT
C22	6	2	14'-11"	BENT
C23	5	2	14'-6"	BENT
C24	5	2	14'-2"	BENT
C25	5	2	13'-10"	BENT
C26	5	2	13'-6"	BENT
C27	5	2	13'-2"	BENT
C28	5	2	12'-10"	BENT
C29	5	2	12'-4"	BENT
C30	5	2	12'-0"	BENT
C31	5	2	11'-8"	BENT
C32	4	2	11'-3"	BENT
C33	4	2	10'-11"	BENT
C34	4	2	10'-7"	BENT
C35	4	2	10'-3"	BENT
C36	4	2	9'-11"	BENT
C37	4	2	9'-7"	BENT
C38	4	2	9'-3"	BENT
C39	4	12	8'-1"	BENT

BAR LIST (CONSTANT)				
MARK	SIZE	NO.	LENGTH	SHAPE
H1	7	8	33'-2"	STR.
H2	4	16	31'-3"	STR.
H3	4	4	29'-0"	STR.
H4	4	4	24'-9"	STR.
H5	4	4	20'-6"	STR.
H6	4	4	16'-3"	STR.
H7	4	4	12'-0"	STR.
H8	4	4	7'-8"	STR.
H9	4	114	6'-0"	BENT
H10	6	4	9'-8"	STR.
O1-O22	4	2 SETS	248'-5"	STR.
A1	6	4	16'-3"	BENT
A2	6	2	19'-7"	STR.
A3	6	8	41'-5"	STR.
A4	6	8	19'-10"	STR.
P1	4	13	4'-10"	BENT
P2	6	4	5'-0"	BENT
PE	6	4	7'-0"	STR.
F8	6	9	26'-0"	STR.
F9	6	10	26'-0"	STR.
F10	6	9	26'-0"	STR.
F12	4	9	13'-3"	BENT
F13	4	9	11'-3"	STR.
SP	4	84	3'-0"	STR.

BAR LIST (VARIABLE)				
MARK	SIZE	NO.	LENGTH	SHAPE
V1	6	204	22'-3"	BENT
V2	7	204	7'-4"	BENT
V3	5	204	15'-4"	STR.
F1	6	204	11'-3"	BENT
F2	7	204	7'-6"	BENT
F6	6	102	13'-8"	STR.
F7	6	102	13'-8"	STR.
S4	6	102	12'-8"	STR.
S5	7	102	12'-8"	STR.
T1	4	62	102'-9"	STR.
TE	4	22	103'-1"	BENT

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NOTES:

1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. The radius dimension in the "Bar Details" indicates the outside radius.

NOTE:

Unless construction requirements dictate otherwise, the Contractor has the option to construct the box culvert using construction joints or as one continuous unit. If construction joints are used, the longitudinal bar lengths may be adjusted, but a minimum lap length of 1'-3" must be maintained.

CONCRETE FORMULAS						
ENTIRE FLOOR	"L"	x	0.47814	+	22.20752	= 71.0 CY
TWO OUTSIDE WALLS & TWO WINGS	"L"	x	0.83565	+	33.23660	= 118.5 CY
ENTIRE ROOF	"L"	x	0.42117	+	0.42365	= 43.4 CY
TOTAL	"L"	x	1.73495	+	55.86777	= 232.9 CY

Preliminary Plans

REGISTERED PROFESSIONAL ENGINEER
RYAN A. RYKOWSKY
PE-6691
DATE: 05/23/24
NORTH DAKOTA

QUANTITIES	
CLASS AE-3 CONCRETE	232.9 CY
REINFORCING STEEL	42,311 LBS

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

REINFORCING BAR LIST

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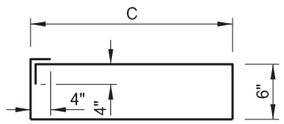
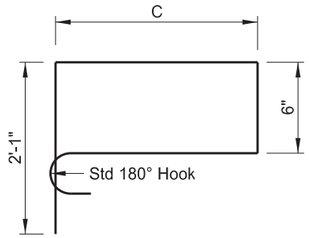
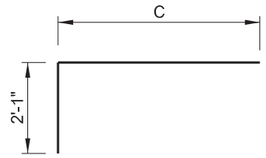


C1 - C16



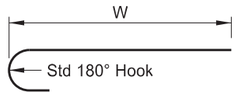
C17 - C38



C39

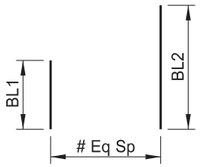
MARK	"C"
C1	8'-7"
C2	8'-6"
C3	8'-4"
C4	8'-3"
C5	8'-1"
C6	8'-0"
C7	7'-10"
C8	7'-8"
C9	7'-7"
C10	7'-5"
C11	7'-4"
C12	7'-2"
C13	7'-0"
C14	6'-11"
C15	6'-9"
C16	6'-7"
C17	6'-6"
C18	6'-5"
C19	6'-3"
C20	6'-1"
C21	6'-0"
C22	5'-10"
C23	5'-8"
C24	5'-6"
C25	5'-4"
C26	5'-2"
C27	5'-0"
C28	4'-10
C29	4'-7"
C30	4'-5"

MARK	"C"
C31	4'-3"
C32	4'-1"
C33	3'-11"
C34	3'-9"
C35	3'-7"
C36	3'-5"
C37	3'-3"
C38	3'-1"
C39	6'-0"



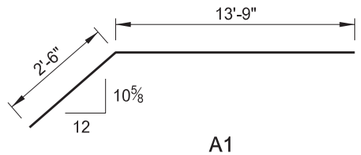
W1 & W3 - W18

MARK	"W"
W1	10'-4"
W3	11'-7"
W4	11'-3"
W5	10'-11"
W6	10'-7"
W7	10'-2"
W8	9'-10"
W9	9'-6"
W10	9'-2"
W11	8'-10"
W12	8'-5"
W13	8'-1"
W14	7'-9"
W15	7'-5"
W16	7'-0"
W17	6'-8"
W18	6'-5"



MARK	LENGTH	BL1	BL2	SPACES
O1-O22	248'-5"	5'-9"	16'-10"	21

STRAIGHT BAR SET DETAIL



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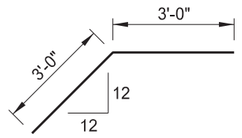

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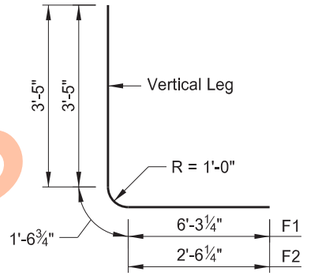
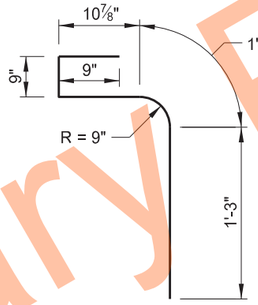


F1 & F2



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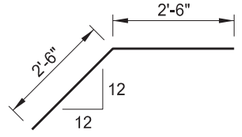

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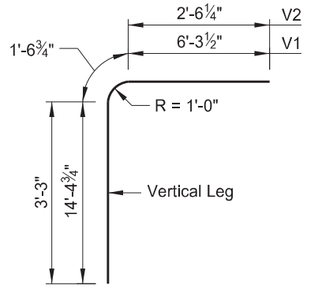
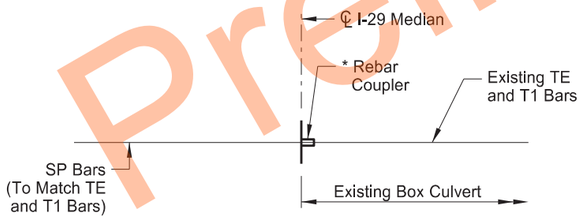
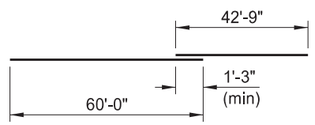


V1 & V2



SP



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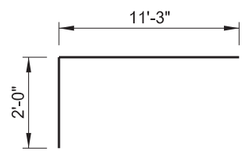

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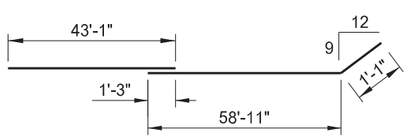

TE

* Existing mechanical connectors installed on the northbound project.

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DATE: 05/23/24
NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

BAR DETAILS

Preliminary Plans

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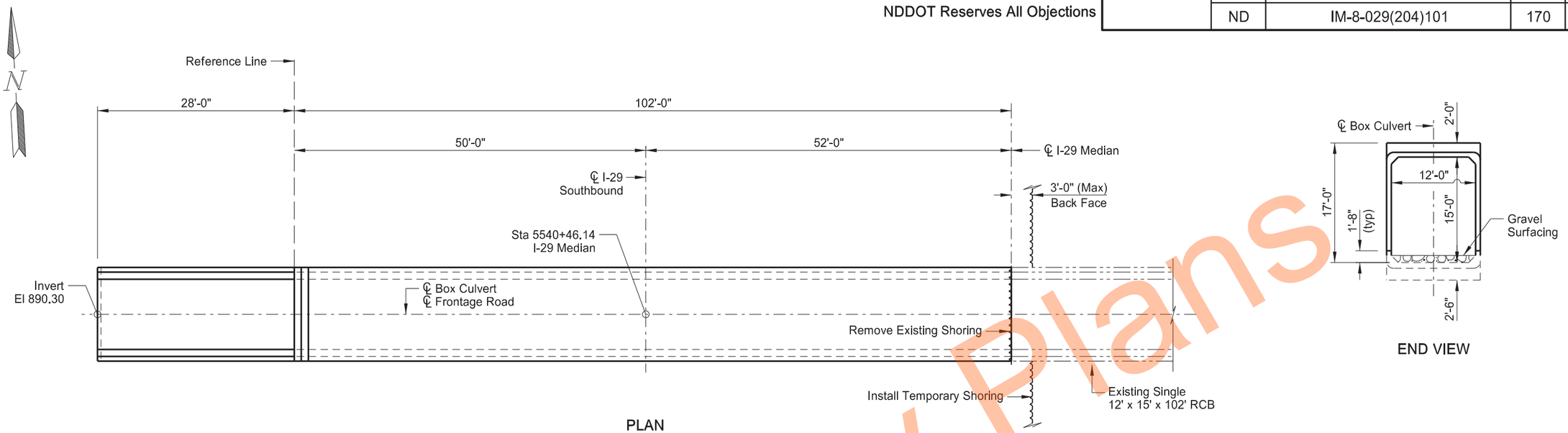
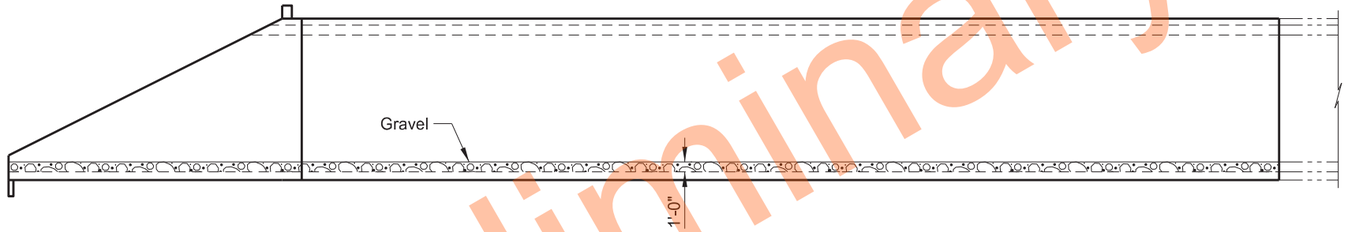
23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	29



PLAN

END VIEW



ELEVATION

Preliminary Plans

BOX CULVERT BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0105	REMOVAL OF STRUCTURE	L SUM	1
210	0050	BOX CULVERT EXCAVATION	EA	1
210	0210	FOUNDATION FILL	CY	2900
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1
606	1215	12FT X 15FT PRECAST RCB CULVERT	LF	102
606	5215	12FT X 15FT PRECAST RCB END SECTION	EA	1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	270
930	8230	SHORING	EA	2

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SPECIAL PROVISIONS	
SSP 2	MIGRATORY BIRD TREATY ACT

STANDARD DRAWINGS
D-714-22

HL-93 DESIGN LOADING

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

CLEAR SPAN 1 X 12' CLEAR HEIGHT 15'
MAXIMUM FILL 7' STATION: 5540+46.14

PRECAST CONCRETE
SINGLE BOX CULVERT LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
05/24/24

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NOTES

100 SCOPE OF WORK: Work at this site consists of removing an existing structure and extending a single 12’ x 15’ reinforced concrete box culvert 102’-0” to the west.

202 REMOVAL OF STRUCTURE: The existing structure is a 16’ x 14’ x 111’ SPP. Include all work required to remove the structure in the contract unit price for “Removal of Structure”.

606 DESIGN AND LOAD RATING: Design the box culvert and box culvert end sections in accordance with the AASHTO LRFD Bridge Design Specifications, 9th Edition. Design for HL-93 live load and a fill height range from 2 ft to 7ft over the box culvert.

Load rate the box culvert in accordance with both the NDDOT Load Rating Manual and the AASHTO Manual for Bridge Evaluation, 2018 Edition, incorporating the latest Interim Revisions. Provide a box culvert design to achieve a rating factor greater than or equal to 1.0 for the design, legal, and permit trucks over the specified fill range. Include BrR Load Rating Summaries for 1 ft incremental fill depths throughout the fill range in the load rating report. Populate the NDDOT Load Rating Summary for the actual fill depth at the time of construction.

Include with the work drawing submittals a Load Rating Report sealed by a ND registered PE, and an AASHTOWare BrR Model of the structure in XML format.

606 PRECAST SECTION: Tie the barrel and end sections together with 1”ϕ hidden tie bolts as shown on Standard Drawing D-714-22. Place two ties per exterior wall joint, located at third points of the wall clear height.

Cast holes at 3’-0” centers through the last end section and into the cutoff wall to receive ¾” diameter reinforcing bars. Cast holes in the first end section at 1’-0” centers for ½“ diameter reinforcing bars to attach the parapet. Cast parapet against the section. Install the bars according to the manufacturer’s recommendations, with a high strength adhesive specifically intended for concrete anchorage, in accordance with Section 806.02. Payment for “12Ft x 15Ft Precast RCB End Section” includes the cutoff wall and parapet.

606 JOINTS: Provide joints in accordance with Section 606.04.E.3, with the exception that a 12” minimum width waterproof membrane is allowable around the exterior surfaces of the box culvert walls and roof.

930 SHORING: Temporary shoring is required as shown on the Box Culvert Layout Sheet. The Contractor is responsible to design, construct, and maintain the shoring.

Design shoring in accordance with the AASHTO Guide Design Specifications for Temporary Works, or other design standard as approved by the Engineer. Submit design calculations certified by a professional engineer registered in the state of North Dakota to the Engineer and allow one week for review.

As shown on the Box Culvert Layout Sheet, remove the existing shoring at the median that was left in place on the northbound project.

Include all labor, equipment, and material needed for this work in the bid item, "Shoring".

Preliminary Plans

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23 U.S.C. 407
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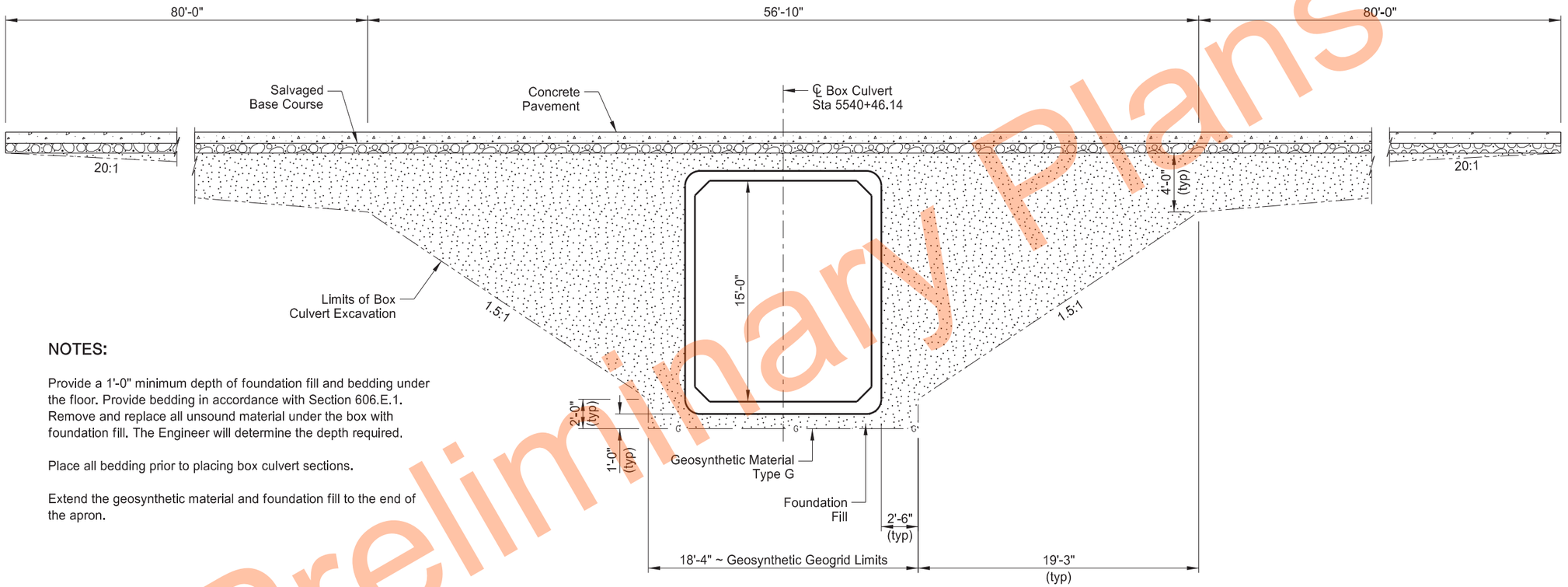
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	31



NOTES:

Provide a 1'-0" minimum depth of foundation fill and bedding under the floor. Provide bedding in accordance with Section 606.E.1. Remove and replace all unsound material under the box with foundation fill. The Engineer will determine the depth required.

Place all bedding prior to placing box culvert sections.

Extend the geosynthetic material and foundation fill to the end of the apron.

(SHOWING SECTION ALONG ℄ ROADWAY)

GEOSYNTHETIC GEOGRID PLACEMENT AND FOUNDATION FILL THROUGH EXISTING EMBANKMENT

Preliminary Plans

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NORTH DAKOTA

JUNIOR SEPARATION
1 NORTH OF HILLSBORO

EXCAVATION & FOUNDATION FILL DETAIL

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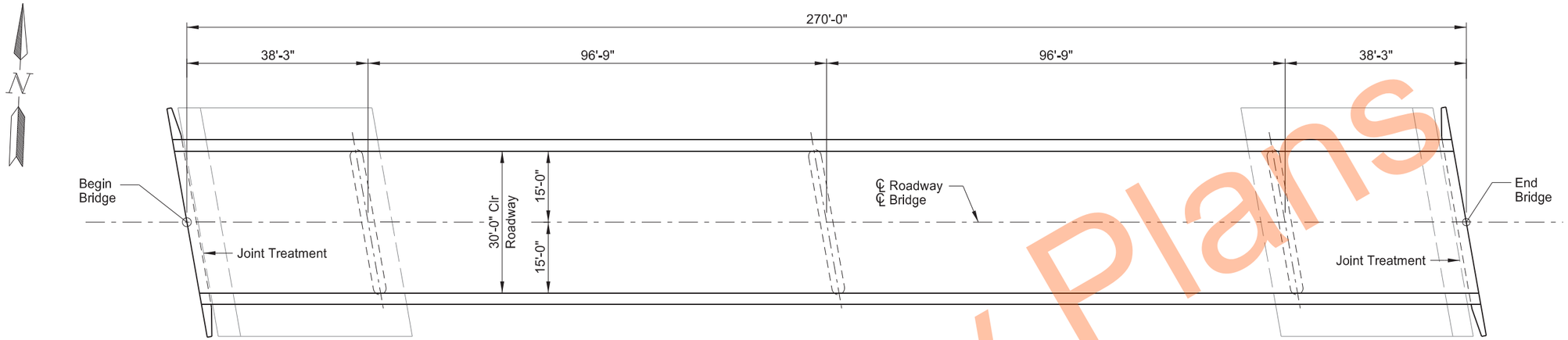
23 U.S.C. 407
NDDOT Reserves All Objections

BRIDGE CODE		STATE	PROJECT NO.	SECTION NO.	SHEET NO.
X031		ND	IM-8-029(204)101	170	32



PLAN

Preliminary Plans

NOTES:

100 SCOPE OF WORK: Work at this site consists of filling the gaps between abutments and slope protection with concrete.

950 JOINT TREATMENT: The concrete slope protection has settled and pulled away from the abutments. The gap between the abutment and slope protection is ± 4" at the west abutment and ±9" at the east abutment. Clear all debris and soil from the gap and fill with Class AE-3 Concrete meeting the requirements of Section 602 to a minimum depth of 4 inches. Include all material and labor costs to perform this work in the contract unit price for "Joint Treatment".

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
950	9712	JOINT TREATMENT	LF	98

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TAFT SEPARATION
COUNTY ROAD 13

BRIDGE LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
05/24/24

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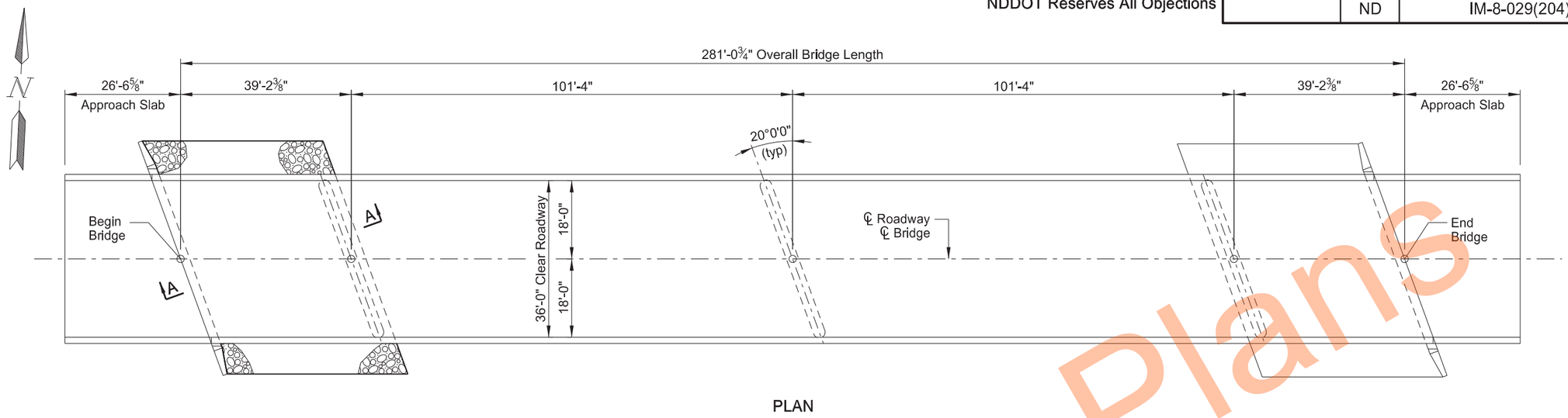
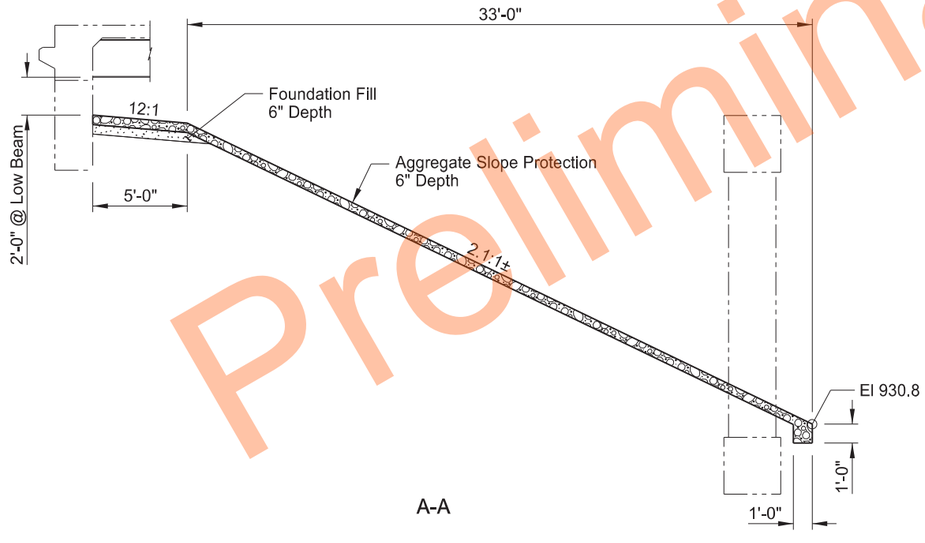
23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	33



PLAN

Indicates Aggregate Slope Protection Area



A-A

BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
930	8686	AGGREGATE SLOPE PROTECTION	SY	270

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MAYVILLE INTERCHANGE

BRIDGE LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

Jason Thorenson
05/24/24

Preliminary Plans

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23 U.S.C. 407
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(204)101	170	34

NOTES

100 SCOPE OF WORK: Work at this site consists of removing and replacing the existing concrete slope protection at the west bridge end slope with aggregate slope protection.

930 AGGREGATE SLOPE PROTECTION: Remove the existing concrete slope protection and place foundation fill and aggregate slope protection on the embankment slopes as shown. Place the foundation fill in accordance with Section 210.

Clear the subgrade of rubbish and vegetation before placing the aggregate slope protection. Thoroughly compact all loose material. Excavate or backfill as required to obtain the plan cross-section or lines and grades established in the field.

The gradation of the material used to form the slope protection is given in the following chart:

Sieve Size	% Passing
2"	100%
¾"	5-35%
#4	0-5%

The minimum fractured face requirement of the aggregate is 50% by weight on the portion of the aggregate retained on the No. 4 sieve. To be considered fractured the rock must have at least one fractured face.

Deposit, spread, consolidate, and shape the aggregate by mechanical or hand methods to provide a uniform depth and density and produce a uniform surface appearance. Apply MC-250 that meets the requirements of Section 818.02 C, “Medium-Curing Cutback Asphalt” at an approximate rate of 1.8 gallons per square yard. Emulsified asphalts grade CSS-1, CSS-1H, RS-1, or CRS-2 that meet the requirements of Section 818.02 E, “Cationic Emulsified Asphalt,” or Section 818.02 F “Anionic Emulsified Asphalt,” can be substituted for MC-250. Apply the emulsified asphalts at a rate of 2.5 gallons per square yard based on a dilution ratio of 7 parts emulsion to 3 parts water.

The bituminous materials are to penetrate to a depth of not less than one-half the required thickness of the aggregate. Protect adjacent structure surfaces against bituminous splatter.

Include all costs for labor, materials, and equipment to complete this work, including the removals of the existing concrete slope protection and the foundation fill, in the unit price bid for “Aggregate Slope Protection.”

Preliminary Plans

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