

DESIGN DATA			
Traffic	Average Daily		
Current 2018	Pass: 9,792	Trucks: 408	Total: 10,200
Forecast 2048	Pass: 14,016	Trucks: 584	Total: 14,600
Clear Zone Distance:	14 feet Univ Ave - 6th Ave N 12 feet 6th Ave N - US 2	Design Speed: 35 mph	
Minimum Sight Dist. for Stopping:	250 Feet		
Limited Access Control	Bridges: NA		
Pavement Design Life: 30 (years)			
Design Accumulated One-way Rigid ESALs: 3,287,204			

**JOB # 38
NORTH DAKOTA**

DEPARTMENT OF TRANSPORTATION

SU-6-986(121)125

Grand Forks County
North 42nd St
University Ave to US 2 (Gateway Dr)
Reconstruction

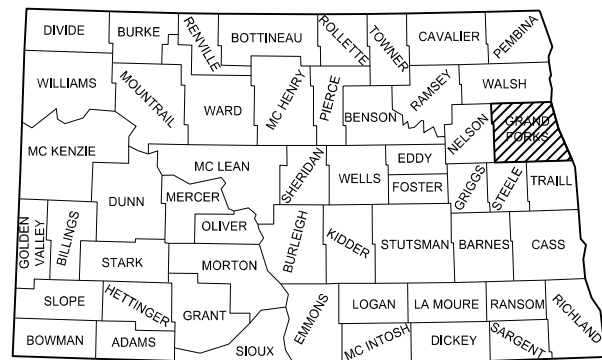
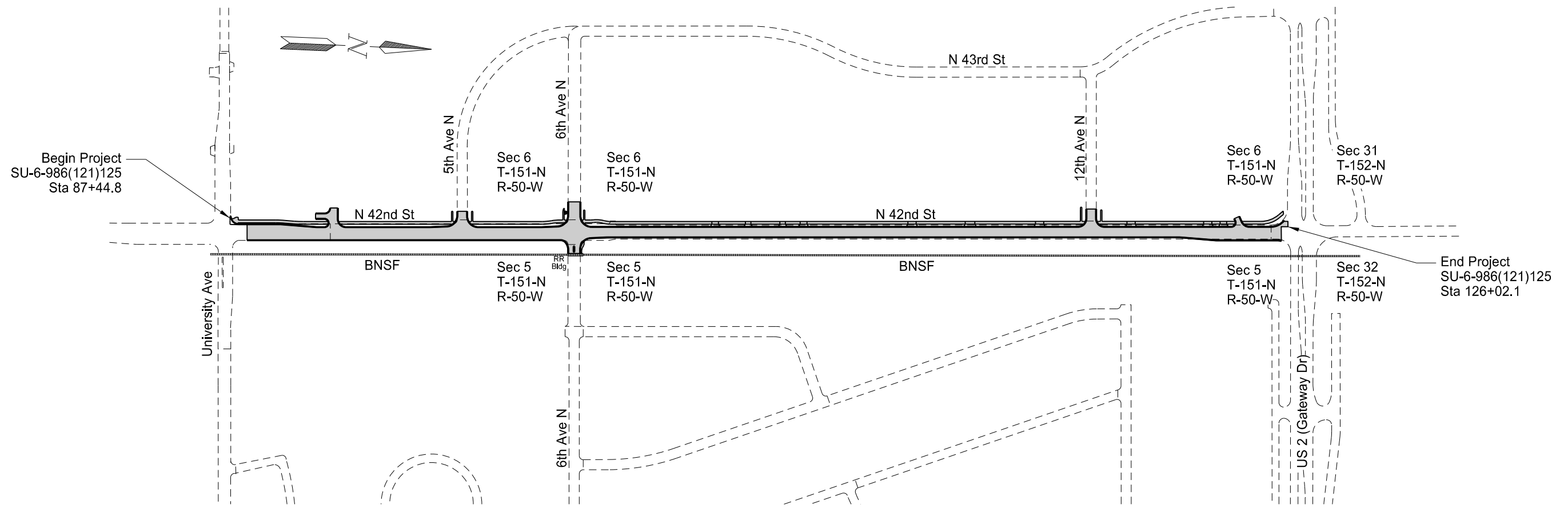
Removals, Grading, Aggregate Base, PCC Pavement, Pedestrian Facilities,
Landscaping, Signing, Marking, Lighting, Signals, & ITS

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GOVERNING SPECIFICATIONS:

2014 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
SU-6-986(121)125	0.731	0.731



STATE COUNTY MAP

DESIGNERS
G. Kelby Laxdal /s/
Luis Blanco /s/
Kyle Gapinski /s/
Nicholas J. Erpelding /s/
W. Brian Poykko /s/

APPROVED DATE 09/06/17
Allen R. Grasser /s/
City Engineer
City of Grand Forks

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.
APPROVED DATE 09/06/17
Deon David Wawrzyniak /s/
CPS, Ltd.

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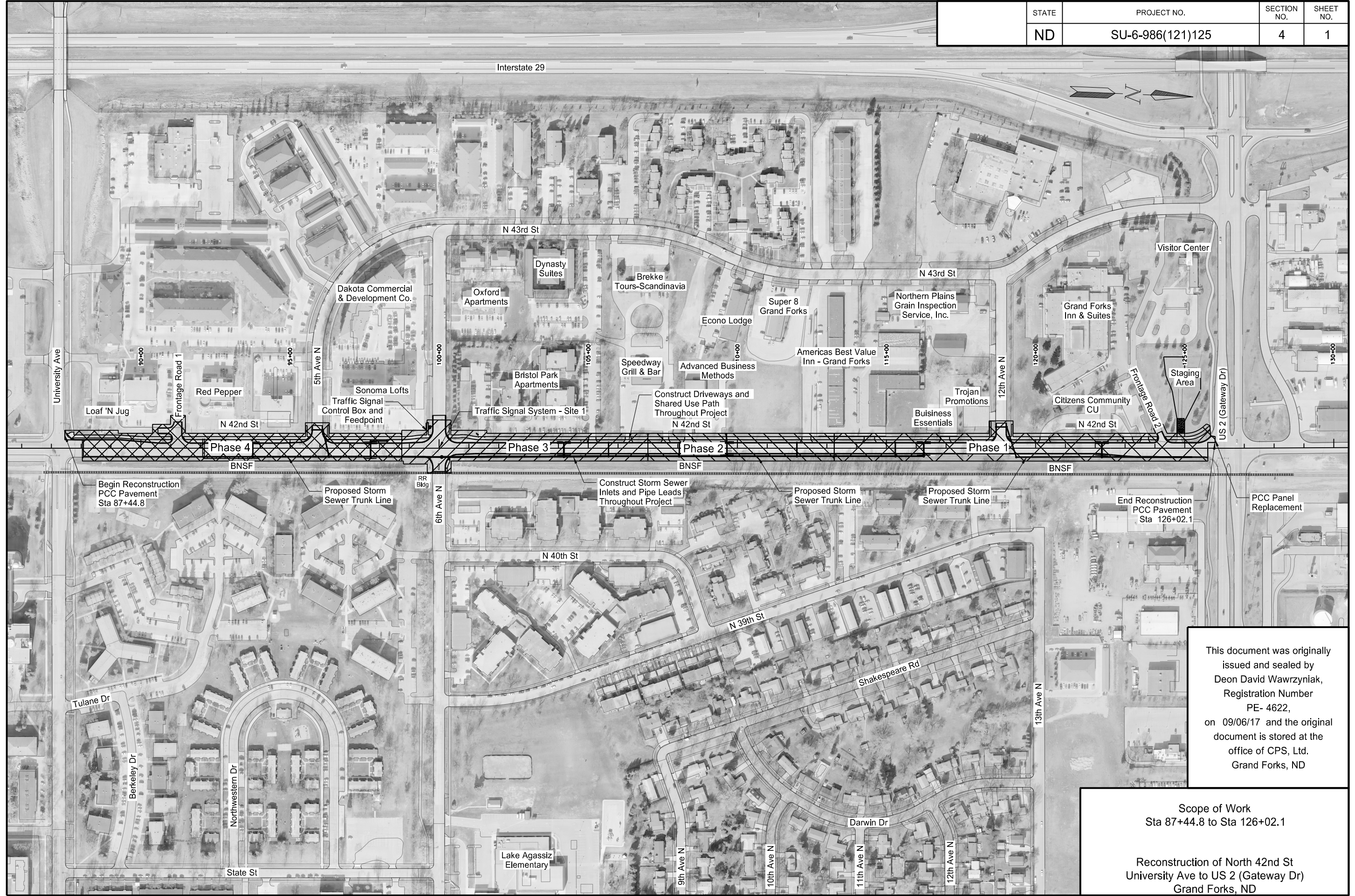
SPECIAL PROVISIONS

Number	Description
SP 0003(14)	Temporary Erosion and Sediment Best Management Practices
SP 0521(14)	Video Vehicle Detection System
SP 0522(14)	Interconnect Cable
SP 0523(14)	Railroad Requirements

LIST OF STANDARD DRAWINGS

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D-704-4	Work Zone Business Sign Details
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
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Scope of Work
Sta 87+44.8 to Sta 126+02.1

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

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GENERAL NOTES

100-P01 **NOISE RESTRICTIONS:** Comply with the City of Grand Forks noise ordinance by scheduling operations between the hours of 6:00 AM and 10:00 PM. Submit written request to the Grand Forks Public Health Department at 151 South 4th Street, Suite N-301, Grand Forks, ND 58201-4735 for each occurrence to work outside these hours. Follow procedures in Standard Specification 108.05 "Limitation of Operations" to perform work on holidays.

Submit requests 72 hours prior to beginning work, stating the specific nature of the work, additional hours required and the number of days needed to complete the specified work. Obtain approval from the Health Department 24 hours prior to beginning work.

Furnish a copy of the approved permit to the Grand Forks Police Department a minimum of 24 hours prior to beginning of work and notify the department of the days and hours planned for work under the permit.

100-P02 **PUBLIC NOTIFICATION:** Provide written notices to each entity (including all property and business owners) a minimum of 7 days in advance of scheduled work that would affect access to their property or facility.

105-P01 **PAVEMENT SWEEPING:** Sweep paved areas that were used by construction traffic before opening these areas to public traffic.

Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection.

Sweep paved surfaces due to construction vehicle tracking of sediment from site.

Use a vacuum or pick-up type sweeper to perform this work.

105-P02 **RIGHT OF WAY:** Restore topsoil depths and existing ground surface within temporary construction easements to pre-construction condition.

107-P01 **HAUL ROADS:** Streets within the proximity of the project including; University Avenue, North 43rd Street, and 6th Avenue North are not permitted for haul road use or construction activities, unless approved by the Engineer.

107-115 **RAILROAD PROTECTIVE LIABILITY INSURANCE:** This project crosses the BNSF Railway Company at RP 0.59. The type of work that will be performed within the railroad right of way is removal of pavement, grading, aggregate base, geosynthetic fabric, traffic signal, pavement marking, seeding and restoration. Direct inquiries regarding protective liability insurance to:

Rosa Martinez
 Marsh USA Inc.
 4400 Comerica Bank Tower
 1717 Main Street
 Dallas, TX 75201-7357, USA

 214-303-8519
 Rosa.M.Martinez@marsh.com

108-100

Obtain information regarding crossing BNSF DOT 062502G from the Federal Railroad Administration website: <http://safetydata.fra.dot.gov/Officeofsafety/>.

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

108-P01

CONSTRUCTION SCHEDULE: Commence work that adversely impacts traffic, including lane closures or detours after May 1, 2018.

108-P02

CONSTRUCTION SCHEDULE: Perform 6th Avenue North Intersection work (portion of Phase 3) between July 16, 2018 and August 20, 2018, unless otherwise directed by the Engineer. Schedule construction activities to complete underground utilities, concrete pavement, curb and gutter, shared use path curb ramps, sidewalk work, and intersection street lighting (temporary or permanent) within 21 consecutive calendar days after intersection closure in order to restore access across 6th Avenue North railroad crossing for eastbound and westbound traffic.

202-P01

REMOVAL OF CONCRETE PAVEMENT: The "Removal of Concrete Pavement" quantity includes removal of concrete sidewalk, driveway, and roadway pavements and curb and gutter from back-of-curb to back-of-curb. Include all costs for concrete removals in the contract unit price for "Removal of Concrete Pavement".

202-P02

REMOVAL OF MANHOLES: Include the cost of removing the castings, covers, rings, barrel sections, bases, insulation, clay backfill and compaction in the contract unit price for "Removal of Manholes".

Exercise care during removal operations to salvage the castings, covers and grates and deliver items to the City of Grand Forks maintenance shop located at 724 North 47th Street. Coordinate delivery with Ms. Melanie Parvey. Ms. Parvey may be reached at 701-738-8740.

203-P01

COMMON EXCAVATION-TYPE A AND COMMON EXCAVATION WASTE: Unless otherwise directed by the Engineer, use an excavator with a smooth cutting edge to minimize disturbance of underlying soils. Do not scarify the bottom of the excavation. Do not operate construction equipment in the cut areas.

No allowance for over excavation will be made, unless directed by the Engineer.

Compact embankment material as specified in Section 203.04 E.2.b "ND T 99".

Compaction requirements for trench and utility construction are specified in Section 20.

The bid items "Common Excavation-Type A" and "Common Excavation-Waste" will be paid for at plan quantity.

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251-P01 SEEDING CLASS III: Rake smooth the final topsoil surface to provide positive drainage with mechanical power raking equipment and hand raking in inaccessible areas to power raking. Seed disturbed areas with the following Class III seed mixture.

Grass Species	Percentage Pure Live Seed
Creeping Red Fescue	40%
Kentucky Bluegrass	25%
Perennial Rye Grass	20%
Southport Chewings Fescue	15%
Total	100%

Seed Application Rate	260 lbs/acre
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Following placement of seed mixture, perform two passes; one at 45° and second at 135° to drill marks; pulling a "screen" type drag (i.e. chain link fence).

Areas seeded after September 20 will not be accepted until they show evidence of established growth after June 15 of the following year.

Water seeded areas to provide sufficient moisture for growth or as determined by the Engineer. Continue to water seeded areas as directed by the Engineer until accepted. Prevent runoff and puddling. Do not drive watering trucks over turfed areas.

Perform maintenance on seeded areas for minimum of six weeks following completion of seeding. Maintenance of the seeded areas includes eradicating weeds, maintaining erosion control devices and mulch, protecting installed areas from traffic, mowing, and post-fertilization.

Mow seeded areas to height of 3 inches with cutting no more than 1/3 of the grass leaf. Mow seeded areas 24 hours prior to final inspection.

Seeded areas will be rejected if they contain weeds or bald spots larger than 3" in diameter.

Include costs for materials, equipment, labor, maintenance, watering, and incidentals in the contract unit price for "Seeding Class III".

252-P01 SOD: Rake smooth the final topsoil surface to provide positive drainage with mechanical power raking equipment and hand raking in inaccessible areas to power raking.

Keep sodded areas moist a minimum of 3 inches deep until well rooted. Continue to water sodded areas as directed by the Engineer until accepted. Prevent runoff and puddling. Do not drive watering trucks over turfed areas.

Perform maintenance on sodded areas for a minimum six weeks following placement of sod. Maintenance of the sodded areas includes eradicating weeds, maintaining erosion control devices, protecting installed areas from traffic, mowing, and post-fertilization.

Maintain areas sodded after September 15 until June 15 of the following year.

Mow sodded areas to height of 3 inches with cutting no more than 1/3 of the grass leaf. Mow sodded areas 24 hours prior to final inspection.

253-P01 HYDRAULIC MULCH: Apply mulch after the seed is drilled into the topsoil and dragged at a rate of 1.3 tons/acre.

302-P01 AGGREGATE BASE COURSE CL 3: Compact Aggregate Base Course CI 3 to 100% of the Standard Proctor maximum density as determined by NDDOT T 99.

Substitution of Salvaged Base Course for Aggregate Base Course CI 3 will not be allowed.

Bid item "Aggregate Base Course CI 3" and will be paid for at plan quantity.

302-P02 SALVAGED BASE COURSE: Trim as specified in Section 3.04 C.1 "Surface Tolerance Type B".

Bid item "Salvaged Base Course" and will be paid for at plan quantity.

430-P01 PATCHING: Provide a hot mix asphalt material for patching. Tack surfaces adjacent to patching areas.

550-P01 CONCRETE PAVEMENT: Delete Section 550.04 H.1.e. of the Standard Specifications.

550-P02 CONCRETE PAVEMENT: Provide epoxy coated Grade 60 reinforcing steel and tie bars. Install reinforcing steel with a minimum tied lap length of 30 inches.

Place tie bars into pre-drilled hole, cleaned with compressed air, and grouted with an approved epoxy grout. Placement of tie bars into the side edge of plastic concrete will not be allowed.

550-P03 CONCRETE PAVEMENT: Except for curved sections of pavement, saw joints without misalignments. At Engineer's discretion, concrete panels varying significantly from this standard may be removed and replaced. Removal limits will be determined by the Engineer and replaced in accordance. At Engineer's discretion, panels on both sides of a misaligned joint may remain in place and paid for at 75% of the contract unit price for the related bid item "8IN Non-Reinf Concrete Pavement CI AE", "8IN Reinf Concrete Pavement CI AE", or "8IN Non-Reinf Concrete Pvmt CI AE-Doweled".

550-P04 8IN REINF CONCRETE PAVEMENT CL AE: Support reinforcement panels in a manner that restricts movement beyond a 1" tolerance. Position vertical supports to provide 3" of concrete cover.

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

704-P01 TEMPORARY TRAFFIC CONTROL: The traffic control details, as indicated on the Plans, have been developed on the basis that this project will be constructed in 4 major phases. An overall detour route has been provided for all Phases.

Phase 1: Consists of the closure of North 42nd Street from US 2 (Gateway Drive) to Sta 113+20. Traffic signal system at Gateway Drive will operate as normal. The intersection of Gateway Drive will remain open to traffic, with the exception of south bound turn lane closures. Head-to-head traffic on North 42nd Street will be designated in areas adjacent to storm sewer improvements from Sta 103+00 to 113+20. Work on this phase includes underground utility, grading, aggregate base, concrete pavement (roadway and share use path), curb and gutter improvements, lighting, and pavement marking. Construct temporary access at Sta 117+48 Lt.

Phase 2: Consists of the closure of North 42nd Street from Sta 106+50 to Sta 113+20. Work on this phase includes underground utility, grading, aggregate base, concrete pavement (roadway and share use path), curb and gutter improvements, lighting, and pavement marking. Construct temporary safety fence at Sta 107+89 Lt and temporary access at Sta 108+35 Lt.

Phase 3: Consists of the closure of North 42nd Street from Sta 96+50 to Sta 107+00, including the intersection of 6th Avenue North. Work on this phase includes underground utility, grading, aggregate base, concrete pavement (roadway and share use path), curb and gutter improvements, lighting, and pavement marking.

The duration of the 6th Avenue North intersection closure will be restricted to 21 consecutive calendar days.

Phase 4: Consists of the closure of North 42nd Street from University Avenue to 99+50. Work on this phase includes underground utility, grading, aggregate base, concrete pavement (roadway and share use path), curb and gutter improvements, lighting, and pavement marking.

The duration of the driveway closure at Sta 91+24 Lt will be restricted to 15 consecutive calendar days.

Complete work specified on each phase in numerical order prior to advancing to the subsequent phase of construction. Concurrent work on multiple phases will not be allowed.

Concurrent closure of the 5th Avenue North Intersection and the 6th Avenue Intersection will not be allowed.

A roadway lighting system will be required upon reopening each phase to traffic.

Install all signing and provide functional traffic signal system at 6th Avenue North prior to reopening Phase 4 to traffic.

709-P01 GEOSYNTHETIC MATERIAL TYPE R1: Extend geotextile fabric up the vertical side of the aggregate base and secure fabric to vertical wall. No measurement will be made for the vertical fabric.

714-P01 PIPE CONC REINF __IN CL III: Visually expose existing underground utilities, including sanitary, storm sewer, water main, electrical, communication, and natural gas mains located at proposed storm sewer crossings prior to excavation of storm sewer pipe trench. Include the cost of visually exposing utilities in the contract unit price for "Pipe Conc Reinf __IN CI III".

722-P01 CHIMNEY SEALS: Provide external chimney seals on manholes and inlets (Inlet-Type 1 only) located within paved areas. Provide sleeve and extension extruded from a high-grade rubber compound conforming to the applicable requirements of ASTM C923. Use bands for compressing the sleeve and extension against the inlet fabricated from 16-gauge stainless steel conforming to ASTM A240, Type 304. Use stainless steel screws, bolts and nuts conforming to ASTM F593 and 594, Type 304. Include the cost of the chimney seals in the contract unit price for "Manhole __IN", "Inlet-Type 1" and "Adjust Manhole".

722-P02 RUBBER SEAL: Provide external rubber seals on Inlet-Type 2 Double structures. Provide seals extruded from a continuous seamless band of high-quality Ethylene Propylene Diene Monomer (EPDM) rubber with a minimum thickness of 60 mils and with molded preformed L shaped corners. Provide seals with attached minimum 2" wide butyl mastic to the inside top and bottom of the seal to provide bonding to the structure and over the flange on the casting frame. Use aerosol primer to improve bonding strength of the seal. Include the cost of the rubber seals in the contract unit price for "Inlet-Type 2 Double".

722-P03 MANHOLES, CATCH BASINS, AND INLETS: The top of riser elevation and top of barrel elevation control the final casting elevation. Install structures as necessary to achieve top of structure design elevation.

Provide smooth troweled flow line invert and slope to structure wall.

722-P04 DRAINAGE STRUCTURE BACKFILL: Controlled density fill may be placed as shown in Section 20, backfill and utility details. Provide a fill composed of a blend of cement, water, pozzolanic materials and fillers. Provide a fluid material that will flow around and fill voids around pipes. Provide material capable of supporting normal loads after 6 hours and a compressive strength ranging from 75 psi to 125 psi at 28 days. Provide material easily removable with a tractor loader/backhoe. If the mix design shown is used, no further testing will be required.

Mix design yields approximately one cubic yard of flowable material, consisting of:

Cement	100 lbs
Flyash	300 lbs
Fine Aggr	2600 lbs
Water	70 gals

722-P05 ADJUST GATE VALVE BOX: Adjust gate valve boxes straight, plumb, centered and to finished surface by rotating the valve box or adding an additional valve box section. Include the costs of all materials, equipment, labor, and incidentals in the contract unit price for "Adjust Gate Valve Box".

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- 722-P06 **ADJUST MANHOLE:** Adjust existing manhole castings to finished surface.
- Prevent debris from falling into manholes and promptly remove any falling debris. Provide protective wrapping over manhole covers prior to placement of concrete. Clean any manhole cover coated with concrete.
- Deliver removed castings and covers to the City of Grand Forks maintenance shop located at 724 North 47th Street. Coordinate delivery with Ms. Melanie Parvey. Ms. Parvey may be reached at 701-738-8740.
- 722-P07 **ADJUST UTILITY APPURTENANCE:** Adjust existing manhole castings to finished surface.
- Prevent debris from falling into manholes and promptly remove any falling debris. Provide protective wrapping over manhole covers prior to placement of concrete. Clean any manhole cover coated with concrete.
- Deliver removed castings and covers to the City of Grand Forks maintenance shop located at 724 North 47th Street. Coordinate delivery with Ms. Melanie Parvey. Ms. Parvey may be reached at 701-738-8740.
- 724-P01 **WATERMAIN:** Use potable water products meeting American National Standards Institute (ANSI) and National Sanitation Foundation International (NSF) Standard 61. Provide product certification by NSF, the Underwriters Laboratories, or other organizations accredited by ANSI.
- Use PVC C-900 pipe, DR18 and PVC C-905, DR25.
- Provide restrained Class 350 ductile iron fittings including bends, tees, reducers, plugs and adapters. Provide fittings manufactured by Tyler Pipe, American Cast Iron Pipe Company. Install watermain fittings with stainless steel bolts and nuts and anti-seize material placed on the threads.
- 724-P02 **OPERATION OF EXISTING VALVE AND HYDRANTS:** Coordinate with City Water Department to operate existing valves and hydrants. Open new valves adjacent to an existing main only after the following conditions have been met:
1. Notify Water Distribution personnel to operate the valve and flush adjacent mains in the area, if necessary.
 2. Hydrostatic testing and sterilization is complete and approved.
 3. Confirm that the connection point is not to a "dead-end" line. If so, make provisions to back flush the existing main to ensure water quality of the new connection.
- Unauthorized valve operation resulting in a material, labor, or water cost to the City will be either invoiced or deducted from the payment due the Contractor. Charges to the Contractor in either case will be calculated at the employee's direct wage rates with a 2.0 multiplier.
- New valves external to the existing distribution system may be opened and closed as necessary for installation and testing during construction.

- 724-P03 **TEMPORARY WATER SERVICE:** Provide temporary water service to Grand Forks City water customers when water service shut-off extends beyond a 4-hour period. Notify affected customers 48 hours in advance of water service shut-off. Coordinate water service shut-off with Grand Forks City Water Department. Include costs for materials, equipment, labor, maintenance, and incidentals in the contract unit price for "6IN Hydrant".
- 724-P04 **REMOVE HYDRANT:** Coordinate with the City of Grand Forks Water Department for shut down of the watermain. Remove existing hydrant assemblies as indicated on the Plans. Include all materials, equipment, labor, and incidentals in the contract unit price for "Remove Hydrant" to perform the following work:
1. Excavation and dewatering.
 2. Removal of existing hydrant, pipe lead, gate valve (where noted), and valve box (where noted).
 3. Install new gasket (where noted) or new flange (where noted). Secure with stainless steel hardware.
 4. Place thrust blocking in accordance with the Plans, or as directed by the Engineer.
 5. Backfill in accordance with Section 20.
 6. Upon observation of existing tapping sleeve by the City Water Department, additional work may be directed by the Engineer to remove the tapping sleeve and a section of watermain and install a new 10' length of PVC C905 watermain with 2 new transition couplings. This additional work would be paid for by change order.
 7. Deliver fittings, gate valve, valve box and cover, and hydrant removed to the City of Grand Forks Water Department located at 724 North 47th Street. Coordinate delivery with Mr. Dan Hanson. Mr. Hanson may be reached at 701-738-8772.
- 724-P05 **6IN HYDRANT:** Provide the City Water Department 24 hour advance notice for Water Distribution personnel to install watermain tap.
- Provide tapping sleeves and valves designed to operate at a working pressure of 200 psi, have mechanical joints and are of the full sleeve type. Use sleeves constructed of stainless steel, Type 304, including the flange and be fully lined with a rubber gasket. Provide longest length available from manufacturer.
- Provide valve with a bronze non-rising stem, O-rings seals, bronze two-inch operation nut and opens counterclockwise. Provide valve manufactured in excess of full compliance with AWWA C500 for gate valves and AWWA C515 for wedge valves. Use wedge valves having a cast iron gate having a vulcanized synthetic rubber coating or a rubber seat mechanically retained on the gate.
- Use transition couplings fabricated of cast iron or carbon steel and coated inside and out with fusion bonded epoxy or nylon. Provide transition couplings manufactured by Hymax - Total Piping Solutions, Inc., Romac, Power Seal, Ford.
- Install transition couplings with stainless steel bolts and nuts and anti-seize material place on the threads, and then completely wrapped with polyethylene. Wrap-around type sleeves will not be allowed. Provide longest length transition coupling available from manufacturer for use on watermain pipe material.

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Include the cost of transition couplings necessary to connect new watermains to existing watermains in the contract unit price for "6IN Hydrant".

Include all components required for complete hydrant installation as shown on the Plans and described below.

Provide compression type fire hydrants with five inch valves and conform to the following:

1. Bottom Connection: 6 Inch
2. Open: Left
3. Color: Yellow
4. Hose Nozzles: Two 2-1/2 Inch and One 4-1/2 Inch Pumper Nozzle with NST Sizes 7532 and 40518 respectively.
5. Manufacturer and Model: American Flow Control (Waterous Company) Pacer Traffic Model WB-67-250, American Darling Model B-62-B or American AVK Company Series 2700 Modern. Provide 22" upper standpipe length resulting in a top nut 36"-38" above finished surface, or to the elevation indicated on the Plans. Measure bury depth from the bottom of the branch pipe connection to the finished surface at the hydrant.
6. Hydrant Tag: Required for each hydrant or extension.
7. AWWA Standard: C-502.
8. Working Pressure: 250 psig.
9. Joint: Restrained mechanical joint, including joints for tapping valves.

Provide hydrants meeting the finished surface or provide hydrants with hydrant extensions (include cost of extensions in the bid item "6IN Hydrant"). If extensions are used, install extensions as directed by the Engineer.

Provide resilient seated wedge type valves and conform to the following:

1. Open: Counterclockwise
2. Manufacturer and Model: American Flow Control (American Darling Valve Series 2500 Resilient Wedge Gate Valve), Clow Valve Company (Resilient Wedge Valve with Clow Cleantrack Technology), Mueller (2360 & 2361 Series), American AVK Company Series 65 or M&H Valve Company (Style 7000 12" or smaller).
3. Bolting Materials: Stainless steel with hex heads and nuts in accordance with ASTM A-307 and A-563 respectively.
4. AWWA Standard: C-515 with latest revision, ductile iron (ASTM A536) resilient wedge.
5. Coating: AWWA C550. Provide electrostatically applied fusion-bonded-epoxy coating on internal and external surfaces of the body and bonnet. Provide wedges totally encapsulated with rubber complying with ASTM D-2000. Use NSF 61 approved epoxy coating.
6. Working Pressure: 250 psig and 100% leak-tight.
7. Seals: O-rings at all pressure retaining joints. Flat gaskets will not be allowed.
8. Joint: Restrained mechanical joint, including joints for tapping valves.

Thoroughly clean all hydrant components that will come into contact with potable water and sterilize. Unless otherwise indicated, install hydrants with tapping tees with a gate valve. Saw hole for tapping tee prior to lowering pipe into trench.

Install hydrant plumb and position the pumper nozzle facing the curb. Set the hydrant on either cast-in-place or precast concrete blocks, and brace against unexcavated earth. Upon completion of the installation, backfill the trench around the hydrant with Size 2 aggregate. Leave drain holes open upon installation.

Provide Size 2 aggregate meeting the following gradation:

Sieve Size (Inches)	Percent Passing by Weight
2"	100
1 1/2"	90-100
1"	20-55
3/4"	0-15

Install the break-off flange within 0-2 inches above the finished surface. Set the center of the pumper nozzle to 28 to 30 inches above the surrounding finished surface. Adjust hydrants that are not within these specified tolerances.

Place gate valves on precast concrete blocks.

Provide valve boxes manufactured by Tyler Pipe or Star Pipe Products. Provide cast iron, 3 piece units with lids marked "WATER", and 5-1/4" screw type shafts. Set valve box plumb and on a gate valve adaptor. Provide 1/4" steel gate valve adaptor with UV polyurethane protective coating and a 3/4" rubber gasket attached to the gate valve adaptor. Use adaptors manufactured for the exact size and brand of valve

Include all materials, equipment, labor, and incidentals necessary for installation of 6" hydrants, including tapping tee and valve, gate valve, valve box adaptor, box and riser, fittings, PVC watermain, hydrant, concrete base, pipe bedding, sterilizing, testing, flushing, backfill and other miscellaneous work in the contract unit price for "6IN Hydrant". Measurement will be by the each complete hydrant installation.

724-P09

WATERMAIN TESTING: Perform a hydrostatic test of the completed watermain repair and hydrant relocation work under City water pressure prior to backfilling. Conduct test for a minimum of 2 hours.

Examine the exposed pipe, fittings, valves, and joints for any leaks during test. Locate defects and repair the line at the Contractor's expense and retest until the leakage is eliminated.

Conduct testing in the presence of the Engineer.

Include the cost of hydrostatic testing in the contract unit price for "6IN Hydrant".

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- 724-P10 WATERMAIN TESTING: Swab sections of the new watermain pipe, fittings, pipe flange/plug, gate valves, hydrants and existing watermain with a chlorine solution prior to installation as directed by the Engineer. Protect the watermain from becoming contaminated. If the Engineer is not satisfied with the Contractor's protection of the existing watermain, the Contractor will be required to chlorinate the entire watermain as per the City's standard procedures at no cost to the Owner.
- Conduct chlorination applications in the presence of the Engineer.
- After the watermain and related items have been tested, flush until all foreign material has been removed and chlorine levels are consistent with normal water system chlorine levels.
- Include the cost for material, equipment, labor, tools, and incidentals necessary to sterilize the system in the contract unit price for "6IN Hydrant".
- 724-P11 UNDERGROUND IRRIGATION SYSTEMS: Prior to construction, coordinate with adjacent property owners in determining the location of existing irrigation systems located within the project limits. The location of known existing irrigation systems is noted in the Plans. Relocate irrigation system components discovered within the project limits. Relocation work to be completed by contractor with adequate knowledge of irrigations systems and replumbing as required to fully restore the existing irrigation system to pre-construction condition. Install equipment of same manufacturer of existing system(s). Relocate existing irrigation systems to private property within the noted construction easement. Include the cost for material, equipment, labor, tools, and incidentals in the contract unit price for "Underground Irrigation System".
- 748-P01 CURB AND GUTTER-TYPE I AND CURB AND GUTTER-TYPE I 30IN: Provide epoxy coated Grade 60 reinforcing steel and tie bars. Install reinforcing steel with a minimum tied lap length of 24 inches.
- Place tie bars into pre-drilled hole, cleaned with compressed air, and grouted with an approved epoxy grout. Placement of tie bars into plastic concrete will not be allowed.
- 748-P02 CURB AND GUTTER-TYPE I AND CURB AND GUTTER-TYPE I 30IN: Remove and replace Portland cement concrete curb and gutter which exhibits random cracking prior to project acceptance. Remove and replace full length sections between joints.
- 750-P01 SIDEWALK CONCRETE BIKEWAY AND SIDEWALK CONCRETE 4IN: Provide Grade 40 reinforcing steel and tie bars. Install reinforcing steel with a minimum tied lap length of 24 inches.
- 750-P03 SIDEWALK CONCRETE BIKEWAY AND SIDEWALK CONCRETE 4IN: Remove and replace Portland cement concrete bikeway or sidewalk which exhibits random cracking prior to project acceptance. Remove and replace full panels between joints.
- 750-P04 CONCRETE MEDIAN NOSE PAVING: Measurement will be from the curb joint to the end of the median nose, excluding the area beyond the top of the median taper.
- 754-P02 SIGN REMOVAL: Deliver signs (including overhead) and supports that are not to be reset to the City Sign Shop at 714 South 47th Street, Grand Forks, ND. Coordinate delivery with Mr. Mark Aubol. Mr. Aubol may be reached at 701-738-8757.

- 762-P01 EPOXY PVMT MK CURB TOP & FACE: Include costs for materials, equipment, labor, and incidentals to paint the median and median nose paving in the contract unit price for "Epoxy Pvmt Mk Curb Top & Face".

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770-P01 REMOVALS: Deliver 3 existing light poles (excluding fixture) and the electrical feed point cabinet(s) shown to be removed to the City Electrician at 714 South 47th Street, Grand Forks, ND. Coordinate deliveries with Mr. Rick Hanson, 701-738-8796.

Include the costs of materials, equipment, labor, and incidentals necessary for removal of light poles and luminaires, light pole foundations, and street light conductors in the contract unit price for "Remove Lighting System".

770-P02 ___IN DIAMETER RIGID CONDUIT: Install street lighting circuits in a continuous conduit system. Use NRTL (UL or US equivalent) listed rigid heavy wall PVC-90 degrees C rated conduit or high density polyethylene (HDPE) conduit with smooth inner bore. Install duct seal on all conduits containing cables at light standard bases and feed point cabinets.

Install conduit approximately 42" behind the back of curb unless noted otherwise on the Plans.

Horizontal directional bore conduit under paved surfaces and 10 feet on each side of established trees. Install conduit in other areas by horizontal directional bore or vibratory plow methods.

Provide a plastic cable-marking warning strip with the installation of the conduit, except where horizontally directionally bored. Warning strip to have black letters on a red background and located 12 inches above conduit.

770-P03 UNDERGROUND CONDUCTOR NO___-TYPE ___: Use individual single conductor or multiple single conductor twisted without overall armor or jacket. Provide RHW-USE conductor for ungrounded and neutral cable types.

Provide one red and one black ungrounded cables, one white grounded neutral cable, and one green equipment grounding cable.

Use SEO 14/3 stranded copper with ground cable conductors in light standards. Provide separate cables for receptacles and luminaires. Use cable rated for use from -50 degrees C to +105 degrees C. Cable to be supported by Kellems grip attached to one of the luminaire pole stops as approved by the Engineer.

Extend leads at least 12" beyond the hand hole. Tie splice assemblies together with plastic tape or cord and a tag end left under the hand hole cover to facilitate retrieving splices for future service. Use Polaris IT-4, Burndy, ILSCO insulated splices or approved equal.

Provide in-line fuse holders on all ungrounded conductors in light standards. Use Bussman Tron HEB-AA, Littelfuse, Gould-Shawmut, or approved equal fuse holders. Provide 3 amp fuses. Fuse festoon receptacle outlets separately.

Underground splices in pull boxes will not be allowed, unless approved by the Engineer in writing. If approved, use 3M Scotchcast 90-B1, TNB, Birkett splicing kits or approved equal.

770-P04 UNDERGROUND CONDUCTOR NO___-TYPE ___: Megohm test new work as soon as it is completed. Complete megohm testing in the presence of the Owner and Engineer prior to

connection to circuit power. Conduct final megohm test of each circuit in the presence of the Engineer and Owner.

Test underground street lighting circuits with a megohmmeter at a minimum of 5,000 volts. Replace conductors with readings on new circuits below 50 Meg ohms. Include the cost of megohm testing in the contract unit price for "Underground Conductor No__ Type RHW".

770-P05 LT STD 6FT MA ___ FT BREAKAWAY: Provide round or octagonal tapered galvanized steel pole light standards with truss arms, and breakaway transformer bases. Install signal standard mounted luminaires and pole extensions on non-breakaway poles designed for the indicated mounting height. Include cost for signal standard mounted light standards and luminaires in the contract unit price for "Traffic Signal System – Site 1".

770-P06 LED LUMINAIRE: Provide LED luminaires with distributions and wattages as shown on the Plans. Provide Holophane Autobahn ATB2, GE or Cree equivalent (matching or exceeding performance of the Holophane Autobahn ATB2 with the same or fewer watts) luminaires. Provide multi-volt luminaires able to operate at 120 or 240 volt, nominally operated on 240 volts. Provide gray enamel finish.

Submit 5 foot grid point-by-point photometric reports using actual roadway designs with shop drawings submittals. Reports to include average footcandles, maximum values, and average to minimum values.

770-P07 PULL BOX: Follow the specification outlined in the NDDOT standard drawing D770-3. Provide PVC pull box with cast iron casting including a traffic resistant cover.

770-P08 FEED POINT-TYPE IV-PAD MOUNTED: Contact local utility company (Xcel Energy) to obtain electrical source necessary to operate the lighting system. Include costs for electric service, including three 3/0 copper service cables in 3" PVC rigid conduit and grounding as required by the NEC in the contract unit price for "Feed Point-Type IV-Pad Mounted".

Include costs to operate and maintain the lighting system until final acceptance of the lighting system in the contract unit price for "Feed Point-Type IV-Pad Mounted".

770-P09 FEED POINT-TYPE IV-PAD MOUNTED: Provide 14 gauge #304 stainless steel cabinet of adequate size to house the specified number of circuits and equipment shown on the feed point detail. Tie transformer ground into cabinet grounding lug and neutral lug.

Provide enclosures with a subpanel for complete dead-front access to all, main disconnect handles, circuit breaker handles and toggle test switches. Use plug in type breakers with specified amperage, 10,000 AIC.

Mount photoelectric (PE) cells externally on the feed point cabinet, facing east or north. Use EEI/NEMA type PE sockets. Provide PE control with a time delay of at least 15 seconds and rated for 240 volt.

770-P10 ROADWAY LIGHTING SYSTEM: The roadway lighting system will be considered a safety appurtenance as referenced in Section 108.07 B.

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 W. Brian Poykko
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770-P11 TEMPORARY LIGHTING: Maintain functional lighting system at the University Avenue and North 42nd Street intersection.

Maintain functional lighting system at the 6th Avenue North and North 42nd Street intersection. During closure of the intersection, the existing lighting will be removed. Prior to reopening the intersection, provide lighting from either new light standards or install temporary poles and luminaires.

Provide and maintain functional lighting system along sections of North 42nd Street that are open to traffic.

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772-P01 FIELD VERIFICATION: Verify all features labeled "Existing" are approximately located. Verify the location of all proposed signal and lighting features including all proposed conduit to avoid conflict with any utilities or any other features potentially encountered in the field.

772-P02 TRAFFIC SIGNAL CONTROLLER: Furnish the controller cabinet and auxiliary control equipment furnished from a manufacturer whose Econolite Cobalt RM with Transit Key/2M Series NEMA TS2/NTCIP operates on Centracs Software which has been approved by the City of Grand Forks. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all labor, materials and equipment required to install the new controller, including but not limited to the emergency vehicle pre-emption unit, cabinet, new detector amplifiers (furnished and installed), other ancillary signal components (such as load switches, conflict monitors, etc.) and controller cabinet components connected as required to make the new controller equipment operational with the existing and proposed signal equipment.

772-P03 SIGNAL TIMING AND COORDINATION: Deliver the controller and cabinet for Site 1 to the City Electrician, Rick Hanson (701-738-8796), at the Public Works Department located at 724 N 47th Street a minimum of 35 days prior to installation. Provide controller preloaded with signal timing and coordination settings as shown in the Plans. The City Electrician will conduct operational tests and operate the controller for a test period of 30 consecutive days at the Public Works Department shop without any malfunctions of the controllers. Any controller that does not operate satisfactorily for the 30 days will be rejected and replaced. After the controllers have operated satisfactorily for the 30 days, they may be installed. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all labor, materials and equipment necessary for furnishing and installing the controllers, as well as delivery to City Electrician.

772-P04 GRAND FORKS TRAFFIC SIGNAL CABINET: Use Econolite 332D, pre-wired with ancillary components including a RENO A&E Traffic Signal Conflict Monitor with Ethernet port. Adhere to the City of Grand Forks Cabinet Specifications at Traffic Control Corporation. The price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the cabinet.

772-P05 CONCRETE CONTROLLER CABINET PAD: The price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes a new concrete pad to mount the proposed traffic signal cabinet. Size the concrete pad for a Type 332D cabinet as specified in the plans.

772-P06 PADLOCKS: The City of Grand Forks will provide padlocks for the Traffic Signal System.

772-P07 BATTERY BACKUP SYSTEM: Provide a battery backup system for the traffic signal system. The price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the battery backup system. Include the following minimum requirements:

- Provides full battery backup for the traffic controller in normal or flash operation
- Flash activation contacts to ensure the longest possible battery life
- Rack mountable for installation in a 332D Cabinet or NEMA rated outdoor pad mounted enclosure, as required
- Power conditioning and transient filtering
- True Sine wave output with ±2% voltage regulation
- Power management and diagnostic functions

- Ethernet port with software to monitor or download data logs of the battery backup system
- Suitable for operation from -40°F to 120°F
- Battery backup for a minimum of 3 hours of flash operation
- Capable of running the intersection for 30 minutes at 1000 watts and then switch to flash operation to conserve power
- The UPS includes an external bypass switch rated at 30 amp 250 VAC and use 30 amp relays.

772-P08 EMERGENCY VEHICLE PREEMPTION: Use GTT Global GPS Vehicle Preemption; model 764 phase selector, Model 1010 GPS Radio Unit containing a GPS receiver with Antenna and a 2.4 Ghz Spread Spectrum Transceiver with Antenna and Model 1070 GPS Installation Cable.

The location of the GPS EVP detector as denoted in the plans may vary based upon GPS signal availability. No splices are allowed between the controller cabinet and the EVP Equipment on the pole/arm. All indicator lamps are LED.

Compatible with the other EVP equipment used within the City of Grand Forks. Provide all labor and equipment necessary for the emergency vehicle preemption system to be fully operational. Notify the City of Grand Forks Fire Chief Peter O'Neill (701-746-2566) and city electrician Rick Hanson (701-738-8796) when the proposed signalized intersection EVP system is tested and operable. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the EVP system.

772-P09 MALFUNCTION MANAGEMENT UNIT: Use RENO A&E model with an Ethernet port. Perform a complete controller malfunction management unit test prior to unveiling the traffic heads. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all materials, labor and equipment necessary to furnish and install the unit and to conduct the malfunction management unit testing.

772-P10 WORK DRAWINGS: Furnish work drawings and a complete listing of materials proposed for installation. Provide the Engineer with proof of purchase, and delivery and manufacturing schedules for traffic signal materials indicating that acquisition of these materials is consistent with progress and completion requirements of this contract.

772-P11 VEHICULAR TRAFFIC SIGNAL HEADS: Use 12 inch vehicular signal heads with aluminum housings for each section. Equip all sections with General Electric GTx LED illuminating elements conforming to the Institute of Transportation Engineers Equipment and Materials Standards and Specifications. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the vehicular traffic signal heads.

772-P12 PEDESTRIAN SIGNAL HEADS: Equip with LED illuminating elements displaying the pedestrian signals as shown. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the pedestrian signal heads.

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772-P13 PEDESTRIAN PUSH BUTTON POSTS: Use SMP2 with breakaway tabs per TIP indications with anodized natural gray finish. Paint pedestrian pushbutton housing black (use #27038 of Federal Standard No. 595B). Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the pedestrian push button posts.

772-P14 PEDESTRIAN PUSHBUTTON UNITS: Install Advisor Advanced Accessible Pedestrian System (AAPS) pedestrian push buttons. Mount each pedestrian sign and pushbutton on one framed enclosure to the signal pole or bolt directly to the pedestrian pushbutton post. Bandit is not be permitted. Do not extend the top of the pushbutton signs above the top of the pedestrian pushbutton post. Include the Advisor Advanced APC Pedestrian Controller and compatibility of remote network ether connection for real time monitoring and control of operating parameters. SMP2 High Visibility Pedestrian Station for standalone push button posts. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the pedestrian pushbutton units.

772-P15 TRAFFIC SIGNAL HEAD MOUNTINGS: Furnish piping to mount the vehicle and signal heads to the side of the poles. Do not mount heads directly to the pole or on the face of the pole directly adjacent to the street. No banding permitted. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for installing traffic signal heads.

772-P16 TRAFFIC SIGNAL STANDARDS - TRANSFORMER BASES: Use "T" transformer base type standards. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for furnishing and installing the "T" transformer bases.

772-P17 SIGNAL STANDARD PAINT COLOR: Paint all traffic signal system components in accordance with the following:

- Transformer base – black
- Mast arm – black
- Signal head mounting hardware – black
- Shaft – black
- Signal housing – black

Use #27038 of Federal Standard No. 595B for the color black.

772-P18 PULL BOXES: Provide 4 foot deep pull boxes with traffic resistant cast iron cover casting.

772-P19 CONDUIT: Install conduit at the locations shown on the plans. Bore conduit under existing pavement. Dig potholes to verify that the conduit avoids the existing utility as necessary. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" and "IT SYSTEM" include furnishing and installing conduit, pushing and boring conduit, digging potholes and restoring the potholes with new material that ties into the existing surround material. Seal all conduits with duct seal at the controller cabinet and at the traffic signal standard foundations. Conduit types may be either schedule 40 PVC or HDPE conduit with a wall thickness equivalent to schedule 40 (Refer to NDDOT specification). HDPE conduit must be UL listed.

772-P20 ADDITIONAL CONDUIT: Install one additional 4-inch diameter conduit in the controller cabinet/feed point foundation. The direction of the conduit will be determined in the field

by the engineer. Cap all conduit. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" include all costs to supply and install the additional conduit.

772-P21 EXCAVATION AND RESTORATION: Any excavation required to install conduit, connect conduit to existing conduit sweeps, install pull boxes, foundations or any other feature proposed in the plans is included in the prices bid "TRAFFIC SIGNAL SYSTEM – SITE 1" and "IT SYSTEM". This includes restoring the excavated area with the appropriate fill material. The fill material shall match the surrounding surface material. At locations where the surrounding material is earth, include earth fill with 6" of topsoil and seed or sod. At locations where the surround material is concrete, tie into the existing concrete. All removed material whether concrete or earth is the property of the Contractor and be disposed of accordingly. Compaction and density controls are in accordance with Section 203.04 E.2 of the Standard Specifications AASHTO T-99.

772-P22 FOUNDATION REMOVAL: All removed foundations are the property of the Contractor and be disposed of accordingly. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment necessary for removing and disposing of concrete foundations.

772-P23 CONDUCTOR COLOR CONTINUITY: Maintain conductor color continuity where any 14 AWG 12 conductor cables are connected to 14 AWG 5 and/or 14 AWG 3 conductor cables within the terminal block of a traffic signal standard.

772-P24 WIRE SPLICING: No splicing will be allowed in pull boxes. Splicing may only take place in the signal base.

772-P25 LABEL ALL FIELD CABLES: All labeling materials must be approved by the City. Labels must be readable without moving the cables. When installing cable bundles in conduit, bundles will not be taped. Label all field cables with the cable designations:

TYPE	LABEL	LABEL LOCATION
Communication Cable	Comm./address of other end	Within 12" of conduit
Pedestrian Push Button	Phase/location (i.e. NW, SW, etc.)	Within 6" of terminals
Video Camera Cables	Detection zone (i.e. D2-1, D2-2, etc.)	Within 6" of terminals
Control Cable	Cable number & location (i.e. NW, SW, etc.)	Within 12" of conduit
Opticom Cable	Preempt number/location (i.e. NW, SW, etc.)	Within 6" of terminal

Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" and "IT SYSTEM" includes all costs, labor, materials and equipment necessary for labeling field cables.

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772-P26 FEED POINT: Connect the traffic signal controller to the new feed point. Install a new 50 amp breaker Type BR at the feed point for traffic control signal purposes.

The feed point will have one meter for Roadway Lighting and one meter socket for Traffic Signals. Xcel Energy will provide new transformer; contact Deb Thompson (701-795-5229). Coordinate with the utility company to establish the service connection to ensure a fully operational traffic signal controller feed point at this location.

All utility company costs for the new feed point shall be paid by the Contractor. Furnish and install new conduit from the new controller cabinet to the new feed point. Furnish and install #6 U.S.E. cable between the new controller and the new feed point. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor, materials and equipment required for feed point connections.

772-P27 IT SYSTEM: The price bid for "IT SYSTEM" includes all labor and equipment necessary to interconnect the traffic signals at 6th Avenue North and University Avenue within the project limits as shown in Section 160. This includes, but is not be limited to, all fiber optic cable, pull boxes, conduit, future conduit, conduit sweeps into existing pull boxes and connections required for the interconnected system to be fully operational, furnishing and installing Ethernet switches and fiber splice boxes/enclosures sized for all fibers at each signalized intersection previously mentioned. Contractor to use care when removing, protecting, and delivering the existing fiber optic cable to the City as shown in the plans. Install portions of the salvaged fiber in new conduit as shown in the plans.

772-P28 ETHERNET SWITCH: Produced by RuggedCom, be model type RuggedSwitch RS-900G-2L, contain dual fiber optic Gigabit Ethernet ports, and have two (2) single-mode fibers with LC connectors in and out included for the connections. Price bid for "IT SYSTEM" includes all costs, labor, materials and equipment necessary for furnishing and installing the Ethernet switch.

772-P29 IP ADDRESS: Coordinate with the City of Grand Forks to obtain any required IP addresses during installation.

772-P30 INTERCONNECT TRACER CONDUCTOR: Install and label a tracer conductor in each controller cabinet. Use a No. 14 AWG - Type THW single conductor as specified in Standard Specification section 895.03A1. Continuously unsplice the conductor from control cabinet to control cabinet. The price bid for "IT SYSTEM" includes furnishing and installing the conductor.

772-P31 MAXIMUM TENSILE PULL STRENGTH: Do not exceed a maximum tensile strength of 600 pounds when pulling the fiber optic interconnect cable.

772-P32 REMOVALS AND SALVAGING: Remove and salvage existing traffic signal equipment as shown on the plans. This equipment includes but is not limited to signal standards, foundations, traffic signal controller and cabinet, vehicle heads, and pedestrian heads. Salvage and deliver all removed equipment (including vehicular and pedestrian signal heads, signal standards, signal controller and cabinet) to the City of Grand Forks at 714 South 47th Street, Grand Forks, ND. Coordinate delivery with City Electrician Rick Hanson (701-738-8796). All other removed equipment are the property of the Contractor and be disposed of properly. Price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" include all costs, labor, materials and equipment necessary for removing and salvaging these items.

772-P33 RAILROAD PREEMPTION SYSTEM: The price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes reconnecting the proposed traffic signal controller to the existing railroad vehicle preemption system denoted in the plans. Cable (2 – conductor) and conduit is currently installed between the existing traffic signal controller and the existing railroad preemption warning system. Do not bore underneath the railroad tracks to reconnect to this system; rather connect to the existing conduit west of the tracks and install a new 1" conduit to pull box #4 and pull a new 2 – conductor cable from the BNSF control facility to the new controller. Track clearance phasing sequence and timing will match the input values currently installed in the controller. Coordinate with the City of Grand Forks for any further details regarding this timing and sequence. The price bid for "TRAFFIC SIGNAL SYSTEM – SITE 1" includes all costs, labor (including data entry and coordination), equipment and materials required to uncover the existing line, and any cable and conduit installation required to provide a fully functional railroad preemption system.

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802-P01 CONCRETE MIX DESIGNS: If a High Early concrete mix is requested for use, submit a 30 hour mix design that contains at least 15% fly ash. No additional compensation will be made for the use of a High Early concrete mix.

808-P01 CONCRETE ADMIXTURES: Include a water reducing admixture in Class AE pavement as specified in Section 808.02 "Chemical Admixtures".

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ESTIMATE OF QUANTITIES					
SPEC	CODE	ITEM DESCRIPTION	UNIT	SU-6-986(121)125	100% CITY FUNDS
103	0100	CONTRACT BOND	L SUM	1	
107	0100	RAILWAY PROTECTION INSURANCE	L SUM	1	
201	0352	REMOVAL OF TREES & BRUSH	L SUM	1	
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	27120	
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	49	
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	2047	
202	0210	REMOVAL OF MANHOLES	EA	7	
202	0230	REMOVAL OF INLETS	EA	16	
203	0101	COMMON EXCAVATION-TYPE A	CY	3963	
203	0109	TOPSOIL	CY	2134	
203	0113	COMMON EXCAVATION-WASTE	CY	10697	
203	0119	TOPSOIL-IMPORTED	CY	1248	
216	0100	WATER	MGAL	735	
251	0300	SEEDING CLASS III	ACRE	2.11	
251	2000	TEMPORARY COVER CROP	ACRE	3.17	
252	0100	SOD	SY	7416	
253	0201	HYDRAULIC MULCH	ACRE	5.28	
260	0200	SILT FENCE SUPPORTED	LF	680	
260	0201	REMOVE SILT FENCE SUPPORTED	LF	680	
265	0100	STABILIZED CONSTRUCTION ACCESS	EA	1	
265	0101	REMOVAL STABILIZED CONSTRUCTION ACCESS	EA	1	
302	0101	SALVAGED BASE COURSE	CY	8097	
302	0114	AGGREGATE BASE COURSE CL 3	CY	8674	
430	2000	PATCHING	TON	12	
550	0112	8IN NON-REINF CONCRETE PAVEMENT CI AE	SY	1628	
550	0113	8IN REINF CONCRETE PAVEMENT CI AE	SY	2777	
550	0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED	SY	14047	
702	0100	MOBILIZATION	L SUM	1	
704	0100	FLAGGING	MHR	400	
704	1000	TRAFFIC CONTROL SIGNS	UNIT	3866	
704	1052	TYPE III BARRICADE	EA	32	
704	1054	SIDEWALK BARRICADE	EA	9	
704	1055	PEDESTRIAN LONGITUDINAL BARRICADE	LF	164	
704	1060	DELINEATOR DRUMS	EA	61	
704	1067	TUBULAR MARKERS	EA	27	
704	1080	STACKABLE VERTICAL PANELS	EA	29	
704	4011	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2	
708	1540	INLET PROTECTION-SPECIAL	EA	48	
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	48	
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	24384	
710	0250	TEMPORARY BYPASS DRAINAGE SYSTEM	EA	1	
714	0110	PIPE CONC REINF 12IN CL III	LF	265	
714	0205	PIPE CONC REINF 15IN CL III	LF	592	
714	0310	PIPE CONC REINF 18IN CL III	LF	239	
714	0400	PIPE CONC REINF 21IN CL III	LF	263	
714	0615	PIPE CONC REINF 24IN CL III	LF	881	
714	0820	PIPE CONC REINF 30IN CL III	LF	871	
714	0905	PIPE CONC REINF 36IN CL III	LF	559	
714	6590	PIPE PVC 6IN DRAIN	LF	10	
714	7025	PIPE PVC 8IN	LF	13	
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN	LF	687	
722	0100	MANHOLE 48IN	EA	8	
722	0110	MANHOLE 60IN	EA	9	
722	0120	MANHOLE 72IN	EA	2	
722	0140	MANHOLE 96IN	EA	1	
722	1100	MANHOLE RISER 48IN	LF	68.2	

ESTIMATE OF QUANTITIES					
SPEC	CODE	ITEM DESCRIPTION	UNIT	SU-6-986(121)125	100% CITY FUNDS
722	1110	MANHOLE RISER 60IN	LF	43.4	
722	1120	MANHOLE RISER 72IN	LF	9.7	
722	1140	MANHOLE RISER 96IN	LF	11.2	
722	3500	INLET-TYPE 1	EA	12	
722	3520	INLET-TYPE 2 DOUBLE	EA	5	
722	4000	INLET CATCH BASIN-TYPE A	EA	1	
722	6140	ADJUST GATE VALVE BOX	EA	9	
722	6200	ADJUST MANHOLE	EA	4	
722	6240	ADJUST UTILITY APPURTENANCE	EA	3	
722	6256	ADJUST 10IN WATERMAIN	EA	1	
724	0411	6IN HYDRANT	EA	8	
724	0430	REMOVE HYDRANT	EA	8	
724	1025	UNDERGROUND IRRIGATION SYSTEM	L SUM	1	
748	0100	CURB & GUTTER	LF	47	
748	0140	CURB & GUTTER - TYPE I	LF	65	
748	0190	CURB & GUTTER - TYPE I 30IN	LF	7949	
750	0105	SIDEWALK CONCRETE BIKEWAY	SY	4077	
750	0115	SIDEWALK CONCRETE 4IN	SY	136	
750	0210	CONCRETE MEDIAN NOSE PAVING	SY	10	
750	1000	DRIVEWAY CONCRETE	SY	328	
750	2115	DETECTABLE WARNING PANELS	SF	274	
752	0911	TEMPORARY SAFETY FENCE	LF	75	
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	309	
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	22	
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	247	
762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	615	
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED	LF	1225	
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED	LF	366	
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	5913	
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	1796	
770	0025	SCREW IN BASE FOUNDATION	EA	22	
770	0100	PULL BOX	EA	6	
770	0320	1.5IN DIAMETER RIGID CONDUIT	LF	3732	
770	0330	2IN DIAMETER RIGID CONDUIT	LF	2357	
770	0503	UNDERGROUND CONDUCTOR NO2-TYPE RHW	LF	2686	
770	0504	UNDERGROUND CONDUCTOR NO4-TYPE RHW	LF	6348	
770	0605	UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	2529	
770	0745	FEED POINT-TYPE IV-PAD MOUNTED	EA	1	
770	1676	LT STD 6FT MA 40FT MT HT BREAKAWAY	EA	22	
770	4210	LED LUMINAIRE	EA	23	
770	4501	TEMPORARY LIGHTING SYSTEM	EA	1	
770	4567	REMOVE LIGHTING SYSTEM	EA	1	
772	9200	IT SYSTEM	EA	1	
772	9811	TRAFFIC SIGNAL SYSTEM - SITE 1	EA	1	

Quantities

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

BASIS OF ESTIMATE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	10	1

Water

25 MGal/Mile for Dust Palliative
40 Gal/CY for Aggregates
10 Gal/CY for Embankment

Pavement Marking

4" Centerline Skip: 1320 LF/Mile
8" Drop Lane Line: 1320 LF/Mile

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-6-986(121)125	11	1

Earthwork Summary						
Location	Cut	Embankment: Common Excavation-Type A (Pay Item)*	Common Excavation-Waste (Pay Item)	Topsoil (Pay Item)	Topsoil Required	Topsoil-Imported (Pay Item)
	CY	CY	CY	CY	CY	CY
	A	B	C = A - B	D	E	F=E-D
North 42nd St	14027	3873	10154	2134	3382	1248
Frontage Road 1	77	90	-13	**	**	**
5th Ave N	163	0	163	**	**	**
6th Ave N	116	0	116	**	**	**
12th Ave N	190	0	190	**	**	**
Frontage Road 2	87	0	87	**	**	**
	14660	3963	10697	2134	3382	1248

*30% volume was added to earthwork volumes to allow for shrinkage

** Topsoil Included with North 42nd St

Concrete Joint Summary	
Length (LF)	Description
437	Type 1 Joint
8035	Type 2 Joint
10192	Type 3 or Type 5 Joint
2271	Type 4 Joint
119	Type 7 Joint
793	Type 8 Joint
165	Type 9 Joint
1990	Curb Contraction Joint
11653	Sidewalk/Bikeway/Median Sawcut
14812	Contraction Joint Dowel Assembly

Salvaged Base Course Summary				
Location	Removal of Concrete (CY)	Removal of Curb & Gutter (CY)	Material (Aggr., Bit., Conc. & Curb) to be Removed & Salvaged (CY)	Salvaged Base Course Required (CY) Pay Item
	A	B	C = A+B	D
North 42nd St	4335	568	4903	8097

Basis of Estimate

Mainline Pavement : 9 and 6 Inches Concrete Driveways: 6 Inches
Sidewalk Thickness: 4 Inches
Side Streets: 7 Inches
Curb & Gutter: 0.07 CY per foot

Salvaged Material Available	Removal Qty	5% Handling Loss	Available	Unit
Concrete (A+B)	4903	245	4658	CY
Material Available for Salvaged Base Course (D)			4658	CY

	Estimated Total	
Salvaged Base Course Required (C)	8097	CY
Material Available for Salvaged Base Course (D)	- 4658	CY
Additional Material Required (E)	3439	CY

Note: Sidewalk base to be included with Sidewalk Bid Item

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Earthwork, Salvaged Base Course, & Jointing Summaries

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

Mainline			
Station	Cut	Embankment: Common Excavation- Type A (Pay Item)*	Common Excavation- Waste (Pay Item)
88+07.31	0	0	0
88+25.00	7	8	-1
88+50.00	10	9	1
88+75.00	8	5	3
89+00.00	3	6	-3
89+25.00	0	12	-12
89+50.00	0	23	-23
89+75.00	0	39	-39
90+00.00	0	54	-54
90+25.00	0	62	-62
90+50.00	0	65	-65
90+75.00	12	66	-54
90+88.31	11	34	-23
91+00.00	11	26	-15
91+69.18	39	154	-115
91+75.00	0	15	-15
92+00.00	0	67	-67
92+25.00	35	67	-32
92+50.00	73	63	10
92+75.00	76	60	16
93+00.00	79	59	20
93+25.00	81	56	25
93+50.00	82	52	30
93+75.00	81	52	29
94+00.00	83	53	30
94+25.00	88	54	34
94+50.00	89	54	35
94+75.00	90	52	38
95+00.00	92	48	44
95+25.00	94	38	56
95+32.75	30	9	21
96+51.35	450	163	287
96+75.00	90	41	49
97+00.00	98	42	56
97+25.00	100	42	58
97+50.00	101	43	58
97+75.00	98	44	54
98+00.00	85	51	34
98+25.00	67	67	0
98+50.00	58	76	-18
98+75.00	56	86	-30
99+00.00	53	93	-40
99+25.00	50	85	-35
99+36.47	23	38	-15
100+65.54	271	379	-108
100+75.00	20	25	-5
101+00.00	55	65	-10
101+25.00	59	64	-5
101+42.09	42	49	-7

Mainline			
Station	Cut	Embankment: Common Excavation- Type A (Pay Item)*	Common Excavation- Waste (Pay Item)
101+50.00	19	24	-5
101+75.00	64	63	1
102+00.00	72	45	27
102+25.00	89	31	58
102+50.00	99	21	78
102+75.00	101	19	82
103+00.00	106	14	92
103+25.00	110	12	98
103+50.00	116	10	106
103+75.00	121	7	114
104+00.00	124	7	117
104+25.00	124	7	117
104+50.00	118	8	110
104+75.00	108	14	94
105+00.00	102	16	86
105+13.78	57	5	52
105+25.00	47	3	44
105+50.00	102	10	92
105+75.00	98	13	85
106+00.00	97	14	83
106+25.00	97	11	86
106+33.95	35	3	32
106+50.00	60	8	52
106+75.00	89	16	73
107+00.00	89	16	73
107+25.00	92	13	79
107+50.00	99	8	91
107+59.62	41	2	39
107+75.00	65	4	61
108+00.00	109	9	100
108+25.00	116	6	110
108+36.07	53	2	51
108+50.00	66	3	63
108+75.00	117	7	110
109+00.00	117	7	110
109+25.00	118	7	111
109+50.00	118	8	110
109+75.00	117	10	107
110+00.00	116	10	106
110+25.00	113	10	103
110+50.00	111	10	101
110+75.00	109	11	98
111+00.00	106	12	94
111+25.00	105	13	92
111+50.00	104	13	91
111+75.00	100	14	86
112+00.00	96	18	78
112+25.00	93	17	76
112+31.54	24	3	21

Mainline			
Station	Cut	Embankment: Common Excavation- Type A (Pay Item)*	Common Excavation- Waste (Pay Item)
112+50.00	65	11	54
112+75.00	82	20	62
113+00.00	78	21	57
113+25.00	76	21	55
113+50.00	80	20	60
113+75.00	86	17	69
114+00.00	92	14	78
114+25.00	101	11	90
114+42.74	80	4	76
114+50.00	35	1	34
114+75.00	121	5	116
115+00.00	123	7	116
115+25.00	131	5	126
115+50.00	140	3	137
115+75.00	147	2	145
116+00.00	147	2	145
116+25.00	147	2	145
116+50.00	146	2	144
116+75.00	138	4	134
116+96.57	113	3	110
117+00.00	18	0	18
117+25.00	122	5	117
117+50.00	111	10	101
117+75.00	102	14	88
118+00.00	98	14	84
118+25.00	98	12	86
118+34.07	36	4	32
119+34.98	398	58	340
119+50.00	60	9	51
119+75.00	102	13	89
120+00.00	103	12	91
120+25.00	106	9	97
120+30.27	23	1	22
120+50.00	84	7	77
120+75.00	107	11	96
121+00.00	111	11	100
121+25.00	113	11	102
121+50.00	115	10	105
121+75.00	118	9	109
122+00.00	121	8	113
122+25.00	125	8	117
122+50.00	125	7	118
122+75.00	120	8	112
123+00.00	124	4	120
123+09.23	49	0	49
123+25.00	87	1	86
123+50.00	143	3	140
123+66.49	99	1	98
123+75.00	53	0	53

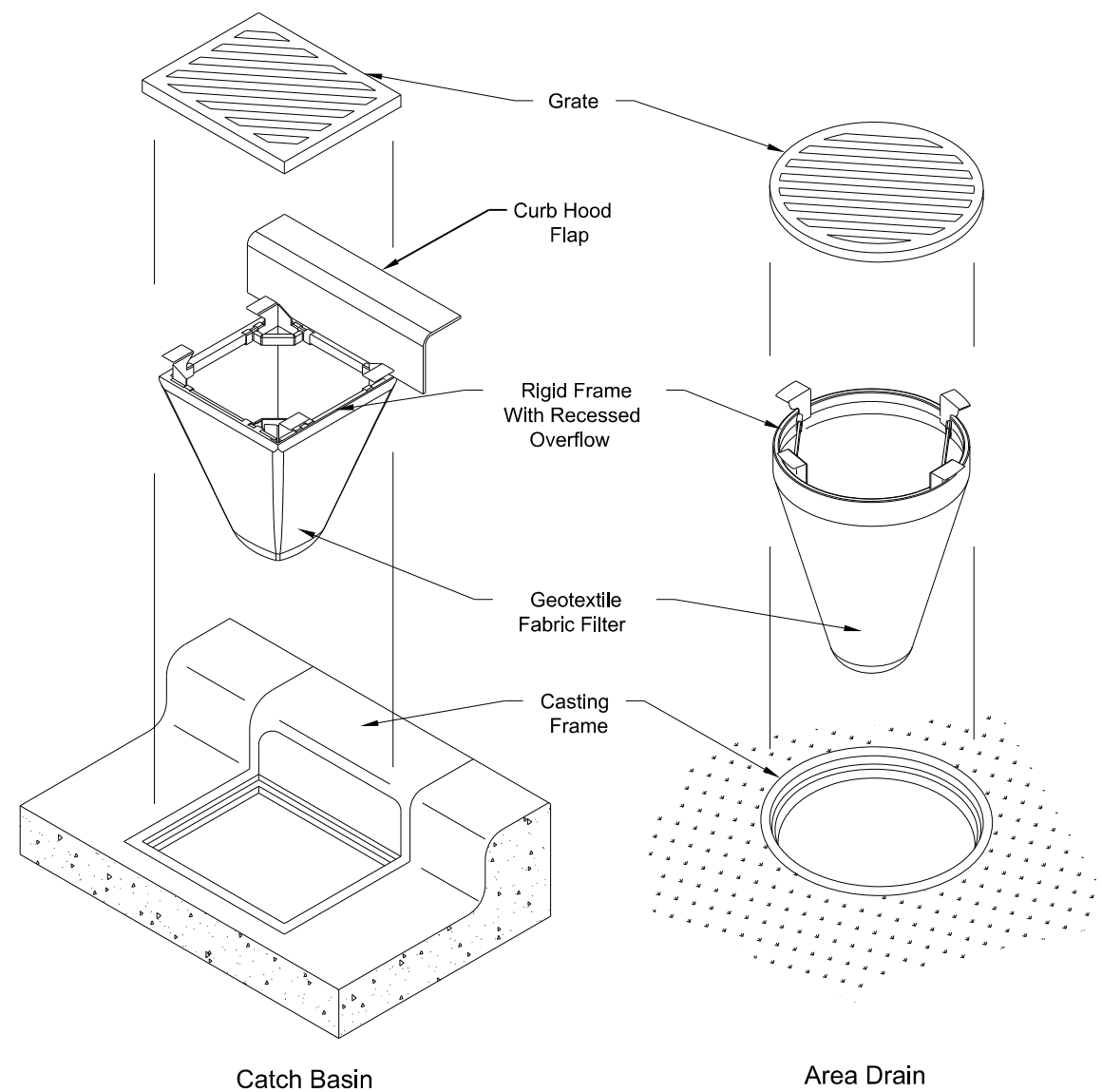
Mainline			
Station	Cut	Embankment: Common Excavation- Type A (Pay Item)*	Common Excavation- Waste (Pay Item)
123+93.95	120	1	119
124+62.85	434	3	431
124+75.00	74	0	74
125+00.00	152	1	151
125+25.00	153	1	152
125+40.33	94	1	93
125+50.00	59	1	58
125+52.17	13	0	13
125+75.00	146	1	145
126+00.00	84	0	84
Total	14027	3873	10154

*30% volume was added to earthwork volumes to allow for shrinkage

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Earthwork Details
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

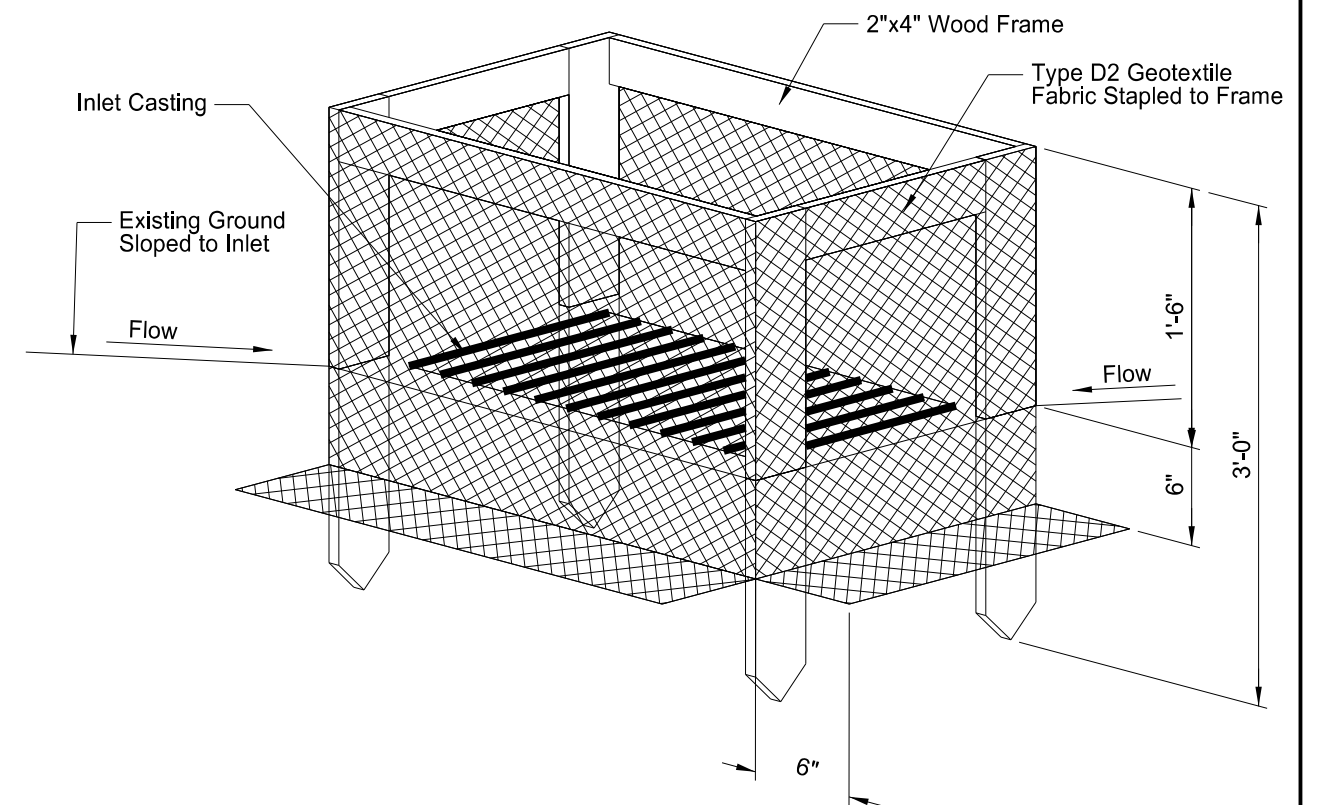
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	1



Notes:

1. Provide ADS Flexstorm or Approved Equal Inlet Protection Device with Curb Hood Flap.
1. Inlet Protection Device shall be Manufactured to be Recessed within Specified or Existing Casting.
2. Overflow to be Sized at a Minimum to Accommodate the Grate Flow Capacity.

Inlet Protection - Existing and New Inlets



Notes:

1. Premanufactured Frames May be Used Instead of Constructing Wood Frames, Provided that Adequate Support for the Geotextile Fabric is Furnished.

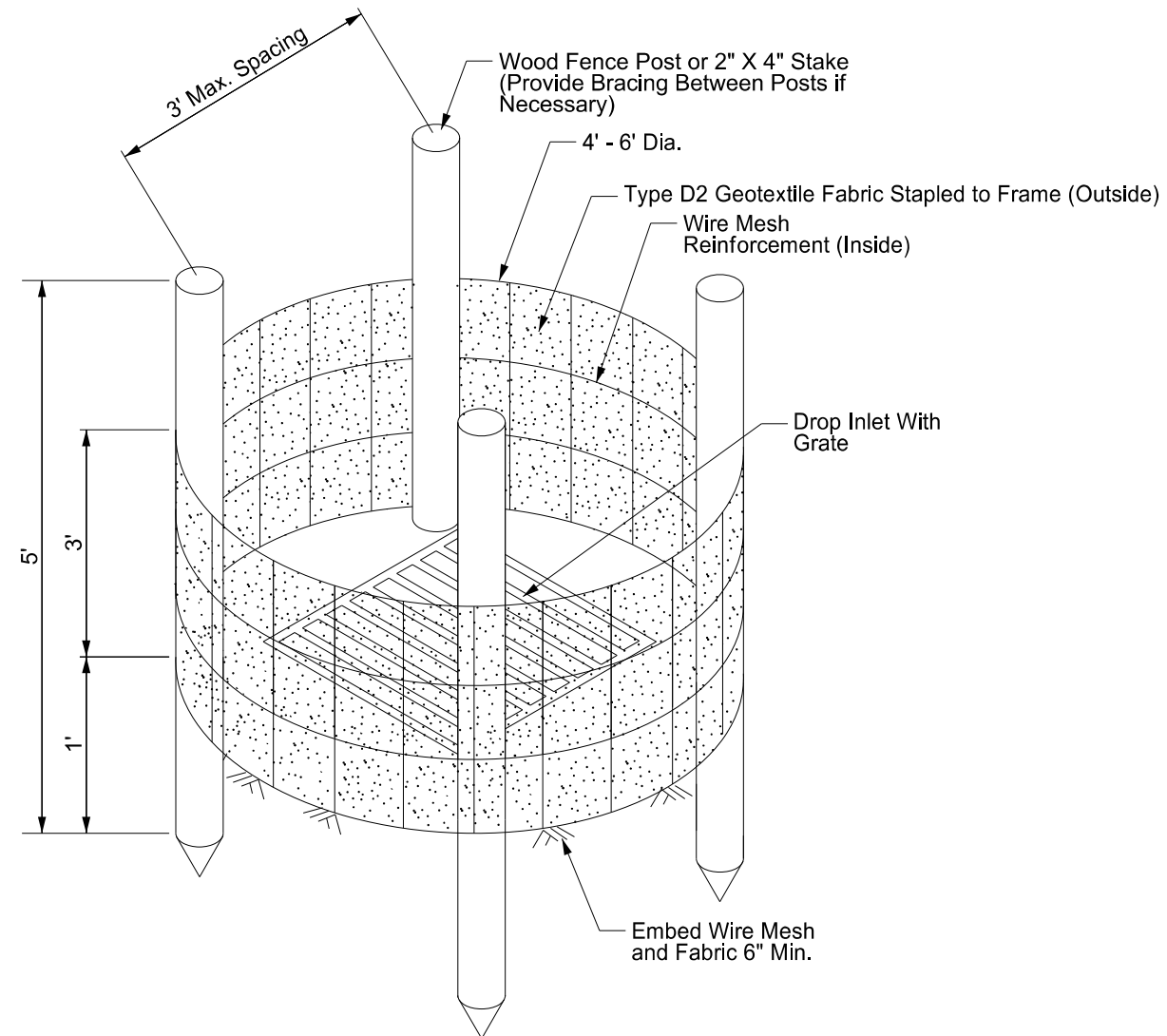
Inlet Protection - Before Concrete Pavement Construction

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Erosion Control Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Notes:

1. Inlet protection devices shall be maintained or replaced at the direction of the engineer.
2. Manufactured alternatives may be substituted, subject to the engineer's approval.
3. When removing or maintaining inlet protection, care shall be taken so that the sediment trapped on the geotextile fabric does not fall into the inlet. Any material falling into the inlet shall be removed immediately.

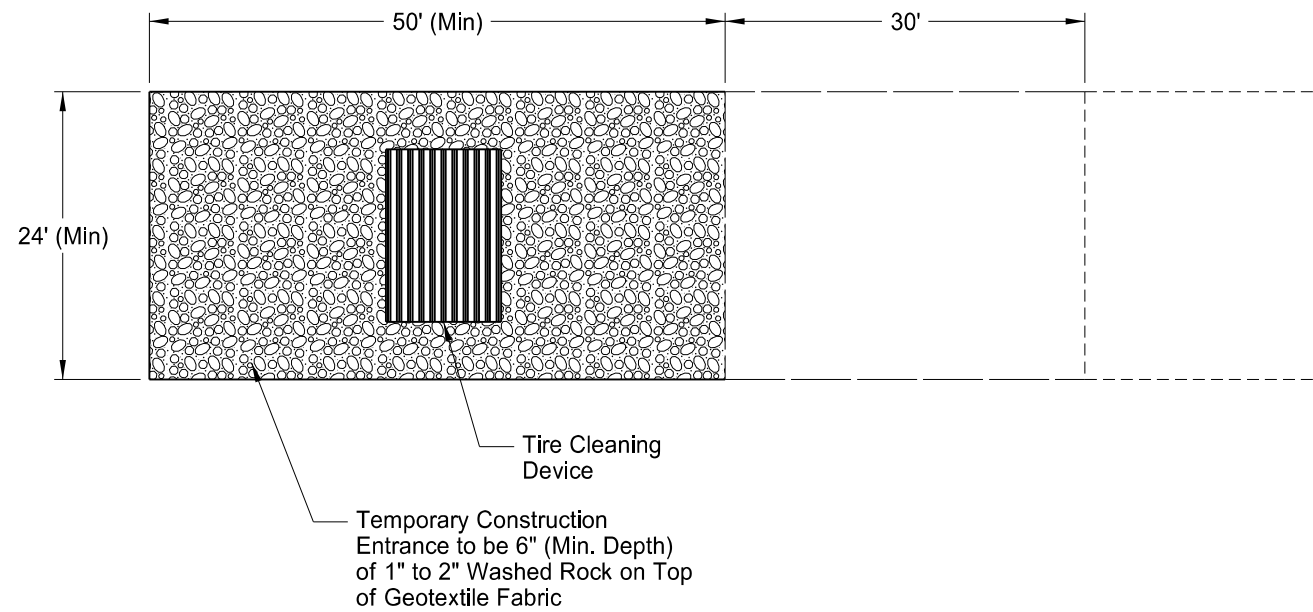
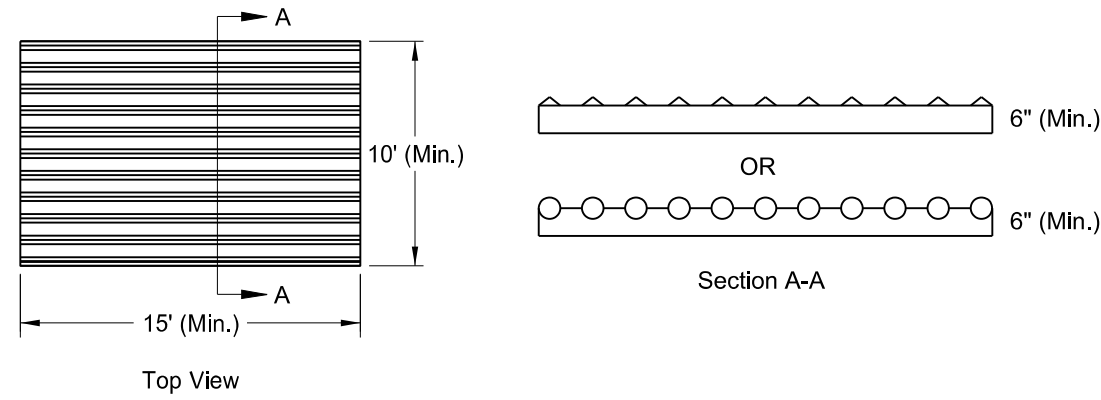
Inlet Protection - Area Inlets

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Erosion Control Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

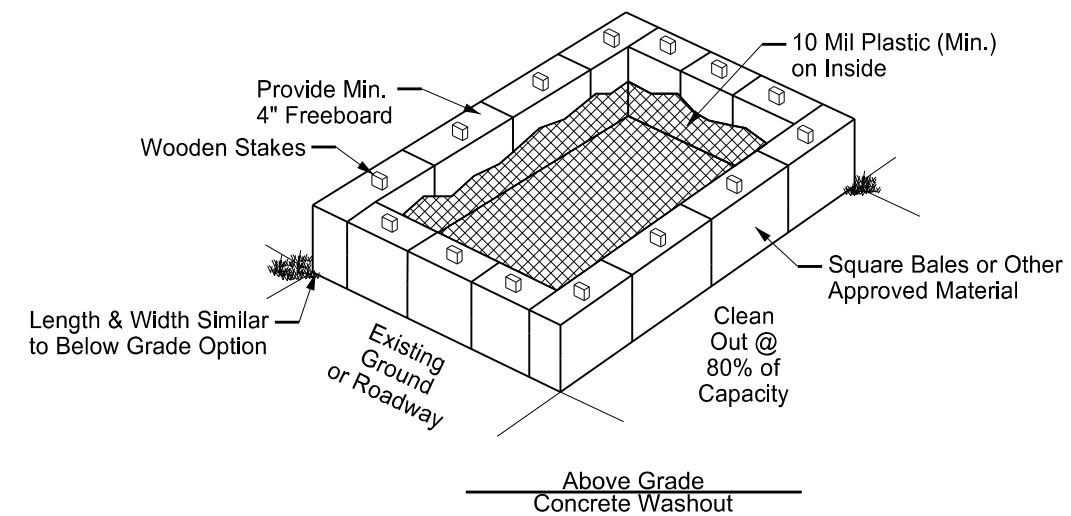
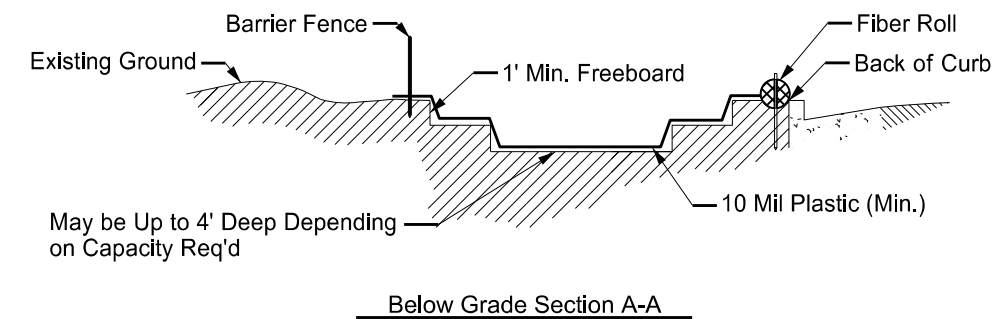
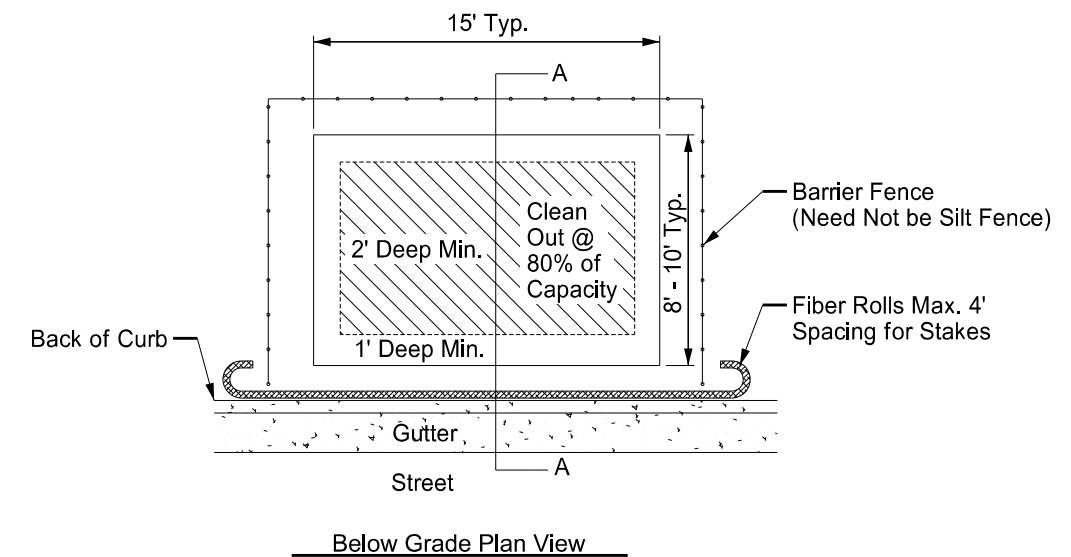
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-6-986(121)125	20	3



Stabilized Construction Access

Notes:

1. A stabilized construction access shall be constructed as shown on Plans. Field location shall be coordinated and verified with the Engineer.
3. Upon completion of the project, the Contractor shall remove the stabilized construction access unless noted otherwise, and the site shall be restored to preconstruction condition or better.
4. Exits shall be maintained in a manner to minimize the tracking of sediment onto paved surfaces. Contractor shall remove tracked sediment immediately.
5. Tire cleaning device shall be installed for all outbound traffic. Minimum size shall be 15' wide and 10' long. Several devices may be acceptable; including Cattle Guards, Rumble Plates and Wash Racks.

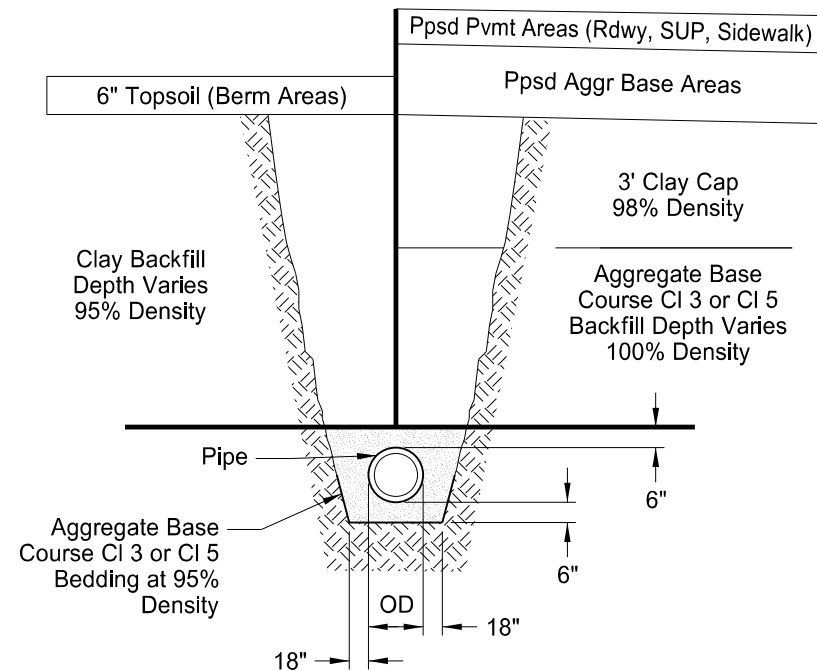


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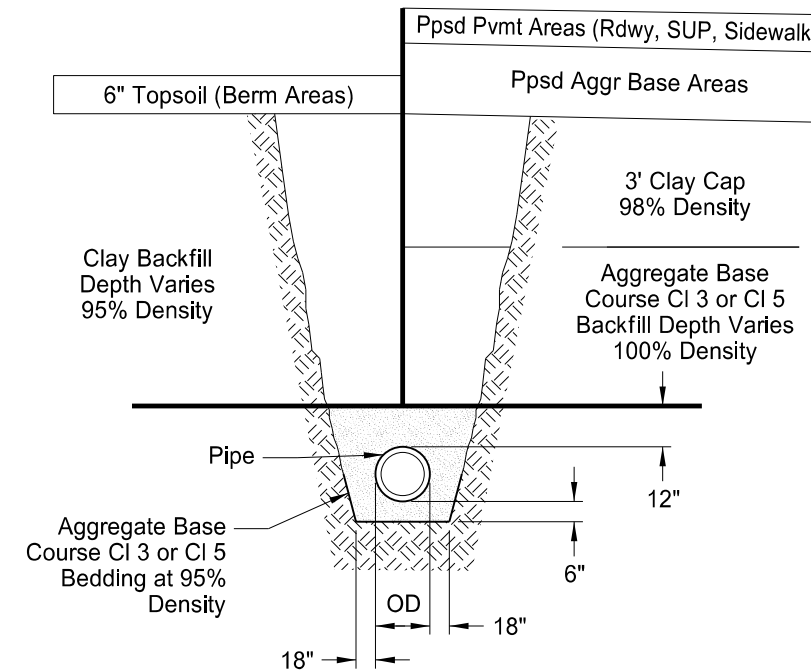
Erosion Control Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	4



Backfill Details for RCP Pipe



Backfill Details for PVC and CSP Pipe Types

Notes:

1. Maximum Thickness of Any One Lift Shall not Exceed 8 Inches Loose Material.
2. Clay Backfill and Clay Cap Shall be Compacted to Specified Density at +/- 3% of Optimum Moisture Content.
3. Trench Side slopes Shown are for Illustrative Purposes Only, Contractor Shall Excavate Trench in Accordance With OSHA and Other Applicable Requirements.
4. All Compaction Testing Shall be Determined by the Standard Proctor Density Test (NDDOT T 99).
5. Remove Aggregate Class AA Backfill from Existing Trenches Encountered During Excavation and Construct 3' Clay Cap.
6. Trench/Utility Structure Backfill Testing Shall be taken for Each Layer of Compacted Aggregate or Clay Backfill. A Layer of Compacted Aggregate or Clay Backfill is Defined by a Thickness of 12 Inches (placed and compacted in 6" lifts) and a Maximum Length of 200 Lineal Feet. The Engineer may Revise these Requirements to Suit Field Conditions.

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Bedding & Backfill Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

Notes:

1. See Inlet and Manhole Summary for Casting Type.
2. Provide Concrete in the Area Between the Pipe Invert & Top of Base as Necessary to Meet the Two Ring Requirement.
3. Steps Shall be Plastic and Shall be Precast Into Manhole Sections. Steps Shall be 12 Inches Overall Width.
4. Monolithic Bases Are Approved. If Monolithic Base is Used, A Separate Base is Required.
5. See Inlet & Manhole Summary Table for Underdrain Locations (Where Applicable).
6. For Manholes in Paved Areas, Provide and Install 4" Extruded Polystyrene Insulation - 40 PSI Compressive Strength. The Entire Concrete Base Must Have Insulation Beneath It.

Riser Diameter	Base Diameter	Cover Diameter
48"	72"	58"
54"	72"	65"
60"	78"	72"
72"	92"	82"

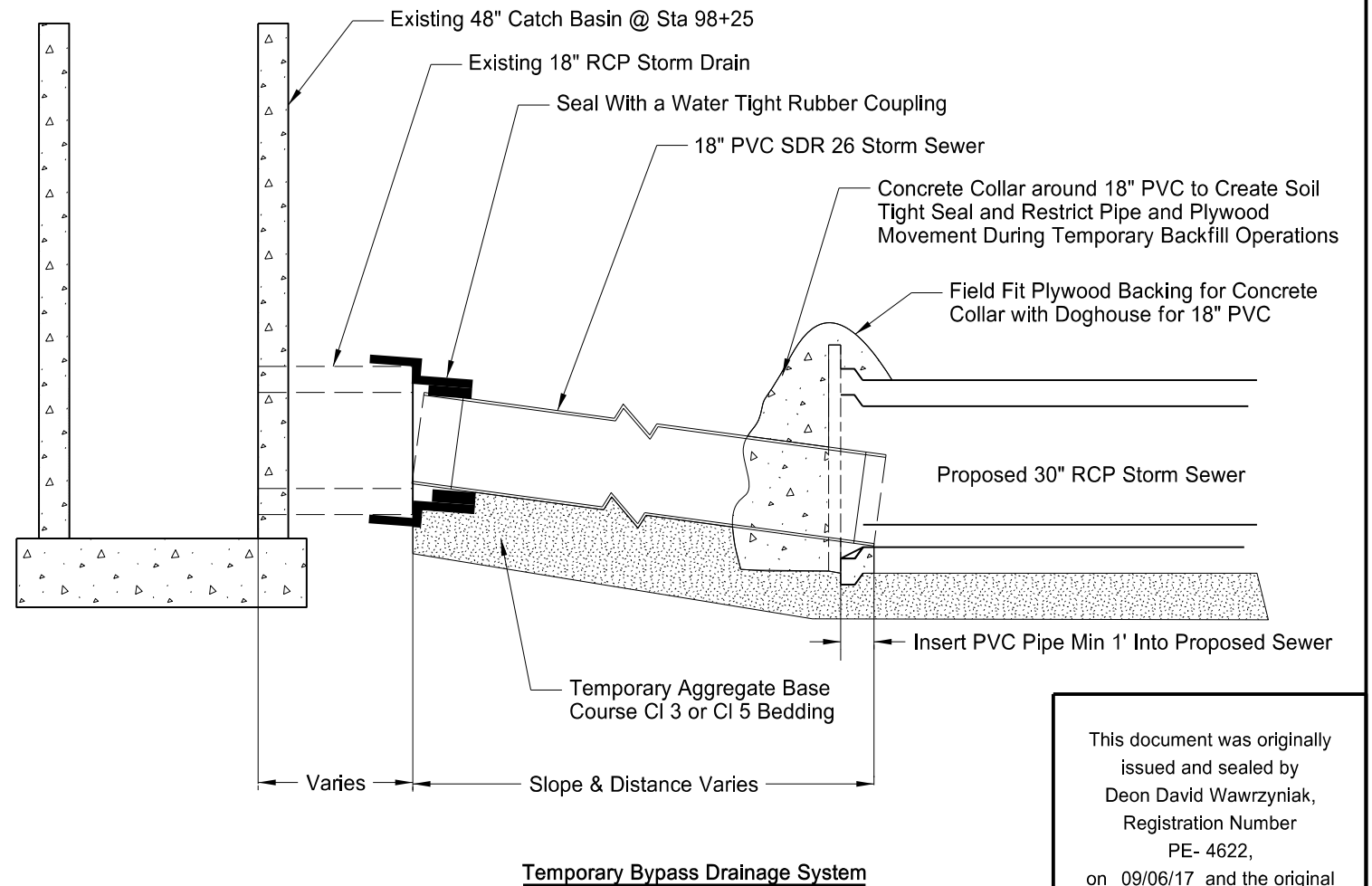
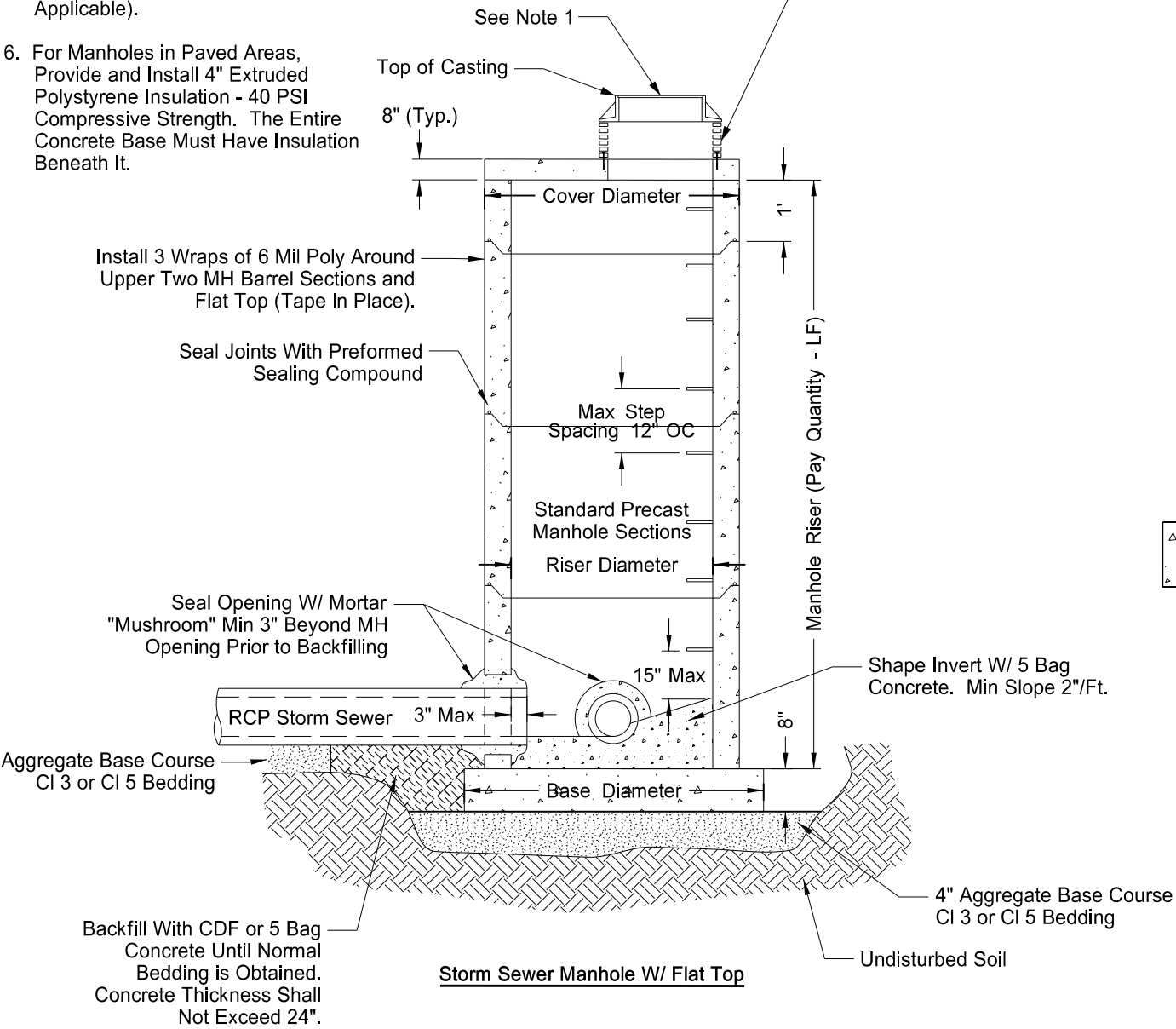
Plastic Rings Shall be Used, Follow Manufacturer's Recommendations for Installation Procedures.

In Landscape Areas:
Install Six Adjusting Rings (Typical). See Inlet & Manhole Summary Table for Exceptions. Install 3 Wraps of 6 Mil Poly Around MH Casting and Adjusting Rings.

In Pavement Areas:
Install Three Adjusting Rings (Typical). See Inlet & Manhole Summary Table for Exceptions. Install Chimney Seal as Shown in Floating Manhole Casting W/o Cone Detail on Sheet 20-8. Install 3 Wraps of 6 Mil Poly Around Chimney Seal.

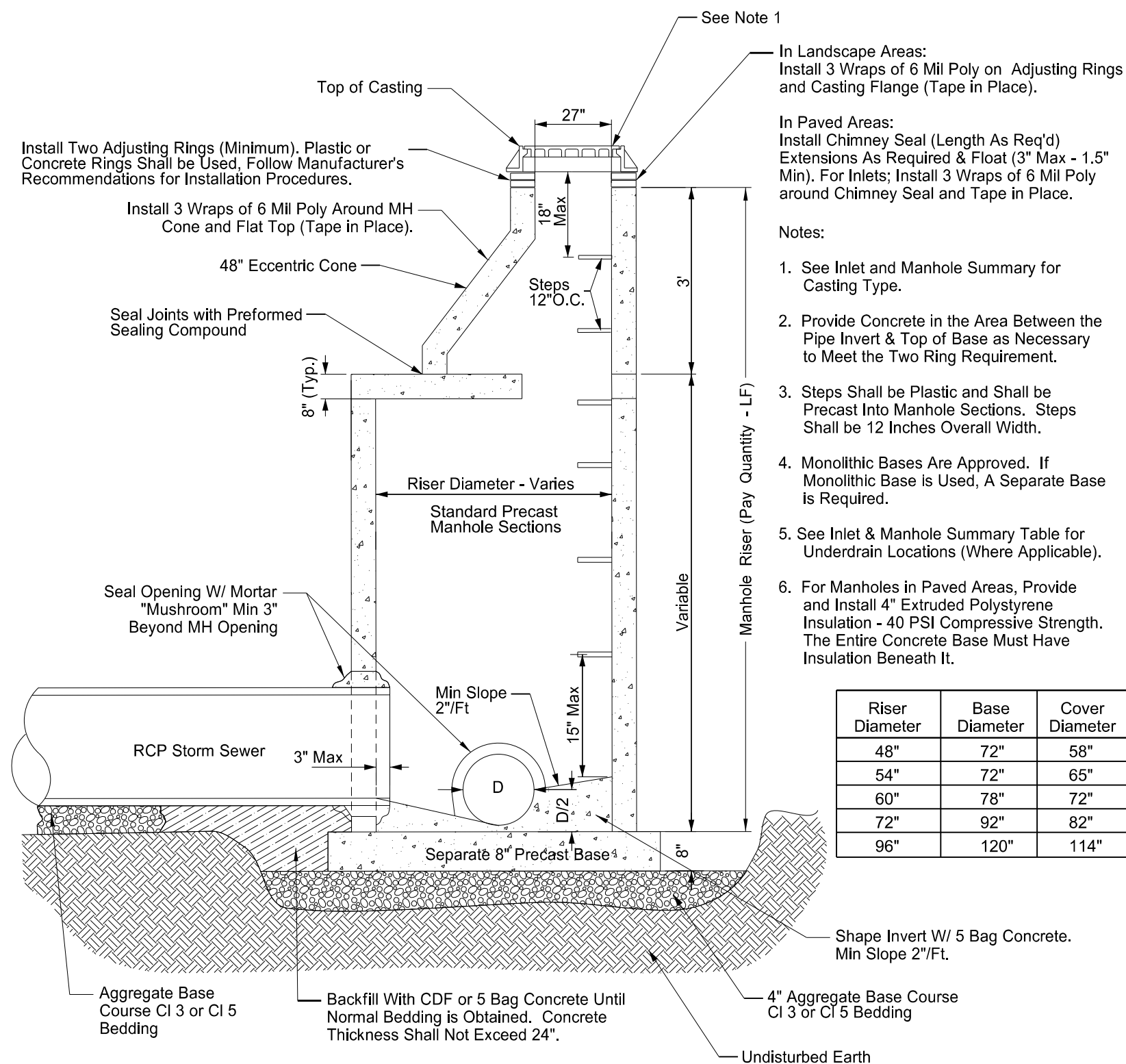
Notes:

1. Construct Temporary Bypass Drainage System to Accommodate the Removal of 18" RCP Storm Sewer and Installation of the Pipe Conc. Reinf 27 IN between MH 4 and MH3. Temporary Bypass Should Facilitate a Closed Drainage System so Construction Phasing as Shown in Section 100 can Occur.
2. Bid Item "Temporary Bypass Drainage System" Shall Include the Excavation, Furnishing and Installation of Bypass Piping, Furnishing and Installation of the Water Tight Seal, Concrete Collar, Plywood, Temporary Backfilling, and Removal/Disposal of Bypass Line When No Longer Required.
3. Temporary backfill shall be placed and compacted towards concrete collar to restrict movement.



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Storm Sewer Manhole and Temporary Bypass Details
Reconstruction of North 42nd St University Ave to US 2 (Gateway Dr) Grand Forks, ND

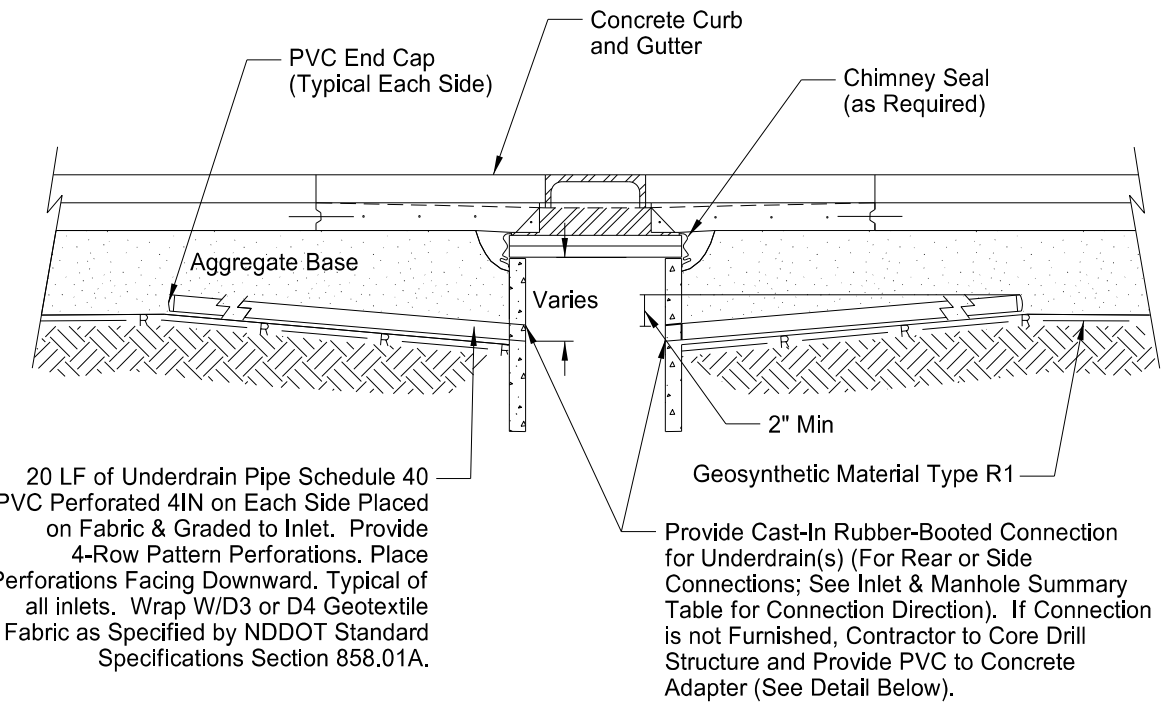


In Landscape Areas:
Install 3 Wraps of 6 Mil Poly on Adjusting Rings and Casting Flange (Tape in Place).

In Paved Areas:
Install Chimney Seal (Length As Req'd) Extensions As Required & Float (3" Max - 1.5" Min). For Inlets; Install 3 Wraps of 6 Mil Poly around Chimney Seal and Tape in Place.

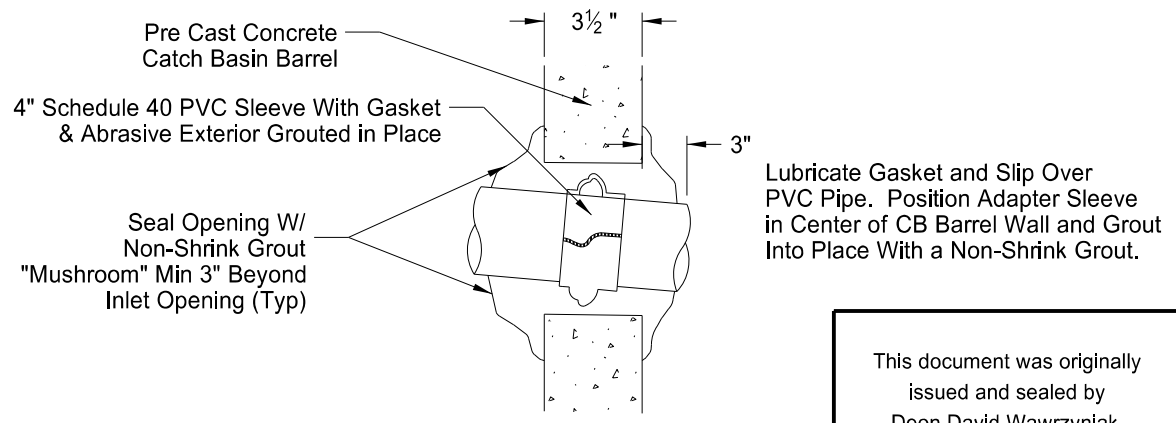
- Notes:
1. See Inlet and Manhole Summary for Casting Type.
 2. Provide Concrete in the Area Between the Pipe Invert & Top of Base as Necessary to Meet the Two Ring Requirement.
 3. Steps Shall be Plastic and Shall be Precast Into Manhole Sections. Steps Shall be 12 Inches Overall Width.
 4. Monolithic Bases Are Approved. If Monolithic Base is Used, A Separate Base is Required.
 5. See Inlet & Manhole Summary Table for Underdrain Locations (Where Applicable).
 6. For Manholes in Paved Areas, Provide and Install 4" Extruded Polystyrene Insulation - 40 PSI Compressive Strength. The Entire Concrete Base Must Have Insulation Beneath It.

Riser Diameter	Base Diameter	Cover Diameter
48"	72"	58"
54"	72"	65"
60"	78"	72"
72"	92"	82"
96"	120"	114"



See Plans for Concrete, Granular and Subcut Depths

Inlet-Type 2 and Inlet-Type 2 Double Drantile



PVC to Concrete Adapter

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Storm Sewer Details

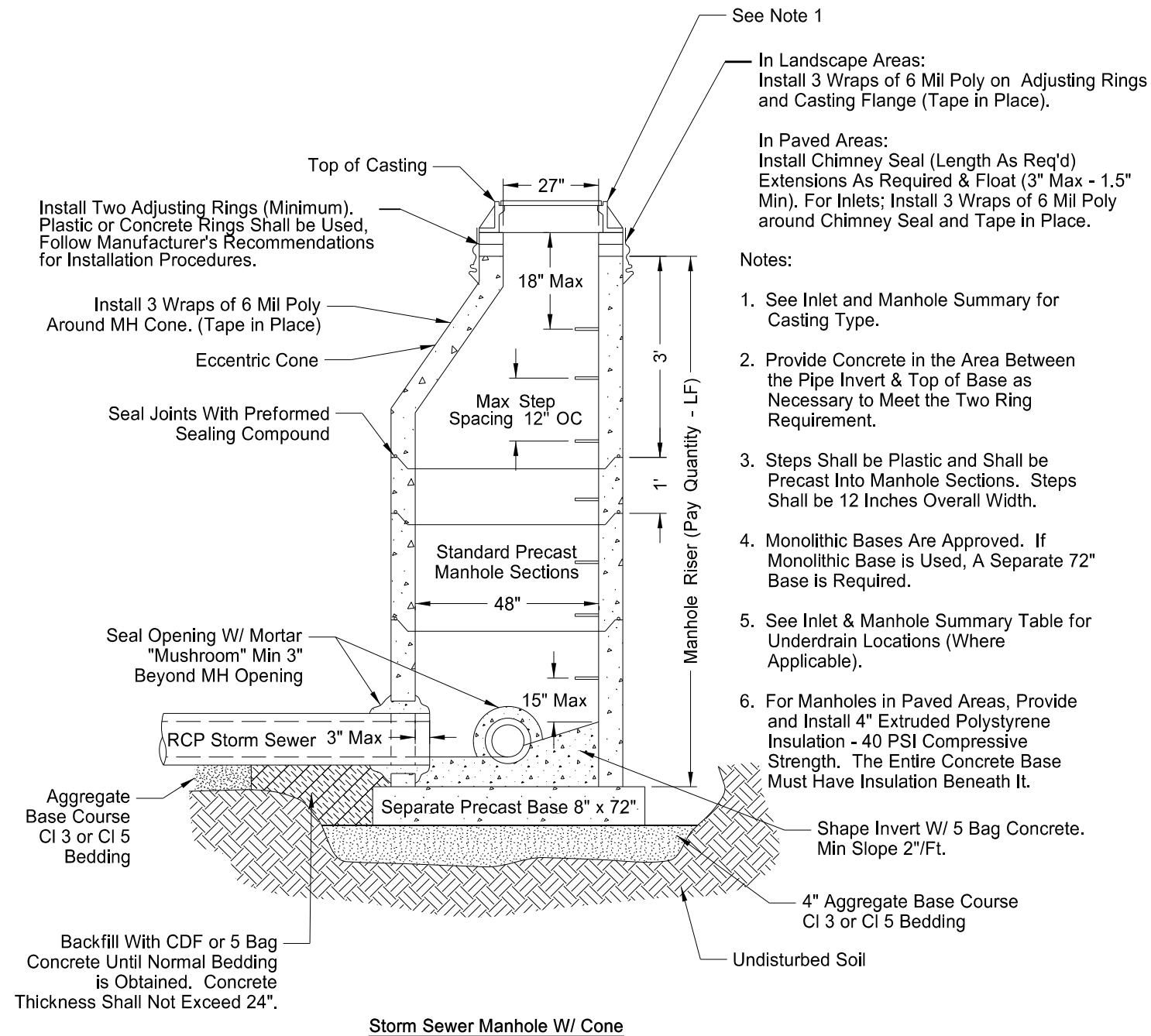
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

Storm Sewer Manhole - 54" Or Greater W/ Cone

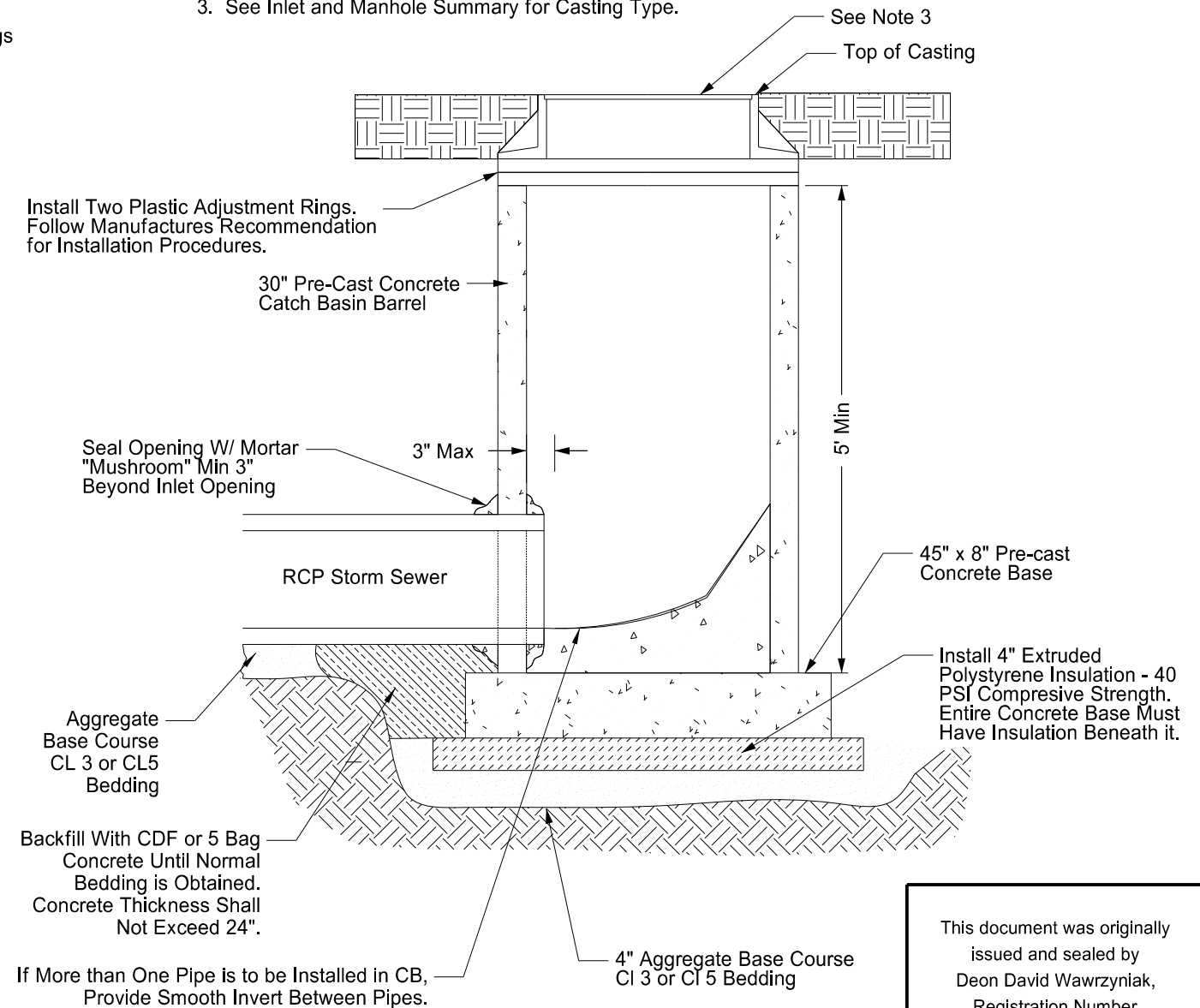
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	7

Notes:

1. Area Drain Casting, Adjusting Rings and Barrel Shall be Triple Wrapped with 6-Mil Poly (Tape in Place).
2. Fill Invert to Design Grade with 5 Bag Concrete Mix. Min Slope 2"/FT
3. See Inlet and Manhole Summary for Casting Type.



Storm Sewer Manhole W/ Cone

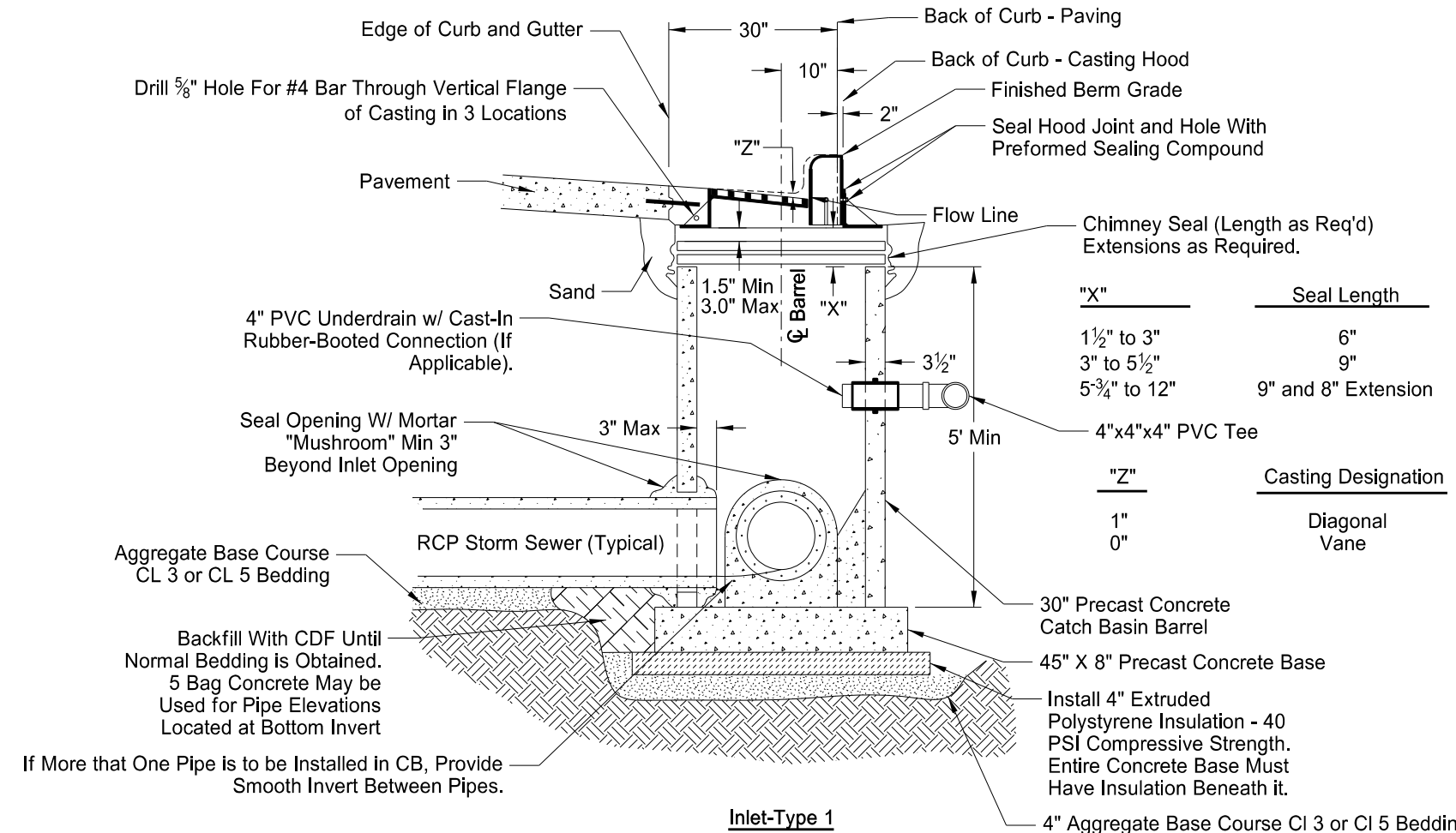


Inlet Catch Basin-Type A

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Storm Sewer Manhole Details

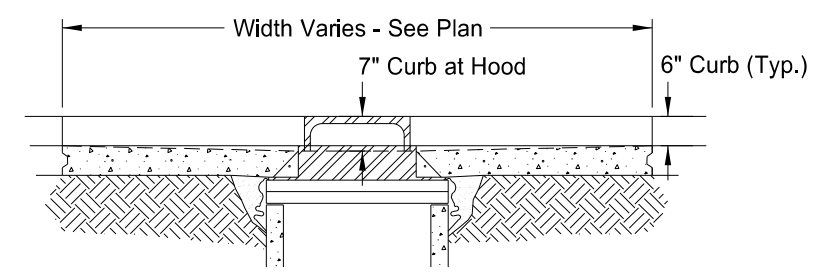
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND



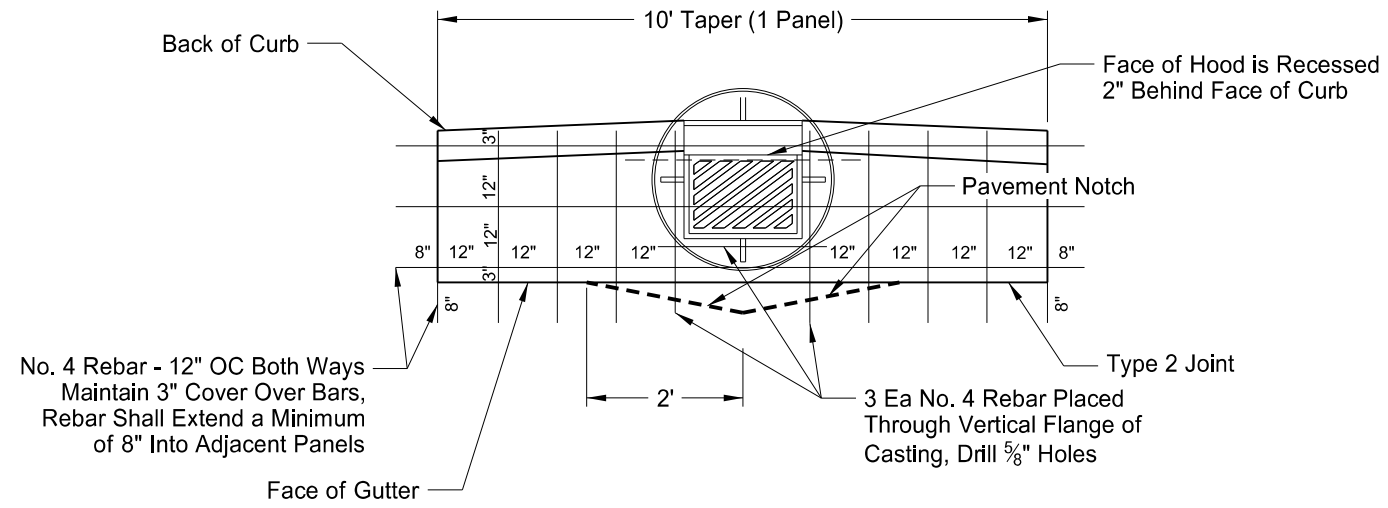
Notes:

- Inlet Barrel and Chimney Seal Shall be Triple Wrapped With 6 Mil Poly (Tape in Place).
- Fill Invert to Design Grade With 5 Bag Concrete Mix. Min Slope 2"/Ft.
- See Inlet and Manhole Summary for Casting Type.
- Plastic Rings Shall be Required. Follow Manufacturers Recommendation for Installation Procedures.
- Backfill With Aggregate Base Course Cl 3 or Cl 5 to 100% Density (NDDOT T 99) Around Inlet Barrel.
- Construct 3' Clay Cap beneath Roadway Aggregate Base Section (as shown in the Backfill Details).
- Provide Connections for Drain Tile.

Inlet-Type 1



Inlet-Type 1 - Front View



Inlet-Type 1 Reinforcement

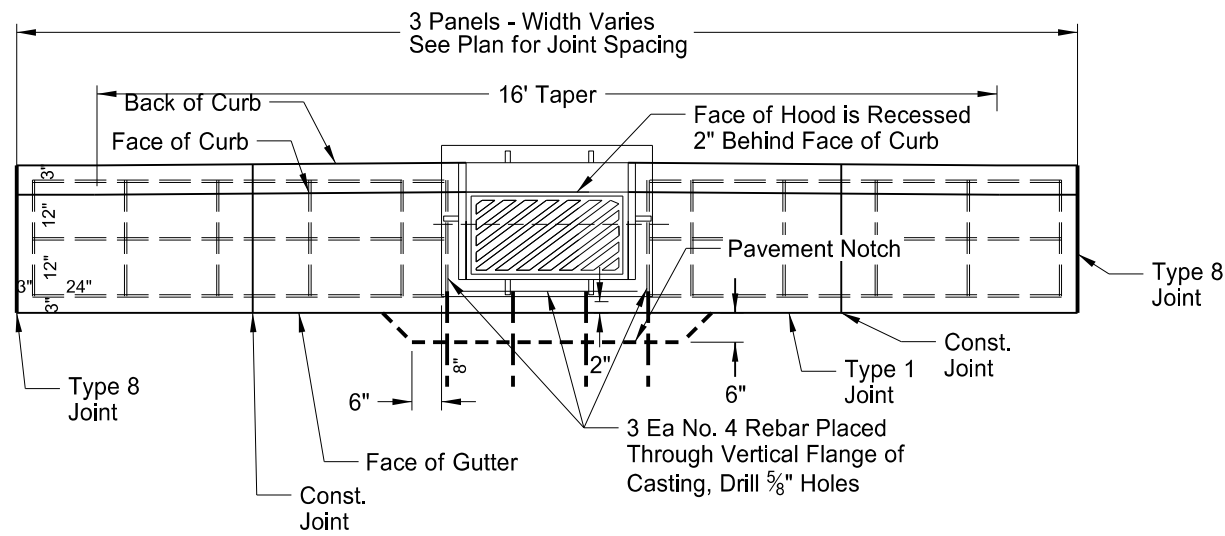
Notes:

- No Part of Inlet Barrel Section Shall be Located Beneath Pavement.
- Notch Pavement when Required

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Inlet Details Type 1

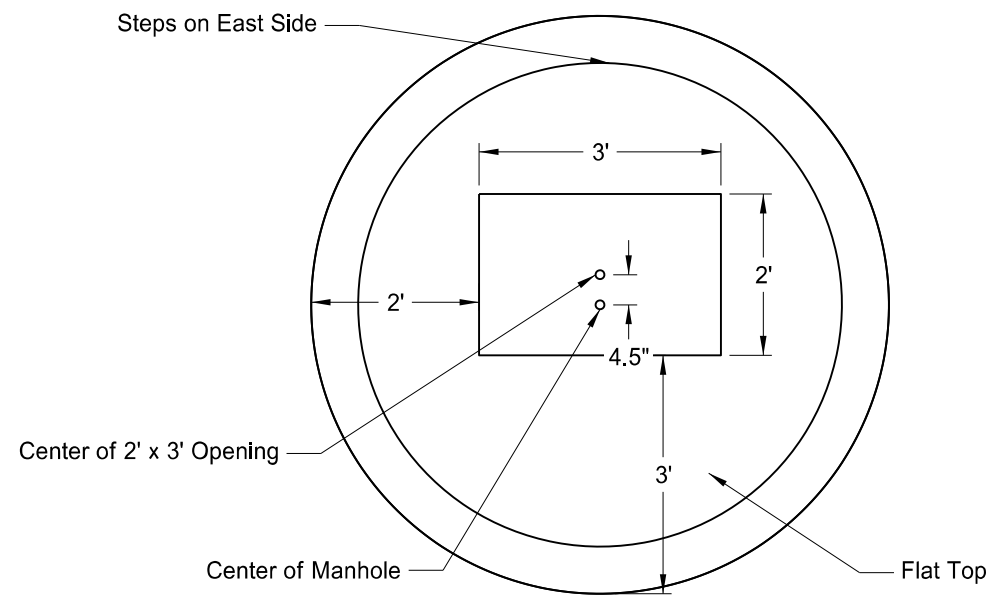
Reconstruction of North 42nd St University Ave to US 2 (Gateway Dr) Grand Forks, ND



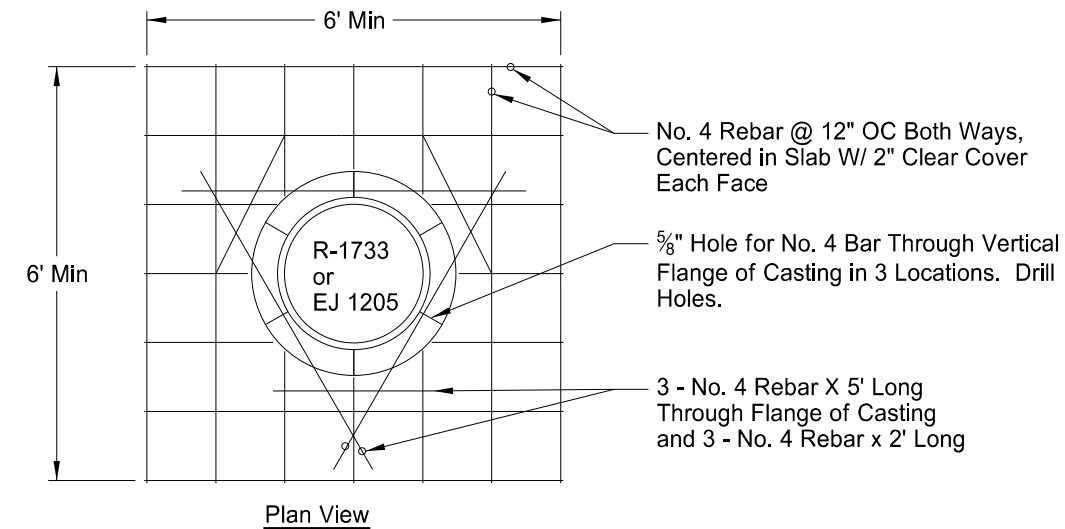
Inlet-Type 2 Reinforcement

Notes:

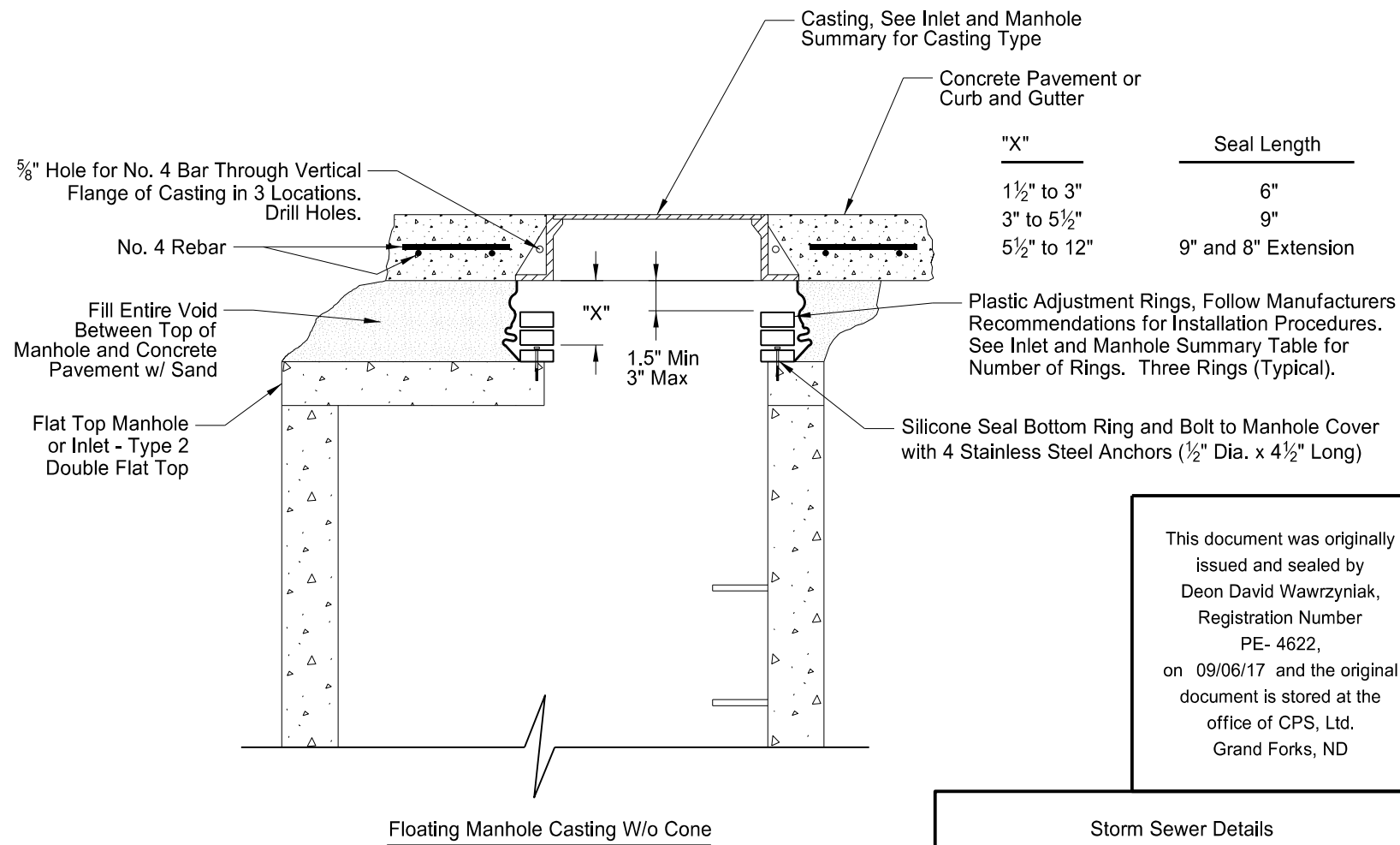
1. No Part of Precast Inlet Structure Shall be Located Beneath Pavement.
2. Notch Pavement when Required. Extend Rebar in Gussets into the Adjacent Pavement and Provide Additional Rebar as Shown.
3. No Rebar Splicing Shall be Permitted.
4. See Sheet 20-10 for Section View.



MH No. 1 Flat Top



Note:
For Inlets; Install 3 Wraps of 6 Mil Poly around Chimney Seal and Tape in Place.

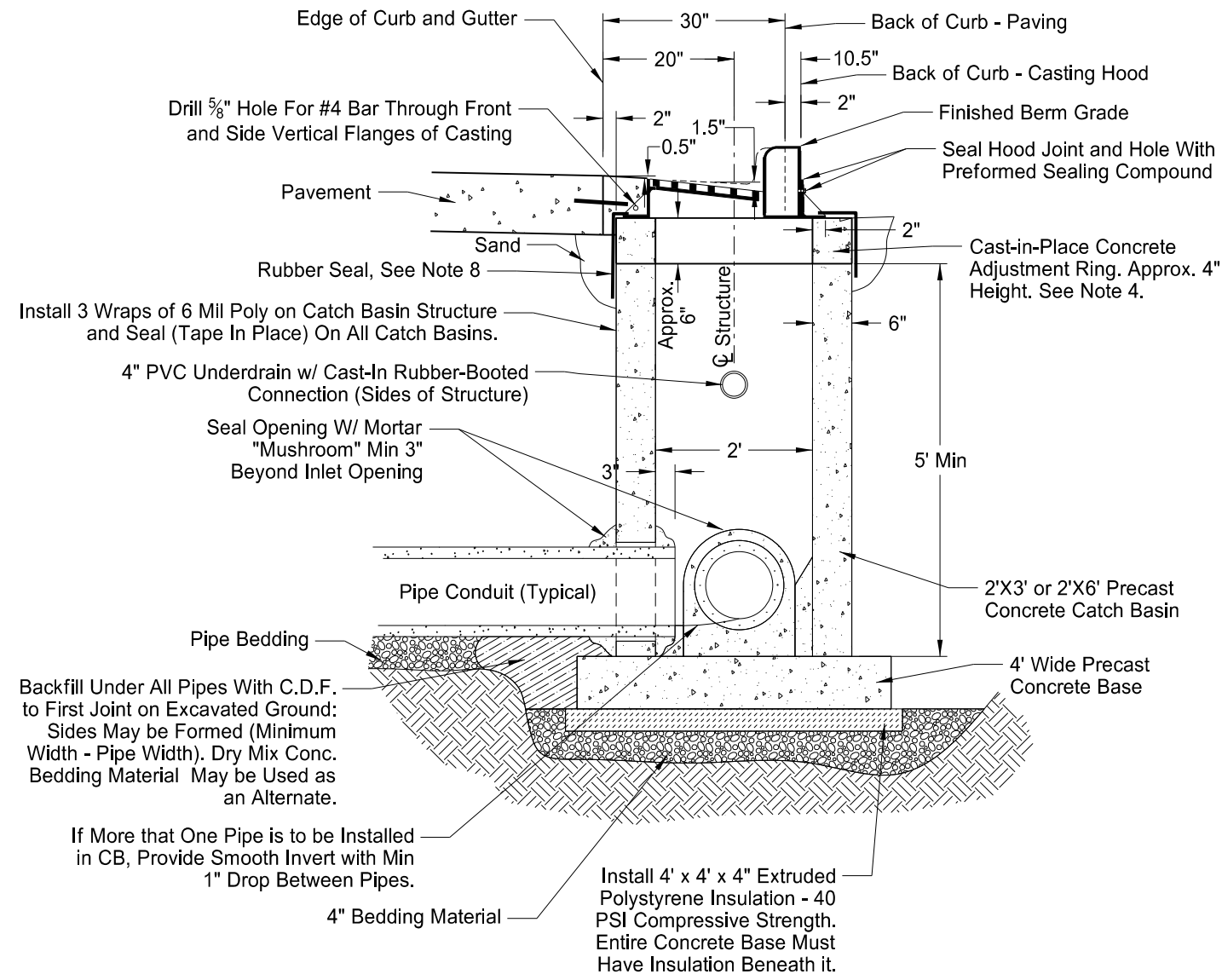


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Storm Sewer Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

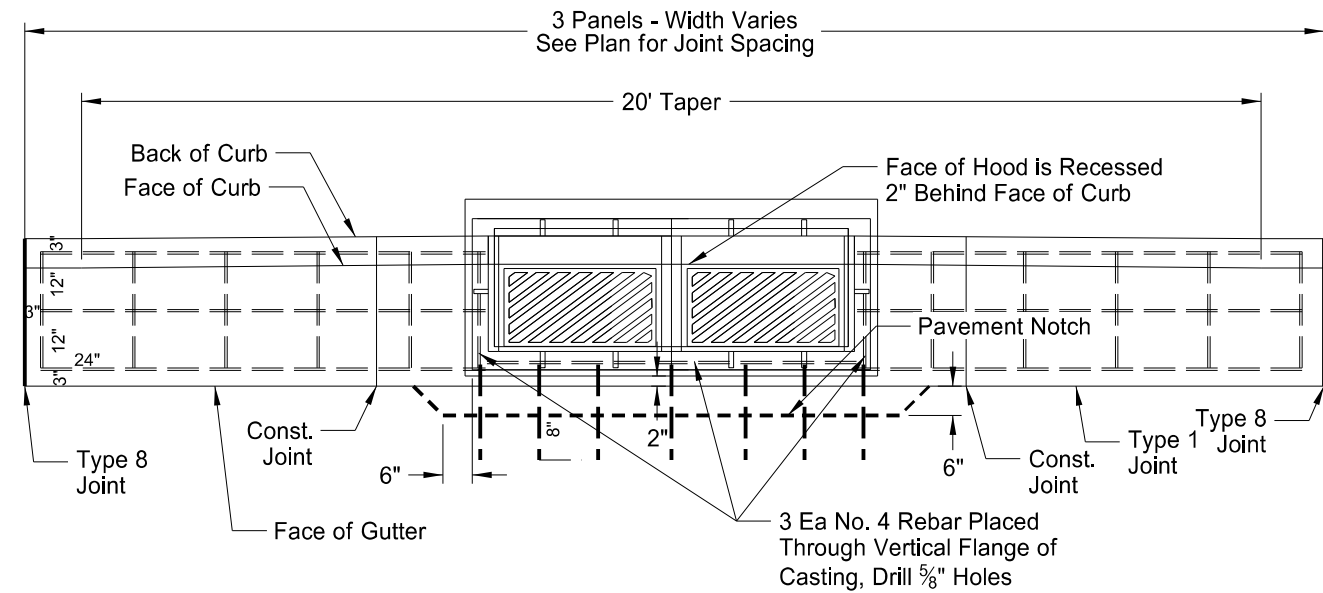
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Inlet-Type 2 Double (Typical Section View)

Notes:

1. Inlet Barrel and Adjustment Rings Shall be Triple Wrapped With 6 Mil Poly.
2. Fill Invert to Design Grade With 5 Bag Concrete Mix. Min Slope 2"/Ft.
3. Use Inlet Casting Casting Neenah R-3295-2 With Type R Grate for "Inlet-Type 2 Double".
4. Concrete or Plastic Adjustment Rings May be Used In Lieu of Cast-in-Place Concrete Adjustment Ring. Follow Manufacturers Recommendation for Installation Procedures.
5. Backfill With Aggregate Base Course CI 3 or CI 5 to 100% Density (NDDOT T 99) Around Inlet Barrel.
6. Construct 3' Clay Cap beneath Roadway Aggregate Base Section (as shown in the Backfill Details) Around Inlet Barrel.
7. Provide Connections for Drain Tile.
8. Rubber Seal for "Inlet-Type II" Shall be Made of High Quality Ethylene Propylene Diene Monomer Rubber with a Minimum Thickness of 65 Mils. There Shall be a Preformed "L" Shaped Corner Molded into the Top of the Seal for Wrap Around Edge of Casting Flange. There Shall be a 2" - 3" Wide Strip of Butyl Mastic Attached to the Inside of the Side Section at the Bottom of the Seal for Catch Basin Structure and at Top for Seal to Casting Flange. Install Rubber Seal on the Outside Surface of the Adjustment Rings and Provide Coverage of all Adjustment Rings.



Inlet-Type 2 Double Reinforcement

Notes:

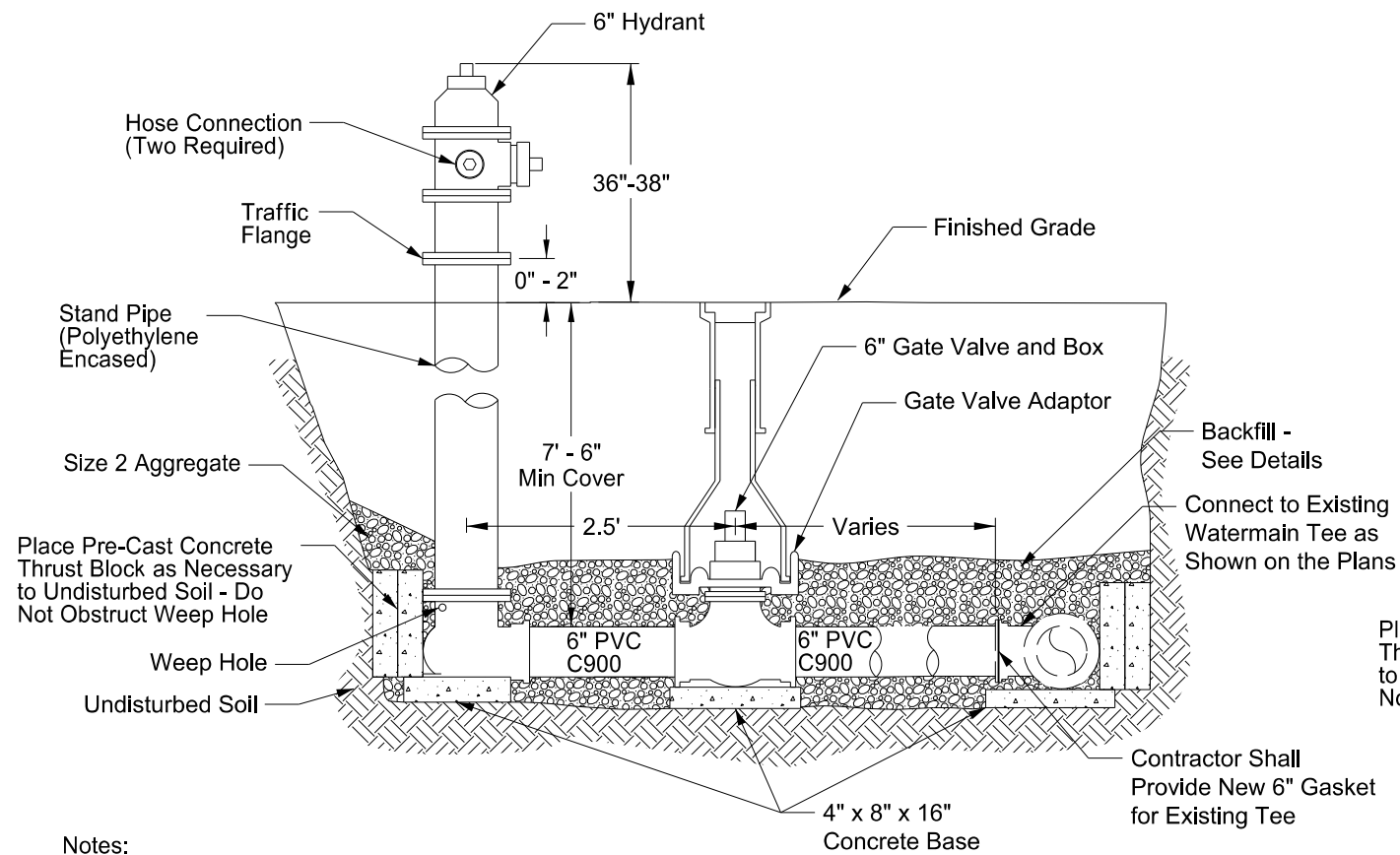
1. No Part of Precast Inlet Structure Shall be Located Beneath Pavement.
2. Notch Pavement when Required. Extend Rebar in Gussets into the Adjacent Pavement and Provide Additional Rebar as Shown.
3. No Rebar Splicing Shall be Permitted.

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Storm Sewer Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

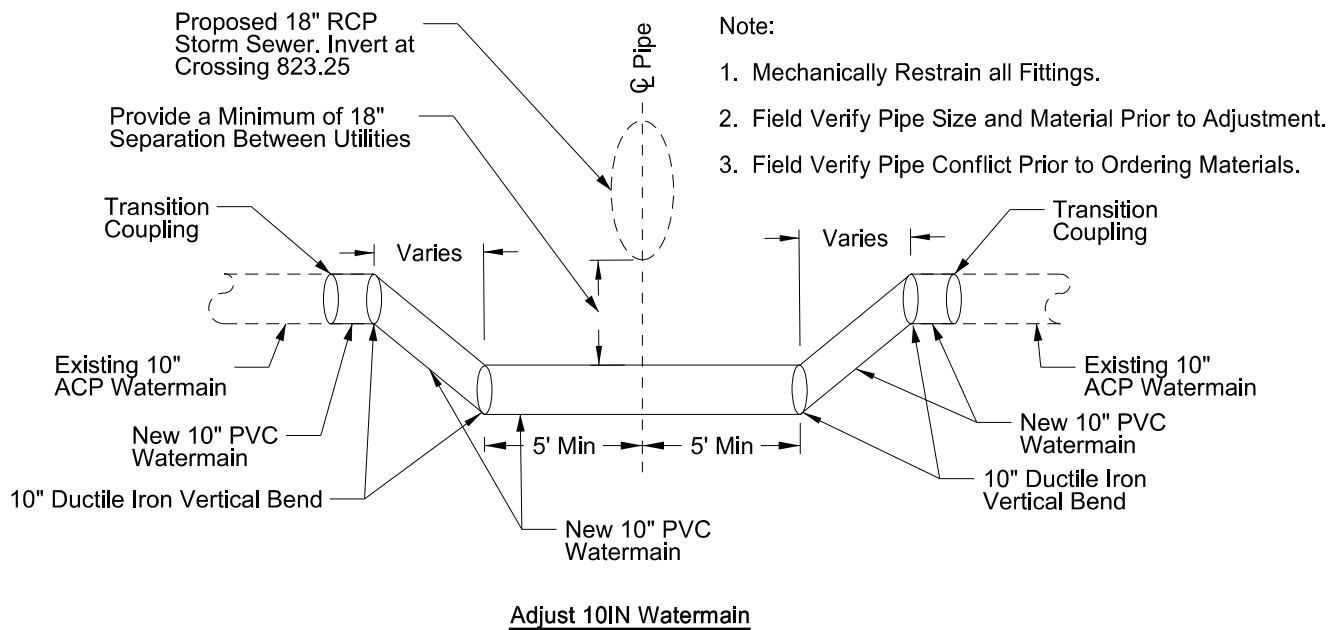
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	11



Notes:

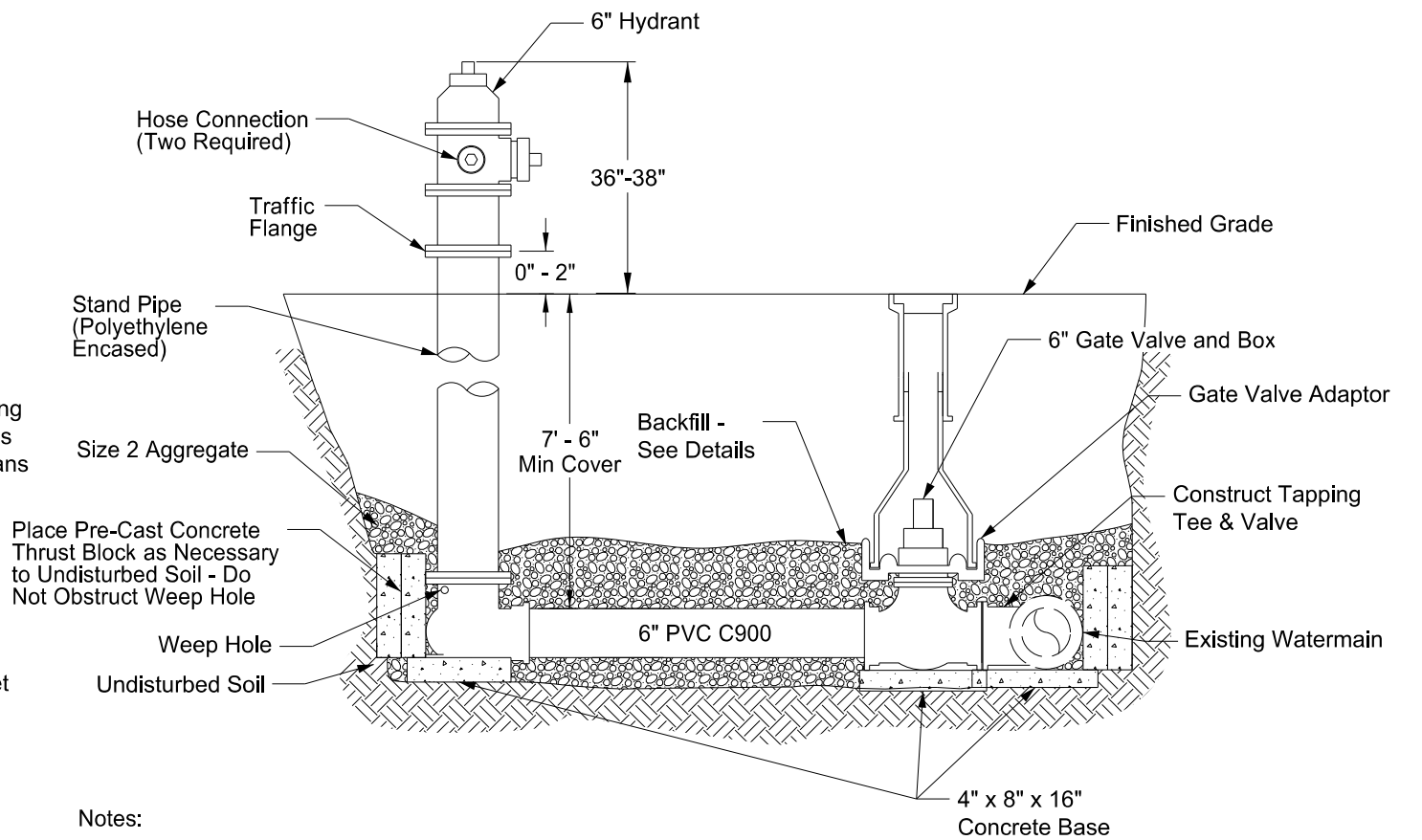
1. Place Size 2 Aggregate to 6" Above Weep Hole With a Min 30" Width and 5' Along Hydrant Lead (Min ¾ CY).
2. Wrap Hydrant up to Ground Line With 3 Layers of 6 Mil Poly, Tape Ends & Seams.
3. All Joints Shall be Restrained Mechanical Joint.
4. Reaction Backing can be Steel Sheet Piles as Approved by Engineer in Field.

**6IN Hydrant -
Use Existing Tee**



Adjust 10IN Watermain

- Note:
1. Mechanically Restrain all Fittings.
 2. Field Verify Pipe Size and Material Prior to Adjustment.
 3. Field Verify Pipe Conflict Prior to Ordering Materials.



Notes:

1. Outer Edge of Tapping Tee Shall be Located a Minimum of 12" From an Existing Watermain Joint.
2. Place Size 2 Aggregate to 6" Above Weep Hole With a Min 30" Width and 5' Along Hydrant Lead (Min ¾ CY).
3. Wrap Hydrant up to Ground Line With 3 Layers of 6 Mil Poly, Tape Ends & Seams.
4. All Joints Shall be Restrained Mechanical Joints.
5. Reaction Backing can be Steel Sheet Piles as Approved by Engineer in Field.

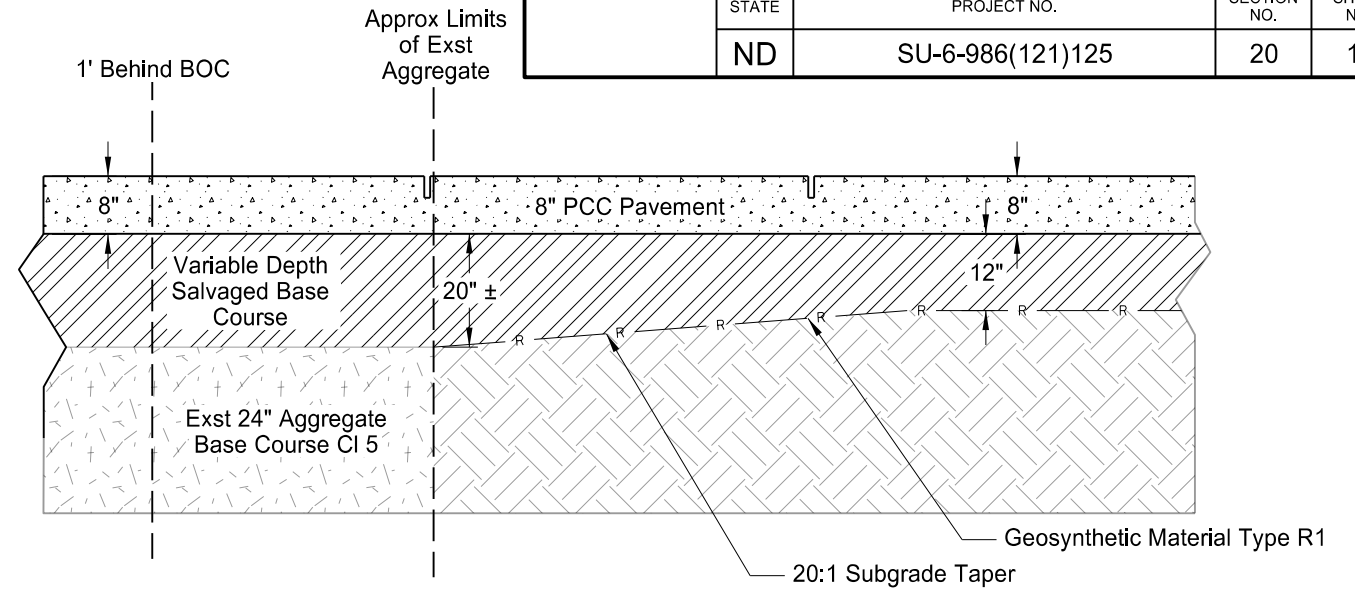
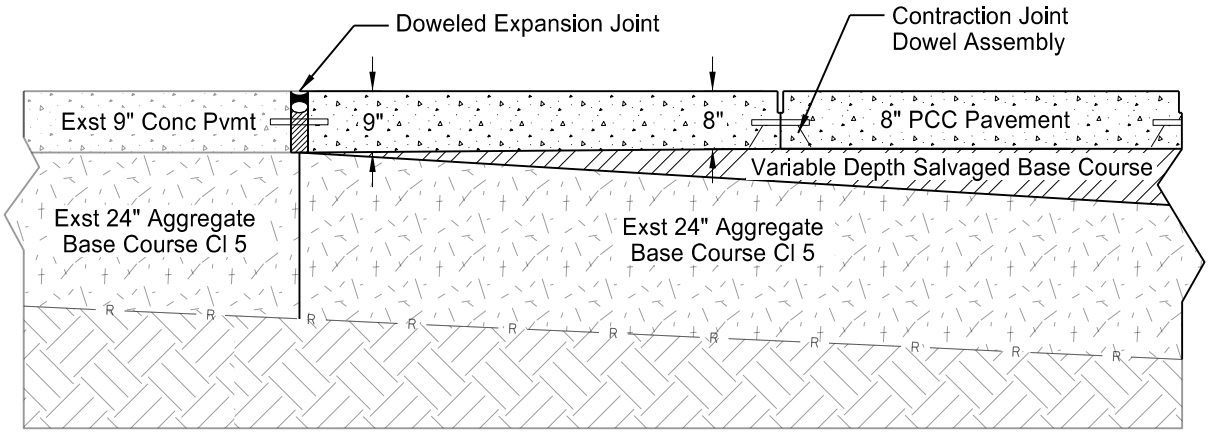
**6IN Hydrant -
With New Tapping Tee**

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Hydrant & Watermain Details

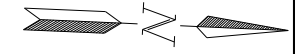
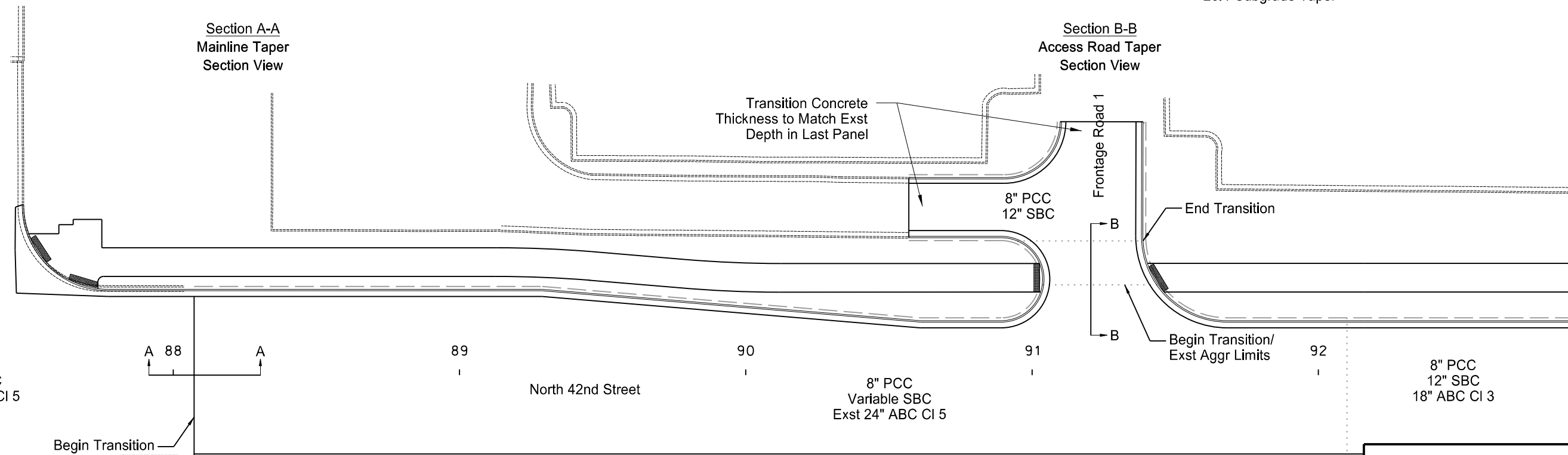
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
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Section A-A
Mainline Taper
Section View

Section B-B
Access Road Taper
Section View



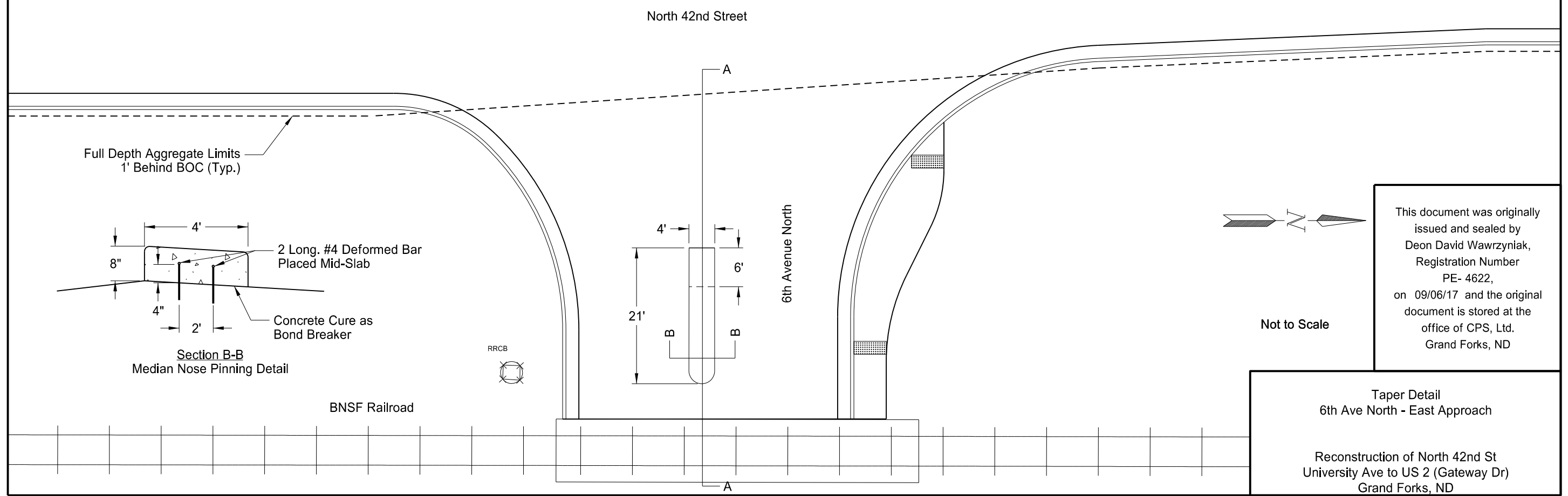
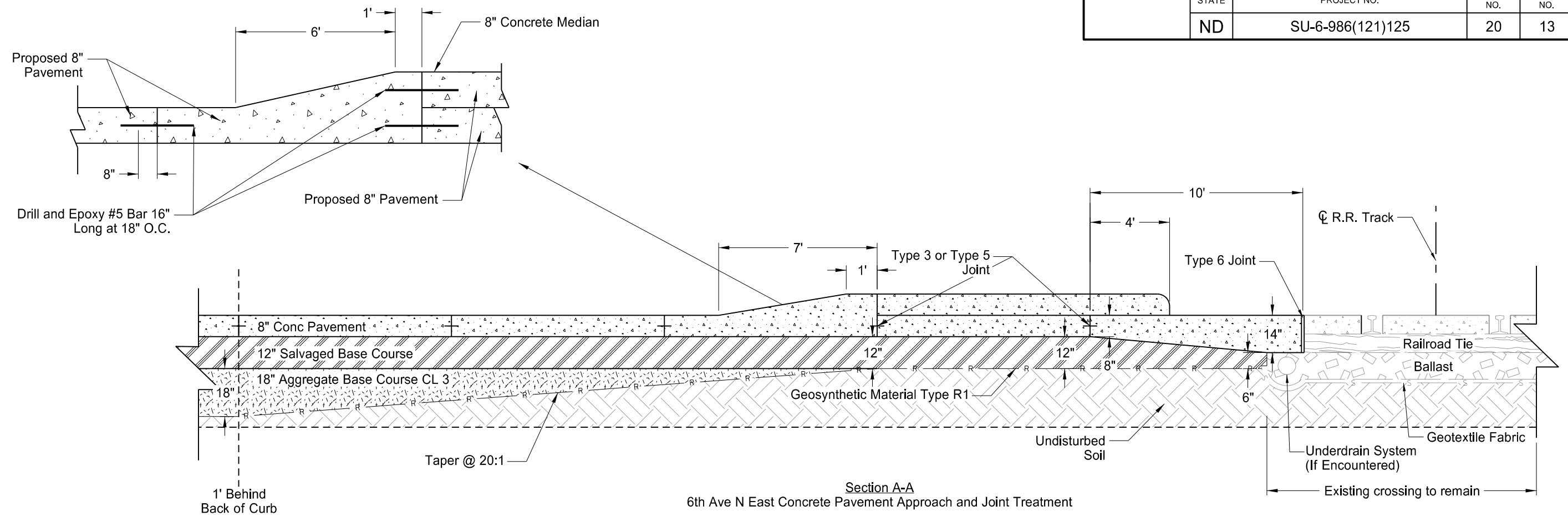
Not to Scale

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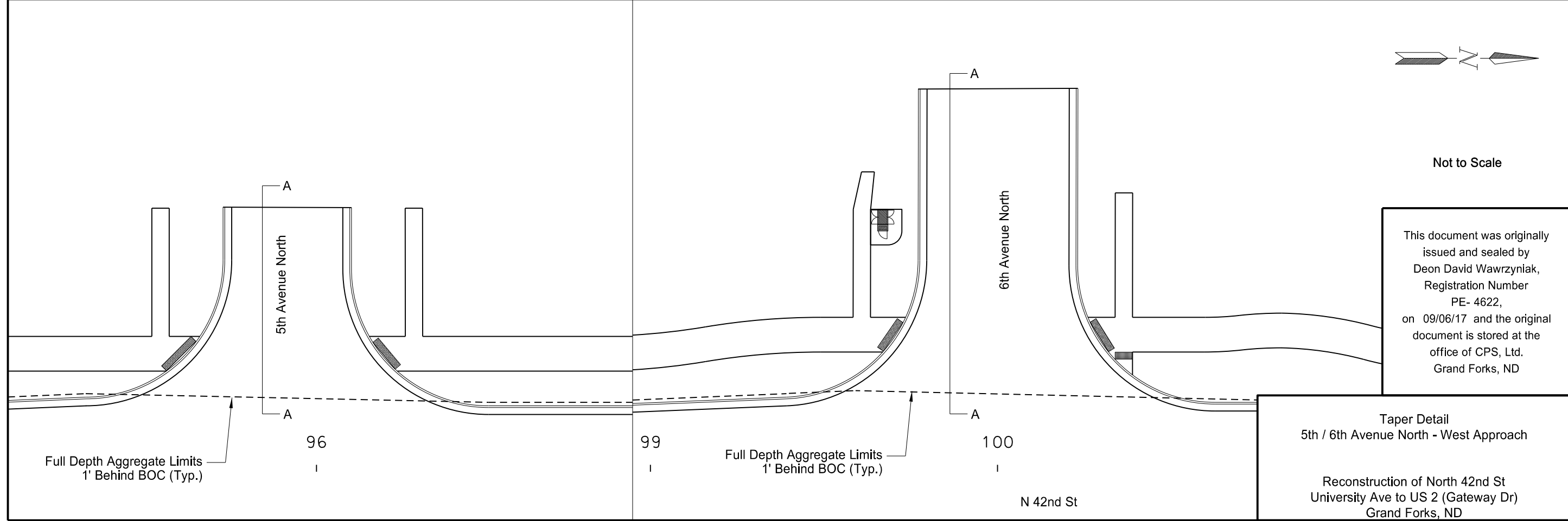
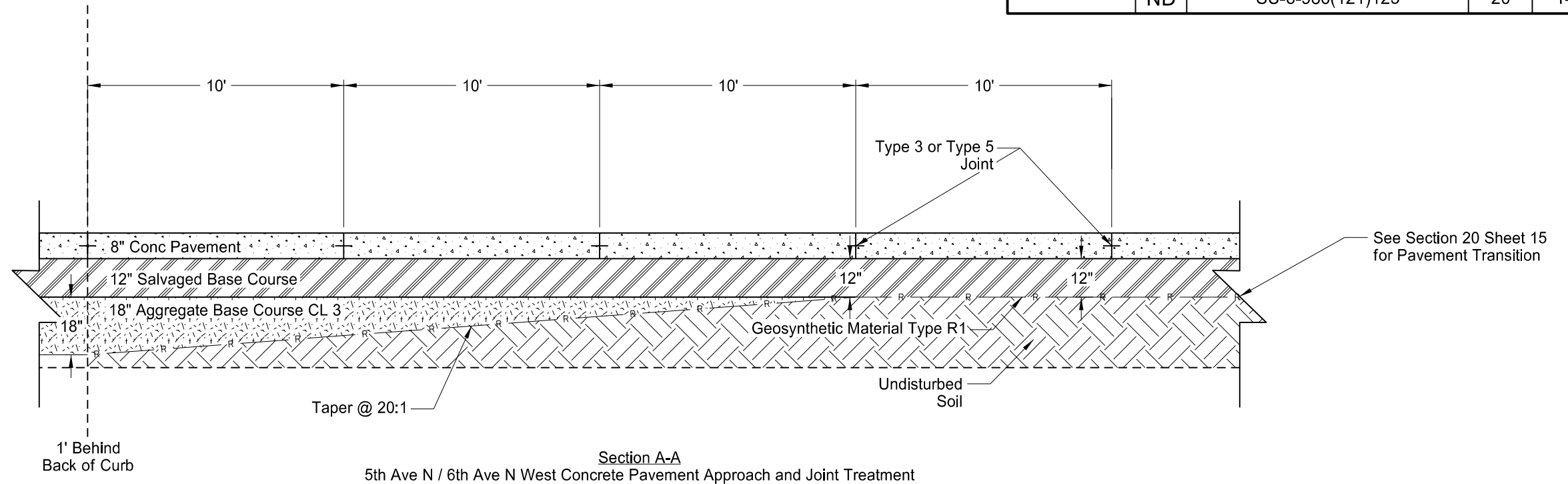
Taper Detail
Beginning of Project

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

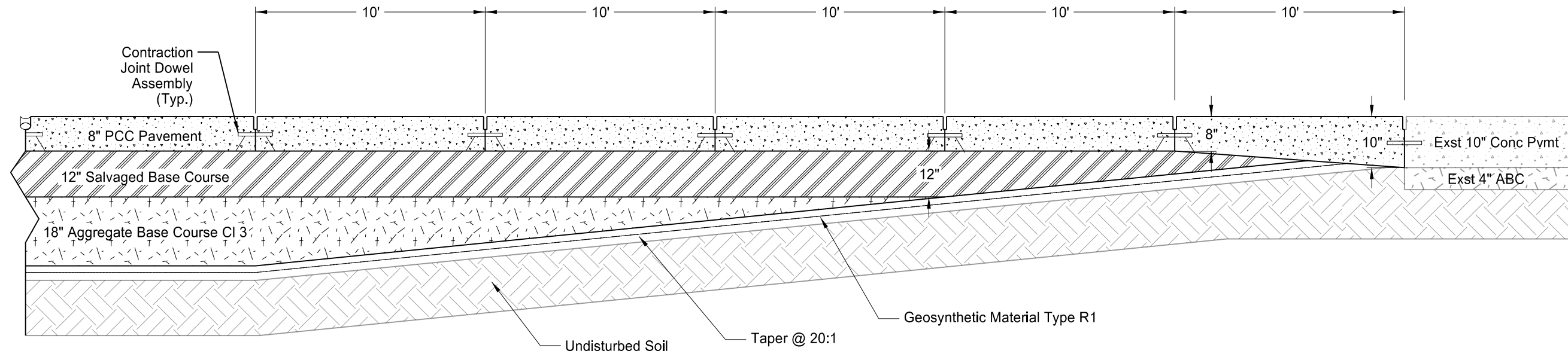
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	13



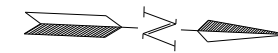
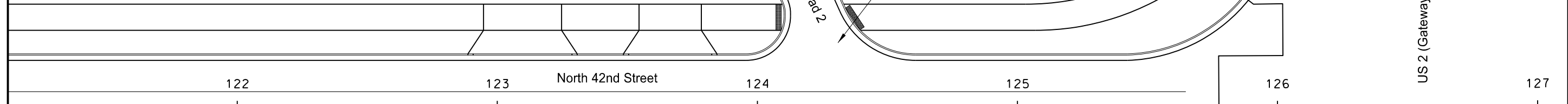
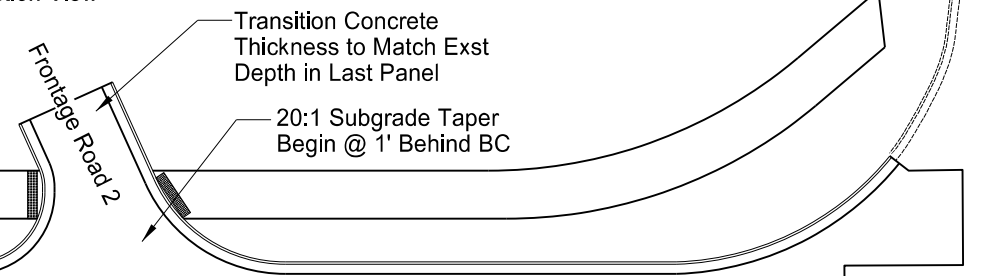
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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Section A-A
Mainline Taper
Section View



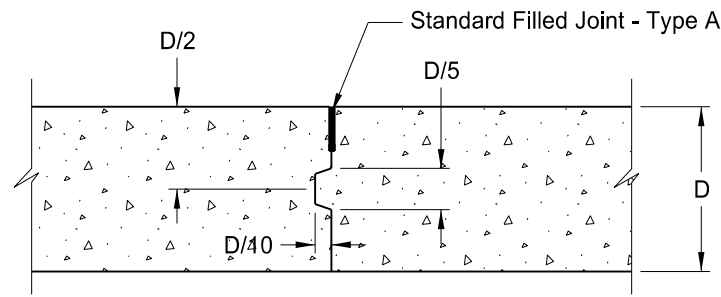
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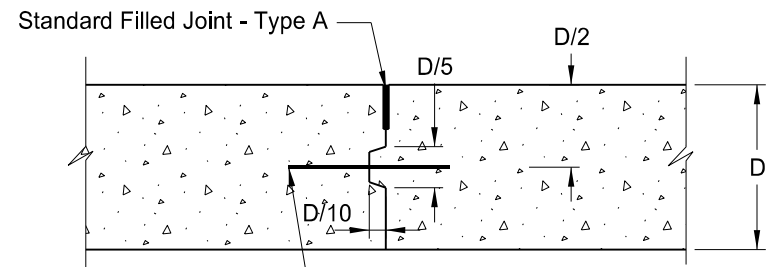
Taper Detail
End of Project

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

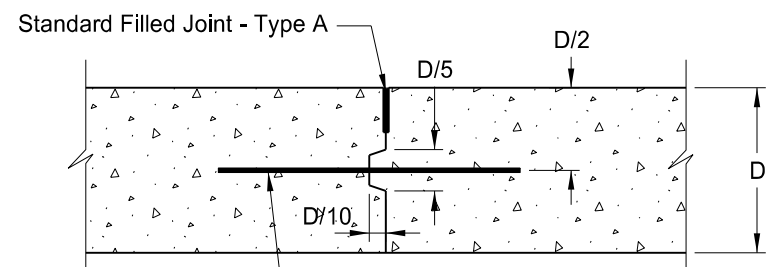
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	16



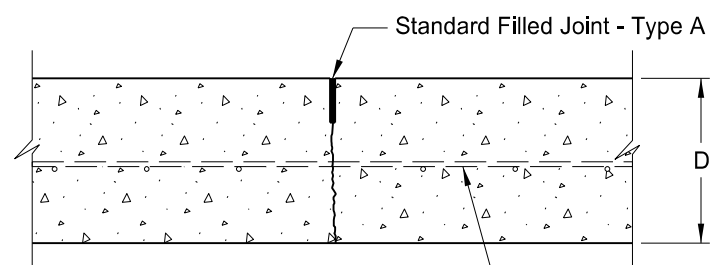
Type 1



Type 2



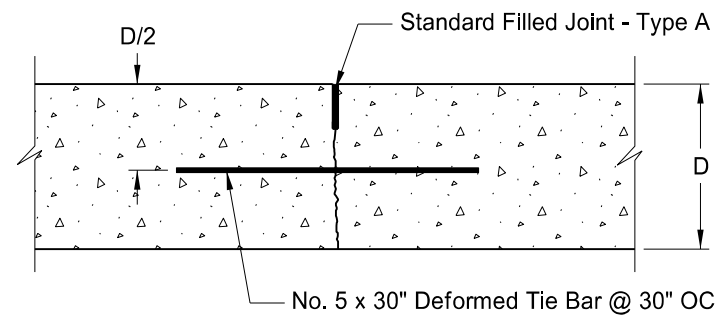
Type 3



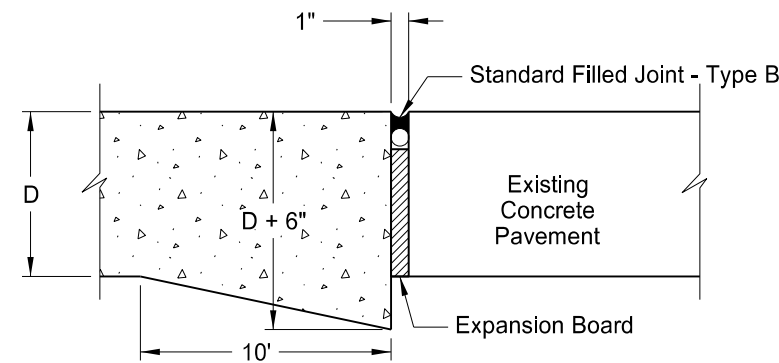
Type 4

Note:

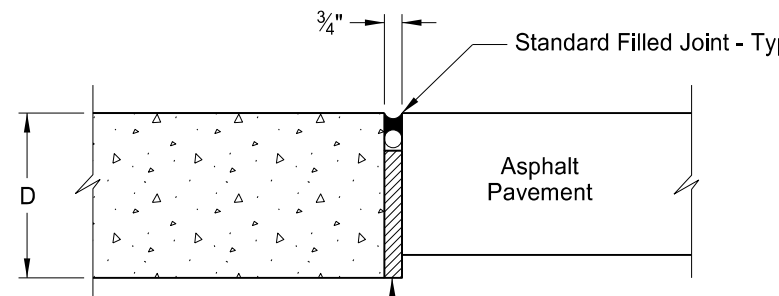
1. All Tie Bars Shall be Centered on Joint Unless Otherwise Noted.
2. See Section 90 - Jointing Layout for Panel Lengths.
3. Dowels Bars Shall be 1 1/4" x 18" for D = 10" or Less.
4. Dowel Bars Shall be 1 1/2" x 18" for D Greater Than 10".
5. Tie Bars Shall Not be Placed Within 15 Inches of the Intersection of the Longitudinal Joint and Transverse Joint.
6. Minimum of 4 Tie Bars per Panel Shall be Used with a Maximum Spacing of 36" OC



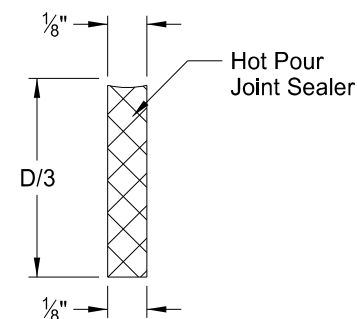
Type 5



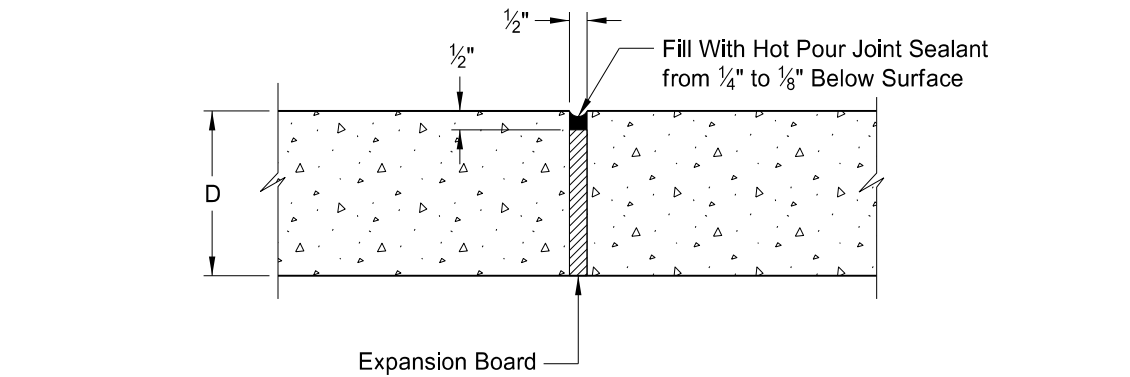
Type 6



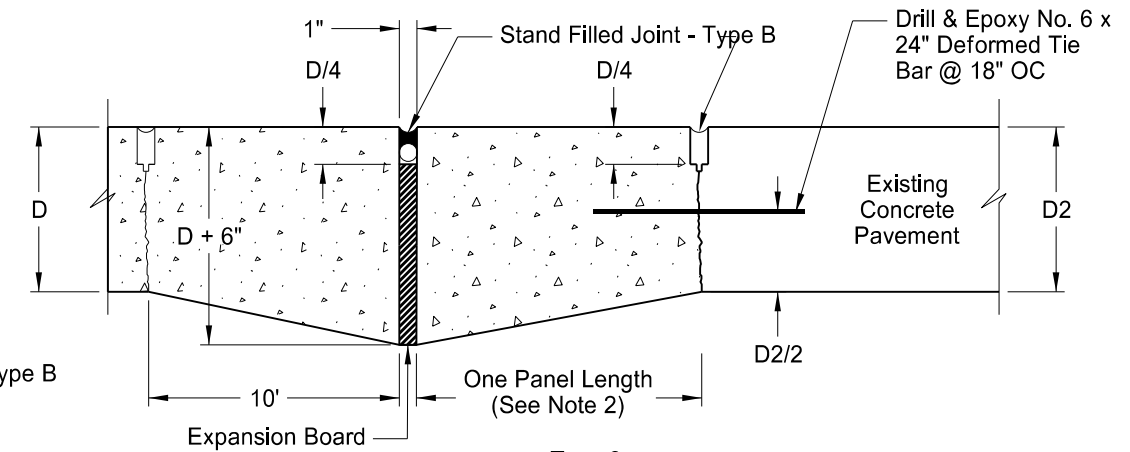
Type 7



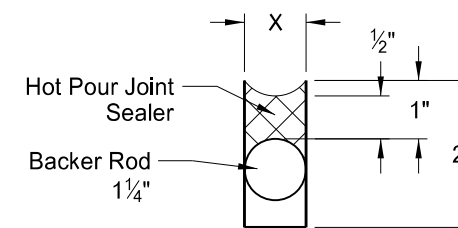
Standard Filled Joint - Type A



Type 8



Type 9



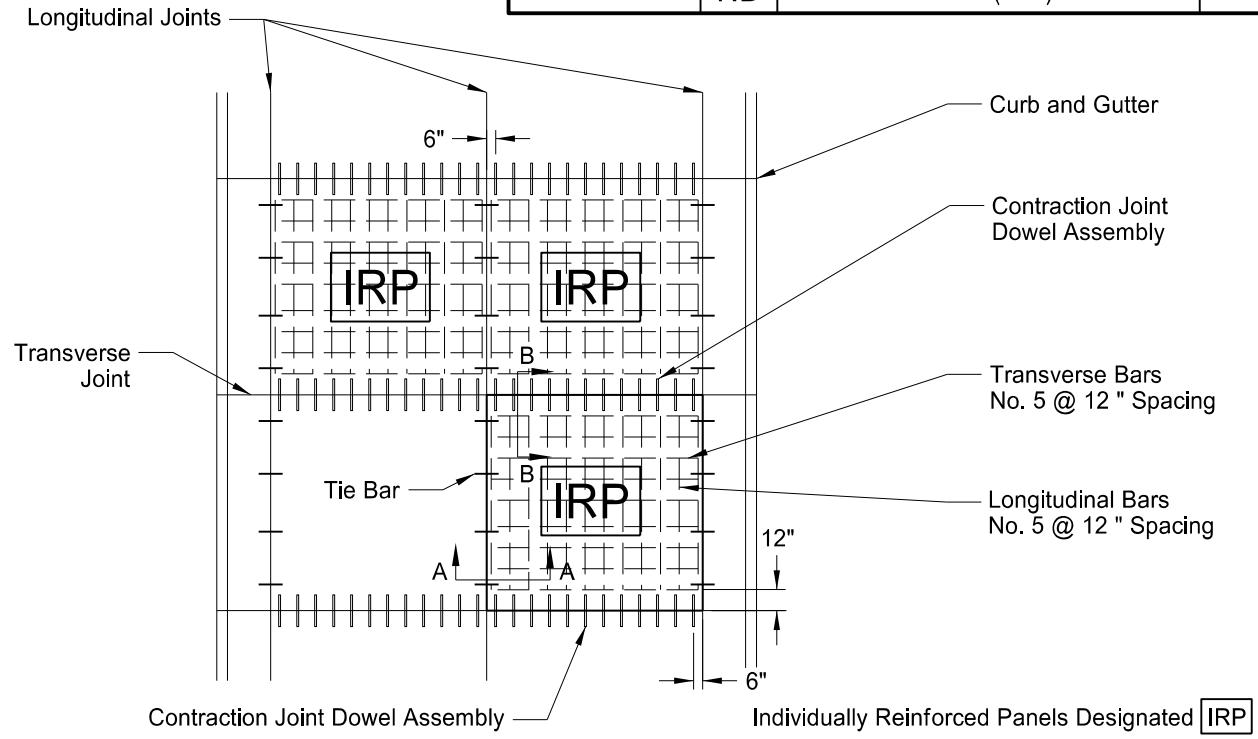
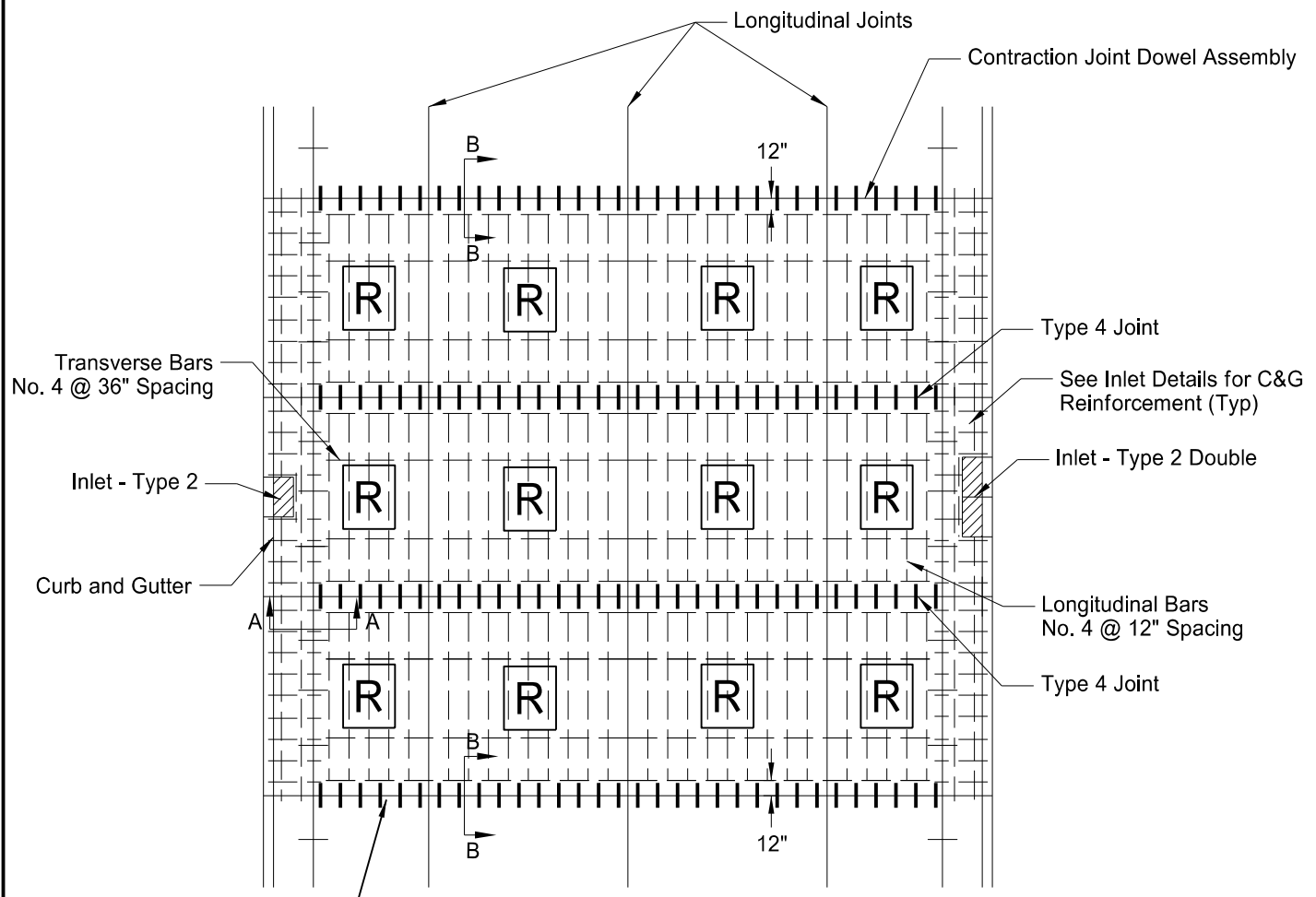
Standard Filled Joint - Type B

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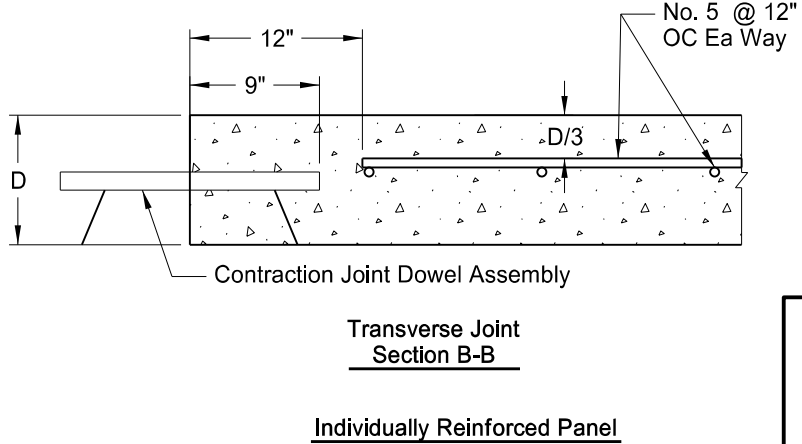
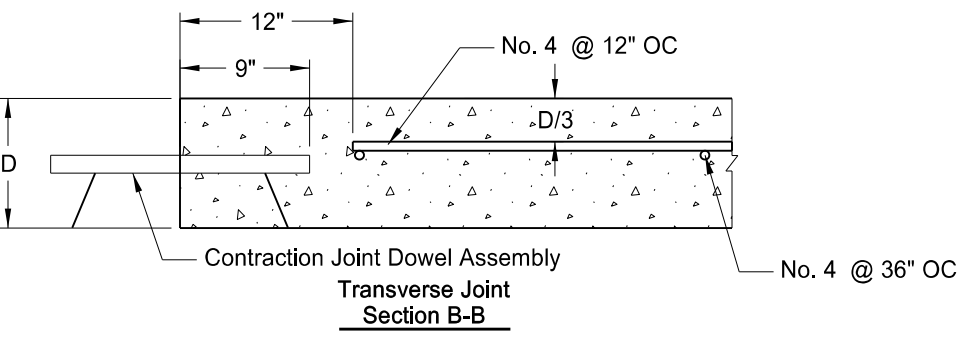
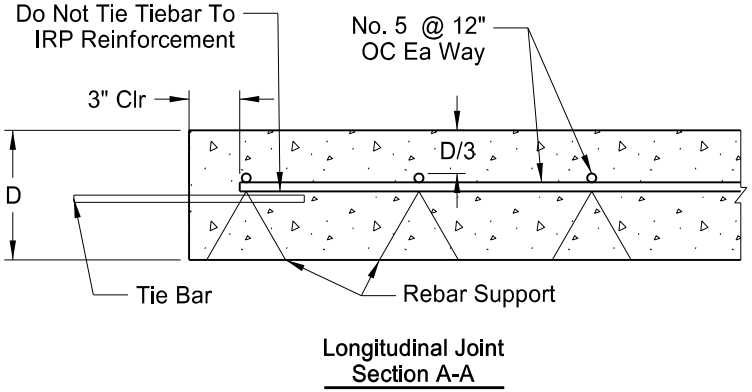
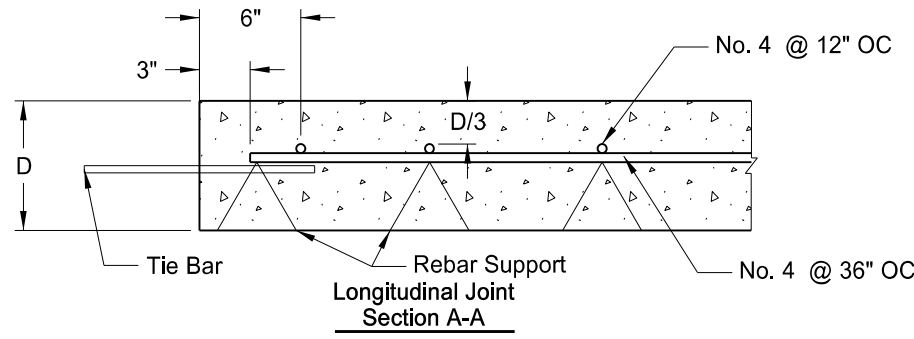
Pavement Joint Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

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Reinforced Panels Designated **R**
Pavement Reinforcing (Catch Basin Centered on Panel)

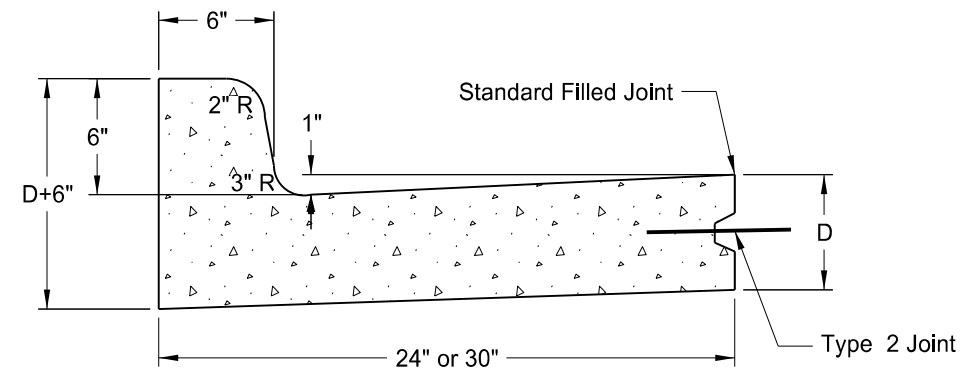


- Note:
1. Contractor Shall Adequate Support IRP Reinforcement Prior to Commencing Paving Operations. Paving Operations Shall be Suspended at the Engineer's Discretion if Proper Support is not Provided, Resulting in Movement of IRP Panels During Paving Operations.
 2. Dowels Bars Shall be 1 1/4" x 18" for D = 10" or Less.
 3. Dowel Bars Shall be 1 1/2" x 18" for D Greater Than 10".

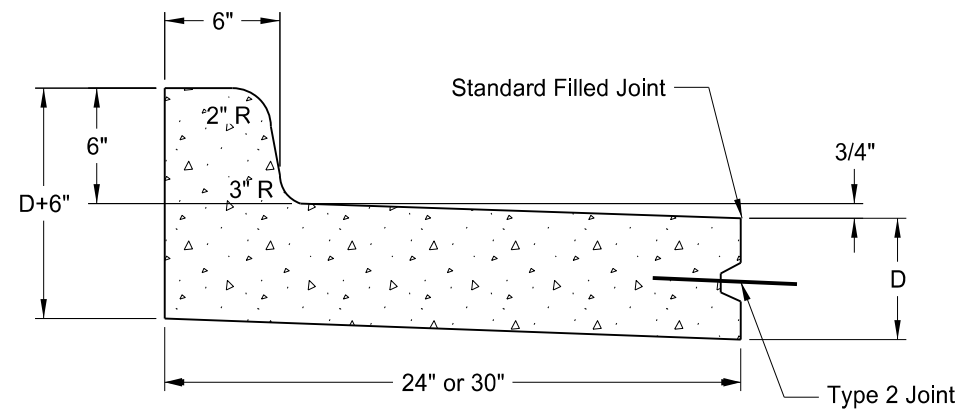
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Pavement Reinforcement Details
 Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

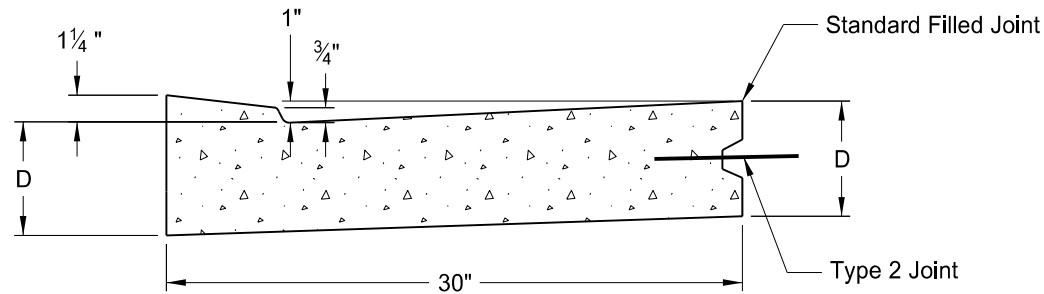
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	18



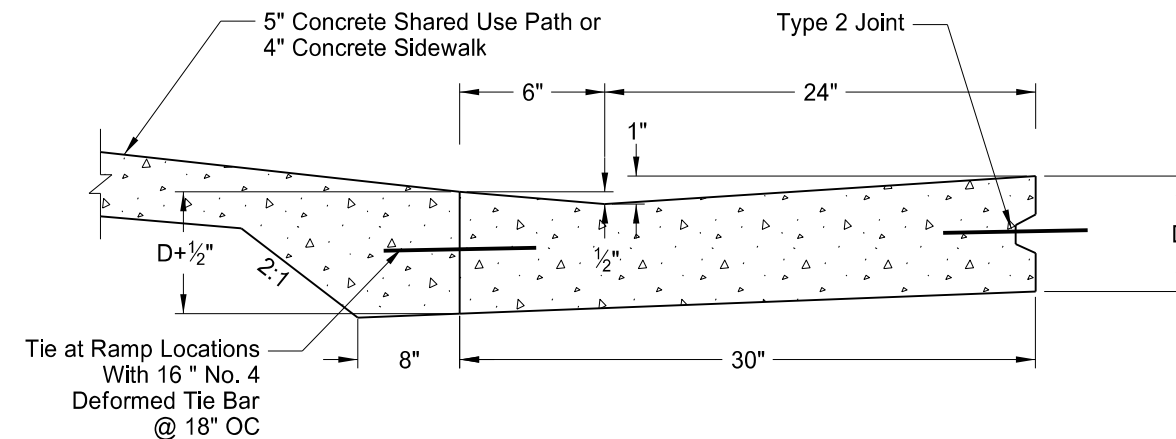
Inflow Curb and Gutter
Section A-A



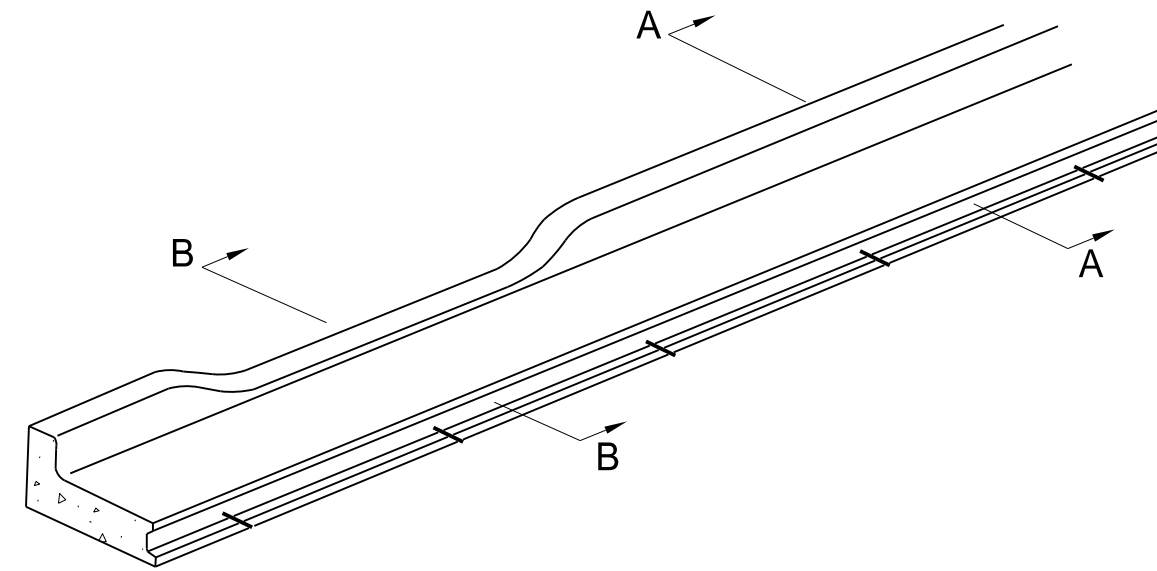
Outflow Curb and Gutter
Section A-A



Depressed Curb
(Typical For Driveway or Median Nose)
Section B-B



Depressed Curb
(Typical For ADA Ramp Locations)
Section B-B



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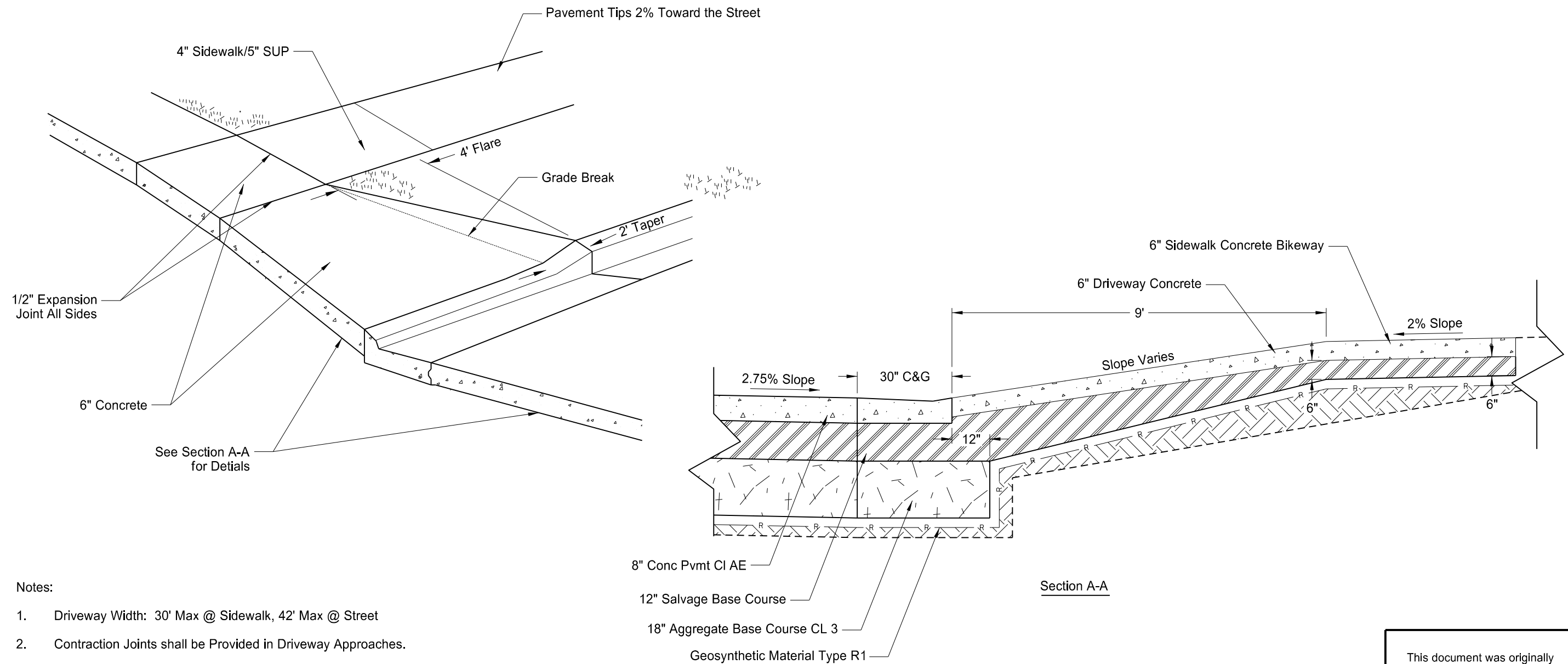
Curb & Gutter Details
Type 1

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

Notes:

1. The Depth "D" Shall be the Thickness of the Adjacent Pavement.
2. Tie Bars Shall Not be Placed Within 15 Inches of the Intersection of the Longitudinal Joint and Transverse Joint.
3. See Section 20 for Depressed Curb/Sidewalk Base Transition Detail.

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Notes:

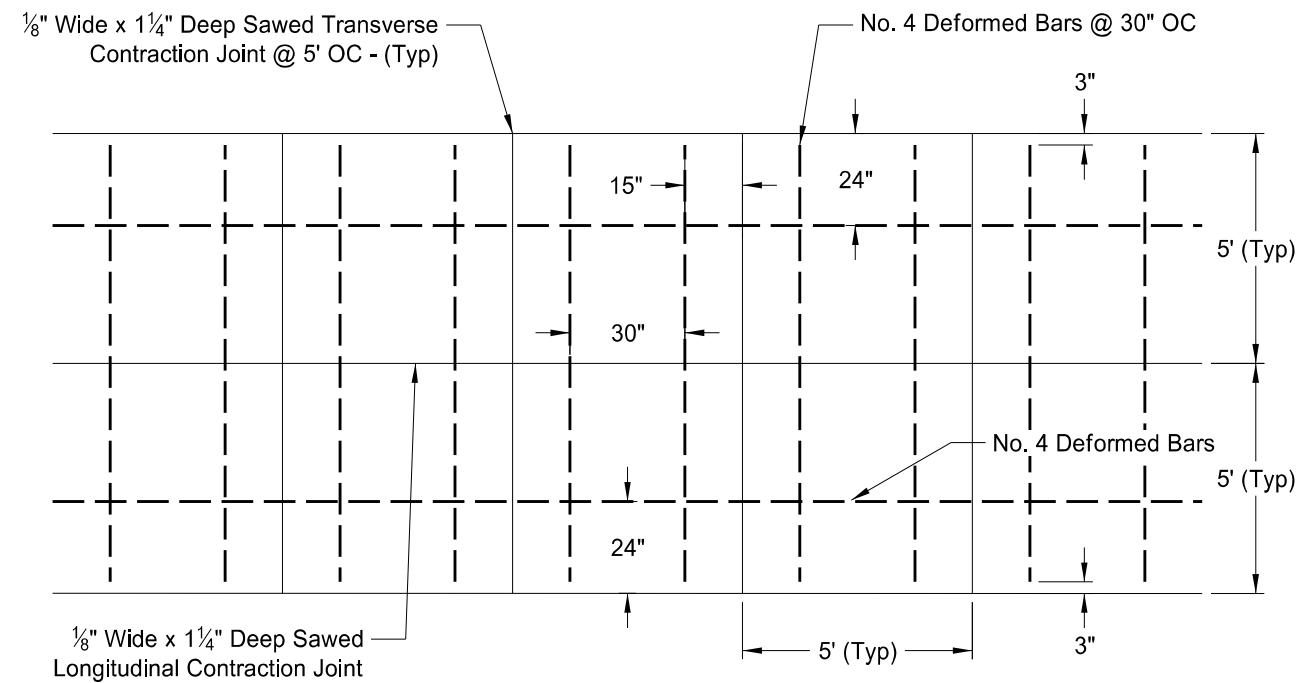
1. Driveway Width: 30' Max @ Sidewalk, 42' Max @ Street
2. Contraction Joints shall be Provided in Driveway Approaches.
No Panel shall Exceed 12' by 12'. See Section 90 for Jointing Plan.

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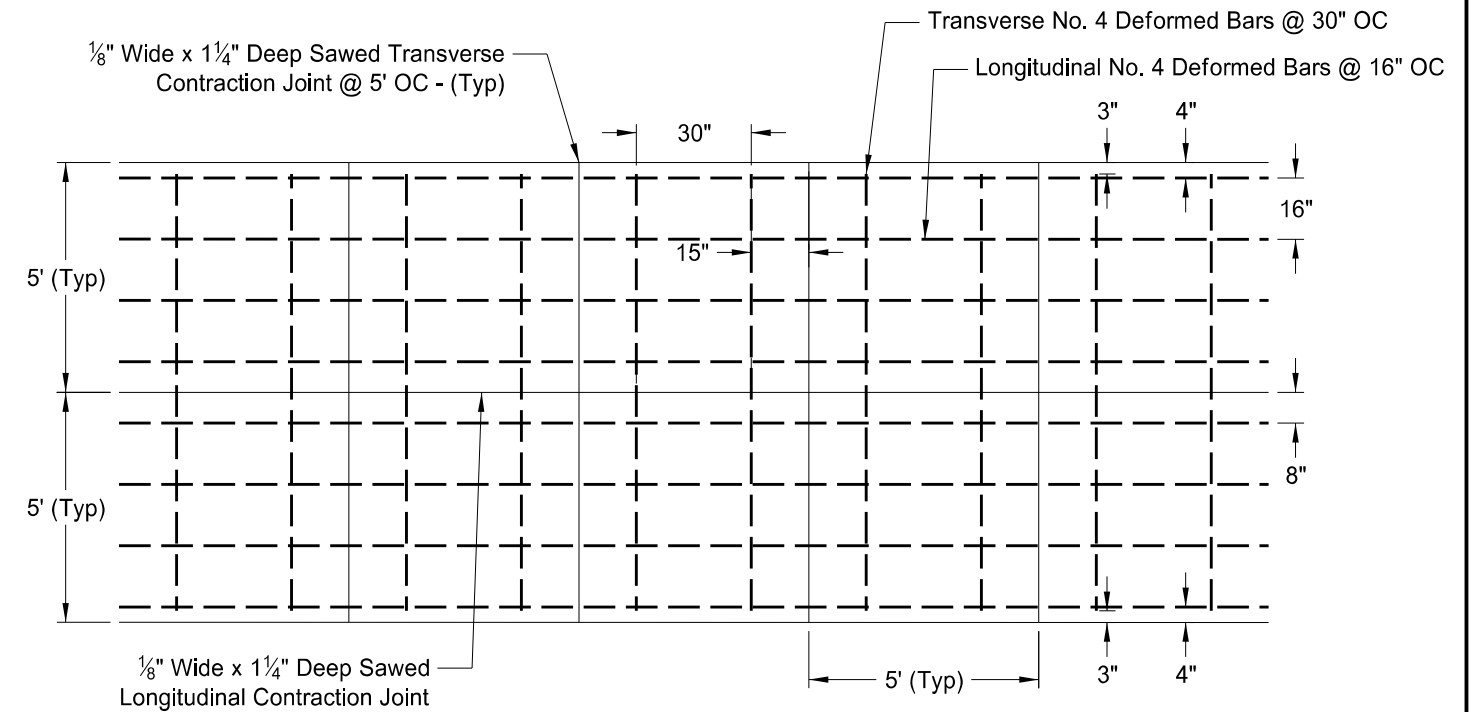
Curb & Gutter Details
Type 1

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

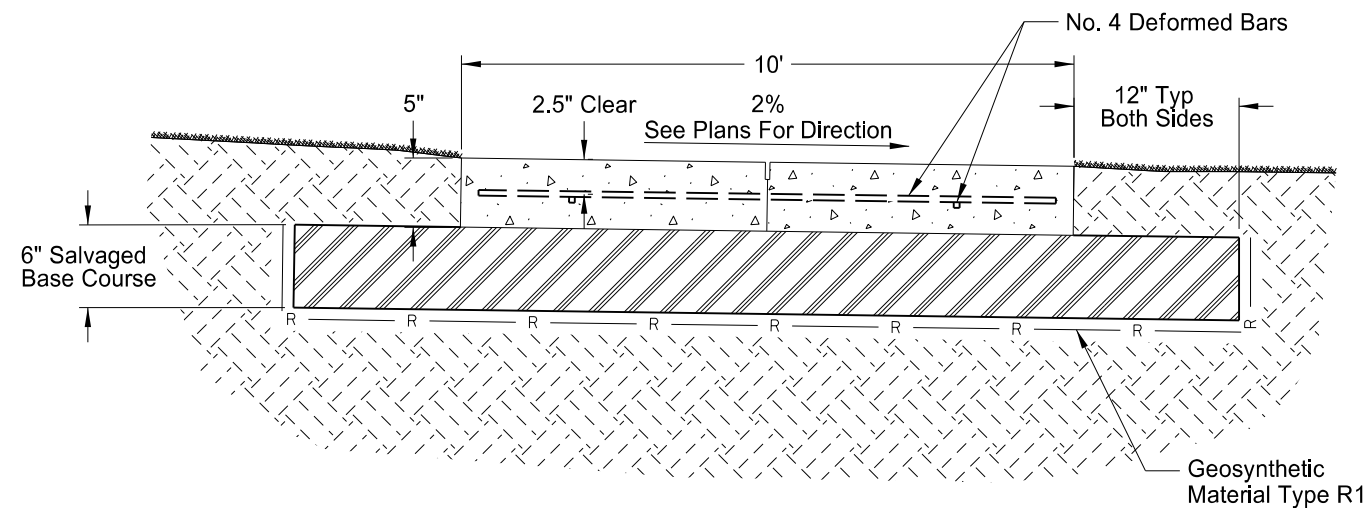
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	20



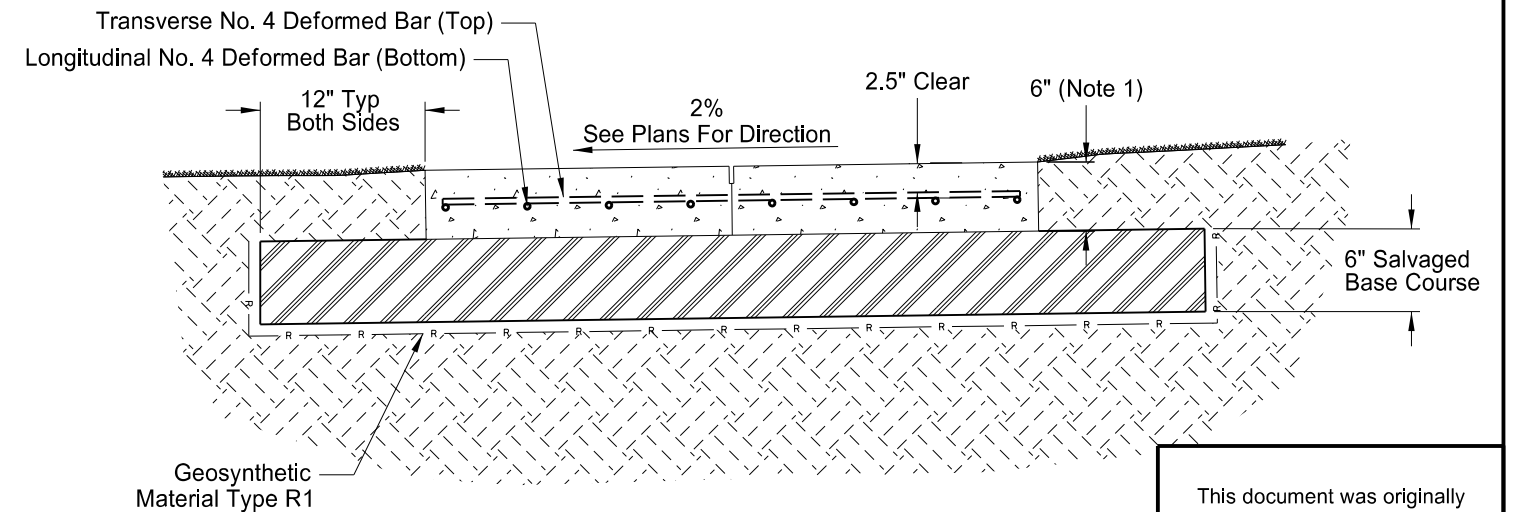
Sidewalk Concrete Bikeway - Plan View



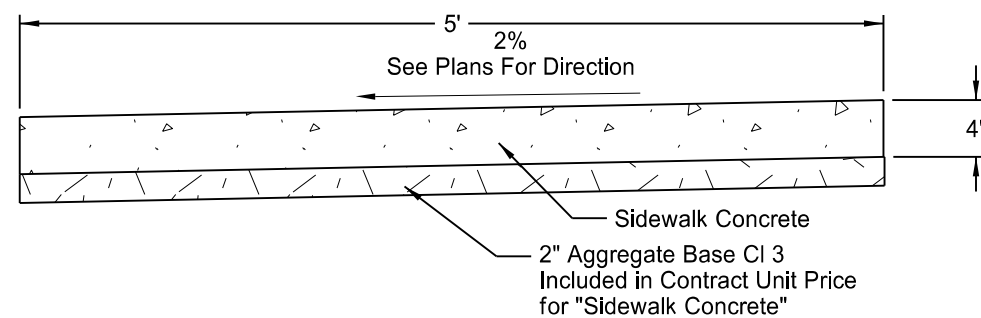
Sidewalk Concrete Bikeway (Reinforcement Over Utility Trenches & Driveways) - Plan View



Sidewalk Concrete Bikeway - Section View



Sidewalk Concrete Bikeway (Reinforcement Over Utility Trenches & Driveways) - Section View



Sidewalk Concrete

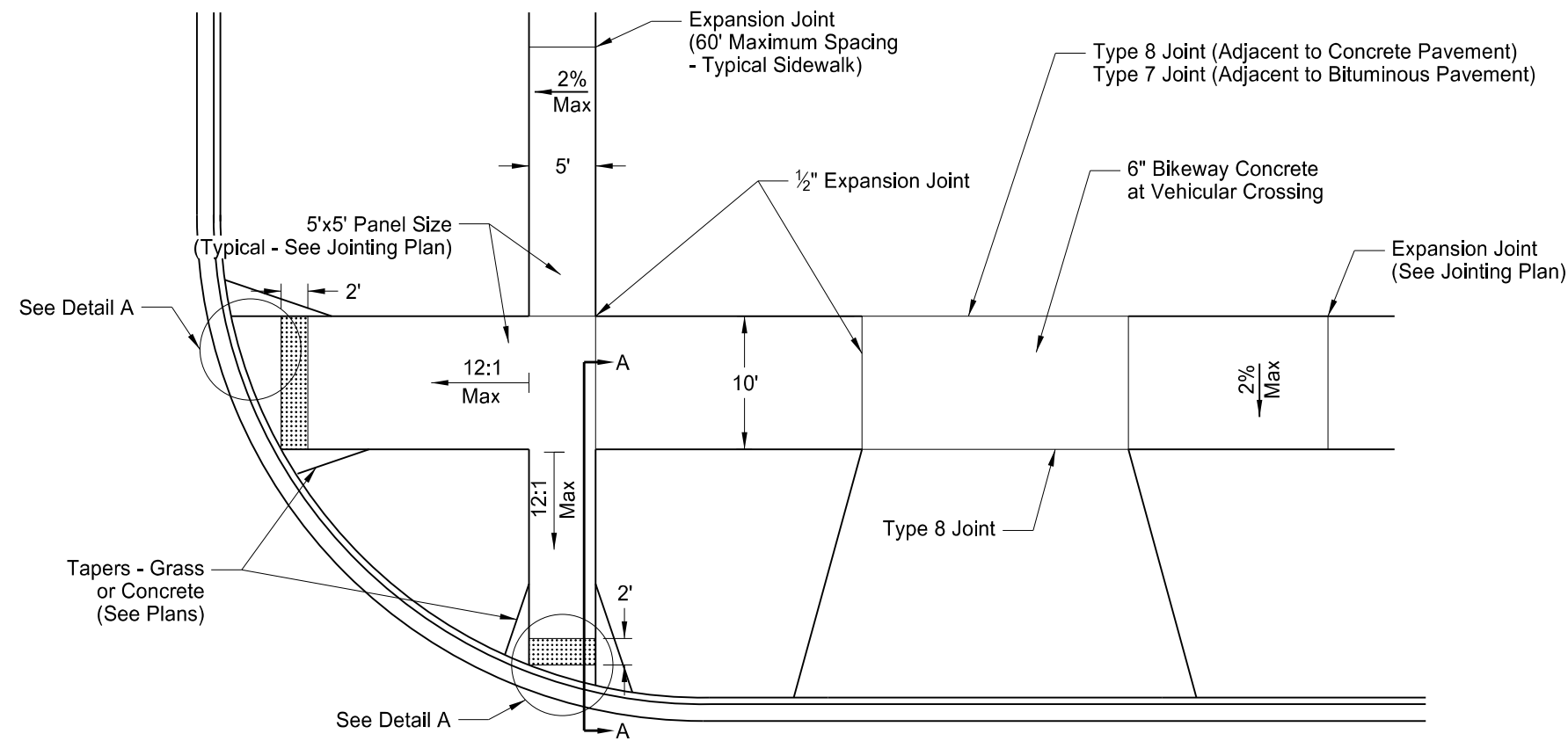
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Note:

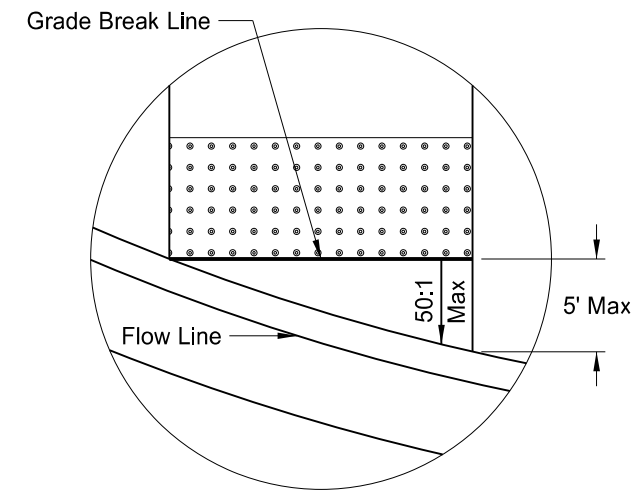
1. See Section 90 for Location of Reinforcement Over Utility Trenches; Reinforced Shared Use Path Panels Designated SUP
2. All Costs for Reinforcement are included in the Bid Item "Sidewalk Concrete - Bikeway"

Shared Use Path Details
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	21



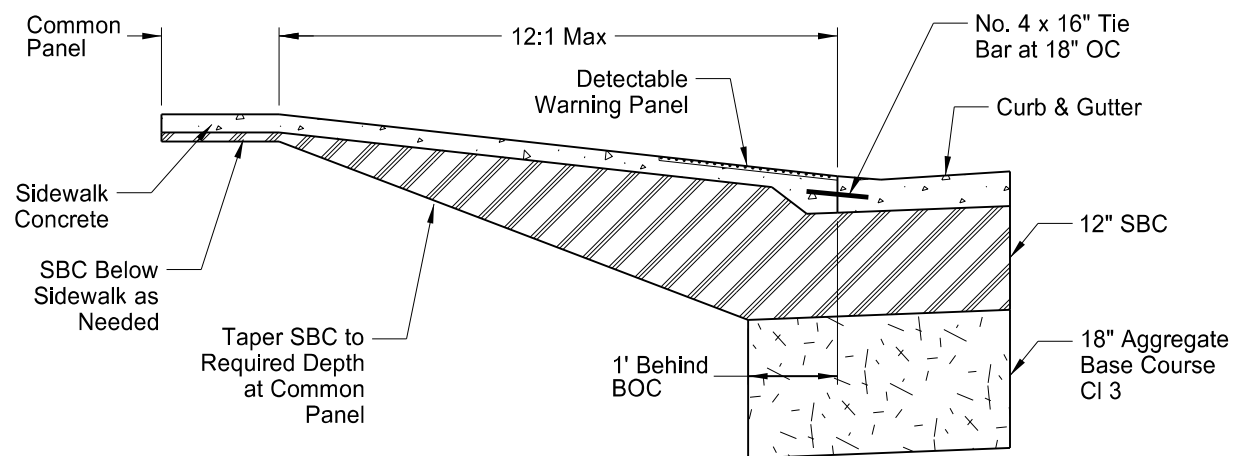
Pedestrian Ramp/Driveway Layout



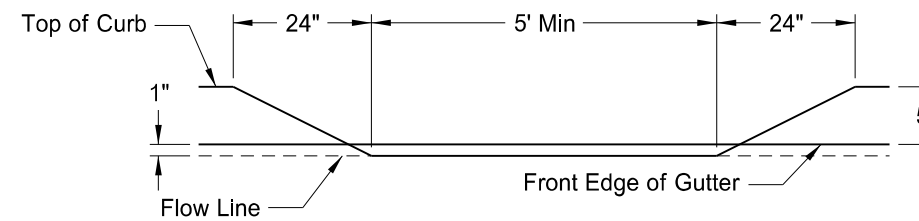
Detail A

Notes:

1. For Sidewalk Installations, a 5' Min Ramp Width Shall Be Used. Detectable Warning Panels Shall Be Installed to Match the Ramp Width.
2. Where Ramps are Installed for Shared Use Paths, the Ramp Width and Detectable Warning Panel Width Shall Be Equal to the Width of the Shared Use Path.



Section A-A



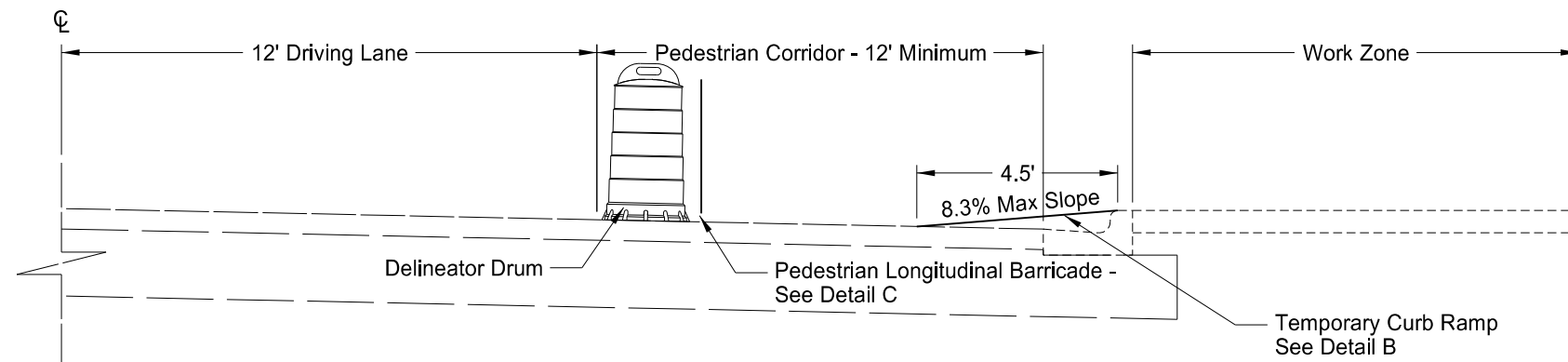
Depressed Curb for Pedestrian Ramp

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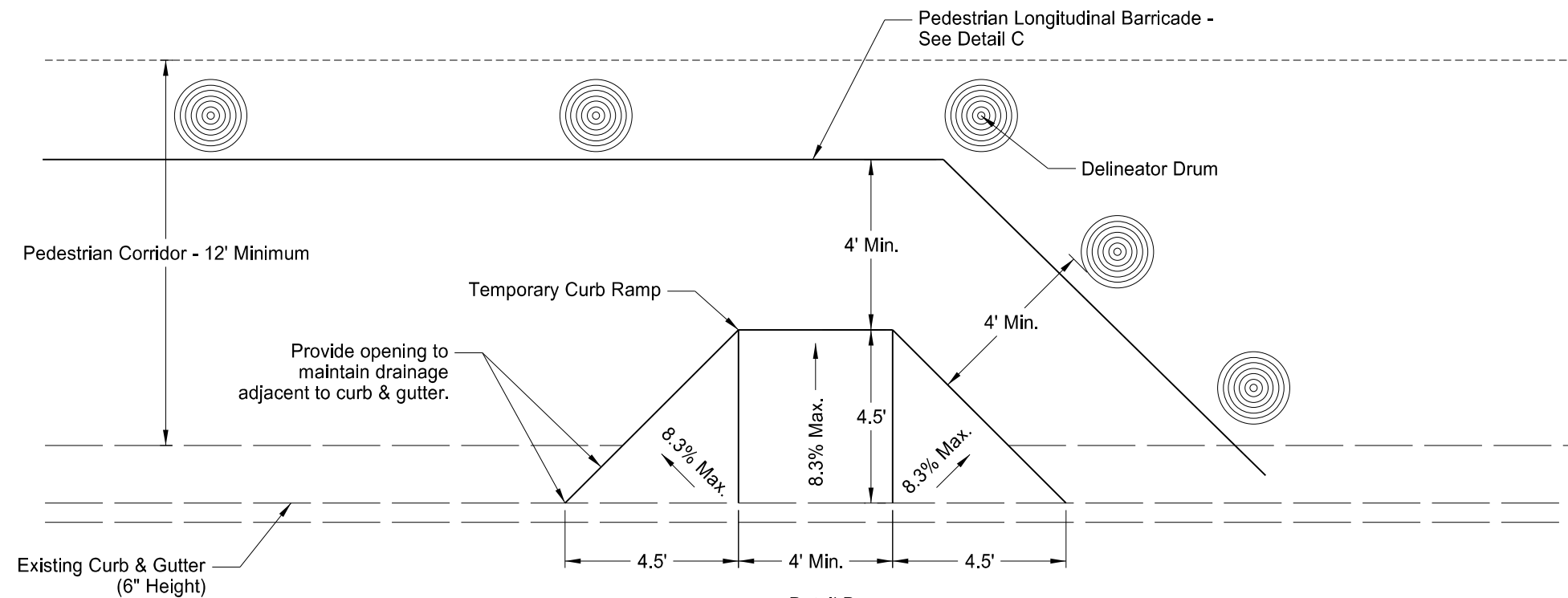
Sidewalk and Curb Ramp Details

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

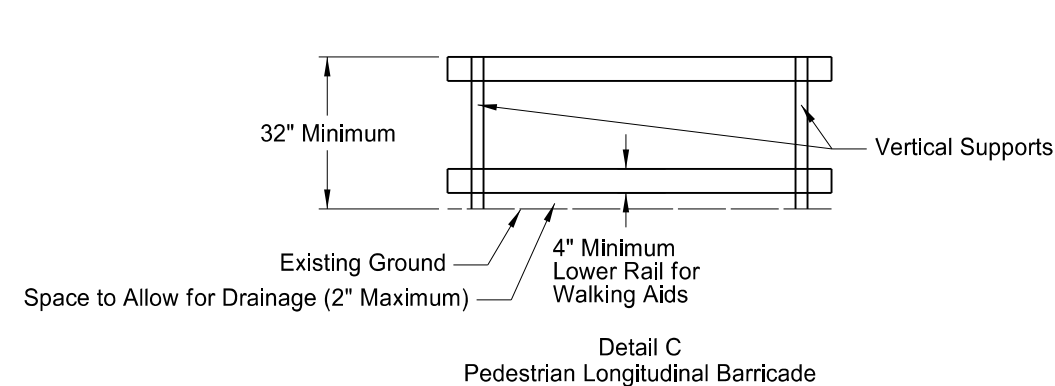
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	20	22



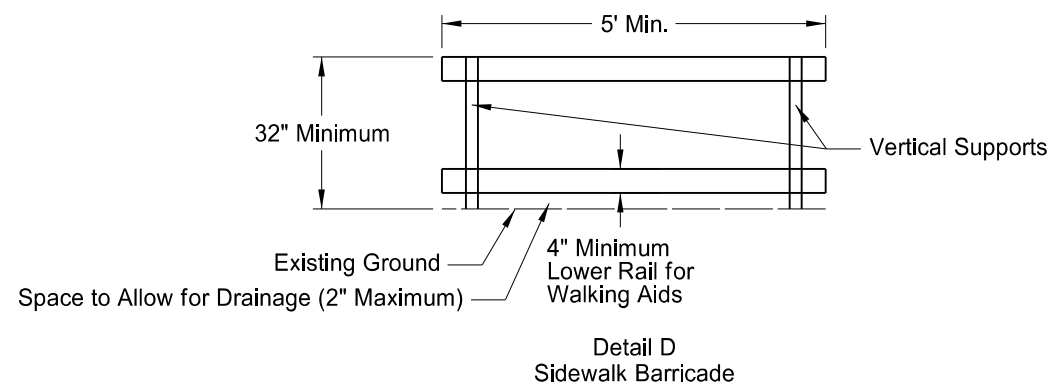
Detail A
Temporary Curb Ramp
Cross Section View



Detail B
Temporary Curb Ramp
Plan View



Detail C
Pedestrian Longitudinal Barricade



Detail D
Sidewalk Barricade

NOTES:

Temporary Curb Ramps

1. Place temporary curb ramps at locations shown in the Work Zone Traffic Control - Sec 100 Plan Sheets.
2. Construct with hard surface material such as metal or wood.
3. Coat surface with non-slip, skid resistant material.
4. Include all costs to furnish, maintain and remove the temporary curb ramps in the price bid for Traffic Control Devices.

Pedestrian Longitudinal Barricades

1. Construct self standing pedestrian barricade with no supports extending into the pedestrian path.
2. Construct ADA compliant and NCHRP 350 Approved pedestrian barricades.
3. Include all costs to furnish, maintain and remove the pedestrian barricades in the price bid for "Pedestrian Longitudinal Barricade".

Sidewalk Barricades

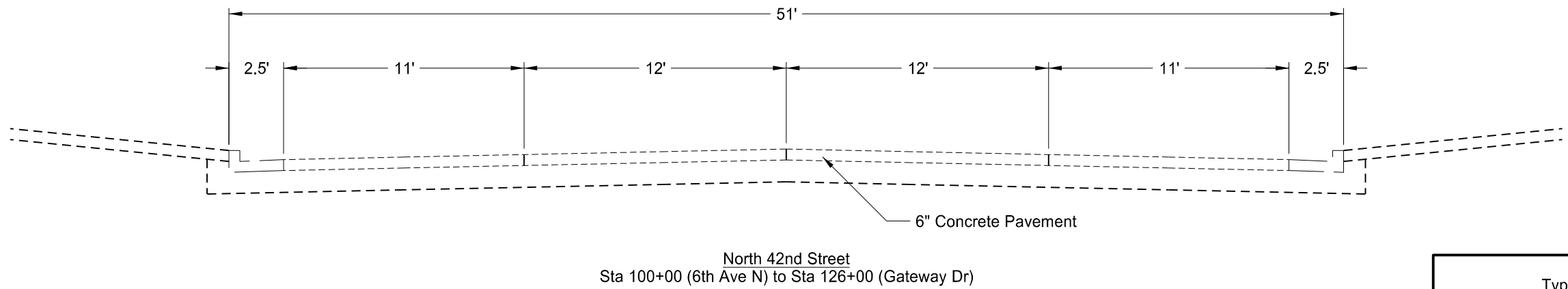
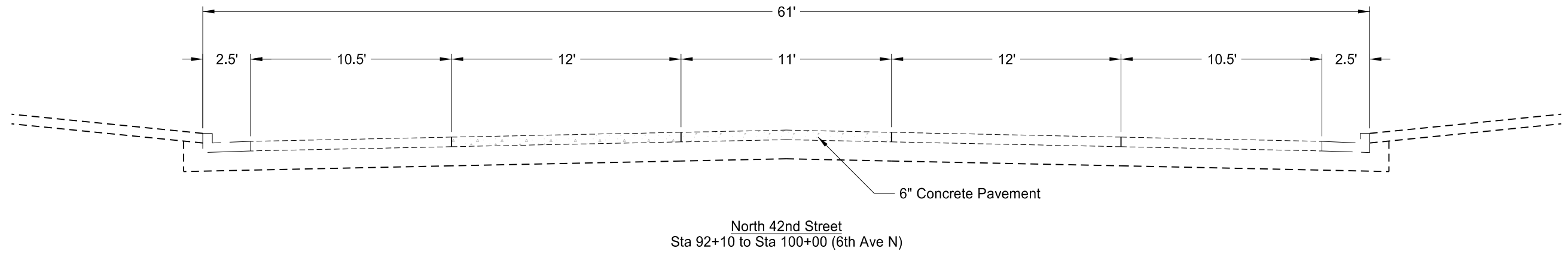
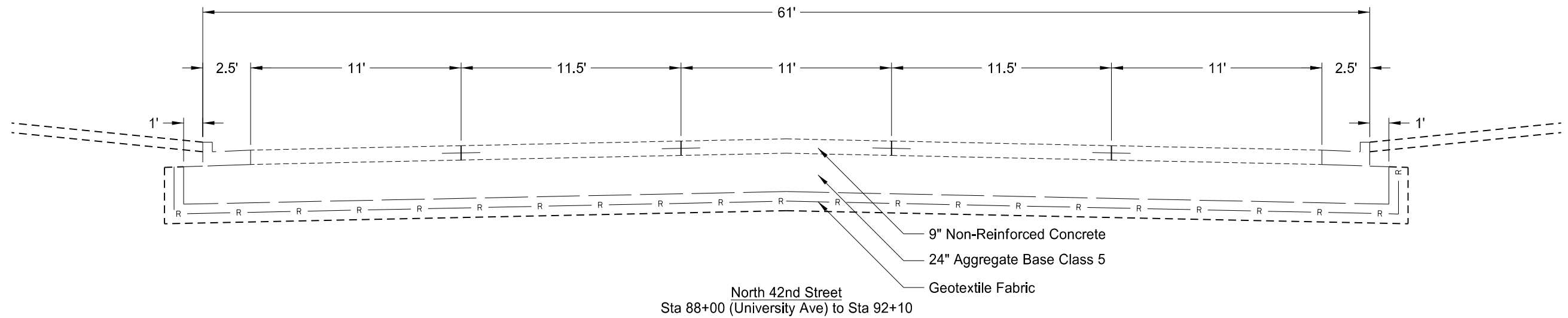
1. Construct self standing sidewalk barricade with no supports extending into the pedestrian path.
2. Construct ADA compliant and NCHRP 350 Approved pedestrian barricades.
3. Include all costs to furnish, maintain and remove the pedestrian barricades in the price bid for "Sidewalk Barricade".

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Temporary Curb Ramp

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	30	1

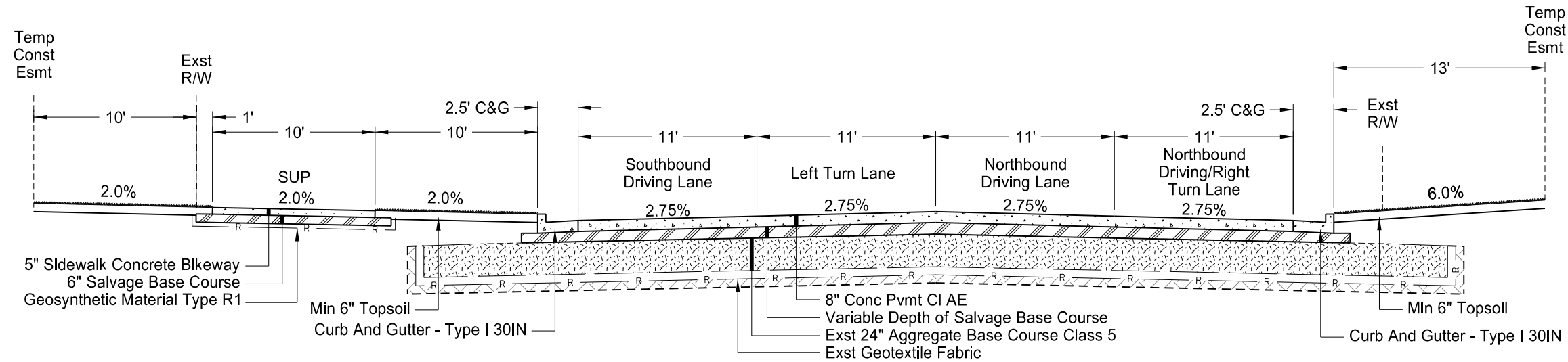


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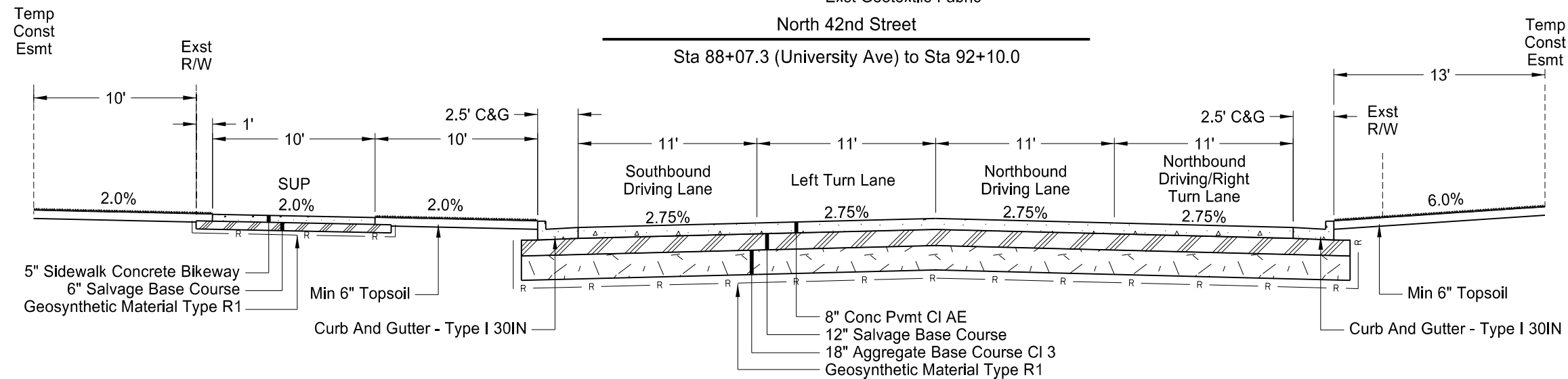
Typical Existing Sections
North 42nd Street

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

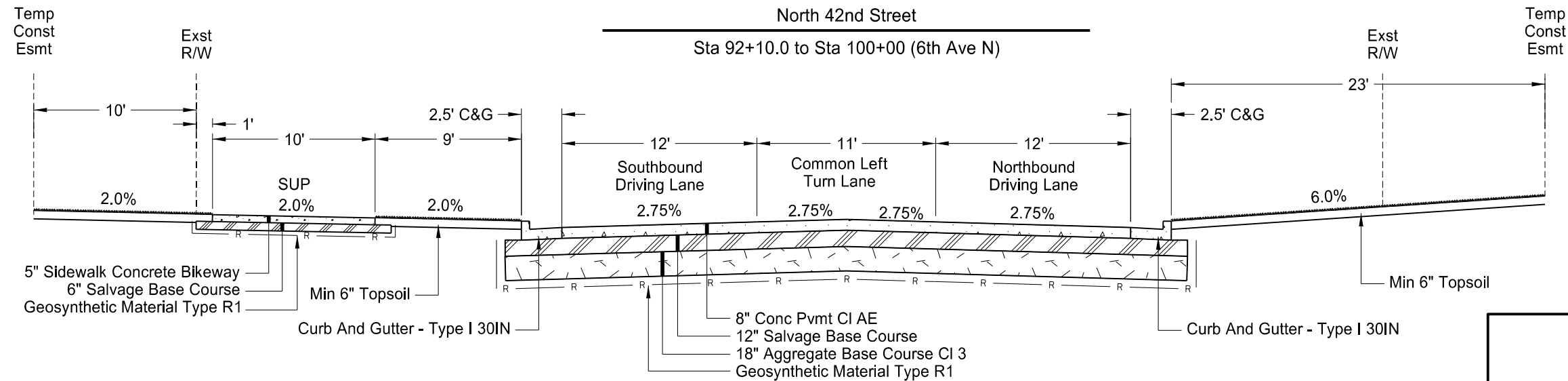
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	30	2



North 42nd Street
Sta 88+07.3 (University Ave) to Sta 92+10.0



North 42nd Street
Sta 92+10.0 to Sta 100+00 (6th Ave N)



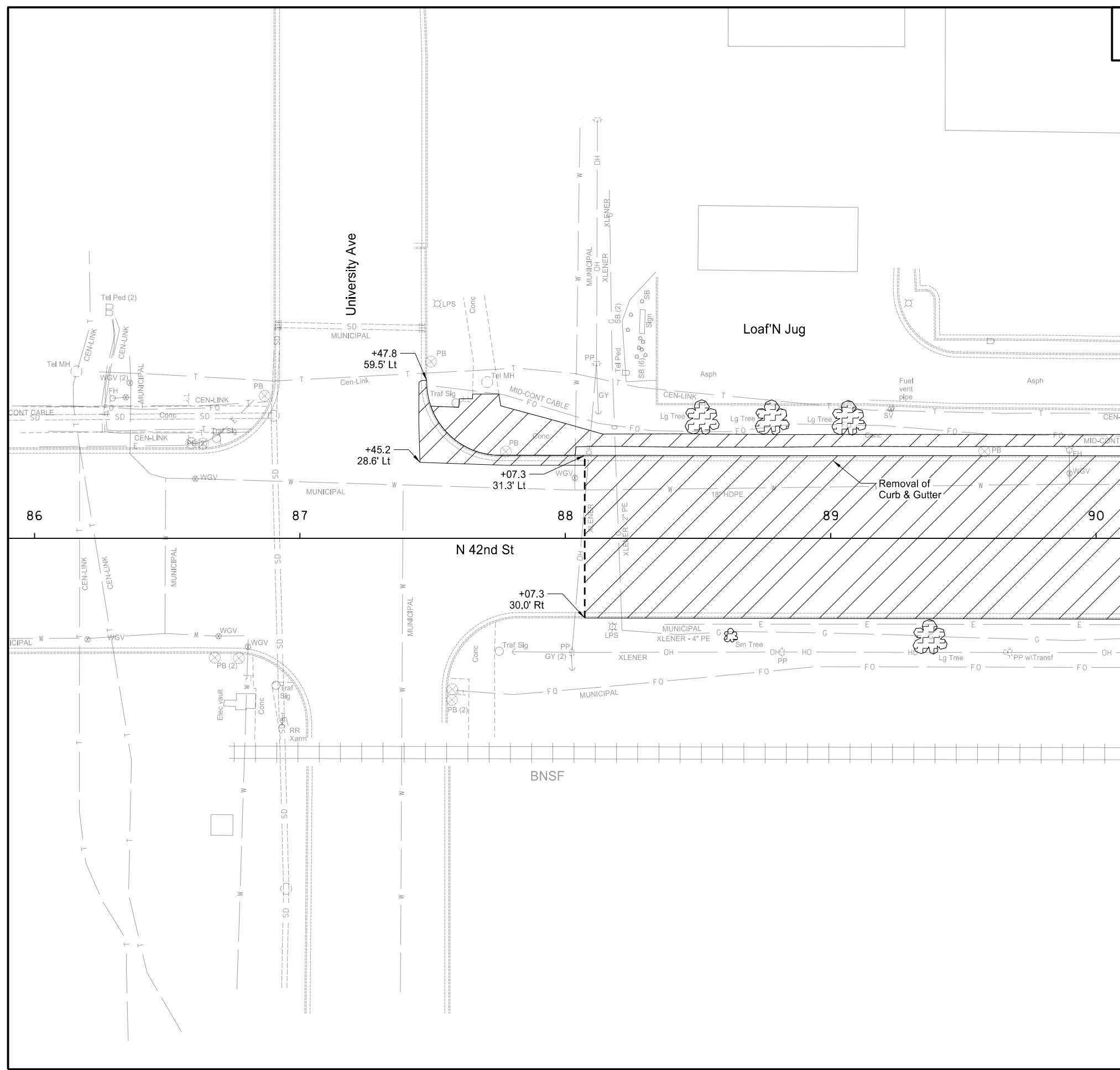
North 42nd Street
Sta 100+00 (6th Ave N) to Sta 126+00 (Gateway Dr)

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Typical Proposed Sections
North 42nd Street
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

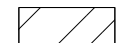
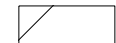


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	1

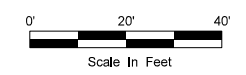
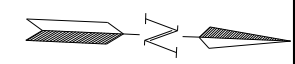
SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sta 86+00 to Sta 90+00	1561	SY



Notes:

1. Sign removals are shown in Section 110.
2. Lighting removals are shown in Section 140.
3. Traffic signal removals are shown in Section 150.

-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



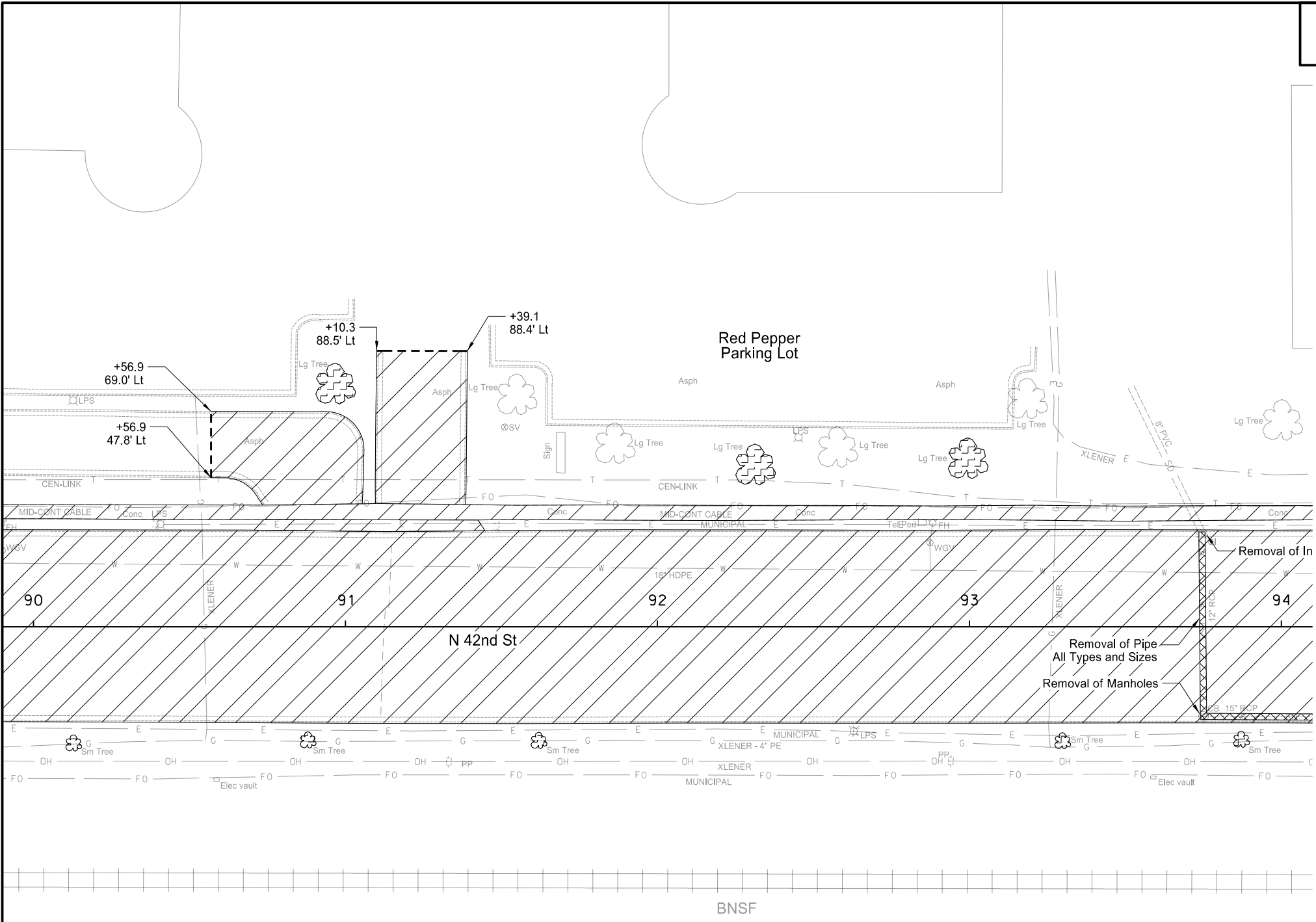
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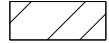
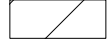


Removals
Sta 86+00 to Sta 90+00

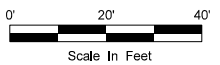
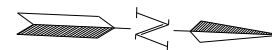
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	2

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	Sta 90+00 to Sta 94+00	3290	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES		
	Sta 90+00 to Sta 94+00	86	LF
202 0210	REMOVAL OF MANHOLES		
	Sta 90+00 to Sta 94+00	1	EA
202 0230	REMOVAL OF INLETS		
	Sta 90+00 to Sta 94+00	1	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



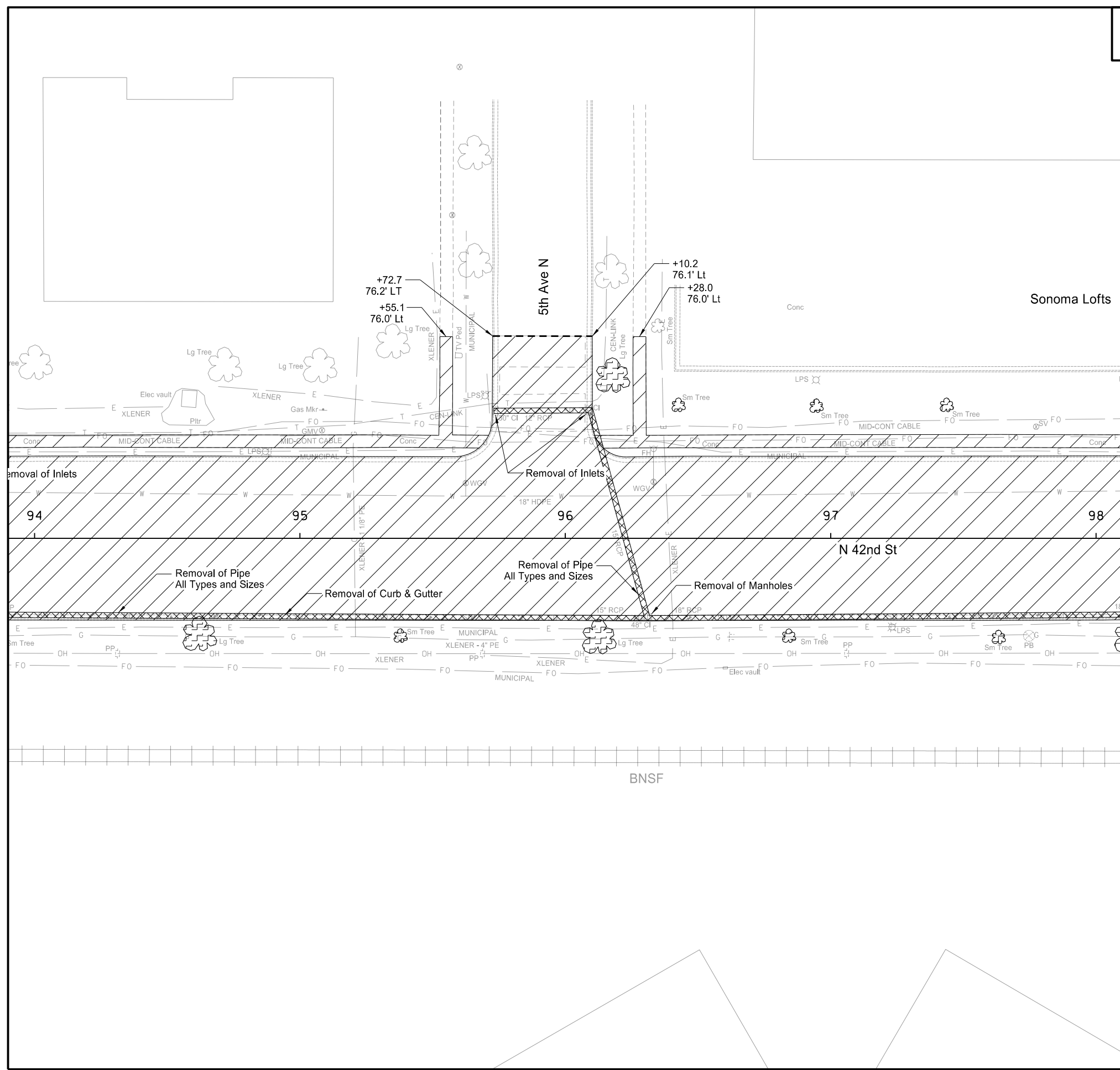
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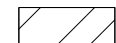
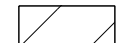


Removals
Sta 90+00 to Sta 94+00

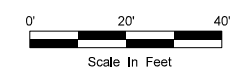
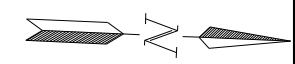
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	3

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	Sta 94+00 to Sta 98+00	3175	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES		
	Sta 94+00 to Sta 98+00	516	LF
202 0210	REMOVAL OF MANHOLES		
	Sta 94+00 to Sta 98+00	1	EA
202 0230	REMOVAL OF INLETS		
	Sta 94+00 to Sta 98+00	2	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



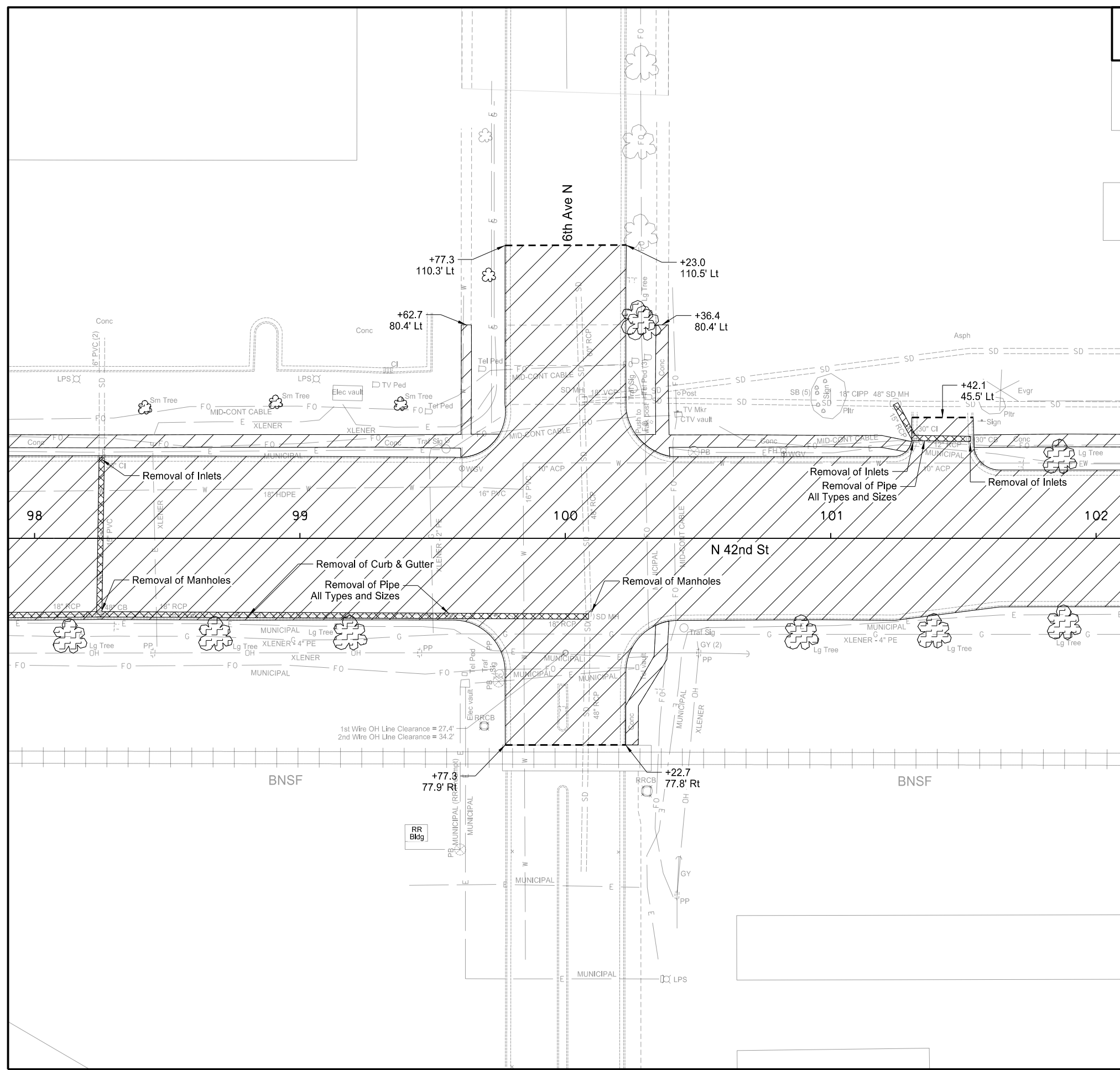
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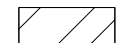
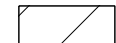


Removals
Sta 94+00 to Sta 98+00

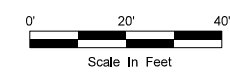
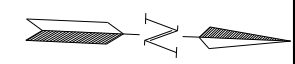
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	4

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sta 98+00 to Sta 102+00	3636	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES Sta 98+00 to Sta 102+00	302	LF
202 0210	REMOVAL OF MANHOLES Sta 98+00 to Sta 102+00	2	EA
202 0230	REMOVAL OF INLETS Sta 98+00 to Sta 102+00	3	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



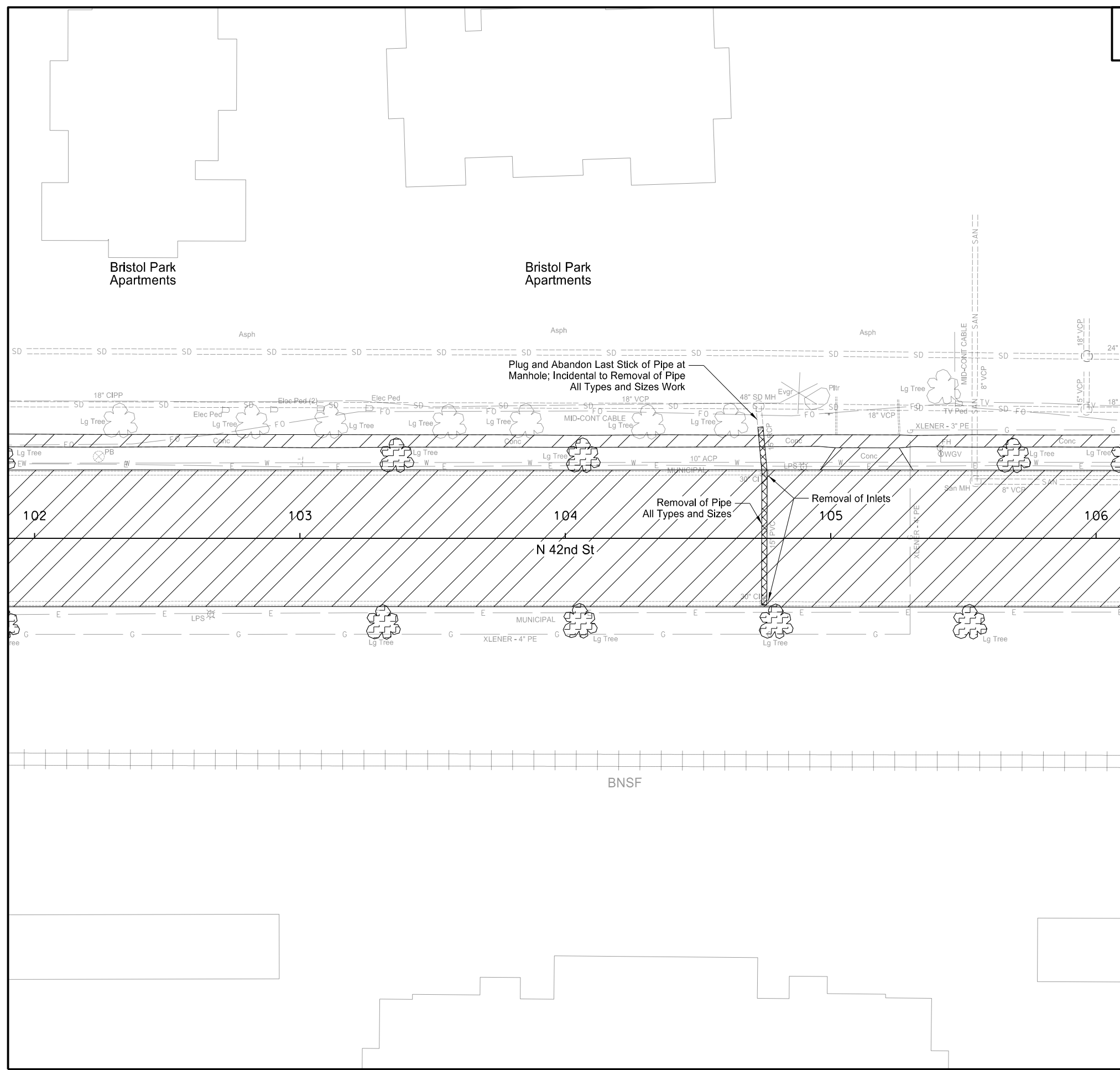
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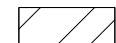
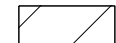


Removals
 Sta 98+00 to Sta 102+00

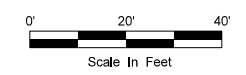
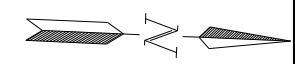
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	5

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sta 102+00 to Sta 106+00	2525	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES Sta 102+00 to Sta 106+00	68	LF
202 0230	REMOVAL OF INLETS Sta 102+00 to Sta 106+00	2	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



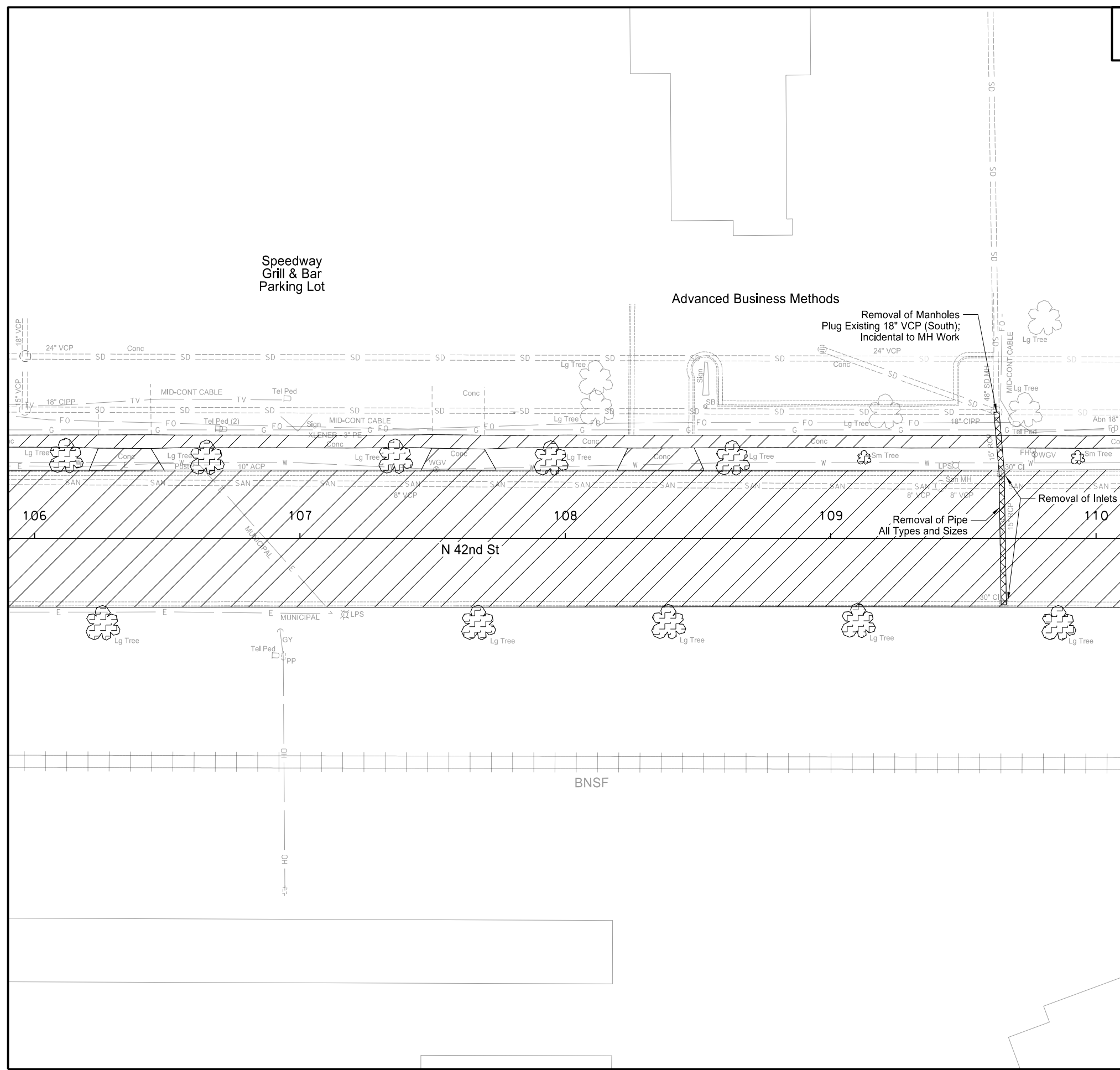
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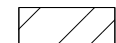
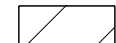


Removals
 Sta 102+00 to Sta 106+00

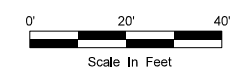
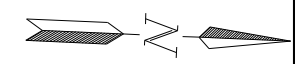
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	6

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sta 106+00 to Sta 110+00	2396	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES Sta 106+00 to Sta 110+00	73	LF
202 0230	REMOVAL OF INLETS Sta 106+00 to Sta 110+00	2	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



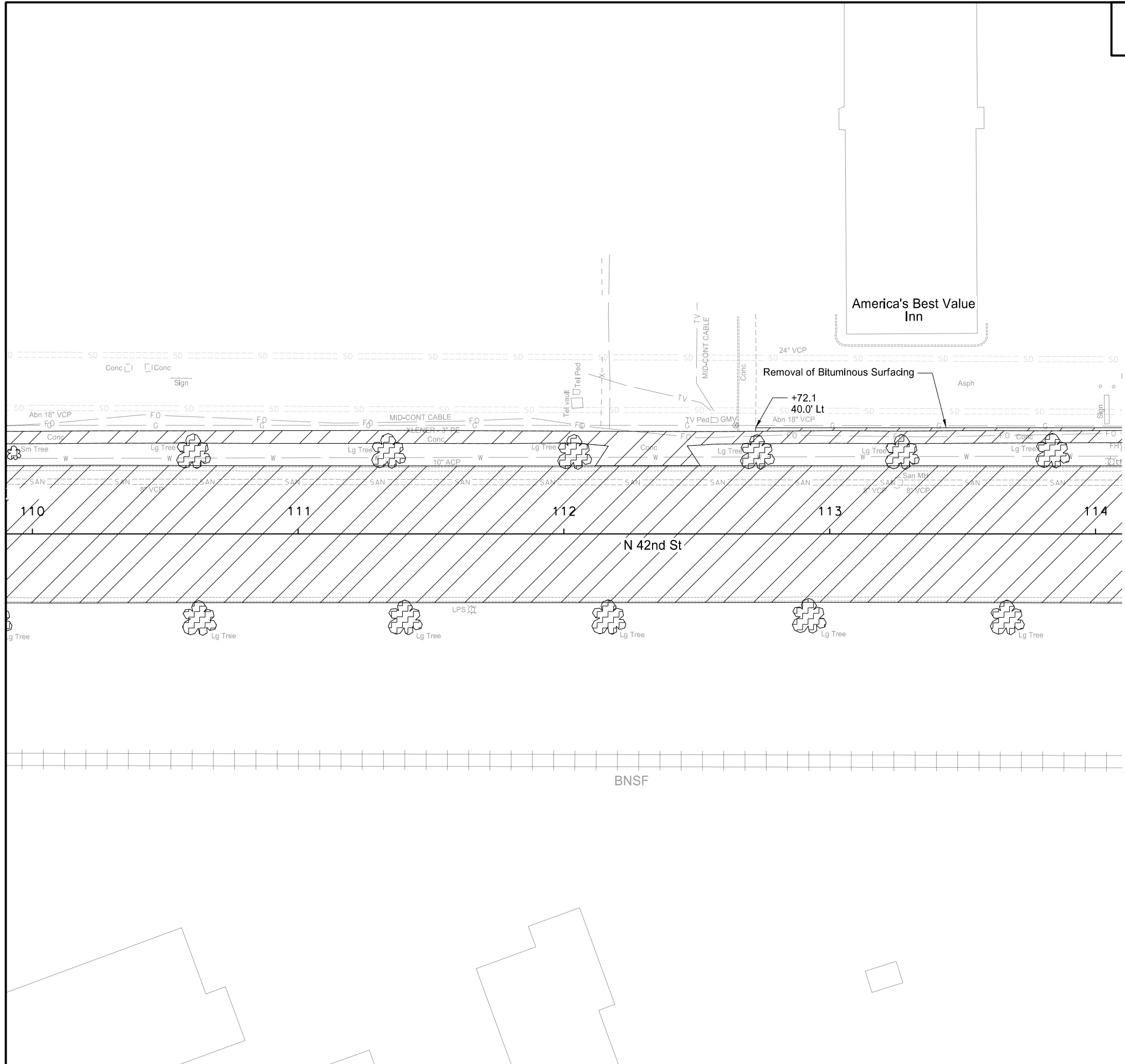
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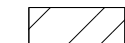
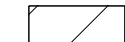


Removals
 Sta 106+00 to Sta 110+00

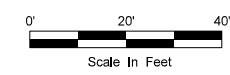
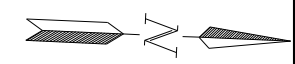
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	7

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sta 110+00 to Sta 114+00	2531	SY
202 0132	REMOVAL OF BITUMINOUS SURFACING Sta 110+00 to Sta 114+00	26	SY



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



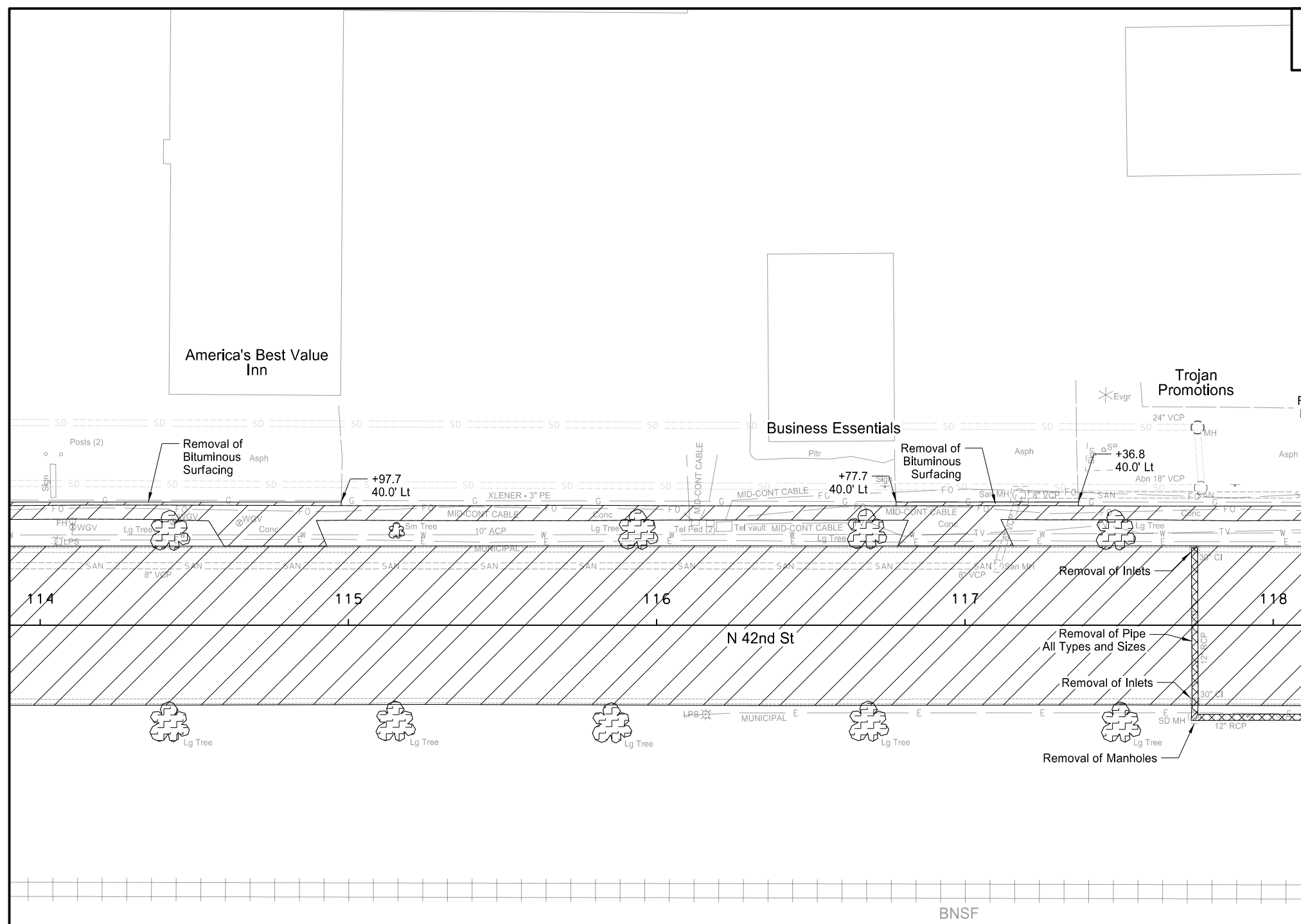
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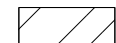
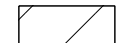


Removals
 Sta 110+00 to Sta 114+00

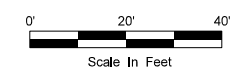
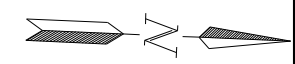
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	8

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sta 114+00 to Sta 118+00	2566	SY
202 0132	REMOVAL OF BITUMINOUS SURFACING Sta 114+00 to Sta 118+00	20	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES Sta 114+00 to Sta 118+00	84	LF
202 0210	REMOVAL OF MANHOLES Sta 114+00 to Sta 118+00	1	EA
202 0230	REMOVAL OF INLETS Sta 114+00 to Sta 118+00	2	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



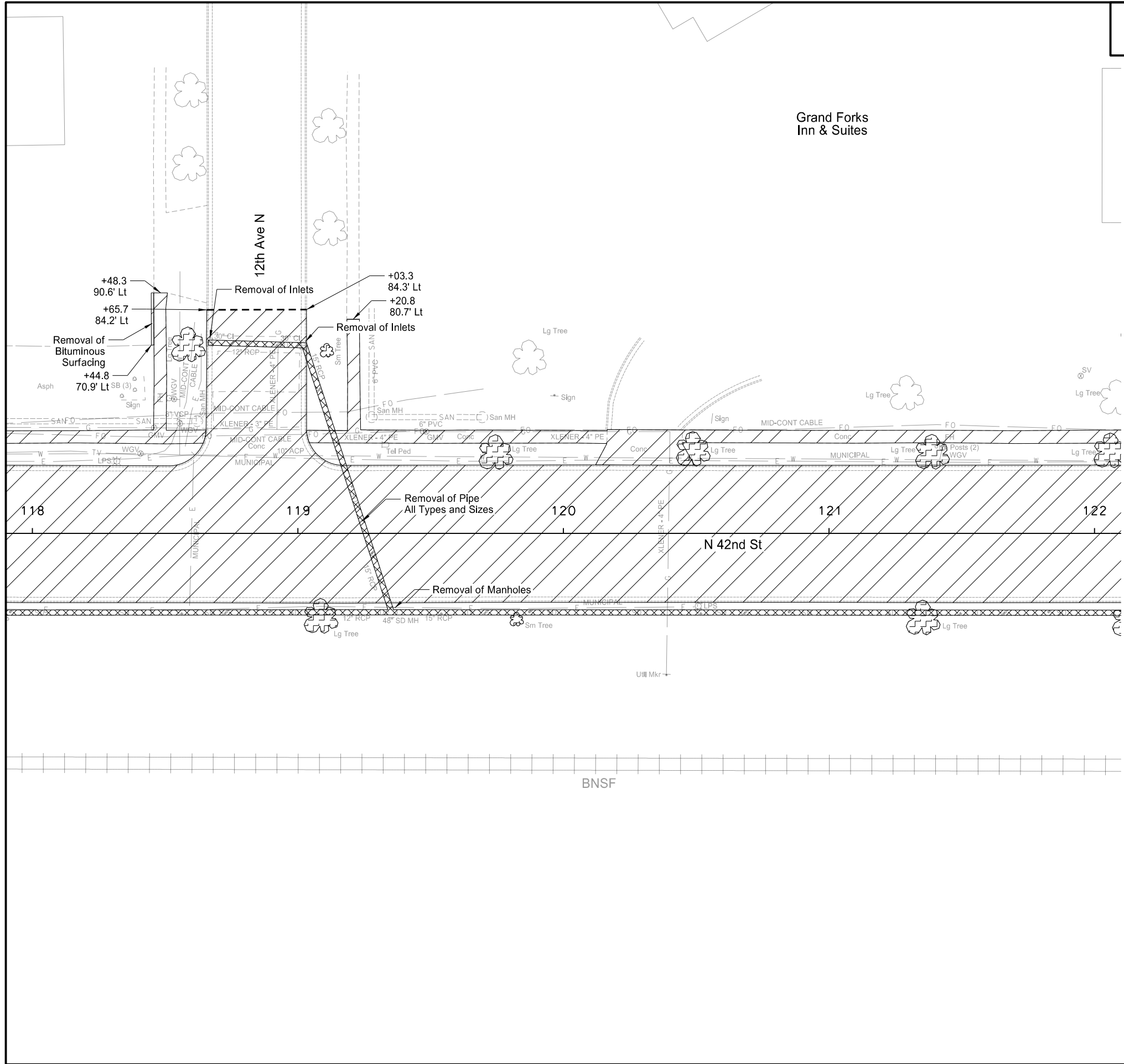
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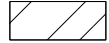
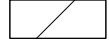


Removals
Sta 114+00 to Sta 118+00

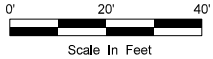
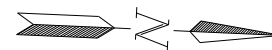
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	9

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sta 118+00 to Sta 122+00	2827	SY
202 0132	REMOVAL OF BITUMINOUS SURFACING Sta 118+00 to Sta 122+00	3	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES Sta 118+00 to Sta 122+00	540	LF
202 0210	REMOVAL OF MANHOLES Sta 118+00 to Sta 122+00	1	EA
202 0230	REMOVAL OF INLETS Sta 118+00 to Sta 122+00	2	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous Surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



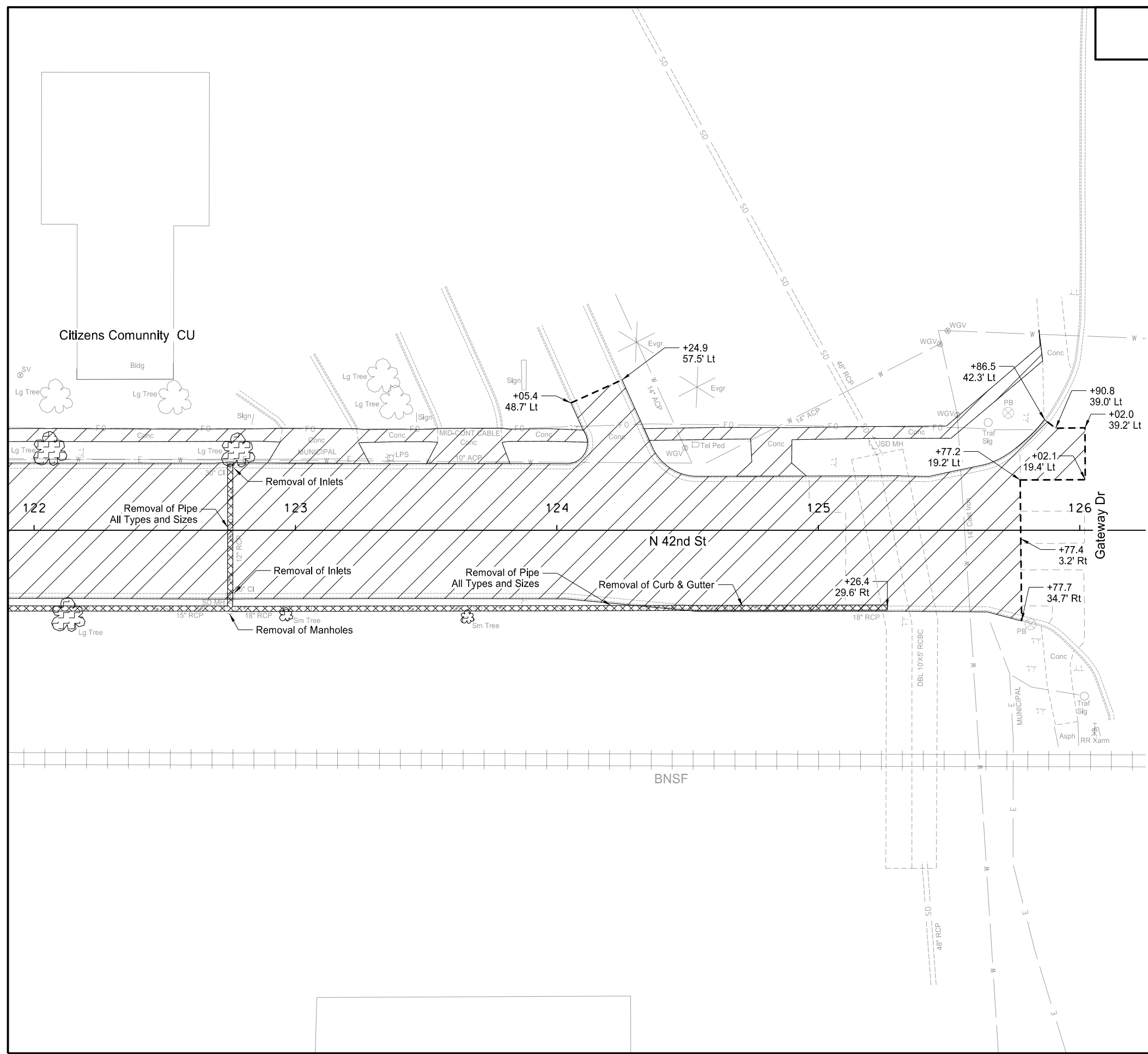
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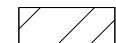
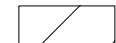


Removals
Sta 118+00 to Sta 122+00

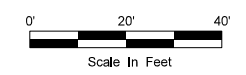
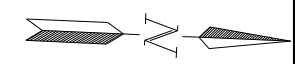
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	40	10

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	Sta 122+00 to Sta 126+00	2613	SY
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES		
	Sta 122+00 to Sta 126+00	378	LF
202 0210	REMOVAL OF MANHOLES		
	Sta 122+00 to Sta 126+00	1	EA
202 0230	REMOVAL OF INLETS		
	Sta 122+00 to Sta 126+00	2	EA



-  Removal of Concrete Pavement
-  Removal of Bituminous surfacing
-  Removal of Trees & Brush (L SUM)
-  Removal of Pipe All Types and Sizes



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Removals
Sta 122+00 to Sta 126+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

MH No. 1 - 72" Barrel
MH Type 72" Barrel
Northing 355595.90
Easting 2804772.28
Station 93+75 28.05' Lt
Flowline Elev 830.79
Grate Style Large Diagonal
Casting 4"
Rings 4"
Float 0"
Cover 8"
Top of Riser Elev 829.45
Invert Elev 825.10
Top of Base Elev 824.71
Riser Pay Length 4.7 LF
Drain tile Invert Elev 827.46 NE & SW

21 IN Conduit N - 825.28
 18 IN Conduit W - 825.28

See Section 20 for Cover Detail

End Section No. 1A
Type Inlet-Type 2 Double
Northing 355593.85
Easting 2804725.36
Station 93+75.00 18.17' Lt
Flowline Elev 831.09
Grate Style Double Large Diagonal
Casting 4"
Rings 4"
Float 0"
Top of Barrel Elev 830.42
Top of Base Elev 825.42
Invert Elev E - 825.68
 W - 827.22
Drain tile Invert Elev 827.77 N & S

MH No. 2 - 60" Barrel
MH Type 60" Barrel w/Cone
Northing 355851.60
Easting 2804760.18
Station 96+30.98 27.88' Lt
Flowline Elev 831.42
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Cover 8"
Top of Cone Elev 830.30
Top of Riser Elev 826.63
Invert Elev 823.52
Top of Base Elev 823.11
Riser Pay Length - 48" 3.0 LF
Riser Pay Length - 60" 3.5 LF

24 IN Conduit N - 823.52
 21 IN Conduit S - 824.00
 15 IN Conduit W - 824.00

MH No. 2A - 48" Barrel
Type 48" Barrel w/ Cone
Northing 355826.89
Easting 2804674.81
Station 96+10.03 58.49' Lt
Flowline Elev 830.90
Grate Style Diagonal
Casting 5"
Rings 4"
Float 2 1/2"
Top of Cone Elev 829.94
Top of Barrel Elev 826.94
Top of Base Elev 823.80
Invert Elev E - 824.18
 S - 824.18
Riser Pay Length 6.1 LF

Inlet No. 2B - 30" Barrel
Type Inlet-Type 1
Northing 355790.80
Easting 2804676.36
Station 95+73.91 58.51' Lt
Flowline Elev 830.92
Grate Style Diagonal
Casting 5"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 829.96
Top of Base Elev 824.96
Invert Elev 825.36

MH No. 3 - 60" Barrel
MH Type 60" Barrel w/Cone
Northing 355989.48
Easting 2804754.15
Station 97+69.01 27.87' Rt
Flowline Elev 830.91
Grate Style Diagonal
Casting 5"
Rings 4"
Float 2 1/2"
Cover 8"
Top of Cone Elev 829.95
Top of Riser Elev 826.28
Invert Elev 822.94
Top of Base Elev 822.48
Riser Pay Length - 48" 3.0 LF
Riser Pay Length - 60" 3.8 LF
Drain tile Invert Elev 827.58 E

30 IN Conduit N - 822.94
 24 IN Conduit S - 822.94
 15 IN Conduit W - 823.94

Inlet No. 3A - 30" Barrel
Type Inlet-Type 1
Northing 355987.46
Easting 2804708.07
Station 97+69.00 18.16' Lt
Flowline Elev 831.22
Grate Style Diagonal
Casting 5"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 830.26
Top of Base Elev 824.26
Invert Elev E - 824.70
 W - 824.70
Drain tile Invert Elev 827.89 N & S

Inlet No. 3B - 30" Barrel
Type Inlet-Type 1
Northing 355988.19
Easting 2804701.65
Station 97+70.0 24.63' Lt
Top of Casting Elev 832.12
Grate Style Solid
Casting 7"
Rings 4"
Top of Barrel Elev 831.20
Top of Base Elev 824.54
Invert Elev N - 824.85
 E - 824.85

Inlet No. 3C - 30" Barrel
Type Inlet-Type 1
Northing 356043.47
Easting 2804699.23
Station 98+25.34 24.63' Lt
Top of Casting Elev 832.69
Grate Style Solid
Casting 7"
Rings 4"
Top of Barrel Elev 831.77
Top of Base Elev 825.96
Invert Elev S - 826.21
 W - 826.35

Casting Type Key	
Casting Designation	Casting Materials Description
Diagonal	Castings shall be Neenah R-3065 Type R Grate or East Jordan Iron Works No. 7010 with M5 Grate or Approved Equal. Frame Flanges shall have 5/8" Drilled Hole.
Solid	Casting shall be Neenah Foundry No. R-1733, East Jordan Iron Works No. 1205, or Approved Equal. In Paved Areas, Frame Flanges shall have 5/8" Drilled Hole.
Vane	Casting shall be Neenah Foundry No. R-3010 with Type L Grate or Approved Equal. In Paved Areas, Frame Flanges shall have 5/8" Drilled Hole.
Large Diagonal	Casting shall be Neenah Foundry No. R-3067 with Type R Grate or Approved Equal. Frame Flanges shall have 5/8" Drilled Hole.
Double Large Diagonal	Casting shall be Neenah Foundry No. R-3295-2 with Type R Grate or Approved Equal. Frame Flanges shall have 5/8" Drilled Hole.
Inlet	Casting shall be Neenah Foundry No. R-2577 with Type A Grate or Approved Equal. In Paved Areas, Frame Flanges shall have 5/8" Drilled Hole.

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Inlet and Manhole Summary

 Reconstruction of North 42nd St
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-6-986(121)125	50	2

MH No. 4 - 96" Barrel
MH Type 96" Barrel w/ Cone
Northing 356229.10
Easting 2804745.22
Station 100+08.78 29.42' Rt
Top of Casting Elev 835.79
Grate Style Solid
Casting 7"
Rings 4"
Float 2 1/2"
Cover 8"
Top of Cone Elev 834.67
Top of Riser Elev 831.00
Invert Elev 820.35
Top of Base Elev 819.84
Riser Pay Length - 48" 3.0 LF
Riser Pay Length - 96" 11.2 LF

Existing 48 IN RCP E - 820.35
 Existing 48 IN RCP W - 820.35
 30 IN Conduit S - 822.04
 36 IN Conduit N - 820.50

MH No. 5 - 72" Barrel
MH Type 72" Barrel w/ Cone
Northing 356638.06
Easting 2804724.42
Station 104+18.26 26.50' Rt
Top of Casting Elev 830.76
Grate Style Solid
Casting 7"
Rings 4"
Cover 8"
Top of Cone Elev 829.84
Top of Riser Elev 826.17
Invert Elev 821.56
Top of Base Elev 821.11
Riser Pay Length - 48" 3.0 LF
Riser Pay Length - 72" 5.0 LF

36 IN Conduit N - 821.56
 36 IN Conduit S - 821.56
 24 IN Conduit W - 821.66

MH No. 5A - 48" Barrel
Type 48" Barrel w/ Cone
Northing 356637.78
Easting 2804717.89
Station 104+18.26 19.95' Rt
Flowline Elev 829.58
Grate Style Diagonal
Casting 5"
Rings 4"
Float 2 1/2"
Top of Cone Elev 828.62
Top of Barrel Elev 825.62
Top of Base Elev 821.42
Invert Elev E - 821.76
 W - 822.01
Draintile Invert Elev 826.25 N & S
Riser Pay Length 7.2 LF

Inlet No. 5B
Type Inlet-Type 2 Double
Northing 356636.07
Easting 2804678.80
Station 104+18.27 19.16' Lt
Flowline Elev 829.58
Grate Style Double Large Diagonal
Casting 4"
Rings 4"
Float 0"
Top of Barrel Elev 828.91
Top of Base Elev 822.16
Invert Elev 822.76
Draintile Invert Elev 826.25 N & S

MH No. 6 - 60" Barrel
MH Type 60" Barrel w/Cone
Northing 356783.91
Easting 2804718.10
Station 105+64.24 26.55' Rt
Top of Casting Elev 831.04
Grate Style Solid
Casting 7"
Rings 4"
Cover 8"
Top of Cone Elev 830.12
Top of Riser Elev 826.45
Invert Elev 821.81
Top of Base Elev 821.41
Riser Pay Length - 48" 3.0 LF
Riser Pay Length - 60" 5.0 LF

30 IN Conduit N - 821.81
 36 IN Conduit S - 821.81
 12 IN Conduit W - 823.68

Inlet No. 6A -30" Barrel
Type Inlet-Type 1
Northing 356783.59
Easting 2804710.73
Station 105+64.25 19.17' Rt
Flowline Elev 830.35
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 829.23
Top of Base Elev 823.23
Invert Elev E - 823.74
 W - 824.56

Inlet No. 6B -30" Barrel
Type Inlet-Type 1
Northing 356781.91
Easting 2804672.42
Station 105+64.25 19.17' Lt
Flowline Elev 830.35
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 829.23
Top of Base Elev 824.23
Invert Elev 824.75

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Inlet and Manhole Summary

 Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-6-986(121)125	50	3

MH No. 7 - 60" Barrel
MH Type 60" Barrel w/ Cone
Northing 357029.00
Eastng 2804707.34
Station 108+09.57 26.50' Rt
Top of Casting Elev 831.20
Grate Style Solid
Casting 7"
Rings 4"
Cover 8"
Top of Cone Elev 830.28
Top of Riser Elev 826.61
Invert Elev 822.47
Top of Base Elev 822.01
Riser Pay Length - 48" 3.0 LF
Riser Pay Length - 60" 4.6 LF

30 IN Conduit N - 822.47
 30 IN Conduit S - 822.47
 12 IN Conduit W - 823.51

Inlet No. 7A - 30" Barrel
Type Inlet-Type 1
Northing 357027.00
Eastng 2804661.72
Station 108+09.57 19.16' Lt
Flowline Elev 830.51
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 829.39
Top of Base Elev 824.39
Invert Elev E - 824.45

MH No. 8 - 60" Barrel
MH Type 60" Barrel
Northing 357184.43
Eastng 2804700.55
Station 109+65.15 26.52' Rt
Top of Casting Elev 830.87
Grate Style Solid
Casting 7"
Rings 12"
Cover 8"
Top of Riser Elev 828.62
Invert Elev 822.88
Top of Base Elev 822.50
Riser Pay Length 6.1 LF

30 IN Conduit S - 822.88
 30 IN Conduit N - 822.88
 21 IN Conduit W - 822.88

MH No. 8A - 48" Barrel
Type 48" Barrel
Northing 357184.15
Eastng 2804694.02
Station 109+65.15 19.96' Rt
Flowline Elev 829.83
Grate Style Diagonal
Casting 5"
Rings 6"
Float 2 1/2"
Top of Riser Elev 828.70
Top of Base Elev 822.60
Invert Elev E - 822.93
 W - 822.93
Draintile Invert Elev 826.26 N & S
Riser Pay Length 6.1 LF

Inlet No. 8B
Type Inlet-Type 2 Double
Northing 357182.46
Eastng 2804654.93
Station 109+65.17 19.17' Lt
Flowline Elev 829.83
Grate Style Double Large Diagonal
Casting 4"
Rings 4"
Float 0"
Top of Barrel Elev 829.16
Top of Base Elev 822.88
Invert Elev E - 823.20
 W - 823.20
Draintile Invert Elev 826.26 N & S

MH No. 8C - 48" Barrel
MH Type 48" Barrel W/ Cone
Northing 357178.52
Eastng 2804626.68
Station 109+62.47 47.56' Rt
Top of Casting Elev 831.85
Grate Style Solid
Casting 7"
Rings 4"
Top of Cone Elev 830.93
Top of Barrel Elev 827.93
Invert Elev 823.34
Top of Base Elev 822.93
Riser Pay Length 8.0 LF

18 IN Conduit E - 823.34
 10 IN Conduit SW - 823.75

MH No. 9 - 60" Barrel
MH Type 60" Barrel
Northing 357418.64
Eastng 2804690.32
Station 111+99.58 26.50' Rt
Top of Casting Elev 832.04
Grate Style Solid
Casting 7"
Rings 12"
Cover 8"
Top of Riser Elev 829.79
Invert Elev 823.32
Top of Base Elev 822.81
Riser Pay Length 7.0 LF

30 IN Conduit S - 823.32
 24 IN Conduit N - 823.32
 15 IN Conduit W - 824.52

Inlet No. 9A - 30" Barrel
Type Inlet-Type 1
Northing 357418.32
Eastng 2804683.00
Station 111+99.57 19.17' Rt
Flowline Elev 831.19
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 830.07
Top of Base Elev 824.34
Invert Elev E - 824.59
 W - 824.59

Inlet No. 9B - 30" Barrel
Type Inlet-Type 1
Northing 357416.64
Eastng 2804644.70
Station 111+99.58 19.17' Lt
Flowline Elev 831.19
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 830.07
Top of Base Elev 824.34
Invert Elev 824.78

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Inlet and Manhole Summary

 Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
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MH No. 10 - 60" Barrel
MH Type 60" Barrel w/ Cone
Northing 357748.49
Easting 2804675.91
Station 115+29.74 19.17' Rt
Top of Casting Elev 832.07
Grate Style Solid
Casting 7"
Rings 4"
Cover 8"
Top of Cone Elev 831.15
Top of Riser Elev 827.48
Invert Elev 824.05
Top of Base Elev 823.68
Riser Pay Length - 48" 3.0 LF
Riser Pay Length - 60" 3.8 LF

24 IN Conduit S - 824.05
 24 IN Conduit N - 824.05
 15 IN Conduit W - 824.20

Inlet No. 10A -30" Barrel
Type Inlet-Type 1
Northing 357748.17
Easting 2804668.58
Station 115+29.74 19.17' Rt
Flowline Elev 831.12
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 830.00
Top of Base Elev 824.00
Invert Elev E - 824.27
 W - 825.22

Inlet No. 10B -30" Barrel
Type Inlet-Type 1
Northing 357746.49
Easting 2804630.29
Station 115+29.74 19.17' Lt
Flowline Elev 831.12
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 830.00
Top of Base Elev 825.00
Invert Elev 825.41

MH No. 11 - 60" Barrel
MH Type 60" Barrel
Northing 357843.65
Easting 2804671.66
Station 116+25.00 26.41' Rt
Top of Casting Elev 831.83
Grate Style Solid
Casting 7"
Rings 12"
Cover 8"
Top of Riser Elev 829.58
Invert Elev 824.26
Top of Base Elev 823.95
Riser Pay Length 5.6 LF

24 IN Conduit S - 824.26
 24 IN Conduit W - 824.26

MH No. 11A - 48" Barrel
Type 48" Barrel
Northing 357843.37
Easting 2804665.22
Station 116+25.00 19.96' Rt
Flowline Elev 830.75
Grate Style Diagonal
Casting 5"
Rings 6"
Float 2 1/2"
Top of Riser Elev 829.63
Top of Base Elev 824.03
Invert Elev E - 824.30
 W - 824.55
Drain tile Invert Elev 827.19 N & S
Riser Pay Length 5.6 LF

Inlet No. 11B
Type Inlet-Type 2 Double
Northing 357841.66
Easting 2804626.13
Station 116+24.99 19.17' Rt
Flowline Elev 830.75
Grate Style Double Large Diagonal
Casting 4"
Rings 4"
Float 0"
Top of Barrel Elev 830.08
Top of Base Elev 825.08
Invert Elev 825.66
Drain tile Invert Elev 827.19 N & S

MH No. 12- 48" Barrel
MH Type 48" Barrel
Northing 358153.80
Easting 2804661.43
Station 119+35.30 29.73' Rt
Top of Casting Elev 832.27
Grate Style Solid
Casting 7"
Rings 12"
Top of Riser Elev 830.69
Invert Elev 826.84
Top of Base Elev 826.50
Riser Pay Length 4.2 LF

15 IN Conduit N - 826.84
 15 IN Conduit SW - 826.84

MH No. 12A - 48" Barrel
Type 48" Barrel
Northing 358117.24
Easting 2804561.71
Station 119+03.13 71.50' Rt
Flowline Elev 831.72
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Riser Elev 830.60
Top of Base Elev 825.60
Invert Elev E - 827.08
 W - 827.08
Riser Pay Length 5.0 LF

Inlet No. 12B -30" Barrel
Type Inlet-Type 1
Northing 358080.89
Easting 2804563.29
Station 118+66.71.50' Lt
Flowline Elev 831.77
Grate Style Vane
Casting 7"
Rings 4"
Float 2 1/2"
Top of Barrel Elev 830.65
Top of Base Elev 825.65
Invert Elev 827.19

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Inlet and Manhole Summary

 Reconstruction of North 42nd St
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-6-986(121)125	50	5

MH No. 13 - 60" Barrel
MH Type 60" Barrel
Northing 358440.46
Easting 2804648.09
Station 122+22.28 28.91' Rt
Top of Casting Elev 831.38
Grate Style Solid
Casting 7"
Rings 4"
Cover 8"
Top of Riser Elev 829.79
Invert Elev 826.21
Top of Base Elev 825.79
Riser Pay Length 4.0 LF

Connection No. 14
Structure Type Double 10'X5' RCBC
Northing 358742.72
Easting 2804635.54
Station 125+24.79 29.56 Rt
Invert Elev 825.36

MH No. 15
MH Type 48" Barrel w/Cone
Northing 356341.12
Easting 2804660.16
Station 101+24.55 50.44' Lt
Top of Casting Elev 831.33
Invert Elev 821.28

Adjust Utility Appurtenance - See Section 50, Sheet 6 for Details

24 IN Conduit N - 826.21
 18 IN Conduit W - 826.21
 15 IN Conduit S - 826.21

Existing 10'X 5' RCBC E - 825.36
 Existing 10'X 5' RCBC W - 825.36
 24 IN Conduit S - 825.66

Existing 18 IN Conduit N - 821.28
 Existing 18 IN Conduit S - 821.28
 Existing 15 IN Conduit NE - 824.63
 15 IN Conduit NE - 824.63

MH No. 13A - 48" Barrel
Type 48" Barrel
Northing 358440.13
Easting 2804640.48
Station 122+22.27 21.17' Rt
Flowline Elev 830.21
Grate Style Radial
Casting 7"
Rings 4"
Float 2" (Below Flow Line)
Top of Riser Elev 829.13
Top of Base Elev 824.13
Invert Elev E - 826.25
 W - 826.25
Drain tile Invert Elev 826.79 N & S
Riser Pay Length 5.0 LF

Inlet No. 15A - 30" Barrel
Type Inlet Catch Basin-Type A
Northing 356346.86
Easting 2804665.08
Station 101+29.93 45.50' Lt
Top of Casting Elev 831.15
Grate Style Inlet
Casting 7"
Rings 4"
Top of Barrel Elev 830.23
Top of Base Elev 824.23
Invert Elev SW - 824.67
 N - 824.67

Inlet No. 13B - 30" Barrel
Type Inlet-Type 2 Double
Northing 358438.36
Easting 2804599.92
Station 122+22.28 19.30' Lt
Flowline Elev 830.25
Grate Style Double Large Diagonal
Casting 4"
Rings 4"
Float 0"
Top of Barrel Elev 829.58
Top of Base Elev 824.58
Invert Elev 826.37
Drain tile Invert Elev 826.82 N & S

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Inlet and Manhole Summary
 Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	50	6

MH No.	Station	Offset	Structure Type	Existing Adjustment Rings	Existing Casting Elevation (field survey)	Existing Casting Height (inches)	Existing Top of Structure Elevation (field estimated)	Proposed Casting Elevation	Proposed Casting Height (inches)	30" Barrel Section Height (inches)	Height of Rings Required (inches)	Proposed Float (inches)	Chimney Seal Required	Proposed Top of Structure Elevation	Required Top of Structure Adjustment (inches)	Proposed Flattop Opening Rotation Direction	Pay Item
15	101+24.42	50.69' Lt	48" MH	8-2" Rings	831.33	7	829.42	831.15	7	12	2	0	No	829.42	0.00	N/A	"Adjust Utility Appurtenance"
16	100+06.25	52.25' Lt	6' X 6' Box MH	10 - 2" Rings	832.68	7	830.43	833.59	7	24	4	2.9	Yes	830.43	0.00	NA	"Adjust Utility Appurtenance"
17	105+54.61	21.56' Lt	48" MH	2 - 2" Rings	829.76	14	828.26	830.69	7	0	10	0	No	829.26	12.00	West	"Adjust Manhole"
18	109+41.54	19.73' Lt	48" MH	3 - 2" Rings	830.08	14	828.41	830.33	9	12	2	0	No	828.41	0.00	West	"Adjust Manhole"
19	113+25.41	19.33' Lt	48" MH	3 - 2" Rings	830.97	13	829.39	832.14	9	0	12	0	No	830.39	12.00	West	"Adjust Manhole"
20	117+10.35	19.19' Lt	48" MH	2 - 2" Rings	831.14	12	829.80	831.88	9	12	4	0	No	829.80	0.00	West	"Adjust Manhole"
21	118+62.09	62.09' Lt	Clean Out	0 Rings	831.68	9	NA	832.20	9	0	6	0	No	NA	0.00	NA	"Adjust Utility Appurtenance"

Work Required for Structures Included In Pay Item "Adjust Manhole"

- Contractor Shall Verify Existing Structure Configuration Prior to Adjustment Work in Order to Provide Barrel Section/Adapter to Complete the Required Proposed Top of Structure Adjustment or Proposed Casting Elevation, or Rotate the Flattop Opening as Noted Above.
- Remove Existing Casting, Adjustment Rings and Riser Section as Necessary.
- Furnish and Install New Barrel Section/Adapter, New 30" Barrel Section (where necessary), New 2" Plastic Adjustment Rings, and New Casting Lid and Frame. Adjust to Proposed Elevation.
- Step(s) Shall be Included in New Barrel Sections w/ Spacing of 12" OC When Adequate Barrel Length Allows. Rotate New Barrel Section to New Flattop Opening Alignment.
- Furnish and Install 3 Wraps of 6 Mil Poly Around MH Casting and Adjusting Rings for Manholes in Landscape Areas.
- Where Flattop Rotations are Proposed, Install New Plastic Steps in Existing Manhole Sections. Steps Should Align new Flattop Rotation Direction w/ Spacing of 12" OC.

Work Required for Structures Included in Pay Item "Adjust Utility Appurtenance"

- Contractor Shall Verify Existing Structure Configuration Prior to Adjustment Work in Order to Provide the Proposed Casting Elevation as Noted Above.
- Remove Existing Casting and Adjustment Rings.
- Furnish and Install New 30" Barrel Section (where necessary), New 2" Plastic Adjustment Rings, New Chimney Seal, and New Casting Lid and Frame. Adjust to Proposed Elevation.

Notes

- "Top of Structure" as Noted in this Table Refers to Top of Flat Top Cover.
- 30" Inner diameter RCP barrel section. To be used in place of ring heights greater than 12".
- Float Depth: Distance From Top of Adjusting Rings to Bottom of Casting. Distance Shall be 1 1/2" Min to 3" Max. Float Depth Space Shall Be Shimmed with Wood Shims Until Concrete has Cured Around Casting. Before Project is Open to Traffic, Contractor Shall Remove Wood Shims From Float Depth Space.
- Required Top of Structure adjustment is the Difference in Elevation Between Proposed Top of Structure Elevation and Existing Top of Structure.
- 9" Castings Shall be Neenah Casting No. R-1733-B or East Jordan Casting No. 1205-17 or Approved Equal. MH 15 Casting Shall be Neenah Casting R-2577 with Type C Grate or Approved Equal. Other 7" Castings Shall be Neenah Casting No. R-1733 or East Jordan Casting No. 1205 or Approved Equal. Casting Lids Shall have Machined Bearing Surfaces, be lettered "SANITARY SEWER", and have 2 Concealed Lift Notches.

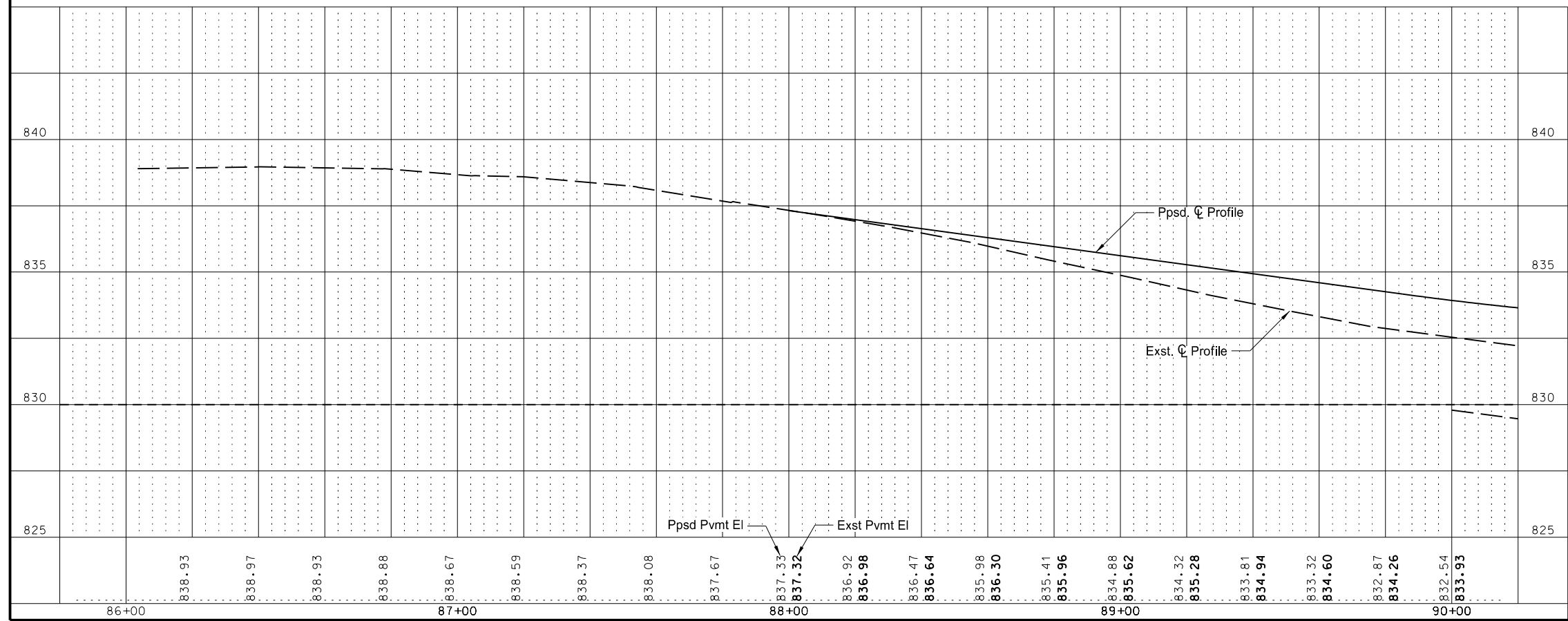
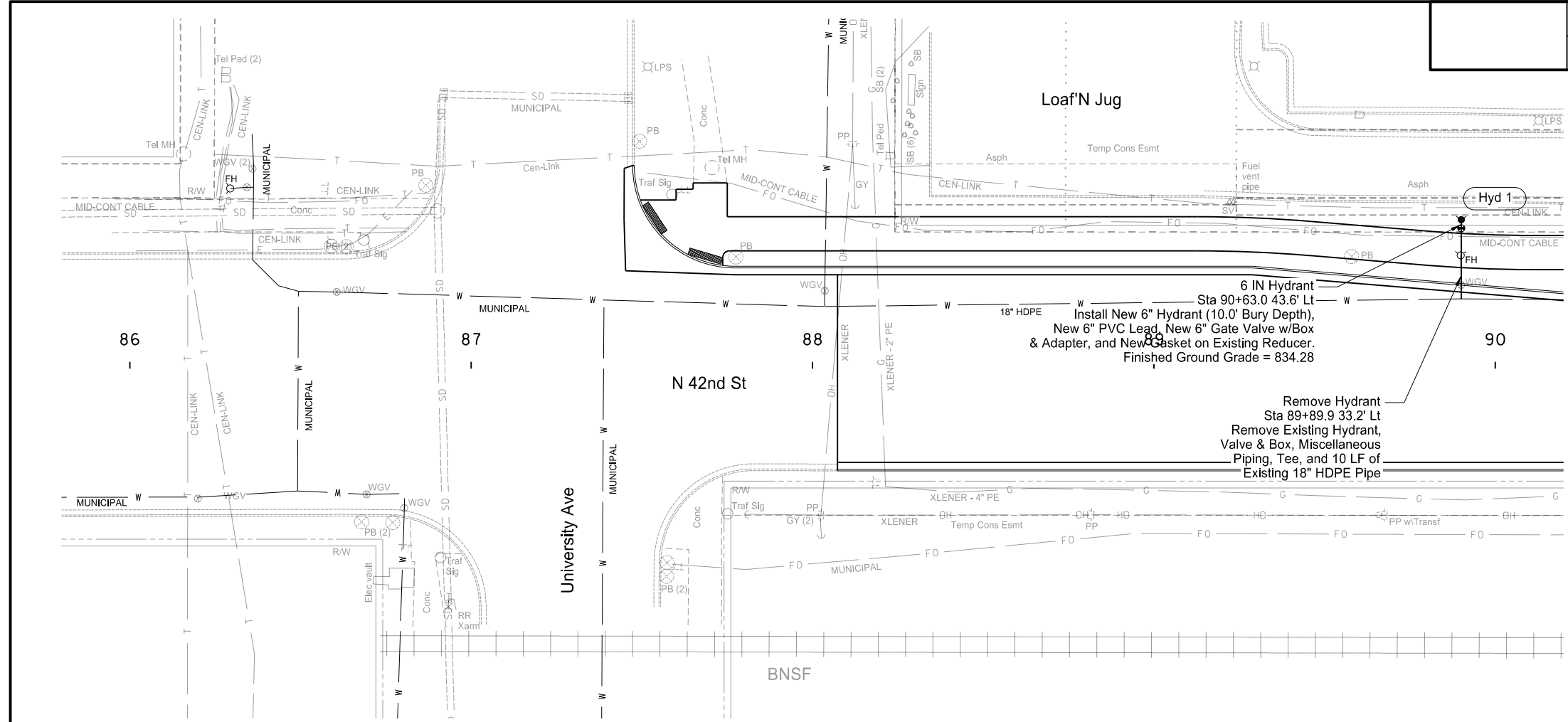
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Inlet and Manhole Summary

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	1

SPEC	CODE	BID ITEM	QTY	UNIT
724	0411	6IN HYDRANT		
		Sta 90+00 to Sta 94+00	1	EA
724	0430	REMOVE HYDRANT		
		Sta 86+00 to Sta 90+00	1	EA

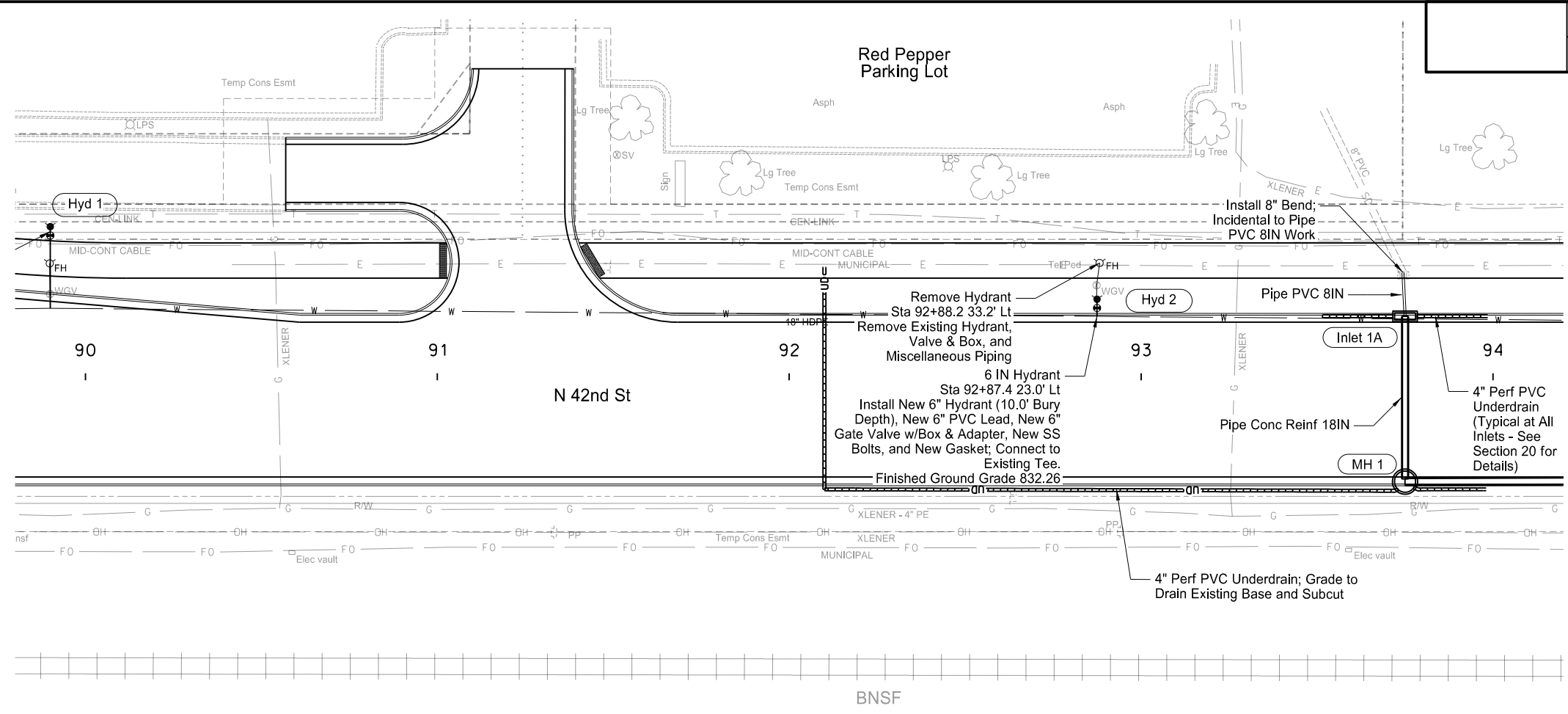


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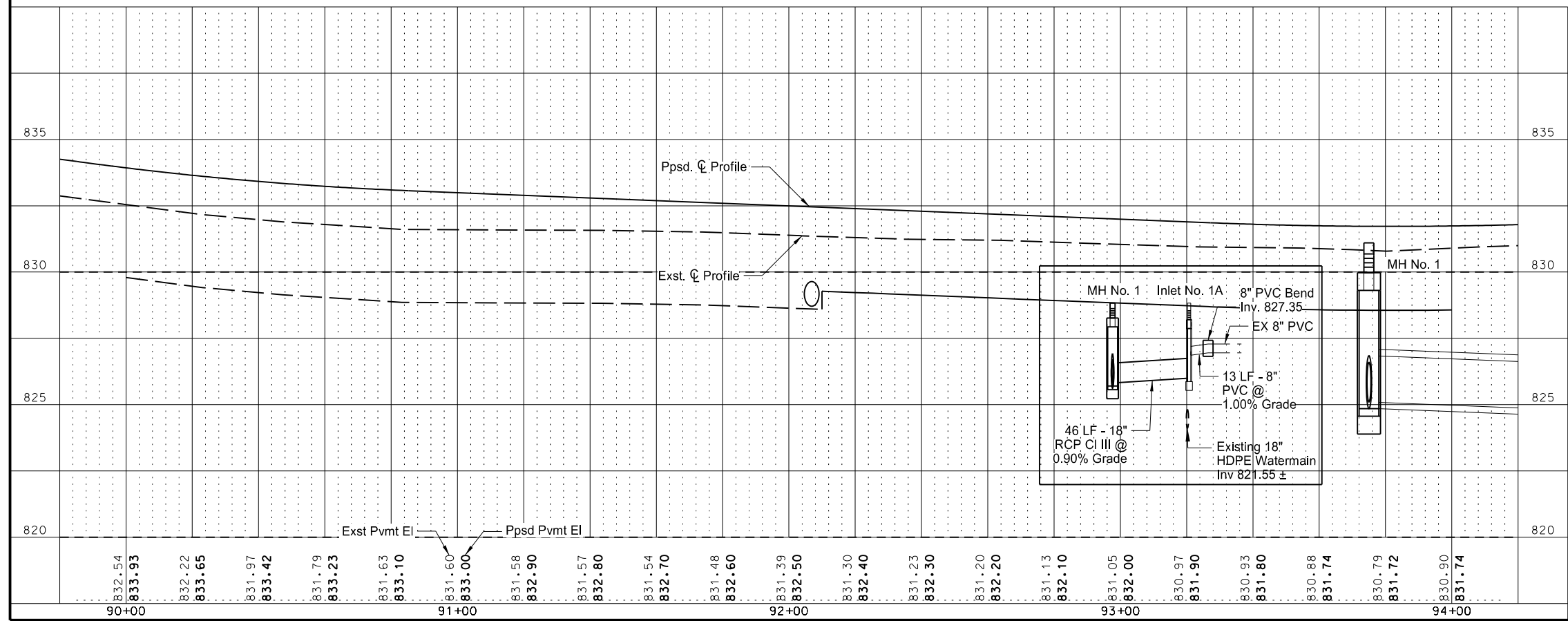
Storm Sewer & Watermain
Sta 86+00 to Sta 90+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	2



SPEC	CODE	BID ITEM	QTY	UNIT
714	0310	PIPE CONC REINF 18IN CL III		
		Sta 90+00 to Sta 94+00	46	LF
714	0400	PIPE CONC REINF 21IN CL III		
		Sta 90+00 to Sta 94+00	25	LF
714	7025	PIPE PVC 8IN		
		Sta 90+00 to Sta 94+00	13	LF
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN		
		Sta 90+00 to Sta 94+00	287	LF
722	0120	MANHOLE 72IN		
		Sta 90+00 to Sta 94+00	1	EA
722	1120	MANHOLE RISER 72IN		
		Sta 90+00 to Sta 94+00	4.7	LF
722	3520	INLET-TYPE 2 DOUBLE		
		Sta 90+00 to Sta 94+00	1	EA
724	0411	6IN HYDRANT		
		Sta 90+00 to Sta 94+00	1	EA
724	0430	REMOVE HYDRANT		
		Sta 90+00 to Sta 94+00	1	EA

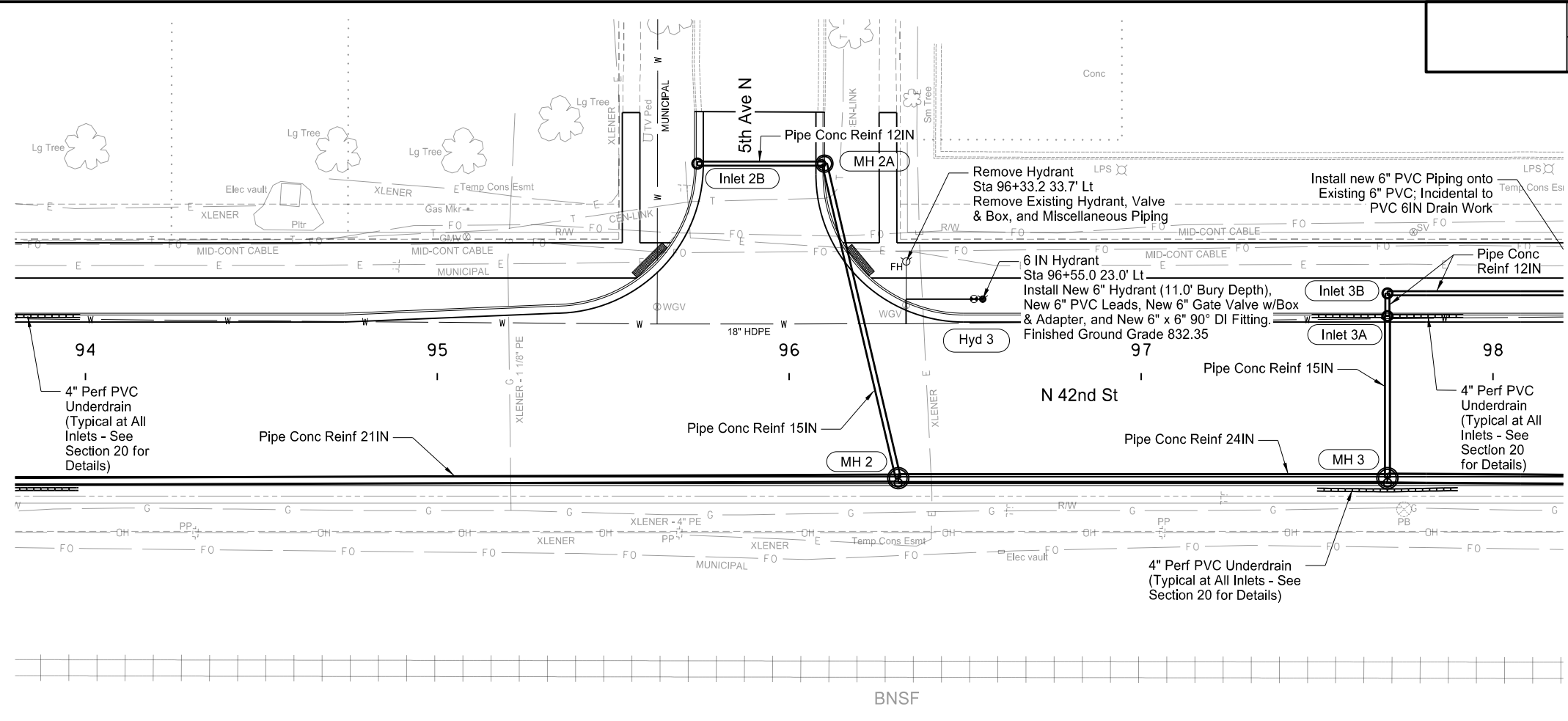


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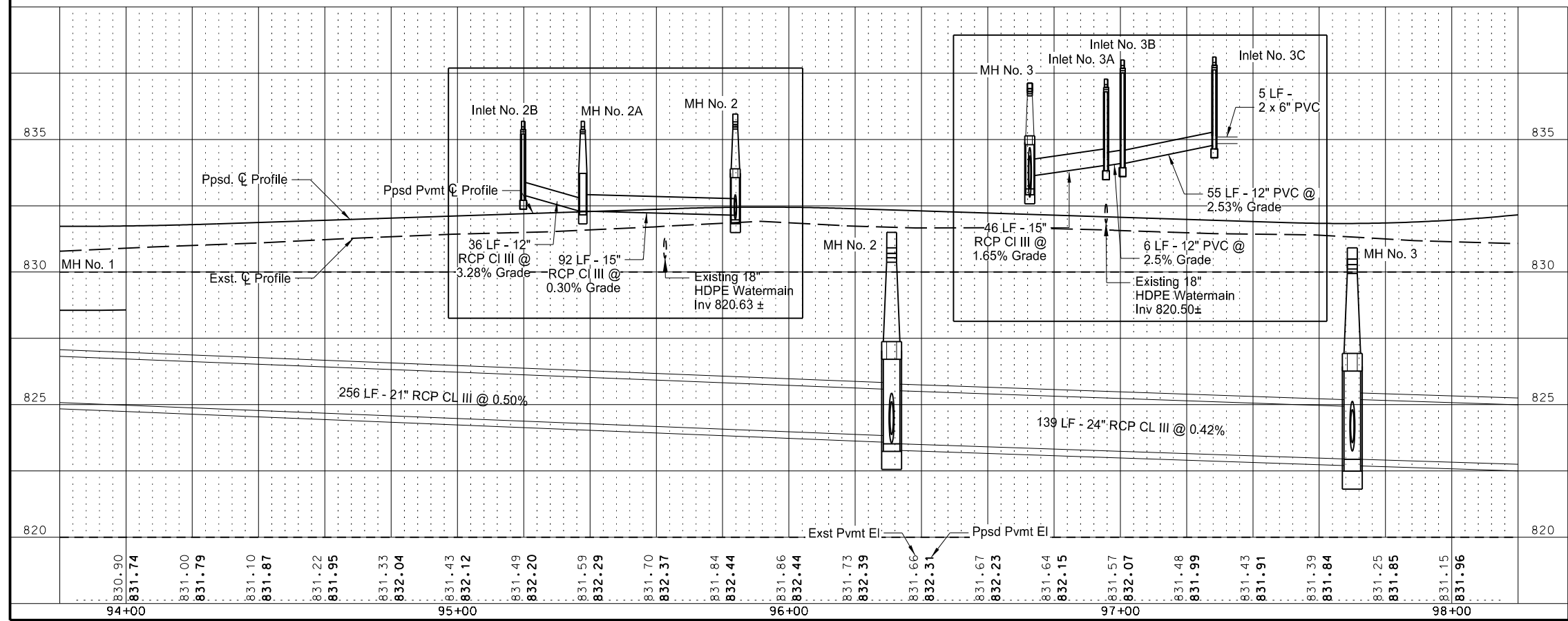
Storm Sewer & Watermain
Sta 90+00 to Sta 94+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	3



SPEC	CODE	BID ITEM	QTY	UNIT
714	0110	PIPE CONC REINF 12IN CL III Sta 94+00 to Sta 98+00	73	LF
714	0205	PIPE CONC REINF 15IN CL III Sta 94+00 to Sta 98+00	138	LF
714	0400	PIPE CONC REINF 21IN CL III Sta 94+00 to Sta 98+00	231	LF
714	0615	PIPE CONC REINF 24IN CL III Sta 94+00 to Sta 98+00	139	LF
714	0820	PIPE CONC REINF 30IN CL III Sta 94+00 to Sta 98+00	30	LF
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN Sta 94+00 to Sta 98+00	80	LF
722	0100	MANHOLE 48IN Sta 94+00 to Sta 98+00	1	EA
722	0110	MANHOLE 60IN Sta 94+00 to Sta 98+00	2	EA
722	1100	MANHOLE RISER 48IN Sta 94+00 to Sta 98+00	12.1	LF
722	1110	MANHOLE RISER 60IN Sta 94+00 to Sta 98+00	7.3	LF
722	3500	INLET-TYPE 1 Sta 94+00 to Sta 98+00	3	EA
724	0411	6IN HYDRANT Sta 94+00 to Sta 98+00	1	EA
724	0430	REMOVE HYDRANT Sta 94+00 to Sta 98+00	1	EA



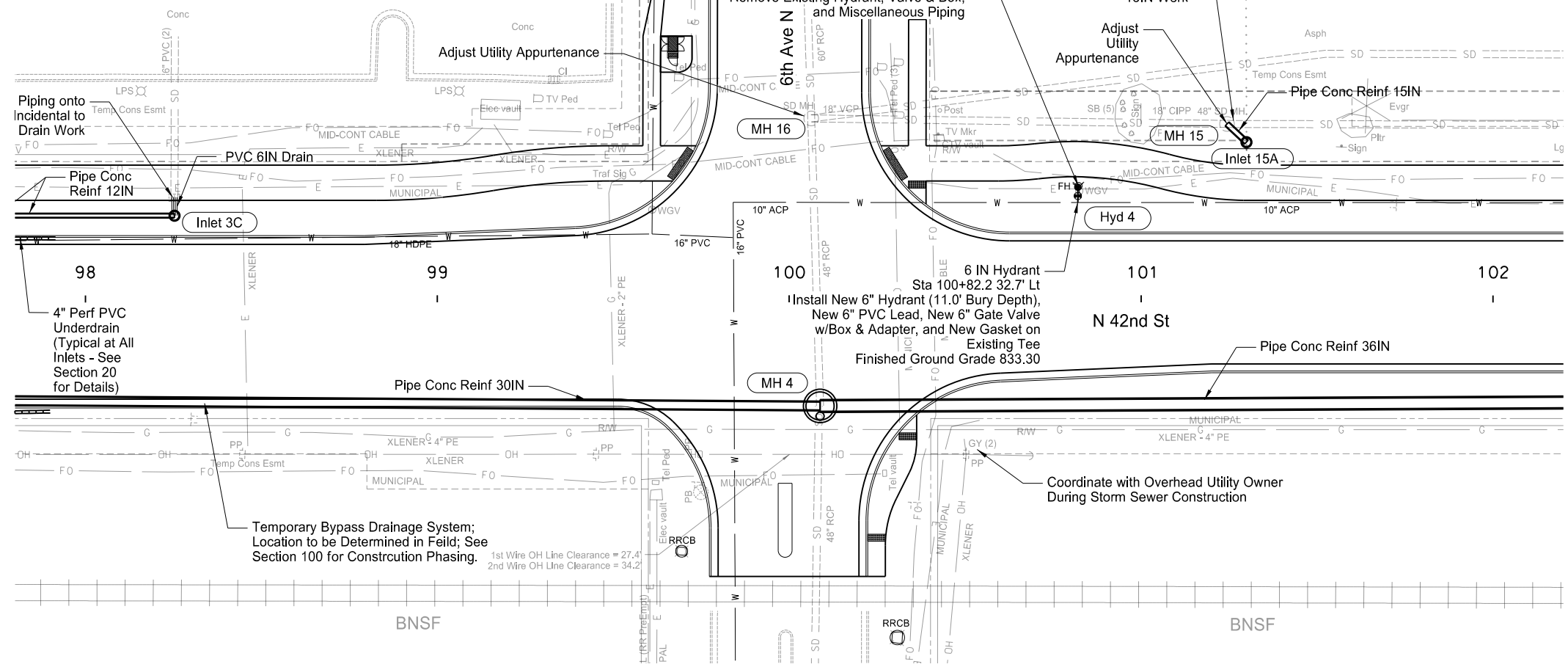
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Storm Sewer & Watermain
Sta 94+00 to Sta 98+00

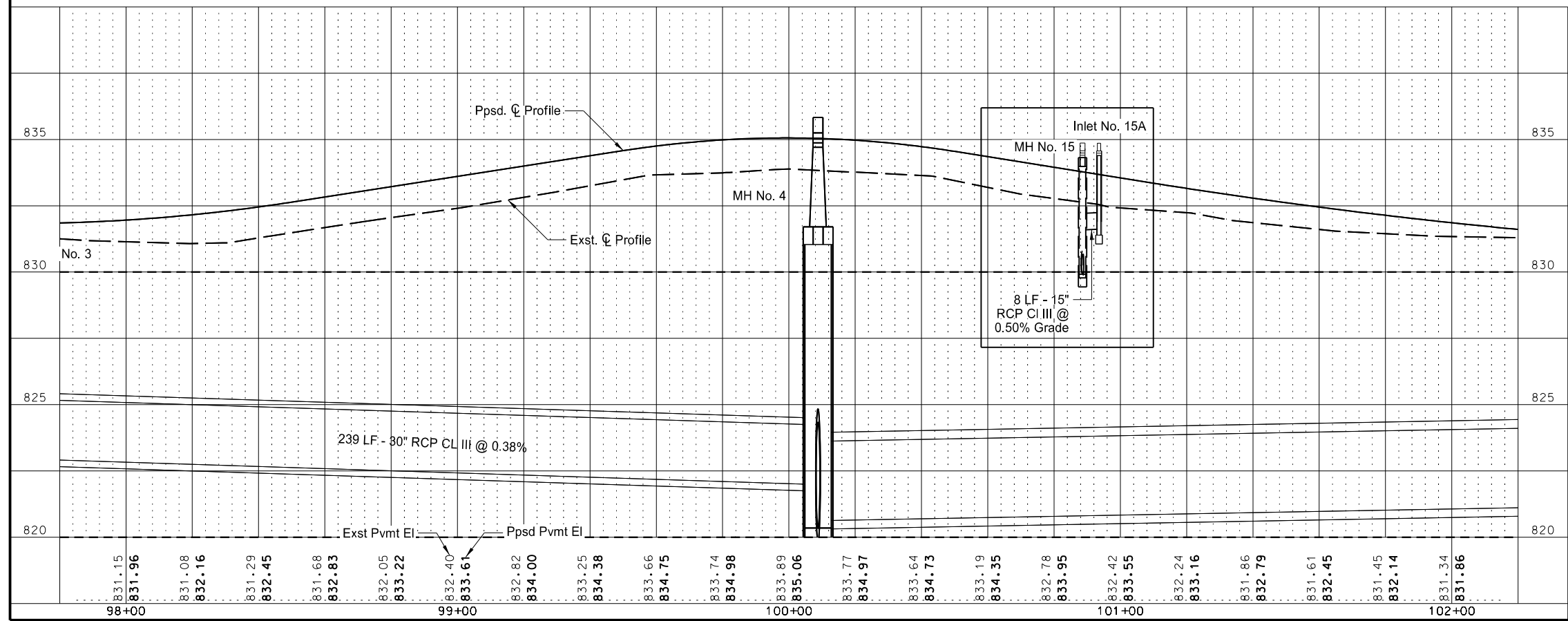
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	4

Sonoma Lofts



SPEC	CODE	BID ITEM	QTY	UNIT
710	0250	TEMPORARY BYPASS DRAINAGE SYSTEM		
		Sta 98+00 to Sta 102+00	1	EA
714	0110	PIPE CONC REINF 12IN CL III		
		Sta 98+00 to Sta 102+00	26	LF
714	0205	PIPE CONC REINF 15IN CL III		
		Sta 98+00 to Sta 102+00	8	LF
714	0820	PIPE CONC REINF 30IN CL III		
		Sta 98+00 to Sta 102+00	209	LF
714	0905	PIPE CONC REINF 36IN CL III		
		Sta 98+00 to Sta 102+00	191	LF
714	6590	PIPE PVC 6IN DRAIN		
		Sta 98+00 to Sta 102+00	10	LF
722	0140	MANHOLE 96IN		
		Sta 98+00 to Sta 102+00	1	EA
722	1100	MANHOLE RISER 48IN		
		Sta 98+00 to Sta 102+00	3.0	LF
722	1140	MANHOLE RISER 96IN		
		Sta 98+00 to Sta 102+00	11.2	LF
722	3500	INLET-TYPE 1		
		Sta 98+00 to Sta 102+00	1	EA
722	4000	INLET-CATCH BASIN-TYPE A		
		Sta 98+00 to Sta 102+00	1	EA
722	6240	ADJUST UTILITY APPURTENANCE		
		Sta 98+00 to Sta 102+00	2	EA
724	0411	6IN HYDRANT		
		Sta 98+00 to Sta 102+00	1	EA
724	0430	REMOVE HYDRANT		
		Sta 98+00 to Sta 102+00	1	EA



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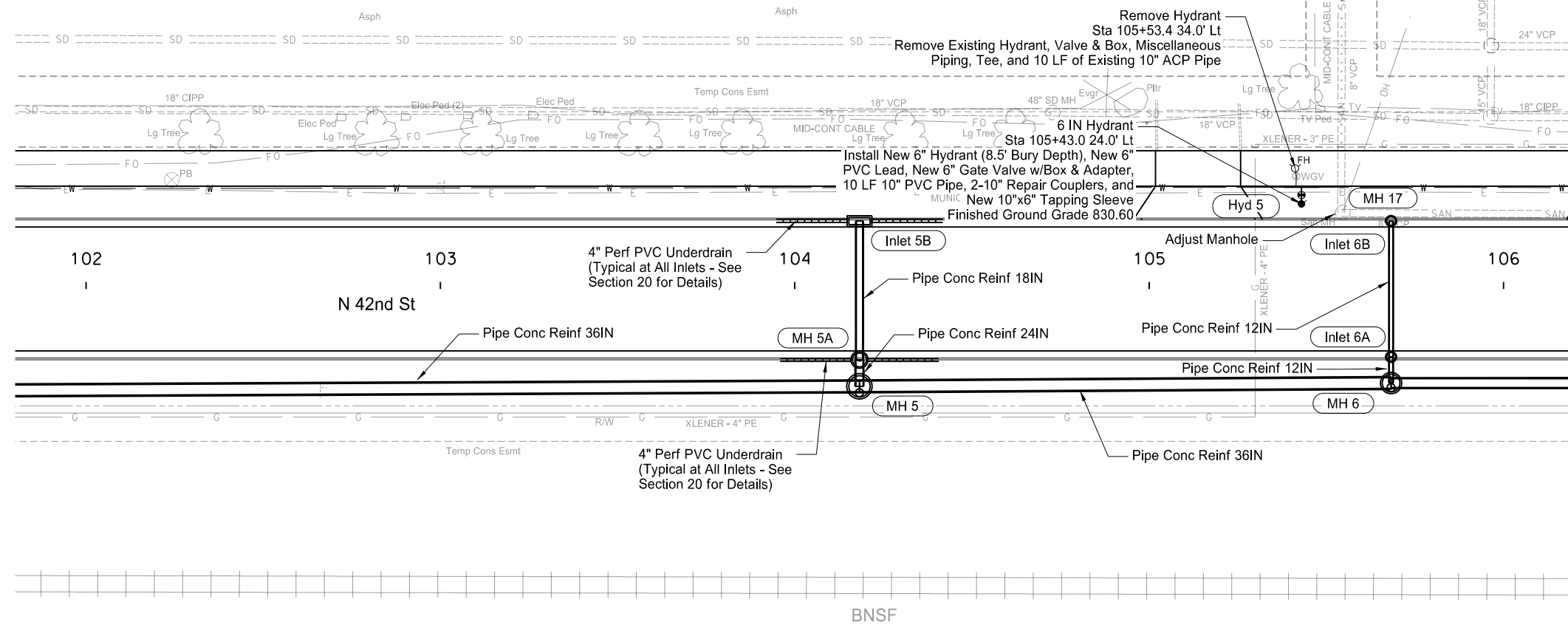
Storm Sewer & Watermain
Sta 98+00 to Sta 102+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

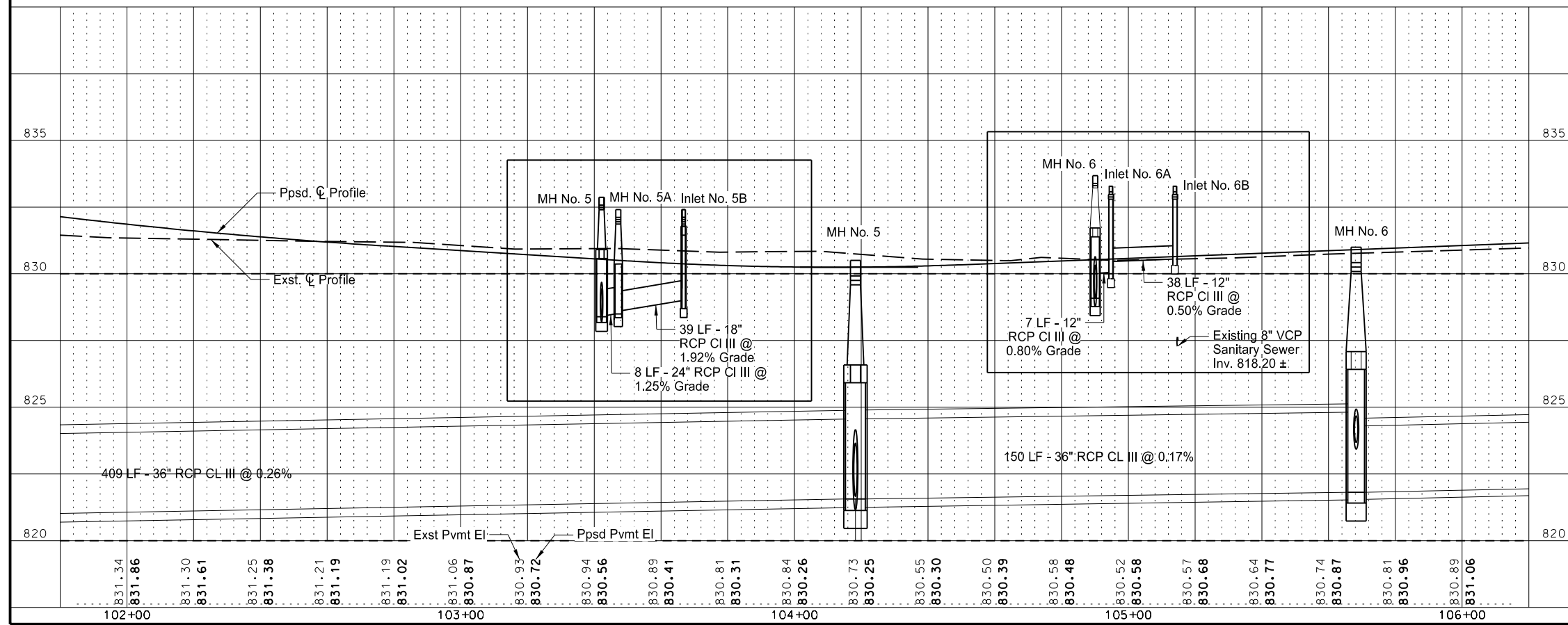
Bristol Park Apartments

Bristol Park Apartments

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	5



SPEC	CODE	BID ITEM	QTY	UNIT
714	0110	PIPE CONC REINF 12IN CL III		
		Sta 102+00 to Sta 106+00	46	LF
714	0310	PIPE CONC REINF 18IN CL III		
		Sta 102+00 to Sta 106+00	39	LF
714	0615	PIPE CONC REINF 24IN CL III		
		Sta 102+00 to Sta 106+00	8	LF
714	0820	PIPE CONC REINF 30IN CL III		
		Sta 102+00 to Sta 106+00	32	LF
714	0905	PIPE CONC REINF 36IN CL III		
		Sta 102+00 to Sta 106+00	368	LF
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN		
		Sta 102+00 to Sta 106+00	80	LF
722	0100	MANHOLE 48IN		
		Sta 102+00 to Sta 106+00	1	EA
722	0110	MANHOLE 60IN		
		Sta 102+00 to Sta 106+00	1	EA
722	120	MANHOLE 72IN		
		Sta 102+00 to Sta 106+00	1	EA
722	1100	MANHOLE RISER 48IN		
		Sta 102+00 to Sta 106+00	13.2	LF
722	1110	MANHOLE RISER 60IN		
		Sta 102+00 to Sta 106+00	5.0	LF
722	1120	MANHOLE RISER 72IN		
		Sta 102+00 to Sta 106+00	5.0	LF
722	3500	INLET-TYPE 1		
		Sta 102+00 to Sta 106+00	2	EA
722	3520	INLET-TYPE 2 DOUBLE		
		Sta 102+00 to Sta 106+00	1	EA
722	6200	ADJUST MANHOLE		
		Sta 102+00 to Sta 106+00	1	EA
724	0411	6IN HYDRANT		
		Sta 102+00 to Sta 106+00	1	EA
724	0430	REMOVE HYDRANT		
		Sta 102+00 to Sta 106+00	1	EA



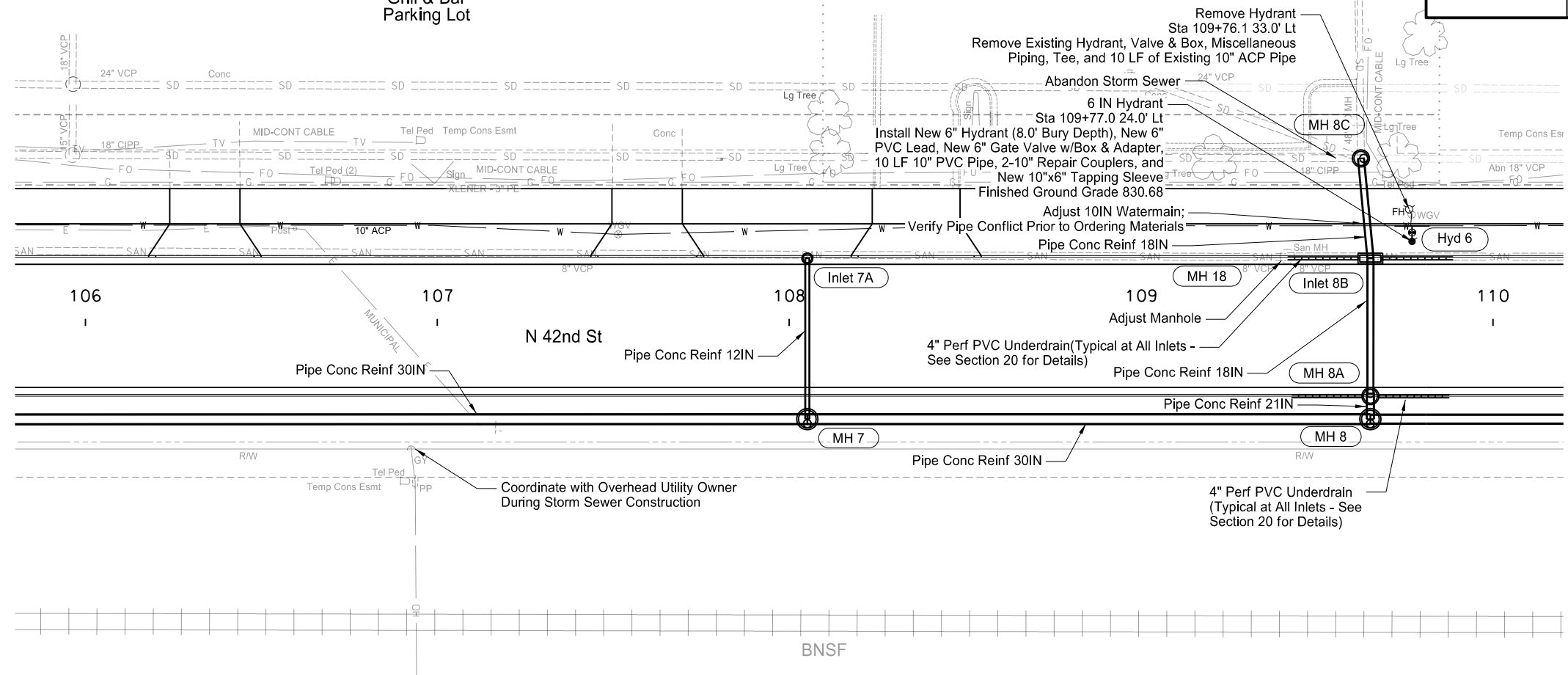
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Storm Sewer & Watermain
Sta 102+00 to Sta 106+00

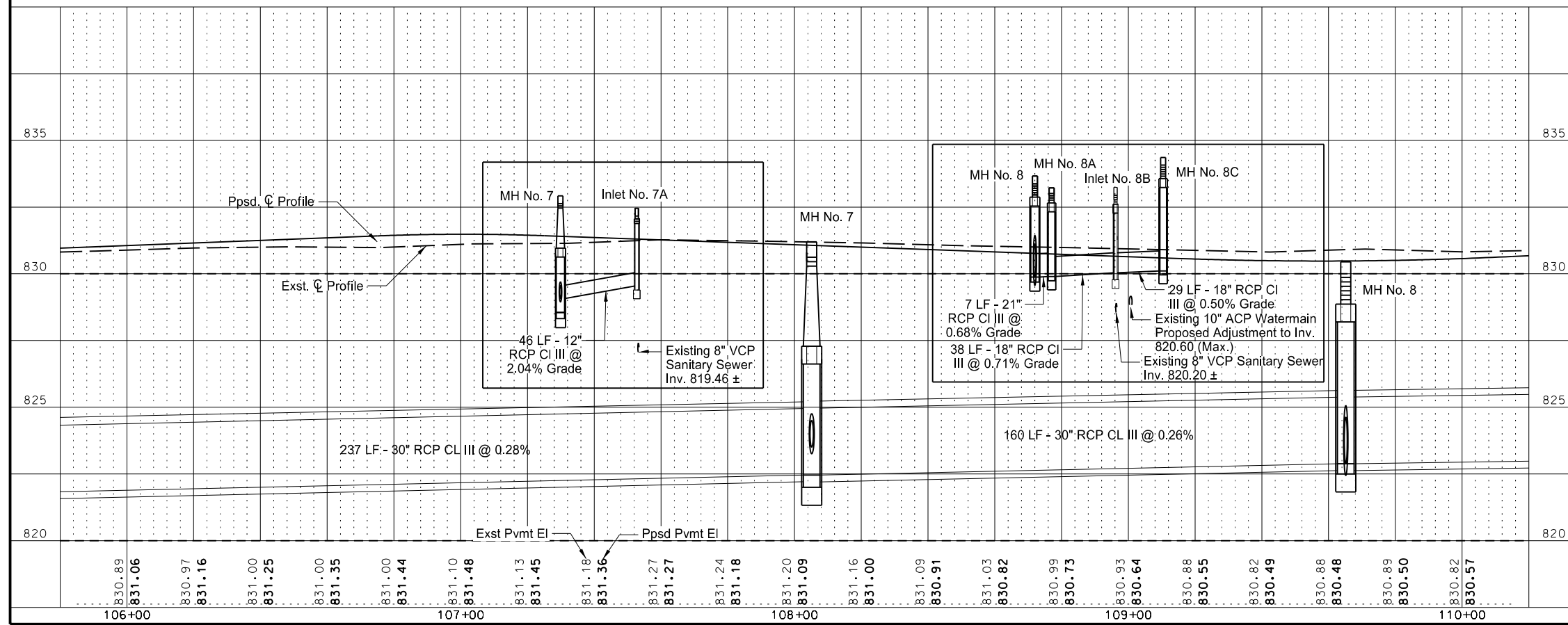
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

Speedway Grill & Bar Parking Lot

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	6



SPEC	CODE	BID ITEM	QTY	UNIT
714	0110	PIPE CONC REINF 12IN CL III Sta 106+00 to Sta 110+00	46	LF
714	0310	PIPE CONC REINF 18IN CL III Sta 106+00 to Sta 110+00	67	LF
714	0400	PIPE CONC REINF 21IN CL III Sta 106+00 to Sta 110+00	7	LF
714	0820	PIPE CONC REINF 30IN CL III Sta 106+00 to Sta 110+00	400	LF
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN Sta 106+00 to Sta 110+00	80	LF
722	0100	MANHOLE 48IN Sta 106+00 to Sta 110+00	2	EA
722	0110	MANHOLE 60IN Sta 106+00 to Sta 110+00	2	EA
722	1100	MANHOLE RISER 48IN Sta 106+00 to Sta 110+00	17.1	LF
722	1110	MANHOLE RISER 60IN Sta 106+00 to Sta 110+00	10.7	LF
722	3500	INLET-TYPE 1 Sta 106+00 to Sta 110+00	1	EA
722	3520	INLET-TYPE 2 DOUBLE Sta 106+00 to Sta 110+00	1	EA
722	6200	ADJUST MANHOLE Sta 106+00 to Sta 110+00	1	EA
722	6256	ADJUST 10IN WATERMAIN Sta 106+00 to Sta 110+00	1	EA
724	0411	6IN HYDRANT Sta 106+00 to Sta 110+00	1	EA
724	0430	REMOVE HYDRANT Sta 106+00 to Sta 110+00	1	EA

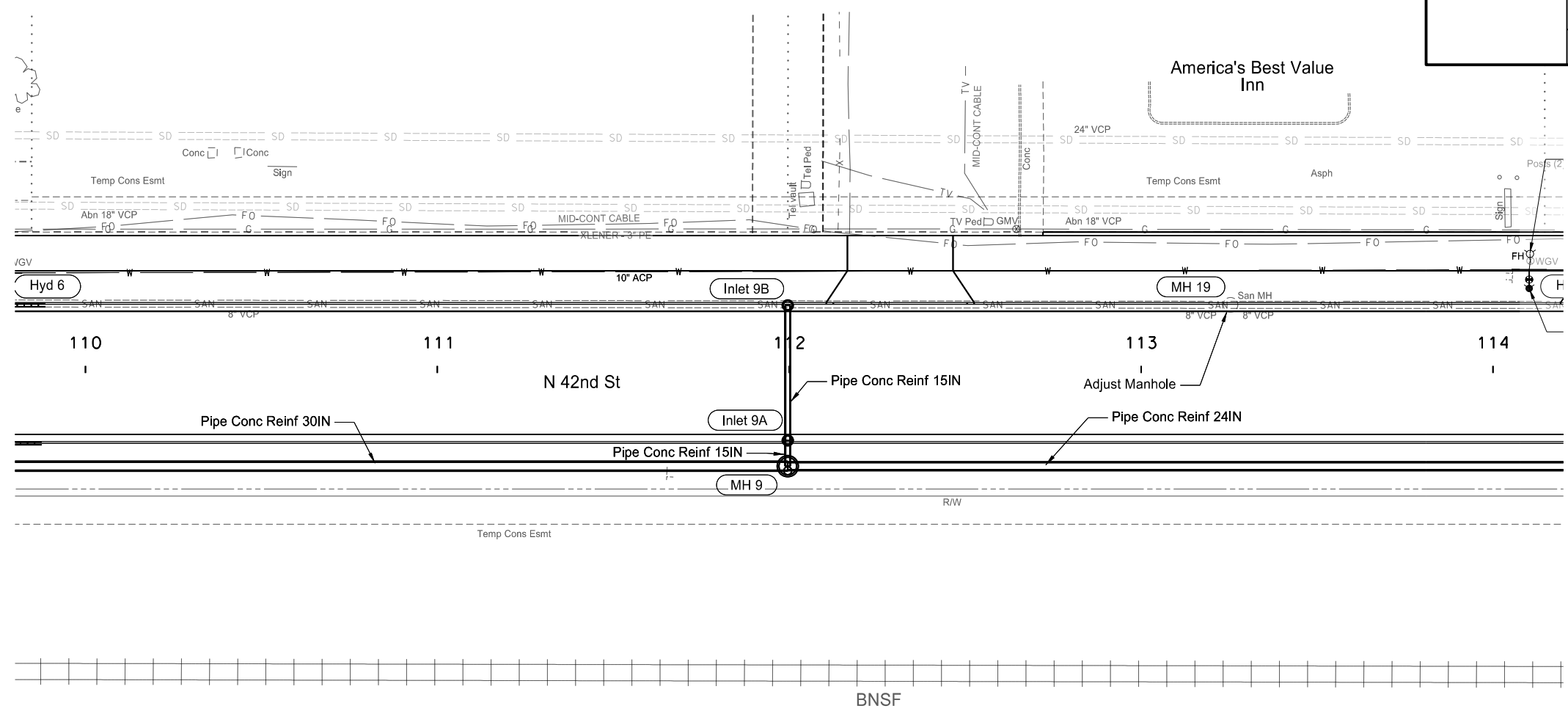


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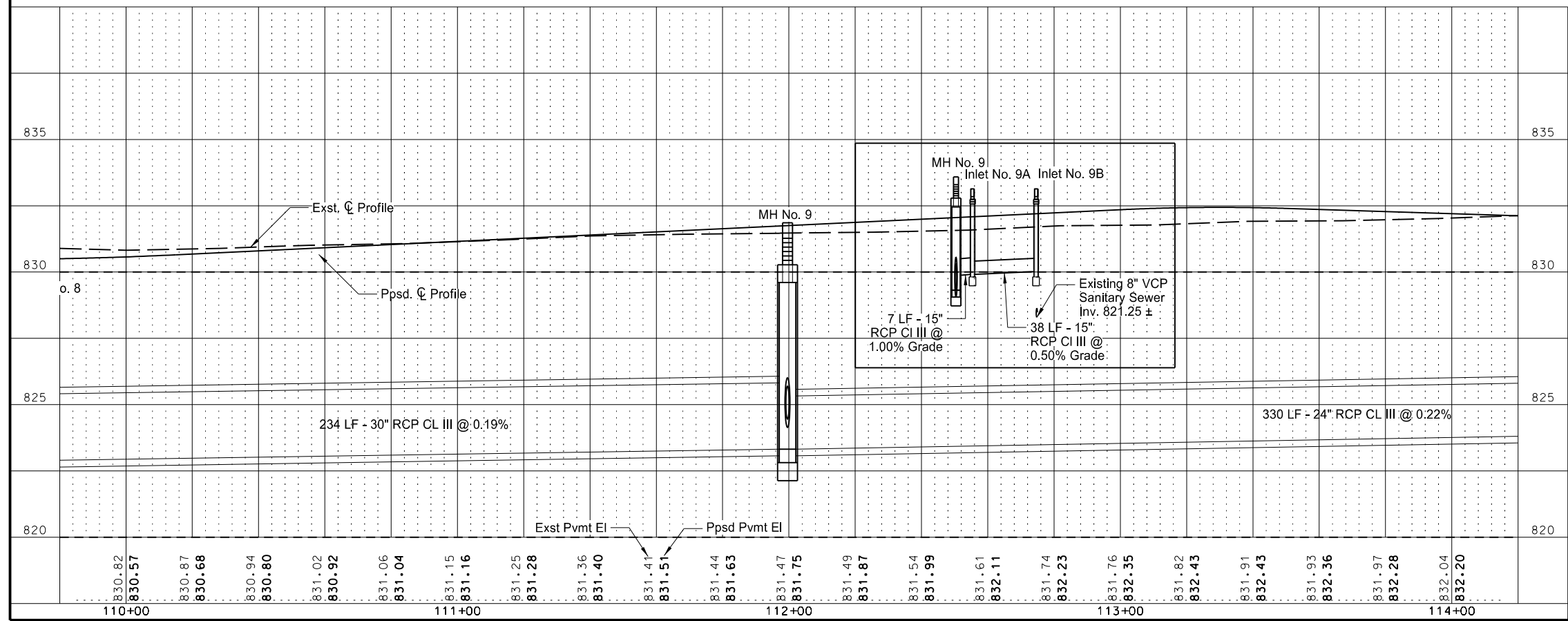
Storm Sewer & Watermain
Sta 106+00 to Sta 110+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	7



SPEC	CODE	BID ITEM	QTY	UNIT
714	0205	PIPE CONC REINF 15IN CL III Sta 110+00 to Sta 114+00	46	LF
714	0615	PIPE CONC REINF 24IN CL III Sta 110+00 to Sta 114+00	200	LF
714	0820	PIPE CONC REINF 30IN CL III Sta 110+00 to Sta 114+00	200	LF
722	0110	MANHOLE 60IN Sta 110+00 to Sta 114+00	1	EA
722	1110	MANHOLE RISER 60IN Sta 110+00 to Sta 114+00	7.0	LF
722	3500	INLET-TYPE 1 Sta 110+00 to Sta 114+00	2	EA
722	6200	ADJUST MANHOLE Sta 110+00 to Sta 114+00	1	EA

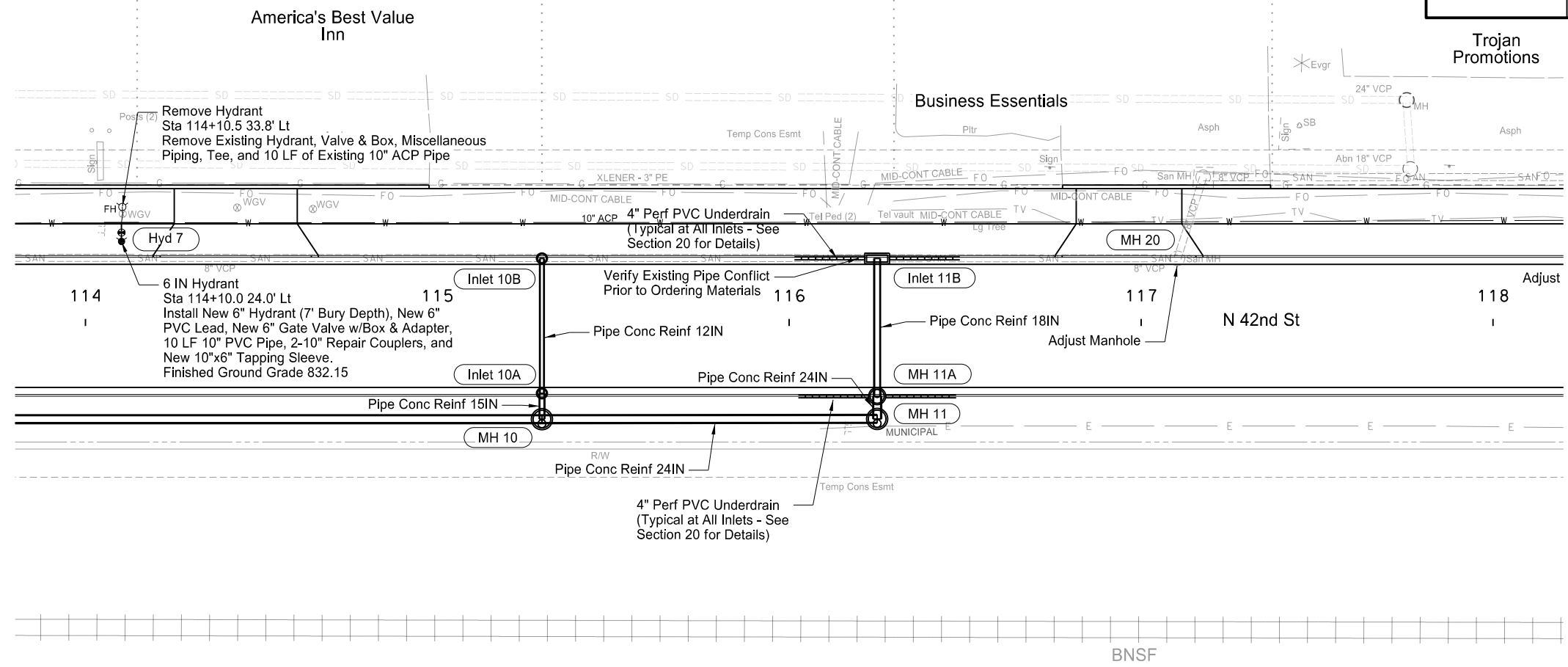


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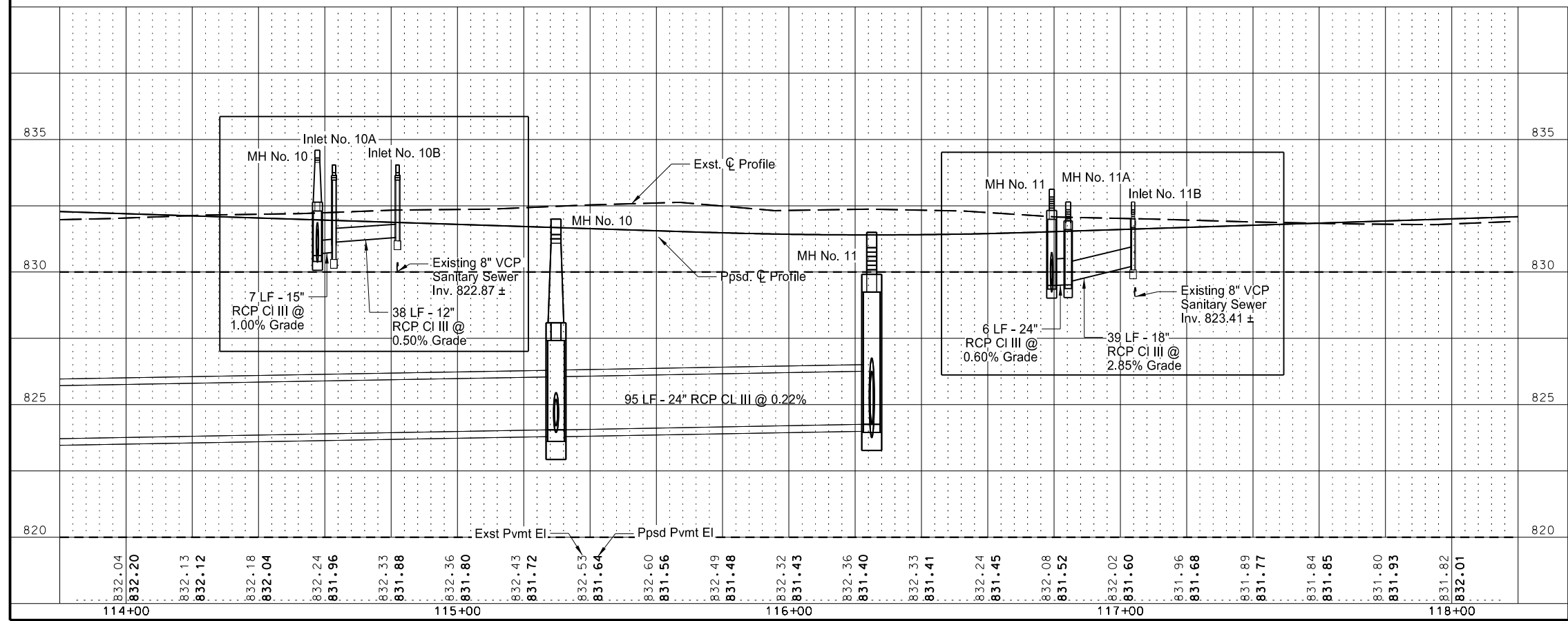
Storm Sewer & Watermain
Sta 110+00 to Sta 114+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	8



SPEC	CODE	BID ITEM	QTY	UNIT
714	0110	PIPE CONC REINF 12IN CL III Sta 114+00 to Sta 118+00	38	LF
714	0205	PIPE CONC REINF 15IN CL III Sta 114+00 to Sta 118+00	7	LF
714	0310	PIPE CONC REINF 18IN CL III Sta 114+00 to Sta 118+00	39	LF
714	0615	PIPE CONC REINF 24IN CL III Sta 114+00 to Sta 118+00	231	LF
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN Sta 114+00 to Sta 118+00	80	LF
722	0100	MANHOLE 48IN Sta 114+00 to Sta 118+00	1	EA
722	0110	MANHOLE 60IN Sta 114+00 to Sta 118+00	2	EA
722	1100	MANHOLE RISER 48IN Sta 114+00 to Sta 118+00	8.6	LF
722	1110	MANHOLE RISER 60IN Sta 114+00 to Sta 118+00	9.4	LF
722	3500	INLET-TYPE 1 Sta 114+00 to Sta 118+00	2	EA
722	3520	INLET-TYPE 2 DOUBLE Sta 114+00 to Sta 118+00	1	EA
722	6200	ADJUST MANHOLE Sta 114+00 to Sta 118+00	1	EA
724	0411	6IN HYDRANT Sta 114+00 to Sta 118+00	1	EA
724	0430	REMOVE HYDRANT Sta 114+00 to Sta 118+00	1	EA

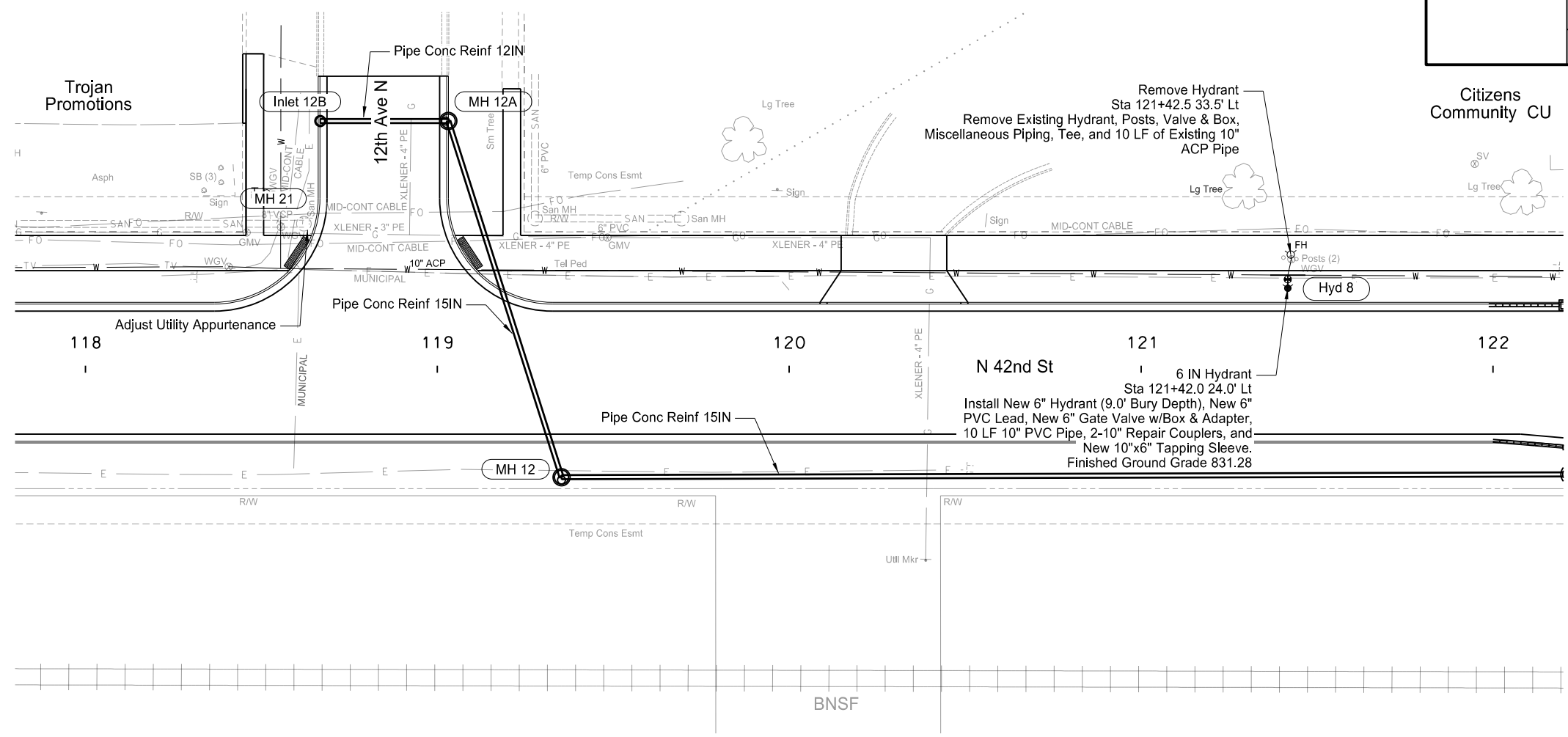


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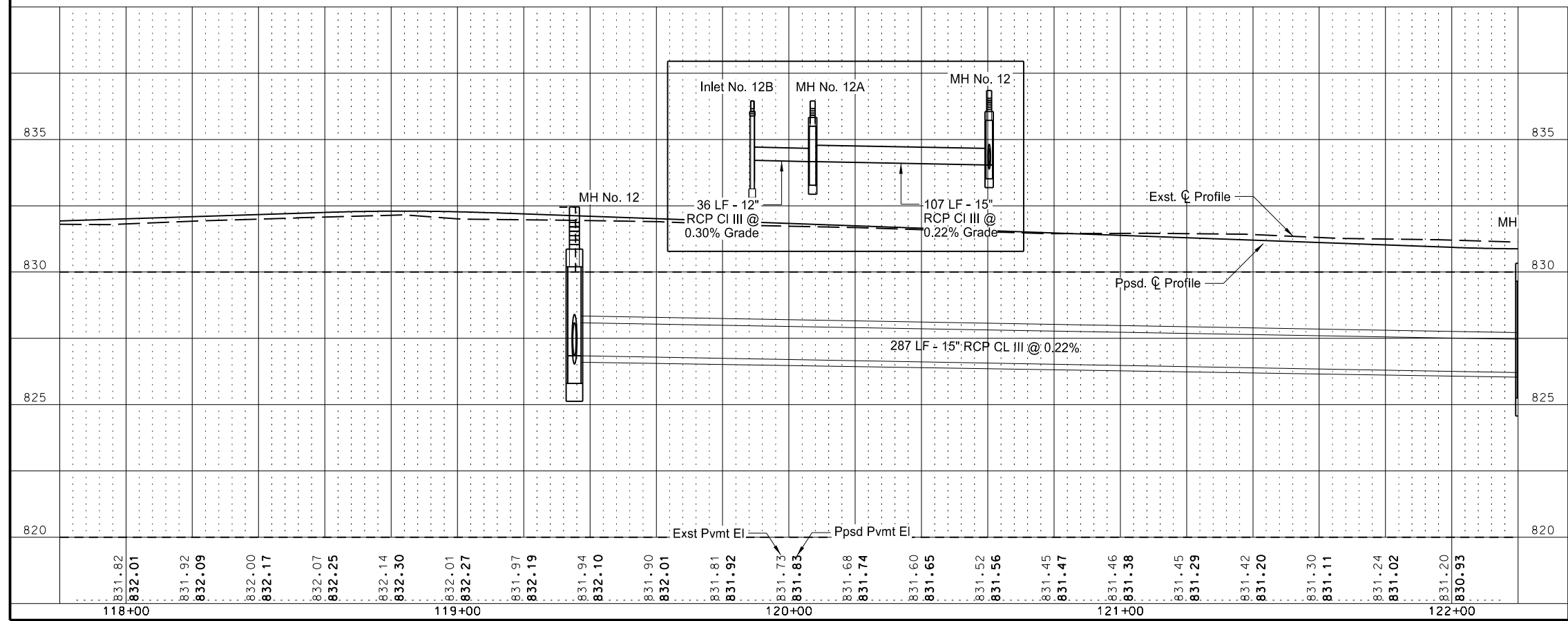
Storm Sewer & Watermain
Sta 114+00 to Sta 118+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	9



SPEC	CODE	BID ITEM	QTY	UNIT
714	0110	PIPE CONC REINF 12IN CL III		
		Sta 118+00 to Sta 122+00	36	LF
714	0205	PIPE CONC REINF 15IN CL III		
		Sta 118+00 to Sta 122+00	371	LF
722	0100	MANHOLE 48IN		
		Sta 118+00 to Sta 122+00	2	EA
722	1100	MANHOLE RISER 48IN		
		Sta 118+00 to Sta 122+00	9.2	LF
722	3500	INLET-TYPE 1		
		Sta 118+00 to Sta 122+00	1	EA
722	6240	ADJUST UTILITY APPURTENANCE		
		Sta 118+00 to Sta 122+00	1	EA
724	0411	6IN HYDRANT		
		Sta 118+00 to Sta 122+00	1	EA
724	0430	REMOVE HYDRANT		
		Sta 118+00 to Sta 122+00	1	EA



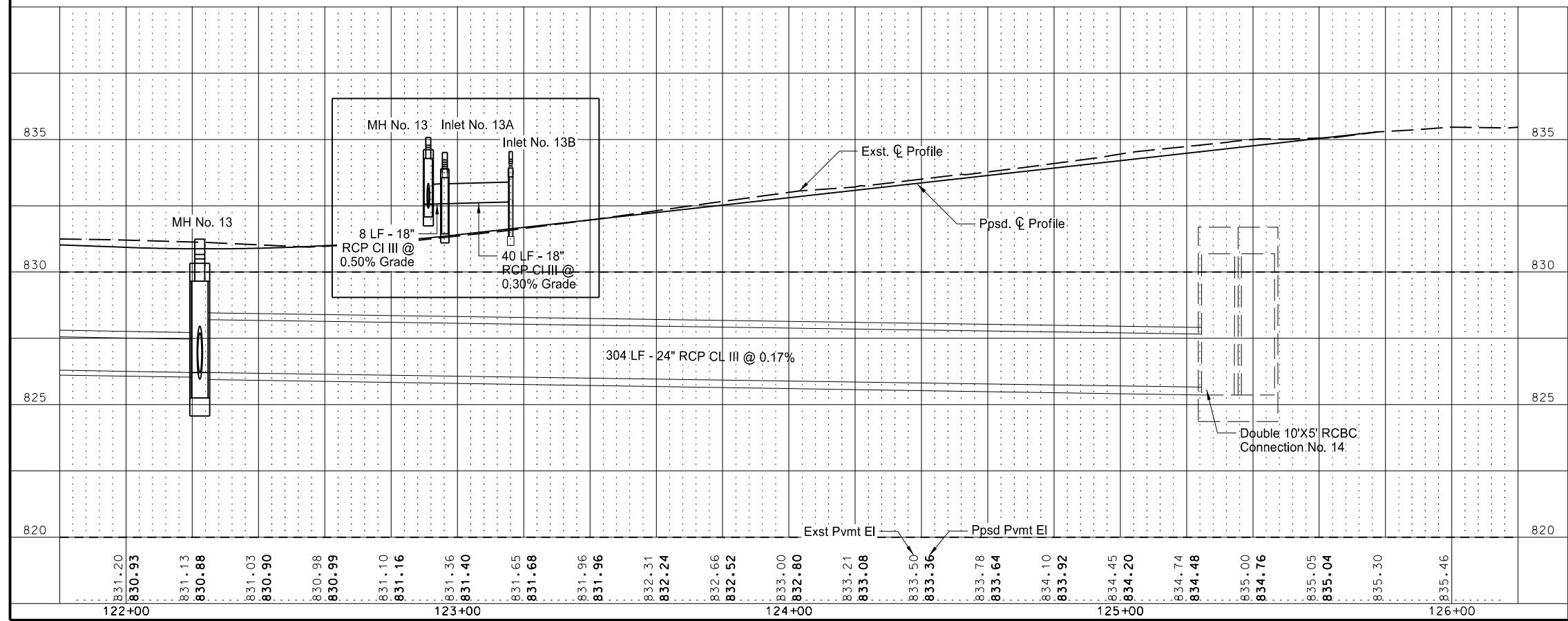
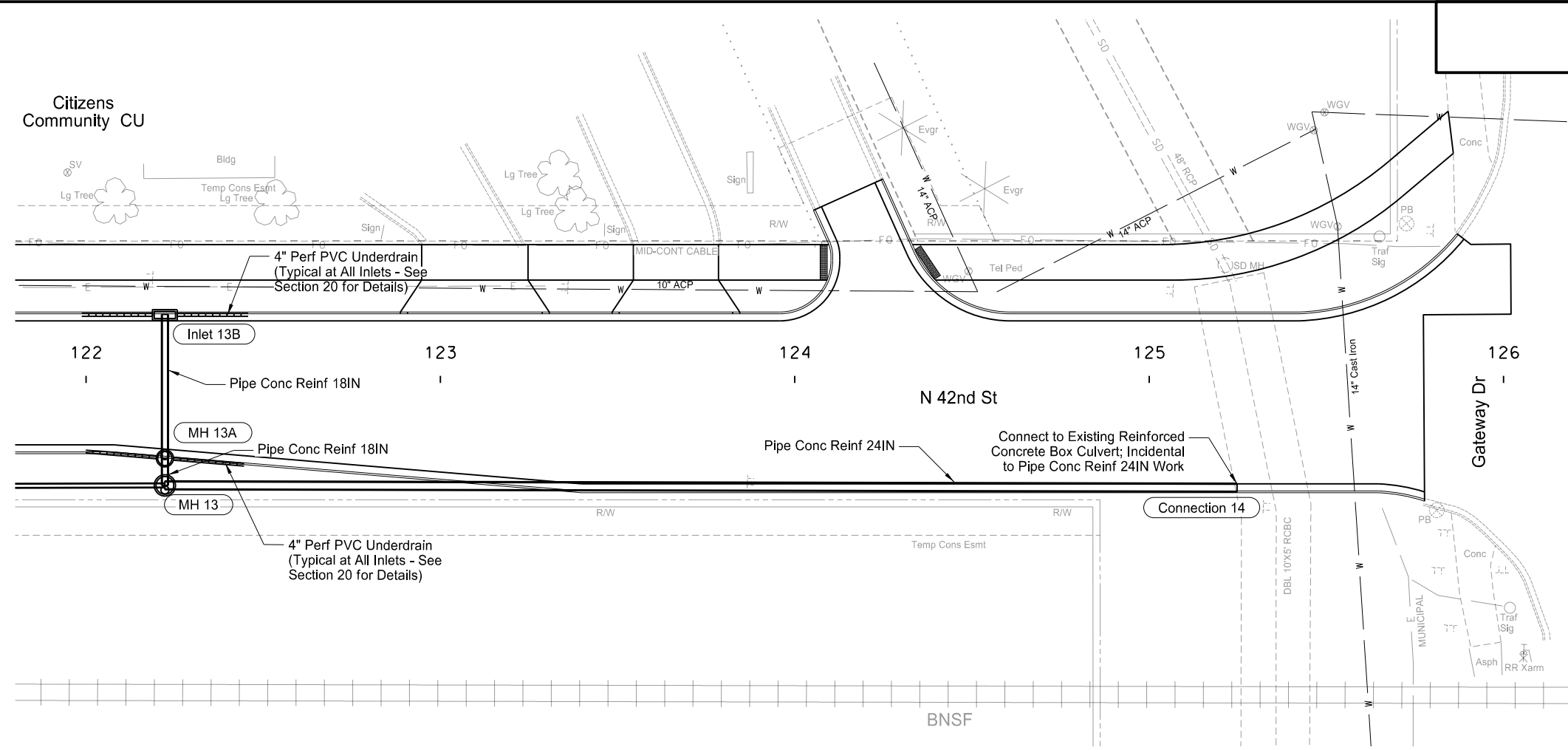
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Storm Sewer & Watermain
Sta 118+00 to Sta 122+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	55	10

SPEC	CODE	BID ITEM	QTY	UNIT
714	0205	PIPE CONC REINF 15IN CL III Sta 122+00 to Sta 126+00	22	LF
714	0310	PIPE CONC REINF 18IN CL III Sta 122+00 to Sta 126+00	48	LF
714	0615	PIPE CONC REINF 24IN CL III Sta 122+00 to Sta 126+00	303	LF
714	9720	UNDERDRAIN PIPE PVC PERFORATED 4IN Sta 114+00 to Sta 118+00	80	LF
722	0100	MANHOLE 48IN Sta 122+00 to Sta 126+00	1	EA
722	0110	MANHOLE 60IN Sta 122+00 to Sta 126+00	1	EA
722	1100	MANHOLE RISER 48IN Sta 122+00 to Sta 126+00	5.0	LF
722	1110	MANHOLE RISER 60IN Sta 122+00 to Sta 126+00	4.0	LF
722	3520	INLET-TYPE 2 DOUBLE Sta 122+00 to Sta 126+00	1	EA

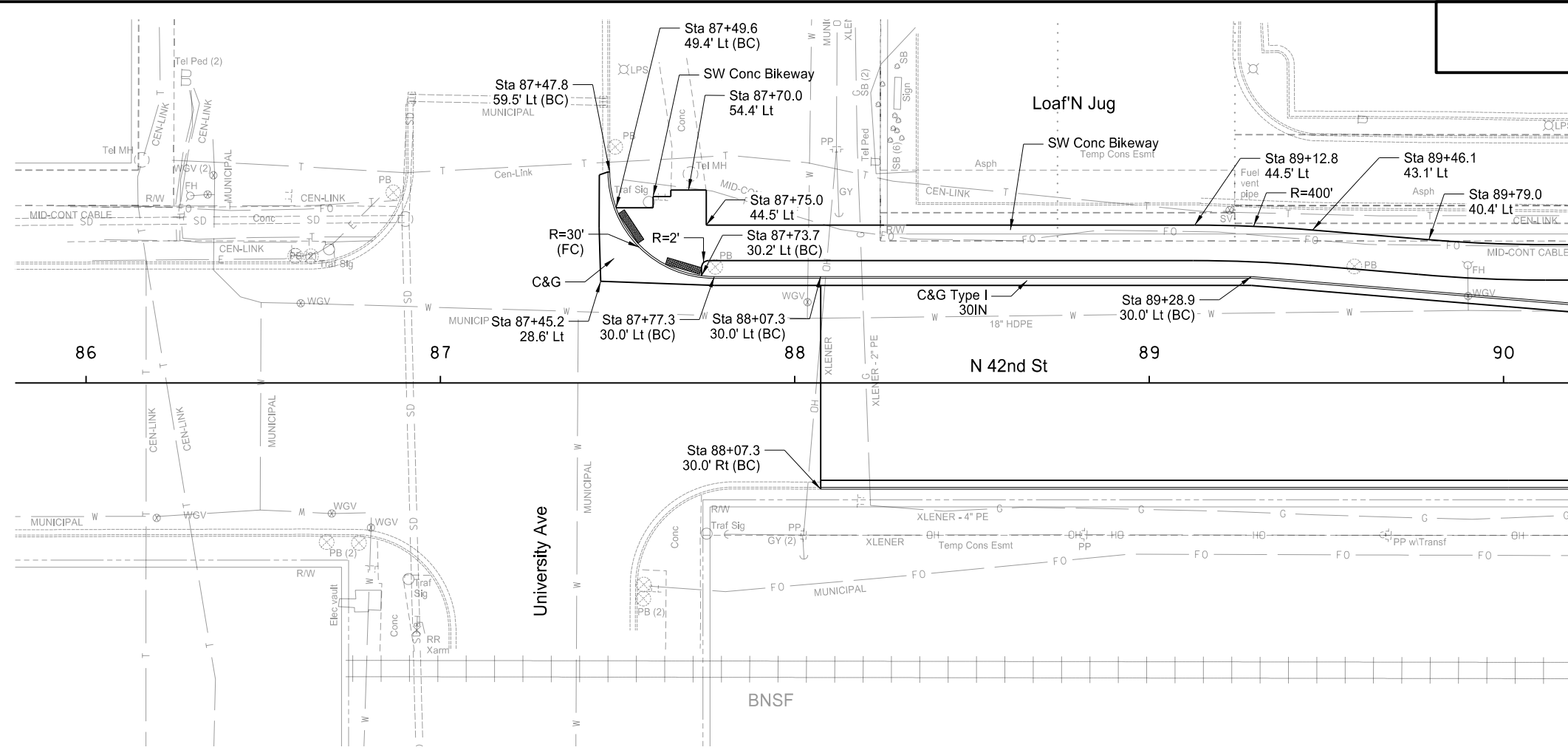


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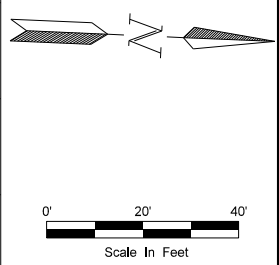
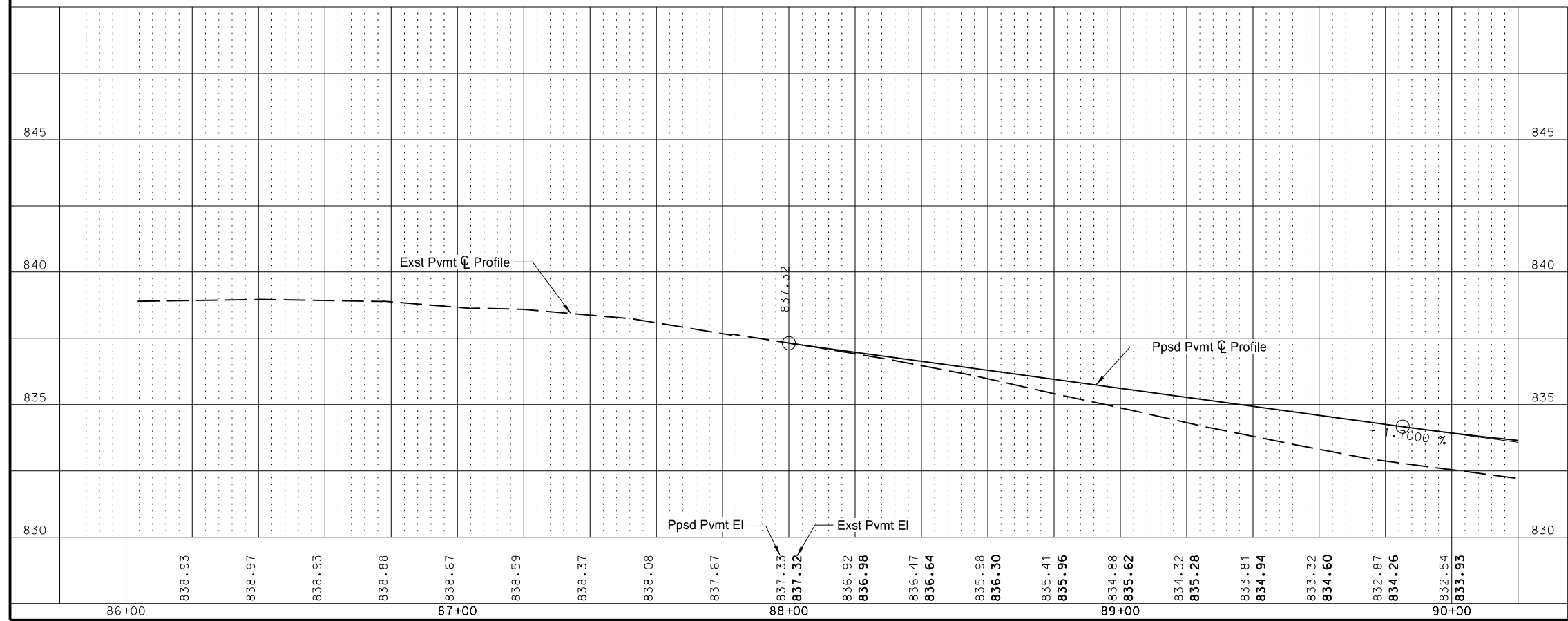
Storm Sewer & Watermain
Sta 122+00 to Sta 126+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	1



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 86+00 to Sta 90+00	371	CY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 86+00 to Sta 90+00	11	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 86+00 to Sta 90+00	1143	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 90+00 to Sta 94+00	351	SY
748 0100	CURB & GUTTER		
	Sta 86+00 to Sta 90+00	47	LF
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 86+00 to Sta 90+00	416	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 86+00 to Sta 90+00	296	SY
750 2115	DETECTABLE WARNING PANELS		
	Sta 86+00 to Sta 90+00	40	SF

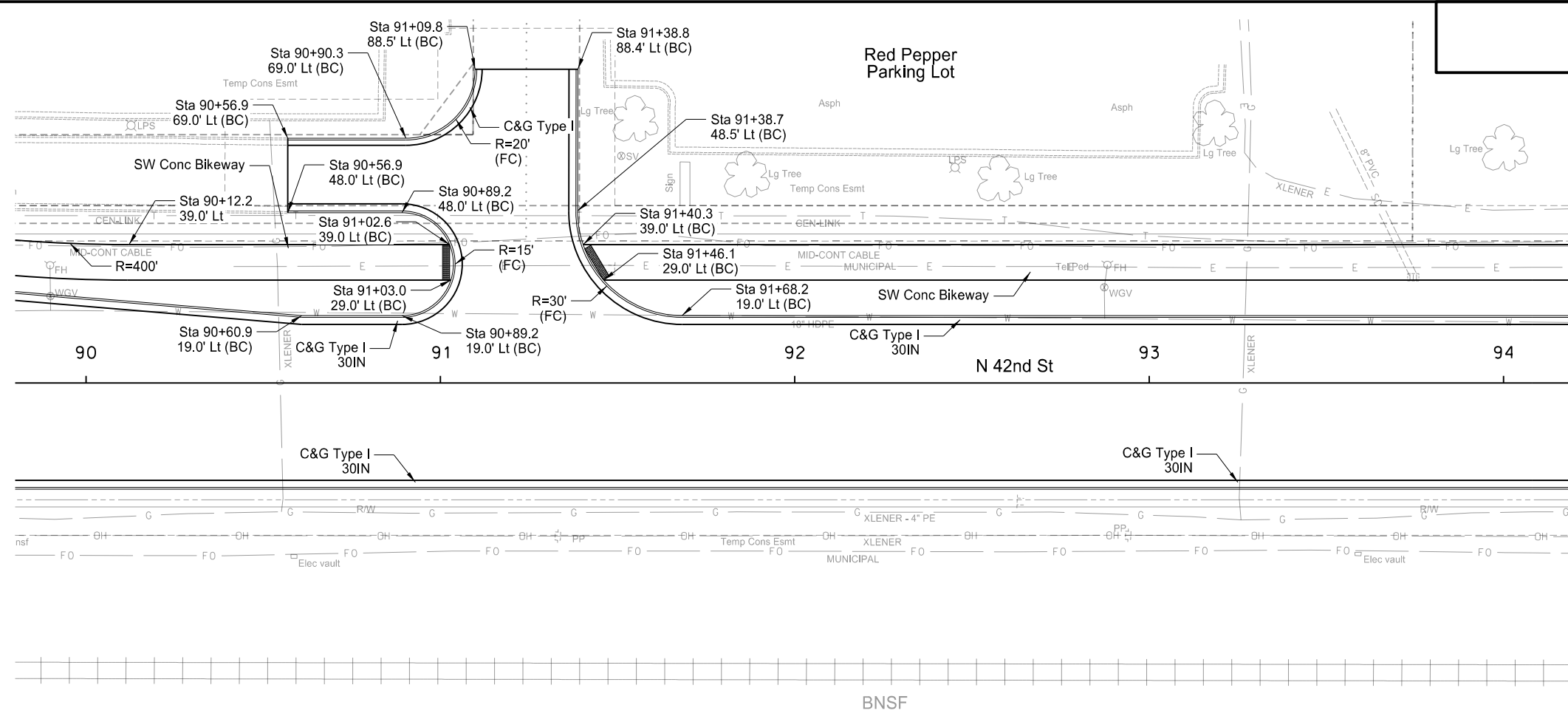


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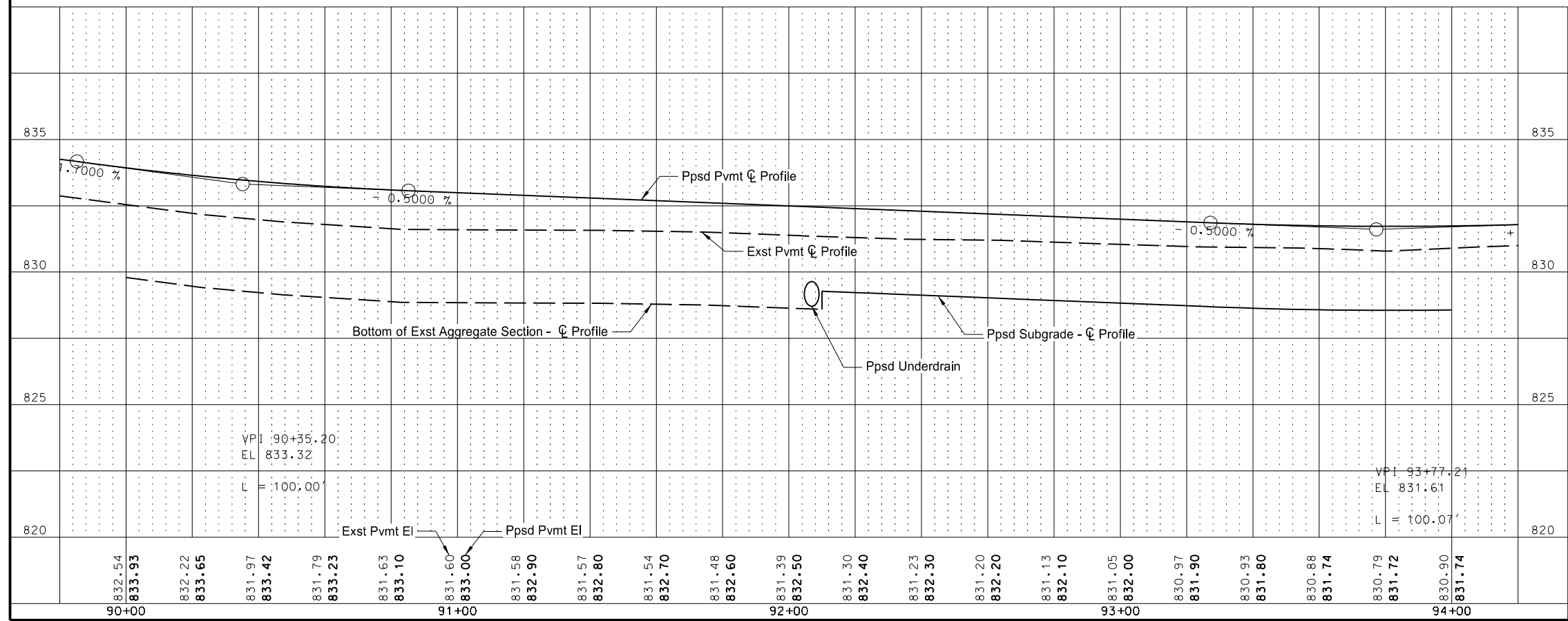
Plan & Profile
Sta 86+00 to Sta 90+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	2



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 90+00 to Sta 94+00	1110	CY
302 0114	AGGREGATE BASE COURSE CL 3		
	Sta 90+00 to Sta 94+00	539	CY
550 0112	8IN NON-REINF CONCRETE PAVEMENT CI AE		
	Sta 90+00 to Sta 94+00	363	SY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 90+00 to Sta 94+00	197	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 90+00 to Sta 94+00	1779	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 90+00 to Sta 94+00	1913	SY
748 0140	CURB & GUTTER - TYPE I		
	Sta 90+00 to Sta 94+00	65	LF
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 90+00 to Sta 94+00	888	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 90+00 to Sta 94+00	401	SY
750 2115	DETECTABLE WARNING PANELS		
	Sta 90+00 to Sta 94+00	40	SF



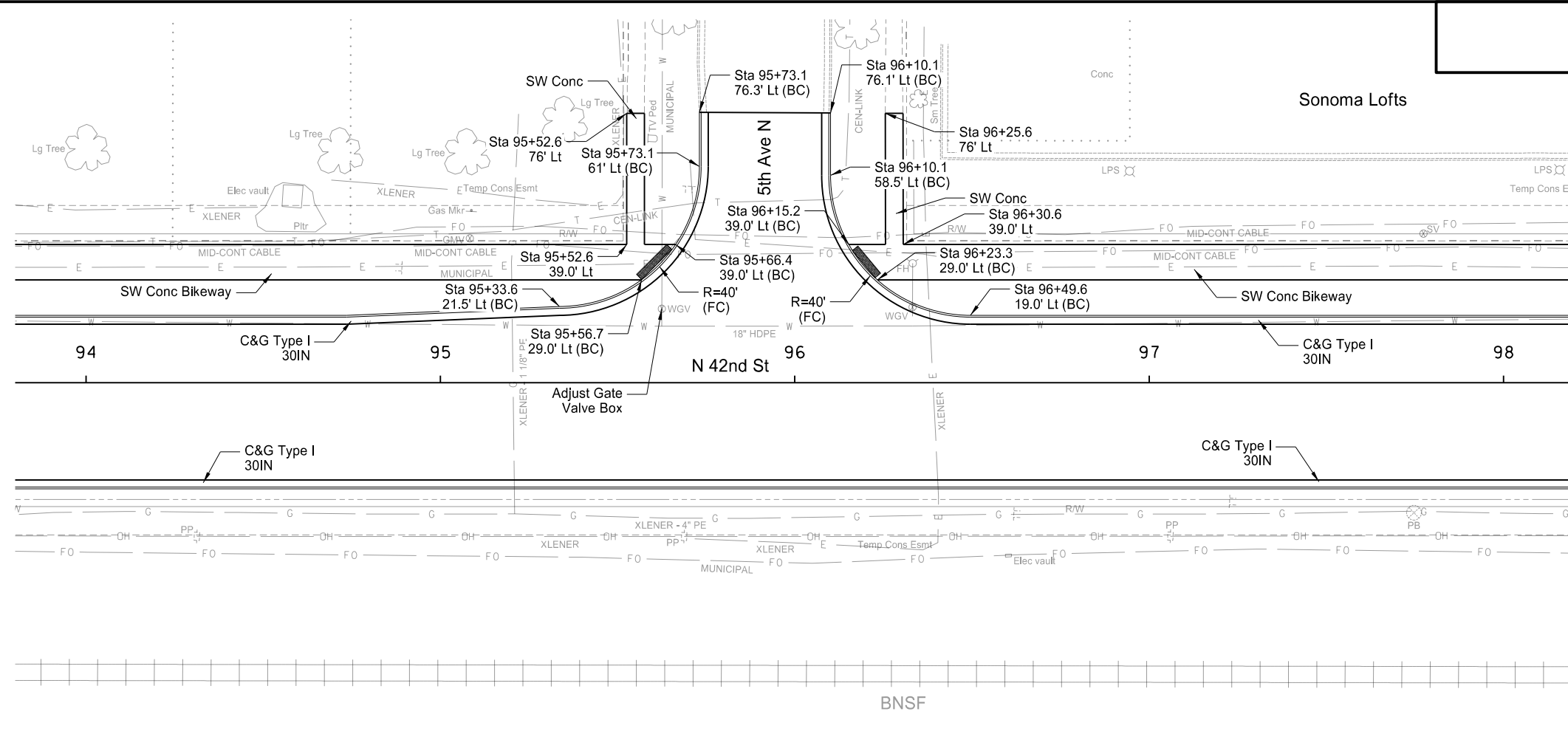
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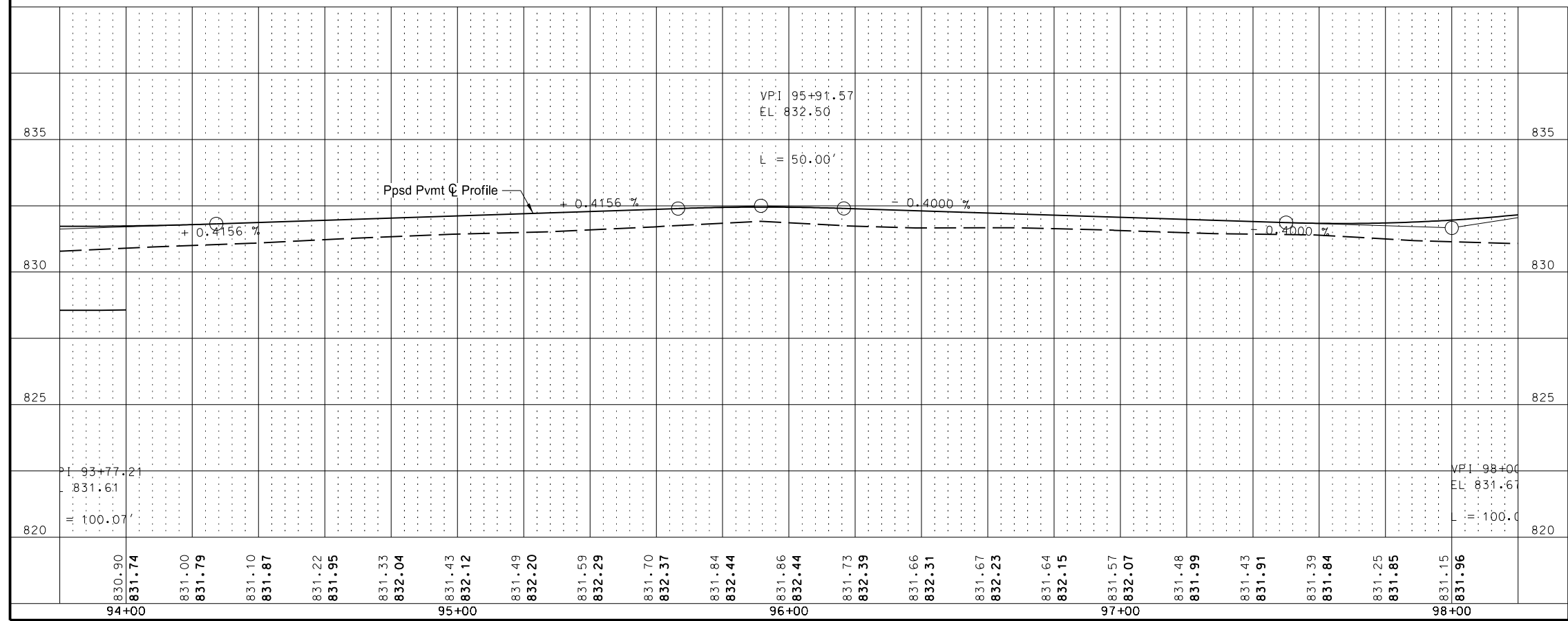
Plan & Profile
Sta 90+00 to Sta 94+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	3



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 94+00 to Sta 98+00	953	CY
302 0114	AGGREGATE BASE COURSE CL 3		
	Sta 94+00 to Sta 98+00	1123	CY
550 0112	8IN NON-REINF CONCRETE PAVEMENT CI AE		
	Sta 94+00 to Sta 98+00	125	SY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 94+00 to Sta 98+00	485	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 94+00 to Sta 98+00	1662	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 94+00 to Sta 98+00	3115	SY
722 6140	ADJUST GATE VALVE BOX		
	Sta 94+00 to Sta 98+00	1	EA
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 94+00 to Sta 98+00	843	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 94+00 to Sta 98+00	381	SY
750 0115	SIDEWALK CONCRETE 4IN		
	Sta 94+00 to Sta 98+00	41	SY
750 2115	DETECTABLE WARNING PANELS		
	Sta 94+00 to Sta 98+00	44	SF



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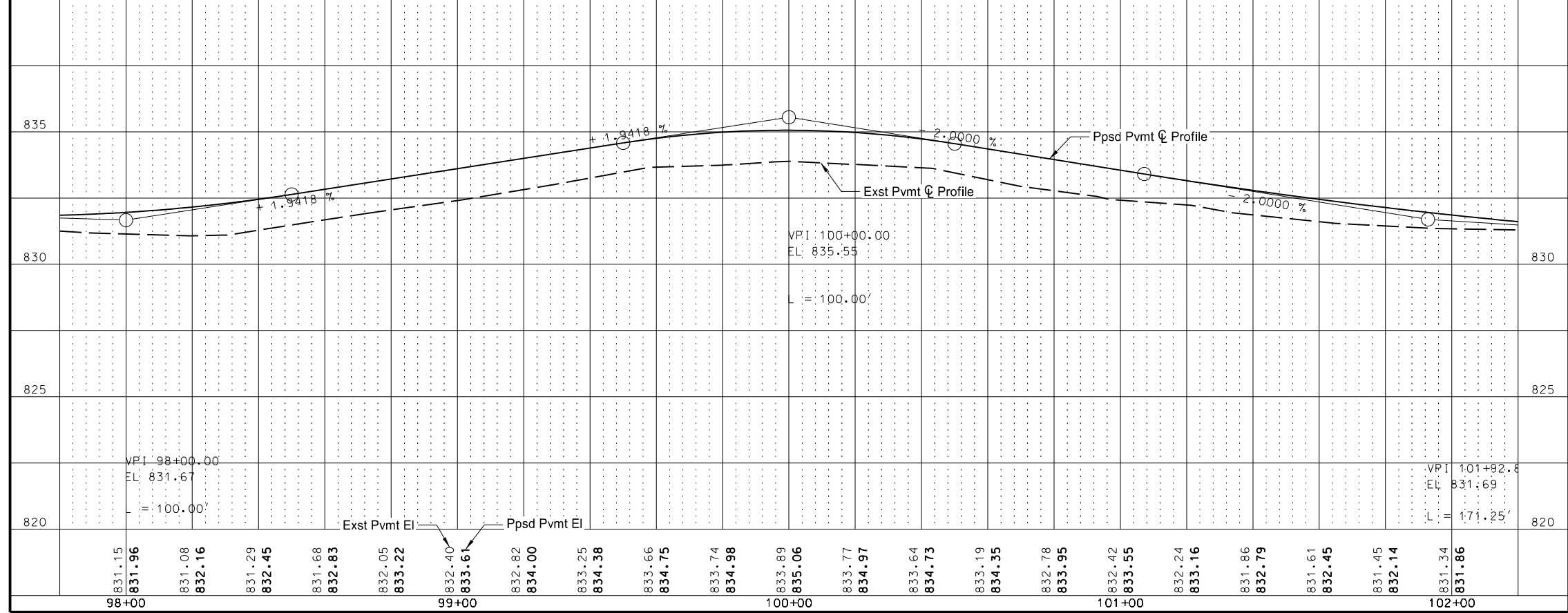
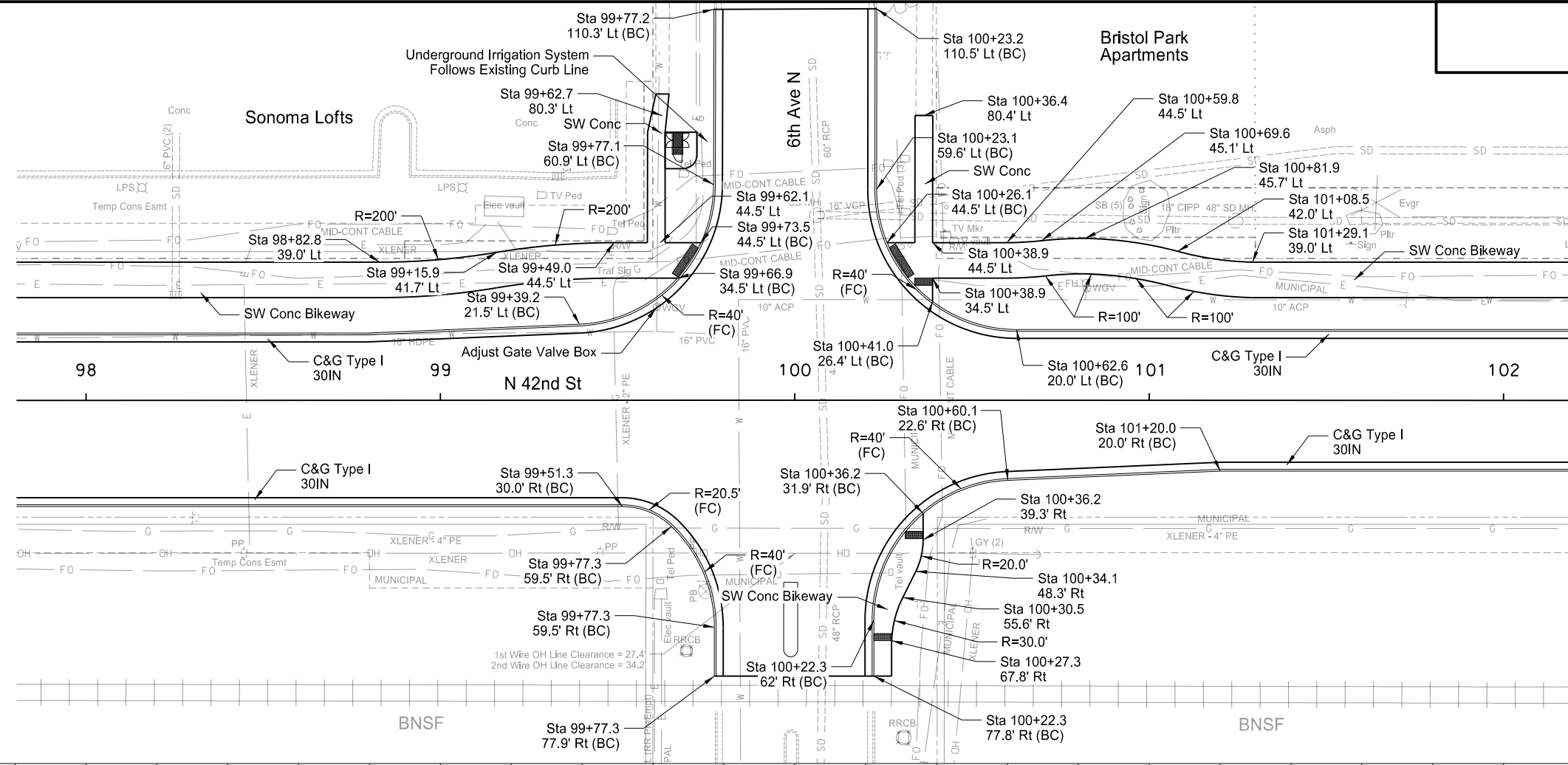
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Plan & Profile
Sta 94+00 to Sta 98+00

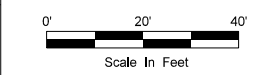
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	4

SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 98+00 to Sta 102+00	1086	CY
302 0114	AGGREGATE BASE COURSE CL 3		
	Sta 98+00 to Sta 102+00	1073	CY
550 0112	8IN NON-REINF CONCRETE PAVEMENT CI AE		
	Sta 98+00 to Sta 102+00	802	SY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 98+00 to Sta 102+00	137	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 98+00 to Sta 102+00	1679	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 98+00 to Sta 102+00	3533	SY
722 6140	ADJUST GATE VALVE BOX		
	Sta 98+00 to Sta 102+00	1	EA
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 98+00 to Sta 102+00	931	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 98+00 to Sta 102+00	416	SY
750 0115	SIDEWALK CONCRETE 4IN		
	Sta 98+00 to Sta 102+00	43	SY
750 0210	CONCRETE MEDIAN NOSE PAVING		
	Sta 98+00 to Sta 102+00	10	SY
750 2115	DETECTABLE WARNING PANELS		
	Sta 98+00 to Sta 102+00	70	SF



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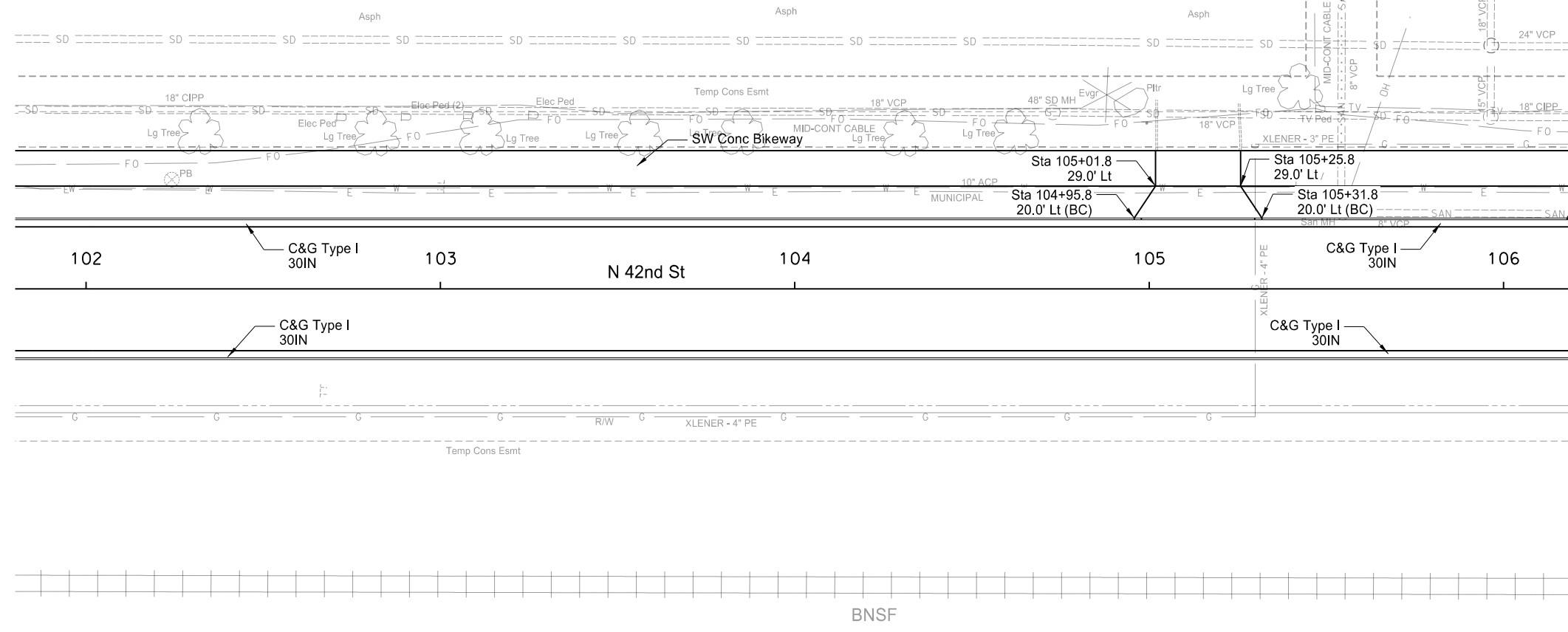


Plan & Profile
Sta 98+00 to Sta 102+00

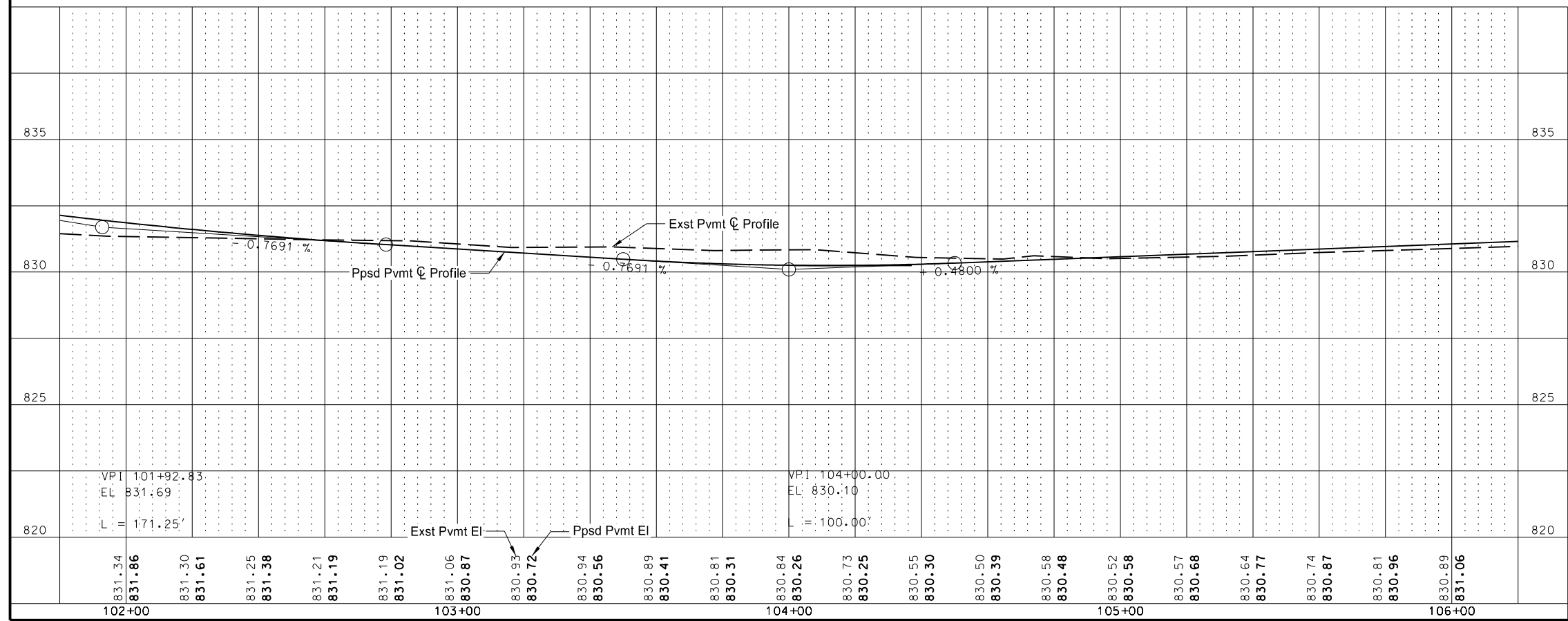
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

Bristol Park Apartments

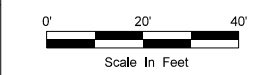
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	5



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE	717	CY
302 0114	AGGREGATE BASE COURSE CL 3	1055	CY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE	338	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED	1218	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1	2431	SY
748 0190	CURB & GUTTER - TYPE I 30IN	800	LF
750 0105	SIDEWALK CONCRETE BIKEWAY	444	SY
750 1000	DRIVEWAY CONCRETE	30	SY

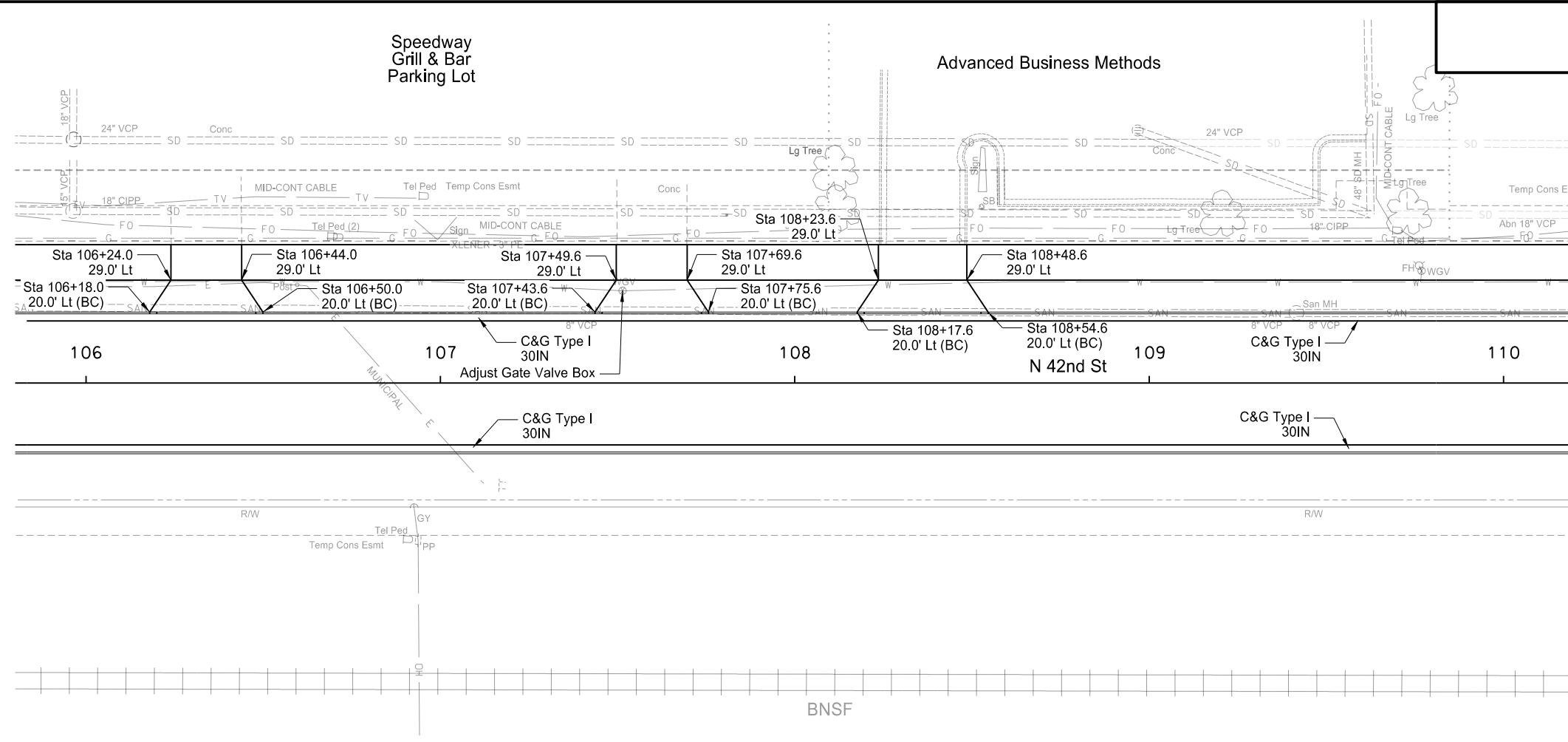


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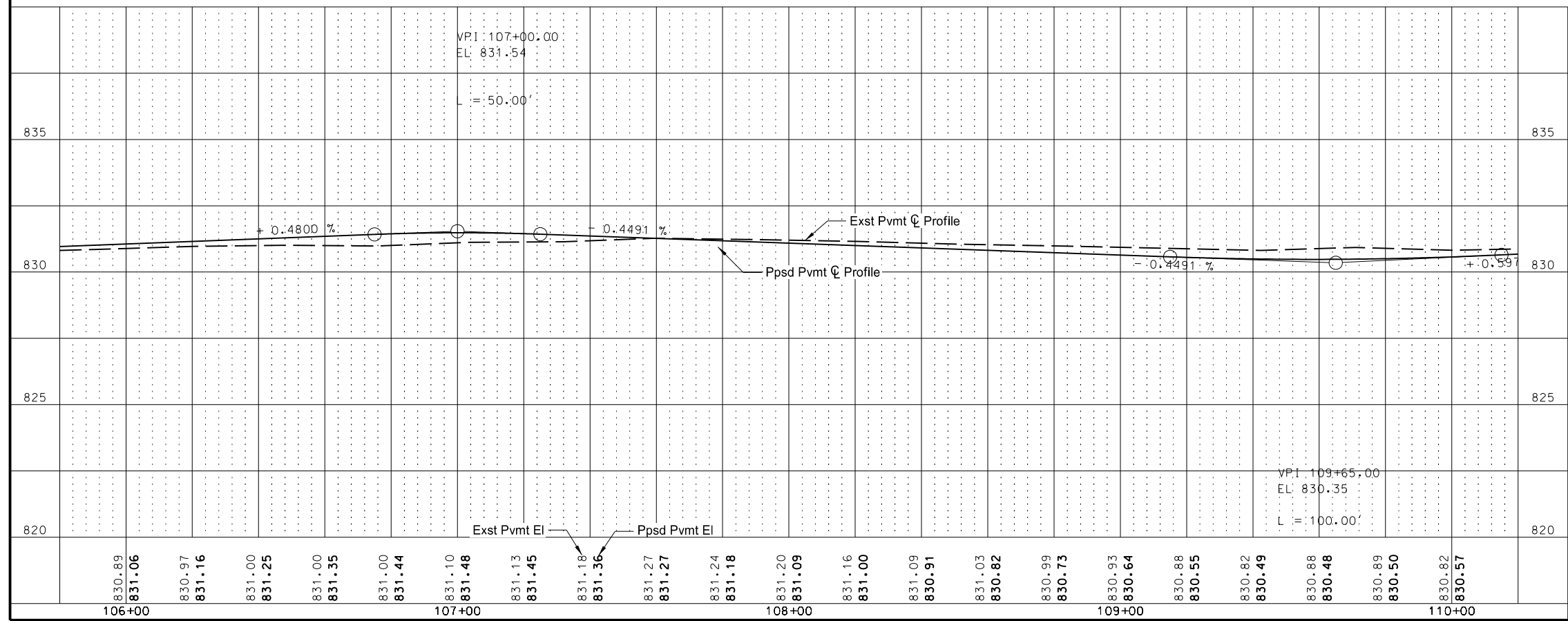


Plan & Profile
Sta 102+00 to Sta 106+00
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

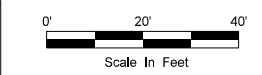
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	6



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 106+00 to Sta 110+00	726	CY
302 0114	AGGREGATE BASE COURSE CL 3		
	Sta 106+00 to Sta 110+00	934	CY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 106+00 to Sta 110+00	260	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 106+00 to Sta 110+00	1296	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 106+00 to Sta 110+00	2484	SY
722 6140	ADJUST GATE VALVE BOX		
	Sta 106+00 to Sta 110+00	1	EA
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 106+00 to Sta 110+00	800	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 106+00 to Sta 110+00	444	SY
750 1000	DRIVEWAY CONCRETE		
	Sta 106+00 to Sta 110+00	83	SY



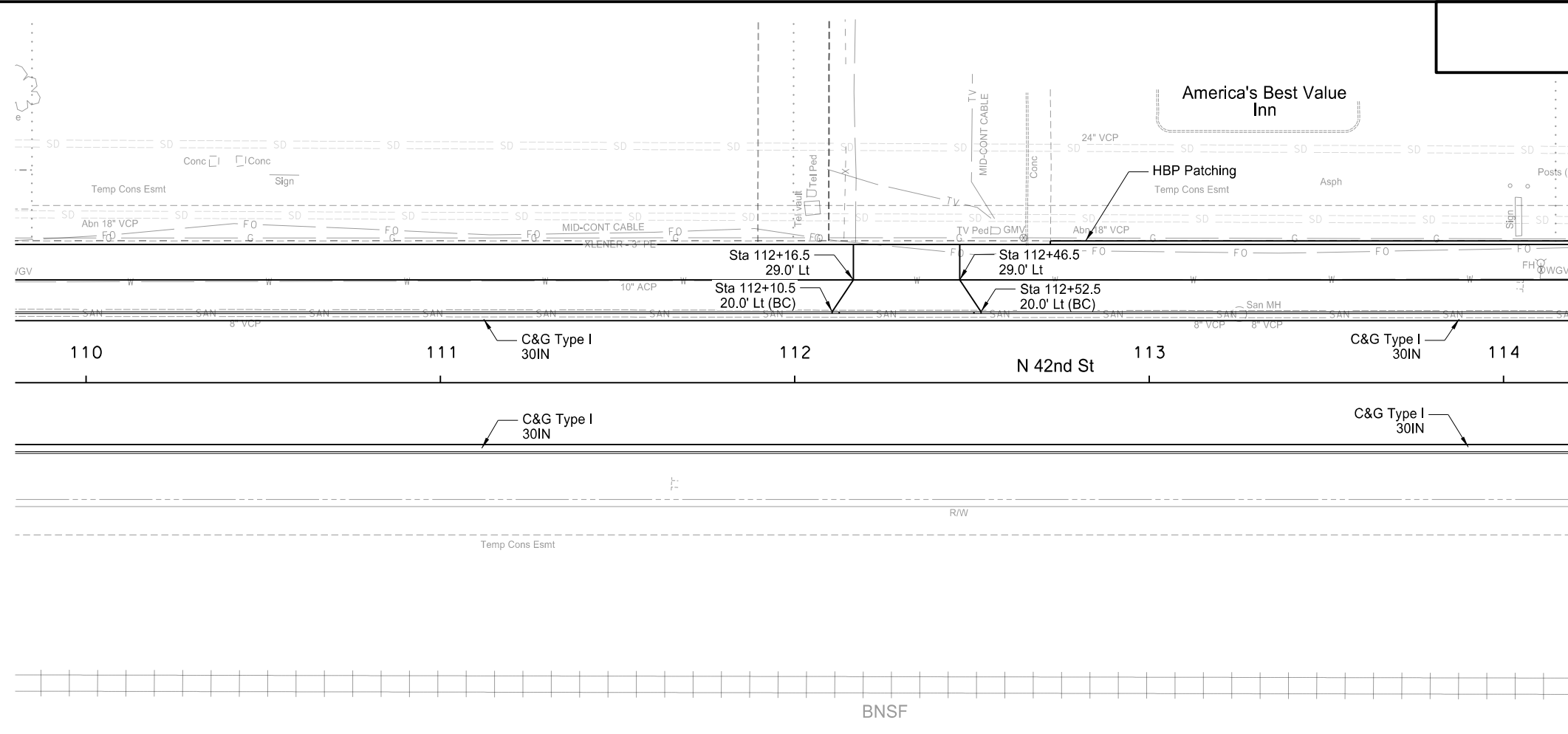
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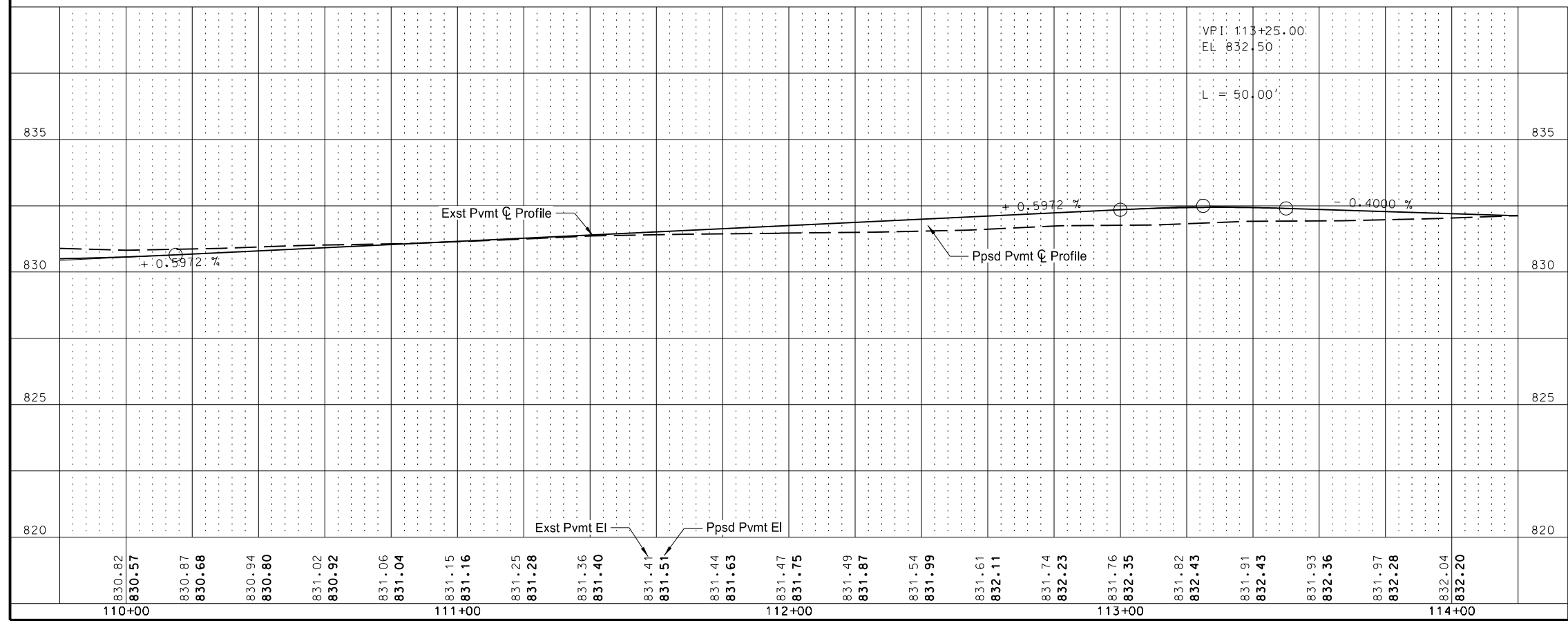
Plan & Profile
Sta 106+00 to Sta 110+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	7



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 110+00 to Sta 114+00	718	CY
302 0114	AGGREGATE BASE COURSE CL 3		
	Sta 110+00 to Sta 114+00	934	CY
430 2000	PATCHING		
	Sta 110+00 to Sta 114+00	5	TON
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 110+00 to Sta 114+00	143	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 110+00 to Sta 114+00	1413	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 110+00 to Sta 114+00	2437	SY
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 110+00 to Sta 114+00	800	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 110+00 to Sta 114+00	444	SY
750 1000	DRIVEWAY CONCRETE		
	Sta 110+00 to Sta 114+00	36	SY

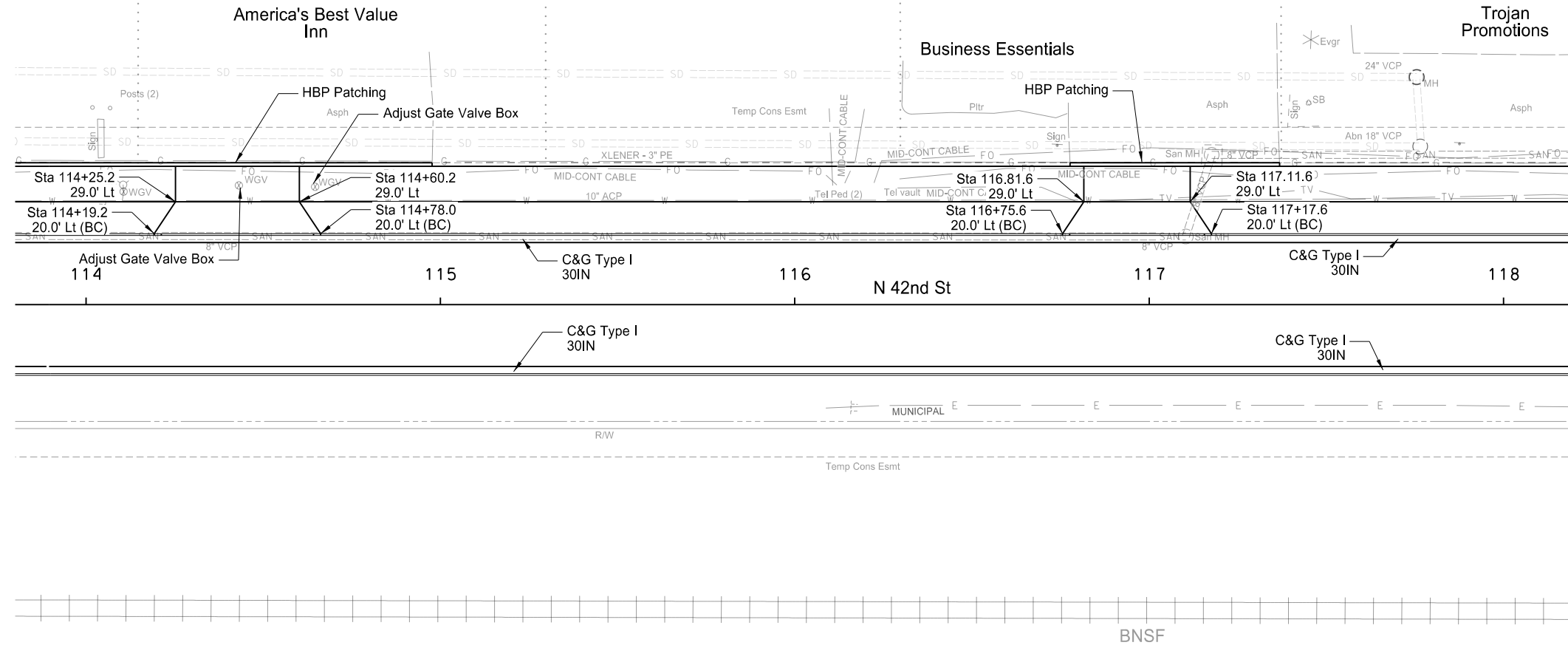


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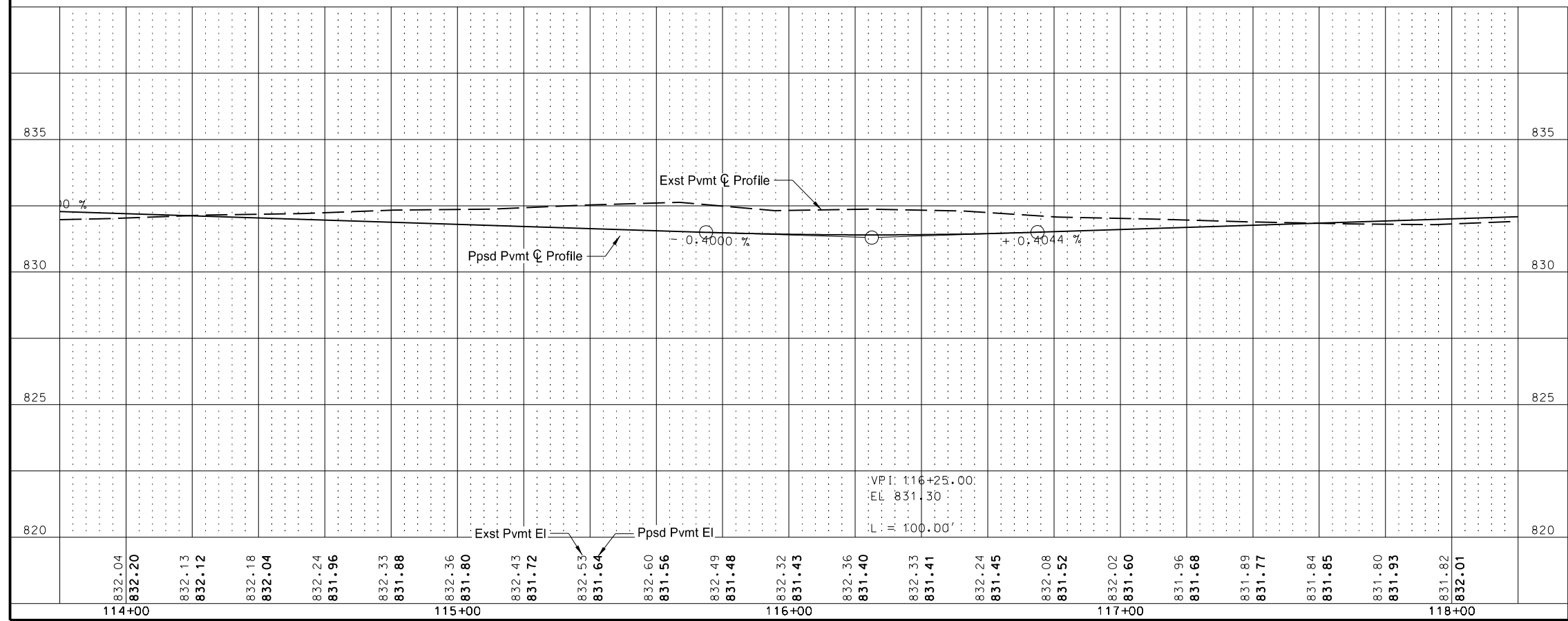
Plan & Profile
Sta 110+00 to Sta 114+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	8



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE	725	CY
302 0114	AGGREGATE BASE COURSE CL 3	934	CY
430 2000	PATCHING	6	TON
550 0113	8IN REINF CONCRETE PAVEMENT CI AE	308	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED	1248	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1	2478	SY
722 6140	ADJUST GATE VALVE BOX	1	EA
748 0190	CURB & GUTTER - TYPE I 30IN	800	LF
750 0105	SIDEWALK CONCRETE BIKEWAY	444	SY
750 1000	DRIVEWAY CONCRETE	77	SY



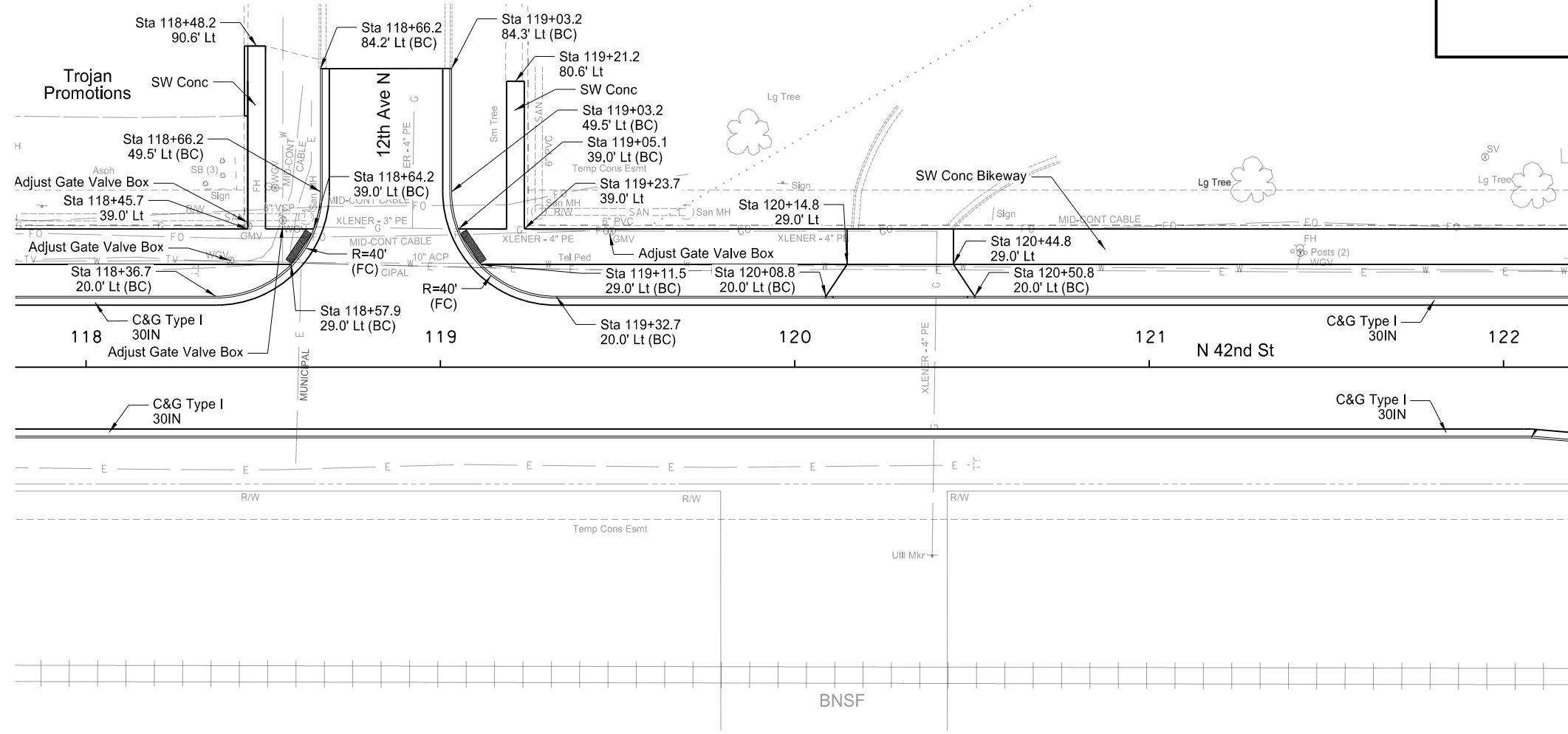
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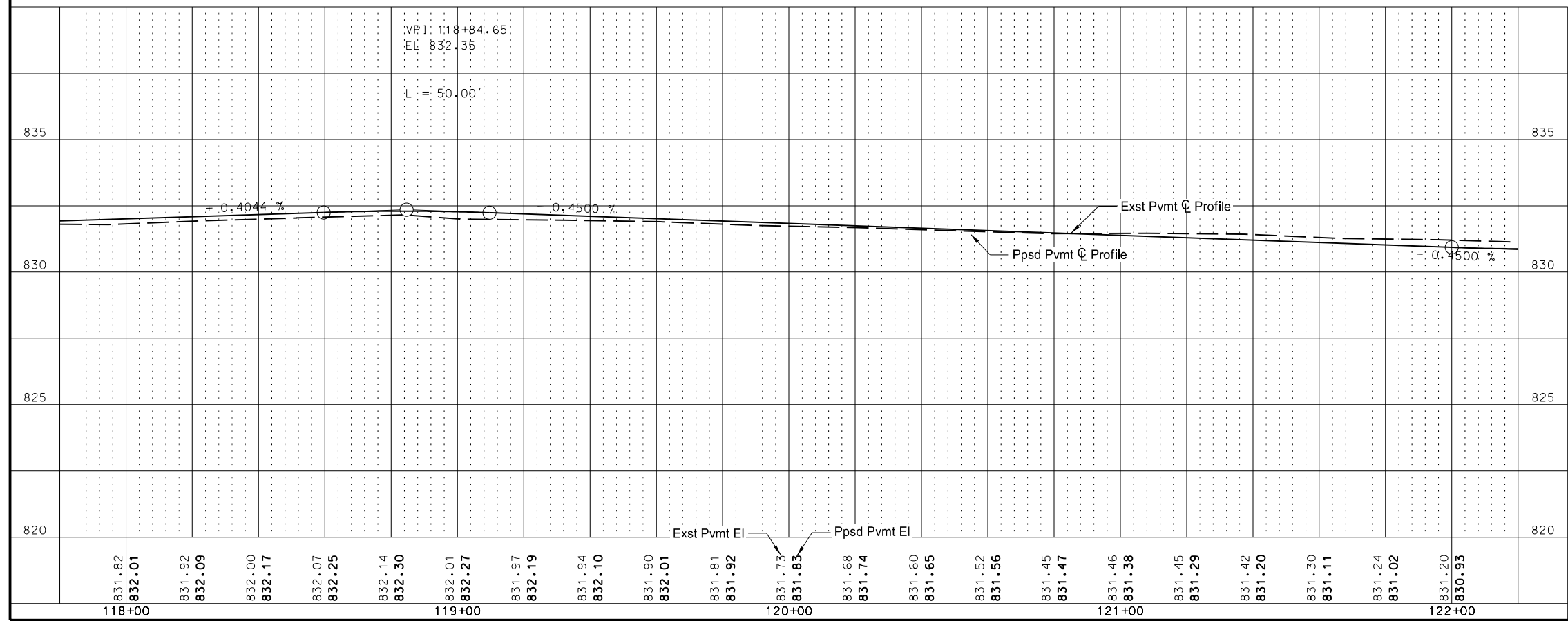
Plan & Profile
 Sta 114+00 to Sta 118+00

Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	9



SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 118+00 to Sta 122+00	825	CY
302 0114	AGGREGATE BASE COURSE CL 3		
	Sta 118+00 to Sta 122+00	962	CY
430 2000	PATCHING		
	Sta 118+00 to Sta 122+00	1	TON
550 0112	8IN NON-REINF CONCRETE PAVEMENT CI AE		
	Sta 114+00 to Sta 118+00	186	SY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 118+00 to Sta 122+00	226	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 118+00 to Sta 122+00	1430	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 118+00 to Sta 122+00	2764	SY
722 6140	ADJUST GATE VALVE BOX		
	Sta 118+00 to Sta 122+00	4	EA
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 118+00 to Sta 122+00	868	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 118+00 to Sta 122+00	393	SY
750 0115	SIDEWALK CONCRETE 4IN		
	Sta 118+00 to Sta 122+00	52	SY
750 1000	DRIVEWAY CONCRETE		
	Sta 118+00 to Sta 122+00	36	SY
750 2115	DETECTABLE WARNING PANELS		
	Sta 118+00 to Sta 122+00	40	SF



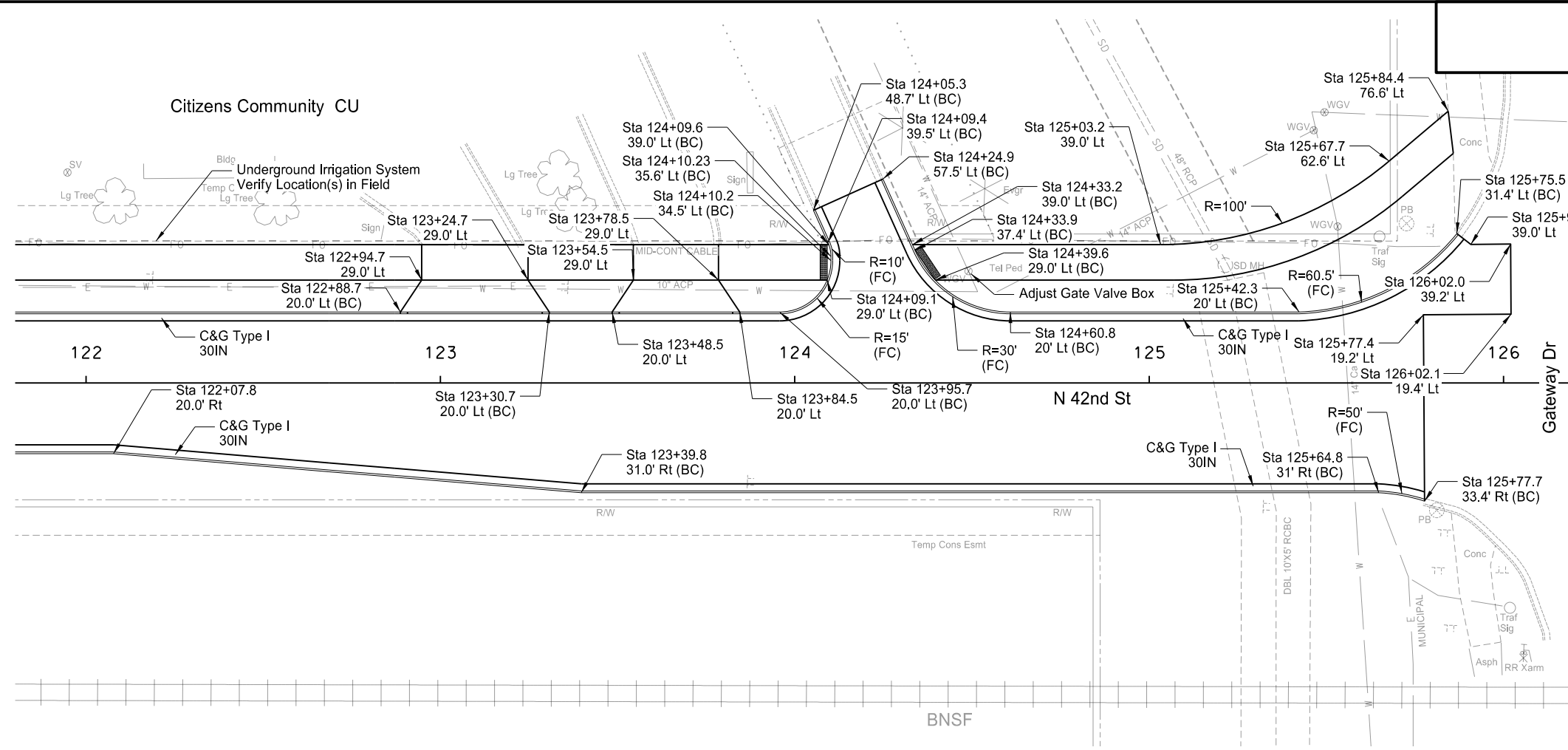
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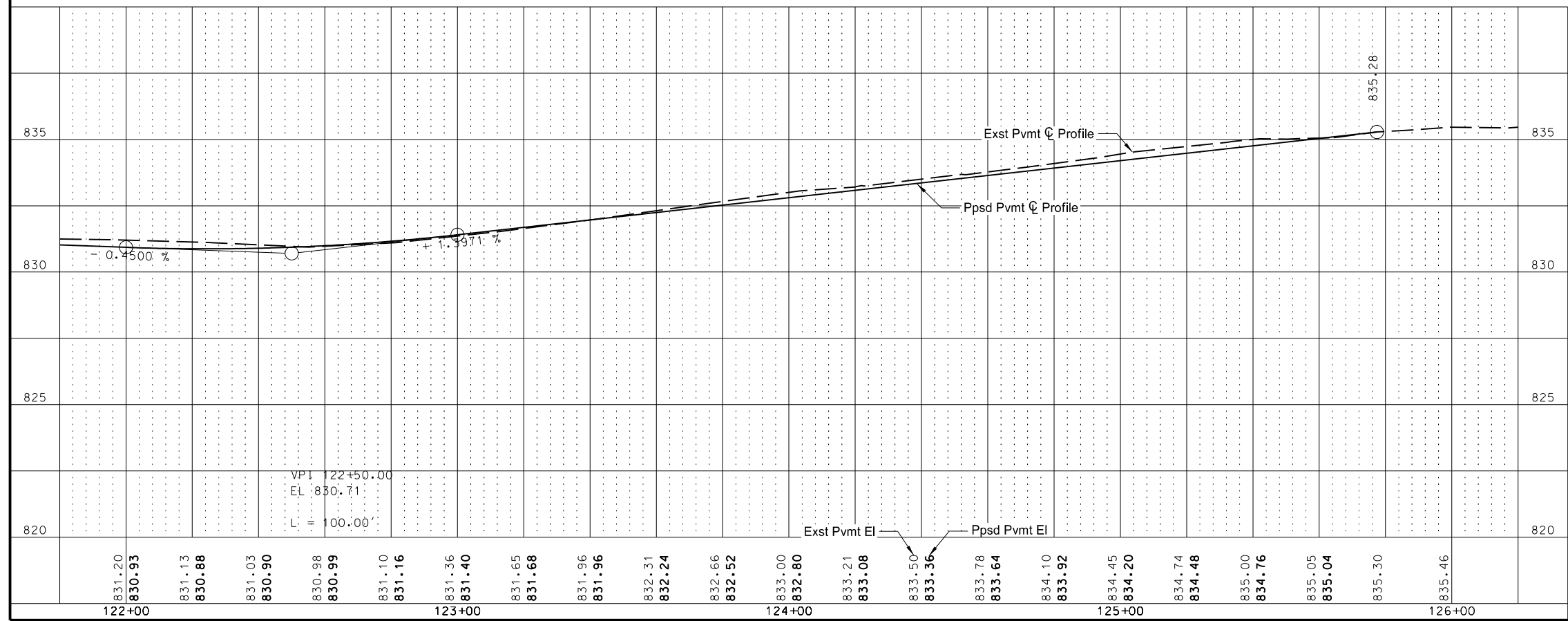
Plan & Profile
Sta 118+00 to Sta 122+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	60	10



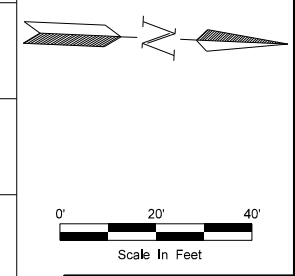
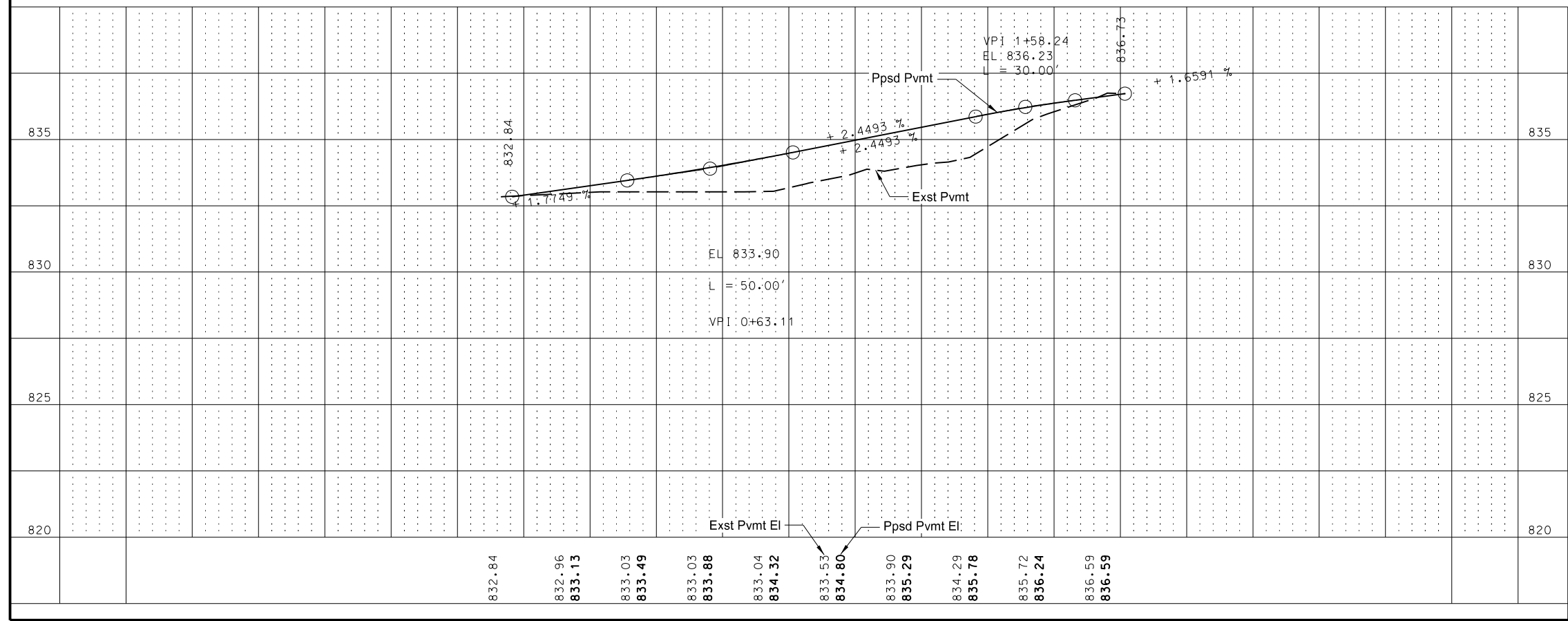
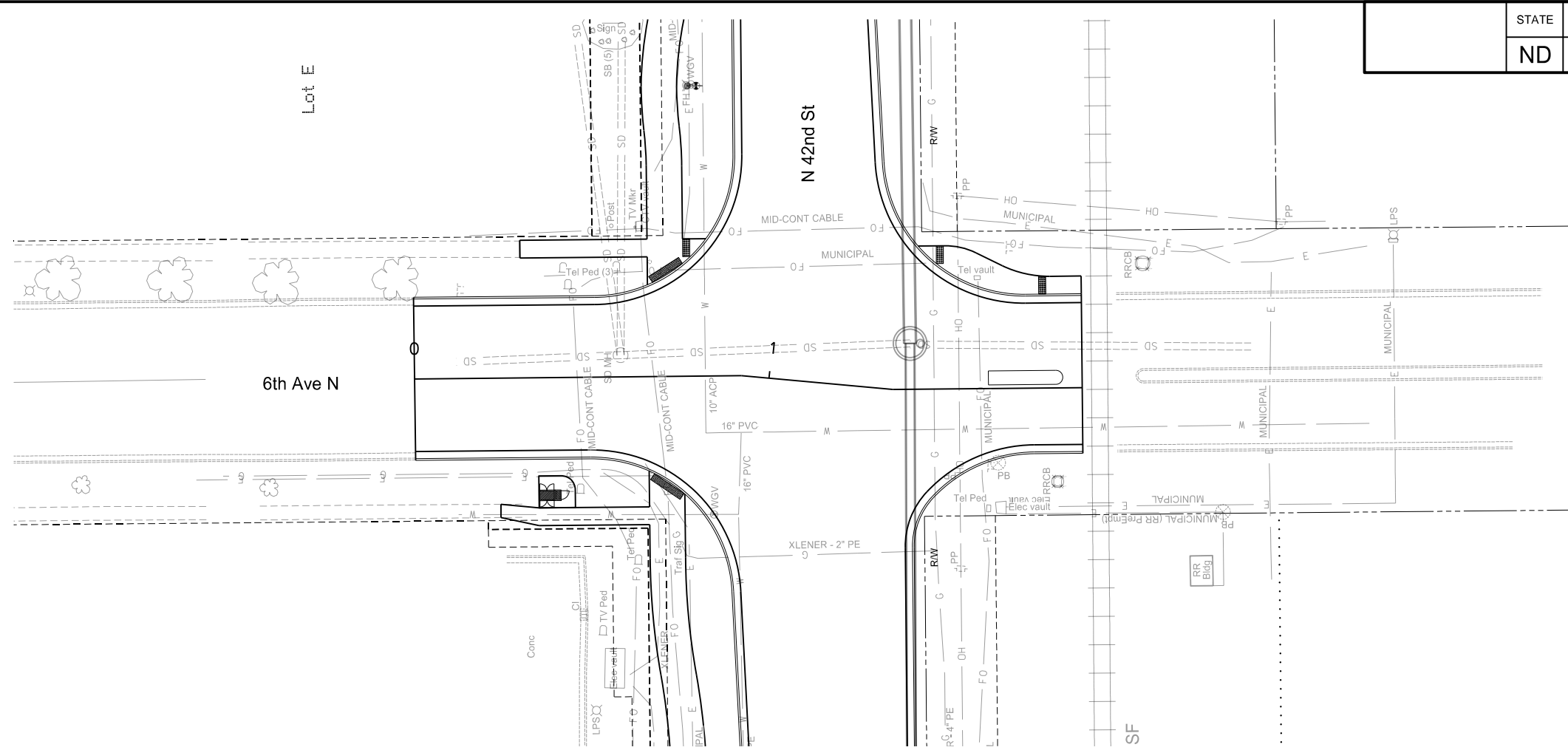
SPEC CODE	BID ITEM	QTY	UNIT
302 0101	SALVAGED BASE COURSE		
	Sta 122+00 to Sta 126+00	866	CY
302 0114	AGGREGATE BASE COURSE CL 3		
	Sta 122+00 to Sta 126+00	1120	CY
550 0112	8IN NON-REINF CONCRETE PAVEMENT CI AE		
	Sta 118+00 to Sta 122+00	152	SY
550 0113	8IN REINF CONCRETE PAVEMENT CI AE		
	Sta 122+00 to Sta 126+00	672	SY
550 0300	8IN NON-REINF CONCRETE PVMT CI AE-DOWELED		
	Sta 122+00 to Sta 126+00	1179	SY
709 0151	GEOSYNTHETIC MATERIAL TYPE R1		
	Sta 122+00 to Sta 126+00	2878	SY
722 6140	ADJUST GATE VALVE BOX		
	Sta 122+00 to Sta 126+00	1	EA
748 0190	CURB & GUTTER - TYPE I 30IN		
	Sta 122+00 to Sta 126+00	803	LF
750 0105	SIDEWALK CONCRETE BIKEWAY		
	Sta 122+00 to Sta 126+00	414	SY
750 1000	DRIVEWAY CONCRETE		
	Sta 122+00 to Sta 126+00	66	SY
750 2115	DETECTABLE WARNING PANELS		
	Sta 122+00 to Sta 126+00	40	SF



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Plan & Profile
Sta 122+00 to Sta 126+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

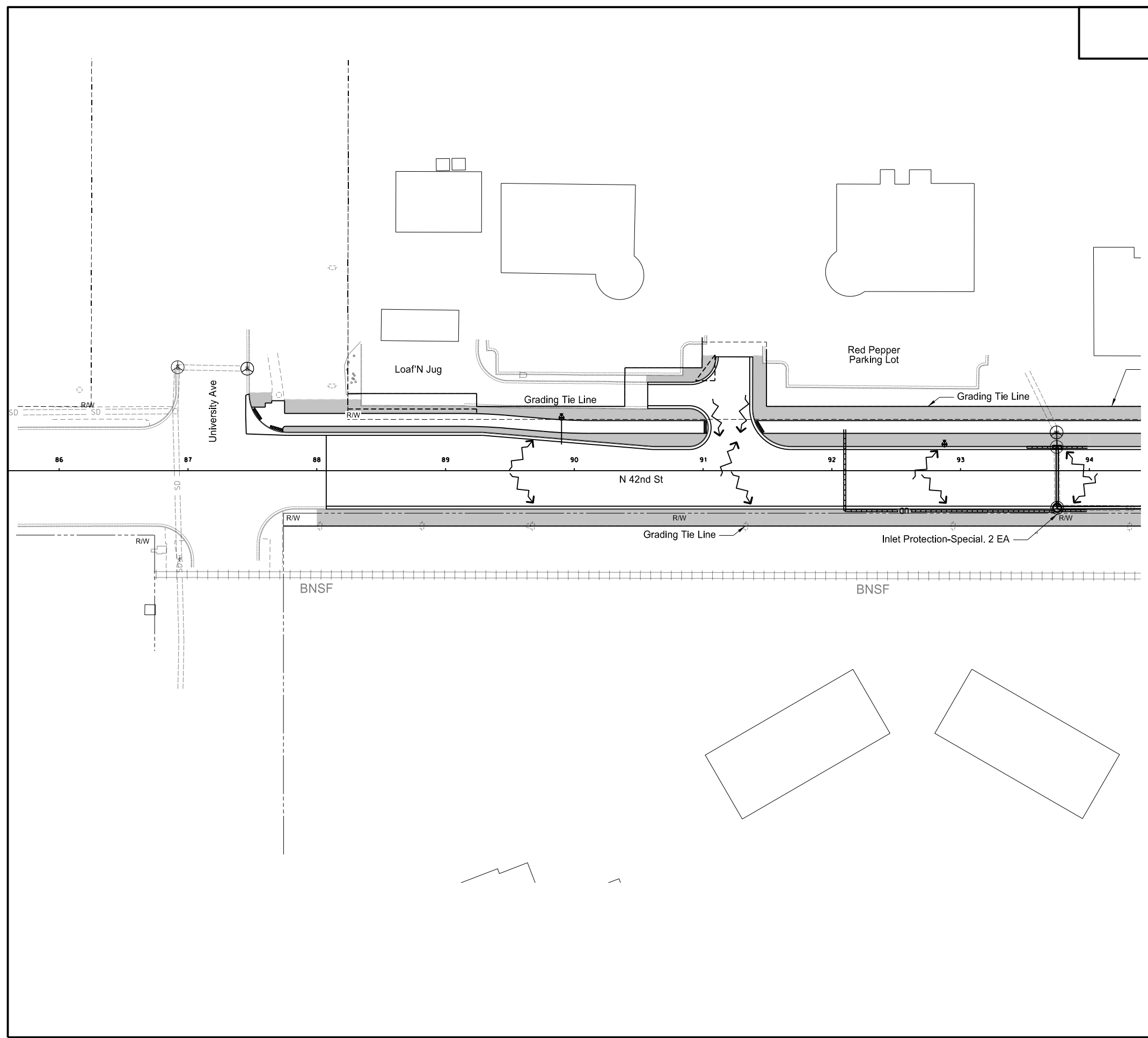


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Plan & Profile
6th Ave N
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

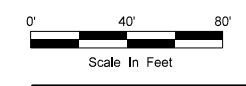
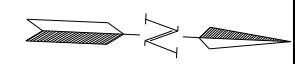
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	76	1

SPEC CODE	BID ITEM	QTY	UNIT
251	2000 TEMPORARY COVER CROP		
	Sta 86+00 to Sta 94+00	0.43	ACRE
253	0201 HYDRAULIC MULCH		
	Sta 86+00 to Sta 94+00	0.43	ACRE
708	1540 INLET PROTECTION-SPECIAL		
	Sta 86+00 to Sta 94+00	6	EA
708	1541 REMOVE INLET PROTECTION-SPECIAL		
	Sta 86+00 to Sta 94+00	6	EA



Legend

	Temporary Cover Crop/Hydraulic Mulch
	Inlet Protection-Special
	Surface Flow Direction



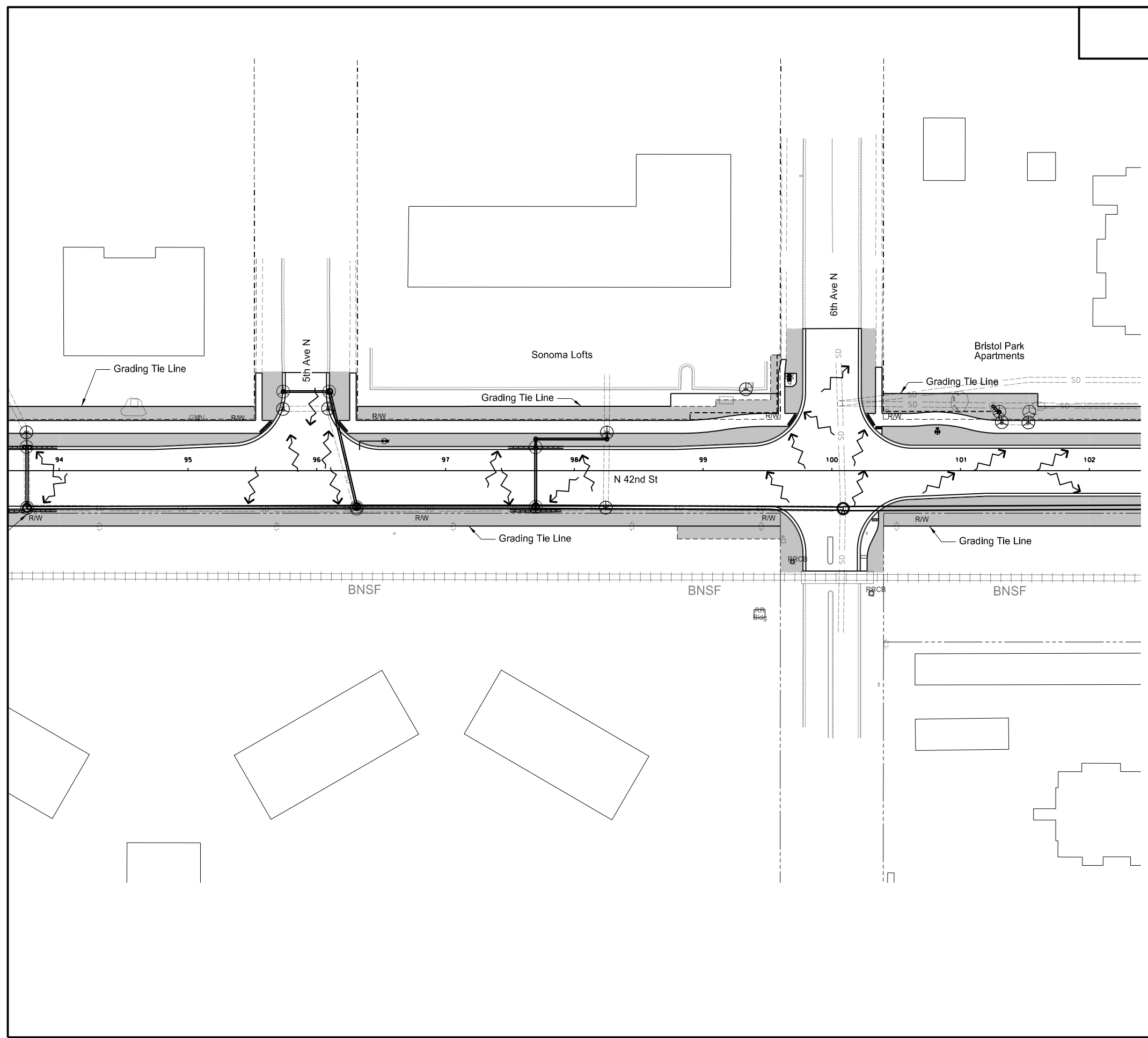
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Temporary Sediment and Erosion Control
Sta 86+00 to Sta 94+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

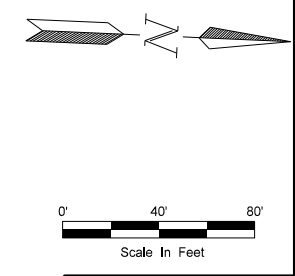
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	76	2

SPEC CODE	BID ITEM	QTY	UNIT
251	2000 TEMPORARY COVER CROP		
	Sta 94+00 to Sta 102+00	0.67	ACRE
253	0201 HYDRAULIC MULCH		
	Sta 94+00 to Sta 102+00	0.67	ACRE
708	1540 INLET PROTECTION-SPECIAL		
	Sta 94+00 to Sta 102+00	14	EA
708	1541 REMOVE INLET PROTECTION-SPECIAL		
	Sta 94+00 to Sta 102+00	14	EA



Legend

	Temporary Cover Crop/Hydraulic Mulch
	Inlet Protection-Special
	Surface Flow Direction



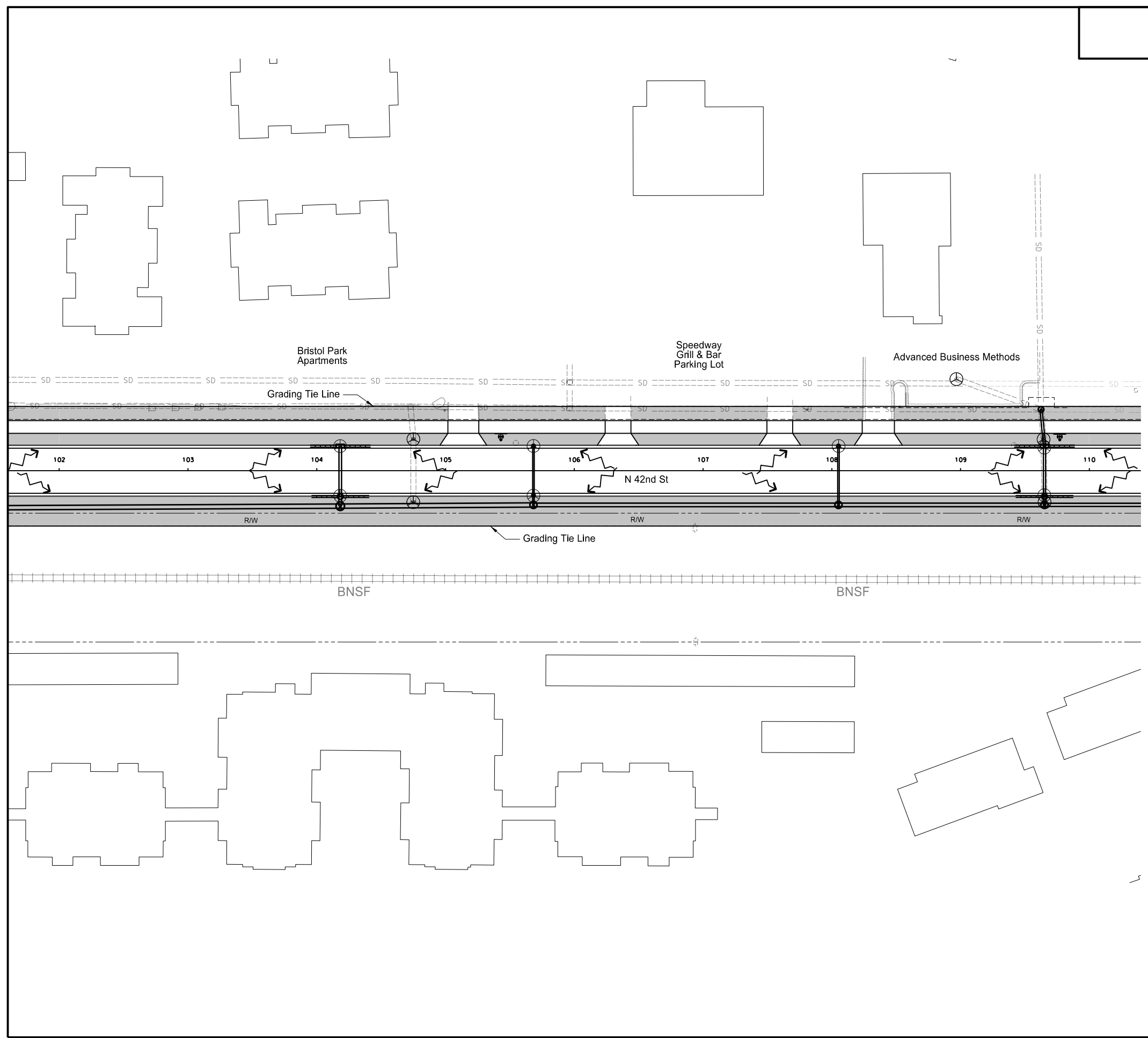
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Temporary Sediment and Erosion Control
Sta 94+00 to Sta 102+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

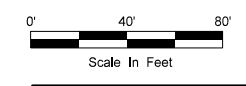
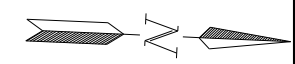
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	76	3

SPEC CODE	BID ITEM	QTY	UNIT
251 2000	TEMPORARY COVER CROP		
	Sta 102+00 to Sta 110+00	0.74	ACRE
253 0201	HYDRAULIC MULCH		
	Sta 102+00 to Sta 110+00	0.74	ACRE
708 1540	INLET PROTECTION-SPECIAL		
	Sta 102+00 to Sta 110+00	12	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	Sta 102+00 to Sta 110+00	12	EA



Legend

	Temporary Cover Crop/Hydraulic Mulch
	Inlet Protection-Special
	Surface Flow Direction



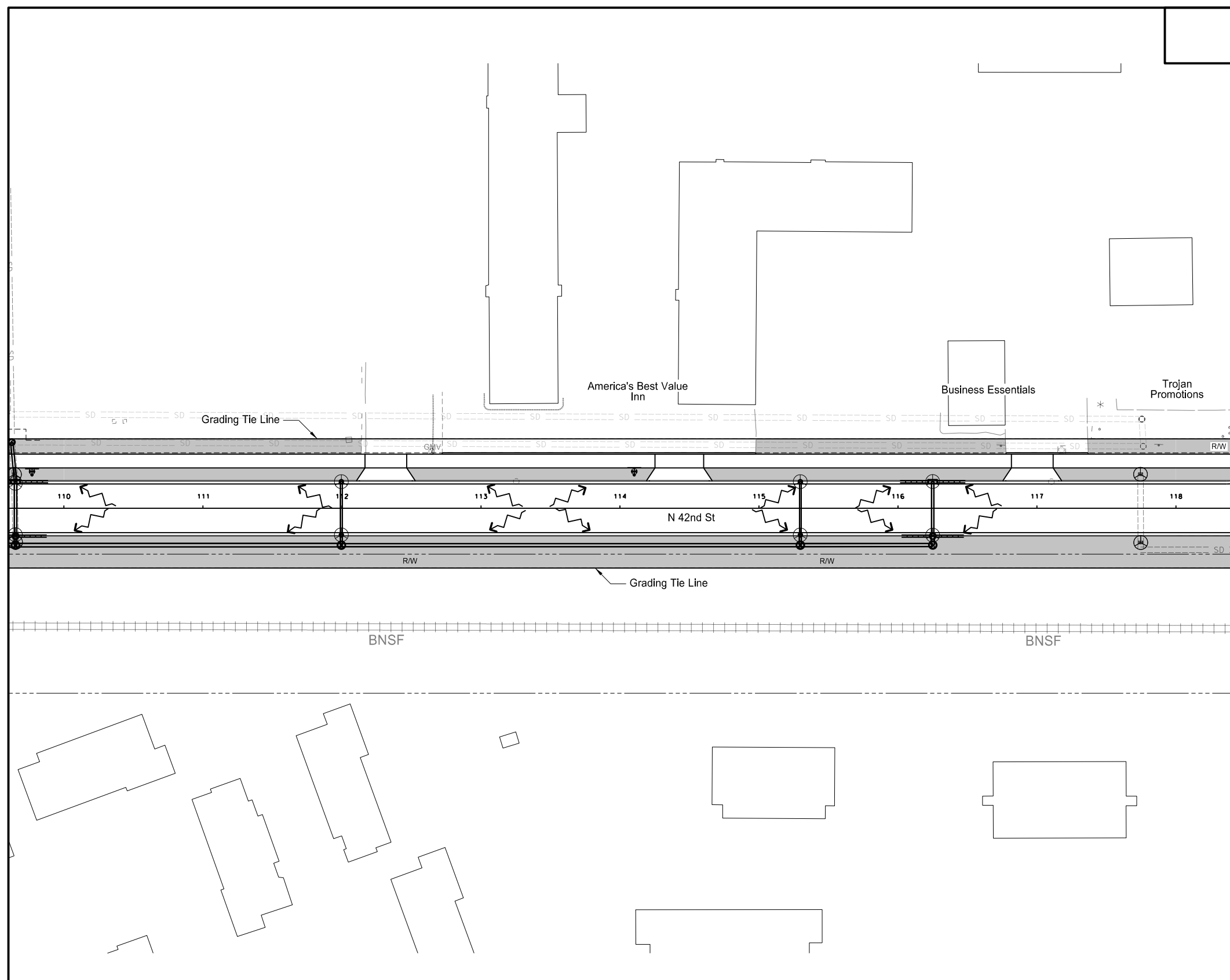
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Temporary Sediment and Erosion Control
Sta 102+00 to Sta 110+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

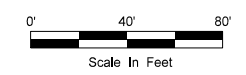
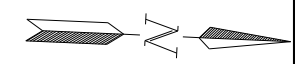
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	76	4

SPEC CODE	BID ITEM	QTY	UNIT
251 2000	TEMPORARY COVER CROP		
	Sta 110+00 to Sta 118+00	0.68	ACRE
253 0201	HYDRAULIC MULCH		
	Sta 110+00 to Sta 118+00	0.68	ACRE
708 1540	INLET PROTECTION-SPECIAL		
	Sta 110+00 to Sta 118+00	8	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	Sta 110+00 to Sta 118+00	8	EA



Legend

	Temporary Cover Crop/Hydraulic Mulch
	Inlet Protection-Special
	Surface Flow Direction



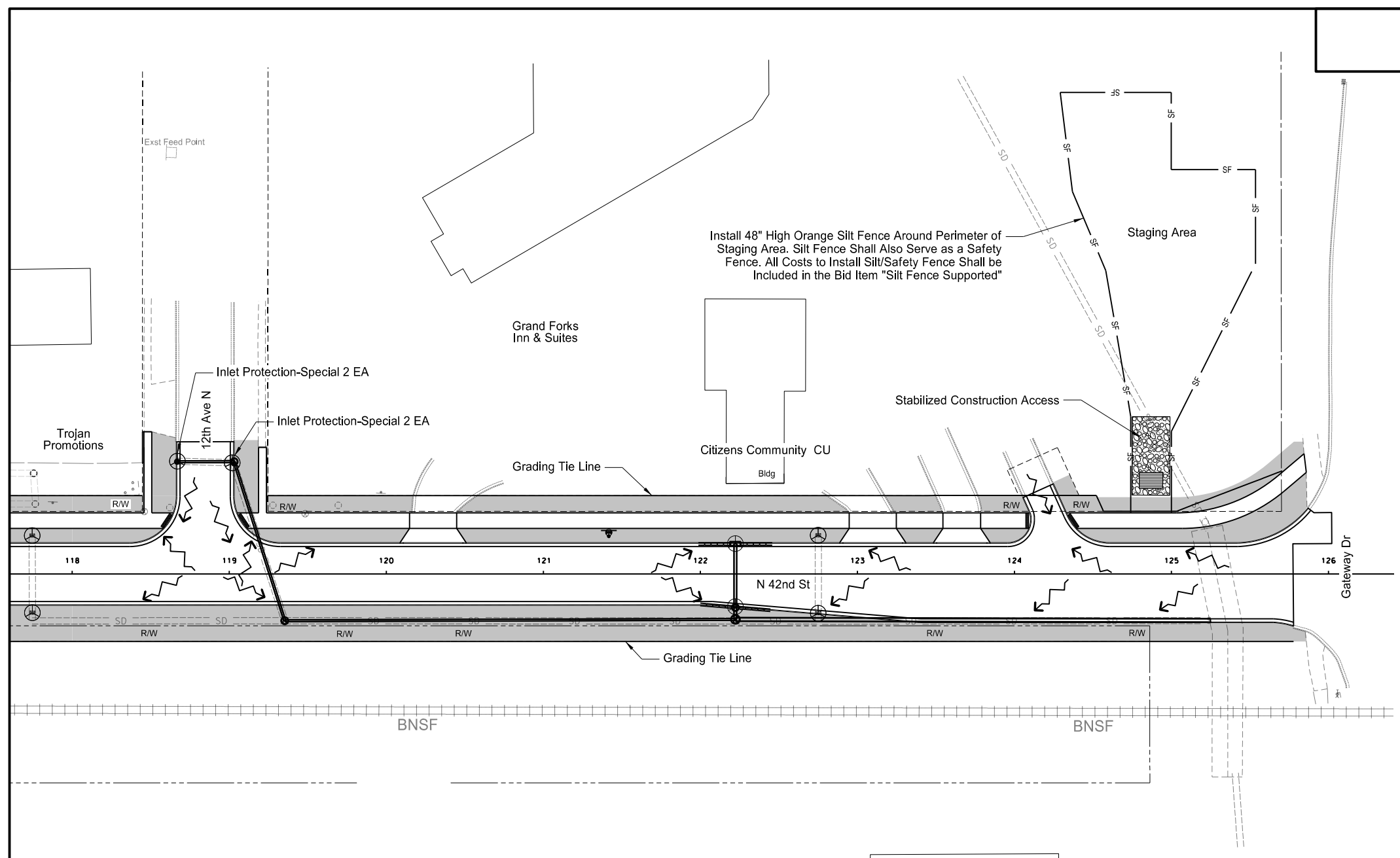
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Temporary Sediment and Erosion Control
Sta 110+00 to Sta 118+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

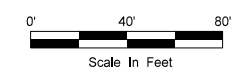
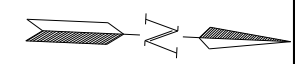
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	76	5

SPEC CODE	BID ITEM	QTY	UNIT
251 2000	TEMPORARY COVER CROP		
	Sta 118+00 to Sta 126+00	0.65	ACRE
253 0201	HYDRAULIC MULCH		
	Sta 118+00 to Sta 126+00	0.65	ACRE
260 0200	SILT FENCE SUPPORTED		
	Sta 118+00 to Sta 126+00	680	LF
260 0201	REMOVE SILT FENCE SUPPORTED		
	Sta 118+00 to Sta 126+00	680	LF
265 0100	STABILIZED CONSTRUCTION ACCESS		
	Sta 118+00 to Sta 126+00	1	EA
265 0101	REMOVE STABILIZED CONSTRUCTION ACCESS		
	Sta 118+00 to Sta 126+00	1	EA
708 1540	INLET PROTECTION-SPECIAL		
	Sta 118+00 to Sta 126+00	8	EA
708 1541	REMOVE INLET PROTECTION-SPECIAL		
	Sta 118+00 to Sta 126+00	8	EA



Legend

	Temporary Cover Crop/Hydraulic Mulch
	Inlet Protection-Special
	Surface Flow Direction



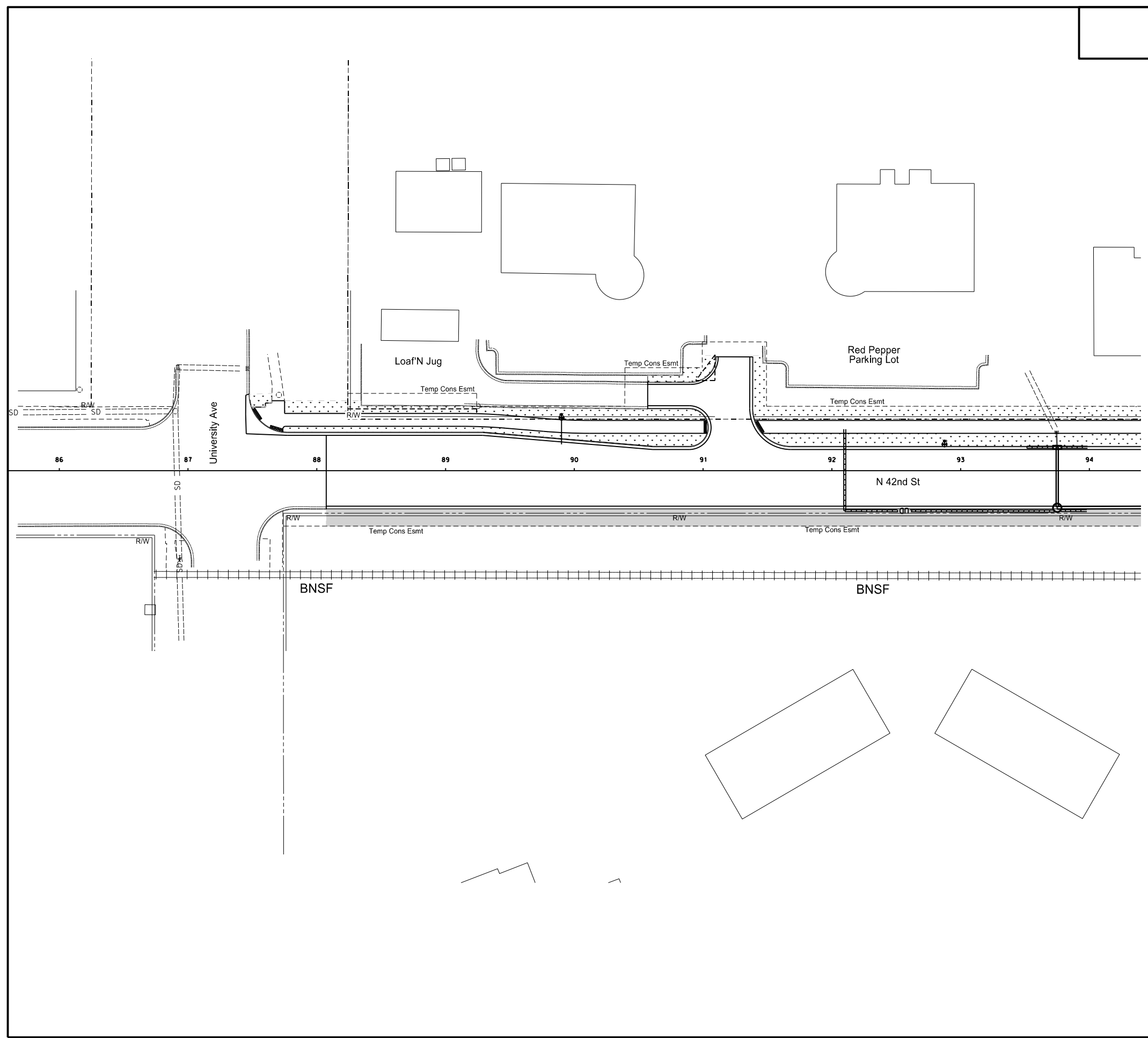
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Temporary Sediment and Erosion Control
Sta 118+00 to Sta 126+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

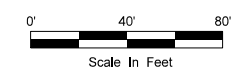
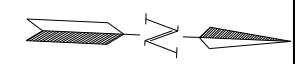
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	77	1

SPEC CODE	BID ITEM	QTY	UNIT
251 0300	SEEDING CLASS III Sta 86+00 to Sta 94+00	0.18	ACRE
252 0100	SOD Sta 86+00 to Sta 94+00	1199	SY
253 0201	HYDRAULIC MULCH Sta 86+00 to Sta 94+00	0.18	ACRE



Legend

	Seeding Class III/Hydraulic Mulch
	Sod



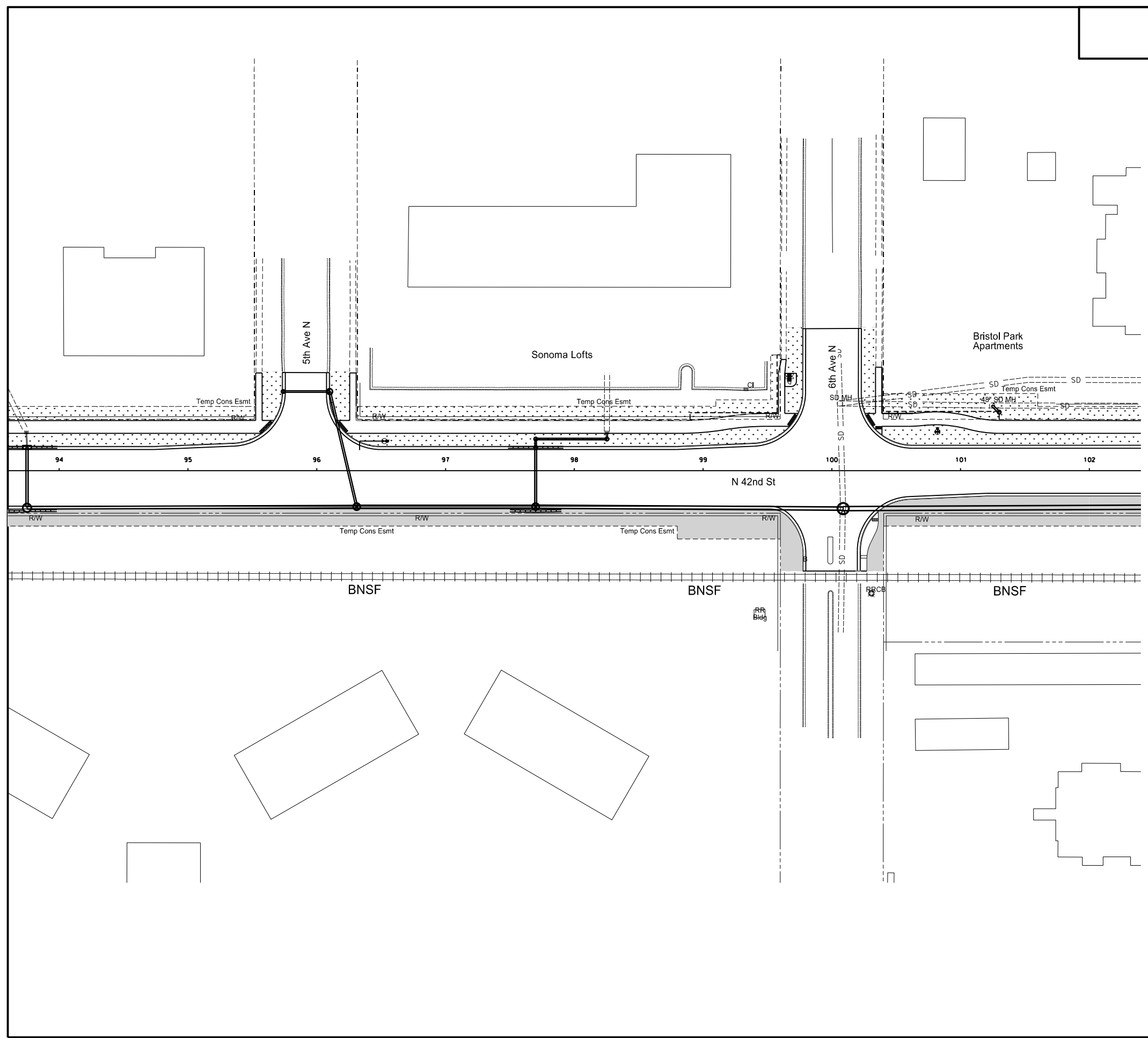
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Permanent Sediment and Erosion Control
Sta 86+00 to Sta 94+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

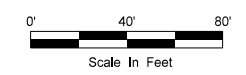
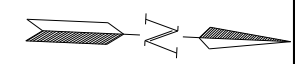
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	77	2

SPEC CODE	BID ITEM	QTY	UNIT
251 0300	SEEDING CLASS III		
	Sta 94+00 to Sta 102+00	0.29	ACRE
252 0100	SOD		
	Sta 94+00 to Sta 102+00	1850	SY
253 0201	HYDRAULIC MULCH		
	Sta 94+00 to Sta 102+00	0.29	ACRE



Legend

	Seeding Class III/Hydraulic Mulch
	Sod



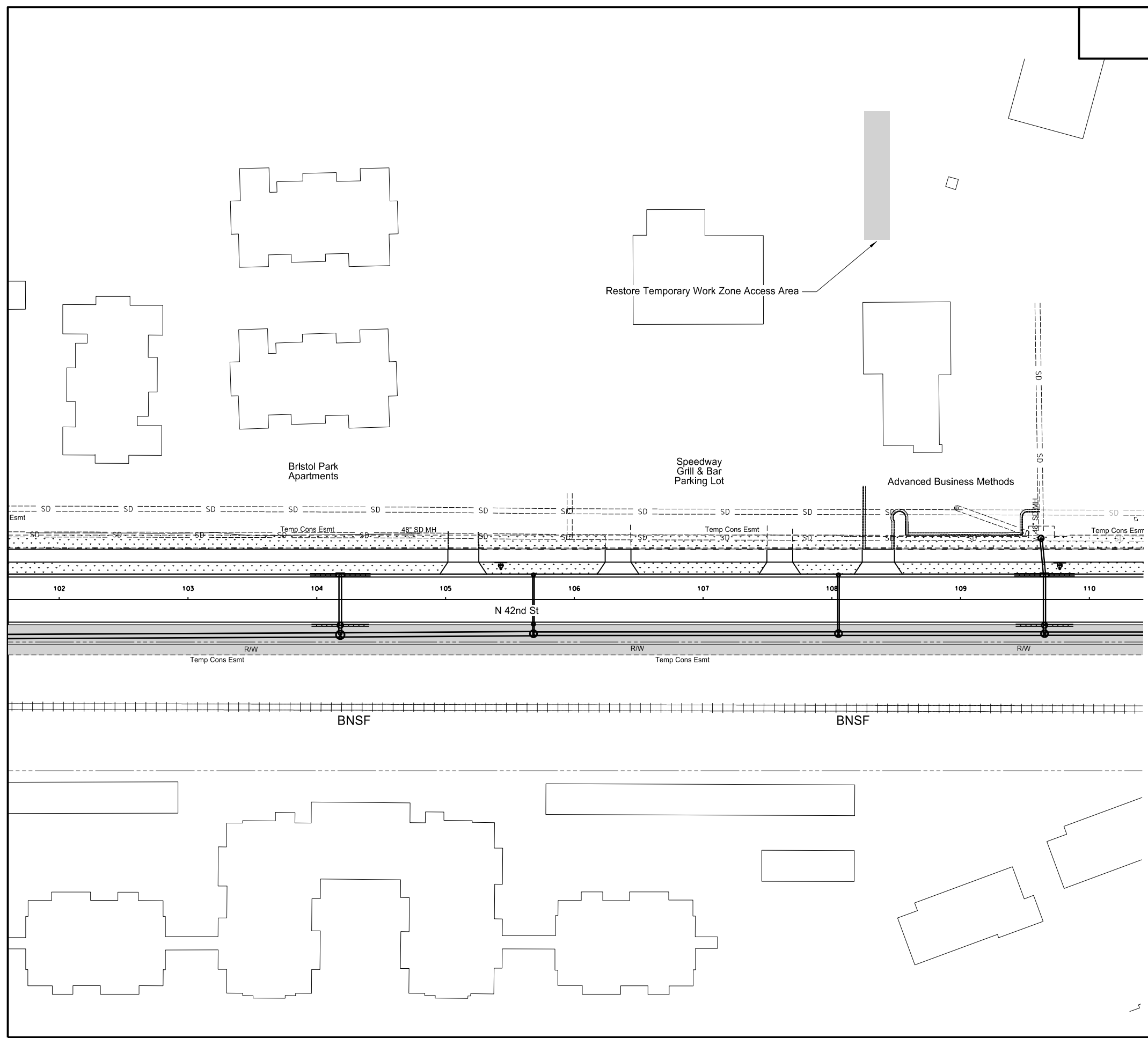
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Permanent Sediment and Erosion Control
Sta 94+00 to Sta 102+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

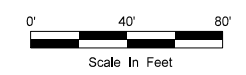
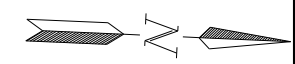
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	77	3

SPEC CODE	BID ITEM	QTY	UNIT
251 0300	SEEDING CLASS III		
	Sta 102+00 to Sta 110+00	0.47	ACRE
252 0100	SOD		
	Sta 102+00 to Sta 110+00	1556	SY
253 0201	HYDRAULIC MULCH		
	Sta 102+00 to Sta 110+00	0.47	ACRE



Legend

	Seeding Class III/Hydraulic Mulch
	Sod



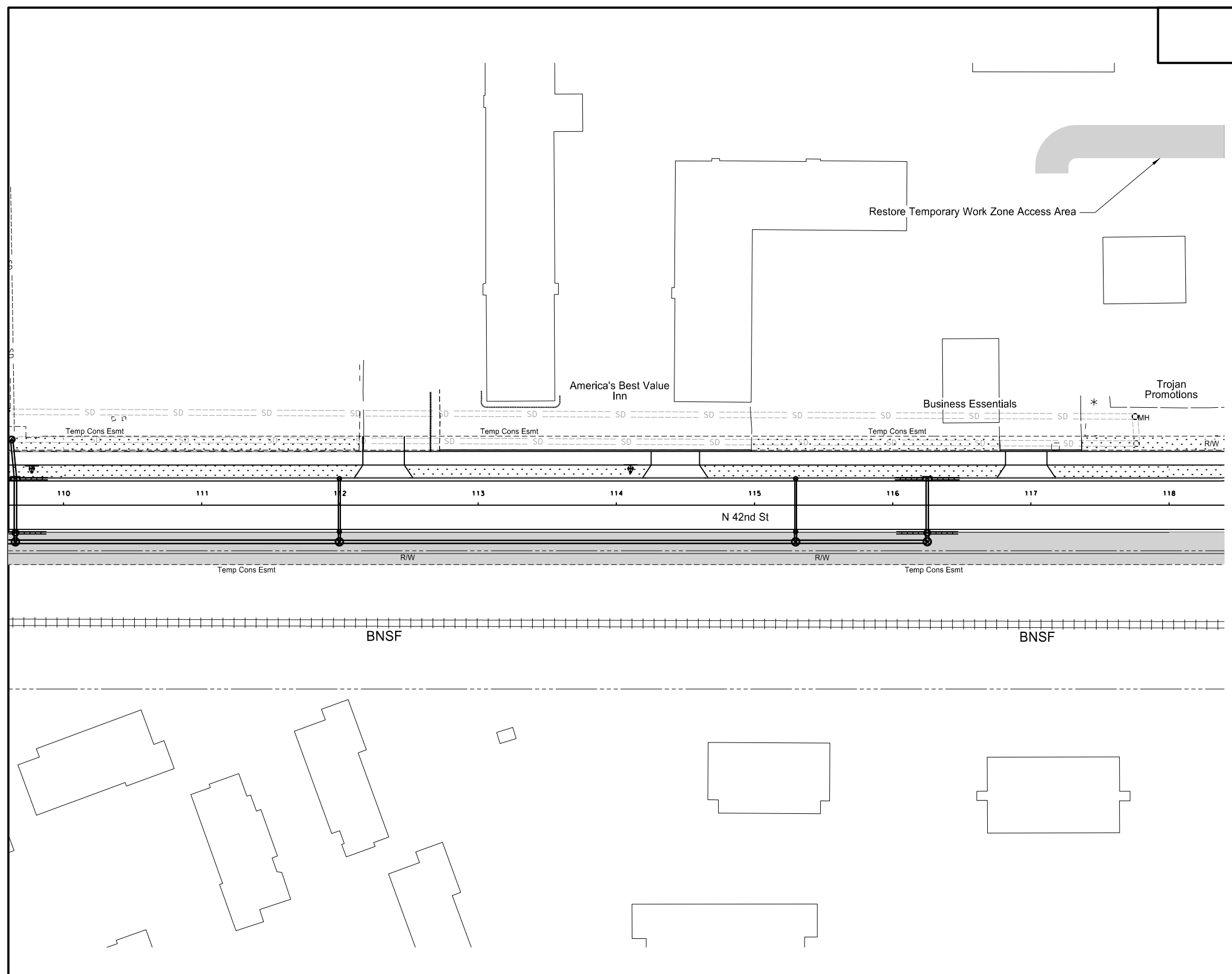
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Permanent Sediment and Erosion Control
Sta 102+00 to Sta 110+00



Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

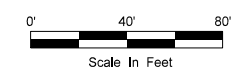
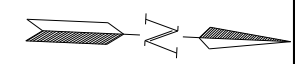
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	77	4

SPEC CODE	BID ITEM	QTY	UNIT
251 0300	SEEDING CLASS III		
	Sta 110+00 to Sta 118+00	0.48	ACRE
252 0100	SOD		
	Sta 110+00 to Sta 118+00	1245	SY
253 0201	HYDRAULIC MULCH		
	Sta 110+00 to Sta 118+00	0.48	ACRE



Legend

	Seeding Class III/Hydraulic Mulch
	Sod



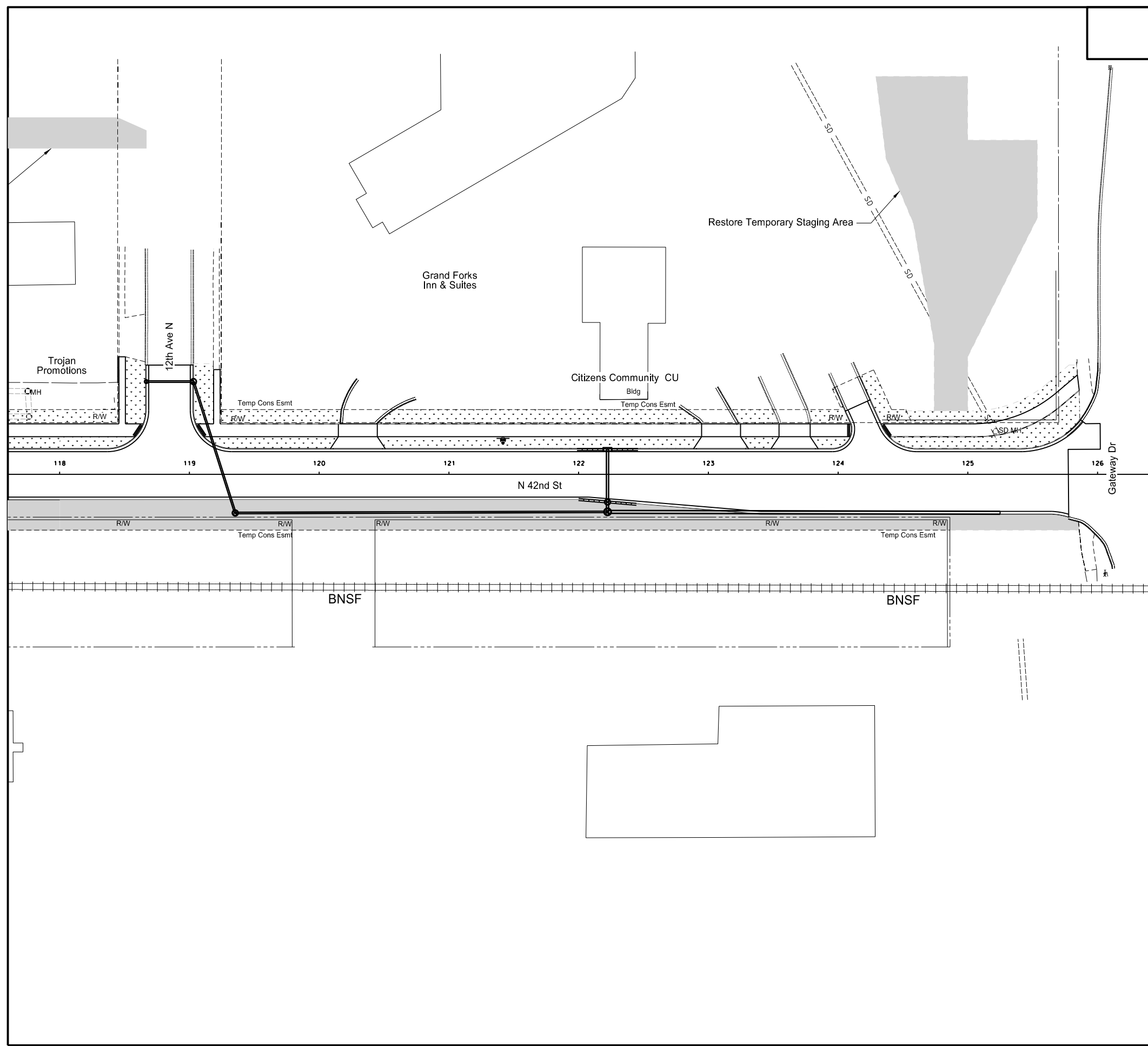
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Permanent Sediment and Erosion Control
Sta 110+00 to Sta 118+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

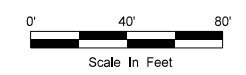
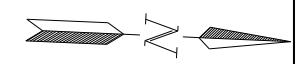
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	77	5

SPEC CODE	BID ITEM	QTY	UNIT
251 0300	SEEDING CLASS III		
	Sta 118+00 to Sta 126+00	0.77	ACRE
252 0100	SOD		
	Sta 118+00 to Sta 126+00	1566	SY
253 0201	HYDRAULIC MULCH		
	Sta 118+00 to Sta 126+00	0.77	ACRE



Legend

	Seeding Class III/Hydraulic Mulch
	Sod

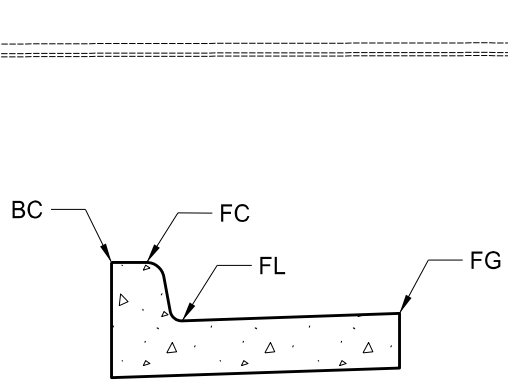
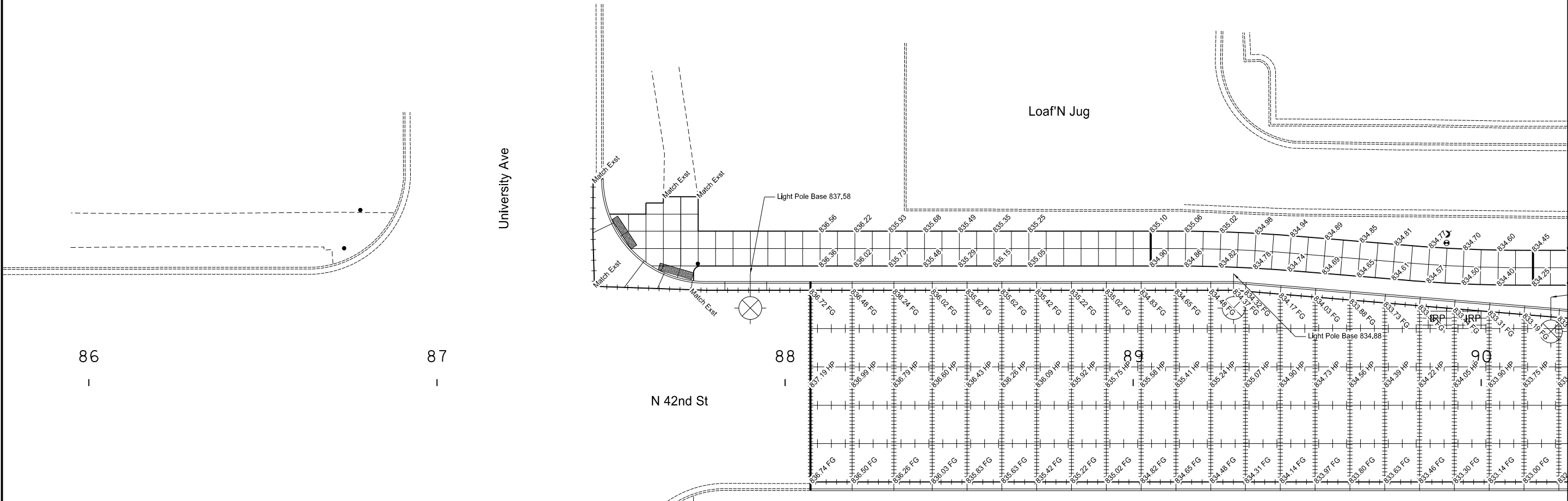


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Permanent Sediment and Erosion Control
Sta 118+00 to Sta 126+00

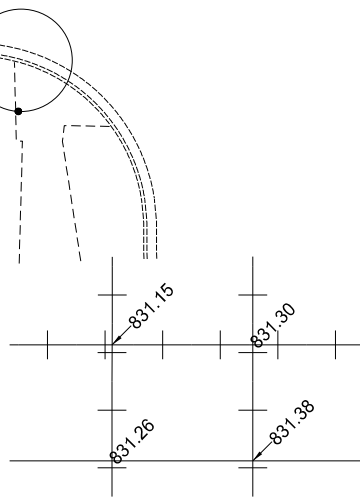
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	1



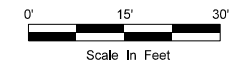
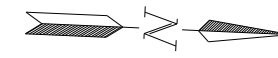
BC = Back of Curb
 FC = Front of Curb
 FL = Flow Line
 FG = Front of Gutter
 HP = High Point
 LP = Low Point

Standard Curb & Gutter Abbreviations



Elevations Are Located at
 Joint Intersections

TOC = Top of Casting



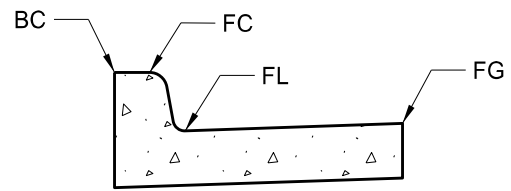
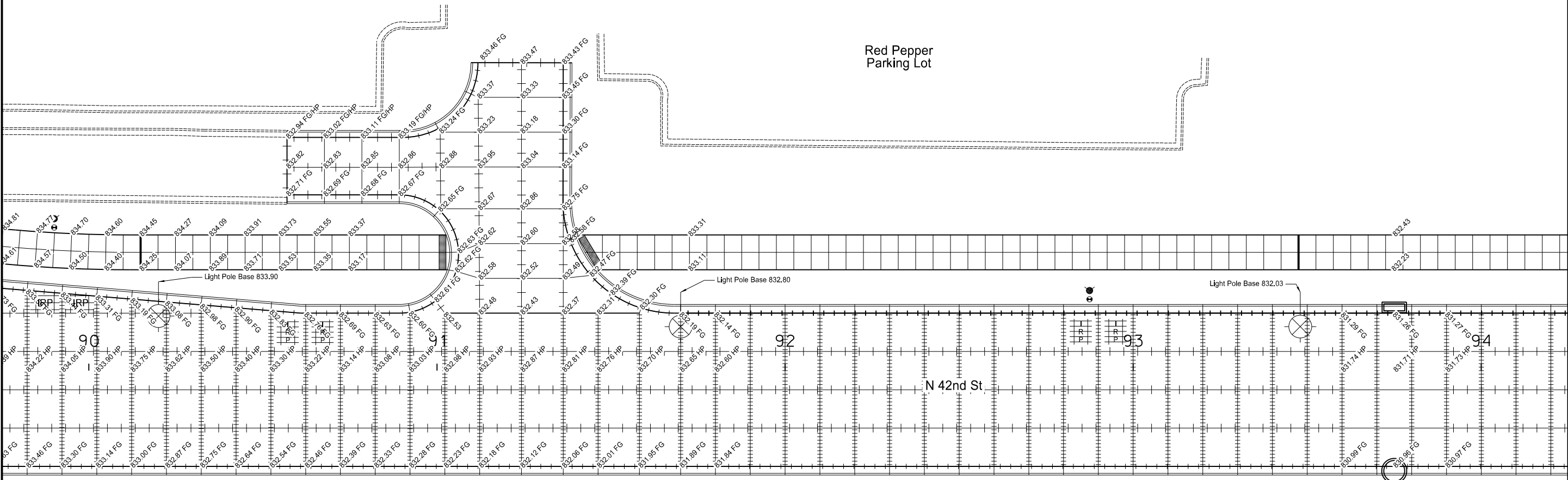
Scale In Feet

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Grading Plan Layout
 Sta 86+00 to Sta 90+00

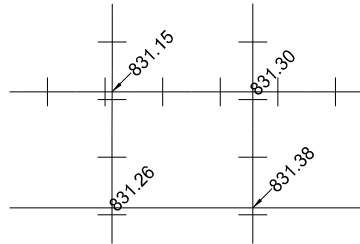
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	2



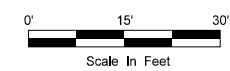
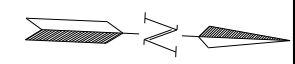
BC = Back of Curb
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 LP = Low Point

Standard Curb & Gutter Abbreviations



Elevations Are Located at
 Joint Intersections

TOC = Top of Casting

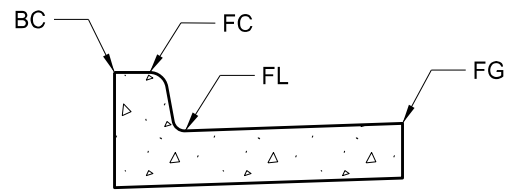
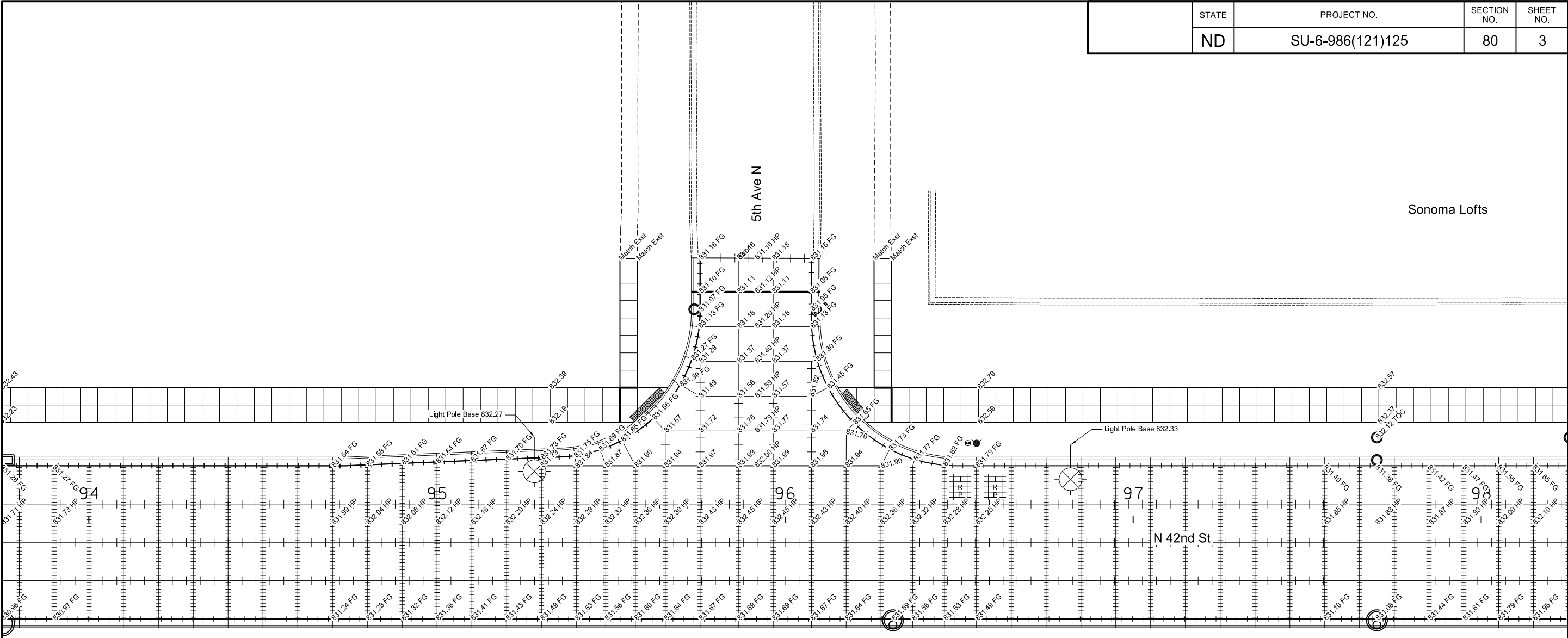


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Grading Plan Layout
 Sta 90+00 to Sta 94+00

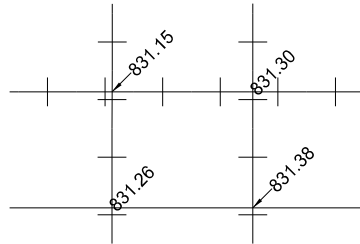
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	3



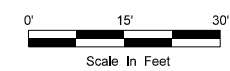
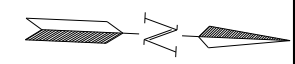
BC = Back of Curb
FC = Front of Curb
FL = Flow Line
FG = Front of Gutter
HP = High Point
LP = Low Point

Standard Curb & Gutter Abbreviations



Elevations Are Located at Joint Intersections

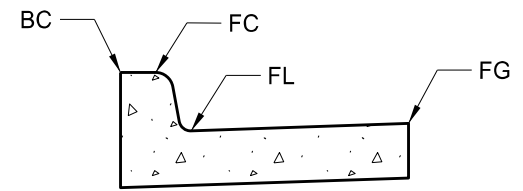
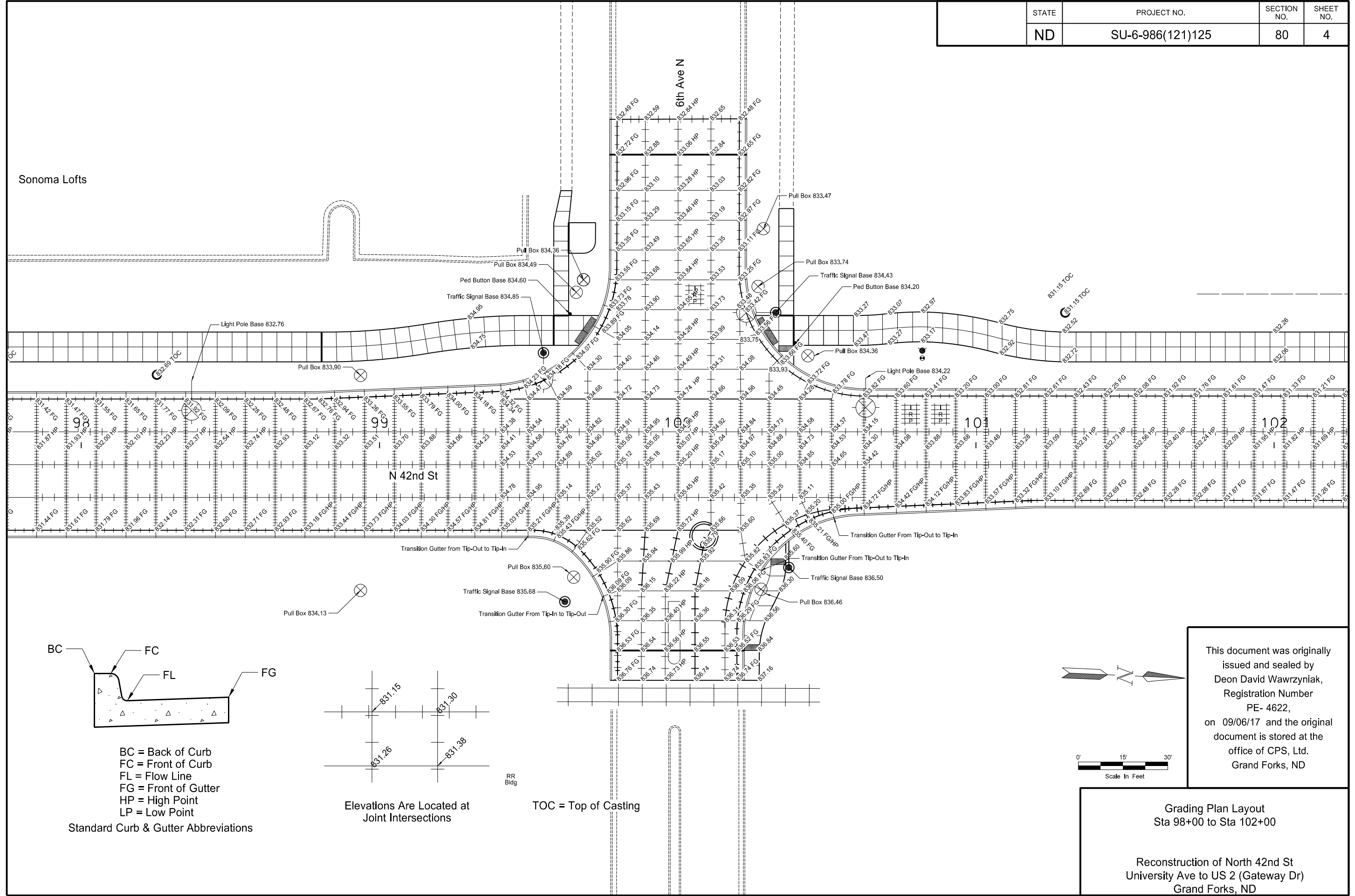
TOC = Top of Casting



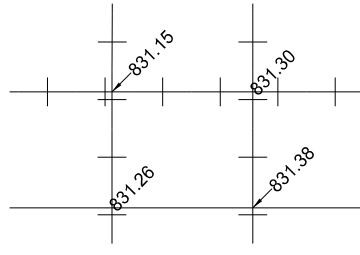
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Grading Plan Layout
Sta 94+00 to Sta 98+00
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	4



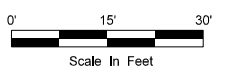
BC = Back of Curb
 FC = Front of Curb
 FL = Flow Line
 FG = Front of Gutter
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 LP = Low Point
 Standard Curb & Gutter Abbreviations



Elevations Are Located at Joint Intersections

TOC = Top of Casting

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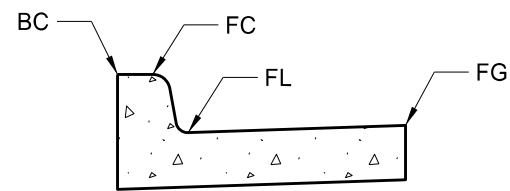
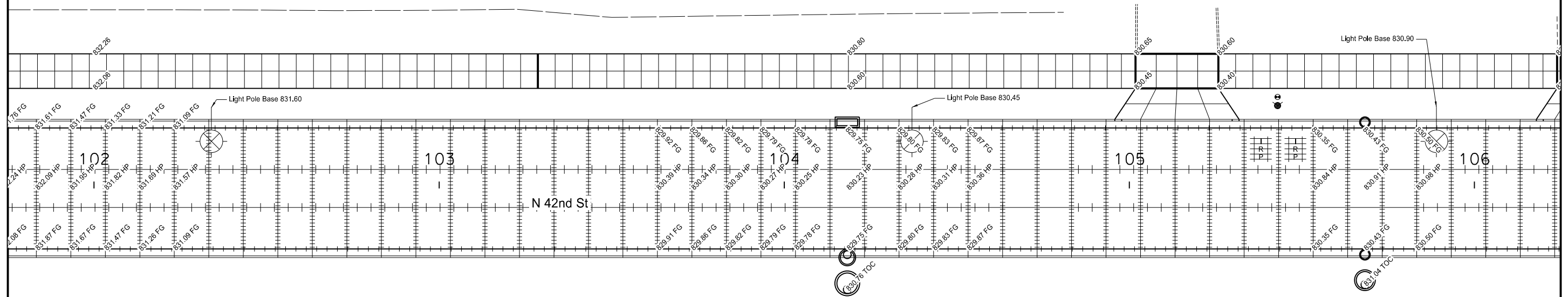


Grading Plan Layout
 Sta 98+00 to Sta 102+00
 Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	5

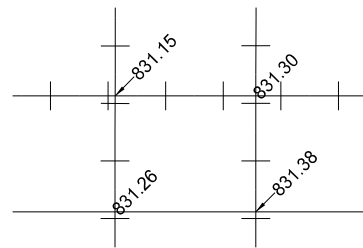
Bristol Park
Apartments

Bristol Park
Apartments



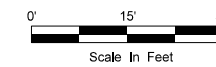
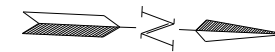
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Standard Curb & Gutter Abbreviations



Elevations Are Located at
Joint Intersections

TOC = Top of Casting



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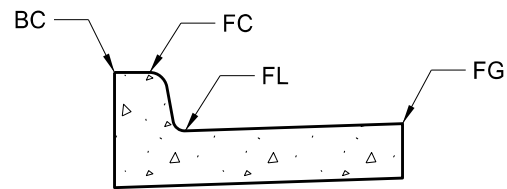
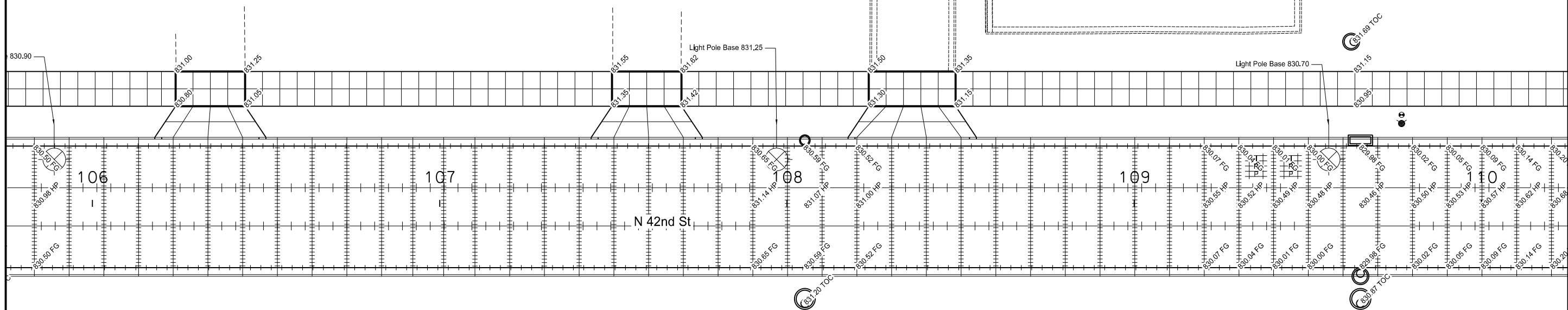
Grading Plan Layout
Sta 102+00 to Sta 106+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	6

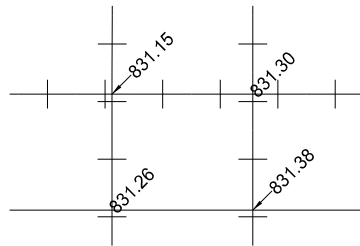
Speedway Grill & Bar Parking Lot

Advanced Business Methods



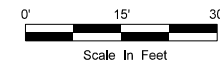
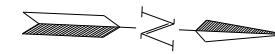
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Standard Curb & Gutter Abbreviations



Elevations Are Located at Joint Intersections

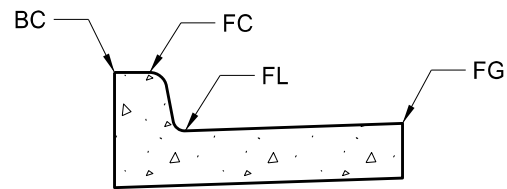
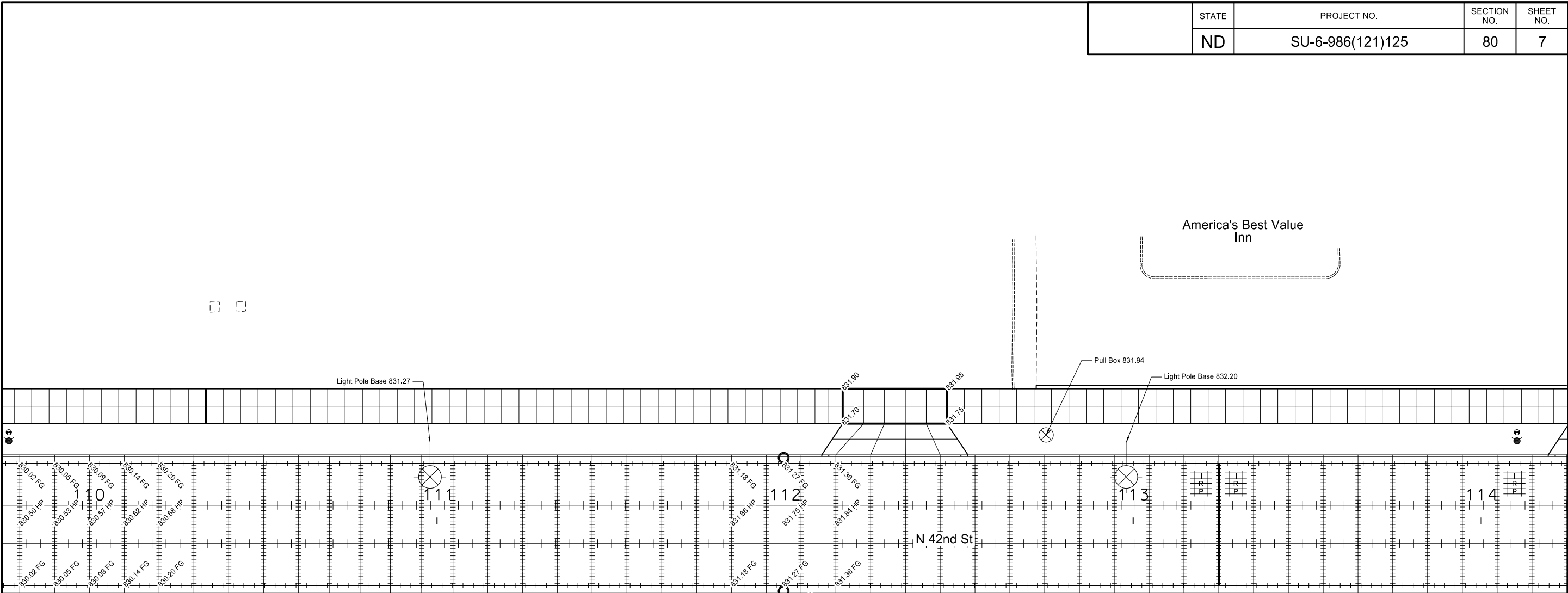
TOC = Top of Casting



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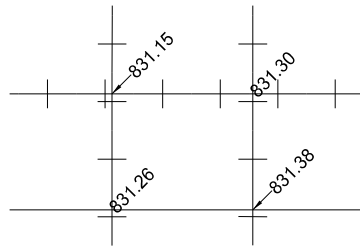
Grading Plan Layout
 Sta 106+00 to Sta 110+00
 Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	7



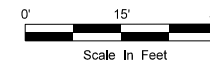
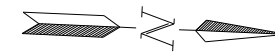
BC = Back of Curb
FC = Front of Curb
FL = Flow Line
FG = Front of Gutter
HP = High Point
LP = Low Point

Standard Curb & Gutter Abbreviations



Elevations Are Located at
Joint Intersections

TOC = Top of Casting

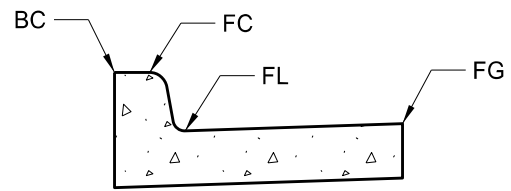
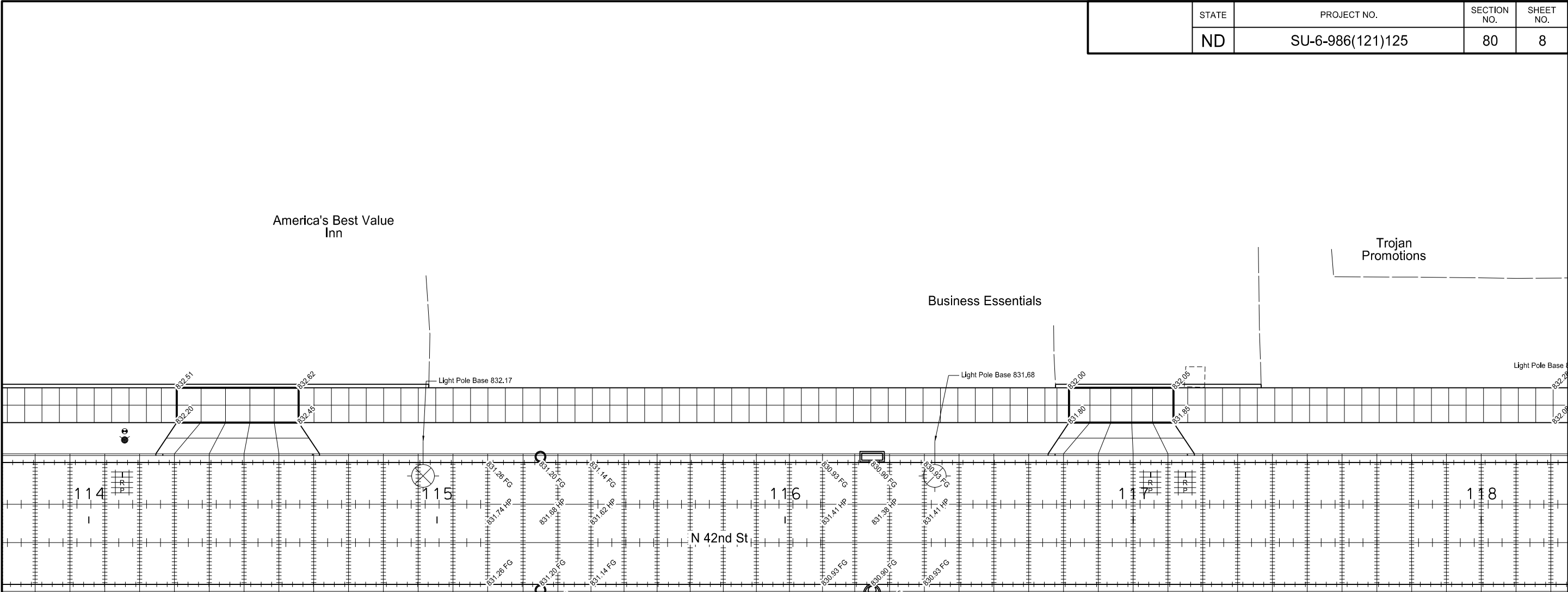


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Grading Plan Layout
Sta 110+00 to Sta 114+00

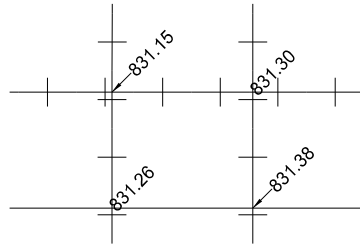
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	8



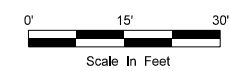
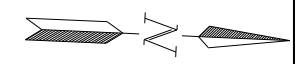
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Standard Curb & Gutter Abbreviations



Elevations Are Located at
 Joint Intersections

TOC = Top of Casting

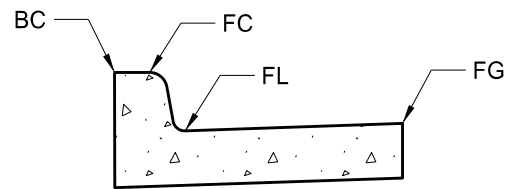
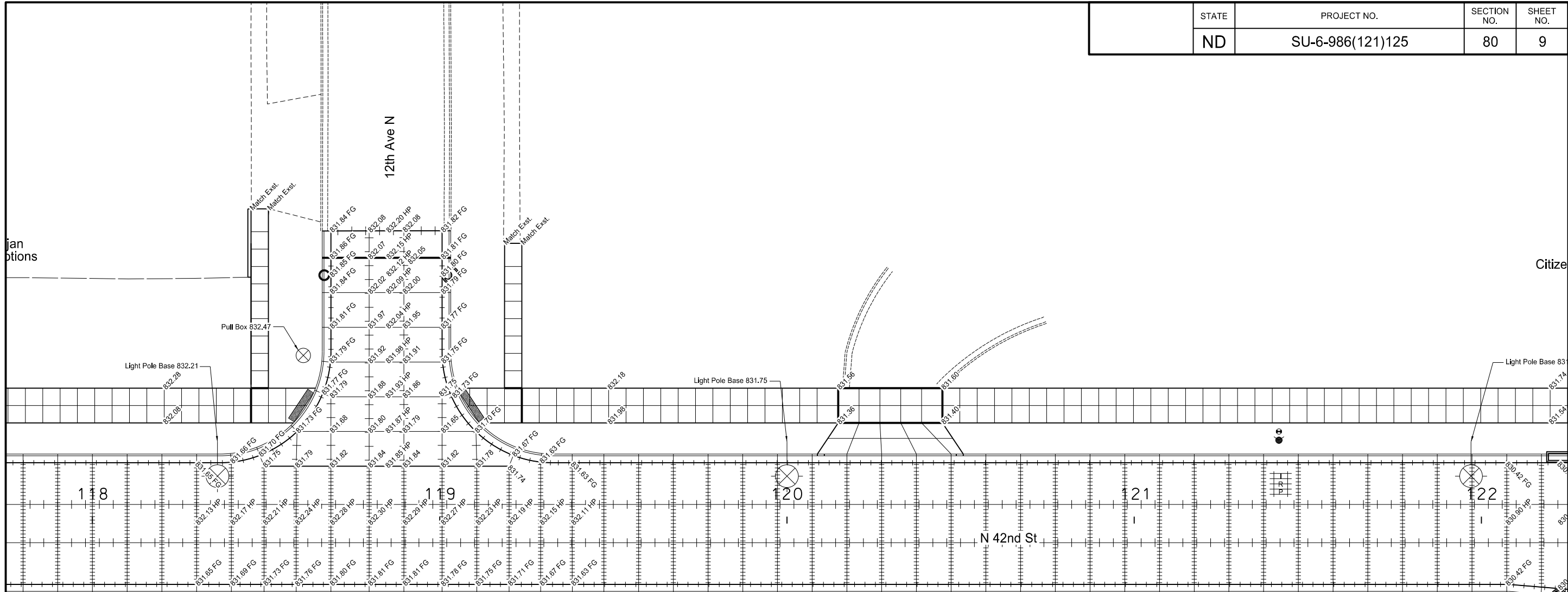


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Grading Plan Layout
 Sta 114+00 to Sta 118+00

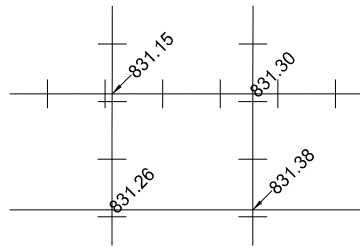
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	9



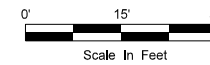
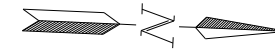
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Standard Curb & Gutter Abbreviations



Elevations Are Located at
 Joint Intersections

TOC = Top of Casting

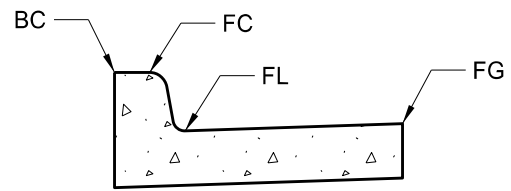
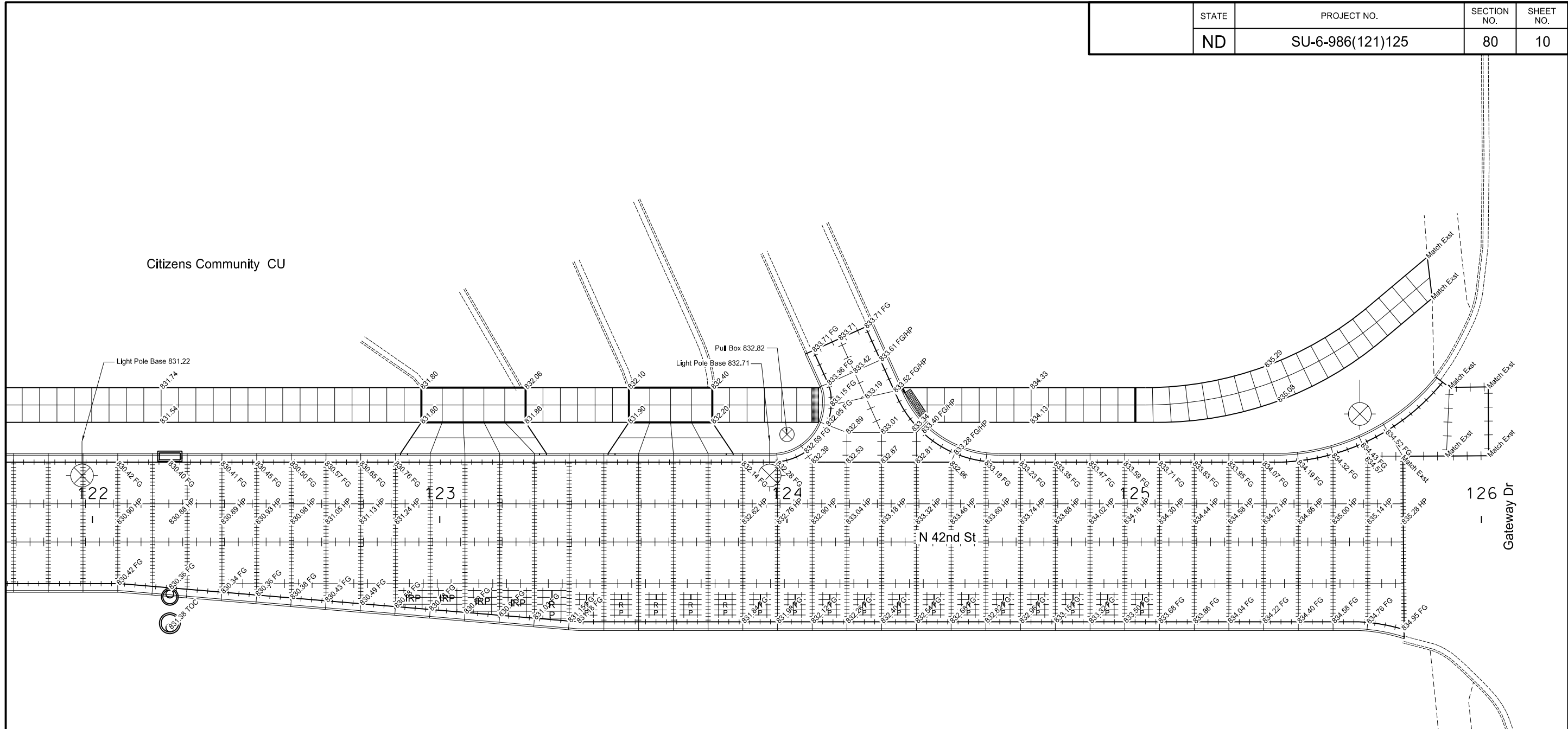


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Grading Plan Layout
 Sta 118+00 to Sta 122+00

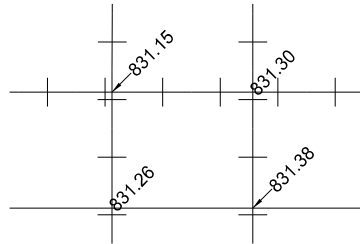
Reconstruction of North 42nd St
 University Ave to US 2 (Gateway Dr)
 Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	10



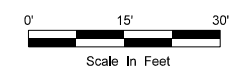
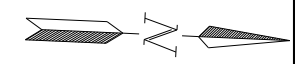
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FL = Flow Line
FG = Front of Gutter
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LP = Low Point

Standard Curb & Gutter Abbreviations



Elevations Are Located at Joint Intersections

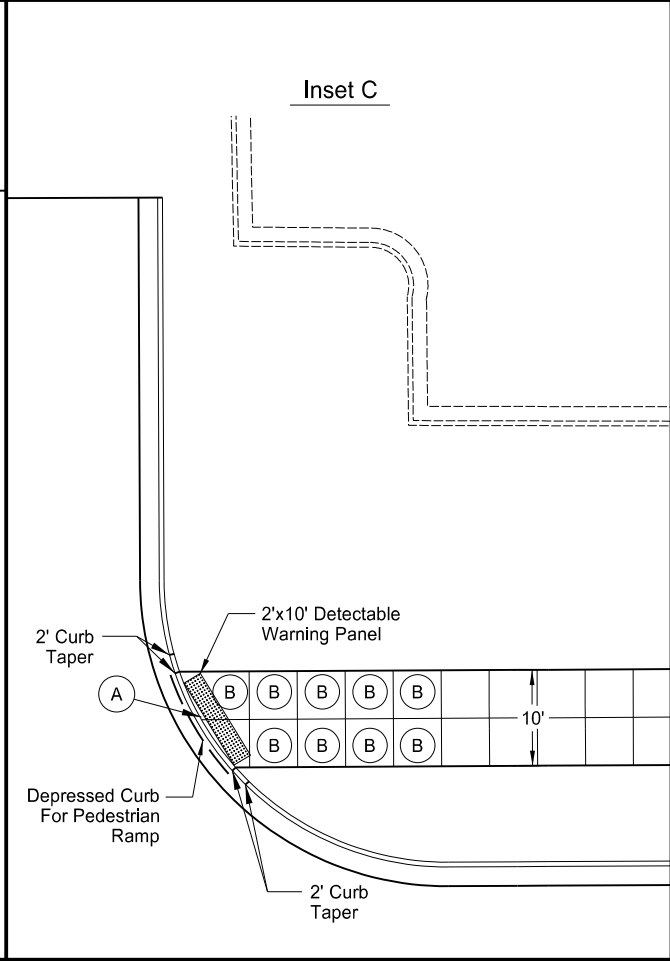
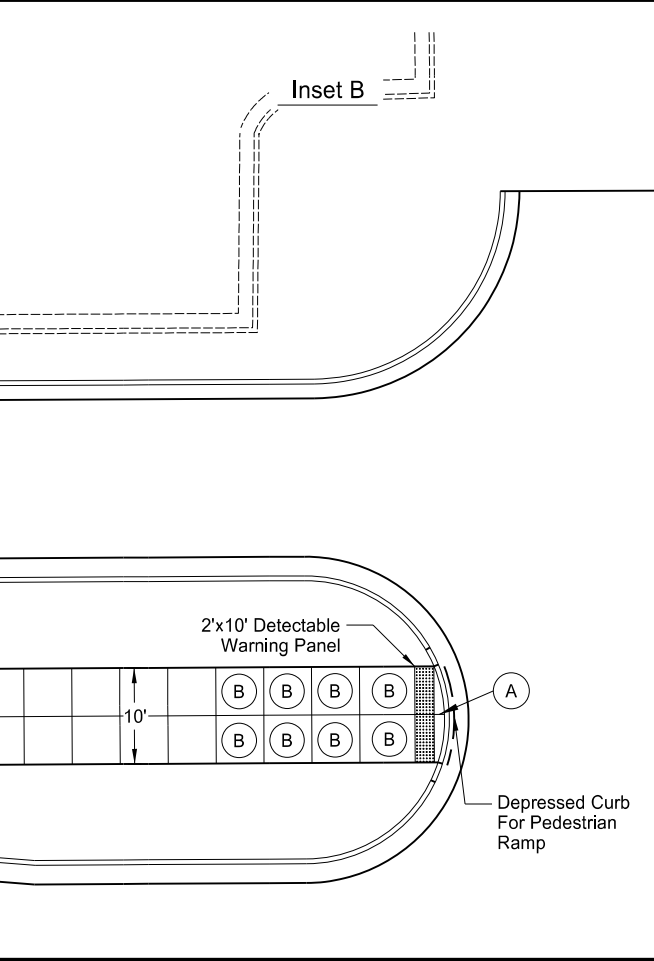
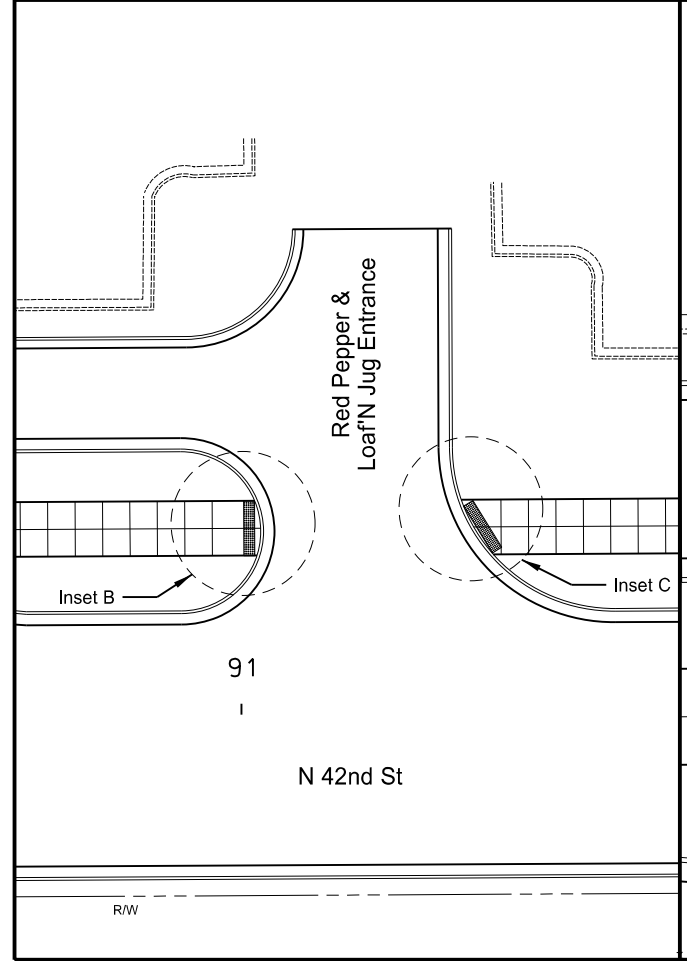
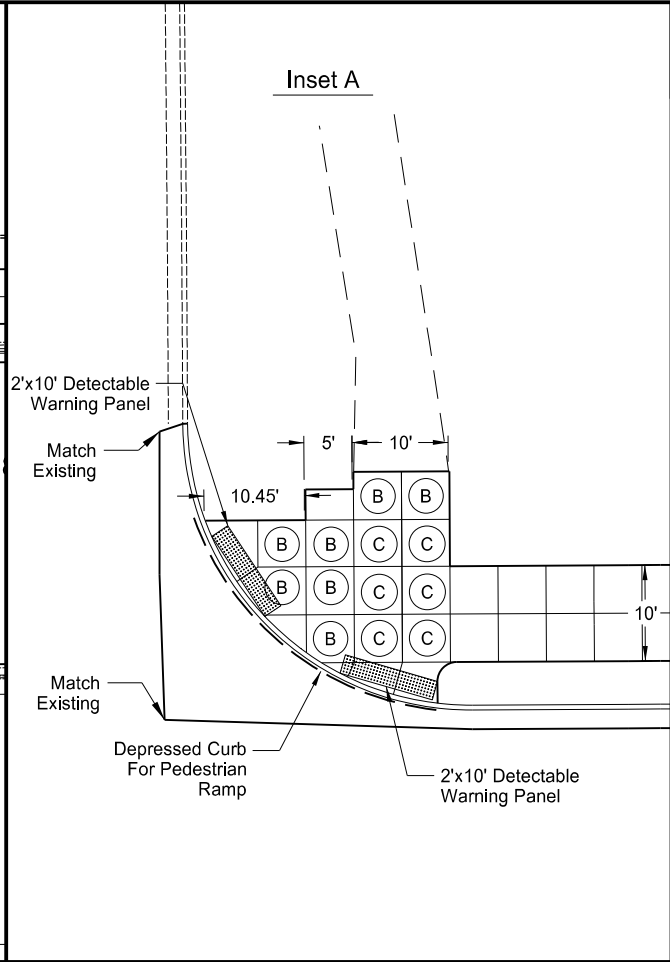
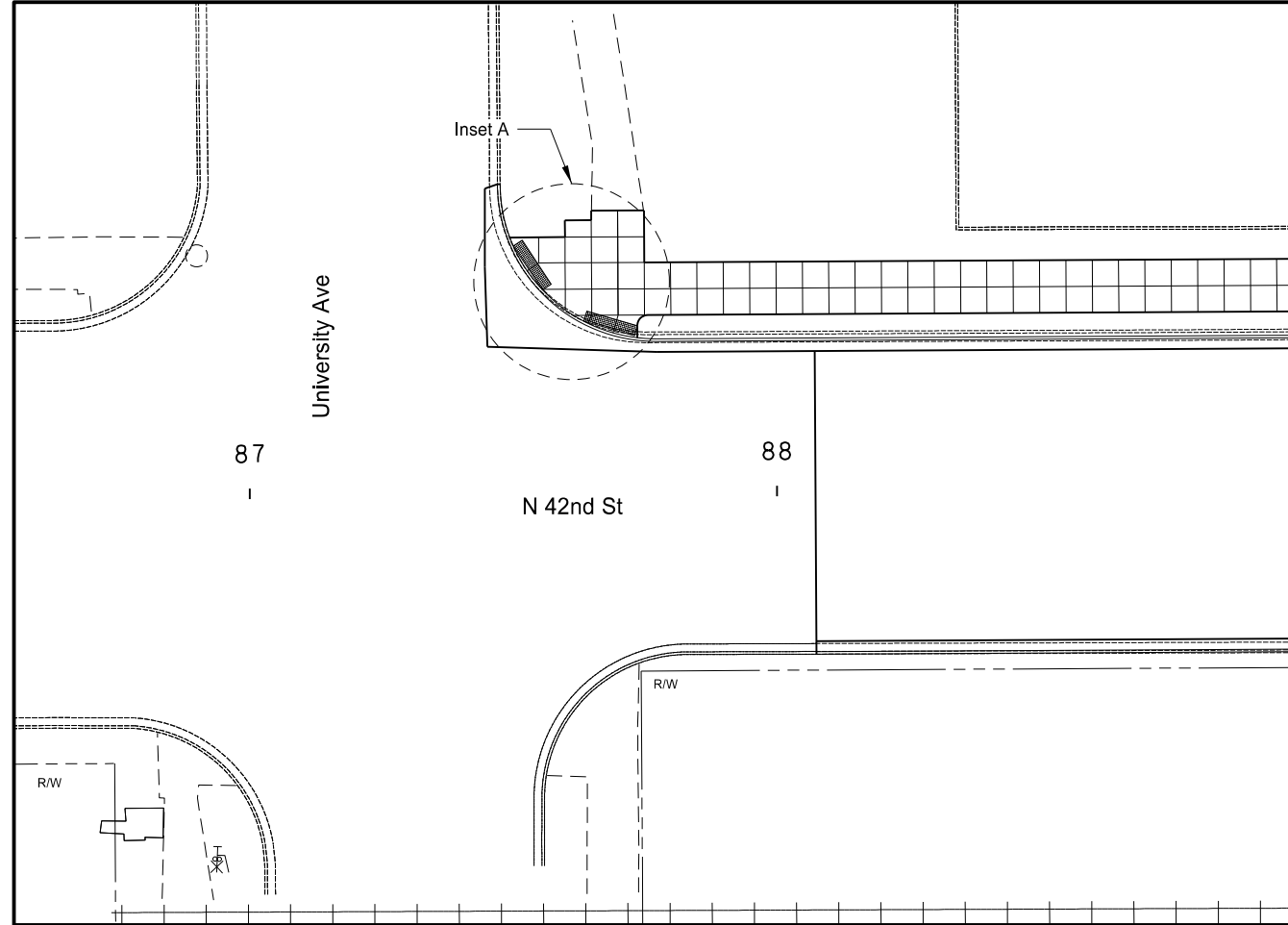
TOC = Top of Casting



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Grading Plan Layout
Sta 122+00 to Sta 126+00
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

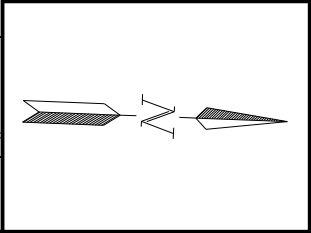
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	11



- Notes:
1. The Engineer Shall Approve All Form Grades Prior to Placement of Concrete.
 2. Any Ramp Found to be in Noncompliance Shall Be Removed and Replaced by the Contractor at Their Own Expense.
 3. Dimensions Shown May Vary From Actual. Contractor Shall Field Adjust if Maximum Slopes Cannot be met with Dimensions Shown.
 4. Stations and Offsets Given are to the Center of the Detectable Warning Panel.
 5. All Curb Ramp Flares are Grass Unless Otherwise Noted.

- (A) Initial Landing
5' Max. Length
1:50 Maximum Running Slope
1:50 Maximum Cross Slope
- (B) Curb Ramp
1:12 Maximum Running Slope
1:50 Maximum Cross Slope
- (C) Landing
5' x 5' Minimum
1:50 Maximum Running Slope
1:50 Maximum Cross Slope

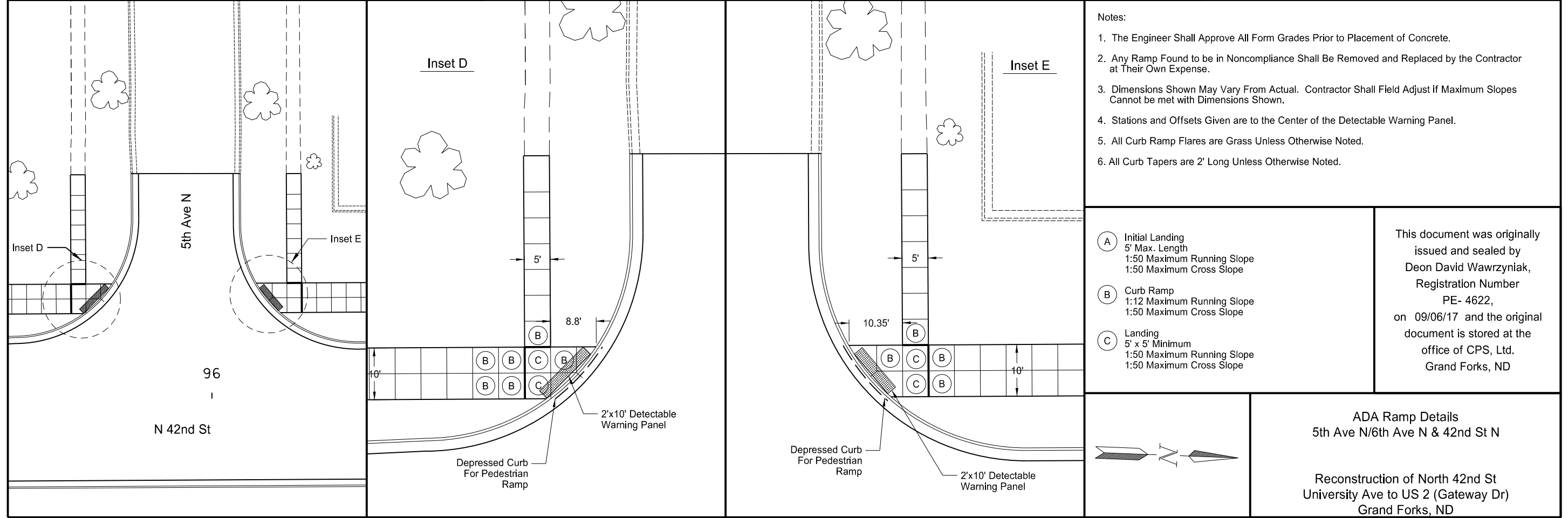
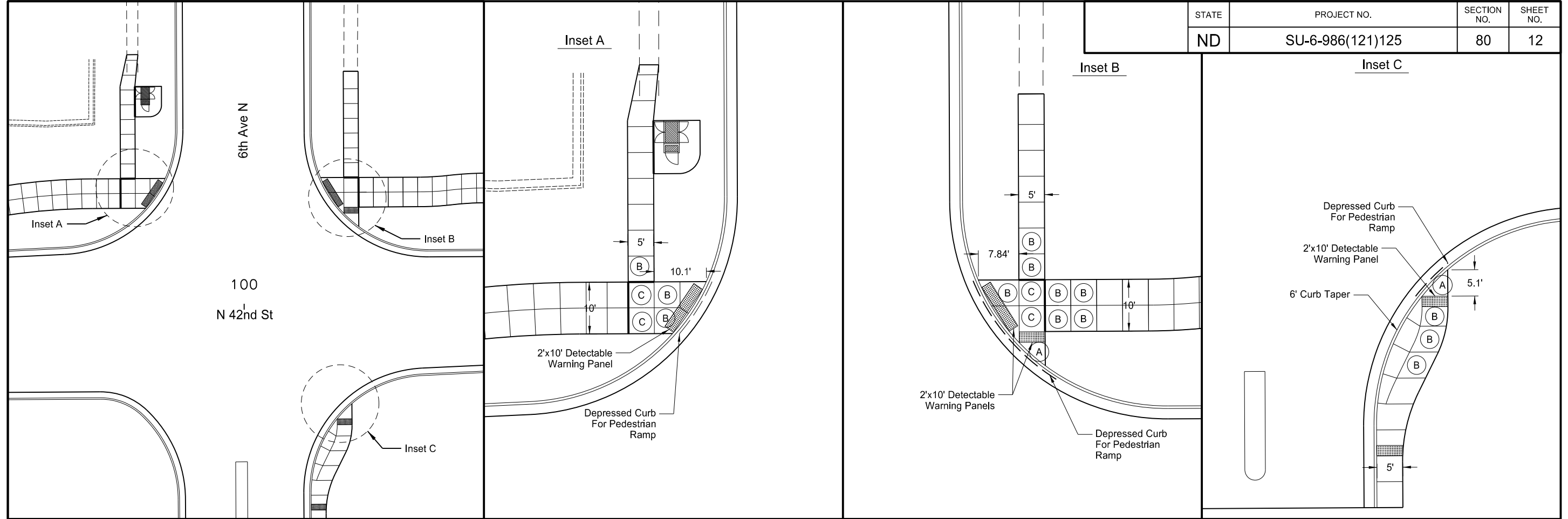
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ADA Ramp Details
University Ave/Loaf'N Jug Entrance & N 42nd St

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	80	12



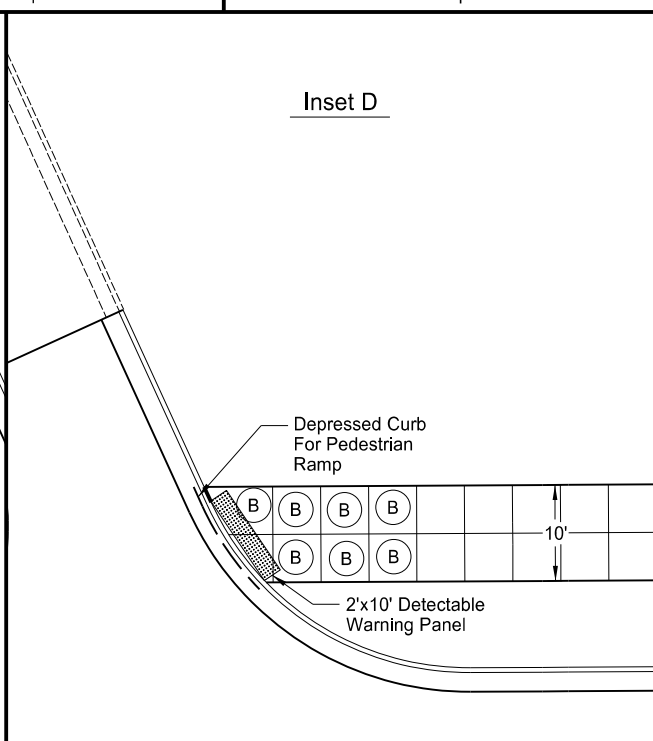
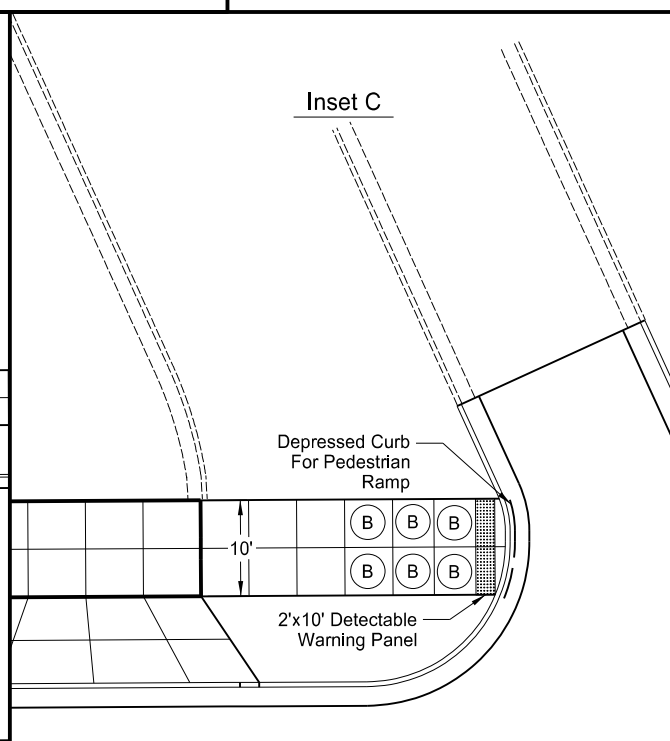
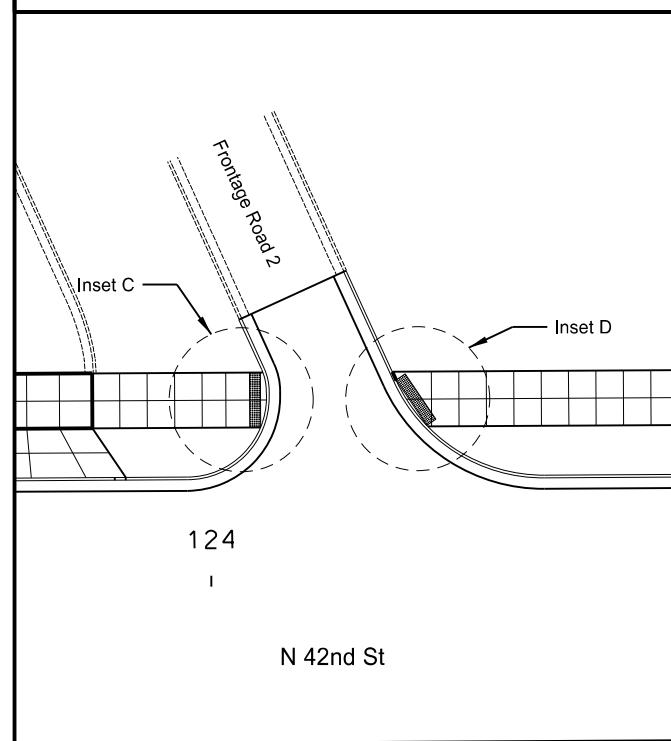
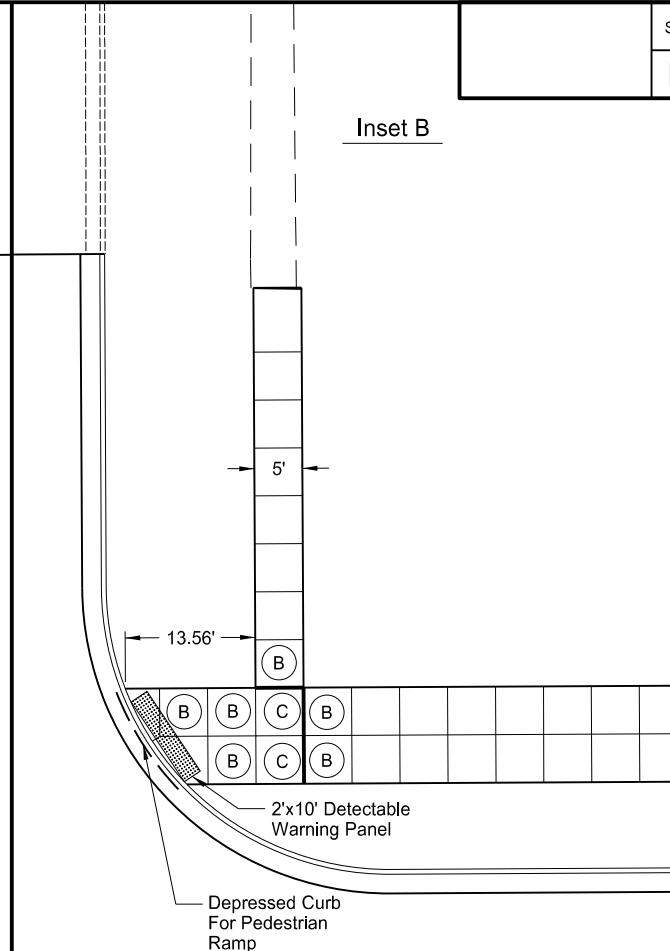
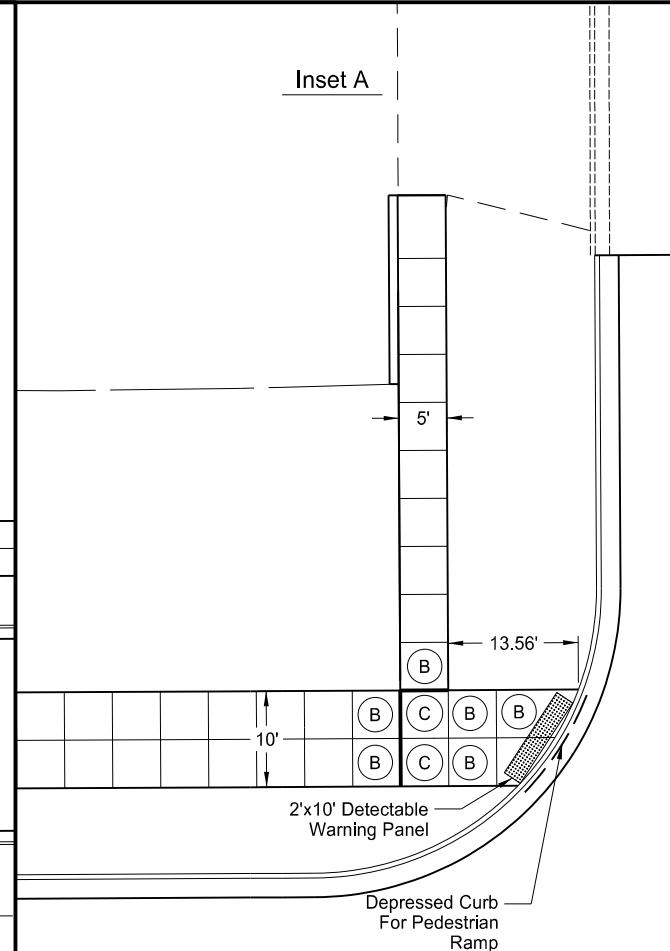
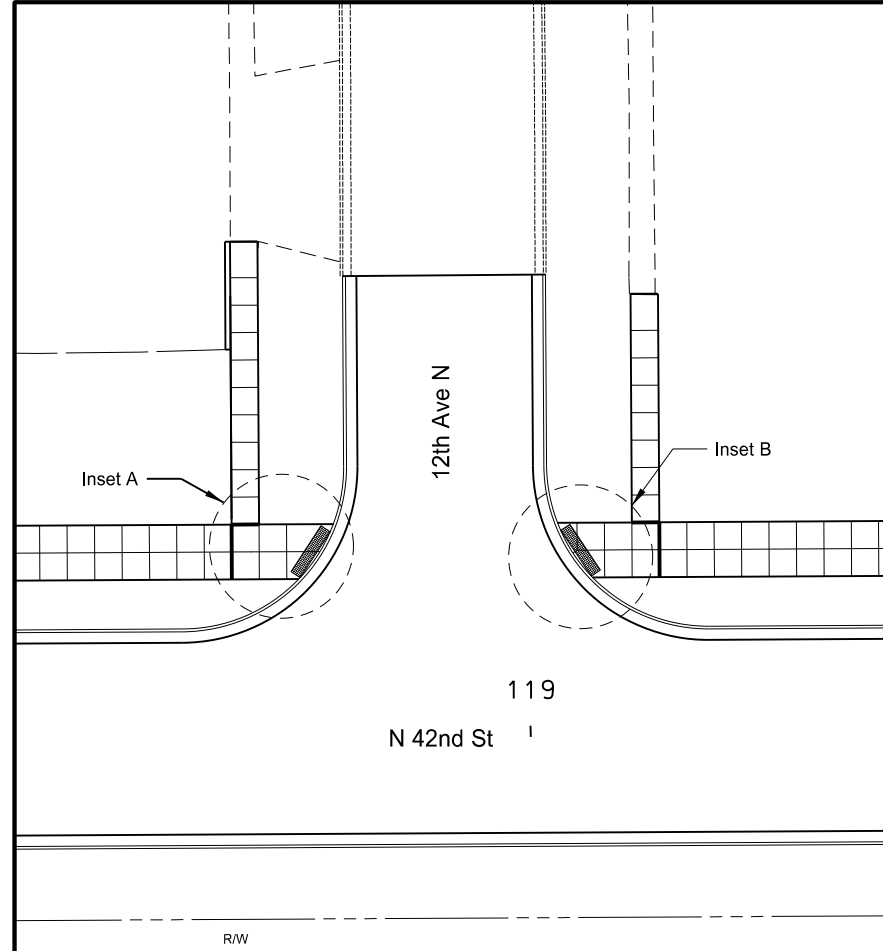
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 3. Dimensions Shown May Vary From Actual. Contractor Shall Field Adjust if Maximum Slopes Cannot be met with Dimensions Shown.
 4. Stations and Offsets Given are to the Center of the Detectable Warning Panel.
 5. All Curb Ramp Flares are Grass Unless Otherwise Noted.
 6. All Curb Tapers are 2' Long Unless Otherwise Noted.

- (A) Initial Landing
5' Max. Length
1:50 Maximum Running Slope
1:50 Maximum Cross Slope
- (B) Curb Ramp
1:12 Maximum Running Slope
1:50 Maximum Cross Slope
- (C) Landing
5' x 5' Minimum
1:50 Maximum Running Slope
1:50 Maximum Cross Slope

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ADA Ramp Details
5th Ave N/6th Ave N & 42nd St N

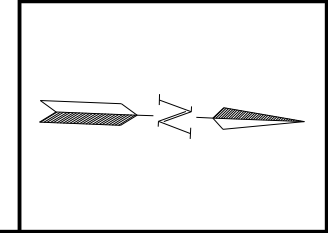
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND



- Notes:
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- (B) Curb Ramp
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1:50 Maximum Cross Slope
- (C) Landing
5' x 5' Minimum
1:50 Maximum Running Slope
1:50 Maximum Cross Slope

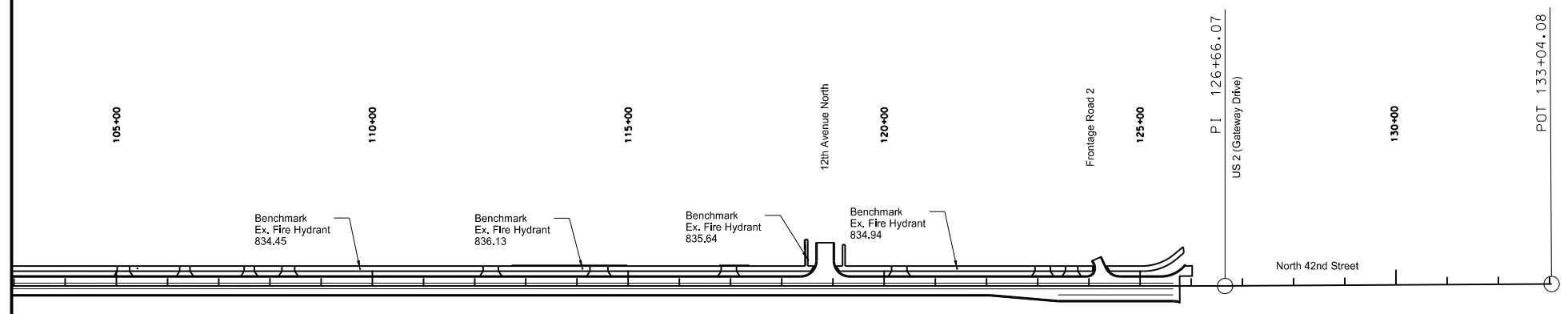
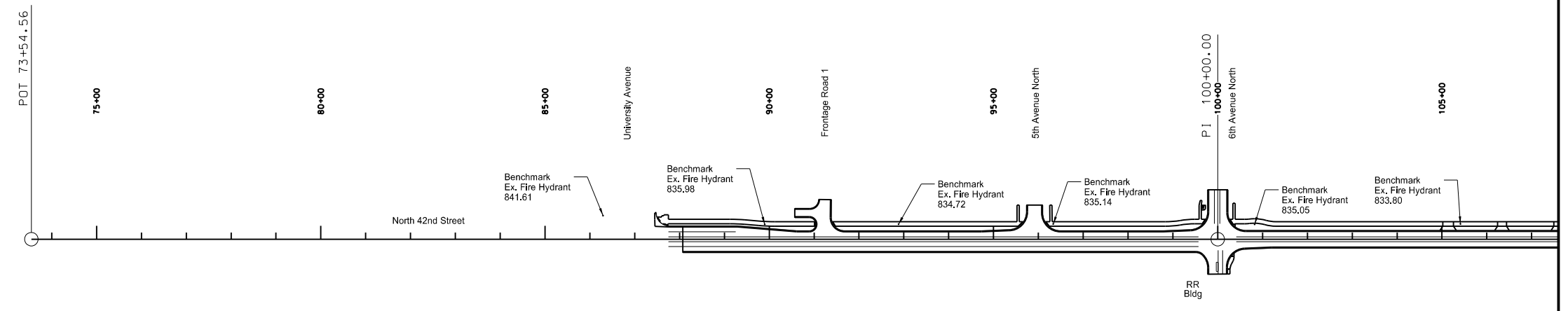
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Grand Forks, ND



ADA Ramp Details
12th Ave N/Grand Forks Inn Suites & N 42nd St

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	82	1



Beginning chain EX42 description

Point 1	N	353,576.1288 E	2,804,831.7879	Sta	73+54.56
Course from 1 to 2 N 2° 30' 14.86" W Dist 2,645.4404					
Point 2	N	356,219.0430 E	2,804,716.2050	Sta	100+00.00
Course from 2 to 3 N 2° 30' 05.77" W Dist 2,666.0728					
Point 3	N	358,882.5750 E	2,804,599.8380	Sta	126+66.07
Course from 3 to 4 N 2° 51' 13.36" W Dist 638.0117					
Point 4	N	359,519.7955 E	2,804,568.0739	Sta	133+04.08

Ending chain EX42 description

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Survey Data Layouts
Sta 73+54.56 to Sta 133+04.08

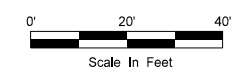
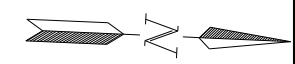
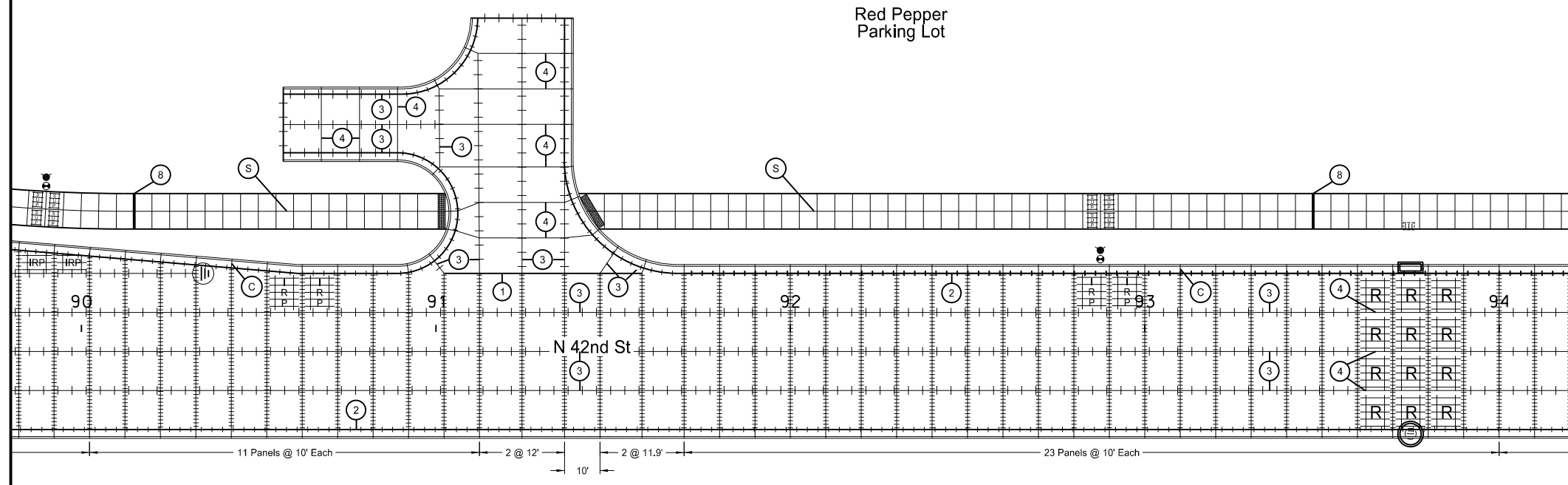
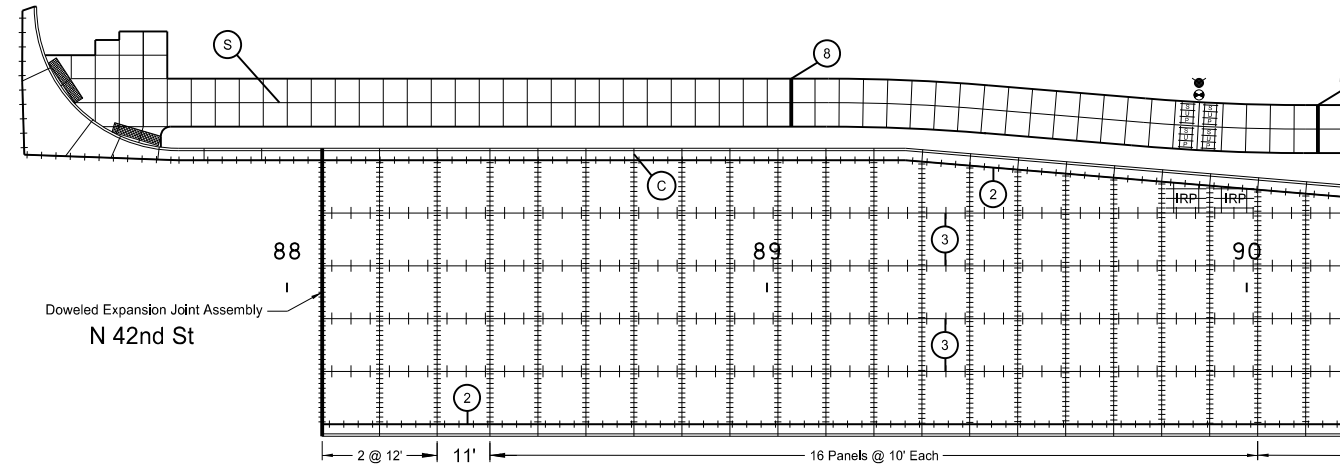
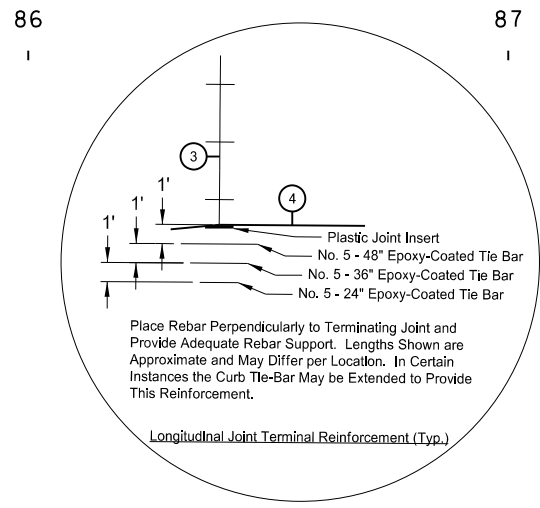
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	90	1

University Ave

Loaf'N Jug

Key	Description
①	Type 1 Joint
②	Type 2 Joint
③	Type 3 or Type 5 Joint
④	Type 4 Joint
⑤	Type 5 Joint
⑦	Type 7 Joint
⑧	Type 8 Joint
⑨	Type 9 Joint
Ⓒ	Curb Contraction Joint
Ⓔ	Sidewalk/Bikeway/Median Sawcut
Ⓕ	Longitudinal Joint Terminal Reinforcement
Ⓖ	Contraction Joint Dowel Assembly
Ⓗ	Reinforced Panels
Ⓘ	Individually Reinforced Panels
10'	Panel Dimension

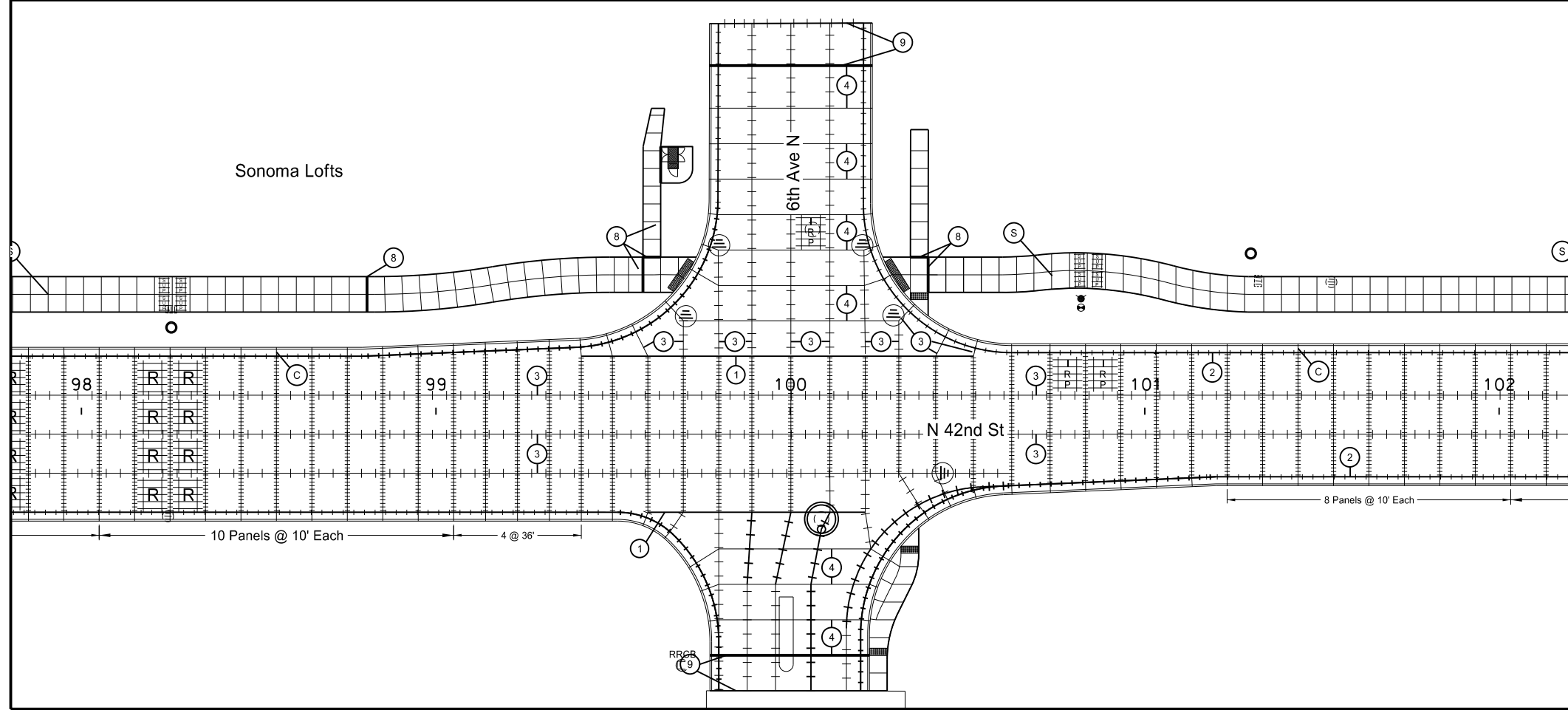
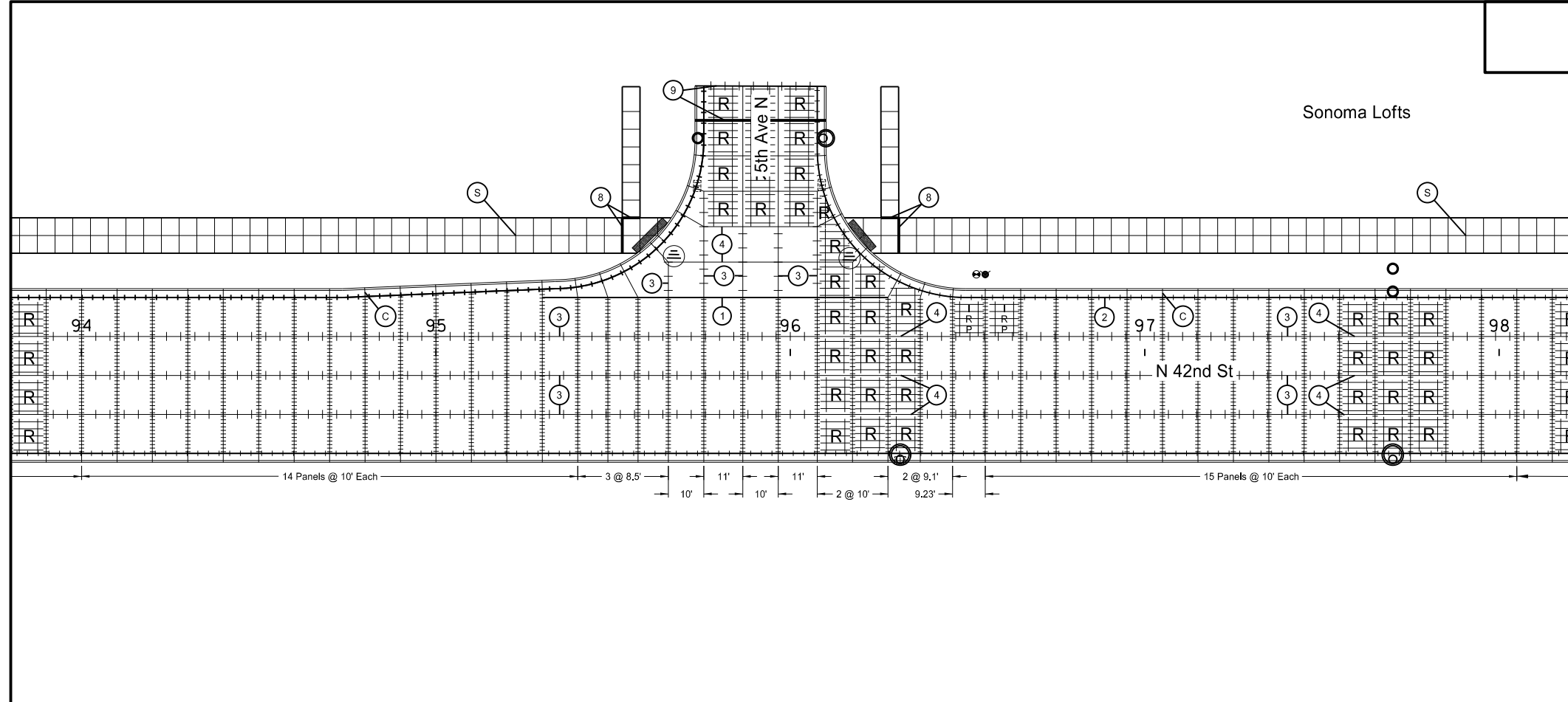


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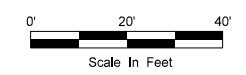
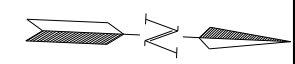
Pavement Joint Layout
Sta 86+00 to Sta 94+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	90	2



Key	Description
①	Type 1 Joint
②	Type 2 Joint
③	Type 3 or Type 5 Joint
④	Type 4 Joint
⑤	Type 5 Joint
⑦	Type 7 Joint
⑧	Type 8 Joint
⑨	Type 9 Joint
Ⓢ	Curb Contraction Joint
Ⓢ	Sidewalk/Bikeway/Median Sawcut
⊖	Longitudinal Joint Terminal Reinforcement
⊖	Contraction Joint Dowel Assembly
⊖	Reinforced Panels
⊖	Individually Reinforced Panels
10'	Panel Dimension



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Pavement Joint Layout
Sta 94+00 to Sta 102+00

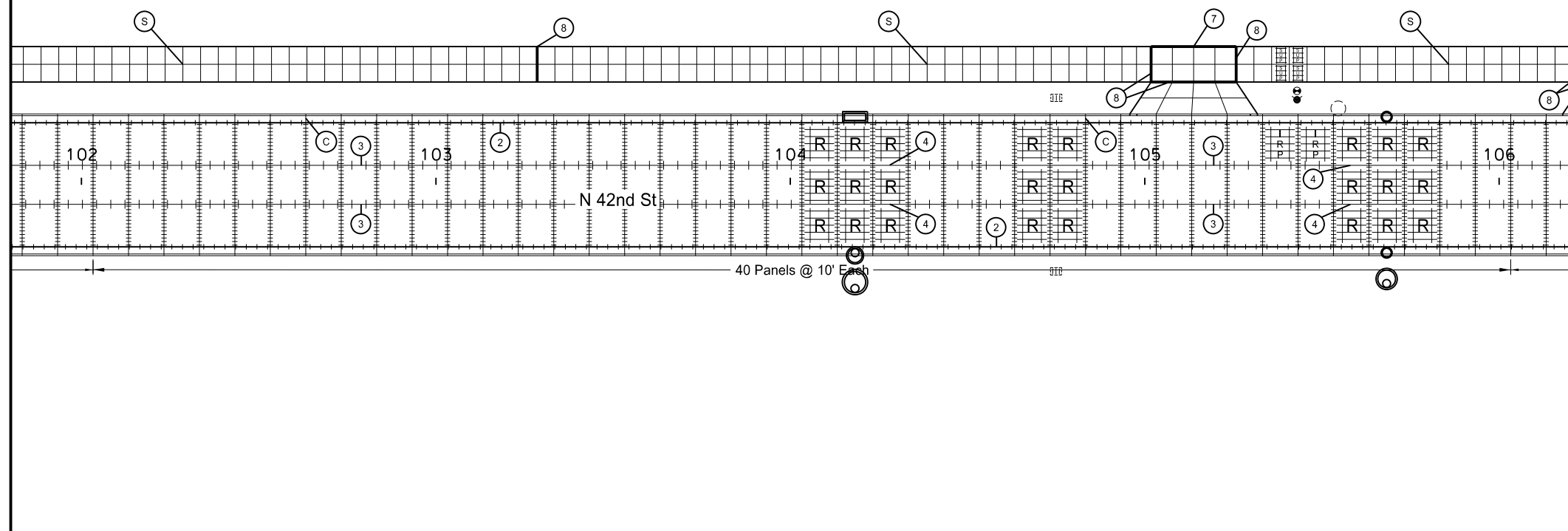
Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

Bristol Park
Apartments

Bristol Park
Apartments

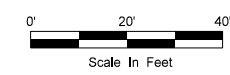
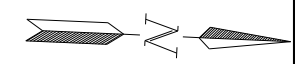
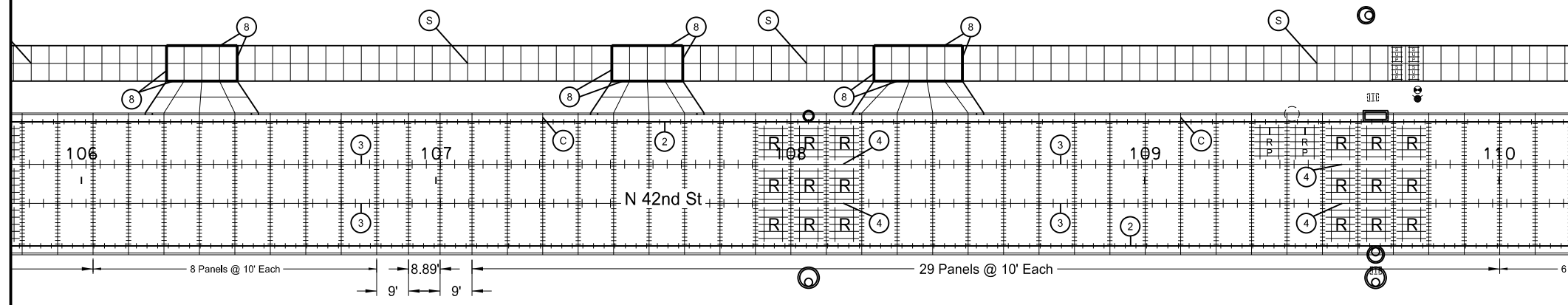
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	90	3

Key	Description
①	Type 1 Joint
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⑤	Type 5 Joint
⑦	Type 7 Joint
⑧	Type 8 Joint
⑨	Type 9 Joint
Ⓢ	Curb Contraction Joint
Ⓣ	Sidewalk/Bikeway/Median Sawcut
Ⓧ	Longitudinal Joint Terminal Reinforcement
Ⓨ	Contraction Joint Dowel Assembly
Ⓩ	Reinforced Panels
ⓐ	Individually Reinforced Panels
10'	Panel Dimension



Speedway Grill & Bar
Parking Lot

Advanced Business Methods



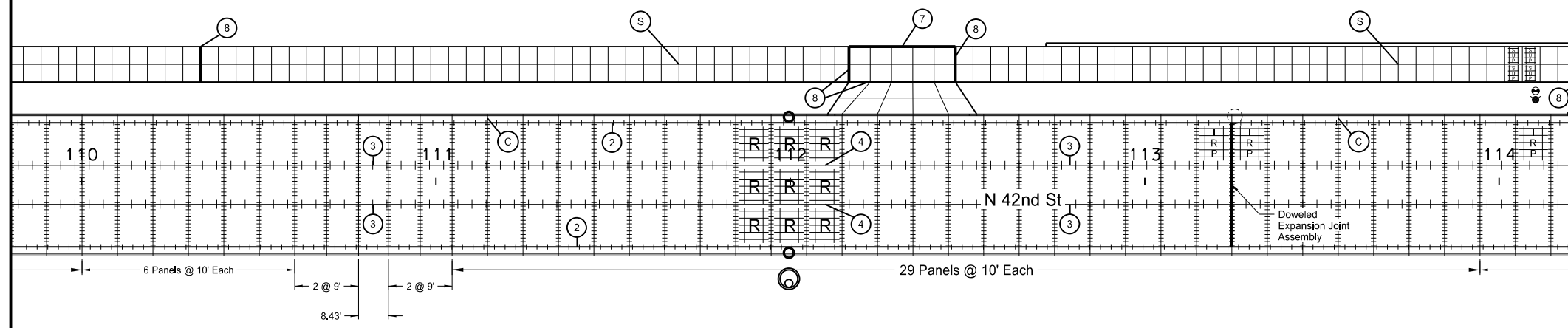
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Pavement Joint Layout
Sta 102+00 to Sta 110+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	90	4

America's Best Value Inn

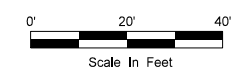
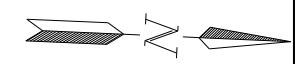
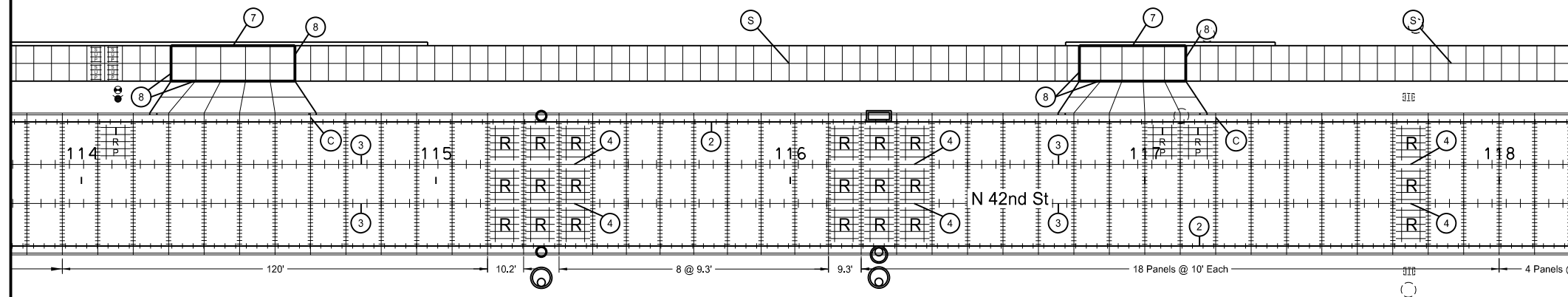


Key	Description
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⊖	Longitudinal Joint Terminal Reinforcement
⊖	Contraction Joint Dowel Assembly
⊖	Reinforced Panels
⊖	Individually Reinforced Panels
10'	Panel Dimension

America's Best Value Inn

Trojan Promotions

Business Essentials

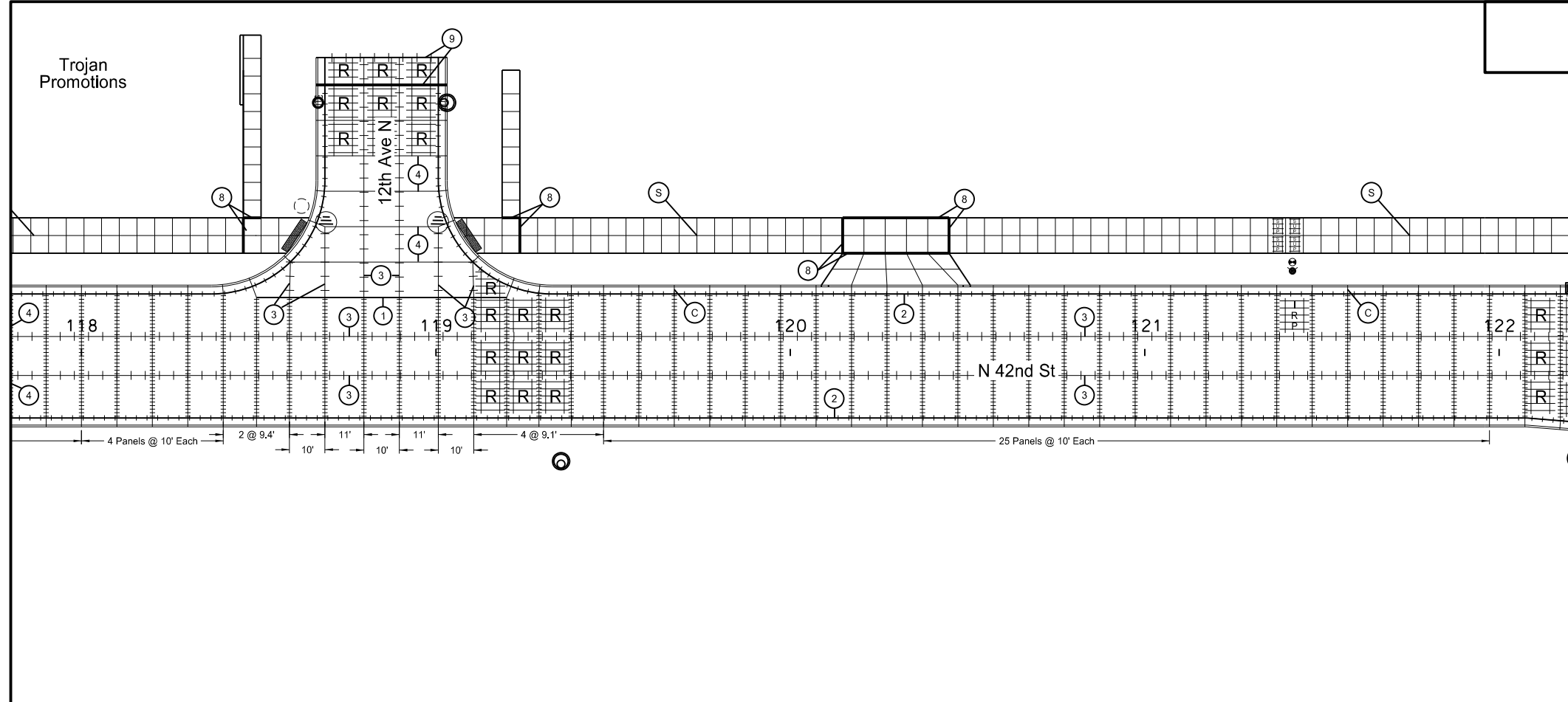


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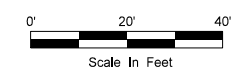
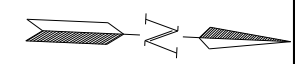
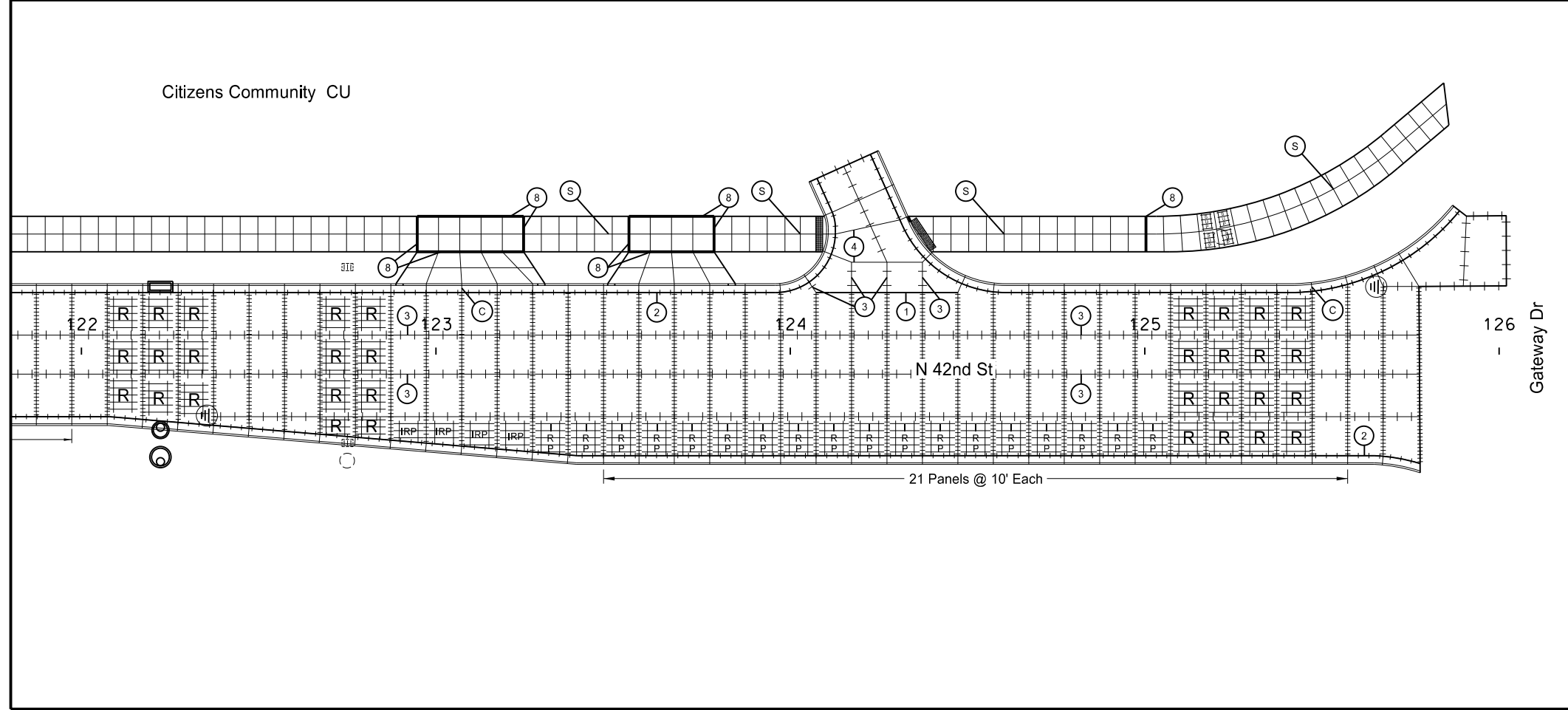
Pavement Joint Layout
Sta 110+00 to Sta 118+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-6-986(121)125	90	5



Key	Description
①	Type 1 Joint
②	Type 2 Joint
③	Type 3 or Type 5 Joint
④	Type 4 Joint
⑤	Type 5 Joint
⑦	Type 7 Joint
⑧	Type 8 Joint
⑨	Type 9 Joint
Ⓒ	Curb Contraction Joint
Ⓔ	Sidewalk/Bikeway/Median Sawcut
Ⓕ	Longitudinal Joint Terminal Reinforcement
Ⓖ	Contraction Joint Dowel Assembly
Ⓗ	Reinforced Panels
Ⓘ	Individually Reinforced Panels
10'	Panel Dimension



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Pavement Joint Layout
Sta 118+00 to Sta 126+00

Reconstruction of North 42nd St
University Ave to US 2 (Gateway Dr)
Grand Forks, ND