DESIGN DATA			
Traffic	Average Daily - ND 20		
Current 2016	Pass: 11805	Trucks: 325	Total: 12130
Forecast 2036	Pass: 15285	Trucks: 420	Total: 15705
Clear Zone Distance: 14 LF		Design Speed: 30 MPH	
Minimum Sight Dist. for Stopping: 200 LF		Bridges:	
Limited Access Control			
Pavement Design Life 30 (years)			
Design Accumulated One-way Rigid ESALs: 2,637,562			
Traffic	Average Daily - ND 19		
Current 2016	Pass: 4730	Trucks: 140	Total: 4870
Forecast 2036	Pass: 5775	Trucks: 170	Total: 5945
Clear Zone Distance: 14 LF		Design Speed: 30 MPH	
Minimum Sight Dist. for Stopping: 200 LF		Bridges: N/A	
Limited Access Control			
Pavement Design Life 30 (years)			
Design Accumulated One-way Rigid ESALs: 1,575,686			
Traffic	6th Street NE		
Current 2016	Pass: 8790	Trucks: 90	Total: 8880
Forecast 2036	Pass: 9710	Trucks: 100	Total: 9810
Traffic	6th Avenue NE		
Current 2016	Pass: 7350	Trucks: 75	Total: 7425
Forecast 2036	Pass: 8125	Trucks: 80	Total: 8205

JOB # 7
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	17505	1	1
	NHU-3-020(074)103	17504		
	SU-3-982(031)035	21609		

NHU-3-019(044)155 - T 154 N, R 64 W, SW1/4 34
NHU-3-020(074)103 - T 154 N, R 64 W, S 34
SU-3-982(031)035 - T 154 N, R 64W, S 34

FHWA Project of Division Interest (PODI)
Ramsey County
ND Highway 19/ND Highway 20
Devils Lake, ND
Grading, Surfacing, Storm Drain, Bridges, Railroad Embankment, Railroad Sub-Ballast, Lighting, Marking, Concrete Sidewalk, Retaining Wall, and Incidentals

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
NHU-3-019(044)155 \ ND Highway 19	0.255	0.255
NHU-3-020(074)103 \ ND Highway 20	0.331	0.331
SU-3-982(031)035 \ 6th St NE Detour	0.674	0.636

BEGIN PROJECT:
SU-3-982(031)035
6th Street NE
Sta. 602+18.55

BRIDGE STRUCTURE:
Burlington Northern Santa Fe Railway
Str. # 20-103.403
Sta. 5459+00.57

END PROJECT:
NHU-3-020(074)103
ND Highway 20
Sta. 5465+35.00
RP 103.51

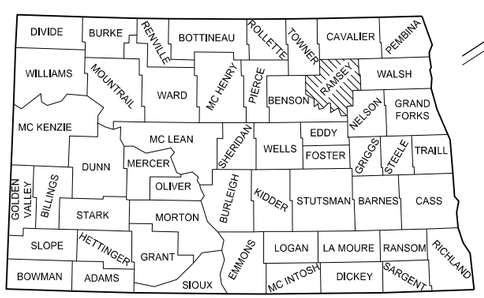
END PROJECT:
SU-3-982(031)035
6th Avenue NE
Sta. 637+77.55

BEGIN PROJECT:
NHU-3-019(044)155
ND Highway 19
Sta. 8187+12.00
RP 155.06

END PROJECT:
NHU-3-019(044)155
ND Highway 19
Sta. 8200+60.55
RP 155.31

BEGIN PROJECT:
NHU-3-020(074)103
ND Highway 20
Sta. 5447+86.00
RP 103.18

N



STATE COUNTY MAP

DESIGNERS

ERIK GILBERTSON, PE

CHRIS HORNER, PE

BRAD KOON, PE

MATT LANGE, PE

COLIN MORAN, PE

APPROVED DATE 08/29/16

ROGER WEIGEL /s/
OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

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 08/18/16

CHAD A. PETERSEN /s/
KLJ

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	2	1

NHU-3-020(074)103 / SU-3-982(031)035

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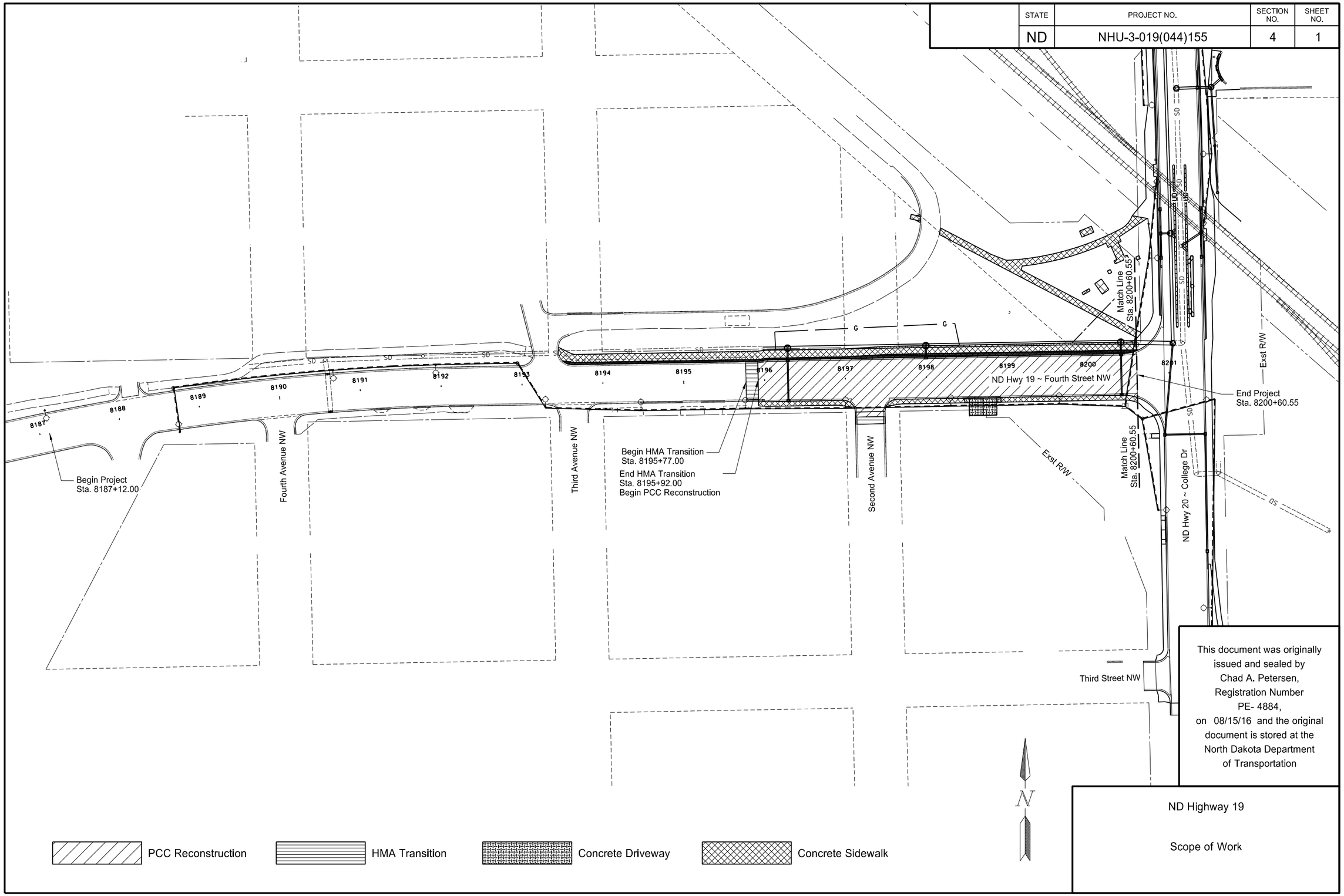
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	4	1



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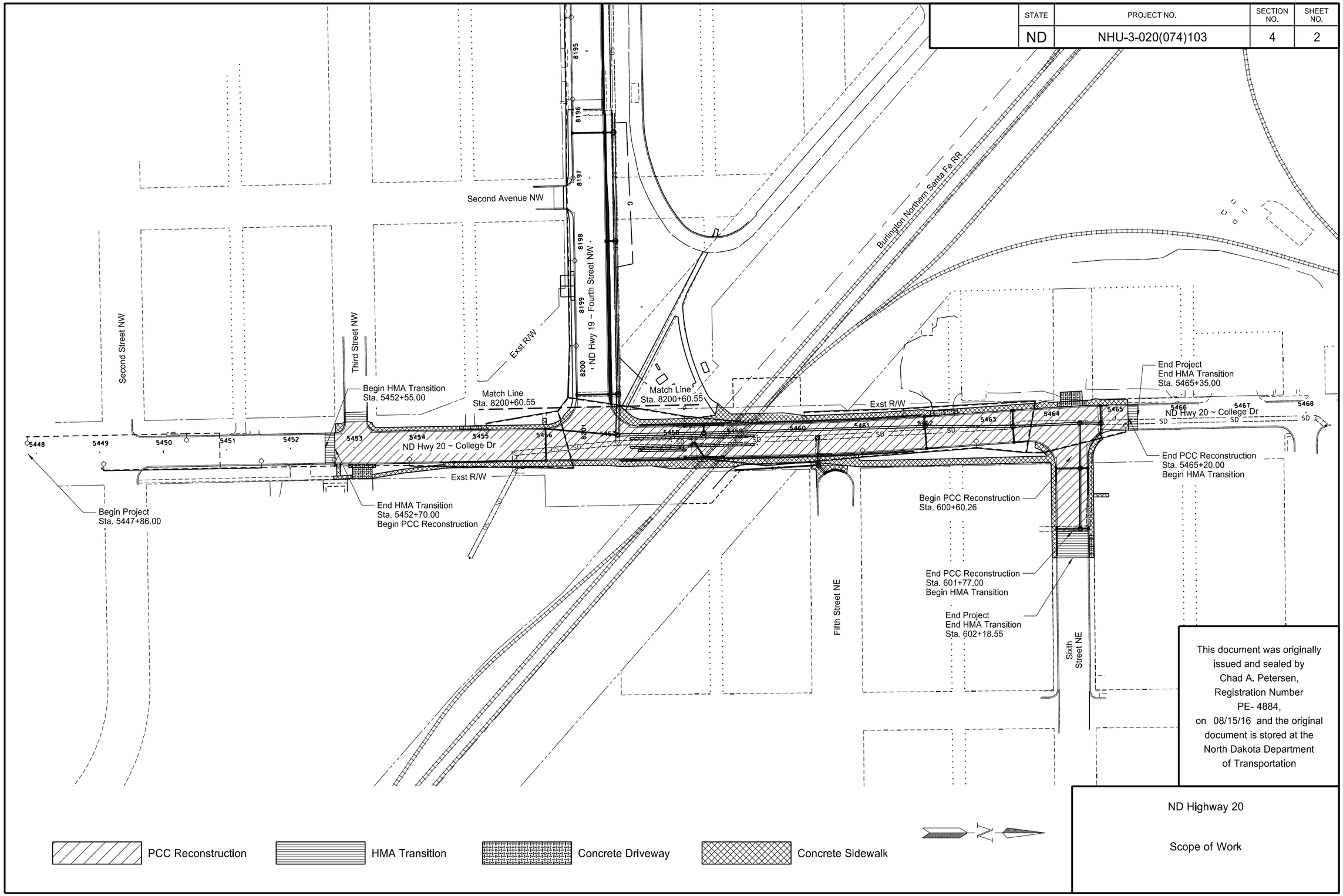
ND Highway 19

Scope of Work

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	4	2



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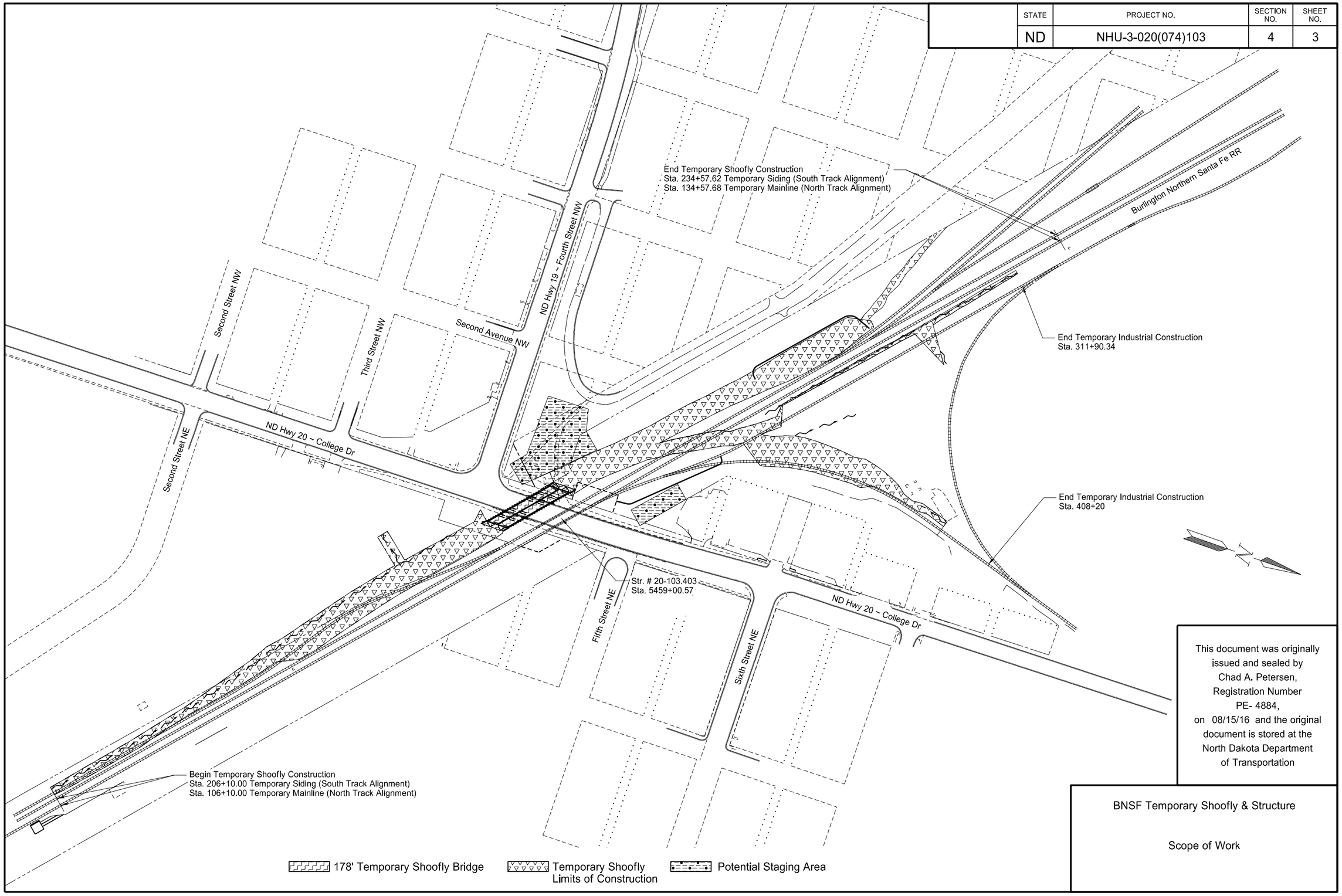
ND Highway 20

Scope of Work

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	4	3



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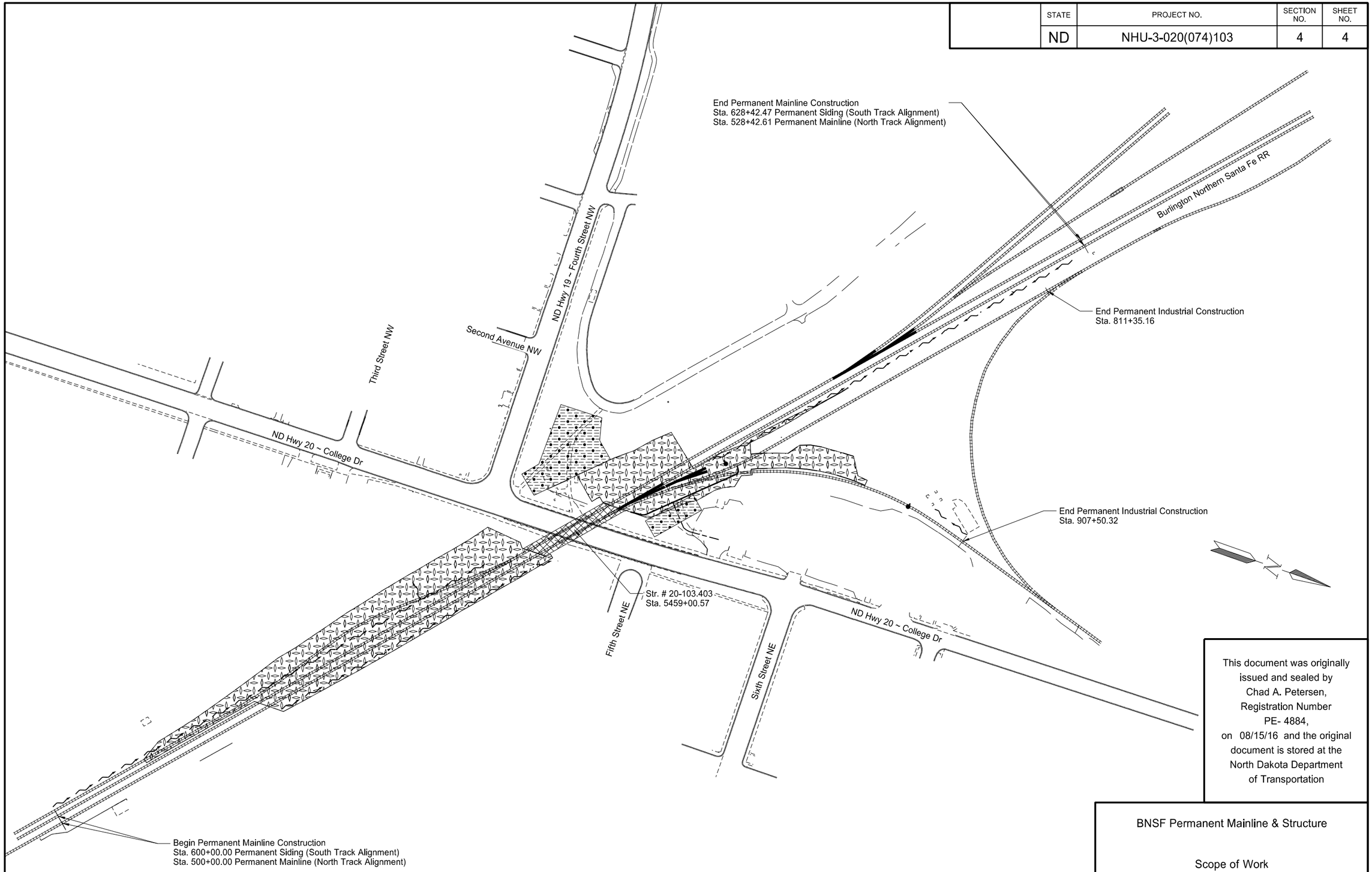
BNSF Temporary Shoofly & Structure

Scope of Work

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	4	4



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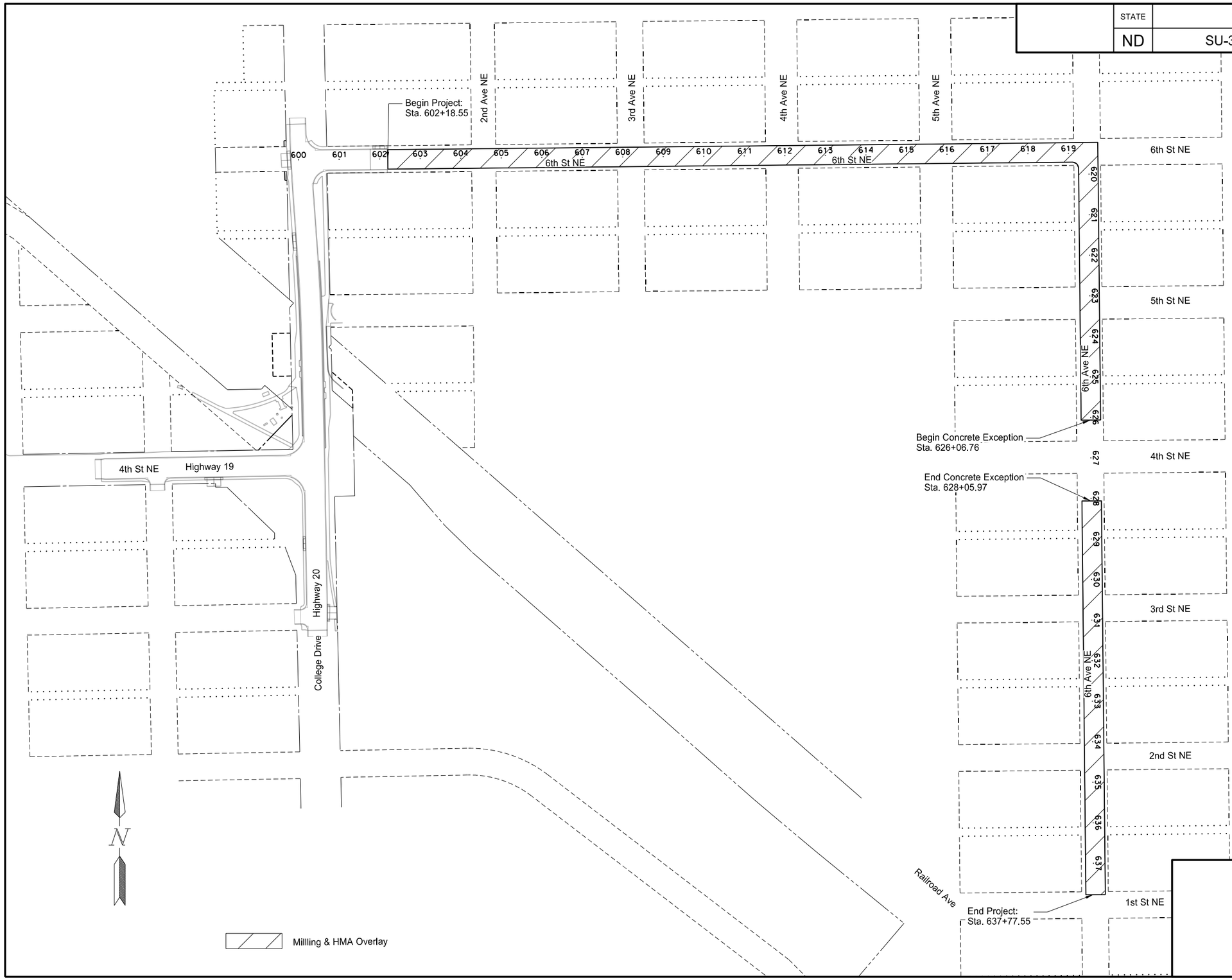
BNSF Permanent Mainline & Structure

Scope of Work

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	4	5



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Construction Detour

Scope of Work

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155 NHU-3-020(074)103 SU-3-982(031)035	6	1

NOTES

100-P01 PUBLIC RELATIONS COORDINATOR: Provide a public relations and information coordinator. The coordinator should not be the project superintendent or construction foreman. The coordinator should be knowledgeable in construction operations, be able to develop effective media releases, possess written and verbal communication skills, and be able to organize productive meetings.

Provide the name, work address, and work phone number to the relevant project, community, and media personnel.

The public relations coordinator is responsible for providing the following:

1. Organizing, scheduling, and conducting a “Weekly Planning and Reporting Meeting”.
2. Advise Mike Grafsgaard, from the City of Devils Lake, PH: 701-662-7600 ext. 2, of upcoming construction activities in regard to street closures and traffic detour routes so that city police, emergency services, schools, and other pertinent city agencies may be notified.
3. Provide news releases and necessary drawings to the media before and during construction. News releases should inform the public on construction activities, schedules, street closures, width or height restrictions to traffic, and traffic detour routes. Update news releases regarding construction activities every other week, at a minimum.
4. Be available for media interviews.
5. Work directly with property owners and businesses affected by construction activities. The coordinator must have sufficient knowledge and authority to resolve property owner and business concerns regarding scheduling, maintaining access, and construction operations.

Include the cost of the Public Relations Coordinator in other items.

100-P02 WEEKLY PLANNING/REPORTING MEETING: Organize a weekly meeting to coordinate efforts between the contractor, subcontractors, and engineering staff. Send a knowledgeable representative to conduct the weekly reporting/planning meeting. Include a discussion of problems encountered during the current week and a discussion of work planned for the next week, as well as a tentative schedule for the following week. Prepare minutes for each meeting and make the appropriate distribution of the minutes. Have the minutes approved by the Engineer before distribution.

100-P03 COORDINATION OF CONTRACTORS: Work to be performed by other Contractors include:

a. Relocation of statues, flagpoles and pedestals in the staging area
b. Relocation of trees in the staging area
c. Relocation of lights in the staging area
d. Removal and replacement of facade at Proz Bar & Grill
e. Removal and replacement of fire escape steps at Proz Bar & Grill
f. Sidewalk concrete carriageway on east side of Proz Bar & Grill
g. Water service connection from curb stop to Proz Bar & Grill

Coordinate construction activities with other Contractors during the duration of construction. Contact Terry Wallace PH:701-662-8243 for work in the staging area and Richard Prozinski PH: 701-662-2101 for work at Proz Bar & Grill.

100-P04 NOISE RESTRICTIONS: Limit all construction activities to the hours of 7:00 a.m. to 10:00 p.m. unless written permission is obtained from the Engineer. Request permission a minimum of 30 days prior to the work taking place.

The Contractor is allowed to green saw the concrete without written permission from the Engineer if the following stipulations are met:

Prior to the start of construction provide one written notice to all property owners within 500 feet of the project site. The notice shall warn that increased noise levels may be experienced at night. Use best practices to minimize the sawing of concrete pavement between the hours of 10:00 p.m. to 7:00 a.m.

105-110 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.

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

105-200 UTILITY COORDINATION: A utility coordination meeting is required.

107-115 RAILROAD PROTECTIVE LIABILITY INSURANCE: This project crosses the BNSF Railway Company at RP 0085.60. The type of work that will be performed within the railroad right of way is grading, retaining wall, bridge replacement, and new tracks. 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

Obtain information regarding crossing number 086682A from the Federal Railroad Administration website: http://safetydata.fra.dot.gov/Officeofsafety/

107-700 HAUL ROADS: The Engineer will not designate paved roads off the state system as haul roads.

107-710 HAUL ROADS: Before submitting a proposal, contact the appropriate State, County, Township, or City officials to determine if there are any roadways that will be designated as "no haul routes".

107-P01 HAUL ROAD: The entire haul cycle, loaded and empty, will be considered for haul routes.

107-P02 HAUL ROAD: If the contractor obtains written permission from the applicable local entity and chooses to use a paved road off the state system for this project, the contractor shall be responsible for all costs of the inspection, maintenance, restoration, and release of the haul road.

107-P03 HAUL ROAD RESTORATION: Use Class 13 aggregate for haul road restoration.

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

155-P01 CONCRETE EQUIPMENT: Provide a NRMCA Certified plant for concrete used in Sections 550, "Concrete Pavement", 602 "Concrete Structures", and 622 "Pilings".

202-P01 REMOVAL OF TREES & BRUSH: Include the cost to remove existing planter and stumps called out on Section 40 Sheet 1 in the bid price for “Removal of Trees & Brush”.

202-P02 REMOVAL OF PAVEMENT: The tonnage of “Removal of Pavement” is based on the existing typical sections shown in Section 30. The tonnage includes the entire bituminous/concrete/curb & gutter/aggregate/sidewalk surfacing and aggregate base except the bottom two inches. The quantity of Removal of Pavement has been deducted from the excavation quantity.

202-P03 REMOVAL OF PAVEMENT: Include the cost of the full depth vertical saw cuts adjacent to pavement removal areas, specified in Section

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NOTES

202.04 A "General", in the contract unit price for “Removal of Pavement”.

202-P04 REMOVAL OF CURB & GUTTER: If Contractor operations require the removal of existing pavement and aggregate base adjacent to curb and gutter removals outside of the reconstruction limits, do not remove more than 3 feet of existing pavement adjacent to the curb & gutter. Include costs in the price bid for “Removal of Pavement”.

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

203-385 AVERAGE HAUL: No average haul has been computed for this project.

203-P01 COMMON EXCAVATION–TYPE B: Perform excavation of the roadway subgrade with a tracked excavator using a smooth cutting edge to minimize disturbance to underlying soils. Construction equipment will not be allowed to travel over the subgrade. Place Geosynthetic Material Type G at the bottom of all subgrade excavations and backfill with Aggregate Base Course CL 5. Spread the aggregate with a tracked dozer. Do not scarify the bottom of the subgrade. A transitional slope of approximately 20:1 must be constructed prior to entering and on exiting different paving sections to avoid differential heave.

All contours and cross sections represent the finished grade (top of the topsoil). In areas where topsoil is to be placed, complete the grading by cutting or filling earthwork to a point 6 inches below the final grade; with the topsoil bringing the grading template to finished grade elevations. Complete this work in the areas behind the curb and gutter, the inslopes and backslopes. Construct the earthwork to the lines and grades as shown on the plans.

Dispose of any excess excavation off site. Provide copies of all agreements with property owners and governing agencies to the Engineer. Include all cost associated with disposal of the excess excavation in the unit price bid for “Common Excavation-Type B”.

203-P02 COMMON EXCAVATION-SUBCUT: The Engineer will determine the location and actual quantity of “Common Excavation-Subcut”. Delete the second paragraph of Standard Specification 203.04 C in its entirety.

251-P01 MOWING: If areas of seeding are completed and the turf becomes established, mow and maintain the seeded areas. Remove any clippings that land on locations other than the grassed area. Mow when grass is longer than 6” and/or as directed by the Engineer in the field. Include all cost for labor, equipment and materials necessary to complete the in the price bid for "Seeding Class I”.

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

302-P01 AGGREGATE BASE COURSE CL 5: Delete the first sentence of Standard Specification 302.03. The Contractor will not be allowed to substitute Salvaged Base Course in lieu of Aggregate Base Course CL 5.

302-P02 TRAFFIC SERVICE AGGREGATE: Temporary Service Aggregate has been provided for maintaining traffic and transitions throughout the construction phasing. Use the aggregate as directed by the Engineer in the field. Provide temporary service gravel that meets the requirements of Aggregate Base Course CL 5.

430-P01 COMMERCIAL GRADE HOT MIX ASPHALT: Provide commercial grade asphalt that meets the requirements of Superpave FAA 43 in Section 430.03 C, “Superpave Mix Properties”.

Meet the compaction requirements of Section 430.04 I.3 “Ordinary Compaction.” Include the cost for the asphalt cement and tack required for the bituminous pavement in the unit price bid for “Commercial Grade Hot Mix Asphalt.”

624-P01 RAILING: Paint the pedestrian railings after fabrication in accordance with SP 328(14). Use the paint color black, color no. 17038 of the Federal Standard No. 595B colors. Include all costs associated with fabrication, assembly, galvanizing, painting and installation of the railings in the unit price bid for “Pedestrian Railing”.

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

704-200 PRECAST CONCRETE MEDIAN BARRIERS – STATE FURNISHED: Obtain 64 barriers from Devils Lake West Lot, 1905 Schwan Ave NW Devils Lake, ND 58301. Return barriers to Devils Lake West Lot.

Some 4 inch x 4 inch boards are available at the return location. Provide any additional 4 inch x 4 inch boards necessary to stack barriers. The boards will become property of the Department. Include the cost for boards in the contract unit price for "Precast Concrete Median Barrier - State Furnished".

704-450 LANE CLOSURE - SIGNAL CONTROL/FLAGGING CONTROL: Install either the signal controlled lane closure on Standard D-704-16 or the flagging controlled lane closure on Standard D-704-17.

Obtain an electrical source for traffic signals. Solar powered signals may be used. Place generators a minimum of 60 feet from the roadway centerline, unless the generator and signal are part of a trailer mounted unit.

Place utility poles and equipment a minimum of 60 feet from the roadway centerline and place power conductors a minimum of 6 inches below the ground surface. Remove poles after they are no longer necessary.

The Engineer will measure individual traffic control devices, other than the signal system and flaggers, shown on the standards. Payment will be made at the respective contract unit price.

Include the cost of either a traffic signal system or flaggers in the contract unit price for "Lane Closure – Signal Control/Flagging Control".

704-P01 TEMPORARY TRAFFIC SIGNALS: Set the initial signal timing as shown below:

N-Bound	Green	Yellow	Red			
S-Bound	Red			Green	Yellow	Red
Time (sec)	30	3	15	30	3	15

Calibrate initial timing plans to actual traffic behavior. This may require adjustments during peak traffic periods. Notify the Engineer upon operation of the system and for approval of any signal timing adjustments.

Cover the traffic and pedestrian heads for the traffic signals at the intersection on 6th Street NE and ND HWY 20 and take the signals out of service when the temporary signals are in use.

704-P02 TRAFFIC CONTROL: The Contractor will be allowed to submit alternative traffic control plans for consideration by NDDOT and the City of Devils Lake, and if found acceptable by NDDOT and the City of Devils Lake may be used in lieu of the proposed traffic control plan.

Multiple construction phases may be constructed concurrently, at the approval of the Engineer. There will be no compensation for additional traffic control devices required to construct multiple phases concurrently.

704-P03 TRAFFIC CONTROL PHASING: When phasing the construction of the storm sewer and concrete paving, if approved by the Engineer, the

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NOTES

adjacent roadway may be closed to a single lane of traffic with flagging operations. This will only be allowed during working hours.

Phase 1a: Install temporary sanitary sewer (see Section 20 Sheet 14 for details).

Phase 1b: Shoofly Bridge Construction (Completion Date: August 6, 2017):

1. Construct pier 4
2. Construct west embankment slopes
3. Construct pier 5 & abutment 6
4. Construct west superstructure

5. Construct pier 3 - Close ND Hwy 20 for a maximum of 3 days for Phase 1b (Item 5). Sign local road detours prior to closing ND Hwy 20. See Phase 6 for details on closing ND Hwy 20.

Phase 1c:

6. Remove portion of southeast upper retaining wall
7. Construct east embankment slopes
8. Construct pier 2 & abutment 1
9. Construct remaining superstructure
10. Construct approach slabs
11. Install ballast & track (by others)

Close ND Hwy 20 for a maximum of 3 days for Phase 1c (Items 6 – 11). Sign local road detours prior to closing ND Hwy 20. See Phase 6 for details on closing ND Hwy 20.

Existing Bridge Demolition:

12. Remove superstructure
13. Remove east abutment/pier combination
14. Remove upper northeast retaining wall
15. Remove lower northeast retaining wall
16. Remove remaining upper southeast retaining wall
17. Remove upper northwest retaining wall
18. Remove lower northwest retaining wall
19. Remove upper southwest retaining wall
20. Remove west abutment/pier combination

Close ND Hwy 20 for a maximum of 3 days for the existing bridge demolition. Sign local road detours prior to closing ND Hwy 20. See Phase 6 for details on closing ND Hwy 20.

Permanent Bridge Construction:

21. Construct pier 3
22. Construct northwest retaining wall
23. Construct pier 2
24. Construct northeast retaining walls
25. Construct abutment 1 & 4
26. Install Concrete Slope Protection
27. Construct superstructure
28. Construct approach slabs
29. Install ballast & track (by others)

Close ND Hwy 20 for a maximum of 3 days for the construction of the permanent bridge. Sign local road detours prior to closing ND Hwy 20. See Phase 6 for details on closing ND Hwy 20.

Shoofly Bridge Demolition:

30. Remove superstructure
31. Remove approach slabs (cut pile 3' below proposed grade)
32. Remove pier 3 (cut pile to El 1433.0)
33. Remove pier 2 & abutment 1 (cut pile 3' below proposed grade)
34. Remove southeast lower retaining wall
35. Construct southeast retaining wall
36. Remove pier 4 (cut pile to El 1428.0)
37. Remove pier 5 & abutment 6 (cut pile 3' below proposed grade)
38. Remove lower southwest retaining wall
39. Construct southwest retaining wall

Close ND Hwy 20 for a maximum of 4 days for the shoofly bridge demolition. Sign local road detours prior to closing ND Hwy 20. See Phase 6 for details on closing ND Hwy 20.

Move pedestrian traffic back and forth from Pedestrian Route B to Pedestrian Route C as construction operations dictate. Provide alternative means for pedestrians to move through the corridor when safe pedestrian access is restricted due to construction operations. Provide a pedestrian traffic control plan to the Engineer for review a minimum of 7 days prior to Phase 1a.

Phase 2: ND Hwy 19: Close the westbound lanes of ND Hwy 19 to traffic along with the north sidewalk. Maintain two way traffic on the existing eastbound lanes of ND Hwy 19. Maintain pedestrian traffic on the south sidewalk. Construct storm drain, subgrade, aggregate base, curb & gutter, and sidewalk on the north side of ND Hwy 19.

Phase 3: ND Hwy 19: Close the eastbound lanes of ND Hwy 19 to traffic along with the south sidewalk. Maintain two-way traffic on the westbound lanes of ND Hwy 19. Maintain pedestrian traffic on the north side of ND Hwy 19. Construct storm drain, subgrade and aggregate base on the south side of ND Hwy 19.

Phase 4: ND Hwy 20: Close the southbound lanes of ND Hwy 20 south of ND Hwy 19 to traffic along with the west sidewalk. Maintain two-way traffic on the east side of ND Hwy 20. Maintain pedestrian traffic on the east side of ND Hwy 20. Construct storm drain, subgrade and aggregate base on the west side of ND Hwy 20 south of ND Hwy 19.

Phase 5: ND Hwy 20: Close the northbound lanes of ND Hwy 20 south of ND Hwy 19 and a portion of the east sidewalk to pedestrians. Maintain two-way traffic and pedestrian traffic on the east side of ND Hwy 20. Construct storm drain, subgrade and aggregate base on the east side of ND Hwy 20 south of ND Hwy 19.

Phase 6: ND Hwy 20: Close ND Hwy 20 between ND Hwy 19 and 6th Street NE. Set up ND Hwy 20 detour route prior to closure. Maintain pedestrian traffic on ND Hwy 20 during closure. Construct storm drain, subgrade and aggregate base. Move pedestrian traffic from the east to the west side of ND Hwy 20 as construction operations dictate. Close Hwy 20 for a maximum of 28 days.

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Phase 7: ND Hwy 19 & ND Hwy 20: Close ND Hwy 20 between 3rd Street SE and 6th Street NE and close ND Hwy 19 west of 2nd Avenue NW to ND Hwy 20. Set up ND Hwy 20 detour route prior to closure. Maintain pedestrian traffic on ND Hwy 20 and ND Hwy 19 during the closure. Construct PCC paving, curb and gutter and sidewalk. Close ND Hwy 19 and ND Hwy 20 for a maximum of 28 days.

Phase 8: ND Hwy 20: Close 6th Street NE. Close the southbound lane at the intersection of ND Hwy 20 and 6th Street NE. Maintain one lane of traffic in the northbound lane of ND Hwy 20. Install temporary traffic signal. Close the sidewalk west of ND Hwy 20. Maintain Pedestrian traffic on the east side of ND Hwy 20. Construct temporary access to Proz Bar & Grill. Construct storm drain, subgrade, aggregate base, curb & gutter and PCC Paving. Construct Phase 8 in a maximum of 14 days.

Phase 9: 6th St NE: Close 6th Street NE. Close the northbound lane at the intersection of ND Hwy 20 and 6th Street NE. Maintain one lane of traffic in the southbound lane of ND Hwy 20. Install temporary traffic signal. Detour pedestrian traffic. Maintain temporary access to Proz Bar & Grill. Construct storm drain, subgrade, aggregate base, curb & gutter and PCC Paving. Close 6th Street NE for a maximum of 14 days.

If the road closure exceeds the days listed in the above traffic control phasing, liquidated damages in the amount of $4,000/day will be deducted from the money due. Coordinate with the Engineer, NDDOT and City to ensure the least amount of downtime and disruption to traffic.

The maximum number of traffic control devices required will be paid. No additional compensation will be made for relocation of devices. Asphalt millings may be used to construct temporary pedestrian ramps.

704-P04 TRAFFIC CONTROL: Leave the work area free of all hazards during non-working hours. Hazards include any type of obstruction, drop-offs greater than 2-inches, or steep embankment areas steeper than a 4:1 located within the clear zone. Fill with a temporary 4:1 slope, any drop-offs greater than 2-inches.

704-P05 TRUCK DETOUR: Maintain the truck detour route as directed by the Engineer. This work consists of placing, watering, and blading gravel as required. Include the cost for all equipment, materials and labor required to maintain the truck detour route in the price bid for “Aggregate Surface Course CL 13” and “Water”.

704-P06 STATE ROUTE MARKERS: Provide State Route Marker signs for temporary traffic control. State Route Markers may be either the old design or the new state outlined design; however, the all Route Marker signs provided must be of the same type.

Upon project completion, the State Route Marker sign panels will become property of the State. Stockpile sign panels within the project limits. The Engineer will arrange to have the stockpiled panels removed from the project limits.

Include the price of furnishing, installing, maintaining, stockpiling and other incidentals in the contract unit price of "Traffic Control Signs"

704-P07 TRAFFIC CONTROL: Traffic control device quantities are based on the list below. Provide additional devices at no additional cost to the Department.

1. Standard D-704-15; layout A and C
2. Standard D-704-20, layout G
3. Standard D-704-21, layout I
4. Standard D-704-22, layouts K and L
5. Standard D-704-23, layout Q
6. Standard D-704-25, layout V, W, and X
7. Standard D-704-26, layouts EE and FF

706-P01 FIELD OFFICE: Provide a field office which meets the following requirements:
1. Minimum total area of 440 square feet
2. Indoor bathroom facilities and supplies with weekly cleaning services
3. Hookups for heat, electricity, internet, sewer, and potable water.
4. Minimum cabinet space of 32 cubic feet
5. Minimum counter space of 40 square feet
6. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F year around.
7. Lighting with a minimum of 110 foot-candles
8. Have a 15 cubic foot or larger refrigerator and a microwave
9. Have 3 desks and 3 desk chairs, 3 extra chairs, one drawer file cabinet with at least two drawers, one table minimum of 2.5’ x 5’
10. Be wired for DSL Broadband internet capabilities. Provide a Wi-Fi router that has the capabilities of hard wiring to a computer.
11. Have a photocopy machine with scanning capabilities that is capable of 11” x 17” photocopies and toner to last the duration of the project. The Engineer will be responsible to furnish the paper. A separate table or cabinet to support the copier.
12. Handicap and wheelchair accessible

Place the field office as close to project as possible. Pay all rental fees, cleaning service, heating and electricity costs, internet service, sewer service, and water service. Make the field office available for occupancy one week before the start of the project. The Engineer will approve the location and the condition of the office. Do not remove the field office until the Engineer releases the field office. All requirements of the Field Office are subject to approval by the Engineer. Include all costs for the field office in the bid price for "Field Office".

714-P01 UNDERDRAINS: A system of two underdrain pipes are located from Sta. 5457+35 to 5459+35 as shown in the existing typical sections in Section 30. Replace the east underdrain and connect it to the existing manhole. Replace the west underdrain as shown in the proposed typical section in Section 30.

Install underdrain in accordance with the detail shown in Section 20 of the plans, located per the typical section in Section 30. Include all costs associated with the work required to install the Underdrain, including but not limited to excavation, connections, pipe, labor, materials and equipment in the price bid for “Underdrain Pipe PVC Perforated 6IN”.

714-P02 UNDERDRAIN CLEANOUT RISER: Include the costs for the labor, equipment and materials necessary to construct the wye, bend, riser, cap, gate valve top section, concrete slab in the price bid for “Underdrain Cleanout Riser”.

714-P03 PLUG PIPE: At locations designated on the plans for plug and abandon pipe, blow the pipe full of sand or pump the pipe full of controlled density backfill to prevent any future collapse or failure of the abandoned pipe. Include all costs for labor, materials, and equipment necessary to perform this described work in the price bid for “Plug Pipe – All Types and Sizes”.

722-100 INLETS AND MANHOLES: Inlets and manholes were designed with a minimum 4 foot riser height. Fill the bottom of each drainage structure with concrete, up to the lowest invert elevation.

722-P01 MANHOLE SANITARY: Include all labor, materials and equipment to install the new manhole base, external chimney seal, piping, rings, casting, and lid. Manufacture the base from precast, reinforced concrete no less than 8 inches thick. Payment will be per each, paid when installed.

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Provide precast, reinforced concrete manholes conforming to the latest revisions of AASHTO M-199. Furnish manholes with a minimum of two, standard 2-inch thick adjusting rings and standard, OSHA approved manhole steps, spaced at 16-inches on center. Align all steps vertically in each manhole. Provide precast manholes with screw type lifting devices cast into the concrete section. Risers and covers shall be included in the price bid for “Manhole Riser _IN”

Provide floating castings equal to Neenah R-1955-1 or approved equal. The lids will be self-sealing and have a concealed pick bar. Label the lids SANITARY SEWER. Machine castings and lids to a uniform quality.

Set the manhole base at the proper grade and alignment to provide a smooth transition from the incoming pipes to the outgoing pipes. Bed the manhole base in 6” of 1 ¼” crushed rock to prevent settlement and provide support for the pipe from the manhole edge to the regular trench excavation. Provide a watertight connection between the manhole and the pipe. See Standard Drawing D-722-5 for details.

722-P02 MANHOLE CASTINGS: Install a floating casting on all new or existing manholes that lie within the limits of the new concrete roadway or sidewalk. Install casting as shown on Standard Drawing D-722-5A. Where possible, position casting to avoid falling within a wheel path. Place all castings that lie in the roadway flush to within 1/8 inch below the pavement. Outfit the new manholes, adjusted manholes, or repaired manholes located outside of concrete with the standard casting (see Standard Drawing D-722-5) with an infiltration and inflow (I&I) barrier adhered to the manhole cover with the adjusting rings and casting set around the I&I barrier.

722-P03 STORM DRAIN INLETS AND MANHOLES: Include precast openings with watertight “booted” rubber inserts to accommodate a 4” PVC SDR 35 highway underdrain.

Provide Neenah Foundry Company Type V & D grates and NDDOT Style Backs or East Jordan Iron Works with Type M4 Vane Grate and Type T5 Back or approved equal for the bid items “Inlet-Type 2”, “Inlet-Type 2 Double”.

Construct all inlet risers in the curb so the top of the riser is below the subgrade elevation to allow clearance for the paving machine.

722-P04 ADJUST MANHOLE: This bid item provides for the adjustment of various existing castings to the proper grade. A maximum of six rings will be allowed. “Adjust Manhole” includes adjustments that can be made by adding or removing adjusting rings. Bid items “Adjust Manhole” and “Manhole Repair” may interchange based on field findings. Include all labor, materials, and equipment necessary to complete the in the price bid for “Adjust Manhole”.

722-P05 MANHOLE REPAIR: This bid item provides for the adjustment and modification to bring existing manholes to grade. “Manhole Repair” includes adjustments that require major reconstruction, beyond adding or removing adjusting rings. Bid items “Adjust Manhole” and “Manhole Repair” may interchange based on field findings. Include all labor, materials and equipment necessary to complete the modification to the existing manhole in the price bid for “Manhole Repair”.

722-P06 ADJUST UTILITY APPURTENANCE: Include the cost of adjusting existing curb stop in the price bid for “Adjust Utility Appurtenance”.

724-P01 WATER SERVICE LINE 1IN: Include all material, labor and equipment necessary to remove and replace 1 inch water service lines when indicated for replacement or when required to accommodate utility crossings, as indicated on the plans or directed by the Engineer.

Provide 1 inch PE 4710, ASTM D-2239, SIDR 7 poly pipe (250 psi). Include all material, labor and equipment necessary to install a new curb stop & box, service saddle & corporation, tapping the new main, and all fittings required to connect the new service line to the existing service line.

Provide Ford B44-(size), Mueller H-15155, McDonald, or approved equal curb stop and box. Install the extension stem for stop operation not less than one foot from the top of the box.

Provide Romac Style stainless steel double bolt, Ford FS 303, Mueller 554, or approved equal service saddle.

Provide Ford F1000, Mueller, McDonald, or approved equal corporation stop.

724-P02 RELOCATE WATERMAIN: In locations where the proposed storm drain conflicts with existing water mains, relocate the water main vertically in accordance with the detail in Section 20. Include all material, labor, and equipment to relocate the water main in the price bid for “Relocate Watermain”. Include all sleeves, fittings, restraints, pipe, and accessories necessary for the relocation.

Provide Polyvinylchloride pipe (PVC), SDR 21, Class 200, rubber gasketed bell and spigot joints.

Provide sleeves that are 2-bolt wide range hydraulic coupling. Provide sleeve types Krausz Industries Hymax 2000, Romac Macro, or approved equal. Wrap all sleeves in 8 mil poly. Provide stainless steel bolts.

Provide cement lined ductile iron Class 350 fittings that conform to the latest revision of ANSI/AWWA C104. Wrap all fittings in 8 mil poly. Provide stainless steel bolts. Include mechanical joint restraints, model 2000PV Megalug or approved equal.

724-P03 HYDRANT RELOCATE: Include all costs associated with materials, labor, and equipment to relocate the existing fire hydrant in the bid price for “Hydrant Relocate”:

- Remove and salvage the existing hydrant for the City of Devils Lake
- Remove and install a new tee, gate valve and box, and 90° bend
- Install 33 lineal feet of 6 inch water main
- Install new hydrant
- Provide temporary water service where needed

724-P04 SANITARY SEWER PIPE: Provide SDR-26 sanitary sewer pipe in accordance with ASTM D-3034. Provide gasketed bell and spigot joint as per ASTM F477.

724-P05 SANITARY SEWER: Use rubber coupling with stainless steel clamps as manufactured by Fernco, Uniseal, Mission Rubber or approved equal at locations where new sanitary sewer pipe is connected to existing sewer pipe. Include all costs associated with supplying and installing sewer coupling in the price bid for other items. Support the rubber coupling with a 6-inch layer of 1 ¾” crushed rock.

724-P06 TEMPORARY SEWAGE HANDLING: Include all equipment, materials and labor required to divert sewage flows as required for the project in the price bid for “36IN X 23IN Arch Sanitary Sewer Pipe”.

750-P01 SIDEWALK CONCRETE: Construct concrete sidewalk greater than 8 feet in width with a No. 3 deformed reinforcing bar placed 24” on center both longitudinally and transversely. Provide a bar six inches shorter than the width of the slab and placed accurately at one-half the depth of the slab. Use plastic chairs.

Saw a centerline longitudinal joint on concrete sidewalk greater than 8 feet in width. Saw all longitudinal and transverse contraction joints. Saw joints in a timely manner to prevent any uncontrolled random cracking. If random cracking occurs, remove and replace all damaged panels at the contractor’s expense. Include all costs for the labor, equipment, and material necessary to construct the sidewalks in the price bid for “Sidewalk Concrete”.

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750-P02 PIGMENTED IMPRINTED CONCRETE: Develop a mix design using any size coarse aggregate specified in Section 802.01 C.2, "Coarse Aggregate" and with a 60-40 fine aggregate-coarse aggregate ratio.
Provide a pigment from the list below or provide an approved equal. To be considered an approved equal, pigments must meet the requirements of ASTM C 979.

1. Number 366 Natural Red, produced by Soloman Colors, Inc.
   http://www.solomoncolors.com/;
2. Brick Red pigment Number 160, produced by Davis Colors http:/www.daviscolors.com/; or
3. Pigment R/M – Brick Red, produced by Southern Color Company
   http://www.southerncolor.com/.

Use the same supplier for all colored concrete placed under the contract.

Add pigment at the ratio recommended by the manufacturer directly into the mixer along with the aggregate, cement, and water. Add pigment while the mixer is operating at mixing speed. Continue mixing for 5 to 10 minutes or between 50 and 100 revolutions.

Form a pattern in the concrete using a roller to create a 4 inch × 8 inch brick pattern.

Cure concrete using curing compound that meets the requirements of ASTM C 309, Type 1.

752-P01 FENCING: Place a temporary chain link fence, with a height of 8 feet, in accordance with Standard Drawing 752-02 prior to removing the existing fence. Move the temporary fence as needed based on construction operations. Include the cost to install, relocate and remove temporary chain link fence in the price bid for "Fence Chain Link".

770-P01 LIGHT STANDARD 8FT MA 40FT MT HT BREAKAWAY: Provide steel, davit type galvanized breakaway light standards. Provide transformer bases and vibration dampeners for the 40' MT HT breakaway light standards. Position light standards so hand holes face the opposite direction of the roadway.

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770-P02 ROADWAY LED LUMINAIRE: Provide LED roadway luminaires with the following specifications: American Electric Lighting, Model ATB2-80BLEDE10-MVOLT-R2-NL-NR. Provide a manufacturer's standard grey exterior finish.

770-P03 PEDESTRIAN LED LUMINAIRE: Provide LED Pedestrian Luminaire with the following specifications: Lithonia Lighting, Model TWP LED 10C 700 40K T3M MVOLT SPD DDBXD. Provide manufacturer's standard black exterior finish.

770-P04 PULL BOXES: Provide polymer concrete type pull boxes. Mark the cover clearly with the word "Lighting" as required. See standard drawing D-770-3 for details. Duct seal all conduits entering and exiting pull boxes.

770-P05 PADLOCKS: Obtain all padlocks from the City of Devils Lake.

770-P06 MARKER TAPE: Install marker tape 5" below finished grade in cable trenches above underground conductors. Provide Marker tape that is 6-inch wide red plastic tape marked "Caution – Buried Electric Cable."

770-P07 REMOVE LIGHT SYSTEM: Remove and salvage light standards, mast arms, luminaires and the feed point designated for removal. Deliver the luminaires, mast arms, standards and feed point equipment to the City of Devils Lake Public Works Department. Provide a 48 hour notice prior to delivery. Dispose of any items deemed unsalvageable.

770-P08 TEMPORARY LIGHTING SYSTEM: Provide temporary lighting where shown in the plans. The temporary lighting shall be established at the start of construction of the shoofly bridge. The existing circuits shall be verified and the lights South of the ND HWY19 and HWY20 intersection shall be maintained until the installation of the permanent lighting as shown in the plans. Provide any additional conductors, conduit and connections as required to maintain the temporary lighting.

772-P01 REMOVE TRAFFIC SIGNAL SYSTEMS: The Contractor is responsible for removing the existing traffic signal systems at the ND 19/ND 20 and 6th St NE/ND 20 intersections prior to installation of the new signal systems. All existing traffic signal heads with Astro brackets and the 6th St NE/ND 20 traffic signal controller and other cabinet equipment from that intersection will be delivered to the City of Devils Lake Fire Department at 621 College Drive N, Devils Lake, ND. All remaining above ground traffic signal components will be disposed of in accordance with Section 107.17 Removed Materials. Abandon all underground cable and conduit. Include in the price bid for "Traffic Signal System – Site 1" and "Traffic Signal System – Site 2" all labor and equipment necessary to remove the existing traffic signal systems.

772-P02 TRAFFIC SIGNAL SYSTEM: Include in the price bid for "Traffic Signal System – Site 1" and "Traffic Signal System – Site 2" all labor and equipment necessary for each signal system to be fully operational as shown in the plans upon construction completion. This includes but is not limited to, the installation of the following features where applicable; traffic signal standards and foundation, vehicular heads, video detection system, traffic signal controller and all ancillary hardware (conflict monitor, load switch, flasher, etc.), controller cabinet and foundation, and all cable, conduit, junction boxes, and appurtenances to install the traffic signal systems completely.

772-P03 FEED POINT-COMBO LIGHTING & SIGNAL-PAD MOUNT: Install the feed point at the locations indicated in the plans. Provide underground incoming electrical service. See standard drawings D770-2 and D770-2A along with Section 140 for details.

Coordinate with the Utility for the incoming electrical service. The utility shall be responsible for providing service connections and conductors from the utility transformer to the meter socket located on the feed point cabinet. The utility shall be responsible for any boring or trenching required up to the meter. Provide and install a 200 amp meter socket, with stud type connectors, and mount on the side of the feed point cabinet. Provide and install a 2" conduit sweep in the concrete foundation for the service conductors to the meter socket from a point 24" below grade. Provide rigid steel for all exposed conduit. Any cost imposed by the utility shall be coordinated by the Contractor and paid for by the City of Devils Lake.

Orient the feed points as shown on the plans and as directed by the field Engineer. Provide type 2 and 3 feed points as shown and according to the standard details. Provide a permanent etched label for the exterior feed point cabinet and for the contactors inside the cabinet. Construct the feed point cabinet with a minimum 12 gauge steel. Provide an enclosure with a NEMA 3R rating. Provide doors that are gasketed and capable of utilizing a padlock. Provide all the necessary breakers as shown in the detail and panel schedule. Install the photo cell facing north and design the photo cell to recess into the cabinet. Provide a hand-off-auto test switch to override the photocell control. Duct seal all conduit stubs in concrete foundation. Include all costs associated with the materials, labor, coordination, utility fees, and equipment necessary to furnish and install the feed point and electrical service in the price bid for "Traffic Signal System – Site 1" and "Traffic Signal System – Site 2".

772-P04 CONCRETE FOUNDATION-FEED POINT-TYPE B: Set the top of concrete foundation 6" above the surrounding grade. Provide two spare 2" Schedule 40 PVC conduits in the concrete feed point foundation. Include all costs for labor, materials and equipment necessary for

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furnishing and installing this item in the price bid for “Traffic Signal System – Site 1” and “Traffic Signal System – Site 2”.

772-P05 BATTERY BACK-UP: Equip each traffic controller with an “on-line” type Uninterruptible Power Supply (UPS) that provides power conditioning in both normal and backup mode. Size it to provide backup power to the system for a minimum of 2 hours in full signalized operation and a minimum of 8 hours in flash operation. Provide the UPS with aux contacts to put the system into flash operation. Incorporate full power management and diagnostic function into the UPS.

Provide the UPS with features to automatically provide battery back-up power to the controller system with no interruption when the electric utility power supply de-energizes. Provide a UPS that operates such that it does not provide power to the de-energized incoming electric utility service conductors.

Install the UPS in a temperature and humidity controlled environment. Install the UPS in a separate enclosure on the same pad as the signal controller cabinet. Extend the controller cabinet pad mount foundation to provide a minimum of 3” of clearance from the outside edge of the cabinets to the outside edge of the foundation on any side, even if the battery back-up cabinet is mounted on the controller cabinet and not the foundation. Include all costs for materials, labor and equipment necessary to furnish and install the battery back-up in the price bid for “Traffic Signal System – Site 1” and “Traffic Signal System – Site 2.”

772-P06 PADLOCKS: Obtain all padlocks from the City of Devils Lake.

772-P07 TRAFFIC SIGNAL STANDARDS BASE: Provide “T” transformer base type standards for all traffic signal standards. Include all costs for labor, materials and equipment necessary for furnishing and installing this item in the price bid for “Traffic Signal System – Site 1” and “Traffic Signal System – Site 2.”

772-P08 TRAFFIC SIGNAL CONTROLLER: Provide NEMA TS2/NTCIP Actuated Controllers for the proposed volume density controllers. Provide PEEK ATC-1000 TS2 Type 1 controllers. Construct the concrete foundation as shown on standard detail D770-1. Provide a GFCI receptacle in the controller cabinet. Include all costs for labor, materials and equipment required to install the new controllers in the price bid for “Traffic Signal System – Site _”. This includes but is not limited to the cabinet, detector amplifiers (furnished and installed), other ancillary signal components (such as load switches, conflict monitors, etc.), concrete foundation, and controller cabinet components connected as required to make the new controller equipment operational with the proposed signal equipment. This also includes any programming and data entry (i.e. signal timing plans) necessary to provide a fully functional traffic signal controller. Face the cabinet doors at both the ND 19/ND 20 and 6th St NE/ND 20 intersections east, with the hinge on the north edge.

772-P09 CONTROLLER WORKING SLAB: Construct the controller working slab a width of 6 feet and extending a minimum of 4 feet from the face of the controller foundation. Construct the slab 4 inches thick and reinforce with 6" x 6" x 10 GA welded wire fabric and tie it to the controller foundation with 18-inch long #3 rebar spaced 18 inches on center. Grade the controller working slab maintaining a slope of .25 inches per foot away from the controller cabinet foundation. Construct the slab so that the closest point of the top of the slab to finished grade is 2 inches above grade. Furnishing and installing the working slab is included in the price bid for “Traffic Signal System – Site 1” and Traffic Signal System – Site 2”.

772-P10 VIDEO DETECTION SYSTEM: Provide PEEK Videotrak IQ Video Detection Equipment for the video detection system. A representative from the manufacturer to provide all cable connections, camera aiming and system set-up, including programming detection zones and verification of reliable operation. The location of cameras in the plans are for reference only. Install the cable, camera and provide all labor and equipment necessary for the video detection system to be fully operational. Include all costs for labor, materials and equipment necessary for furnishing and installing this item in the price bid for “Traffic Signal System – Site 1” and “Traffic Signal System – Site 2.”

772-P11 EMERGENCY VEHICLE PRE-EMPTION: Provide siren actuated SONEM 2000 emergency vehicle preemption systems for both traffic signal sites. Provide LED indicator lamps as shown in the plans. Provide all labor and equipment necessary for the emergency vehicle preemption system to be fully operational. Notify City of Devils Lake fire chief (Jim Moe) (701-662-3913) when the EVP systems are tested and operable. Include all costs for labor, materials and equipment necessary for furnishing and installing this item in the price bid for “Traffic Signal System – Site 1” and “Traffic Signal System – Site 2.”

772-P12 CONDUIT: Install conduit at the location shown on the plans.

Seal all conduit with duct seal at the controller cabinet and at the traffic signal standard foundations. Install three spare 2” conduit sweeps in the controller cabinet foundation and one spare 2” conduit sweep in each traffic signal standard base. Cap the spare conduits with an oil-tight plug with wing nut and labeled as to which direction they face.

772-P13 LABEL ALL FIELD CABLES: All labeling materials shall be approved by the City of Devils Lake. Provide Labels that are readable without moving the cables.

Use a heat-shrink labeling system. Do not strip back from the connection more than 12 to 18 inches. This work is not a separate pay item and include costs in the price bid for “Traffic Signal System – Site 1” and “Traffic Signal System – Site 2”.

772-P14 CONTROLLER CABINET WIRING DIAGRAM: Label the following items on the cabinet wiring diagram, in addition to information required by NDDOT Standard Specification.

A. Label the camera number (e.g., D2-1) from the plan on the detector panel drawing adjacent to the point for termination.
B. Label the field wire terminals for the vehicle/pedestrian head control cables with the phase number and direction (e.g., Ø2, SB).
C. Label the field wire terminals for the SONEM cable with the pre-empt number (e.g., P.E. #1).
D. Label the field wire terminal for the pre-empt indicator lamps with the pre-empt number and direction (e.g., P.E. #1, NB).
E. Label the field wire terminals for the pedestrian push-button cables with the phase number (e.g., Ø8 PED).
F. Provide an intersection diagram on cabinet door showing phasing of intersection and camera numbering and detection zone numbering
G. Provide a CAD drawing file of the as-built cabinet wiring diagram.

772-P15 PULL BOXES: Provide polymer concrete type pull boxes. Mark the cover clearly as “Traffic Signal”. Mark pull boxes for the interconnect cable as “Traffic Signal”. See standard drawing D-770-3 for details. Duct seal all conduits entering and exiting pull boxes. No splicing is allowed in pull boxes.

772-P16 ACCESSIBLE PEDESTRIAN SIGNALS (APS) PUSHBUTTON AND SIGN: include the features, installation procedures, and be compliant with the following:

1. Features:

   a. Rapid tick WALK indication, no more than 2–5dBA above ambient sound

   b. Vibrotactile WALK indication

   c. Speaker and vibrotactile indication located at pushbutton

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d. Pushbutton locator tone

e. Tactile arrow on each device aligned in direction of travel on the crosswalk

2. Installation Procedures

a. APS should be reachable from the level landing of the curb ramp for the crossing or from a level surface with an accessible path to the ramp (MUTCD Section 4E.08 and Proposed and Draft PROWAG).

b. APS should be within 5 feet of the crosswalk line furthest from the center of the intersection and within 10 feet of the curb (MUTCD Section 4E.08).

c. Align tactile arrow with parallel to the direction of travel on the crosswalk (MUTCD Section 4E.12, P1).

d. Pushbutton required to be located within reach range for wheelchair users (Proposed PROWAG, R406).

3. Code Compliance:

a. Functionality: MUTCD 2009 - 4E

b. Temperature and Humidity: NEMA TS 2

c. Transient Voltage Protection: NEMA TS 2

d. Transient Suppression: IEC 61000-4-4, IEC 61000-4-5

e. Electronic Noise: FCC Title 47, Part 15, Class A

f. Mechanical Shock and Vibration: NEMA TS 2

g. EN4 PBS Enclosure: NEMA 250 - Type 4X

h. Electrical Reliability: NEMA TS 4

Include the cost for the accessible pedestrian signals pushbuttons and signs in the bid items "Traffic Signal System – Site 1" and Traffic Signal System – Site 2".

772-P17 SIGNAL COMPONENT COLOR: The traffic signal system components shall be colored in accordance with the following:
Transformer base – black
Mast arm – black
Shaft - black
Signal housing - black
Signal head mounting hardware – black
Pedestrian pushbutton post - black
Pedestrian pushbutton housing – black
Luminaire mounted on signal standard – black

Use the paint color black, color no. 17038 of the Federal Standard No. 595B colors.

802-P01 PORTLAND CEMENT CONCRETE: Provide concrete meeting the following requirements:

- For all concrete, incorporate between 25% and 29% fly ash by weight.
- Retaining Walls:

Concrete Aggregate Testing: In addition to aggregate testing in Section 802 of the Standard Specifications for Road and Bridge Construction, AASHTO T 303 will be conducted. The contractor must have coarse and fine aggregate used in concrete be tested for alkali silica reactivity by an independent lab. If the average of the test results show an expansion greater that 0.10 percent then the aggregate will not be allowed for use on the project. Test results must be given to the engineer at least 30 calendar days before the aggregate is used on the project.

The aggregate tested must be from the stockpiled material used for the project.

Cement: In addition to the requirements of NDDOT 804.01, the cement must also meet the requirements of Table 2 in AASHTO M 85.

Fly Ash: For all concrete, incorporate between 25% and 29% fly ash by weight.

970-P01 LANDSCAPING

1. Remove weeds, contaminated soils, miscellaneous waste materials from area to be planted and seeded/sodded. Loosen compacted subsoils by tilling and importing new topsoil as required to restore grades and maintain positive drainage.

2. Do not install plant material when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F. Do not install plant material when wind velocity exceeds 30 mph. Acceptable planting dates are as follows:

Spring: April 15 – June 15
Fall: September 15 – October 15

3. Include weed fabric around all trees/plants. Provide 5 oz. woven, needle punched, polypropylene fabric designed for professional and commercial use. Plastic and other non-breathable material will not be accepted. Weed fabric will not be paid for separately.

4. Provide a plant establishment warranty of one year commencing on date of acceptance by Engineer. Replace all plant materials found dead or not in a healthy growing condition.

5. Properly care for all plants from the time of planting until the contract plant establishment period expires.

6. Proper care of plants consists of doing work such as supplemental watering, weeding, pruning, spraying, tightening of braces and guys, retying wrapping, re-mulching and other work as necessary to keep plants in a neat appearance and in a healthy growing condition.

7. Perform complete waterings at 5 to 7 day intervals which may be lengthened when weather conditions and soil moisture permit. Additional waterings may be ordered by the Engineer at any time during the plant establishment period should conditions require such waterings.

8. Place a sufficient amount of water in each plant hole at the time of each watering to keep topsoil backfill material in a moist condition and to keep the plant in a healthy growing condition.

9. Replace all plants/trees that die or show evidence of dying, in the opinion of the Engineer/City Forester, during the plant establishment period at the earliest appropriate planting time. There will be no compensation for replacing plants.

10. Remove and dispose of all bracing and guying materials after final inspection of the plantings following the expiration of the establishment period.

11. Near the end of the applicable plant establishment period, an inspection of the planting will be made and only those plants found to be in a healthy growing condition will be accepted. Those plants not in a healthy growing condition will be replaced by the Contractor at the Contractor's expense.

12. Include the costs associated with plant care maintenance, warranty, weed fabric, and other items necessary for completion of the landscape plantings, in the price bid for the individual planting items.

Acceptable tree types include Autumn Blaze Maple, Discovery Elm and the American Linden.

This document was originally issued and sealed by Chad A. Petersen Registration Number PE- 4884, on 08/24/16 and the original document is stored at the North Dakota Department of Transportation

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155 NHU-3-020(074)103 SU-3-982(031)035	6	9

ENVIRONMENTAL NOTES

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

NOTIFICATIONS TO BE FILED BY CONTRACTOR:

EN-1 Notification is required for work within 3 nautical miles of the airport. Complete the Federal Aviation Administration Notice of Proposed Construction or Alteration Form 7460-1 (online at http://oeaaa.faa.gov).

Estimate of Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	8	1
	NHU-3-020(074)103		
	SU-3-982(031)035		

SPEC	CODE	ITEM DESCRIPTION	UNIT	NHU-3-019(044)155 ND 19 (Participating)	NHU-3-019(044)155 ND 19 (Non-Participating)	NHU-3-020(074)103 ND 20 (Participating)	NHU-3-020(074)103 ND 20 (Non-Participating)	SU-3-982(031)035 Detour Route (Participating)	TOTAL
103	0100	CONTRACT BOND	L SUM	0.05	-	0.90	-	0.05	1.00
107	0100	RAILWAY PROTECTION INSURANCE	L SUM	-	-	1.00	-	-	1.00
201	0352	REMOVAL OF TREES & BRUSH	L SUM	-	-	1.00	-	-	1.00
201	0370	REMOVAL OF TREES 10IN	EA	-	-	12	-	-	12
201	0380	REMOVAL OF TREES 18IN	EA	-	-	2	-	-	2
202	0108	REMOVAL OF STRUCTURE-SITE 1	L SUM	-	-	1.00	-	-	1.00
202	0109	REMOVAL OF STRUCTURE-SITE 2	L SUM	-	-	1.00	-	-	1.00
202	0136	REMOVAL OF PAVEMENT	TON	2,220	39	8,944	-	-	11,203
202	0151	REMOVE PRECAST CONCRETE BARRIER	LF	-	-	50	-	-	50
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	575	-	714	-	-	1,289
202	0210	REMOVAL OF MANHOLES	EA	2	-	5	-	-	7
202	0230	REMOVAL OF INLETS	EA	4	-	12	-	-	16
203	0101	COMMON EXCAVATION-TYPE A	CY	-	-	13,480	-	-	13,480
203	0102	COMMON EXCAVATION-TYPE B	CY	645	-	4,545	-	-	5,190
203	0109	TOPSOIL	CY	188	-	4,899	-	-	5,087
203	0138	COMMON EXCAVATION-SUBCUT	CY	260	-	434	-	-	694
203	0140	BORROW-EXCAVATION	CY	-	-	3,580	-	-	3,580
210	0102	CLASS 1 EXCAVATION-SITE 1	L SUM	-	-	1.00	-	-	1.00
210	0103	CLASS 1 EXCAVATION-SITE 2	L SUM	-	-	1.00	-	-	1.00
210	0201	FOUNDATION PREPARATION	EA	-	-	2	-	-	2
210	0209	FOUNDATION FILL	TON	-	-	20,908	-	-	20,908
210	0210	FOUNDATION FILL	CY	-	-	84.3	-	-	84.3
216	0100	WATER	M GAL	126	-	2,427	-	-	2,553
251	0100	SEEDING CLASS I	ACRE	1.32	0.04	8.91	-	-	10.27
251	2000	TEMPORARY COVER CROP	ACRE	-	-	6.95	-	-	6.95
253	0101	STRAW MULCH	ACRE	-	-	6.95	-	-	6.95
253	0201	HYDRAULIC MULCH	ACRE	1.32	0.04	8.91	-	-	10.27
255	0101	ECB TYPE 1	SY	-	-	4,230	-	-	4,230
255	0151	REMOVE ECB TYPE 1	SY	-	-	4,230	-	-	4,230
258	0100	CONCRETE SLOPE PROTECTION	SY	-	-	421.0	-	-	421.0
261	0112	FIBER ROLLS 12IN	LF	484	-	6,352	-	-	6,836
261	0113	REMOVE FIBER ROLLS 12IN	LF	484	-	6,352	-	-	6,836
302	0120	AGGREGATE BASE COURSE CL 5	TON	2,115	72	5,578	-	-	7,765
302	0314	TEMPORARY TRAFFIC SERVICE AGGREGATE	TON	60	-	1,268	-	-	1,328
302	0356	AGGREGATE SURFACE COURSE CL 13	TON	-	-	5,994	-	-	5,994
411	0105	MILLING PAVEMENT SURFACE	SY	-	-	-	-	17,840	17,840
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	48	3	1,000	-	1,982	3,033
550	0302	8.5IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	2,569	-	7,809	-	-	10,378
602	0130	CLASS AAE-3 CONCRETE	CY	-	-	2,313.5	-	-	2,313.5
602	1134	PILE SUPPORTED APPROACH SLAB	SY	-	-	115.6	-	-	115.6
602	6001	PRECAST PIER CAP	EA	-	-	8	-	-	8
602	6002	PRECAST ABUTMENT	EA	-	-	4	-	-	4

ND Highway 19 &
ND Highway 20

Estimate of Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	8	2
	NHU-3-020(074)103		
	SU-3-982(031)035		

Estimate of Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	NHU-3-019(044)155 ND 19 (Participating)	NHU-3-019(044)155 ND 19 (Non-Participating)	NHU-3-020(074)103 ND 20 (Participating)	NHU-3-020(074)103 ND 20 (Non-Participating)	SU-3-982(031)035 Detour Route (Participating)	TOTAL
602	6005	PRECAST CONCRETE WING WALL	EA	-	-	4	-	-	4
604	9550	PRESTRESSED CONCRETE FASCIA GIRDER	LF	-	-	360	-	-	360
612	0115	REINFORCING STEEL-GRADE 60	LBS	-	-	409,054	-	-	409,054
612	0116	REINFORCING STEEL - GRADE 60 - EPOXY COATED	LBS	-	-	40,782	-	-	40,782
616	5890	STRUCTURAL STEEL	L SUM	-	-	1.00	-	-	1.00
618	0115	UNTREATED TIMBER	MBM	-	-	51.7	-	-	51.7
622	0068	STEEL PILING HP 14 X 89	LF	-	-	12,880	-	-	12,880
624	0123	PEDESTRIAN RAILING	LF	-	-	1,297.4	-	-	1,297.4
624	0124	PEDESTRIAN FENCE	LF	-	-	351	-	-	351
702	0100	MOBILIZATION	L SUM	0.05	-	0.90	-	0.05	1.00
704	0100	FLAGGING	MHR	800	-	1,600	-	200	2,600
704	1000	TRAFFIC CONTROL SIGNS	UNIT	631	-	5,683	-	1,123	7,437
704	1018	LANE CLOSURE-SIGNAL CONTROL/FLAGGING CONTROL	EA	-	-	2	-	-	2
704	1052	TYPE III BARRICADE	EA	4	-	39	-	-	43
704	1060	DELINEATOR DRUMS	EA	12	-	112	-	-	124
704	1067	TUBULAR MARKERS	EA	9	-	79	-	71	159
704	1086	SEQUENCING ARROW PANEL-TYPE B	EA	-	-	3	-	-	3
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	1,215	-	4,269	-	-	5,484
704	3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	-	-	40	-	-	40
704	3510	PRECAST CONCRETE MED BARRIER-STATE FURNISHED	EA	-	-	62	-	-	62
706	0400	FIELD OFFICE	EA	-	-	1	-	-	1
708	1200	SMALL ROCK COVER	TON	-	-	620	-	-	620
708	1531	INLET PROTECTION-FIBER ROLL 12IN	EA	-	-	7	-	-	7
708	1533	REMOVAL INLET PROTECTION-FIBER ROLL 12IN	EA	-	-	7	-	-	7
708	1540	INLET PROTECTION-SPECIAL	EA	5	-	27	-	15	47
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	5	-	27	-	15	47
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	3,378	-	9,632	-	-	13,010
709	0161	GEOSYNTHETIC MATERIAL TYPE S1	SY	-	-	104	-	-	104
714	4115	PIPE CONDUIT 36IN	LF	-	-	64	-	-	64
714	4120	PIPE CONDUIT 42IN	LF	-	-	44	-	-	44
714	9680	PLUG PIPE-ALL TYPES & SIZES	EA	-	-	3	-	-	3
714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	938	-	2,674	-	-	3,612
714	9705	UNDERDRAIN CLEANOUT RISER	EA	-	-	4	-	-	4
714	9730	UNDERDRAIN PIPE PVC PERFORATED 6IN	LF	-	-	400	-	-	400
722	0100	MANHOLE 48IN	EA	-	-	1	-	-	1
722	0110	MANHOLE 60IN	EA	-	-	5	-	-	5
722	0120	MANHOLE 72IN	EA	-	-	2	-	-	2
722	0130	MANHOLE 84IN	EA	3	-	1	-	-	4
722	0140	MANHOLE 96IN	EA	-	-	1	-	-	1
722	0300	MANHOLE SANITARY	EA	-	-	1	-	-	1
722	1100	MANHOLE RISER 48IN	LF	-	-	11.9	-	-	11.9
722	1110	MANHOLE RISER 60IN	LF	-	-	41.9	-	-	41.9

ND Highway 19 &
ND Highway 20

Estimate of Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	8	3
	NHU-3-020(074)103		
	SU-3-982(031)035		

Estimate of Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	NHU-3-019(044)155 ND 19 (Participating)	NHU-3-019(044)155 ND 19 (Non-Participating)	NHU-3-020(074)103 ND 20 (Participating)	NHU-3-020(074)103 ND 20 (Non-Participating)	SU-3-982(031)035 Detour Route (Participating)	TOTAL
722	1120	MANHOLE RISER 72IN	LF	-	-	12.2	-	-	12.2
722	1130	MANHOLE RISER 84IN	LF	29.8	-	4.0	-	-	33.8
722	1140	MANHOLE RISER 96IN	LF	-	-	7.1	-	-	7.1
722	3410	MANHOLE REPAIR	EA	1	-	3	-	-	4
722	3510	INLET-TYPE 2	EA	5	-	19	-	-	24
722	3520	INLET-TYPE 2 DOUBLE	EA	-	-	4	-	-	4
722	3760	INLET SPECIAL-TYPE 160IN	EA	-	-	1	-	-	1
722	3910	INLET SLOTTED DRAIN 15IN	LF	-	-	10	-	-	10
722	3920	INLET SLOTTED DRAIN 18IN	LF	-	-	180	-	-	180
722	4020	INLET CATCH BASIN 9IN BEEHIVE	EA	-	-	2	-	-	2
722	6140	ADJUST GATE VALVE BOX	EA	3	-	3	-	7	13
722	6200	ADJUST MANHOLE	EA	3	-	5	-	12	20
722	6240	ADJUST UTILITY APPURTENANCE	EA	-	-	3	-	-	3
724	0420	HYDRANT-RELOCATE	EA	-	-	1	-	-	1
724	0611	WATER SERVICE LINE 1IN	LF	-	-	-	45	-	45
724	0892	RELOCATE WATERMAIN	EA	-	-	1	-	-	1
724	2120	36IN X 23IN ARCH SANITARY SEWER PIPE	LF	-	-	155	-	-	155
744	0100	POLYSTYRENE INSULATION BOARD	BD FT	-	-	10,422	-	-	10,422
748	0140	CURB & GUTTER-TYPE I	LF	1,002	24	2,886	-	-	3,912
748	0520	CURB-TYPE I	LF	-	-	204	-	-	204
750	0030	PIGMENTED IMPRINTED CONCRETE	SY	239	-	-	-	-	239
750	0100	SIDEWALK CONCRETE	SY	1,262	278	2,605	-	-	4,145
750	1000	DRIVEWAY CONCRETE	SY	88	-	-	-	-	88
750	1020	DRIVEWAY CONCRETE 8IN	SY	-	-	269	-	-	269
750	2115	DETECTABLE WARNING PANELS	SF	56	20	212	-	-	288
752	0600	FENCE CHAIN LINK	LF	-	-	2,400	-	-	2,400
752	0911	TEMPORARY SAFETY FENCE	LF	-	-	70	-	-	70
752	0922	FENCE REMOVE & RESET	LF	-	-	1,750	-	-	1,750
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	15.7	-	52.6	-	-	68.3
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	47.6	-	225.0	-	-	272.6
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	131.0	-	259.8	-	-	390.8
754	0592	RESET SIGN PANEL	EA	3	2	-	-	-	5
754	0593	RESET SIGN SUPPORT	EA	-	3	-	-	-	3
762	0103	PVMT MK PAINTED-MESSAGE	SF	-	-	-	-	161	161
762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	64	-	1,815	-	2,020	3,899
762	0420	SHORT TERM 4IN LINE-TYPE R	LF	4,058	-	26,580	-	-	30,638
762	0422	SHORT TERM 6IN LINE-TYPE R	LF	96	-	-	-	-	96
762	0424	SHORT TERM 8IN LINE-TYPE R	LF	-	-	546	-	-	546
762	0430	SHORT TERM 4IN LINE-TYPE NR	LF	1,338	-	1,818	-	6,634	9,790
762	0434	SHORT TERM 8IN LINE-TYPE NR	LF	-	-	-	-	768	768
762	0436	SHORT TERM 24IN LINE-TYPE NR	LF	-	-	-	-	84	84
762	0440	SHORT TERM MESSAGE-TYPE R	SF	-	-	68	-	-	68

ND Highway 19 &
ND Highway 20

Estimate of Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	8	4
	NHU-3-020(074)103		
	SU-3-982(031)035		

Estimate of Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	NHU-3-019(044)155 ND 19 (Participating)	NHU-3-019(044)155 ND 19 (Non-Participating)	NHU-3-020(074)103 ND 20 (Participating)	NHU-3-020(074)103 ND 20 (Non-Participating)	SU-3-982(031)035 Detour Route (Participating)	TOTAL
762	0442	SHORT TERM MESSAGE-TYPE NR	SF	-	-	-	-	2,149	2,149
762	1104	PVMT MK PAINTED 4IN LINE	LF	-	-	-	-	682	682
762	1108	PVMT MK PAINTED 8IN LINE	LF	-	-	-	-	286	286
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	2,227	-	6,390	-	5,952	14,569
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	86	-	67	-	-	153
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	70	-	1,024	-	482	1,576
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	17	-	219	-	82	318
770	0001	LIGHTING SYSTEM	EA	0.30	-	0.70	-	-	1.00
772	9200	IT SYSTEM	EA	-	-	1	-	-	1
772	9811	TRAFFIC SIGNAL SYSTEM - SITE 1	EA	-	-	1	-	-	1
772	9812	TRAFFIC SIGNAL SYSTEM - SITE 2	EA	-	-	1	-	-	1
930	3040	BEARINGS (EXPANSION)	EA	-	-	51	-	-	51
930	3042	BEARINGS (FIXED)	EA	-	-	3	-	-	3
930	7013	ROADWAY CANOPY-SITE 1	L SUM	-	-	1.00	-	-	1.00
930	7014	ROADWAY CANOPY-SITE 2	L SUM	-	-	1.00	-	-	1.00
930	8600	ELASTOMERIC BEARING PAD	SF	-	-	97.8	-	-	97.8
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	-	-	2.00	-	-	2.00
930	9952	PIER MEDALLION	EA	-	-	4	-	-	4
970	1000	TREES	EA	-	-	14	-	-	14
980	0510	RAILROAD SUB-BALLAST	TON	-	-	9,353	-	-	9,353
990	0230	TEMPORARY ACCESS	L SUM	-	-	1.00	-	-	1.00

Option 1: Pipe Conduit Storm Sewer (See Section 51 for Allowable Materials)

SPEC	CODE	ITEM DESCRIPTION	UNIT	NHU-3-019(044)155 ND 19 (Participating)	NHU-3-019(044)155 ND 19 (Non-Participating)	NHU-3-020(074)103 ND 20 (Participating)	NHU-3-020(074)103 ND 20 (Non-Participating)	SU-3-982(031)035 Detour Route (Participating)	TOTAL
714	4097	PIPE CONDUIT 15IN-STORM DRAIN	LF	145	-	767	-	-	912
714	4101	PIPE CONDUIT 18IN-STORM DRAIN	LF	-	-	78	-	-	78
714	4107	PIPE CONDUIT 24IN-STORM DRAIN	LF	-	-	226	-	-	226
714	4117	PIPE CONDUIT 36IN-STORM DRAIN	LF	-	-	626	-	-	626
714	4121	PIPE CONDUIT 42IN-STORM DRAIN	LF	31	-	136	-	-	167
714	4131	PIPE CONDUIT 54IN-STORM DRAIN	LF	412	-	65	-	-	477
714	4216	PIPE CONDUIT ARCH 22IN X 13IN	LF	-	-	30	-	-	30

Option 2: Reinforced Concrete Pipe Storm Sewer

SPEC	CODE	ITEM DESCRIPTION	UNIT	NHU-3-019(044)155 ND 19 (Participating)	NHU-3-019(044)155 ND 19 (Non-Participating)	NHU-3-020(074)103 ND 20 (Participating)	NHU-3-020(074)103 ND 20 (Non-Participating)	SU-3-982(031)035 Detour Route (Participating)	TOTAL
714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	145	-	767	-	-	912
714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	-	-	78	-	-	78
714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	-	-	226	-	-	226
714	0910	PIPE CONC REINF 36IN CL III-STORM DRAIN	LF	-	-	626	-	-	626
714	1010	PIPE CONC REINF 42IN CL III-STORM DRAIN	LF	31	-	136	-	-	167
714	1212	PIPE CONC REINF 54IN CL III-STORM DRAIN	LF	412	-	65	-	-	477
714	2101	PIPE CONC REINF ARCH 22IN X 13IN CL III-S DRAIN	LF	-	-	30	-	-	30

ND Highway 19 &
ND Highway 20

Estimate of Quantities

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155 & NHU-3-020(074)103 & SU-3-982(031)035	10	1

BASIS OF ESTIMATE

MATERIALS

Removal of Pavement:
- Concrete @ 2.0 Ton/CY
- Bituminous Surfacing @ 2.0 Ton/CY
- Aggregate Base @ 1.875 Ton/CY

Aggregate Base Course CL 5 @ 1.875 Ton/CY

Aggregate Surface Course CL 13:
- Detour Route: 3.27 Miles @ 1,833 Ton/Mile

Commercial Grade Hot Mix Asphalt @ 2 Ton/CY

PG 58-28 Asphalt Cement (to be included in the price bid for HMA)

Tack Coat @ 0.05 Gal/SY (to be included in the price bid for HMA)

GRADING

Water:
- 10 Gal/CY of Embankment Quantities
- 21 Gal/Ton of Aggregate Base Course
- 1,500 M Gal for Dust Palliative

Railroad Sub-Ballast	
Location	Sub-Ballast (Ton)
Permanent Mainline & Siding	1,200
Permanent Industrial 1361	1,003
Permanent Industrial 1352	519
Temporary Mainline & Siding	5,498
Temporary Industrial 1361	467
Temporary Industrial 1352	666
Total =	**9,353**

Roadway Embankment						
Location	(A) Excavation (CY)	(B) Pvmt & Aggr Removal from Excavation Areas (CY)	(C) Common Excavation – Type A (CY)	(A)-(B)=(D) Common Excavation – Type B (CY)	(E) Embankment (CY)	(C)+(D)-(E)=(F) Excess Excavation (CY)
ND Hwy 19	1,715	1,070	0	645	0	645
ND Hwy 20	7,895	3,350	80	4,545	110	4,515
Total =	**9,610**	**4,420**	**80**	**5,190**	**110**	**5,160**

Topsoil			
Location	(A) Topsoil Excavation (CY)	(B) Topsoil Embankment (CY)	(A)-(B)=(C) Excess Topsoil (CY)
ND Hwy 19	188	55	133
ND Hwy 20	615	280	335
RR Temporary	3,833	1,509	2,324
RR Permanent	451	2,558	(2,107)
Total =	**5,087**	**4,402**	**685**

Railway Embankment						
Location	(A) Excavation (CY)	(B) Ballast Removal from Excavation Areas (CY)	(A)-(B)=(C) Common Excavation – Type A (CY)	(D) Embankment (CY)	(D)-(C)=(E) Borrow Excavation (CY)	(C)-(D)=(F) Excess Excavation (CY)
Permanent Mainline & Siding	5,050	-	5,050	2,879	-	2,171
Permanent Industrial 1361	129	-	129	533	404	-
Permanent Industrial 1352	339	-	339	155	-	184
Temporary Mainline & Siding	7,710	774	6,936	2,905	-	4,031
Temporary Industrial 1361	760	-	760	-	-	760
Temporary Industrial 1352	456	-	456	3,319	2,863	-
RR ACCESS	-	-	-	283	283	-
Total =	**14,444**	**774**	**13,370**	**10,074**	**3,550**	**7,146**

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155 & NHU-3-020(074)103 & SU-3-982(031)035	10	2

BASIS OF ESTIMATE

	NHU-3-019(044)155 ND 19 (Participating)	NHU-3-019(044)155 ND 19 (Non-Participating)	NHU-3-020(074)103 ND 20 (Participating)	SU-3-982(031)035 Detour Route (Participating)	Total
Removal of Pavement	Section 40 Sheet 2 = 2215 Ton Section 100 Sheet 25 = 5 Ton **Total (ND 19) = 2220 Ton**	Section 40 Sheet 2 = 39 Ton **Total (ND 19 NP) = 39 Ton**	Section 40 Sheet 1, 3 & 4 = 7036 Ton Section 100 Sheet 19 = 1865 Ton Section 100 Sheet 20 = 43 Ton **Total (ND 20) = 8944 Ton**	-	**Total = 11203 Ton**
Aggregate Base Course CL 5	Section 20 Sheet 8 = 488 Ton Section 90 Sheet 1 = 1622 Ton Section 100 Sheet 25 = 5 Ton **Total (ND 19) = 2115 Ton**	Section 90 Sheet 1 = 72 Ton **Total (ND 19 NP) = 72 Ton**	Section 20 Sheet 8 = 814 Ton Section 20 Sheet 15 = 22 Ton Section 90 Sheet 1 = 4510 Ton Section 165 Sheet 1 = 232 Ton **Total (ND 20) = 5578 Ton**	-	**Total = 7765 Ton**
Commercial Grade Hot Mix Asphalt	Section 90 Sheet 1 = 45 Ton Section 100 Sheet 25 = 3 Ton **Total (ND 19) = 48 Ton**	Section 90 Sheet 1 = 3 Ton **Total (ND 19 NP) = 3 Ton**	Section 20 Sheet 15 =12 Ton Section 90 Sheet 1 = 150 Ton Section 100 Sheet 19 = 685 Ton Section 100 Sheet 20 = 15 Ton Section 165 Sheet 1 = 138 Ton **Total (ND 20) = 1000 Ton**	Section 90 Sheet 9-17 = 1982 Ton **Total (Detour Route) = 1982 Ton**	**Total = 3033 Ton**
Geosynthetic Material Type G	Section 20 Sheet 15 = 521 SY Section 90 Sheet 1 = 2857 SY **Total (ND 19) = 3378 SY**	-	Section 20 Sheet 15 = 867 SY Section 90 Sheet 1 = 8765 SY **Total (ND 20) = 9632 SY**	-	**Total = 13010 SY**
Curb & Gutter-Type 1	Section 90 Sheet 1 = 982 LF Section 100 Sheet 25 = 20 LF **Total (ND 19) = 1002 LF**	Section 90 Sheet 1 = 24 LF **Total (ND 19 NP) = 24 LF**	Section 90 Sheet 1 = 2886 LF **Total (ND 20) = 2886 LF**	-	**Total = 3912 LF**
Detectable Warning Panels	Section 90 Sheet 1 = 46 SF Section 100 Sheet 25 = 10 SF **Total (ND 19) = 56 SF**	Section 90 Sheet 1 = 20 SF **Total (ND 19 NP) = 20 SF**	Section 20 Sheet 15 = 50 SF Section 90 Sheet 1 = 162 SF **Total (ND 20) = 212 SF**	-	**Total = 288 SF**

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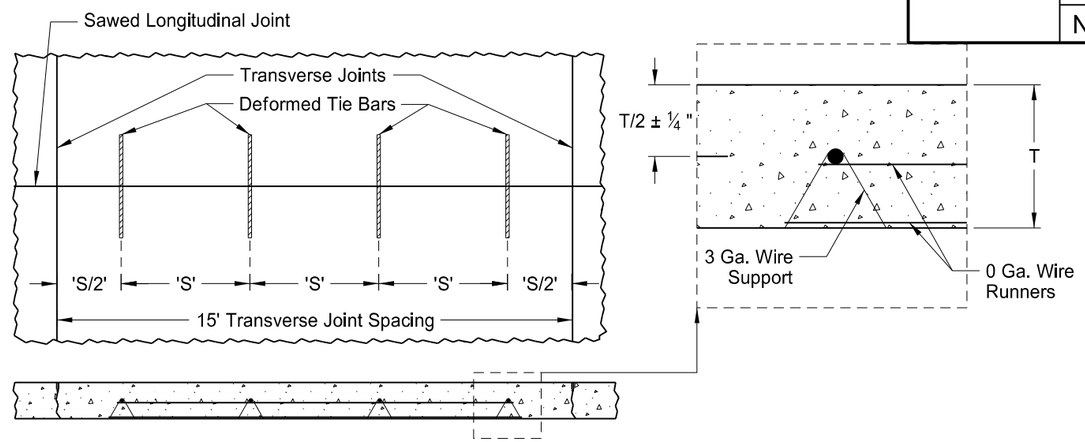
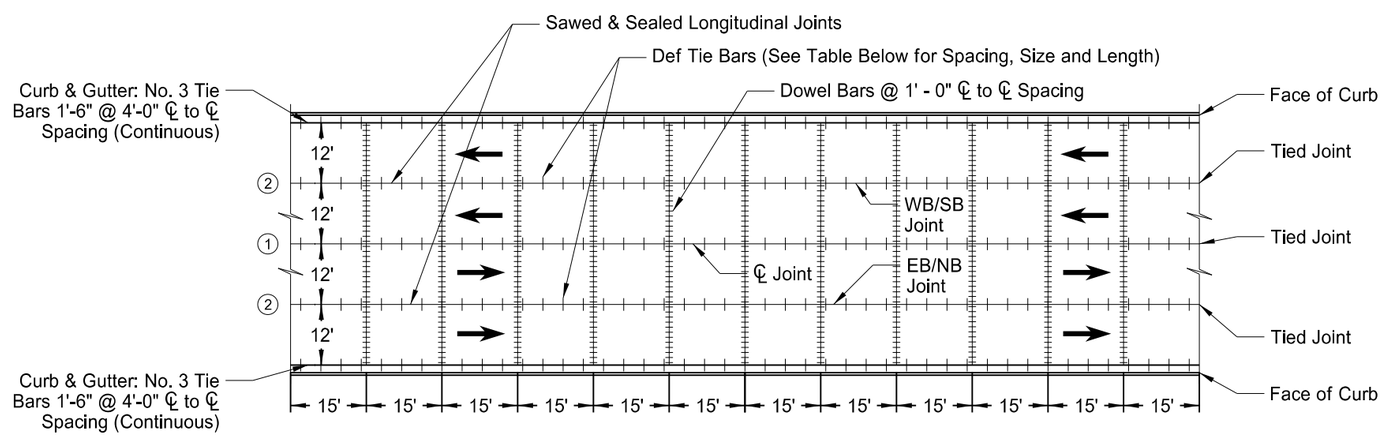
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	1
	NHU-3-020(074)103		



Longitudinal Tie Bar Assembly
(one unit shown)



Mainline Joints

NHU-3-019(044)155 & NHU-3-020(074)103
Longitudinal Joint Tie Bar Size, Length and Spacing

Location	Joint	Pavement Thickness	Bar Depth	Steel Grade	Bar Size and Length	Spacing 'S'
ND HWY 20 & 6th Street NE	1	8.5"	4.25"	40	#6 Bar x 36"	36"
				60	#6 Bar x 48"	45"
	2			40	#5 Bar x 30"	36"
				60	#5 Bar x 42"	45"
ND HWY 19	1	8.5"	4.25"	40	#6 Bar x 36"	36"
				60	#6 Bar x 48"	45"
	2			40	#5 Bar x 30"	36"
				60	#5 Bar x 42"	45"

Notes:

1. See Section 90 of Plans For Joint Spacing in Transition Areas and Widened Sections.
2. See Standard Drawing D-550-2 for Tie Bar Lengths and Sizes in Transition Areas and Widened Sections.
3. All Longitudinal Joints are to be Warp Joints.
4. T = Pavement Thickness.
5. Provide 1 1/4" x 18" Dowel Bars for T = 10" or Less.

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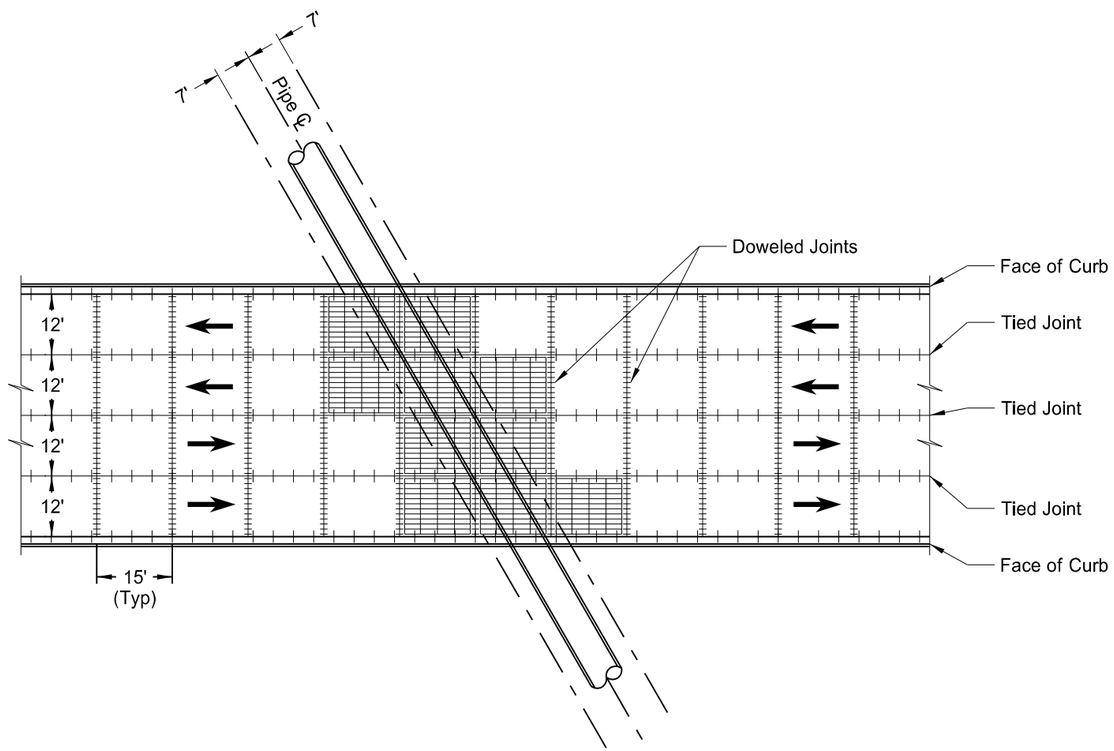
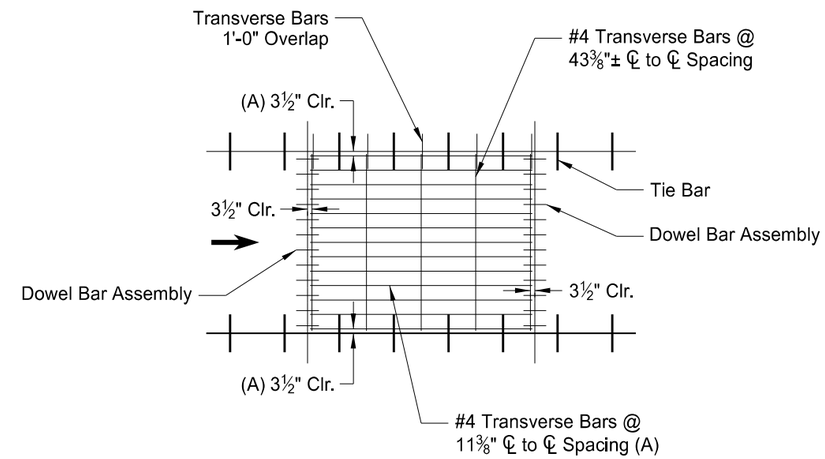
ND Highway 19 &
ND Highway 20

PCC Pavement & Joint Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	2
	NHU-3-020(074)103		



Street Reinforcing
(see Detail A)



(A) See Longitudinal Bar Spacings Table for Various Panel Widths.

Detail A
Reinforcing Layout

Longitudinal Bar Spacings		
Panel Width	Longitudinal Bar Spacing	Bar Clearance From Long. Joint
12'	11 3/8"	3 1/2"
14'	11 1/2"	3 1/4"
16'	11 1/2"	3 3/4"

Notes:

1. Place Reinforcing Steel Above Dowel Bars, Above Longitudinal Centerline Tie Bars, and Under Shoulder Tie Bars.
2. Provide A 1-Foot Minimum Overlap of Transverse Reinforcing Steel Across the Longitudinal Tied Joints.
3. Transverse Reinforcing Steel must be Gapped Across Keyed Joints a Minimum of 6 Inches (3 Inches on Each Side of Joint).
4. Reinforce The Complete Panel if any Part of the Panel Lies Within 7 Feet of the Pipe Centerline.
5. Include All Costs to Furnish and Install the Reinforcing Steel as Shown in the Price Bid Items "8.5IN NON-REINF CONCRETE PVMT CL AE-DOWELED".

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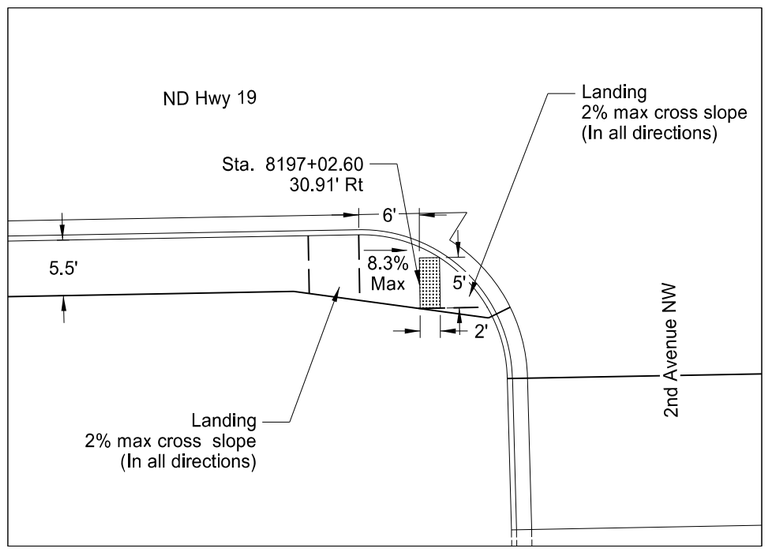
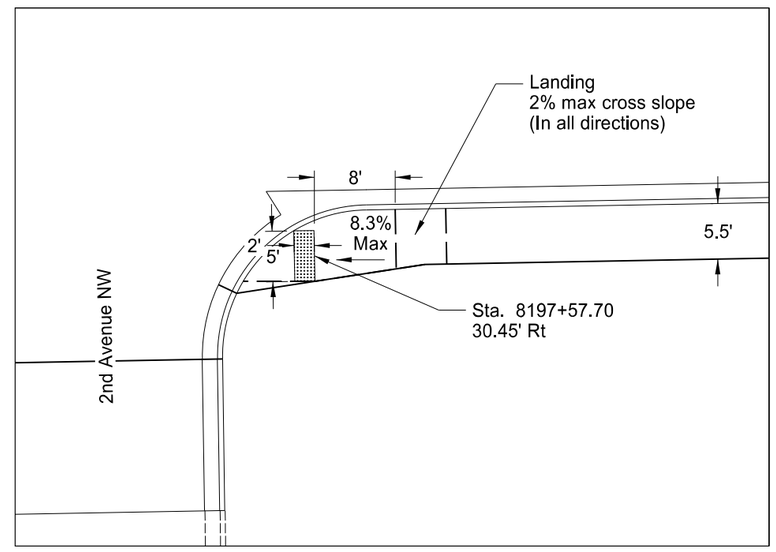
ND Highway 19 &
ND Highway 20

PCC Pavement & Joint Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	3
	NHU-3-020(074)103		



Type 3 Perpendicular Ramp - ND Highway 19



Type 3 Perpendicular Ramp - ND Highway 19

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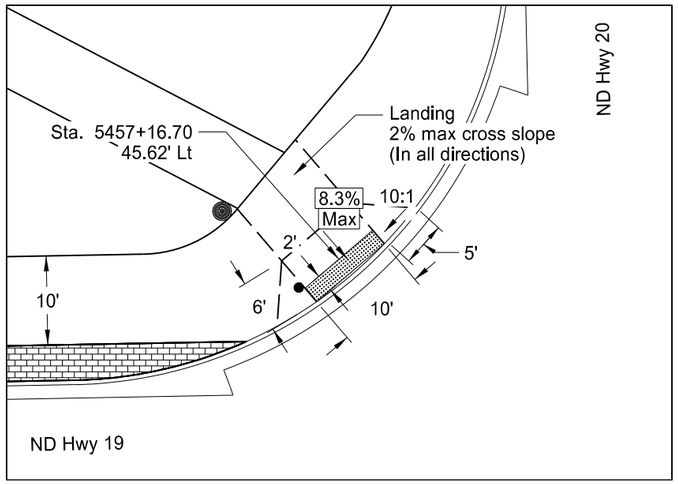
ND Highway 19 &
ND Highway 20

ADA Ramp Details

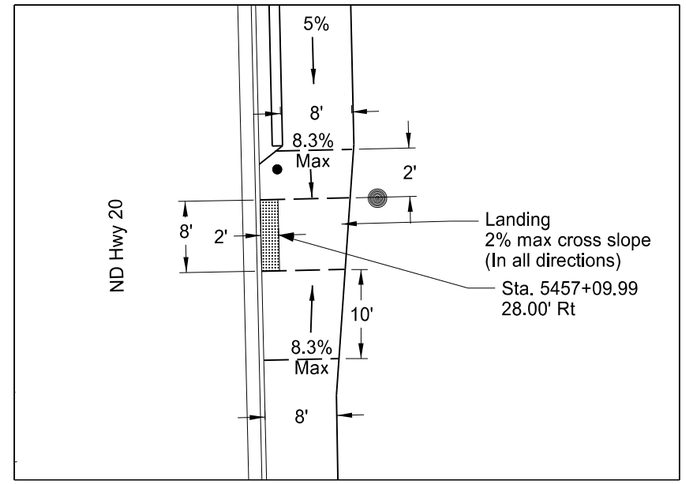
Notes:

1. All Form Grades to be Approved by Engineer Prior to Placing Concrete.
2. Dimensions Shown May Vary From Actual. Field Adjust if Maximum Slopes Cannot Meet Dimensions Given.
3. See Section 82 for Point Layout.

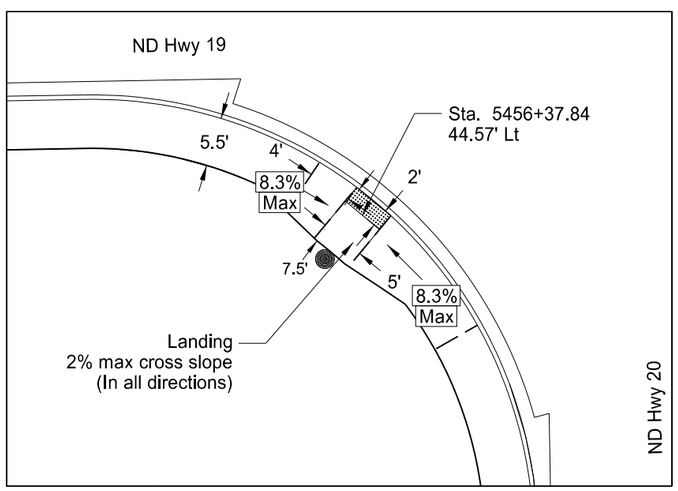
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	4
	NHU-3-020(074)103		



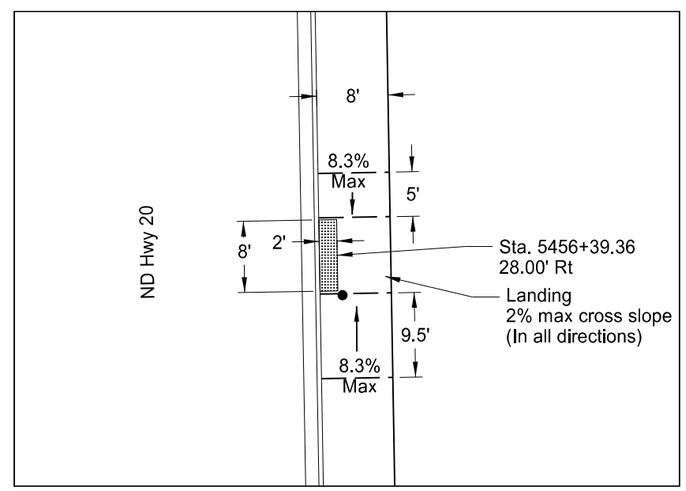
Type 4 Perpendicular Ramp - ND Highway 20



Type 3 Perpendicular Ramp - ND Highway 20



Type 4 Perpendicular Ramp - ND Highway 20



Type 3 Perpendicular Ramp - ND Highway 20

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ND Highway 19 &
ND Highway 20

ADA Ramp Details

Notes:

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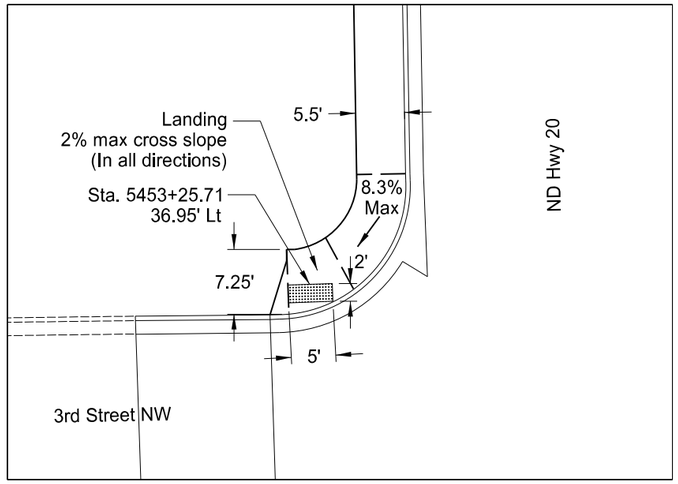
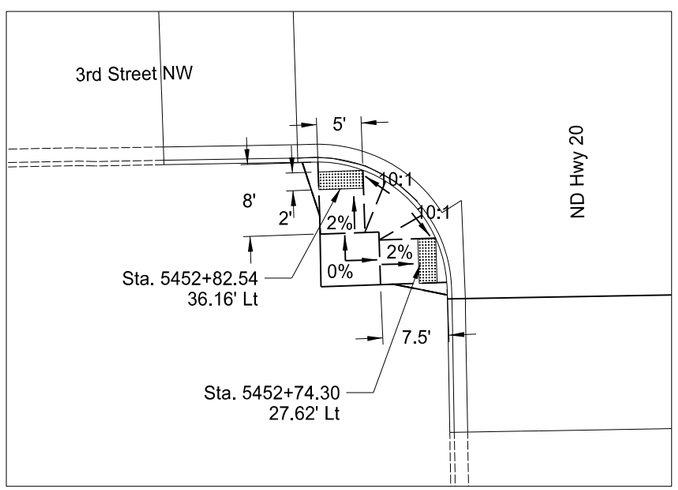
3. See Section 82 for Point Layout.

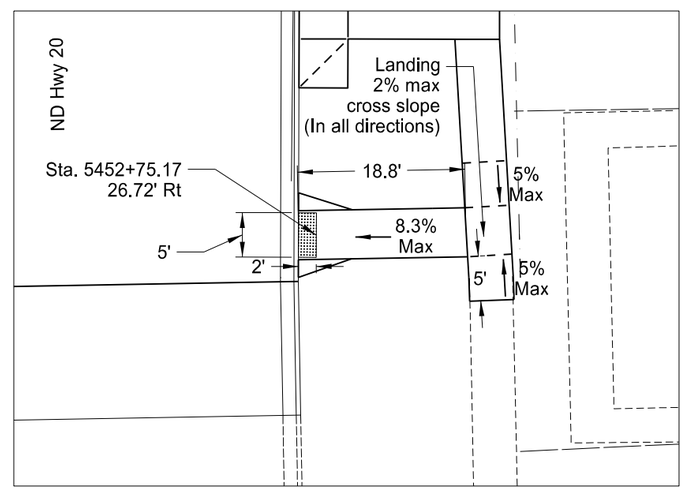
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	5
	NHU-3-020(074)103		



Type 3 Perpendicular Ramp - ND Highway 20



Type 2 Perpendicular Ramp - ND Highway 20



Type 1A Perpendicular Ramp - ND Highway 20

N

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ND Highway 19 &
ND Highway 20

ADA Ramp Details

Notes:

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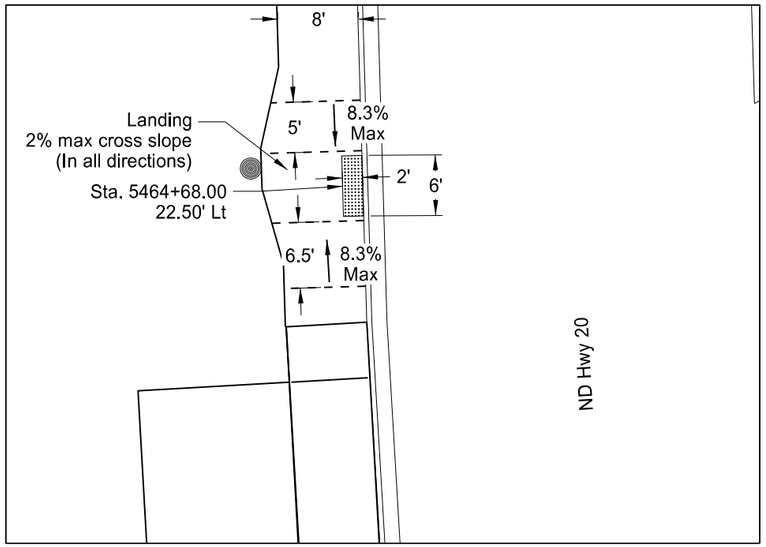
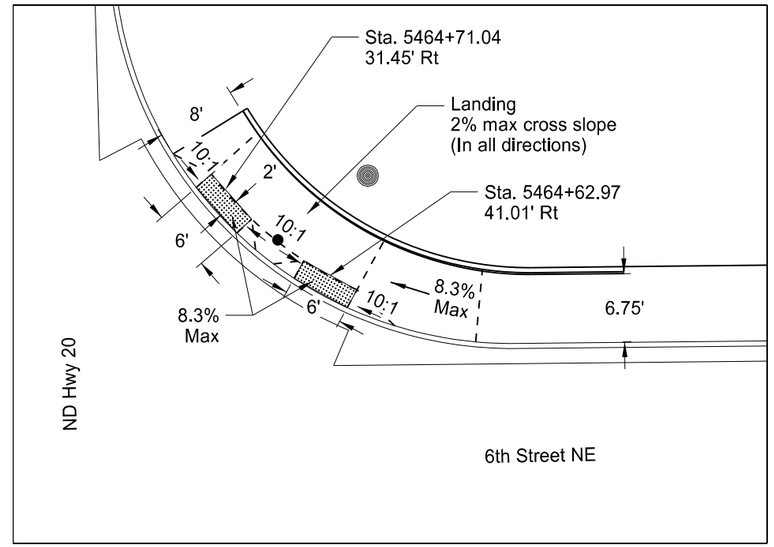
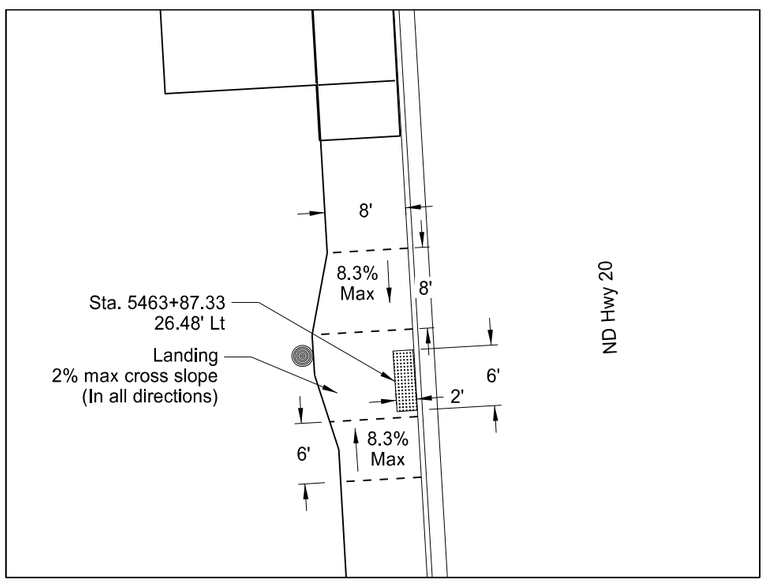
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	6
	NHU-3-020(074)103		



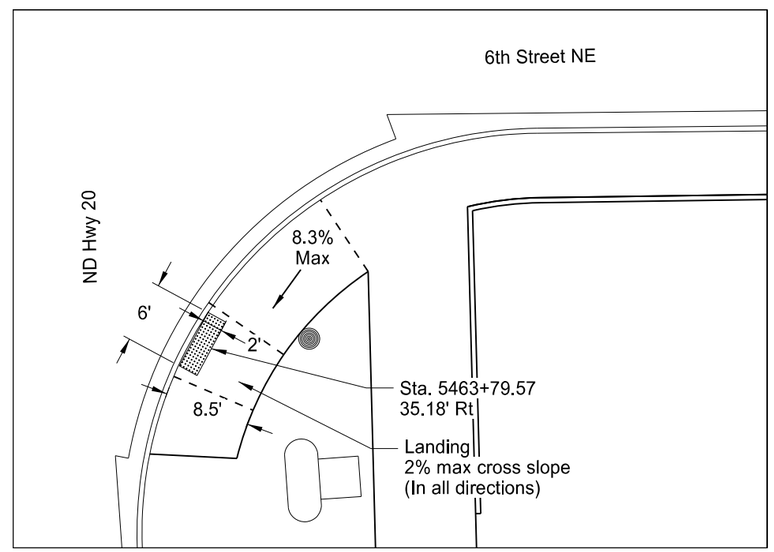
Type 3 Perpendicular Ramp - ND Highway 20



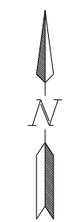
Type 4 Perpendicular Ramp - ND Highway 20



Type 3 Perpendicular Ramp - ND Highway 20



Type 4 Perpendicular Ramp - ND Highway 20



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ND Highway 19 &
ND Highway 20

ADA Ramp Details

Notes:

1. All Form Grades to be Approved by Engineer Prior to Placing Concrete.
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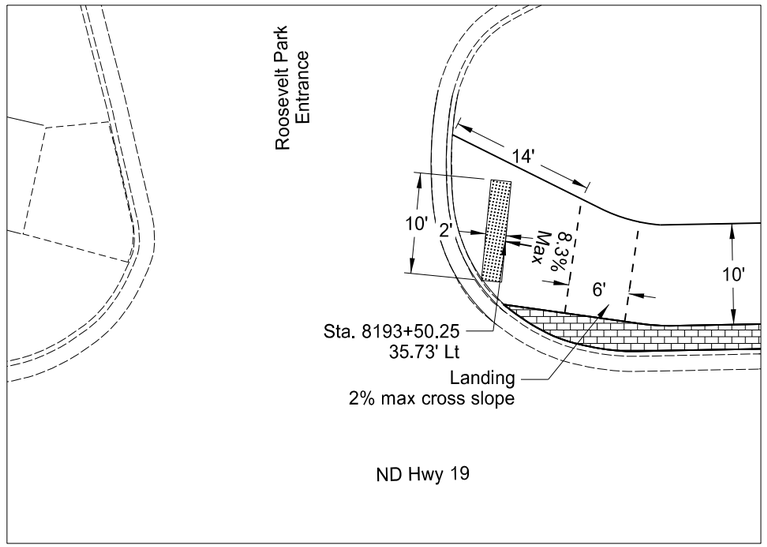
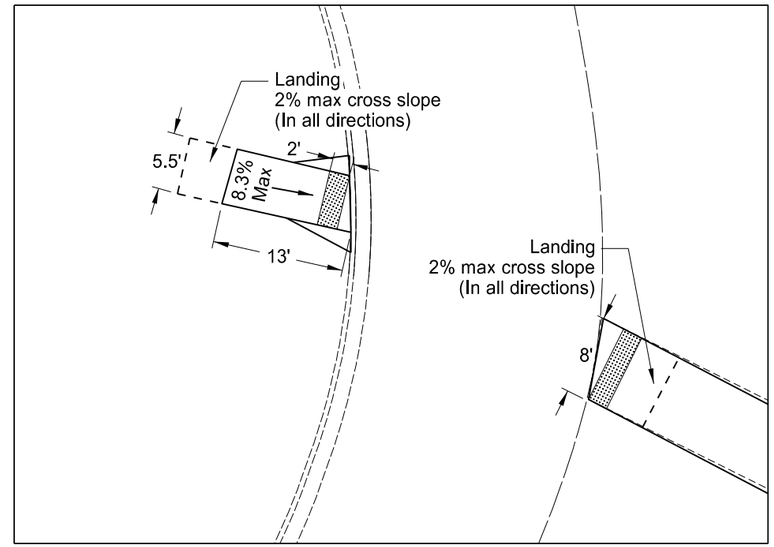
3. See Section 82 for Point Layout.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	7
	NHU-3-020(074)103		



Shared Use Path- ND Highway 19



Type 1A Perpendicular Ramps - Roosevelt Park

N

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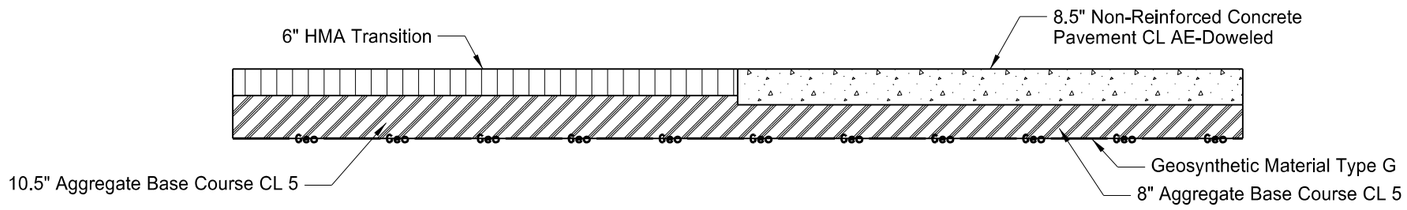
ND Highway 19 &
ND Highway 20

ADA Ramp Details

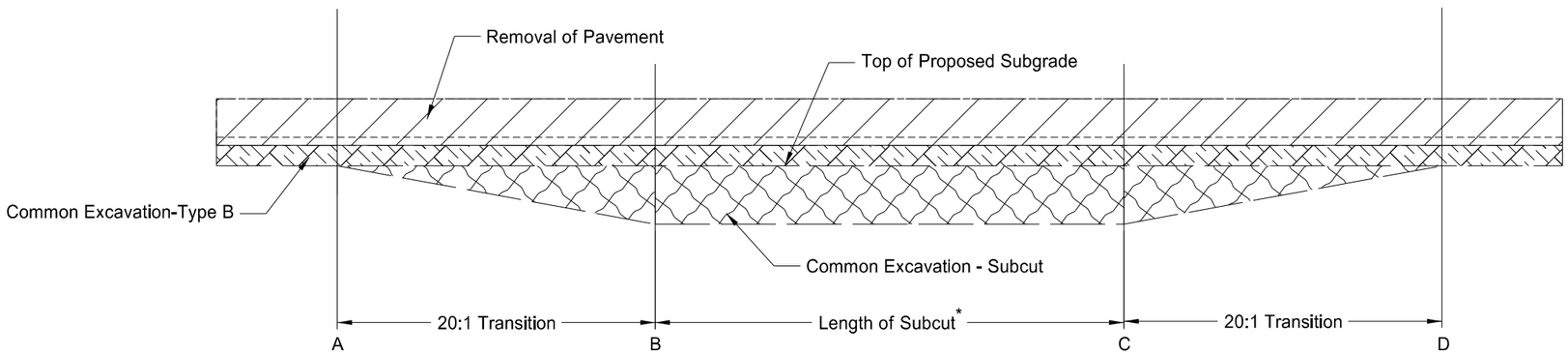
Notes:

1. All Form Grades to be Approved by Engineer Prior to Placing Concrete.
2. Dimensions Shown May Vary From Actual. Field Adjust if Maximum Slopes Cannot Meet Dimensions Given.
3. See Section 82 for Point Layout.

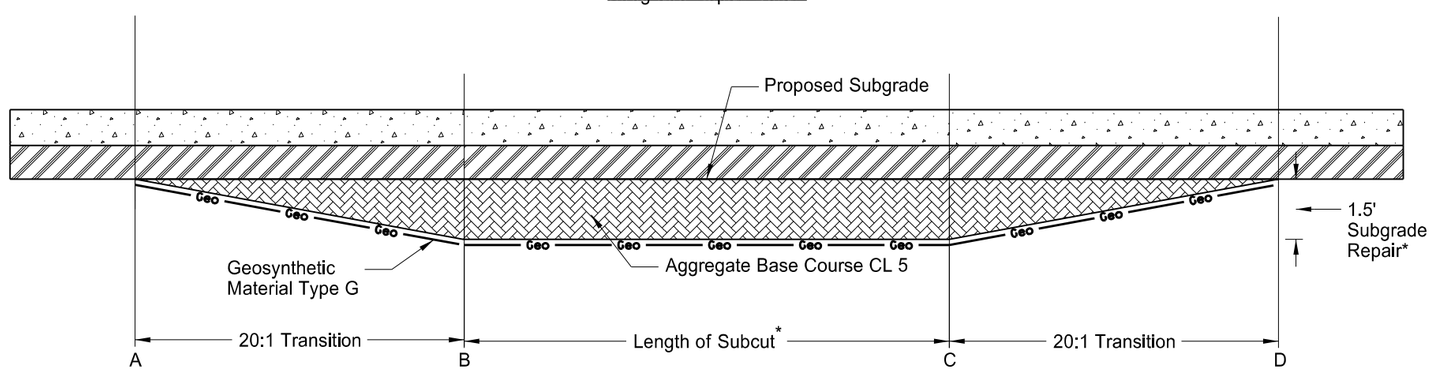
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	8
	NHU-3-020(074)103		



Asphalt Transition Detail



Subgrade Repair Detail*



Subgrade Repair Detail*

Subcut Summary NHU-3-019(044)155				
Number of Subcuts (1)	Length	Common Excavation - Subcut	Aggrageate Base Course CL 5	Geosynthetic Material Type G
Unit	LF	CY	TON	SY
BC	60	173	325	347
AB & CD	60	87	163	174
Total	120	260	488	521

Subcut Summary NHU-3-020(074)103				
Number of Subcuts (1)	Length	Common Excavation - Subcut	Aggrageate Base Course CL 5	Geosynthetic Material Type G
Unit	LF	CY	TON	SY
BC	120	347	651	693
AB & CD	60	87	163	174
Total	180	434	814	867

*Location, Extents and Depth to be Determined in the Field by the Engineer.

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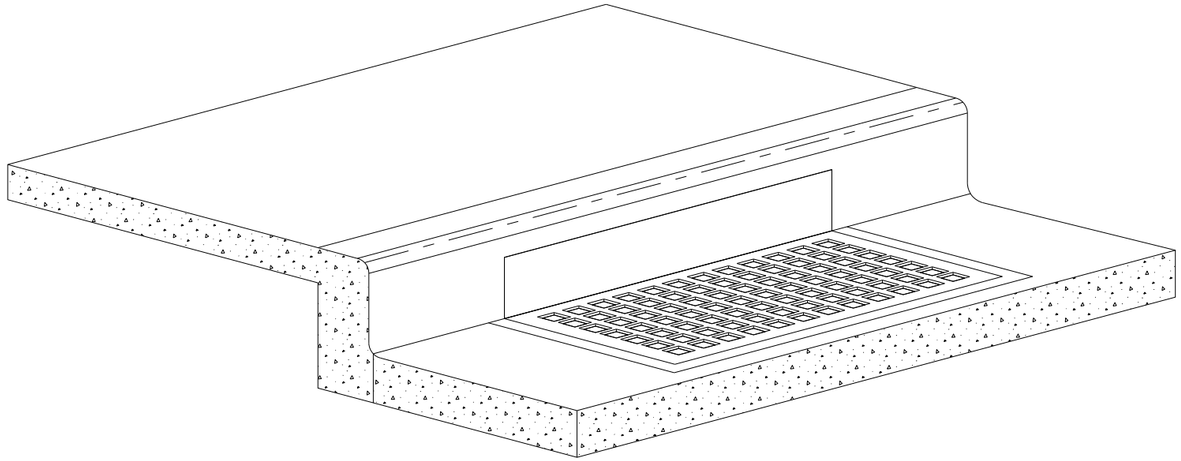
ND Highway 19 &
ND Highway 20

Aggregate & Pavement Transition Detail
& Subgrade Repair Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	9
	NHU-3-020(074)103		



Inlet Protection Device

Installation Notes:

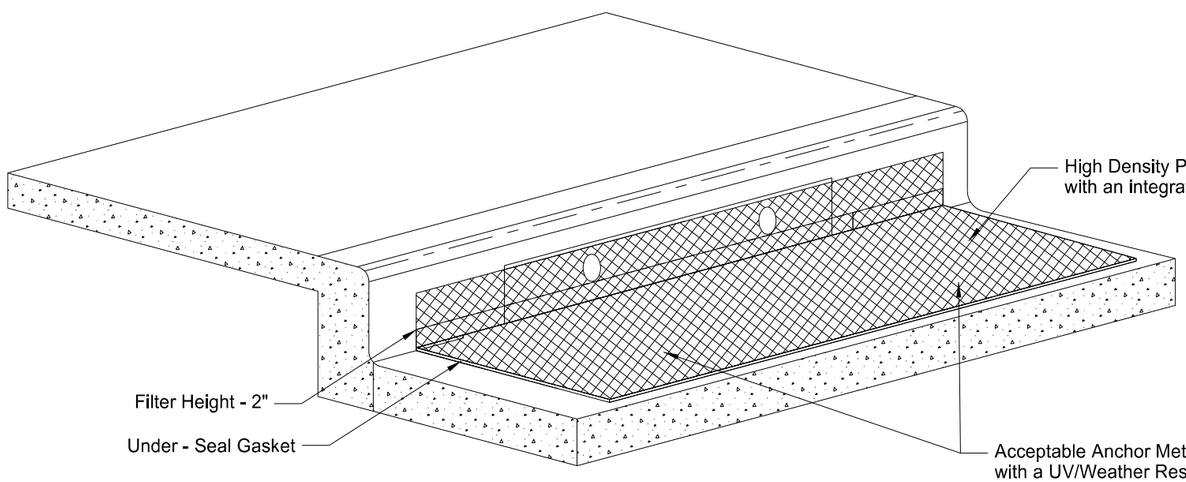
1. Place device tightly against drain opening and cover entire grate. Extend the device at least 2 inches past the grate toward the street.

2. Overlap the segments at longer openings.

3. Anchor the device so that water cannot flow behind it.

General Notes:

1. Remove material that falls into the inlet during maintenance or removal of the device.



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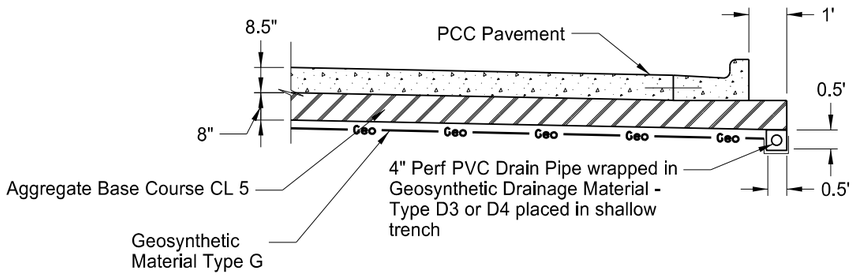
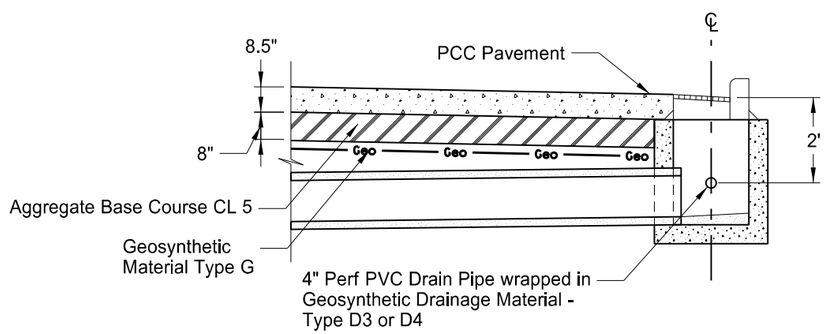
ND Highway 19 &
ND Highway 20

Inlet Protection Device

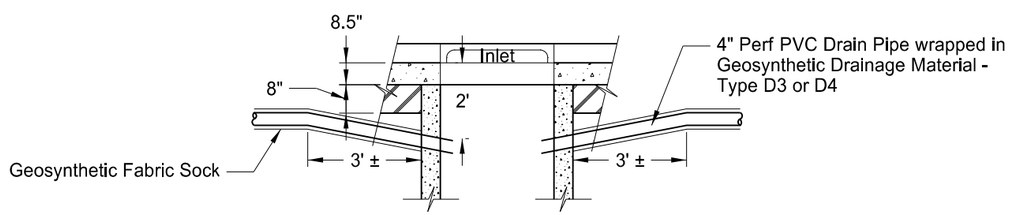
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	10
	NHU-3-020(074)103		



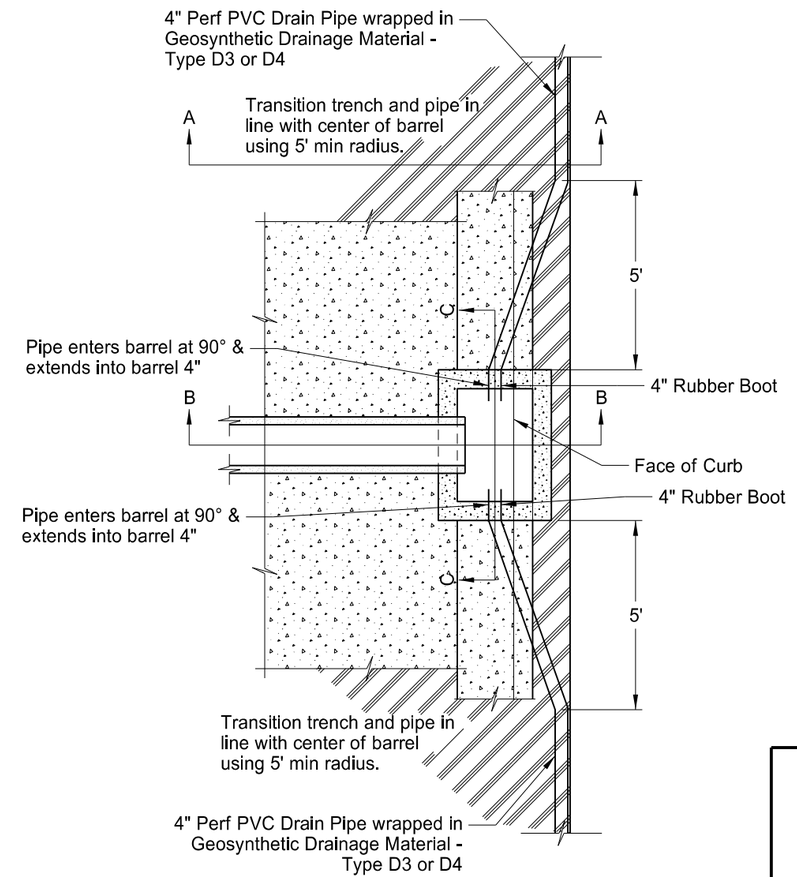
Edgedrain Layout
Profile View
A-A



Edgedrain Connection to Inlets
Profile View
B-B



Section C-C



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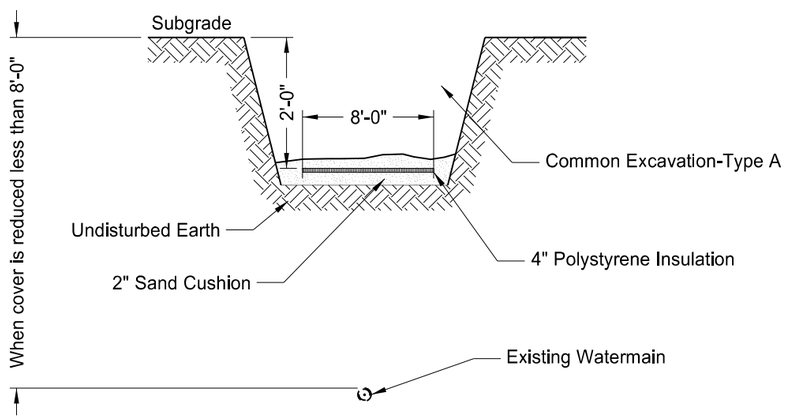
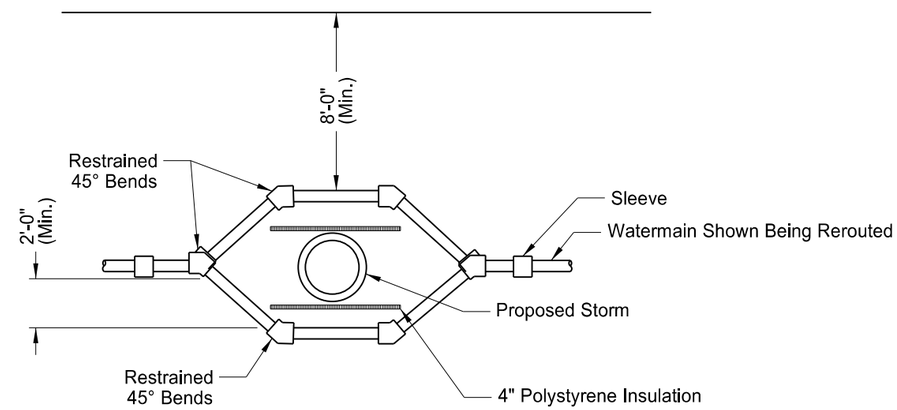
ND Highway 19 &
ND Highway 20

Edge Drain Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	11
	NHU-3-020(074)103		



Insulation Detail - Existing Watermain



Relocate Watermain Detail

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ND Highway 19 &
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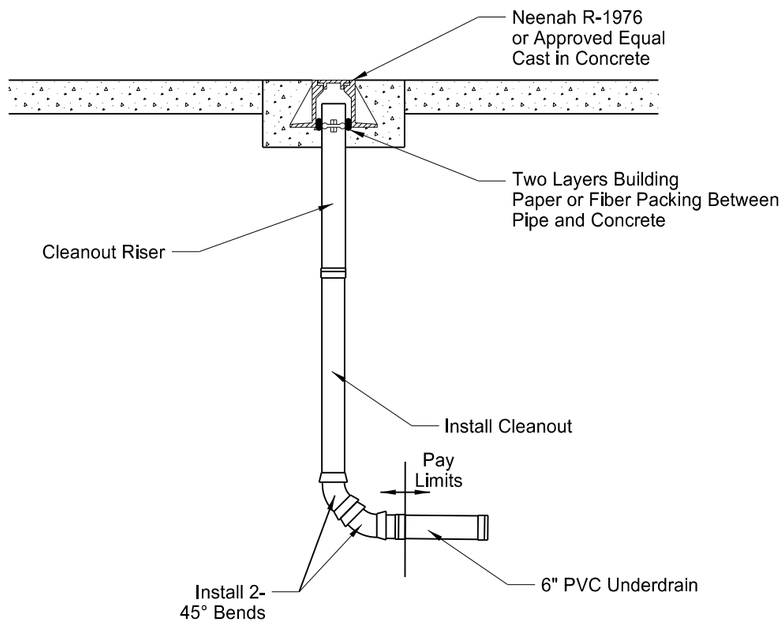
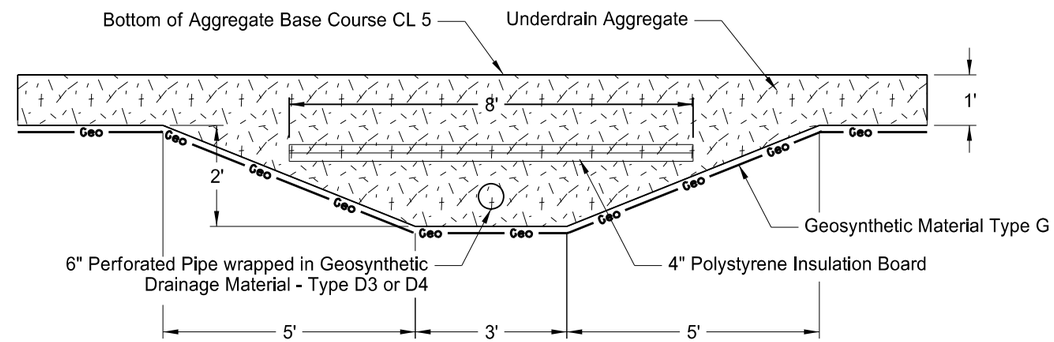
Watermain

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	12
	NHU-3-020(074)103		



Underdrain Cleanout Detail



Underdrain Insulation Detail

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ND Highway 19 &
ND Highway 20

Underdrain Details

LIGHT & SIGNAL STANDARD FOUNDATION SELECTION TABLE

Description	Footing Depth "D" 24" & 30" Diameter	Footing Depth "D" 36" & 42" Diameter
Light Standard		
36' - 44' Mounting Height	7'	6'
Combination 40' Mounting Height		
0' - 25' Signal Mast Arm	12', 12'	12', 12'
26' - 30' Signal Mast Arm	13', 13'	13', 13'
31' - 35' Signal Mast Arm	13', 13'	13', 13'
36' - 39' Signal Mast Arm	14', 14'	14', 14'
40' - 45' Signal Mast Arm	16', 16'	15', 15'

NOTES FOR LIGHT & SIGNAL STANDARD FOUNDATIONS:

1. For Light & Signal Standards, use the largest of the following scenarios for the foundation diameter:

   - Anchor bolt circle diameter plus 12"
   - Light base plus 6"
   - 24"

   It is the Contractor's responsibility to determine the foundation diameter and include the corresponding costs for the actual diameter in the unit price bid for "LIGHTING SYSTEM" and "TRAFFIC SIGNAL SYSTEM SITE _".

2. Provide Class AAE-3 Portland Cement Concrete mixed and proportioned as specified in Section 802.

3. Provide Grade 60 reinforcing steel .

4. The Contractor may use temporary casing to maintain the opening prior to placement of concrete. Remove the casing prior to curing of the concrete. If casing is used, it must be of sufficient strength to withstand handling and installation procedures. Submit a casing material proposal to the Engineer for review two weeks prior to ordering casing material. Include all costs associated with the temporary casing in the unit price bid for "LIGHTING SYSTEM" and "TRAFFIC SIGNAL SYSTEM SITE _". Permanent casing of the foundation will not be used.

5. Include all costs associated with the construction of the foundation in the unit price bid for "LIGHTING SYSTEM" and "TRAFFIC SIGNAL SYSTEM SITE _". This includes but not limited to excavation, concrete, reinforcing steel, anchor bolts and ground rod.

6. See Standard Drawing D-770-1 for additional foundation information.

7. Provide light standards with a minimum of 4 anchor bolts, and signal standards with a minimum of 6 anchor bolts.

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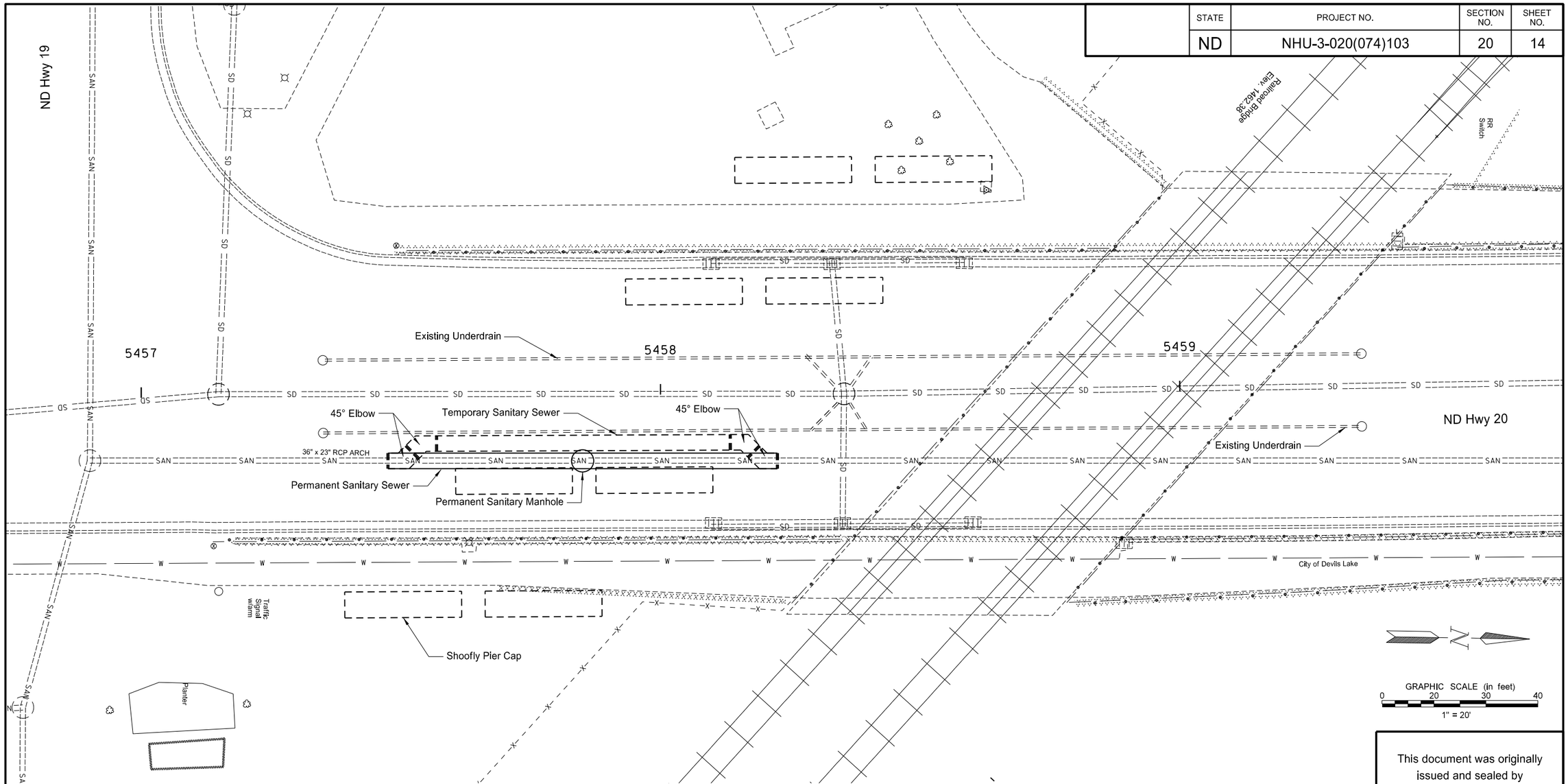
ND Highway 19 &
ND Highway 20

Light & Signal Concrete Foundations

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	14



Spec	Item Description	Qty	Unit
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 5457+32 ~ 11' Rt to 5458+29 ~ 13' Rt	75	LF
722 0300	MANHOLE SANITARY		
	Sta. 5457+85 ~ 12.7' RT	1	EA
722 1110	MANHOLE RISER 60IN		
	Sta. 5457+85 ~ 12.7' RT	4.6	LF
724 2120	36IN X 23IN ARCH SANITARY SEWER PIPE		
	Sta. 5457+32 ~ 9.3' Rt to 5458+29 ~ 13' Rt (Temporary)	80	LF
	Sta. 5457+32 ~ 11' Rt to 5458+29 ~ 13' Rt	75	LF

1) Contractor may reuse temporary sanitary sewer at the discretion of the Engineer in the field.

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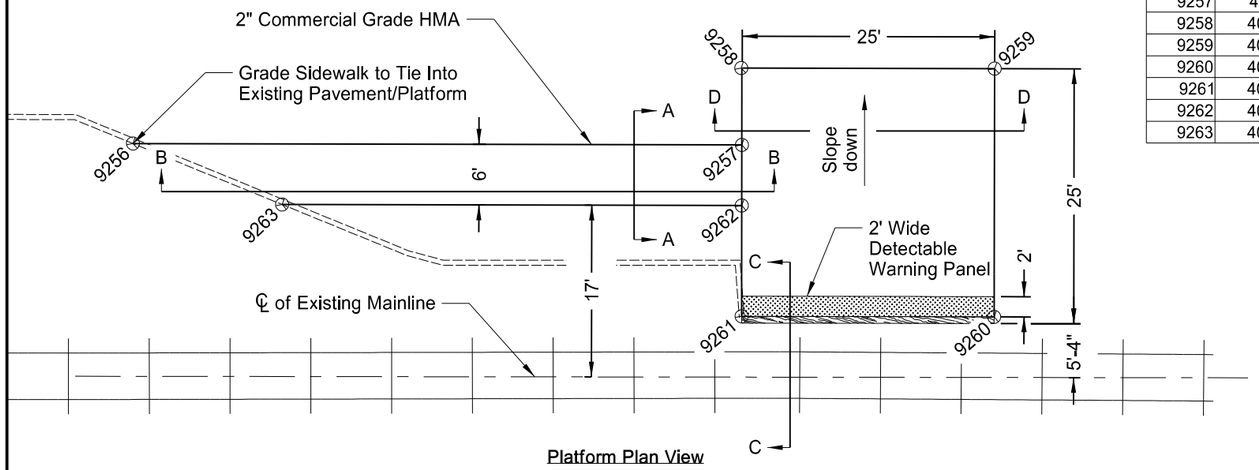
ND Highway 20

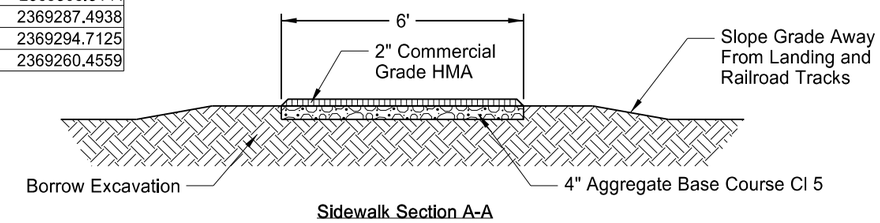
Sanitary Sewer

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	15

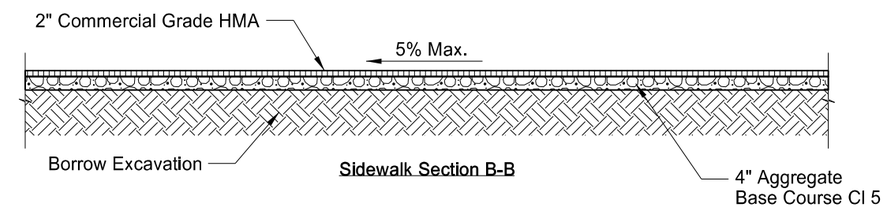
POINT	NORTHING	EASTING
9256	409127.2614	2369253.2842
9257	409087.5601	2369298.6632
9258	409093.2786	2369303.6856
9259	409076.8173	2369322.5011
9260	409058.3154	2369306.3141
9261	409074.7809	2369287.4938
9262	409083.0444	2369294.7125
9263	409113.0149	2369260.4559



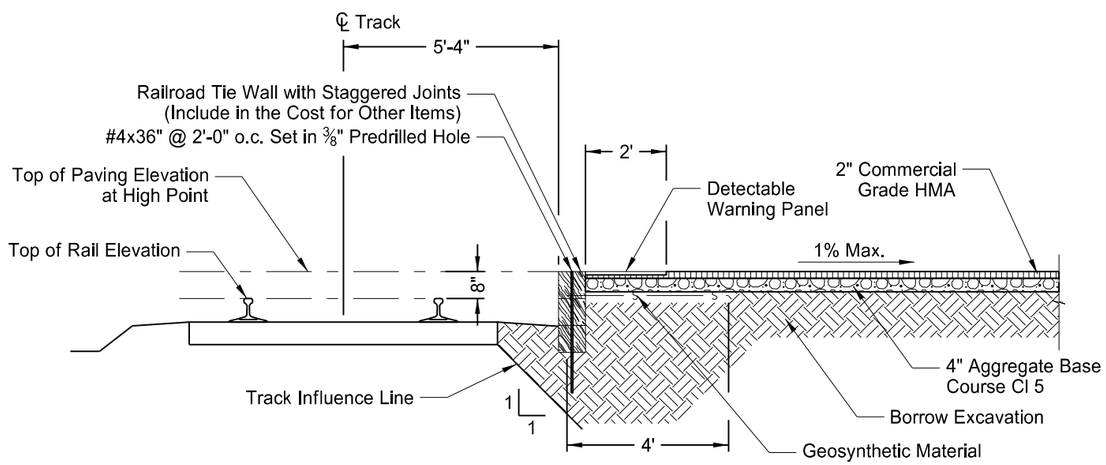
Platform Plan View



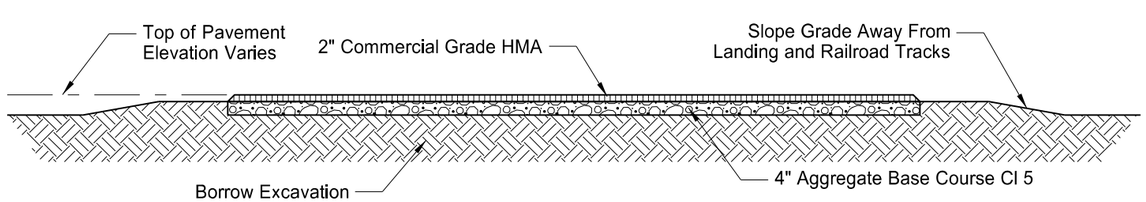
Sidewalk Section A-A



Sidewalk Section B-B



Platform Section C-C



Platform Section D-D

General Notes and Specifications:

1. Phase Work so as to Maintain the Normal Train Operations and Existing Access for Passenger Movement for Boarding and Departing the Trains and the Existing Access to Adjacent Parking Facilities.
2. Protect the General Public, Railroad Personnel and all Railroad Operations From Construction Activities and Shall Perform Their Work in Accordance With the Contract Requirements, Statement of Work, the National Electric Safety Code (NESC), Amtrak, the Host Railroad Regulations, OSHA and the Regulations of the Authorities Having Jurisdiction.
3. Coordinate with Amtrak to Locate, Protect, and Restore all Buried Utilities, Signal and Communication Cables. Verification and Marking of all Utilities, Signal and Communication Cables Must be Performed Prior to any Excavation.
4. Submit for Review and Approval a Work Plan that Fully Describes and Sequences the Activities the Contractor will Perform to Complete the Project. The Work Plan Must Encompass the Time From Notice to Proceed to Close Out of the Project. The Work Plan Must Describe the Types of Activities, Location of Activities on the Project Site, Equipment, Material, and Labor. The Work and Sequencing Must Contain the Time Frames for Each Activity.
5. All Construction Activities are Considered Fouling the Track. The Contractor will be Required, During the Construction, to Clear the Foul Area by Removing all Personnel and Equipment a Minimum of 15 Feet from the Centerline of the Nearest Track During Train Operations. This Notice for Clearing the Foul Area During Train Operations will be Given by a Railroad Protection Watchman Who Will be Present During Construction. The Contractor Must Clear the Foul Area and Remain Clear of the Foul Area, Until Allowed to Return as Instructed by the Watchman. This Requirement to Clear and Remain Clear of the Foul Area May Occur at any Time During the Contractor's Activities. The Watchman Activities and Presence will be Determined by Amtrak and will be Based Upon the Approved Work Plan Submitted by the Contractor. All Cost of the Watchman Activities will be borne by Amtrak.
6. Arrange for any Staging and Storage for Equipment and Material. No Equipment or Material will be Staged or Stored in the Foul Area When Construction Activities are not Taking Place. Clean up the Foul Area After Each Work Day.

Borrow Excavation	30	CY
Aggregate Base Course CL5	22	TON
Commercial Grade HMA	12	TON
Geosynthetic Material Type S1	104	SY
Detectable Warning Panel	50	SF

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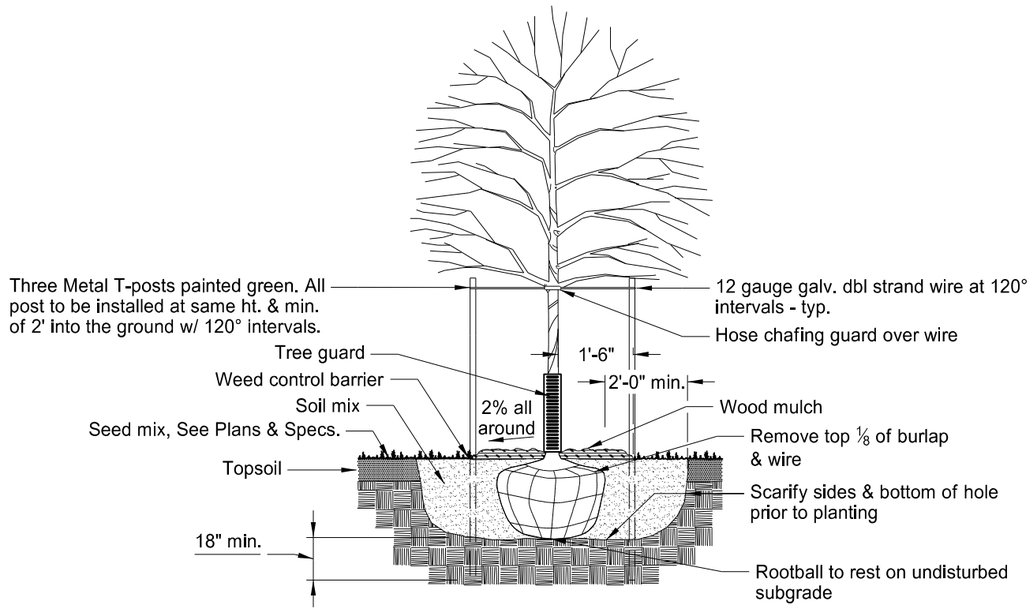
ND Highway 20

Temporary Amtrak Passenger Platform Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	20	16
	NHU-3-020(074)103		



CANOPY TREE
PLANTING DETAIL

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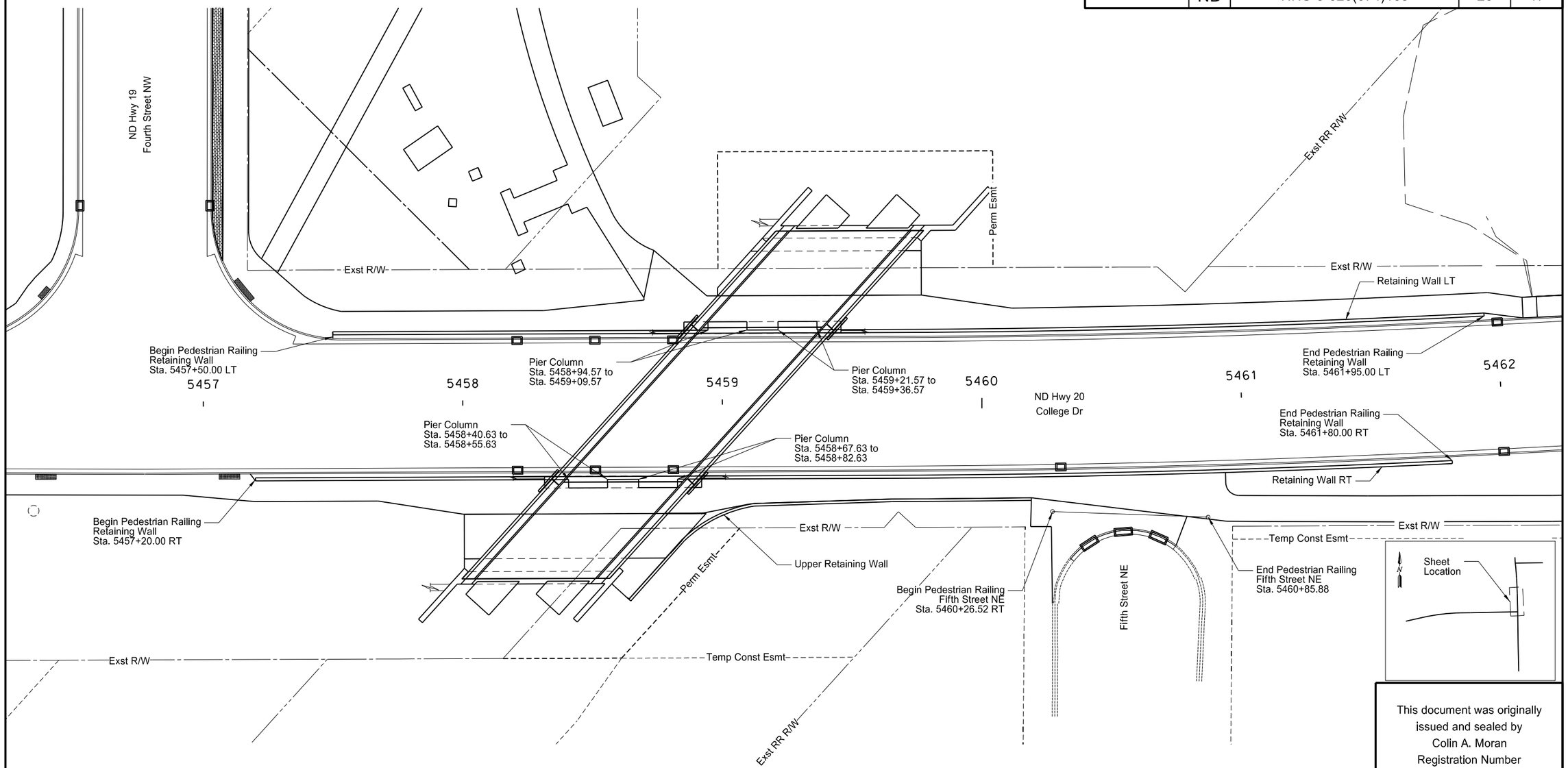
ND Highway 19 &
ND Highway 20

Tree Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	17



Spec	Item Description	Qty	Unit
624 0123	PEDESTRIAN RAILING		
	Sta. 5457+20.00 Rt to 5461+80.00 Rt	430.0	LF
	Sta. 5457+50.00 Lt to 5461+95.00 Lt	415.0	LF
	Sta. 5460+26.52 Rt to 5460+85.88 Rt	60.0	LF

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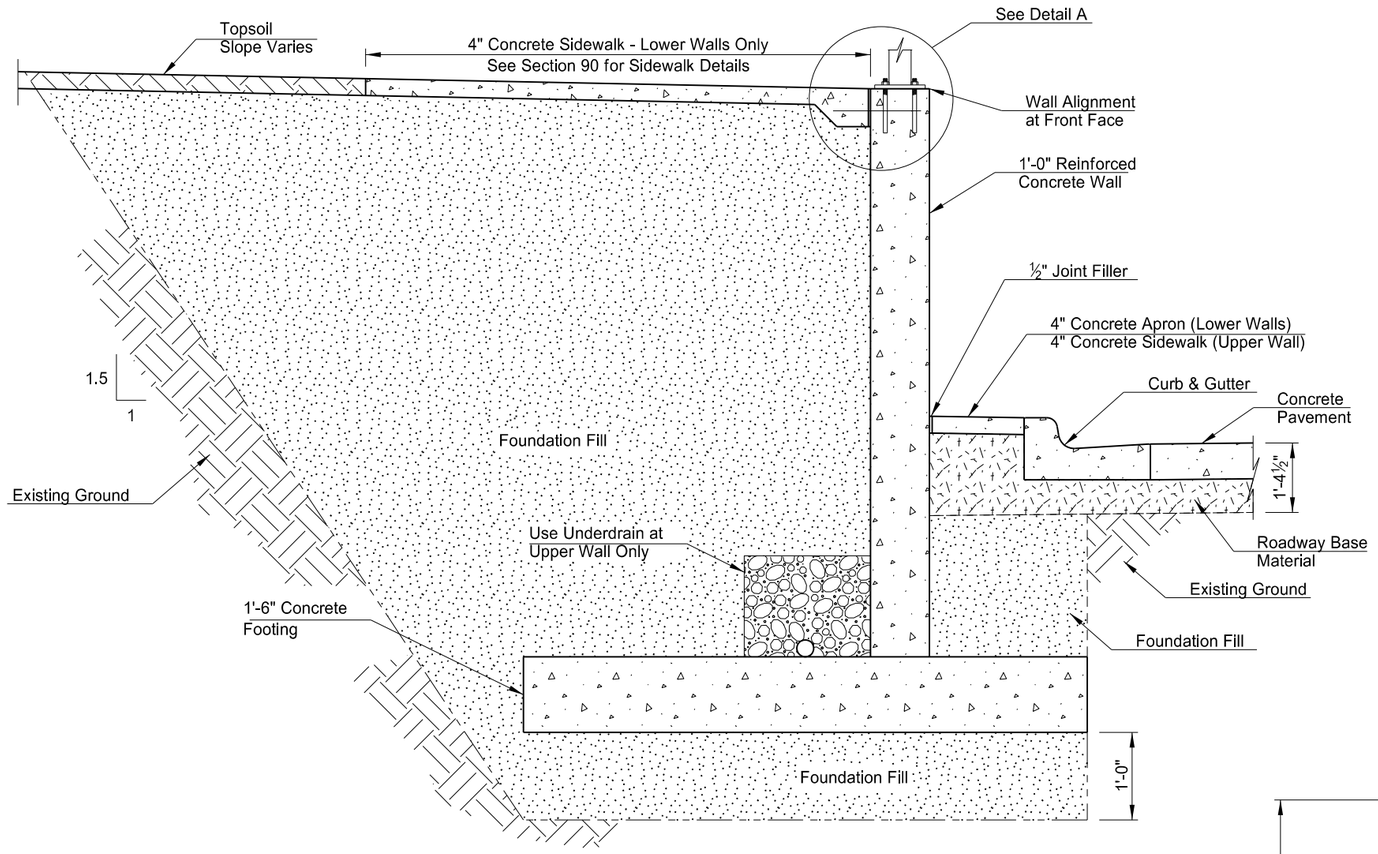
GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

ND Highway 20

Retaining Wall & Pedestrian Railing

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	18



WALL TYPICAL SECTION

NOTES:

1. Use corrugated perforated fabric wrapped PE pipe that meets the requirements of Section 830.03 A.4. Provide fabric wrapping for the pipe the meets the requirements of Section 858.01 for D3 or D4 drainage fabric. Provide aggregate that meets the requirements of Section 816.03, Class 43. Outlet PE drainage pipe from the lowest point of the Upper Retaining Wall to Manhole 8.

2. Include costs to furnish and place the Class 43 Aggregate, geosynthetic material, perforated pipe and drainage pipe in the lump sum bid item "Class AAE-3 Concrete".

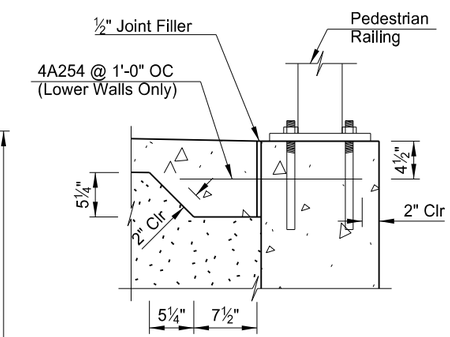
3. Provide foundation fill meeting the requirements of Section 816.02, Class 5 and compact in accordance with Section 302.04B.

4. Surface Finish "D" is required on the face and top of the retaining walls. Provide surface finish color white meeting Federal Standard 595B Color Number 27722, "Light Gray". Include this work in the price bid for "Class AAE-3 Concrete".

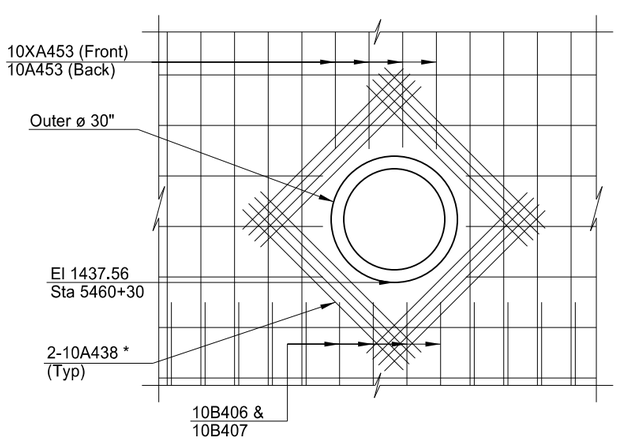
5. Install rail along the entire length of the lower retaining walls, including between the piers. See Section 20, Sheet 17 for rail locations.

DESIGN STRENGTHS:
f'c = 4,000 psi ~ Class AAE-3 Concrete
fy = 60,000 psi ~ Reinforcing Steel

Load & Resistance Factor Design

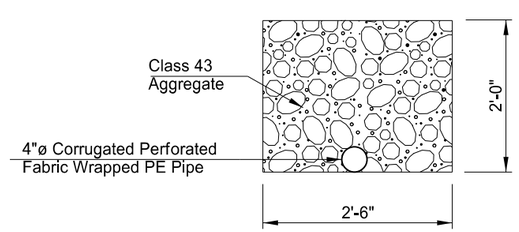


DETAIL A



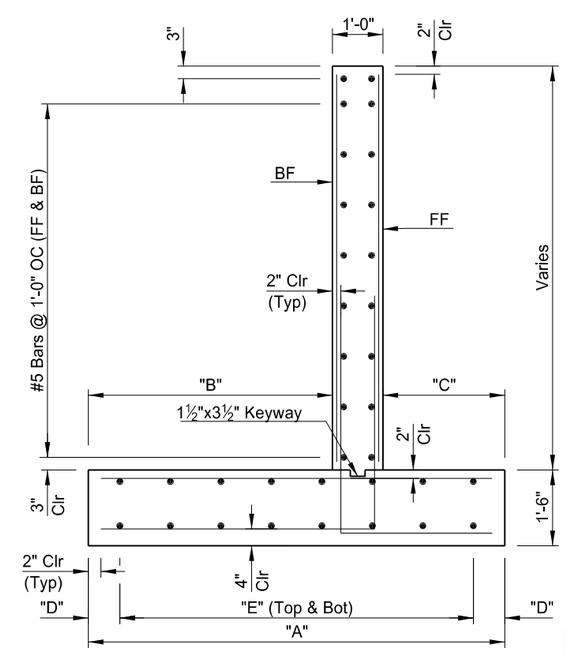
PIPE DETAIL
(See Section 20, Sheet 29 for Pipe Locations)

* Space 10A438 Bars at 4" OC.



DRAIN DETAIL
(Upper Wall Only)

WALL TYPE	"A"	"B"	"C"	"D"	"E"
WALL 'A'	10'-0"	5'-0"	4'-0"	6"	#6 Bars @ 1'-0"
WALL 'B'	12'-0"	5'-6"	5'-6"	6"	#6 Bars @ 1'-0"
WALL 'C'	15'-0"	6'-6"	7'-6"	6"	#6 Bars @ 8"
WALL 'D'	11'-0"	5'-6"	4'-6"	6"	#6 Bars @ 1'-0"
WALL 'E'	8'-9"	4'-6"	3'-3"	4½"	#5 Bars @ 1'-0"
WALL 'F'	6'-9"	3'-0"	2'-9"	4½"	#5 Bars @ 1'-0"



WALL TYPICAL SECTION
(Showing Reinforcing)

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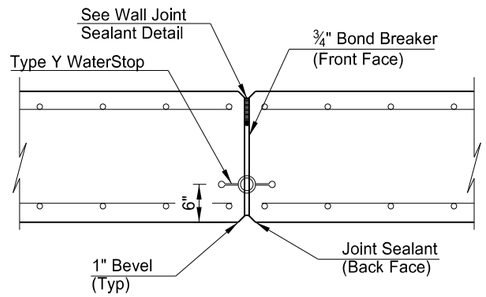
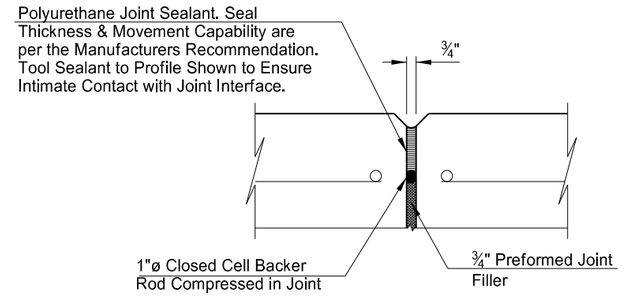
ND Highway 19 &
ND Highway 20

Retaining Wall Details

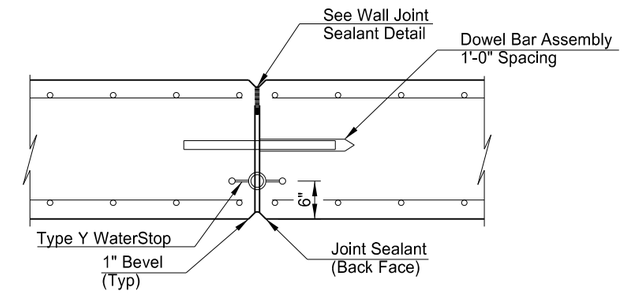
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	19



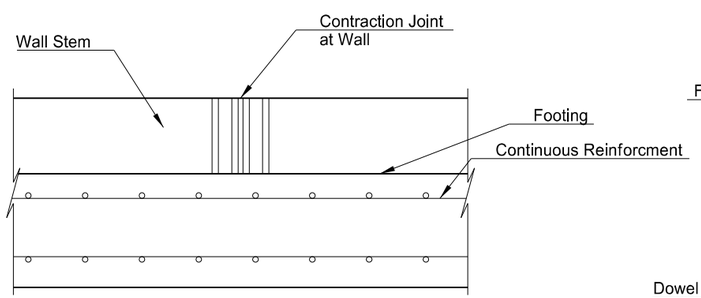
TYPICAL CONTRACTION JOINT AT WALL



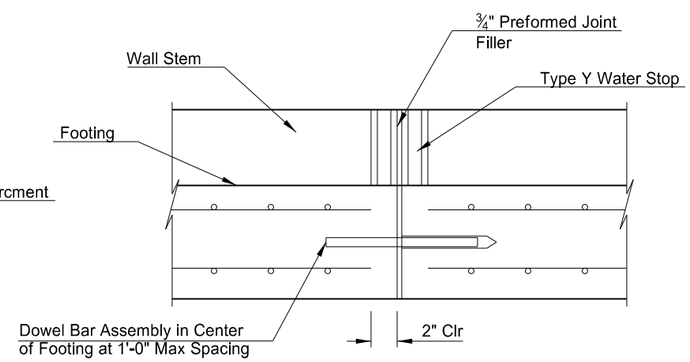
WALL JOINT SEALANT DETAIL



TYPICAL EXPANSION JOINT AT WALL



TYPICAL CONTRACTION JOINT AT FOOTING



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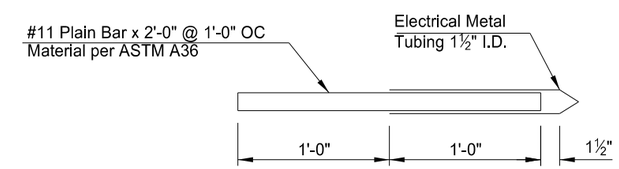

DOWEL BAR ASSEMBLY

QUANTITIES	(UPPER WALL)
CLASS AAE-3 CONCRETE	148.6 CY
REINFORCING STEEL	18,171 LB
FOUNDATION FILL	1,956 TON

QUANTITIES	(LEFT WALL)
CLASS AAE-3 CONCRETE	428.4 CY
REINFORCING STEEL	68,347 LB
REINFORCING STEEL (EPOXY)	13,345 LB
FOUNDATION FILL	8,527 TON

QUANTITIES	(RIGHT WALL)
CLASS AAE-3 CONCRETE	494.1 CY
REINFORCING STEEL	112,883 LB
REINFORCING STEEL (EPOXY)	24,444 LB
FOUNDATION FILL	10,425 TON

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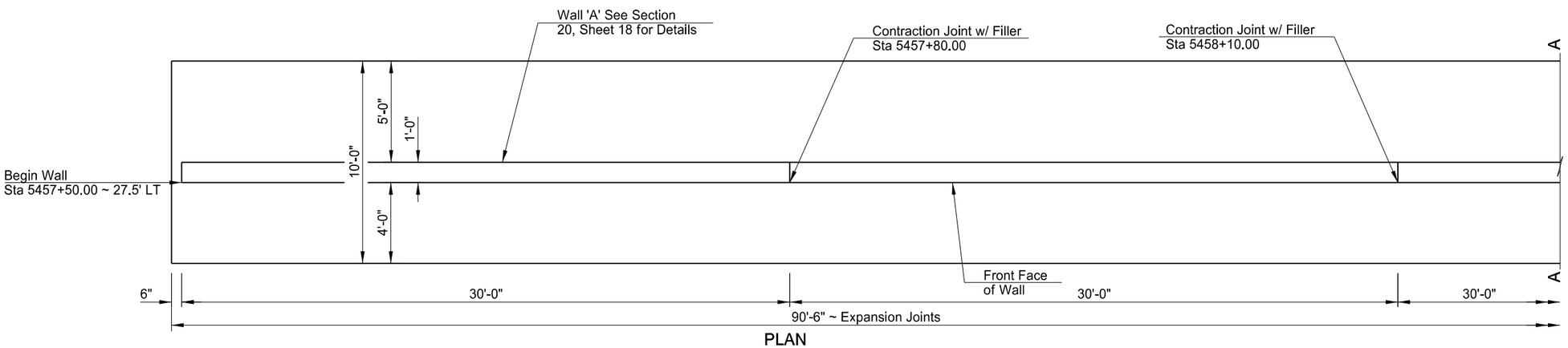
NOTE:

Dowel bar assemblies are required at all expansion joints. Include the materials and placement of the expansion/contraction joint (dowel bar assemblies, joint filler, joint sealant, and waterstops) in the bid items "Class AAE-3 Concrete".

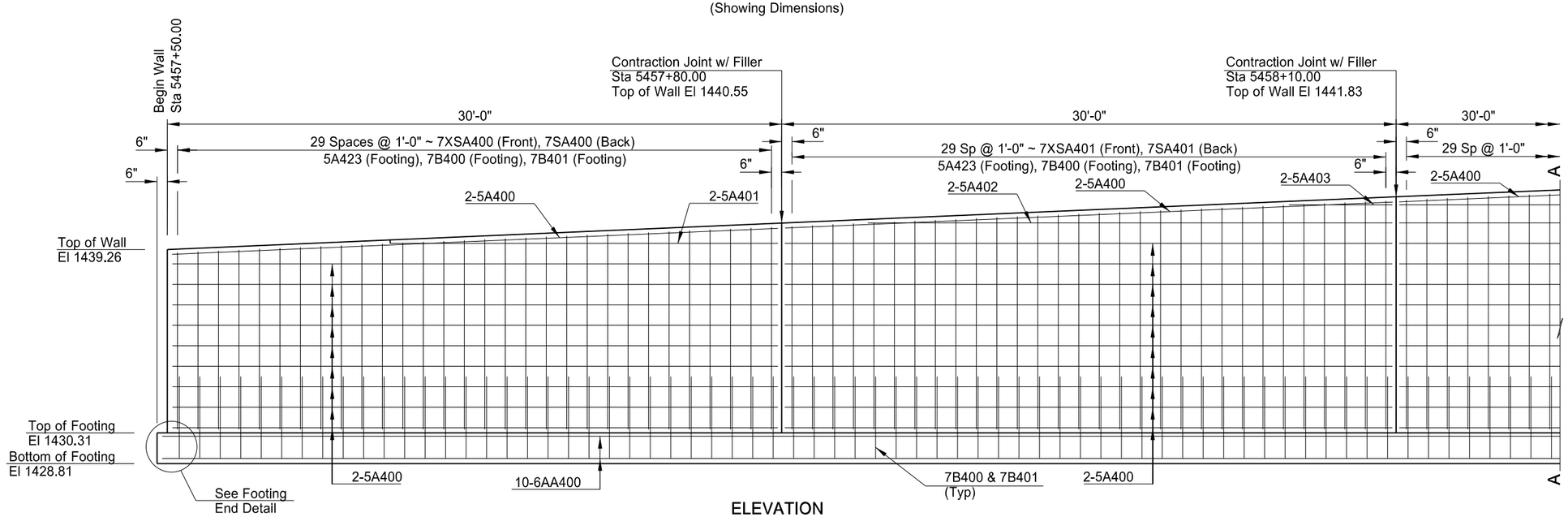
ND Highway 19 &
ND Highway 20

Retaining Wall Joint Details

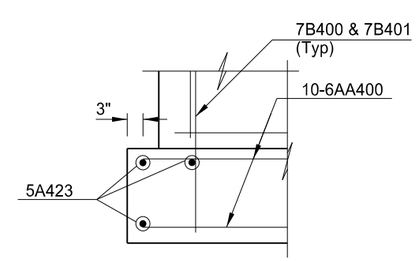
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	20



PLAN
(Showing Dimensions)



ELEVATION
(Showing Dimensions & Reinforcing)



FOOTING END DETAIL

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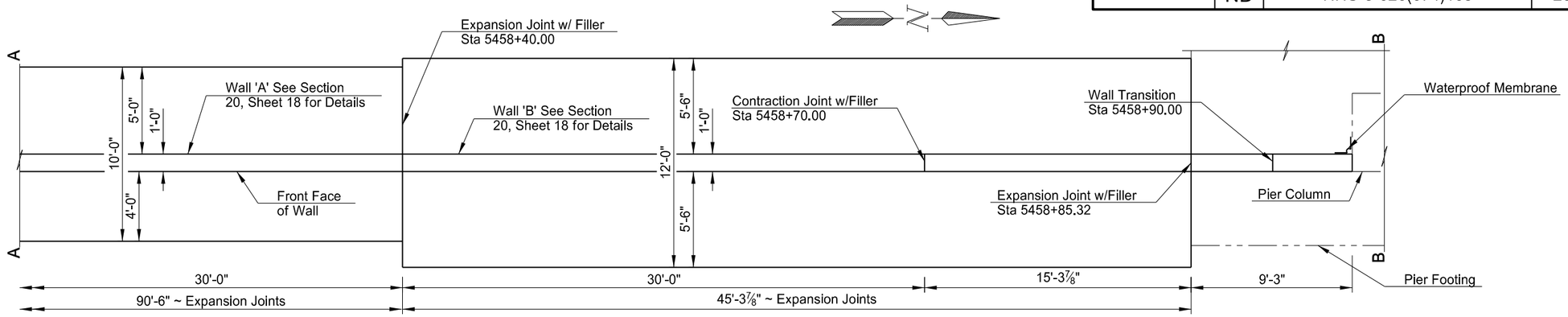
ND Highway 19 &
ND Highway 20

Retaining Wall Details I - Left

NOTE:
See Section 20, Sheet 21 for Match Line A-A.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	21



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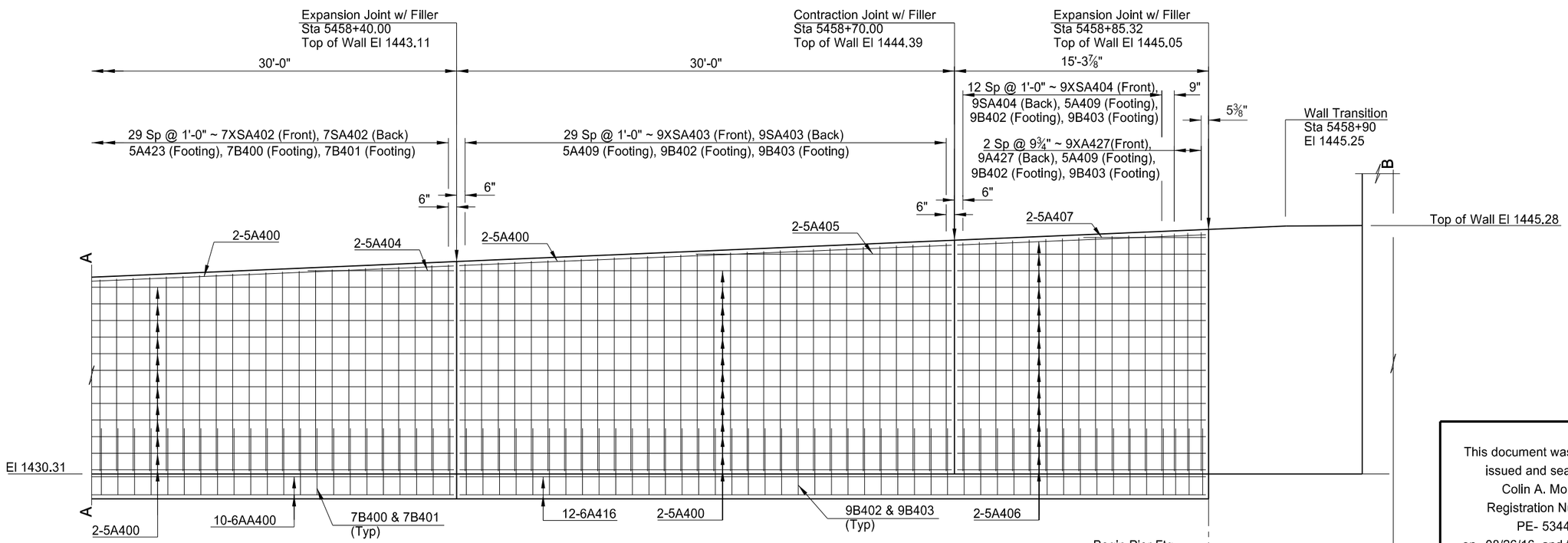

ELEVATION
(Showing Dimensions & Reinforcing)

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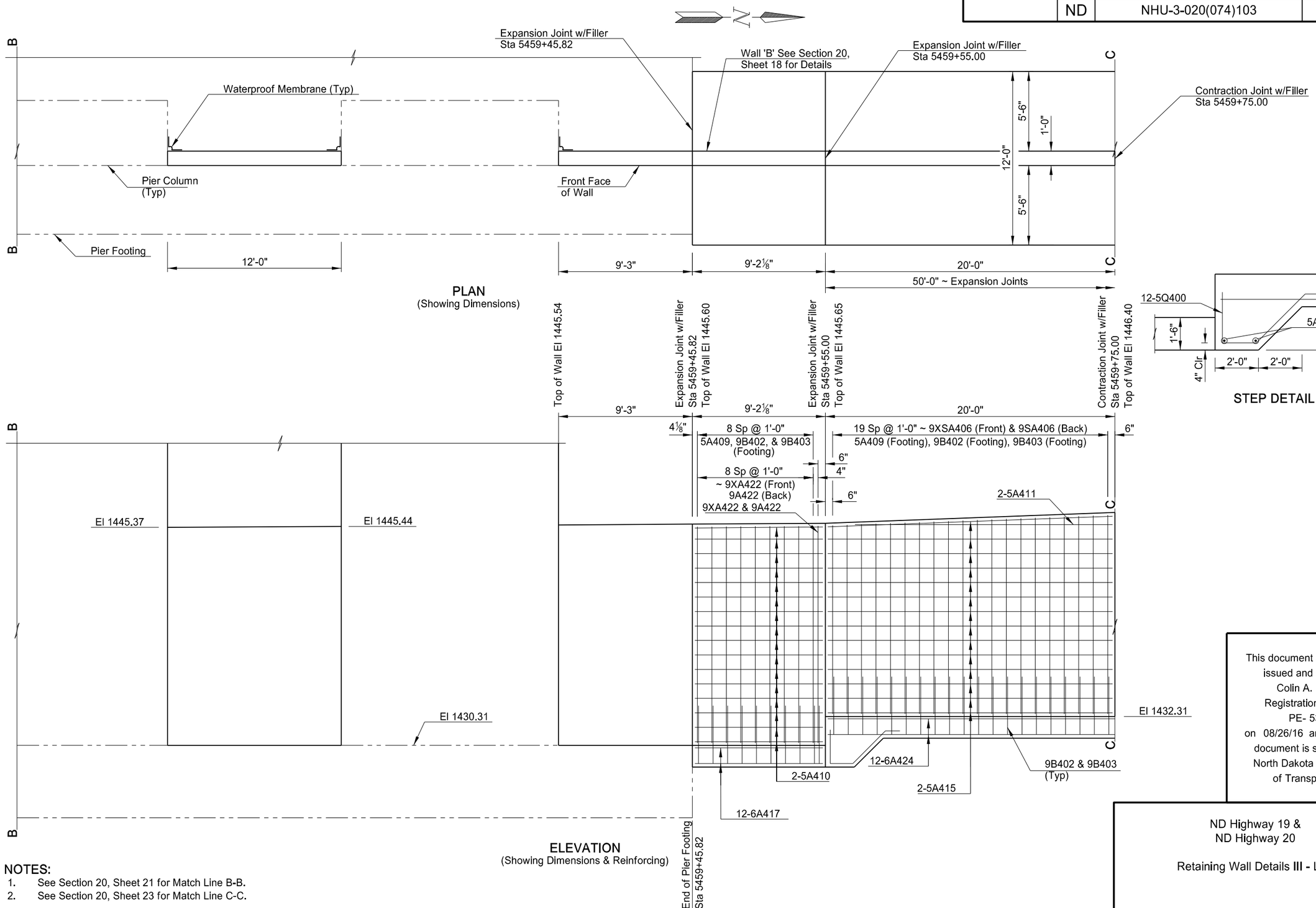
ND Highway 19 &
ND Highway 20

Retaining Wall Details II - Left

NOTES:

1. See Section 20, Sheet 21 for Match Line A-A.
2. See Section 20, Sheet 22 for Match Line B-B.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	22



NOTES:

1. See Section 20, Sheet 21 for Match Line B-B.
2. See Section 20, Sheet 23 for Match Line C-C.

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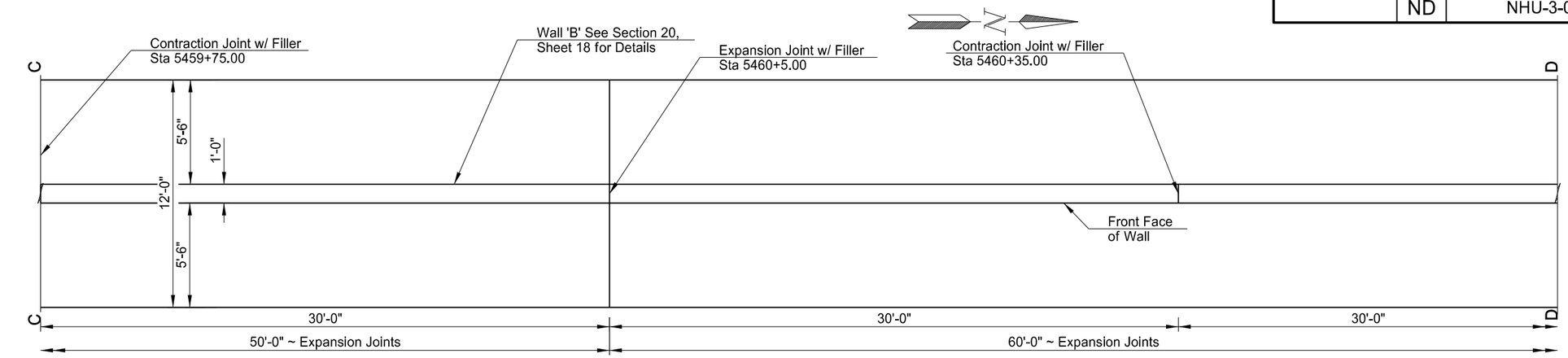
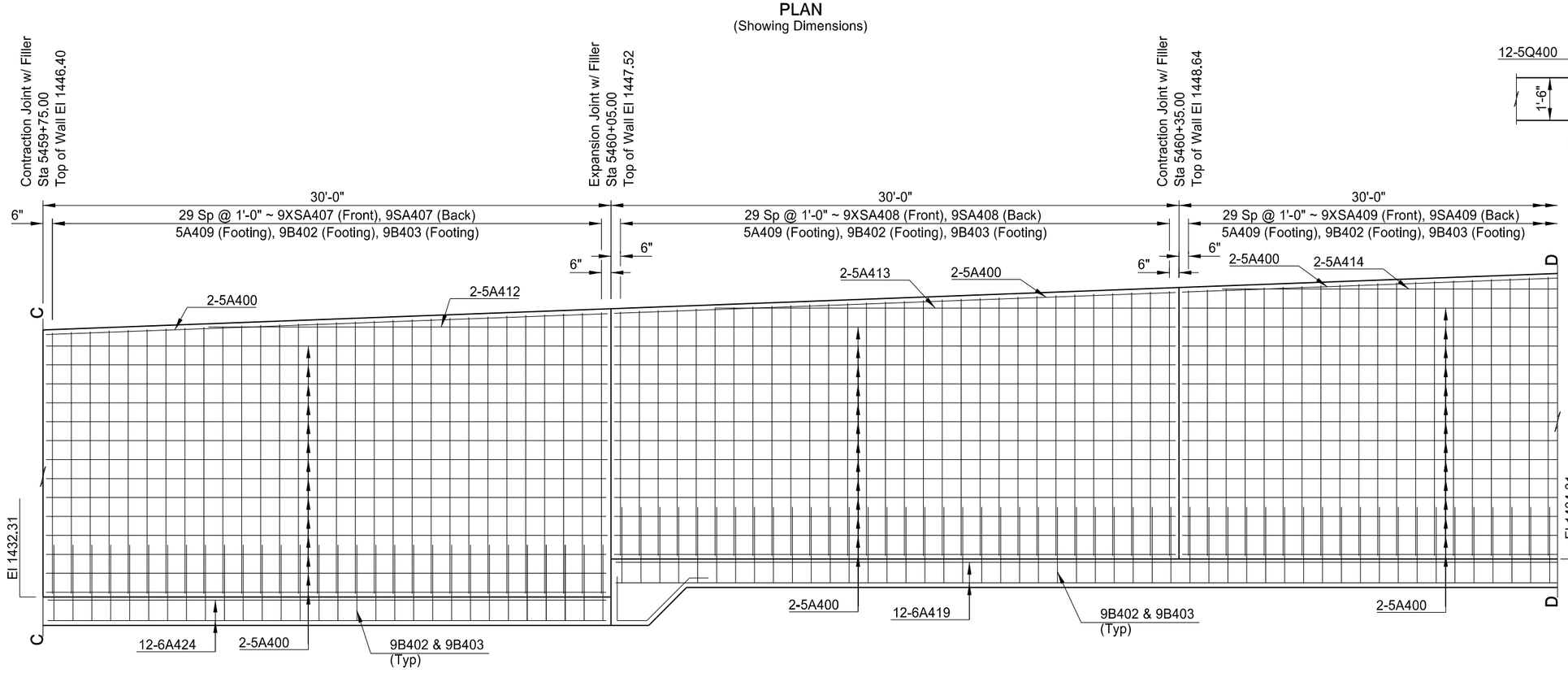
ND Highway 19 &
ND Highway 20

Retaining Wall Details **III** - Left

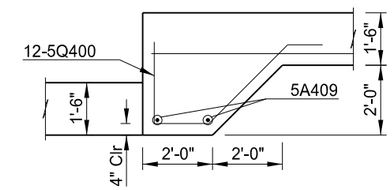
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	23



PLAN
(Showing Dimensions)



ELEVATION
(Showing Dimensions & Reinforcing)



STEP DETAIL

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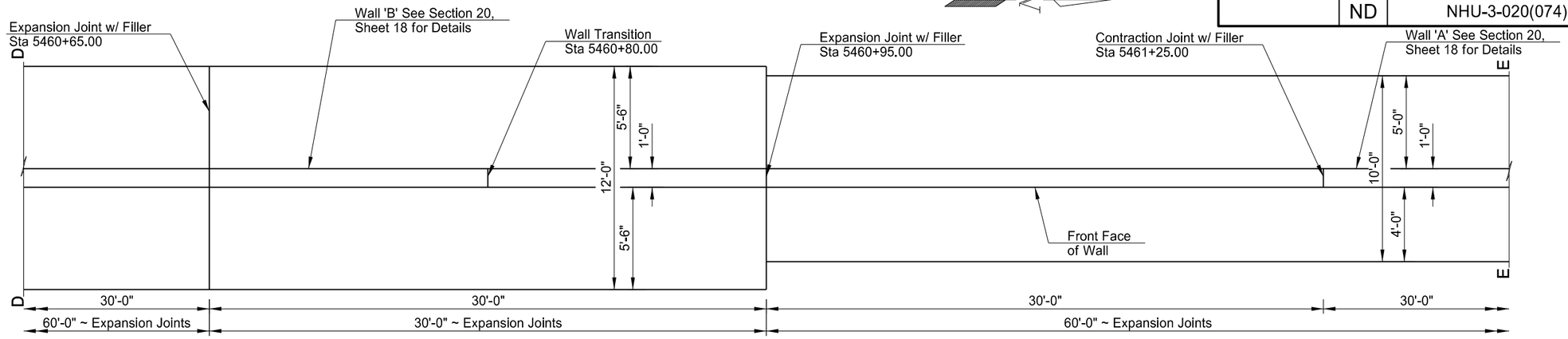
ND Highway 19 &
ND Highway 20

Retaining Wall Details IV - Left

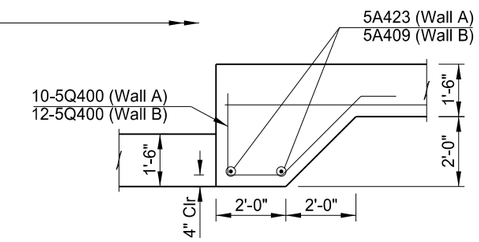
NOTES:

1. See Section 20, Sheet 22 for Match Line C-C.
2. See Section 20, Sheet 24 for Match Line D-D.

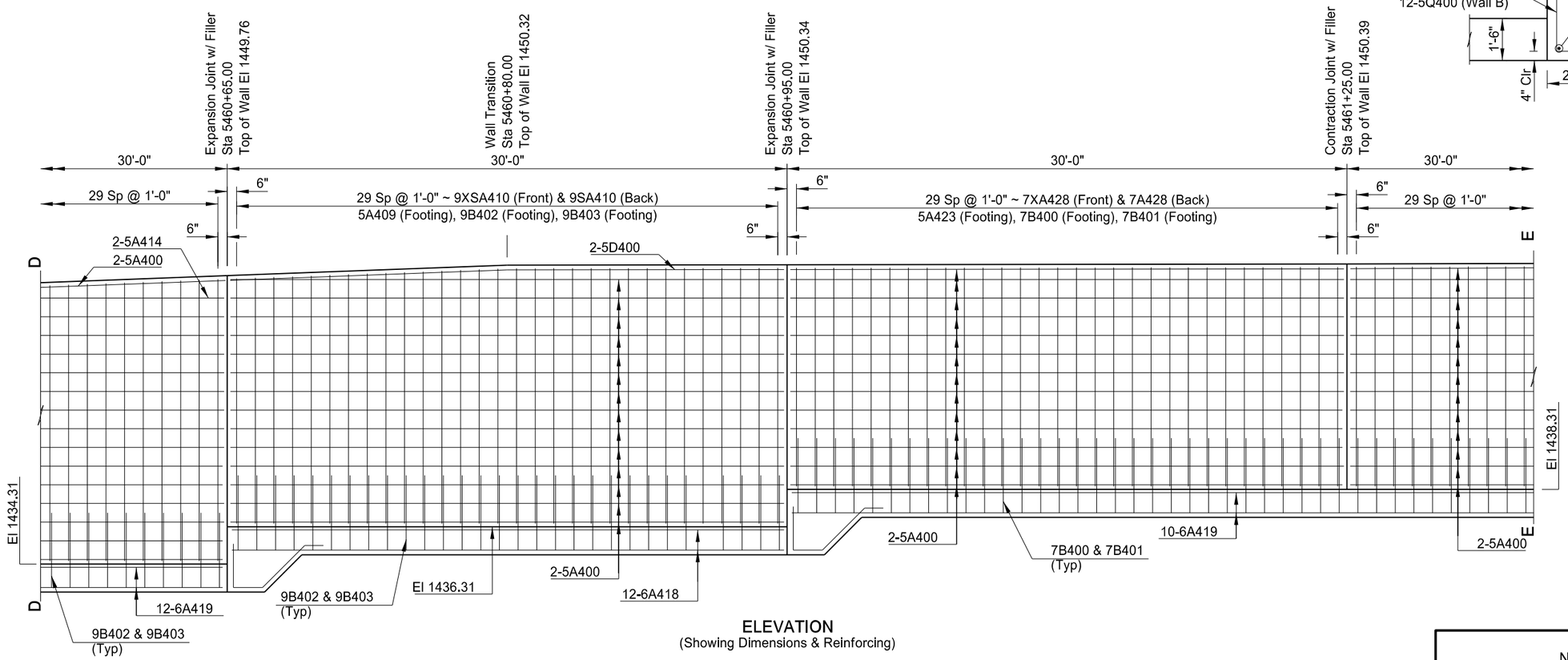
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	24



PLAN
(Showing Dimensions)



STEP DETAIL



ELEVATION
(Showing Dimensions & Reinforcing)

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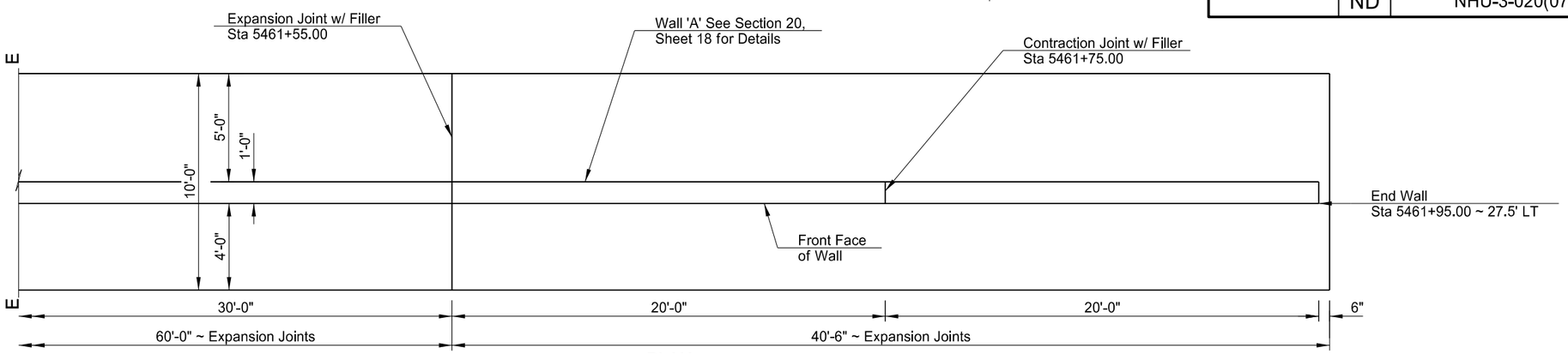
ND Highway 19 &
ND Highway 20

Retaining Wall Details V - Left

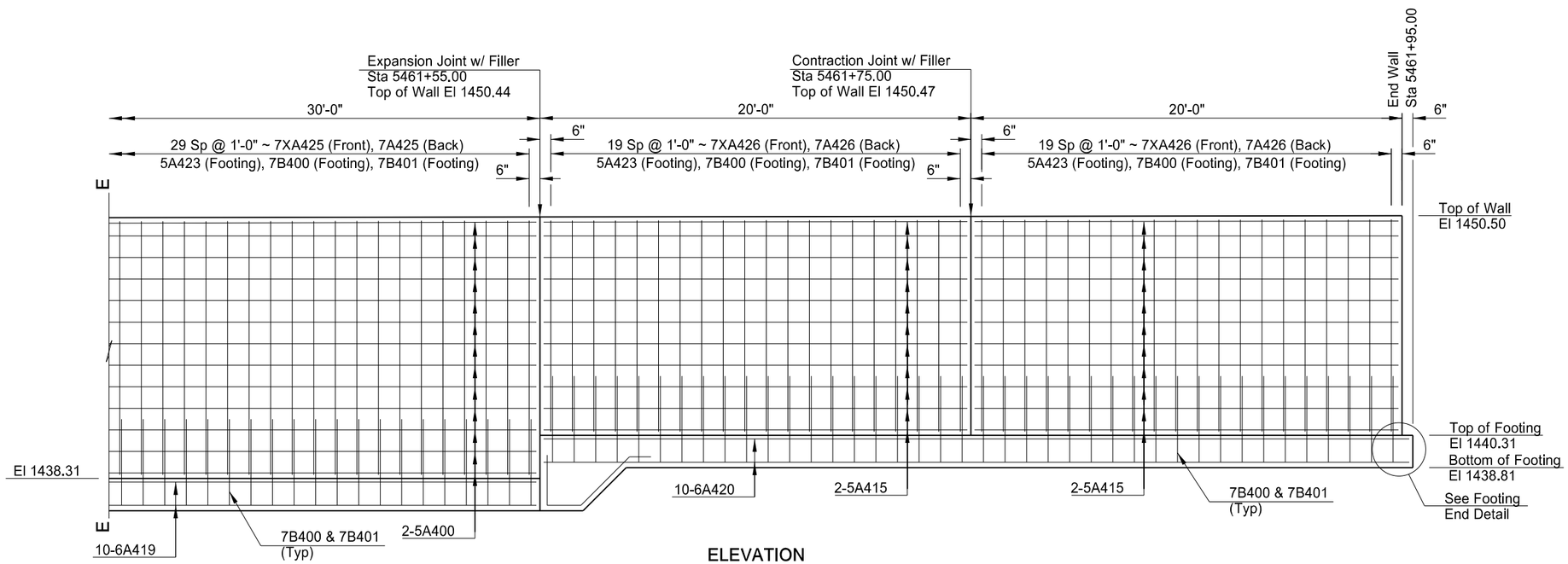
NOTES:

1. See Section 20, Sheet 23 for Match Line D-D.
2. See Section 20, Sheet 25 for Match Line E-E.

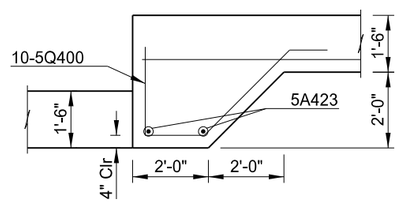
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	25



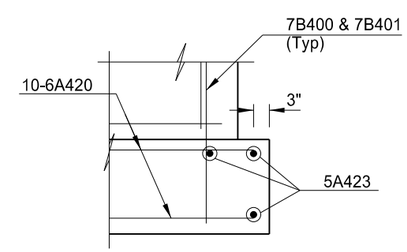
PLAN
(Showing Dimensions)



ELEVATION
(Showing Dimensions & Reinforcing)



STEP DETAIL



FOOTING END DETAIL

NOTE:
See Section 20, Sheet 24 for Match Line E-E.

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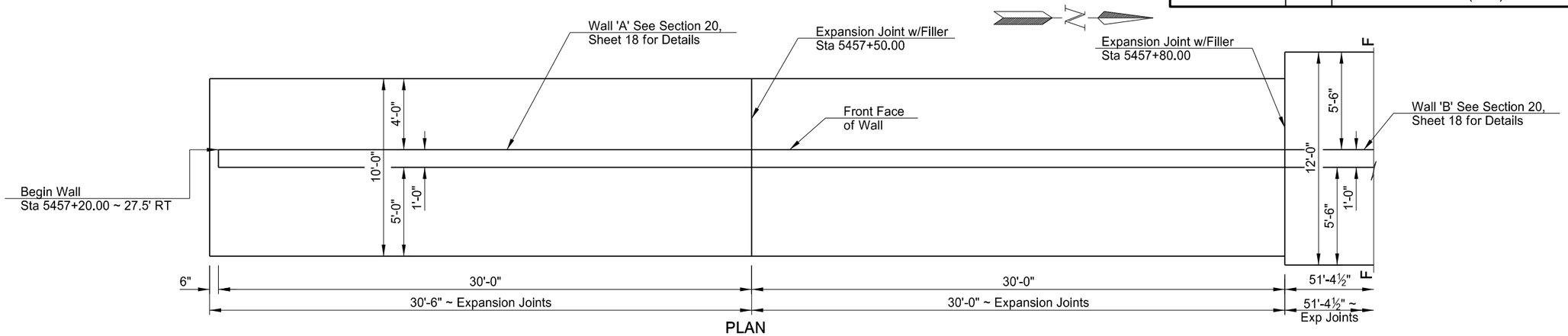
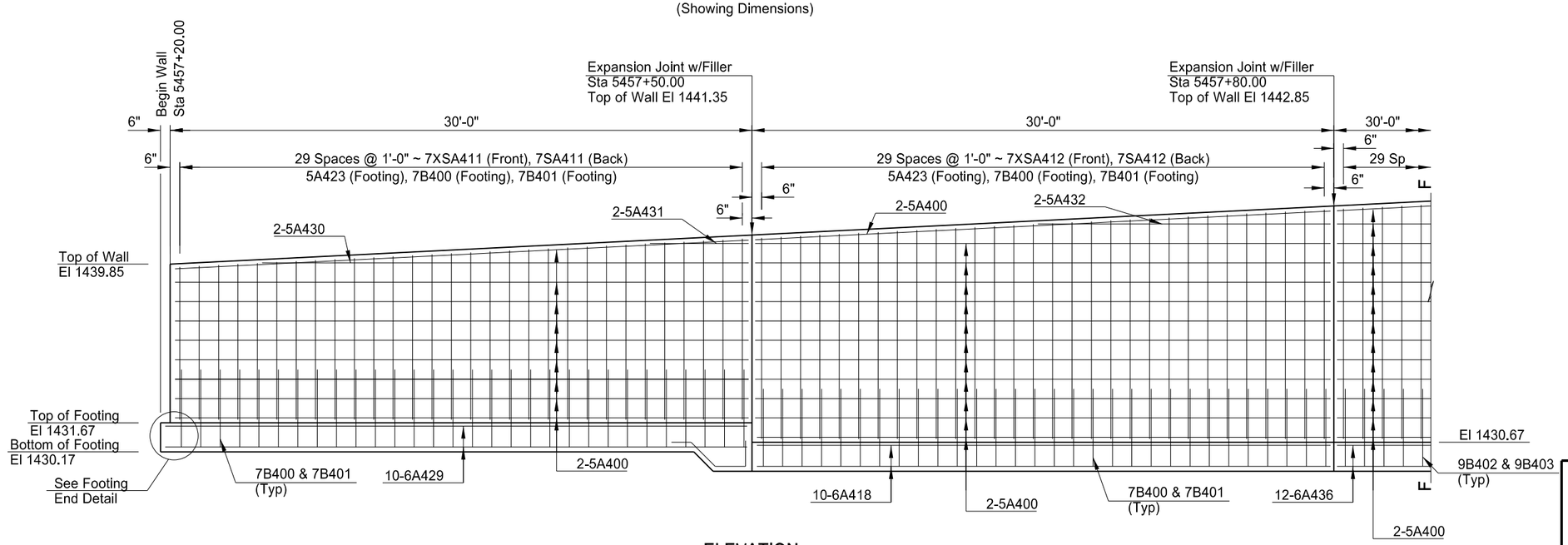
ND Highway 19 &
ND Highway 20

Retaining Wall Details VI - Left

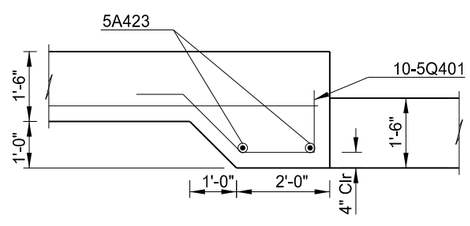
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	26



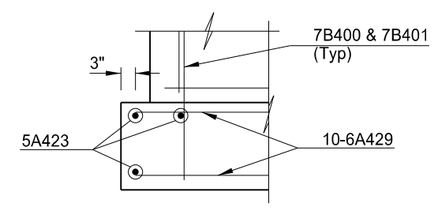
PLAN
(Showing Dimensions)



ELEVATION
(Showing Dimensions & Reinforcing)



STEP DETAIL



FOOTING END DETAIL

NOTE:
See Section 20, Sheet 27 for Match Line F-F.

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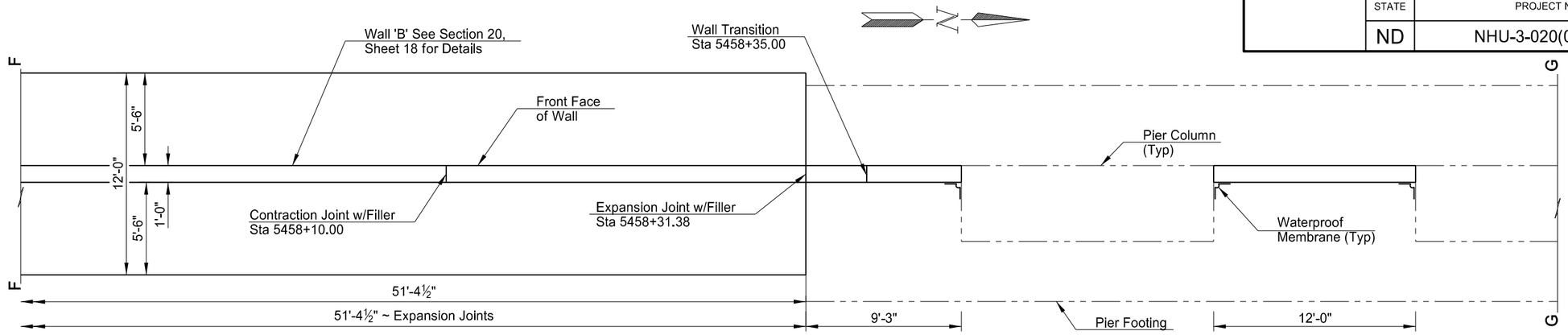
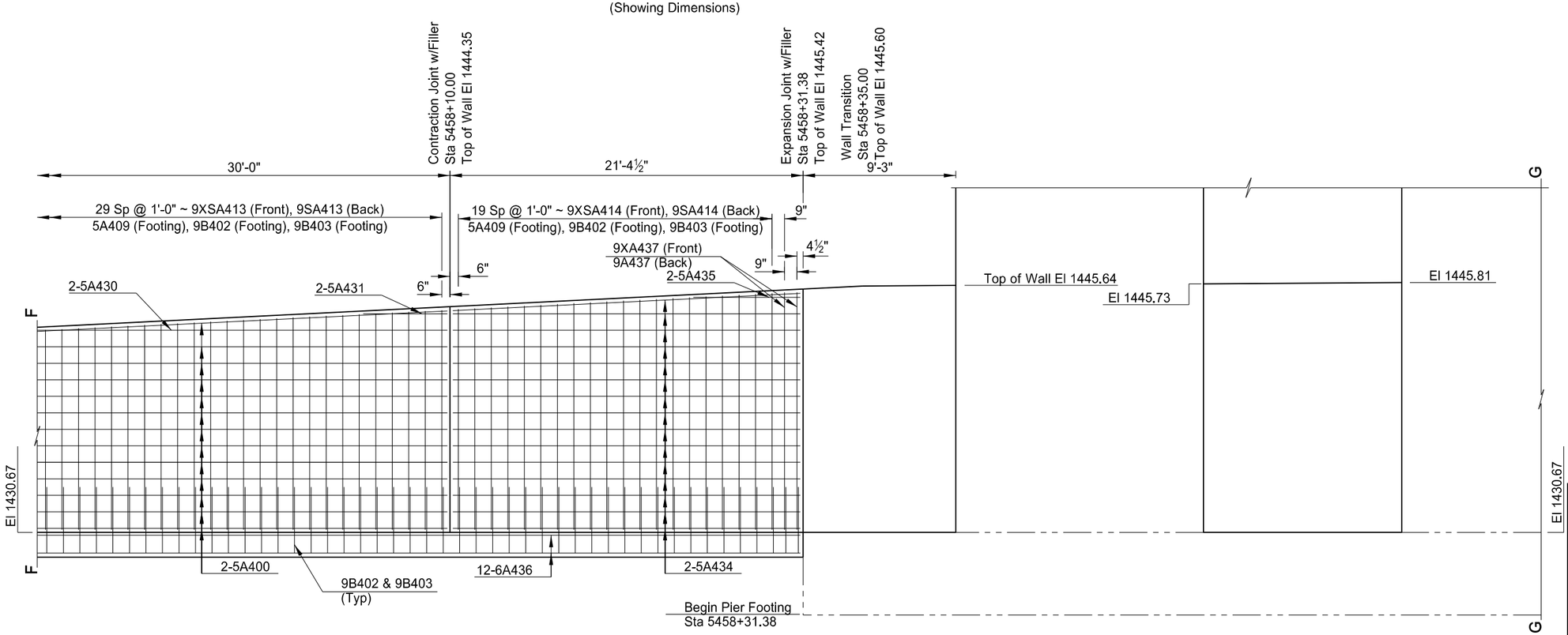
ND Highway 19 &
ND Highway 20

Retaining Wall Details I - Right

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	27



PLAN
(Showing Dimensions)



ELEVATION
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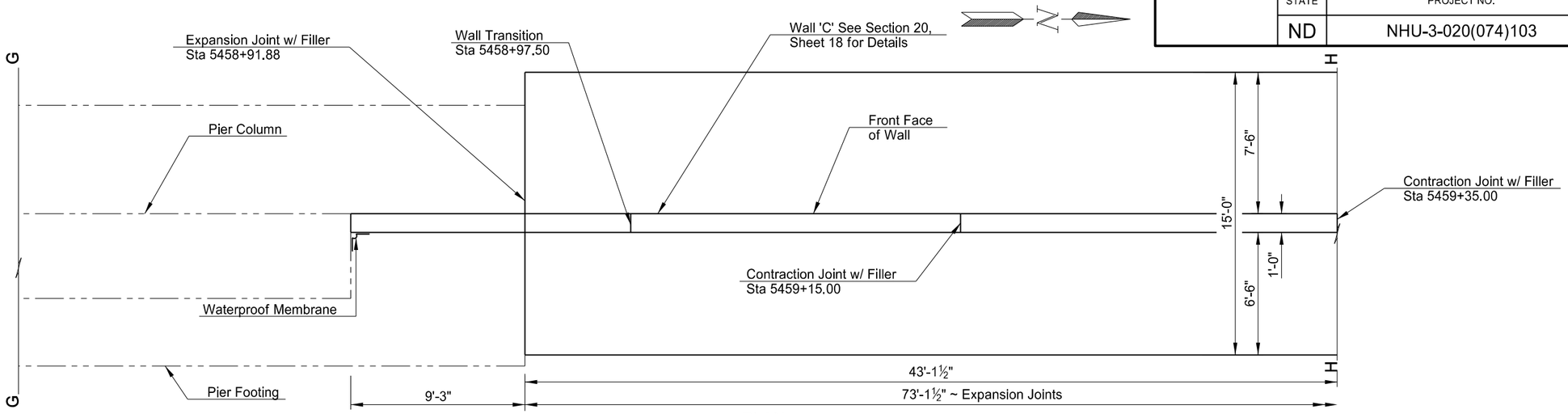
ND Highway 19 &
ND Highway 20

Retaining Wall Details **II** - Right

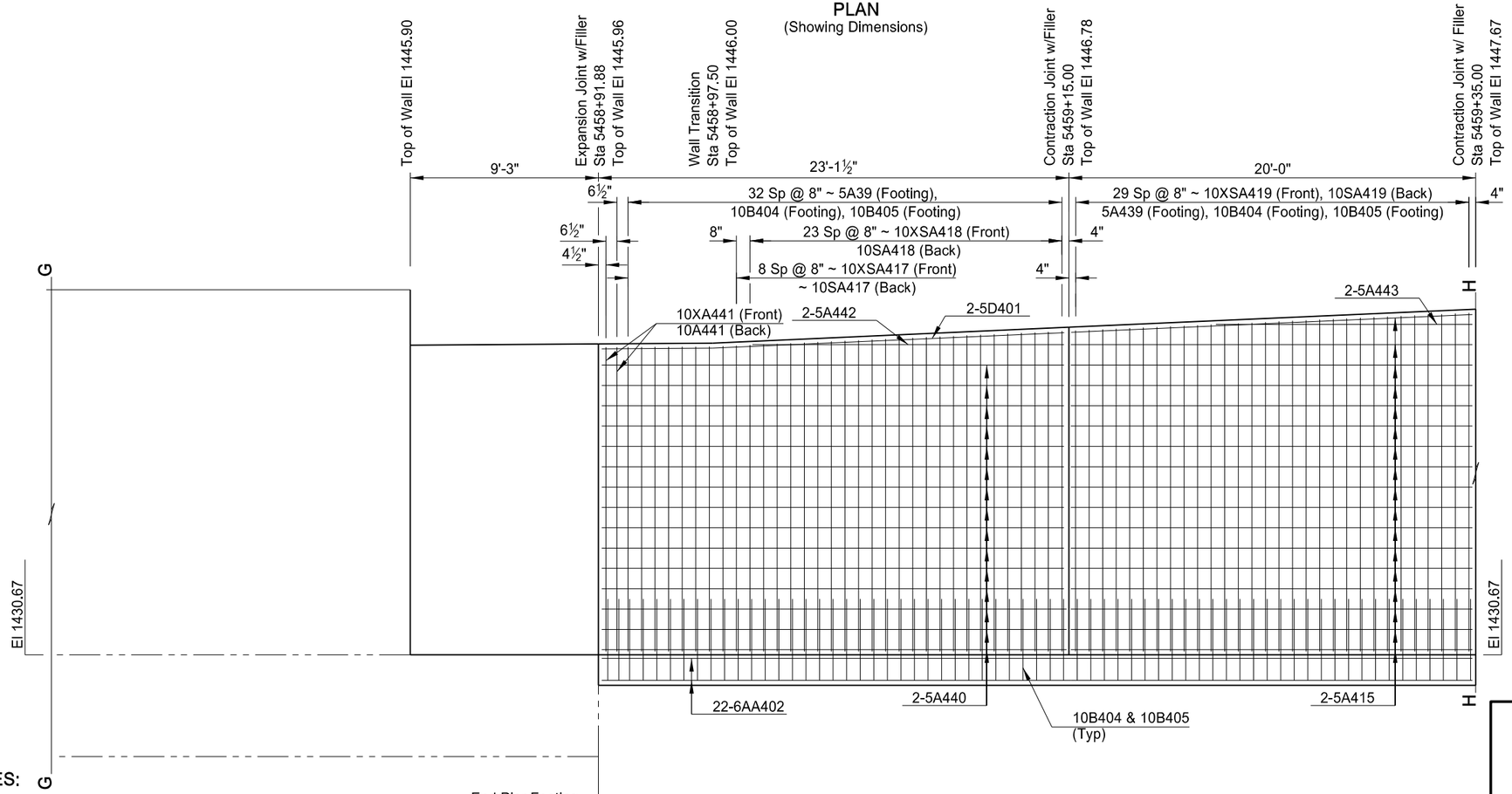
NOTES:

1. See Section 20, Sheet 26 for Match Line F-F.
2. See Section 20, Sheet 28 for Match Line G-G.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	28



PLAN
(Showing Dimensions)



NOTES:

1. See Section 20, Sheet 27 for Match Line G-G.
2. See Section 20, Sheet 29 for Match Line H-H.

End Pier Footing
Sta 5458+91.88

ELEVATION
(Showing Dimensions & Reinforcing)

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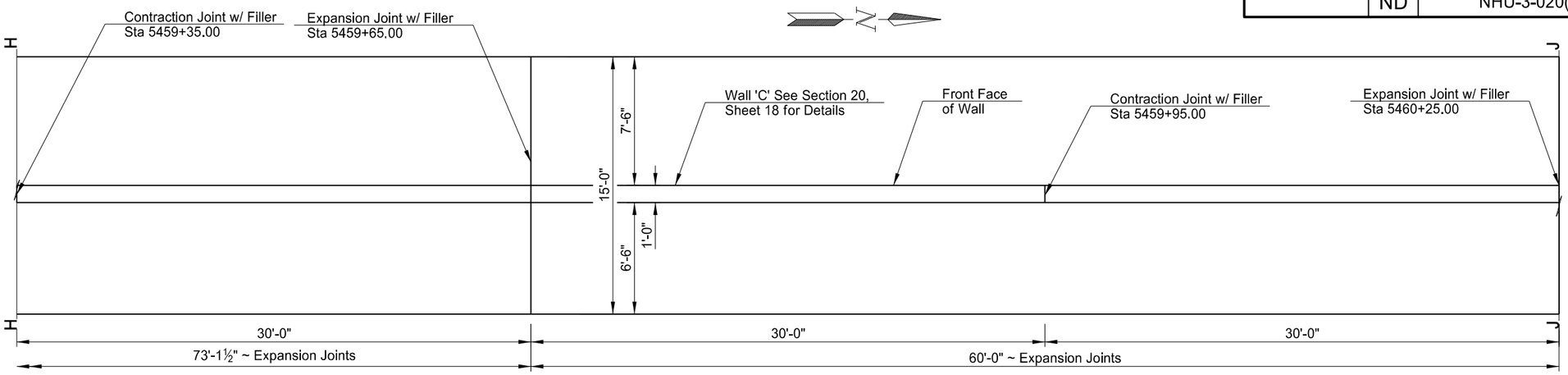
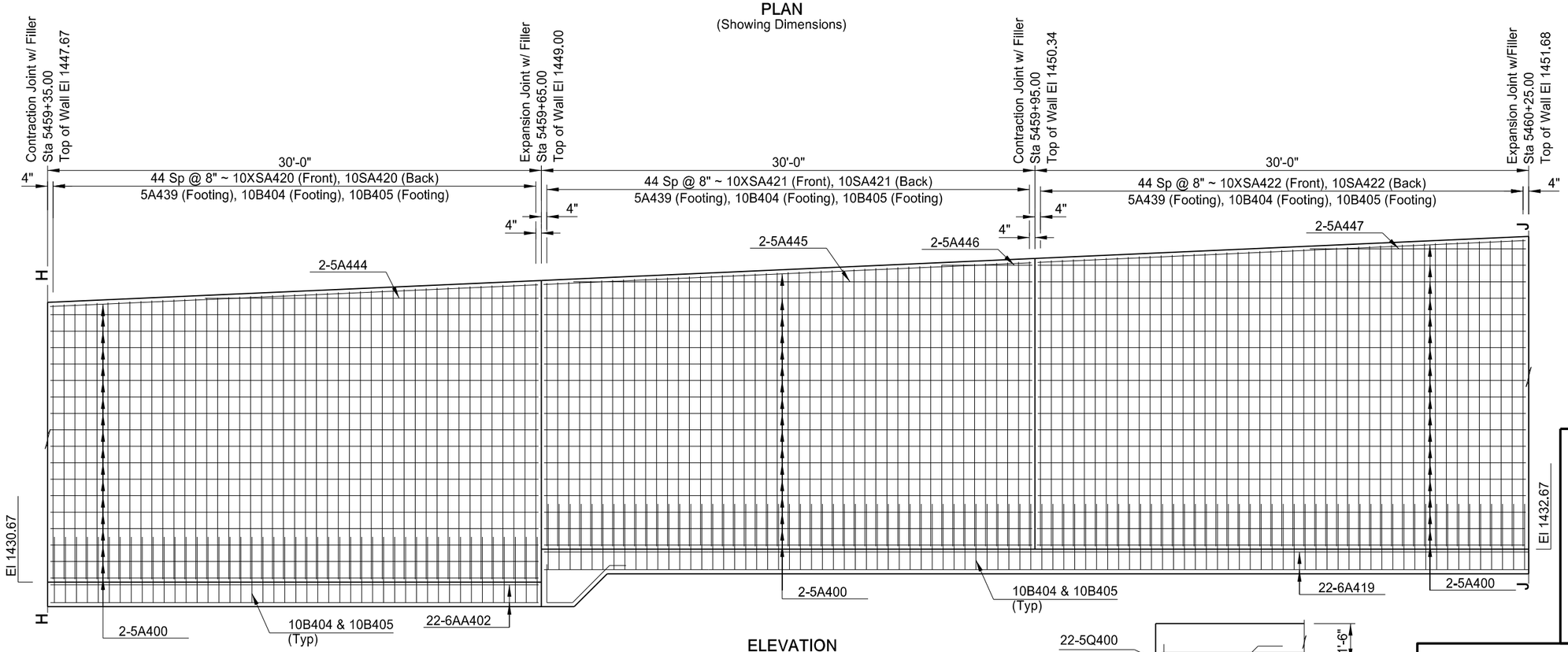
ND Highway 19 &
ND Highway 20

Retaining Wall Details III - Right

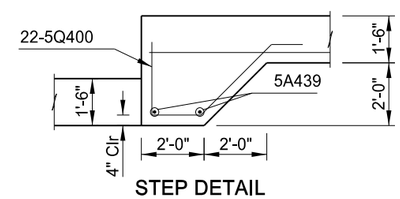
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	29



PLAN
(Showing Dimensions)



ELEVATION
(Showing Dimensions & Reinforcing)



STEP DETAIL

NOTES:

1. See Section 20, Sheet 28 for Match Line H-H.
2. See Section 20, Sheet 30 for Match Line J-J.

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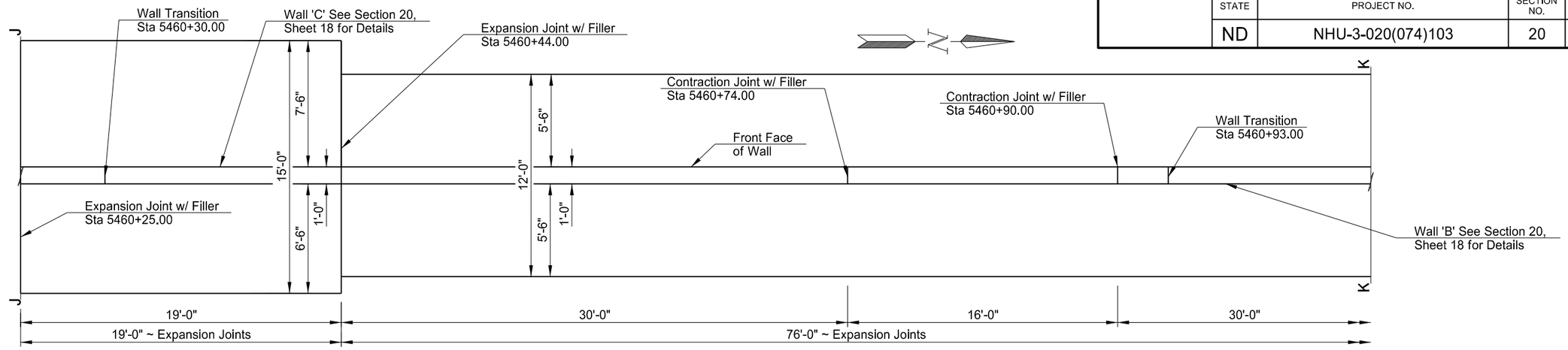
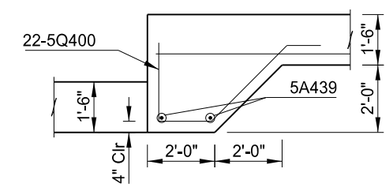
ND Highway 19 &
ND Highway 20

Retaining Wall Details IV - Right

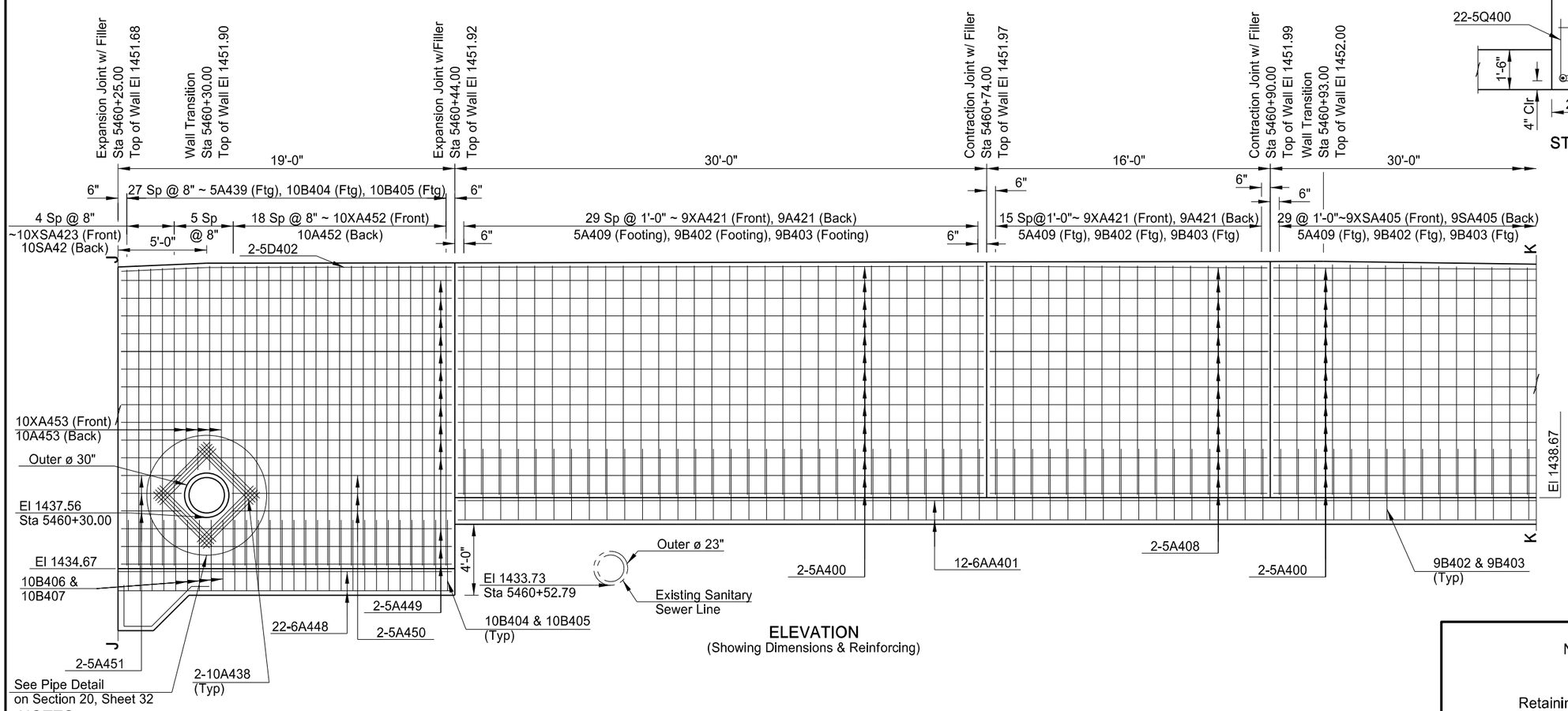
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	30



PLAN
(Showing Dimensions)



STEP DETAIL



ELEVATION
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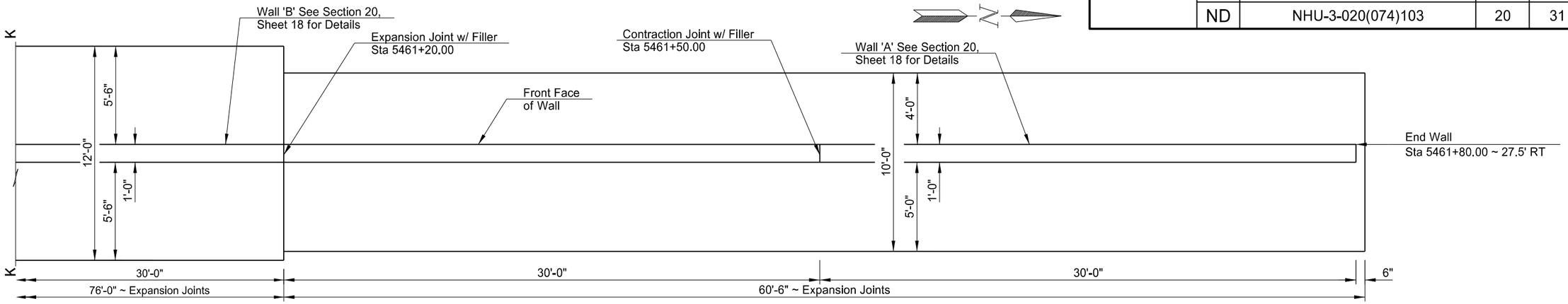
ND Highway 19 &
ND Highway 20

Retaining Wall Details V - Right

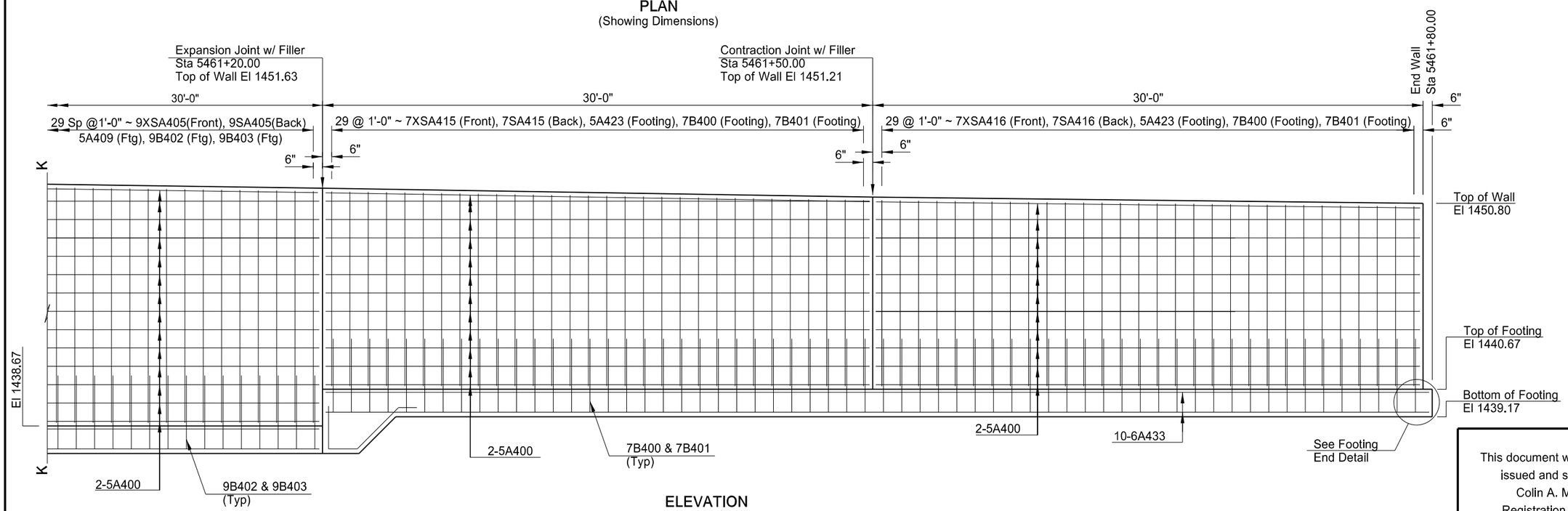
NOTES:

1. See Section 20, Sheet 29 for Match Line J-J.
2. See Section 20, Sheet 31 for Match Line K-K.

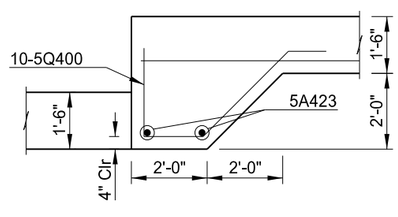
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	31



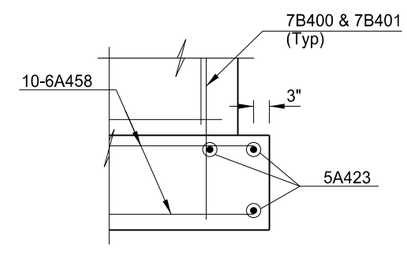
PLAN
(Showing Dimensions)



ELEVATION
(Showing Dimensions & Reinforcing)



STEP DETAIL



FOOTING END DETAIL

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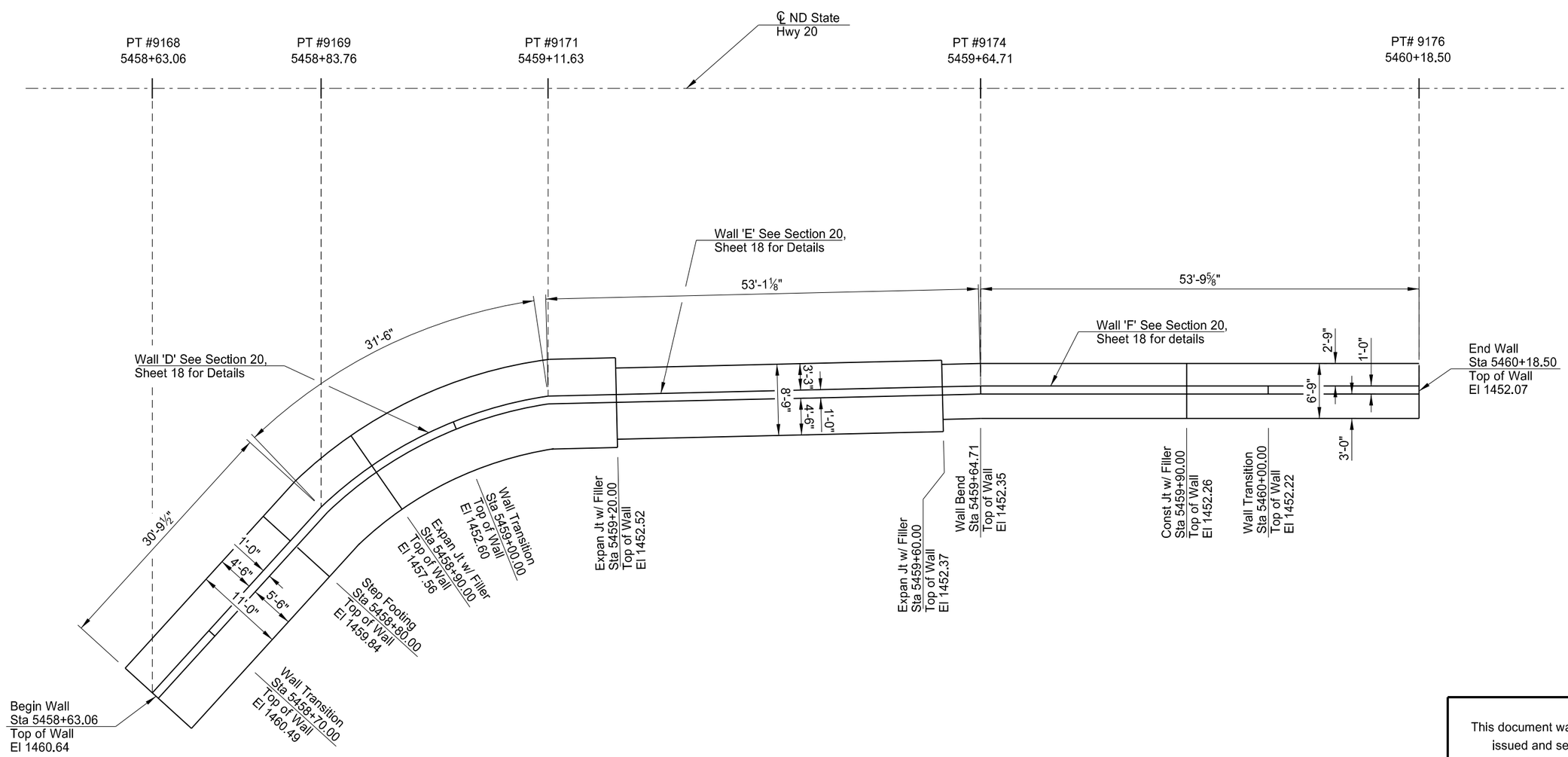
ND Highway 19 &
ND Highway 20

Retaining Wall Details VI - Right

NOTE:

See Section 20, Sheet 30 for Match Line K-K.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	32



PLAN

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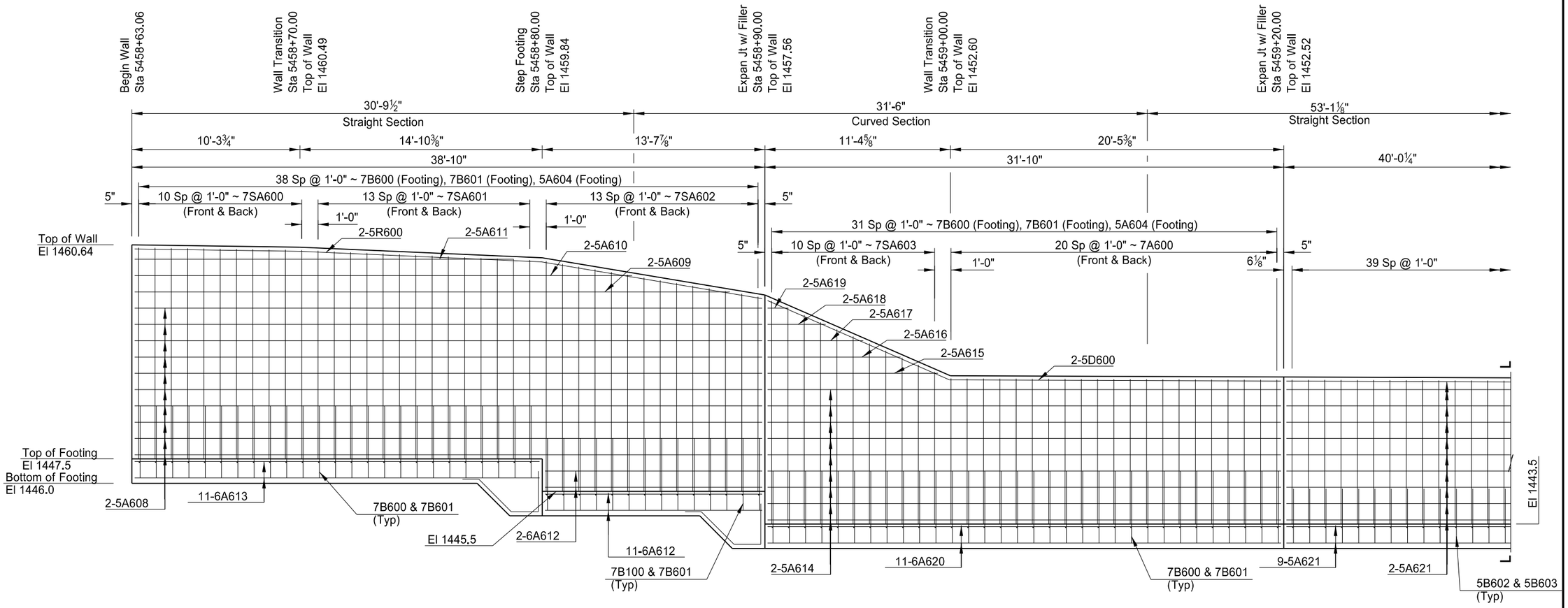
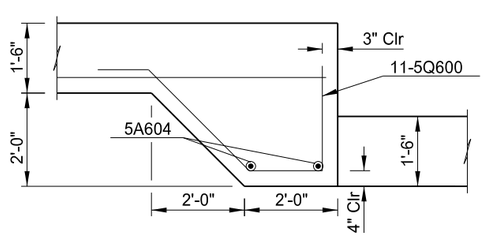
ND Highway 19 &
ND Highway 20

Retaining Wall Details I - Upper

NOTE:
See Section 82, Sheet 4 and 5 for point numbers.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	33





STEP DETAIL

ELEVATION
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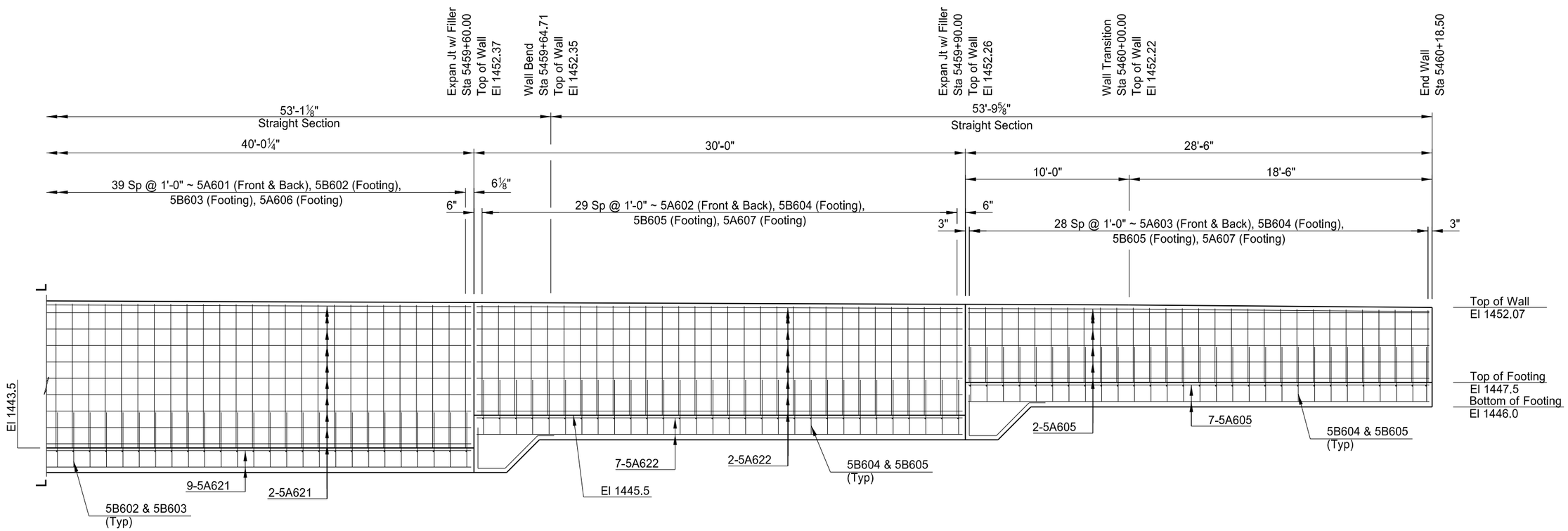
NOTE:
See Section 20, Sheet 34 for Match Line L-L.

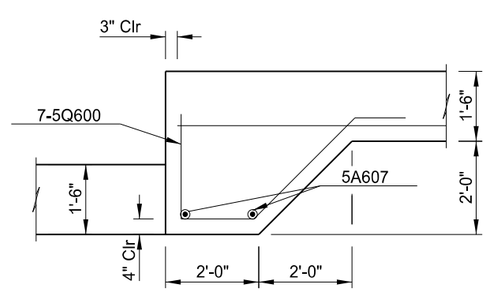
ND Highway 19 &
ND Highway 20

Retaining Wall Details II - Upper

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	34



ELEVATION
(Showing Dimensions & Reinforcing)



STEP DETAIL

NOTE:
See Section 20, Sheet 33 for Match Line L-L.

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ND Highway 19 &
ND Highway 20

Retaining Wall Details **III** - Upper

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	35

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
RETAINING WALL LT	REGULAR	6	AA400	20	92'-2"	32'-2"	60'-0"	2'-0"		1		90'-2"		
		5	A400	264	29'-8"									
		5	A401	2	18'-11"									
		5	A402	2	25'-8"									
		5	A403	2	2'-3"									
		5	A404	2	8'-9"									
		5	A405	2	15'-4"									
		5	A406	30	14'-11"									
		5	A407	2	7'-4"									
		5	A409	202	11'-8"									
		5	A410	32	8'-10"									
		5	A411	2	17'-9"									
		5	A412	2	21'-1"									
		5	A413	2	24'-6"									
		5	A414	2	27'-6"									
		5	A415	72	19'-8"									
		6	A416	24	44'-11"									
		6	A417	24	8'-10"									
		6	A418	24	29'-8"									
		6	A419	44	59'-8"									
		6	A420	20	40'-2"									
		9	A422	10	14'-10"									
		5	A423	198	9'-8"									
		6	A424	24	49'-8"									
		7	A425	30	11'-9"									
		7	A426	40	9'-9"									
		9	A427	3	14'-4"									
		7	A428	30	11'-8"									
		7	B400	190	10'-1"		5'-3"	4'10"						
		7	B401	190	10'-9"		5'-3"	5'-6"						
		9	B402	196	14'-0"		7'-8"	6'-4"						
		9	B403	196	13'-8"		7'-8"	6'-0"						
		5	D400	2	29'-8"		14'-10"	14'-10"					12	0.4
		7	SA400	1	276'-3"	8'-7"	9'-10"			29				
		7	SA401	1	316'-3"	9'-11"	11'-2"			29				
		7	SA402	1	353'-9"	11'-2"	12'-5"			29				
		9	SA403	1	391'-3"	12'-5"	13'-8"			29				
		9	SA404	1	182'-7"	13'-9"	14'-4"			12				
		9	SA406	1	266'-8"	13'-0"	13'-8"			19				
		9	SA407	1	428'-9"	13'-9"	14'-10"			29				
		9	SA408	1	401'-3"	12'-10"	13'-11"			29				
		9	SA409	1	436'-3"	14'-0"	15'-1"			29				
		9	SA410	1	401'-3"	13'-1"	13'-8"			29				
		5	Q400	56	8'-3"	2'-3"	1'-6"	2'-10"	1'-8"				12	12

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
RETAINING WALL LT	EPOXY	9	XA422	10	14'-10"									
		7	XA425	30	11'-9"									
		7	XA426	40	9'-9"									
		9	XA427	3	14'-4"									
		7	XA428	30	11'-8"									
		7	XSA400	1	276'-3"	8'-7"	9'-10"			29				
		7	XSA401	1	316'-3"	9'-11"	11'-2"			29				
		7	XSA402	1	353'-9"	11'-2"	12'-5"			29				
		9	XSA403	1	391'-3"	12'-5"	13'-8"			29				
		9	XSA404	1	182'-7"	13'-9"	14'-4"			12				
		9	XSA406	1	266'-8"	13'-0"	13'-8"			19				
		9	XSA407	1	428'-9"	13'-9"	14'-10"			29				
		9	XSA408	1	401'-3"	12'-10"	13'-11"			29				
		9	XSA409	1	436'-3"	14'-0"	15'-1"			29				
		9	XSA410	1	401'-3"	13'-1"	13'-8"			29				

NOTES:

1. All dimensions are out to out of bars.
2. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
3. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
4. An "X" preceding a bar designation indicates an epoxy coated bar.
5. See Section 20 Sheet 36 for Bent Bar Details.

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ND Highway 19 &
ND Highway 20

Left Retaining Wall
Reinforcing Bar List Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	36

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
RETAINING WALL RT	REGULAR	6	AA401	24	77'-8"	17'-8"	60'-0"	2'-0"		1		75'-8"		
		6	AA402	44	74'-9"	14'-9"	60'-0"	2'-0"		1		72'-9"		
		5	A400	278	29'-8"									
		5	A408	28	15'-8"									
		5	A409	160	11'-8"									
		5	A415	34	19'-8"									
		6	A418	20	29'-8"									
		6	A419	44	59'-8"									
		9	A421	46	12'-11"									
		5	A423	128	9'-8"									
		6	A429	20	30'-2"									
		5	A430	4	25'-1"									
		5	A431	4	5'-1"									
		5	A432	2	15'-1"									
		6	A433	20	60'-0"									
		5	A434	30	21'-0"									
		5	A435	2	6'-5"									
		6	A436	24	51'-0"									
		9	A437	2	14'-4"									
		10	A438	32	4'-6"									
		5	A439	232	14'-8"									
		5	A440	30	22'-9"									
		10	A441	2	14'-11"									
		5	A442	2	15'-4"									
		5	A443	2	12'-11"									
		5	A444	2	20'-5"									
		5	A445	2	27'-10"									
		5	A446	2	5'-6"									
		5	A447	2	13'-1"									
		6	A448	44	18'-8"									
		5	A449	28	18'-8"									
		5	A450	6	12'-5"									
		5	A451	6	3'-5"									
		10	A452	19	16'-10"									
		10	A453	4	11'-4									
		7	B400	120	10'-1"		5'-3"	4'-10"						
		7	B401	120	10'-9"		5'-3"	5'-6"						
		9	B402	128	14'-0"		7'-8"	6'-4"						
		9	B403	128	13'-8"		7'-8"	6'-0"						
		10	B404	224	17'-8"		9'-4"	8'-4"						
		10	B405	224	16'-4"		9'-4"	7'-0"						
		10	B406	4	12'-1"		3'-9"	8'-4"						
		10	B407	4	10'-9"		3'-9"	7'-0"						
		5	D401	2	22'-9"		5'-5"	17'-4"					12	0.5
		5	D402	2	18'-8"		13'-10"	4'-10"					12	0.5

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

LOCATION		SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
RETAINING WALL RT	REGULAR	9	SA405	1	382'-6"	12'-11"	12'-7"			29				
		7	SA411	1	256'-3"	7'-10"	9'-3"			29				
		7	SA412	1	331'-3"	10'-4"	11'-9"			29				
		9	SA413	1	376'-3"	11'-10"	13'-3"			29				
		9	SA414	1	276'-8"	13'-4"	14'-4"			19				
		7	SA415	1	311'-3"	10'-7"	10'-2"			29				
		7	SA416	1	298'-9"	10'-2"	9'-9"			29				
		10	SA417	1	134'-8"	14'-11"	15'-0"			8				
		10	SA418	1	369'-0"	15'-0"	15'-9"			23				
		10	SA419	1	485'-0"	15'-9"	16'-7"			29				
		10	SA420	1	778'-2"	16'-8"	17'-11"			44				
		10	SA421	1	748'-2"	16'-0"	17'-3"			44				
		10	SA422	1	808'-2"	17'-4"	18'-7"			44				
		10	SA423	1	83'-7"	16'-8"	16'-9"			4				
		5	Q400	54	8'-3"	2'-3"	1'-6"	2'-10"	1'-8"				12	12
		5	Q401	10	5'-10"	1'-3"	1'-6"	1'-5"	1'-8"				12	12
	EPOXY	9	XA421	46	12'-11"									
		9	XA437	2	14'-4"									
		10	XA441	2	14'-11"									
		10	XA452	19	16'-10"									
		10	XA453	4	11'-4"									
		9	XSA405	1	382'-6"	12'-11"	12'-7"			29				
		7	XSA411	1	256'-3"	7'-10"	9'-3"			29				
		7	XSA412	1	331'-3"	10'-4"	11'-9"			29				
		9	XSA413	1	376'-3"	11'-10"	13'-3"			29				
		9	XSA414	1	276'-8"	13'-4"	14'-4"			19				
		7	XSA415	1	311'-3"	10'-7"	10'-2"			29				
		7	XSA416	1	298'-9"	10'-2"	9'-9"			29				
		9	XSA417	1	134'-8"	14'-11"	15'-0"			8				
		9	XSA418	1	369'-0"	15'-0"	15'-9"			23				
		9	XSA419	1	485'-0"	15'-9"	16'-7"			29				
		10	XSA420	1	778'-2"	16'-8"	17'-11"			44				
		10	XSA421	1	748'-2"	16'-0"	17'-3"			44				
		10	XSA422	1	808'-2"	17'-4"	18'-7"			44				
		10	XSA423	1	83'-7"	16'-8"	16'-9"			4				

NOTES:

1. All dimensions are out to out of bars.
2. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
3. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
4. An "X" preceding a bar designation indicates an epoxy coated bar.
5. See Section 20 Sheet 36 for Bent Bar Details.

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ND Highway 19 &
ND Highway 20

Right Retaining Wall
Reinforcing Bar List Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	37

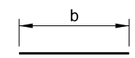
BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

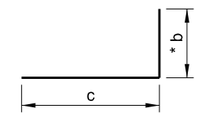
LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS a	b	c	d	e	f	g	h	k
RETAINING WALL UPPER	7	A600	42	8'-8"		8'-8"							
	5	A601	80	8'-6"		8'-6"							
	5	A602	60	6'-5"		6'-5"							
	5	A603	58	4'-2"		4'-2"							
	5	A604	75	10'-8"		10'-8"							
	5	A605	26	28'-2"		28'-2"							
	5	A606	40	8'-5"		8'-5"							
	5	A607	63	6'-5"		6'-5"							
	5	A608	20	38'-6"		38'-6"							
	5	A609	2	36'-6"		36'-6"							
	5	A610	2	30'-6"		30'-6"							
	5	A611	2	23'-3"		23'-3"							
	6	A612	26	13'-4"		13'-4"							
	6	A613	22	24'-10"		24'-10"							
	5	A614	18	31'-6"		31'-6"							
	5	A615	2	10'-5"		10'-5"							
	5	A616	2	8'-2"		8'-2"							
	5	A617	2	5'-10"		5'-10"							
	5	A618	2	3'-7"		3'-7"							
	5	A619	2	1'-3"		1'-3"							
	6	A620	22	31'-6"		31'-6"							
	5	A621	38	39'-8"		39'-8"							
	5	A622	30	29'-8"		29'-8"							
	7	B600	71	9'-0"		3'-10"	5'-2"						
	7	B601	71	9'-10"		3'-10"	6'-0"						
	5	B602	40	6'-11"		3'-0"	3'-11"						
	5	B603	40	8'-0"		3'-0"	5'-0"						
	5	B604	59	6'-5"		3'-0"	3'-5"						
	5	B605	59	6'-6"		3'-0"	3'-6"						
	5	D600	2	32'-6"		20'-3"	12'-3"					12	5.2
	7	SA600	2	139'-4"	12'-7"	12'-9"			10				
	7	SA601	2	172'-1"	12'-0"	12'-7"			12				
	7	SA602	2	179'-8"	11'-9"	13'-11"			13				
	7	SA603	2	124'-8"	9'-2"	13'-6"			10				
	5	Q600	36	8'-3"	2'-3"	1'-6"	2'-10"	1'-8"					
	5	R600	2	38'-7"	10'-1"	14'-10"	13'-8"		1.5	12		12	0.3

NOTES:

1. All dimensions are out to out of bars.
2. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.

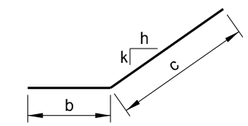


(A)



(B)

* b = Vertical Leg



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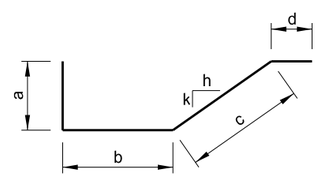

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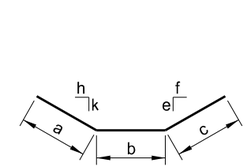

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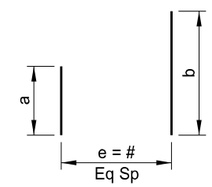
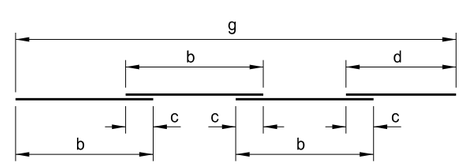


(SA)



c = Lap Splice (typ)
e = # of "b" Length Pieces in a Set
Total Length per Set = e x b + d

(AA)

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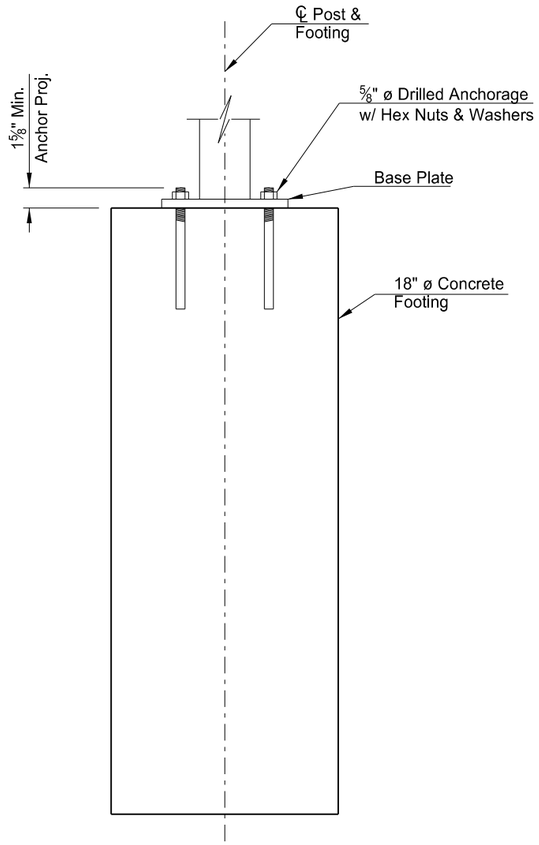
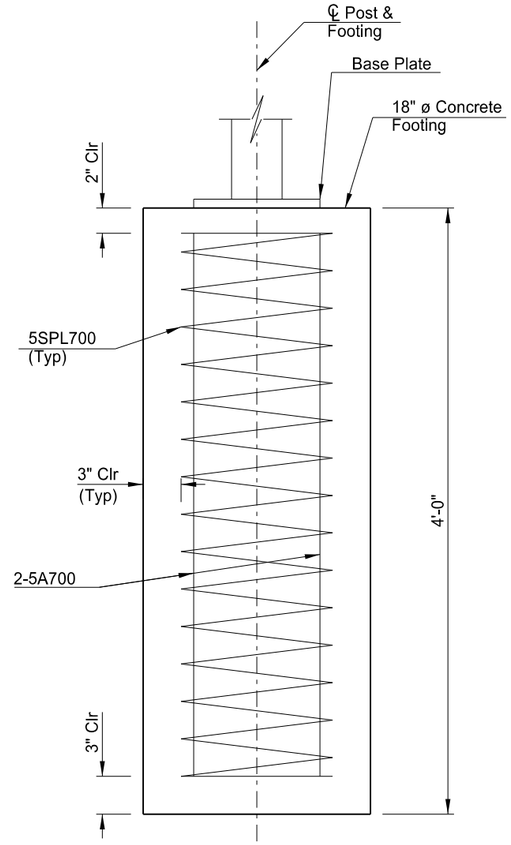
ND Highway 19 &
ND Highway 20

Upper Retaining Wall
Reinforcing Bar List Details

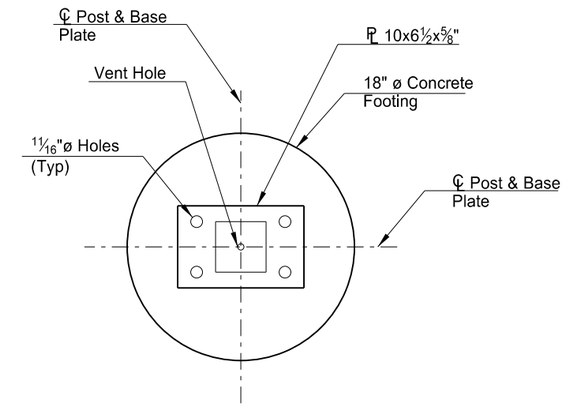
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	38



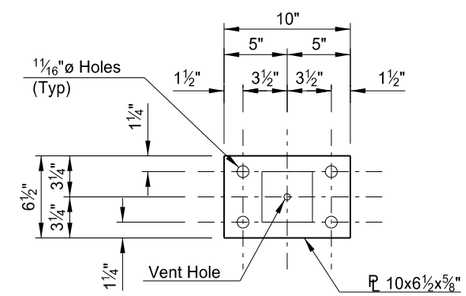
RAIL POST FOOTING DETAIL
(Showing Dimensions)



RAIL POST FOOTING DETAIL
(Showing Reinforcing)



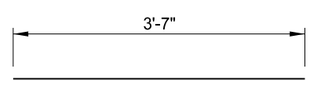
RAIL POST FOOTING PLAN



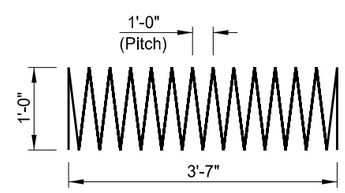
BASE PLATE PLAN

NOTES:

1. Place rail post footings no more than 10 feet on center.
2. Post footings to be used on railing along 5th St NE.
3. Include all concrete, reinforcing steel and all pieces required for the fabrication or connection of the railing in the unit price bid for "Pedestrian Railing".
4. See Section 20, Sheet 39 for Railing Details.
5. Design railing anchor bolts to resist a tensile force of 9000 lbs.



5A700



5SPL700

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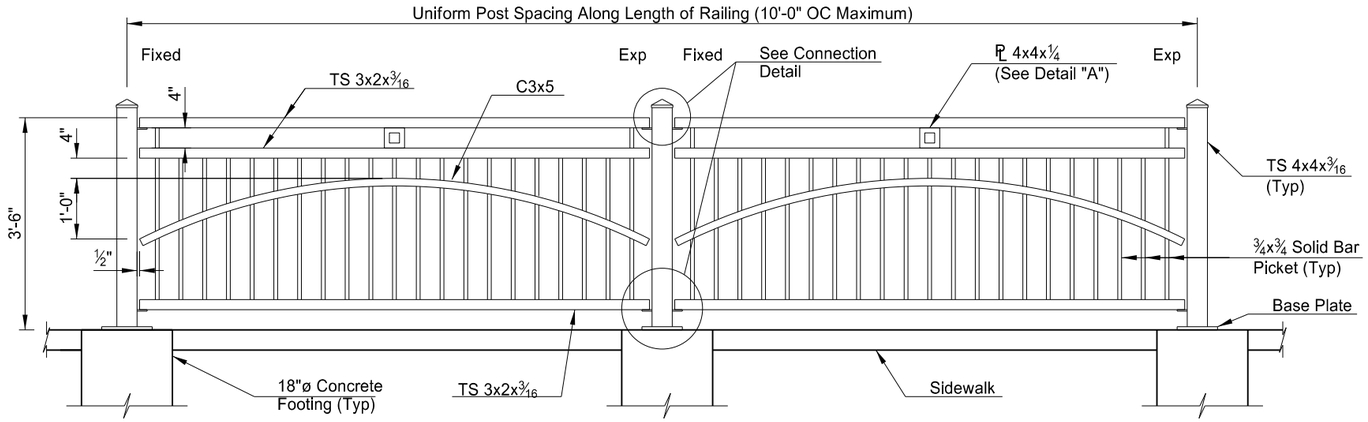
ND Highway 19 &
ND Highway 20

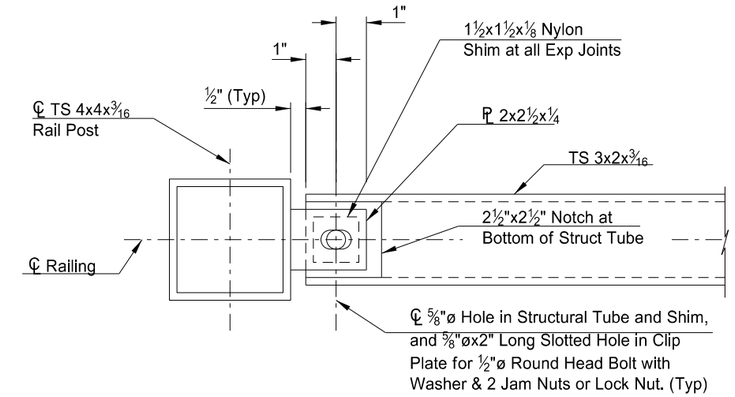
Pedestrian Railing Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	20	39

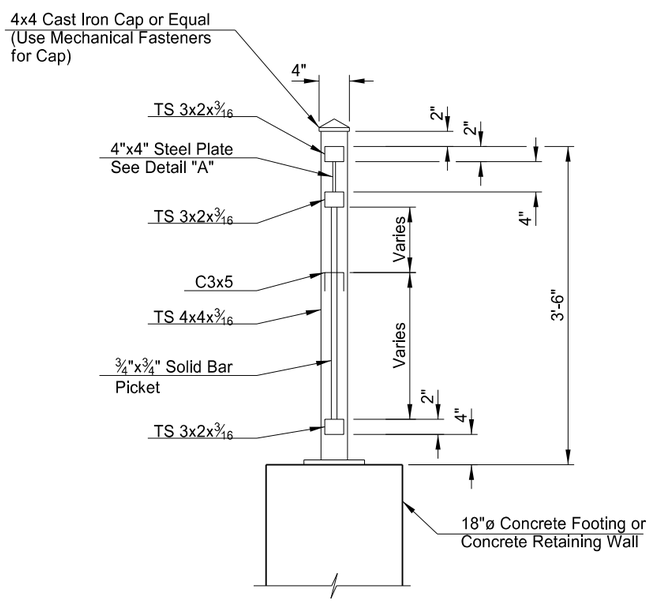


INSIDE ELEVATION OF RAILING

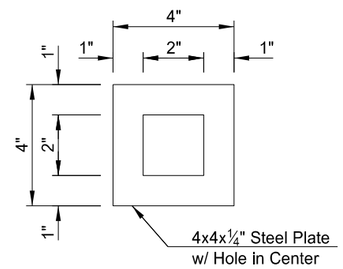
(Showing Typical Dimensions)
(Sidewalk Railng Shown, Retaining Wall Railing Similar)



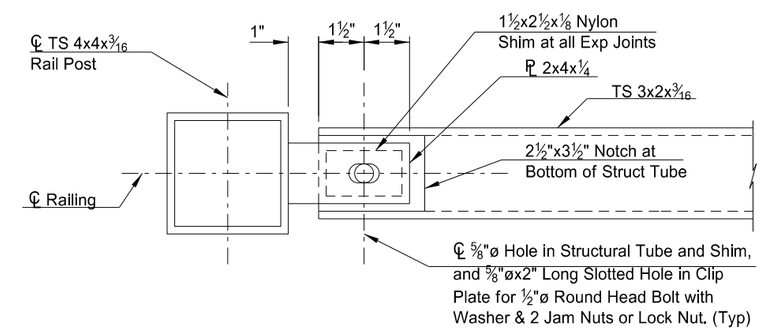
A-A



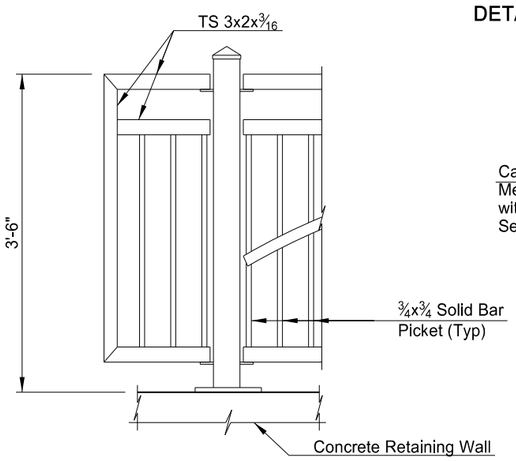
SECTION THROUGH RAILING



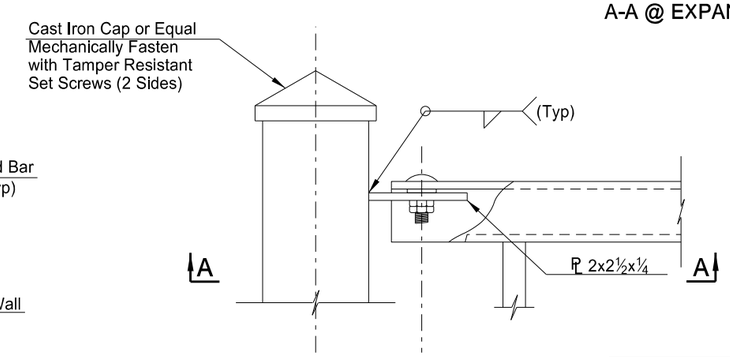
DETAIL "A"



A-A @ EXPANSION JOINT



RAIL ELEVATION BETWEEN PIERS



TYPICAL CONNECTION DETAIL

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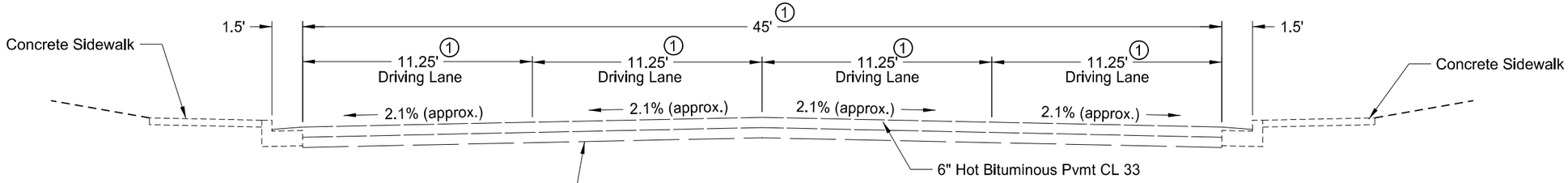
ND Highway 19 &
ND Highway 20

Pedestrian Railing Details

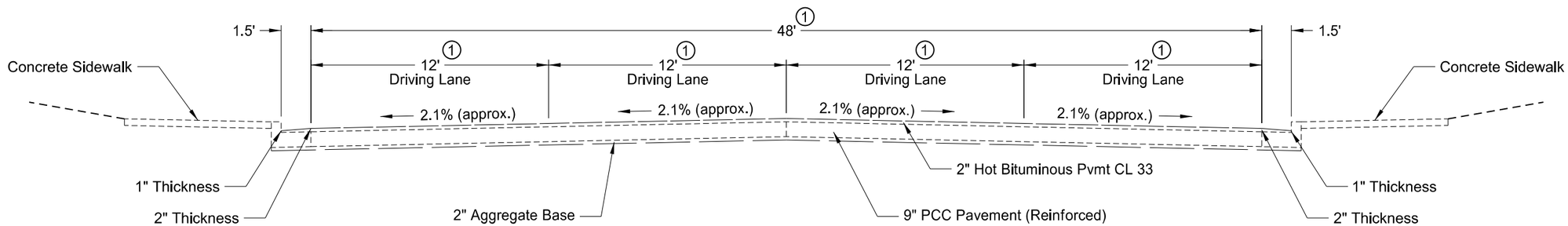
NOTES:

1. See Section 20, Sheet 17 for sidewalk railing location. See Section 20, Sheet 18 for retaining wall railing location.
2. Included all pieces required for the fabrication or connection of the railing in the unit price bid "Pedestrian Railing".
3. Design railing anchor bolts to resist a tensile force of 9000 lbs.

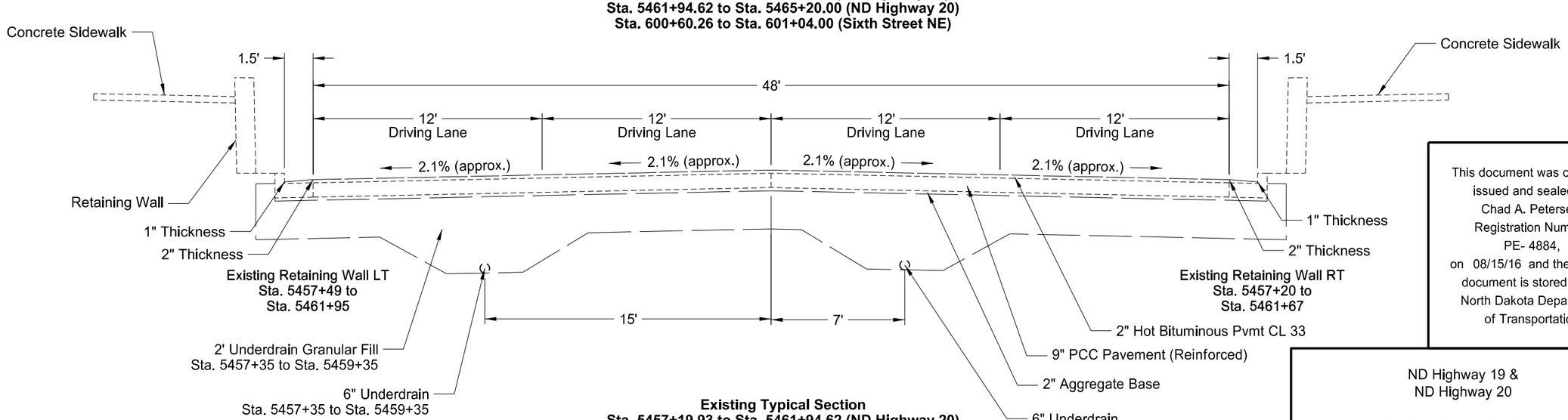
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	30	1
	NHU-3-020(074)103		



Existing Typical Section
Sta. 8195+77.00 to Sta. 8195+92.00 (ND HIghway 19)
Sta. 5465+20.00 to Sta. 5465+35.00 (ND Highway 20)
Sta. 5452+55.00 to Sta. 5452+70.00 (ND Highway 20)
Sta. 601+04.00 to Sta. 602+18.55 (Sixth Street NE)



Existing Typical Section
Sta. 8195+92 to Sta. 8200+60.55 (ND Highway 19)
Sta. 5452+70 to Sta. 5457+19.93 (ND Highway 20)
Sta. 5461+94.62 to Sta. 5465+20.00 (ND Highway 20)
Sta. 600+60.26 to Sta. 601+04.00 (Sixth Street NE)



Existing Typical Section
Sta. 5457+19.93 to Sta. 5461+94.62 (ND Highway 20)

① Widths Vary from Sta. 8195+77 to Sta. 8196+02.49

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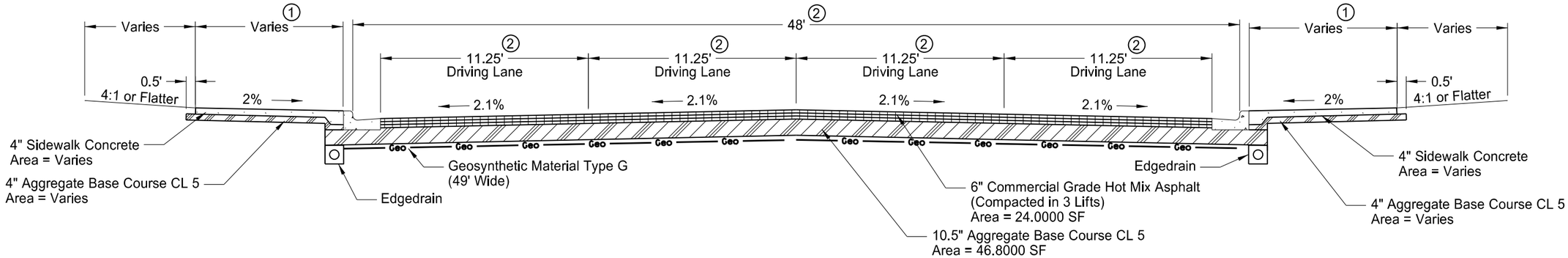
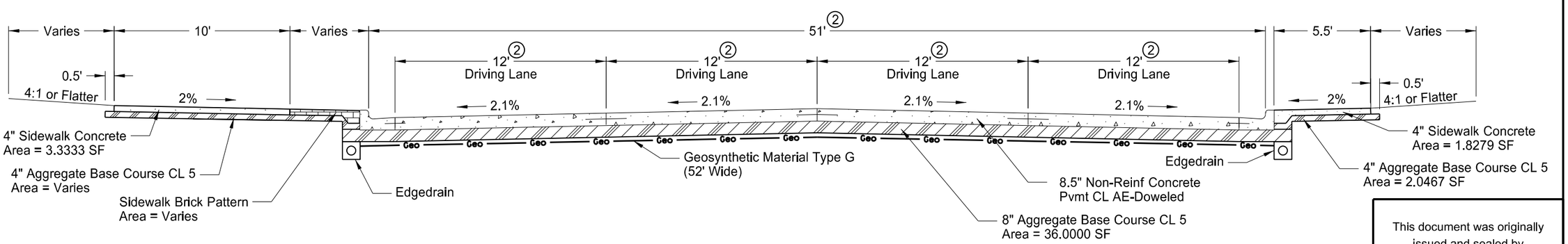
ND Highway 19 &
ND Highway 20

Existing Typical Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	30	2
	NHU-3-020(074)103		



Proposed Transition Typical
Sta. 8195+77.00 to Sta. 8195+92.00 (ND Highway 19)
Sta. 5465+20.00 to Sta. 5465+35.00 (ND Highway 20)
Sta. 5452+55.00 to Sta. 5452+70.00 (ND Highway 20)
Sta. 601+77.00 to Sta. 602+18.55 (Sixth Street NE)



Proposed Typical Section
Sta. 8195+92.00 to Sta. 8200+60.55 (ND Highway 19)

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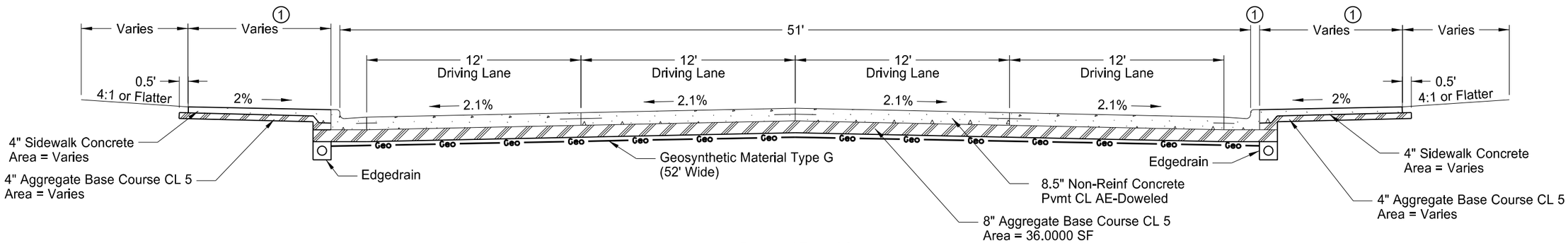
① See Section 90 for Sidewalk and Boulevard Widths.

② Widths Vary from Sta. 8195+77 to Sta. 8196+02.49

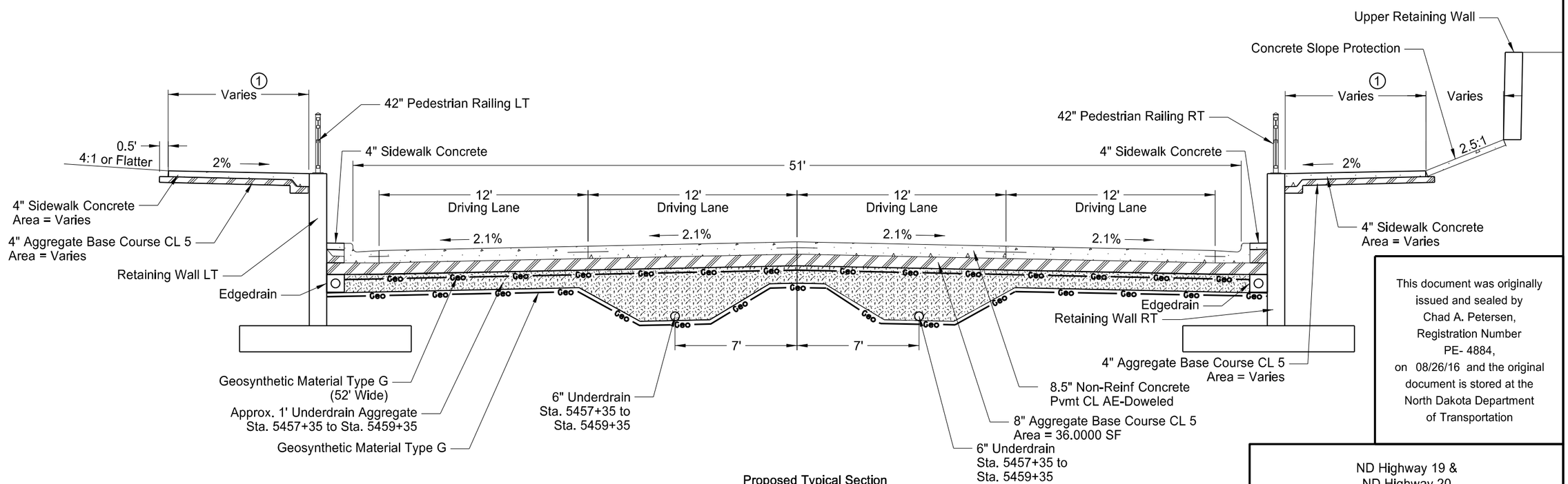
ND Highway 19 &
ND Highway 20

Proposed Typical Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	30	3
	NHU-3-020(074)103		



Proposed Typical Section
Sta. 5452+70.00 to Sta. 5457+20.00 (ND Highway 20)
Sta. 5461+95.00 to Sta. 5465+20.00 (ND Highway 20)
Sta. 600+60.26 to Sta. 601+77.00 (Sixth Street NE)



Proposed Typical Section
Sta. 5457+20.00 to Sta. 5461+95.00 (ND Highway 20)

(1) See Section 90 for Sidewalk and Boulevard Widths.

Retaining Wall LT
Sta. 5457+50.00 to
Sta. 5461+95.00
(See Section 20 for
Dimensions)

Retaining Wall RT
Sta. 5457+20.00 to
Sta. 5461+80.00
(See Section 20 for
Dimensions)

Upper Retaining Wall
Sta. 5458+63.06 to
Sta. 5460+18.50
(See Section 20 for
Dimensions)

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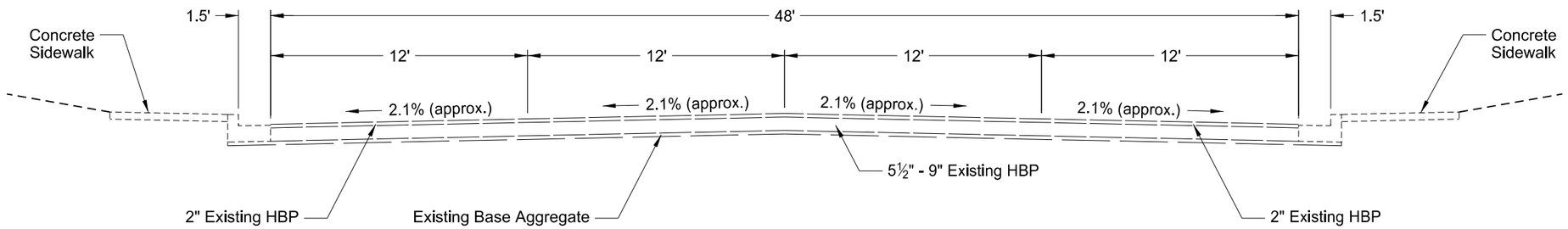
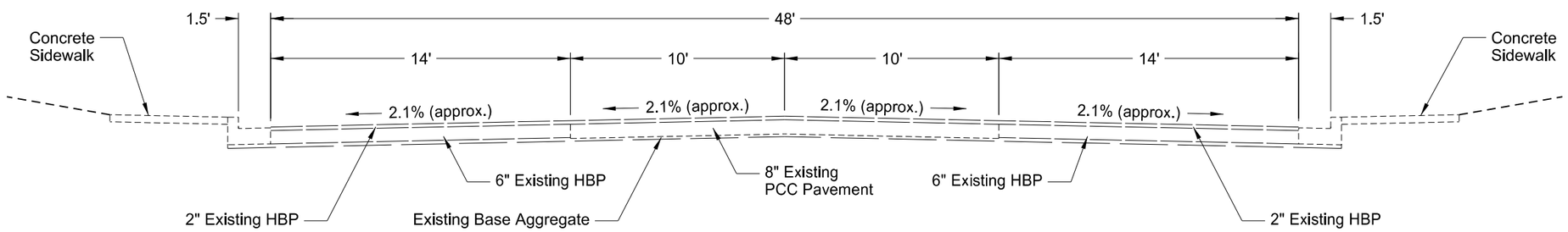
ND Highway 19 &
ND Highway 20

Proposed Typical Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	30	4



Existing Typical Section
Sta. 602+18.55 to Sta. 619+10.83 (Sixth Street NE)



Existing Typical Section
Sta. 619+10.83 to Sta. 626+06.76 (Sixth Avenue NE)
Sta. 628+05.97 to Sta. 637+77.55 (Sixth Avenue NE)

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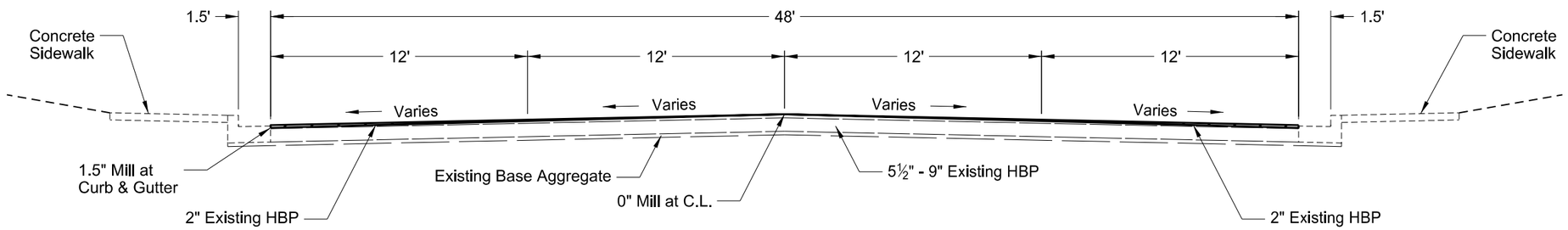
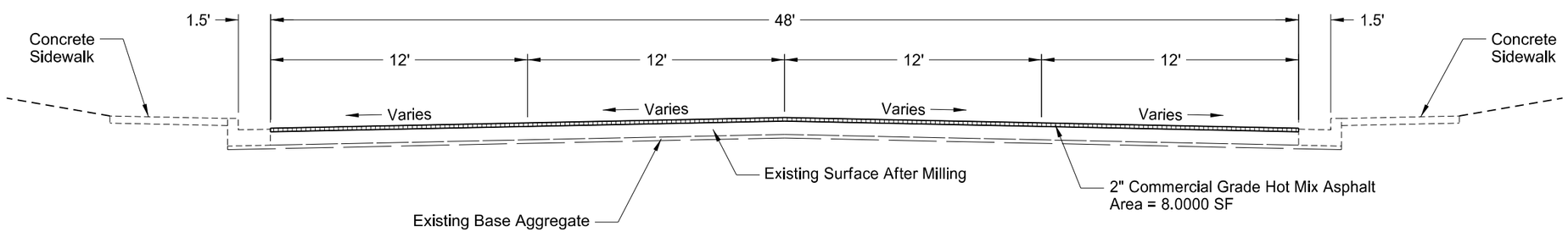
Sixth Street NE &
Sixth Avenue NE

Existing Typical Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	30	5



Milling Typical Section
Sta. 602+18.55 to Sta. 619+10.83 (Sixth Street NE)
Sta. 619+10.83 to Sta. 626+06.76 (Sixth Avenue NE)
Sta. 628+05.97 to Sta. 637+77.55 (Sixth Avenue NE)



Proposed Typical Section
Sta. 602+18.55 to Sta. 619+10.83 (Sixth Street NE)
Sta. 619+10.83 to Sta. 626+06.76 (Sixth Avenue NE)
Sta. 628+05.97 to Sta. 637+77.55 (Sixth Avenue NE)

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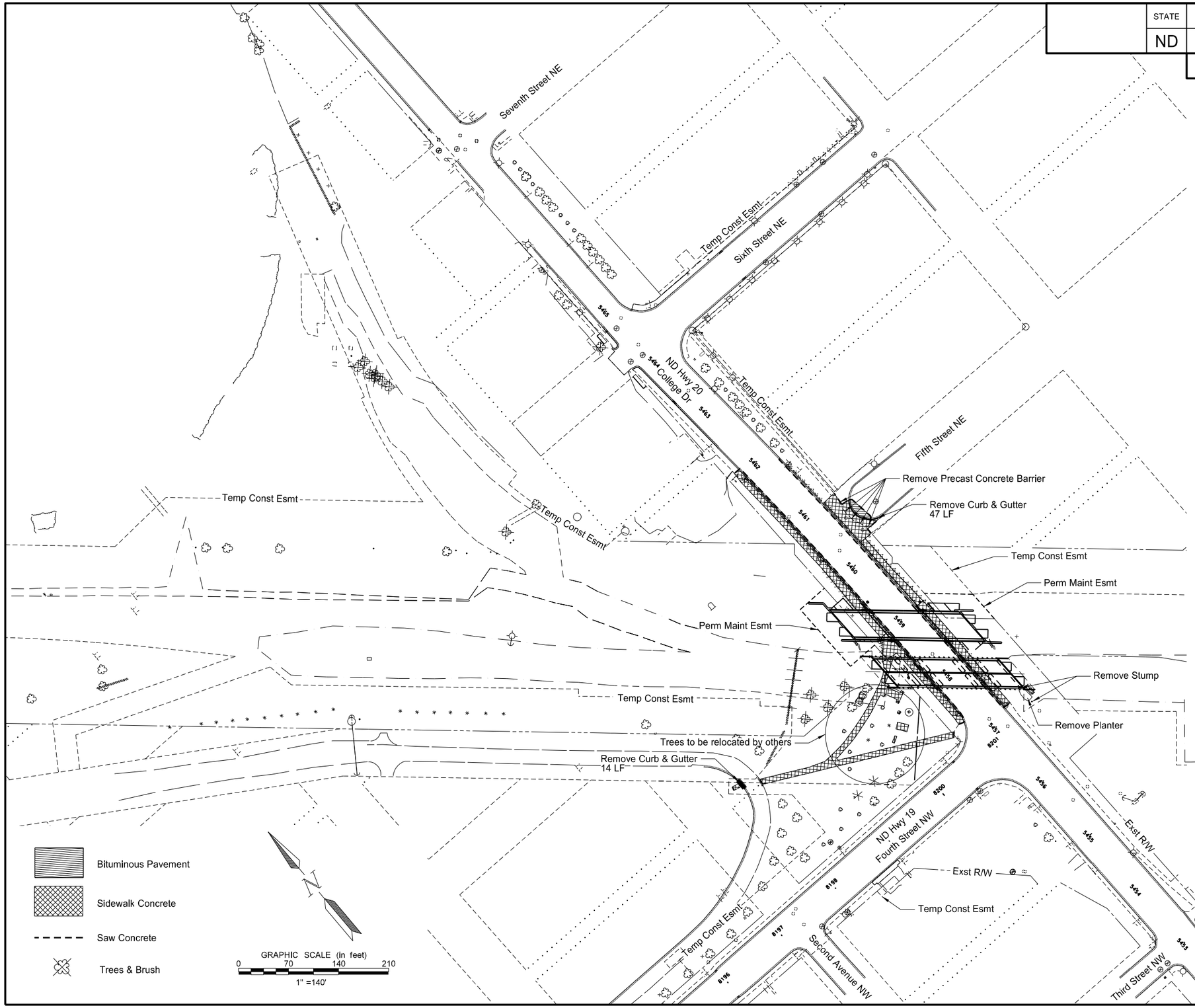
Sixth Street NE &
Sixth Avenue NE

Proposed Typical Sections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	40	1
	NHU-3-020(074)103		



Spec	Item Description	Qty	Unit
201 0352	REMOVAL OF TREES & BRUSH		
	PROJECT LIMITS	1	L SUM
201 0370	REMOVAL OF TREES 10IN		
	STA 8199+24 ~ 207' LT	1	EA
	STA 8199+58 ~ 198' LT	1	EA
	STA 8199+95 ~ 205' LT	1	EA
	STA 8197+82 ~ 679' LT	1	EA
	STA 8197+88 ~ 960' LT	7	EA
201 0380	REMOVAL OF TREES 18IN		
	STA 8199+52 ~ 227' LT	1	EA
202 0136	REMOVAL OF PAVEMENT		
	CURB & GUTTER	6	TON
	SIDEWALK CONCRETE	365	TON
	PAVEMENT	14	TON
202 0151	REMOVE PRECAST CONCRETE BARRIER		
	STA 5460+28 RT	10	LF
	STA 5460+38 RT	10	LF
	STA 5460+52 RT	10	LF
	STA 5460+65 RT	10	LF
	STA 5460+79 RT	10	LF

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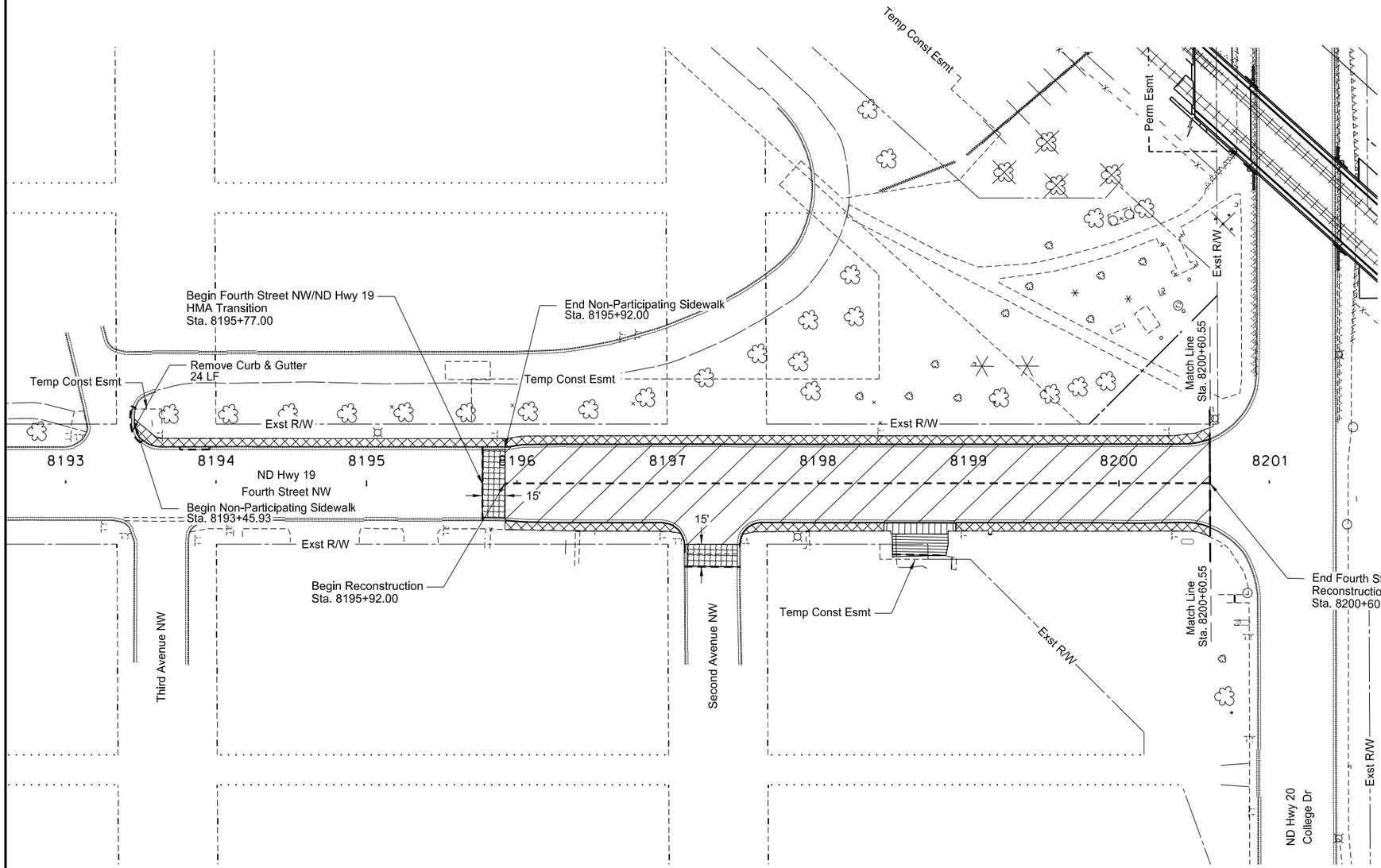
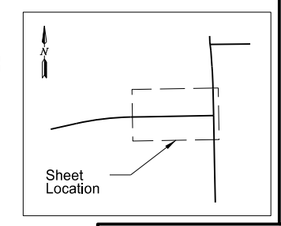
ND Highway 19 &
ND Highway 20

Removals
Shoofly Construction

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	40	2

Spec	Item Description	Qty	Unit
202 0136	REMOVAL OF PAVEMENT		
	MAINLINE PAVEMENT	1966	TON
	CURB & GUTTER	104	TON
	SIDEWALK CONCRETE	113	TON
	DRIVEWAY CONCRETE	12	TON
	DRIVEWAY ASPHALT	20	TON
202 0136	REMOVAL OF PAVEMENT (NON-PARTICIPATING)		
	SIDEWALK CONCRETE	34	TON
	CURB & GUTTER	5	TON





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HMA Transistion

Driveway Asphalt

Sidewalk Concrete

Trees & Brush

Saw Concrete

Bituminous Pavement on Concrete

Driveway Concrete

1. Remove all curb & gutter within the HMA Transition and Reconstruction Limits.

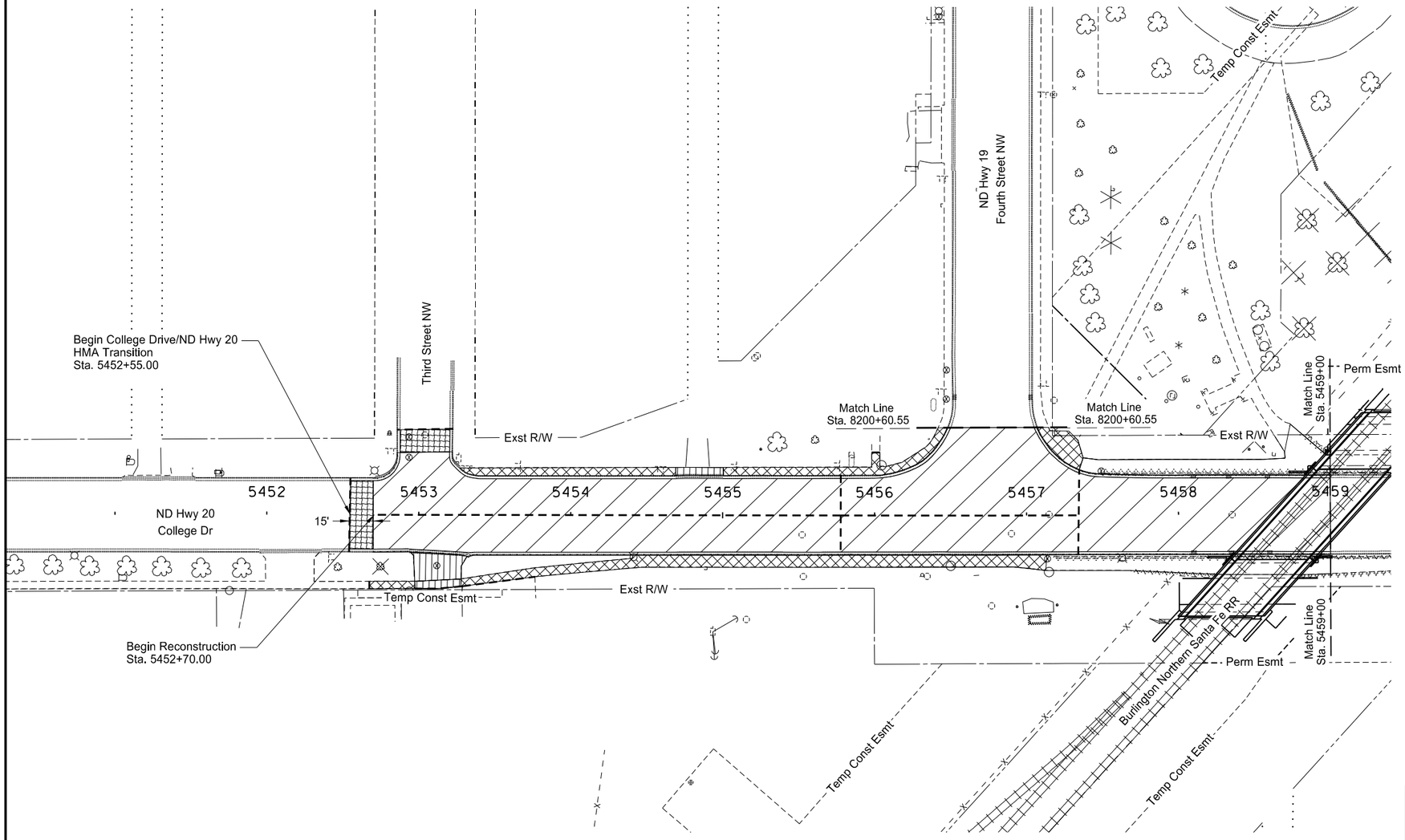
N

GRAPHIC SCALE (in feet)
0 40 80 120
1" = 80'

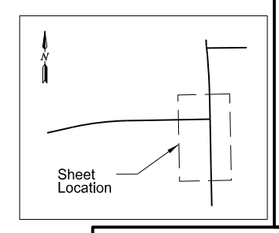
ND Highway 19

Removals
Sta. 8195+77 to Sta. 8200+60.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	40	3



Spec	Item Description	Qty	Unit
201 0370	REMOVAL OF TREES 10IN		
	STA 5452+75 ~ 34' RT	1	EA
202 0136	REMOVAL OF PAVEMENT		
	MAINLINE PAVEMENT	2811	TON
	CURB & GUTTER	133	TON
	SIDEWALK CONCRETE	125	TON
	DRIVEWAY CONCRETE	33	TON



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HMA Transition

Driveway Asphalt

Sidewalk Concrete

Trees & Brush

Saw Concrete

Bituminous Pavement on Concrete

Driveway Concrete

1. Remove all curb & gutter within the HMA Transition and Reconstruction Limits.

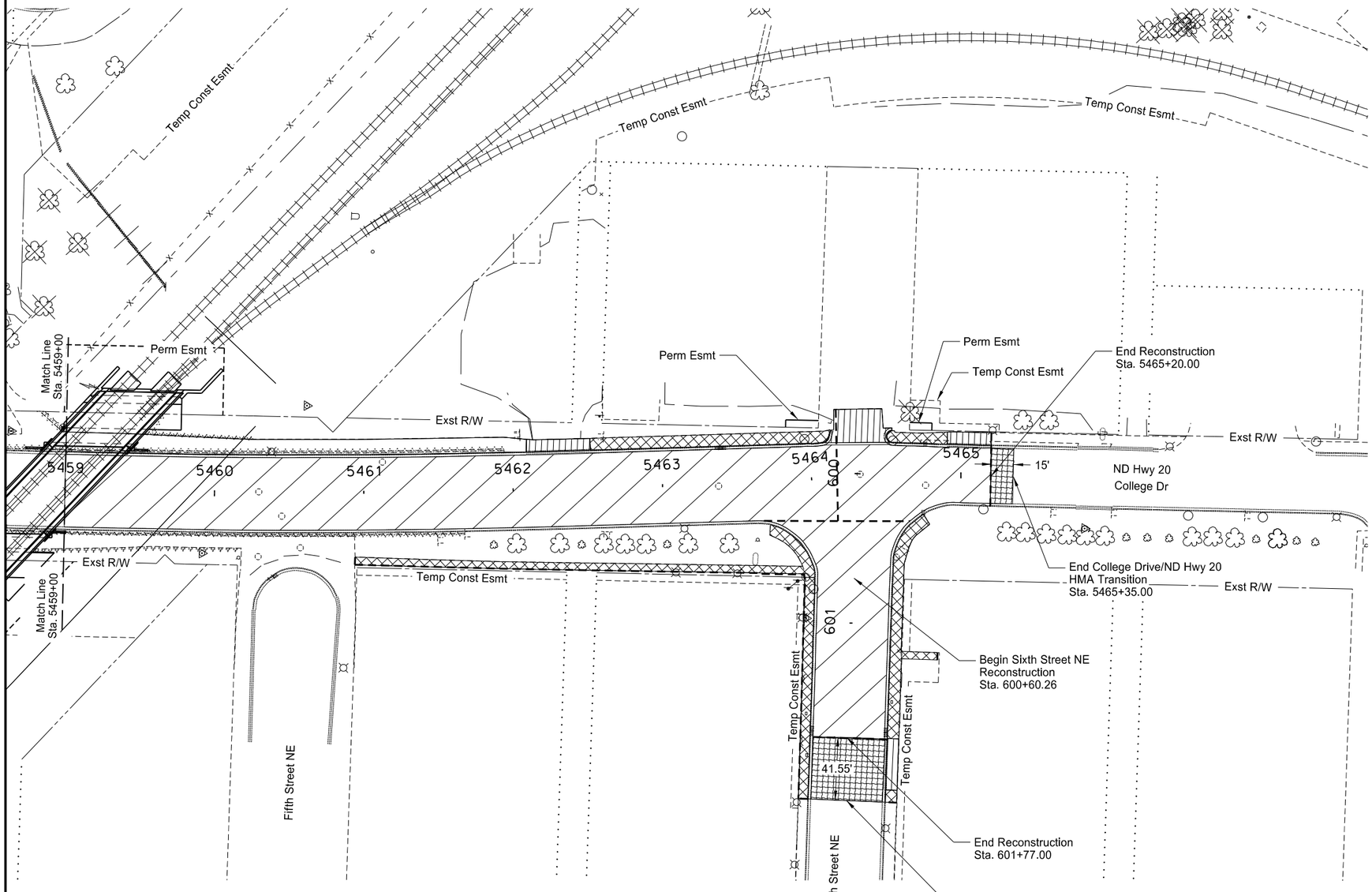
GRAPHIC SCALE (in feet)
0 40 80 120
1" = 80'

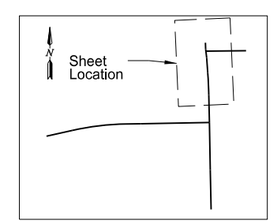
ND Highway 20

Removals
Sta. 5452+55 to Sta. 5459+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	40	4

Spec	Item Description	Qty	Unit
201 0380	REMOVAL OF TREES 18IN		
	STA 5464+65 ~ 42' LT	1	EA
202 0136	REMOVAL OF PAVEMENT		
	MAINLINE PAVEMENT	3191	TON
	CURB & GUTTER	159	TON
	SIDEWALK CONCRETE	139	TON
	DRIVEWAY CONCRETE	60	TON





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HMA Transition

Driveway Asphalt

Sidewalk Concrete

Saw Concrete

Bituminous Pavement on Concrete

Driveway Concrete

Trees & Brush

1. Remove all curb & gutter within the HMA Transition and Reconstruction Limits.

GRAPHIC SCALE (in feet)
0 40 80 120
1" = 80'

ND Highway 20 &
Sixth Street

Removals
Sta. 5459+00 to Sta. 5465+35
Sta. 600+60.26 to Sta. 602+20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	50	1
	NHU-3-020(074)103		

Inlet No..... 1A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 8196+29 ~ 25' Lt (ND 19)
Grate Elev..... 1439.85
Base Elev..... 1434.90
Invert Elev..... 1436.00
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1436.00
15 IN CONDUIT S - 1436.20

Inlet No..... 1B
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 8196+29 ~ 25' Rt (ND 19)
Grate Elev..... 1439.85
Base Elev..... 1434.90
Invert Elev..... 1436.70
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1436.70

MH No..... 1 84IN
Sta..... 8196+29 ~ 40' Lt (ND 19)
Casting Elev..... 1440.50
Base Elev..... 1427.63
Invert Elev..... 1428.00
Riser (84IN) ..... 10.8 FT

42 IN CONDUIT W - 1428.00*
54 IN CONDUIT E - 1428.10
15 IN CONDUIT S - 1435.50

Inlet No..... 2A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 8198+00 ~ 25' Lt (ND 19)
Grate Elev..... 1440.85
Base Elev..... 1435.96
Invert Elev..... 1436.15
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1436.15

MH No..... 2 84IN
Sta..... 8198+00 ~ 40' Lt (ND 19)
Casting Elev..... 1441.60
Base Elev..... 1428.49
Invert Elev..... 1428.95
Riser (84IN) ..... 11.0 FT

54 IN CONDUIT W - 1428.95
54 IN CONDUIT E - 1429.05
15 IN CONDUIT S - 1436.00

Inlet No..... 3A
Type..... INLET-TYPE 2
Grate Style..... D
Sta..... 8200+41 ~ 25' Lt (ND 19)
Grate Elev..... 1438.90
Base Elev..... 1434.00
Invert Elev..... 1435.00
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1435.00
15 IN CONDUIT S - 1435.10

Inlet No..... 3B
Type..... INLET-TYPE 2
Grate Style..... D
Sta..... 8200+41 ~ 25' Rt (ND 19)
Grate Elev..... 1438.90
Base Elev..... 1434.00
Invert Elev..... 1436.10
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1436.10

MH No..... 3 84IN
Sta..... 8200+41 ~ 40' Lt (ND 19)
Casting Elev..... 1439.90
Base Elev..... 1429.81
Invert Elev..... 1430.27
Riser (84IN) ..... 8.0 FT

54 IN CONDUIT W - 1430.27
54 IN CONDUIT E - 1430.37
15 IN CONDUIT S - 1434.50

Inlet No..... 4A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5456+02 ~ 25' Lt (ND 20A)
Grate Elev..... 1441.00
Base Elev..... 1436.10
Invert Elev..... 1436.70
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1436.70
15 IN CONDUIT E - 1436.80

Inlet No..... 4B
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5456+02 ~ 25' Rt (ND 20A)
Grate Elev..... 1441.00
Base Elev..... 1436.10
Invert Elev..... 1437.05
'H' Distance..... 4.0 FT

15 IN CONDUIT W - 1437.05
15 IN CONDUIT S - 1437.15

Inlet No..... 4C
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5454+57 ~ 25' Rt (ND 20A)
Grate Elev..... 1443.20
Base Elev..... 1438.30
Invert Elev..... 1439.50
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1439.50
15 IN CSP - S SLOTTED DRAIN

MH No..... 4 96IN
Sta..... 5457+15 ~ 13' Lt (ND 20A)
Casting Elev..... 1439.45
Base Elev..... 1430.24
Invert Elev..... 1430.70
Riser (96IN) ..... 7.1 FT

54 IN CONDUIT W - 1430.70
EXISTING 42 IN RCP N - 1430.80
42 IN CONDUIT E - 1430.80
15 IN CONDUIT S - 1436.00

Inlet No..... 5A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5458+21 ~ 25' Lt (ND 20A)
Grate Elev..... 1437.65
Base Elev..... 1432.75
Invert Elev..... 1433.50
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1433.50

Inlet No..... 5B
Type..... INLET-TYPE 2
Grate Style..... D
Sta..... 5458+51 ~ 25' Lt (ND 20A)
Grate Elev..... 1437.55
Base Elev..... 1432.65
Invert Elev..... 1433.00
'H' Distance..... 4.0 FT

15 IN CONDUIT E - 1433.00
15 IN CONDUIT N - 1433.10
15 IN CONDUIT S - 1433.10

Inlet No..... 5C
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5458+81 ~ 25' Lt (ND 20A)
Grate Elev..... 1437.65
Base Elev..... 1432.75
Invert Elev..... 1433.50
'H' Distance..... 4.0 FT

15 IN CONDUIT S - 1433.50

MH No..... 5 72IN
Sta..... 5458+51 ~ 13' Lt (ND 20A)
Casting Elev..... 1437.75
Base Elev..... 1431.68
Invert Elev..... 1432.05
Riser (72IN) ..... 4.0 FT

42 IN CONDUIT S - 1432.05
36 IN CONDUIT N - 1432.15
15 IN CONDUIT W - 1432.70
6 IN CONDUIT E - 1434.31

Inlet No..... 6A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5458+21 ~ 25' Rt (ND 20A)
Grate Elev..... 1437.65
Base Elev..... 1432.75
Invert Elev..... 1433.50
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1433.50

Inlet No..... 6B
Type..... INLET-TYPE 2
Grate Style..... D
Sta..... 5458+51 ~ 25' Rt (ND 20A)
Grate Elev..... 1437.55
Base Elev..... 1432.65
Invert Elev..... 1433.00
'H' Distance..... 4.0 FT

EXISTING 22x13 (Arch) IN RCP W - 1433.00
15 IN CONDUIT N - 1433.10
15 IN CONDUIT S - 1433.10

Inlet No..... 6C
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5458+81 ~ 25' Rt (ND 20A)
Grate Elev..... 1437.65
Base Elev..... 1432.75
Invert Elev..... 1433.75
'H' Distance..... 4.0 FT

15 IN CONDUIT S - 1433.75

Inlet No..... 7A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5460+30 ~ 25' Rt (ND 20A)
Grate Elev..... 1441.65
Base Elev..... 1436.80
Invert Elev..... 1437.80
'H' Distance..... 4.0 FT

24 IN CONDUIT W - 1437.80
24 IN CONDUIT E - 1437.90
18 IN CSP - N SLOTTED DRAIN

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ND Highway 19 &
ND Highway 20

Inlet & Manhole Summary

* Verify existing elevation in the field

*Manufacture 54IN hole to west for future use. Use block and mortor to fill in gap between 42 inch pipe and knockout hole.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	50	2
	NHU-3-020(074)103		

MH No..... 7 72IN
Sta..... 5460+30 ~ 1' Lt (ND 20A)
Casting Elev..... 1442.15
Base Elev..... 1436.10
Invert Elev..... 1437.00
Riser (72IN) ..... 4.0 FT

EXISTING 44X27 (Arch) IN RCP S - 1437.00
24 IN CONDUIT E - 1437.10

Inlet No..... 8A
Type..... INLET CATCH BASIN
Grate Style..... 9 IN BEEHIVE
Sta..... 5459+00 ~ 46.5' Rt (ND 20A)
Grate Elev..... 1453.70
Base Elev..... 1448.51
Invert Elev..... 1448.70
'H' Distance..... 4.3 FT

15 IN CONDUIT N - 1448.70

Inlet No..... 8B
Type..... INLET CATCH BASIN
Grate Style..... 9 IN BEEHIVE
Sta..... 5459+58 ~ 44.5' Rt (ND 20A)
Grate Elev..... 1449.02
Base Elev..... 1444.10
Invert Elev..... 1445.30
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1445.30
15 IN CONDUIT S - 1445.60

Inlet No..... 8C
Type..... INLET-TYPE 2 DOUBLE
Grate Style..... DR/DL
Sta..... 5460+41 ~ 55' Rt (ND 20A)
Grate Elev..... 1451.85
Base Elev..... 1445.75
Invert Elev..... 1446.00
'H' Distance..... 5.2 FT

24 IN CONDUIT W - 1446.00
18 IN CONDUIT N - 1446.10

Inlet No..... 8D
Type..... INLET-TYPE 2 DOUBLE
Grate Style..... D
Sta..... 5460+54 ~ 50' Rt (ND 20A)
Grate Elev..... 1451.80
Base Elev..... 1446.59
Invert Elev..... 1446.80
'H' Distance..... 4.3 FT

18 IN CONDUIT S - 1446.80
18 IN CONDUIT N - 1446.90

Inlet No..... 8E
Type..... INLET-TYPE 2 DOUBLE
Grate Style..... V
Sta..... 5460+67 ~ 55' Rt (ND 20A)
Grate Elev..... 1453.25
Base Elev..... 1446.99
Invert Elev..... 1447.20
'H' Distance..... 5.4 FT

18 IN CONDUIT S - 1447.20

MH No..... 8 48IN
Sta..... 5460+30 ~ 42' Rt (ND 20A)
Casting Elev..... 1452.01
Base Elev..... 1438.05
Invert Elev..... 1438.30
Riser (48IN) ..... 11.9 FT

24 IN CONDUIT W - 1438.30
24 IN CONDUIT E - 1445.50
15 IN CONDUIT S - 1444.00

Inlet No..... 9A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5462+00 ~ 25' Rt (ND 20A)
Grate Elev..... 1449.75
Base Elev..... 1444.85
Invert Elev..... 1445.15
'H' Distance..... 4.0 FT

15 IN CONDUIT W - 1445.15
18 IN CSP - N SLOTTED DRAIN

Inlet No..... 9B
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5462+00 ~ 25' Lt (ND 20A)
Grate Elev..... 1449.75
Base Elev..... 1444.85
Invert Elev..... 1445.15
'H' Distance..... 4.0 FT

15 IN CONDUIT E - 1445.15
18 IN CSP - N SLOTTED DRAIN

MH No..... 9 60IN
Sta..... 5462+00 ~ 10' Lt (ND 20A)
Casting Elev..... 1450.15
Base Elev..... 1438.97
Invert Elev..... 1439.30
Riser (60IN) ..... 9.1 FT

36 IN CONDUIT S - 1439.30
36 IN CONDUIT N - 1439.40
15 IN CONDUIT E - 1444.00
15 IN CONDUIT W - 1444.50

Inlet No..... 10A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5463+38 ~ 25' Rt (ND 20A)
Grate Elev..... 1452.45
Base Elev..... 1447.56
Invert Elev..... 1447.75
'H' Distance..... 4.0 FT

15 IN CONDUIT W - 1447.75
18 IN CSP - N SLOTTED DRAIN

Inlet No..... 10B
Type..... INLET-TYPE 2 DOUBLE
Grate Style..... V
Sta..... 5463+38 ~ 25' Lt (ND 20A)
Grate Elev..... 1452.45
Base Elev..... 1447.56
Invert Elev..... 1447.75
'H' Distance..... 4.0 FT

15 IN CONDUIT E - 1447.75

MH No..... 10 60IN
Sta..... 5463+38 ~ CL (ND 20A)
Casting Elev..... 1452.95
Base Elev..... 1440.72
Invert Elev..... 1441.05
Riser (60IN) ..... 10.1 FT

36 IN CONDUIT S - 1441.05
36 IN CONDUIT N - 1441.15
15 IN CONDUIT W - 1446.93
15 IN CONDUIT E - 1446.95

MH No..... 11 60IN
Sta..... 5464+43 ~ 6' Rt (ND 20A)
Casting Elev..... 1453.40
Base Elev..... 1442.57
Invert Elev..... 1442.90
Riser (60IN) ..... 8.7 FT

36 IN CONDUIT S - 1442.90
36 IN CONDUIT N - 1443.00
24 IN CONDUIT E - 1447.50

Inlet No..... 12A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5464+77 ~ 27' Rt (ND 20A)
Grate Elev..... 1452.95
Base Elev..... 1446.81
Invert Elev..... 1447.00
'H' Distance..... 5.2 FT

15 IN CONDUIT W - 1447.00

Inlet No..... 12B
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 5464+77 ~ 25' Lt (ND 20A)
Grate Elev..... 1452.95
Base Elev..... 1446.81
Invert Elev..... 1447.00
'H' Distance..... 5.2 FT

15 IN CONDUIT E - 1447.00
18 IN CSP - N SLOTTED DRAIN

MH No..... 12 72IN
Sta..... 5464+77 ~ 8' Rt (ND 20A)
Casting Elev..... 1453.30
Base Elev..... 1443.01
Invert Elev..... 1443.34
Riser (72IN) ..... 8.2 FT

36 IN CONDUIT S - 1443.34
EXISTING 30 IN RCP N - 1443.40
15 IN CONDUIT W - 1446.51
15 IN CONDUIT E - 1446.65

Inlet No..... 13A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 600+78 ~ 25' Lt (6TH)
Grate Elev..... 1454.60
Base Elev..... 1449.70
Invert Elev..... 1450.90
'H' Distance..... 4.0 FT

15 IN CONDUIT S - 1450.90
18 IN CSP - E SLOTTED DRAIN

Inlet No..... 13B
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 600+78 ~ 25' Rt (6TH)
Grate Elev..... 1454.60
Base Elev..... 1449.70
Invert Elev..... 1450.90
'H' Distance..... 4.0 FT

15 IN CONDUIT N - 1450.90
15 IN CSP - E SLOTTED DRAIN

MH No..... 13 60IN
Sta..... 600+78 ~ 13' Lt (6TH)
Casting Elev..... 1454.85
Base Elev..... 1448.75
Invert Elev..... 1449.00
Riser (60IN) ..... 4.0 FT

24 IN CONDUIT W - 1449.00
24 IN CONDUIT E - 1449.10
15 IN CONDUIT N - 1450.50
15 IN CONDUIT S - 1450.50

Inlet No..... 14A
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 601+73 ~ 25' Lt (6TH)
Grate Elev..... 1457.95
Base Elev..... 1453.09
Invert Elev..... 1453.30
'H' Distance..... 4.0 FT

18 IN CONDUIT S - 1453.30

Inlet No..... 14B
Type..... INLET-TYPE 2
Grate Style..... V
Sta..... 601+73 ~ 25' Rt (6TH)
Grate Elev..... 1457.95
Base Elev..... 1453.09
Invert Elev..... 1453.30
'H' Distance..... 4.0 FT

18 IN CONDUIT N - 1453.30
EXISTING 18 IN RCP S - 1453.30
18 IN CSP - E SLOTTED DRAIN

MH No..... 14 60IN
Sta..... 601+73 ~ 12' Lt (6TH)
Casting Elev..... 1458.25
Base Elev..... 1450.75
Invert Elev..... 1451.00
Riser (60IN) ..... 5.4 FT

24 IN CONDUIT W - 1451.00
18 IN CONDUIT N - 1453.00
18 IN CONDUIT S - 1452.00

Inlet No..... 15A
Type..... INLET SPECIAL - TYPE 1 - 60 IN
Grate Style..... 9 IN BEEHIVE
Sta..... 309+34 ~ 31' Lt (RR 301)
Grate Elev..... 1453.97
Base Elev..... 1448.98
Invert Elev..... 1449.57
'H' Distance..... 4.67 FT

36 IN CONDUIT NE - 1449.57

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ND Highway 19 &
ND Highway 20

Inlet & Manhole Summary

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	50	3
	NHU-3-020(074)103		
	SU-3-982(031)035		

HYDRANT RELOCATE SCHEDULE

ND 20
Station
5460+67 ~ 67' Rt

ADJUST MANHOLE

ND 19
Station
8197+32 ~ 13' Lt
8197+33 ~ 8' Rt
8197+39 ~ 16' Lt

ND 20
Station
5455+52 ~ 15' Rt
5456+90 ~ 12' Rt
5458+35 ~ C.L.
5461+13 ~ 21' Lt
5464+33 ~ 2' Lt

SIXTH STREET NE
Station
604+60 ~ 1' Lt
608+26 ~ 1' Rt
611+98 ~ 2' Rt
615+77 ~ 2' Rt

SIXTH AVENUE NE
Station
619+52 ~ C.L.
619+75 ~ 16' Lt
623+24 ~ 13' Rt
623+39 ~ 16' Lt
630+79 ~ 17' Lt
630+80 ~ C.L.
634+40 ~ 16' Lt
634+46 ~ C.L.

REMOVAL OF INLET

ND 19
Station
8195+98 ~ 24' Lt
8195+98 ~ 24' Rt
8200+41 ~ 25' Lt
8200+41 ~ 25' Rt

ND 20
Station
5458+10 ~ 25' Lt
5458+10 ~ 25' Rt
5458+33 ~ 25' Lt
5458+35 ~ 25' Rt
5458+59 ~ 25' Lt
5458+60 ~ 25' Rt
5460+41 ~ 55' Rt
5463+38 ~ 25' Lt
5464+76 ~ 20' Lt
5464+75 ~ 25' Rt

SIXTH STREET
Station
601+73 ~ 25' Lt
601+73 ~ 25' Rt

REMOVAL OF MANHOLE

ND 19
Station
8195+98 ~ 40' Lt
8200+43 ~ 41' Lt

ND 20
Station
5460+30 ~ 1' Lt
5460+30 ~ 42' Rt
5463+38 ~ C.L.
5464+77 ~ 7' Rt

SIXTH STREET
Station
600+55 ~ 12' Lt

MANHOLE REPAIR

ND 19
Station
8199+04 ~ 9' Rt

ND 20
Station
5457+15 ~ C.L.
5460+45 ~ 15' Lt
5460+58 ~ 36' Rt

ADJUST GATE VALVE BOX

ND 19
Station
8197+51 ~ 27' Rt
8200+23 ~ 30' Rt
8200+42 ~ 30' Rt

ND 20
Station
5452+94 ~ 38' Lt
5464+24 ~ 26' Lt
5464+70 ~ 7' Lt

SIXTH STREET
Station
604+24 ~ 12' Rt
608+17 ~ 11' Rt
608+22 ~ 14' Rt
611+60 ~ 14' Rt
615+67 ~ 19' Rt
615+72 ~ 16' Rt
615+77 ~ 19' Rt

ADJUST UTILITY APPURTENANCE

ND 20
Station
5453+12 ~ 34' Rt
5464+24 ~ 26' Lt

SIXTH STREET
Station
602+11 ~ 27' Rt

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ND Highway 19 &
ND Highway 20

Adjust Utility Appurtenance/
Manhole Adjustment Schedule

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	51	1
	NHU-3-020(074)103		

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Sections		Applicable Backfill Detail
				In	Bid Item	LF		In	Type		In	Begin EA	End EA	
5457+3	9.3' Rt	5458+29	13' Rt	36x23 (Arch)	Sanitary Sewer Pipe	80	Reinforced Concrete Pipe - Class III	36X23 (Arch)						D-714-27
1A		1		15	Pipe Conduit-Storm Drain	15	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
1B		1A		15	Pipe Conduit-Storm Drain	50	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
1		8195+98		42	Pipe Conduit-Storm Drain	31	Reinforced Concrete Pipe - Class III	42						Standard D-714-27
							Spiral Rib Steel Pipe	42	P	3/4, 1	0.064			
2A		2		15	Pipe Conduit-Storm Drain	15	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
2		1		54	Pipe Conduit-Storm Drain	171	Reinforced Concrete Pipe - Class III	54						Standard D-714-27
							Spiral Rib Steel Pipe	54	P	3/4, 1	0.064			
3A		3		15	Pipe Conduit-Storm Drain	15	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
3B		3A		15	Pipe Conduit-Storm Drain	50	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
3		2		54	Pipe Conduit-Storm Drain	241	Reinforced Concrete Pipe - Class III	54						Standard D-714-27
							Spiral Rib Steel Pipe	54	P	3/4, 1	0.064			
4A		4		15	Pipe Conduit-Storm Drain	114	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
4B		4A		15	Pipe Conduit-Storm Drain	50	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
4C		4B		15	Pipe Conduit-Storm Drain	145	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
4		3		54	Pipe Conduit-Storm Drain	65	Reinforced Concrete Pipe - Class III	54						Standard D-714-27
							Spiral Rib Steel Pipe	54	P	3/4, 1	0.064			
5A		5B		15	Pipe Conduit-Storm Drain	30	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
5B		5		15	Pipe Conduit-Storm Drain	12	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
5C		5B		15	Pipe Conduit-Storm Drain	30	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
5		4		42	Pipe Conduit-Storm Drain	136	Reinforced Concrete Pipe - Class III	42						Standard D-714-27
							Spiral Rib Steel Pipe	42	P	3/4, 1	0.064			
6A		6B		15	Pipe Conduit-Storm Drain	30	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
6B		5458+35		22x13 (Arch)	Pipe Conduit-Storm Drain	36	Reinforced Concrete Pipe - Class III	22x13 (Arch)						Standard D-714-27
							Spiral Rib Steel Pipe	22x13 (Arch)	P	3/4, 1	0.064			
6C		6B		15	Pipe Conduit-Storm Drain	30	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
7A		7		24	Pipe Conduit-Storm Drain	26	Reinforced Concrete Pipe - Class III	24						Standard D-714-27
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064			
8A		8B		15	Pipe Conduit-Storm Drain	58	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
8B		8		15	Pipe Conduit-Storm Drain	73	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
8C		8		24	Pipe Conduit-Storm Drain	17	Reinforced Concrete Pipe - Class III	24						Standard D-714-27
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064			
8D		8C		18	Pipe Conduit-Storm Drain	14	Reinforced Concrete Pipe - Class III	18						Standard D-714-27
							Spiral Rib Steel Pipe	18	P	3/4, 1	0.064			
8E		8D		18	Pipe Conduit-Storm Drain	14	Reinforced Concrete Pipe - Class III	18						Standard D-714-27
							Spiral Rib Steel Pipe	18	P	3/4, 1	0.064			
8		7A		24	Pipe Conduit-Storm Drain	17	Reinforced Concrete Pipe - Class III	24						Standard D-714-27
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064			
9A		9		15	Pipe Conduit-Storm Drain	35	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
9B		9		15	Pipe Conduit-Storm Drain	15	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	1.064			
9		5		36	Pipe Conduit-Storm Drain	349	Reinforced Concrete Pipe - Class III	36						Standard D-714-27
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064			
10A		10		15	Pipe Conduit-Storm Drain	25	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
10B		10		15	Pipe Conduit-Storm Drain	25	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
10		9		36	Pipe Conduit-Storm Drain	138	Reinforced Concrete Pipe - Class III	36						Standard D-714-27
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064			
11		10		36	Pipe Conduit-Storm Drain	105	Reinforced Concrete Pipe - Class III	36						Standard D-714-27
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064			
12A		12		15	Pipe Conduit-Storm Drain	17	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
12B		12		15	Pipe Conduit-Storm Drain	28	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			

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ND Highway 19 &
ND Highway 20

Allowable Pipe List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	51	2
	NHU-3-020(074)103		

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	(*) End Sections		Applicable Backfill Detail
												Begin	End	
				In	Bid Item	LF		In	Type		In	EA	EA	
12		11		36	Pipe Conduit-Storm Drain	34	Reinforced Concrete Pipe - Class III	36						Standard D-714-27
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.064			
13A		13		15	Pipe Conduit-Storm Drain	12	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
13B		13		15	Pipe Conduit-Storm Drain	38	Reinforced Concrete Pipe - Class III	15						Standard D-714-27
							Spiral Rib Steel Pipe	15	P	3/4, 1	0.064			
13		11		24	Pipe Conduit-Storm Drain	71	Reinforced Concrete Pipe - Class III	24						Standard D-714-27
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064			
14A		14		18	Pipe Conduit-Storm Drain	13	Reinforced Concrete Pipe - Class III	18						Standard D-714-27
							Spiral Rib Steel Pipe	18	P	3/4, 1	0.064			
14B		14		18	Pipe Conduit-Storm Drain	37	Reinforced Concrete Pipe - Class III	18						Standard D-714-27
							Spiral Rib Steel Pipe	18	P	3/4, 1	0.064			
14		13		24	Pipe Conduit-Storm Drain	95	Reinforced Concrete Pipe - Class III	24						Standard D-714-27
							Spiral Rib Steel Pipe	24	P	3/4, 1	0.064			
309+34	31' Lt	309+34	36' Rt	36	Pipe Conduit	64	Reinforced Concrete Pipe - Class V (Barrel Length 62')	36					Yes	Standard D-714-27
							Smooth Wall Pipe	36						
							Spiral Rib Steel Pipe	36	P	3/4, 1	0.168			
402+33	24' Rt	402+47	19' Lt	42	Pipe Conduit	44	Reinforced Concrete Pipe - Class V (Barrel Length 42')	42					Yes	Standard D-714-27

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

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

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

(*) The price bid for "Pipe Conduit" bid items includes end sections.

FES = Flared End Section
TES = Traversable End Section

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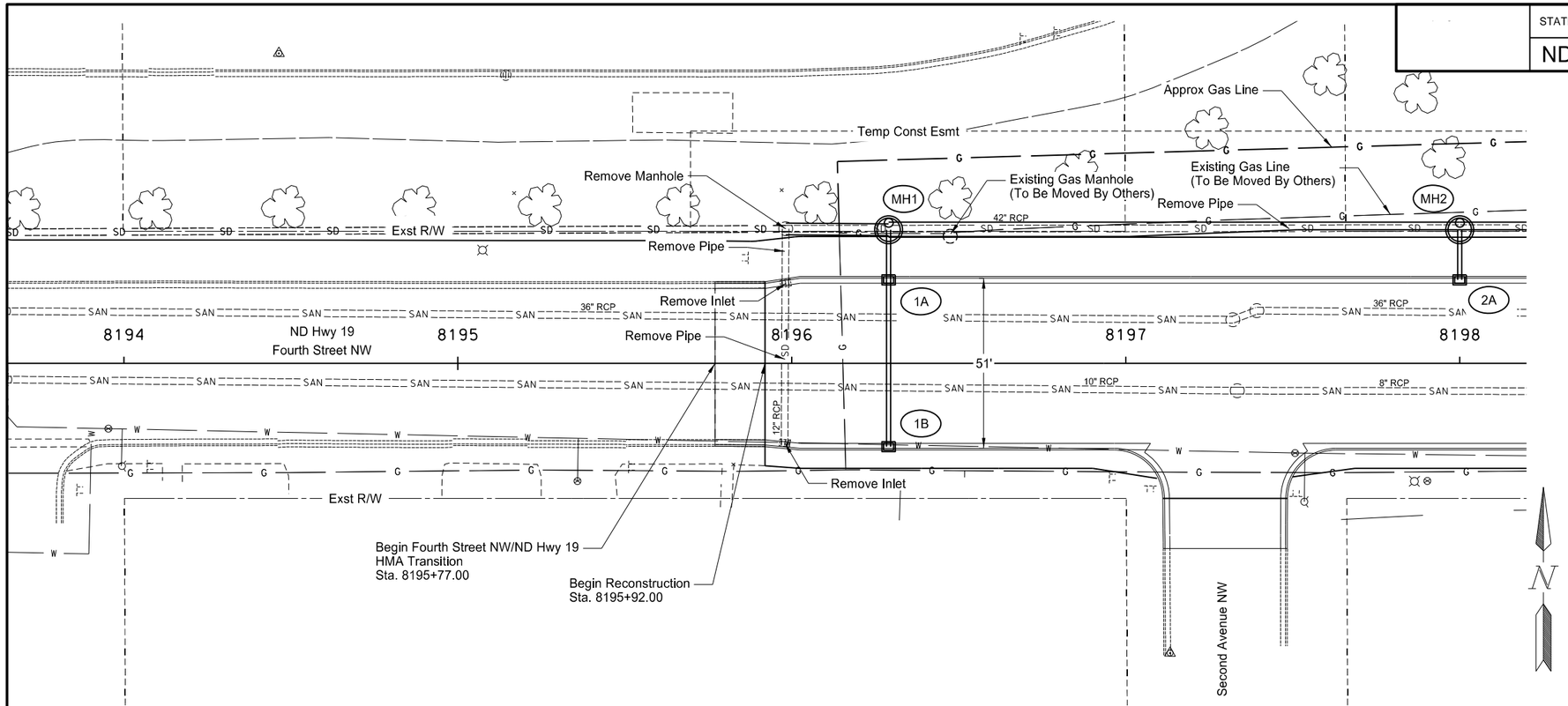
ND Highway 19 &
ND Highway 20

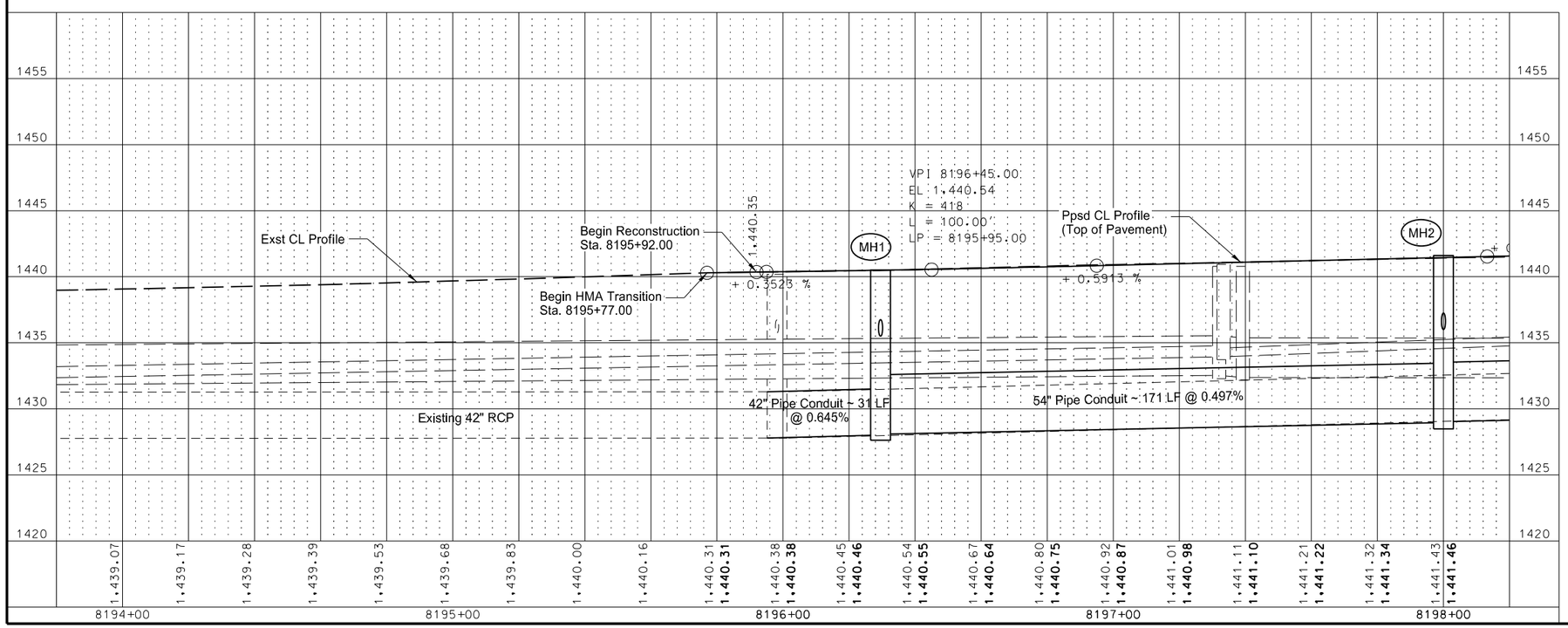
Allowable Pipe List

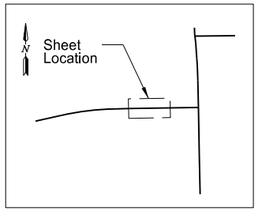
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	55	1



Spec	Item Description	Qty	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 8195+98 ~ 40' Lt to 8195+98 ~ 24' Rt	64	LF
	Sta. 8195+98 ~ 40' Lt to 8198+00 ~ 40' Lt	202	LF
202-0210	REMOVAL OF MANHOLES		
	Sta. 8195+98 ~ 40' Lt	1	EA
202-0230	REMOVAL OF INLETS		
	Sta. 8195+98 ~ 24' Lt	1	EA
	Sta. 8195+98 ~ 24' Rt	1	EA
714-4097	PIPE CONDUIT 15IN-STORM DRAIN		
	1A to 1B	50	LF
	1A to MH1	15	LF
	2A to MH2	15	LF
714-4121	PIPE CONDUIT 42IN-STORM DRAIN		
	Sta. 8195+98 ~ 40' Lt to MH1	31	LF
714-4131	PIPE CONDUIT 54IN-STORM DRAIN		
	MH1 to MH2	171	LF
722-0130	MANHOLE 84IN		
	MH1	1	EA
	MH2	1	EA
722-1130	MANHOLE RISER 84IN		
	MH1	10.8	LF
	MH2	11.0	LF
722-3510	INLET-TYPE 2		
	1A	1	EA
	1B	1	EA
	2A	1	EA

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'





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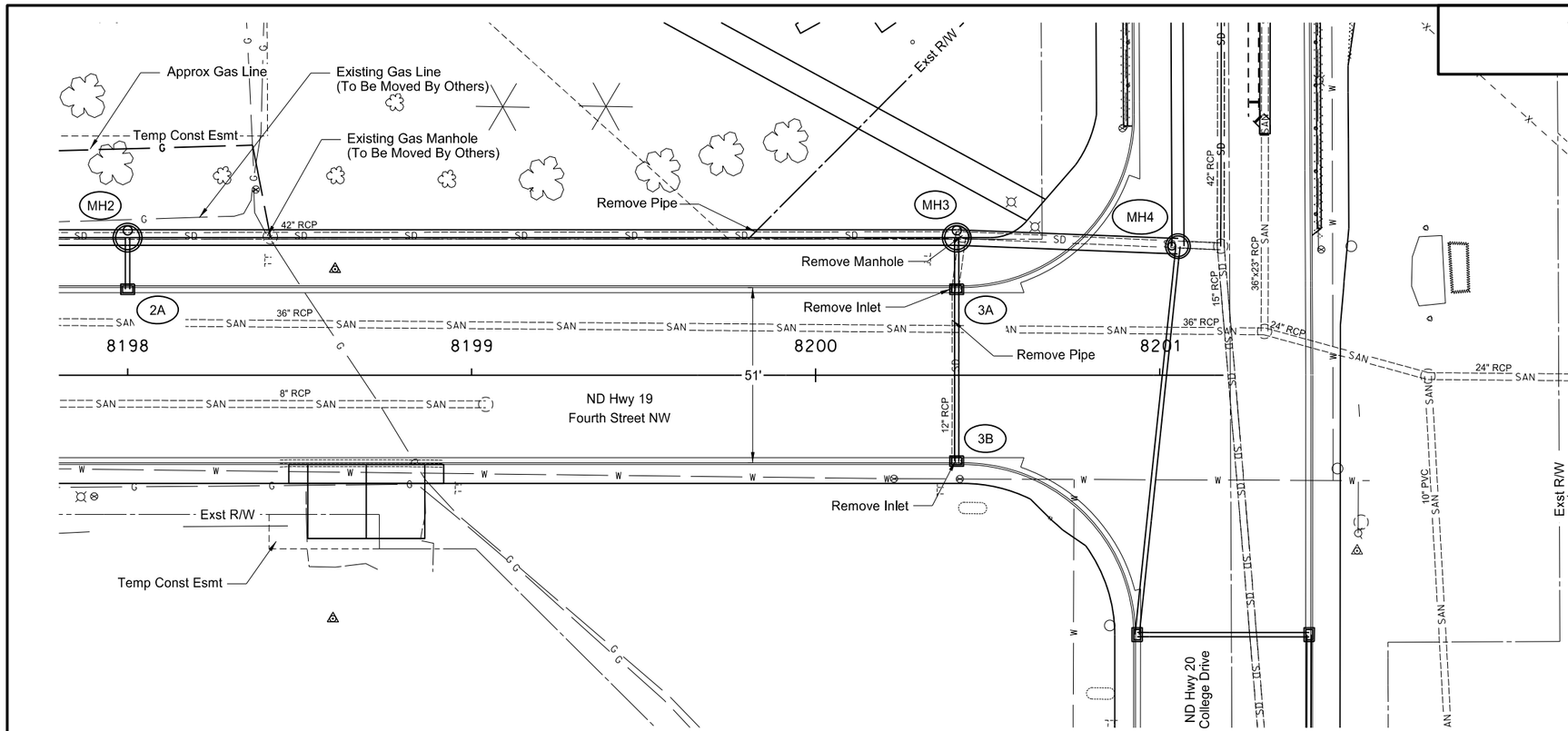
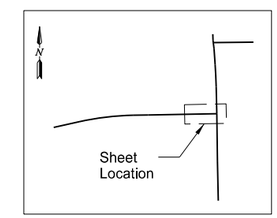
ND Highway 19

Storm Drain
Sta. 8195+77 to Sta. 8198+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	55	2



Spec	Item Description	Qty	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 8198+00 ~ 40' Lt to 8200+43 ~41' Lt	243	LF
	Sta. 8200+41 ~ 25' Rt to 8200+43 ~ 41' Lt	66	LF
202-0210	REMOVAL OF MANHOLES		
	Sta. 8200+43 ~ 41' Lt	1	EA
202-0230	REMOVAL OF INLETS		
	Sta. 8200+41 ~ 25' Lt	1	EA
	Sta. 8200+41 ~ 25' Rt	1	EA
714-4097	PIPE CONDUIT 15IN-STORM DRAIN		
	3A to 3B	50	LF
	3A to MH3	15	LF
714-4131	PIPE CONDUIT 54IN-STORM DRAIN		
	MH2 to MH3	241	LF
722-0130	MANHOLE 84IN		
	MH3	1	EA
722-1130	MANHOLE RISER 84IN		
	MH3	8.0	LF
722-3510	INLET-TYPE 2		
	3A	1	EA
	3B	1	EA



GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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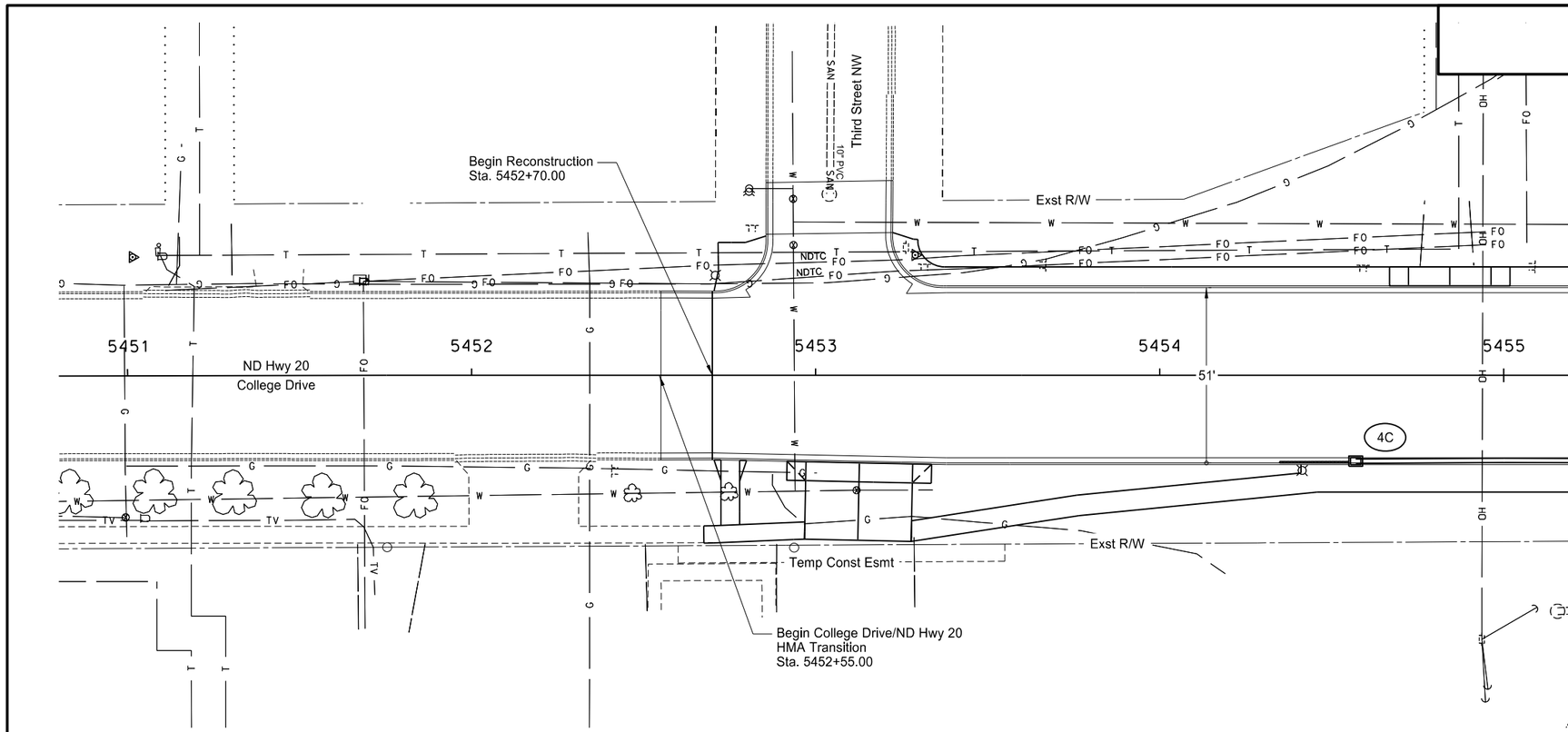
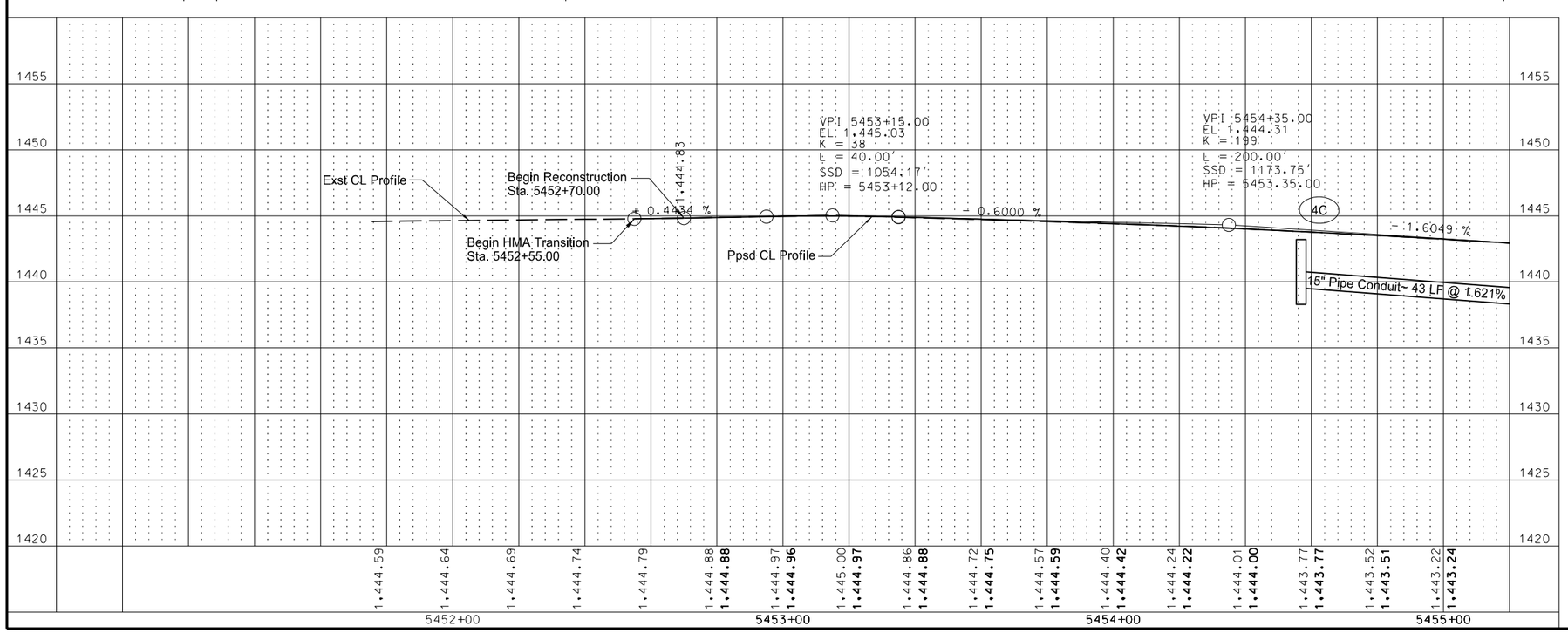
ND Highway 19

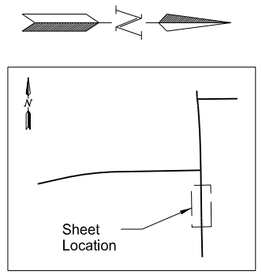
Storm Drain
Sta. 8198+00 to Sta. 8200+41

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	55	3

Spec	Item Description	Qty	Unit
714-4097	PIPE CONDUIT 15IN-STORM DRAIN 4C to 5455+00 ~ 25' Rt	43	LF
722-3510	INLET-TYPE 2 4C	1	EA
722-3910	INLET SLOTTED DRAIN 15IN 4C	10	LF







GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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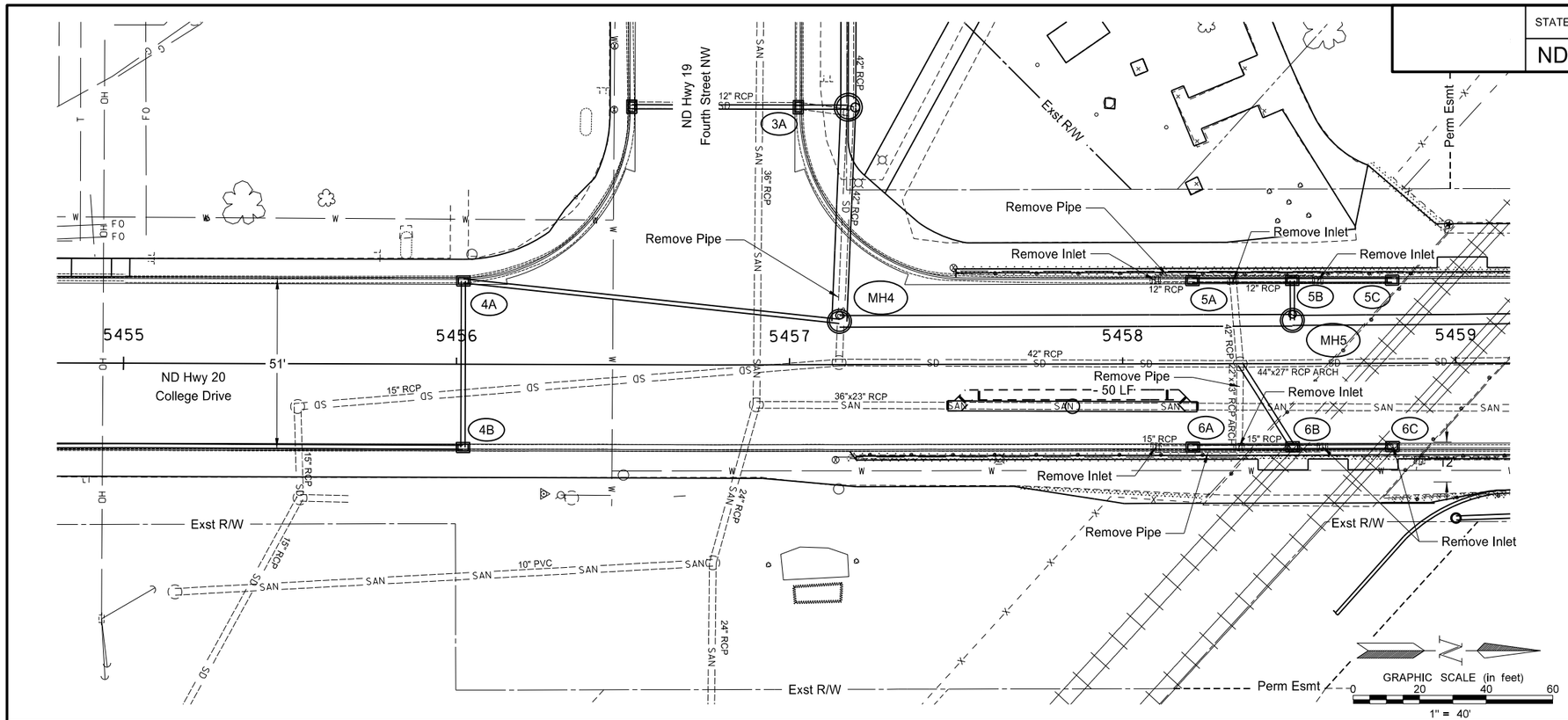
ND Highway 20

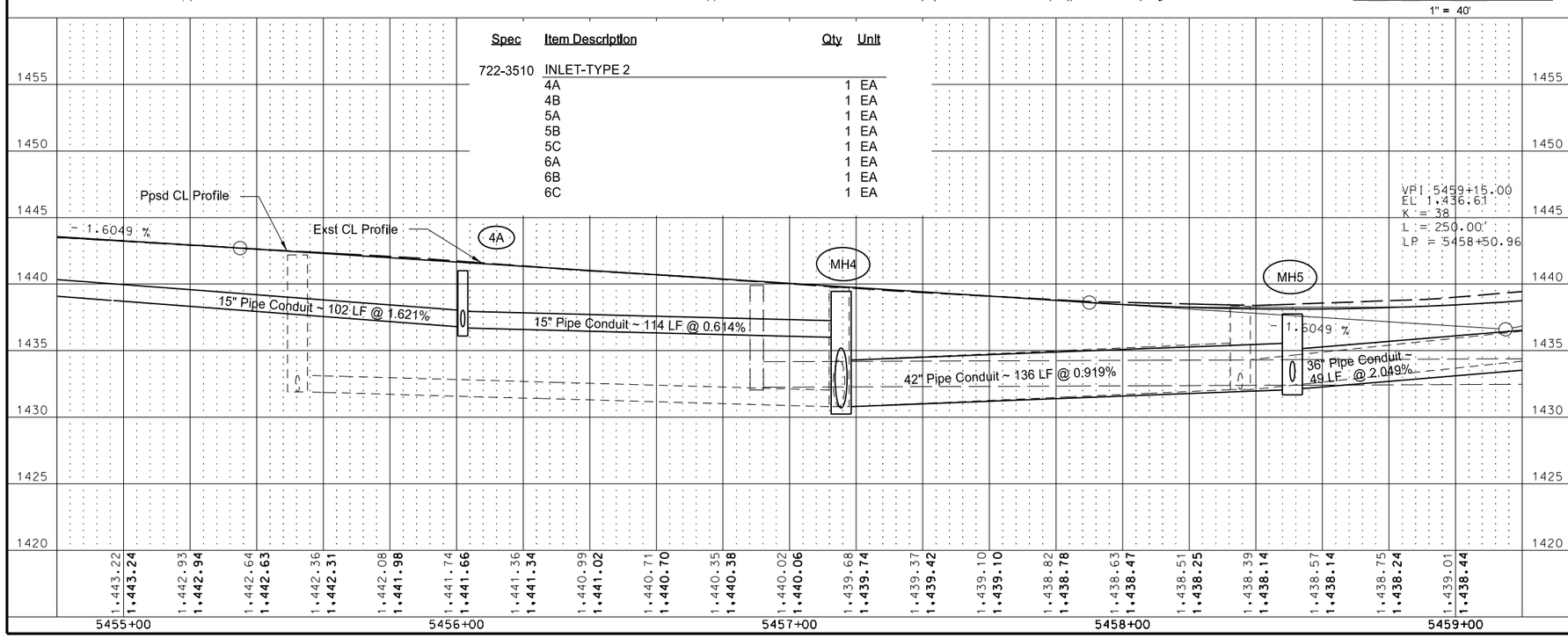
Storm Drain
Sta. 5452+70 to Sta. 5455+00

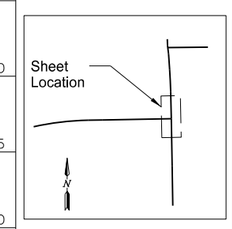
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	55	4



Spec	Item Description	Qty	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 5457+18 ~ 76' Lt to 5457+15 ~ 13' Lt	63	LF
	Sta. 5458+10 ~ 25' Lt to 5458+59 ~ 25' Lt	49	LF
	Sta. 5458+10 ~ 25' Rt to 5458+60 ~ 25' Rt	50	LF
	Sta. 5458+33 ~ 25' Lt to 5458+35 ~ CL	25	LF
	Sta. 5458+35 ~ CL to 5458+35 ~ 25' Rt	25	LF
202-0230	REMOVAL OF INLETS		
	Sta. 5458+10 ~ 25' Lt	1	EA
	Sta. 5458+10 ~ 25' Rt	1	EA
	Sta. 5458+33 ~ 25' Lt	1	EA
	Sta. 5458+35 ~ 25' Rt	1	EA
	Sta. 5458+59 ~ 25' Lt	1	EA
	Sta. 5458+60 ~ 25' Rt	1	EA
714-4097	PIPE CONDUIT 15IN-STORM DRAIN		
	5455+00 ~ 25' Rt to 4B	102	LF
	4A to 4B	50	LF
	5A to 5B	30	LF
	5B to 5C	30	LF
	6A to 6B	30	LF
	6B to 6C	30	LF
	MH4 to 4A	114	LF
	5B to MH5	12	LF
714-4117	PIPE CONDUIT 36IN-STORM DRAIN		
	MH5 to Sta. 5459+00	49	LF
714-4121	PIPE CONDUIT 42IN-STORM DRAIN		
	MH4 to MH5	136	LF
714-4131	PIPE CONDUIT 54IN-STORM DRAIN		
	MH3 to MH4	65	LF
714-4216	PIPE CONDUIT ARCH 22IN X 13IN		
	6B to 5458+35 ~ CL	30	LF
722-0120	MANHOLE 84IN		
	MH5	1	EA
722-0140	MANHOLE 96IN		
	MH4	1	EA
722-1120	MANHOLE RISER 84IN		
	MH5	4.0	LF
722-1140	MANHOLE RISER 96IN		
	MH4	7.1	LF

Spec	Item Description	Qty	Unit
722-3510	INLET-TYPE 2		
	4A	1	EA
	4B	1	EA
	5A	1	EA
	5B	1	EA
	5C	1	EA
	6A	1	EA
	6B	1	EA
	6C	1	EA





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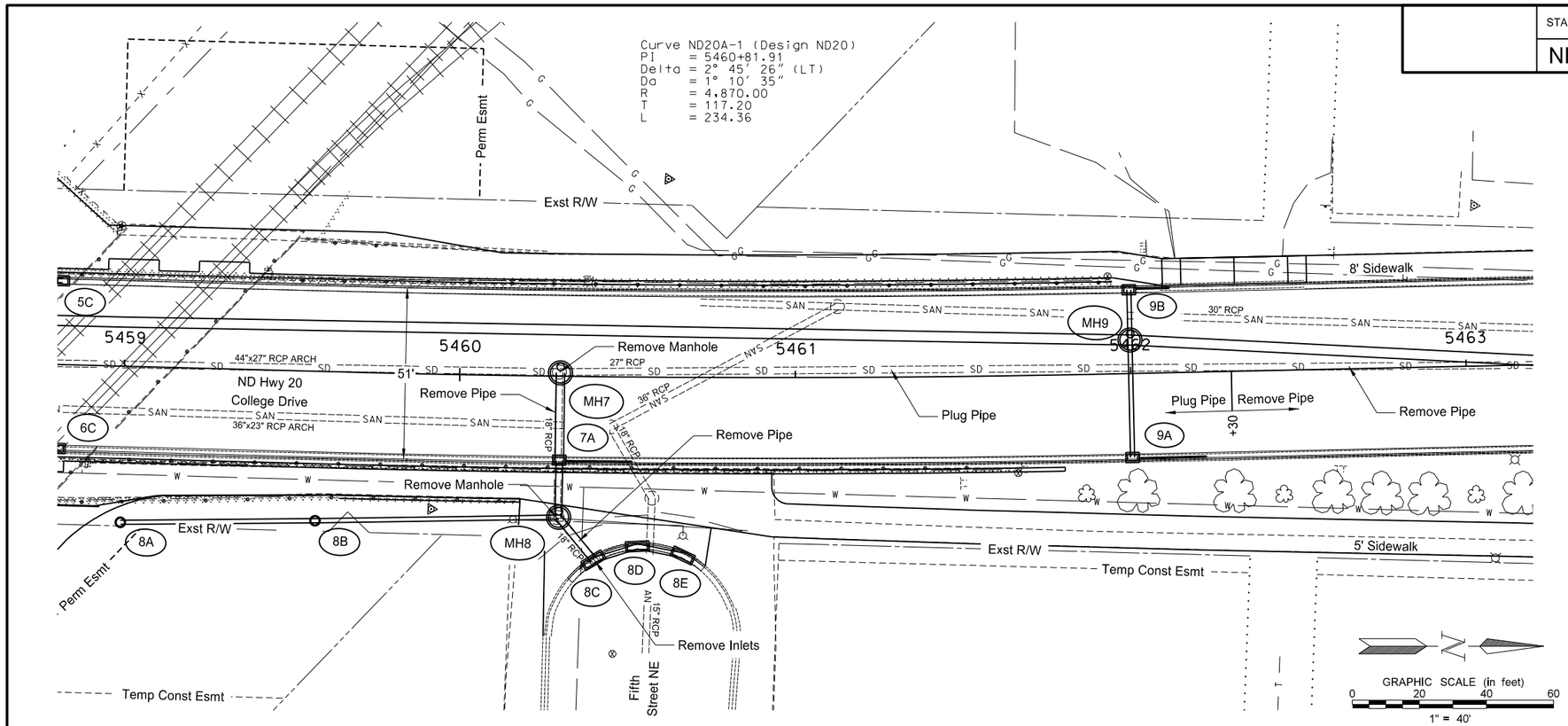
ND Highway 20

Storm Drain
Sta. 5455+00 to Sta. 5459+00

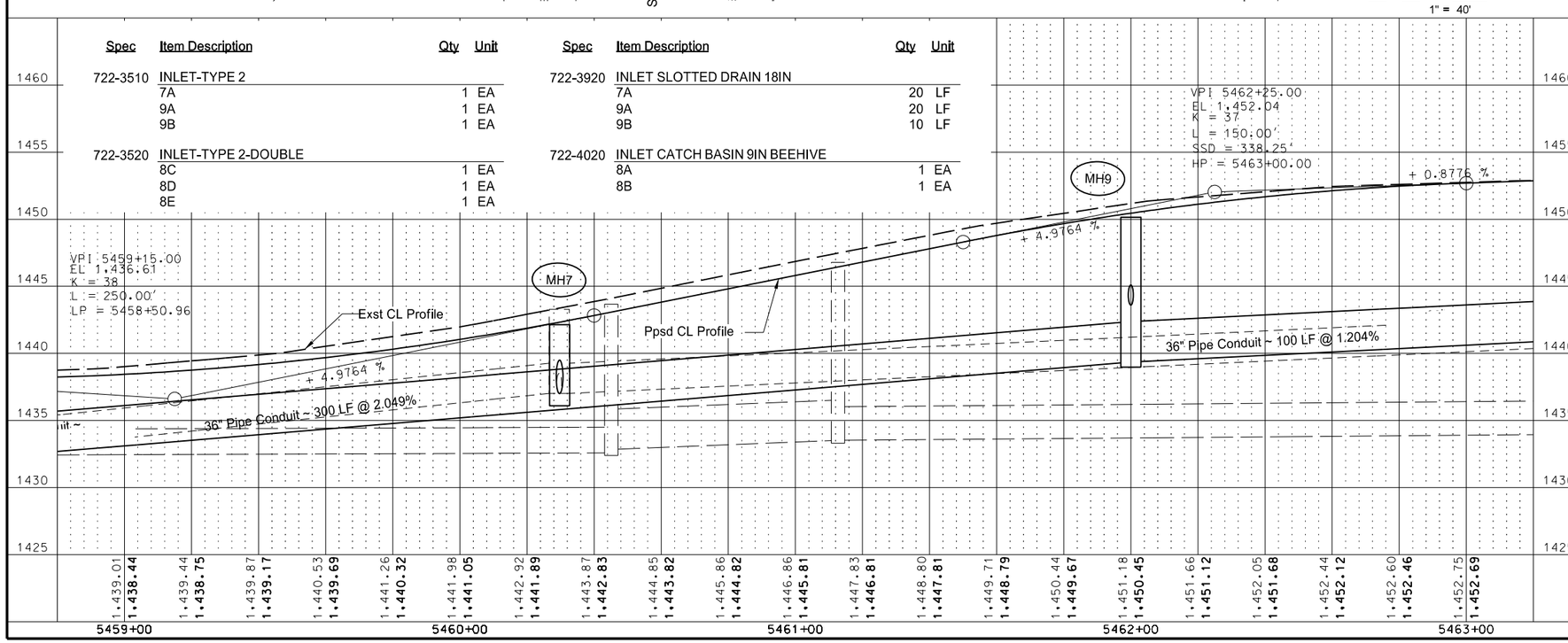
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	55	5

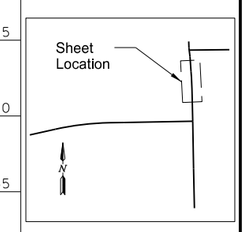


Spec	Item Description	Qty	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 5462+30 ~ 1' Lt to 5463+00 ~ CL	70	LF
	Sta. 5460+30 ~ 1' Lt to 5460+30 ~ 42' Rt	43	LF
	Sta. 5460+30 ~ 42' Rt to 5460+41 ~ 55' Rt	18	LF
202-0210	REMOVAL OF MANHOLES		
	Sta. 5460+30 ~1' Lt	1	EA
	Sta. 5460+30 ~42' Rt	1	EA
202-0230	REMOVAL OF INLETS		
	Sta. 5460+41~55' Rt	1	EA
714-4097	PIPE CONDUIT 15IN-STORM DRAIN		
	MH9 to 9A	35	LF
	8A to 8B	58	LF
	8B to MH8	73	LF
	MH9 to 9B	15	LF
714-4101	PIPE CONDUIT 18IN-STORM DRAIN		
	8C to 8D	14	LF
	8D to 8E	14	LF
714-4107	PIPE CONDUIT 24IN-STORM DRAIN		
	MH7 to 7A	26	LF
	7A to MH8	17	LF
	8C to MH8	17	LF
714-4117	PIPE CONDUIT 36IN-STORM DRAIN		
	Sta. 5459+00 to MH9	300	LF
	MH9 to Sta. 5463+00	100	LF
714-9680	PLUG PIPE ALL TYPES AND SIZES		
	Sta. 5460+30 ~ 1' Lt to 5462+30 ~ 1' Lt	1	EA
722-0100	MANHOLE 48IN		
	MH8	1	EA
722-0110	MANHOLE 60IN		
	MH9	1	EA
722-1120	MANHOLE 72IN		
	MH7	1	EA
722-1100	MANHOLE RISER 48IN		
	MH8	11.9	LF
722-1110	MANHOLE RISER 60IN		
	MH9	9.1	LF
722-1120	MANHOLE RISER 72IN		
	MH7	4.0	LF

Spec	Item Description	Qty	Unit
722-3510	INLET-TYPE 2		
	7A	1	EA
	9A	1	EA
	9B	1	EA
722-3520	INLET-TYPE 2-DOUBLE		
	8C	1	EA
	8D	1	EA
	8E	1	EA

Spec	Item Description	Qty	Unit
722-3920	INLET SLOTTED DRAIN 18IN		
	7A	20	LF
	9A	20	LF
	9B	10	LF
722-4020	INLET CATCH BASIN 9IN BEEHIVE		
	8A	1	EA
	8B	1	EA





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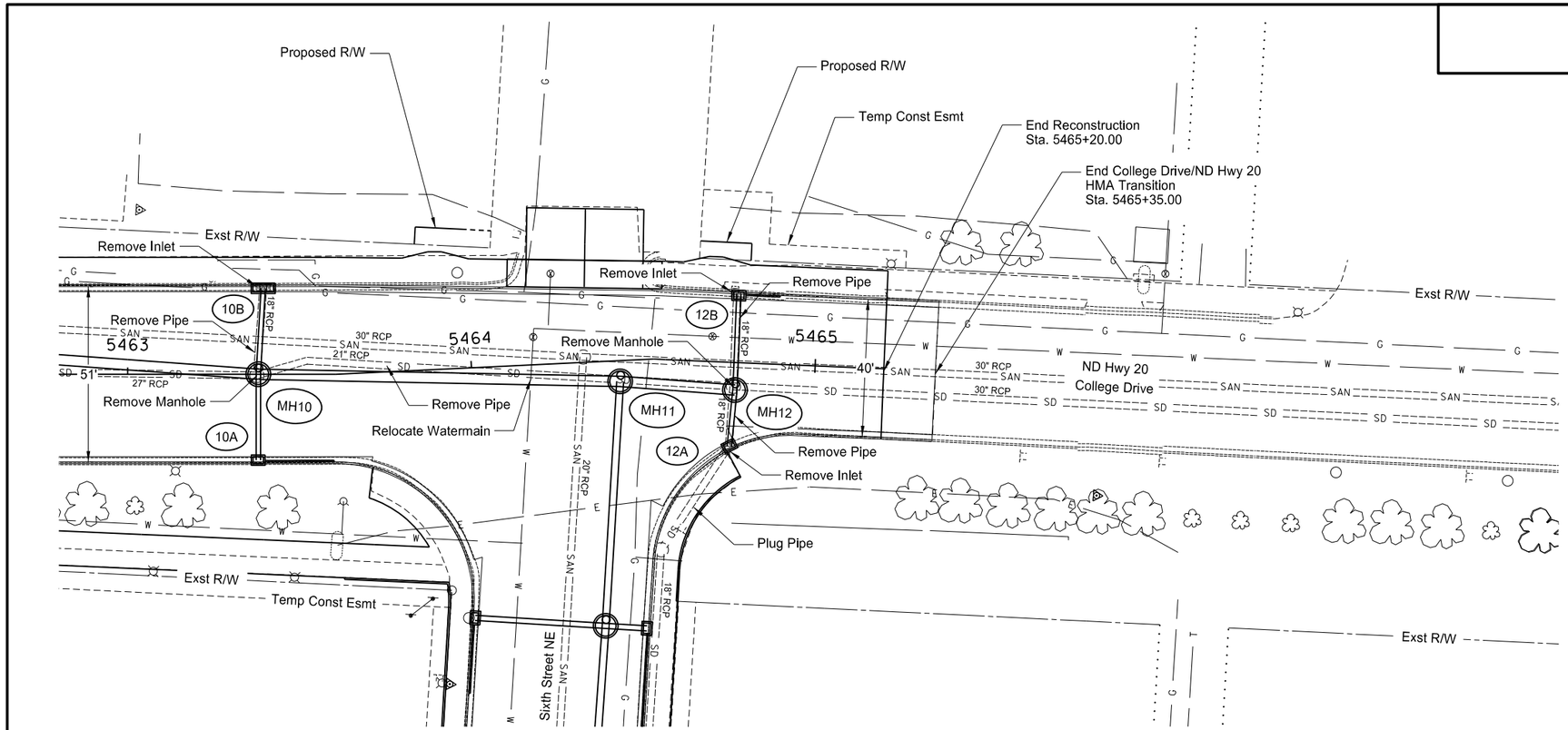
ND Highway 20

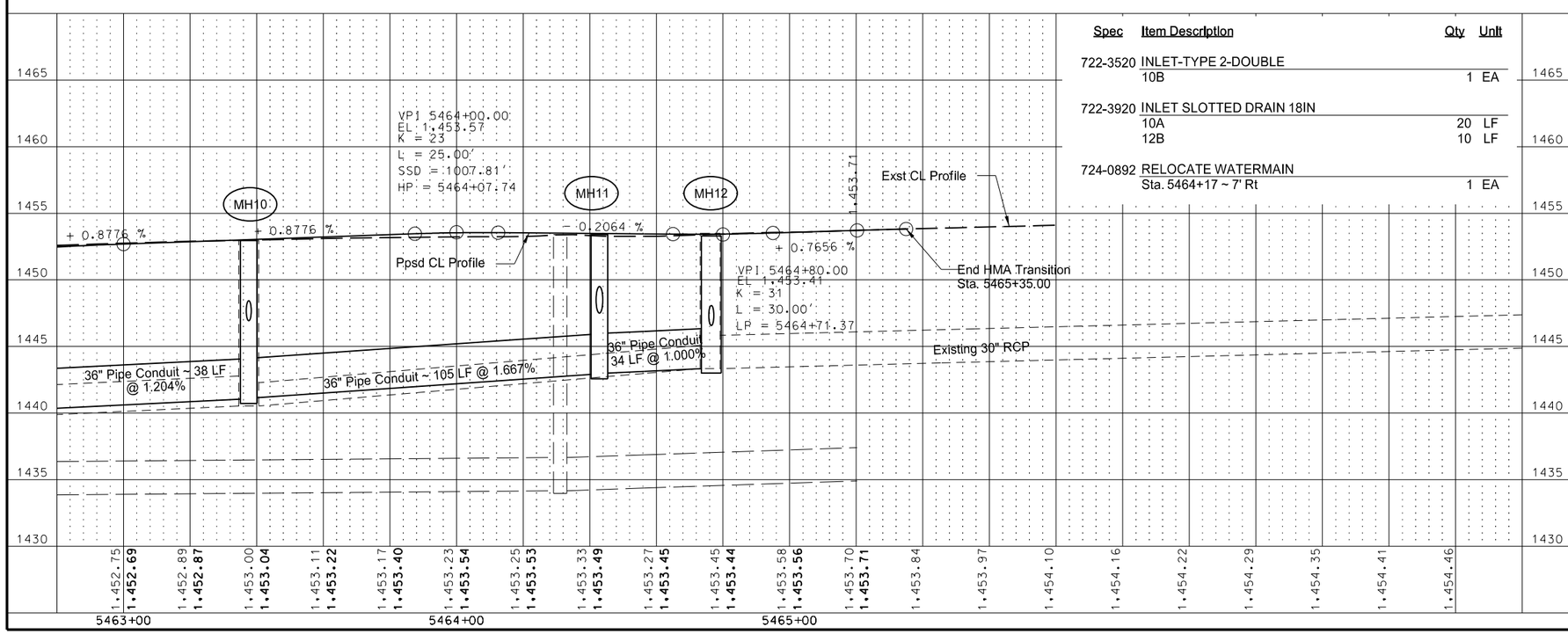
Storm Drain
Sta. 5459+00 to Sta. 5463+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	55	6



Spec	Item Description	Qty	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 5463+00 ~ CL to 5464+77 ~ 7' Rt	176	LF
	Sta. 5463+38 ~ CL to 5463+38 ~ 25' Lt	25	LF
	Sta. 5464+77 ~ 7' Rt to 5464+76 ~ 20' Lt	27	LF
	Sta. 5464+77 ~ 7' Rt to 5464+76 ~ 25' Rt	18	LF
202-0210	REMOVAL OF MANHOLES		
	Sta. 5463+38 C.L.	1	EA
	Sta. 5464+77 ~ 7' Rt	1	EA
202-0230	REMOVAL OF INLETS		
	Sta. 5463+38 ~ 25' Lt	1	EA
	Sta. 5464+76 ~ 20' Lt	1	EA
	Sta. 5464+75 ~ 25' Rt	1	EA
714-4097	PIPE CONDUIT 15IN-STORM DRAIN		
	10A to MH10	25	LF
	10B to MH10	25	LF
	12A to MH12	17	LF
	12B to MH12	28	LF
714-4107	PIPE CONDUIT 24IN-STORM DRAIN		
	MH11 to MH13	71	LF
714-4117	PIPE CONDUIT 36IN-STORM DRAIN		
	Sta. 5463+00 to MH10	38	LF
	MH10 to MH11	105	LF
	MH11 to MH12	34	LF
714-9680	PLUG PIPE ALL TYPES AND SIZES		
	Sta. 5464+58 ~ 55' Rt to 5464+75 ~ 26' Rt	1	EA
722-0110	MANHOLE 60IN		
	MH10	1	EA
	MH11	1	EA
722-0120	MANHOLE 72IN		
	MH12	1	EA
722-1110	MANHOLE RISER 60IN		
	MH10	10.1	LF
	MH11	8.7	LF
722-1120	MANHOLE RISER 72IN		
	MH12	8.2	LF
722-3510	INLET-TYPE 2		
	10A	1	EA
	12A	1	EA
	12B	1	EA

Spec	Item Description	Qty	Unit
722-3520	INLET-TYPE 2-DOUBLE		
	10B	1	EA
722-3920	INLET SLOTTED DRAIN 18IN		
	10A	20	LF
	12B	10	LF
724-0892	RELOCATE WATERMAIN		
	Sta. 5464+17 ~ 7' Rt	1	EA



GRAPHIC SCALE (in feet)
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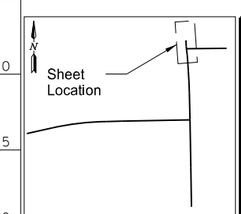
1" = 40'



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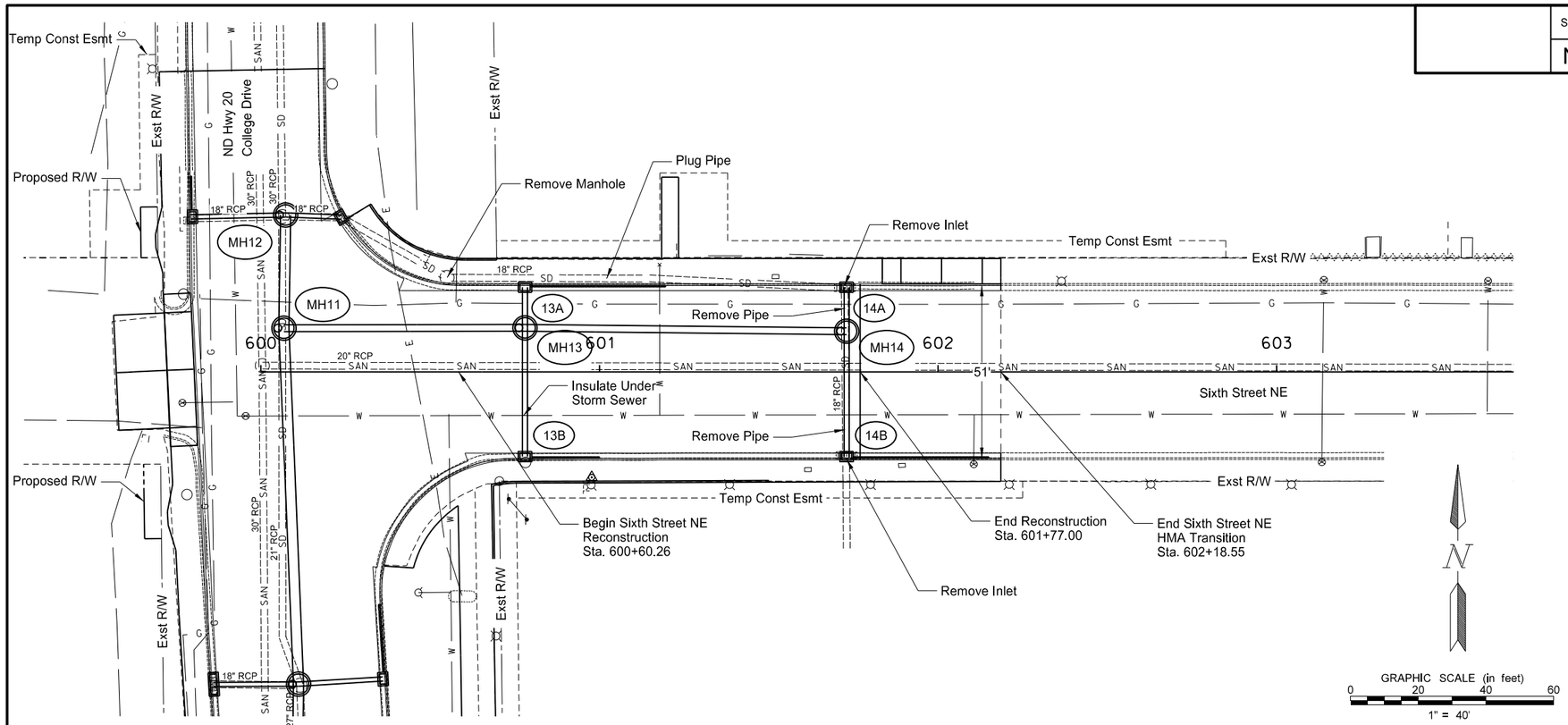
ND Highway 20

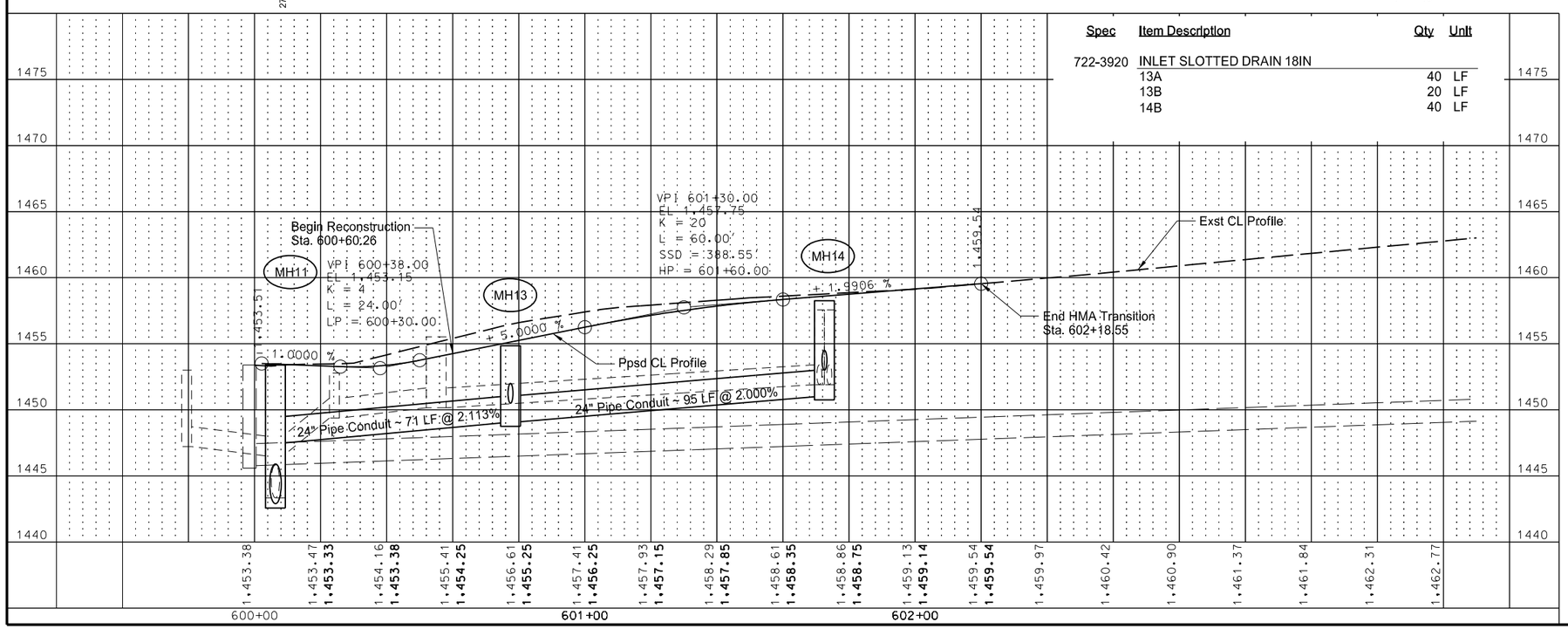
Storm Drain
Sta. 5463+00 to Sta. 5465+35

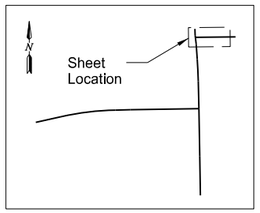
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	55	7



Spec	Item Description	Qty	Unit
202-0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	601+71 ~ 25' Lt to 601+73 ~ 25' Rt	50	LF
202-0210	REMOVAL OF MANHOLES		
	Sta. 600+55 ~ 12' Lt	1	EA
202-0230	REMOVAL OF INLETS		
	Sta. 601+73 ~ 25' Lt	1	EA
	Sta. 601+73 ~ 25' Rt	1	EA
714-4097	PIPE CONDUIT 15IN-STORM DRAIN		
	MH13 to 13A	12	LF
	MH13 to 13B	38	LF
714-4101	PIPE CONDUIT 18IN-STORM DRAIN		
	MH14 to 14A	13	LF
	MH14 to 14B	37	LF
714-4107	PIPE CONDUIT 24IN-STORM DRAIN		
	MH13 to MH14	95	LF
714-9680	PLUG PIPE ALL TYPES AND SIZES		
	Sta. 600+55 ~ 28' Lt to 601+71 ~ 25' Lt	1	EA
722-0110	MANHOLE 60IN		
	MH13	1	EA
	MH14	1	EA
722-1110	MANHOLE RISER 60IN		
	MH13	4.0	LF
	MH14	5.4	LF
722-3510	INLET-TYPE 2		
	13A	1	EA
	13B	1	EA
	14A	1	EA
	14B	1	EA

Spec	Item Description	Qty	Unit
722-3920	INLET SLOTTED DRAIN 18IN		
	13A	40	LF
	13B	20	LF
	14B	40	LF





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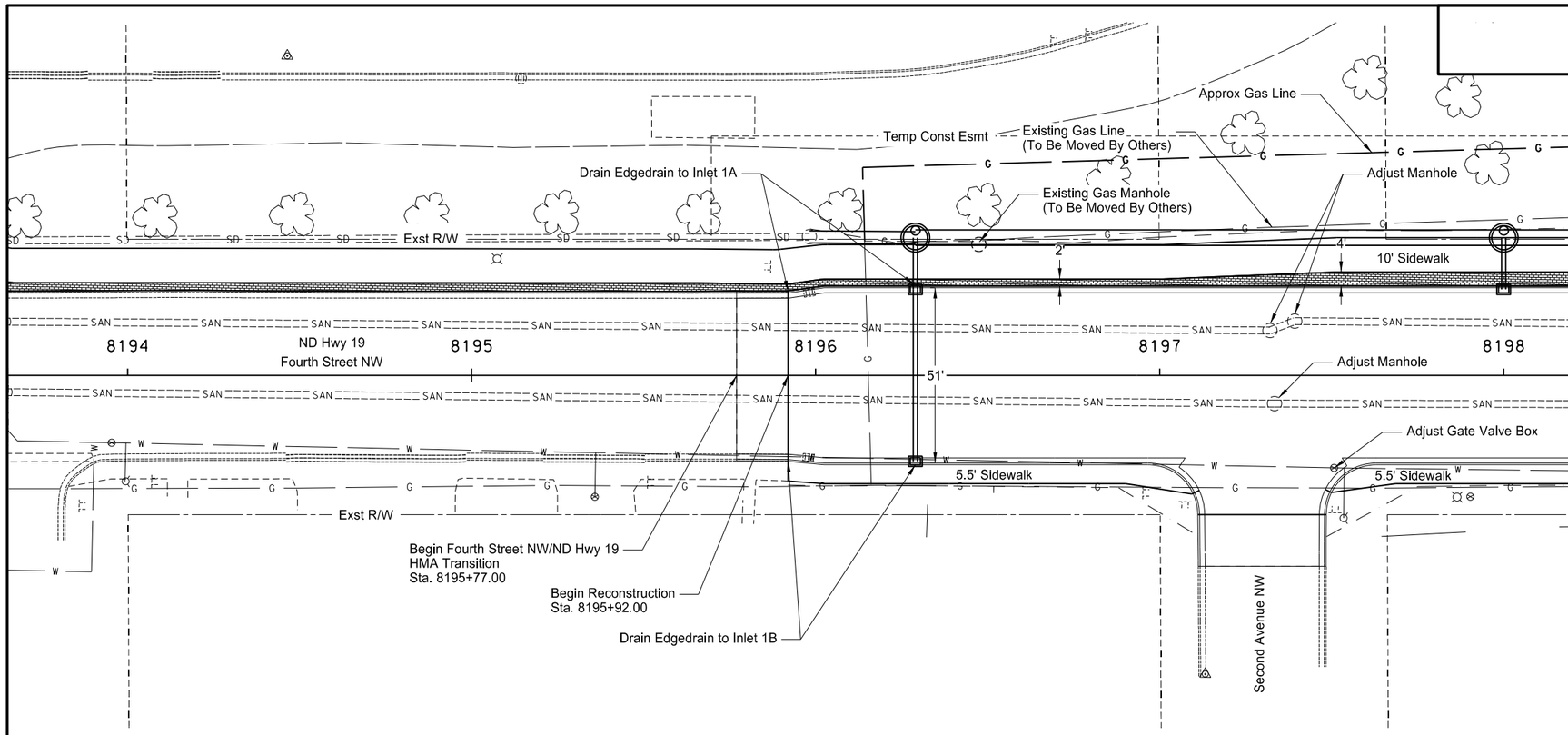
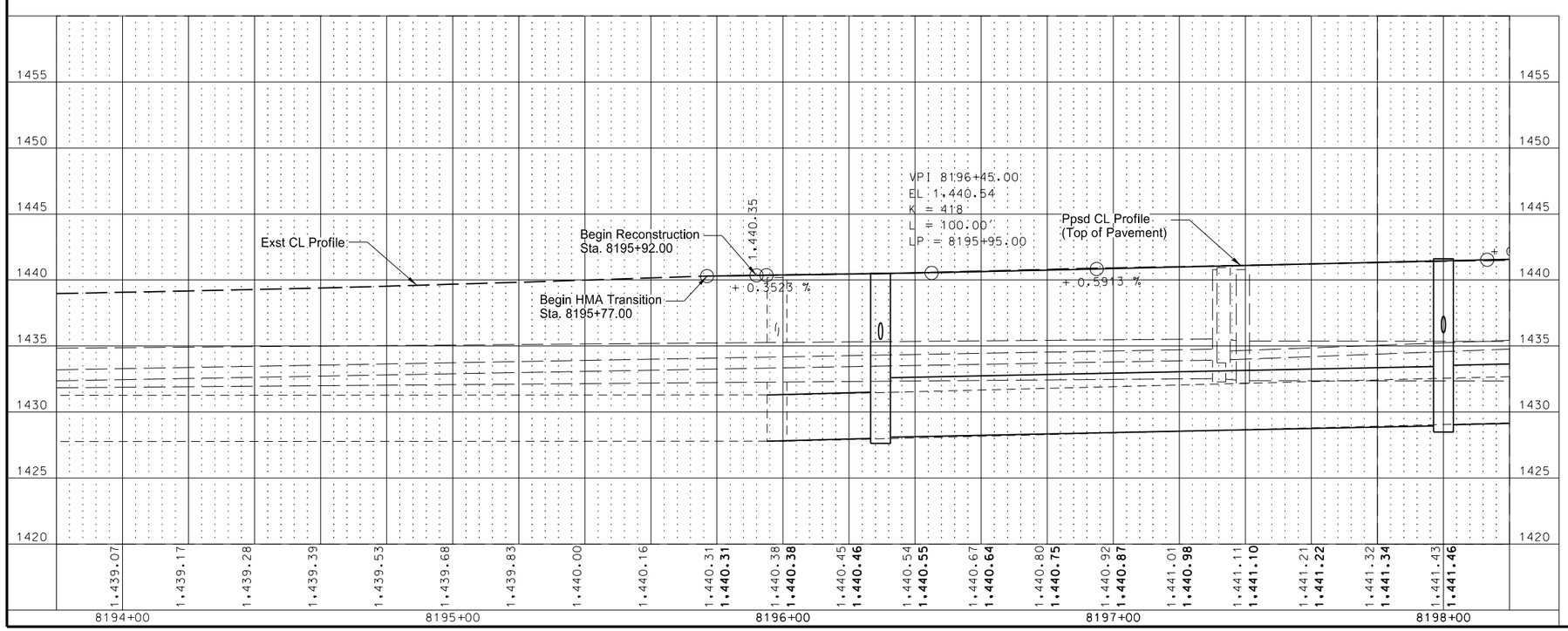
Sixth Street

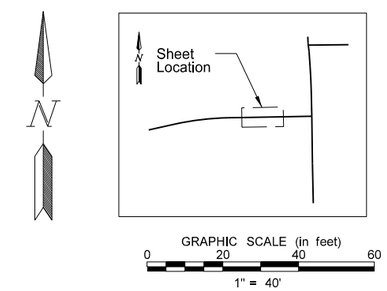
Storm Drain
Sta. 600+60.26 to Sta. 602+20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	60	1



Spec	Item Description	Qty	Unit
714 9696	EDGEDRAIN NON PERMEABLE BASE		
	Sta. 8195+92 ~ 26' Rt to 8198+00 ~ 26' Rt	208	LF
	Sta. 8195+92 ~ 26' Lt to 8198+00 ~ 26' Lt	208	LF
722 6140	ADJUST GATE VALVE BOX		
	Sta. 8197+51 ~ 27' Rt	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 8197+32 ~ 13' Lt	1	EA
	Sta. 8197+33 ~ 8' Rt	1	EA
	Sta. 8197+39 ~ 16' Lt	1	EA





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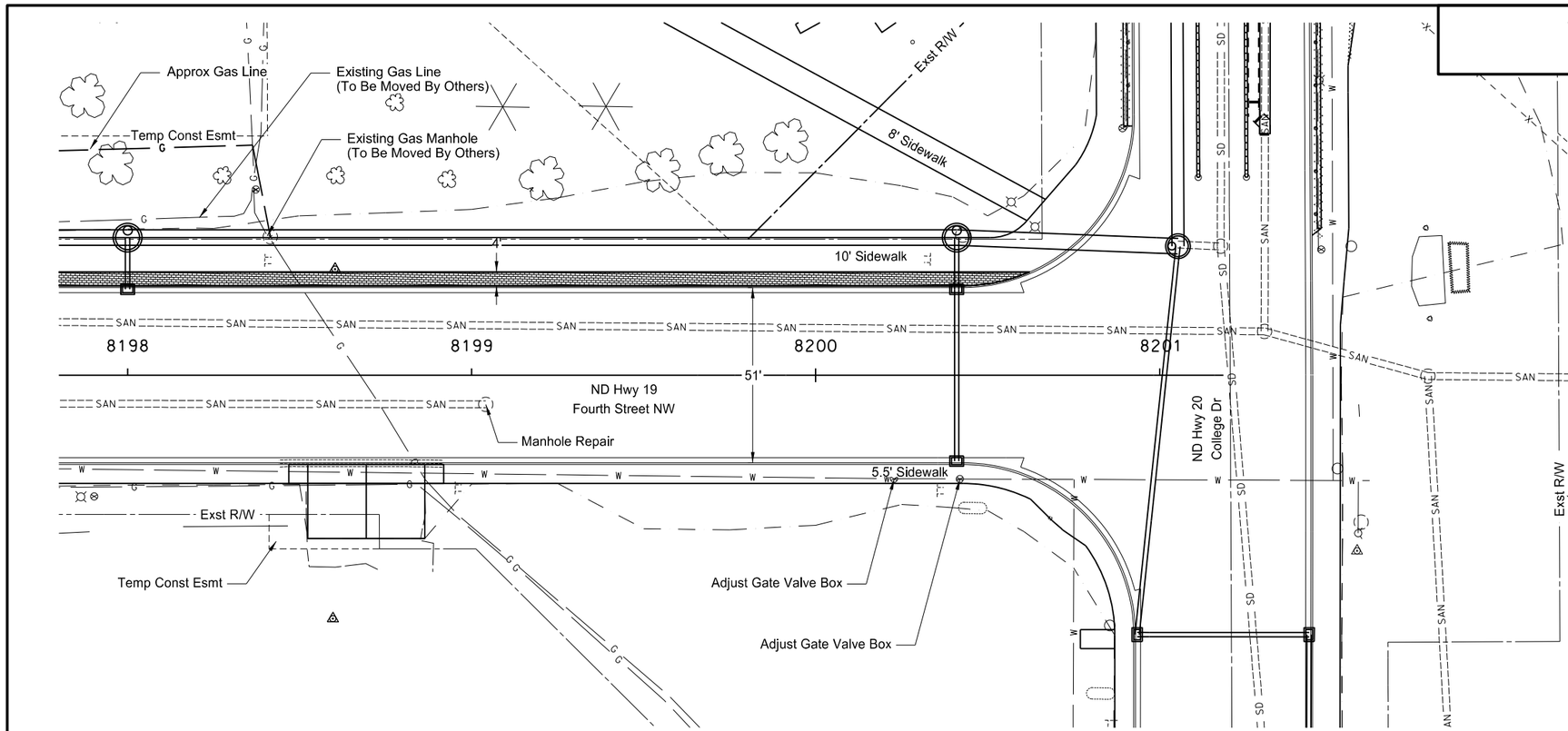
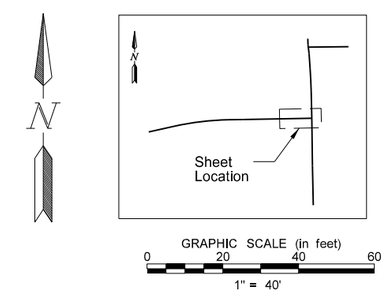
ND Highway 19

Plan & Profile
Sta. 8195+77 to Sta. 8198+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	60	2



Spec	Item Description	Qty	Unit
714 9696	EDGEDRAIN NON PERMEABLE BASE		
	Sta. 8198+00 ~ 26' Rt to 8200+60.55 ~ 26' Rt	261	LF
	Sta. 8198+00 ~ 26' Lt to 8200+60.55 ~ 26' Lt	261	LF
722 3410	MANHOLE REPAIR		
	Sta. 8199+04 ~9' Rt	1	EA
722 6140	ADJUST GATE VALVE BOX		
	Sta. 8200+23 ~ 30' Rt	1	EA
	Sta. 8200+42 ~ 30' Rt	1	EA



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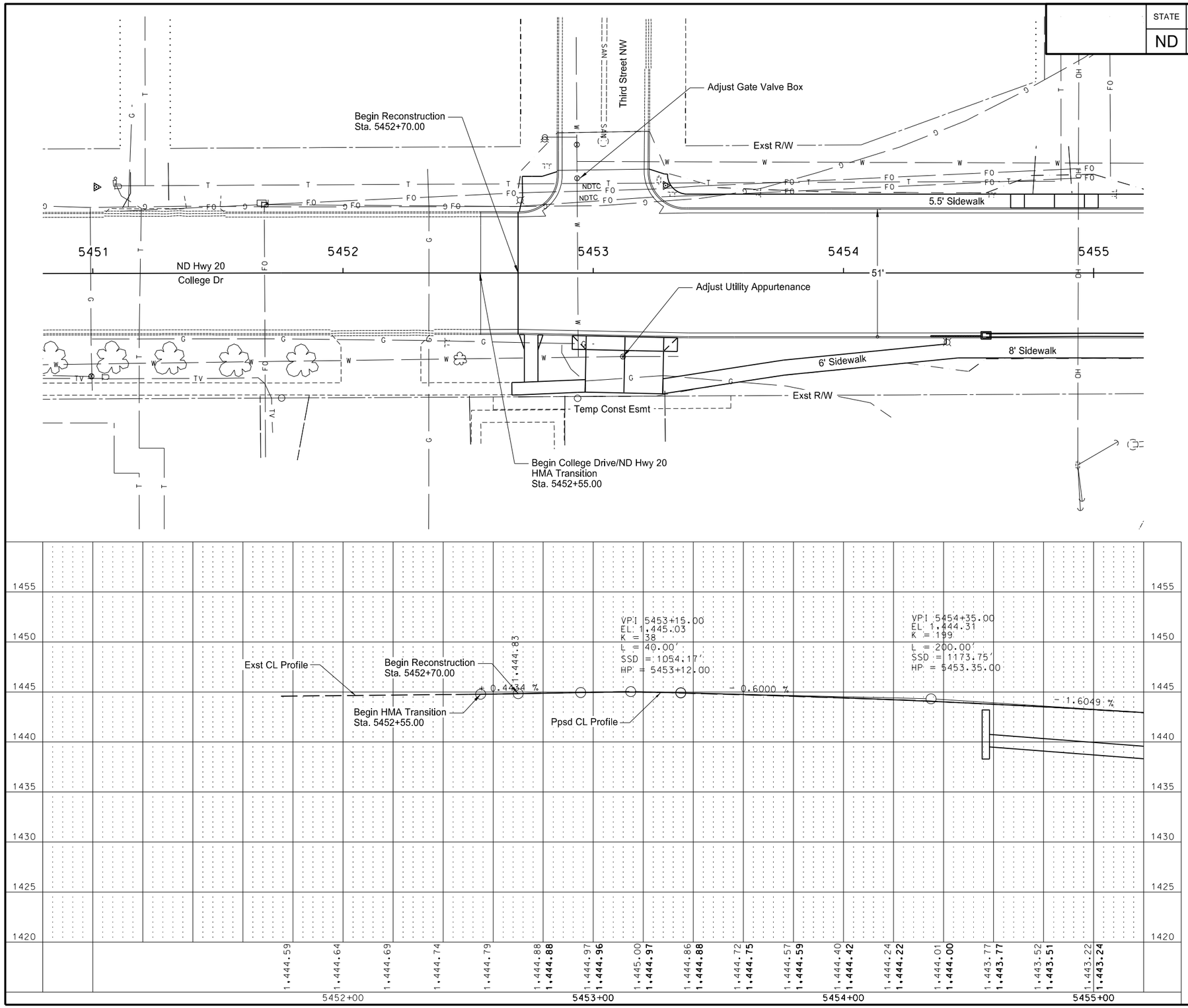
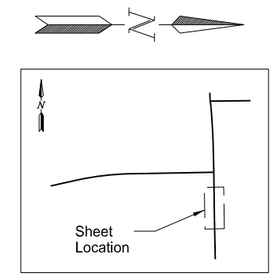
ND Highway 19

Plan & Profile
Sta. 8198+00 to Sta. 8200+60.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	60	3



Spec	Item Description	Qty	Unit
714 9696	EDGEDRAIN NON PERMEABLE BASE		
	Sta. 5452+70 ~ 26' Rt to 5455+00 ~ 26' Rt	230	LF
	Sta. 5452+70 ~ 26' Lt to 5455+00 ~ 26' Lt	230	LF
722 6140	ADJUST GATE VALVE BOX		
	Sta. 5452+94 ~ 38' Lt	1	EA
722 6240	ADJUST UTILITY APPURTENANCE		
	Sta. 5453+12 ~ 34' Rt	1	EA



GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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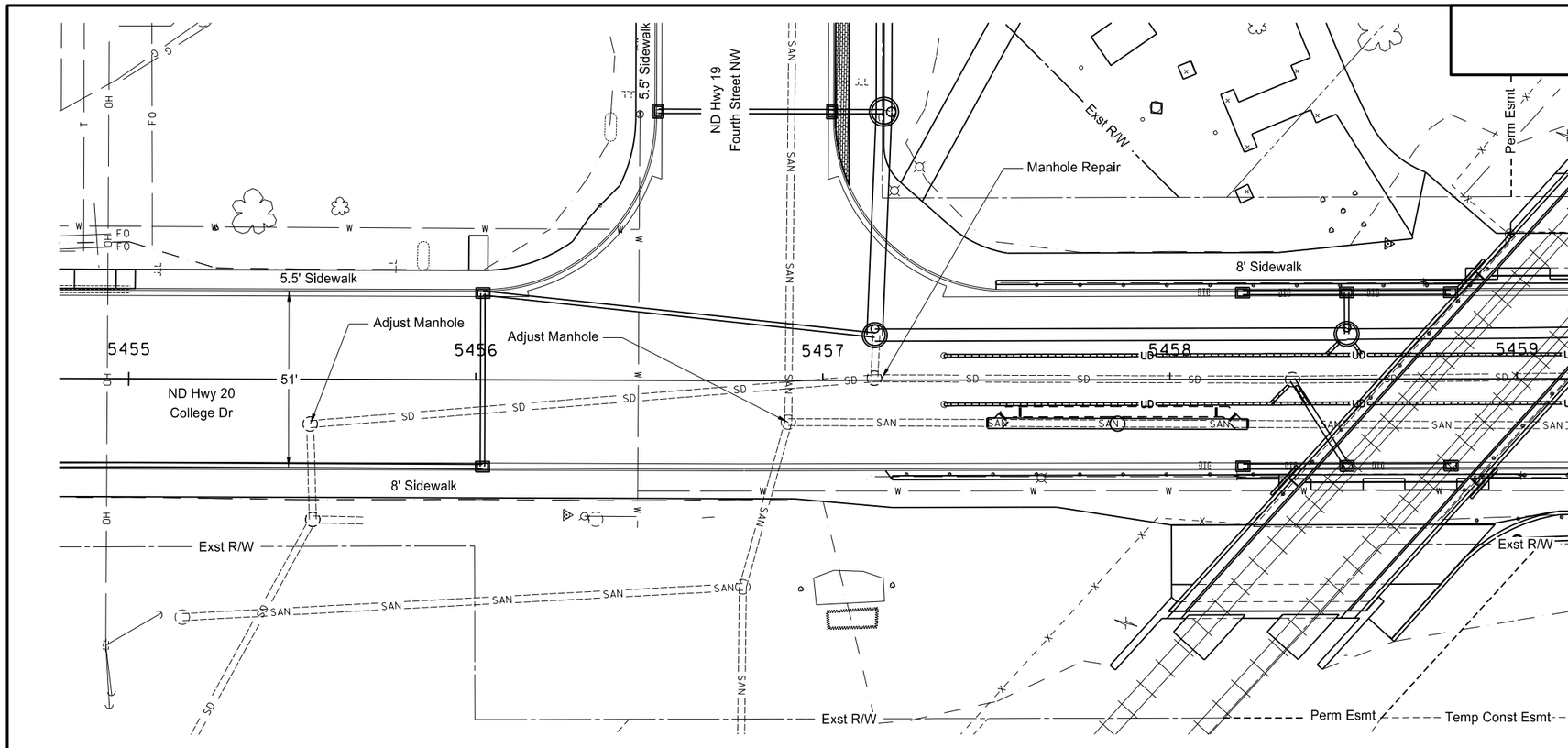
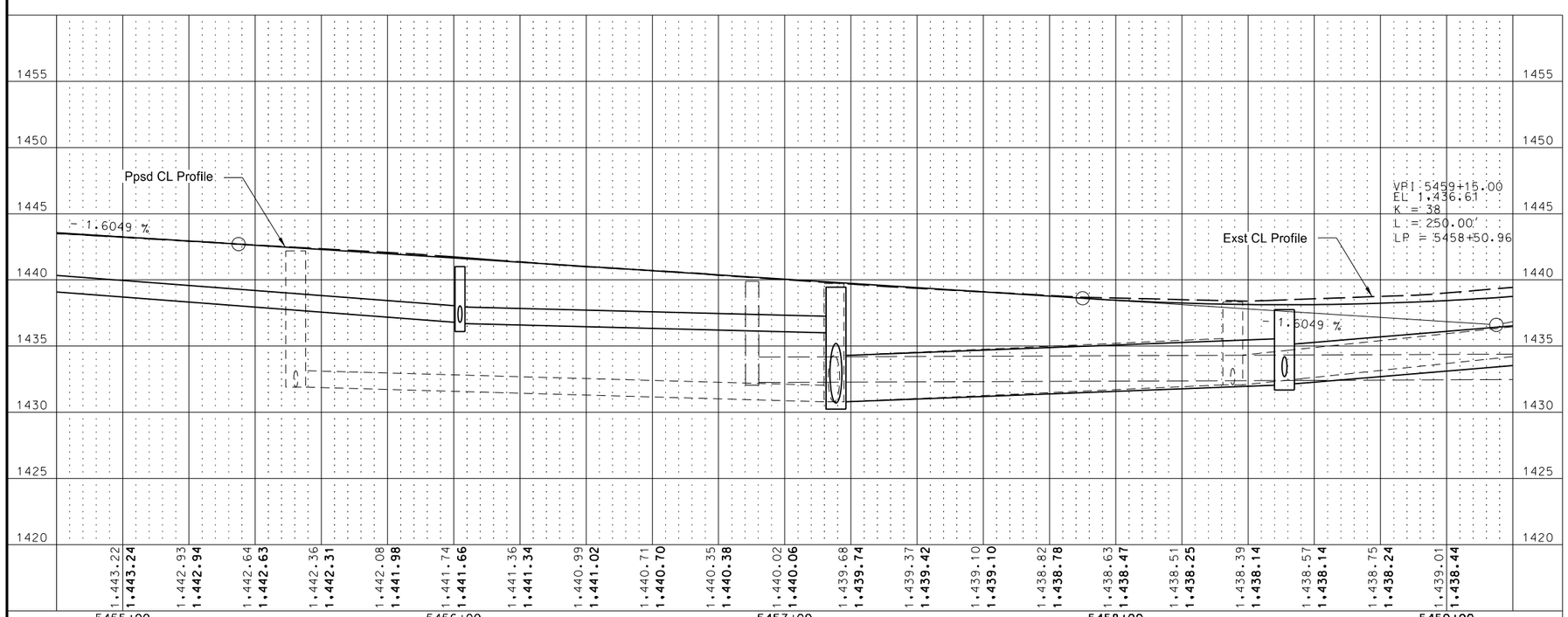
ND Highway 20

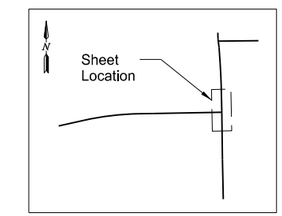
Plan & Profile
Sta. 5452+55 to Sta. 5455+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	60	4



Spec	Item Description	Qty	Unit
714 9696	EDGEDRAIN NON PERMEABLE BASE		
	Sta. 5455+00 ~ 26' Rt to 5459+00 ~ 26' Rt	400	LF
	Sta. 5455+00 ~ 26' Lt to 5456+48.70 ~ 57.93' Lt	162	LF
	Sta. 5457+06.52 ~ 57.81' Lt to 5459+00 ~ 26' Lt	207	LF
714 9705	UNDERDRAIN CLEANOUT RISER		
	Sta. 5457+35 ~ 7' Lt	1	EA
	Sta. 5457+35 ~ 7' Rt	1	EA
714 9730	UNDERDRAIN PIPE PVC PERFORATED 6IN		
	Sta. 5457+35 ~ 7' Lt to 5459+00 ~ 7' Lt	165	LF
	Sta. 5457+35 ~ 7' Rt to 5459+00 ~ 7' Rt	165	LF
722 3410	MANHOLE REPAIR		
	Sta. 5457+15 ~ CL	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 5455+52 ~ 15' Rt	1	EA
	Sta. 5456+90 ~ 12' Rt	1	EA
	Sta. 5458+35 ~ CL	1	EA
744 0100	POLYSTYRENE INSULATION BOARD		
	Sta. 5457+35 ~ 7' Lt to Sta. 5459+00 ~ 7' Lt	5280	BDFT





GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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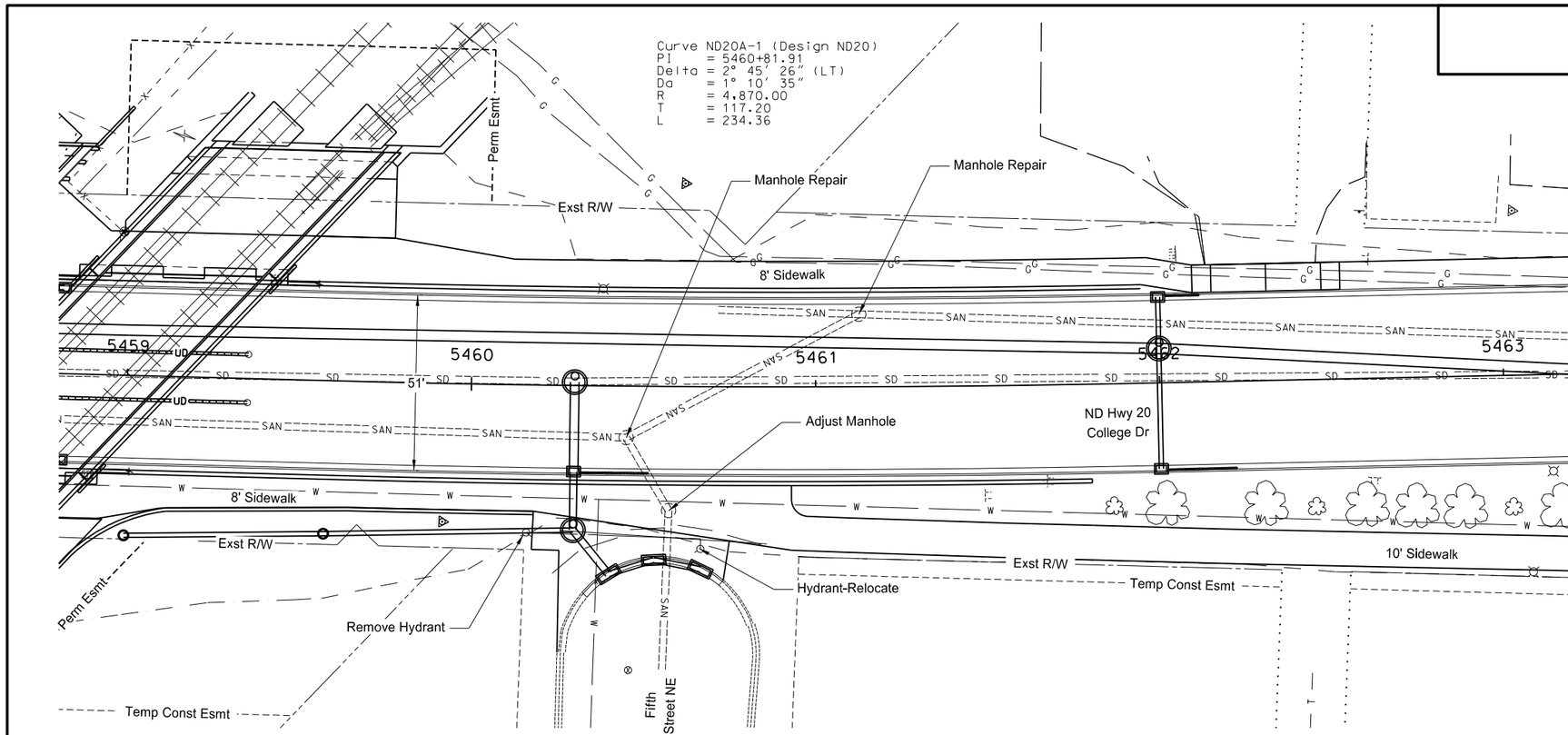
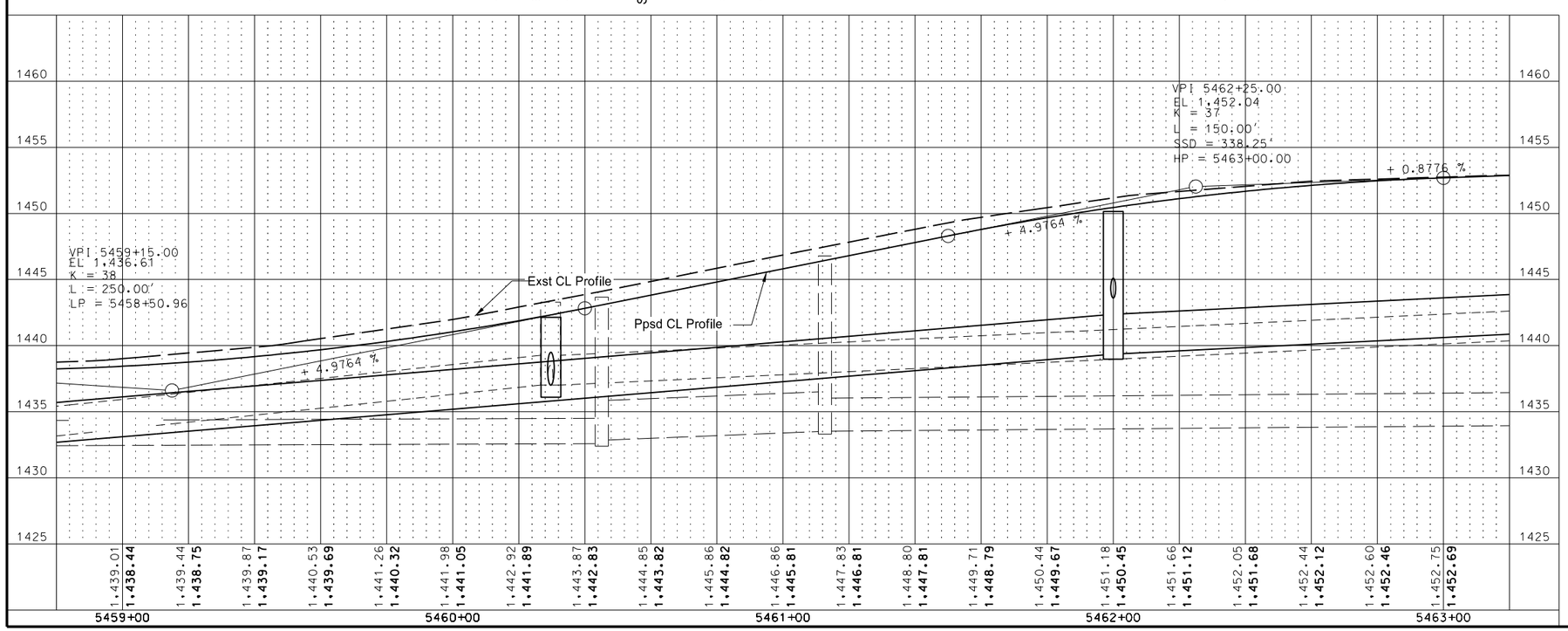
ND Highway 20

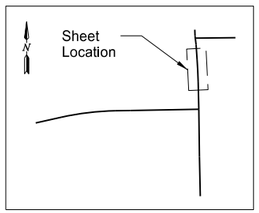
Plan & Profile
Sta. 5455+00 to Sta. 5459+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	60	5



Spec	Item Description	Qty	Unit
714 9696	EDGEDRAIN NON PERMEABLE BASE		
	Sta. 5459+00 ~ 26' Rt to 5463+00 ~ 26' Rt	400	LF
	Sta. 5459+00 ~ 26' Lt to 5463+00 ~ 26' Lt	400	LF
714 9705	UNDERDRAIN CLEANOUT RISER		
	Sta. 5459+35 ~ 7' Lt	1	EA
	Sta. 5459+35 ~ 7' Rt	1	EA
714 9730	UNDERDRAIN PIPE PVC PERFORATED 6IN		
	Sta. 5459+00 ~ 7' Lt to 5459+35 ~ 7' Lt	35	LF
	Sta. 5459+00 ~ 7' Rt to 5459+35 ~ 7' Rt	35	LF
722 3410	MANHOLE REPAIR		
	Sta. 5460+45 ~ 15' Lt	1	EA
	Sta. 5460+58 ~ 36' Rt	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 5461+13 ~ 21' Lt	1	EA
724 0420	HYDRANT-RELOCATE		
	Sta. 5460+67 ~ 67' Rt	1	EA
744 0100	POLYSTYRENE INSULATION BOARD		
	Sta. 5459+00 ~ 7' Lt to Sta. 5459+35 ~ 7' Lt	1120	BDFT





GRAPHIC SCALE (in feet)
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1" = 40'

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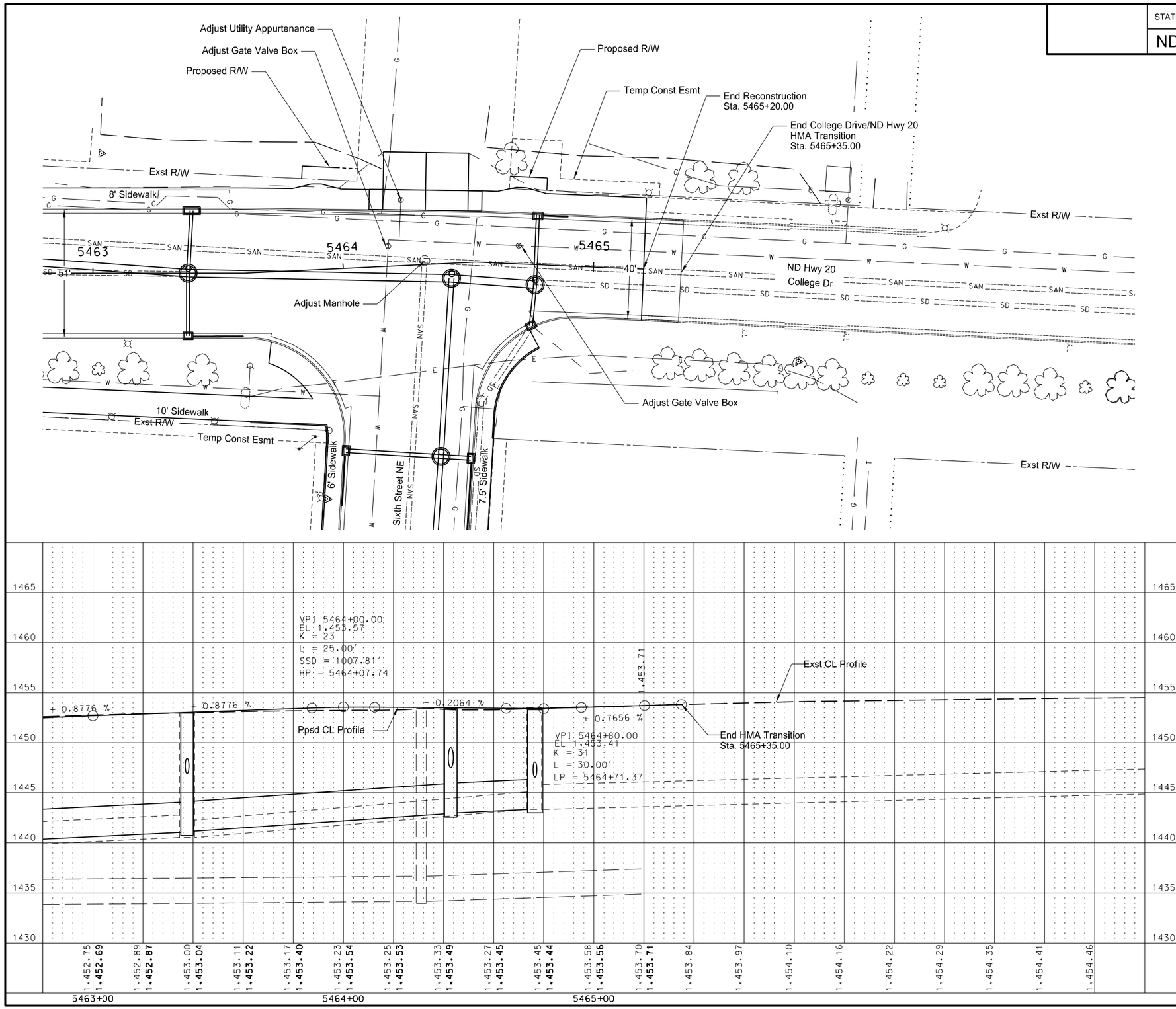
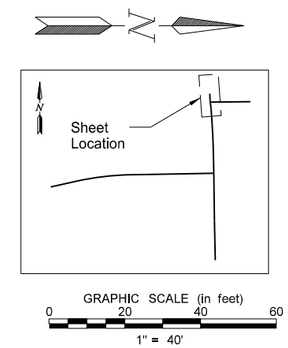
ND Highway 20

Plan & Profile
Sta. 5459+00 to Sta. 5463+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	60	6



Spec	Item Description	Qty	Unit
714 9696	EDGEDRAIN NON PERMEABLE BASE		
	Sta. 5463+00 ~ 26' Rt to 5463+97.67 ~ 64.66' Rt	121	LF
	Sta. 5464+48.70 ~ 70.20' Rt to 5465+20.00 ~ 21' Rt	99	LF
	Sta. 5463+00 ~ 26' Lt to 5465+20.00 ~ 21' Lt	221	LF
722 6140	ADJUST GATE VALVE BOX		
	Sta. 5464+24 ~ 26' Lt	1	EA
	Sta. 5464+70 ~ 7' Lt	1	EA
722 6240	ADJUST UTILITY APPURTENANCE		
	Sta. 5464+24 ~ 26' Lt	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 5464+33 ~ 2' Lt	1	EA



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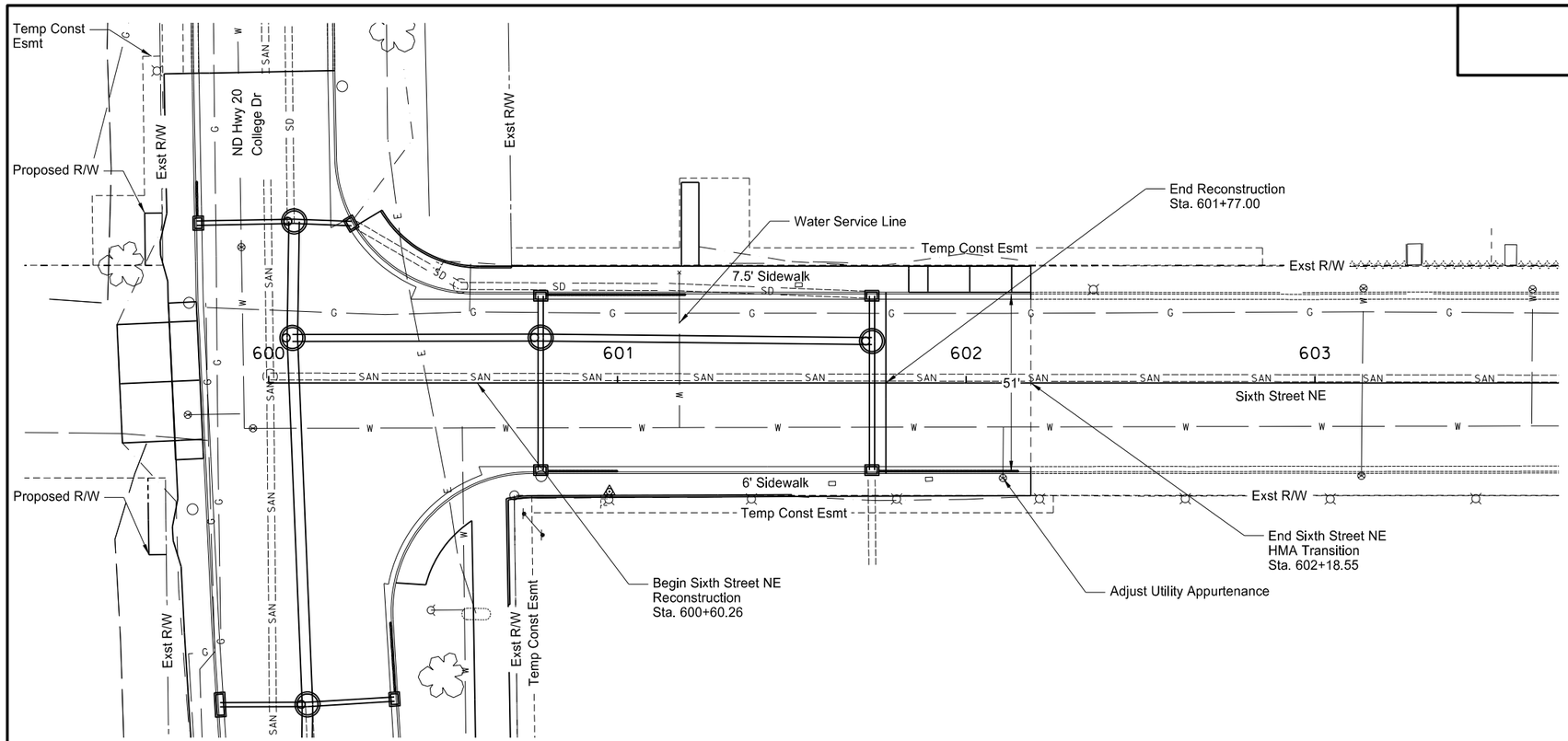
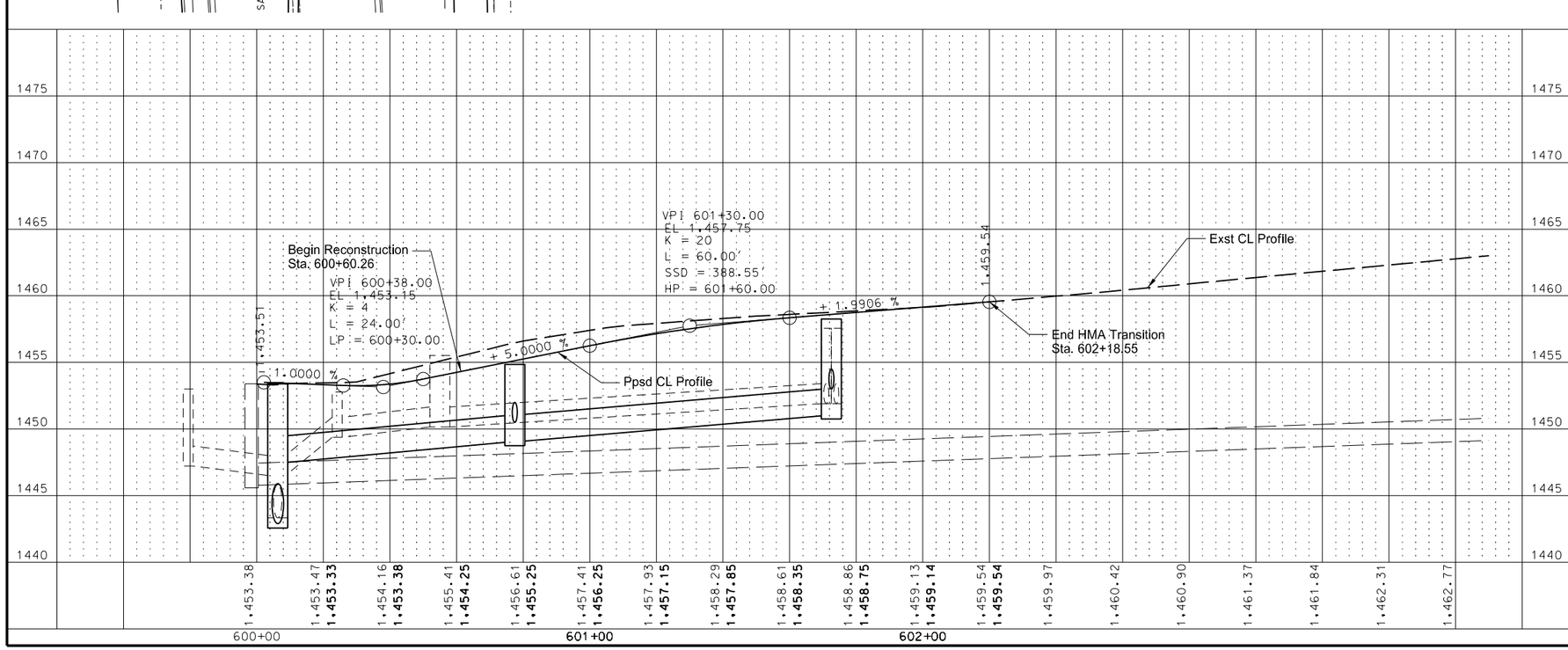
ND Highway 20

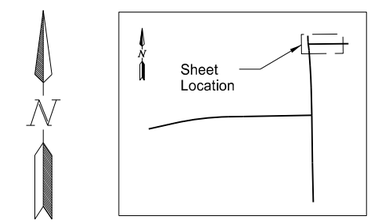
Plan & Profile
Sta. 5463+00 to Sta. 5465+35

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	60	7



Spec	Item Description	Qty	Unit
714 9696	EDGEDRAIN NON PERMEABLE BASE		
	Sta. 600+70 ~ 24' Rt to 601+72 ~24' Rt	102	LF
	Sta. 600+70 ~ 24' Lt to 601+72 ~24' Lt	102	LF
722 6240	ADJUST UTILITY APPURTENANCE		
	Sta. 602+11 ~ 27' Rt	1	EA
724 0611	WATER SERVICE LINE 1IN		
	Sta. 601+18	45	LF
744 0100	POLYSTYRENE INSULATION BOARD		
	Sta. 600+30 ~ 13' Rt to Sta. 601+30 ~ 13' Rt	3200	BDFT
	Sta. 600+60 ~ 33' Lt to Sta. 601+18 ~ 57' Lt	822	BDFT





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ND Highway 20

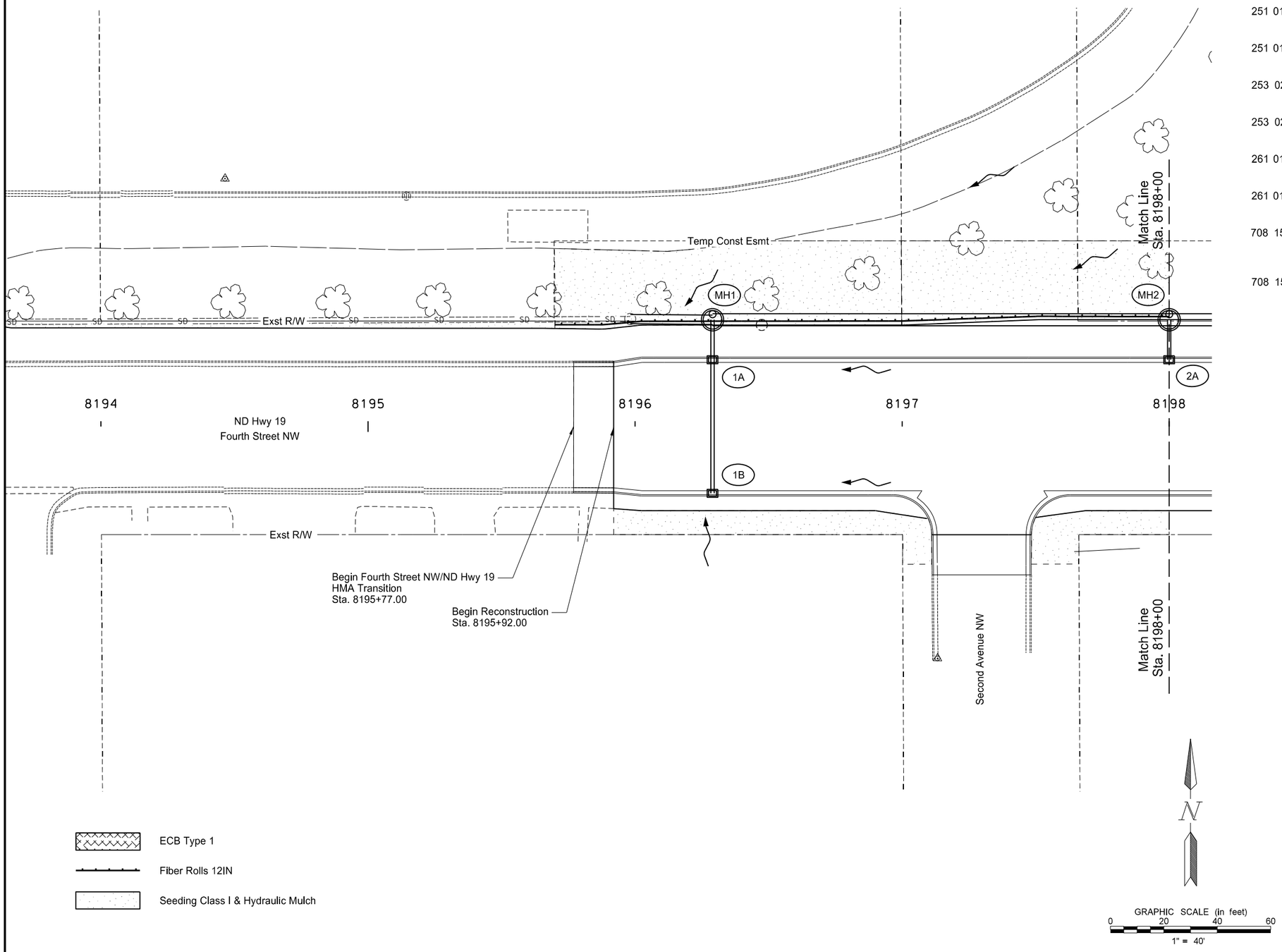
Plan & Profile
Sta. 600+60.26 to Sta. 602+18.55

Wetland Number	CowardIn Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetlands	Impacts to Wetlands	
						Temp.	Perm.
All delineated wetlands are outside of the project limits.							
TOTALS:			0.00			0.00	0.00

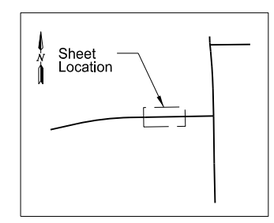
ND Highway 19 &
ND Highway 20

Wetland Impacts

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	76	1



Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 8195+70 to STA 8198+00	0.20	ACRE
251 0100	SEEDING CLASS I (NON-PARTICIPATING)		
	STA 8193+46 to STA 8195+70	0.02	ACRE
253 0201	HYDRAULIC MULCH		
	STA 8195+70 to STA 8198+00	0.20	ACRE
253 0201	HYDRAULIC MULCH (NON-PARTICIPATING)		
	STA 8193+46 to STA 8195+70	0.02	ACRE
261 0112	FIBER ROLLS 12IN		
	STA 8195+70 to STA 8198+00 ~ LT	230	LF
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 8195+70 to STA 8198+00 ~ LT	230	LF
708 1540	INLET PROTECTION - SPECIAL		
	INLET 1A	1	EA
	INLET 1B	1	EA
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	INLET 1A	1	EA
	INLET 1B	1	EA



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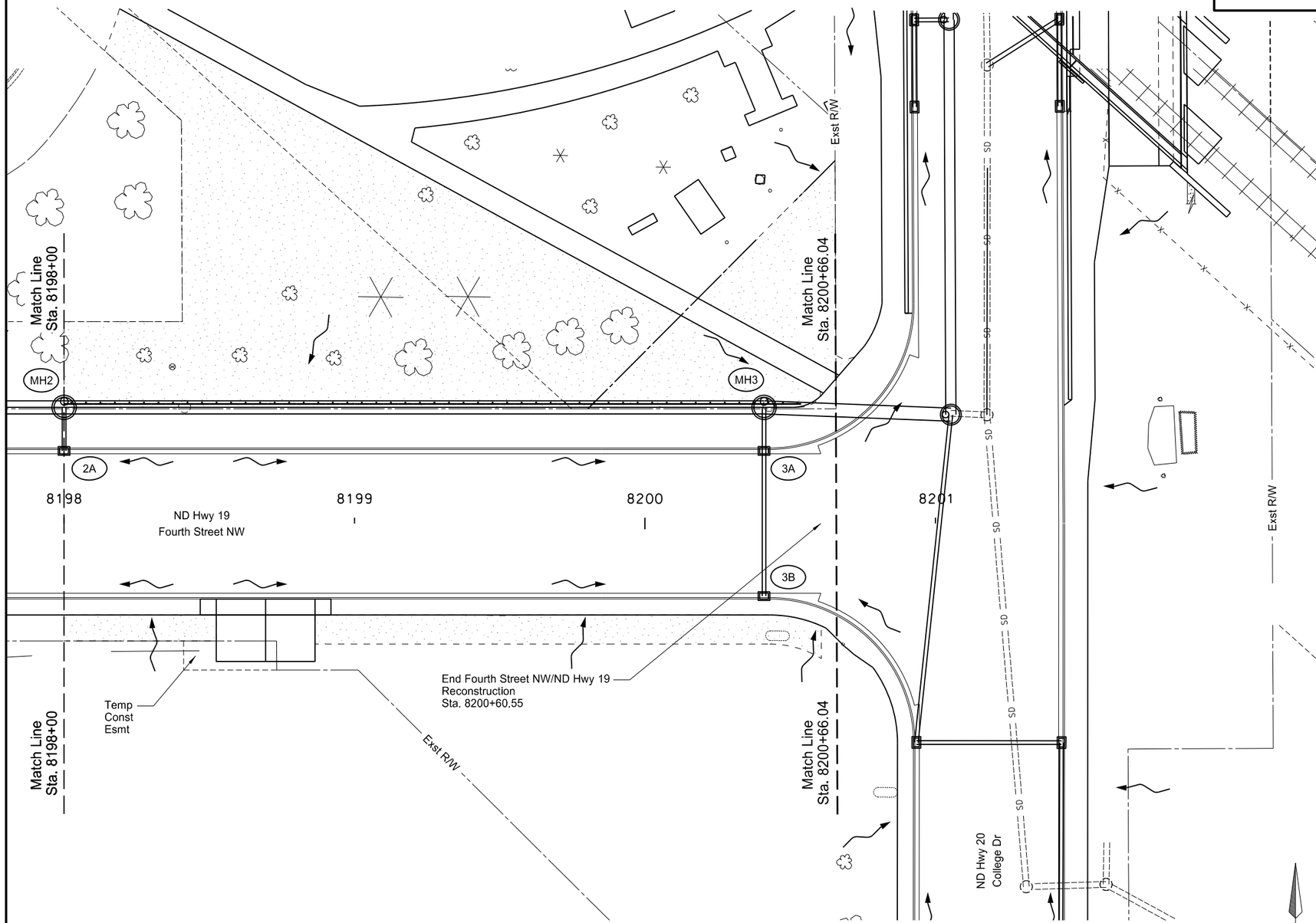
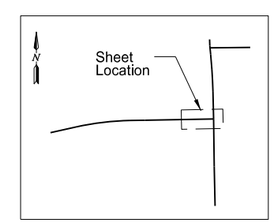
ND Highway 19

Temporary Sediment and Erosion Control
Sta. 8195+77 to Sta. 8198+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	76	2



Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 8198+00 to STA 8200+66.04	0.46	ACRE
253 0201	HYDRAULIC MULCH		
	STA 8198+00 to STA 8200+66.04	0.46	ACRE
261 0112	FIBER ROLLS 12IN		
	STA 8198+00 to STA 8200+54 ~ LT	254	LF
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 8198+00 to STA 8200+54 ~ LT	254	LF
708 1540	INLET PROTECTION - SPECIAL		
	INLET 2A	1	EA
	INLET 3A	1	EA
	INLET 3B	1	EA
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	INLET 2A	1	EA
	INLET 3A	1	EA
	INLET 3B	1	EA



ECB Type 1

Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

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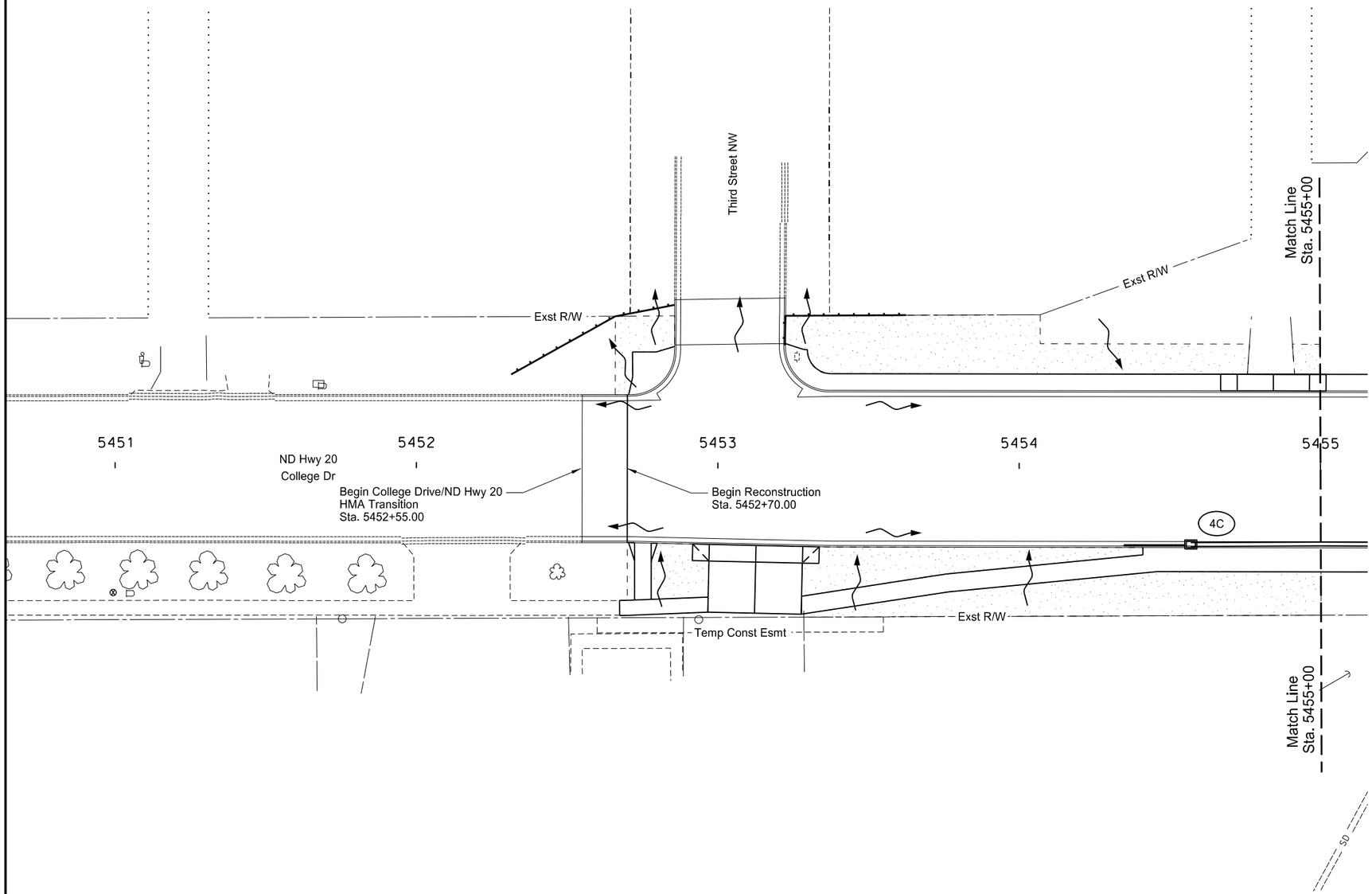
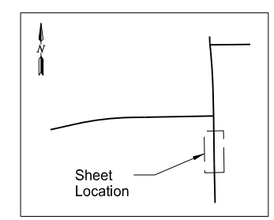
ND Highway 19

Temporary Sediment and Erosion Control
Sta. 8198+00 to Sta. 8200+60.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	76	3

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 5452+66 to STA 5455+00	0.13	ACRE
253 0201	HYDRAULIC MULCH		
	STA 5452+66 to STA 5455+00	0.13	ACRE
261 0112	FIBER ROLLS 12IN		
	STA 5452+31 to STA 5452+86 ~ LT	60	LF
	STA 5453+22 to STA 5453+62 ~ LT	50	LF
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 5452+31 to STA 5452+86 ~ LT	60	LF
	STA 5453+22 to STA 5453+62 ~ LT	50	LF
708 1540	INLET PROTECTION - SPECIAL		
	INLET 4C	1	EA
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	INLET 4C	1	EA





ECB Type 1

Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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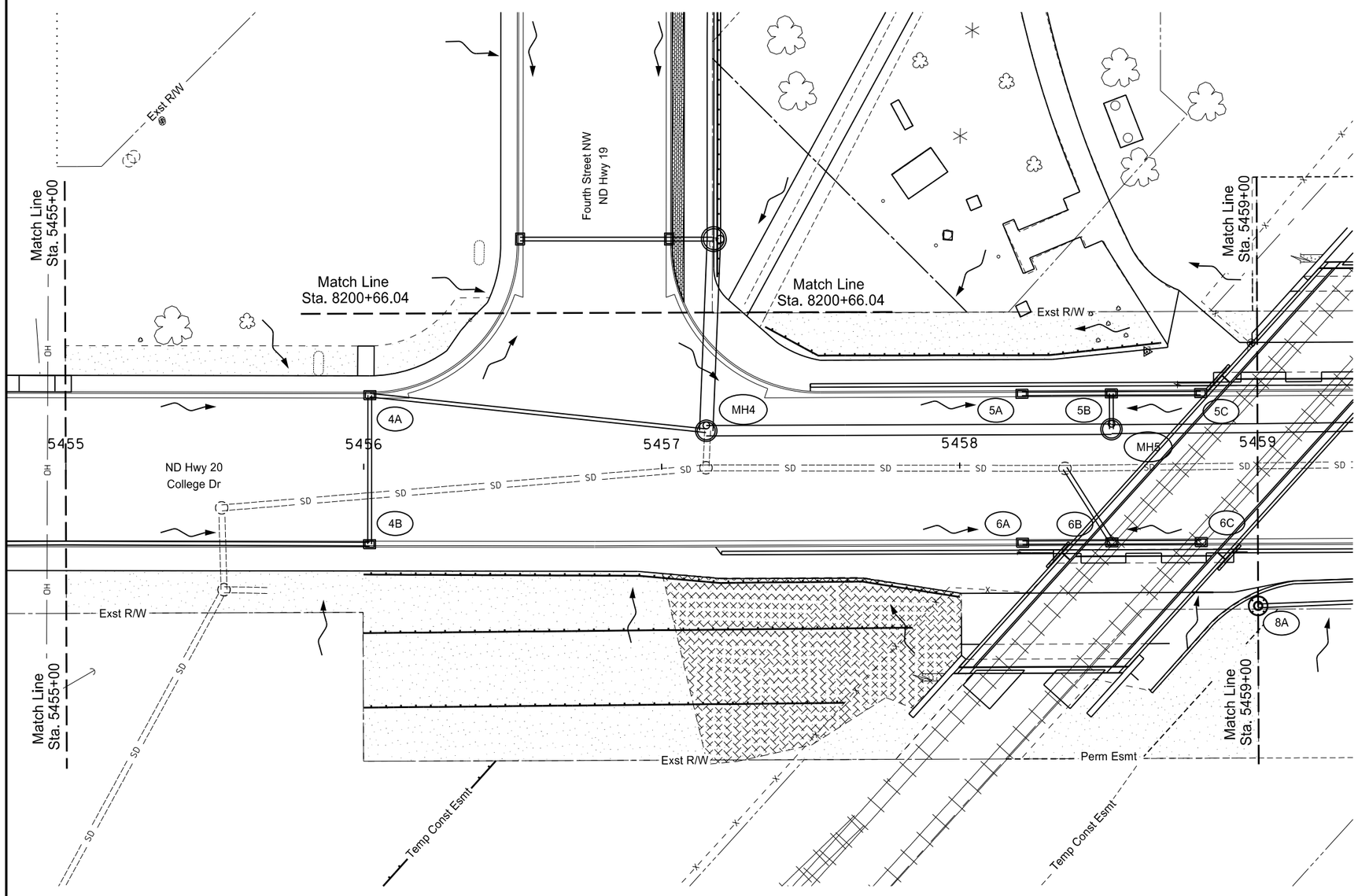
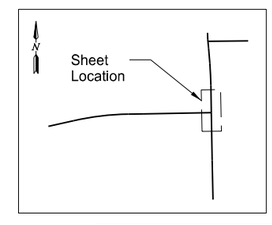
ND Highway 20

Temporary Sediment and Erosion Control
Sta. 5452+55 to Sta. 5455+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	76	4



Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 5455+00 to STA 5459+00	0.44	ACRE
253 0201	HYDRAULIC MULCH		
	STA 5455+00 to STA 5459+00	0.44	ACRE
255 0101	ECB TYPE 1		
	STA 5457+00 to STA 5458+00	515	SY
255 0151	REMOVE ECB TYPE 1		
	STA 5457+00 to STA 5458+00	515	SY
261 0112	FIBER ROLLS 12IN		
	STA 5456+00 to STA 5458+00 ~ RT	201	LF
	STA 5456+00 to STA 5457+84 ~ RT	185	LF
	STA 5456+00 to STA 5457+61 ~ RT	161	LF
	STA 5457+35 to STA 5458+68 ~ LT	136	LF
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 5456+00 to STA 5458+00 ~ RT	200	LF
	STA 5456+00 to STA 5457+85 ~ RT	185	LF
	STA 5456+00 to STA 5457+60 ~ RT	161	LF
	STA 5457+35 to STA 5458+68 ~ LT	136	LF
708 1540	INLET PROTECTION - SPECIAL		
	INLET 4A	1	EA
	INLET 4B	1	EA
	INLET 5A	1	EA
	INLET 5B	1	EA
	INLET 5C	1	EA
	INLET 6A	1	EA
	INLET 6B	1	EA
	INLET 6C	1	EA
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	INLET 4A	1	EA
	INLET 4B	1	EA
	INLET 5A	1	EA
	INLET 5B	1	EA
	INLET 5C	1	EA
	INLET 6A	1	EA
	INLET 6B	1	EA
	INLET 6C	1	EA



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ECB Type 1

Fiber Rolls 12IN

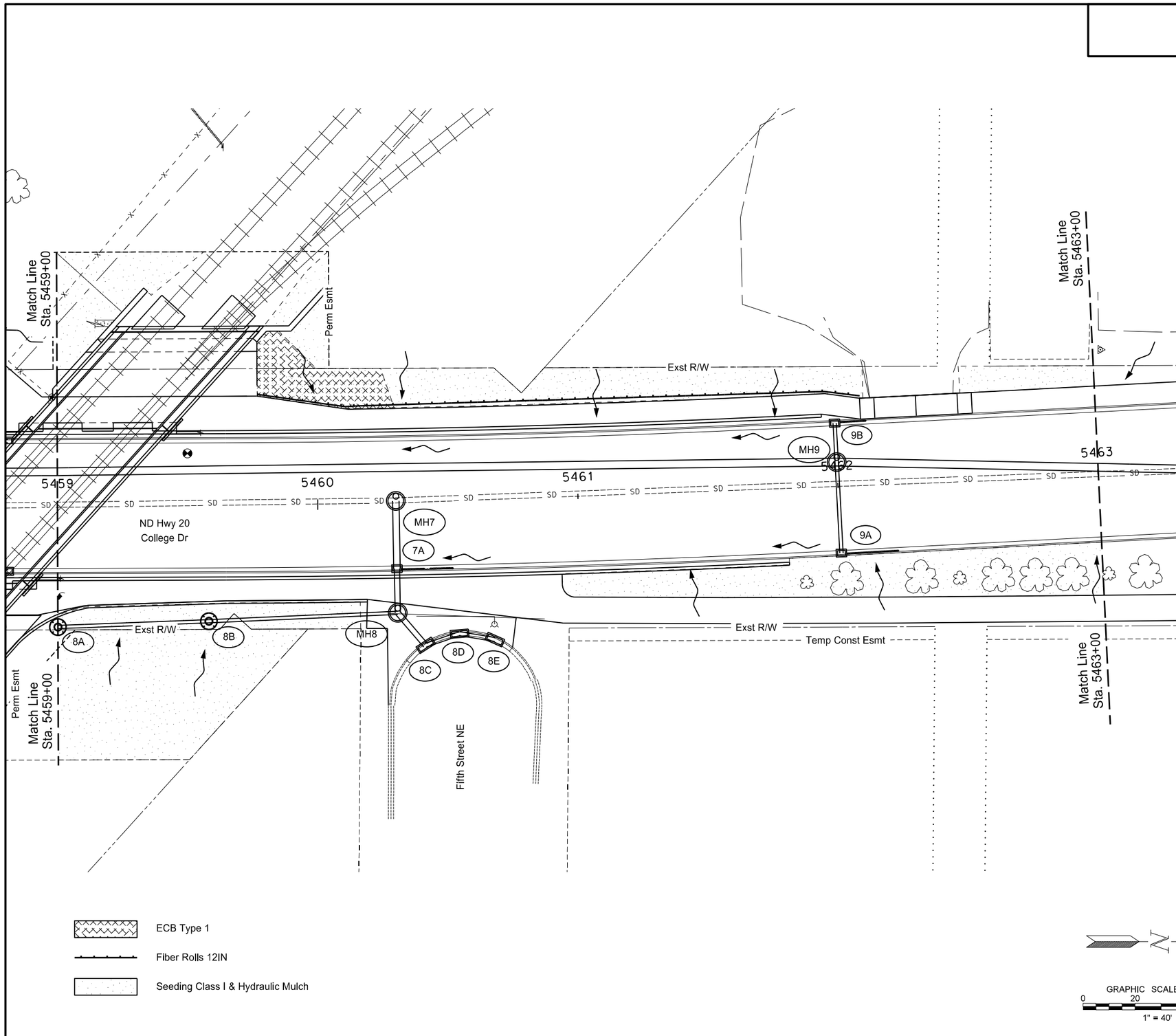
Seeding Class I & Hydraulic Mulch

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

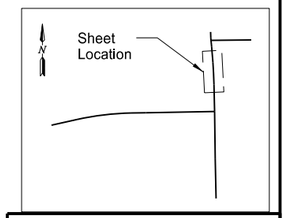
ND Highway 20

Temporary Sediment and Erosion Control
Sta. 5455+00 to Sta. 5459+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	76	5



Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 5459+00 to STA 5463+00	0.31	ACRE
253 0201	HYDRAULIC MULCH		
	STA 5459+00 to STA 5463+00	0.31	ACRE
255 0101	ECB TYPE 1		
	STA 5459+77 to STA 5460+30	101	SY
255 0151	REMOVE ECB TYPE 1		
	STA 5459+77 to STA 5460+30	101	SY
261 0112	FIBER ROLLS 12IN		
	STA 5459+77 to STA 5462+10 ~ LT	232	LF
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 5459+77 to STA 5462+10 ~ LT	232	LF
708 1531	INLET PROTECTION-FIBER ROLL 12IN		
	INLET 8A	1	EA
	INLET 8B	1	EA
708 1533	REMOVAL INLET PROTECTION-FIBER ROLL 12IN		
	INLET 8A	1	EA
	INLET 8B	1	EA
708 1540	INLET PROTECTION - SPECIAL		
	INLET 7A	1	EA
	INLET 8C	2	EA
	INLET 8D	2	EA
	INLET 8E	2	EA
	INLET 9B	1	EA
	INLET 9A	1	EA
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	INLET 7A	1	EA
	INLET 8C	2	EA
	INLET 8D	2	EA
	INLET 8E	2	EA
	INLET 9B	1	EA
	INLET 9A	1	EA



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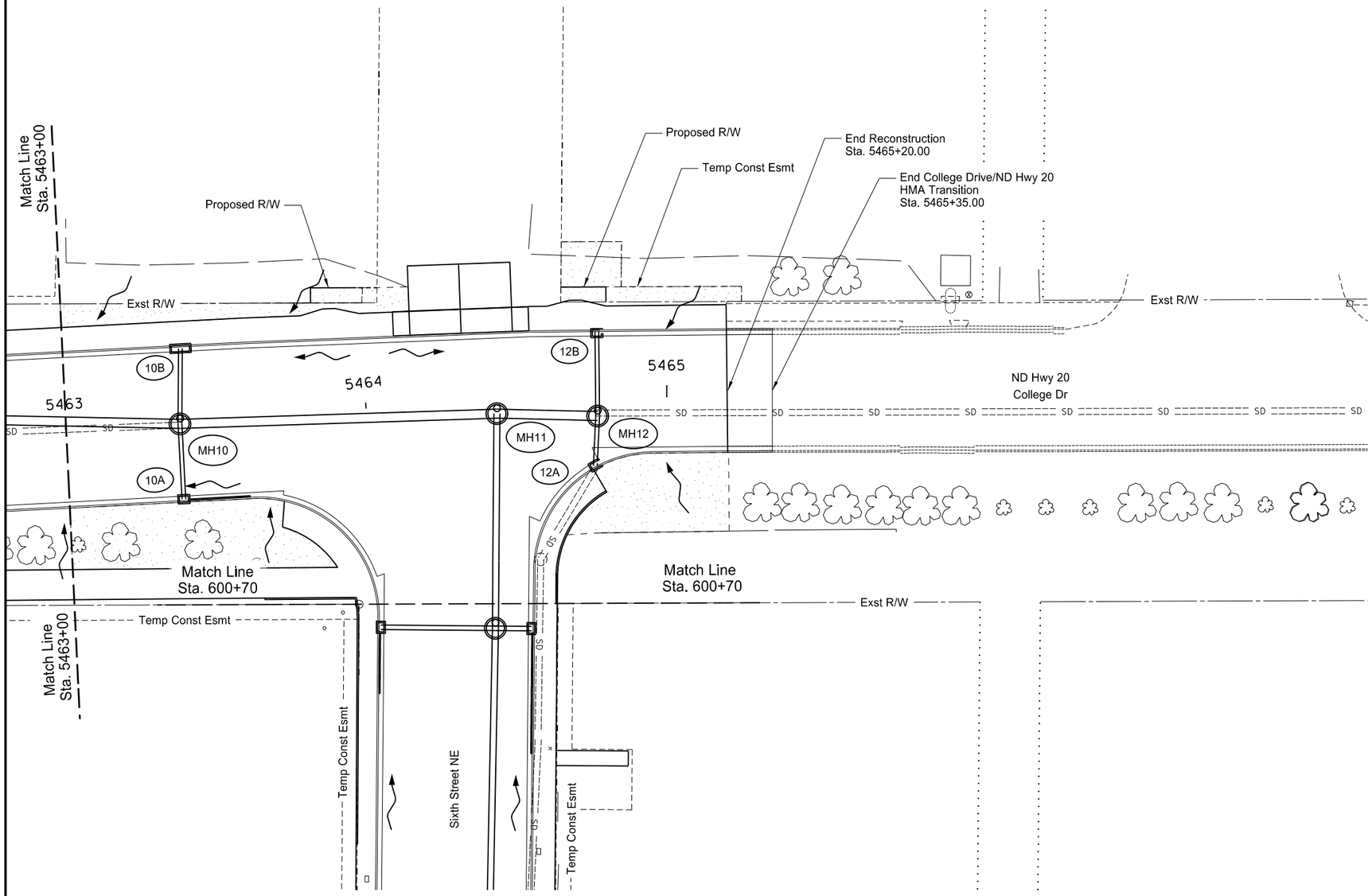
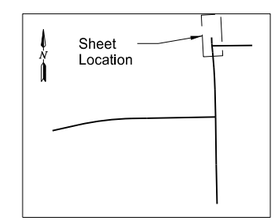
ND Highway 20

Temporary Sediment and Erosion Control
Sta. 5459+00 to Sta. 5463+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	76	6

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 5463+00 to STA 5465+25	0.10	ACRE
253 0201	HYDRAULIC MULCH		
	STA 5463+00 to STA 5465+25	0.10	ACRE
708 1540	INLET PROTECTION - SPECIAL		
	INLET 10A	1	EA
	INLET 10B	2	EA
	INLET 12A	1	EA
	INLET 12B	1	EA
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	INLET 10A	1	EA
	INLET 10B	2	EA
	INLET 12A	1	EA
	INLET 12B	1	EA





ECB Type 1

Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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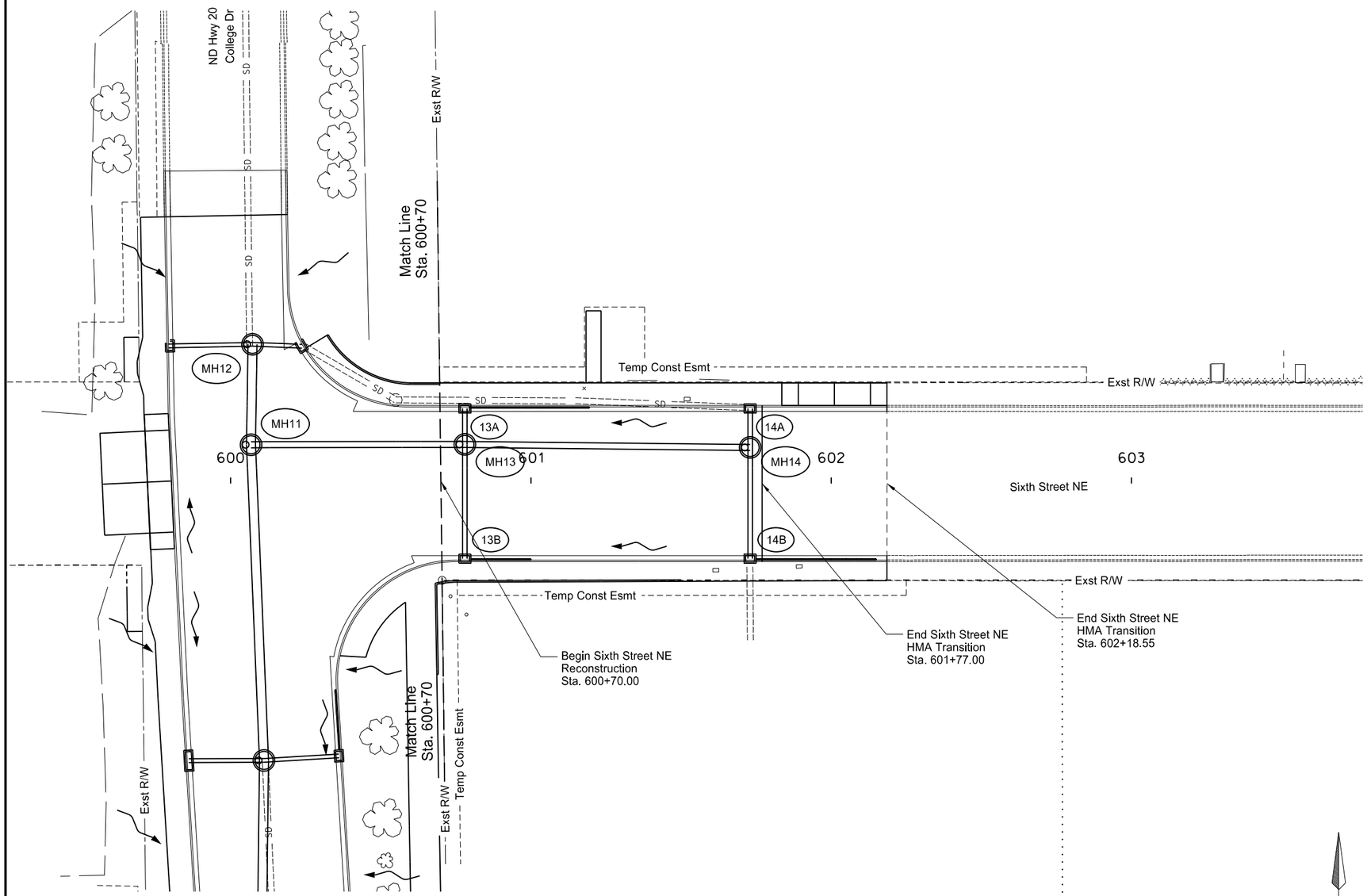
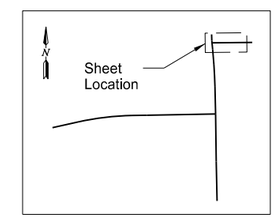
ND Highway 20

Temporary Sediment and Erosion Control
Sta. 5463+00 to Sta. 5465+35

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	76	7

Spec	Item Description	Qty	Unit
708 1540	INLET PROTECTION - SPECIAL		
	INLET 13A	1	EA
	INLET 13B	1	EA
	INLET 14A	1	EA
	INLET 14B	1	EA
708 1541	REMOVE INLET PROTECTION - SPECIAL		
	INLET 13A	1	EA
	INLET 13B	1	EA
	INLET 14A	1	EA
	INLET 14B	1	EA





ECB Type 1

Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

N

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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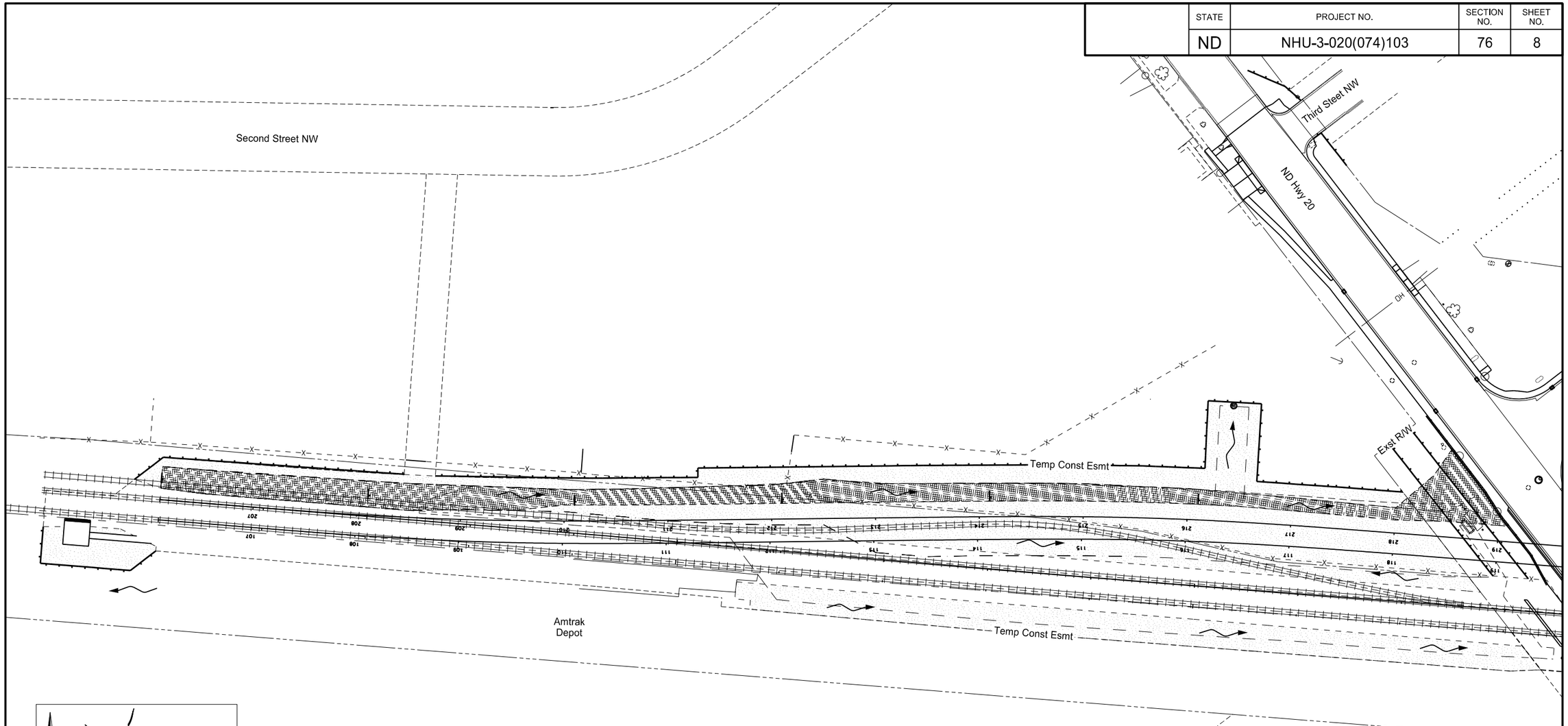
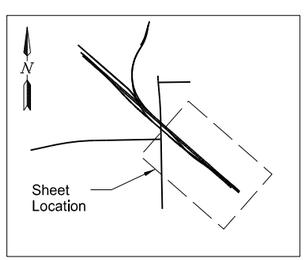
Sixth Street

Temporary Sediment and Erosion Control
Sta. 600+70.00 to Sta. 602+18.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	76	8





GRAPHIC SCALE (in feet)
0 40 80 120
1" = 80'

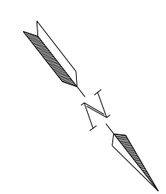
ECB Type 1

Fiber Rolls 12IN

Seeding Class I & Straw Mulch

Spec	Item Description	Qty	Unit
251 2000	TEMPORARY COVER CROP		
	STA 205+00 TO 219+51	2.42	ACRE
253 0101	STRAW MULCH		
	STA 205+00 TO 219+51	2.42	ACRE
255 0101	ECB TYPE 1		
	STA 206+10 LT TO STA 219+10 LT	2875	SY
255 0151	REMOVE ECB TYPE 1		
	STA 206+10 LT TO STA 219+10 LT	2875	SY
261 0112	FIBER ROLLS 12IN		
	STA 205+00 TO 206+10 RT	153	LF
	STA 205+84 TO 208+44 LT	268	LF
	STA 208+74 TO 218+05 LT	1083	LF
	STA 206+10 LT	10	LF
	STA 208+10 LT	10	LF
	STA 210+10 LT	10	LF
	STA 212+10 LT	10	LF
	STA 214+10 LT	10	LF
	STA 216+10 LT	10	LF

Spec	Item Description	Qty	Unit
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 205+00 TO 206+10 RT	153	LF
	STA 205+84 TO 208+44 LT	268	LF
	STA 208+74 TO 218+05 LT	1083	LF
	STA 206+10 LT	10	LF
	STA 208+10 LT	10	LF
	STA 210+10 LT	10	LF
	STA 212+10 LT	10	LF
	STA 214+10 LT	10	LF
	STA 216+10 LT	10	LF
708 1531	INLET PROTECTION-FIBER ROLL 12IN		
	STA 216+40 LT	1	EA
708 1533	REMOVAL INLET PROTECTION-FIBER ROLL 12IN		
	STA 216+40 LT	1	EA



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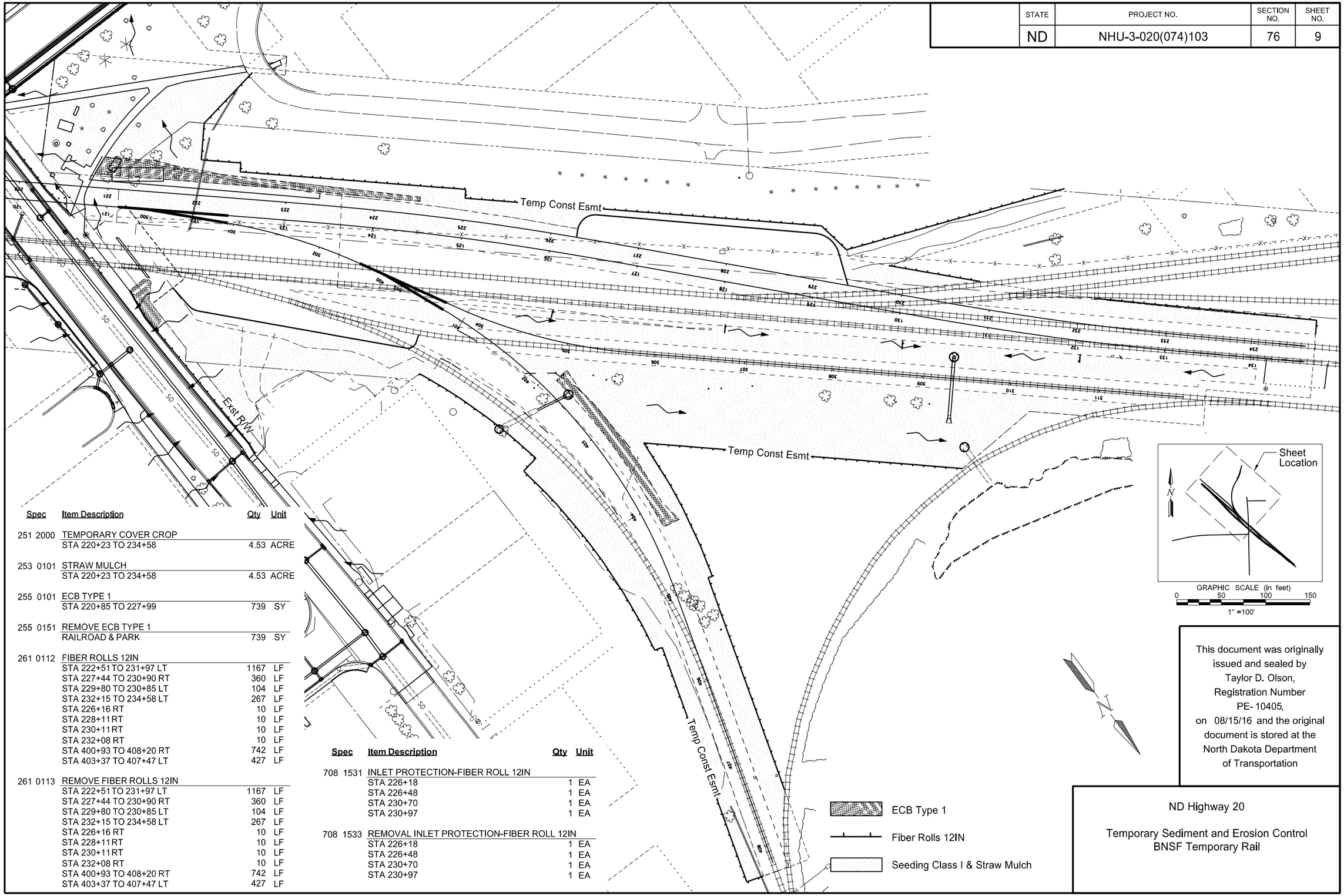
ND Highway 20

Temporary Sediment and Erosion Control
BNSF Temporary Rail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	76	9



Spec	Item Description	Qty	Unit
251 2000	TEMPORARY COVER CROP		
	STA 220+23 TO 234+58	4.53	ACRE
253 0101	STRAW MULCH		
	STA 220+23 TO 234+58	4.53	ACRE
255 0101	ECB TYPE 1		
	STA 220+85 TO 227+99	739	SY
255 0151	REMOVE ECB TYPE 1		
	RAILROAD & PARK	739	SY
261 0112	FIBER ROLLS 12IN		
	STA 222+51 TO 231+97 LT	1167	LF
	STA 227+44 TO 230+90 RT	360	LF
	STA 229+80 TO 230+85 LT	104	LF
	STA 232+15 TO 234+58 LT	267	LF
	STA 226+16 RT	10	LF
	STA 228+11 RT	10	LF
	STA 230+11 RT	10	LF
	STA 232+08 RT	10	LF
	STA 400+93 TO 408+20 RT	742	LF
	STA 403+37 TO 407+47 LT	427	LF
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 222+51 TO 231+97 LT	1167	LF
	STA 227+44 TO 230+90 RT	360	LF
	STA 229+80 TO 230+85 LT	104	LF
	STA 232+15 TO 234+58 LT	267	LF
	STA 226+16 RT	10	LF
	STA 228+11 RT	10	LF
	STA 230+11 RT	10	LF
	STA 232+08 RT	10	LF
	STA 400+93 TO 408+20 RT	742	LF
	STA 403+37 TO 407+47 LT	427	LF

Spec	Item Description	Qty	Unit
708 1531	INLET PROTECTION-FIBER ROLL 12IN		
	STA 226+18	1	EA
	STA 226+48	1	EA
	STA 230+70	1	EA
	STA 230+97	1	EA
708 1533	REMOVAL INLET PROTECTION-FIBER ROLL 12IN		
	STA 226+18	1	EA
	STA 226+48	1	EA
	STA 230+70	1	EA
	STA 230+97	1	EA

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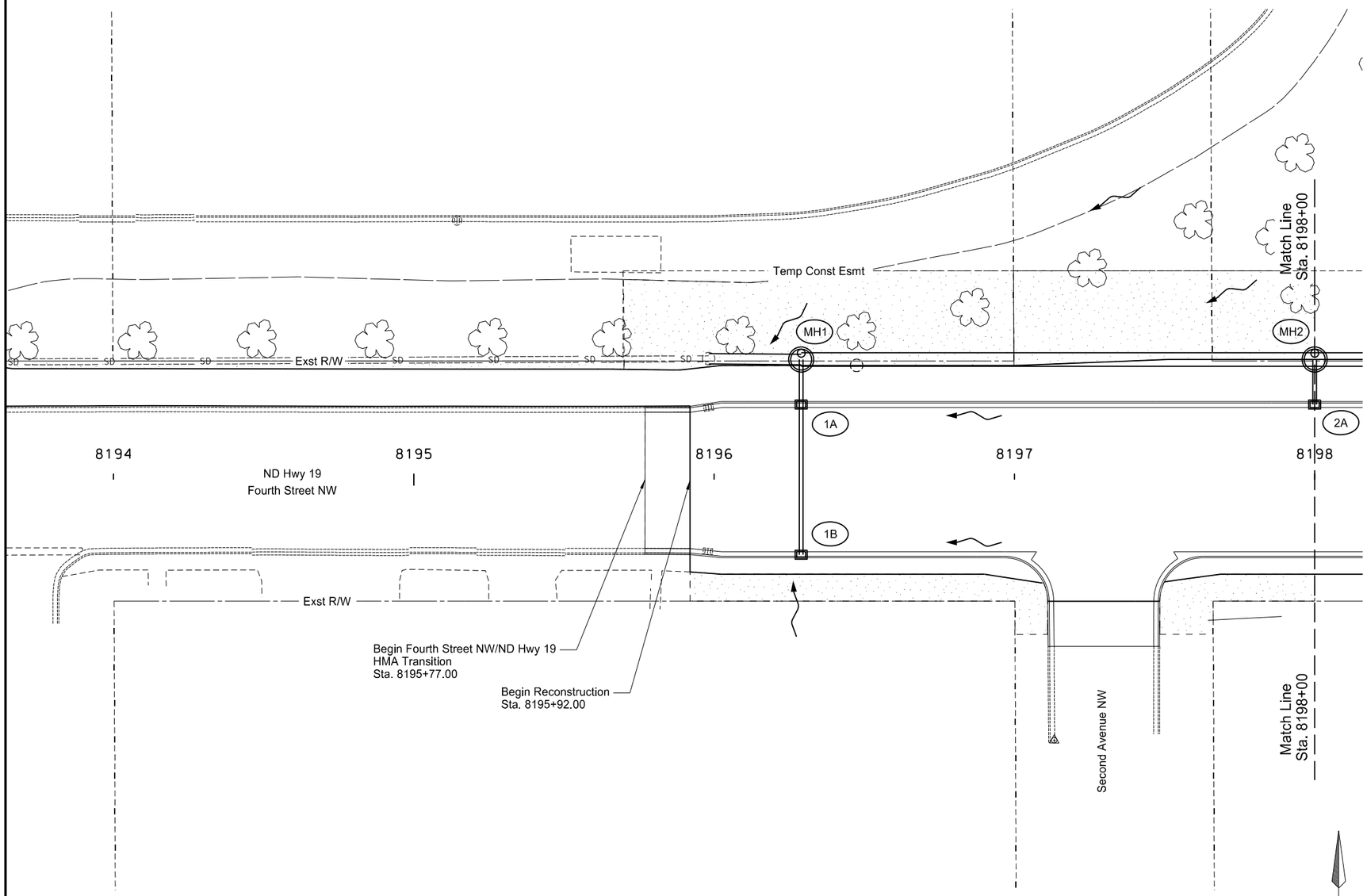
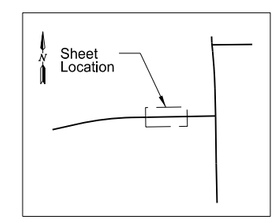
ND Highway 20

Temporary Sediment and Erosion Control
BNSF Temporary Rail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	77	1

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I STA 8195+70 to STA 8198+00	0.20	ACRE
25 10100	SEEDING CLASS I (NON-PARTICIPATING) STA 8193+46 to STA 8195+70	0.02	ACRE
253 0201	HYDRAULIC MULCH STA 8195+70 to STA 8198+00	0.20	ACRE
253 0201	HYDRAULIC MULCH (NON-PARTICIPATING) STA 8193+46 to STA 8195+70	0.02	ACRE





Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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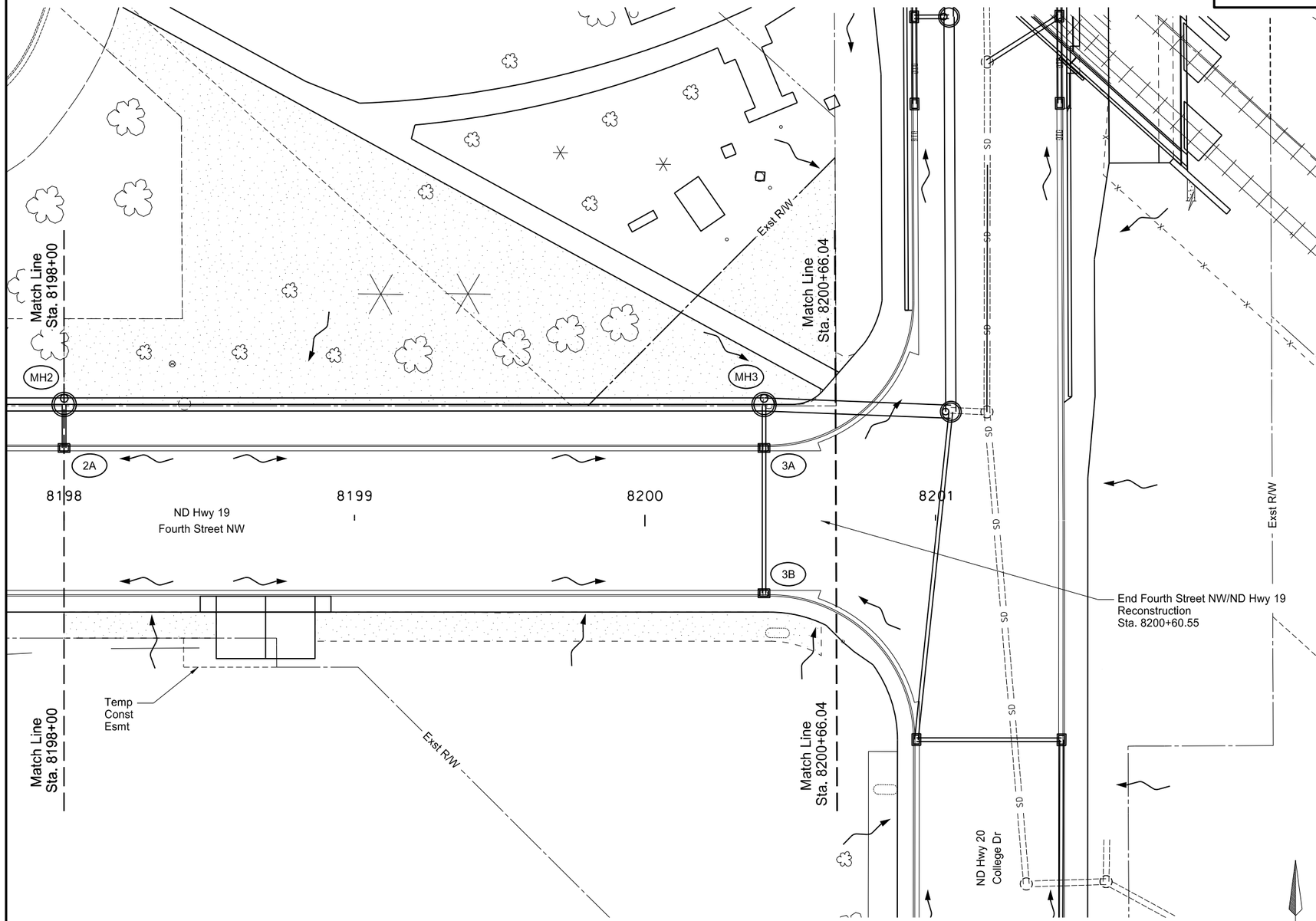
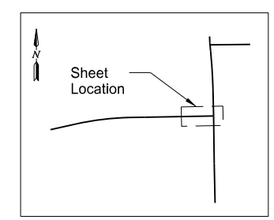
ND Highway 19

Permanent Sediment and Erosion Control
Sta. 8195+77 to Sta. 8198+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	77	2

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I STA 8198+00 to STA 8200+66.04	0.46	ACRE
253 0201	HYDRAULIC MULCH STA 8198+00 to STA 8200+66.04	0.46	ACRE





Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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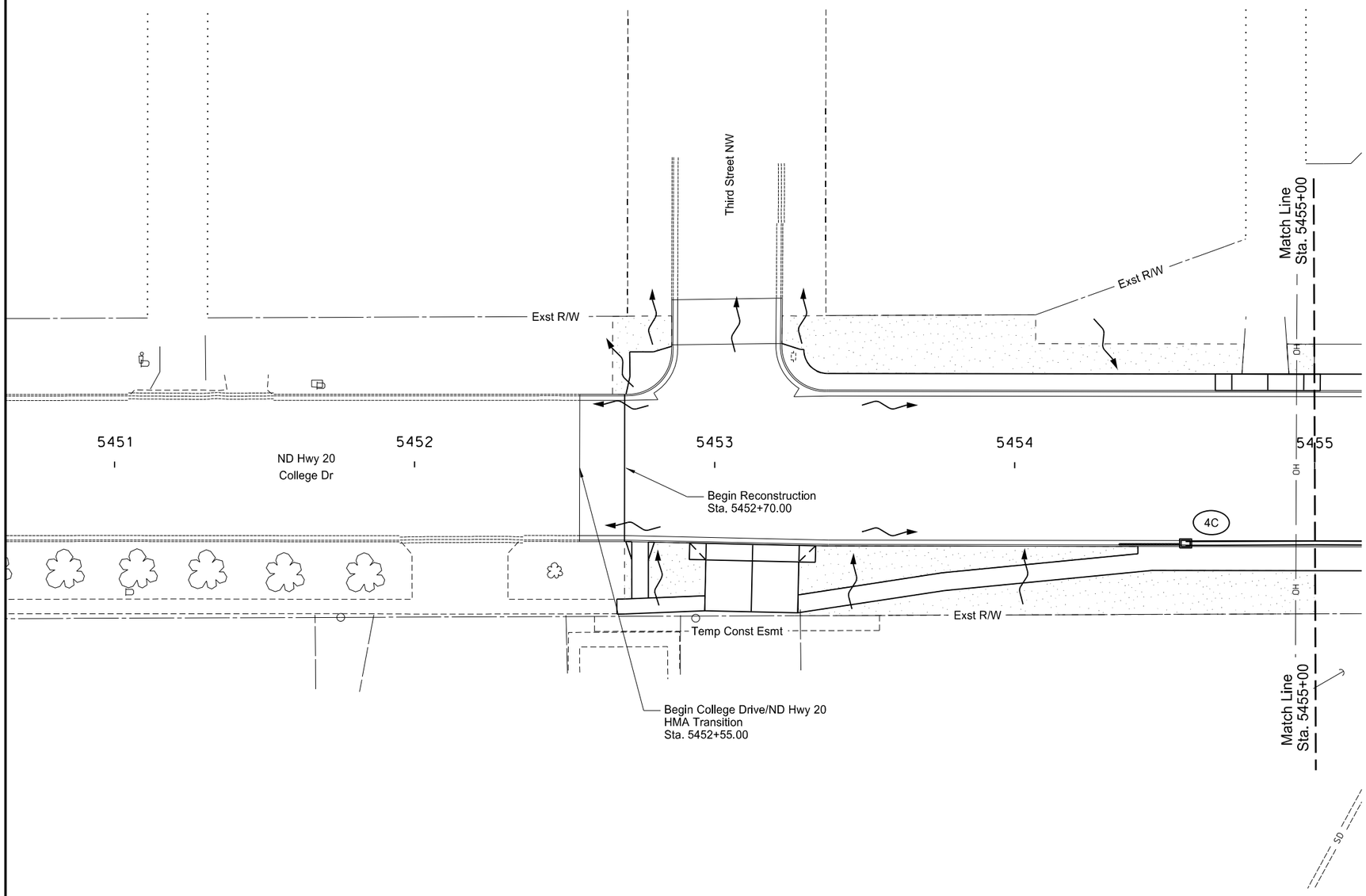
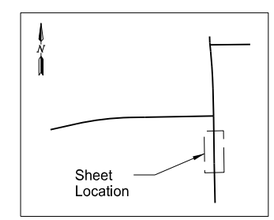
ND Highway 19

Permanent Sediment and Erosion Control
Sta. 8198+00 to Sta. 8200+60.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	77	3

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I STA 5454+66 to STA 5455+00	0.13	ACRE
253 0201	HYDRAULIC MULCH STA 5454+66 to STA 5455+00	0.13	ACRE





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Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

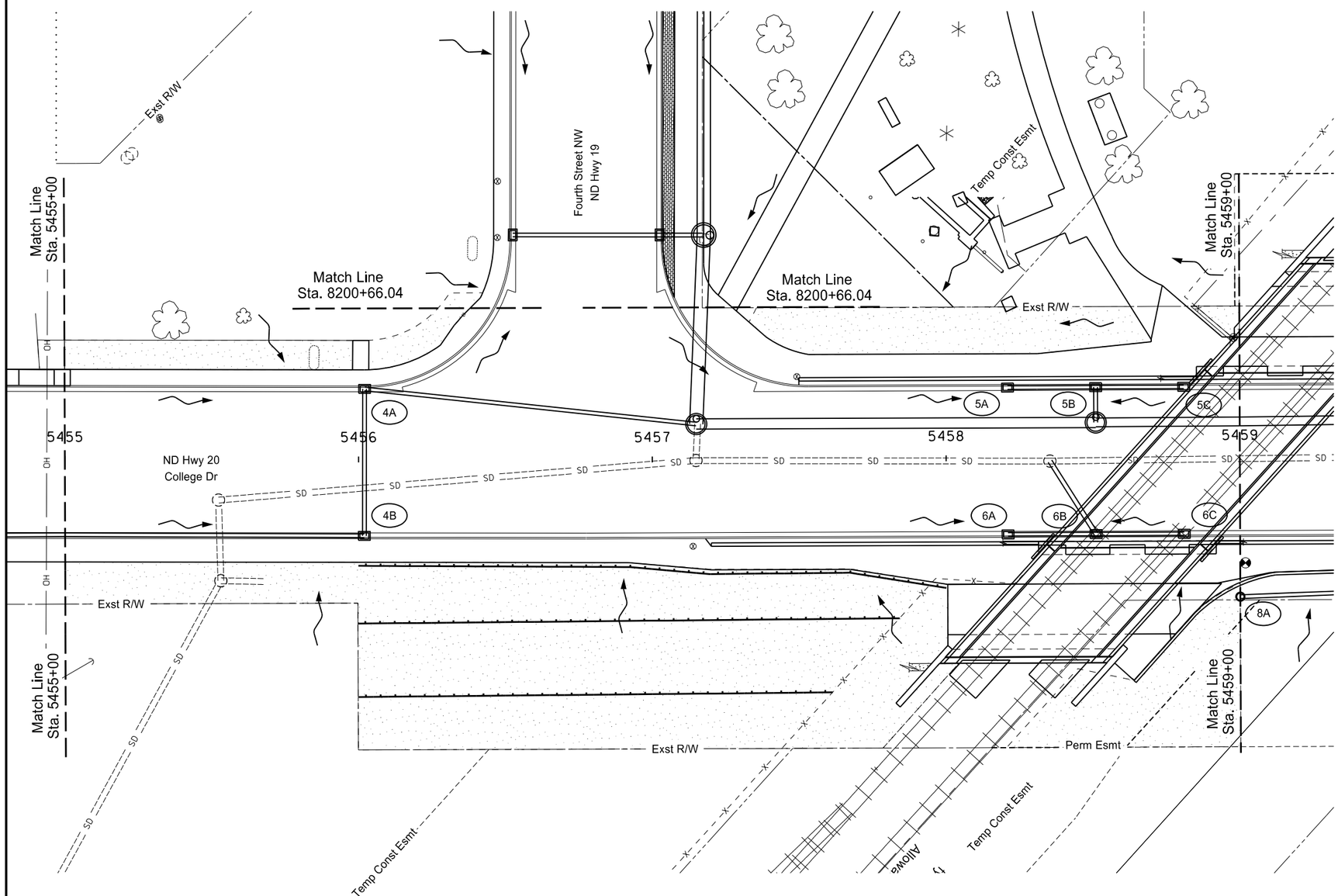
GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

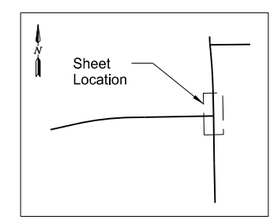
ND Highway 20

Permanent Sediment and Erosion Control
Sta. 5452+55 to Sta. 5455+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	77	4

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 5455+00 to STA 5459+00	0.44	ACRE
253 0201	HYDRAULIC MULCH		
	STA 5455+00 to STA 5459+00	0.44	ACRE
261 0112	FIBER ROLLS 12IN		
	STA 5456+00 to STA 5458+00 ~ RT	200	LF
	STA 5456+00 to STA 5457+84 ~ RT	185	LF
	STA 5456+00 to STA 5457+61 ~ RT	161	LF
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 5456+00 to STA 5458+00 ~ RT	200	LF
	STA 5456+00 to STA 5457+84 ~ RT	185	LF
	STA 5456+00 to STA 5457+61 ~ RT	161	LF





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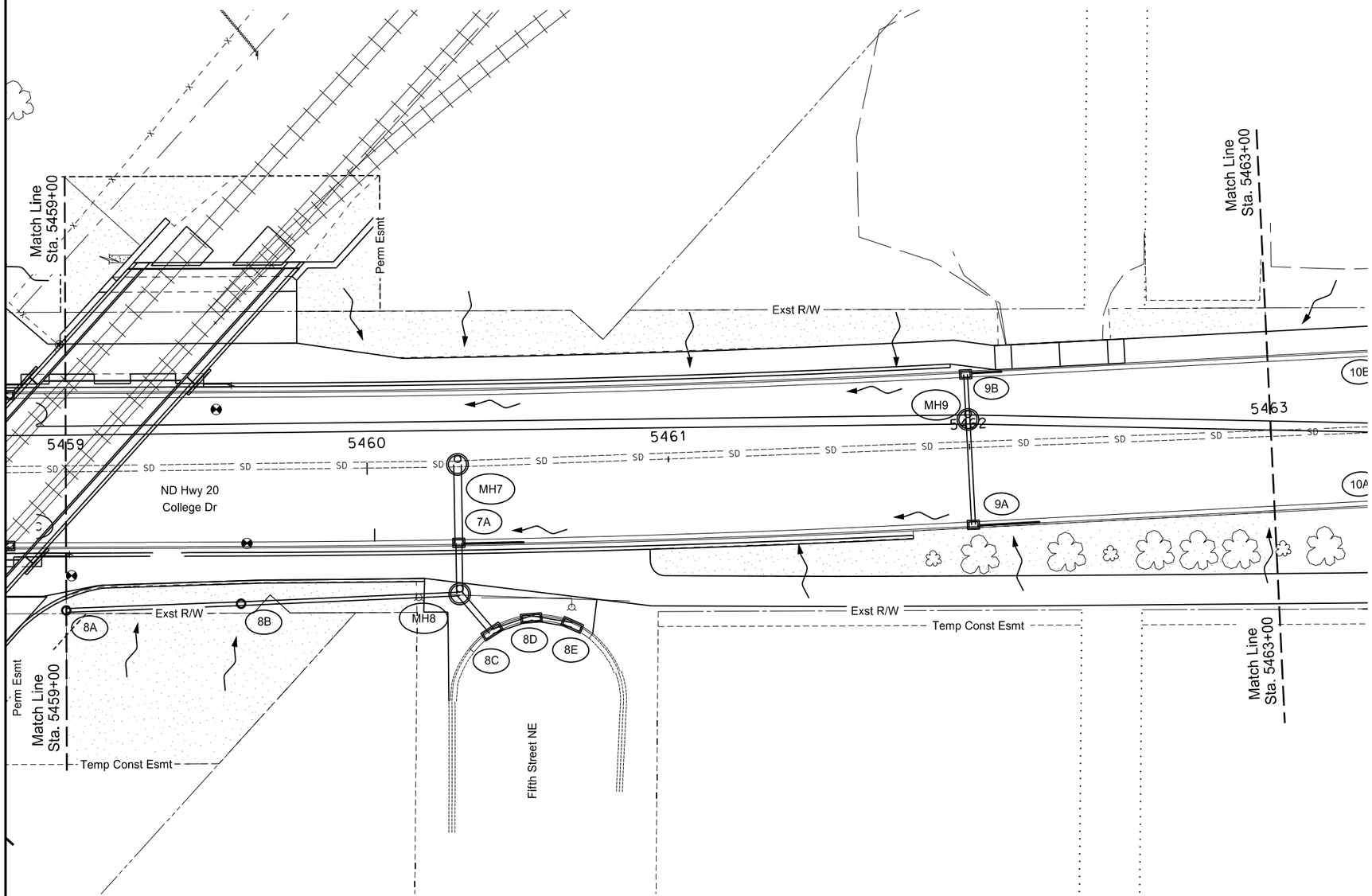
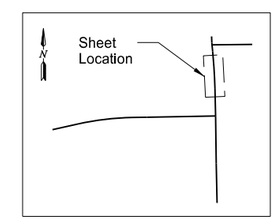
ND Highway 20

Permanent Sediment and Erosion Control
Sta. 5455+00 to Sta. 5459+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	77	5

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I STA 5459+00 to STA 5463+00	0.31	ACRE
253 0201	HYDRAULIC MULCH STA 5459+00 to STA 5463+00	0.31	ACRE





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Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

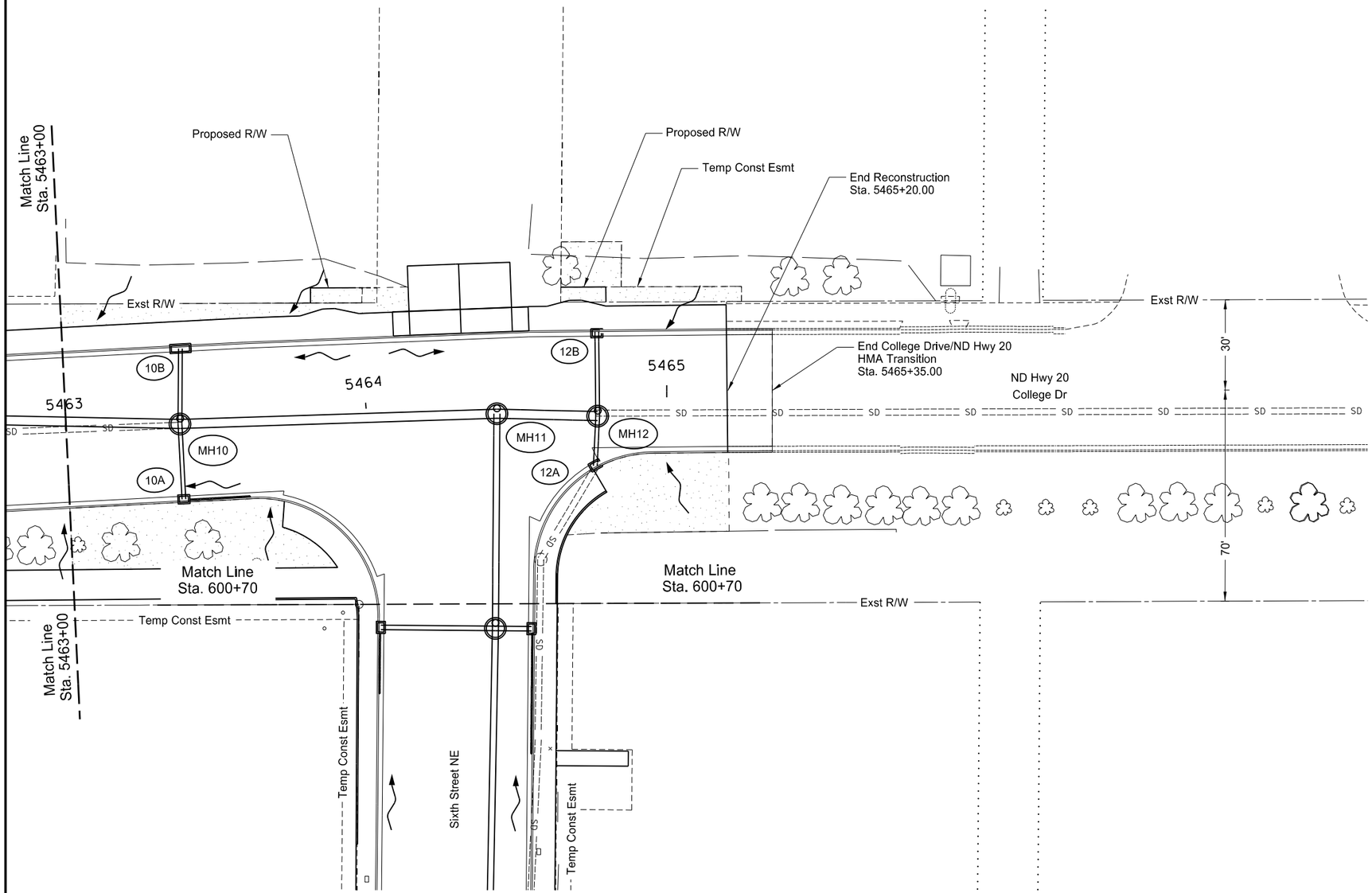
GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

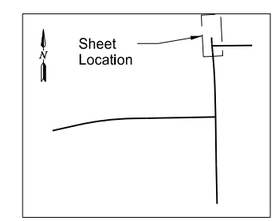
ND Highway 20

Permanent Sediment and Erosion Control
Sta. 5459+00 to Sta. 5463+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	77	6

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I STA 5463+00 to STA 5465+20	0.10	ACRE
253 0201	HYDRAULIC MULCH STA 5463+00 to STA 5465+20	0.10	ACRE





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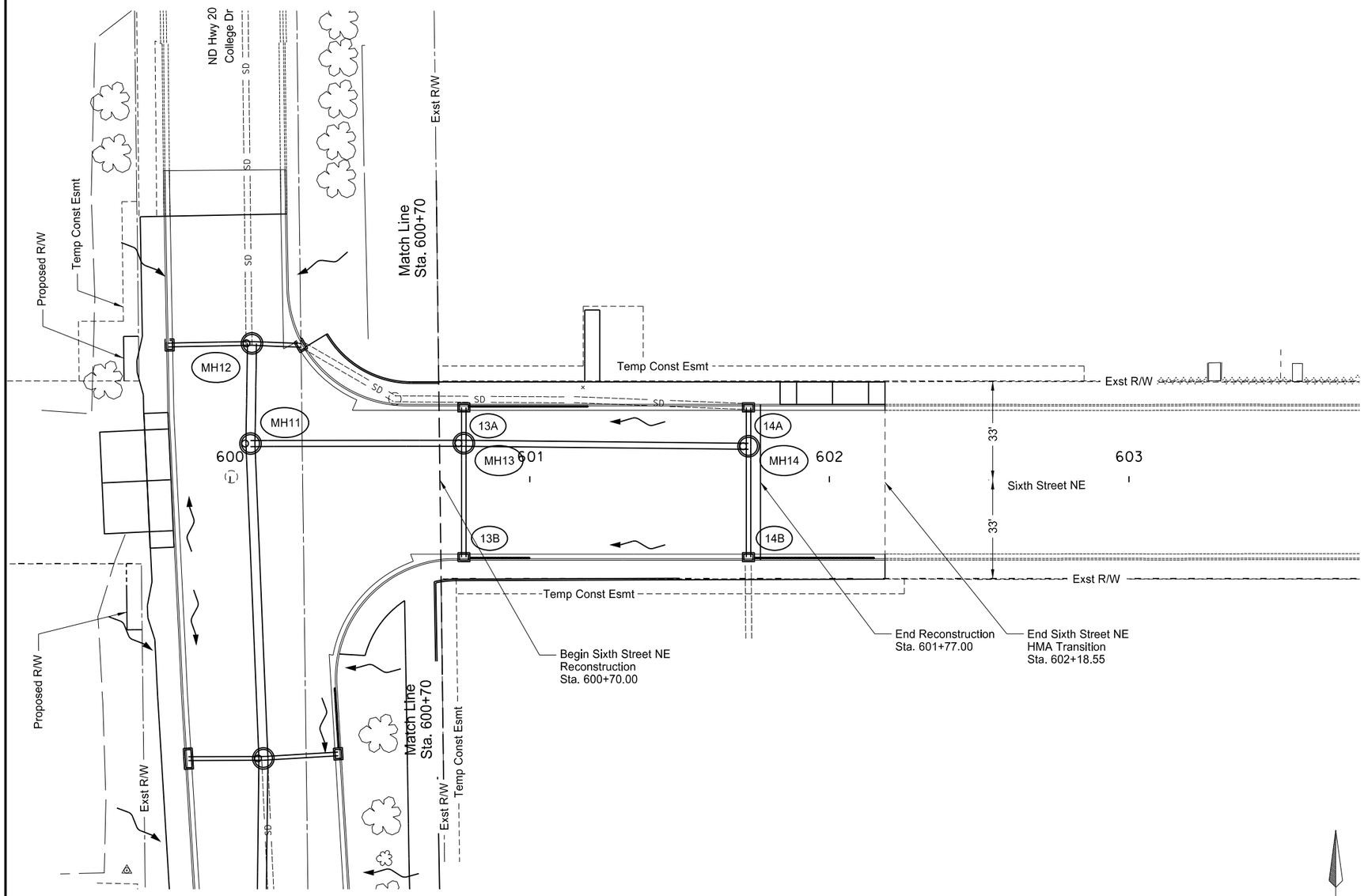
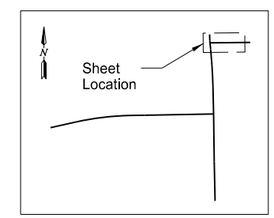
ND Highway 20

Permanent Sediment and Erosion Control
Sta. 5463+00 to Sta. 5465+35

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	77	7





Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

N

GRAPHIC SCALE (in feet)
0 25 50 75
1" = 50'

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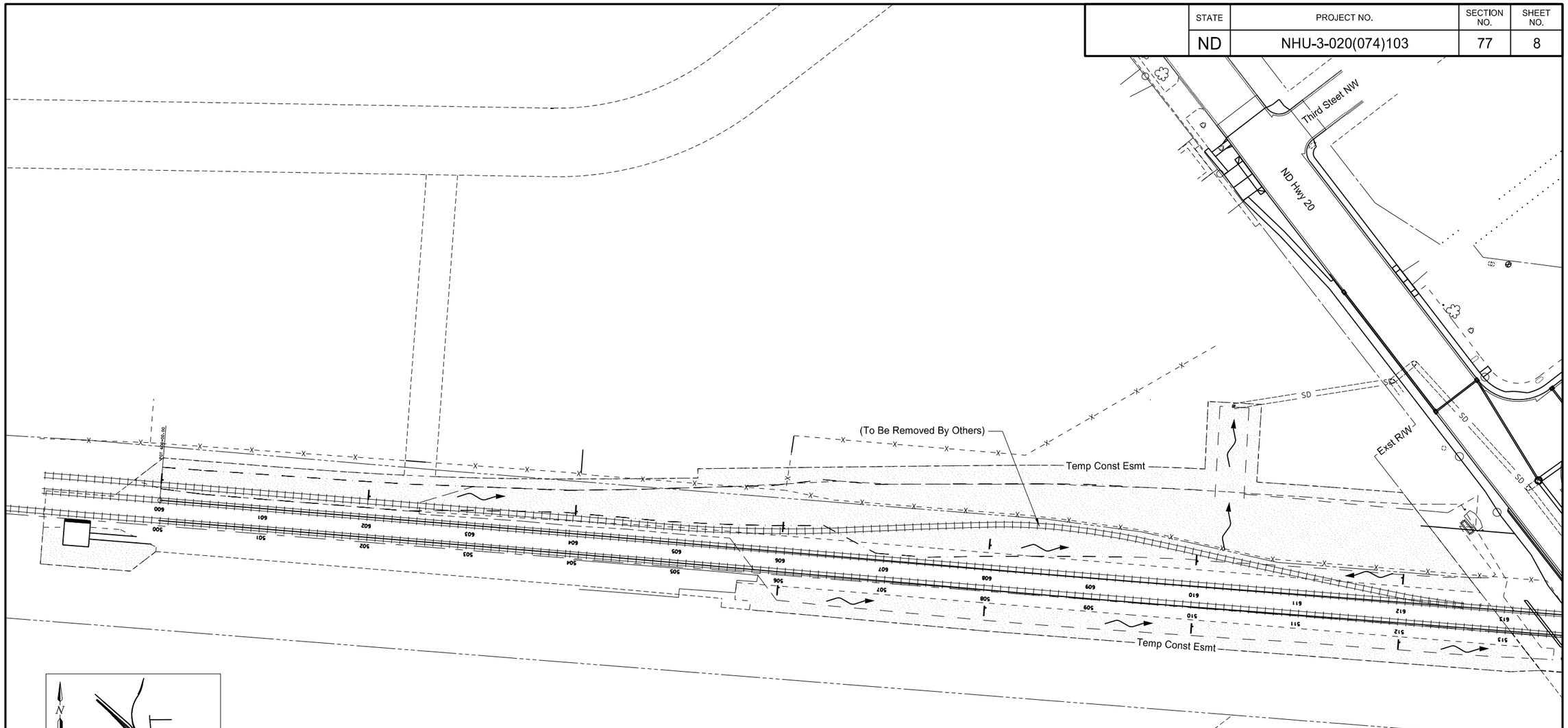
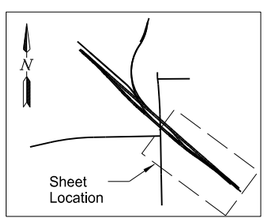
Sixth Street

Permanent Sediment and Erosion Control
Sta. 600+70.00 to Sta. 602+18.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	77	8





GRAPHIC SCALE (in feet)
0 50 100 150
1" =100'

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I		
	STA 500+00 to STA 513+39	2.42	ACRE
253 0201	HYDRAULIC MULCH		
	STA 500+00 to STA 513+39	2.42	ACRE
261 0112	FIBER ROLLS 12IN		
	STA 500+00 LT	10	LF
	STA 502+00 LT	10	LF
	STA 504+00 LT	10	LF
	STA 506+00 LT	10	LF
	STA 506+00 RT	10	LF
	STA 508+00 LT	10	LF
	STA 508+00 RT	10	LF
	STA 510+00 LT	10	LF
	STA 510+00 RT	10	LF
	STA 512+00 LT	10	LF
	STA 512+00 RT	10	LF

Spec	Item Description	Qty	Unit
261 0113	REMOVE FIBER ROLLS 12IN		
	STA 500+00 LT	10	LF
	STA 502+00 LT	10	LF
	STA 504+00 LT	10	LF
	STA 506+00 LT	10	LF
	STA 506+00 RT	10	LF
	STA 508+00 LT	10	LF
	STA 508+00 RT	10	LF
	STA 510+00 LT	10	LF
	STA 510+00 RT	10	LF
	STA 512+00 LT	10	LF
	STA 512+00 RT	10	LF

Fiber Rolls 12IN

Seeding Class I & Hydraulic Mulch

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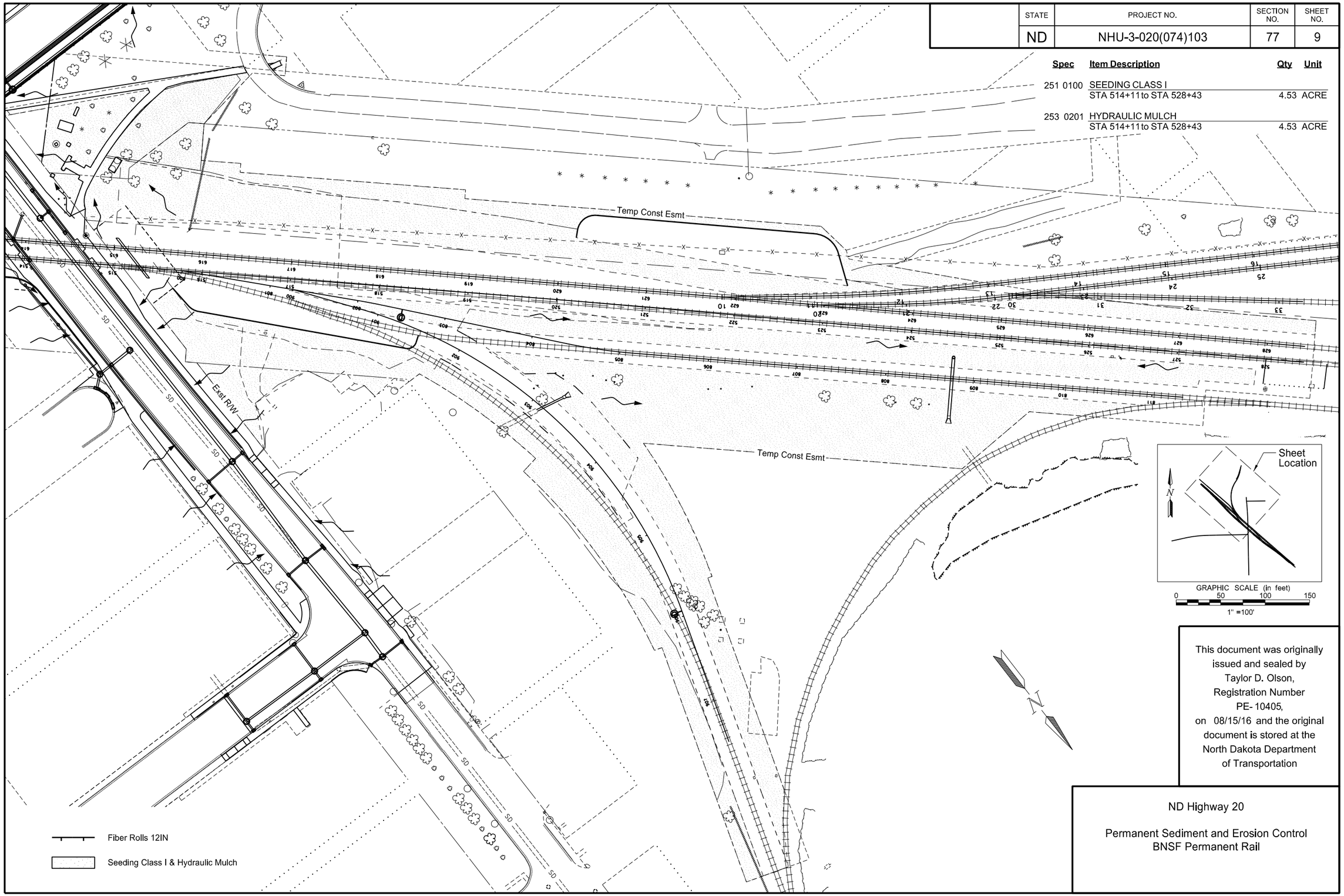
ND Highway 20

Permanent Sediment and Erosion Control
BNSF Permanent Rail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	77	9

Spec	Item Description	Qty	Unit
251 0100	SEEDING CLASS I STA 514+11 to STA 528+43	4.53	ACRE
253 0201	HYDRAULIC MULCH STA 514+11 to STA 528+43	4.53	ACRE



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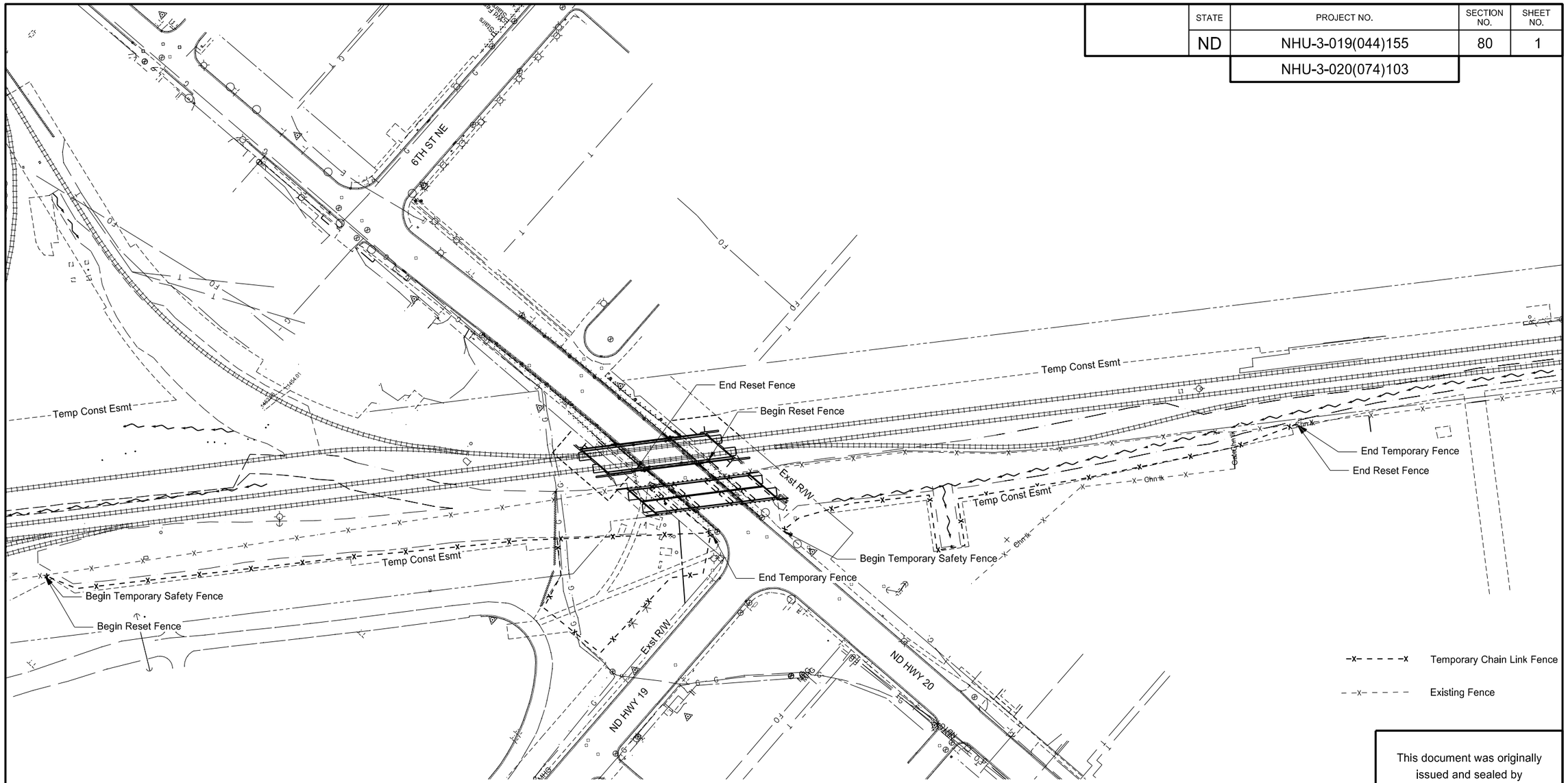
ND Highway 20

Permanent Sediment and Erosion Control
BNSF Permanent Rail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	80	1
	NHU-3-020(074)103		



–x– – – – –x Temporary Chain Link Fence

– –x– – – – – Existing Fence

Spec	Item Description	Qty	Unit
752 0600	FENCE CHAIN LINK		
	SHOOFLY LIMITS	2400	LF
752 0922	FENCE REMOVE & RESET		
	SHOOFLY LIMITS	1750	LF

GRAPHIC SCALE (in feet)
0 75 150 225
1" = 150'

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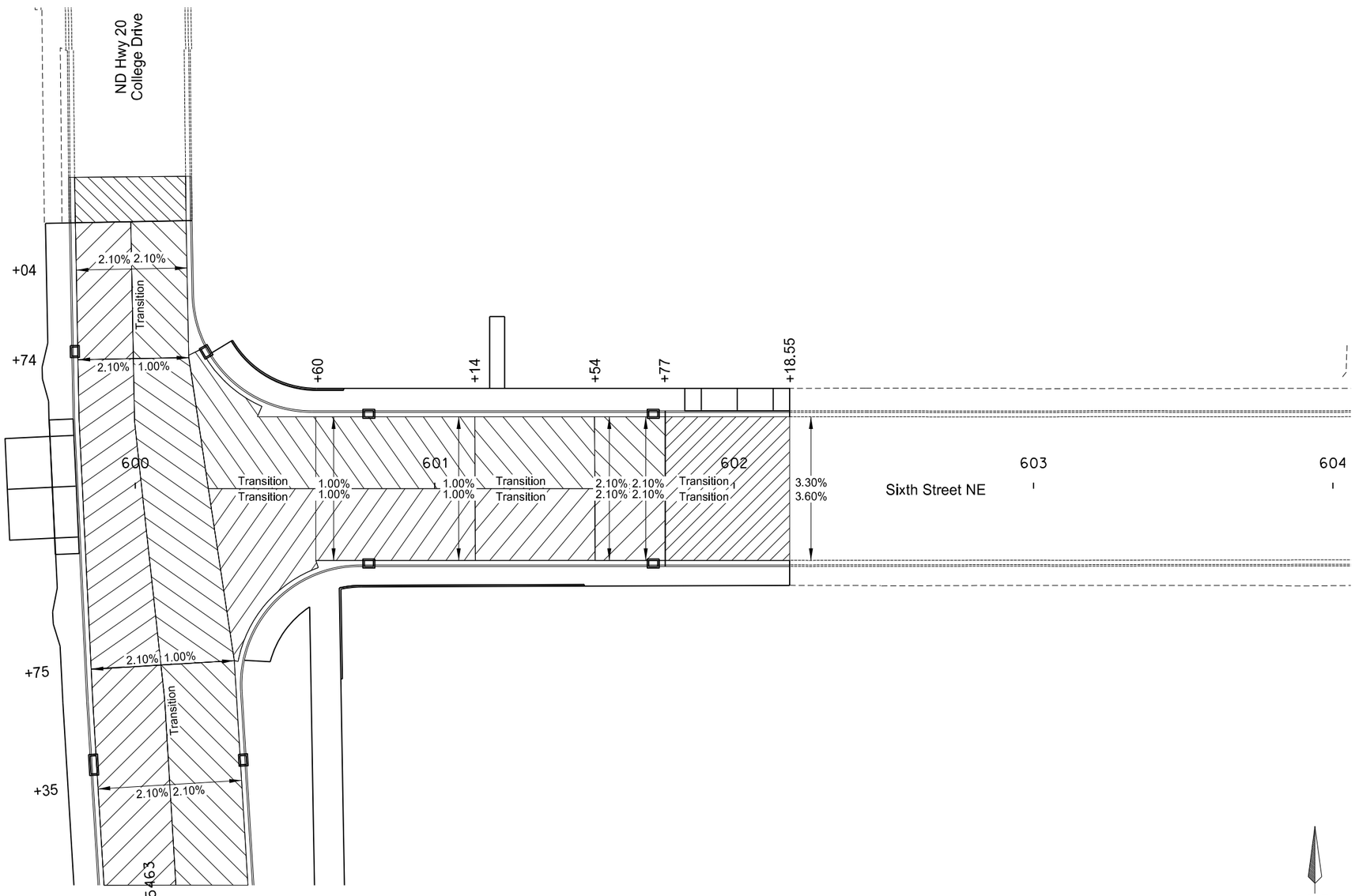
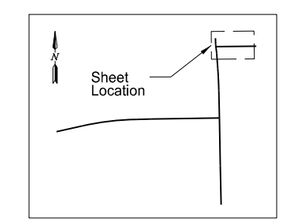
ND Highway 19 &
ND Highway 20

Fence Layout

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	80	2





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N

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

ND Highway 20 &
Sixth Street NE

Superelevation Layout
Sta. 600+70 to Sta. 602+18.55
Sta. 5463+00 to Sta. 5465+20

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - NHU-3-019(044)155, NHU-3-020(074)103 & SU-3-982(031)035

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	81	1
	NHU-3-020(074)103		
	SU-3-982(031)035		

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
CHAIN ND19 ALIGNMENT			
ND1901	8183+85.47	409,691.7966	2,366,436.0726
PC	8186+60.76	409,751.8825	2,366,704.7280
PI	8189+50.96	409,815.2225	2,366,987.9334
PT	8192+39.19	409,820.4843	2,367,278.0878
ND1902	8193+94.89	409,823.3072	2,367,433.7584
ND1903	8201+16.00	409,836.3818	2,368,154.7458
ND1904	8201+18.49	409,836.4271	2,368,157.2412
CHAIN 6TH OFFICE ALIGNMENT			
AL6001	600+00.00	410,588.3932	2,368,117.8396
AL6002	604+26.93	410,592.7330	2,368,544.7466
AL6003	620+50.94	410,605.6777	2,370,168.7015
CHAIN ND20A OFFICE ALIGNMENT			
ND2000	5447+59.43	408,918.5767	2,368,174.2697
ND2006	5451+75.20	409,334.2650	2,368,166.0240
ND2007	5456+77.44	409,836.4271	2,368,157.2412
PC	5459+64.71	410,123.6221	2,368,150.6955
PI	5460+81.91	410,240.7961	2,368,148.0249
PT	5461+99.07	410,357.7061	2,368,139.7207
ND2008	5463+60.54	410,518.7653	2,368,128.2806
ND2009	5464+53.05	410,610.6314	2,368,117.3493
ND2010	5465+20.28	410,677.8266	2,368,115.3870

CURVE DATA

ARC DEFINITION

ND 19-1	
PI STA.	= 8189+50.96
Delta	= 11° 34' 05.00" (RT)
Da	= 01° 59' 59.65"
R	= 2,864.93'
T	= 290.20'
L	= 578.43'
ND20A-1	
PI STA.	= 5460+81.91
Delta	= 02° 45' 26.28" (LT)
Da	= 01° 10' 35.42"
R	= 4,870.00'
T	= 117.20'
L	= 234.36'

US PUBLIC LAND SURVEY DATA

DESC.	SEC-TWP-RGE	NORTHING	EASTING
SQ Cor Sec 34 T-154-N R-64-W		408,388.0940	2,368,192.3370
NQ Cor Sec 34 T-154-N R-64-W		413,677.2210	2,368,071.4840

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STATION	OFFSET
CONTROL POINT DESCRIPTION					
1	402,469.0520	2,368,750.4150	1521.3470		
4 RTK	410,064.3380	2,367,815.0500	1445.3140	8197+80.49 ~ 234.08' LT	
19-1 RTK	409,916.9970	2,367,483.6280	1441.1340	8194+46.45 ~ 92.77' LT	
20-1 RTK	409,786.0080	2,368,197.0630	1442.4510	5456+26.33 ~ 38.93' RT	
20-2 RTK	410,458.4150	2,368,084.6880	1453.2820	5463+03.43 ~ 47.76' LT	

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

INITIALIZING BENCH MARK

- [X] NAVD-88
- [ ] NGVD-29
- [X] GEOID 09
- [ ] GEOID 12A
- [ ] _____

NOTES:

Date Survey Completed 06/16/14

- [ ] Assumed Coordinates
- [X] All coordinates on this sheet are Ramsey County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96). North Zone Combination Factor (cf) = 0.9998685

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PRELIMINARY SURVEY COORDINATE AND CURVE DATA - NHU-3-020(074)103

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	81	2

HORIZONTAL ALIGNMENT / CURVE DATA

PNT	STATION	NORTHING	EASTING	ARC DEFINITION		ARC DEFINITION	
CHAIN RR101 ALIGNMENT							
POT	106+10.00	409,112.8721	2,369,234.5490	RR101-1		RR101-2	
TS	106+72.31	409,153.8943	2,369,187.6517	PI STA.	= 109+14.81	PI STA.	= 115+95.13
SC	108+92.31	409,296.5991	2,369,020.2331	Delta	= 05° 17' 42.01" (LT)	Delta	= 05° 05' 44.49" (RT)
PI	109+14.81	409,313.5554	2,369,005.1246	Da	= 02° 00' 00.00"	Da	= 02° 00' 00.00"
CS	109+37.07	409,324.4829	2,368,985.2154	R	= 2,864.93'	R	= 2,864.93'
ST	111+57.07	409,455.6909	2,368,808.6422	L_s	= 220.00'	L_s	= 220.00'
TS	113+57.62	409,573.2371	2,368,646.1510	S_c	= 02° 11' 59.60" (LT)	S_c	= 02° 11' 59.60" (RT)
SC	115+77.62	409,704.4451	2,368,469.5777	Y_c	= 2.82'	Y_c	= 2.82'
PI	115+95.13	409,712.4452	2,368,453.7153	X_c	= 219.97'	X_c	= 219.97'
CS	116+12.41	409,726.0736	2,368,442.3185	T_s	= 242.50'	T_s	= 237.51'
ST	118+32.41	409,868.1951	2,368,274.4045	L	= 44.76'	L	= 34.80'
TS	122+37.98	410,134.1539	2,367,968.2133				
SC	124+57.98	410,280.5264	2,367,803.9917	RR101-3		RR101-4	
PI	124+90.57	410,299.7905	2,367,777.5203	PI STA.	= 124+90.57	PI STA.	= 131+91.50
CS	125+22.86	410,325.4506	2,367,757.1883	Delta	= 05° 41' 50.05" (RT)	Delta	= 05° 31' 52.06" (LT)
ST	127+42.86	410,483.5393	2,367,604.2123	Da	= 02° 00' 00.00"	Da	= 02° 00' 00.00"
TS	129+43.08	410,629.1956	2,367,466.8323	R	= 2,864.93'	R	= 2,864.93'
SC	131+63.08	410,787.2842	2,367,313.8564	L_s	= 220.00'	L_s	= 220.00'
PI	131+91.50	410,809.9153	2,367,296.3813	S_c	= 02° 11' 59.60" (RT)	S_c	= 02° 11' 59.60" (LT)
CS	132+19.65	410,826.5163	2,367,273.1016	Y_c	= 2.82'	Y_c	= 2.82'
ST	134+39.65	410,973.3644	2,367,109.3050	X_c	= 219.97'	X_c	= 219.97'
POT	134+57.68	410,985.2310	2,367,095.7230	T_s	= 252.59'	T_s	= 248.42'
				L	= 64.87'	L	= 56.57'

HORIZONTAL ALIGNMENT / CURVE DATA

PNT	STATION	NORTHING	EASTING	ARC DEFINITION		ARC DEFINITION	
CHAIN RR201 ALIGNMENT							
POT	206+10.00	409,098.2108	2,369,211.7244	RR201-1		RR201-2	
TS	206+45.70	409,121.7054	2,369,194.8452	PI STA.	= 208+87.68	PI STA.	= 215+71.67
SC	208+65.70	409,264.3493	2,369,027.3746	Delta	= 05° 16' 26.92" (LT)	Delta	= 05° 05' 44.49" (RT)
PI	208+87.68	409,280.9560	2,369,012.6535	Da	= 02° 00' 00.00"	Da	= 02° 00' 00.00"
CS	209+09.42	409,291.5771	2,368,993.1680	R	= 2,864.93'	R	= 2,864.93'
ST	211+29.42	409,422.7851	2,368,816.5947	L_s	= 220.00'	L_s	= 220.00'
TS	213+34.16	409,542.7879	2,368,650.7076	S_c	= 02° 11' 59.60" (LT)	S_c	= 02° 11' 59.60" (RT)
SC	215+54.16	409,673.9959	2,368,474.1343	Y_c	= 2.82'	Y_c	= 2.82'
PI	215+71.67	409,681.9960	2,368,458.2719	X_c	= 219.97'	X_c	= 219.97'
CS	215+88.96	409,695.6244	2,368,446.8751	T_s	= 241.98'	T_s	= 237.51'
ST	218+08.96	409,837.7460	2,368,278.9611	L	= 43.72'	L	= 34.80'
TS	222+38.80	410,119.6241	2,367,954.4423				
SC	224+58.80	410,265.9966	2,367,790.2208	RR201-3		RR201-4	
PI	224+91.48	410,285.3435	2,367,763.6540	PI STA.	= 224+91.51	PI STA.	= 231+96.84
CS	225+23.93	410,311.0974	2,367,743.2375	Delta	= 05° 42' 08.19" (RT)	Delta	= 05° 08' 17.52" (LT)
ST	227+43.93	410,469.1995	2,367,590.2754	Da	= 02° 00' 00.00"	Da	= 02° 00' 00.00"
TS	229+58.27	410,625.1416	2,367,443.2201	R	= 2,864.93'	R	= 2,864.93'
SC	231+78.27	410,783.2437	2,367,290.2580	L_s	= 220.00'	L_s	= 220.00'
PI	231+96.84	410,768.7120	2,367,279.5410	S_c	= 02° 11' 59.60" (RT)	S_c	= 02° 11' 59.60" (LT)
CS	232+15.19	410,808.9438	2,367,263.7476	Y_c	= 2.82'	Y_c	= 2.82'
ST	234+35.19	410,956.9260	2,367,100.9750	X_c	=219.97'	X_c	= 219.97'
POT	234+57.77	410,971.8996	2,367,084.0753	T_s	= 252.71'	T_s	= 238.57'
				L	= 65.12'	L	= 36.92'

NOTES:

Date Survey Completed 06/16/14

☐ Assumed Coordinates

☒ All coordinates on this sheet are Ramsey County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96). North Zone Combination Factor (cf) = 0.9998685

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

INITIALIZING BENCH MARK

☒ NAVD-88
☐ NGVD-29
☒ GEOID 09 ☐ _____
☐ GEOID 12A

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PRELIMINARY SURVEY COORDINATE AND CURVE DATA - NHU-3-020(074)103

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	81	3

HORIZONTAL ALIGNMENT / CURVE DATA

PNT	STATION	NORTHING	EASTING	ARC DEFINITION		ARC DEFINITION	
CHAIN RR301 ALIGNMENT							
POT	300+00.00	410,072.3472	2,368,039.3697	RR301-1		RR301-2	
PC	300+93.72	410,139.9710	2,367,974.4816	PI STA.	= 301+71.74	PI STA.	= 304+72.22
PI	301+71.74	410,196.2646	2,367,920.4653	Delta	= 14° 43' 29.60" (RT)	Delta	= 19° 46' 29.41" (LT)
PT	302+48.90	410,264.4392	2,367,882.5316	Da	= 09° 30' 00.00"	Da	= 09° 29' 21.11"
PC	303+66.97	410,367.6212	2,367,825.1191	R	= 603.80'	R	= 603.80'
PI	304+72.22	410,459.5867	2,367,773.9477	T	= 78.02'	T	= 105.24'
PT	305+75.37	410,528.8163	2,367,694.6798	L	= 155.18'	L	= 208.39'
POT	311+94.70	410,936.2186	2,367,228.2043				
CHAIN RR401 ALIGNMENT							
POT	400+00.00	410,290.8028	2,367,867.8624	RR401-1			
PC	400+77.69	410,362.4577	2,367,837.8404	PI STA.	= 402+94.33		
PI	402+94.33	410,562.2697	2,367,754.1232	Delta	= 39° 28' 32.15" (RT)		
PT	404+93.70	410,769.7269	2,367,816.5327	Da	= 09° 29' 21.11"		
POT	408+20.00	411,082.1973	2,367,910.5334	R	= 603.80'		
				T	= 216.64'		
				L	= 416.01'		

PNT	STATION	NORTHING	EASTING	ARC DEFINITION		ARC DEFINITION	
CHAIN PML-1 ALIGNMENT							
POT	500+00.00	409,112.8901	2,369,234.5648	PML-1		PML-2	
TS	503+16.78	409,321.3354	2,368,996.0292	PI STA.	= 504+26.48	PI STA.	= 509+02.13
SC	504+16.78	409,387.2100	2,368,920.7926	Delta	= 00° 32' 52.94" (RT)	Delta	= 00° 34' 08.66" (LT)
PI	504+26.48	409,393.5239	2,368,913.4199	Da	= 00° 20' 00.00"	Da	= 00° 20' 00.00"
CS	504+36.19	409,400.0340	2,368,906.2198	R	= 17,188.76'	R	= 17,188,76
ST	505+36.19	409,466.2845	2,368,831.3141	L_s	= 100.00'	L_s	= 100.00'
TS	507+66.77	409,619.2118	2,368,658.7453	S_c	= 00° 10' 00.00" (RT)	S_c	= 00° 10' 00.00" (LT)
SC	508+66.77	409,685.4623	2,368,583.8395	Y_c	= 0.10'	Y_c	= 0.10'
PI	509+02.14	409,708.9880	2,368,557.4385	X_c	= 100.00'	X_c	= 100.00'
CS	509+37.49	409,732.1038	2,368,530.6780	T_s	= 109.71'	T_s	= 135.36'
ST	510+37.49	409,797.7535	2,368,455.2451	L	= 19.41'	L	= 70.72'
TS	518+67.20	410,341.5243	2,367,828.5605				
SC	519+67.20	410,407.1404	2,367,753.0984	PML-3		PML-4	
PI	520+05.55	410,432.1995	2,367,724.0746	PI STA.	= 520+05.55	PI STA.	= 524+44.18
CS	520+43.89	410,457.7007	2,367,695.4385	Delta	= 00° 35' 20.25" (RT)	Delta	= 00° 23' 50.36" (LT)
ST	521+43.89	410,523.9438	2,367,620.5263	Da	= 00° 20' 00.00"	Da	= 00° 20' 00.00"
TS	523+44.58	410,657.0322	2,367,470.3146	R	= 17,188.76'	R	= 17,188.76'
SC	524+24.58	410,710.0383	2,367,410.3951	L_s	= 100.00'	L_s	= 80.00'
PI	524+44.18	410,723.0817	2,367,395.7670	S_c	= 00° 10' 00.00" (RT)	S_c	= 00° 08' 00.00" (LT)
CS	524+63.78	410,735.9300	2,367,380.9672	Y_c	= 0.10'	Y_c	= 0.10'
ST	525+43.78	410,788.6128	2,367,320.7632	X_c	= 100.00'	X_c	= 100.00'
POT	528+42.61	410,985.2283	2,367,095.7261	T_s	= 138.34'	T_s	= 99.60'
				L	= 76.69'	L	= 39.20'

NOTES:

Date Survey Completed 06/16/14

☐ Assumed Coordinates

☒ All coordinates on this sheet are Ramsey County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96). North Zone Combination Factor (cf) = 0.9998685

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

INITIALIZING BENCH MARK

☒ NAVD-88
☐ NGVD-29

☒ GEOID 09 ☐ _____
☐ GEOID 12A

This document was originally issued and sealed by Brian R. Heath Registration Number LS- 7538, on 08/15/16 and the original document is stored at the North Dakota Department of Transportation

PRELIMINARY SURVEY COORDINATE AND CURVE DATA - NHU-3-020(074)103

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	81	4

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
CHAIN PSD-1 ALIGNMENT			
POT	600+00.00	409,098.2109	2,369,221.7245
TS	603+06.08	409,299.6278	2,368,991.2531
SC	604+06.08	409,365.5058	2,368,916.0196
PI	604+26.47	409,378.8513	2,368,900.6017
CS	604+46.86	409,392.4676	2,368,885.4224
ST	605+46.86	409,458.8146	2,368,810.6022
TS	607+76.02	409,610.3977	2,368,638.7440
SC	608+76.02	409,676.5668	2,368,563.7664
PI	609+02.05	409,693.8828	2,368,544.3300
CS	609+28.08	409,710.8798	2,368,524.6139
ST	610+28.08	409,776.5294	2,368,449.1811
TS	615+95.29	410,148.4845	2,368,020.9591
SC	616+75.29	410,200.9925	2,367,960.6026
PI	616+77.64	410,202.4869	2,367,958.7876
CS	616+79.99	410,204.0835	2,367,957.0618
ST	617+59.99	410,256.7950	2,367,896.8830
TS	624+48.50	410,710.8517	2,367,379.3132
SC	625+28.50	410,763.6565	2,367,319.2162
PI	625+30.76	410,765.1012	2,367,317.4754
CS	625+33.02	410,766.6473	2,367,315.8239
ST	626+13.02	410,819.6541	2,367,255.9050
POT	628+42.59	410,971.8968	2,367,084.0784

CURVE DATA

ARC DEFINITION			
PSD-1		PSD-2	
PI STA.	= 604+26.47	PI STA.	= 609+02.05
Delta	= 00° 28' 09.38" (RT)	Delta	= 00° 30' 24.72" (LT)
Da	= 00° 20' 00.00"	Da	= 00° 20' 00.00"
R	= 17,188.76'	R	= 17,188,76
L_s	= 100.00'	L_s	= 100.00'
S_c	= 00° 10' 00.00" (RT)	S_c	= 00° 10' 00.00" (LT)
Y_c	= 0.10'	Y_c	= 0.10'
X_c	= 100.00'	X_c	= 100.00'
T_s	= 120.39'	T_s	= 126.03'
L	= 40.78	L	= 70.72'
PSD-3		PSD-4	
PI STA.	= 616+77.64	PI STA.	= 625+30.76
Delta	= 00° 16' 56.40" (RT)	Delta	= 00° 16' 54.27" (RT)
Da	= 00° 20' 00.00"	Da	= 00° 20' 00.00"
R	= 17,188.76'	R	= 17,188.76'
L_s	= 80.00'	L_s	= 80.00'
S_c	= 00° 08' 00.00" (RT)	S_c	= 00° 08' 00.00" (LT)
Y_c	= 0.06'	Y_c	= 0.06'
X_c	= 80.00'	X_c	= 80.00'
T_s	= 82.35'	T_s	= 82.26'
L	= 4.70'	L	= 39.20'

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
CHAIN P1361 ALIGNMENT			
POT	800+00.00	410,152.3342	2,368,047.0258
PC	802+02.81	410,298.6695	2,367,906.6103
PI	802+13.96	410,306.7157	2,367,898.8897
PT	802+25.11	410,315.0415	2,367,891.4714
PC	804+40.31	410,475.7174	2,367,748.3081
PI	804+78.12	410,503.9459	2,367,723.1564
PT	805+15.83	410,528.8163	2,367,694.6799
POT	813+58.31	411,083.0043	2,367,060.1346
CHAIN P1352 ALIGNMENT			
POT	900+00.00	410,242.9586	2,367,960.0676
PC	900+78.18	410,305.0221	2,367,912.5175
PI	903+56.57	410,526.0026	2,367,743.2130
PT	905+92.80	410,792.5829	2,367,823.4085
POT	908+95.23	411,082.1973	2,367,910.5334

CURVE DATA

ARC DEFINITION			
P1361-1		P1361-2	
PI STA.	= 802+13.96	PI STA.	= 804+78.12
Delta	= 2° 06' 57.86" (RT)	Delta	= 7° 09' 57.69" (RT)
Da	= 9° 29' 21.11"	Da	= 9° 29' 21.11"
R	= 603.80'	R	= 603.80'
T	= 11.15'	T	= 37.81'
L	= 22.30'	L	= 75.52'
P1352-1			
PI STA.	= 903+56.57		
Delta	= 54° 12' 01.76" (RT)		
Da	= 10° 31' 56.32"		
R	= 544.00'		
T	= 278.38'		
L	= 514.61'		

NOTES:

Date Survey Completed 06/16/14

☐ Assumed Coordinates

☒ All coordinates on this sheet are Ramsey County ground coordinates. They are derived from the "North Dakota Coordinate System of 1983", NAD83(CORS96). North Zone Combination Factor (cf) = 0.9998685

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

INITIALIZING BENCH MARK

☒ NAVD-88
☐ NGVD-29
☒ GEOID 09 ☐ _____
☐ GEOID 12A

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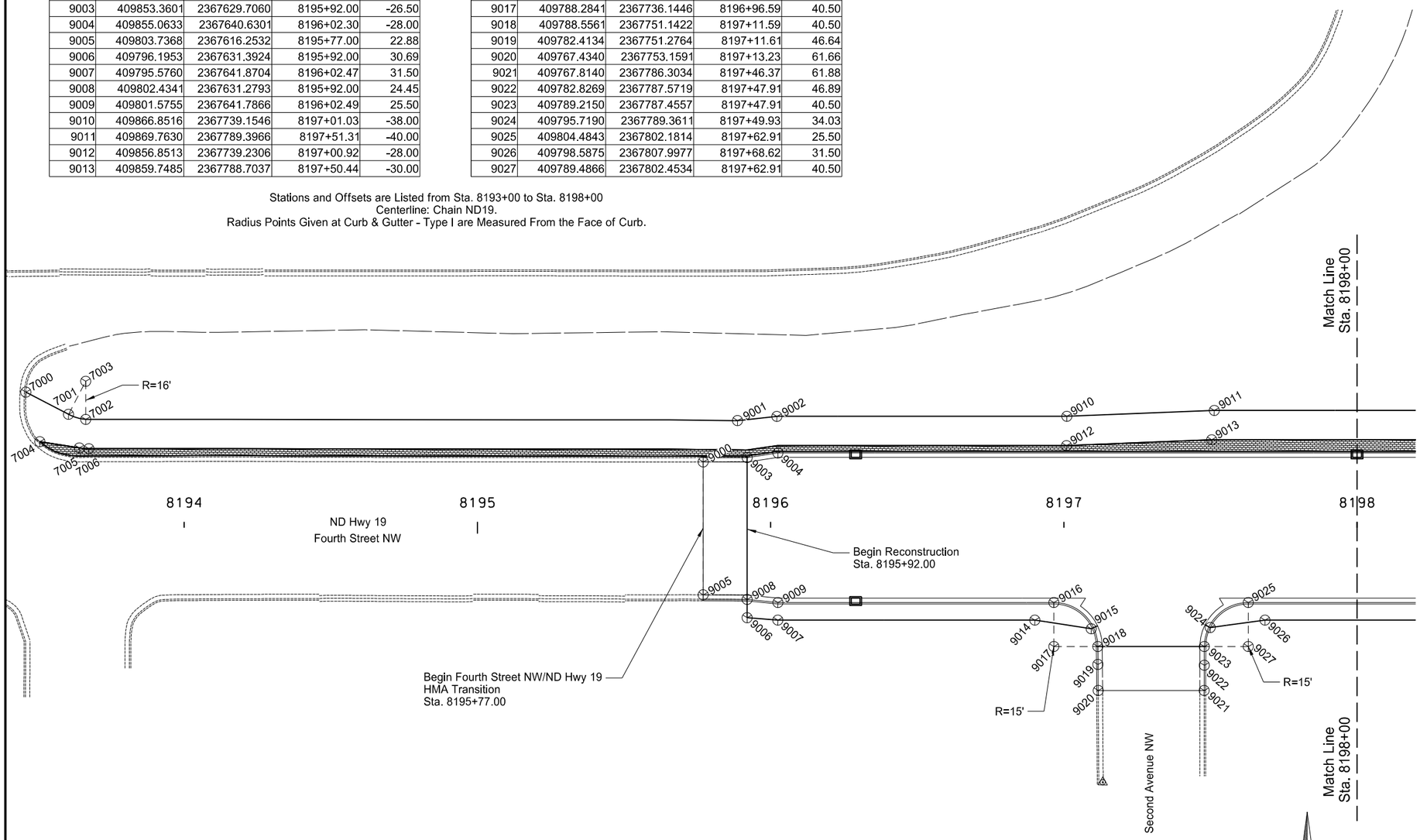
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	82	1

PARTICIPATING

POINT	NORTHING	EASTING	STATION	OFFSET
9000	409849.0530	2367615.4314	8195+77.00	-22.45
9001	409863.3636	2367626.8955	8195+88.72	-36.55
9002	409865.0251	2367640.2804	8196+02.13	-37.97
9003	409853.3601	2367629.7060	8195+92.00	-26.50
9004	409855.0633	2367640.6301	8196+02.30	-28.00
9005	409803.7368	2367616.2532	8195+77.00	22.88
9006	409796.1953	2367631.3924	8195+92.00	30.69
9007	409795.5760	2367641.8704	8196+02.47	31.50
9008	409802.4341	2367631.2793	8195+92.00	24.45
9009	409801.5755	2367641.7866	8196+02.49	25.50
9010	409866.8516	2367739.1546	8197+01.03	-38.00
9011	409869.7630	2367789.3966	8197+51.31	-40.00
9012	409856.8513	2367739.2306	8197+00.92	-28.00
9013	409859.7485	2367788.7037	8197+50.44	-30.00

POINT	NORTHING	EASTING	STATION	OFFSET
9014	409797.1651	2367729.4958	8196+90.10	31.50
9015	409794.5516	2367748.7889	8197+09.35	34.46
9016	409803.2817	2367735.8727	8196+96.59	25.50
9017	409788.2841	2367736.1446	8196+96.59	40.50
9018	409788.5561	2367751.1422	8197+11.59	40.50
9019	409782.4134	2367751.2764	8197+11.61	46.64
9020	409767.4340	2367753.1591	8197+13.23	61.66
9021	409767.8140	2367786.3034	8197+46.37	61.88
9022	409782.8269	2367787.5719	8197+47.91	46.89
9023	409789.2150	2367787.4557	8197+47.91	40.50
9024	409795.7190	2367789.3611	8197+49.93	34.03
9025	409804.4843	2367802.1814	8197+62.91	25.50
9026	409798.5875	2367807.9977	8197+68.62	31.50
9027	409789.4866	2367802.4534	8197+62.91	40.50

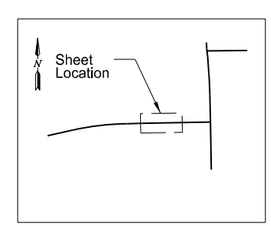
Stations and Offsets are Listed from Sta. 8193+00 to Sta. 8198+00
Centerline: Chain ND19.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.



NON-PARTICIPATING

POINT	NORTHING	EASTING	STATION	OFFSET
7000	409868.6695	2367384.0427	8193+46.01	-46.26
7001	409861.3607	2367398.7251	8193+60.55	-38.68
7002	409859.7316	2367404.6243	8193+66.42	-36.95
7003	409872.7340	2367404.3866	8193+66.42	-49.95
7004	409851.8595	2367389.0969	8193+50.75	-29.36
7005	409849.9629	2367402.6155	8193+64.24	-27.22
7006	409849.7541	2367405.8865	8193+67.50	-26.95

Stations and Offsets are Listed from Sta. 8193+00 to Sta. 8198+00
Centerline: Chain ND19.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.



N

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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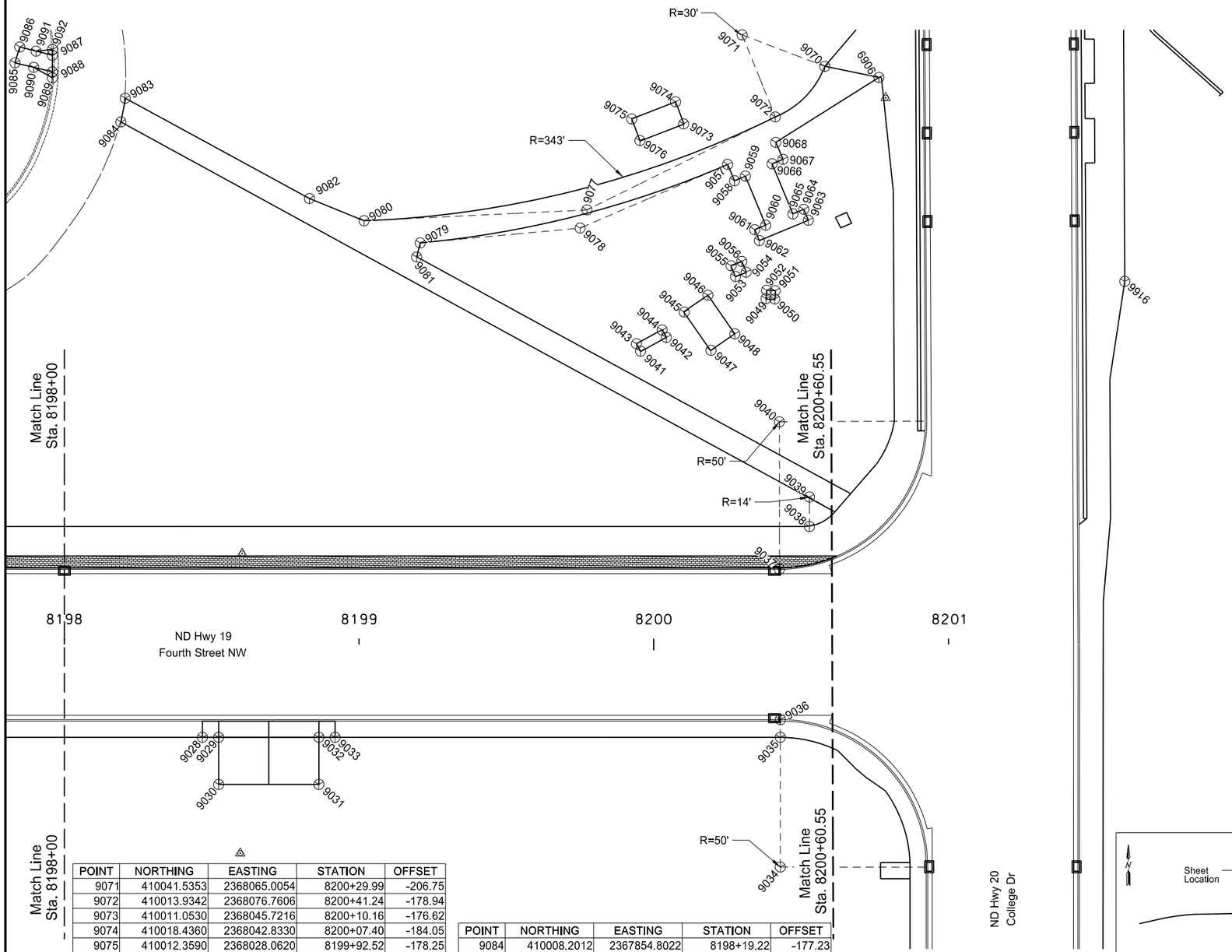
ND Highway 19

Survey Data Layout
Sta. 8195+77 to Sta. 8198+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	82	2

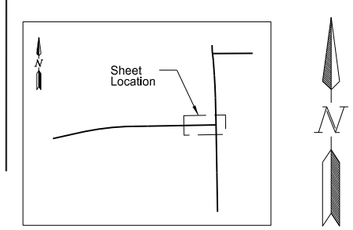


POINT	NORTHING	EASTING	STATION	OFFSET
9028	409800.0076	2367886.2442	8198+46.88	31.50
9029	409800.1076	2367891.7419	8198+52.38	31.50
9030	409784.1100	2367892.0333	8198+52.38	47.50
9031	409784.7264	2367926.0276	8198+86.38	47.50
9032	409800.7237	2367925.7375	8198+86.38	31.50
9033	409800.8235	2367931.2366	8198+91.88	31.50
9034	409759.5697	2368083.0739	8200+42.94	75.50
9035	409803.5624	2368082.2761	8200+42.94	31.50
9036	409809.5615	2368082.1673	8200+42.94	25.50
9037	409860.5476	2368080.9390	8200+42.64	-25.50
9038	409875.2295	2368090.8389	8200+52.80	-40.00
9039	409885.2279	2368090.6576	8200+52.80	-50.00
9040	409910.5393	2368080.0324	8200+42.64	-75.50
9041	409933.6370	2368032.4920	8199+95.53	-99.46
9042	409938.4500	2368041.1490	8200+04.27	-104.11
9043	409936.1562	2368031.0502	8199+94.13	-102.00
9044	409940.9690	2368039.6730	8200+02.84	-106.66
9045	409947.1960	2368047.0750	8200+10.35	-112.75
9046	409953.0771	2368054.9853	8200+18.37	-118.48
9047	409934.3720	2368056.3690	8200+19.41	-99.76
9048	409940.1010	2368064.3430	8200+27.49	-105.34
9049	409952.2586	2368074.7492	8200+38.11	-117.31
9050	409952.1740	2368077.6890	8200+41.05	-117.17
9051	409954.9910	2368077.7720	8200+41.19	-119.99
9052	409955.0990	2368074.8910	8200+38.31	-120.15
9053	409959.5650	2368064.2540	8200+27.75	-124.80
9054	409961.0820	2368067.8180	8200+31.34	-126.26
9055	409963.1590	2368062.6800	8200+26.24	-128.43
9056	409964.7020	2368066.2770	8200+29.87	-129.90
9057	409997.5152	2368060.8805	8200+25.07	-162.81
9058	409992.0278	2368063.3072	8200+27.39	-157.28
9059	409993.6456	2368066.9655	8200+31.08	-158.83
9060	409977.1476	2368074.1637	8200+37.98	-142.20
9061	409975.5480	2368070.4974	8200+34.28	-140.67
9062	409971.8817	2368072.0970	8200+35.82	-136.98
9063	409979.0799	2368088.5951	8200+52.44	-143.87
9064	409982.7462	2368086.9955	8200+50.91	-147.57
9065	409981.1466	2368083.3293	8200+47.22	-146.04
9066	409997.9882	2368075.9745	8200+40.17	-163.01
9067	409999.5878	2368079.6407	8200+43.86	-164.54
9068	410005.2935	2368077.0847	8200+41.41	-170.29
9069	410027.9640	2368111.6540	8200+76.38	-192.33
9070	410031.3820	2368093.2350	8200+58.03	-196.08

Stations and Offsets are Listed from Sta. 8198+00 to Sta. 8200+60.55
Centerline: Chain ND19.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.

POINT	NORTHING	EASTING	STATION	OFFSET
9071	410041.5353	2368065.0054	8200+29.99	-206.75
9072	410013.9342	2368076.7606	8200+41.24	-178.94
9073	410011.0530	2368045.7216	8200+10.16	-176.62
9074	410018.4360	2368042.8330	8200+07.40	-184.05
9075	410012.3590	2368028.0620	8199+92.52	-178.25
9076	410005.0560	2368030.9770	8199+95.31	-170.89
9077	409981.2314	2368013.4322	8199+77.33	-147.39
9078	409975.0260	2368011.2467	8199+75.03	-141.22
9079	409969.0260	2367957.0870	8199+20.77	-136.21
9080	409976.1970	2367937.8901	8199+01.71	-143.72
9081	409964.1996	2367955.9531	8199+19.55	-131.40
9082	409983.3824	2367919.2216	8198+83.18	-151.25
9083	410016.2362	2367856.2726	8198+20.83	-185.24

POINT	NORTHING	EASTING	STATION	OFFSET
9084	410008.2012	2367854.8022	8198+19.22	-177.23
9085	410027.5927	2367818.4877	8197+83.26	-197.28
9086	410032.9849	2367820.0193	8197+84.89	-202.64
9087	410030.3728	2367831.1188	8197+95.94	-199.83
9088	410024.7519	2367831.2561	8197+95.97	-194.20
9089	410022.7519	2367831.2561	8197+95.94	-192.20
9090	410026.1723	2367824.8719	8197+89.62	-195.74
9091	410031.6788	2367825.5690	8197+90.41	-201.23
9092	410032.3728	2367831.1188	8197+95.98	-201.83



GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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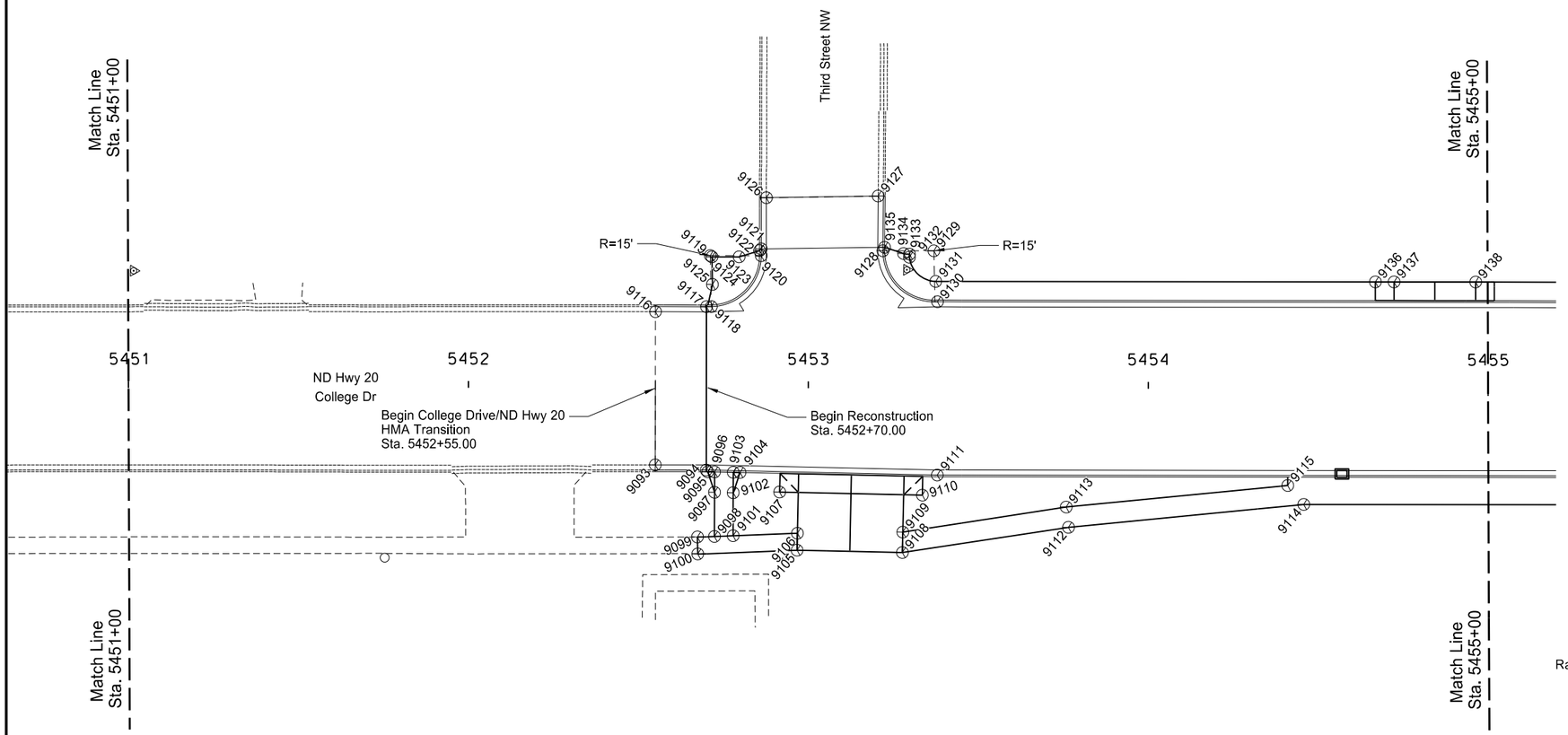
ND Highway 19

Survey Data Layout
Sta. 8198+00 to Sta. 8200+60.55

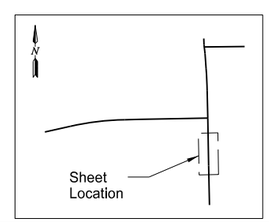
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	82	3



POINT	NORTHING	EASTING	STATION	OFFSET
9093	409413.5866	2368187.2637	5452+55.00	22.62
9094	409429.4678	2368188.4730	5452+70.00	24.11
9095	409429.9253	2368188.9743	5452+70.44	24.62
9096	409431.9253	2368188.9743	5452+72.44	24.65
9097	409432.0303	2368194.9743	5452+72.44	30.66
9098	409432.2575	2368207.9668	5452+72.44	43.65
9099	409427.2628	2368208.1974	5452+67.45	43.79
9100	409427.4445	2368213.1937	5452+67.54	48.79
9101	409437.7528	2368207.6484	5452+77.94	43.43
9102	409437.5315	2368194.9965	5452+77.94	30.77
9103	409437.4264	2368188.9906	5452+77.94	24.77
9104	409439.4264	2368188.9965	5452+79.94	24.81
9105	409456.6369	2368211.5533	5452+96.76	47.66
9106	409456.6516	2368206.5533	5452+96.86	42.66
9107	409451.1871	2368194.5371	5452+91.61	30.55
9108	409487.6367	2368211.6448	5453+27.75	48.30
9109	409487.6367	2368205.6448	5453+27.86	42.30
9110	409493.1869	2368194.6611	5453+33.60	31.41
9111	409497.4727	2368188.6734	5453+37.99	25.50
9112	409536.3410	2368203.3143	5453+76.59	40.82
9113	409535.5631	2368197.3643	5453+75.92	34.86
9114	409605.4174	2368195.2867	5454+45.80	34.00
9115	409600.6102	2368189.8050	5454+41.09	28.44
9116	409413.6438	2368142.1760	5452+55.00	-22.46
9117	409428.6273	2368140.4185	5452+70.00	-23.95
9118	409430.0779	2368140.3601	5452+71.45	-23.98
9119	409429.4741	2368125.3723	5452+71.11	-38.98
9120	409444.4718	2368125.1100	5452+86.11	-38.98
9121	409444.4231	2368123.1069	5452+86.09	-40.98
9122	409443.9455	2368123.6224	5452+85.61	-40.48
9123	409437.9713	2368125.5906	5452+79.60	-38.61
9124	409429.9871	2368125.7274	5452+71.61	-38.62
9125	409430.2665	2368133.8352	5452+71.75	-30.51
9126	409445.6755	2368108.0317	5452+87.61	-56.04
9127	409478.5260	2368106.9166	5453+20.47	-56.58
9128	409480.2236	2368122.9857	5453+21.89	-40.48
9129	409495.2213	2368122.7234	5453+36.89	-40.48
9130	409495.8251	2368137.7113	5453+37.23	-25.48
9131	409495.9354	2368131.7122	5453+37.45	-31.48
9132	409488.0543	2368124.7398	5453+29.69	-38.59
9133	409488.0543	2368123.8349	5453+29.70	-39.49
9134	409486.7820	2368123.8349	5453+28.43	-39.52
9135	409480.7046	2368121.9772	5453+22.39	-41.48
9136	409625.2680	2368129.4295	5454+66.80	-31.50
9137	409630.7673	2368129.3435	5454+72.30	-31.49
9138	409654.7636	2368128.9219	5454+96.30	-31.49

Stations and Offsets are Listed from Sta. 5452+55 to Sta. 5455+00
Centerline: Chain ND20A.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.

This document was originally issued and sealed by Matt Lange, Registration Number PE- 6870, on 08/15/16 and the original document is stored at the North Dakota Department of Transportation

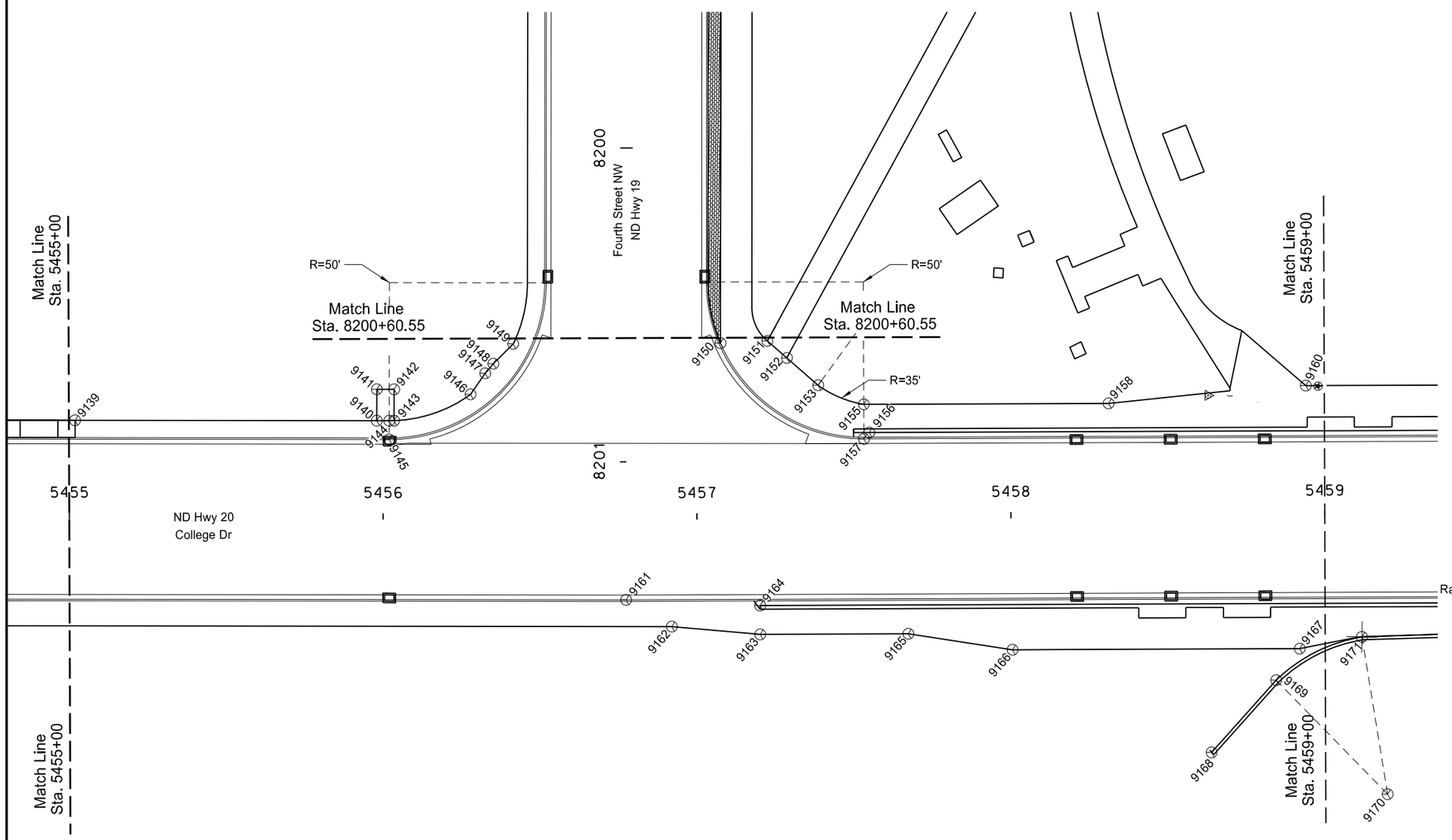


GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

ND Highway 20

Survey Data Layout
Sta. 5452+55 to Sta. 5455+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	82	4



POINT	NORTHING	EASTING	STATION	OFFSET
9139	409660.2626	2368128.8175	5455+01.80	-31.50
9140	409756.3782	2368127.1364	5455+97.93	-31.50
9141	409756.2147	2368117.1378	5455+97.94	-41.50
9142	409761.7139	2368117.0478	5456+03.44	-41.49
9143	409761.8769	2368127.0133	5456+03.43	-31.53
9144	409760.3391	2368127.0672	5456+01.89	-31.50
9145	409760.4440	2368133.0662	5456+01.89	-25.50
9146	409786.0859	2368118.1864	5456+27.79	-39.93
9147	409790.6219	2368111.3776	5456+32.44	-46.66
9148	409793.1903	2368108.2771	5456+35.07	-49.71
9149	409799.3726	2368101.8282	5456+41.36	-56.05
9150	409865.4003	2368100.3478	5457+07.70	-56.22
9151	409880.3181	2368099.3693	5457+22.64	-56.86
9152	409886.5924	2368104.6378	5457+28.79	-51.45
9153	409896.7997	2368113.2087	5457+38.80	-42.65
9154	409916.7092	2368084.4231	5457+59.36	-70.97
9155	409911.4280	2368119.0223	5457+53.29	-36.50
9156	409913.3414	2368127.9810	5457+55.00	-27.50
9157	409911.6786	2368130.0195	5457+53.29	-25.50
9158	409989.3883	2368117.2455	5458+31.27	-36.50
9159	410028.0463	2368112.4877	5458+70.03	-40.38
9160	410052.1408	2368110.4091	5458+94.16	-41.90
9161	409837.0081	2368182.7346	5456+77.44	25.50
9162	409851.6146	2368190.9808	5456+91.85	34.08
9163	409879.8087	2368192.7619	5457+20.00	36.50
9164	409879.6037	2368183.7643	5457+20.00	27.50
9165	409927.0195	2368191.6859	5457+67.22	36.50
9166	409960.2874	2368196.3338	5458+00.37	41.90
9167	410051.7704	2368194.2488	5458+91.88	41.90
9168	410024.3122	2368227.8612	5458+63.67	74.88
9169	410044.4387	2368204.4481	5458+84.32	51.93

Stations and Offsets are Listed from Sta. 5455+00 to Sta. 5459+00
Centerline: Chain ND20A.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.

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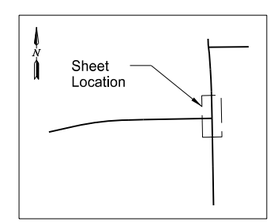
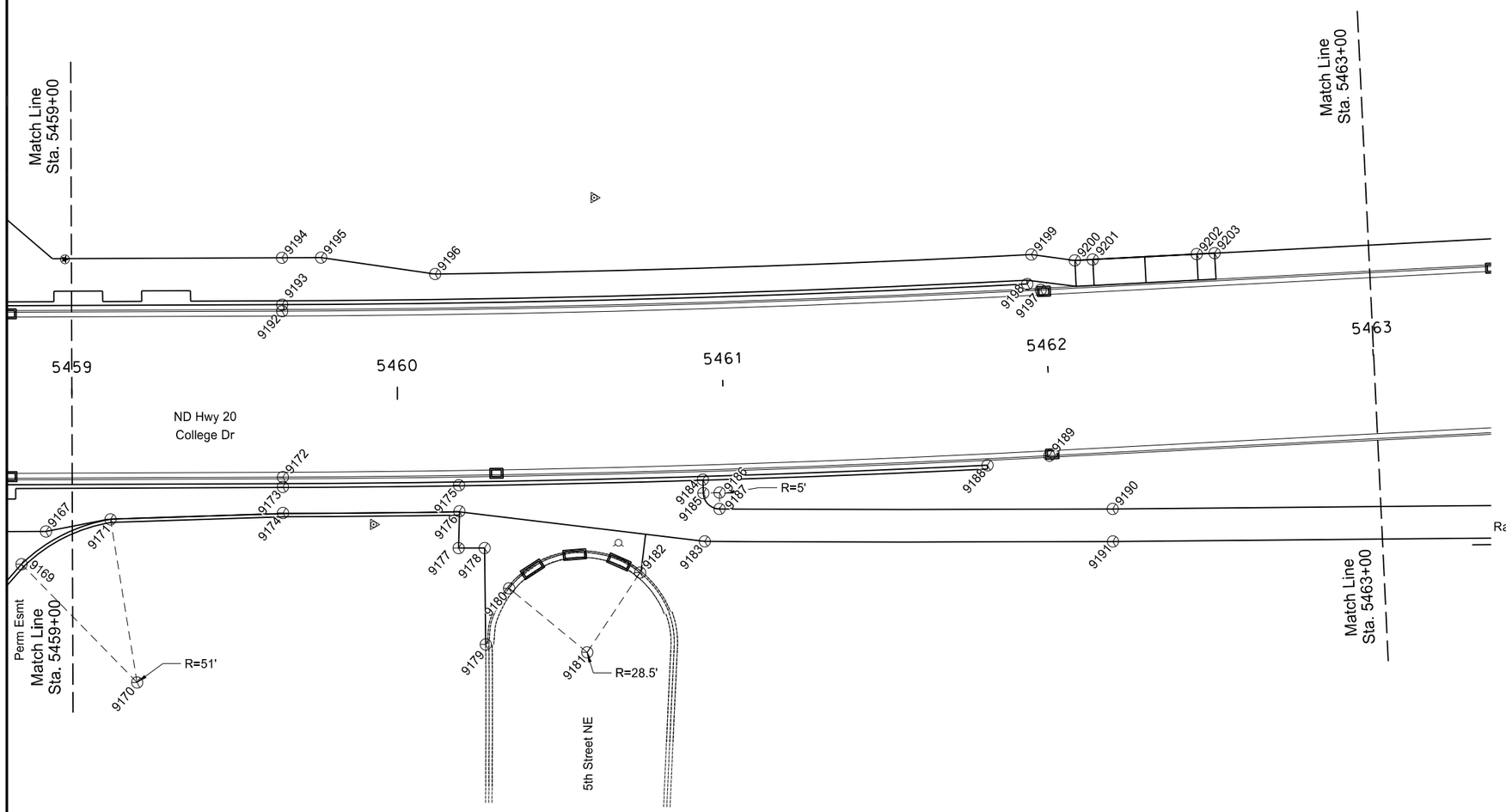


GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

ND Highway 20

Survey Data Layout
Sta. 5455+00 to Sta. 5459+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	82	5



POINT	NORTHING	EASTING	STATION	OFFSET
9170	410080.6421	2368240.1172	5459+19.70	88.42
9171	410071.5030	2368190.1536	5459+11.70	38.26
9172	410124.2145	2368176.6888	5459+64.71	26.00
9173	410124.2715	2368179.1881	5459+64.71	28.50
9174	410124.4537	2368187.1861	5459+64.71	36.50
9175	410178.3540	2368177.6566	5460+18.50	28.50
9176	410178.6283	2368185.6519	5460+18.50	36.50
9177	410178.5950	2368196.9747	5460+18.09	47.82
9178	410186.5932	2368196.8050	5460+26.01	47.92
9179	410187.4930	2368226.4098	5460+25.87	77.54
9180	410194.3259	2368209.0408	5460+33.22	60.43
9181	410218.7119	2368228.2598	5460+56.49	80.59
9182	410234.4226	2368203.4475	5460+73.03	56.48
9183	410254.1573	2368193.4788	5460+93.00	47.45
9184	410253.2266	2368174.5490	5460+93.00	28.50
9185	410253.4291	2368178.6674	5460+93.00	32.62
9186	410258.4230	2368178.4219	5460+97.97	32.63
9187	410258.4882	2368183.4214	5460+97.78	37.62
9188	410340.5228	2368168.4729	5461+80.00	27.50
9189	410359.5128	2368165.1566	5461+99.07	25.50
9190	410379.2472	2368181.1558	5462+17.62	42.86
9191	410379.5230	2368191.1520	5462+17.19	52.85
9192	410123.0410	2368125.2022	5459+64.71	-25.50
9193	410122.9954	2368123.2027	5459+64.71	-27.50
9194	410122.6716	2368108.8016	5459+64.71	-41.90
9195	410134.6843	2368108.5130	5459+76.83	-41.90
9196	410169.8145	2368112.9043	5460+12.11	-36.50
9197	410355.8993	2368114.2848	5461+99.07	-25.50
9198	410351.7184	2368112.5751	5461+95.00	-27.50
9199	410352.8268	2368103.4748	5461+96.76	-36.50
9200	410366.1973	2368105.0319	5462+10.00	-34.00
9201	410371.6835	2368104.6423	5462+15.50	-34.00
9202	410403.6031	2368102.3751	5462+47.50	-34.00
9203	410409.0893	2368101.9853	5462+53.00	-34.00

Stations and Offsets are Listed from Sta. 5459+00 to Sta. 5463+00
Centerline: Chain ND20A.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.

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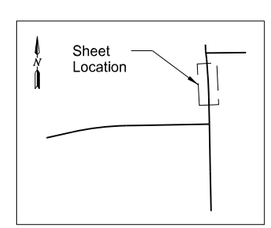
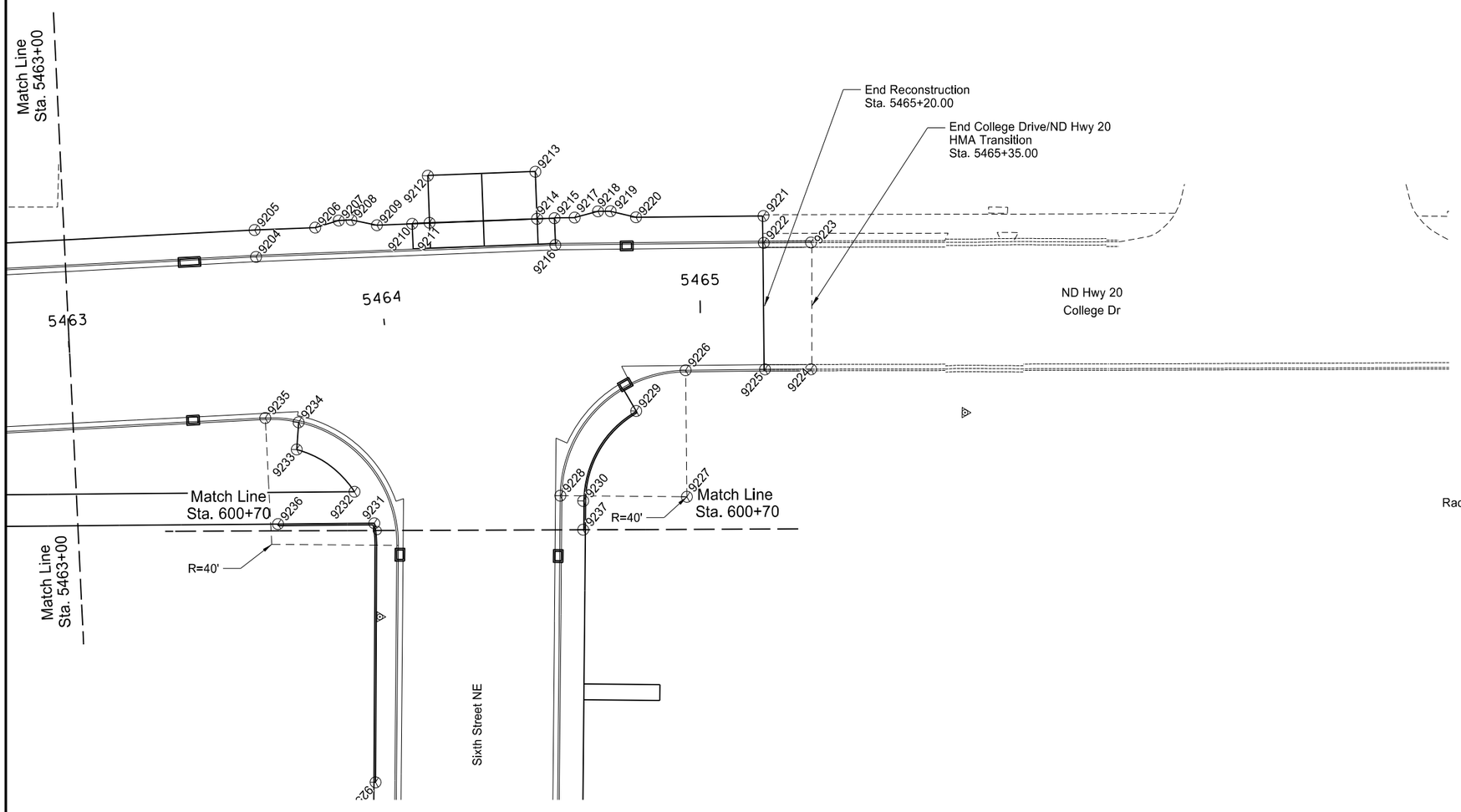


GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

ND Highway 20

Survey Data Layout
Sta. 5459+00 to Sta. 5463+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	82	6



POINT	NORTHING	EASTING	STATION	OFFSET
9204	410516.9586	2368102.8446	5463+61.75	-25.47
9205	410516.4560	2368094.3596	5463+62.25	-33.96
9206	410535.4763	2368093.2468	5463+81.27	-32.81
9207	410542.8514	2368090.8609	5463+88.88	-34.31
9208	410546.8436	2368090.6111	5463+92.87	-34.09
9209	410554.9521	2368092.1075	5464+00.74	-31.64
9210	410566.0788	2368091.3430	5464+11.88	-31.09
9211	410571.5703	2368091.0357	5464+17.37	-30.74
9212	410570.7319	2368076.0591	5464+18.31	-45.72
9213	410604.6788	2368074.1589	5464+52.24	-43.59
9214	410605.5171	2368089.1354	5464+51.31	-28.62
9215	410611.0085	2368088.8281	5464+54.26	-28.50
9216	410611.4347	2368097.3173	5464+54.44	-20.00
9217	410617.2340	2368088.5652	5464+60.49	-28.58
9218	410624.6845	2368086.4261	5464+68.00	-30.50
9219	410628.6828	2368086.3093	5464+72.00	-30.50
9220	410636.7370	2368088.0748	5464+80.00	-28.50
9221	410676.7148	2368086.9073	5465+20.00	-28.50
9222	410676.9629	2368095.4037	5465+20.00	-20.00
9223	410692.1696	2368095.0069	5465+35.00	-20.00
9224	410692.9157	2368135.0649	5465+35.00	20.00
9225	410678.1305	2368135.3866	5465+20.00	20.00
9226	410653.3212	2368136.1111	5464+95.18	20.00
9227	410654.4888	2368176.0941	5464+95.18	60.00
9228	410614.4909	2368176.5007	5464+49.89	59.19
9229	410638.0266	2368149.3945	5464+79.50	32.83
9230	410622.0068	2368178.0272	5464+62.65	60.98
9231	410555.8927	2368186.3146	5463+90.55	62.01
9232	410549.4573	2368176.4842	5463+85.32	51.49
9233	410530.9666	2368163.4721	5463+68.49	36.39
9234	410531.3861	2368154.8609	5463+69.93	27.89
9235	410520.8259	2368153.6984	5463+60.54	-25.50
9236	410525.4945	2368187.1329	5463+60.54	-59.24
9237	410621.9141	2368187.1167	5464+62.48	70.07

Stations and Offsets are Listed from Sta. 5463+00 to Sta. 5465+35
Centerline: Chain ND20A.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.

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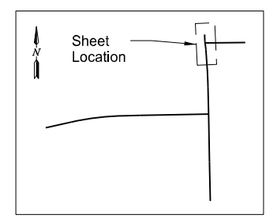
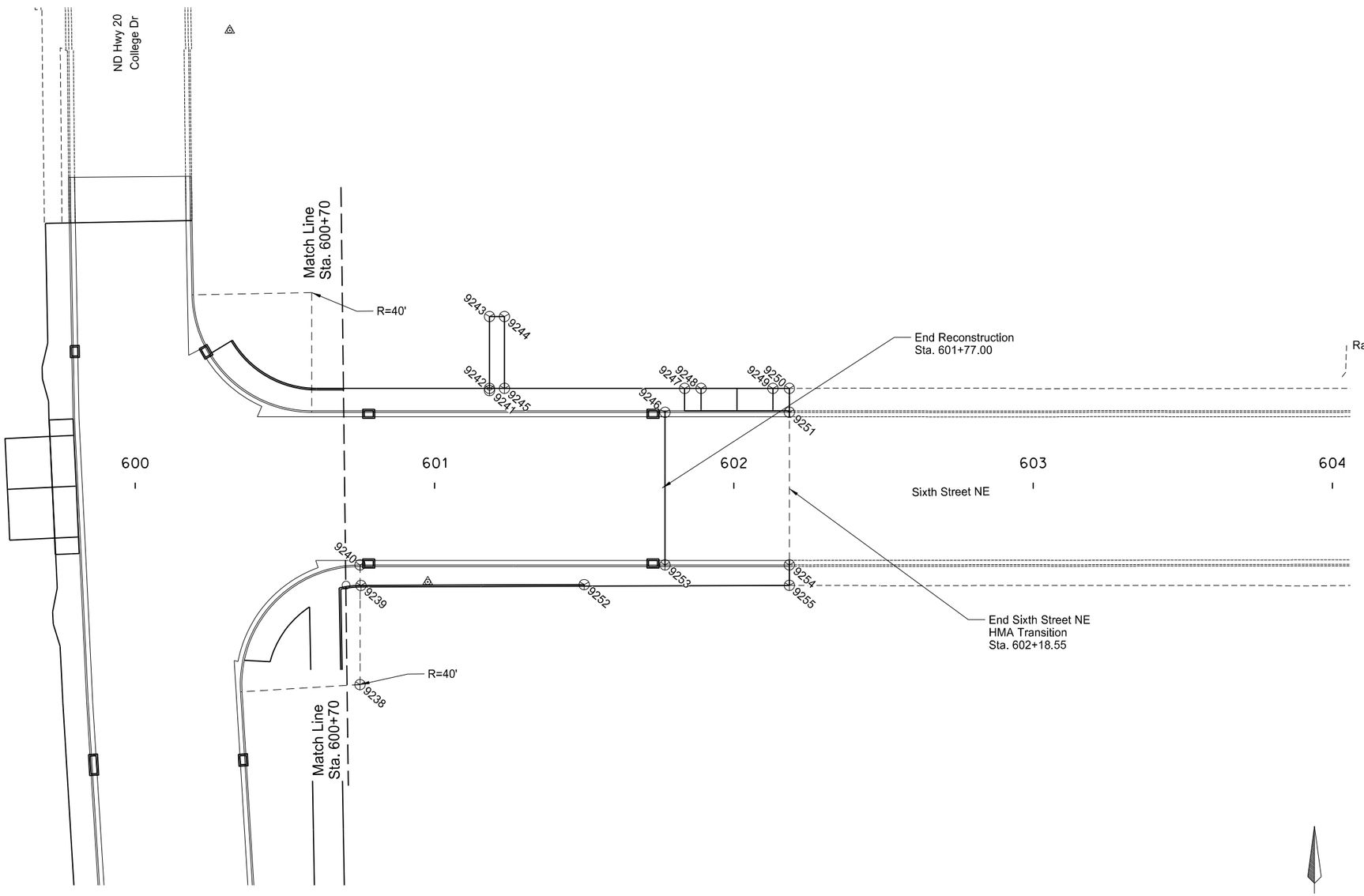


GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

ND Highway 20

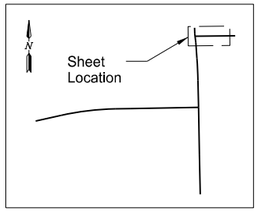
Survey Data Layout
Sta. 5463+00 to Sta. 5465+35

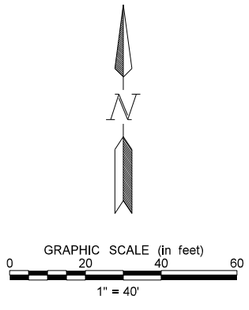
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	82	7



POINT	NORTHING	EASTING	STATION	OFFSET
9238	410523.6600	2368193.5979	600+75.10	65.50
9239	410556.7883	2368193.5573	600+75.39	32.37
9240	410563.6579	2368193.1913	600+75.10	25.50
9241	410622.5946	2368235.8537	601+18.36	-33.00
9242	410623.0946	2368235.8486	601+18.36	-33.50
9243	410647.0933	2368235.6046	601+18.36	-57.50
9244	410647.1442	2368240.6044	601+23.36	-57.50
9245	410623.1454	2368240.8483	601+23.36	-33.50
9246	410615.6911	2368294.5679	601+77.00	-25.50
9247	410623.7585	2368301.0399	601+83.55	-33.50
9248	410623.8144	2368306.5397	601+89.05	-33.50
9249	410624.0559	2368330.5384	602+13.05	-33.50
9250	410624.1143	2368336.0381	602+18.55	-33.50
9251	410616.1135	2368336.1195	602+18.55	-25.50
9252	410557.8249	2368268.1581	601+50.00	32.09
9253	410564.6937	2368295.0864	601+77.00	25.50
9254	410565.1161	2368336.6379	602+18.55	25.50
9255	410558.2774	2368336.7074	602+18.55	32.34

Stations and Offsets are Listed from Sta. 600+70 to Sta. 602+18.55
Centerline: Chain 6TH.
Radius Points Given at Curb & Gutter - Type I are Measured From the Face of Curb.





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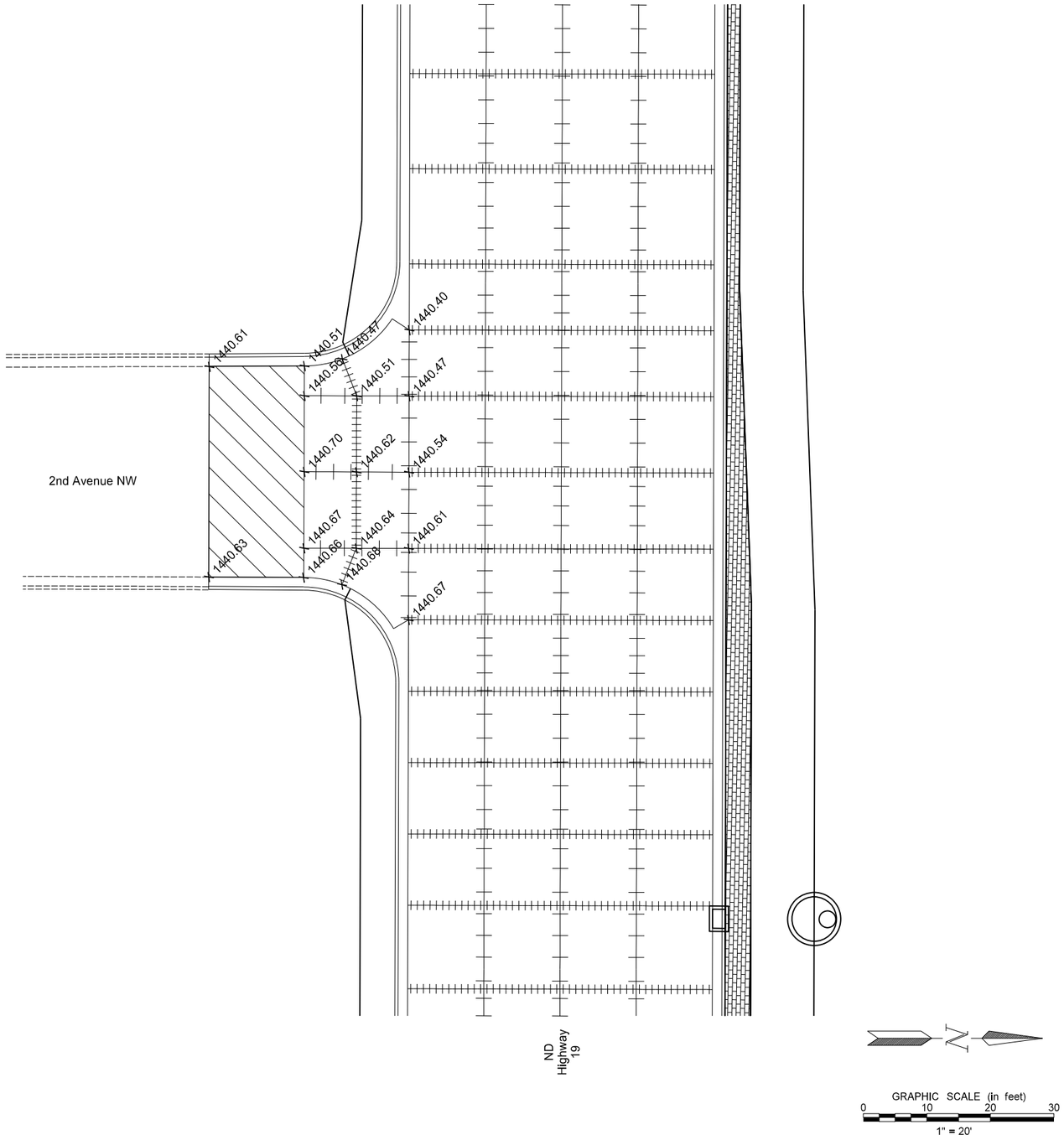
Sixth Street

Survey Data Layout
Sta. 600+70 to Sta. 602+18.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	82	8



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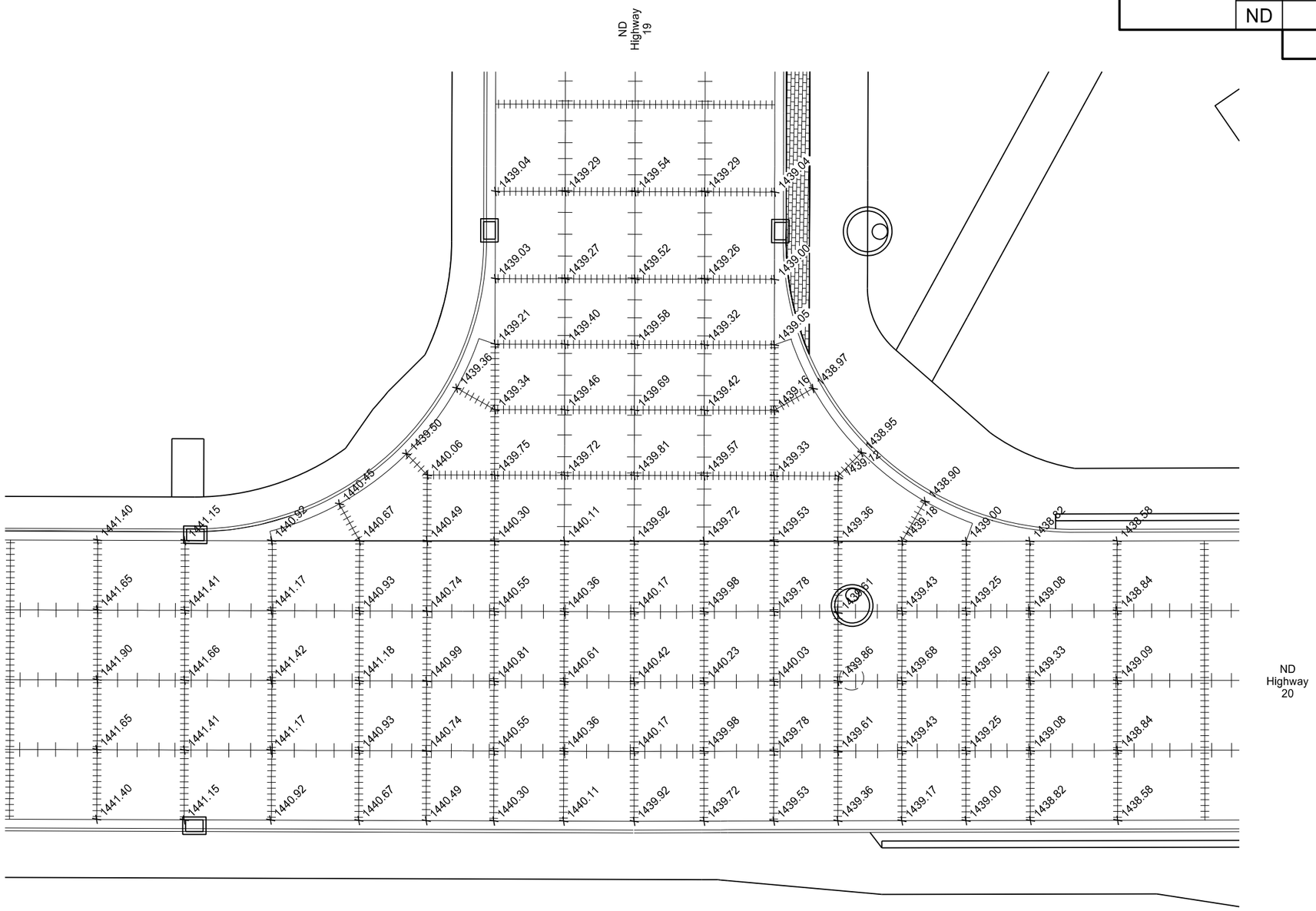
ND Highway 19

Intersection Grades
ND Highway 19

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	82	9
	NHU-3-020(074)103		



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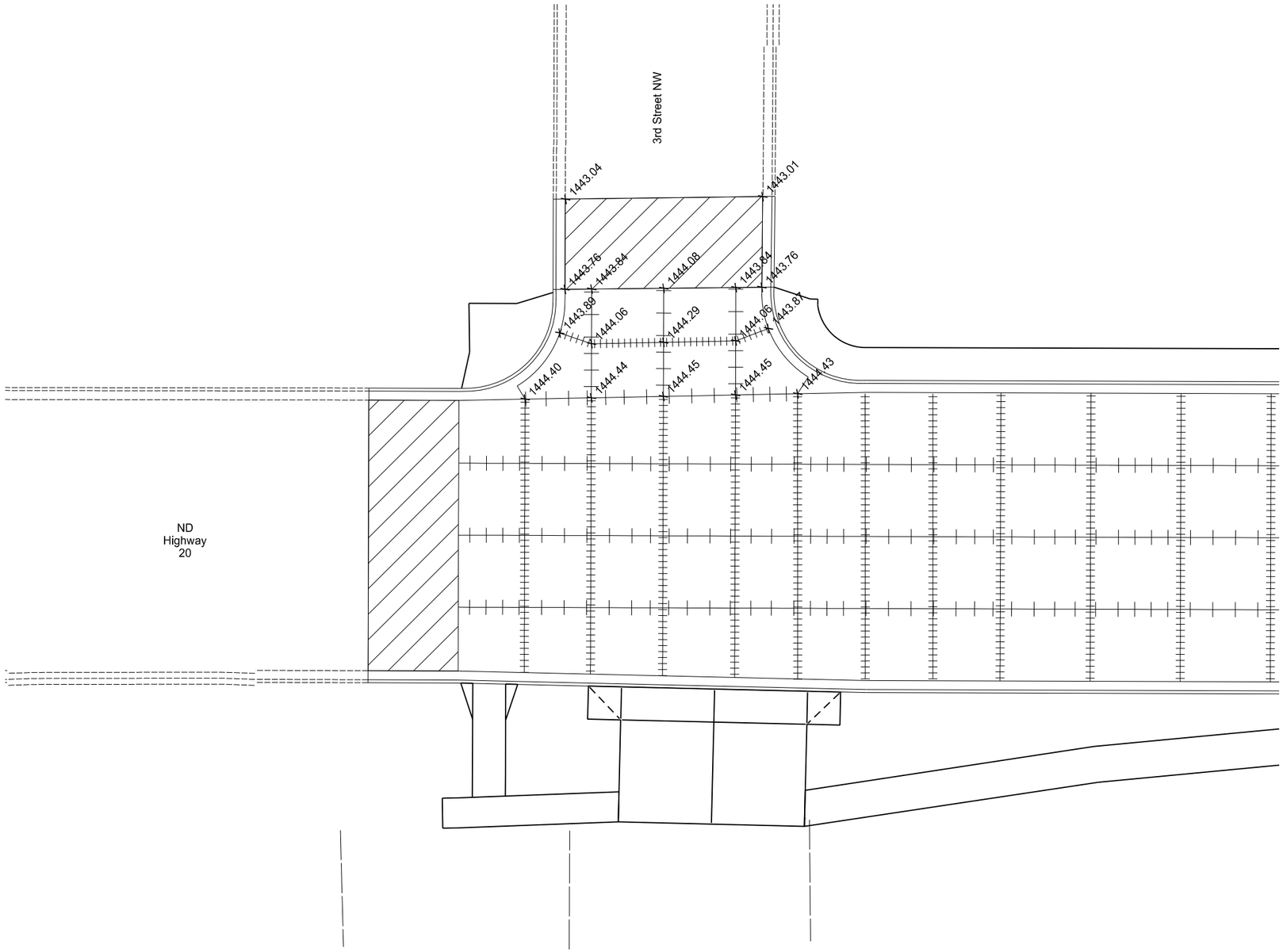
GRAPHIC SCALE (in feet)
0 10 20 30
1" = 20'

ND Highway 19 &
ND Highway 20

Intersection Grades
ND Highway 19 &
ND Highway 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	82	10



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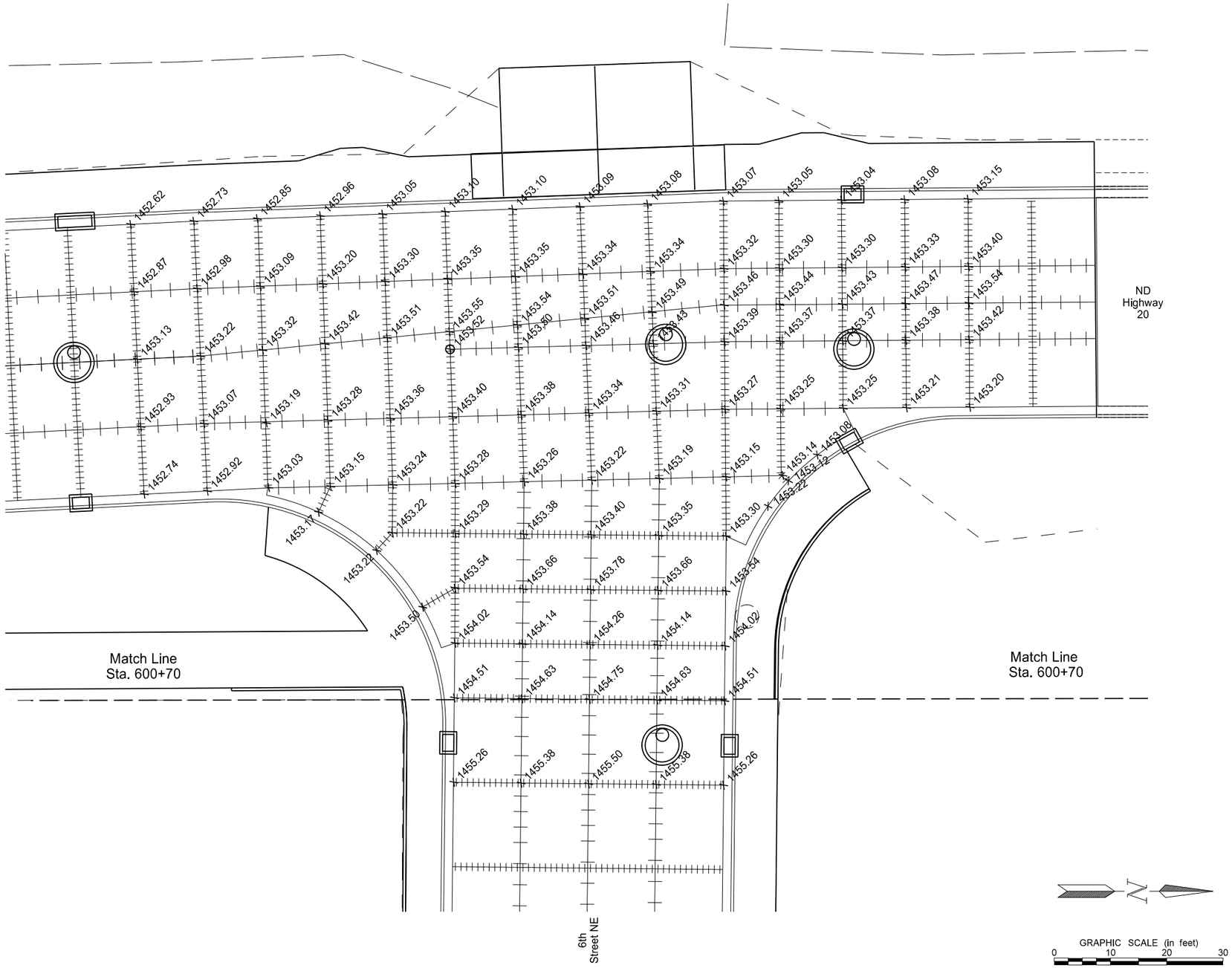
GRAPHIC SCALE (in feet)
0 10 20 30
1" = 20'

ND Highway 20

Intersection Grades
ND Highway 20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	82	11



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ND Highway 20

Intersection Grades
ND Highway 20 &
Sixth Street

Paving Summary

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	90	1
	NHU-3-020(074)103		

LOCATION	AGGREGATE BASE COURSE CL 5	COMMERCIAL GRADE HOT MIX ASPHALT	8.5IN NON-REINF CONCRETE PVMT CL AE-DOWELED	GEOSYNTHETIC MATERIAL TYPE G	CURB & GUTTER-TYPE I	CURB-TYPE I	SIDEWALK CONCRETE	DRIVEWAY CONCRETE	DRIVEWAY CONCRETE 8IN	DETECTABLE WARNING PANELS	PIGMENTED IMPRINTED CONCRETE
	TON	TON	SY	SY	LF	LF	SY	SY	SY	SF	SY
ND 19											
STA 8195+77.00 to STA 8195+92.00	47	25	-	82	30	-	-	-	-	-	-
STA 8195+92.00 to STA 8196+02.60	29	-	55	60	21	-	19	-	-	-	2
STA 8196+02.60 to STA 8197+07.40	308	-	559	606	210	-	182	-	-	10	23
STA 8197+07.40 to STA 8197+53.04	156	-	315	333	76	-	51	-	-	-	16
STA 8197+53.04 to STA 8200+60.55	909	-	1,640	1,776	615	-	505	-	-	10	135
SIDEWALK (NON-PARTICIPATING)	72	3	-	-	24	-	278	-	-	20	63
SIDEWALK (PARK)	118	2	-	-	-	-	505	-	-	26	-
DRIVEWAYS/CITY STREETS											
STA 8197+29.80 RT / 2ND AVE NW	36	18	-	-	30	-	-	-	-	-	-
STA 8198+69.00 RT	19	-	-	-	-	-	-	88	-	-	-
Subtotal (ND 19)	1,694	48	2,569	2,857	1,006	0	1,540	88	0	66	239
ND 20											
STA 5452+55.00 to STA 5452+70.45	48	26	-	83	31	-	-	-	-	-	-
STA 5452+70.45 to STA 5452+81.13	35	-	56	62	23	-	34	-	-	20	-
STA 5452+81.13 to STA 5453+26.50	143	-	311	328	73	-	13	-	-	20	-
STA 5453+26.50 to STA 5456+18.76	824	-	1,558	1,692	585	-	412	-	-	-	-
STA 5456+18.76 to STA 5457+34.60	451	-	918	963	201	-	184	-	-	62	-
STA 5457+34.60 to STA 5463+71.46	1,921	11	3,396	3,681	1,319	-	1,559	-	-	-	-
STA 5463+71.46 to STA 5464+76.36	382	-	768	811	189	64	144	-	-	60	-
STA 5464+76.36 to STA 5465+20.00	97	-	179	201	88	-	39	-	-	-	-
STA 5465+20.00 to STA 5465+35.00	39	21	-	-	30	-	-	-	-	-	-
DRIVEWAYS/CITY STREETS											
STA 5453+04.00 LT / 3RD ST NW	36	18	-	-	30	-	-	-	-	-	-
STA 5453+12.00 RT	17	-	-	-	-	-	-	-	84	-	-
STA 5454+84.00 LT	4	-	-	-	-	-	-	-	21	-	-
STA 5462+30.00 LT	8	-	-	-	-	-	-	-	38	-	-
STA 5464+31.00 LT	20	-	-	-	-	-	-	-	97	-	-
SIXTH											
STA 600+60.26 to STA 601+77.00	343	-	623	677	234	140	220	-	-	-	-
STA 601+77.00 to STA 602+18.55	136	74	-	267	83	-	-	-	-	-	-
DRIVEWAYS											
STA 601+93.00 LT	6	-	-	-	-	-	-	-	29	-	-
Subtotal (ND 20 & SIXTH)	4,510	150	7,809	8,765	2,886	204	2,605	0	269	162	0
TOTAL	6,204	198	10,378	11,622	3,892	204	4,145	88	269	228	239

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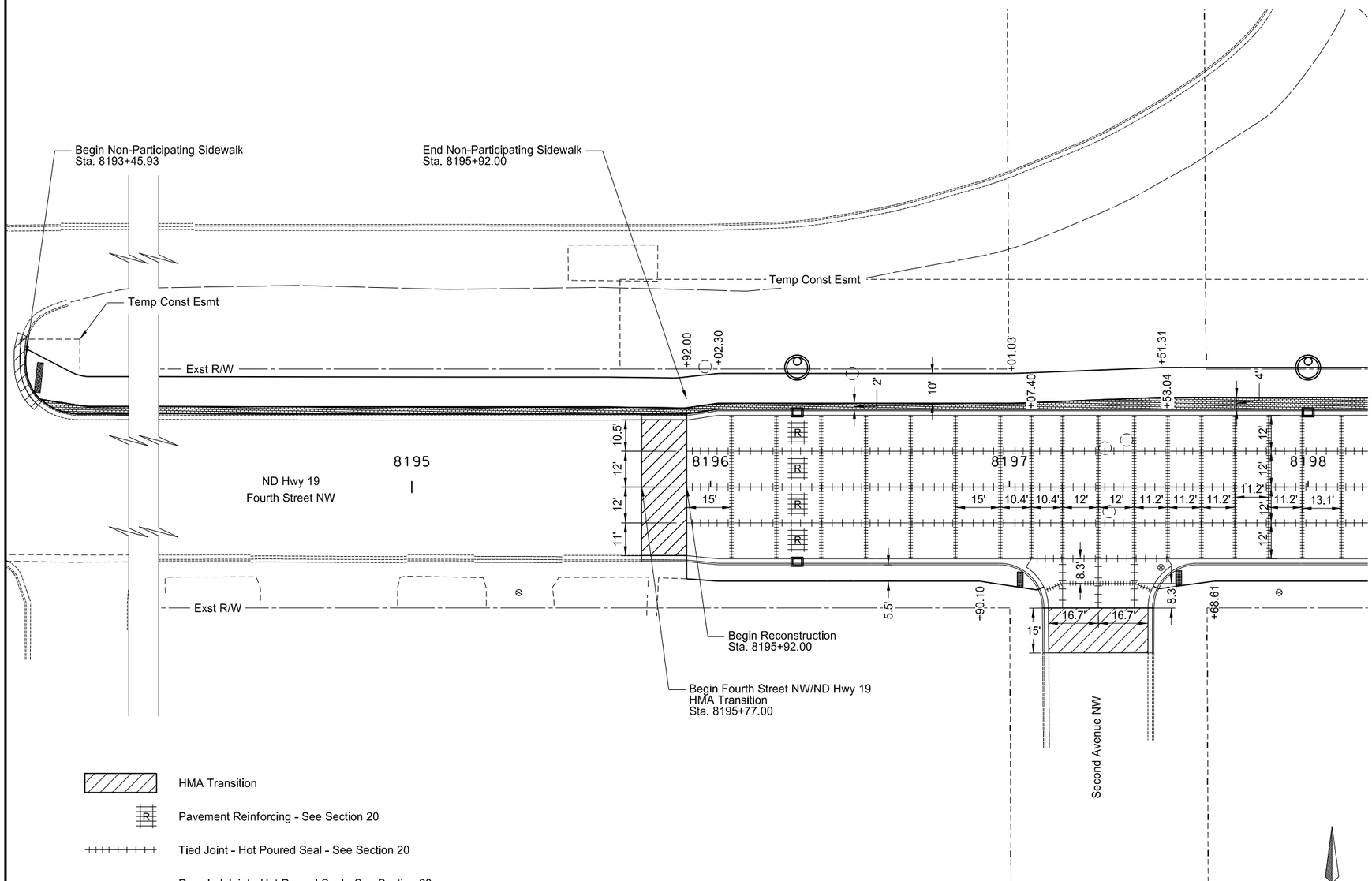
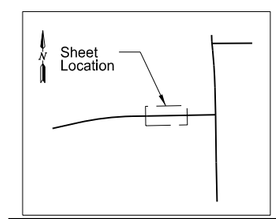
ND Highway 19 &
ND Highway 20

Paving Summary

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	90	2





HMA Transition

Pavement Reinforcing - See Section 20

Tied Joint - Hot Poured Seal - See Section 20

Doweled Joint - Hot Poured Seal - See Section 20

Keyed Joint - See Section 20

Pigmented Imprinted Concrete

Note:
Joint Spacing 15'
(Unless Otherwise Noted)

N

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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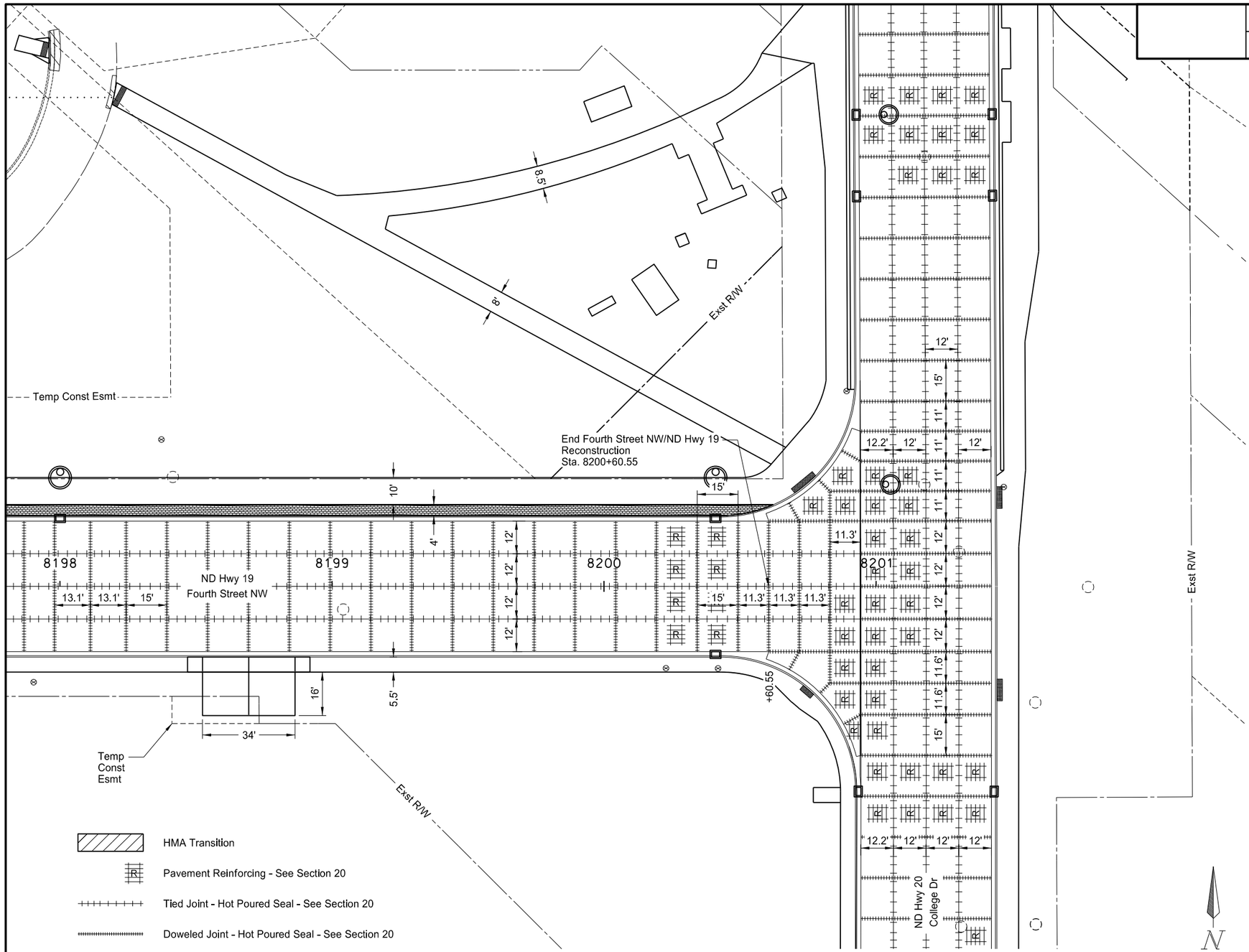
ND Highway 19

Paving Layouts
Sta. 8193+45.93 to Sta. 8198+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-019(044)155	90	3



HMA Transition

Pavement Reinforcing - See Section 20

Tied Joint - Hot Poured Seal - See Section 20

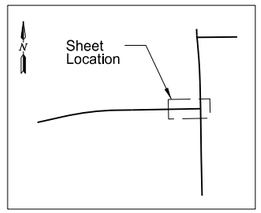
Doweled Joint - Hot Poured Seal - See Section 20

Keyed Joint - See Section 20

Pigmented Imprinted Concrete

Note:
Joint Spacing 15'
(Unless Otherwise Noted)

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'



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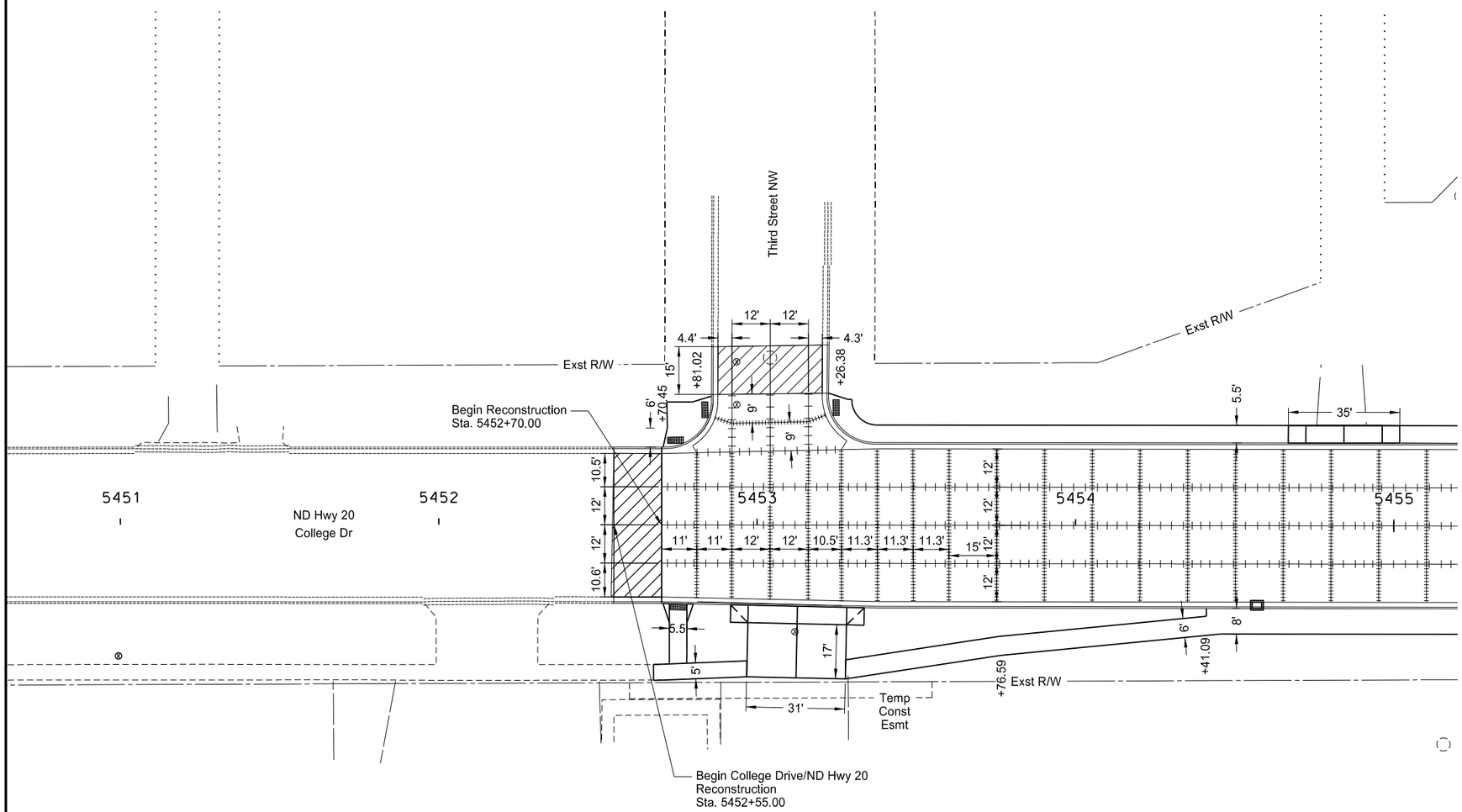
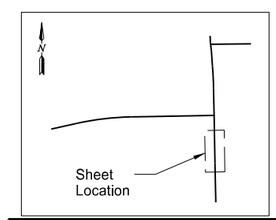
ND Highway 19

Paving Layouts
Sta. 8198+00 to Sta. 8200+94.34

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	90	4





HMA Transition

Pavement Reinforcing - See Section 20

Tied Joint - Hot Poured Seal - See Section 20

Doweled Joint - Hot Poured Seal - See Section 20

Keyed Joint - See Section 20

Note:
Joint Spacing 15'
(Unless Otherwise Noted)

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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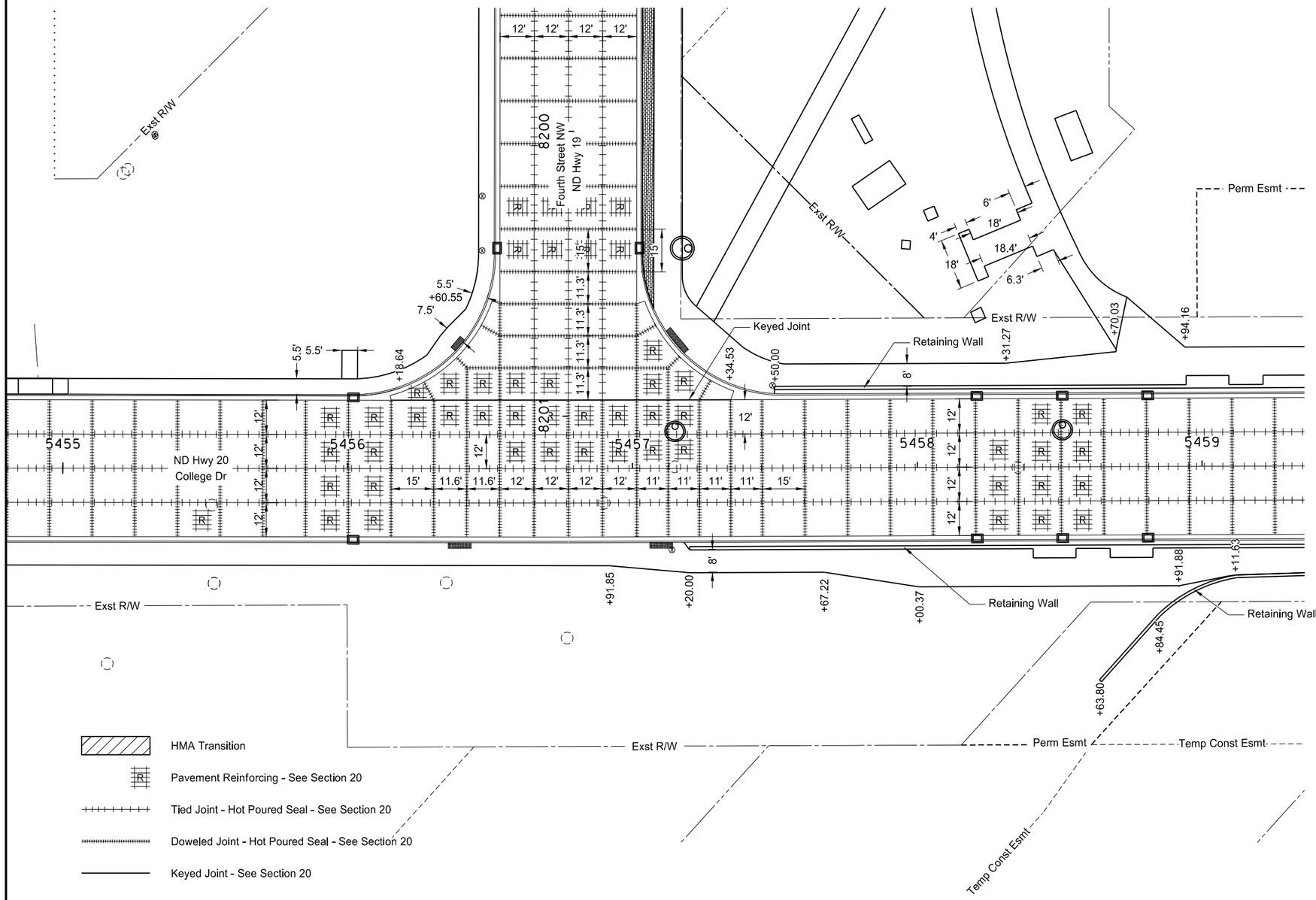
ND Highway 20

Paving Layouts
Sta. 5452+55 to Sta. 5455+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	90	5



HMA Transition

Pavement Reinforcing - See Section 20

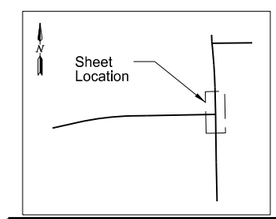
Tied Joint - Hot Poured Seal - See Section 20

Doweled Joint - Hot Poured Seal - See Section 20

Keyed Joint - See Section 20

Note:
Joint Spacing 15'
(Unless Otherwise Noted)

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'



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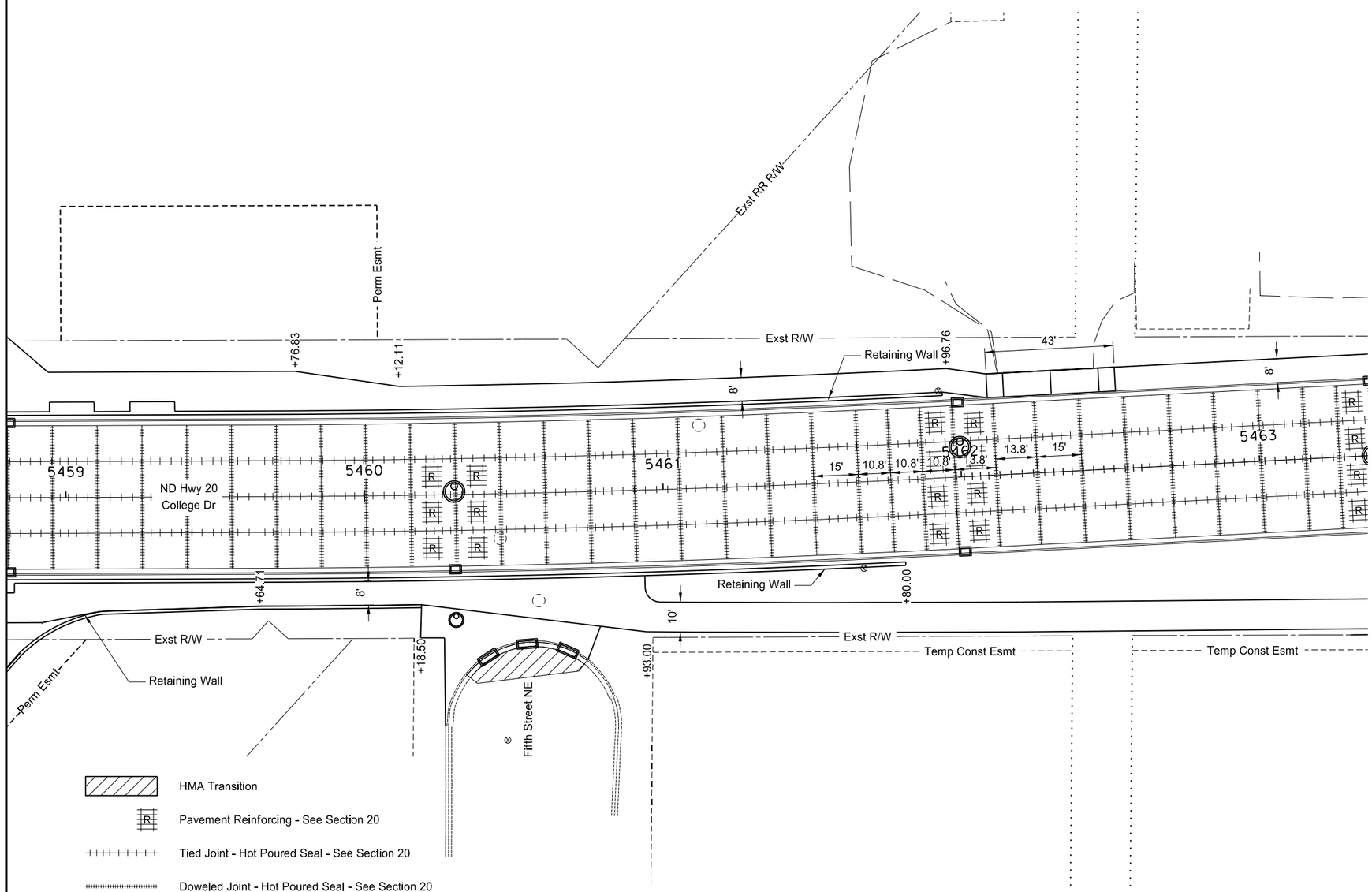
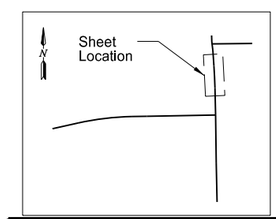
ND Highway 20

Paving Layouts
Sta. 5455+00 to Sta. 5459+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	90	6





HMA Transition

Pavement Reinforcing - See Section 20

Tied Joint - Hot Poured Seal - See Section 20

Doweled Joint - Hot Poured Seal - See Section 20

Keyed Joint - See Section 20

Note:
Joint Spacing 15'
(Unless Otherwise Noted)

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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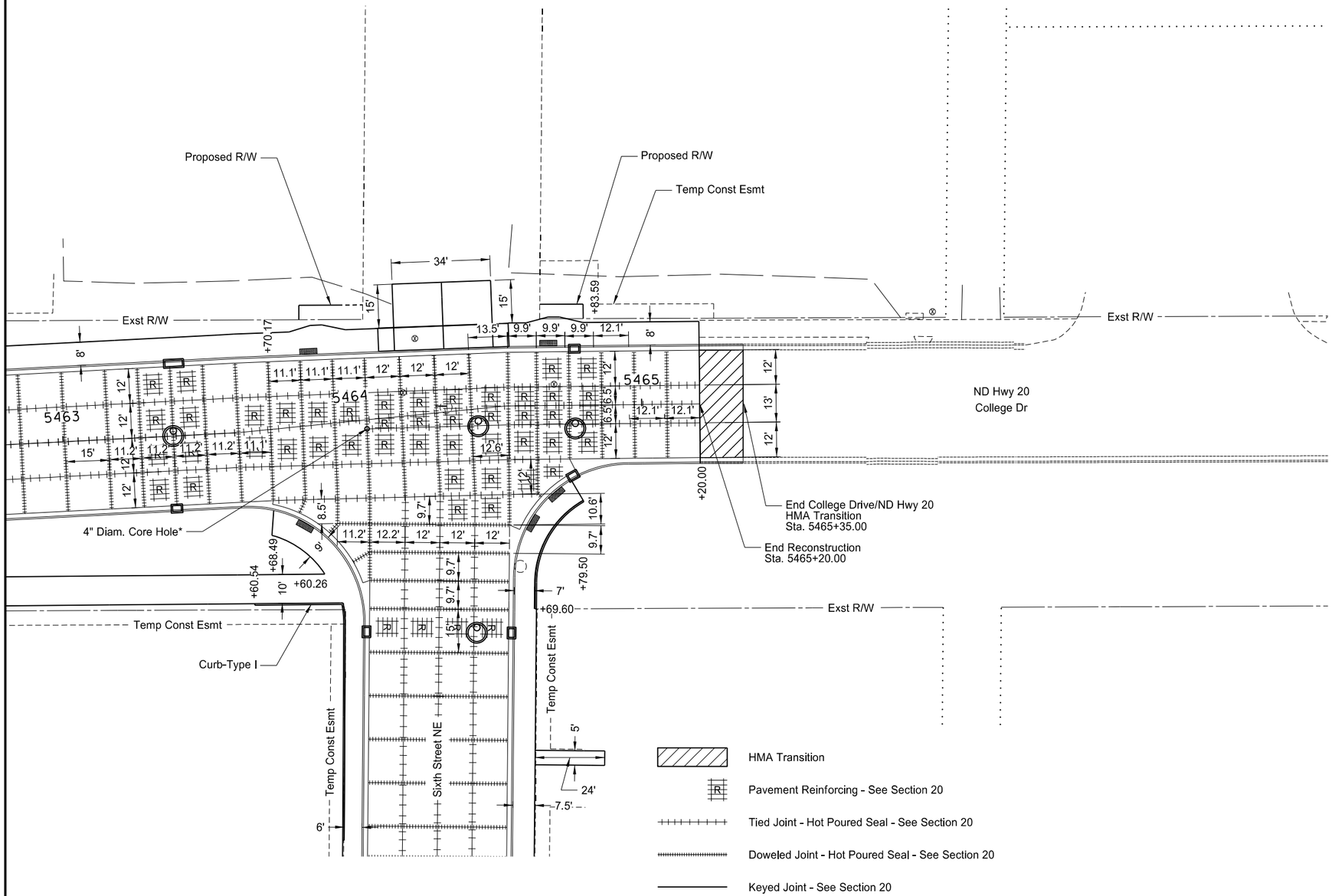
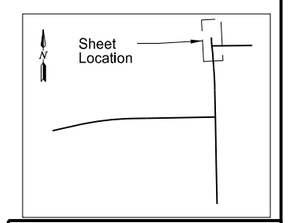
ND Highway 20

Paving Layouts
Sta. 5459+00 to Sta. 5463+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	90	7





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Note:
Joint Spacing 15'
(Unless Otherwise Noted)

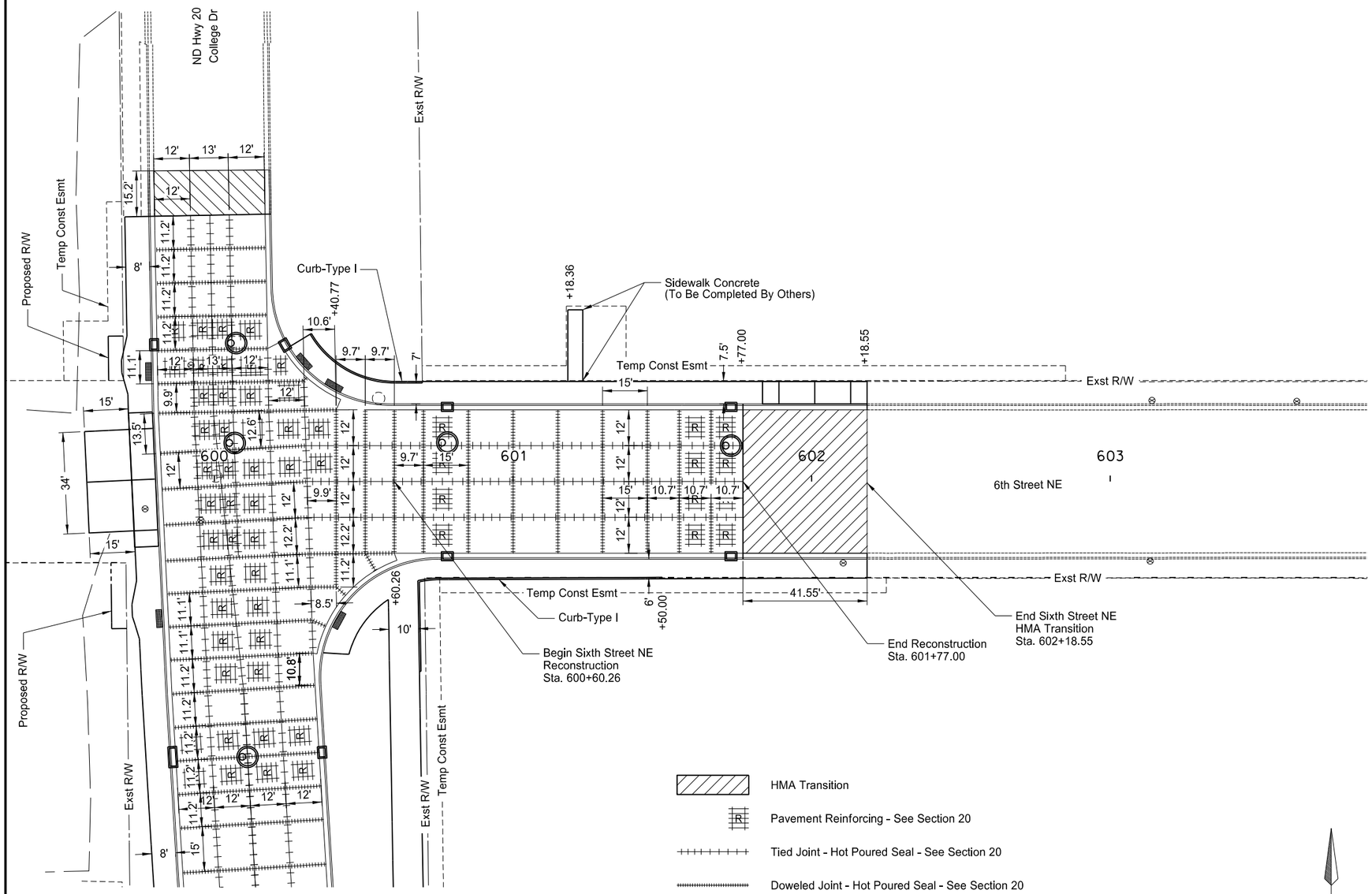
*Core hole to be placed to prevent sympathy cracking. Core hole to be filled with low modulus silicone. Coring and all associated work to be included in the "8.5IN NON-REINF CONCRETE PVMT CL AE-DOWELED" bid item.

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

ND Highway 20

Paving Layouts
Sta. 5463+00 to Sta. 5465+35

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	NHU-3-020(074)103	90	8



HMA Transition

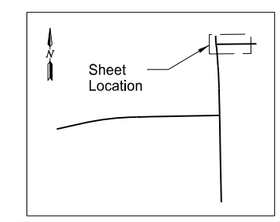
Pavement Reinforcing - See Section 20

Tied Joint - Hot Poured Seal - See Section 20

Doweled Joint - Hot Poured Seal - See Section 20

Keyed Joint - See Section 20

Note:
Joint Spacing 15'
(Unless Otherwise Noted)



N

GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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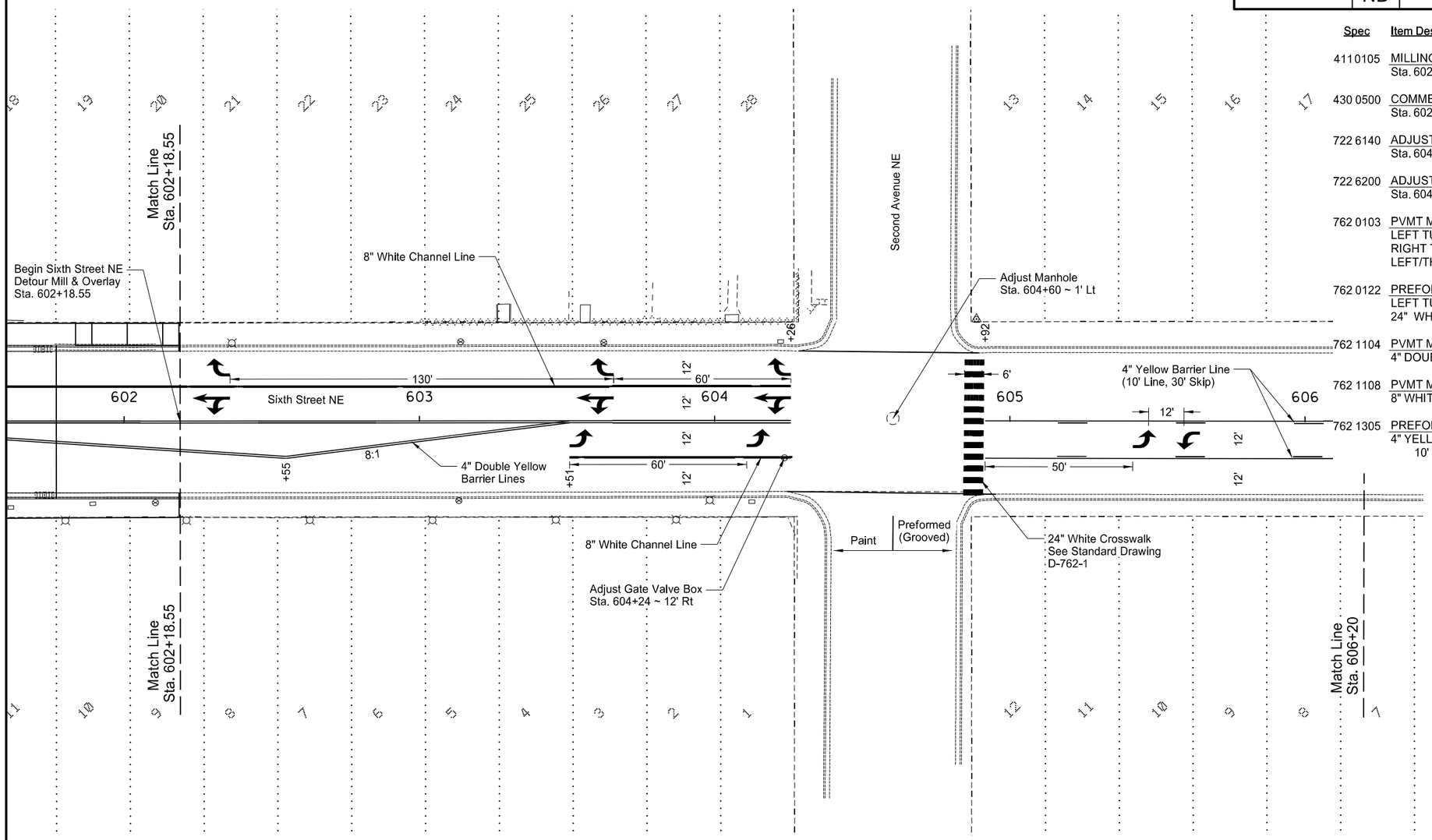
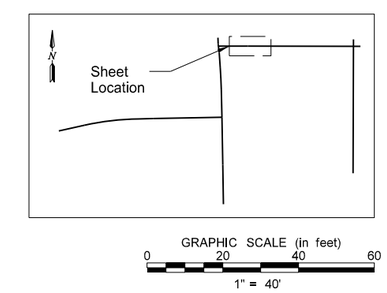
Sixth Street

Paving Layouts
Sta. 600+60.26 to Sta. 602+18.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	9



Spec	Item Description	Qty	Unit
4110105	MILLING PAVEMENT SURFACE		
	Sta. 602+18.55 to Sta. 606+20	2141	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 602+18.55 to Sta. 606+20	238	TON
722 6140	ADJUST GATE VALVE BOX		
	Sta. 604+24 ~ 12' Rt	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 604+60 ~ 1' Lt	1	EA
762 0103	PVMT MK PAINTED-MESSAGE		
	LEFT TURN ARROW (2)	32	SF
	RIGHT TURN ARROW (3)	48	SF
	LEFT/THROUGH ARROW (3)	81	SF
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (2)	32	SF
	24" WHITE CROSSWALK	144	SF
762 1104	PVMT MK PAINTED 4IN LINE		
	4" DOUBLE YELLOW BARRIER LINES	682	LF
762 1108	PVMT MK PAINTED 8IN LINE		
	8" WHITE CHANNEL LINE	286	LF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" YELLOW BARRIER LINE	258	LF
	10' LINE, 30' SKIP	60	LF



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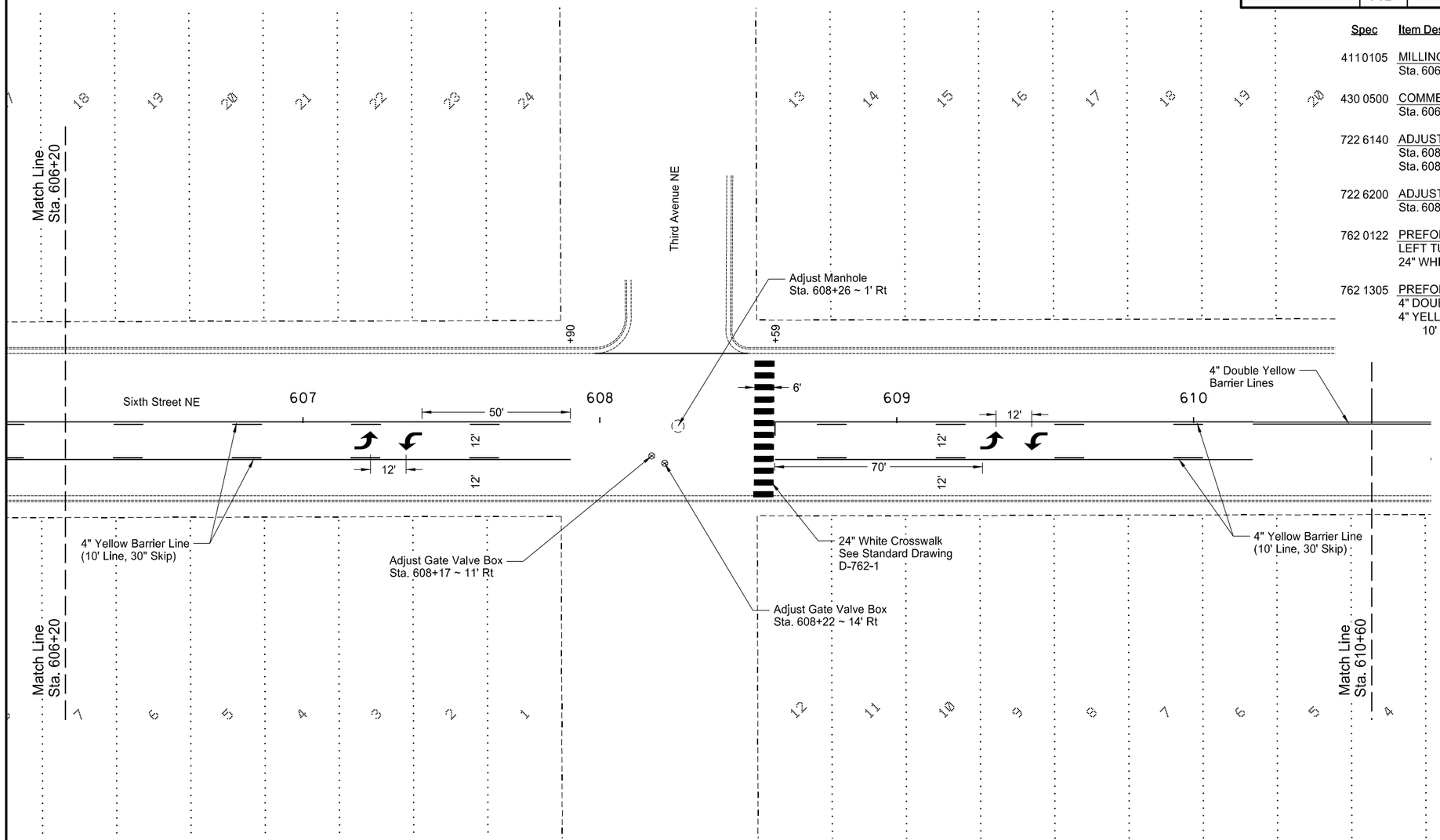
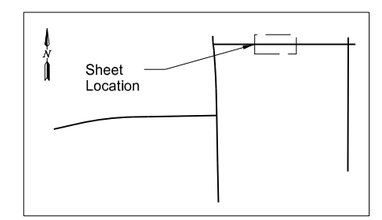
Sixth Street NE

Detour Paving Layout
Sta. 602+18.55 to Sta. 606+20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	10



Spec	Item Description	Qty	Unit
4110105	MILLING PAVEMENT SURFACE		
	Sta. 606+20 to Sta. 610+60	2347	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 606+20 to Sta. 610+60	261	TON
722 6140	ADJUST GATE VALVE BOX		
	Sta. 608+17 ~ 11' Rt	1	EA
	Sta. 608+22 ~ 14' Rt	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 608+26 ~ 1' Rt	1	EA
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (4)	64	SF
	24" WHITE CROSSWALK	144	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" DOUBLE YELLOW BARRIER LINES	80	LF
	4" YELLOW BARRIER LINE	662	LF
	10' LINE, 30' SKIP	160	LF



GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

N

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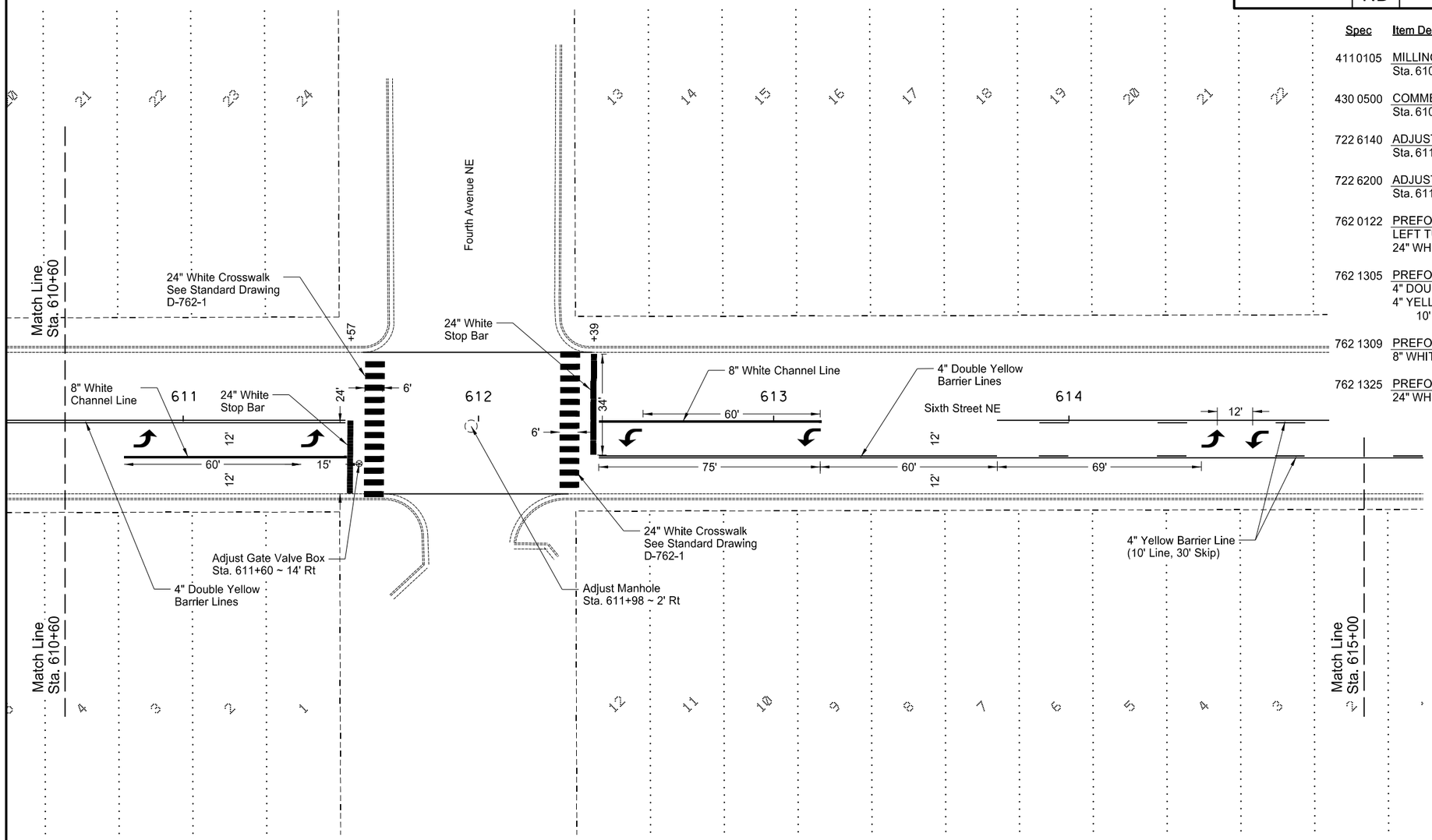
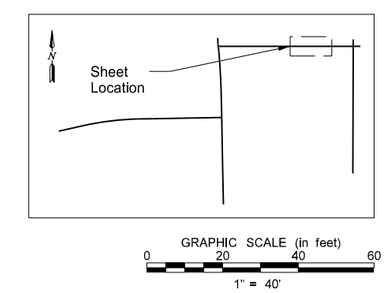
Sixth Street NE

Detour Paving Layout
Sta. 606+20 to Sta. 610+60

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	11



Spec	Item Description	Qty	Unit
411 0105	MILLING PAVEMENT SURFACE		
	Sta. 610+60 to Sta. 615+00	2347	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 610+60 to Sta. 615+00	261	TON
722 6140	ADJUST GATE VALVE BOX		
	Sta. 611+60 ~ 14' Rt	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 611+98 ~ 2' Rt	1	EA
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (6)	96	SF
	24" WHITE CROSSWALK	288	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" DOUBLE YELLOW BARRIER LINES	460	LF
	4" YELLOW BARRIER LINE	250	LF
	10' LINE, 30' SKIP	60	LF
762 1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED		
	8" WHITE CHANNEL LINE	150	LF
762 1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED		
	24" WHITE STOP BAR	58	LF



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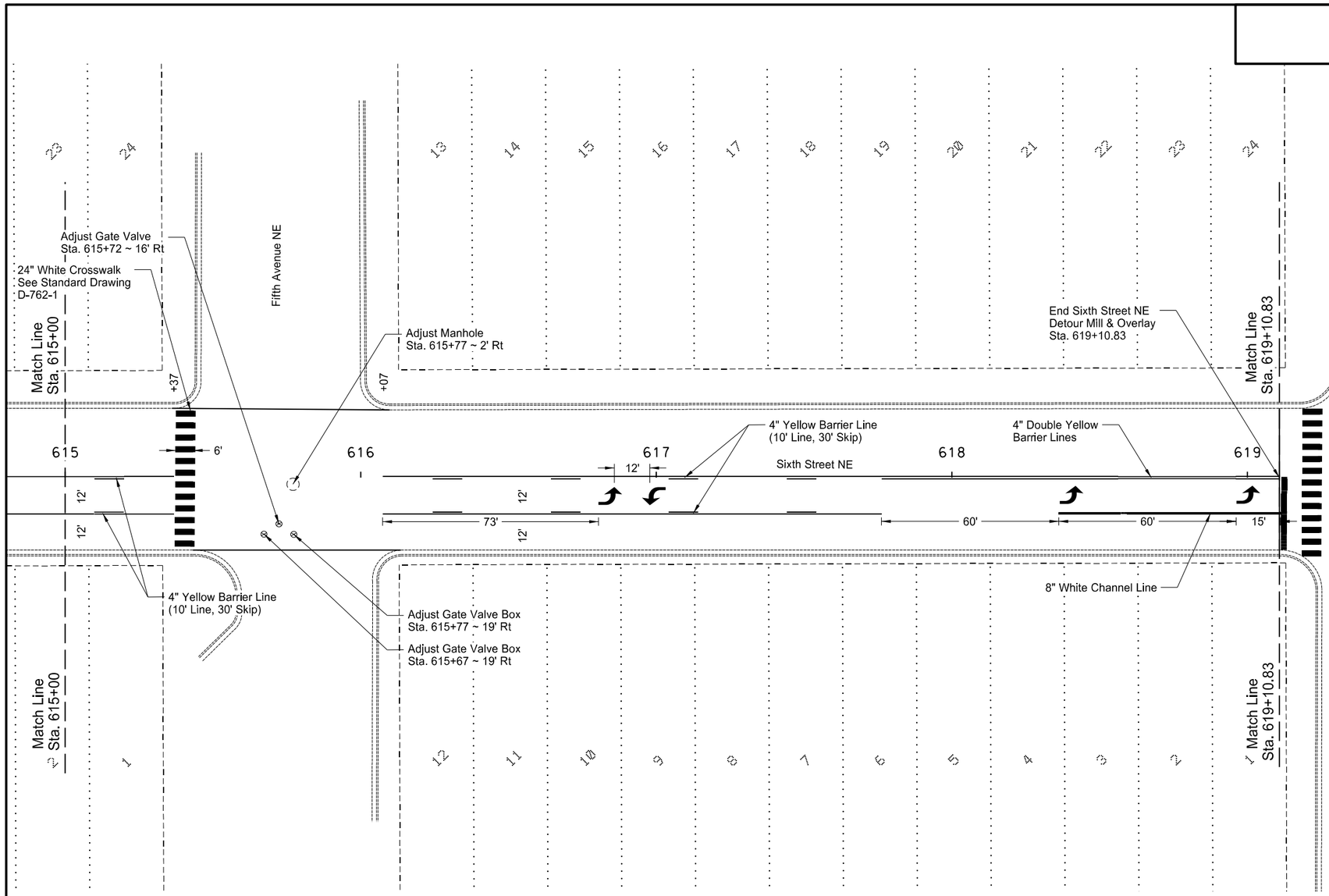
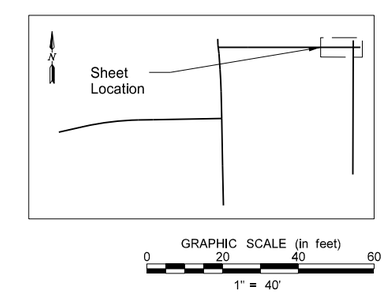
Sixth Street NE

Detour Paving Layout
Sta. 610+60 to Sta. 615+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	12



Spec	Item Description	Qty	Unit
411 0105	MILLING PAVEMENT SURFACE		
	Sta. 615+00 to Sta. 619+10.83	2191	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 615+00 to Sta. 619+10.83	243	TON
722 6140	ADJUST GATE VALVE BOX		
	Sta. 615+67 ~ 19' Rt	1	EA
	Sta. 615+72 ~ 16' Rt	1	EA
	Sta. 615+77 ~ 19' Rt	1	EA
722 6200	ADJUST MANHOLE		
	Sta. 615+77 ~ 2' Rt	1	EA
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (4)	64	SF
	24" WHITE CROSSWALK	144	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" DOUBLE YELLOW BARRIER LINES	270	LF
	4" YELLOW BARRIER LINE	416	LF
	10' LINE, 30' SKIP	100	LF
762 1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED		
	8" WHITE CHANNEL LINE	75	LF



N

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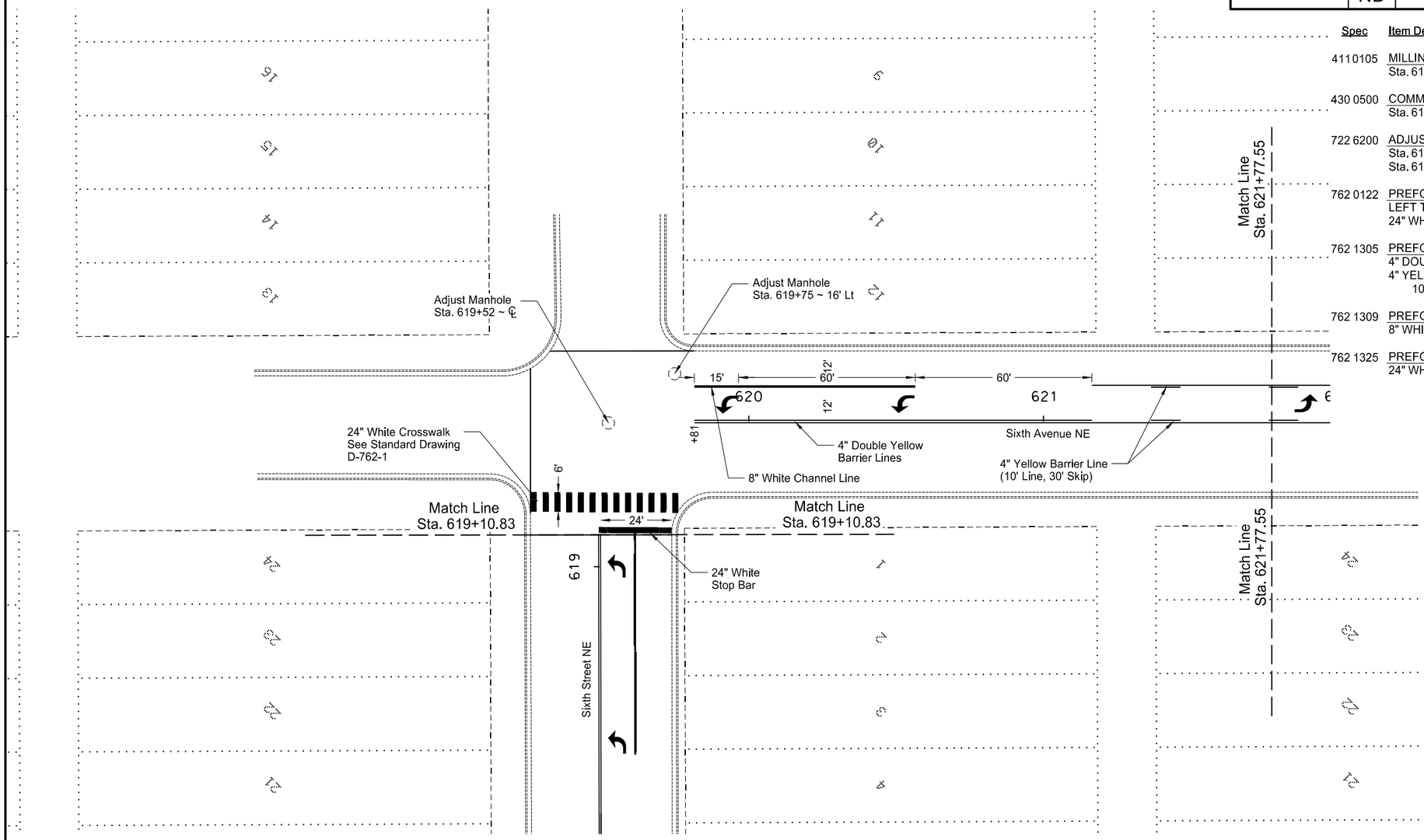
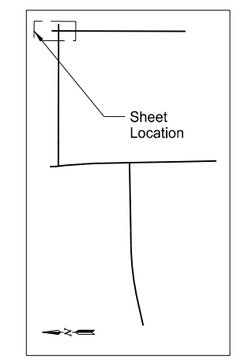
Sixth Street NE

Detour Paving Layout
Sta. 615+00 to Sta. 619+10.83

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	13



Spec	Item Description	Qty	Unit
411 0105	MILLING PAVEMENT SURFACE		
	Sta. 619+10.83 to Sta 621+77.55	1343	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 619+10.83 to Sta 621+77.55	149	TON
722 6200	ADJUST MANHOLE		
	Sta. 619+52 ~ C.L.	1	EA
	Sta. 619+75 ~ 16' Lt	1	EA
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (2)	32	SF
	24" WHITE CROSSWALK	156	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" DOUBLE YELLOW BARRIER LINES	270	LF
	4" YELLOW BARRIER LINE	122	LF
	10' LINE, 30' SKIP	20	LF
762 1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED		
	8" WHITE CHANNEL LINE	75	LF
762 1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED		
	24" WHITE STOP BAR	24	LF



GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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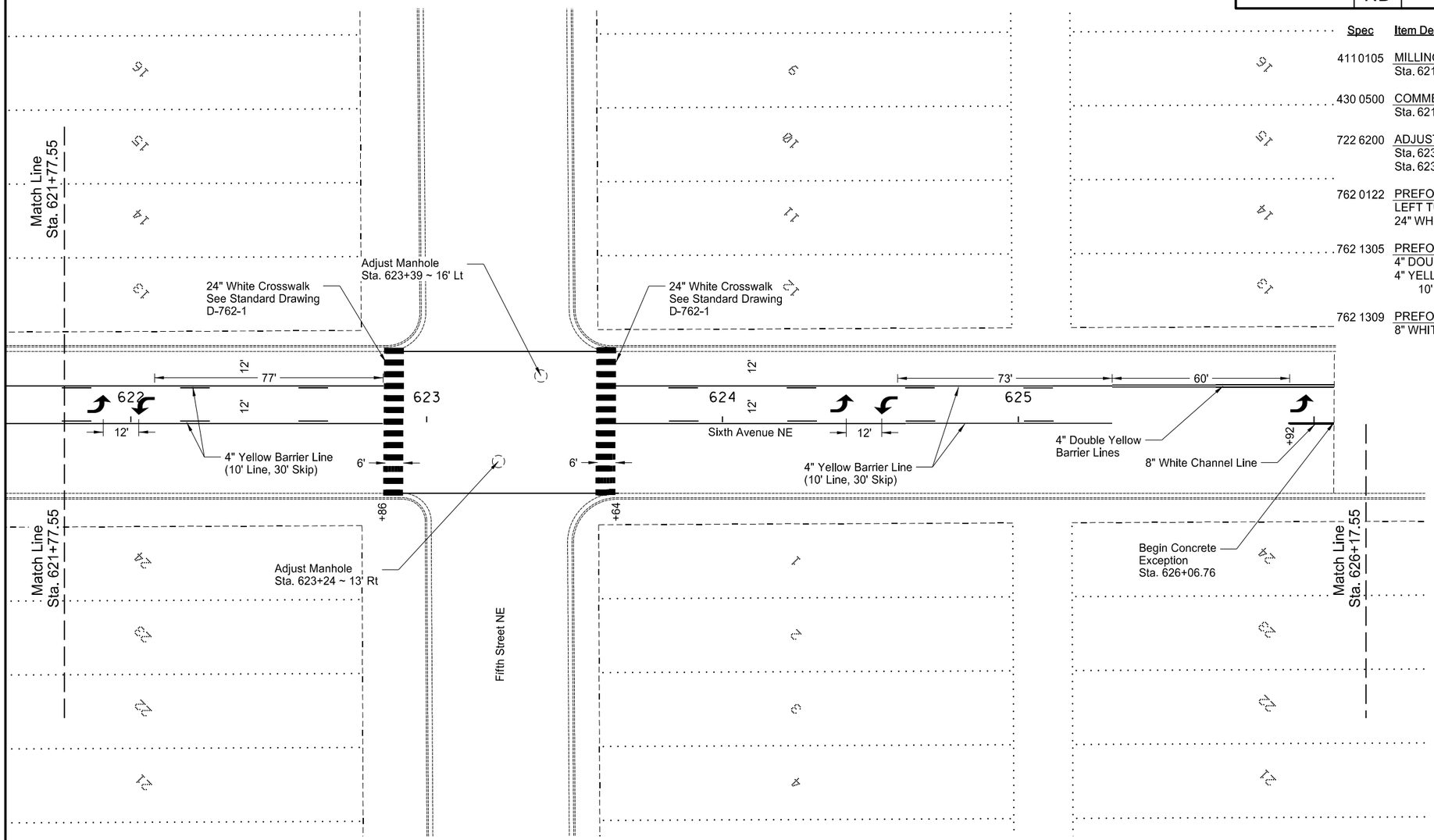
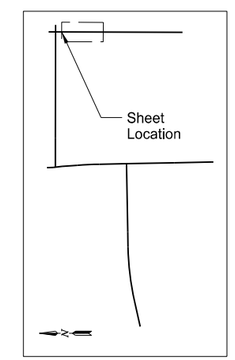
Sixth Avenue NE

Detour Paving Layout
Sta.619+10.83 to Sta. 621+77.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	14

Spec	Item Description	Qty	Unit
4110105	MILLING PAVEMENT SURFACE		
	Sta. 621+77.55 to Sta. 626+06.76	2289	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 621+77.55 to Sta. 626+06.76	254	TON
722 6200	ADJUST MANHOLE		
	Sta. 623+24 ~ 13' Rt	1	EA
	Sta. 623+39 ~ 16' Lt	1	EA
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (5)	80	SF
	24" WHITE CROSSWALK	312	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" DOUBLE YELLOW BARRIER LINES	150	LF
	4" YELLOW BARRIER LINE	551	LF
	10' LINE, 30' SKIP	140	LF
762 1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED		
	8" WHITE CHANNEL LINE	15	LF





GRAPHIC SCALE (in feet)
0 20 40 60
1" = 40'

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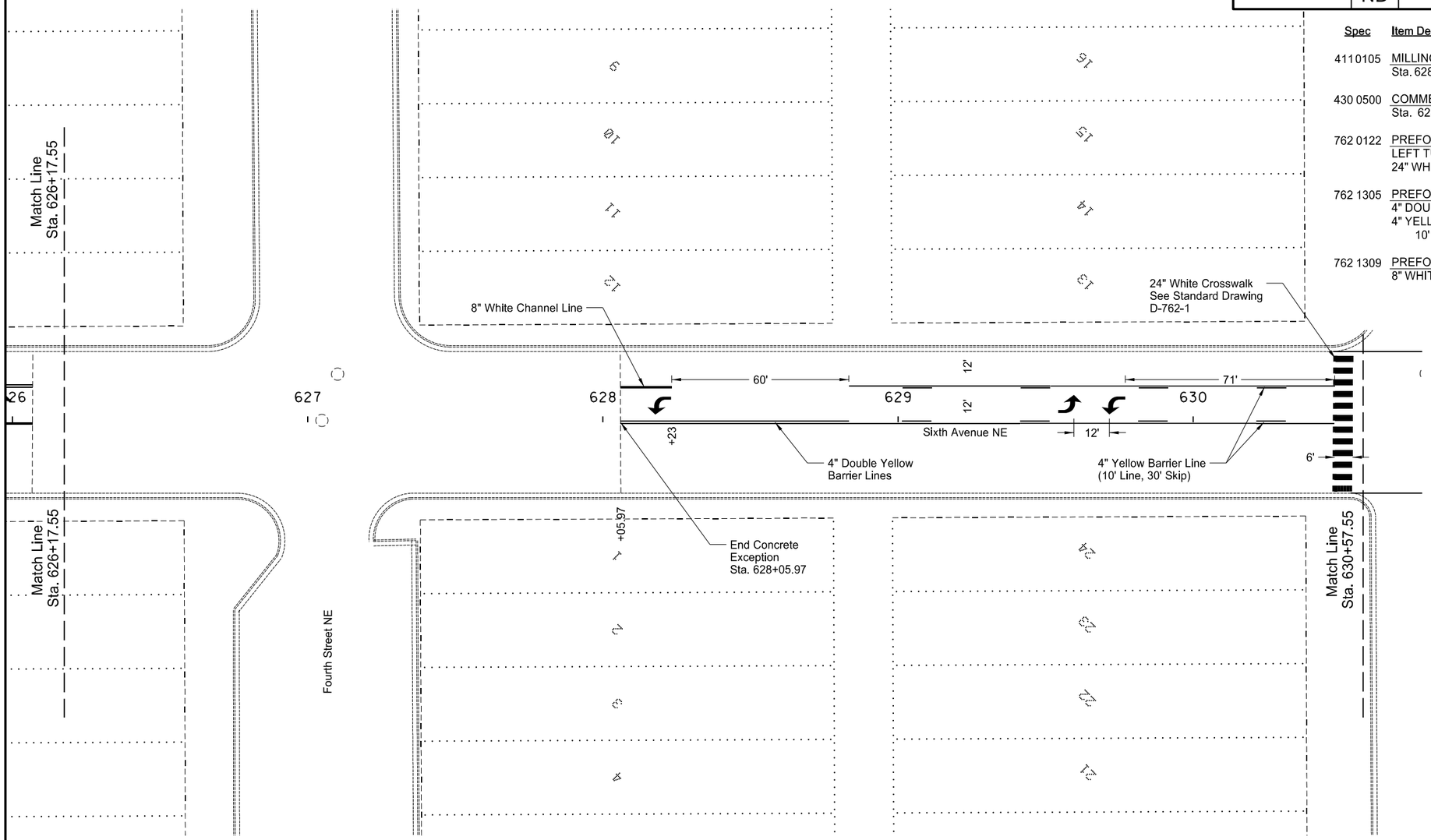
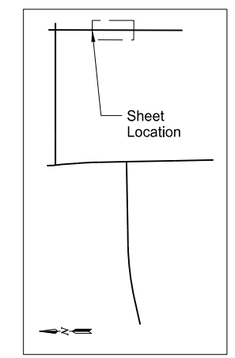
Sixth Avenue NE

Detour Paving Layout
Sta. 621+77.55 to Sta. 626+17.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	15

Spec	Item Description	Qty	Unit
4110105	MILLING PAVEMENT SURFACE		
	Sta. 628+05.97 to Sta. 630+57.55	1342	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 628+05.97 to Sta. 630+57.55	149	TON
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (3)	48	SF
	24" WHITE CROSSWALK	144	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" DOUBLE YELLOW BARRIER LINES	155	LF
	4" YELLOW BARRIER LINE	329	LF
	10' LINE, 30' SKIP	80	LF
762 1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED		
	8" WHITE CHANNEL LINE	17	LF





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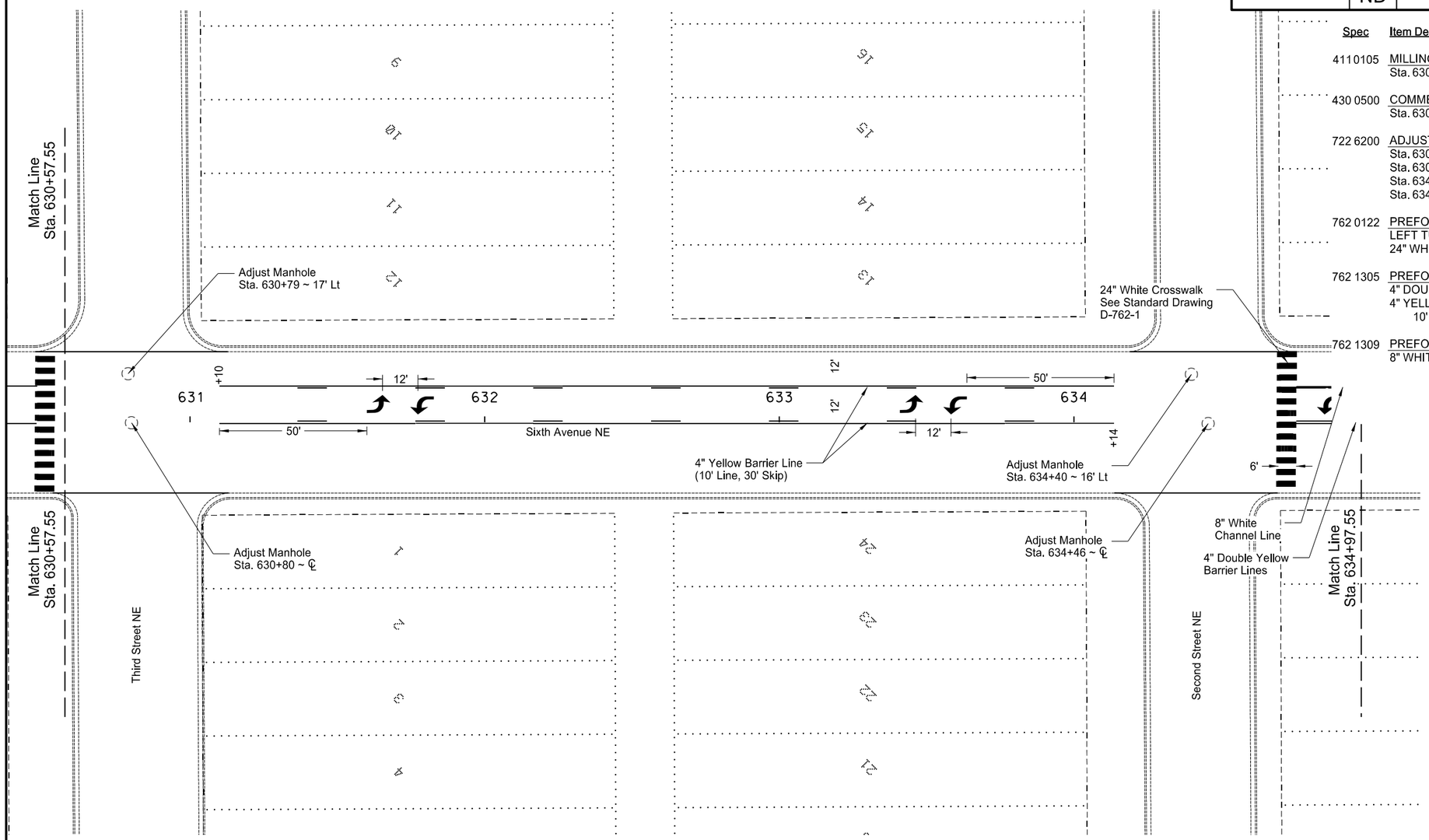
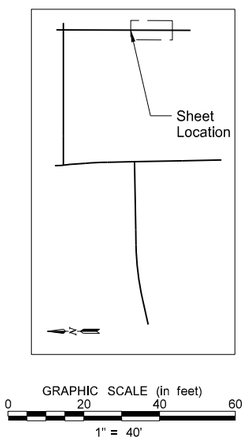
Sixth Avenue NE

Detour Paving Layout
Sta. 626+17.55 to Sta. 630+57.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	16



Spec	Item Description	Qty	Unit
411 0105	MILLING PAVEMENT SURFACE		
	Sta. 630+57.55 to Sta. 634+97.55	2347	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT		
	Sta. 630+57.55 to Sta. 634+97.55	261	TON
722 6200	ADJUST MANHOLE		
	Sta. 630+79 ~ 17' Lt	1	EA
	Sta. 630+80 ~ C.L.	1	EA
	Sta. 634+40 ~ 16' Lt	1	EA
	Sta. 634+46 ~ C.L.	1	EA
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)		
	LEFT TURN ARROW (4)	64	SF
	24" WHITE CROSSWALK	144	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED		
	4" DOUBLE YELLOW BARRIER LINES	44	LF
	4" YELLOW BARRIER LINE	607	LF
	10' LINE, 30' SKIP	140	LF
762 1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED		
	8" WHITE CHANNEL LINE	22	LF



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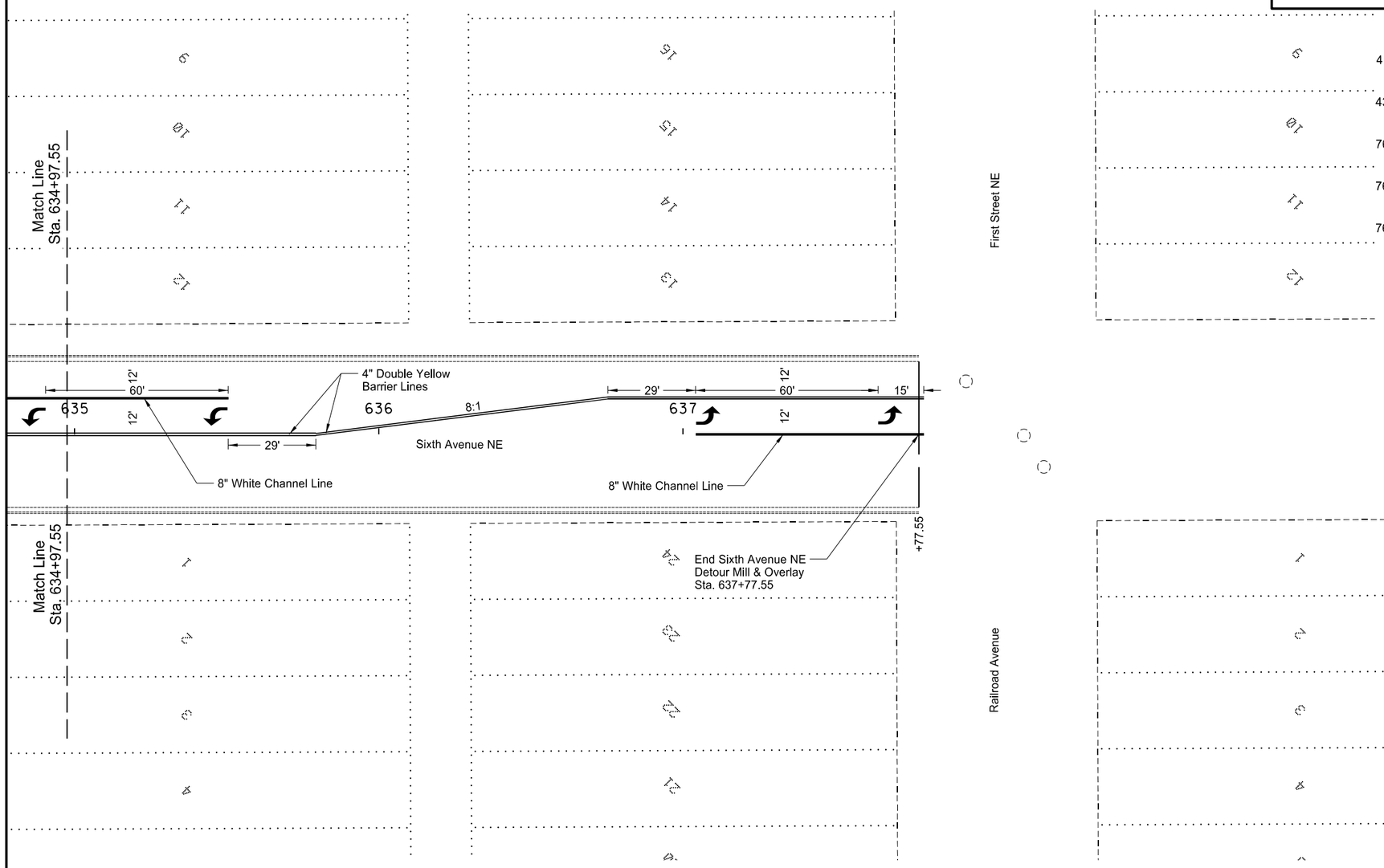
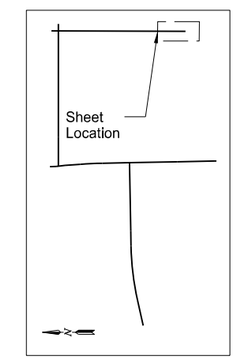
Detour Paving Layout
Sta. 630+57.55 to Sta. 634+97.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	17

Spec	Item Description	Qty	Unit
4110105	MILLING PAVEMENT SURFACE Sta. 634+97.55 to Sta. 637+77.55	1493	SY
430 0500	COMMERCIAL GRADE HOT MIX ASPHALT Sta. 634+97.55 to Sta. 637+77.55	166	TON
762 0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED) LEFT TURN ARROW (4)	64	SF
762 1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED 4" DOUBLE YELLOW BARRIER LINES	568	LF
762 1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED 8" WHITE CHANNEL LINE	128	LF





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Sixth Avenue NE

Detour Paving Layout
Sta. 634+97.55 to Sta. 637+77.55

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-3-982(031)035	90	18

Short Term Pavement Marking	
Mainline	Total
4" Double Yellow Barrier	2679 LF
4" Yellow Barrier	3195 LF
4" Yellow Skips	760 LF
8" Channel Line	768 LF
24" White Stop Bar	84 LF

Pavement Marking Paint	
Mainline	Total
4" Double Yellow Barrier	682 LF
8" Channel Line	286 LF

Pavement Marking (Grooved)	
Mainline	Total
4" Double Yellow Barrier	1997 LF
4" Yellow Barrier	3195 LF
4" Yellow Skips	760 LF
8" Channel Line	482 LF
24" White Stop Bar	84 LF

Short Term Pavement Marking Paint Message			
Mainline	Basis	Amount	Total
24" White Crosswalk	3 SF/LF	492 LF	1476 SF
Right Arrow Message	16 SF/EA	3 EA	48 SF
Left Arrow Message	16 SF/EA	36 EA	544 SF
Left/Through Arrow	27 SF/EA	3 EA	81 SF

Pavement Marking Paint Message			
Mainline	Basis	Amount	Total
Right Arrow Message	16 SF/EA	3 EA	48 SF
Left Arrow Message	16 SF/EA	2 EA	32 SF
Left/Through Arrow	27 SF/EA	3 EA	81 SF

Pavement Marking Paint Message (Grooved)			
Mainline	Basis	Amount	Total
24" White Crosswalk	3 SF/LF	492 LF	1476 SF
Left Arrow Message	16 SF/EA	34 EA	544 SF

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Detour Pavement Marking Table