

DESIGN DATA					JOB # 3 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION SU-8-992(040)041 Cass County Sheyenne Street Improvements - 40th Ave to 32nd Ave Grading, Aggregate Base, PCC Concrete Pavement, Storm Sewer, Sidewalk, Landscaping, Signing, Pavement Markings, Traffic Signals, Street Lighting, Watermain, Sanitary Sewer, Fiber Optic		STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.																									
Traffic	Average Daily			ND			SU-8-992(040)041	21569	1	1																										
Current 2017	Pass: 10,120	Trucks: 420	Total: 10,540																																	
Forecast 2040	Pass: 21,055	Trucks: 880	Total: 21,935																																	
Clear Zone Distance: 16 FT (5:1)		Design Speed: 40 MPH																																		
Minimum Sight Dist. for Stopping: 305 FT																																				
Sight Dist. for No Passing Zone: 600 FT																																				
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-8-992(040)041	1.18	1.18																											
<table><tr><td colspan="2">DESIGNERS</td></tr><tr><td>Kevin Knott, PE</td><td>Erik Gilbertson, PE</td></tr><tr><td>Tom Conlin, PE</td><td>Jon Morgenroth, PE</td></tr><tr><td>Alison Hanslip</td><td>Jordan Gerber, PE</td></tr><tr><td>Dylan Dunn</td><td>Alex Bossert, LA</td></tr><tr><td>Jeremy Melquist, PE</td><td>Samuel Trotman, PE</td></tr></table>					DESIGNERS		Kevin Knott, PE	Erik Gilbertson, PE	Tom Conlin, PE	Jon Morgenroth, PE	Alison Hanslip	Jordan Gerber, PE	Dylan Dunn	Alex Bossert, LA	Jeremy Melquist, PE	Samuel Trotman, PE	<table><tr><td colspan="2">APPROVED DATE 09/06/18</td><td rowspan="2">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.</td><td rowspan="2">This document was originally issued and sealed by Kevin J. Knott Registration Number PE- 5679, on 09/06/18 and the original document is stored at the City of West Fargo</td></tr><tr><td colspan="2">Dustin Scott, P.E. /s/ CITY ENGINEER, CITY OF WEST FARGO</td></tr><tr><td colspan="2">APPROVED DATE 09/06/18</td><td>APPROVED DATE 09/06/18</td><td></td></tr><tr><td colspan="2">Chris Brungardt /s/ PUBLIC WORKS DIRECTOR</td><td>Kevin Knott, P.E. /s/ MOORE ENGINEERING, INC.</td><td></td></tr></table>						APPROVED DATE 09/06/18		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.	This document was originally issued and sealed by Kevin J. Knott Registration Number PE- 5679, on 09/06/18 and the original document is stored at the City of West Fargo	Dustin Scott, P.E. /s/ CITY ENGINEER, CITY OF WEST FARGO		APPROVED DATE 09/06/18		APPROVED DATE 09/06/18		Chris Brungardt /s/ PUBLIC WORKS DIRECTOR		Kevin Knott, P.E. /s/ MOORE ENGINEERING, INC.	
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					STATE COUNTY MAP																															

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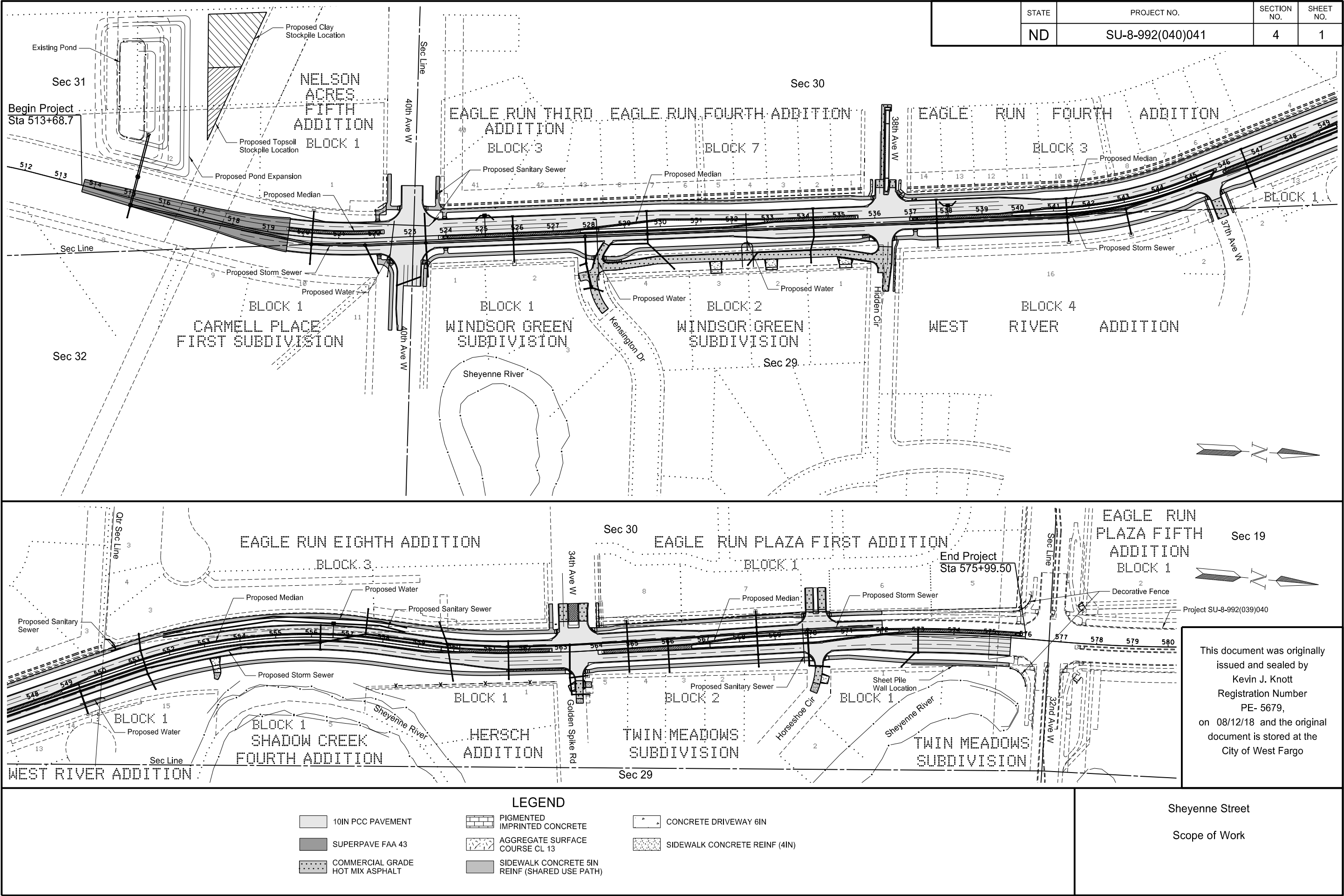
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SP 718(14)	Painting Over Galvanized Steel
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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100-P01 COMPLETION DATES:

Interim Completion Date No. 1: All Work from the south project limit at Station 513+65 to north of 40th Avenue at Station 523+36, except the 40th Avenue and Sheyenne Street NW and NE curb ramps and sidewalk.

Connect the 2 inch water service connection near Station 549+20 to allow abandoning of the Cass Rural Water line north of Station 522+05.

Interim Completion Date No. 1 is June 15, 2019. Liquidated damages will be assessed at a rate of \$4,000.00 for each calendar day that expires after June 15, 2019.

Interim Completion Date No. 2: All remaining Work is complete, except minor punch list items. All remaining Work includes installation of all water, sanitary sewer and storm sewer utilities, all work associated with the installation of the concrete pavement, curb and gutter, sidewalk, driveways and asphalt pavement, installation of pavement markings, traffic control signs, traffic signals and street lights, placement of topsoil, seeding, mulching, fertilizer and weed control.

Interim Completion Date No. 2 is October 5, 2019. Liquidated damages will be assessed per Specification 108.07.B for each calendar day that expires after October 5, 2019.

Interim Completion Date No. 3: All Work is complete, except for achieving Final Stabilization per ND Department of Health Construction General Permit NDR10-000 and removing all temporary erosion protection and sediment control devices. The Work remaining after Interim Completion Date No. 3 will be watering and mowing of vegetative cover until reaching Final Stabilization.

Interim Completion Date No. 3 is November 3, 2019. Liquidated damages will be assessed at a rate of \$850.00 for each calendar day that expires after November 3, 2019 until all Work for Interim Completion Date No. 3 is complete.

Final Completion: The project will be complete, including achieving Final Stabilization and the removal of all temporary erosion protection and sediment control devices.

Final Completion is June 15, 2020. Liquidated damages will be assessed at a rate of \$350.00 for each calendar day that expires after June 15, 2020.

Liquidated Damages: Liquidated damages for failing to timely attain any completion dates are not additive and will not be imposed concurrently.

100-P02 COORDINATION OF PROJECTS: Multiple projects will be occurring in the vicinity during the 2019 construction season. Coordinate scheduling, work activities and construction traffic control devices between projects. The following list summarizes the projects that may occur and are subject to change:

1. NDDOT Project IM-8-094(092)346, PCN 21570 – Interstate 94 and Sheyenne Street
2. NDDOT Project SU-8-992(039)040, PCN 21568 – Sheyenne Street - 32nd Ave to Beaton Drive (Abuts the end project location of SU-8-992(040)041 project)
3. NDDOT Project SU-8-984(164), PCN 22007 and City of Fargo project BN-19-A1 – 52nd Ave – 45th St to Sheyenne Street
4. West Fargo Improvement District Project 2244 – Sheyenne Street – Beaton Drive to 13th Ave

100-P03 WORKING HOURS: Monday through Saturday from 7:00 AM to 7:00 PM, unless otherwise noted. Sunday and holidays by permission only. Submit request to Engineer for approval a minimum of 48 hours in advance.

Working hour restrictions do not apply to relief sawing. Coordinate green sawing operations with City and provide notification to property owners.

105-200 UTILITY COORDINATION: A utility coordination meeting is required prior to the start of construction.

105-P01 UTILITIES: The vertical and horizontal utility locations shown in the plans are approximate. Plan locations should not be interpreted as exact for bidding or construction purposes.

105-P02 UTILITY COORDINATION: Coordinate work activities with utility companies to allow sufficient time to address utility conflicts. Prioritize utility coordination to accommodate project phasing. See Utility Conflict Summary Sheets provided as a Supplemental Design Data for the project.

105-P03 UTILITIES: Utility facilities are identified in the tables in Section 11. Adjust operations adjacent to these utility facilities to protect them as described in the Section 11 tables (See Comments column). Repair the damaged utilities, identified to remain in place, at the Contractor's expense. In addition to the Section 11 tables, utilities in conflict with the proposed work are identified in the Utility Conflict Summary Sheets. (Utility Conflict Summary Sheets do include utilities listed in the Section 11 tables that are identified to remain in place, as well.)

105-P04 PAVEMENT SWEEPING: Sweep the roadway adjacent to the construction area at the end of each day. 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 type sweeper to perform this work.

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NOTES

- 105-P02

WINDSOR GREEN WATER SYSTEM: The Windsor Green subdivision owns and operates a private water system which includes 2 wells and distribution lines. The location of the distribution lines are unknown. Work within Kensington Drive and the Frontage Road may encounter portions of this system. Prior to working within the Windsor Green subdivision, contact Moore Engineering Inc. for system ownership information. If the water system is in conflict with the proposed underground utilities, include all costs to relocate the existing water system in the price bid for “Adjust 3IN Watermain”. A quantity of 3 has been added for bidding purposes.
- 107-P01

MAINTAINING TRAFFIC –DROP-OFFS: If, at the end of the work-day, drop-offs greater than 2 inches and less than 18 inches or slopes steeper than 4:1 exist between the edge of a traffic lane and the outside edge of the proposed roadway, perform one of the following actions:

• Construct a traversable wedge in the area of the drop-off or steep slope; or

• Close the lane adjacent to the drop-off or steep slope and provide 24-hour flagging.

When constructing a wedge, construct a wedge composed of aggregate or earthen materials with a 4:1 or flatter slope along the entire length of the area. Compact materials using Type C compaction, as specified in 203.04 E.4, "Compaction Control Type C".

Install stackable vertical panels that meet the requirements of Section 704.03 H, "Stackable Vertical Panels", along the edge of the driving lane closest to the wedge.

The Engineer will measure stackable vertical panels as specified in Section 704.05, "Method of Measurement" and will pay for panels as specified in Section 704.06, "Basis of Payment".

The Engineer will not measure material used to construct the wedge. Include the cost of materials, equipment, labor, and incidentals required for this operation in the price bid for aggregate pay items.

If a 4:1 or flatter wedge is not installed, provide 24 hour flagging or pilot car operations and associated traffic control at no additional cost to the Department.

The requirements of Section 704.04 O, "Traffic Control for Uneven Pavement" apply to drop-offs created by milling or the placement of hot mix asphalt.
- 108-P01

WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required. Provide a suitable meeting facility. Have the room approved by the Engineer.
- 201-P01

REMOVAL OF TREES: Do not remove trees unless marked by the Engineer. Provide 48 hour advance notice to Engineer for tree marking.

- 201-P02

CLEARING & GRUBBING: Remove existing shrubs, bushes, wood mulch, landscaping rock, landscaping boulders, edging, landscaping fabric, concrete edging, and trim trees/shrubs located within the limits of construction. Coordinate with Engineer prior to removal or tree/shrub trimming. Include all costs for removals and tree trimming in the price bid for “Clearing & Grubbing”. The following locations have been identified for clearing and grubbing:

1. All trees less than 8” in diameter

2. Windsor Green subdivision sign, posts, footings, and landscaping at southeast corner of Sheyenne Street & Kensington Drive

3. Landscaping in the ditch along the east side of frontage road (Hidden Circle to Kensington Drive)

4. Landscaping around subdivision entrance on the west side of Sheyenne Street and 38th Avenue W

5. Hidden Acres subdivision sign, posts, and footings at 36th Avenue E

6. Wood retaining wall along driveway on north side of Golden Spike Road (3314 Meadow Way)

7. Trim trees and shrubs where indicated on the plans. Trim trees and shrubs (on right of way side only) to provide a vertical clearance of 12’ as measured from top of sidewalk.

202-P01

SALVAGE EXISTING FACILITIES: Salvage existing manhole castings and inlet castings. Deliver to City of West Fargo Public Works Building at 810 12th Street NW. Coordinate delivery with City of West Fargo Assistant Public Works Director Ryan James at 701-433-5400, a minimum of 24 hours in advance.

202-P02

REMOVAL OF STRUCTURE: Existing cleanout structures designated for removal consist of an 84” diameter manhole barrel with flat cover and aluminum hatch. Existing structures vary in depth from 12’ to 15’. Internal piping consists of two (2) 20”x10” PVC wyes with 10” plug valves extended towards the surface. The bottom the cleanout manhole is filled with concrete encasing the pipes. Remove entire structure and aggregate base. Include all costs to excavate, remove existing cleanout structure, dispose offsite, and backfill in the price bid for “Removal of Structure”.

202-P03

REMOVAL OF FOUNDATIONS-ALL SIZES: The above ground structure of the existing entrance shed for the Eagle Run Subdivision is to be removed by others. Remove existing entrance building footings, building slab, flag poles (3) and foundations, and fencing located at Sta. 536+30, 85’ Lt. Remove fencing between concrete walls and building. When removing fence, protect existing stucco walls and repair all damage to stucco wall to the satisfaction of the Engineer. Include all costs to remove foundations, flag poles, concrete slab, fencing, dispose offsite, and backfill in the price bid for “Removal of Foundations-All Sizes”.

202-P04

REMOVAL OF AGGREGATE SURFACING AND BASE: Removal of aggregate surfacing at approaches and aggregate base for streets, sidewalks, and driveways to be included in the price bid for “Common Excavation – Type A”.
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- 202-P05 PLUG PIPE–ALL TYPES & SIZES: Abandon existing pipe where indicated on the plans. Fill the entire abandoned pipe with 3,000 psi sanded grout, placed in such a manner as to fill the entire pipe with no cavities. Include all work associated with abandoning the existing pipe in the price bid for “Plug Pipe-All Types & Sizes”. Below is a summary of the locations:

1. 15” storm sewer along frontage road from Sta. 535+33 – 114’ Rt. to 536+05 – 112’ Rt.

2. 16” water main from Sta. 552+06 – 59’ Lt. to 558+52 – 47’ Lt.

3. 20” sanitary sewer force main from Sta. 552+03 – 53’ Lt. to 558+48 – 36’ Lt.
- 202-P06 REMOVE EXISTING FENCE: Install new fencing at 104 Golden Spike Road prior to removal of existing fence. Remove all fence as shown on the plans. Dispose of existing 72” vinyl fence. Salvage and stockpile existing 42” fence at a location determined by the property owner. Dispose of excess fence if requested by property owner. Include all costs to remove, dispose, or salvage and stockpile the existing vinyl fencing in the price bid for “Remove Existing Fence”.
- 203-010 SHRINKAGE: 25 percent additional volume is included for shrinkage in earth embankment.
- 203-385 AVERAGE HAUL: No average haul has been computed for this project.
- 203-P01 CONTRACTOR FURNISHED PROCTORS: Determine the optimum moisture and density, as specified in ND T 99, for each type of earth material encountered that requires compaction control. In addition, determine the optimum moisture and density, as specified in ND T 180, for granular material to be used as pipe backfill. Perform a multi-point test using a minimum of 4 points. Submit the results to the Engineer along with a split sample of each material. The Engineer will perform comparison tests using the same procedure on the split sample. Use the Engineer’s results for determining in place density of material.
- 203-P02 COMPACTION AND DENSITY CONTROL: Compact material as specified in Section 203.04 E.2.b, “ND T-99”. Compact embankment material to 95% of the maximum dry density with moisture content no less than optimum moisture and no more than 5.0 percentage points above the optimum moisture.
- 203-P03 TESTING FREQUENCY: Embankment will be tested per the frequency listed below.

Compaction Curve:

Density and Moisture:

1 for each change in soil

1 test per 350 feet of roadway per 12” lift,

1 test per city block per 12” lift,

or 1 test per 500 cubic yards of fill
- 203-P04 COMMON EXCAVATION-SUBCUT: A quantity of 1,500 CY has been included to be used as directed by the Engineer.
- 203-P05 REMOVE & SALVAGE TOPSOIL: Relocate the existing topsoil stockpile to the proposed topsoil stockpile. Include all cost for labor and equipment to complete the work in the price bid for “Remove & Salvage Topsoil”.
- 203-P06 EXCESS CLAY AND TOPSOIL MATERIAL: Stockpile excess suitable clay and topsoil in designated areas. Include all cost for labor and equipment to complete the work in the price bid for “Common Excavation – Type A”.

- 216-P01 WATER FOR GRASS ESTABLISHMENT: Immediately begin watering all seeded and mulched areas to provide a minimum of 1.0 inch depth of moisture per week, no more than 2 times per week, until Final Stabilization per ND Department of Health Construction General Permit NDR10-000. Water only during early morning hours to avoid excessive evaporation. Reduce water as necessary to account for rainfall during each week. Provide the Engineer weekly reports of watering operations including dates, times and quantity of watering or rainfall amounts to indicate minimum moisture is being obtained. Include all cost for labor, equipment, and water to complete the work in the price bid for “Water”.
- 230-P01 SUBGRADE PREPARATION: Scarify and recompact subgrade areas under the roadway section to a depth of 6 inches.

Proof roll all pavement subgrades prior to aggregate placement, along all travel lanes to verify the uniformity of the underlying subgrade throughout the roadway section and to check for the presence of localized soft or weak zones. Perform proof roll under the observation of the engineer with a fully loaded, tandem axle dump truck with a weight of approximately 25 tons or an approved equal. Proof roll at a vehicle speed of between 1 1/2 and 3 miles per hour along the pavement subgrades such that unrolled areas between wheel paths are not wider than 1 foot. Limit yielding to less than 1 1/2-inches for pavement subgrades, provided the underlying subgrade does not display permanent deformation. Correct areas that display excessive yielding, pumping or rutting during the proof roll. Repeat proof roll procedures until accepted by the Engineer.

All costs associated with scarifying, recompactng, and proof rolling the subgrade are to be included in the price bid for “Subgrade Preparation-Type A”.
- 251-P02 SEEDING CLASS III: Seed disturbed ground. Apply hydraulic-mulch or bonded fiber matrix after the seed is drilled into the topsoil. Use a seed mixture as follows:

Species	Pounds Live Seed/Acre
Kentucky Bluegrass	120
Perennial Ryegrass	60
Durahard Fescue	20

Prior to seeding, wait manufactured recommended time. Use fertilizer mixture of 5-10-5 applied at a rate of 50 pounds per acre. Water until grass is established as determined by the Engineer. All cost for labor, equipment, fertilizer, and materials necessary to complete the work included in the price bid for “Seeding Class III”.
- 302-110 BASE COURSE: Trim base course as specified in Section 302.04 C.1, "Surface Tolerance Type B."
- 302-P01 AGGREGATE BASE COURSE FOR SUBCUT REPAIRS: Aggregate used in subcut repairs is subject to the requirements of 302.04 B. A quantity of 1,500 CY has been included to be used as directed by the Engineer. Aggregate used in subcut repairs will be paid for at the contract unit price for “Aggregate Base Course CI 5”.

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302-P02 TYPE II PIPE BEDDING: Use Type 2 Pipe Bedding as directed by the Engineer to replace soft, spongy, or other unsuitable material encountered in the trench bottom when installing sanitary sewer, storm drain, or water main. Type 2 bedding material consists of 1” to 2” washed rock. Provide dewatering as necessary according to site conditions. Include all costs associated with dewatering, excavation, and disposal of unsuitable material in the price bid for “Type II Pipe Bedding”. A quantity has been provided in the plans that represents 25% of the overall storm drain pipe length.

302-P03 AGGREGATE BASE COURSE CL 5: Meet the gradation as shown in specification Section 816 for Aggregate Base Course CL 5, revising Percent Passing for No. 200 sieve as follows:

Sieve Size	Percent Passing
No. 200	6-10

302-P04 AGGREGATE BASE: Proof roll all aggregate bases prior to paving along all travel lanes to verify the uniformity of the underlying base throughout the roadway section and to check for the presence of localized soft or weak zones. Perform proof roll under the observation of the Engineer with a fully loaded, tandem axle dump truck with a weight of approximately 25 tons or an approved equal. Proof roll at a vehicle speed of between 1 1/2 and 3 miles per hour along the aggregate base such that unrolled areas between wheel paths are not wider than 1 foot. Limit yielding less than 1/2-inches for aggregate bases, provided the aggregate base does not display permanent deformation. Correct areas that display excessive yielding, pumping or rutting during the proof roll. Repeat proof roll procedures until accepted by the engineer.

Include all costs associated with proof rolling the aggregate base in the price bid for “Aggregate Base Course CL5”.

306-P05 FULL DEPTH RECLAMATION: Reclaim existing asphalt pavements full depth in locations shown to be removed in Section 40 plan sheets.

Existing aggregate base material under the asphalt pavement can be blended into the reclaimed material. Reclaimed material to become the property of the Owner and delivered to City of West Fargo Public Works Building at 810 12th Street NW. Coordinate delivery with City of West Fargo Assistant Public Works Director Ryan James at 701-433-5400 a minimum of 24 hours in advance. Include all costs for labor and equipment necessary to complete full depth reclamation operations, include hauling and delivery of the reclaimed material, in the price bid for “Full Depth Reclamation”.

550-P01 SLIP FORM PAVING: All main line concrete pavement is to be placed with a slip form paver as specified in specification Section 155.

550-P02 CONCRETE PAVEMENT: Waive the minimum 28 day coring requirement per Standard 550.04 N.1. Cores may be taken after concrete design strength has been reached as approved by the Engineer.

704-P01 TRAFFIC CONTROL: Maintain access at all times. Utilize Standard Drawing list and Section 100 plan sheets for all Traffic Control. Any alterations require the Engineer’s approval a minimum of 2 weeks prior to implementing.

704-P02 TRAFFIC CONTROL PHASING: See Section 100 plan sheets, “Work Zone Traffic Control” for overview and detailed layouts of the construction phasing plan. Any alterations require the Engineer’s approval a minimum of 2 weeks prior to implementing.

- Phase 1
- Close Sheyenne Street to all through traffic from Station 576+25 south of 32nd Avenue to South River Estates Way. Contractor will maintain access points for residents’ properties as detailed in Section 100 plan sheets.
 - Complete all work indicated in Interim Completion Date No. 1 prior to changing to Phase 2 traffic control.
 - Construct all available improvements along Sheyenne Street from 40th Avenue to 32nd Avenue while still maintaining access as shown in Section 100 Phase 1 Traffic Control Detour. This work can continue into Phase 2 traffic control.

- Phase 2
- Open Sheyenne Street to all through traffic south of Station 523+90. Open 40th Avenue intersection to south bound, west bound, and east bound traffic. Sheyenne Street between 40th Avenue and 32nd Avenue to remain closed to through traffic.
 - Construct all remaining Work. Maintain access points for residents’ properties as detailed in Section 100 plan sheets.

704-P03 TRAFFIC CONTROL DEVICES: The traffic control devices list for each phase has been developed using traffic control sign layouts (shown in Section 100) and Standard Drawings as listed below:

D-704-04 Work Zone Business Sign Detail
D-704-07, 8, 9, 10: Are applicable.
D-704-13, 14: Are applicable.
D-704-21 Type I for detour sign layout
D-704-26: Type EE and GG for maintaining temporary access.
D-704-51: Portable precast concrete median barriers.

Maintain a minimum 11 foot wide lane at all times.

704-P04 PORTABLE CHANGEABLE MESSAGE SIGN: Install up to six (6) Portable Changeable Message Signs (PCMS) around the project perimeter 2 weeks prior to commencing each Phase of work. 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. Program the message within one hour of the Engineer's request to change the message.

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- 704-P05 TRAVERSABLE DRIVING SURFACE: To facilitate traffic during different phases of construction a traversable driving surface is required where indicated. A traversable surface may be defined as the existing roadway surface, completed concrete roadway surface, completed asphalt wear course surface, completed asphalt base course surface, or an aggregate surface a minimum of 6 inches in depth.
- 704-P06 FRONTAGE ROAD ACCESS: Construct the Winsor Green frontage road in two phases, from Sta. 5+15 to 9+20 and Sta. 9+20 to 13+00. Maintain residents' access to homes with a traversable driving surface.
- 704-P07 MAINTAINING ACCESS: Maintain a traversable driving surface for two way traffic at all times for residents and Triumph Lutheran Church properties along the East side of Sheyenne Street. Maintain access to Twin Meadows and Hersch Addition from either Horeseshoe Circle or Golden Spike Road. Do not route traffic through the frontage road of the Eagle Run Plaza First Addition at any time. Maintain access to West River Addition, West River Second Addition, Borderud, and Windsor Green from either 37th Avenue East, Hidden Circle, or Kensington Drive. An additional quantity of 200 delineator drums has been provided to maintain traffic throughout each of the construction phases. Additional signing for changing roadway surfaces, per Standard Detail 704-26 Layout EE and GG, have been accounted for in Section 100 to be used at the Engineers discretion.
- 704-P08 PEDESTRIAN STREET CROSSING: Provide and maintain ADA compliant pedestrian crossing, per Standard Drawings D-750-1 and D-750-2, for Sheyenne Street at 40th Avenue for all phases, as shown in Section 100 plan sheets. Walking surface may be any of the following: maintained existing roadway surface, temporary asphalt surface, or newly constructed roadway surface. Gravel surface is not allowed.
- 704-P09 PORTABLE PRECAST CONCRETE MED BARRIERS: Place precast concrete median barriers, as described in standard detail D704-51, to protect crosswalk at intersection of Sheyenne Street and 40th Avenue, as shown in Section 100 plan sheets. Include all costs for installing, adjusting through phases, and removing at end of project in the unit price bid for "Portable precast concrete Med Barrier".
- 704-P10 WORK ZONE BUISNESS SIGNS: Work zone business way finder signs have been provided and shown in Section 100 for Tesoro, Dairy Queen, Town & Country Credit Union, and Eagle Run Plaza. Any additional business signs needed throughout the construction of the project will be developed in accordance with Standard Detail D-704-4. Exact sign location and names will be determined by the Engineer prior to installation. Include all costs for creating, installing, adjusting by phase, and removing work zone business signs at end of project in the price bid for "Traffic Control Signs".
- 708-P01 INLET PROTECTION SPECIAL: Place inlet protection into inlets. Inlet Protection Special to be Flexstorm Catch It by Inlet Pipe Protection Inc., Siltsack Type C by ACF Environmental, or approved Equal. Include all costs for furnishing, installing, maintaining (cleaning), and replacing damaged devices in the bid price for "Inlet Protection Special". Keep all installed devices in place until the turf has been established. If the turf has not been established by November 3rd, remove all installed devices in the street section that have potential to cause damage to snow removal equipment. Reinstall these devices in the spring as directed by the Engineer. No additional compensation will be provided as this work is considered normal maintenance.

- 714-P01 CONCRETE PIPE TIES: Concrete pipe runs from drainage structure (i.e. inlet, manhole, etc.) to end section to have concrete pipe ties placed on all joints including the end section. Pipe ties are not required for concrete pipe placed from drainage structure to drainage structure.
- 714-P02 STORM DRAINS AND CULVERTS: Provide bell and spigot with rubber gasket joints for reinforced concrete pipe storm drain.
- Concrete pipe runs from drainage structure (i.e. inlet, manhole, etc.) to end section to have concrete pipe ties placed on all joints including the end section. Pipe ties are not required for concrete pipe placed from drainage structure to drainage structure.
- Install all storm drain pipe crossings of roadways by means of open trenching. Shoring will be required to install proposed storm drain pipe, inlets, manholes, and catch basins. Shoring locations to be agreed upon by Contractor and Engineer. Include all costs for shoring in the price bid for other storm drain items.
- 722-100 INLETS AND MANHOLES: Inlets and manholes were designed with a minimum 4 foot riser height. Fill the bottom of each drainage structure with concrete, up to the lowest invert elevation.
- 722-P01 INLETS AND MANHOLE OFFSETS: All inlet and manhole offsets indicated in Section 50, Inlet and Manhole Summary, are to the center of structure. For Inlet Special structures, cast opening in center of cover.
- 722-P02 MANHOLE CASTINGS: Manhole castings to be installed are as follows. Storm drain castings will have open pickholes and "Storm Sewer" lettering. Sanitary sewer castings will have two closed pickholes, gaskets, and "Sanitary Sewer" lettering.
- Grass or Asphalt Pavement:
- a) Neenah R-1733
 - b) East Jordan Iron Works 1205 (Storm Drain)
 - c) East Jordan Iron Works 1205 A.G.S. (Sanitary Sewer)
 - d) Approved Equal
- Concrete Pavement:
- a) Neenah R-1955-1
 - b) East Jordan Iron Works 3025 SELFLEVEL
 - c) Approved Equal

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722-P03	<p>INLET CASTINGS: Inlet castings to be installed in curb and gutter, grass, or outside of pavement are as follows:</p> <p><u>Grass or Outside Pavement:</u></p> <ul style="list-style-type: none"> a) Neenah R-2577 with Convex Casting Grate b) East Jordan Iron Works 1205-M2 with Convex Casting Grate c) Approved Equal <p><u>Curb & Gutter:</u></p> <ul style="list-style-type: none"> a) Neenah R-3067-C with 2” Radius Open Curb Box b) East Jordan Iron Works 7030-M2 with T1 Back c) Approved Equal <p><u>Maintenance Manholes:</u></p> <ul style="list-style-type: none"> a) Neenah R-1792-HL b) East Jordan Iron Works V1610-6 c) Approved Equal 	722-P10	<p>STORM MANHOLES: Storm sewer manholes to include external chimney seals by Cretex Specialty Products, Strike Products, or Sealing Systems Inc. Provide steps in the bottom section only.</p>		
		722-P11	<p>INLET SPECIAL GATE STRUCTURE: Install weir wall with canal gate in inlet as shown in the plans. Submit work drawings to the Engineer for approval prior to construction. Allow two (2) weeks for Engineer review. The location of installation is Inlet 400A which is located east of the proposed detention pond.</p> <p>Canal gate to be mounted to weir wall, aluminum frame and cover. Non-rising operating nut on stainless steel stem to allow for operation of gate from the top of the inlet structure.</p> <p>Approved Manufacturers and Models</p> <ol style="list-style-type: none"> 1. Waterman Valve, LLC: AC-31 2. Whipps, Inc.: Series 800 3. Approved equal 		
722-P04	CITY OF WEST FARGO SPECIFICATIONS: Refer to Special Provision 724(14) for specifications regarding sanitary sewer and water main items.		Include all costs for the inlet (base, riser, and cover), weir wall, canal gate, reinforcing steel, castings, grates, adjustment rings, trench excavation, aggregate base, and backfill in the price bid for “Inlet Special Catch Basin-Type A 96IN”.		
722-P05	MANHOLE CASTING: Remove and replace existing manhole castings to be located within proposed concrete paving with floating castings where indicated on the drawings. Include all labor, materials, and equipment to remove and salvage the existing casting, remove/add adjusting rings, and install new casting in the price bid for “Manhole Casting”.	724-P01	RELOCATE GATE VALVE BOX: Set top of existing gate valve boxes to final grade at their existing location by installing new risers. Adjustments greater than 6” were assumed to require a new riser. Existing rural water valve box at Sta. 522+07 – 23’ Lt. will be replaced in its entirety per the detail in Section 20. Include all labor, materials, and equipment necessary to complete the modifications and/or replacements to existing gate valve boxes in the price bid for “Relocate Gate Valve Box”.		
722-P06	MANHOLE REPAIR: Adjust existing manholes to final grade by means beyond adding or removing adjusting rings. Include all labor, materials, and equipment necessary to complete the modification to the existing manholes in the price bid for “Manhole Repair”.				
722-P07	ADJUST GATE VALVE BOX: Adjust top of existing gate valve boxes to final grade by adjusting existing risers. A maximum adjustment of 6” was assumed attainable using existing risers. Include all labor, materials, and equipment necessary to complete the adjustments to the existing gate valve boxes in the price bid for “Adjust Gate Valve Box”.	724-P02	ADJUST HYDRANT: Adjust hydrant to final grade by adding or removing riser pipe. Adjustments less than 6” were assumed to not require adjustment. Provide a minimum distance between nozzle and ground of 24” and a maximum distance of 30”. Wrap hydrant risers with 8-mil polyethylene plastic and securely tape. Include all labor, materials, and equipment necessary to complete the adjustments to the existing hydrants in the price bid for “Adjust Hydrant”.		
722-P08	MANHOLE STORM CONNECTION: All connections to existing storm sewer or sanitary sewer involves cutting existing structures. Saw storm sewer opening, install pipe and mortar closed. Core sanitary sewer opening, install rubber boot, and install pipe. Include all labor and materials required to perform this work in the price bid for storm drain bid items.	724-P03	EXISTING SANITARY SEWER FORCE MAIN: Keep the existing sanitary force mains in service until the new sanitary force main pipe is installed, tested, and ready for service. Only temporarily remove the existing force mains from operation for a limited time to make any connection. One to two (1-2) hour time limit allowable for the existing force main shut down. Utilize overnight / off peak work hours to allow sufficient shut down time to make reconnections. Closely coordinate all sanitary force main outages with the Engineer and City of West Fargo. Contact the Engineer and the City of West Fargo Assistant Public Works Director Ryan James – 701-433-5400 at least 48 hours prior to any shutdown.		
722-P09	<p>8FT X 6FT RCB CULVERT MANHOLE: Sewer Maintenance Manholes will require precast reinforced concrete box culvert manhole with base and cover as show in the plans. Prior to construction, verify depth of existing force main locations and provide information to Engineer. Engineer will adjust structure vertical dimensions based on verification. Submit work drawings to the Engineer for approval prior to construction. The location of installations are identified as MM1, MM2, and MM3.</p> <p>Include all costs for the RCB culvert manhole riser, manhole base, manhole covers, casting, all interior items including piping, pipe supports, fittings, tees, knife gate valve and valve box, air valve, vent piping, trench excavation, aggregate base, and backfill, as indicated in Sewer Maintenance Manhole Detail in the price bid for “8FT X 6FT RCB Culvert Manhole”.</p>		Contractor to provide an operations plan for any shut down longer than 2 hours in duration. Submit operation plan to Engineer a minimum of 2 weeks before shut down for approval.	<p>This document was originally issued and sealed by Erik Gilbertson Registration Number PE-5581, on 09/06/2018 and the original document is stored at the City of West Fargo</p>	

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- 724-P04

EXISTING WATER MAIN: Notify the Engineer and City of West Fargo Assistant Public Works Director Ryan James – 701-433-5400 at least 48 hours prior to any shutdown. Contact the City to locate necessary gate valves and to have the city shut appropriate valves after discussion with the Engineer and the City. Notify any home or business 24 hours before disruption of the water service. If the disruption lasts more than 4 hours, provide temporary water connections to the affected home or business. No overnight disruptions can occur without temporary water connections.
- 724-P05

RELOCATE WATERMAIN: When existing water mains are in conflict with the proposed storm sewer, relocate the water main. Include all materials (pipe, fittings, restraints, and sleeves), equipment and labor necessary to remove the existing pipe and adjust the water main as shown on the detail, in the price bid for “Relocate Watermain”.
- 724-P06

SPRINKLER RELOCATION: Existing irrigation systems are located within the project limits. Remove and reset irrigation systems to the right of way line. Repair damaged pipe and sprinkler heads. The locations of existing known irrigation systems are listed below:

• 3324 Sheyenne Street (Dairy Queen)

• 3342 Sheyenne Street (Town & Country Credit Union)

• 104 Golden Spike Road

Include all labor, material, and equipment necessary to remove existing sprinkler systems to outside of the right of way in the price bid for “Sprinkler Relocation”.

724-P07

CASS RURAL WATER DISTRICT: Existing Cass Rural Water District water mains are located within the project limits. These water mains are scheduled for abandonment prior to construction for Sheyenne Street.

Existing properties at 104 Golden Spike Road and 110 Golden Spike Road are currently served by a 2” Cass Rural Water District water main located in Sheyenne Street. These properties are responsible for connecting to the existing city water main. If the connections are not executed prior to abandonment of the 2” Cass Rural Water line identified in Phase 1, provide temporary water service to each property. Flush, disinfect, and bacteria test temporary water lines prior to activation in accordance with North Dakota Department of Health regulations. Include all labor, material, and equipment necessary to install, disinfect, maintain, and remove temporary water lines in the price bid for “Temporary Water Service”.

The Cass Rural Water District water main located south of 40th Avenue is scheduled to be abandoned by the district. If the main is not abandoned prior to underground work in this area, install one 2” - 90^o Bend and adjust the vertical alignment of the main as needed to maintain water service to the Carmel Place Subdivision. All work associated with maintaining service for Cass Rural Water District to be included in the price bid for “Relocate Watermain”, “Fittings – Ductile Iron”, and/or “Relocate Gate Valve Box”.

748-P01

CURB AND GUTTER: Construct curb and gutter in accordance with the details in Section 20 of the plans. All roadway curb and gutter types shown in the plans, High Back Curb and Gutter and Knockdown Curb and Gutter will be included in the price bid for “Curb and Gutter Type I 30IN”.
- 750-P01

DRIVEWAYS: Driveways to be the thickness as indicated in Section 90 plan sheets and constructed in accordance with the detail in Section 20 plan sheets. All driveways are to be reinforced with No. 4 bars @ 24" on center both ways, placed mid-depth in the slab. All driveways are to be tied to existing curb and gutter or existing sidewalk by use of keyways or No. 4 x 12" dowel bars placed mid depth at 24” on center. All joints are to be sawed.

Include all costs for the labor, equipment, and material necessary to construct the driveways in the price bid for “Driveway Concrete 6in Reinforced”.

750-P02

SIDEWALKS: Sidewalks to be the thickness as indicated in Section 90 plan sheets and constructed in accordance with the detail in Section 20 plan sheets. Reinforce all sidewalks with a No. 4 deformed reinforcing bar placed 24 inches on center both ways. Include an 18 inch minimum lap at splice locations. Use plastic chairs to support the bars at mid-depth of the slab and ensure a clearance of 3 inches to all side forms.

Saw a centerline longitudinal joint on concrete sidewalk greater than 8 feet in width. Saw all longitudinal and transverse contraction joints. Saw joints in a timely manner to prevent any uncontrolled random cracking. If random cracking occurs, remove and replace all damaged panels at the contractor’s expense.

All sidewalk ramps to be 6” thick for a minimum of 6’ or to top of ramp, whichever is longer from existing curb and to be tied to curb and gutter with No. 4 x 12” epoxy coated rebar placed mid depth at 18” on center.

Include all costs for the labor, equipment, and material necessary to construct the sidewalks in the price bid for “Sidewalk Concrete Reinf” and “Sidewalk Concrete 5in Reinf”.

750-P03

DETECTABLE WARNING PANELS: Provide composite materials and yellow in color as specified in Section 885 of the Specification.

750-P04

CONCRETE MEDIAN NOSE PAVING: Apply retroreflective yellow epoxy pavement marking paint, unless otherwise noted as white in Section 120, to all proposed concrete median noses. Clean surface of all contamination including oil, dirt, grease, and curing compound prior to applying epoxy paint. Cleaning can be accomplished by sandblasting, waterblasting, or any other non-destructive process that is approved by the Engineer. Epoxy paint to meet the requirements of Section 762. Include all labor, materials, and equipment necessary to complete the application of epoxy pavement marking to median noses in the price bid for “Concrete Median Nose Paving”.
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- 750-P05

PIGMENTED IMPRINTED CONCRETE: Develop a mix design using any size coarse aggregate specified in specification 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/>;

2.

Number 61078 Adobe, produced by Davis Colors <http://www.daviscolors.com/>;

When pigmented imprinted concrete abuts existing pigmented imprinted concrete, match existing color and pattern. Provide color and pattern sample to Engineer for approval.

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 an Ashlar Slate pattern.

Cure concrete using curing compound that meets the requirements of ASTM C 309, Type 1. Provide a cure from the list below or provide an approved equal. To be considered an approved equal, the cure must have a minimum of 25% acrylic solids.

1.

Clear Guard® Cure and Seal by Butterfield Color

2.

Dress & Seal 30™ by L&M Construction Chemicals

Reinforce the pigmented imprinted concrete as shown in Section 20 plan sheets.

Dowel the concrete into the adjacent concrete curb and gutter.
- 752-P01

ORNAMENTAL FENCE: Fence is to be White color and 6’ in height. Fence to be designed and installed per manufacturer’s recommendations and to withstand Miami/Dade County 110 mph steady wind and 130 mph gusting wind tests. Provide fence from list below.

1.

Chesterfield with CertaGrain Texture (as manufactured by CertainTeed Corporation)

2.

Performance Privacy (as manufactured by Ply Gem)

3.

Approved equal

Furnish manufacturer’s 5-year warranty to cover all material defects. Warranty to include all labor, equipment and replacement materials. All costs necessary to complete the work included in the price bid for “Ornamental Fence”.
- 754-P01

FLAT SHEET FOR SIGNS: Flat Sheet For Signs-Type XI Refl Sheeting to be 3M Diamond Grade (DG3). Flat Sheet For Signs-Type IV Refl Sheeting to be 3M High Intensity Prismatic Reflective.

- 754-P02

REMOVE SIGNS & SUPPORTS: Salvage street signs, sign panels, and surface mounted breakaway bases. Deliver to the City of West Fargo Sign Shop at 327L 34th Avenue East. Coordinate delivery with City of West Fargo Assistant Public Works Director Ryan James at 701-433-5400 a minimum of 24 hours in advance. All remaining signs and supports not to be reset will become the property of the Contractor.

Include all costs to remove and deliver signs and supports in the price bid for “Flat Sheet for Signs-Type __ Refl Sheeting” and “Steel Galv Posts-Telescoping Perforated Tube”.
- 762-050

PAVEMENT MARKING: If the Engineer and Contractor agree, plan quantity will be used as the measurement for payment for pavement marking items.
- 766-P01

MAILBOX-ALL TYPES: Remove and salvage existing mailboxes as indicated on the plans. Provide temporary mailboxes outside of construction limits. Following construction, reset mailboxes. Notify the affected landowner and the US Postal Service a minimum of 5 business days before mailboxes are moved. Coordinate final location of mailboxes with US Postal Service. Include all labor, materials, and equipment to remove and reset existing mailboxes and provide temporary mailboxes in the price bid for “Mailbox-All Types”.

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SECTION 140

- 770-P01 CONCRETE FOUNDATION-HIGHWAY LIGHTING: Supply concrete foundations for conventional and decorative street lighting with breakaway bases with 4 anchor bolts, not 6 anchor bolts as shown in D-770-1 for cantilevered structures, or as required by the manufacturer. Duct seal conduit in the foundation. Provide spare conduit sweep where only one conduit is run to base. Provide mouse guard, Xcluder light pole gasket 2800g, 162728, or equal.
- 770-P02 TEMPORARY LIGHTING: Provide all intersections with temporary traffic signal systems with temporary lighting. Provide a minimum of two 250W HPS (or LED equivalent) luminaires at opposite corners of the intersection. Obtaining power is the responsibility of the contractor. Include costs associated with temporary lighting in the bid price for “Lighting System A”.
- 770-P03 RELOCATE WOOD LIGHT POLE: Existing temporary wood signal/light poles currently at the 32nd Avenue intersection are to be reused for lighting south of 40nd Avenue on an interim basis (until that section of roadway is reconstructed) as shown on the plans. Reuse mast arms for mounting the luminaires. Reuse conventional LED luminaires. Relocate the existing wood poles when no longer needed for the existing temporary lighting system adjacent to the 32nd Ave intersection. Include costs associated with relocating the wood poles and providing interim lighting in the bid price for “Lighting System A”.
- 770-P04 ORNAMENTAL LIGHT STANDARD 14FT MT HT (type CC): Provide a City of West Fargo style, 14 foot height, cast aluminum light post, with a 12” diameter base and 4” diameter fluted shaft. Finish to be verde green. Provide a large hand hole. Provide 3/4” diameter anchors with (2) nuts and (2) washers per anchor minimum. Pole to be by Holophane, Niland, or equal. Provide a classically curved base design matching Holophane Mount Vernon series style post. Meet requirements of NDDOT specification 895.05. Include costs associated with the light standard in the bid price for “Lighting System A”.
- 770-P05 ORNAMENTAL LIGHT STANDARD – 30 FT: Provide Millerbernd, Niland, or equal, Decorative Stainless Steel Lighting Standard matching Millerbernd 8-SDN(B)1-8-300-001 or Decorative Twin Stainless Steel Lighting Standard 8-SDN(B)3-8-300-2-001, 28 foot pole height (30’ mounting height), “H” base, decorative pole top arm mount, octagonal pole shaft, and black finish color. Provide stainless steel “H” base breakaway system. Mount light standard on a concrete foundation. Provide mast arm matching Millerbernd 70A203 Decorative DN8 or Millerbernd 70B273 Decorative Twin DN8. Mast arms to be 8 foot length, black finish color, and have 70A205 Scroll Brace. Provide a 15 Amp rated GFCI receptacle (WR type) with a “in-use” outdoor rated cover on the pole, flush-mounted, as shown on the plans. Meet requirements of NDDOT specification 895.05. Niland Company is an approved equivalent, as long as the plan details are met. Include costs associated with the light standards, mast arms, and GFCI receptacle in the bid price for “Lighting System A”.
- 770-P06 CONDUCTORS AND CONNECTORS: Provide continuous integrally color-coded wire conductors (for all conductors), black and red for lighting, white for neutral, green for equipment ground, blue for receptacle power, purple and pink as needed for additional circuits. Conductor connections in street light bases to be Tyco Electronics Gelcap SL splice cover kit with connector. All other conductor splices to be UL listed with Power Gel sealant. Provide fuse holders with 3” of heat shrink at conductor connections. Splicing is not permitted in pull boxes. Splice only the equipment ground wire in pull boxes, only where shown.

- 770-P07 CONCRETE FOUNDATION-FEED POINT-TYPE B: Install top of concrete foundation level and at an elevation to prevent flood damage of cabinet. Duct seal all conduits with wire. Provide two spare 2” PVC conduits in the foundation. Provide conduit caps, with an oil-tight plug and wing nut, on the spare conduit sweeps and label each as to the direction each sweep faces. Install all conduit within the concrete foundation.
- 770-P08 ORNAMENTAL LIGHT FIXTURE-150 WATT (Decorative Teardrop 30’): Provide only one of the decorative luminaires listed below, or an approved equal, for installation on a City of West Fargo decorative light standard.

Decorative Luminaire	
Company	Catalog Number
Philips Lumec Lighting	Renaissance RN20 145W64LED3K T ACDR LE3R SMA series
Acuity Holophane Lighting	Esplanade ESL2 P35S 30K AS BK TG 3 series

Luminaires are required to meet the following:

Decorative Style	Teardrop, Acrylic Globe Refractor, No Skirt, No Uplight, Spike Finial.
Light Source	LED
Light Color (correlated color temperature)	3000K CCT
Color Accuracy (color rendering index)	70 CRI (minimum)
Optical Distribution	Type III
Light Output (minimum permitted)	13,600 Lumens
Wattage (maximum permitted)	150 W
BUG rating (maximum permitted)	B2-U3-G4
Operating Temperature Range	-40°C to +40°C ambient
Luminaire Housing	Aluminum, corrosion resistant
Vibration Testing	ANSI/NEMA C136.31 Level 2, 3G
Surge Suppression Rating	ANSI/IEEE C62.41 Category C
Outdoor rating	IP66 and listed by an OSHA NRTL
Input Driver Voltage	240V
Lumen Maintenance TM-21 (50,000 hours, 25°C)	>83%
Photo Control on each luminaire	No
Tool-less Access	Yes
Finish	Black, Powder-Coated
House Side Shield	No

The lighting system was designed using the following values, meeting requirements set forth by AASHTO, for the locations shown.

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Location	Sheyenne Street (between 40 th Ave W & 32 nd Ave W), Station 520+00 to 576+00.
Roadway Classification	Minor Arterial - Intermediate
Average Maintained Illuminance	1.0 foot candles
Illuminance Uniformity Ratio	4.0:1 (maximum permitted)
Light Loss Factor	0.69

Adjust luminaires at night in the presence of the engineer and/or owner. Adjust luminaires so they are level and plumb. Mount luminaires level and with no tilt. Equivalent manufacturers must submit an exact electronic “.ies” file for review. Direct optics towards roadway or as shown.

770-P09 ORNAMENTAL LIGHT FIXTURE-100 WATT (Decorative Post Top - type CC, NN, and signal poles): Provide the decorative luminaire listed below, for installation on a City of West Fargo decorative light standard (sole source).

Decorative Luminaire	
Company	Catalog Number
Acuity Holophane Lighting	Utility Arlington ARUE2 P40 30K AS GL3 BK S series

Luminaires are required to meet the following:

Decorative Style	Lantern Post Top, Glass Refractor, No Spikes, Spike Finial.
Light Source	LED
Light Color (correlated color temperature)	3000K CCT
Color Accuracy (color rendering index)	70 CRI (minimum)
Optical Distribution	Type III
Light Output (minimum permitted)	7,500 Lumens
Wattage (maximum permitted)	102 W
BUG rating (maximum permitted)	B3-U4-G5
Operating Temperature Range	-40°C to +40°C ambient
Vibration Testing	ANSI/NEMA C136.31
Surge Suppression Rating	ANSI/IEEE C62.41 Category C
Outdoor rating	IP66 and listed by an OSHA NRTL
Input Driver Voltage	Multi-volt, 120-277V, operated at 240V
Lumen Maintenance TM-21 (50,000 hours, 25°C)	>87%
Photo Control on each luminaire	No
Tool-less Access	Yes
Finish	Powder-Coated – Verde Green. Black where installed on traffic signals.
House Side Shield	No

The lighting system was designed using the following values, meeting requirements set forth by AASHTO, for the locations shown.

Location	Frontage Road (Station 528+00 to 536+00) and also used on many different areas on the project.
Roadway Classification	Local - Residential
Average Maintained Illuminance	0.4 foot candles
Illuminance Uniformity Ratio	6.0:1 (maximum permitted)
Light Loss Factor	0.69

Adjust luminaires at night in the presence of the engineer and/or owner. Adjust luminaires so they are plumb and level. Direct illumination optics towards the roadway as shown on the plans.

770-P10 REMOVE AND RESET LIGHT STANDARD: Remove and relocate existing light poles and luminaires to new locations as shown. Provide new LED luminaires where shown. Install pole on new concrete foundation as shown on the plans. Contractor to coordinate with the manufacturer of the light pole to obtain new anchor bolts. Remove underground conductors from the nearest existing adjacent light. Any damages made to the light standards or luminaires, due to project construction or relocation, are to be repaired or replaced, at the discretion of the city. Construction damage repair or replacement costs are at the contractor’s expense.

770-P11 ANTI-SEIZE: Provide Anti-Seize compound to all threaded bolts and screws. Verify with project engineer type of material.

770-P12 FEED POINT-COMBO LIGHTING AND SIGNAL (Feed Points P & N) and FEED POINT-TYPE IV-PAD MOUNTED (Feed Point K): Coordinate with the electric utility (Cass County Electric Cooperative – Chuck Ames, 701-356-4479) for providing new electrical services for the new feed point cabinets. Coordinate the installation of new service conductors and conduit between the feed point and utility transformer. Verify the feed point location and elevation with the project engineer and Cass County Electric before installation.

Provide 2” conduit for the service conductors between the metersocket on the Feed Point cabinet to the utility transformer. Provide rigid steel conduit where exposed. Contractor to provide continuous conduit, at 24” below grade, between the utility transformer and the metersocket.

Feed Point cabinet assembly to be pedestal, pad-mounted type, prefabricated UL 508 listed, service entrance rated, stainless steel, with 1 metersocket. Refer to section 140 detail sheets. Provide a metersocket with lever bypass meeting utility requirements. Meters to be provided by the utility company. Prefabricated feed point enclosure to be factory-assembled by Milbank, States Electric, Povolny, or approved equivalent. Provide number of contactors as shown in the panel schedule (5 contactors). Provide permanent, typed, etched labeling for contactors, breakers, and control switch. Provide gasketed doors.

Feed Points P and N, include in the price bid for “Traffic Signal System - Site _” all materials, labor, and coordination required to install the service, furnish and install Feed Points P an N, service conduit, and electrical service equipment. Feed Point K, include in the price bid for “Lighting System A” all materials, labor, and coordination required to install the service, furnish and install the feed point, service conduit, and electrical service.

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- 772-009 PADLOCKS: Obtain padlocks for feed points from the City of West Fargo.
- 772-P01 EXISTING TRAFFIC SIGNAL SYSTEMS: Salvage all existing traffic signal equipment that is deemed salvageable by the Engineer. The remaining equipment becomes the property of the Contractor. Deliver to the City of West Fargo Public Works Building at 810 12th Ave NW. Coordinate delivery with City of West Fargo Assistant Public Works Director Ryan James at 701-433-5400 a minimum of 24 hours in advance.
- Include all costs for the removal, salvage, and delivery of the existing traffic signal systems in the price bid for “Traffic Signal System – Site 1”.
- 772-P02 SIGNAL POLES AND COMBINATION LIGHT AND SIGNAL STANDARDS: Provide signal poles with rotatable mast arms.
- 772-P03 TRAFFIC SIGNAL STANDARDS BASE: Provide traffic signal standards with “T” transformer base type standards. Include all costs, labor, materials and equipment necessary for furnishing and installing this item in the price bid for “Traffic Signal System – Site _”.
- 772-P04 SIGNAL COMPONENT COLOR: Paint all traffic signal system components black.
- 772-P05 TRAFFIC SIGNAL CONTROLLER: Provide Econolite ATC Cobalt G controllers at the intersections of 40th Ave and 38th Ave. The controllers will be NEMA Standard ATC volume density controllers with the traffic counting capability operational.
- The concrete foundations is to be constructed as shown on standard detail D770-1 along with two spare 2” conduit sweeps. A GFCI receptacle shall be provided in the controller cabinet. Include in the price bid for “Traffic Signal System – Site _” all labor, materials and equipment required to install the new controllers. This includes but is not limited to the cabinet, new detector amplifiers (furnished and installed), other ancillary signal components (such as load switches, conflict monitors, etc.), concrete foundation, and controller cabinet components connected as required to make the new controller equipment operational with the proposed signal equipment. This also includes any programming and data entry (i.e. signal timing plans) necessary to provide fully functional traffic signal controllers. Face the cabinet doors as indicated in the plans.
- 772-P06 CONTROLLER WORKING SLAB: Install a 4” thick controller working slab that is 6 feet wide and extends a minimum of 4 feet from the face of the controller foundation. Reinforce the slab with 6" x 6" x 10 GA welded wire fabric and tie the slab to the controller foundation with 18-inch long #3 rebar spaced 18 inches on center. Provide a slope of .25 inches per foot away from the controller cabinet foundation. Install the slab to be 2” higher than the closest point of the top of the slab to finished grade. Furnishing and installing the working slab is included in the price bid for “Traffic Signal System – Site _”.
- 772-P07 BATTERY BACK-UP: Equipped the traffic signal controllers with an “on-line” type Uninterruptible Power Supply (UPS) that provides power conditioning in both normal and backup mode. Size the UPS to provide backup power to the system for a minimum of 2 hours in full signalized operation and a minimum of 8 hours in flash operation. Provide aux contacts to put the system into flash operation. The UPS shall incorporate full power management and diagnostic function.

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

The UPS shall be installed in a temperature and humidity controlled environment. The UPS shall be installed in a separate enclosure on the same pad as the signal controller cabinet. The controller cabinet pad mount foundation shall be extended and of sufficient size so there is a minimum of 3” of clearance from the outside edge of the cabinets to the outside edge of the foundation on any side, even if the battery back-up cabinet is mounted on the controller cabinet and not the foundation. All materials, labor and equipment necessary to furnish and install the battery back-up shall be included in the price bid for “Traffic Signal System – Site _”.

- 772-P08 SIGNAL EQUIPMENT:
- A. Provide steel signal plumbizer and pedestal adapters/collars.
 - B. Provide 16” pedestrian heads with countdown displays.
 - C. Provide vehicle and pedestrian heads constructed of cast aluminum and installed level on all sides. Provide stainless steel fasteners shall be stainless steel and use anti-seize lubricant on all threaded components.
 - D. Astro brackets are approved for use on mast arm mounted left turn heads located at the end of the mast. Mast arm length may need to be adjusted if Astro bracket is used. Indicated in the shop drawings for signal heads the type of mounting.
 - E. Provide louvered aluminum traffic signal backplates.
 - F. Provide LED indications on all new signal heads.
 - G. Furnishing and installing signal equipment is included in the price bid for “Traffic Signal System – Site _”.
- 772-P09 VIDEO DETECTION SYSTEM: Provide Autoscope Vision Video Detection Equipment at the intersections of 40th Ave and 38th Ave. All cable connections, camera aiming and system set-up, including programming detection zones and verification of reliable operation shall be provided by the manufacturer’s representative. The location of cameras in the plans are for reference only. Include an extra camera / processor, interface panel and detector port master for each Video Detection System. Provide a supplier warranty for the video detection system that is for a minimum of three years after final inspection and acceptance. Provide ongoing software support by the supplier and include updates of the MVP sensor and application software. These updates shall be provided free of charge for one year after final inspection and acceptance.
- Incorporate the new signal systems and video detection into the City of West Fargo’s existing Centrac system.
- Provide all labor and equipment necessary for the video detection system to be fully operational. Include all costs, labor, materials and equipment necessary for furnishing and installing the video detection systems in the price bid for “Traffic Signal System – Site _”

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772-P10 PTZ CAMERA SYSTEMS: Provide Pelco Spectra IV PTZ Cameras at the intersections of 40th Ave and 38th Ave that include all camera wires, camera equipment, and all labor involved in providing a fully functional camera system that can be viewed on the City of West Fargo's network. This includes but is not limited to:

- A. Approved communications switch
- B. Cat 6 direct burial cable (wet location rated)
- C. No 16. AWG 3 cable
- D. Camera system including Pelco Spectra IV PTZ Cameras and Pelco PA402 pole mount adapters
- E. 20 AMP four receptacle outlet with surge protection
- F. Fiber optic jumpers

Included in the price bid for "Traffic Signal System – Site _" all labor, materials and equipment to install the new PTZ cameras as indicated in the plans.

772-P12 EMERGENCY VEHICLE PRE-EMPTION: Notify the fire chief when the proposed signalized intersections EVP systems are tested and operable. Provide EVP equipment that is GPS based and fully compatible with the EVP equipment used within the City of West Fargo. Provide confirmation lights that are LED. The City of West Fargo is responsible for setting the range of the system.

772-P13 CONDUIT: Install conduit as shown on the plans

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

772-P14 LABEL ALL FIELD CABLES: Provide labeling materials as approved by the City. Install the labels so they are readable without moving the cables. Label all field cables with the cable designations:

TYPE	LABEL	LABEL LOCATION
Communication cable	Comm./address of other end	Within 12" of conduit
Pedestrian push button	Phase/location (i.e. NW, SW, etc.)	Within 6" of terminals
Video detection cable	Approach Detection (i.e. NW, SW, etc.)	Within 6" of terminals
Control cable	Cable number & location (i.e. NW, SW, etc.)	Within 12" of conduit
EVP cable	Pre-empt number/location (i.e. NW, SW, etc.)	Within 6" of terminal

Not a separate pay item, cost to be included in the price bid for "Traffic Signal System – Site _".

772-P15 CONTROLLER CABINET WIRING DIAGRAM: Label the following items on the cabinet wiring diagram, in addition to information required by NDDOT Standard Specification.

- A. Label The camera number (i.e., D2-1) from the plan on the detector panel drawing adjacent to the point for termination.
- B. Label the field wire terminals for the vehicle/pedestrian head control cables with the phase number and direction (i.e., ø2, SB).
- C. Label the field wire terminals for the EVP cable shall be labeled with the pre-empt number (i.e., P.E. #1).
- D. Label the field wire terminal for the pre-empt indicator lamps with the pre-empt number and direction (i.e., P.E. #1, NB).
- E. Label the field wire terminals for the pedestrian push-button cables with the phase number (i.e., ø8 PED).
- F. Provide an intersection diagram on cabinet door showing phasing of intersection and camera numbering and detection zone numbering
- G. Provide a CAD drawing file of the as-built cabinet wiring diagram.

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

772-P16 WIRE SPLICING: No splicing is allowed in pull boxes. Splicing may only take place at the signal transformer base terminal block, controller cabinet terminal blocks, and traffic signal head terminal blocks.

772-P17 TRAFFIC SIGNAL PULL BOXES: Provide polymer concrete type pull boxes for the traffic signal systems. Clearly mark the cover as "Traffic Signal" as required. See standard drawing D770-3 for details. Duct seal all conduits entering and exiting pull boxes. Provide the style as shown on the standard drawings and include the stackable bottom extension with knockouts. Include all costs, labor, materials and equipment necessary for furnishing and installing this item in the price bid for "Traffic Signal System – Site _".

772-P18 FIBER OPTIC PULL BOXES: Provide polymer concrete type pull boxes for the fiber optic interconnect. Clearly mark the cover as "Fiber Optic" as required. Provide Fiber Pull Boxes with dimensions no less than 24" x 36" and Fiber Splice Faults with dimensions no less than 30" x 48" for fiber optic cables. Provide pull boxes and splice faults with a bottom extension to obtain a depth of 26". Duct seal all conduits entering and exiting pull boxes. Fiber splicing is only allowed in splice vaults as identified in the plans. Only cut the fibers that are to be spliced. Include all costs, labor, materials and equipment necessary for furnishing and installing this item in the price bid for "IT SYSTEM".

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772-P19 ACCESSIBLE PEDESTRIAN SIGNALS (APS) PUSHBUTTON AND SIGN: Provide pedestrian pushbuttons that meet the requirements of accessible pedestrian signal (APS) pushbuttons and include the features, installation procedures and be compliant with the following:

- A. Features:
1. Rapid tick WALK indication, no more than 2–5dBA above ambient sound
 2. Vibrotactile WALK indication
 3. Speaker and vibrotactile indication located at pushbutton
 4. Pushbutton locator tone
 5. Tactile arrow on each device aligned in direction of travel on the crosswalk
- B. Code Compliance:
1. Functionality: MUTCD 2009 - 4E
 2. Temperature and Humidity: NEMA TS 2
 3. Transient Voltage Protection: NEMA TS 2
 4. Transient Suppression: IEC 61000-4-4, IEC 61000-4-5
 5. Electronic Noise: FCC Title 47, Part 15, Class A
 6. Mechanical Shock and Vibration: NEMA TS 2
 7. EN4 PBS Enclosure: NEMA 250 - Type 4X
 8. Electrical Reliability: NEMA TS 4

Include the cost for the accessible pedestrian signals pushbutton and sign in the item “Traffic Signal System – Site _”.

772-P20 PORTABLE TRAFFIC SIGNALS: Portable traffic signals have been provided to be used on the project at the intersection of 40th Ave W and 9th St W. Before the portable traffic signals are activated, place supplementary traffic control devices including but not limited to signs and delineator drums. The proposed sign and delineator drum locations may vary from the plans based upon traffic control configurations.

- Technical Requirements:
- Meet all applicable MUTCD standards and guidance.
 - Communicate between each portable device via wireless radio link.
 - Include a signal controller that is NEMA compliant and capable of manual timing entry.
 - Include a conflict monitor.

Prior to installation, sync and troubleshoot all of the portable devices to ensure proper signal coordination between portable devices. Remove the portable signals immediately when not needed. Obtain the electrical source to operate the portable traffic signals. Arrange with the utility company or provide generators for electrical service. Solar powered traffic signals may be used.

The Contractor is responsible for all costs of providing the electrical source and any costs required to operate and maintain the traffic signals. If a utility company is used, all equipment shall be placed outside the roadway.

The Engineer will pay for the maximum required number of portable signals used at one time. The Engineer will not pay for the reuse, relocation, and replacement of portable traffic signals. Include all labor and equipment necessary to furnish, install, maintain and remove the portable traffic signal systems in the price bid for “Interim Traffic Signals”.

772-P21 FIBER OPTIC CONNECTION: Supply MOXA EDS-P510 switches in the traffic signal controller cabinets as shown in the plans. Include all labor, equipment, and material to install the switches in the traffic signal cabinets in the price bid for “IT SYSTEM”.

772-P22 FIBER OPTIC RELOCATION: Remove and relocate the existing fiber optic cable as shown in Section 160 Sheet 3. Provide new conduit as needed to accommodate the new pull box locations. Use extreme care to not damage the existing fiber optic cable. Remove the existing splices as indicated in the plans and re-splice the existing fiber after it has been relocated. Contractor is responsible to repair any damage done to the existing fiber optic cable. The repairs to be made are at the discretion of the Engineer. Include all labor, equipment, and material to relocate the existing fiber optic pull box in in the price bid for “IT SYSTEM”.

772-P23 SIGNAL TIMINGS: Contact Mike Bittner with KLJ at (701) 232-5353 for the signal timings to be programmed into the traffic signal controllers. Include all costs, labor, materials and equipment necessary to program the signal timings into all controllers in the price bid for “Traffic Signal System – Site _”.

772-P24 FULLY OPERATIONAL SIGNAL: The traffic signal at 40th Ave W is to be fully operational by Interim Completion Date No. 1, June 15th, 2019. This includes but is not limited to the cabinet, traffic signal controller, traffic signals standards, vehicle and pedestrians signal heads, pedestrian pushbuttons and all other equipment required to for a fully operational traffic signal.

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772-P25 SOUTH TEMPORARY PEDESTRIAN CROSSING: Portable traffic signals have been provided to be used on the project for the construction of the Sheyenne St and 40th Ave intersection for Interim Completion Date No. 1. Before the portable signals are activated, place the supplementary traffic control devices including but not limited to signs, delineator drums and barricades. The contractor is responsible to provide any fill necessary for a flat foundation for the portable traffic signals to be placed on.

Technical Requirements:

- Meet all applicable MUTCD standards and guidance.
- Communicate between each portable device via wireless radio link.
- Include a signal controller that is NEMA compliant and capable of manual timing entry.
- Include a conflict monitor.

Prior to installation, sync and troubleshoot all of the portable devices to ensure proper signal coordination between portable devices. Remove the portable signals only when the 40th Avenue traffic signal is operational and active.

Obtain the electrical source to operate the portable traffic signals. Arrange with the utility company or provide generators for electrical service. Solar powered may be used. The Contractor is responsible for all costs of providing the electrical source and any costs required to operate and maintain the traffic signals. If a utility company is used, all equipment shall be placed outside the roadway.

Locate trailer outside of protected area. Push button to be located within protected area. Trailer to include luminaire extension on portable traffic signals.

The following signal timing parameters are to be utilized for the portable signal system at Sheyenne St and 40th Ave:

- The signals are to Rest in the Green and Don't Walk Indications.
- Once a Pushbutton Indication is Activated (pressed). The Signal Heads are to transition to a 3.0 second Yellow indication.
- Followed by a 20.0 second Red indication on the Signal Heads. While simultaneously indicating the Walk Indication for 10.0 seconds followed by the Flashing Don't Walk indication for 10.0 seconds.
- After the Flashing Don't Walk indication has timed out, the signal system is to return to Rest in Green and Don't Walk Indications.

The Engineer will pay for the maximum required number of portable signals used at one time. The Engineer will not pay for the reuse, relocation, and replacement of portable traffic signals. Include all labor and equipment necessary to furnish, install, maintain and remove the portable traffic signal systems in the price bid for "Temporary Traffic Signal".

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SECTION 85

970-P01 THESE NOTES APPLY TO ALL LANDSCAPE BID ITEMS LISTED IN SPEC SECTION 970:

1. The contractor is responsible for locating utilities (existing, planned, and newly installed. Contact North Dakota "One Call" at 811 or 800-795-0555 prior to any excavation.
2. At time of plan preparation, franchise utility (Century Link Cable, Xcel Energy, Mid-continent Cable, gas line, etc.) line relocation and consolidation into one trench is being considered and coordinated by others. The result of potential relocation of utilities will impact the final location, quantity, and scope of work as shown on the plans. Contractor shall be advised that if underground utilities are not relocated and consolidated from the east side of Sheyenne Street to the west side of the street, the City reserves the right to omit any plants in conflict with utility location(s) from the contract at the bid unit price for each plant omitted, without adjustment to any other bid price. The contractor must confirm the relocation of utilities out of the work zone prior to ordering of plant material.
3. Provide all plants that meet ANSI Z60.1 American Nursery and Landscaping Association, current edition. Furnish plants, trees, and shrubs of the same genus, species, cultivar, and size as specified in the plans. Each plant, tree, and shrub to have an identification label from the nursery.
4. A minimum of 7 calendar days prior to bidding, Contractor may submit a substitution request for plants for review and approval by the Engineer. Contractor must provide documentation stating the reason the specified plant material cannot be obtained. Plant substitutions must be similar in genus, species, shape, mature size and planted size as specified plants in the drawings.
5. Any discrepancy discovered by the Contractor in the plans shall be brought to the attention of the Engineer when discovered. Allow time for clarification. If there is a discrepancy between the quantities shown in the Overall Plant Schedule and the quantities shown on the drawings, the quantities shown on the drawings will govern.
6. Install all plants with same relationship to the finished grade as the plant's original grade before digging, potting or being balled and burlapped. Install container-grown plants so top of root ball in container is level with top of finished grade. Install all plants in accordance with all the drawings and specifications included in the plans. Plants that are installed too deep or too shallow will not be accepted.
7. A plant establishment period for all plants shown in the plans will extend for a period of 2 years commencing on date of acceptance of the initial plantings. Near the end of the applicable plant establishment period, but no later than October 15, an inspection of the plantings will be made, and only those plants found to be in a healthy growing condition will be accepted. Those plants not in a healthy growing condition will be replaced at Contractor's expense, including labor and materials. Replacements are to be of the same size and species as originally planted.
8. Notify the Engineer and City of West Fargo Forestry Department 701-433-5400 for an inspection of all plant material prior to installation. Unacceptable plant materials will be rejected at the discretion of the Engineer or City Forester.
9. Properly care for all plants from the time of planting until the contract plant establishment period expires.
10. Proper care of plants consists of doing work such as supplemental waterings, weeding, pruning, spraying, tightening of braces and guys, retying wrapping, remulching and other work as necessary to keep plants in a neat appearance and in a healthy growing condition.
11. Replace all plants that die or show evidence of dying, in the opinion of the Engineer or City Forester, during the plant establishment period at the Contractor's expense at the earliest appropriate planting time after this condition becomes apparent.
12. Perform complete waterings at 5 to 7-day intervals, which may be adjusted when weather conditions and soil moisture permit. Additional waterings may be ordered by the Engineer at any time during the plant establishment period when soil conditions require such watering. Provide a 20-gallon slow release supplemental water bag for each deciduous tree planted which is incidental to the cost of the unit bid price for each tree. Supplemental water bags will become the property of City of West Fargo following acceptance of plant material. The City of West Fargo will remove and dispose of all bracing and guying materials.
13. Planting Soil Mixture for Trees
 - A. Remove topsoil and subsoil excavated in each proposed planting hole.
 - B. Backfill all tree pits with native soil excavated from the tree pit, see details.
14. Do not install plant material when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F. Do not install plant material when wind velocity exceeds 30 mph. Acceptable planting dates are as follows:
 - A. Spring: April 15 – June 15
 - B. Fall: September 15 – October 15
 - C. Favorable weather conditions between June 15 – September 15, upon written approval by Engineer.
15. Water all plants within 2 hours of being planted to thoroughly saturate backfill eliminate voids.
16. Within 24 hours of installation, stake trees in accordance with details.
17. Within 24 hours of installation, mulch all plants as detailed and specified.
18. Furnish and install shredded hardwood bark mulch at a 3-inch depth. See landscape details for placement of wood mulch. The mulch shall be finely shredded hardwood bark mulch and shall be the product of a mechanical chipper, hammermill or tub grinder. The material shall be fibrous and uniformly dark brown in color, free of large wood chunks, and shall be substantially free of mold, dirt, sawdust, and foreign material. No portion of the material shall be in an advanced state of decomposition. The material shall not contain chipped up manufactured boards or chemically treated wood, including but not limited to wafer board, particle board, and chromated copper arsenate (CCA) or penta-treated wood. The material, when air dried, shall all pass a 4-inch screen and no more than 20 percent by mass of the material shall pass a 0.10-inch sieve. Unattached bark or greenleaf composition, either singly or combined, shall not exceed 20 percent each by mass. The maximum length of individual pieces shall not exceed 4-inches.

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- 19. Trees are paid for individually and per species, e.g. “970-2050 Common Hackberry.”
Incidental items: plant care, maintenance, warranty, waterings, supplemental water bags, wood mulch, and tree guy anchoring/staking systems.
- 20. Shrubs are paid for individually, ex. “970-5050 Crimson Pygmy Barberry.” Incidental items: plant care, maintenance, warranty, waterings, and wood mulch.
- 21. All perennials are to be paid for individually ex. “970-6016 Daylilies-Container.” Incidental items: plant care, maintenance, warranty, waterings, and wood mulch.
- 22. Payment for wood mulch within plant beds is incidental to shrub and perennial bid items.
- 23. Wood mulch for tree species outside of plant beds is incidental to the tree bid item.
- 24. All costs associated with the installation of concrete landscape curb is to be included in the linear foot unit price for “970-0002 Landscape Edging.”

970-P02 LANDSCAPE APPURTENANCE AREA:

- 1. Landscape Appurtenance Area (Refer to plan Sheet No. 2 of Section No. 85.)
 - A. Contractor will inventory existing plant material, rock mulch, boulders, and landscape edging within the grading tie line on the northeast side of the Kensington Drive and frontage road intersection (approximately Sta. 528+50). Coordinate work associated with removals and salvaged materials with other contractors working on site.
 - B. All plants removed from Landscape Appurtenance Area shall be replaced with the same species at a minimum size of:
 - a. Coniferous Tree: 6’ Height
 - b. Deciduous Shrubs: #5 Cont.
 - c. Coniferous Shrubs: #5 Cont.
 - d. Perennials: #1 Cont.
 - C. Salvage and reinstall (or replace) rock mulch to match type, size, and color. Install 4 oz. non-woven landscape fabric under mulch.
 - D. Replace landscape edging to match type, style, and color.
 - E. Salvage and reinstall landscape boulders in the approximate location removed.
 - F. No irrigation is intended for this area.
 - G. Submit inventory list of replaced plant material, rock mulch, and edging prior to construction to engineer for review.
 - H. The cost of providing and installing plant material, plant care, maintenance, warranty, waterings, tree guy anchoring/staking systems, rock mulch and fabric, landscape edging, and boulders in the Landscape Appurtenance Area are to be included in the lump sum unit price bid for “970-0001 Landscape Appurtenances.”

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- 970-P03 LANDSCAPE PREPARATION: Mow and maintain completed areas of seeding with established turf until the project is ready for final payment. Mow within 48 hours of notification by the Engineer in the field. Remove any clippings that land on locations other than the grassed area. Mow grass when longer than 6” to a height of 4” (approximately every 1 to 2 weeks) and/or as directed by the Engineer in the field. The mowing quantity represents the seeded area to be mowed ten (10) times, but may be increased or decreased at the Engineer’s discretion. All costs necessary to complete the work included in the price bid for “Landscape Preparation”.
- 970-P04 WEED CONTROL: If weeds of any kind are present before seeding, control them with a pre-emergence herbicide applied at the rate as labeled by the manufacturer. If weeds of any kind are present after seed germination and during grass establishment, control them with a herbicide applied at the rate as labeled by the manufacturer. Herbicides will only be applied by qualified applicators, following herbicide labels and manufacturer’s recommendations for application rates. A qualified applicator is an individual who had been trained regarding the product and application method, and meets any federal, state and local laws and regulations. This individual is required to hold a certified applicators license, or be under the direct supervision of a certified applicator. Supervisors of qualified applicators are required to hold a certified applicators license in the State of North Dakota. Applicators must use extreme caution when applying herbicides near water, adjacent to properties with plants that might be damaged, or other landscape areas. Remedy damage resulting from improper use of herbicides. The applicator is responsible for the purchase, storage, record keeping, and disposal of herbicides. All herbicide applications will be reported to the Engineer on a weekly basis. Include all costs necessary to complete the work in the price bid for “Herbicide Weed Control”.

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ENVIRONMENTAL NOTES

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

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

EN-2 AQUATIC NUISANCE SPECIES (ANS): Equipment that was last used outside of North Dakota or within a Class I infested waterbody (identified on the North Dakota Game and Fish Department (NDGFD) website) requires an inspection by NDGFD. Notify the NDGFD at least 10 business days prior to pumps, watercraft, or any equipment entering a public water to allow the NDGFD sufficient time to inspect any and all such equipment for ANS. Contact the NDGFD ANS Coordinator, Jessica Howell by e-mail jmhowell@nd.gov for equipment inspections. Supply one of the following to the engineer as proof of compliance prior to work taking place in the water: (1) the NDGFD inspection report, (2) documented NDGFD correspondence (email or signed letter). If an inspection is not required, no follow up documentation is required.

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

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SPEC	CODE	BID ITEM	UNIT	FEDERAL ELIGIBLE	100% CITY FUNDS	DRAINAGE (70% FEDERAL) (30% CITY)	TOTAL
103	0100	CONTRACT BOND	L SUM	1			1
201	0330	CLEARING & GRUBBING	L SUM	1			1
201	0370	REMOVAL OF TREES 10IN	EA	11			11
201	0380	REMOVAL OF TREES 18IN	EA	1			1
202	0104	REMOVAL OF STRUCTURE	EA	3			3
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	2,214	421		2,635
202	0130	REMOVAL OF CURB & GUTTER	LF	2,351	229		2,580
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	1,586	71		1,657
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	1,946			1,946
202	0210	REMOVAL OF MANHOLES	EA	5			5
202	0230	REMOVAL OF INLETS	EA	6			6
202	0286	REMOVAL OF FOUNDATIONS-ALL SIZES	L SUM	1			1
202	0312	REMOVE EXISTING FENCE	LF	596			596
203	0101	COMMON EXCAVATION-TYPE A	CY	46,181.0			46,181.0
203	0109	TOPSOIL	CY	13,933.1			13,933.1
203	0125	REMOVE & SALVAGE TOPSOIL	CY	1,680.0			1,680.00
203	0138	COMMON EXCAVATION-SUBCUT	CY	1,500			1,500
216	0100	WATER	M GAL	4,500			4,500
230	0300	SUBGRADE PREPARATION-TYPE A	STA	78			78
251	0300	SEEDING CLASS III	ACRE	16.19			16.19
253	0201	HYDRAULIC MULCH	ACRE	34.19			34.19
253	0301	BONDED FIBER MATRIX	ACRE	9.95			9.95
260	0200	SILT FENCE SUPPORTED	LF	2,085			2,085
260	0201	REMOVE SILT FENCE SUPPORTED	LF	1,035			1,035
261	0112	FIBER ROLLS 12IN	LF	4,000			4,000
261	0113	REMOVE FIBER ROLL 12IN	LF	4,000			4,000
302	0050	TRAFFIC SERVICE AGGREGATE	TON	1,066			1,066
302	0121	AGGREGATE BASE COURSE CL 5	CY	19,709	103		19,812
302	9970	TYPE II PIPE BEDDING	CY	965			965
306	0510	FULL DEPTH RECLAMATION	SY	37,703			37,703
430	0043	SUPERPAVE FAA 43	TON	2,338			2,338
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	1,441	62		1,503
430	1000	CORED SAMPLE	EA	16			16
430	5806	PG 58H-28 ASPHALT CEMENT	TON	140			140
550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	38,552			38,552
622	6760	STEEL SHEET PILING	SF	6,125			6,125
624	0123	PEDESTRIAN RAILING	LF	141			141
702	0100	MOBILIZATION	L SUM	1			1
704	0100	FLAGGING	MHR	1,600			1,600
704	1000	TRAFFIC CONTROL SIGNS	UNITS	5,889			5,889
704	1052	TYPE III BARRICADES	EA	55			55
704	1054	SIDEWALK BARRICADE	EA	23			23
704	1060	DELINEATOR DRUMS	EA	247			247
704	1067	TUBULAR MARKERS	EA	100			100
704	1080	STACKABLE VERTICAL PANELS	EA	55			55
704	3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	160			160
704	4011	PORTABLE CHANGEABLE MESSAGE BOARD	EA	6			6
708	1531	INLET PROTECTION - FIBER ROLL 12IN	EA	66			66
708	1533	REMOVAL INLET PROTECTION-FIBER ROLL 12IN	EA	66			66
708	1540	INLET PROTECTION - SPECIAL	EA	48			48
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	48			48
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	65,382	386		65,768
714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	2,472			2,472
714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	724		622	1,346
714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	313		230	543
714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN	LF			971	971
714	0910	PIPE CONC REINF 36IN CL III-STORM DRAIN	LF			1,252	1,252
714	1010	PIPE CONC REINF 42IN CL III-STORM DRAIN	LF			1,136	1,136
714	1110	PIPE CONC REINF 48IN CL III-STORM DRAIN	LF			1,541	1,541
714	1212	PIPE CONC REINF 54IN CL III-STORM DRAIN	LF			116	116
714	9680	PLUG PIPE-ALL TYPES & SIZES	EA	3			3
714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	12,304			12,304
714	9730	UNDERDRAIN PIPE PVC PERFORATED 6IN	LF	1,030			1,030

SPEC	CODE	BID ITEM	UNIT	FEDERAL ELIGIBLE	100% CITY FUNDS	DRAINAGE (70% FEDERAL) (30% CITY)	TOTAL
722	0100	MANHOLE 48IN	EA	5			5
722	0110	MANHOLE 60IN	EA	6			6
722	0120	MANHOLE 72IN	EA	9			9
722	0130	MANHOLE 84IN	EA	6			6
722	0200	MANHOLE 108IN	EA	1			1
722	0315	MANHOLE CASTING	EA	3			3
722	0428	8FT X 6FT RCB CULVERT MANHOLE	EA		3		3
722	1100	MANHOLE RISER 48IN	LF	38.0			38.0
722	1110	MANHOLE RISER 60IN	LF	41.4			41.4
722	1120	MANHOLE RISER 72IN	LF	64.6			64.6
722	1130	MANHOLE RISER 84IN	LF	82.8			82.8
722	1200	MANHOLE RISER 108IN	LF	17.6			17.6
722	3410	MANHOLE REPAIR	EA	4			4
722	3510	INLET-TYPE 2	EA	12			12
722	3520	INLET-TYPE 2 DOUBLE	EA	14			14
722	3701	INLET SPECIAL-TYPE 2 48IN	EA	7			7
722	3740	INLET SPECIAL CATCH BASIN-TYPE A 48IN	EA	4			4
722	3769	INLET SPECIAL-TYPE 2 96IN	EA	1			1
722	4000	INLET CATCH BASIN-TYPE A	EA	27			27
722	6140	ADJUST GATE VALVE BOX	EA	2			2
722	6160	ADJUST INLET	EA	2			2
722	6200	ADJUST MANHOLE	EA	1			1
722	6248	ADJUST 3IN WATERMAIN	EA	3			3
724	0210	FITTINGS-DUCTILE IRON	LBS		4,227		4,227
724	0300	GATE VALVE & BOX 6IN	EA		1		1
724	0310	GATE VALVE & BOX 8IN	EA		1		1
724	0317	GATE VALVE & BOX 16IN	EA		4		4
724	0375	RELOCATE GATE VALVE & BOX	EA	17			17
724	0400	HYDRANT-INSTALL 6IN	EA		3		3
724	0427	ADJUST HYDRANT	EA	2			2
724	0552	TAPPING SLEEVE & VALVE 16IN X 8IN	EA		3		3
724	0571	TAPPING SLEEVE & VALVE 20IN X 4IN	EA		1		1
724	0611	WATER SERVICE LINE 1IN	LF		157		157
724	0621	WATER SERVICE LINE 2IN	LF		76		76
724	0810	WATERMAIN 6IN PVC	LF		17		17
724	0830	WATERMAIN 8IN PVC	LF		412		412
724	0852	WATERMAIN 16IN PVC	LF		715		715
724	0860	20IN FORCEMAIN	LF		714		714
724	0892	RELOCATE WATERMAIN	EA	11			11
724	0955	WATER SERVICE CONNECTION 1IN	EA		2		2
724	0960	WATER SERVICE CONNECTION 2IN	EA		1		1
724	1035	SPRINKLER RELOCATION	L SUM	1			1

This document was originally issued and sealed by
Erik Gilbertson
Registration Number
PE- 5581,
on 09/06/18 and the original document is stored at the
City of West Fargo

Sheyenne Street

Estimate of Quantities

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	8	1

SPEC	CODE	BID ITEM	UNIT	FEDERAL ELIGIBLE	100% CITY FUNDS	DRAINAGE (70% FEDERAL) (30% CITY)	TOTAL
103	0100	CONTRACT BOND	L SUM	1			1
201	0330	CLEARING & GRUBBING	L SUM	1			1
201	0370	REMOVAL OF TREES 10IN	EA	11			11
201	0380	REMOVAL OF TREES 18IN	EA	1			1
202	0104	REMOVAL OF STRUCTURE	EA	3			3
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	2,214	421		2,635
202	0130	REMOVAL OF CURB & GUTTER	LF	2,351	229		2,580
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	1,586	71		1,657
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	1,946			1,946
202	0210	REMOVAL OF MANHOLES	EA	5			5
202	0230	REMOVAL OF INLETS	EA	6			6
202	0286	REMOVAL OF FOUNDATIONS-ALL SIZES	L SUM	1			1
202	0312	REMOVE EXISTING FENCE	LF	596			596
203	0101	COMMON EXCAVATION-TYPE A	CY	46,181.0			46,181.0
203	0109	TOPSOIL	CY	13,933.1			13,933.1
203	0125	REMOVE & SALVAGE TOPSOIL	CY	1,680.0			1,680.00
203	0138	COMMON EXCAVATION-SUBCUT	CY	1,500			1,500
216	0100	WATER	M GAL	4,500			4,500
230	0300	SUBGRADE PREPARATION-TYPE A	STA	78			78
251	0300	SEEDING CLASS III	ACRE	16.19			16.19
253	0201	HYDRAULIC MULCH	ACRE	34.19			34.19
253	0301	BONDED FIBER MATRIX	ACRE	9.95			9.95
260	0200	SILT FENCE SUPPORTED	LF	2,085			2,085
260	0201	REMOVE SILT FENCE SUPPORTED	LF	1,035			1,035
261	0112	FIBER ROLLS 12IN	LF	4,000			4,000
261	0113	REMOVE FIBER ROLL 12IN	LF	4,000			4,000
302	0050	TRAFFIC SERVICE AGGREGATE	TON	1,066			1,066
302	0121	AGGREGATE BASE COURSE CL 5	CY	19,709	103		19,812
302	9970	TYPE II PIPE BEDDING	CY	965			965
306	0510	FULL DEPTH RECLAMATION	SY	37,703			37,703
430	0043	SUPERPAVE FAA 43	TON	2,338			2,338
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	1,441	62		1,503
430	1000	CORED SAMPLE	EA	16			16
430	5806	PG 58H-28 ASPHALT CEMENT	TON	140			140
550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	38,552			38,552
622	6760	STEEL SHEET PILING	SF	6,125			6,125
624	0123	PEDESTRIAN RAILING	LF	141			141
702	0100	MOBILIZATION	L SUM	1			1
704	0100	FLAGGING	MHR	1,600			1,600
704	1000	TRAFFIC CONTROL SIGNS	UNITS	5,889			5,889
704	1052	TYPE III BARRICADES	EA	55			55
704	1054	SIDEWALK BARRICADE	EA	23			23
704	1060	DELINEATOR DRUMS	EA	247			247
704	1067	TUBULAR MARKERS	EA	100			100
704	1080	STACKABLE VERTICAL PANELS	EA	55			55
704	3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	160			160
704	4011	PORTABLE CHANGEABLE MESSAGE BOARD	EA	6			6
708	1531	INLET PROTECTION - FIBER ROLL 12IN	EA	66			66
708	1533	REMOVAL INLET PROTECTION-FIBER ROLL 12IN	EA	66			66
708	1540	INLET PROTECTION - SPECIAL	EA	48			48
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	48			48
709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	65,382	386		65,768
714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF	2,472			2,472
714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF	724		622	1,346
714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	313		230	543
714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN	LF			971	971
714	0910	PIPE CONC REINF 36IN CL III-STORM DRAIN	LF			1,252	1,252
714	1010	PIPE CONC REINF 42IN CL III-STORM DRAIN	LF			1,136	1,136
714	1110	PIPE CONC REINF 48IN CL III-STORM DRAIN	LF			1,541	1,541
714	1212	PIPE CONC REINF 54IN CL III-STORM DRAIN	LF			116	116
714	9680	PLUG PIPE-ALL TYPES & SIZES	EA	3			3
714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	12,304			12,304
714	9730	UNDERDRAIN PIPE PVC PERFORATED 6IN	LF	1,030			1,030

SPEC	CODE	BID ITEM	UNIT	FEDERAL ELIGIBLE	100% CITY FUNDS	DRAINAGE (70% FEDERAL) (30% CITY)	TOTAL
722	0100	MANHOLE 48IN	EA	5			5
722	0110	MANHOLE 60IN	EA	6			6
722	0120	MANHOLE 72IN	EA	9			9
722	0130	MANHOLE 84IN	EA	6			6
722	0200	MANHOLE 108IN	EA	1			1
722	0315	MANHOLE CASTING	EA	3			3
722	0428	8FT X 6FT RCB CULVERT MANHOLE	EA		3		3
722	1100	MANHOLE RISER 48IN	LF	38.0			38.0
722	1110	MANHOLE RISER 60IN	LF	41.4			41.4
722	1120	MANHOLE RISER 72IN	LF	64.6			64.6
722	1130	MANHOLE RISER 84IN	LF	82.8			82.8
722	1200	MANHOLE RISER 108IN	LF	17.6			17.6
722	3410	MANHOLE REPAIR	EA	4			4
722	3510	INLET-TYPE 2	EA	12			12
722	3520	INLET-TYPE 2 DOUBLE	EA	14			14
722	3701	INLET SPECIAL-TYPE 2 48IN	EA	7			7
722	3740	INLET SPECIAL CATCH BASIN-TYPE A 48IN	EA	4			4
722	3769	INLET SPECIAL-TYPE 2 96IN	EA	1			1
722	4000	INLET CATCH BASIN-TYPE A	EA	27			27
722	6140	ADJUST GATE VALVE BOX	EA	2			2
722	6160	ADJUST INLET	EA	2			2
722	6200	ADJUST MANHOLE	EA	1			1
722	6248	ADJUST 3IN WATERMAIN	EA	3			3
724	0210	FITTINGS-DUCTILE IRON	LBS		4,227		4,227
724	0300	GATE VALVE & BOX 6IN	EA		1		1
724	0310	GATE VALVE & BOX 8IN	EA		1		1
724	0317	GATE VALVE & BOX 16IN	EA		4		4
724	0375	RELOCATE GATE VALVE & BOX	EA	17			17
724	0400	HYDRANT-INSTALL 6IN	EA		3		3
724	0427	ADJUST HYDRANT	EA	2			2
724	0552	TAPPING SLEEVE & VALVE 16IN X 8IN	EA		3		3
724	0571	TAPPING SLEEVE & VALVE 20IN X 4IN	EA		1		1
724	0611	WATER SERVICE LINE 1IN	LF		157		157
724	0621	WATER SERVICE LINE 2IN	LF		76		76
724	0810	WATERMAIN 6IN PVC	LF		17		17
724	0830	WATERMAIN 8IN PVC	LF		412		412
724	0852	WATERMAIN 16IN PVC	LF		715		715
724	0860	20IN FORCEMAIN	LF		714		714
724	0892	RELOCATE WATERMAIN	EA	11			11
724	0955	WATER SERVICE CONNECTION 1IN	EA		2		2
724	0960	WATER SERVICE CONNECTION 2IN	EA		1		1
724	1035	SPRINKLER RELOCATION	L SUM	1			1

Sheyenne Street
Estimate of Quantities

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	8	2

SPEC	CODE	BID ITEM	UNIT	FEDERAL ELIGIBLE	100% CITY FUNDS	DRAINAGE (70% FEDERAL) (30% CITY)	TOTAL
724	9018	FORCEMAIN 4IN	LF		112		112
724	9022	FORCEMAIN 8IN	LF		483		483
724	9024	FORCEMAIN 10IN	LF		46		46
724	9028	FORCEMAIN 16IN	LF		147		147
744	0050	INSULATION BOARD	CF		42		42
748	0190	CURB & GUTTER-TYPE I 30IN	LF	23,265	200		23,465
750	0030	PIGMENTED IMPRINTED CONCRETE	SY	3,186	92		3,278
750	0101	SIDEWALK CONCRETE REINF	SY	224			224
750	0120	SIDEWALK CONCRETE 5IN REINF	SY	11,327			11,327
750	0210	CONCRETE MEDIAN NOSE PAVING	SY	214	15		229
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	SY	545			545
750	2115	DETECTABLE WARNING PANELS	SF	680			680
752	0850	ORNAMENTAL FENCE	LF	456			456
752	0911	TEMPORARY SAFETY FENCE	LF	1,635			1,635
754	0110	FLAT SHEET FOR SIGNS - TYPE XI REFLECTIVE SHEETING	SF	473			473
754	0112	FLAT SHEET FOR SIGNS - TYPE IV REFLECTIVE SHEETING	SF	98			98
754	0170	FLEXIBLE DELINEATORS	EA	29			29
754	0206	STEEL GALV POSTS - TELESCOPING PERFORATED TUBE	LF	537			537
754	0592	RESET SIGN PANEL	EA	2			2
762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	895			895
762	0420	SHORT TERM 4IN LINE-TYPE R	LF	825			825
762	0426	SHORT TERM 24IN LINE-TYPE R	LF	108			108
762	0436	SHORT TERM 24IN LINE-TYPE NR	LF	70			70
762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	4,588			4,588
762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	5,232			5,232
762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	2,050			2,050
762	1344	PREF PATT PVMT MK 7IN LINE CONTRAST-GROOVED	LF	2,399			2,399
766	0100	MAILBOX-ALL TYPES	EA	4			4
770	0003	LIGHTING SYSTEM A	EA	1			1
772	2800	INTERIM TRAFFIC SIGNALS	EA	2			2
772	2810	TEMPORARY TRAFFIC SIGNAL	EA	2			2
772	9200	IT SYSTEM	EA	1			1
772	9811	TRAFFIC SIGNAL SYSTEM - SITE 1	EA	1			1
772	9812	TRAFFIC SIGNAL SYSTEM - SITE 2	EA	1			1
772	9813	TRAFFIC SIGNAL SYSTEM - SITE 3	EA	1			1
970	0001	LANDSCAPING APPURTENANCES	LSUM	1			1
970	0002	LANDSCAPE EDGING	LF	1,153			1,153
970	0009	LANDSCAPE PREPARATION	ACRE	151.80			151.80
970	0105	HERBICIDE WEED CONTROL	SF	141,500			141,500
970	2014	EMBERS AMUR MAPLE - TREE FORM	EA	9			9
970	2050	COMMON HACKBERRY	EA	22			22
970	2140	KENTUCKY COFFEETREE	EA	21			21
970	2150	NORTHERN ACCLAIM HONEYLOCUST	EA	23			23
970	2191	PINK SPIRES CRABAPPLE	EA	18			18
970	2192	PRAIRIE FIRE CRABAPPLE	EA	8			8
970	2203	GLADIATOR CRABAPPLE	EA	17			17
970	2215	PRINCESS KAY PLUM	EA	6			6
970	2300	PRAIRIE GEM PEAR	EA	33			33
970	2392	IVORY SILK LILAC	EA	32	4		36
970	2436	HARVEST GOLD LINDEN	EA	13			13
970	2470	DISCOVERY ELM	EA	22			22
970	5050	CRIMSON PYGMY BARBERRY	EA	24			24
970	5120	MEADOWLARK FORSYTHIA	EA	26			26
970	5167	DIABOLO NINEBARK	EA	26			26
970	5196	DAKOTA SUNSPOT POTENTILLA	EA	31	5		36
970	6016	DAYLILIES-CONTAINER	EA	208	12		220
970	6326	RUSSIAN SAGE	EA	51	6		57
970	7000	LITTLE BLUE STEM	EA	268			268
970	7050	KARL FOERSTER	EA	248	8		256
970	7056	MISCANTHUS SINENSIS PURPURASCENS	EA	53			53

Sheyenne Street

Estimate of Quantities

722 0315 MANHOLE CASTING				
Type	Station	Offset	Alignment	Quantity (EA)
Sheyenne Street				
Storm Sewer	523+20	66.0' Lt.	Sheyenne St	1
Storm Sewer	523+42	65.0' Lt.		1
Storm Sewer	571+75	24.3' Lt		1
Total=				3

722 3410 MANHOLE REPAIR						
Station	Offset	Alignment	Existing Rim Elev	Proposed Rim Elev	Elev Adj (IN)	Quantity (EA)
Sheyenne Street						
523+42	65.0' Lt.	Sheyenne St. PR17	906.02	907.06	12.5	1
524+13	71.8' Rt.		903.97	905.91	23.3	1
527+73	73.0' Rt		903.05	907.09	48.5	1
571+75	24.3' Lt		901.60	904.23	31.6	1
Total=						4

722 6140 ADJUST GATE VALVE BOX						
Station	Offset	Allgnment	Existing Rim Elev	Proposed Rim Elev	Elev Adj (IN)	Quantity (EA)
Sheyenne Street						
545+68	90.6' Rt	Sheyenne St PR20	905.96	906.02	0.7	1
563+46	89.7' Lt		905.02	904.96	-0.7	1
Total=						2

722 6160 ADJUST INLET						
Station	Offset	Alignment	Existing Grate Elev	Proposed Grate Elev	Elev Adj (IN)	Quantity (EA)
Sheyenne Street						
522+42	147.4' Lt.	Sheyenne St	903.21	904.22	12.1	1
523+26	113.0' Rt		906.45	906.49	0.5	1
Total=						2

722 6200 ADJUST MANHOLE						
Station	Offset	Alignment	Existing Rim Elev	Proposed Rim Elev	Elev Adj (IN)	Quantity (EA)
Sheyenne Street						
536+10	113.5' Rt.	Sheyenne St	904.03	903.97	-0.7	1
Total=						1

724 0375 RELOCATE GATE VALVE & BOX						
Station	Offset	Alignment	Existing Rim Elev	Proposed Rim Elev	Elev Adj (IN)	Quantity (EA)
Sheyenne Street						
521+80	53.0' Lt.	Sheyenne St PR17	903.86	907.02	37.9	1
521+87	54.8' Lt.		904.03	907.42	40.7	1
522+03	50.5' Lt.		903.38	907.83	53.4	1
522+07	23.4' Lt.		903.48	907.67	50.3	1
523+66	95.9' Lt		904.55	906.60	24.6	1
523+70	86.0' Lt		904.77	906.84	24.8	1
523+64	68.6' Lt		905.4	907.29	22.7	1
535+45	54.2' Lt		903.58	905.51	23.2	1
535+55	59.3 Lt		903.82	905.46	19.7	1
535+77	59.5' Lt		904.03	904.79	9.1	1
536+84	58.9' Lt		903.38	904.76	16.6	1
545+50	54.4' Lt		903.58	905.78	26.4	1
548+50	40.1' Lt		902.64	905.70	36.7	1
549+17	56.2' Lt		903.84	906.12	27.4	1
563+30	81.8' Rt.		903.45	904.22	9.2	1
570+76	36.7' Lt		904.75	904.20	-6.6	1
570+83	53.4' Lt		903.81	904.92	13.32	1
Total=						17

724 0427 ADJUST HYDRANT						
Station	Offset	Alignment	Existing Elevation	Proposed Elevation	Elev Adj (IN)	Quantity (EA)
Sheyenne Street						
523+70	86.0' Lt	Sheyenne St PR17	904.77	906.84	24.8	1
535+45	50.9' Lt		903.16	905.45	27.5	1
Total=						2

724 0892 RELOCATE WATERMAIN					
Type	Size (IN)	Station	Offset	Alignment	Quantity (EA)
Sheyenne Street					
Watermain	16	515+10	78.0' Lt	Sheyenne St PR17	1
Watermain	2	515+10	40.5' Lt		1
Watermain	6	522+05	18.7' Rt.		1
Watermain	16	523+65	18.6' Rt		1
Watermain	8	536+67	18.3' Rt		1
Watermain	8	545+50	13.6' Rt		1
Sanitary	4	548+49	18.3' Rt		1
Watermain	8	549+17	18.4' Rt		1
Watermain	8	562+71	18.8' Lt		1
Watermain	8	570+39	80.3' Rt.		1
Watermain	8	570+82	23.4' Lt		1
Total=					11

744 0050 INSULATION BOARD				
Insulated Pipe	Station	Offset	Alignment	Quantity (CF)
Sheyenne Street				
Watermain	515+10	78.0' Lt	Sheyenne St	21.1
Watermain	515+10	40.5' Lt	PR17	21.1
Total=				42.2

754 0170 FLEXIBLE DELINEATORS			
Alignment	Station	Offset	Yellow Quantity (EA)
Sheyenne Street			
519+58.20	19.5' Lt	Sheyenne St PR17	1
519+58.22	13.5' Lt		1
522+18.51	19.5' Lt		1
522+18.51	13.5' Lt		1
523+90.66	2.5' Rt		1
523+90.66	8.5' Rt		1
535+45.75	8.5' Lt		1
535+45.75	2.5' Lt		1
536+29.80	72.5' Lt		1
536+39.08	72.0' Lt		1
536+43.56	97.0' Lt		1
537+04.45	2.5' Rt		1
537+04.45	8.5' Rt		1
545+50.16	8.5' Rt		1
545+66.67	8.5' Lt		1
545+66.67	8.5' Rt		1
545+95.95	4.7' Rt		1
545+95.95	8.5' Rt		1
546+11.62	2.5' Rt		1
562+68.14	8.5' Lt		1
562+68.14	2.5' Lt		1
563+23.98	84.8' Lt		1
563+52.79	84.3' Lt		1
564+19.78	1.8' Rt		1
564+19.73	9.1' Rt		1
570+13.24	76.6' Lt		1
570+23.23	76.2' Lt		1
575+85.95	14.0' Lt		1
575+85.97	8.0' Lt		1
Total=			29

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Sheyenne Street

Basis of Estimate

Location	203-0101 Common Excavation-Type A	Embankment *	Material Required	Excess Material	203-0109 Topsoil	203-125 Remove & Salvage Topsoil
	A	B	C = B - A	D = A - B	E	
Clay Stockpile	2140.0			2140.0		
Topsoil Stockpile						1680
Pond	13100.0			13100.0	1168.6	
32nd Ave Grading		100.0	100.0		50.1	
Sheyenne St	27839.5	41790.0	13950.4		12226.7	
40th Ave West Approach	144.6	549.7	405.1		104.9	
40th Ave East Apprroach	337.3	315.8		21.4	89.6	
Kensington Drive	166.6	104.3		62.3	58.5	
38th Ave	198.9	98.9		100.0	28.0	
Hidden Circle	371.8	73.6		298.2	41.4	
37th Ave	245.1	72.6		172.5	31.8	
34th Ave	414.3	210.2		204.1	63.9	
Golden Spike Road	361.1	48.6		312.4	30.3	
33rd Ave	392.3	96.3		296.0	16.9	
Horseshoe Circle	469.7	19.1		450.6	22.4	
Totals	46181.0	43479.0	14455.5	17157.5	13933.1	1680.0

* Additional 25% Volume Included For Shrinkage

This document was originally issued and sealed by
Jonathan P. Morgenroth
Registration Number
PE- 6872,
on 09/06/18 and the original document is stored at the
City of West Fargo

Sheyenne Street

Earthwork

Earthwork Summary Tables

SHEYENNE STREET								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
513+69.03		39	26	0				
513+75.00	5.97	39	29	0	8.6	7.6	0.0	1.0
513+80.90	5.90	0	0	0	4.3	4.0	0.0	1.3
514+00.00	19.10	40	41	0	14.1	18.1	0.0	-2.7
514+25.00	25.00	40	54	0	37.0	55.0	0.0	-20.6
514+50.00	25.00	48	65	0	40.7	68.9	0.0	-48.7
514+75.00	25.00	55	75	0	47.7	81.0	0.0	-82.1
515+00.00	25.00	63	86	0	54.6	93.2	0.0	-120.6
515+25.00	25.00	65	97	0	59.3	105.9	0.0	-167.2
515+50.00	25.00	57	108	0	56.5	118.6	0.0	-229.4
515+75.00	25.00	59	116	0	53.7	129.6	0.0	-305.3
516+00.00	25.00	55	123	0	52.8	138.3	0.0	-390.9
516+25.00	25.00	48	130	0	47.7	146.4	0.0	-489.6
516+50.00	25.00	41	138	0	41.2	155.1	0.0	-603.5
516+75.00	25.00	37	143	0	36.1	162.6	0.0	-730.0
517+00.00	25.00	37	146	0	34.3	167.2	0.0	-863.0
517+25.00	25.00	39	143	0	35.2	167.2	0.0	-995.0
517+50.00	25.00	42	140	0	37.5	163.8	0.0	-1121.3
517+75.00	25.00	44	142	0	39.8	163.2	0.0	-1244.7
517+86.28	11.28	47	143	0	19.0	74.4	0.0	-1300.1
518+00.00	13.72	50	145	0	24.6	91.5	0.0	-1366.9
518+25.00	25.00	58	144	0	50.0	167.2	0.0	-1484.1
518+50.00	25.00	70	136	0	59.3	162.0	0.0	-1586.9
518+75.00	25.00	83	128	0	70.8	152.8	0.0	-1668.9
519+00.00	25.00	107	119	0	88.0	142.9	0.0	-1723.8
519+25.00	25.00	138	112	0	113.4	133.7	0.0	-1744.1
519+50.00	25.00	150	117	0	133.3	132.5	0.0	-1743.3
519+75.00	25.00	173	119	11.2	149.5	136.6	6.5	-1736.8
520+00.00	25.00	194	117	11.2	169.9	136.6	13.0	-1716.4
520+25.00	25.00	203	120	6.3	183.8	137.2	10.1	-1679.9
520+50.00	25.00	196	127	5.6	184.7	142.9	6.9	-1645.0
520+75.00	25.00	183	136	11.2	175.5	152.2	9.7	-1631.5
521+00.00	25.00	168	141	11.2	162.5	160.3	13.0	-1642.2
521+25.00	25.00	152	147	11.2	148.1	166.7	13.0	-1673.7
521+30.00	5.00	148	152	11.7	27.8	34.6	2.7	-1683.2
521+50.00	20.00	130	169	25.2	103.0	148.6	17.1	-1745.9
521+75.00	25.00	107	194	12.1	109.7	210.1	21.6	-1867.9
521+81.58	6.58	84	216	21.6	23.3	62.4	5.1	-1912.2
522+00.00	18.42	51	254	0	46.0	200.4	9.2	-2075.7
522+23.82	23.82	16	232	5.5	29.6	268.0	3.0	-2317.2
522+25.00	1.18	17	218	5.5	0.7	12.3	0.3	-2329.1
522+50.00	25.00	43	4	0	27.8	128.5	3.2	-2432.9
522+75.00	25.00	33	9	0	35.2	7.5	0.0	-2405.3
523+00.00	25.00	42	0	0	34.7	5.2	0.0	-2375.8
523+25.00	25.00	27	0	0	31.9	0.0	0.0	-2343.8
523+50.00	25.00	20	2	0	21.8	1.2	0.0	-2323.2
523+75.00	25.00	20	12	0	18.5	8.1	0.0	-2312.8
523+85.76	10.76	25	123	6.2	9.0	33.6	1.5	-2339.0
524+00.00	14.24	30	186	12	14.5	101.9	6.0	-2432.4
524+06.00	6.00	33	209	5.9	7.0	54.9	2.5	-2482.7

* Additional 25% Volume Included For Shrinkage

SHEYENNE STREET (CONT.)								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
524+25.00	19.00	44	205	2.7	27.1	182.1	3.8	-2641.5
524+50.00	25.00	55	250	8.7	45.8	263.3	6.6	-2865.6
524+75.00	25.00	69	221	12.8	57.4	272.6	12.4	-3093.2
524+76.00	1.00	70	220	12.8	2.6	10.2	0.6	-3101.4
525+00.00	24.00	88	200	12.8	70.2	233.3	14.2	-3278.7
525+25.00	25.00	100	186	12.8	87.0	223.4	14.8	-3429.9
525+50.00	25.00	113	176	12.8	98.6	209.5	14.8	-3555.6
525+75.00	25.00	117	179	12.8	106.5	205.4	14.8	-3669.3
525+88.00	13.00	117	181	12.8	56.3	108.3	7.7	-3729.0
526+00.00	12.00	114	180	12.8	51.3	100.3	7.1	-3785.1
526+25.00	25.00	102	187	12.8	100.0	212.4	14.8	-3912.3
526+50.00	25.00	91	196	12.8	89.4	221.6	14.8	-4059.4
526+75.00	25.00	83	208	12.8	80.6	233.8	14.8	-4227.5
527+00.00	25.00	72	224	12.8	71.8	250.0	14.8	-4420.5
527+25.00	25.00	62	234	12.8	62.0	265.0	14.8	-4638.3
527+40.14	15.14	68	233	12.8	36.4	163.7	9.0	-4774.5
527+50.00	9.86	73	233	12.8	25.7	106.4	5.8	-4861.0
527+75.00	25.00	55	275	12.8	59.3	294.0	14.8	-5110.5
527+76.06	1.06	55	267	6.5	2.2	13.3	0.5	-5122.1
528+00.00	23.94	82	122	23.8	60.7	215.6	16.8	-5293.8
528+25.00	25.00	84	125	27.7	76.9	142.9	29.8	-5389.7
528+50.00	25.00	114	128	30.7	91.7	146.4	33.8	-5478.2
528+75.00	25.00	134	205	34.6	114.8	192.7	37.8	-5593.9
529+00.00	25.00	158	182	44.5	135.2	224.0	45.8	-5728.4
529+25.00	25.00	172	169	18.4	152.8	203.1	36.4	-5815.2
529+50.00	25.00	180	159	51.7	163.0	189.8	40.6	-5882.6
529+75.00	25.00	180	150	55.4	166.7	178.8	62.0	-5956.7
530+00.00	25.00	173	150	59.1	163.4	173.6	66.3	-6033.2
530+04.14	4.14	171	152	59.7	26.4	28.9	11.4	-6047.1
530+25.00	20.86	160	166	58.3	127.9	153.6	57.0	-6129.8
530+50.00	25.00	149	186	56.7	143.1	203.7	66.6	-6257.0
530+75.00	25.00	139	200	55	133.3	223.4	64.6	-6411.7
531+00.00	25.00	131	212	53.4	125.0	238.4	62.7	-6587.8
531+25.00	25.00	128	223	51.5	119.9	251.7	60.7	-6780.4
531+50.00	25.00	131	221	49.5	119.9	256.9	58.4	-6975.9
531+75.00	25.00	121	228	47.9	116.7	259.8	56.4	-7175.4
532+00.00	25.00	125	212	43.9	113.9	254.6	53.1	-7369.3
532+25.00	25.00	127	201	39	116.7	239.0	48.0	-7539.6
532+32.85	7.85	129	198	37.4	37.2	72.5	13.9	-7588.7
532+50.00	17.15	134	189	34.1	83.5	153.6	28.4	-7687.2
532+75.00	25.00	139	181	29.1	126.4	214.1	36.6	-7811.5
532+90.89	15.89	141	178	18.8	82.4	132.0	17.6	-7878.8
533+00.00	9.11	145	178	18.4	48.2	75.1	7.8	-7913.5
533+20.85	20.85	141	175	18.4	110.4	170.4	17.8	-7991.2
533+25.00	4.15	134	182	18.4	21.1	34.3	3.5	-8007.9
533+50.00	25.00	144	174	18.5	128.7	206.0	21.4	-8106.6
533+75.00	25.00	152	167	18.5	137.0	197.3	21.4	-8188.3
534+00.00	25.00	159	160	18.5	144.0	189.2	21.4	-8254.9
534+25.00	25.00	159	159	18.6	147.2	184.6	21.5	-8313.8
534+50.00	25.00	152	168	18.6	144.0	189.2	21.5	-8380.6

* Additional 25% Volume Included For Shrinkage

This document was originally issued and sealed by Jonathan P. Morgenroth Registration Number PE- 6872, on 08/12/18 and the original document is stored at the City of West Fargo

Sheyenne Street

Earthwork

Earthwork Summary Tables

SHEYENNE STREET (CONT.)								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
534+75.00	25.00	148	171	18.6	138.9	196.2	21.5	-8459.4
535+00.00	25.00	156	186	13.1	140.7	206.6	18.3	-8543.6
535+10.00	10.00	158	187	6.4	58.1	86.3	4.5	-8576.3
535+25.00	15.00	159	195	6.3	88.1	132.6	4.4	-8625.3
535+50.00	25.00	154	202	6.2	144.9	229.7	7.2	-8717.4
535+51.04	1.04	155	200	6.2	6.0	9.7	0.3	-8721.4
535+65.00	13.96	168	181	12.3	83.5	123.1	6.0	-8767.0
535+75.00	10.00	188	132	0	65.9	72.5	2.8	-8776.4
536+00.00	25.00	233	8	0	194.9	81.0	0.0	-8662.5
536+25.00	25.00	195	0	0	198.1	4.6	0.0	-8469.0
536+50.00	25.00	184	0	0	175.5	0.0	0.0	-8293.5
536+75.00	25.00	181	61	0	169.0	35.3	0.0	-8159.8
537+00.00	25.00	188	103	8.2	170.8	94.9	4.7	-8088.6
537+20.00	20.00	183	113	7.7	137.4	100.0	7.4	-8058.6
537+25.00	5.00	183	113	12.4	33.9	26.2	2.3	-8053.2
537+50.00	25.00	183	107	12.6	169.4	127.3	14.5	-8025.5
537+72.98	22.98	189	100	12.8	158.3	110.1	13.5	-7990.8
537+75.00	2.02	189	100	12.8	14.1	9.4	1.2	-7987.2
538+00.00	25.00	185	102	12.8	173.1	116.9	14.8	-7945.8
538+25.00	25.00	174	115	12.8	166.2	125.6	14.8	-7920.0
538+50.00	25.00	163	127	12.8	156.0	140.0	14.8	-7918.8
538+75.00	25.00	154	130	12.8	146.8	148.7	14.8	-7935.6
539+00.00	25.00	147	125	12.8	139.4	147.6	14.8	-7958.7
539+25.00	25.00	140	125	12.8	132.9	144.7	14.8	-7985.3
539+48.34	23.34	134	128	12.8	118.4	136.7	13.8	-8017.4
539+50.00	1.66	133	128	12.8	8.2	9.8	1.0	-8020.0
539+75.00	25.00	128	133	19.9	120.8	151.0	18.9	-8069.1
540+00.00	25.00	131	137	23.6	119.9	156.3	25.2	-8130.6
540+25.00	25.00	135	140	27.1	123.1	160.3	29.3	-8197.1
540+50.00	25.00	147	131	30.6	130.6	156.8	33.4	-8256.8
540+75.00	25.00	158	125	34.1	141.2	148.1	37.4	-8301.2
540+80.34	5.34	160	124	34.8	31.4	30.8	8.5	-8309.0
541+00.00	19.66	173	108	34.8	121.2	105.6	31.7	-8325.0
541+03.79	3.79	175	105	34.8	24.4	18.7	6.1	-8325.4
541+25.00	21.21	185	90	34.8	141.4	95.7	34.2	-8313.9
541+50.00	25.00	187	87	34.8	172.2	102.4	40.3	-8284.4
541+75.00	25.00	182	100	34.8	170.8	108.2	40.3	-8262.1
542+00.00	25.00	170	117	34.8	163.0	125.6	40.3	-8265.0
542+25.00	25.00	158	137	34.8	151.9	147.0	40.3	-8300.4
542+50.00	25.00	148	158	34.8	141.7	170.7	40.3	-8369.7
542+75.00	25.00	139	180	34.8	132.9	195.6	40.3	-8472.7
543+00.00	25.00	128	200	34.8	123.6	219.9	40.3	-8609.3
543+25.00	25.00	110	216	34.8	110.2	240.7	40.3	-8780.1
543+50.00	25.00	93	238	34.8	94.0	262.7	40.3	-8989.2
543+75.00	25.00	84	254	34.8	81.9	284.7	40.3	-9232.2
544+00.00	25.00	80	259	34.8	75.9	296.9	40.3	-9493.4
544+25.00	25.00	80	256	34.8	74.1	298.0	40.3	-9757.7
544+50.00	25.00	84	241	34.8	75.9	287.6	40.3	-10009.6
544+65.00	15.00	85	210	34.8	46.9	156.6	24.2	-10143.5
544+75.00	10.00	91	155	35	32.6	84.5	16.2	-10211.5
544+85.60	10.60	95	129	35.2	36.5	69.7	17.2	-10261.9
544+90.00	4.40	98	121	35.2	15.7	25.5	7.2	-10278.8
545+00.00	10.00	88	102	29	34.4	51.6	14.9	-10310.9

* Additional 25% Volume Included For Shrinkage

SHEYENNE STREET (CONT.)								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
545+25.00	25.00	78	76	12.1	76.9	103.0	23.8	-10360.8
545+50.00	25.00	105	75	29	84.7	87.4	23.8	-10387.3
545+71.03	21.03	111	60	7.7	84.1	65.7	17.9	-10386.7
545+75.00	3.97	114	64	6.2	16.5	11.4	1.3	-10382.8
545+95.00	20.00	144	64	12.5	95.6	59.3	8.7	-10355.2
546+00.00	5.00	141	68	12.5	26.4	15.3	2.9	-10347.0
546+20.00	20.00	140	109	12.8	104.1	81.9	11.7	-10336.6
546+25.00	5.00	142	136	12.8	26.1	28.4	3.0	-10341.8
546+30.00	5.00	143	142	12.8	26.4	32.2	3.0	-10350.5
546+50.00	20.00	152	123	12.8	109.3	122.7	11.9	-10375.8
546+75.00	25.00	151	129	12.8	140.3	145.8	14.8	-10396.2
547+00.00	25.00	150	134	12.8	139.4	152.2	14.8	-10423.8
547+25.00	25.00	141	142	12.8	134.7	159.7	14.8	-10463.7
547+50.00	25.00	133	148	12.8	126.9	167.8	14.8	-10519.4
547+75.00	25.00	126	151	12.8	119.9	173.0	14.8	-10587.4
548+00.00	25.00	117	155	12.8	112.5	177.1	14.8	-10666.8
548+25.00	25.00	116	159	12.8	107.9	181.7	14.8	-10755.4
548+44.73	19.73	111	161	12.8	82.9	146.1	11.7	-10830.3
548+50.00	5.27	108	165	12.8	21.4	39.8	3.1	-10851.9
548+75.00	25.00	113	163	12.8	102.3	189.8	14.8	-10954.2
549+00.00	25.00	112	167	24.1	104.2	191.0	21.4	-11062.3
549+25.00	25.00	127	160	27.6	110.6	189.2	29.9	-11170.8
549+50.00	25.00	135	149	31.1	121.3	178.8	34.0	-11262.3
549+75.00	25.00	155	118	34.6	134.3	154.5	38.0	-11320.6
549+76.87	1.87	156	117	34.8	10.8	10.2	3.0	-11323.0
550+00.00	23.13	167	104	34.8	138.4	118.3	37.3	-11340.3
550+25.00	25.00	165	99	34.8	153.7	117.5	40.3	-11344.3
550+50.00	25.00	155	103	34.8	148.1	116.9	40.3	-11353.3
550+75.00	25.00	153	107	34.8	142.6	121.5	40.3	-11372.5
550+82.37	7.37	154	107	34.8	41.9	36.5	11.9	-11379.0
551+00.00	17.63	154	106	34.8	100.6	86.9	28.4	-11393.8
551+25.00	25.00	149	110	34.8	140.3	125.0	40.3	-11418.8
551+50.00	25.00	138	117	34.8	132.9	131.4	40.3	-11457.6
551+75.00	25.00	123	119	34.8	120.8	136.6	40.3	-11513.6
552+00.00	25.00	110	127	34.8	107.9	142.4	40.3	-11588.4
552+25.00	25.00	99	139	34.8	96.8	153.9	40.3	-11685.8
552+50.00	25.00	85	155	34.8	85.2	170.1	40.3	-11811.1
552+75.00	25.00	73	159	34.8	73.1	181.7	40.3	-11959.9
553+00.00	25.00	57	159	28.4	60.2	184.0	36.6	-12120.3
553+25.00	25.00	69	186	28.4	58.3	199.7	32.9	-12294.5
553+50.00	25.00	27	222	34.8	44.4	236.1	36.6	-12522.7
553+75.00	25.00	15	253	34.8	19.4	274.9	40.3	-12818.5
554+00.00	25.00	7	277	12.8	10.2	306.7	27.5	-13142.5
554+25.00	25.00	3	288	34.8	4.6	327.0	27.5	-13492.4
554+50.00	25.00	1	278	28.4	1.9	327.5	36.6	-13854.7
554+75.00	25.00	0	250	34.8	0.5	305.6	36.6	-14196.4
555+00.00	25.00	0	218	34.8	0.0	270.8	40.3	-14507.5
555+25.00	25.00	1	204	34.8	0.5	244.2	40.3	-14791.5
555+50.00	25.00	0	207	34.8	0.5	237.8	40.3	-15069.2
555+75.00	25.00	4	190	34.8	1.9	229.7	40.3	-15337.3
556+00.00	25.00	7	173	34.8	5.1	210.1	40.3	-15582.6
556+25.00	25.00	8	166	34.8	6.9	196.2	40.3	-15812.1
556+50.00	25.00	8	174	34.8	7.4	196.8	40.3	-16041.7

* Additional 25% Volume Included For Shrinkage

This document was originally issued and sealed by Jonathan P. Morgenroth Registration Number PE- 6872, on 08/12/18 and the original document is stored at the City of West Fargo

Sheyenne Street

Earthwork

Earthwork Summary Tables

SHEYENNE STREET (CONT.)								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment	Embankment Above Subgrade	Mass Ordinate
556+75.00	25.00	10	180	34.8	8.3	204.9	40.3	-16278.5
557+00.00	25.00	10	188	34.8	9.3	213.0	40.3	-16522.5
557+25.00	25.00	11	210	34.8	9.7	230.3	40.3	-16783.4
557+50.00	25.00	13	245	34.8	11.1	263.3	40.3	-17075.9
557+75.00	25.00	16	240	34.8	13.4	280.7	40.3	-17383.4
557+99.39	24.39	18	248	34.8	15.4	275.5	39.3	-17682.8
558+00.00	0.61	19	248	34.8	0.4	7.0	1.0	-17690.4
558+25.00	25.00	20	256	34.8	18.1	291.7	40.3	-18004.3
558+50.00	25.00	25	250	34.8	20.8	292.8	40.3	-18316.6
558+75.00	25.00	28	246	34.8	24.5	287.0	40.3	-18619.3
559+00.00	25.00	37	195	34.1	30.1	255.2	39.9	-18884.3
559+19.61	19.61	47	182	34.1	30.5	171.1	31.0	-19055.9
559+23.32	3.71	50	180	33.6	6.7	31.1	5.8	-19086.2
559+25.00	1.68	51	178	33.4	3.1	13.9	2.6	-19099.5
559+50.00	25.00	62	161	29.9	52.3	196.2	36.6	-19280.0
559+75.00	25.00	69	158	26.4	60.6	184.6	32.6	-19436.6
560+00.00	25.00	70	160	22.9	64.4	184.0	28.5	-19584.8
560+20.23	20.23	70	163	12.1	52.4	151.3	16.4	-19700.0
560+25.00	4.77	71	159	12.1	12.5	35.6	2.7	-19725.8
560+50.00	25.00	75	142	12.1	67.6	174.2	14.0	-19846.4
560+51.61	1.61	75	141	12.1	4.5	10.5	0.9	-19853.3
560+75.00	23.39	80	125	12.1	67.1	144.0	13.1	-19943.3
561+00.00	25.00	89	104	12.1	78.2	132.5	14.0	-20011.6
561+25.00	25.00	101	87	12.1	88.0	110.5	14.0	-20048.2
561+50.00	25.00	109	78	12.1	97.2	95.5	14.0	-20060.5
561+51.61	1.61	110	78	12.1	6.5	5.8	0.9	-20060.6
561+67.04	15.43	106	80	5.7	61.7	56.4	6.4	-20061.7
561+75.00	7.96	106	80	12.1	31.3	29.5	3.3	-20063.2
562+00.00	25.00	97	80	7.4	94.0	92.6	11.3	-20073.1
562+20.00	20.00	88	82	12.1	68.5	75.0	9.0	-20088.6
562+25.00	5.00	85	84	12.1	16.0	19.2	2.8	-20094.6
562+50.00	25.00	93	93	11.9	82.4	102.4	13.9	-20128.5
562+55.00	5.00	95	88	11.8	17.4	20.9	2.7	-20134.8
562+75.00	20.00	120	51	6.2	79.6	64.4	8.3	-20127.9
563+00.00	25.00	139	26	5.2	119.9	44.6	6.6	-20059.1
563+25.00	25.00	166	10	0	141.2	20.8	3.0	-19941.8
563+50.00	25.00	184	0	0	162.0	5.8	0.0	-19785.5
563+75.00	25.00	199	6	0	177.3	3.5	0.0	-19611.7
563+78.94	3.94	0	0	0	14.5	0.5	0.0	-19597.7
564+00.00	21.06	211	20	5.6	82.3	9.7	2.7	-19527.9
564+16.02	16.02	167	40	5.6	112.1	22.2	4.2	-19442.2
564+20.00	3.98	172	36	11.9	25.0	7.0	1.6	-19425.8
564+25.00	5.00	169	37	11.9	31.6	8.4	2.8	-19405.4
564+50.00	25.00	171	30	12.2	157.4	38.8	13.9	-19300.7
564+55.00	5.00	174	29	12.2	31.9	6.8	2.8	-19278.4
564+75.00	20.00	183	27	12.2	132.2	25.9	11.3	-19183.4
565+00.00	25.00	184	26	12.2	169.9	30.7	14.1	-19058.3
565+25.00	25.00	178	27	12.2	167.6	30.7	14.1	-18935.5
565+50.00	25.00	172	32	12.2	162.0	34.1	14.1	-18821.7
565+66.02	16.02	167	33	12.2	100.6	24.1	9.0	-18754.3
565+75.00	8.98	164	35	12.2	55.0	14.1	5.1	-18718.5
566+00.00	25.00	155	47	12.2	147.7	47.5	14.1	-18632.4

* Additional 25% Volume Included For Shrinkage

SHEYENNE STREET (CONT.)								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment	Embankment Above Subgrade	Mass Ordinate
566+25.00	25.00	148	60	12.2	140.3	61.9	14.1	-18568.1
566+50.00	25.00	148	65	12.2	137.0	72.3	14.1	-18517.6
566+66.02	16.02	156	61	12.2	90.2	46.7	9.0	-18483.1
566+75.00	8.98	159	61	25.6	52.4	25.4	7.9	-18464.0
566+97.98	22.98	168	65	29.7	139.2	67.0	29.4	-18421.3
567+00.00	2.02	169	65	30.1	12.6	6.1	2.8	-18417.5
567+25.00	25.00	183	54	34.2	163.0	68.9	37.2	-18360.6
567+50.00	25.00	204	45	38.3	179.2	57.3	42.0	-18280.7
567+75.00	25.00	224	38	42.6	198.1	48.0	46.8	-18177.4
567+98.02	23.02	247	34	46.5	200.8	38.4	47.5	-18062.5
568+00.00	1.98	249	33	46.6	18.2	3.1	4.3	-18051.6
568+25.00	25.00	271	29	47.2	240.7	35.9	54.3	-17901.1
568+50.00	25.00	286	29	47.9	257.9	33.6	55.0	-17731.8
568+75.00	25.00	285	34	12.2	264.4	36.5	34.8	-17538.7
569+00.00	25.00	266	44	12.2	255.1	45.1	14.1	-17342.8
569+25.00	25.00	250	42	50	238.9	49.8	36.0	-17189.7
569+45.00	20.00	297	17	51.6	202.6	27.3	47.0	-17061.5
569+50.00	5.00	305	14	52.1	55.7	3.6	12.0	-17021.3
569+70.00	20.00	301	11	46.5	224.4	11.6	45.6	-16854.1
569+75.00	5.00	294	6	46.7	55.1	2.0	10.8	-16811.8
570+00.00	25.00	240	0	3.8	247.2	3.5	29.2	-16597.2
570+18.78	18.78	216	0	6.2	158.6	0.0	4.3	-16443.0
570+25.00	6.22	207	0	41.5	48.7	0.0	6.9	-16401.2
570+48.57	23.57	208	1	38.3	181.1	0.5	43.5	-16264.1
570+50.00	1.43	202	9	38	10.9	0.3	2.5	-16256.1
570+69.97	19.97	226	15	41.4	158.3	11.1	36.7	-16145.6
570+75.00	5.03	222	13	40.6	41.7	3.3	9.5	-16116.7
570+85.00	10.00	224	6	43.9	82.6	4.4	19.6	-16058.1
570+95.00	10.00	184	9	41.4	75.6	3.5	19.7	-16005.7
571+00.00	5.00	171	21	41	32.9	3.5	9.5	-15985.9
571+10.00	10.00	167	31	39.1	62.6	12.0	18.5	-15953.8
571+25.00	15.00	168	45	11.1	93.1	26.4	17.4	-15904.6
571+50.00	25.00	173	50	16.6	157.9	55.0	16.0	-15817.7
571+51.10	1.10	173	50	15.2	7.0	2.5	0.8	-15814.1
571+75.00	23.90	186	45	29.6	158.9	52.6	24.8	-15732.5
572+00.00	25.00	198	17	20.9	177.8	35.9	29.2	-15619.8
572+25.00	25.00	205	19	17.1	186.6	20.8	22.0	-15476.1
572+50.00	25.00	217	20	6.4	195.4	22.6	13.6	-15316.9
572+75.00	25.00	227	18	6.4	205.6	22.0	7.4	-15140.7
572+82.88	7.88	228	18	6.4	66.4	6.6	2.3	-15083.2
573+00.00	17.12	225	18	6.4	143.6	14.3	5.1	-14958.9
573+25.00	25.00	222	18	6.4	206.9	20.8	7.4	-14780.2
573+50.00	25.00	210	19	6.4	200.0	21.4	7.4	-14609.1
573+75.00	25.00	196	22	6.4	188.0	23.7	7.4	-14452.2
574+00.00	25.00	179	25	6.4	173.6	27.2	7.4	-14313.2
574+25.00	25.00	161	29	6.4	157.4	31.3	7.4	-14194.5
574+50.00	25.00	146	35	6.4	142.1	37.0	7.4	-14096.8
574+75.00	25.00	132	38	6.4	128.7	42.2	7.4	-14017.7
575+00.00	25.00	120	49	6.4	116.7	50.3	7.4	-13958.8
575+25.00	25.00	104	59	6.2	103.7	62.5	7.3	-13924.9
575+50.00	25.00	96	102	6.1	92.6	93.2	7.1	-13932.6
575+60.00	10.00	93	114	6.1	35.0	50.0	2.8	-13950.4
Totals					27839.5	36072.3	5717.6	

* Additional 25% Volume Included For Shrinkage

This document was originally issued and sealed by Jonathan P. Morgenroth Registration Number PE- 6872, on 09/06/18 and the original document is stored at the City of West Fargo

Sheyenne Street

Earthwork

Earthwork Summary Tables

40TH AVENUE WEST								
Station	Length	End Area (SF)			Volume (CY)			Mass Ordinate
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	
5+14.51		15	1	0				
5+25.00	10.49	9	1	0	4.7	0.5	0.0	4.2
5+50.00	25.00	58	24	8.7	31.0	14.5	5.0	15.7
5+57.50	7.50	52	36	8.7	15.3	10.4	3.0	17.5
5+67.50	10.00	50	59	8.7	18.9	22.0	4.0	10.4
5+73.16	5.66	0	0	0	5.2	7.7	1.1	6.8
5+75.00	1.84	47	81	8.6	1.6	3.5	0.4	4.6
5+89.00	14.00	39	134	9.5	22.3	69.7	5.9	-48.7
5+96.02	7.02	35	146	9.5	9.6	45.5	3.1	-87.7
6+00.00	3.98	33	167	11.3	5.0	28.8	1.9	-113.4
6+25.00	25.00	14	171	6.8	21.8	195.6	10.5	-297.7
6+37.50	12.50	13	96	16.6	6.3	77.3	6.8	-375.5
6+50.00	12.50	0	0	0	3.0	27.8	4.8	-405.1
Totals					144.6	503.2	46.5	

40TH AVENUE EAST								
Station	Length	End Area (SF)			Volume (CY)			Mass Ordinate
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	
7+16.03		0	0	0				
7+25.00	8.97	37	13	1.2	6.1	2.7	0.2	3.2
7+42.00	17.00	109	45	1.6	46.0	22.8	1.1	25.2
7+50.00	8.00	90	71	6.2	29.5	21.5	1.4	31.8
7+75.00	25.00	71	93	5.5	74.5	94.9	6.8	4.6
7+82.76	7.76	0	0	0	10.2	16.7	1.0	-2.8
7+91.71	8.95	63	26	6.2	10.4	5.4	1.3	0.9
7+96.39	4.68	0	0	0	5.5	2.8	0.7	2.9
8+00.00	3.61	68	20	5.4	4.5	1.7	0.5	5.3
8+07.00	7.00	70	20	1.8	17.9	6.5	1.2	15.6
8+25.00	18.00	68	21	11	46.0	17.1	5.3	39.1
8+27.00	2.00	24	21	6	3.4	1.9	0.8	39.8
8+50.00	23.00	19	22	5.4	18.3	22.9	6.1	29.2
8+75.00	25.00	17	16	4.7	16.7	22.0	5.8	18.0
8+92.17	17.17	17	13	4.2	10.8	11.5	3.5	13.8
9+00.00	7.83	17	12	4.2	4.9	4.5	1.5	12.6
9+25.00	25.00	16	6	4	15.3	10.4	4.7	12.7
9+50.00	25.00	18	0	4	15.7	3.5	4.6	20.4
9+52.17	2.17	18	0	4	1.4	0.0	0.4	21.4
Totals					337.3	268.8	47.0	

KENSINGTON								
Station	Length	End Area (SF)			Volume (CY)			Mass Ordinate
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	
9+94.27		0	0	0				
10+00.00	5.73	15	0	6.5	1.6	0.0	0.9	0.7
10+01.81	1.81	0	0	0	0.5	0.0	0.3	1.0
10+21.00	19.19	11	23	7.2	3.9	10.2	3.2	-8.5
10+25.00	4.00	8	29	0.4	1.4	4.8	0.7	-12.7
10+41.10	16.10	3	22	0	3.3	19.0	0.1	-28.5
10+50.00	8.90	4	23	0	1.2	9.3	0.0	-36.7
10+54.52	4.52	9	21	0	1.1	4.6	0.0	-40.2
10+75.00	20.48	26	15	0	13.3	17.1	0.0	-44.0
10+97.41	22.41	34	0	0	24.9	7.8	0.0	-26.8
11+00.00	2.59	20	12	0	2.6	0.7	0.0	-25.0
11+25.00	25.00	9	10	0	13.4	12.7	0.0	-24.3
11+31.79	6.79	34	8	0	5.4	2.8	0.0	-21.7
11+50.00	18.21	36	3	0	23.6	4.6	0.0	-2.7
11+50.99	0.99	0	0	0	0.7	0.1	0.0	-2.1
11+75.00	24.01	33	2	0	14.7	1.1	0.0	11.4
12+00.00	25.00	29	1	0	28.7	1.7	0.0	38.4
12+25.00	25.00	25	3	0	25.0	2.3	0.0	61.1
12+26.52	1.52	25	3	0	1.4	0.2	0.0	62.3
Totals					166.6	99.1	5.2	

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	11	5

38TH AVENUE								
Station	Length	End Area (SF)			Volume (CY)			Mass Ordinate
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	
22+30.07		80	0	17.8				
22+37.00	6.93	79	1	13.7	20.4	0.2	5.1	15.2
22+39.44	2.44	77	2	28.3	7.0	0.2	2.4	19.7
22+50.00	10.56	68	6	22.6	28.4	2.0	12.4	33.7
22+70.05	20.05	70	33	16.5	51.2	18.1	18.1	48.6
22+87.00	16.95	98	6	3.2	52.7	15.3	7.7	78.3
22+92.95	5.95	47	16	8.7	16.0	3.0	1.6	89.7
23+00.00	7.05	59	13	16.7	13.8	4.7	4.1	94.6
23+03.97	3.97	67	10	2.6	9.3	2.1	1.8	100.0
Totals					198.9	45.6	53.3	

HIDDEN CIRCLE								
Station	Length	End Area (SF)			Volume (CY)			Mass Ordinate
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	
30+29.15		0	0	0				
30+50.00	20.85	133	3	7.8	51.4	1.4	3.8	46.1
30+51.00	1.00	128	1	17.2	4.8	0.1	0.6	50.3
30+75.00	24.00	71	16	16.6	88.4	9.4	18.8	110.5
31+00.00	25.00	53	0	5.6	57.4	9.3	12.8	145.8
31+01.00	1.00	53	0	5.7	2.0	0.0	0.3	147.5
31+11.00	10.00	55	0	5.6	20.0	0.0	2.6	164.9
31+25.00	14.00	54	0	5.6	28.3	0.0	3.6	189.5
31+26.56	1.56	54	0	5.6	3.1	0.0	0.4	192.3
31+45.19	18.63	57	0	6.3	38.3	0.0	5.1	225.4
31+50.00	4.81	60	0	5.7	10.4	0.0	1.3	234.5
31+53.53	3.53	37	0	5.4	6.3	0.0	0.9	239.9
31+75.00	21.47	33	0	0	27.8	0.0	2.7	265.1
32+00.00	25.00	29	0	0	28.7	0.0	0.0	293.8
32+04.67	4.67	27	0	3.7	4.8	0.0	0.4	298.2
Totals					371.8	20.2	53.3	

* Additional 25% Volume Included For Shrinkage

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Registration Number
PE- 6872,
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Sheyenne Street

Earthwork

Earthwork Summary Tables

37TH AVENUE								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
40+32.86		0	0	0				
40+47.00	14.14	155	6	17.7	40.6	2.0	5.8	32.8
40+50.00	3.00	128	13	15.7	15.7	1.3	2.3	44.9
40+70.36	20.36	72	13	12.2	75.4	12.3	13.1	94.9
40+70.64	0.28	68	13	10.5	0.7	0.2	0.1	95.3
40+75.00	4.36	66	12	10.6	10.8	2.5	2.1	101.5
40+85.00	10.00	55	7	10.8	22.4	4.4	5.0	114.5
41+00.00	15.00	56	1	11	30.8	2.8	7.6	135.0
41+03.00	3.00	56	1	11.1	6.2	0.1	1.5	139.6
41+25.00	22.00	48	0	6.4	42.4	0.5	8.9	172.5
Totals					245.1	26.1	46.5	

34TH AVENUE								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
52+65.00		109	3	49.7				
52+75.00	10.00	106	5	50.5	39.8	1.9	23.2	14.8
52+90.00	15.00	98	7	51.7	56.7	4.2	35.5	31.8
53+00.00	10.00	101	7	46.5	36.9	3.2	22.7	42.7
53+15.00	15.00	111	11	51.6	58.9	6.3	34.1	61.2
53+25.00	10.00	126	15	56.1	43.9	6.0	24.9	74.2
53+29.60	4.60	122	16	12.9	21.1	3.3	7.3	84.7
53+50.00	20.40	199	24	3.8	121.3	18.9	7.9	179.1
53+52.65	2.65	82	23	0	13.8	2.9	0.2	189.8
53+67.11	14.46	0	0	0	22.0	7.7	0.0	204.1
Totals					414.3	54.3	155.9	

GOLDEN SPIKE								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
60+31.96		0	0	0				
60+33.11	1.15	146	0	0	3.1	0.0	0.0	3.1
60+44.11	11.00	102	9	8.9	50.5	2.3	2.3	49.1
60+44.33	0.22	102	10	8.7	0.8	0.1	0.1	49.7
60+48.00	3.67	182	12	14.6	19.3	1.9	2.0	65.2
60+50.00	2.00	174	0	16.8	13.2	0.6	1.5	76.3
60+50.92	0.92	167	0	21.2	5.8	0.0	0.8	81.3
60+69.48	18.56	112	0	7	95.9	0.0	12.1	165.1
60+73.00	3.52	104	1	6.1	14.1	0.1	1.1	178.1
60+75.00	2.00	94	6	2.4	7.3	0.3	0.4	184.7
60+76.26	1.26	83	11	0	4.1	0.5	0.1	188.2
60+81.83	5.57	2	18	0	8.8	3.7	0.0	193.3
60+98.00	16.17	95	3	0	29.0	7.9	0.0	214.4
61+00.00	2.00	92	4	0	6.9	0.3	0.0	221.0
61+25.00	25.00	51	5	0	66.2	5.2	0.0	282.0
61+45.00	20.00	46	7	0	35.9	5.6	0.0	312.4
Totals					361.1	28.4	20.2	

33RD AVENUE								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
70+61.00		78	0	22				
70+75.00	14.00	69	0	22	38.1	0.0	14.3	23.9
71+00.00	25.00	62	1	21.9	60.6	0.6	25.4	58.5
71+01.00	1.00	63	1	21.9	2.3	0.0	1.0	59.8
71+21.86	20.86	90	0	25.2	59.1	0.5	22.7	95.6
71+24.04	2.18	92	0	12.1	7.3	0.0	1.9	101.1
71+25.00	0.96	92	0	12.1	3.3	0.0	0.5	103.8
71+26.83	1.83	94	0	12.1	6.3	0.0	1.0	109.1
71+31.54	4.71	101	2	13	17.0	0.2	2.7	123.2
71+50.00	18.46	182	2	19.8	96.7	1.7	14.0	204.2
71+56.00	6.00	236	0	10.4	46.4	0.3	4.2	246.2
71+59.34	3.34	263	0	22.8	30.9	0.0	2.6	274.5
71+64.29	4.95	0	0	0	24.1	0.0	2.6	296.0
Totals					392.3	3.3	93.0	

HORSESHOE CIRCLE								
Station	Length	End Area (SF)			Volume (CY)			
		Excavation	Embankment	Embankment Above Subgrade	Excavation	Embankment*	Embankment* Above Subgrade	Mass Ordinate
80+35.77		0	0	0				
80+40.96	5.19	54	0	25.9	5.2	0.0	3.1	2.1
80+44.00	3.04	286	0	18.1	19.1	0.0	3.1	18.1
80+50.00	6.00	230	0	8.7	57.3	0.0	3.7	71.7
80+73.63	23.63	118	0	3.4	152.3	0.0	6.6	217.4
80+74.00	0.37	118	0	3.8	1.6	0.0	0.1	219.0
80+75.00	1.00	118	0	3	4.4	0.0	0.2	223.2
80+79.15	4.15	115	0	2.4	17.9	0.0	0.5	240.6
80+89.00	9.85	84	1	0	36.3	0.2	0.5	276.1
81+00.00	11.00	81	0	0	33.6	0.3	0.0	309.4
81+13.55	13.55	89	0	0	42.7	0.0	0.0	352.1
81+25.00	11.45	71	0	0	33.9	0.0	0.0	386.0
81+50.00	25.00	50	1	0	56.0	0.6	0.0	441.5
81+55.00	5.00	51	1	0	9.4	0.2	0.0	450.6
Totals					469.7	1.3	17.8	

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Earthwork

Earthwork Summary Tables

UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	7

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
1	513+65	to	514+95	Left	Utility to remain in place, contractor to protect existing facilities. Maintain 18" vertical clearance from sewers.	Cass Rural Water	Water Line	Never - Protect in Place	0-2'
2	513+65	to	514+95	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
3	514+50	to	514+95	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
4	514+85	to	515+35	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
5	514+95	to	515+25	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
6	514+95	to	515+25	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
7	515+00	to	520+05	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
8	515+25	to	520+40	Left	Utility to remain in place, contractor to protect existing facilities. Maintain 18" vertical clearance from sewers.	Cass Rural Water	Water Line	Never - Protect in Place	0-2'
9	515+25	to	522+05	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
10	515+25	to	519+00	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
11	515+70	to	576+00	Left, Right, Crossing	Utility to be buried, contractor to protect existing facilities	Cass County Electric	OH Power	Concurrent with Construction	10' Vertical Clearance
12	517+00	to	517+00	Crossing	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	OH Power (3)	Never - Protect in Place	20' Vertical Clearance
13	518+60	to	520+05	Left	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
14	520+10	to	520+40	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
15	520+40	to	522+05	Left	Utility to remain in place, contractor to protect existing facilities. Maintain 18" vertical clearance from sewers.	Cass Rural Water	Water Line	Never - Protect in Place	0-2'
16	519+00	to	522+05	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
17	519+00	to	524+00	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
18	519+45	to	519+45	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
19	519+75	to	519+75	Right	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
20	520+15	to	520+35	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
21	520+35	to	522+15	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
22	520+80	to	520+80	Left	Adjust or Relocate	Century Link	Utility Vault	Concurrent with Construction	
23	520+80	to	522+00	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
24	521+30	to	521+30	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
25	521+87	to	522+50	Crossing	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
26	522+05	to	562+75	Left	Abandon in Place	Cass Rural Water	Water Line	Concurrent with Construction	0-2'
27	522+25	to	523+50	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
28	522+25	to	523+95	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
29	522+00	to	522+00	Crossing	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
30	522+00	to	522+00	Crossing	Adjust or Relocate	Consolidated Communication	Fiber Optic	Concurrent with Construction	

* For perpendicular utility crossing, 0' of cover is allowed. A minimum 2' of cover is required for compaction equipment over utilities. (To be verified with Utility Companies)

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	8

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
31	522+05	to	522+05	Left	Adjust or Relocate	Consolidated Communication	Utility Vault	Concurrent with Construction	
32	522+05	to	522+05	Left	Adjust or Relocate	Cable One	Utility Vault	Concurrent with Construction	
33	522+05	to	522+05	Crossing	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
34	522+15	to	522+15	Crossing	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	
35	522+15	to	522+15	Right	Adjust or Relocate	Cable One	Utility Vault	Concurrent with Construction	
36	522+20	to	522+20	Crossing	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	
37	522+25	to	522+25	Crossing	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
38	522+25	to	522+25	Right	Adjust or Relocate	Midcontinent	Utility Vault	Concurrent with Construction	
39	522+35	to	522+35	Crossing	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
40	522+25	to	522+25	Left	Adjust or Relocate	Xcel Energy	Gas Valve	Concurrent with Construction	
41	522+35	to	522+35	Left	Adjust or Relocate	Midcontinent	Utility Pedestal	Concurrent with Construction	
42	522+50	to	522+50	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
43	522+50	to	522+50	Crossing	Utility to be buried, contractor to protect existing facilities	Cass County Electric	OH Power	Concurrent with Construction	20' Vertical Clearance
44	522+00	to	523+80	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
45	522+00	to	522+50	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
46	522+50	to	523+55	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
47	522+50	to	523+90	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
48	522+50	to	523+90	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
49	522+50	to	523+90	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
50	523+25	to	523+55	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
51	523+55	to	523+55	Crossing	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
52	523+55	to	523+55	Crossing	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
53	523+65	to	523+75	Left	Adjust or Relocate	Consolidated Communication	Fiber Optic	Concurrent with Construction	
54	523+65	to	523+75	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
55	523+75	to	525+00	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
56	523+75	to	525+75	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
57	523+75	to	525+00	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
58	523+75	to	525+00	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
59	523+75	to	525+75	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
60	523+70	to	523+70	Right	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
61	523+90	to	523+90	Left	Adjust or Relocate	Century Link	Utility Vault	Concurrent with Construction	
62	523+90	to	523+90	Left	Adjust or Relocate	Consolidated Communication	Utility Vault	Concurrent with Construction	

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	9

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
63	523+90	to	523+90	Left	Adjust or Relocate	Midcontinent	Utility Vault	Concurrent with Construction	
64	523+90	to	535+95	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
65	523+90	to	525+00	Left	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
66	524+60	to	524+60	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
67	525+00	to	525+00	Crossing	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
68	525+00	to	525+00	Right	Adjust or Relocate	Cass County Electric	Utility Pedestal	Concurrent with Construction	
69	525+00	to	525+00	Right	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
70	525+00	to	525+00	Right	Adjust or Relocate	Cable One	Utility Vault	Concurrent with Construction	
71	525+00	to	525+75	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
72	525+00	to	527+60	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
73	525+05	to	525+05	Right	Adjust or Relocate	Midcontinent	Utility Pedestal	Concurrent with Construction	
74	525+05	to	525+05	Right	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
75	525+75	to	526+05	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
76	525+75	to	526+05	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
77	525+75	to	526+05	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
78	525+75	to	526+05	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
79	526+05	to	527+65	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
80	526+05	to	527+75	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
81	526+05	to	527+45	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
82	527+20	to	527+20	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
83	527+45	to	527+45	Right	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
84	527+60	to	527+60	Right	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
85	527+60	to	527+75	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
86	527+65	to	527+65	Right	Adjust or Relocate	Midcontinent	Utility Pedestal	Concurrent with Construction	
87	527+75	to	528+05	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
88	527+75	to	527+95	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
89	527+55	to	528+45	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
90	527+95	to	528+35	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
91	528+05	to	528+15	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
92	528+15	to	528+45	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
93	528+35	to	528+35	Right	Adjust or Relocate	Midcontinent	Utility Pedestal	Concurrent with Construction	
94	528+35	to	528+35	Right	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
95	528+15	to	528+40	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
96	528+15	to	528+40	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	

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UTILITY FACILITIES

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ND	SU-8-992(040)041	11	10

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
97	528+35	to	528+35	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
98	528+35	to	529+55	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
99	528+35	to	529+65	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
100	528+40	to	535+80	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
101	529+20	to	529+20	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
102	529+50	to	529+80	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
103	529+55	to	530+15	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
104	529+65	to	530+25	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
105	530+15	to	532+10	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
106	530+15	to	532+10	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
107	532+25	to	532+55	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
108	532+10	to	532+75	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
109	532+10	to	532+10	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
110	532+10	to	534+35	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
111	532+15	to	532+15	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
112	532+45	to	532+45	Crossing	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	
113	532+75	to	532+75	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
114	532+75	to	532+75	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
115	532+75	to	534+05	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
116	534+15	to	534+45	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
117	534+05	to	534+40	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
118	534+05	to	534+20	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
119	534+20	to	535+80	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
120	534+40	to	537+60	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
121	534+80	to	534+80	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
122	535+35	to	535+35	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
123	535+65	to	535+75	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
124	535+95	to	536+80	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
125	536+60	to	536+65	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
126	536+65	to	536+65	Crossing	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
127	536+80	to	536+80	Crossing	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
128	535+80	to	536+60	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
129	535+80	to	536+60	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	

* For perpendicular utility crossing, 0' of cover is allowed. A minimum 2' of cover is required for compaction equipment over utilities. (To be verified with Utility Companies)

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	11

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
130	536+60	to	537+85	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
131	536+60	to	537+60	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
132	536+80	to	551+85	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
133	536+80	to	551+85	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
134	537+45	to	537+45	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
135	537+60	to	537+90	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
136	537+60	to	537+90	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
137	537+60	to	537+90	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
138	537+85	to	541+20	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
139	537+90	to	541+20	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
140	537+90	to	541+20	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
141	541+20	to	541+50	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
142	541+20	to	541+50	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
143	541+20	to	541+50	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
144	541+20	to	541+50	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
145	541+45	to	541+45	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
146	541+50	to	542+85	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
147	541+50	to	542+85	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
148	541+50	to	542+85	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
149	542+85	to	543+15	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
150	542+85	to	543+15	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
151	542+85	to	543+15	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
152	543+15	to	545+10	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
153	543+15	to	545+15	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
154	543+15	to	545+15	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
155	545+10	to	545+15	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
156	544+25	to	544+25	Left	Adjust or Relocate	Cass County Electric	Power Pole	Concurrent with Construction	
157	545+10	to	545+70	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
158	545+15	to	545+65	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
159	545+15	to	545+65	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
160	545+15	to	545+65	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
161	545+15	to	545+65	Right	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	12

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
162	545+65	to	546+45	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
163	545+65	to	546+45	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
164	545+65	to	546+45	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
165	545+65	to	546+45	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
166	546+45	to	546+75	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
167	546+45	to	546+75	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
168	546+45	to	546+75	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
169	546+45	to	546+75	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
170	546+45	to	546+75	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
171	546+75	to	549+05	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
172	546+75	to	549+05	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
173	546+75	to	549+05	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
174	546+75	to	549+05	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
175	549+05	to	550+00	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
176	549+05	to	550+00	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
177	549+05	to	550+00	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
178	549+05	to	550+10	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
179	550+00	to	551+15	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
180	550+00	to	551+20	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
181	550+00	to	551+15	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
182	550+10	to	551+15	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
183	549+90	to	549+95	Crossing	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
184	550+10	to	550+10	Right	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
185	550+15	to	550+15	Right	Adjust or Relocate	Midcontinent	Utility Pedestal	Concurrent with Construction	
186	550+15	to	550+15	Right	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
187	550+15	to	550+15	Right	Adjust or Relocate	Cass County Electric	Utility Pedestal	Concurrent with Construction	
188	550+40	to	550+40	Left	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
189	550+40	to	550+40	Left	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
190	550+40	to	550+80	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
191	550+40	to	550+80	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
192	551+15	to	551+45	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
193	551+15	to	551+45	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
194	551+10	to	551+40	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
195	551+15	to	551+50	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	13

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
196	551+15	to	551+50	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
197	551+15	to	551+50	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
198	551+20	to	551+55	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
199	551+50	to	559+60	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
200	551+55	to	559+90	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
201	551+50	to	559+85	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
202	551+50	to	559+85	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
203	551+85	to	558+70	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
204	551+85	to	558+70	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
205	552+10	to	552+20	Right	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
206	553+00	to	555+00	Right	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
207	556+10	to	556+35	Right	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
208	558+70	to	559+30	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
209	558+70	to	559+35	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
210	558+90	to	562+25	Left	Adjust or Relocate	Cass Rural Water	Water Line	Concurrent with Construction	
211	559+30	to	559+60	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
212	559+35	to	559+65	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
213	559+60	to	563+80	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
214	559+60	to	562+85	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
215	559+65	to	568+35	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
216	559+85	to	560+15	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
217	559+85	to	560+15	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
218	559+90	to	560+20	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
219	560+00	to	560+00	Crossing	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	
220	560+20	to	561+40	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
221	560+15	to	560+85	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
222	560+15	to	561+05	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
223	560+85	to	563+20	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
224	561+05	to	562+25	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
225	561+40	to	561+70	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
226	561+70	to	563+10	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
227	561+85	to	561+85	Right	Adjust or Relocate	Midcontinent	Utility Pedestal	Concurrent with Construction	
228	562+25	to	563+10	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
229	562+60	to	562+60	Crossing	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	14

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
230	562+60	to	562+60	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
231	562+70	to	562+70	Crossing	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
232	562+70	to	562+70	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
233	562+65	to	562+65	Left	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
234	562+65	to	562+65	Left	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
235	562+85	to	563+90	Left	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	
236	562+85	to	563+90	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
237	563+90	to	568+35	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
238	563+90	to	568+35	Left	Utility to remain in place, contractor to protect existing facilities	Cass County Electric	Buried Power Line	Never - Protect in Place	0-2'
239	563+10	to	563+75	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
240	563+10	to	563+75	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
241	563+05	to	563+75	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
242	563+05	to	563+75	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
243	563+20	to	563+20	Right	Adjust or Relocate	Midcontinent	Utility Pedestal	Concurrent with Construction	
244	563+20	to	563+20	Right	Adjust or Relocate	Cable One	Utility Pedestal	Concurrent with Construction	
245	563+75	to	565+85	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
246	563+75	to	565+85	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
247	563+75	to	565+85	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
248	563+75	to	565+85	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
249	563+75	to	565+85	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
250	563+95	to	563+95	Crossing	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
251	564+05	to	564+05	Crossing	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
252	564+05	to	564+05	Left	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
253	565+85	to	566+15	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
254	565+85	to	566+15	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
255	565+85	to	566+15	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
256	565+85	to	566+15	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
257	566+15	to	568+35	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
258	56615	to	568+35	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
259	566+15	to	569+75	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
260	566+15	to	568+35	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
261	566+30	to	568+35	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
262	566+95	to	566+95	Left	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
263	568+35	to	568+65	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	15

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
264	568+35	to	568+65	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
265	568+35	to	568+65	Left	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	
266	568+35	to	568+65	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
267	568+35	to	568+65	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
268	568+35	to	568+65	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
269	568+35	to	568+65	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
270	568+65	to	569+65	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
271	568+65	to	569+65	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
272	568+65	to	569+75	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
273	568+65	to	569+70	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
274	568+65	to	569+75	Left	Utility to remain in place, contractor to protect existing facilities	Cass County Electric	Buried Power Line	Never - Protect in Place	0-2'
275	568+65	to	569+75	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
276	568+65	to	569+70	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
277	569+65	to	569+65	Left	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
278	569+65	to	569+95	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
279	569+65	to	570+60	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
280	569+70	to	570+50	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
281	569+70	to	570+60	Left	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
282	569+75	to	570+60	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
283	569+75	to	570+60	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
284	569+95	to	571+75	Right	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
285	570+50	to	572+40	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
286	570+60	to	572+35	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
287	570+60	to	572+35	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
288	570+60	to	572+75	Left	Utility to remain in place, contractor to protect existing facilities	Century Link	Fiber Optic	Never - Protect in Place	0-2'
289	570+60	to	575+50	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
290	570+60	to	575+80	Left	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
291	570+75	to	570+75	Left	Adjust or Relocate	Century Link	Utility Pedestal	Concurrent with Construction	
292	571+75	to	575+60	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
293	572+40	to	574+70	Right	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
294	572+35	to	574+70	Right	Adjust or Relocate	Xcel Energy	Gas Line	Concurrent with Construction	
295	572+35	to	573+90	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
296	572+35	to	573+90	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	

* For perpendicular utility crossing, 0' of cover is allowed. A minimum 2' of cover is required for compaction equipment over utilities. (To be verified with Utility Companies)

Note: Utility facilities in the table may remain in place or require relocation. Utility companies to physically locate utility facilities and verify if relocation is required.

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UTILITY FACILITIES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	11	16

Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
297	573+70	to	573+70	Crossing	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
298	573+90	to	575+20	Right	Adjust or Relocate	Midcontinent	Fiber Optic	Concurrent with Construction	
299	573+90	to	575+20	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
300	574+70	to	576+00	Right	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
301	574+70	to	576+00	Right	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	Gas Line	Never - Protect in Place	0-2'
302	575+20	to	575+50	Right	Utility to remain in place, contractor to protect existing facilities	Midcontinent	Fiber Optic	Never - Protect in Place	0-2'
303	575+20	to	575+75	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
304	572+85	to	573+15	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
305	574+75	to	574+75	Crossing	Utility to remain in place, contractor to protect existing facilities	Cass County Electric	Buried Power Line	Never - Protect in Place	0-2'
306	574+75	to	575+50	Left	Utility to remain in place, contractor to protect existing facilities	Cass County Electric	Buried Power Line	Never - Protect in Place	0-2'
307	575+50	to	576+00	Left	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	
308	575+50	to	576+00	Left	Adjust or Relocate	Cable One	Fiber Optic	Concurrent with Construction	
309	575+70	to	575+70	Crossing	Utility to remain in place, contractor to protect existing facilities	Xcel Energy	OH Power (3)	Never - Protect in Place	20' Vertical Clearance
310	575+75	to	575+75	Crossing	Utility to remain in place, contractor to protect existing facilities	Cass County Electric	Buried Power Line	Never - Protect in Place	0-2'
311	575+90	to	575+90	Crossing	Utility to remain in place, contractor to protect existing facilities	Cable One	Fiber Optic	Never - Protect in Place	0-2'
312	575+95	to	575+95	Left	Adjust or Relocate	Consolidated Commication	Fiber Optic	Concurrent with Construction	
313	575+95	to	575+95	Crossing	Utility to remain in place, contractor to protect existing facilities	Consolidated Commication	Fiber Optic	Never - Protect in Place	0-2'
314	576+05	to	576+05	Left	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	

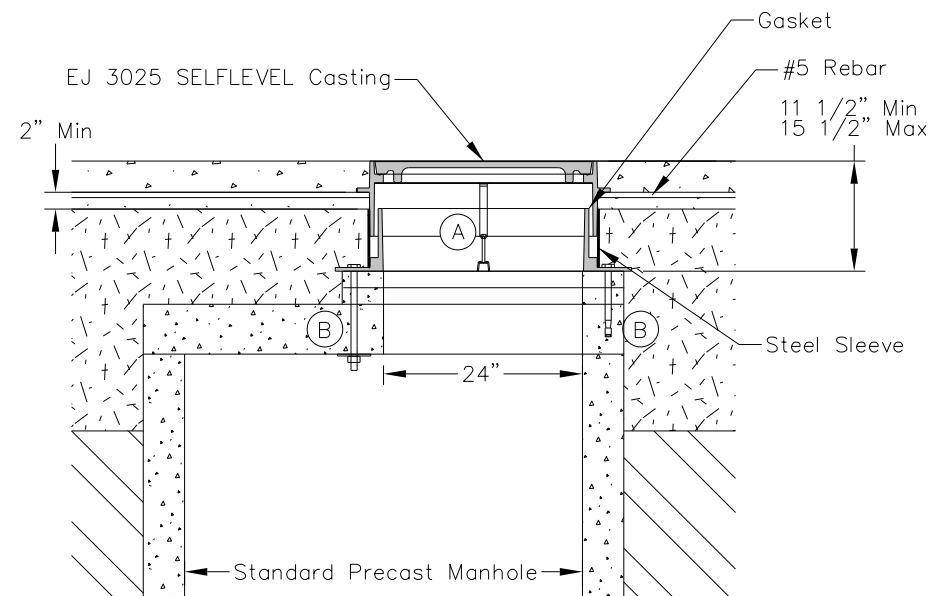
Item #	Approx. Sta. From		Approx. Sta. To	Offset	Comments	Utility	Type of Facility	Relocation Time	Min Cover to Be Maintained *
315	575+50	to	576+00	Right	Adjust or Relocate	Century Link	Fiber Optic	Concurrent with Construction	
316	575+90	to	575+90	Right	Adjust or Relocate	Cass County Electric	Buried Power Line	Concurrent with Construction	

* For perpendicular utility crossing, 0' of cover is allowed. A minimum 2' of cover is required for compaction equipment over utilities. (To be verified with Utility Companies)

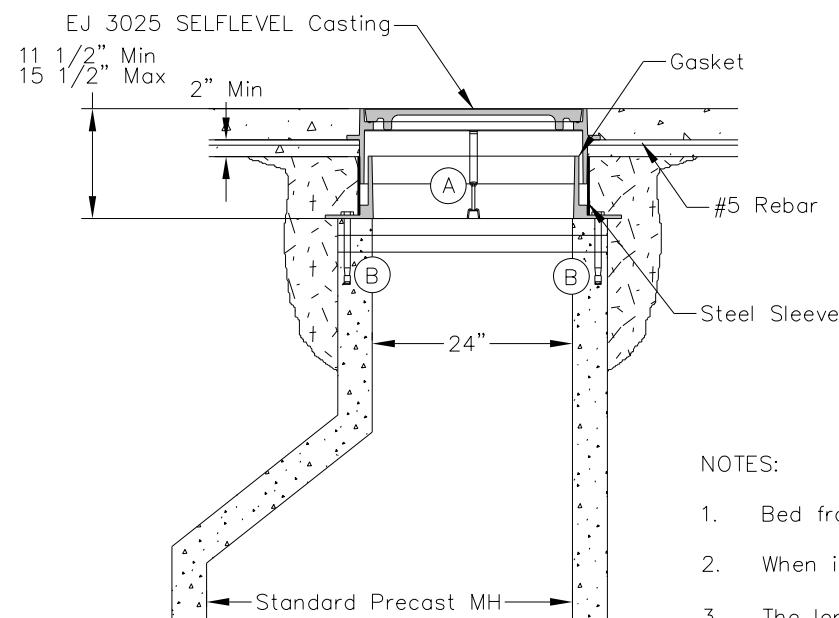
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	20	1

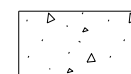


ELEVATION VIEW OF CONNECTION TO
STANDARD PRECAST MANHOLE – TYPICAL

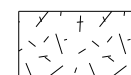


ELEVATION VIEW OF CONNECTION TO
CONICAL MANHOLE – TYPICAL

KEY:



Portland Cement Concrete Pavement

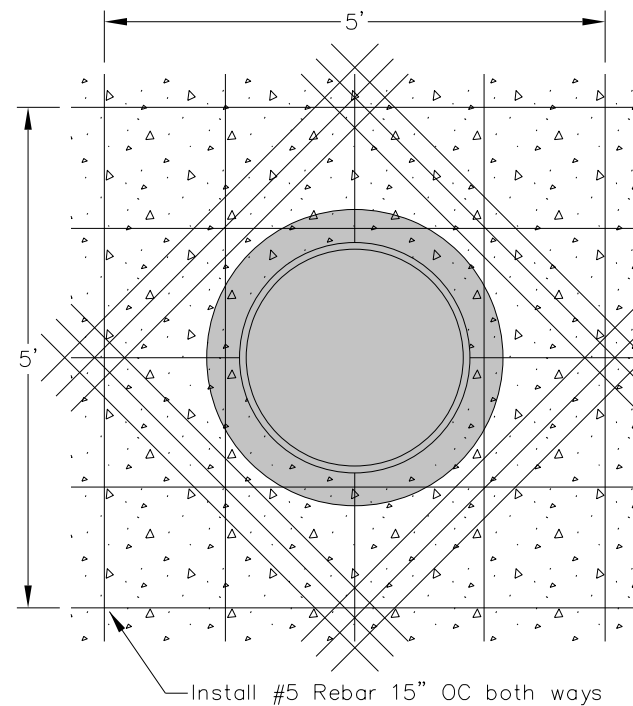


Granular Backfill

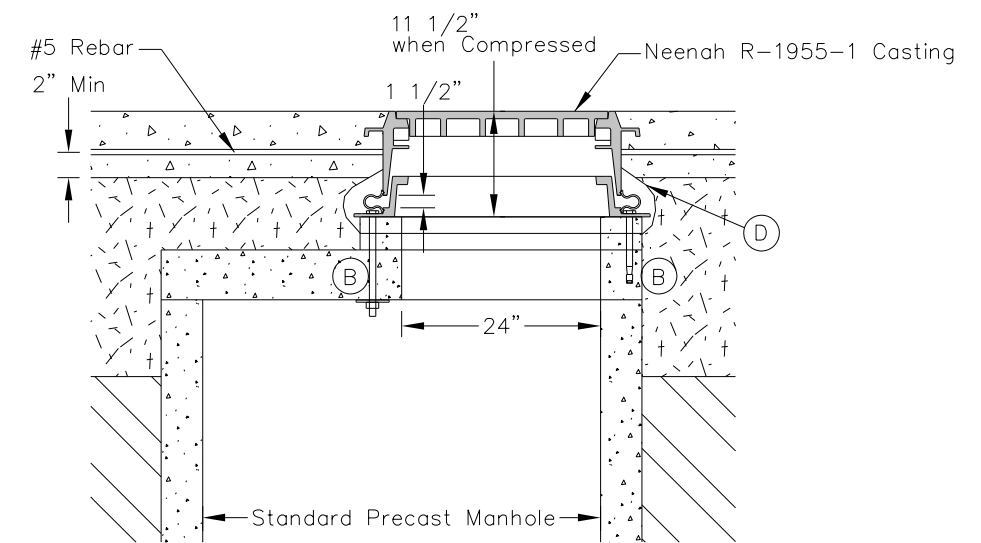
NOTES:

1. Bed frame in mortar, install precast two-inch rings, and plaster inside and out with mortar.
2. When installing an existing box out, drill 20" – #5 rebar into existing pavement 6" deep – 15" OC.
3. The length of anchor bolts varies with the number of adjusting rings.
4. Include installation costs at existing locations in the unit price bid for "MANHOLE CASTING."
5. Include installation costs at new manhole locations in the unit price bid for "MANHOLE ____ IN."

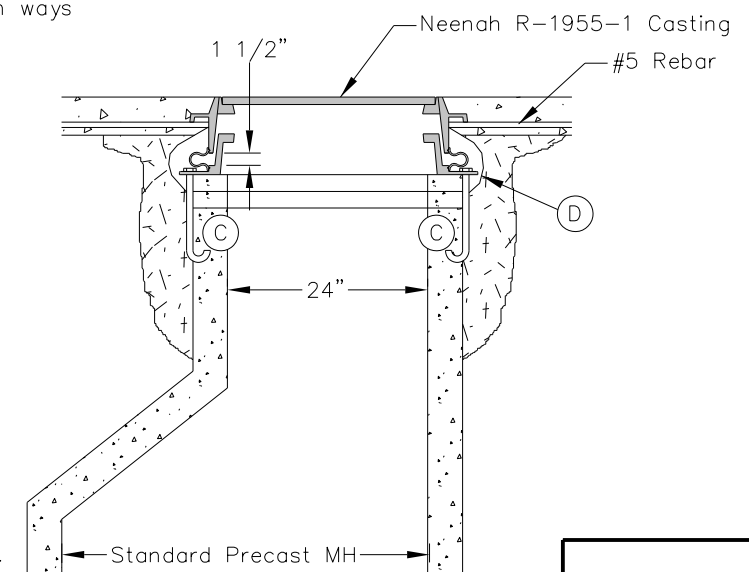
- (A) (3) 6" full thread adjusting bolt and bracket (To be removed after concrete cures.)
- (B) Provide 3/4" diameter stainless steel bolts, nut assemblies, and 1/2"x4"x4" plates to extend through the manhole cover, or provide anchor bolts to extend a minimum of 4" into the MH cover. Provide 4 bolts per casting.
- (C) Provide 3/4" diameter stainless steel bolts with nuts to extend 5" below the adjusting rings. Provide 4 bolts per casting.
- (D) Wrap and tape 6 mil polyethelene on casting above the rubber gasket and tape to adjusting rings below the gasket.



REBAR LAYOUT



ELEVATION VIEW OF CONNECTION TO
STANDARD PRECAST MANHOLE – TYPICAL

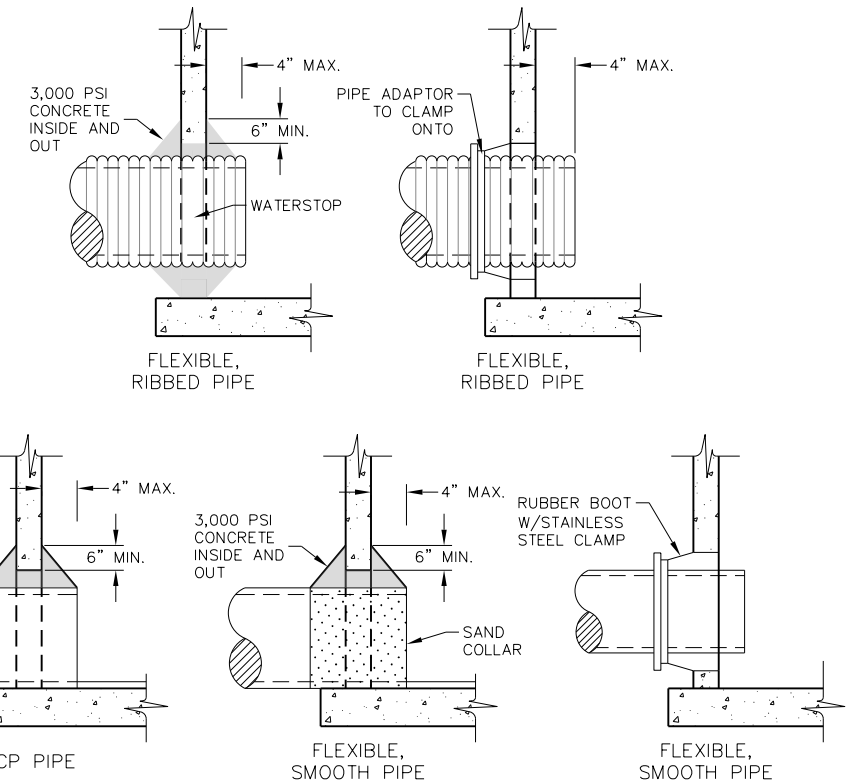
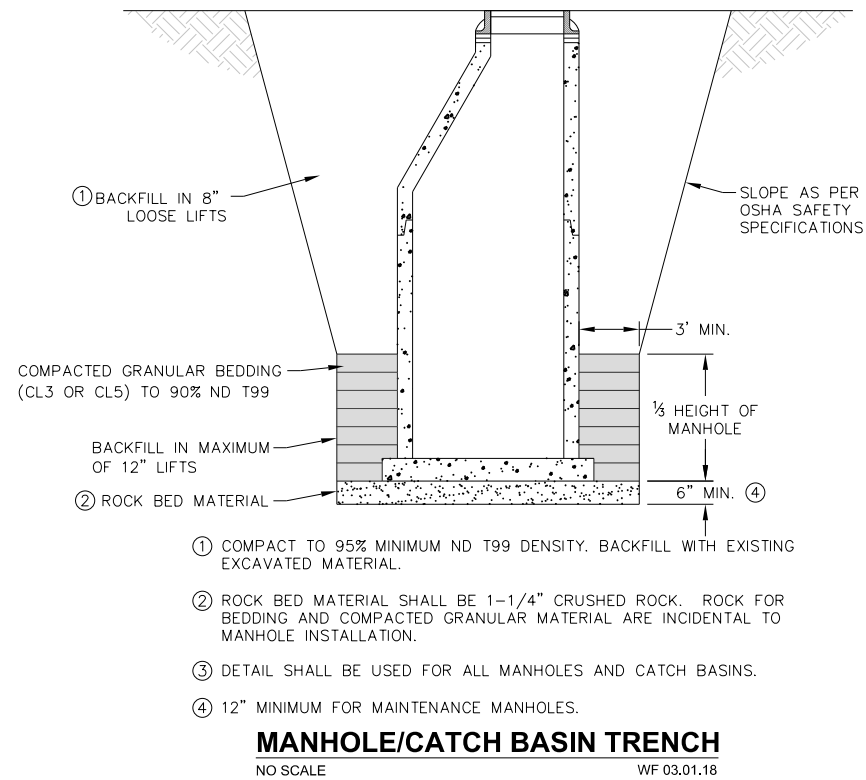
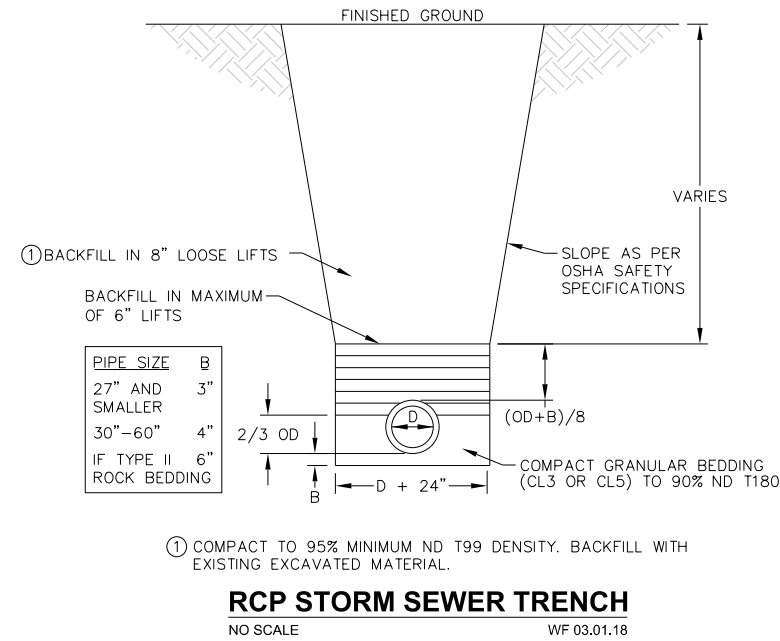


ELEVATION VIEW OF CONNECTION TO
CONICAL MANHOLE – TYPICAL

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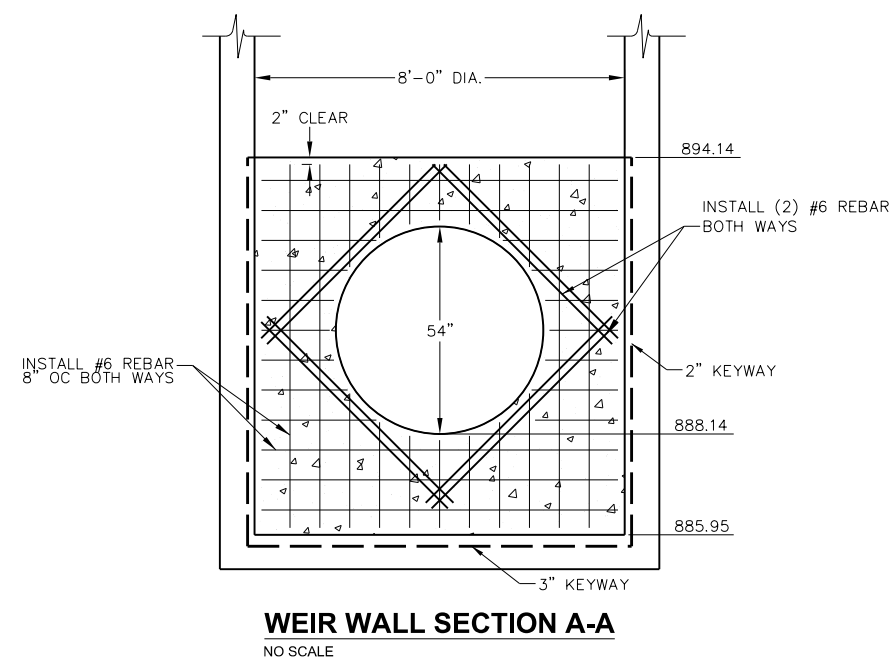
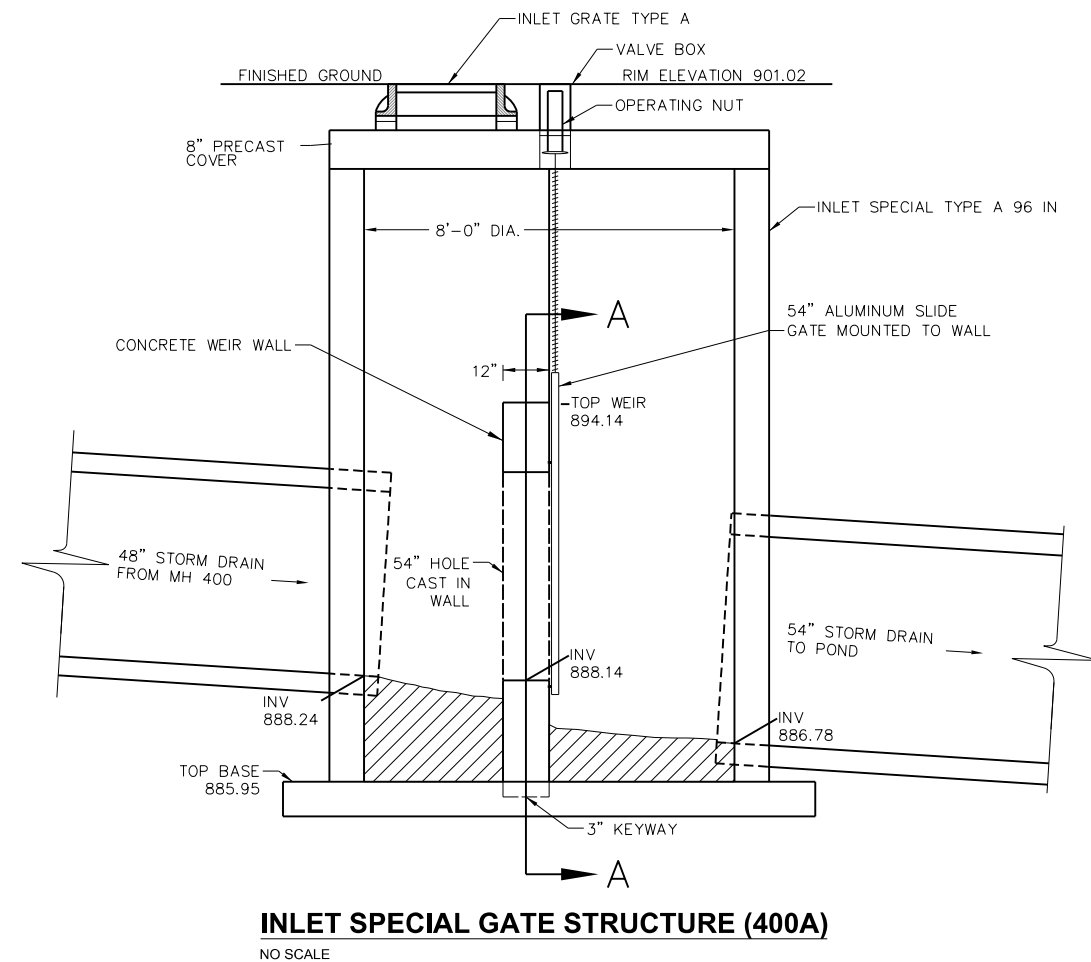
Sheyenne Street
Floating Manhole Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	2



STORM SEWER PIPE CONNECTION

NO SCALE

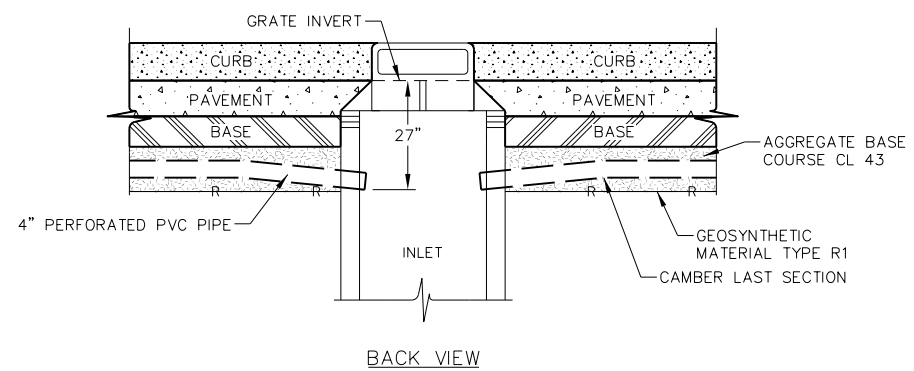
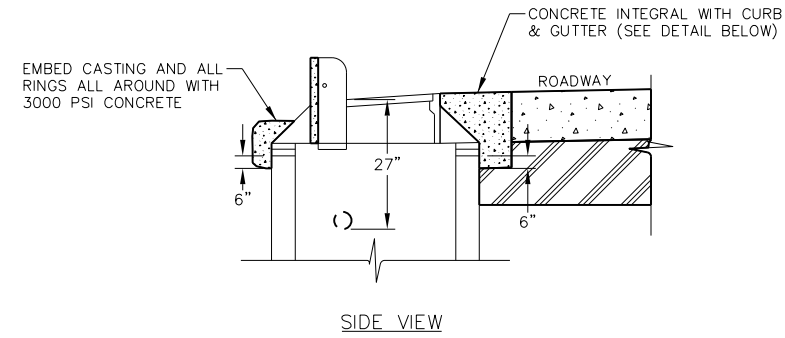


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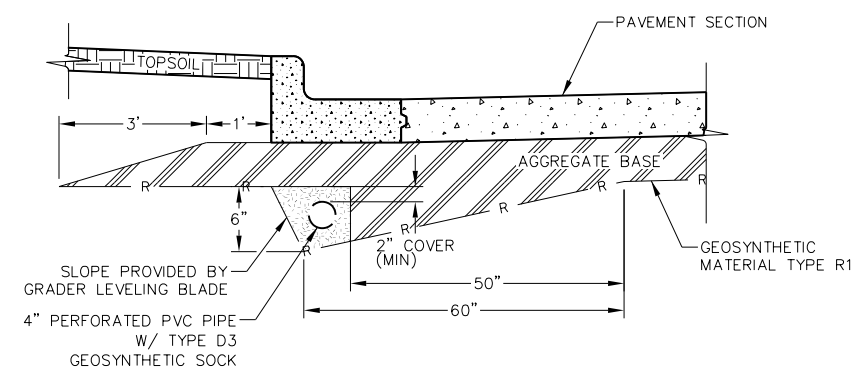
Sheyenne Street

Storm Details

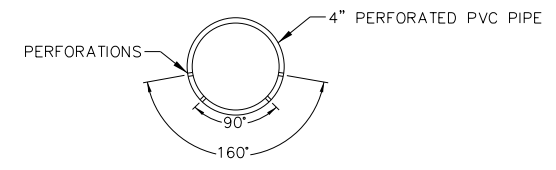
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	3



MANHOLE/INLET CONNECTION
NO SCALE

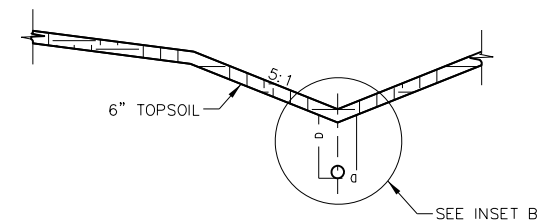
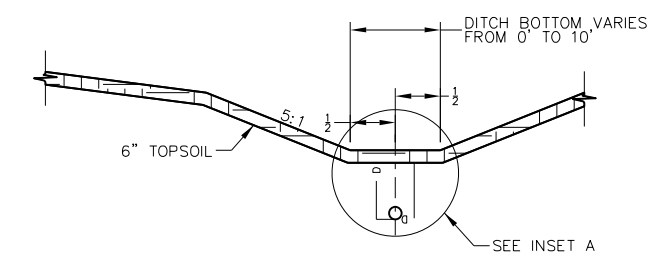
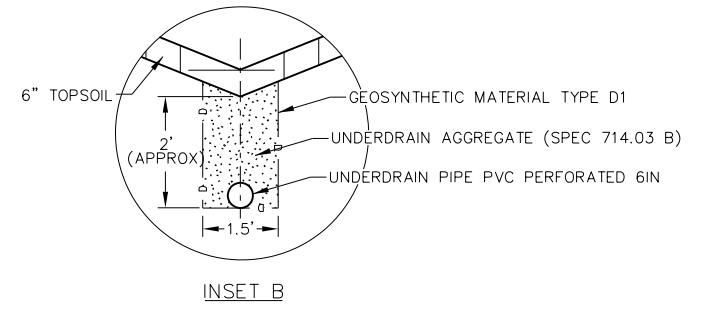
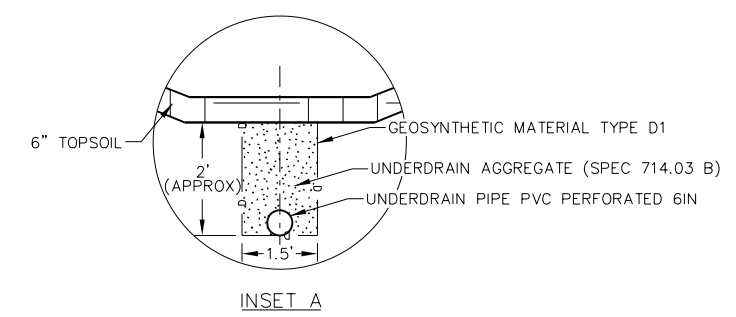


EDGEDRAIN DETAIL
NO SCALE



PERFORATED PVC PIPE DETAIL
NO SCALE

- NOTES:
1. PROVIDE KNOCKOUTS IN INLETS TO ACCOMMODATE 4" PVC PERFORATED PIPE. INCLUDE COST OF KNOCKOUTS AND RUBBER BOOT CONNECTION IN THE PRICE BID FOR PERFORATED PVC PIPE.
 2. DO NOT USE BENDS OR FITTINGS UNLESS APPROVED BY THE ENGINEER. IF USED, USE SOLVENT WELD FITTINGS.
 3. USE POLYVINYL CHLORIDE SEWER PIPE WITH SOLVENT CEMENTED JOINTS AS SPECIFIED IN ASTM SPEC. NO. 3034.
 4. PERFORATIONS TO BE CIRCULAR AND 1/4" ± 1/16" IN DIAMETER. ARRANGE IN ROWS PARALLEL TO THE AXIS OF THE PIPE AND SPACED APPROXIMATELY 3" CENTER TO CENTER ALONG THE ROWS. THE PLACEMENT AND TOTAL NUMBERS OF THE ROWS TO BE AS SHOWN ABOVE WITH AN ALLOWABLE TOLERANCE OF ±10 DEGREES. THE SPIGOT AND BELL END TO BE UNPERFORATED FOR A LENGTH EQUAL TO THE DEPTH OF THE JOINT.
 5. PIPE SIZE: 4"
 6. ROWS OF PERFORATIONS: 4
 7. PERFORATIONS PER ROW: 48 (FOR 12.5' PIPE LAYING LENGTHS)
 8. WASH DRAINAGE AGGREGATE CLEAN PRIOR TO USE. INCLUDE COST FOR DRAINAGE AGGREGATE MANUFACTURE, DELIVERY, AND PLACEMENT IN THE PRICE BID FOR "EDGE DRAIN NON-PERMEABLE BASE". THE ROCK TO BE CL 43.
 9. TERMINATE 4" PERFORATED PIPE INSIDE OF INLETS OR MANHOLES AT LEAST 1" WITH A MAXIMUM OF 3".
 10. PLACE PERFORATIONS FACING DOWN.
 11. CORE BOOTS INSTALLED IN FIELD.



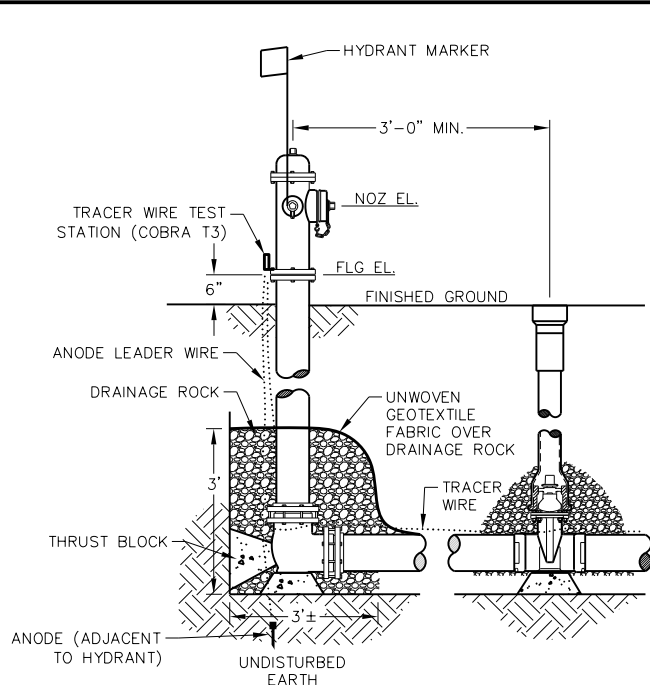
UNDERDRAIN DETAIL
NO SCALE

- NOTES:
1. INCLUDED IN "UNDERDRAIN PIPE PVC PERFORATED 6IN" BID ITEM:
A) GEOSYNTHETIC MATERIAL TYPE D1
B) UNDERDRAIN AGGREGATE
C) TRENCHING & EXCAVATION
D) TOPSOIL REMOVAL & PLACEMENT
E) 6" PERFORATED PVC PIPE
F) PVC FITTINGS & BENDS
 2. PROFILE OF UNDERDRAIN PIPE TO MATCH DRAINAGE DITCH PROFILE AT LOW POINT.

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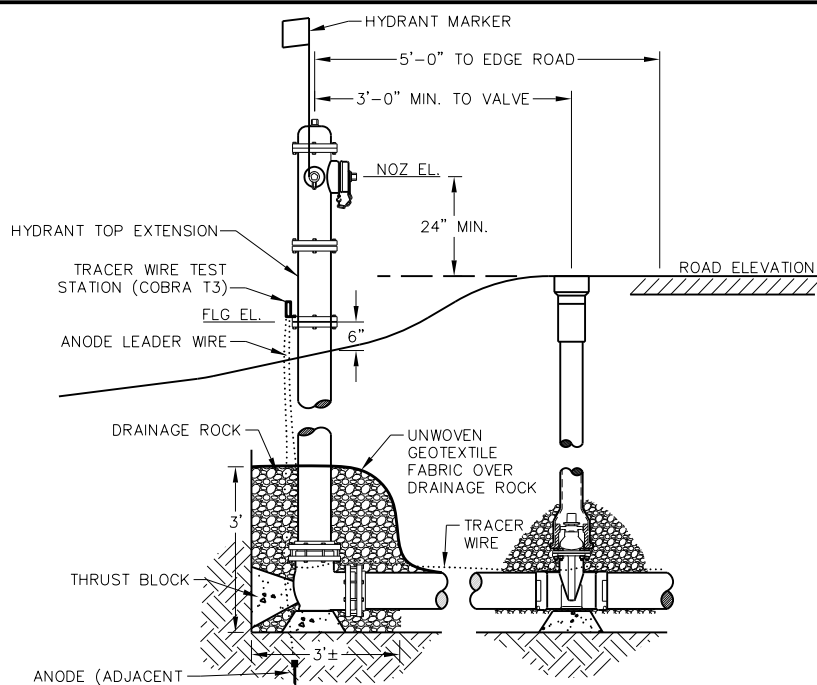
Sheyenne Street
Edgedrain & Underdrain Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	4



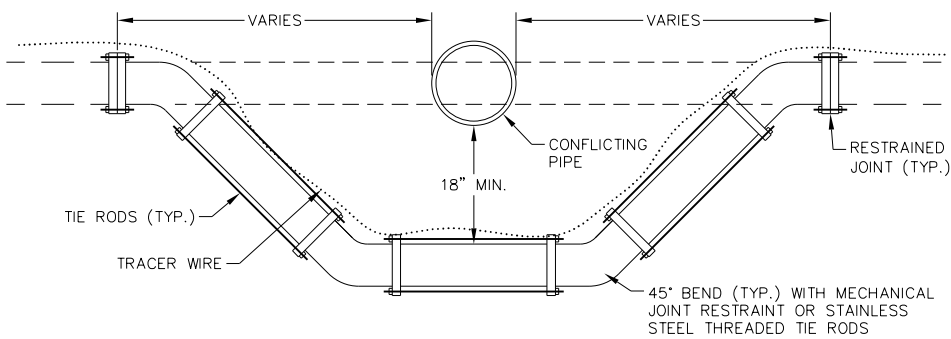
HYDRANT
NO SCALE WF 03.01.18

- NOTES:
- DO NOT BLOCK WEEP HOLE ON HYDRANT.
 - DO NOT COVER ANY JOINT WITH CONCRETE.
 - ALL UNDERGROUND METAL ITEMS TO BE WRAPPED WITH 8" MIL POLYETHYLENE PLASTIC.
 - NOZZLE HEIGHT SHALL BE MINIMUM 24" FROM FINISHED GROUND OR AS SHOWN ON PLANS.
 - DRAINAGE ROCK SHALL BE 2" MINUS WASHED ROCK. ROCK IS INCLUDED IN PRICE BID FOR HYDRANT.



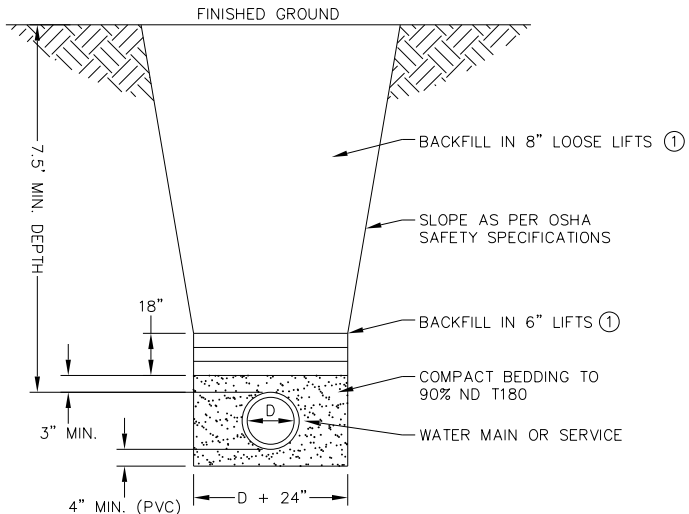
HYDRANT RURAL
NO SCALE

- NOTES:
- DETAIL FOR USE IN RURAL ROAD SECTION ONLY.
 - EXTENSION PAINT AND COATING TO MATCH HYDRANT.
 - DO NOT BLOCK WEEP HOLE ON HYDRANT.
 - DO NOT COVER ANY JOINT WITH CONCRETE.
 - ALL UNDERGROUND METAL ITEMS TO BE WRAPPED WITH 8" MIL POLYETHYLENE PLASTIC.
 - NOZZLE HEIGHT SHALL BE MINIMUM 24" FROM ROAD ELEVATION OR AS SHOWN ON PLANS.
 - DRAINAGE ROCK SHALL BE 2" MINUS WASHED ROCK. ROCK IS INCLUDED IN PRICE BID FOR HYDRANT.



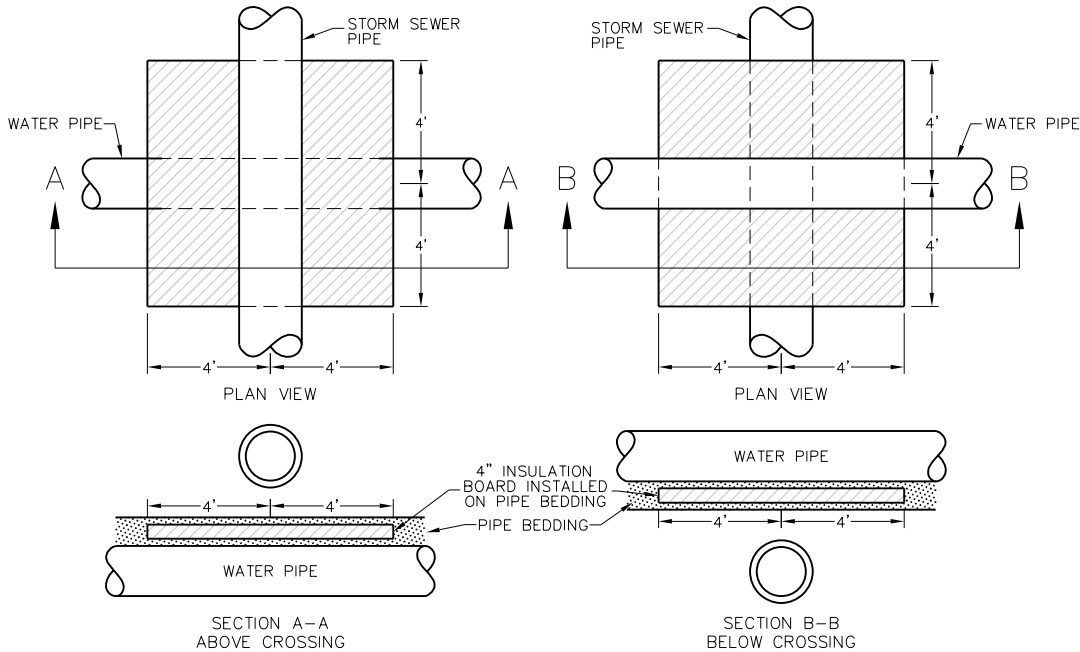
- NOTES:
- ALL LOWERING AREA SHALL BE COVERED WITH 8 MIL POLYETHYLENE PLASTIC.
 - THRUST BLOCKS NEED TO BE INSTALLED AT ELBOWS.
 - INSULATE IF CLOSER THAN 24" TO CONFLICTING STORM PIPE OR CLOSER THAN 7.5' FROM FINISHED GROUND.
 - ADJUST AS SHOWN ON PLANS, OTHERWISE WATER MAIN MAY BE BELOW OR ABOVE CONFLICTING PIPE.
 - CATHODIC PROTECTIONS-SACRIFICIAL ANODE ZINC CAPS.

WATER MAIN RELOCATE
NO SCALE WF 03.01.18



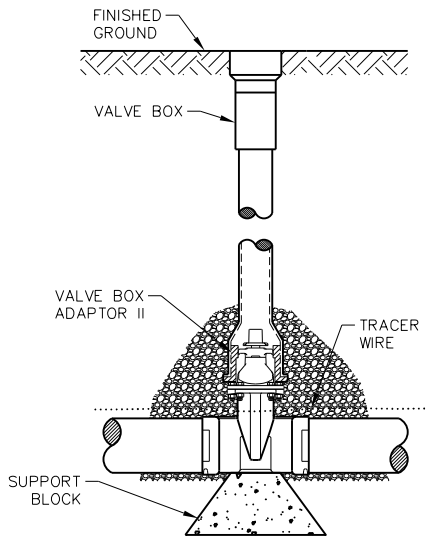
① COMPACT TO 95% MINIMUM ND T99 DENSITY.

WATER MAIN OR SERVICE TRENCH
NO SCALE WF 03.01.18



- NOTES:
- THIS DETAIL APPLIES TO BOTH MAINS & SERVICES WHERE CROSSING IS WITHIN 24".
 - WATER SERVICES MAY BE INSULATED WITH AN APPROVED ENCASEMENT INSULATION IN LIEU OF DETAIL.

WATER INSULATION FOR STORM CROSSING
NO SCALE WF-331113-4 02.18.15



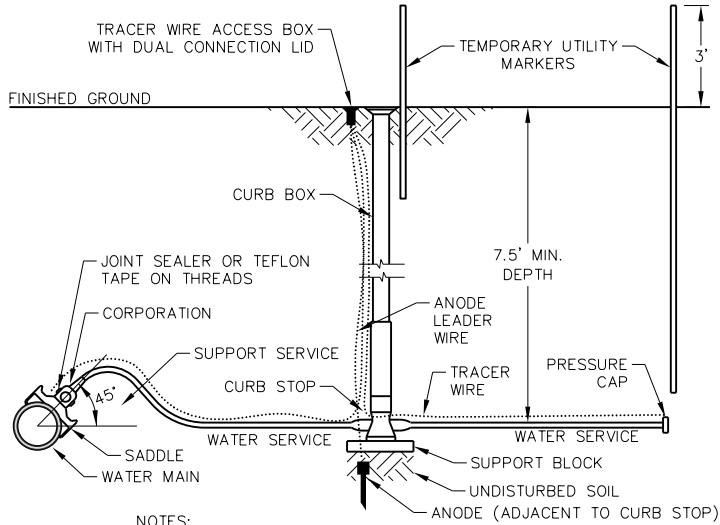
VALVE AND BOX
NO SCALE WF 03.01.18

- NOTES:
- WRAP ALL UNDERGROUND METAL ITEMS WITH 8 MIL POLYETHYLENE PLASTIC.
 - TOP OF VALVE BOX SHALL BE SET TO PROVIDE 12" OF UPWARD ADJUSTMENT.

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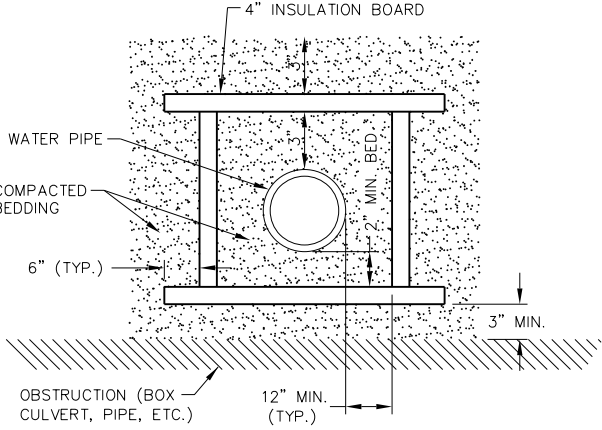
Sheyenne Street

Water Details



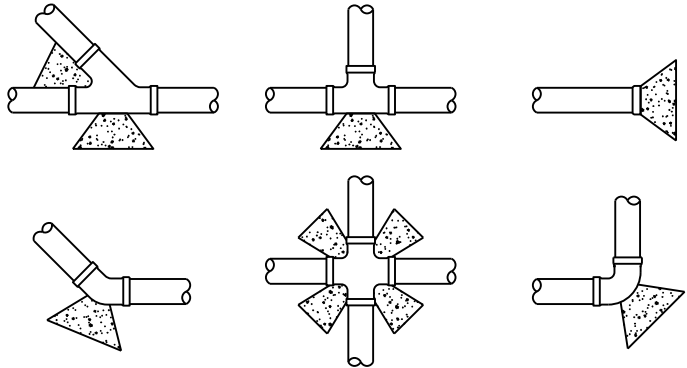
- NOTES:
- CURB BOX TO BE INSTALLED TO FINISHED GROUND ELEVATION AS SPECIFIED ON PLANS, HALFWAY EXTENDED.
 - ENTIRE SERVICE LINE TO BE PRESSURE TESTED.
 - SEE SERVICE LAYOUT DETAIL OR PLAN SHEETS FOR LOCATION OF CURB STOP AND END OF SERVICE.
 - PROVIDE STIFFENERS ON ALL CONNECTIONS WITH POLYETHYLENE PIPE.

WATER SERVICE LINE
NO SCALE WF 03.01.18



- NOTE:
- COMPACT PER WATER MAIN OR SERVICE TRENCH DETAIL.

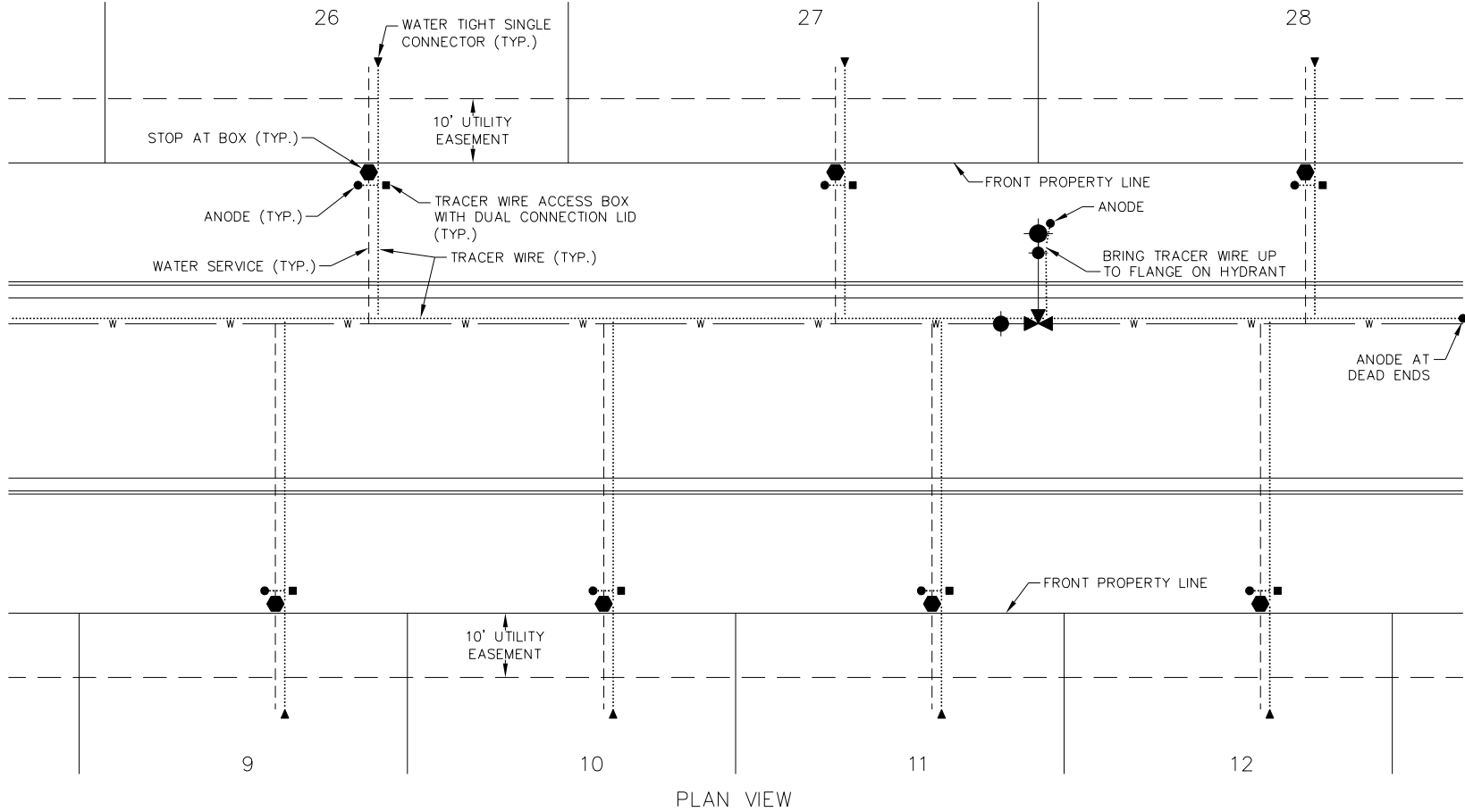
WATER ENCASEMENT INSULATION
NO SCALE WF-331113-3 02.18.15



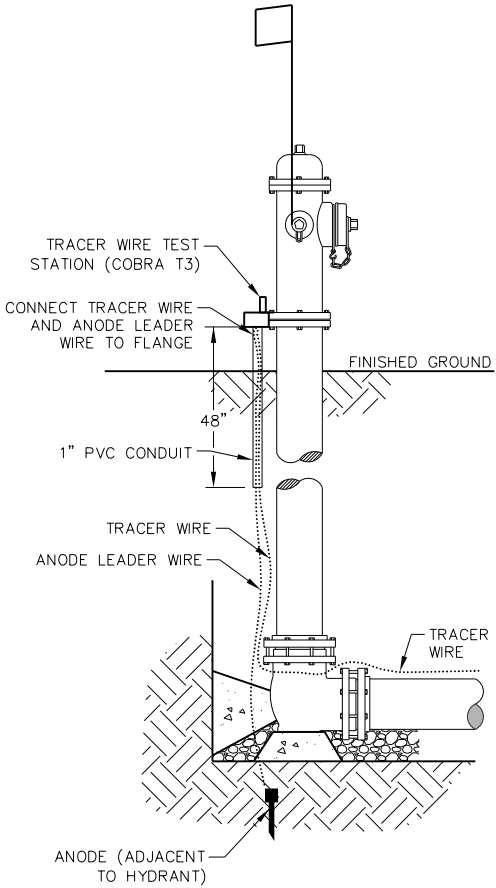
PIPE DIAMETER	MINIMUM THRUST BLOCK SIZES									
	REQUIRED BEARING AREA (S.F.)									
CROSS, DEAD END OR TEE	2	4	7	11	16	21	28	36	44	63
90 BEND	3	6	10	16	22	30	39	50	62	88
45 BEND	2	3	6	9	12	17	21	27	34	48
22 1/2 BEND	1	2	3	5	7	9	14	17	17	25

NOTE: ALL THRUST BLOCKS A MINIMUM OF 12" THICK AND MUST BEAR AGAINST UNDISTURBED SOIL.

THRUST BLOCKS
NO SCALE WF-331113-1 02.18.15



WATER MAIN TRACE WIRE
NO SCALE WF 03.01.18



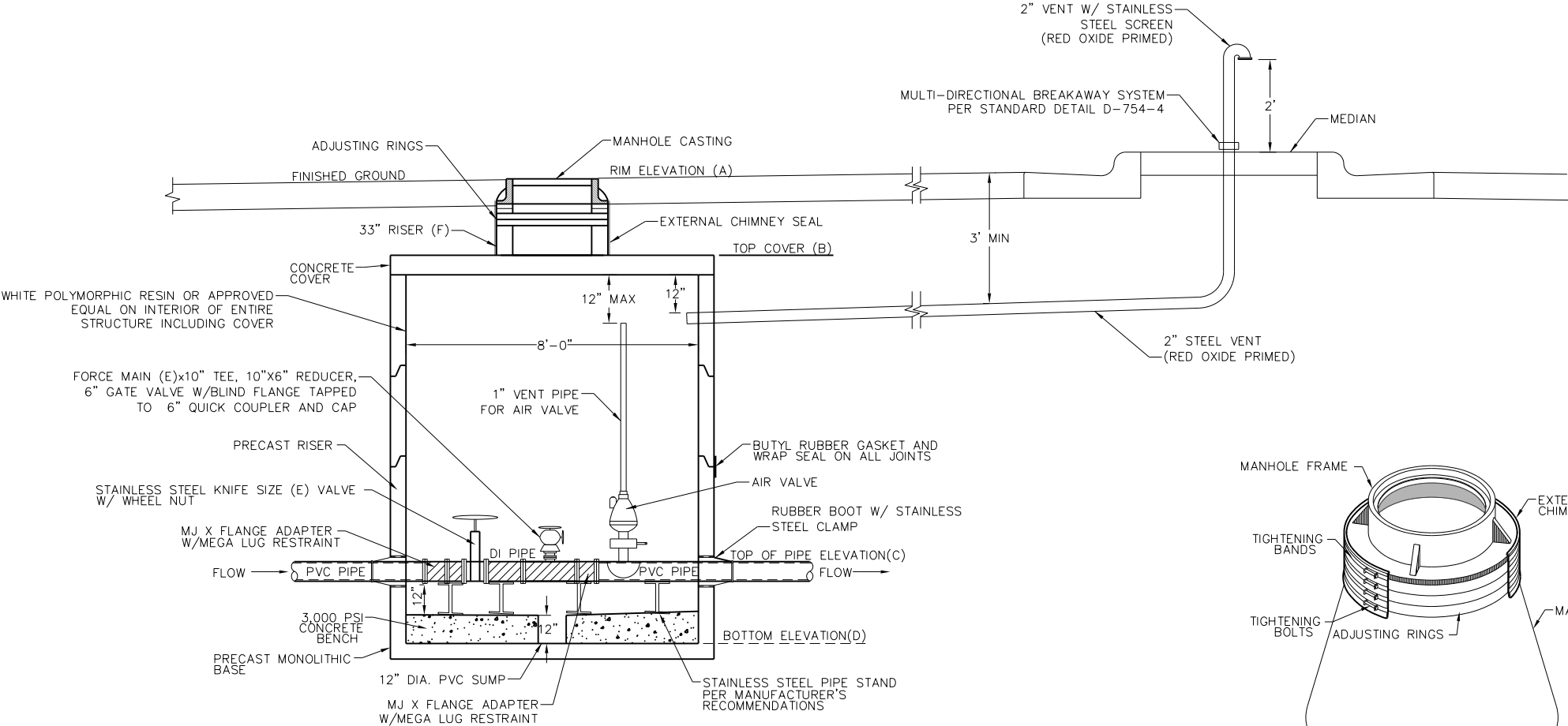
HYDRANT SECTION

- NOTES:
- TRACER WIRE SHALL BE INSTALLED AT SOUTH AND EAST SIDES OF PIPELINE BEING TRACED.
 - ACCESS BOX WITH DUAL CONNECTION LID AND ANODE SHALL BE INSTALLED AT PLUGGED ENDS.

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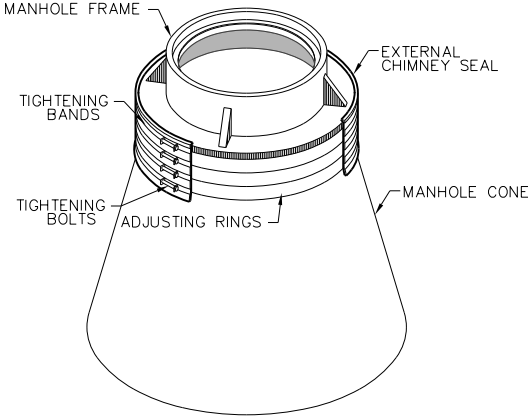
Sheyenne Street

Water Details

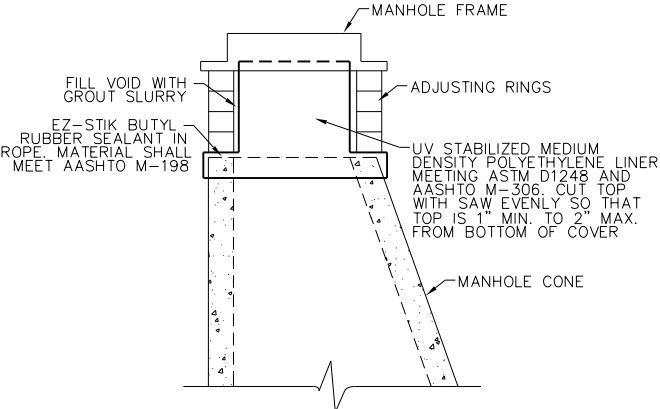


- NOTES:
- 1. SUMP TO BE LOCATED DIRECTLY BELOW HATCH FOR PUMPING.
 - 2. FORCEMAIN PIPE BETWEEN KNIFE VALVE AND FUTURE AIR VALVE TO BE DUCTILE IRON CLASS 53. ALL OTHER FORCEMAIN PIPE TO BE C900.

PROFILE SECTION
NO SCALE

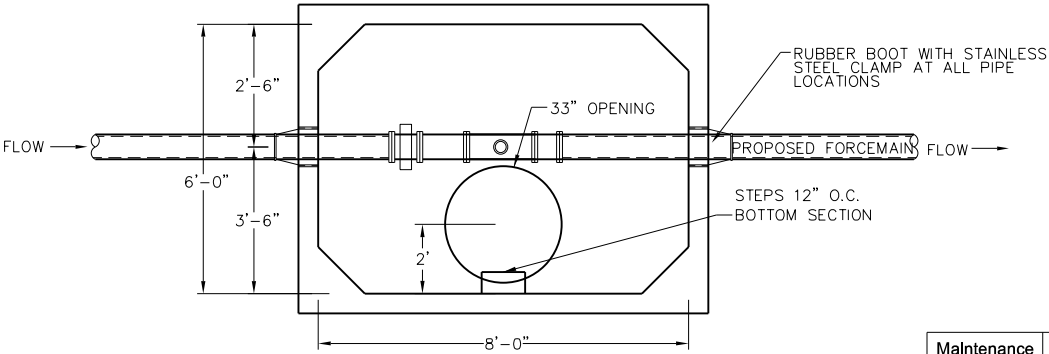


EXTERNAL MANHOLE SEAL
(OPTION 1)



EXTERNAL MANHOLE SEAL
(OPTION 2)

MANHOLE SEALS
NO SCALE WF-330513-2 04.22.15



MAINTENANCE MANHOLE
NO SCALE

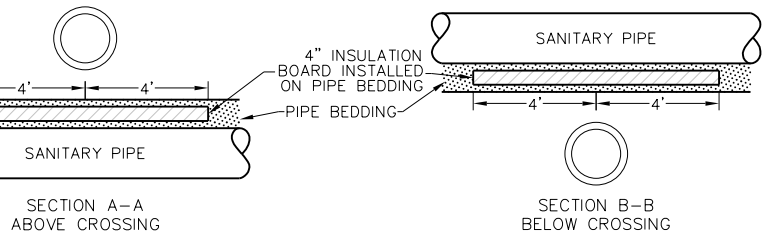
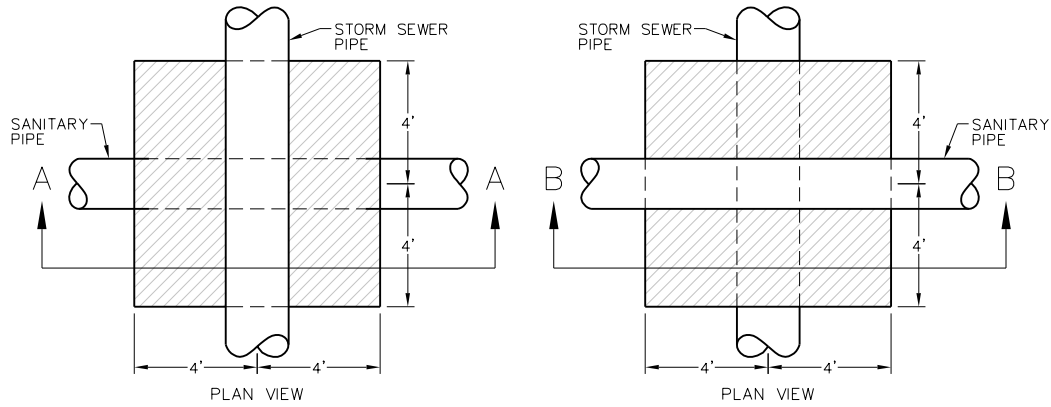
Maintenance Manhole	Rim (A)	Top Cover (B)	Top Pipe (C)	Bottom (D)	Pipe Size (E)	33" Riser (F)
MM1	906.52	903.77	895.39	891.56	16"	2.00'
MM2	903.95	901.70	894.01	890.18	16"	1.50'
MM3	906.56	903.81	892.57	888.40	20"	2.00'

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Sheyenne Street

Sanitary Details

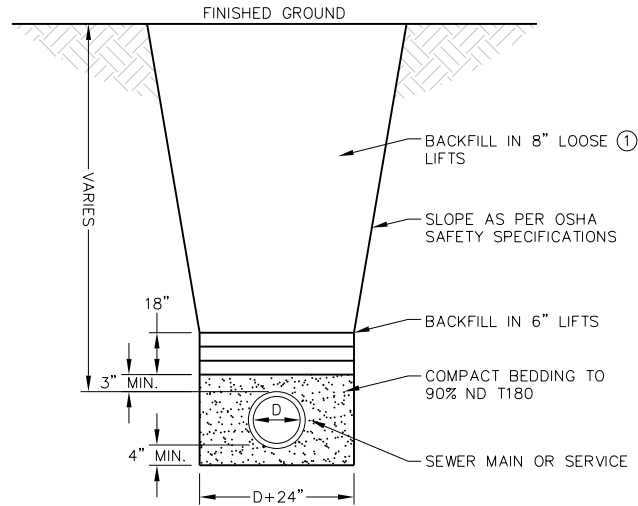
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	7



SANITARY INSULATION FOR STORM CROSSING

NO SCALE WF-333100-6 02.18.15

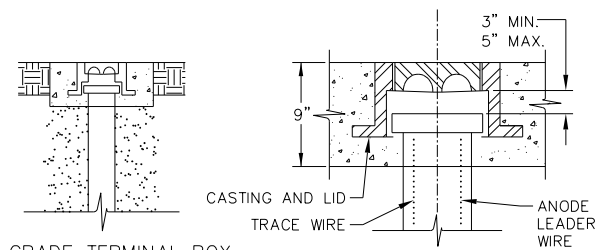
- NOTES:
- THIS DETAIL APPLIES TO BOTH MAINS & SERVICES WHERE CROSSING IS WITHIN 24".
 - SERVICES MAY BE INSULATED WITH AN APPROVED ENCASEMENT INSULATION IN LIEU OF DETAIL.



① COMPACT TO 95% MINIMUM ND T99 DENSITY.

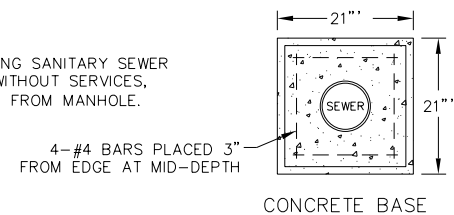
FORCEMAIN TRENCH

NO SCALE WF 03.01.18



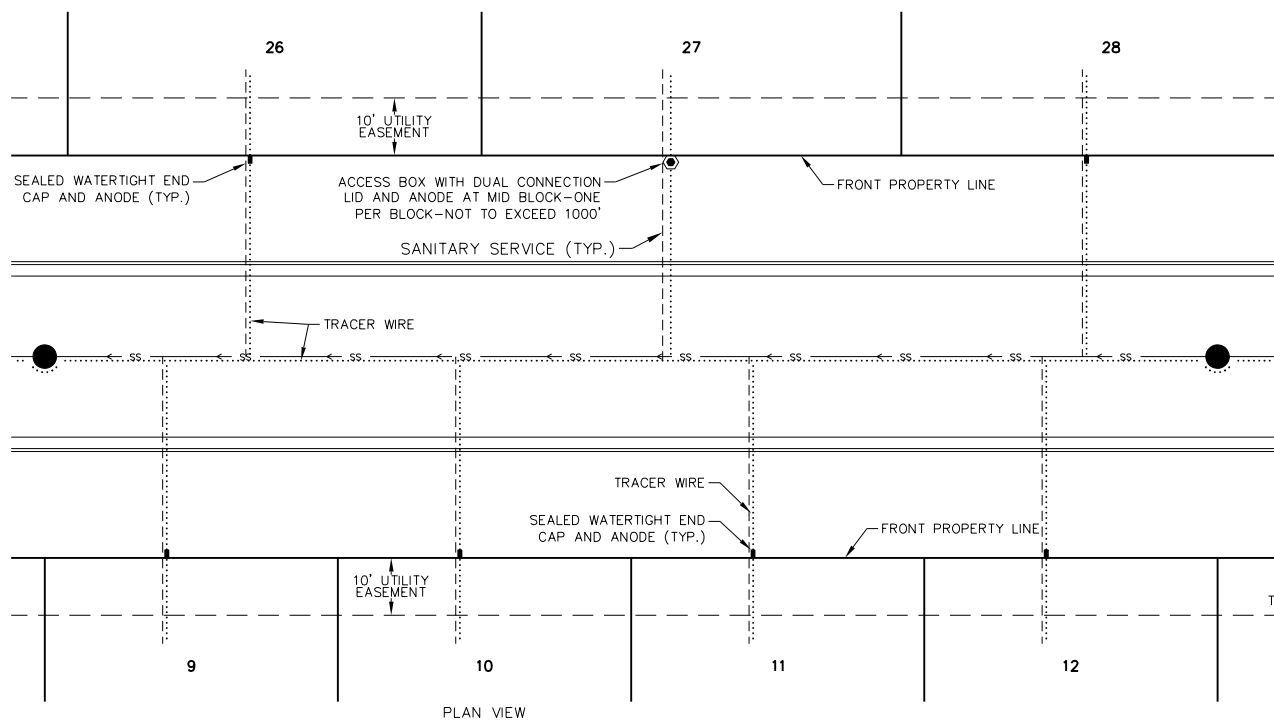
AT GRADE TERMINAL BOX

- NOTES:
- FOR TRACING SANITARY SEWER IN ROAD WITHOUT SERVICES, INSTALL 5' FROM MANHOLE.



SANITARY SEWER TRACE WIRE ACCESS POINT

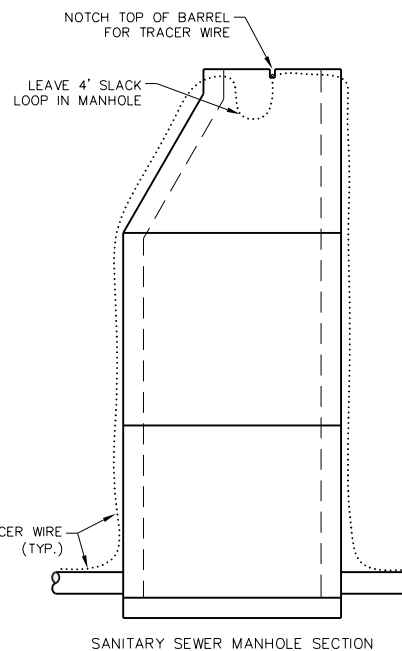
NO SCALE MUNI-330597-2 06.21.18



SANITARY SEWER TRACER WIRE

NO SCALE WF-330526.23-1 05.02.17

- NOTES:
- TRACER WIRE SHALL BE INSTALLED AT SOUTH AND EAST SIDES OF PIPELINE BEING TRACED.
 - ACCESS BOX WITH DUAL CONNECTION LID AND ANODE SHALL BE INSTALLED AT MAINLINE POINTS OF TERMINATION WHERE NO ADJACENT TRACER WIRE EXISTS.



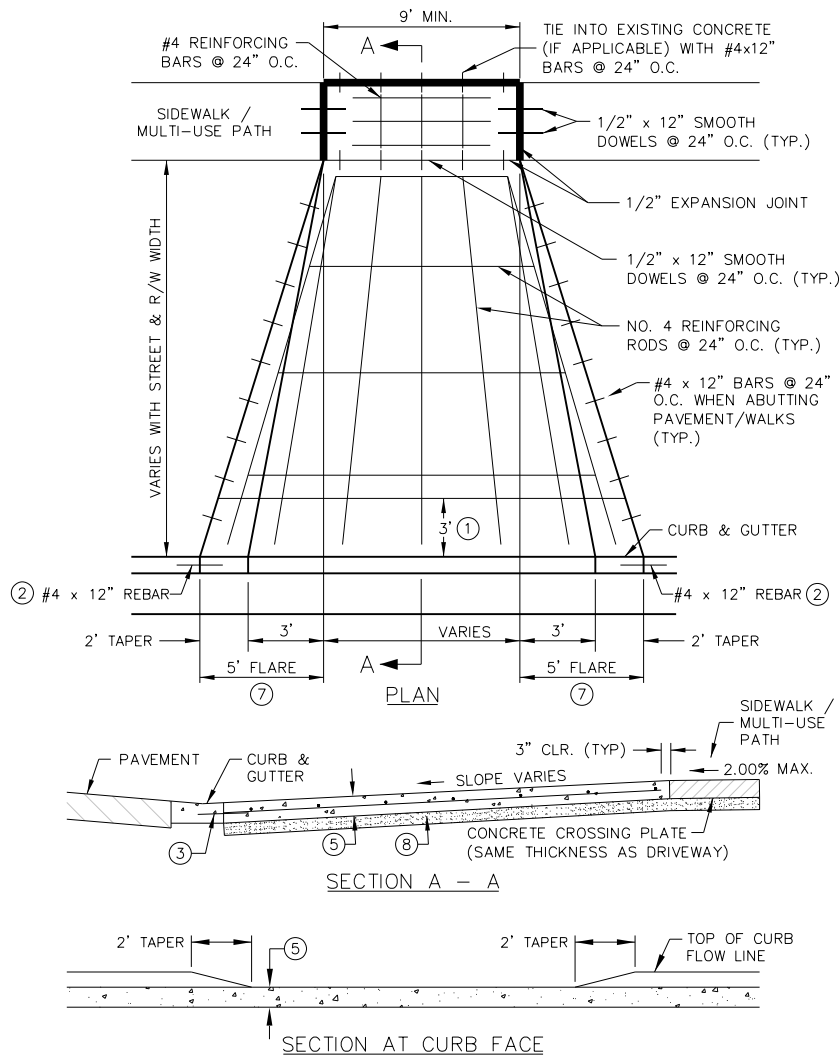
SANITARY SEWER MANHOLE SECTION

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Sheyenne Street

Sanitary Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	8



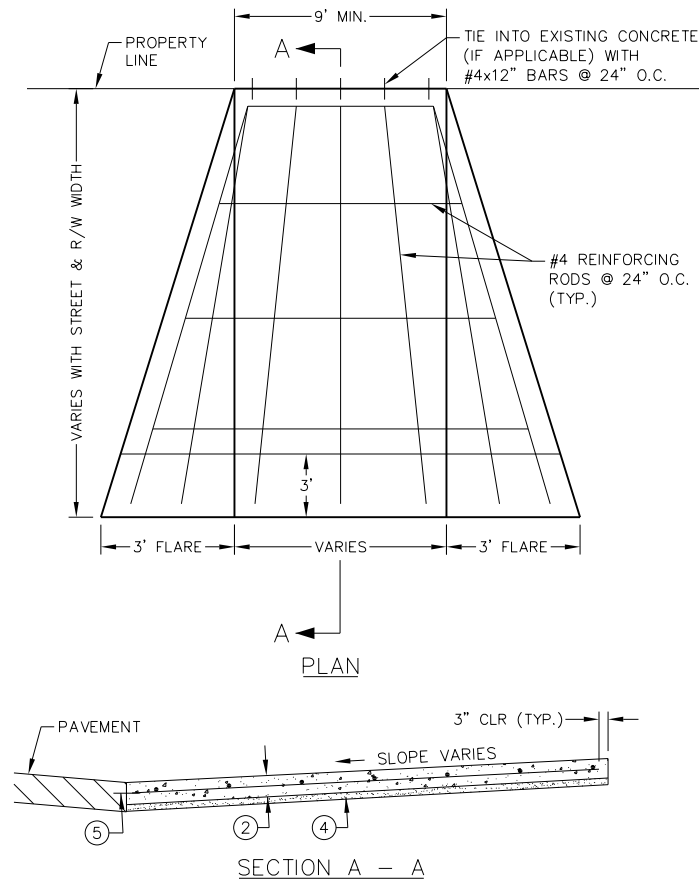
NOTES:

- ① SAW CUT, REMOVE AND REPLACE WHEN CURB & GUTTER IS BEING INSTALLED WITH EXISTING DRIVEWAY.
- ② WHEN DRIVEWAY IS BEING INSTALLED WITH EXISTING CURB AND GUTTER, THE CURB AND GUTTER IS REMOVED AND REPLACED. NO INTEGRAL DRIVEWAY/CURB & GUTTER POURS ALLOWED.
- ③ TIE THE DRIVEWAY AND REINFORCEMENT MAT TO THE CURB AND GUTTER WITH #4 REBAR 12" LONG 24" ON CENTER.
- ④ USE CHAIRS OR APPROVED SUPPORT DEVICES TO SUPPORT REINFORCEMENT BARS AT MID DEPTH.
- ⑤ 6" MINIMUM FOR RESIDENTIAL; 7" MINIMUM FOR COMMERCIAL; OR AS NOTED ON PLANS.
- ⑥ DO NOT TIE SMOOTH DOWELS TO REINFORCING MATS.
- ⑦ 60" TAPER WHEN SIDES OF DRIVEWAY ABUT PAVEMENTS/WALKS.
- ⑧ 4" COMPACTED AGGREGATE BASE COURSE CL 5.

DRIVEWAY - WITH CURB & GUTTER AND CROSSING PLATE

NO SCALE

WF-321313-16 10.17.16



NOTES:

- ① USE CHAIRS OR APPROVED SUPPORT DEVICES TO SUPPORT REINFORCEMENT BARS AT MID DEPTH.
- ② 6" MINIMUM FOR RESIDENTIAL; 7" MINIMUM FOR COMMERCIAL; OR AS NOTED ON PLANS.
- ③ DO NOT TIE SMOOTH DOWELS TO REINFORCING MATS.
- ④ 4" COMPACTED AGGREGATE BASE COURSE CL5.
- ⑤ IF ADJACENT PAVEMENT IS CONCRETE, THE DRIVEWAY AND REINFORCEMENT MAT TO BE TIED TO THE PAVEMENT WITH #4 REBAR, 12" LONG @ 24" O.C.

DRIVEWAY - WITHOUT CURB & GUTTER AND CROSSING PLATE

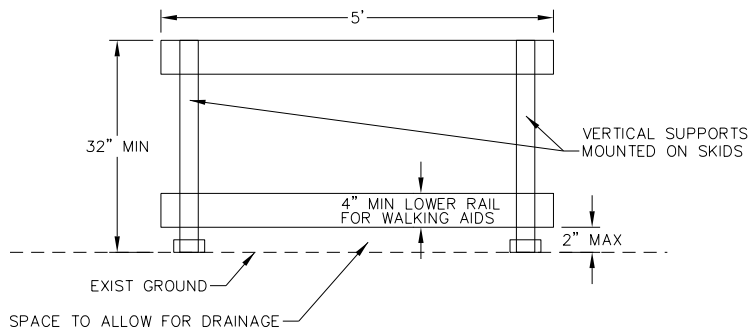
NO SCALE

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Sheyenne Street

Roadway Details

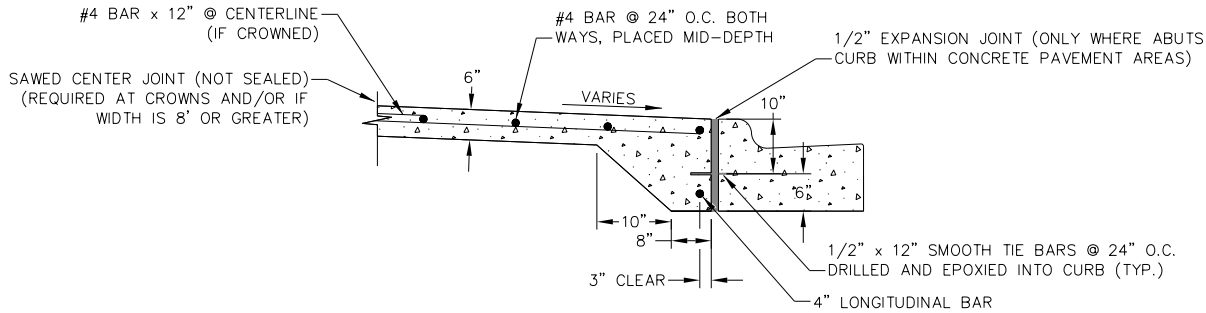
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	20	9



- NOTES:
1. CONSTRUCT SELF STANDING SIDEWALK BARRICADE WITH NO SUPPORTS EXTENDING INTO THE PEDESTRIAN PATH.
 2. CONSTRUCT ADA COMPLIANT AND NCHRP 350 APPROVED SIDEWALK BARRICADES.
 3. INCLUDE ALL COSTS TO FURNISH, MAINTAIN AND REMOVE THE SIDEWALK BARRICADES IN THE PRICE BID FOR "SIDEWALK BARRICADE".

SIDEWALK BARRICADE

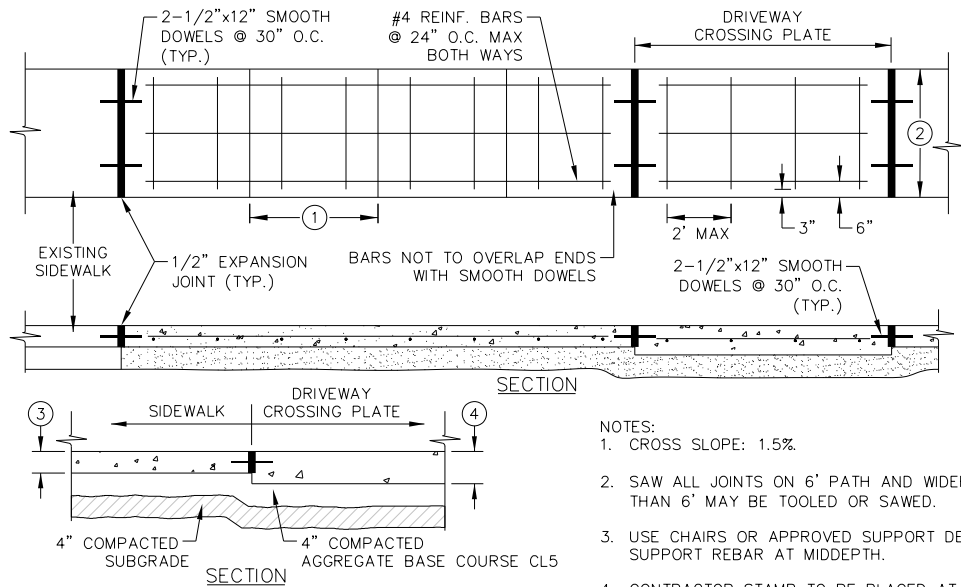
NO SCALE



- NOTES:
1. SAW PER SIDEWALK DETAILS AND MATCH CURB & GUTTER JOINTS.
 2. CURE WITHIN 24 HOURS. SEAL AFTER 14 DAYS WITH A MAXIMUM OF 30 DAYS.

PIGMENTED IMPRINTED CONCRETE

NO SCALE



- NOTATIONS:
- ① JOINTS TO BE SPACED AT 4' FOR SIDEWALK, OTHERWISE JOINT SPACING SHALL BE 5'.
 - ② 4'-0" FOR TYPICAL SIDEWALK. 10'-0" FOR TYPICAL MULTI-USE PATH.
 - ③ 4" THICK FOR TYPICAL SIDEWALK. 5" THICK FOR MULTI-USE PATH.
 - ④ SAME AS DRIVEWAY.
 - MIN. 6" FOR RESIDENTIAL.
 - MIN. 7" FOR COMMERCIAL/INDUSTRIAL.

SIDEWALK / MULTI-USE PATH

NO SCALE

WF-321313-10 05.24.17

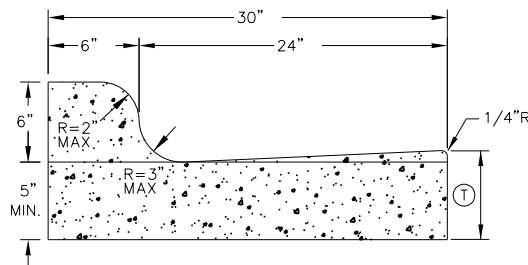
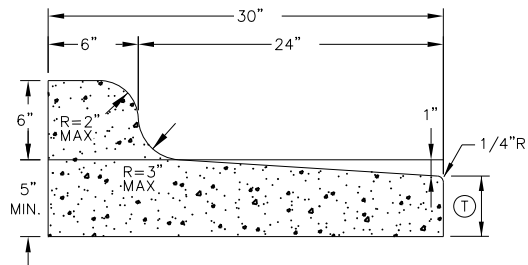
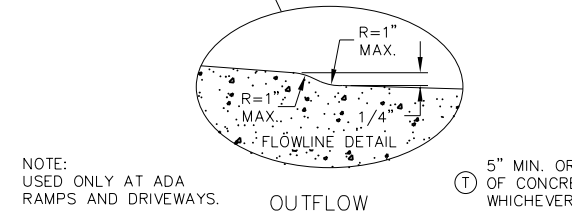
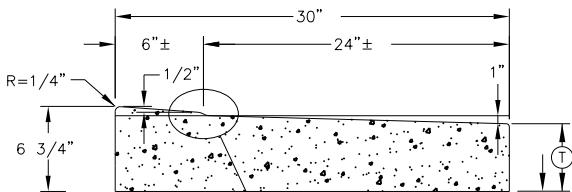
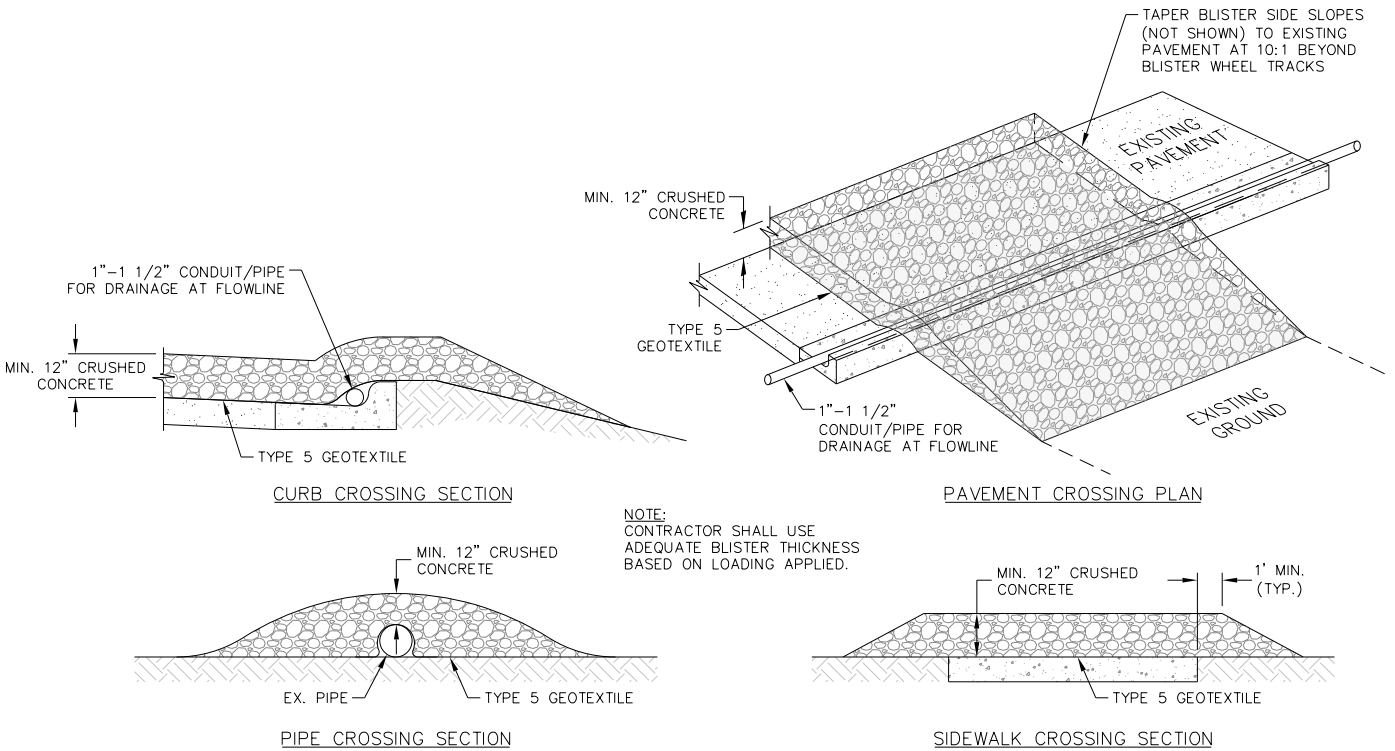
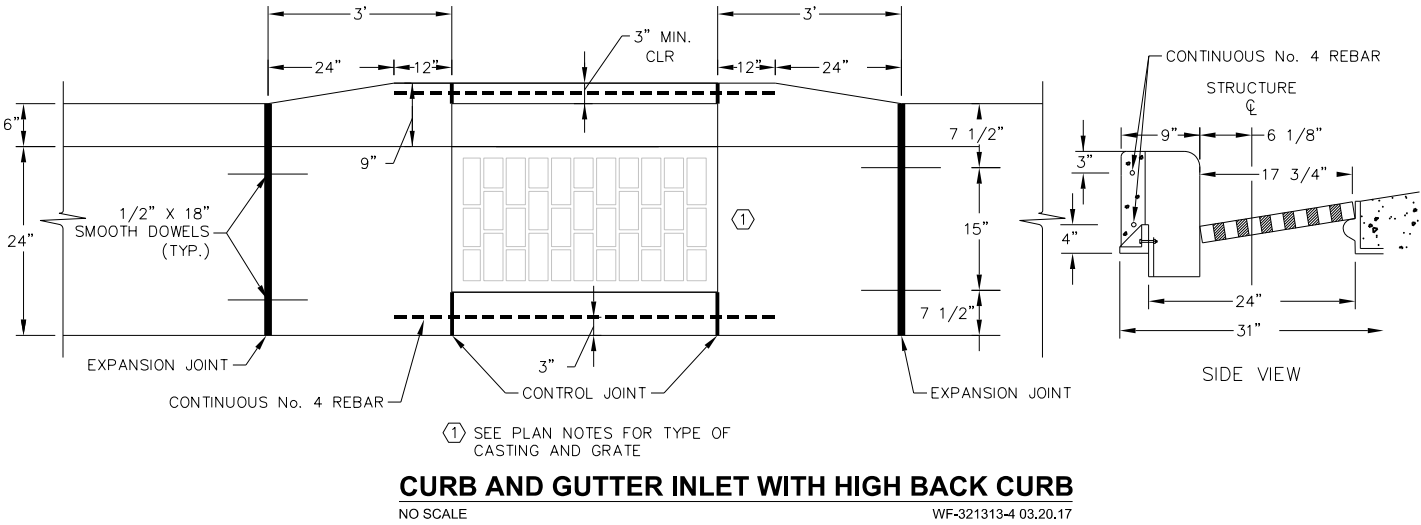
- NOTES:
1. CROSS SLOPE: 1.5%.
 2. SAW ALL JOINTS ON 6' PATH AND WIDER. LESS THAN 6' MAY BE TOOLED OR SAWED.
 3. USE CHAIRS OR APPROVED SUPPORT DEVICES TO SUPPORT REBAR AT MIDDEPTH.
 4. CONTRACTOR STAMP TO BE PLACED AT EXPANSION JOINTS.
 5. PLACE EXPANSION JOINTS AT PROPERTY LINES WHERE POSSIBLE.
 6. SAW CENTERLINE JOINT ON 10'-0" WIDTH OR LARGER PATHS. SPLIT WIDTH AND ON CURVES FOLLOW THOSE CURVES, I.E. NO STRAIGHT LINE SEGMENTS.

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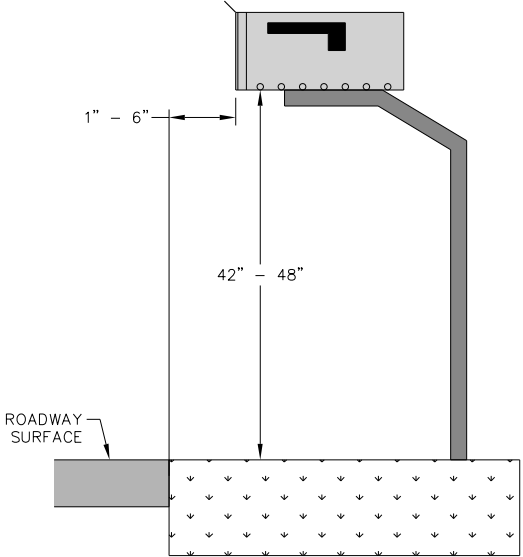
Sheyenne Street

Roadway Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	10



HIGH BACK CURB AND GUTTER
NO SCALE
WF-321313-1 02.18.15



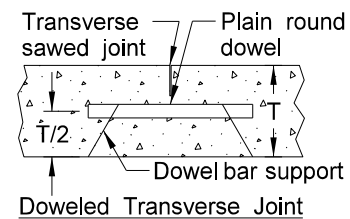
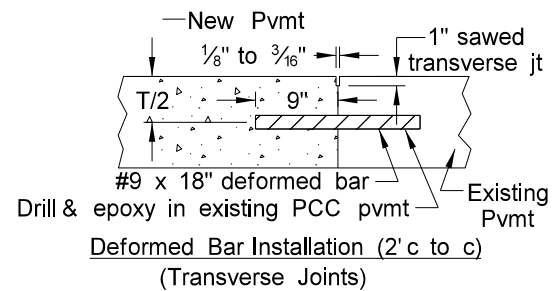
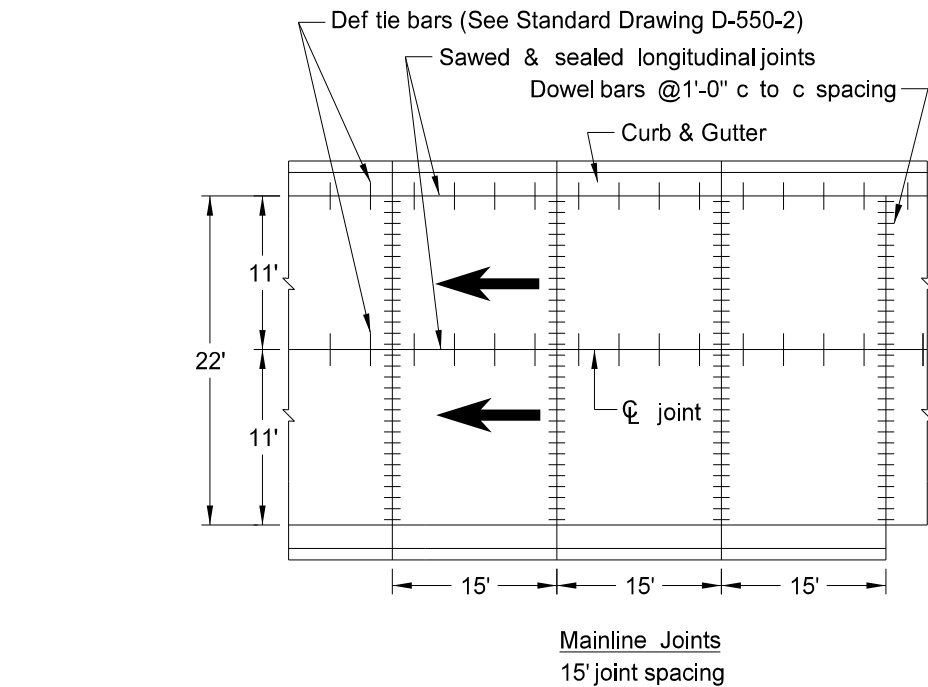
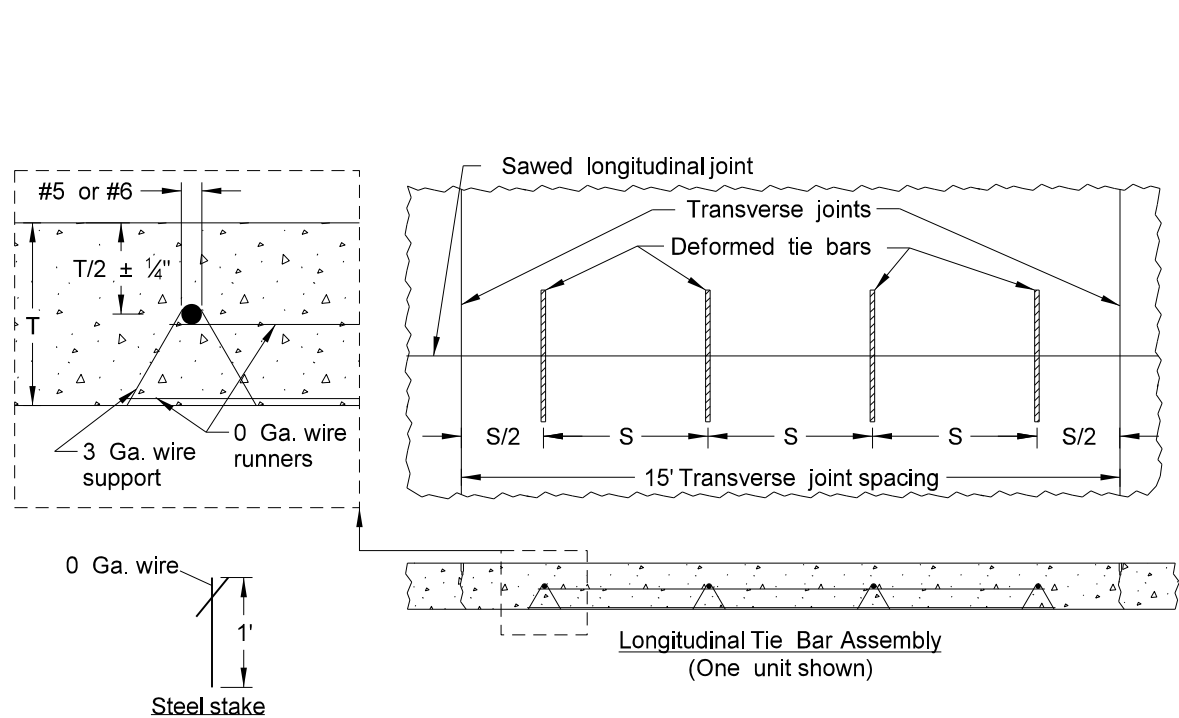
NOTE:
1. IT IS PREFERRED TO HAVE MAILBOXES PLACED BEFORE THE DRIVEWAY (IN DIRECTION OF TRAVEL).

MAILBOX - WITHOUT CURB & GUTTER
NO SCALE

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Sheyenne Street

Roadway Details



Grade 40 Longitudinal Joint Tie Bars	
PCC Depth	10"
Mainline Centerline	
Bar Size x Length (S=30")	#5 x 30"
Bar Size x Length (S=45")	#6 x 36"

Grade 60 Longitudinal Joint Tie Bars	
PCC Depth	10"
Mainline Centerline	
Bar Size x Length (S=30")	#4 x 36"
Bar Size x Length (S=45")	#5 x 42"

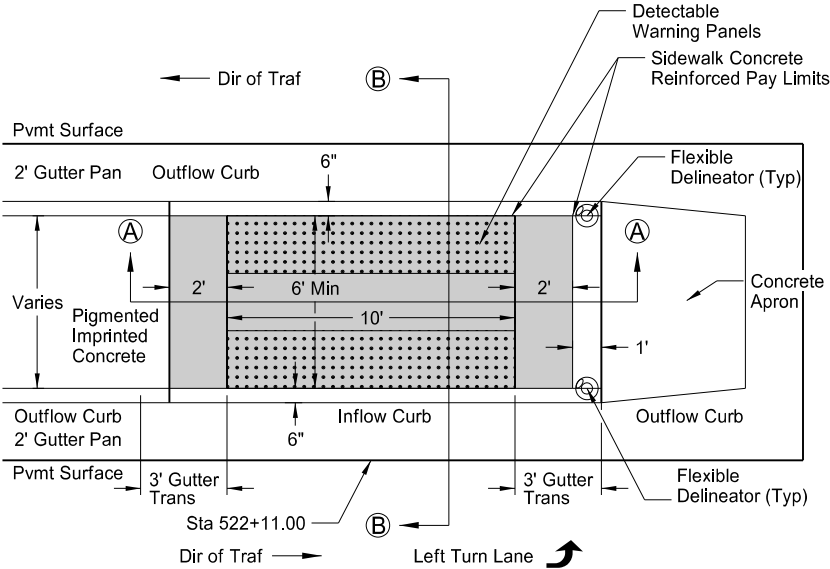
Transverse Joint Dowel Bars

Joint Location	Dia x Length
ML	d1 1/4" x 18"

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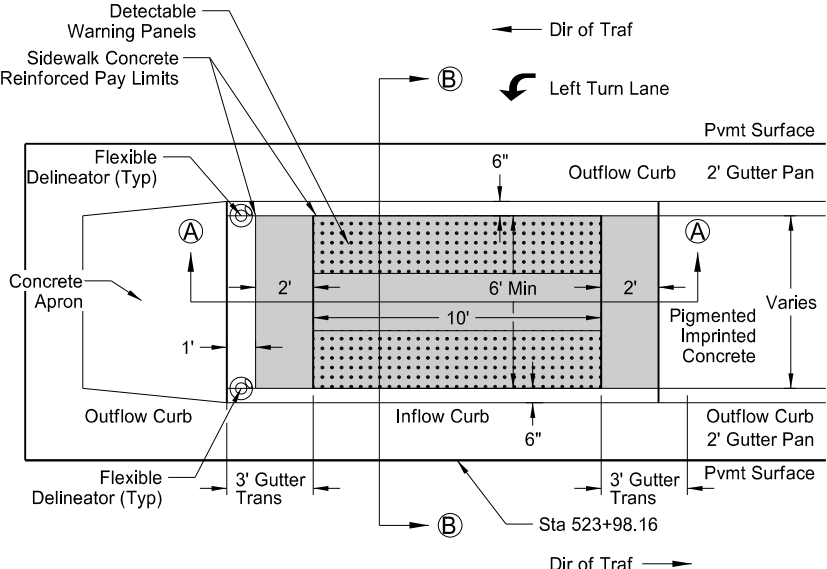
Sheyenne Street
PCC Pavement Joint Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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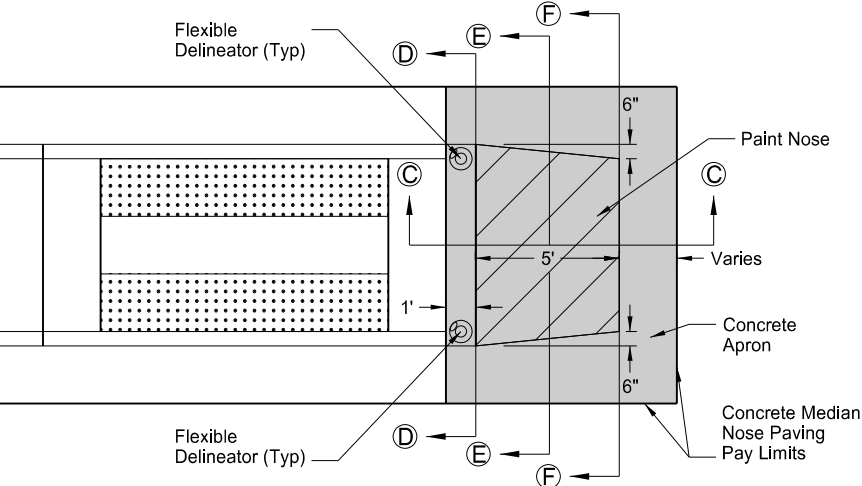
REFUGE ISLAND DETAIL @ STA 522+11

NO SCALE

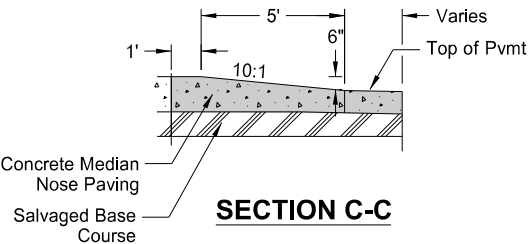


REFUGE ISLAND DETAIL @ STA 523+98.16

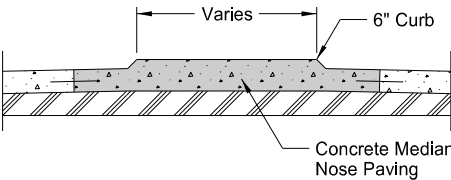
NO SCALE



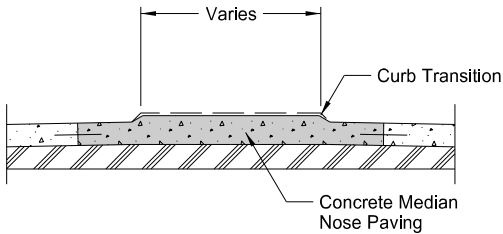
MEDIAN NOSE DETAIL



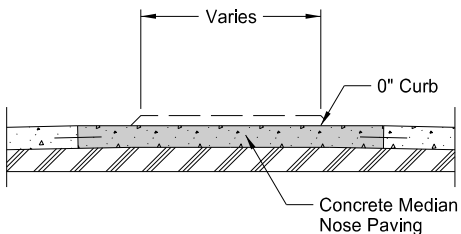
SECTION C-C



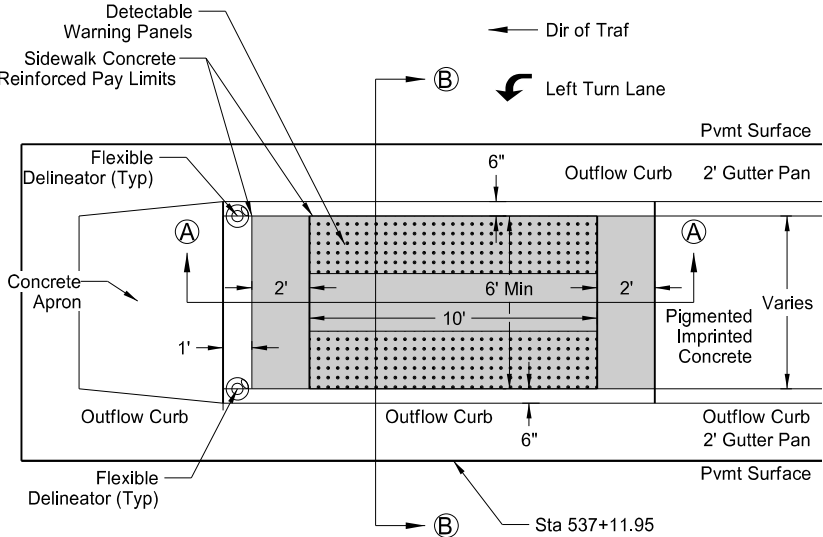
SECTION D-D



SECTION E-E

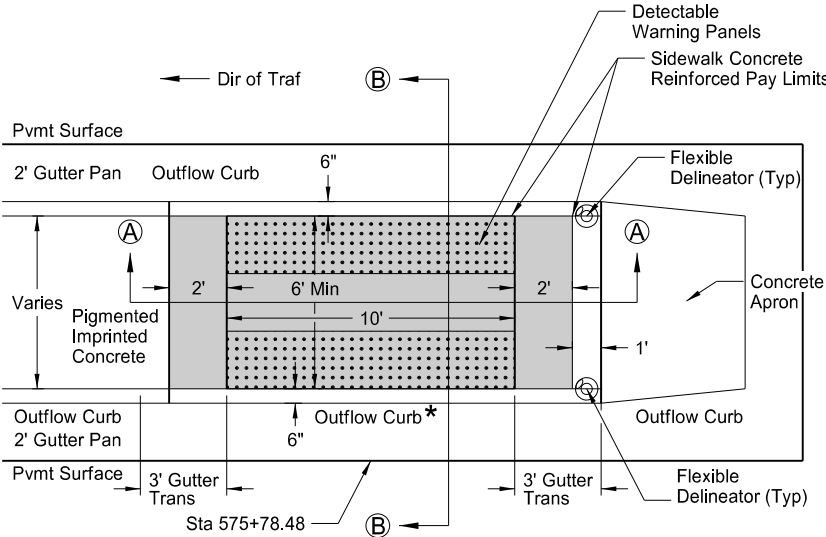


SECTION F-F



REFUGE ISLAND DETAIL @ STA 537+11.95

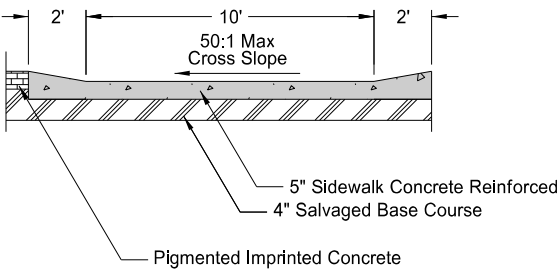
NO SCALE



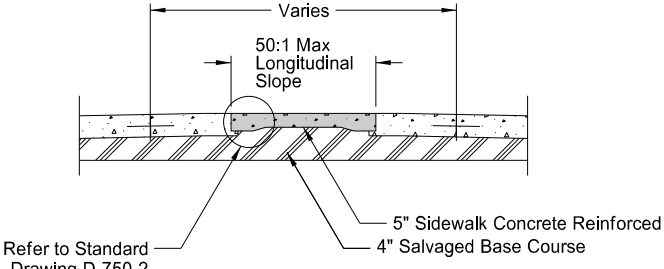
REFUGE ISLAND DETAIL @ STA 575+78.48

NO SCALE

* Modify Outflow Curb to 0.04' Fall Instead of Typical 0.08'



SECTION A-A

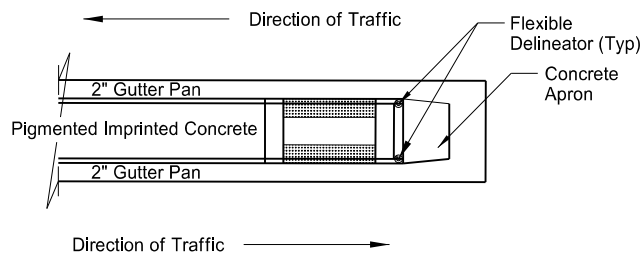


SECTION B-B

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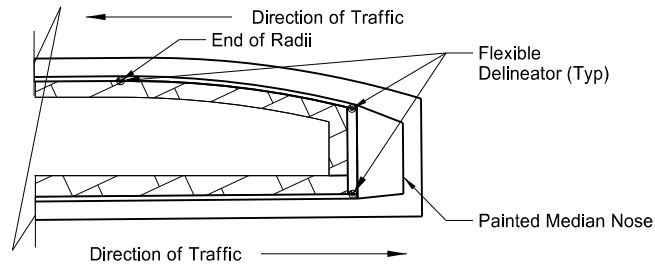
Sheyenne Street
Median Nose & Refuge Island Details

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	13



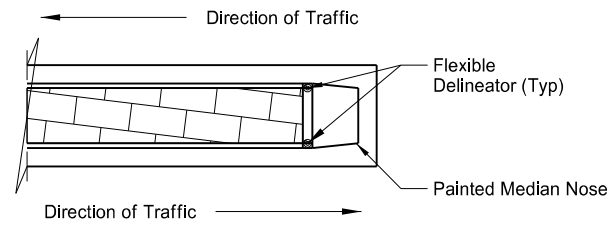
FLEXIBLE DELINEATOR PLACEMENT DETAIL

NO SCALE



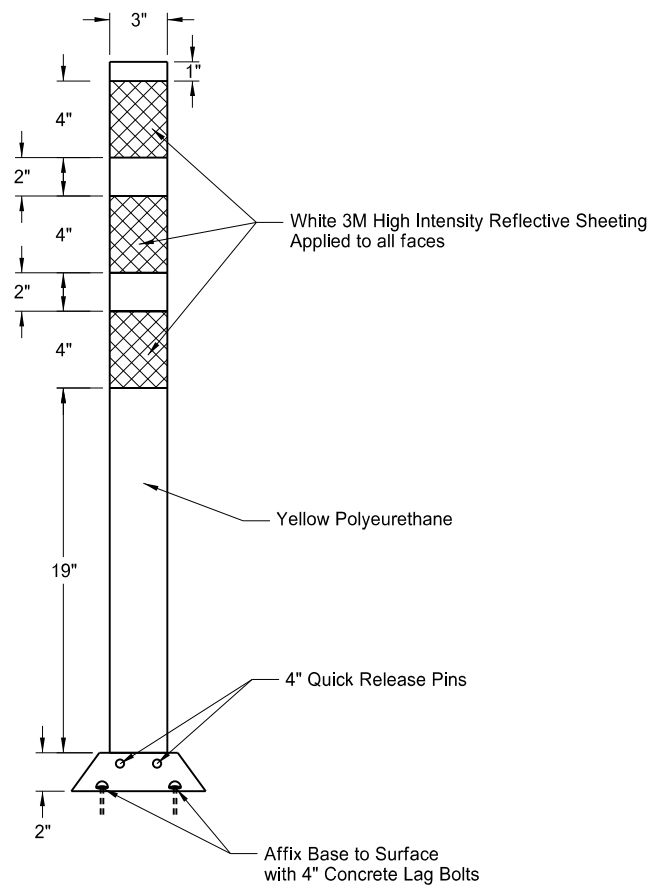
FLEXIBLE DELINEATOR PLACEMENT DETAIL

NO SCALE



FLEXIBLE DELINEATOR PLACEMENT DETAIL

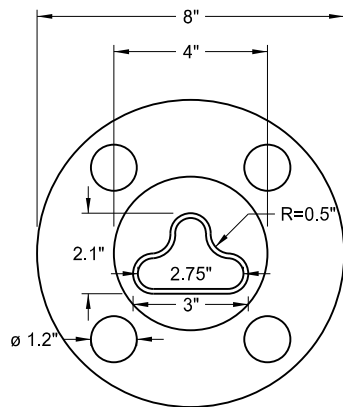
NO SCALE



FLEXIBLE DELINEATOR

NO SCALE

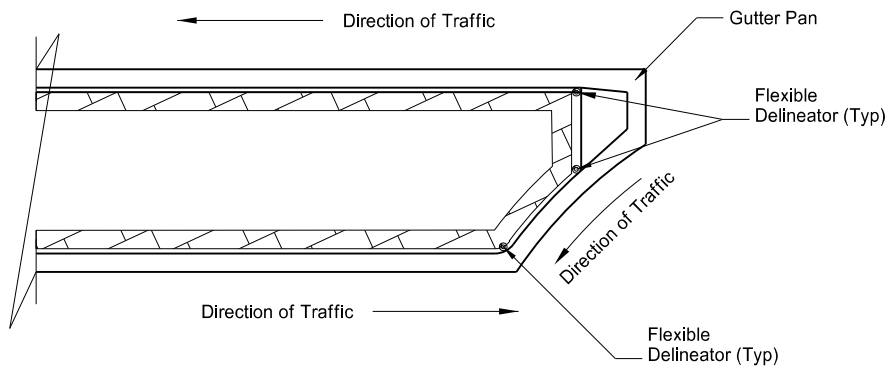
WF 03.13.16



FLEXIBLE DELINEATOR DETAIL

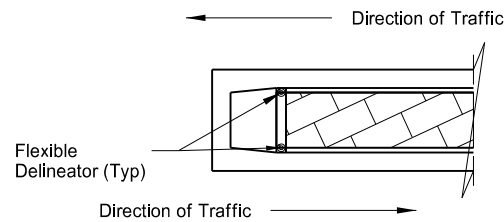
NO SCALE

(ENLARGED TOP VIEW)



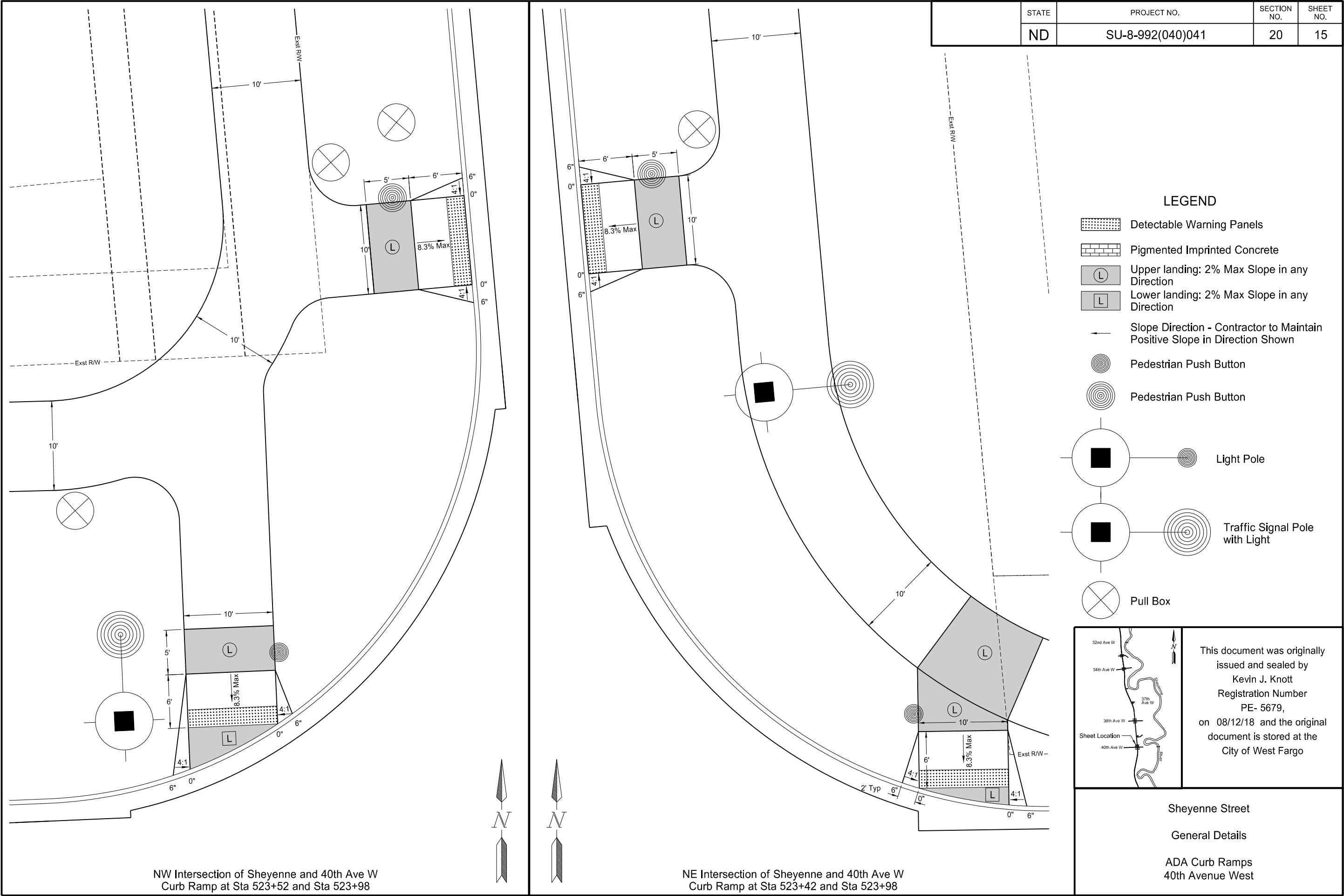
FLEXIBLE DELINEATOR PLACEMENT DETAIL

NO SCALE



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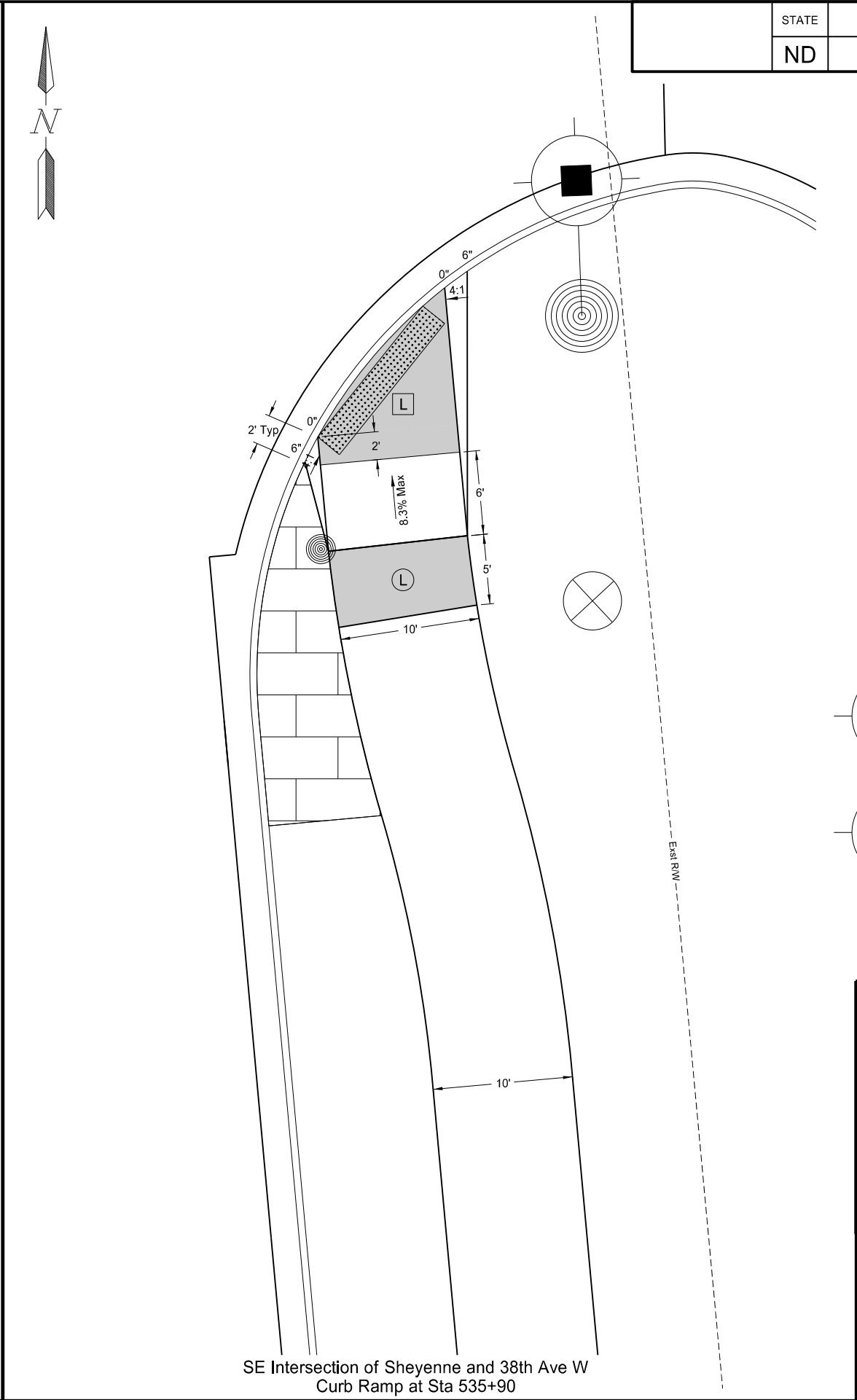
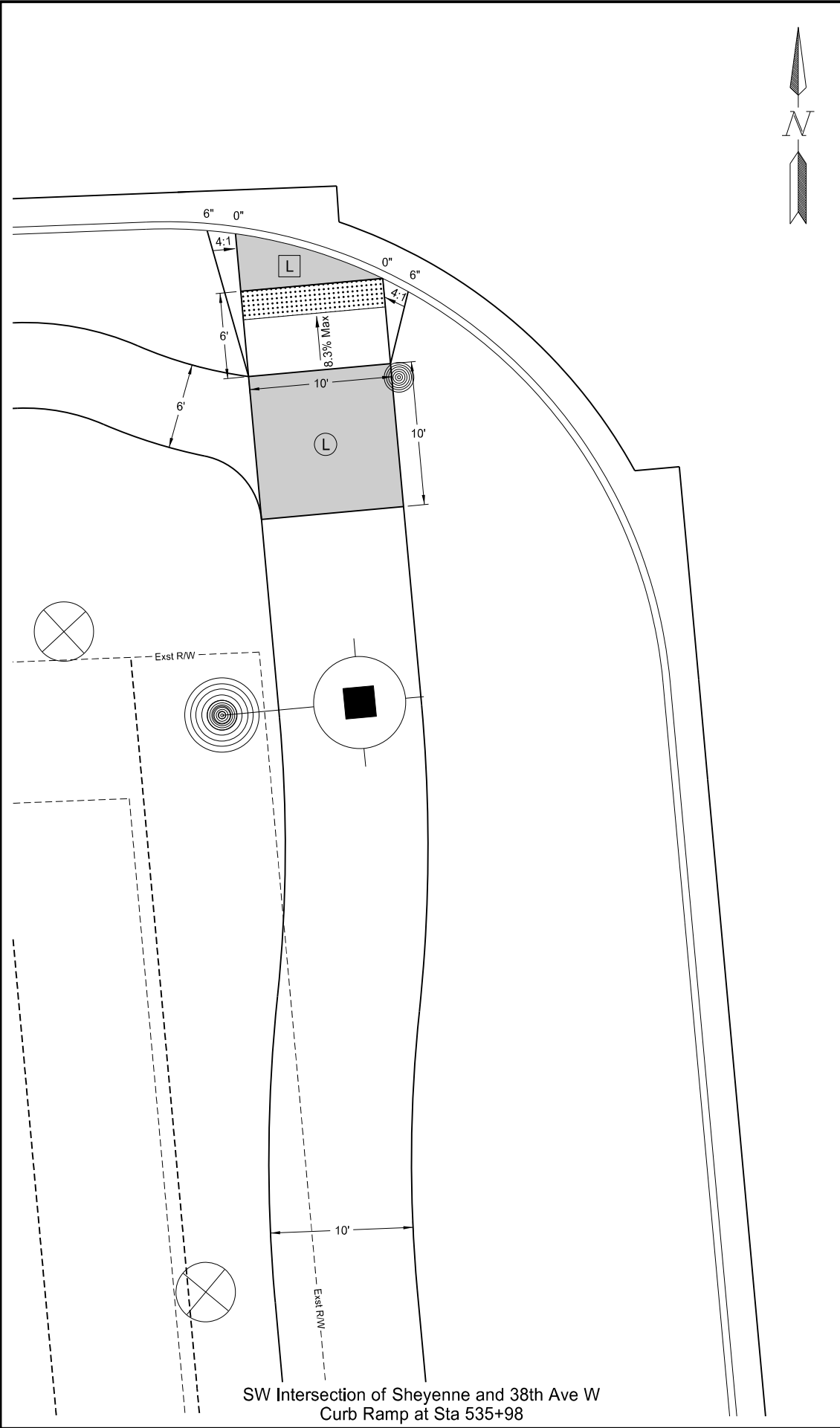
Sheyenne Street
Median Nose & Refuge Island Details



NW Intersection of Sheyenne and 40th Ave W
Curb Ramp at Sta 523+52 and Sta 523+98

NE Intersection of Sheyenne and 40th Ave W
Curb Ramp at Sta 523+42 and Sta 523+98

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	20	16



LEGEND

- Detectable Warning Panels
- Pigmented Imprinted Concrete
- Upper landing: 2% Max Slope in any Direction
- Lower landing: 2% Max Slope in any Direction
- Slope Direction - Contractor to Maintain Positive Slope in Direction Shown
- Pedestrian Push Button
- Pedestrian Push Button
- Light Pole
- Traffic Signal Pole with Light
- Pull Box

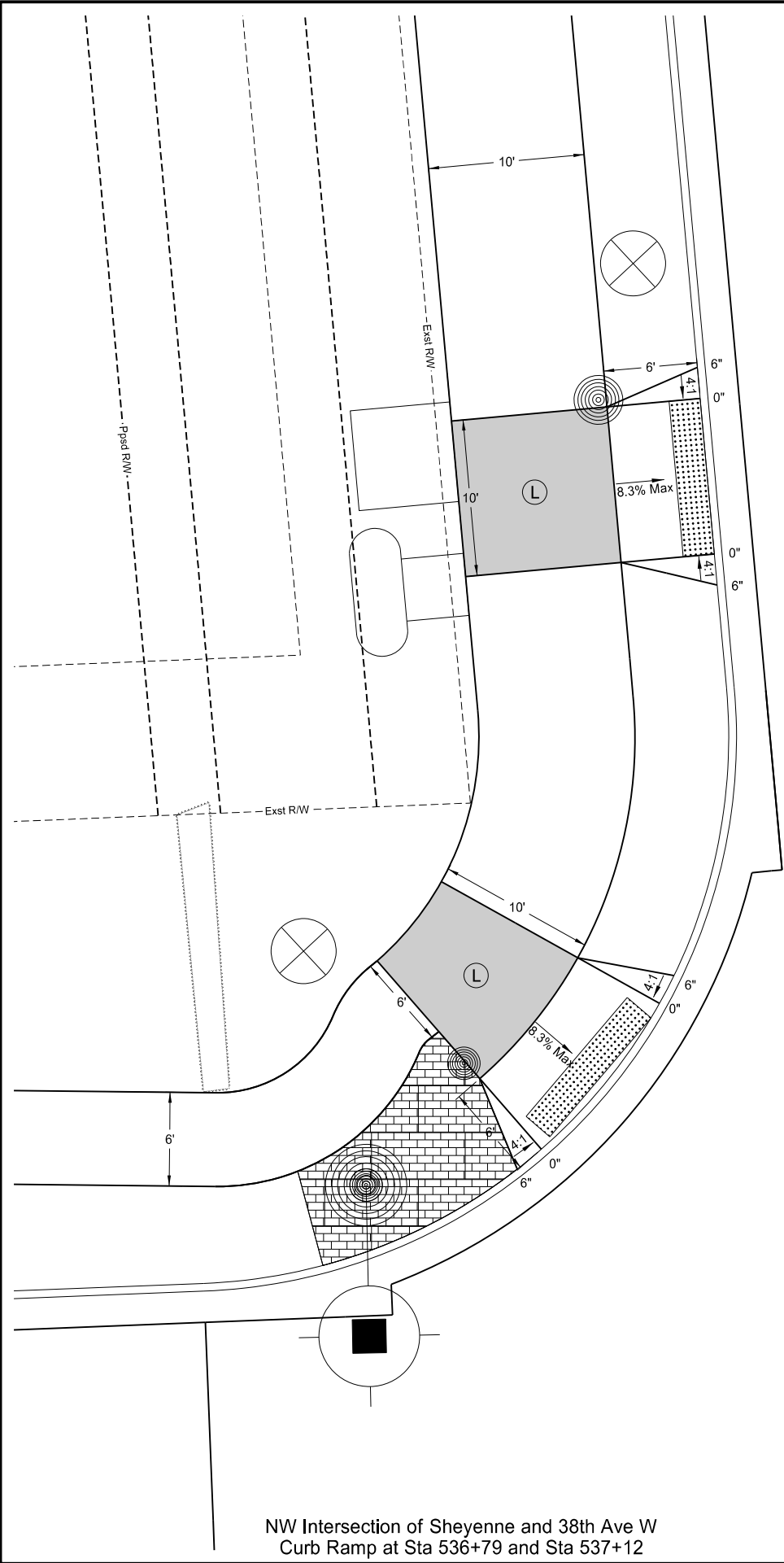
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Sheyenne Street

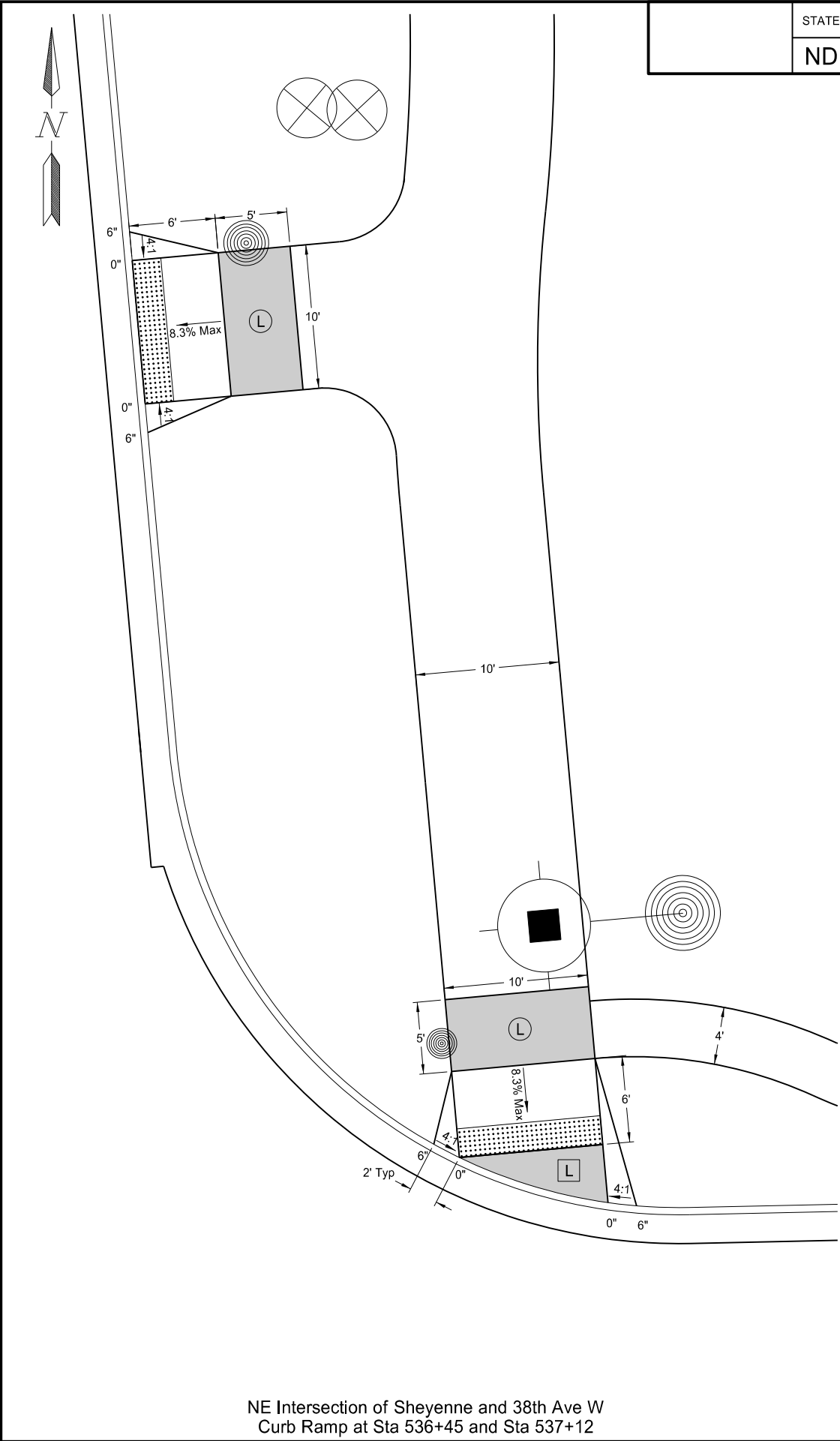
General Details

ADA Curb Ramps
38th Avenue West

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	17



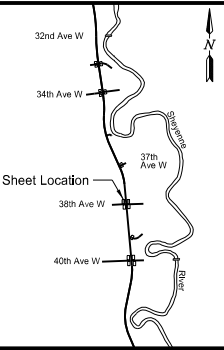
NW Intersection of Sheyenne and 38th Ave W
Curb Ramp at Sta 536+79 and Sta 537+12



NE Intersection of Sheyenne and 38th Ave W
Curb Ramp at Sta 536+45 and Sta 537+12

LEGEND

- Detectable Warning Panels
- Pigmented Imprinted Concrete
- Upper landing: 2% Max Slope in any Direction
- Lower landing: 2% Max Slope in any Direction
- Slope Direction - Contractor to Maintain Positive Slope in Direction Shown
- Pedestrian Push Button
- Pedestrian Push Button
- Light Pole
- Traffic Signal Pole with Light
- Pull Box

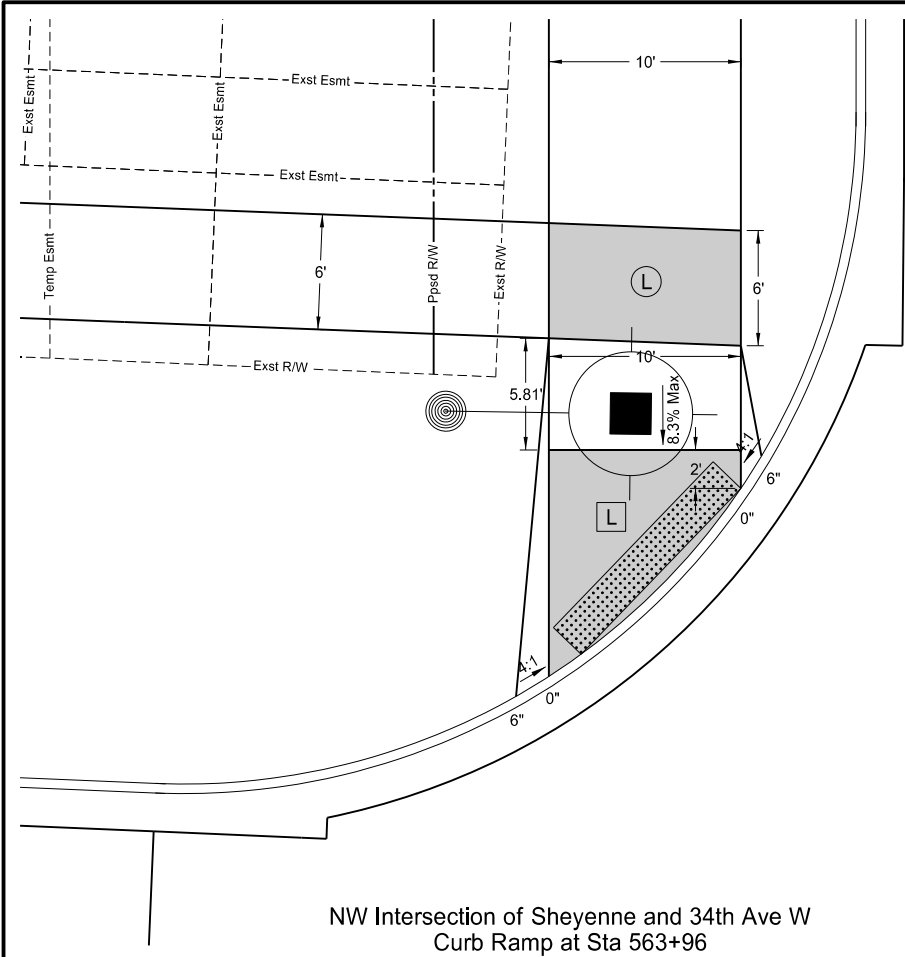


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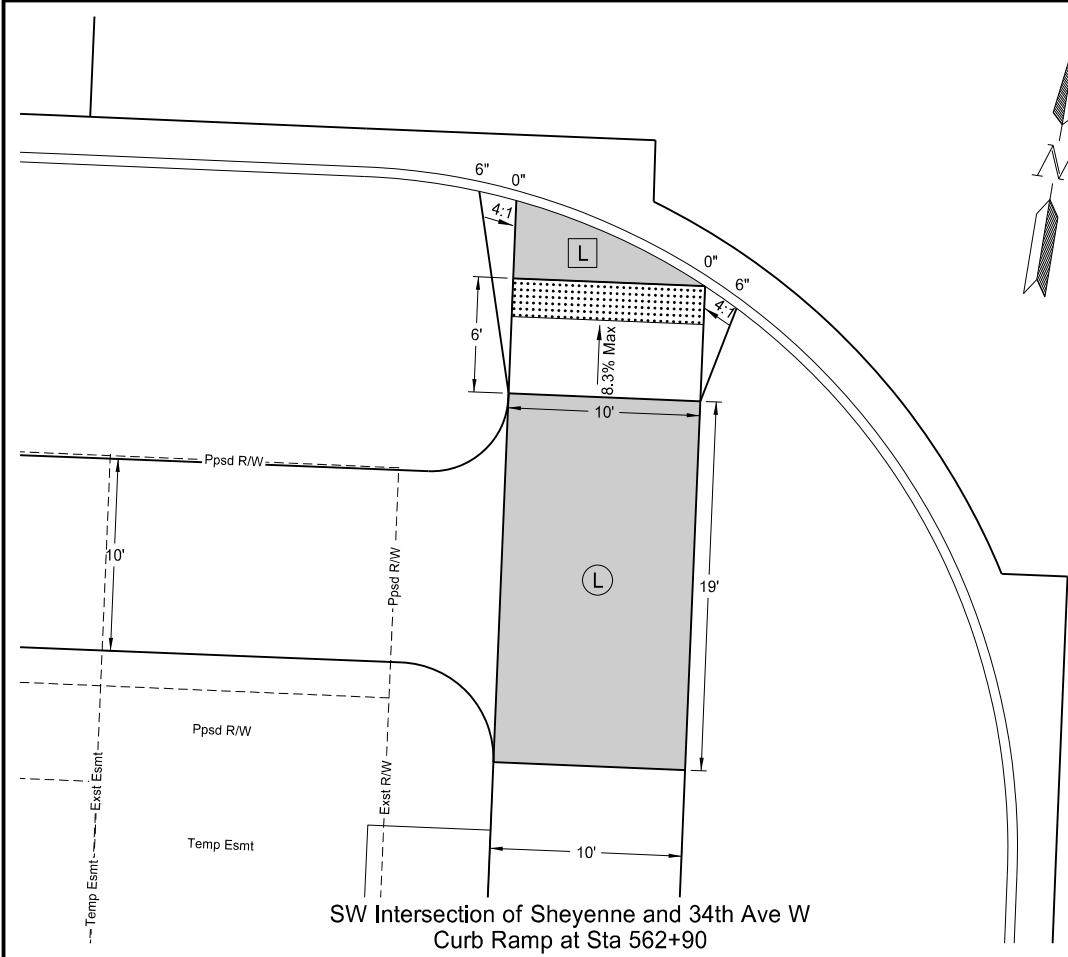
Sheyenne Street

General Details

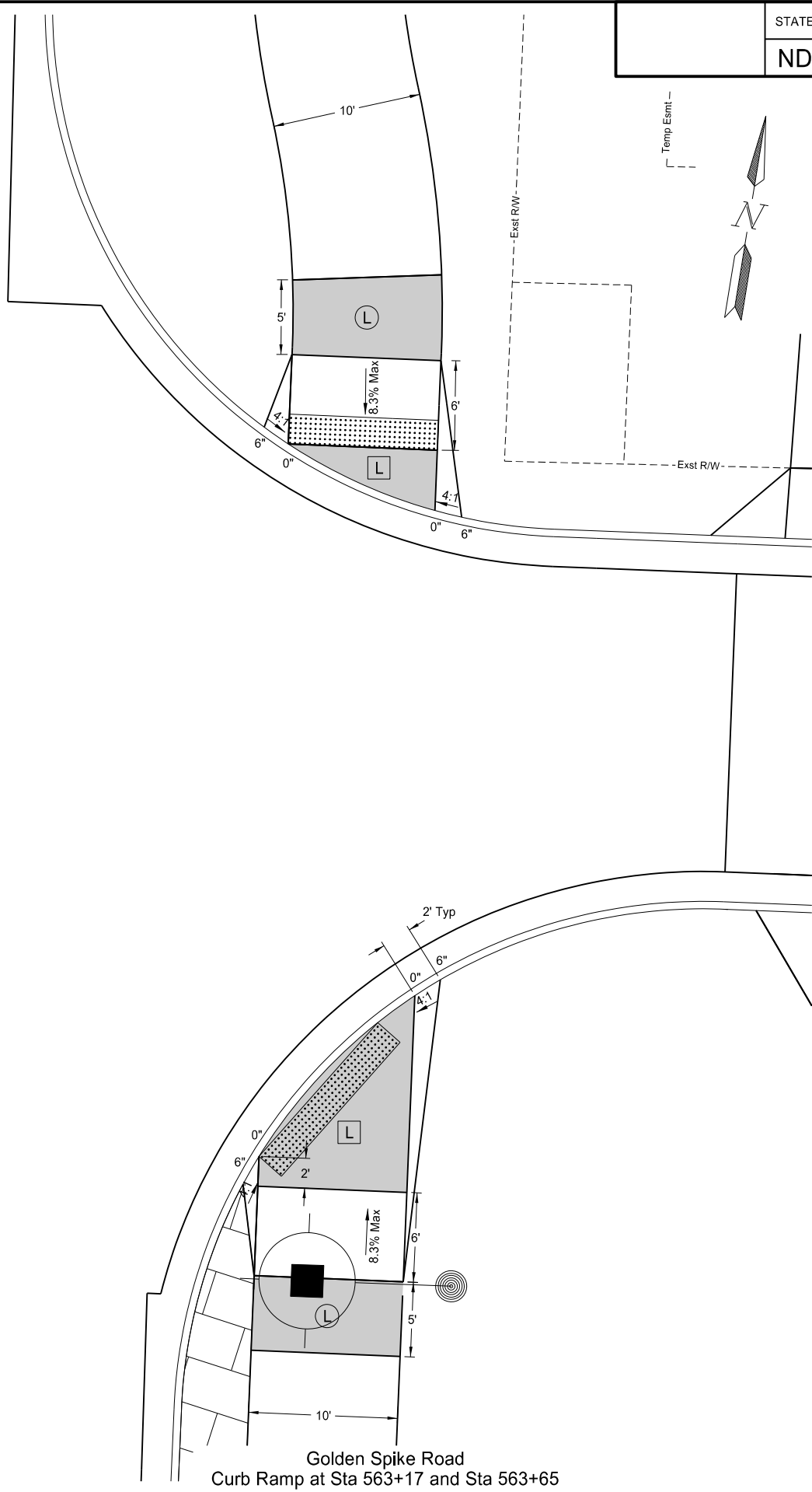
ADA Curb Ramps
38th Avenue West



NW Intersection of Sheyenne and 34th Ave W
Curb Ramp at Sta 563+96



SW Intersection of Sheyenne and 34th Ave W
Curb Ramp at Sta 562+90



Golden Spike Road
Curb Ramp at Sta 563+17 and Sta 563+65

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	20	19

LEGEND

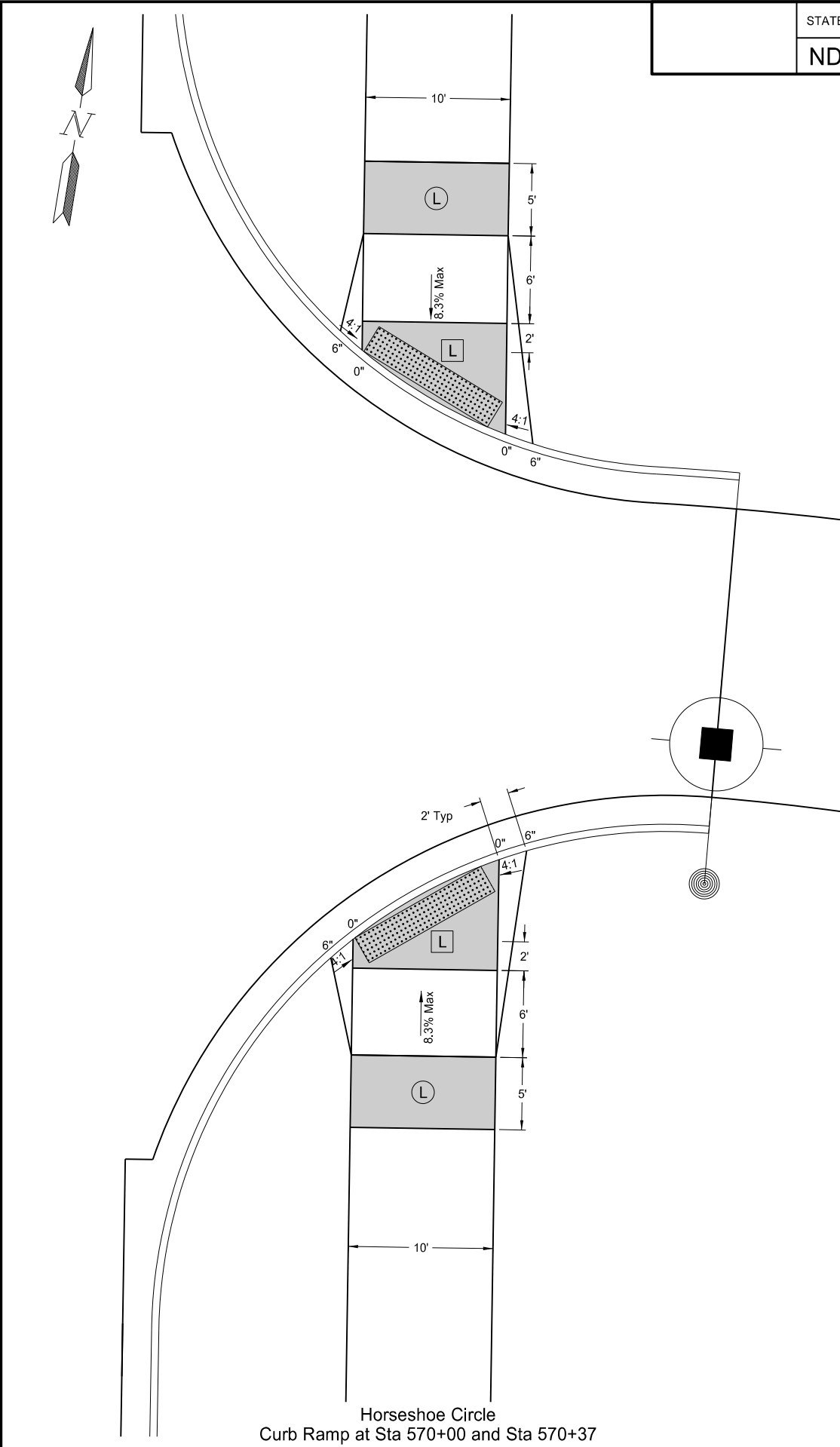
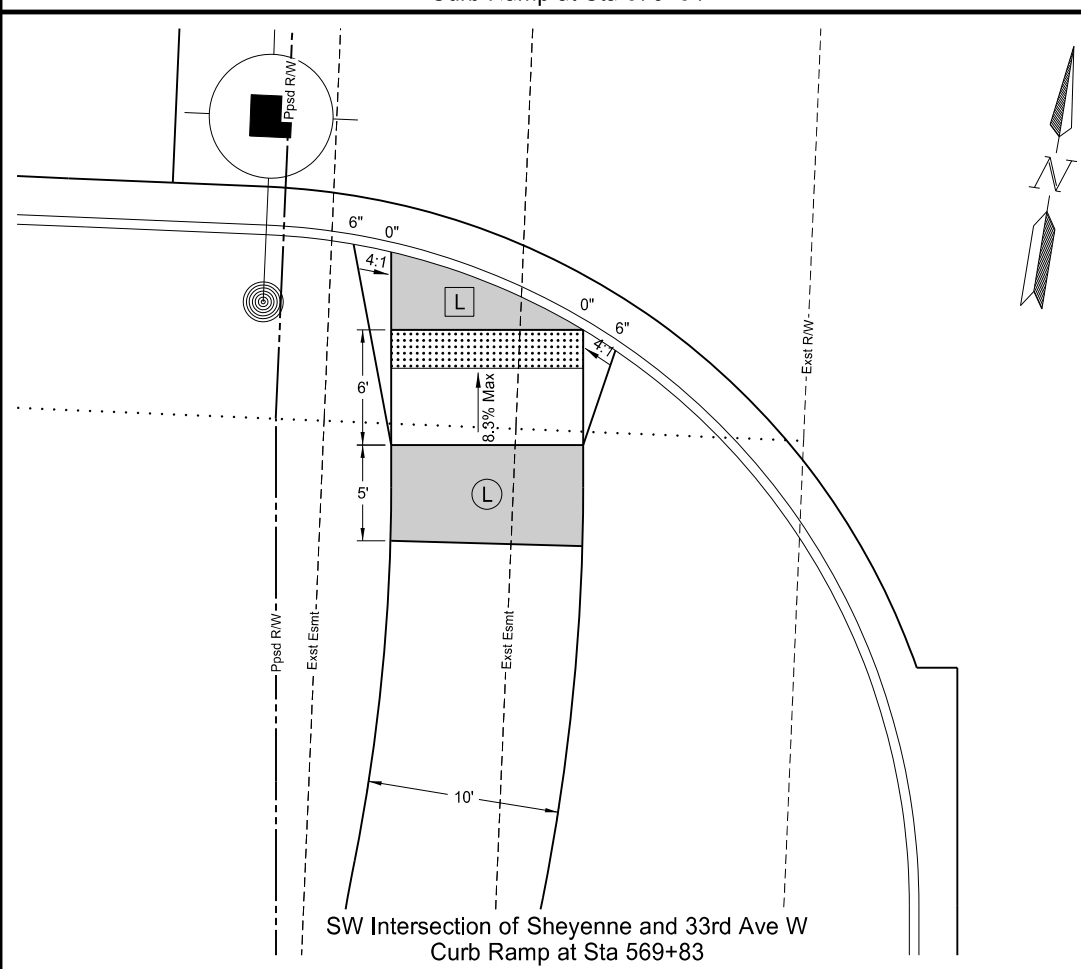
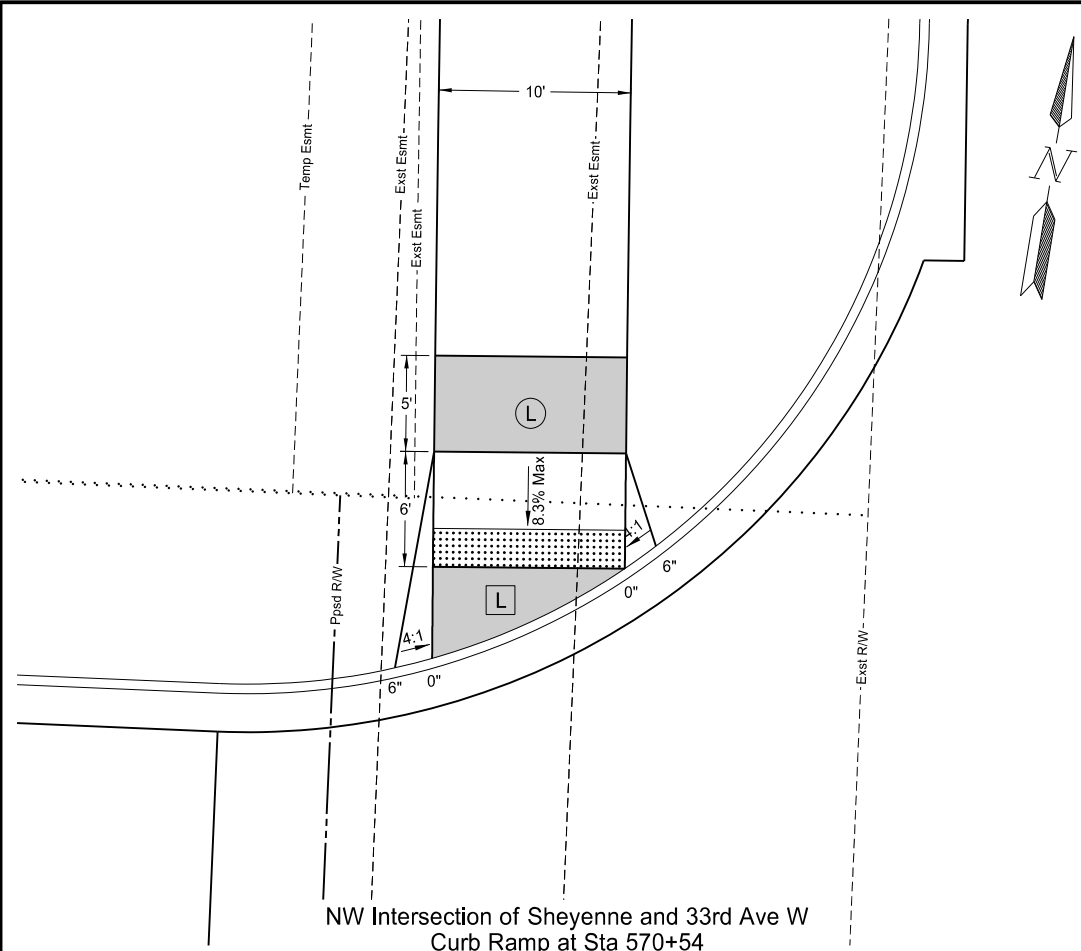
- Detectable Warning Panels
- Pigmented Imprinted Concrete
- Upper landing: 2% Max Slope in any Direction
- Lower landing: 2% Max Slope in any Direction
- Slope Direction - Contractor to Maintain Positive Slope in Direction Shown
- Pedestrian Push Button
- Pedestrian Push Button
- Light Pole
- Traffic Signal Pole with Light
- Pull Box



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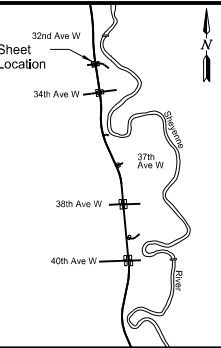
Sheyenne Street
General Details
ADA Curb Ramps
34th Avenue West & Golden Spike Road

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	20



LEGEND

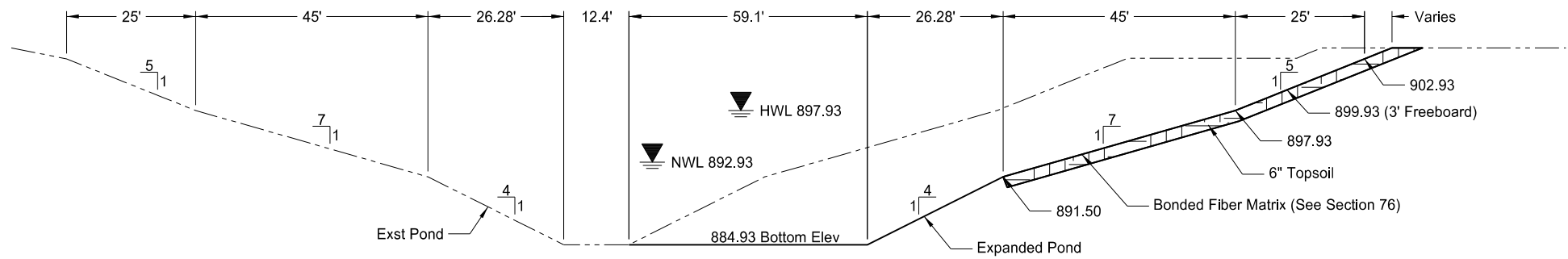
- Detectable Warning Panels
- Pigmented Imprinted Concrete
- Upper landing: 2% Max Slope in any Direction
- Lower landing: 2% Max Slope in any Direction
- Slope Direction - Contractor to Maintain Positive Slope in Direction Shown
- Pedestrian Push Button
- Pedestrian Push Button
- Light Pole
- Traffic Signal Pole with Light
- Pull Box



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Sheyenne Street
General Details
ADA Curb Ramps
33rd Avenue West & Horseshoe Circle

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	20	22



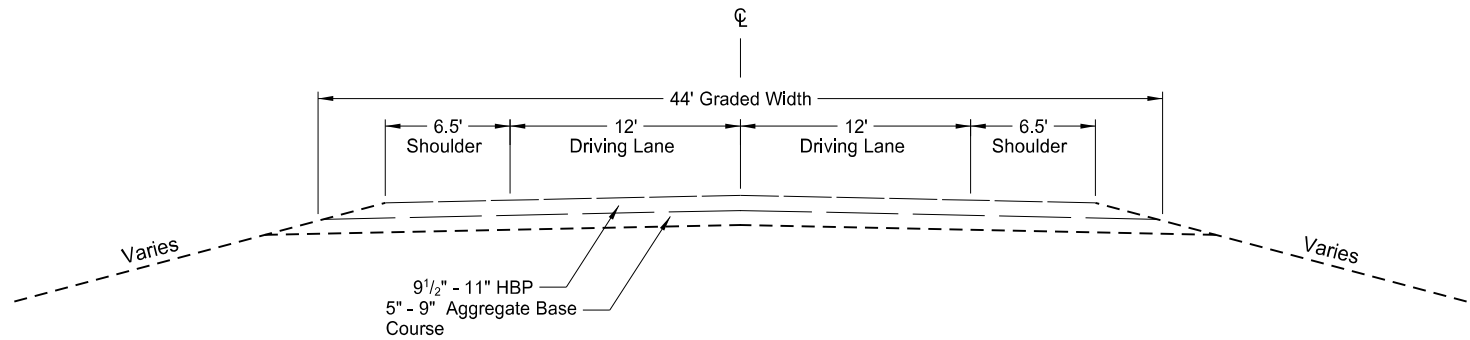
SECTION A-A

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Sheyenne Street

Pond Section

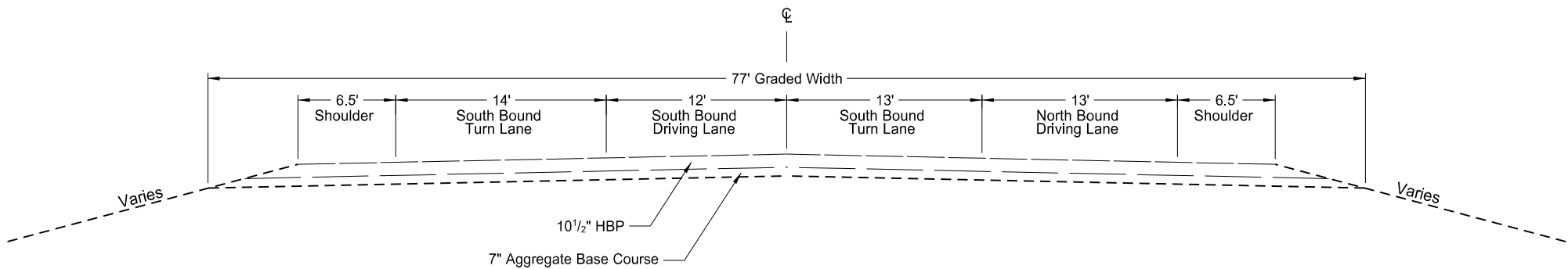
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	30	1



EXISTING SHEYENNE STREET ROADWAY SECTION

STA 508+00 TO STA 519+00
STA 528+50 TO STA 568+00

Core Number	Asphalt Thickness	Base Thickness	Approx Sta
C-8	9 1/2"	9"	560+25
C-9	9 1/2"	5"	539+75
C-10	10 1/2"	7"	526+50
C-11	11"	9"	511+00



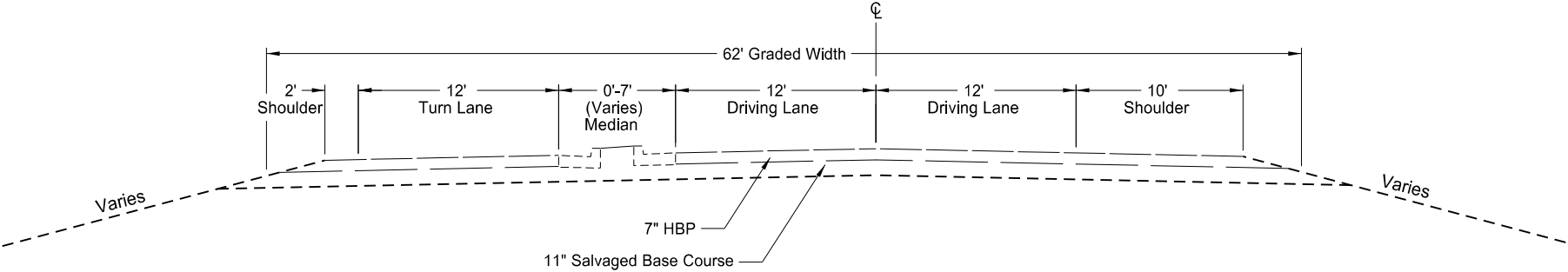
EXISTING SHEYENNE STREET ROADWAY SECTION

STA 519+00 TO STA 526+45

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Sheyenne Street
Typical Sections
Existing

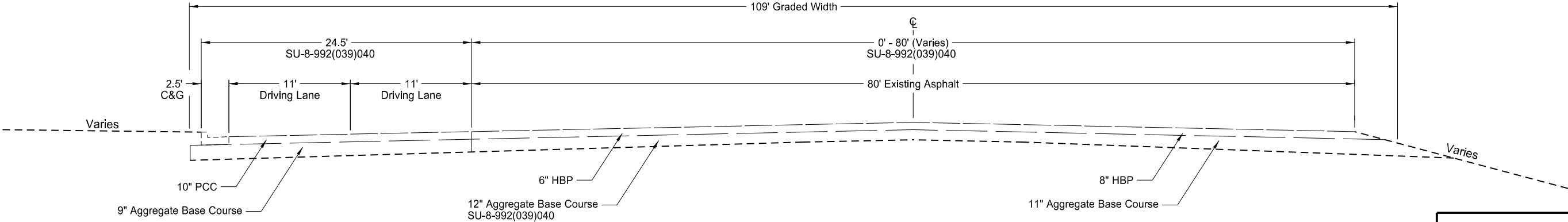
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	30	2



EXISTING SHEYENNE STREET ROADWAY SECTION

STA 568+00 TO STA 572+00

Core Number	Asphalt Thickness	Base Thickness	Approx Sta
C-7	8"	11"	571+00



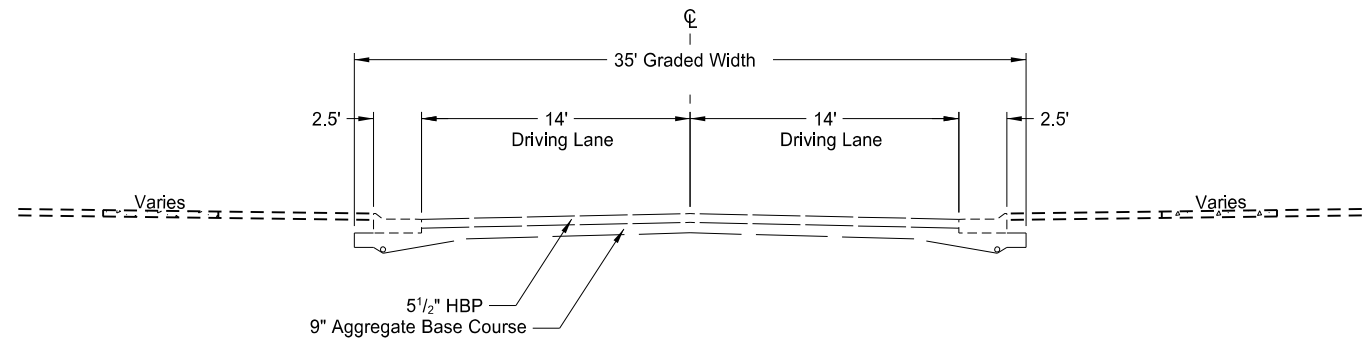
EXISTING SHEYENNE STREET ROADWAY SECTION

STA 572+00 TO STA 575+60

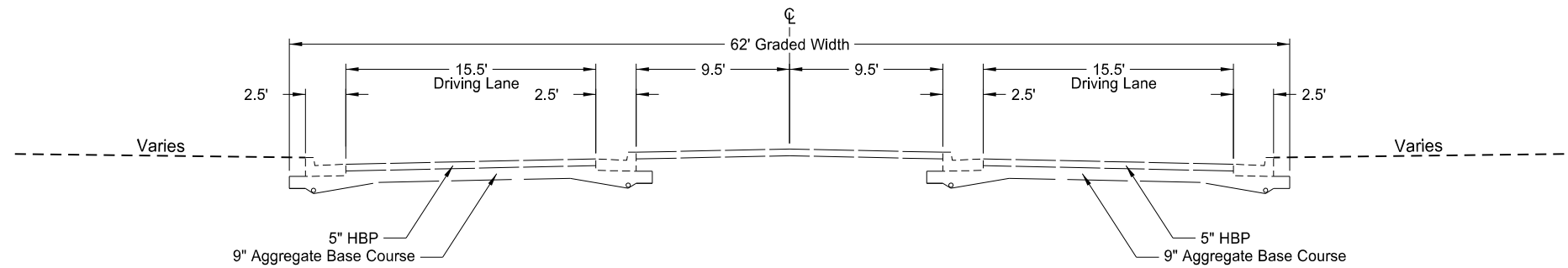
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Sheyenne Street
Typical Sections
Existing

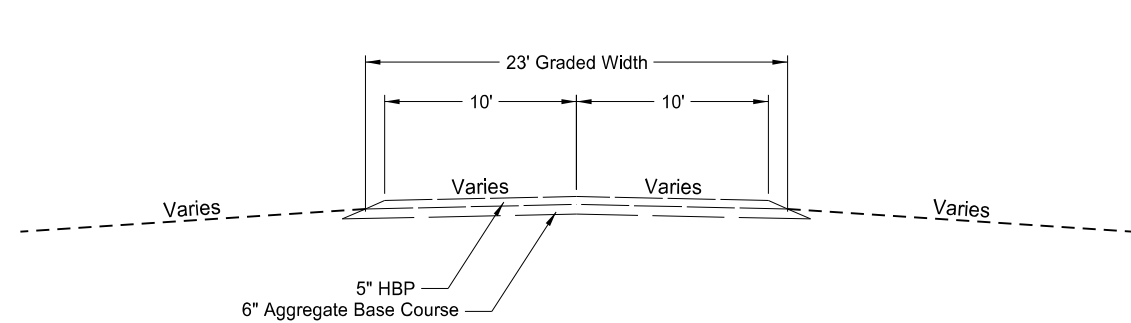
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	30	3



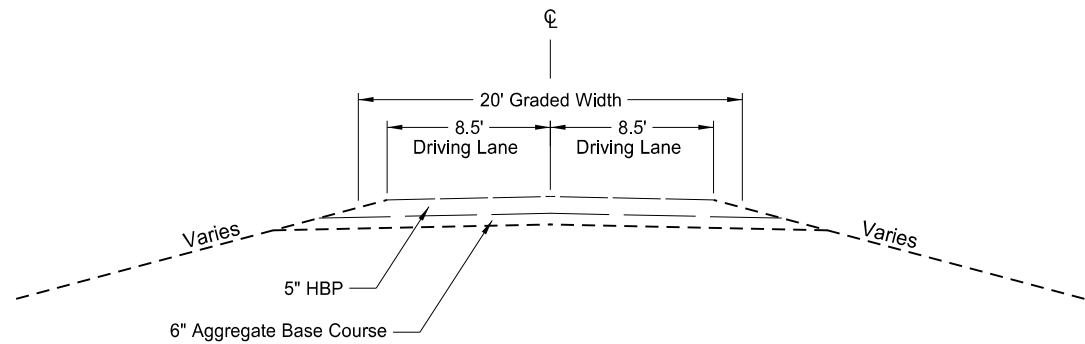
EXISTING 37TH & HIDDEN CIRCLE ROADWAY SECTION



EXISTING 38TH AVE ROADWAY SECTION



KENSINGTON DRIVE



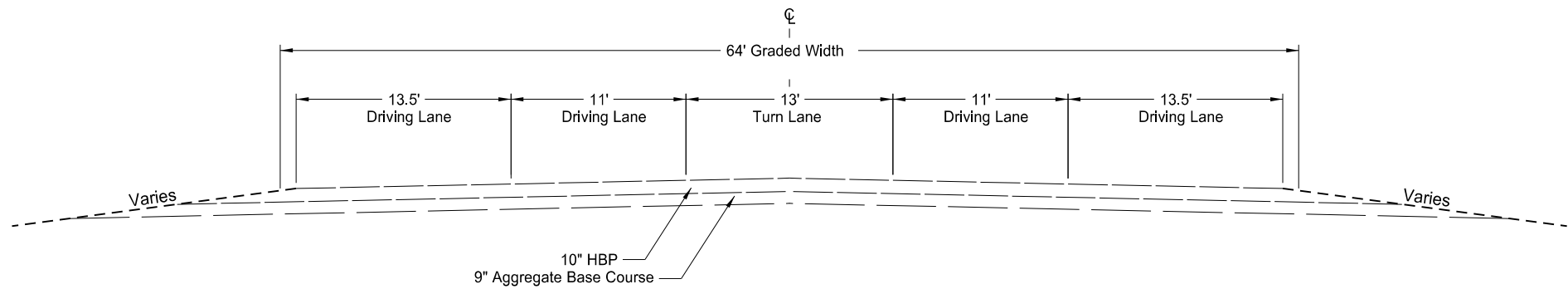
EXISTING FRONTAGE ROADWAY SECTION

BETWEEN KENSINGTON & HIDDEN CIRCLE

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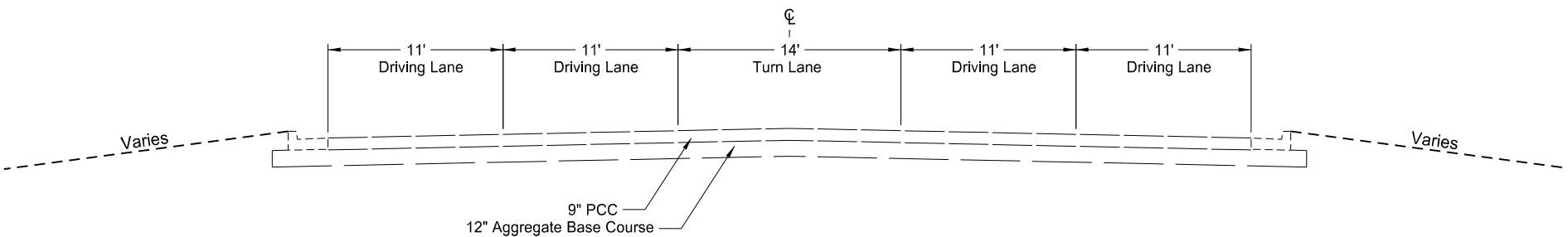
Sheyenne Street
Typical Sections
Existing

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	30	4



40TH AVE WEST

STA 5+46.53 TO STA 6+25



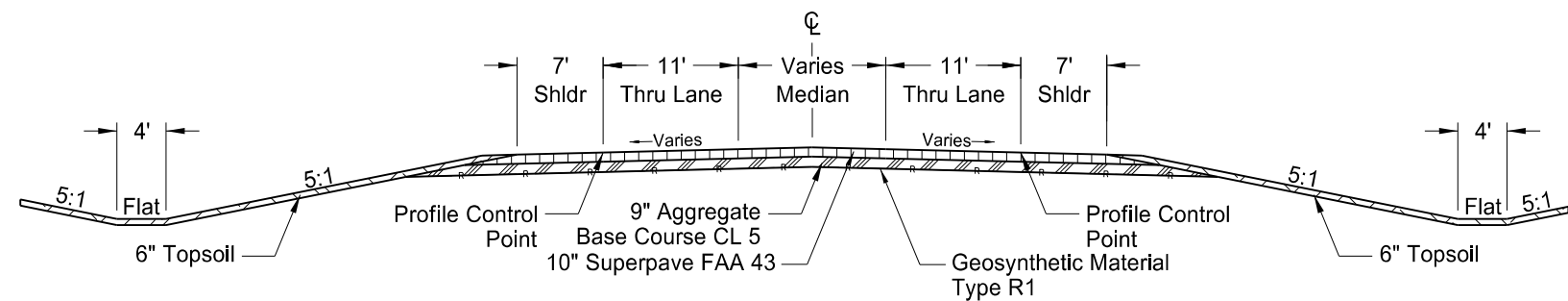
40TH AVE EAST

STA 7+50 TO STA 8+00

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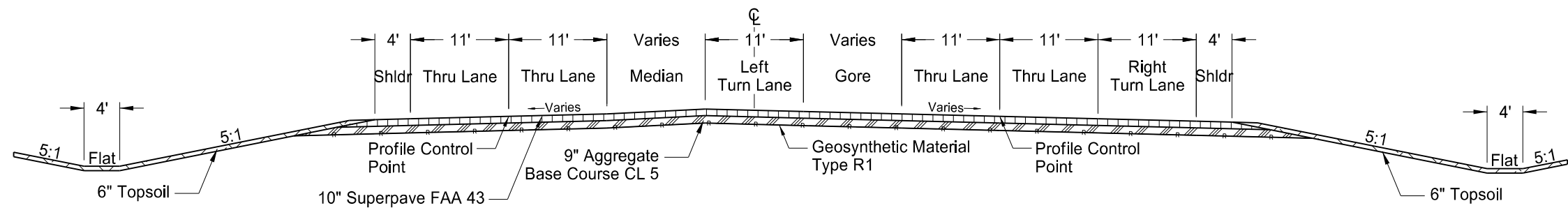
Sheyenne Street
Typical Sections
Existing

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	30	5



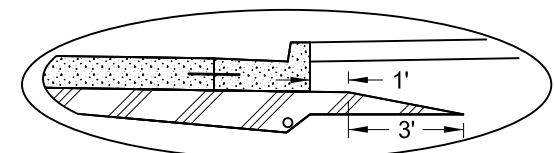
SHEYENNE STREET ROADWAY SECTION

STA 513+68.72 TO STA 516+94.72

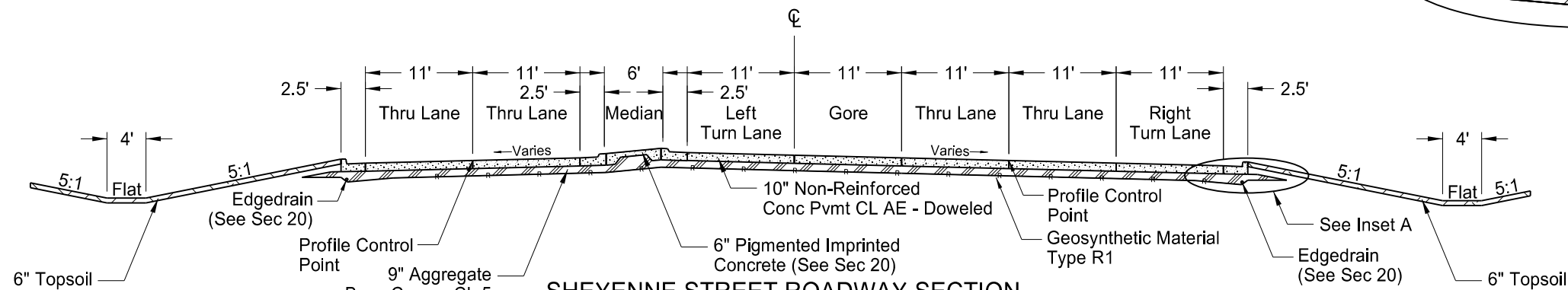


SHEYENNE STREET ROADWAY SECTION

STA 516+94.72 TO STA 519+58.72



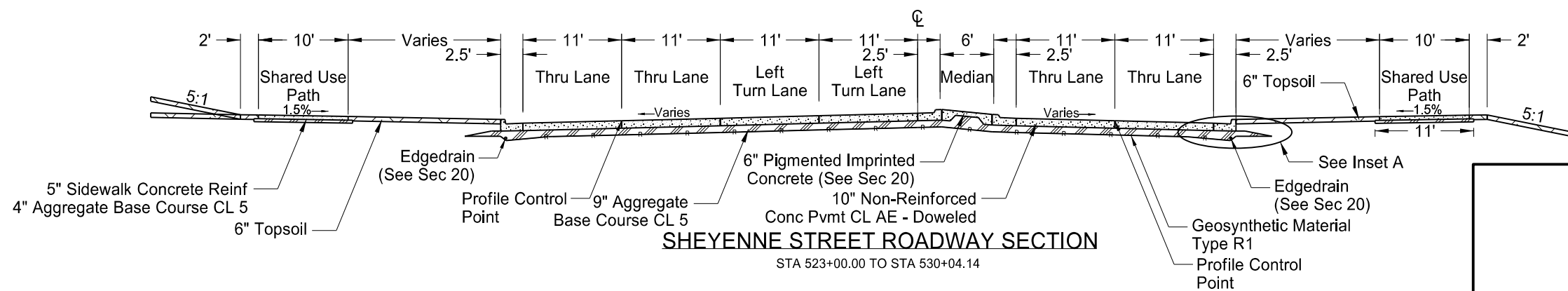
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SHEYENNE STREET ROADWAY SECTION

STA 519+58.72 TO STA 523+00.00

* Typical Cross Slope = 2.5%
See Section 82 For Varying
Cross Slopes



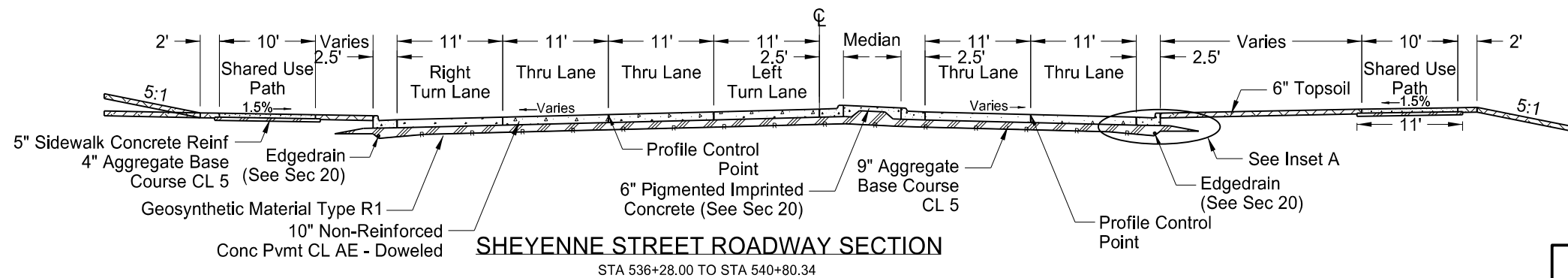
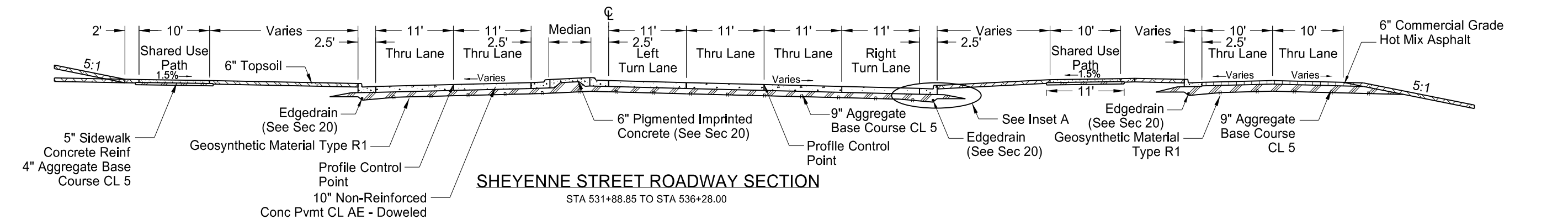
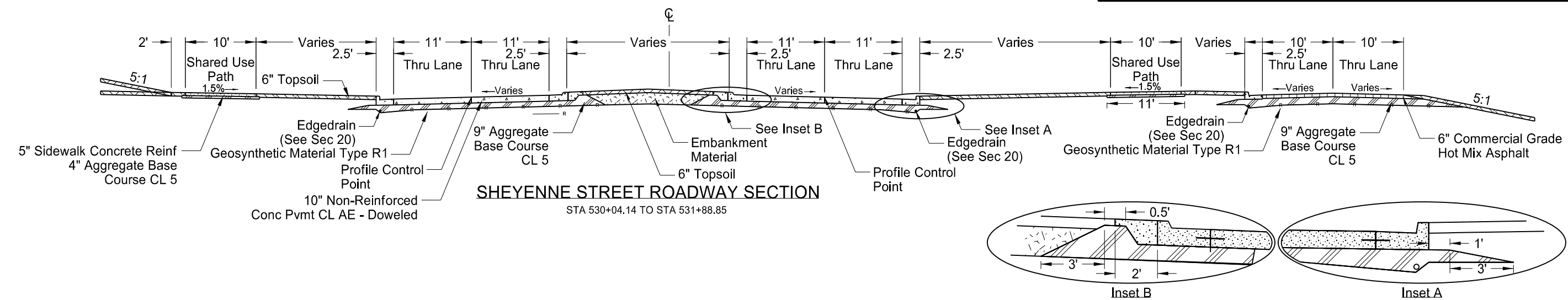
SHEYENNE STREET ROADWAY SECTION

STA 523+00.00 TO STA 530+04.14

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Sheyenne Street
Typical Sections
Proposed

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	30	6

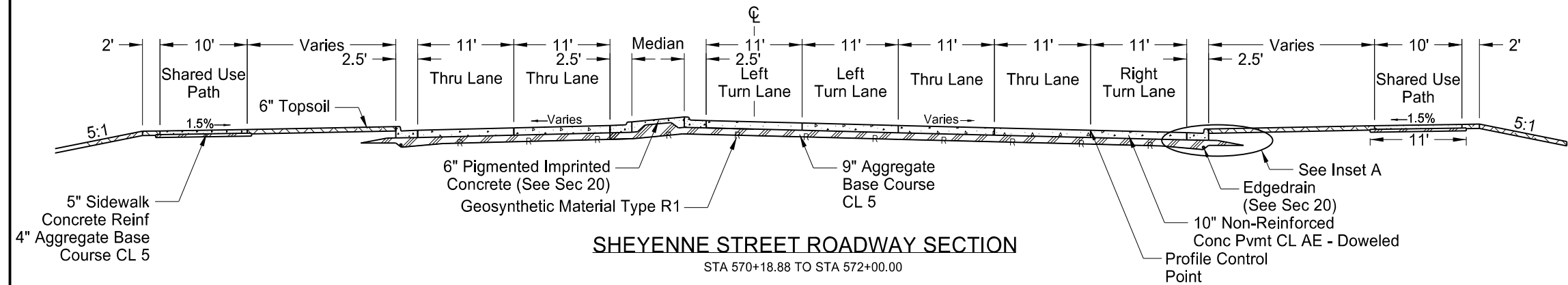
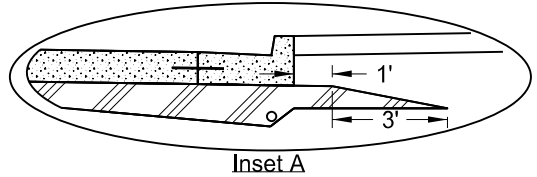
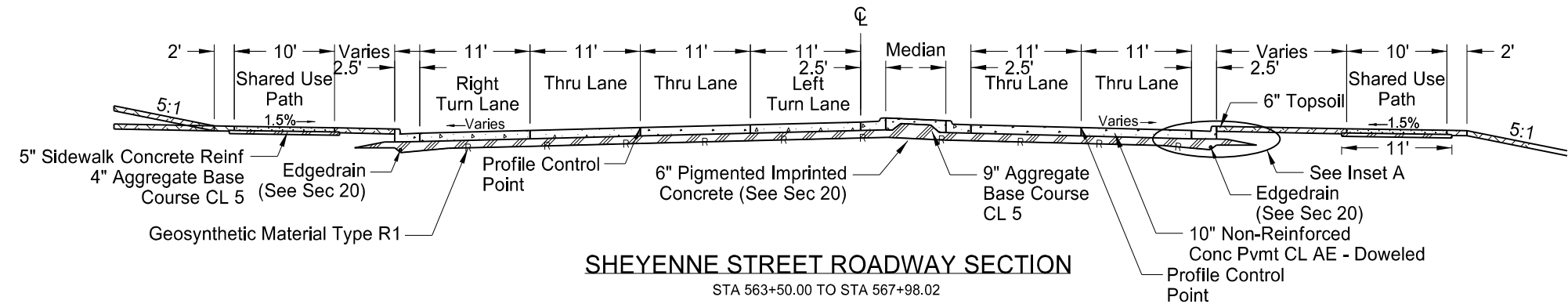


* Typical Cross Slope = 2.5%
See Section 82 For Varying
Cross Slopes

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Sheyenne Street
Typical Sections
Proposed

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	30	8

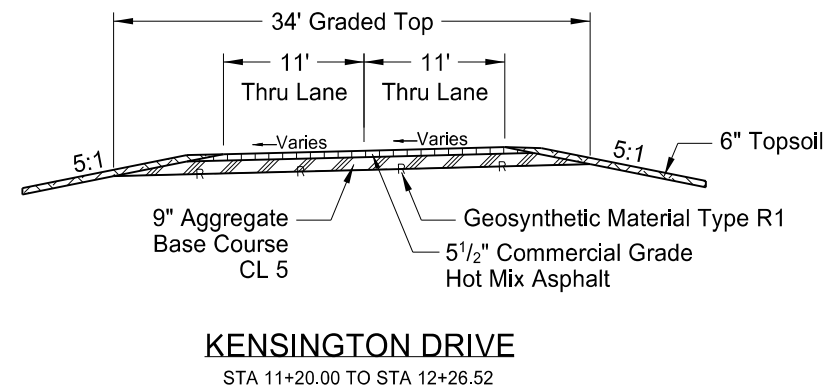
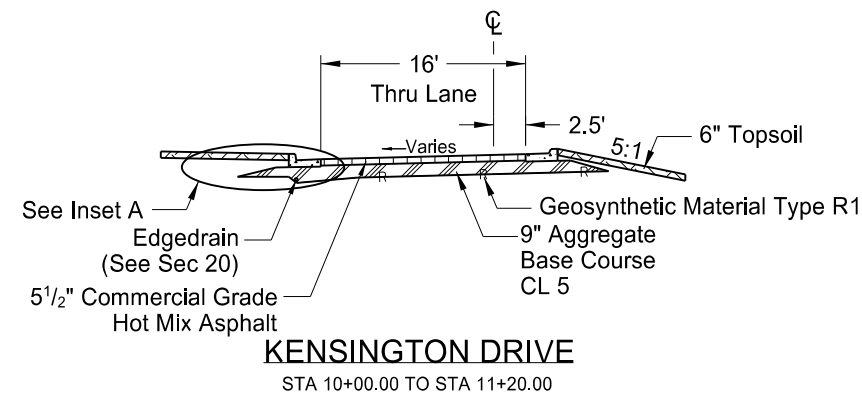
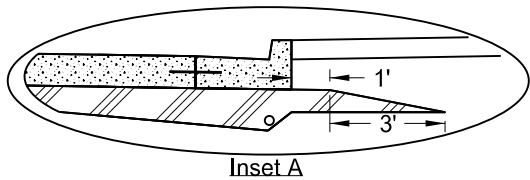
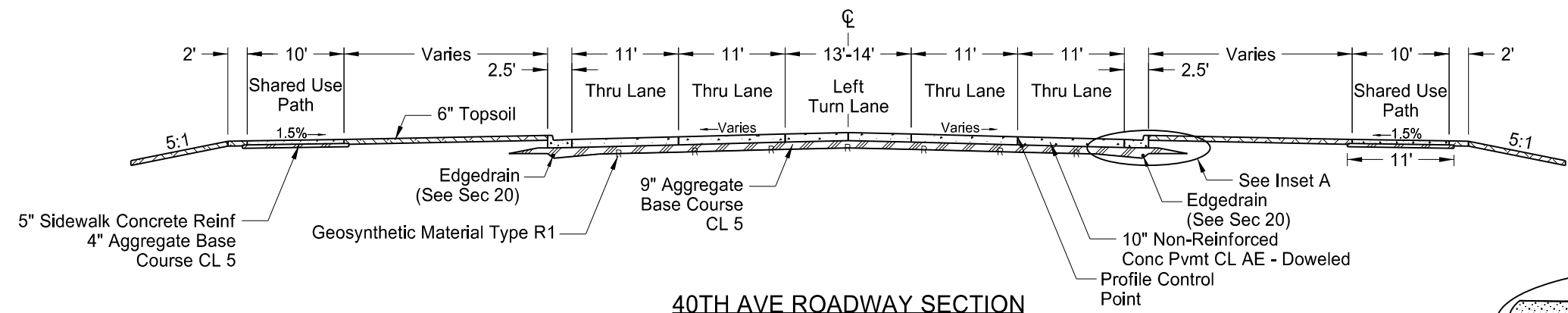


* Typical Cross Slope = 2.5%
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Cross Slopes

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Sheyenne Street
Typical Sections
Proposed

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	30	9

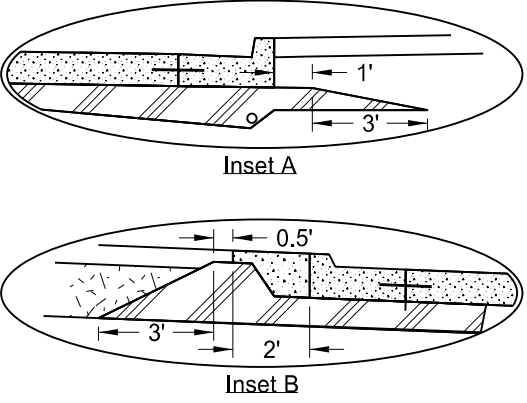
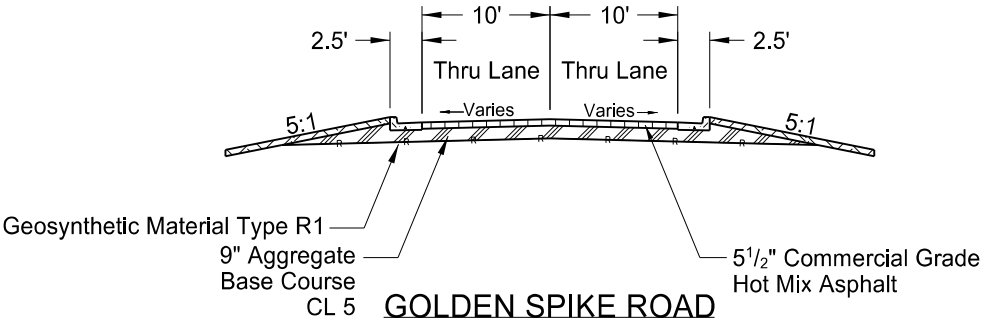
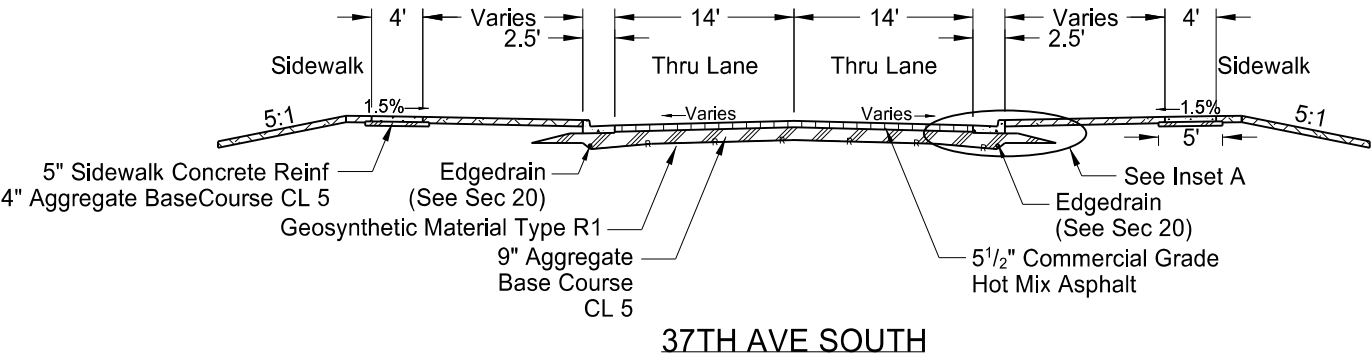
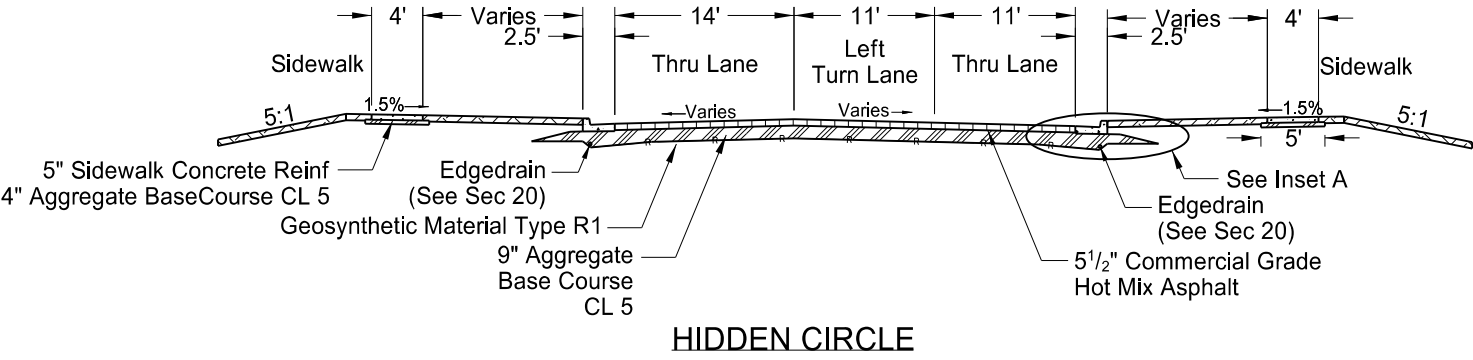
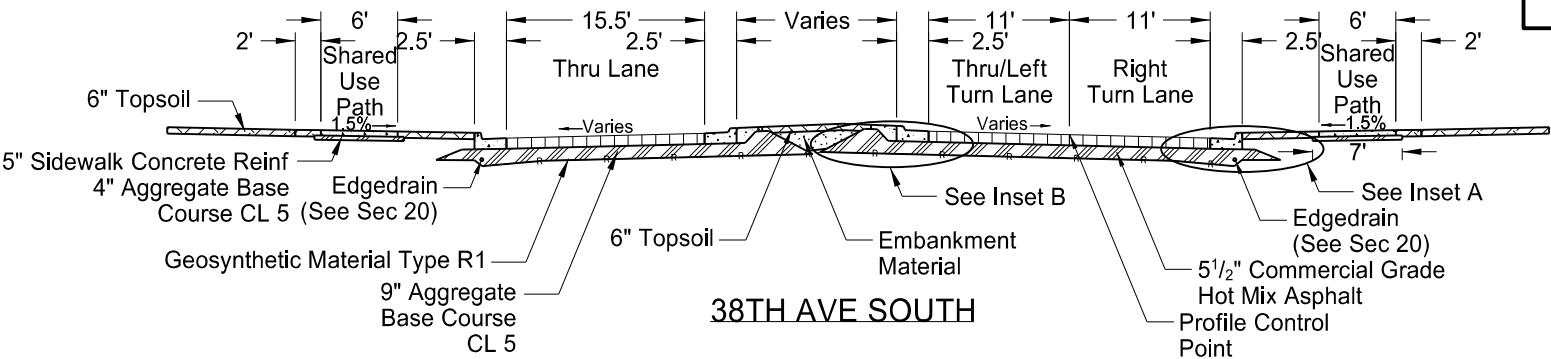


* Typical Cross Slope = 2.5%
See Section 82 For Varying
Cross Slopes

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Sheyenne Street
Typical Sections
Proposed

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	30	10

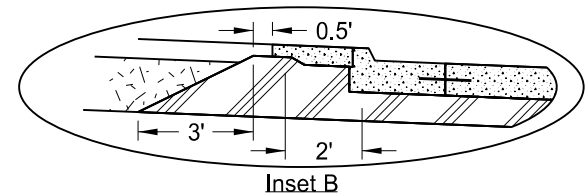
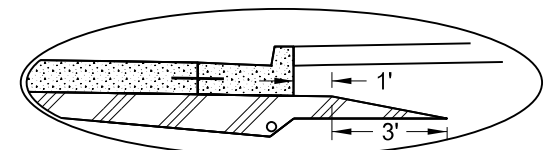
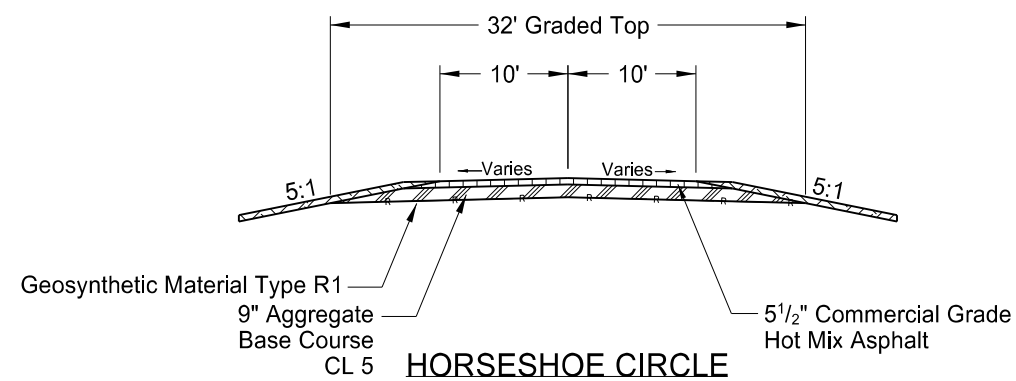
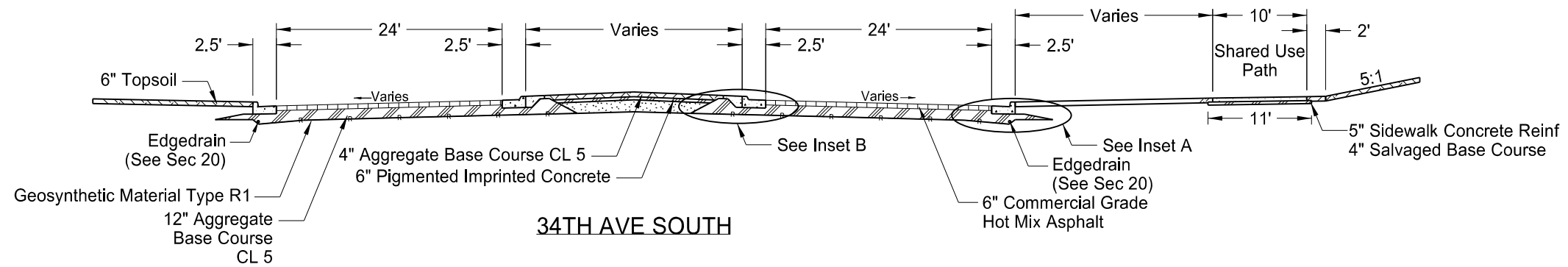


* Typical Cross Slope = 2.5%
See Section 82 For Varying
Cross Slopes

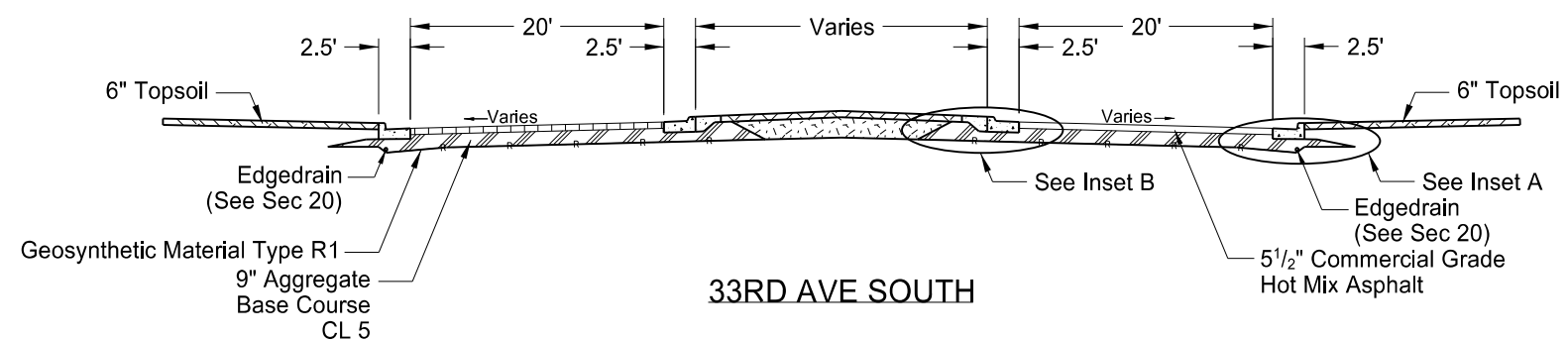
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Sheyenne Street
Typical Sections
Proposed

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	30	11



* Typical Cross Slope = 2.5%
See Section 82 For Varying
Cross Slopes

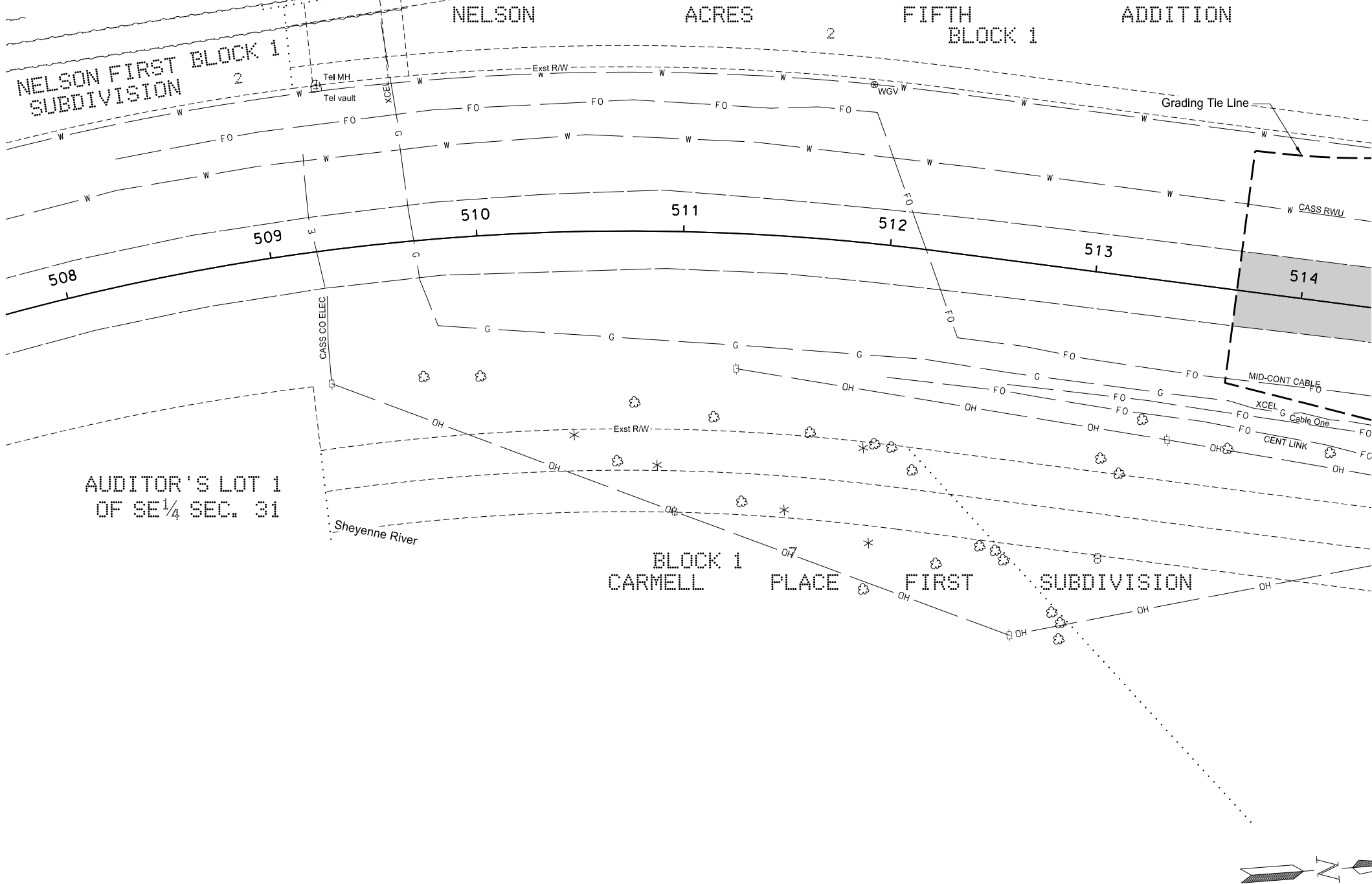


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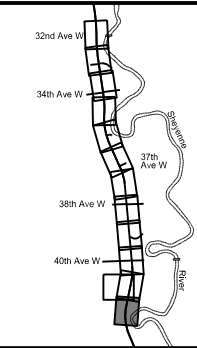
Sheyenne Street
Typical Sections
Proposed

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	1

SPEC CODE	BID ITEM	QTY	UNIT
306 0510	FULL DEPTH RECLAMATION Sheyenne Street	126	SY



LEGEND	
Full Depth Reclamation of Bituminous Surfacing	Removal of Bituminous Surfacing
Removal of Concrete	Abandon Pipe
Removal of Gravel Surfacing	Removal of Pipe
Removal Landscaping Material	Trim Trees & Shrubs
Removal of Curb & Gutter	Removal of Tree/Shrub



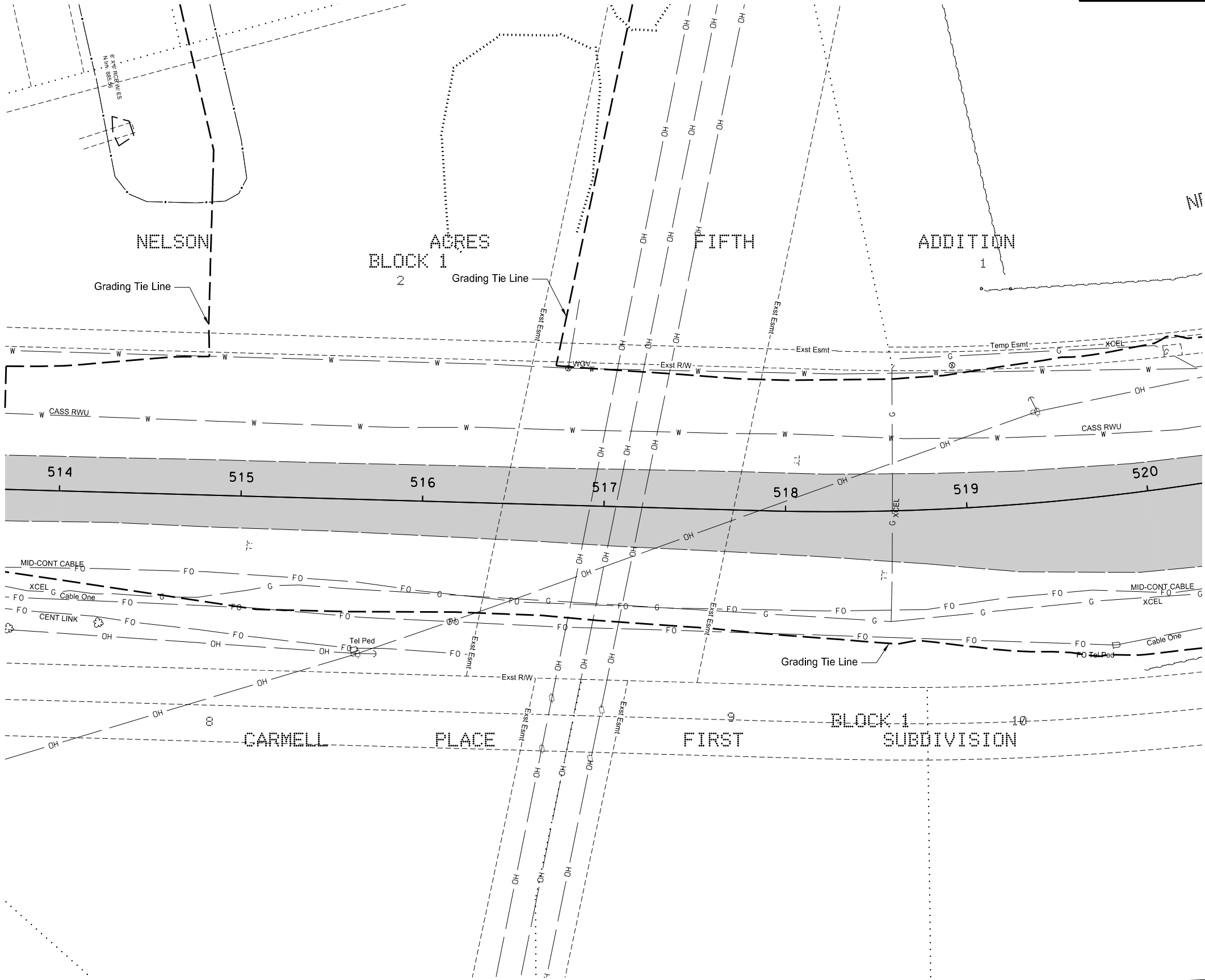
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Sheyenne Street
Removals
Sta 508+00 to Sta 514+00 (PR17)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	40	2

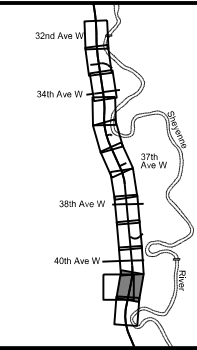
SPEC CODE BID ITEM QTY UNIT

306 0510 FULL DEPTH RECLAMATION
Sheyenne Street 2,929 SY



LEGEND

- | | |
|--|---------------------------------|
| Full Depth Reclamation of Bituminous Surfacing | Removal of Bituminous Surfacing |
| Removal of Concrete | Abandon Pipe |
| Removal of Gravel Surfacing | Removal of Pipe |
| Removal Landscaping Material | Trim Trees & Shrubs |
| Removal of Curb & Gutter | Removal of Tree/Shrub |

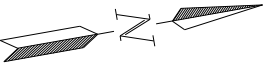


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Sheyenne Street

Removals

Sta 514+00 to Sta 520+00 (PR17)

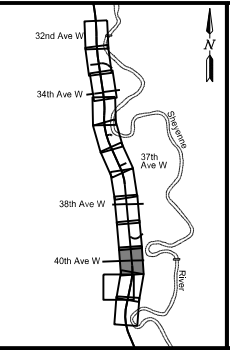


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	3

			SPEC CODE	BID ITEM	QTY	UNIT
202	0230	REMOVAL OF INLETS				
		Sta. 522+65 - 108' Rt.			1EA	
		Sta. 523+86 - 59' Lt.			1EA	
306	0510	FULL DEPTH RECLAMATION				
		Sheyenne Street			4,200 SY	
		40th Avenue W			952 SY	
201	0370	REMOVAL OF TREES 10IN		Sta. 520+00 to 526+00	3 EA	
202	0104	REMOVAL OF STRUCTURE		Sta. 523+79 - 110' Lt.	1 EA	
202	0114	REMOVAL OF CONCRETE PAVEMENT		Sidewalk	692 SY	
		40th Avenue E			905 SY	
202	0130	REMOVAL OF CURB & GUTTER		40th Avenue W / 40th Avenue E	347 LF	
202	0132	REMOVAL OF BITUMINOUS SURFACING		Asphalt Shared Use Path	240 SY	
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES				
		Sta. 521+92 - 73' Rt to 523+79 - 59' Rt.			196 LF	
		Sta. 522+34 - 33' Lt. to 523+20 - 66' Lt.			92 LF	
		Sta. 523+42 - 65' Lt. to 523+70 - 38' Lt.			39 LF	
		Sta. 523+45 - 116' Rt. to 523+52 - 70' Rt			52 LF	
		Sta. 523+52 - 70' Rt. to 523+79 - 59' Rt.			19 LF	
		Sta. 523+70 - 38' Lt. to 523+91 - 56' Lt.			27 LF	
		Sta. 523+79 - 102' Lt. to 523+80 - 127' Lt			25 LF	
		Sta. 523+79 - 59' Rt. to 523+79 - 38' Lt.			97 LF	
		Sta. 523+86 - 59' Lt. to 523+91 - 56' Lt.			6 LF	
		Sta. 523+91 - 56' Lt. to 524+32 - 42' Lt.			44 LF	
		Sta. 524+82 to 525+41 - 36' Lt.			59 LF	
202	0210	REMOVAL OF MANHOLES				
		Sta. 523+52 - 70' Rt.			1 EA	
		Sta. 523+70 - 38' Lt.			1 EA	
		Sta. 523+79 - 59' Rt.			1 EA	
		Sta. 523+91 - 56' Lt.			1 EA	

LEGEND

	Full Depth Reclamation of Bituminous Surfacing		Removal of Bituminous Surfacing
	Removal of Concrete		Abandon Pipe
	Removal of Gravel Surfacing		Removal of Pipe
	Removal of Landscaping Material		Trim Trees & Shrubs
	Removal of Curb & Gutter		Removal of Tree/Shrub



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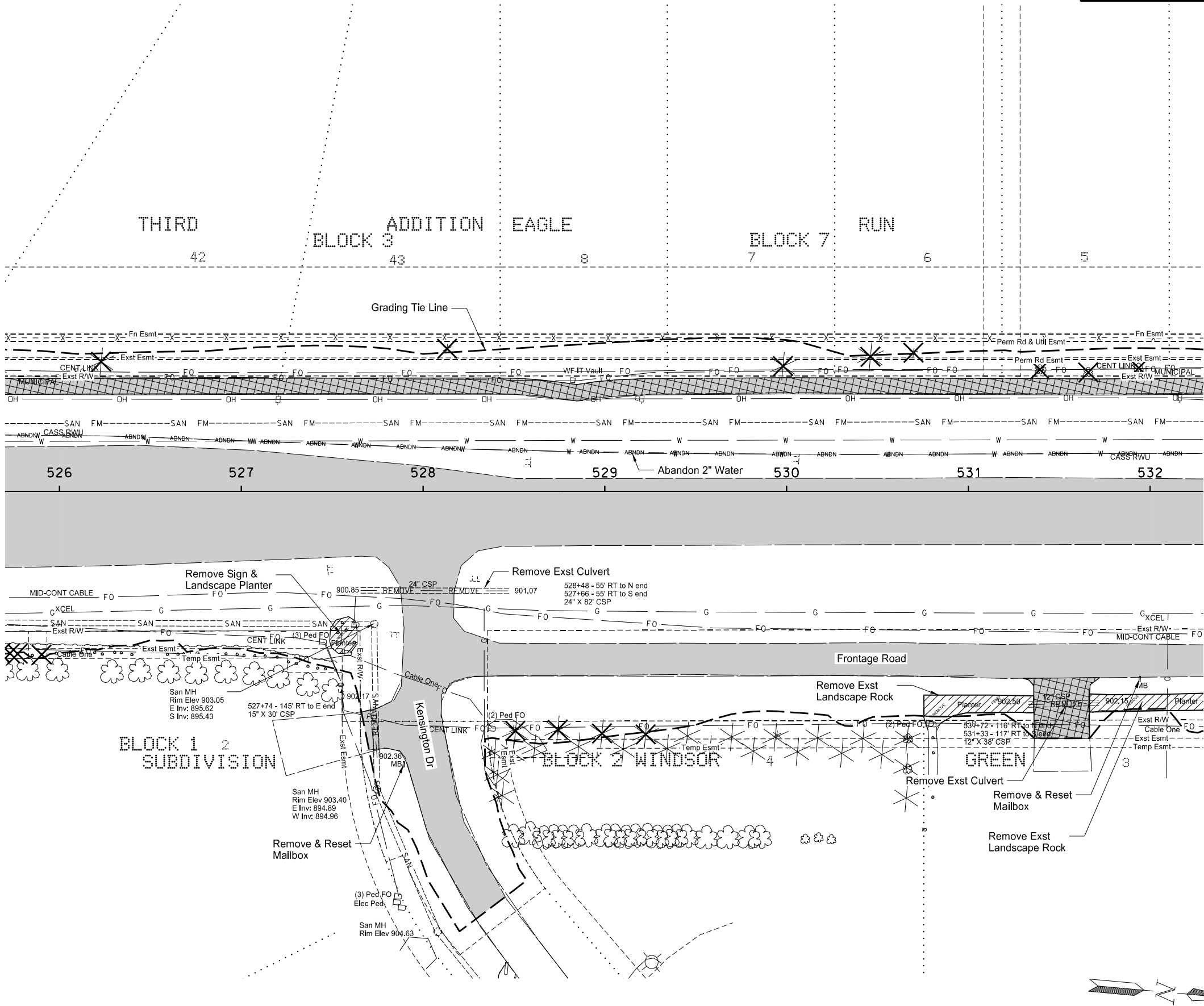
Sheyenne Street

Removals

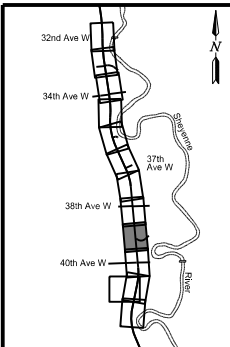
Sta 520+00 to Sta 526+00 (PR17)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	4

SPEC CODE	BID ITEM	QTY	UNIT
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	Asphalt Shared Use Path	600	SY
	Asphalt Driveway	115	SY
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 527+66 - 55' Rt. to 528+48 - 55' Rt.	82	LF
	Sta. 527+72 - 115' Rt. to 527+75 - 145' Rt	33	LF
	Sta. 531+33 - 117' Rt. to 531+72 - 116' Rt	39	LF
306 0510	FULL DEPTH RECLAMATION		
	Sheyenne Street	2,990	SY
	Frontage Road	795	SY
	Kensington Drive	620	SY
766 0100	MAILBOXES-ALL TYPES		
	STA. 526+00 to 532+00	2	EA



LEGEND	
	Full Depth Reclamation of Bituminous Surfacing
	Removal of Concrete
	Removal of Gravel Surfacing
	Removal Landscaping Material
	Removal of Curb & Gutter
	Removal of Bituminous Surfacing
	Abandon Pipe
	Removal of Pipe
	Trim Trees & Shrubs
	Removal of Tree/Shrub



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Sheyenne Street
Removals
Sta 526+00 to Sta 532+00 (PR17)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	5

SPEC CODE	BID ITEM	QTY	UNIT
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201	0370	REMOVAL OF TREES 10IN	
		Sta. 532+00 to 538+00	6 EA

202	0114	REMOVAL OF CONCRETE PAVEMENT	
		Sidewalk	81 SY
		Median	504 SY

202	0130	REMOVAL OF CURB & GUTTER	
		38th Avenue W	517 LF
		Hidden Circle	271 LF

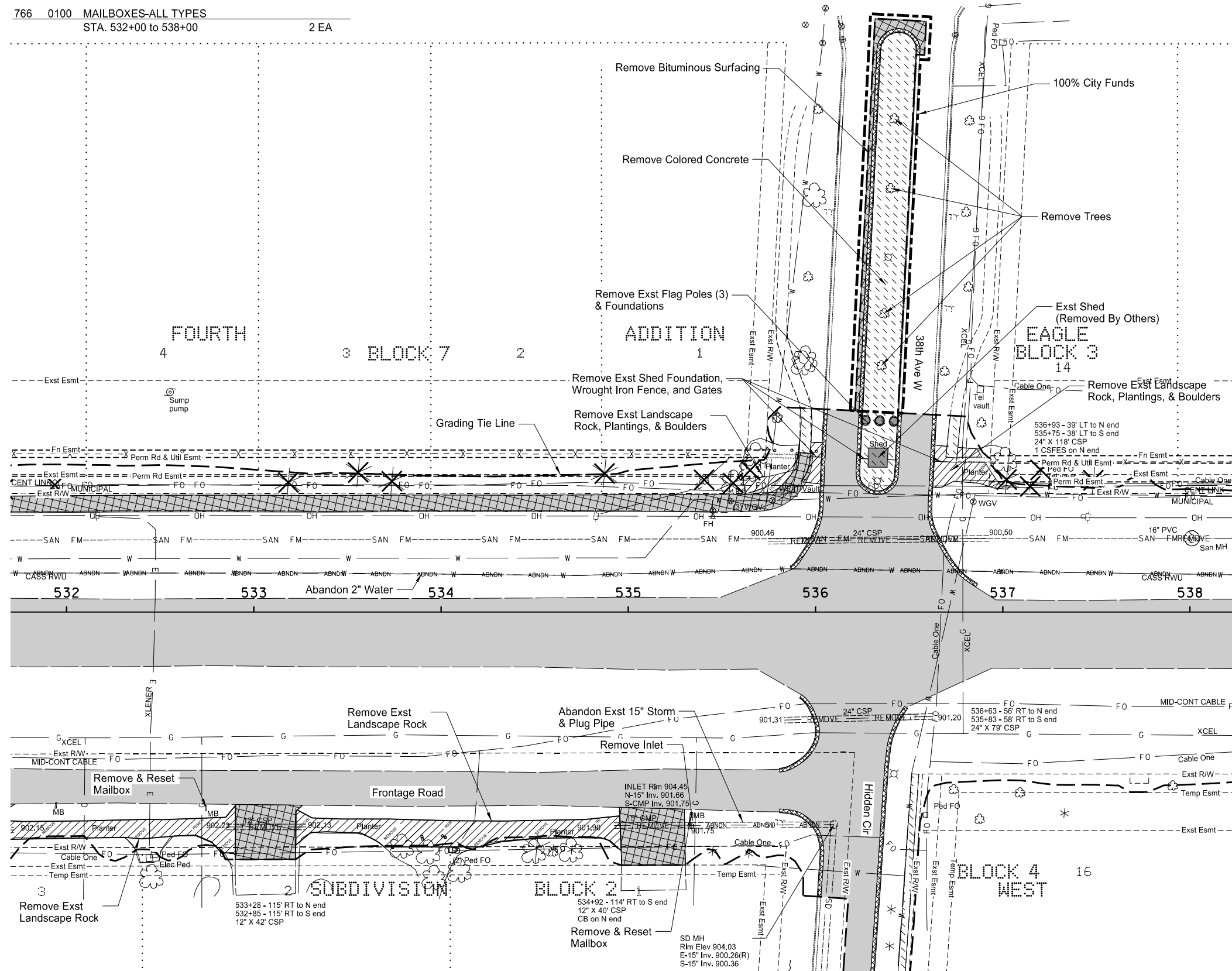
202	0132	REMOVAL OF BITUMINOUS SURFACING	
		Asphalt Shared Use Path	410 SY
		38th Avenue W	71 SY
		Asphalt Driveway	221 SY

202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	
		Sta. 532+85 - 115' Rt. to 533+28 - 115' Rt	43 LF
		Sta. 534+92 - 114' Rt. to 535+33 - 114' Rt	40 LF
		Sta. 535+75 - 38' Lt. to 536+93 - 39' Lt.	118 LF
		Sta. 535+83 - 58' Rt. to 536+53 - 56' Rt.	80 LF











202	0230	REMOVAL OF INLETS	
		Sta. 553+33 - 114' Rt.	1 EA

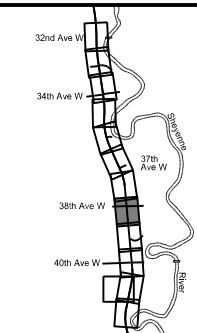
202	0286	REMOVAL OF FOUNDATIONS-ALL SIZES	
		Sta. 536+33, 82' Lt.	1 L SUM

306	0510	FULL DEPTH RECLAMATION	
		Sheyenne Street	2463 SY
		Frontage Road	864 SY
		Hidden Circle	588 SY
		38th Avenue W	662 SY



LEGEND

	Full Depth Reclamation of Bituminous Surfacing		Removal of Bituminous Surfacing
	Removal of Concrete		Abandon Pipe
	Removal of Gravel Surfacing		Removal of Pipe
	Removal Landscaping Material		Trim Trees & Shrubs
	Removal of Curb & Gutter		Removal of Tree/Shrub



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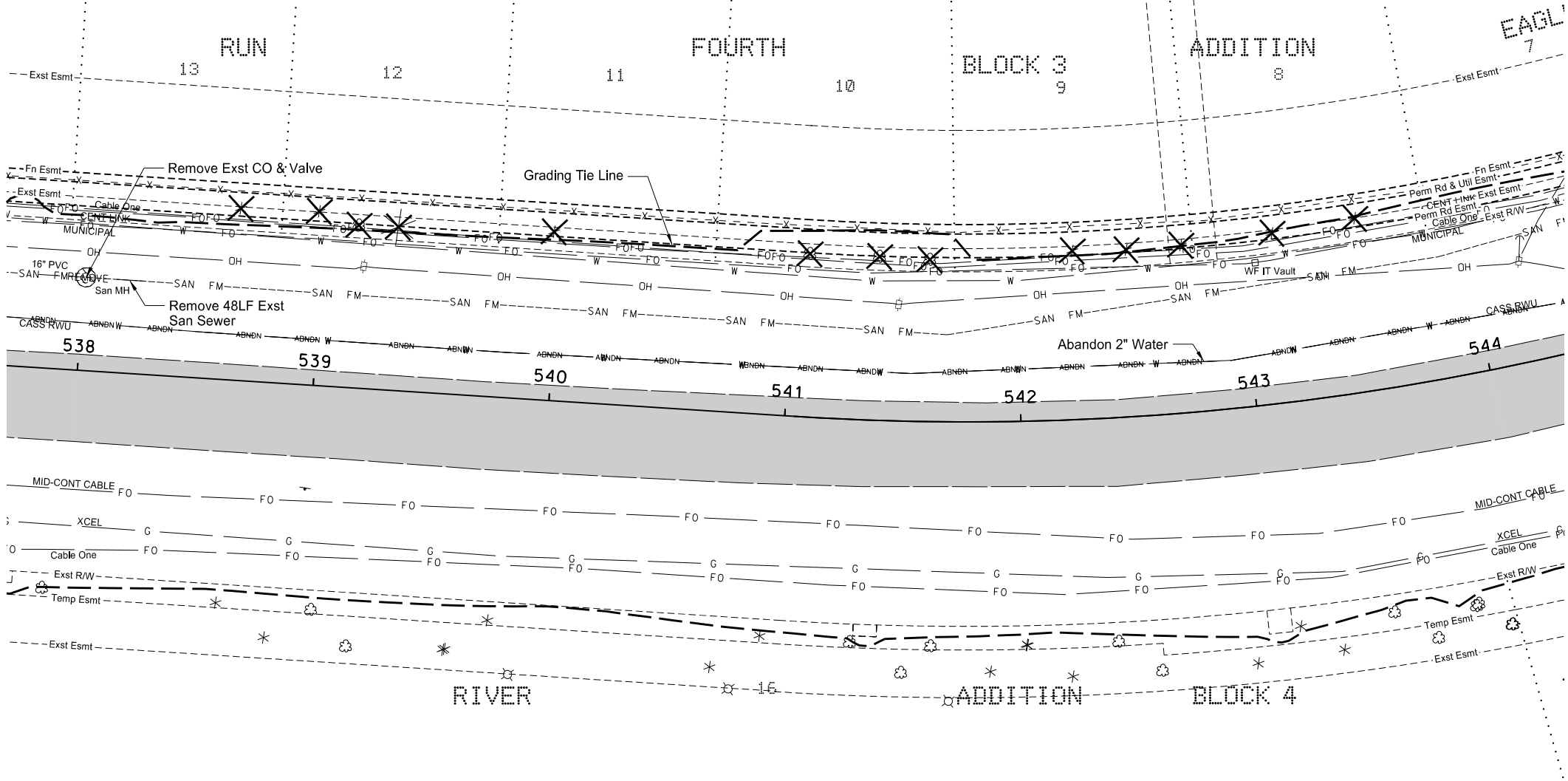
Sheyenne Street

Removals

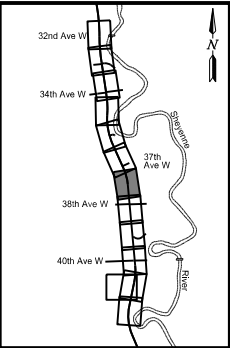
Sta 532+00 to Sta 538+00 (PR17)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	40	6

SPEC CODE	BID ITEM	QTY	UNIT
202 0104	REMOVAL OF STRUCTURE Sta. 538+04 - 39' Lt.	1	EA
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta. 537+81 - 39' Lt. to 538+29 - 39' Lt.	48	LF
306 0510	FULL DEPTH RECLAMATION Sheyenne Street	2,463	SY



LEGEND	
	Full Depth Reclamation of Bituminous Surfacing
	Removal of Concrete
	Removal of Gravel Surfacing
	Removal of Landscaping Material
	Removal of Curb & Gutter
	Removal of Bituminous Surfacing
	Abandon Pipe
	Removal of Pipe
	Trim Trees & Shrubs
	Removal of Tree/Shrub

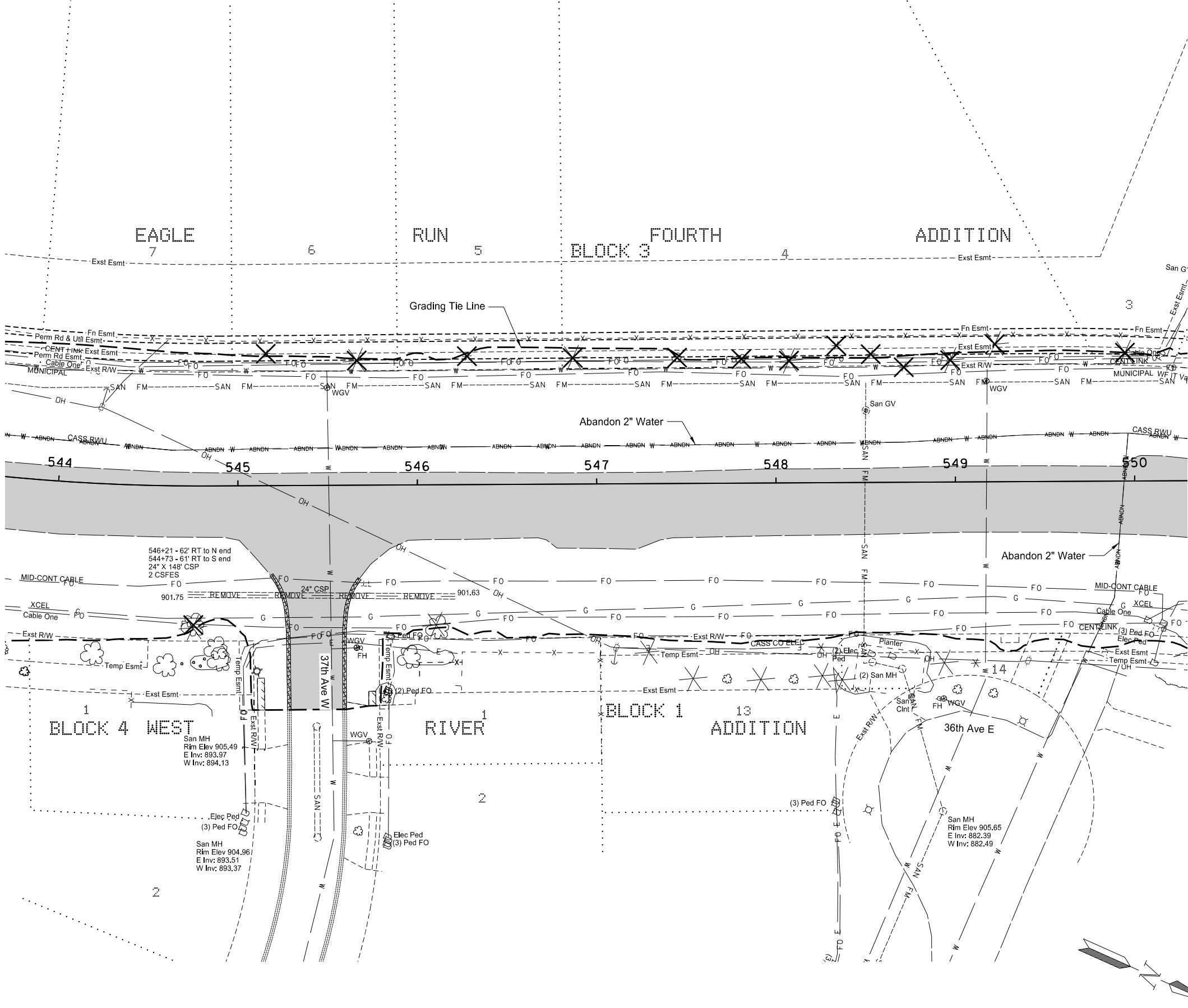


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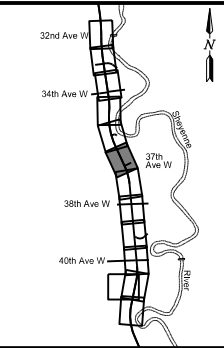
Sheyenne Street
Removals
Sta 538+00 to Sta 544+00 (PR17)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	7

SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT Sidewalk	11	SY
202 0130	REMOVAL OF CURB & GUTTER 37th Ave W	153	LF
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta. 544+73 - 63' Rt. to 546+21 - 62' Rt.	149	LF
306 0510	FULL DEPTH RECLAMATION Sheyenne Street 37th Avenue W	2,513 413	SY SY



LEGEND	
	Full Depth Reclamation of Bituminous Surfacing
	Removal of Concrete
	Removal of Gravel Surfacing
	Removal Landscaping Material
	Removal of Curb & Gutter
	Removal of Bituminous Surfacing
	Abandon Pipe
	Removal of Pipe
	Trim Trees & Shrubs
	Removal of Tree/Shrub



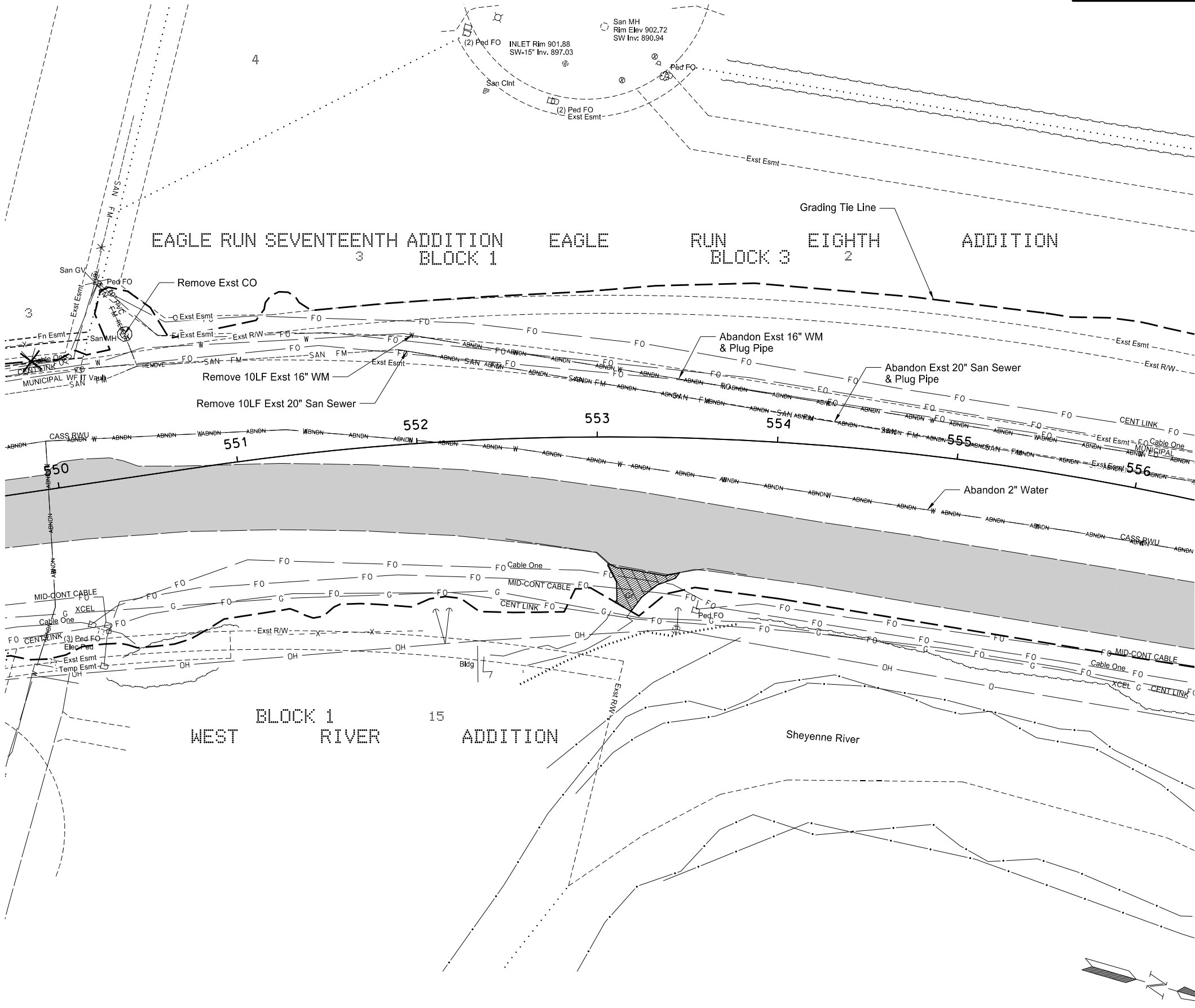
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Sheyenne Street
Removals
Sta 544+00 to Sta 550+00 (PR17)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	8

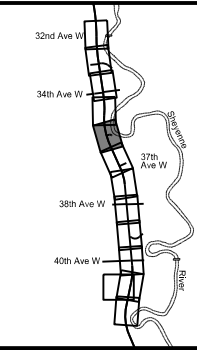
SPEC CODE BID ITEM QTY UNIT

202	0021	REMOVAL OF STRUCTURE	
		Sta. 550+48 - 79' Lt.	1 EA
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	
		Sta. 550+42 - 95' Lt. to 550+52 - 62' Lt.	37 LF
		Sta. 550+46 - 55' Lt. to 550+74 - 55' Lt.	30 LF
		Sta. 551+93 - 53' Lt. to 552+03 - 50' Lt.	10 LF
		Sta. 551+97 - 61' Lt. to 552+06 - 59' Lt.	10 LF
306	0510	FULL DEPTH RECLAMATION	
		Sheyenne Street	2,449 SY
714	9680	PLUG PIPE-ALL TYPES & SIZES	
		Sta. 552+06 - 59' Lt. to 558+52 - 47' Lt.	1 EA
		Sta. 552+03 - 53' Lt. to 558+48 - 36' Lt.	1 EA



LEGEND

	Full Depth Reclamation of Bituminous Surfacing		Removal of Bituminous Surfacing
	Removal of Concrete		Abandon Pipe
	Removal of Gravel Surfacing		Removal of Pipe
	Removal Landscaping Material		Trim Trees & Shrubs
	Removal of Curb & Gutter		Removal of Tree/Shrub



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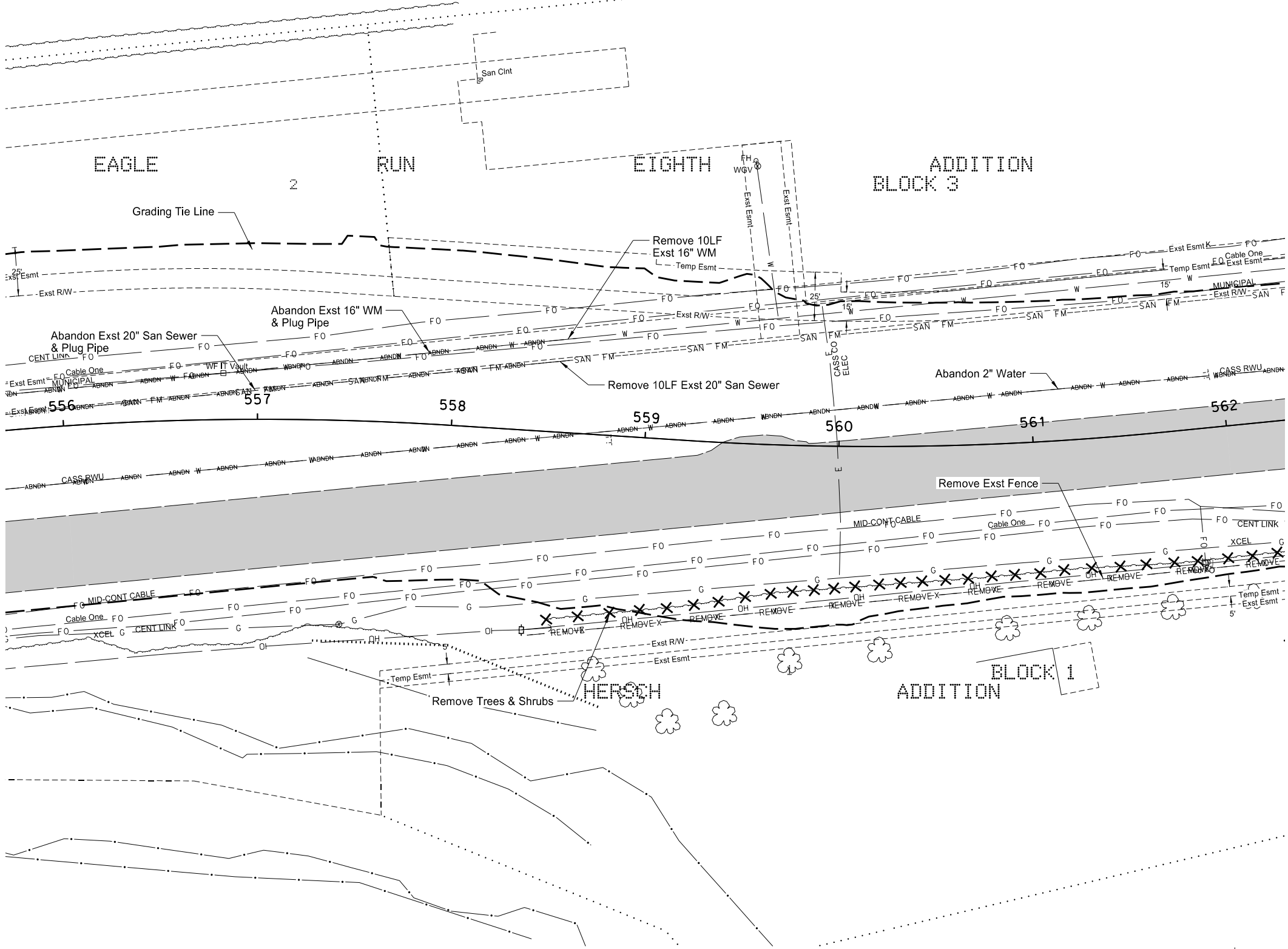
Sheyenne Street

Removals

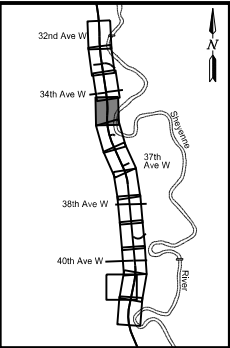
Sta 550+00 to Sta 556+00 (PR17)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	9

SPEC CODE	BID ITEM	QTY	UNIT
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES		
	Sta. 558+49 - 36' Lt. to 558+59 - 37' Lt.	10	LF
	Sta. 558+52 - 47' Lt. to 558+62 - 49' Lt.	10	LF
202 0312	REMOVE EXISTING FENCE		
	Sta. 558+46 - 106' Rt. to 562+00 - 74' Rt	369	LF
306 0510	FULL DEPTH RECLAMATION		
	Sheyenne Street	2,448	SY



LEGEND	
	Full Depth Reclamation of Bituminous Surfacing
	Removal of Concrete
	Removal of Gravel Surfacing
	Removal Landscaping Material
	Removal of Curb & Gutter
	Removal of Bituminous Surfacing
	Abandon Pipe
	Removal of Pipe
	Trim Trees & Shrubs
	Removal of Tree/Shrub



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Sheyenne Street
Removals
Sta 556+00 to Sta 562+00 (PR17)

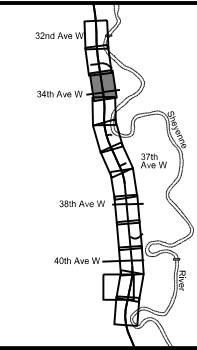
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	10

SPEC CODE BID ITEM QTY UNIT

201	0370	REMOVAL OF TREES 10IN	
		Sta. 562+00 to 568+00	1 EA
201	0380	REMOVAL OF TREES 18IN	
		Sta. 562+00 to 568+00	1 EA
202	0114	REMOVAL OF CONCRETE PAVEMENT	
		Concrete Median	176 SY
202	0130	REMOVAL OF CURB & GUTTER	
		34th Avenue W	355 LF
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	
		Sta. 562+67 - 35' Lt. to 564+09 - 33' Lt.	140 LF
		Sta. 563+26 - 54' Rt. to 563+75 - 55' Rt.	51 LF
		Sta. 563+28 - 85' Rt. to 563+28 - 115' Rt.	30 LF
		Sta. 563+67 - 82' Rt. to 563+67 - 100' Rt.	18 LF
202	0312	REMOVE EXISTING FENCE	
		Sta. 562+00 - 74' Rt. to 563+15 - 73' Rt.	115 LF
		Sta. 563+15 - 73' Rt. to 185' Rt.	112 LF
306	0510	FULL DEPTH RECLAMATION	
		Sheyenne Street	2,578 SY
		34th Avenue W	1,017 SY

LEGEND

	Full Depth Reclamation of Bituminous Surfacing		Removal of Bituminous Surfacing
	Removal of Concrete		Abandon Pipe
	Removal of Gravel Surfacing		Removal of Pipe
	Removal Landscaping Material		Trim Trees & Shrubs
	Removal of Curb & Gutter		Removal of Tree/Shrub

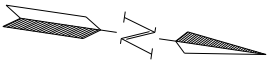
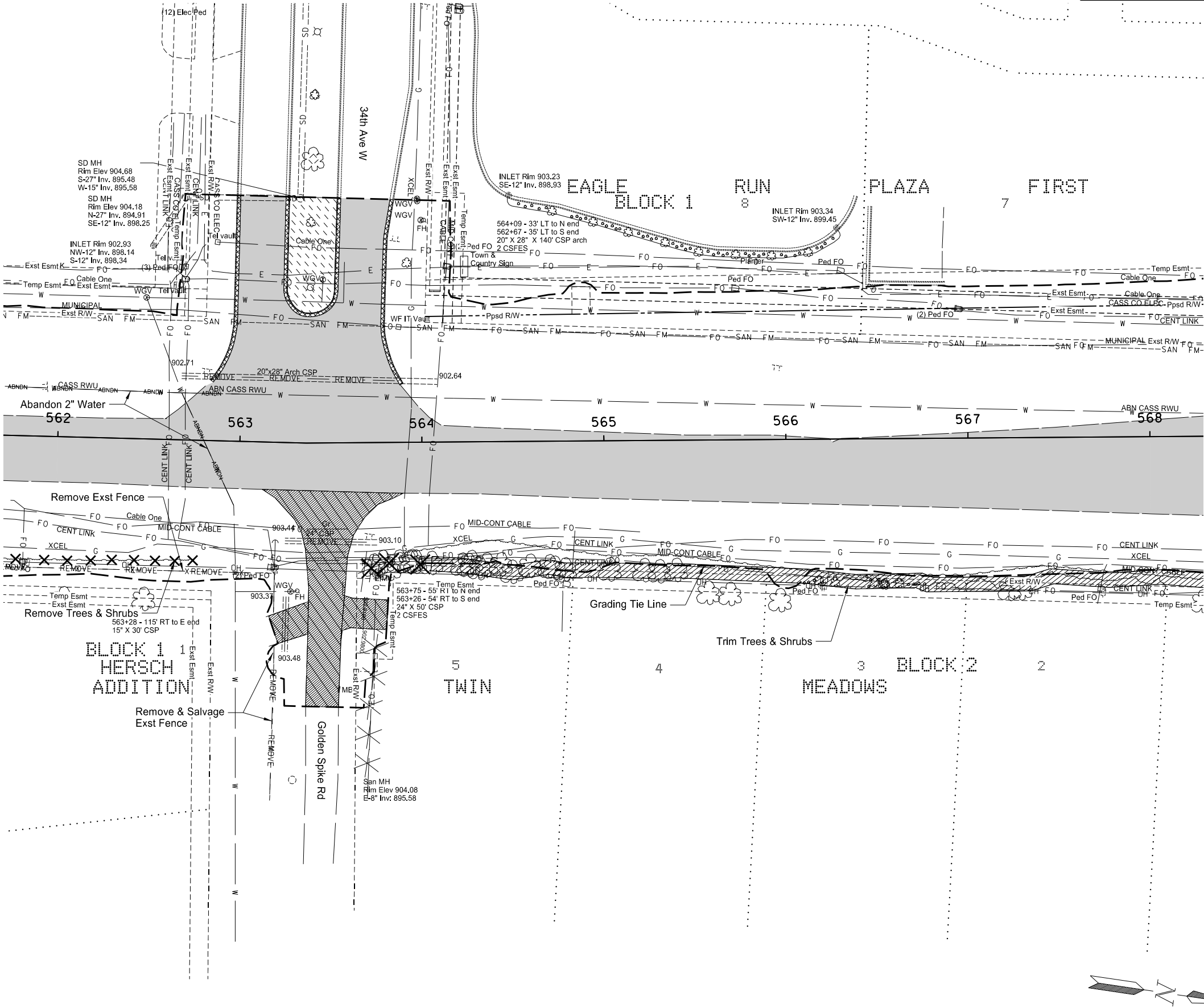


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Sheyenne Street

Removals

Sta 562+00 to Sta 568+00 (PR17)

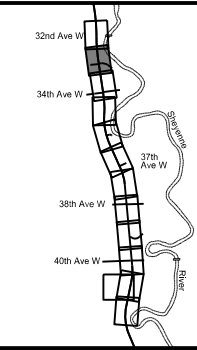


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	11

SPEC CODE	BID ITEM	QTY UNIT
201 0370	REMOVAL OF TREES 10IN Sta. 568+00 to 574+00	1 EA
202 0114	REMOVAL OF CONCRETE PAVEMENT Concrete Median	266 SY
202 0130	REMOVAL OF CURB & GUTTER 33rd Avenue W	937 LF
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES Sta. 569+28 - 10' Rt. to 19' Lt. Sta. 569+38 - 30' Lt. to 570+94 - 25' Lt. Sta. 569+93 - 76' Rt. to 570+49 - 77' Rt. Sta. 570+02 - 13' Rt. to 570+16 - 26' Lt. Sta. 571+03 - 16' Rt. to 14' Lt.	29 LF 156 LF 56 LF 42 LF 29 LF
202 0210	REMOVAL OF MANHOLES Sta. 570+16 - 26' Lt.	1 EA
202 0230	REMOVAL OF INLETS Sta. 569+28 - 10' Rt. Sta. 570+02 - 13' Rt. Sta. 571+03 - 16' Rt.	1 EA 1 EA 1 EA
306 0510	FULL DEPTH RECLAMATION Sheyenne Street 33rd Avenue W	4,232 SY 933 SY

LEGEND

	Full Depth Reclamation of Bituminous Surfacing		Removal of Bituminous Surfacing
	Removal of Concrete		Abandon Pipe
	Removal of Gravel Surfacing		Removal of Pipe
	Removal of Landscaping Material		Trim Trees & Shrubs
	Removal of Curb & Gutter		Removal of Tree/Shrub
	NDDOT PROJECT SU-8-992(039)040 (2018)		

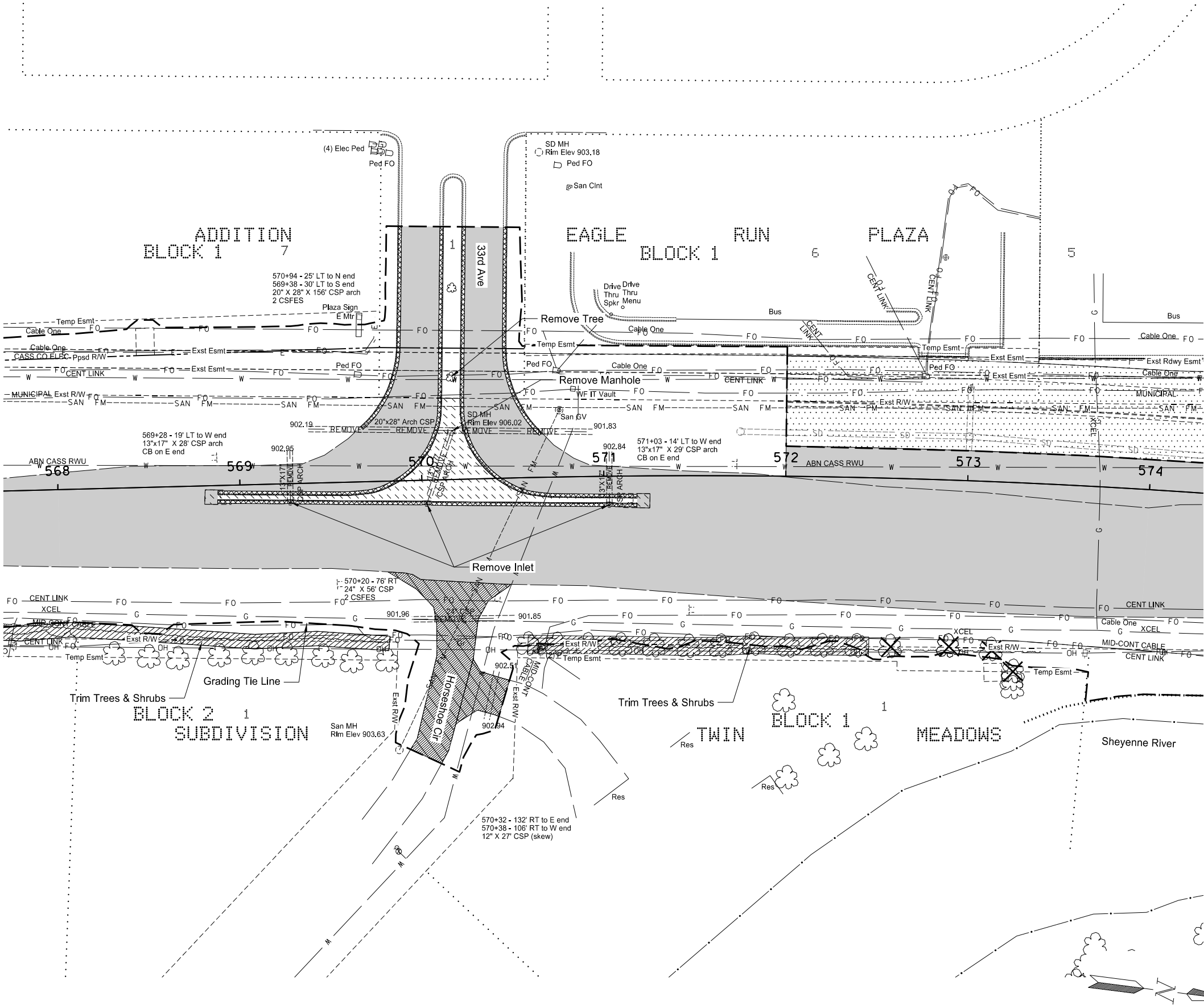


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Sheyenne Street

Removals

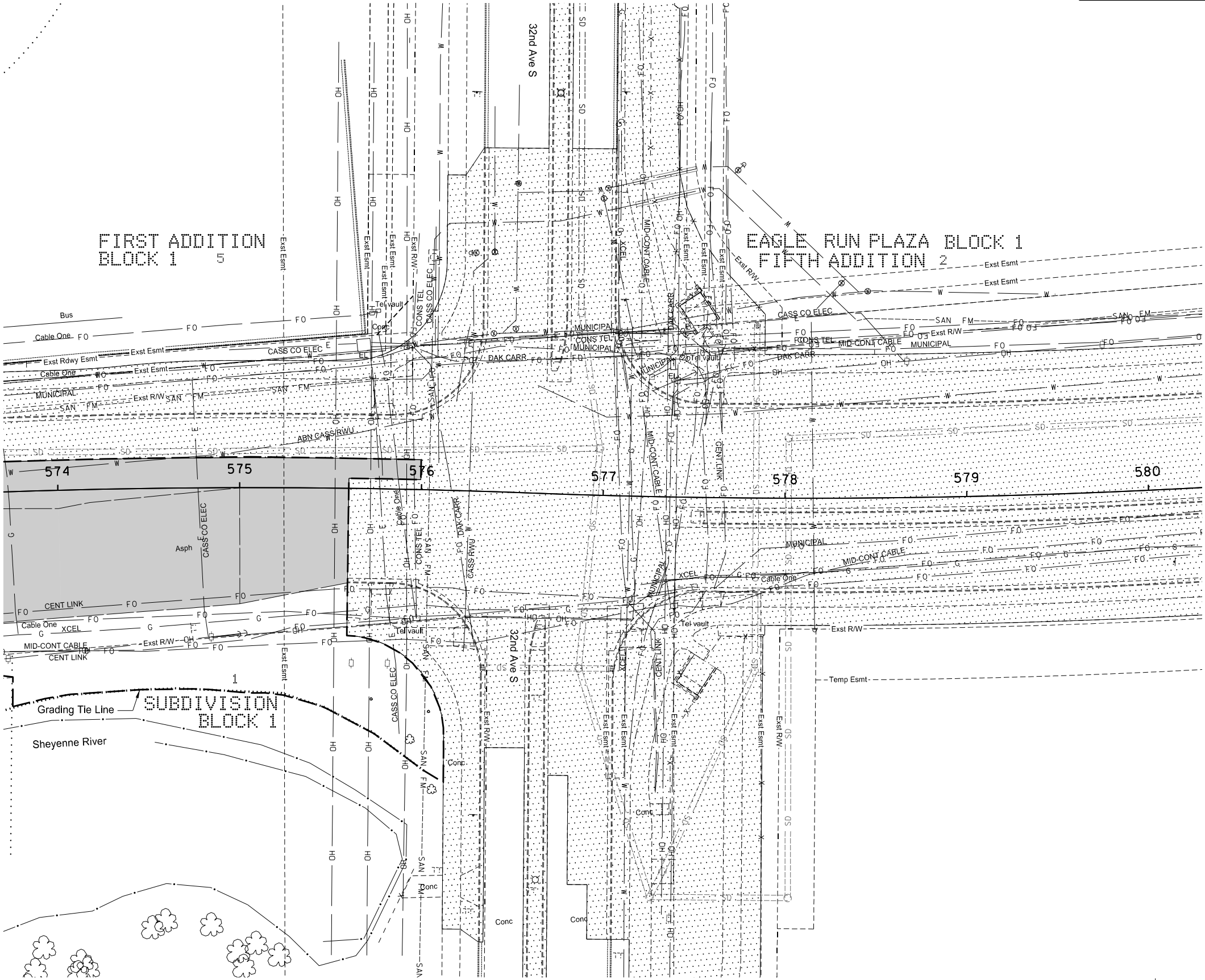
Sta 568+00 to Sta 574+00 (PR17)



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	40	12

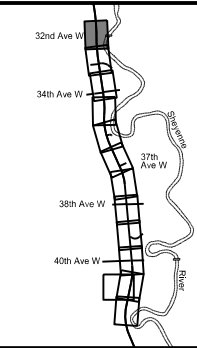
SPEC CODE BID ITEM QTY UNIT

306 0510 FULL DEPTH RECLAMATION
Sheyenne Street 1,468 SY



LEGEND

- | | |
|--|---------------------------------|
| Full Depth Reclamation of Bituminous Surfacing | Removal of Bituminous Surfacing |
| Removal of Concrete | Abandon Pipe |
| Removal of Gravel Surfacing | Removal of Pipe |
| Removal Landscaping Material | Trim Trees & Shrubs |
| Removal of Curb & Gutter | Removal of Tree/Shrub |
| NDDOT PROJECT SU-8-992(039)040 (2018) | |

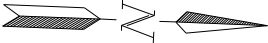


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Sheyenne Street

Removals

Sta 574+00 to Sta 580+00 (PR17)



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	50	1

Inlet No. ST- 201C
Sta. 573+00.00 (PR17) - 51.00' Rt.
Type Inlet - Type 2 Double
Grate Style (A)
Grate Elev. 903.08
Base Elev. 897.96
Invert Elev. 898.15
H' Dist 4.37 FT
15 In. Conduit S 898.25
15 In. Conduit W 898.15

Inlet No. ST- 400B
Sta. 515+10.00 (PR17) - 55.22' Rt.
Type Inlet Catch Basin -Type A
Grate Style (B)
Grate Elev. 902.05
Base Elev. 897.05
Invert Elev. 897.32 FT
H' Dist 4.00
15 In. Conduit W 897.32

Inlet No. ST- 401D
Sta. 520+25.00 (PR17) - 75.16' Rt.
Type Inlet Catch Basin -Type A
Grate Style (B)
Grate Elev. 901.25
Base Elev. 896.25
Invert Elev. 897.15
H' Dist 4.00 FT
15 In. Conduit W 897.15

Inlet No. ST- 404A
Sta. 525+88.00 (PR17) - 45.53' Lt.
Type Inlet -Type 2 Double
Grate Style (A)
Grate Elev. 905.50
Base Elev. 900.75
Invert Elev. 900.94
H' Dist 4.00 FT
15 In. Conduit E 900.94

Inlet No. ST- 406A
Sta. 529+63.00 (PR17) - 45.59' Lt.
Type Inlet -Type 2 Double
Grate Style (A)
Grate Elev. 904.60
Base Elev. 899.85
Invert Elev. 900.04
H' Dist 4.00 FT
15 In. Conduit E 900.04

Inlet No. ST- 201D
Sta. 572+91.90 (PR17) - 51.00' Rt.
Type Inlet - Type 2
Grate Style (A)
Grate Elev. 903.08
Base Elev. 898.14
Invert Elev. 898.33
H' Dist 4.19 FT
15 In. Conduit N 898.33
15 In. Conduit SE 898.43

Manhole No. ST- 401 84 IN
Sta. 520+25.00 (PR17) - 19.37' Rt.
Casting Style (Z)
Rim Elev. 907.07
Base Elev. 889.68
Invert Elev. 890.10
Riser 15.35 FT
48 In. Conduit N 890.20
48 In. Conduit S 890.10
15 In. Conduit E 895.65
15 In. Conduit W 895.74

Manhole No. ST- 402 84 IN
Sta. 521+73.00 (PR17) - 18.79' Rt.
Casting Style (Z)
Rim Elev. 907.53
Base Elev. 890.08
Invert Elev. 890.5
Riser 15.41 FT
48 In. Conduit N 890.60
48 In. Conduit S 890.50
18 In. Conduit E 896.55

Inlet No. ST- 404B
Sta. 525+88.00 (PR17) - 34.50' Rt.
Type 48 IN Inlet Spcl Type 2
Grate Style (A)
Grate Elev. 905.50
Base Elev. 898.00
Invert Elev. 898.19
H' Dist 6.25 FT
15 In. Conduit E 898.29
15 In. Conduit W 898.19

Inlet No. ST- 406B
Sta. 529+63.00 (PR17) - 34.50' Rt.
Type 48 IN Inlet Spcl Type 2
Grate Style (A)
Grate Elev. 904.60
Base Elev. 896.59
Invert Elev. 896.78
H' Dist 6.76 FT
15 In. Conduit S 899.96
15 In. Conduit E 896.88
15 In. Conduit W 896.78

Inlet No. ST- 201E
Sta. 572+52.80 (PR17) - 89.76' Rt.
Type Inlet - Catch Basin Type A
Grate Style (B)
Grate Elev. 902.66
Base Elev. 897.66
Invert Elev. 898.98
H' Dist 4.00 FT
15 In. Conduit NW 898.98

Inlet No. ST- 401A
Sta. 520+25.00 (PR17) - 72.79' Lt.
Type Inlet Catch Basin -Type A
Grate Style (B)
Grate Elev. 902.00
Base Elev. 897.00
Invert Elev. 897.68
H' Dist 4.00 FT
15 In. Conduit E 897.68

Inlet No. ST- 402A
Sta. 522+06.90 (PR17) - 98.04' Rt.
Type Inlet Catch Basin -Type A
Grate Style (B)
Grate Elev. 902.91
Base Elev. 896.50
Invert Elev. 897.15
H' Dist 5.41 FT
18 In. Conduit W 897.15

Inlet No. ST- 404C
Sta. 525+88.00 (PR17) - 81.92' Rt.
Type Inlet Catch Basin -Type A
Grate Style (B)
Grate Elev. 902.60
Base Elev. 897.60
Invert Elev. 898.77
H' Dist 4.00 FT
15 In. Conduit W 898.77

Inlet No. ST- 406C
Sta. 529+55.00 (PR17) - 34.50' Rt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 904.60
Base Elev. 899.85
Invert Elev. 900.04
H' Dist 4.00 FT
15 In. Conduit N 900.04

Manhole No. ST- 400 108 IN
Sta. 515+10.00 (PR17) - 19.88' RT.
Casting Style (Z)
Rim Elev. 908.05
Base Elev. 888.08
Invert Elev. 888.50
Riser 17.59 FT
48 In. Conduit N 888.60
48 In. Conduit W 888.50
15 In. Conduit E 896.32

Inlet No. ST- 401B
Sta. 520+25.00 (PR17) - 45.50' Lt.
Type 48 IN Inlet Spcl Type 2
Grate Style (A)
Grate Elev. 906.58
Base Elev. 896.83
Invert Elev. 897.02
H' Dist 8.50 FT
15 In. Conduit E 897.02
15 In. Conduit W 897.12

Manhole No. ST- 403 84 IN
Sta. 523+43.00 (PR17) - 18.29' Rt.
Casting Style (Z)
Rim Elev. 907.66
Base Elev. 890.54
Invert Elev. 890.96
Riser 15.07 FT
48 In. Conduit N 891.06
48 In. Conduit S 890.96
18 In. Conduit E 898.19
18 In. Conduit W 899.36

Manhole No. ST- 405 84 IN
Sta. 527+88.5 (PR17) - 18.29' Rt.
Casting Style (Z)
Rim Elev. 906.27
Base Elev. 891.44
Invert Elev. 891.86
Riser 12.79 FT
48 In. Conduit N 891.96
48 In. Conduit S 891.86
24 In. Conduit E 894.67

Code	Inlet Casting / Grate Style	Casting Thickness
(A)	Neenah R-3067-C (2" Radius Curb Box)	4
	East Jordan 7030-M2 (T1 Back)	
(B)	Neenah R-2577 (Convex Grate)	7
	East Jordan 1205 (Convex Grate)	

Inlet No. ST- 400A 96 IN
Sta. 515+10.00 (PR17) - 62.16' Lt.
Type 96 IN Inlet Spcl CB Type A
Grate Style (B)
Grate Elev. 901.02
Base Elev. 885.95
Invert Elev. 886.78
H' Dist 13.40 FT
48 In. Conduit E 888.24
54 In. Conduit W 886.78

Inlet No. ST- 401C
Sta. 520+25.00 (PR17) - 45.50' Rt.
Type 48 IN Inlet Spcl Type 2
Grate Style (A)
Grate Elev. 906.30
Base Elev. 896.11
Invert Elev. 896.30
H' Dist 8.94 FT
15 In. Conduit E 896.40
15 In. Conduit W 896.30

Manhole No. ST- 404 84 IN
Sta. 525+88.00 (PR17) - 18.29' Rt.
Casting Style (Z)
Rim Elev. 905.99
Base Elev. 891.10
Invert Elev. 891.52
Riser 12.85 FT
48 In. Conduit N 891.62
48 In. Conduit S 891.52
15 In. Conduit E 898.03
15 In. Conduit W 900.31

Manhole No. ST- 406 84 IN
Sta. 529+63.00 (PR17) - 18.29' Rt.
Casting Style (Z)
Rim Elev. 905.10
Base Elev. 891.75
Invert Elev. 892.17
Riser 11.31 FT
42 In. Conduit N 892.37
48 In. Conduit S 892.17
15 In. Conduit E 896.62
15 In. Conduit W 899.37

Code	Manhole Casting Style	Casting Thickness
(Y)	Neenah R-1733	7
	East Jordan 1205	
(Z)	Neenah R-1955-1	11.5
	East Jordan 3025 SELF LEVEL	

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Sheyenne Street
Inlet and Manhole Summary
Storm Sewer

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	50	2

Manhole No.	ST- 407	72 IN
Sta.	534+28.00 (PR17) - 18.29' Rt.	
Casting Style	(Z)	
Rlm Elev.	904.82	
Base Elev.	892.93	
Invert Elev.	893.3	
Riser	9.85 FT	
	42 In. Conduit N	893.50
	42 In. Conduit S	893.30
	15 In. Conduit E	894.90
	15 In. Conduit W	899.24

Inlet No.	ST- 407A	
Sta.	534+28.00 (PR17) - 34.50' Lt.	
Type	Inlet -Type 2 Double	
Grate Style	(A)	
Grate Elev.	904.32	
Base Elev.	899.57	
Invert Elev.	899.76	
H' Dist	4.00 FT	
	15 In. Conduit E	899.76

Inlet No.	ST- 407B	
Sta.	534+28.00 (PR17) - 45.50' Rt.	
Type	48 IN Inlet Spcl Type 2	
Grate Style	(A)	
Grate Elev.	904.05	
Base Elev.	895.46	
Invert Elev.	895.65	
H' Dist	7.34 FT	
	15 In. Conduit SE	895.75
	15 In. Conduit W	895.65

Inlet No.	ST- 407C	
Sta.	11+08.00 (PRFRONT) - 10.50' Lt.	
Type	48 IN Inlet Spcl Type 2	
Grate Style	(A)	
Grate Elev.	903.90	
Base Elev.	895.95	
Invert Elev.	896.14	
H' Dist	6.70 FT	
	15 In. Conduit S	896.24
	15 In. Conduit E	897.18
	15 In. Conduit NW	896.14

Inlet No.	ST- 407D	
Sta.	11+08.00 (PRFRONT) - 24.32' Rt.	
Type	Inlet Catch Basin -Type A	
Grate Style	(B)	
Grate Elev.	901.75	
Base Elev.	896.75	
Invert Elev.	897.53	
H' Dist	4.00 FT	
	15 In. Conduit W	897.53

Inlet No.	ST- 407E	
Sta.	9+60.00 (PRFRONT) - 10.50' Lt.	
Type	Inlet -Type 2	
Grate Style	(A)	
Grate Elev.	903.91	
Base Elev.	897.53	
Invert Elev.	897.72	
H' Dist	5.63 FT	
	15 In. Conduit N	897.72
	15 In. Conduit SE	897.82

Inlet No.	ST- 407F	
Sta.	9+31.00 (PRFRONT) - 23.68' Rt.	
Type	Inlet Catch Basin - Type A	
Grate Style	(B)	
Grate Elev.	902.00	
Base Elev.	897.00	
Invert Elev.	898.27	
H' Dist	4.00 FT	
	15 In. Conduit NW	898.27

Manhole No.	ST- 408	72 IN
Sta.	537+73.00 (PR17) - 18.29' Rt.	
Casting Style	(Z)	
Rlm Elev.	904.14	
Base Elev.	893.82	
Invert Elev.	894.19	
Riser	8.28 FT	
	36 In. Conduit N	894.37
	42 In. Conduit S	894.19
	15 In. Conduit E	896.23
	15 In. Conduit W	898.19

Inlet No.	ST- 408A	
Sta.	537+73.00 (PR17) - 45.50' Lt.	
Type	Inlet -Type 2 Double	
Grate Style	(A)	
Grate Elev.	903.39	
Base Elev.	898.64	
Invert Elev.	898.83	
H' Dist	4.00 FT	
	15 In. Conduit E	898.83

Inlet No.	ST- 408B	
Sta.	537+73.00 (PR17) - 34.50' Rt.	
Type	48 IN Inlet Spcl Type 2	
Grate Style	(A)	
Grate Elev.	903.66	
Base Elev.	896.20	
Invert Elev.	896.39	
H' Dist	6.21 FT	
	15 In. Conduit S	899.02
	15 In. Conduit E	896.49
	15 In. Conduit W	896.39

Inlet No.	ST- 408C	
Sta.	537+65.00 (PR17) - 34.50' Rt.	
Type	Inlet -Type 2	
Grate Style	(A)	
Grate Elev.	903.66	
Base Elev.	898.91	
Invert Elev.	899.1	
H' Dist	4.00 FT	
	15 In. Conduit N	899.10

Inlet No.	ST- 408D	
Sta.	537+73.00 (PR17) - 86.93' Rt.	
Type	Inlet Catch Basin -Type A	
Grate Style	(B)	
Grate Elev.	901.25	
Base Elev.	896.25	
Invert Elev.	897.02	
H' Dist	4.00 FT	
	15 In. Conduit W	897.02

Manhole No.	ST- 409	60 IN
Sta.	541+37.00 (PR17) - 17.79' Rt.	
Casting Style	(Z)	
Rlm Elev.	904.37	
Base Elev.	894.86	
Invert Elev.	895.19	
Riser	7.47 FT	
	36 In. Conduit N	895.29
	36 In. Conduit S	895.19
	15 In. Conduit E	897.25
	15 In. Conduit W	898.79

Inlet No.	ST- 409A	
Sta.	541+37.00 (PR17) - 34.50' Lt.	
Type	Inlet -Type 2 Double	
Grate Style	(A)	
Grate Elev.	903.87	
Base Elev.	899.12	
Invert Elev.	899.31	
H' Dist	4.00 FT	
	15 In. Conduit E	899.3

Inlet No.	ST- 409B	
Sta.	541+37.00 (PR17) - 34.50' Rt.	
Type	Inlet -Type 2 Double	
Grate Style	(A)	
Grate Elev.	903.87	
Base Elev.	897.22	
Invert Elev.	897.41	
H' Dist	5.90 FT	
	15 In. Conduit E	897.51
	15 In. Conduit W	897.41

Inlet No.	ST- 409C	
Sta.	541+37.00 (PR17) - 85.57' Rt.	
Type	Inlet Catch Basin - Type A	
Grate Style	(B)	
Grate Elev.	901.75	
Base Elev.	896.75	
Invert Elev.	898.02	
H' Dist	4.00 FT	
	15 In. Conduit W	898.02

Manhole No.	ST- 410	60 IN
Sta.	543+00.00 (PR17) - 17.79' Rt.	
Casting Style	(Z)	
Rlm Elev.	905.46	
Base Elev.	895.29	
Invert Elev.	895.62	
Riser	8.13 FT	
	36 In. Conduit N	895.72
	36 In. Conduit S	895.62
	15 In. Conduit E	896.89

Inlet No.	ST- 410A	
Sta.	543+00.00 (PR17) - 90.51' Rt.	
Type	Inlet Catch Basin - Type A	
Grate Style	(B)	
Grate Elev.	901.85	
Base Elev.	896.85	
Invert Elev.	897.62	
H' Dist	4.00 FT	
	15 In. Conduit W	897.62

Manhole No.	ST- 411	72 IN
Sta.	546+58.00 (PR17) - 18.29' Rt.	
Casting Style	(Z)	
Rlm Elev.	904.86	
Base Elev.	896.11	
Invert Elev.	896.44	
Riser	6.71 FT	
	30 In. Conduit N	896.77
	36 In. Conduit S	896.44
	15 In. Conduit E	899.00
	15 In. Conduit W	899.28

Inlet No.	ST- 411A	
Sta.	546+58.00 (PR17) - 34.50' Lt.	
Type	Inlet -Type 2 Double	
Grate Style	(A)	
Grate Elev.	904.36	
Base Elev.	899.61	
Invert Elev.	899.80	
H' Dist	4.00 FT	
	15 In. Conduit E	899.80

Inlet No.	ST- 411B	
Sta.	546+58.00 (PR17) - 34.50' Rt.	
Type	Inlet -Type 2 Double	
Grate Style	(A)	
Grate Elev.	904.36	
Base Elev.	898.97	
Invert Elev.	899.16	
H' Dist	4.64 FT	
	15 In. Conduit E	899.26
	15 In. Conduit W	899.16

Inlet No.	ST- 411C	
Sta.	546+58.00 (PR17) - 79.24' Rt.	
Type	Inlet Catch Basin -Type A	
Grate Style	(B)	
Grate Elev.	903.50	
Base Elev.	898.50	
Invert Elev.	899.71	
H' Dist	4.00 FT	
	15 In. Conduit W	899.71

Manhole No.	ST- 412	72 IN
Sta.	549+30.00 (PR17) - 18.29' Rt.	
Casting Style	(Z)	
Rlm Elev.	905.64	
Base Elev.	897.03	
Invert Elev.	897.32	
Riser	6.57 FT	
	30 In. Conduit N	897.52
	30 In. Conduit S	897.32
	24 In. Conduit E	897.42

Code	Inlet Casting / Grate Style	Casting Thickness
(A)	Neenah R-3067-C (2" Radius Curb Box)	4
(B)	Neenah R-2577 (Convex Grate)	7
	East Jordan 1205 (Convex Grate)	

Code	Manhole Casting Style	Casting Thickness
(Y)	Neenah R-1733	7
	East Jordan 1205	
(Z)	Neenah R-1955-1	11.5
	East Jordan 3025 SELF LEVEL	

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Sheyenne Street
Inlet and Manhole Summary
Storm Sewer

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	50	3

Inlet No. ST- 412A
Sta. 549+30.00 (PR17) - 84.84' Rt.
Type 48 IN Inlet Spcl CB Type A
Grate Style (B)
Grate Elev. 903.11
Base Elev. 897.61
Invert Elev. 898.09
H' Dist 4.00 FT
24 In. Conduit W 898.09

Inlet No. ST- 413D
Sta. 551+34.00 (PR17) - 81.23' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.25
Base Elev. 898.25
Invert Elev. 899.56
H' Dist 4.00 FT
18 In. Conduit W 899.56

Manhole No. ST- 416 48 IN
Sta. 557+50.00 (PR17) - 17.29' Lt.
Casting Style (Z)
Rim Elev. 906.90
Base Elev. 898.05
Invert Elev. 898.30
Riser 6.98 FT
24 In. Conduit N 898.30
18 In. Conduit S 898.75
15 In. Conduit W 898.77

Manhole No. ST- 418 60 IN
Sta. 561+53.00 (PR17) - 17.79' Lt.
Casting Style (Z)
Rim Elev. 905.38
Base Elev. 896.62
Invert Elev. 896.91
Riser 6.72 FT
30 In. Conduit N 896.91
30 In. Conduit S 897.16
15 In. Conduit E 898.53
15 In. Conduit W 900.16

Inlet No. ST- 419A
Sta. 563+23.00 (PR17) - 72.67' Rt.
Type 48 IN Inlet Spcl CB Type A
Grate Style (B)
Grate Elev. 903.00
Base Elev. 897.50
Invert Elev. 898.27
H' Dist 4.00 FT
15 In. Conduit N 898.57
18 In. Conduit E 898.37
18 In. Conduit W 898.27

Manhole No. ST- 413 60 IN
Sta. 551+25.00 (PR17) - 17.79' Rt.
Casting Style (Z)
Rim Elev. 904.98
Base Elev. 897.54
Invert Elev. 897.83
Riser 5.40 FT
18 In. Conduit N 898.15
30 In. Conduit S 897.83
18 In. Conduit E 898.81
18 In. Conduit W 897.93

Manhole No. ST- 414 48 IN
Sta. 554+00.00 (PR17) - 17.29' Rt.
Casting Style (Z)
Rim Elev. 907.00
Base Elev. 899.79
Invert Elev. 900.00
Riser 5.33 FT
18 In. Conduit N 900.00
18 In. Conduit S 900.00

Inlet No. ST- 416A
Sta. 557+50.00 (PR17) - 87.41' Lt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.20
Base Elev. 898.20
Invert Elev. 899.47
H' Dist 4.00 FT
15 In. Conduit E 899.47

Inlet No. ST- 418A
Sta. 561+53.00 (PR17) - 34.50' Lt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 904.88
Base Elev. 900.13
Invert Elev. 900.32
H' Dist 4.00 FT
15 In. Conduit E 900.32

Inlet No. ST- 419B
Sta. 563+25.00 (PR17) - 120' Rt.
Type 48 IN Inlet Spcl CB Type A
Grate Style (B)
Grate Elev. 903.00
Base Elev. 897.50
Invert Elev. 898.49
H' Dist 4.00 FT
15 In. Conduit N 898.59
18 In. Conduit W 898.49

Inlet No. ST- 413A
Sta. 551+34.00 (PR17) - 80.71' Lt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.25
Base Elev. 898.25
Invert Elev. 899.02
H' Dist 4.00
18 In. Conduit E 899.02

Manhole No. ST- 415 72 IN
Sta. 556+25.00 (PR17) - 14.71' Rt.
Casting Style (Z)
Rim Elev. 906.37
Base Elev. 898.97
Invert Elev. 899.18
Riser 5.36 FT
18 In. Conduit N 899.18
18 In. Conduit S 899.28
15 In. Conduit E 901.00
15 In. Conduit W 900.85

Manhole No. ST- 417 72 IN
Sta. 559+80.00 (PR17) - 18.29' Lt.
Casting Style (Z)
Rim Elev. 906.32
Base Elev. 897.13
Invert Elev. 897.42
Riser 7.15 FT
30 In. Conduit N 897.42
24 In. Conduit S 897.84
15 In. Conduit E 898.96
15 In. Conduit W 899.05

Inlet No. ST- 418B
Sta. 561+53.00 (PR17) - 45.50' Rt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 904.61
Base Elev. 898.97
Invert Elev. 899.16
H' Dist 4.89 FT
15 In. Conduit E 899.26
15 In. Conduit W 899.16

Inlet No. ST- 419C
Sta. 563+71.00 (PR17) - 120' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.00
Base Elev. 898.00
Invert Elev. 899.05 FT
H' Dist 4.00
15 In. Conduit S 899.05

Inlet No. ST- 413B
Sta. 551+25.00 (PR17) - 34.50' Lt.
Type Inlet -Type 2 Double
Grate Style (A)
Grate Elev. 904.49
Base Elev. 898.24
Invert Elev. 898.45
H' Dist 5.50 FT
18 In. Conduit E 898.45
18 In. Conduit W 898.55

Inlet No. ST- 415A
Sta. 556+25.00 (PR17) - 34.50' Lt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 905.88
Base Elev. 901.13
Invert Elev. 901.34
H' Dist 4.00 FT
15 In. Conduit E 901.34

Inlet No. ST- 417A
Sta. 559+50.00 (PR17) - 77.42' Lt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.50
Base Elev. 898.50
Invert Elev. 899.71
H' Dist 4.00 FT
15 In. Conduit E 899.71

Inlet No. ST- 418C
Sta. 561+53.00 (PR17) - 72.11' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.75
Base Elev. 898.75
Invert Elev. 899.52
H' Dist 4.00 FT
15 In. Conduit W 899.52

Inlet No. ST- 413C
Sta. 551+25.00 (PR17) - 34.50' Rt.
Type Inlet -Type 2 Double
Grate Style (A)
Grate Elev. 904.49
Base Elev. 898.77
Invert Elev. 898.98
H' Dist 4.97 FT
18 In. Conduit E 899.08
18 In. Conduit W 898.98

Inlet No. ST- 415B
Sta. 556+25.00 (PR17) - 34.50' Rt.
Type Inlet -Type 2 Double
Grate Style (A)
Grate Elev. 905.88
Base Elev. 901.13
Invert Elev. 901.32
H' Dist 4.00 FT
15 In. Conduit W 901.32

Inlet No. ST- 417B
Sta. 560+05.00 (PR17) - 82.14' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.73
Base Elev. 898.73
Invert Elev. 900.00
H' Dist 4.00 FT
15 In. Conduit W 900.00

Manhole No. ST- 419 60 IN
Sta. 563+25.00 (PR17) - 19.15' Lt.
Casting Style (Z)
Rim Elev. 904.99
Base Elev. 896.26
Invert Elev. 896.55
Riser 6.69 FT
30 In. Conduit N 896.55
30 In. Conduit S 896.71
18 In. Conduit E 897.37

Code	Inlet Casting / Grate Style	Casting Thickness
(A)	Neenah R-3067-C (2" Radius Curb Box)	4
	East Jordan 7030-M2 (T1 Back)	
(B)	Neenah R-2577 (Convex Grate)	7
	East Jordan 1205 (Convex Grate)	

Code	Manhole Casting Style	Casting Thickness
(Y)	Neenah R-1733	7
	East Jordan 1205	
(Z)	Neenah R-1955-1	11.5
	East Jordan 3025 SELF LEVEL	

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Sheyenne Street
Inlet and Manhole Summary
Storm Sewer

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(040)041	50	4

Inlet No. ST- 419D
Sta. 563+71.00 (PR17) - 39' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 903.00
Base Elev. 898.00
Invert Elev. 899.05 FT
H' Dist 4.00
15 In. Conduit S 899.05

Inlet No. ST- 420D
Sta. 564+88.00 (PR17) - 65.63' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 902.75
Base Elev. 897.75
Invert Elev. 899.32
H' Dist 4.00 FT
15 In. Conduit W 899.32

Inlet No. ST- 422B
Sta. 568+50.00 (PR17) - 38.56' Lt.
Type Inlet -Type 2 Double
Grate Style (A)
Grate Elev. 902.79
Base Elev. 897.03
Invert Elev. 897.22
H' Dist 5.01 FT
15 In. Conduit E 897.22
15 In. Conduit W 897.32

Inlet No. ST- 423B
Sta. 570+47.00 (PR17) - 84.00' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 901.25
Base Elev. 896.25
Invert Elev. 897.50
H' Dist 4.00 FT
15 In. Conduit S 897.50

Inlet No. ST- 426B
Sta. 7+25.00 (PRFRONT) - 26.10' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 901.75
Base Elev. 896.75
Invert Elev. 898.19
H' Dist 4.00 FT
15 In. Conduit W 898.19

Manhole No. ST- 420 72 IN
Sta. 564+88.00 (PR17) - 19.48' Lt.

Casting Style (Z)
Rim Elev. 903.97
Base Elev. 895.65
Invert Elev. 895.98
Riser 6.28 FT
36 In. Conduit N 895.98
30 In. Conduit S 896.20
15 In. Conduit E 898.37
15 In. Conduit W 897.50

Manhole No. ST- 421 60 IN
Sta. 566+00.00 (PR17) - 19.87' Lt.

Casting Style (Z)
Rim Elev. 904.36
Base Elev. 895.33
Invert Elev. 895.66
Riser 6.99 FT
36 In. Conduit N 895.66
36 In. Conduit S 895.76
15 In. Conduit E 897.30

Inlet No. ST- 422C
Sta. 568+50.00 (PR17) - 38.39' Rt.
Type Inlet -Type 2 Double
Grate Style (A)
Grate Elev. 902.79
Base Elev. 896.62
Invert Elev. 896.83
H' Dist 5.42 FT
15 In. Conduit E 896.93
18 In. Conduit W 896.83

Manhole No. ST- 424 48 IN
Sta. 527+88.50 (PR17) - 94.03' Rt.

Casting Style (Y)
Rim Elev. 905.11
Base Elev. 895.17
Invert Elev. 895.42
Riser 8.44 FT
18 In. Conduit S 901.58
24 In. Conduit E 895.52
24 In. Conduit W 895.42

Inlet No. ST- 426C
Sta. 528+58.23 (PR17) - 43.93' Rt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 905.03
Base Elev. 899.03
Invert Elev. 899.22
H' Dist 5.25 FT
15 In. Conduit N 899.22

Inlet No. ST- 420A
Sta. 564+88.00 (PR17) - 77.26' Lt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 902.75
Base Elev. 897.75
Invert Elev. 898.68
H' Dist 4.00 FT
15 In. Conduit E 898.68

Inlet No. ST- 421A
Sta. 566+00.00 (PR17) - 71.82' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 902.25
Base Elev. 897.25
Invert Elev. 898.22
H' Dist 4.00 FT
15 In. Conduit W 898.22

Inlet No. ST- 422D
Sta. 568+50.00 (PR17) - 72.05' Rt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 901.50
Base Elev. 896.50
Invert Elev. 897.27
H' Dist 4.00 FT
15 In. Conduit W 897.27

Manhole No. ST- 425 48 IN
Sta. 529+63.00 (PR17) - 45.5' Rt.

Casting Style (Y)
Rim Elev. 905.40
Base Elev. 895.46
Invert Elev. 895.71
Riser 8.44 FT
18 In. Conduit NE 901.45
18 In. Conduit S 901.61
24 In. Conduit W 895.71

Inlet No. ST- 427A
Sta. 522+56.95 (PR17) - 135.07' Rt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 906.39
Base Elev. 901.64
Invert Elev. 902.35
H' Dist 4.00 FT
15 In. Conduit W 902.35

Inlet No. ST- 420B
Sta. 564+88.00 (PR17) - 46.69' Lt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 903.20
Base Elev. 898.08
Invert Elev. 898.27
H' Dist 4.37 FT
15 In. Conduit E 898.27
15 In. Conduit W 898.37

Manhole No. ST- 422 72 IN
Sta. 568+50.00 (PR17) - 22.35' Lt.

Casting Style (Z)
Rim Elev. 903.28
Base Elev. 894.61
Invert Elev. 894.98
Riser 6.63 FT
42 In. Conduit N 894.98
36 In. Conduit S 895.28
18 In. Conduit E 896.23
15 In. Conduit W 897.06

Manhole No. ST- 423 72 IN
Sta. 569+92.00 (PR17) - 23.47' Lt.

Casting Style (Z)
Rim Elev. 903.96
Base Elev. 894.37
Invert Elev. 894.74
Riser 7.55 FT
42 In. Conduit N 894.74
42 In. Conduit S 894.84
24 In. Conduit E 896.40

Manhole No. ST- 426 48 IN
Sta. 529+63.00 (PR17) - 45.50' Rt.

Casting Style (Y)
Rim Elev. 905.34
Base Elev. 896.80
Invert Elev. 896.99
Riser 7.04 FT
15 In. Conduit S 898.16
15 In. Conduit E 897.09
15 In. Conduit W 896.99

Inlet No. ST- 420C
Sta. 564+88.00 (PR17) - 35.65' Rt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 903.48
Base Elev. 898.73
Invert Elev. 898.92
H' Dist 4.00 FT
15 In. Conduit E 899.02
15 In. Conduit W 898.92

Inlet No. ST- 422A
Sta. 568+50.00 (PR17) - 82.92' Lt.
Type Inlet Catch Basin - Type A
Grate Style (B)
Grate Elev. 902.00
Base Elev. 897.00
Invert Elev. 897.77
H' Dist 4.00 FT
15 In. Conduit E 897.77

Inlet No. ST- 423A
Sta. 569+91.00 (PR17) - 77.36' Rt.
Type 48 IN Inlet Spcl CB Type 2
Grate Style (B)
Grate Elev. 901.25
Base Elev. 895.75
Invert Elev. 896.9
H' Dist 4.00 FT
15 In. Conduit N 897.00
24 In. Conduit W 896.90

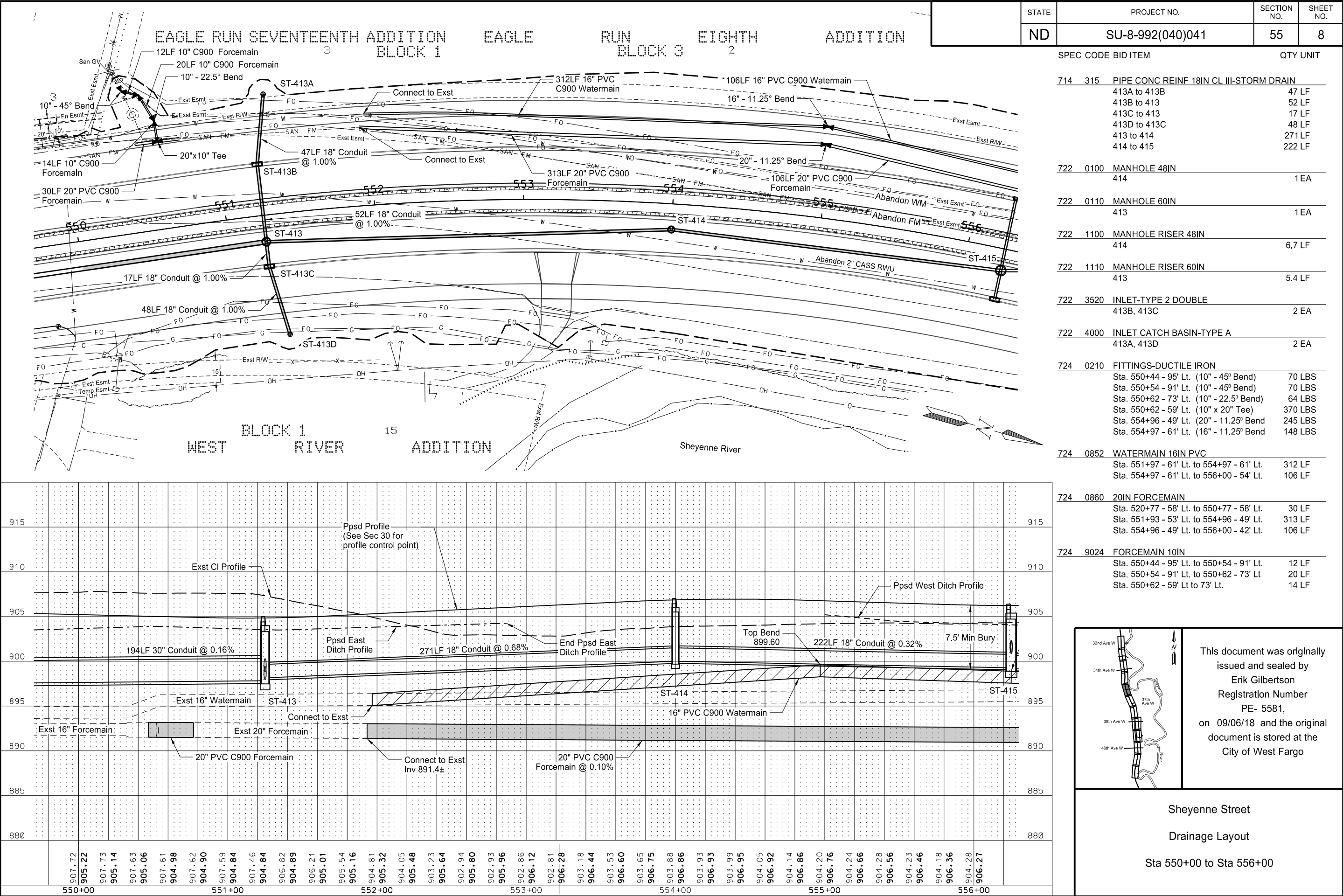
Inlet No. ST- 426A
Sta. 6+91.00 (PRFRONT) - 10.50' Lt.
Type Inlet -Type 2
Grate Style (A)
Grate Elev. 904.13
Base Elev. 897.40
Invert Elev. 897.59
H' Dist 5.98 FT
15 In. Conduit E 897.69
15 In. Conduit W 897.59

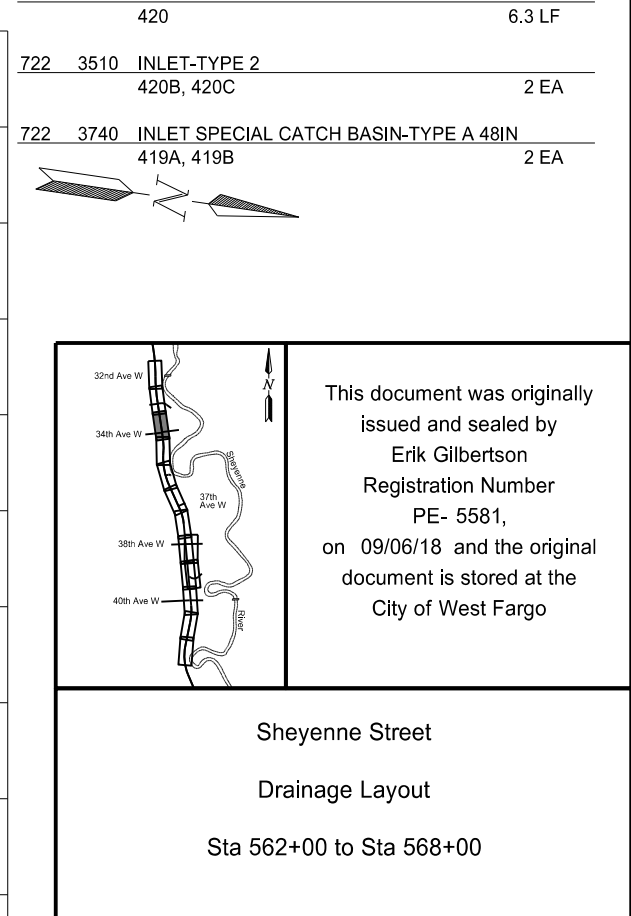
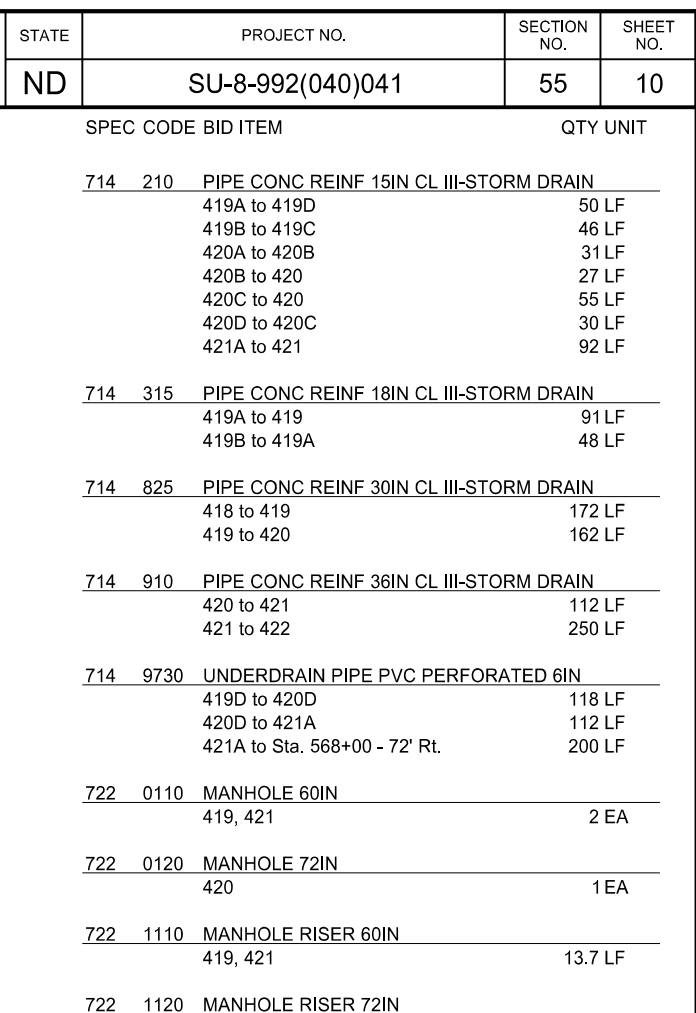
Code	Inlet Casting / Grate Style	Casting Thickness
(A)	Neenah R-3067-C (2" Radius Curb Box)	4
	East Jordan 7030-M2 (T1 Back)	
(B)	Neenah R-2577 (Convex Grate)	7
	East Jordan 1205 (Convex Grate)	

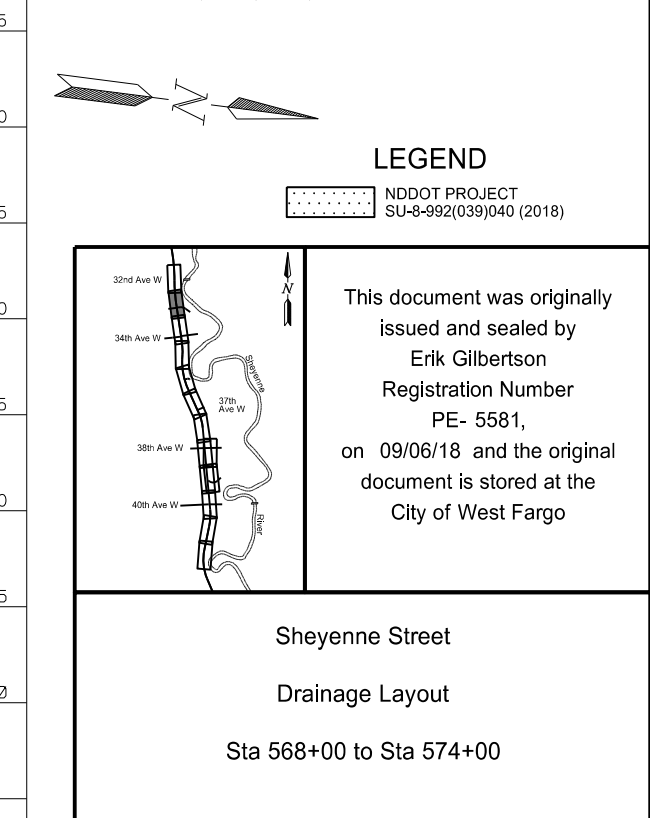
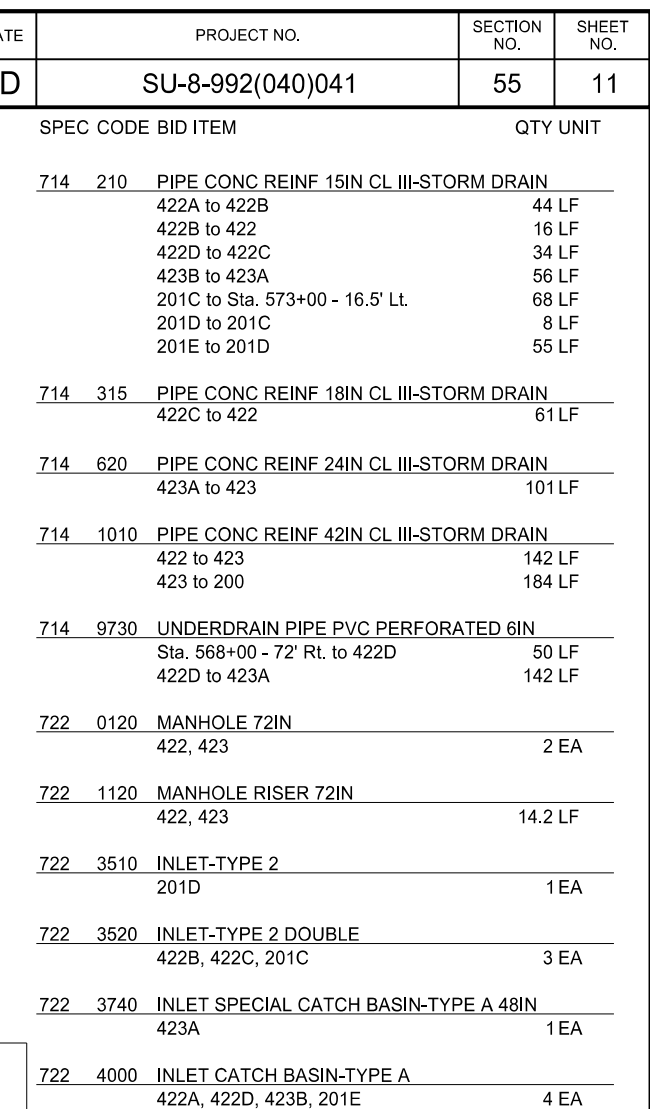
Code	Manhole Casting Style	Casting Thickness
(Y)	Neenah R-1733	7
	East Jordan 1205	
(Z)	Neenah R-1955-1	11.5
	East Jordan 3025 SELF LEVEL	

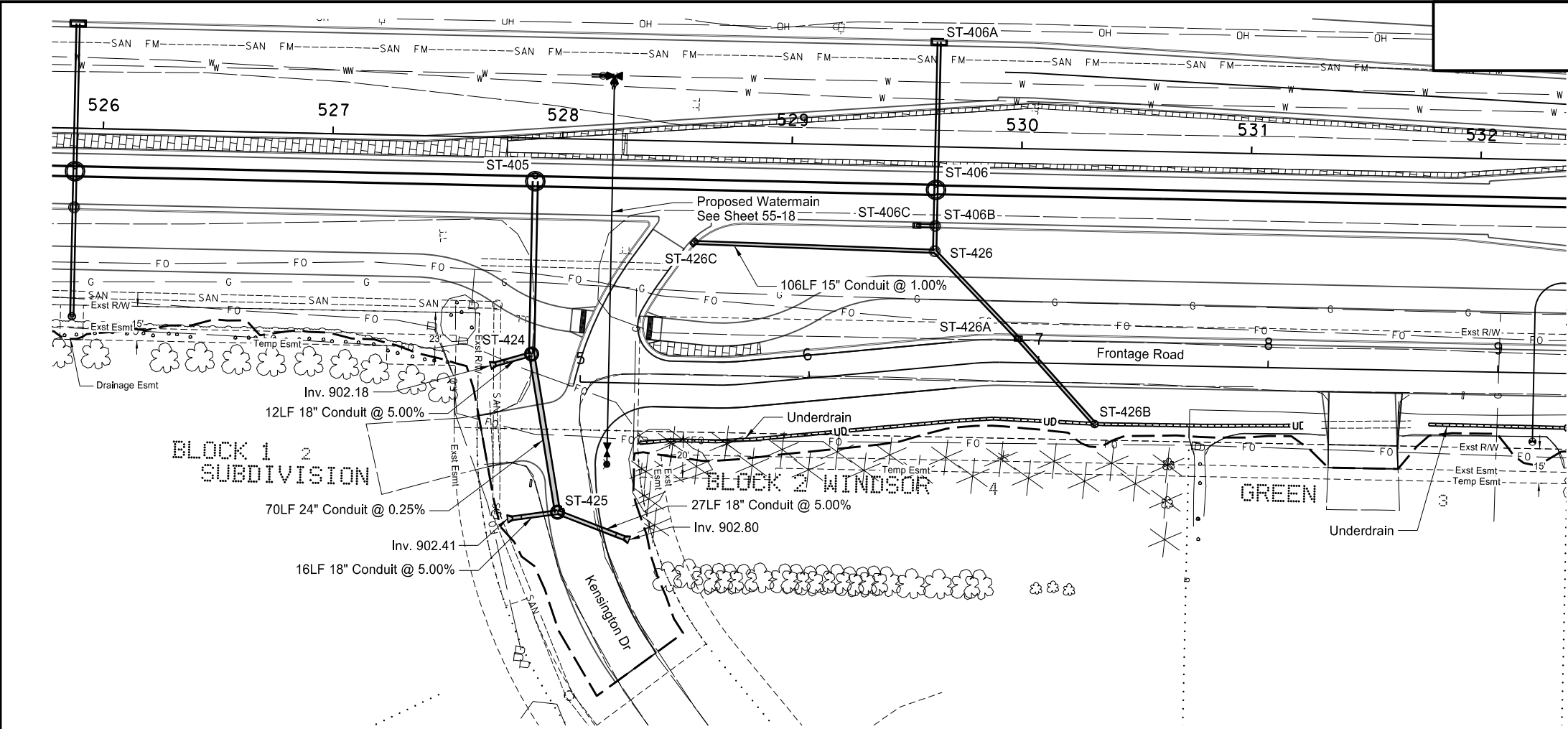
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Sheyenne Street
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Storm Sewer



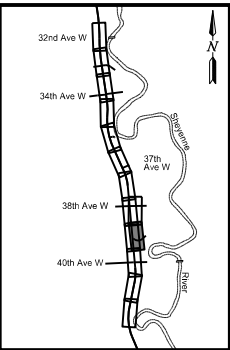
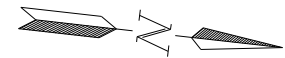
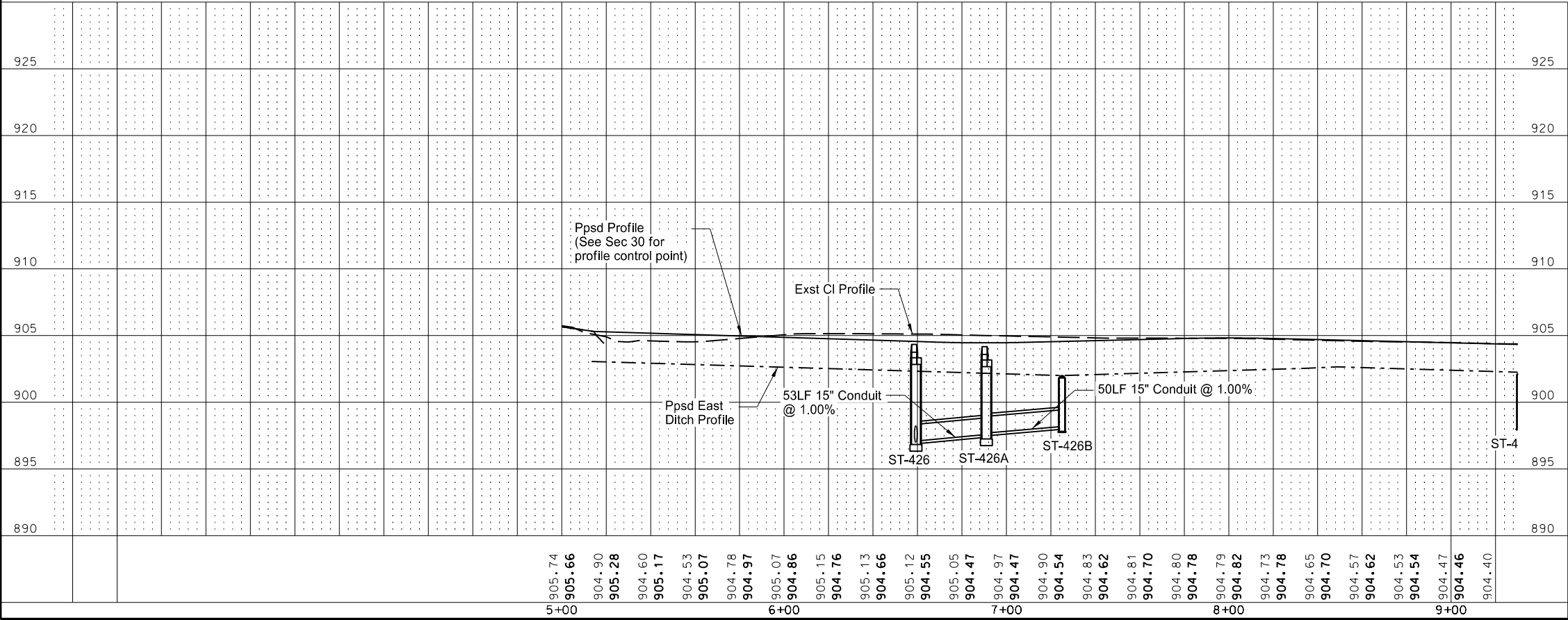






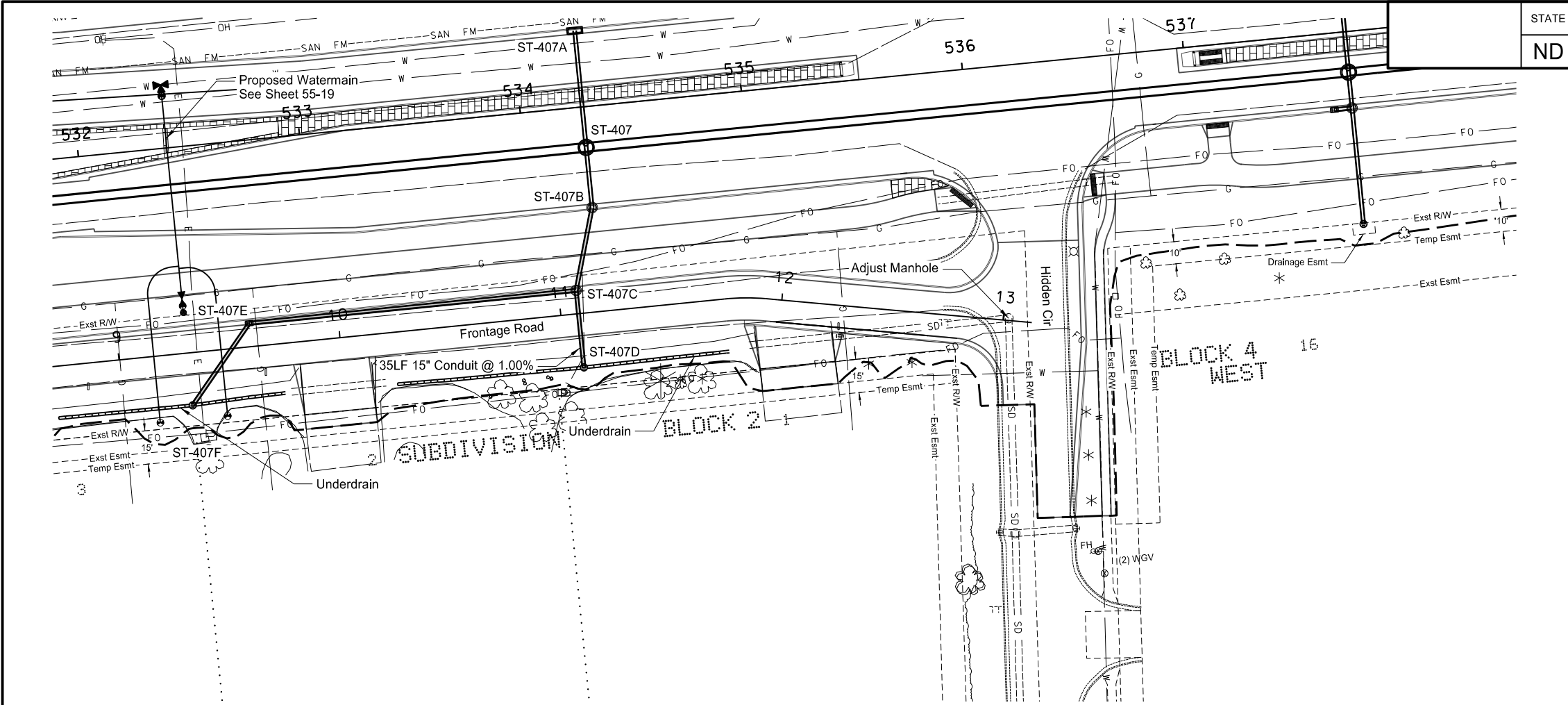
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	55	13

SPEC CODE BID ITEM		QTY UNIT
714 210	PIPE CONC REINF 15IN CL III-STORM DRAIN 426C to 426 426 to 426A 426A to 426B	106 LF 53 LF 50 LF
714 315	PIPE CONC REINF 18IN CL III-STORM DRAIN Sta. 527+77 - 98' Rt. to 424 Sta. 527+86 - 165' Rt. to 425 Sta. 528+27 - 172' Rt. to 425	12 LF 16 LF 27 LF
714 620	PIPE CONC REINF 24IN CL III-STORM DRAIN 424 to 425	70 LF
714 9730	UNDERDRAIN PIPE PVC PERFORATED 6IN Sta. 5+25 - 26' Rt. to 426B 426B to Sta. 9+00 - 24' Rt.	200 LF 175 LF
722 0100	MANHOLE 48IN 425	1 EA
722 1100	MANHOLE RISER 48IN 425	8.8 LF
722 3510	INLET-TYPE 2 426A, 426C	2 EA
722 4000	INLET CATCH BASIN-TYPE A 426B	1 EA



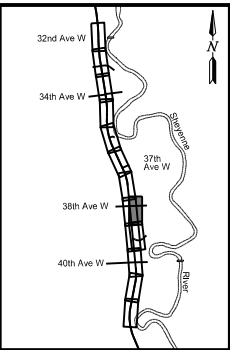
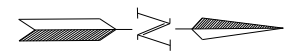
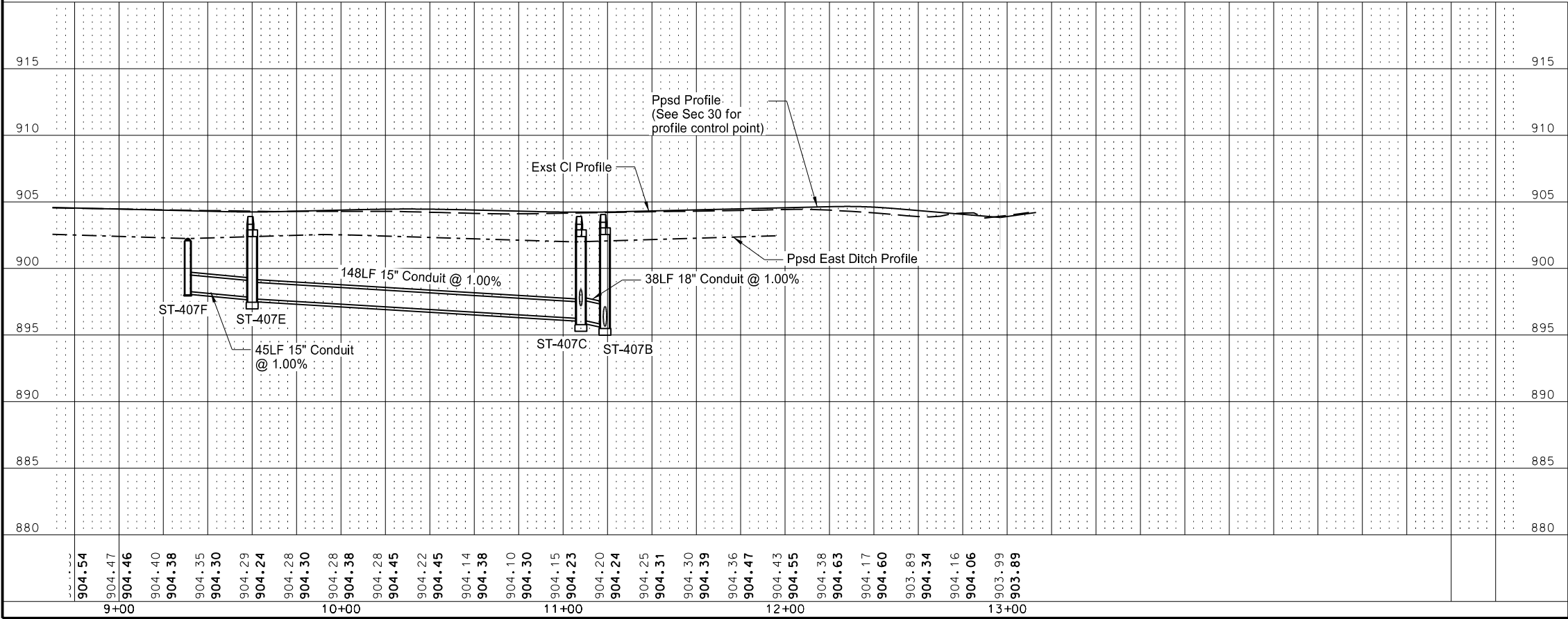
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Sheyenne Street
Drainage & Water Main Layout
Frontage Road
Sta 5+00 to Sta 9+00 (PRFRONT)



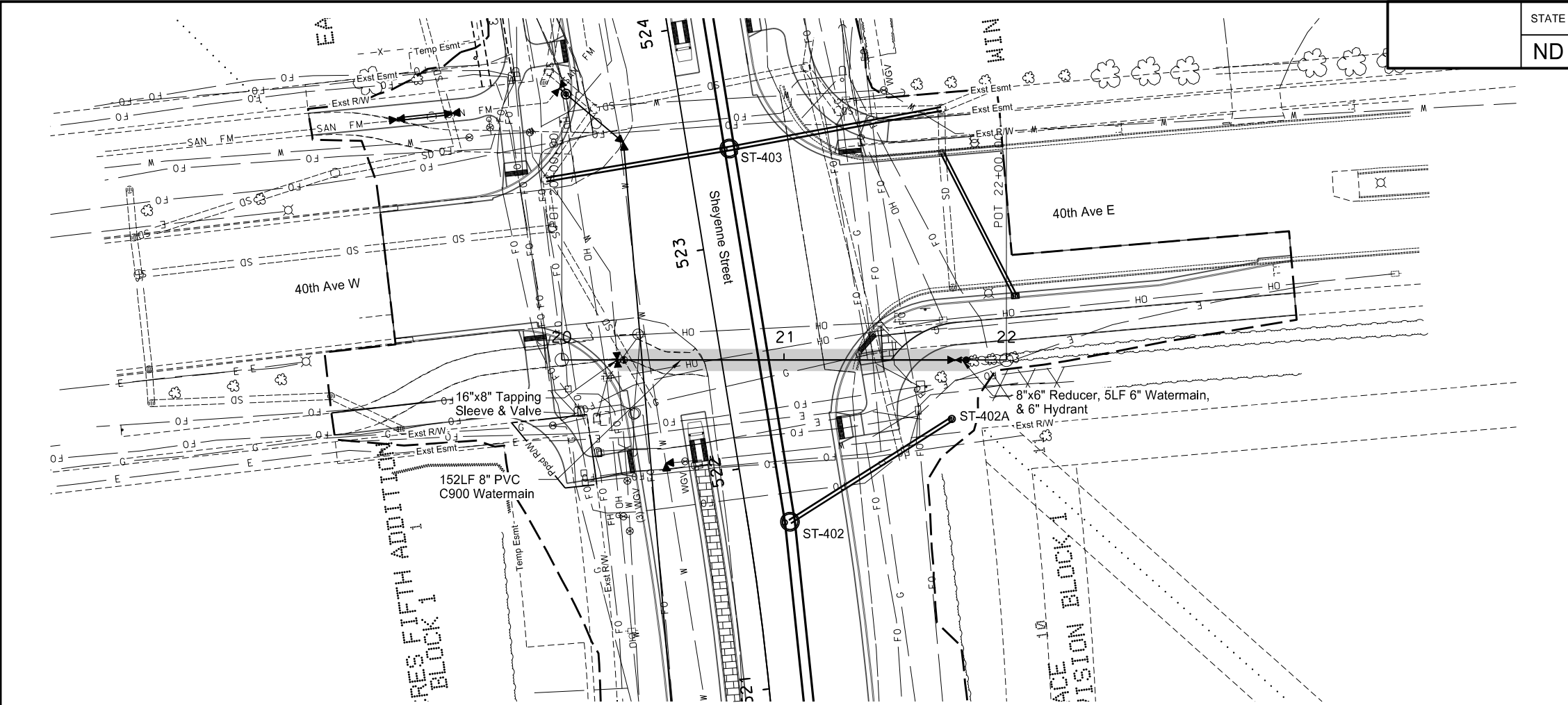
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	55	14

SPEC CODE	BID ITEM	QTY	UNIT
714 210	PIPE CONC REINF 15IN CL III-STORM DRAIN 407F to 407E 407E to 407C 407D to 407C	45 LF 148 LF 35 LF	
714 315	PIPE CONC REINF 18IN CL III-STORM DRAIN 407C to 407B	38 LF	
714 9730	UNDERDRAIN PIPE PVC PERFORATED 6IN Sta. 9+00 - 24' Rt. to 407F 407F to Sta. 9+75 - 24' Rt. Sta. 10+25 - 24' Rt to 407D 407D to Sta. 11+75 - 24' Rt.	31 LF 44 LF 83 LF 67 LF	
722 3510	INLET-TYPE 2 407E	1 EA	
722 3701	INLET SPECIAL-TYPE 2 48IN 407C	1 EA	
722 4000	INLET CATCH BASIN-TYPE A 407D, 407F	2 EA	



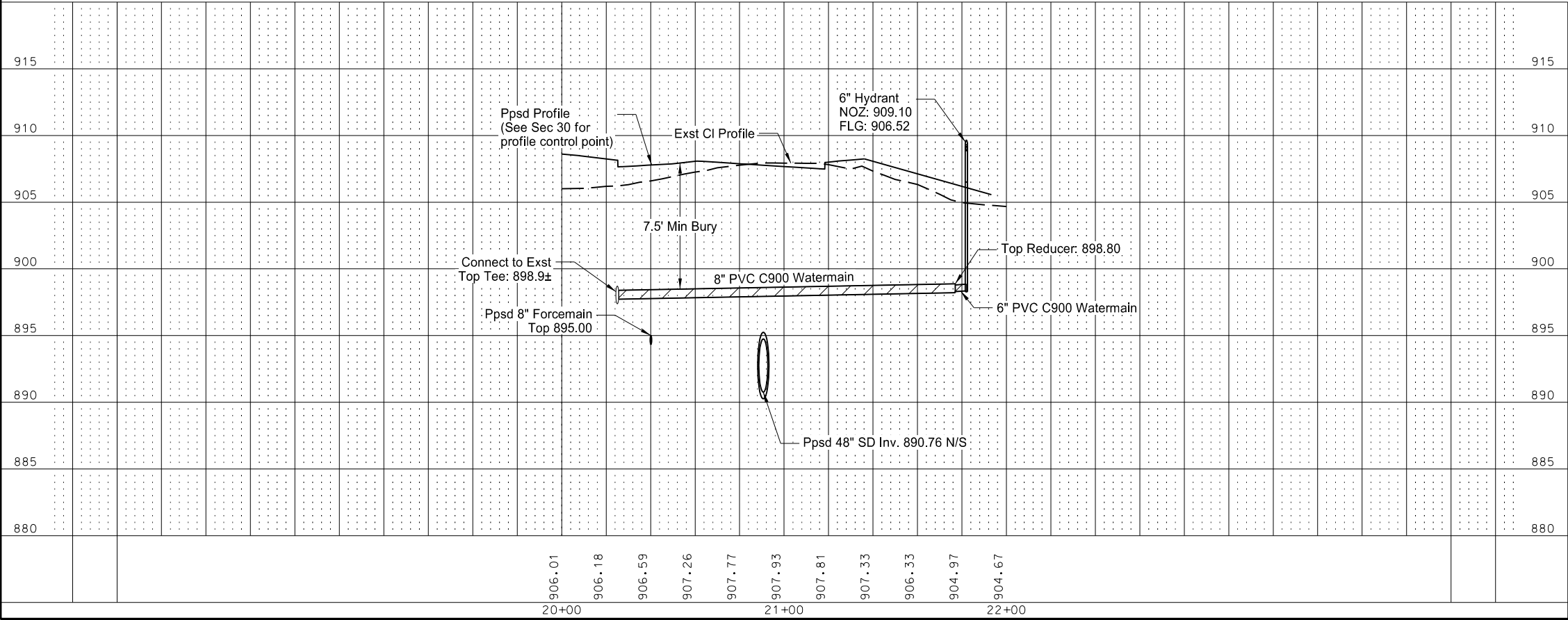
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Sheyenne Street
Drainage & Water Main Layout
Frontage Road
Sta 9+00 to Sta 13+00 (PRFRONT)



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	55	16

SPEC CODE	BID ITEM	QTY	UNIT
724 0210	FITTINGS-DUCTILE IRON Sta. 21+77 - \varnothing (8" x 6" Reducer)	36	LBS
724 0400	HYDRANT-INSTALL 6IN Sta. 21+82 - \varnothing	1	EA
724 0552	TAPPING SLEEVE & VALVE 16IN X 8IN Sta. 20+25 - \varnothing	1	EA
724 0810	WATERMAIN 6IN PVC Sta. 21+77 to 21+82 - \varnothing	5	LF
724 0830	WATERMAIN 8IN PVC Sta. 20+25 to 21+77 - \varnothing	152	LF

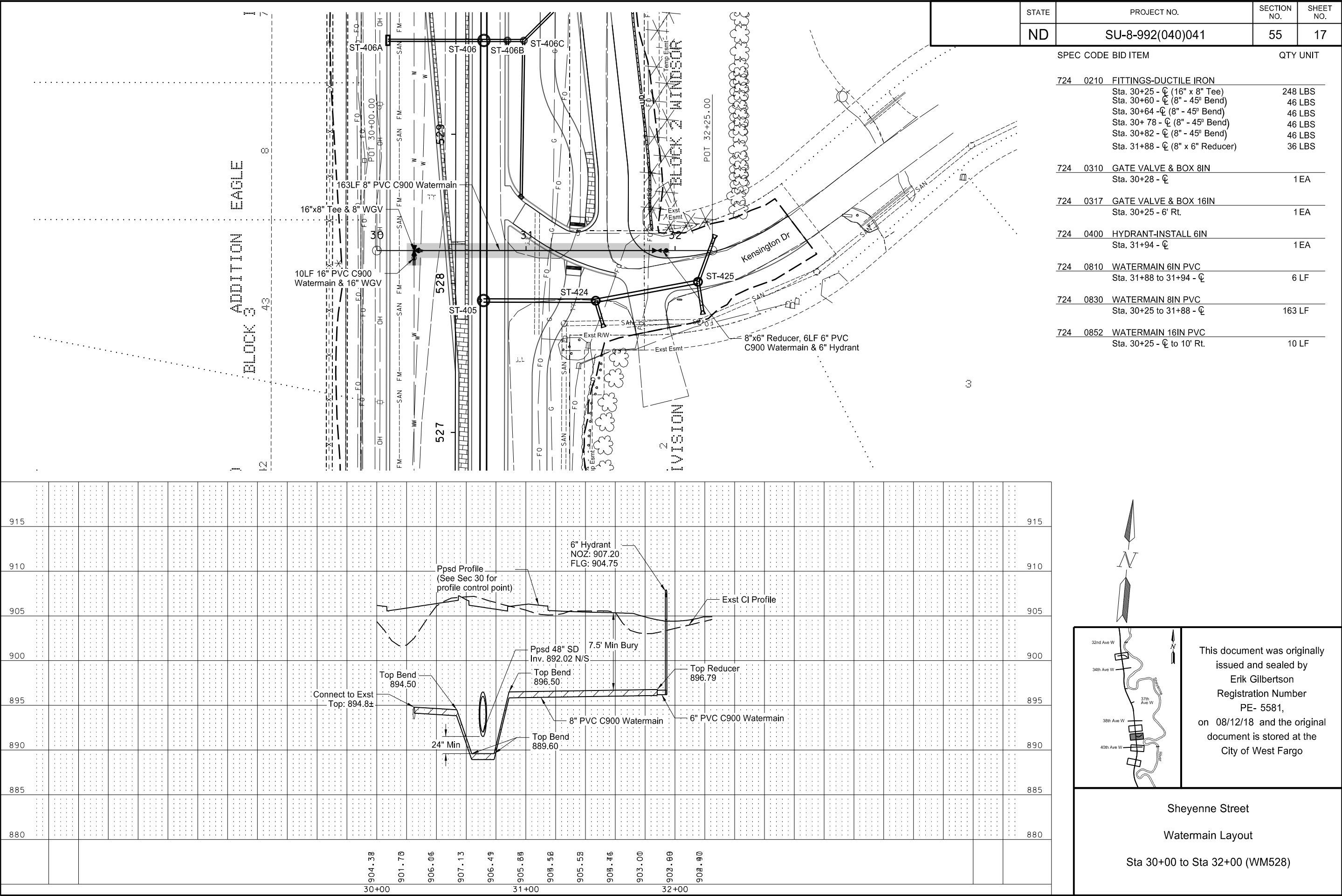


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Sheyenne Street

Watermain Layout

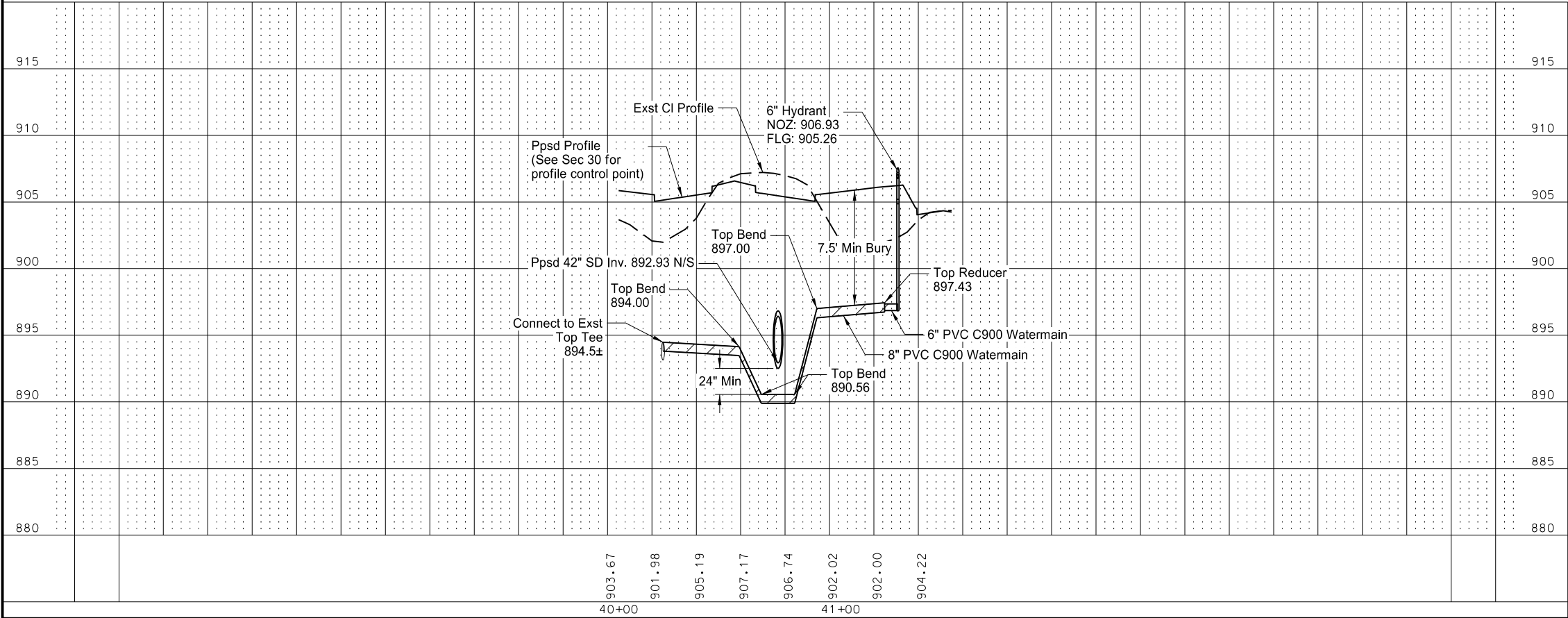
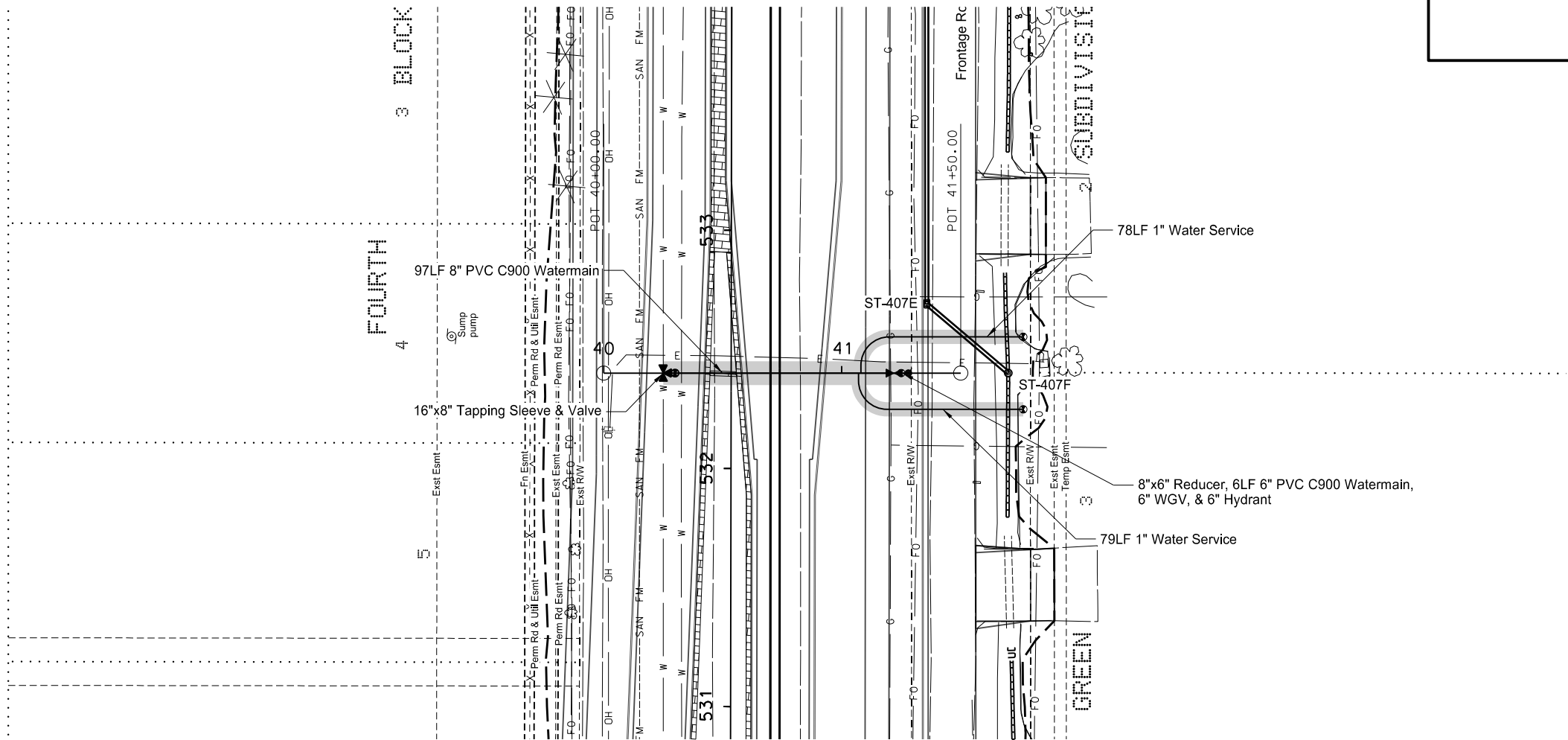
Sta 20+00 to Sta 22+00 (WM522)



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(040)041	55	18

SPEC CODE BID ITEM QTY UNIT

724	0210	FITTINGS-DUCTILE IRON	
		Sta. 40+61 - \angle (8" - 45° Bend)	46 LBS
		Sta. 40+65 - \angle (8" - 45° Bend)	46 LBS
		Sta. 40+85 - \angle (8" - 45° Bend)	46 LBS
		Sta. 40+93 - \angle (8" - 45° Bend)	46 LBS
		Sta. 41+25 - \angle (8" x 6" Reducer)	36 LBS
724	0300	GATE VALVE & BOX 6IN	
		Sta. 41+25 - \angle	1 EA
724	0400	HYDRANT-INSTALL 6IN	
		Sta. 41+28 - \angle	1 EA
724	0552	TAPPING SLEEVE & VALVE 16IN X 8IN	
		Sta. 40+25 - \angle	1 EA
724	0611	WATER SERVICE LINE 1IN	
		Sta. 41+07 - \angle to 41+50 - 15' Rt.	79 LF
		Sta. 41+08 - \angle to 41+50 - 15' Lt.	78 LF
724	0810	WATERMAIN 6IN PVC	
		Sta. 41+22 to 41+28 - \angle	6 LF
724	0830	WATERMAIN 8IN PVC	
		Sta. 40+25 to 41+22 - \angle	97 LF
724	0955	WATER SERVICE CONNECTION 1IN	
		Sta. 41+50 - 15.5' Rt.	1 EA
		Sta. 41+50 - 15.5' Lt.	1 EA



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Sheyenne Street

Watermain Layout

Sta 40+00 to Sta 41+00 (WM532)

