DESIGN DATA: Interstate 29 (RP 88.000 to RP 100.243)				
Traffic	Average Daily (Northbound)			
Current 2017	Pass: 4,670	Trucks: 1,505	Total: 6,175	
Forecast 2037	Pass: 6,680	Trucks: 2,245	Total: 8,925	
Clear Zone Dist. 34 Ft		Design Speed: 75 mph		
Minimum Sight Dist. for Stopping: 820 Ft		Bridges: N/A		
Full Control of Access, No Point of Access Other Than at Interchange Ramps				
Pavement Design Life: 30 (years)				
Design Accumulated One-way Heavy Trucks: 21,273,400				

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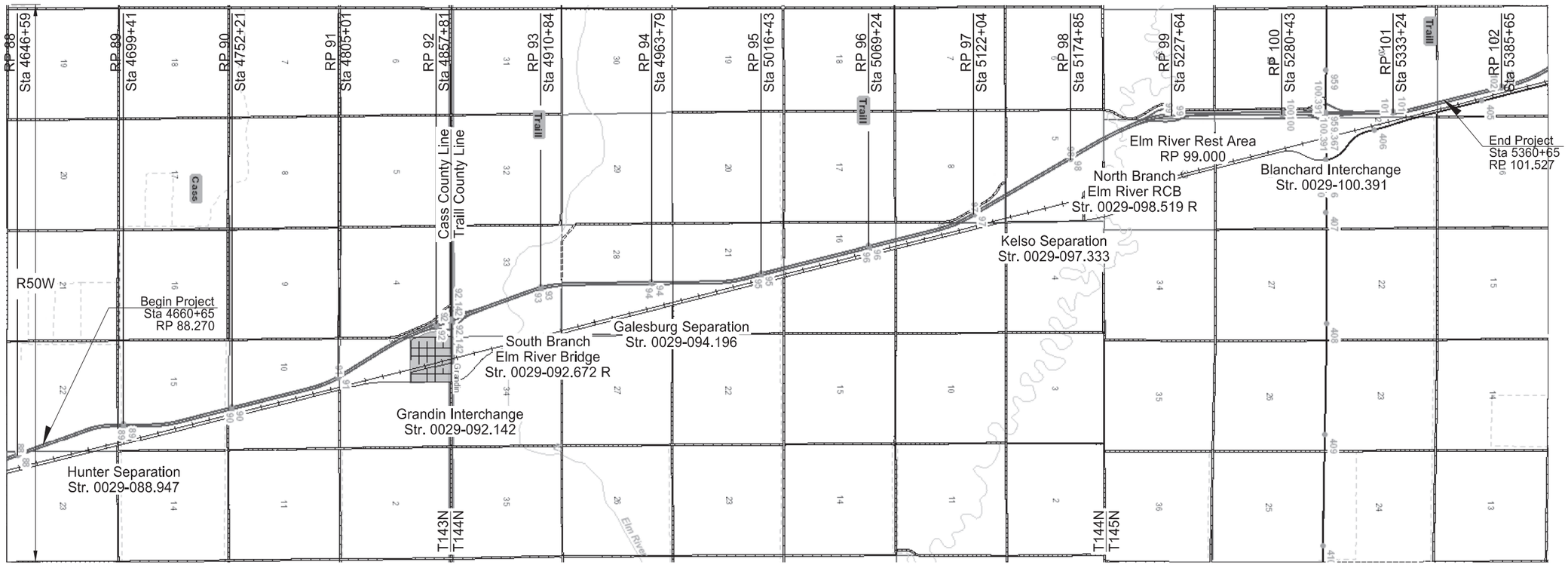
JOB # 3
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

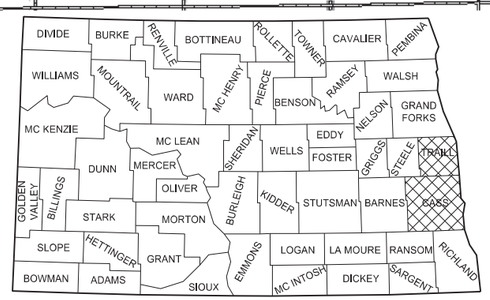
IM-8-029(135)088

Cass County and Traill County
Interstate 29 Northbound Reconstruction
Hunter Separation to North of Blanchard Interchange
Grading, PCC Pavement, Mill & HMA Overlay, Slope Protection,
Structure Replacement, Culverts, Fencing, Guardrail, Rest Area Repairs

GOVERNING SPECIFICATIONS:
2020 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
IM-8-029(135)088	13.257	13.257





STATE COUNTY MAP

NDDOT DESIGN DIVISION

JAMES DOUGLAS SMITH
REGISTERED
PROFESSIONAL
PE-4288
ENGINEER
NORTH DAKOTA
08/25/20

ND DEPARTMENT OF TRANSPORTATION
OFFICE OF PROJECT DEVELOPMENT
Orn, Chad M.
08 26 2020
DocuSign

DESIGNER
Sam Welch /s/
DESIGNER
Darell Arne /s/
DESIGNER
Aaron Derman /s/

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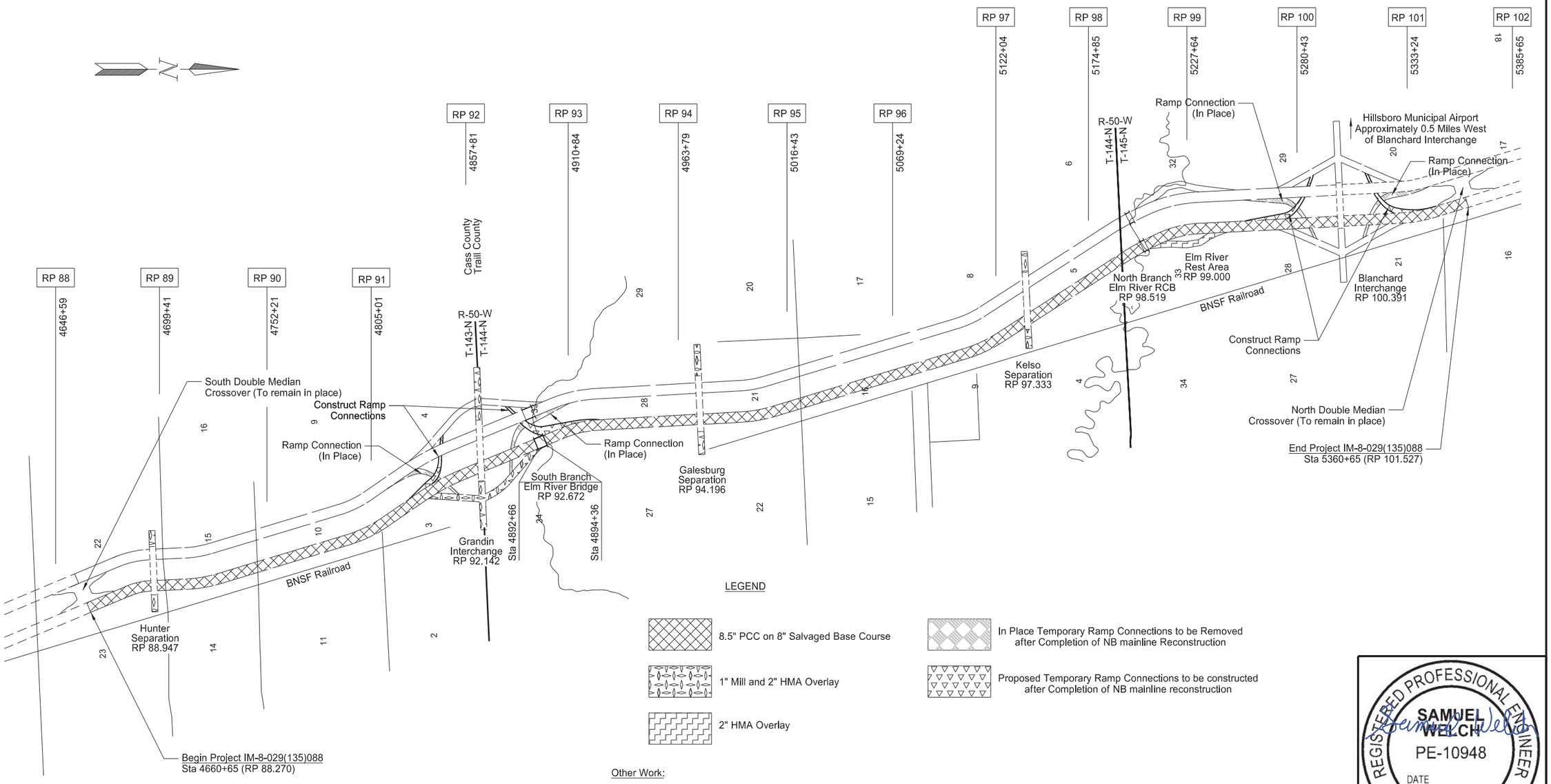

LEGEND

- 8.5" PCC on 8" Salvaged Base Course
- 1" Mill and 2" HMA Overlay
- 2" HMA Overlay
- In Place Temporary Ramp Connections to be Removed after Completion of NB mainline Reconstruction
- Proposed Temporary Ramp Connections to be constructed after Completion of NB mainline reconstruction

Other Work:

1. Hunter Separation - Remove and replace (northbound side) slope protection. Reset anchor bolt.
2. Grandin Interchange - Remove and replace (northbound side) slope protection. Reset Anchor Bolt and Spall Repair.
3. South Branch Elm River Bridge (RP 92.672) - Remove & replace bridge approach slabs, bridge deck small spall repair, curb repair, rail retrofit.
4. Galesburg Separation - Remove and replace (northbound side) slope protection. Spall repair.
5. Kelso Separation - Remove and replace (northbound side) slope protection. Spall repair.
6. North Branch Elm River Bridge - Remove existing structure and install quad 12' x 16' x 98' RCB.
7. Northbound Elm River Rest Area - 2" HMA overlay.
8. Remove and replace northbound right of way fence.
9. Remove and replace northbound culverts.

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

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Scope of Work

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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100-P01 STATIONING: The stationing used in the plans is based off SCL_HWY029 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.

107-P01 HEIGHT RESTRICTION FOR CONSTRUCTION EQUIPMENT: Between RP 100 and RP 102, equipment is restricted to a height of 35 feet or less due to Hillsboro Municipal Airport restrictions. Equipment height will be measured from the centerline of the roadway and will include the extended box height of end dumps.

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

201-P01 CLEARING AND GRUBBING: Along with clearing, grubbing, removing, and disposal of vegetation and debris, there are three mature trees of unknown diameter that will need to be removed. Include all work associated with removal of the trees in the price bid for “Clearing and Grubbing.”

202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removing and salvaging concrete pavement, reinforced concrete pavement, and doweled jointed pavement.

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

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

202-P02 REMOVE AGGREGATE BASE & SURFACING: The existing bituminous pavement thicknesses are averages based on previous construction plans and maintenance data. Actual thicknesses may vary.

202-P03 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 shoulder.
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.
4. Removal, hauling, and disposal of all 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 off materials, removal and replacement of topsoil, and shaping of median slopes, foreslopes, and ditch block slopes in the 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 E.2.b, "ND T-99".

Manipulate embankment material with disking equipment.

203-P01 TOPSOIL: There will be excess topsoil in the interstate median due to the fact that the median crossovers and ramp connections will remain in-place after the project is complete. Excess topsoil will remain property of the NDDOT. Stockpile excess topsoil in the Grandin Interchange and Blanchard Interchange ramp quadrants.

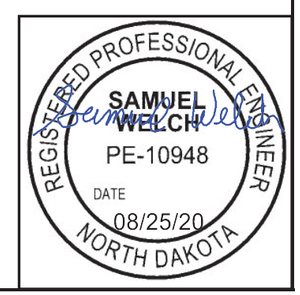
The Engineer will approve the stockpile location and boundary of the excess topsoil stockpile prior to placement. Do not stockpile excess topsoil within the ditch bottom or wetlands.

203-P02 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.

The cost of testing will not be paid for separately but to be included in the bid price for “Common Excavation-Type A”.



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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 bid price for the applicable size for Pipe Conduit pay items.

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 "Straw Mulch".

261-P02 PERMANENT FIBER ROLLS: If fiber rolls are to remain on the project, use fiber rolls that are composed of 100 percent biodegradable jute netting that has a life expectancy between 6 to 12 months.

302-115 BASE COURSE: Trim base course as specified in 302.04 C.2, "Surface Tolerance Type C."

302-P01 HAULING: The shoulder of northbound 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. Re-establish subgrade surface tolerance per contract requirements prior to placement of the salvaged base course.

401-P01 TRIMMING AND PRIME: Prime shoulders within one mile or within 48 hours of the trimming operations unless HMA paving is to take place within 24 hours of trimming.

430-P01 MAINTENANCE OF TRAVELED ROADWAY USING HOT MIX ASPHALT: The Contractor will be fully responsible for monitoring the condition of the traveled roadway, 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 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 500 Tons of "Patching" has been provided for this purpose.

430-P02 CROSSROAD PAVING: Mill and overlay crossroads as close to the existing guardrail as possible without damaging the guardrail. Any repairs needed to fix the damaged guardrail will be at the Contractor's expense. It is estimated that milling and paving would end approximately 1 foot from the guardrail.

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 E.1 and 550.04 G.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 damaged areas.
- 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.

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

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 80 barriers for use at the median crossovers from the NDDOT Maintenance Storage Yard at Casselton, ND (15482 37th St SE). Return barriers to the NDDOT Casselton Maintenance Storage Yard.

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 the cost for boards in the contract unit price for "Precast Concrete Median Barrier - State Furnished".

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 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.

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

704-P01 OBLITERATION OF PAVEMENT MARKINGS: Obliterate the white centerline marking and white and yellow edge lines at the begin and end project locations where the roadway alignment is changed.

Mask the dashed white centerline markings throughout the two-lane, two-way area, designated for obliteration, as specified in Section 704.04 N.2, "Masking" of the Standard Specifications.

Include the cost of all equipment, material, and labor, including the removal of tape, if used, in the unit price bid for "Obliteration of Pavement Marking."

704-P02 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 ramps and crossroads.

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-704-24, Layout Type T for mobile operation on shoulder as needed.

D-704-26, Layouts Type BB and EE, as needed.

D-704-35, for masking of the SB centerline and yellow edge line pavement marking, culvert work in the median, mainline guardrail installation, slope protection removal and replacement, and removal of the ramp connections and ramp connection detours.

D-704-38, 39, Traffic Control Systems Median Crossover 55 mph speed limit or greater.

D-704-45 for construction traffic to access the closed north bound roadway.

D-704-49 for exiting and entering median when removing ramp connections.

704-P03 TUBULAR MARKERS: Salvage existing double and triple-weighted tubular markers located at existing median crossovers and ramp connections. (There are total of 209 double-weighted and 40 triple-weighted tubular markers.) Remove just prior to changing the traffic flow and salvage for reuse after the northbound roadway reconstruction and the construction of the new temporary ramp connections in preparation for future southbound I-29 reconstruction.

Upon completion of the northbound reconstruction project, reset salvaged weighted tubular markers at 5’ spacing block off the median crossovers and ramp connections.

Include the cost incurred for removal, salvaging, and resetting the existing 249 tubular markers in the unit price bid for additional 246 “Tubular Markers” that will be set.

704-P04 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 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 the northbound Elm River rest area while the northbound roadway is closed for the reconstruction.

Mill and overlay of the interchange ramps and crossroads will be performed with traffic being switched between the left and right sides of the ramps and crossroads. This work can take place at any time during the project.

The construction phasing plan is listed below:

Phase 1: Close the outside lane of southbound I-29.
- Install W-beam guardrail and end terminals at South Branch Elm River (west side of 0029-092.672L) and North Branch Elm River (west side of 0029-098.519L). Use separate lane closure for each location.

Phase 2: Close the inside lane of southbound I-29.
- Install W-beam guardrail and end terminals at South Branch Elm River (east side of 0029 092.672L) and North Branch Elm River (east side of 0029-098.519L).
- Obliterate existing pavement marking and install new temporary traffic control striping.

Phase 3: Close northbound I-29, implement head to head traffic on southbound I-29.
- Activate the temporary ramp connections and median crossovers for the reconstruction of northbound I-29.
- Reconstruct northbound I-29.

Phase 4: Return northbound traffic to its normal flow.
- Install temporary pavement marking on I-29 northbound.
- Close the inside lane of southbound and northbound I-29.
- Remove temporary guardrail and end terminals at South Branch Elm River (east side of 0029-092.672L) and North Branch Elm River east side of 0029-098.519L).
- Remove NB temporary ramp connections within the interstate median.
- Move the embankment within the median to reuse for the construction of the SB temporary ramp connections.
- Install permanent pavement marking on I-29 southbound.

Phase 5: Close the outside lanes of northbound and southbound I-29.
- Remove remaining northbound temporary ramp connections.
- Remove temporary guardrail and end terminals at South Branch Elm River (west side of 0029-092.672L) and North Branch Elm River (west side of 0029-098.519L).
- Finish construction of the SB temporary ramp connections.
- Install tubular markers at the temporary ramp connections and median crossovers.
- Install permanent pavement marking on I-29 northbound.

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704-P05 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.

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 bid item "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.

709-P01 GEOSYNTHETIC GEOGRID – TYPE G: Place geosynthetic geogrid type G on top of the existing subgrade without disturbing or scarifying the subgrade. Place a minimum of 8 inches of base material over the geogrid prior to compacting the base material.

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. Include all costs for embankment, salvaged base course, drainage items, and water to construct and maintain ramp connection detours in the 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 price bid for pipe installation.

714-P02 TEMPORARY PIPE CONNECTIONS: Use mortar for making temporary pipe connections in accordance with section 714.03 A of the standard specifications. Include all costs for labor, materials, and equipment used for grouting the temporary pipe connections in the unit price bid for pipe items.

714-P03 REDUCER PIPE SECTIONS: Pipe reducer sections are called out in Section 51 Allowable Pipe List. Include the cost for reducer sections in the price bid for the applicable size Pipe Conduit pay items.

714-P04 FLAP GATE 24 IN: Install flap gates manufactured by Fontaine, Watermain Industries, Hydro Gate, or an approved equal.

Install flap gates at locations shown in the plans in accordance with the manufacturer’s recommendations to ensure a positive seat. The gates need to be designed to withstand a seating head of 10 feet of water. Submit shop drawings for flap gates to the Engineer for review.

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 price bid for “Fence Smooth Wire 3 Strand – Steel Post", “Corner Assembly Steel Post”, and “Double Brace Assembly - Steel Post.”

754-P01 DELINEATOR: Approximately 8 delineator posts may need to be removed to accommodate the southbound temporary ramp connections on this project. Include all cost to remove any delineator posts in the price bid for other items.

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

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	6	5

NOTES

SECTION 100

764-P01 W-BEAM GUARDRAIL END TERMINALS FOR TWO-WAY TRAFFIC: Four W-beam guardrail end terminals are required for protection on the southbound roadway during two-way traffic operation.

Install a W-beam terminal connector, a 12'-6" double rail section, 12'-6" W-beam rail sections and a W-beam guardrail end terminal as shown in the plans.

The W-beam guardrail end terminals, and additional guardrail materials required for two-way traffic will remain the property of the contractor and be removed when no longer needed for two-way traffic operation. The W-beam guardrail end terminals will be measured and paid for by the number of W-beam guardrail end terminals required and accepted by the engineer and includes all materials, including W-beam terminal connector, W-beam rail sections, and all necessary posts, blocks, reflectorized plates, hardware, equipment, and labor.

SECTION 130

764-P02 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 prices bid for the items "Remove W-Beam Guardrail & Posts," and "Remove End Treatment & Transition."

REGISTERED PROFESSIONAL ENGINEER
ERIC HODGSON
PE-10605
DATE: 8/20/2020
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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ENVIRONMENTAL NOTES

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

EN-1 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.

EN-2 WETLAND MITIGATION: Wetland mitigation is required for unavoidable permanent wetland impacts. The wetland mitigation plan is incorporated into the plans for this project. After completion of the mitigation area, the Engineer will complete the Onsite Mitigation Certification Form SFN 61042. Any sedimentation occurring within the mitigation area will be removed.

EN-3 SPAWNING RESTRICTION: Do not work within the South and North Branch Elm River from April 15 to June 1.

EN-4 AQUATIC NUISANCE SPECIES (ANS): In order to comply with North Dakota Administrative Rules 30-03-06 the contractor would provide the NDGF a minimum 72-hour notice prior to placing any vessels, vehicles, pumps, and equipment in or on waters of the state to allow the NDGF an opportunity to inspect any and all such vessels, vehicles, pumps and equipment for presence of aquatic nuisance species. No equipment shall be placed within any water of the state until NDGF approval has been obtained. The NDGF Aquatic Nuisance Species Biologist, Mr. Ben Holen should be contacted at 701-368-9117 for inspections.

EN-5 THREATENED AND ENDANGERED SPECIES: Stop all construction activities and notify the Engineer immediately in the event a whooping crane is identified within one mile of the project location. The Engineer will then coordinate with the USFWS, FHWA and NDDOT. Do not resume work within the avoidance area until the Engineer has confirmed that the bird has left the area.

Above ground utility conflicts are not foreseen with this project but if any impacts are required, contact the NDDOT Utility Engineer to coordinate with the utility company. Bird diverters will be installed by the utility company on overhead utility lines that are shifted due to the proposed action.

NOTIFICATIONS TO BE FILED BY CONTRACTOR:

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).

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 08/25/20
NORTH DAKOTA

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	8	1

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
201	0330	CLEARING & GRUBBING	L SUM	1	1
202	0021	REMOVE AGGREGATE BASE & SURFACING	TON	125,138	125,138
202	0101	REMOVAL OF CONCRETE	EA	2	2
202	0105	REMOVAL OF STRUCTURE	L SUM	1	1
202	0136	REMOVAL OF PAVEMENT	TON	95,717	95,717
202	0169	REMOVAL OF END SECTION-ALL TYPES & SIZES	EA	103	103
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	5,949	5,949
202	0312	REMOVE EXISTING FENCE	LF	69,171	69,171
202	0350	REMOVAL OF TEMPORARY BYPASS	EA	8	8
203	0101	COMMON EXCAVATION-TYPE A	CY	89,396	89,396
203	0109	TOPSOIL	CY	70,972	70,972
203	0113	COMMON EXCAVATION-WASTE	CY	20,407	20,407
210	0050	BOX CULVERT EXCAVATION	EA	1	1
210	0210	FOUNDATION FILL	CY	3,500	3,500
210	0405	FOUNDATION PREPARATION-BOX CULVERT	EA	1	1
216	0100	WATER	M GAL	2,876	2,876
220	0100	PREPARE STOCKPILE SITE	L SUM	1	1
220	0200	RESTORE STOCKPILE SITE	L SUM	1	1
251	0200	SEEDING CLASS II	ACRE	127.1	127.1
251	1000	WETLAND SEED	ACRE	1.6	1.6
251	2000	TEMPORARY COVER CROP	ACRE	120.6	120.6
253	0101	STRAW MULCH	ACRE	247.7	247.7
255	0102	ECB TYPE 2	SY	3,210	3,210
256	0100	RIPRAP GRADE I	CY	114	114
256	0200	RIPRAP GRADE II	CY	299	299
260	0100	SILT FENCE UNSUPPORTED	LF	66,293	66,293
260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	66,293	66,293
261	0112	FIBER ROLLS 12IN	LF	85,115	85,115
261	0113	REMOVE FIBER ROLLS 12IN	LF	9,870	9,870
302	0101	SALVAGED BASE COURSE	CY	93,144	93,144
401	0050	TACK COAT	GAL	8,063	8,063
401	0060	PRIME COAT	GAL	91,721	91,721

ESTIMATE NUMBER: 20810 ESTIMATE TYPE: FINAL FINALIZED: Y RUN DATE: 08/25/2020 TIME: 10:20:37

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	8	2

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
401	0160	BLOTTER MATERIAL CL 44	TON	2,163	2,163
411	0100	MILLING PAVEMENT SURFACE	TON	1,112	1,112
430	0042	SUPERPAVE FAA 42	TON	18,381	18,381
430	1000	CORED SAMPLE	EA	43	43
430	2000	PATCHING	TON	500	500
430	5803	PG 58S-28 ASPHALT CEMENT	TON	1,088	1,088
550	0302	8.5IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	247,189	247,189
602	1131	CLASS AE-3 CONCRETE-BOX CULVERT	CY	680.2	680.2
602	1135	BRIDGE APPROACH SLAB-REMOVE & REPLACE	SY	168.8	168.8
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1,010	1,010
602	2000	REMOVE AND RESET ANCHOR BOLTS	EA	21	21
602	2105	CURB REPAIR	SF	623.7	623.7
612	0114	REINFORCING STEEL-GRADE 60-BOX CULVERT	LBS	129,173	129,173
624	3002	DOUBLE BOX BEAM RAIL RETROFIT - E-RAIL	LF	343.9	343.9
650	0805	DECK SPALL REPAIR	SF	18	18
702	0100	MOBILIZATION	L SUM	1	1
704	0100	FLAGGING	MHR	2,000	2,000
704	1000	TRAFFIC CONTROL SIGNS	UNIT	11,548	11,548
704	1045	ATTENUATION DEVICE-TYPE B-75	EA	2	2
704	1048	PORTABLE RUMBLE STRIPS	EA	2	2
704	1052	TYPE III BARRICADE	EA	45	45
704	1060	DELINEATOR DRUMS	EA	316	316
704	1067	TUBULAR MARKERS	EA	246	246
704	1070	DELINEATOR	EA	437	437
704	1072	FLEXIBLE DELINEATORS	EA	845	845
704	1081	VERTICAL PANELS-BACK TO BACK	EA	6	6
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	6	6
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	7,970	7,970
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	80	80
706	0400	FIELD OFFICE	EA	1	1
706	0500	AGGREGATE LABORATORY	EA	1	1

ESTIMATE NUMBER: 20810 ESTIMATE TYPE: FINAL FINALIZED: Y RUN DATE: 08/25/2020 TIME: 10:20:37

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	8	3

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
706	0550	BITUMINOUS LABORATORY	EA	1	1
706	0600	CONTRACTOR'S LABORATORY	EA	1	1
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	408,288	408,288
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	586	586
710	0100	TEMPORARY BYPASS	EA	4	4
714	0820	PIPE CONC REINF 30IN CL III	LF	8	8
714	4105	PIPE CONDUIT 24IN	LF	2,077	2,077
714	4106	PIPE CONDUIT 24IN-APPROACH	LF	286	286
714	4110	PIPE CONDUIT 30IN	LF	1,647	1,647
714	4113	PIPE CONDUIT 30IN-APPROACH	LF	36	36
714	4120	PIPE CONDUIT 42IN	LF	105	105
714	4125	PIPE CONDUIT 48IN	LF	518	518
714	4135	PIPE CONDUIT 60IN	LF	204	204
714	4140	PIPE CONDUIT 66IN	LF	102	102
714	4229	PIPE CONDUIT ARCH 58IN X 36IN	LF	1,416	1,416
714	4236	PIPE CONDUIT ARCH 73IN X 45IN	LF	382	382
714	7030	PIPE PVC 12IN	LF	420	420
714	7036	PIPE PVC 18IN	LF	530	530
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	3	3
714	9912	FLAP GATE 24IN	EA	3	3
720	0110	RIGHT OF WAY MARKERS	EA	23	23
720	0125	ALIGNMENT MONUMENTS	EA	28	28
720	0130	IRON PIN R/W MONUMENTS	EA	26	26
720	0135	IRON PIN REFERENCE MONUMENTS	EA	12	12
752	0126	FENCE SMOOTH WIRE 3 STRAND-STEEL POST	LF	69,662	69,662
752	0993	FENCE TERMINAL	EA	23	23
752	2100	VEHICLE GATE	EA	1	1
752	2996	CORNER ASSEMBLY-STEEL POST	EA	26	26
752	3996	DOUBLE BRACE ASSEMBLY-STEEL POST	EA	38	38
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	83	83
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	28	28
754	0150	DELINEATORS-TYPE A	EA	166	166
754	0160	DELINEATORS-TYPE B	EA	57	57

ESTIMATE OF QUANTITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	8	4

SPEC	CODE	ITEM DESCRIPTION	UNIT	MAINLINE	TOTAL
754	0166	DELINEATORS-TYPE E	EA	14	14
754	0168	DELINEATORS-TYPE D	EA	9	9
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	182	182
754	0210	GALV STEEL POST-STANDARD PIPE	LF	226	226
754	0214	GALV STEEL POSTS-W-SHAPE POSTS(TWO OR MORE)	LF	982	982
754	0534	PANEL FOR SIGNS-TYPE IV REFLECTIVE SHEETING	SF	992	992
754	0556	INTERSTATE MILE POSTS-TYPE B	EA	11	11
754	0557	INTERSTATE MILE POSTS-TYPE C	EA	2	2
754	0592	RESET SIGN PANEL	EA	13	13
754	0801	OBJECT MARKERS - TYPE I	EA	2	2
754	0803	OBJECT MARKERS - TYPE III	EA	2	2
754	0805	OBJECT MARKERS - CULVERTS	EA	128	128
754	1100	CLASS AE CONCRETE-SIGN FOUNDATIONS	CY	6.3	6.3
754	1104	REMOVE SIGN FOUNDATION	EA	40	40
760	0001	RUMBLE STRIPS - CONCRETE SHOULDER	MILE	26.52	26.52
762	0200	RAISED PAVEMENT MARKERS	EA	31,001	31,001
762	1104	PVMT MK PAINTED 4IN LINE	LF	350,592	350,592
762	1108	PVMT MK PAINTED 8IN LINE	LF	4,066	4,066
762	1124	PVMT MK PAINTED 24IN LINE	LF	42	42
762	1140	PVMT MK PAINTED CURB TOP & FACE	LF	95	95
764	0131	W-BEAM GUARDRAIL	LF	1,020	1,020
764	0145	W-BEAM GUARDRAIL END TERMINAL	EA	18	18
764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	983	983
764	1050	RESET W-BEAM GUARDRAIL	LF	350	350
764	2081	REMOVE END TREATMENT & TRANSITION	EA	4	4
900	1000	TEMPORARY STREAM DIVERSION	EA	1	1
930	8230	SHORING	EA	2	2
930	8644	SILICONE SEALANT	LF	66	66
930	8686	AGGREGATE SLOPE PROTECTION	SY	955	955
930	9612	SPALL REPAIR	SF	24	24
930	9639	APPROACH SLAB LIP REPAIR	LF	76	76

ESTIMATE NUMBER: 20810 ESTIMATE TYPE: FINAL FINALIZED: Y RUN DATE: 08/25/2020 TIME: 10:20:37

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	10	1

PERMANENT PAVEMENT MARKING

TYPE	BASIS		QUANTITY	UNIT
Interstate 29 Southbound Roadway (Sta 4660+56 to Sta 5372+53)				
PVMT MK PAINTED 4IN LINE	Centerline Skips (White)	1,320 LF/Mile	17,800	LF
	Outside Edge (White)	5,280 LF/Mile	71,197	LF
	Inside Edge (Yellow)	5,280 LF/Mile	71,197	LF
Interstate 29 Northbound Roadway (Sta 4640+80 to Sta 5365+11)				
PVMT MK PAINTED 4IN LINE	Centerline Skips (White)	1,320 LF/Mile	18,108	LF
	Outside Edge (White)	5,280 LF/Mile	72,431	LF
	Inside Edge (Yellow)	5,280 LF/Mile	72,431	LF
Hunter Separation Crossroad (OCL_15TH_ST_SE ALIGNMENT - Sta 103+86 to Sta 113+89)				
PVMT MK PAINTED 4IN LINE	Outside Edge (White)	10,560 LF/Mile	2,006	LF
	Dbl CL Barrier (Yellow)	10,560 LF/Mile	2,006	LF
Grandin NB Exit Ramp (Area not Covered by Mainline Pavement Marking)				
PVMT MK PAINTED 4IN LINE	Dotted Line (White)	1,320 LF/Mile	150	LF
PVMT MK PAINTED 8IN LINE	Channel Line (White)	5,280 LF/Mile	641	LF
PVMT MK PAINTED 4IN LINE	Outside Edge (White)	5,280 LF/Mile	847	LF
	Inside Edge (Yellow)	5,280 LF/Mile	847	LF
PVMT MK PAINTED 24IN LINE	Stop Line (White)	5,280 LF/Mile	42	LF
Grandin Interchange Crossroad (OCL_12TH_ST_SE ALIGNMENT - Sta 123+90 to Sta 136+40)				
PVMT MK PAINTED 4IN LINE	Outside Edge (White)	10,560 LF/Mile	2,500	LF
	Dbl CL Barrier (Yellow)	10,560 LF/Mile	2,500	LF
Grandin NB Entrance Ramp (Area not Covered by Mainline Pavement Marking)				
PVMT MK PAINTED 4IN LINE	Dotted Line (White)	1,320 LF/Mile	247	LF
PVMT MK PAINTED 8IN LINE	Channel Line (White)	5,280 LF/Mile	483	LF
PVMT MK PAINTED 4IN LINE	Outside Edge (White)	5,280 LF/Mile	995	LF
	Inside Edge (Yellow)	5,280 LF/Mile	995	LF
Galesburg Separation Crossroad (OCL_10TH_ST_SE ALIGNMENT - Sta 163+26 to Sta 173+53)				
PVMT MK PAINTED 4IN LINE	Outside Edge (White)	10,560 LF/Mile	2,054	LF
	Dbl CL Barrier (Yellow)	10,560 LF/Mile	2,054	LF
Kelso Separation Crossroad (OCL_7TH_ST_SE ALIGNMENT - Sta 169+01 to Sta 179+07)				
PVMT MK PAINTED 4IN LINE	Outside Edge (White)	10,560 LF/Mile	2,012	LF
	Dbl CL Barrier (Yellow)	10,560 LF/Mile	2,012	LF
Elm River Rest Area NB Exit Ramp (Area not Covered by Mainline Pavement Marking)				
PVMT MK PAINTED 4IN LINE	Dotted Line (White)	1,320 LF/Mile	149	LF
PVMT MK PAINTED 8IN LINE	Channel Line (White)	5,280 LF/Mile	1,157	LF
Elm River Rest Area NB Entrance Ramp (Area not Covered by Mainline Pavement Marking)				
PVMT MK PAINTED 4IN LINE	Dotted Line (White)	1,320 LF/Mile	242	LF
PVMT MK PAINTED 8IN LINE	Channel Line (White)	5,280 LF/Mile	531	LF
Blanchard NB Exit Ramp (Area not Covered by Mainline Pavement Marking)				
PVMT MK PAINTED 4IN LINE	Dotted Line (White)	1,320 LF/Mile	150	LF
PVMT MK PAINTED 8IN LINE	Channel Line (White)	5,280 LF/Mile	616	LF
Blanchard NB Entrance Ramp (Area not Covered by Mainline Pavement Marking)				
PVMT MK PAINTED 4IN LINE	Dotted Line (White)	1,320 LF/Mile	245	LF
PVMT MK PAINTED 8IN LINE	Channel Line (White)	5,280 LF/Mile	550	LF
PVMT MK PAINTED 4IN LINE	Outside Edge (White)	5,280 LF/Mile	23	LF
	Inside Edge (Yellow)	5,280 LF/Mile	23	LF

SPEC	CODE	BID ITEM	UNIT	QUANTITY
754	**0803**	**OBJECT MARKERS - TYPE III**		
		Sta 5202+27 Box Culvert Rt	EA	2
754	**0805**	**OBJECT MARKERS - CULVERTS**		
		Various Locations	EA	128

430 - 1000 CORED SAMPLE						
	A	B		C		
Specification Section	Distance (Ft)/1000	Lanes	Joints	Lifts	Quantity (A x B x C)	Quantity (1 per mile)	Unit
430.04 I.2.b(1), "General"							
Sta 103+86 to Sta 113+89 - Minus Bridge (Hunter Separation Crossroad - OCL_15TH_ST_SE)	1	2	N/A	1	2	N/A	EA
Sta 9+15 to Sta 17+61 (SER at Grandin Interchange - RAMP_RP92.14_SE)	1	1	N/A	1	1	N/A	EA
Sta 123+90 to Sta 136+40 - Minus Bridge (Grandin Interchange Crossroad - OCL_12TH_ST_SE)	1	2	N/A	1	2	N/A	EA
Sta 0+22 to Sta 10+16 (NER at Grandin Interchange - RAMP_RP92.14_NE)	1	1	N/A	1	1	N/A	EA
Sta 163+26 to Sta 173+53 - Minus Bridge (Galesburg Separation Crossroad - OCL_10TH_ST_SE)	1	2	N/A	1	2	N/A	EA
Sta 169+01 to Sta 179+07 - Minus Bridge (Kelso Separation Crossroad - OCL_7TH_ST_SE)	1	2	N/A	1	2	N/A	EA
Sta 11+08 to Sta 30+32 (Elm River Rest Area - RAMP_RP99_NB)	2	1	N/A	1	2	N/A	EA
Grandin - SWRC	2	1	N/A	2	4	N/A	EA
Grandin - NWRC	2	1	N/A	2	4	N/A	EA
Blanchard - SWRC	2	1	N/A	2	4	N/A	EA
Blanchard - NWRC	2	1	N/A	2	4	N/A	EA
430.04 I.2.b(2) "Pavement Thickness Determination Cores"							
1 per each of 11 locations, except the four temporary ramp connections					N/A	7	EA
SSP 4 Longitudinal Joint Density in HMA Pavements (Centerline)							
Sta 103+86 to Sta 113+89 - Minus Bridge (Hunter Separation Crossroad - OCL_15TH_ST_SE)	1	N/A	1	1	1	N/A	EA
Sta 9+15 to Sta 17+61 (SER at Grandin Interchange - RAMP_RP92.14_SE)	1	N/A	1	1	1	N/A	EA
Sta 123+90 to Sta 136+40 - Minus Bridge (Grandin Interchange Crossroad - OCL_12TH_ST_SE)	1	N/A	1	1	1	N/A	EA
Sta 0+22 to Sta 10+16 (NER at Grandin Interchange - RAMP_RP92.14_NE)	1	N/A	1	1	1	N/A	EA
Sta 163+26 to Sta 173+53 - Minus Bridge (Galesburg Separation Crossroad - OCL_10TH_ST_SE)	1	N/A	1	1	1	N/A	EA
Sta 169+01 to Sta 179+07 - Minus Bridge (Kelso Separation Crossroad - OCL_7TH_ST_SE)	1	N/A	1	1	1	N/A	EA
Sta 11+08 to Sta 20+00 (Elm River Rest Area - RAMP_RP99_NB)	1	N/A	1	1	1	N/A	EA
Sta 26+50 to Sta 30+32 (Elm River Rest Area - RAMP_RP99_NB)	1	N/A	1	1	1	N/A	EA
				Total	**36**	**7**	**EA**

MATERIALS

SALVAGED BASE COURSE @ 1.875 TON/CY
TACK COAT @ 0.05 GAL/SY
PRIME COAT @ 0.25 GAL/SY
BLOTTER MATERIAL CL 44 @ 12 LBS/SY
SUPERPAVE FAA 42 @ 2 TON/CY
PG 58S-28 ASPHALT CEMENT @ 5.9% Superpave FAA 42

WATER

25 MGAL/MILE for Dust Palliative
20 GAL/TON for Salvaged Base Course
10 GAL/CY for Embankment

REMOVE AGGREGATE BASE & SURFACING

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

REMOVAL OF PAVEMENT

Concrete Pavement @ 2 TON/CY

MILLING PAVEMENT SURFACE @ 2 TON/CY

SPEC	CODE	BID ITEM	UNIT	QUANTITY
754	**0150**	**DELINEATORS - TYPE A**		
		Sta 4660+65 to Sta 5360+65	EA	158
		Grandin Exit Ramp - End of Gore	EA	3
		Elm River Rest Area Exit Ramp - End of Gore	EA	2
		Blanchard Exit Ramp - End of Gore	EA	3
754	**0160**	**DELINEATORS - TYPE B**		
		Grandin Exit Ramp - Taper & Curve	EA	11
		Grandin Entrance Ramp - Curve & Taper	EA	8
		Elm River Rest Area Exit Ramp - Taper & Curve	EA	11
		Elm River Rest Area Entrance Ramp - Curve & Taper	EA	8
		Blanchard Exit Ramp - Taper & Curve	EA	11
		Blanchard Entrance Ramp - Curve & Taper	EA	8
754	**0168**	**DELINEATORS - TYPE D**		
		Grandin NB Exit Ramp to Crossroad	EA	3
		Grandin Crossroad to NB Entrance Ramp	EA	6

RUMBLE STRIPS

RUMBLE STRIPS - CONCRETE SHOULDER			
Location - Interstate 29 Northbound	Type	Quantity	Unit
Sta 4660+65 to Sta 5360+65	Outside Edge	**13.26**	MILE
	Inside Edge	**13.26**	MILE
	TOTAL	**26.52**	**MILE**

REGISTERED PROFESSIONAL ENGINEER
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DATE
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NORTH DAKOTA

Basis of Estimate

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	10	2

PROPOSED QUANTITIES TABLE 1

				Proposed Typical #1 (Tangent) Sta 4660+65 to Sta 4680+17 Sta 4696+09 to Sta 4712+14 Sta 4726+18 to Sta 4790+36 Sta 4808+12 to Sta 4828+99 Sta 4853+00 to Sta 4892+46 Sta 4894+56 to Sta 4905+18 Sta 4924+51 to Sta 4994+07 Sta 5007+64 to Sta 5103+33 Sta 5119+36 to Sta 5191+23 Sta 5205+25 to Sta 5209+91 Sta 5232+75 to Sta 5329+93 Sta 5343+71 to Sta 5360+65				Proposed Typical #2 (5.1% Rt Curve) Sta 4680+17 to Sta 4696+09				Proposed Typical #3 (3.8% Lt Curve) Sta 4712+14 to Sta 4726+18 Sta 4790+36 to Sta 4808+12 Sta 4994+07 to Sta 5007+64 Sta 5103+33 to Sta 5119+36 Sta 5329+93 to Sta 5343+71				
				Length (Ft) = 52660				Length (Ft) = 1592				Length (Ft) = 7518				
SPEC	CODE	BID ITEM	UNIT	Area (SF)	Depth (In)	Width (Ft)	SubTotal	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	25.38	8	36.67	44,475	25.38	8	36.67	1,496	25.36	8	36.67	7,061	53,032
401	0060	PRIME COAT @ 0.25 GAL/SY	GAL	–	--	36.67	48,195	–	--	36.67	1,622	–	--	36.67	7,658	57,475
401	0160	BLOTTER MATERIAL CL 44 @ 12 LBS/SY	TON	–	--	36.67	1,157	–	--	36.67	39	–	--	36.67	184	1,380
550	0302	8.5IN NON - REINF CONCRETE PVMT CL AE - DOWELED	SY	–	8.5	30	157,713	–	8.5	30	5,307	–	8.5	30	25,060	188,080
709	0100	GEOSYNTHETIC MATERIAL - TYPE G	SY	–	--	39.45	207,393	–	--	39.36	6,962	–	--	39.35	32,870	247,225
Asphalt Outside Shoulder (Minus Ramp Taper Areas)																
302	0101	SALVAGED BASE COURSE	CY	8.89	--	9.5	15,579	10.11	--	9.67	596	8.80	--	9.16	2,450	18,625
401	0050	TACK COAT (1st Lift HMA) @ 0.05 GAL/SY	GAL	–	--	8.75	2,300	–	--	8.84	78	–	--	8.58	358	2,736
401	0050	TACK COAT (2nd Lift HMA) @ 0.05 GAL/SY	GAL	–	--	8	2,103	–	--	8	71	–	--	8	334	2,508
401	0060	PRIME COAT @ 0.25 GAL/SY	GAL	–	--	9.5	12,486	–	--	9.67	428	–	--	9.16	1,913	14,827
401	0160	BLOTTER MATERIAL CL 44 @ 12 LBS/SY	TON	–	--	9.5	300	–	--	9.67	10	–	--	9.16	46	356
430	0042	SUPERPAVE FAA 42 @ 2 TON/CY	TON	2.92	4	8	10,234	2.95	4	8	348	2.86	4	8	1,593	12,175
430	5803	PG 58S-28 ASPHALT CEMENT @ 5.9% SUPERPAVE FAA 42	TON	2.92	4	8	604	2.95	4	8	21	2.86	4	8	94	719
709	0100	GEOSYNTHETIC MATERIAL - TYPE G	SY	–	--	9	47,314	–	--	10.1	1,787	–	--	8.19	6,841	55,942

PROPOSED QUANTITIES TABLE 2

				Proposed Typical #4 (2.2% Rt Curve) Sta 4828+99 to Sta 4853+00 Sta 5191+23 to Sta 5205+25				Proposed Typical #5 (3.8% Rt Curve) Sta 4905+18 to Sta 4924+51 Sta 5209+91 to Sta 5232+75				
				Length (Ft) = 3803				Length (Ft) = 4217				
SPEC	CODE	BID ITEM	UNIT	Area (SF)	Depth (In)	Width (Ft)	SubTotal	Area (SF)	Depth (In)	Width (Ft)	SubTotal	SUBTOTAL TABLE 2
Mainline Concrete Lanes (Minus Ramp Taper Areas)												
302	0101	SALVAGED BASE COURSE	CY	25.34	8	36.67	2,969	25.36	8	36.67	3,350	6,319
401	0060	PRIME COAT @ 0.25 GAL/SY	GAL	–	--	36.67	3,222	–	--	36.67	3,633	6,855
401	0160	BLOTTER MATERIAL CL 44 @ 12 LBS/SY	TON	–	--	36.67	77	–	--	36.67	87	164
550	0302	8.5IN NON - REINF CONCRETE PVMT CL AE - DOWELED	SY	–	8.5	30	10,543	–	8.5	30	11,890	22,433
709	0100	GEOSYNTHETIC MATERIAL - TYPE G	SY	–	--	39.34	13,826	–	--	39.35	15,596	29,422
Asphalt Outside Shoulder (Minus Ramp Taper Areas)												
302	0101	SALVAGED BASE COURSE	CY	8.99	--	9.51	1,053	9.84	--	9.57	1,300	2,353
401	0050	TACK COAT (1st Lift HMA) @ 0.05 GAL/SY	GAL	–	--	8.75	154	–	--	8.79	174	328
401	0050	TACK COAT (2nd Lift HMA) @ 0.05 GAL/SY	GAL	–	--	8	141	–	--	8	159	300
401	0060	PRIME COAT @ 0.25 GAL/SY	GAL	–	--	9.51	836	–	--	9.57	948	1,784
401	0160	BLOTTER MATERIAL CL 44 @ 12 LBS/SY	TON	–	--	9.51	20	–	--	9.57	23	43
430	0042	SUPERPAVE FAA 42 @ 2 TON/CY	TON	2.92	4	8	684	2.93	4	8	774	1,458
430	5803	PG 58S-28 ASPHALT CEMENT @ 5.9% SUPERPAVE FAA 42	TON	2.92	4	8	40	2.93	4	8	46	86
709	0100	GEOSYNTHETIC MATERIAL - TYPE G	SY	–	--	9.06	3,184	–	--	9.71	3,848	7,032

GUARDRAIL SURFACING LOCATION QUANTITIES TABLE 3

SPEC	CODE	BID ITEM	UNIT	Hunter Separation QUANTITY	Grandin Interchange QUANTITY	Elm River Bridge - Outside QUANTITY	Elm River Bridge - Median QUANTITY	Galesburg Separation QUANTITY	Kelso Separation QUANTITY	Blanchard Interchange QUANTITY	SUBTOTAL TABLE 3
302	0101	SALVAGED BASE COURSE	CY	127	134	72	89	134	134	134	824
401	0050	TACK COAT @ 0.05 GAL/SY (1 Lift)	GAL	32	33	16	20	33	33	33	200
430	0042	SUPERPAVE FAA 42 @ 2 TON/CY	TON	73	77	38	48	77	77	77	467
430	5803	PG 58S-28 ASPHALT CEMENT @ 5.9% SUPERPAVE FAA 42	TON	4	5	2	3	5	5	5	29

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Basis of Estimate
NB Mainline Quantities

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	10	3

ACCUMULATED PLAN TOTAL PAVING QUANTITIES

SPEC	CODE	BID ITEM	UNIT	Sheet 10-2 Table 1 QUANTITY	Sheet 10-2 Table 2 QUANTITY	Sheet 20-11 Emergency Median Crossovers QUANTITY	Sheets 90-1 thru 90-13 QUANTITY	Sheets 90-14 thru SB Ramp Connects QUANTITY	Guardrail Surfacing QUANTITY	PLAN SUBTOTAL QUANTITY
302	0101	SALVAGED BASE COURSE	CY	53,032	6,319	86	9,844	2061	824	72,166
401	0050	TACK COAT @ 0.05 GAL/SY	GAL	–	--	–	1,345	646	200	2,191
401	0060	PRIME COAT @ 0.25 GAL/SY	GAL	57,475	6,855	–	9,169	1,611	--	75,110
401	0160	BLOTTER MATERIAL CL 44 @ 12 LBS/SY	TON	1,380	164	–	220	–	--	1,764
411	0100	MILLING PAVEMENT SURFACE	TON	–	--	–	1,112	–	--	1,112
430	0042	SUPERPAVE FAA 42 @ 2 TON/CY	TON	–	--	–	3,046	1,235	467	4,748
430	5803	PG 58S-28 ASPHALT CEMENT @ 5.9% SUPERPAVE FAA 42	TON	–	--	–	179	75	29	283
550	0302	8.5IN NON - REINF CONCRETE PVMT CL AE - DOWELED	SY	188,080	22,433	–	36,676	–	--	247,189
709	0100	GEOSYNTHETIC MATERIAL - TYPE G	SY	247,225	29,422	–	45,325	9,152	--	331,124

HMA Outside Shoulder		
Sheet 10-2 Table 1 QUANTITY	Sheet 10-2 Table 2 QUANTITY	PLAN SUBTOTAL QUANTITY
18,625	2,353	20,978
5,244	628	5,872
14,827	1,784	16,611
356	43	399
–	--	–
12,175	1,458	13,633
719	86	805
–	--	–
55,942	7,032	62,974

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Basis of Estimate
NB Plan Total Paving Quantities

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	11	1

PAVEMENT REMOVALS SUMMARY

Location	Removal of Pavement	Remove Aggregate Base & Surfacing		Milling Pavement Surface
	Concrete	Aggregate Base	Asphalt	
	(TON)	(TON)	(TON)	(TON)
	A	B	C	D
Sta 4660+65 to Sta 5360+65 (I-29 Northbound Mainline)	95,692	34,653	90,430	–
Hunter Separation Crossroad Mill and Overlay Area	–	–	–	169
SE Grandin Interchange Ramp Mill and Overlay Area	–	–	–	144
Grandin Interchange Crossroad Mill and Overlay Area	–	–	–	248
NE Grandin Interchange Ramp Mill and Overlay Area	–	–	–	156
Galesburg Separation Crossroad Mill and Overlay Area	–	–	–	177
Kelso Separation Crossroad Mill and Overlay Area	–	–	–	161
Elm River Rest Area Overlay Area	–	–	–	57
Guardrail Surfacing Locations	25	–	–	–
Emergency Median Crossover Locations	–	55	–	–
Grandin SW Temporary Ramp Connection	–	–	–	–
Grandin NW Temporary Ramp Connection	–	–	–	–
Blanchard SW Temporary Ramp Connection	–	–	–	–
Blanchard NW Temporary Ramp Connection	–	–	–	–
TOTALS =	**95,717**	**34,708**	**90,430**	**1,112**

REQUIRED SALVAGED BASE COURSE SUMMARY

Salvaged Base Course Required
(TON)
E
169,074
–
–
–
–
–
–
–
1,545
161
1,037
885
1,076
866
174,644

Note: Salvaged base course is paid for by the CY.

EARTHWORK SUMMARY

Location	Common Excavation - Type A (CY)	Embankment (CY)	Embankment Above Subgrade (CY)	Common Excavation - Waste (CY)	Topsoil from Stripping (CY)
	Pay Item			Pay Item	Pay Item
	A	B	C	D = A - (B + C)	E
Sta 4660+65 to Sta 5360+65 (I-29 Northbound Mainline Reconstruction)	78,697	47,260	14,736	16,701	67,785
Grandin & Blanchard Interchange - Southbound Temporary Ramp Connections	5,600	6,993	0	-1,393	*
Onsite Wetland Mitigation: Ditch Shifts 1 to 14 and Mitigation Sites 1 to 5	5,099	0	0	5,099	3,187
TOTALS	**89,396**	**54,253**	**14,736**	**20,407**	**70,972**

Note 1: Quantity shown for embankment has been increased by 25% to account for shrinkage.
Note 2: Wetland mitigation excavation material is not to be used as roadway embankment.
*Topsoil quantity for the Ramp Connections is included in the mainline topsoil quantity.

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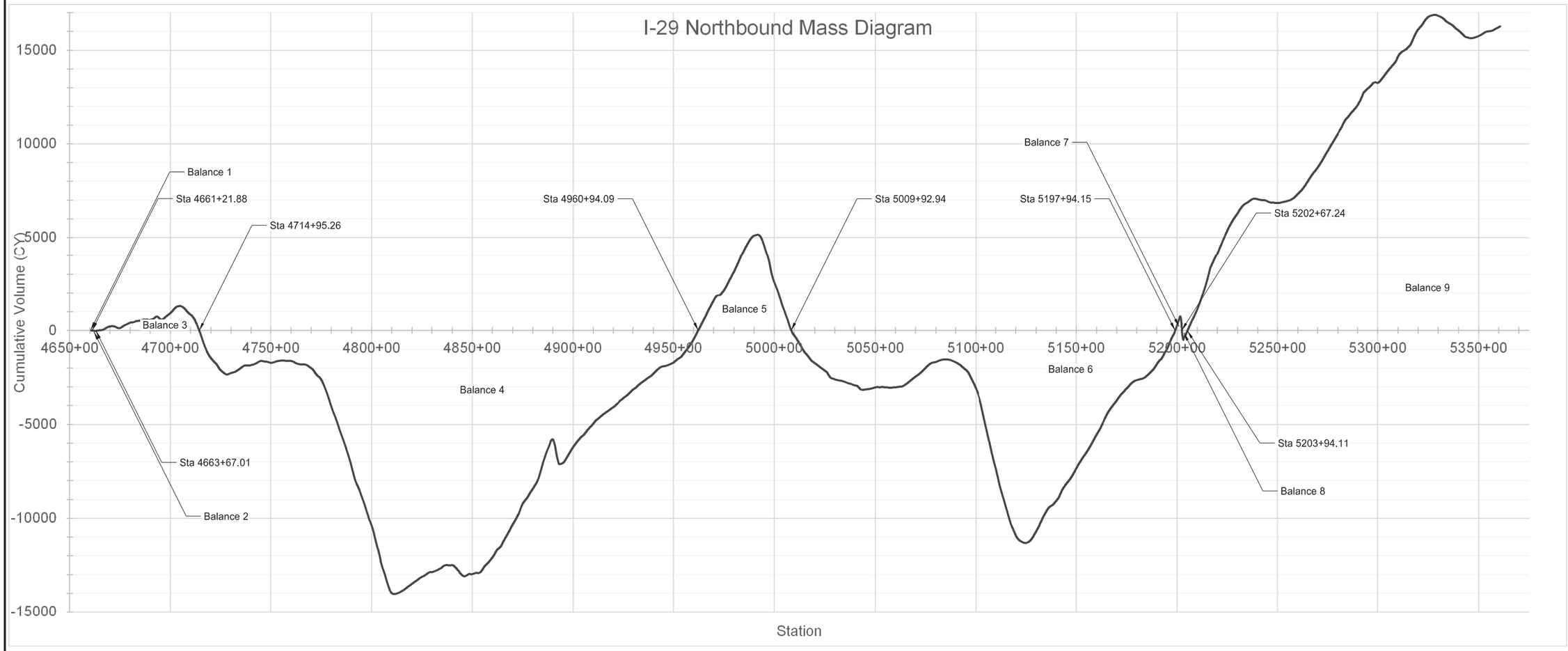
Salvaged Base Course Summary and
Earthwork Summary

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	11	2



Total for Balance 1
Haul = 1 CY Sta
Excavation Hauled = 2 CY

Total for Balance 2
Haul = 19 CY Sta
Excavation Hauled = 14 CY

Total for Balance 3
Haul = 32,257 CY Sta
Excavation Hauled = 1,689 CY

Total for Balance 4
Haul = 1,526,621 CY Sta
Excavation Hauled = 16,625 CY

Total for Balance 5
Haul = 138,079 CY Sta
Excavation Hauled = 5,423 CY

Total for Balance 6
Haul = 765,737 CY Sta
Excavation Hauled = 12,689 CY

Total for Balance 7
Haul = 2,449 CY Sta
Excavation Hauled = 1,038 CY

Total for Balance 8
Haul = 133 CY Sta
Excavation Hauled = 224 CY

Total for Balance 9
Haul = 1,716,805 CY Sta
Excavation Hauled = 18,207 CY

Total for the Project
Haul = 4,182,101 CY Sta
Excavation Hauled = 55,913 CY
Average Haul Distance for the Project 74.80 Sta

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Mass Diagram

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	20	1

CURVE SCL_HWY029_8

T.S. Station	4680+16.56
S.C. Station	4682+76.56
P.I. Station	4688+19.86 Total Combination
Delta =	19° 59' 20.99" (RT) Total Combination
Degree =	1° 29' 59.84"
Tangent =	803.29
Length =	1072.65 Simple Curve
Radius =	3,819.83
C.S. Station	4693+49.21
S.T. Station	4696+09.21

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
4679+09.51	-2.10%	-2.10%	-2.90%
4680+16.57	0.00%	-2.10%	-2.90%
4681+23.62	2.10%	-2.10%	-2.90%
4681+64.41	2.90%	-2.90%	-2.90%
4682+76.56	5.10%	-5.10%	-5.10%
4693+49.21	5.10%	-5.10%	-5.10%
4694+73.83	2.90%	-2.90%	-2.90%
4695+19.15	2.10%	-2.10%	-2.90%
4696+38.10	0.00%	-2.10%	-2.90%
4697+57.06	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_14

P.C. Station	4712+13.82
P.I. Station	4719+19.61
Delta =	14° 02' 41.3599" (LT)
Degree =	0° 59' 59.95"
Tangent =	705.79
Length =	1,404.50
Radius =	5,729.65
P.T. Station	4726+18.32

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
4710+08.13	-2.10%	-2.10%	-2.90%
4710+38.42	-2.10%	-2.10%	-2.10%
4711+17.91	-2.10%	0.00%	0.00%
4711+97.41	-2.10%	2.10%	2.10%
4712+27.70	-2.90%	2.90%	2.90%
4712+61.77	-3.80%	3.80%	3.80%
4725+70.37	-3.80%	3.80%	3.80%
4726+04.44	-2.90%	2.90%	2.90%
4726+34.73	-2.10%	2.10%	2.10%
4727+14.22	-2.10%	0.00%	0.00%
4727+93.72	-2.10%	-2.10%	-2.10%
4728+24.01	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_19

P.C. Station	4790+35.60
P.I. Station	4799+31.19
Delta =	17° 46' 03.9173" (LT)
Degree =	0° 59' 59.95"
Tangent =	895.59
Length =	1,776.80
Radius =	5,729.65
P.T. Station	4808+12.40

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
4788+29.91	-2.10%	-2.10%	-2.90%
4788+60.20	-2.10%	-2.10%	-2.10%
4789+39.69	-2.10%	0.00%	0.00%
4790+19.19	-2.10%	2.10%	2.10%
4790+49.48	-2.90%	2.90%	2.90%
4790+83.55	-3.80%	3.80%	3.80%
4807+64.45	-3.80%	3.80%	3.80%
4807+98.52	-2.90%	2.90%	2.90%
4808+28.80	-2.10%	2.10%	2.10%
4809+08.30	-2.10%	0.00%	0.00%
4809+87.80	-2.10%	-2.10%	-2.10%
4810+18.09	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_22

P.C. Station	4828+99.22
P.I. Station	4841+03.92
Delta =	12° 00' 10.4143" (RT)
Degree =	0° 29' 59.99"
Tangent =	1,204.70
Length =	2,400.59
Radius =	11,459.19
P.T. Station	4852+99.81

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
4827+64.21	-2.10%	-2.10%	-2.90%
4828+43.70	0.00%	-2.10%	-2.90%
4829+23.19	2.10%	-2.10%	-2.90%
4829+26.98	2.20%	-2.20%	-2.90%
4852+72.05	2.20%	-2.20%	-2.90%
4852+75.83	2.10%	-2.10%	-2.90%
4853+55.33	0.00%	-2.10%	-2.90%
4854+34.82	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_29

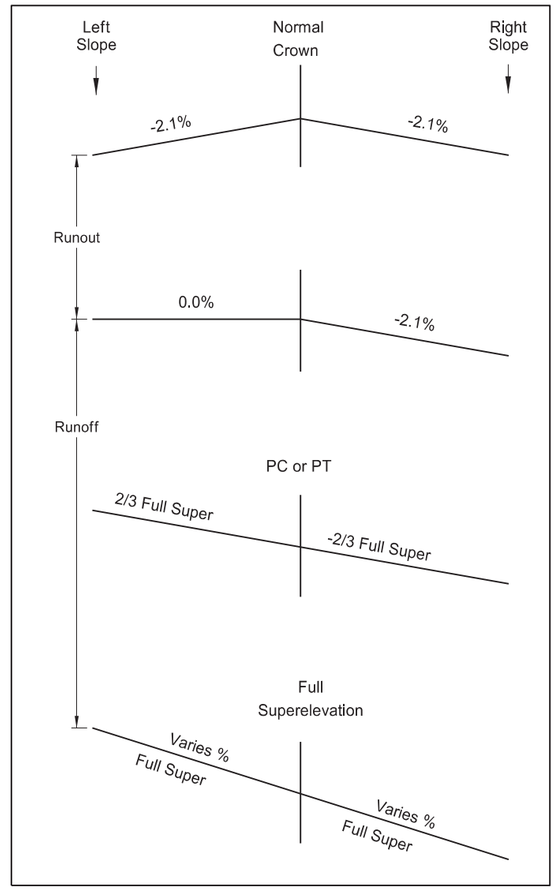
P.C. Station	4905+17.63
P.I. Station	4914+93.38
Delta =	19° 19' 45.6116" (RT)
Degree =	0° 59' 59.95"
Tangent =	975.75
Length =	1,932.96
Radius =	5,729.65
P.T. Station	4924+50.58

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
4903+42.22	-2.10%	-2.10%	-2.90%
4904+21.72	0.00%	-2.10%	-2.90%
4905+01.22	2.10%	-2.10%	-2.90%
4905+31.51	2.90%	-2.90%	-2.90%
4905+65.58	3.80%	-3.80%	-3.80%
4924+02.63	3.80%	-3.80%	-3.80%
4924+36.71	2.90%	-2.90%	-2.90%
4924+66.99	2.10%	-2.10%	-2.90%
4925+46.49	0.00%	-2.10%	-2.90%
4926+25.99	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_34

P.C. Station	4994+07.31
P.I. Station	5000+88.66
Delta =	13° 33' 46.7731" (LT)
Degree =	0° 59' 59.95"
Tangent =	681.34
Length =	1,356.32
Radius =	5,729.65
P.T. Station	5007+63.63

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
4992+01.62	-2.10%	-2.10%	-2.90%
4992+31.91	-2.10%	-2.10%	-2.10%
4993+11.40	-2.10%	0.00%	0.00%
4993+90.90	-2.10%	2.10%	2.10%
4994+21.19	-2.90%	2.90%	2.90%
4994+55.26	-3.80%	3.80%	3.80%
5007+15.68	-3.80%	3.80%	3.80%
5007+49.75	-2.90%	2.90%	2.90%
5007+80.04	-2.10%	2.10%	2.10%
5008+59.53	-2.10%	0.00%	0.00%
5009+39.03	-2.10%	-2.10%	-2.10%
5009+69.32	-2.10%	-2.10%	-2.90%



Note: Calculations based on AASHTO method five. A design speed of 75 mph and maximum superelevation of 6% were used.

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Superelevation Table

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	2

CURVE SCL_HWY029_37

P.C. Station	5103+32.62
P.I. Station	5111+39.81
Delta =	16° 02' 16.4992" (LT)
Degree =	0° 59' 59.95"
Tangent =	807.18
Length =	1,603.81
Radius =	5,729.65
P.T. Station	5119+36.43

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
5101+26.93	-2.10%	-2.10%	-2.90%
5101+57.22	-2.10%	-2.10%	-2.10%
5102+36.72	-2.10%	0.00%	0.00%
5103+16.21	-2.10%	2.10%	2.10%
5103+46.50	-2.90%	2.90%	2.90%
5103+80.57	-3.80%	3.80%	3.80%
5118+88.48	-3.80%	3.80%	3.80%
5119+22.55	-2.90%	2.90%	2.90%
5119+52.84	-2.10%	2.10%	2.10%
5120+32.34	-2.10%	0.00%	0.00%
5121+11.84	-2.10%	-2.10%	-2.10%
5121+42.12	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_44

P.C.. Station	5191+23.38
P.I. Station	5198+25.08
Delta =	7° 00' 29.6134" (RT)
Degree =	0° 29' 59.99"
Tangent =	701.70
Length =	1,401.65
Radius =	11,459.20
P.T. Station	5205+25.04

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
5189+88.37	-2.10%	-2.10%	-2.90%
5190+67.86	0.00%	-2.10%	-2.90%
5191+47.35	2.10%	-2.10%	-2.90%
5191+51.14	2.20%	-2.20%	-2.90%
5204+97.28	2.20%	-2.20%	-2.90%
5205+01.07	2.10%	-2.10%	-2.90%
5205+80.56	0.00%	-2.10%	-2.90%
5206+60.05	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_47

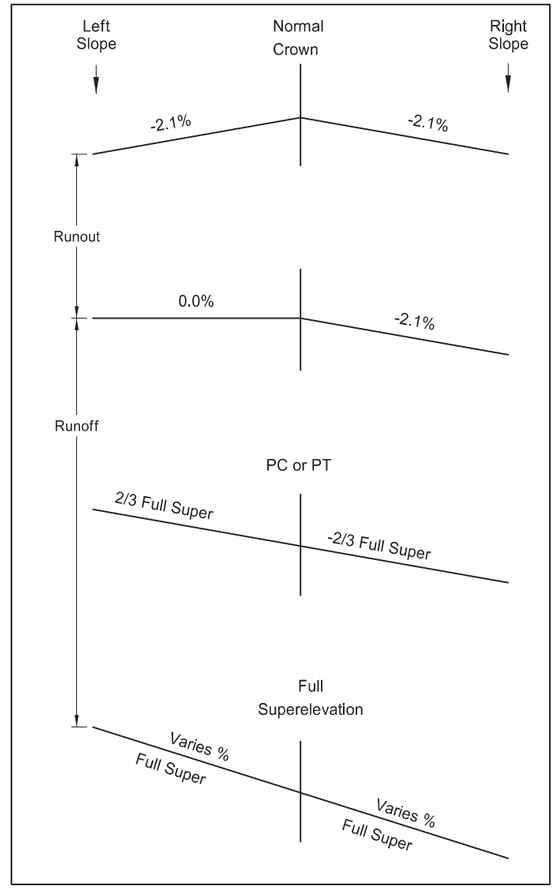
P.C. Station	5209+90.57
P.I. Station	5221+48.09
Delta =	22° 50' 32.9855" (RT)
Degree =	0° 59' 59.95"
Tangent =	1,157.51
Length =	2,284.28
Radius =	5,729.65
P.T. Station	5232+74.85

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
5208+15.17	-2.10%	-2.10%	-2.90%
5208+94.67	0.00%	-2.10%	-2.90%
5209+74.16	2.10%	-2.10%	-2.90%
5210+04.45	2.90%	-2.90%	-2.90%
5210+38.52	3.80%	-3.80%	-3.80%
5232+26.90	3.80%	-3.80%	-3.80%
5232+60.97	2.90%	-2.90%	-2.90%
5232+91.26	2.10%	-2.10%	-2.90%
5233+70.76	0.00%	-2.10%	-2.90%
5234+50.26	-2.10%	-2.10%	-2.90%

CURVE SCL_HWY029_52

P.C. Station	5329+93.13
P.I. Station	5336+85.34
Delta =	13° 46' 38.3001" (LT)
Degree =	0° 59' 59.95"
Tangent =	692.21
Length =	1,377.75
Radius =	5,729.65
P.T. Station	5343+70.88

Station	Left Driving Lane / Shoulder	Right Driving Lane	Right Shoulder
5327+87.44	-2.10%	-2.10%	-2.90%
5328+17.72	-2.10%	-2.10%	-2.10%
5328+97.22	-2.10%	0.00%	0.00%
5329+76.72	-2.10%	2.10%	2.10%
5330+07.01	-2.90%	2.90%	2.90%
5330+41.08	-3.80%	3.80%	3.80%
5343+22.93	-3.80%	3.80%	3.80%
5343+57.00	-2.90%	2.90%	2.90%
5343+87.28	-2.10%	2.10%	2.10%
5344+66.78	-2.10%	0.00%	0.00%
5345+46.28	-2.10%	-2.10%	-2.10%
5345+76.57	-2.10%	-2.10%	-2.90%



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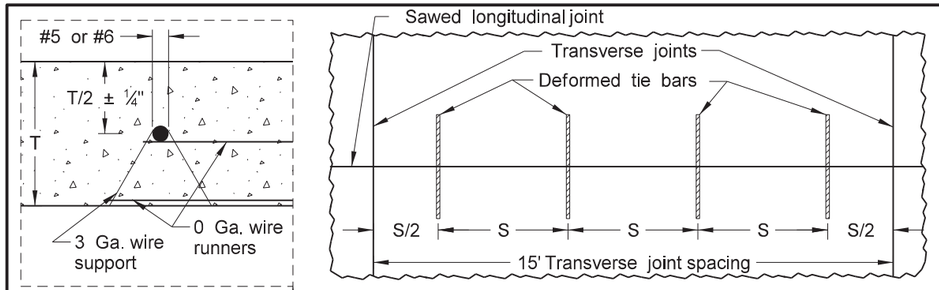
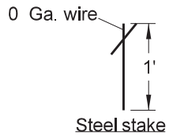
Note: Calculations based on AASHTO method five. A design speed of 75 mph and maximum superelevation of 6% were used.

Superelevation Table

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

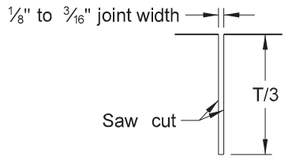
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	20	3



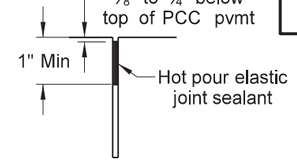


Steel stake

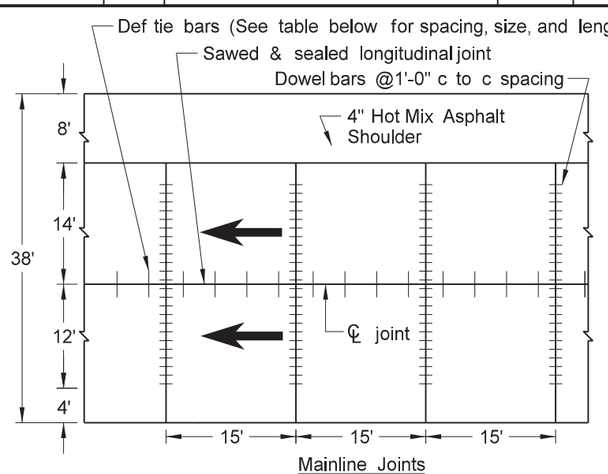
Longitudinal Tie Bar Assembly
(One unit shown)



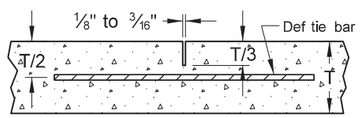
Transverse Joint Sawing



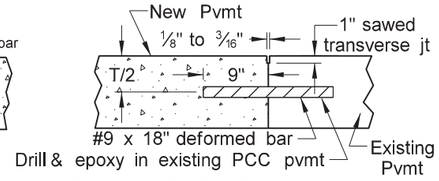
Transverse Joint Sealing



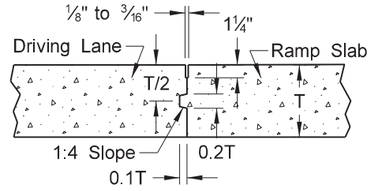
Mainline Joints
15' joint spacing



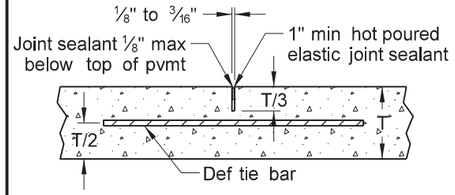
Longitudinal Joint Sawing Detail
(sawed and tied joints)



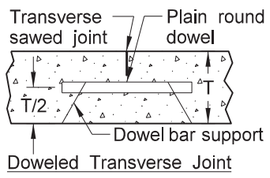
Deformed Bar Installation (2' c to c)
(Transverse Joints)



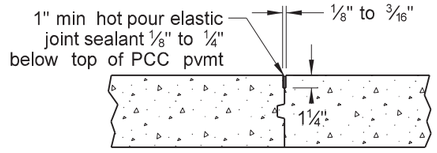
Longitudinal Joint Sawing Detail
(at ramps - non-tied keyed joints)



Longitudinal Joint Sealing Detail
(sawed and tied joints)



Doweled Transverse Joint



Longitudinal Joint Sealing Detail
(non-tied keyed joints)

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	6"	8"	8 1/2"	9"	9 1/2"	10"	10 1/2"	11"	11 1/2"	12"	12 1/2"	13"	13 1/2"	14"	14 1/2"	15"
Mainline Centerline																
Bar Size x Length (S=30")		#5 x 30"							#6 x 36"							
Bar Size x Length (S=45")		#6 x 36"								Grade 60 Required						
Ramp/Loop Centerline																
Bar Size x Length (S=30")		#4 x 24"				#5 x 30"								#6 x 36"		
Bar Size x Length (S=45")		#5 x 30"				#6 x 36"								Grade 60 Required		

Grade 60 Longitudinal Joint Tie Bars																
PCC Depth	6"	8"	8 1/2"	9"	9 1/2"	10"	10 1/2"	11"	11 1/2"	12"	12 1/2"	13"	13 1/2"	14"	14 1/2"	15"
Mainline Centerline																
Bar Size x Length (S=30")		#4 x 36"						#5 x 42"								
Bar Size x Length (S=45")		#5 x 42"								#6 x 48"						
Ramp/Loop Centerline																
Bar Size x Length (S=30")		#4 x 36"											#5 x 42"			
Bar Size x Length (S=45")		#4 x 36"				#5 x 42"								#6 x 48"		

Transverse Joint Dowel Bars

Joint Location	Dia x Length
ML	1.5" x 18"

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PCC Pavement - Perpendicular Joints@15' Spacing

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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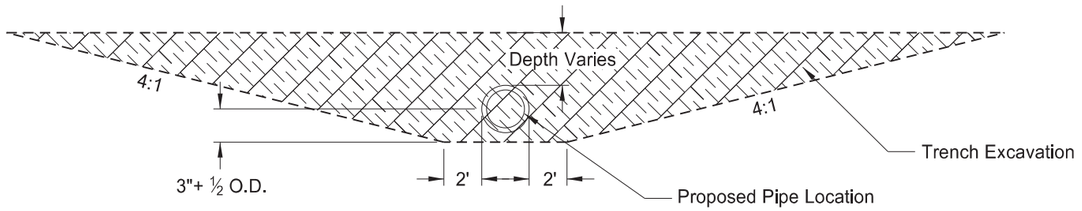
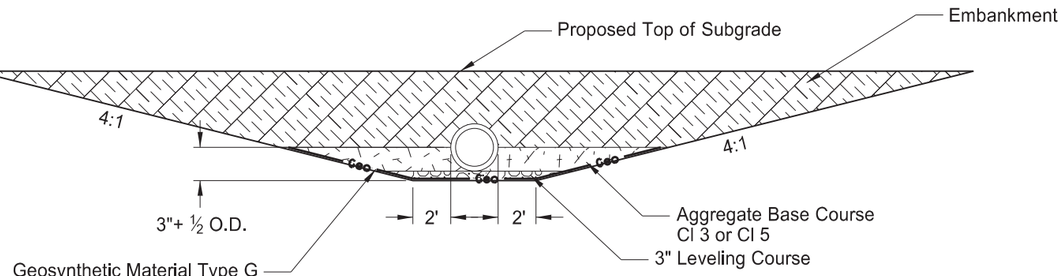
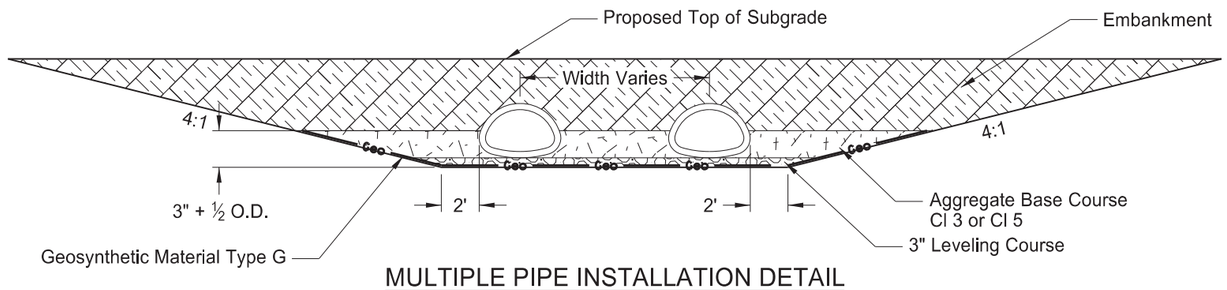


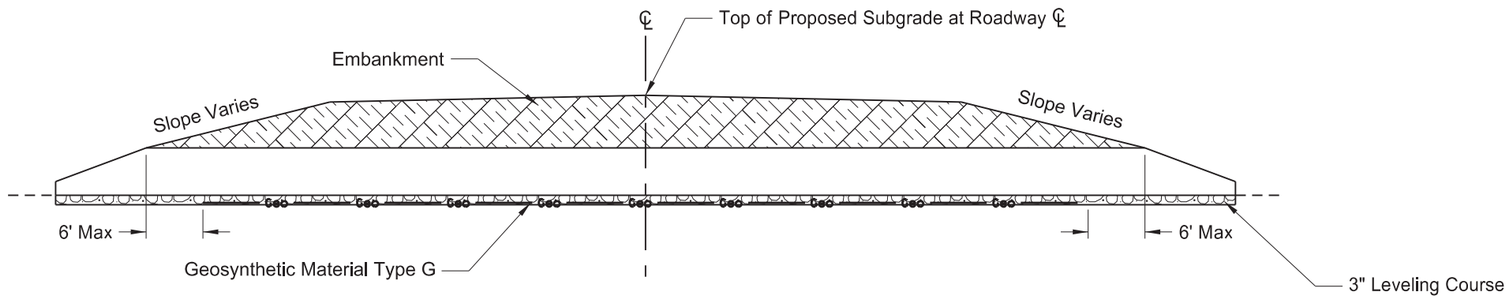
EXCAVATION DETAIL



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 3 or Cl 5 (Includes Leveling Course)
4) Embankment

NOTES:

1) Embankment is to be compaction control, Type A. Embankment material is required to be the material excavated during trench excavation (excluding any granular or bedding material that may be present around the existing pipe).
2) Omit compaction control requirements for 3" leveling course.

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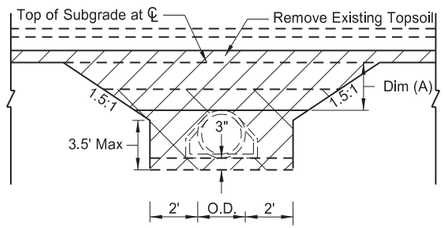
Transverse Mainline Pipe Excavation & Backfill Detail
For Single or Multiple Concrete Centerline Pipes

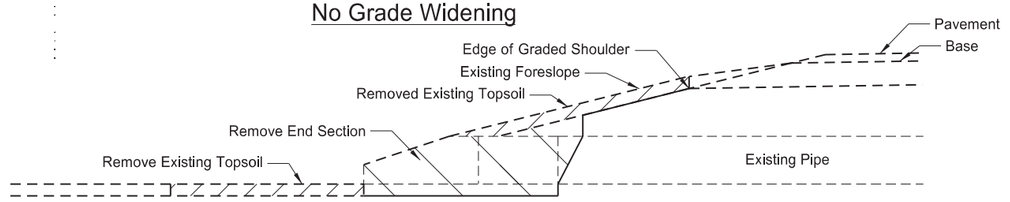
PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	5



Removal Detail

Side View

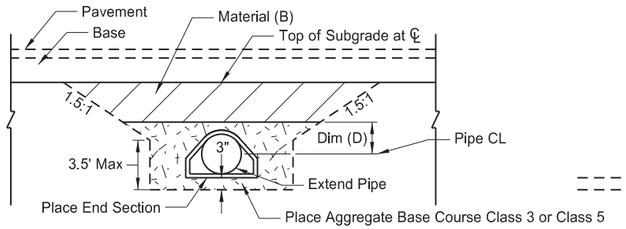


Removal Section

Cross Section View

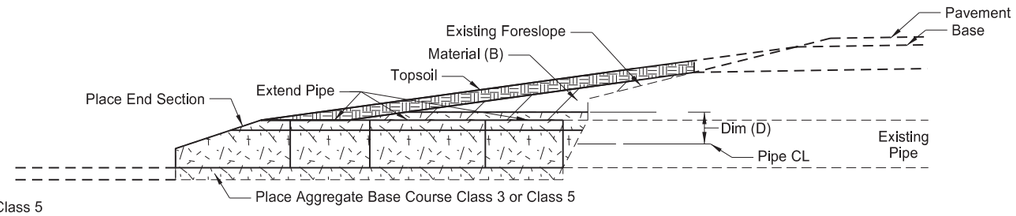
Pay Items
1) Pipe*
2) Remove & Reset End Section or
Remove End Section and Place New End Section

*Included in Pipe Pay Item
1) Pipe
2) Trench excavation
3) Aggregate Base Course Class 3 or Class 5
4) Embankment (Compaction Control Type A)



Backfill Detail

Side View (Topsoil not shown)



Proposed Section

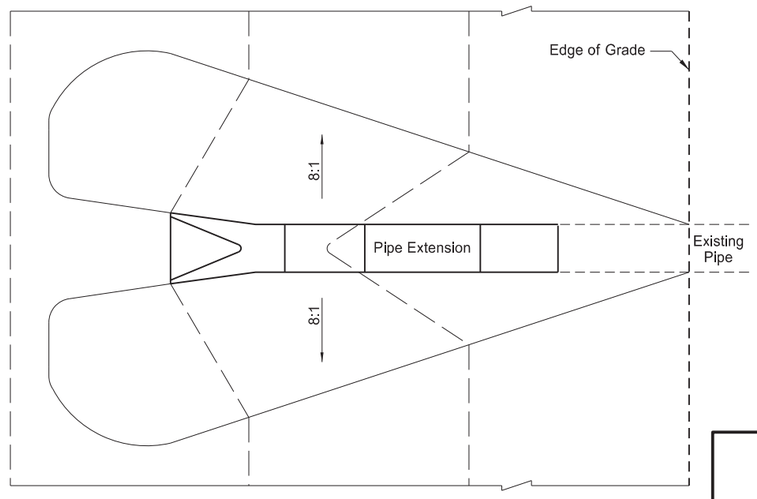
Cross Section View

Pipe Materials	Dim (A)<=4 Feet Material (B)	Backfill Dimension Dim (D)
Concrete	Embank or Aggr	0.5 O.D.
Metal	Embank or Aggr	0.5 O.D.+1 Foot

Pipe Materials	Dim (A)>4 Feet Material (B)	Backfill Dimension Dim (D)
Concrete	Embankment	0.5 O.D.
Metal	Embankment	0.5 O.D.+1 Foot

NOTES:
1. Use Common Excavation for embankment.

2. Aggregate may be either Class 3 or Class 5 Aggregate Base Course.



Proposed Section

Plan View

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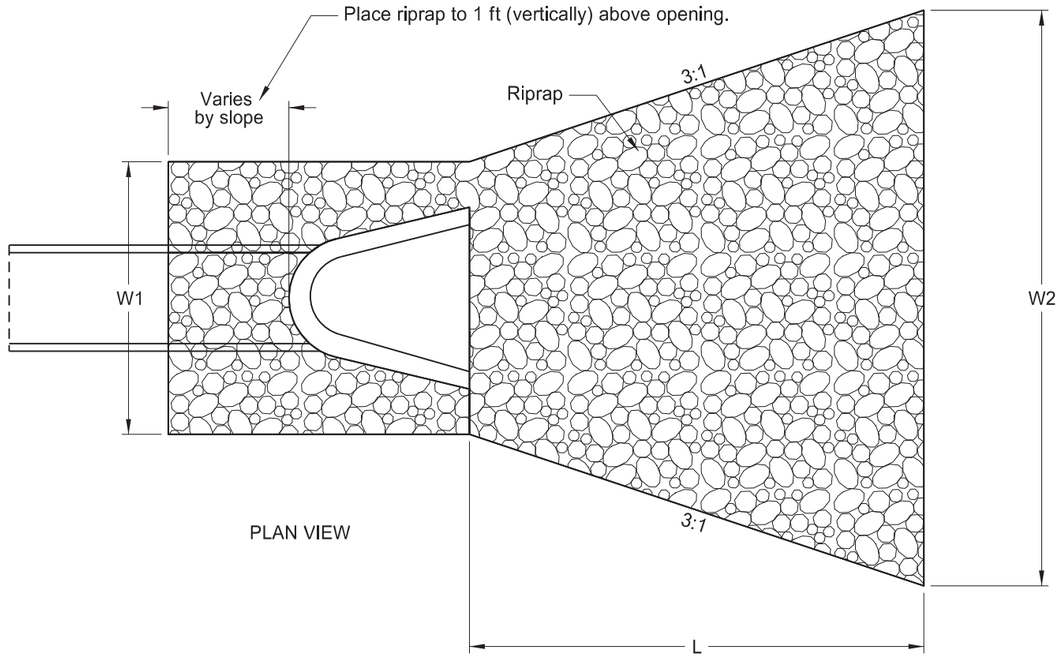
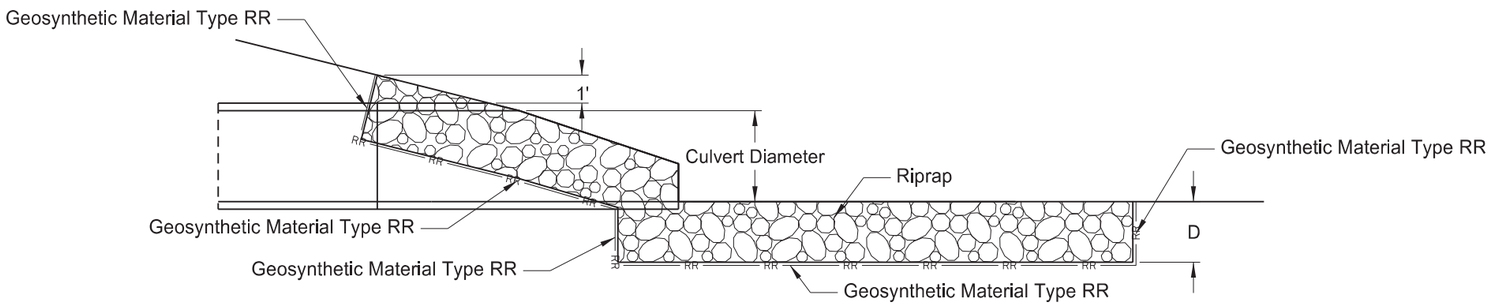
Ramp Centerline Pipe Extension Detail

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	6



PLAN VIEW



PROFILE VIEW

Location (Sta)	Dimensions: Culvert Diameter (inches)	L (feet)	W1 (feet)	W2 (feet)	Riprap Depth, D (inches)	Riprap Grade	Quantities: Geosynthetic Material Type RR (SY)	Riprap Grade I (CY)	Riprap Grade II (CY)
4749+81	66	33	16.5	39	30	I	137	114	
5353+77	Dbl 48"	28	29	48	36	II	149		149
TOTAL							286	114	149

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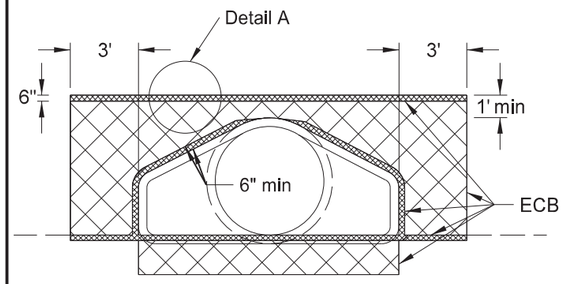
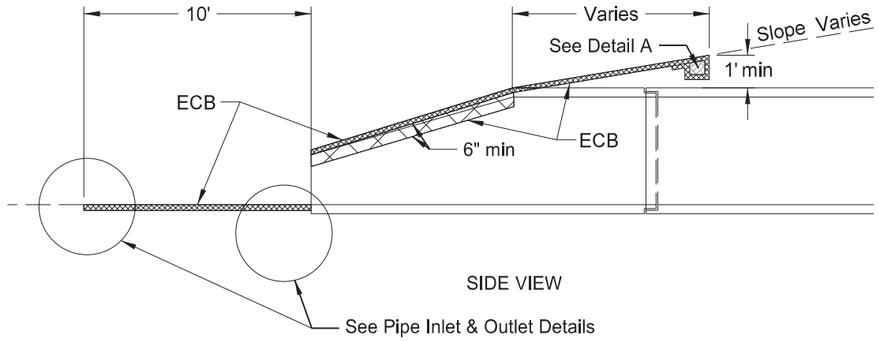
Riprap at Pipe Outlets

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

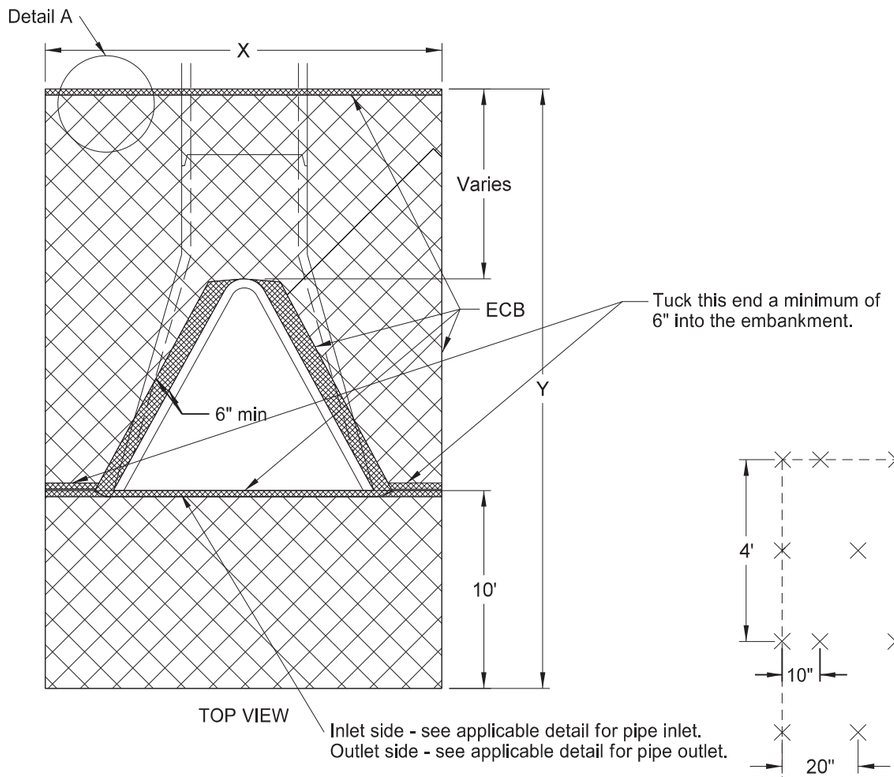
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	7



FRONT VIEW

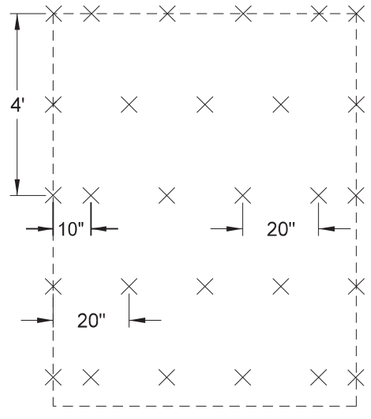


SIDE VIEW



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.

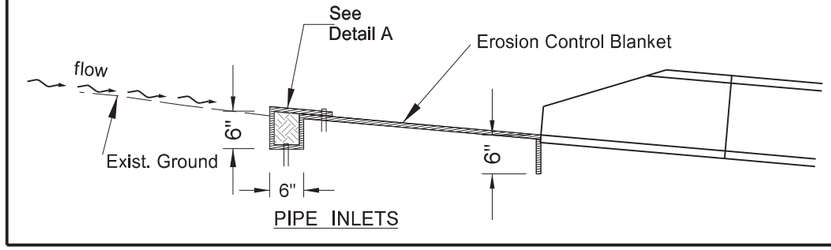


STAPLE PATTERN

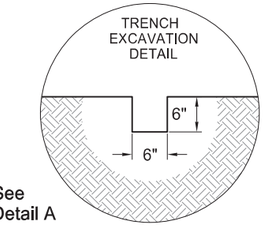
Note: All locations are shown in section 77.

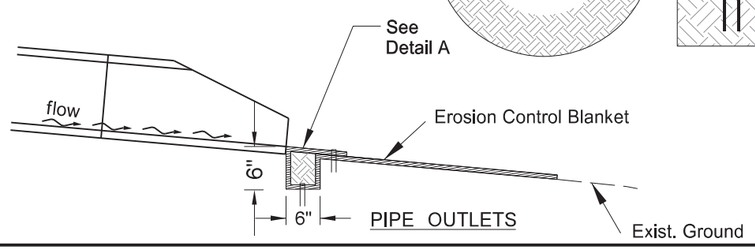
APPROACH CULVERTS				
DIA	X	Y	Surface area to be protected	ECB
In	Ft	Ft	SF	SY
15	9.0	20.0	176.0	20
18	9.5	20.7	190.7	22
21	9.5	21.0	190.9	22
24	10.5	21.6	214.1	24
27	11.0	22.0	226.3	25
30	11.6	22.5	241.5	27
36	12.7	23.3	268.8	30
42	13.3	23.3	279.7	31
48	13.8	24.0	293.2	33
54	14.5	23.4	300.6	34
60	15.0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

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.				

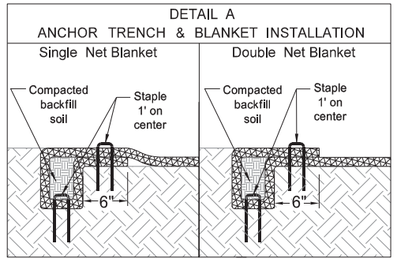


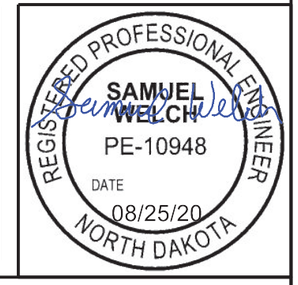
PIPE INLETS





PIPE OUTLETS



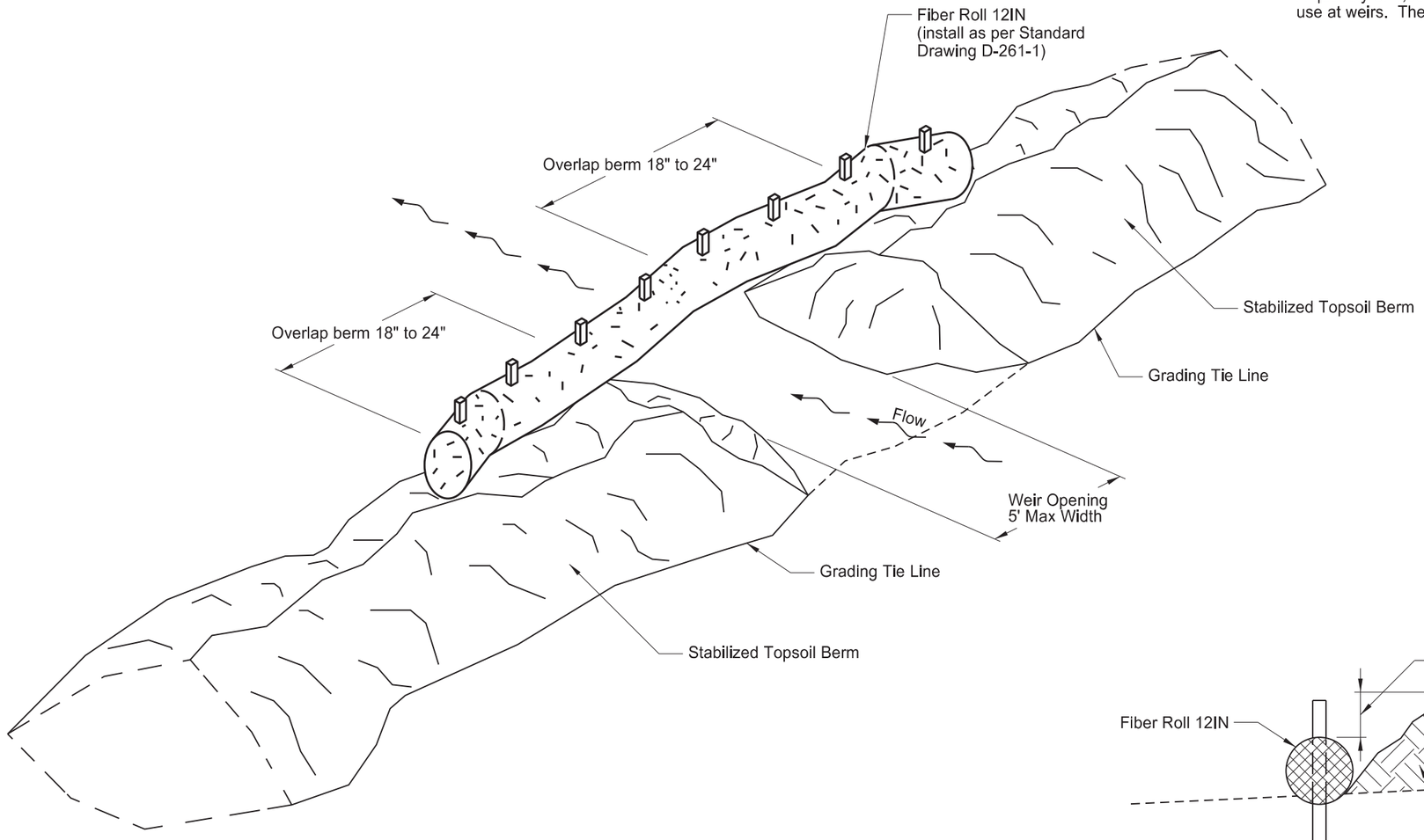


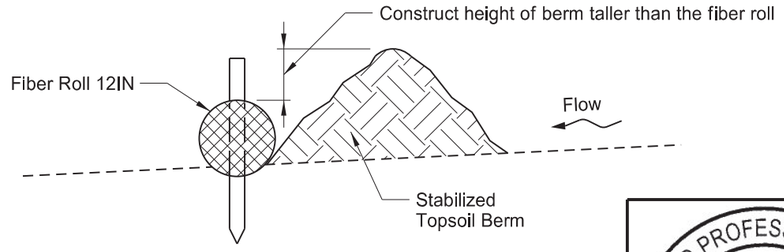
Erosion Control at Culvert Flared End Sections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	8

A quantity of 1,000 LF of Fiber Roll 12 IN has 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. Include costs to create, stabilize, maintain, and dismantle the berm in the unit price bid for "Topsoil".
7. Include costs for fiber rolls in the unit price bid for "Fiber Rolls 12IN".

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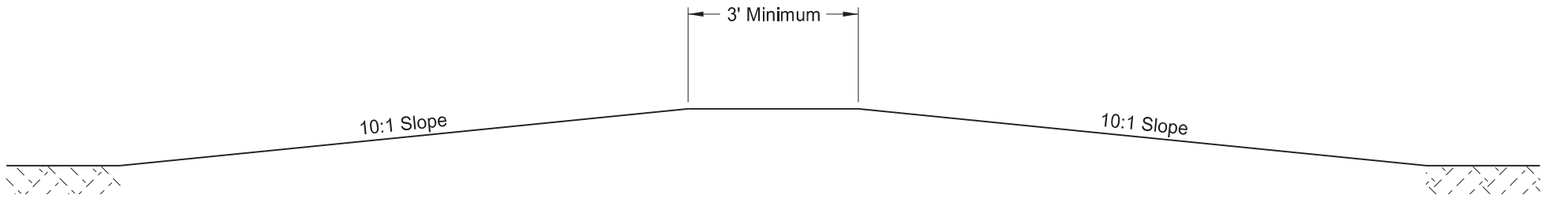
DATE
08/25/20
NORTH DAKOTA

Temporary Topsoil Berm and Weir Detail

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	9



New Ditch Block Detail

DITCH BLOCK

Location	Top Elevation
4698+66 - 135' Rt	891.4
4748+89 - 162' Rt	890.8
4749+87 - 0' Rt	892.6
4750+80 - 148' Rt	891.0
4778+68 - 135' Rt	891.2
4803+88 - 145' Rt	892.3
4976+18 - 134' Rt	893.9
4998+64 - 144' Rt	893.0
5026+05 - 164' Rt	893.7
5027+36 - 146' Rt	894.5
5040+70 - 147' Rt	893.8
5081+15 - 124' Rt	894.6
5230+22 - 0' Rt	904.7
5354+33 - 0' Rt	902.2

Note: Include the cost of the 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.

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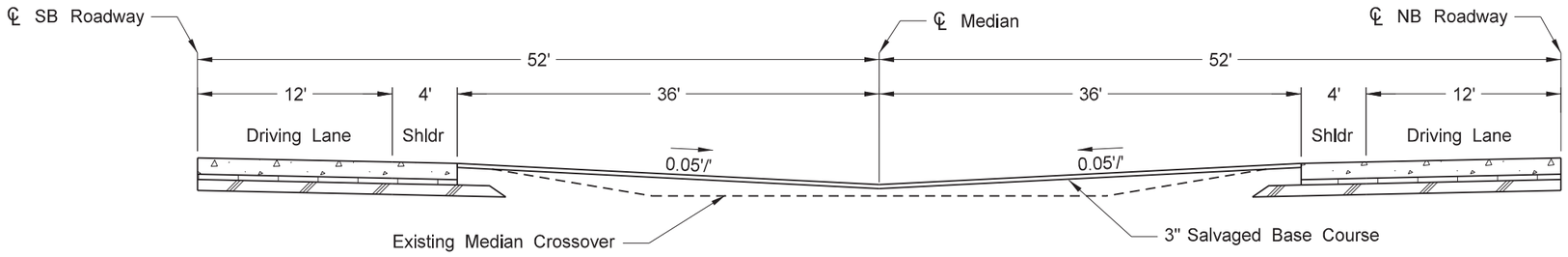
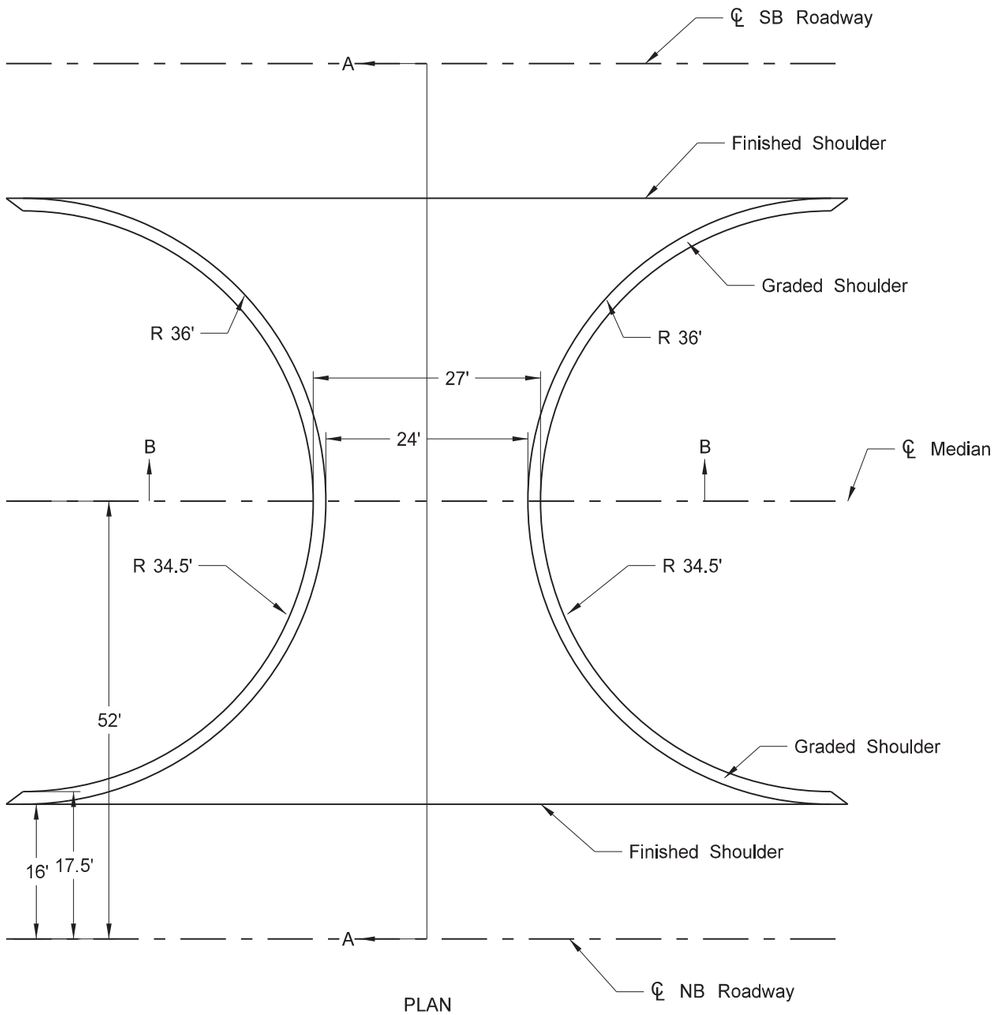
Ditch Block Detail

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

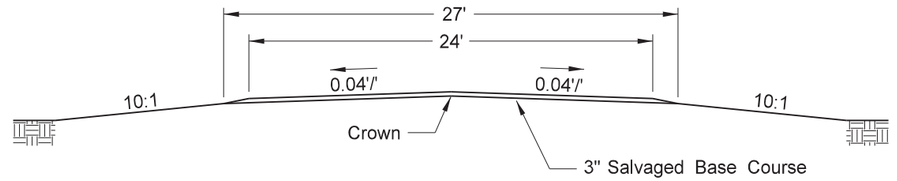
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	10



SECTION A-A



PLAN



SECTION B-B

SPEC	CODE	BID ITEM	UNIT	QUANTITY
302	0101	SALVAGED BASE COURSE		
		Sta 4834+64 (RP 91.562)	CY	14
		Sta 4934+88 (RP 93.459)	CY	14
		Sta 5026+97 (RP 95.204)	CY	14
		Sta 5096+90 (RP 96.528)	CY	16
		Sta 5177+25 (RP 98.048)	CY	14
		Sta 5248+78 (RP 99.407)	CY	14

Note: The cost of the labor, equipment and materials to install emergency median crossovers except for the salvaged base course will be included in the price bid for "Common Excavation Type - A." See Seciton 60 for construction limits of each Emergency Median Crossover.

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Emergency Median Crossover

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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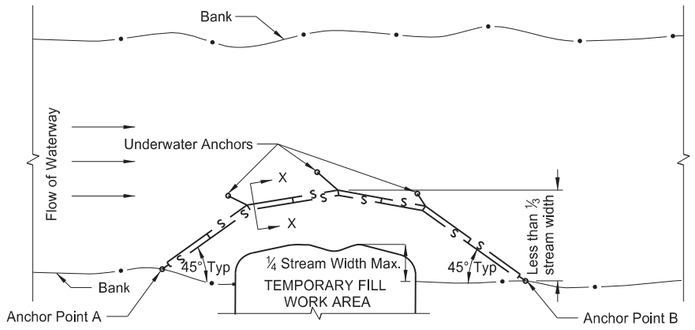
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	20	11

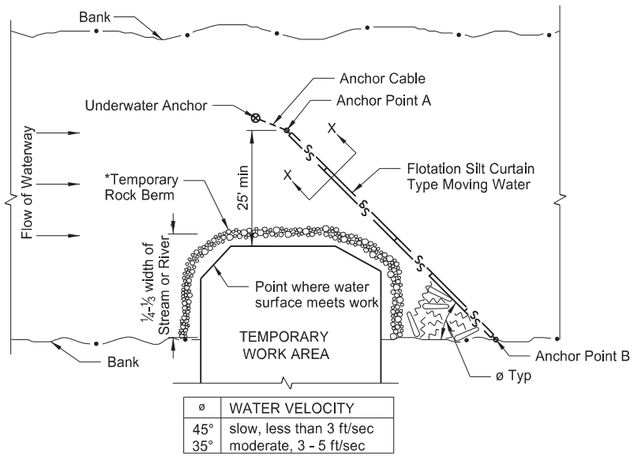
TYPICAL INSTALLATIONS
May vary with conditions



PLAN VIEW

FLOTATION SILT CURTAIN - TYPE WORK AREA

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



ø	WATER VELOCITY
45°	slow, less than 3 ft/sec
35°	moderate, 3 - 5 ft/sec

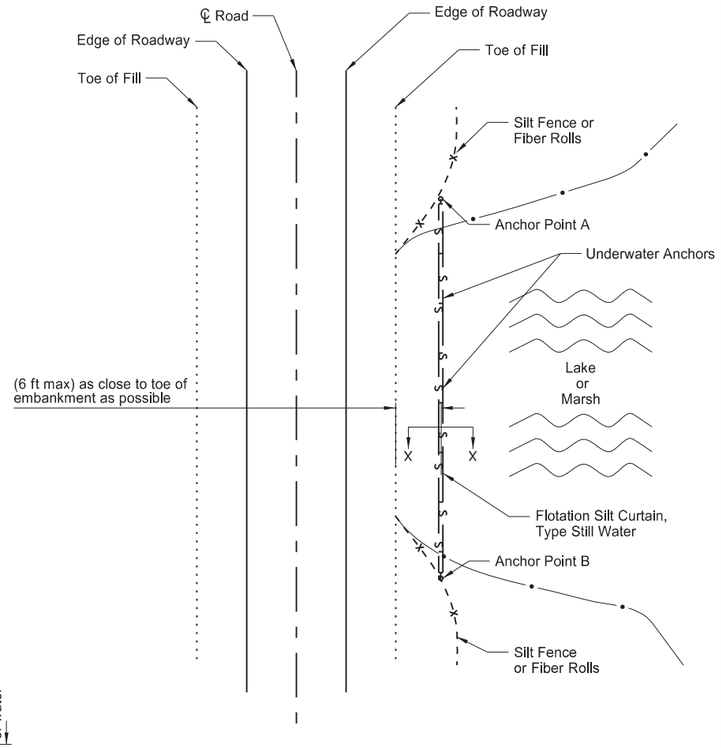
PLAN VIEW

FLOTATION SILT CURTAIN - TYPE MOVING WATER

DESIGN GUIDELINES:
When temporary work encroaches more than ¼ but less than ⅓ width of the stream.

For narrow waterways, the curtain may be placed 1 foot above the bottom of waterway to allow water flow.

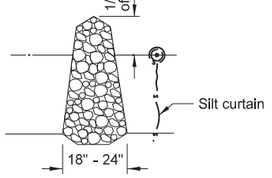
*In areas where the plans call for riprap at the bridge, provide a temporary rock berm. Include all costs for the temporary rock berm in price bid for the "Riprap".



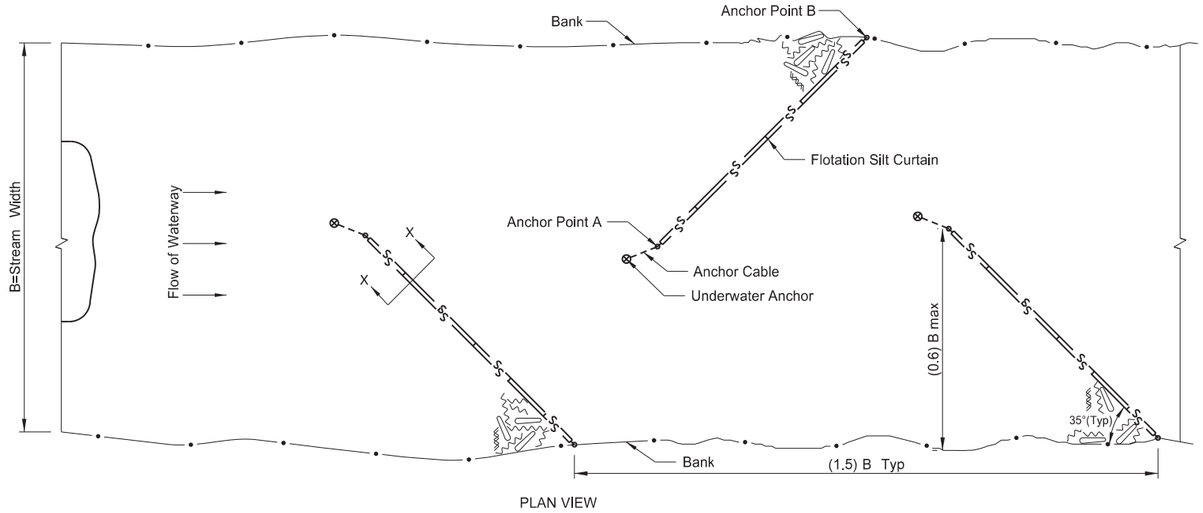
PLAN VIEW

FLOTATION SILT CURTAIN - TYPE STILL WATER

Extend silt curtain onto shore and anchor there also.



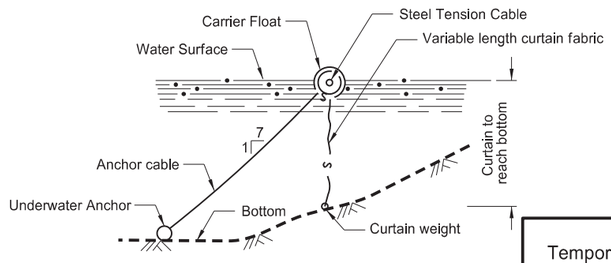
TEMPORARY ROCK BERM



PLAN VIEW

FLOTATION SILT CURTAIN - TYPE HERRING BONE PATTERN

DESIGN GUIDELINES:
When temporary work encroaches more than ⅓ width of the stream
Or where stream width doesn't allow use of Type Moving Water



SECTION X-X
FLOTATION SILT CURTAINS

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

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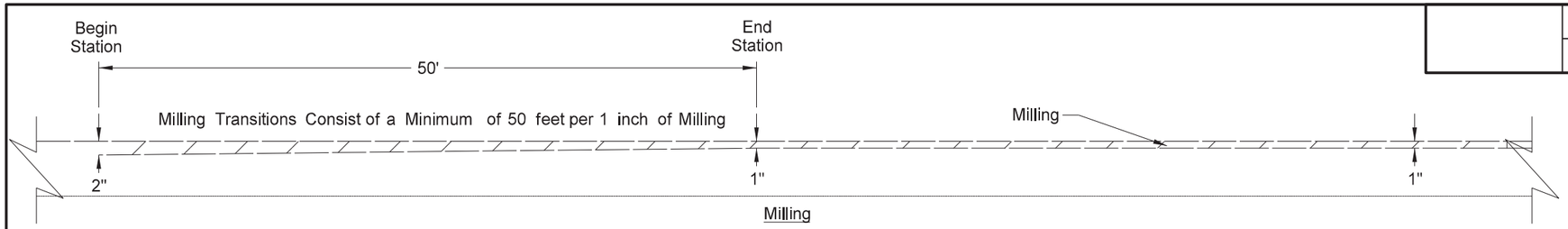
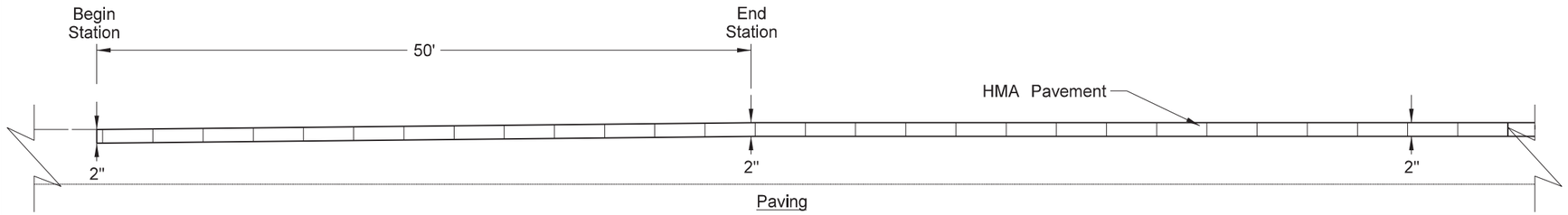
Temporary Erosion Control - Flotation Silt Curtain

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

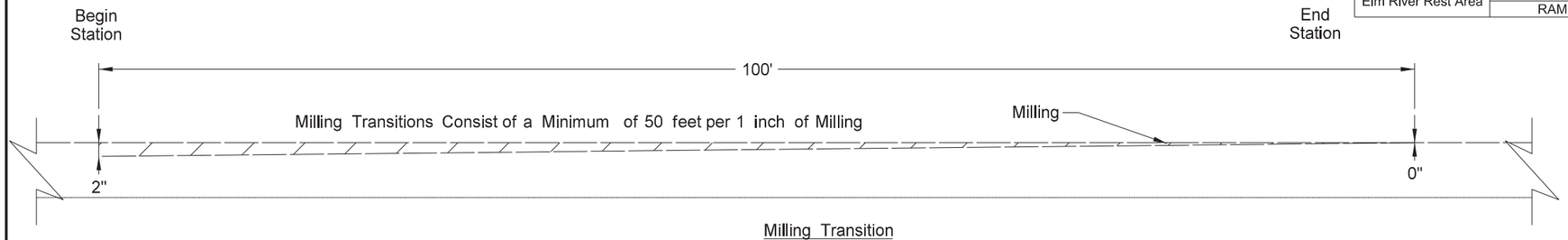
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	20	12

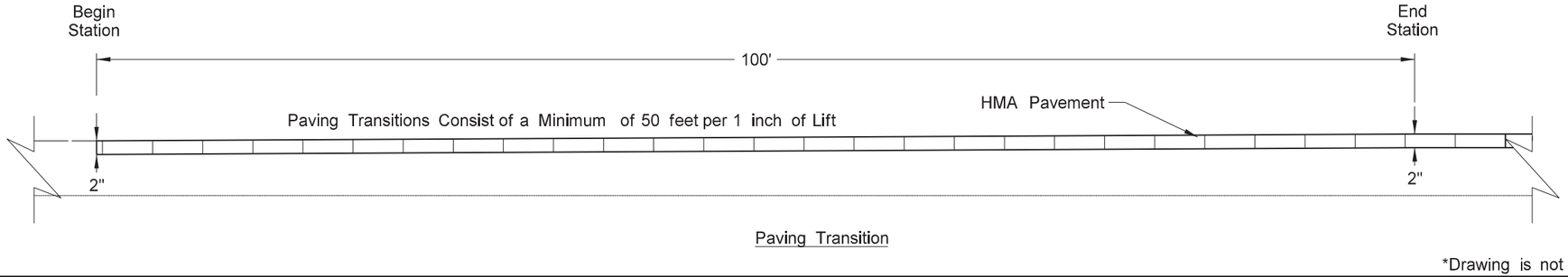




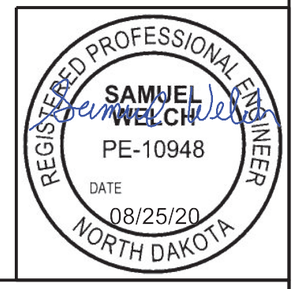
Location	Alignment	Begin Station	End Station
Hunter Separation	OCL_15TH_ST_SE	103+86	104+36
	OCL_15TH_ST_SE	107+54	107+04
	OCL_15TH_ST_SE	110+19	110+69
	OCL_15TH_ST_SE	113+89	113+39
Grandin Interchange Ramps and Crossroad	RAMP_RP92.14_SE	10+10	10+60
	OCL_12TH_ST_SE	123+90	124+40
	OCL_12TH_ST_SE	128+10	127+60
	OCL_12TH_ST_SE	131+30	131+80
	OCL_12TH_ST_SE	136+40	135+90
	RAMP_RP92.14_NE	9+20	8+70
Galesburg Separation	OCL_10TH_ST_SE	163+26	163+76
	OCL_10TH_ST_SE	167+07	166+57
	OCL_10TH_ST_SE	169+72	170+22
	OCL_10TH_ST_SE	173+53	173+03
Kelso Separation	OCL_7TH_ST_SE	169+01	169+51
	OCL_7TH_ST_SE	172+54	172+04
	OCL_7TH_ST_SE	175+54	176+04
	OCL_7TH_ST_SE	179+07	178+57

Location	Alignment	Begin Station	End Station
Elm River Rest Area	RAMP_RP99_NB	12+00	13+00
	RAMP_RP99_NB	30+32	29+32





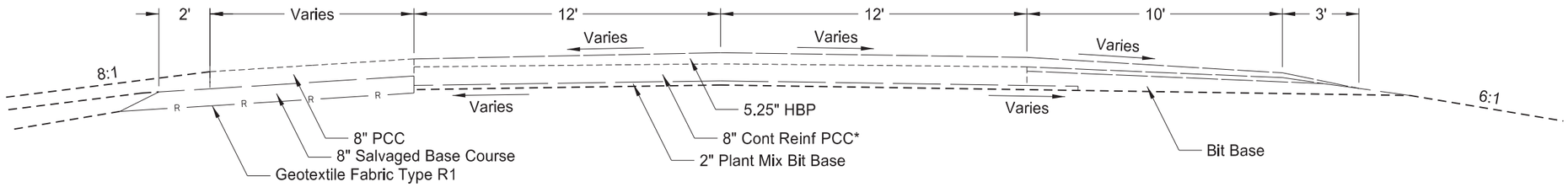
*Drawing is not to scale.



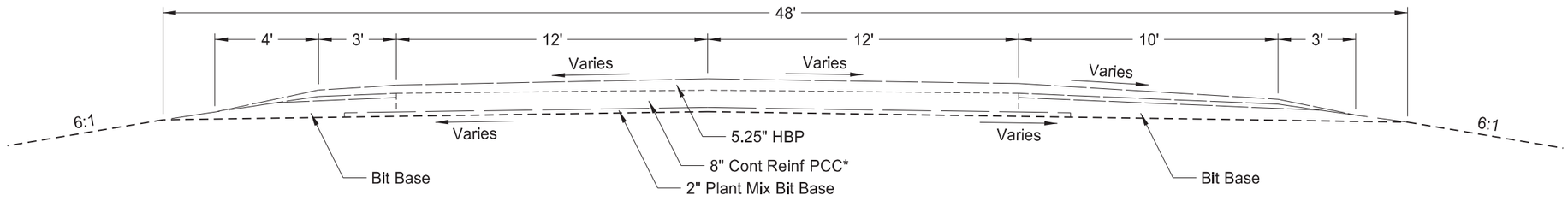
Milling and Paving End Transitions
Ramps & Separations

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

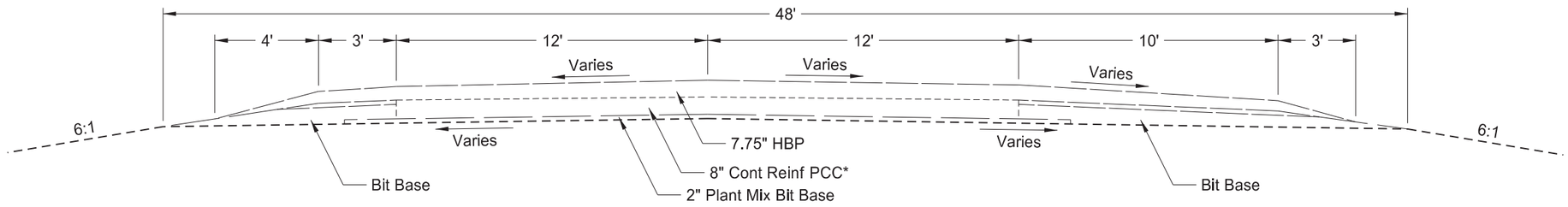
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	1



NB - Existing Typical Mainline - Tangent 1
Sta 4660+65 to Sta 4666+74



NB - Existing Typical Mainline - Tangent 2
Sta 4666+74 to Sta 4682+77
Sta 4693+49 to Sta 4712+14
Sta 4726+18 to Sta 4790+36
Sta 4808+12 to Sta 4828+99
Sta 4853+00 to Sta 4859+48
Sta 4876+07 to Sta 4892+66
Sta 4894+36 to Sta 4905+18
Sta 4924+51 to Sta 4994+07
Sta 5007+64 to Sta 5103+33
Sta 5119+36 to Sta 5191+23
Sta 5205+25 to Sta 5209+91
Sta 5232+75 to Sta 5248+18



NB - Existing Typical Mainline - Tangent 3
Sta 4859+48 to Sta 4876+07

Note: Actual depths may vary.
Note: See Typical Sheets 6 & 7 for existing NB ramp connections.
*See the supplemental data for reinforcement details.

REGISTERED PROFESSIONAL ENGINEER
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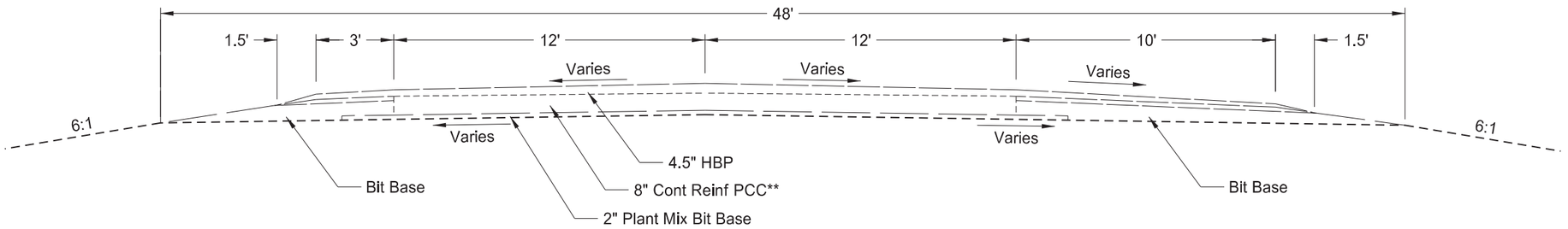
DATE
08/25/20
NORTH DAKOTA

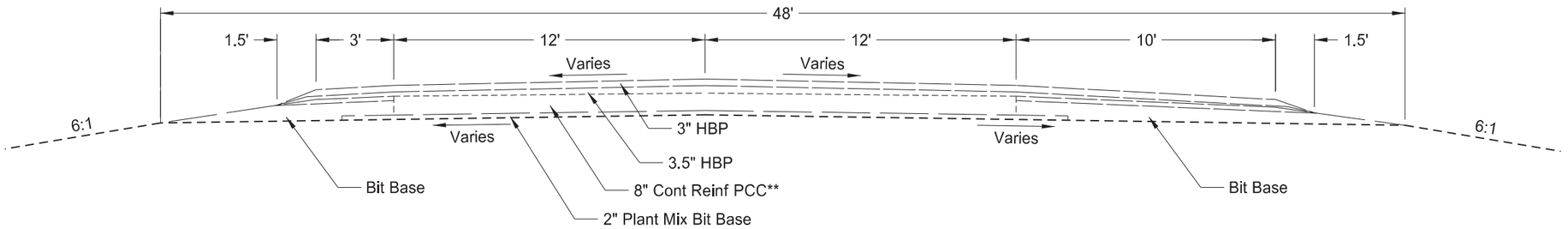
Existing Typical Sections
Tangent 1 to 3

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

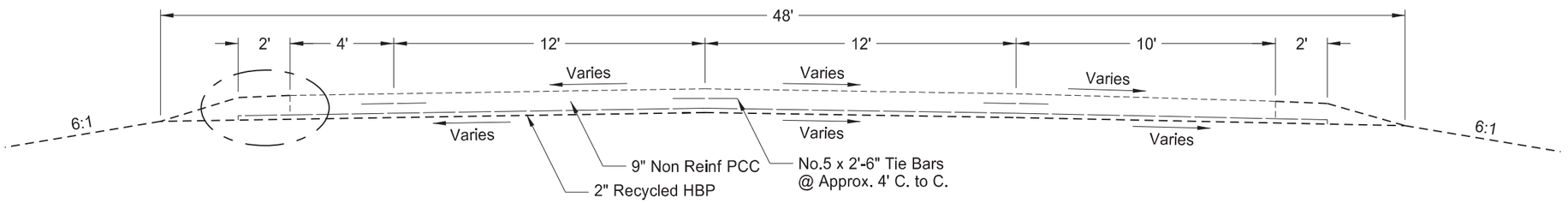
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	2



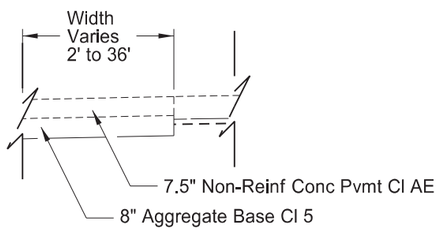
NB - Existing Typical Mainline - Tangent 4
Sta 5248+18 to Sta 5257+86



NB - Existing Typical Mainline - Tangent 5
Sta 5257+86 to Sta 5293+27



NB - Existing Typical Mainline - Tangent 6
Sta 5293+27 to Sta 5360+65*



NB Double Median Crossover
Sta 5355+22 to Sta 5360+65

*Existing 3% superlevated LT curve from PC Sta. 5329+93 to PT Sta. 5343+71 included in station range.

Note: Actual depths may vary.

Note: See Typical Sheets 6 & 7 for existing NB ramp connections.

**See the supplemental data for reinforcement details.

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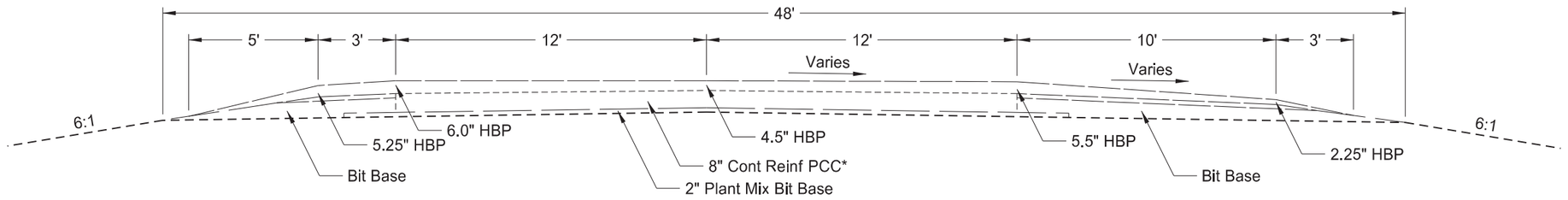
DATE
08/25/20
NORTH DAKOTA

Existing Typical Sections
Tangent 4 to 6

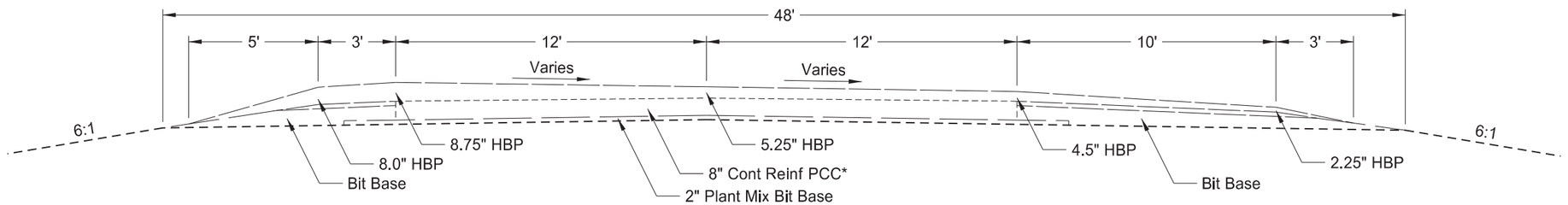
PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	3



NB - Existing Typical Mainline - Curve 1

TS	ST
Sta 4682+77 to Sta 4693+49	
PC	**PT**
Sta 4712+14 to Sta 4726+18	
Sta 4790+36 to Sta 4808+12	
Sta 4905+18 to Sta 4924+51	
Sta 4994+07 to Sta 5007+64	
Sta 5103+33 to Sta 5119+36	
Sta 5209+91 to Sta 5232+75	



NB - Existing Typical Mainline - Curve 2

PC	PT
Sta 4828+99 to Sta 4853+00	
Sta 5191+23 to Sta 5205+25	

Note: Actual depths may vary.

*See the supplemental data for reinforcement details.

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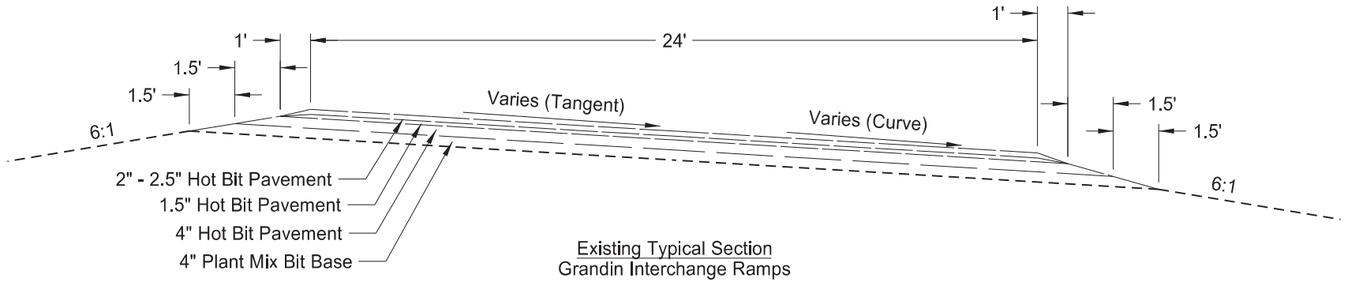
NORTH DAKOTA

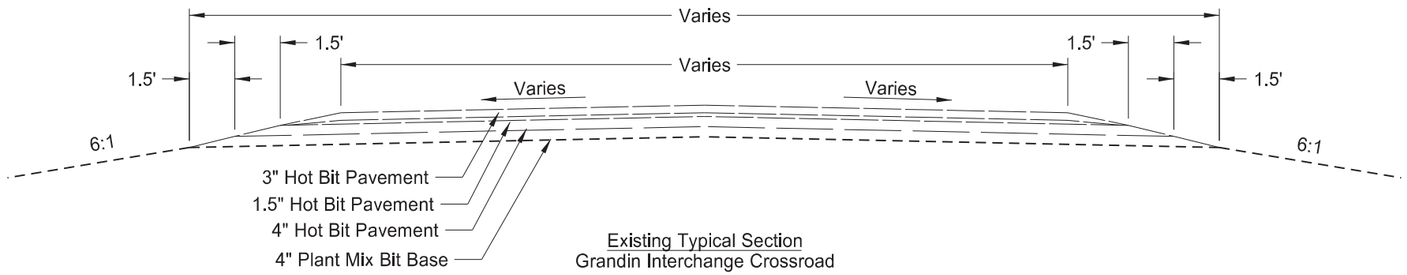
Existing Typical Sections
Horizontal Curves

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

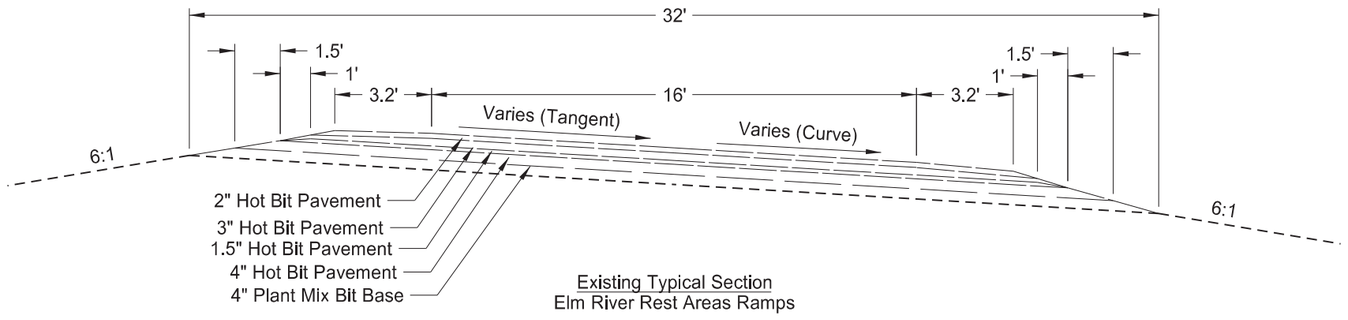
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	4



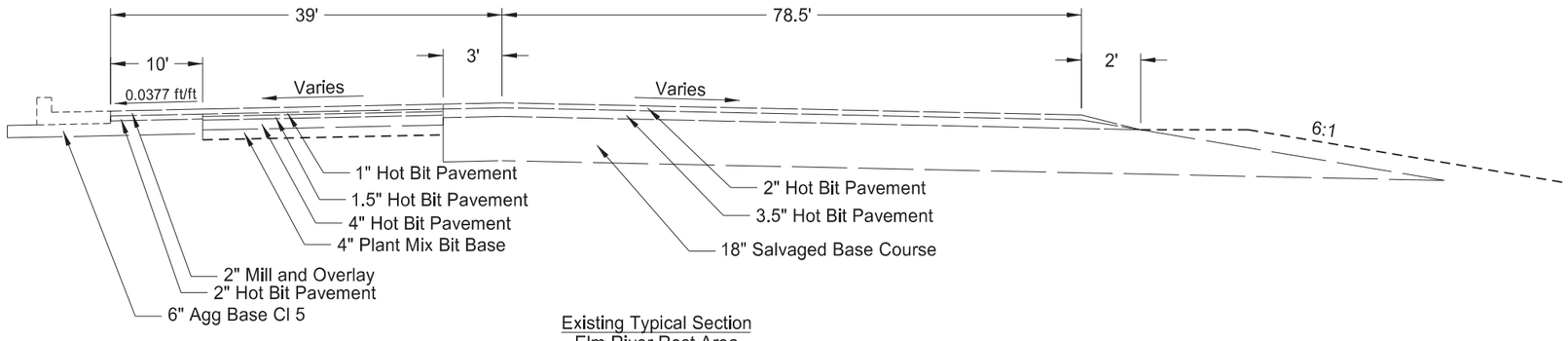
Existing Typical Section
Grandin Interchange Ramps



Existing Typical Section
Grandin Interchange Crossroad



Existing Typical Section
Elm River Rest Areas Ramps



Existing Typical Section
Elm River Rest Area

Note: Actual depths may vary.

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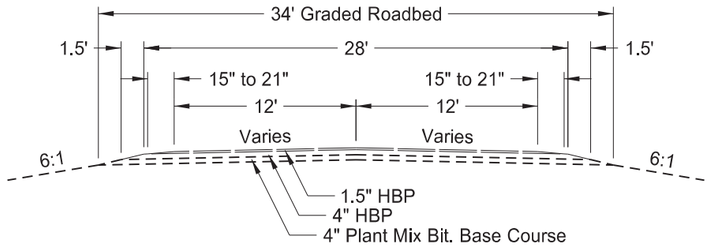
DATE
08/25/20
NORTH DAKOTA

Existing Typical Sections
Grandin Interchange and Elm River Rest Area

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	5



Hunter Separation
OCL_15TH_ST_SE
103+86 to 107+54
110+19 to 113+89

Galesburg Separation
OCL_10TH_ST_SE
163+26 to 167+07
169+72 to 173+53

Kelso Separation
OCL_7TH_ST_SE
169+01 to 172+54
175+54 to 179+07

Note: Actual depths may vary.

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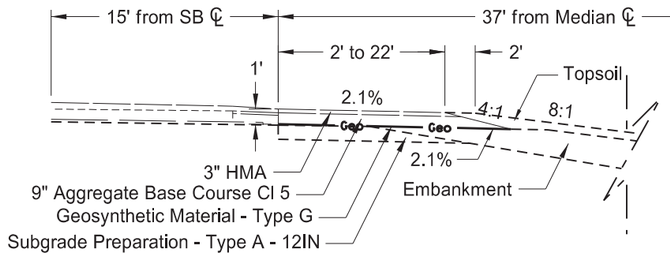
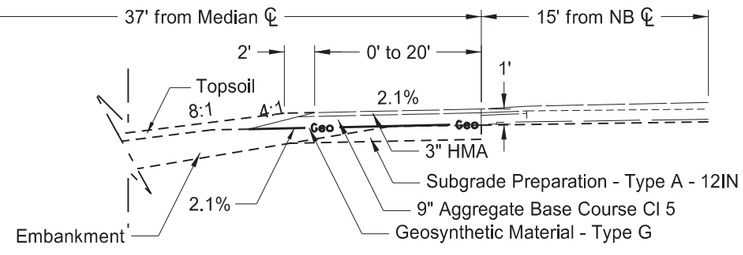
Existing Typical Sections
Hunter, Galesburg, & Kelso Separations

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

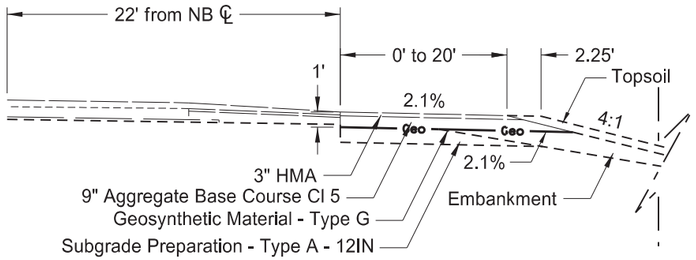
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	6



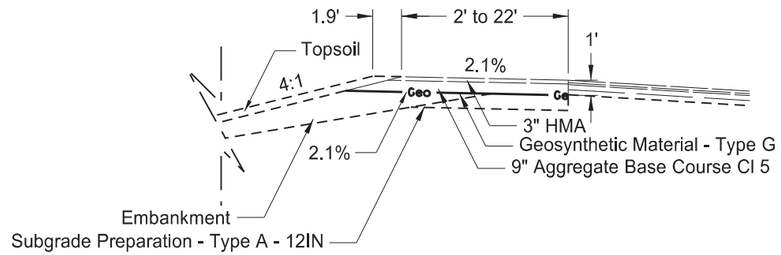
Existing Typical Section - Southbound Median Shoulder
Sta 0+00 to Sta 7+06 (GSE Alignment)
Sta 9+54 to Sta 19+04 (GNE Alignment)



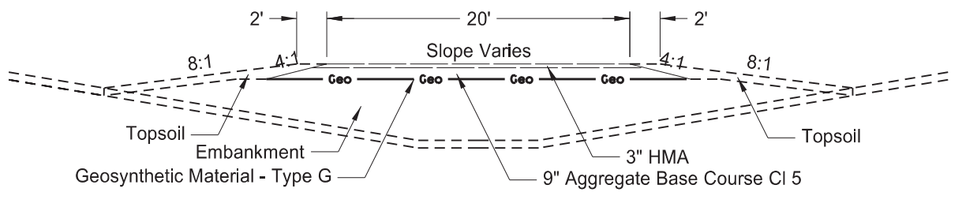
Existing Typical Section - Northbound Median Shoulder
Sta 10+16 to Sta 10+80 (GSE Alignment)
Sta 4+81 to Sta 5+48 (GNE Alignment)



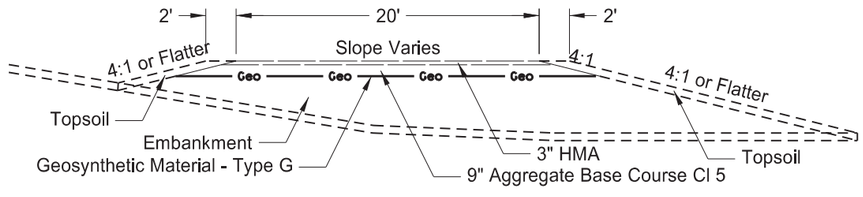
Existing Typical Section - Northbound Outside Shoulder
Sta 11+34 to Sta 11+85 (GSE Alignment)
Sta 3+75 to Sta 4+26 (GNE Alignment)



Existing Typical Section - Existing Ramps
Sta 13+85 to Sta 15+32 (GSE Alignment)
Sta 0+75 to Sta 2+40 (GNE Alignment)



Existing Ramp Connection Typical in the Median
Sta 7+06 to Sta 10+16 (GSE Alignment)
Sta 5+48 to Sta 9+54 (GNE Alignment)



Existing Ramp Connection Typical in the Existing Ramp Area
Sta 11+85 to Sta 13+85 (GSE Alignment)
Sta 2+40 to Sta 3+75 (GNE Alignment)

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
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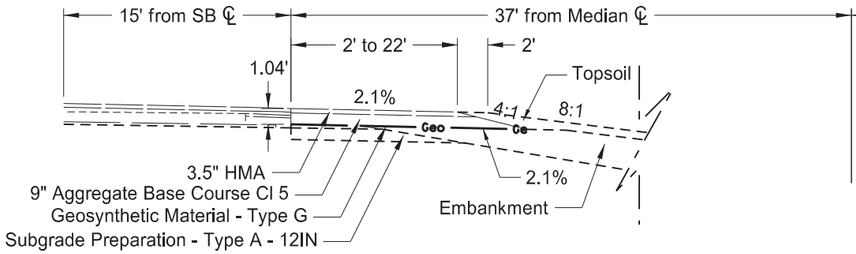
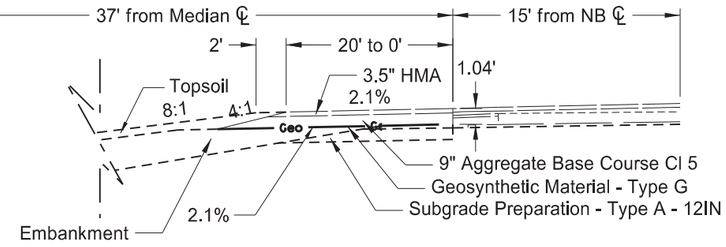
Existing Typical Sections
Grandin Temporary Ramp Connections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

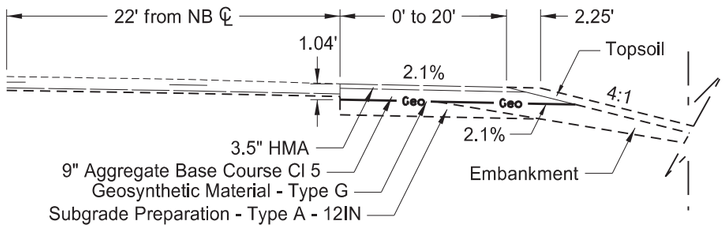
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	7



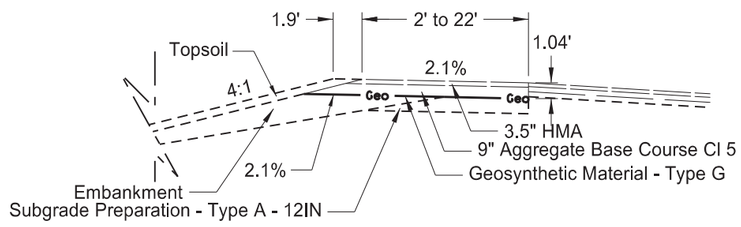
Existing Typical Section - Southbound Median Shoulder
Sta 0+00 to Sta 7+03 (BSE Alignment)



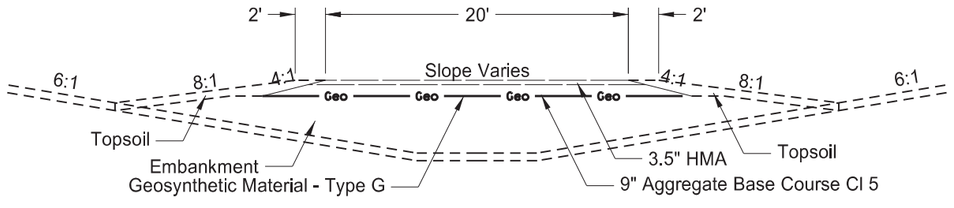
Existing Typical Section - Northbound Median Shoulder
Sta 10+05 to Sta 10+66 (BSE Alignment)



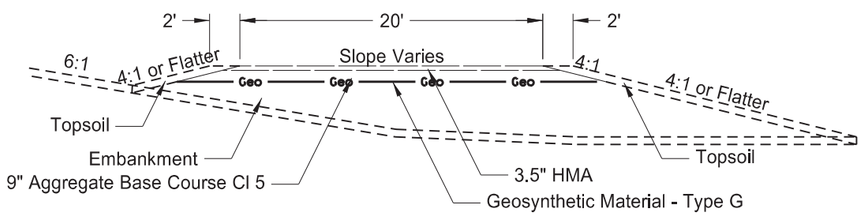
Existing Typical Section - Northbound Outside Shoulder
Sta 11+23 to Sta 11+73 (BSE Alignment)
Sta 3+84 to Sta 4+35 (BNE Alignment)



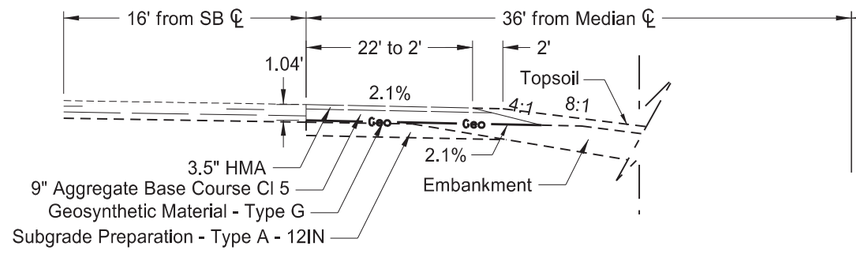
Existing Typical Section - Existing Ramps
Sta 13+84 to Sta 15+42 (BSE Alignment)
Sta 1+00 to Sta 2+60 (BNE Alignment)



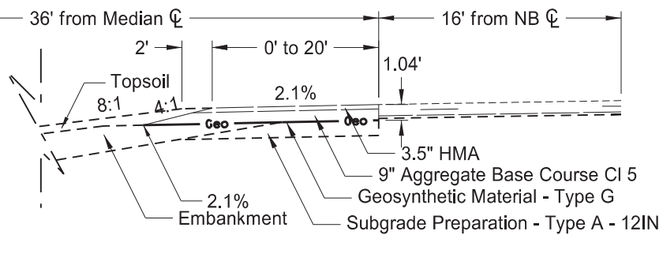
Existing Ramp Connection Typical in the Median
Sta 7+03 to Sta 10+05 (BSE Alignment)
Sta 5+60 to Sta 9+09 (BNE Alignment)



Existing Ramp Connection Typical in the Existing Ramp Area
Sta 11+73 to Sta 13+84 BSE Alignment)
Sta 2+60 to Sta 3+84 (BNE Alignment)



Existing Typical Section - Southbound Median Shoulder
Sta 9+09 to Sta 19+14 (BNE Alignment)



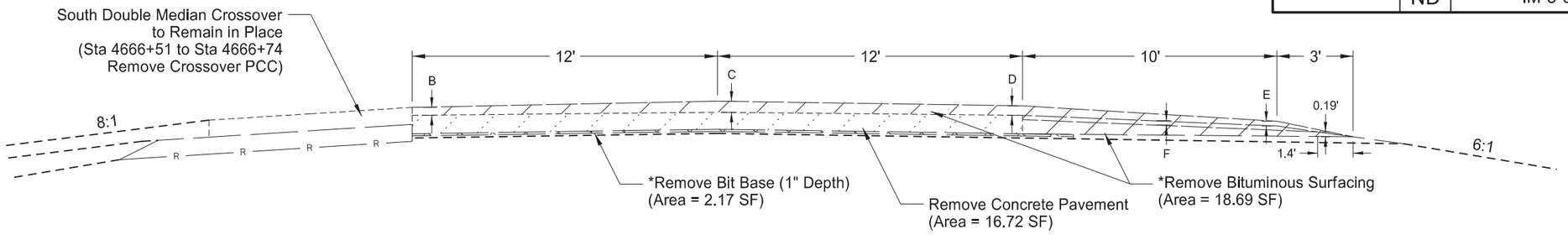
Existing Typical Section - Northbound Median Shoulder
Sta 4+94 to Sta 5+60 (BNE Alignment)



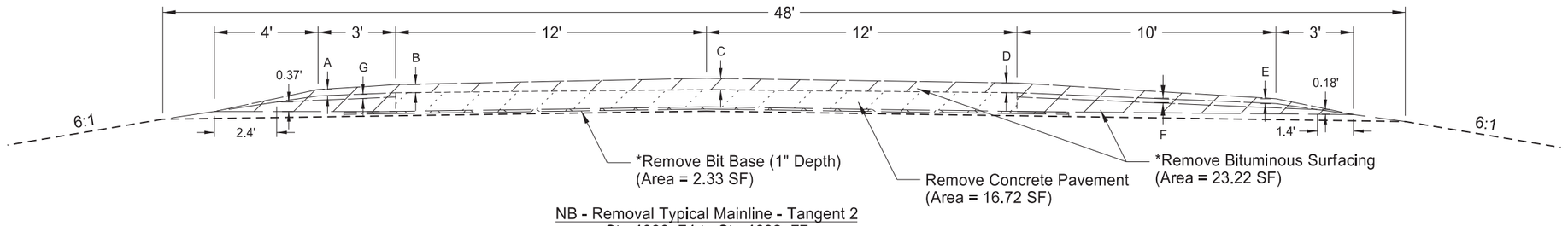
Existing Typical Sections
Blanchard Temporary Ramp Connections

PCC Pavement Reconsturction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	8

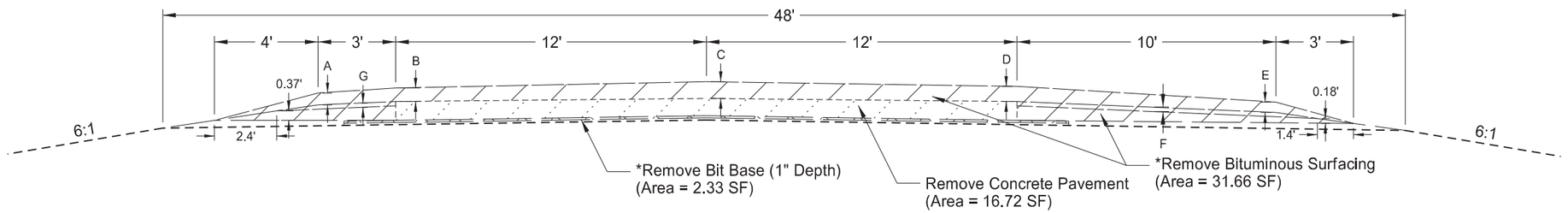


NB - Removal Typical Mainline - Tangent 1
Sta 4660+65 to Sta 4666+74



NB - Removal Typical Mainline - Tangent 2
Sta 4666+74 to Sta 4682+77
Sta 4693+49 to Sta 4712+14
Sta 4726+18 to Sta 4790+36
Sta 4808+12 to Sta 4828+99
Sta 4853+00 to Sta 4859+48
Sta 4876+07 to Sta 4892+66
Sta 4894+36 to Sta 4905+18
Sta 4924+51 to Sta 4994+07
Sta 5007+64 to Sta 5103+33
Sta 5119+36 to Sta 5191+23
Sta 5205+25 to Sta 5209+91
Sta 5232+75 to Sta 5248+18

LOCATIONS	Asphalt Depth Variables (inches)						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"
NB - Removal Typical Mainline - Tangent 1	0	3.75	5.25	4.5	2.25	2	0
NB - Removal Typical Mainline - Tangent 2	3	3.75	5.25	4.5	2.25	2	2
NB - Removal Typical Mainline - Tangent 3	5.5	6.25	7.75	7	4.75	2	2



NB - Removal Typical Mainline - Tangent 3
Sta 4859+48 to Sta 4876+07

Note: Actual depths may vary.

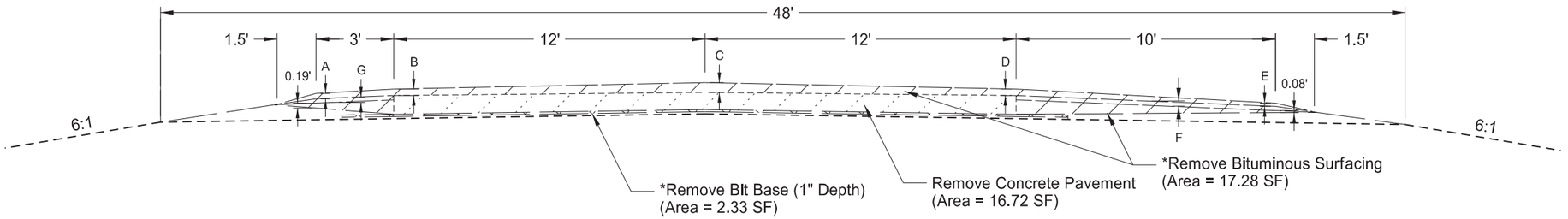
*Removal to be included in the bid item "Remove Aggregate Base & Surfacing."

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

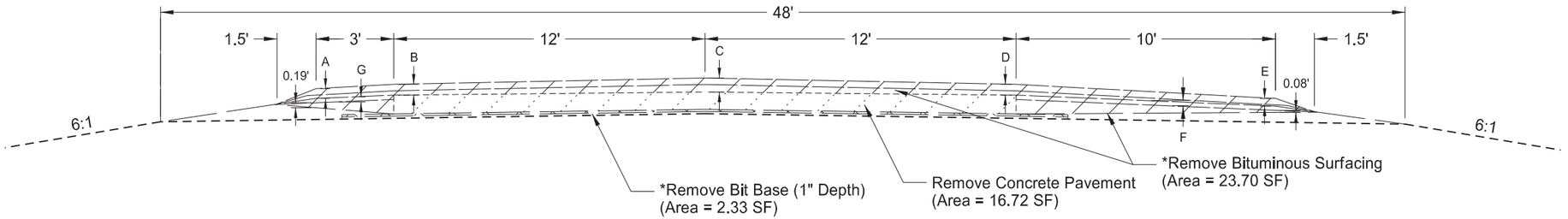
Removal Typical Sections
Tangent 1 to 3

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

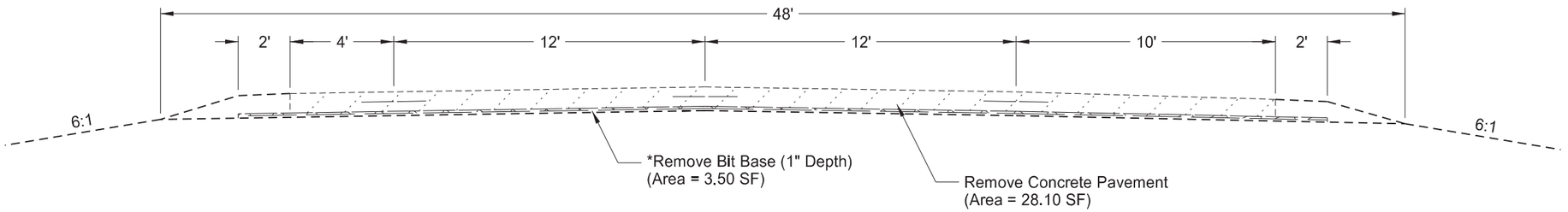
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	9



NB - Removal Typical Mainline - Tangent 4
Sta 5248+18 to Sta 5257+86



NB - Removal Typical Mainline - Tangent 5
Sta 5257+86 to Sta 5293+27



NB - Removal Typical Mainline - Tangent 6
Sta 5293+27 to Sta 5360+65**

NB Double Median Crossover to Remain in Place
Sta 5355+22 to Sta 5360+65

LOCATIONS	Asphalt Depth Variables (inches)						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"
NB - Removal Typical Mainline - Tangent 4	2.5	3	4.5	3	1.5	2	2
NB - Removal Typical Mainline - Tangent 5	4.5	5	6.5	5	3.5	2	2

Note: Actual depths may vary.
*Removal to be included in the bid item "Remove Aggregate Base & Surfacing."
**Existing 3% superelevated LT curve from PC Sta. 5329+93 to PT Sta. 5343+71 included in station range.

REGISTERED PROFESSIONAL ENGINEER
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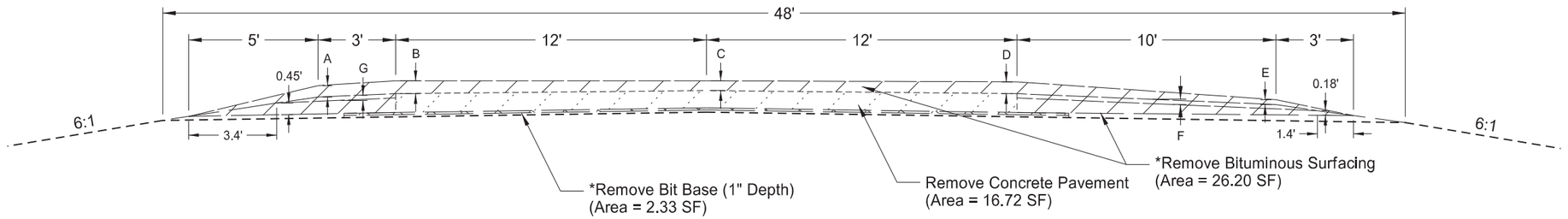
NORTH DAKOTA

Removal Typical Sections
Tangent 4 to 6

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

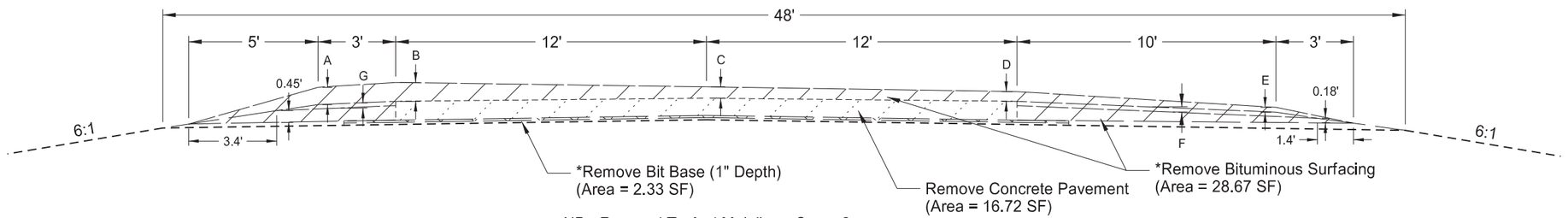
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	10



NB - Removal Typical Mainline - Curve 1

TS	ST
Sta 4682+77 to Sta 4693+49	
PC	**PT**
Sta 4712+14 to Sta 4726+18	
Sta 4790+36 to Sta 4808+12	
Sta 4905+18 to Sta 4924+51	
Sta 4994+07 to Sta 5007+64	
Sta 5103+33 to Sta 5119+36	
Sta 5209+91 to Sta 5232+75	

LOCATIONS	Asphalt Depth Variables (inches)						
	"A"	"B"	"C"	"D"	"E"	"F"	"G"
NB - Removal Typical Mainline - Curve 1	5.25	6	4.5	5.5	2.25	2	2
NB - Removal Typical Mainline - Curve 2	8	8.75	5.25	4.5	2.25	2	2



NB - Removal Typical Mainline - Curve 2

PC	PT
Sta 4828+99 to Sta 4853+00	
Sta 5191+23 to Sta 5205+25	

Note: Actual depths may vary.

*Removal to be included in the bid item "Remove Aggregate Base & Surfacing."

REGISTERED PROFESSIONAL ENGINEER
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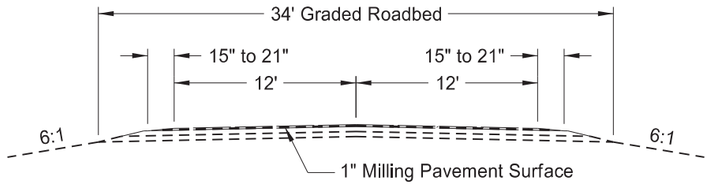
NORTH DAKOTA

Removal Typical Sections
Horizontal Curves

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

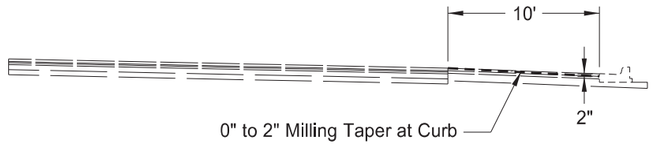
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	11



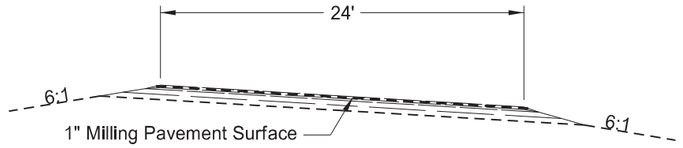
Hunter Separation
OCL_15TH_ST_SE
Sta 103+86 to Sta 107+54
Sta 110+19 to Sta 113+89

Galesburg Separation
OCL_10TH_ST_SE
Sta 163+26 to Sta 167+07
Sta 169+72 to Sta 173+53

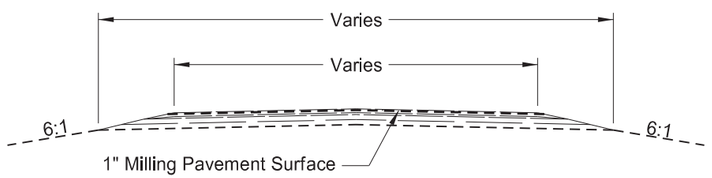
Kelso Separation
OCL_7TH_ST_SE
Sta 169+01 to Sta 172+54
Sta 175+54 to Sta 179+07



Elm River Rest Area
RAMP_RP99_NB
Sta 20+55 to Sta 24+22



Grandin SE & NE Interchange Ramps
RAMP_RP92.14_SE
Sta 9+15 to Sta 17+61
RAMP_RP92.14_NE
Sta 0+22 to Sta 10+16



Grandin Intrerchange Crossroad
OCL_12TH_ST_SE
Sta 123+90 to Sta 128+10
Sta 131+30 to Sta 136+40

REGISTERED PROFESSIONAL ENGINEER
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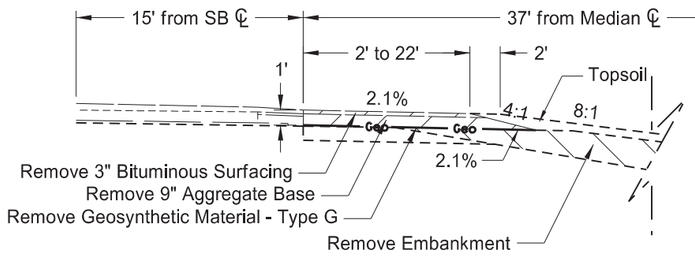
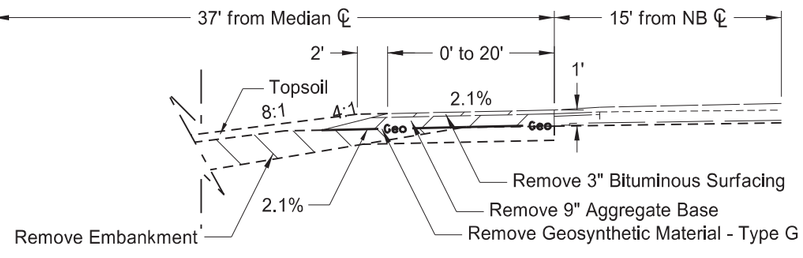
Milling Typical Sections
Hunter, Galesburg, & Kelso Separations and
Grandin Interchange Ramps and Crossroad
Elm River Rest Area Ramps
PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

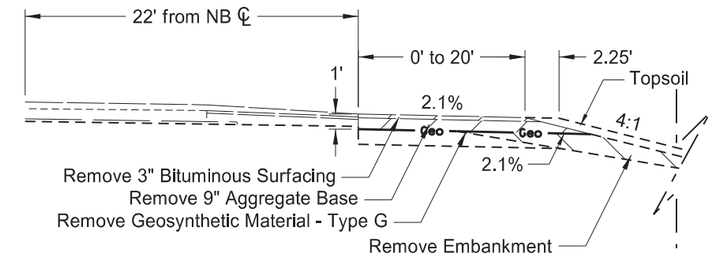
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	12



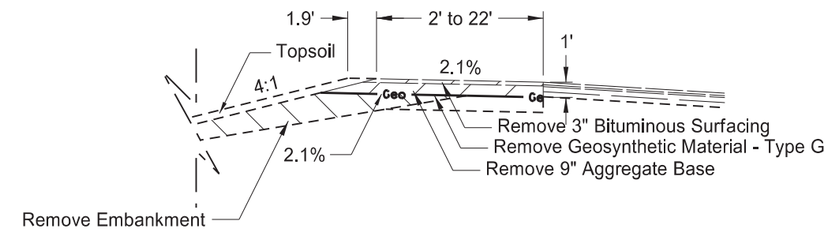
Removal Typical Section - Southbound Median Shoulder
Sta 0+00 to Sta 7+06 (GSE Alignment)
Sta 9+54 to Sta 19+04 (GNE Alignment)



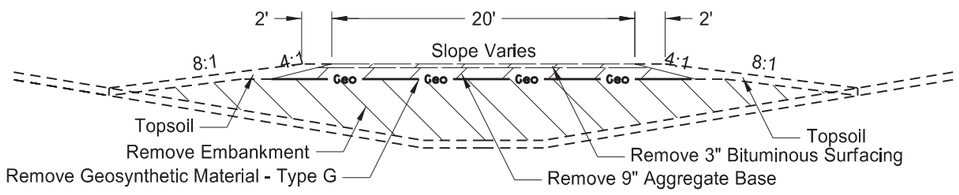
Removal Typical Section - Northbound Median Shoulder
Sta 10+16 to Sta 10+80 (GSE Alignment)
Sta 4+81 to Sta 5+48 (GNE Alignment)



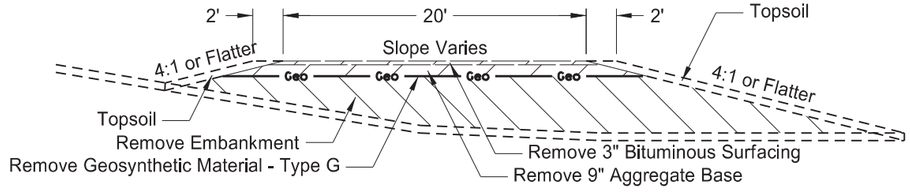
Removal Typical Section - Northbound Outside Shoulder
Sta 11+34 to Sta 11+85 (GSE Alignment)
Sta 3+75 to Sta 4+26 (GNE Alignment)



Removal Typical Section - Existing Ramps
Sta 13+85 to Sta 15+32 (GSE Alignment)
Sta 0+75 to Sta 2+40 (GNE Alignment)



Removal Ramp Connection Typical in the Median
Sta 7+06 to Sta 10+16 (GSE Alignment)
Sta 5+48 to Sta 9+54 (GNE Alignment)



Removal Ramp Connection Typical in the Existing Ramp Area
Sta 11+85 to Sta 13+85 (GSE Alignment)
Sta 2+40 to Sta 3+75 (GNE Alignment)

Note: See Section 40 for estimated removal quantities. Pavement and aggregate removal quantities are included in the unit price bid for "Removal of Temporary Bypass."

Where the temporary ramp connection is removed adjacent to pavement that is to remain in place, restore enough embankment to allow for 6" of topsoil and an approximate 6:1 inslope.

REGISTERED PROFESSIONAL ENGINEER
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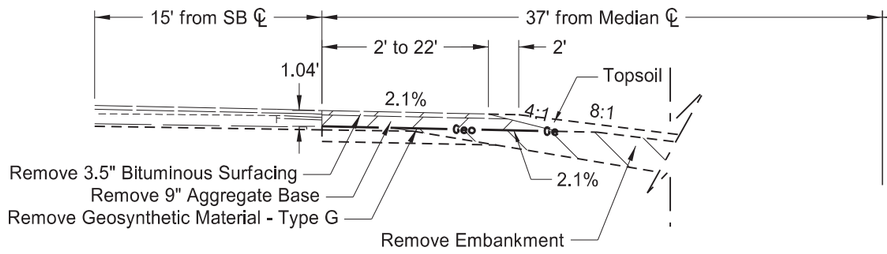
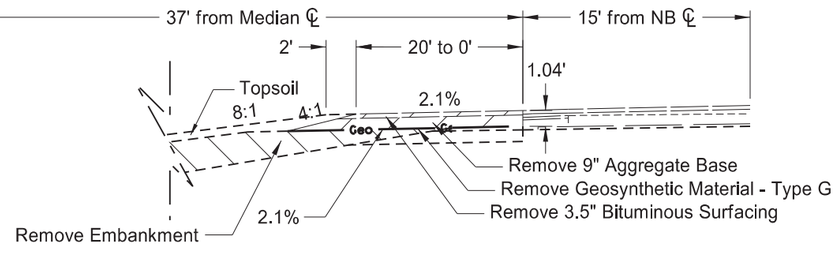
Removal Typical Sections
Northbound Grandin Temporary Ramp Connections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

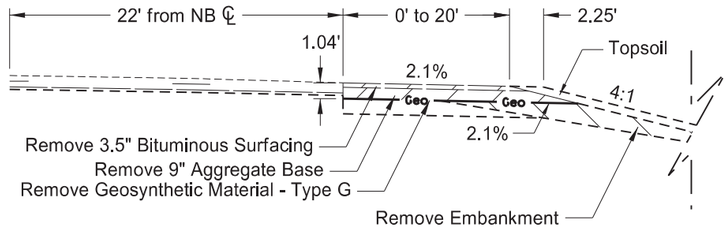
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	13



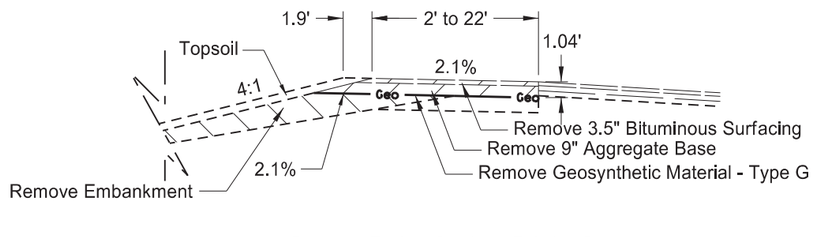
Removal Typical Section - Southbound Median Shoulder
Sta 0+00 to Sta 7+03 (BSE Alignment)



Removal Typical Section - Northbound Median Shoulder
Sta 10+05 to Sta 10+66 (BSE Alignment)



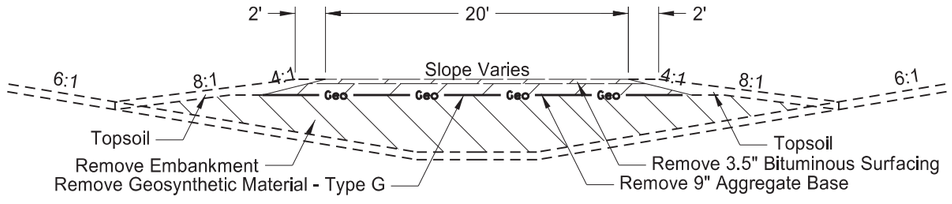
Removal Typical Section - Northbound Outside Shoulder
Sta 11+23 to Sta 11+73 (BSE Alignment)
Sta 3+84 to Sta 4+35 (BNE Alignment)



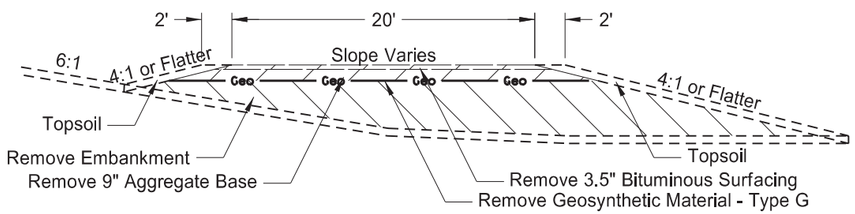
Removal Typical Section - Existing Ramps
Sta 13+84 to Sta 15+42 (BSE Alignment)
Sta 1+00 to Sta 2+60 (BNE Alignment)

Note: See Section 40 for estimated removal quantities. Pavement and aggregate removal quantities are included in the unit price bid for "Removal of Temporary Bypass."

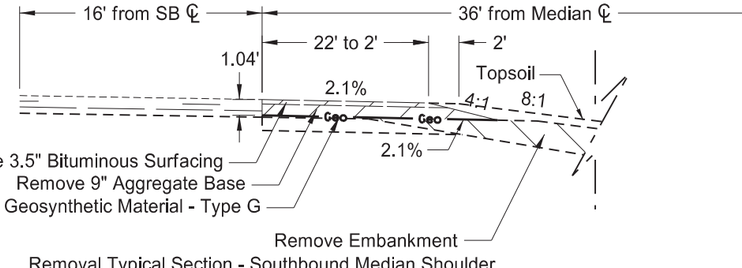
Where the temporary ramp connection is removed adjacent to pavement that is to remain in place, restore enough embankment to allow for 6" of topsoil and an approximate 6:1 inslope.



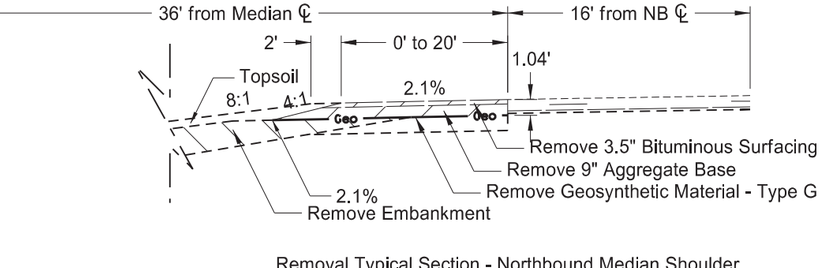
Removal Ramp Connection Typical in the Median
Sta 7+03 to Sta 10+05 (BSE Alignment)
Sta 5+60 to Sta 9+09 (BNE Alignment)



Removal Ramp Connection Typical in the Existing Ramp Area
Sta 11+73 to Sta 13+84 BSE Alignment)
Sta 2+60 to Sta 3+84 (BNE Alignment)



Removal Typical Section - Southbound Median Shoulder
Sta 9+09 to Sta 19+14 (BNE Alignment)



Removal Typical Section - Northbound Median Shoulder
Sta 4+94 to Sta 5+60 (BNE Alignment)

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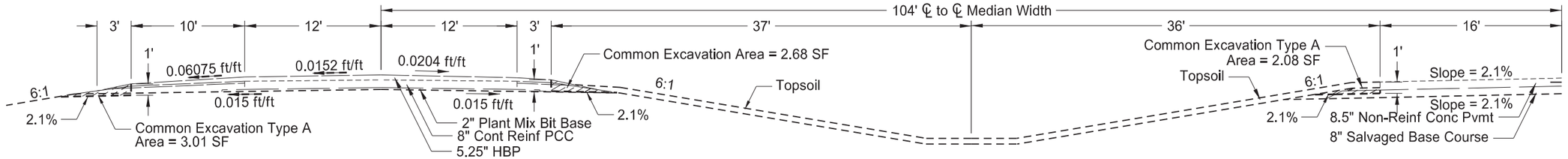
NORTH DAKOTA

Removal Typical Sections
Northbound Blanchard Temporary Ramp Connections

PCC Pavement Reconsturction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	14

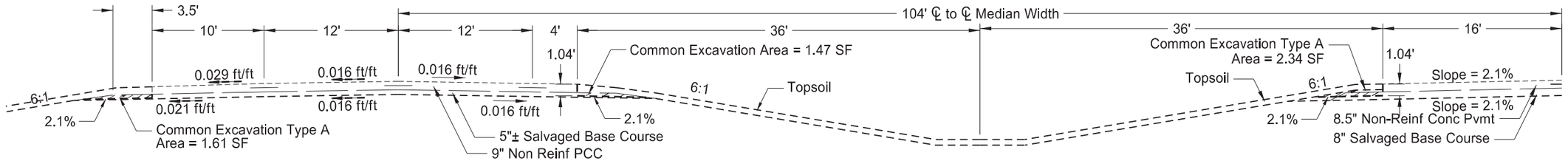


Southbound Outside Shoulder
Sta 4858+25 to Sta 4858+63
Sta 4873+38 to Sta 4873+74

Southbound Median Shoulder
Sta 4857+50 to Sta 4857+91
Sta 4874+06 to Sta 4874+48

Removal Typical Section
Grandin SW & NW Ramp Connections

Northbound Median Shoulder
Sta 4848+02 to Sta 4855+71
Sta 4876+26 to Sta 4882+05

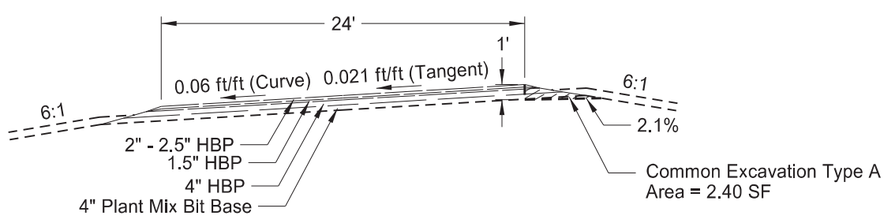


Southbound Outside Shoulder
Sta 5293+98 to Sta 5294+29
Sta 5307+98 to Sta 5308+29

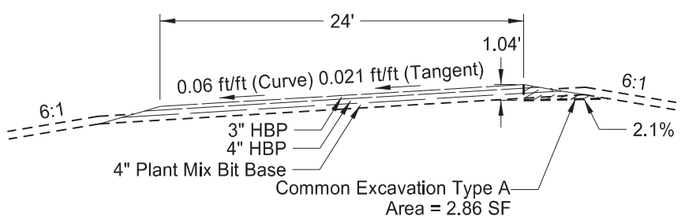
Southbound Median Shoulder
Sta 5293+27 to Sta 5293+64
Sta 5308+63 to Sta 5309+00

Removal Typical Section
Blanchard SW & NW Ramp Connections

Northbound Median Shoulder
Sta 5283+77 to Sta 5291+46
Sta 5310+81 to Sta 5316+60



Removal Typical Section
Grandin Interchange SW & NW Ramps
Sta 6+65 to Sta 7+99, 16' Lt from RAMP_RP92.14_SW Alignment
Sta 11+18 to Sta 12+25, 17' Lt from Ramp_RP92.14_NW Alignment



Removal Typical Section
Blanchard Interchange SW & NW Ramps
Sta 5+12 to Sta 6+33, 15' Lt from RAMP_RP100.4_SW Alignment
Sta 11+34 to Sta 12+40, 18' Lt from RAMP_RP100.4_NW Alignement

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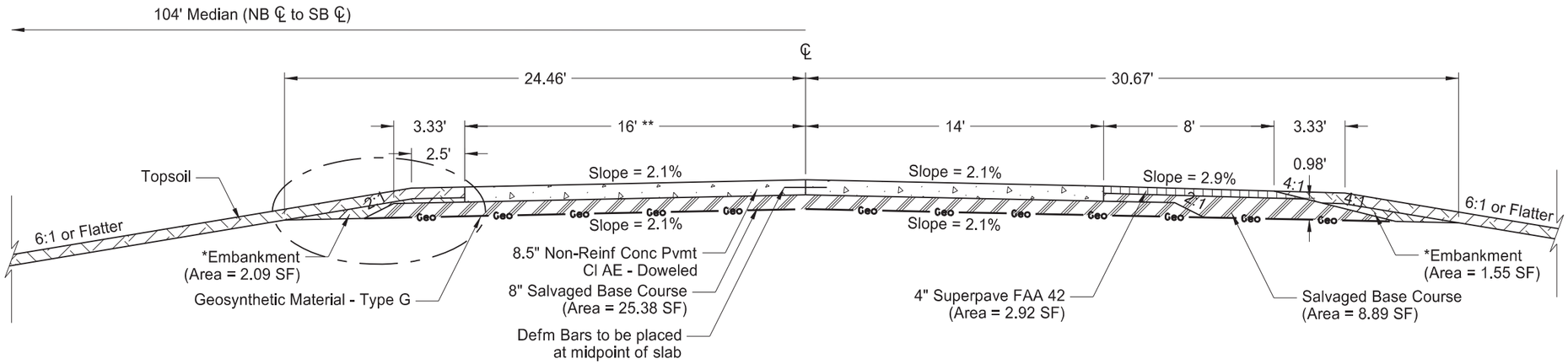
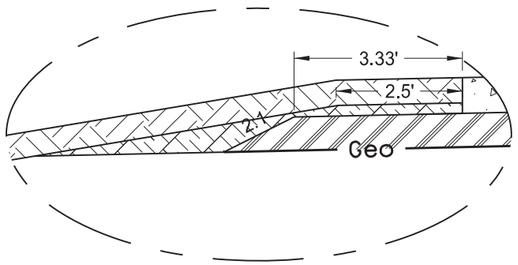
Removal Typical Sections
Southbound Grandin & Blanchard Ramp Connections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	15





Proposed Typical Section 1: Mainline - Tangent Section

Sta 4660+65 to Sta 4680+17	Sta 5007+64 to Sta 5103+33
Sta 4696+09 to Sta 4712+14	Sta 5119+36 to Sta 5191+23
Sta 4726+18 to Sta 4790+36	Sta 5205+25 to Sta 5209+91
Sta 4808+12 to Sta 4828+99	Sta 5232+75 to Sta 5329+93
Sta 4853+00 to Sta 4905+18	Sta 5343+71 to Sta 5360+65
Sta 4924+51 to Sta 4994+07	

*After finishing proposed dirt grade leave enough embankment on the foreslopes to spread against the salvaged base course as shown on the typical section.

**Width is 12' from Sta 4660+65 to Sta 4666+74.
**Width is 15.5' from Sta 4892+11 to Sta 4892+46 and from Sta 4894+56 to Sta 4895+16 for guardrail posts. Transition 16' width within the adjacent 15' transverse joint.

Note: Exception for bridge deck and bridge approach slabs between Sta 4892+46 to Sta 4894+56.

REGISTERED PROFESSIONAL ENGINEER
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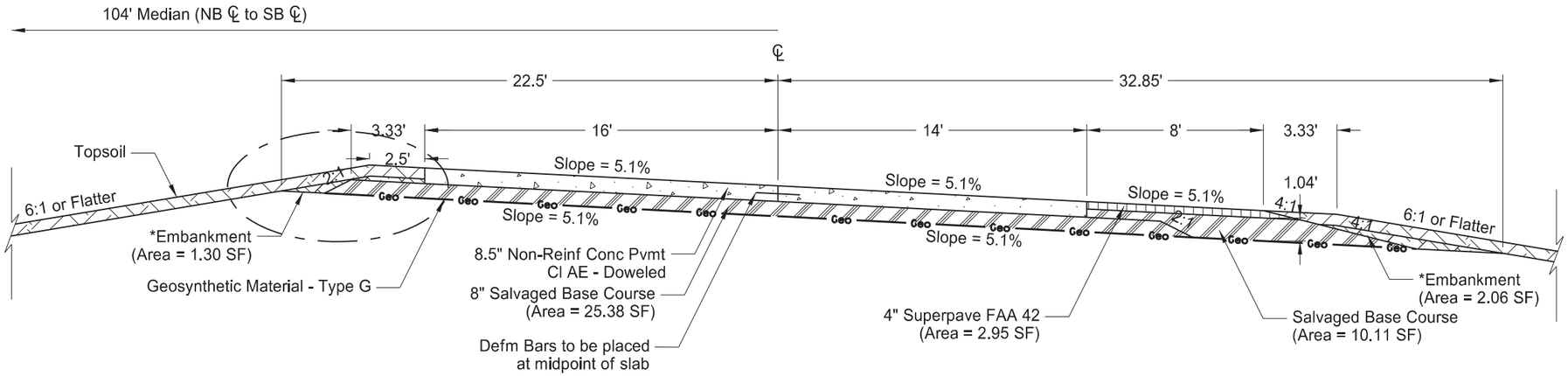
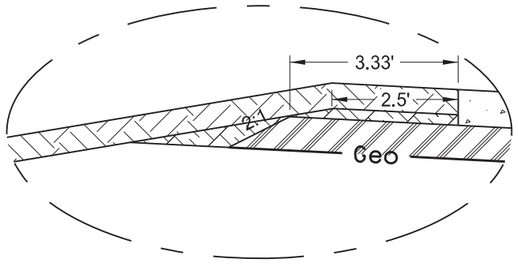
Proposed Typical Sections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	16



Proposed Typical Section 2: Mainline - Superelevated Curve
Sta 4680+17 to Sta 4696+09



*After finishing proposed dirt grade
leave enough embankment on the foreslopes
to spread against/above the salvaged base
course as shown on the typical section.

Note: All stationing for curves is from TS to ST.
Refer to Superelevation Tables for exact
locations of the transition areas.

REGISTERED PROFESSIONAL ENGINEER
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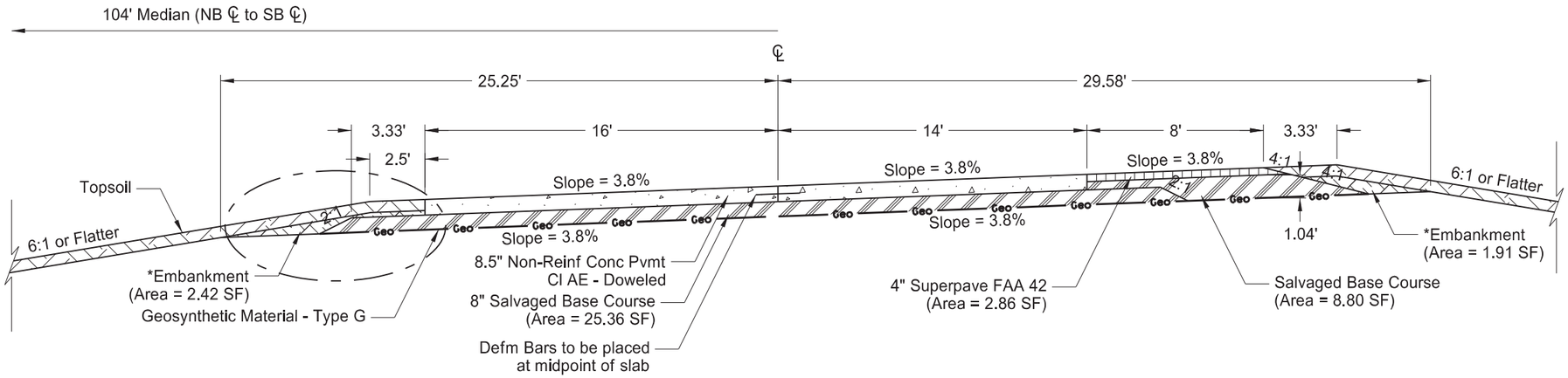
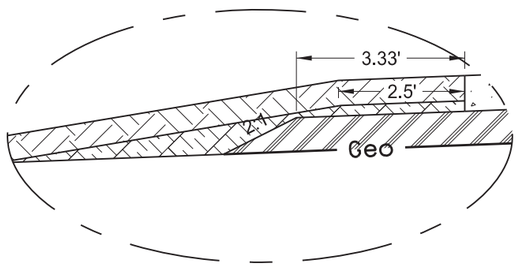
Proposed Typical Sections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	17





Proposed Typical Section 3: Mainline - Superelevated Curve
Sta 4712+14 to Sta 4726+18
Sta 4790+36 to Sta 4808+12
Sta 4994+07 to Sta 5007+64
Sta 5103+33 to Sta 5119+36
Sta 5329+93 to Sta 5343+71

*After finishing proposed dirt grade leave enough embankment on the foreslopes to spread against the salvaged base course as shown on the typical section.

Note: All stationing for curves is from PC to PT. Refer to Superelevation Tables for exact locations of the transition areas.

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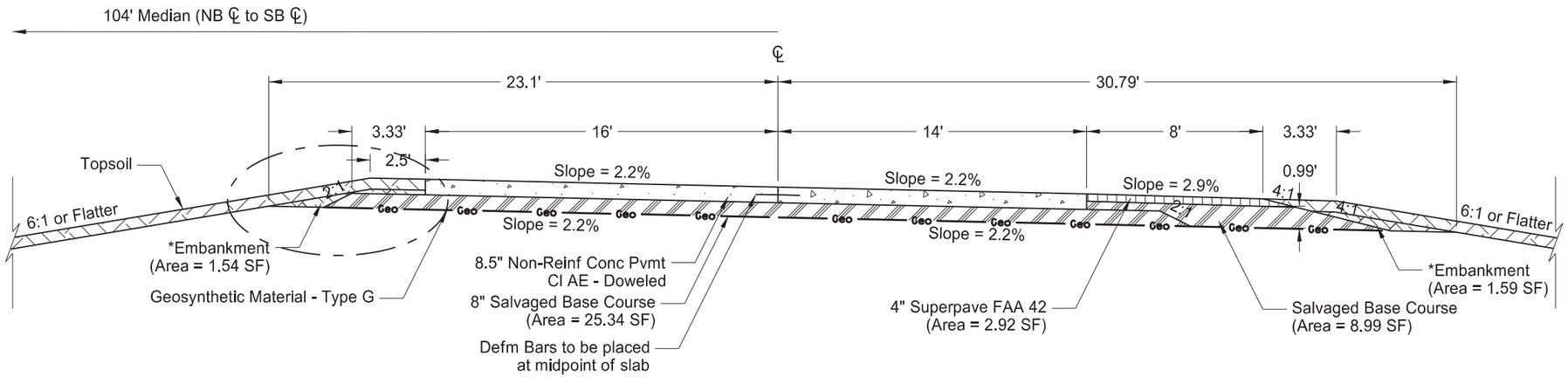
NORTH DAKOTA

Proposed Typical Sections

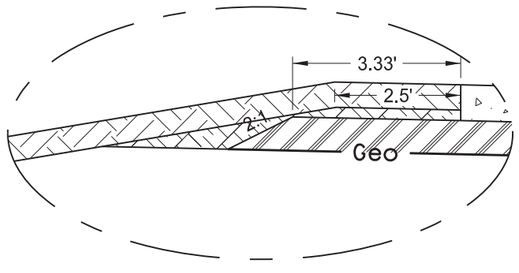
PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	18



Proposed Typical Section 4: Mainline - Superelevated Curve
Sta 4828+99 to Sta 4853+00
Sta 5191+23 to Sta 5205+25

*After finishing proposed dirt grade leave enough embankment on the foreslopes to spread against the salvaged base course as shown on the typical section.



Note; All stationing for curves is from PC to PT. Refer to Superelevation Tables for exact locations of the transition areas.

REGISTERED PROFESSIONAL ENGINEER
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DATE
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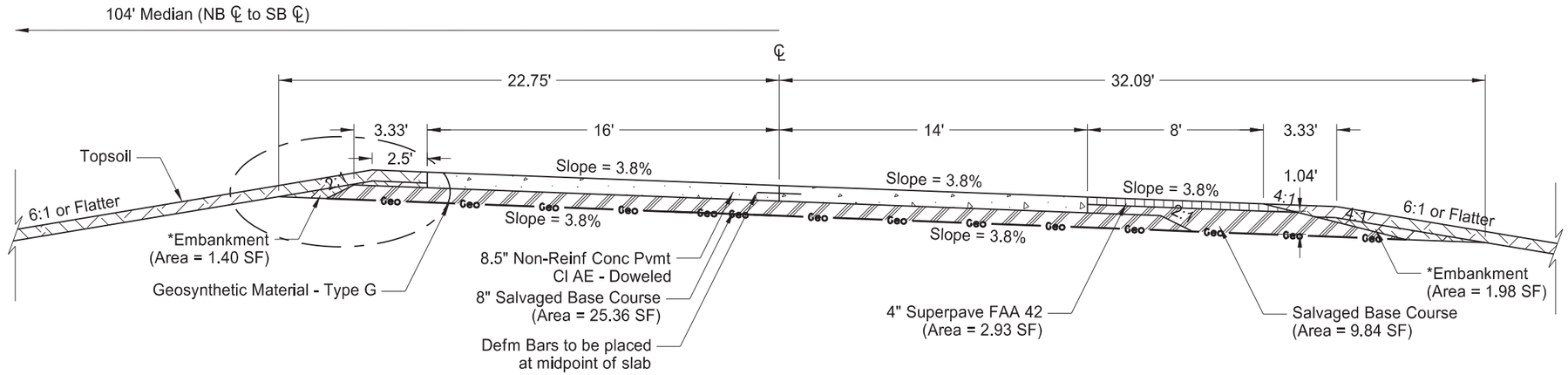
NORTH DAKOTA

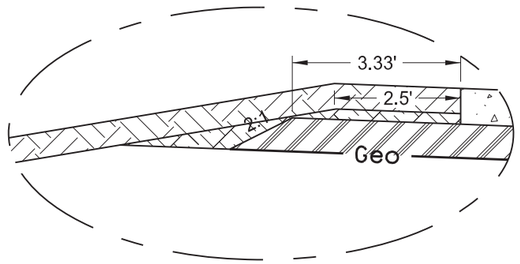
Proposed Typical Sections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	19



Proposed Typical Section 5: Mainline - Superelevated Curve
Sta 4905+18 to Sta 4924+51
Sta 5209+91 to Sta 5232+75



*After finishing proposed dirt grade leave enough embankment on the foreslopes to spread against the salvaged base course as shown on the typical section.

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NORTH DAKOTA

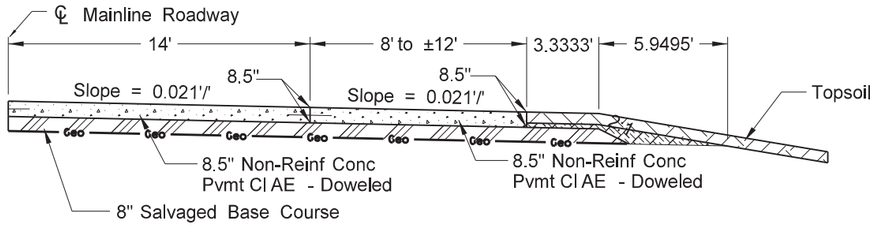
Note: All stationing for curves is from PC to PT. Refer to Superelevation Tables for exact locations of the transition areas.

Proposed Typical Sections

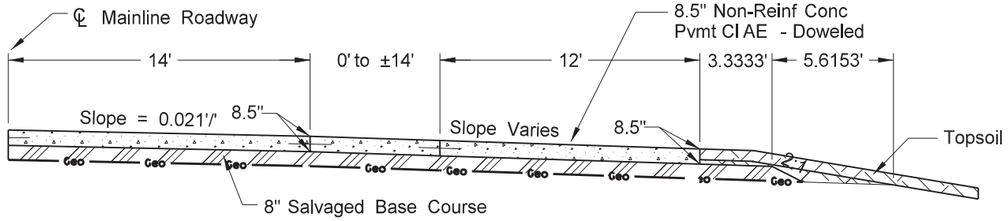
PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

8/25/2020 8:37:04 AM rsamardz R:\project\80029088.135\design\Sheets\030TP_019_Typical Sections_Proposed Mainline - Curve 4.dgn

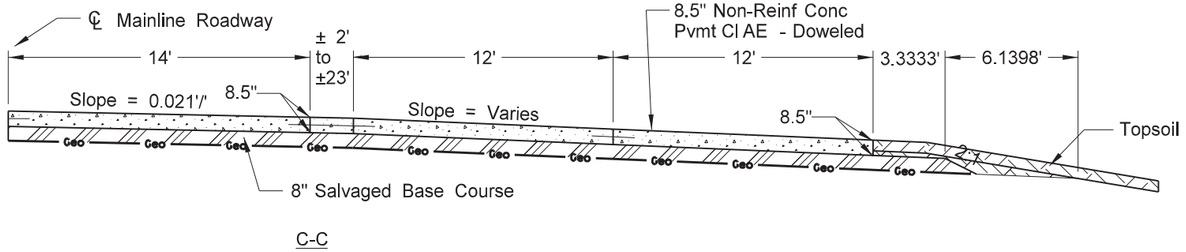
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	30	20



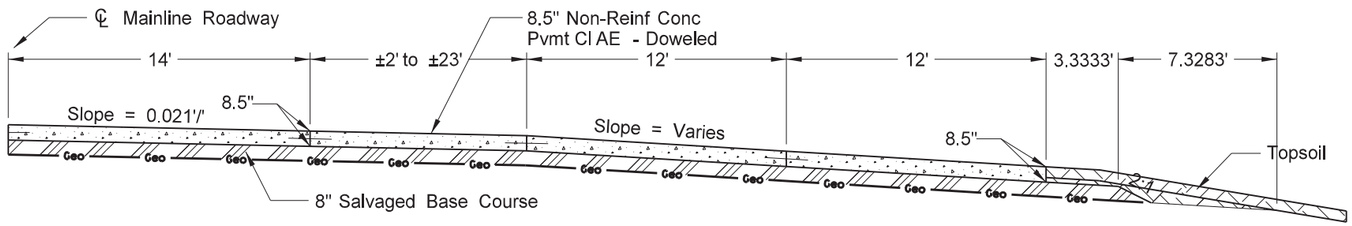
A-A



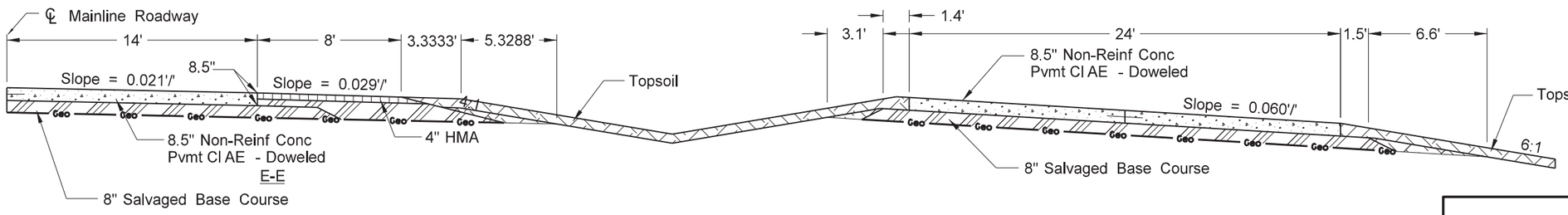
B-B



C-C



D-D



E-E

Note: See Ramp Layout sheets for location of typical sections.

RAMP SUPERELEVATION TRANSITION		
SE GRANDIN INTERCHANGE EXIT RAMP		
SECTION	STATION	SUPERELEVATION
	0+00.00	-2.10%
A-A	1+19.33	-2.10%
B-B	2+59.34	-2.10%
	6+83.51	-2.10%
	7+46.45	-6.00%
C-C	7+50.78	-6.00%
D-D	8+14.56	-6.00%
E-E	9+15.12	-6.00%

RAMP SUPERELEVATION TRANSITION		
NE GRANDIN INTERCHANGE ENTER RAMP		
SECTION	STATION	SUPERELEVATION
E-E	10+16.34	-6.00%
D-D	11+14.92	-6.00%
C-C	11+80.71	-6.00%
	11+87.26	-6.00%
	13+17.99	-2.10%
B-B	18+09.63	-2.10%
A-A	20+29.27	-2.10%
	22+42.97	-2.10%

RAMP SUPERELEVATION TRANSITION		
SE ELM RIVER REST AREA EXIT RAMP		
SECTION	STATION	SUPERELEVATION
	0+08.53	-2.10%
A-A	1+60.95	-2.10%
B-B	3+08.63	-2.10%
	4+73.64	-2.10%
	5+03.81	-3.00%
	7+99.69	-3.00%
C-C	8+72.33	-5.17%
	9+00.25	-6.00%
D-D	9+74.46	-6.00%
E-E	11+07.59	-6.00%

RAMP SUPERELEVATION TRANSITION		
NE ELM RIVER REST AREA ENTER RAMP		
SECTION	STATION	SUPERELEVATION
E-E	30+32.49	-6.00%
D-D	31+35.29	-6.00%
	31+95.06	-6.00%
C-C	32+11.61	-5.51%
	33+25.80	-2.10%
B-B	38+70.77	-2.10%
A-A	40+71.32	-2.10%
	42+60.85	-2.10%

RAMP SUPERELEVATION TRANSITION		
SE BLANCHARD INTERCHANGE EXIT RAMP		
SECTION	STATION	SUPERELEVATION
	0+04.29	-2.10%
A-A	1+64.99	-2.10%
B-B	3+19.39	-2.10%
	5+94.31	-2.10%
	7+25.04	-6.00%
C-C	7+53.03	-6.00%
D-D	8+11.30	-6.00%
E-E	9+02.76	-6.00%

RAMP SUPERELEVATION TRANSITION		
NE BLANCHARD INTERCHANGE ENTER RAMP		
SECTION	STATION	SUPERELEVATION
E-E	9+07.77	-6.00%
D-D	10+13.32	-6.00%
	10+67.95	-6.00%
C-C	10+86.86	-5.44%
	11+98.69	-2.10%
B-B	17+61.05	-2.10%
A-A	19+56.20	-2.10%
	21+51.12	-2.10%

REGISTERED PROFESSIONAL ENGINEER
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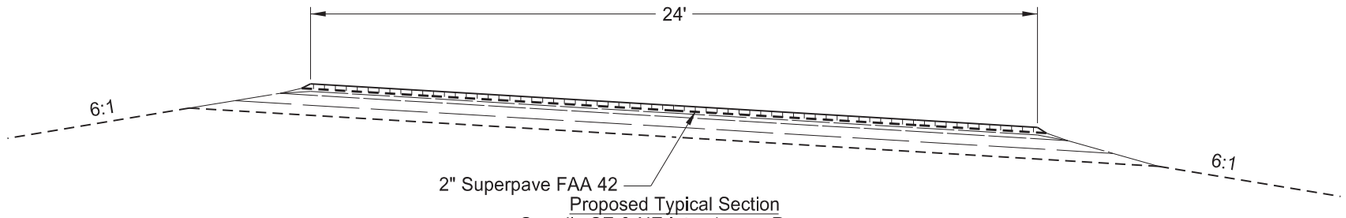
NORTH DAKOTA

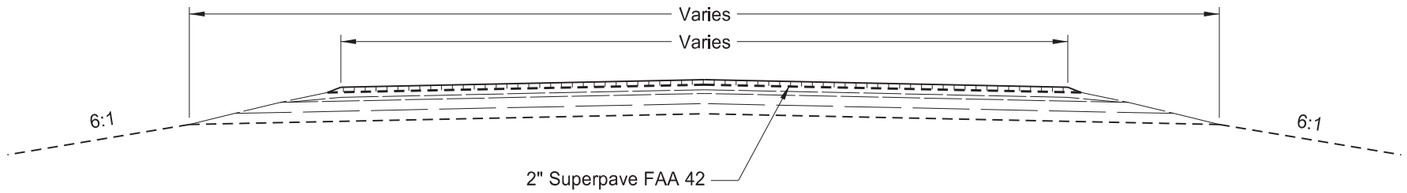
Proposed Typical Sections
Exit and Entrance Ramps

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

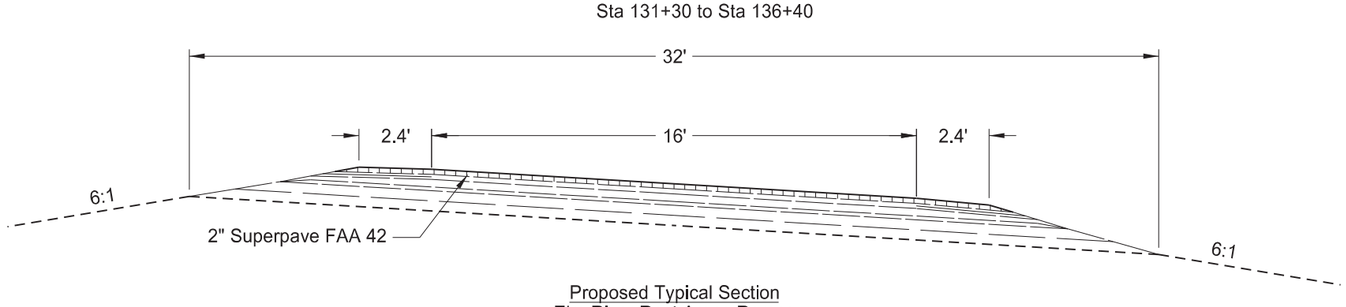
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	21



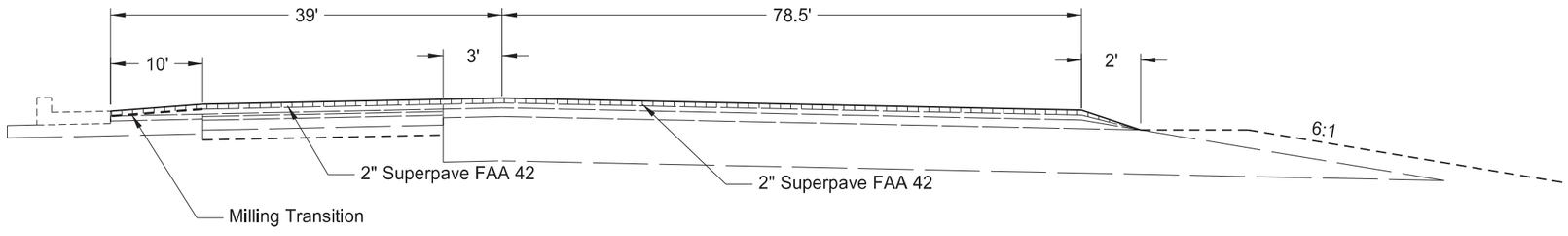
Proposed Typical Section
Grandin SE & NE Interchange Ramps
RAMP_RP92.14_SE
Sta 9+15 to Sta 17+61
RAMP_RP92.14_NE
Sta 0+22 to Sta 10+16



Proposed Typical Section
Grandin Interchange Crossroad
OCL_12TH_ST_SE
Sta 123+90 to Sta 128+10
Sta 131+30 to Sta 136+40



Proposed Typical Section
Elm River Rest Areas Ramps
RAMP_RP99_NB
Sta 11+08 to Sta 20+00
Sta 27+00 to Sta 30+32



Proposed Typical Section
Elm River Rest Area
RAMP_RP99_NB
Sta 20+00 to Sta 27+00

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PE-10948
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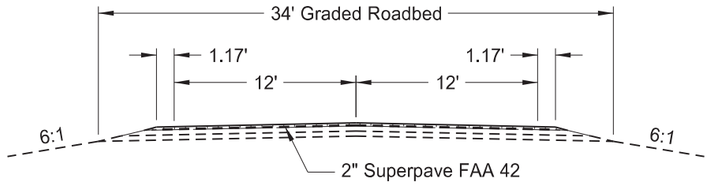
08/25/20
NORTH DAKOTA

Proposed Typical Sections
Grandin Interchange and Elm River Rest Area

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	22



Hunter Separation
OCL_15TH_ST_SE
103+86 to 107+54
110+19 to 113+89

Galesburg Separation
OCL_10TH_ST_SE
163+26 to 167+07
169+72 to 173+53

Kelso Separation
OCL_7TH_ST_SE
169+01 to 172+54
175+54 to 179+07

REGISTERED PROFESSIONAL ENGINEER
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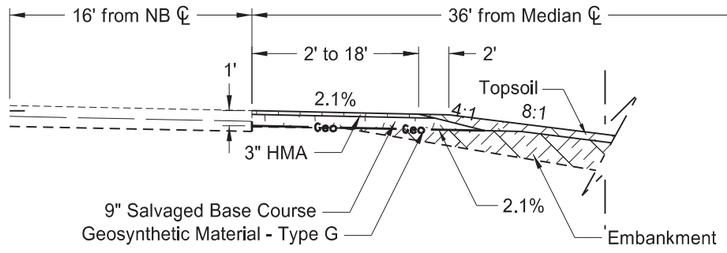
DATE
08/25/20
NORTH DAKOTA

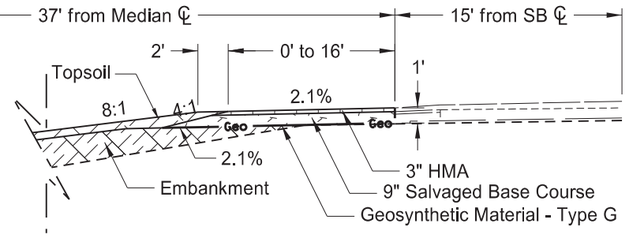
Proposed Typical Sections
Hunter, Galesburg, & Kelso Separations

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

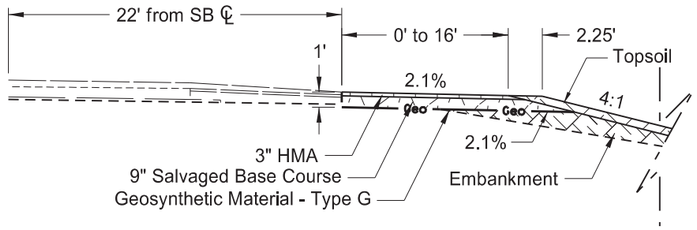
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	23

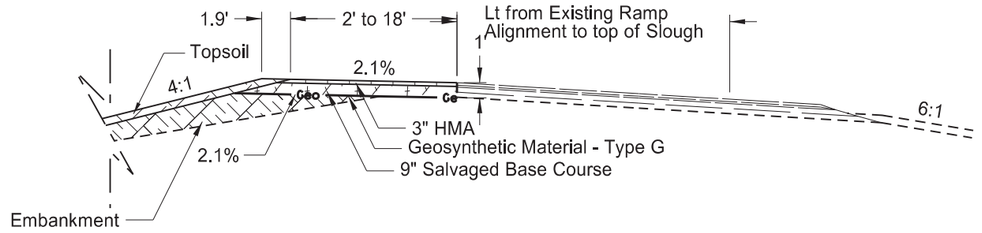


Proposed Typical Section - Northbound Median Shoulder
Sta 6+41 to Sta 14+07 (RAMP_GSW_Enter Alignment)
Sta 0+60 to Sta 6+37 (RAMP_GNW_Exit Alignment)



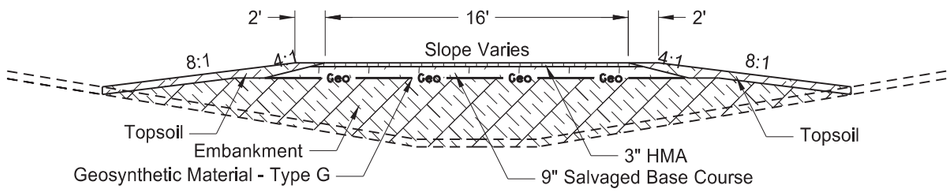
Proposed Typical Section - Southbound Median Shoulder
Sta 4+13 to Sta 4+45 (RAMP_GSW_Enter Alignment)
Sta 8+33 to Sta 8+65 (RAMP_GNW_Exit Alignment)



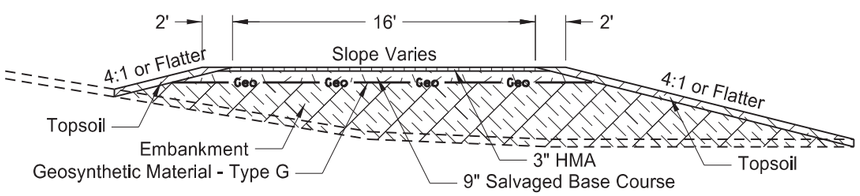


Proposed Typical Section - Southbound Outside Shoulder
Sta 3+37 to Sta 3+66 (RAMP_GSW_Enter Alignment)
Sta 9+11 to Sta 9+37 (RAMP_GNW_Exit Alignment)

Proposed Typical Section - Existing Ramps
Sta 6+65 to Sta 7+99 (16' Lt - RAMP_RP92.14_SW Alignment)
Sta 11+18 to Sta 12+25 (17' Lt - RAMP_RP92.14_NW Alignment)



Proposed Ramp Connection Typical in the Median
Sta 4+45 to Sta 6+41 (RAMP_GSW_Enter Alignment)
Sta 6+37 to Sta 8+33 (RAMP_GNW_Exit Alignment)



Proposed Ramp Connection Typical in the Existing Ramp Area
Sta 2+14 to Sta 3+37 (RAMP_GSW_Enter Alignment)
Sta 9+37 to Sta 10+63 (RAMP_GNW_Exit Alignment)

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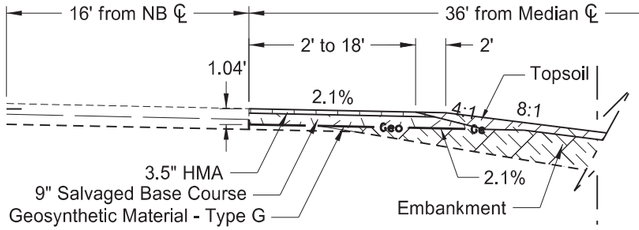
Note: The southbound ramp connection alignment stationing runs opposite the SCL_HWY029 median alignment.

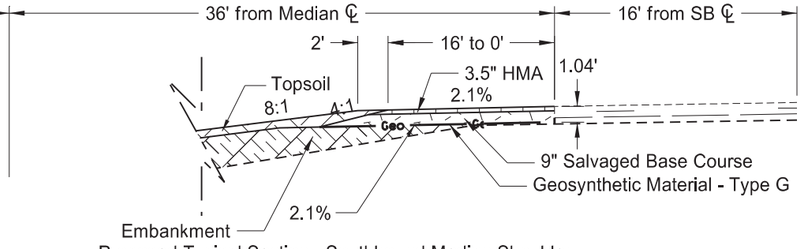
Proposed Typical Sections
Southbound Grandin Ramp Connections

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

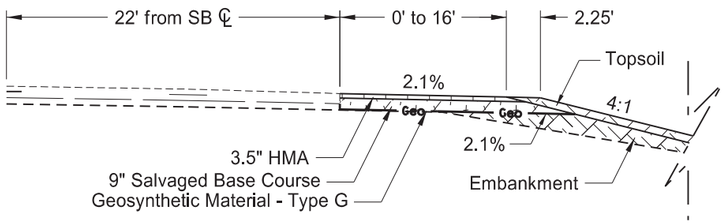
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	30	24



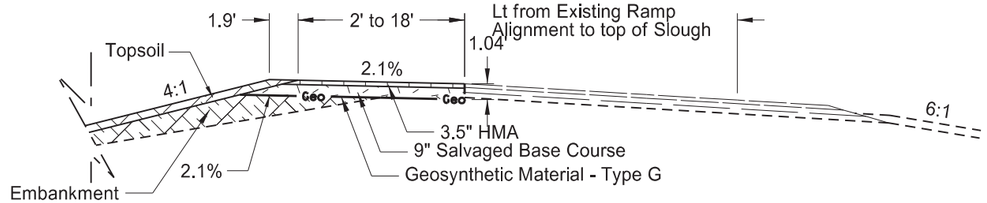
Proposed Typical Section - Northbound Median Shoulder
Sta 6+11 to Sta 13+78 (RAMP_BSW_Enter Alignment)
Sta 0+60 to Sta 6+37 (RAMP_BNW_Exit Alignment)



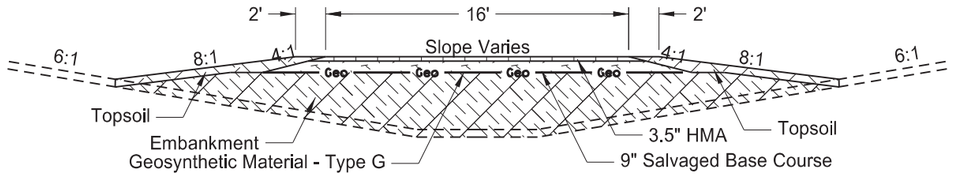
Proposed Typical Section - Southbound Median Shoulder
Sta 3+85 to Sta 4+17 (RAMP_BSW_Enter Alignment)
Sta 8+31 to Sta 8+63 (RAMP_BNW_Exit Alignment)



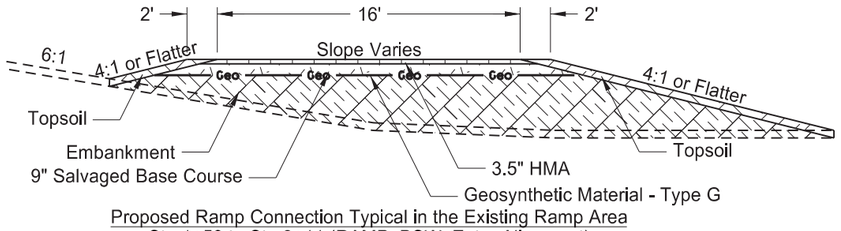
Proposed Typical Section - Southbound Outside Shoulder
Sta 3+11 to Sta 3+37 (RAMP_BSW_Enter Alignment)
Sta 9+11 to Sta 9+37 (RAMP_BNW_Exit Alignment)



Proposed Typical Section - Existing Ramps
Sta 5+12 to Sta 6+33 (15' Lt from RAMP_RP100.4_SW Alignment)
Sta 11+34 to Sta 12+40 (18' Lt from RAMP_RP100.4_NW Alignement)



Proposed Ramp Connection Typical in the Median
Sta 4+17 to Sta 6+10 (RAMP_BSW_Enter Alignment)
Sta 6+37 to Sta 8+31 (RAMP_BNW_Exit Alignment)



Proposed Ramp Connection Typical in the Existing Ramp Area
Sta 1+59 to Sta 3+11 (RAMP_BSW_Enter Alignment)
Sta 9+37 to Sta 10+62 (RAMP_BNW_Exit Alignment)

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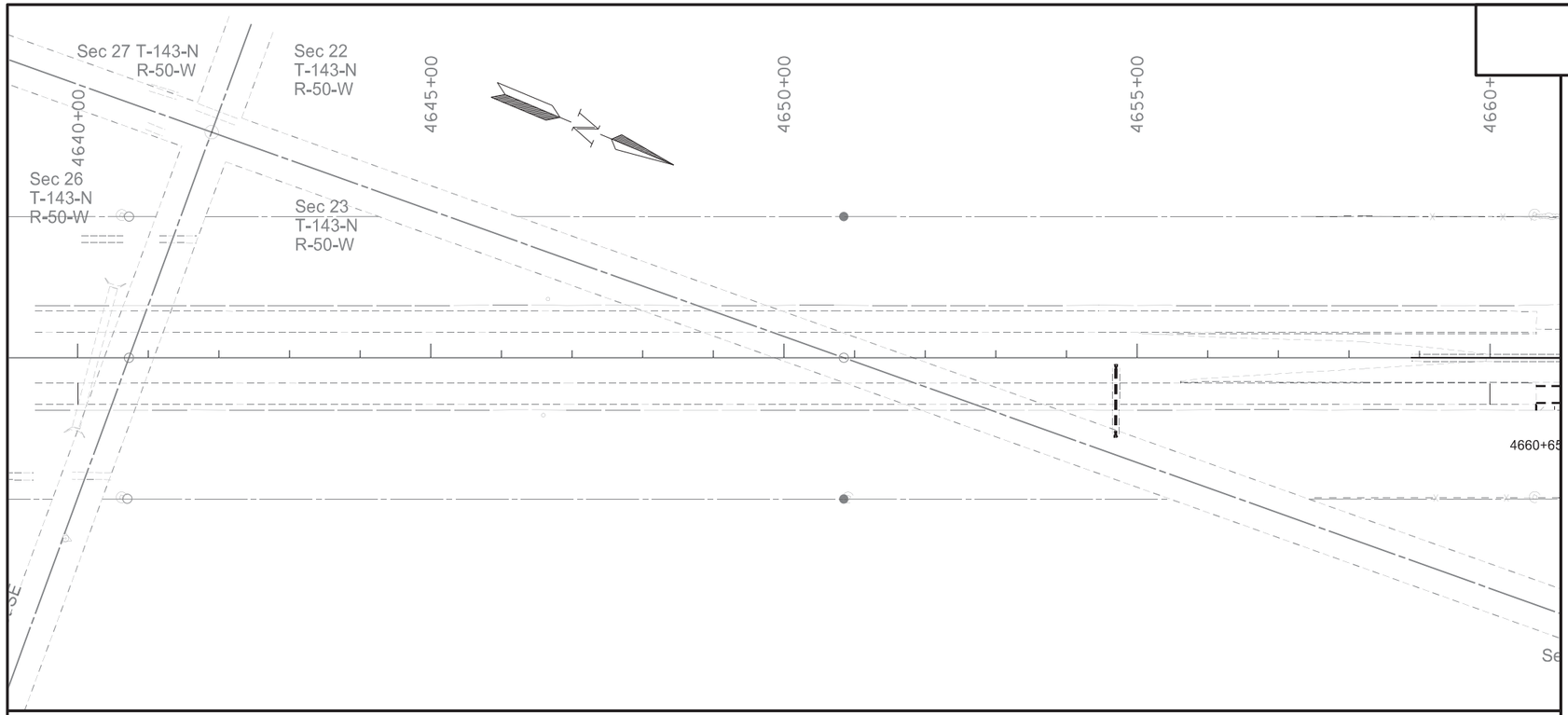
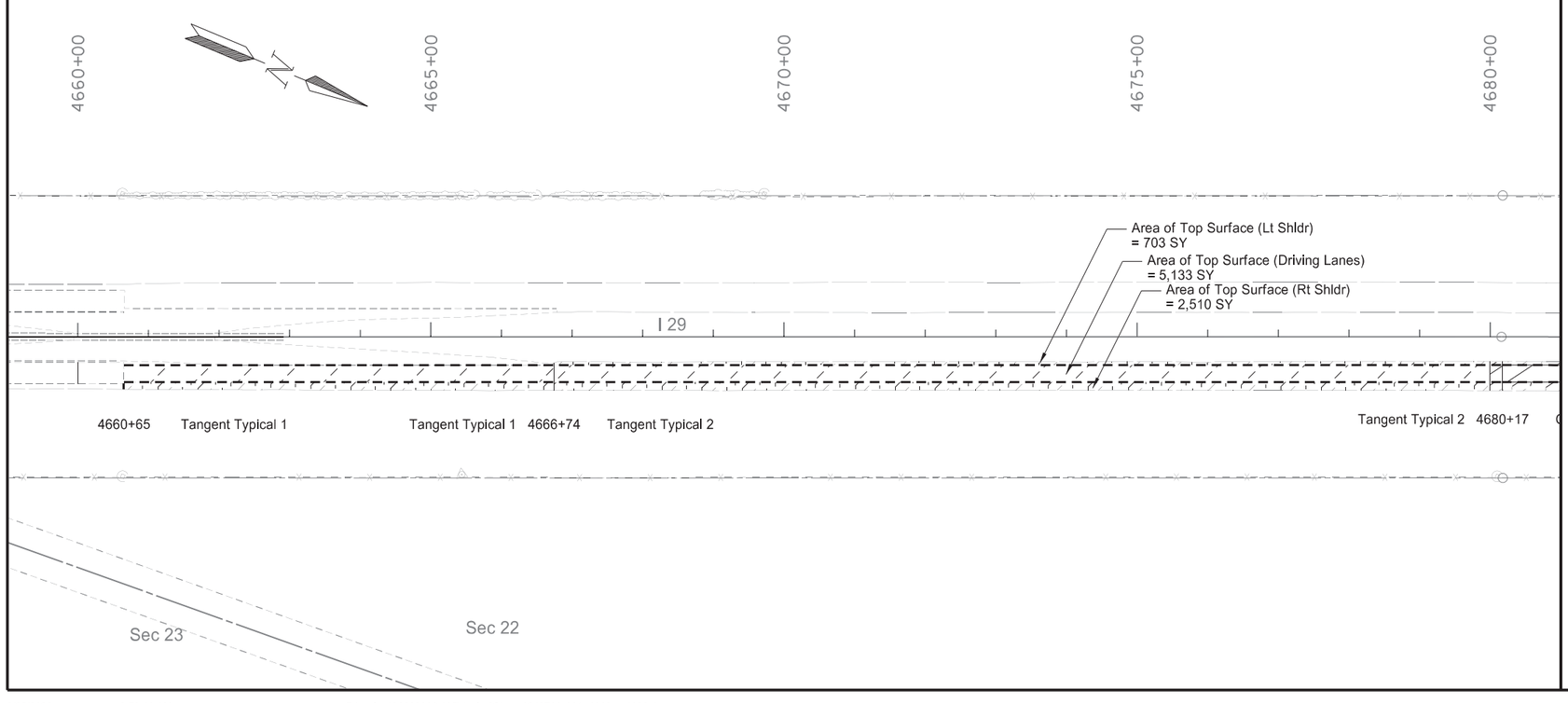
Note: The southbound ramp connection alignment stationing runs opposite the SCL_HWY029 median alignment.

Proposed Typical Sections
Southbound Blanchard Ramp Connections

PCC Pavement Reconsturction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	40	1





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4666+74 to Sta 4680+00		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	191
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	248
		Sta 4660+65 to Sta 4680+00		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	215
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1300
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	489
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	785
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4660+65 to Sta 4680+00		
		Mainline Concrete (8" Depth)	TON	2281

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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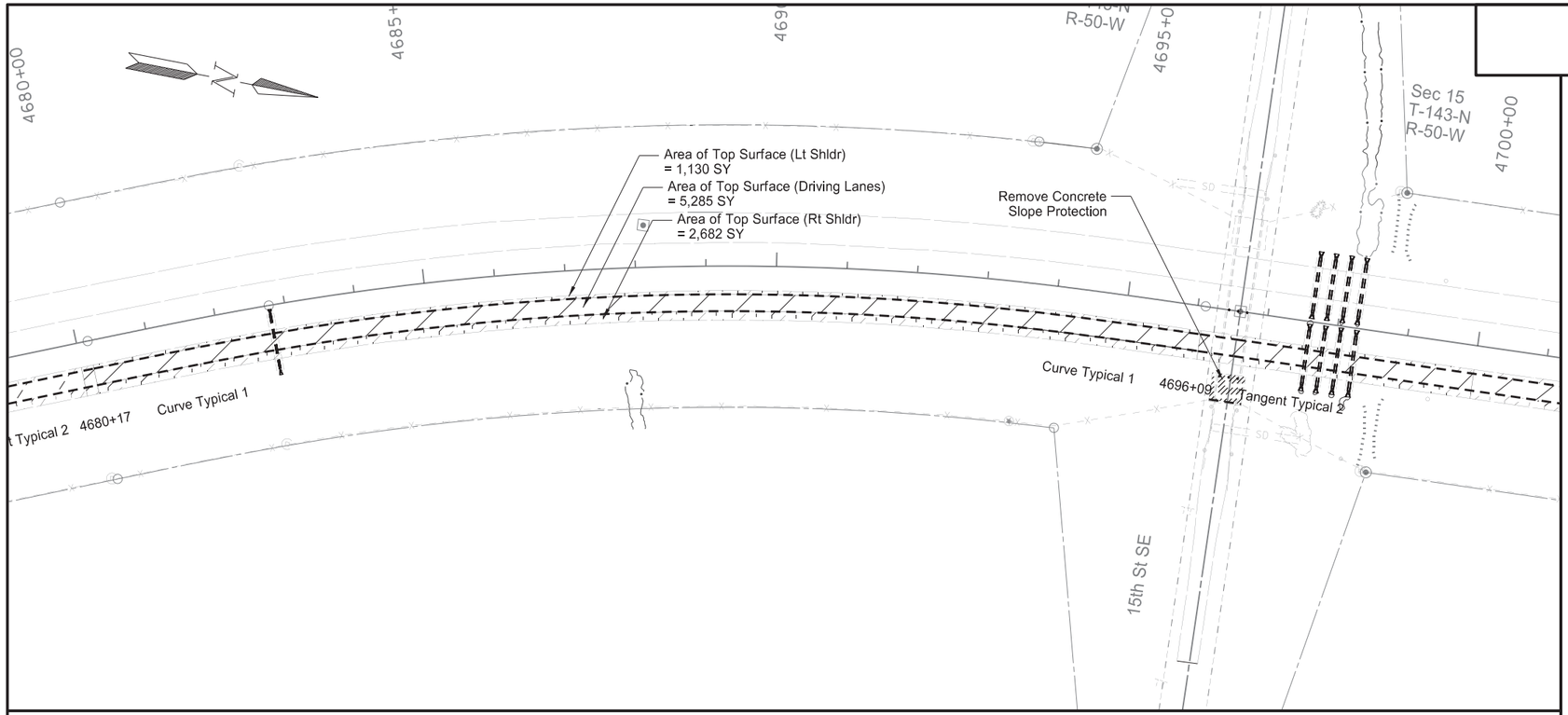
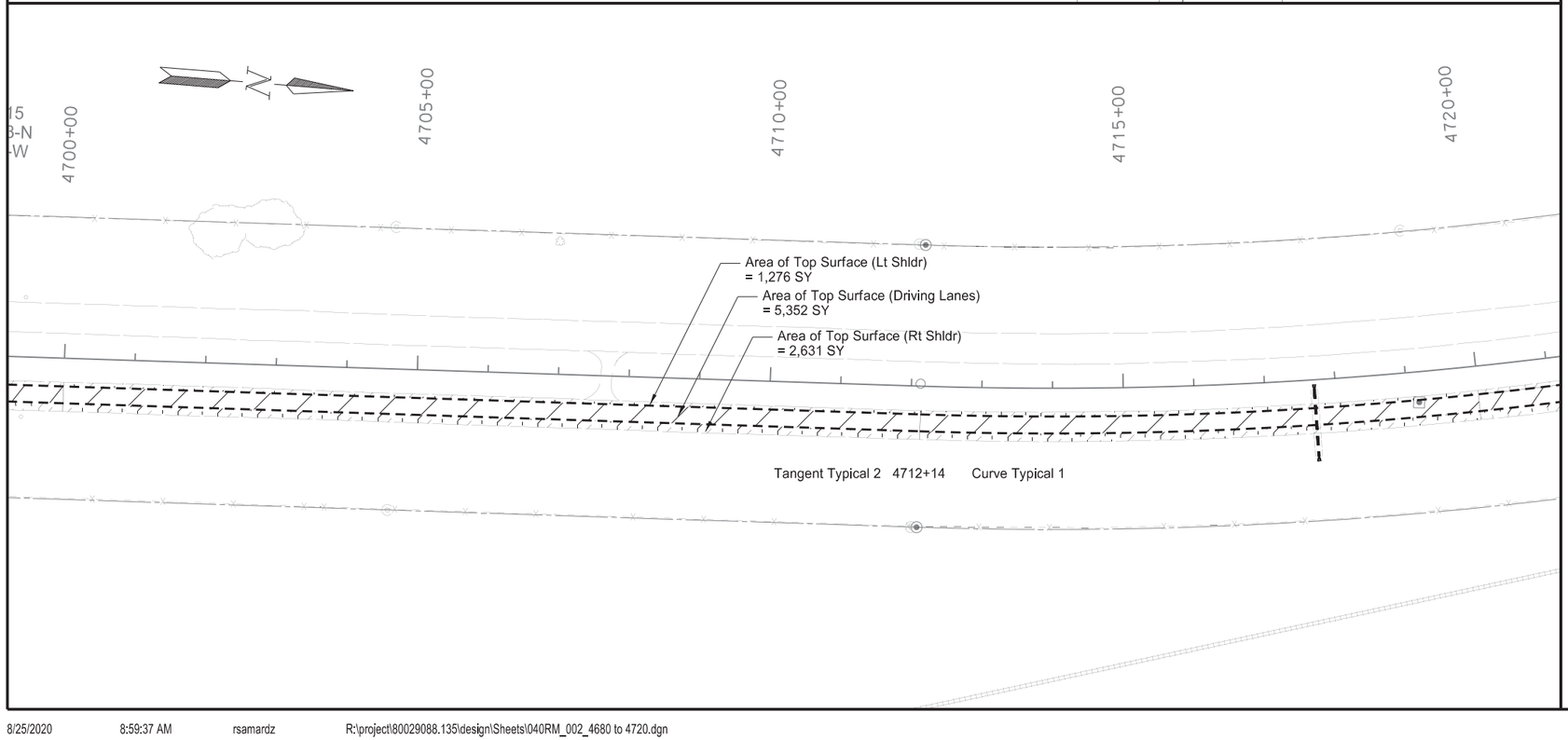
Removal Sheet
Sta 4640+00 to Sta 4680+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	2





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4680+00 to Sta 4720+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	267
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	348
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	180
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1096
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	412
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	661
		Sta 4680+00 to Sta 4720+00 (Curve Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	430
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	729
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	263
		Mainline Asphalt (Avg. Depth = 0.44')	TON	1852
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	622
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	1084
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4680+00 to Sta 4720+00		
		Mainline Concrete (8" Depth)	TON	4728

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.
Note 4: See section 170 for slope protection removal.

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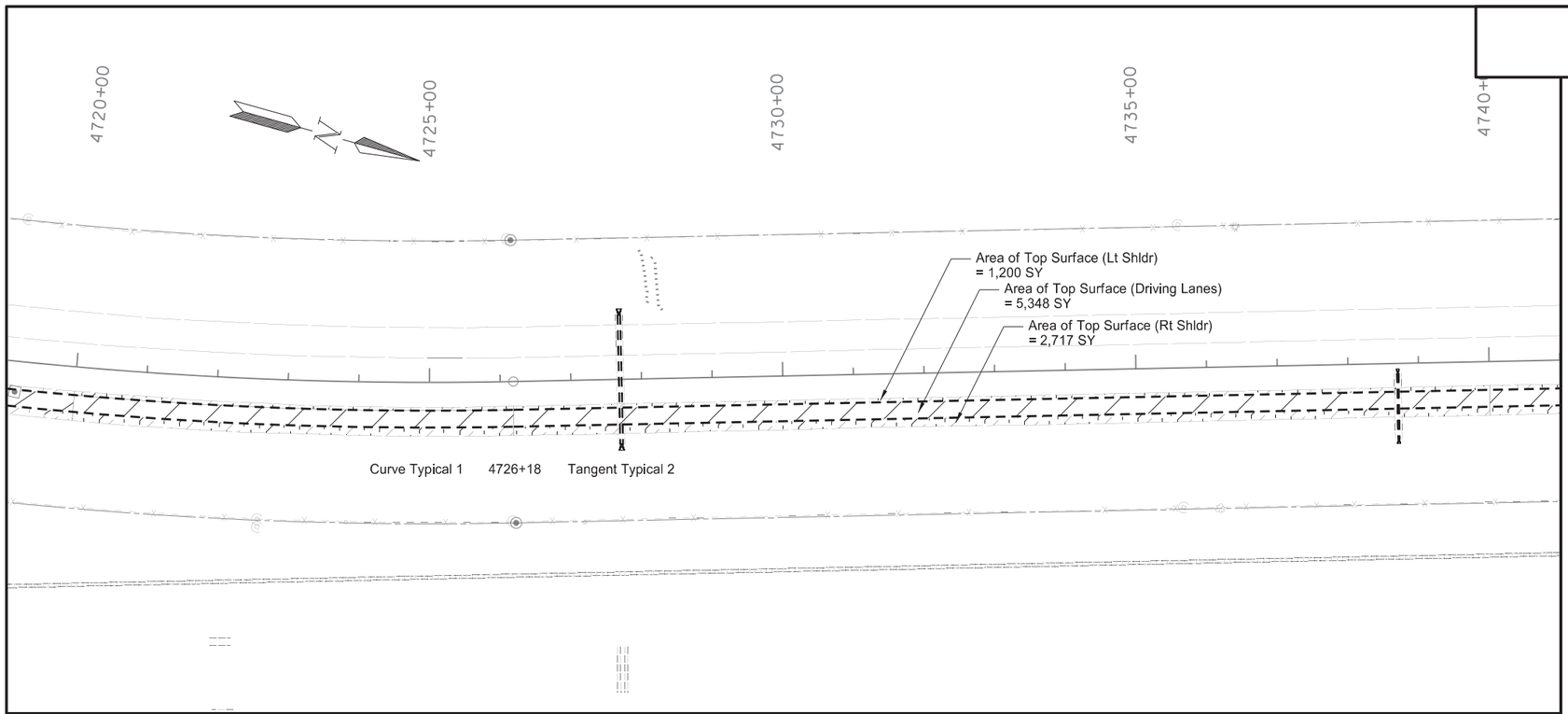
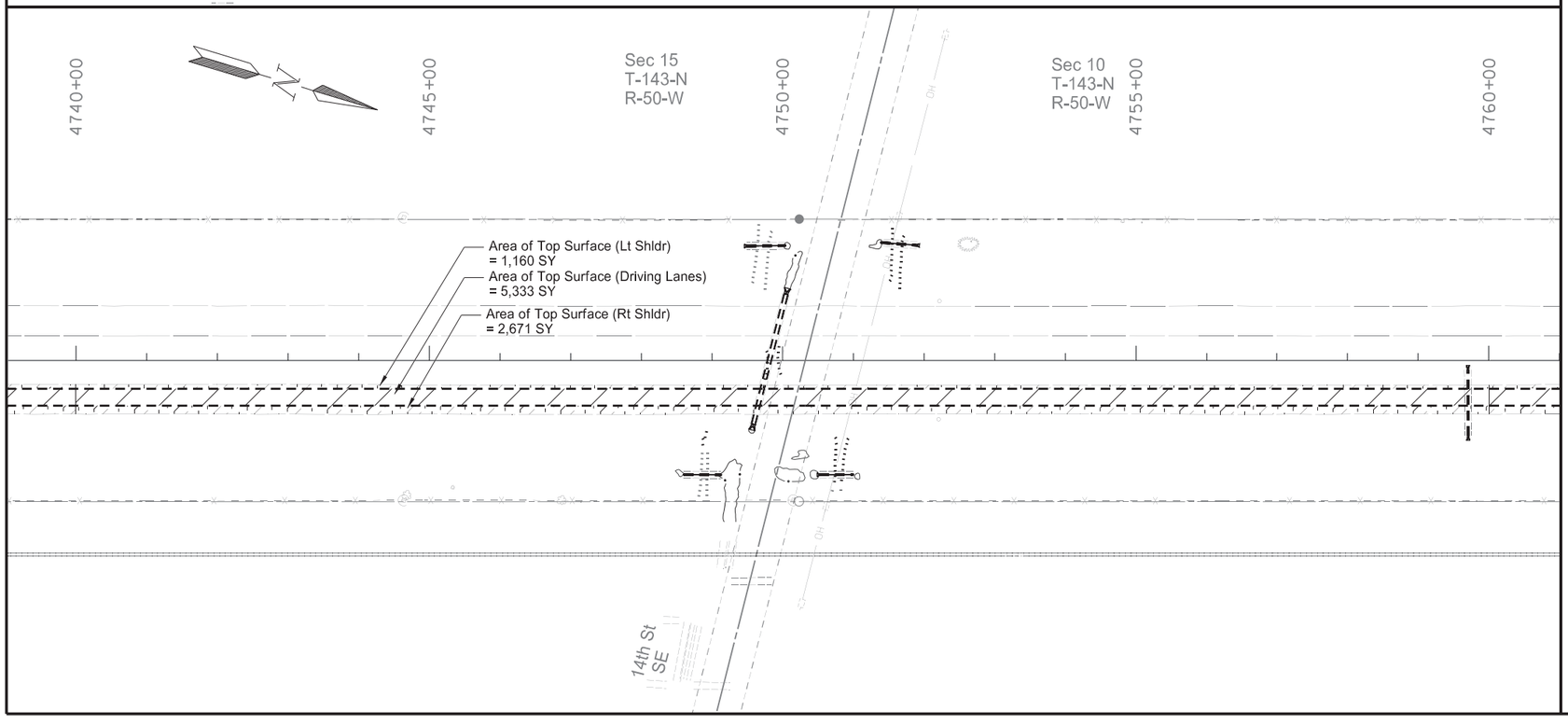
Removal Sheet
Sta 4680+00 to Sta 4720+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	40	3





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4720+00 to Sta 4760+00 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	534
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	696
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	376
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2285
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	883
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1418
		Sta 4720+00 to Sta 4760+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	111
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	188
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	69
		Mainline Asphalt (Avg. Depth = 0.44')	TON	488
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	165
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	288
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4720+00 to Sta 4760+00		
		Mainline Concrete (8" Depth)	TON	4747

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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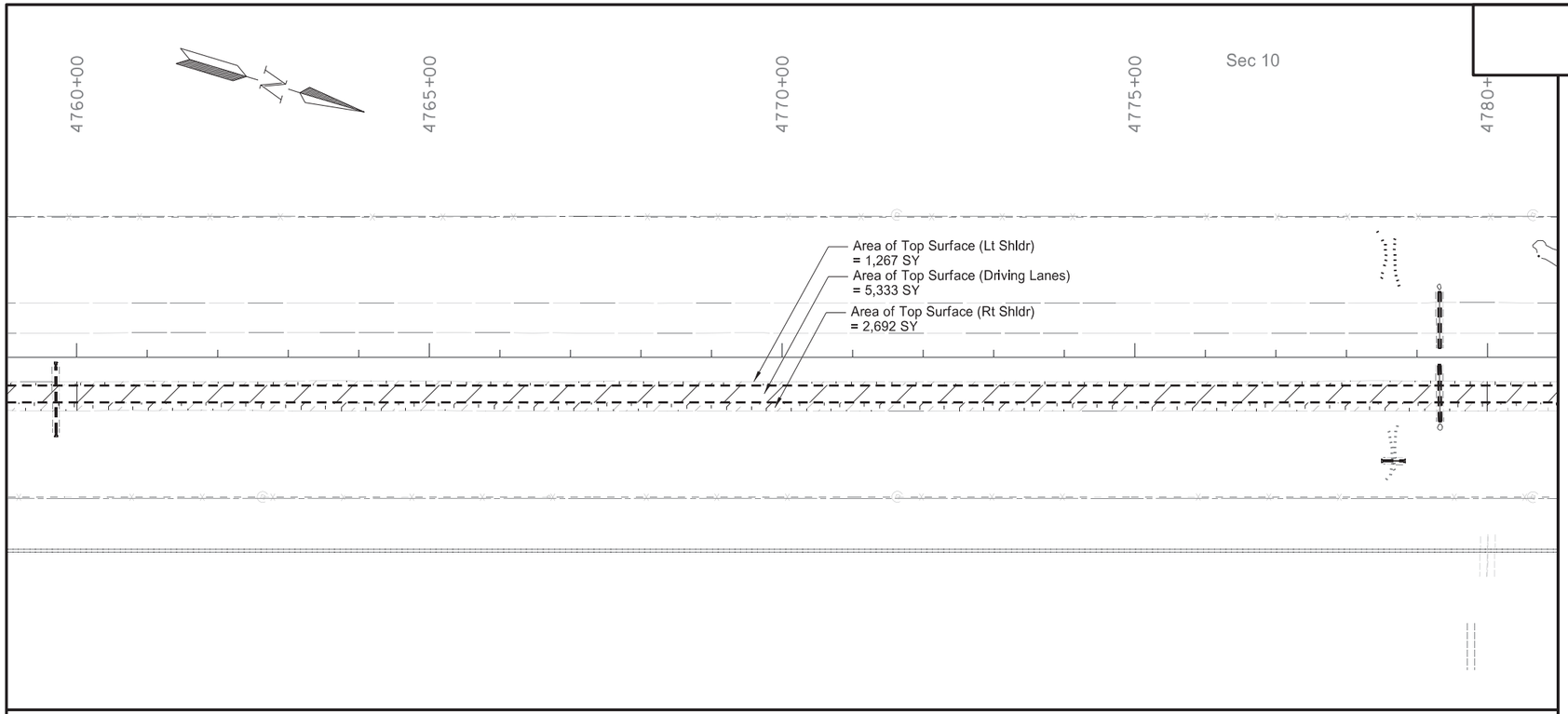
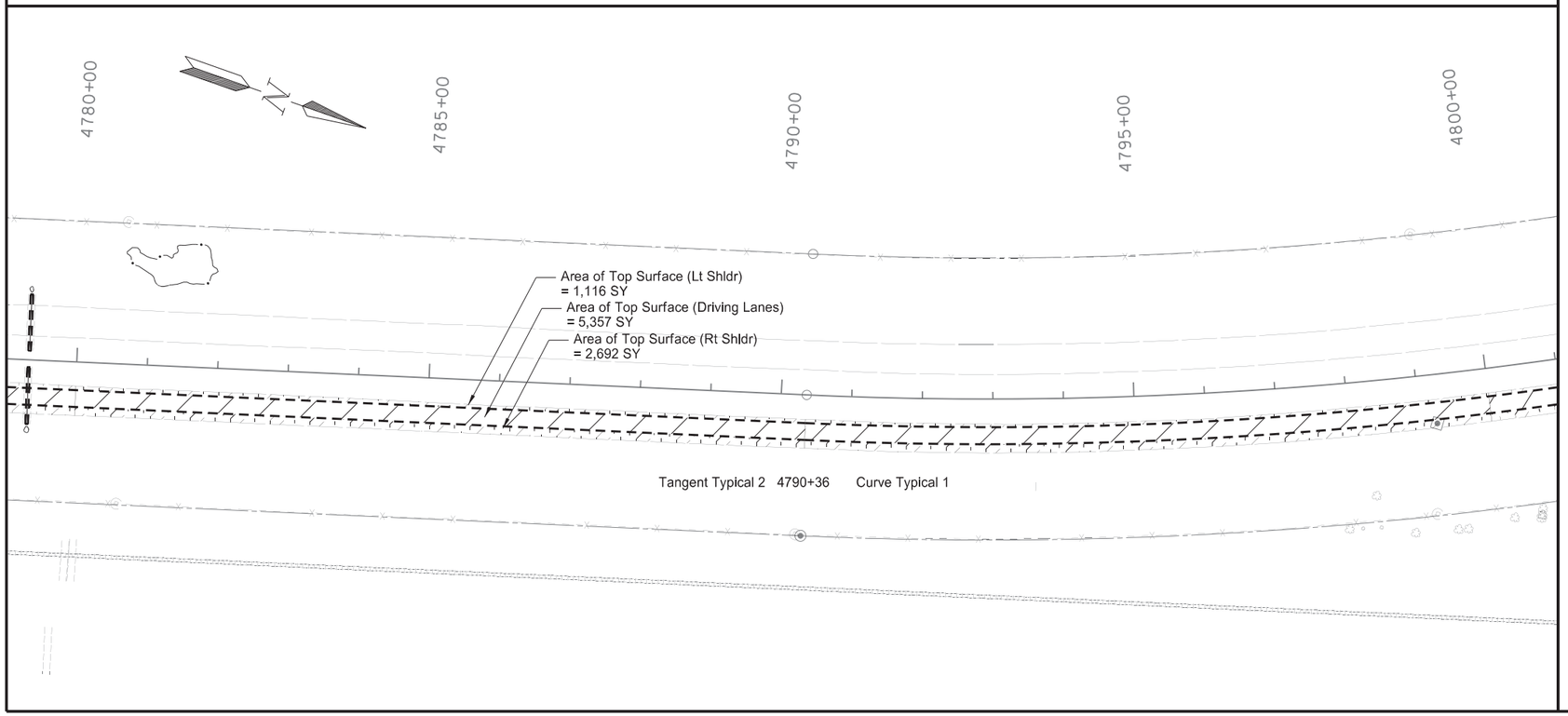
Removal Sheet
Sta 4720+00 to Sta 4760+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	4





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4760+00 to Sta 4800+00 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	504
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	656
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	337
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2051
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	791
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1271
		Sta 4760+00 to Sta 4800+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	153
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	260
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	108
		Mainline Asphalt (Avg. Depth = 0.44')	TON	761
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	256
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	446
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4760+00 to Sta 4800+00		
		Mainline Concrete (8" Depth)	TON	4751

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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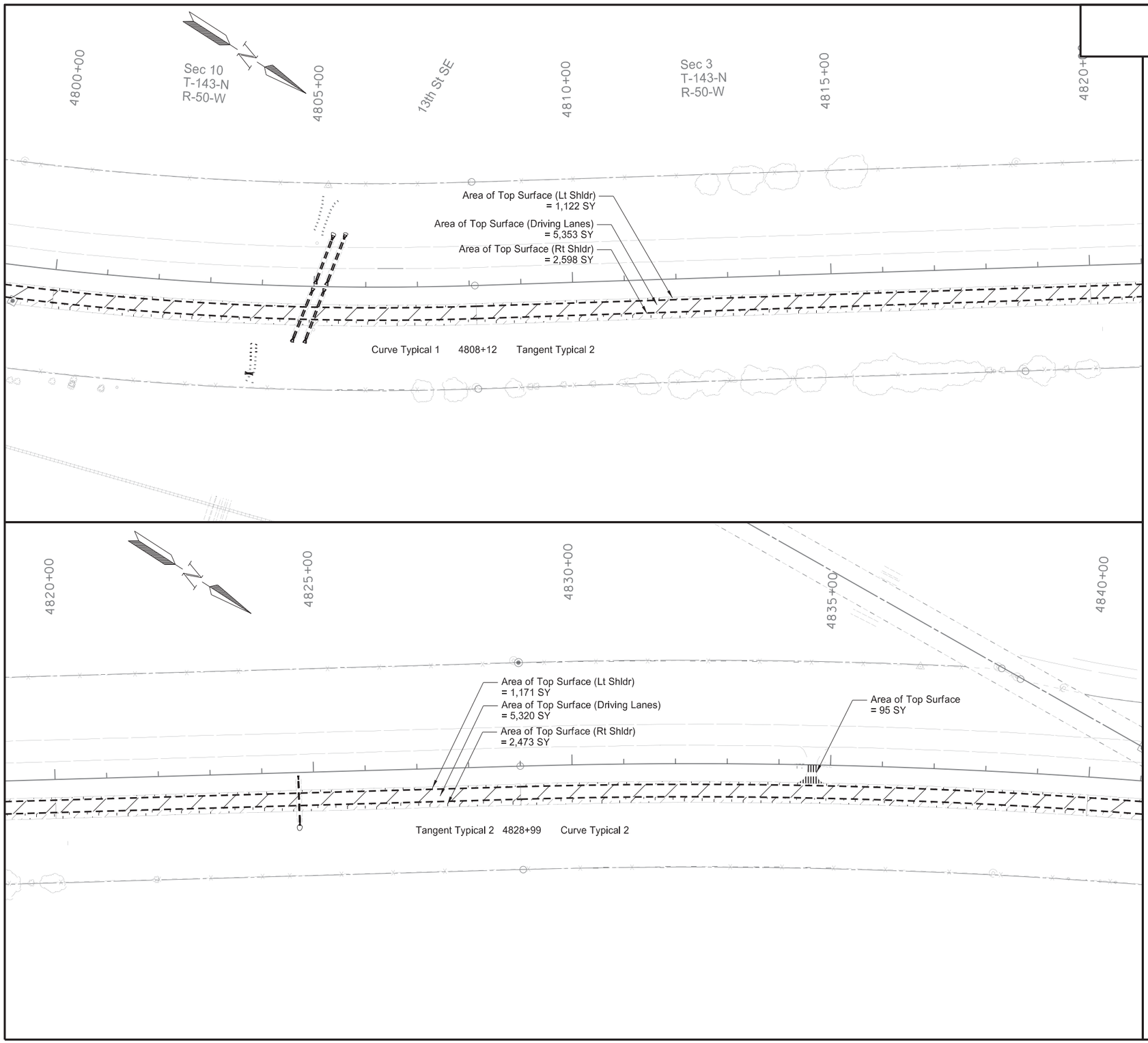
Removal Sheet
Sta 4760+00 to Sta 4800+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	5



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	REMOVE AGGREGATE BASE & SURFACING		
		Sta 4800+00 to Sta 4808+12 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	145
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	246
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	91
		Mainline Asphalt (Avg. Depth = 0.44')	TON	641
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	207
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	361
		Sta 4808+12 to Sta 4828+99 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	314
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	409
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	232
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1410
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	519
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	833
		Sta 4828+99 to Sta 4840+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	201
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	464
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	122
		Mainline Asphalt (Avg. Depth = 0.51')	TON	994
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	263
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	422
		Emergency Crossover - Sta 4834+64	TON	8
202	0136	REMOVAL OF PAVEMENT		
		Sta 4800+00 to Sta 4840+00		
		Mainline Concrete (8" Depth)	TON	4744

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 4800+00 to Sta 4840+00

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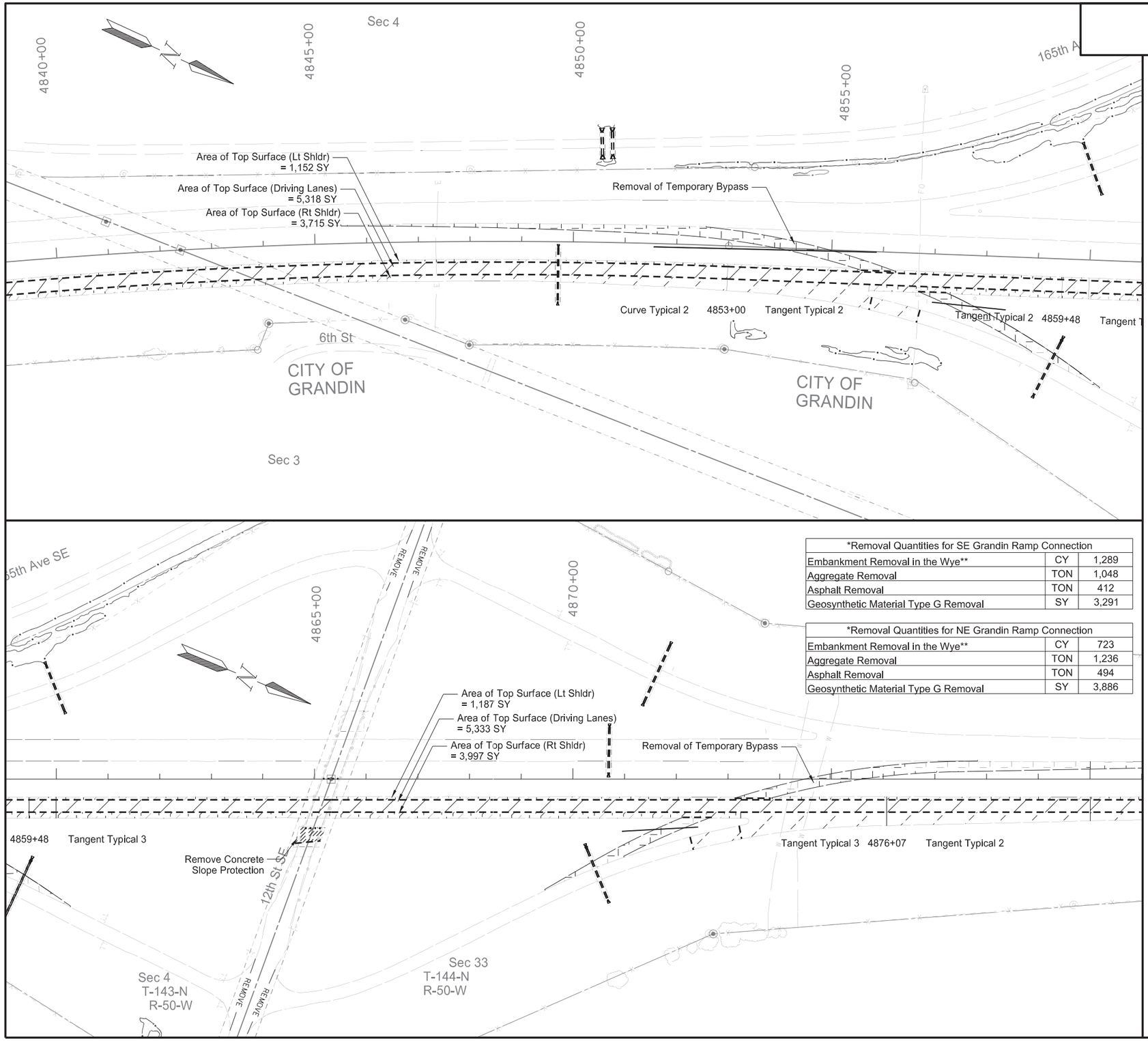
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	6



*Removal Quantities for SE Grandin Ramp Connection		
Embankment Removal in the Wye**	CY	1,289
Aggregate Removal	TON	1,048
Asphalt Removal	TON	412
Geosynthetic Material Type G Removal	SY	3,291

*Removal Quantities for NE Grandin Ramp Connection		
Embankment Removal in the Wye**	CY	723
Aggregate Removal	TON	1,236
Asphalt Removal	TON	494
Geosynthetic Material Type G Removal	SY	3,886

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4840+00 to Sta 4853+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	232
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	536
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	190
		Mainline Asphalt (Avg. Depth = 0.51')	TON	1552
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	166
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	263
		Sta 4853+00 to Sta 4859+48 (Tangent 2 Sections)		
		Sta 4876+07 to Sta 4880+00		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	163
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	212
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	207
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1257
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	103
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	163
		Sta 4859+48 to Sta 4876+07 (Tangent 3 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	260
		Lt Shoulder Asphalt (Avg. Depth = 0.66')	TON	504
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	241
		Mainline Asphalt (Avg. Depth = 0.58')	TON	2233
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	349
		Rt Shoulder Asphalt (Avg. Depth = 0.66')	TON	826
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4800+00 to Sta 4840+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	6800
202	0350	**REMOVAL OF TEMPORARY BYPASS**		
		SE Grandin Ramp Connection	EA	1
		Sta 4845+51 to Sta 4860+28		
		NE Grandin Ramp Connection	EA	1
		Sta 4869+45 to Sta 4887+33		

*For informational purposes only. Included in the price bid
for "Removal of Temporary Bypass."
**Embankment removal quantity excludes the quantity in the median.

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See Section 60 for pipe removal quantities.
*See section 170 for slope protection removal.

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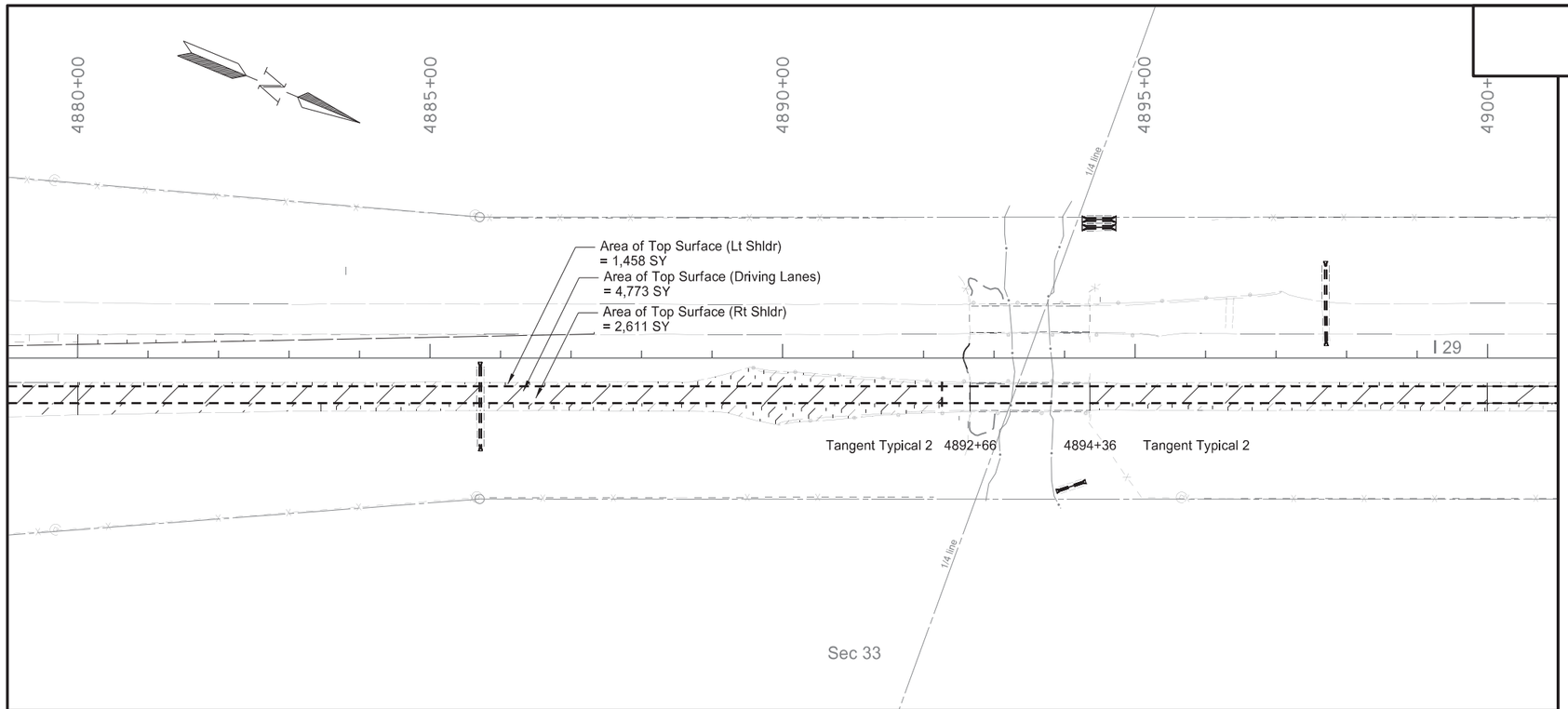
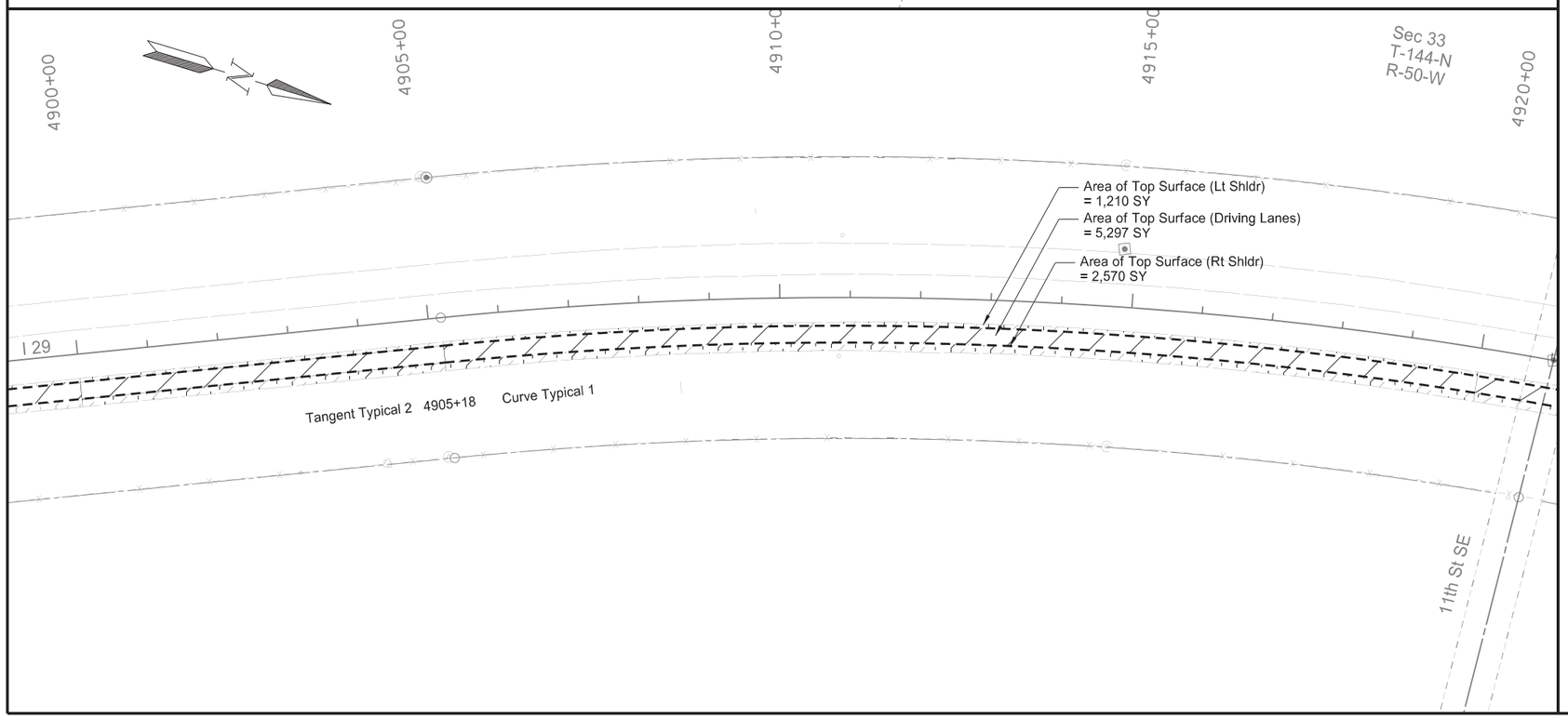
Removal Sheet
Sta 4840+00 to Sta 4880+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	40	7





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4880+00 to Sta 4905+18 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	458
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	596
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	279
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1693
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	537
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	861
		Sta 4905+18 to Sta 4920+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	275
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	465
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	163
		Mainline Asphalt (Avg. Depth = 0.44')	TON	1149
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	372
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	648
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4880+00 to Sta 4920+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	4711

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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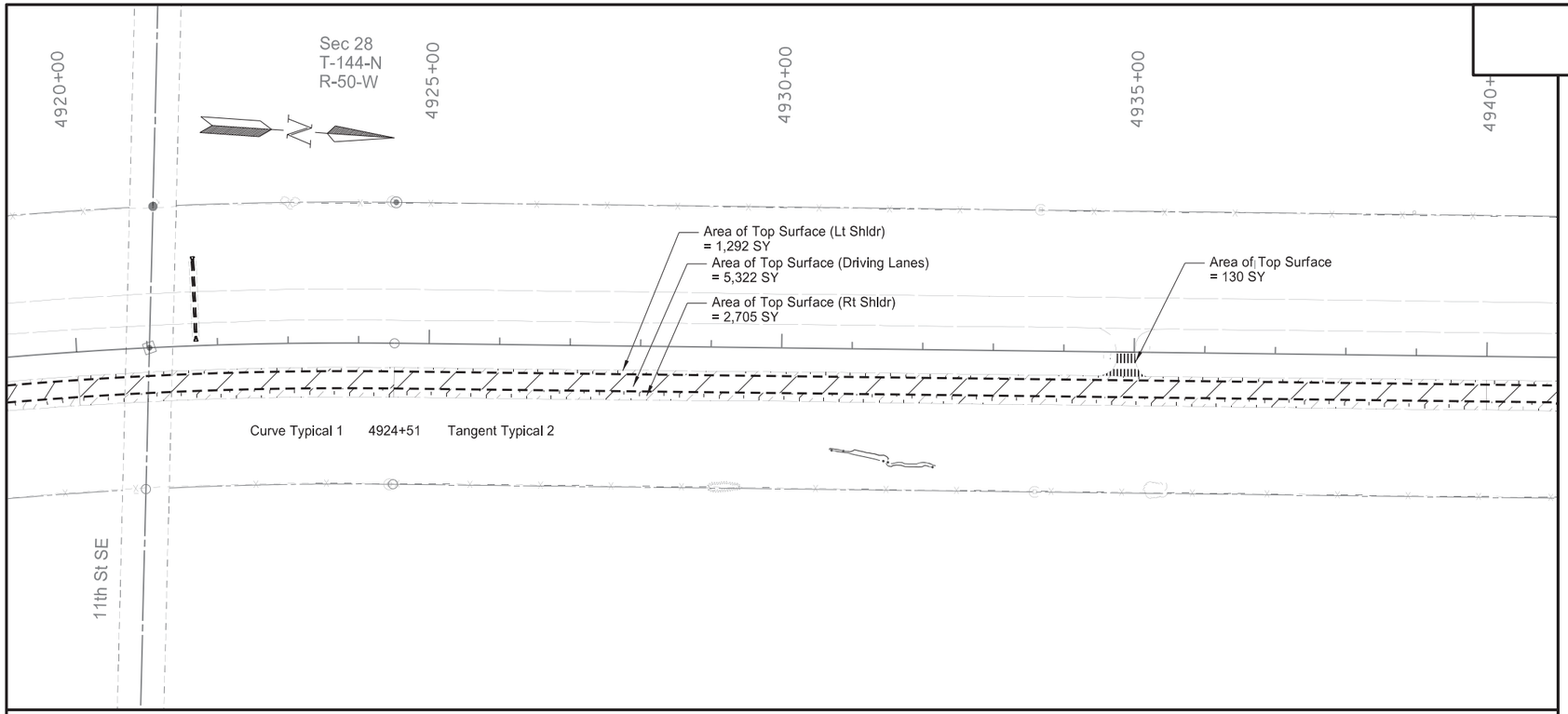
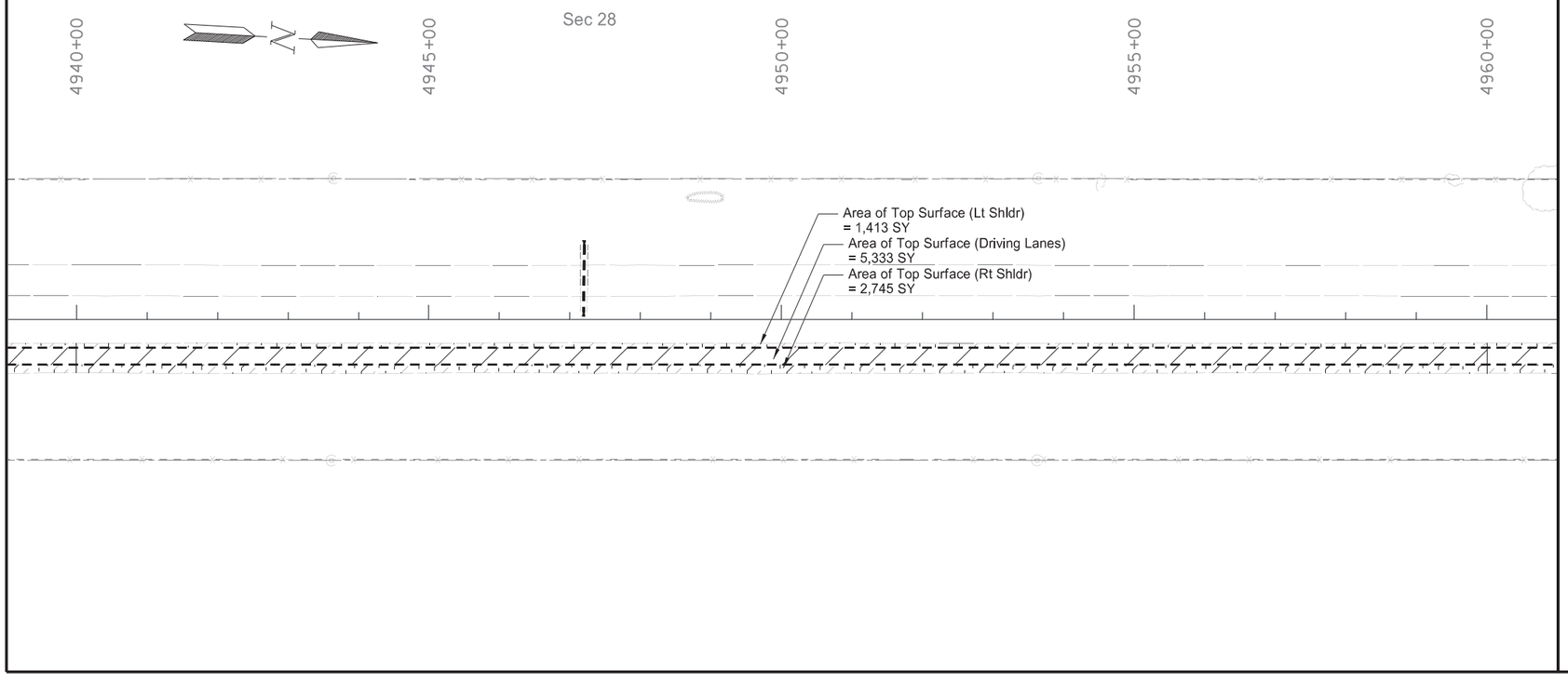
ND	IM-8-029(135)088	40	8





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4924+51 to Sta 4960+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	638
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	830
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	394
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2398
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	940
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1510
		Emergency Crossover - Sta 4934+88	TON	11
		Sta 4920+00 to Sta 4924+51 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	83
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	140
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	50
		Mainline Asphalt (Avg. Depth = 0.44')	TON	350
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	119
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	208
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4920+00 to Sta 4960+00		
		Mainline Concrete (8" Depth)	TON	4736

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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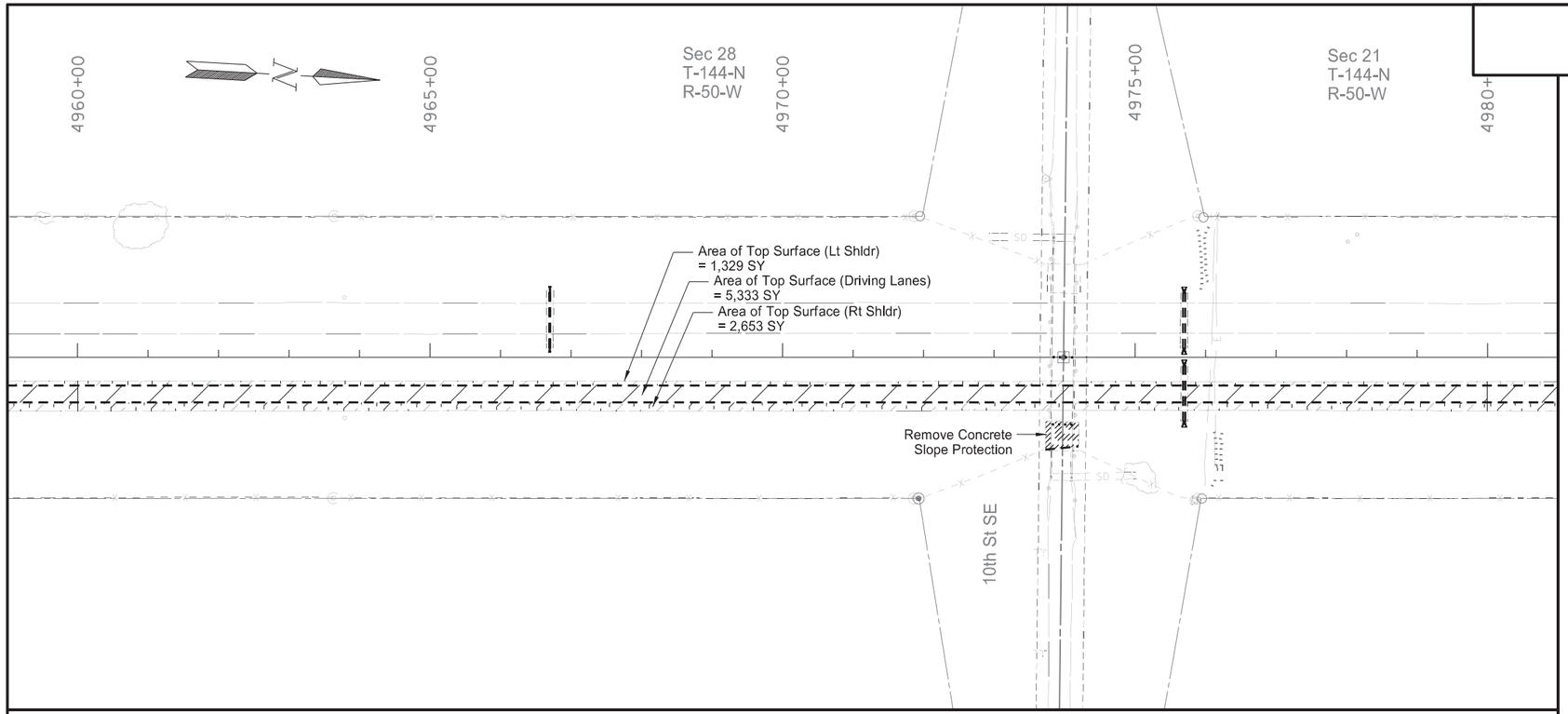
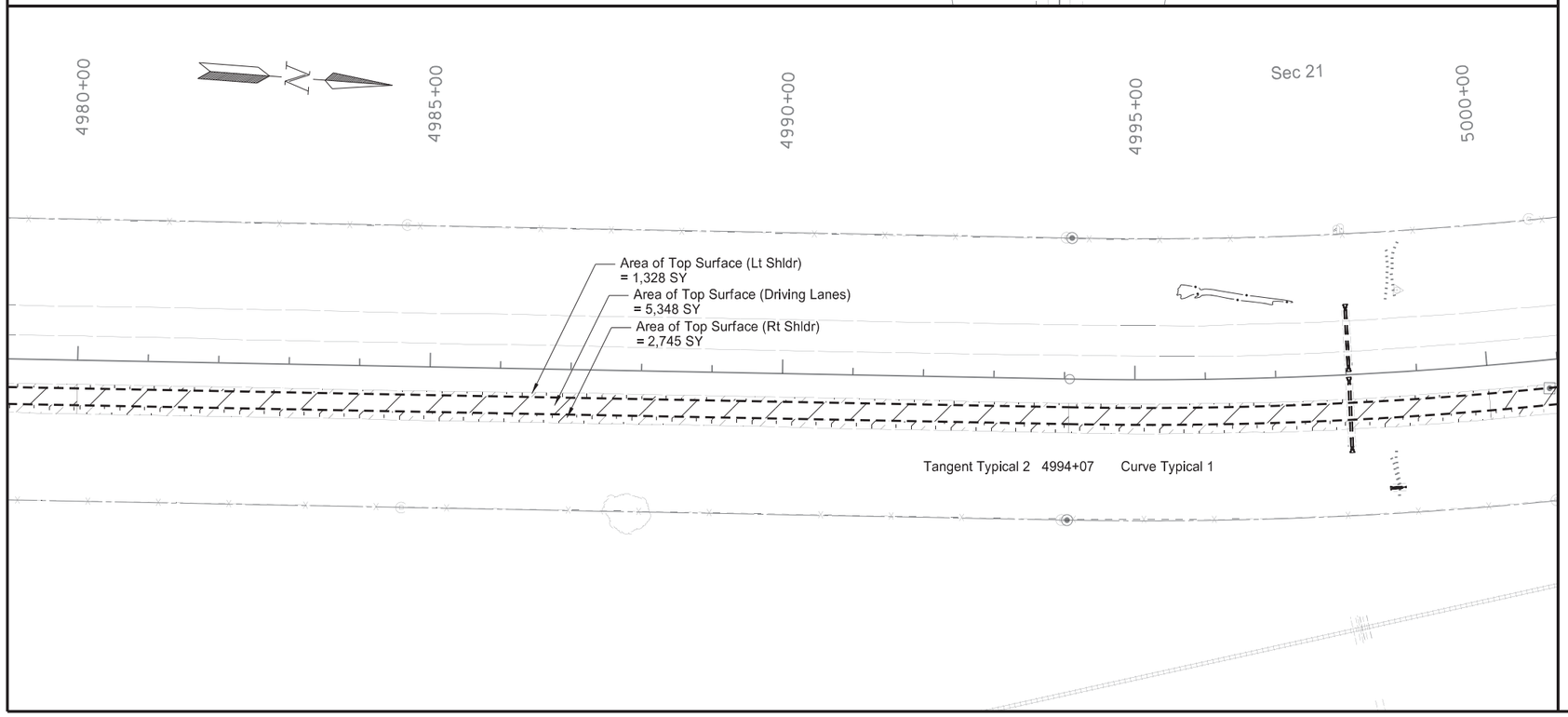
ND	IM-8-029(135)088	40	9





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 4960+00 to Sta 4994+07 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	600
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	781
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	379
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2302
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	883
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1419
		Sta 4994+07 to Sta 5000+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	113
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	192
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	66
		Mainline Asphalt (Avg. Depth = 0.44')	TON	468
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	166
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	290
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 4960+00 to Sta 5000+00		
		Mainline Concrete (8" Depth)	TON	4747

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.
Note 4: See section 170 for slope protection removal.

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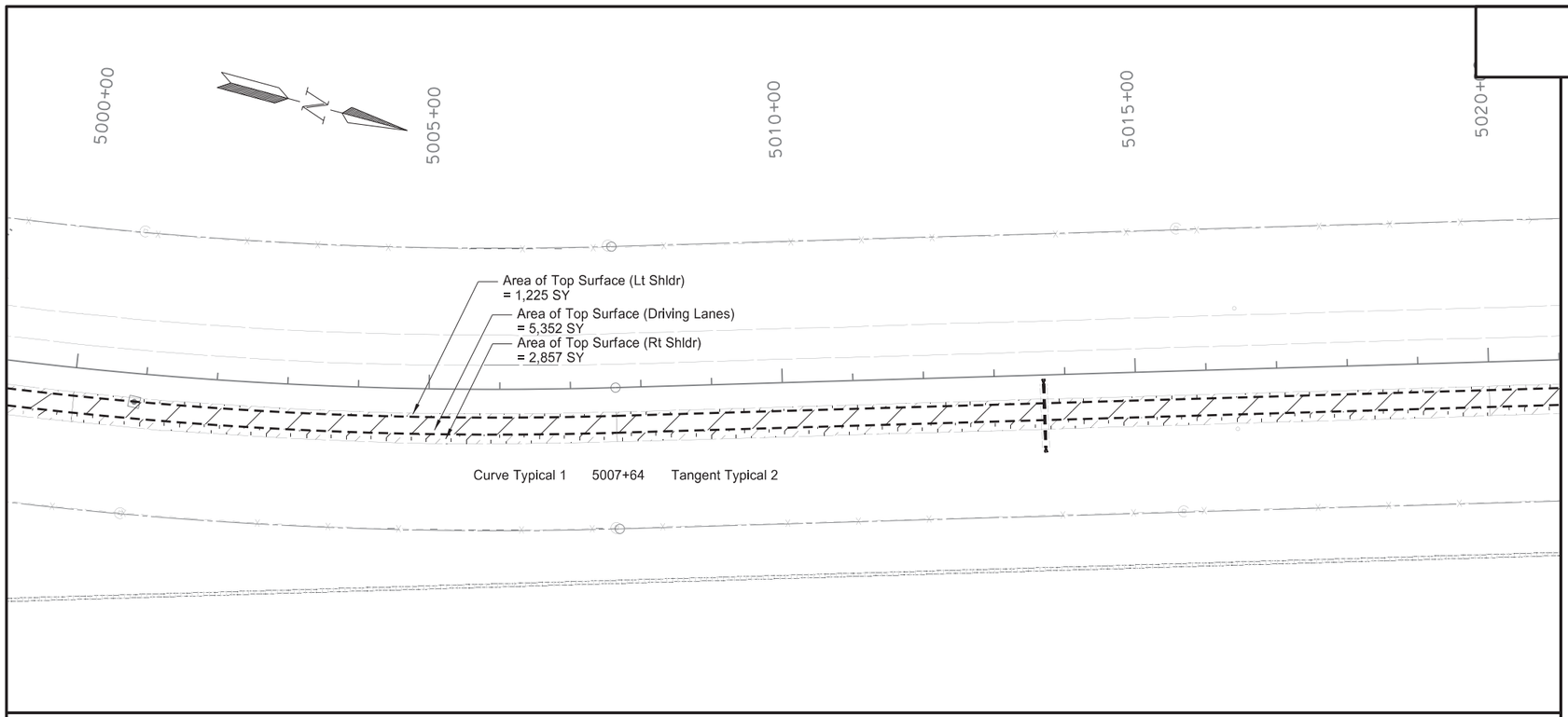
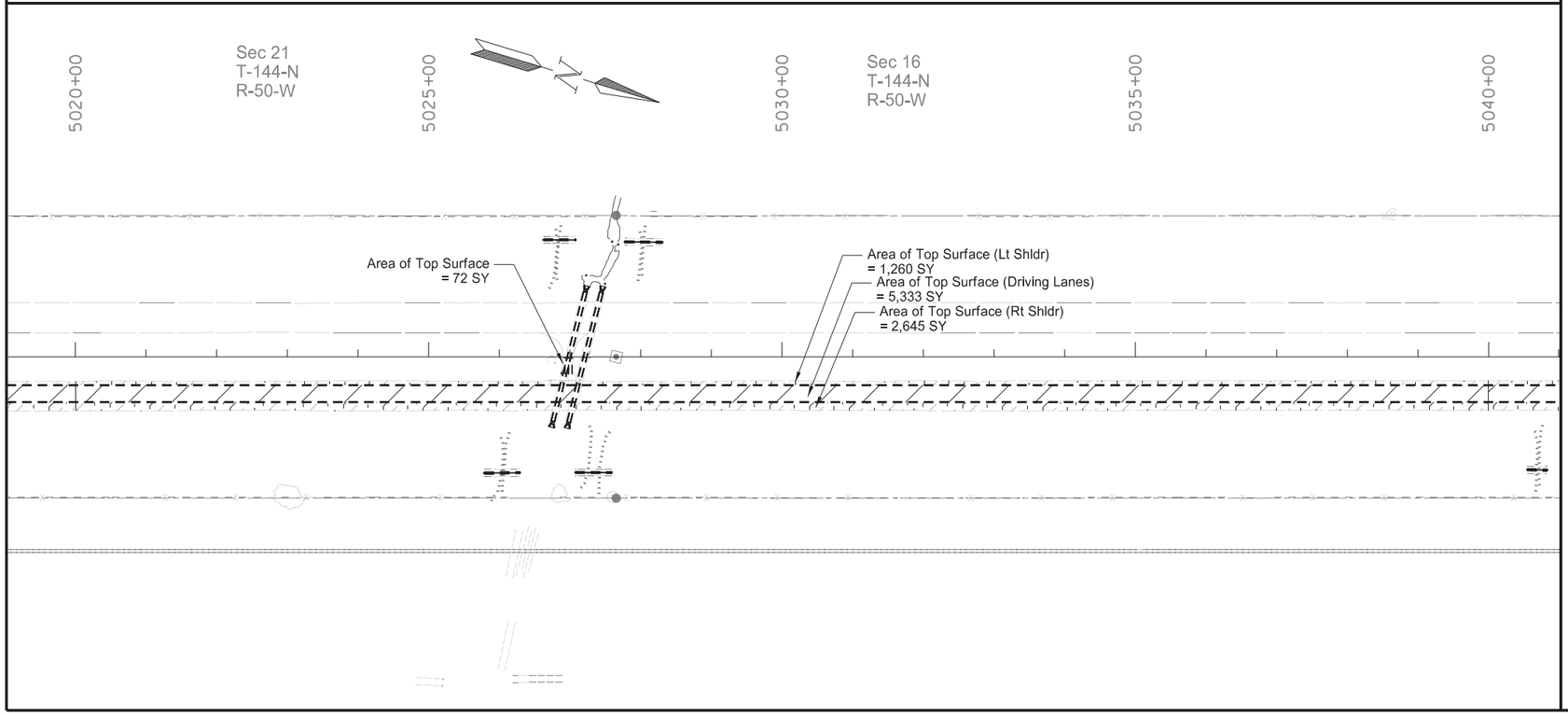
ND	IM-8-029(135)088	40	10





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5007+64 to Sta 5040+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	536
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	697
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	360
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2186
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	856
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1375
		Emergency Crossover - Sta 5026+97	TON	6
		Sta 5000+00 to Sta 5007+64 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	143
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	241
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	86
		Mainline Asphalt (Avg. Depth = 0.44')	TON	603
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	213
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	371
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5000+00 to Sta 5040+00		
		Mainline Concrete (8" Depth)	TON	4749

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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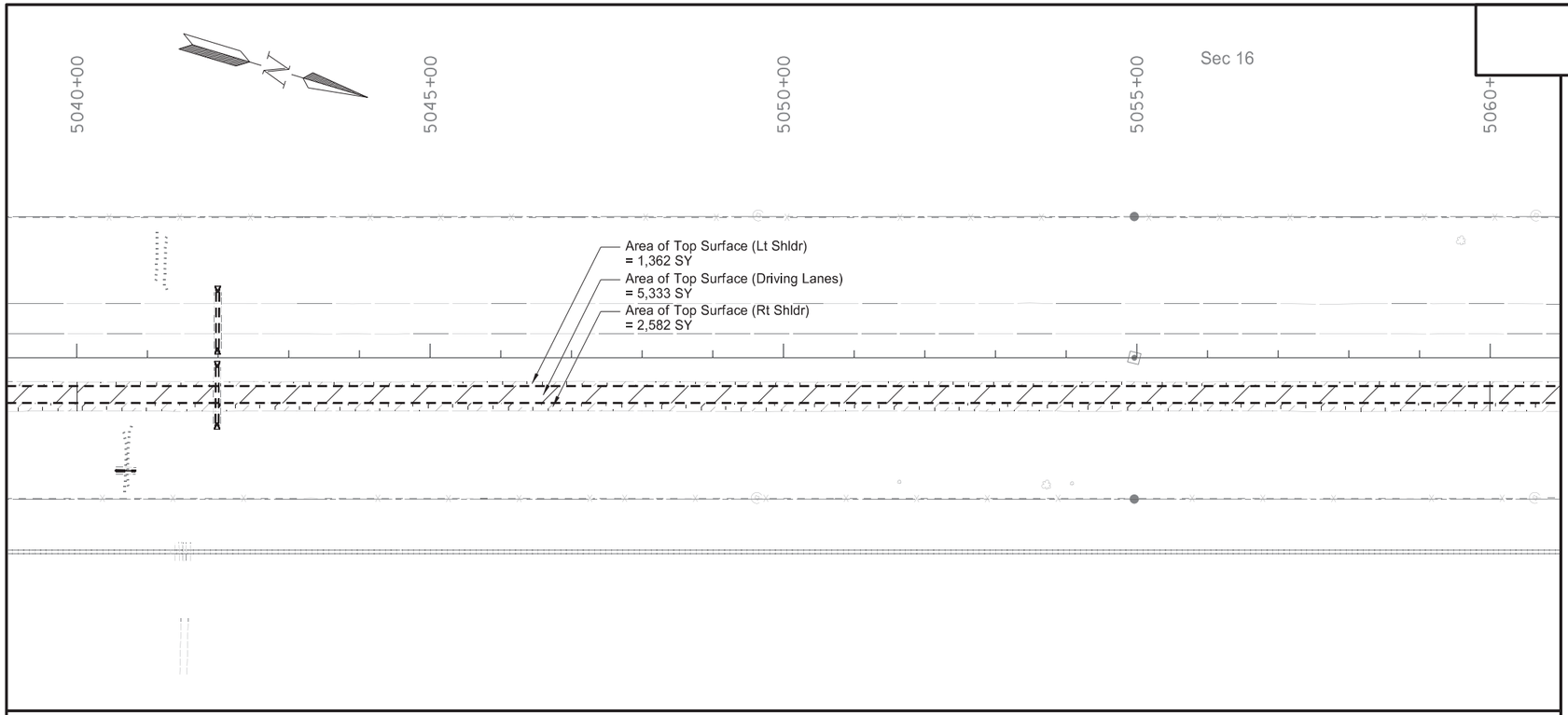
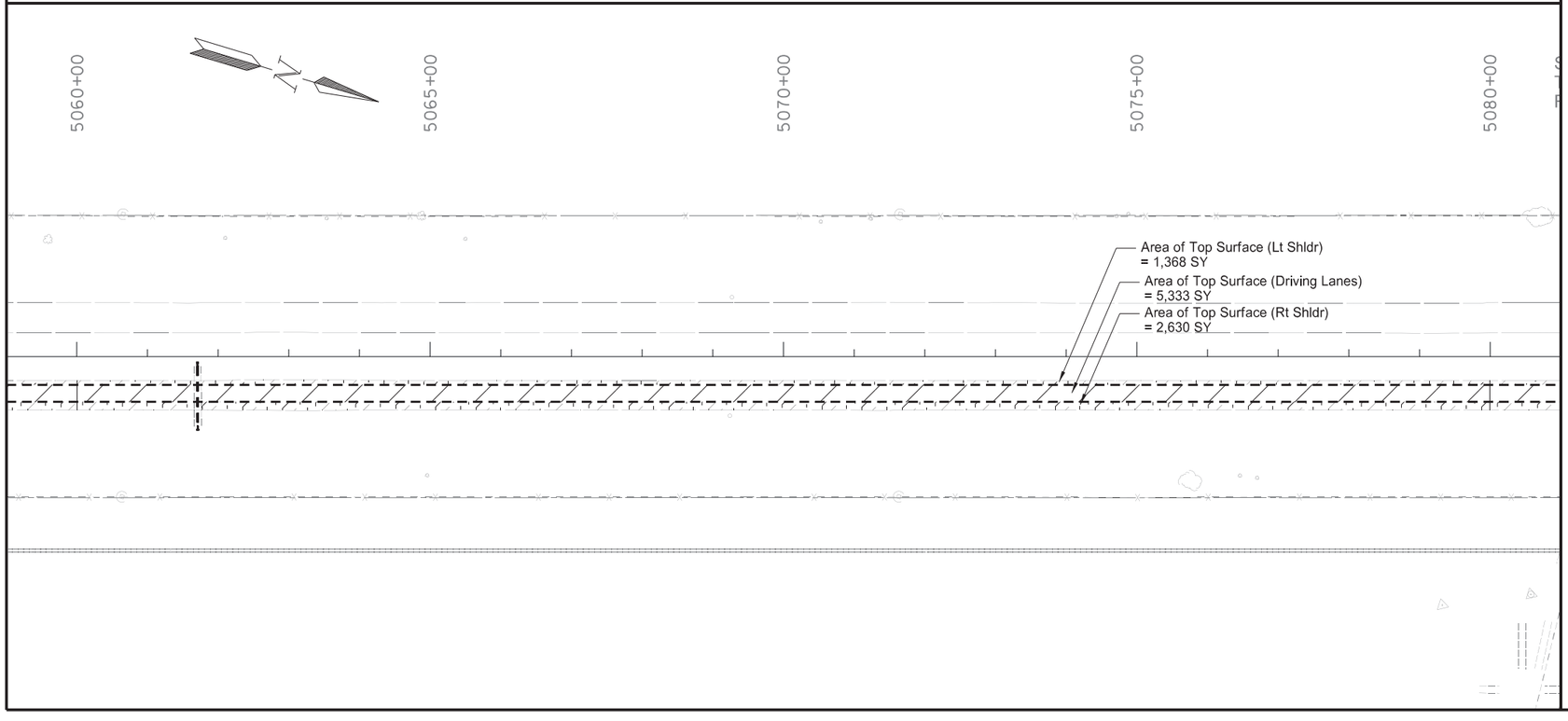
ND	IM-8-029(135)088	40	11





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5040+00 to Sta 5080+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	716
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	932
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	444
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2702
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	1015
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1630
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5040+00 to Sta 5080+00		
		Mainline Concrete (8" Depth)	TON	4741

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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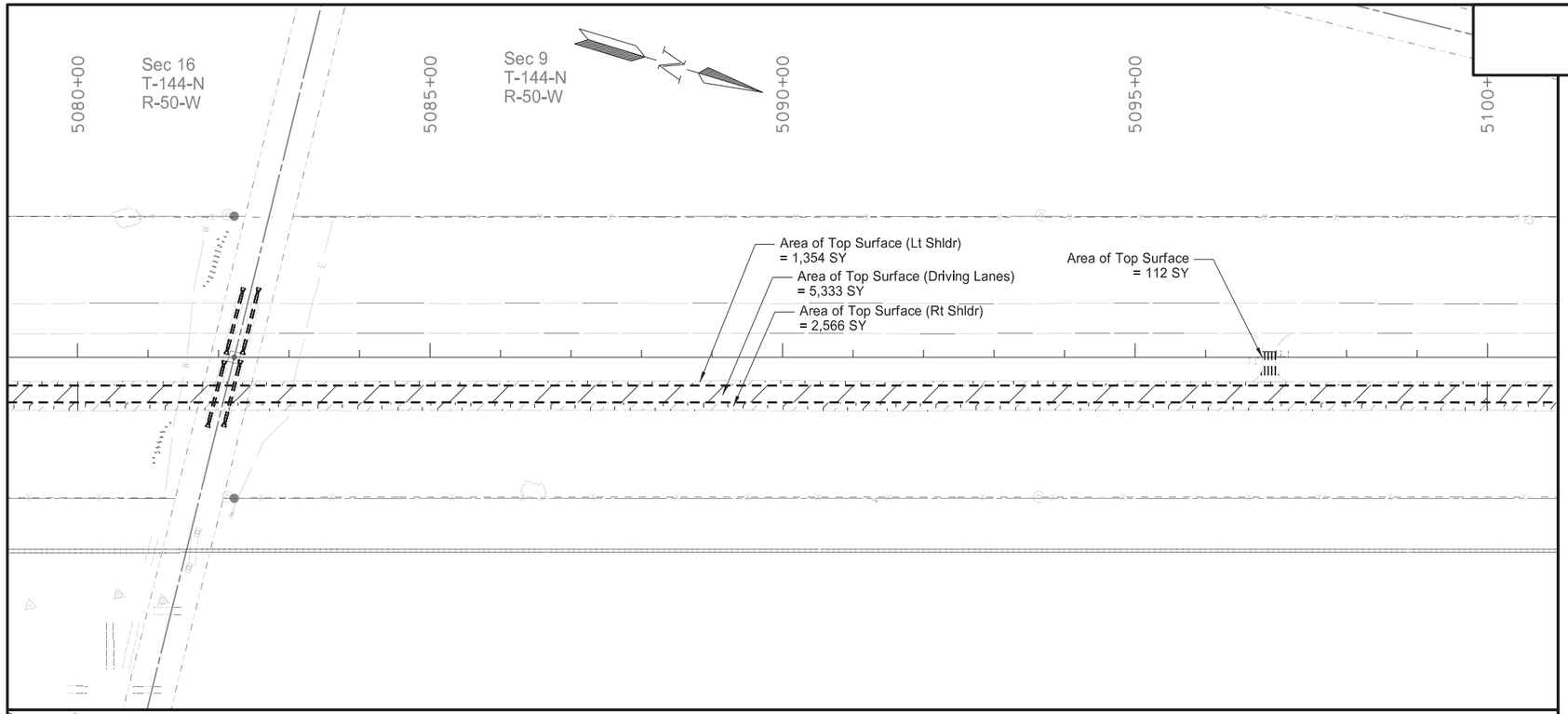
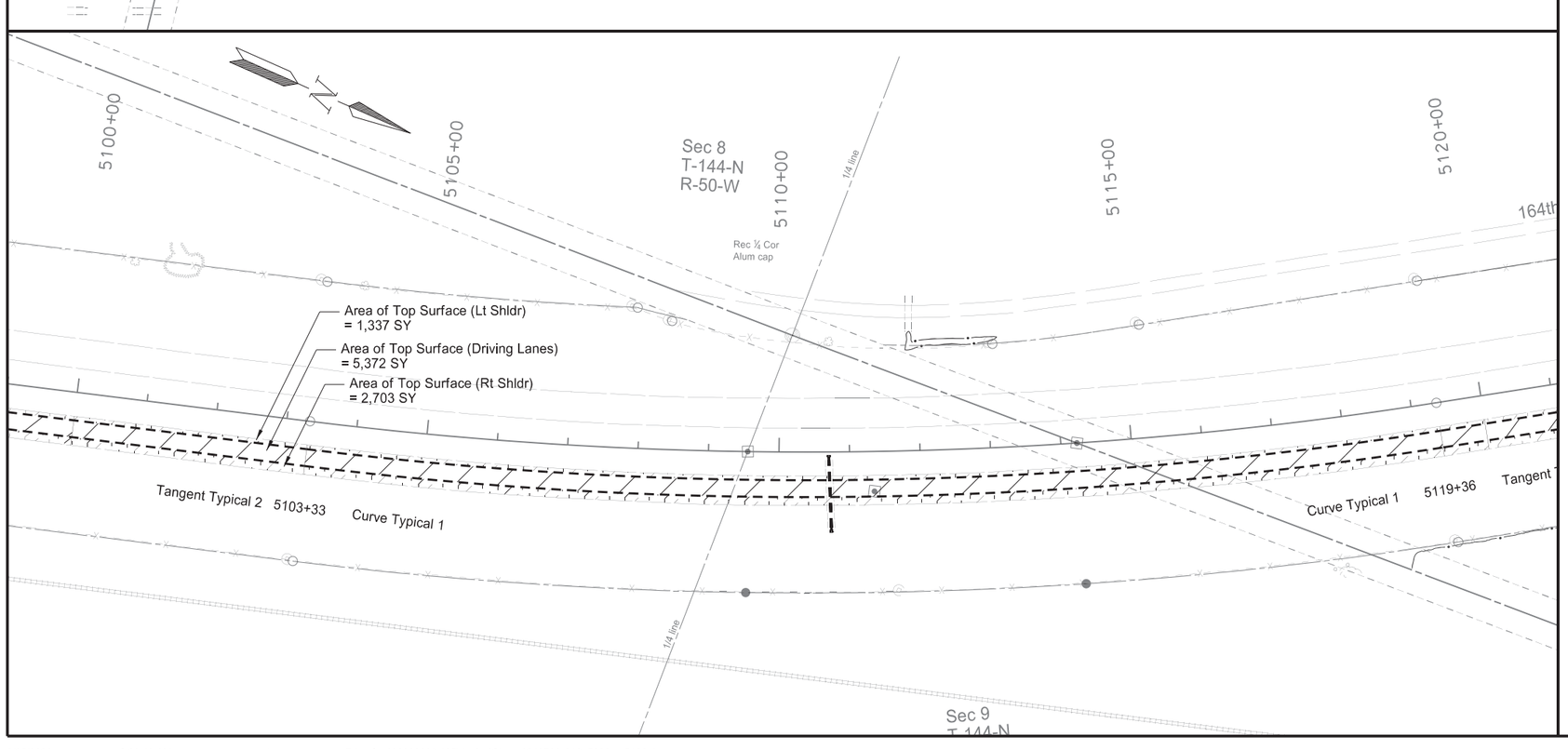
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	12





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5080+00 to Sta 5120+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	425
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	553
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	266
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1619
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	605
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	971
		Emergency Crossover - Sta 5096+90	TON	9
		Sta 5103+33 to Sta 5119+36 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	323
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	547
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	180
		Mainline Asphalt (Avg. Depth = 0.44')	TON	1265
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	421
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	735
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5080+00 to Sta 5120+00		
		Mainline Concrete (8" Depth)	TON	4758

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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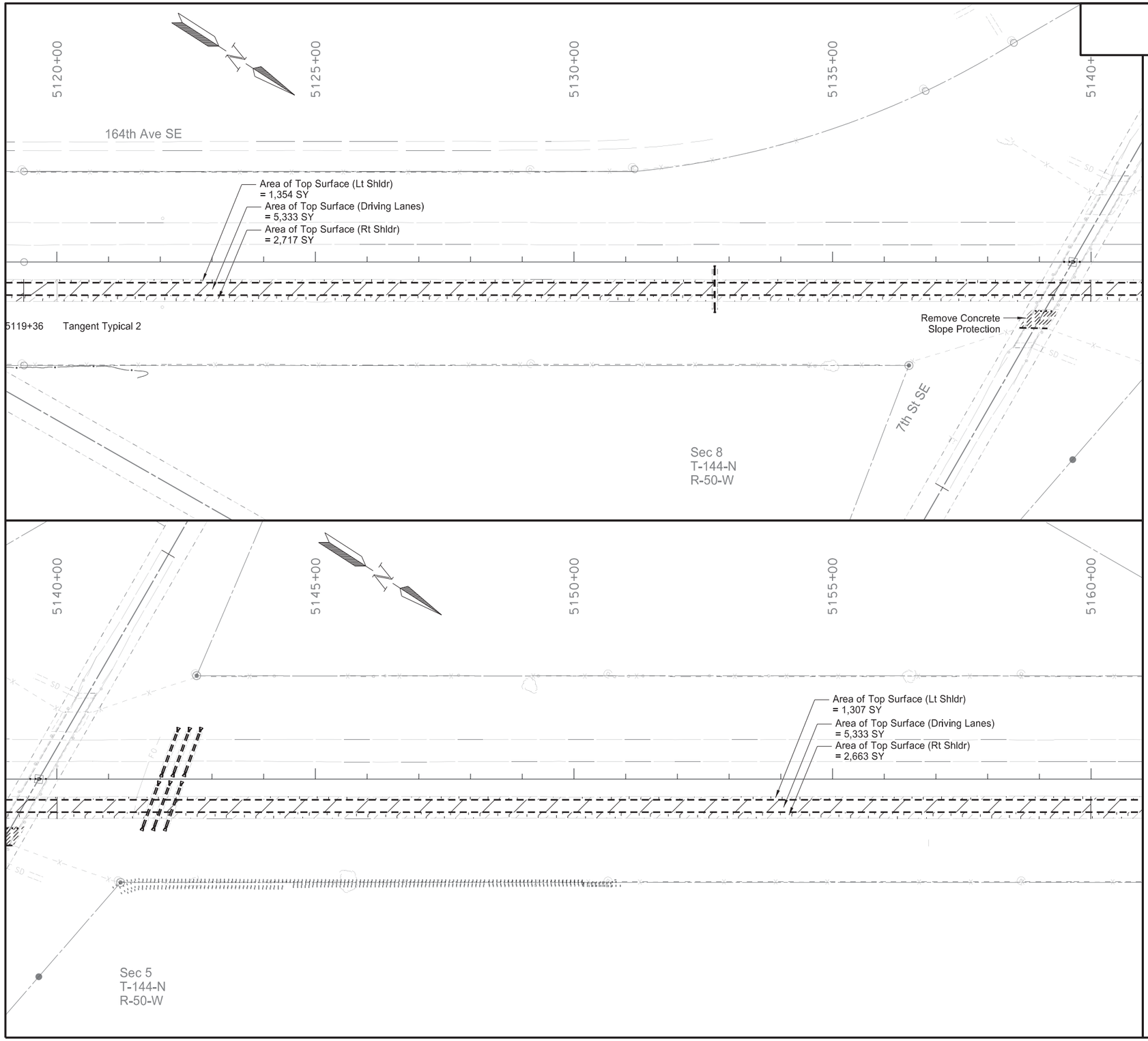
ND	IM-8-029(135)088	40	13



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5120+00 to Sta 5160+00 (Tangent Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	700
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	911
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	444
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2702
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	1046
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1680
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5120+00 to Sta 5160+00		
		Mainline Concrete (8" Depth)	TON	4741

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.
Note 4: See section 170 for slope protection removal.

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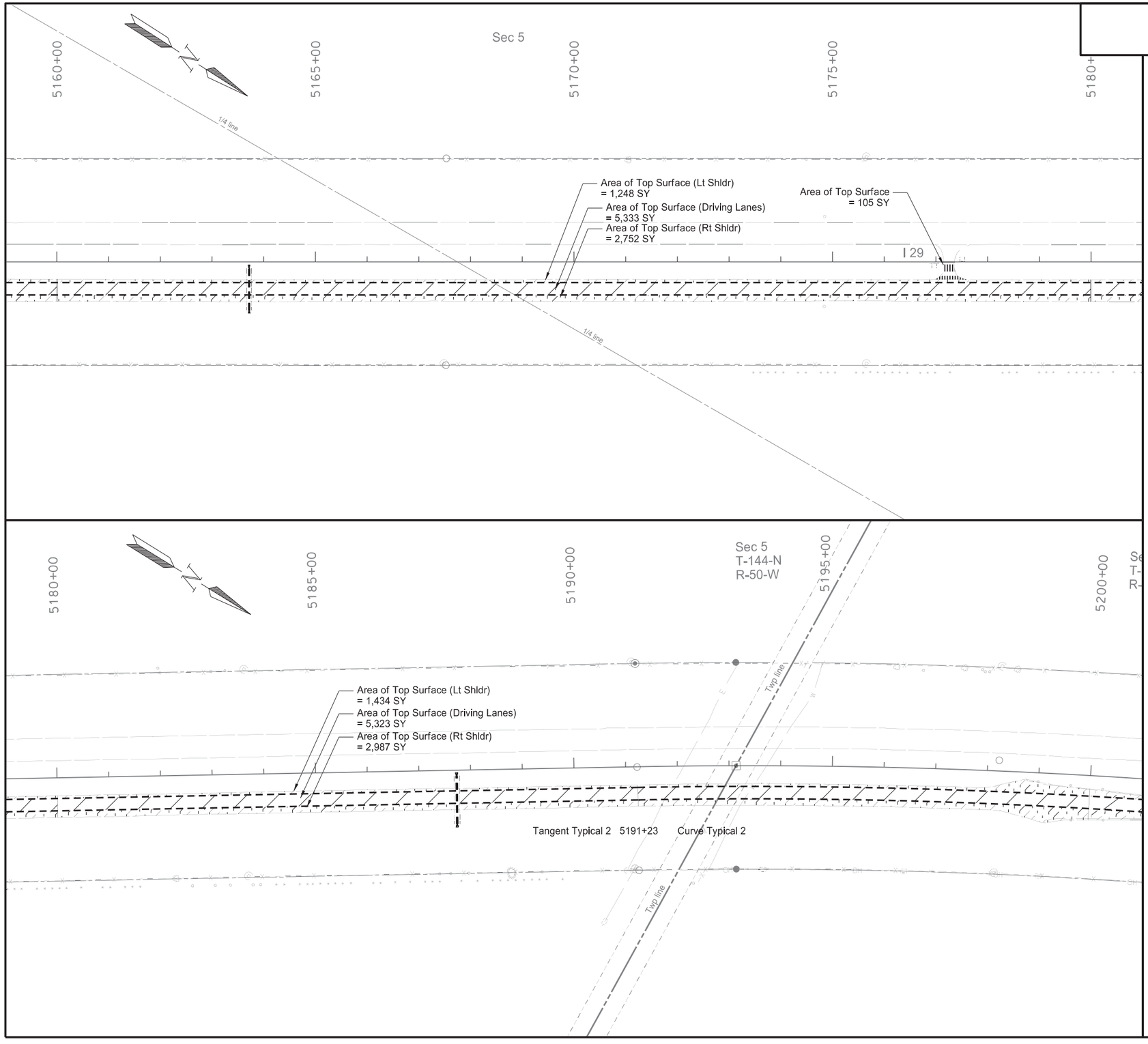
ND	IM-8-029(135)088	40	14



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5160+00 to Sta 5191+23 (Tangent Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	502
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	653
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	347
		Mainline Asphalt (Avg. Depth = 0.38')	TON	2110
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	838
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	1346
		Emergency Crossover - Sta 5177+25	TON	9
		Sta 5191+23 to Sta 5200+00 (Curve Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	230
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	527
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	97
		Mainline Asphalt (Avg. Depth = 0.51')	TON	792
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	275
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	443
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5160+00 to Sta 5200+00		
		Mainline Concrete (8" Depth)	TON	4736

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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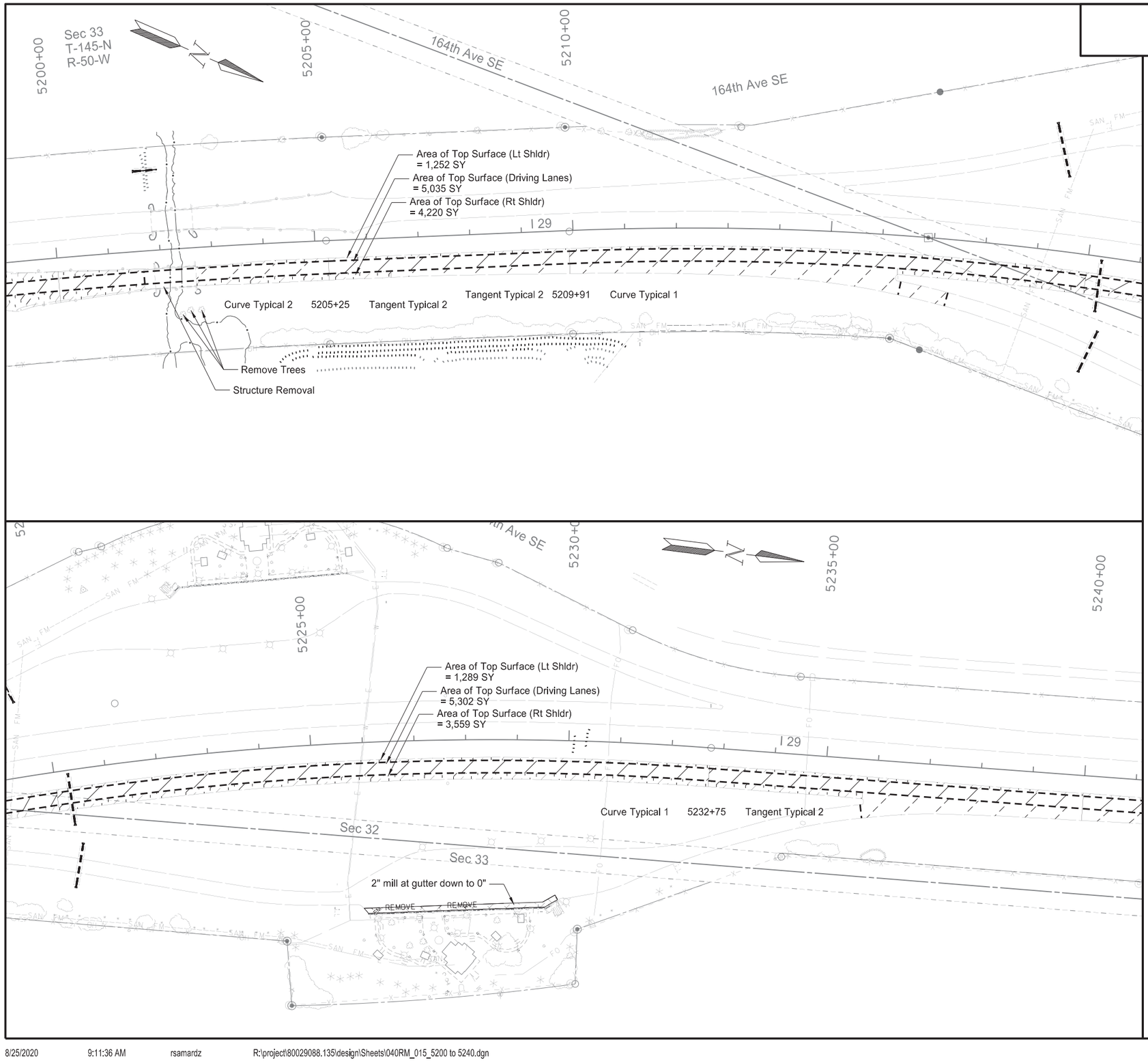
	ND	IM-8-029(135)088	40	15



SPEC	CODE	BID ITEM	UNIT	QUANTITY
		REMOVAL OF TREES*		
		Sta 5202+36 - 128' Rt		
		Sta 5202+52 - 120' Rt		
		Sta 5202+73 - 121' Rt		
202	**0021**	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5200+00 to Sta 5205+25* (Curve 2 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	96
		Lt Shoulder Asphalt (Avg. Depth = 0.86')	TON	220
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	47
		Mainline Asphalt (Avg. Depth = 0.51')	TON	383
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	127
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	205
		Sta 5205+25 to Sta 5209+91 (Tangent 2 Sections)		
		Sta 5232+75 to Sta 5240+00		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	209
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	272
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	216
		Mainline Asphalt (Avg. Depth = 0.38')	TON	1316
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	117
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	185
		Sta 5209+91 to Sta 5232+75 (Curve 1 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.51')	TON	433
		Lt Shoulder Asphalt (Avg. Depth = 0.64')	TON	733
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	349
		Mainline Asphalt (Avg. Depth = 0.44')	TON	2457
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	438
		Rt Shoulder Asphalt (Avg. Depth = 0.49')	TON	760
202	**0136**	**REMOVAL OF PAVEMENT**		
		Sta 5200+00 to Sta 5240+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	6531

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See Section 60 for pipe removal quantities.
Note 4: See section 170 for structure removal.

*Included in the pay item for Clearing and Grubbing.

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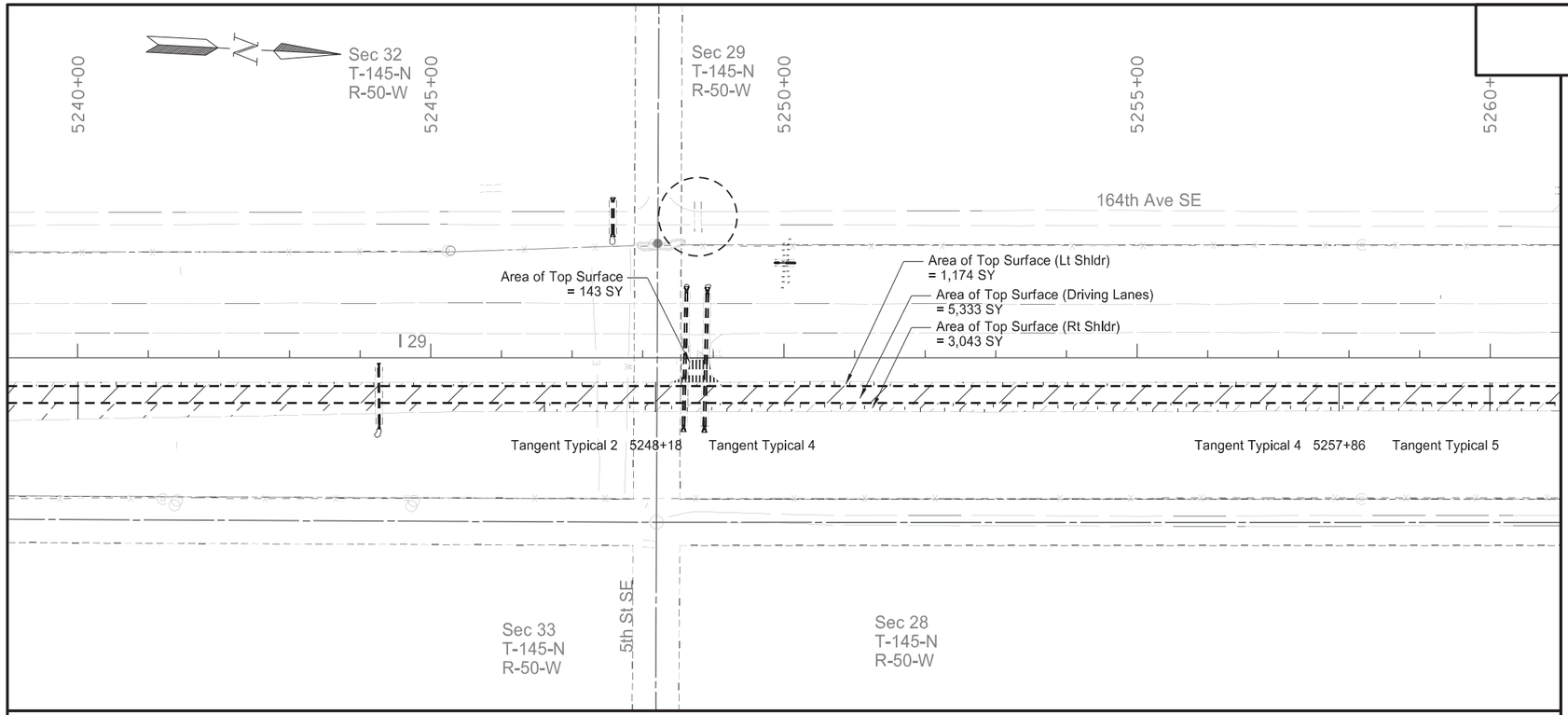

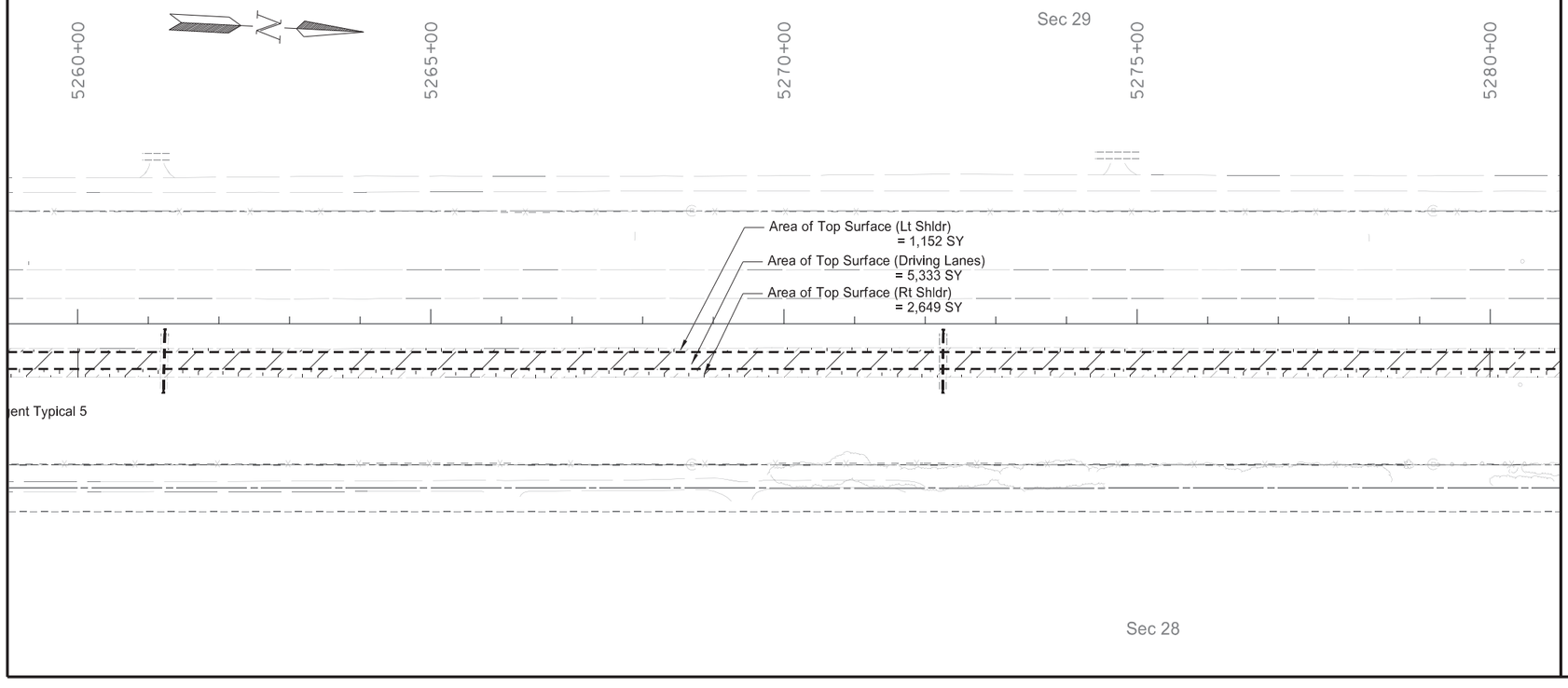

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5240+00 to Sta 5248+18 (Tangent 2 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.46')	TON	127
		Lt Shoulder Asphalt (Avg. Depth = 0.45')	TON	165
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	142
		Mainline Asphalt (Avg. Depth = 0.38')	TON	865
		Rt Shoulder Aggregate (Avg. Depth = 0.37')	TON	50
		Rt Shoulder Asphalt (Avg. Depth = 0.45')	TON	78
		Sta 5248+18 to Sta 5257+86 (Tangent 4 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.38')	TON	124
		Lt Shoulder Asphalt (Avg. Depth = 0.40')	TON	166
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	108
		Mainline Asphalt (Avg. Depth = 0.29')	TON	499
		Rt Shoulder Aggregate (Avg. Depth = 0.32')	TON	222
		Rt Shoulder Asphalt (Avg. Depth = 0.35')	TON	316
		Emergency Crossover - Sta 5248+78	TON	12
		Sta 5257+86 to Sta 5280+00 (Tangent 5 Sections)		
		Lt Shoulder Aggregate (Avg. Depth = 0.38')	TON	273
		Lt Shoulder Asphalt (Avg. Depth = 0.56')	TON	511
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	246
		Mainline Asphalt (Avg. Depth = 0.46')	TON	1811
		Rt Shoulder Aggregate (Avg. Depth = 0.32')	TON	492
		Rt Shoulder Asphalt (Avg. Depth = 0.52')	TON	1032
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5240+00 to Sta 5280+00		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	5289

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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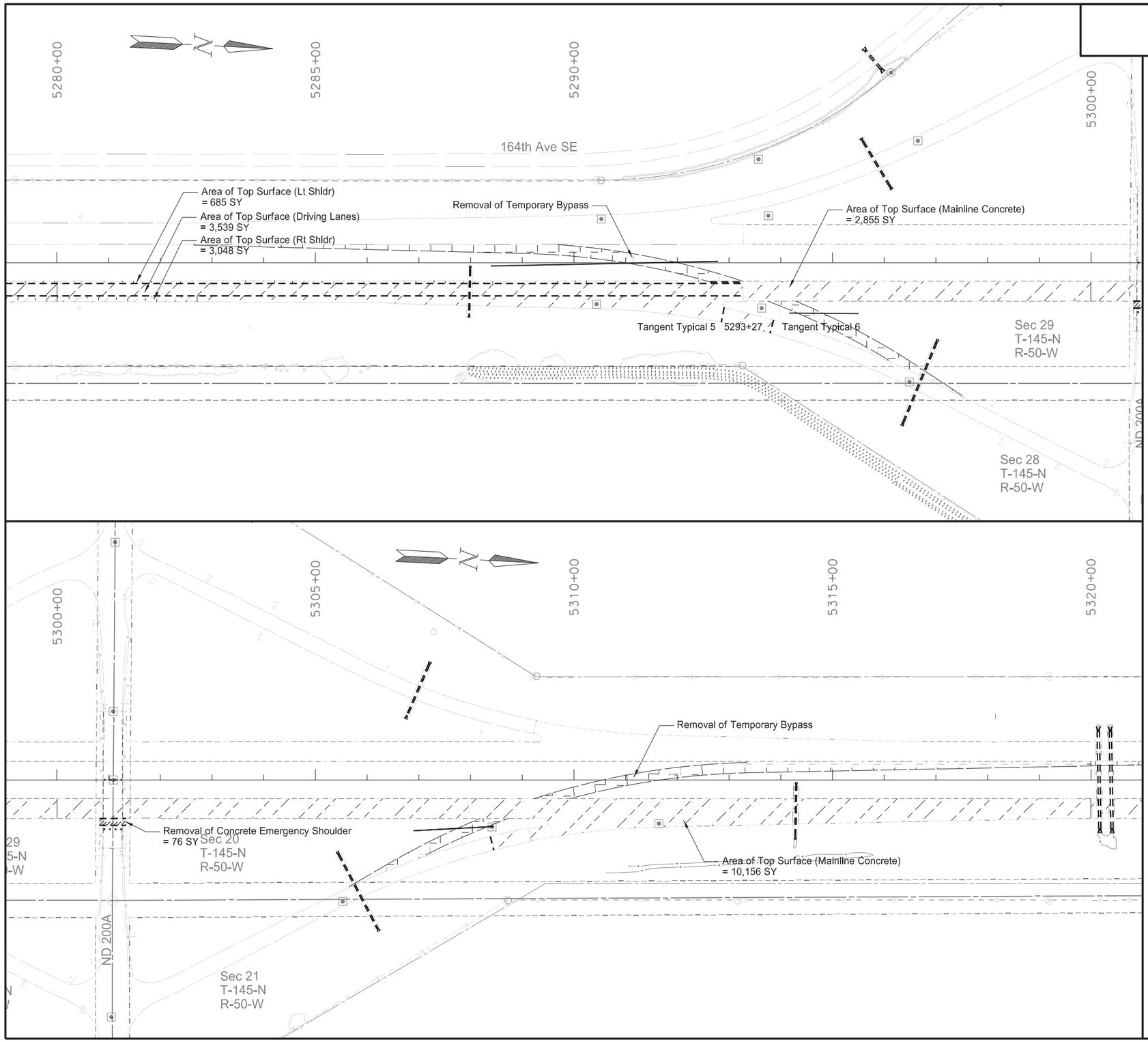
Removal Sheet
Sta 5240+00 to Sta 5280+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	17



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5280+00 to Sta 5293+27 (Tangent 5 Section)		
		Lt Shoulder Aggregate (Avg. Depth = 0.38')	TON	152
		Lt Shoulder Asphalt (Avg. Depth = 0.56')	TON	283
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	295
		Mainline Asphalt (Avg. Depth = 0.46')	TON	1913
		Rt Shoulder Aggregate (Avg. Depth = 0.32')	TON	70
		Rt Shoulder Asphalt (Avg. Depth = 0.52')	TON	132
		Sta 5293+27 to Sta 5320+00 (Tangent 6 Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	582
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5280+00 to Sta 5293+27 (Tangent 5 Section)		
		Mainline Concrete and Ramp Taper (8" Depth)	TON	2772
		Sta 5293+27 to Sta 5320+00 (Tangent 6 Section)		
		Mainline Concrete and Ramp Taper (9" Depth)	TON	6505
		Sta 5300+82 to Sta 5301+33		
		Emergency Shoulder Concrete (6" Depth)	TON	25
202	0350	**REMOVAL OF TEMPORARY BYPASS**		
		SE Blanchard Ramp Connection	EA	1
		Sta 5282+65 to Sta 5297+51		
		NE Blanchard Ramp Connection	EA	1
		Sta 5305+66 to Sta 5232+40		

*Removal Quantities for SE Blanchard Ramp Connection		
Embankment Removal in the Wye**	CY	1,681
Aggregate Removal	TON	1,062
Asphalt Removal	TON	490
Geosynthetic Material Type G Removal	SY	3,326

*Removal Quantities for NE Blanchard Ramp Connection		
Embankment Removal in the Wye**	CY	543
Aggregate Removal	TON	1,193
Asphalt Removal	TON	548
Geosynthetic Material Type G Removal	SY	3,734

*For informational purposes only. Included in the price bid for "Removal of Temporary Bypass."
**Embankment removal quantity excludes the quantity in the median.

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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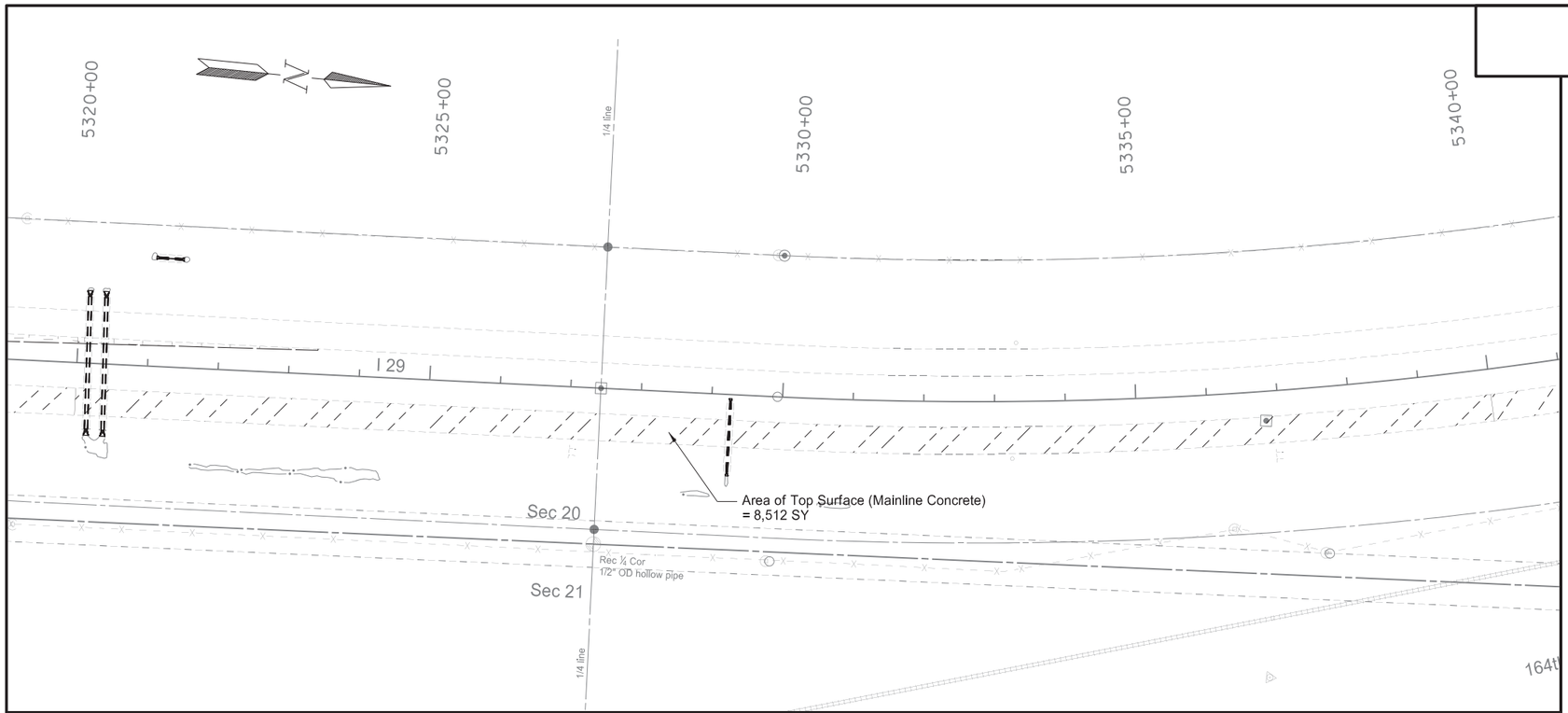
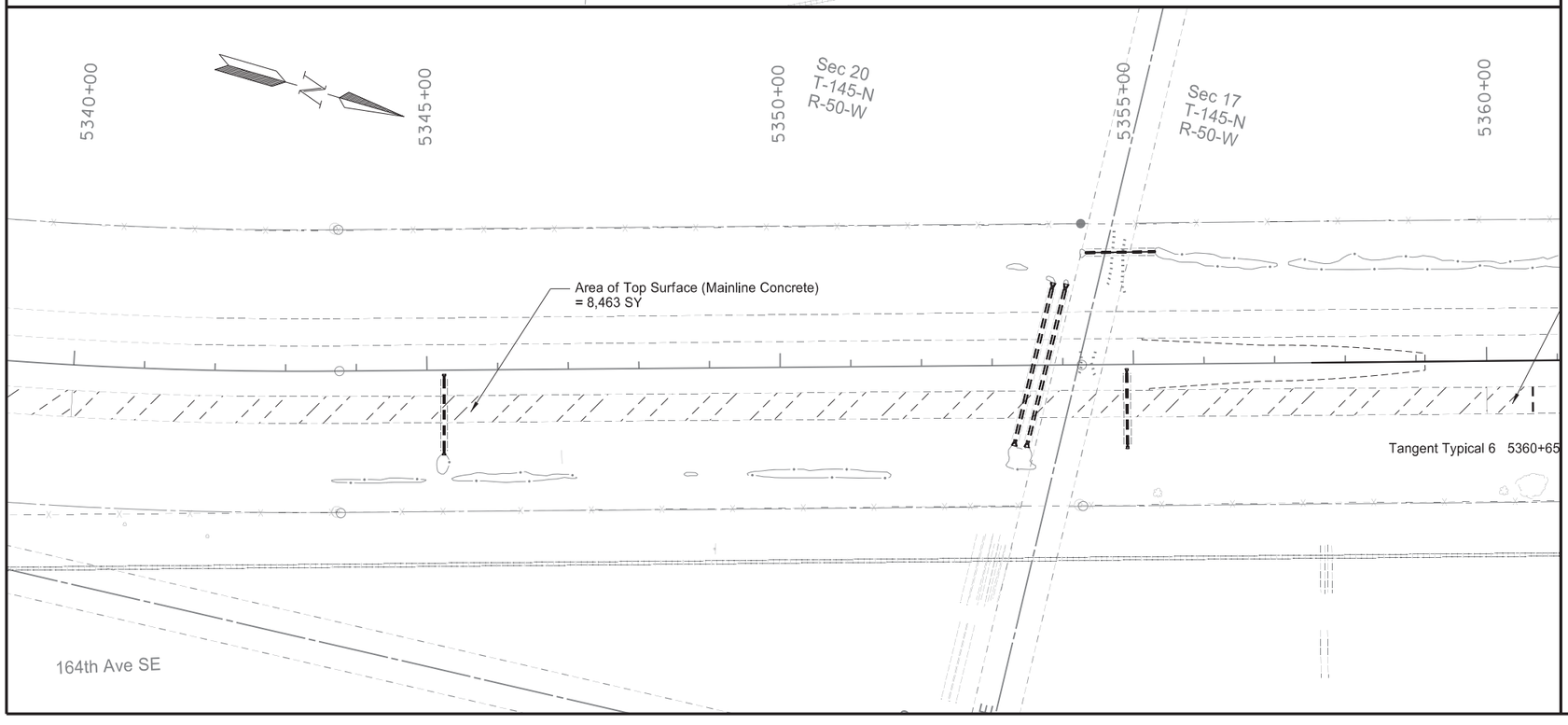
Removal Sheet
Sta 5280+00 to Sta 5320+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	18





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5320+00 to Sta 5360+00 (Tangent 6 Sections)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	781
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5320+00 to Sta 5360+00 (Tangent 6 Section)		
		Mainline Concrete and Ramp Taper (9" Depth)	TON	8488

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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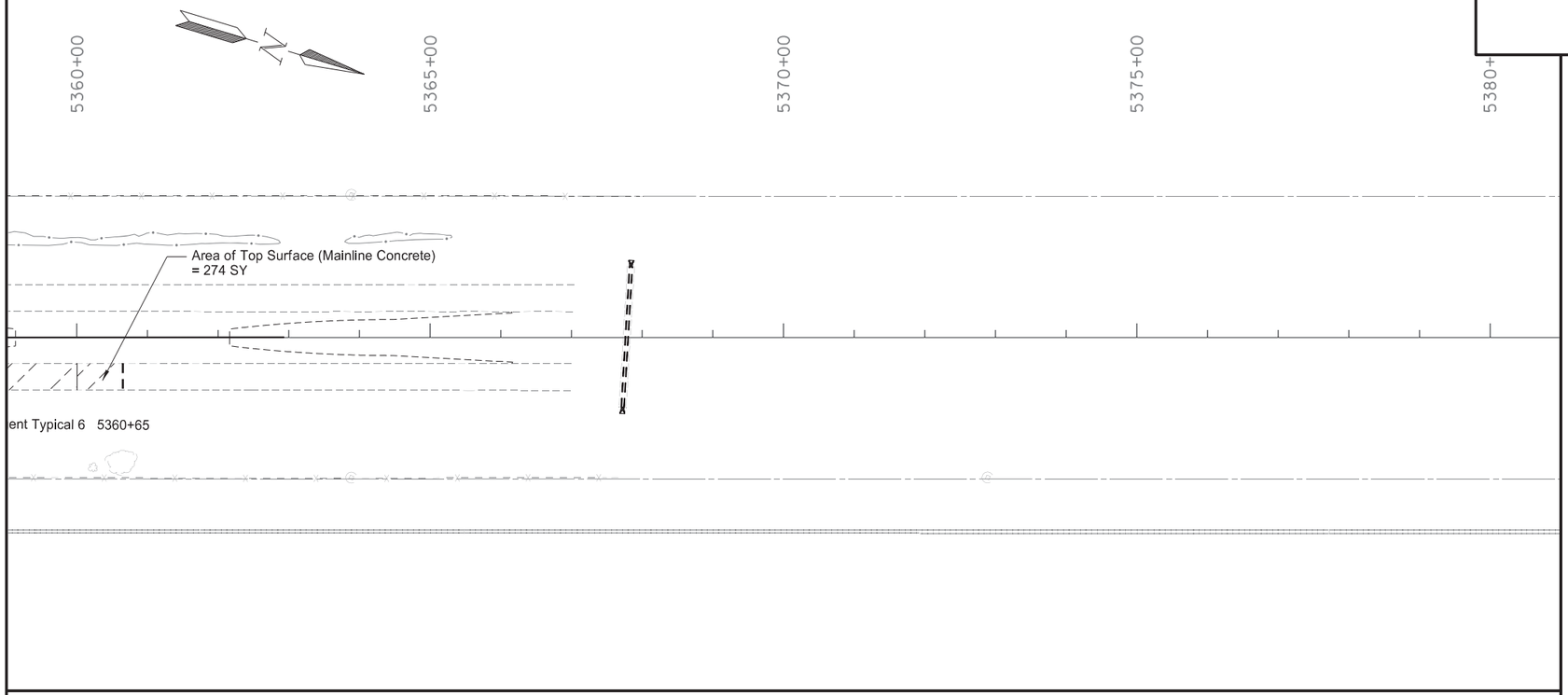
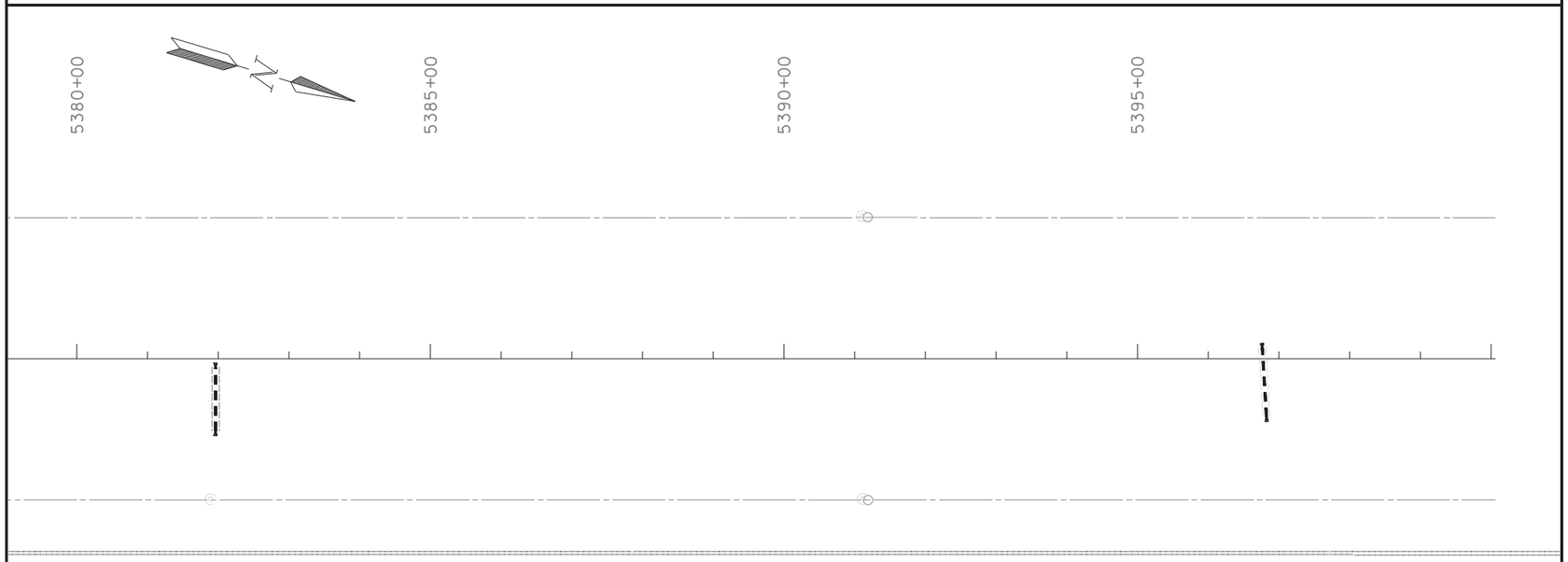
Removal Sheet
Sta 5320+00 to Sta 5360+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	40	19





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0021	**REMOVE AGGREGATE BASE & SURFACING**		
		Sta 5360+00 to Sta 5360+65 (Tangent 6 Section)		
		Mainline Base Aggr. (Avg. Depth = 0.08')	TON	13
202	0136	**REMOVAL OF PAVEMENT**		
		Sta 5360+00 to Sta 5360+65 (Tangent 6 Section)		
		Mainline Concrete and Ramp Taper (9" Depth)	TON	137

Note 1: All slough material is included in the estimated quantities.
Note 2: Average asphalt and aggregate depths
are based off of existing typical sections.
Note 3: See section 60 for pipe removal quantities.

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Removal Sheet
Sta 5360+00 to Sta 5400+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	50	1

HYDRAULIC DATA FOR IM-8-029(135)088 (A)									
				50-YEAR DATA				100-YEAR DATA	
STATION	EXISTING PIPE	PROPOSED PIPE SIZE	DRAINAGE AREA (ACRES)	DESIGN DISCHARGE (CFS)	DESIGN HEADWATER (FT)	DESIGN VELOCITY (FPS)	DESIGN STAGE (NAVD 88)	100-YEAR DISCHARGE (CFS)	100-YEAR STAGE (NAVD 88)
4682+78	24" RCP	24"	5.8	8.0	1.47	7.84	889.97	8.7	890.00
4697+48	N/A	24"	1.0	1.5	0.64	3.09	888.55	1.6	888.57
4697+95	Quad 58"x36" RCP Arch	Quad 58"x36"	3225.0	307.0	3.92	8.63	891.72	366.0	892.57
4699+14	N/A	24"	2.5	2.7	0.87	3.64	888.47	2.8	888.48
4717+70	24" RCP	30"	5.0	5.0	1.00	7.63	889.59	5.0	889.59
4727+70	42" RCP	42"	279.2	62.2	4.30	8.57	890.78	71.4	891.36
4738+71	24" RCP	24"	5.5	6.0	1.22	8.74	889.80	6.5	889.86
4749+81	60" RCP	66"	1207.0	205.7	6.97	11.08	892.77	242.4	893.84
4759+70	24" RCP	24"	4.9	7.7	1.43	8.85	890.20	8.4	890.28
4778+96	N/A	30"	2.4	2.6	0.79	3.45	887.89	2.7	887.91
4779+32	73"x45" RCP Arch	73"x45"	131.2	31.4	1.93	4.87	889.19	35.5	889.33
4779+66	N/A	30"	3.4	3.2	0.88	3.65	887.98	3.5	888.03
4803+00	N/A	30"	3.1	3.1	0.87	3.62	889.57	3.3	889.60
4805+11	Dbl 58"x36" RCP Arch	Trpl 58"x36"	1188.7	272.9	4.97	8.34	893.73	322.9	894.36
4805+52	N/A	30"	2.5	2.7	0.81	3.49	889.56	2.8	889.58
4824+70	18" RCP	24"	4.8	7.0	1.36	6.59	892.09	7.6	892.16
4849+71	24" RCP	30"	7.8	5.5	1.04	8.30	892.99	6.0	893.04
4885+71	30" RCP	30"	4.6	4.5	0.92	10.22	893.82	4.5	893.82
4975+38	N/A	24"	0.6	1.0	0.52	2.77	891.72	1.0	891.72
4975+70	58"x36" RCP Arch	58"x36"	144.9	54.6	3.13	7.40	894.24	62.3	894.57
4976+50	N/A	24"	2.3	2.5	0.83	3.56	892.03	2.7	892.07
4997+74	N/A	30"	3.5	3.3	0.90	3.68	891.05	3.5	891.08
4998+04	58"x36" RCP Arch	58"x36"	151.2	39.8	2.42	6.50	892.47	45.1	892.68
4998+29	N/A	30"	0.6	1.1	0.51	2.74	890.66	1.1	890.66
5013+70	24" RCP	30"	6.8	4.8	0.98	6.90	891.83	5.2	891.87
5027+10	Dbl 54" RCP	Dbl 60"	1851.5	304.5	6.10	10.26	894.66	361.8	895.59

(A) Hydraulic data provided is for smooth-walled (Manning's n=0.012) type conduits.

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Culvert Hydraulic Data

I-94
Hunter Separation to Near Blanchard

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	50	2

HYDRAULIC DATA FOR IM-8-029(135)088 (A)

STATION	EXISTING PIPE	PROPOSED PIPE SIZE	DRAINAGE AREA (ACRES)	50-YEAR DATA				100-YEAR DATA	
				DESIGN DISCHARGE (CFS)	DESIGN HEADWATER (FT)	DESIGN VELOCITY (FPS)	DESIGN STAGE (NAVD 88)	100-YEAR DISCHARGE (CFS)	100-YEAR STAGE (NAVD 88)
5041+99	48" RCP	48"	172.8	50.2	3.48	7.41	892.86	57.2	893.15
5061+70	18" RCP	24"	5.2	5.9	1.22	6.28	892.49	5.9	892.49
5080+80	N/A	24"	2.6	2.7	0.87	3.64	892.27	2.9	892.30
5082+21	Dbl 58"x36" RCP Arch	Trpl 73"x45"	2812.6	333.7	4.53	6.72	895.90	398.1	896.76
5082+71	N/A	24"	3.9	3.5	1.00	3.92	892.41	3.8	892.45
5110+71	24" RCP	30"	6.4	4.0	0.89	5.47	894.76	4.0	894.76
5132+72	18" RCP	24"	4.4	3.1	0.84	4.10	894.91	3.1	894.91
5140+75	N/A	24"	0.6	1.1	0.54	2.84	894.95	1.1	894.95
5142+22	Trpl 58"x36" RCP Arch	Trpl 58"x36"	1153.1	206.8	3.50	8.15	898.27	243.6	898.84
5142+78	N/A	24"	1.3	1.7	0.68	3.20	895.08	1.8	895.10
5163+71	18" RCP	24"	9.7	7.7	1.57	4.99	897.31	8.4	897.39
5187+73	24" RCP	24"	3.8	7.5	1.41	8.40	899.81	7.5	899.81
5206+60	N/A	24"	4.5	6.2	1.26	6.22	904.26	7.6	904.43
5220+27	24" RCP	24"	5.1	4.2	0.97	8.10	902.95	4.2	902.95
5244+26	18" RCP	24"	4.8	6.8	1.45	4.78	900.80	6.8	900.81
5248+69	Dbl 58"x36" RCP Arch	Dbl 58"x36"	622.5	158.1	4.04	8.76	903.27	184.8	904.06
5261+23	18" RCP	24"	3.6	8.0	1.58	5.05	900.23	8.7	900.31
5272+26	18" RCP	24"	3.3	6.1	1.39	4.63	899.55	6.6	899.61
5287+99	24" RCP	24"	6.8	8.6	1.54	6.72	899.75	9.4	899.84
5314+30	24" RCP	30"	4.9	7.5	1.24	8.80	899.37	8.2	899.44
5320+28	Dbl 48" RCP	Dbl 48"	657.3	157.7	4.59	7.30	900.44	184.4	901.06
5329+27	24" RCP	30"	4.2	10.0	1.48	9.21	899.61	10.9	899.69
5345+24	24" RCP	30"	4.1	6.6	1.15	8.81	898.78	6.6	898.78
5353+77	Dbl 42" RCP	Dbl 48"	952.1	266.4	7.10	10.94	901.00	314.7	902.78
5354+90	24" RCP	30"	3.5	5.8	1.06	9.39	899.02	6.3	899.06

(A) Hydraulic data provided is for smooth-walled (Manning's n=0.012) type conduits.

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Culvert Hydraulic Data

I-94
Hunter Separation to Near Blanchard

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	51	1

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
				In	Bid Item	LF		In	Type		In	SY	Begin EA	End EA	
4682+78	4.5' Rt	4682+78	99.5' Rt	24	Pipe Conduit	95	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				174	FES	FES	Sheet 20-4
4697+48	6.0' Rt	4697+48	105' Rt	24	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				182	FES	FES	Sheet 20-4
4697+79	6.0' Rt	4697+79	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36				464	FES	FES	Sheet 20-4
4697+89	6.0' Rt	4697+89	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36					FES	FES	
4697+99	6.0' Rt	4697+99	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36					FES	FES	
4698+09	6.0' Rt	4698+09	98' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36					FES	FES	
4699+14	9.5' Rt	4698+14	103' Rt	24	Pipe Conduit	94	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				172	TES	FES	Sheet 20-4
4717+70	12.1' Rt	4717+70	120.7' Rt	30	Pipe Conduit	109	Reinforced Concrete Pipe - Class III **(barrel length = 106 LF)**	30				235	TES	FES	Sheet 20-4
4727+70	0' Rt	4727+70	104.9' Rt	42	Pipe Conduit	105	Reinforced Concrete Pipe - Class III **(barrel length = 102 LF)**	42				306		FES	Sheet 20-4
4738+70	12.1' Rt	4738+70	109.5' Rt	24	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				180	TES	FES	Sheet 20-4
4748+61	161.6' Rt	4749+13	161.9' Rt	24	Pipe Conduit - Approach	52	Reinforced Concrete Pipe - Class III **(barrel length = 52 LF)**	24					FES	FG	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						
4749+82	0' Rt	4749+57	99.1' Rt	66	Pipe Conduit	102	Reinforced Concrete Pipe - Class III **(barrel length = 100 LF) (Includes a 4' - 66" to 60" Reducer)**	66				424	66" to 60" Reducer	FES	Sheet 20-4
4750+52	161.7' Rt	4751+00	161.6' Rt	24	Pipe Conduit - Approach	48	Reinforced Concrete Pipe - Class III **(barrel length = 48 LF)**	24					FG	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						
4759+70	12.1' Rt	4759+70	109.5' Rt	24	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				180	TES	FES	Sheet 20-4
4778+53	146.9' Rt	4778+81	147.0' Rt	24	Pipe Conduit - Approach	28	Reinforced Concrete Pipe - Class III **(barrel length = 28 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						
4778+96	5.9' Rt	4778+96	109.1' Rt	30	Pipe Conduit	103	Reinforced Concrete Pipe - Class III **(barrel length = 100 LF)**	30				221	FES	FES	Sheet 20-4
4779+32	5.8' Rt	4779+32	100.2' Rt	73x45	Pipe Conduit	94	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	73x45				298	FES	FES	Sheet 20-4
4779+66	7.5' Rt	4779+66	108.1' Rt	30	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	30				216	TES	FES	Sheet 20-4
4803+00	13.5' Rt	4803+00	118.1' Rt	30	Pipe Conduit	105	Reinforced Concrete Pipe - Class III **(barrel length = 102 LF)**	30				226	TES	FES	Sheet 20-4
4803+77	171.7' Rt	4803+85	172.3' Rt	24	Pipe Conduit - Approach	8	Reinforced Concrete Pipe - Class III **(barrel length = 8 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						
4804+98	5.9' Rt	4804+59	112.8' Rt	58x36	Pipe Conduit	114	Reinforced Concrete Pipe - Class III **(barrel length = 108 LF)**	58x36				488	FES	FES	Sheet 20-4
4805+09	5.9' Rt	4804+69	114.7' Rt	58x36	Pipe Conduit	116	Reinforced Concrete Pipe - Class III **(barrel length = 110 LF)**	58x36					FES	FES	
4805+20	5.9' Rt	4804+79	116.4' Rt	58x36	Pipe Conduit	118	Reinforced Concrete Pipe - Class III **(barrel length = 112 LF)**	58x36					FES	FES	
4805+52	4.9' Rt	4805+52	118.1' Rt	30	Pipe Conduit	113	Reinforced Concrete Pipe - Class III **(barrel length = 110 LF)**	30				245	FES	FES	Sheet 20-4
4824+70	5.5' Rt	4824+70	100.5' Rt	24	Pipe Conduit	95	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				174	FES	FES	Sheet 20-4
4849+71	6.0' Lt	4849+71	117.2' Rt	30	Pipe Conduit	123	Reinforced Concrete Pipe - Class III **(barrel length = 120 LF)**	30				269	FES	FES	Sheet 20-4
4855+10	3.1' Lt	4857+70	7.3' Rt	18	Pipe PVC 18IN	260	Polyvinyl Chloride (PVC)	18							N/A
4858+44	93.1' Lt	4859+63	104' Lt	12	Pipe PVC 12IN	120	Polyvinyl Chloride (PVC)	12							N/A
4872+54	103.7' Lt	4873+53	95.7' Lt	12	Pipe PVC 12IN	100	Polyvinyl Chloride (PVC)	12							N/A
4885+71	6.1' Rt	4885+71	127.2' Rt	30	Pipe Conduit	121	Reinforced Concrete Pipe - Class III **(barrel length = 118 LF)**	30				265	FES	FES	Sheet 20-4
4893+93	187.8' Rt	4894+27	176.3' Rt	30	Pipe Conduit - Approach	36	Reinforced Concrete Pipe - Class III **(barrel length = 36 LF)**	30					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	30	Z, A, P						
							Spiral Steel Pipe	30	P						
4975+38	8.5' Rt	4975+38	96.5' Rt	24	Pipe Conduit	88	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	24				159	TES	TES	Sheet 20-4
4975+70	5.9' Rt	4975+70	98.1' Rt	58x36	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	58x36				198	FES	FES	Sheet 20-4
4976+50	9.5' Rt	4976+50	99' Rt	24	Pipe Conduit	89	Reinforced Concrete Pipe - Class III **(barrel length = 86 LF)**	24				190	TES	FES	Sheet 20-4
4997+74	2.9' Rt	4997+74	120.1' Rt	30	Pipe Conduit	117	Reinforced Concrete Pipe - Class III **(barrel length = 114 LF)**	30				255	FES	FES	Sheet 20-4
4998+04	5.9' Rt	4998+04	118.1' Rt	58x36	Pipe Conduit	112	Reinforced Concrete Pipe - Class III **(barrel length = 106 LF)**	58x36				247	FES	FES	Sheet 20-4
4998+29	2.9' Rt	4998+29	120.2' Rt	30	Pipe Conduit	117	Reinforced Concrete Pipe - Class III **(barrel length = 114 LF)**	30				255	FES	FES	Sheet 20-4
4998+57	163.8' Rt	4998+75	163.5' Rt	24	Pipe Conduit - Approach	18	Reinforced Concrete Pipe - Class III **(barrel length = 18 LF)**	24					FES	FG	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						

Coatings: **Z** = Zinc
A = Aluminum
P = Polymeric (over Zinc or Aluminum)

Corrugations: **2** = 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Spiral Ribs: **3/4** = 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
FG = Flap Gate

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 08/25/20
NORTH DAKOTA

Allowable Pipe List

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	51	2

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	Geosynthetic Material - Type G (Pay Item)	(*) End Sections		Applicable Backfill
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
5013+70	9.0' Rt	5013+70	107.7' Rt	30	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 96 LF)**	30				211	TES	FES	Sheet 20-4
5025+79	164.3' Rt	5026+29	163.9' Rt	24	Pipe Conduit - Approach	50	Reinforced Concrete Pipe - Class III **(barrel length = 50 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						
5026+98	0.0' Rt	5026+74	98.3' Rt	60	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF) (Includes a 4' - 60" to 54" Reducer)**	60				638		FES	Sheet 20-4
5027+21	0.0' Rt	5026+96	100.1' Rt	60	Pipe Conduit	103	Reinforced Concrete Pipe - Class III **(barrel length = 100 LF) (Includes a 4' - 60" to 54" Reducer)**	60						FES	
5027+08	163.5' Rt	5027+60	163.7' Rt	24	Pipe Conduit - Approach	52	Reinforced Concrete Pipe - Class III **(barrel length = 52 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						
5040+54	159.7' Rt	5040+84	160.2' Rt	24	Pipe Conduit - Approach	30	Reinforced Concrete Pipe - Class III **(barrel length = 30 LF)**	24					FES	FES	Specification 714.04A
							Corrugated Steel Pipe	24	Z, A, P						
							Spiral Steel Pipe	24	P						
5041+98	5.8' Rt	5041+98	98.2' Rt	48	Pipe Conduit	92	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	48				274	FES	FES	Sheet 20-4
5061+70	5.5' Rt	5061+70	102.5' Rt	24	Pipe Conduit	97	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	24				178	FES	FES	Sheet 20-4
5080+80	13.5' Rt	5080+80	101" Rt	24	Pipe Conduit	88	Reinforced Concrete Pipe - Class III **(barrel length = 84 LF)**	24				159	TES	FES	Sheet 20-4
5082+08	5.9' Rt	5081+84	99.0' Rt	73x45	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	73x45				511	FES	FES	Sheet 20-4
5082+19	5.9' Rt	5081+95	99.0' Rt	73x45	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	73x45					FES	FES	
5082+30	5.9' Rt	5082+07	99.0' Rt	73x45	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	73x45					FES	FES	
5082+72	6.1' Rt	5082+47	100' Rt	24	Pipe Conduit	97	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	24				178	FES	FES	Sheet 20-4
5110+71	10.5' Rt	5110+71	117.2' Rt	30	Pipe Conduit	107	Reinforced Concrete Pipe - Class III **(barrel length = 104 LF)**	30				231	TES	FES	Sheet 20-4
5132+72	5.5' Rt	5132+72	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5140+75	6.0' Rt	5140+75	99.0' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5142+08	6.0' Rt	5141+75	98.2' Rt	58x36	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	58x36				403	FES	FES	Sheet 20-4
5142+19	6.0' Rt	5141+86	98.2' Rt	58x36	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	58x36					FES	FES	
5142+30	6.0' Rt	5141+96	98.2' Rt	58x36	Pipe Conduit	98	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	58x36					FES	FES	
5142+78	11.5' Rt	5142+78	99.0' Rt	24	Pipe Conduit	88	Reinforced Concrete Pipe - Class III **(barrel length = 84 LF)**	24				159	TES	FES	Sheet 20-4
5163+71	5.5' Rt	5163+71	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5187+73	11.0' Rt	5187+73	106.5' Rt	24	Pipe Conduit	96	Reinforced Concrete Pipe - Class III **(barrel length = 92 LF)**	24				176	TES	FES	Sheet 20-4
5206+60	5.5' Rt	5206+60	100.5' Rt	24	Pipe Conduit	95	Reinforced Concrete Pipe - Class III **(barrel length = 90 LF)**	24				174	FES	FES	Sheet 20-4
5220+27	5.6' Rt	5220+27	104.5' Rt	24	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 94 LF)**	24				182	FES	FES	Sheet 20-4
5244+26	11.0' Rt	5244+26	101.0' Rt	24	Pipe Conduit	90	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				164	TES	TES	Sheet 20-4
5248+60	0.0' Rt	5248+58	100.9' Rt	58x36	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	58x36				541		FES	Sheet 20-4
5248+89	0.0' Rt	5248+87	100.9' Rt	58x36	Pipe Conduit	101	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	58x36						FES	
5261+22	5.5' Rt	5261+22	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5272+25	5.5' Rt	5272+25	98.5' Rt	24	Pipe Conduit	93	Reinforced Concrete Pipe - Class III **(barrel length = 88 LF)**	24				170	FES	FES	Sheet 20-4
5287+98	1.0' Lt	5287+98	105.0' Rt	24	Pipe Conduit	106	Reinforced Concrete Pipe - Class III **(barrel length = 104 LF)**	24				197	TES	TES	Sheet 20-4
5290+43	1.0' Lt	5293+12	13.6' Rt	18	Pipe PVC 18IN	270	Polyvinyl Chloride (PVC)	18							N/A
5294+13	91.0' Lt	5295+03	99.9' Lt	12	Pipe PVC 12IN	90	Polyvinyl Chloride (PVC)	12							N/A
5306+74	116.8' Lt	5306+77	124.2' Lt	30	Pipe Conc. Reinf. CL III (Extension)	8	Reinforced Concrete Pipe - Class III **(barrel length = 8 LF)**	30					Remove & Relay		Sheet 20-5
5306+97	101.0' Lt	5308+07	93.7' Lt	12	Pipe PVC 12IN	110	Polyvinyl Chloride (PVC)	12							N/A
5314+29	3.3' Lt	5314+29	115.3' Rt	30	Pipe Conduit	119	Reinforced Concrete Pipe - Class III **(barrel length = 116 LF)**	30				260	TES	FES	Sheet 20-4
5320+16	0.0' Rt	5320+17	100.2' Rt	48	Pipe Conduit	100	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	48				573		FES	Sheet 20-4
5320+39	0.0' Rt	5320+41	100.2' Rt	48	Pipe Conduit	100	Reinforced Concrete Pipe - Class III **(barrel length = 98 LF)**	48						FES	
5329+26	11.6' Rt	5329+26	110.2' Rt	30	Pipe Conduit	99	Reinforced Concrete Pipe - Class III **(barrel length = 96 LF)**	30				211	TES	FES	Sheet 20-4
5345+24	9.6' Rt	5345+24	118.2' Rt	30	Pipe Conduit	109	Reinforced Concrete Pipe - Class III **(barrel length = 106 LF)**	30				235	TES	FES	Sheet 20-4
5353+59	0.0' Rt	5353+31	108.8' Rt	48	Pipe Conduit	112	Reinforced Concrete Pipe - Class III **(barrel length = 110 LF) (Includes a 4' - 48" to 42" Reducer)**	48				581		FES	Sheet 20-4
5353+77	0.0' Rt	5353+49	110.7' Rt	48	Pipe Conduit	114	Reinforced Concrete Pipe - Class III **(barrel length = 112 LF) (Includes a 4' - 48" to 42" Reducer)**	48						FES	
5354+90	11.6' Rt	5354+90	116.2' Rt	30	Pipe Conduit	105	Reinforced Concrete Pipe - Class III **(barrel length = 102 LF)**	30				226	TES	FES	Sheet 20-4

Coatings: **Z =** Zinc
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Corrugations: **2 =** 2-2/3"x1/2"
3 = 3"x1"
5 = 5"x1"

Spiral Ribs: **3/4 =** 3/4"x3/4"@7-1/2"
1 = 3/4"x1"@11-1/2"

(*) End sections are measured and paid for separately for pipe extensions.
FES = Flared End Section
TES = Traversable End Section
FG = Flap Gate

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
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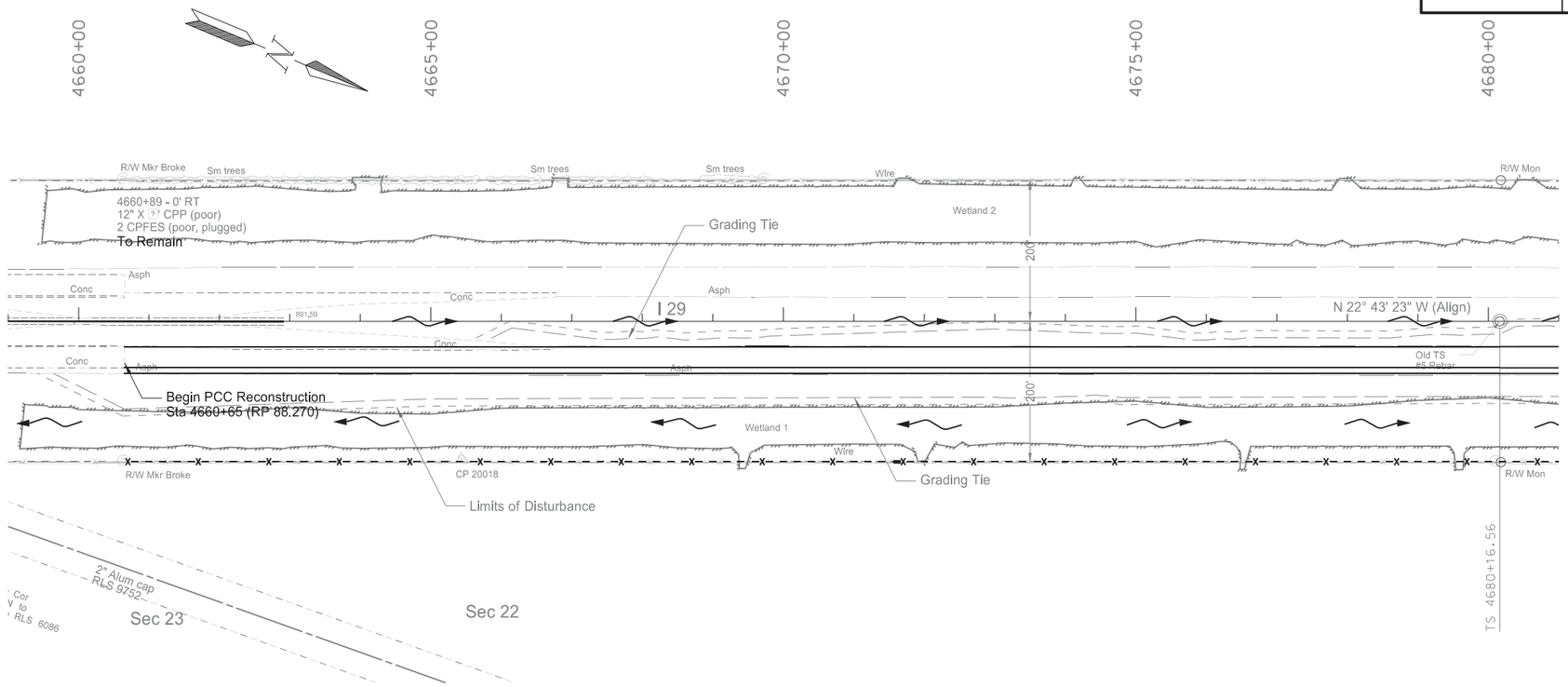
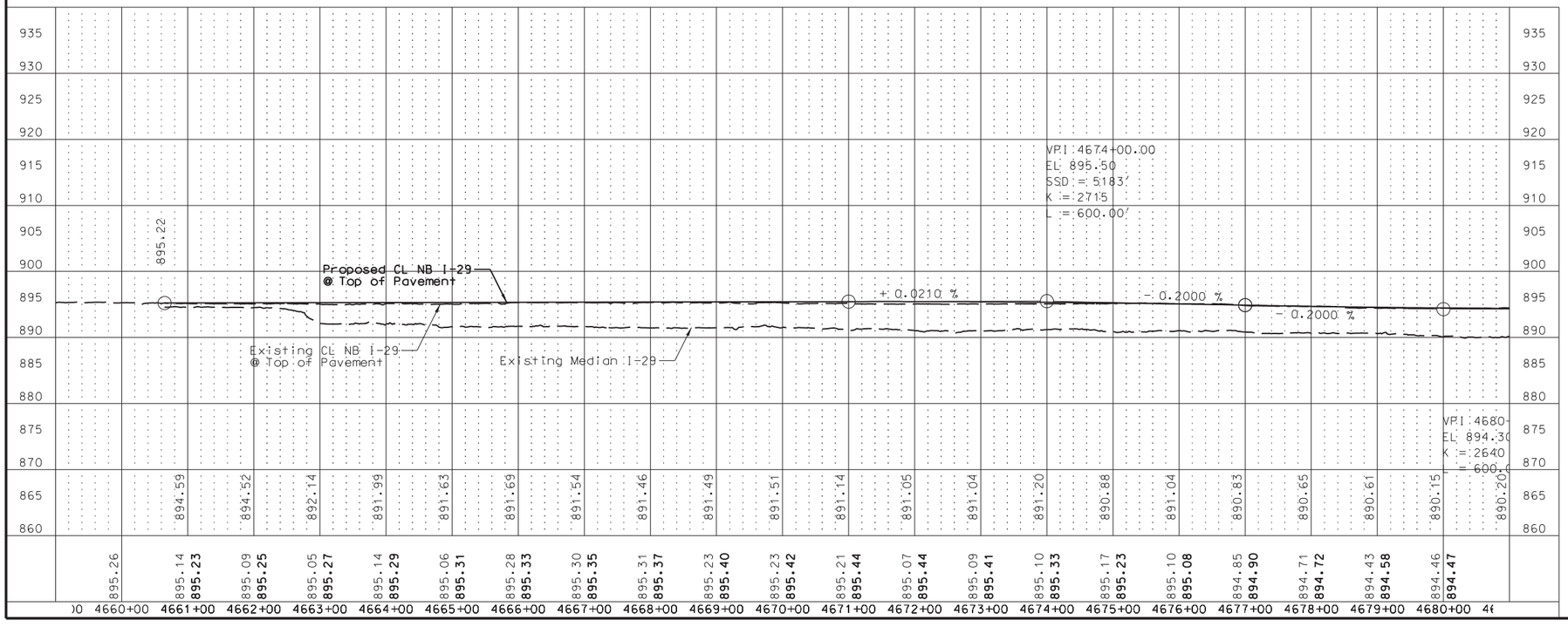
Allowable Pipe List

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	60	1





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NORTH DAKOTA

Plan and Profile Sheet
Sta 4660+00 to Sta 4680+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 4682+78 - NB CL	EA	2
		Sta 4697+61 - NB CL	EA	2
		Sta 4697+83 - NB CL	EA	2
		Sta 4698+05 - NB CL	EA	2
		Sta 4698+28 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4682+78 - NB CL	LF	80
		Sta 4697+61 - NB CL	LF	78
		Sta 4697+83 - NB CL	LF	78
		Sta 4698+05 - NB CL	LF	78
		Sta 4698+28 - NB CL	LF	78
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 4682+78 - NB CL	SY	174
		Sta 4697+48 - NB CL	SY	182
		Sta 4697+79 to Sta 4698+09 - NB CL	SY	464
		Sta 4699+14 - NB CL	SY	172
714	4105	**PIPE CONDUIT 24IN**		
		Sta 4682+78 - NB CL	LF	95
		Sta 4697+48 - NB CL	LF	99
		Sta 4699+14 - NB CL	LF	94
714	4229	**PIPE CONDUIT ARCH 58IN x 36IN**		
		Sta 4697+79 - NB CL	LF	92
		Sta 4697+89 - NB CL	LF	92
		Sta 4697+99 - NB CL	LF	92
		Sta 4698+09 - NB CL	LF	92

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PE-10948
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08/25/20

Plan and Profile Sheet
Sta 4680+00 to Sta 4700+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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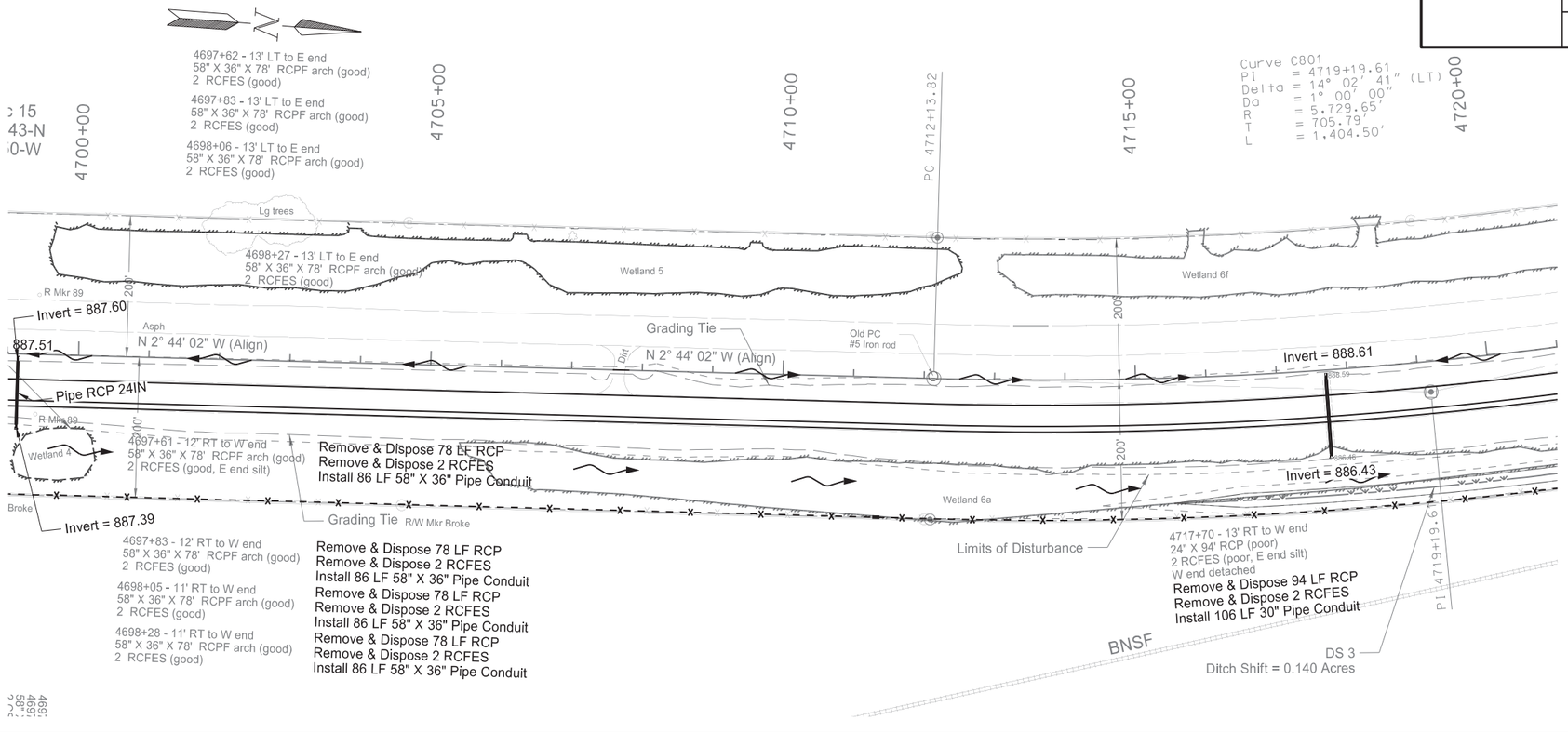
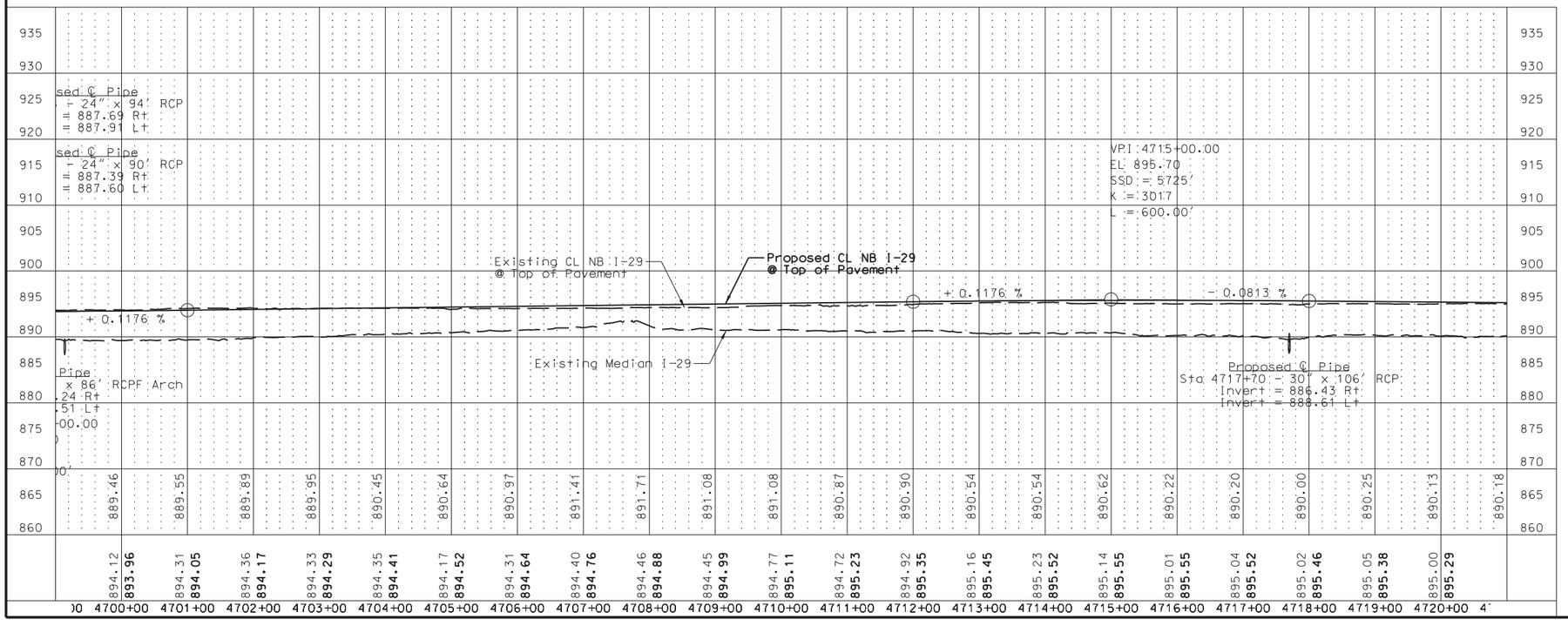
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	3

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 4717+70 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 4717+70 - NB CL	LF	94
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4717+70 - NB CL	SY	235
714	4110	PIPE CONDUIT 30IN		
		Sta 4717+70 - NB CL	LF	109





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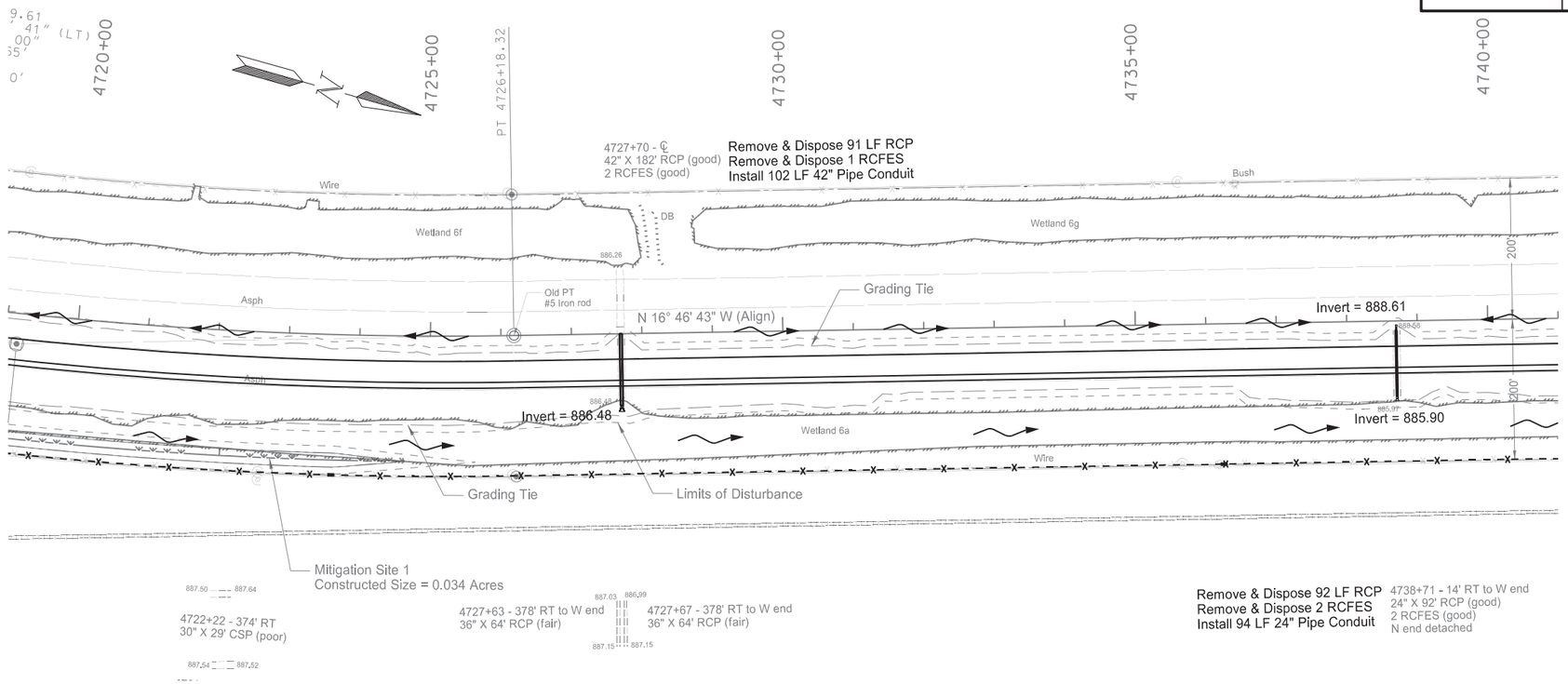
NORTH DAKOTA

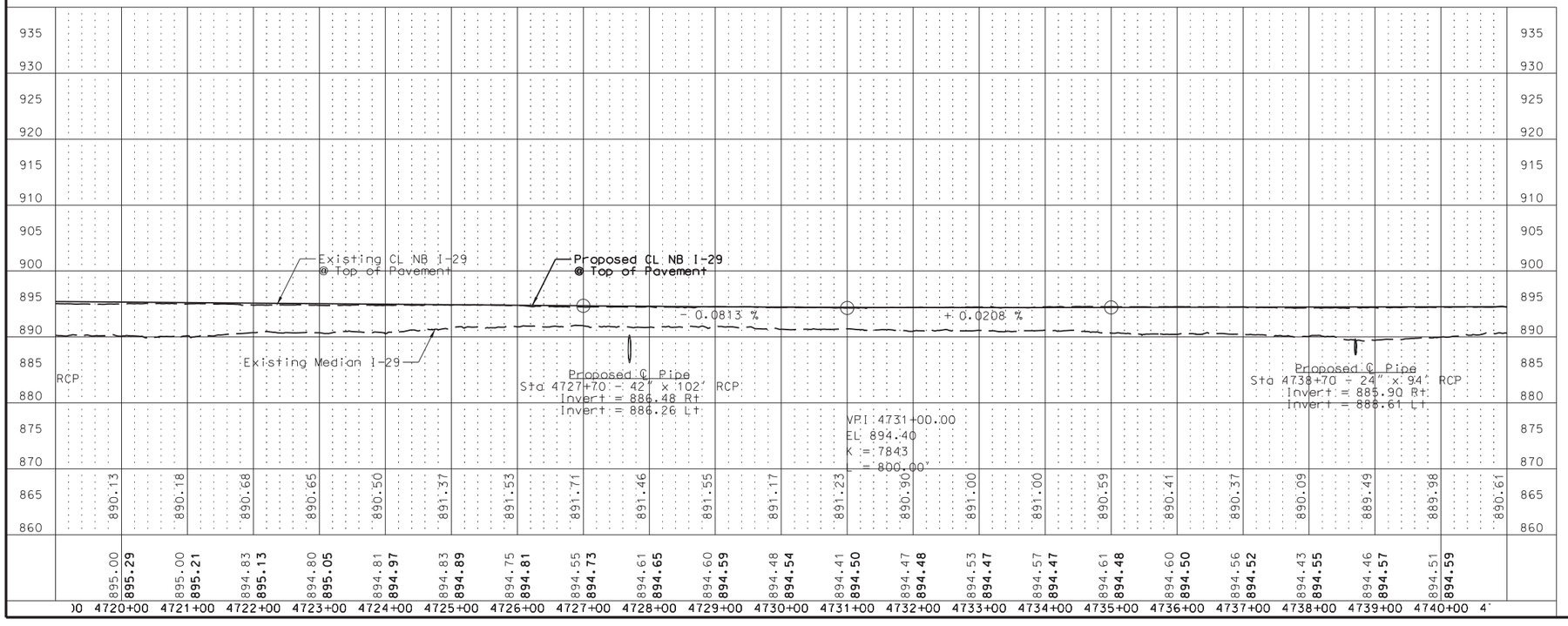
Plan and Profile Sheet
Sta 4700+00 to Sta 4720+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	4



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 4727+70 - NB CL	EA	1
		Sta 4738+71 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 4727+70 - NB CL	LF	91
		Sta 4738+71 - NB CL	LF	92
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4727+70 - NB CL	SY	306
		Sta 4738+71 - NB CL	SY	180
714	4105	PIPE CONDUIT 24IN		
		Sta 4738+71 - NB CL	LF	98
714	4120	PIPE CONDUIT 42IN		
		Sta 4727+70 - NB CL	LF	105



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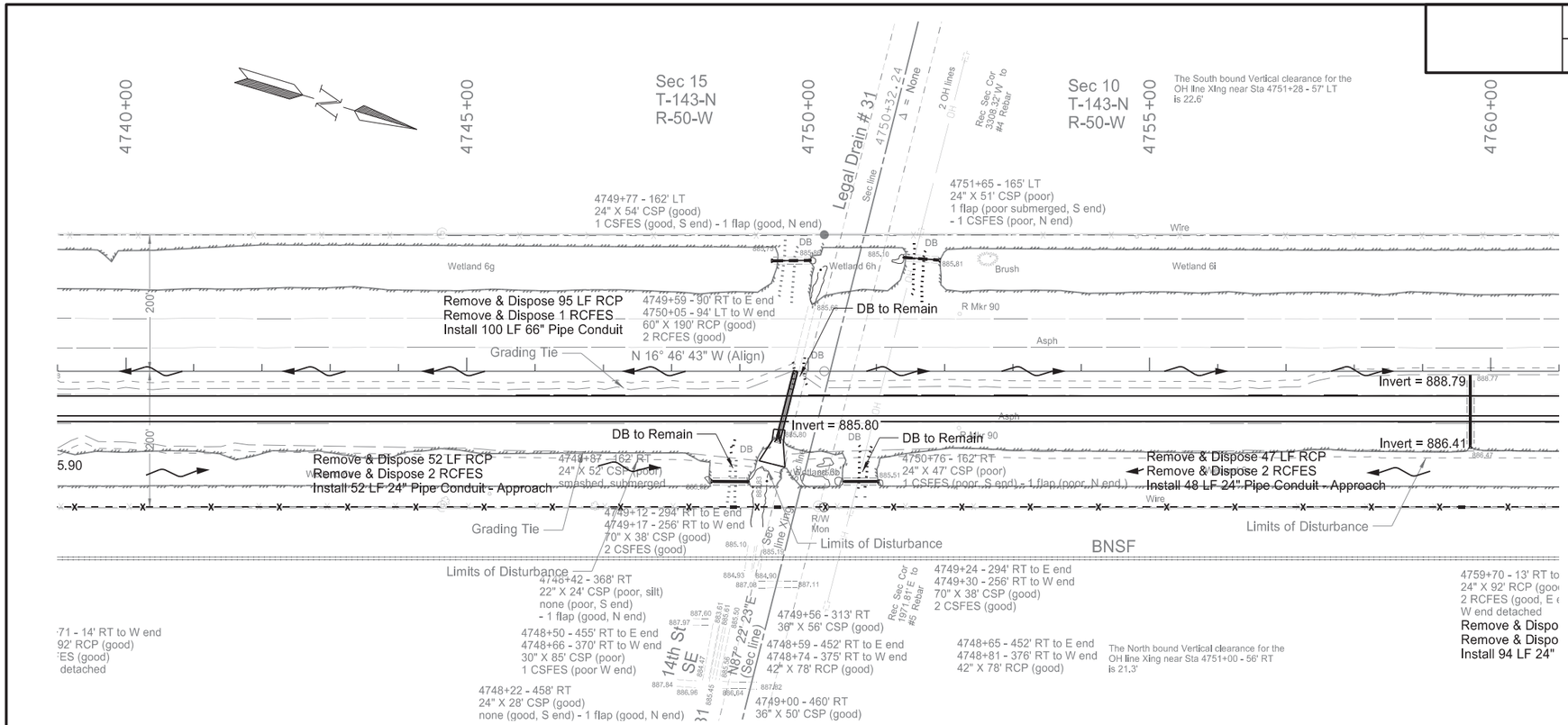
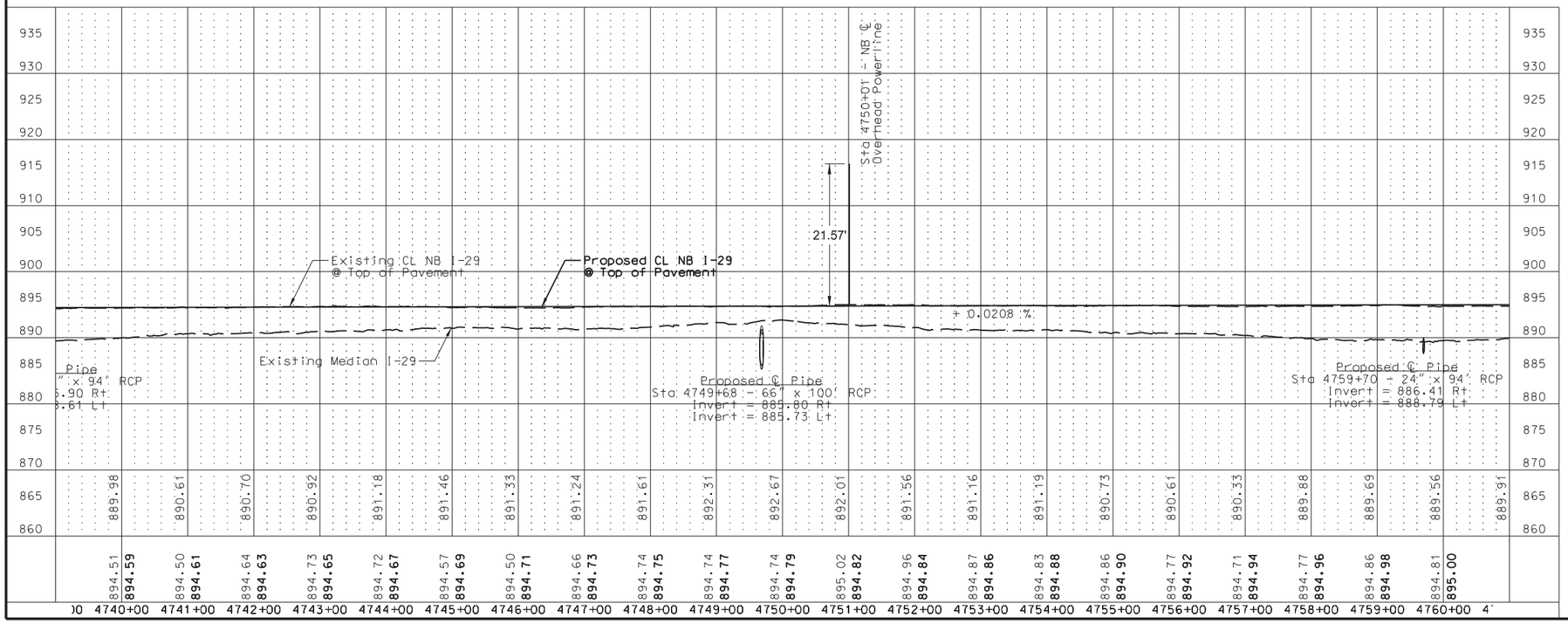
DATE
08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 4720+00 to Sta 4740+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	5





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 4748+87 - NB 162' RT	EA	2
		Sta 4749+69 - NB Skewed CL	EA	1
		Sta 4750+76 - NB 162' RT	EA	2
		Sta 4759+70 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4748+87 - NB 162' RT	LF	52
		Sta 4749+69 - NB Skewed CL	LF	95
		Sta 4750+76 - NB 162' RT	LF	47
		Sta 4759+70 - NB CL	LF	92
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 4749+69 - NB Skewed CL	SY	424
		Sta 4759+70 - NB CL	SY	180
714	4105	**PIPE CONDUIT 24IN**		
		Sta 4759+70 - NB CL	LF	98
714	4106	**PIPE CONDUIT 24IN - APPROACH**		
		Sta 4748+87 - NB 162' RT	LF	52
		Sta 4750+76 - NB 162' RT	LF	48
714	4140	**PIPE CONDUIT 66IN**		
		Sta 4749+69 - NB Skewed CL	LF	102

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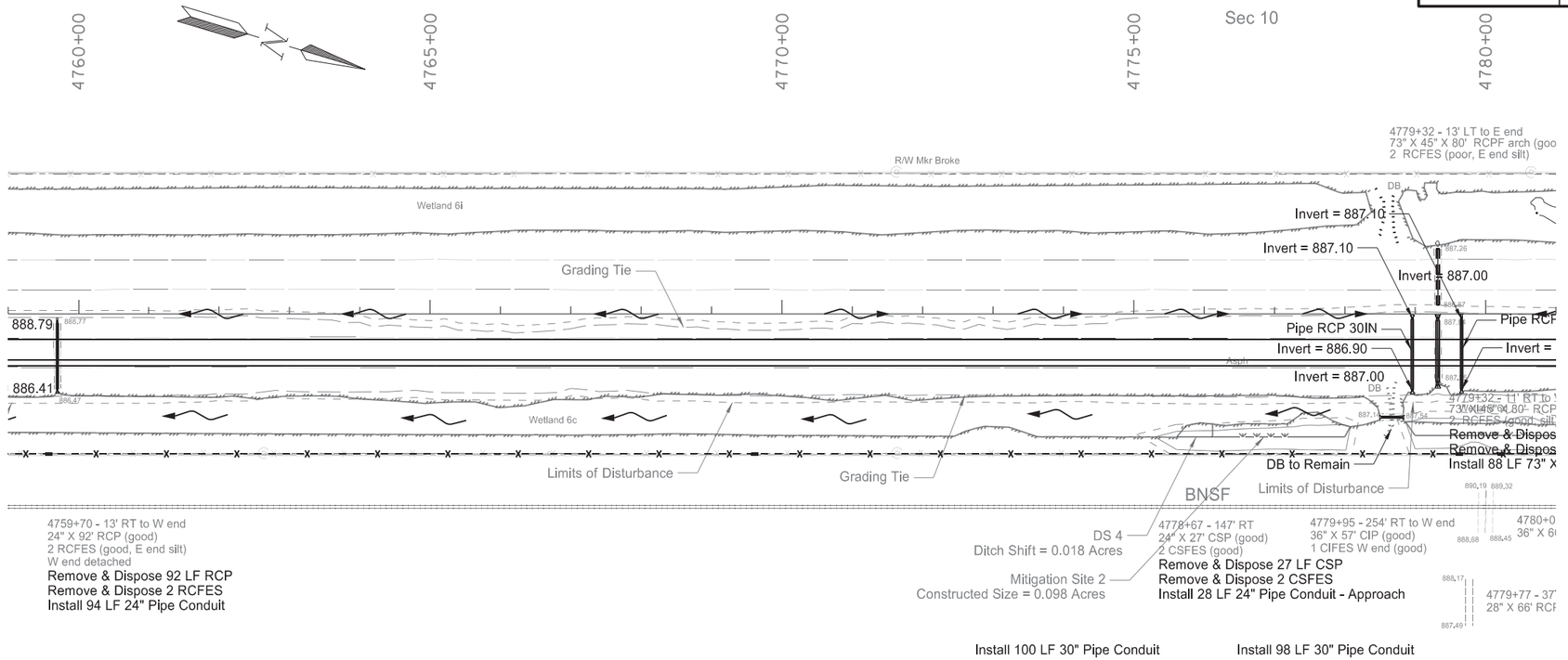
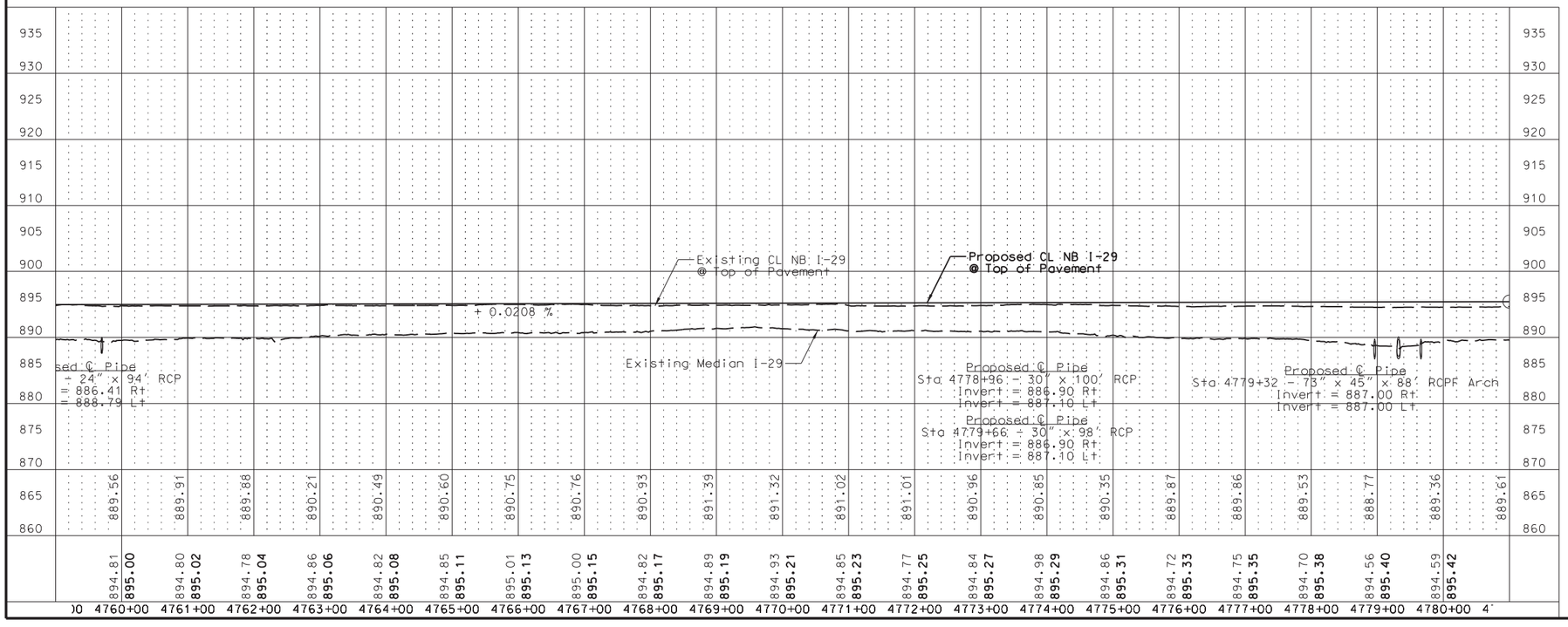
Plan and Profile Sheet
Sta 4740+00 to Sta 4760+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	6



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 4778+87 - NB 147' RT	EA	2
		Sta 4779+32 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4778+87 - NB 147' RT	LF	27
		Sta 4779+32 - NB CL	LF	80
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 4778+96 - NB CL	SY	221
		Sta 4779+32 - NB CL	SY	298
		Sta 4779+66 - NB CL	SY	216
714	4106	**PIPE CONDUIT 24IN - APPROACH**		
		Sta 4778+87 - NB 147' RT	LF	28
714	4110	**PIPE CONDUIT 30IN**		
		Sta 4778+96 - NB CL	LF	103
		Sta 4779+66 - NB CL	LF	101
714	4236	**PIPE CONDUIT ARCH 73IN x 45IN**		
		Sta 4779+32 - NB CL	LF	94



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NORTH DAKOTA

Plan and Profile Sheet
Sta 4760+00 to Sta 4780+00

PCC Pavement Reconstruction
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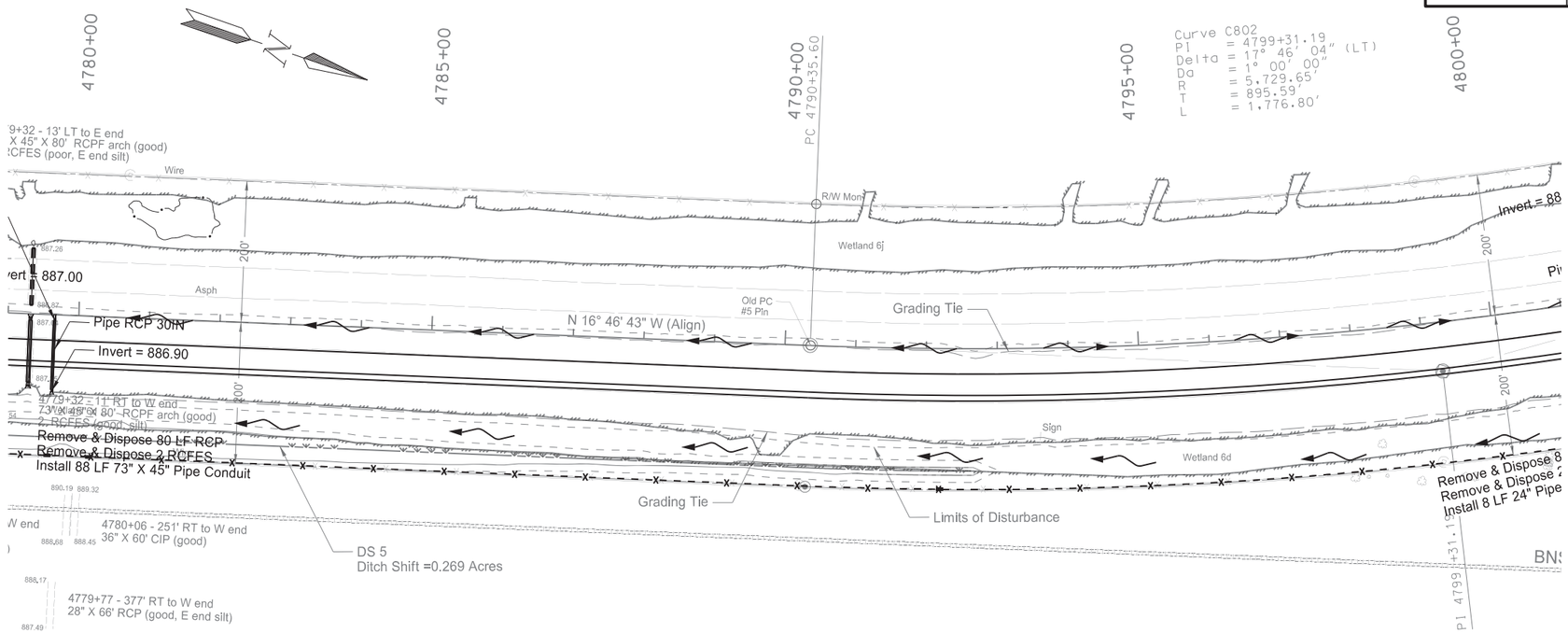
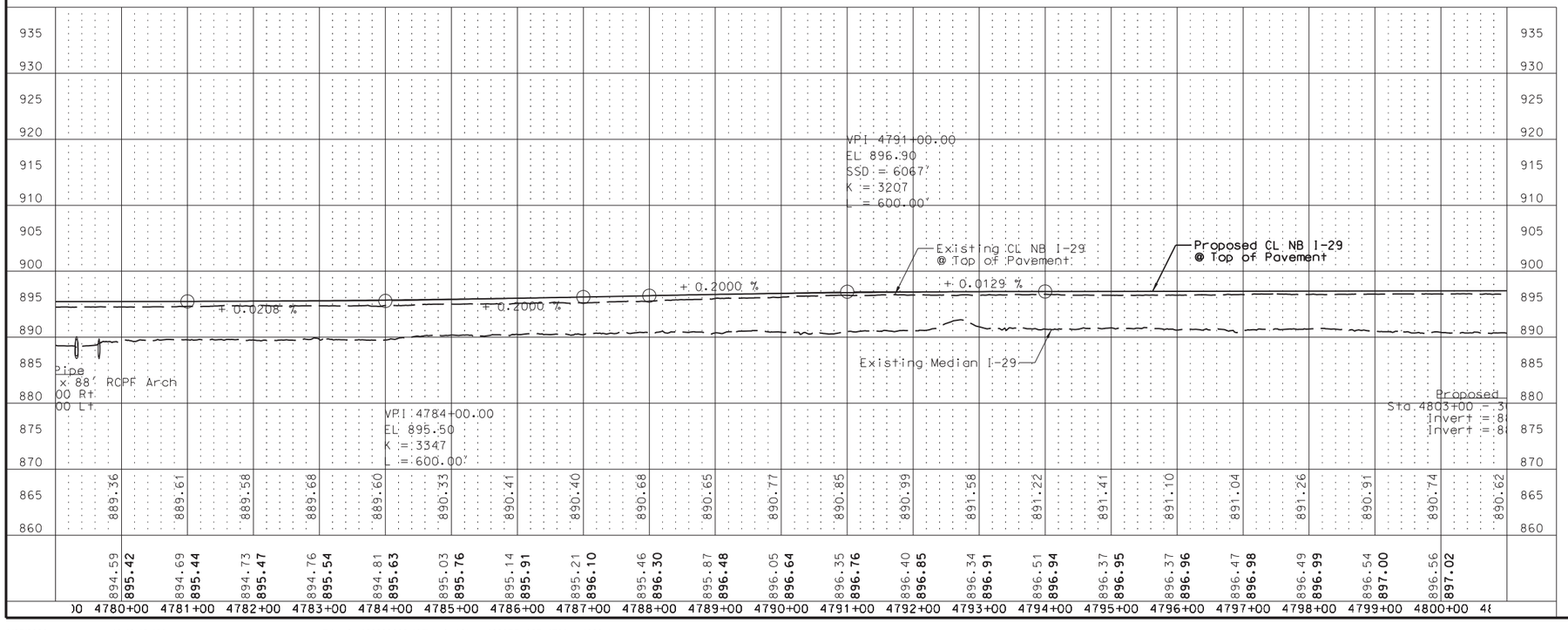
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	60	7



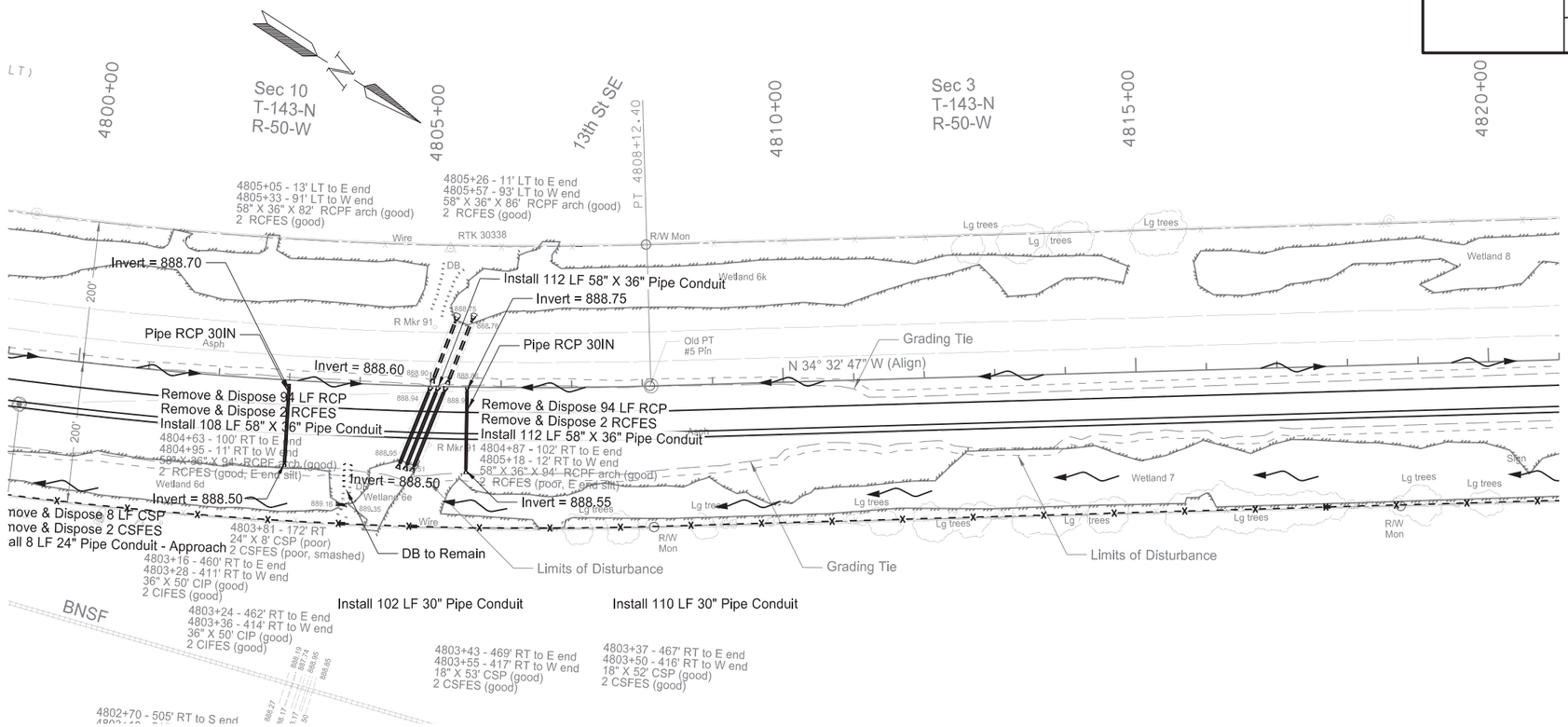


REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

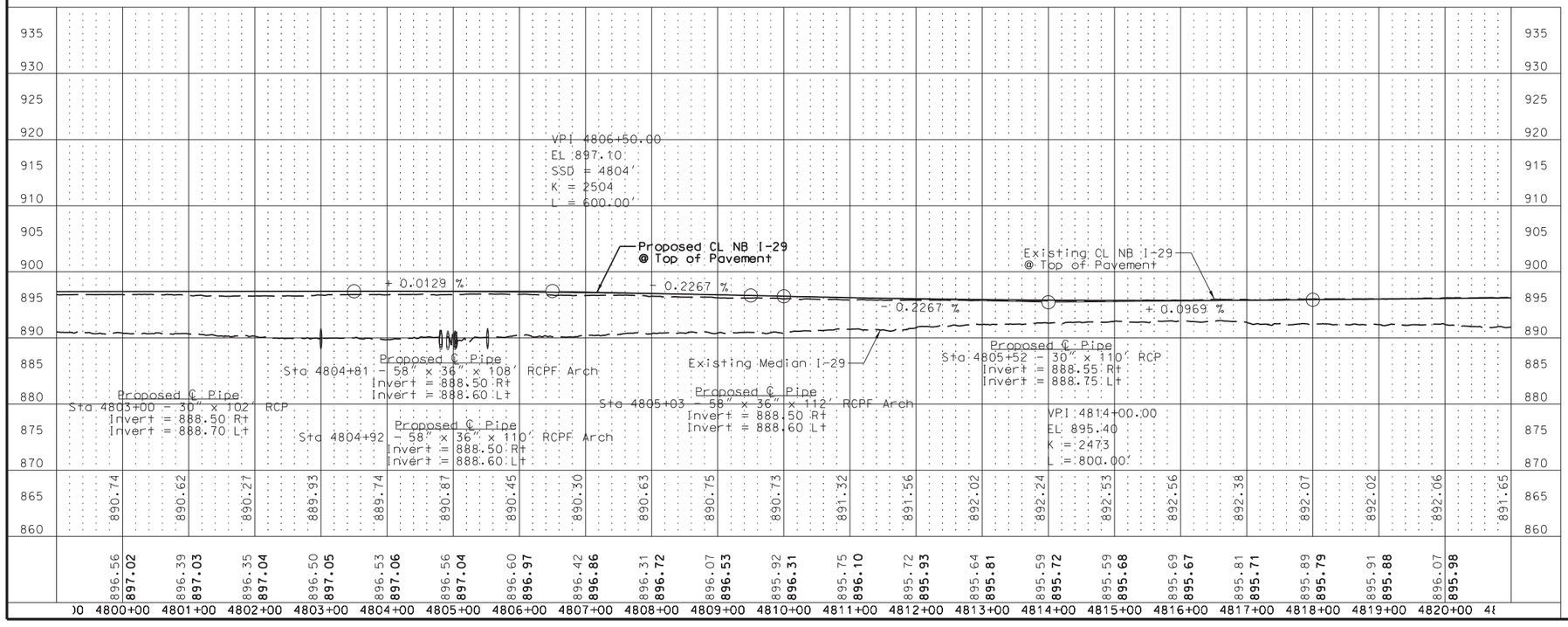
Plan and Profile Sheet
Sta 4780+00 to Sta 4800+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	8



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 4803+81 - NB 172' RT	EA	2
		Sta 4804+79 - NB Skewed CL	EA	2
		Sta 4804+99 - NB Skewed CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4803+81 - NB 172' RT	LF	8
		Sta 4804+79 - NB Skewed CL	LF	94
		Sta 4804+99 - NB Skewed CL	LF	94
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 4803+00 - NB CL	SY	226
		Sta 4804+79 to Sta 4804+99 - Skewed CL	SY	488
		Sta 4805+52 - NB CL	SY	245
714	4106	**PIPE CONDUIT 24IN - APPROACH**		
		Sta 4803+81 - NB 172' RT	LF	8
714	4110	**PIPE CONDUIT 30IN**		
		Sta 4803+00 - NB CL	LF	105
		Sta 4805+52 - NB CL	LF	113
714	4229	**PIPE CONDUIT ARCH 58IN x 36IN**		
		Sta 4804+79 - NB Skewed CL	LF	114
		Sta 4804+89 - NB Skewed CL	LF	116
		Sta 4804+99 - NB Skewed CL	LF	118



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SAMUEL WELCH
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08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 4800+00 to Sta 4820+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
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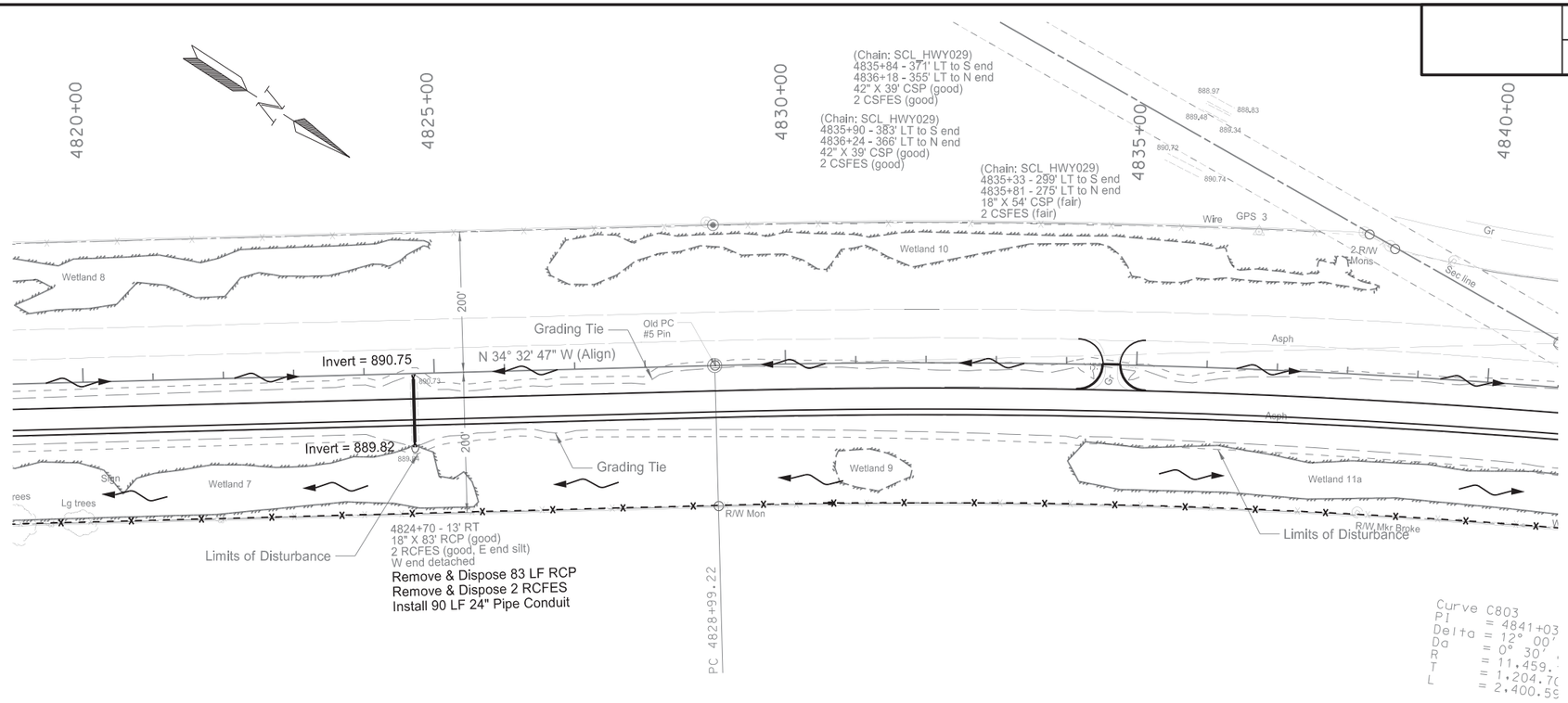
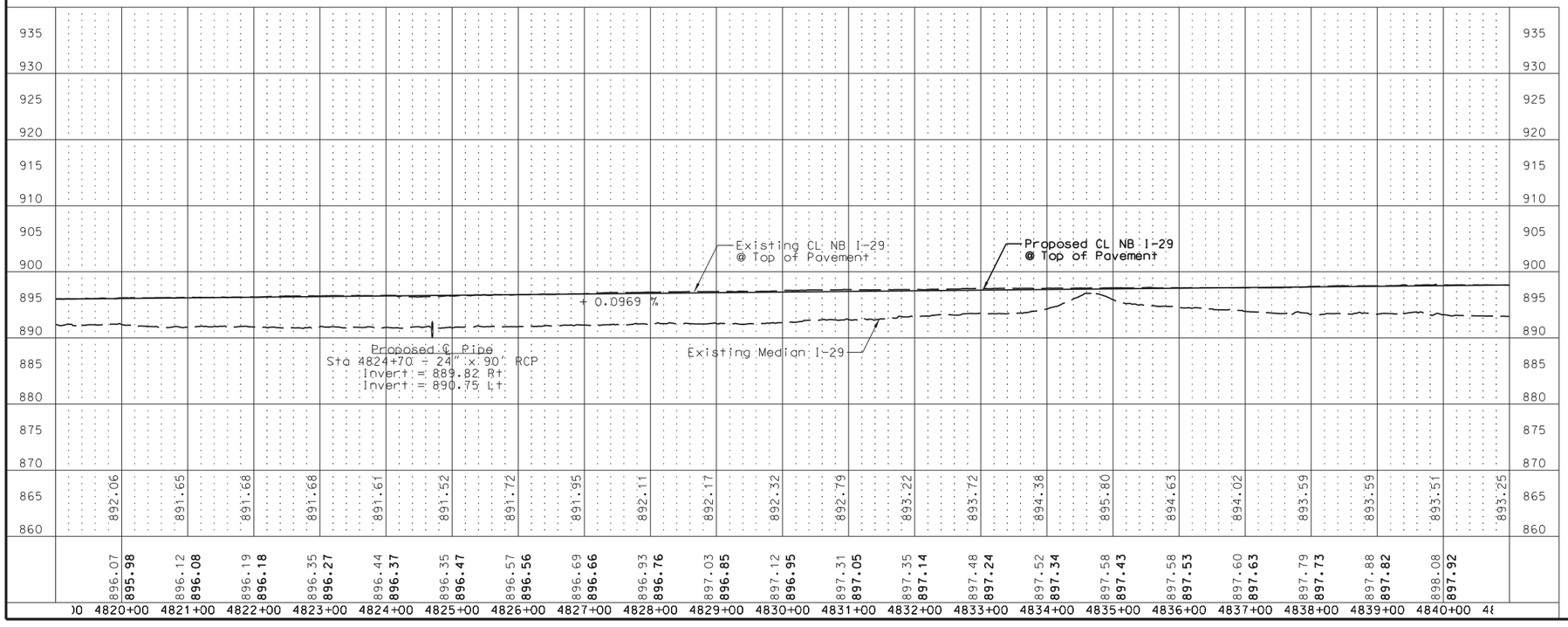
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	9

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 4824+70 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 4824+70 - NB CL	LF	83
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4824+70 - NB CL	SY	174
714	4105	PIPE CONDUIT 24IN		
		Sta 4824+70 - NB CL	LF	95





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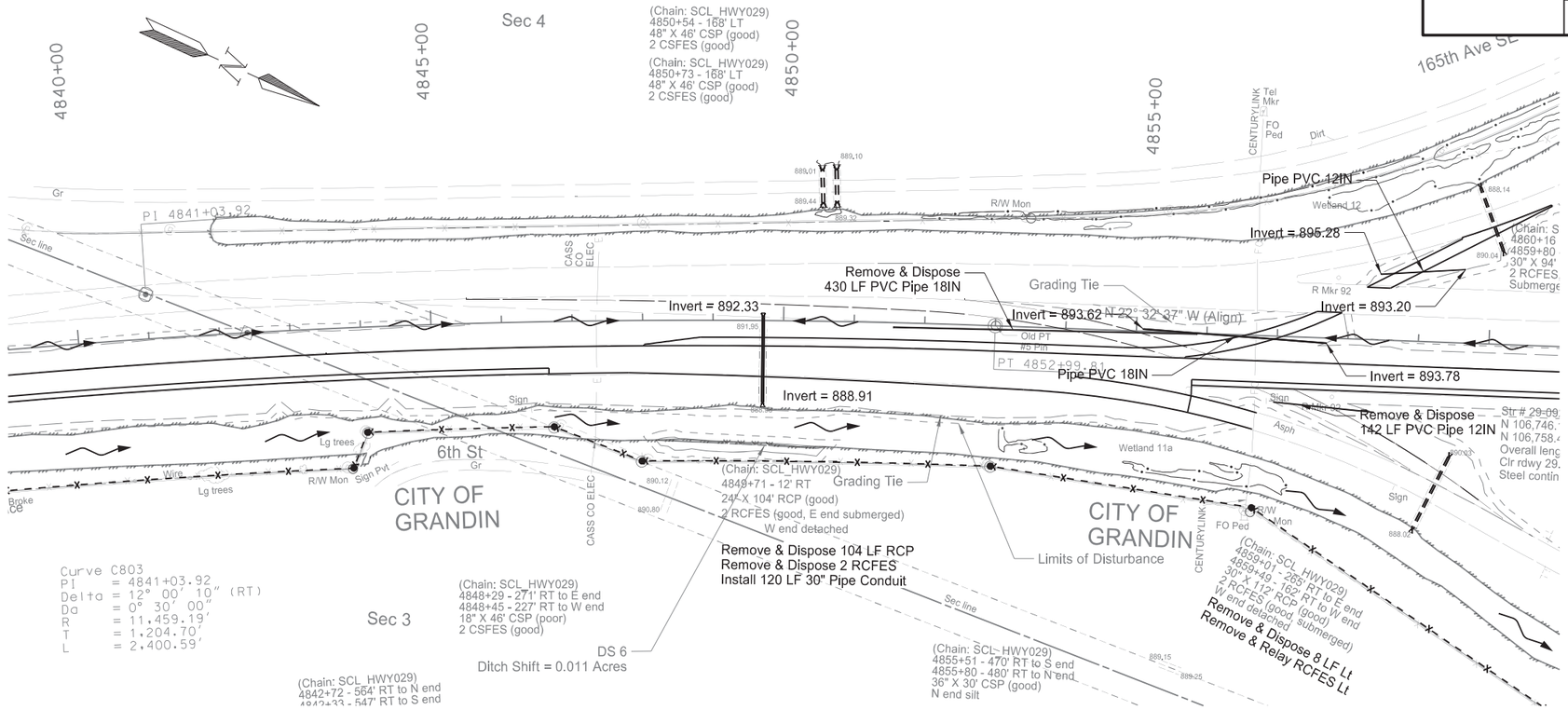
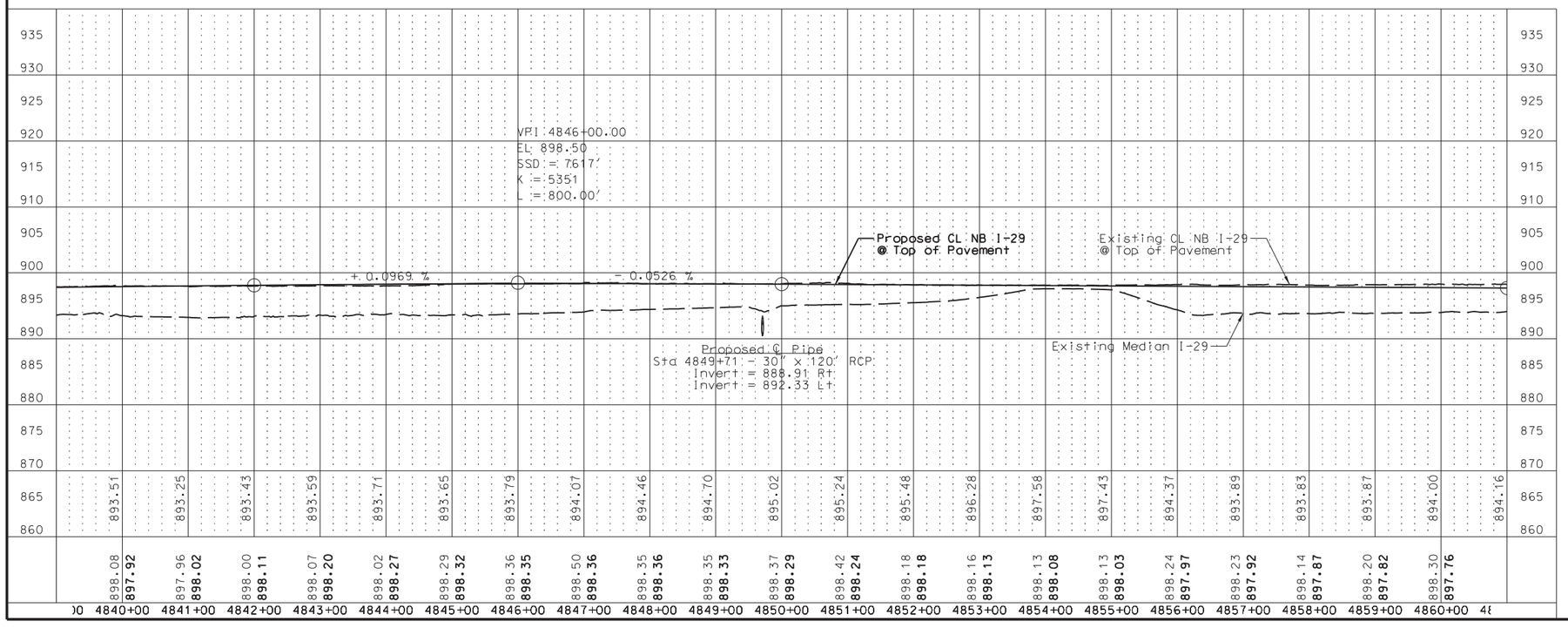
NORTH DAKOTA

Plan and Profile Sheet
Sta 4820+00 to Sta 4840+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	10





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 4849+71 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 4849+71 - NB CL	LF	104
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 4849+71 - NB CL	SY	269
714	4110	PIPE CONDUIT 30IN		
		Sta 4849+71 - NB CL	LF	123

Note: Quantities for pipe work for the temporary ramp connection are shown on Sheet 60-36.

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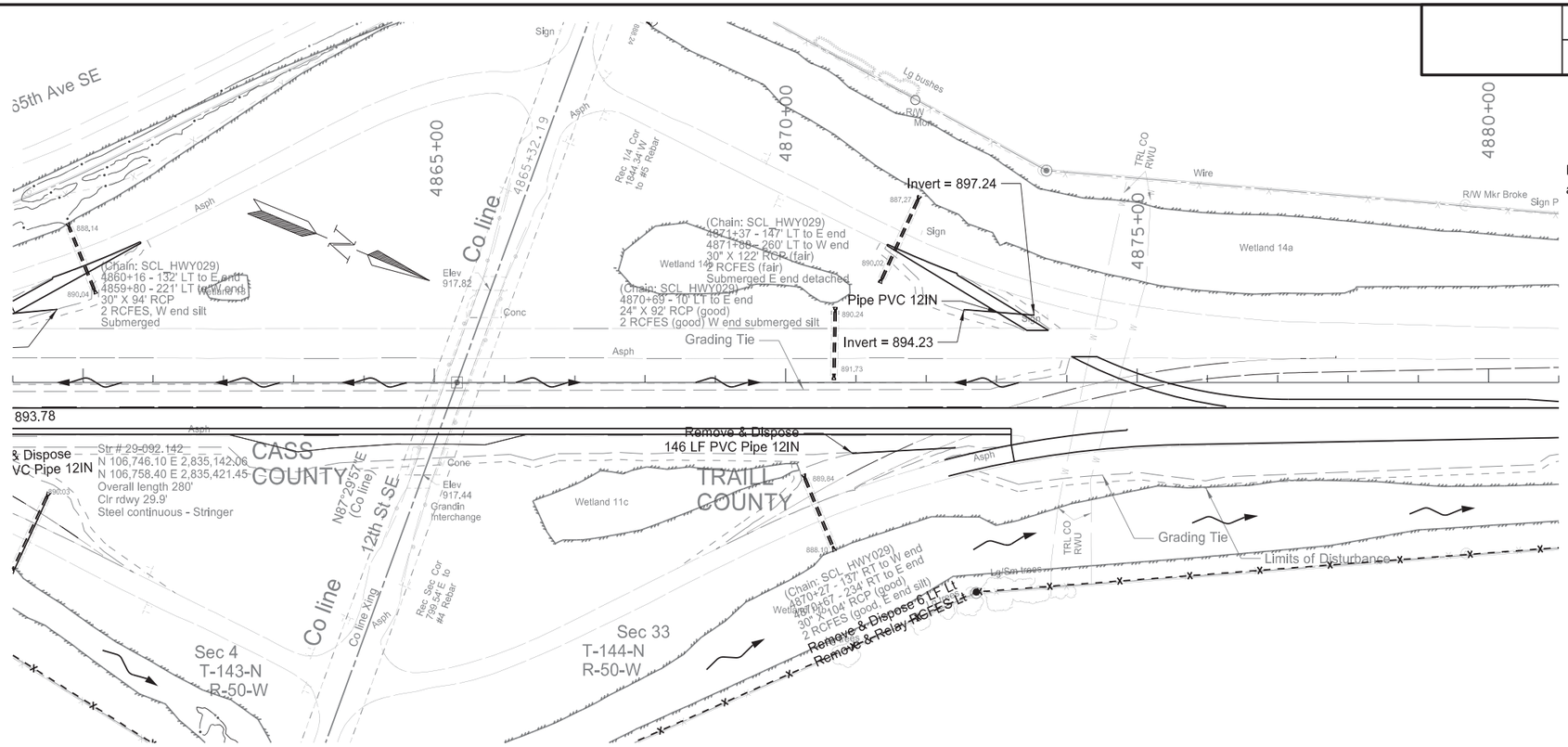
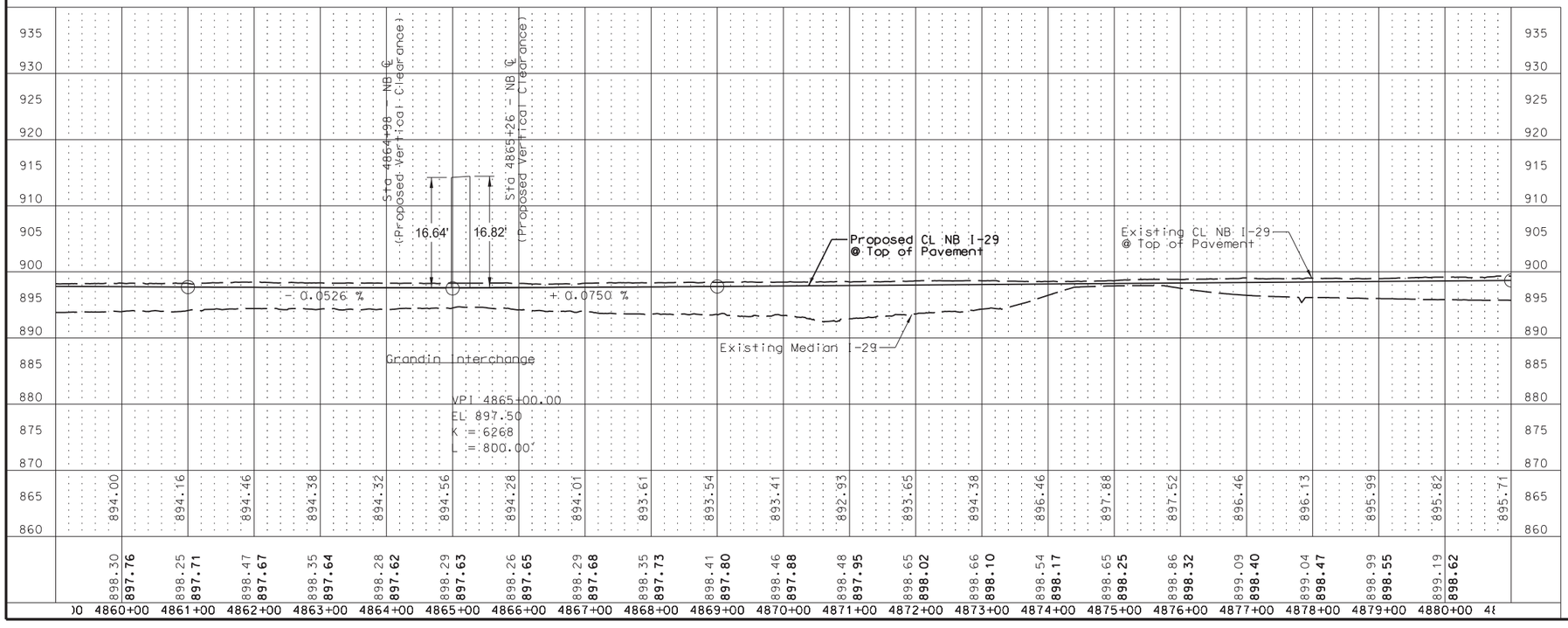
Plan and Profile Sheet
Sta 4840+00 to Sta 4860+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	11





Note: Quantities for pipe work for the temporary ramp connection are shown on Sheet 60-37.

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Plan and Profile Sheet
Sta 4860+00 to Sta 4880+00

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Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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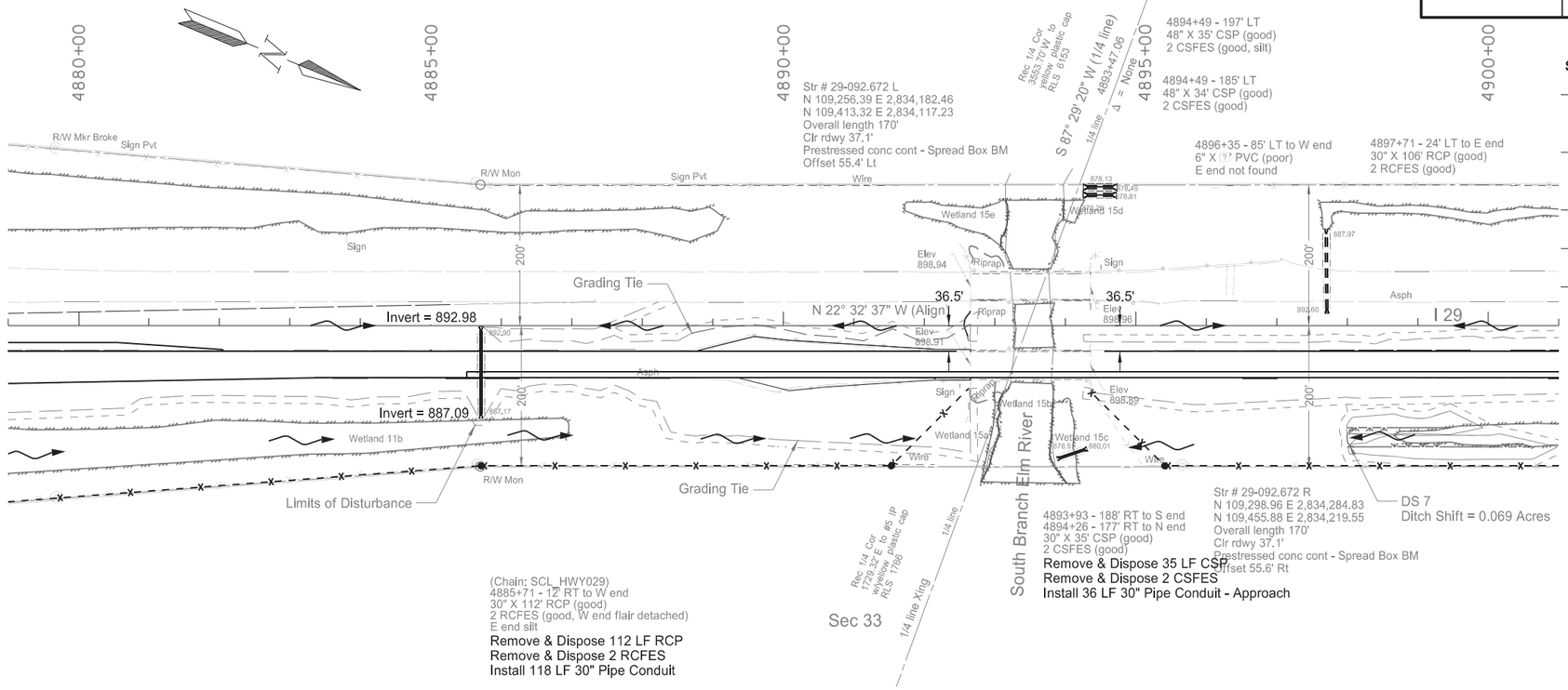
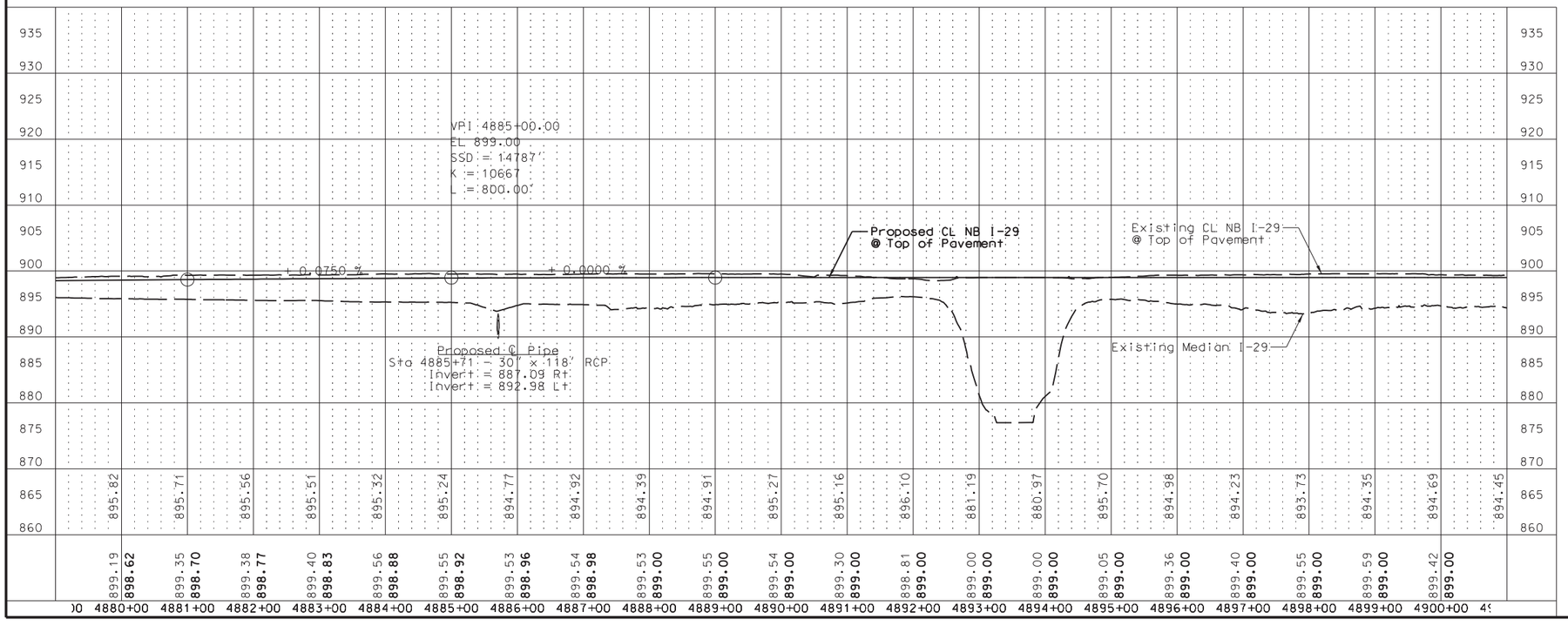


SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 4885+71 - NB CL	EA	2
		Sta 4894+10 - NB 182' RT	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4885+71 - NB CL	LF	112
		Sta 4894+10 - NB 182' RT	LF	35
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 4885+71 - NB CL	SY	265
714	4110	**PIPE CONDUIT 30IN**		
		Sta 4885+71 - NB CL	LF	121
714	4113	**PIPE CONDUIT 30IN - APPROACH**		
		Sta 4894+10 - NB 182' RT	LF	36



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Plan and Profile Sheet
Sta 4880+00 to Sta 4900+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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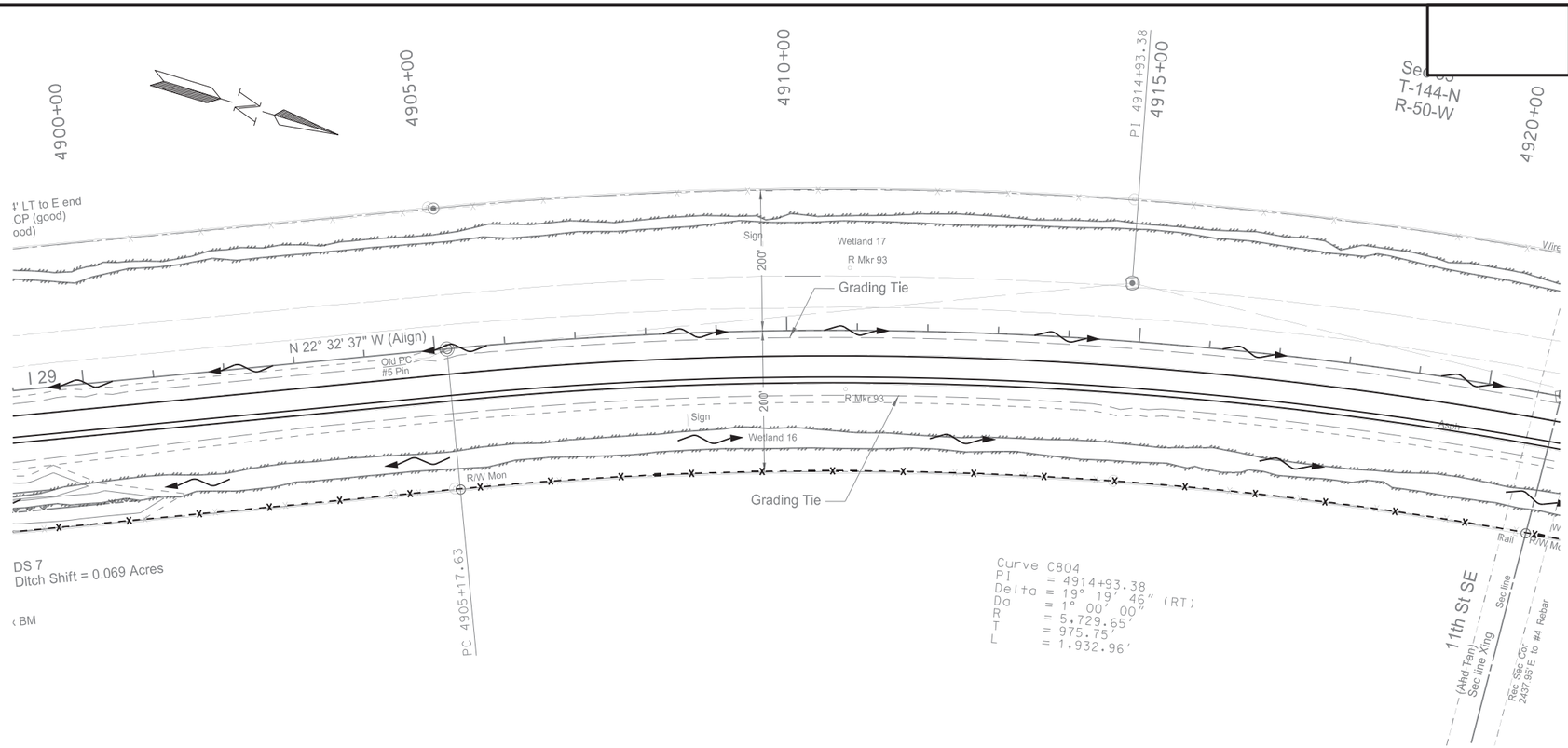

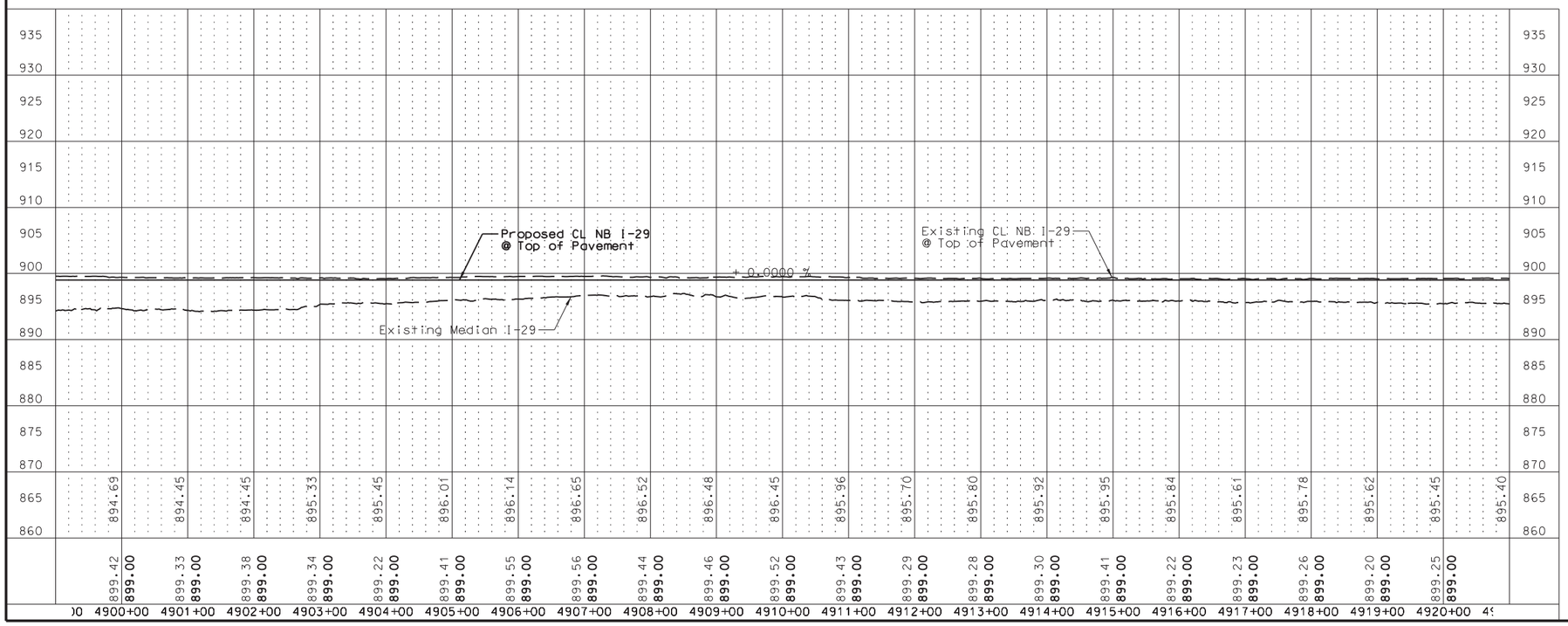

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SAMUEL WELCH
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08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 4900+00 to Sta 4920+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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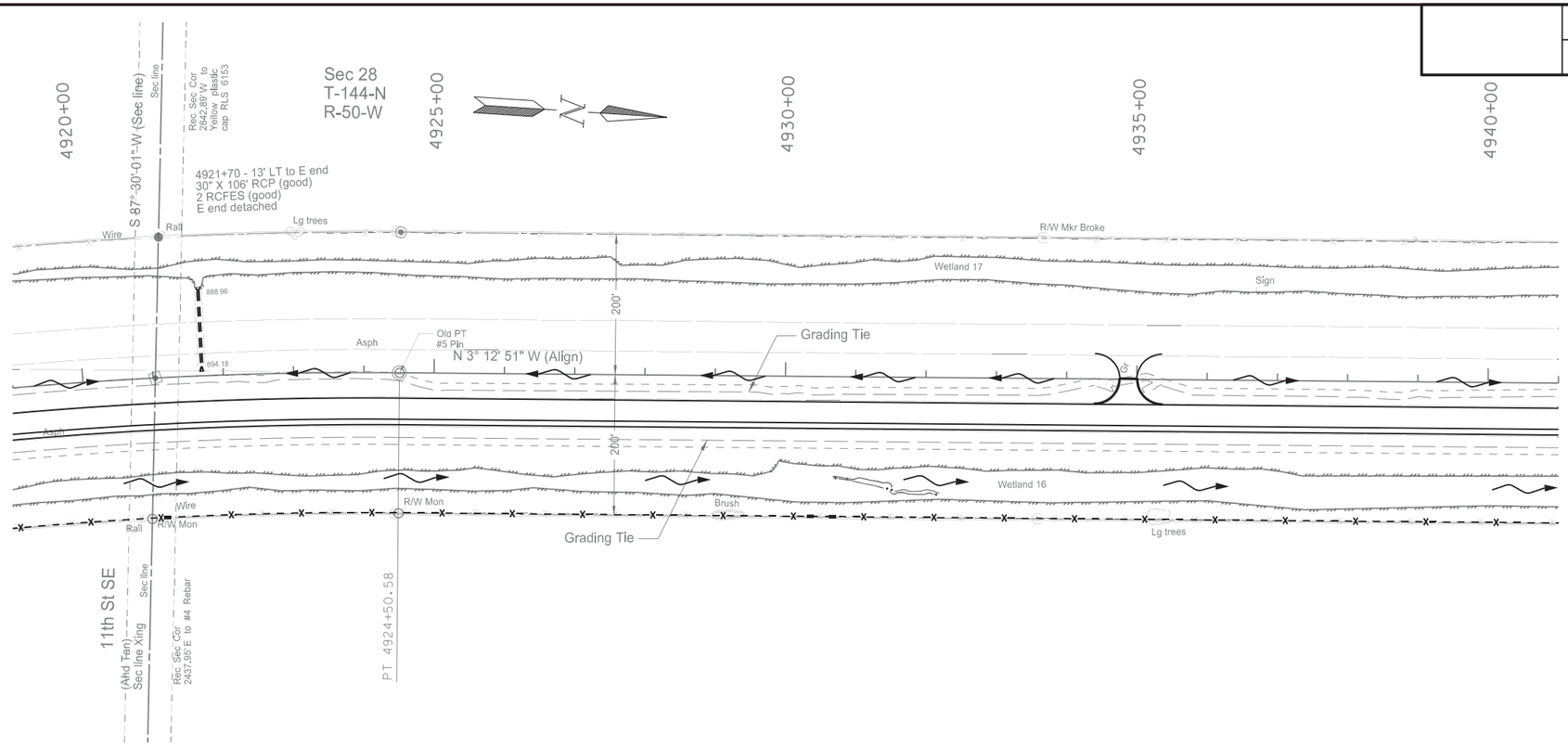

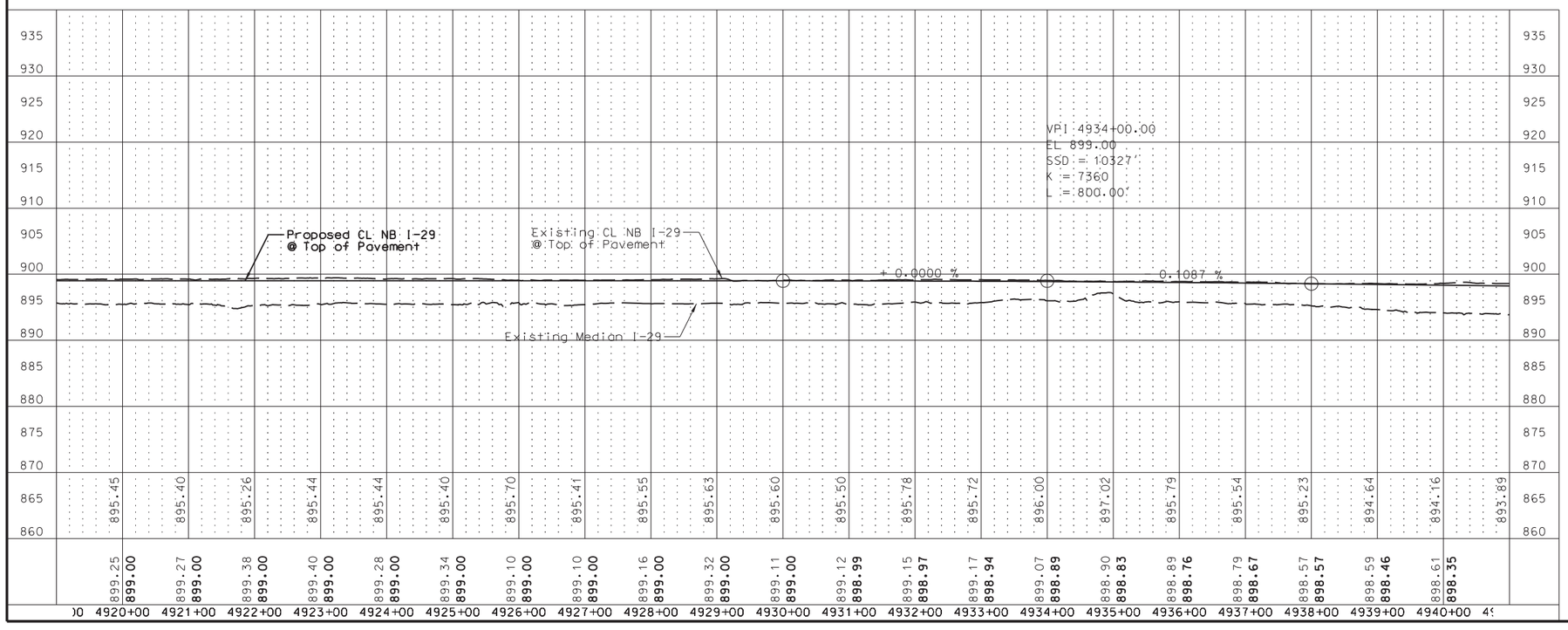

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DATE
08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 4920+00 to Sta 4940+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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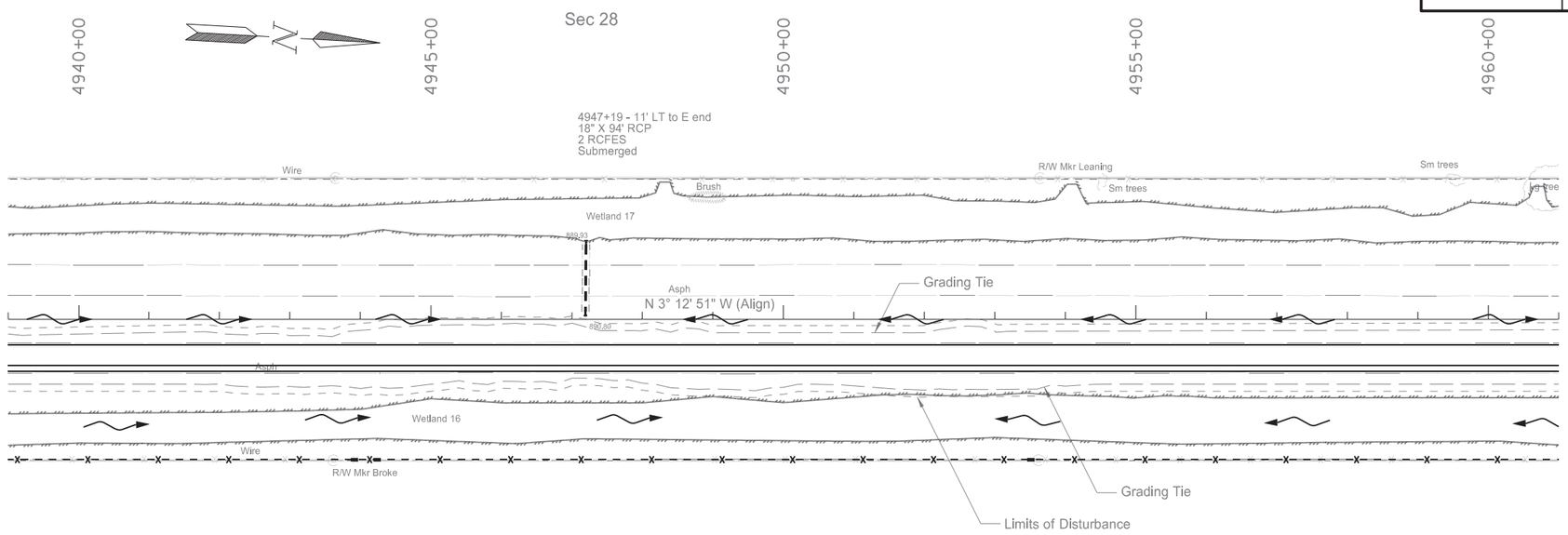

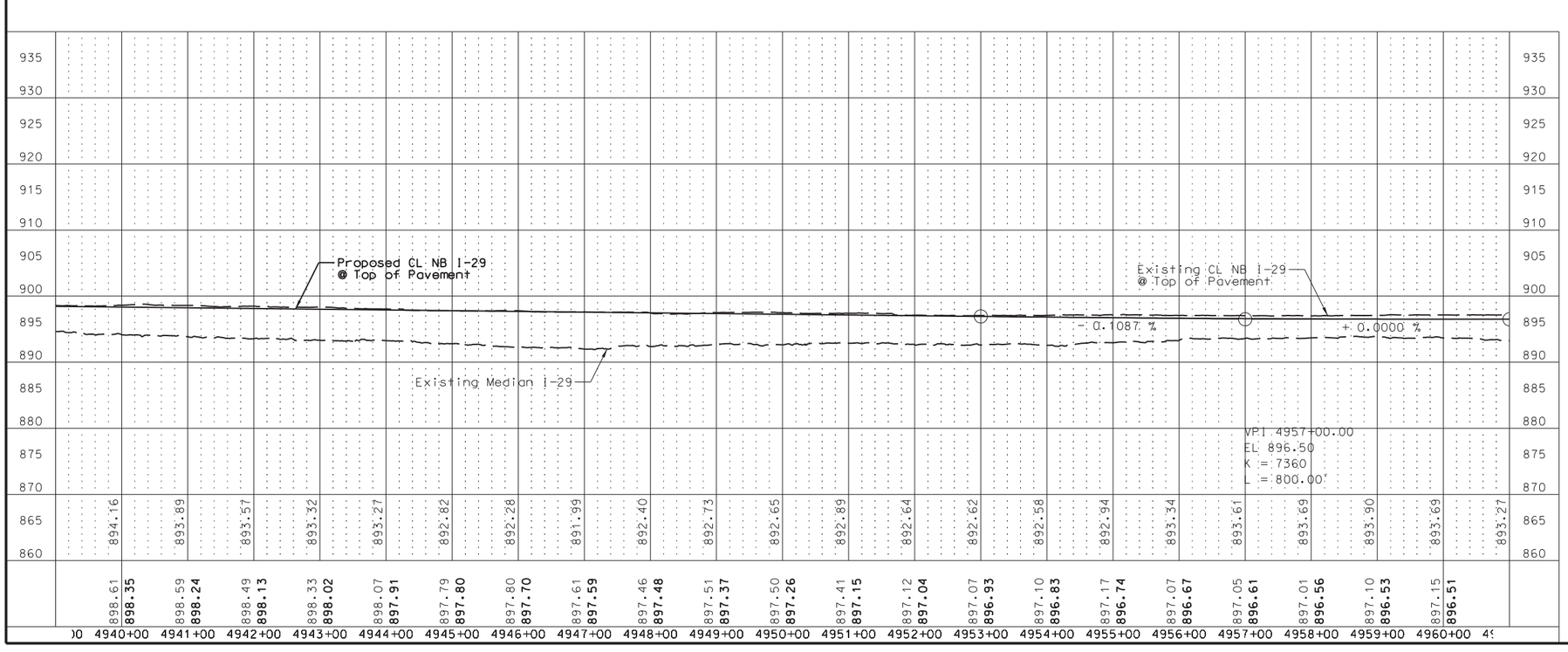

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DATE
08/25/20
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Plan and Profile Sheet
Sta 4940+00 to Sta 4960+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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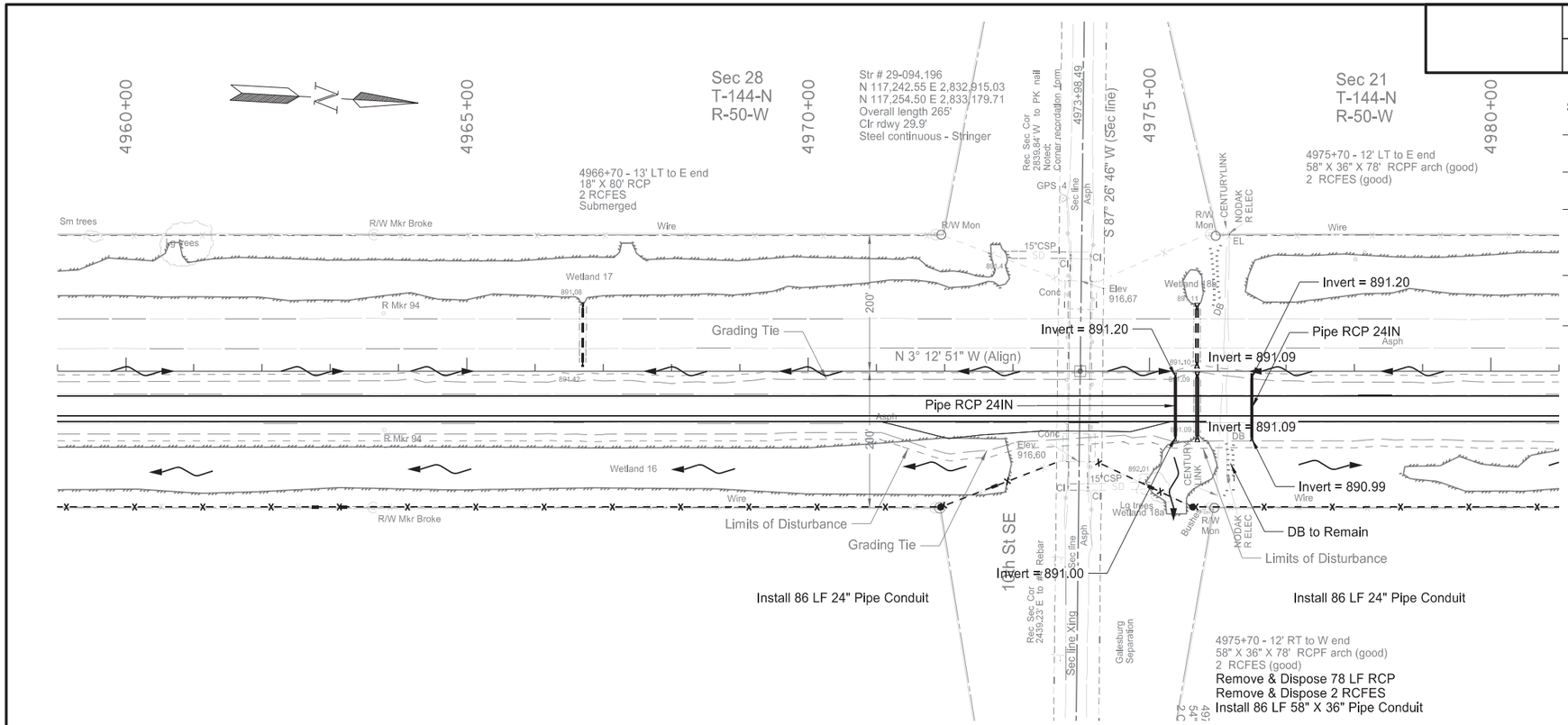
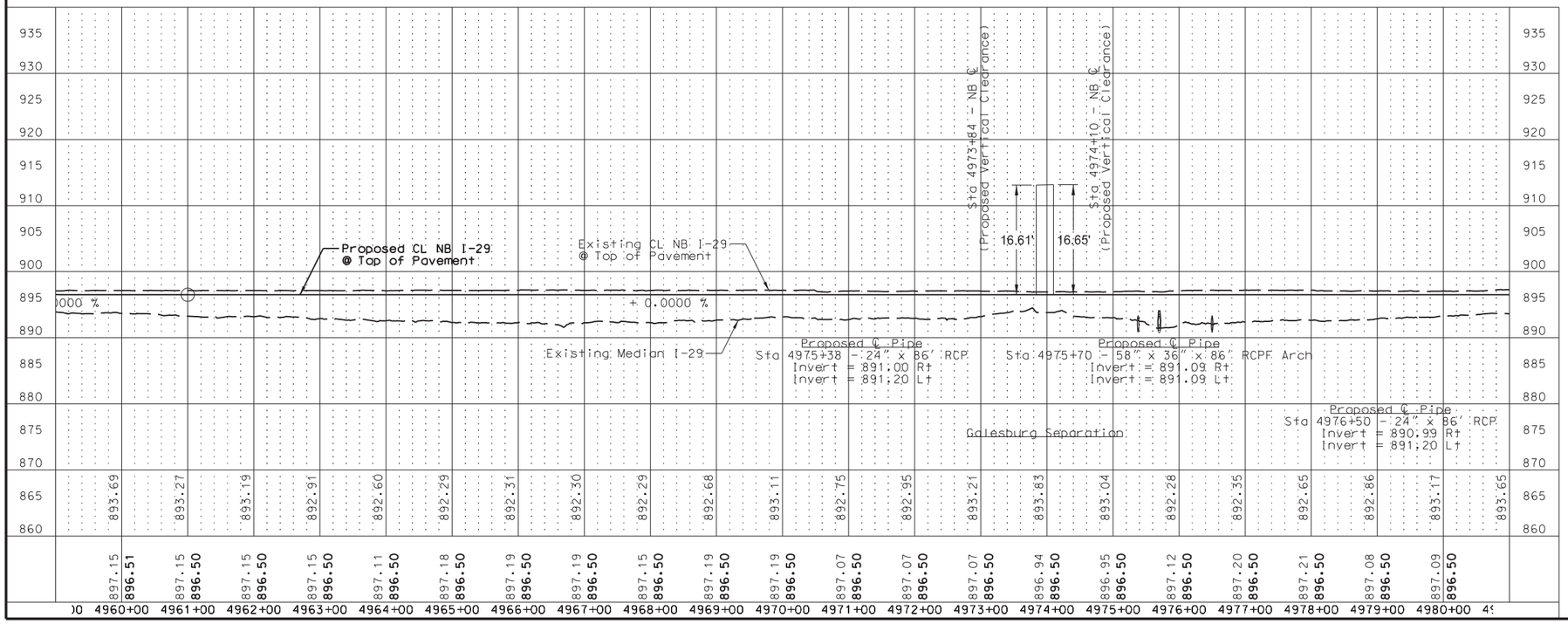
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	16

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 4975+70 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4975+70 - NB CL	LF	78
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 4975+38 - NB CL	SY	159
		Sta 4975+70 - NB CL	SY	198
		Sta 4976+50 - NB CL	SY	190
714	4105	**PIPE CONDUIT 24IN**		
		Sta 4975+38 - NB CL	LF	88
		Sta 4976+50 - NB CL	LF	89
714	4229	**PIPE CONDUIT ARCH 58IN x 36IN**		
		Sta 4975+70 - NB CL	LF	92





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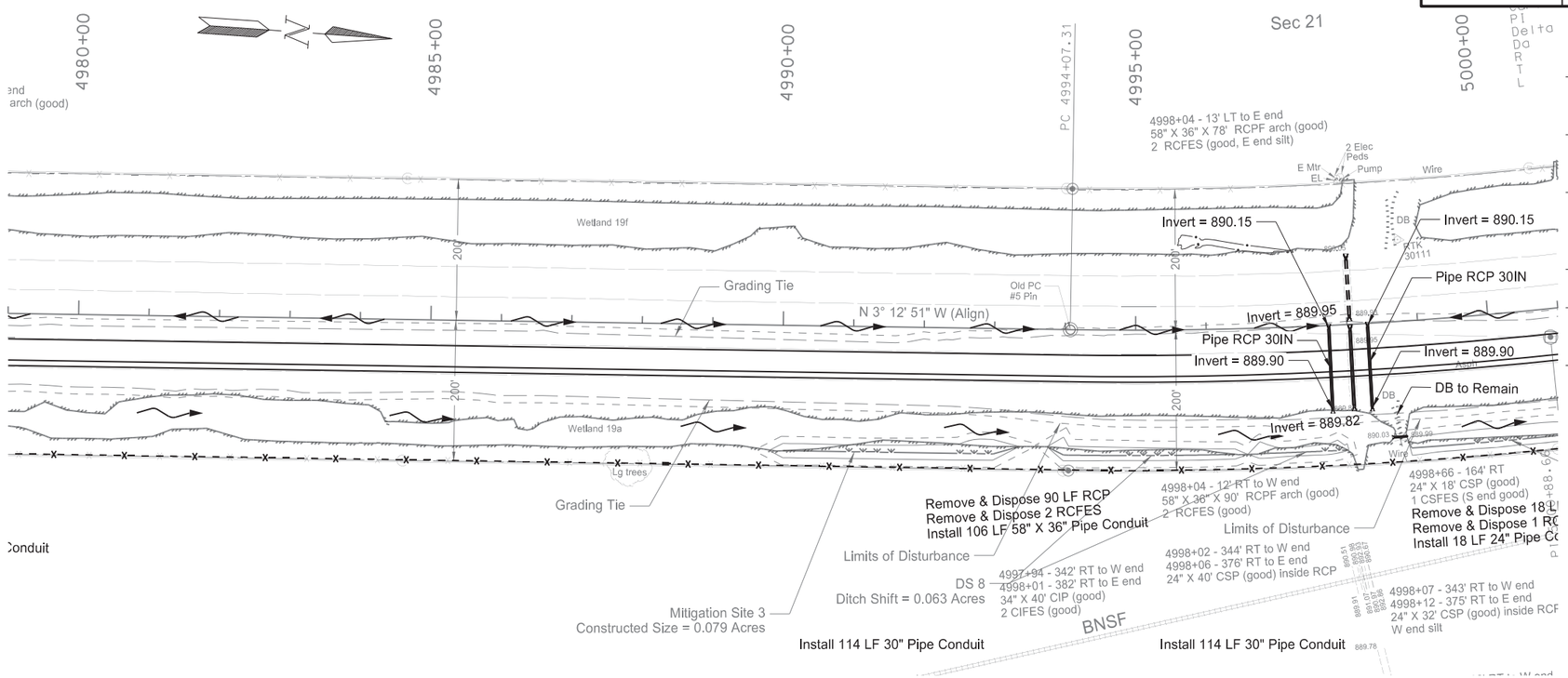
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

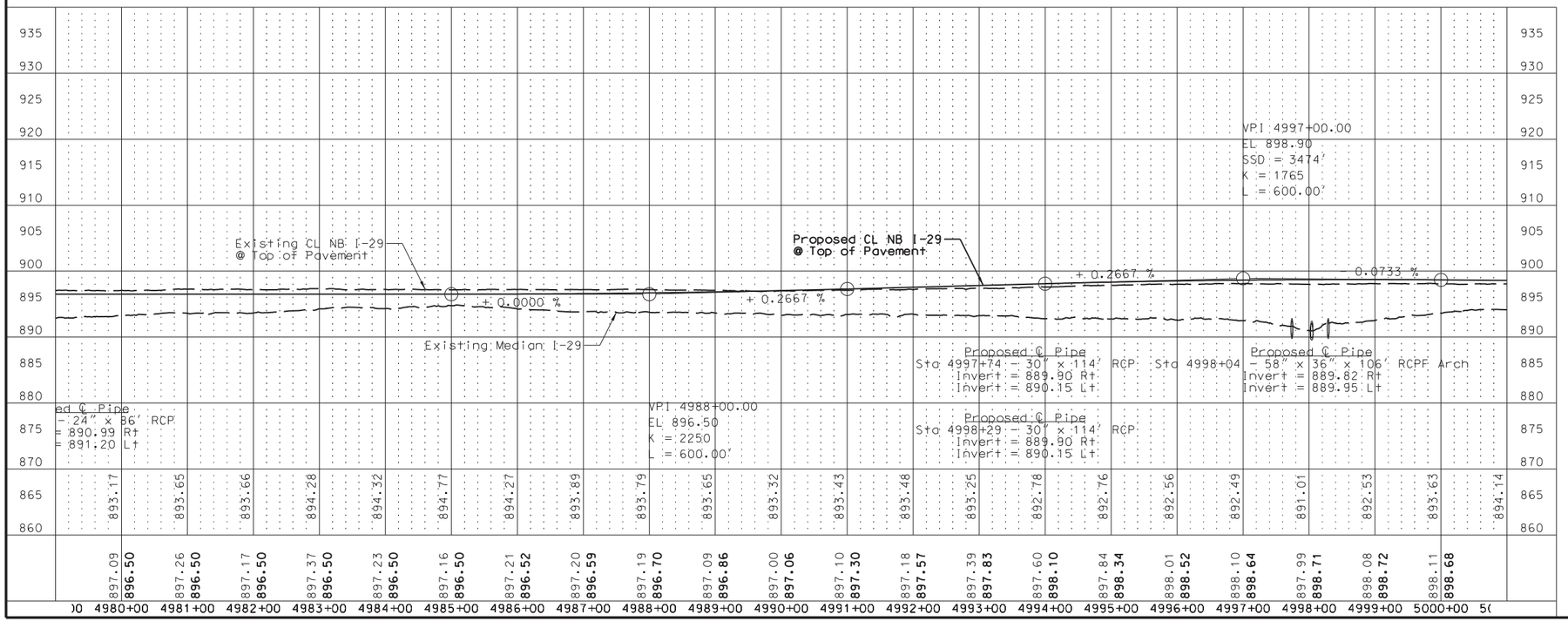
Plan and Profile Sheet
Sta 4960+00 to Sta 4980+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	17



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	**0169**	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 4998+04 - NB CL	EA	2
		Sta 4998+66 - NB 164' RT	EA	1
202	**0174**	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4998+04 - NB CL	LF	78
		Sta 4998+66 - NB 164' RT	LF	18
709	**0100**	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 4997+74 - NB CL	SY	255
		Sta 4998+04 - NB CL	SY	247
		Sta 4998+29 - NB CL	SY	255
714	**4106**	**PIPE CONDUIT 24IN - APPROACH**		
		Sta 4998+66 - NB 164' RT	LF	18
714	**4110**	**PIPE CONDUIT 30IN**		
		Sta 4997+74 - NB CL	LF	117
		Sta 4998+29 - NB CL	LF	117
714	**4229**	**PIPE CONDUIT ARCH 58IN x 36IN**		
		Sta 4998+04 - NB CL	LF	112



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DATE
08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 4980+00 to Sta 5000+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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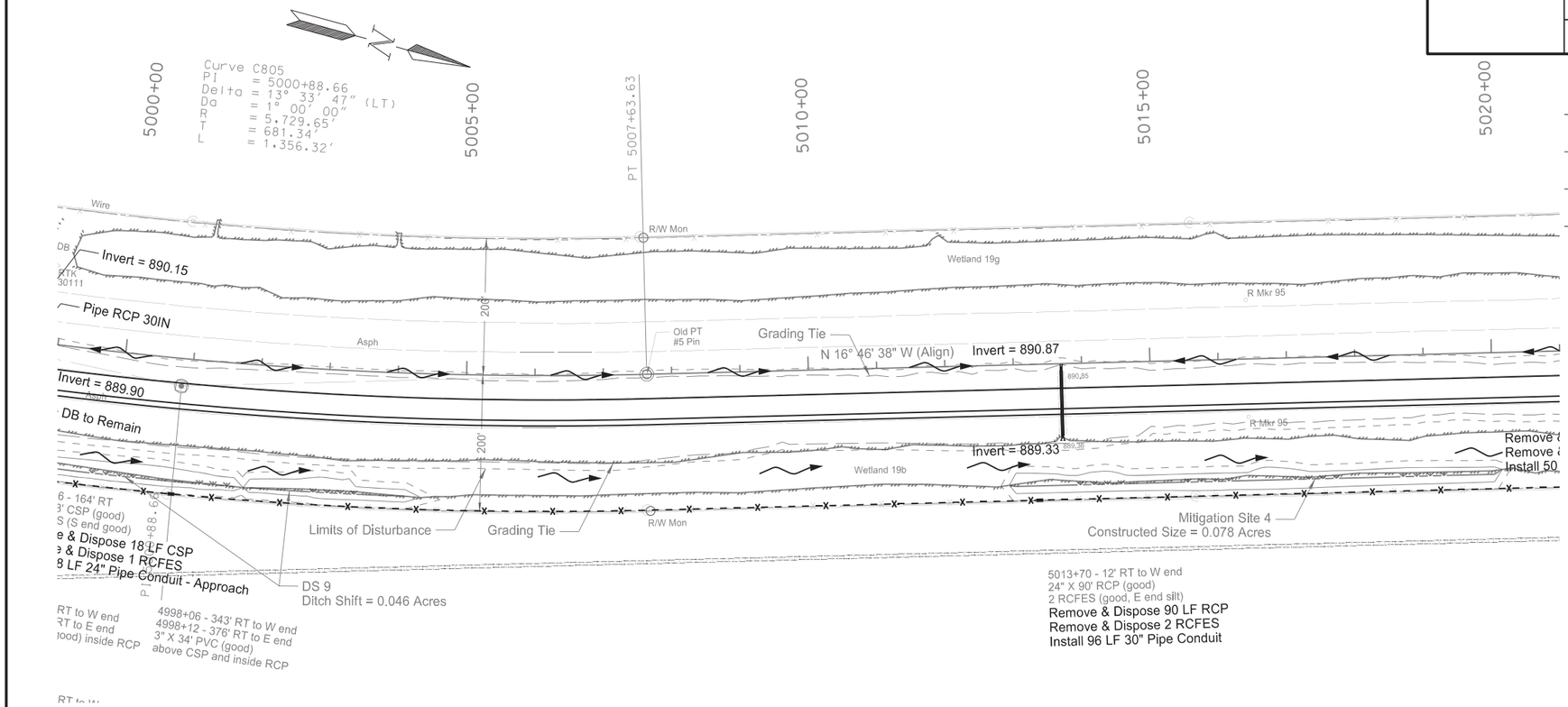
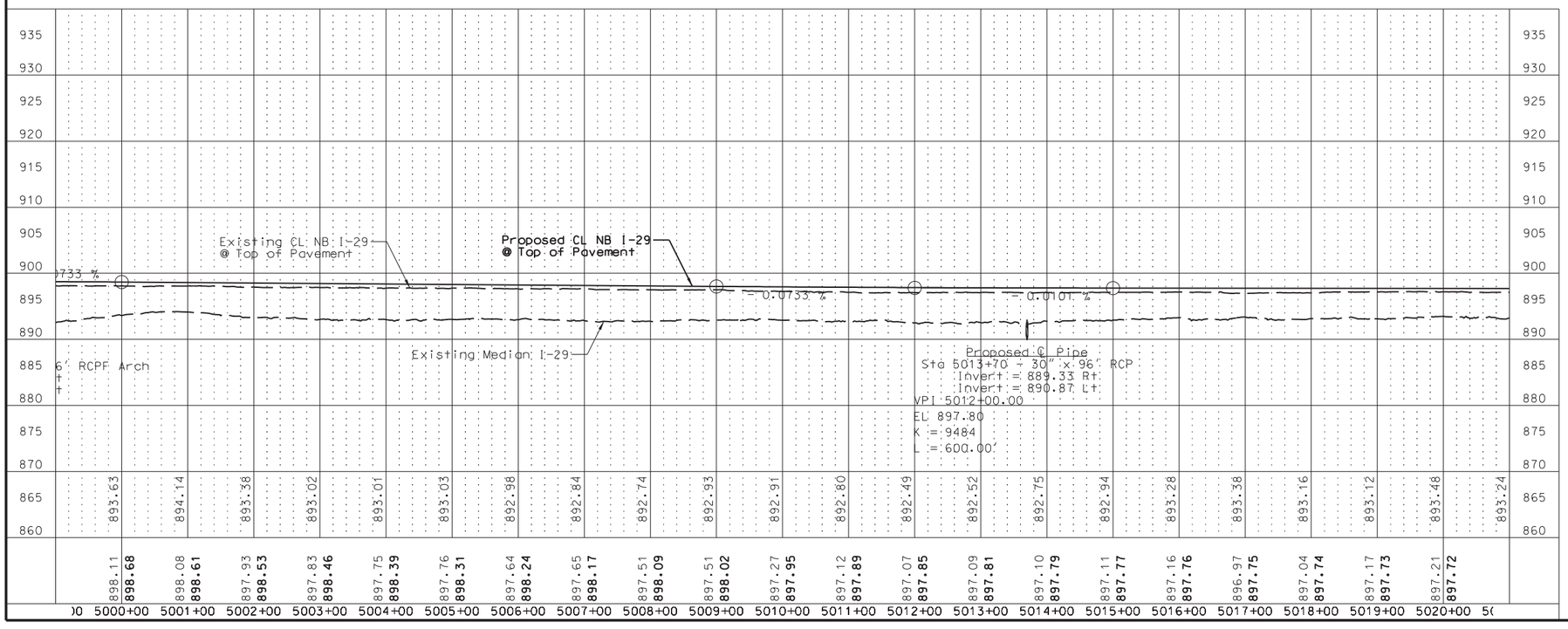
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	18





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 5013+70 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 5013+70 - NB CL	LF	90
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 5013+70 - NB CL	SY	211
714	4110	PIPE CONDUIT 30IN		
		Sta 5013+70 - NB CL	LF	99

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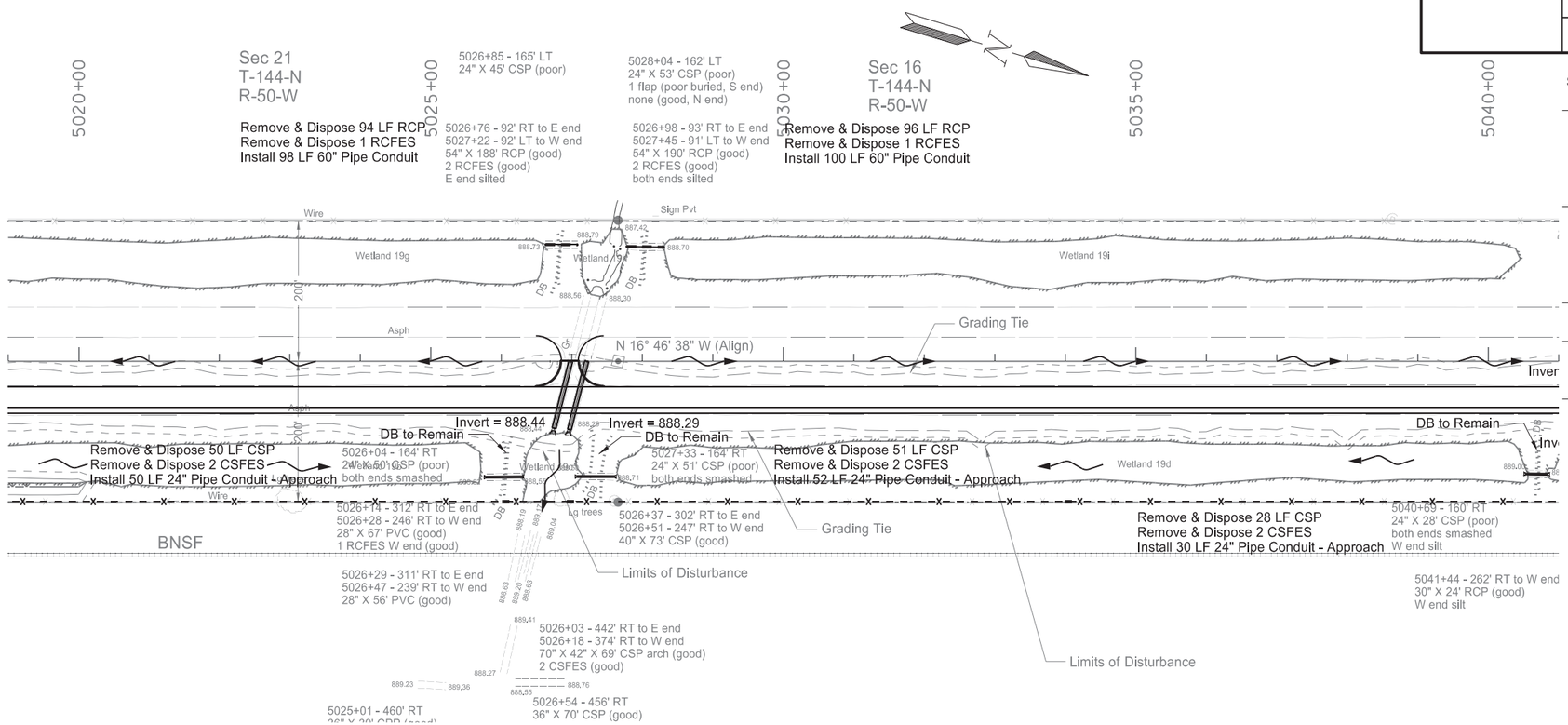
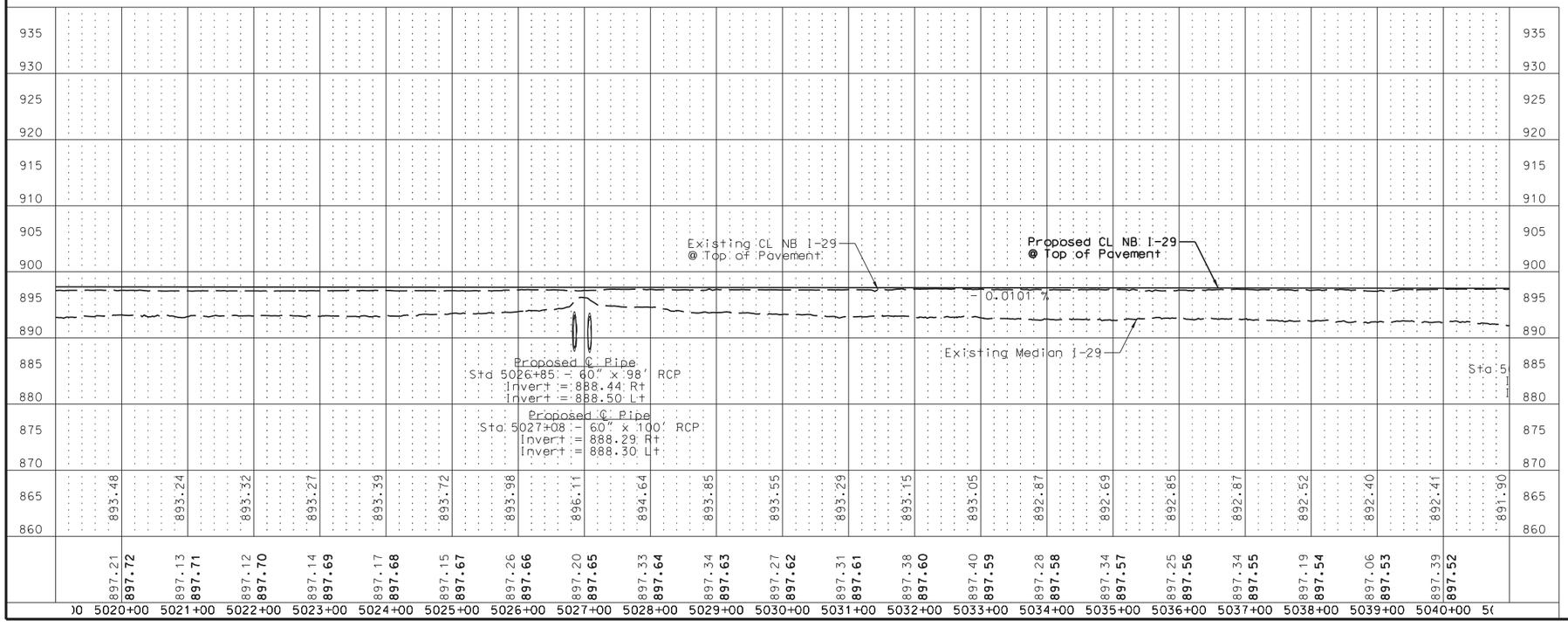
Plan and Profile Sheet
Sta 5000+00 to Sta 5020+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	19





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	**0169**	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5026+04 - NB 164' RT	EA	2
		Sta 5026+87 - NB Skewed CL	EA	1
		Sta 5027+09 - NB Skewed CL	EA	1
		Sta 5027+33 - NB 164' RT	EA	2
202	**0174**	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5026+04 - NB 164' RT	LF	50
		Sta 5026+87 - NB Skewed CL	LF	94
		Sta 5027+09 - NB Skewed CL	LF	96
		Sta 5027+33 - NB 164' RT	LF	51
709	**0100**	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5026+87 to Sta 5027+09 - Skewed CL	SY	638
714	**4106**	**PIPE CONDUIT 24IN - APPROACH**		
		Sta 5026+04 - NB 164' RT	LF	50
		Sta 5027+33 - NB 164' RT	LF	52
714	**4135**	**PIPE CONDUIT 60IN**		
		Sta 5026+87 - NB Skewed CL	LF	101
		Sta 5027+09 - NB Skewed CL	LF	103

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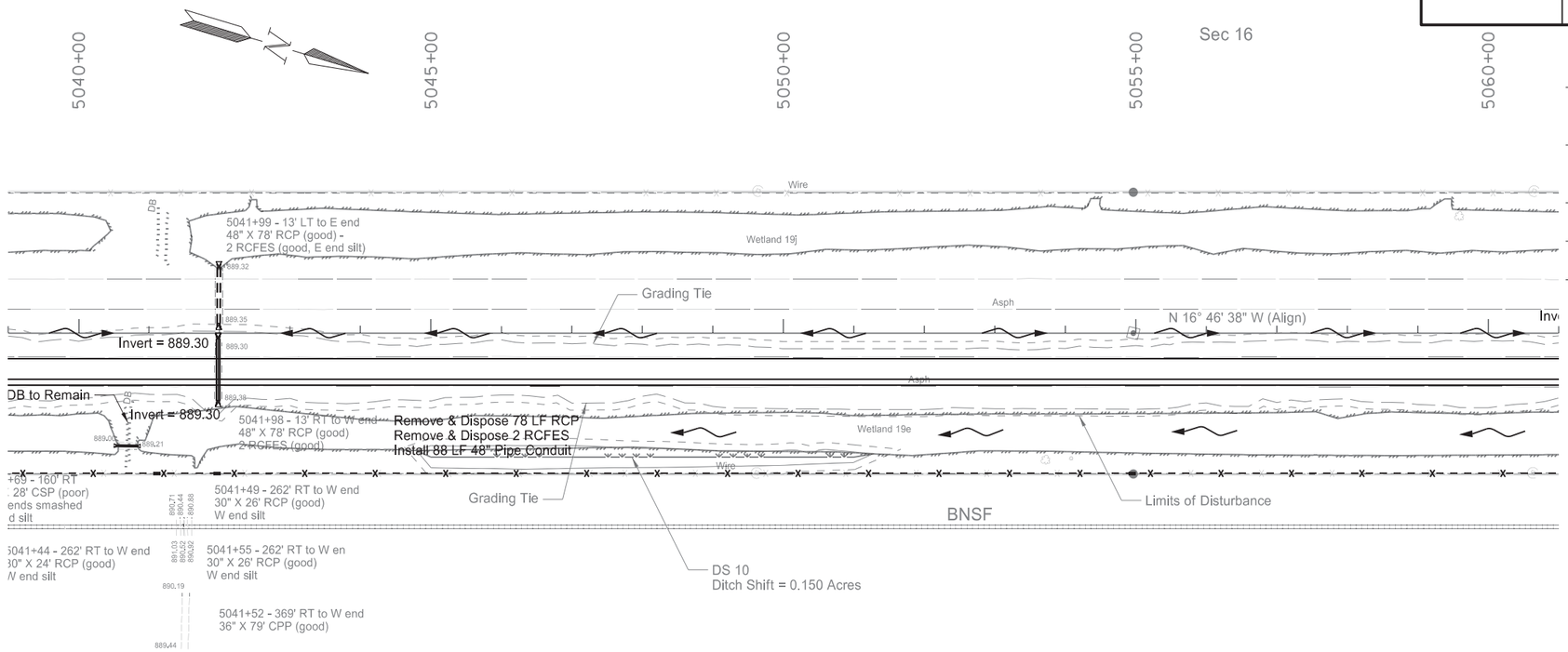
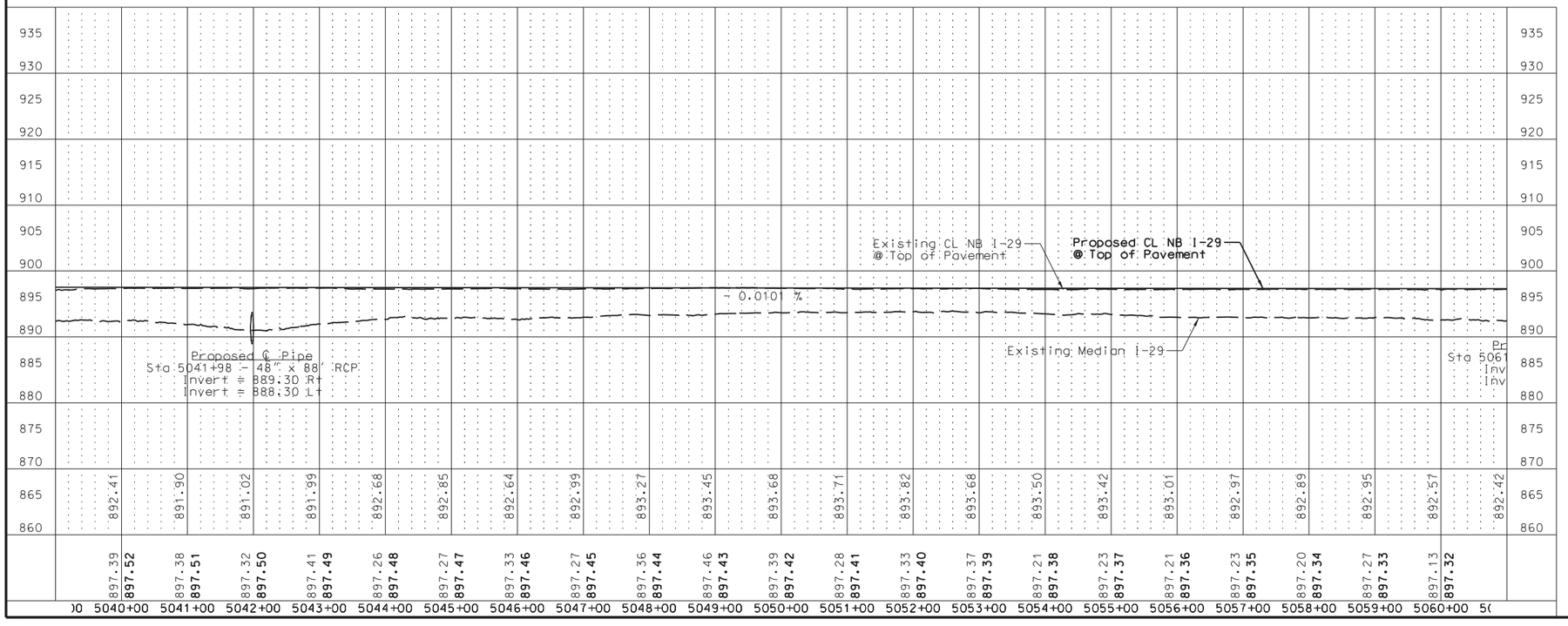
Plan and Profile Sheet
Sta 5020+00 to Sta 5040+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	20

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	**0169**	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5040+69 - NB 160' RT	EA	2
		Sta 5041+98 - NB CL	EA	2
202	**0174**	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5040+69 - NB 160' RT	LF	28
		Sta 5041+98 - NB CL	LF	78
709	**0100**	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5041+98 - NB CL	SY	274
714	**4106**	**PIPE CONDUIT 24IN - APPROACH**		
		Sta 5040+69 - NB 160' RT	LF	30
714	**4125**	**PIPE CONDUIT 48IN**		
		Sta 5041+98 - NB CL	LF	92





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NORTH DAKOTA

Plan and Profile Sheet
Sta 5040+00 to Sta 5060+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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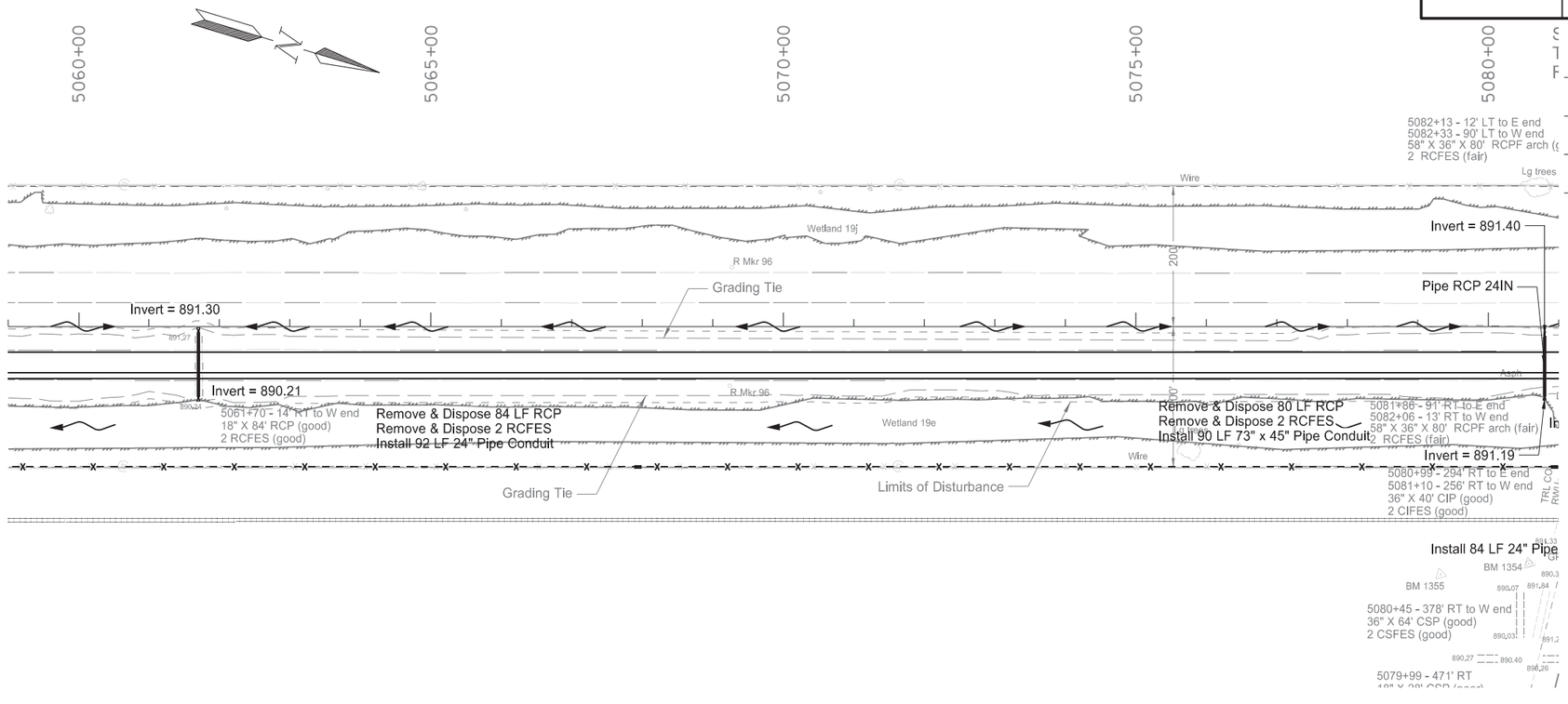
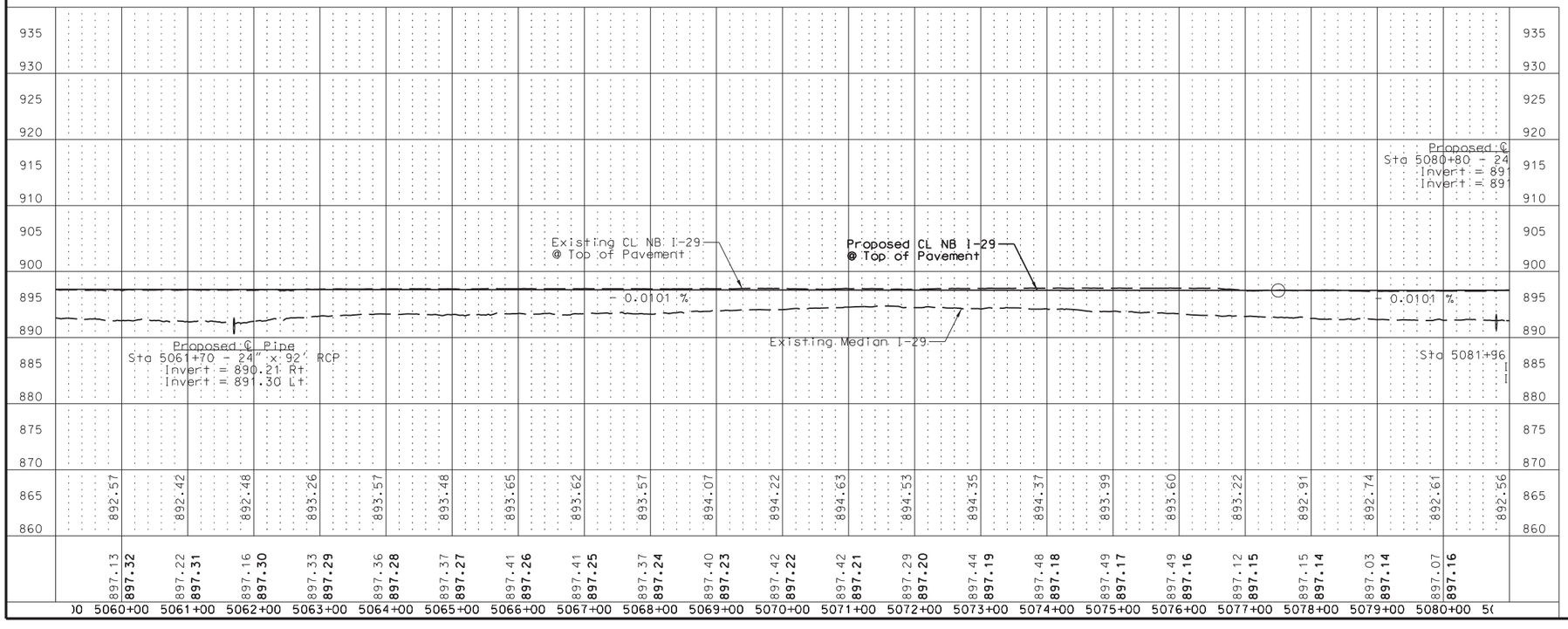
ND	IM-8-029(135)088	60	21

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	**0169**	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5061+70 - NB CL	EA	2
202	**0174**	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5061+70 - NB CL	LF	84
709	**0100**	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5061+70 - NB CL	SY	178
714	**4105**	**PIPE CONDUIT 24IN**		
		Sta 5061+70 - NB CL	LF	97



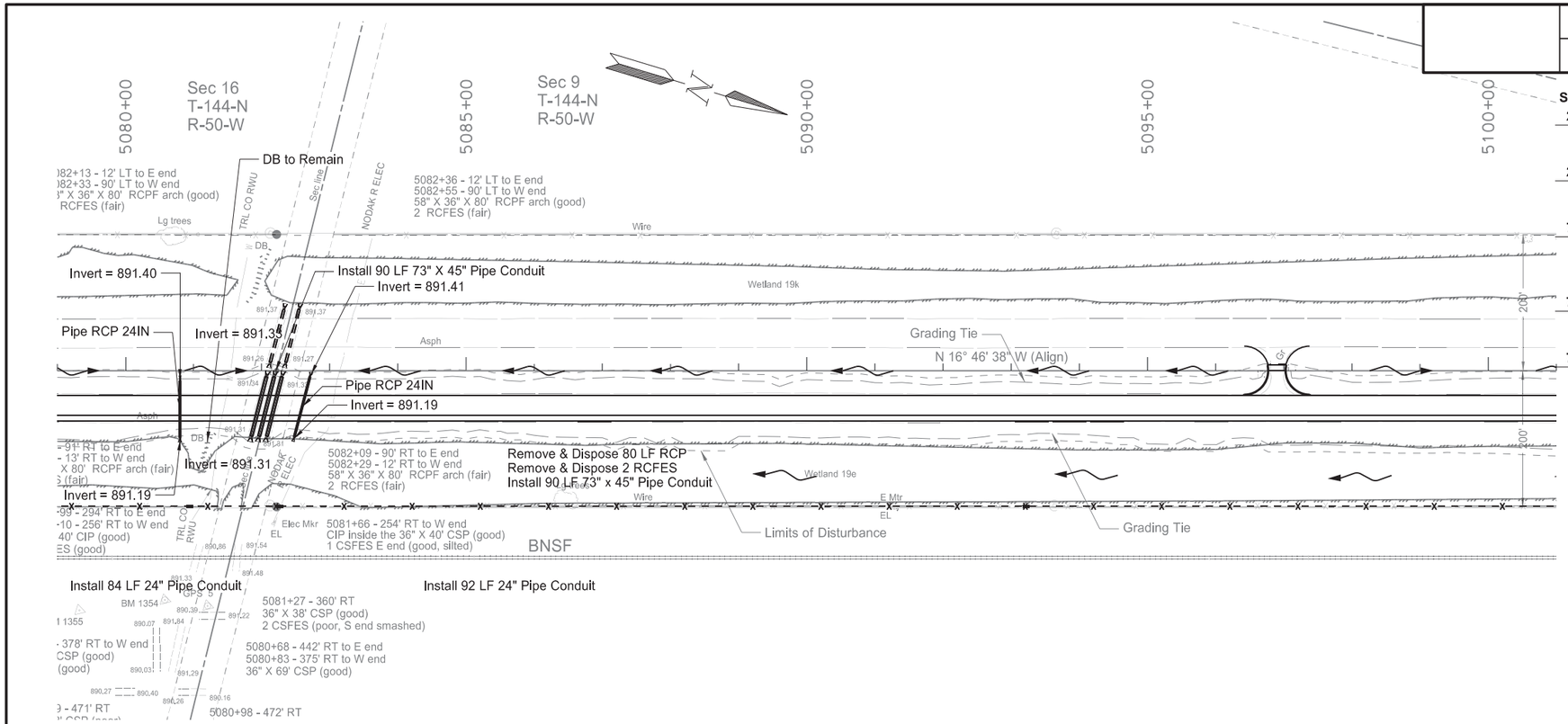


REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

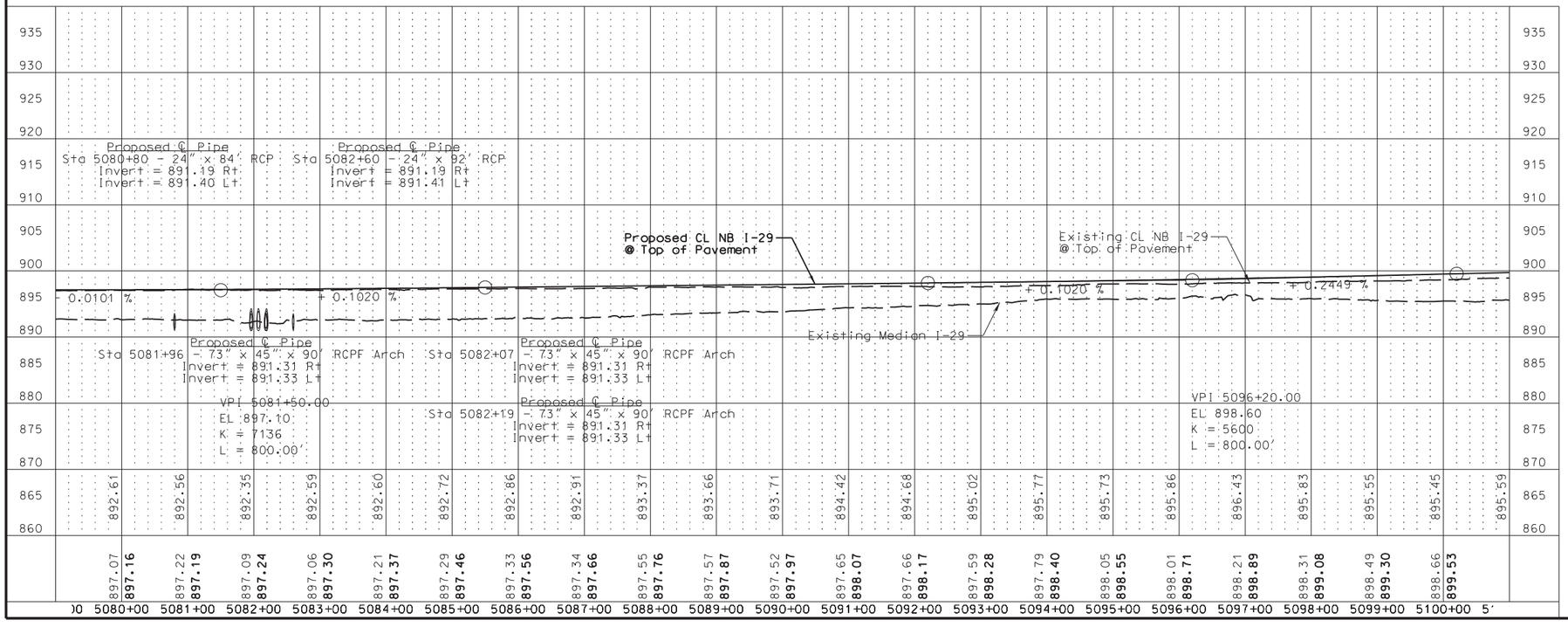
Plan and Profile Sheet
Sta 5060+00 to Sta 5080+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	22



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5081+96 - NB Skewed CL	EA	2
		Sta 5082+19 - NB Skewed CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5081+96 - NB Skewed CL	LF	80
		Sta 5082+19 - NB Skewed CL	LF	80
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5080+80 - NB CL	SY	159
		Sta 5081+96 to Sta 5082+19 - Skewed NB C	SY	511
		Sta 5082+60 - NB Skewed CL	SY	178
714	4105	**PIPE CONDUIT 24IN**		
		Sta 5080+80 - NB CL	LF	88
		Sta 5082+60 - NB Skewed CL	LF	97
714	4236	**PIPE CONDUIT ARCH 73IN x 45IN**		
		Sta 5081+96 - NB Skewed CL	LF	96
		Sta 5082+07 - NB Skewed CL	LF	96
		Sta 5082+19 - NB Skewed CL	LF	96

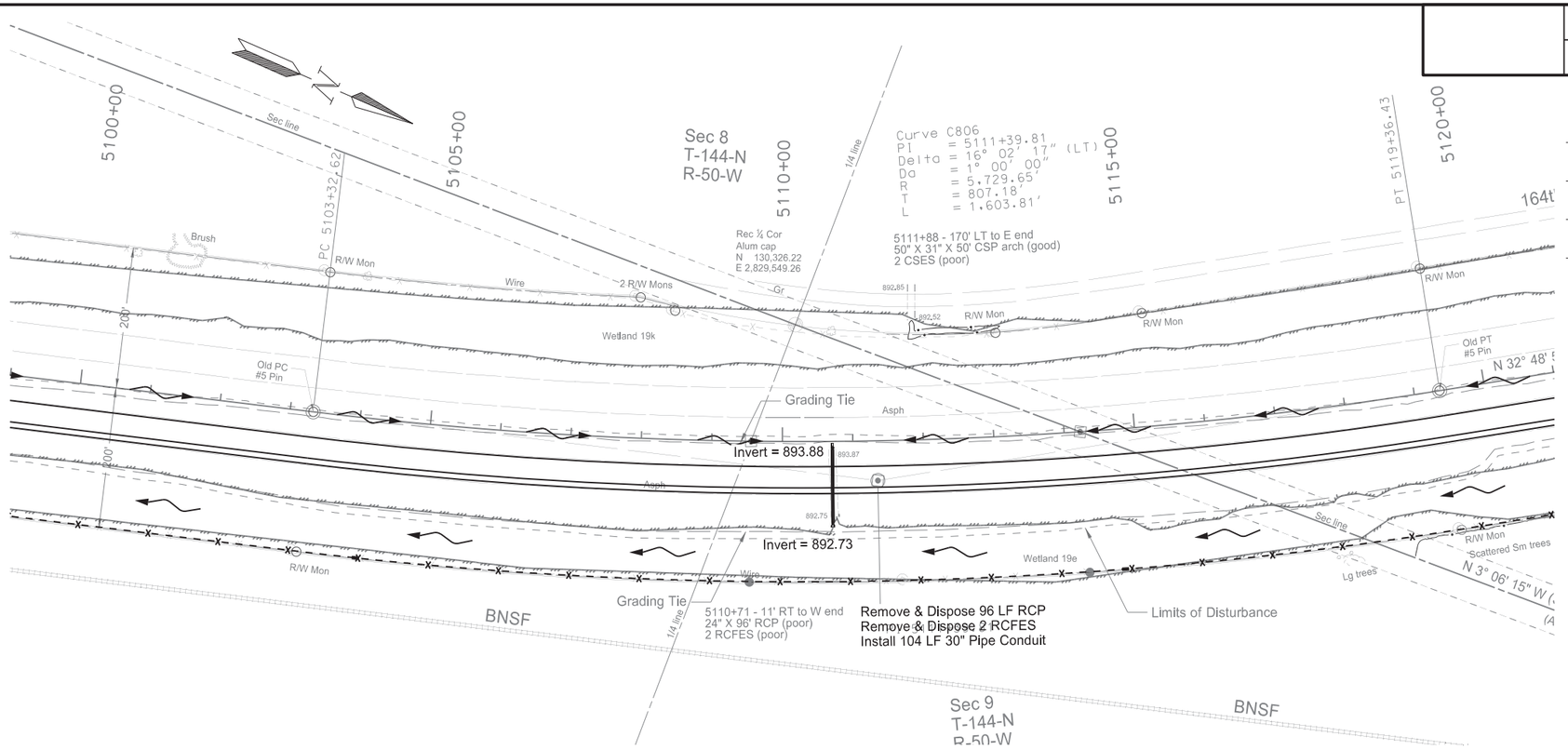


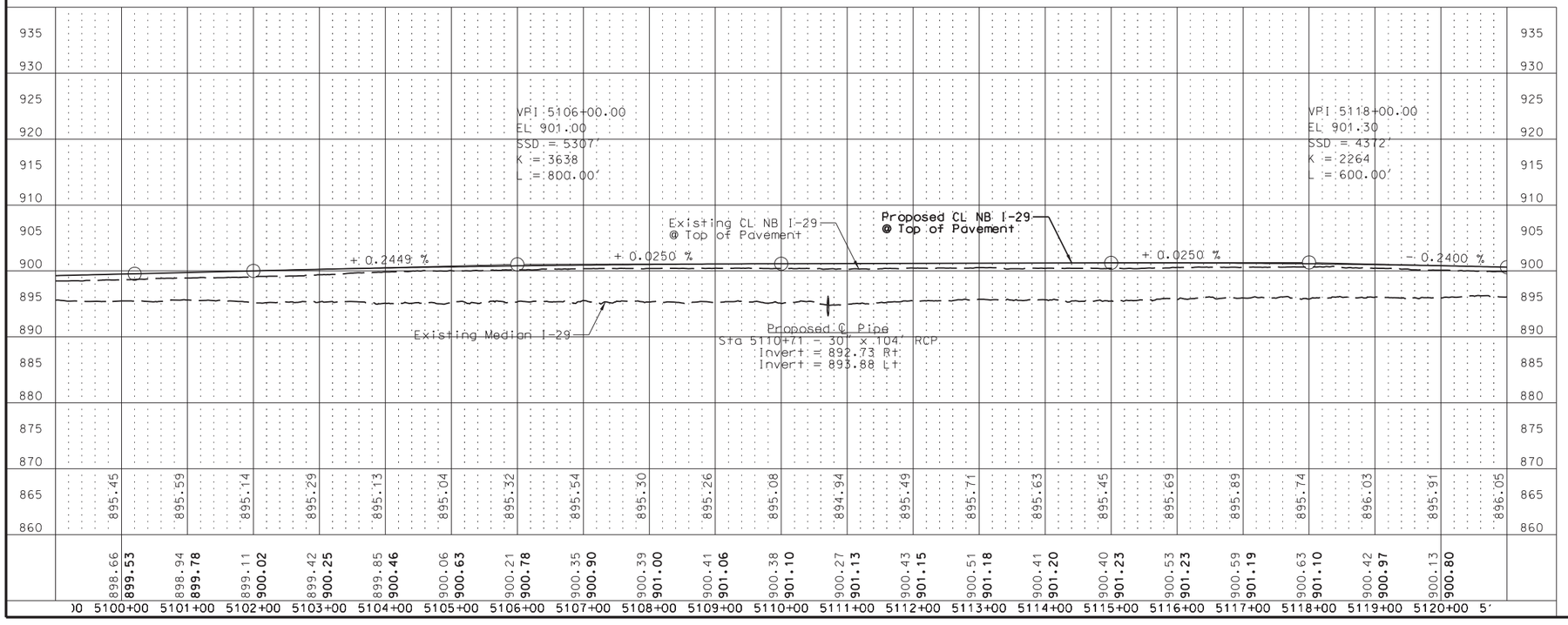
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 5080+00 to Sta 5100+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	60	23





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5110+71 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5110+71 - NB CL	LF	96
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5110+71 - NB CL	SY	231
714	4110	**PIPE CONDUIT 30IN**		
		Sta 5110+71 - NB CL	LF	107

REGISTERED PROFESSIONAL ENGINEER
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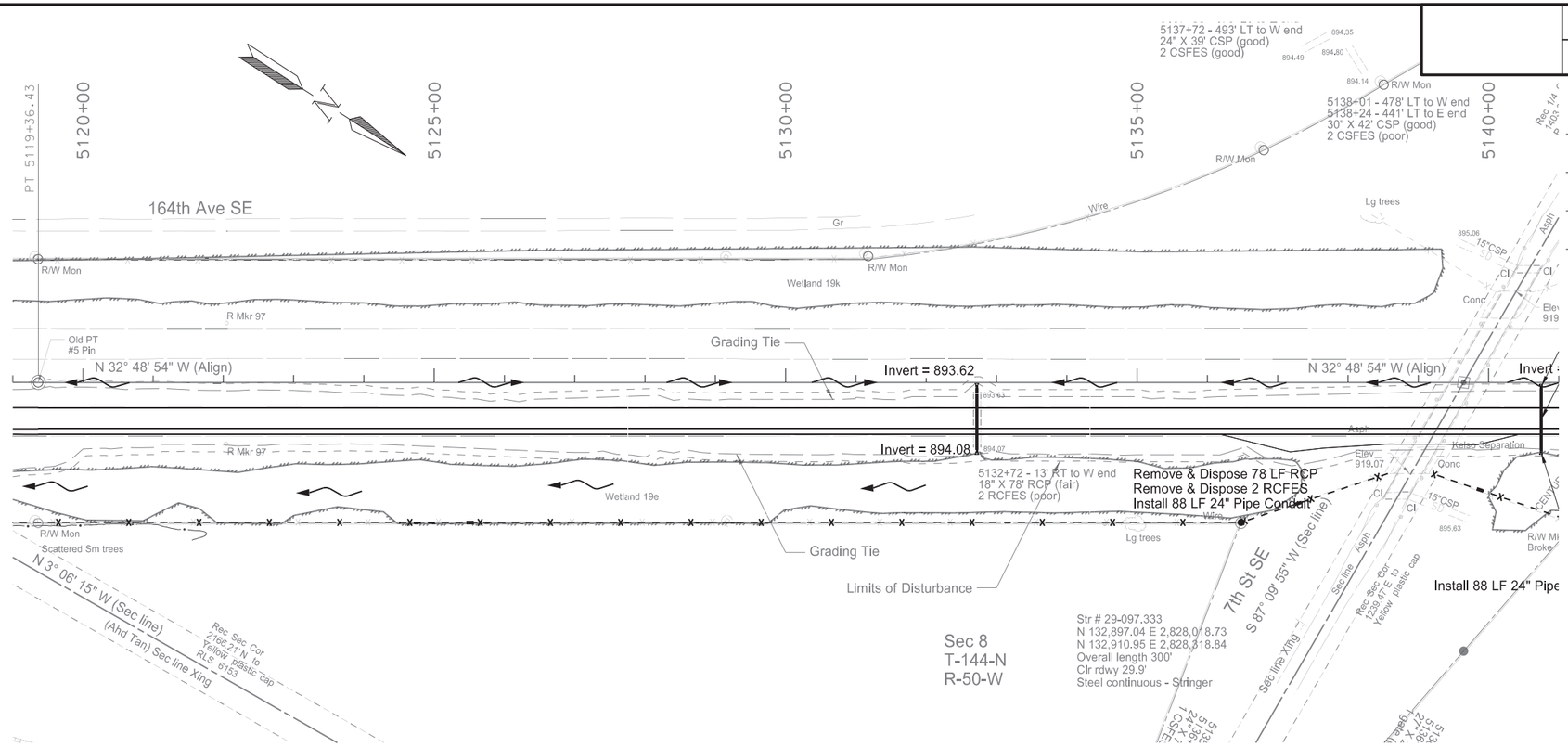
NORTH DAKOTA

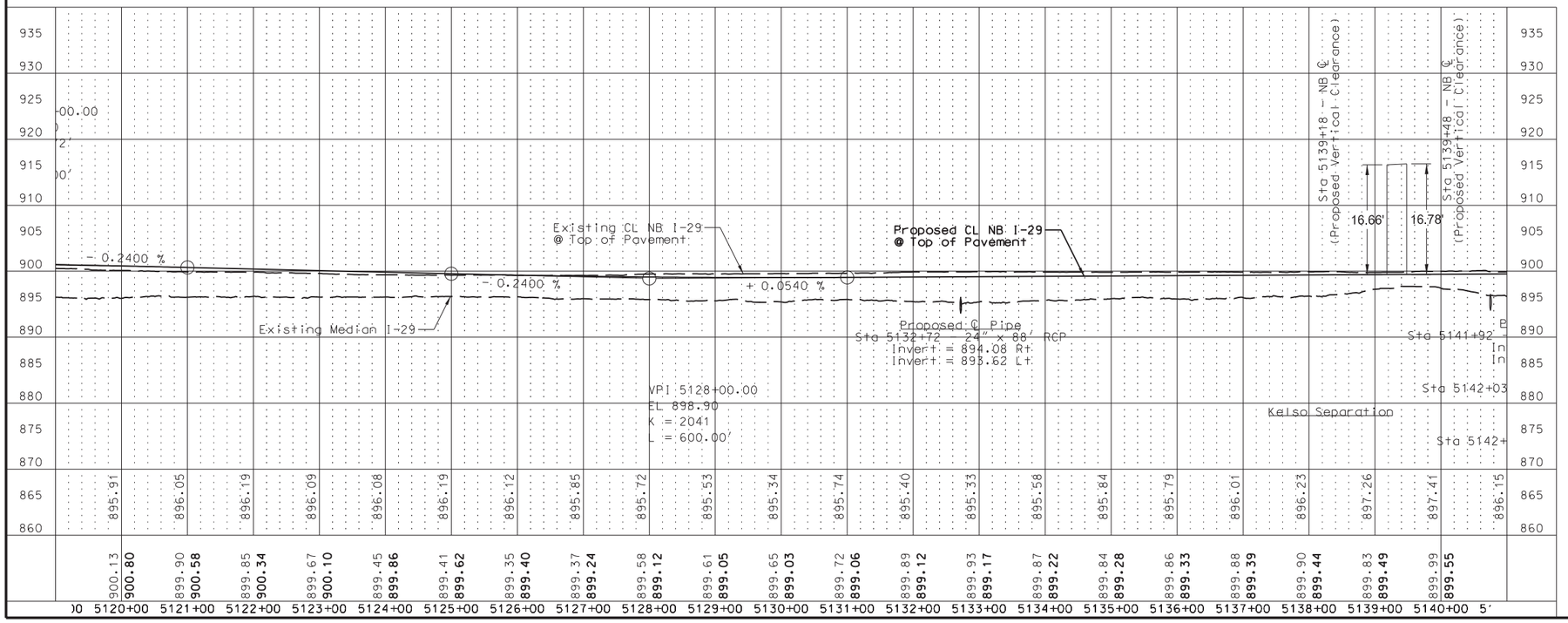
Plan and Profile Sheet
Sta 5100+00 to Sta 5120+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	24

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5132+72 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5132+72 - NB CL	LF	78
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5132+72 - NB CL	SY	170
714	4105	**PIPE CONDUIT 24IN**		
		Sta 5132+72 - NB CL	LF	93



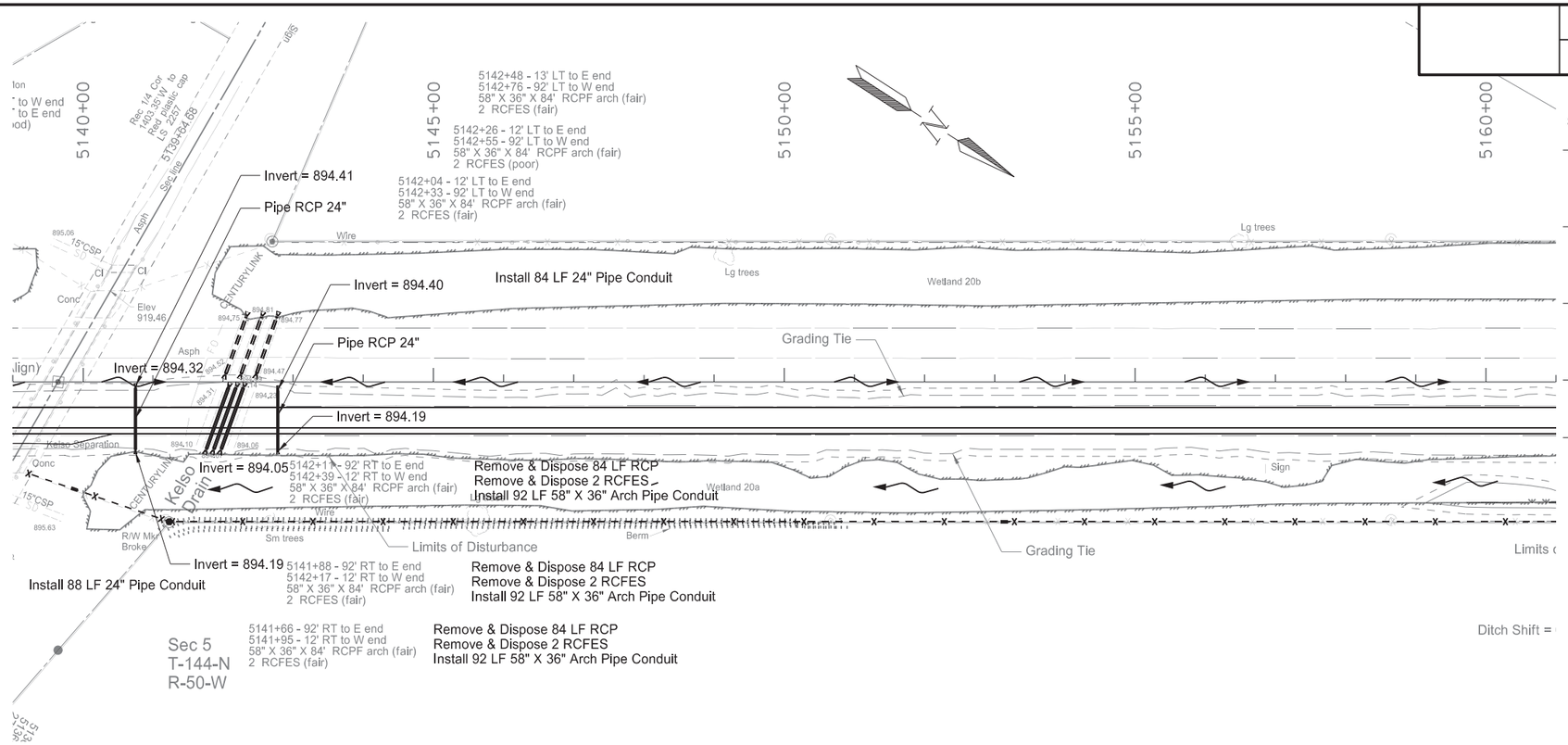


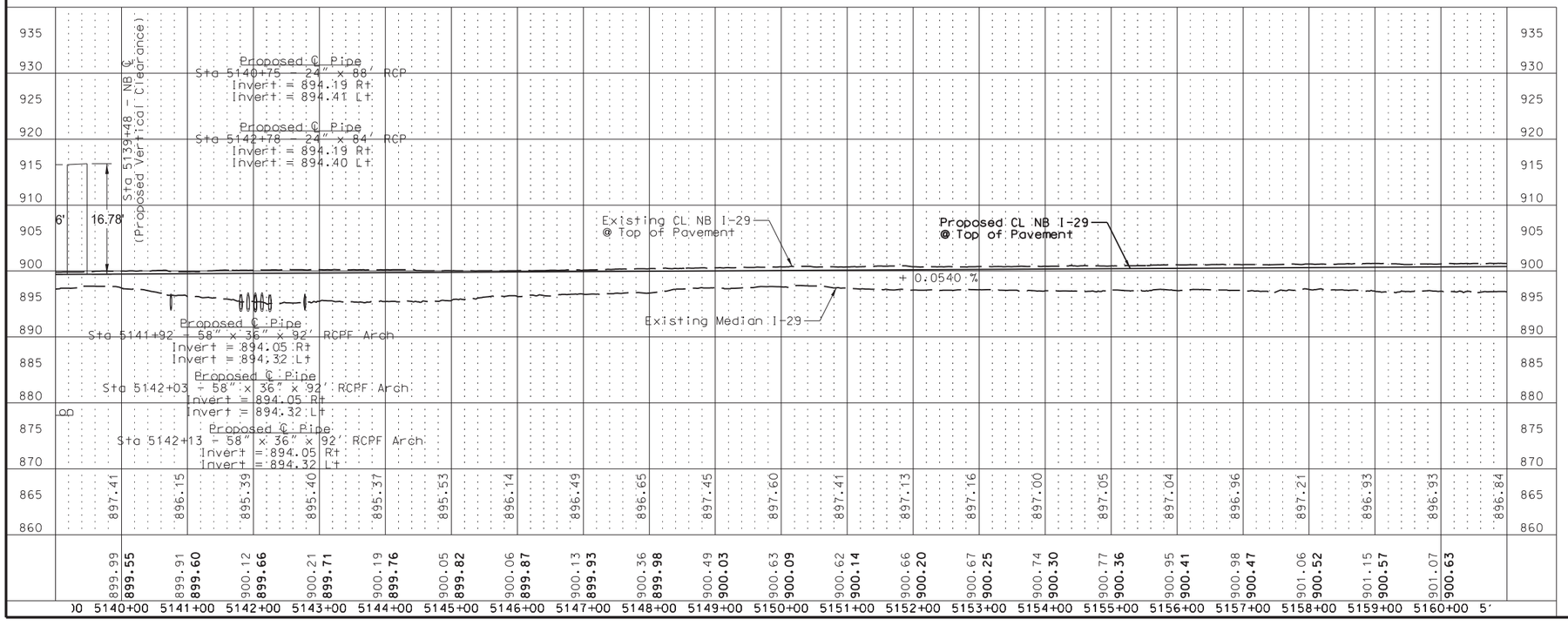
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 5120+00 to Sta 5140+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	25





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5141+92 - NB Skewed CL	EA	2
		Sta 5142+03 - NB Skewed CL	EA	2
		Sta 5142+13 - NB Skewed CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5141+92 - NB Skewed CL	LF	84
		Sta 5142+03 - NB Skewed CL	LF	84
		Sta 5142+13 - NB Skewed CL	LF	84
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5140+75 - NB CL	SY	170
		Sta 5141+92 to Sta 5142+13 - Skewed CL	SY	403
		Sta 5142+78 - NB CL	SY	159
714	4105	**PIPE CONDUIT 24IN**		
		Sta 5140+75 - NB CL	LF	93
		Sta 5142+78 - NB CL	LF	88
714	4229	**PIPE CONDUIT ARCH 58IN x 36IN**		
		Sta 5141+92 - NB Skewed CL	LF	98
		Sta 5142+03 - NB Skewed CL	LF	98
		Sta 5142+13 - NB Skewed CL	LF	98

REGISTERED PROFESSIONAL ENGINEER
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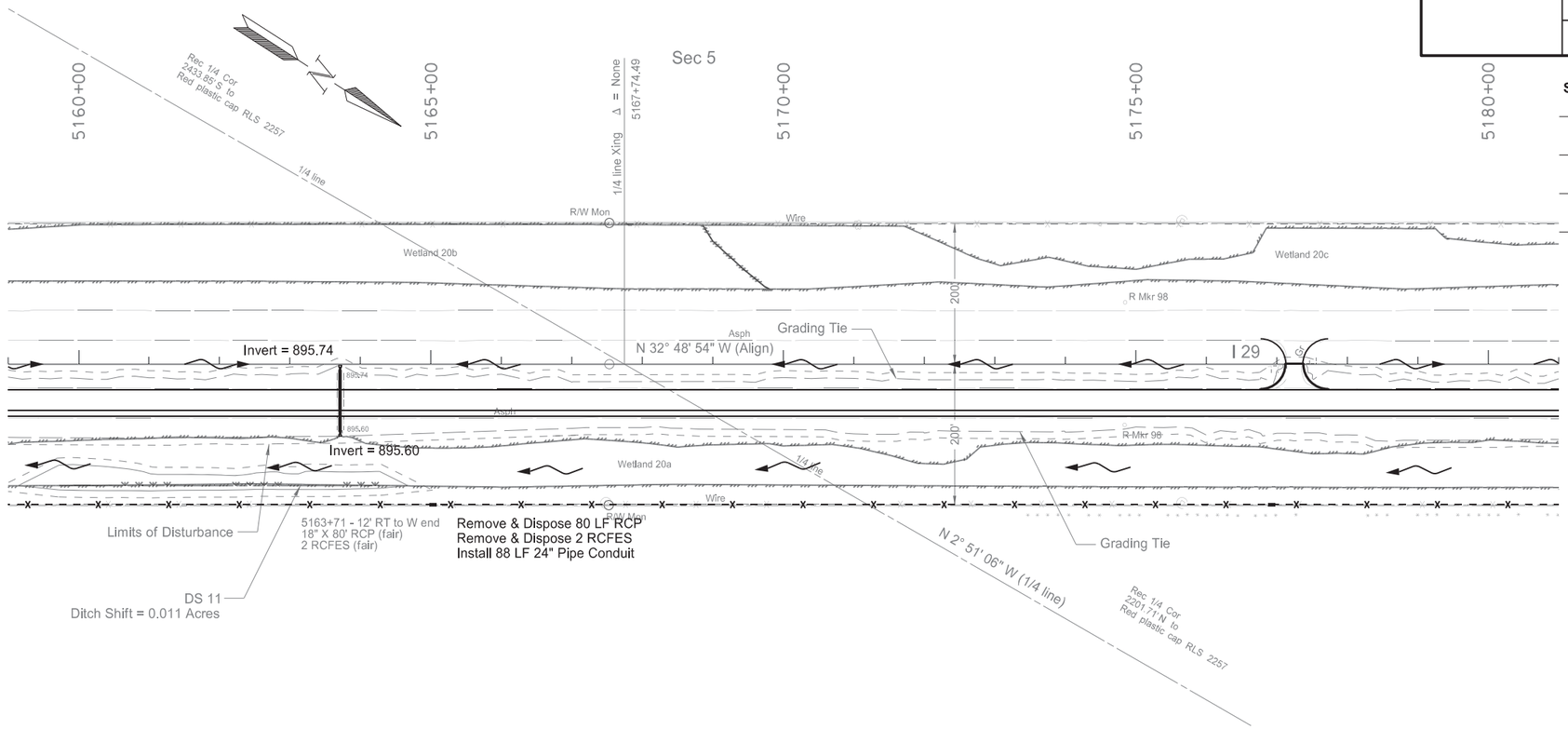
NORTH DAKOTA

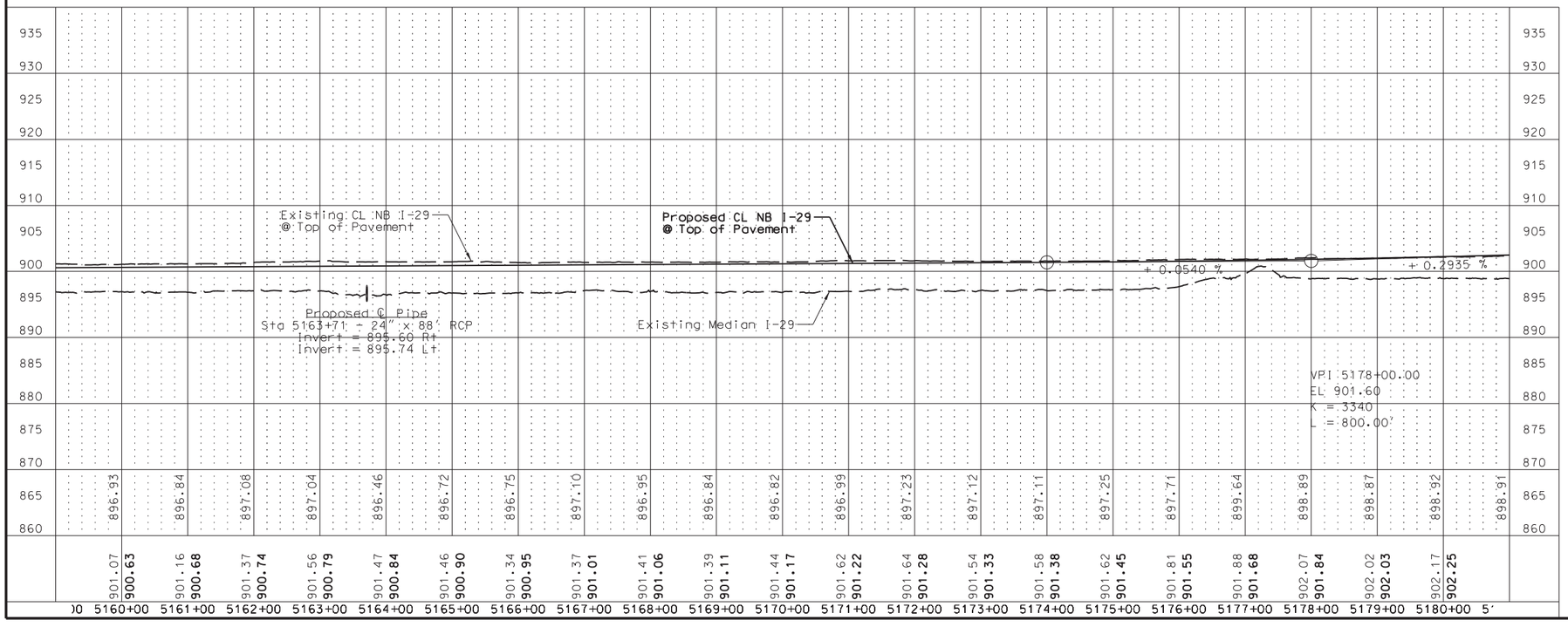
Plan and Profile Sheet
Sta 5140+00 to Sta 5160+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	26



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5163+71 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5163+71 - NB CL	LF	80
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5163+71 - NB CL	SY	170
714	4105	**PIPE CONDUIT 24IN**		
		Sta 5163+71 - NB CL	LF	93



REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
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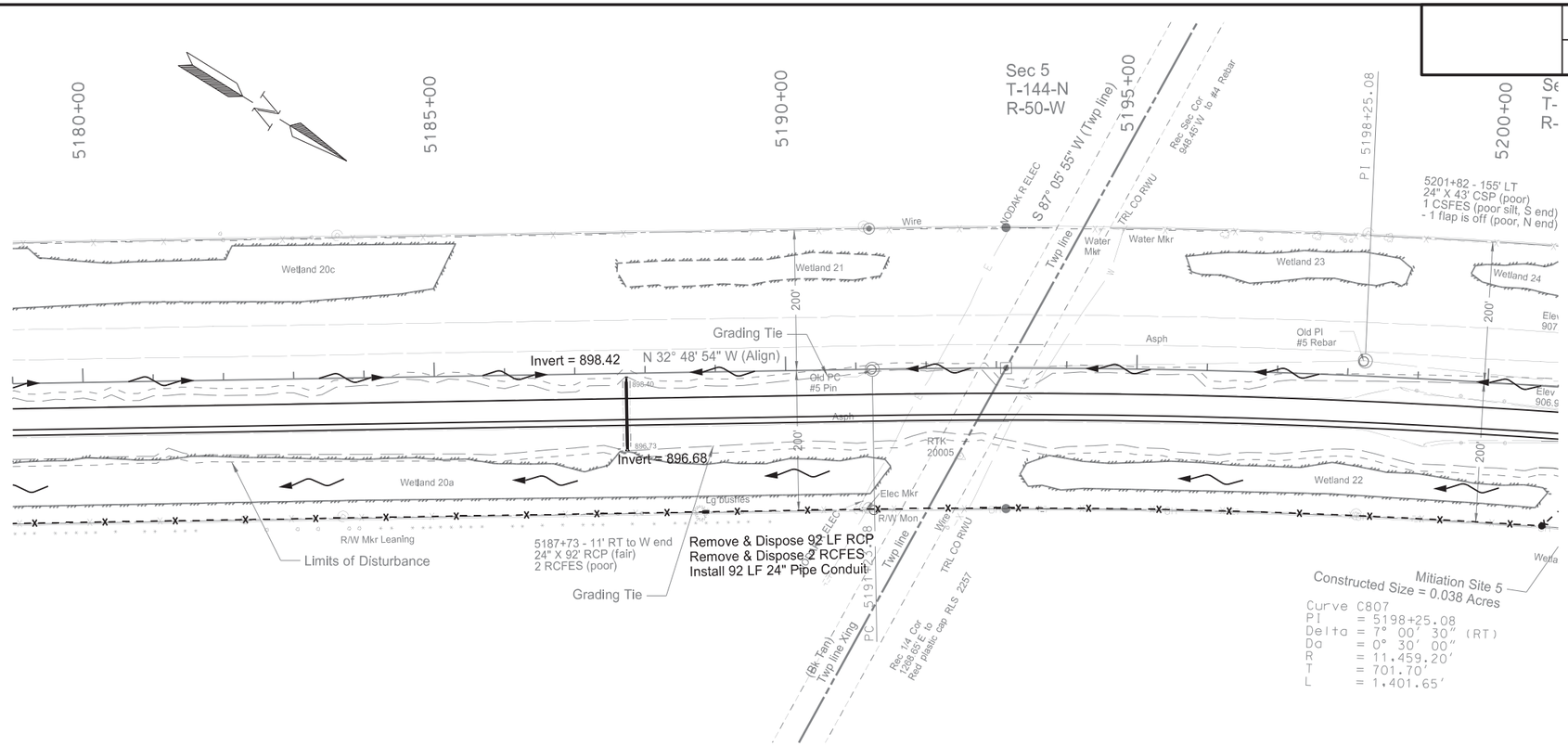
DATE
08/25/20
NORTH DAKOTA

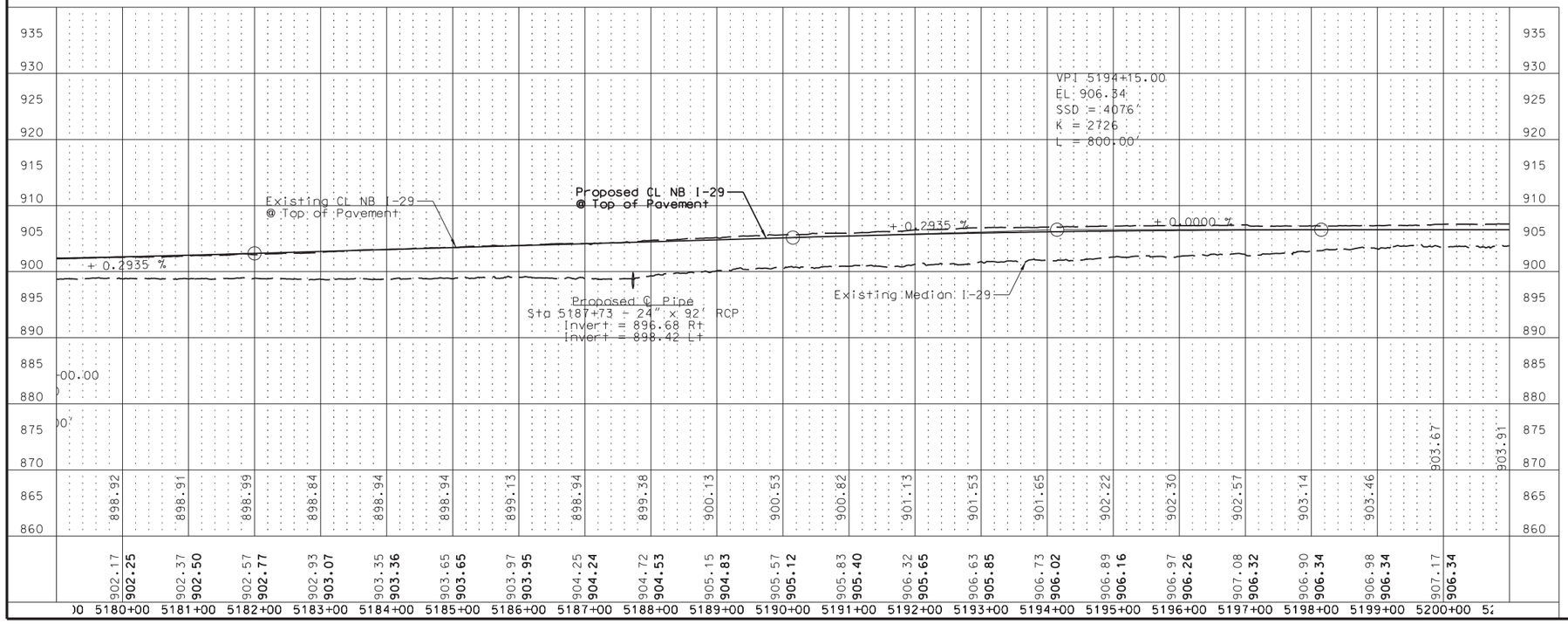
Plan and Profile Sheet
Sta 5160+00 to Sta 5180+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	27

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 5187+73 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 5187+73 - NB CL	LF	92
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 5187+73 - NB CL	SY	176
714	4105	PIPE CONDUIT 24IN		
		Sta 5187+73 - NB CL	LF	96





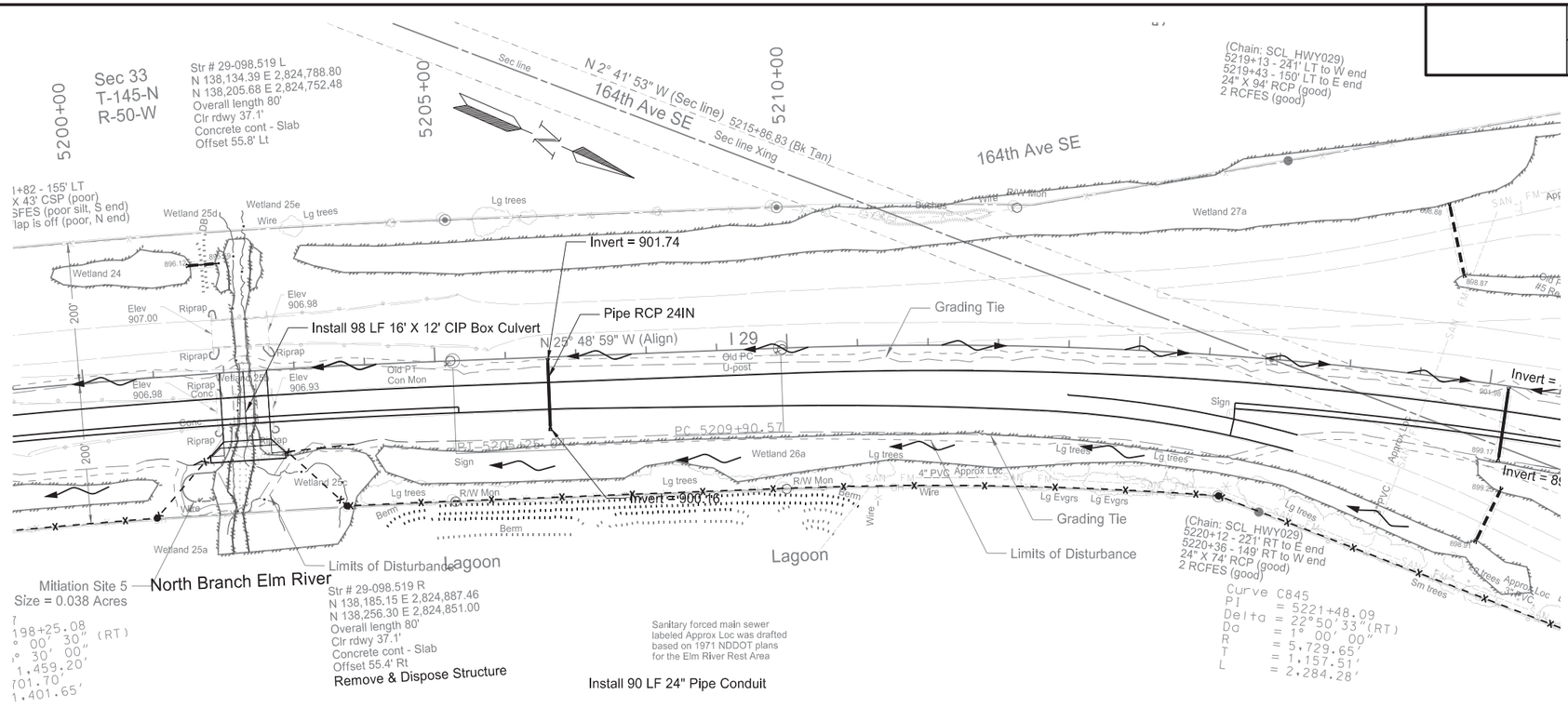
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

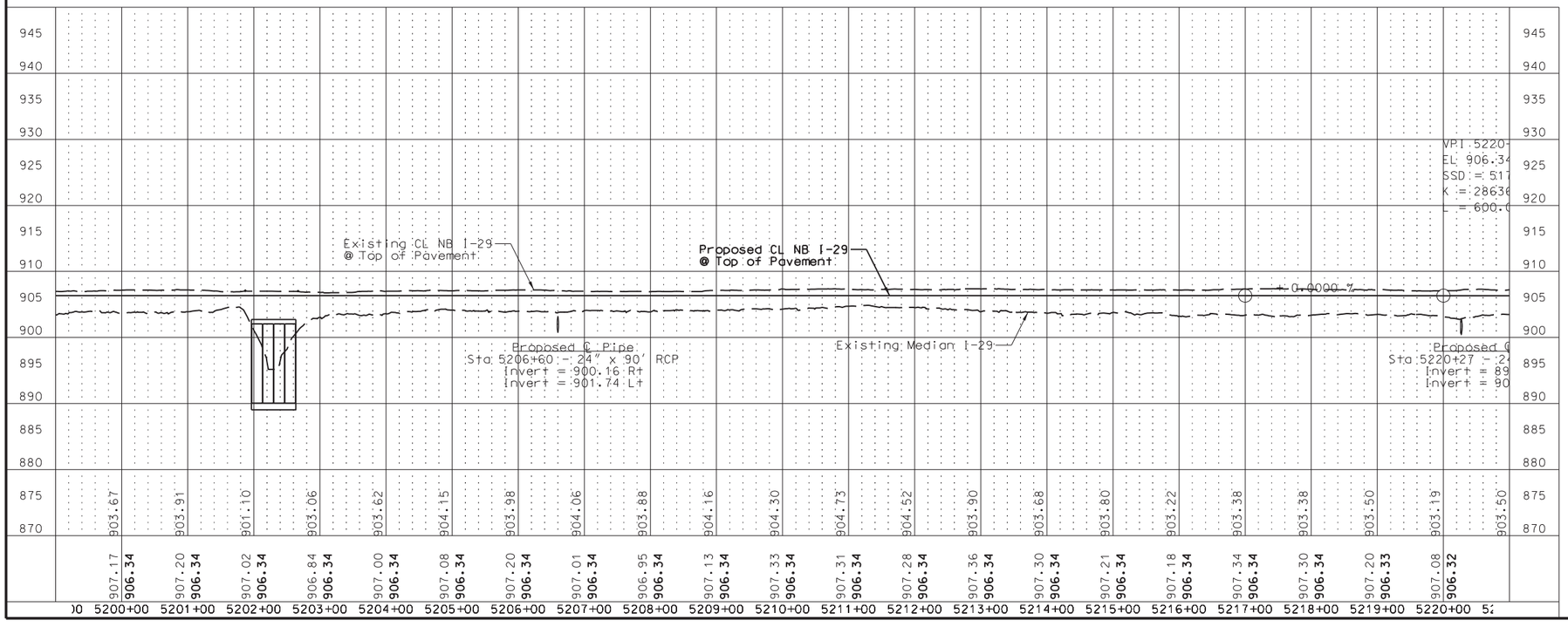
Plan and Profile Sheet
Sta 5180+00 to Sta 5200+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	28

SPEC	CODE	BID ITEM	UNIT	QUANTITY
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 5206+60 - NB CL	SY	174
714	4105	PIPE CONDUIT 24IN		
		Sta 5206+60 - NB CL	LF	95





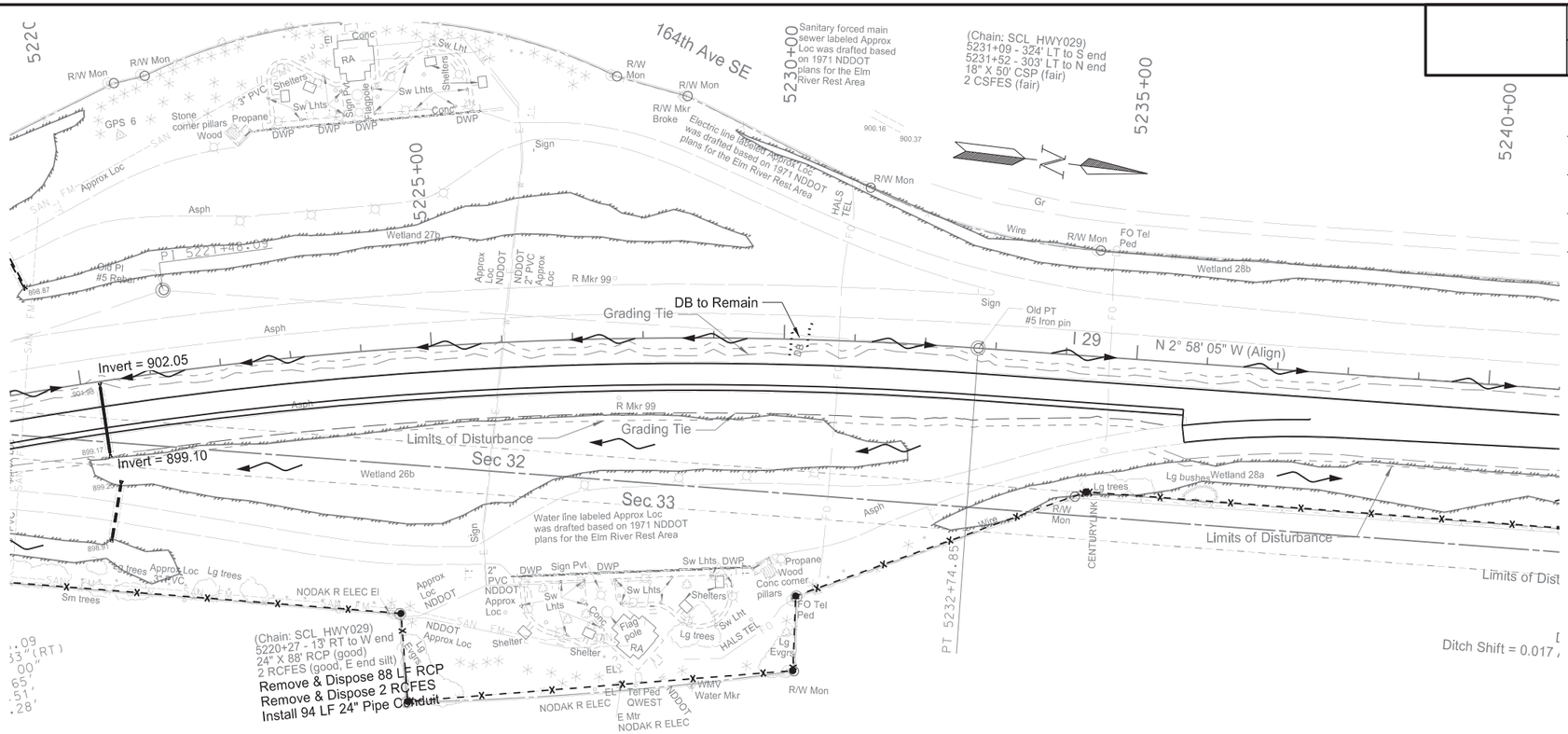
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

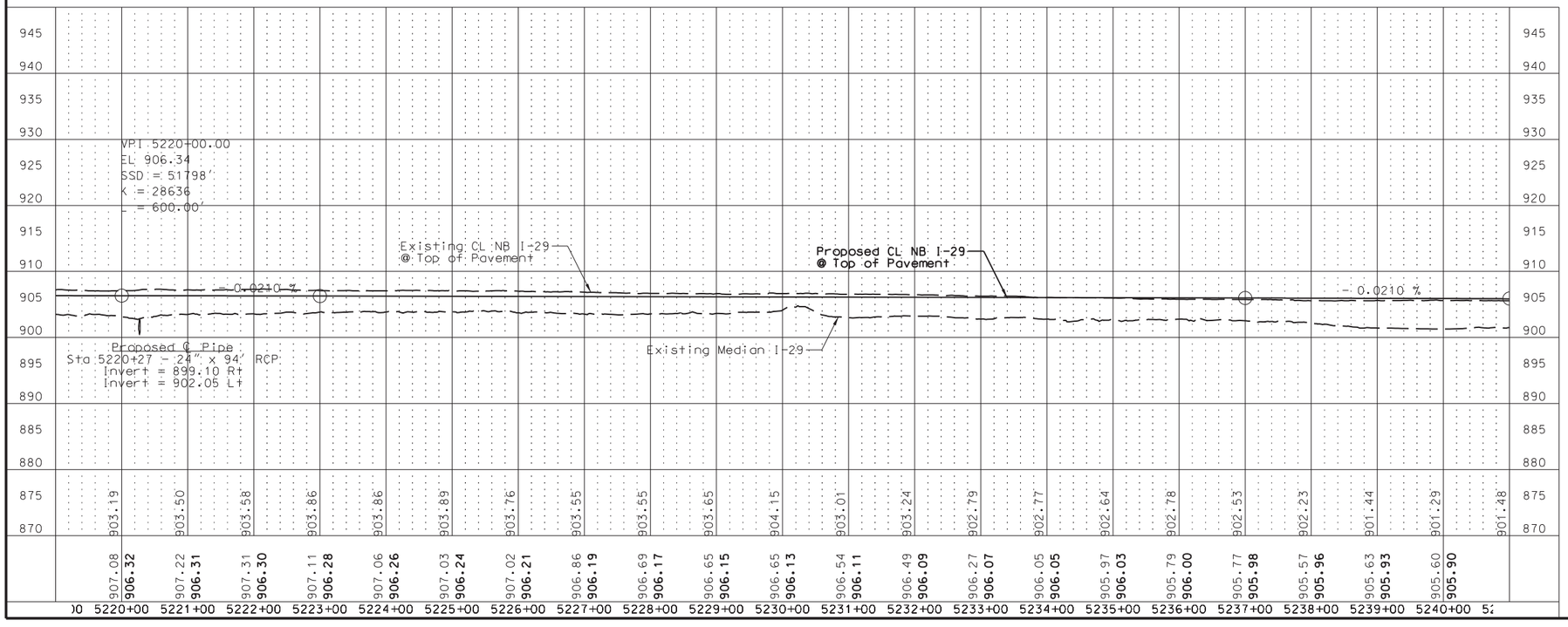
Plan and Profile Sheet
Sta 5200+00 to Sta 5220+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	29

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 5220+27 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 5220+27 - NB CL	LF	88
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 5220+27 - NB CL	SY	182
714	4105	PIPE CONDUIT 24IN		
		Sta 5220+27 - NB CL	LF	99



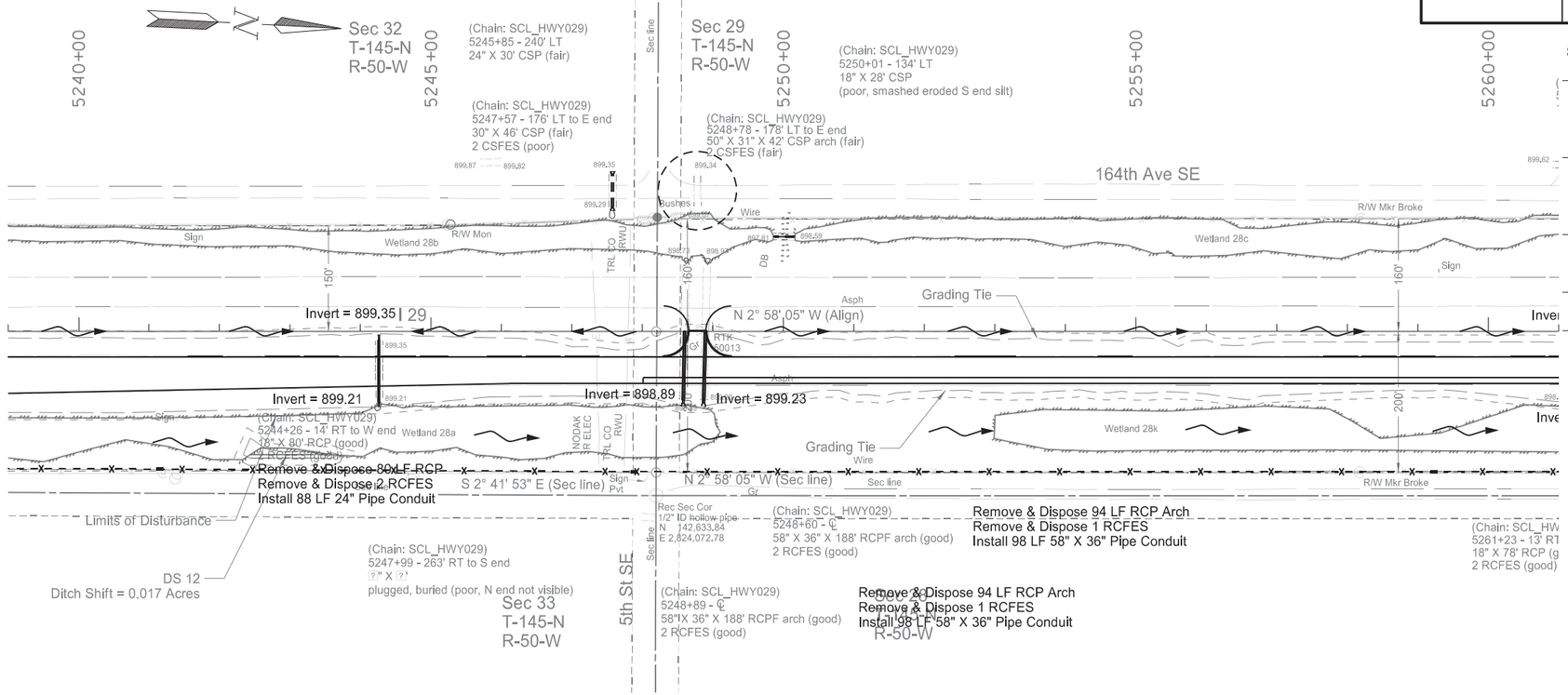


REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

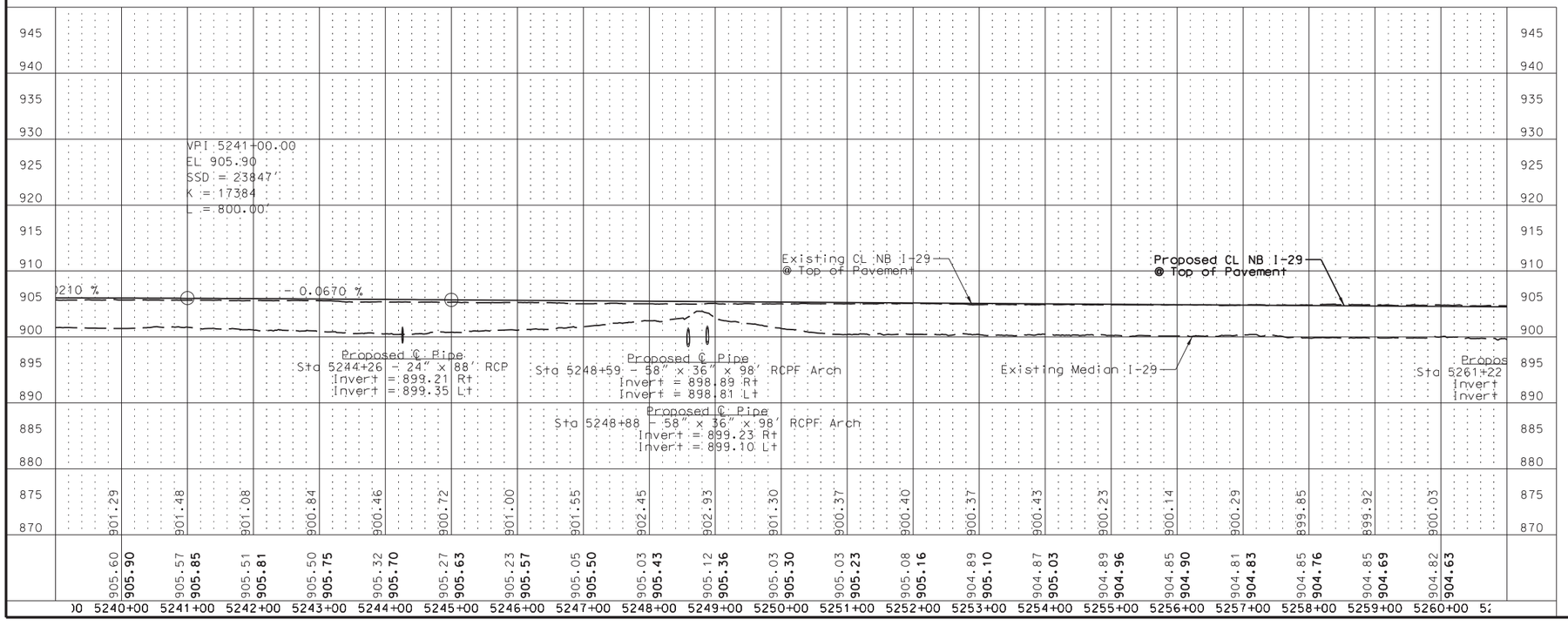
Plan and Profile Sheet
Sta 5220+00 to Sta 5240+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	30



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5244+26 - NB CL	EA	2
		Sta 5248+60 - NB CL	EA	2
		Sta 5248+89 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5244+26 - NB CL	LF	80
		Sta 5248+60 - NB CL	LF	94
		Sta 5248+89 - NB CL	LF	94
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5244+26 - NB CL	SY	164
		Sta 5248+60 to Sta 5248+89 - NB CL	SY	541
714	4105	**PIPE CONDUIT 24IN**		
		Sta 5244+26 - NB CL	LF	90
714	4229	**PIPE CONDUIT ARCH 58IN x 36IN**		
		Sta 5248+60 - NB CL	LF	101
		Sta 5248+89 - NB CL	LF	101

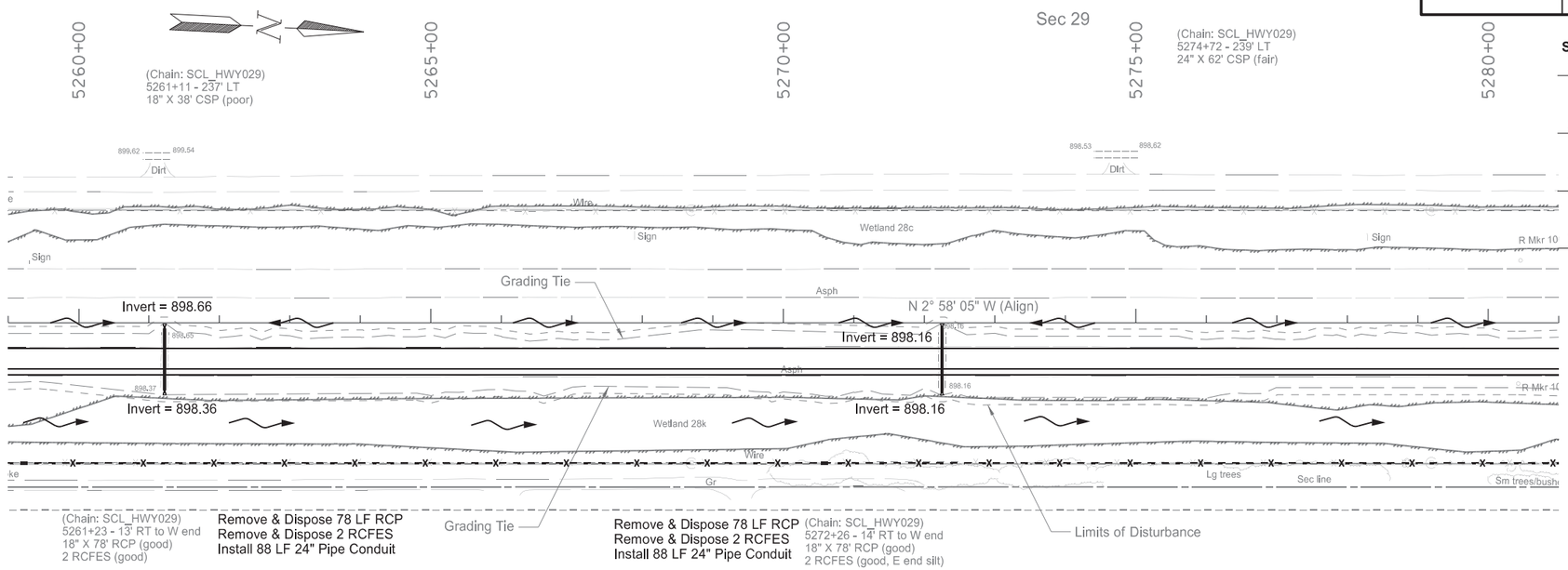


REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

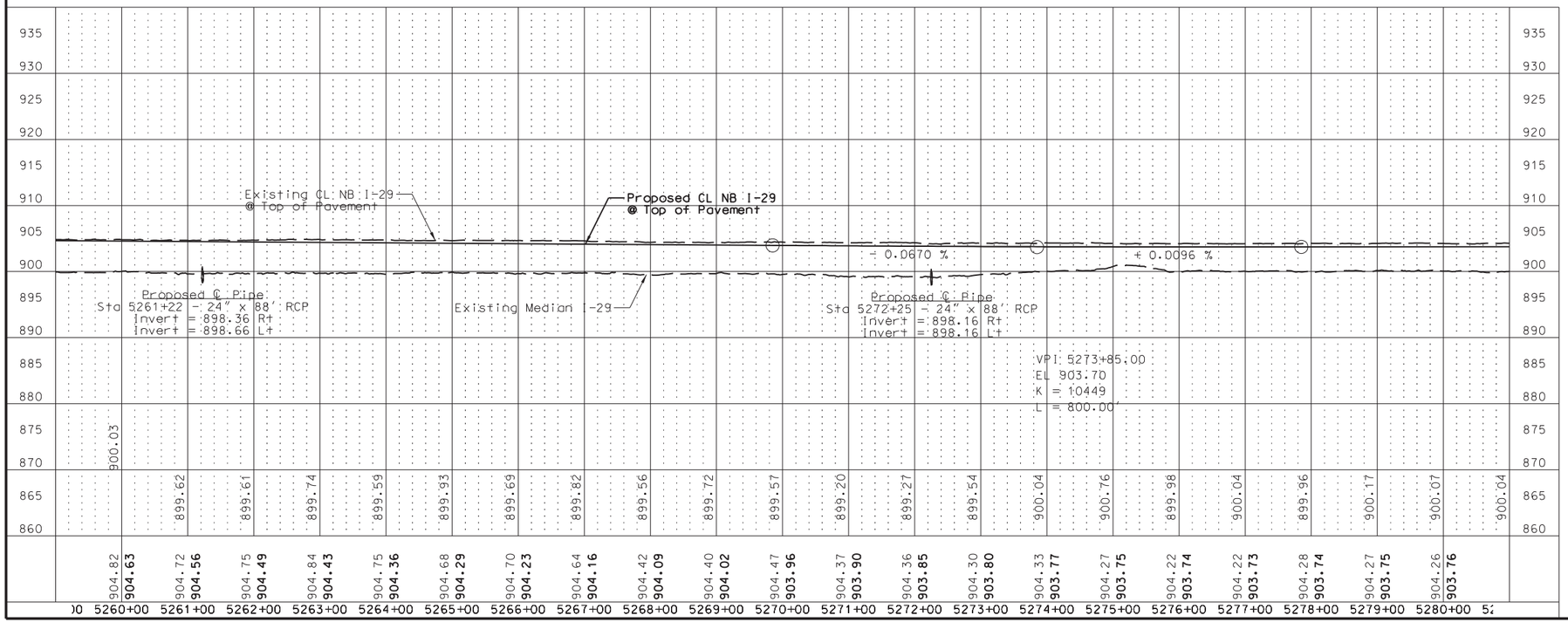
Plan and Profile Sheet
Sta 5240+00 to Sta 5260+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	31



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	REMOVAL OF END SECTION - ALL TYPES & SIZES		
		Sta 5261+23 - NB CL	EA	2
		Sta 5272+26 - NB CL	EA	2
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES		
		Sta 5261+23 - NB CL	LF	78
		Sta 5272+26 - NB CL	LF	78
709	0100	GEOSYNTHETIC MATERIAL TYPE G		
		Sta 5261+23 - NB CL	SY	170
		Sta 5272+26 - NB CL	SY	170
714	4105	PIPE CONDUIT 24IN		
		Sta 5261+23 - NB CL	LF	93
		Sta 5272+26 - NB CL	LF	93



REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

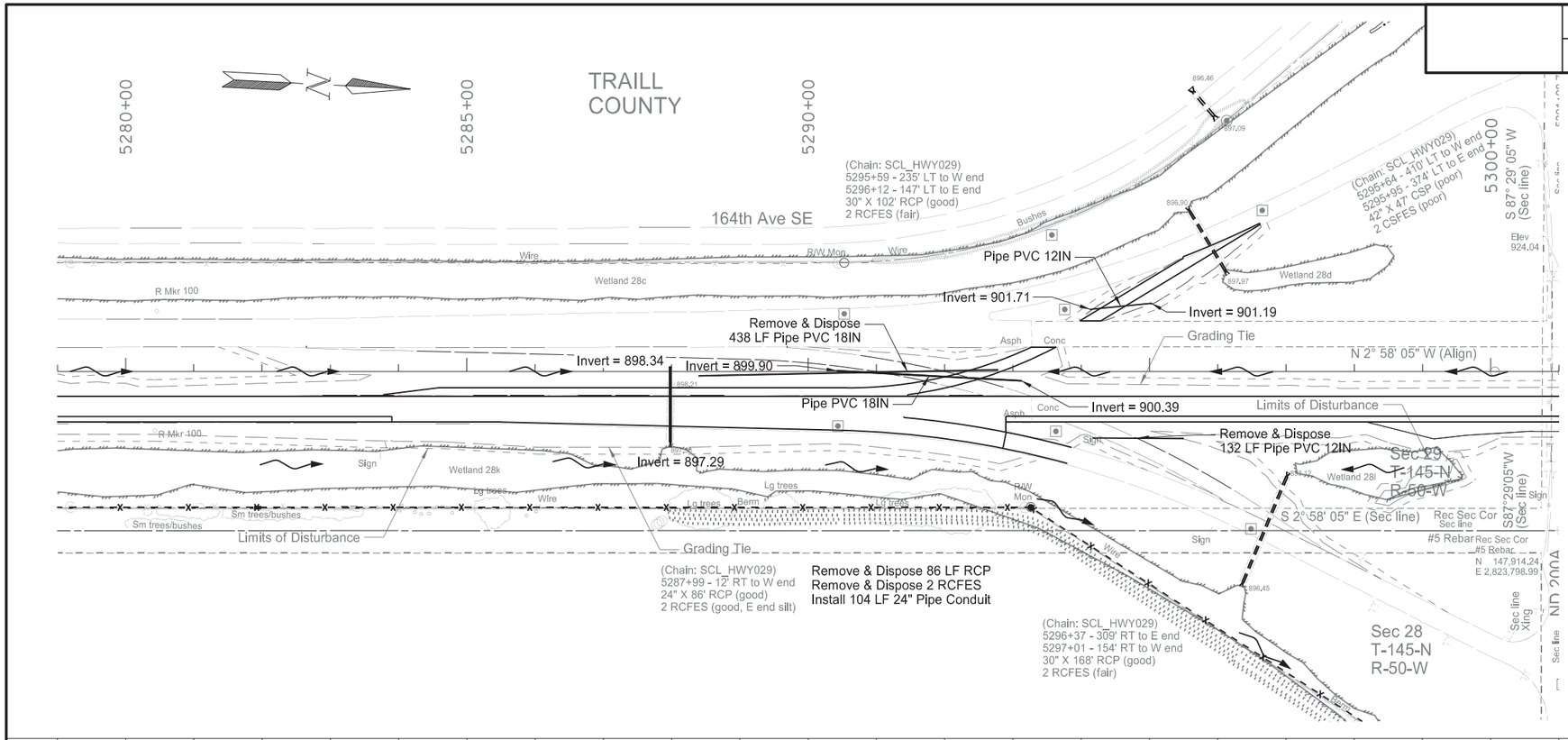
Plan and Profile Sheet
Sta 5260+00 to Sta 5280+00

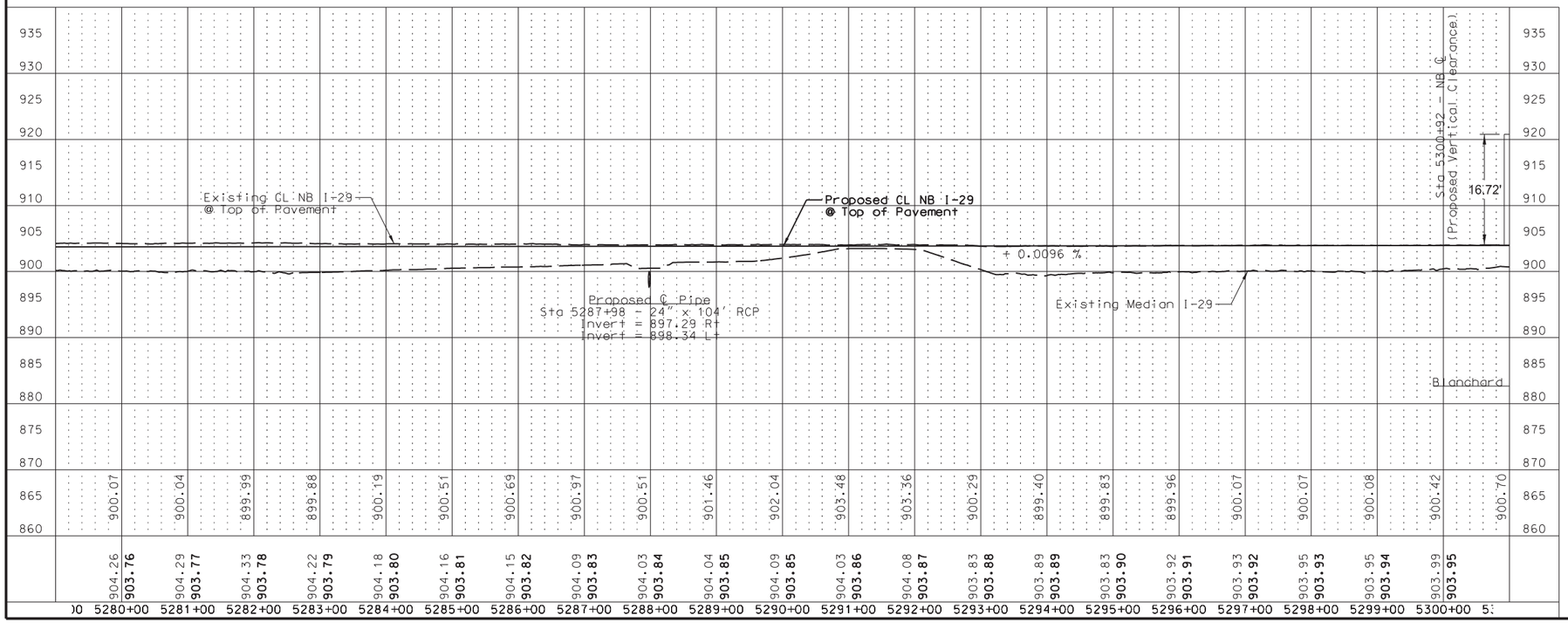
PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	32

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5287+99 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5287+99 - NB CL	LF	86
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5287+99 - NB CL	SY	197
714	4105	**PIPE CONDUIT 24IN**		
		Sta 5287+99 - NB CL	LF	106

Note: Quantities for pipe work for the temporary ramp connection are shown on Sheet 60-38.



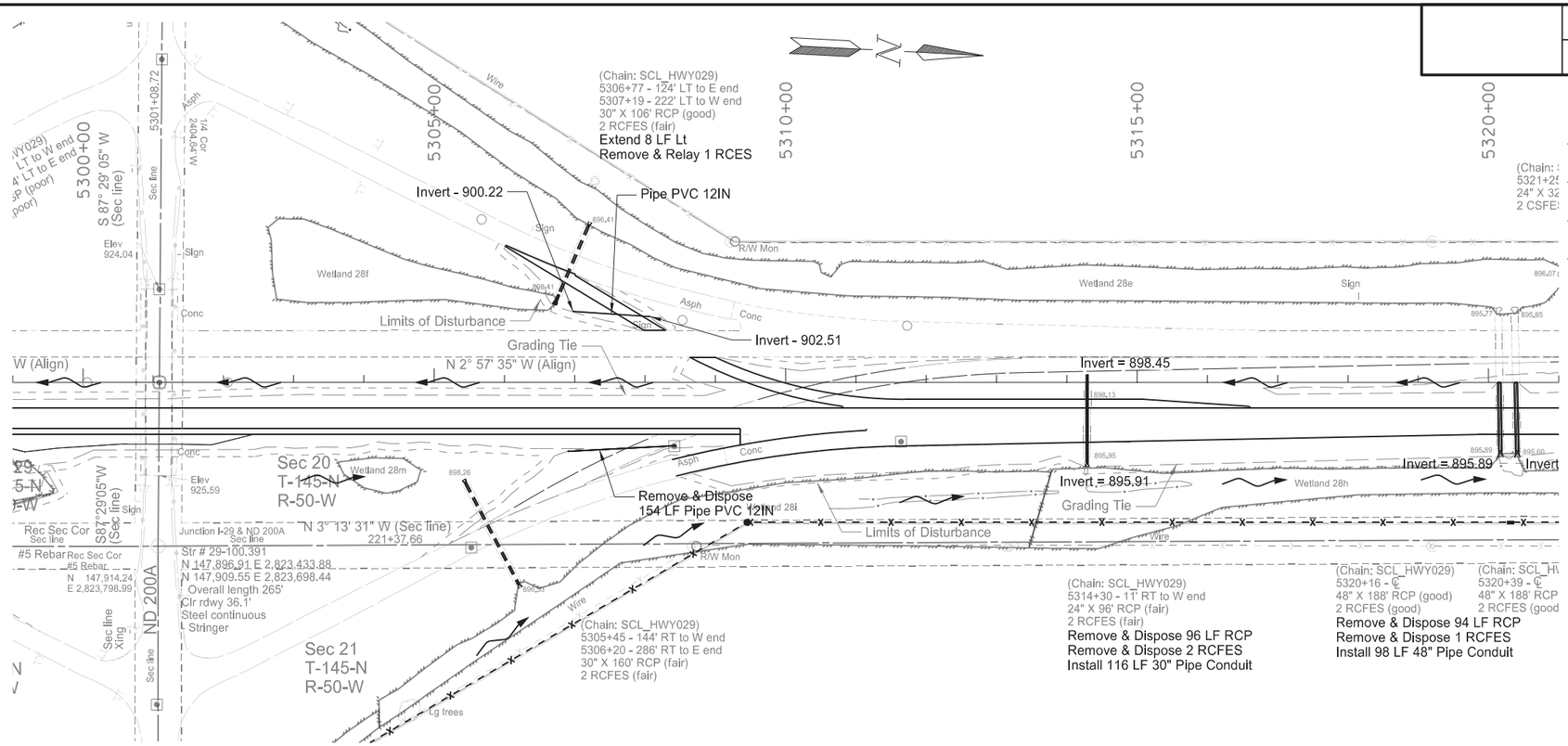


REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 5280+00 to Sta 5300+00

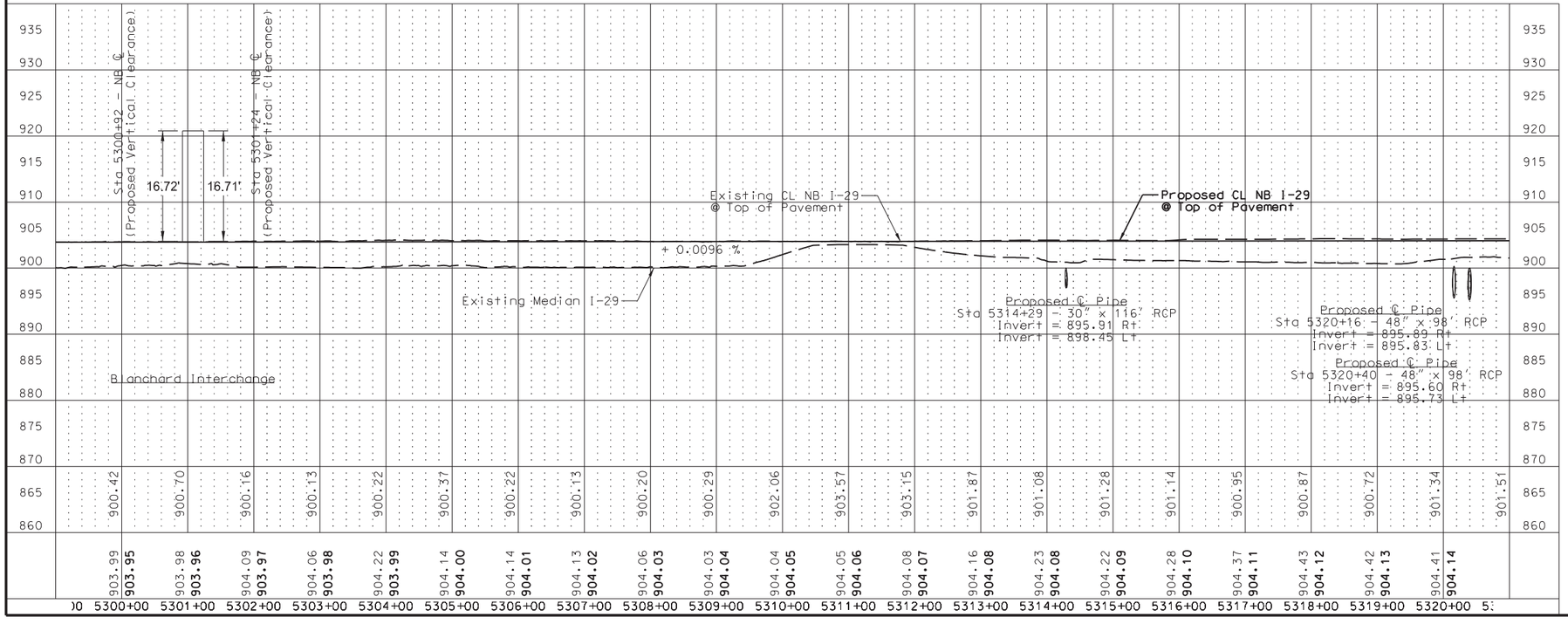
PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	33



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5314+30 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5314+30 - NB CL	LF	96
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5314+30 - NB CL	SY	260
714	4110	**PIPE CONDUIT 30IN**		
		Sta 5314+30 - NB CL	LF	119

Note: Quantities for pipe work for the temporary ramp connection are shown on Sheet 60-39.

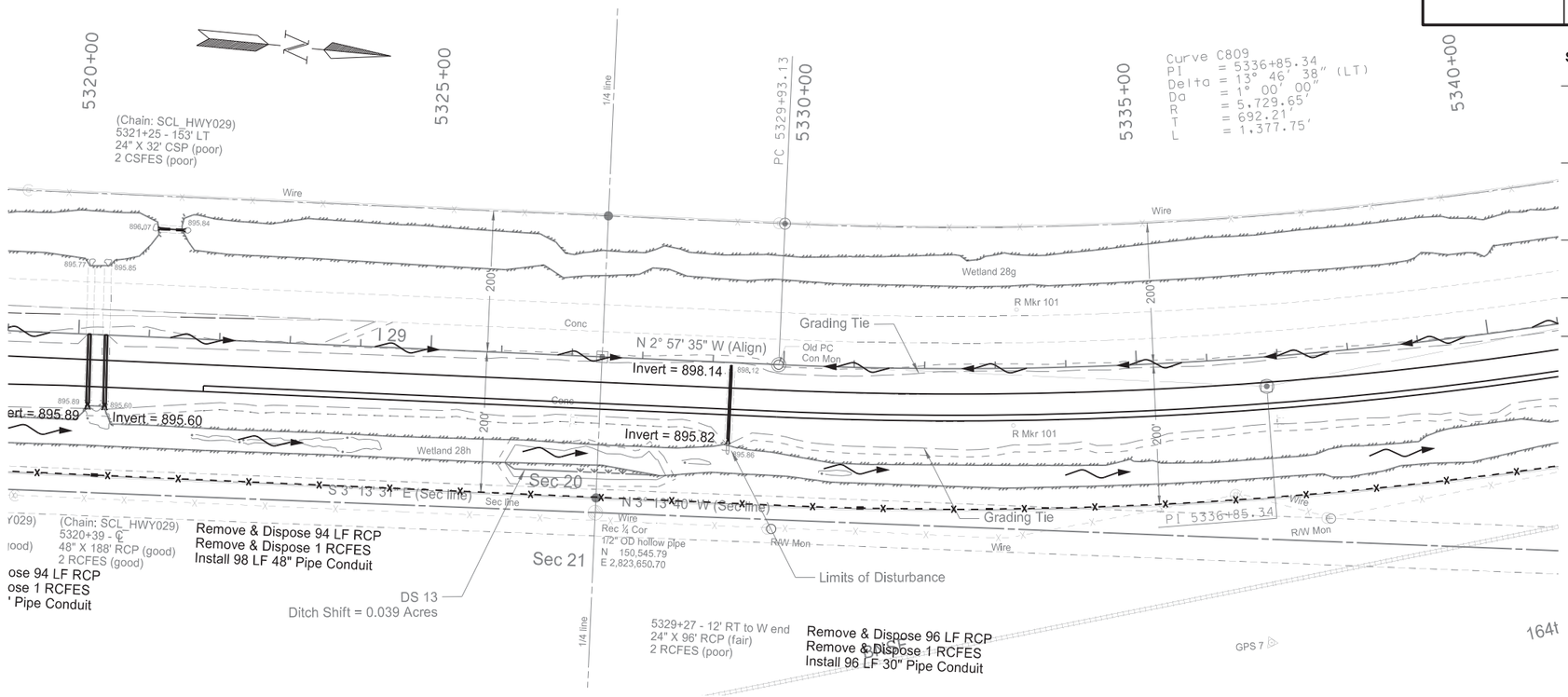


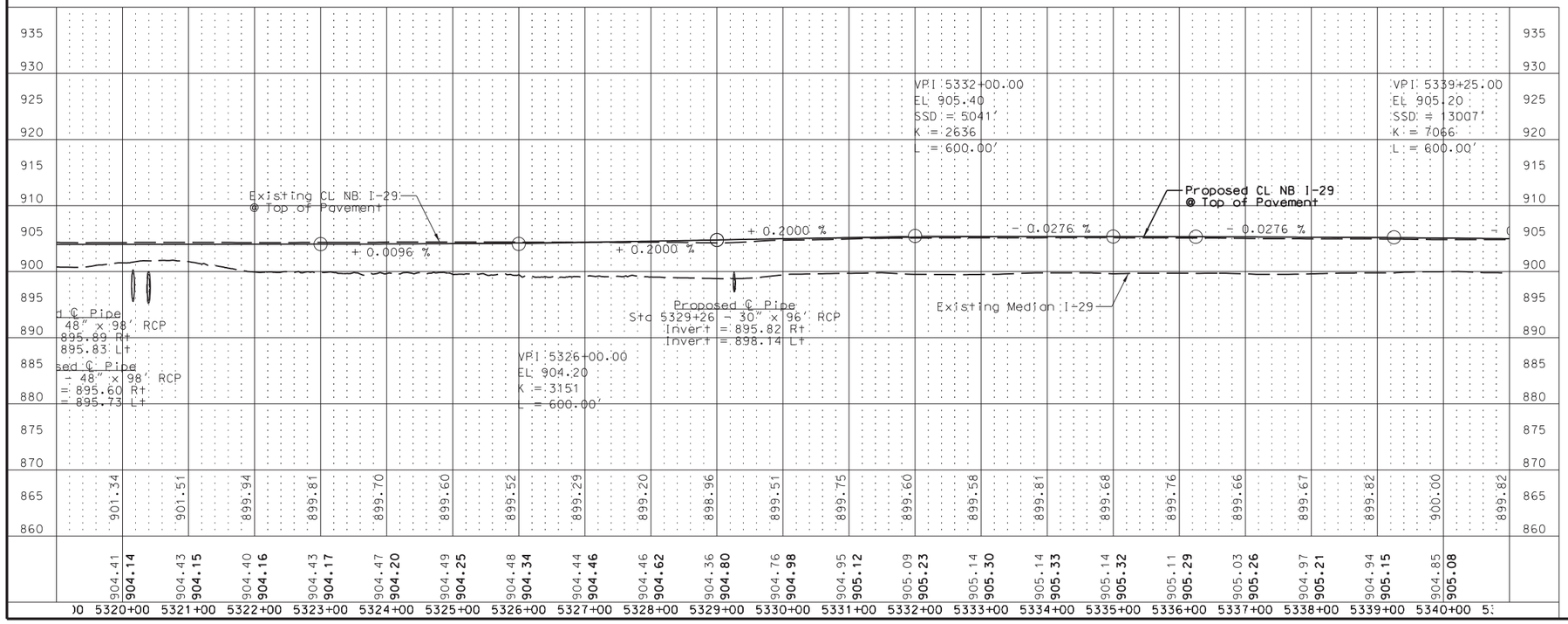
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
08/25/20
NORTH DAKOTA

Plan and Profile Sheet
Sta 5300+00 to Sta 5320+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	60	34





SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5320+16 - NB CL	EA	1
		Sta 5320+39 - NB CL	EA	1
		Sta 5329+27 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5320+16 - NB CL	LF	94
		Sta 5320+39 - NB CL	LF	94
		Sta 5329+27 - NB CL	LF	96
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5320+16 to Sta 5320+39 - NB CL	SY	573
		Sta 5329+27 - NB CL	SY	211
714	4110	**PIPE CONDUIT 30IN**		
		Sta 5329+27 - NB CL	LF	99
714	4125	**PIPE CONDUIT 48IN**		
		Sta 5320+16 - NB CL	LF	100
		Sta 5320+39 - NB CL	LF	100

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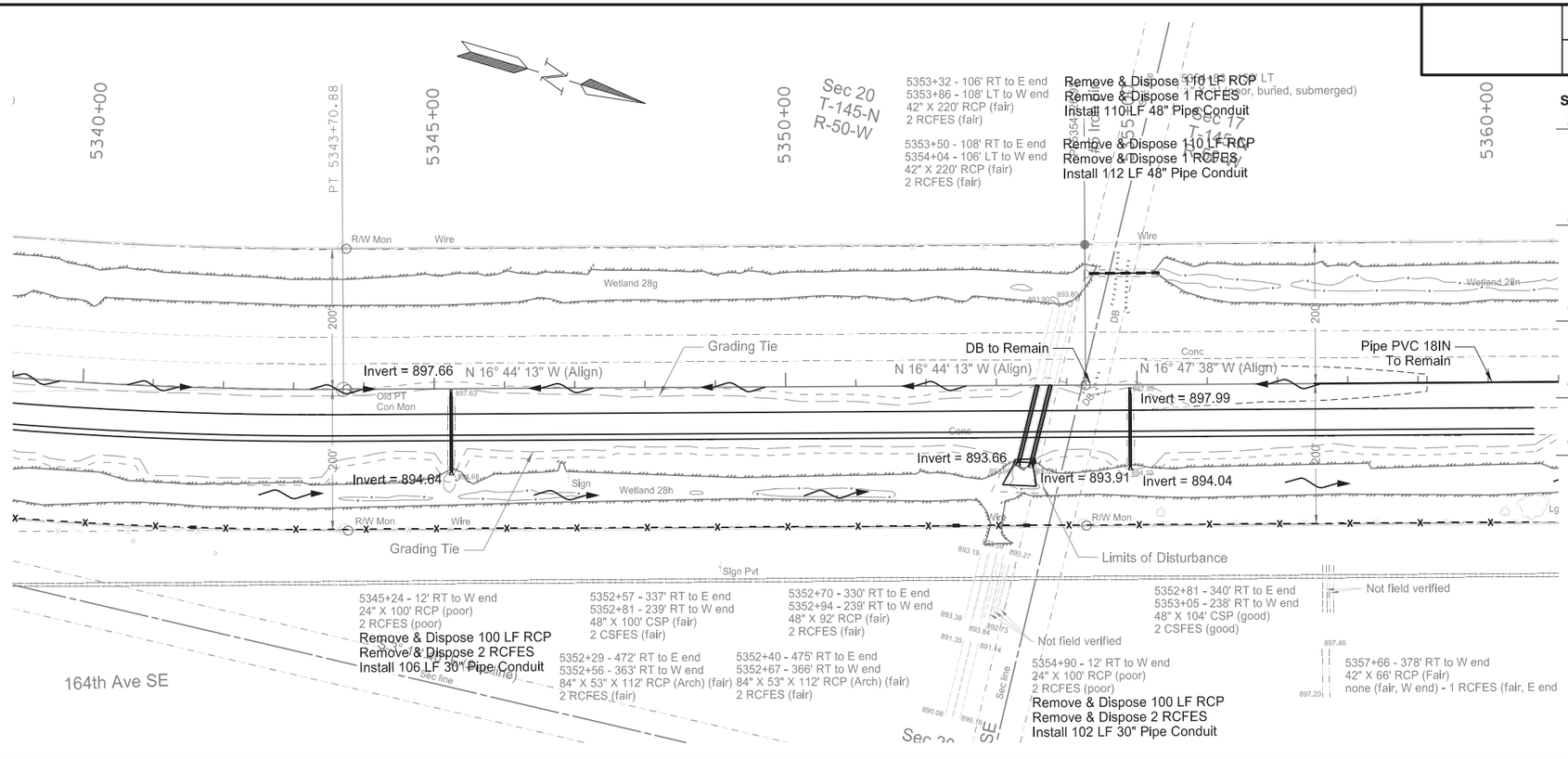
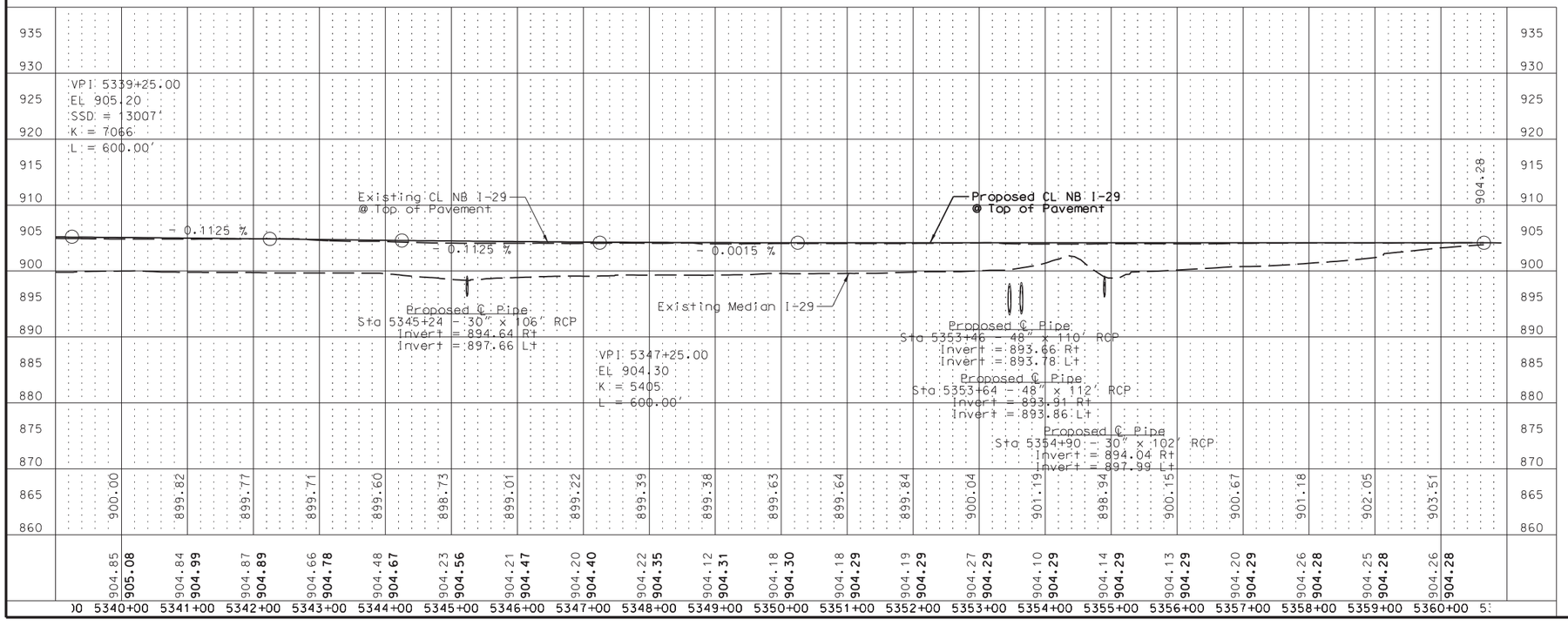
Plan and Profile Sheet
Sta 5320+00 to Sta 5340+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	35



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0169	**REMOVAL OF END SECTION - ALL TYPES & SIZES**		
		Sta 5345+24 - NB CL	EA	2
		Sta 5353+46 - NB Skewed CL	EA	1
		Sta 5353+64 - NB Skewed CL	EA	1
		Sta 5354+90 - NB CL	EA	2
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5345+24 - NB CL	LF	100
		Sta 5353+46 - NB Skewed CL	LF	110
		Sta 5353+64 - NB Skewed CL	LF	110
		Sta 5354+90 - NB CL	LF	100
709	0100	**GEOSYNTHETIC MATERIAL TYPE G**		
		Sta 5345+24 - NB CL	SY	235
		Sta 5353+59 to Sta 5353+77 - Skewed CL	SY	581
		Sta 5354+90 - NB CL	SY	226
714	4110	**PIPE CONDUIT 30IN**		
		Sta 5345+24 - NB CL	LF	109
		Sta 5354+90 - NB CL	LF	105
714	4125	**PIPE CONDUIT 48IN**		
		Sta 5353+46 - NB Skewed CL	LF	112
		Sta 5353+64 - NB Skewed CL	LF	114



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Plan and Profile Sheet
Sta 5340+00 to Sta 5360+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
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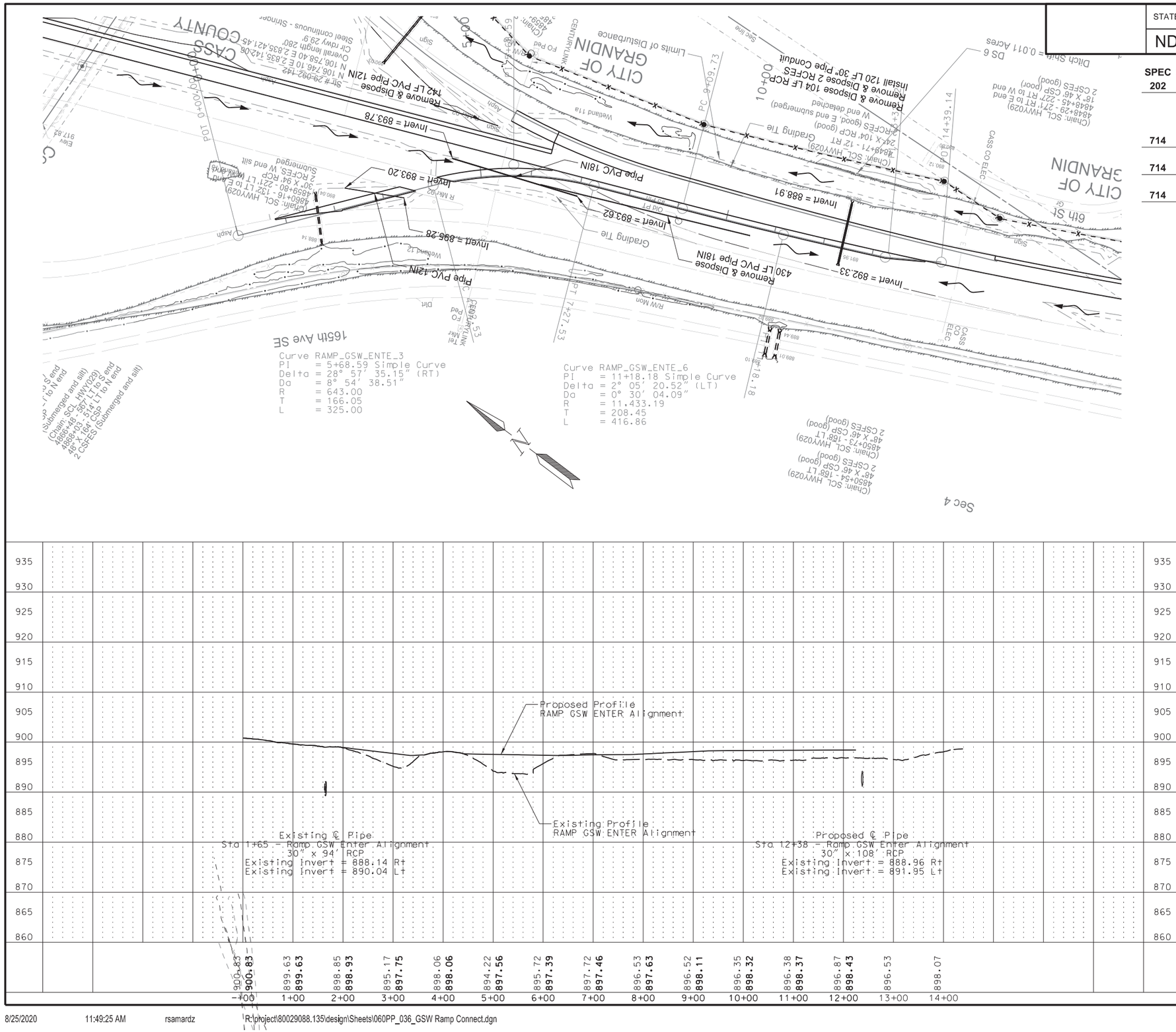
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	36



SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4851+56 to Sta 4855+86 - Existing SER	LF	430
		Sta 4856+98 to Sta 4858+40 - Existing SER	LF	142
		Sta 4859+49 - Existing SERC	LF	8
714	7030	**PIPE PVC 12IN**		
		Sta 4858+44 (93' LT) to Sta 4859+63 (104' LT	LF	120
714	7036	**PIPE PVC 18IN**		
		Sta 4855+10 (3' RT) to Sta 4857+70 (7' RT)	LF	260
714	9660	**REMOVE & RELAY END SECTION - ALL TYPE & SIZES**		
		Sta 4859+49 - Existing SERC	EA	1

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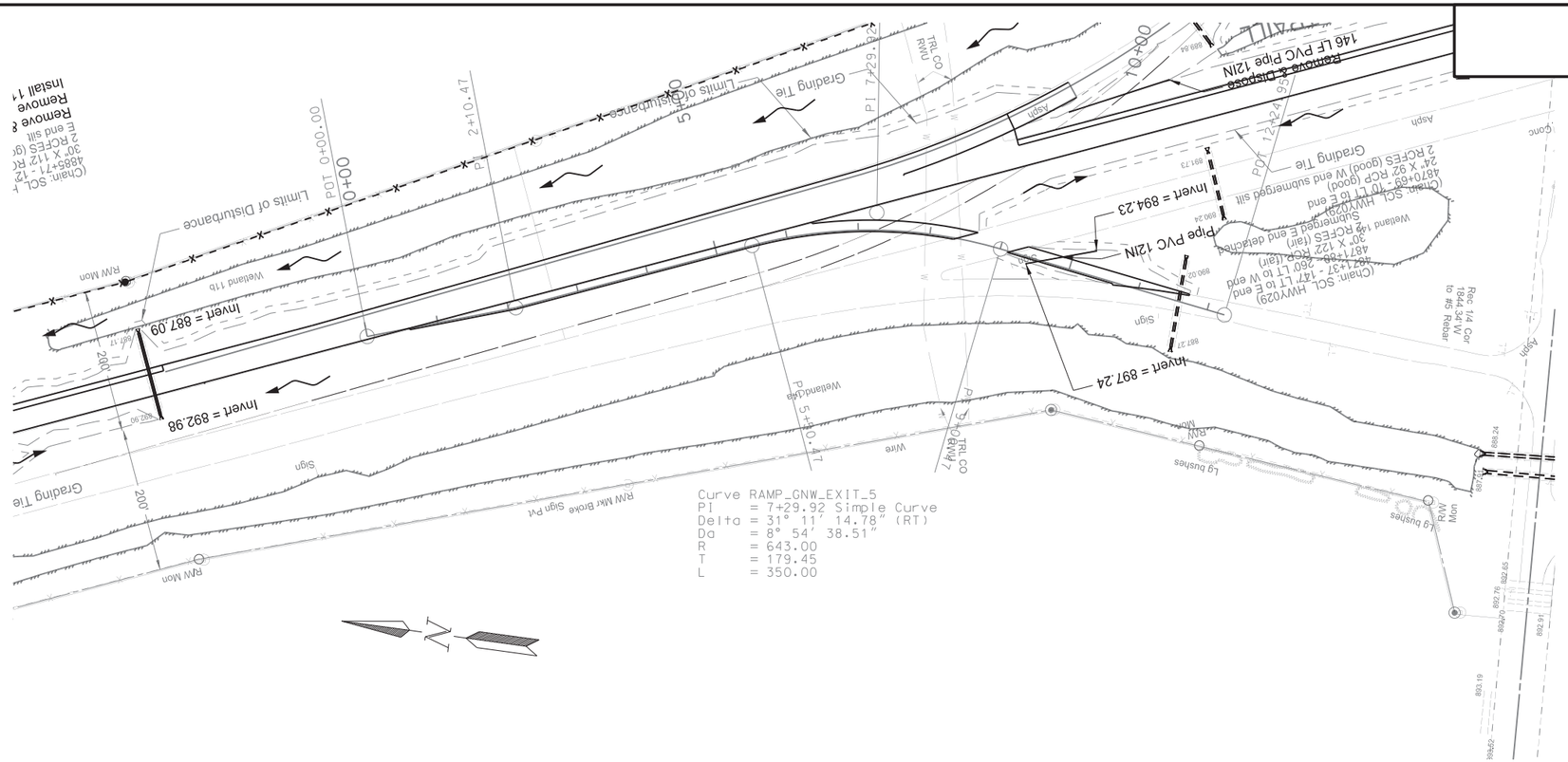
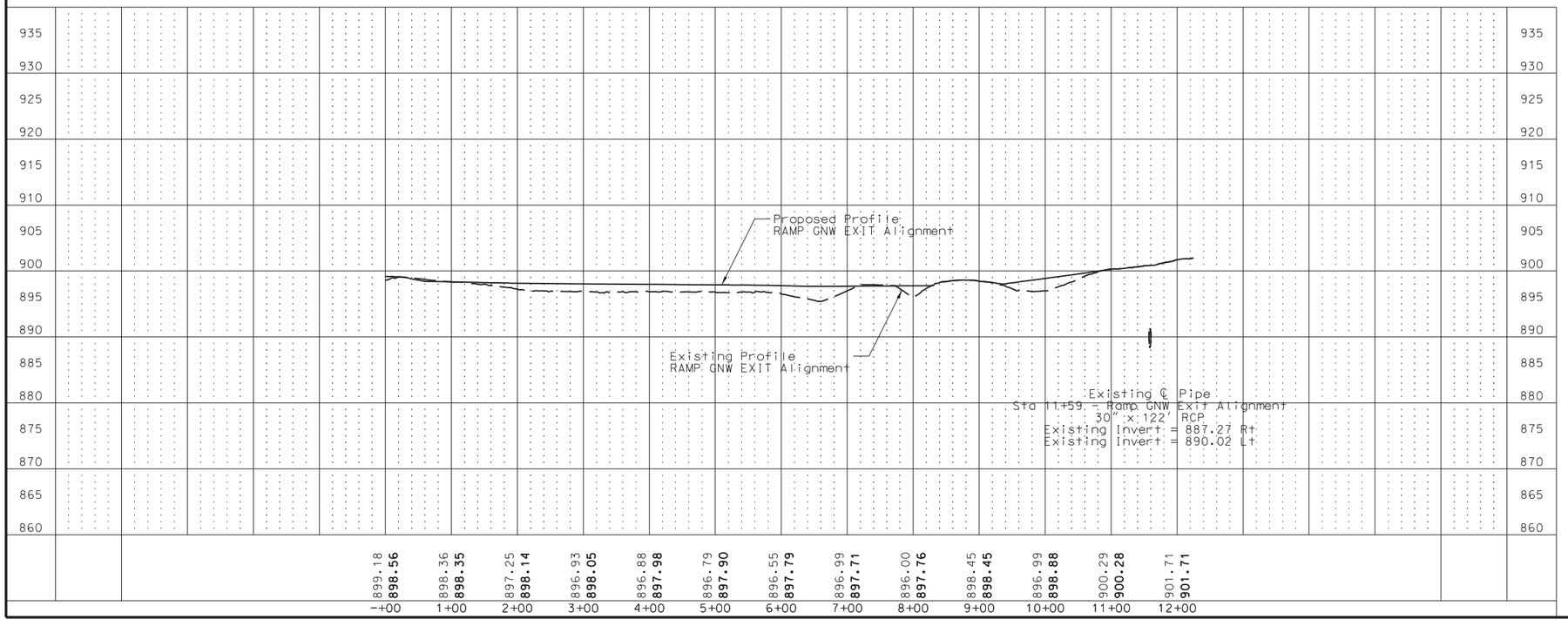
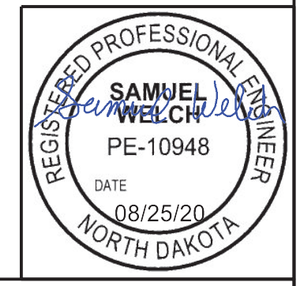
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	37

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 4870+27 - Existing NERC	LF	6
		Sta 4870+95 to Sta 4872+41 - Existing NER	LF	146
714	7030	**PIPE PVC 12IN**		
		Sta 4872+54 (104' LT) to Sta 4873+83 (96' LT	LF	100
714	9660	**REMOVE & RELAY END SECTION - ALL TYPE & SIZES**		
		Sta 4870+27 - Existing NERC	EA	1







Plan and Profile Sheet
Grandin Interchange - NW Ramp Connection

PCC Pavement Reconstruction
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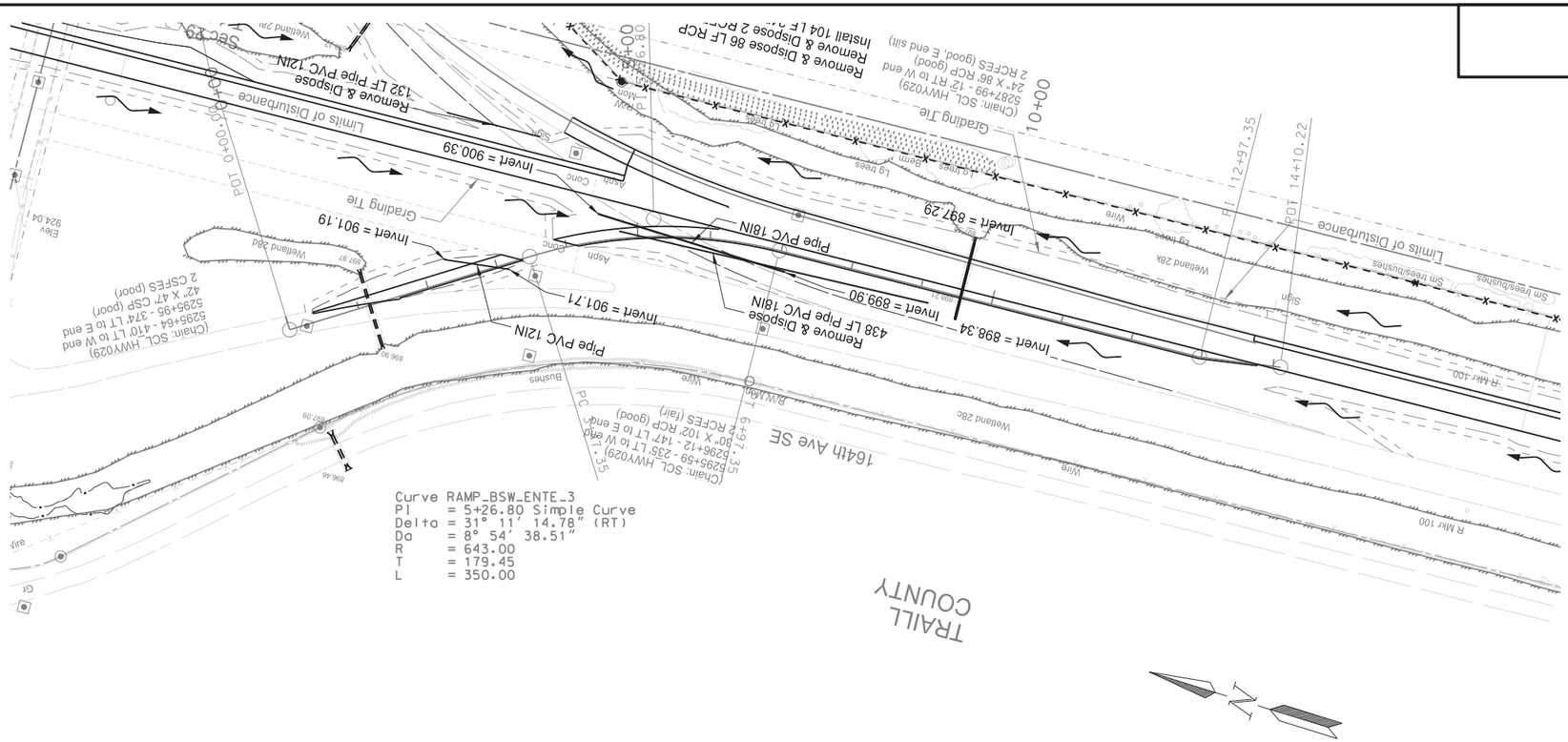
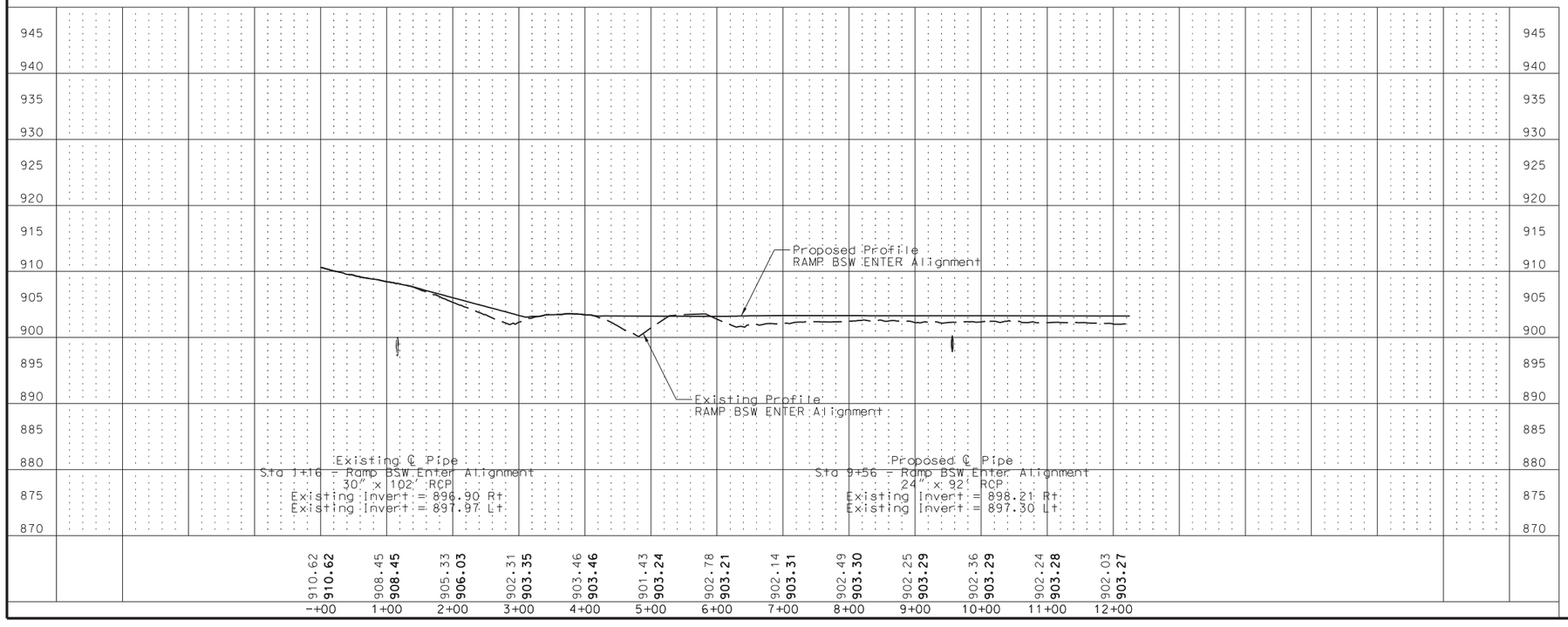
SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5288+40 to Sta 5292+78 - Existing SER	LF	438
		Sta 5294+18 to Sta 5295+50 - Existing SER	LF	132
714	7030	**PIPE PVC 12IN**		
		Sta 5294+13 (91' LT) to Sta 5295+03 (100' LT	LF	90
714	7036	**PIPE PVC 18IN**		
		Sta 5290+43 (1' LT) to Sta 5293+12 (14' RT	LF	270





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Plan and Profile Sheet
Blanchard Interchange SW Ramp Connection

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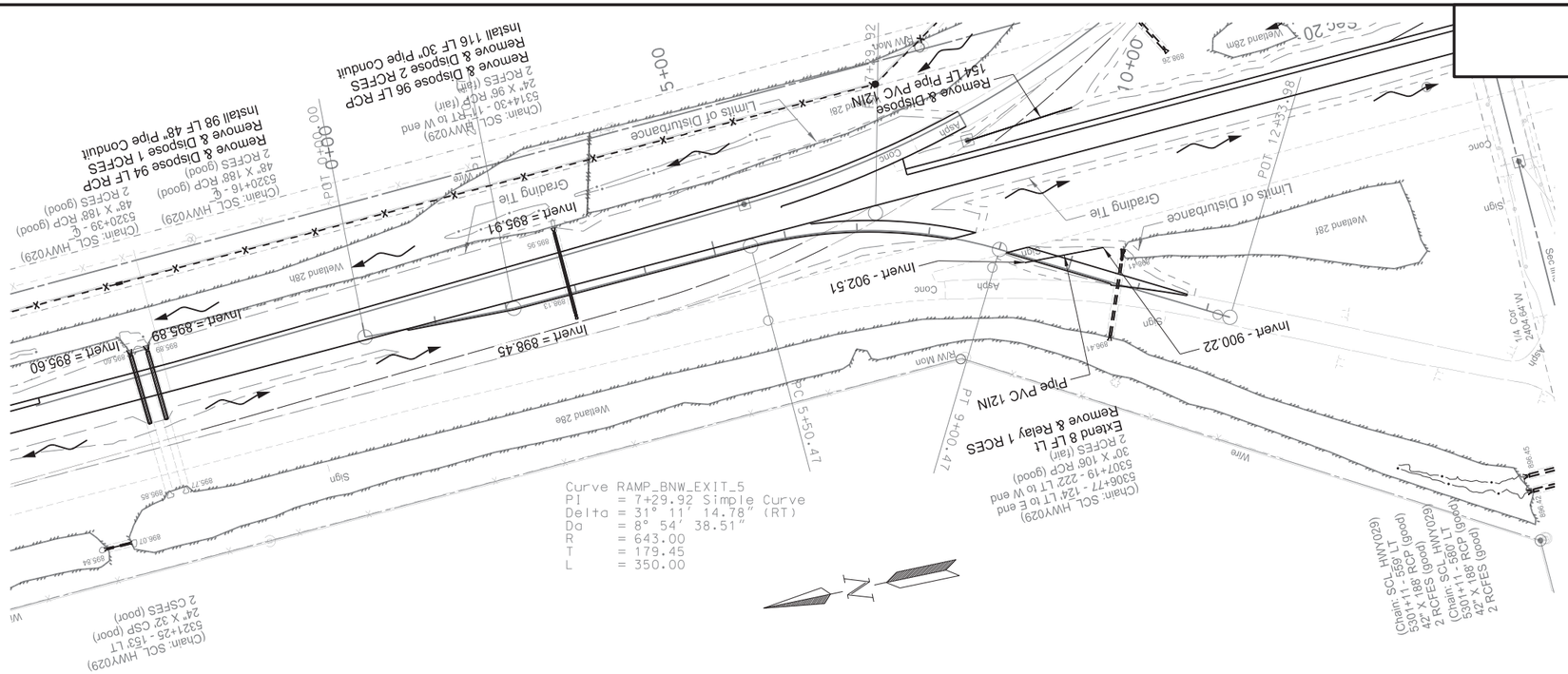
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	60	39

SPEC	CODE	BID ITEM	UNIT	QUANTITY
202	0174	**REMOVAL OF PIPE ALL TYPES & SIZES**		
		Sta 5306+90 to Sta 5308+44 - Existing NER	LF	154
714	0820	**PIPE CONC REINF 30IN CL III**		
		Sta 10+72 at CL (Extend from 34' Lt to 42' Lt)	LF	8
714	7030	**PIPE PVC 12IN**		
		Sta 5306+97 (101' LT) to Sta 5308+07 (94' LT)	LF	110
714	9660	**REMOVE & RELAY END SECTION - ALL TYPE & SIZES**		
		Sta 10+72 at CL (Extend from 34' Lt to 42' Lt)	EA	1

*Stationing is based off of RAMP_BNW_EXIT alignment.



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Plan and Profile Sheet
Blanchard Interchage NW Ramp Connection

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	75	1

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands	Wetland Impacts Acre(s)			USFWS Easement Impacts Acre(s)		Wetland Mitigation							
										Mitigation Required			Onsite				
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm.	EO 11990	USACE	USFWS	Mitigation Location; Ratio	Ditch Shift Acre(s)	Onsite Acre(s)	Constructed Site #	Constructed Size Acre(s)
#1	T143N R50W S23	Ditch	Created	Y	0.403	0.041					Y		DS 1; Ditch Shift; 1:1	0.042			
#2	T143N R50W S22	Ditch	Created	Y													
#3a	T143N R50W S15	Ditch	Created	Y	0.038	0.006					Y		DS 2; Ditch Shift 2; 1:1	0.009			
#3b	T143N R50W S15	Ditch	Created	Y													
#4	T143N R50W S14	Ditch	Created	N	0.001	0.000					N						
#5	T143N R50W S15	Ditch	Created	Y													
#6a	T143N R50W S15	Ditch	Created	Y	0.710	0.140					Y		DS 3; Ditch Shift; 1:1	0.140		Site 1	0.034
#6b	T143N R50W S15	Ditch	Created	Y	0.031	0.033					Y		Mitigation Site 1; 1:1		0.033		
#6c	T143N R50W S10	Ditch	Created	Y	0.468	0.018					Y		DS 4; Ditch Shift; 1:1	0.018		Site 2	0.098
#6d	T143N R50W S10	Ditch	Created	Y	0.785	0.086					Y		DS 5; Ditch Shift; 1:1	0.269			
#6e	T143N R50W S10	Ditch	Created	Y	0.013	0.025					Y		Mitigation Site 2; 1:1		0.025		
#6f	T143N R50W S15	Ditch	Created	Y													
#6g	T143N R50W S15	Ditch	Created	Y													
#6h	T143N R50W S15	Ditch	Created	Y													
#6i	T143N R50W S10	Ditch	Created	Y													
#6j	T143N R50W S10	Ditch	Created	Y													
#6k	T143N R50W S3	Ditch	Created	Y													
#7	T143N R50W S3	Ditch	Created	Y	0.030	0.000					N						
#8	T143N R50W S3	Ditch	Created	Y													
#9	T143N R50W S3	Ditch	Created	N													
#10	T143N R50W S3	Ditch	Created	N													
#11a	T143N R50W S3	Ditch	Created	Y	0.186	0.011					Y		DS 6; Ditch Shift; 1:1	0.011			
#11b	T144N R50W S33	Ditch	Created	Y	0.005	0.000					N						
#11c	T144N R50W S33	Ditch	Created	Y	0.002	0.000					N						
#12	T143N R50W S4	Ditch	Created	Y													
#13	T143N R50W S4	Ditch	Created	Y													
#14a	T144N R50W S33	Ditch	Created	Y													
#14b	T144N R50W S33	Ditch	Created	Y													
#15a	T144N R50W S33	Fringe	Natural	Y													
#15c	T144N R50W S33	Fringe	Natural	Y	0.009	0.000					N						
#15d	T144N R50W S33	Fringe	Natural	Y													
#15e	T144N R50W S33	Fringe	Natural	Y													

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Wetlands Mitigation and Environmental

PCC Pavement Reconstruction
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	75	2

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands	Wetland Impacts Acre(s)			USFWS Easement Impacts Acre(s)		Wetland Mitigation							
										Mitigation Required			Onsite				
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm.	EO 11990	USACE	USFWS	Mitigation Location; Ratio	Ditch Shift Acre(s)	Onsite Acre(s)	Constructed Site #	Constructed Size Acre(s)
#16	T144N R50W S28	Ditch	Created	Y	0.158	0.052					Y		DS 7; Ditch Shift; 1:1	0.069			
#17	T144N R50W S28	Ditch	Created	Y													
#18a	T144N R50W S21	Ditch	Created	Y	0.012	0.002					Y		Mitigation Site 2; 1:1		0.002		
#18b	T144N R50W S21	Ditch	Created	Y													
#19a	T144N R50W S21	Ditch	Created	Y	0.388	0.060					Y		DS 8; Ditch Shift; 1:1	0.063		Site 3	0.079
#19b	T144N R50W S21	Ditch	Created	Y	0.917	0.044					Y		DS 9; Ditch Shift; 1:1	0.046		Site 4	0.078
#19c	T144N R50W S21	Ditch	Created	Y	0.021	0.017					Y		Mitigation Site 2; 1:1		0.017		
#19d	T144N R50W S16	Ditch	Created	Y	0.008	0.000					N						
#19e	T144N R50W S9	Ditch	Created	Y	0.902	0.112					Y		DS 10; Ditch Shift; 1:1	0.150			
#19f	T144N R50W S21	Ditch	Created	Y													
#19g	T144N R50W S21	Ditch	Created	Y													
#19h	T144N R50W S21	Ditch	Created	Y													
#19i	T144N R50W S16	Ditch	Created	Y													
#19j	T144N R50W S16	Ditch	Created	Y													
#19k	T144N R50W S8/9	Ditch	Created	Y													
#20a	T144N R50W S5	Ditch	Created	Y	0.585	0.002					Y		DS 11; Ditch Shift; 1:1	0.011			
#20b	T144N R50W S5	Ditch	Created	Y													
#20c	T144N R50W S5	Basin	Natural	Y													
#21	T144N R50W S5	Ditch	Created	N													
#22	T145N R50W S33	Ditch	Created	Y													
#23	T145N R50W S33	Ditch	Created	Y													
#24	T145N R50W S33	Ditch	Created	Y													
#25a	T145N R50W S33	Fringe	Natural	Y	0.032	0.009				Y	Y		Mitigation Site 5; 1:1		0.009	Site 5	0.038
#25c	T145N R50W S33	Fringe	Natural	Y	0.073	0.016				Y	Y		Mitigation Site 5; 1:1		0.016		
#25d	T145N R50W S33	Fringe	Natural	Y													
#25e	T145N R50W S33	Fringe	Natural	Y													
#26a	T145N R50W S33	Ditch	Created	Y	0.113	0.003					Y		Mitigation Site 2; 1:1		0.003		
#26b	T145N R50W S33	Ditch	Created	Y	0.108	0.000					N						
#27a	T145N R50W S32	Ditch	Created	Y													
#27b	T145N R50W S32	Ditch	Created	Y													

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	75	3

Wetland Impact Table

Wetland Number	Location	Wetland Type	Wetland Feature	USACE Jurisdictional Wetlands	Wetland Impacts Acre(s)			USFWS Easement Impacts Acre(s)		Wetland Mitigation							
										Mitigation Required			Onsite				
					Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm.	EO 11990	USACE	USFWS	Mitigation Location; Ratio	Ditch Shift Acre(s)	Onsite Acre(s)	Constructed Site #	Constructed Size Acre(s)
#28a	T145N R50W S33	Ditch	Created	Y	0.108	0.001					Y		DS 12; Ditch Shift; 1:1	0.017			
#28b	T145N R50W S32	Ditch	Created	Y													
#28c	T145N R50W S29	Ditch	Created	Y													
#28d	T145N R50W S29	Ditch	Created	Y													
#28e	T145N R50W S20	Ditch	Created	Y													
#28f	T145N R50W S20	Ditch	Created	Y	0.009	0.000					N						
#28g	T145N R50W S20	Ditch	Created	Y													
#28h	T145N R50W S20	Ditch	Created	Y	0.254	0.033					Y		DS 13; Ditch Shift; 1:1	0.039			
#28i	T145N R50W S20	Ditch	Created	Y	0.041	0.000					N						
#28j	T145N R50W S21	Ditch	Created	Y													
#28k	T145N R50W S29	Ditch	Created	Y	0.141	0.000					N						
#28l	T145N R50W S29	Ditch	Created	Y	0.081	0.003					Y		DS 14; Ditch Shift; 1:1	0.008			
#28m	T145N R50W S20	Ditch	Created	Y													
#28n	T145N R50W S17	Ditch	Created	Y													
#28o	T145N R50W S17	Ditch	Created	Y													
#29	T145N R50W S28	Ditch	Created	Y													
				Totals	**6.630**	**0.717**	**0.00**	**0**	**0**					**0.891**	**0.105**		**0.326**

Other Waters Impact Table

Other Waters													Other Water Mitigation				
			Size				Impacts to Other Waters						Mitigation Required				
							Acres			Linear Feet							
Number	Location	Type	Acre(s)	Linear Feet	Feature	USACE Jurisdictional[1]	Temp.	Perm. (Fill/Drain)	Perm. (Cut)	Temp.	Perm. (Fill/Drain)	Perm. (Cut)	EO 11990	USACE	USFWS	Mitigation Location; ratio	Method
#15b	T144N, R50W, S33	Named Stream	0.50	401.87	River	Y											
#25b	T145N, R50W, S33	Named Stream	0.19	446.50	River	Y	0.05	0.06	0.00	95	127	0	N	N		NA	NA
						Totals	0.05	0.06	0.00	95	127	0					

[1] A wetland Jurisdictional Determination was issued by the USACE on 10/20/2017; NWO-2017-01711-BIS.

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Impact Summary Table

Permanent Impact Summary		Temporary Impacts and additional information	
Wetland Type	**Total (Acres)**	**Wetland Type**	**Total (Acres/Lf)**
Natural/JD (Fill/Drain)	0.025	**Temporary JD**	6.629
Natural/Non-JD (Fill/Drain)	NA	**Non-JD Temporary**	0.001
Created/JD (Fill/Drain)	0.692	**Permanent JD > 0.10**	0.717
Created/ Non-JD	0.000	**Permanent OW**	0.06/127
Total	**0.717**	**Temporary OW**	0.05/95
JD Natural (Cut)	0.00		
JD Created (Cut)	0.00		
Non-JD Natural (Cut)	NA		
Non-JD Created (Cut)	0.00		
Total	**0.00**		

Mitigation Summary Table

	Location	Ditch Shift Acre(s)	Constructed Onsite Acre(s)	11990 Bank Acre(s)	USACE/11990 Bank Acre(s)	USFWS Bank Acre(s)
USACE Only	Ditch Shifts 1-14; Onsite Sites 1-4	0.891	0.288			
EO 11990 Only						
USACE/11990	Onsite Site 5		0.038			
USFWS						
	Total	**0.891**	**0.326**	**0**	**0**	**0**

Note: 0.326 acre created for onsite mitigation with 0.105 acre required to function. 0.221 acre of surplus USACE Onsite to be used for any non-functioning onsite mitigation or for the next Southbound reconstrutction project # IM-8-029(173)088 PCN 21855 constructed in 2022.

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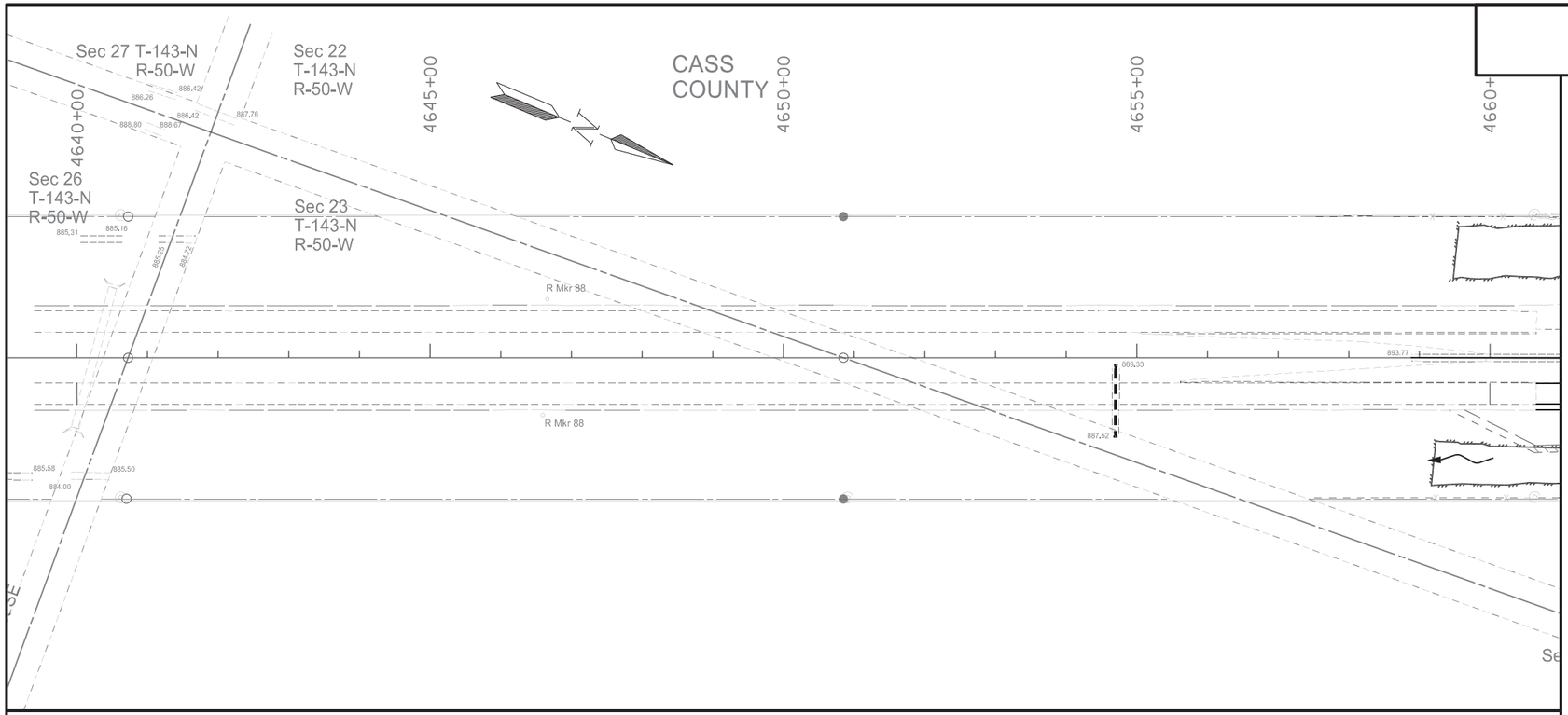
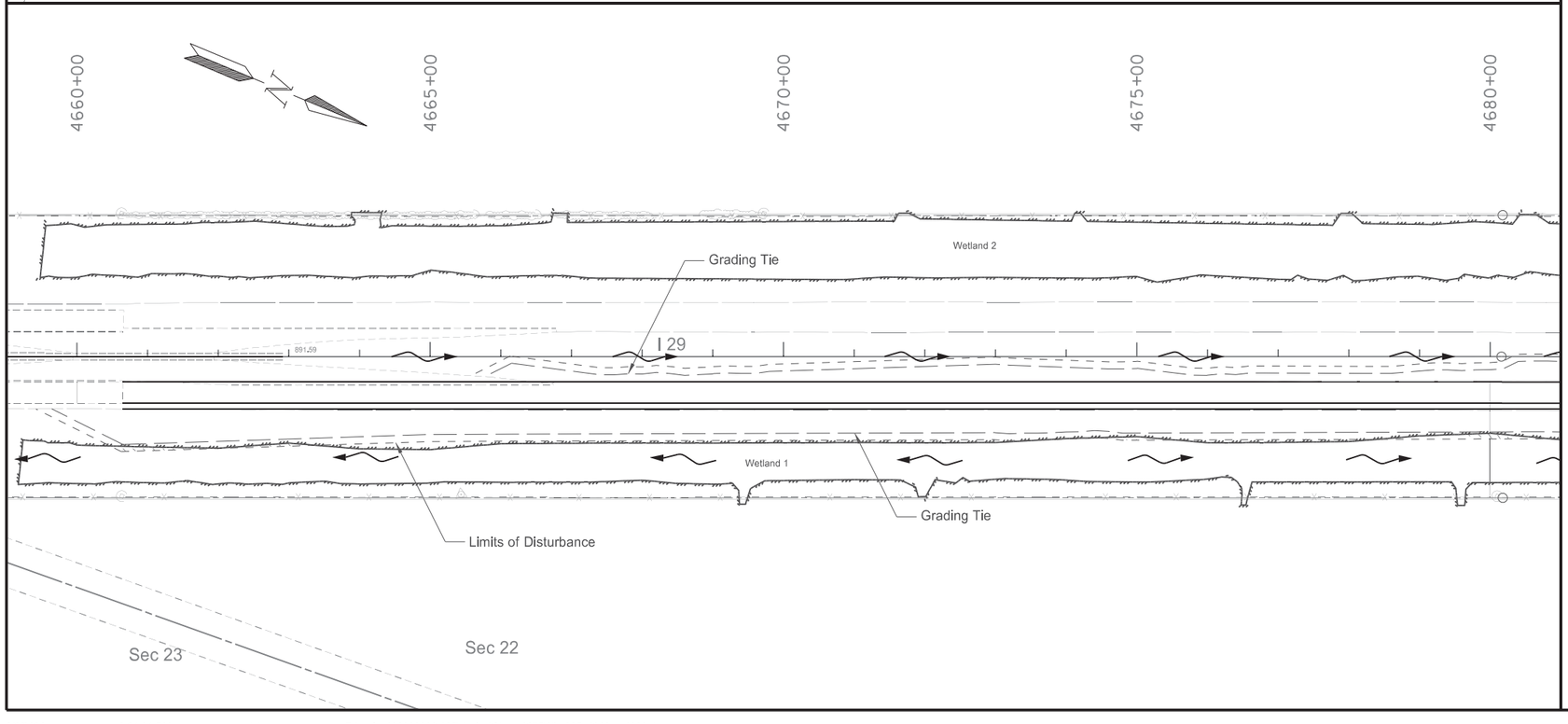
	ND	IM-8-029(135)088	75	5





Permanent Wetland Impacts

Temporary Wetland Impacts

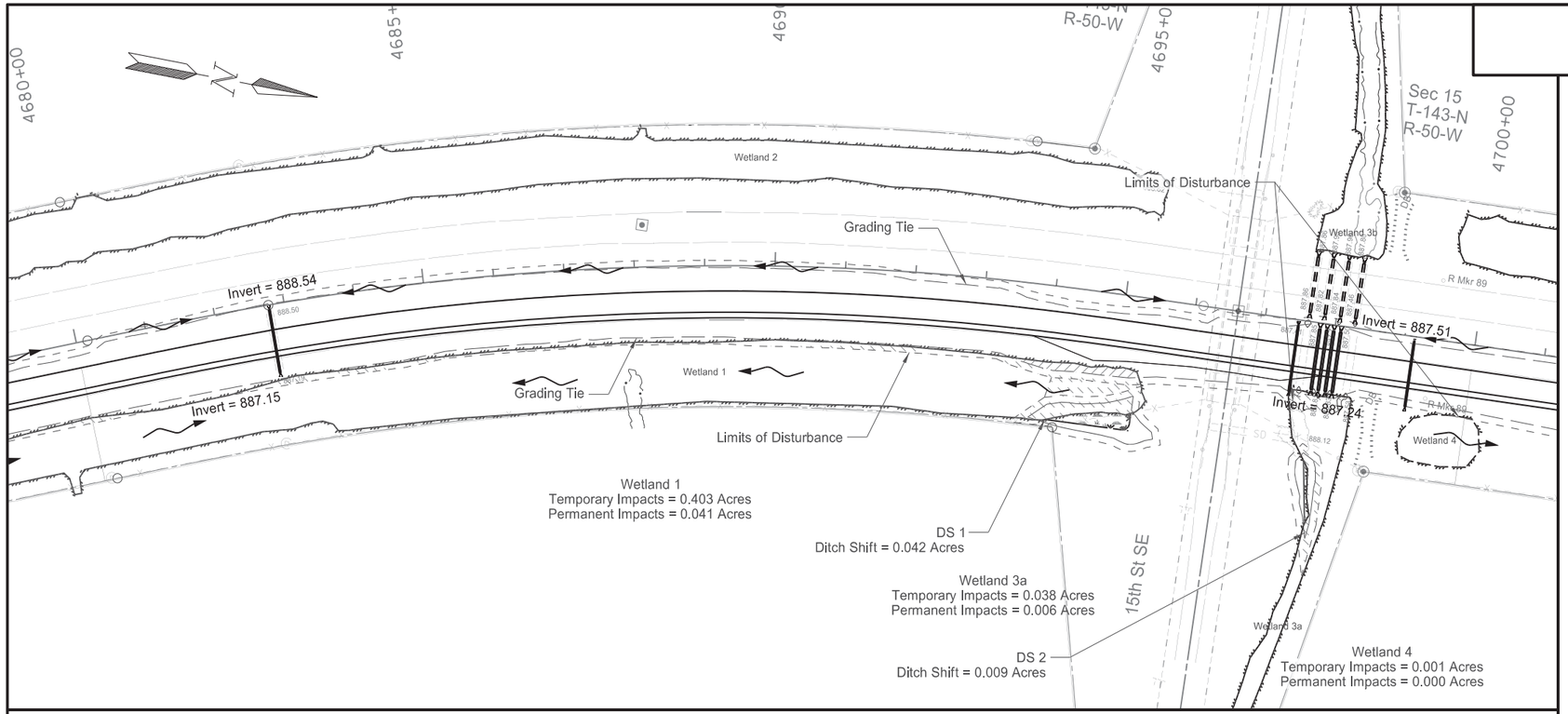
Mitigated Wetland

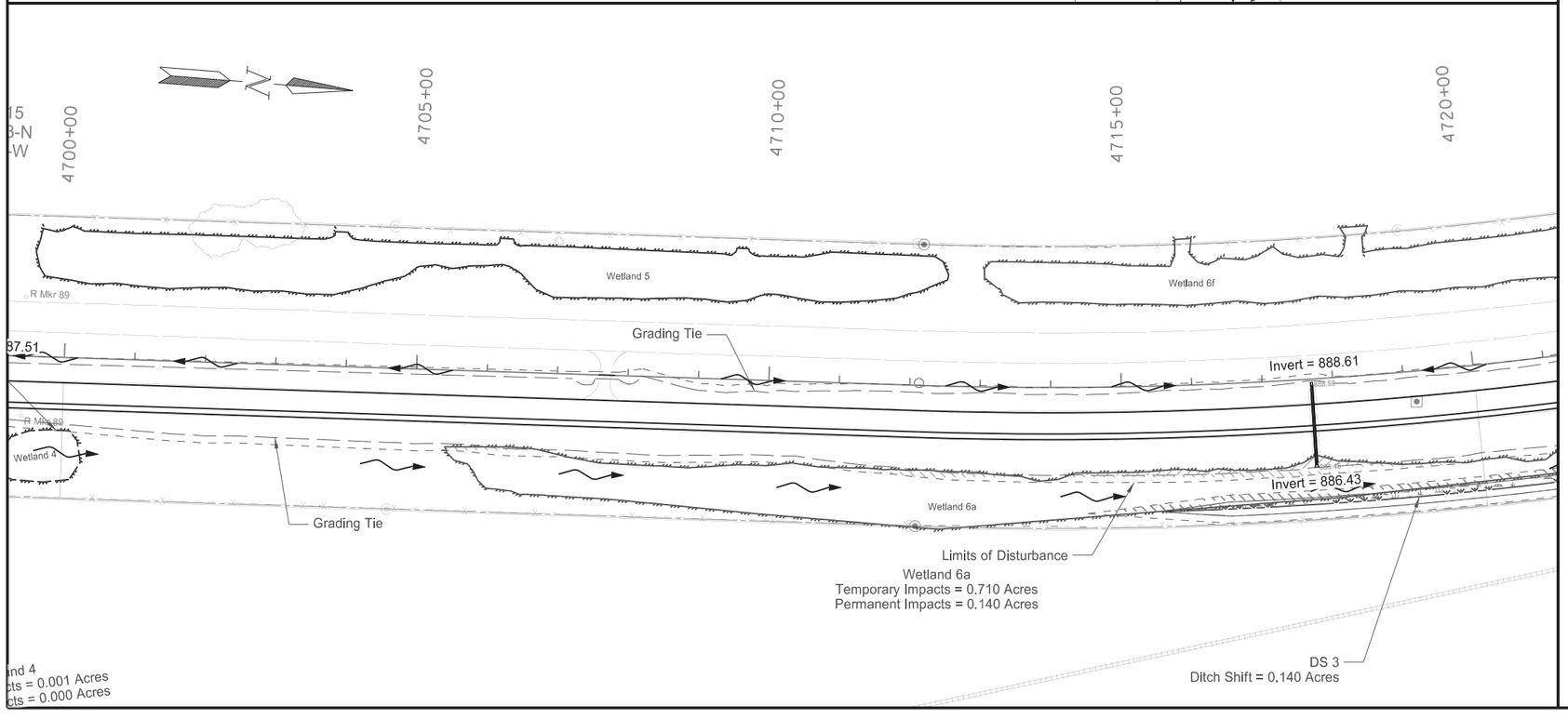
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4640+00 to Sta 4680+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	75	6





Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4680+00 to Sta 4720+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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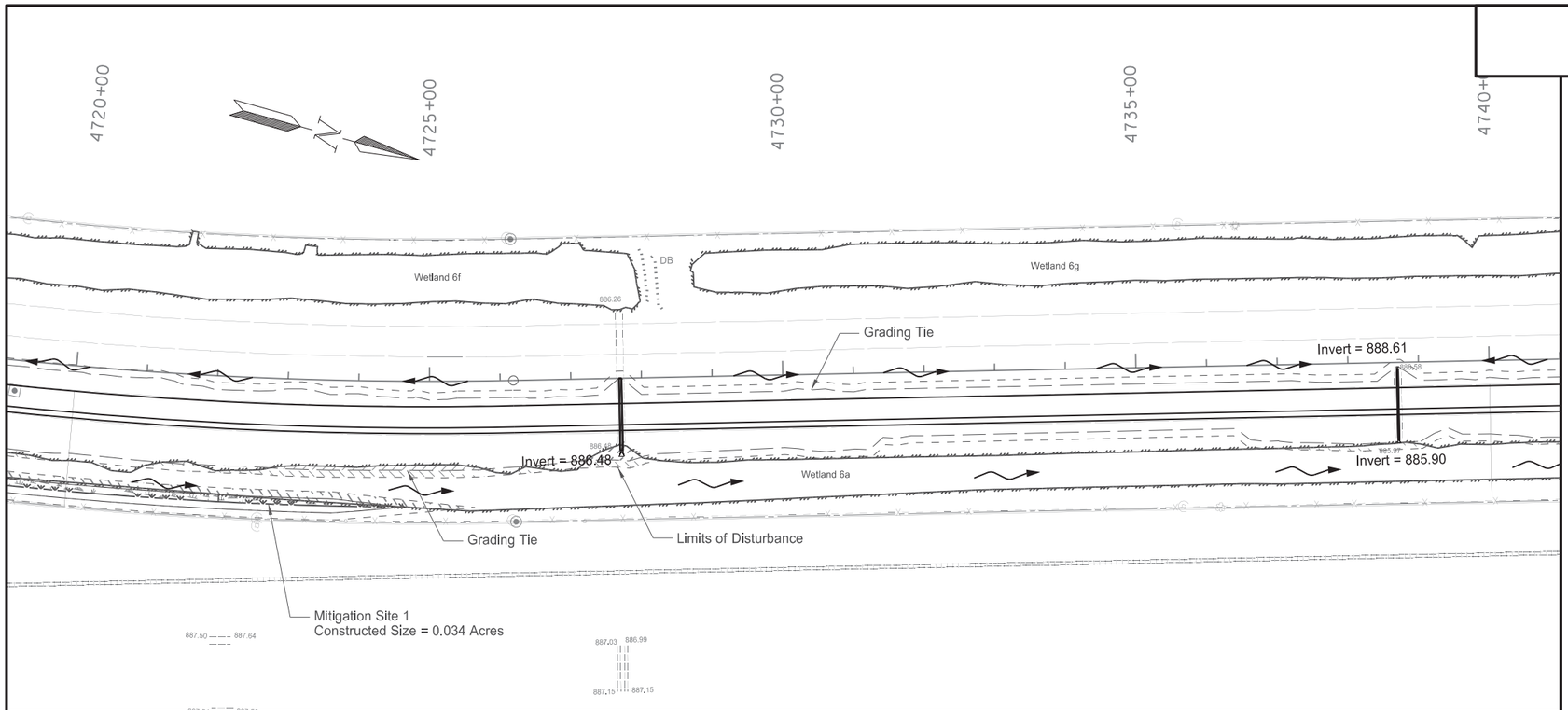

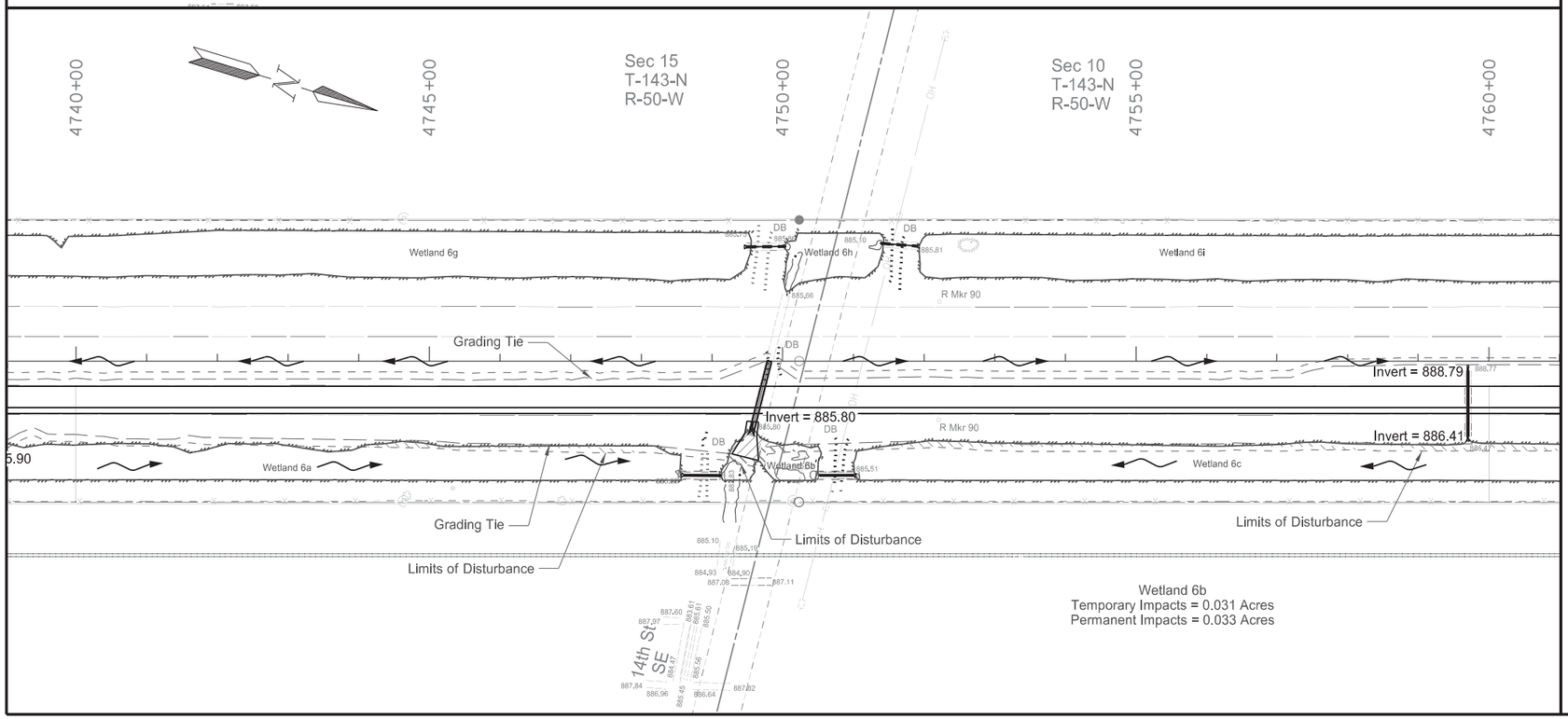

Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4720+00 to Sta 4760+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

9/2/2020 3:03:22 PM swelch R:\project\80029088.135\design\Sheets\075WL_007_4720 to 4760.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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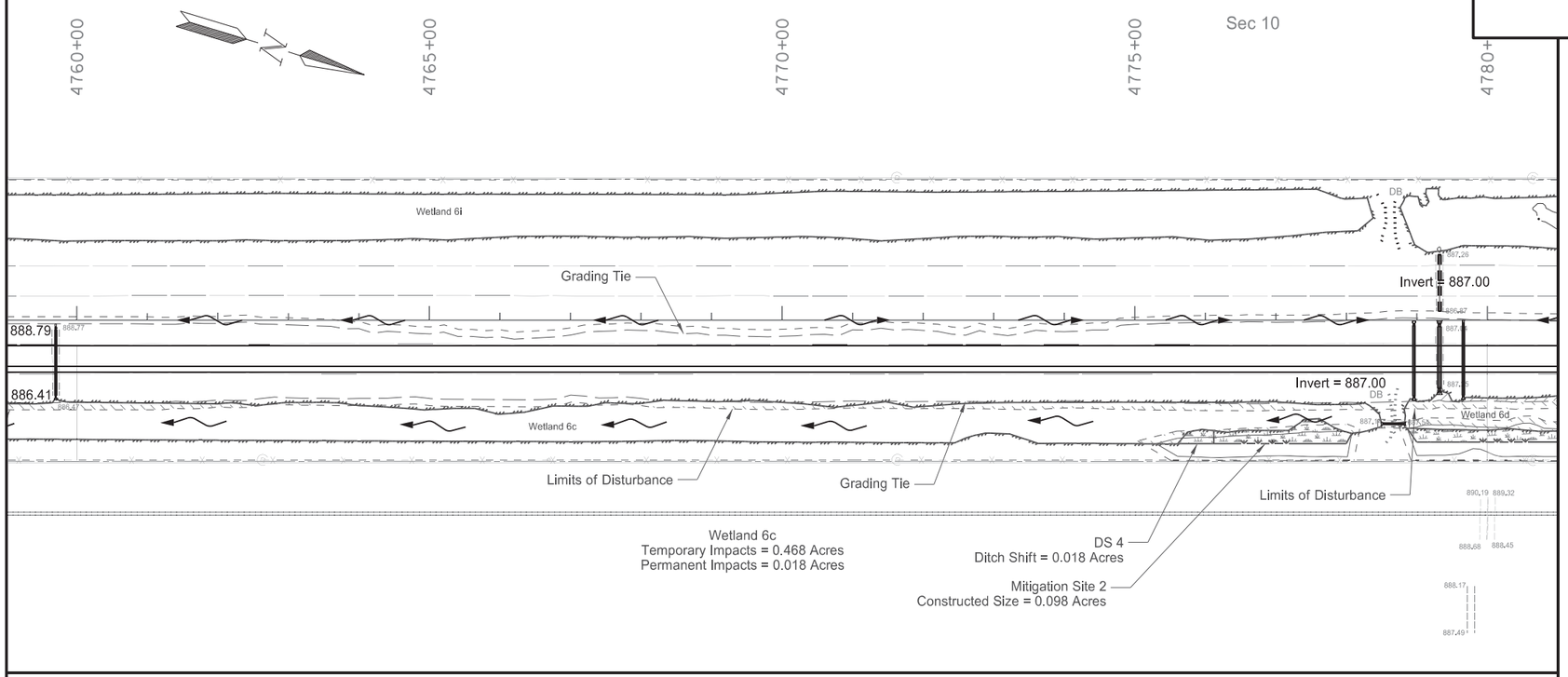
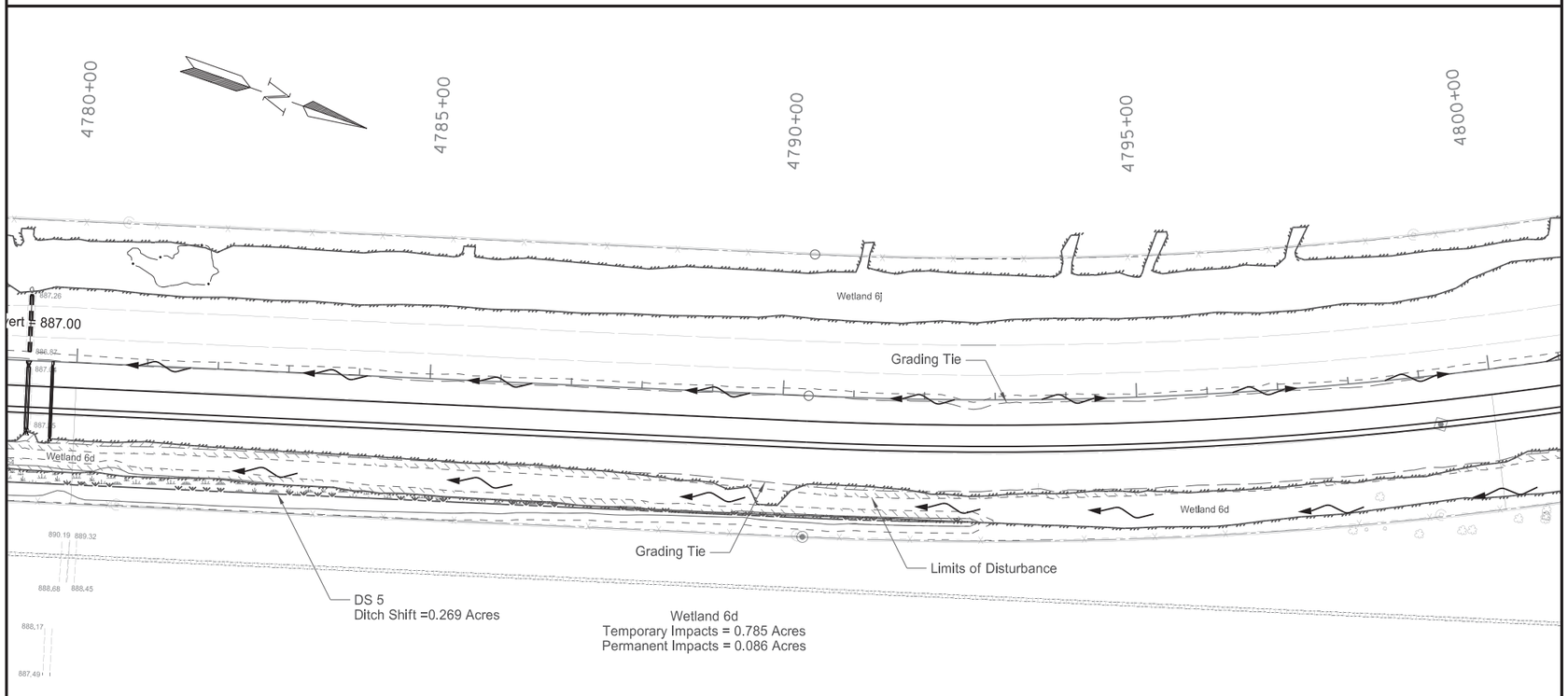




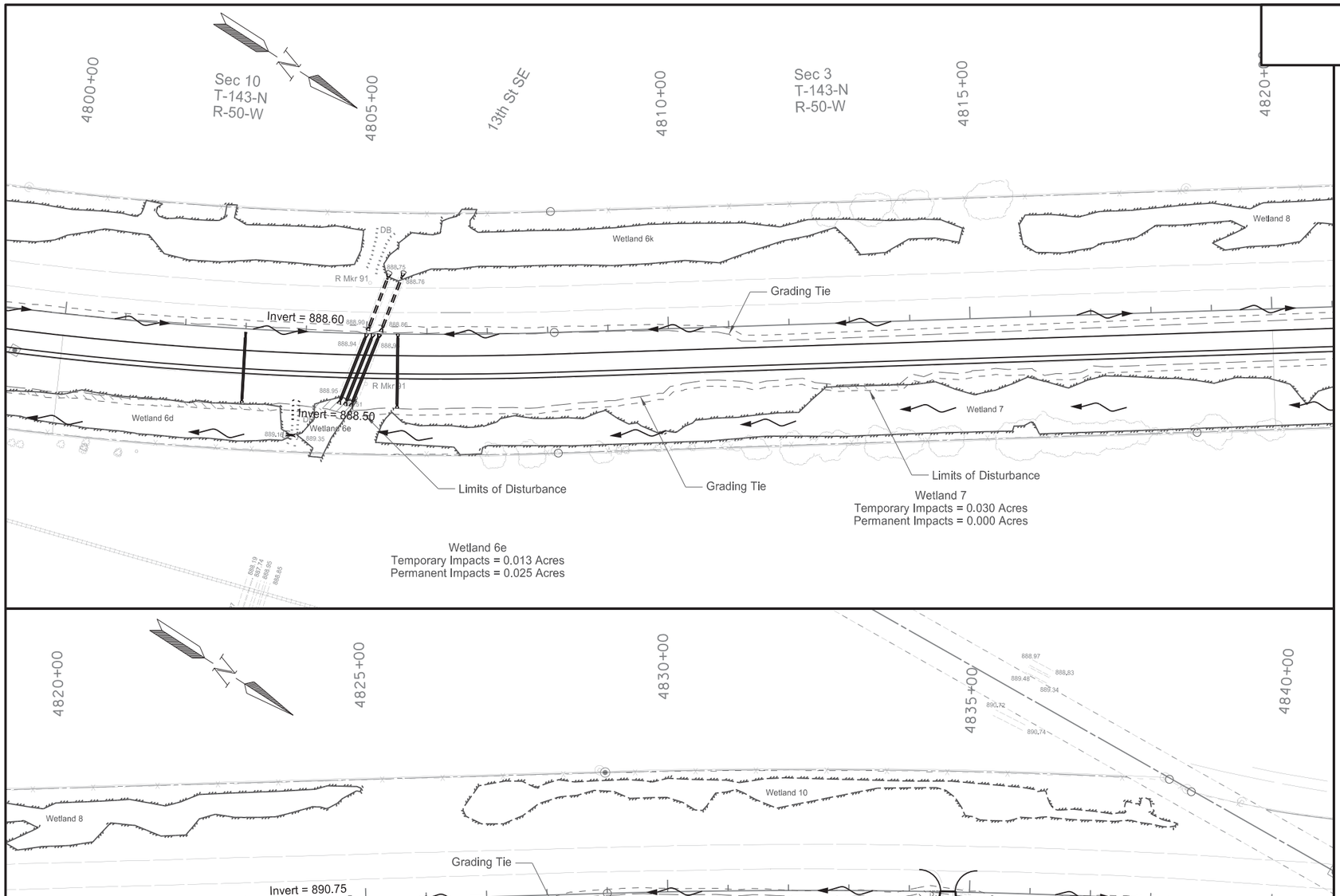
Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4760+00 to Sta 4800+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	75	9



Permanent Wetland Impacts

Temporary Wetland Impacts

Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4800+00 to Sta 4840+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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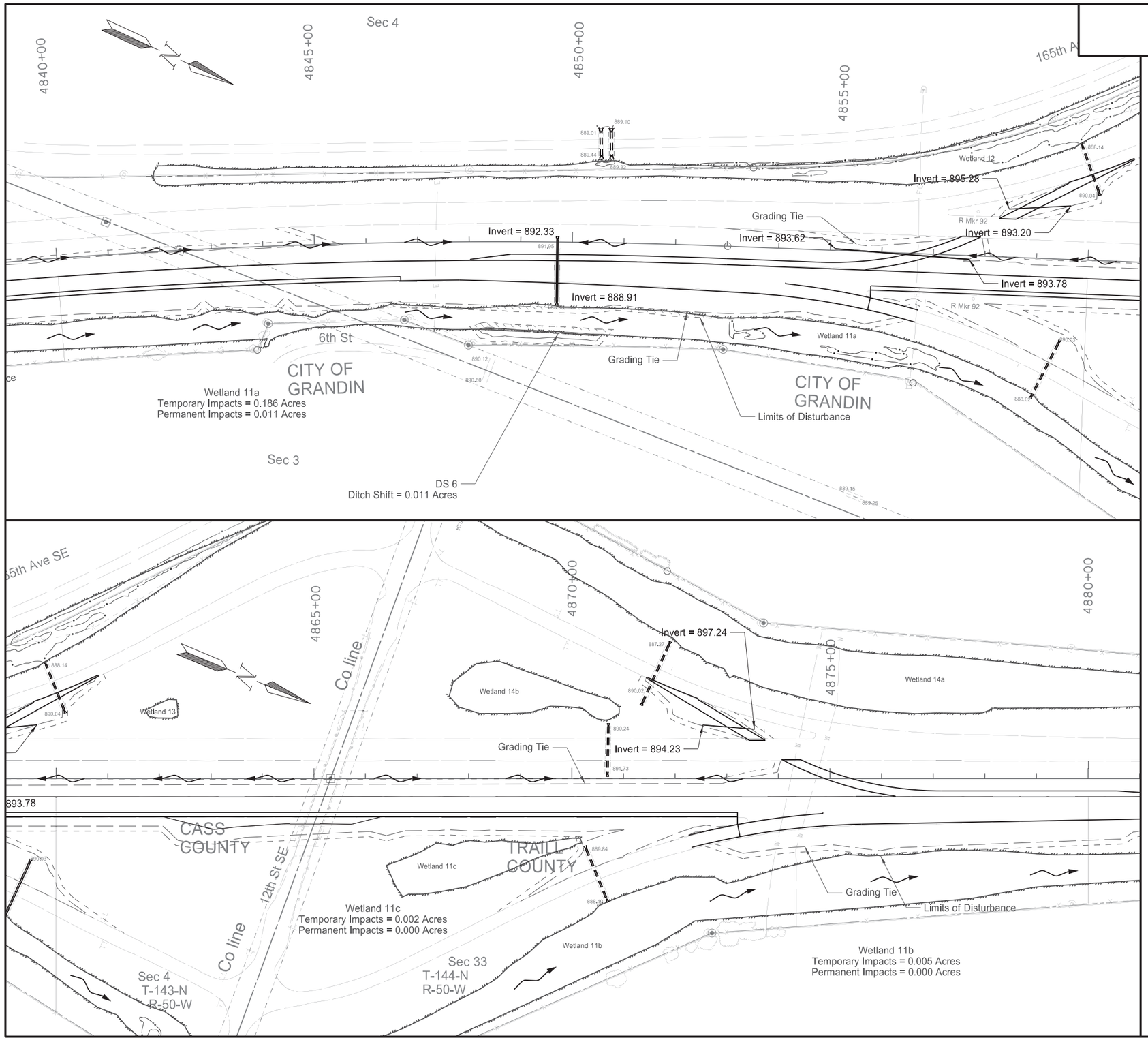


Permanent Wetland Impacts

Temporary Wetland Impacts

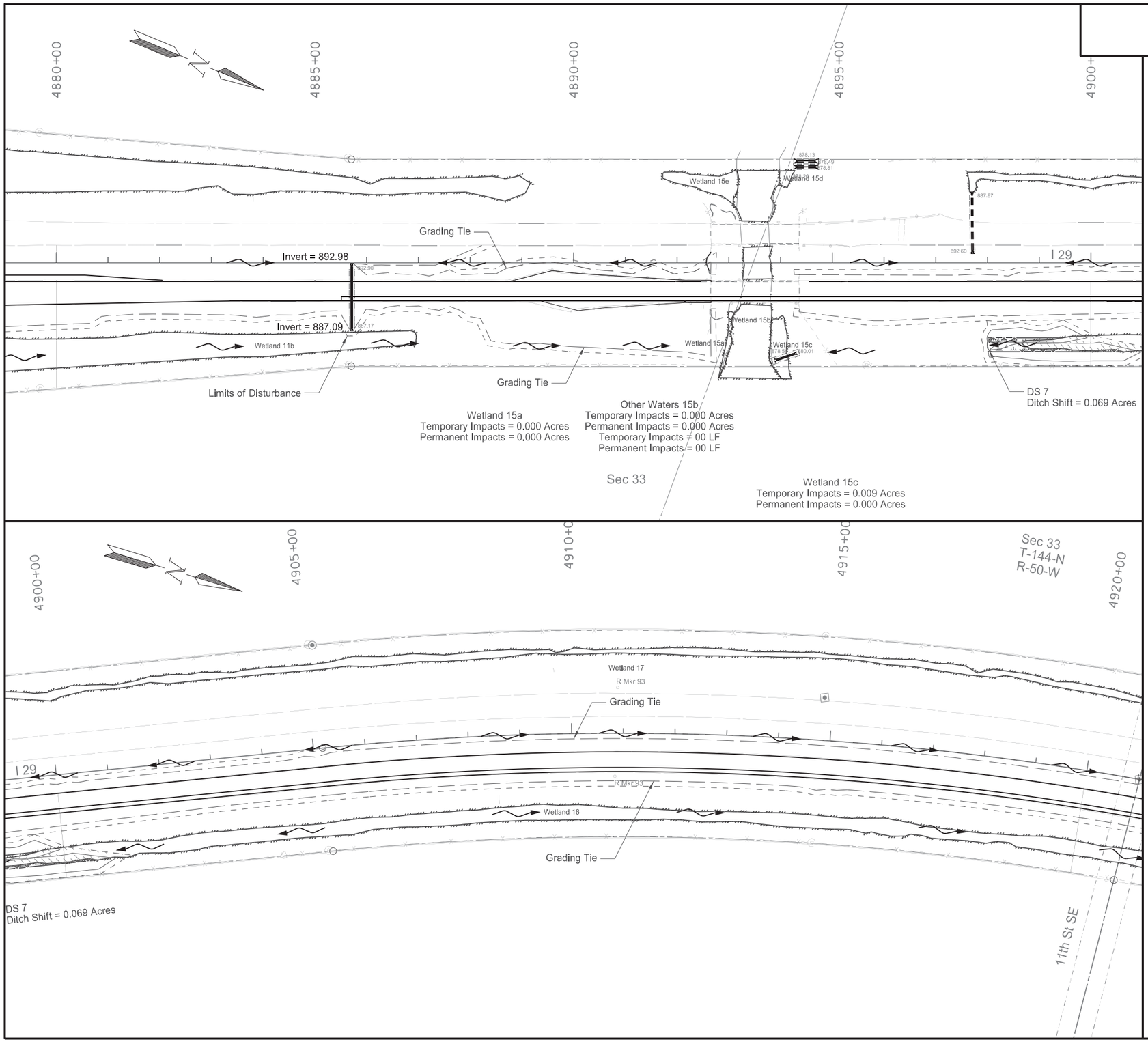
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4840+00 to Sta 4880+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	75	11



Permanent Wetland Impacts

Temporary Wetland Impacts

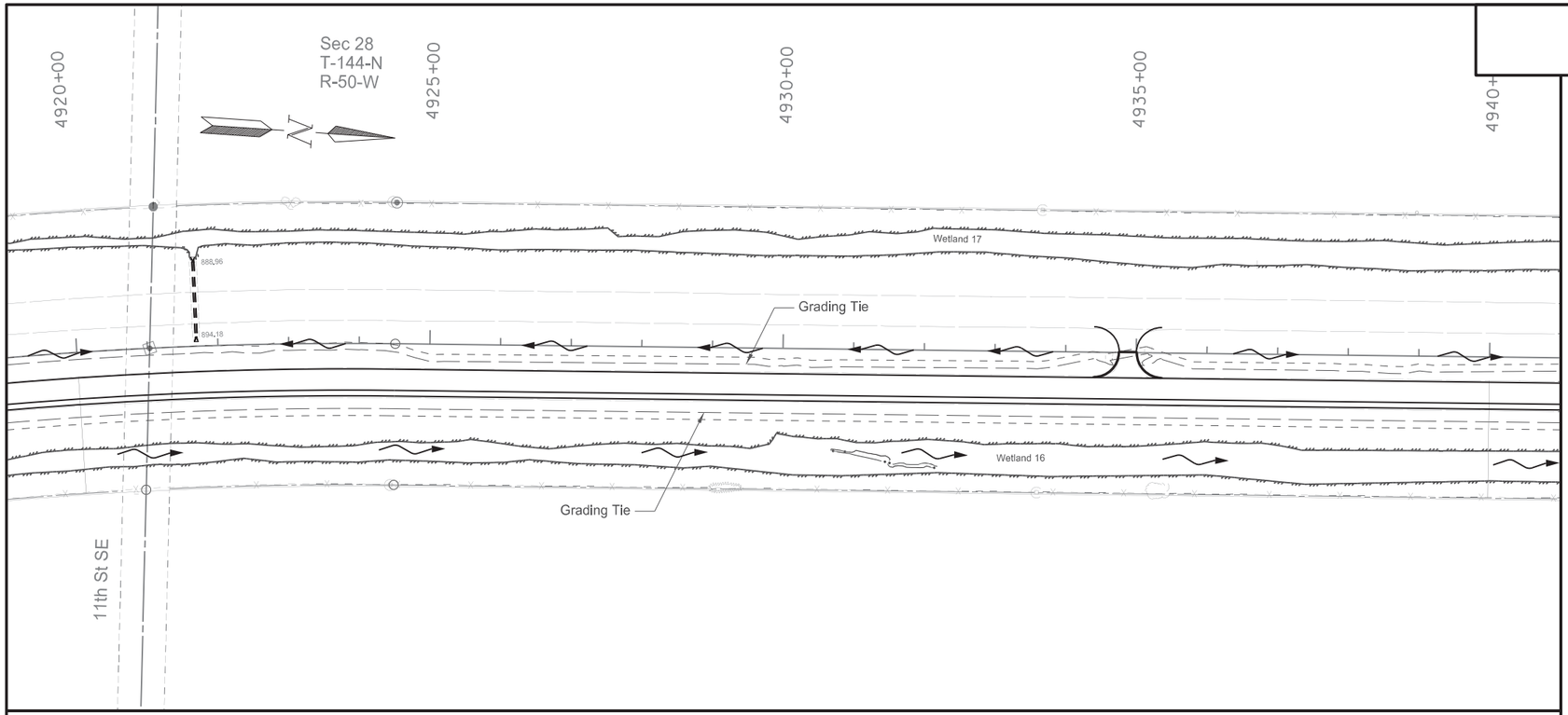
Mitigated Wetland

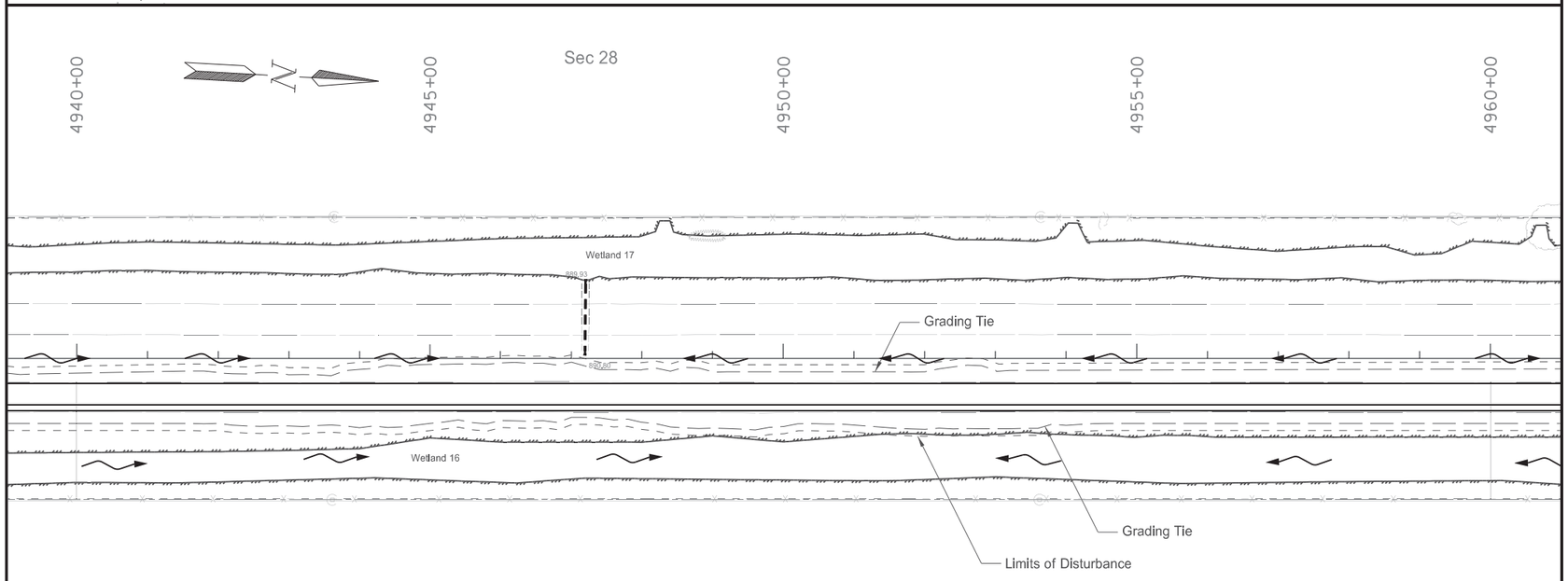
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4880+00 to Sta 4920+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	75	12





Permanent Wetland Impacts

Temporary Wetland Impacts

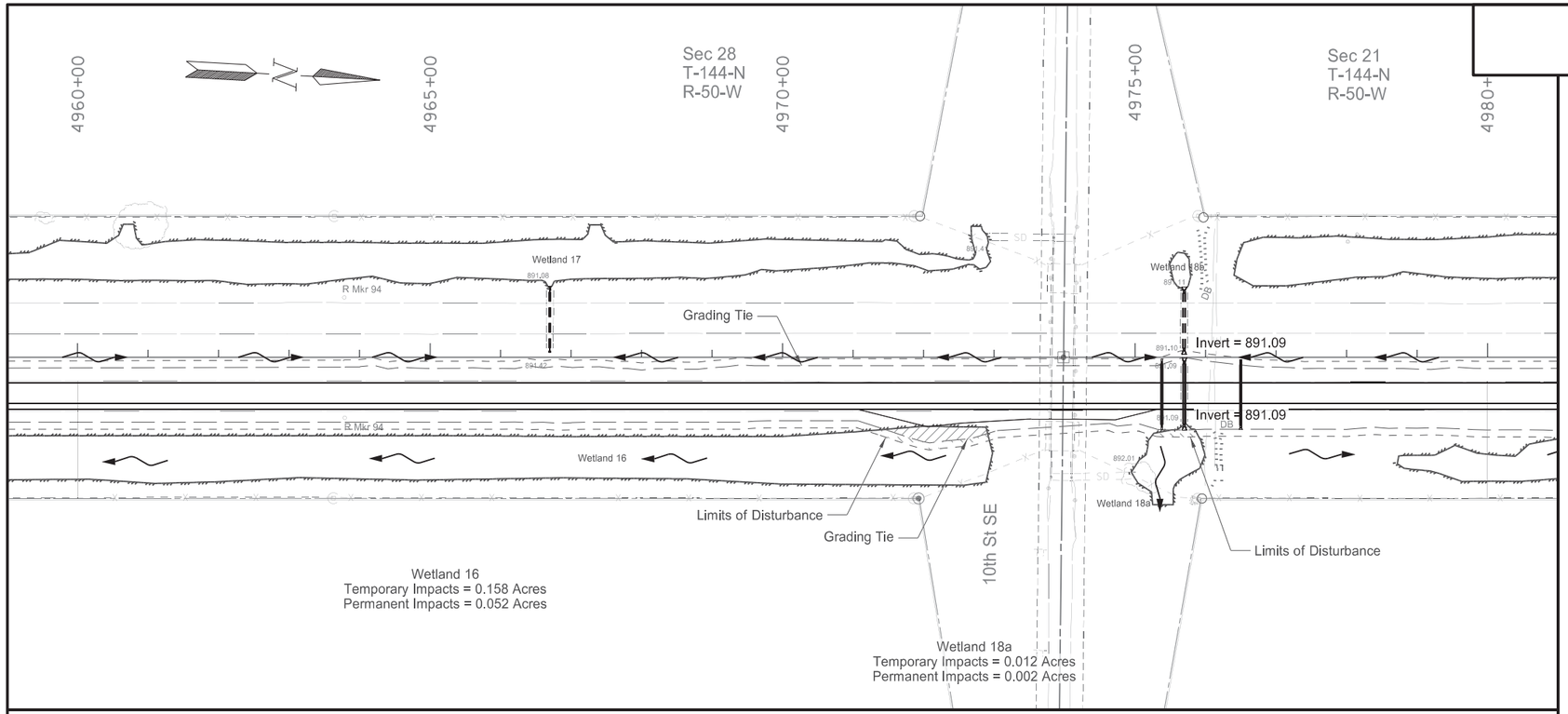
Mitigated Wetland

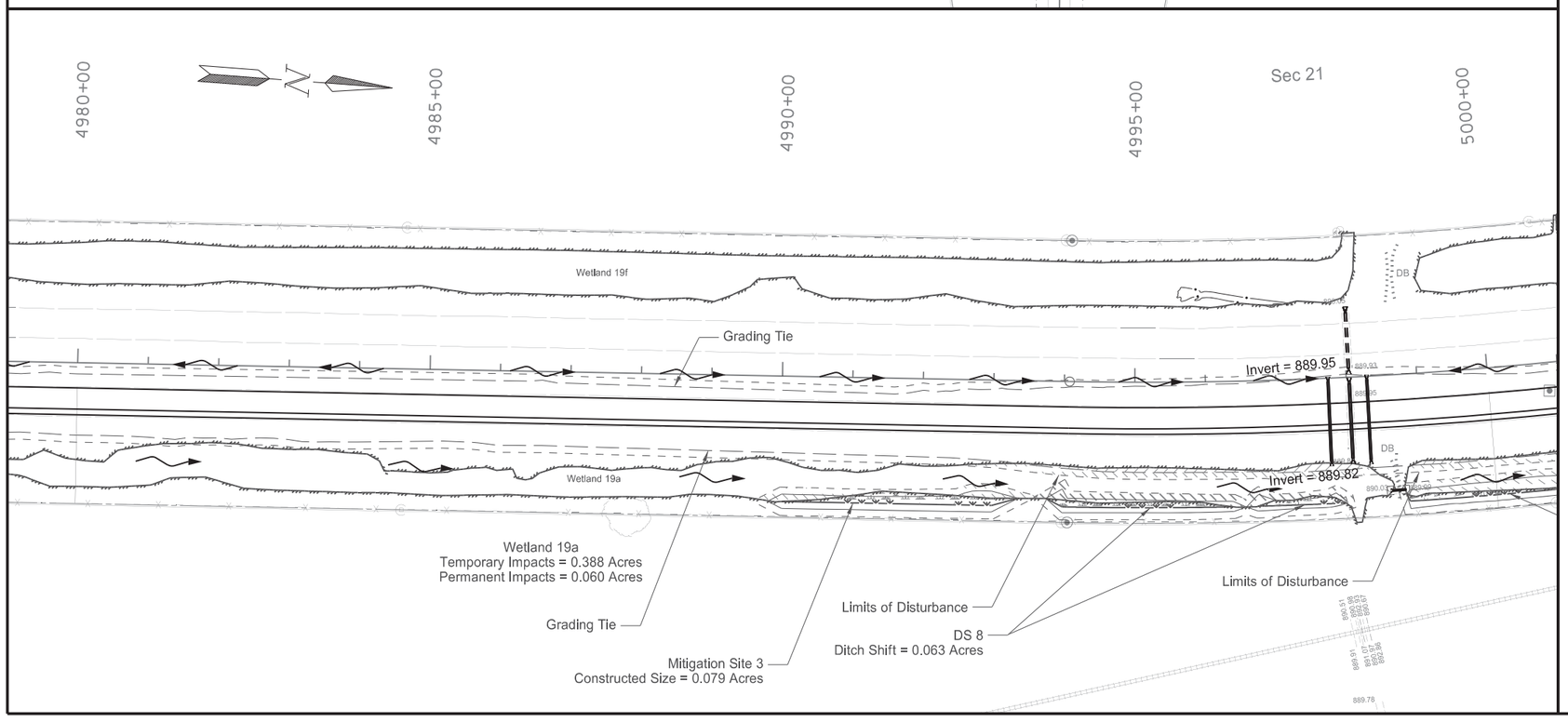
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact Sheet
Sta 4920+00 to Sta 4960+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	75	13





Permanent Wetland Impacts

Temporary Wetland Impacts

Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 4960+00 to Sta 5000+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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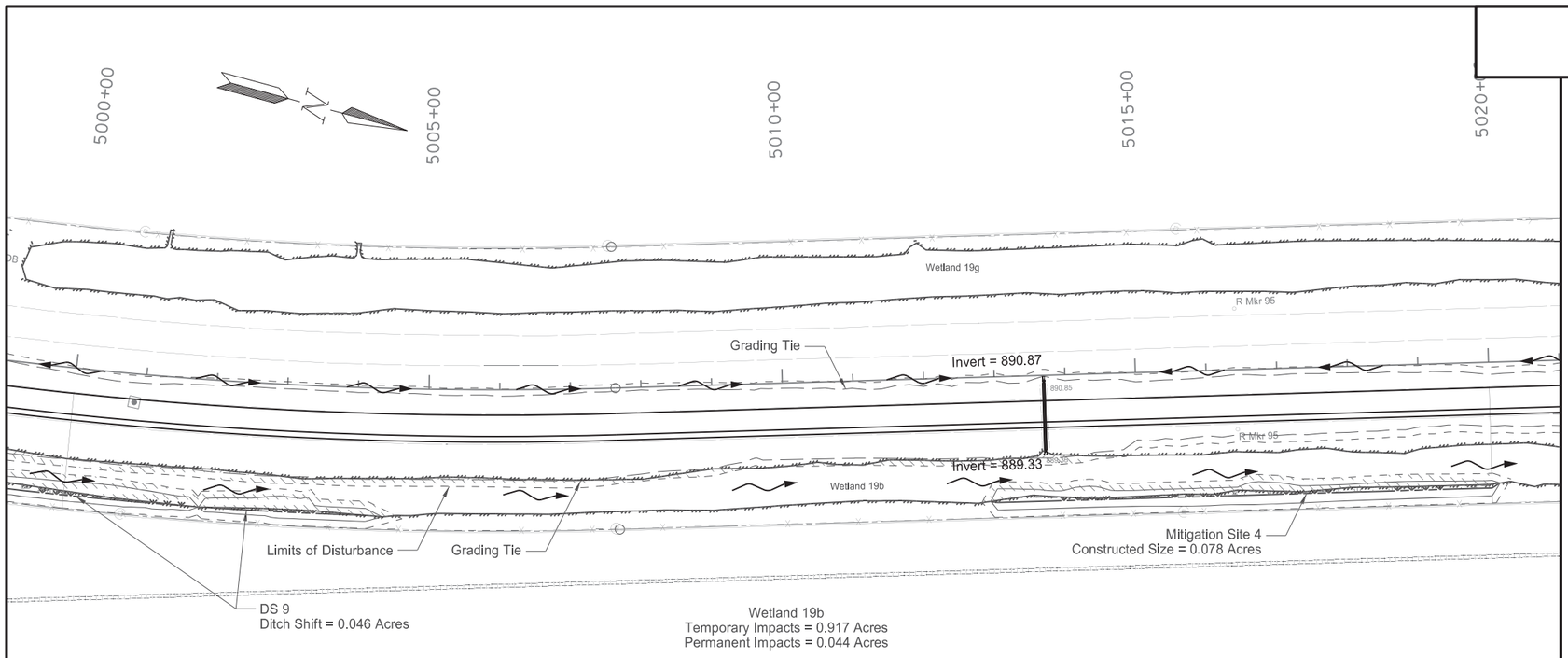

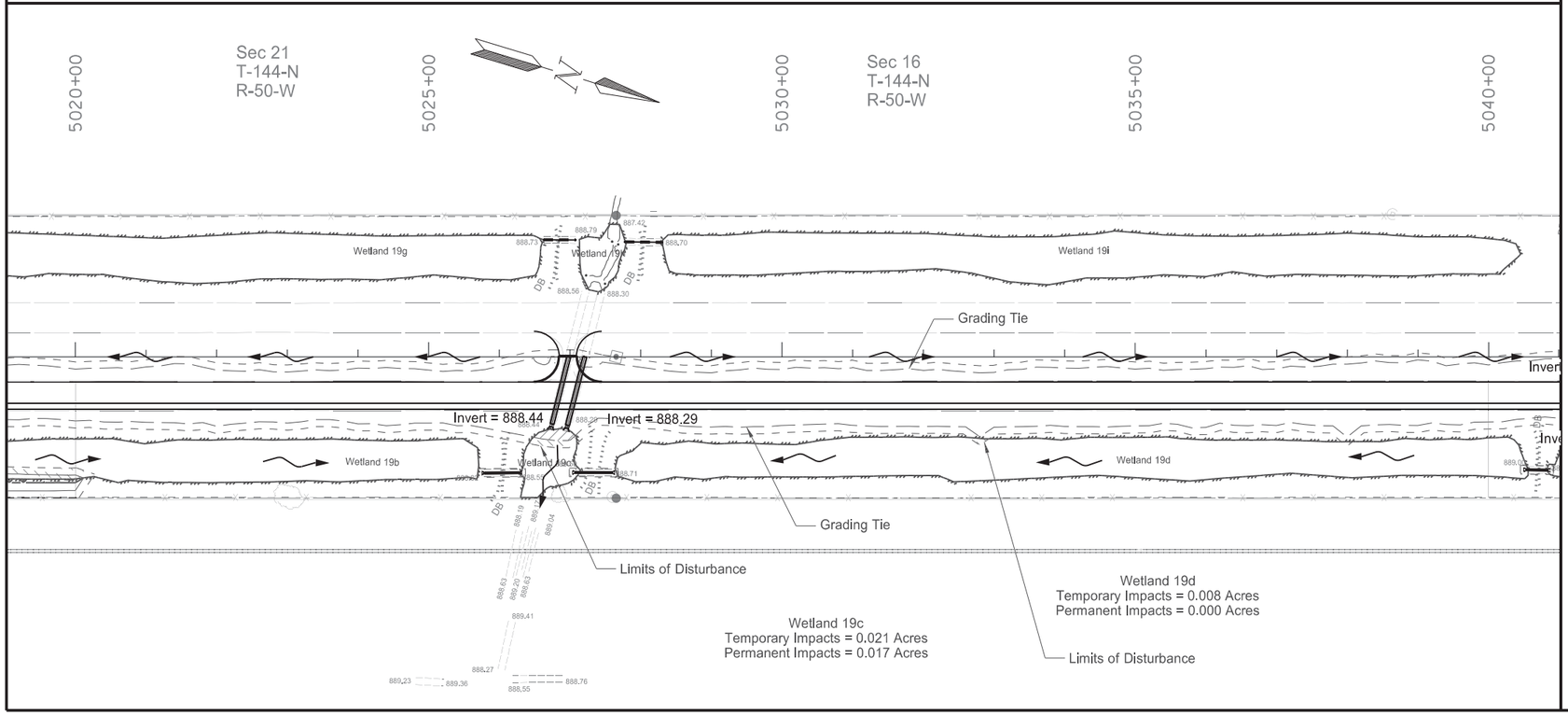

Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5000+00 to Sta 5040+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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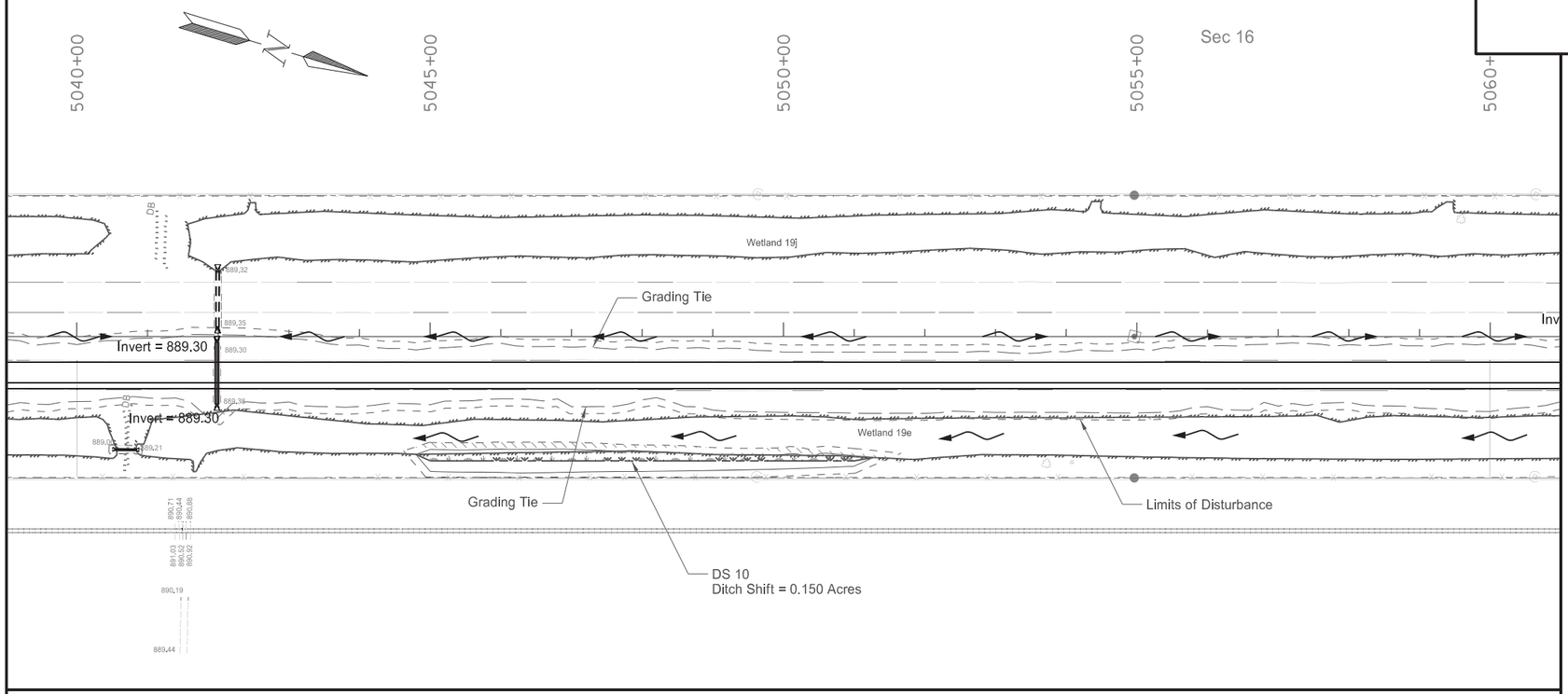
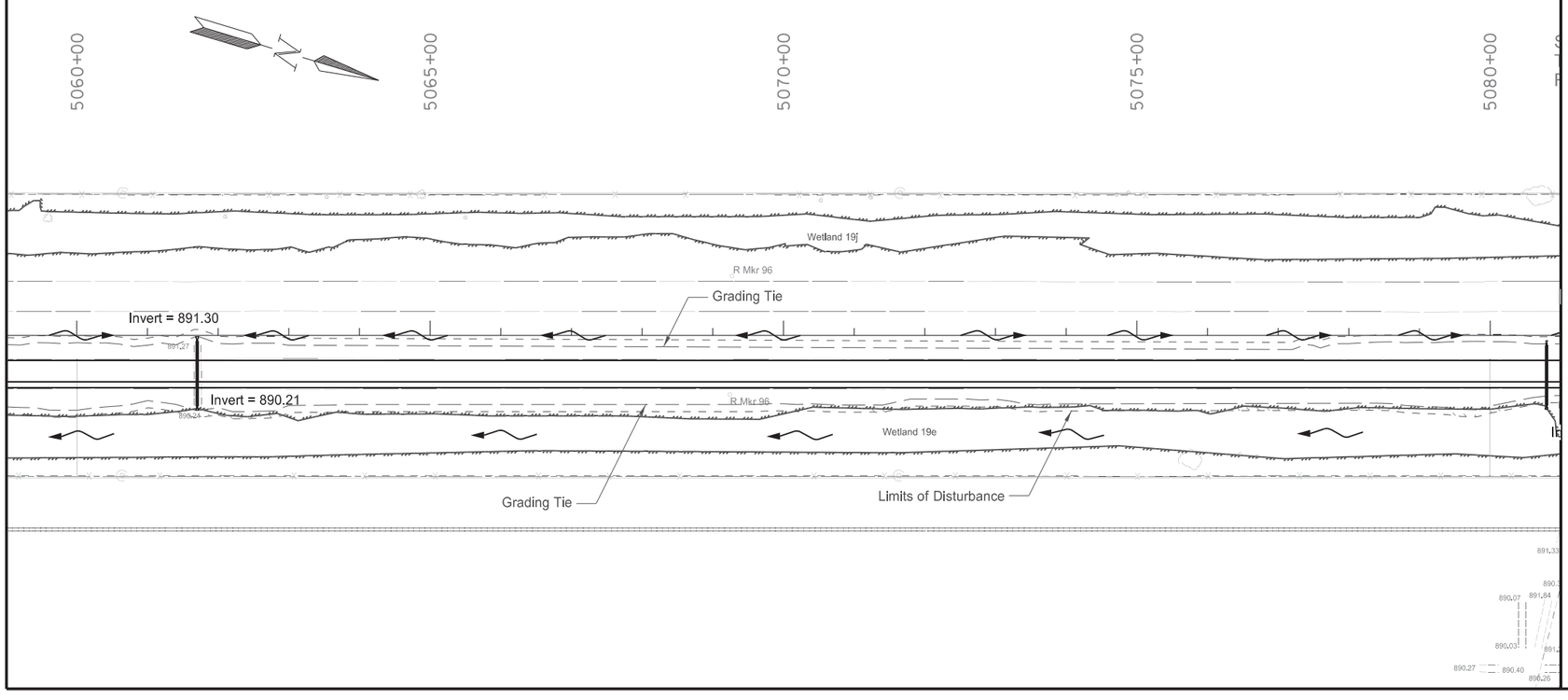




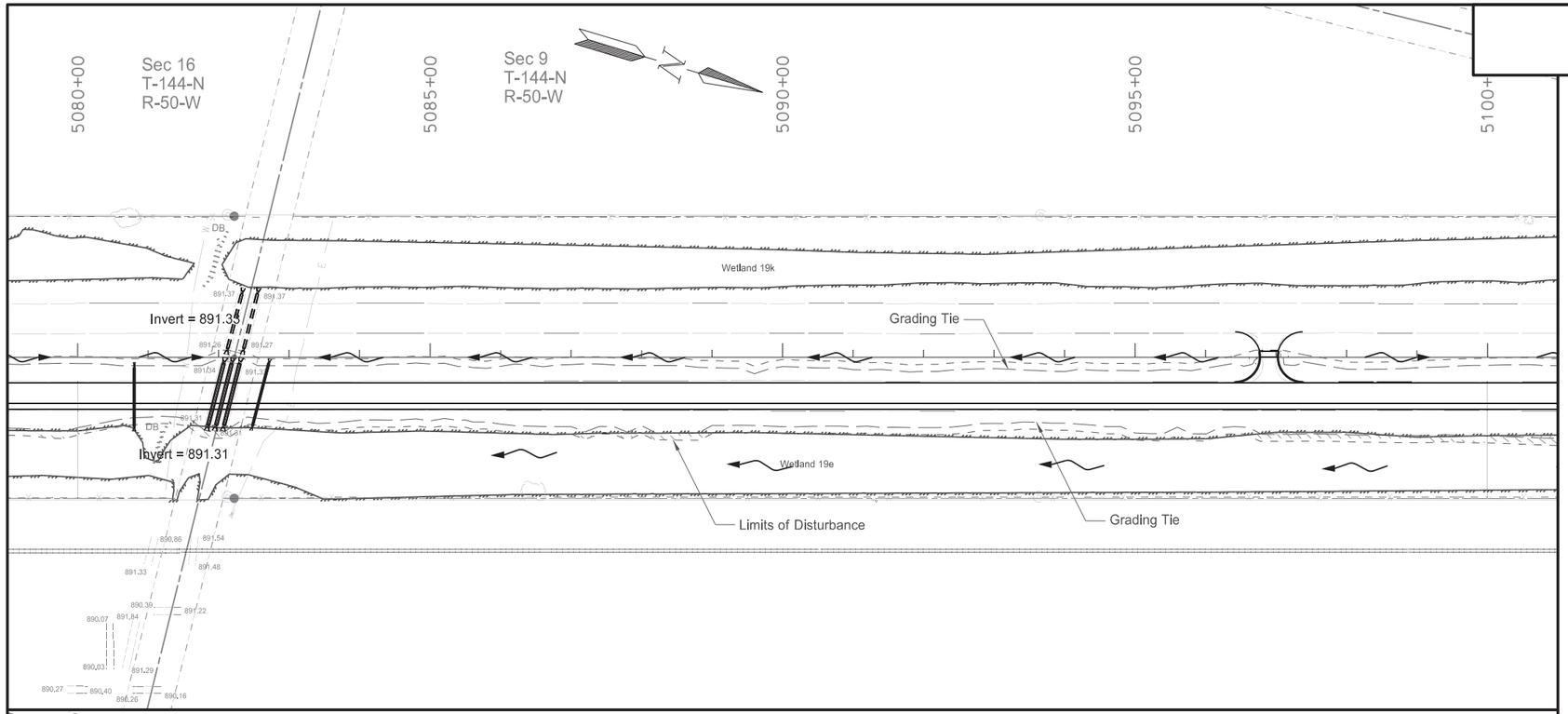
Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

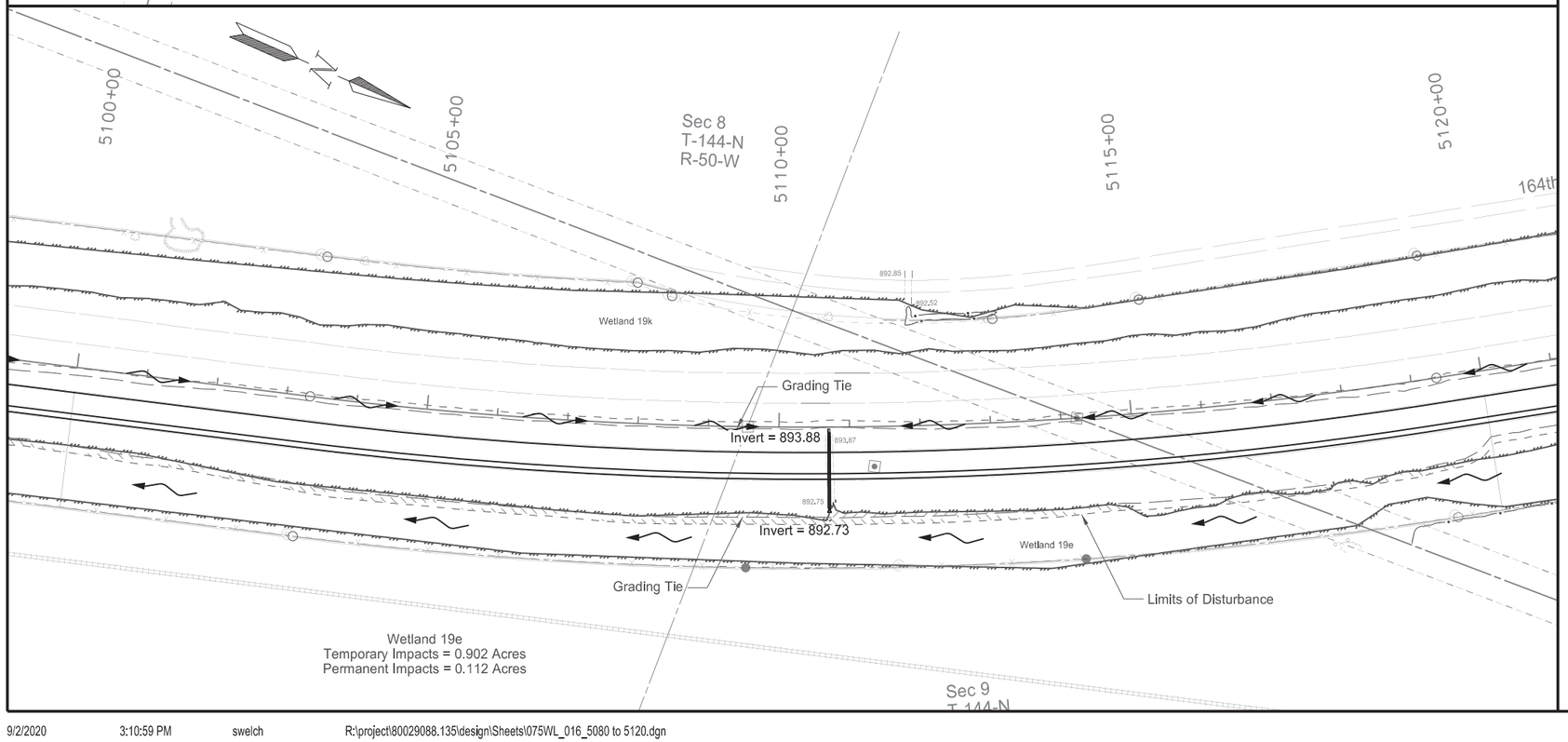
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5040+00 to Sta 5080+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	75	16





Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5080+00 to Sta 5120+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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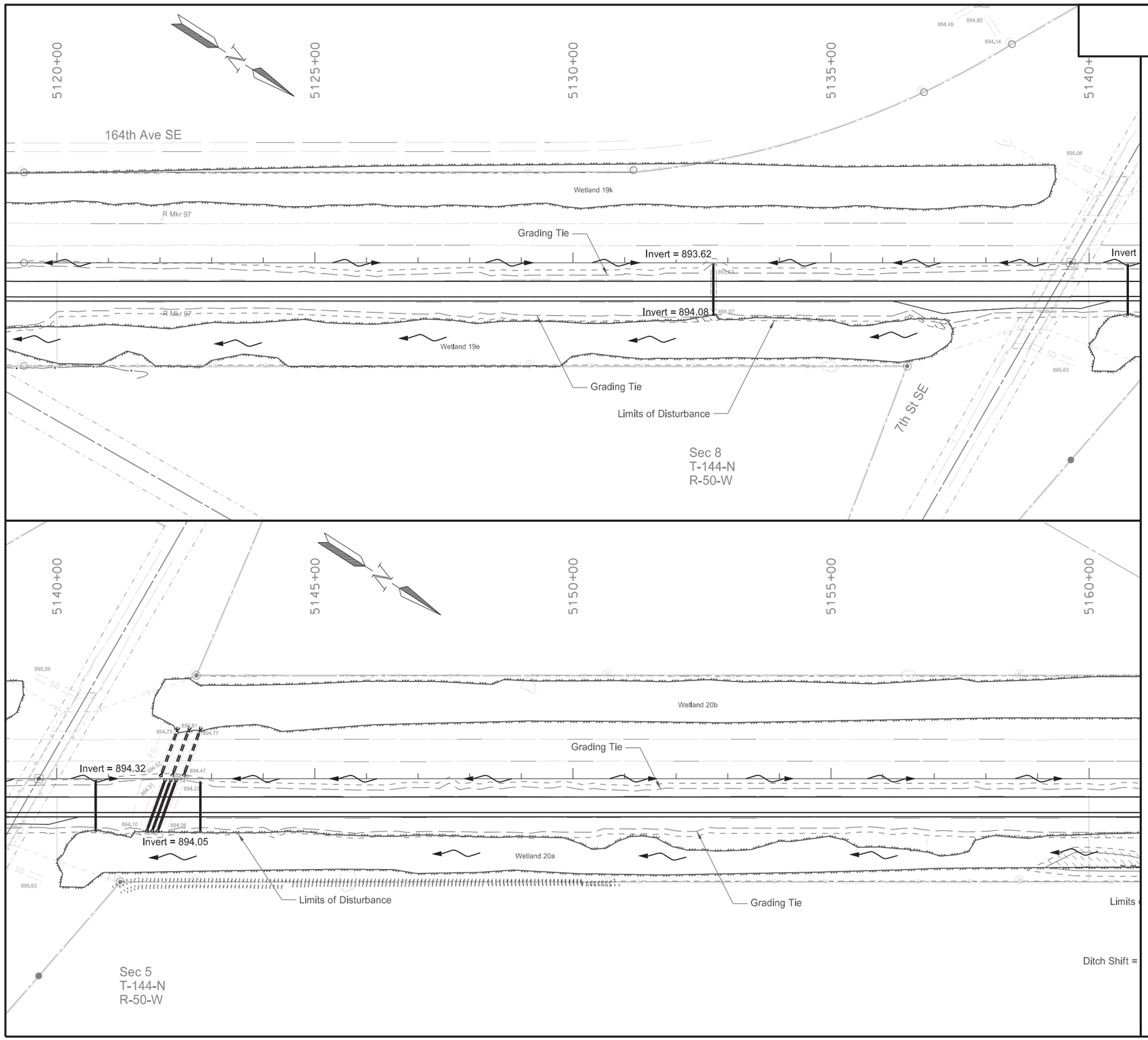

Permanent Wetland Impacts

Temporary Wetland Impacts

Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5120+00 to Sta 5160+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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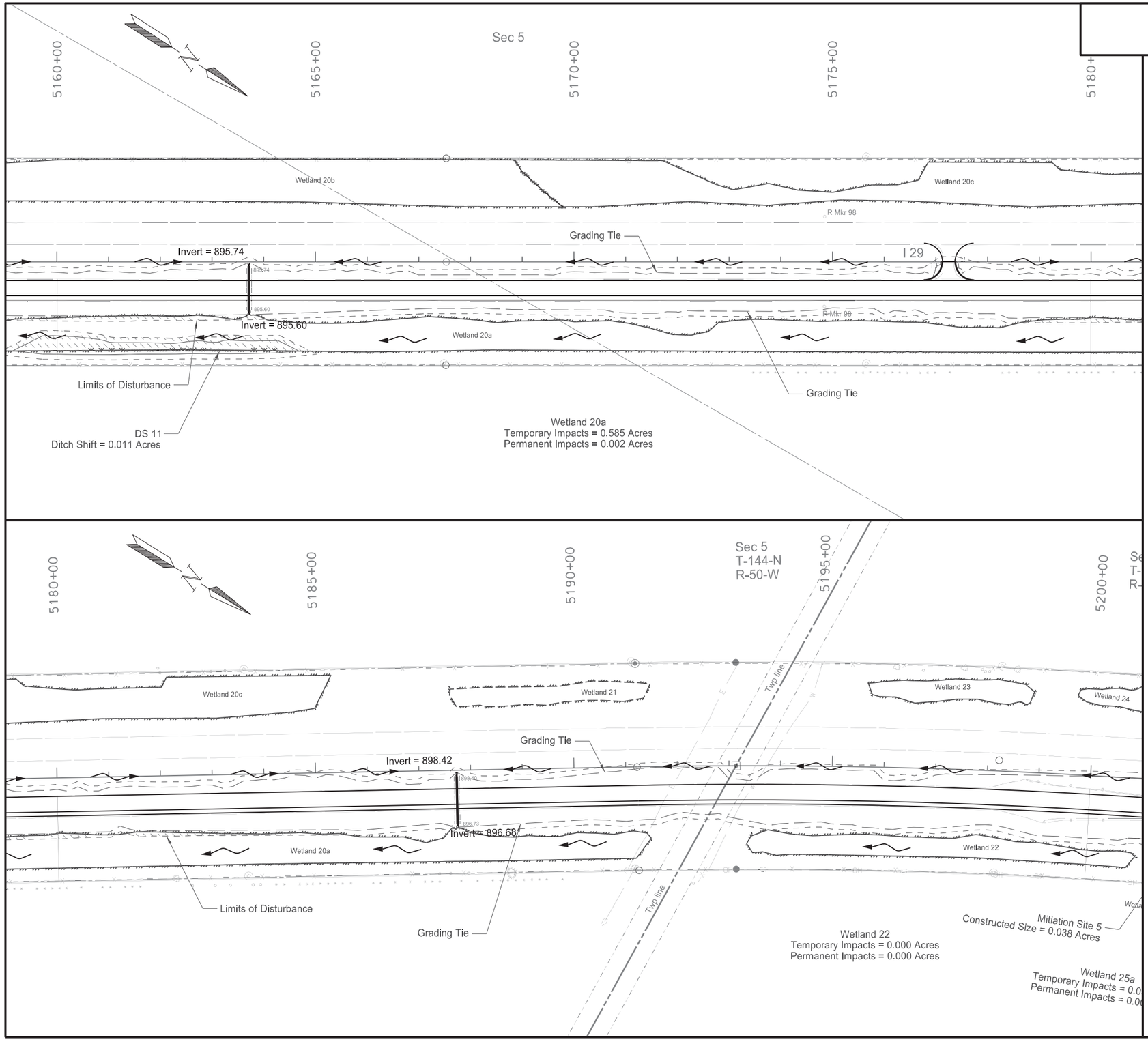

Permanent Wetland Impacts

Temporary Wetland Impacts

Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5160+00 to Sta 5200+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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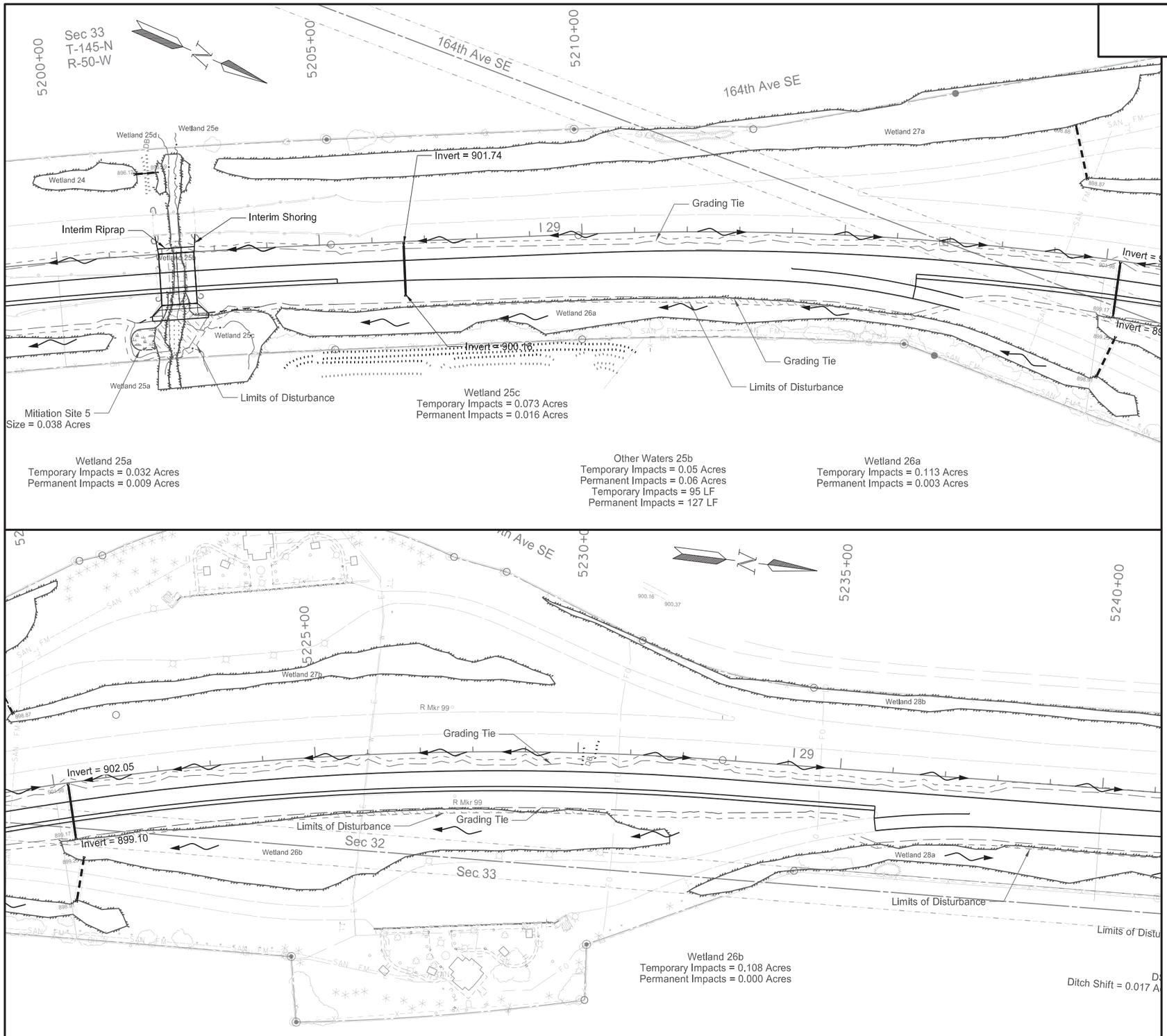


Permanent Wetland Impacts

Temporary Wetland Impacts

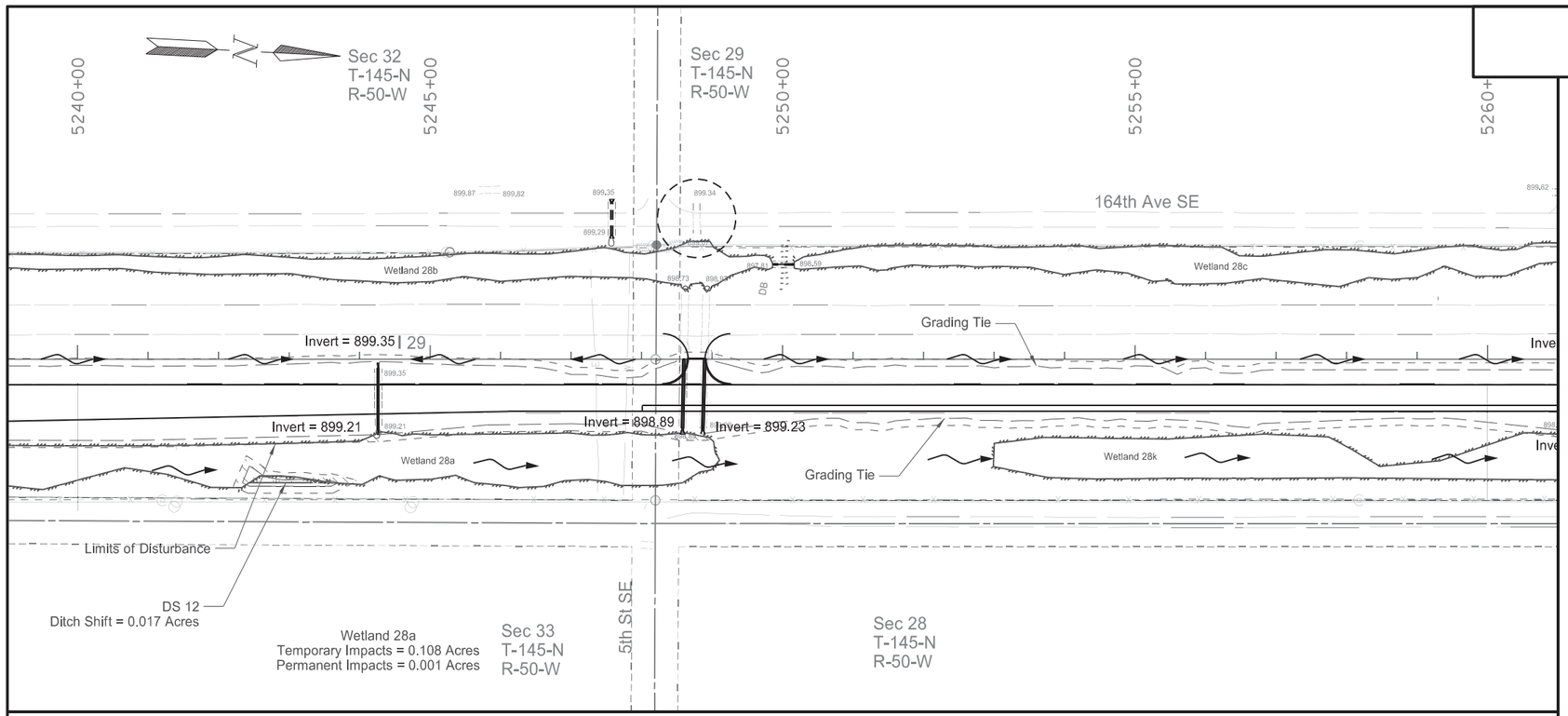
Mitigated Wetland

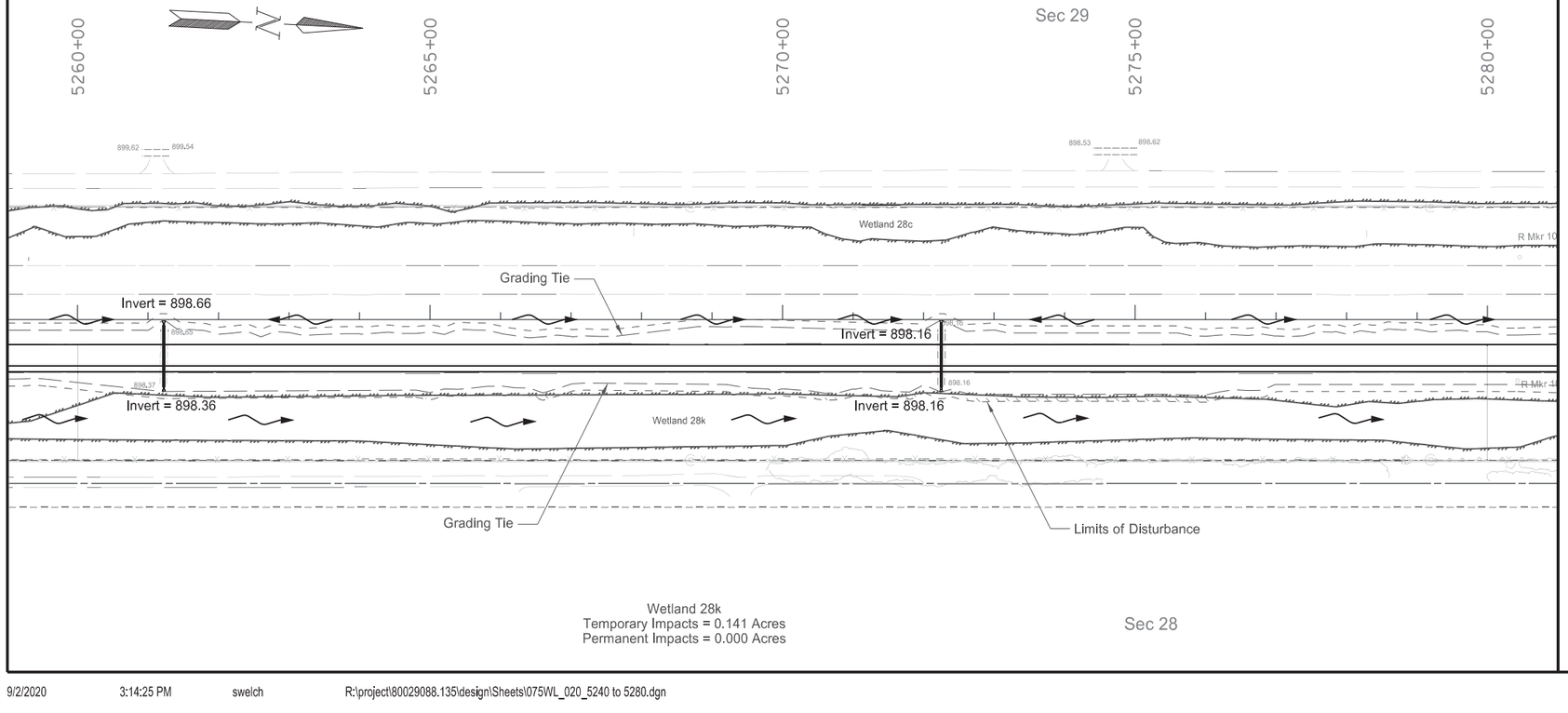
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5200+00 to Sta 5240+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	75	20





Permanent Wetland Impacts

Temporary Wetland Impacts

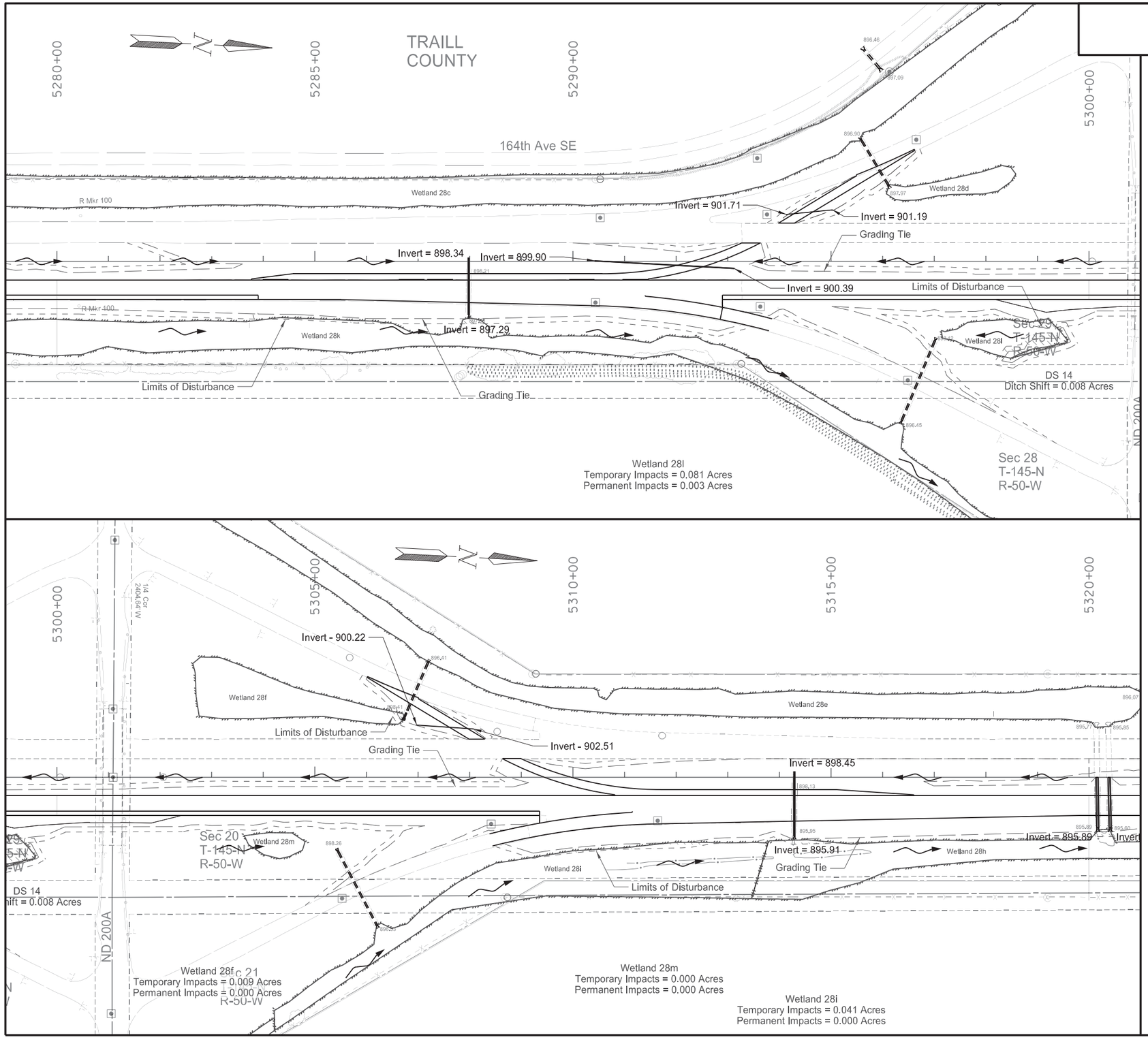
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5240+00 to Sta 5280+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	75	21



Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5280+00 to Sta 5320+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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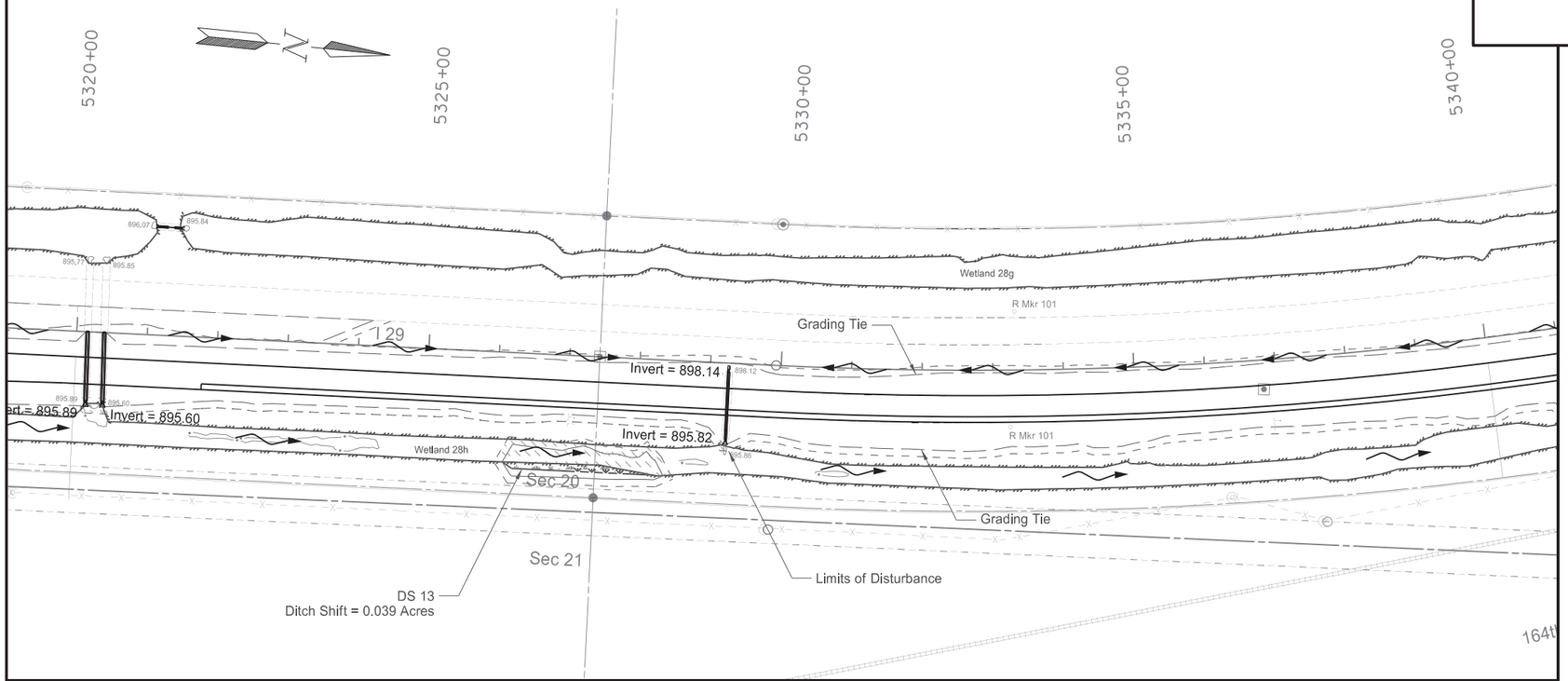
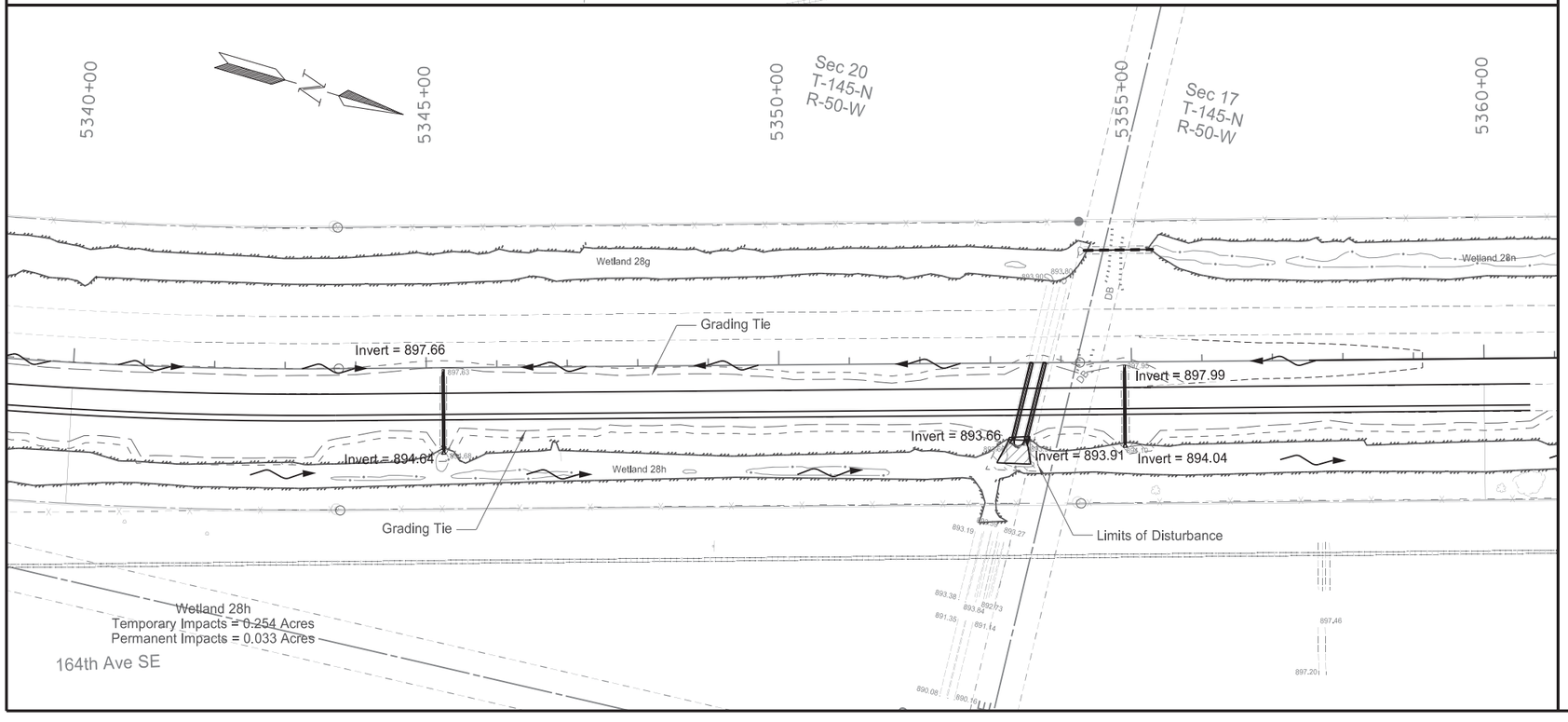




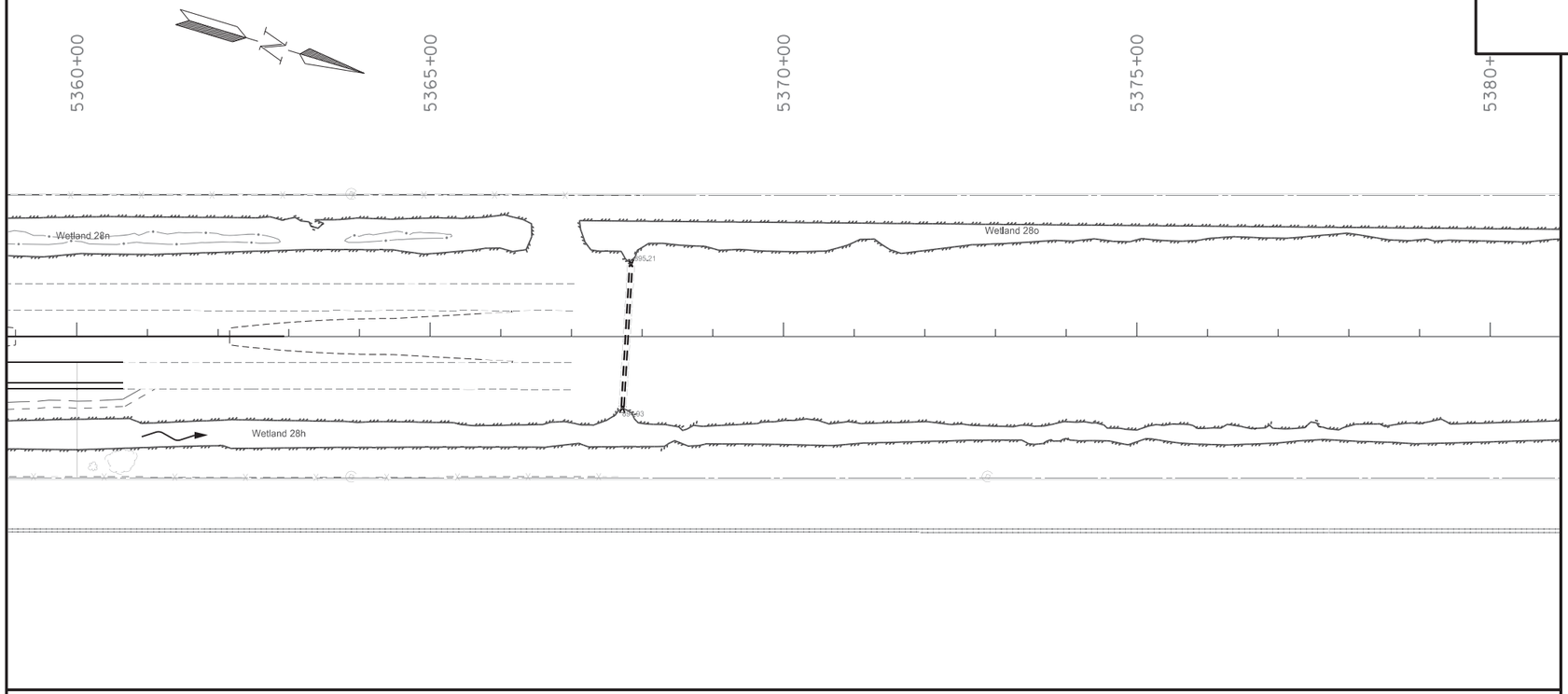
Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

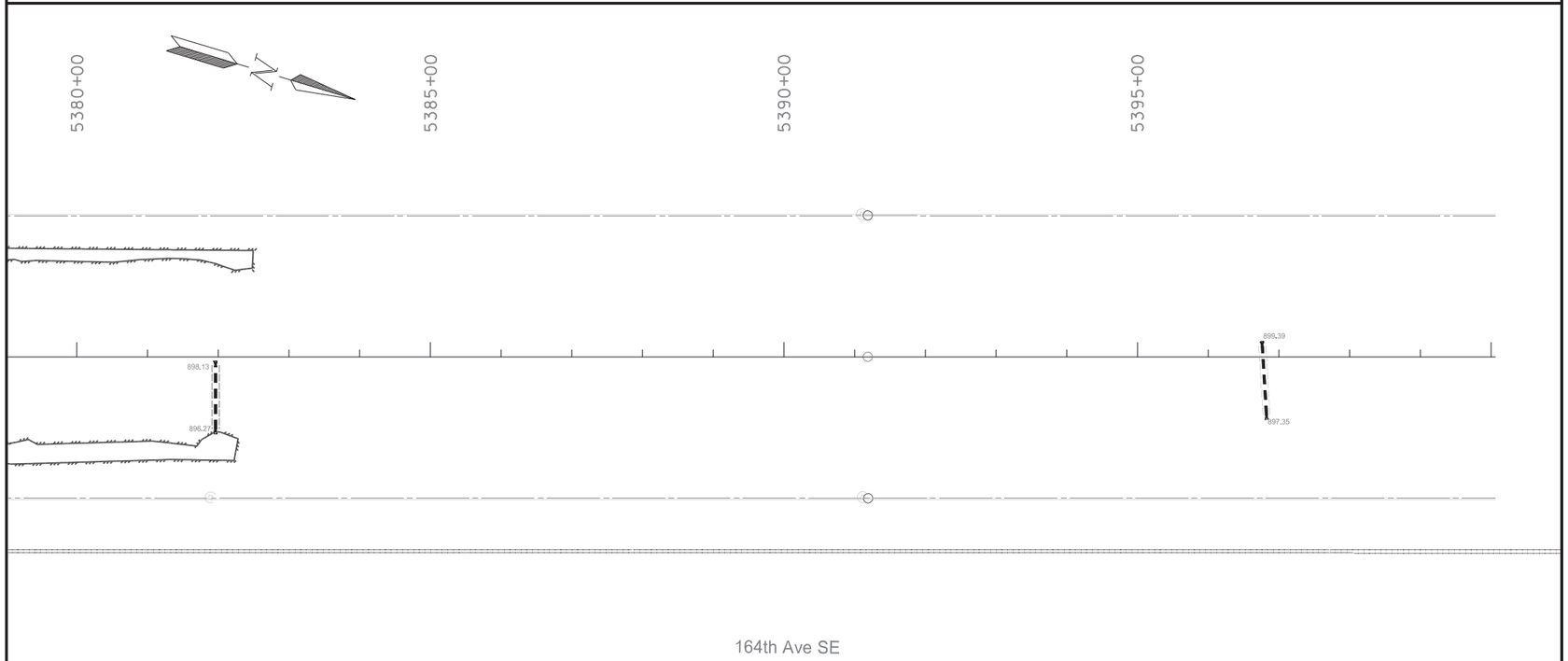
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5320+00 to Sta 5360+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	75	23





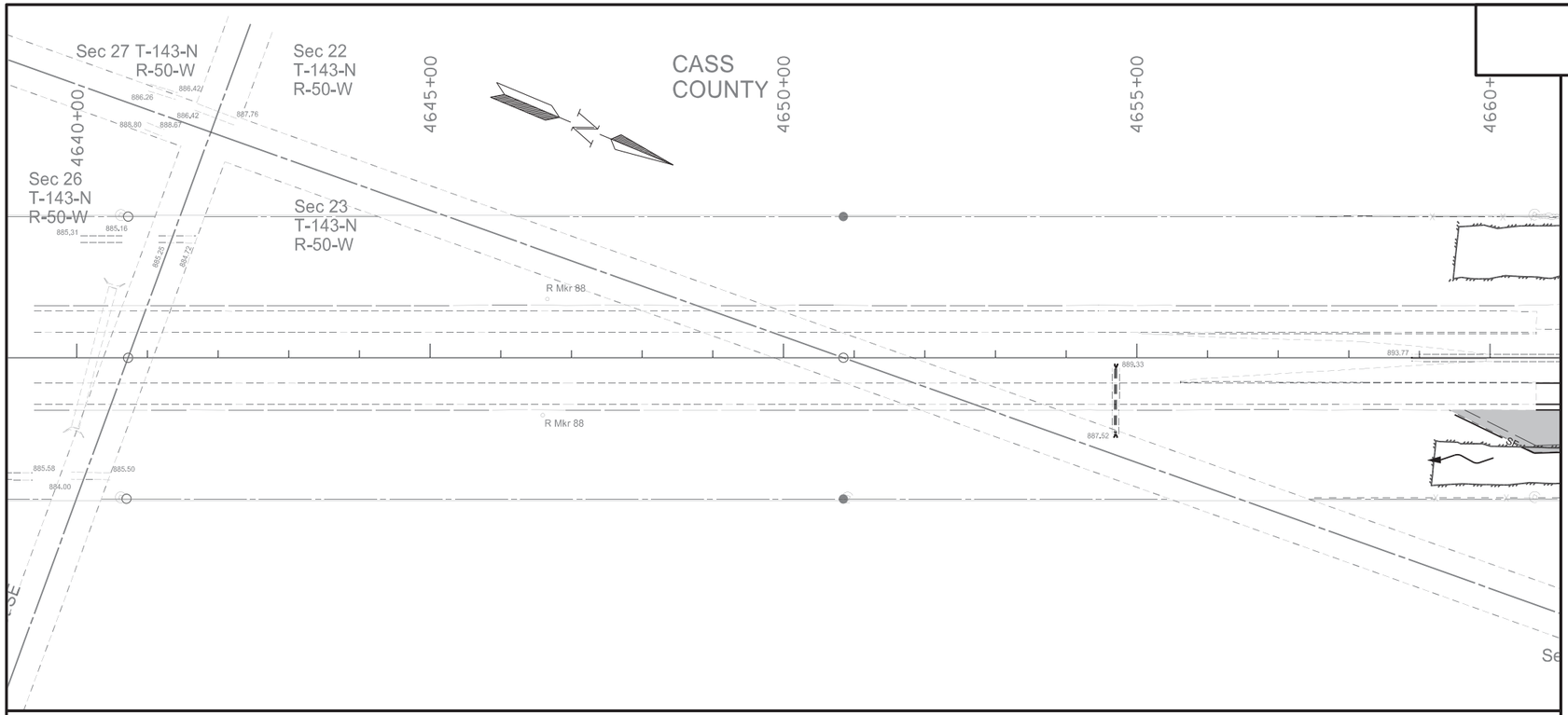
Permanent Wetland Impacts
Temporary Wetland Impacts
Mitigated Wetland

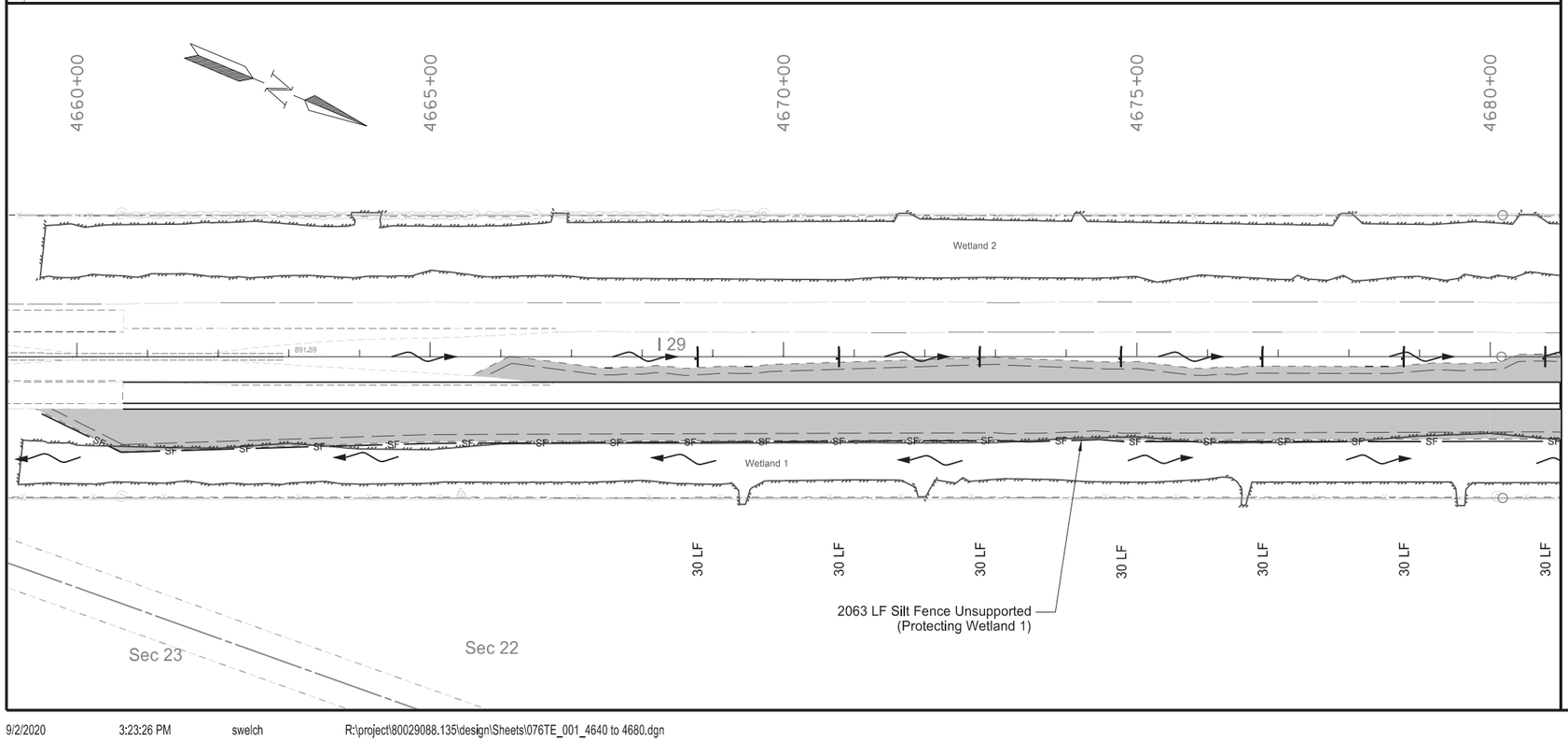
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Wetland Impact & Mitigation Sheet
Sta 5360+00 to Sta 5400+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	76	1





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**2000**	**TEMPORARY COVER CROP**		
		Beginning Project to Sta 4680+00	ACRE	3.0
253	**0101**	**STRAW MULCH**		
		Beginning Project to Sta 4680+00	ACRE	3.0
260	**0100**	**SILT FENCE UNSUPPORTED**		
		Protecting Wetland 1	LF	2063
260	**0101**	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetland 1	LF	2063
261	**0112**	**FIBER ROLLS 12IN**		
		Beginning Project to Sta 4680+00	LF	180
261	**0113**	**REMOVAL FIBER ROLLS 12IN**		
		Beginning Project to Sta 4680+00	LF	180

LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

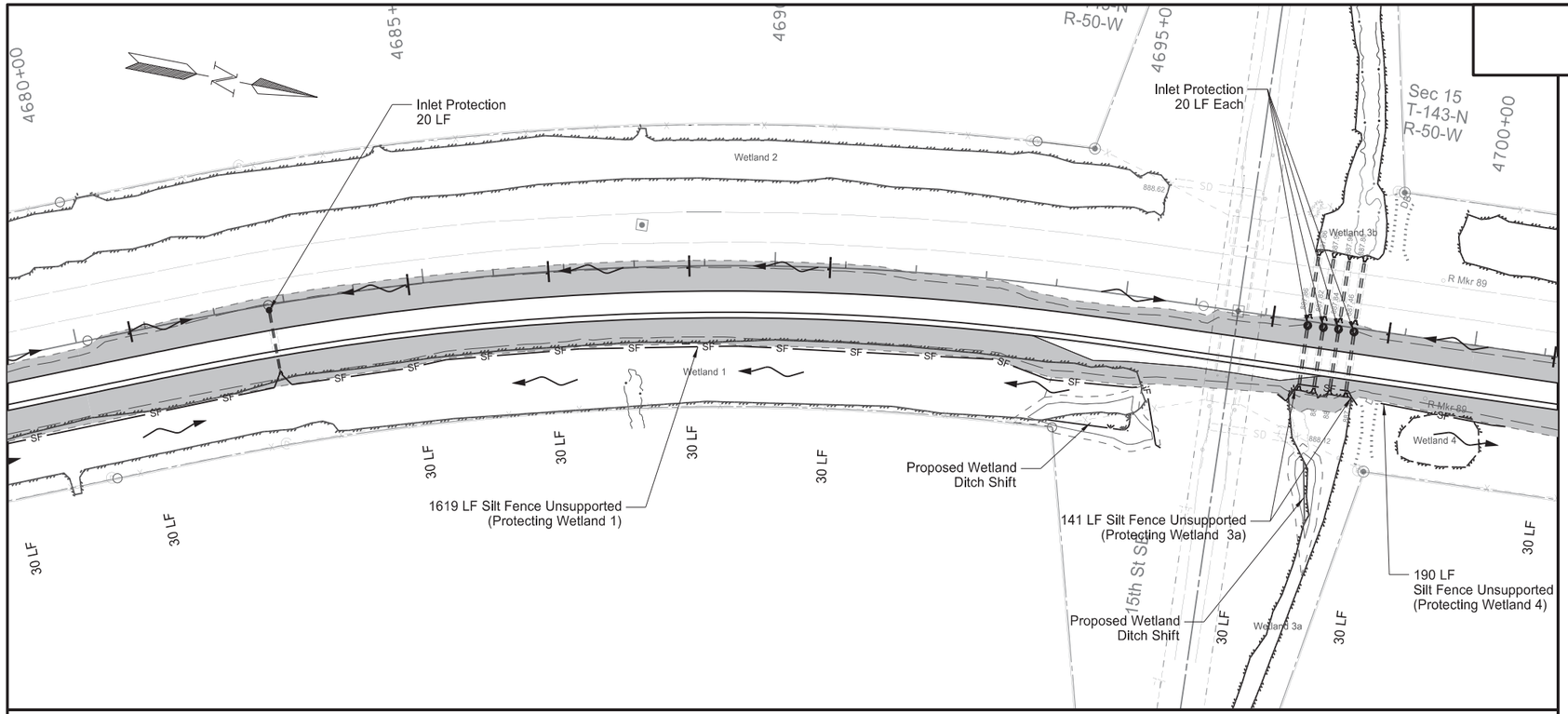
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

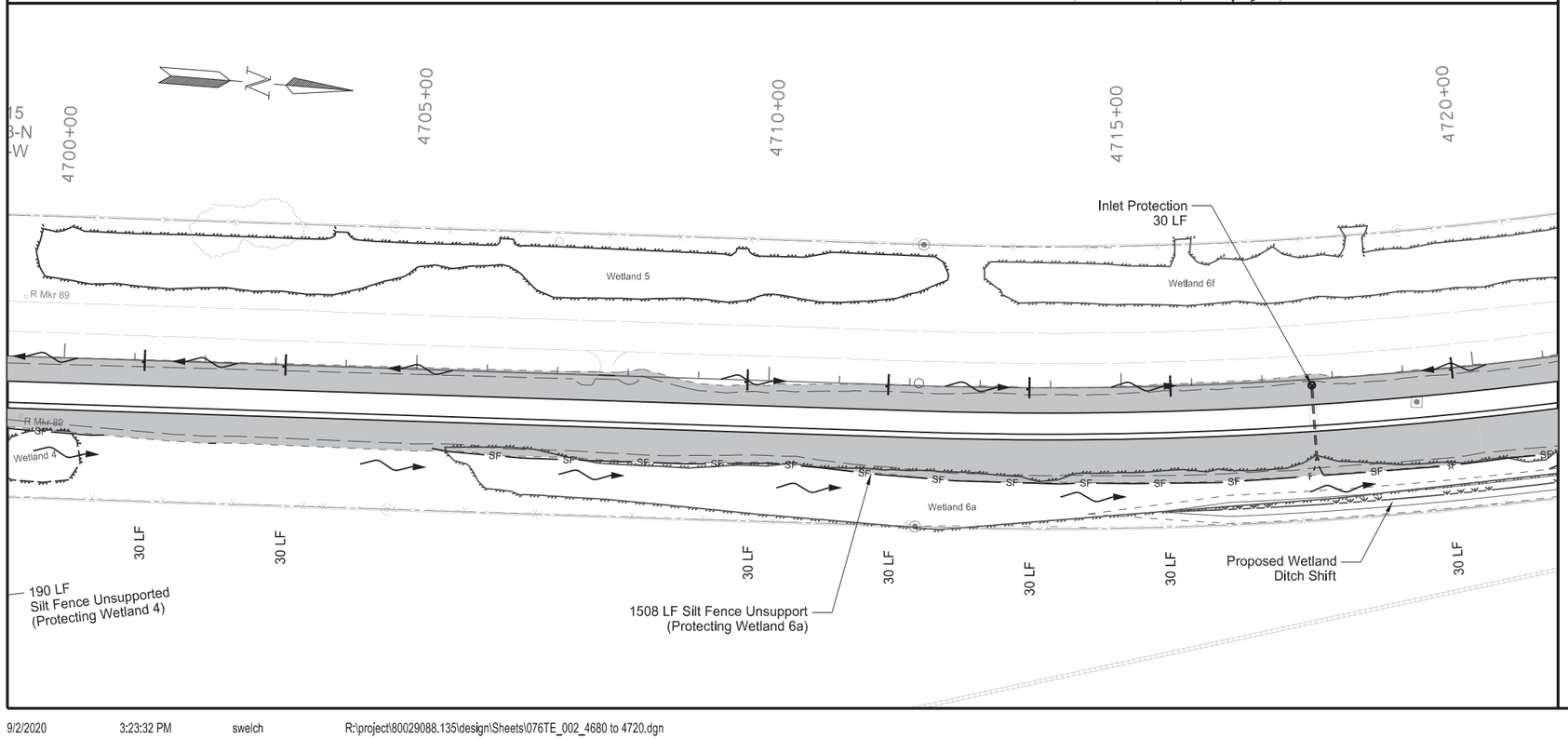
Temporary Erosion Control Sheet
Sta 4640+00 to Sta 4680+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	2

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 4680+00 to Sta 4720+00	ACRE	7.5
253	0101	**STRAW MULCH**		
		Sta 4680+00 to Sta 4720+00	ACRE	7.5
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetland 1, 3a, 4 and 6a	LF	3458
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetland 1, 3a, 4 and 6a	LF	3458
261	0112	**FIBER ROLLS 12IN**		
		Sta 4680+00 to Sta 4720+00	LF	550
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 4680+00 to Sta 4720+00	LF	550





LEGEND

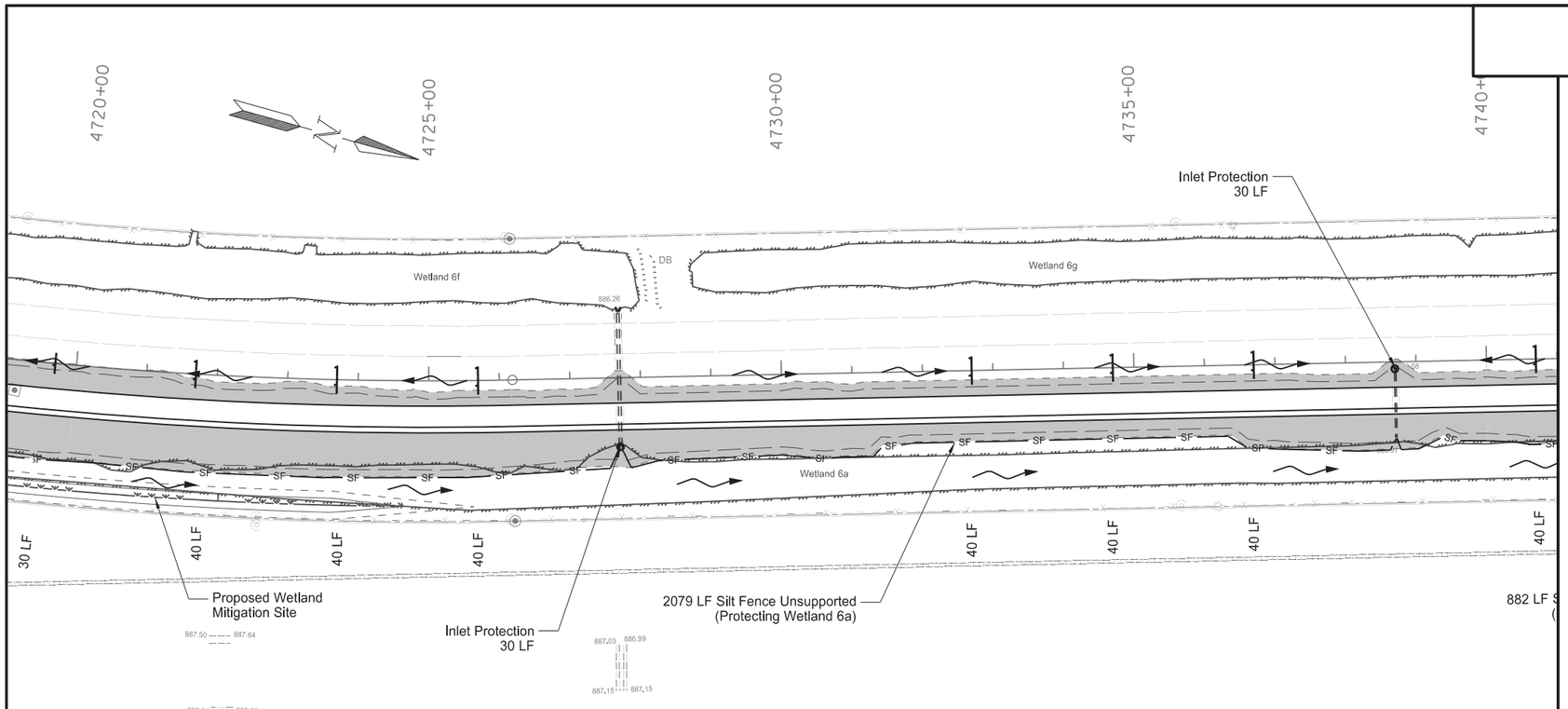
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

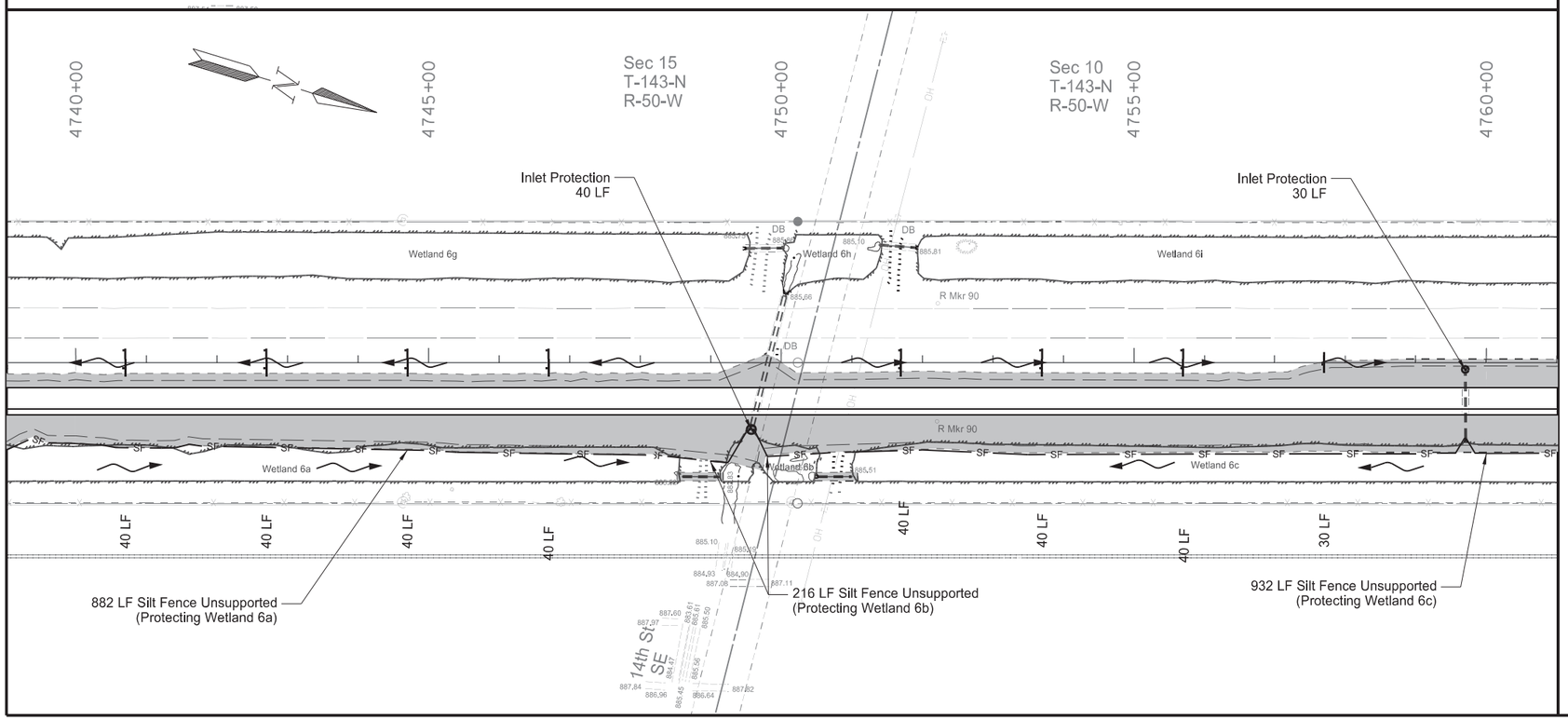
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4680+00 to Sta 4720+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	76	3





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 4720+00 to Sta 4760+00	ACRE	6.8
253	0101	**STRAW MULCH**		
		Sta 4720+00 to Sta 4760+00	ACRE	6.8
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 6a, 6b and 6c	LF	4109
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 6a, 6b and 6c	LF	4109
261	0112	**FIBER ROLLS 12IN**		
		Sta 4720+00 to Sta 4760+00	LF	680
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 4720+00 to Sta 4760+00	LF	680

LEGEND

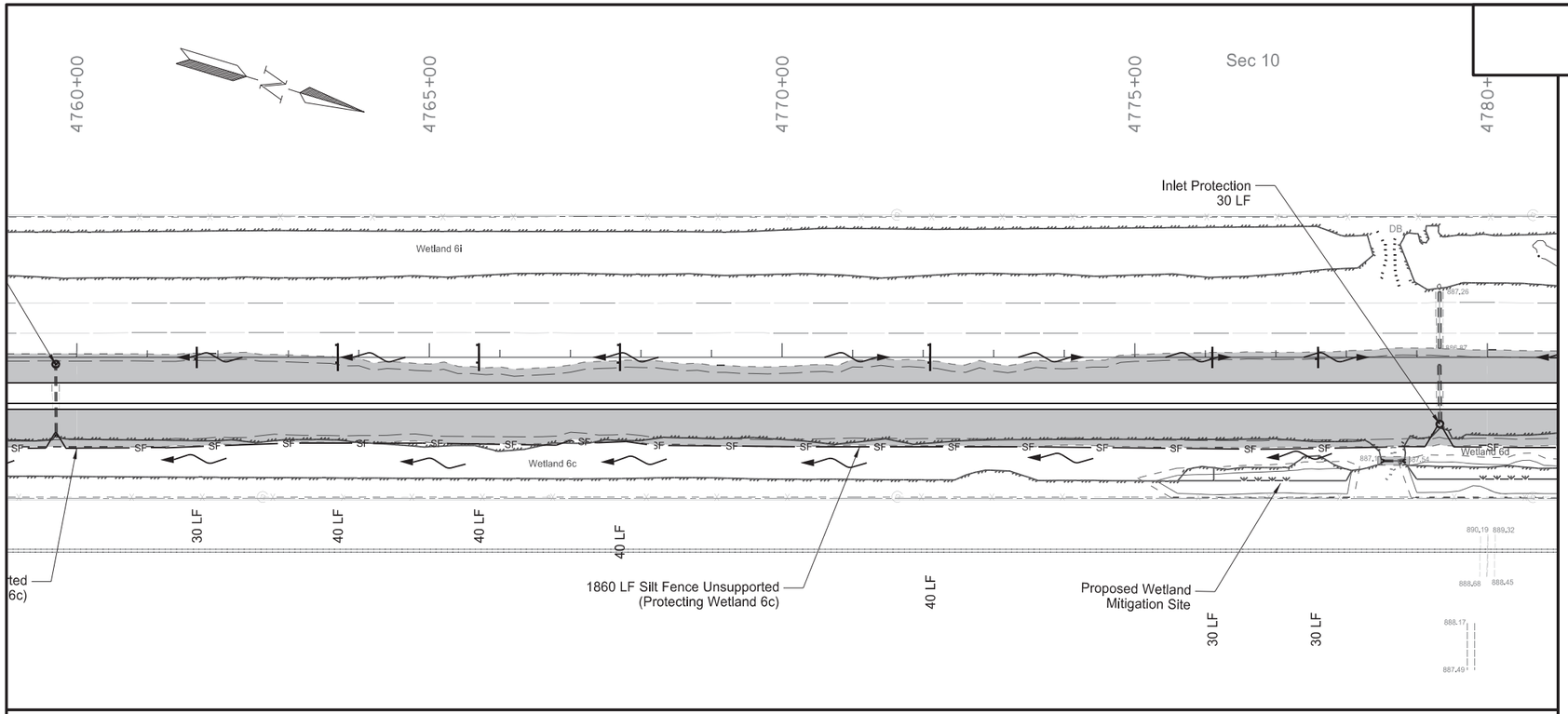
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

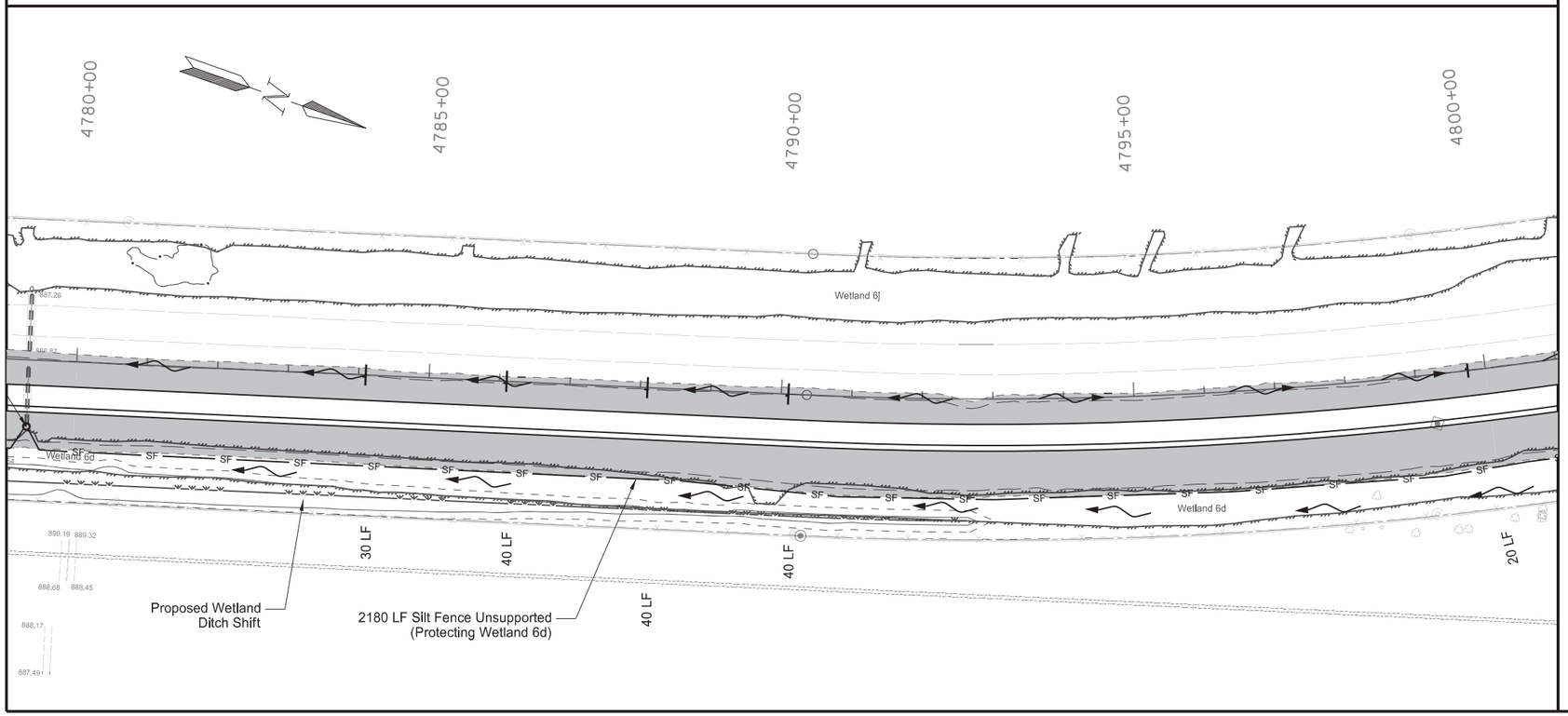
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4720+00 to Sta 4760+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	4





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 4760+00 to Sta 4800+00	ACRE	8.7
253	0101	**STRAW MULCH**		
		Sta 4760+00 to Sta 4800+00	ACRE	8.7
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 6c and 6d	LF	4040
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 6c and 6d	LF	4040
261	0112	**FIBER ROLLS 12IN**		
		Sta 4760+00 to Sta 4800+00	LF	450
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 4760+00 to Sta 4800+00	LF	450

LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4760+00 to Sta 4800+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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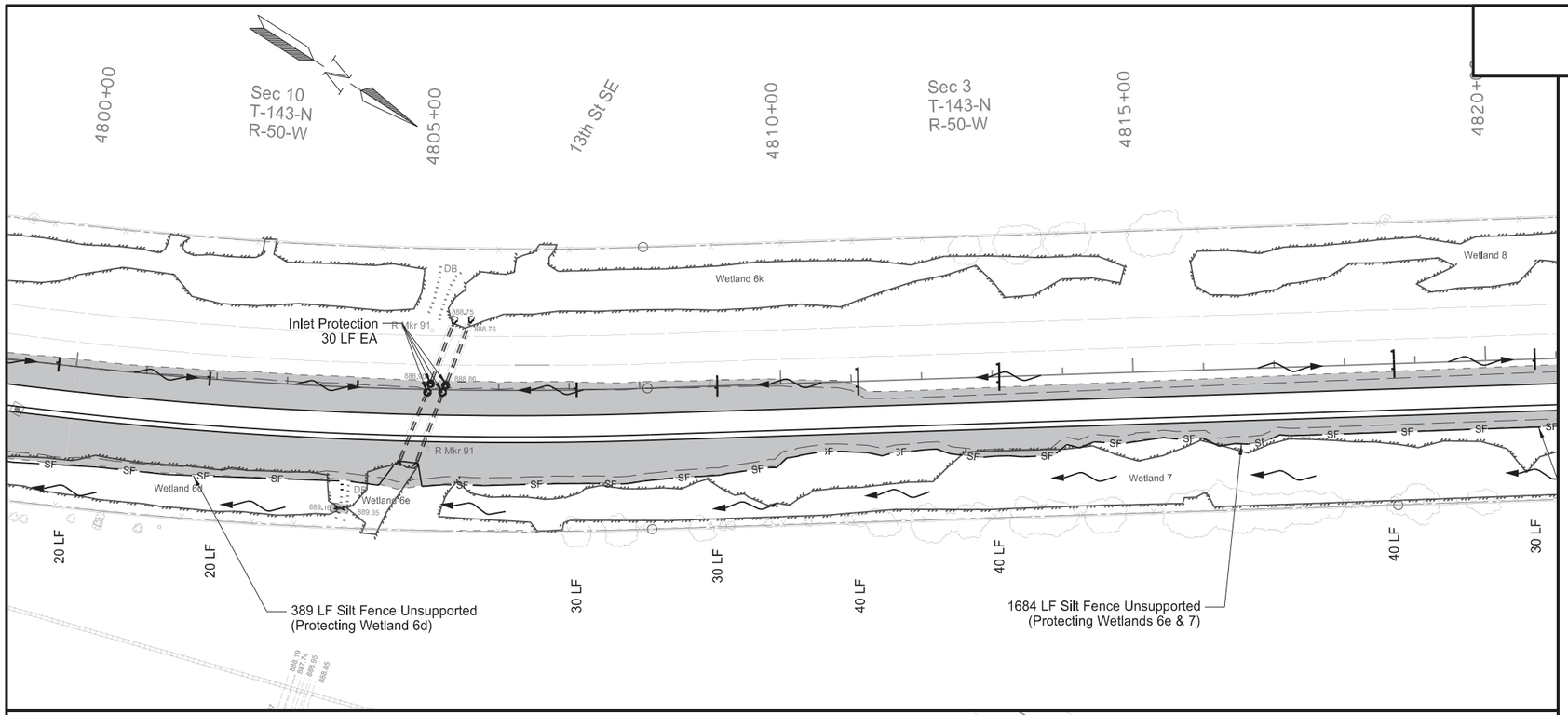
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	5



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 4800+00 to Sta 4840+00	ACRE	6.6
253	0101	**STRAW MULCH**		
		Sta 4800+00 to Sta 4840+00	ACRE	6.6
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 6d, 6e, 7, 9 and 11a	LF	3419
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 6d, 6e, 7, 9 and 11a	LF	3419
261	0112	**FIBER ROLLS 12IN**		
		Sta 4800+00 to Sta 4840+00	LF	560
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 4800+00 to Sta 4840+00	LF	560

LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

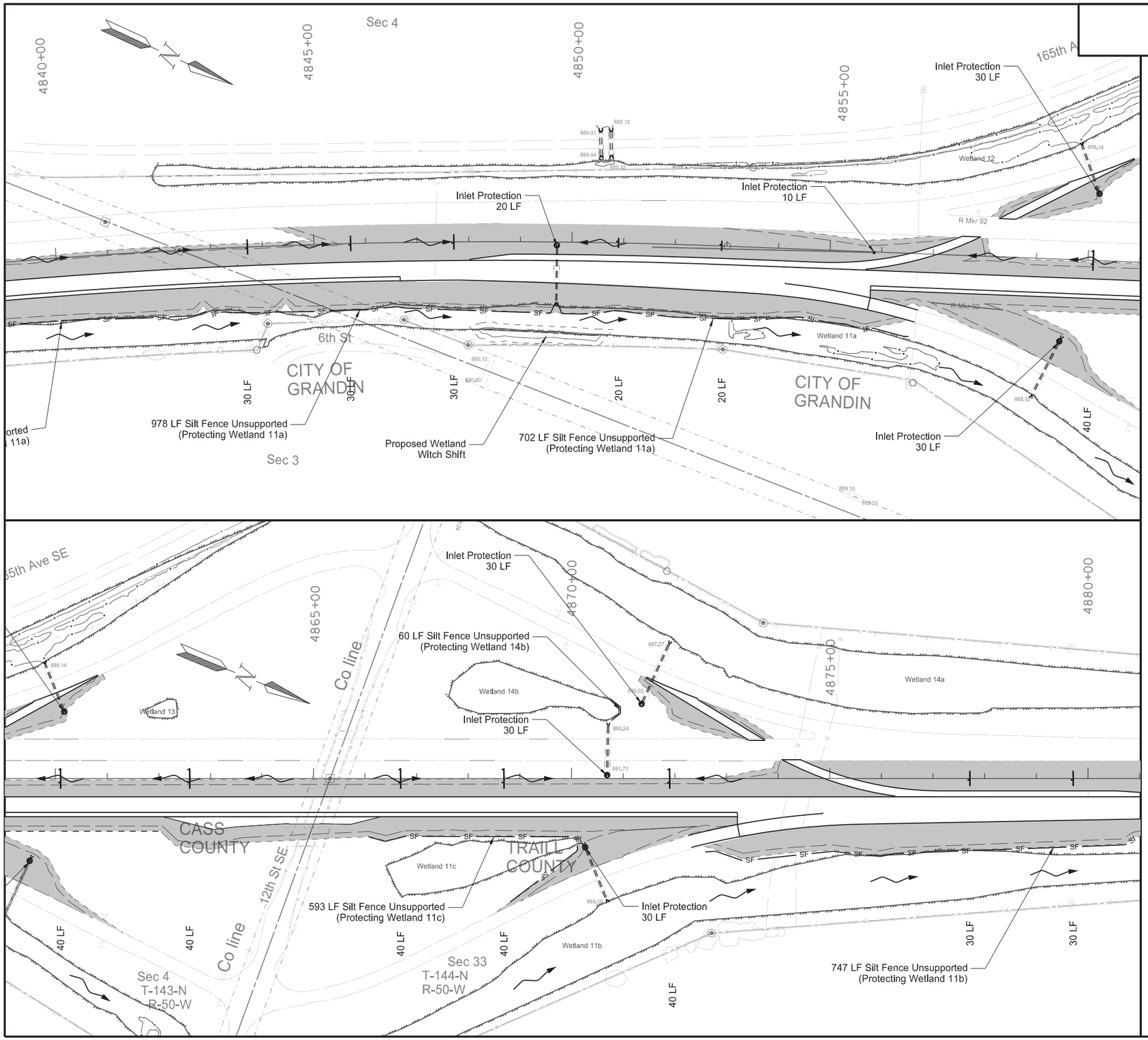
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4800+00 to Sta 4840+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	6

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	TEMPORARY COVER CROP		
		Sta 4840+00 to Sta 4880+00	ACRE	9.4
253	0101	STRAW MULCH		
		Sta 4840+00 to Sta 4880+00	ACRE	9.4
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetlands 11a, 11, 11c and 14b	LF	3080
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetlands 11a, 11, 11c and 14b	LF	3080
261	0112	FIBER ROLLS 12IN		
		Sta 4840+00 to Sta 4880+00	LF	570
261	0113	REMOVAL FIBER ROLLS 12IN		
		Sta 4840+00 to Sta 4880+00	LF	570



LEGEND

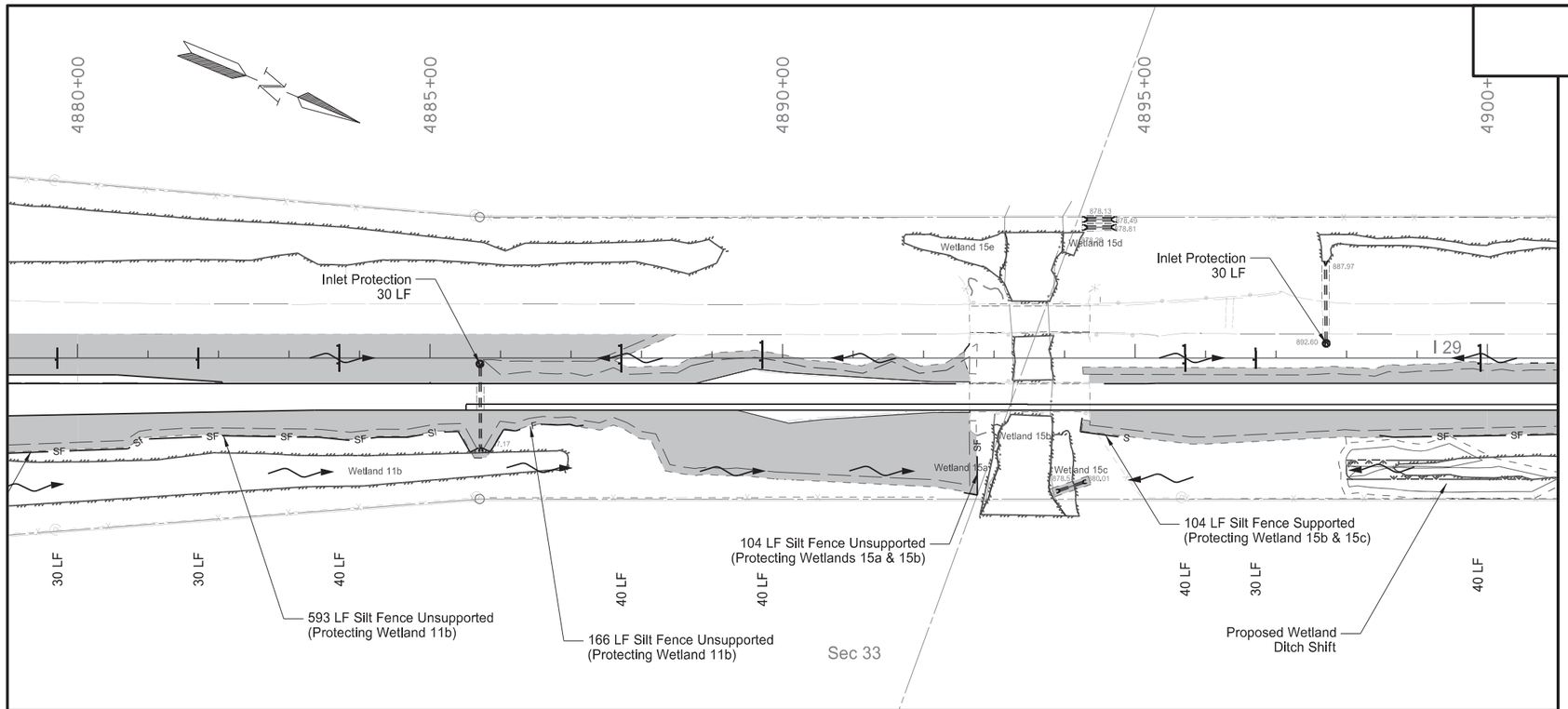
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

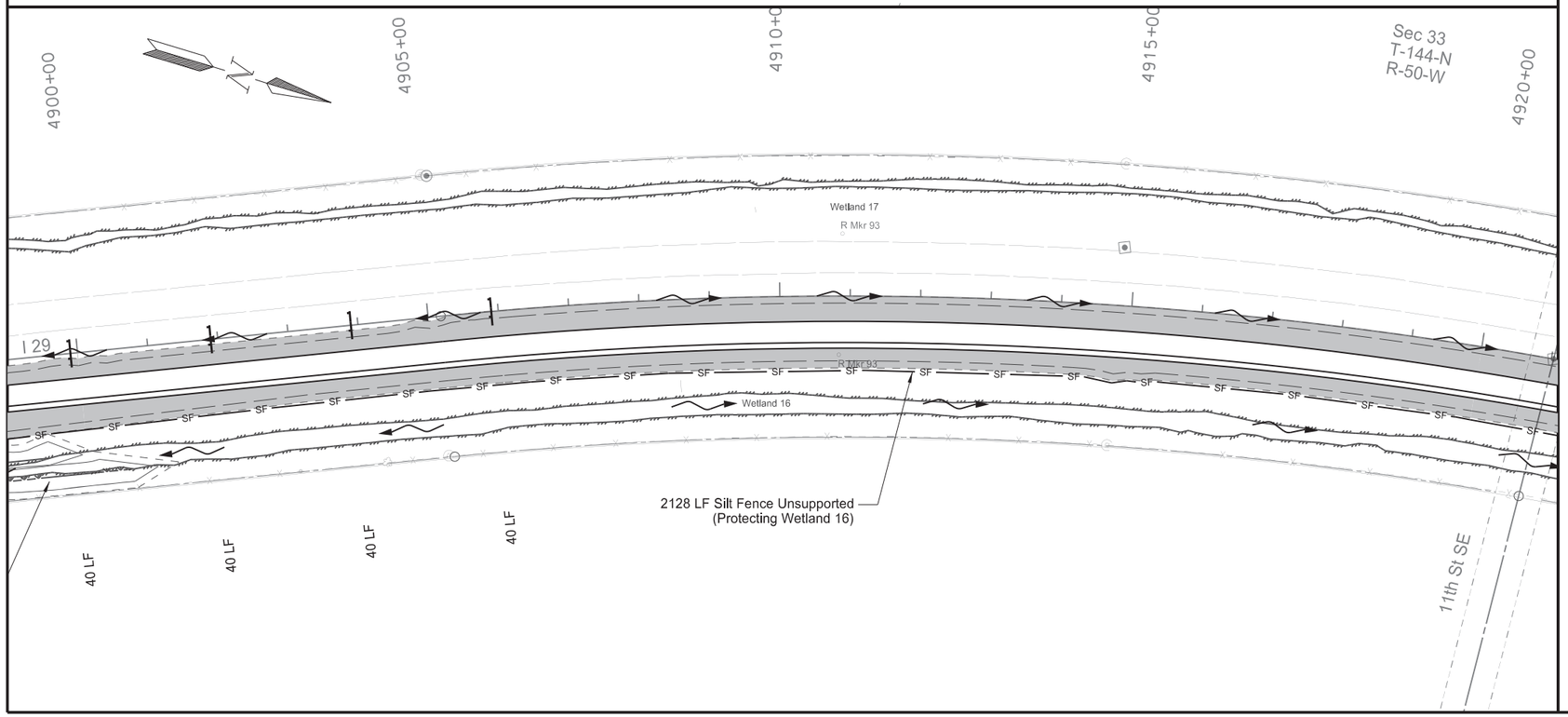
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4840+00 to Sta 4880+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	7





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	TEMPORARY COVER CROP		
		Sta 4880+00 to Sta 4920+00	ACRE	6.9
253	0101	STRAW MULCH		
		Sta 4880+00 to Sta 4920+00	ACRE	6.9
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 11b, 15a, 15b, 15c and 1	LF	3095
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 11b, 15a, 15b, 15c and 1	LF	3095
261	0112	FIBER ROLLS 12IN		
		Sta 4880+00 to Sta 4920+00	LF	440
261	0113	REMOVAL FIBER ROLLS 12IN		
		Sta 4880+00 to Sta 4920+00	LF	440

LEGEND

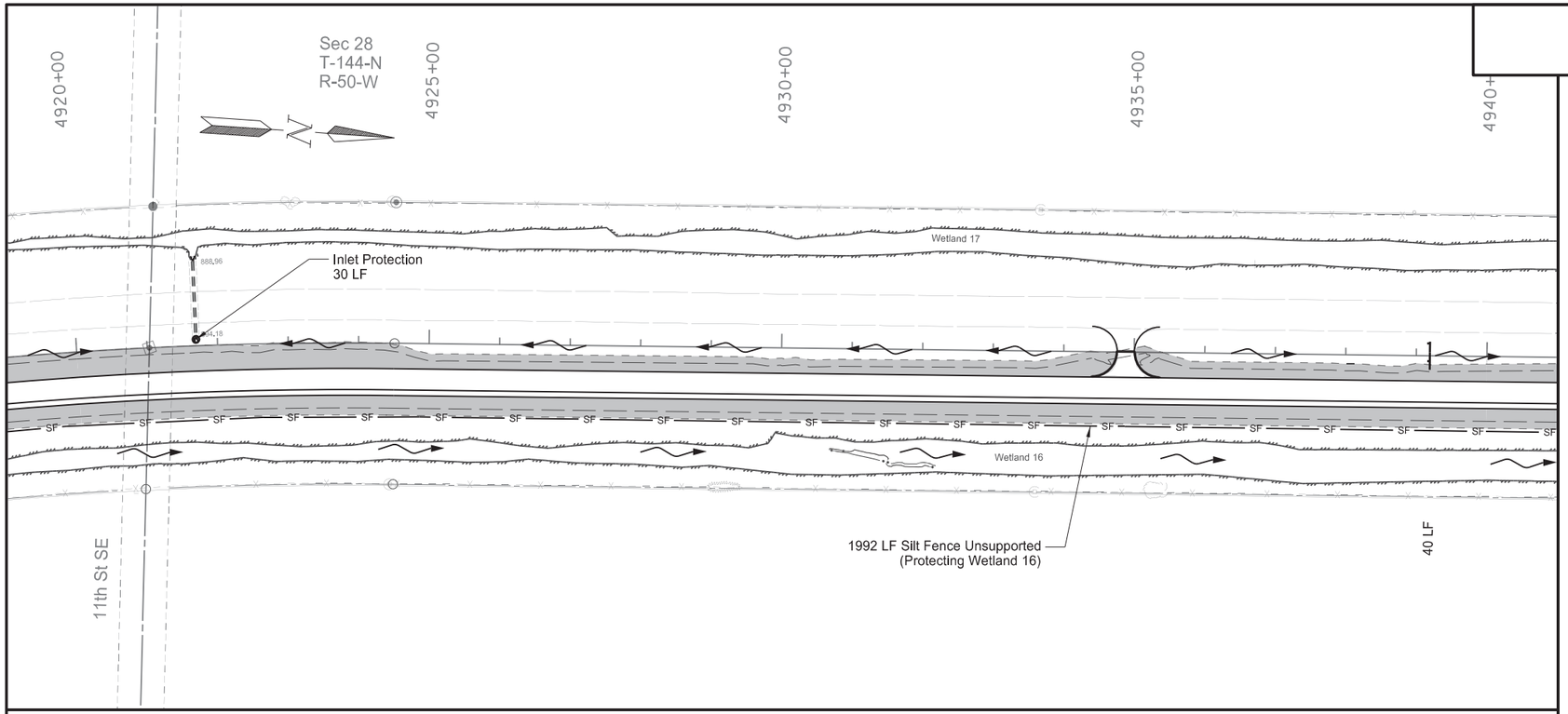
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

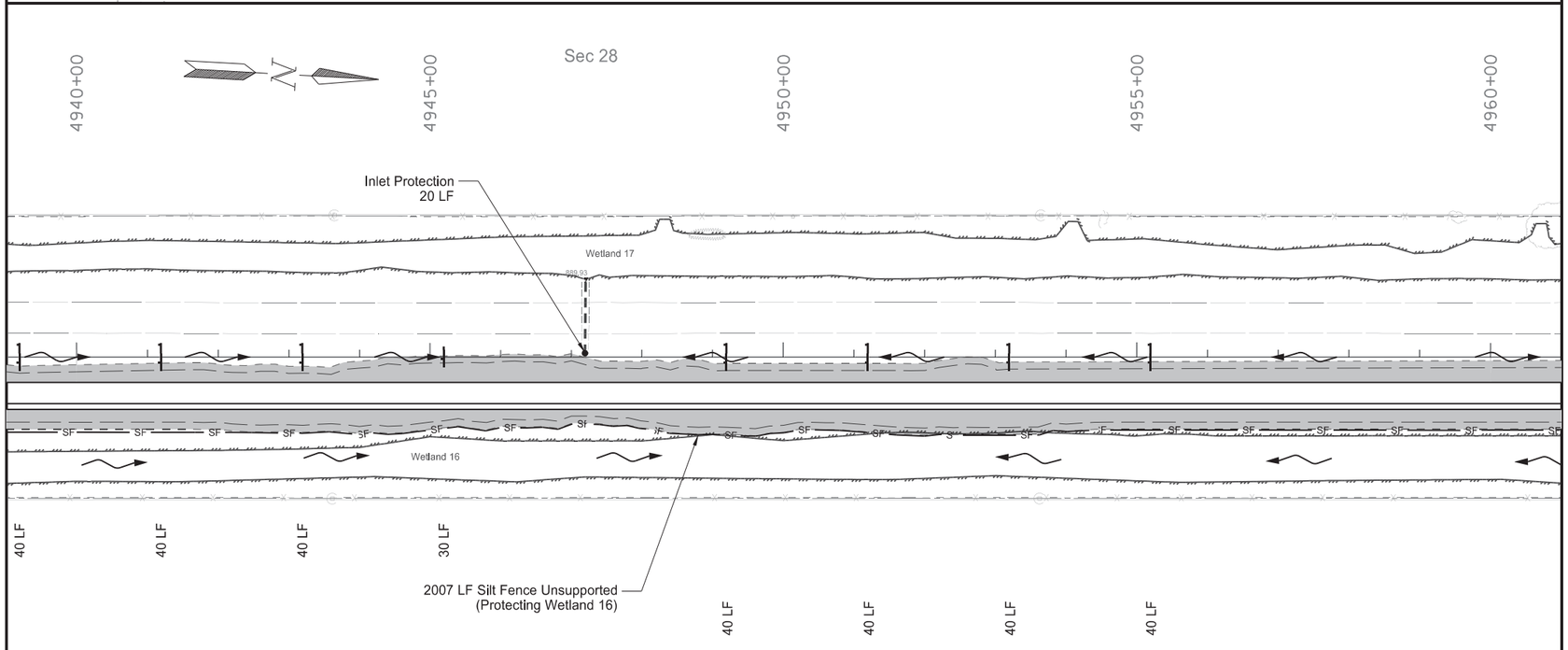
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4880+00 to Sta 4920+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	8





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 4920+00 to Sta 4960+00	ACRE	5.2
253	0101	**STRAW MULCH**		
		Sta 4920+00 to Sta 4960+00	ACRE	5.2
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 16	LF	3999
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 16	LF	3999
261	0112	**FIBER ROLLS 12IN**		
		Sta 4920+00 to Sta 4960+00	LF	360
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 4920+00 to Sta 4960+00	LF	360

LEGEND

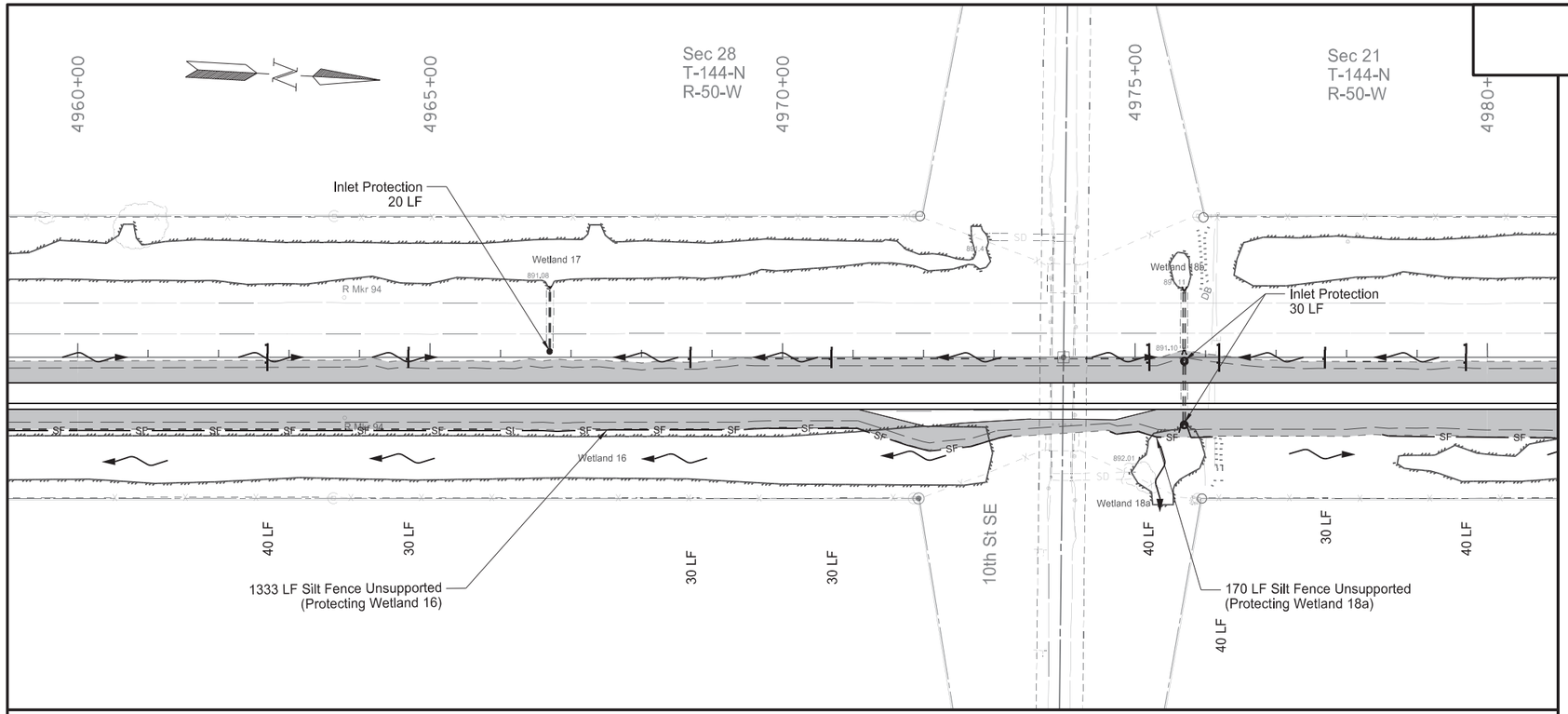
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

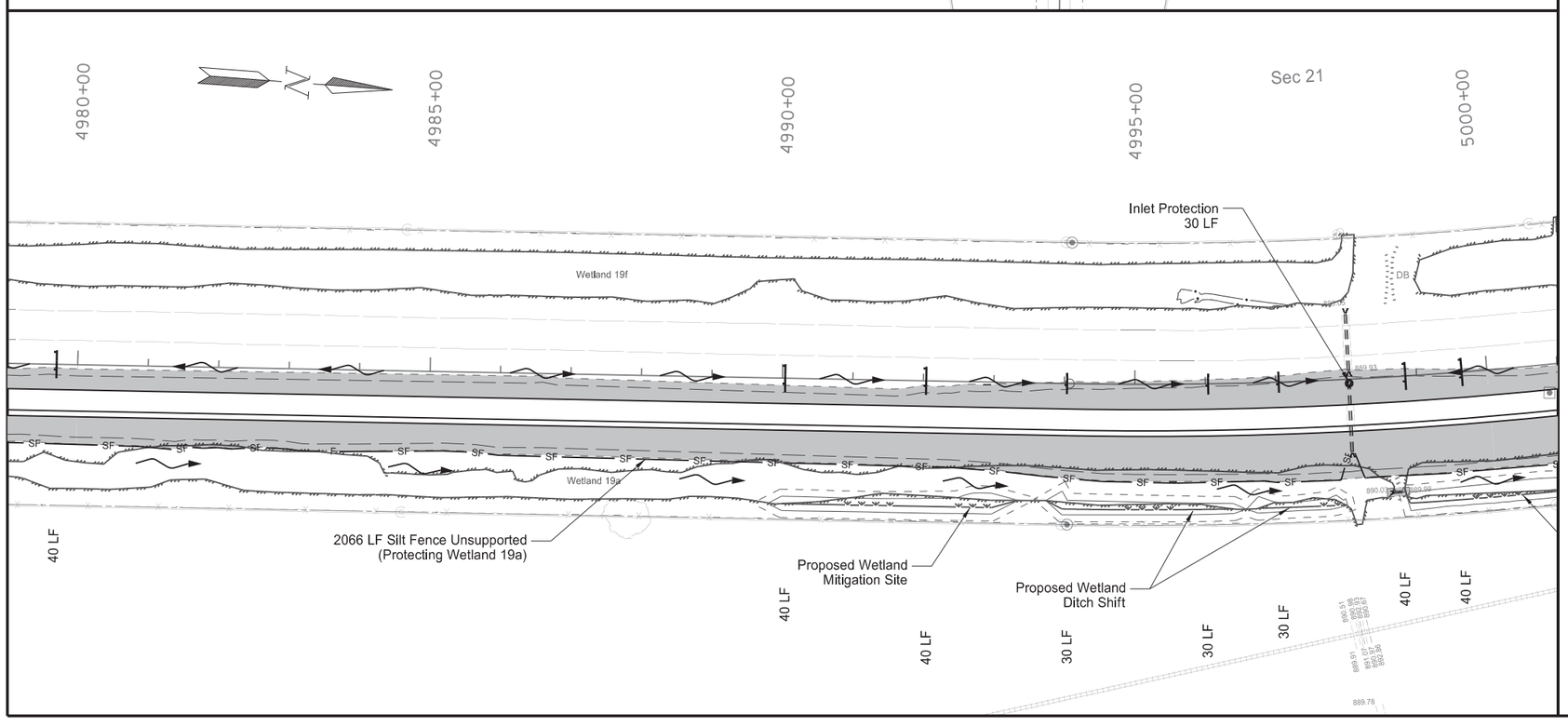
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4920+00 to Sta 4960+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	9





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	TEMPORARY COVER CROP		
		Sta 4960+00 to Sta 5000+00	ACRE	6.7
253	0101	STRAW MULCH		
		Sta 4960+00 to Sta 5000+00	ACRE	6.7
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetlands 16, 18a and 19a	LF	3569
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetlands 16, 18a and 19a	LF	3569
261	0112	FIBER ROLLS 12IN		
		Sta 4960+00 to Sta 5000+00	LF	640
261	0113	REMOVAL FIBER ROLLS 12IN		
		Sta 4960+00 to Sta 5000+00	LF	640

LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF — Silt Fence
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 4960+00 to Sta 5000+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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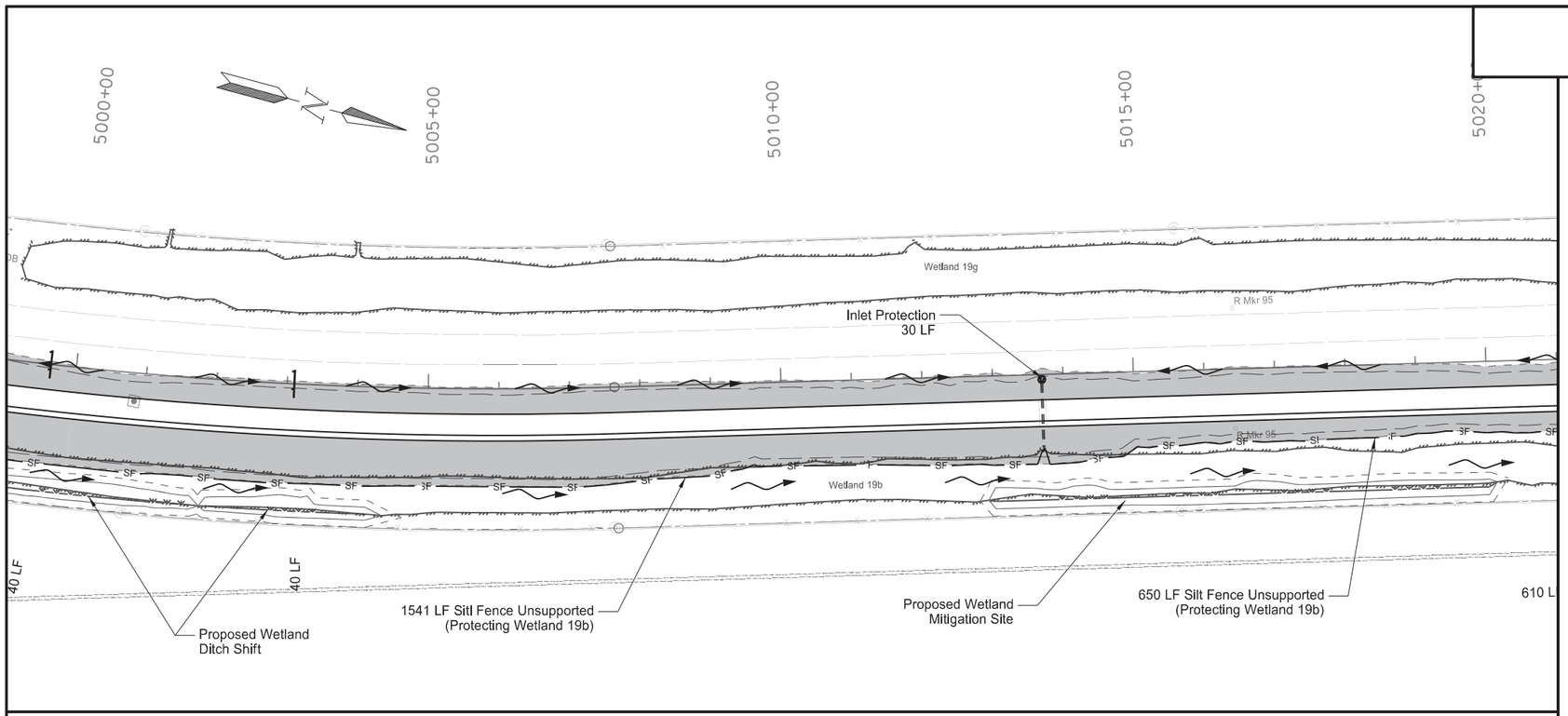
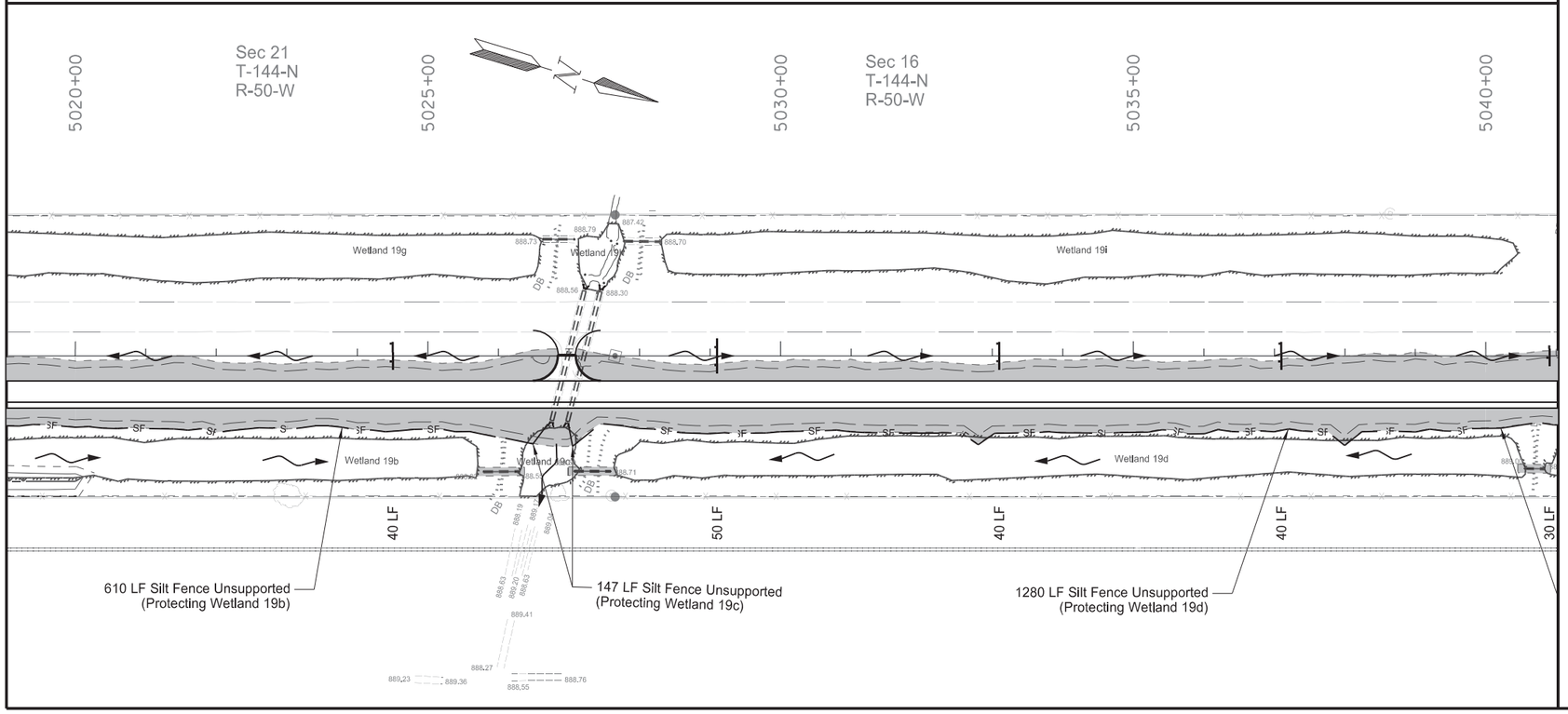
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	76	10





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**2000**	**TEMPORARY COVER CROP**		
		Sta 5000+00 to Sta 5040+00	ACRE	6.9
253	**0101**	**STRAW MULCH**		
		Sta 5000+00 to Sta 5040+00	ACRE	6.9
260	**0100**	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 19b, 19c and 19d	LF	4228
260	**0101**	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 19b, 19c and 19d	LF	4228
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 5000+00 to Sta 5040+00	LF	240
261	**0113**	**REMOVAL FIBER ROLLS 12IN**		
		Sta 5000+00 to Sta 5040+00	LF	240

LEGEND

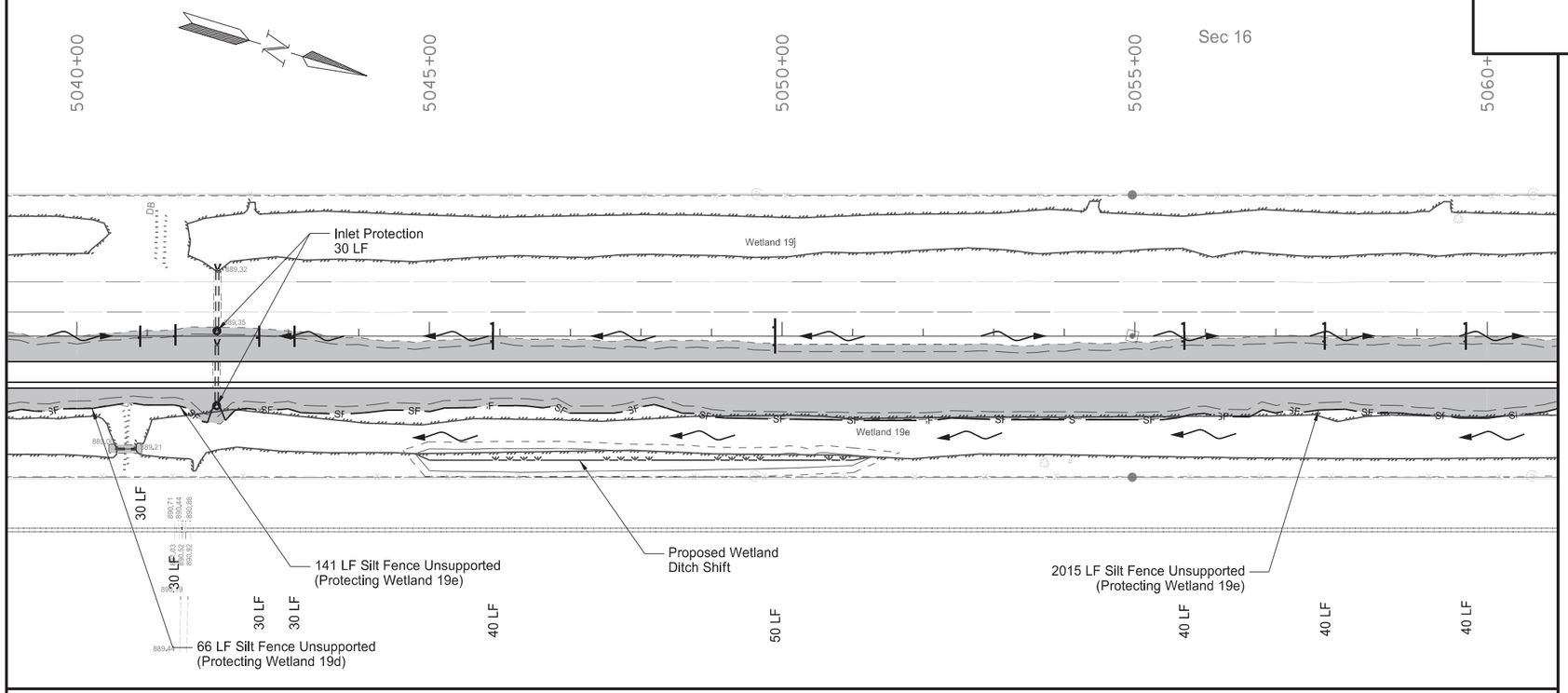
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

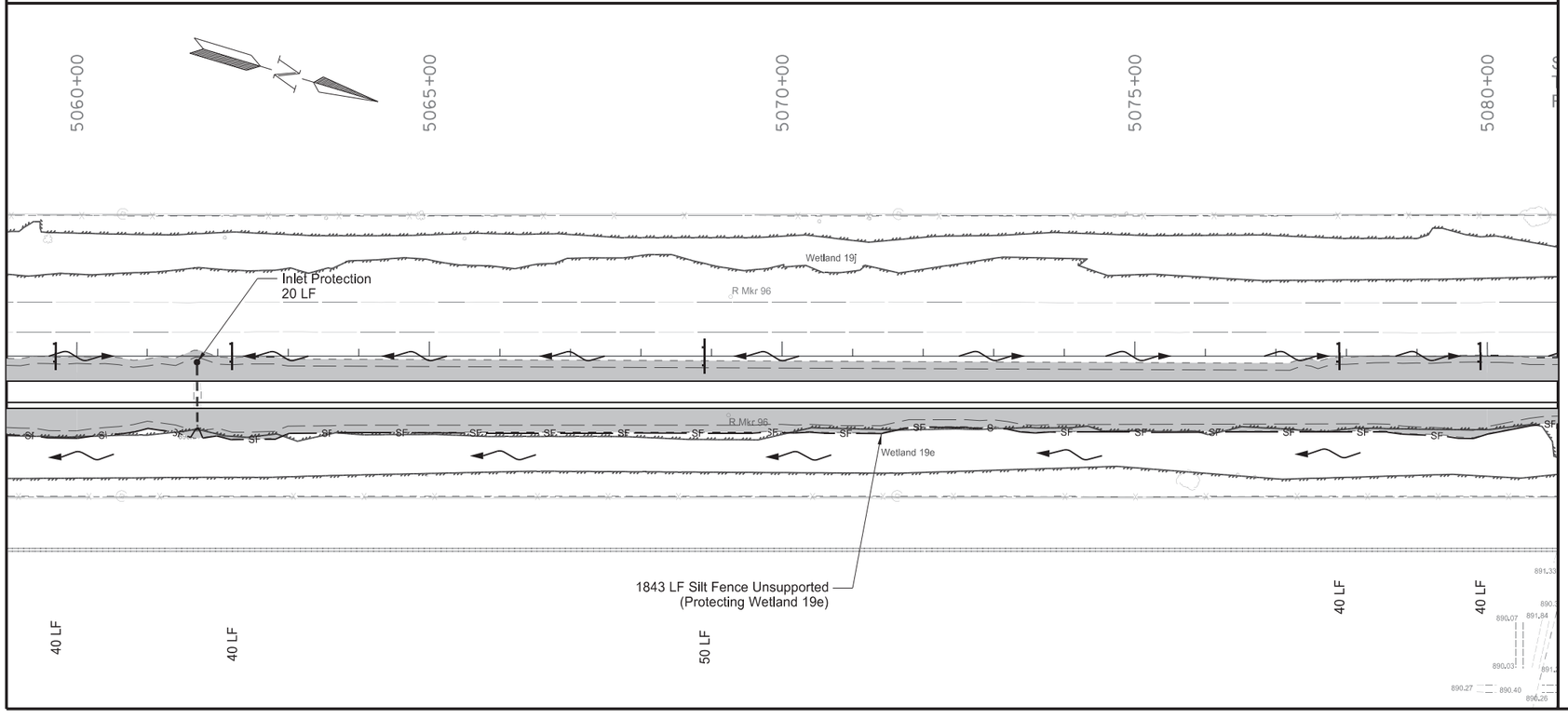
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5000+00 to Sta 5040+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	11





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 5040+00 to Sta 5080+00	ACRE	6.1
253	0101	**STRAW MULCH**		
		Sta 5040+00 to Sta 5080+00	ACRE	6.1
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 19d and 19e	LF	4065
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 19d and 19e	LF	4065
261	0112	**FIBER ROLLS 12IN**		
		Sta 5040+00 to Sta 5080+00	LF	580
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 5040+00 to Sta 5080+00	LF	580

LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

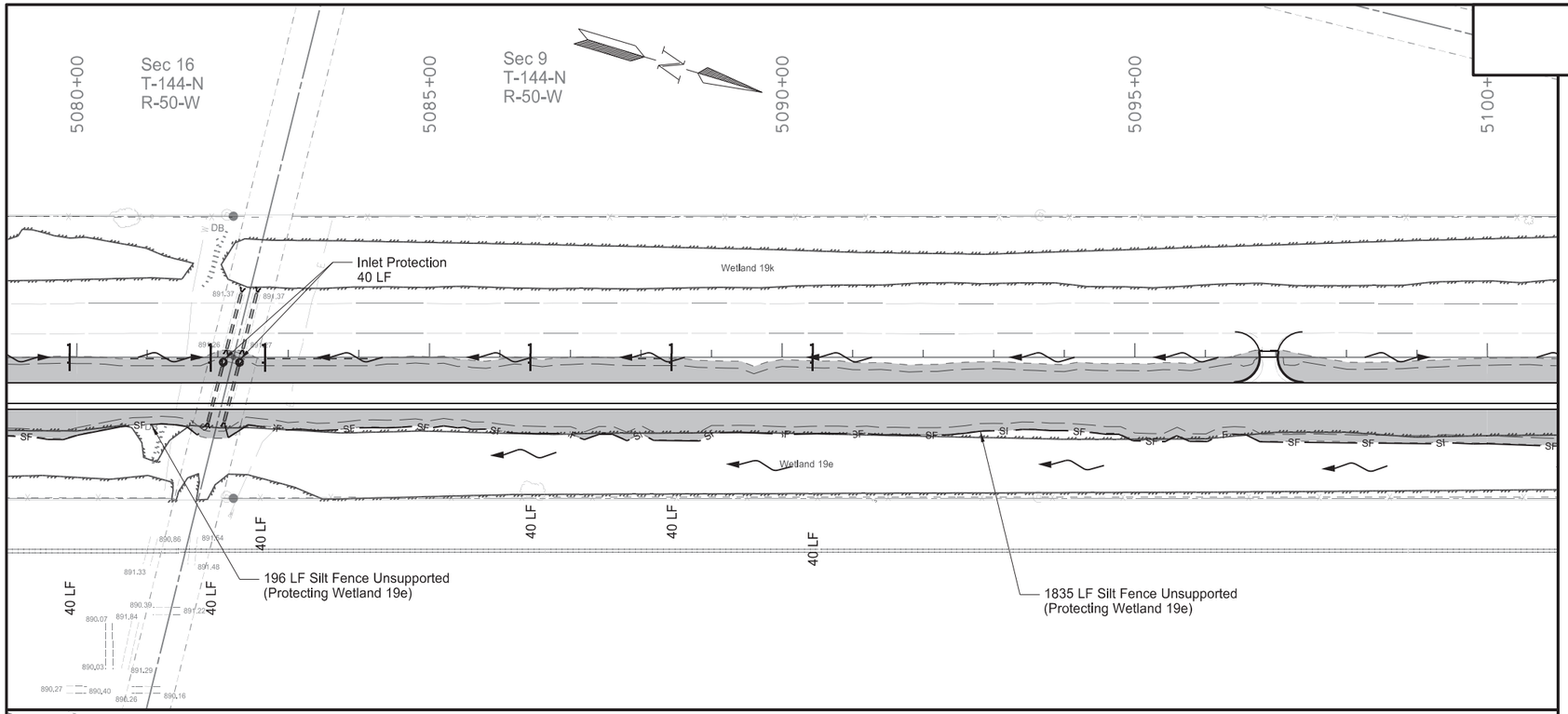
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

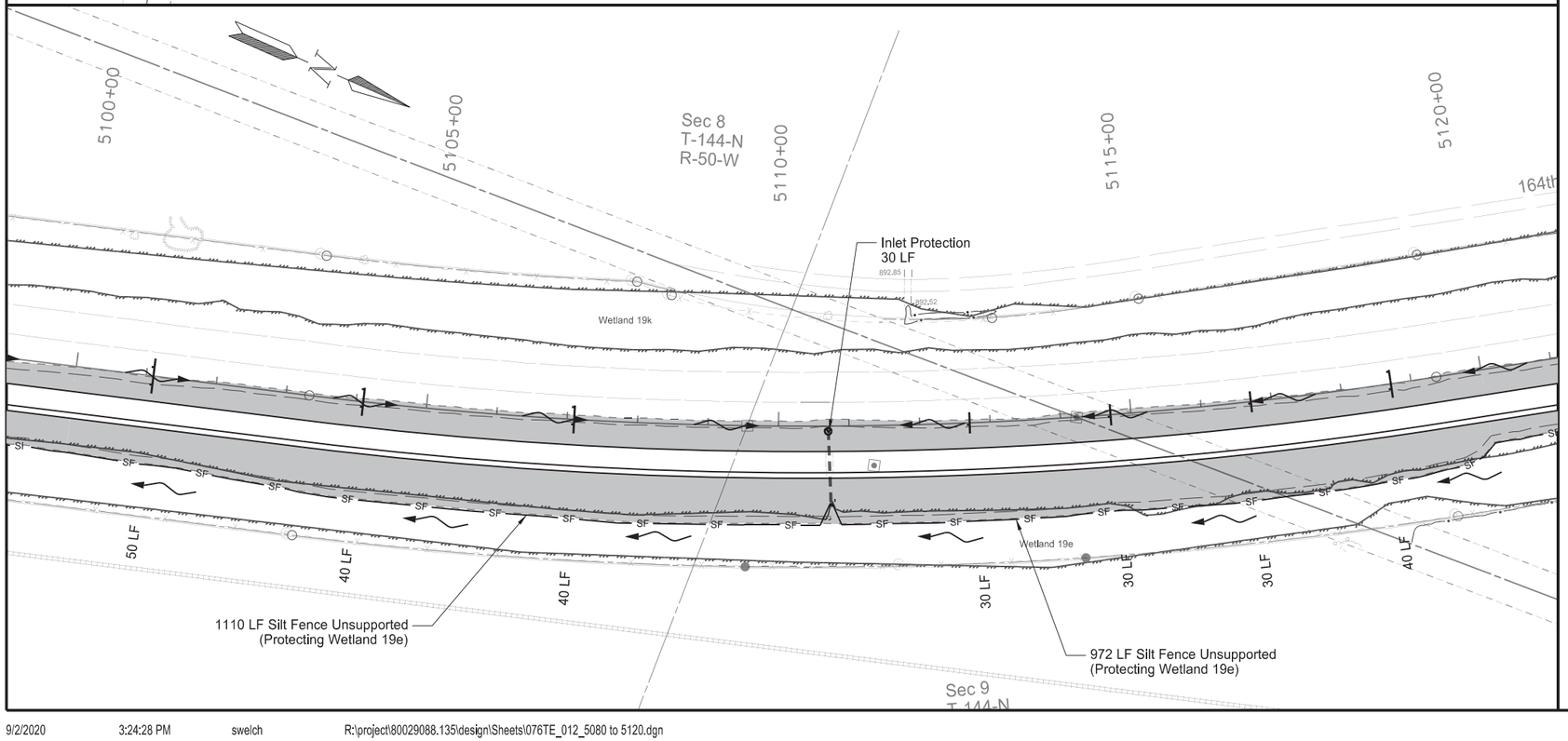
Temporary Erosion Control Sheet
Sta 5040+00 to Sta 5080+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	12

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 5080+00 to Sta 5120+00	ACRE	7.8
253	0101	**STRAW MULCH**		
		Sta 5080+00 to Sta 5120+00	ACRE	7.8
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetland 19e	LF	4113
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetland 19e	LF	4113
261	0112	**FIBER ROLLS 12IN**		
		Sta 5080+00 to Sta 5120+00	LF	570
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 5080+00 to Sta 5120+00	LF	570





LEGEND

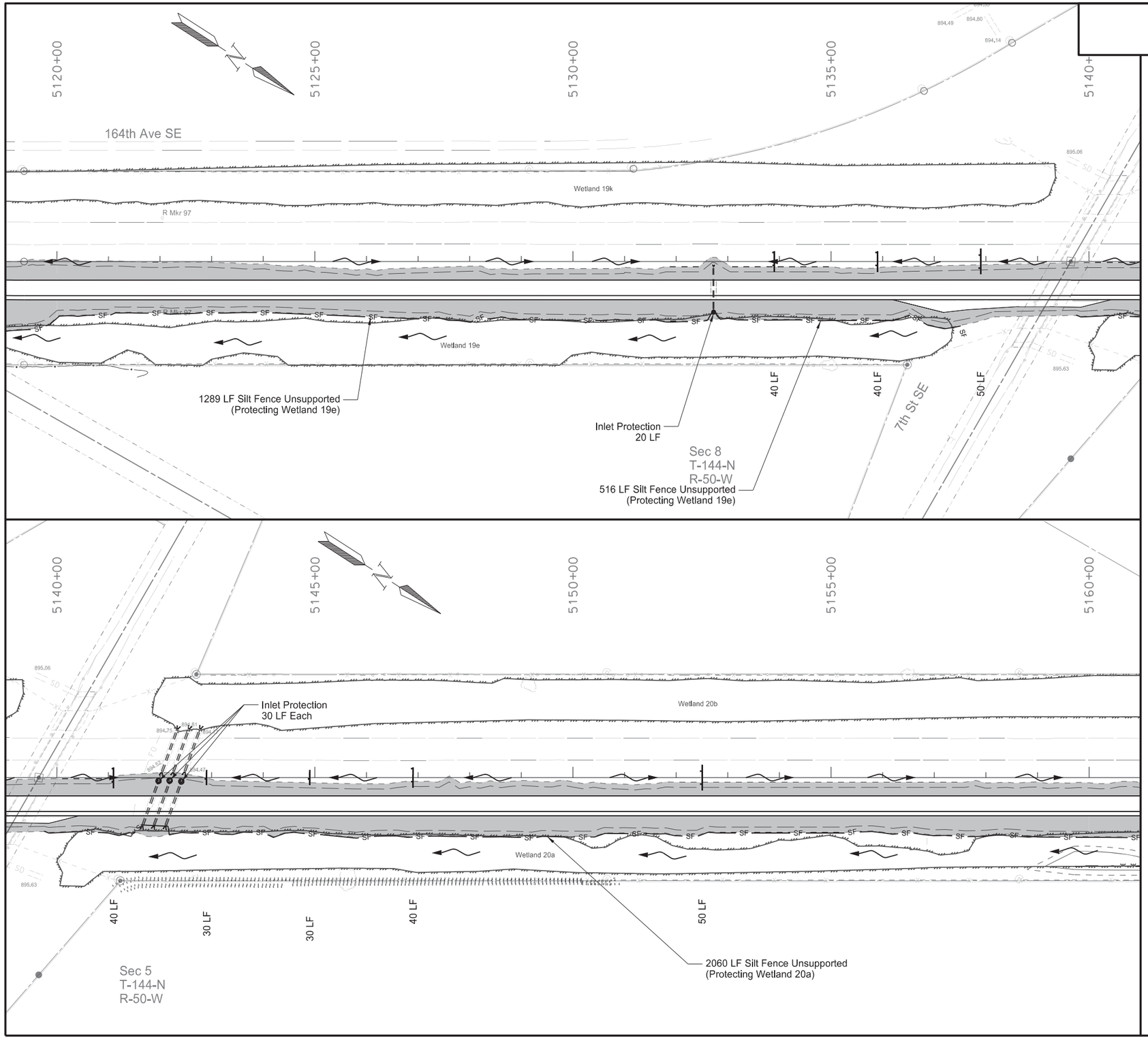
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5080+00 to Sta 5120+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	13



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 5120+00 to Sta 5160+00	ACRE	5.7
253	0101	**STRAW MULCH**		
		Sta 5120+00 to Sta 5160+00	ACRE	5.7
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 19e and 20a	LF	3865
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 19e and 20a	LF	3865
261	0112	**FIBER ROLLS 12IN**		
		Sta 5120+00 to Sta 5160+00	LF	450
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 5120+00 to Sta 5160+00	LF	450

LEGEND

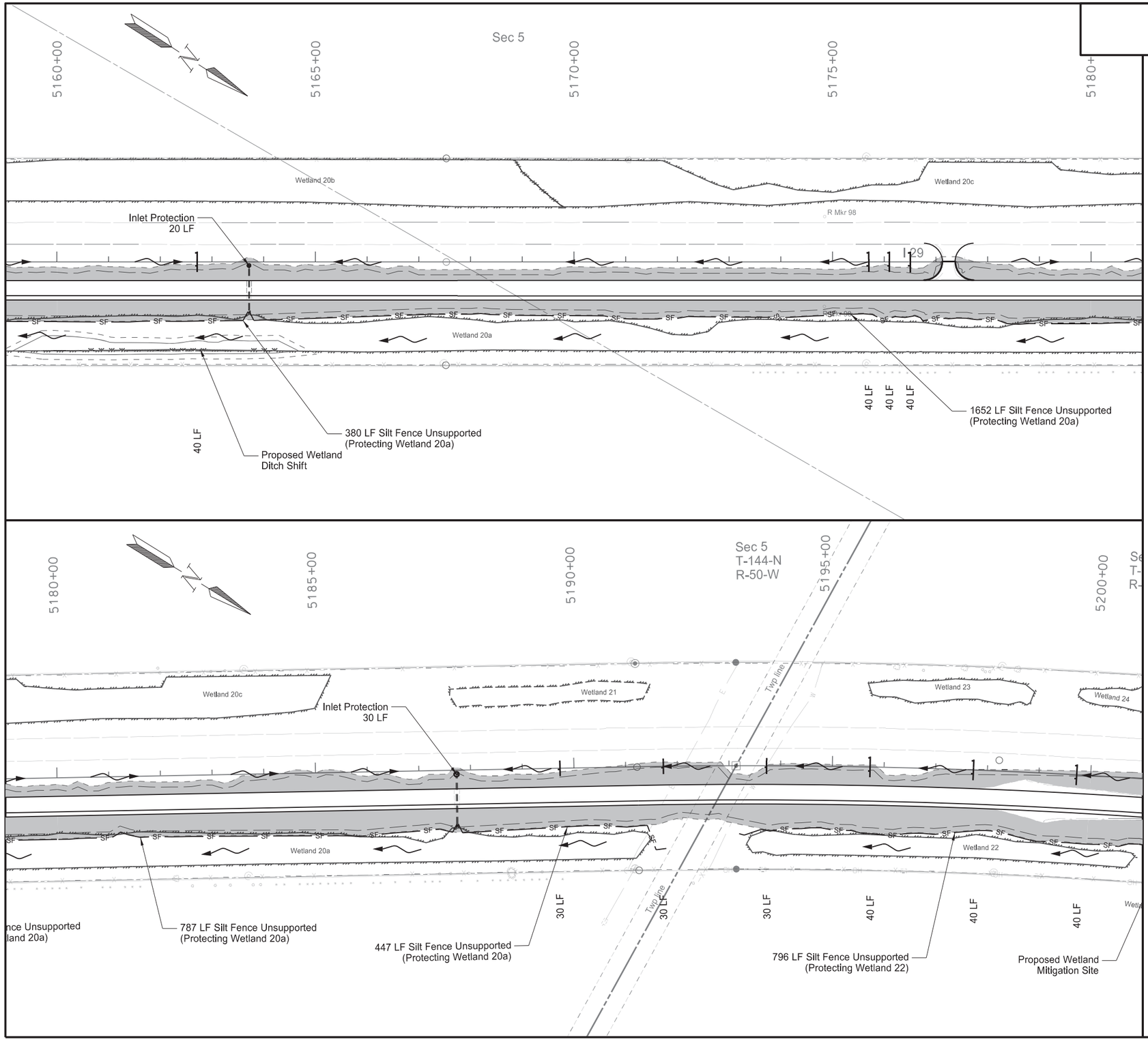
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5120+00 to Sta 5160+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	14



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	TEMPORARY COVER CROP		
		Sta 5160+00 to Sta 5200+00	ACRE	6.1
253	0101	STRAW MULCH		
		Sta 5160+00 to Sta 5200+00	ACRE	6.1
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetlands 20a and 22	LF	4062
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetlands 20a and 22	LF	4062
261	0112	FIBER ROLLS 12IN		
		Sta 5160+00 to Sta 5200+00	LF	420
261	0113	REMOVAL FIBER ROLLS 12IN		
		Sta 5160+00 to Sta 5200+00	LF	420

LEGEND

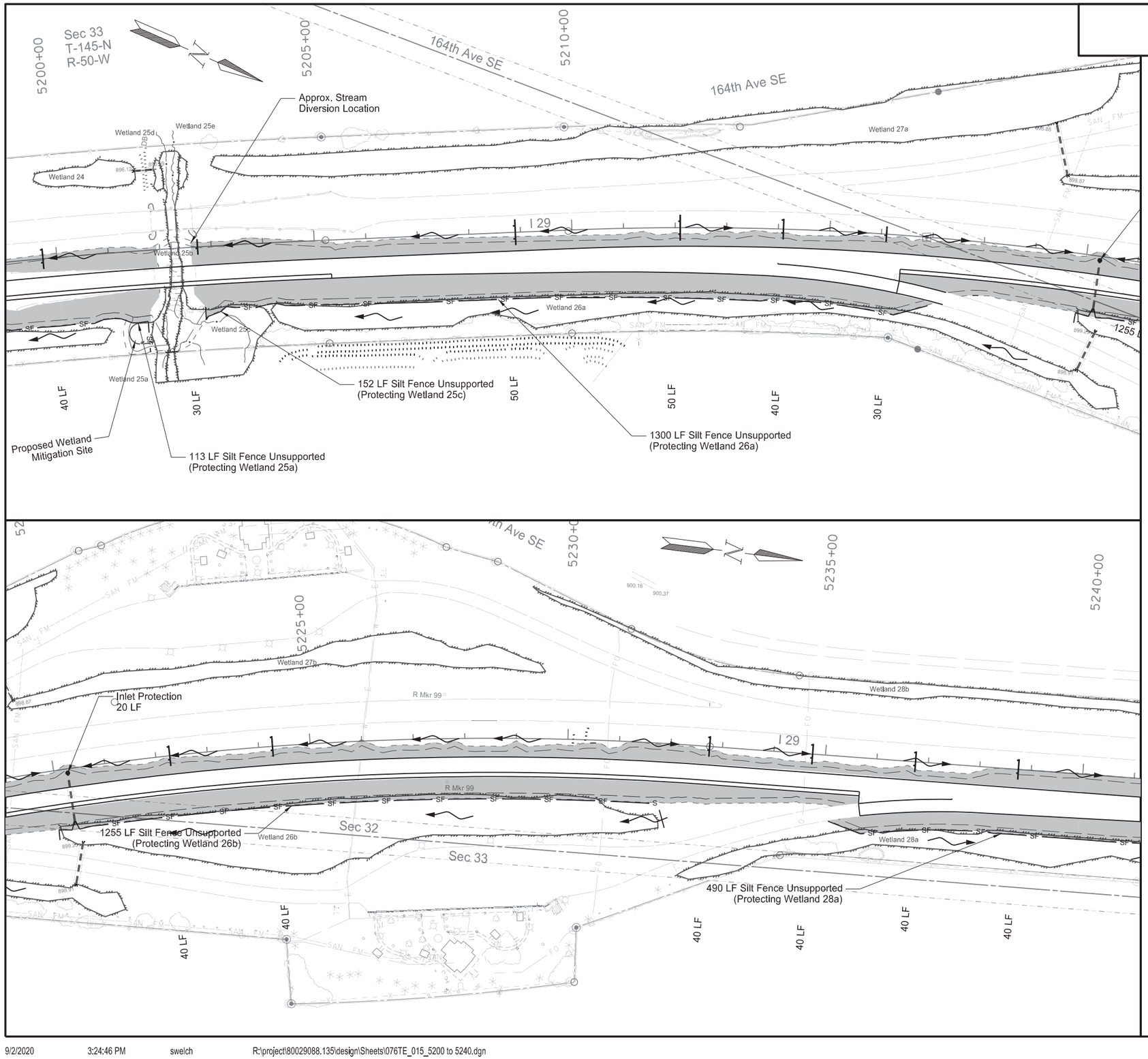
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF — Silt Fence
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5160+00 to Sta 5200+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	76	15



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 5200+00 to Sta 5240+00	ACRE	6.3
253	0101	**STRAW MULCH**		
		Sta 5200+00 to Sta 5240+00	ACRE	6.3
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 25a,b,c, 26a,b and 28a	LF	3310
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 25a,b,c, 26a,b and 28a	LF	3310
261	0112	**FIBER ROLLS 12IN**		
		Sta 5200+00 to Sta 5240+00	LF	460
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 5200+00 to Sta 5240+00	LF	460

LEGEND

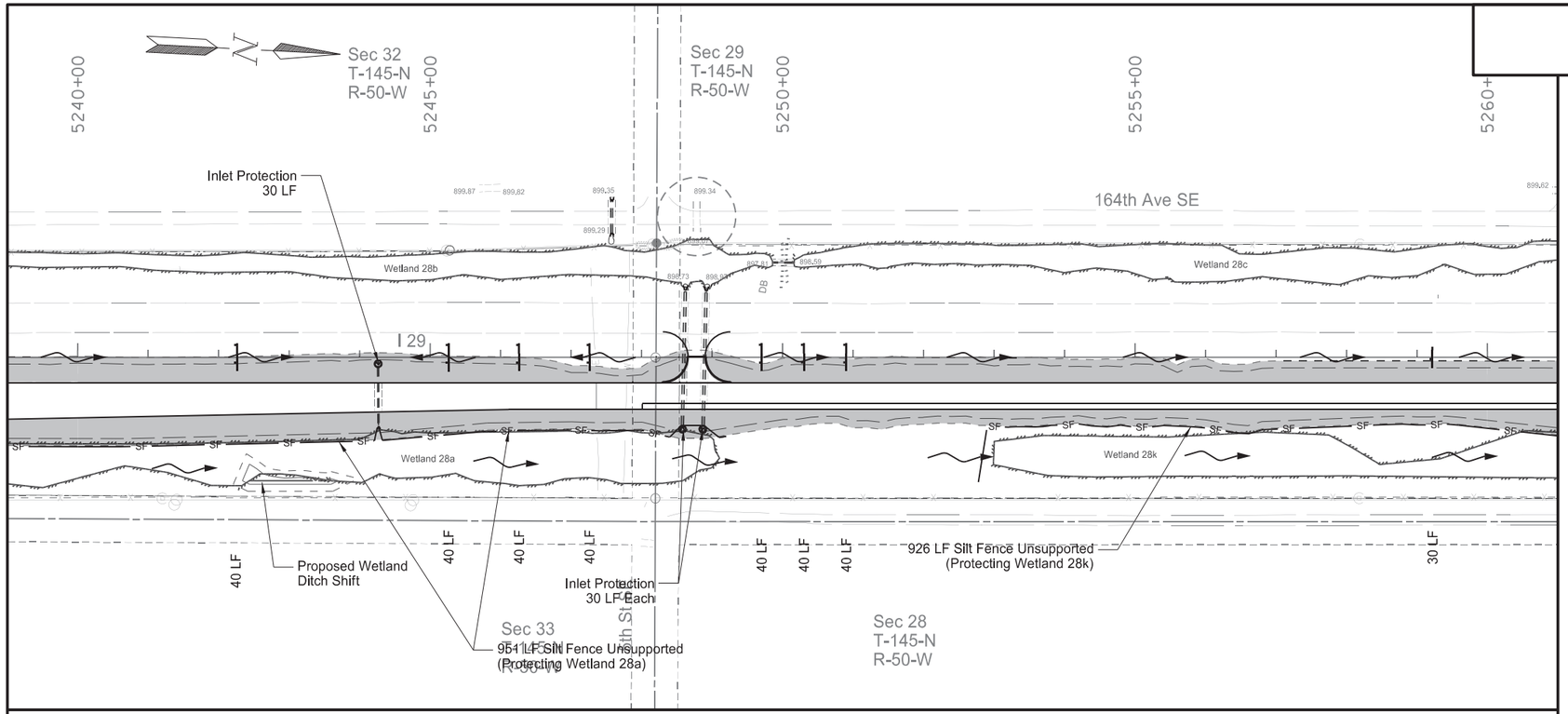
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

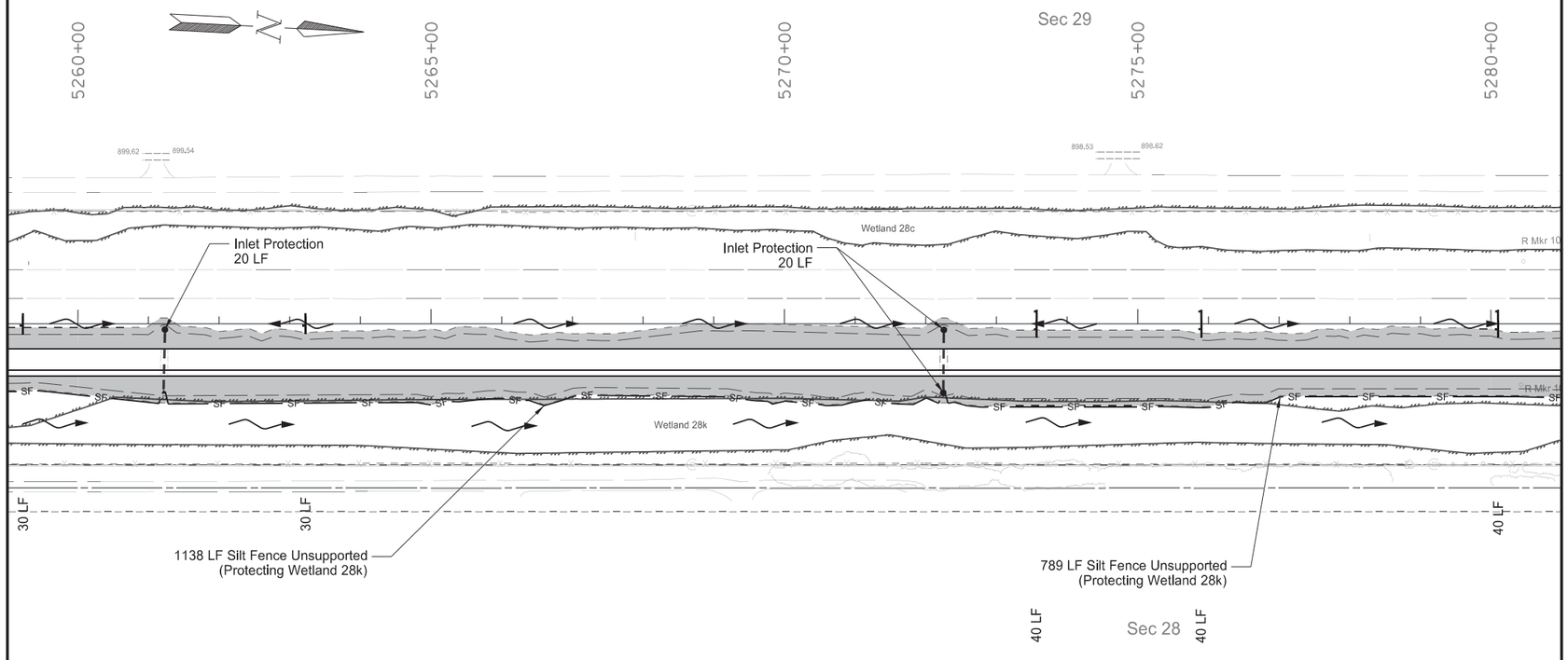
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5200+00 to Sta 5240+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	16





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	TEMPORARY COVER CROP		
		Sta 5240+00 to Sta 5280+00	ACRE	5.8
253	0101	STRAW MULCH		
		Sta 5240+00 to Sta 5280+00	ACRE	5.8
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetlands 28a and 28k	LF	3804
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetlands 28a and 28k	LF	3804
261	0112	FIBER ROLLS 12IN		
		Sta 5240+00 to Sta 5280+00	LF	570
261	0113	REMOVAL FIBER ROLLS 12IN		
		Sta 5240+00 to Sta 5280+00	LF	570

LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

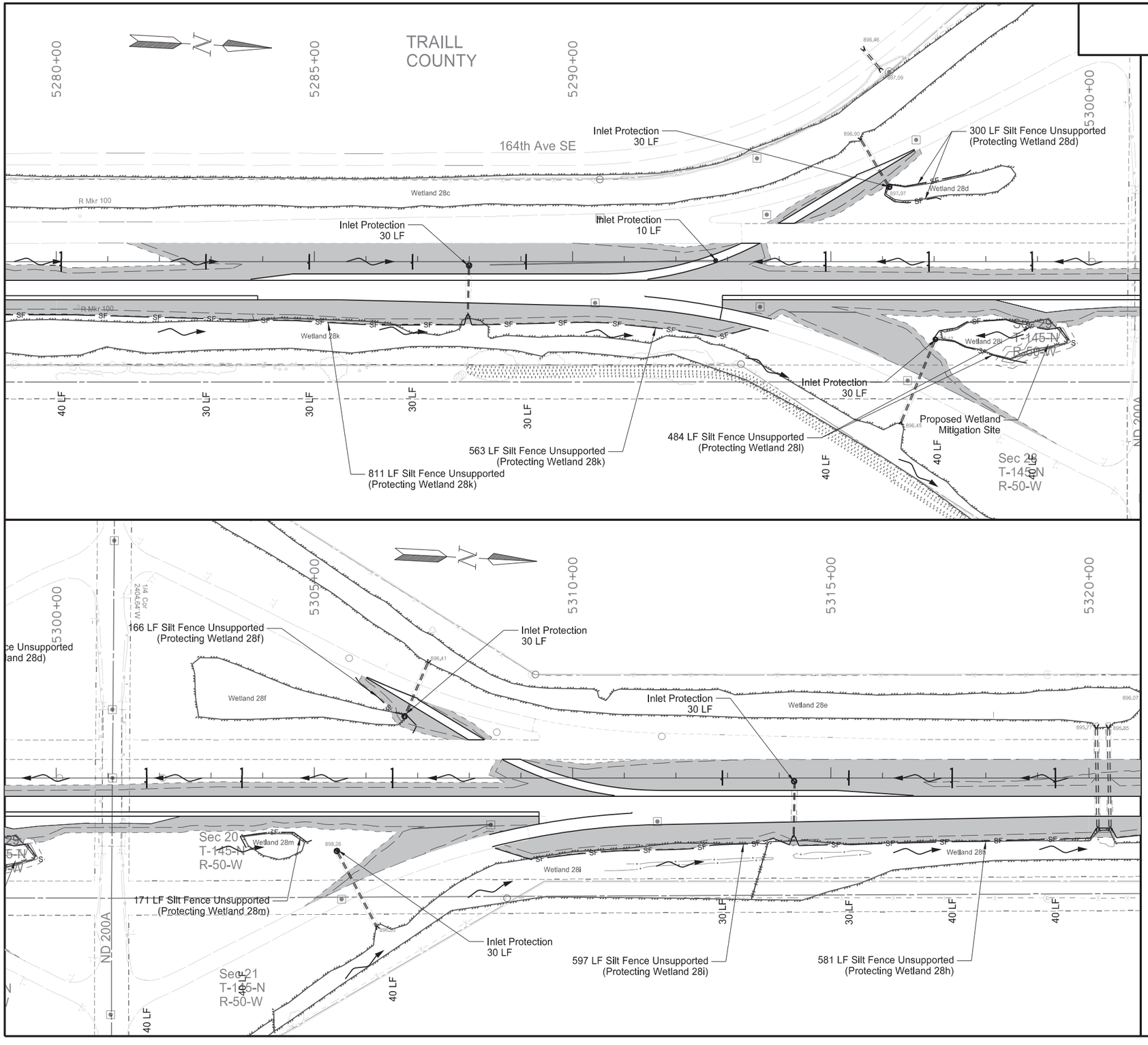
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5240+00 to Sta 5280+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	17

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	**TEMPORARY COVER CROP**		
		Sta 5280+00 to Sta 5320+00	ACRE	8.6
253	0101	**STRAW MULCH**		
		Sta 5280+00 to Sta 5320+00	ACRE	8.6
260	0100	**SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 28d, f, h, i k, l, and m	LF	3673
260	0101	**REMOVE SILT FENCE UNSUPPORTED**		
		Protecting Wetlands 28d, f, h, i k, l, and m	LF	3673
261	0112	**FIBER ROLLS 12IN**		
		Sta 5280+00 to Sta 5320+00	LF	730
261	0113	**REMOVAL FIBER ROLLS 12IN**		
		Sta 5280+00 to Sta 5320+00	LF	730



LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5280+00 to Sta 5320+00

PCC Pavement Reconstruction
Interstate 29 - Nouthbound
Hunter Separation to North of Blanchard Interchange

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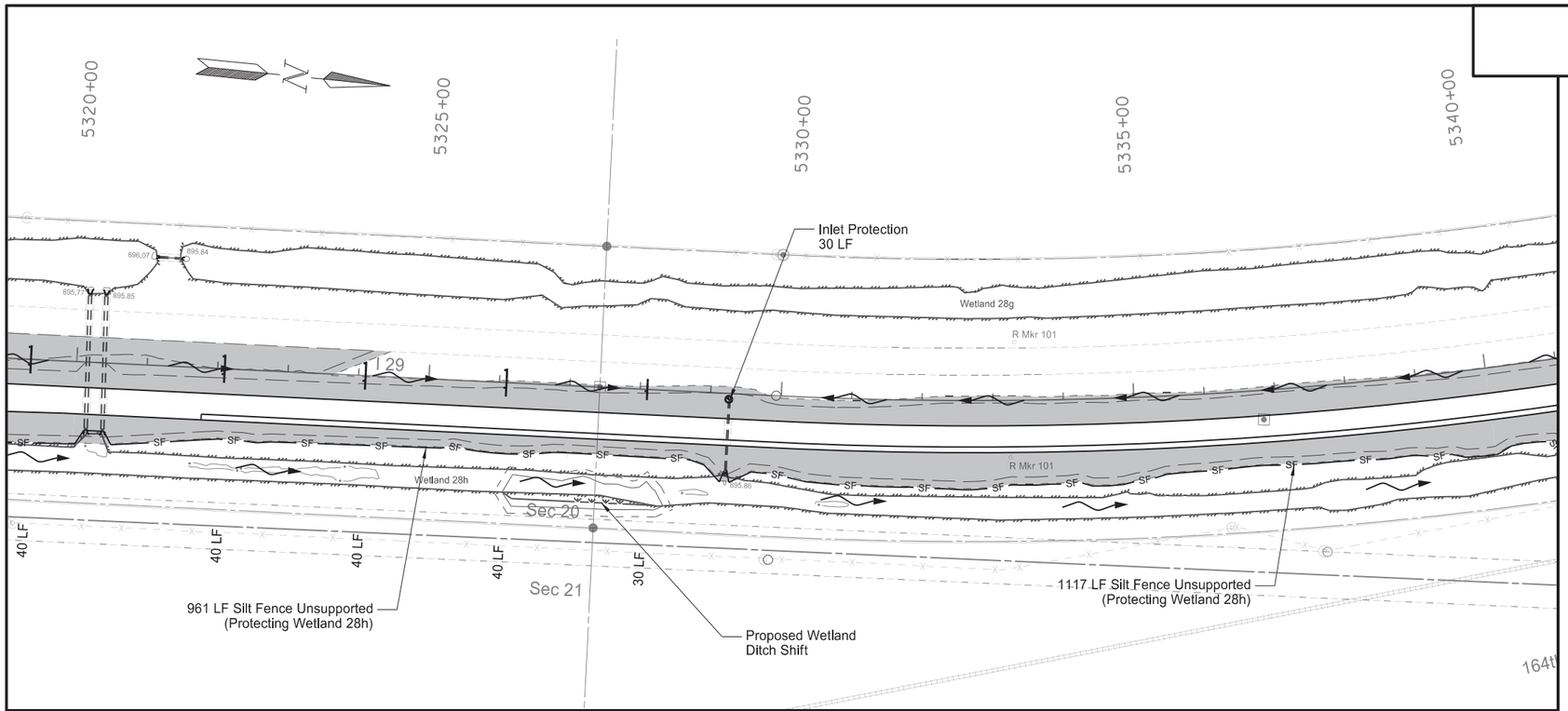
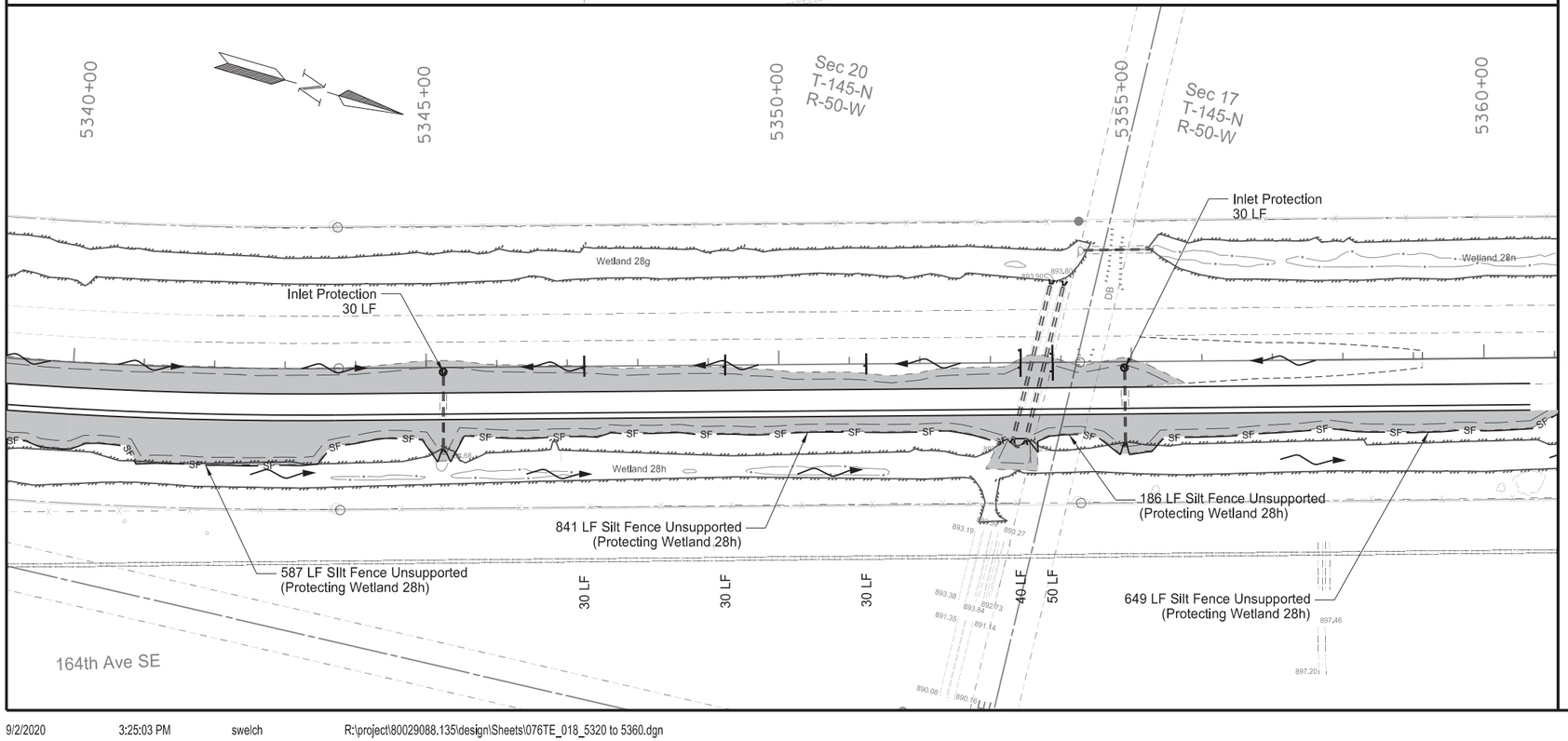
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	76	18





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	2000	TEMPORARY COVER CROP		
		Sta 5320+00 to Sta 5360+00	ACRE	6.5
253	0101	STRAW MULCH		
		Sta 5320+00 to Sta 5360+00	ACRE	6.5
260	0100	SILT FENCE UNSUPPORTED		
		Protecting Wetland 28h	LF	4341
260	0101	REMOVE SILT FENCE UNSUPPORTED		
		Protecting Wetland 28h	LF	4341
261	0112	FIBER ROLLS 12IN		
		Sta 5320+00 to Sta 5360+00	LF	420
261	0113	REMOVAL FIBER ROLLS 12IN		
		Sta 5320+00 to Sta 5360+00	LF	420

LEGEND

- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5320+00 to Sta 5360+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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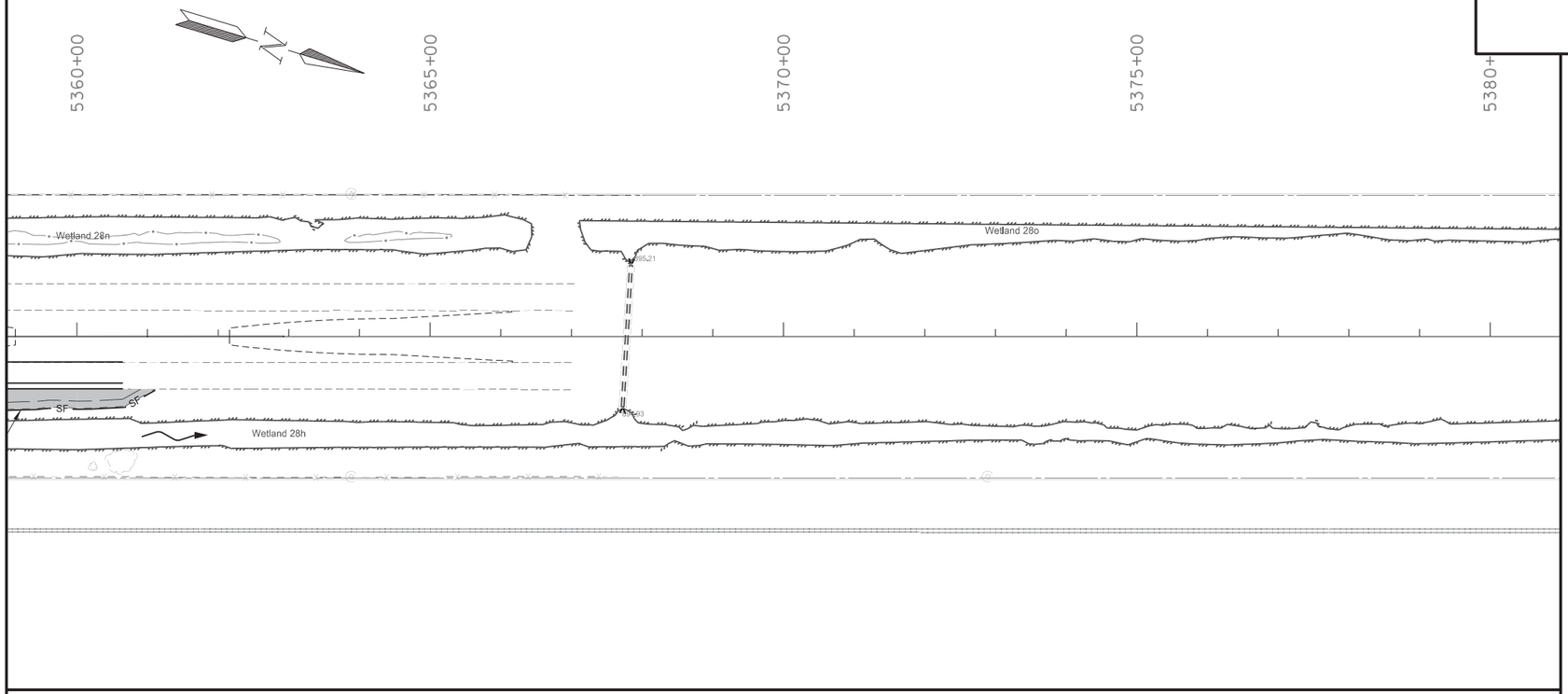
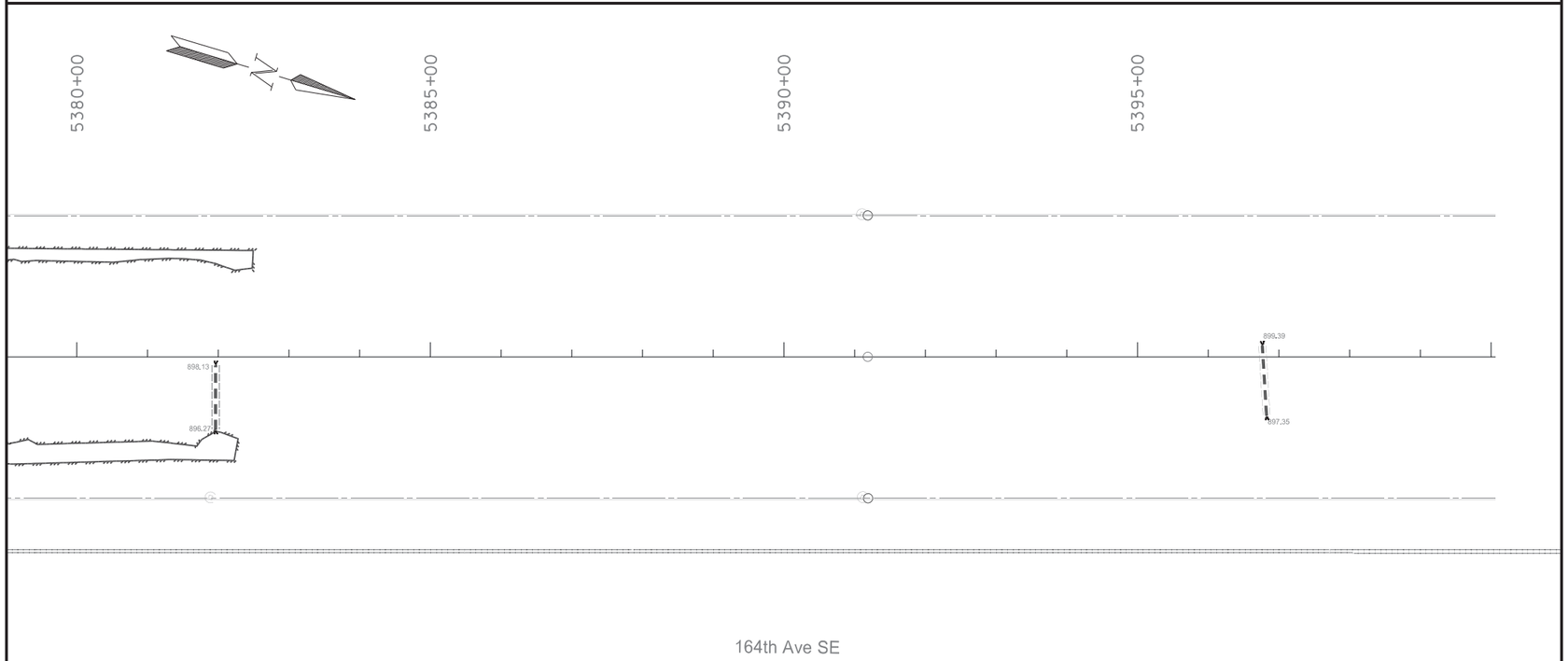




LEGEND

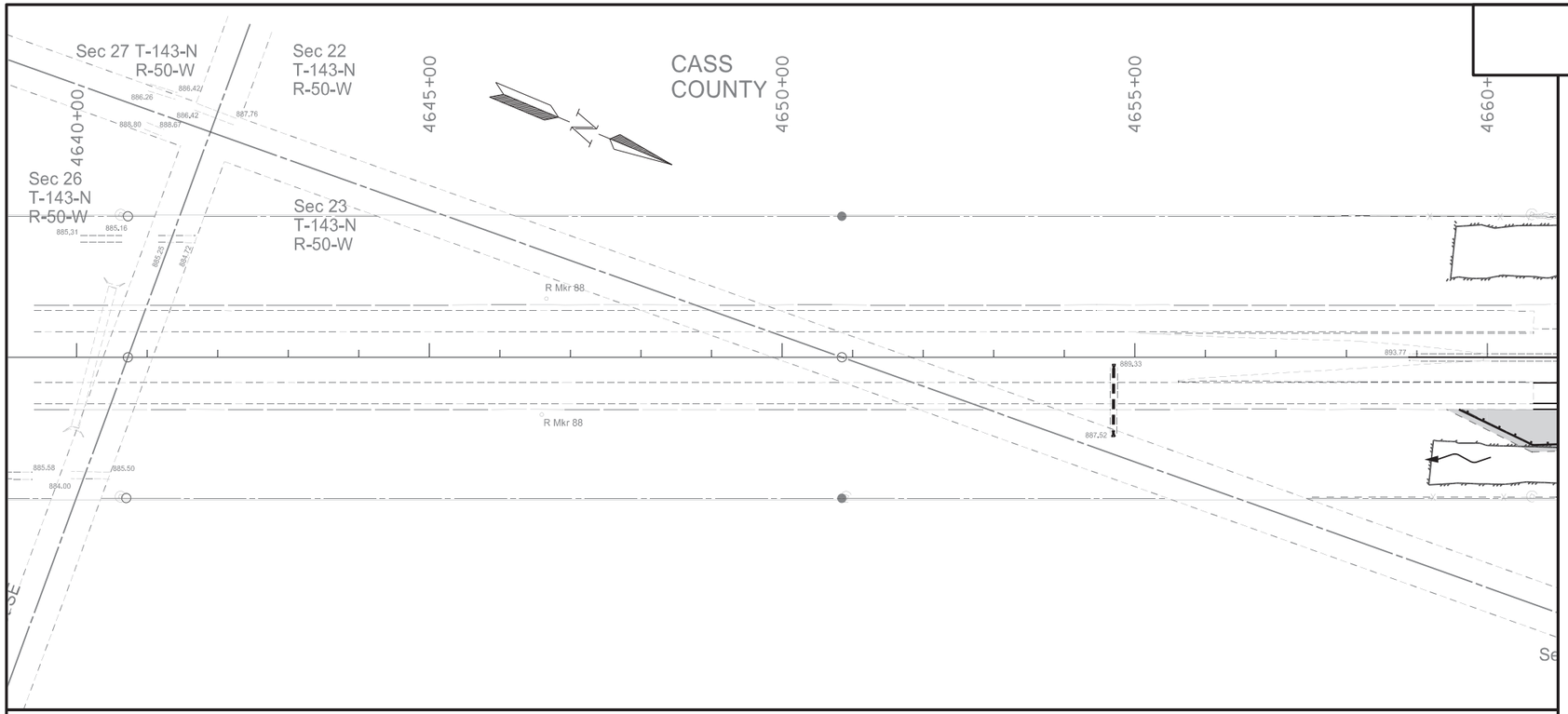
- Temporary Cover Crop and Straw Mulch
- Fiber Rolls
- SF Silt Fence
- Direction of Flow

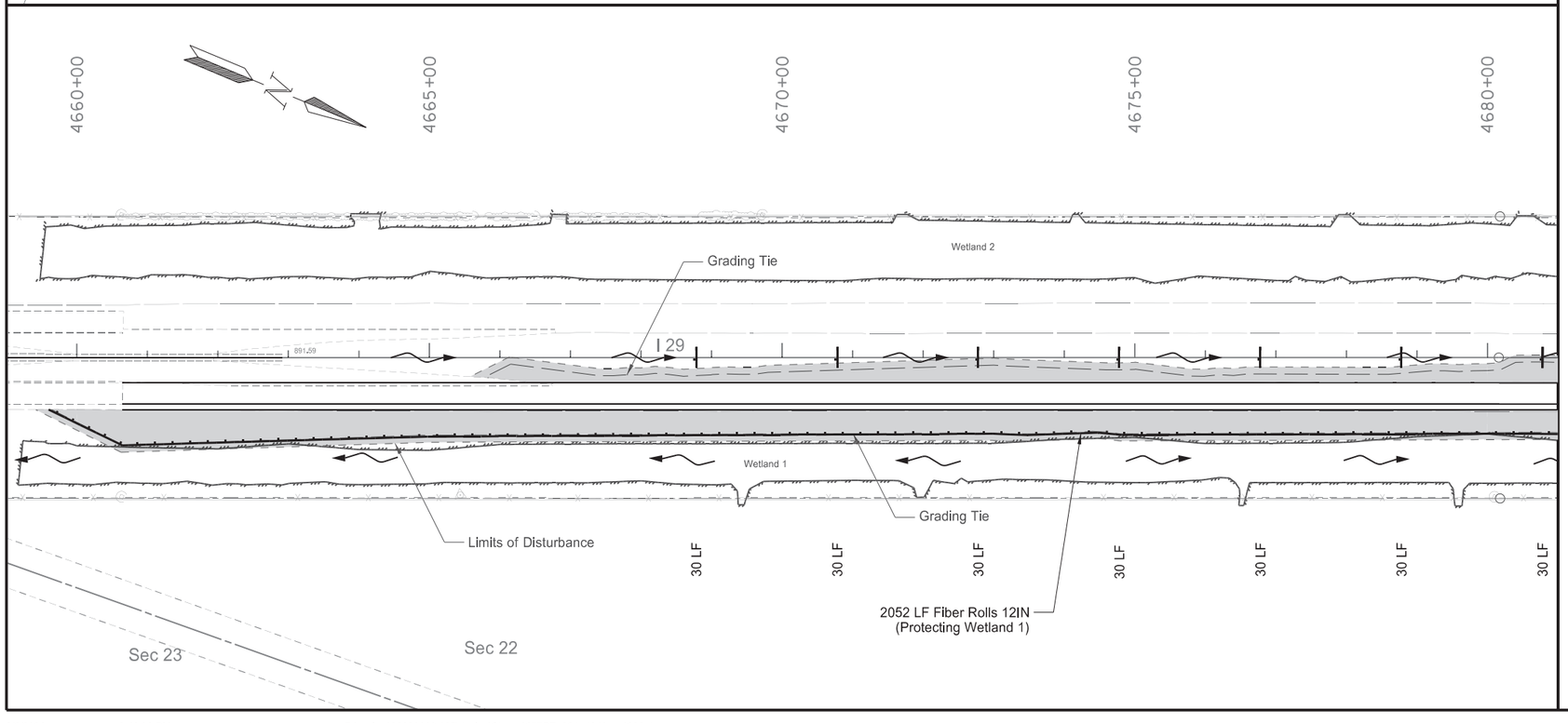
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Temporary Erosion Control Sheet
Sta 5360+00 to Sta 5400+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	77	1





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Beginning Project to Sta 4680+00	ACRE	3.0
253	**0101**	**STRAW MULCH**		
		Beginning Project to Sta 4680+00	ACRE	3.0
261	**0112**	**FIBER ROLLS 12IN**		
		Beginning Project to Sta 4680+00	LF	2232

LEGEND

- Seeding Class II and Straw Mulch
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4640+00 to Sta 4680+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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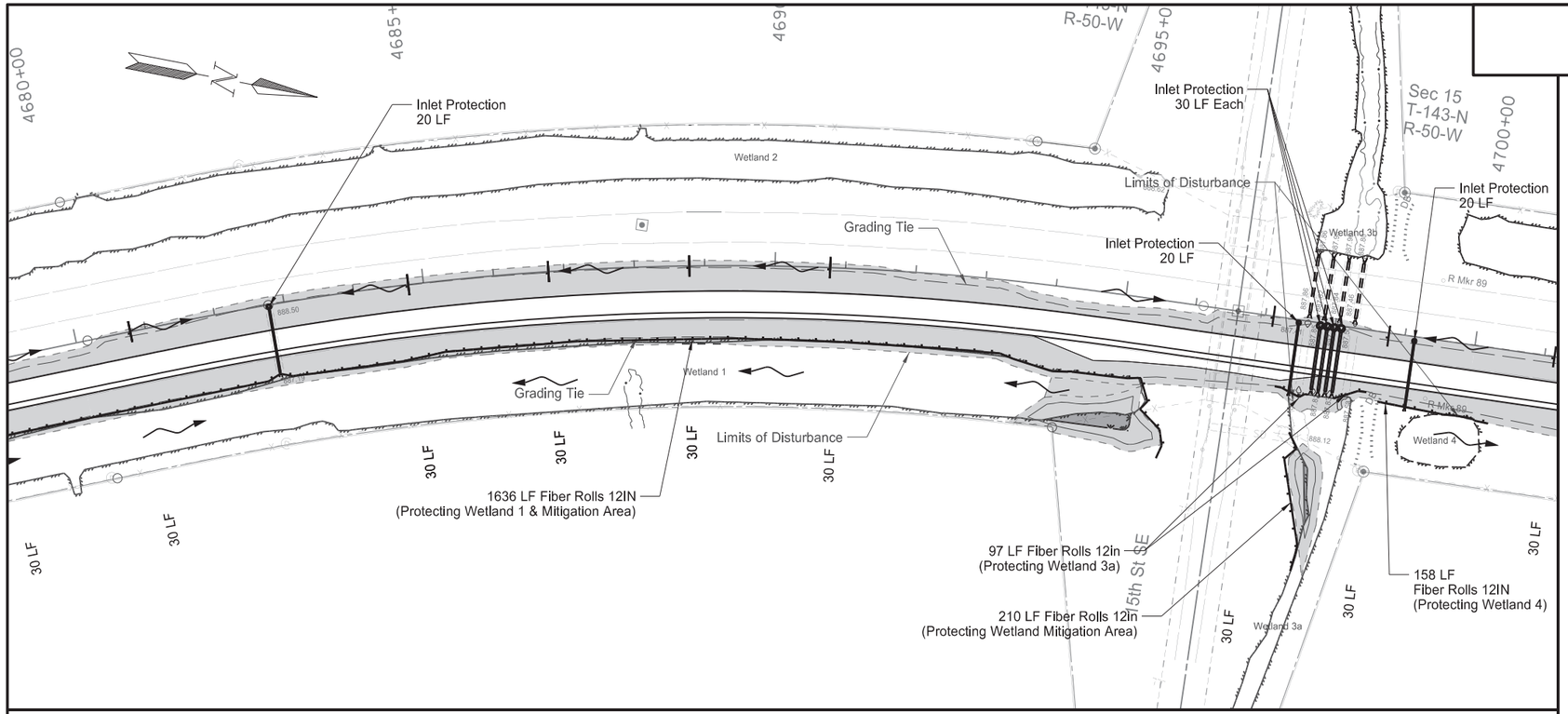
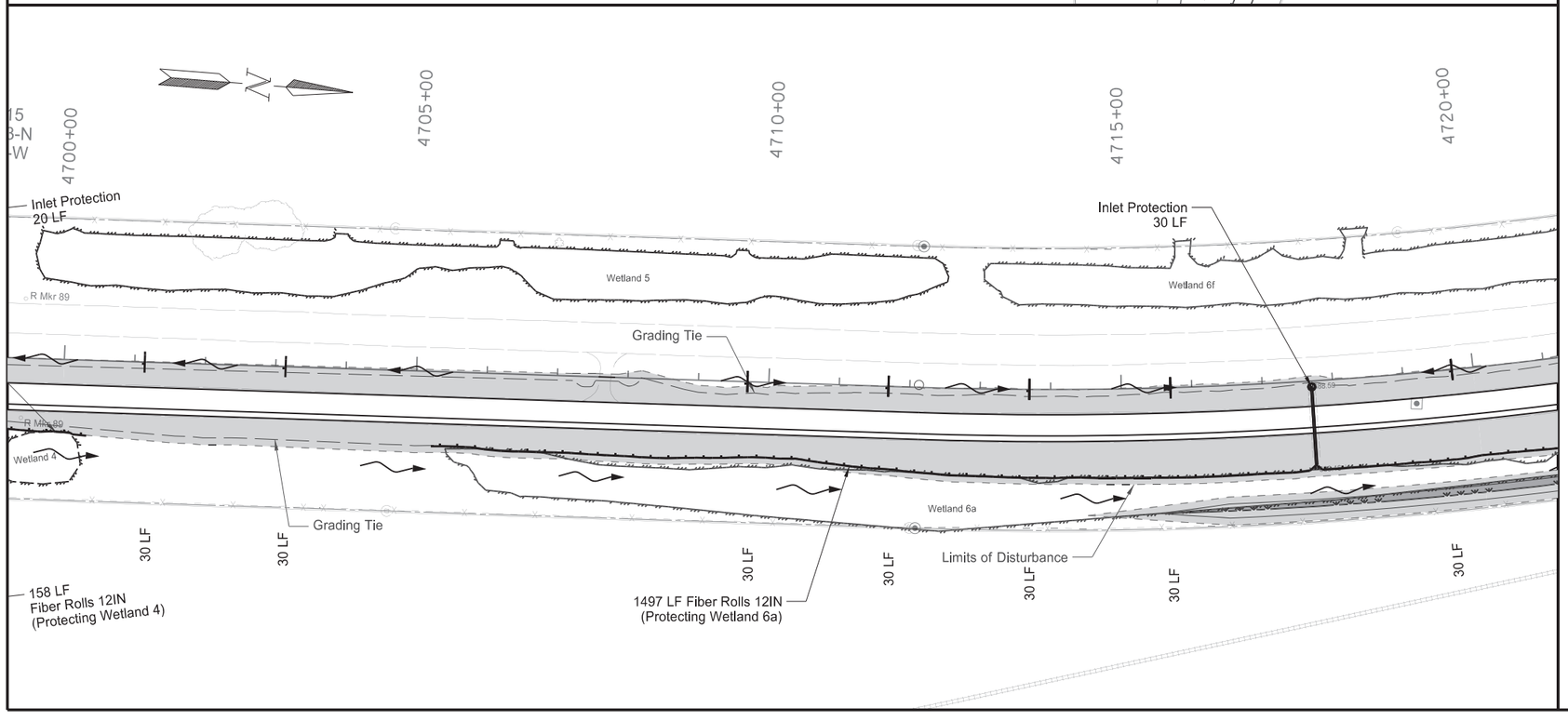
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	2





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Sta 4680+00 to Sta 4720+00	ACRE	7.5
		Wetlands 1, 3a and 6a Mitigation Sites	ACRE	0.7
251	1000	**WETLAND SEED**		
		Wetlands 1, 3a and 6a Mitigation Sites	ACRE	0.1
253	0101	**STRAW MULCH**		
		Sta 4680+00 to Sta 4720+00	ACRE	7.5
		Wetlands 1, 3a and 6a Mitigation Sites	ACRE	0.7
255	0102	**ECB TYPE 2**		
		Sta 4682+78 - CL (Median & Rt)	SY	44
		Sta 4697+48 - CL (Median & Rt)	SY	44
		Sta 4697+93 - CL (Median & Rt)	SY	200
		Sta 4699+14 - CL (Median & Rt)	SY	44
		Sta 4717+70 - CL (Median & Rt)	SY	50
261	0112	**FIBER ROLLS 12IN**		
		Sta 4680+00 to Sta 4720+00	LF	4198

LEGEND

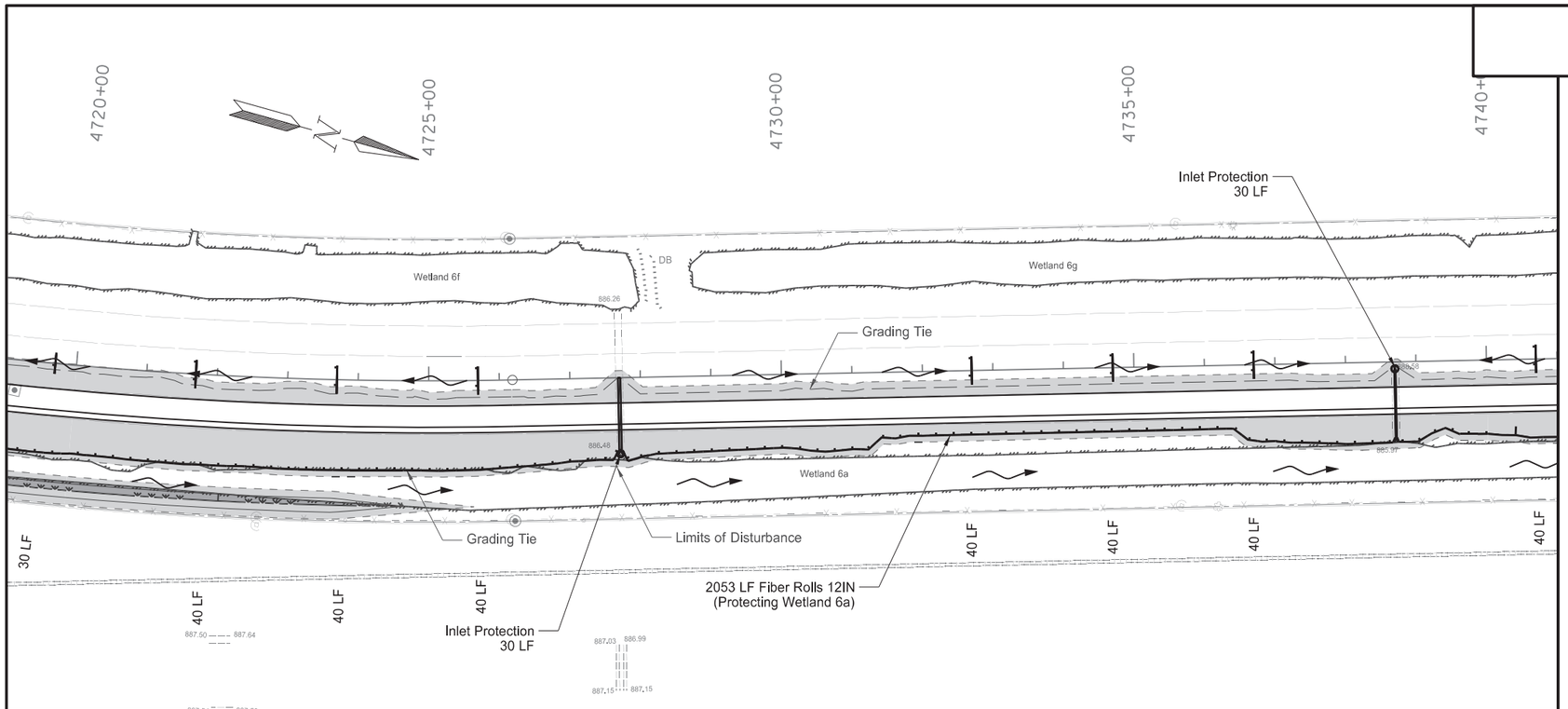
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

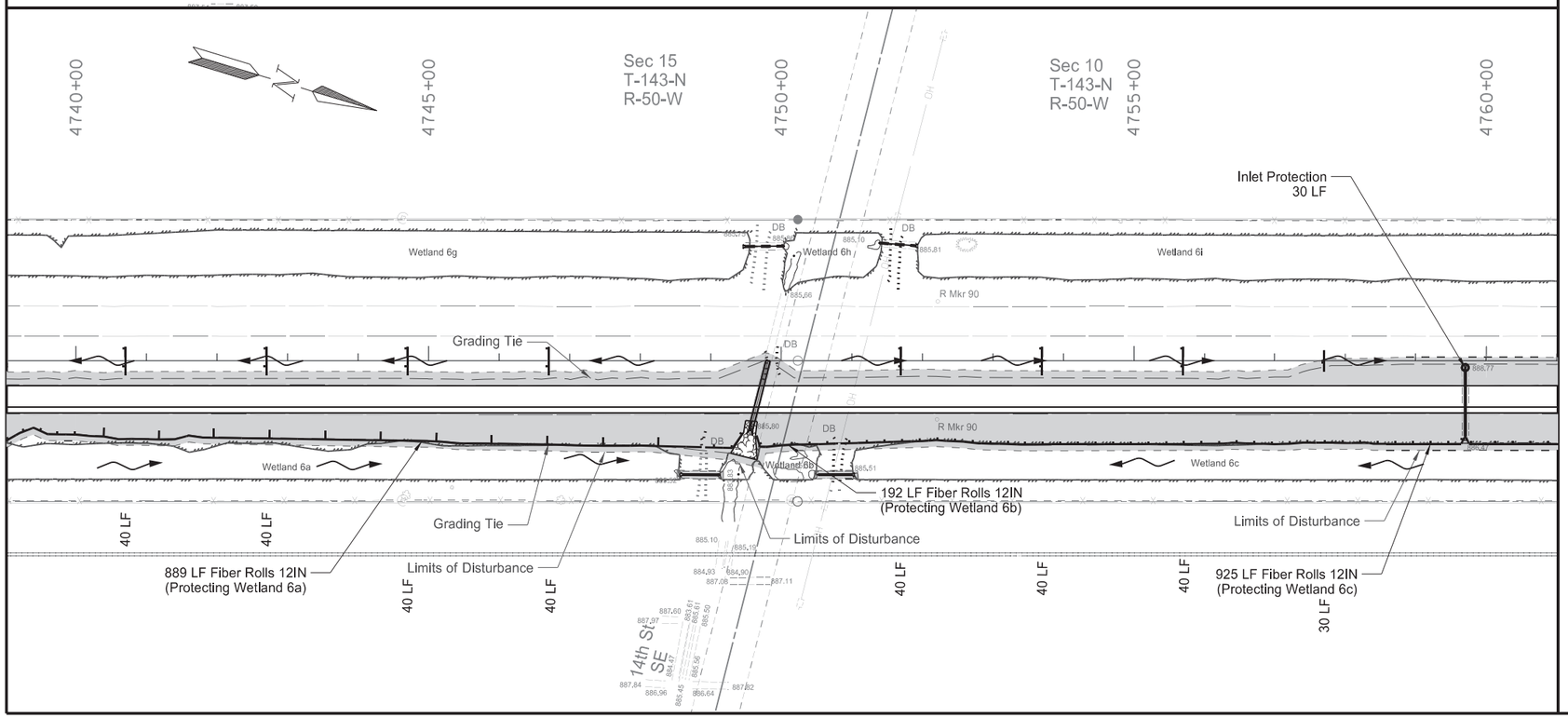
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4680+00 to Sta 4720+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	77	3





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 4720+00 to Sta 4760+00	ACRE	6.7
		Sta 4720+00 to Sta 4760+00	ACRE	0.3
251	**1000**	**WETLAND SEED**		
		Sta 4720+00 to Sta 4760+00	ACRE	0.1
253	**0101**	**STRAW MULCH**		
		Sta 4720+00 to Sta 4760+00	ACRE	6.7
		Sta 4720+00 to Sta 4760+00	ACRE	0.3
255	**0102**	**ECB TYPE 2**		
		Sta 4727+70 - CL (Rt)	SY	28
		Sta 4738+70 - CL (Median & Rt)	SY	44
		Sta 4748+61 - Ditch Block (Rt)	SY	48
		Sta 4750+52 - Ditch Block (Rt)	SY	48
		Sta 4759+70 - CL (Median & Rt))	SY	44
256	**0100**	**RIPRAP GRADE I**		
		Sta 4749+81 - CL (Rt)	CY	114
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 4720+00 to Sta 4760+00	LF	4699
709	**0155**	**GEOSYTHETIC MATERIAL TYPE RR**		
		Sta 4749+81 - CL (Rt)	SY	137

LEGEND

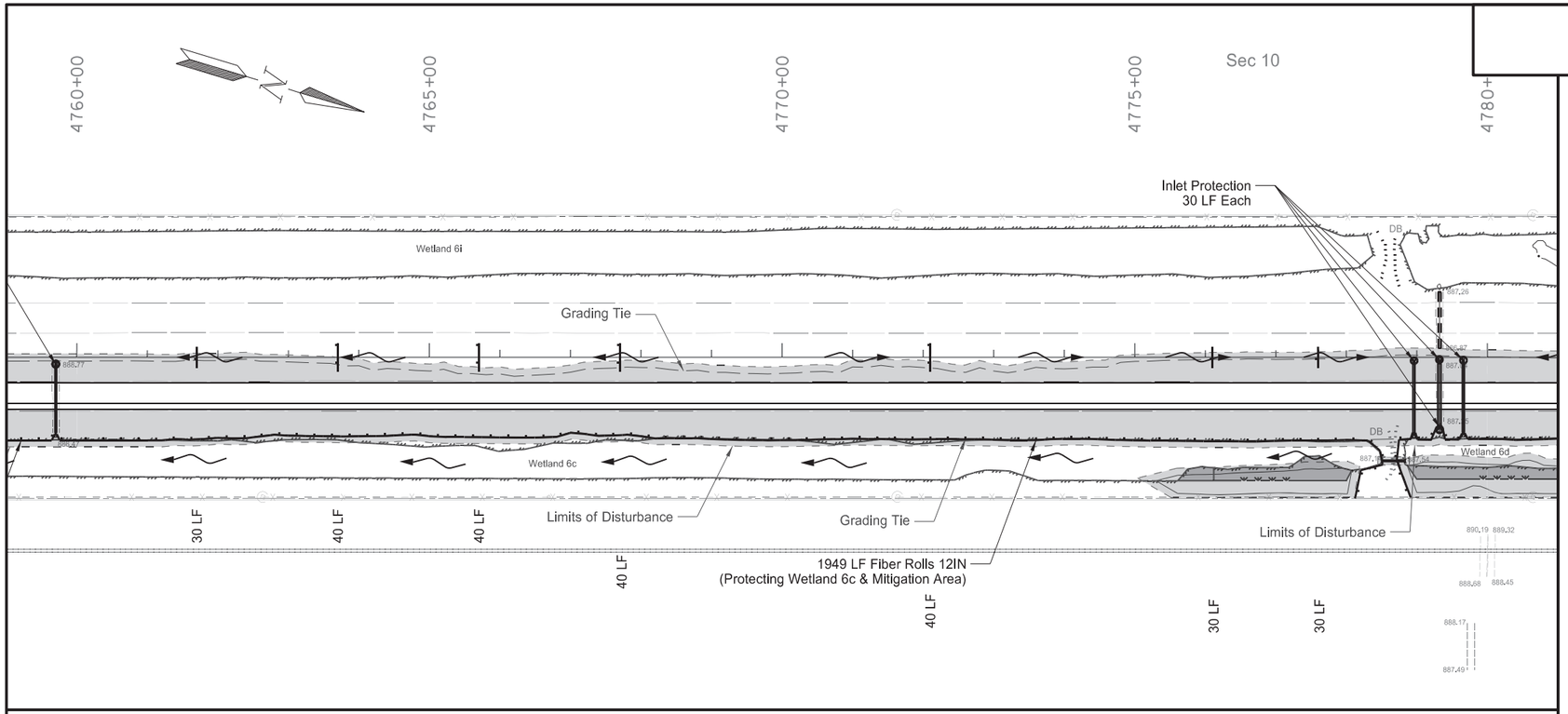
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

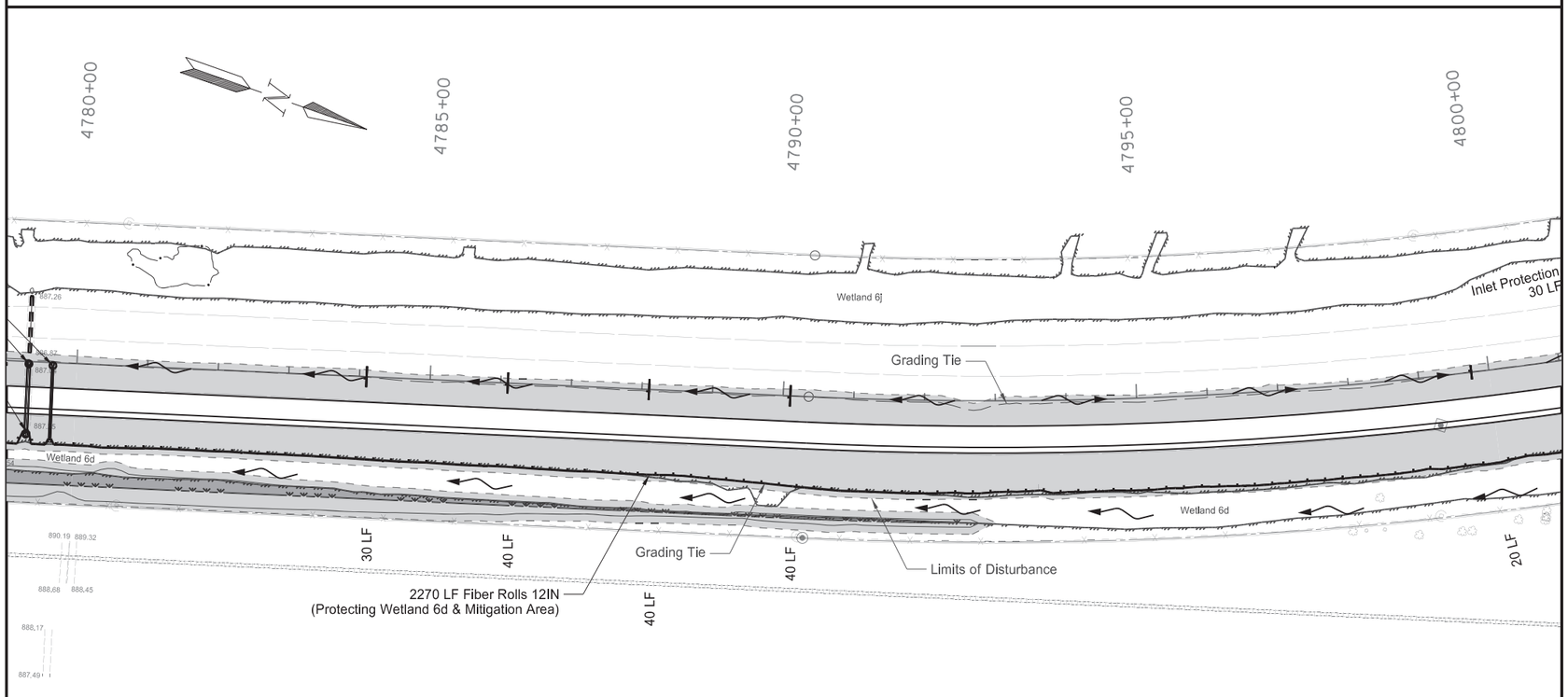
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4720+00 to Sta 4760+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	4





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 4760+00 to Sta 4800+00	ACRE	8.7
		Wetland 6c & 6d Mitigation Sites	ACRE	1.3
251	**1000**	**WETLAND SEED**		
		Wetland 6c & 6d Mitigation Sites	ACRE	0.4
253	**0101**	**STRAW MULCH**		
		Sta 4760+00 to Sta 4800+00	ACRE	8.7
		Wetland 6c & 6d Mitigation Sites	ACRE	1.3
255	**0102**	**ECB TYPE 2**		
		Sta 4778+53 - Ditch Block (Rt)	SY	48
		Sta 4778+96 - CL (Median & Rt)	SY	50
		Sta 4779+32 - CL (Median & Rt)	SY	64
		Sta 4779+66 - CL (Median & Rt)	SY	50
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 4760+00 to Sta 4800+00	LF	4759

LEGEND

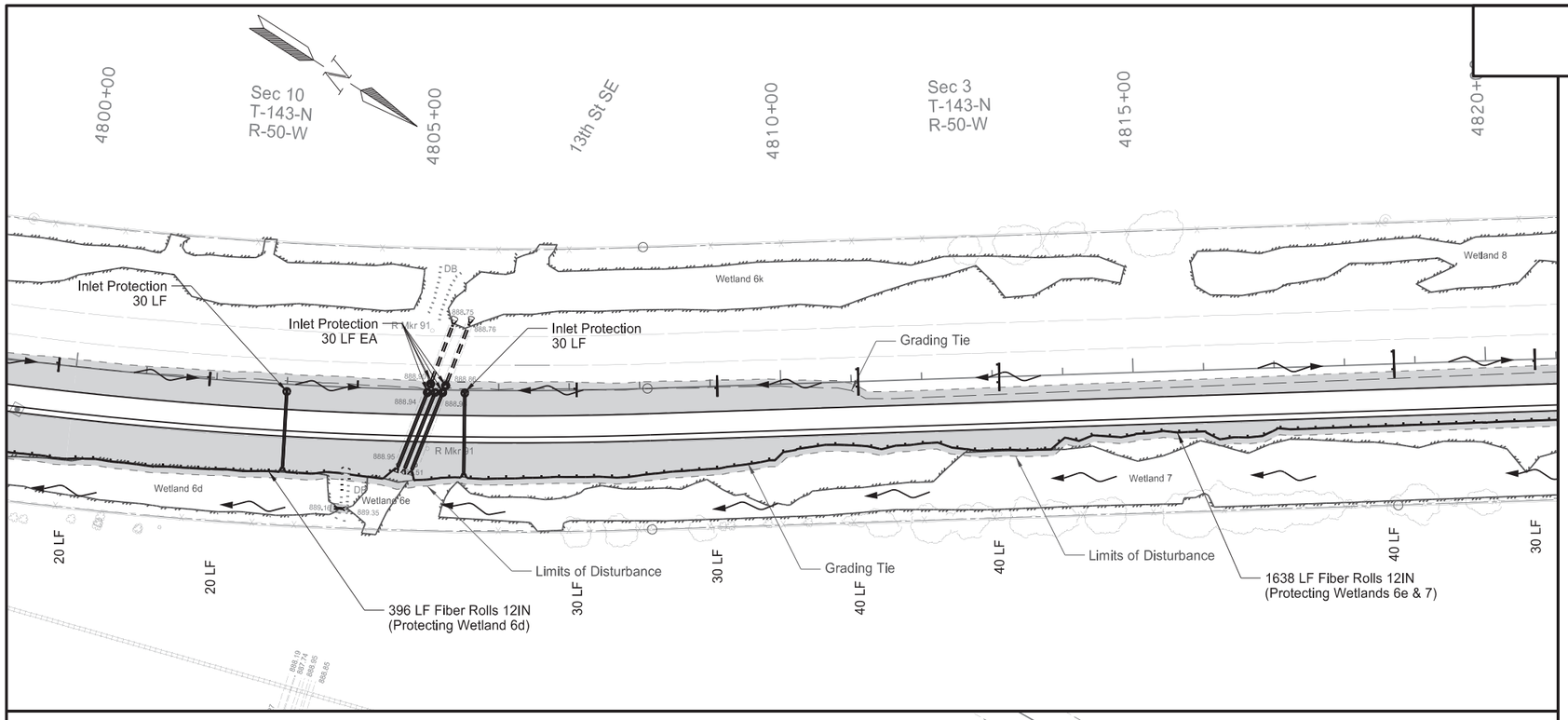
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4760+00 to Sta 4800+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	5



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 4800+00 to Sta 4840+00	ACRE	6.6
253	**0101**	**STRAW MULCH**		
		Sta 4800+00 to Sta 4840+00	ACRE	6.6
255	**0102**	**ECB TYPE 2**		
		Sta 4803+00 - CL (Median & Rt)	SY	50
		Sta 4803+77 - Ditch Block (Rt)	SY	48
		Sta 4805+09 - CL (Median & Rt)	SY	33
		Sta 4805+52 - CL (Median & Rt)	SY	50
		Sta 4824+70 - CL (Median & Rt)	SY	44
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 4800+00 to Sta 4840+00	LF	4040

LEGEND

- Seeding Class II and Straw Mulch
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4800+00 to Sta 4840+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	6

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Sta 4840+00 to Sta 4880+00	ACRE	9.4
		Wetland 11a Mitigation Site	ACRE	0.2
251	1000	**WETLAND SEED**		
		Wetland 11a Mitigation Site	ACRE	0.1
253	0101	**STRAW MULCH**		
		Sta 4840+00 to Sta 4880+00	ACRE	9.4
		Wetland 11a Mitigation Site	ACRE	0.2
255	0102	**ECB TYPE 2**		
		Sta 4849+71 - CL (Median & Rt)	SY	50
261	0112	**FIBER ROLLS 12IN**		
		Sta 4840+00 to Sta 4880+00	LF	3619

LEGEND

- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4840+00 to Sta 4880+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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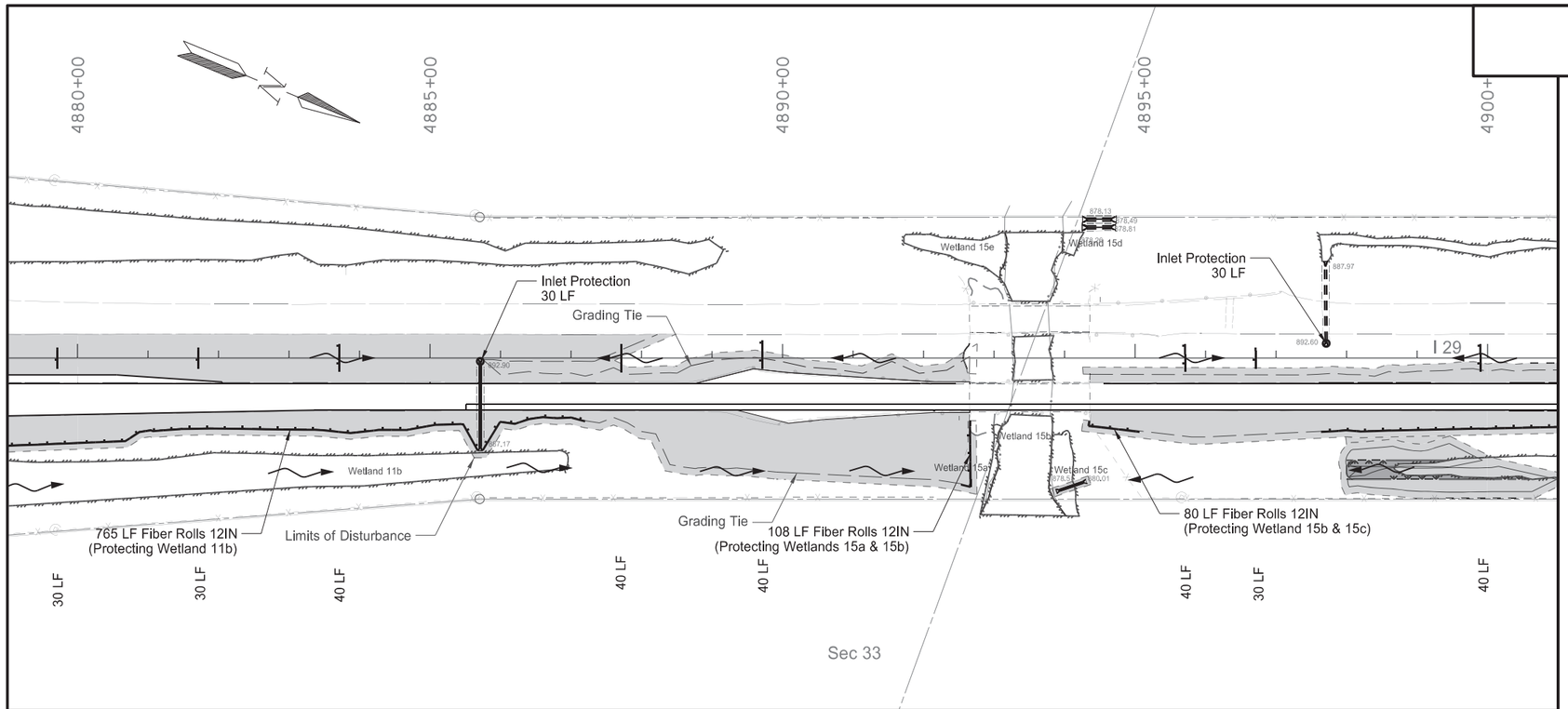
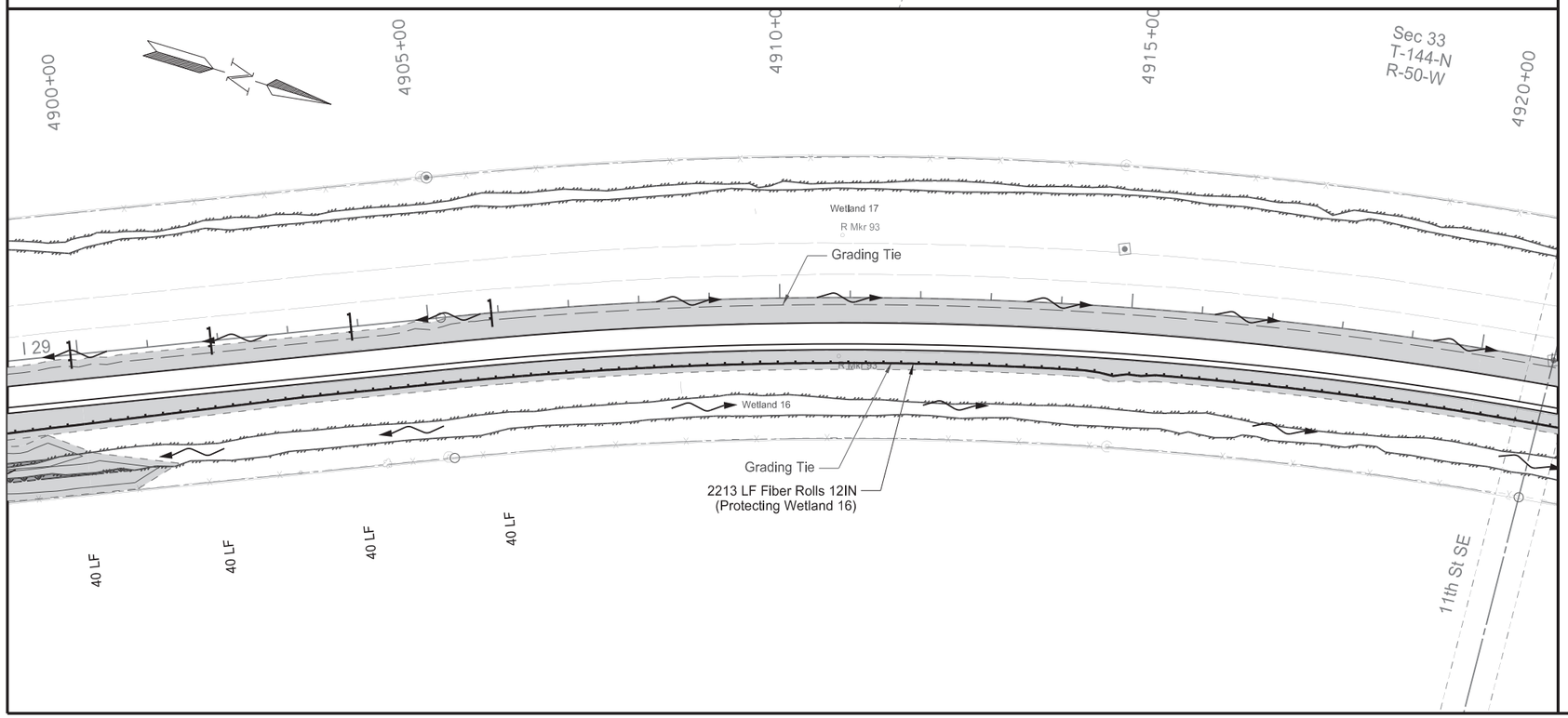
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	7





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	SEEDING CLASS II		
		Sta 4880+00 to Sta 4920+00	ACRE	6.9
		Wetland 16 Mitigation Site	ACRE	0.4
251	1000	WETLAND SEED		
		Wetland 16 Mitigation Site	ACRE	0.1
253	0101	STRAW MULCH		
		Sta 4880+00 to Sta 4920+00	ACRE	6.9
		Wetland 16 Mitigation Site	ACRE	0.4
255	0102	ECB TYPE 2		
		Sta 4885+71 - CL (Median & Rt)	SY	50
		Sta 4893+93 - Rt	SY	54
261	0112	FIBER ROLLS 12IN		
		Sta 4880+00 to Sta 4920+00	LF	3606

LEGEND

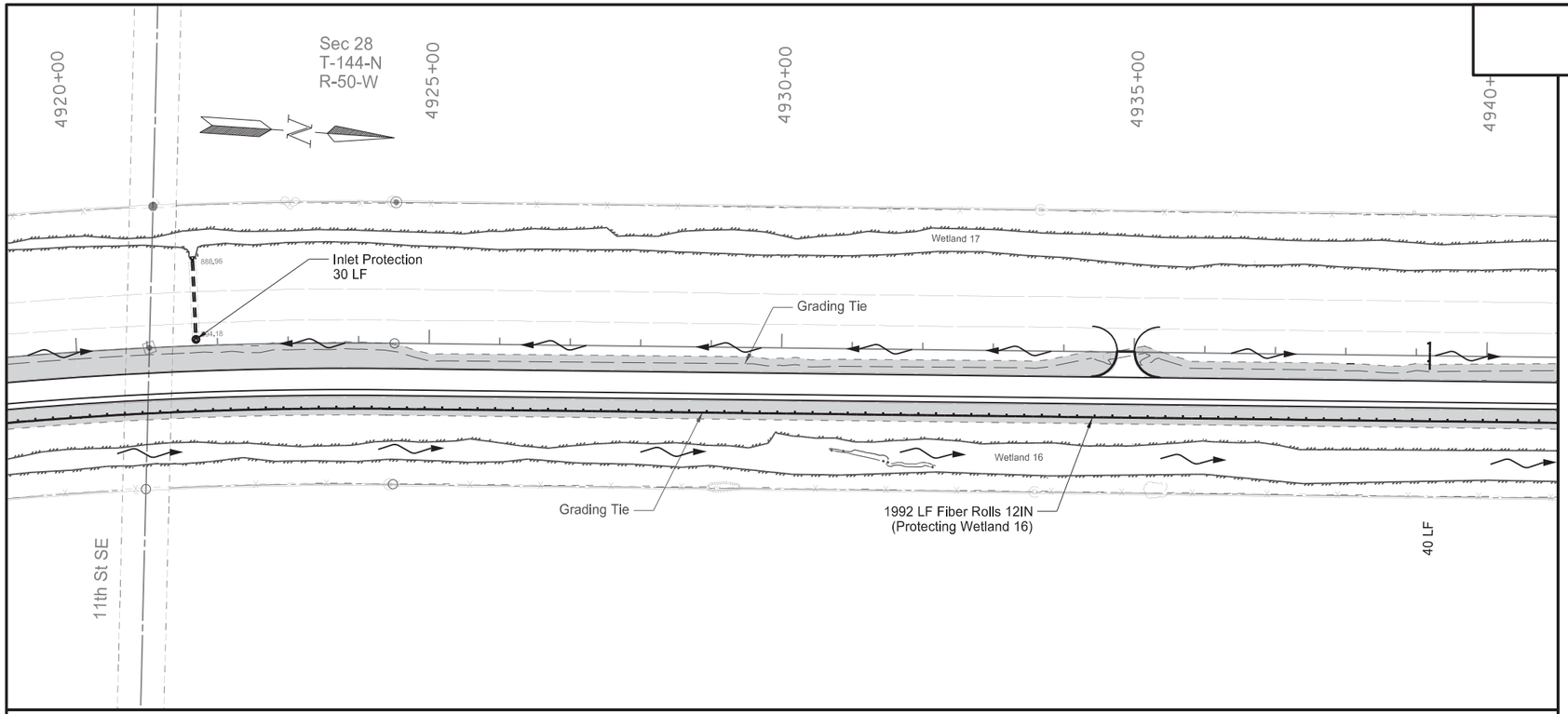
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

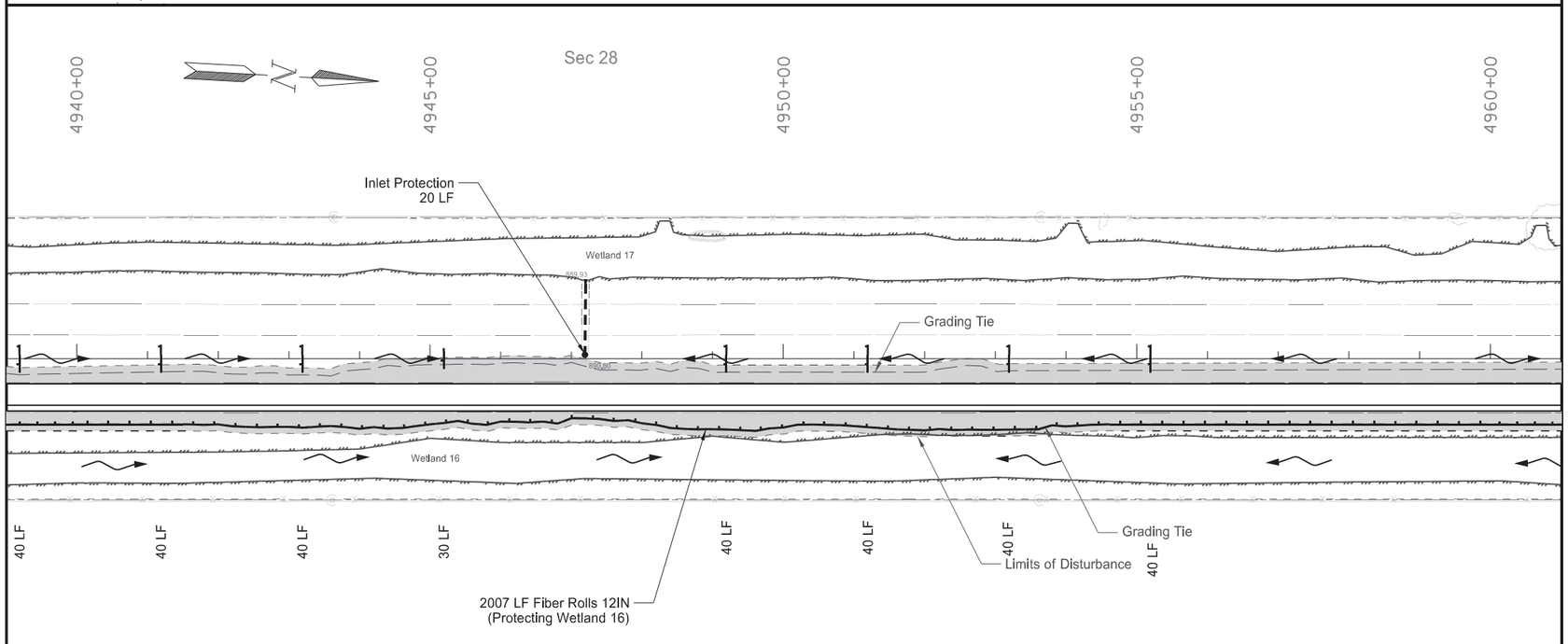
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4880+00 to Sta 4920+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	8





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	SEEDING CLASS II		
		Sta 4920+00 to Sta 4960+00	ACRE	5.2
253	0101	STRAW MULCH		
		Sta 4920+00 to Sta 4960+00	ACRE	5.2
261	0112	FIBER ROLLS 12IN		
		Sta 4920+00 to Sta 4960+00	LF	4359

LEGEND

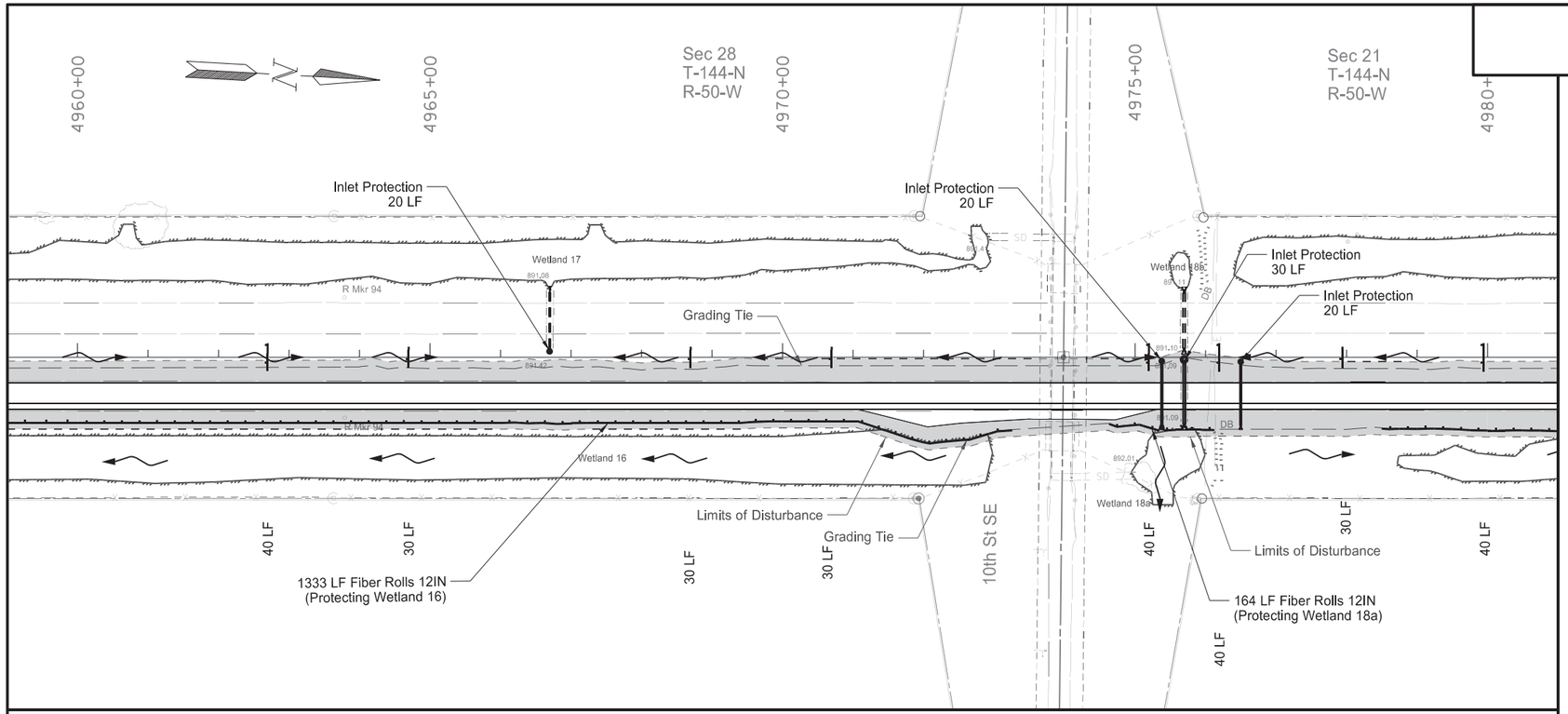
- Seeding Class II and Straw Mulch
- Fiber Rolls
- Direction of Flow

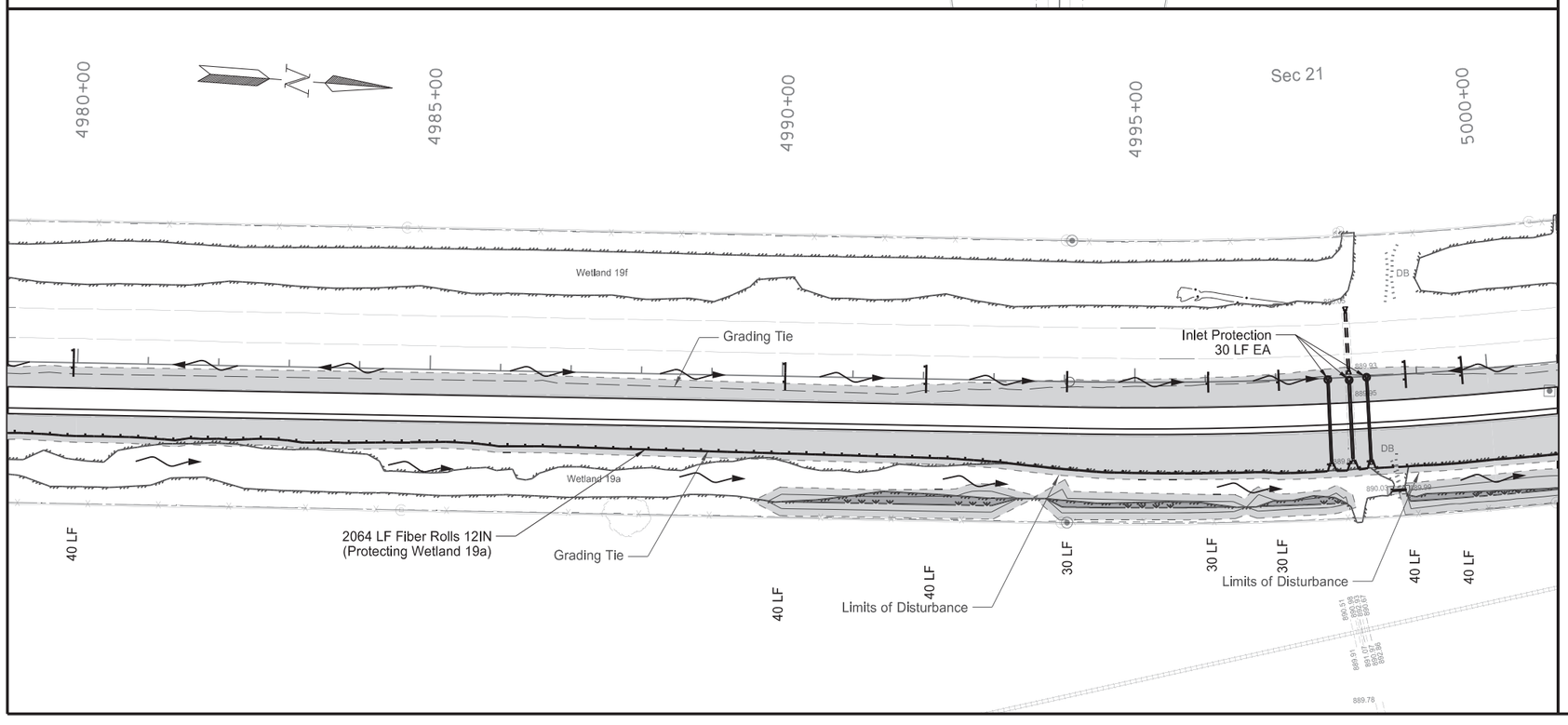
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4920+00 to Sta 4960+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	9





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 4960+00 to Sta 5000+00	ACRE	6.7
		Wetland 19a Mitigation Site	ACRE	0.6
251	**1000**	**WETLAND SEED**		
		Wetland 19a Mitigation Site	ACRE	0.1
253	**0101**	**STRAW MULCH**		
		Sta 4960+00 to Sta 5000+00	ACRE	6.7
		Wetland 19a Mitigation Site	ACRE	0.6
255	**0102**	**ECB TYPE 2**		
		Sta 4975+38 - CL (Median & Rt)	SY	44
		Sta 4975+70 - CL (Median & Rt)	SY	62
		Sta 4976+50 - CL (Median & Rt)	SY	44
		Sta 4997+74 - CL (Median & Rt)	SY	50
		Sta 4998+04 - CL (Median & Rt)	SY	62
		Sta 4998+29 - CL (Median & Rt)	SY	50
		Sta 4998+57- Ditch Block (Rt)	SY	48
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 4960+00 to Sta 5000+00	LF	4271

LEGEND

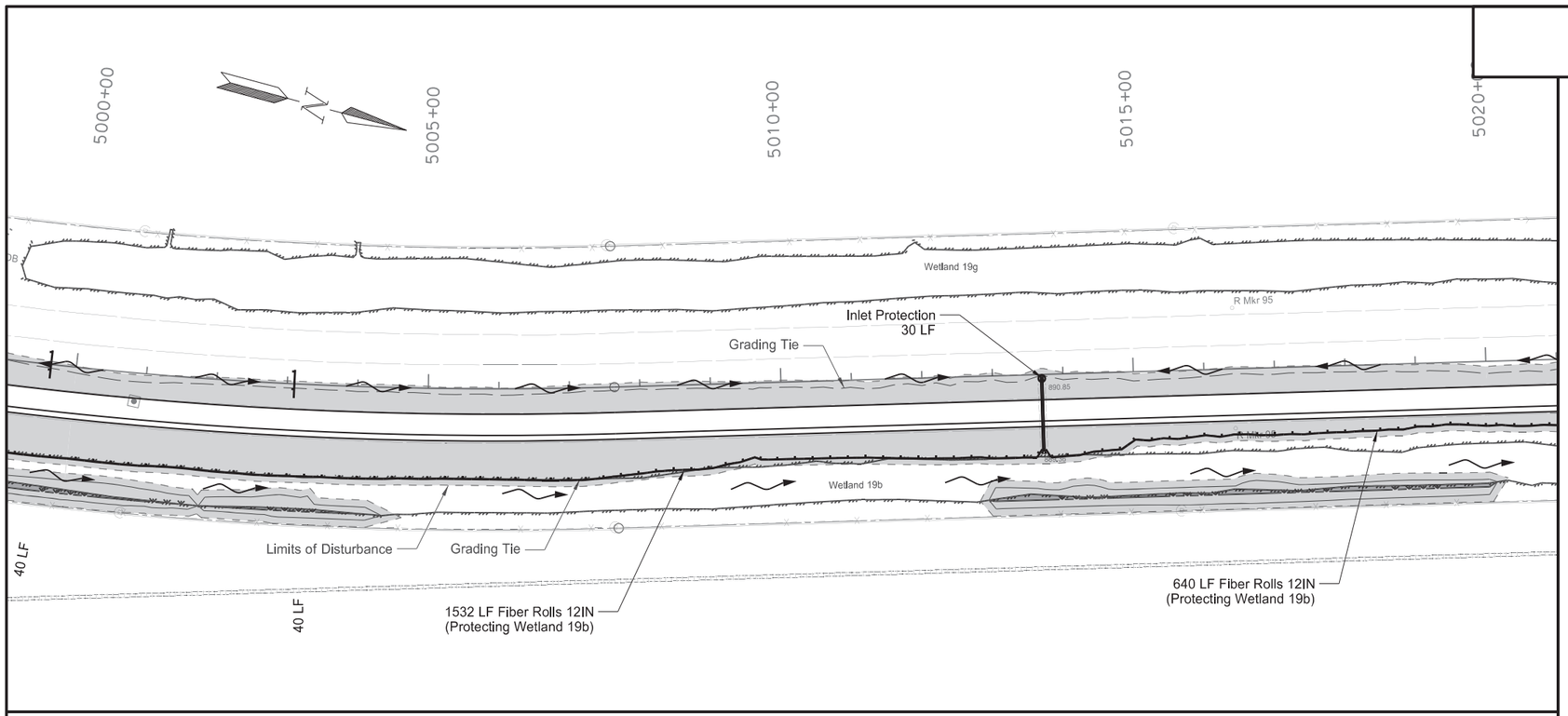
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

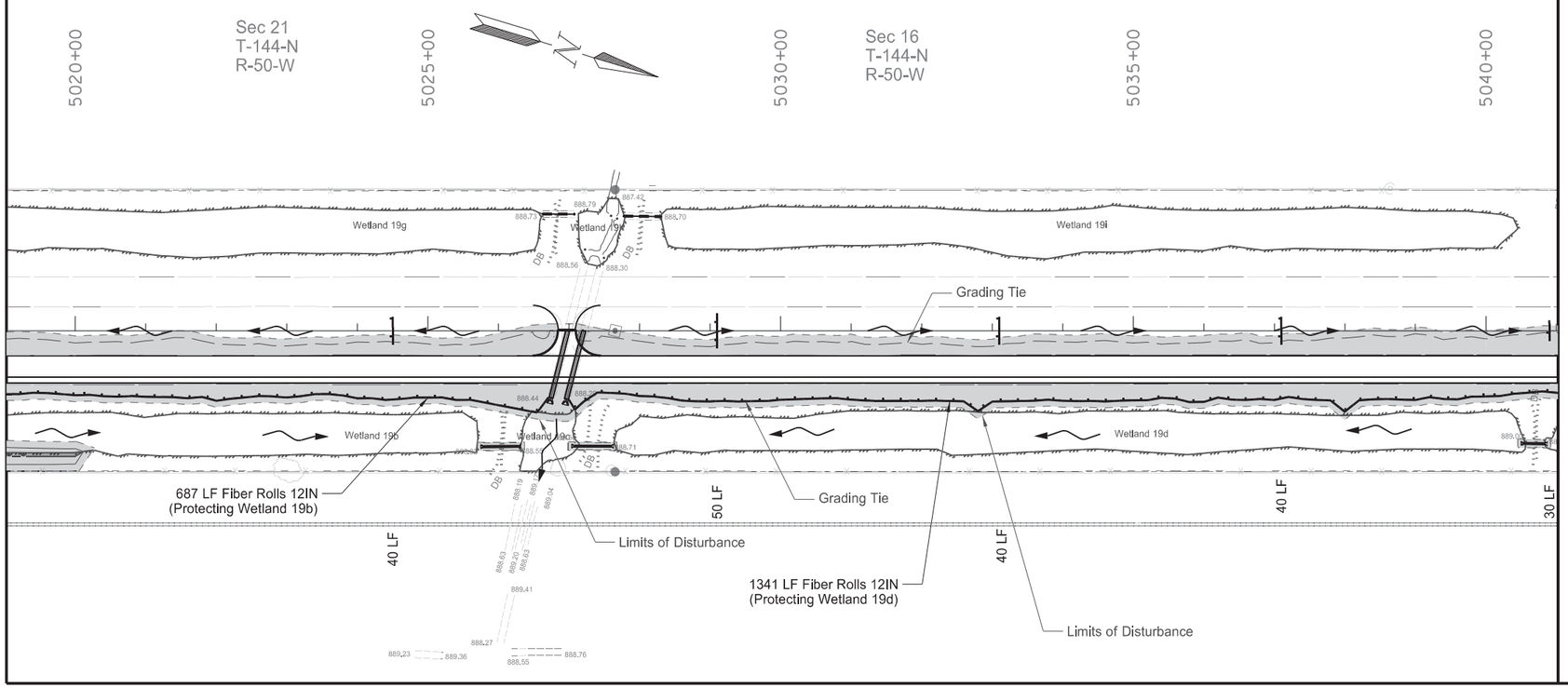
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 4960+00 to Sta 5000+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	77	10





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Sta 5000+00 to Sta 5040+00	ACRE	7.0
		Wetland 19b Mitigation Sites	ACRE	1.2
251	1000	**WETLAND SEED**		
		Wetland 19b Mitigation Sites	ACRE	0.1
253	0101	**STRAW MULCH**		
		Sta 5000+00 to Sta 5040+00	ACRE	7.0
		Wetland 19b Mitigation Sites	ACRE	1.2
255	0102	**ECB TYPE 2**		
		Sta 5013+70 - CL (Median & Rt)	SY	50
		Sta 5025+79 - Ditch Block (Rt)	SY	48
		Sta 5026+98 - CL (Rt)	SY	31
		Sta 5027+21 - CL (Rt)	SY	31
		Sta 5027+08 - Ditch Block (Rt)	SY	48
261	0112	**FIBER ROLLS 12IN**		
		Sta 5000+00 to Sta 5040+00	LF	4440

LEGEND

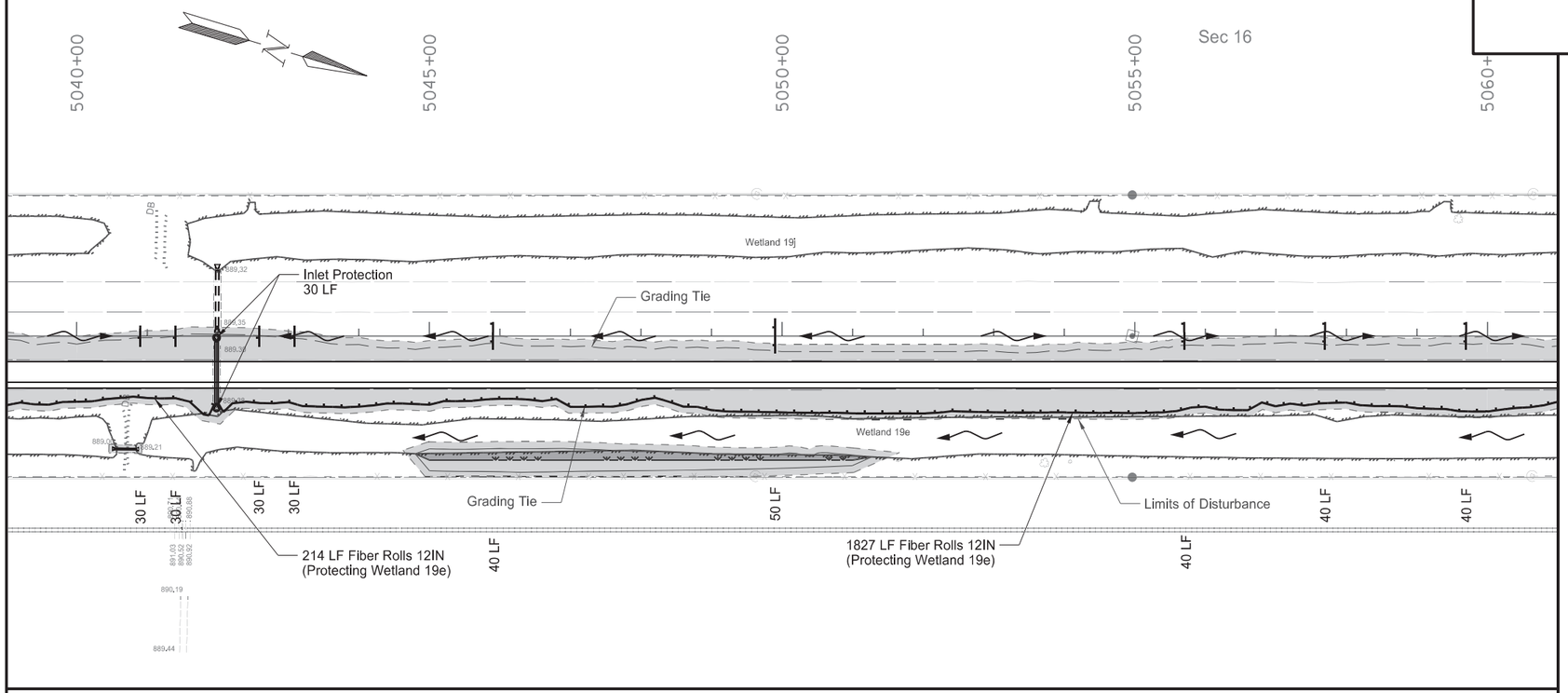
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

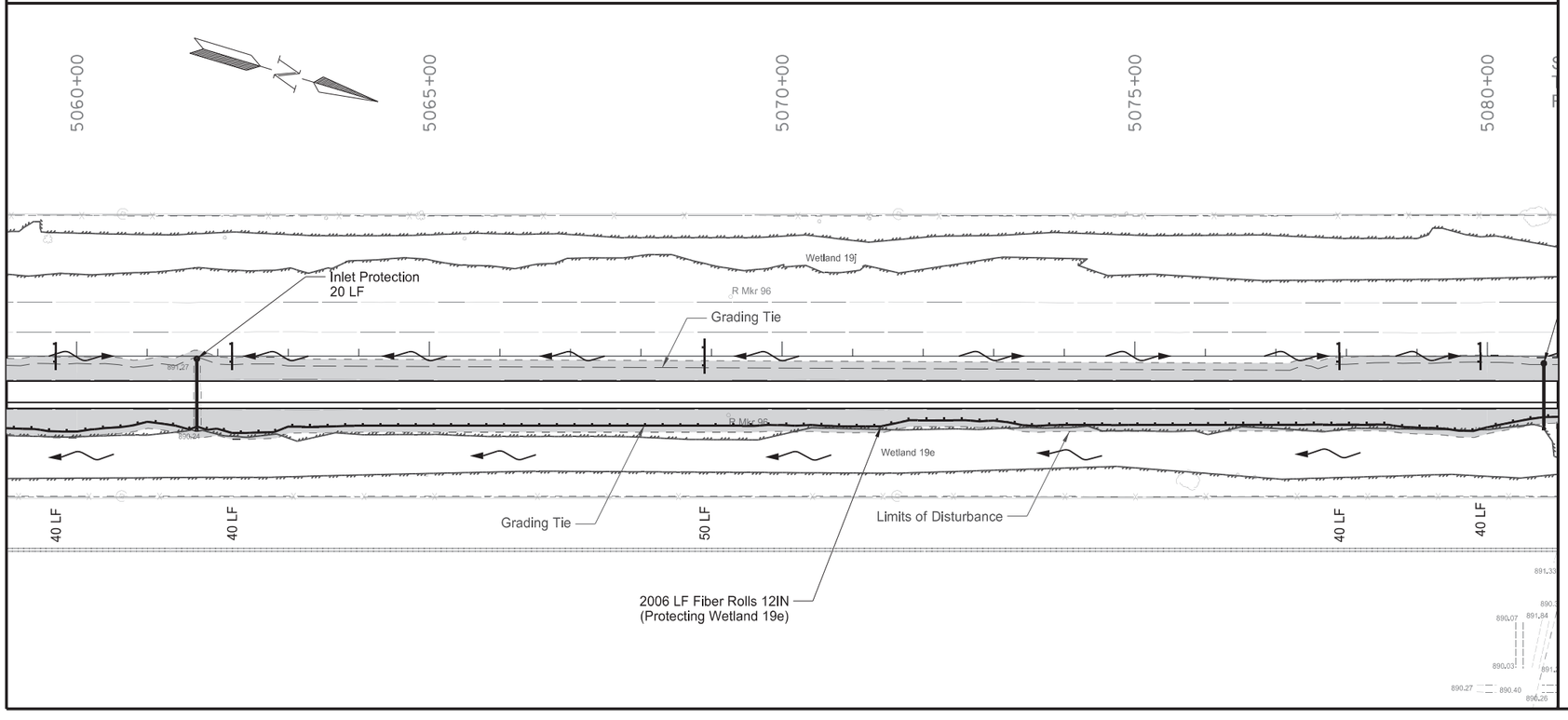
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5000+00 to Sta 5040+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	11





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Sta 5040+00 to Sta 5080+00	ACRE	6.1
		Wetland 19e Mitigation Site	ACRE	0.5
251	1000	**WETLAND SEED**		
		Wetland 19e Mitigation Site	ACRE	0.1
253	0101	**STRAW MULCH**		
		Sta 5040+00 to Sta 5080+00	ACRE	6.1
		Wetland 19e Mitigation Site	ACRE	0.5
255	0102	**ECB TYPE 2**		
		Sta 5040+54 - Ditch Block (Rt)	SY	48
		Sta 5041+98 - CL (Median & Rt)	SY	60
		Sta 5061+70 - CL (Median & Rt)	SY	44
261	0112	**FIBER ROLLS 12IN**		
		Sta 5040+00 to Sta 5080+00	LF	4627

LEGEND

- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5040+00 to Sta 5080+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	12

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 5080+00 to Sta 5120+00	ACRE	7.8
253	**0101**	**STRAW MULCH**		
		Sta 5080+00 to Sta 5120+00	ACRE	7.8
255	**0102**	**ECB TYPE 2**		
		Sta 5080+80 - CL (Median & Rt)	SY	44
		Sta 5082+19 - CL (Median & Rt)	SY	168
		Sta 5082+60 - CL (Median & Rt)	SY	44
		Sta 5110+71 - CL (Median & Rt)	SY	50
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 5080+00 to Sta 5120+00	LF	4688

LEGEND

- Seeding Class II and Straw Mulch
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5080+00 to Sta 5120+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

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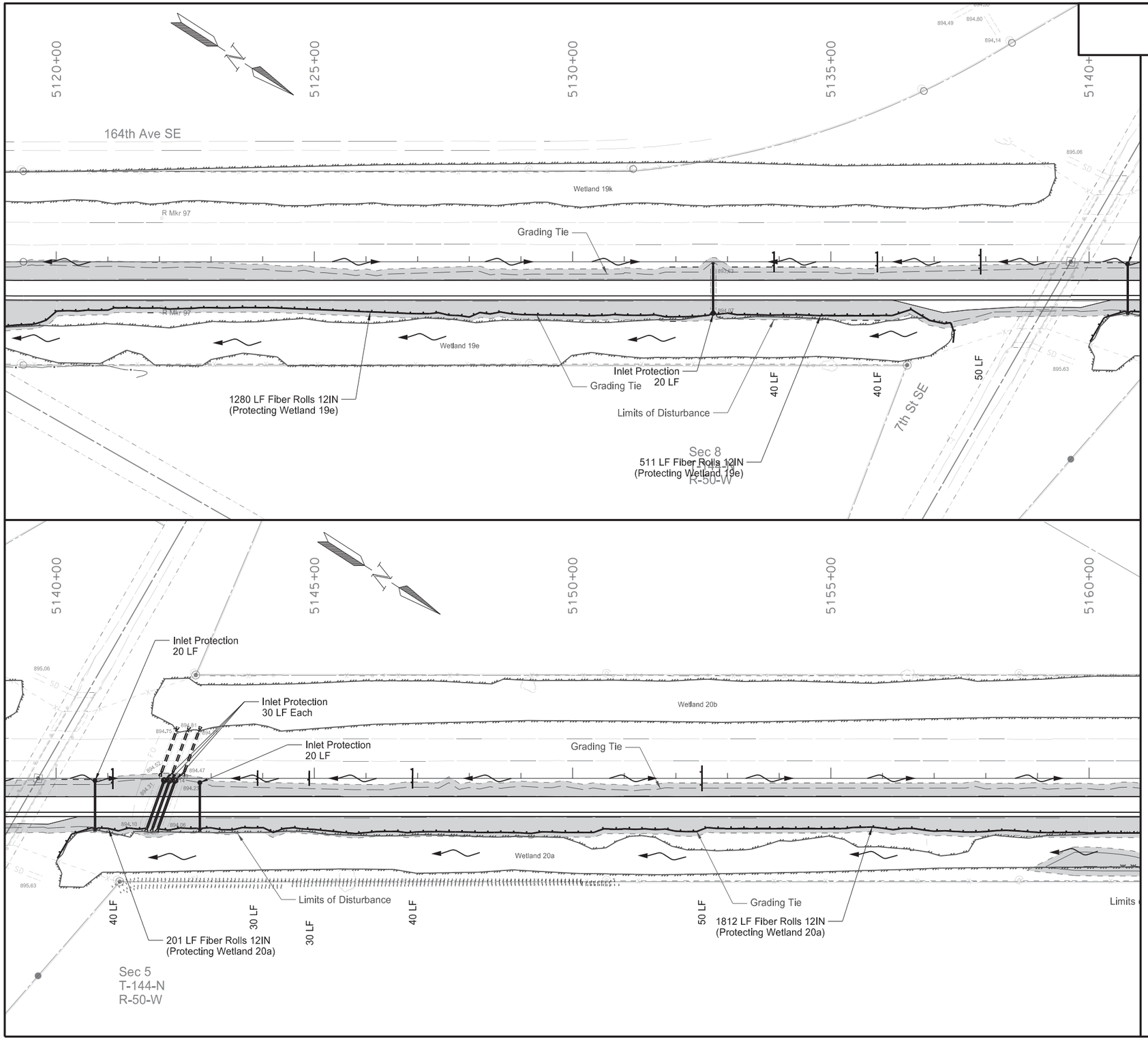
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	13

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	SEEDING CLASS II		
		Sta 5120+00 to Sta 5160+00	ACRE	5.7
253	0101	STRAW MULCH		
		Sta 5120+00 to Sta 5160+00	ACRE	5.7
255	0102	ECB TYPE 2		
		Sta 5132+72 - CL (Median & Rt)	SY	44
		Sta 5140+75 - CL (Median & Rt)	SY	44
		Sta 5142+19 - CL (Median & Rt)	SY	168
		Sta 5142+78 - CL (Median & Rt)	SY	44
261	0112	FIBER ROLLS 12IN		
		Sta 5120+00 to Sta 5160+00	LF	4274



LEGEND

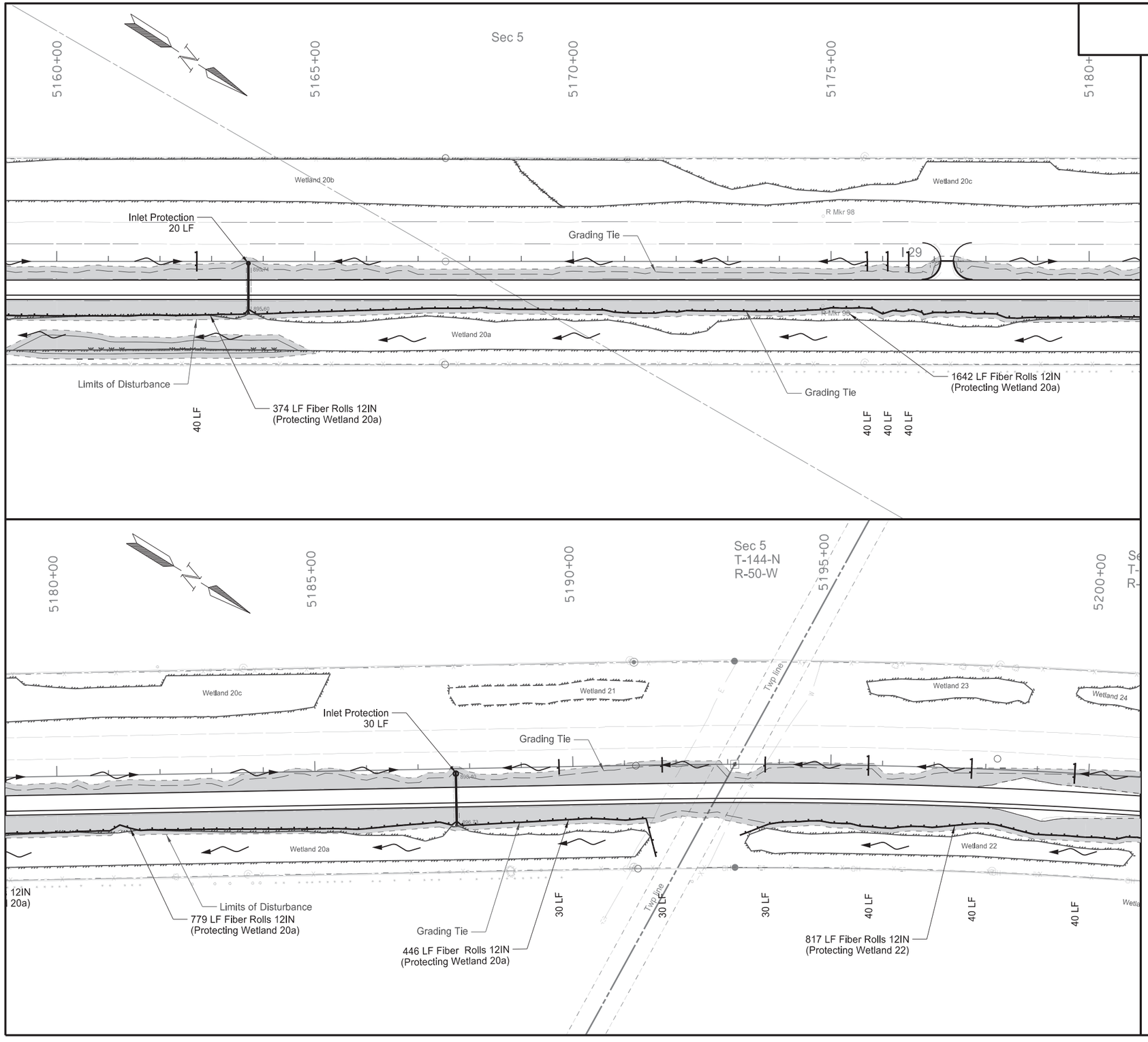
- Seeding Class II and Straw Mulch
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5120+00 to Sta 5160+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	14



SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Sta 5160+00 to Sta 5200+00	ACRE	6.1
		Wetland 20a Mitigation Site	ACRE	0.6
251	1000	**WETLAND SEED**		
		Wetland 20a Mitigation Site	ACRE	0.1
253	0101	**STRAW MULCH**		
		Sta 5160+00 to Sta 5200+00	ACRE	6.1
		Wetland 20a Mitigation Site	ACRE	0.6
255	0102	**ECB TYPE 2**		
		Sta 5163+71 - CL (Median & Rt)	SY	44
		Sta 5187+73 - CL (Median & Rt)	SY	44
261	0112	**FIBER ROLLS 12IN**		
		Sta 5160+00 to Sta 5200+00	LF	4478

LEGEND

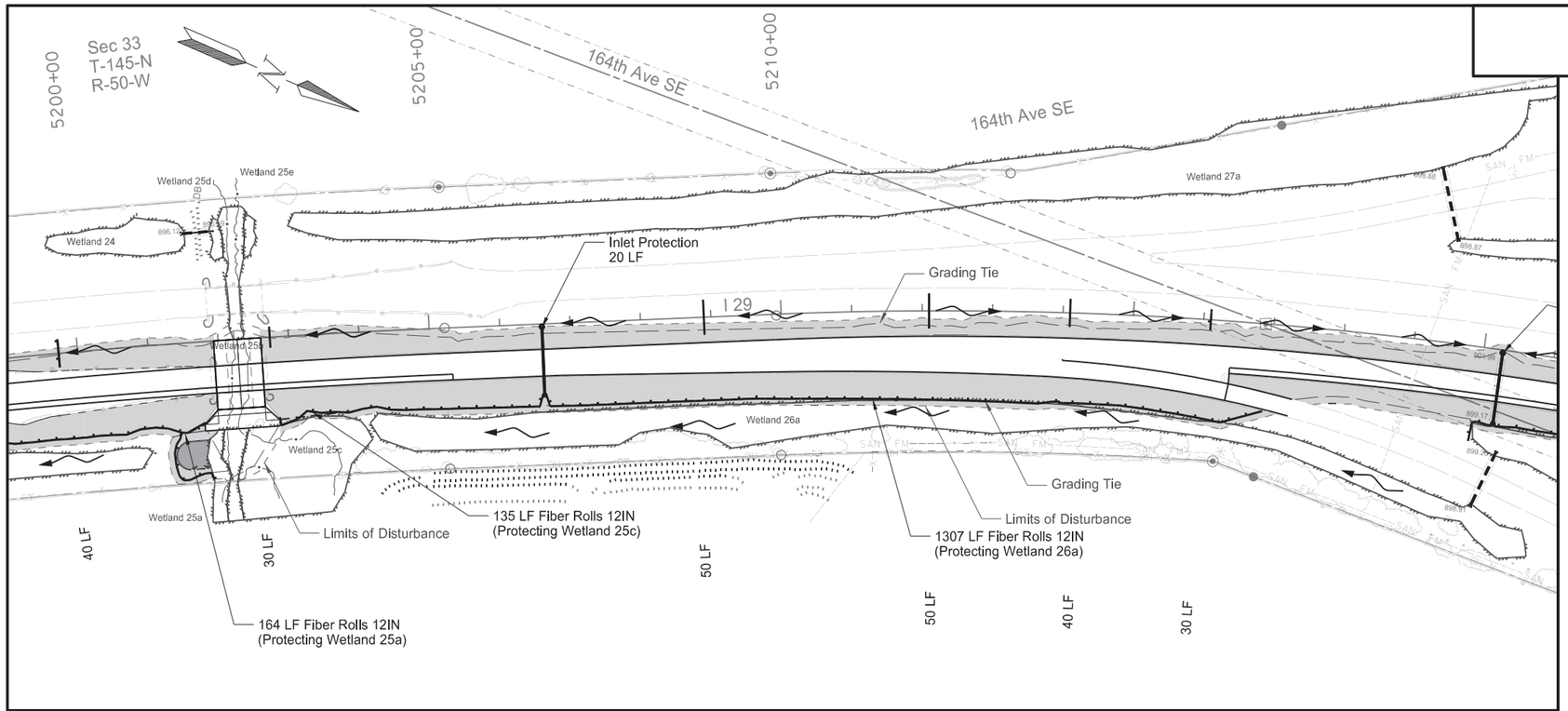
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

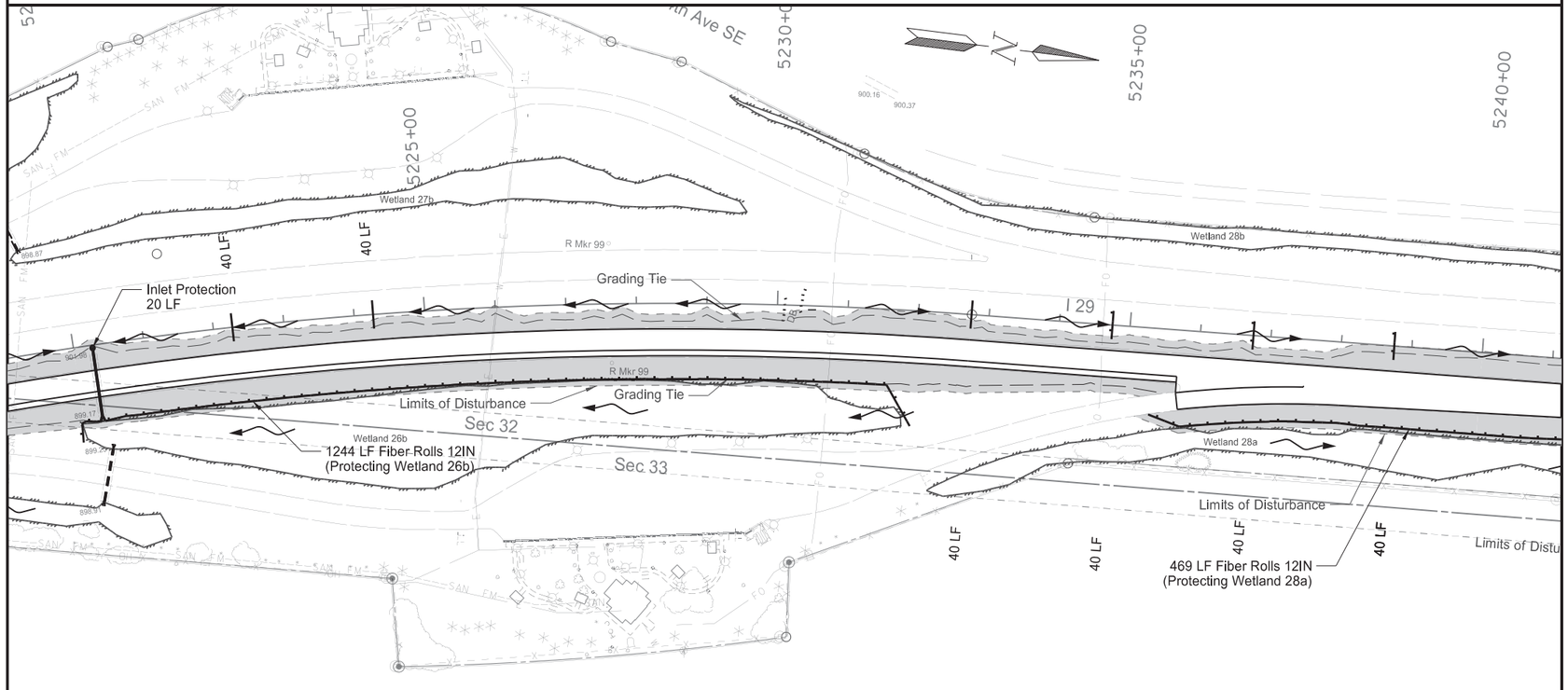
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5160+00 to Sta 5200+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	15





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 5200+00 to Sta 5240+00	ACRE	6.4
		Wetland 25a Mitigation Site	ACRE	0.1
251	**1000**	**WETLAND SEED**		
		Wetland 25a Mitigation Site	ACRE	0.1
253	**0101**	**STRAW MULCH**		
		Sta 5200+00 to Sta 5240+00	ACRE	6.4
		Wetland 25a Mitigation Site	ACRE	0.1
255	**0102**	**ECB TYPE 2**		
		Sta 5206+60 - CL (Median & Rt)	SY	44
		Sta 5220+27 - CL(Median & Rt)	SY	44
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 5200+00 to Sta 5240+00	LF	3799

LEGEND

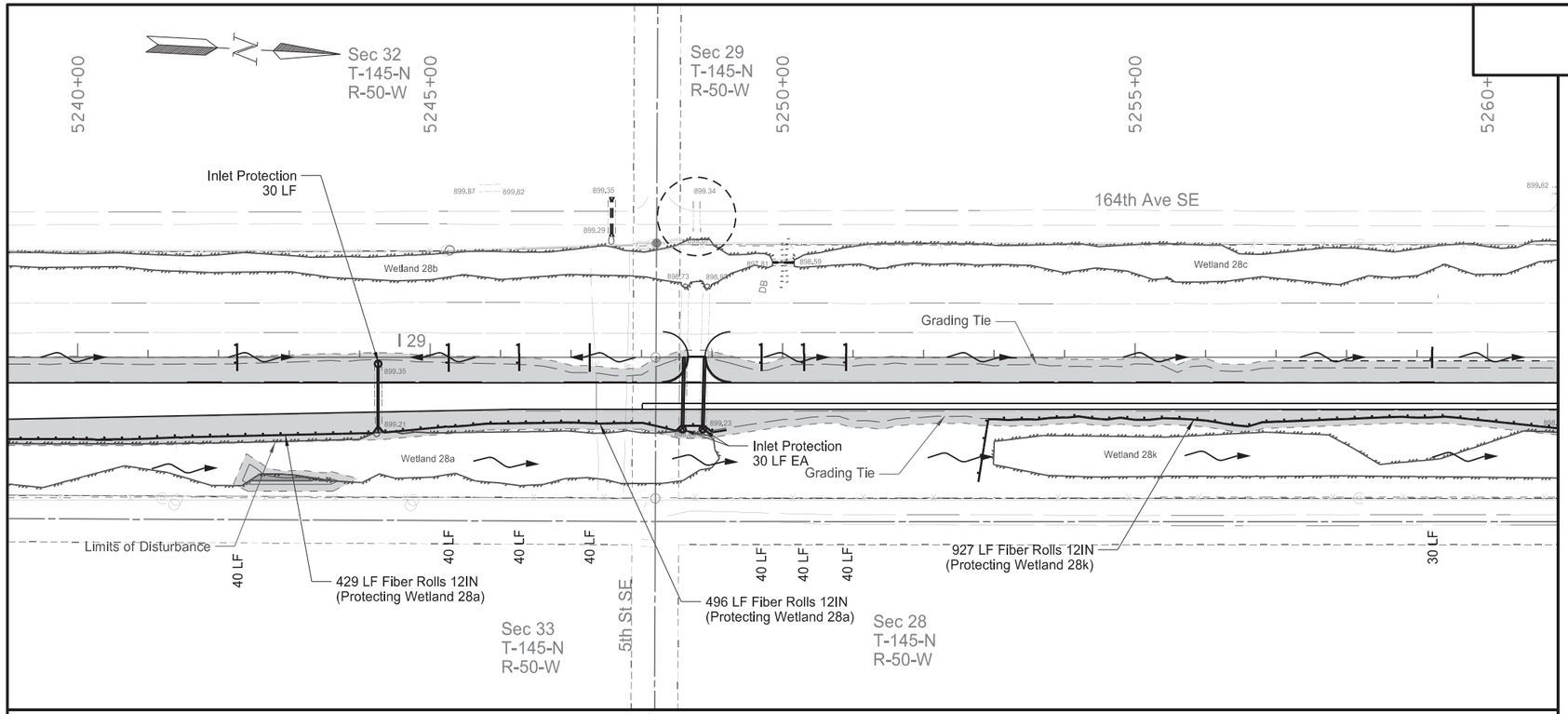
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

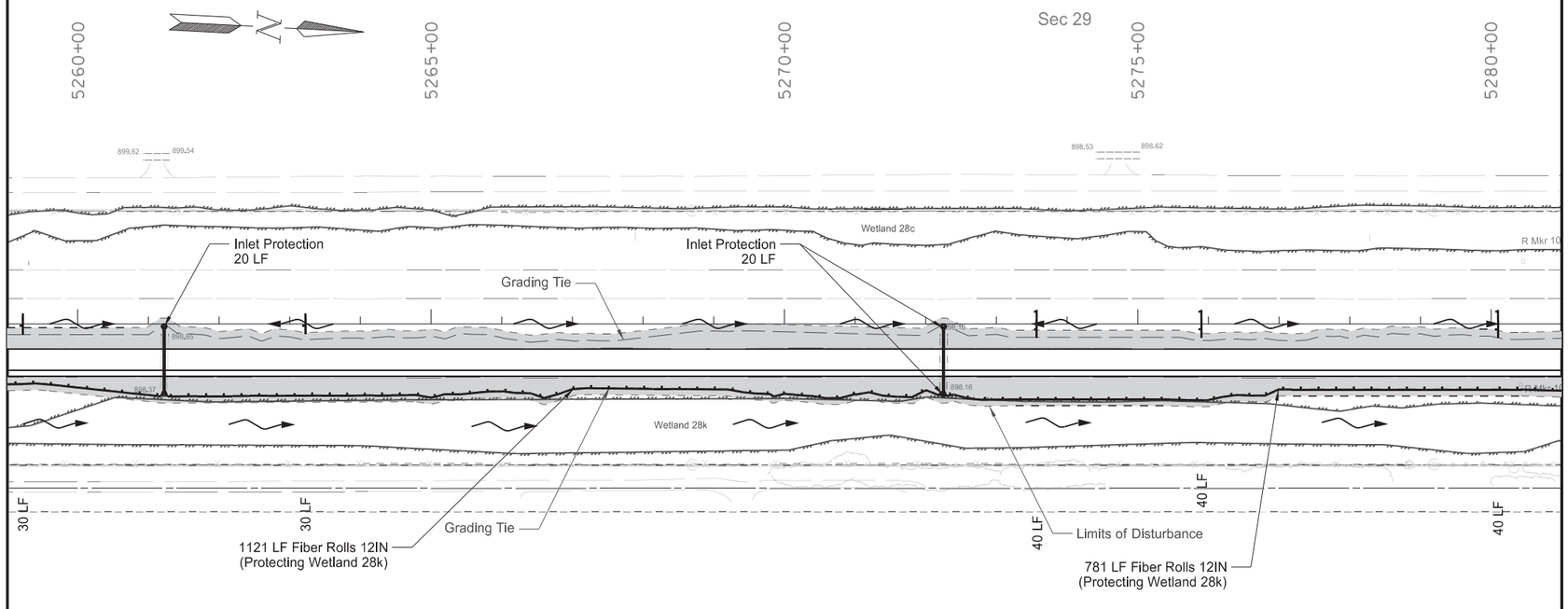
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5200+00 to Sta 5240+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	16





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	0200	**SEEDING CLASS II**		
		Sta 5240+00 to Sta 5280+00	ACRE	5.8
		Wetland 28a Mitigation Site	ACRE	0.1
251	1000	**WETLAND SEED**		
		Wetland 28a Mitigation Site	ACRE	0.1
253	0101	**STRAW MULCH**		
		Sta 5240+00 to Sta 5280+00	ACRE	5.8
		Wetland 28a Mitigation Site	ACRE	0.1
255	0102	**ECB TYPE 2**		
		Sta 5244+26 - CL (Median & Rt)	SY	44
		Sta 5248+60 - CL (Rt)	SY	31
		Sta 5248+89 - CL (Rt)	SY	31
		Sta 5261+22 - CL (Median & Rt)	SY	44
		Sta 5272+25 - CL (Median & Rt)	SY	44
261	0112	**FIBER ROLLS 12IN**		
		Sta 5240+00 to Sta 5280+00	LF	4324

LEGEND

- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

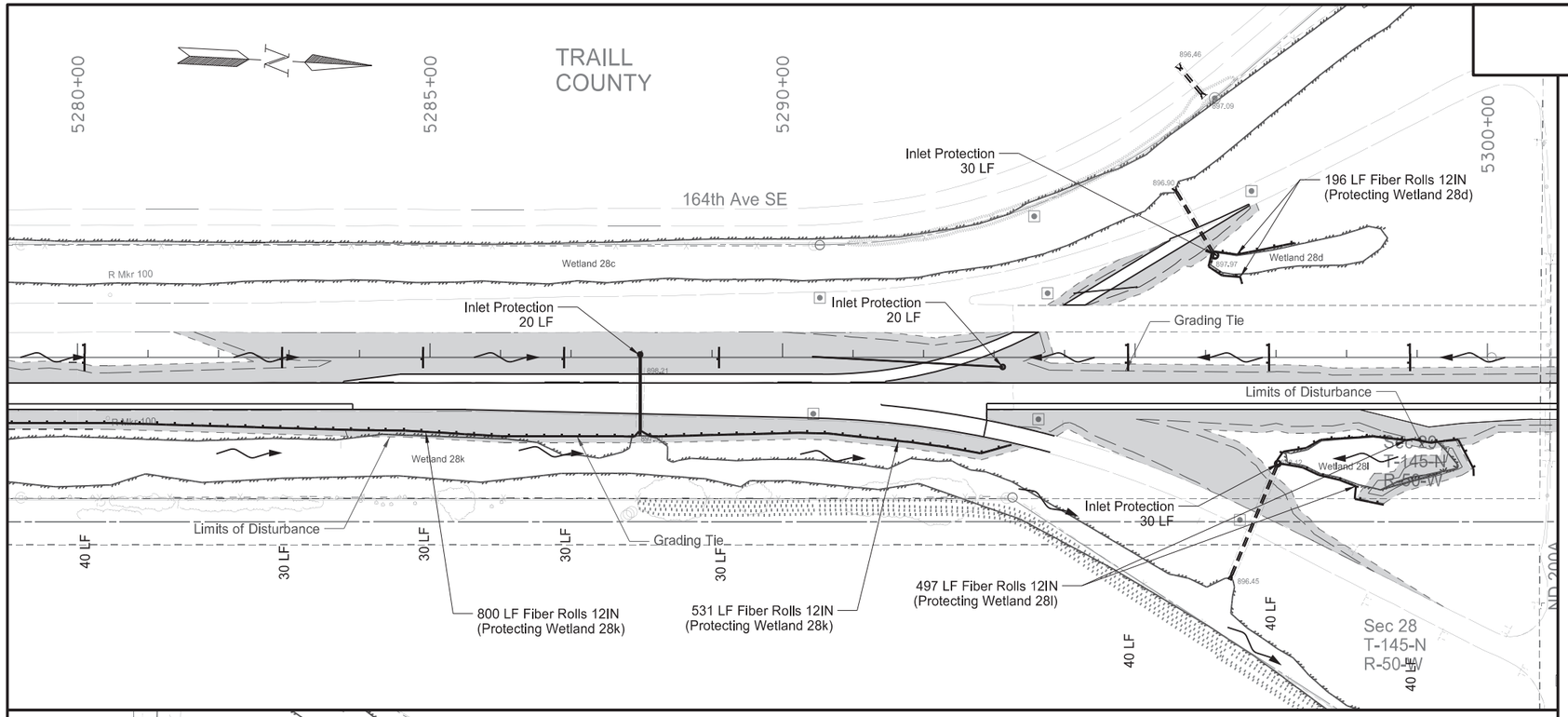
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

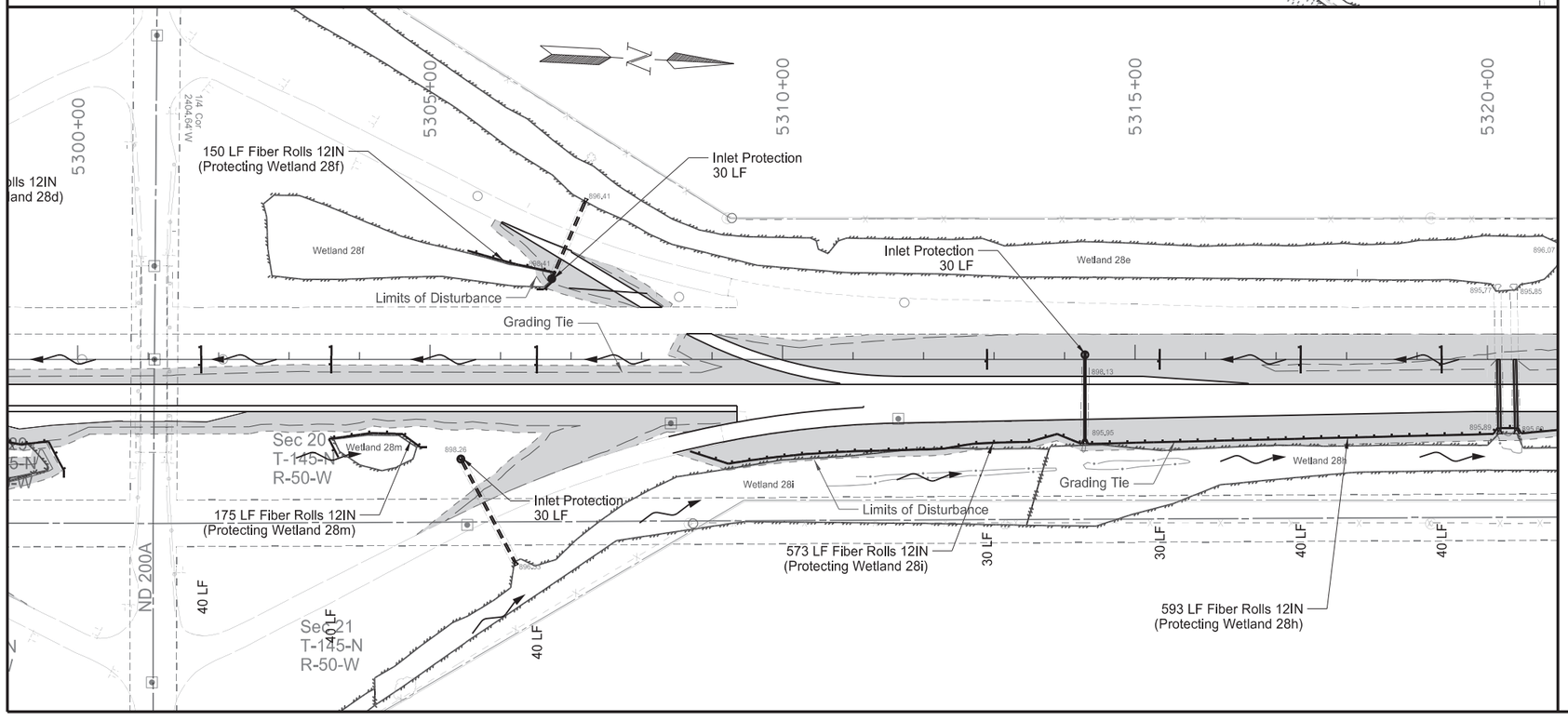
Permanent Erosion Control Sheet
Sta 5240+00 to Sta 5280+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	17

SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 5280+00 to Sta 5320+00	ACRE	8.6
		Wetland 28l Mitigation Site	ACRE	0.1
251	**1000**	**WETLAND SEED**		
		Wetland 28l Mitigation Site	ACRE	0.1
253	**0101**	**STRAW MULCH**		
		Sta 5280+00 to Sta 5320+00	ACRE	8.6
		Wetland 28l Mitigation Site	ACRE	0.1
255	**0102**	**ECB TYPE 2**		
		Sta 5287+98 - CL (Median & Rt)	SY	44
		Sta 5306+74 - Ramp (Lt)	SY	25
		Sta 5314+29 - CL (Median & Rt)	SY	50
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 5280+00 to Sta 5320+00	LF	4245





LEGEND

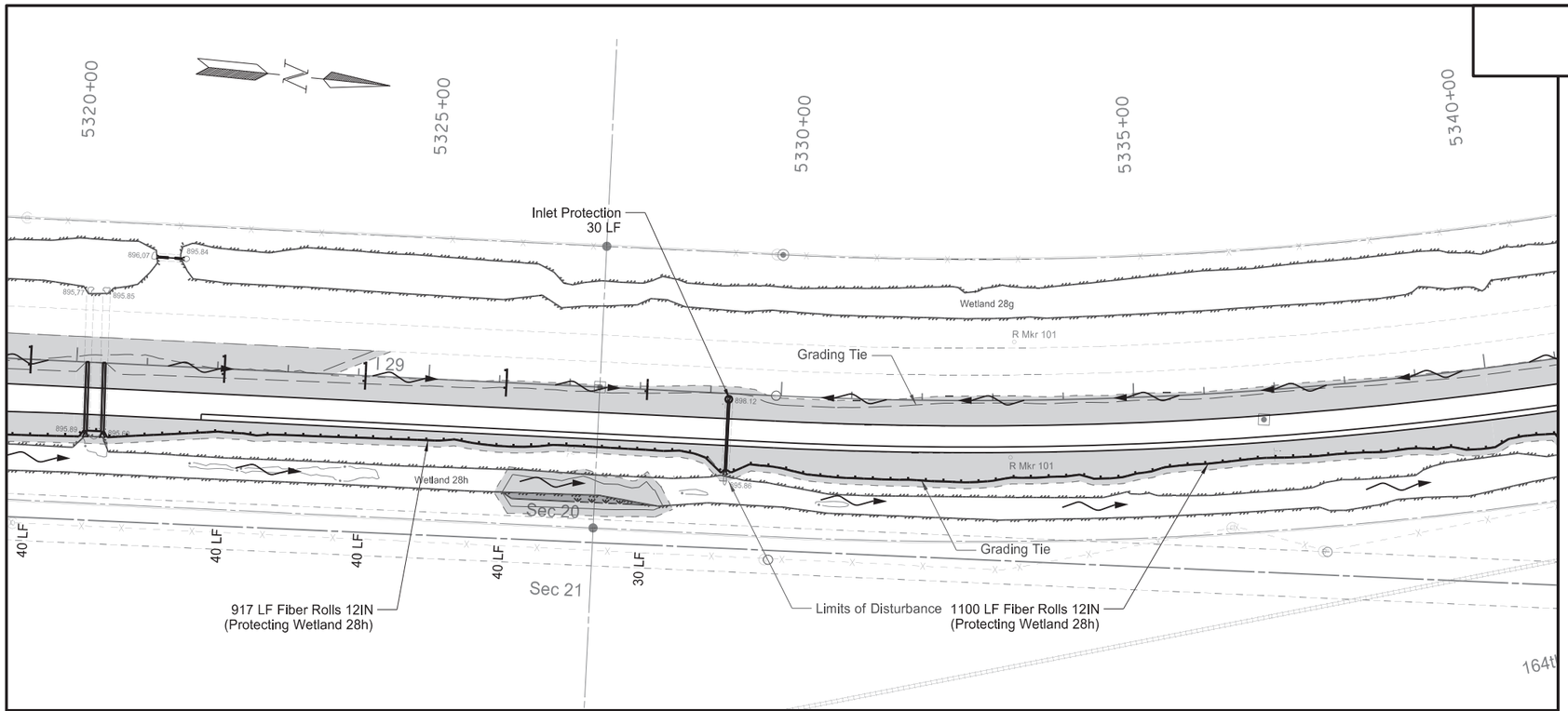
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

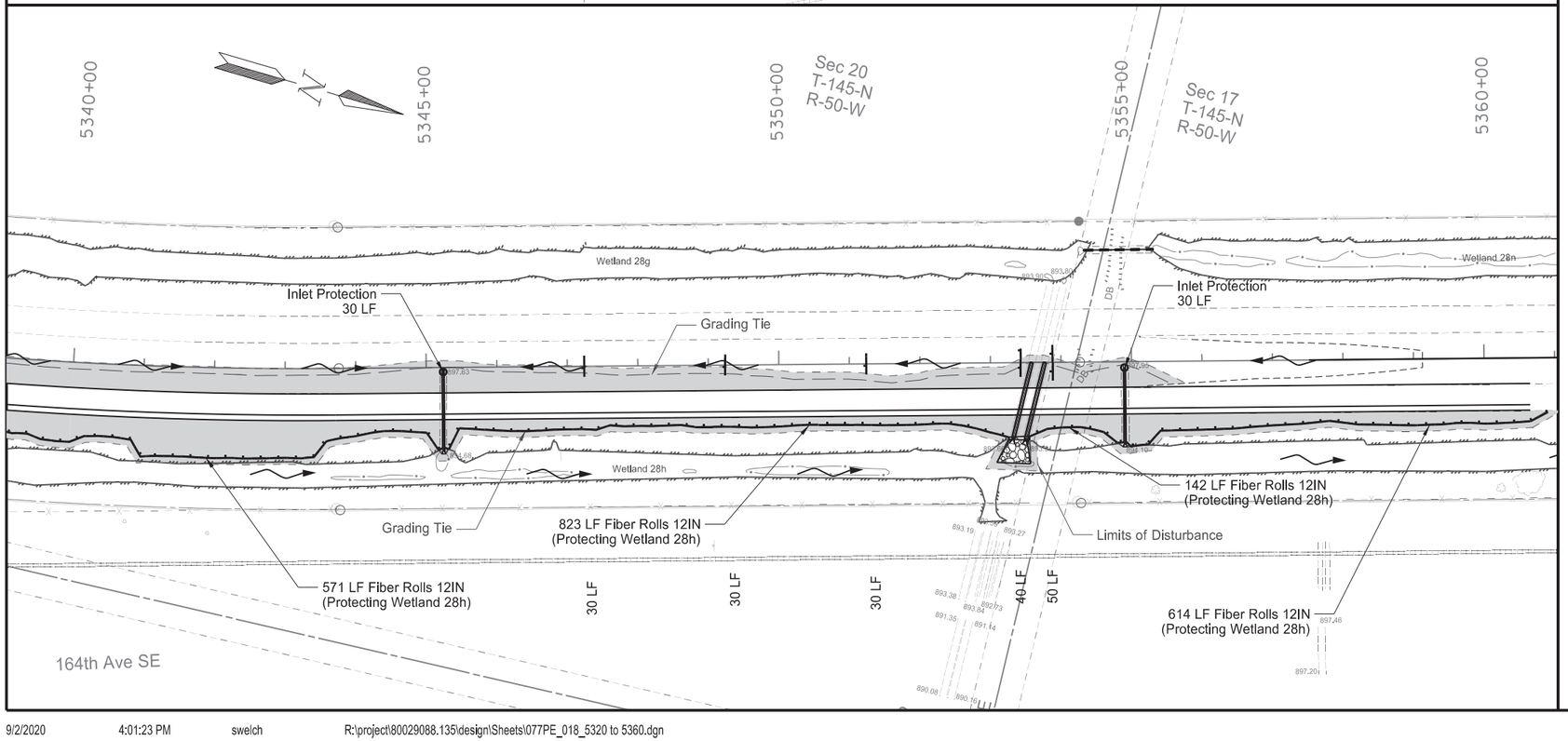
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE 09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5280+00 to Sta 5320+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	IM-8-029(135)088	77	18





SPEC	CODE	BID ITEM	UNIT	QUANTITY
251	**0200**	**SEEDING CLASS II**		
		Sta 5320+00 to Sta 5380+00	ACRE	6.5
		Wetland 28h Mitigation Site	ACRE	0.3
251	**1000**	**WETLAND SEED**		
		Wetland 28h Mitigation Site	ACRE	0.1
253	**0101**	**STRAW MULCH**		
		Sta 5320+00 to Sta 5380+00	ACRE	6.5
		Wetland 28h Mitigation Site	ACRE	0.3
255	**0102**	**ECB TYPE 2**		
		Sta 5320+16 - CL (Rt)	SY	30
		Sta 5320+39 - CL (Rt)	SY	30
		Sta 5329+26 - CL (Median & Rt)	SY	50
		Sta 5345+24 - CL (Median & Rt)	SY	50
		Sta 5354+90 - CL (Median & Rt)	SY	50
256	**0200**	**RIPRAP GRADE II**		
		Sta 5353+77 - CL (Rt)	CY	149
261	**0112**	**FIBER ROLLS 12IN**		
		Sta 5320+00 to Sta 5380+00	LF	4587
709	**0155**	**GEOSYNTHETIC MATERIAL TYPE RR**		
		Sta 5353+77 - CL (Rt)	SY	149

LEGEND

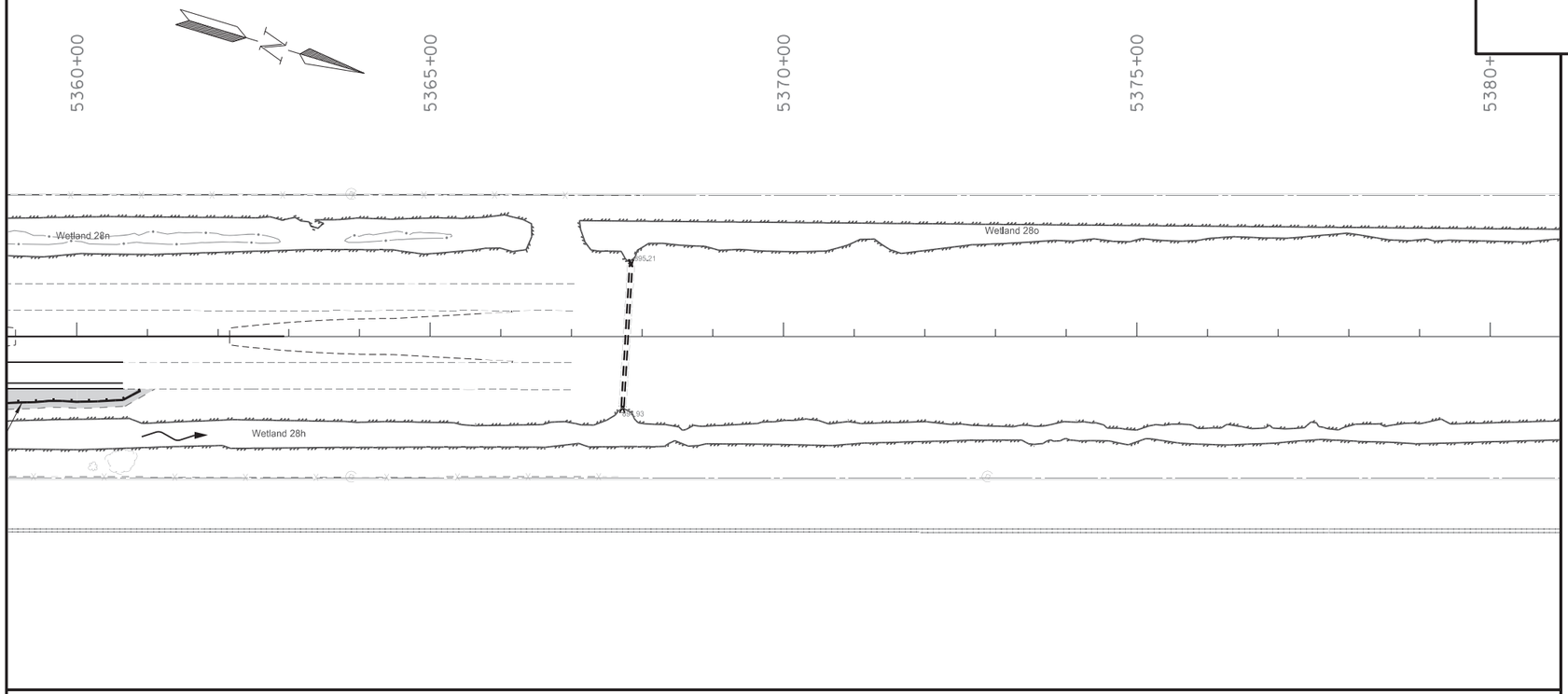
- Seeding Class II and Straw Mulch
- Wetland Seed
- Fiber Rolls
- Direction of Flow

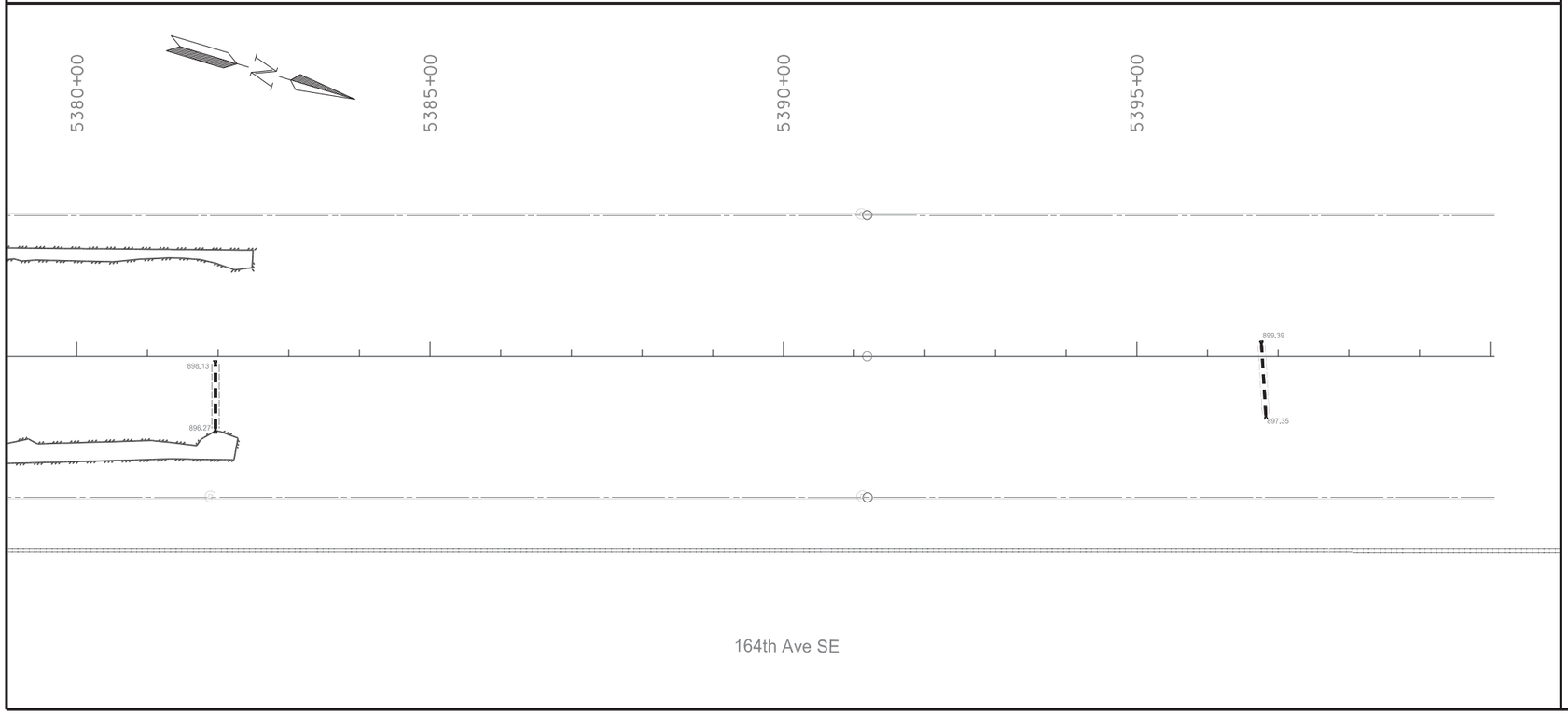
REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5320+00 to Sta 5360+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	IM-8-029(135)088	77	19





LEGEND

- Seeding Class II and Straw Mulch
- Fiber Rolls
- Direction of Flow

REGISTERED PROFESSIONAL ENGINEER
SAMUEL WELCH
PE-10948
DATE
09/02/20
NORTH DAKOTA

Permanent Erosion Control Sheet
Sta 5360+00 to Sta 5400+00

PCC Pavement Reconstruction
Interstate 29 - Northbound
Hunter Separation to North of Blanchard Interchange