DESIGN DATA				
Traffic	Average Daily			
Current 2015	Pass: 11,365	Trucks: 475	Total: 11,840	
Forecast 2040	Pass: 19,775	Trucks: 825	Total: 20,000	
Clear Zone Distance: 28 FT		Design Speed: 45 MPH		
Minimum Sight Dist. for Stopping: 360 FT		Bridges: HL-93		
Limited Access Control				
Pavement Design Life: 30 YEARS				
Design Accumulated One-way Rigid ESALs: N/A				

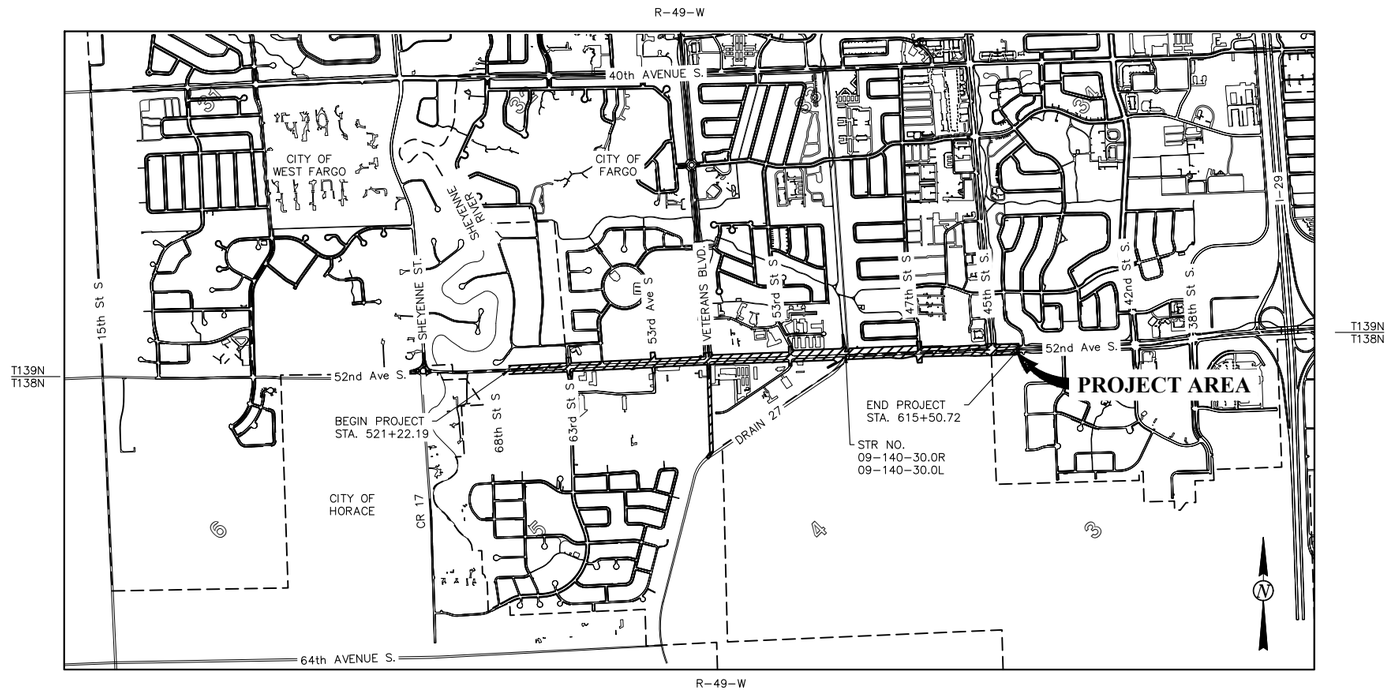
	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	22007	1	1

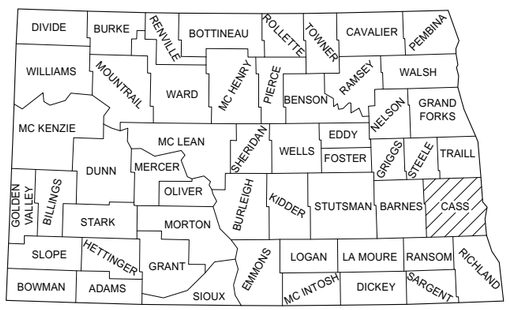
JOB # 2
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SU-8-984(164)
BN-19-A1
CASS COUNTY
52nd AVE S
WEST OF 63rd ST S TO 45th ST S
GRADING, SALVAGED BASE, PCC PAVEMENT, HMA, STORM DRAIN,
LIGHTING, SIGNALS, PAVEMENT MARKING, SHARED USE PATH,
REINF. CONCRETE SIDEWALK, BRIDGE, AND WATER MAIN

GOVERNING SPECIFICATIONS:
2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised.

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SU-8-984(164)	1.786	1.786





STATE COUNTY MAP

THE CITY OF Fargo FAR MORE

Proj. No. 6059-0145
Houston Engineering Inc.
Ph: 701.237.5065

DESIGNERS

Adam Ruud PE

Cole Wagner PE

Josh Hinds PE

Gabriel Bladow PE

Mike Shomion PE

Erik Seiberlich PE

APPROVED DATE 8/15/18

Brenda Derrig /s/
FARGO
CITY ENGINEER

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 8/15/18

Jeremy L. McLaughlin /s/
HOUSTON ENGINEERING INC

This document was originally issued and sealed by Jeremy L. McLaughlin Registration Number 4883 on 8/15/18 and the original document is stored in the Engineering Dept. at City Hall.

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	2	1

TABLE OF CONTENTS

PLAN SECTIONS

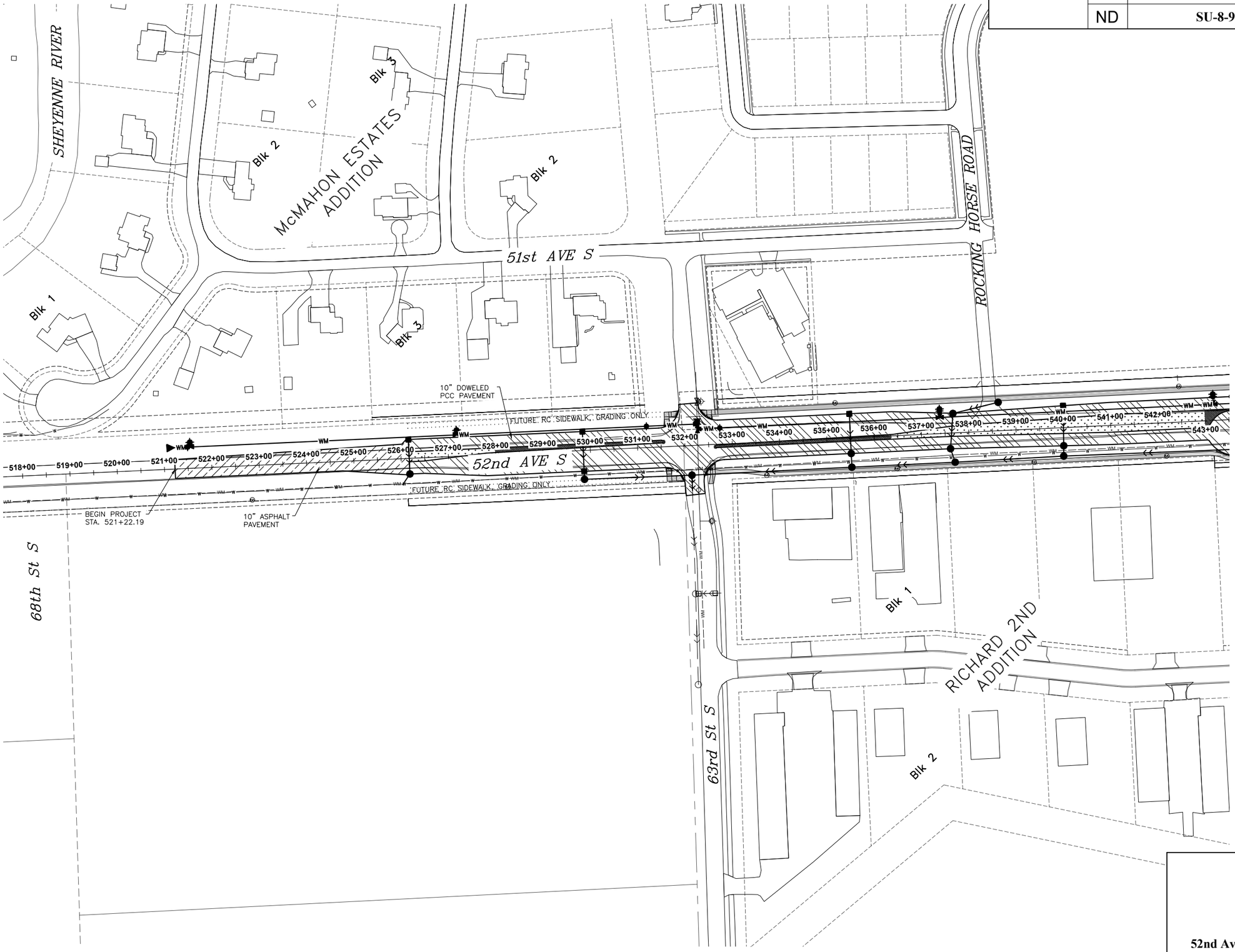
SPECIAL PROVISIONS

Number	Description
SP 003(14)	Temporary Erosion and Sediment Best Management Practices
SP 004(14)	Federal Migratory Bird Treaty Act
SP 5221(14)	Permits and Environmental Considerations
SP 742(14)	Traffic Signal System
SP 743(14)	Painting Over Galvanized Steel

LIST OF STANDARD DRAWINGS

Number	Description
D-255-2	Erosion And Siltation Control - Erosion Control Blanket Installation
D-256-1	Erosion And Siltation Controls
D-258-1	Standard Slope Protection Under Bridges
D-260-1	Erosion And Siltation Controls - Silt Fence
D-261-1	Erosion Control - Fiber Roll Placement Details
D-622-1	Pile Splice Details
D-704-1	Attenuation Device
D-704-5	Contractor Sign Detail
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-10	Construction Sign Details - Regulatory Signs
D-704-11, 11A	Construction Sign Details - Warning Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-21	Detour And Roadway Diversion Sign Layouts
D-704-24	Shoulder Closures And Bridge Painting Layouts
D-704-34	Sign Layout For One Lane Closure
D-714-18	Edgedrain Details
D-722-1B	Inlet - Special
D-754-23	Perforated Tube Assembly Details
D-754-24, 25	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System For Perforated Tubes
D-754-26, 27, 28, 29, 31	Sign Punching, Stringer And Support Location Details Regulatory, Warning, And Guide Signs
D-754-77	Sign Punching, Stringer And Support Location Details - Divided Highway Control Signs
D-754-87	Sign Punching, Stringer And Support Location Details For Street Name Signs And 911 Signs
D-762-1	Pavement Marking Message Details
D-764-38	MGS Flared Energy Absorbing Terminal - Wood Post
D-764-39	MGS Slotted Rail Terminal - Steel Post
D-764-40	MGS W-Beam Guardrail General Details
D-764-48	Typical Grading at Bridge Ends with MGS W-Beam Guardrail
D-764-50	MASH SoftStop End Terminal - Steel Post
D-764-51	MASH Sequential Kinking Terminal - Wood Post
D-764-60	MGS W-Beam Transition with Approach Curb to Concrete Single Slope or Jersey Barrier
D-764-61	Single Slope to Thrie Beam Connector Plate Details
D-772-1	Feed Point - Traffic Signals
D-772-2	Traffic Signal Standards
D-772-3	Traffic Signal Standards (Mast Arm Type)
D-772-4	Traffic Signal Head Mounting
D-772-5	Loop Detector Details (Saw Slot)
D-772-5A	Loop Details
D-772-6	Span Wire Mounted Traffic Signals
D-900-1	Bridge Bench Marks

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	4	1



N

0 100' 200'

LEGEND:

- 10" ASPHALT PAVEMENT (ON 12" BASE)
- 10" DOWELED PCC PVMT (ON 12" BASE)
- 4" IMPRESSIONED CONCRETE MEDIAN
- 5" CONCRETE SIDEWALK (SEE DETAILS)
- 6" CONCRETE SIDEWALK (SEE DETAILS)
- 2" ASPHALT PAVEMENT (ON 6" BASE)
- GRASS MEDIAN
- —WM— PROPOSED WATERMAIN
- PROPOSED STORM SEWER
- LOT LINE
- EASEMENT

THE CITY OF Fargo FAR MORE

Proj. No. 6059-0145
Houston Engineering Inc.
Ph: 701.237.5065

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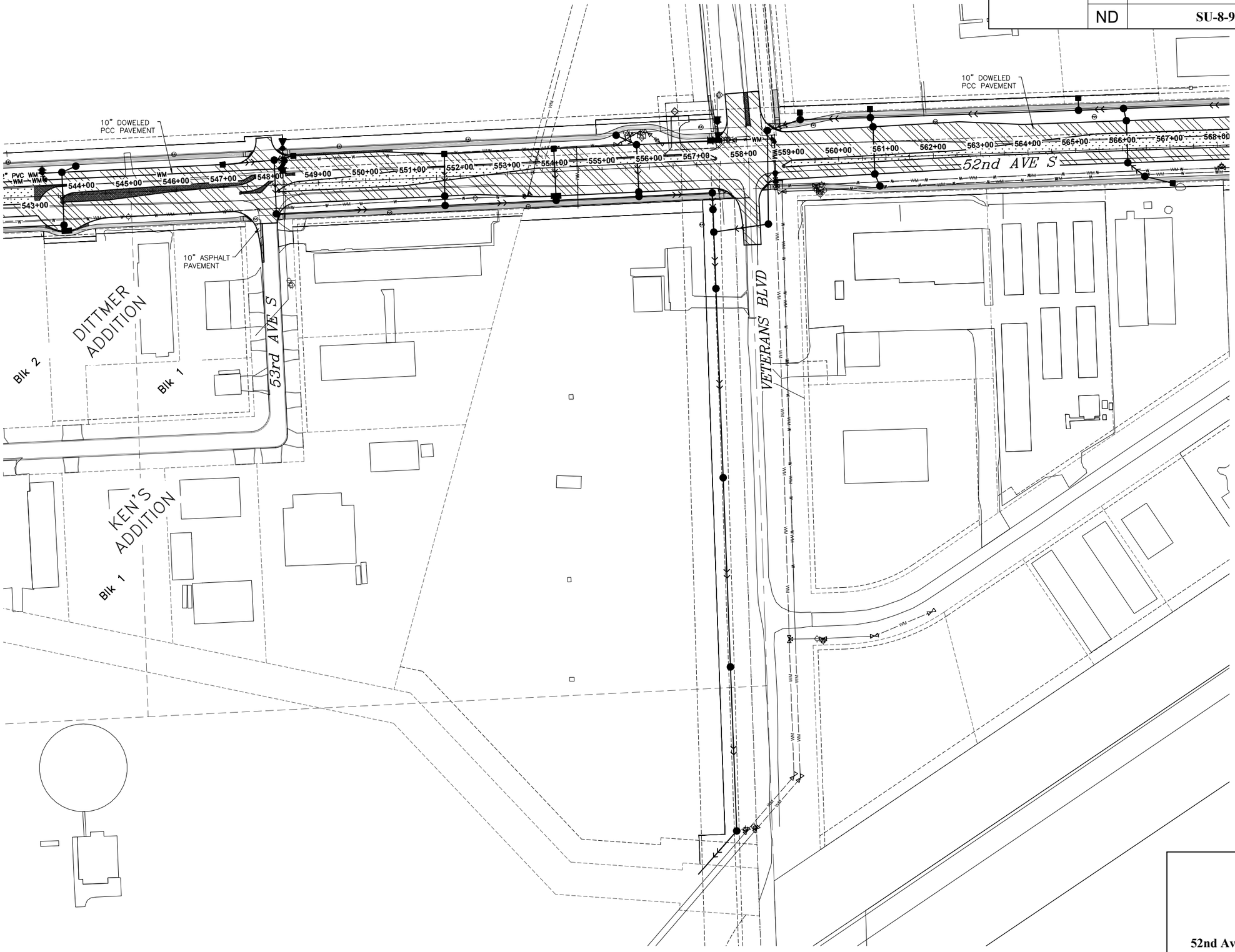
Scope of Work

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	4	2



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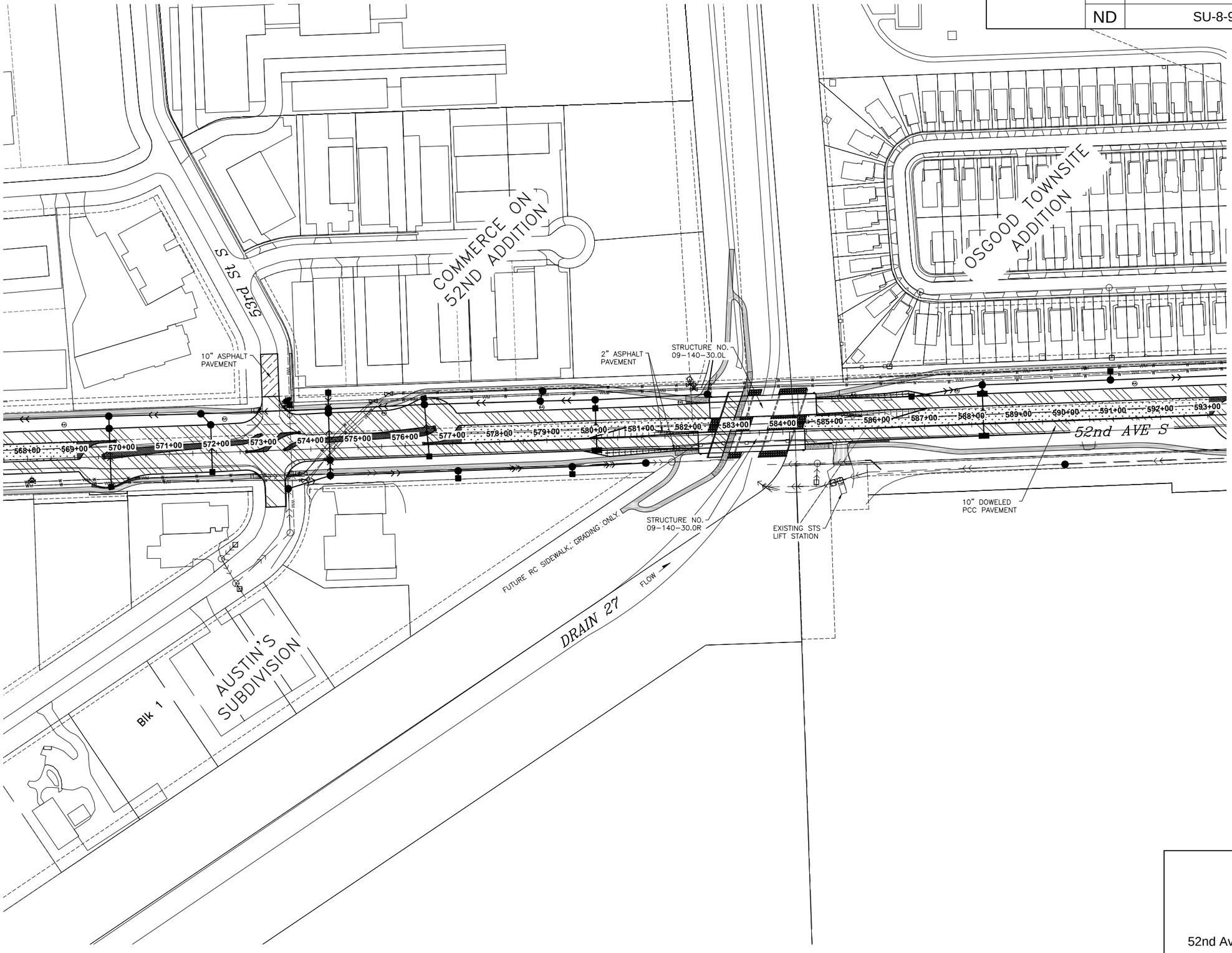
Scope of Work

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	4	3



N

0 100' 200'

LEGEND:

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- 6" CONCRETE SIDEWALK (SEE DETAILS)
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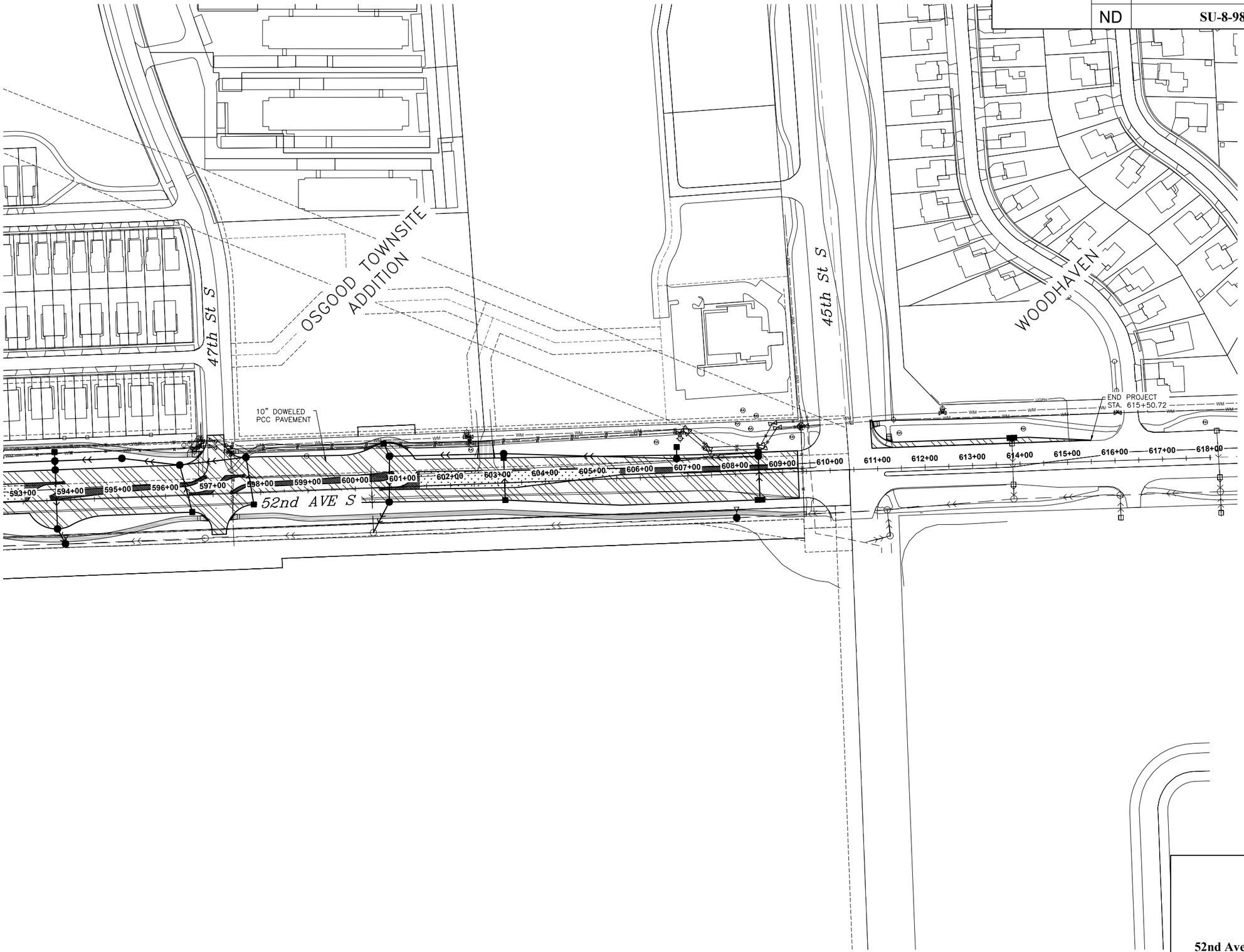
Scope of Work

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	4	4



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0 100' 200'

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THE CITY OF Fargo FAR MORE

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Scope of Work

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	4	5

CITY OF WEST FARGO

CITY OF FARGO

CITY OF HORACE

SHEYENNE St

SHEYENNE RIVER

McMAHON ESTATES ADDITION

ROCKING HORSE FARMS ADDITION

ROCKING HORSE EAST ADDITION

VETERANS BLVD

52nd Ave S

68th St S (FUTURE)

63rd St S

53rd AVE S

CR 17

RICHARD SUBDIVISION

DITTMER ADDITION

AUSTIN'S SUBDIVISION

510+00

520+00

530+00

540+00

550+00

560+00

WM

EAST EDGE OF BRIDGE DECK @ ℄ = STA. 508+78.88

BEGIN PROJECT STA. 521+22.19

UNDERGROUND SHEET 1
PAVING SHEET 1

UNDERGROUND SHEET 2
PAVING SHEET 2

UNDERGROUND SHEET 3
PAVING SHEET 3

UNDERGROUND SHEET 4
PAVING SHEET 4

UNDERGROUND SHEET 5
PAVING SHEET 5

UNDERGROUND SHEET 6
PAVING SHEET 6

UNDERGROUND SHEET 14
PAVING SHEET 14

UNDERGROUND SHEET 15

UNDERGROUND SHEET 16

N

0 250 500'

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Scope of Work

52nd Ave S - West of 63rd St S to 45th St S

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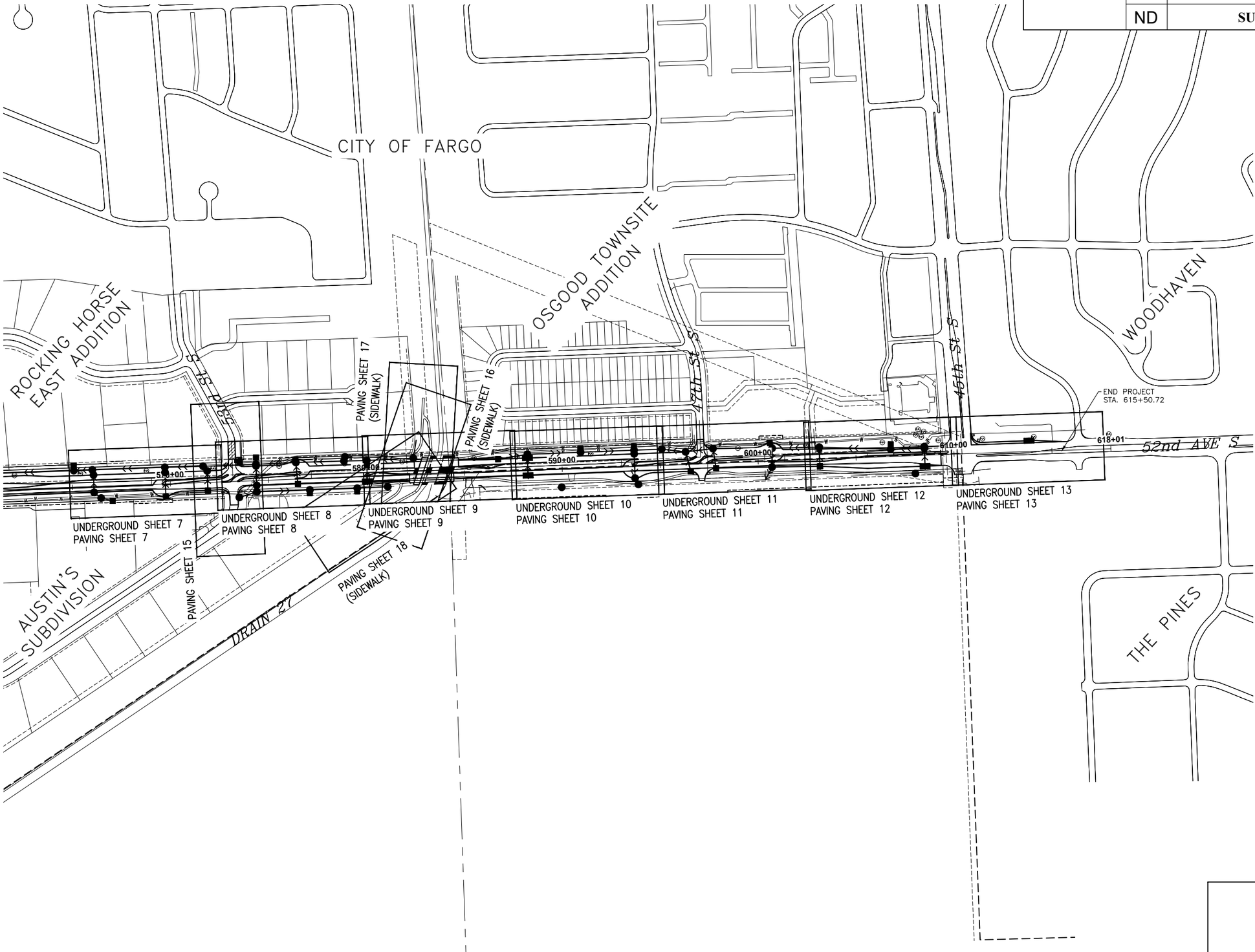
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	4	6



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Scope of Work

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	6	1

NOTES

100-P01 COORDINATION OF PROJECTS: Other projects in the vicinity of this project are under contract during the 2019 construction season. These projects are:

- SU-8-992(040)041 (West Fargo Improvement District 2250), Reconstruction of Sheyenne St from 40th Ave S to 32nd Ave S
- SU-8-992(039)040, Reconstruction of Sheyenne St near Interstate 94
- City of Fargo Project DN-18-A1, Construction of box culvert through 63rd St S, south of 52nd Ave S.
- City of Fargo Project NN-18-A1, Drain 27 conveyance improvement project located south of 52nd Ave S from Sheyenne River to Veterans Boulevard

100-P02 PROJECT COMPLETION: Phase and schedule construction activities to meet the following requirements.

Work affecting 52nd Ave S traffic may not commence prior to April 1, 2019.

Work within the Veterans Blvd and 52nd Ave S intersection and west may not begin until after June 15, 2019.

Interim Completion Date: Complete Phases 1 thru 5 defined in note 704-P02 for the reconstruction of 52nd Ave S as well as one structure crossing Drain 27. Open the roadway for head to head traffic.

Failure to meet completion dates will result in liquidated damages being applied per the contract.

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.

105-P01 UNDERGROUND UTILITY INSTALLATION: The City of Fargo Standard Specifications for Construction, govern underground utility, including storm sewer, sanitary sewer and watermain construction.

105-P02 LOCATION OF EXISTING UTILITIES: Existing utilities have been shown to direct the Contractor's attention to their existence. Such utilities have been plotted from record drawings. The location of private utilities shown on the plans are approximate.

The Contractor is cautioned that all existing utilities may not be shown. The location of existing utilities is not guaranteed. The Contractor is responsible for determining the exact location of, and protection of, the existing utilities.

The Contractor, before commencing any excavation or construction, shall determine the location and seek aid in locating all public and private utilities.

The Contractor shall be responsible for contacting and coordinating with utility owners to allow access to their own utilities to perform the relocations and/or inspections. The Contractor shall schedule their work accordingly so as not to delay or prevent each utility from maintaining their relocation schedule.

All costs to perform such work shall be considered incidental to other bid items.

105-P03 NOISE RESTRICTIONS: No construction activities or moving of equipment shall occur between the hours of 10:00 pm and 7:00 am except for sawing of new concrete. When sawing is planned to occur during these hours, the Contractor shall distribute written notices to residents located within ½ block of the work by 7:30 pm.

105-P04 UTILITIES: Utility facilities identified in the table below are to remain in place (the table may not be all inclusive). Adjust operations adjacent to these utility facilities to protect them as described in the table (See Comments Column). Repair the damaged utilities at the Contractor's expense.

In addition to the table below, more utilities in conflict with the proposed work are identified in the Utility Conflict Plans. (Utility Conflict Plans do include utilities listed in the Table below as well.)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	6	2

NOTES

Sta	Offset	Appr. Qty	Comments	Utility Company	Type of Facility	Approx. Max Cut/Fill
525+73 to 556+38	Left	3090'	Contractor to protect in place.	Xcel Engery	Gas line.	5'
556+38 to 557+57	Left	120'	Contractor to protect in place.	Consolidated Communications	Fiber optic line.	5'
527+69 to 529+80	Right	210'	Contractor to protect in place.	Cable One	Fiber optic line.	4'
530+95 to 531+02	Crossing	100'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	1'
530+97 to 531+04	Crossing	100'	Contractor to protect in place.	Century Link	Fiber optic line.	1'
531+47 to 531+48	Crossing	90'	Contractor to protect in place.	Cable One	Fiber optic line.	1'
531+80 to 532+73	Left	100'	Contractor to protect in place.	Consolidated Communications	Fiber optic line.	2'
531+87 to 532+98	Left	110'	Contractor to protect in place.	Century Link	Fiber optic line.	2'
531+87 to 532+98	Left	110'	Contractor to protect in place.	Century Link	Fiber optic line.	2'
531+88 to 532+92	Left	110'	Contractor to protect in place.	Century Link	Fiber optic line.	2'
532+61 to 532+62	Crossing	140'	Contractor to protect in place.	Xcel Engery	Gas line.	1'
532+90 to 532+92	Crossing	100'	Contractor to protect in place.	Cable One	Fiber optic line.	1'
532+97 to 532+98	Crossing	100'	Contractor to protect in place.	Cable One	Fiber optic line.	1'
532+98 to 533+00	Crossing	100'	Contractor to protect in place.	Cable One	Fiber optic line.	1'
532+98 to 533+56	Left	60'	Contractor to protect in place.	Century Link	Fiber optic line.	5'
533+73 to 543+20	Right	960'	Contractor to protect in place.	Midcontinent	Fiber optic line.	1.5'
537+78 to 538+49	Left	70'	Contractor to protect in place.	Consolidated Communications	Fiber optic line.	1.5'
539+01 to 545+90	Left	700'	Contractor to protect in place.	Minnkota Power	Fiber optic line.	2'
539+10 to 539+26	Crossing	90'	Contractor to protect in place.	Cass County Electrical Coop	Fiber optic line.	1'
539+10 to 539+33	Crossing	90'	Contractor to protect in place.	Century Link	Fiber optic line.	1'
544+91 to 548+20	Right	330'	Contractor to protect in place.	Midcontinent	Fiber optic line.	0.5'
544+94 to 545+88	Right	100'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	0.5'
544+96 to 548+20	Right	325'	Contractor to protect in place.	Century Link	Fiber optic line.	0.5'
547+46 to 547+47	Crossing	100'	Contractor to protect in place.	Xcel Engery	Gas line.	1'
548+40 to 548+41	Crossing	120'	Contractor to protect in place.	Xcel Engery	Gas line.	1'
548+39 to 557+93	Right	960'	Contractor to protect in place.	Midcontinent	Fiber optic line.	2.5'
549+87 to 557+59	Right	775'	Contractor to protect in place.	Unknown	Fiber optic line.	2.5'
556+14 to 556+70	Left	60'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	2.5'
557+45 to 560+00	Left	290'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	5'
557+63 to 558+89	Right	130'	Contractor to protect in place.	Century Link	Fiber optic line.	5'
557+84 to 558+29	Right	50'	Contractor to protect in place.	Unknown	Fiber optic line.	5'
558+28 to 559+05	Right	80'	Contractor to protect in place.	Unknown	Fiber optic line.	5'
558+30 to 559+03	Right	75'	Contractor to protect in place.	Midcontinent	Fiber optic line.	5'
558+86 to 558+98	Crossing	140'	Contractor to protect in place.	Century Link	Fiber optic line.	1'
558+94 to 559+04	Crossing	140'	Contractor to protect in place.	Midcontinent	Fiber optic line.	1'
558+99 to 559+13	Crossing	140'	Contractor to protect in place.	Century Link	Fiber optic line.	1'
560+01 to 560+06	Crossing	100'	Contractor to protect in place.	Xcel Engery	Gas line.	1'
560+08 to 560+09	Crossing	20'	Contractor to protect in place.	Xcel Engery	Gas line.	1'
561+76 to 561+87	Left	25'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	3.5'
561+98 to 572+57	Right	1070'	Contractor to protect in place.	Century Link	Fiber optic line.	4'
566+78 to 566+78	Left	20'	Contractor to protect in place.	Unknown	Fiber optic line.	5'
566+79 to 566+79	Left	20'	Contractor to protect in place.	Unknown	Fiber optic line.	5'
566+81 to 566+82	Left	20'	Contractor to protect in place.	Unknown	Fiber optic line.	5'
566+86 to 566+87	Left	20'	Contractor to protect in place.	Unknown	Fiber optic line.	5'
570+18 to 570+20	Left	10'	Contractor to protect in place.	Xcel Engery	Gas line.	6'
572+56 to 572+62	Crossing	125'	Contractor to protect in place.	Unknown	Fiber optic line.	1'
572+62 to 572+62	Crossing	120'	Contractor to protect in place.	Unknown	Fiber optic line.	1'
572+65 to 572+68	Crossing	120'	Contractor to protect in place.	Midcontinent	Fiber optic line.	1'
572+63 to 572+65	Crossing	30'	Contractor to protect in place.	Unknown	Fiber optic line.	1'
572+66 to 572+67	Crossing	40'	Contractor to protect in place.	Midcontinent	Fiber optic line.	1'
572+99 to 573+43	Right	50'	Contractor to protect in place.	Midcontinent	Fiber optic line.	6'
573+76 to 573+78	Crossing	100'	Contractor to protect in place.	Xcel Engery	Gas line.	1'
579+97 to 579+97	Crossing	120'	Contractor to protect in place.	Midcontinent	Fiber optic line.	1'
582+36 to 582+66	Right	30'	Contractor to protect in place.	Unknown	Fiber optic line.	5'
582+36 to 582+66	Right	30'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	5'
582+72 to 582+84	Crossing	570'	Contractor to protect in place.	Midcontinent	Overhead line.	1'
582+77 to 583+09	Left	30'	Contractor to protect in place.	Midcontinent	Fiber optic line.	4'
583+21 to 583+42	Left	20'	Contractor to protect in place.	Midcontinent	Fiber optic line.	4'
585+81 to 585+85	Crossing	110'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	1'
585+82 to 585+86	Crossing	110'	Contractor to protect in place.	Unknown	Fiber optic line.	1'
585+82 to 585+84	Crossing	20'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	1'
585+83 to 585+84	Crossing	20'	Contractor to protect in place.	Unknown	Fiber optic line.	1'
596+68 to 596+85	Left	20'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	3.5'
596+68 to 596+85	Left	20'	Contractor to protect in place.	Unknown	Fiber optic line.	3.5'
596+90 to 597+32	Left	40'	Contractor to protect in place.	Cass County Electrical Coop	Electric line.	3.5'
596+90 to 597+32	Left	40'	Contractor to protect in place.	Unknown	Fiber optic line.	3.5'
597+31 to 597+52	Left	40'	Contractor to protect in place.	Unknown	Electric line.	2'
597+32 to 597+52	Left	40'	Contractor to protect in place.	Unknown	Electric line.	2'

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

108-150 PUBLIC RELATIONS COORDINATOR: Provide a public relations and information coordinator. The coordinator cannot 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 the meeting specified in Note 108-100, "Weekly Planning/Reporting Meeting".
2. Advise Jeremy Gorden, from the City of Fargo, PH: (701) 241-1545, 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.

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.

108-P01 PROGRESS SCHEDULE: A Critical Path Method schedule is required.

202-P01 REMOVAL OF CONCRETE PAVEMENT: Include all costs for removal of concrete driveways, and sidewalks in the price bid for “Removal of Concrete Pavement”.

202-P02 REMOVAL OF PAVEMENT: Include all costs for removal of mainline HMA pavement, PCC pavement, concrete median and aggregate base in the price bid for “Removal of Pavement”.

202-P03 BULKHEAD EXISTING MANHOLE: Remove pipe from existing manhole. Bulkhead the pipe opening within the existing manhole using low slump concrete or concrete blocks with mortar. Repair any damage to the existing manhole caused during the work. Include all costs for bulkheading the existing manhole in “REMOVAL OF PIPES ALL TYPES AND SIZES”.

203-010 SHRINKAGE: 15 percent additional volume is included for shrinkage in earth embankment.

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

Manipulate embankment material with disking equipment.

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

203-P01 PROOF ROLLING: In addition to density/moisture testing, perform a proof roll test to verify the uniformity of support and to identify unstable areas which will require correction. Perform a proof roll test on subgrade located under the roadway. In fill areas, perform a proof roll test per one foot of each compacted lift.

Complete proof rolling by using a fully loaded tandem dump truck. Other heavy equipment may be substituted to complete proof rolling upon prior approval of the Engineer. Offset each trip of the proof roller by no more than one tire width.

If the grade shows no signs of pumping, cracking, or rutting, the grade being tested is considered acceptable. Correct any defective areas discovered during proof rolling and proof roll again.

Include all costs associated with performing the proof roll test and any corrective work in the price bid for “Common Excavation-Type A.”

203-P02 COMMON EXCAVATION SUBCUT: No subcuts are planned for 52nd Ave S. If the Engineer determines that an area of the subgrade is too wet or unstable, a subcut may be required. A discretionary quantity of 500’ of 18” subcutting has been provided.

203-P03 BORROW EXCAVATION: Provide contractor optioned borrow material. Measurement for payment of borrow material will be determined from ground surveying a single borrow site. If material underrun or overrun is encountered do to utilizing waste material from this or a separate project no price adjustment will be considered.

251-P01 SEEDING CLASS III: Use the following seed mix for all permanent seeding.

Species	Percent by Weight	Purity	Germination
Kentucky Bluegrass	60%	90%	85%
Creeping Red Fescue	10%	90%	85%
Fine Leaf Perennial Ryegrass	30%	95%	90%

Rate of Seeding = 220 Lbs/Acre

Remove all stumps, brush, sticks, roots, stones larger than ½ inch in diameter, concrete chunks, rebar, wire or other material that may hinder seeding and maintenance operations. Dispose of any accumulated material at no additional cost to the City/State.

Drill seed prior to installation of hydraulic mulch. Water the seeded areas sufficiently to moisten the seedbed to a depth of 2 inches. Apply water in a manner that provides uniform coverage and prevents erosion and damage to the final surface. Provide daily watering for the first five days and sufficient water to maintain surface moisture in the top 2 inches of the soil until such time as the grass (not cover crop) has been evenly established to a height of 2 inches. Include all costs for labor, equipment and materials necessary to complete the work in the price bid for “Seeding Class III”.

261-P01 PERMANENT FIBER ROLLS: If fiber rolls are to remain on the project, use fiber rolls that are composed of netting that meets either of the following:

- Plastic or natural fiber photodegradable netting that has a life expectancy between 12 to 24 months. If the photodegradable netting is plastic, the netting color must be either clear or green. Black plastic netting will not be allowed.
- 100 percent biodegradable jute netting that has a life expectancy between 6 to 12 months.

302-110 BASE COURSE: Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type B."

550-P01 CONCRETE PAVEMENT AND CURB & GUTTER: Install manhole castings with the paving operation or install with each adjoining full concrete panel. Manhole isolation or box outs will not be allowed.

Keyways will only be allowed when placing concrete in forms. Keyways will not be allowed when concrete is slip-formed.

Pour curb & gutter separate from adjacent concrete pavement.

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

704-P01 PORTABLE CHANGEABLE MESSAGE SIGN: Install Portable Changeable Message Signs (PCMS) before work begins on the project. The Engineer will determine the locations for PCMS installation. Relocate the PCMS as directed by the Engineer.

Provide an operator trained in the use of the PCMS.

The Engineer will determine the message to be displayed. The operator shall program the message within one hour of the Engineer's request to change the message.

704-P02 TRAFFIC CONTROL PHASING: The traffic control details have been developed based on the premise that the project will be constructed in seven phases. Include all costs to remove and reset traffic control devices in the price bid for individual items. Submit traffic control adjustments for approval prior to implementing.

Phase 1: Install storm sewer outlet pipe west of Veterans Blvd. Coordinate crossing of KFNW Radio Station driveway with adjacent landowner. Maintain normal traffic operations.

Phase 2: Reconstruct 52nd Ave S from east of Veterans Blvd to 45th St S. Impacts to traffic will not be allowed prior to April 1, 2019. Do not impact the intersection of 52nd Ave S and Veterans Blvd during construction of Phase 2. Install temporary pavement within the intersection of 52nd Ave S and 53rd St S. The intersection of 52nd Ave S and 53rd St S may be closed for a total of 35 calendar days over the duration of the project. Construct the Eastbound and Westbound structures at Drain 27. This phase may be completed concurrently with Phase 3, 4 and 5.

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Phase 3: Reconstruct 52nd Ave S from west of 63rd St S to 63rd St S. Do not impact the intersection of 52nd Ave S and 63rd St S during construction of Phase 3. Continue construction of the Eastbound and Westbound structures at Drain 27. This phase may be completed concurrently with Phase 2, 4 and 5.

Phase 4: Reconstruct 52nd Ave S and 63rd St S intersection. Continue construction of the Eastbound and Westbound structures at Drain 27. The Contractor shall have 28 calendar days to perform Phase 4 work. Phase 4 will not be allowed to begin until after June 15, 2019 unless approved by the Engineer. Coordinate with City of Fargo project DN-18-A1. Install a temporary traffic signal system at the intersection of 63rd St S and County Road 17. This phase may be completed concurrently with Phase 3, 4 and 6.

Phase 5: Reconstruct 52nd Ave S and Veterans Blvd. intersection. Continue construction of the Eastbound and Westbound structures at Drain 27. The Contractor shall have 28 calendar days to perform Phase 5 work. Phase 5 will not be allowed to begin until after the Sheyenne St and 40th Ave S intersection is fully opened to traffic, anticipated to be June 20, 2019. Coordinate with project SU-8-992(040)041, West Fargo Improvement District 2250. Open the intersection of 52nd Ave S and 63rd St S fully to traffic prior to starting Phase 5. This phase may be completed concurrently with Phases 2, 3 and 4.

Phase 6: Reconstruct 52nd Ave S from 63rd St S to Veterans Blvd. Continue construction of the remaining structure at Drain 27. Maintain head to head traffic on 52nd Ave S, east of Veterans Blvd after August 15, 2019.

Phase 7: Install median leave out areas east of Veterans Blvd. Utilize an inside lane closure to maintain traffic on 52nd Ave S.

704-P03 ROAD CLOSURES: Where road closures are required, install multiple Type III barricades to block the full width of the roadway.

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

1. Minimum total area of 450 square feet.
2. Indoor bathroom facilities with weekly cleaning services.
3. Hookups for heat, electricity, sewer, and potable water.
4. Minimum cabinet space of 32 cubic feet.
5. Minimum counter space of 60 square feet.
6. A heating and cooling system that is capable of maintaining the temperature between 65°F and 78°F.
7. Lighting with a minimum of 110 foot-candles.
8. Photocopier/Printer with scanning capabilities capable of producing 11x17 photocopies and enough toner to last the duration of the project. Other features to include digital copying and scanning. Provide a photocopier/printer with operating software compatible with that used by the NDDOT.
9. Supply a photocopier with enough toner to last the length of the project and with the following capabilities:
    a. Printing;
    b. Scanning; and
    c. Producing 11x17 photocopies and prints.

Place the field office on the project, or as close to the project as possible. The Contractor is responsible for the following fees:

- Rental Fees
- Cleaning Service
- Heating
- Electricity
- Sewer
- Potable Water

Make the field office available for occupancy one week before the start of the project and remain through project completion. The Engineer will approve the location and the condition of the office.

The Engineer is responsible for the following items:

- Furnishing office equipment;
- Supplying paper; and
- Supplying and paying for internet service.

All requirements of the Field Office are subject to approval by the Engineer. Include the costs for the field office in the bid item “Field Office.”

Schedule for Payments:

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

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714-P01 PIPE BACKFILL: Use Aggregate Base Course Class 3 to backfill all pipe installations and removals under sidewalks, driveways, and concrete roadways. Include all costs for excavation, backfill, gravel backfill and pipe installation in the price bid for "Pipe Conc Reinf __IN CL __" or "Watermain __IN PVC".

714-P02 TEMPORARY DRAINAGE: During construction, provide means of temporary drainage or pumping to maintain the existing storm sewer system. This includes, but is not limited to, temporary grading, temporary pipe connections and pumping. Due to the limited work space shoring may be required. Include all costs to perform this work in the price bid for "PIPE CONC REINF __IN CL __".

714-P03 EDGEDRAIN NON PERMEABLE BASE: Install edge drain as shown. Connect edge drain to inlets or manholes as shown in Section 20.

714-P04 FLAP GATE: Install Waterman Industries F-10 Cast Iron Drainage Gate with setting collar for concrete pipe or approved equal flap gate to mount to exterior of reinforced concrete pipe. Install the reinforced concrete pipe a sufficient length into the structure to ensure mounting of the flap gate to the pipe per the manufacturers recommendation while allowing for full opening of the gate.

722-P01 INLET SPECIAL – TYPE 2 __IN: Construct concrete base and riser in accordance with D-722-1B. Construct covers in accordance with "INLET SPECIAL – TYPE 2 COVER" detail in Section 20. Use Neenah Foundry R-3067 or EJ Iron Works 7030 casting frames. Use Neenah VB or EJ Iron Works M11 grates in sag locations. Use Neenah V or EJ Iron Works M4 grates in on-grade locations.

722-P02 INLET SPECIAL – TYPE 2 DOUBLE __IN: Construct structures in accordance with "INLET SPECIAL TYPE 2 DOUBLE" detail in Section 20. Use Neenah Foundry R-3295-2 or EJ Iron Works 7031 casting frames. Use Neenah V or EJ Iron Works M4 grates.

722-P03 INLET SPECIAL – CATCH BASIN __IN: If build height allows for the use of an eccentric cone section, construct structure in accordance with "MANHOLE 48"" or "MANHOLE 60"-96"" details in Section 20. Where build height does not allow for the use of an eccentric cone section, construct concrete base and riser in accordance with D-722-1B and construct covers in accordance with "INLET SPECIAL – CATCH BASIN COVER" detail in Section 20. Use Neenah Foundry R-4342 or EJ Iron Works 6489 grates.

722-P04 MANHOLE: If build height allows for the use of an eccentric cone section, construct structures in accordance with "MANHOLE 48" or "MANHOLE 60-96"" details in Section 20. Where build height does not allow for the use of an eccentric cone section, construct concrete base and riser in accordance with D-722-1B and construct covers in accordance with "INLET SPECIAL – CATCH BASIN COVER" detail in Section 20. Use Neenah Foundry R-1733 or EJ Iron Works 1205Z for installations in the boulevard and floating Neenah Foundry R-1955-1 for installations in pavement.

722-P05 INLET TYPE 2: Construct structures in accordance with "INLET TYPE 2" detail in Section 20. Use Neenah Foundry R-3067 or EJ Iron Works 7030 casting frames. Use Neenah VB or EJ Iron Works M11 grates in sag locations. Use Neenah V or EJ Iron Works M4 grates in on-grade locations.

722-P06 INLET TYPE 2 DOUBLE: Construct structures in accordance with "INLET TYPE 2 DOUBLE" detail in Section 20. Use Neenah Foundry R-3295-2 or EJ Iron Works 7031 casting frames. Use Neenah V or EJ Iron Works M4 grates.

722-P07 INLET CATCH BASIN: (City of Fargo RDI) Construct structures in accordance with "INLET CATCH BASIN" detail in Sectin 20. Construct covers in accordance with "INLET SPECIAL – CATCH BASIN COVER" detail in Section 20. Use Neenah Foundry R-4342 or EJ Iron Works 6489 grates.

722-P08 MANHOLE CLEANING: Vacuum all debris from each manhole after adjusting the castings to final grade is complete. Include all costs for manhole cleaning in the price bid for "MANHOLE __IN".

722-P09 CONNECT TO EXISTING STORM SEWER: Connect to the existing 36" RCP stub at 63rd St S. All inverts that are within manholes or inlets to remain in place shall have the pipe inverts repaired. The Contractor will be required to remove all deteriorated mortar, clean and repour the invert and grout around all of the pipes in the manhole or inlet. Include all costs in the price bid for "PIPE CONC REINF __IN CL __".

722-P010 MANHOLE STORM CONNECTION: Connect new piping to existing manhole by field cutting hole a minimum of 2" larger than the pipe outside diameter. Seal void around pipe inside and outside of manhole with concrete. Include all costs in the price bid for "MANHOLE STORM CONNECTION".

722-P11 MANHOLE REPAIR: Repair existing storm manholes by furnishing and installing the items as listed below. Include all costs associated with furnishing and installing the items below in the price bid for "MANHOLE REPAIR".

1. Water Tight Manhole Seals: Install internal or external watertight manhole seals per manufacturer's recommendations to cover and seal the manhole frame, adjusting rings, and 7 to 10 inches of the chimney. Verify the dimensions and determine which type of seal should be utilized and the seal length required. Use seal manufactured by Cretex Specialty Products, NPC, Inc., or approved equal and utilize Type 304 stainless steel mounting hardware.

   If an internal seal is used, clean the surface and verify it is free of loose material and excessive voids. If the surface has minor irregularities, apply a bead of butyl-rubber caulking to fill the voids. If the sealing surface is rough or has excessive voids, install a low-shrink mortar sealing surface. Grind smooth any flanges or protrusions on the interior of the casting.

   If an external seal is used, clean the casting with a wire-brush. If necessary, level and smooth the exterior surface to be covered by the external seal with a low-shrink mortar.

2. External Sealing Bands: Install external sealing bands to all existing and new joints in the riser section of the indicated manholes in accordance with ASTM C877. Expose and clean the structure joints before installing the sealing band.

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3. Replace Casting: Remove and dispose of the existing manhole castings. Furnish and install a Neenah R-1916-F casting or approved watertight manhole frame with a bolted lid. Fasten the casting to the existing chimney by the use of 4 – ¾" diameter stainless steel "J" bolts with nuts. Install the "J" bolts in accordance with the Floating Manhole Casting Detail on Sheet 20 of Section 20. Drill holes for the "J" bolts into the existing manhole chimney. Anchor "J" bolts into drilled holes using epoxy.

722-P12 MANHOLE RISER: Where manhole riser is indicated for existing storm manholes, raise manholes as required to match proposed grading by adding riser sections below the cones of the manholes. This requires the cones to be excavated, removed, and reinstalled. Provide mastic sealant in the joints and seal the exterior of the joints with external sealing bands in accordance with ASTM C877. Include all costs in the price bid for "MANHOLE RISER".

Where manhole riser is indicated for existing sanitary manholes, raise manholes as required to match proposed grading by adding riser sections manufactured with Con Shield (Microbial Induced Corrosion) Admixture below the cones of the manholes. Include all costs in the price bid for "MANHOLE RISER".

722-P13 SANITARY MANHOLE REPAIR: Repair existing sanitary manholes by furnishing and installing the items as listed below. Include all costs associated with furnishing and installing the items below in the price bid for "SANITARY MANHOLE REPAIR".

1. Coating: Repair existing sanitary manholes by coating the new manhole riser sections. Thoroughly clean existing manhole sections in accordance with coating manufacturer recommendations where coating is to be applied. Overlap coating by applying new coating over existing coating and all new concrete to create one continuous coating system in accordance with manufacturer recommendations. Apply Tnemec coating system including Series 218 material and Series 435 Perma-Shield H25 and Series 435 Perma-Glaze per manufacturer recommendations.

2. Water Tight Manhole Seals: Install internal or external watertight manhole seals per manufacturer's recommendations to cover and seal the manhole frame, adjusting rings, and 7 to 10 inches of the chimney. Verify the dimensions and determine which type of seal should be utilized and the seal length required. Use seal manufactured by Cretex Specialty Products, NPC, Inc., or approved equal and utilize Type 304 stainless steel mounting hardware.

   If an internal seal is used, clean the surface and verify it is free of loose material and excessive voids. If the surface has minor irregularities, apply a bead of butyl-rubber caulking to fill the voids. If the sealing surface is rough or has excessive voids, install a low-shrink mortar sealing surface. Grind smooth any flanges or protrusions on the interior of the casting.

   If an external seal is used, clean the casting with a wire-brush. If necessary, level and smooth the exterior surface to be covered by the external seal with a low-shrink mortar.

3. Replace Casting: Remove and dispose of the existing manhole castings. Furnish and install a Neenah R-1916-F casting or approved watertight manhole frame with a bolted lid. Fasten the casting to the existing chimney by the use of 4 – ¾" diameter stainless steel "J" bolts with nuts. Install the "J" bolts in accordance with the Floating Manhole Casting Detail on Sheet 20 of Section 20. Drill holes for the "J" bolts into the existing manhole chimney. Anchor "J" bolts into drilled holes using epoxy.

722-P14 36 INCH – 45 DEGREE CMP BEND: Furnish and install fabricated bend fitting according to manufacturer recommendation. Include all costs in the price bid for "PIPE CORR STEEL .064IN 36IN".

722-P15 ADJUST UTILITY APPURTENANCE: Adjust the existing curb stop box containing tracer wires and anode ground system for the existing sanitary sewer forcemain. Adjust the curb stop box by bringing the top to existing ground while ensuring that tracer wire and anode ground are brought to finished grade. Maintain the system in good working order and verify functionality upon completion of the curb stop box adjustment. Remove and replace fiberglass Carsonite markers as required to adjust the curb stop box. Include all costs in the price bid for "ADJUST UTILITY APPURTENANCE".

722-P16 MODIFY MANHOLE 8' x 8' EAST VAULT: Modify the existing sanitary forcemain 8' x 8' east vault (Sta 589 + 67.07) by furnishing and installing 8' x 8' precast concrete riser section between existing riser sections as required to match proposed grading. This requires the vault to be excavated, top slab removed and reinstalled, and top riser section to be removed and reinstalled. Include all costs in the price bid for "MODIFY MANHOLE". Construct riser section to the following criteria:

1. Cement: Grey Portland, conforming to ASTM C150 Type I or Type III.

2. Concrete: Minimum 4,000 psi 28-day strength, water, aggregates, and sand conforming to ASTM C-33.

3. Admixtures:

   a. Crystalline waterproofing material: Xypex or Engineer Approved Equal.

   b. Air entraining admixtures: ASTM C260.

   c. Water reducing, retarding, accelerating, high range water reducing admixtures: ASTM C494.

4. Reinforcing Steel: Deformed reinforcing bars Grade 40, or Grade 60 conforming to ASTM A615, A616, A617, or ASTM A706.

5. Welded Wire Fabric: Conforming to ASTM A185.

6. Prestressing Strand: Uncoated, 7-wire, stress relieved strand conforming to ASTM A416 (including supplement) - Grade 270K, low relaxation type.

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7. Maintain plant records and quality control program during production of structural precast concrete. Make records available to Engineer.

8. Use molds that are rigid and constructed of material that will result in uniform finished products.

9. Ensure reinforcing steel, anchors, inserts, plates, angles, and other cast-in items are sufficiently embedded and properly located.

10. Ensure finished surfaces of precast structural units are uniform.

11. Manufacturer's proposed design:

    a. Supported by complete design calculations and drawings.

    b. Manufacture required to submit design calculations for review bearing seal and signature of Registered Professional Engineer in the State of North Dakota.

12. Standard finish produced in forms such as plastic-lined or metal that impart smooth finish to concrete.

13. Small surface holes, normal form joint marks, minor chips, and spalls will be considered acceptable. Major or unsightly imperfections as determined by the Engineer, honeycombing, or structural defects will not be considered acceptable and is basis for rejection of Product.

14. Minor patching: Acceptable providing structural adequacy and appearance of units is not impaired.

Furnish and install spray lining for the exterior of the new riser section. Thoroughly clean existing riser sections in accordance with lining manufacturer recommendations where lining is to be applied. Overlap lining by applying new lining over existing lining and covering all new unlined concrete to create one continuous lining system in accordance with manufacturer recommendations.

Furnish and install the lining as follows:

1. Coating and Primer System Physical Properties: When tested in accordance with the Standard Specifications for Public Works Construction, "the Greenbook", Section 500-2, Table 500-2.7.5 (except as noted), system meets the physical and chemical properties.

2. Polyurethane Coatings: High performance, 2-part,100 percent solids polyurethane coating.

    a. Physical Properties:

        i. Color: Cream.

        ii. Specific Gravity (ASTM D792):

            1. Series 300:1.3 (10.84 lbs/ gal).

            2. Series 400: 1.11 (9.23 lbs/gal).

        iii. Tensile Strength (ASTM D638): 2500 psi at 77 degrees F (25° C).

        iv. Elongation (ASTM D638): Recoverable; 67 percent at 77 degrees F (25° C).

        v. Flexibility (ASTM D792): No effect bending 0.5 mm plate coated with 20 mils over 8 mm diameter mandrel.

        vi. Compressibility (ASTM G95): 4200 psi.

        vii. Surface Hardness: 60 to 70, Shore "D".

        viii. Abrasion Resistance (ASTM D4060): 2.12 oz. (60 mg).

        ix. Thermal Conductivity (ASTM C177): 0.000723 cal. per sec. cm2 per degree C per cm at 20 degrees C (0.175 btu per hr. ft. degree F per ft. at 77 degrees F).

        x. Permeability (ASTM E96):

            1. Type 386: 0.262 gms per m2 per 24-hrs; 0.0358 U.S. perms.

            2. Type 396: 0.193 gms per m2 per 24-hrs; 0.0264 U.S. perms.

3. Comply with manufacturer’s written instructions for examination, surface preparation, mixing, and application.

4. Total coating thickness not less than 150 mils DFT.

5. Testing: The following field tests and inspections will be conducted by the applicator:

    a. Materials Testing:

        i. Verify thickness of coatings during application for each 600 sq. ft. of applied coating or part thereof.

    b. Holiday Testing:

        i. Conduct holiday testing on the completed coating after cure or 24 hours, whichever is less, using a high voltage spark test in accordance with NACE Standard SP0188.

        ii. Do not conduct testing until coating is at 75 percent or greater of its fully cured hardness value prior to holiday testing.

        iii. Conduct tests for holiday detection on minimum specified coating thickness.

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iv. Plainly mark holidays immediately after detection and repair in accordance with manufacturer's recommendations.

v. Perform holiday testing in a manner to prevent or reduce damage to coating.

1. If test results show coating does not comply with requirements, remove and replace or repair the coating as recommended in writing by coating manufacturer and make further repairs after retesting until coating application passes.

6. Final Coating Inspection: Arrange for coating manufacturer's technical personnel to inspect coating application on completion. Notify Engineer and Owner 48 hours in advance of date and time of inspection.

7. Qualifications:

a. Manufacturer: A firm specializing in producing high performance coating materials, with not less than 25 years of experience in the chemical coating industry.

b. Applicator:

i. A firm with not less than 5 years of experience in the application of the high-performance coating system specified.
ii. Acceptable to the manufacturer of the coating system.

8. Warranties:

a. General Contractor: The General Contractor warrants the work of this Section to be free of faults and defects in accordance with the Conditions of their Contract.

b. Coating Material Manufacturer: Provide a written warranty against defects in materials for a period of one year from the date of Substantial Completion.

i. Material defects, if any, will result in replacement of materials after examination by the manufacturer and determination of defects.

ii. Notify manufacturer within 30 days of application.

c. Applicator: Provide a written warranty against defects in application for a period of 15 years when material is applied at minimum specified thickness or greater.

i. Defects may include holidays, runs or sags the result of improper mixing or application methods, or other surface imperfections that would affect the integrity of the coating.

722-P17 REINFORCED CONCRETE PIPE (RCP): Manufacture of RCP shall be in accordance with 1500 2.1.2 Manufacture of the City of Fargo Standard Specifications for Construction, except as modified herein.Pipe 12” to 15” in diameter shall be Class V, C Wall. Pipe 18” in diameter shall be Class V, B Wall.

722-P18 CONNECT SUMP PUMP DISCHARGE FROM METER PIT TO STS-208B: Connect sump pump discharge to STS-208B. Include all costs for material and installation in the bid price for “”INLET SPECIAL-TYPE 2 48IN”.

722-P19 FORCE MAIN PRESSURE AND LEAKAGE TESTING: Testing of force mains shall be incidental to the price bid for the force main. Payment will not be made for force main until such time as it has been successfully tested.

724-P01 CONNECT TO EXISTING WATERMAIN: Connect to existing watermain with the fittings designated in the plans. Include all costs in the price bid for “Fittings-Ductile”.

724-P02 RESTRAINED JOINTS AND FITTINGS: Restrain all fittings in accordance with City of Fargo Specification Section 1200. Brace all fittings by means of minimum 3,000 psi concrete or concrete thrust blocks placed against undisturbed earth. Take care to not cover joints, bolts, flanges, and the fittings with concrete. Mechanical restraints may be used in lieu of concrete thrust blocking if restraint devices meet or exceed the requirements of ASTM F 1674-96 or the latest revision, Standard Test Method for Joint Restraint Products for Use with PVC Pipe. If mechanical restrained joints are used, install restraints a minimum of two joints each way from bend location. Include all costs for restraint at fittings in the price bid for “Fittings-Ductile”.

Restrain pipe joints where indicated in the plans using mechanical restraints. Include all costs for restraint at pipe joints in the price bid for “Watermain __IN PVC”.

724-P03 FITTINGS DUCTILE IRON: Unless otherwise noted on the plans, water main fittings will be measured by the pound without joint accessories or cement lining. The weight for fittings not listed in the tables below shall be in accordance with AWWA C153. The weight for fittings not listed in the tables below or in AWWA C153 shall be the actual weight of the fitting(s) furnished and installed based on acceptable documentation provided by the Contractor. The standard weight of water main fittings, for payment purposes, shall be as follows:

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Bends, Caps, and Plugs							
	Fitting Weights, lbs. (AWWA C153)						
	Bends (degrees)						
Size	90	45	22.5	11.25	Caps	Plugs	Sleeves
4	25	22	18	16	9	10	20
6	39	32	31	30	15	16	29
8	57	46	46	42	22	26	45
10	89	70	64	58	32	36	61
12	108	86	80	67	42	46	76
14	210	160	136	93	66	75	128
16	264	202	172	148	92	95	159
20	400	305	310	245	125	135	236
24	565	405	412	315	166	175	306

Tees, Crosses, and Reducers									
		Fitting Weights, lbs. (AWWA C153)					Fitting Weights, lbs. (AWWA C153)		
Run	Branch				Run	Branch			
Large	Small	Tee	Cross	Reducer	Large	Small	Tee	Cross	Reducer
4	4	32	40		16	6	228	240	124
6	4	46	57	24	16	8	248	260	124
6	6	56	75		16	10	264	317	124
8	4	60	68	32	16	12	280	306	112
8	6	72	74	36	16	14	316		140
8	8	86	105		16	16	322	385	
10	4	78	112	46	20	6	315		
10	6	90	119	47	20	8	345	379	
10	8	105	124	50	20	10	370		220
10	10	120	145		20	12	395	413	205
12	4	94	119	58	20	14	440		200
12	6	110	126	58	20	16	465		200
12	8	125	149	57	20	20	535		
12	10	140	179	61	24	6	415		
12	12	160	213		24	8	445	481	
14	4	172			24	10	470		
14	6	182	200	100	24	12	500	529	305
14	8	206	228	100	24	14	550		306
14	10	228		100	24	16	580	576	320
14	12	234		100	24	20	660	1589	300
14	14	280	299		24	24	720		

This document was originally issued and sealed by Gabriel L. Bladow, Registration Number PE- 6862, on 8/15/18 and the original document is stored in the Engineering Dept. at City Hall

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	6	10

NOTES

750-P01 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 338 Leather, produced by Soloman Colors, Inc. http://www.solomoncolors.com/;
   or
2. Number 31078 Adobe, produced by Davis Colors, http:/www.daviscolors.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.

750-P02 PIGMENTED IMPRINTED CONCRETE: Reinforce concrete median with #4 deformed reinforcing bar at 24” o.c. each way. Accurately place reinforcement at one-half depth of the slab. Use plastic chairs. Joint concrete matching that of the adjacent pavement.

750-P03 DETECTABLE WARNING PANELS: Install unpainted, cast iron plates manufactured by EJ Iron Works, Neenah Foundry, or approved equal. Tuftile is not an approved equal for radial domes.

750-P04 SIDEWALK CONCRETE: Saw contraction joints in a timely manner and construct per details in Section 020. Place one half-inch expansion joint at intervals not to exceed 150’.

Use a #4 deformed reinforcing bar placed 24” o.c. both ways on all sidewalks. The bar shall be six (6) inches shorter than the width of the slab and placed accurately at one-half depth of the slab. Use plastic chairs.

Use four (4) #4 bars 10’ long, centered over new utility trenches. Place and compact the aggregate base to the required uniform section prior to setting forms.

Saw longitudinal and transverse joints. Saw a centerline longitudinal joint on sidewalk 8’ or wider per details in Section 020. Match the existing elevation for newly placed concrete within +/- 1/8” of all adjoining concrete. Remove any placed concrete not properly matching elevations as deemed by the Engineer and replace at the Contractor’s expense. Include all items listed above in the price bid for “Sidewalk Concrete __IN”.

750-P05 DRIVEWAY CONCRETE: Reinforce and joint driveways per City of Fargo Standard Drawings 2300 5.4, 5.5, 5.6, and 5.7.

752-P01 TEMPORARY SAFETY FENCE: Install and maintain a temporary safety fence in any areas where a hazardous situation may occur such as open trenches, pavement removal areas, or other areas that could be a hazard to the public.

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

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ND	SU-8-984(164)	6	11

ENVIRONMENTAL NOTES

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

EN-1 TEMPORARY WETLAND IMPACT: Temporary impact areas within wetlands and or other waters are incorporated into the plans for this project. Remove temporary fill placed and sedimentation in wetlands or other waters. Restore these wetlands to preconstruction contours.

This document was originally issued and sealed by Adam M. Ruud, Registration Number PE- 10407, on 8/15/18 and the original document is stored in the Engineering Dept. at City Hall

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	8	1

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Participating	Non-Participating	Drainage (76% Fed, 24% City)		TOTAL
103	100	CONTRACT BOND	L SUM	1				1
201	330	CLEARING & GRUBBING	L SUM	1				1
202	105	REMOVAL OF STRUCTURE	L SUM	1				1
202	114	REMOVAL OF CONCRETE PAVEMENT	SY	1032				1032
202	130	REMOVAL OF CURB & GUTTER	LF	1748				1748
202	136	REMOVAL OF PAVEMENT	TON	37210				37210
202	174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	2429				2429
202	210	REMOVAL OF MANHOLES	EA	1				1
202	231	REMOVE & RESET INLETS	EA	1				1
203	101	COMMON EXCAVATION-TYPE A	CY	11169				11169
203	109	TOPSOIL	CY	14335				14335
203	138	COMMON EXCAVATION-SUBCUT	CY	1683				1683
203	140	BORROW-EXCAVATION	CY	145345				145345
210	99	CLASS 1 EXCAVATION	L SUM	1				1
210	111	CLASS 2 EXCAVATION	L SUM	1				1
210	127	CHANNEL EXCAVATION	L SUM	1				1
210	411	FOUNDATION PREPARATION	L SUM	1				1
216	100	WATER	M GAL	2253				2253
230	165	SUBGRADE PREPARATION-TYPE A-12IN	STA	92.7				92.7
251	300	SEEDING CLASS III	ACRE	17.77				17.77
251	2000	TEMPORARY COVER CROP	ACRE	17.77				17.77
253	201	HYDRAULIC MULCH	ACRE	17.77				17.77
253	301	BONDED FIBER MATRIX	ACRE	17.77				17.77
255	104	ECB TYPE 4	SY	503				503
256	100	RIPRAP GRADE I	CY	42				42
256	200	RIPRAP GRADE II	CY	722				722
258	100	CONCRETE SLOPE PROTECTION	SY	452				452
260	200	SILT FENCE SUPPORTED	LF	1618				1618
260	201	REMOVE SILT FENCE SUPPORTED	LF	1618				1618
302	101	SALVAGED BASE COURSE	CY	32167				32167
401	50	TACK COAT	GAL	188				188
401	60	PRIME COAT	GAL	1052				1052
430	43	SUPERPAVE FAA 43	TON	1848				1848
430	1000	CORED SAMPLE	EA	16				16
430	5834	PG 58-34 ASPHALT CEMENT	TON	111				111
550	310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	63559				63559
602	130	CLASS AAE-3 CONCRETE	CY	449.6				449.6
602	1130	CLASS AE-3 CONCRETE	CY	389.7				389.7
602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	564.4				564.4
602	1220	SINGLE SLOPE BARRIER	LF	675.6				675.6
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	1204				1204
604	9610	PRESTRESSED BOX BEAM-27IN	LF	1645				1645
612	115	REINFORCING STEEL-GRADE 60	LBS	36382				36382
612	116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	93166				93166
616	5890	STRUCTURAL STEEL	L SUM	1				1
622	12	STEEL H-PILE TIPS 10 X 42	EA	24				24
622	14	STEEL H-PILING POINTS 12 X 53	EA	32				32

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	8	2

Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Participating	Non-Participating	Drainage (76% Fed, 24% City)		TOTAL
622	20	STEEL PILING HP 10 X 42	LF	2040				2040
622	40	STEEL PILING HP 12 X 53	LF	2560				2560
624	123	PEDESTRIAN RAILING	LF	160				160
624	151	RAILING	LF	432				432
702	100	MOBILIZATION	L SUM	1				1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	6237				6237
704	1037	ATTENUATION DEVICE-TYPE B-35	EA	2				2
704	1052	TYPE III BARRICADE	EA	35				35
704	1054	SIDEWALK BARRICADE	EA	8				8
704	1060	DELINEATOR DRUMS	EA	240				240
704	1072	FLEXIBLE DELINEATORS	EA	54				54
704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	2				2
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	384				384
706	400	FIELD OFFICE	EA	1				1
706	500	AGGREGATE LABORATORY	EA	1				1
706	550	BITUMINOUS LABORATORY	EA	1				1
706	600	CONTRACTOR'S LABORATORY	EA	1				1
708	1540	INLET PROTECTION-SPECIAL	EA	77				77
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	77				77
709	151	GEOSYNTHETIC MATERIAL TYPE R1	SY	86121				86121
709	155	GEOSYNTHETIC MATERIAL TYPE RR	SY	1444				1444
714	115	PIPE CONC REINF 12IN CL III-STORM DRAIN	LF			100		100
714	210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF			3769		3769
714	315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF			1308		1308
714	405	PIPE CONC REINF 21IN CL III-STORM DRAIN	LF			1669		1669
714	620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF			1861		1861
714	710	PIPE CONC REINF 27IN CL III-STORM DRAIN	LF			433		433
714	910	PIPE CONC REINF 36IN CL III-STORM DRAIN	LF			497		497
714	1010	PIPE CONC REINF 42IN CL III-STORM DRAIN	LF			859		859
714	1110	PIPE CONC REINF 48IN CL III-STORM DRAIN	LF			235		235
714	1212	PIPE CONC REINF 54IN CL III-STORM DRAIN	LF			1269		1269
714	2111	PIPE CONC REINF ARCH 29IN X 18IN CL III-S DRAIN	LF			230		230
714	2118	PIPE CONC REINF ARCH 36IN X 23IN CL III-S DRAIN	LF			556		556
714	3000	END SECT-CONC REINF 12IN	EA	1				1
714	3010	END SECT-CONC REINF 18IN	EA	1				1
714	3050	END SECT-CONC REINF 54IN	EA	1				1
714	5045	PIPE CORR STEEL .064IN 36IN	LF	41				41
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA	1				1
714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	26671				26671
714	9909	FLAP GATE 15IN	EA	1				1
714	9911	FLAP GATE 21IN	EA	1				1
714	9912	FLAP GATE 24IN	EA	1				1
722	100	MANHOLE 48IN	EA	11				11
722	110	MANHOLE 60IN	EA	14				14
722	120	MANHOLE 72IN	EA	2				2
722	130	MANHOLE 84IN	EA	6				6
722	140	MANHOLE 96IN	EA	1				1

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Participating	Non-Participating	Drainage (76% Fed, 24% City)		TOTAL
722	1100	MANHOLE RISER 48IN	LF	98.42				98.42
722	1110	MANHOLE RISER 60IN	LF	87.43				87.43
722	1120	MANHOLE RISER 72IN	LF	15.16				15.16
722	1130	MANHOLE RISER 84IN	LF	45.36				45.36
722	1140	MANHOLE RISER 96IN	LF	6.74				6.74
722	2490	MANHOLE STORM CONNECTION	EA	3				3
722	3300	SANITARY MANHOLE REPAIR	EA		4			4
722	3410	MANHOLE REPAIR	EA	6				6
722	3510	INLET-TYPE 2	EA	21				21
722	3520	INLET-TYPE 2 DOUBLE	EA	6				6
722	3701	INLET SPECIAL-TYPE 2 48IN	EA	16				16
722	3761	INLET SPECIAL-TYPE 2 60IN	EA	1				1
722	3825	INLET SPECIAL-TYPE 2 DOUBLE 84IN	EA	5				5
722	4005	INLET CATCH BASIN	EA	15				15
722	4108	INLET SPECIAL CATCH BASIN 48IN	EA	2				2
722	4110	INLET SPECIAL CATCH BASIN 60IN	EA	1				1
722	4112	INLET SPECIAL CATCH BASIN 72IN	EA	2				2
722	4114	INLET SPECIAL CATCH BASIN 84IN	EA	3				3
722	4116	INLET SPECIAL CATCH BASIN 96IN	EA	2				2
722	6140	ADJUST GATE VALVE BOX	EA		6			6
722	6240	ADJUST UTILITY APPURTENANCE	EA		1			1
724	210	FITTINGS-DUCTILE IRON	LBS		3600			3600
724	300	GATE VALVE & BOX 6IN	EA		5			5
724	314	GATE VALVE & BOX 12IN	EA		8			8
724	317	GATE VALVE & BOX 16IN	EA		1			1
724	410	HYDRANT-INSTALL 5IN	EA		5			5
724	426	HYDRANT EXTENSION	LF		8.45			8.45
724	430	REMOVE HYDRANT	EA		1			1
724	810	WATERMAIN 6IN PVC	LF		67			67
724	850	WATERMAIN 12IN PVC	LF		2832			2832
724	852	WATERMAIN 16IN PVC	LF		213			213
724	870	24IN WATERMAIN	LF		10			10
724	7014	REMOVE GATE VALVE BOX	EA		4			4
748	140	CURB & GUTTER-TYPE I	LF	34079				34079
750	30	PIGMENTED IMPRINTED CONCRETE	SY	4032				4032
750	125	SIDEWALK CONCRETE 5IN	SY	16018				16018
750	140	SIDEWALK CONCRETE 6IN	SY	770				770
750	210	CONCRETE MEDIAN NOSE PAVING	SY	121				121
750	1000	DRIVEWAY CONCRETE	SY	298				298
750	2115	DETECTABLE WARNING PANELS	SF	734				734
752	850	ORNAMENTAL FENCE	LF	432				432
752	911	TEMPORARY SAFETY FENCE	LF	2650				2650
754	110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	461				461
754	112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	240				240
754	193	FLEXIBLE DELINEATORS-TYPE D	EA	75				75
754	206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	1133				1133
762	122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	960				960

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	Participating	Non-Participating	Drainage (76% Fed, 24% City)		TOTAL
762	420	SHORT TERM 4IN LINE-TYPE R	LF	7020				7020
762	424	SHORT TERM 8IN LINE-TYPE R	LF	902				902
762	426	SHORT TERM 24IN LINE-TYPE R	LF	27				27
762	440	SHORT TERM MESSAGE-TYPE R	SF	64				64
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	5264				5264
762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	27				27
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	14538				14538
762	1317	PREFORMED PATTERNED PVMT MK 16IN LINE-GROOVED	LF	342				342
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	1090				1090
762	1344	PREF PATT PVMT MK 7IN LINE CONTRAST-GROOVED	LF	4102				4102
764	131	W-BEAM GUARDRAIL	LF	508				508
764	145	W-BEAM GUARDRAIL END TERMINAL	EA	4				4
764	151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	336				336
764	2081	REMOVE END TREATMENT & TRANSITION	EA	4				4
770	3	LIGHTING SYSTEM A	EA	4				4
770	4	LIGHTING SYSTEM B	EA	1				1
772	2800	INTERIM TRAFFIC SIGNALS	EA	1				1
772	2904	REVISE TRAFFIC SIGNAL SYSTEM	EA	1				1
772	3125	REMOVE TRAFFIC SIGNAL SYSTEM	EA	1				1
772	9200	IT SYSTEM	EA	1				1
772	9811	TRAFFIC SIGNAL SYSTEM - SITE 1	EA	1				1
910	570	MODIFY MANHOLE	EA	1				1
930	3000	BRIDGE BENCH MARKS	SET	1				1
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	4				4
970	300	BENCH	EA	2				2
990	400	PIPE CLEANOUT	EA	20				20

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	10	1

BASIS OF ESTIMATE

Project Removals

Project	202-0114 Removal of Concrete Pavement Pay Item		202-0136 Removal of Pavement Pay Item						Removal Total	302-0101 Salvaged Base Course Pay Item
	Removal of Concrete		Removal of Aggregate		Removal of Asphalt		Removal of Concrete			
	(SY)	(CY) A	(CY) B	(Ton)	(CY) C	(Ton)	(CY) D	(Ton)	(CY) E = A+B+C+D	(CY) F
SU-8-984(164)	1,032	115	3,659	6,861	15,950	29,906	236	443	19,960	32,167
Total		**115**	**3,659**		**15,950**		**236**		**19,960**	**32,167**

Notes:

1. This is not a balance sheet, calculate own balance of materials.
2. It is assumed 95% of removed materials may be reclaimed after the crushing process.

Sidewalk Concrete 6IN

Intersection	Quadrant	Description	750-0140 Sidewalk Concrete 6IN Pay Item	
			Area, SF	Area, SY
52nd Ave S & 63rd St S	NW	5' offset from back of curb	145.30	16
	NE	5' offset from back of curb	150.78	17
	SW	5' offset from back of curb	67.46	8
	SE	5' offset from back of curb	154.48	17
52nd Ave S & 53rd Ave S	NW	5' offset from back of curb	84.22	9
	NE	5' offset from back of curb	116.79	13
	SW	5' offset from back of curb	94.63	10
	SE	5' offset from back of curb	68.67	8
52nd Ave S & Veterans Blvd	NW	5' offset from back of curb	96.92	11
	NE	5' offset from back of curb	145.67	16
	SW	5' offset from back of curb	178.46	20
	SE	5' offset from back of curb	156.16	17
52nd Ave S & 53rd St S	NW	5' offset from back of curb	76.61	9
	NE	5' offset from back of curb	93.07	10
	SW	5' offset from back of curb	91.68	10
	SE	5' offset from back of curb	76.61	9
Drain 27 Crossing	NW	Sta 581+97.07 to Sta 582+47.07 (Ex_52ndAve)	500.88	56
	SW	Sta 581+70.34 to Sta 582+20.34 (Ex_52ndAve)	497.76	55
	-	Sta 1501+97.02 to Sta 1504+36.53 (Pr_Path)	2680.11	298
	NE	Sta 584+72.94 to Sta 585+23.00 (Ex_52ndAve)	490.17	54
	SE	Sta 584+46.00 to Sta 584+95.94 (Ex_52ndAve)	468.10	52
52nd Ave S & 47th St S	NW	5' offset from back of curb	91.00	10
	NE	5' offset from back of curb	91.68	10
	SW	5' offset from back of curb	92.41	11
	SE	5' offset from back of curb	81.84	9
52nd Ave S & 45th St S	NE	5' offset from back of curb	133.67	15
			Total	**770**

This document was originally issued and sealed by Adam M. Ruud, Registration Number PE- 10407, on 8/22/18 and the original document is stored in the Engineering Dept. at City Hall

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	10	2

BASIS OF ESTIMATE

	Asphalt					Concrete			Curb & Gutter (Outside, Grass Blvd)			Curb & Gutter (Outside, Impressioned Blvd)			Impressioned Concrete (Blvd)			Curb & Gutter (Inside, Grass Median)			Curb & Gutter (Inside, Impressioned Median)			Impressioned Concrete (Median)			Median Nose			Driveway			Salvaged Base Course Sidewalk						
Station Range	Surface Area SF	Depth LF	Sluff Area SF	Sluff Length LF	Volume CY	Surface Area SF	Depth LF	Volume CY	Area SF	Length LF	Volume CY	Area SF	Length LF	Volume CY	Surface Area SF	Depth LF	Volume CY	Area SF	Length LF	Volume CY	Area SF	Length LF	Volume CY	Surface Area SF	Depth LF	Volume CY	Surface Area SF	Depth LF	Volume CY	Surface Area SF	Depth LF	Volume CY	Surface Area SF	Depth LF	Sluff Area SF	Sluff Length LF	Volume CY	Total CY
Sta 521+22.19 to Sta 527+50.00	23666.33	1	6.08	984.67	1098	6700.55	1	248	3.86	276.04	39			0			0	3.5	266.03	34			0			0											0	1420
Sta 527+50.00 to Sta 535+00.00					0	58196.64	1	2155	3.86	1560.05	223	4.17	4.07	1	9.27	0.1667	0	3.5	98.36	13	1.92	1195.09	85	3830.83	2	284	53.71	1	2			0	6404.99	0.17	0.17	1119.73	46	2809
Sta 535+00.00 to Sta 542+50.00					0	37625.05	1	1394	3.86	1500.52	215			0			0	3.5	1227.74	159	1.92	272.97	19	1116.69	2	83			0			0	13500.00	0.17	0.17	3000.00	102	1971
Sta 542+50.00 to Sta 550+00.00					0	61475.89	1	2277	3.86	1348.91	193	4.17	259.11	40	748.72	0.1667	5	3.5	468.19	61	1.92	1239.27	88	6961.45	2	516	246.31	1	9			0	12965.75	0.17	0.17	1903.66	92	3280
Sta 550+00.00 to Sta 557+50.00					0	52428.86	1	1942	3.86	1441.25	206	4.17	61.77	10	202.13	0.1667	1	3.5	1480.72	192			0			0	26.86	1	1			0	14944.54	0.17	0.17	2919.53	110	2462
Sta 557+50.00 to Sta 565+00.00					0	69268.79	1	2566	3.86	1743.15	249	4.17	3.18	0	9.61	0.1667	0	3.5	1234.21	160	1.92	133.49	9	467.22	2	35	86.83	1	3			0	14850.84	0.17	0.17	2844.29	109	3132
Sta 565+00.00 to Sta 572+50.00					0	46542.46	1	1724	3.86	1409.78	202	4.17	106.99	17	327.59	0.1667	2	3.5	809.33	105	1.92	750.76	53	4294.88	2	318	95.35	1	4			0	15032.65	0.17	0.17	2898.83	111	2534
Sta 572+50.00 to Sta 580+00.00	2878.28	1			107	57846.71	1	2142	3.86	1809.07	259			0			0	3.5	559.68	73	1.92	1146.52	82	5093.96	2	377	236.02	1	9			0	14487.28	0.17	0.17	2896.87	107	3155
Sta 580+00.00 to Sta 587+50.00					0	24730.91	1	916	3.86	827.04	118	4.17	221.56	34	607.72	0.1667	4	3.5	1048.6	136			0			0			0			0	22057.38	0.17	0.17	3481.70	158	1366
Sta 587+50.00 to Sta 595+00.00					0	40980.05	1	1518	3.86	1516.73	217			0			0	3.5	1107.45	144	1.92	453.17	32	2720.46	2	202	97.40	1	4			0	15032.67	0.17	0.17	3006.54	111	2227
Sta 595+00.00 to Sta 602+50.00					0	63176.93	1	2340	3.86	1486.94	213	4.17	97.39	15	268.05	0.1667	2	3.5	228.37	30	1.92	1467.71	104	6272.93	2	465	239.97	1	9			0	14385.96	0.17	0.17	2648.00	105	3282
Sta 602+50.00 to Sta 609+32.74					0	48964.24	1	1813	3.86	1366.45	195			0			0	3.5	616.60	80	1.92	749.79	53	3345.09	2	248			0	1137.35	0.33	14	7089.87	0.17	0.17	1419.73	53	2457
Sta 610+87.38 to Sta 615+50.72					0	4085.27	1	151	3.86	486.48	70			0			0			0			0			0			0			0	326.08	0.17	0.17	20.00	2	223
Guardrail					0			0			0			0			0			0			0			0			0			0					0	166
Discretionary Subcut					0			0			0			0			0			0			0			0			0			0					0	1683
																																					Total	32167

HBP Cored Samples							
	A	B	C	D	Quantity	Quantity	
Specification Section	Distance (Ft)÷2000	Lanes	Lifts	Sublots (A × B × C)	(D × 2)	(1 per mile)	Unit
430.04 I.2.b(1), "General"	1	2	4	8	16	N/A	EA
430.04 I.2.b(2), "Pavement Thickness Determination Cores"					N/A	0	EA
				Total	16	0	EA

Quantities for Guardrail Grading Pavement

Location	Salvaged Base Course (CY)	Prime Coat (GAL)	PG 58-34 Asphalt Cement (TON)	Superpave FAA 43 (TON)
Sta 579+75.73 EB to Sta 582+20.34 EB	36	52	1	23
Sta 579+93.76 EB to Sta 582+20.34 EB	47	59	2	27
Sta 584+72.95 WB to Sta 586+99.53 WB	48	61	2	28
Sta 584+72.95 WB to Sta 587+17.56 WB	35	42	1	20
Totals	**166**	**214**	**6**	**98**

Removal of Pavement

Concrete Pavements @ 2.0 Ton/CY
Bituminous Pavements @ 2.0 Ton/CY
Aggregate Base @ 1.875 Ton/CY

Pavement

Salvaged Base Course @ 1.875 Ton/CY
Tack Coat @ 0.05 Gal/SY
Prime Coat @ 0.25 Gal/SY
Superpave FAA 43 @ 2 Ton/CY
PG 58-34 Asphalt Cement @ 6.0%

Water

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

This document was originally issued and sealed by Adam M. Ruud, Registration Number PE- 10407, on 8/22/18 and the original document is stored in the Engineering Dept. at City Hall

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	11	1

Earthwork Summary				
Location	Excavation (CY)	Embankment (CY)	Common Excavation - Type A (CY) Pay Item	Borrow Excavation (CY) Pay Item
52nd Ave S	10,185	154,634	10,185	144,449
North Path Connection	121	1,129	121	1,008
South Path Connection	26	110	26	84
Shared Use Path	837	641	837	-196
Totals	**11,169**	**156,514**	**11,169**	**145,345**

		Common Excavation - Type A			Embankment			
Sta	Distance	Area (SF)	Volume (CY)	Accumulated Volume (CY)	Area (SF)	Adjusted Volume (CY)*	Accumulated Volume (CY)	Mass Ordinate
521+22.19		0.00			19.42			
521+50.00	27.81	4.00	2	2	0.00	12	12	-10
522+00.00	50.00	7.15	10	12	0.02	0	12	0
522+50.00	50.00	9.80	16	28	0.09	0	12	16
523+00.00	50.00	17.89	26	54	0.00	0	12	42
523+50.00	50.00	30.00	44	98	0.00	0	12	86
524+00.00	50.00	40.05	65	163	0.00	0	12	151
524+50.00	50.00	45.26	79	242	0.00	0	12	230
525+00.00	50.00	51.67	90	332	0.00	0	12	320
525+50.00	50.00	61.85	105	437	0.00	0	12	425
526+00.00	50.00	75.81	127	564	0.87	1	13	551
526+50.00	50.00	58.68	125	689	100.34	108	121	568
527+00.00	50.00	48.73	99	788	154.31	271	392	396
527+50.00	50.00	35.53	78	866	220.30	399	791	75
528+00.00	50.00	27.06	58	924	225.51	475	1,266	-342
528+50.00	50.00	40.92	63	987	196.24	449	1,715	-728
529+00.00	50.00	58.83	92	1,079	169.16	389	2,104	-1,025
529+50.00	50.00	79.22	128	1,207	141.54	331	2,435	-1,228
530+00.00	50.00	80.83	148	1,355	135.63	295	2,730	-1,375
530+50.00	50.00	63.87	134	1,489	152.45	307	3,037	-1,548
531+00.00	50.00	55.68	111	1,600	202.15	378	3,415	-1,815
532+50.00	150.00	62.38	328	1,928	0.40	647	4,062	-2,134
533+50.00	100.00	3.25	122	2,050	243.51	519	4,581	-2,531
534+00.00	50.00	5.62	8	2,058	227.97	502	5,083	-3,025
534+50.00	50.00	8.91	13	2,071	196.82	452	5,535	-3,464
535+00.00	50.00	19.09	26	2,097	165.00	385	5,920	-3,823
535+50.00	50.00	33.73	49	2,146	160.87	347	6,267	-4,121
536+00.00	50.00	51.84	79	2,225	153.19	334	6,601	-4,376
536+50.00	50.00	63.08	106	2,331	143.71	316	6,917	-4,586
537+00.00	50.00	79.03	132	2,463	137.24	299	7,216	-4,753
537+50.00	50.00	104.00	169	2,632	114.70	268	7,484	-4,852
538+00.00	50.00	111.66	200	2,832	85.17	213	7,697	-4,865
538+50.00	50.00	192.85	282	3,114	25.65	118	7,815	-4,701
539+00.00	50.00	109.58	280	3,394	60.28	91	7,906	-4,512
539+50.00	50.00	108.66	202	3,596	66.47	135	8,041	-4,445
540+00.00	50.00	103.34	196	3,792	72.64	148	8,189	-4,397
540+50.00	50.00	103.33	191	3,983	82.68	165	8,354	-4,371
541+00.00	50.00	94.42	183	4,166	85.50	179	8,533	-4,367
541+50.00	50.00	96.05	176	4,342	87.25	184	8,717	-4,375
542+00.00	50.00	100.79	182	4,524	83.89	182	8,899	-4,375
542+50.00	50.00	123.27	207	4,731	64.65	158	9,057	-4,326
543+00.00	50.00	146.82	250	4,981	59.89	133	9,190	-4,209
543+50.00	50.00	182.07	305	5,286	66.50	135	9,325	-4,039
544+00.00	50.00	209.94	363	5,649	27.15	100	9,425	-3,776
544+50.00	50.00	241.71	418	6,067	20.98	51	9,476	-3,409
545+00.00	50.00	317.47	518	6,585	0.00	22	9,498	-2,913

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THE CITY OF Fargo FAR MORE

Proj. No. 6059-0145
Houston Engineering Inc.
Ph: 701.237.5065

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Data Tables

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	11	2

Sta	Distance	Common Excavation - Type A			Embankment			Mass Ordinate
		Area (SF)	Volume (CY)	Accumulated Volume (CY)	Area (SF)	Adjusted Volume (CY)*	Accumulated Volume (CY)	
545+50.00	50.00	222.71	500	7,085	22.63	24	9,522	-2,437
546+00.00	50.00	207.81	399	7,484	35.36	62	9,584	-2,100
546+50.00	50.00	195.00	373	7,857	55.76	97	9,681	-1,824
547+00.00	50.00	177.03	344	8,201	80.59	145	9,826	-1,625
549+00.00	200.00	77.77	944	9,145	136.61	925	10,751	-1,606
549+50.00	50.00	53.83	122	9,267	153.28	309	11,060	-1,793
550+00.00	50.00	34.65	82	9,349	177.56	352	11,412	-2,063
550+50.00	50.00	21.93	52	9,401	242.05	447	11,859	-2,458
551+00.00	50.00	14.26	34	9,435	267.57	543	12,402	-2,967
551+50.00	50.00	9.05	22	9,457	276.64	579	12,981	-3,524
552+00.00	50.00	8.15	16	9,473	248.82	560	13,541	-4,068
552+50.00	50.00	8.22	15	9,488	222.78	502	14,043	-4,555
553+00.00	50.00	10.44	17	9,505	290.46	547	14,590	-5,085
553+50.00	50.00	1.83	11	9,516	313.42	643	15,233	-5,717
554+00.00	50.00	0.00	2	9,518	350.34	707	15,940	-6,422
554+50.00	50.00	0.00	0	9,518	377.02	775	16,715	-7,197
555+00.00	50.00	0.45	0	9,518	398.71	826	17,541	-8,023
555+50.00	50.00	0.88	1	9,519	435.78	889	18,430	-8,911
556+00.00	50.00	1.39	2	9,521	459.69	954	19,384	-9,863
556+50.00	50.00	2.73	4	9,525	365.71	879	20,263	-10,738
557+00.00	50.00	2.28	5	9,530	469.77	890	21,153	-11,623
559+00.00	200.00	0.00	8	9,538	516.35	4,200	25,353	-15,815
559+50.00	50.00	0.00	0	9,538	415.61	992	26,345	-16,807
560+00.00	50.00	0.00	0	9,538	368.68	835	27,180	-17,642
560+50.00	50.00	1.59	1	9,539	344.59	760	27,940	-18,401
561+00.00	50.00	0.47	2	9,541	356.23	746	28,686	-19,145
561+50.00	50.00	32.59	31	9,572	394.73	800	29,486	-19,914
562+00.00	50.00	22.59	51	9,623	403.54	850	30,336	-20,713
562+50.00	50.00	19.54	39	9,662	448.71	907	31,243	-21,581
563+00.00	50.00	5.04	23	9,685	501.59	1,012	32,255	-22,570
563+50.00	50.00	2.30	7	9,692	515.49	1,083	33,338	-23,646
564+00.00	50.00	1.60	4	9,696	514.51	1,097	34,435	-24,739
564+50.00	50.00	7.79	9	9,705	481.50	1,061	35,496	-25,791
565+00.00	50.00	0.70	8	9,713	477.01	1,021	36,517	-26,804
565+50.00	50.00	0.58	1	9,714	442.41	979	37,496	-27,782
566+00.00	50.00	2.14	3	9,717	412.81	911	38,407	-28,690
566+50.00	50.00	0.03	2	9,719	433.78	901	39,308	-29,589
567+00.00	50.00	0.54	1	9,720	441.38	932	40,240	-30,520
567+50.00	50.00	1.72	2	9,722	484.97	986	41,226	-31,504
568+00.00	50.00	0.43	2	9,724	514.51	1,064	42,290	-32,566
568+50.00	50.00	5.20	5	9,729	588.55	1,175	43,465	-33,736
569+00.00	50.00	0.45	5	9,734	639.05	1,307	44,772	-35,038
569+50.00	50.00	0.66	1	9,735	589.52	1,308	46,080	-36,345
570+00.00	50.00	1.62	2	9,737	515.07	1,176	47,256	-37,519
570+50.00	50.00	1.08	3	9,740	547.72	1,132	48,388	-38,648
571+00.00	50.00	0.30	1	9,741	588.75	1,210	49,598	-39,857

Sta	Distance	Common Excavation - Type A			Embankment			Mass Ordinate
		Area (SF)	Volume (CY)	Accumulated Volume (CY)	Area (SF)	Adjusted Volume (CY)*	Accumulated Volume (CY)	
571+50.00	50.00	0.72	1	9,742	564.68	1,228	50,826	-41,084
572+00.00	50.00	0.00	1	9,743	543.48	1,180	52,006	-42,263
574+00.00	200.00	0.00	0	9,743	643.82	5,057	57,063	-47,320
574+50.00	50.00	0.00	0	9,743	580.12	1,303	58,366	-48,623
575+00.00	50.00	0.00	0	9,743	577.56	1,233	59,599	-49,856
575+50.00	50.00	0.00	0	9,743	604.15	1,258	60,857	-51,114
576+00.00	50.00	0.00	0	9,743	583.87	1,265	62,122	-52,379
576+50.00	50.00	0.00	0	9,743	560.77	1,219	63,341	-53,598
577+00.00	50.00	0.00	0	9,743	625.89	1,264	64,605	-54,862
577+50.00	50.00	1.29	1	9,744	613.92	1,320	65,925	-56,181
578+00.00	50.00	5.92	7	9,751	622.90	1,317	67,242	-57,491
578+50.00	50.00	10.36	15	9,766	604.64	1,307	68,549	-58,783
579+00.00	50.00	18.91	27	9,793	569.48	1,250	69,799	-60,006
579+50.00	50.00	18.06	34	9,827	539.43	1,181	70,980	-61,153
580+00.00	50.00	15.88	31	9,858	504.21	1,111	72,091	-62,233
580+50.00	50.00	0.00	15	9,873	518.07	1,089	73,180	-63,307
581+00.00	50.00	0.00	0	9,873	529.40	1,115	74,295	-64,422
581+50.00	50.00	0.00	0	9,873	605.13	1,208	75,503	-65,630
582+00.00	50.00	0.00	0	9,873	807.09	1,504	77,007	-67,134
585+00.00	300.00	0.00	0	9,873	554.21	8,697	85,704	-75,831
585+50.00	50.00	0.00	0	9,873	781.87	1,423	87,127	-77,254
586+00.00	50.00	0.00	0	9,873	755.05	1,637	88,764	-78,891
586+50.00	50.00	0.00	0	9,873	819.59	1,677	90,441	-80,568
587+00.00	50.00	0.00	0	9,873	873.35	1,803	92,244	-82,371
587+50.00	50.00	0.00	0	9,873	860.55	1,846	94,090	-84,217
588+00.00	50.00	0.00	0	9,873	828.91	1,799	95,889	-86,016
588+50.00	50.00	0.21	0	9,873	836.66	1,774	97,663	-87,790
589+00.00	50.00	1.78	2	9,875	856.74	1,803	99,466	-89,591
589+50.00	50.00	0.00	2	9,877	909.78	1,881	101,347	-91,470
590+00.00	50.00	0.54	1	9,878	956.83	1,988	103,335	-93,457
590+50.00	50.00	0.65	1	9,879	815.49	1,887	105,222	-95,343
591+00.00	50.00	0.77	1	9,880	884.08	1,810	107,032	-97,152
591+50.00	50.00	3.06	4	9,884	856.38	1,853	108,885	-99,001
592+00.00	50.00	6.05	8	9,892	832.39	1,798	110,683	-100,791
592+50.00	50.00	6.94	12	9,904	856.26	1,798	112,481	-102,577
593+00.00	50.00	5.37	11	9,915	954.84	1,928	114,409	-104,494
593+50.00	50.00	17.49	21	9,936	728.43	1,792	116,201	-106,265
594+00.00	50.00	25.53	40	9,976	717.89	1,540	117,741	-107,765
594+50.00	50.00	22.98	45	10,021	813.84	1,631	119,372	-109,351
595+00.00	50.00	14.69	35	10,056	759.26	1,675	121,047	-110,991
595+50.00	50.00	0.70	14	10,070	687.47	1,540	122,587	-112,517
596+00.00	50.00	0.00	1	10,071	571.30	1,340	123,927	-113,856
598+00.00	200.00	0.40	1	10,072	409.84	4,179	128,106	-118,034
598+50.00	50.00	0.00	0	10,072	552.37	1,025	129,131	-119,059

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THE CITY OF Fargo FAR MORE

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Data Tables

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	11	3

Sta	Distance	Common Excavation - Type A			Embankment			Mass Ordinate
		Area (SF)	Volume (CY)	Accumulated Volume (CY)	Area (SF)	Adjusted Volume (CY)*	Accumulated Volume (CY)	
599+00.00	50.00	0.00	0	10,072	647.43	1,278	130,409	-120,337
599+50.00	50.00	0.00	0	10,072	629.33	1,360	131,769	-121,697
600+00.00	50.00	3.83	4	10,076	597.00	1,306	133,075	-122,999
600+50.00	50.00	9.62	12	10,088	587.88	1,262	134,337	-124,249
601+00.00	50.00	5.94	14	10,102	586.00	1,250	135,587	-125,485
601+50.00	50.00	1.72	7	10,109	583.17	1,245	136,832	-126,723
602+00.00	50.00	0.00	2	10,111	584.17	1,243	138,075	-127,964
602+50.00	50.00	0.39	0	10,111	516.26	1,172	139,247	-129,136
603+00.00	50.00	1.01	1	10,112	433.33	1,011	140,258	-130,146
603+50.00	50.00	0.00	1	10,113	508.10	1,002	141,260	-131,147
604+00.00	50.00	0.00	0	10,113	565.83	1,144	142,404	-132,291
604+50.00	50.00	0.00	0	10,113	614.62	1,257	143,661	-133,548
605+00.00	50.00	0.00	0	10,113	663.21	1,361	145,022	-134,909
605+50.00	50.00	0.00	0	10,113	697.34	1,449	146,471	-136,358
606+00.00	50.00	0.00	0	10,113	682.99	1,470	147,941	-137,828
606+50.00	50.00	0.00	0	10,113	647.93	1,417	149,358	-139,245
607+00.00	50.00	0.00	0	10,113	558.17	1,284	150,642	-140,529
607+50.00	50.00	0.00	0	10,113	492.98	1,119	151,761	-141,648
608+00.00	50.00	0.00	0	10,113	426.79	979	152,740	-142,627
608+50.00	50.00	0.00	0	10,113	280.23	753	153,493	-143,380
609+00.00	50.00	0.07	0	10,113	156.80	465	153,958	-143,845
611+00.00	200.00	3.88	15	10,128	1.41	674	154,632	-144,504
611+50.00	50.00	6.77	10	10,138	0.00	2	154,634	-144,496
612+00.00	50.00	3.79	10	10,148	0.01	0	154,634	-144,486
612+50.00	50.00	5.13	8	10,156	0.00	0	154,634	-144,478
613+00.00	50.00	6.39	11	10,167	0.00	0	154,634	-144,467
613+50.00	50.00	6.78	12	10,179	0.00	0	154,634	-144,455
614+00.00	50.00	0.00	6	10,185	0.00	0	154,634	-144,449
614+50.00	50.00	0.00	0	10,185	0.00	0	154,634	-144,449
615+00.00	50.00	0.00	0	10,185	0.00	0	154,634	-144,449
615+30.41	30.41	0.00	0	10,185	0.00	0	154,634	-144,449

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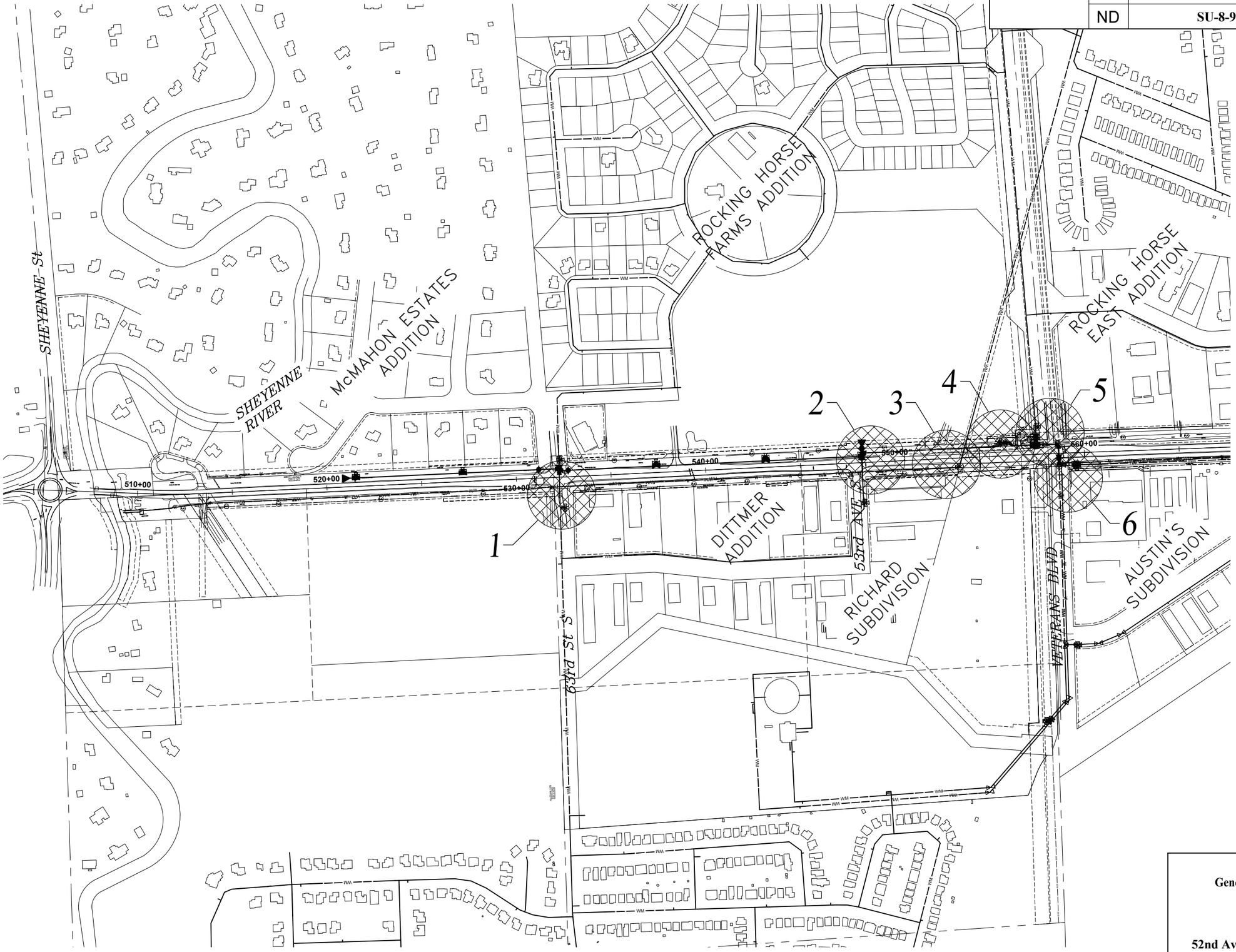
Data Tables

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	20	1



NOTE:

SEE GATE VALVE TIE DETAILS (SHEETS 3 & 4)

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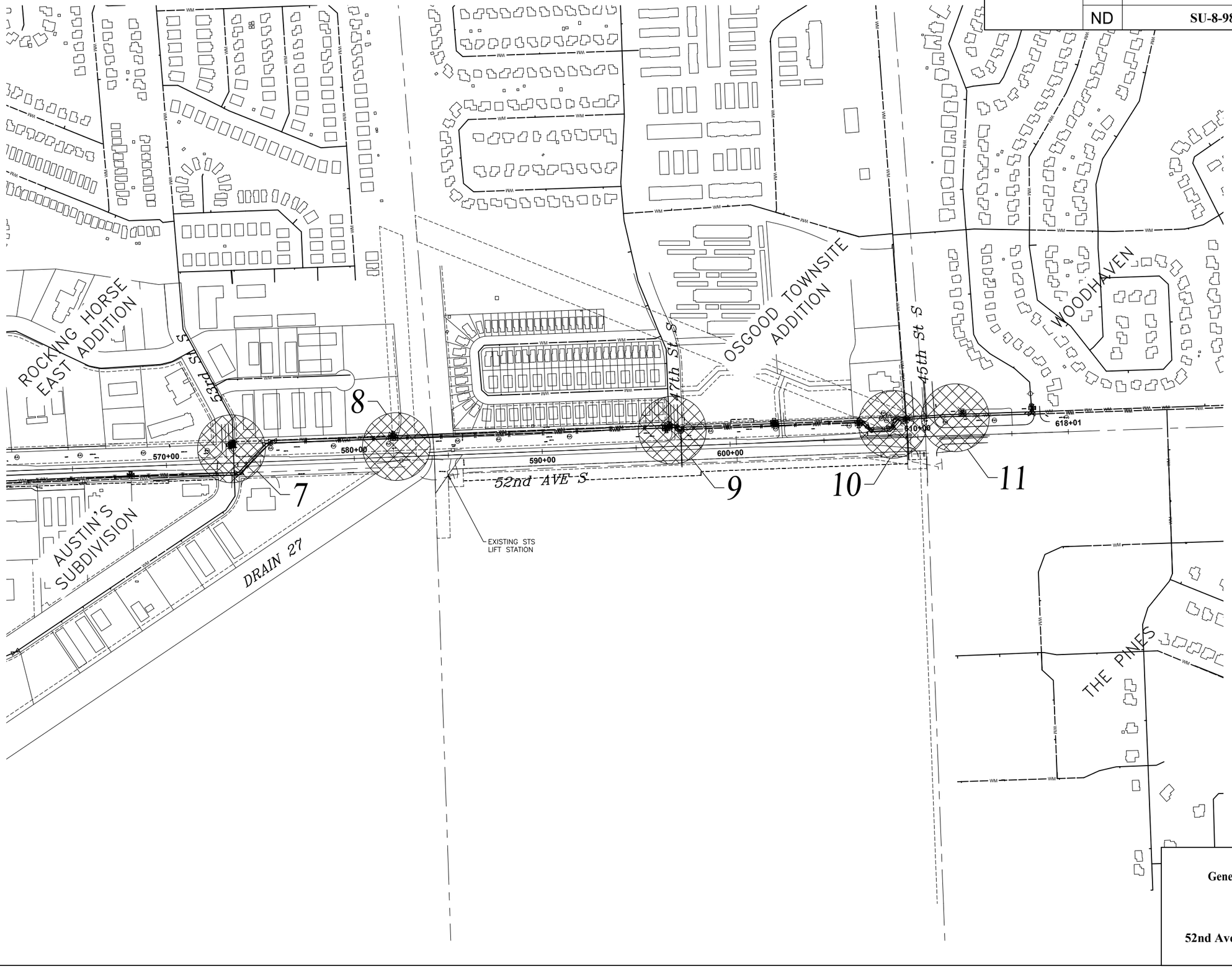
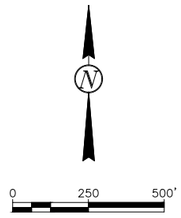
General Details - Gate Valve Location

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	020	2





NOTE:

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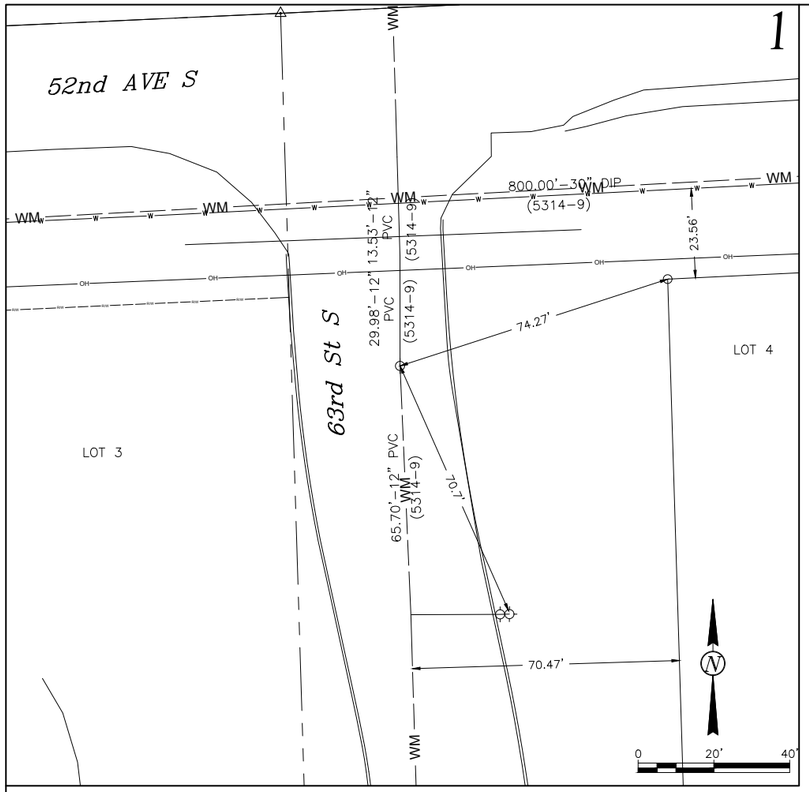
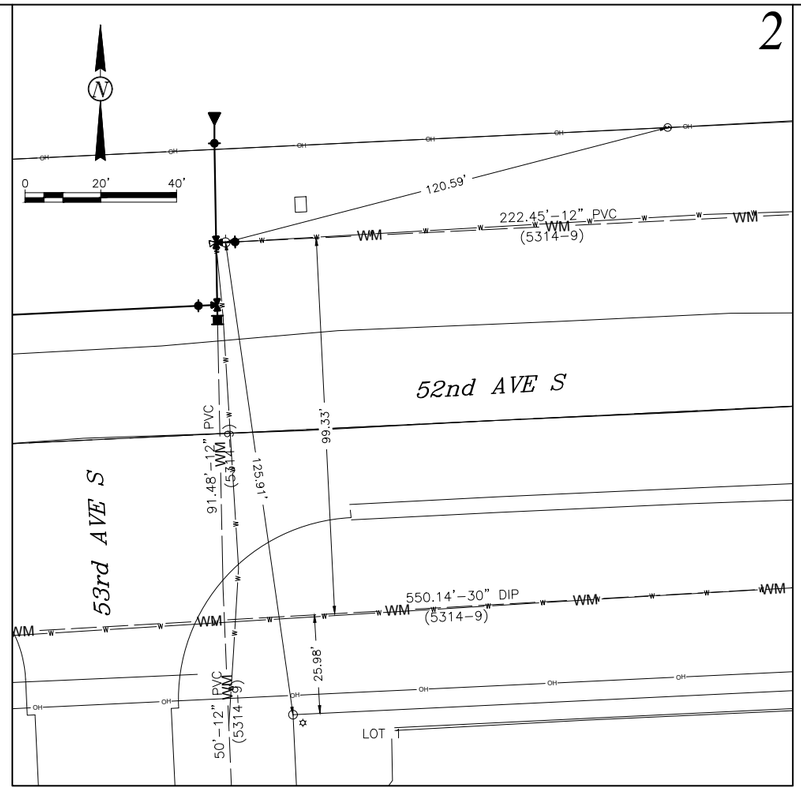
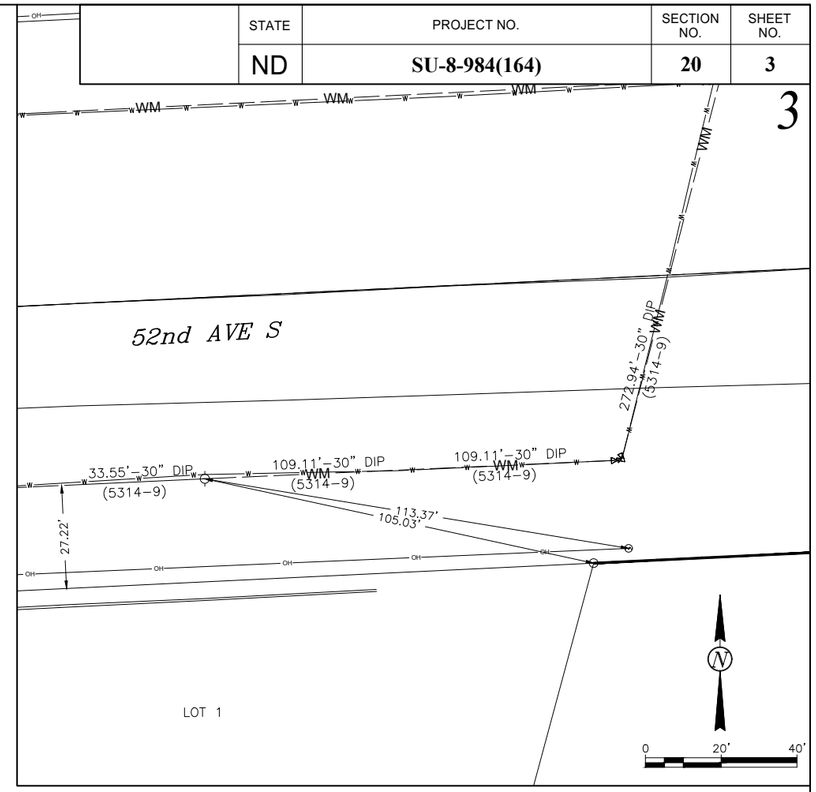
General Details - Gate Valve Location

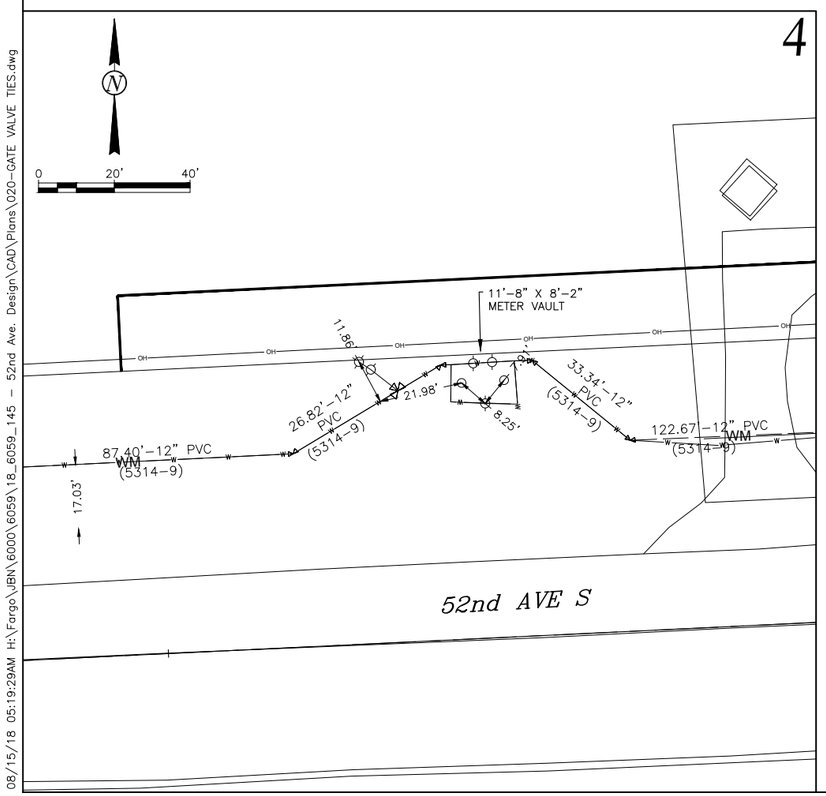
52nd Ave S - West of 63rd St S to 45th St S

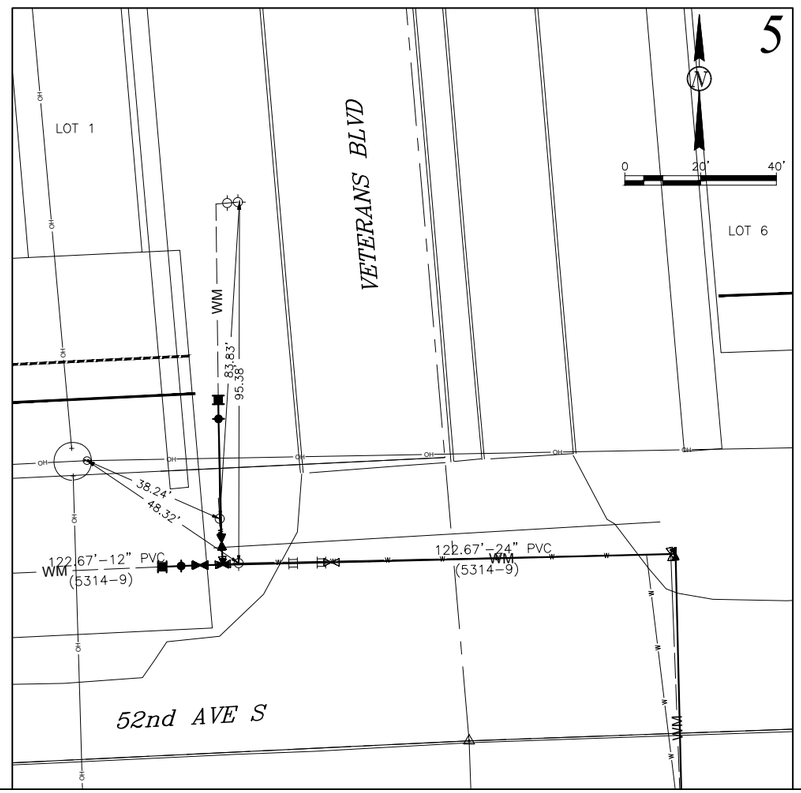
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	20	3











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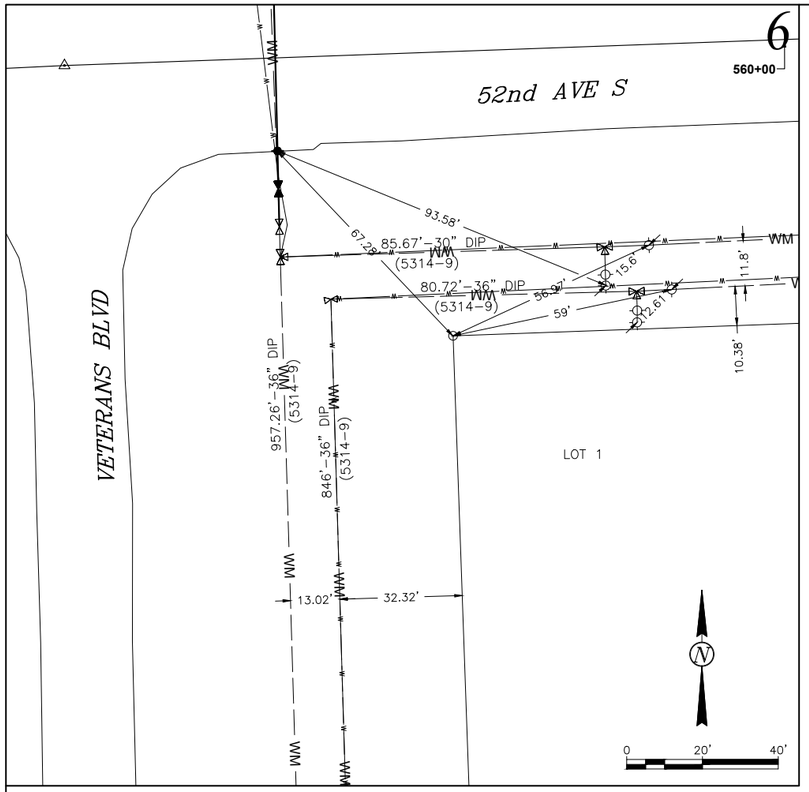
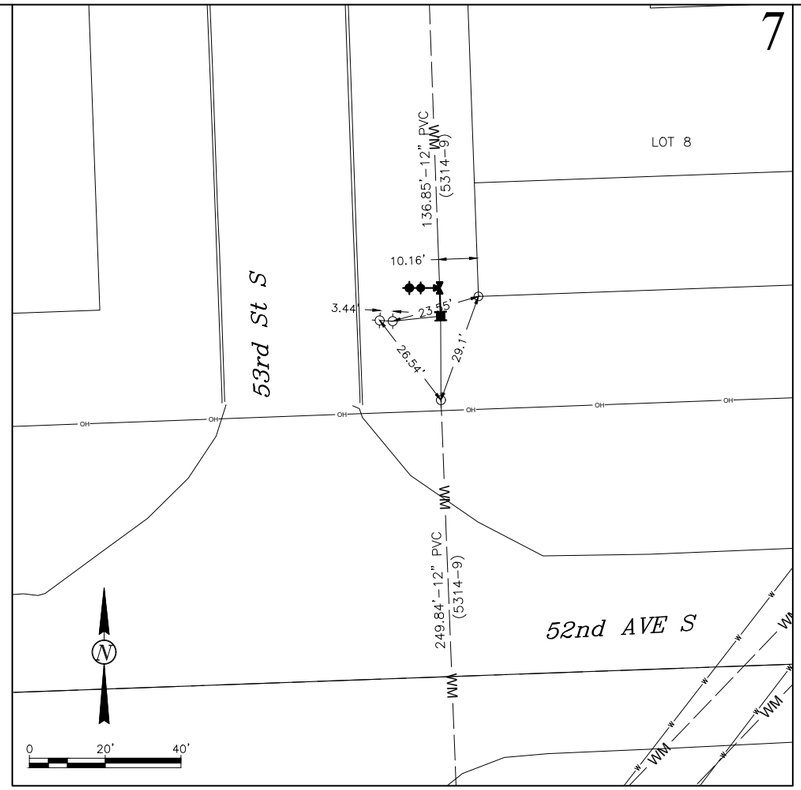
General Details - Gate Valve Tie Details

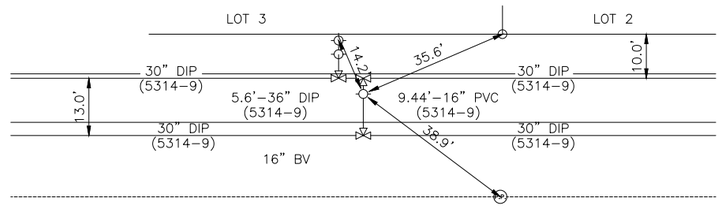
52nd Ave S - West of 63rd St S to 45th St S

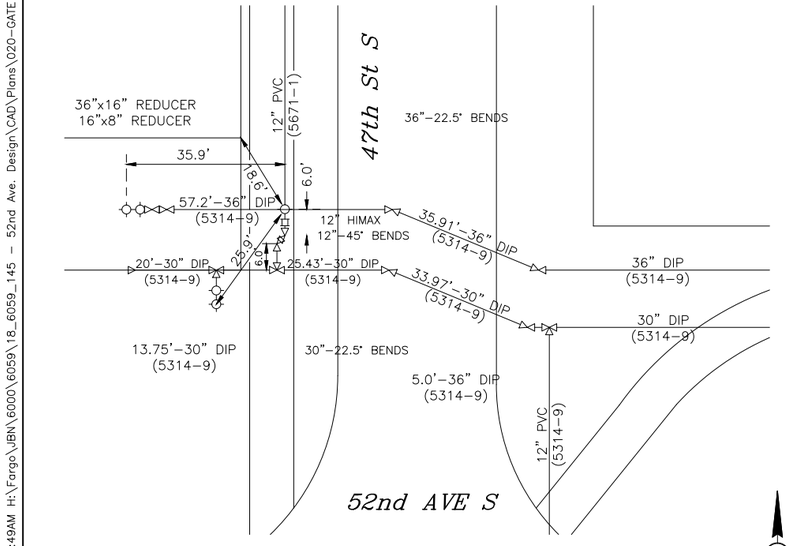
08/15/18 05:19:29AM H:\Fargo\JBN\6000\6059\18_6059_145 - 52nd Ave. Design\CAD\Plans\020-GATE VALVE TIES.dwg

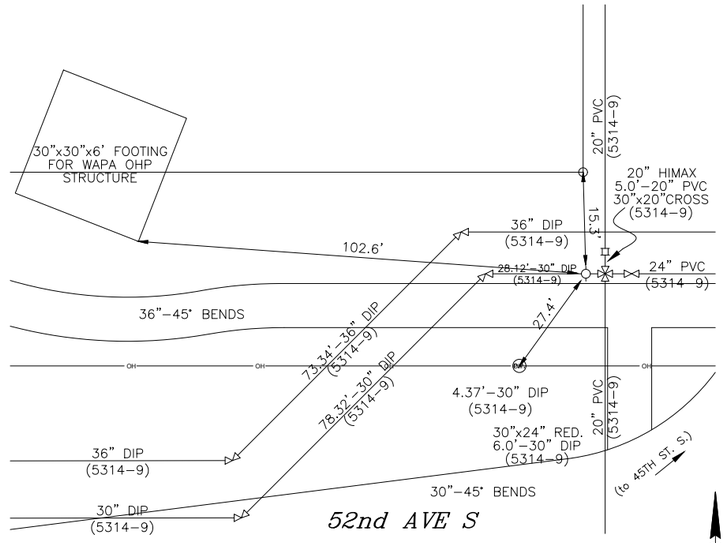
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	4

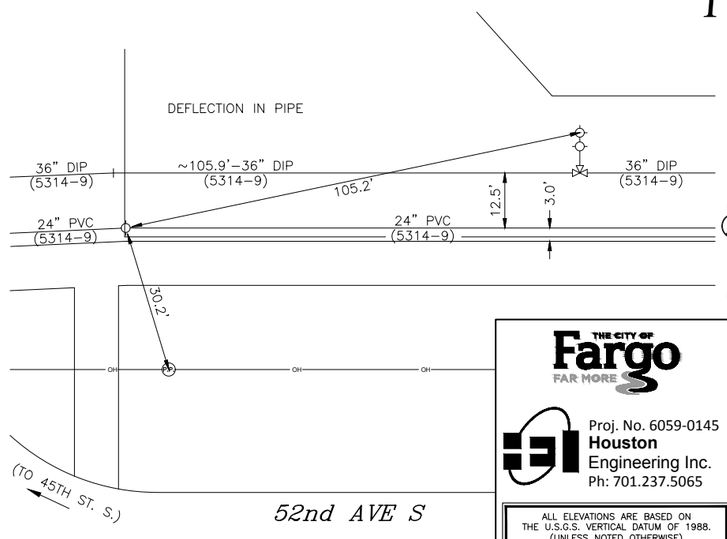












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General Details - Gate Valve Tie Details

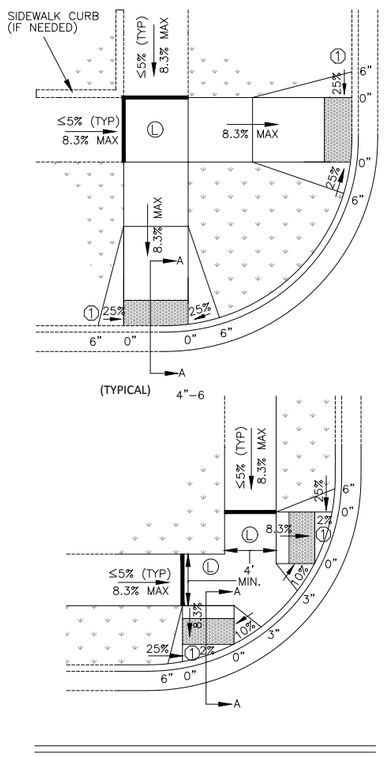
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	5

SIDEWALK RAMPS

TYPE A : GRASS BOULEVARD
TYPE B : SIDEWALK ADJACENT TO STREET CURB
TYPE C : CONTINUOUS CONCRETE IN BOULEVARD (TYPICALLY DOWNTOWN AREA)

TYPE A

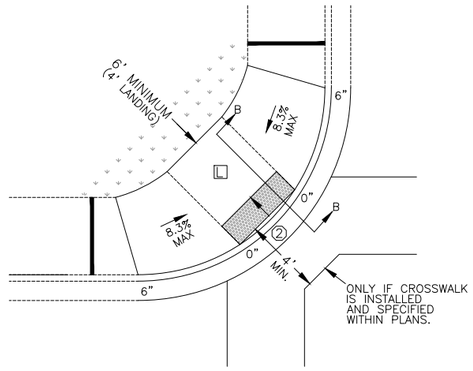


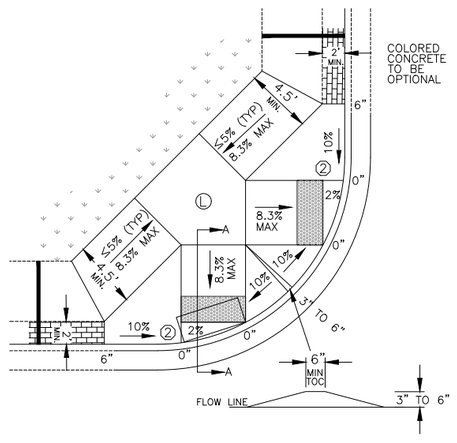
ALTERNATIVE DWP

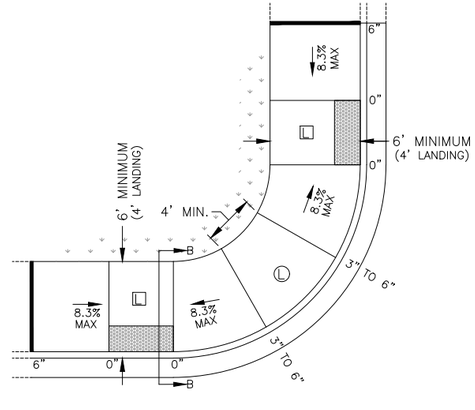
① 5' MAX, 3" MAX — NOT CONTINOUS WALK SURFACE IN BLVD (GRASS BLVD)

② 2' MAX, 3" MAX — CONTINOUS WALK SURFACE IN BLVD (CONCRETE BLVD)

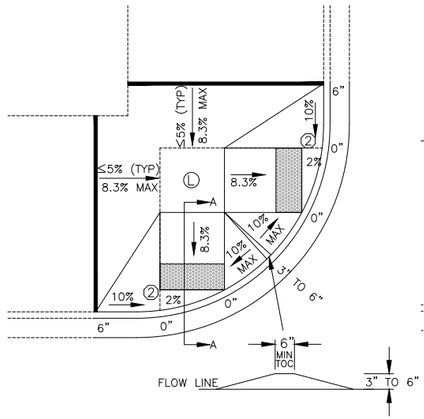
TYPE B

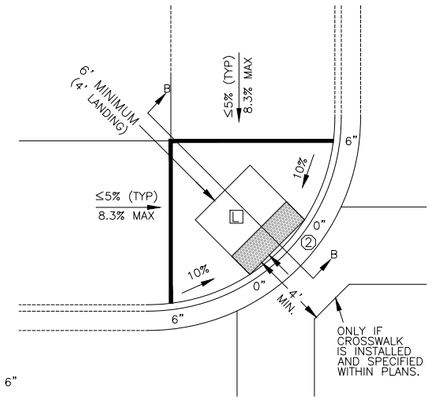


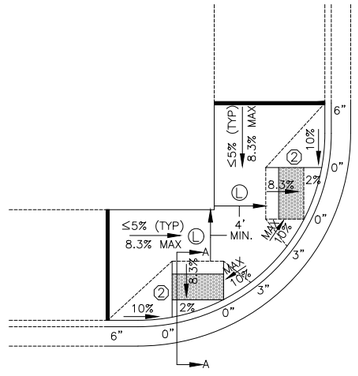


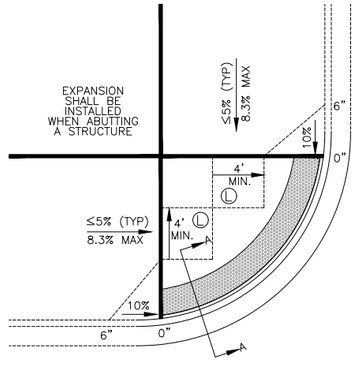


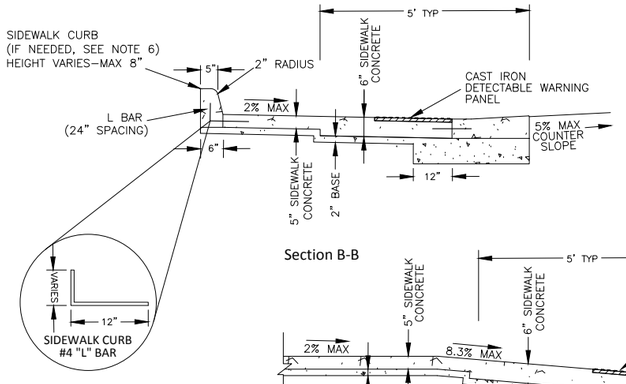
TYPE C











SIDEWALK RAMP CROSS-SECTIONS

LEGEND:

- : DETECTABLE WARNING PANEL UNPAINTED CAST IRON
- : GRASS
- : COLORED BRICK CONCRETE (MIN 2')
- Ⓤ : UPPER LANDING 2% MAX
- Ⓛ : LOWER LANDING 2% MAX
- 0", 3", 4" OR 6" : CURB HEIGHT
- : 1/2" EXPANSION. (ALL EXPANSION SHALL BE SEALED WITH HOT POUR)

20:1=5% 12:1=8.3% 10:1=10% 4:1=25%

NOTES:

1. RAMP WIDTH IS DEFINED AS THE USEABLE PORTION OF THE RAMP, EXCLUDING FLARES IF USED.

   CURB RAMP WIDTH SHOULD MATCH THE EXISTING SIDEWALK WIDTH. 4' WIDTH MINIMUM.

   RAMP WIDTH FOR SHARED–USE PATHS SHOULD MATCH THE EXISTING SHARED USE PATH WIDTH.
2. RAMP LENGTH SHALL BE MAXIMUM OF 15'.

   ANY PORTIONS OF SIDEWALK BETWEEN THE DETECTABLE WARNING PANELS AND THE CURB SHALL HAVE A MAX 2% LONG. GRADE.
3. LANDINGS SHALL BE A MINIMUM OF 4' X 4' AND SHALL HAVE A MAX 2% SLOPE IN ANY DIRECTION. LANDINGS ARE DESIRABLY 5' X 5' OR LARGER.
4. DETECTABLE WARNING PANELS SHALL MATCH THE RAMP WIDTH. RADIAL PANELS MAY ALSO BE USED.THE DETECTABLE WARNING PANEL MAY BE LOCATED WITHIN THE LOWER LANDING.
5. THE PEDESTRIAN ACCESS ROUTE SHALL BE CONTINUOUS 4' MIN. WIDTH. MAX 2% CROSS SLOPE APPLIES TO ALL CONCRETE, EXCLUDING FLARES.
6. LANDSCAPING IS PREFERRED TO MODIFY EXISTING GROUND SLOPE CHANGES AS NEEDED. IF NOT POSSIBLE, SUCH AS ADJACENT BUILDINGS, A VERTICAL CURB MAY BE USED AS SHOWN IN THE DETAIL BELOW. THE CURB WILL BE PAID FOR AT THE UNIT PRICE BID FOR THE ITEM" CURB – TYPE SW" PER LINEAL FOOT.
7. THE MAJORITY OF LINES SHOWN ON DETAILS INDICATE POINT OF DIFFERING GRADE CHANGES. ACTUAL JOINT DIMENSIONS MAY VARY IN FIELD.
8. LONGITUDINAL SLOPE ON SIDEWALK SHALL NOT EXCEED 5%. GENERALLY SIDEWALK GRADE IS ESTABLISHED BY THE ROADWAY GRADE. SIDEWALK SHALL NOT EXCEED 2% CROSS SLOPE.

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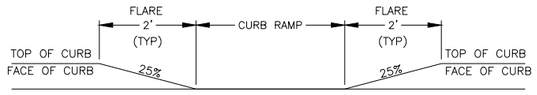
THE CITY OF Fargo FAR MORE

General Details - Sidewalk

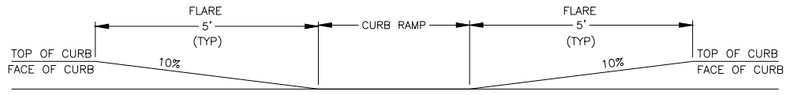
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	6

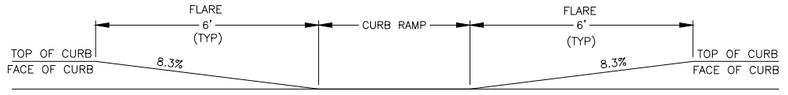
SIDEWALK/BIKETRAIL DETAILS



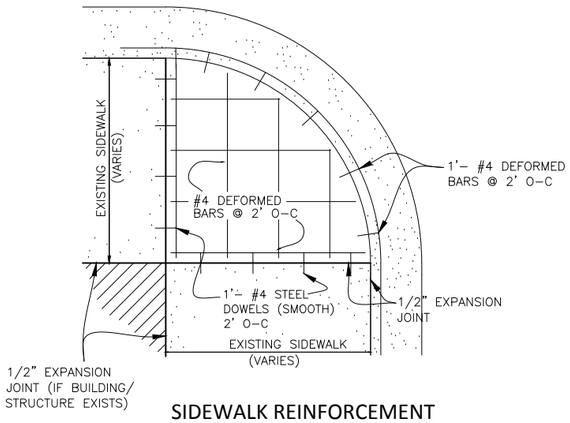
25% FLARES



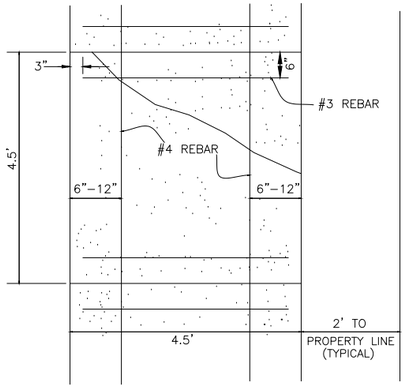
10% FLARES



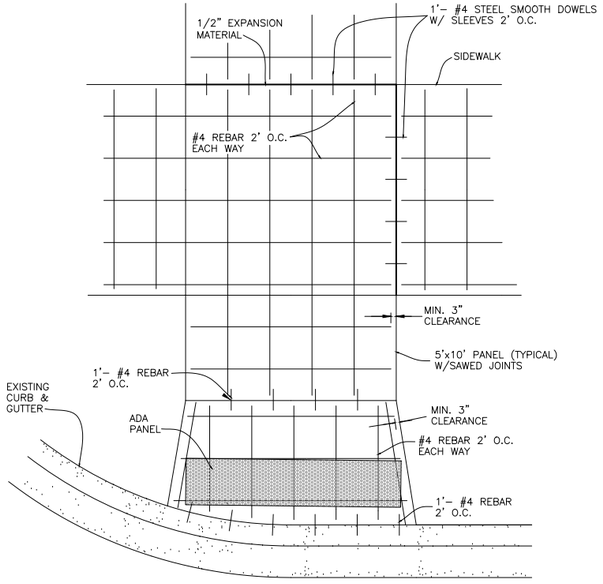
8.3% FLARES



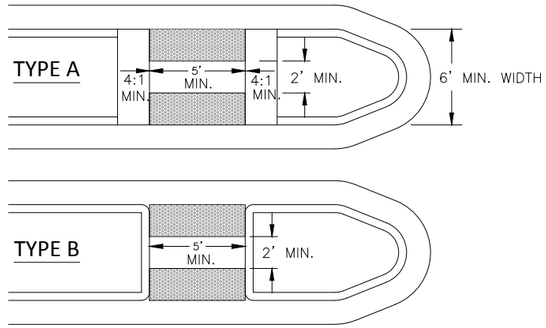
SIDEWALK REINFORCEMENT



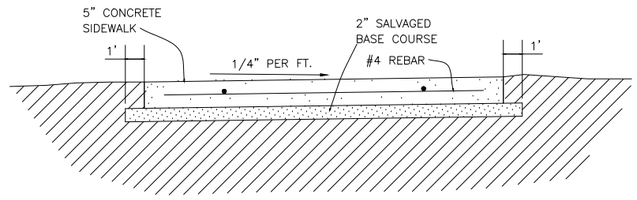
4.5' REINFORCEMENT



10' REINFORCEMENT



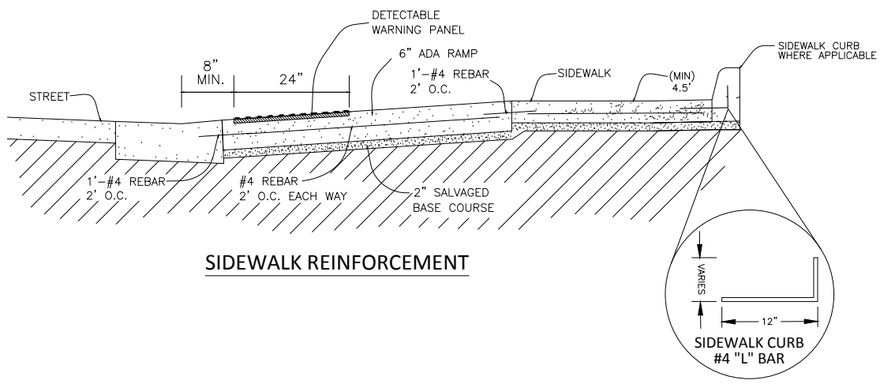
MEDIAN REFUGE ISLANDS (CUT-THROUGH)



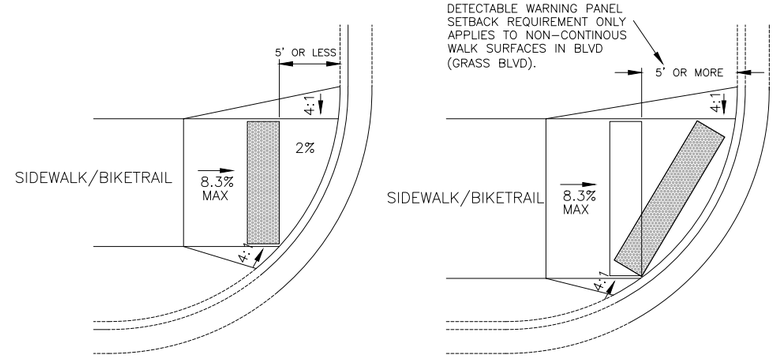
SIDEWALK CROSS-SECTION

SIDEWALK WIDTH	PANELS (L'xW')
6'	5'x6'
8'	4.5'x4'
10'	5'x5'

JOINT DIMENSION



SIDEWALK REINFORCEMENT



CONCRETE APRON FOR SIDEWALK/BIKETRAIL

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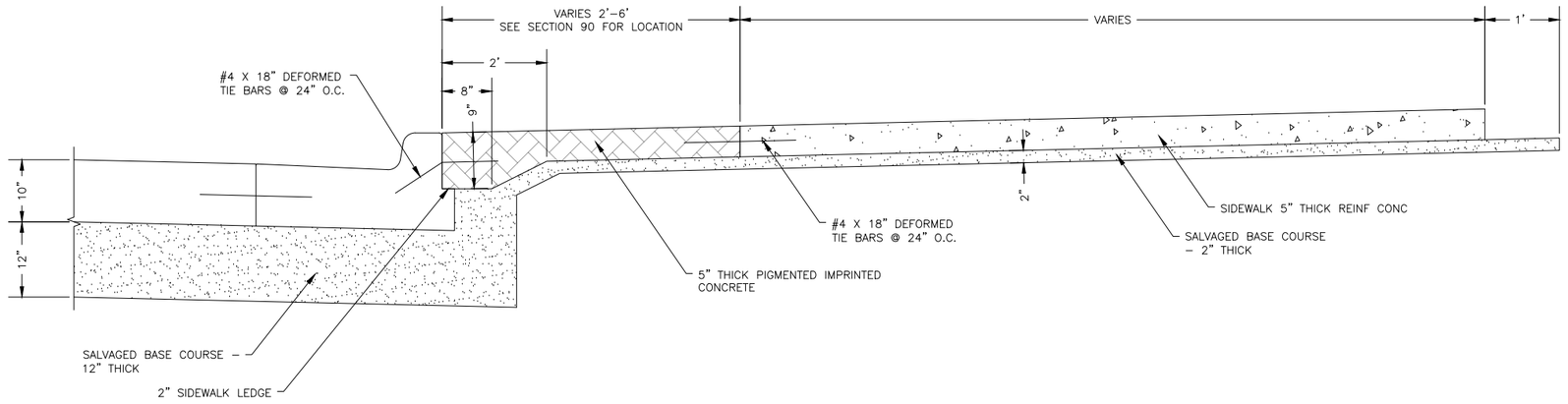
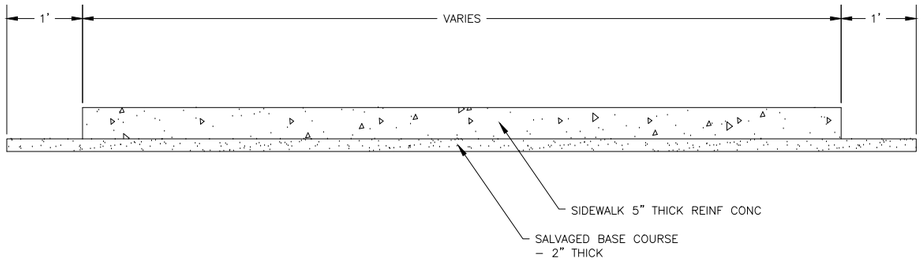
General Details - Sidewalk

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	7



SIDEWALK/IMPRESSIONED CONCRETE DETAIL



SIDEWALK DETAIL

THE CITY OF Fargo FAR MORE

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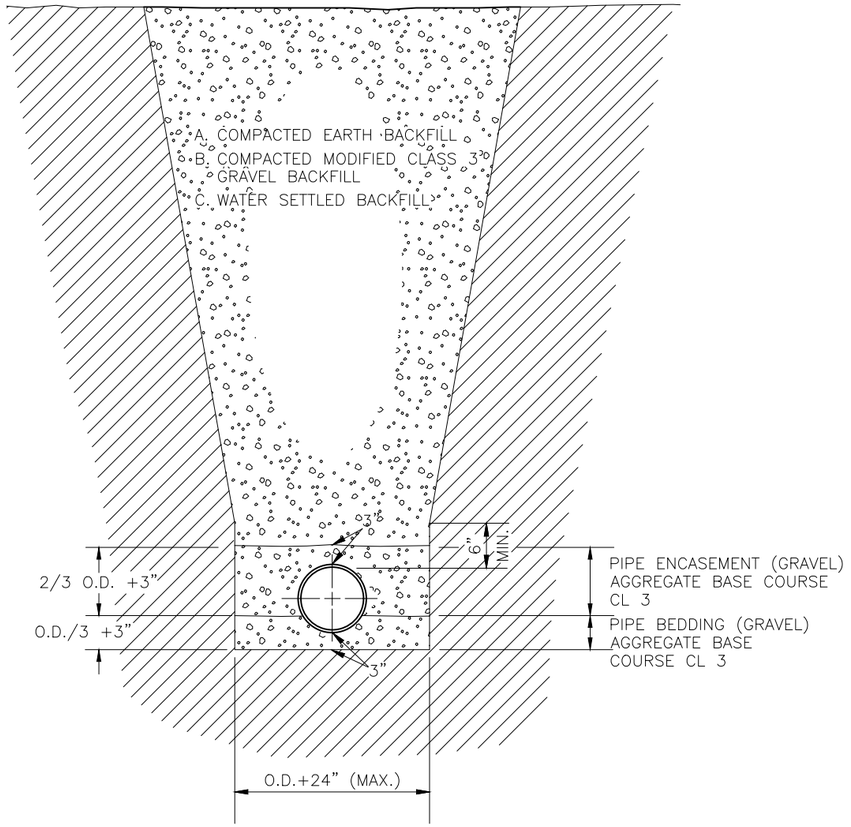
General Details - Sidewalk

52nd Ave S - West of 63rd St S to 45th St S

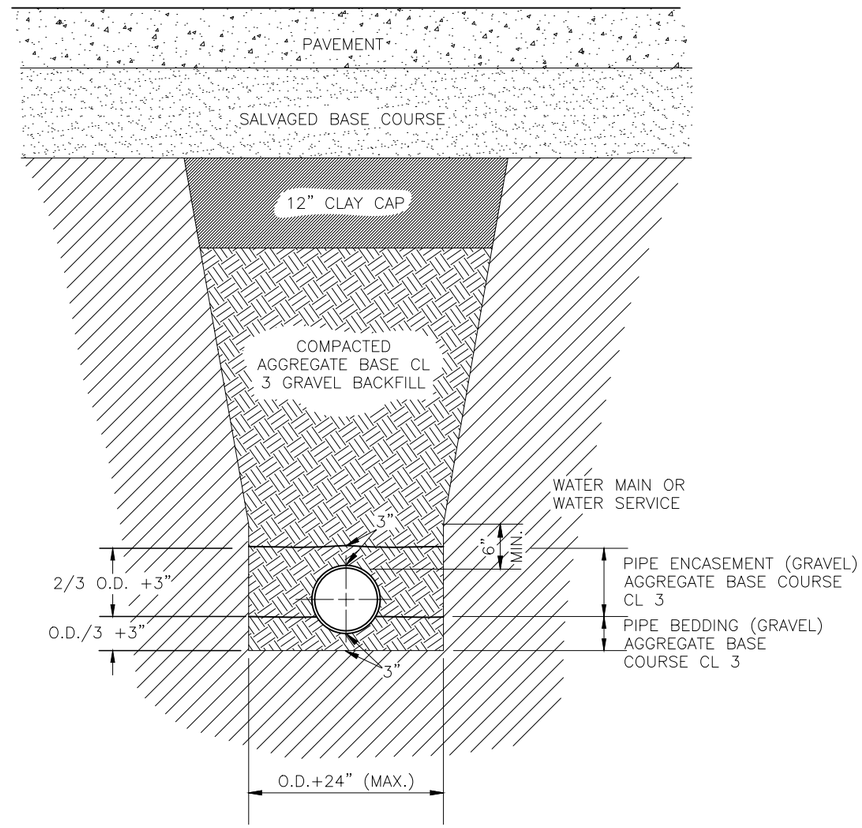
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	8



NOTE:

THIS DETAIL APPLIES WHERE WATER MAIN IS NOT INSTALLED UNDER PAVEMENT OR CURB & GUTTER.

WATER MAIN TRENCH BACKFILL



NOTE:

THIS DETAIL APPLIES WHERE WATER MAIN IS INSTALLED UNDER EXISTING OR PROPOSED PAVEMENT OR CURB & GUTTER.

WATER MAIN TRENCH UNDER NEW PAVEMENT

NOTE:

INCLUDE ALL COSTS FOR EXCAVATION, BACKFILL, GRAVEL BACKFILL AND PIPE INSTALLATION IN THE PRICE BID FOR THE PIPES. SEE SECTION 55 FOR GRAVEL BACKFILL LOCATIONS.

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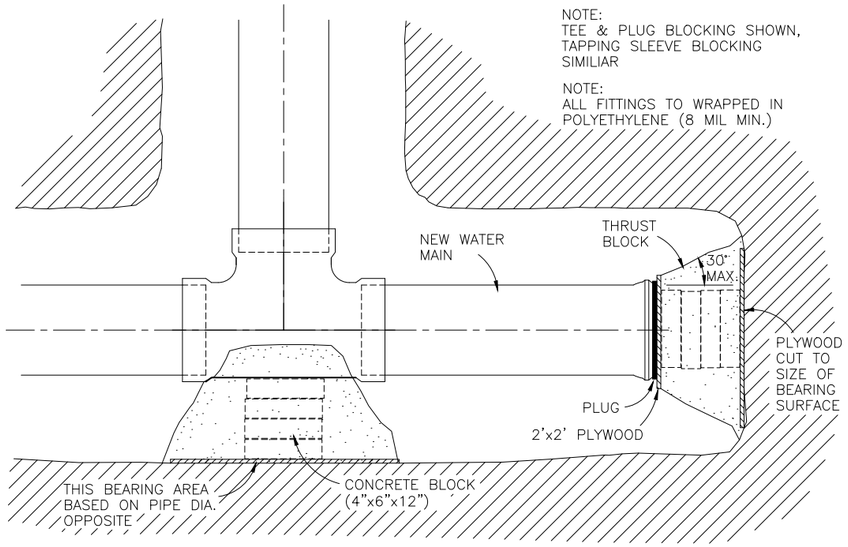
General Details - Watermain

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	9



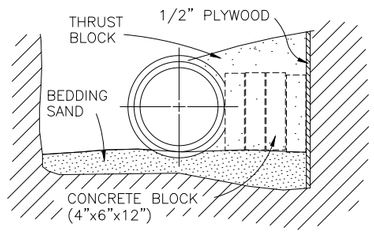
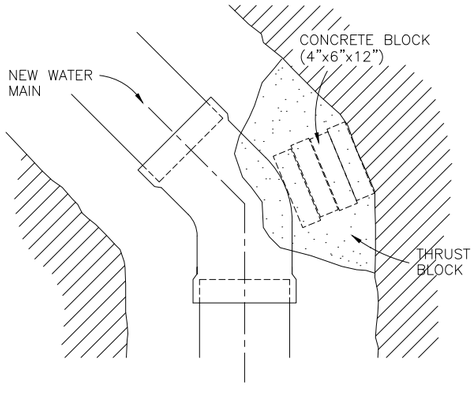


TABLE OF REQUIRED BEARING AREAS

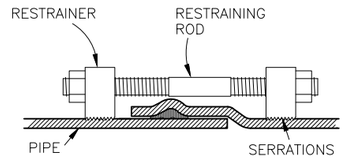
SIZE OF PIPE	90° BEND	45° BEND	22 1/2°	11 1/4°	TEE
4"	2' SQ.	2' SQ.	2' SQ.	2' SQ.	2' SQ.
6"	3' SQ.	2' SQ.	2' SQ.	2' SQ.	3' SQ.
8"	5' SQ.	3' SQ.	2' SQ.	2' SQ.	4' SQ.
10"	8' SQ.	4' SQ.	3' SQ.	2' SQ.	6' SQ.
12"	11' SQ.	6' SQ.	3' SQ.	2' SQ.	8' SQ.
16"	20' SQ.	11' SQ.	6' SQ.	4' SQ.	15' SQ.
18"	25' SQ.	14' SQ.	7' SQ.	4' SQ.	18' SQ.

NOTE:
CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH. BELLS AND BOLTS TO BE KEPT FREE OF CONCRETE. CONCRETE IN PLACE TO BE INCLUDED IN PRICE BID FOR WATER MAIN.

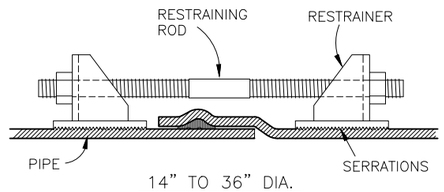
IF APPROVED BY THE ENGINEER, SOLID CONCRETE BLOCKS MAY BE USED FOR BLOCKING ON 8" DIA PIPE AND BELOW. 10" DIA. PIPE AND ABOVE WILL CONFORM TO CONCRETE POURED IN PLACE AREAS SHOWN ABOVE.



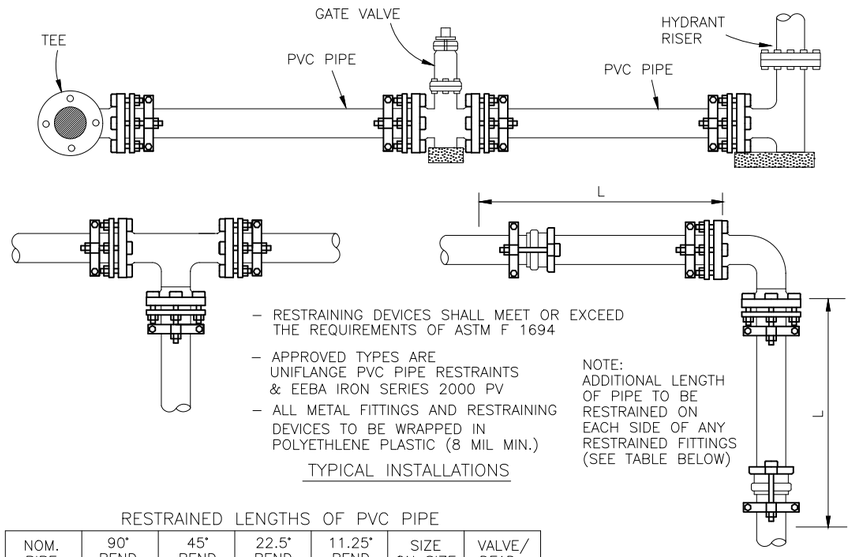
WATER MAIN TRENCH THRUST BLOCKING



2" TO 12" DIA.



14" TO 36" DIA.



– RESTRAINING DEVICES SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM F 1694

– APPROVED TYPES ARE UNIFLANGE PVC PIPE RESTRAINTS & EEBA IRON SERIES 2000 PV

– ALL METAL FITTINGS AND RESTRAINING DEVICES TO BE WRAPPED IN POLYETHLENE PLASTIC (8 MIL MIN.)

NOTE:
ADDITIONAL LENGTH OF PIPE TO BE RESTRAINED ON EACH SIDE OF ANY RESTRAINED FITTINGS (SEE TABLE BELOW)

TYPICAL INSTALLATIONS

RESTRAINED LENGTHS OF PVC PIPE

NOM. PIPE SIZE	90° BEND (L)	45° BEND (L)	22.5° BEND (L)	11.25° BEND (L)	SIZE ON SIZE TEE(L)*	VALVE/ DEAD-END(L)
6"	19'	8'	4'	2'	2'	35'
8"	25'	11'	5'	3'	13'	45'
10"	31'	13'	6'	3'	23'	55'
12"	36'	15'	8'	4'	33'	65'
16"	47'	20'	10'	5'	52'	84'

* RECOMMENDED RESTRAINED LENGTHS FOR TEES ARE FOR THE BRANCH OUTLET AND ASSUME A MINIMUM 10 FT. SECTION OF PIPE ATTACHED TO EACH SIDE OF THE RUN. RESTRAINT DEVICES ARE ALSO REQUIRED ON BOTH RUN JOINTS OF THE TEE ITSELF.

SIZE	45° VERT. OFFSET* (L)	22½° VERT. OFFSET* (L)
6"	15'/8'	7'/4'
8"	19'/11'	9'/5'
10"	23'/13'	11'/6'
12"	27'/15'	13'/8'
16"	35'/20'	17'/10'

* FIRST NUMBER IS THE RECOMMENDED RESTRAINED LENGTH ON EACH SIDE OF THE DOWN BEND, THE SECOND NUMBER IS THE LENGTH FOR EACH SIDE OF THE UP BEND.

RESTRAINT DEVICE FOR PVC PIPE BELL JOINTS

THE CITY OF Fargo FAR MORE

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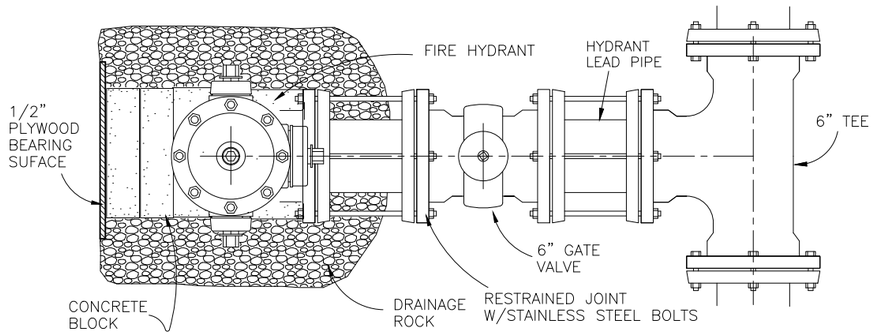
General Details - Watermain

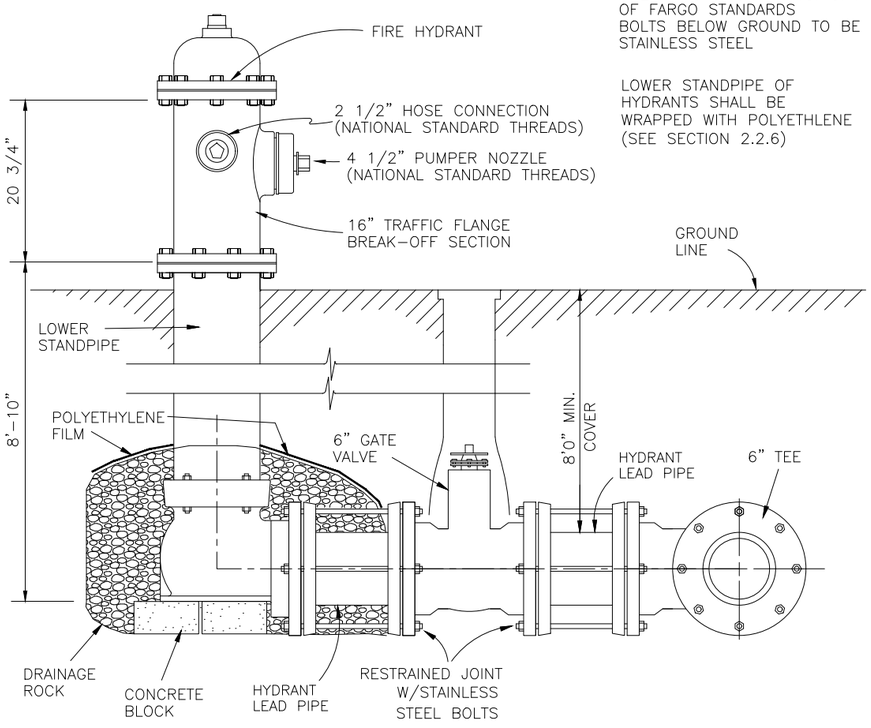
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	10

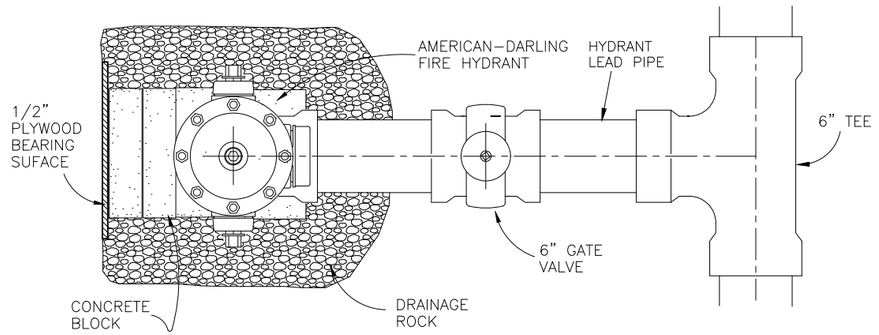


NOTE:
OPERATING & CAP NUTS: CITY OF FARGO STANDARDS
BOLTS BELOW GROUND TO BE STAINLESS STEEL

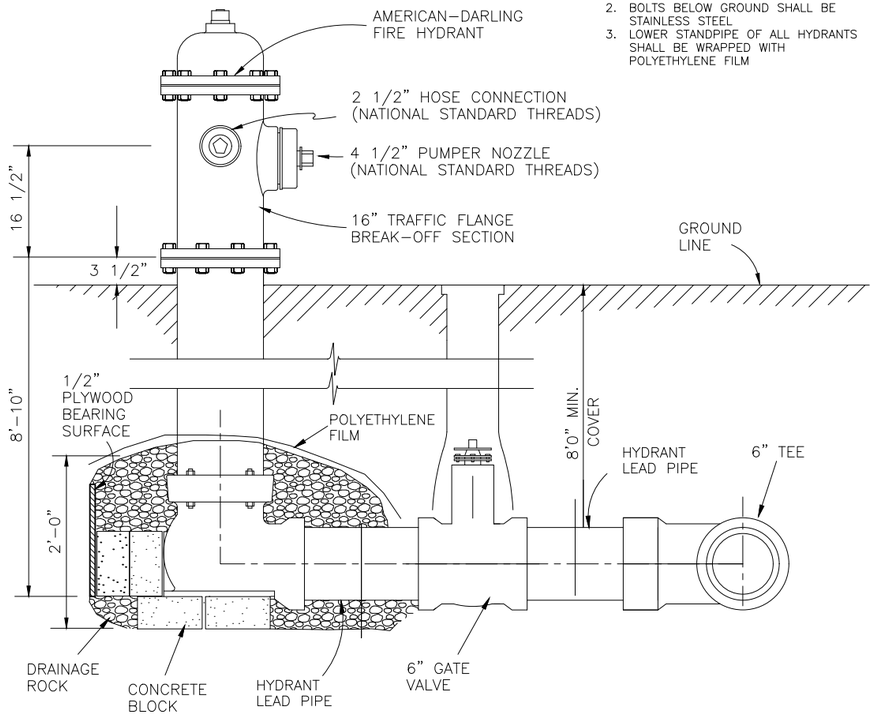
LOWER STANDPIPE OF HYDRANTS SHALL BE WRAPPED WITH POLYETHLENE (SEE SECTION 2.2.6)



RESTRAINED MECHANICAL JOINT



NOTES:
1. OPERATING & CAP NUTS: CITY OF FARGO STANDARDS
2. BOLTS BELOW GROUND SHALL BE STAINLESS STEEL
3. LOWER STANDPIPE OF ALL HYDRANTS SHALL BE WRAPPED WITH POLYETHYLENE FILM



AMERICAN DARLING HYDRANT CONNECTIONS

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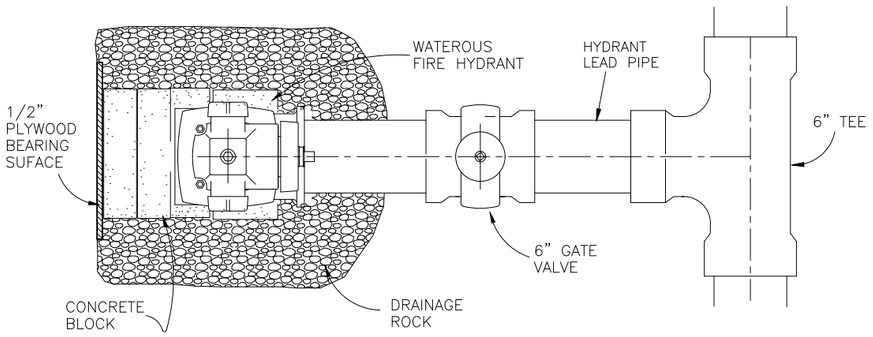
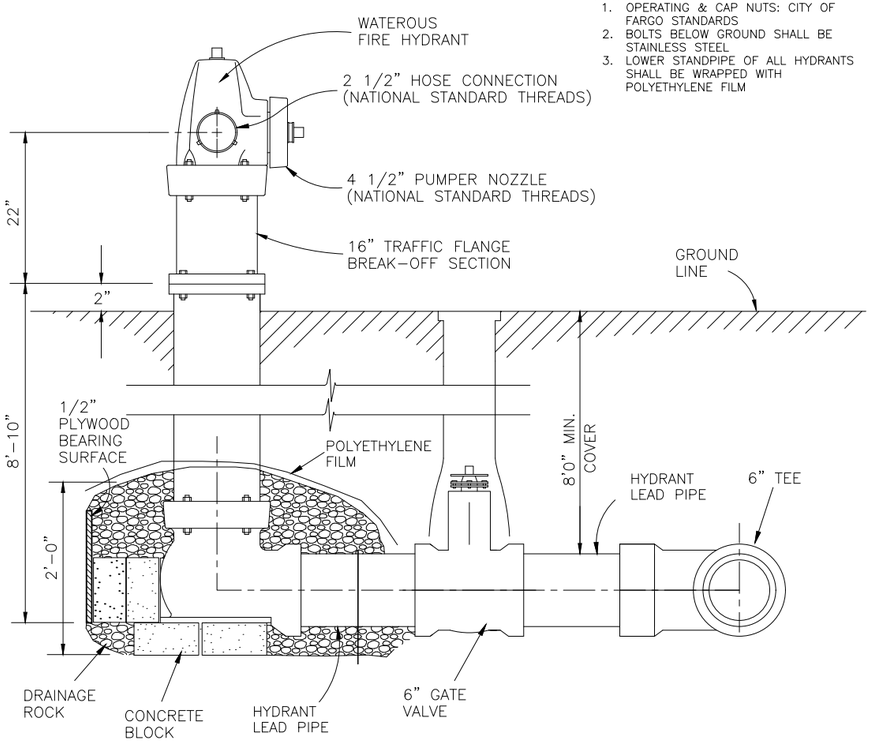
General Details - Watermain

52nd Ave S - West of 63rd St S to 45th St S

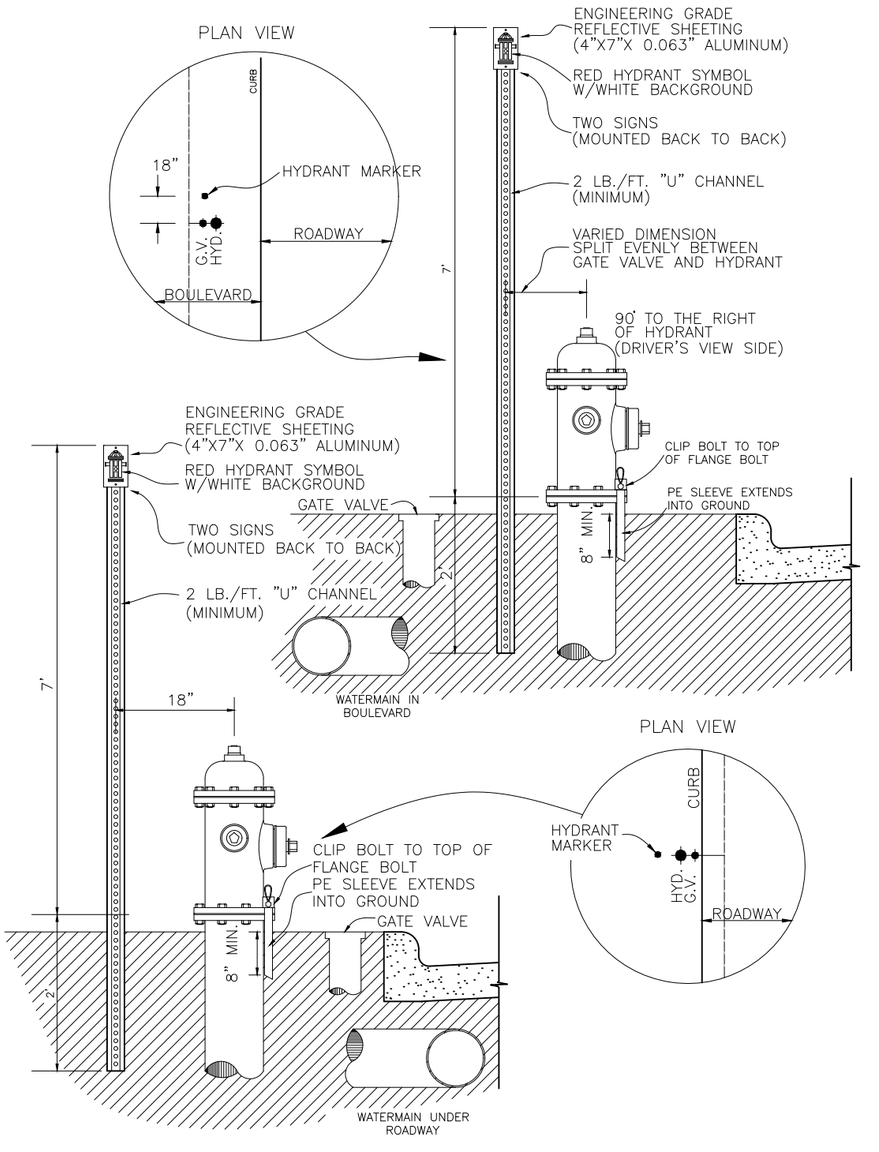
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	11



NOTES:
1. OPERATING & CAP NUTS: CITY OF FARGO STANDARDS
2. BOLTS BELOW GROUND SHALL BE STAINLESS STEEL
3. LOWER STANDPIPE OF ALL HYDRANTS SHALL BE WRAPPED WITH POLYETHYLENE FILM



WATEROUS HYDRANT CONNECTIONS



HYDRANT MARKER DETAIL

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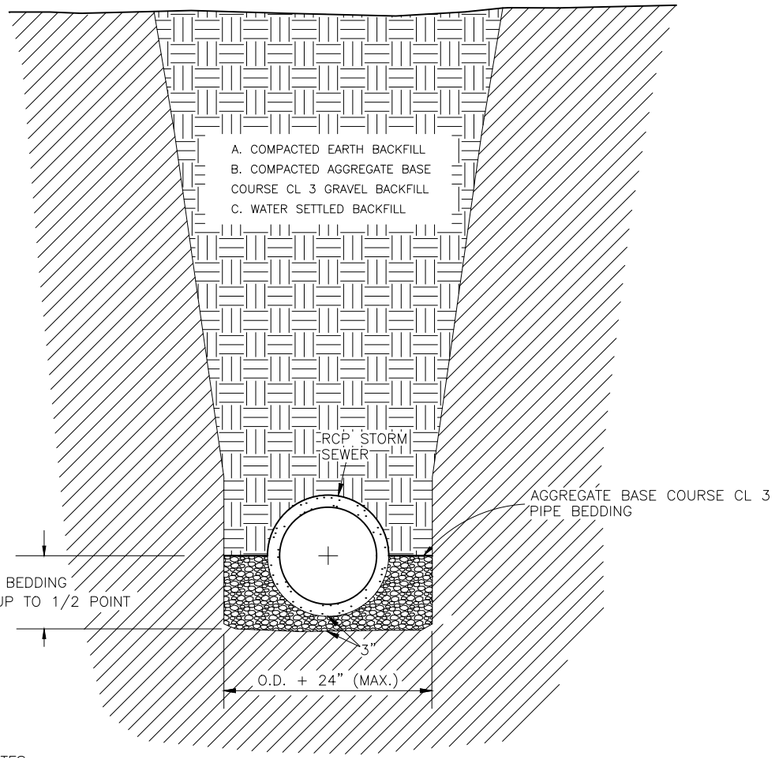
52nd Ave S - West of 63rd St S to 45th St S

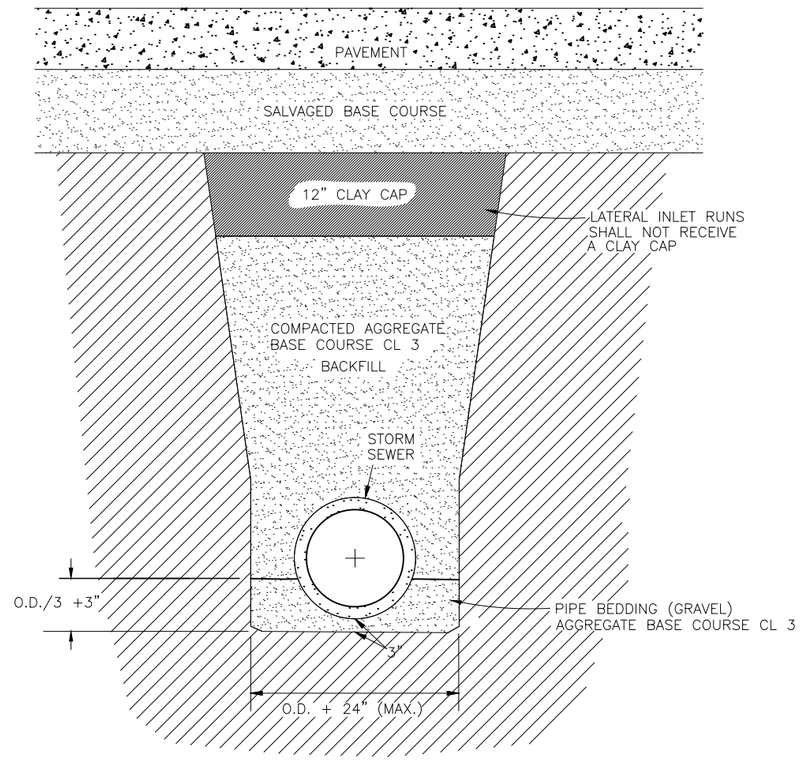
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	12



NOTES:

1. MAXIMUM TRENCH WIDTH FOR 60", 66" & 72" RCP NOT TO EXCEED OUTSIDE DIAMETER OF PIPE + 12" FROM BOTTOM OF TRENCH TO A POINT 2' ABOVE PIPE.
2. ALL LIFTING HOLES TO BE PLUGGED & MORTARED.

STORM SEWER TRENCH BACKFILL



NOTES:

1. MAXIMUM TRENCH WIDTH FOR 60", 66" & 72" RCP NOT TO EXCEED OUTSIDE DIAMETER OF PIPE + 12" FROM BOTTOM OF TRENCH TO A POINT 2' ABOVE PIPE.
2. ALL LIFTING HOLES SHALL BE PLUGGED & MORTARED.
3. THIS DETAIL APPLIES WHERE STORM SEWER IS INSTALLED UNDER EXISTING OR PROPOSED PAVEMENT OR CURB & GUTTER.

STORM SEWER TRENCH BACKFILL UNDER NEW PAVEMENT

NOTE:

INCLUDE ALL COSTS FOR EXCAVATION, BACKFILL, GRAVEL BACKFILL AND PIPE INSTALLATION IN THE PRICE BID FOR THE PIPES. SEE SECTION 55 FOR GRAVEL BACKFILL LOCATION

THE CITY OF Fargo FAR MORE

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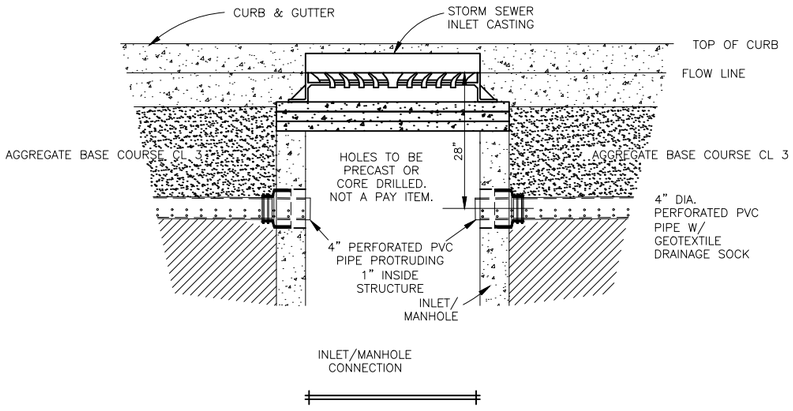
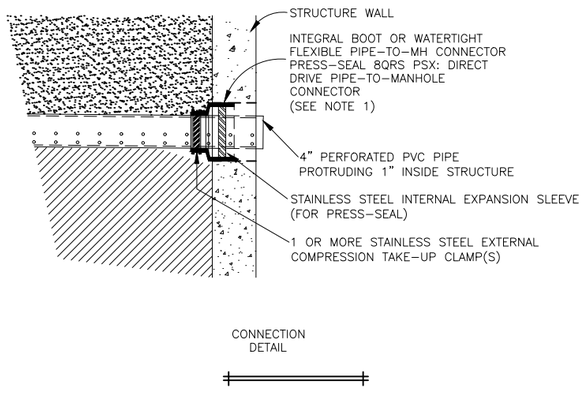
General Details - Storm Sewer

52nd Ave S - West of 63rd St S to 45th St S

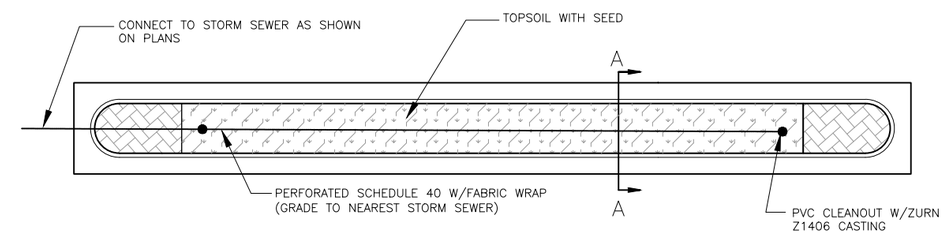
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	13



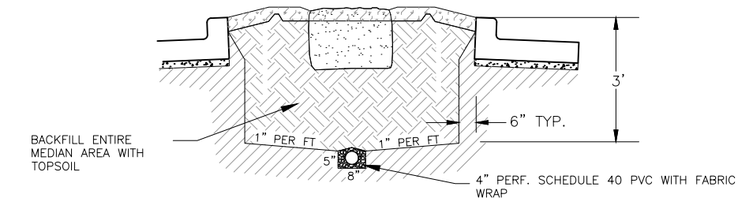


NOTES:
1. INSERTA TEE, LINK-SEAL, OR OTHER APPROVED EQUAL MAY BE UTILIZED WITH ENGINEER APPROVAL.
2. SEE 4" PVC EDGE DRAIN DETAIL FOR ADDITIONAL DETAILS.

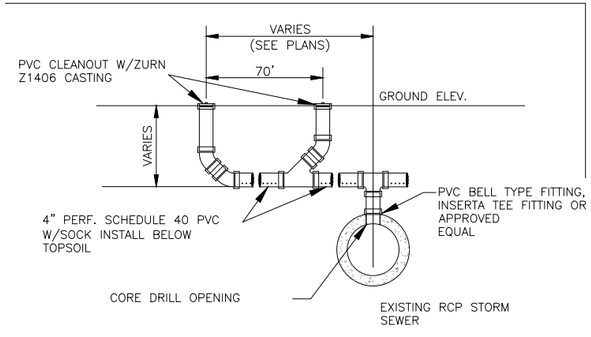
STORM INLET/PVC DRAIN PIPE DETAIL



TYPICAL MEDIAN



SECTION A-A



TYPICAL MEDIAN TREE PLANTING WITH DRAIN TILE

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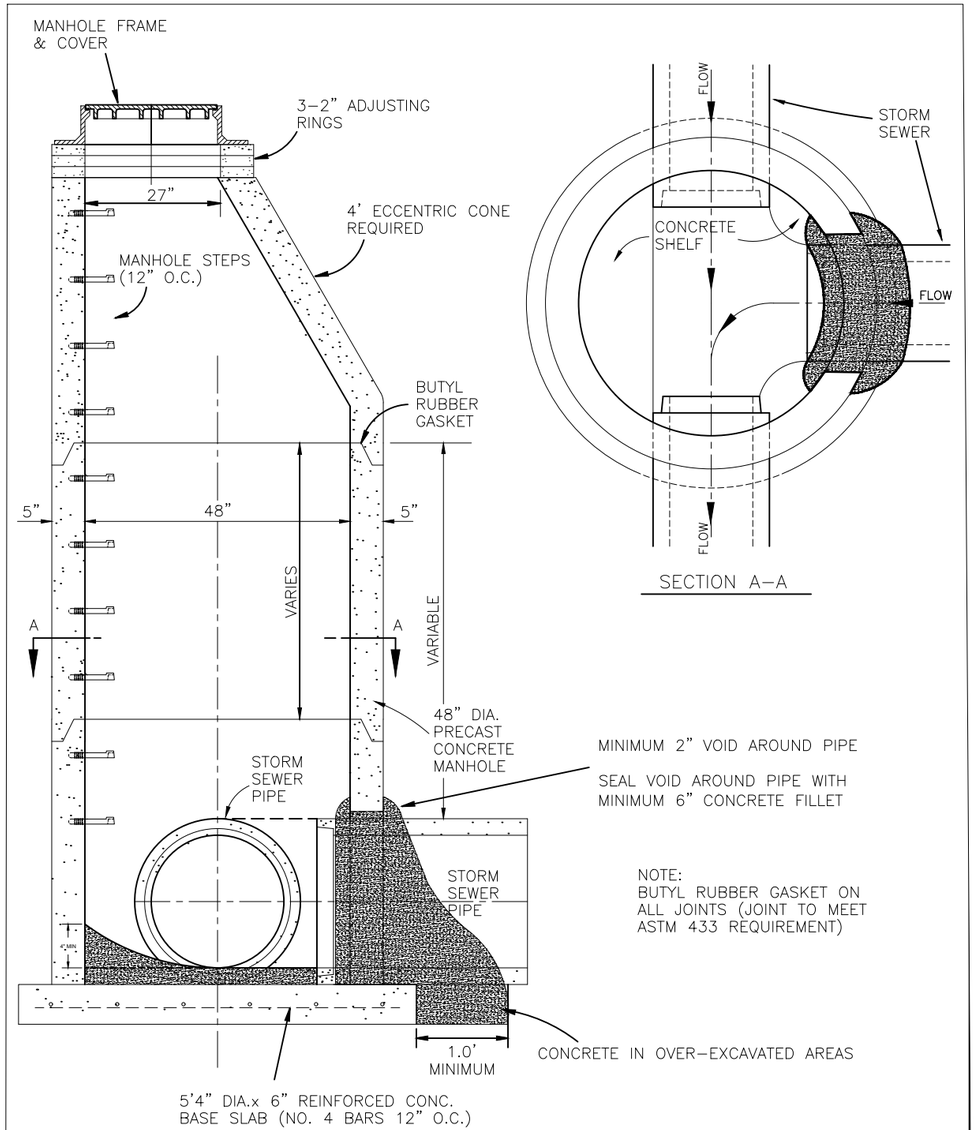
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	14



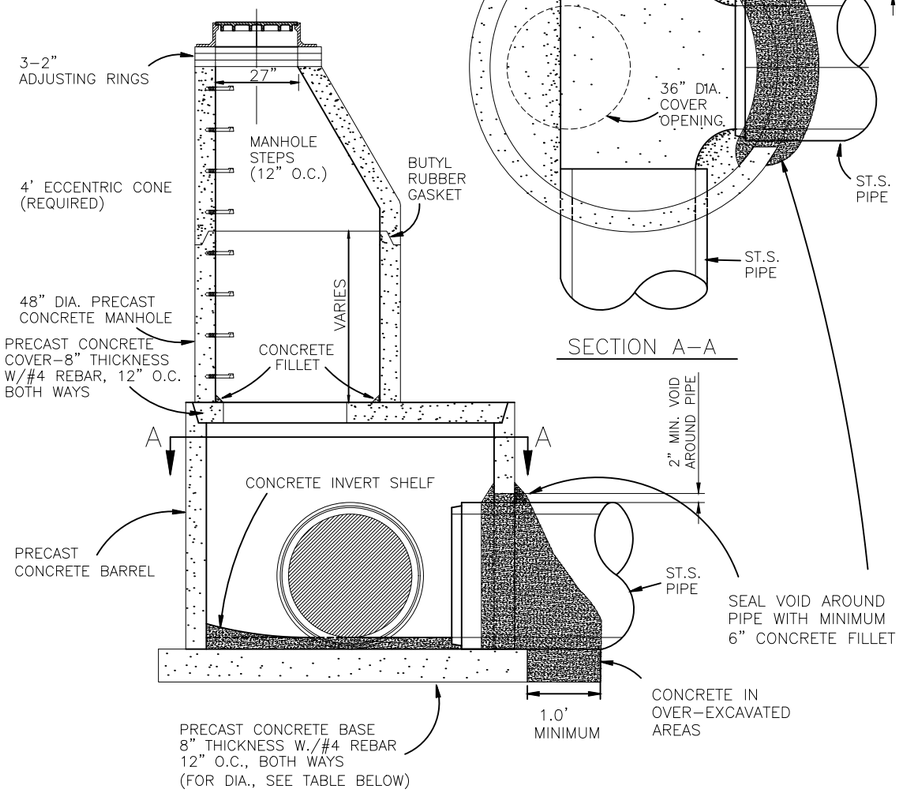
SECTION A–A

NOTES:
1. MAXIMUM RCP DIA.–27" STRAIGHT THRU. MAXIMUM RCP DIA–18" AT RIGHT ANGLES.

2. ALL JOINTS AND LIFTING HOLES SHALL BE MORTARED.

MANHOLE 48"

NOTES:
1. BUTYL RUBBER GASKET ON ALL JOINTS (JOINT TO MEET ASTM 433 REQUIREMENT)



SECTION A–A

MANHOLE TYPE	(A) MANHOLE INSIDE DIA.	(B) MANHOLE OUTSIDE DIA.	MAXIMUM PIPE SIZES 0° ∠	90° ∠	135° ∠
A	60"	7'–0"	36"	24"	36"
B	72"	8'–0"	42"	33"	42"
C	84"	9'–4"	48"	36"	48"
D	96"	10'–6"	60"	42"	60"

MANHOLE 60"–96"

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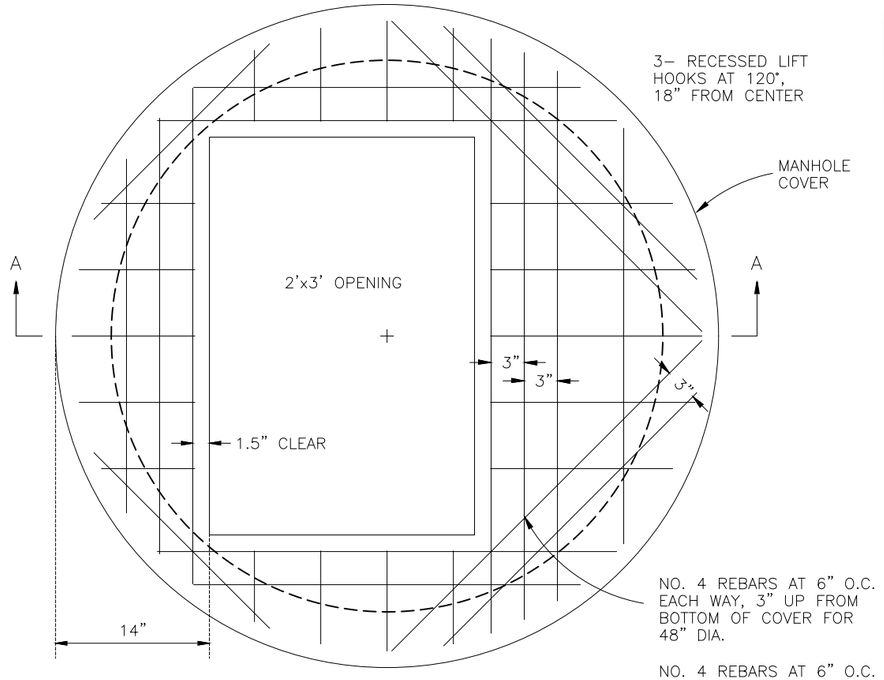
General Details - Storm Sewer

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	15

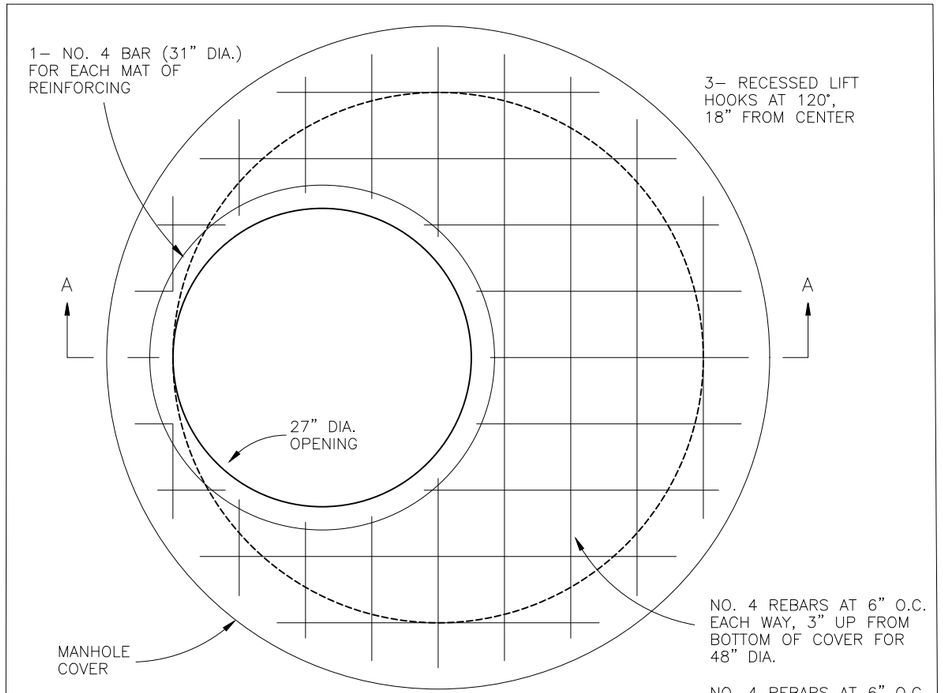


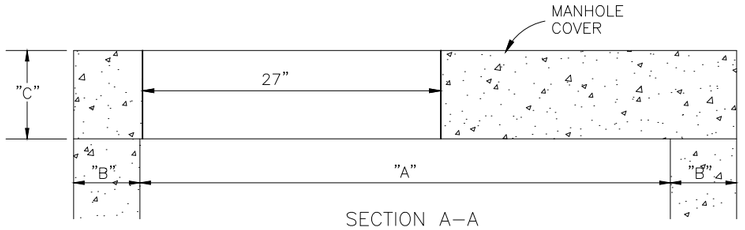
SECTION A–A

DIMENSION TABLE

A	B	C
48"	5"	6"
60"	6"	7"
72"	7"	8"
84"	8"	9"
96"	9"	9"

INLET SPECIAL – TYPE 2 COVER





SECTION A–A

DIMENSION TABLE

A	B	C
48"	5"	6"
60"	6"	7"
72"	7"	8"
84"	8"	9"
96"	9"	9"

INLET SPECIAL – CATCH BASIN COVER

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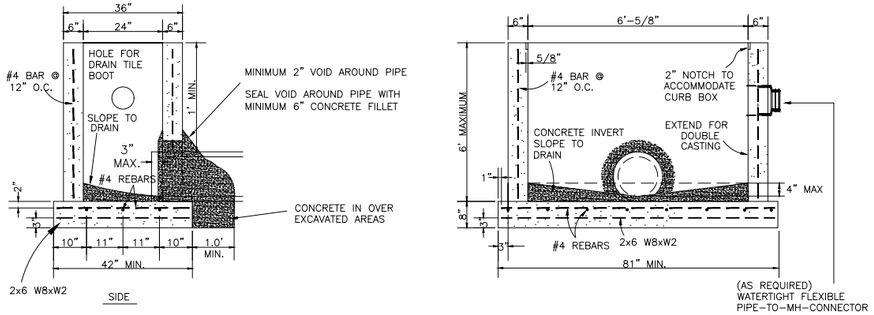
General Details - Storm Sewer

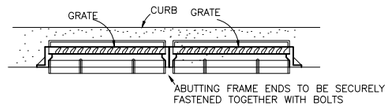
52nd Ave S - West of 63rd St S to 45th St S

08/15/18 05:21:03AM H:\Fargo\JBN\6000\6059\18_6059_145 - 52nd Ave. Design\CAD\Plans\020-COF DETAILS 2100.dwg

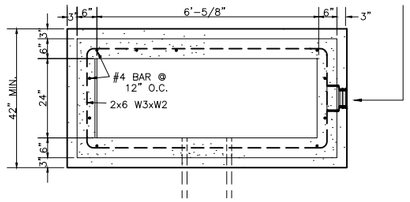
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	16



SIDE



FRONT

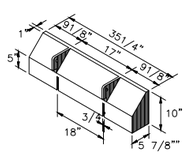


PLAN

(AS REQUIRED) WATERTIGHT FLEXIBLE PIPE-TO-MH-CONNECTOR FOR 4" PVC DRAIN TILE SEE DETAIL 1500 5.12

DOUBLE INLET PLAN
TYPE II CURB

TYPE II CURB



CURB BOX
STANDARD CURB - NEENAH 3290-0040 or E.J. T5
MOUNTABLE CURB - NEENAH 3067-7009 or E.J. T7
OR APPROVED EQUAL

NOTES:

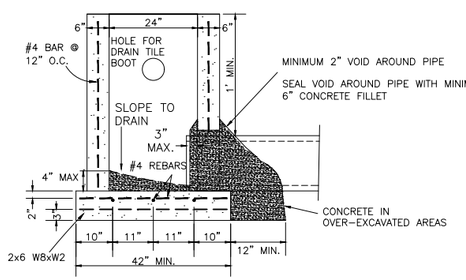
1. METAL USED IN THE MANUFACTURE OF CASTINGS SHALL CONFORM TO AAShTO M-105, CLASS 35B.

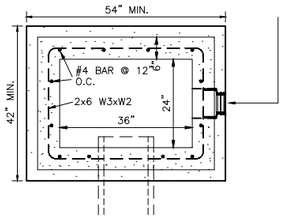
2. THE CONCTRACTOR SHALL HAVE THE OPTION OF USING PRECAST OR POURED IN PLACE BASES. CLASS OF CONCRETE SHALL BE AE. THE AGGREGATE SIZE SHALL BE APPROVED BY THE ENGINEER IN THE FIELD.

3. PRECAST RISERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199.

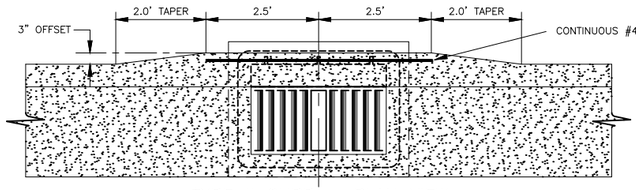
4. ON PROJECTS WITH P.C.C. PAVEMENT ALL INLET RISERS OR BARRELS SHALL BE CONSTRUCTED 4 TO 5 INCHES BELOW FINAL ELEVATION AND ADJUSTED TO FINAL GRADE AFTER THE PAVING. ADJUSTMENT MAY BE DONE WITH ADJUSTMENT RINGS, MASONARY OR CAST-IN-PLACE. ALL COSTS FOR THIS ADJUSTMENT SHALL BE INCLUDED IN THE BID PRICE FOR THE INLET.

INLET
TYPE 2 DOUBLE

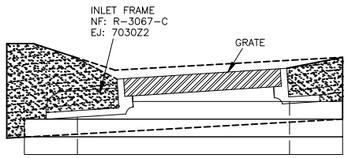




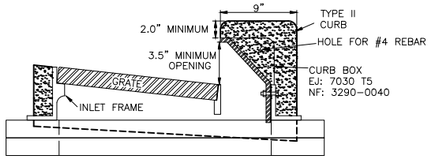
(AS REQUIRED) WATERTIGHT FLEXIBLE PIPE-TO-MH-CONNECTOR FOR 4" PVC DRAIN TILE SEE DETAIL 1500 5.12



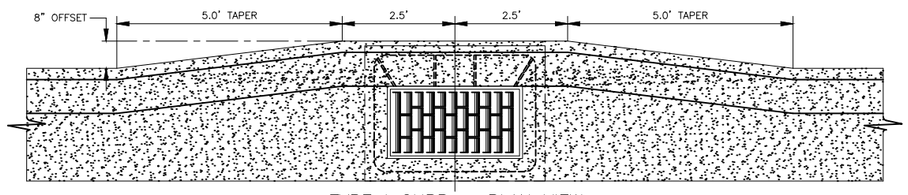
TYPE II CURB - PLAN VIEW



TYPE I CURB



TYPE II CURB



TYPE I CURB - PLAN VIEW

NOTES:

1. METAL USED IN THE MANUFACTURE OF CASTINGS SHALL CONFORM TO AAShTO M-105, CLASS 35B.

2. THE CONCTRACTOR SHALL HAVE THE OPTION OF USING PRECAST OR POURED IN PLACE BASES. CLASS OF CONCRETE SHALL BE AE. THE AGGREGATE SIZE SHALL BE APPROVED BY THE ENGINEER IN THE FIELD.

3. PRECAST RISERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M199.

4. ON PROJECTS WITH P.C.C. PAVEMENT ALL INLET RISERS OR BARRELS SHALL BE CONSTRUCTED 4 TO 5 INCHES BELOW FINAL ELEVATION AND ADJUSTED TO FINAL GRADE AFTER THE PAVING. ADJUSTMENT MAY BE DONE WITH ADJUSTMENT RINGS, MASONARY OR CAST-IN-PLACE. ALL COSTS FOR THIS ADJUSTMENT SHALL BE INCLUDED IN THE BID PRICE FOR THE INLET.

CURB BOX
STANDARD CURB - NEENAH 3290-0040 or EAST JORDAN T5

INLET
TYPE 2

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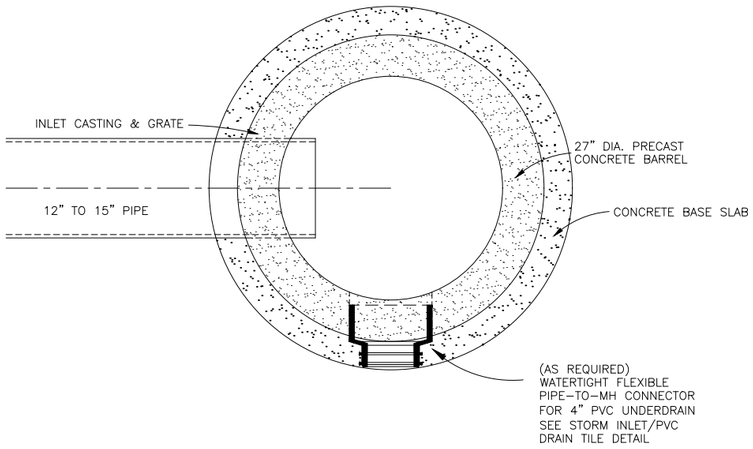
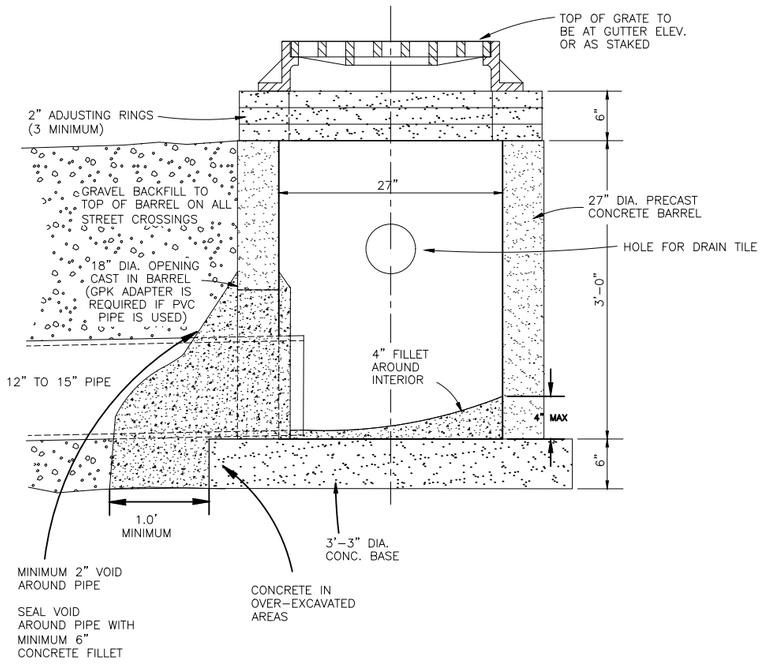
General Details - Storm Sewer

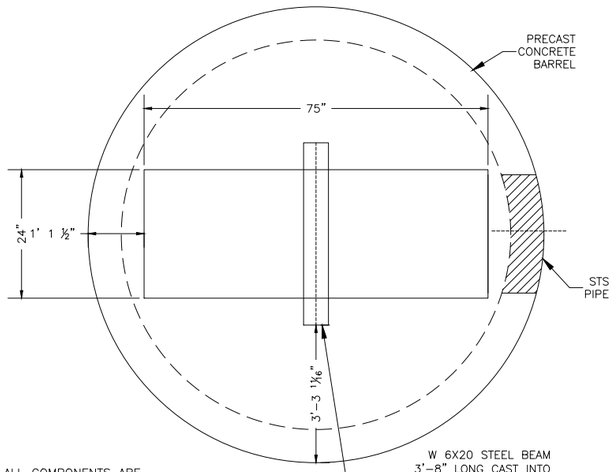
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	17





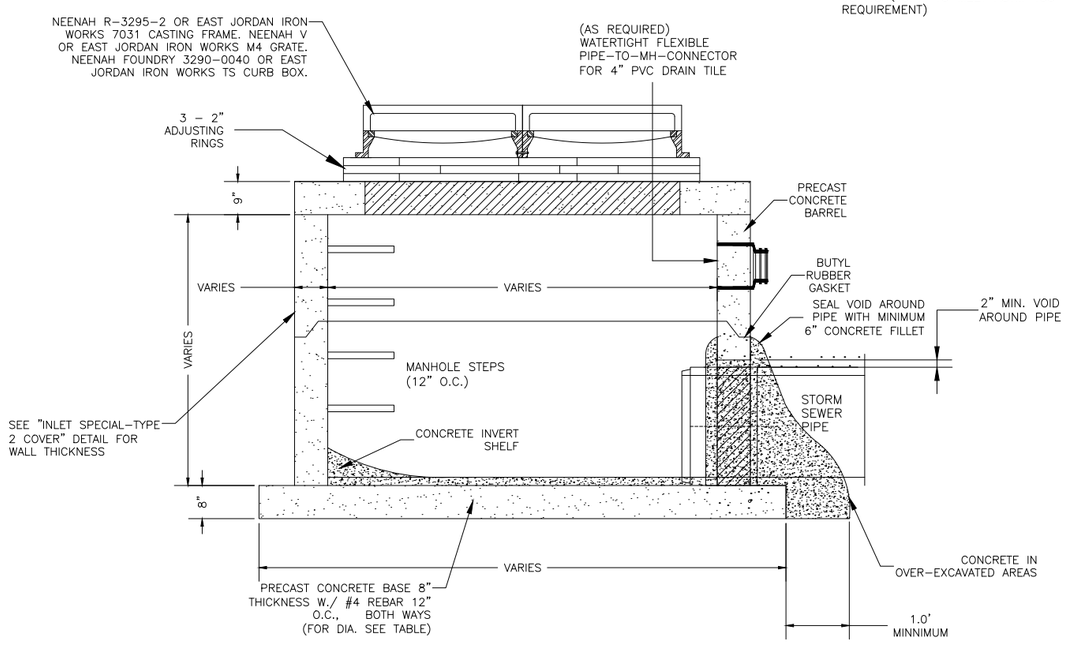
INLET CATCH BASIN



ALL COMPONENTS ARE MANUFACTURED PER ASTM C478

MANHOLE INSIDE DIA.	MANHOLE OUTSIDE DIA.
84"	9'–4"
96"	10'–6"

NOTES:
1. BUTYL RUBBER GASKET ON ALL JOINTS (JOINT TO MEET ASTM 433 REQUIREMENT)



INLET SPECIAL TYPE 2 DOUBLE

SEE "INLET TYPE 2 DOUBLE" DETAIL FOR INLET SPECIFICATIONS

THE CITY OF Fargo FAR MORE

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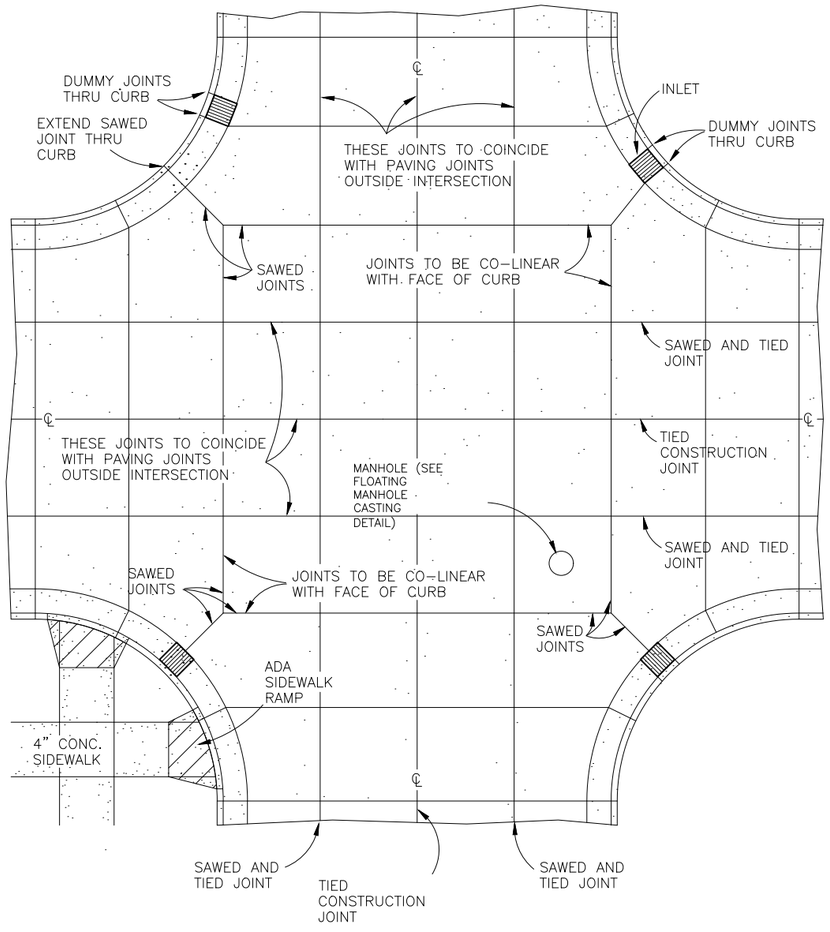
General Details - Storm Sewer

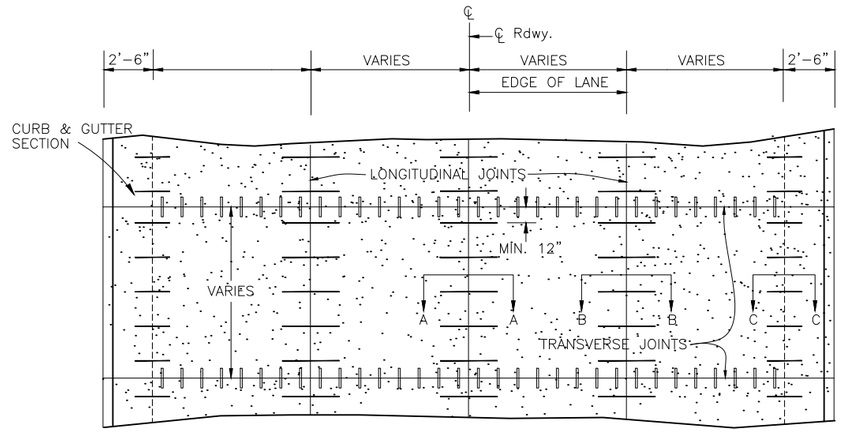
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	18

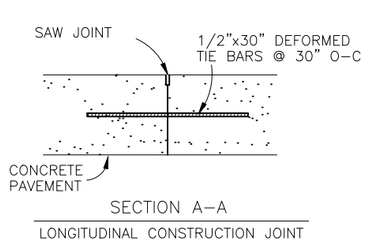


NOTES:
1. ALL DIMENSIONS ARE VARIABLE, SEE PLANS AND PROPER CONCRETE PAVEMENT DETAIL FOR DIMENSIONS

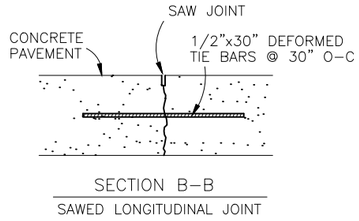
TYPICAL CONCRETE INTERSECTION LAYOUT



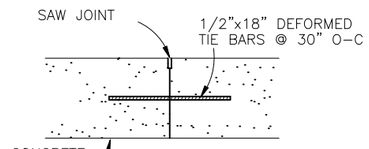
LONGITUDINAL JOINTS



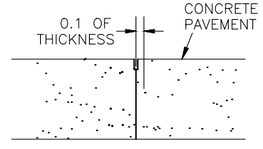
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT



SECTION B-B
SAWED LONGITUDINAL JOINT



SECTION C-C
LONGITUDINAL CONSTRUCTION JOINT



STANDARD KEYWAY DIMENSIONS

NOTES:
1. ALL LONGITUDINAL JOINTS SHALL BE TIED AND ALL LONGITUDINAL CONSTRUCTION JOINTS SHALL BE BOTH TIED.
2. SEE SAW JOINT DETAILS
3. WHERE TIE BARS ARE INSTALLED AND LATER STRAIGHTENED, GRADE 40 STEEL SHALL BE USED
4. ALL TIE BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH AASHTO M284

LONGITUDINAL JOINTS

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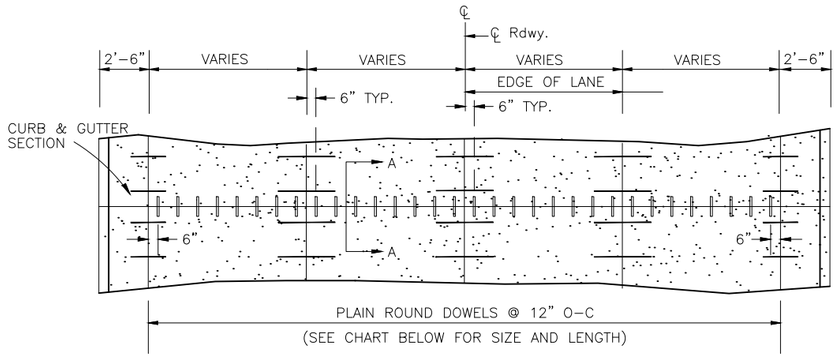
General Details - Paving

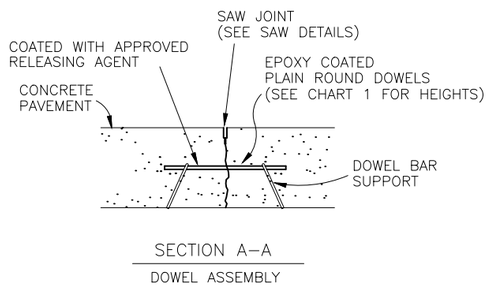
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	19



TRANSVERSE CONTRACTION JOINT

DOWEL ASSEMBLY



SECTION A-A

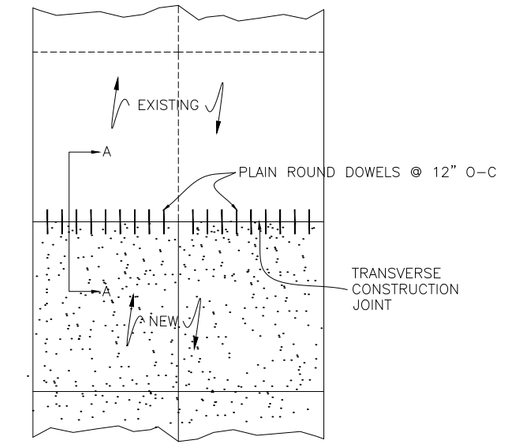
DOWEL ASSEMBLY

NOTES:
1. ALL DOWELS SHALL BE EPOXY COATED IN ACCORDANCE WITH AASHTO M254.

CHART 1

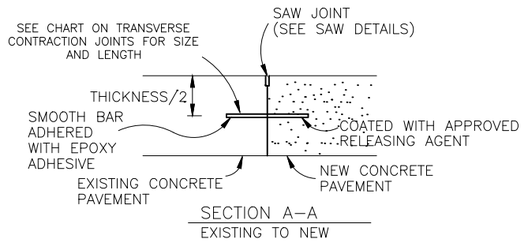
DOWELED JOINT			
PAVEMENT THICKNESS	DOWEL BAR SIZE	HEIGHT TO CENTER	TOTAL DOWEL LENGTH
7"	1"	3 1/2"	18"
8 to 10"	1 1/4"	4 1/2"	18"
10.5 to 12"	1 1/2"	5 1/2"	18"
NOTE: ALL DOWELS ARE TO BE SPACED AT 12" O-C			

TRANSVERSE CONTRACTION JOINTS



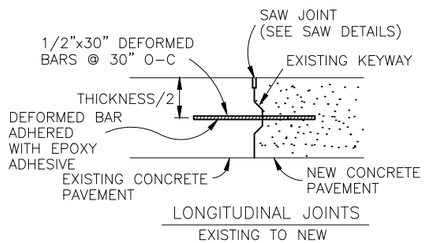
CONSTRUCTION JOINT

EXISTING TO NEW CONCRETE PAVEMENT



SECTION A-A

EXISTING TO NEW



LONGITUDINAL JOINTS

EXISTING TO NEW

CONSTRUCTION JOINT DETAILS

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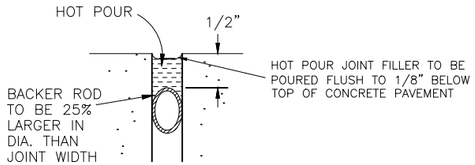
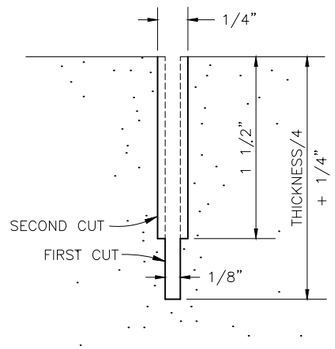
General Details - Paving

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	20



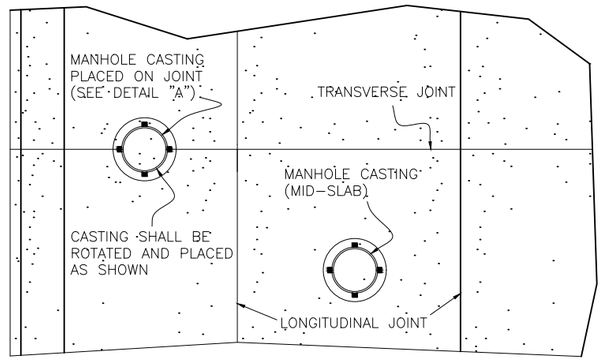
JOINT FILLER DETAIL
(SEE NOTE 1)

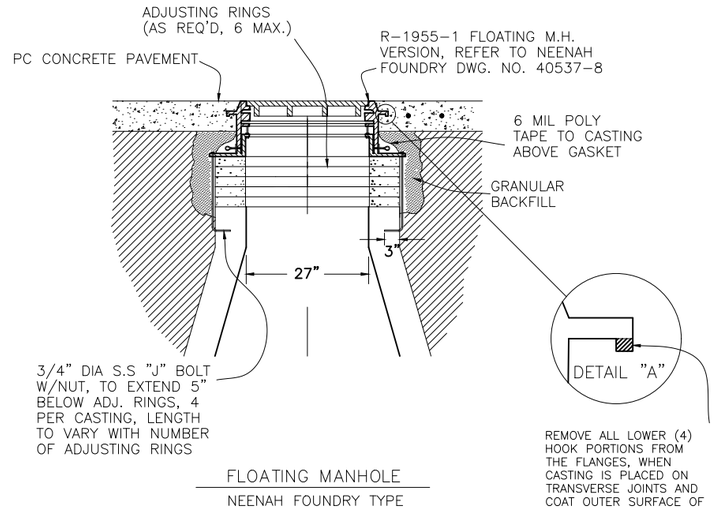


SAW JOINT DETAIL
(SEE NOTE 2)

NOTES:
1. THE JOINT FILLER DETAIL APPLIES TO BOTH TRANSVERSE AND LONGITUDINAL JOINTS.
2. SAW JOINT DETAIL – THE FIRST & SECOND CUT SHALL BE COMPLETED ON ALL CONTRACTION JOINTS. ON ALL CONSTRUCTION JOINTS ONLY A CUT CONFORMING TO THE DIMENSIONS OF THE SECOND CUT SHOWN SHALL BE COMPLETED.
3. ALL JOINTS SHALL BE FILLED.

SAW JOINT DETAIL





FLOATING MANHOLE
NEENAH FOUNDRY TYPE

NOTES:
1. THIS DETAIL APPLIES TO ALL MH's LOCATED WITHIN THE CONCRETE PAVING SECTION.
2. FURNISH / INSTALL WILL BE PAID UNDER THE "APPLICABLE STRUCTURE" BID ITEM.

FLOATING MANHOLE CASTING DETAIL

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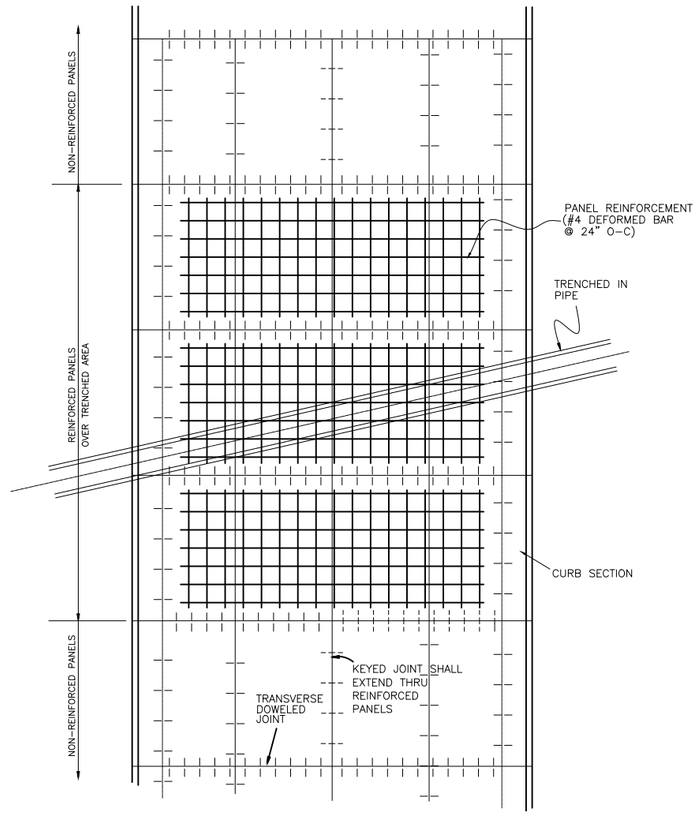
General Details - Paving

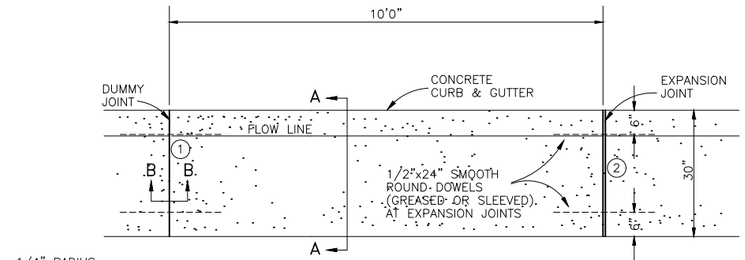
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	21



NOTES:
1. AREAS FOR REINFORCEMENT SHALL BE DETERMINED BY THE ENGINEER USING THE PLAN SHEETS AS A GUIDELINE. PAYMENT FOR REINFORCEMENT SHALL BE INCIDENTAL TO THE PRICE OF THE CONCRETE PAVEMENT.
2. THE COMPLETE PANEL SHALL BE REINFORCED AS SHOWN IN SECTION 90.
3. REBAR MAT SHALL BE SUPPORTED BY CHAIRS AT THE MID-DEPTH POINT OF THE SLAB.
4. REBAR SHALL STOP WITHIN 7" OF THE DOWELED CONTRACTION JOINT.

TRENCH REINFORCEMENT DETAIL



SECTION B-B

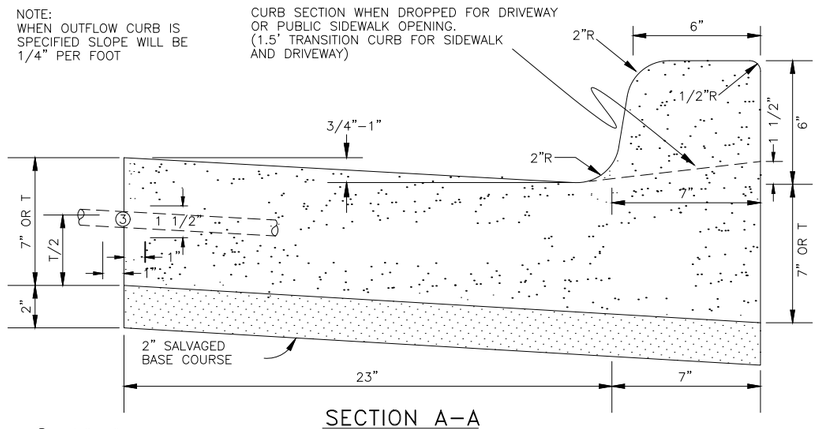
CURB & GUTTER PLAN

(1) DUMMY JOINT
- (1) PLACE AT 10'0" O.C. FOR ASPHALT PAVING
- (2) MATCH PANEL SPACING FOR CONCRETE PAVEMENT

(2) 1" EXPANSION JOINTS
- (1) PLACE AT P.C.'S AND HIGH POINTS FOR ASPHALT PAVING
- (2) MATCH EXPANSION JOINTS ON CONCRETE PAVEMENT

NOTE:
WHEN OUTFLOW CURB IS SPECIFIED SLOPE WILL BE 1/4" PER FOOT

CURB SECTION WHEN DROPPED FOR DRIVEWAY OR PUBLIC SIDEWALK OPENING. (1.5' TRANSITION CURB FOR SIDEWALK AND DRIVEWAY)



SECTION A-A

③ 1/2"x18" DEFORMED BARS AT 30" O.C. REQUIRED WHEN SEPARATE CURB IS INSTALLED WITH CONCRETE PAVING

NOTE:
DIMENSION T SHALL MATCH THE THICKNESS OF THE ADJOINING CONCRETE SLAB

STANDARD (TYPE I) CURB & GUTTER

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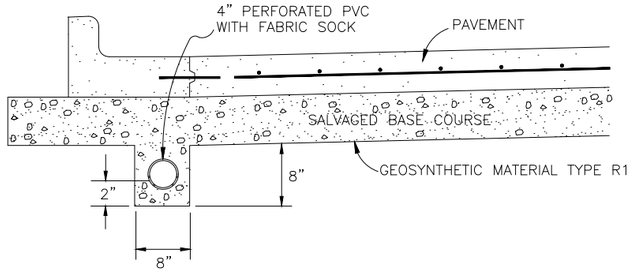
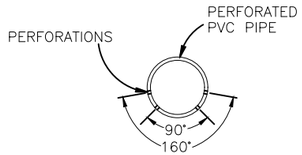
General Details - Paving

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	22



EDGE DRAIN PLACEMENT



4" PVC PIPE DETAIL

TYPE OF PIPE:

1. The pipe shall be polyvinylchloride SCHEDULE 40 sewer pipe with solvent cemented joints as specified in ASTM Spec. No. F-758.

2. Perforations shall be circular and 1/4" ± 1/16" in diameter. They should be arranged in rows parallel to the axis of the pipe and shall be spaced approximately 3" center to center along the rows. The spigot end of the pipe shall be unperforated for a length equal to the depth of the socket. The placement and total numbers of the rows shall be as shown above with an allowable tolerance of ±10".

3. Molded Fittings shall be in accordance with ASTM Spec No. D 2665 or F1866. Cost of fitting and installation to be included in the price bid for 4" PVC Edge Drain.

4. The perforated PVC shall be encased in a Geosynthetic Material Type R1. Cost of fabric to be included in the price bid for 4" PVC Edge Drain.

5. PIPE SIZE: 4" diameter IPS SCH 40

6. ROWS OF PERFORATIONS: 4

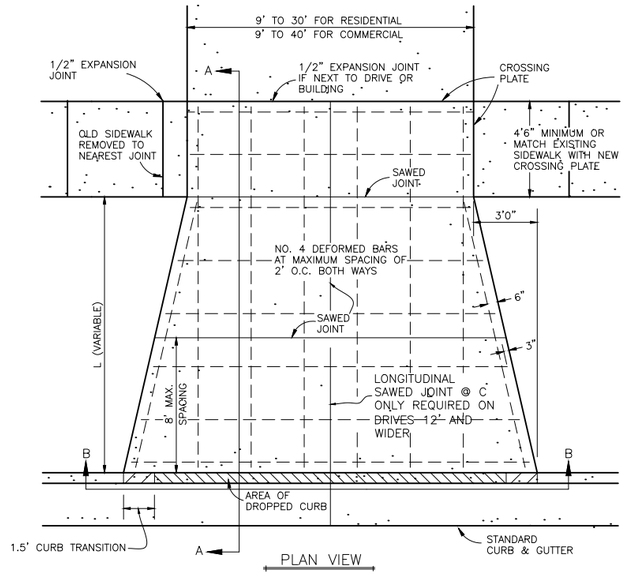
7. HOLE SIZE: 1/4"

8. HOLE SPACING PER ROW: 3"

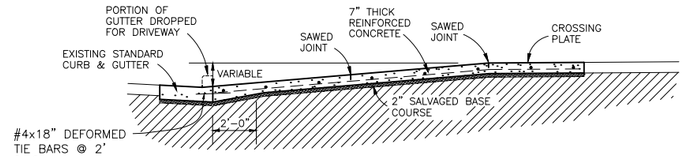
NOTES:

1. SEE STORM INLET/PVC DRAIN PIPE DETAIL FOR ADDITIONAL DETAILS.

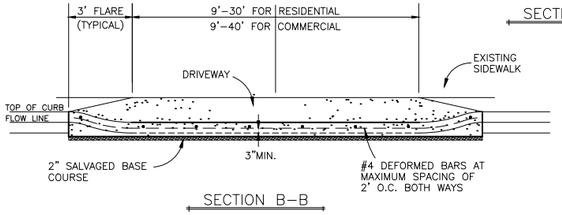
4" PVC EDGE DRAIN DETAIL



PLAN VIEW



SECTION A-A



SECTION B-B

NOTES:

1. JOINT SPACINGS: THE DRIVEWAY LONGITUDINAL JOINT SPACING SHALL MATCH CURB AND GUTTER OR CONCRETE PAVEMENT JOINT SPACING. THE DRIVEWAY TRANSVERSE JOINT SPACING SHALL BE EVENLY SPACED BETWEEN THE CROSSING PLATE AND CURB, NOT TO EXCEED 8' SPACING.

2. SAW DEPTH: THICKNESS/4 + ¼"

STANDARD PRIVATE DRIVE ABUTTING STANDARD CURB

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General Details - Paving

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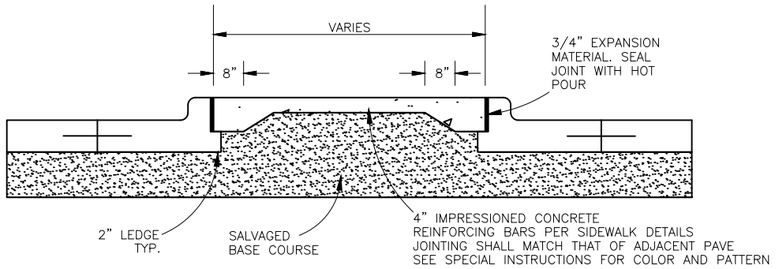
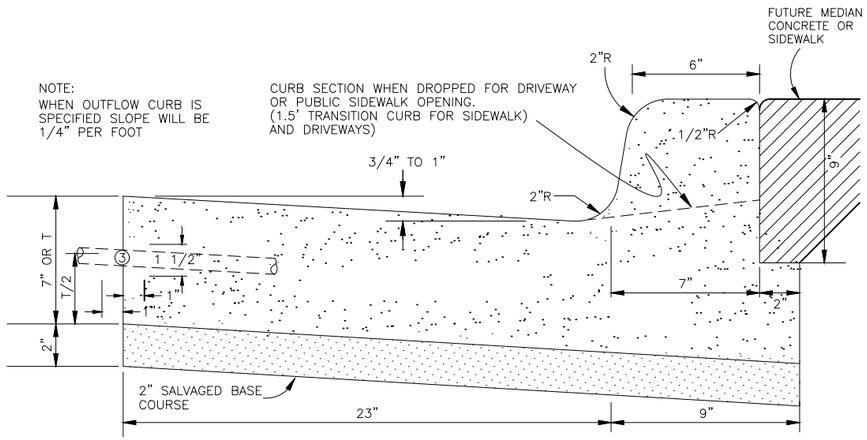
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	23



MEDIAN SECTION

NOTE:
WHEN OUTFLOW CURB IS SPECIFIED SLOPE WILL BE 1/4" PER FOOT

CURB SECTION WHEN DROPPED FOR DRIVEWAY OR PUBLIC SIDEWALK OPENING. (1.5' TRANSITION CURB FOR SIDEWALK) AND DRIVEWAYS)

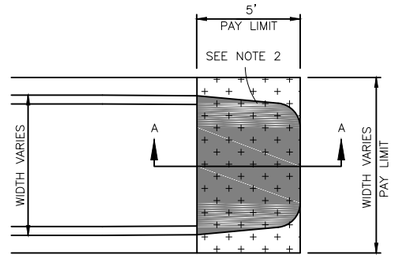


CURB & GUTTER SECTION

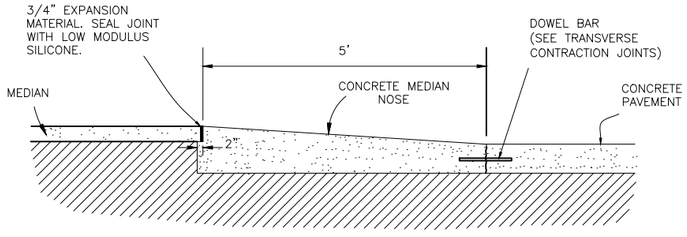
③ 1/2"x18" DEFORMED BARS AT 30" O.C.
REQUIRED WHEN SEPARATE CURB IS INSTALLED WITH CONCRETE PAVING

NOTES:
1. DIMENSION T SHALL MATCH THE THICKNESS OF THE ADJOINING CONCRETE.
2. SEE CURB & GUTTER PLAN VIEW ON TYPE II CURB & GUTTER DETAIL FOR CURB & GUTTER JOINTING & REINFORCING
3. PAID FOR AS:
CURB & GUTTER – TYPE I

MEDIAN CONCRETE AND LEDGE CURB & GUTTER



CONCRETE MEDIAN NOSE DETAIL



SECTION A–A

NOTE:
1. PAID FOR AS "CONCRETE MEDIAN NOSE PAVING."
2. PAINT ALL CONCRETE MEDIAN NOSES WITH YELLOW WET REFLECTIVE EPOXY. INCLUDE ALL COSTS FOR SANDBLASTING AND MATERIALS IN THE PRICE FOR "CONCRETE MEDIAN NOSE PAVING".

CONCRETE MEDIAN NOSE DETAIL

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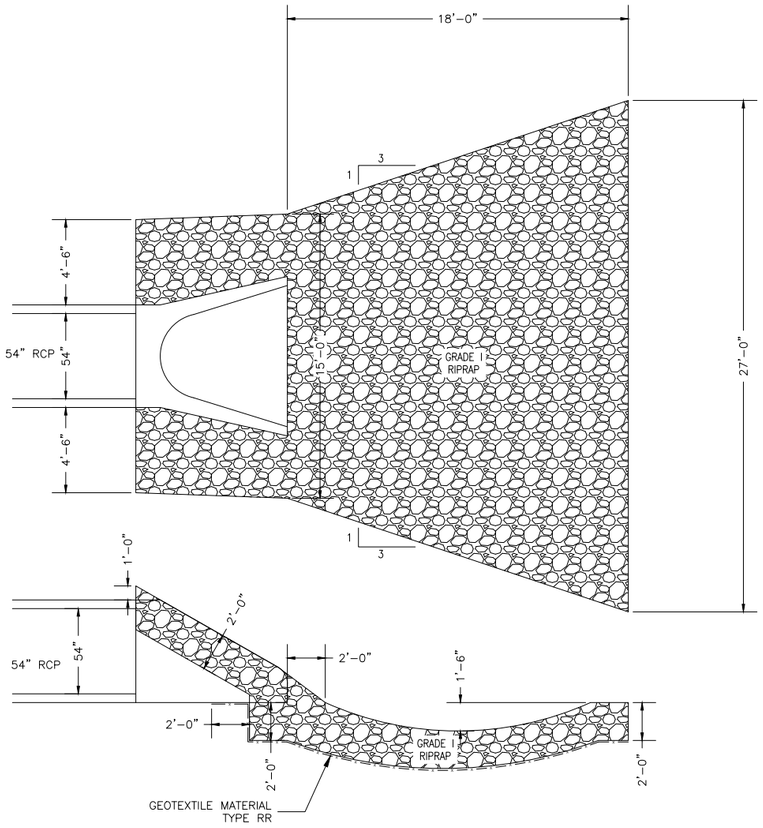
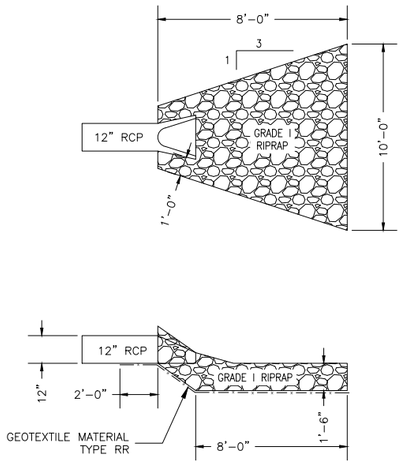
General Details - Curb & Gutter

52nd Ave S - West of 63rd St S to 45th St S

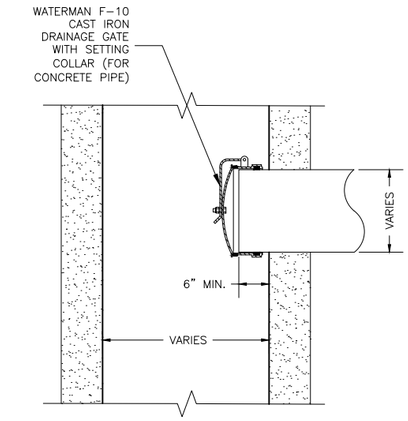
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	24



54" RCP RIPRAP DETAIL



12" RCP RIPRAP DETAIL



FLAP GATE DETAIL

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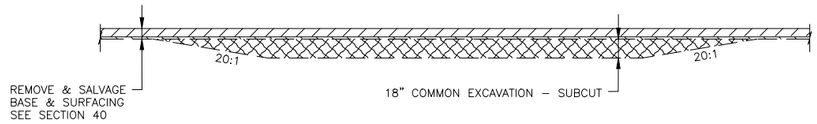
General Details - Riprap

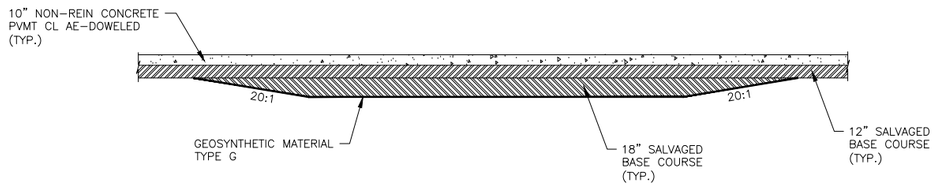
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	25



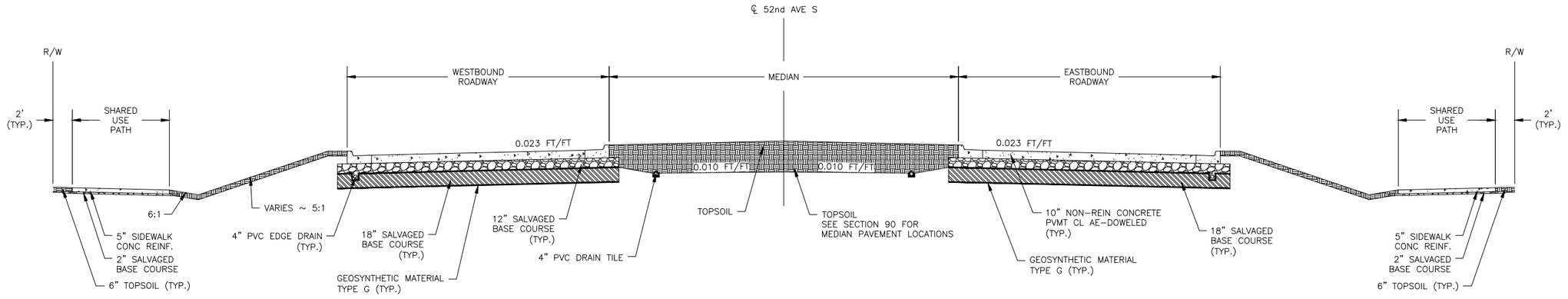
DISCRETIONARY SUBCUT REMOVAL

NOT TO SCALE



DISCRETIONARY SUBCUT

NOT TO SCALE



ESTIMATED QUANTITIES FOR DISCRETIONARY SUBCUT

203–0138	COMMON EXCAVATION – SUBCUT	1,683	CY
302–0101	SALVAGED BASE COURSE	1,683	CY
709–0100	GEOSYNTHETIC MATERIAL TYPE R1	3,609	SY

* QUANTITIES BASED ON 500 LF OF SUBCUT TO BE USED AT THE ENGINEER'S DISCRETION

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Ph: 701.237.5065

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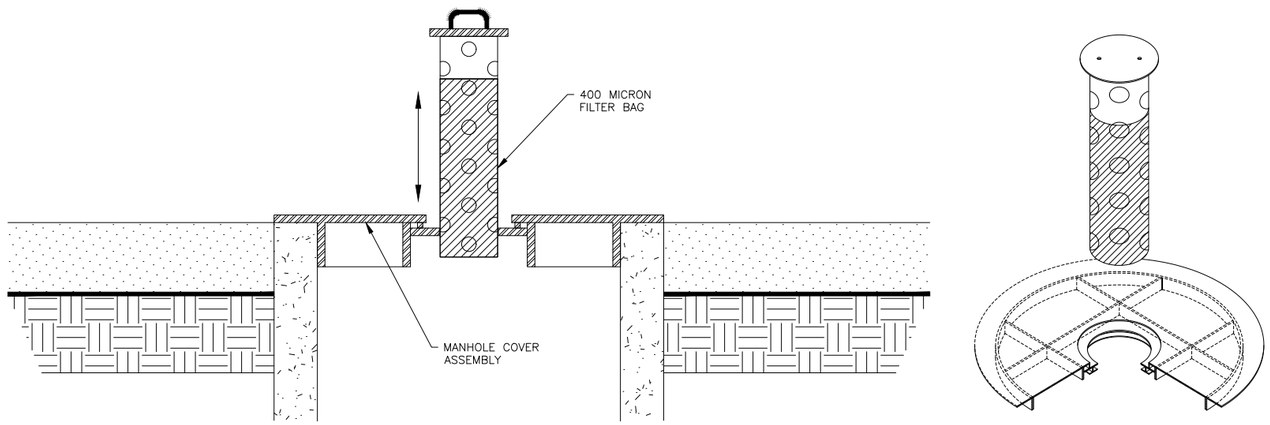
General Details - Discretionary Subcut

52nd Ave S - West of 63rd St S to 45th St S

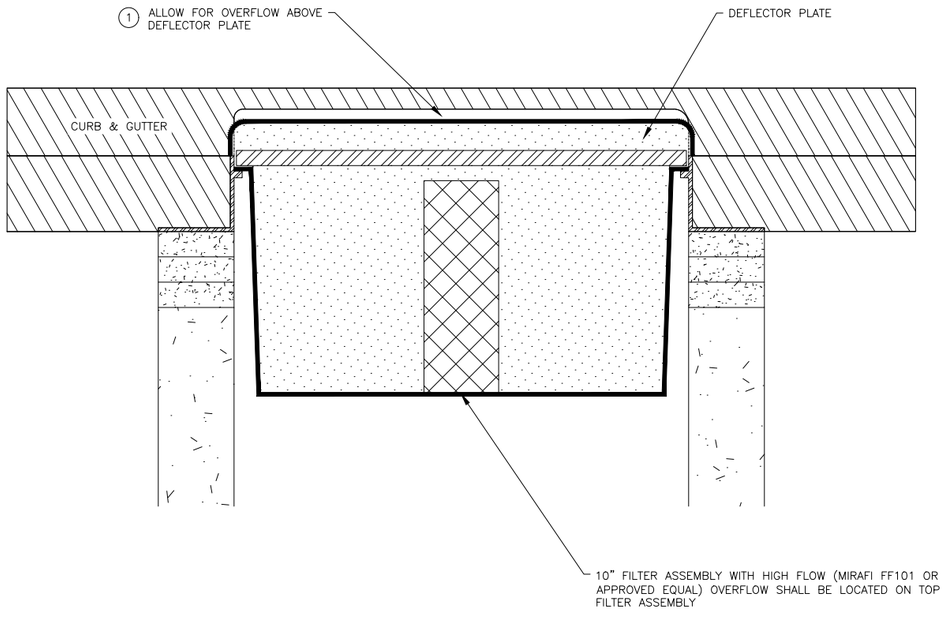
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	26

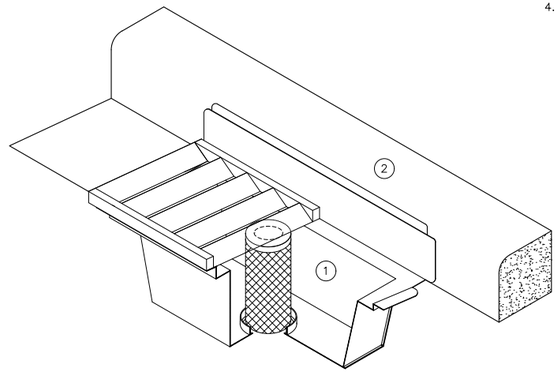


INLET PROTECTION FOR INLETS WITHIN PAVING SECTION TO BE INSTALLED BEFORE PAVING
(TYPE C)

NOTES:

1. INSTALL DEVICES CONSISTING OF A REUSABLE, OPEN TOPPED RECEPTACLE THAT RESTS INSIDE A STORM SEWER INLET CASTING ALLOWING THE GRATING TO BE REINSTALLED IN THE CASTING. INCORPORATE A REBAR DEFLECTOR PLATE INTO THE UNIT TO PROTECT OPEN BACK CASTINGS FROM SEDIMENT, IF NEEDED. PROVIDE A FILTRATION SYSTEM TO FILTER STORM WATER. PROVIDE AN OVERFLOW LARGE ENOUGH TO MINIMIZE/ELIMINATE STREET FLOODING DURING RAIN EVENTS. APPROVED MANUFACTURERS ARE WIMCO, LANGE IPD, FLEXSTORM, OR APPROVED EQUAL.
2. INSTALL A PREFABRICATED DROP-IN INLET PROTECTION DEVICE. INSTALL THE DEVICE BY INSERTING THE DEVICE INTO THE CASTING AND REPLACING THE GRATE INTO THE FRAME. THIS DEVICE IS REQUIRED IN ALL INLETS THAT RECEIVE WATER FROM THE PROJECT AREA THAT ARE IN A STREET SECTION.
3. KEEP THIS DEVICE ON SITE FOR THE DURATION OF PROJECT. PERFORM MAINTENANCE THROUGHOUT THE DURATION OF THE PROJECT. MAINTENANCE BECOMES THE RESPONSIBILITY OF THE DEVELOPER/PROPERTY OWNER UPON FINAL COMPLETION OF THE PROJECT.
4. INCLUDE ALL COSTS TO FURNISH AND INSTALL IN THE PRICE BID FOR INLET PROTECTION SPECIAL





OVERFLOW (1) – CENTER OF FILTER ASSEMBLY

OVERFLOW (2) – TOP OF CURB BOX

NOTES:

1. TYPE C-2 INLET PROTECTION CONSISTS OF A SEDIMENT COLLECTION PLATE MEETING H2O LOADING PER OSHA 1910.23. PAINT THE ¼" STEEL PLATE YELLOW WITH A PERFORATED STEEL LID. PROVIDE A TWO POSITION HDPE BASKET THAT IS ABLE TO BE FIXED IN THE UP OR DOWN POSITION. ATTACH A 400 MICRON FILTER BAG TO FILTER SEDIMENT.
2. THIS WORK CONSISTS OF INSTALLING A PREFABRICATED PLATE THAT WILL FIT INTO THE TOP OF THE CONE SECTION OF A CATCH BASIN OR MANHOLE. INSTALL A 400 MICRO FILTER BAG AROUND THE COLLECTION BASKET TO FURTHER PROTECT THE STORM SEWER FROM FINE MATERIALS.
3. THIS DEVICE IS INTENDED TO PROTECT INLETS WITHIN THE FUTURE PAVING SECTION. THE DEVICE IS REUSEABLE AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR.
4. INCLUDE ALL COSTS TO FURNISH AND INSTALL IN THE PRICE BID FOR INLET PROTECTION SPECIAL

INLET PROTECTION FOR INLETS WITHIN PAVING SECTION TO BE INSTALLED AFTER FINAL PAVING
(TYPE C-2)

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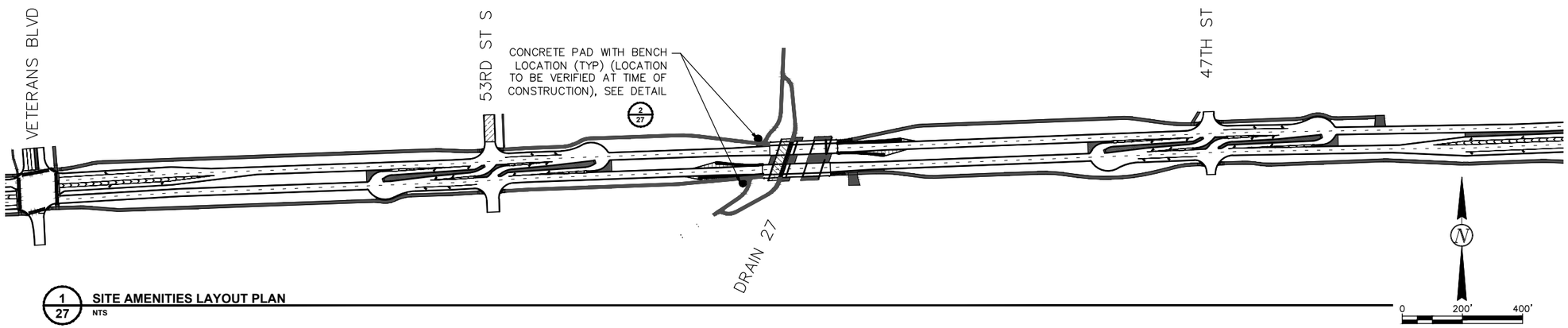
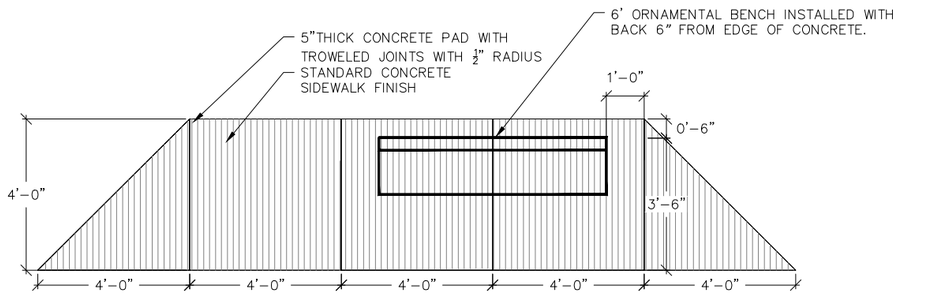
General Details - Inlet Protection Special

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	20	27

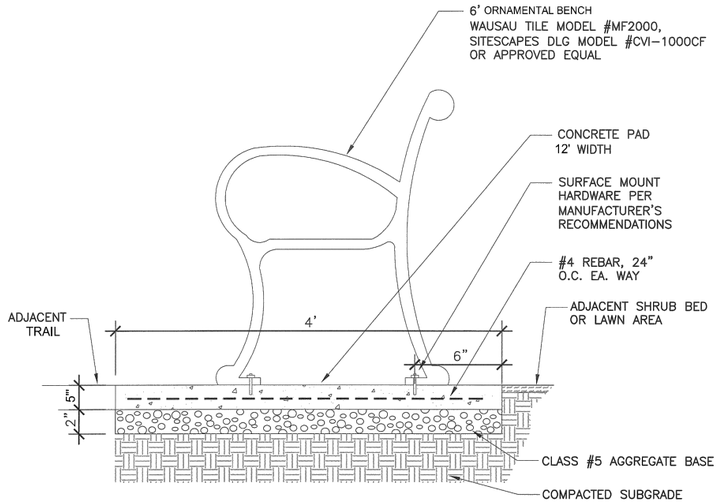


1/27 **SITE AMENITIES LAYOUT PLAN**
NTS



NOTES:

1. COLOR TO BE POWDER COATED
2. SURFACE MOUNT PER MANUFACTURE'S RECOMMENDATIONS
3. CONCRETE TO BE 4,000 PSI
4. DOWEL INTO ADJACENT SIDEWALK WITH #4 DOWELS, 3 PER PAD
5. INCLUDE CONCRETE PAD IN THE PRICE BID FOR 5' SIDEWALK CONCRETE



BENCH AND CONCRETE PAD DETAIL
NOT TO SCALE

2/27 **CONCRETE PAD WITH BENCH DETAIL**
NTS

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WSB PROJECT NO. 012067-000

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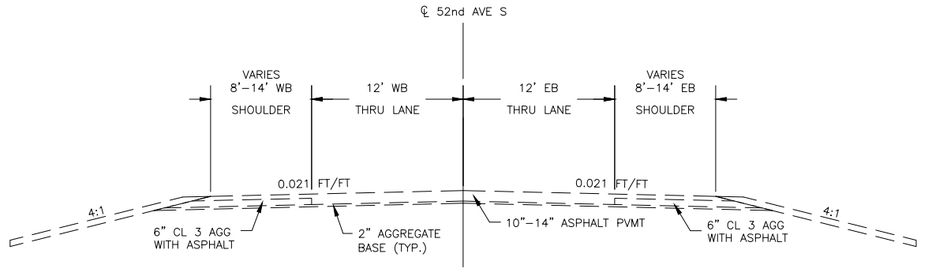
PEDESTRIAN BENCH DETAILS

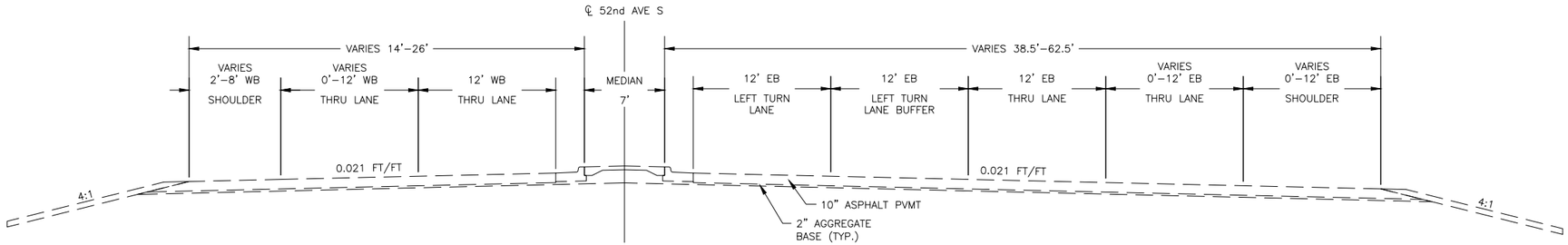
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	30	1



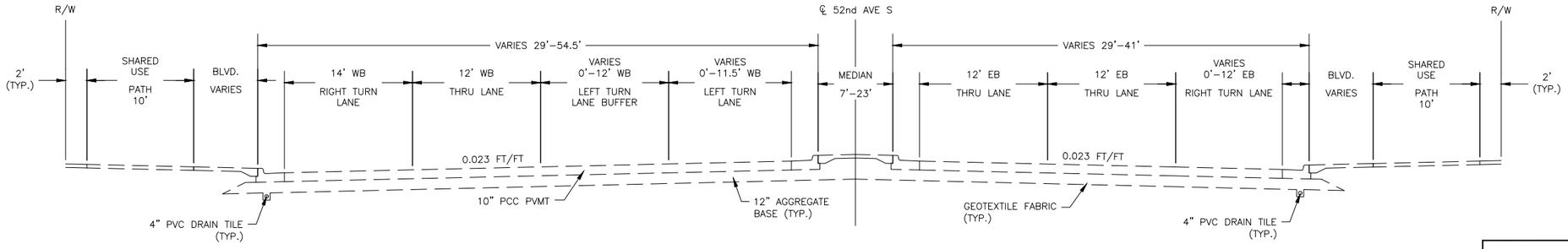
EXISTING 52ND AVE S - STA 521+22.19 TO STA 606+93.82

NOT TO SCALE



EXISTING 52ND AVE S - STA 606+93.82 TO STA 609+32.53

NOT TO SCALE



EXISTING 52ND AVE S - STA 610+89.58 TO STA 615+50.72

NOT TO SCALE

THE CITY OF Fargo FAR MORE

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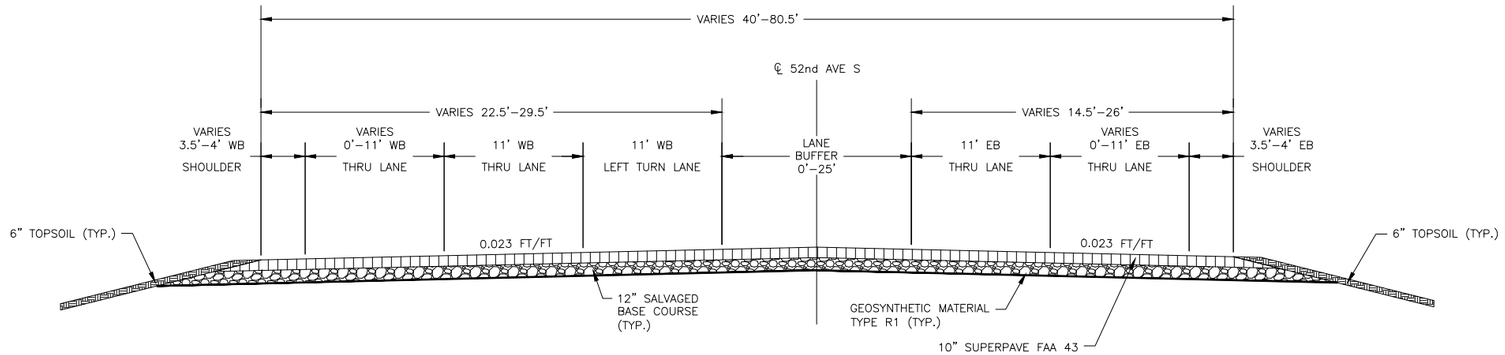
Typical Sections

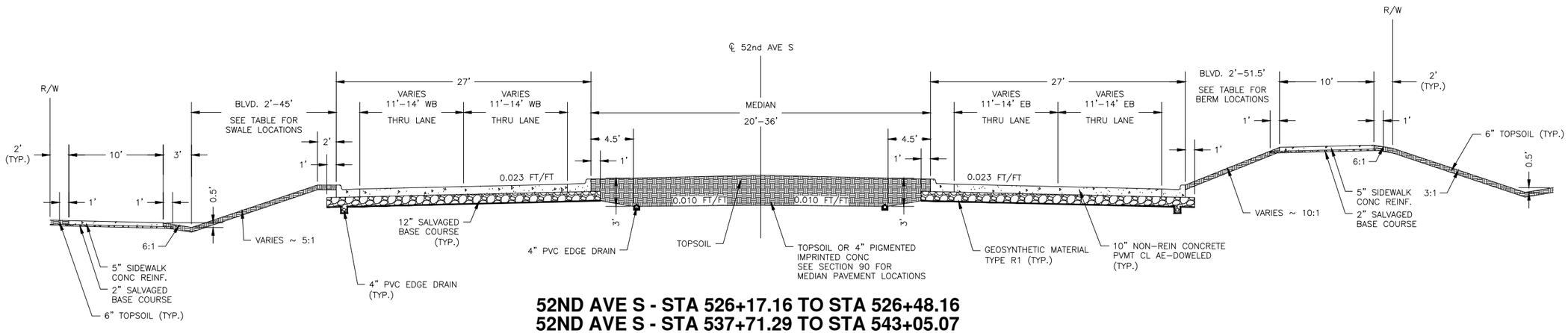
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	30	2



52ND AVE S - STA 521+22.19 TO STA 526+17.16

NOT TO SCALE

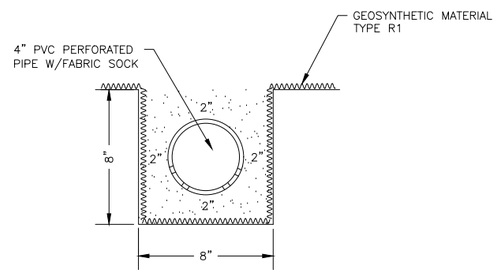


52ND AVE S - STA 526+17.16 TO STA 526+48.16
52ND AVE S - STA 537+71.29 TO STA 543+05.07
52ND AVE S - STA 565+40.14 TO STA 569+09.82
52ND AVE S - STA 577+14.93 TO STA 593+08.96
52ND AVE S - STA 601+31.00 TO STA 603+14.29

NOT TO SCALE

Swale Locations			
Lt		Rt	
Begin	End	Begin	End
536+80.00	547+13.00	526+17.17	527+80.00
550+80.00	557+23.60	532+97.04	544+22.49
558+94.28	572+42.31	548+67.54	553+40.00
576+60.88	582+20.34	558+94.28	569+63.87
584+72.97	596+31.52		

Berm Locations	
Rt	
Begin	End
585+21.55	596+46.94
597+53.59	609+32.74



EDGE DRAIN DETAIL

NOT TO SCALE

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Typical Sections

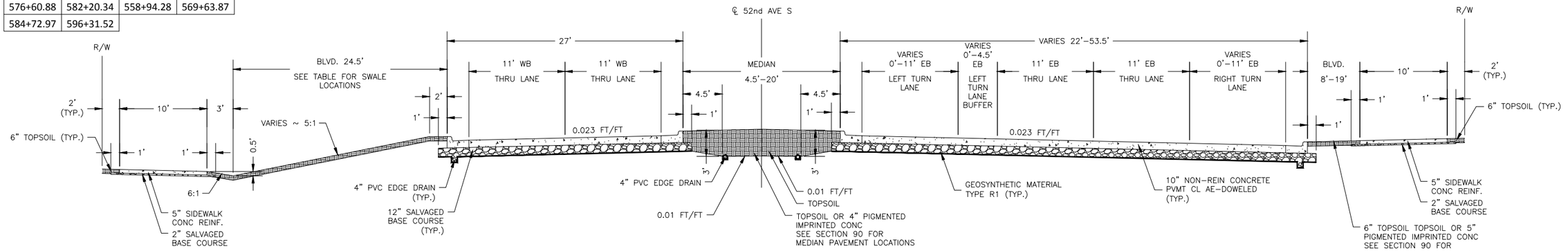
52nd Ave S - West of 63rd St S to 45th St S

08/15/18 05:22:46AM H:\Fargo\JBN\6000\6059\18_6059_145 - 52nd Ave. Design\CAD\Plans\030-PROPOSED TYPICAL SECTION.dwg

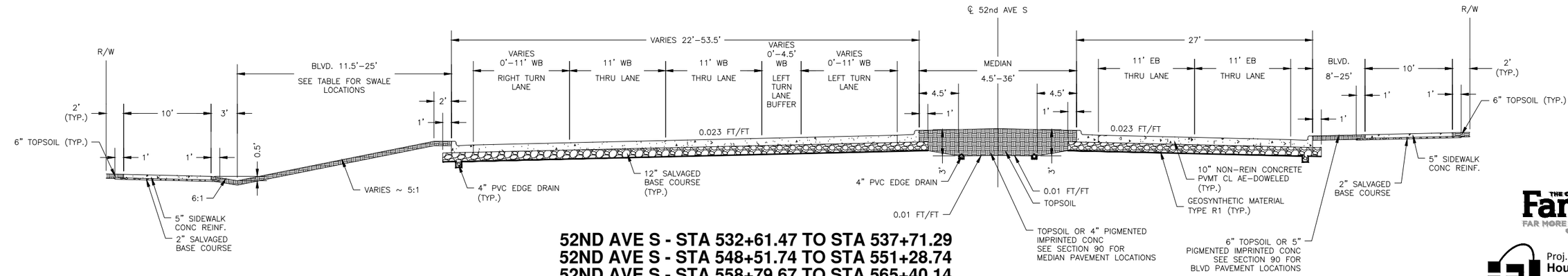
Swale Locations			
Lt		Rt	
Begin	End	Begin	End
536+80.00	547+13.00	526+17.17	527+80.00
550+80.00	557+23.60	532+97.04	544+22.49
558+94.28	572+42.31	548+67.54	553+40.00
576+60.88	582+20.34	558+94.28	569+63.87
584+72.97	596+31.52		

Berm Locations	
Rt	
Begin	End
585+21.55	596+46.94
597+53.59	609+32.74

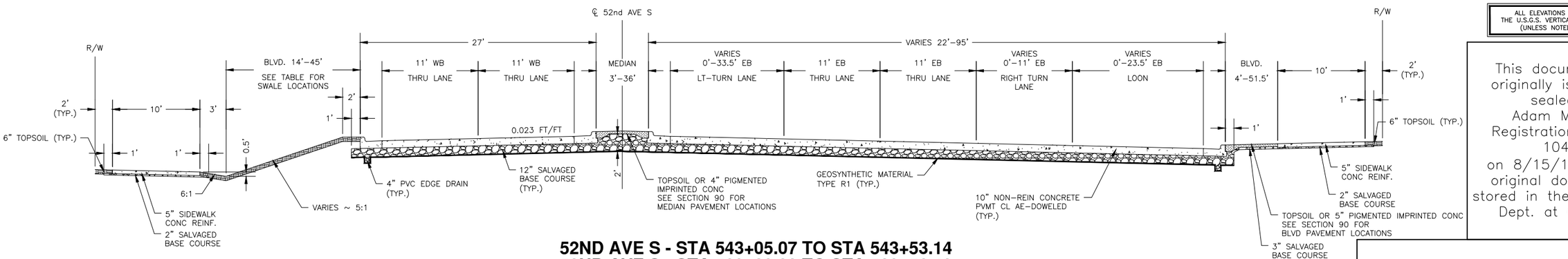
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	30	3



52ND AVE S - STA 526+48.16 TO STA 532+61.47
52ND AVE S - STA 551+28.74 TO STA 558+79.67
NOT TO SCALE



52ND AVE S - STA 532+61.47 TO STA 537+71.29
52ND AVE S - STA 548+51.74 TO STA 551+28.74
52ND AVE S - STA 558+79.67 TO STA 565+40.14
NOT TO SCALE



52ND AVE S - STA 543+05.07 TO STA 543+53.14
52ND AVE S - STA 569+09.82 TO STA 569+56.42
52ND AVE S - STA 593+08.96 TO STA 593+55.48
NOT TO SCALE

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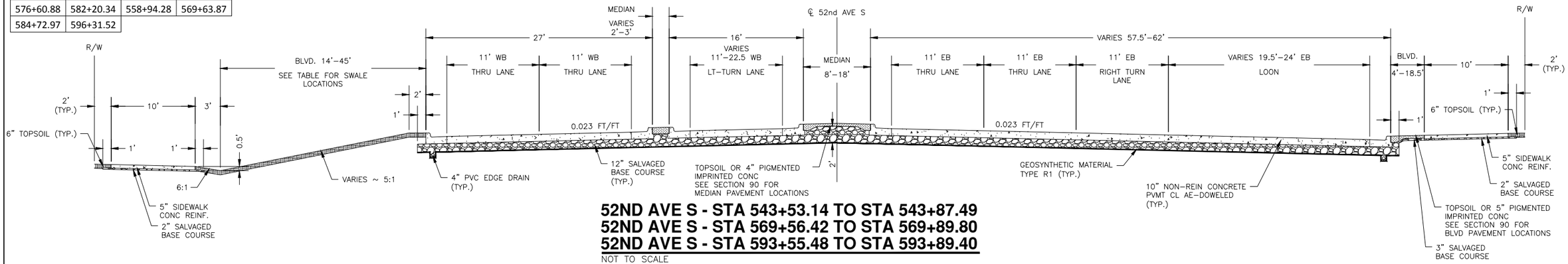
Typical Sections

52nd Ave S - West of 63rd St S to 45th St S

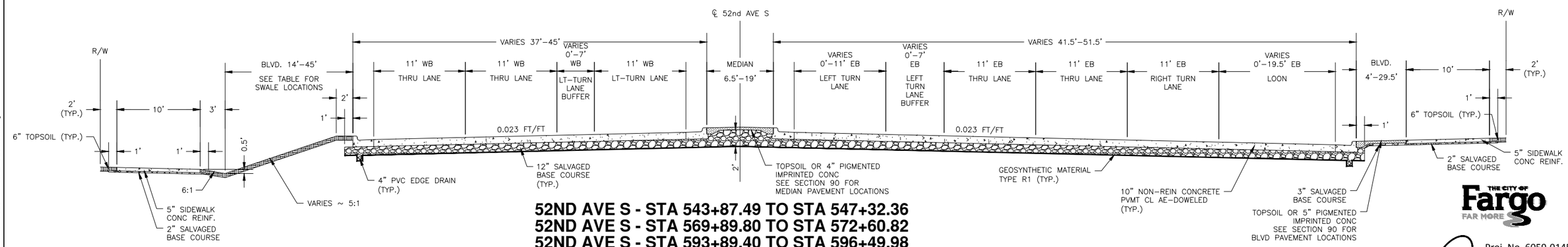
Swale Locations			
Lt		Rt	
Begin	End	Begin	End
536+80.00	547+13.00	526+17.17	527+80.00
550+80.00	557+23.60	532+97.04	544+22.49
558+94.28	572+42.31	548+67.54	553+40.00
576+60.88	582+20.34	558+94.28	569+63.87
584+72.97	596+31.52		

Berm Locations	
Rt	
Begin	End
585+21.55	596+46.94
597+53.59	609+32.74

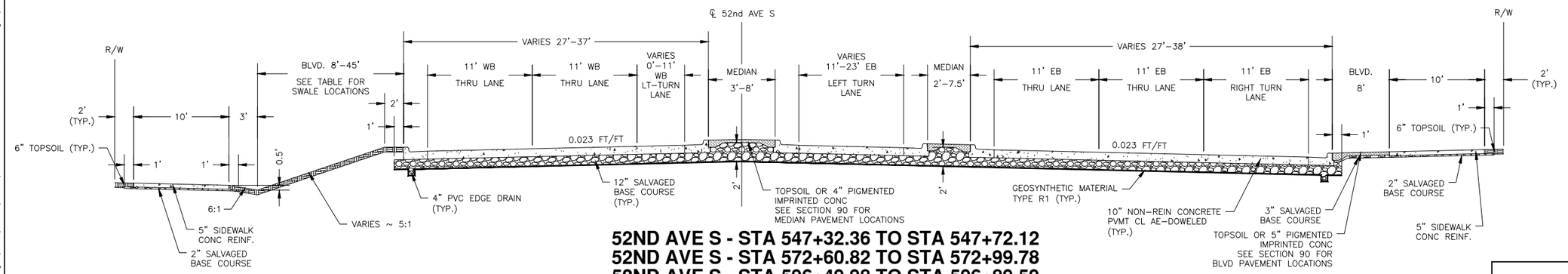
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	30	4



52ND AVE S - STA 543+53.14 TO STA 543+87.49
52ND AVE S - STA 569+56.42 TO STA 569+89.80
52ND AVE S - STA 593+55.48 TO STA 593+89.40
NOT TO SCALE



52ND AVE S - STA 543+87.49 TO STA 547+32.36
52ND AVE S - STA 569+89.80 TO STA 572+60.82
52ND AVE S - STA 593+89.40 TO STA 596+49.98
NOT TO SCALE



52ND AVE S - STA 547+32.36 TO STA 547+72.12
52ND AVE S - STA 572+60.82 TO STA 572+99.78
52ND AVE S - STA 596+49.98 TO STA 596+89.59
NOT TO SCALE

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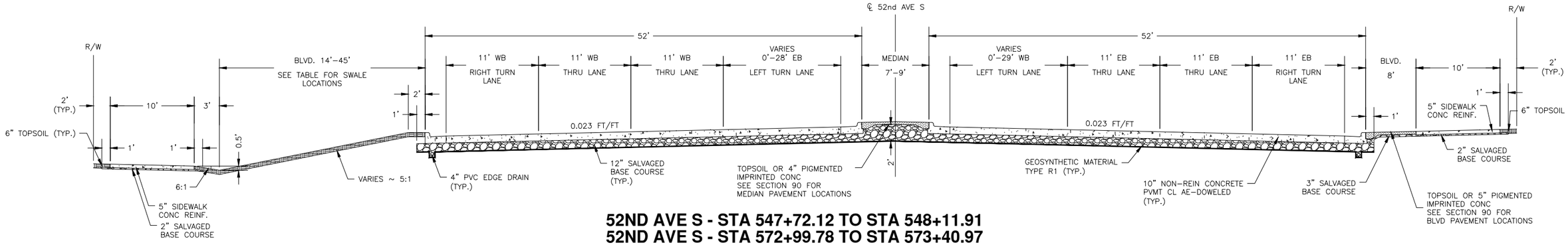
Typical Sections

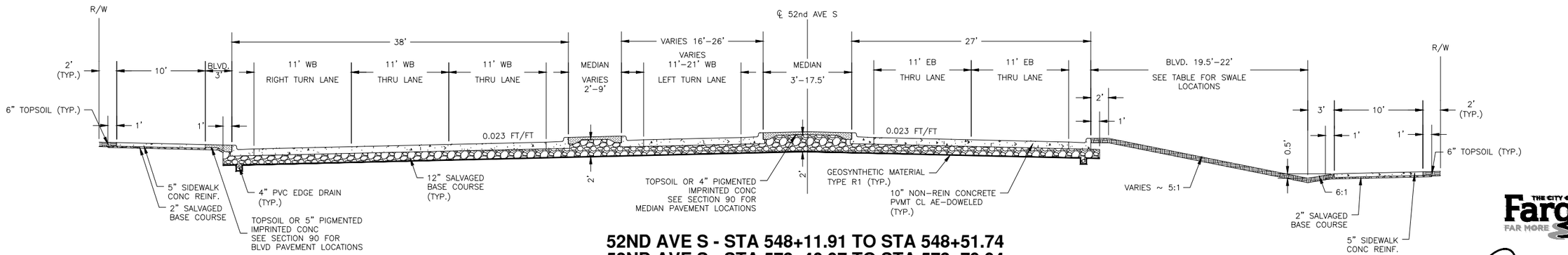
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	30	5



52ND AVE S - STA 547+72.12 TO STA 548+11.91
52ND AVE S - STA 572+99.78 TO STA 573+40.97
52ND AVE S - STA 596+89.59 TO STA 597+35.32

NOT TO SCALE



52ND AVE S - STA 548+11.91 TO STA 548+51.74
52ND AVE S - STA 573+40.97 TO STA 573+79.94
52ND AVE S - STA 597+35.32 TO STA 597+69.73

NOT TO SCALE

Swale Locations			
Lt		Rt	
Begin	End	Begin	End
536+80.00	547+13.00	526+17.17	527+80.00
550+80.00	557+23.60	532+97.04	544+22.49
558+94.28	572+42.31	548+67.54	553+40.00
576+60.88	582+20.34	558+94.28	569+63.87
584+72.97	596+31.52		

Berm Locations	
Rt	
Begin	End
585+21.55	596+46.94
597+53.59	609+32.74

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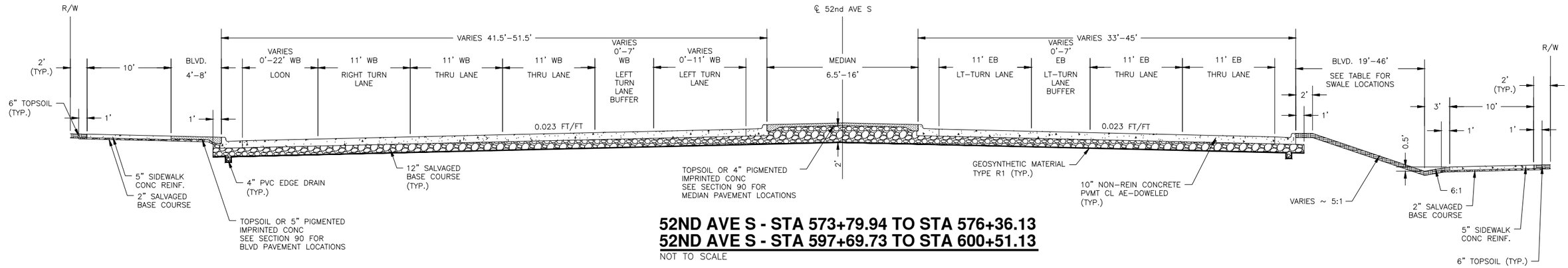
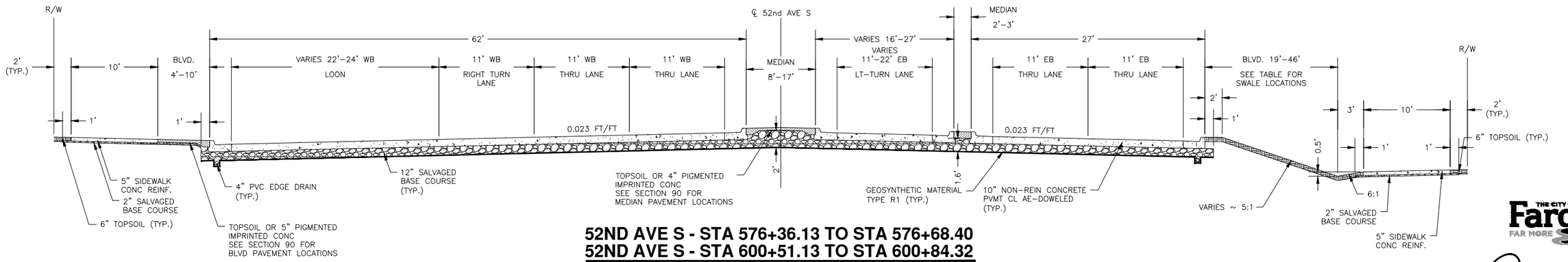
Typical Sections

52nd Ave S - West of 63rd St S to 45th St S

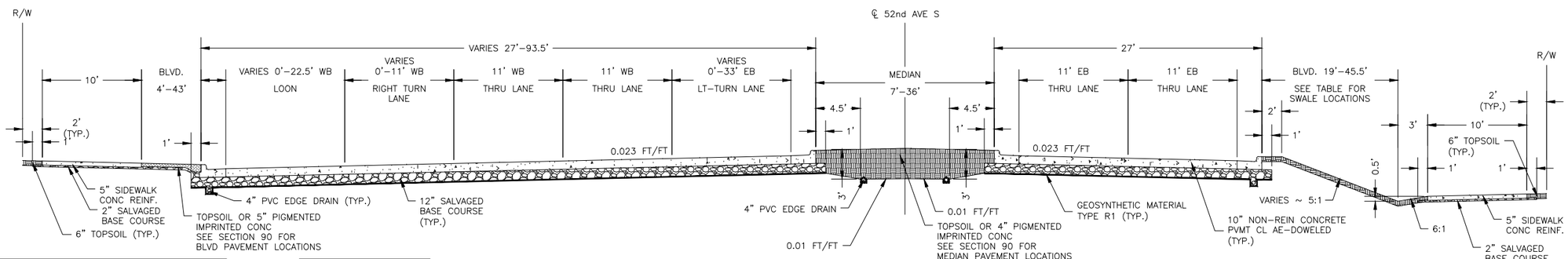
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	30	6



52ND AVE S - STA 573+79.94 TO STA 576+36.13
52ND AVE S - STA 597+69.73 TO STA 600+51.13
NOT TO SCALE



52ND AVE S - STA 576+36.13 TO STA 576+68.40
52ND AVE S - STA 600+51.13 TO STA 600+84.32
NOT TO SCALE



52ND AVE S - STA 576+68.40 TO STA 577+14.93
52ND AVE S - STA 600+84.32 TO STA 601+31.00
NOT TO SCALE

Swale Locations			
Lt		Rt	
Begin	End	Begin	End
536+80.00	547+13.00	526+17.17	527+80.00
550+80.00	557+23.60	532+97.04	544+22.49
558+94.28	572+42.31	548+67.54	553+40.00
576+60.88	582+20.34	558+94.28	569+63.87
584+72.97	596+31.52		

Berm Locations	
Rt	
Begin	End
585+21.55	596+46.94
597+53.59	609+32.74

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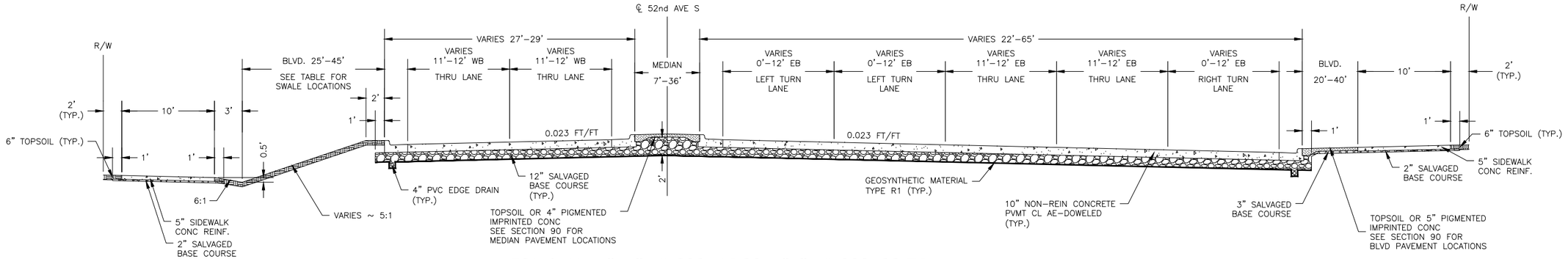
Typical Sections

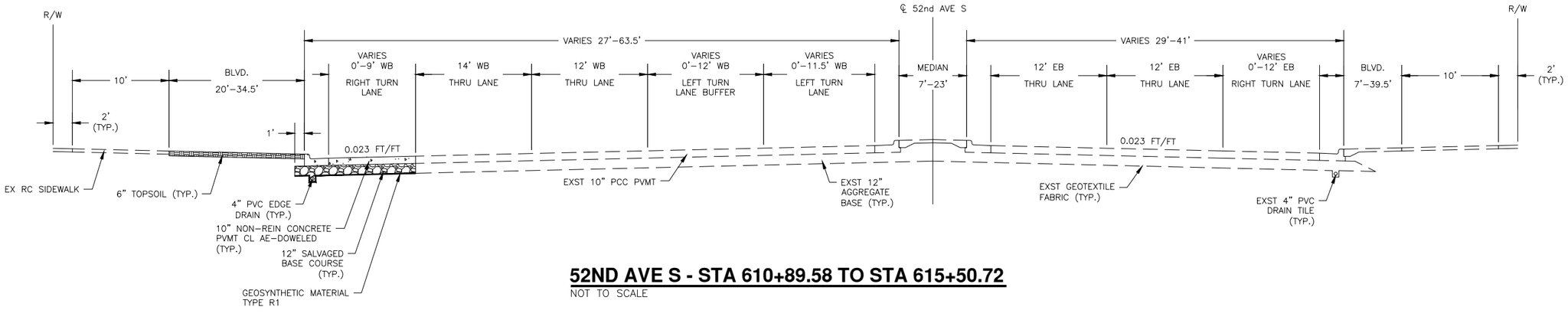
52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	30	7



52ND AVE S - STA 603+14.29 TO STA 609+32.74

NOT TO SCALE



52ND AVE S - STA 610+89.58 TO STA 615+50.72

NOT TO SCALE

Swale Locations			
Lt		Rt	
Begin	End	Begin	End
536+80.00	547+13.00	526+17.17	527+80.00
550+80.00	557+23.60	532+97.04	544+22.49
558+94.28	572+42.31	548+67.54	553+40.00
576+60.88	582+20.34	558+94.28	569+63.87
584+72.97	596+31.52		

Berm Locations	
Rt	
Begin	End
585+21.55	596+46.94
597+53.59	609+32.74

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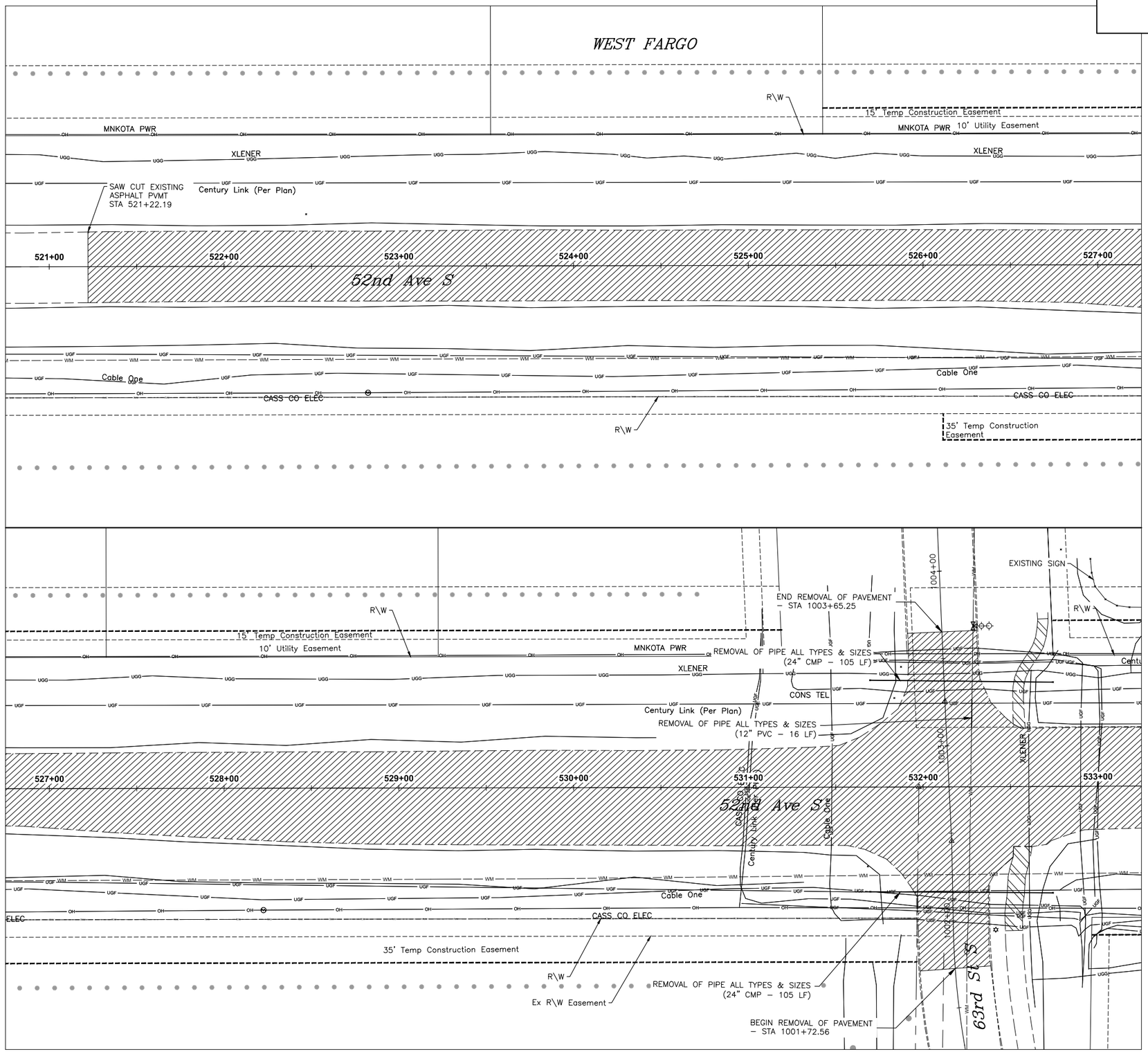
Typical Sections

52nd Ave S - West of 63rd St S to 45th St S

08/15/18 05:23:08AM H:\Fargo\JBN\6000\6059\18_6059_145 – 52nd Ave. Design\CAD\Plans\030–PROPOSED TYPICAL SECTION.dwg

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	40	1



SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT STA 521+22 TO STA 533+00	97	SY
202	0130	REMOVAL OF CURB & GUTTER STA 521+22 TO STA 533+00	115	LF
202	0136	REMOVAL OF PAVEMENT STA 521+22 TO STA 533+00	5005	TON
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES STA 521+22 TO STA 533+00	210	LF

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

THE CITY OF Fargo FAR MORE

Proj. No. 6059-0145
Houston Engineering Inc.
Ph: 701.237.5065

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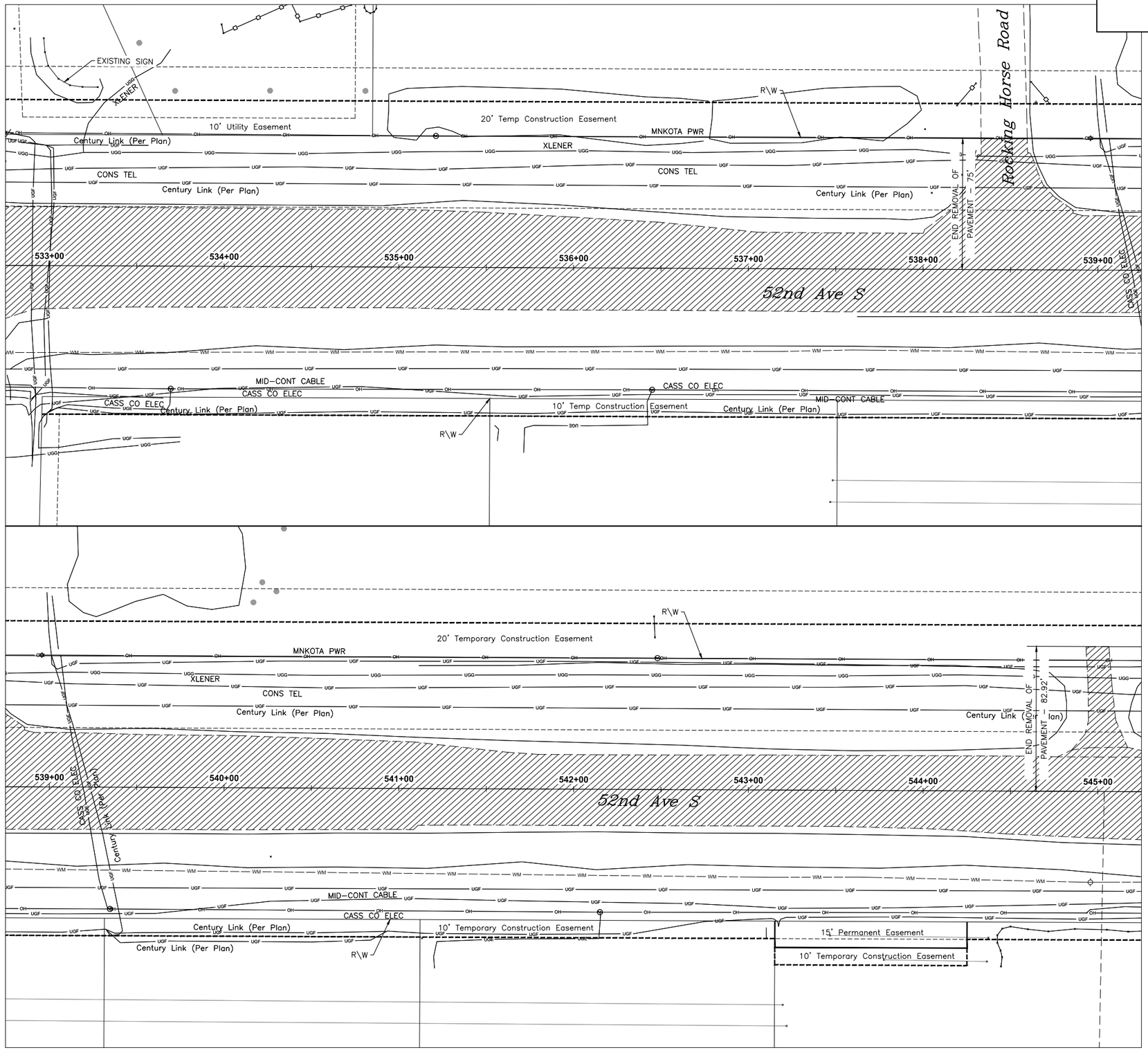
Removals

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	40	2



0 30' 60'

SPEC CODE	BID ITEM	QTY	UNIT
202 0136	REMOVAL OF PAVEMENT STA 533+00 TO STA 545+00	4932	TON

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

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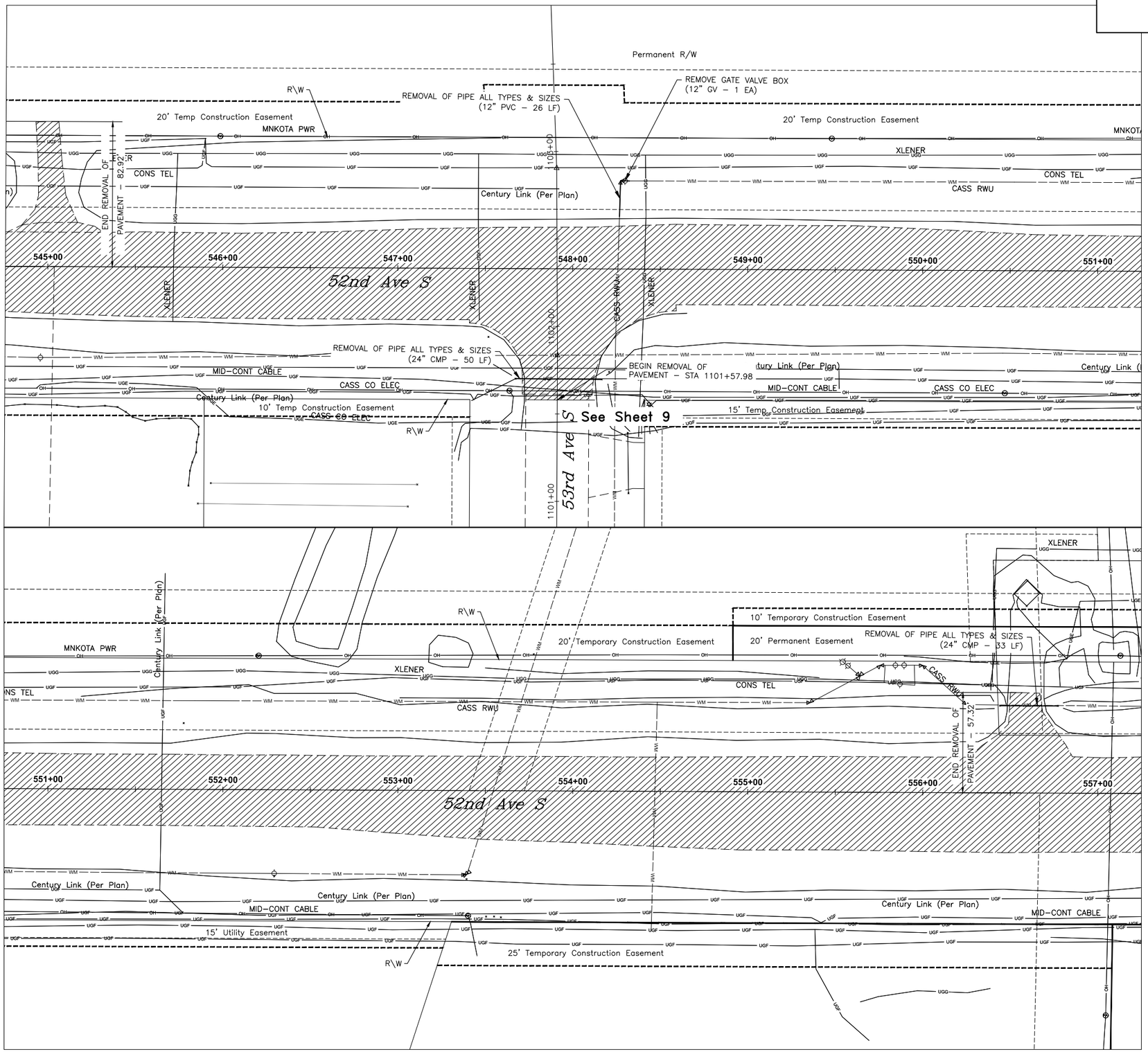
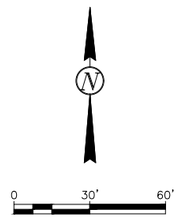
Removals

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	40	3





SPEC CODE	BID ITEM	QTY	UNIT
202 0136	REMOVAL OF PAVEMENT STA 545+00 TO STA 557+00	4921	TON
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES STA 545+00 TO STA 557+00	109	LF
724 7014	REMOVE GATE VALVE BOX STA 545+00 TO STA 557+00	1	EA

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

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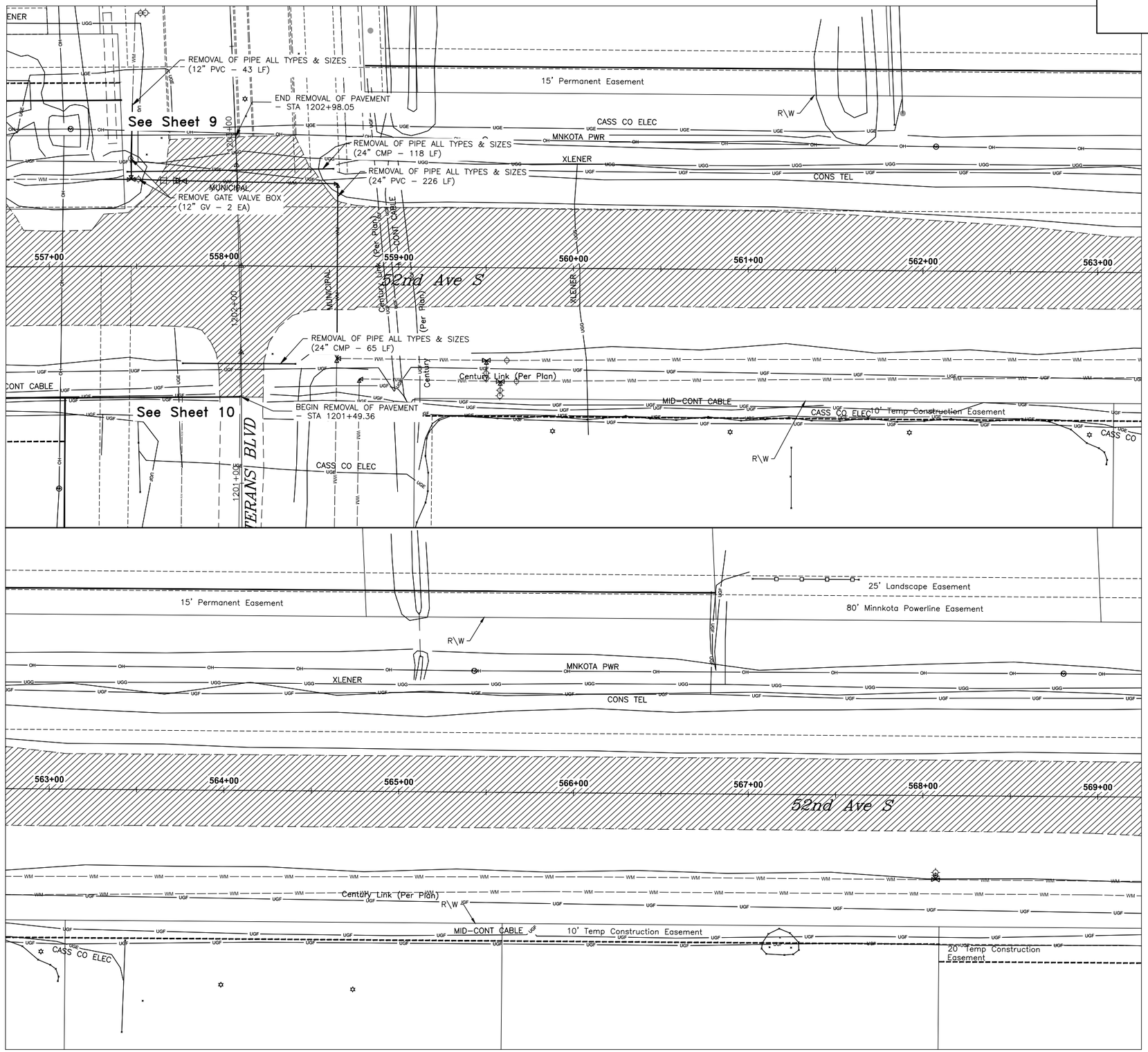
Removals

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	40	4



0 30' 60'

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT STA 557+00 TO STA 569+00	5030	TON
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES STA 557+00 TO STA 569+00	452	LF
724	7014	REMOVE GATE VALVE BOX STA 557+00 TO STA 569+00	2	EA

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

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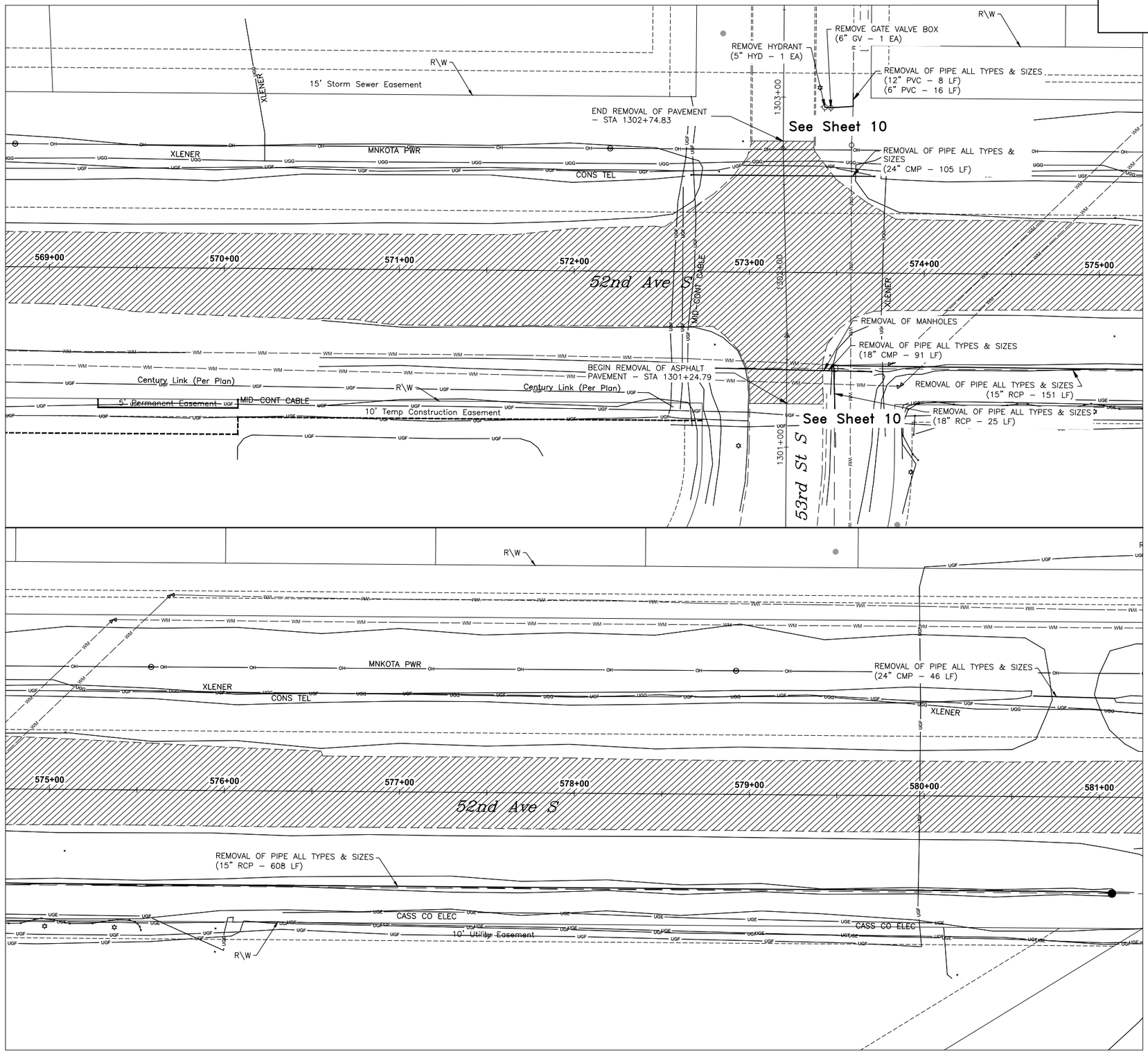
Removals

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	40	5



0 30' 60'

SPEC	CODE	BID ITEM	QTY	UNIT
202	0136	REMOVAL OF PAVEMENT STA 569+00 TO STA 581+00	4924	TON
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES STA 569+00 TO STA 581+00	1050	LF
202	0210	REMOVAL OF MANHOLES STA 569+00 TO STA 581+00	1	EA
724	0430	REMOVE HYDRANT STA 569+00 TO STA 581+00	1	EA
724	7014	REMOVE GATE VALVE BOX STA 569+00 TO STA 581+00	1	EA

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

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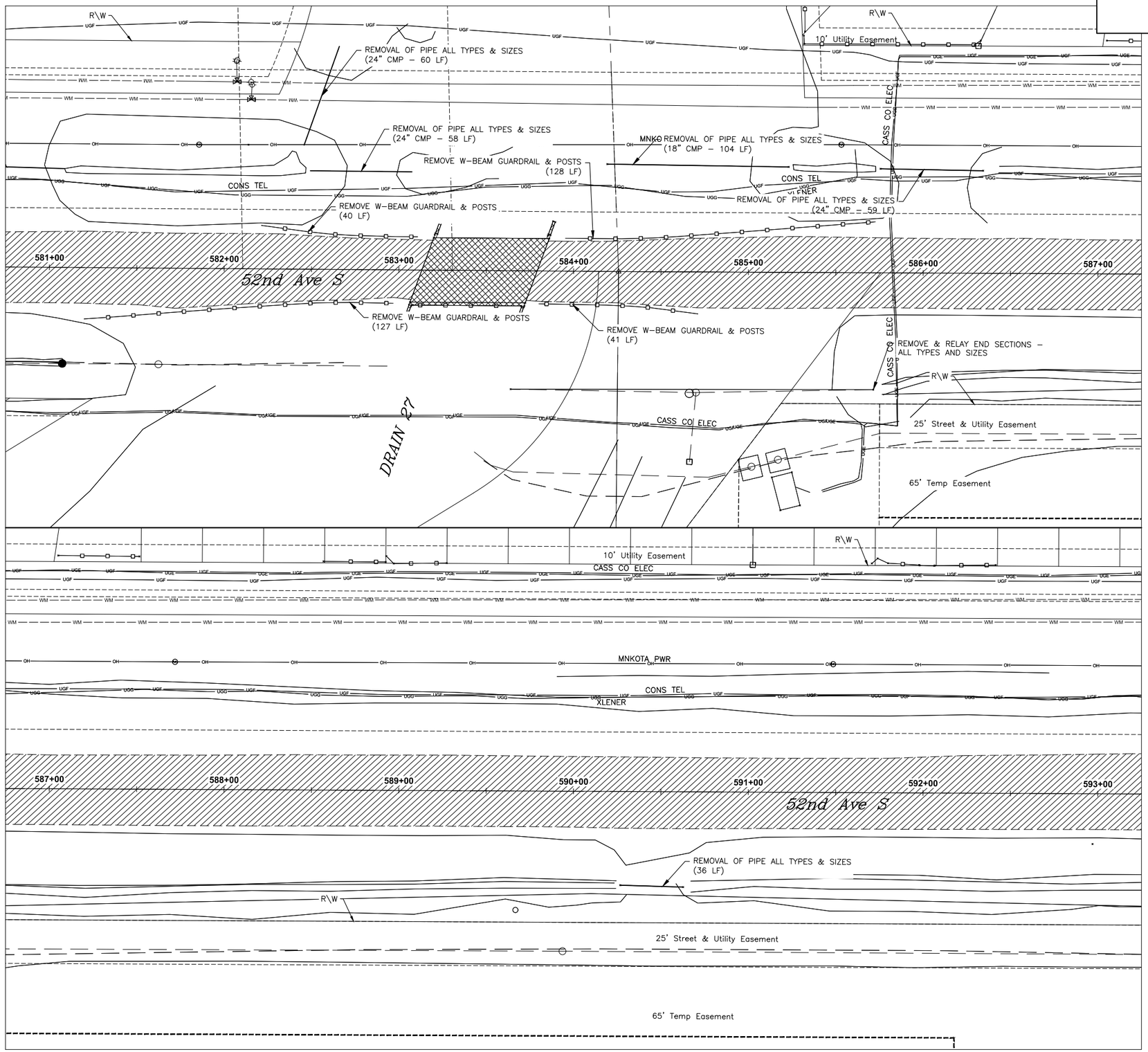
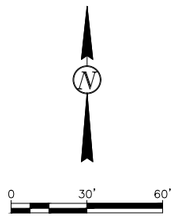
Removals

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	40	6





SPEC CODE	BID ITEM	QTY	UNIT
202 0136	REMOVAL OF PAVEMENT		
	STA 581+00 TO STA 593+00	3694	TON
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES		
	STA 581+00 TO STA 593+00	317	LF
714 9660	REMOVE & RELAY END SECTIONS – ALL TYPES AND SIZES		
	STA 581+00 TO STA 593+00	1	EA
764 0151	REMOVE W–BEAM GUARDRAIL & POSTS		
	DRAIN 27 – NW	40	LF
	DRAIN 27 – NE	128	LF
	DRAIN 27 – SW	127	LF
	DRAIN 27 – SE	41	LF
	TOTAL	336	LF
764 2081	REMOVE END TREATMENT & TRANSITION		
	DRAIN 27 – NW	1	EA
	DRAIN 27 – NE	1	EA
	DRAIN 27 – SW	1	EA
	DRAIN 27 – SE	1	EA
	TOTAL	4	EA

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

REMOVAL OF STRUCTURE

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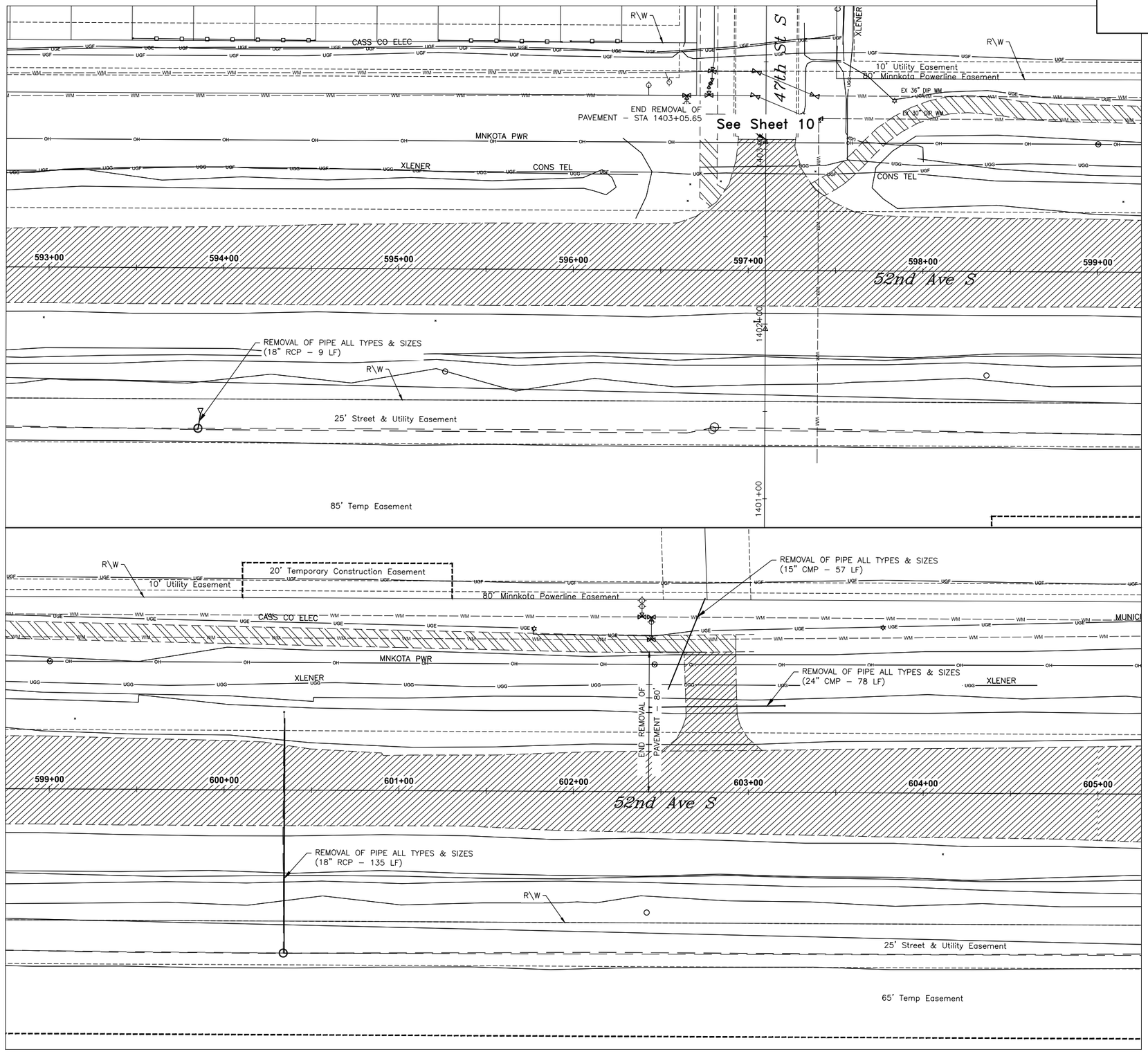
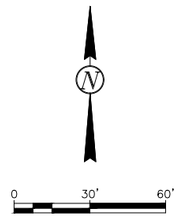
Removals

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	40	7





SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT STA 593+00 TO STA 605+00	669	SY
202 0136	REMOVAL OF PAVEMENT STA 593+00 TO STA 605+00	4905	TON
202 0174	REMOVAL OF PIPE ALL TYPES & SIZES STA 593+00 TO STA 605+00	279	LF

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

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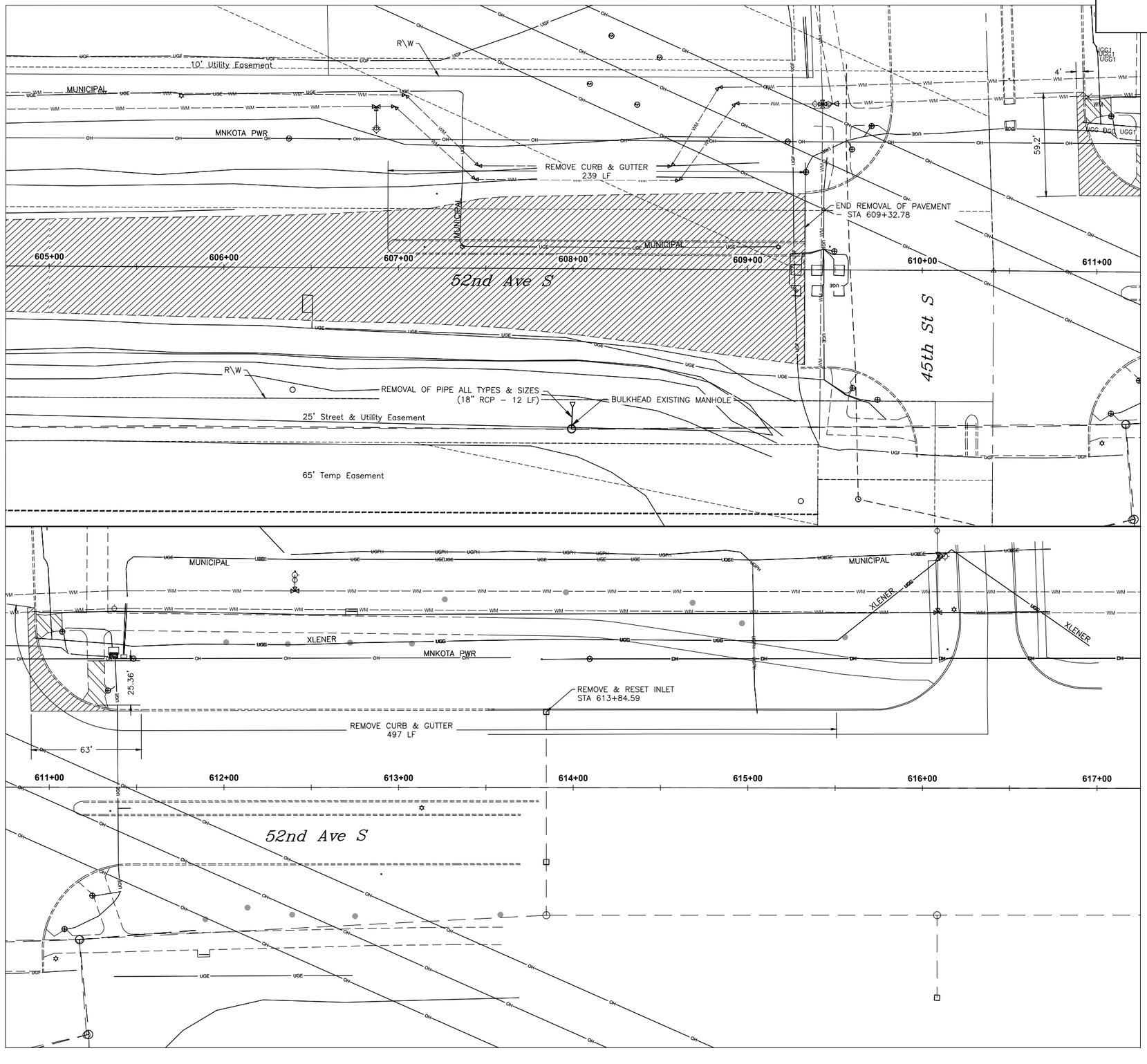
Removals

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-984(164)	40	8



0 30' 60'

SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT STA 605+00 TO STA 617+00	48	SY
202	0130	REMOVAL OF CURB & GUTTER STA 605+00 TO STA 617+00	979	LF
202	0136	REMOVAL OF PAVEMENT STA 605+00 TO STA 617+00	2477	TON
202	0174	REMOVAL OF PIPE ALL TYPES & SIZES STA 605+00 TO STA 617+00	12	LF
202	0231	REMOVE & RESET INLETS STA 605+00 TO STA 617+00	1	EA

REMOVAL OF CONCRETE PAVEMENT

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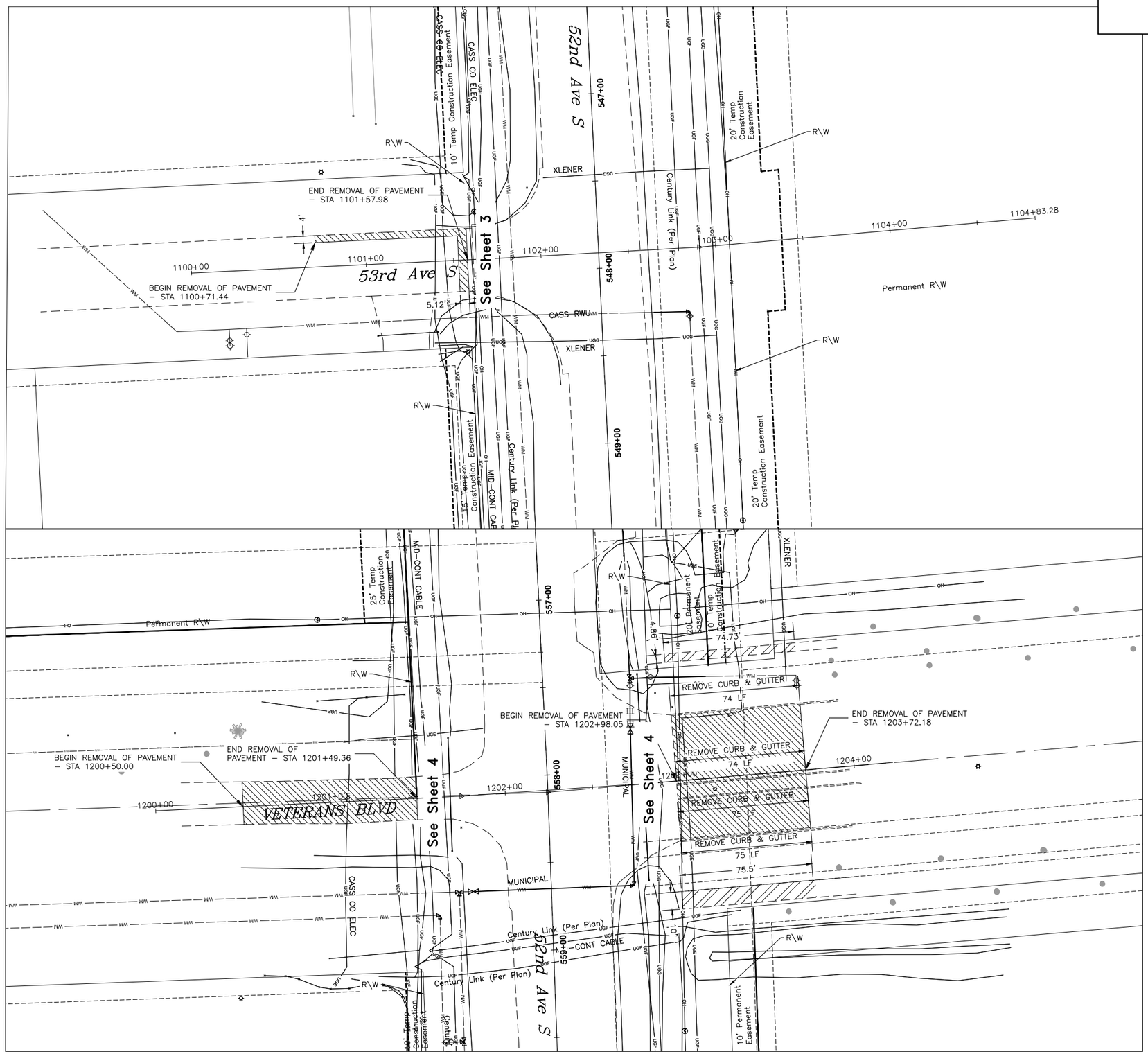
Removals

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	40	9



0 30' 60'

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	VETERANS BLVD	125	SY
202 0130	REMOVAL OF CURB & GUTTER		
	VETERANS BLVD	298	LF
202 0136	REMOVAL OF PAVEMENT		
	53RD AVE S	21	TON
	VETERANS BLVD	626	TON
	TOTAL	647	TON

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

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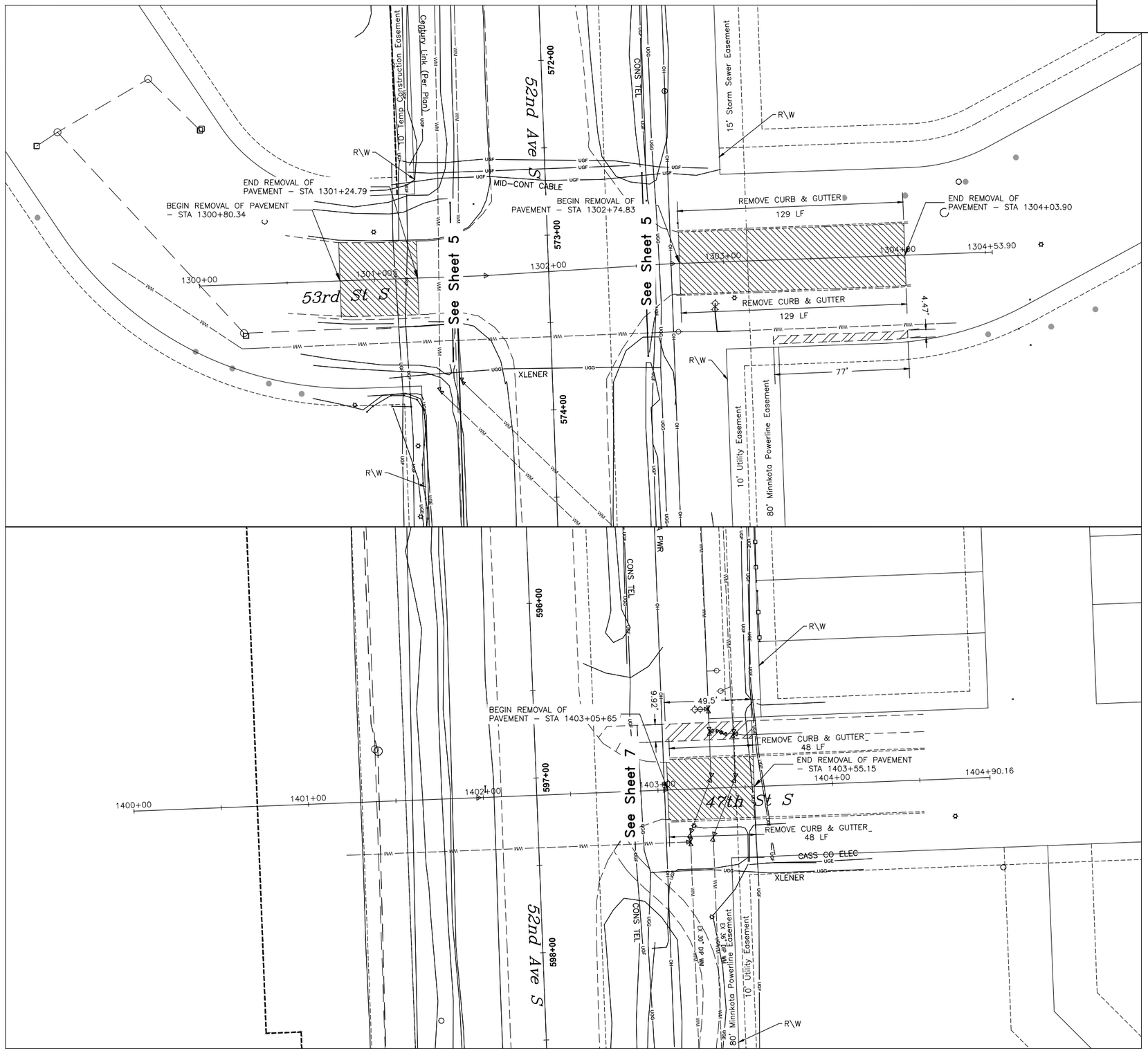
Removals

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	40	10



0 30' 60'

SPEC CODE	BID ITEM		QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT			
	53RD ST S		38	SY
	47TH ST S		55	SY
		TOTAL	93	SY
202 0130	REMOVAL OF CURB & GUTTER			
	53RD ST S		260	LF
	47TH ST S		96	LF
		TOTAL	356	LF
202 0136	REMOVAL OF PAVEMENT			
	53RD ST S		533	TON
	47TH ST S		142	TON
		TOTAL	675	TON

REMOVAL OF CONCRETE PAVEMENT

REMOVAL OF PAVEMENT

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Removals

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	**SU-8-984(164)**	**50**	**1**

Structure No.	EX STS–400
Type	MANHOLE RISER 60IN
Grate Style	R–1733
Sta.	581+07.70 55.00'R
Rim Elev	907.88
Ex Rim Elev	902.00
Riser	5.88

Structure No.	EX STS–500
Type	MANHOLE RISER 48IN
Grate Style	R–1916–F
Sta.	589+94.12 91.50'R
Rim Elev	904.40
Ex Rim Elev	900.90
Riser	3.50

Structure No.	EX STS–501
Type	MANHOLE RISER 48IN
Grate Style	R–1916–F
Sta.	593+85.61 91.86'R
Rim Elev	910.71
Ex Rim Elev	906.21
Riser	4.50

Structure No.	EX STS–504
Type	MANHOLE RISER 48IN
Grate Style	R–1916–F
Sta.	607+99.58 91.78'R
Rim Elev	910.16
Ex Rim Elev	906.09
Riser	4.07

Structure No.	STS–1
Type	END SECT–CONC REINF 12IN
Sta.	526+00.81 55.01'R
INV NE	905.86 12" RCP

Structure No.	STS–1A
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	526+17.16 33.00'R
Rim Elev	909.33
Base Thickness	0.50
Invert Elev	905.94
H' Dist	2.23
INV N	905.94 12" RCP
INV SW	905.94 12" RCP

Structure No.	STS–1B
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	526+17.17 –39.92'L
Rim Elev	909.22
Base Thickness	0.67
Invert Elev	906.16
H' Dist	2.40
INV S	906.16 12" RCP

Structure No.	STS–100
Type	MANHOLE 84IN
Grate Style	R–1955–1
Sta.	532+12.02 62.62'R
Rim Elev	909.49
Base Thickness	0.67
Invert Elev	900.65
Riser	7.01
INV W	903.51 15" RCP
INV S	900.65 36" RCP
INV E	900.65 36" x 23" RCPA

Structure No.	STS–101
Type	MANHOLE 48IN
Grate Style	R–1733
Sta.	529+84.96 61.00'R
Rim Elev	909.75
Base Thickness	0.50
Invert Elev	904.42
Riser	4.04
INV N	904.42 15" RCP
INV E	904.42 15" RCP

Structure No.	STS–101A
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	529+85.00 43.92'R
Rim Elev	909.00
Base Thickness	0.67
Invert Elev	904.49
H' Dist	3.89
INV S	904.49 15" RCP
INV N	904.49 15" RCP

Structure No.	STS–101B
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	529+85.00 –39.92'L
Rim Elev	908.83
Base Thickness	0.67
Invert Elev	904.83
H' Dist	3.38
INV S	904.83 15" RCP

Structure No.	STS–102A
Type	INLET SPECIAL CATCH BASIN – 72IN
Grate Style	R–4342
Sta.	535+50.00 62.00'R
Rim Elev	905.80
Base Thickness	0.67
Invert Elev	901.33
H' Dist	3.47
INV E	901.33 36" x 23" RCPA
INV W	901.33 36" x 23" RCPA
INV N	902.42 15" RCP

Structure No.	STS–102B
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–V
Sta.	535+50.00 32.92'R
Rim Elev	909.59
Base Thickness	0.50
Invert Elev	902.54
H' Dist	5.93
INV N	905.29 15" RCP
INV S	902.54 15" RCP

Structure No.	STS–102C
Type	INLET – TYPE 2
Grate Style	R–3067–V
Sta.	535+50.00 –50.92'L
Rim Elev	909.63
Base Thickness	0.67
Invert Elev	905.63
H' Dist	3.38
INV S	905.63 15" RCP

Structure No.	STS–103A
Type	INLET SPECIAL CATCH BASIN – 84IN
Grate Style	R–4342
Sta.	537+68.41 62.00'R
Rim Elev	905.61
Base Thickness	0.67
Invert Elev	901.77
H' Dist	2.76
INV N	902.17 18" RCP
INV W	901.77 36" x 23" RCPA
INV E	901.77 29" x 18" RCPA

Structure No.	STS–103B
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	537+59.99 32.92'R
Rim Elev	908.75
Base Thickness	0.50
Invert Elev	902.32
H' Dist	5.35
INV S	902.32 18" RCP
INV N	902.97 15" RCP

Structure No.	STS–103C
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	537+68.47 –41.10'L
Rim Elev	908.75
Base Thickness	0.50
Invert Elev	903.27
H' Dist	4.36
INV S	903.27 15" RCP
INV E	903.27 15" RCP

Structure No.	STS–103D
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	538+65.00 –60.00'L
Rim Elev	907.56
Base Thickness	0.50
Invert Elev	903.96
H' Dist	3.14
INV W	903.96 15" RCP

Structure No.	STS–104
Type	MANHOLE 60IN
Grate Style	R–1733
Sta.	539+97.98 60.00'R
Rim Elev	906.81
Base Thickness	0.67
Invert Elev	902.23
Riser	3.30
INV E	902.76 18" RCP
INV W	902.23 29" x 18" RCPA
INV N	903.61 15" RCP

Structure No.	STS–104A
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–V
Sta.	539+99.02 38.19'R
Rim Elev	909.70
Base Thickness	0.50
Invert Elev	903.70
H' Dist	4.88
INV N	905.85 15" RCP
INV S	903.70 15" RCP

Structure No.	STS–104B
Type	INLET – TYPE 2
Grate Style	R–3067–V
Sta.	540+01.66 –46.25'L
Rim Elev	910.44
Base Thickness	0.67
Invert Elev	906.44
H' Dist	3.38
INV S	906.44 15" RCP

Structure No.	STS–105
Type	MANHOLE 48IN
Grate Style	R–1955–1
Sta.	543+59.15 63.17'R
Rim Elev	911.24
Base Thickness	0.50
Invert Elev	904.20
Riser	5.29
INV N	906.03 15" RCP
INV W	904.20 18" RCP
INV SE	906.26 15" RCP

Structure No.	STS–105A
Type	INLET – TYPE 2 DOUBLE
Grate Style	R–3295–2–VB
Sta.	543+64.47 75.64'R
Rim Elev	910.33
Base Thickness	0.67
Invert Elev	906.33
H' Dist	3.38
INV NW	906.33 15" RCP

Structure No.	STS–105B
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	543+60.00 –48.42'L
Rim Elev	911.28
Base Thickness	0.50
Invert Elev	906.48
H' Dist	3.68
INV S	906.48 15" RCP
INV NE	906.48 15" RCP

Structure No.	STS–105C
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	543+90.00 –60.00'L
Rim Elev	910.34
Base Thickness	0.50
Invert Elev	906.74
H' Dist	3.14
INV SW	906.74 15" RCP

Structure No.	STS–200
Type	END SECT–CONC REINF 54IN
Sta.	556+31.73 1497.07'R
INV NE	896.10 54" RCP

Structure No.	STS–201
Type	MANHOLE 84IN
Grate Style	R–1733
Sta.	557+16.71 1409.83'R
Rim Elev	905.37
Base Thickness	0.67
Invert Elev	896.26
Riser	7.86
INV N	896.26 54" RCP
INV SW	896.26 54" RCP

Structure No.	STS–202
Type	MANHOLE 84IN
Grate Style	R–1733
Sta.	557+20.10 1063.08'R
Rim Elev	905.24
Base Thickness	0.67
Invert Elev	896.71
Riser	7.28
INV N	896.71 54" RCP
INV S	896.71 54" RCP

Structure No.	STS–203
Type	MANHOLE 84IN
Grate Style	R–1733
Sta.	557+24.02 663.06'R
Rim Elev	905.67
Base Thickness	0.67
Invert Elev	897.11
Riser	7.31
INV N	897.11 54" RCP
INV S	897.11 54" RCP

Structure No.	STS–204
Type	MANHOLE 84IN
Grate Style	R–1733
Sta.	557+27.94 263.09'R
Rim Elev	905.47
Base Thickness	0.67
Invert Elev	897.51
Riser	6.71
INV N	897.51 48" RCP
INV S	897.51 54" RCP

Structure No.	STS–205
Type	MANHOLE 96IN
Grate Style	R–1733
Sta.	557+29.18 143.78'R
Rim Elev	905.61
Base Thickness	0.67
Invert Elev	897.63
Riser	6.74
INV N	899.66 27" RCP
INV S	897.63 48" RCP
INV E	897.72 48" RCP

Structure No.	STS–206A
Type	INLET SPECIAL CATCH BASIN – 48IN
Grate Style	R–4342
Sta.	557+29.63 96.17'R
Rim Elev	904.50
Base Thickness	0.50
Invert Elev	899.90
H' Dist	3.76
INV N	899.90 27" RCP
INV S	899.90 27" RCP

Structure No.	STS–207
Type	MANHOLE 60IN
Grate Style	R–1733
Sta.	557+29.97 60.86'R
Rim Elev	909.64
Base Thickness	0.67
Invert Elev	900.04
Riser	8.35
INV S	900.04 27" RCP
INV W	900.64 27" RCP

THE CITY OF Fargo FAR MORE

Proj. No. 6059-0145
Houston Engineering Inc.
Ph: 701.237.5065

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Inlet and Manhole Summary - Storm

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	**SU-8-984(164)**	**50**	**2**

Structure No.	STS–208
Type	MANHOLE 60IN
Grate Style	R–1733
Sta.	555+75.00 61.08'R
Rim Elev	909.04
Base Thickness	0.67
Invert Elev	901.26
Riser	6.53
INV W	902.01 24" RCP
INV E	901.26 27" RCP
INV N	901.36 18" RCP

Structure No.	STS–208A
Type	INLET SPECIAL – TYPE 2 DOUBLE 84IN
Grate Style	R–3295–2–VB
Sta.	555+75.00 51.42'R
Rim Elev	908.36
Base Thickness	0.67
Invert Elev	901.40
Riser	5.63
INV S	901.40 18" RCP
INV N	901.40 15" RCP

Structure No.	STS–208B
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	555+75.00 –48.42'L
Rim Elev	908.75
Base Thickness	0.50
Invert Elev	901.80
H' Dist	5.83
INV S	901.80 15" RCP
INV NW	901.80 15" RCP

Structure No.	STS–208C
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	555+32.95 –70.48'L
Rim Elev	905.73
Base Thickness	0.50
Invert Elev	902.13
H' Dist	3.14
INV SE	902.13 15" RCP

Structure No.	STS–209
Type	MANHOLE 60IN
Grate Style	R–1733
Sta.	553+99.99 60.90'R
Rim Elev	909.82
Base Thickness	0.67
Invert Elev	902.54
Riser	6.00
INV W	902.54 21" RCP
INV E	902.54 24" RCP
INV N	904.81 15" RCP

Structure No.	STS–209A
Type	INLET – TYPE 2 DOUBLE
Grate Style	R–3295–2–V
Sta.	554+00.00 51.42'R
Rim Elev	909.22
Base Thickness	0.67
Invert Elev	904.85
H' Dist	3.75
INV N	904.85 15" RCP
INV S	904.85 15" RCP

Structure No.	STS–209B
Type	INLET – TYPE 2
Grate Style	R–3067–V
Sta.	554+00.00 –48.42'L
Rim Elev	909.45
Base Thickness	0.67
Invert Elev	905.45
H' Dist	3.38
INV S	905.45 15" RCP

Structure No.	STS–210A
Type	INLET SPECIAL CATCH BASIN – 60IN
Grate Style	R–4342
Sta.	551+65.13 60.47'R
Rim Elev	907.24
Base Thickness	0.67
Invert Elev	903.24
H' Dist	3.00
INV W	903.64 15" RCP
INV E	903.24 21" RCP
INV N	903.74 15" RCP

Structure No.	STS–210B
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–V
Sta.	551+65.35 40.42'R
Rim Elev	910.31
Base Thickness	0.50
Invert Elev	903.86
H' Dist	5.33
INV S	903.86 15" RCP
INV N	906.01 15" RCP

Structure No.	STS–210C
Type	INLET – TYPE 2
Grate Style	R–3067–V
Sta.	551+68.64 –48.42'L
Rim Elev	910.37
Base Thickness	0.67
Invert Elev	906.37
H' Dist	3.38
INV S	906.37 15" RCP

Structure No.	STS–211
Type	MANHOLE 48IN
Grate Style	R–1955–1
Sta.	548+08.25 60.92'R
Rim Elev	912.41
Base Thickness	0.50
Invert Elev	905.07
Riser	5.55
INV E	905.07 15" RCP
INV N	906.77 15" RCP

Structure No.	STS–212
Type	MANHOLE 48IN
Grate Style	R–1955–1
Sta.	548+09.16 –52.74'L
Rim Elev	911.97
Base Thickness	0.50
Invert Elev	907.22
Riser	2.96
INV E	907.37 15" RCP
INV S	907.22 15" RCP
INV W	907.32 15" RCP

Structure No.	STS–212A
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	547+00.00 –48.42'L
Rim Elev	911.76
Base Thickness	0.67
Invert Elev	907.76
H' Dist	3.38
INV E	907.76 15" RCP

Structure No.	STS–212B
Type	INLET – TYPE 2
Grate Style	R–3067–V
Sta.	548+49.98 –59.42'L
Rim Elev	911.78
Base Thickness	0.67
Invert Elev	907.78
H' Dist	3.38
INV W	907.78 15" RCP

Structure No.	STS–213A
Type	INLET SPECIAL CATCH BASIN – 96IN
Grate Style	R–4342
Sta.	558+46.65 131.96'R
Rim Elev	903.98
Base Thickness	0.67
Invert Elev	897.84
H' Dist	5.22
INV W	897.84 48" RCP
INV N	897.84 42" RCP

Structure No.	STS–214
Type	MANHOLE 84IN
Grate Style	R–1955–1
Sta.	558+51.66 –65.67'L
Rim Elev	909.02
Base Thickness	0.67
Invert Elev	898.04
Riser	9.19
INV S	898.04 42" RCP
INV E	898.04 42" RCP

Structure No.	STS–215
Type	MANHOLE 72IN
Grate Style	R–1733
Sta.	559+21.81 –86.20'L
Rim Elev	908.24
Base Thickness	0.50
Invert Elev	898.14
Riser	8.89
INV E	898.14 42" RCP
INV W	898.14 42" RCP
INV N	901.47 15" RCP

Structure No.	STS–215A
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	559+21.49 –100.78'L
Rim Elev	905.19
Base Thickness	0.50
Invert Elev	901.59
H' Dist	3.14
INV S	901.59 15" RCP

Structure No.	STS–216A
Type	INLET SPECIAL CATCH BASIN – 84IN
Grate Style	R–4342
Sta.	560+70.00 –85.00'L
Rim Elev	904.80
Base Thickness	0.67
Invert Elev	898.28
H' Dist	5.56
INV S	900.05 18" RCP
INV W	898.28 42" RCP
INV E	898.28 42" RCP
INV N	900.26 15" RCP

Structure No.	STS–216B
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	560+69.84 –103.00'L
Rim Elev	904.95
Base Thickness	0.50
Invert Elev	900.35
H' Dist	4.14
INV S	900.35 15" RCP

Structure No.	STS–216C
Type	INLET SPECIAL – TYPE 2 DOUBLE 84IN
Grate Style	R–3295–2–VB
Sta.	560+75.00 –65.36'L
Rim Elev	908.57
Base Thickness	0.67
Invert Elev	900.13
H' Dist	7.11
INV N	900.13 18" RCP
INV S	900.13 15" RCP

Structure No.	STS–216D
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	560+75.01 34.47'R
Rim Elev	908.75
Base Thickness	0.50
Invert Elev	900.53
H' Dist	7.10
INV N	900.53 15" RCP
INV SE	900.53 15" RCP

Structure No.	STS–216E
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	560+84.99 60.05'R
Rim Elev	904.24
Base Thickness	0.50
Invert Elev	900.64
H' Dist	3.14
INV NW	900.64 15" RCP

Structure No.	STS–217
Type	MANHOLE 72IN
Grate Style	R–1733
Sta.	565+09.77 –84.61'L
Rim Elev	906.20
Base Thickness	0.67
Invert Elev	898.72
Riser	6.27
INV E	898.72 36" RCP
INV W	898.72 42" RCP
INV N	901.00 15" RCP

Structure No.	STS–217A
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	565+10.23 –110.12'L
Rim Elev	904.78
Base Thickness	0.50
Invert Elev	901.18
H' Dist	3.14
INV S	901.18 15" RCP

Structure No.	STS–218A
Type	INLET SPECIAL CATCH BASIN – 84IN
Grate Style	R–4342
Sta.	566+05.00 –85.00'L
Rim Elev	905.34
Base Thickness	0.67
Invert Elev	898.82
H' Dist	5.52
INV S	899.53 24" RCP
INV W	898.83 36" RCP
INV E	898.83 36" RCP

Structure No.	STS–218B
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	566+10.00 –58.92'L
Rim Elev	908.75
Base Thickness	0.50
Invert Elev	899.58
H' Dist	8.13
INV N	899.58 24" RCP
INV S	899.58 18" RCP

Structure No.	STS–218C
Type	INLET SPECIAL – TYPE 2 DOUBLE 84IN
Grate Style	R–3295–2–VB
Sta.	566+10.00 29.92'R
Rim Elev	908.75
Base Thickness	0.67
Invert Elev	899.85
H' Dist	7.57
INV N	899.85 18" RCP
INV SE	899.85 15" RCP

Structure No.	STS–218D
Type	INLET SPECIAL CATCH BASIN – 48IN
Grate Style	R–4342
Sta.	566+45.00 60.00'R
Rim Elev	904.21
Base Thickness	0.50
Invert Elev	900.03
H' Dist	3.22
INV NW	900.03 15" RCP
INV E	900.03 15" RCP

Structure No.	STS–218E
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	567+03.10 76.54'R
Rim Elev	904.45
Base Thickness	0.50
Invert Elev	900.45
H' Dist	3.54
INV W	900.45 15" RCP

Structure No.	STS–219A
Type	INLET SPECIAL CATCH BASIN – 72IN
Grate Style	R–4342
Sta.	569+75.00 –85.00'L
Rim Elev	904.82
Base Thickness	0.67
Invert Elev	899.20
H' Dist	4.71
INV E	899.33 27" RCP
INV W	899.20 36" RCP
INV S	901.09 15" RCP

Structure No.	STS–219B
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	569+75.00 –58.92'L
Rim Elev	908.92
Base Thickness	0.50
Invert Elev	901.19
H' Dist	6.61
INV S	903.44 15" RCP
INV N	901.19 15" RCP

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Inlet and Manhole Summary - Storm

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	**SU-8-984(164)**	**50**	**3**

Structure No.	STS–219C		
Type	INLET – TYPE 2		
Grate Style	R–3067–VB		
Sta.	569+75.02 64.57'R		
Rim Elev	907.93		
Base Thickness	0.67		
Invert Elev	903.93		
H' Dist	3.38		
INV N	903.93	15" RCP	

Structure No.	STS–220A		
Type	INLET SPECIAL CATCH BASIN – 96IN		
Grate Style	R–4342		
Sta.	571+70.16 –83.02'L		
Rim Elev	904.83		
Base Thickness	0.67		
Invert Elev	899.92		
H' Dist	3.82		
INV SE	901.23	15" RCP	
INV W	899.92	27" RCP	
INV E	899.92	24" RCP	

Structure No.	STS–220B		
Type	INLET SPECIAL – TYPE 2 48IN		
Grate Style	R–3067–VB		
Sta.	571+90.02 –58.92'L		
Rim Elev	908.75		
Base Thickness	0.50		
Invert Elev	901.35		
H' Dist	6.27		
INV S	904.09	15" RCP	
INV NW	901.35	15" RCP	

Structure No.	STS–220C		
Type	INLET – TYPE 2		
Grate Style	R–3067–VB		
Sta.	571+90.10 40.92'R		
Rim Elev	908.49		
Base Thickness	0.67		
Invert Elev	904.49		
H' Dist	3.38		
INV N	904.49	15" RCP	

Structure No.	STS–221		
Type	MANHOLE 60IN		
Grate Style	R–1733		
Sta.	574+40.10 –83.42'L		
Rim Elev	909.42		
Base Thickness	0.67		
Invert Elev	900.73		
Riser	7.40		
INV E	900.73	24" RCP	
INV W	900.73	24" RCP	
INV S	900.73	15" RCP	
INV N	901.16	15" RCP	

Structure No.	STS–221A		
Type	INLET CATCH BASIN		
Grate Style	R–4342		
Sta.	574+41.13 –117.88'L		
Rim Elev	905.00		
Base Thickness	0.50		
Invert Elev	901.40		
H' Dist	3.14		
INV S	901.40	15" RCP	

Structure No.	STS–221B		
Type	INLET SPECIAL – TYPE 2 48IN		
Grate Style	R–3067–VB		
Sta.	574+40.00 –75.42'L		
Rim Elev	908.54		
Base Thickness	0.50		
Invert Elev	900.77		
H' Dist	6.65		
INV S	900.77	15" RCP	
INV N	900.77	15" RCP	

Structure No.	STS–221C		
Type	INLET SPECIAL – TYPE 2 48IN		
Grate Style	R–3067–VB		
Sta.	574+39.99 24.42'R		
Rim Elev	908.75		
Base Thickness	0.50		
Invert Elev	901.27		
H' Dist	6.36		
INV N	901.27	15" RCP	
INV S	901.77	15" RCP	

Structure No.	STS–222		
Type	MANHOLE 60IN		
Grate Style	R–1955–1		
Sta.	576+43.67 –85.50'L		
Rim Elev	908.43		
Base Thickness	0.67		
Invert Elev	901.34		
Riser	5.30		
INV E	901.34	24" RCP	
INV N	904.03	15" RCP	
INV W	901.34	24" RCP	
INV S	904.31	15" RCP	

Structure No.	STS–222A		
Type	INLET – TYPE 2		
Grate Style	R–3067–VB		
Sta.	576+43.07 –98.79'L		
Rim Elev	908.08		
Base Thickness	0.67		
Invert Elev	904.08		
H' Dist	3.38		
INV S	904.08	15" RCP	

Structure No.	STS–222B		
Type	INLET – TYPE 2		
Grate Style	R–3067–VB		
Sta.	576+50.00 24.42'R		
Rim Elev	908.75		
Base Thickness	0.67		
Invert Elev	904.75		
H' Dist	3.38		
INV N	904.75	15" RCP	

Structure No.	STS–223		
Type	MANHOLE 60IN		
Grate Style	R–1733		
Sta.	578+89.09 –84.03'L		
Rim Elev	908.38		
Base Thickness	0.67		
Invert Elev	901.83		
Riser	5.26		
INV E	901.83	21" RCP	
INV W	901.83	24" RCP	
INV N	902.71	15" RCP	

Structure No.	STS–223A		
Type	INLET CATCH BASIN		
Grate Style	R–4342		
Sta.	578+95.00 –105.25'L		
Rim Elev	906.46		
Base Thickness	0.50		
Invert Elev	902.86		
H' Dist	3.14		
INV S	902.86	15" RCP	

Structure No.	STS–224		
Type	MANHOLE 60IN		
Grate Style	R–1733		
Sta.	580+05.24 –82.42'L		
Rim Elev	908.18		
Base Thickness	0.67		
Invert Elev	902.18		
Riser	4.67		
INV S	903.63	15" RCP	
INV W	902.18	21" RCP	
INV E	902.18	18" RCP	

Structure No.	STS–224A		
Type	INLET – TYPE 2		
Grate Style	R–3067–VB		
Sta.	580+05.00 –64.42'L		
Rim Elev	908.77		
Base Thickness	0.67		
Invert Elev	903.75		
H' Dist	4.39		
INV S	904.41	15" RCP	
INV N	903.75	15" RCP	

Structure No.	STS–224B		
Type	INLET – TYPE 2 DOUBLE		
Grate Style	R–3295–2–VB		
Sta.	580+05.00 24.42'R		
Rim Elev	908.77		
Base Thickness	0.67		
Invert Elev	904.77		
H' Dist	3.38		
INV N	904.77	15" RCP	

Structure No.	STS–225		
Type	MANHOLE 48IN		
Grate Style	R–1733		
Sta.	582+43.29 –85.71'L		
Rim Elev	911.17		
Base Thickness	0.50		
Invert Elev	900.77		
Riser	9.11		
INV N	902.77	18" RCP	
INV W	902.77	18" RCP	

Structure No.	STS–225A		
Type	END SECT–CONC REINF 18IN		
Sta.	582+61.05 –176.66'L		
INV S	903.00	18" RCP	

Structure No.	STS–300A		
Type	INLET SPECIAL – TYPE 2 DOUBLE 84IN		
Grate Style	R–3295–2–VB		
Sta.	593+70.00 59.66'R		
Rim Elev	906.50		
Base Thickness	0.67		
Invert Elev	898.31		
H' Dist	6.90		
INV N	898.31	24" RCP	
INV SE	898.31	24" RCP	

Structure No.	STS–301A		
Type	INLET SPECIAL – TYPE 2 DOUBLE 84IN		
Grate Style	R–3295–2–VB		
Sta.	593+70.00 –64.42'L		
Rim Elev	907.29		
Base Thickness	0.67		
Invert Elev	898.93		
H' Dist	7.07		
INV S	898.93	24" RCP	
INV N	898.93	24" RCP	

Structure No.	STS–302		
Type	MANHOLE 60IN		
Grate Style	R–1733		
Sta.	593+70.00 –83.30'L		
Rim Elev	905.44		
Base Thickness	0.67		
Invert Elev	899.01		
Riser	5.14		
INV S	899.01	24" RCP	
INV E	900.68	18" RCP	
INV W	899.19	21" RCP	
INV N	899.01	15" RCP	

Structure No.	STS–302A		
Type	INLET CATCH BASIN		
Grate Style	R–4342		
Sta.	593+70.00 –102.00'L		
Rim Elev	902.70		
Base Thickness	0.50		
Invert Elev	899.10		
H' Dist	3.14		
INV S	899.10	15" RCP	

Structure No.	STS–303		
Type	MANHOLE 60IN		
Grate Style	R–1733		
Sta.	590+97.21 –83.27'L		
Rim Elev	906.70		
Base Thickness	0.67		
Invert Elev	900.28		
Riser	5.09		
INV W	900.28	21" RCP	
INV E	900.28	21" RCP	
INV N	900.28	15" RCP	

Structure No.	STS–303A		
Type	INLET CATCH BASIN		
Grate Style	R–4342		
Sta.	590+97.50 –102.00'L		
Rim Elev	904.01		
Base Thickness	0.50		
Invert Elev	900.41		
H' Dist	3.14		
INV S	900.41	15" RCP	

Structure No.	STS–304		
Type	MANHOLE 60IN		
Grate Style	R–1733		
Sta.	588+25.50 –83.25'L		
Rim Elev	907.03		
Base Thickness	0.67		
Invert Elev	901.37		
Riser	4.34		
INV S	903.59	18" RCP	
INV W	903.64	15" RCP	
INV E	901.37	21" RCP	

Structure No.	STS–304A		
Type	INLET – TYPE 2 DOUBLE		
Grate Style	R–3295–2–VB		
Sta.	588+25.00 –64.42'L		
Rim Elev	907.99		
Base Thickness	0.67		
Invert Elev	903.67		
H' Dist	3.74		
INV S	903.67	15" RCP	
INV N	903.67	18" RCP	

Structure No.	STS–304B		
Type	INLET – TYPE 2 DOUBLE		
Grate Style	R–3295–2–VB		
Sta.	588+25.00 24.42'R		
Rim Elev	908.03		
Base Thickness	0.67		
Invert Elev	904.03		
H' Dist	3.38		
INV N	904.03	15" RCP	

Structure No.	STS–305A		
Type	INLET – TYPE 2		
Grate Style	R–3067–V		
Sta.	586+75.00 –64.42'L		
Rim Elev	908.75		
Base Thickness	0.67		
Invert Elev	904.25		
H' Dist	3.88		
INV E	904.25	15" RCP	

Structure No.	STS–306		
Type	MANHOLE 48IN		
Grate Style	R–1733		
Sta.	595+11.16 –83.23'L		
Rim Elev	905.68		
Base Thickness	0.50		
Invert Elev	901.24		
Riser	3.19		
INV E	901.24	18" RCP	
INV W	901.24	18" RCP	

Structure No.	STS–307A		
Type	INLET SPECIAL – TYPE 2 60IN		
Grate Style	R–3067–V		
Sta.	596+32.24 –64.42'L		
Rim Elev	907.00		
Base Thickness	0.67		
Invert Elev	901.73		
H' Dist	4.10		
INV S	902.41	15" RCP	
INV W	901.73	18" RCP	
INV E	901.73	15" RCP	

Structure No.	STS–307B		
Type	INLET – TYPE 2		
Grate Style	R–3067–VB		
Sta.	596+54.98 35.42'R		
Rim Elev	906.82		
Base Thickness	0.67		
Invert Elev	902.82		
H' Dist	3.38		
INV N	902.82	15" RCP	

Structure No.	STS–308A		
Type	INLET SPECIAL – TYPE 2 48IN		
Grate Style	R–3067–V		
Sta.	597+72.23 –75.42'L		
Rim Elev	906.62		
Base Thickness	0.50		
Invert Elev	902.29		
H' Dist	3.22		
INV S	902.29	15" RCP	
INV W	902.29	15" RCP	

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Inlet and Manhole Summary - Storm

52nd Ave S - West of 63rd St S to 45th St S

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	50	4

Structure No.	STS–308B
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	597+85.00 24.42'R
Rim Elev	906.89
Base Thickness	0.67
Invert Elev	902.89
H' Dist	3.38
INV N	902.89 15" RCP

Structure No.	STS–309A
Type	INLET SPECIAL – TYPE 2 48IN
Grate Style	R–3067–VB
Sta.	600+70.00 30.19'R
Rim Elev	906.33
Base Thickness	0.50
Invert Elev	897.01
H' Dist	8.25
INV SW	897.01 21" RCP
INV N	897.01 21" RCP

Structure No.	STS–310
Type	MANHOLE 60IN
Grate Style	R–1955–1
Sta.	600+74.15 –65.77'L
Rim Elev	906.53
Base Thickness	0.67
Invert Elev	897.49
Riser	7.21
INV NW	901.71 15" RCP
INV E	897.49 21" RCP
INV S	897.49 21" RCP

Structure No.	STS–310A
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	600+62.90 –93.27'L
Rim Elev	905.83
Base Thickness	0.67
Invert Elev	901.83
H' Dist	3.38
INV SE	901.83 15" RCP

Structure No.	STS–311
Type	MANHOLE 60IN
Grate Style	R–1733
Sta.	603+14.63 –61.99'L
Rim Elev	904.94
Base Thickness	0.50
Invert Elev	898.45
Riser	5.16
INV E	898.45 21" RCP
INV W	898.45 21" RCP
INV S	900.05 15" RCP

Structure No.	STS–311A
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	603+14.29 –53.00'L
Rim Elev	906.01
Base Thickness	0.67
Invert Elev	900.11
H' Dist	5.28
INV S	901.82 15" RCP
INV N	900.11 15" RCP

Structure No.	STS–311B
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	603+14.29 35.62'R
Rim Elev	906.17
Base Thickness	0.67
Invert Elev	902.17
H' Dist	3.38
INV N	902.17 15" RCP

Structure No.	STS–312
Type	MANHOLE 48IN
Grate Style	R–1955–1
Sta.	606+77.97 –37.50'L
Rim Elev	906.65
Base Thickness	0.50
Invert Elev	899.91
Riser	4.99
INV E	900.14 18" RCP
INV W	899.91 21" RCP
INV N	899.91 15" RCP

Structure No.	STS–312A
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	606+79.00 –61.76'L
Rim Elev	903.63
Base Thickness	0.50
Invert Elev	900.03
H' Dist	3.14
INV S	900.03 15" RCP

Structure No.	STS–313
Type	MANHOLE 48IN
Grate Style	R–1955–1
Sta.	608+50.00 –36.00'L
Rim Elev	905.68
Base Thickness	0.50
Invert Elev	900.83
Riser	3.10
INV S	901.04 15" RCP
INV W	900.83 18" RCP
INV N	901.72 15" RCP

Structure No.	STS–313A
Type	INLET – TYPE 2
Grate Style	R–3067–VB
Sta.	608+50.00 –43.92'L
Rim Elev	905.75
Base Thickness	0.67
Invert Elev	901.75
H' Dist	3.38
INV S	901.75 15" RCP

Structure No.	STS–313B
Type	INLET – TYPE 2 DOUBLE
Grate Style	R–3295–2–VB
Sta.	608+50.00 55.92'R
Rim Elev	905.41
Base Thickness	0.67
Invert Elev	901.41
H' Dist	3.38
INV N	901.41 15" RCP

Structure No.	STS–401
Type	MANHOLE 48IN
Grate Style	R–1733
Sta.	579+51.77 57.28'R
Rim Elev	907.00
Base Thickness	0.50
Invert Elev	896.15
Riser	9.64
INV W	896.15 24" RCP
INV E	896.15 24" RCP
INV S	899.72 15" RCP

Structure No.	STS–401A
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	579+51.38 73.00'R
Rim Elev	903.40
Base Thickness	0.50
Invert Elev	899.80
H' Dist	3.14
INV N	899.80 15" RCP

Structure No.	STS–402
Type	MANHOLE 48IN
Grate Style	R–1733
Sta.	577+09.97 57.22'R
Rim Elev	906.51
Base Thickness	0.50
Invert Elev	896.63
Riser	8.67
INV W	896.63 24" RCP
INV E	896.63 24" RCP
INV S	899.82 15" RCP

Structure No.	STS–402A
Type	INLET CATCH BASIN
Grate Style	R–4342
Sta.	577+09.52 73.00'R
Rim Elev	903.50
Base Thickness	0.50
Invert Elev	899.90
H' Dist	3.14
INV N	899.90 15" RCP

Structure No.	STS–403
Type	MANHOLE 48IN
Grate Style	R–1733
Sta.	574+39.32 57.41'R
Rim Elev	904.54
Base Thickness	0.50
Invert Elev	897.16
Riser	6.17
INV W	897.16 24" RCP
INV E	897.16 24" RCP
INV N	901.90 15" RCP

Structure No.	STS–404
Type	MANHOLE 60IN
Grate Style	R–1733
Sta.	573+49.27 81.98'R
Rim Elev	906.44
Base Thickness	0.67
Invert Elev	897.35
Riser	7.80
INV E	897.35 24" RCP
INV S	897.38± 18" RCP

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Inlet and Manhole Summary - Storm

52nd Ave S - West of 63rd St S to 45th St S

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	**SU-8-984(164)**	**50**	**5**

ST Pipe Schedule			
Pipe	Description	Length	Slope
STS-1A to STS-1	12" RCP	27.42'	0.30%
STS-1B to STS-1A	12" RCP	72.92'	0.30%
STS-100 to EX 36" RCP	36" RCP	32.29'	0.10%
STS-101 to STS-100	15" RCP	227.23'	0.40%
STS-101A to STS-101	15" RCP	17.08'	0.40%
STS-101B to STS-101A	15" RCP	83.83'	0.40%
STS-102A to STS-100	36" x 23" RCPA	337.98'	0.20%
STS-102B to STS-102A	15" RCP	29.08'	0.40%
STS-102C to STS-102B	15" RCP	83.83'	0.40%
STS-103A to STS-102A	36" x 23" RCPA	218.41'	0.20%
STS-103B to STS-103A	18" RCP	30.28'	0.50%
STS-103C to STS-103B	15" RCP	74.50'	0.40%
STS-103D to STS-103C	15" RCP	98.36'	0.70%
STS-104 to STS-103A	29" x 18" RCPA	229.57'	0.20%
STS-104A to STS-104	15" RCP	21.84'	0.40%
STS-104B to STS-104A	15" RCP	84.48'	0.70%
STS-105 to STS-104	18" RCP	361.19'	0.40%
STS-105A to STS-105	15" RCP	13.56'	0.50%
STS-105B to STS-105	15" RCP	111.59'	0.40%
STS-105C to STS-105B	15" RCP	32.16'	0.80%
STS-201 to STS-200	54" RCP	121.79'	0.13%
STS-202 to STS-201	54" RCP	346.77'	0.13%
STS-203 to STS-202	54" RCP	400.04'	0.10%
STS-204 to STS-203	54" RCP	399.99'	0.10%
STS-205 to STS-204	48" RCP	119.31'	0.10%
STS-206A to STS-205	27" RCP	47.61'	0.50%
STS-207 to STS-206A	27" RCP	35.32'	0.40%
STS-208 to STS-207	27" RCP	154.97'	0.40%
STS-208A to STS-208	18" RCP	9.66'	0.40%
STS-208B to STS-208A	15" RCP	99.83'	0.40%
STS-208C to STS-208B	15" RCP	47.48'	0.70%
STS-209 to STS-208	24" RCP	175.01'	0.30%
STS-209A to STS-209	15" RCP	9.49'	0.40%
STS-209B to STS-209A	15" RCP	99.83'	0.60%
STS-210A to STS-209	21" RCP	234.86'	0.30%
STS-210B to STS-210A	15" RCP	20.06'	0.60%
STS-210C to STS-210B	15" RCP	88.89'	0.40%
STS-211 to STS-210A	15" RCP	356.87'	0.40%
STS-212 to STS-211	15" RCP	113.67'	0.40%
STS-212A to STS-212	15" RCP	109.24'	0.40%
STS-212B to STS-212	15" RCP	41.37'	1.00%
STS-213A to STS-205	48" RCP	116.45'	0.10%
STS-214 to STS-213A	42" RCP	197.69'	0.10%
STS-215 to STS-214	42" RCP	73.10'	0.14%
STS-215A to STS-215	15" RCP	14.58'	0.80%
STS-216A to STS-215	42" RCP	148.19'	0.10%
STS-216B to STS-216A	15" RCP	18.00'	0.50%
STS-216C to STS-216A	18" RCP	20.26'	0.40%
STS-216D to STS-216C	15" RCP	99.84'	0.40%
STS-216E to STS-216D	15" RCP	27.45'	0.40%

ST Pipe Schedule			
Pipe	Description	Length	Slope
STS-217 to STS-216A	42" RCP	439.77'	0.10%
STS-217A to STS-217	15" RCP	25.51'	0.70%
STS-218A to STS-217	36" RCP	95.23'	0.10%
STS-218B to STS-218A	24" RCP	26.56'	0.20%
STS-218C to STS-218B	18" RCP	88.83'	0.30%
STS-218D to STS-218C	15" RCP	46.15'	0.40%
STS-218E to STS-218D	15" RCP	60.41'	0.70%
STS-219A to STS-218A	36" RCP	370.00'	0.10%
STS-219B to STS-219A	15" RCP	26.08'	0.40%
STS-219C to STS-219B	15" RCP	123.49'	0.40%
STS-220A to STS-219A	27" RCP	195.17'	0.30%
STS-220B to STS-220A	15" RCP	31.24'	0.40%
STS-220C to STS-220B	15" RCP	99.83'	0.40%
STS-221 to STS-220A	24" RCP	269.94'	0.30%
STS-221A to STS-221	15" RCP	34.48'	0.70%
STS-221B to STS-221	15" RCP	8.00'	0.50%
STS-221C to STS-221B	15" RCP	99.83'	0.50%
STS-222 to STS-221	24" RCP	203.58'	0.30%
STS-222A to STS-222	15" RCP	13.30'	0.40%
STS-222B to STS-222	15" RCP	110.10'	0.40%
STS-223 to STS-222	24" RCP	245.43'	0.20%
STS-223A to STS-223	15" RCP	22.03'	0.70%
STS-224 to STS-223	21" RCP	116.16'	0.30%
STS-224A to STS-224	15" RCP	18.01'	0.70%
STS-224B to STS-224A	15" RCP	88.83'	0.40%
STS-225 to STS-224	18" RCP	238.07'	0.25%
STS-225A to STS-225	18" RCP	92.67'	0.25%
STS-300A to EX STS-501	24" RCP	35.78'	0.60%
STS-301A to STS-300A	24" RCP	124.08'	0.50%
STS-302 to STS-301A	24" RCP	18.88'	0.40%
STS-302A to STS-302	15" RCP	18.70'	0.50%
STS-303 to STS-302	21" RCP	272.79'	0.40%
STS-303A to STS-303	15" RCP	18.73'	0.70%
STS-304 to STS-303	21" RCP	271.70'	0.40%
STS-304A to STS-304	18" RCP	18.84'	0.40%
STS-304B to STS-304A	15" RCP	88.83'	0.40%
STS-305A to STS-304	15" RCP	151.68'	0.40%
STS-306 to STS-302	18" RCP	141.16'	0.40%
STS-307A to STS-306	18" RCP	122.53'	0.40%
STS-307B to STS-307A	15" RCP	102.39'	0.40%
STS-308A to STS-307A	15" RCP	140.43'	0.40%
STS-308B to STS-308A	15" RCP	100.65'	0.60%
STS-309A to EX STS-503	21" RCP	72.49'	0.60%
STS-310 to STS-309A	21" RCP	96.06'	0.50%
STS-310A to STS-310	15" RCP	29.71'	0.40%
STS-311 to STS-310	21" RCP	240.51'	0.40%
STS-311A to STS-311	15" RCP	9.00'	0.60%
STS-311B to STS-311A	15" RCP	88.62'	0.40%
STS-312 to STS-311	21" RCP	364.16'	0.40%
STS-312A to STS-312	15" RCP	24.29'	0.50%

ST Pipe Schedule			
Pipe	Description	Length	Slope
STS-313 to STS-312	18" RCP	172.04'	0.40%
STS-313A to STS-313	15" RCP	7.92'	0.40%
STS-313B to STS-313	15" RCP	91.92'	0.40%
STS-314A to EX 18" RCP	18" RCP	11.97'	0.17%
STS-401 to EX STS-400	24" RCP	155.95'	0.20%
STS-401A to STS-401	15" RCP	15.72'	0.50%
STS-402 to STS-401	24" RCP	241.80'	0.20%
STS-402A to STS-402	15" RCP	15.78'	0.50%
STS-403 to STS-221C	15" RCP	33.00'	0.40%
STS-403 to STS-402	24" RCP	270.65'	0.20%
STS-404 to STS-403	24" RCP	93.35'	0.20%
STS-405A to 36" CMP BEND	36" CMP	28.89'	0.30%
36" CMP BEND to EX 36" CMP	36" CMP	11.75'	0.30%

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Pipe Summary - Storm

52nd Ave S - West of 63rd St S to 45th St S

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-984(164)	50	6

Structure No.	EX SS-1
Type	MANHOLE RISER 48IN
Grate Style	R-1733
Sta.	572+78.67 -74.92'L
Rim Elev	908.35
Ex Rim Elev	906.43
Riser	1.92

Structure No.	EX SS-2
Type	MANHOLE RISER 48IN
Grate Style	R-1916-F
Sta.	595+26.93 58.68'R
Rim Elev	911.16
Ex Rim Elev	905.00
Riser	6.16

Structure No.	EX SS-3
Type	MANHOLE RISER 48IN
Grate Style	R-1916-F
Sta.	598+36.66 59.53'R
Rim Elev	910.29
Ex Rim Elev	904.95
Riser	5.34

Structure No.	EX SS-4
Type	MANHOLE RISER 48IN
Grate Style	R-1916-F
Sta.	602+42.14 69.10'R
Rim Elev	910.53
Ex Rim Elev	905.02
Riser	5.51

Structure No.	EX SS-5
Type	MANHOLE RISER 48IN
Grate Style	R-1916-F
Sta.	606+39.71 70.07'R
Rim Elev	909.64
Ex Rim Elev	904.93
Riser	4.71

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Manhole Summary - Sanitary

52nd Ave S - West of 63rd St S to 45th St S