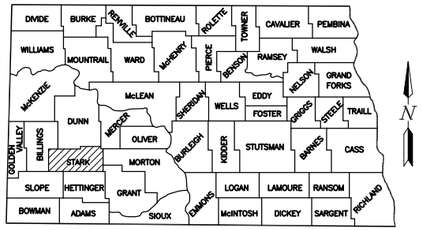
	STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	21689	1	1



STATE OF NORTH DAKOTA

JOB #34
CITY OF DICKINSON, STARK COUNTY
NORTH DAKOTA

PROJECT NO. TAU-5-983(058)058
SOUTH SIDE OF 21ST STREET AND WEST SIDE OF 10TH AVENUE EAST

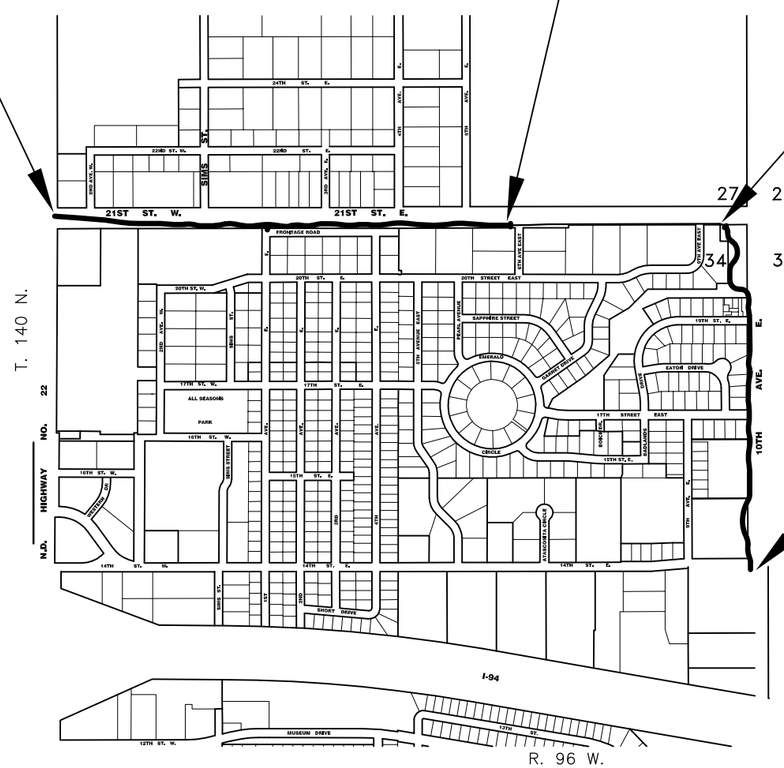
GRADING, STORM SEWER, CONCRETE SHARED-USE PATH,
CURB & GUTTER, SIGNING, MARKING & INCIDENTALS

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

BEGIN PROJECT
Sta. 0+00.00
Southeast corner of the Intersection of ND HWY 200 & 21st St. W.

BEGIN EXCEPTION
Sta. 34+00.00
EXISTING ASPHALT PATH

END EXCEPTION
Sta. 50+00.00
EXISTING ASPHALT PATH



END PROJECT
Sta. 77+01.15
Southwest corner of the intersection of 10th Ave. E. & 14th St. E.

LENGTH OF PROJECT

PROJECT	MILES–GROSS	MILES–NET
TAU–5–983(058)058	1.459	1.113

Craig Kubas \s\ 8/30/2017
CRAIG KUBAS — DATE
CITY ENGINEER

Gary Zuroff 8/30/2017
GARY ZUROFF — DATE
PUBLIC WORKS DIRECTOR

SURVEY FIELD BOOK: M1136 PGS. 1-20

DESIGNERS

ANDREW J. KREBS, PE

JUSTIN HYNDMAN, PE

PATRICK GALLAGHER, PE

JARROD KASSIAN

SEAN RABE

Any questions regarding these plans can be directed to:

Andrew Krebs, P.E.
Kadrmas, Lee & Jackson
P.O. Box 290
Dickinson, ND 58602-0290
(701) 483-1284 Phone

This document was originally issued and sealed by Andrew J Krebs Registration Number PE-7876 , on 08/30/2017 and the original document is stored at the City of Dickinson

CERTIFICATION
I HEREBY CERTIFY THAT THESE 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 NORTH DAKOTA.

Andrew J Krebs
ANDREW J. KREBS, P.E.
KADRMAS, LEE & JACKSON
DATE 8/30/2017 REGISTRATION NUMBER PE-7876

1463 I-94 BUSINESS LOOP
P.O. BOX 290
DICKINSON, ND 58602-0290
(701) 483-1284, FAX (855) 288-8055

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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LIST OF SPECIAL PROVISIONS (SP)

SP NO.	DESCRIPTION
SP 0003(14)	TEMPORARY EROSION AND SEDIMENT BEST MANAGEMENT PRACTICES
SP 560(14)	COMMERCIAL GRADE ASPHALT

STANDARD DRAWINGS

STANDARD NO.	DESCRIPTION
D-261-1	EROSION CONTROL FIBER ROLL PLACEMENT DETAILS
D-704-7	BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONES SIGNS - PERFORATED TUBE
D-704-8	BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS - U-CHANNEL POST
D-704-9	CONSTRUCTION SIGN DETAILS - TERMINAL AND GUIDE SIGNS
D-704-10	CONSTRUCTION SIGN DETAILS - REGULATORY SIGNS
D-704-11	CONSTRUCTION SIGN DETAILS - WARNING SIGNS
D-704-13	BARRICADE AND CHANNELIZING DEVICE DETAILS
D-704-14	CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS
D-704-22	CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS
D-704-24	SHOULDER CLOSURES AND BRIDGE PAINTING LAYOUTS
D-704-25	LANE CLOSURES ON URBAN STREETS LAYOUTS
D-704-26	MISCELLANEOUS SIGN LAYOUTS
D-704-50	PORTABLE SIGN SUPPORT ASSEMBLY
D-708-6	EROSION AND SILTATION CONTROLS - MEDIAN OR DITCH INLET PROTECTION
D-714-1	REINFORCED CONCRETE PIPE CULVERTS AND END SECTIONS (ROUND PIPE)
D-714-4	ROUND CORRUGATED STEEL PIPE CULVERTS AND END SECTIONS
D-714-22	CONCRETE PIPE, CATTLE PASS, OR PRECAST CONCRETE BOX CULVERT TIES
D-714-27	PIPE INSTALLATION DETAIL FOR LONGITUDINAL MAINLINE PIPE OR PIPE NOT UNDER ROADWAY
D-722-1A	INLET - CATCH BASIN
D-750-1	CONCRETE DRIVEWAY - URBAN
D-750-3	CURB RAMP DETAILS
D-754-23	PERFORATED TUBE ASSEMBLY DETAILS
D-754-24	MOUNTING DETAILS PERFORATED TUBE
D-754-24A	BREAKAWAY COUPLER SYSTEM FOR PERFORATED TUBE
D-754-25	MOUNTING DETAILS PERFORATED TUBE
D-754-26, 27, 31	SIGN PUNCHING, STRINGER, AND SUPPORT LOCATION DETAILS REGULATORY, WARNING AND GUIDE SIGNS
D-754-46	PUNCHING, STRINGER, AND SUPPORT LOCATION DETAILS FOR REGULATORY, WARNING AND GUIDE BIKE ROUTE SIGNS
D-762-1	PAVEMENT MARKING MESSAGE DETAILS

LOCAL UTILITY AND EMERGENCY CONTACTS

GAS
MR. KORRY BURKHEAD
MONTANA DAKOTA UTILITIES
P.O. BOX 1407
DICKINSON, N.D. 58602-1407
TELEPHONE: 701.456.7103

ELECTRIC
MR. JACOB ZETTEL
MONTANA DAKOTA UTILITIES
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DICKINSON, N.D. 58602-1407
TELEPHONE: 701.456.7110

ELECTRIC
MR. GERRY KREBS
ROUGHRIDER ELECTRIC COOPERATIVE
P.O. BOX 1038
DICKINSON, N.D. 58602-1038
TELE. NO. 701.483.5111

WATER & SEWER UTILITIES
CITY OF DICKINSON
PUBLIC WORKS DIRECTOR
GARY ZUROFF
3411 PUBLIC WORKS BLVD.
DICKINSON, N.D. 58601
TELEPHONE: 701.456.7730

NORTH DAKOTA DEPT. OF TRANS.
1700 3RD AVENUE WEST
DICKINSON, N.D. 58601
TELEPHONE: 701.227.6500

TELEPHONE:
MR. ROSS KUNTZ
CONSOLIDATED COMMUNICATIONS COOPERATIVE
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TELEPHONE: 701.483.7308

TELEPHONE:
MS. CONNIE KASSIAN
CENTURYLINK (QWEST)
1101 16TH ST. NE
MANDAN, N.D. 58554
TELEPHONE: 701.222.6889

CABLE T.V.
MR. DOUG RUMMEL
CONSOLIDATED CABLE VISION
BOX 1408
DICKINSON, N.D. 58601
TELEPHONE: 701.483.7469

STARK COUNTY
MR. AL HEISER
STARK COUNTY
P.O. BOX 130
DICKINSON, N.D. 58601
TELEPHONE: 701.456.7678

DICKINSON POLICE DEPT.
2475 STATE AVE NORTH
DICKINSON, N.D. 58601
TELEPHONE: 701.456.7759

DICKINSON FIRE DEPT.
2475 STATE AVE NORTH
DICKINSON, N.D. 58601
TELEPHONE: 701.456.7625

DICKINSON AMBULANCE SERVICE
42 B AVENUE EAST
DICKINSON, N.D. 58601
TELEPHONE: 701.225.1500

SOUTHWEST WATER AUTHORITY
MS. MARY MASSAD OR
MR. ANDY ERICKSON
SOUTHWEST WATER AUTHORITY
4665 2ND ST. S.W.
DICKINSON, N.D. 58601
TELEPHONE: 701.225.0241

TELEPHONE
MR. BRETT STEELE
MIDCONTINENT COMMUNICATIONS
1260 WEST VILLARD
DICKINSON, N.D. 58601
TELEPHONE: 701.690.0599

ENGINEERING DEPARTMENT
CITY OF DICKINSON
CITY ENGINEER - CRAIG KUBAS
99 2ND STREET EAST
DICKINSON, N.D. 58601
TELEPHONE: 701.456.7730

ONE CALL
BEFORE DIGGING
1-800-795-0555

NOTE: THERE MAY BE MORE UTILITY AND EMERGENCY CONTACTS THAN WHAT IS LISTED.

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

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SR	AK	201606

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	2	2

LEGEND

EXISTING	ITEM	PROPOSED
	FIRE HYDRANT	
	GATE VALVE	
	CURB STOP	
	YARD HYDRANT	
	BEND	
	TEE	
	CROSS	
	REDUCER	
	VERTICAL BEND	
W	WATER MANHOLE	W
	SPRINKLER HEAD	
W	WATER METER	
	CATHODIC TEST STATION	TS
	TRACER WIRE ACCESS BOX	TW
S	SANITARY MANHOLE	S
FM	SANITARY FORCEMAIN MANHOLE	FM
	SANITARY MANHOLE W. VALVE	
CL	CLEANOUT	CL
ST	STORM SEWER MANHOLE	ST
	CURB INLET	
	CATCH BASIN	
	POWER POLE	
	GUY WIRE	
	LIGHT POLE	
E	ELECTRICAL PEDESTAL	
E	ELECTRICAL METER	
J	ELECTRICAL JUNCTION (PULL BOX)	
	ELECTRICAL BOX	
	ELECTRICAL OUTLET/PLUG-IN	
E	ELECTRICAL MANHOLE	E
T	TELEPHONE MANHOLE	T
	TELEPHONE PEDESTAL	
	CABLE TV PEDESTAL	
	FIBER OPTIC PEDESTAL	
G	GAS METER	
G	GAS MANHOLE	G
	FUEL DISPENSER	
	UTILITY MARKER	
	GAS VENT PIPE	
	TREES CONIFEROUS/ DECIDUOUS	
	TREE MASS	
	SIGN	
	CONTROL POINT	
	BENCHMARK	
	PIPE CAP	
	MAIL BOX	
	PROPERTY PIN	

LEGEND

EXISTING	ITEM	PROPOSED
	ASPHALT EDGE	
	BUILDING CANOPY	
TV TV	CABLE TV - UNDERGROUND	
	CENTERLINE	
	CONSTRUCTION LIMITS	
E(O) E(O)	ELECTRICAL - OVERHEAD	
E E	ELECTRICAL - UNDERGROUND	
x x x x	FENCE - BARBED WIRE	
o o o o	FENCE - CHAINLINK	
H H H H	FENCE - PLASTIC, VINYL	
⊟ ⊟ ⊟ ⊟	FENCE - WOOD	
/ / / /	FENCE - WOVEN WIRE	
FO FO	FIBER - UNDERGROUND	FO FO
G G G G	GAS - UNDERGROUND	G G
	GRAVEL EDGE	
FM FM	SANITARY SEWER FORCE MAIN	FM FM
S S	SANITARY SEWER SERVICE LINE	
S S	SANITARY SEWER (24" OR LESS)	
S S	SANITARY SEWER (24" OR MORE)	
	STORM SEWER EDGEDRAIN	
ST ST	STORM SEWER (24" OR LESS)	
ST ST	STORM SEWER (24" OR MORE)	
T(O) T(O)	TELEPHONE - OVERHEAD	
T T	TELEPHONE - UNDERGROUND	
W W	WATER SERVICE LINE	
W W	WATER MAIN	

AGGR	AGGREGATE
AHD	AHEAD
APPROX	APPROXIMATE OR APPROXIMATELY
ASPH	ASPHALT
AC	ASPHALT CEMENT
BIT	BITUMINOUS
BK	BACK
BM	BENCH MARK
BLDG	BUILDING
C&G	CURB & GUTTER
CI	CAST IRON
CMES	CORRUGATED METAL END SECTION
CMP	CORRUGATED METAL PIPE
CP	CONTROL POINT
CONST	CONSTRUCTION
CONC	CONCRETE
CS	CURB STOP
CY	CUBIC YARD
D	DEGREE OF CURVATURE
DB	DITCH BLOCK
DG	DITCH GRADE
EA	EACH
EL	ELEVATION
EMB	EMBANKMENT
EQ	EQUATION
ES	END SECTION
ESMT	EASEMENT
EX	EXISTING
EXC	EXCAVATION
FES	FLARED END SECTION
FF	FINISHED FLOOR
FG	FINISHED GRADE
GR	GRAVEL
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HP	HIGH POINT
HYD	HYDRANT
INST	INSTALL
INV	INVERT
JB	JUNCTION BOX
L	LENGTH
LF	LINEAR OR LINEAL FEET
LONG	LONGITUDINAL
LP	LOW POINT OR LIGHT POLE
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
ME	MATCH EXISTING
MH	MANHOLE
MIN	MINIMUM
PVC	POLYVINYL CHLORIDE PIPE
P & P	PLAN & PROFILE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
R	RADIUS
RCES	REINFORCED CONCRETE END SECTION
RCP	REINFORCED CONCRETE PIPE
RDWY	ROADWAY
RR	RAILROAD
RT	RIGHT
R/W ROW	RIGHT-OF-WAY
SALV	SALVAGE
SAN	SANITARY
SE	SUPERELEVATION
SEC	SECTION
SF	SQUARE FEET
SHLDR	SHOULDER
SSD	STOPPING SIGHT DISTANCE
SEC LINE	SECTION LINE
SPEC	SPECIFICATION
STA	STATION
STD	STANDARD
STRUCT	STRUCTURE
SURV	SURVEY
SW	SIDEWALK
SY	SQUARE YARD
T	TANGENT
TA	TOP OF ASPHALT
TBC	TOP BACK OF CURB
TC	TOP OF CONCRETE
TEL	TELEPHONE
TEMP	TEMPORARY
THEOR	THEORETICAL
TP	TOP OF PAVEMENT
TR	TRAFFIC
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
WM	WATER MAIN
WV	WATER VALVE
XSEC	CROSS SECTION

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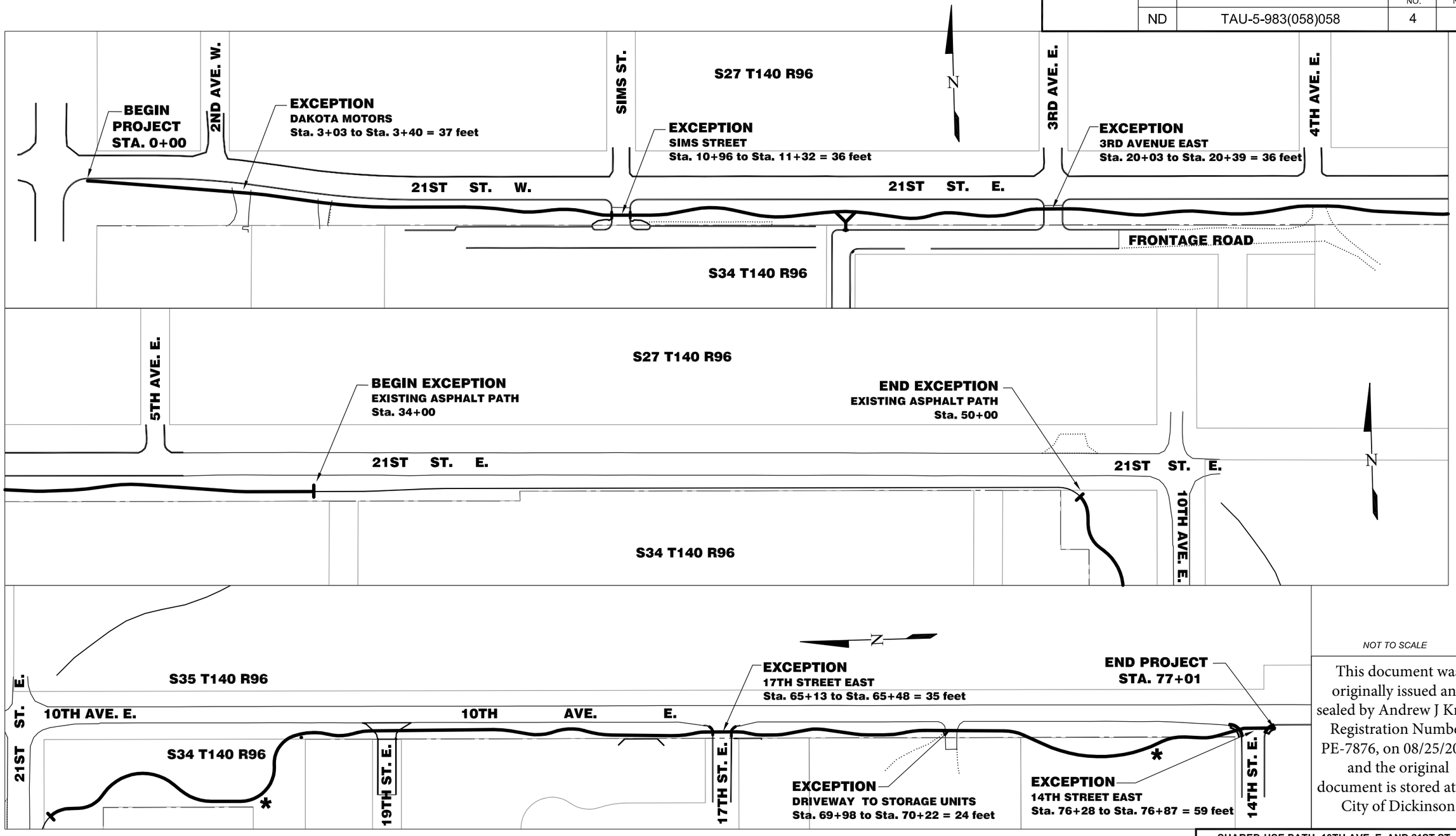
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

ABBREVIATIONS & SYMBOLS

DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	4	1



NOT TO SCALE

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LEGEND

- NEW PATH
- EXISTING PATH
- * BENCH PAD

SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

SCOPE OF WORK

DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	6	1

PLAN NOTES

GENERAL NOTES

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 or pilot car operations.

When constructing a wedge, construct a wedge composed of aggregate 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 delineator drums and tubular markers, as shown on Section 100 Sheet 2, along the edge of the driving lane closest to the wedge.

The Engineer will measure devices as specified in Section 704.05, “Method of Measurement” and will pay for them 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 City.

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.

201-P01 **TREE REMOVAL:** There are some newly planted trees along the project corridor. The City of Dickinson may want to remove them and replant them at a different location prior to the Contractor striping topsoil. Provide the City of Dickinson a one week notification prior to needing the trees removed. The contact is Gary Zuroff at (701) 456-7979. All trees not removed by the City will be the responsibility of the Contractor to remove.

202-P01 **REMOVE & SALVAGE AGGREGATE SURFACING:** Remove, salvage, and stockpile the existing aggregate surfacing at 4th Avenue East required to construct the proposed project. Use the salvaged aggregate to backfill and tie in at 4th Avenue East once the concrete work is complete. Include all costs for removing, stockpiling, and relaying the existing aggregate in the price bid for other items.

202-P02 **REMOVAL OF BITUMINOUS SURFACING:** The item is to be measured by the square yard. Payment includes all pavement and base material removed, regardless of the depth encountered. It includes all the vertical saw cuts.

Areas designated for “Removal of Bituminous Surfacing” shall be marked in the field by the Engineer prior to construction. Remove the material by milling or backhoe. Front end loaders or other similar equipment will not be allowed.

Include all costs for removal, loading, hauling, and disposal of the material, as well as the vertical saw cuts, in the price bid for “REMOVAL OF BITUMINOUS SURFACING”.

202-P03 **REMOVAL OF INLETS:** Remove and salvage the two existing inlet castings near the intersection of 17th Street East and 10th Avenue East. Fill the existing inlet barrels with sand and cover the inlet barrels with a half inch steel plate. The salvaged inlet castings and grates are property of the City. Haul the salvaged castings and grates to the City of Dickinson Baler Building located at 3389 Energy Drive. Include all costs for salvaging and delivering of the existing inlet castings and grates, filling the barrels with sand, and providing and installing the steel plate in the price bid for “REMOVAL OF INLETS”.

202-P04 **REMOVED ITEMS:** Include the disposal in the price bid for “CLEARING & GRUBBING”. The following removal and salvage items will remain City property. Remove without further damage to these items:

- All inlet castings and grates
- All signs and posts.

All removed and salvaged items will be reviewed by the Engineer. If the Engineer determines that the item is not salvageable based on the condition, it becomes the Contractor’s property.

203-010 **SHRINKAGE:** 35 percent additional volume is included for shrinkage in earth embankment.

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

203-P01 **COMMON EXCAVATION-TYPE C:** In Section 203.04 E.4 insert the following after the 2nd paragraph:

The addition of water or drying of fill material is required when directed by the Engineer.

203-P02 **CONTRACT QUANTITY PAYMENT:** The quantities of COMMON EXCAVATION-TYPE C to be paid will be those shown in the Contract, provided the Project is constructed to the lines and grades shown on the plans.

When disagreement exists between the Contractor and the Owner as to the accuracy of the Plan quantities, either party may request that the quantities be measured. The party requesting the measurement is responsible for all costs associated with the measurement.

Any additional required excavation will be measured as per Section 203.05 A or 203.05 B of the Standard Specifications.

203-P03 **TOPSOIL:** Include all costs associated with the stabilization of topsoil stockpiles in the price bid for “TOPSOIL”.

203-P04 **BORROW-EXCAVATION:** All borrow will be Contractor-Furnished. Density and moisture requirements shall be the same as Common Excavation-Type C. Borrow material shall consist of approved natural compactable soil. The soil shall not be saturated or contain organic material.

210-P01 **FOUNDATION FILL**: Delete Section 210.03 B and insert the following:

B. Foundation Fill.
Foundation fill material shall be any granular material, other than scoria or shale, with less than 35% passing the No. 200 sieve.

Delete Section 210.04 B.3 and insert the following:

3. Foundation Fill.
Place foundation fill in layers not exceeding 6 inches to the required elevation. Thoroughly compact each layer with mechanical tamping equipment. Use water as required to achieve satisfactory compaction and stability.

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

PLAN NOTES

DRWN. BY	CHKD. BY	PROJECT NO.
AK	JH	201606

PLAN NOTES

251-P01 **SEEDING**: Seeding Class III shall consist of the following mixture:

Species	Lbs. of PLS/Acre
Hycrest	4
Oahe Intermediate	6
Total	**10**

Apply fertilizer to all areas requiring seeding. Mix thoroughly into the upper 2 inches of topsoil prior to seeding. Include all costs for supplying and applying the fertilizer in the price bid for "SEEDING CLASS III".

Seed disturbed areas with a drill prior to applying hydraulic mulch. Class III seed mixture can be installed anytime between April 20th and before the ground freezes or the substantial completion date whichever is sooner. The Temporary Care Maintenance period of the mulched areas can extend past the substantial completion date of the project. The seed will not be accepted until it shows evidence of established growth after April 15th of the following year. If the seed isn't showing evidence of establishment that following year, reseed and apply hydraulic mulch according to the plans and specification at no additional cost to the City. If required, complete the reseeding and hydraulic mulching by June 1st. If the reseeding and hydraulic mulching are not completed by June 1st, the Engineer will apply a contract price reduction of $350 per calendar day until the seeding and hydraulic mulching are completed. Temporary Care Maintenance will be required for the reseeded and hydraulic mulched areas. The reseeding will be accepted at the conclusion of the maintenance period.

Only plan quantity will be paid for seeding and hydraulic mulch. The Contractor is responsible for restoring any staging areas, and areas used to facilitate construction activities. Additional seeding and hydraulic mulch for disturbed areas used to facilitate construction or accommodate contractor method and means will be the responsibility of the Contractor with no additional cost to the Project.

261-P01 **FIBER ROLLS:** The temporary erosion control has been provided for placement prior to disturbing the topsoil or as indicated by the Engineer.

Preserve the temporary erosion control throughout the duration of the project. If the erosion control is damaged due to negligence, repair at the Contractor's expense.

Place permanent fiber rolls within the construction limits as construction progresses. Locations are shown in Section 76.

An additional 400 LF of Fiber Rolls 12IN have been provided for locations to be determined by the Engineer. Include all costs for labor, equipment and materials necessary to complete this work and all costs to relocate fiber rolls as needed for construction related activities in the price bid for "FIBER ROLLS 12IN".

430-P01 **COMPACTION:** Ordinary compaction, as specified in Section 430.04 I.3, will be utilized.

704-P01 **TRAFFIC CONTROL DEVICES LIST:** The traffic control devices list has been developed using the following layouts on the Standard Drawing for traffic control:

- Standard D-704-22, Type K: For trucks hauling material.
- Standard D-704-24, Type R & S: For use when working adjacent to 21st Street & 10th Avenue East.
- Standard D-704-25, Type V,W,X: For Commercial Grade Asphalt, Curb & Gutter, Sidewalk, and other work.
- Standard D-704-26, Type EE, as needed.
- Standard Drawings D-704-7, 8, 9, 10, 11, 13, 14, and 50 are applicable.
- Traffic Control Layouts for construction are in Section 100 of the plans.

704-P02 **TRAFFIC CONTROL GENERAL:**

- A majority of the work will take place off of City streets. Maintain two way traffic at all times along 21st Street and 10th Avenue East. Maintain access to businesses and homeowners at all times.
- When working near intersections and/or driveways setup traffic control signs and devices according to Standard Drawing D-704-25 and the vertical drop off detail located on Section 100 Sheet 2. Install the wedge when required.
- When working near the existing street shoulder in areas of existing curb & gutter along 21st Street setup traffic control signs according to Standard Drawing 704-24 Type S.
- When working near the existing street shoulder east of the existing curb & gutter along 21st Street and along 10th Avenue East setup traffic control signs and devices according to Standard Drawing D-704-24 Type R. Reduce speed to 25 mph.
- Use flagging and signing to direct traffic when necessary. Include the cost of flagging in the price bid for other traffic control items.
- Install Sidewalk Closed signs mounted on a barricade as needed to keep pedestrians out of the work area until the project is complete.

714-P01 **VOID AREAS:** Flared end sections shall have no void areas underneath them. Level and compact the material under the flared end sections to grade prior to setting all flared end sections.

714-P02 **DEFLECTION TESTING:** Delete Section 714.04 A.5 in its entirely and insert the following:

5. Deflection Testing.
The Engineer will visually inspect all metal pipe used on the project for deflection a minimum of 30 days after the pipe is installed. If the Engineer sees any deflection, the Engineer will require the Contractor to pass a nine point mandrel or approved object through the pipe to check for deflection. Use a mandrel with a diameter not less than 95 percent of the inside diameter of the pipe. If the mandrel cannot be passed through the pipe, replace the pipe.

Perform the deflection test under the observation of the Engineer.

714-P03 **COMPACTION CONTROL FOR AGGREGATE:** Delete Section 714.04 A.7 in its entirely and insert the following:

7. Compaction Control for Aggregate.
Place foundation fill in layers not exceeding 6 inches to the required elevation. Thoroughly compact each layer with mechanical tamping equipment. Use water as required to achieve satisfactory compaction and stability.

722-P01 **INLET CASTINGS:** Provide inlets, frames and grates that are machined to a uniform quality. Provide frames and grates that fit together in a satisfactory manner to prevent rocking and rattling.

Do not order gutter inlet frames and grates until approved by the Engineer.

Provide inlet frames and grates of a quality equal to the Neenah Foundry, East Jordan Iron Works or approved equal. Provide castings as follows.

- Inlet-Catch Basin-Type A: Neenah Foundry Number R2501 Type C, or approved equal.

722-P02 **CONCRETE APRON:** Inlet 1 shall have a concrete apron surrounding and sloping to the casting as shown on Sheet 6 Section 20. Include all associated costs for the concrete apron in the price bid for "INLET CATCH BASIN-TYPE A".

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PLAN NOTES

748-P01 **CONTROLLED DENSITY FILL:** Provide Controlled Density Fill (CDF) that contains a minimum of 100 pounds of cement and 500 pounds of fly ash by weight per cubic yard of CDF. Provide mix design to the Engineer prior to use.

CDF will not be measured for payment. Include cost in the price bid for “CURB & GUTTER-TYPE I”.

748-P02 **CURB DOWEL BARS:** Install dowel bars at expansion joints in the curb and gutter. Include in the price bid for “CURB & GUTTER-TYPE I”.

748-P03 **CURB ENDS:** On street returns and other locations where the new curb and gutter ends and does not abut existing curb and gutter, the end two (2) feet of the curb shall be tapered from 6" in height to 0". A 1/2" premolded expansion joint which is full depth and the same shape as the curb and gutter shall be installed just ahead of the taper. An 18" tie bar shall be installed across the joint.

750-P01 **SIDEWALK CONCRETE 4IN:** Where new concrete will abut the existing asphalt, mill or saw cut along the entire length of the butt joint to form a straight vertical edge to allow placement of the full depth of surfacing. The areas of be removed are shown on the plans. All costs associated with saw cutting asphalt shall be included in the price bid for "SIDEWALK CONCRETE 4IN".

Contractor will not receive a deduction for any concrete that fails to meet a depth of 4 inches. Contractor shall remove and replace all areas that do not meet the required depth of 4 inches.

Contraction / dummy joints shall be constructed at 8-foot intervals with a single 1/8" wide saw cut at a depth of 1¼”. Longitudinal contraction joints are not required. Install expansion / isolation joints every 60 LF (maximum) and seal with cold applied joint sealant as shown in the Expansion Joint Seal Plan Detail.

762-P01 **OBLITERATION OF PVMT MK:** Obliteration of existing pavement markings will not be measured for payment. Include all costs for obliterating the existing pavement markings in the price bid for other pavement marking items.

830-P01 **POLYMERIC CULVERTS:** Provide polymeric coating (inside and out) for all corrugated steel pipe culverts and coupling bands. Coating shall conform to the requirements as set forth under AASHTO M-245 & M-246. The coating thickness shall be 10 mils inside and outside.

In truck shipments, support the pipe on wide cradles of suitably padded timbers. Pad all chains, cable or other equipment used for fastening the load.

Repair or replace, as directed by the Engineer, any damage to the protective coating from any cause during the installation of the culvert and before final acceptance of the purchase. Repair at no additional cost to the project.

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
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DICKINSON, ND

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PLAN NOTES

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ENVIRONMENTAL NOTES

ENVIRONMENTAL NOTES (EN): The City of Dickinson, 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 DISTURBED AREAS: Re-seed all disturbed areas upon completion of construction to match the surrounding vegetation. Implement best management practices (BMPs) as provided to minimize the likelihood of invasive plant species while vegetation is being established.

EN-2 EROSION AND SEDIMENT CONTROL DEVICES: Install and maintain erosion and sediment control devices as provided during construction.

EN-3 TREE IMPACTS: Mitigation of impacted trees will be determined by the City of Dickinson following project completion.

EN-4 FUGITIVE DUST EMISSIONS: Implement BMPs, such as using water as a palliative, to control dust during construction as appropriate.

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ENVIRONMENTAL NOTES

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QUANTITIES

Spec	Code	Description	Unit	Participating	Non Participating	Total Quantities
103	0100	CONTRACT BOND	LSUM	1		1
201	0330	CLEARING & GRUBBING	LSUM	1		1
202	0114	REMOVAL OF CONCRETE - PAVEMENT	SY	62		62
202	0130	REMOVAL OF CURB & GUTTER	LF	170		170
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	41	220	261
202	0170	REMOVAL OF CULVERTS-ALL TYPES & SIZES	LF		98	98
202	0230	REMOVAL OF INLETS	EA	2		2
203	0103	COMMON EXCAVATION-TYPE C	CY	1,260		1,260
203	0109	TOPSOIL	CY	1,975		1,975
203	0140	BORROW-EXCAVATION	CY	942		942
216	0100	WATER	MGAL	105		105
230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	59		59
251	0300	SEEDING CLASS III	ACRE	1.49		1.49
253	0201	HYDRAULIC MULCH	ACRE	1.49		1.49
261	0112	FIBER ROLLS 12IN	LF	1,020		1,020
261	0113	REMOVE FIBER ROLLS 12IN	LF	710		710
302	0120	AGGREGATE BASE COURSE CL 5	TON	1,647	103	1,750
430	0500	COMMERCIAL GRADE HOT MIX ASPHALT	TON	16	36	52
702	0100	MOBILIZATION	LSUM	1		1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	1,359		1,359
704	1052	TYPE III BARRICADE	EA	32		32
704	1060	DELINEATOR DRUMS	EA	40		40
704	1067	TUBULAR MARKERS	EA	100		100
714	4100	PIPE CONDUIT 18IN	LF	64	269	333
722	4000	INLET CATCH BASIN-TYPE A	EA		1	1
722	6140	ADJUST GATE VALVE BOX	EA	8	1	9
748	0140	CURB & GUTTER-TYPE I	LF	170	106	276
748	0520	CURB-TYPE I	LF	148		148
750	0115	SIDEWALK CONCRETE 4IN	SY	6,481		6,481
750	1000	DRIVEWAY CONCRETE	SY	91		91
750	2115	DETECTABLE WARNING PANELS	SF	310		310
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	53.4		53.4
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	83.0		83.0
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	331		331
754	0592	RESET SIGN PANEL	EA	8		8
762	1106	PVMT MK PAINTED 6IN LINE	LF	687		687
762	1124	PVMT MK PAINTED 24IN LINE	LF	195		195

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QUANTITIES

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BASIS OF ESTIMATE

EARTHWORK

EXISTING TOPSOIL DEPTH WAS ASSUMED TO BE 4 INCHES

35% WAS USED IN THE CALCULATIONS FOR SHRINKAGE OF COMMON EXCAVATION TO BE USED AS FILL

FILL VOLUME = 1,631 CY (cv = COMPACTED VOLUME)

CUT VOLUME = 1,260 CY (ev = IN-PLACE VOLUME)

UNCOMPACTED FILL REQUIRED = 1,631 CY (cv) * 1.35 = 2,202 CY

BORROW EXCAVATION = 2,202 CY - 1,260 CY (ev) = 942 CY

WATER

10 GALLONS PER CUBIC YARD FOR COMMON EXCAVATION/BORROW

20 GALLONS PER TON FOR AGGREGATE BASE COURSE

50 "M" GALLONS FOR DUST CONTROL

SEEDING AND MULCHING

AREAS TO RECEIVE CLASS III SEEDING AND HYDRAULIC MULCH SHALL BE ALL DISTURBED AREAS ALONG THE PROPOSED TRAIL

AGGREGATE BASE COURSE

1.875 TON PER CUBIC YARD OF CL. 5 AGGREGATE BASE COURSE

COMMERCIAL GRADE HOT MIX ASPHALT

2.0 TON PER CUBIC YARD OF HOT MIX ASPHALT

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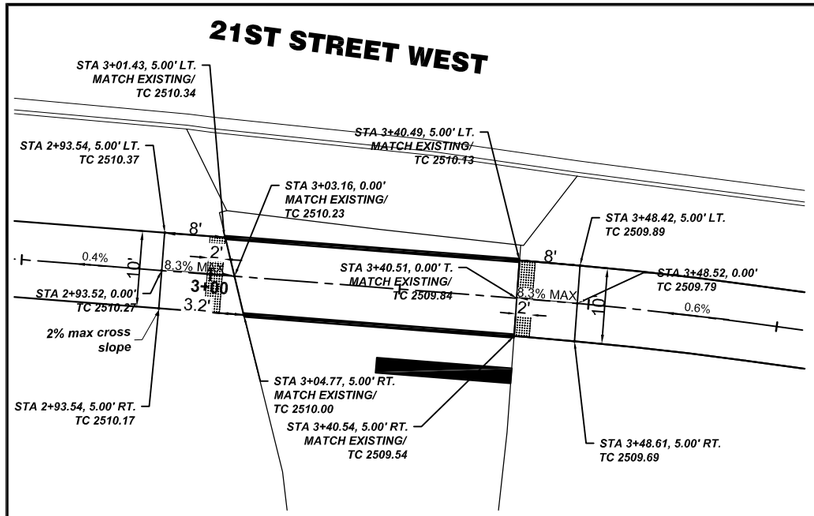
BASIS OF ESTIMATE

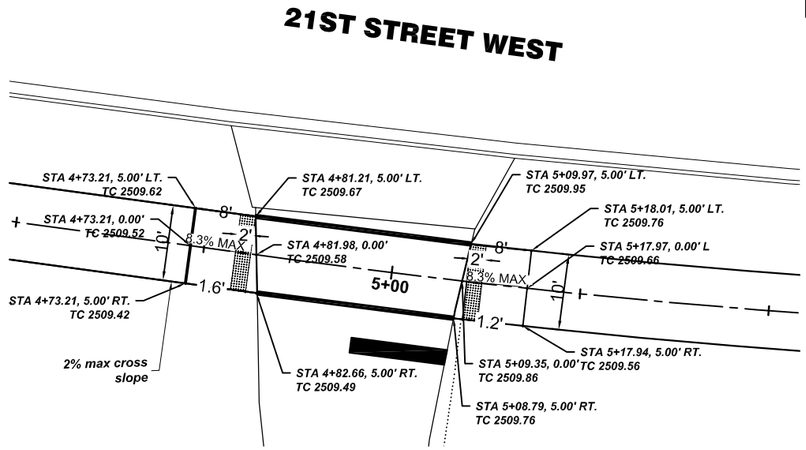
DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

Aug 25, 2017 - 4:33pm - \\dksn-files01\P\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)BasisOfEstimate.dwg (BASIS OF ESTIMATE)

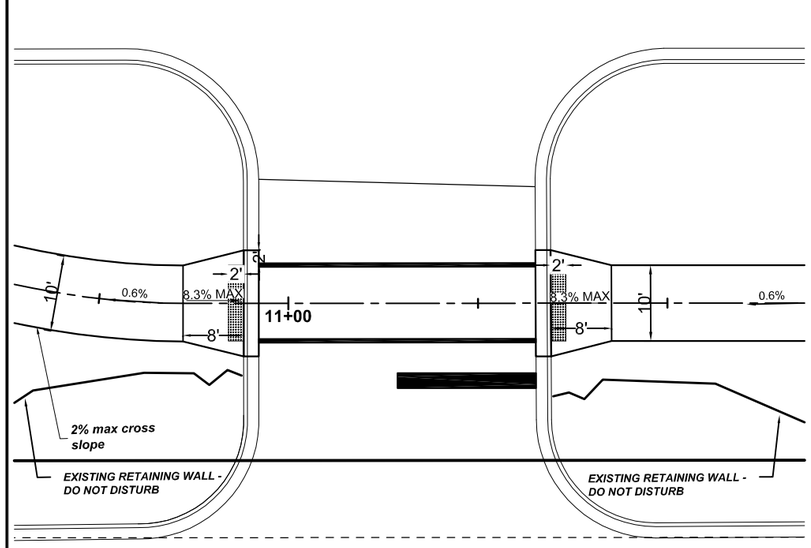
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	20	1



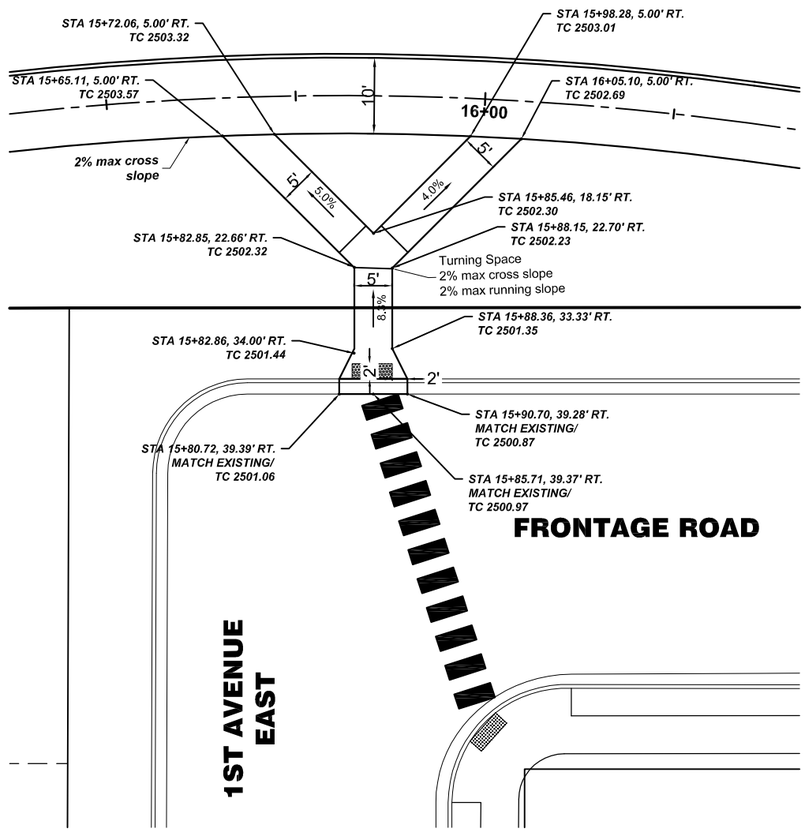
ACCESSIBLE RAMPS AT DAKOTA MOTORS



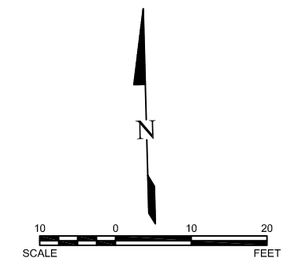
ACCESSIBLE RAMPS AT NDDOT



ACCESSIBLE RAMPS AT SAX MOTORS



ACCESSIBLE RAMP TO PLAYERS SPORTS BAR & GRILL



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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
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DETAILS

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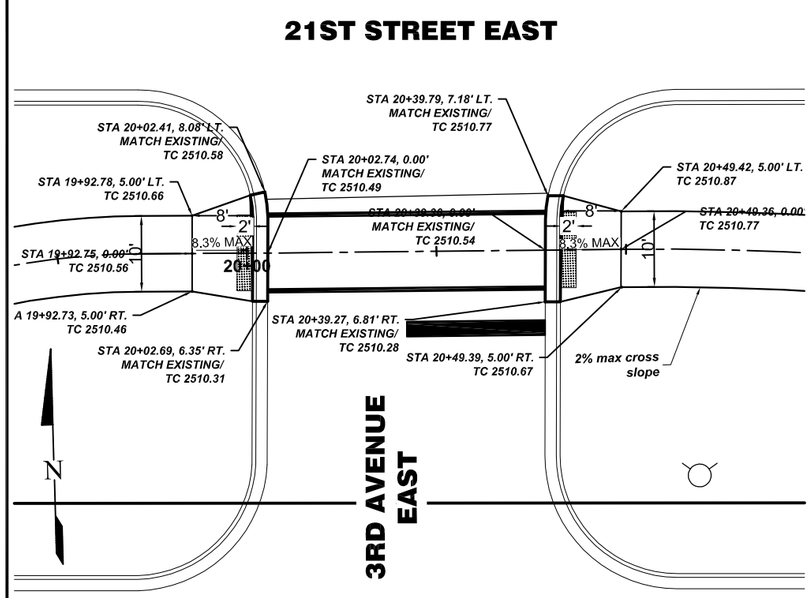
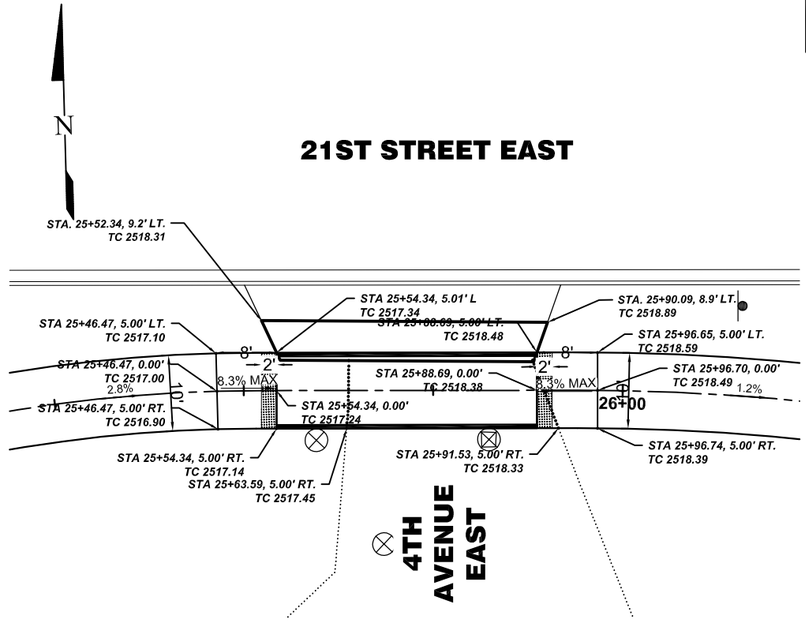
SR	AK	201606

Aug 30, 2017 - 2:29pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Details.dwg (DTLS (1))

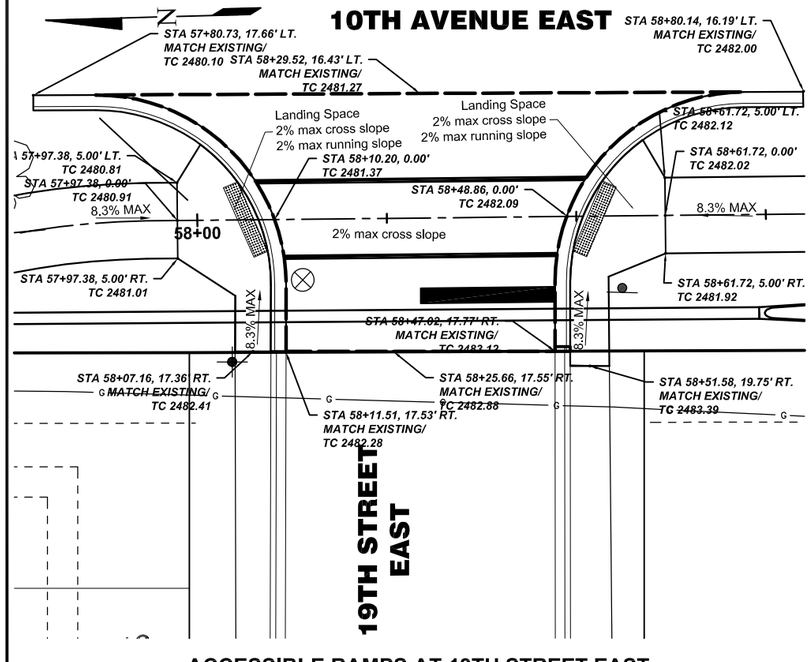
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	20	2



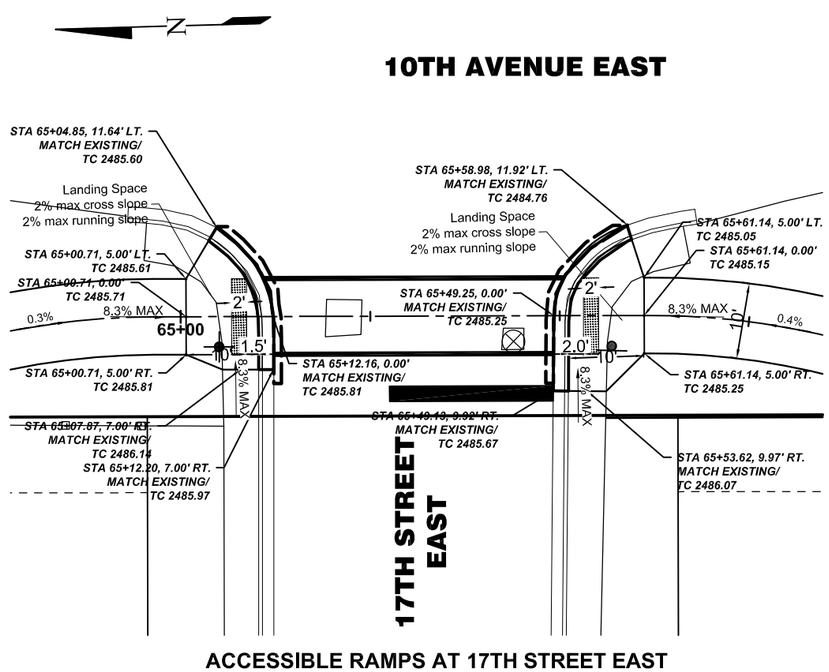
ACCESSIBLE RAMPS AT PLAYERS SPORTS BAR & GRILL



ACCESSIBLE RAMPS AT JUST-IN GLASS



ACCESSIBLE RAMPS AT 19TH STREET EAST



ACCESSIBLE RAMPS AT 17TH STREET EAST

10 0 10 20
SCALE FEET

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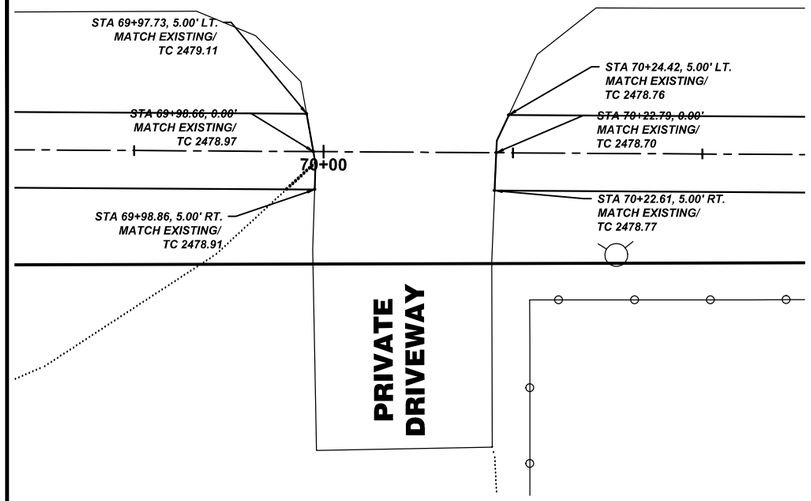
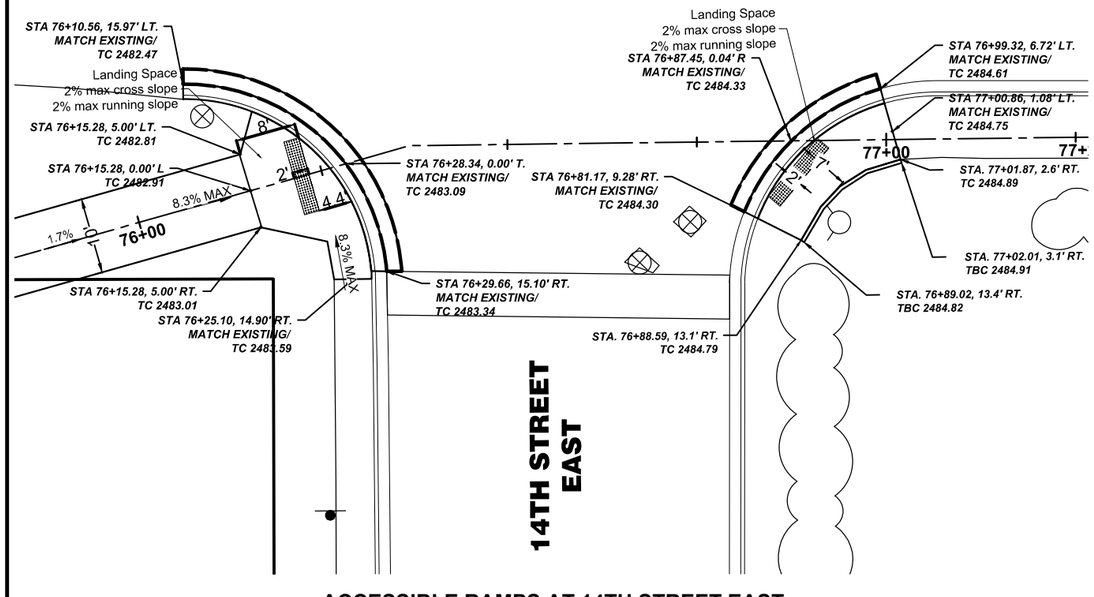
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	20	3

10TH AVENUE EAST

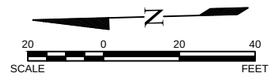


MATCHING EXISTING PRIVATE DRIVEWAY

10TH AVENUE EAST



ACCESSIBLE RAMPS AT 14TH STREET EAST



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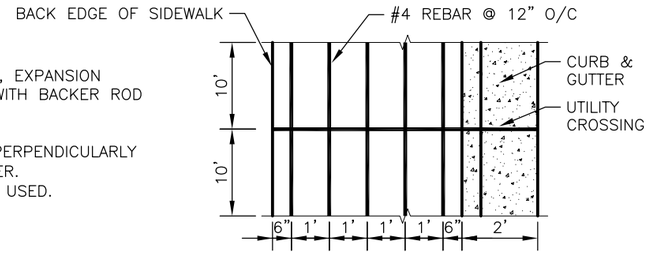
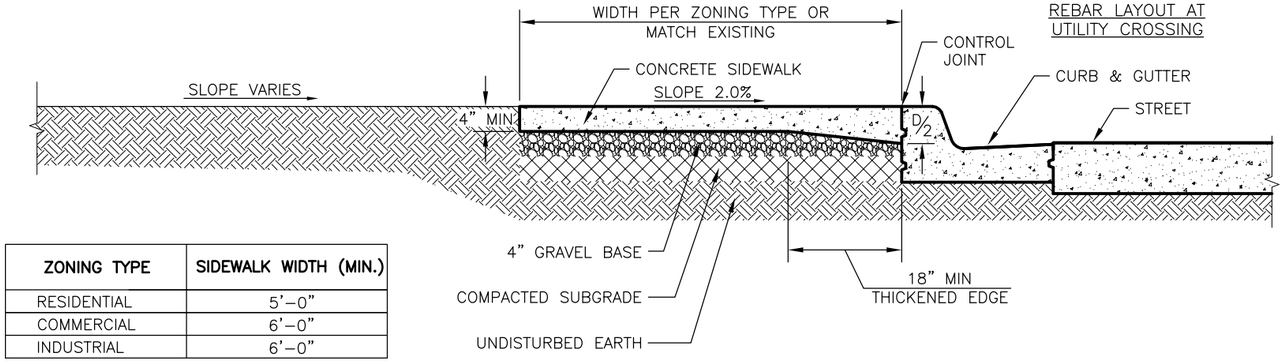
Aug 29, 2017 - 3:48pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Details.dwg (DTLS (3))

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	20	4

NOTES:
1. CONSTRUCTION JOINTS SPACED 5' MINIMUM AND 8' MAXIMUM.
2. SIDEWALK WIDTH 5' OR LESS – JOINT SPACING 5'
   SIDEWALK WIDTH MORE THAN 5' – JOINT SPACING 6'–8'.
3. EXPANSION JOINTS EVERY 60 LF (MAXIMUM), EXPANSION JOINTS AT EVERY PROPERTY LINE, EXPANSION JOINTS AT DRIVEWAYS, EXPANSION JOINTS AT ALL CURB RETURNS ON RADII AND SEALED WITH BACKER ROD AND SEALANT AS SHOWN IN THE EXPANSION JOINT SEAL PLAN DETAIL.
4. CONTROL JOINTS SHALL BE SAWED TO ¼ CONCRETE DEPTH (MINIMUM)
5. WHERE UNDERGROUND UTILITIES CROSS, A MINIMUM OF (4) #4 BARS SHALL BE PLACED PERPENDICULARLY AND EXTENDING 10.0' IN EACH DIRECTION TO FORM THE TRENCH WIDTH AT 12" ON CENTER.
6. DOWEL SHALL BE INSTALLED INTO CURB & GUTTER @ 24" ON CENTER IF KEYWAY IS NOT USED.

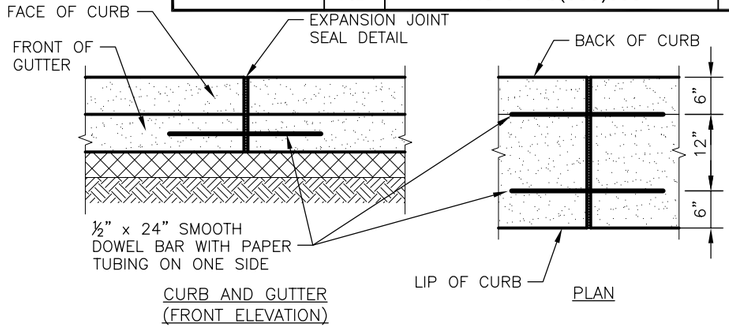


REBAR LAYOUT AT UTILITY CROSSING



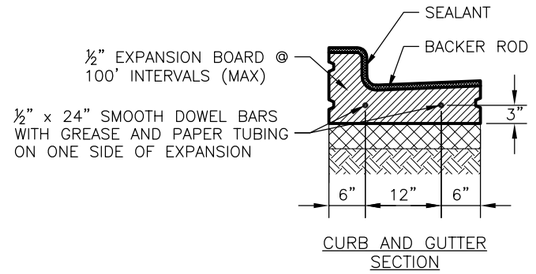
ZONING TYPE	SIDEWALK WIDTH (MIN.)
RESIDENTIAL	5'–0"
COMMERCIAL	6'–0"
INDUSTRIAL	6'–0"

CURB SIDE SIDEWALK
NO SCALE



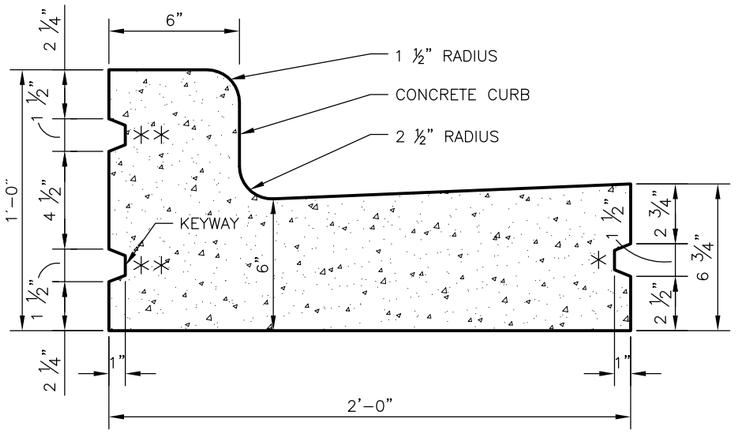
CURB AND GUTTER (FRONT ELEVATION)

PLAN



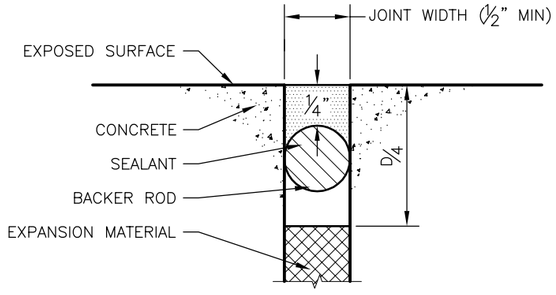
CURB AND GUTTER SECTION

EXPANSION JOINT - CURB & GUTTER SEALING
NO SCALE



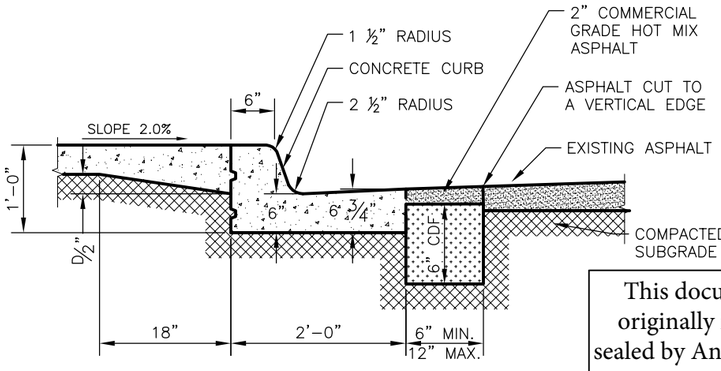
* KEYWAY USED FOR CONCRETE PAVEMENT ONLY
** KEYWAY USED WHEN SIDEWALK IS ADJACENT TO CURB

CURB & GUTTER - STANDARD
NO SCALE



NOTE: JOINT SEALING SHALL BE INCIDENTAL TO THE COST OF CONCRETE.

EXPANSION JOINT - SEAL PLAN
NO SCALE



NOTES:
1. EXISTING PAVEMENT TO BE CUT TO A NEAT VERTICAL EDGE WITH COSTS INCIDENTAL TO THE REMOVAL OF CURB AND GUTTER.
2. THE REMOVAL OF THE EXISTING ASPHALT SHALL BE INCIDENTAL TO THE REMOVAL OF CURB AND GUTTER.
3. THE CDF PATCH SHALL BE CAST IN–PLACE TO A DEPTH OF 2" BELOW THE TOP OF THE EXISTING ASPHALT AND THE NEW CURB AND GUTTER WITH COSTS INCIDENTAL TO THE INSTALLATION OF THE NEW CURB AND GUTTER.

CDF PATCH ALONG CURB & GUTTER - NO OVERLAY
NO SCALE

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DETAILS

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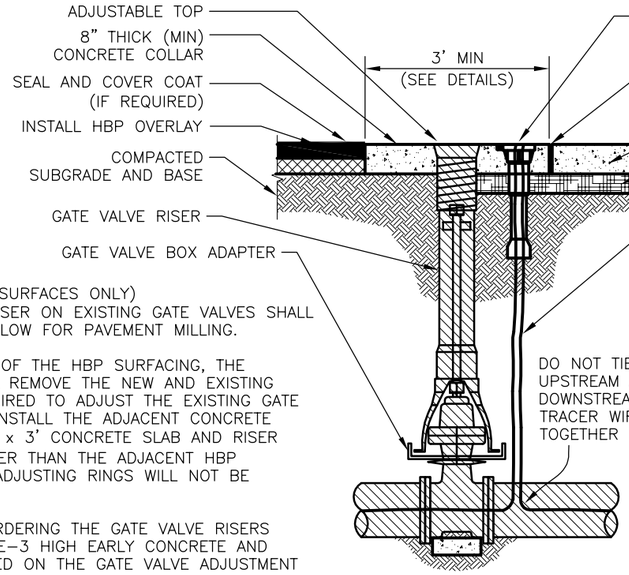
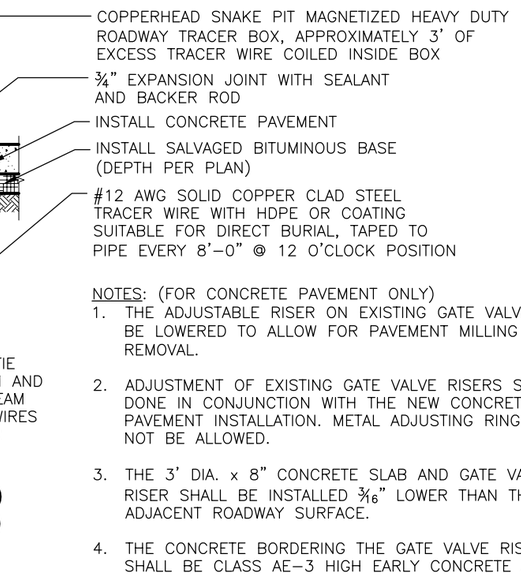
	ND	TAU-5-983(058)058	20	5

GENERAL NOTE:
TRACER BOX AND TRACER WIRE FOR NEW CONSTRUCTION ONLY.

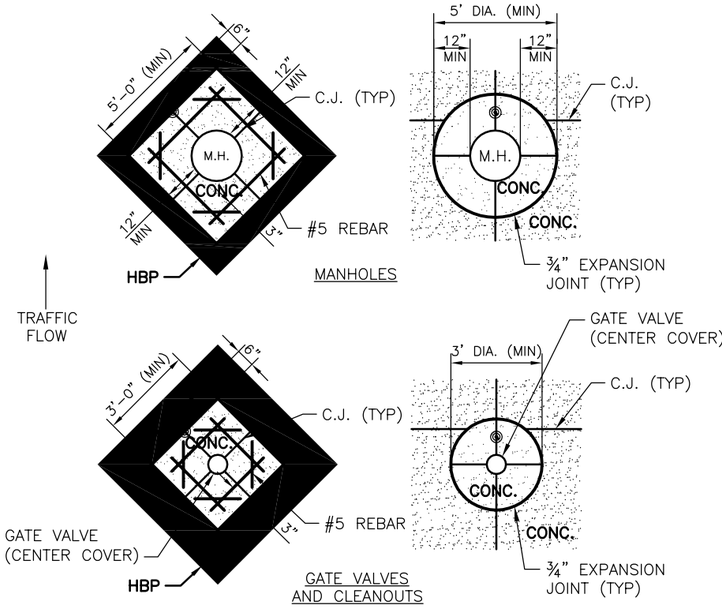




NOTES: (FOR ASPHALT SURFACES ONLY)
1. THE ADJUSTABLE RISER ON EXISTING GATE VALVES SHALL BE LOWERED TO ALLOW FOR PAVEMENT MILLING.
2. UPON COMPLETION OF THE HBP SURFACING, THE CONTRACTOR SHALL REMOVE THE NEW AND EXISTING PAVEMENT AS REQUIRED TO ADJUST THE EXISTING GATE VALVE RISER AND INSTALL THE ADJACENT CONCRETE SLAB. THE 8" x 3' x 3' CONCRETE SLAB AND RISER SHALL BE 3/16" LOWER THAN THE ADJACENT HBP SURFACE. METAL ADJUSTING RINGS WILL NOT BE ALLOWED.
3. THE CONCRETE BORDERING THE GATE VALVE RISERS SHALL BE CLASS AE–3 HIGH EARLY CONCRETE AND JOINTED AS DETAILED ON THE GATE VALVE ADJUSTMENT PLAN DETAIL.
4. THE CONCRETE BORDERING THE GATE VALVE SHALL BE CUT DIAMOND SHAPED WITH THE DIRECTION OF TRAFFIC FLOW.

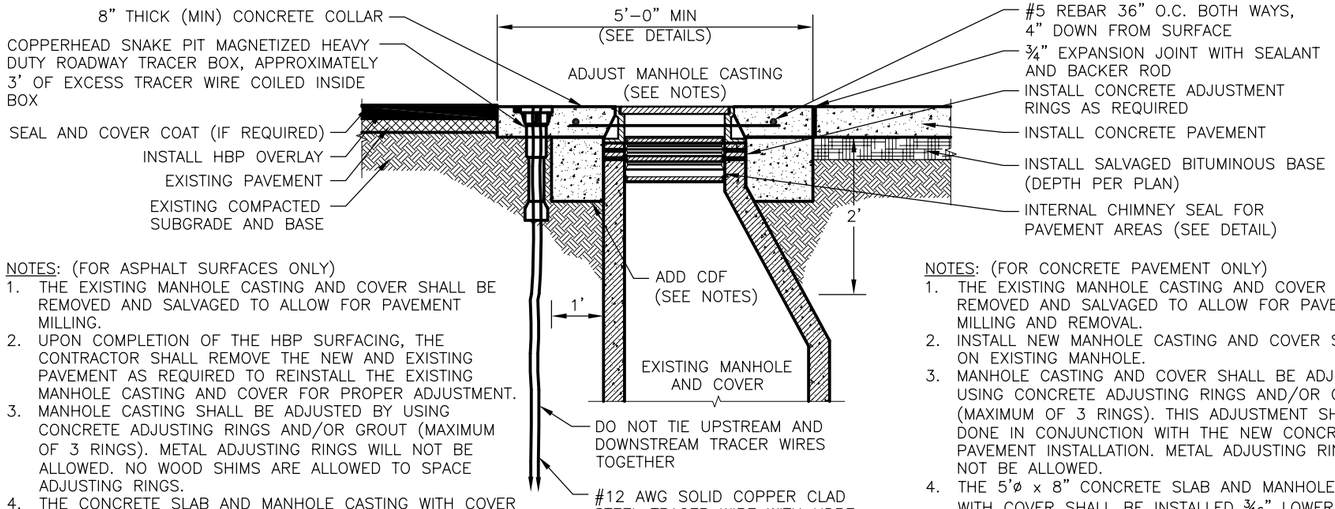
NOTES: (FOR CONCRETE PAVEMENT ONLY)
1. THE ADJUSTABLE RISER ON EXISTING GATE VALVES SHALL BE LOWERED TO ALLOW FOR PAVEMENT MILLING AND/OR REMOVAL.
2. ADJUSTMENT OF EXISTING GATE VALVE RISERS SHALL BE DONE IN CONJUNCTION WITH THE NEW CONCRETE PAVEMENT INSTALLATION. METAL ADJUSTING RINGS WILL NOT BE ALLOWED.
3. THE 3' DIA. x 8" CONCRETE SLAB AND GATE VALVE RISER SHALL BE INSTALLED 3/16" LOWER THAN THE ADJACENT ROADWAY SURFACE.
4. THE CONCRETE BORDERING THE GATE VALVE RISERS SHALL BE CLASS AE–3 HIGH EARLY CONCRETE AND JOINTED AS DETAILED ON THE GATE VALVE ADJUSTMENT PLAN DETAIL.

GATE VALVE ADJUSTMENT PLAN
NO SCALE



NOTE: SAWED OR TOOLED JOINTS SHALL FOLLOW THE DIRECTION OF TRAFFIC FLOW (CIRCULAR COLLARS IN CONCRETE) AND BE PERPENDICULAR TO THE EDGE OF CONCRETE (SQUARE COLLARS IN HBP).

MANHOLE AND GATE VALVE ADJUSTMENT PLAN
NO SCALE



NOTES: (FOR ASPHALT SURFACES ONLY)
1. THE EXISTING MANHOLE CASTING AND COVER SHALL BE REMOVED AND SALVAGED TO ALLOW FOR PAVEMENT MILLING.
2. UPON COMPLETION OF THE HBP SURFACING, THE CONTRACTOR SHALL REMOVE THE NEW AND EXISTING PAVEMENT AS REQUIRED TO REINSTALL THE EXISTING MANHOLE CASTING AND COVER FOR PROPER ADJUSTMENT.
3. MANHOLE CASTING SHALL BE ADJUSTED BY USING CONCRETE ADJUSTING RINGS AND/OR GROUT (MAXIMUM OF 3 RINGS). METAL ADJUSTING RINGS WILL NOT BE ALLOWED. NO WOOD SHIMS ARE ALLOWED TO SPACE ADJUSTING RINGS.
4. THE CONCRETE SLAB AND MANHOLE CASTING WITH COVER SHALL BE INSTALLED 3/16" LOWER THAN THE ADJACENT HBP SURFACE.
5. THE CONCRETE BORDERING THE MANHOLE CASTING SHALL BE CLASS AE–3 HIGH EARLY CONCRETE AND JOINTED AS DETAILED ON THE MANHOLE ADJUSTMENT PLAN DETAIL.
6. THE CONCRETE BORDERING THE MANHOLE SHALL BE CUT DIAMOND SHAPED WITH THE DIRECTION OF TRAFFIC FLOW.
7. NO WOOD SHIMS ALLOWED.
8. EXPOSE TOP 4" OF MANHOLE CONE AND FILL TO BOTTOM OF COLLAR WITH CDF.

GENERAL NOTE:
TRACER BOX AND TRACER WIRE FOR NEW CONSTRUCTION ONLY.

NOTES: (FOR CONCRETE PAVEMENT ONLY)
1. THE EXISTING MANHOLE CASTING AND COVER SHALL BE REMOVED AND SALVAGED TO ALLOW FOR PAVEMENT MILLING AND REMOVAL.
2. INSTALL NEW MANHOLE CASTING AND COVER SPECIFIED ON EXISTING MANHOLE.
3. MANHOLE CASTING AND COVER SHALL BE ADJUSTED BY USING CONCRETE ADJUSTING RINGS AND/OR GROUT (MAXIMUM OF 3 RINGS). THIS ADJUSTMENT SHALL BE DONE IN CONJUNCTION WITH THE NEW CONCRETE PAVEMENT INSTALLATION. METAL ADJUSTING RINGS WILL NOT BE ALLOWED.
4. THE 5'ø x 8" CONCRETE SLAB AND MANHOLE CASTING WITH COVER SHALL BE INSTALLED 3/16" LOWER THAN THE ADJACENT ROADWAY SURFACE.
5. THE CONCRETE BORDERING THE MANHOLE CASTING SHALL BE CLASS AE–3 HIGH EARLY CONCRETE AND JOINTED AS DETAILED ON THE MANHOLE ADJUSTMENT PLAN DETAIL.
6. NO WOOD SHIMS ALLOWED.
7. EXPOSE TOP 4" OF MANHOLE CONE AND FILL TO BOTTOM OF COLLAR WITH CDF.

MANHOLE ADJUSTMENT
NO SCALE

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CITY OF DICKINSON
DICKINSON, ND

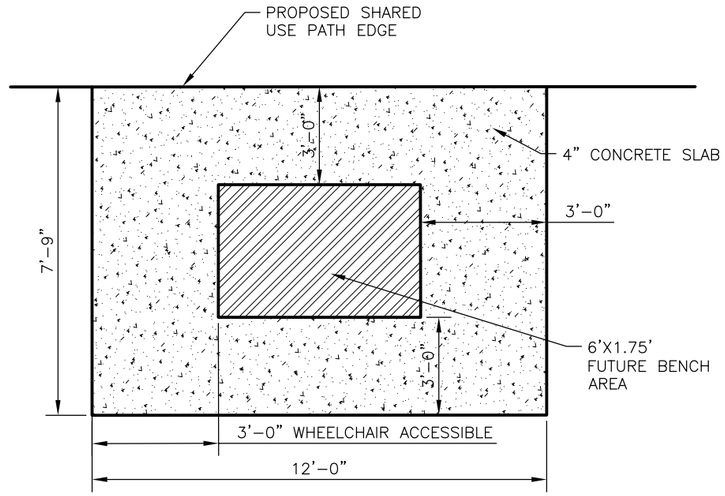
KLJ

DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

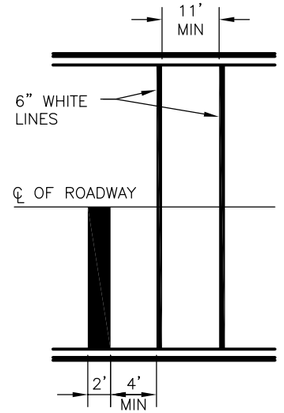
Aug 25, 2017 - 1:01pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Details.dwg (DTLS (5))

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	20	6



PARK BENCH CONCRETE PAD

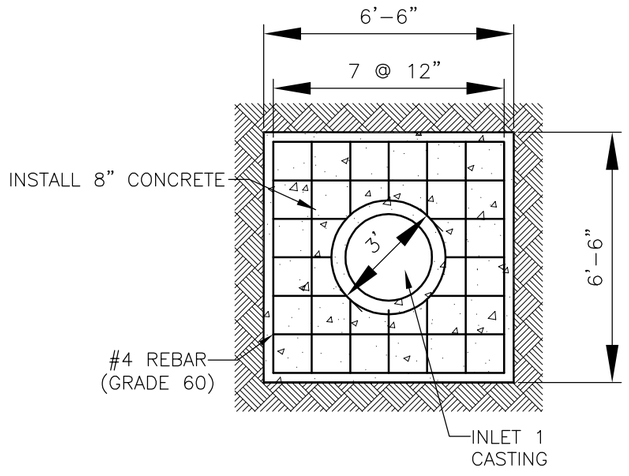
NO SCALE

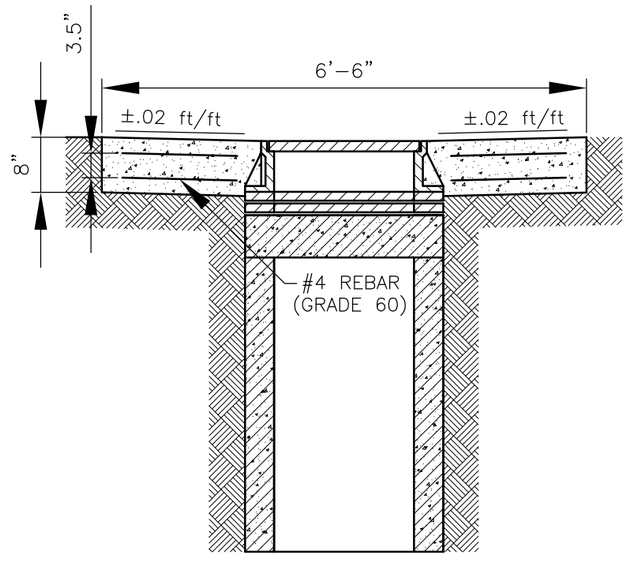


DETAIL "A"

CROSSWALK PAVEMENT MARKING LAYOUT

NO SCALE





NOTE: 3" MINIMUM CLEARANCE BETWEEN THE CASTING AND REBAR.

MANHOLE - CONCRETE APRON

NO SCALE

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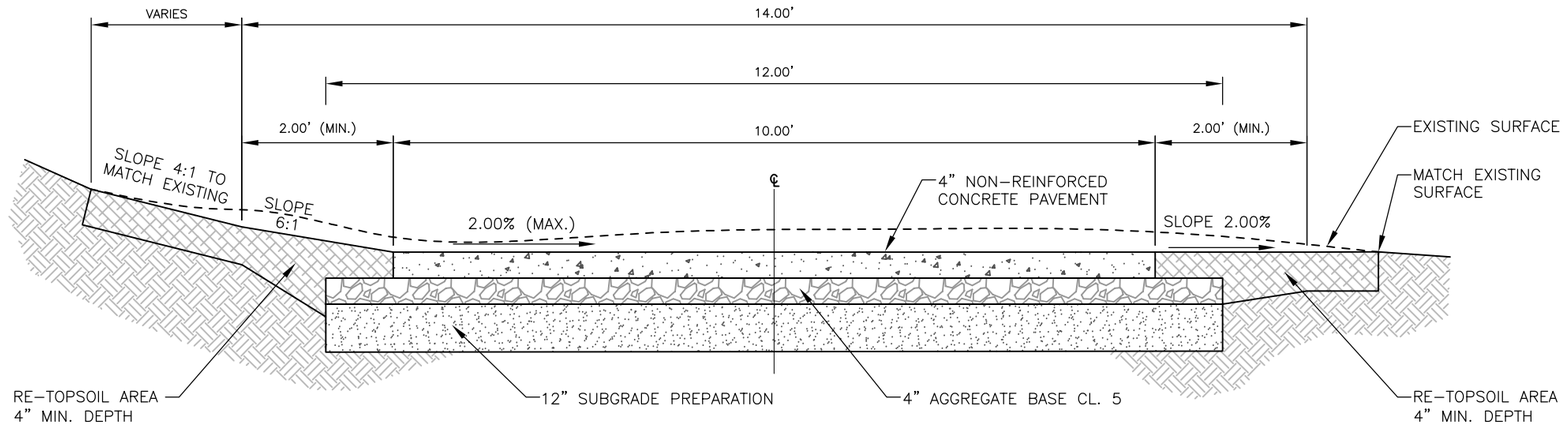
DICKINSON, ND

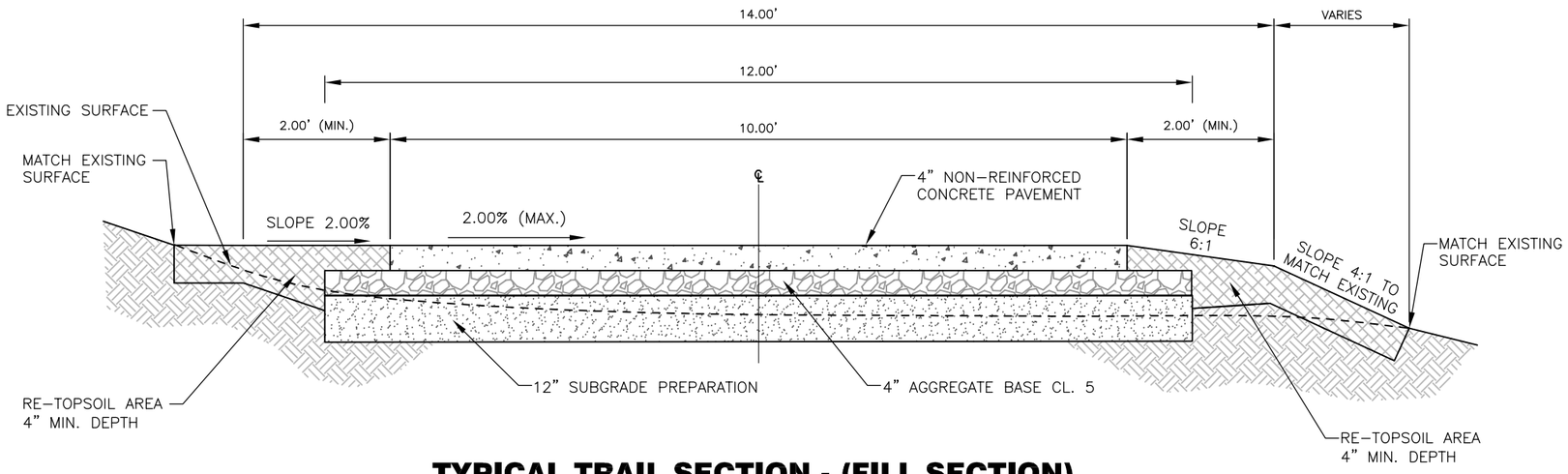
DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	30	1



TYPICAL TRAIL SECTION - (CUT SECTION) SLOPING RIGHT



TYPICAL TRAIL SECTION - (FILL SECTION) SLOPING RIGHT

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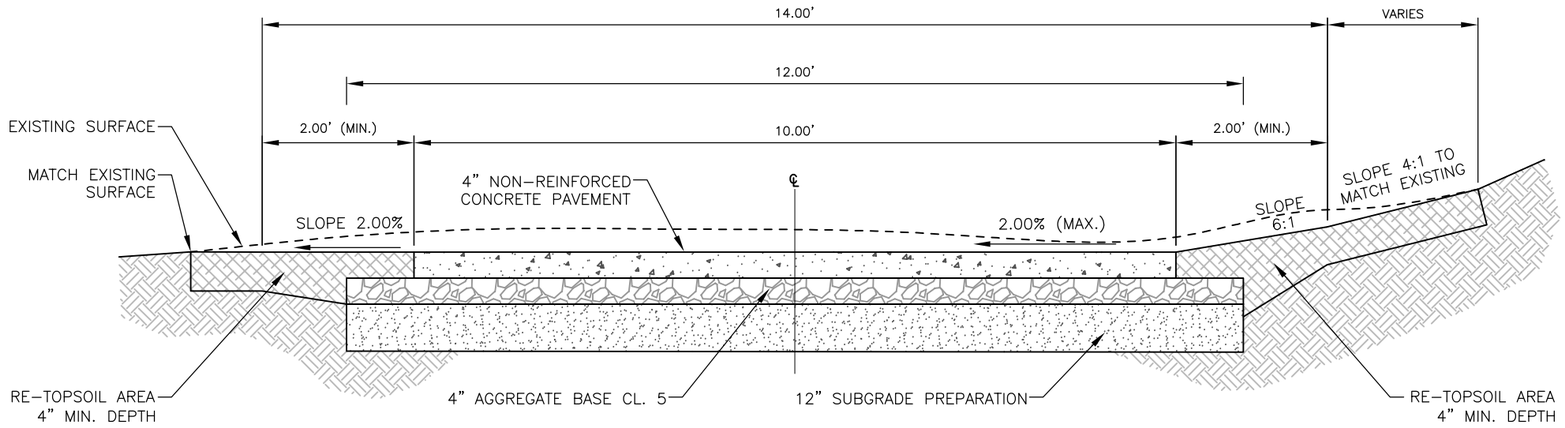
TYPICAL SECTIONS

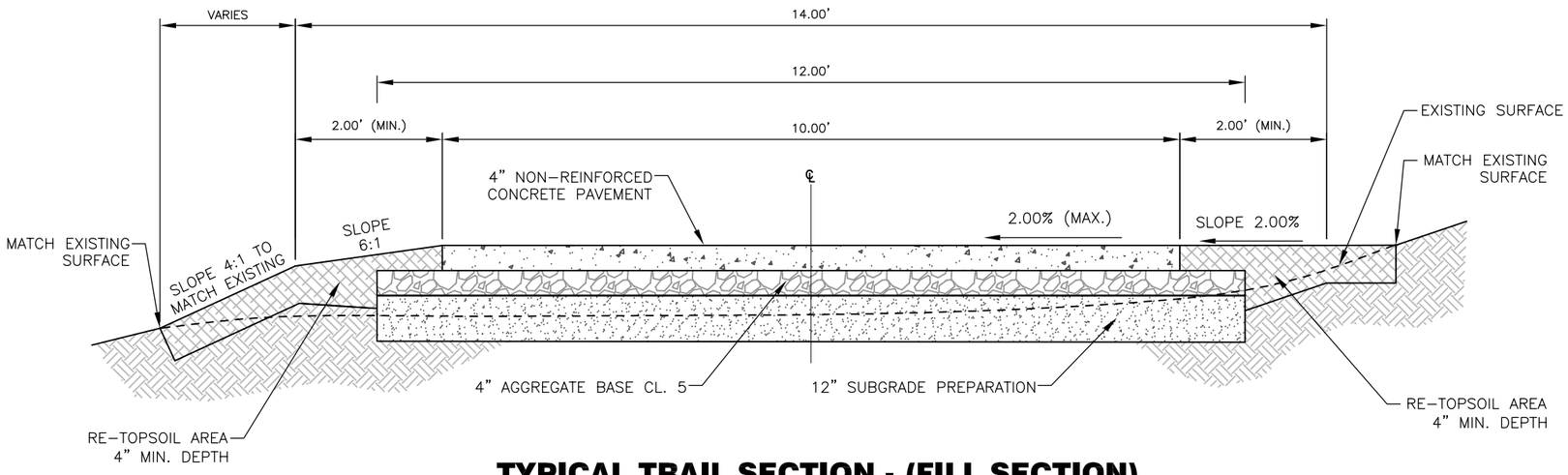
DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

Aug 25, 2017 - 1:03pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)TypicalSections.dwg (TYP(1))

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	30	2



TYPICAL TRAIL SECTION - (CUT SECTION) SLOPING LEFT



TYPICAL TRAIL SECTION - (FILL SECTION) SLOPING LEFT

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CITY OF DICKINSON
DICKINSON, ND

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TYPICAL SECTIONS

DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

Aug 25, 2017 - 1:04pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)TypicalSections.dwg (TYP(2))

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	50	1

Inlet No	1
Type	Inlet - Catch Basin - Type A
Grate Style	C
Sta	56+48 - 7.5' RT
Grate Elev	2475.33
Base Elev	2472.52
S. Invert Elev	2472.83
N. Invert Elev	2472.73
H Dist	1.89'

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INLET SUMMARY

DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	51	1

Begin Station / Location	Begin Offset	End Station / Location	End Offset	Pipe Installation (Pay Item)			Allowable Material	Required Diameter	Steel Pipe Coatings	Steel Pipe Corrugations or Spiral Ribs	Steel Pipe Minimum Thickness	R1 Fabric (Pay Item)	(*) End Sections		Applicable Backfill
													Begin	End	
				In	Bid Item	LF		In	Type		In	SY	EA	EA	
50+45	9.5' Rt	50+45	10.5' Lt	18	Pipe Conduit	20'	Reinforced Concrete Pipe - Class III **(barrel length = 12 LF)**	18					FES	FES	Standard D-714-27
							Corrugated Steel Pipe	18	P	2	0.064				
52+00	9.0' Rt	52+00	11.0' Lt	18	Pipe Conduit	20'	Reinforced Concrete Pipe - Class III **(barrel length = 12 LF)**	18					FES	FES	Standard D-714-27
							Corrugated Steel Pipe	18	P	2	0.064				
56+12	8.5' Lt	56+48	9.5' Rt	18	Pipe Conduit	54'	Reinforced Concrete Pipe - Class III **(barrel length = 46 LF)**	18					FES		Standard D-714-27
							Corrugated Steel Pipe	18	P	2	0.064				
56+48	9.5' Rt	58+74	13' Rt	18	Pipe Conduit	208'	Reinforced Concrete Pipe - Class III **(barrel length = 200 LF)**	18						FES	Standard D-714-27
							Corrugated Steel Pipe	18	P	2	0.064				
72+74	9.5' Rt	72+74	14.5' Lt	18	Pipe Conduit	24'	Reinforced Concrete Pipe - Class III **(barrel length = 16 LF)**	18					FES	FES	Standard D-714-27
							Corrugated Steel Pipe	18	P	2	0.064				

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

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

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

(*) The price bid for "Pipe Conduit" bid items includes end sections. Pipe Extensions shall pay for end sections seperately.
FES = Flared End Section
TES = Traversable End Section

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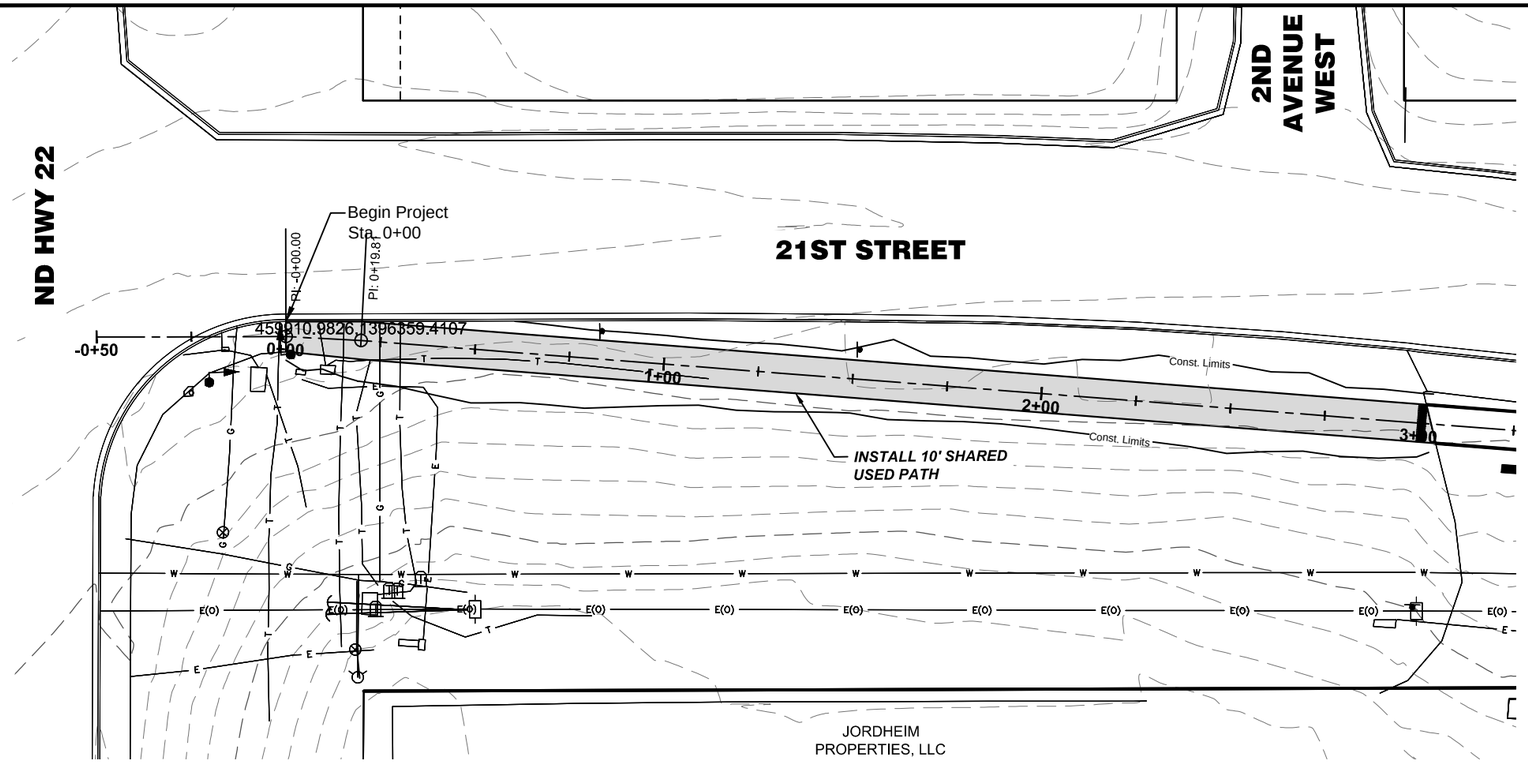
ALLOWABLE PIPE LIST

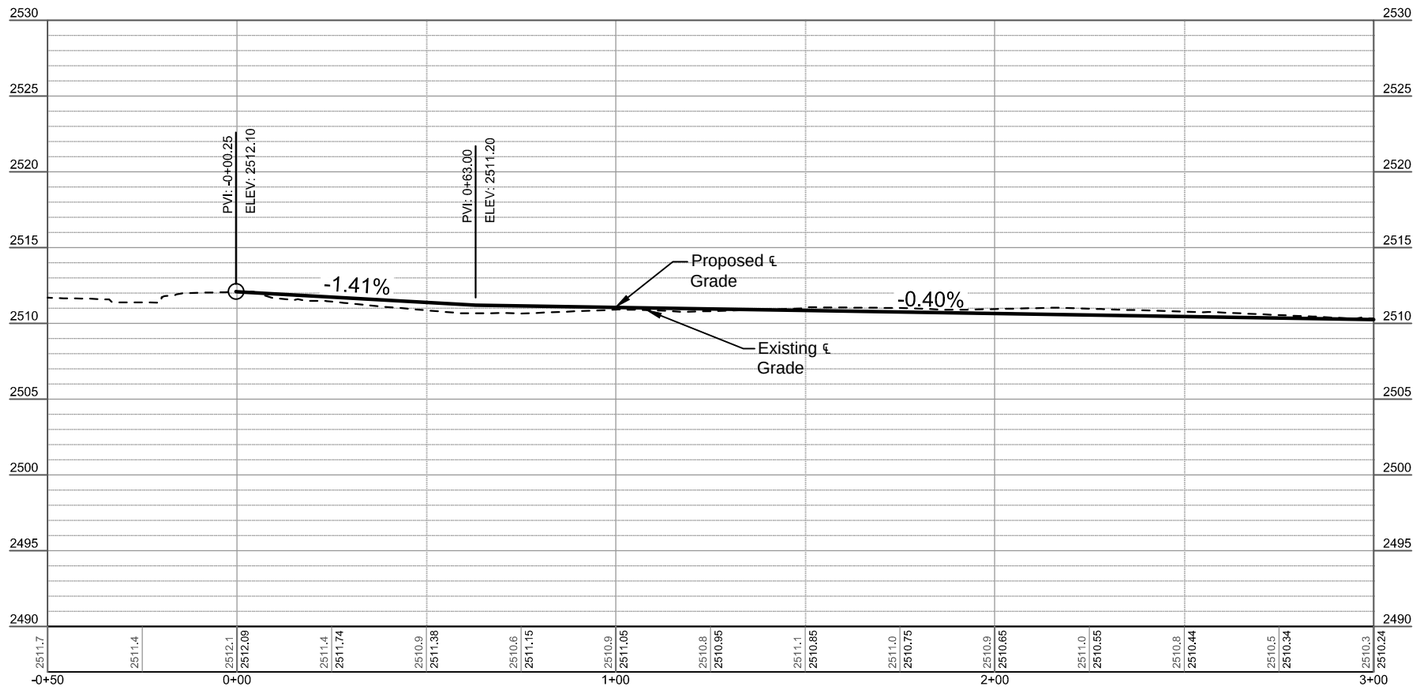
DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	1

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

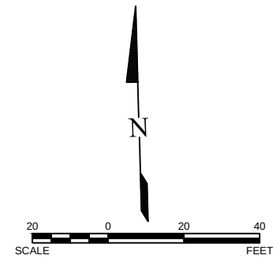




AGGREGATE BASE COURSE CL. 5
STA. 0+00 to 3+00 = 82 TON

SIDEWALK CONCRETE 4IN
STA. 0+00 to 3+00 = 331 S.Y.

DETECTABLE WARNING PANELS
STA. 3+00 = 20 S.F.



LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL

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PLAN & PROFILE
STA. -0+50 TO STA. 3+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

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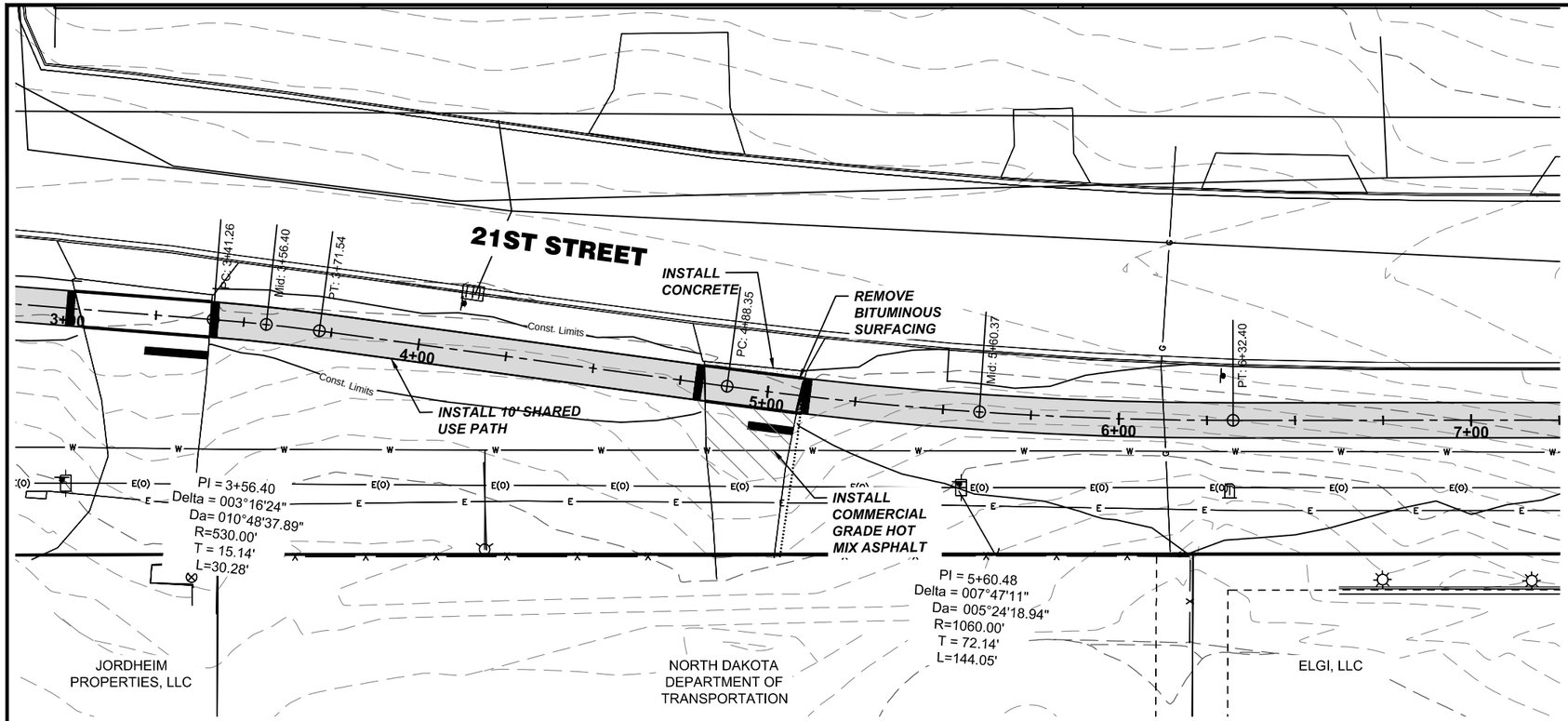

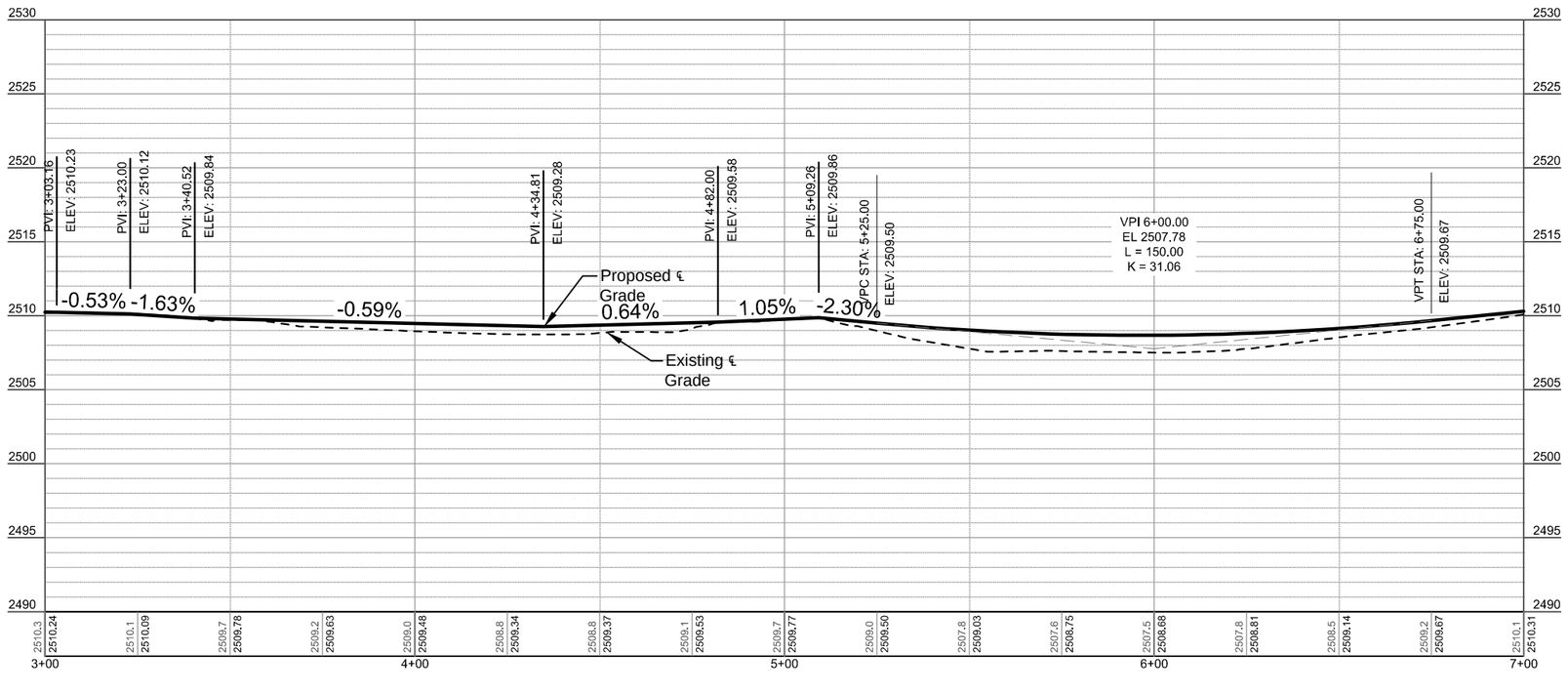

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	2

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

REMOVAL OF BITUMINOUS SURFACING
STA. 4+82 to 5+09 = 36 S.Y.

AGGREGATE BASE COURSE CL. 5
STA. 3+00 to 3+04 = 1 TON
STA. 3+40 to 7+00 = 101 TON

COMMERCIAL GRADE HOT MIX ASPHALT
STA. 4+82 to 5+09 (4") = 12 TON

SIDEWALK CONCRETE 4IN
STA. 3+00 to 3+04 = 3 S.Y.
STA. 3+40 to 4+82 = 157 S.Y.
STA. 5+09 to 7+00 = 212 S.Y.

DRIVEWAY CONCRETE
STA. 4+82 to 5+09 (8") = 36 S.Y.

DETECTABLE WARNING PANELS
STA. 3+00 = 20 S.F.
STA. 5+00 = 40 S.F.

N

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL

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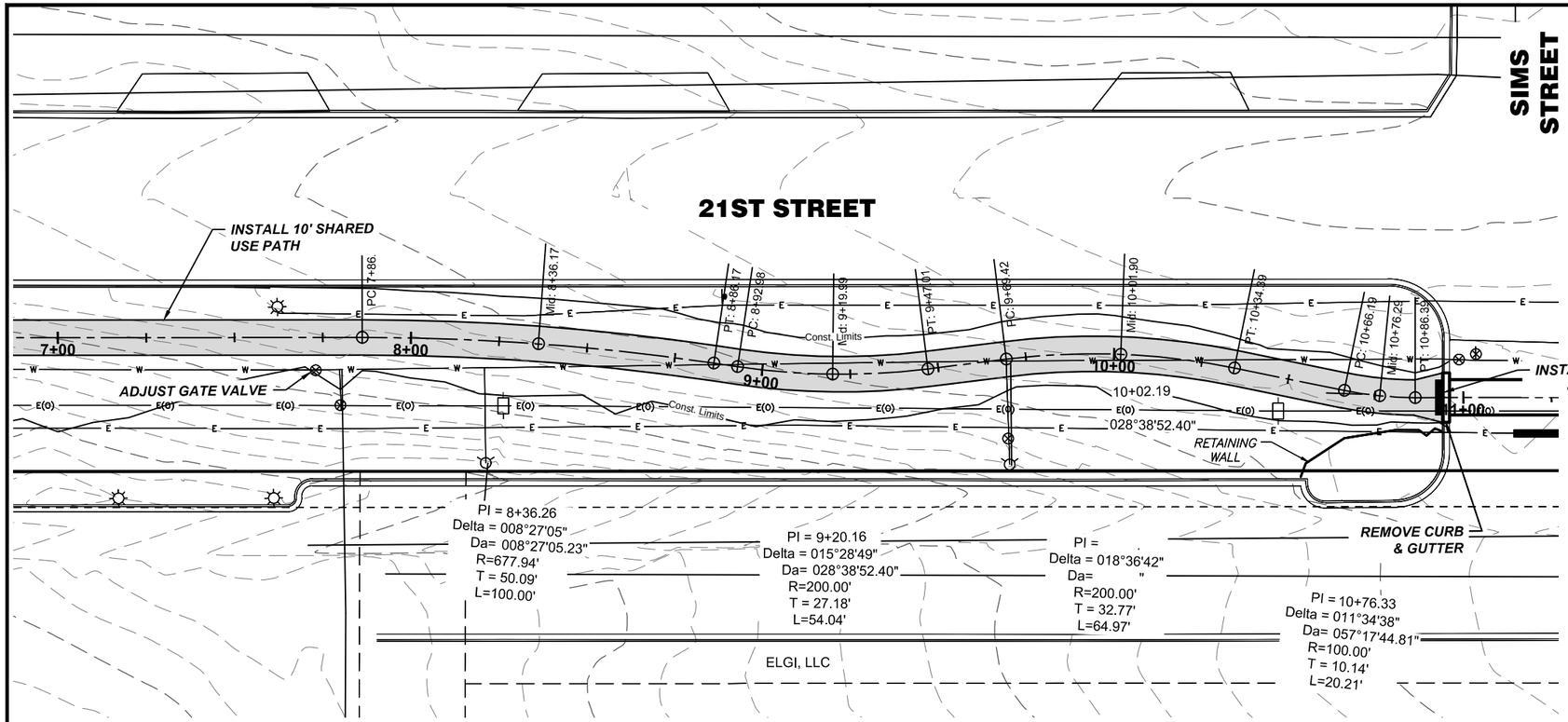
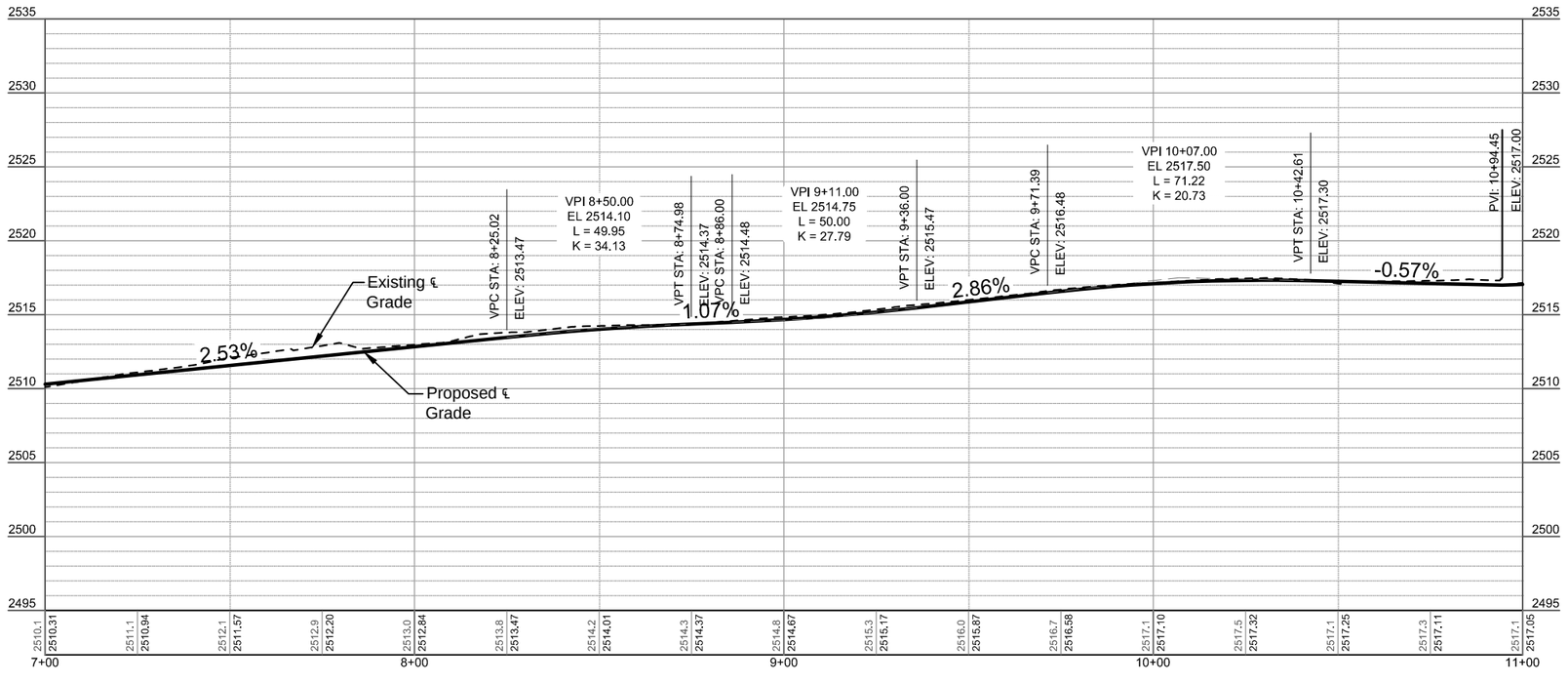
PLAN & PROFILE
STA. 3+00 TO STA. 7+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	3





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

REMOVAL OF CURB AND GUTTER
STA. 10+95 = 14 L.F.

AGGREGATE BASE COURSE CL. 5
STA. 7+00 to 10+94 = 110 TON

ADJUST GATE VALVE BOX
STA. 7+73, 9' RT = 1 EA.

CURB & GUTTER-TYPE I
STA. 10+95 = 14 L.F.

SIDEWALK CONCRETE 4IN
STA. 7+00 to 10+94 = 440 S.Y.

DETECTABLE WARNING PANELS
STA. 10+94 = 20 S.F.

N

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL

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PLAN & PROFILE
STA. 7+00 TO STA. 11+00

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JJK	AK	201606

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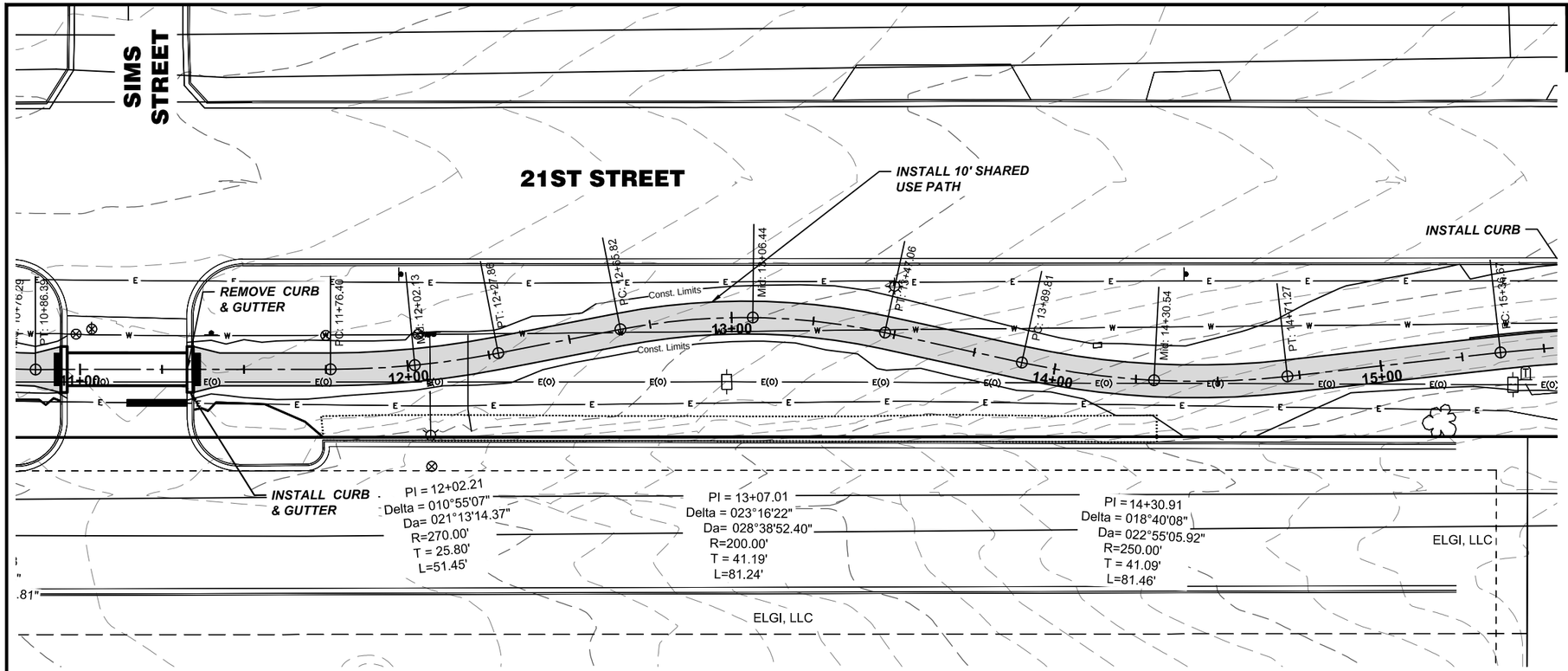
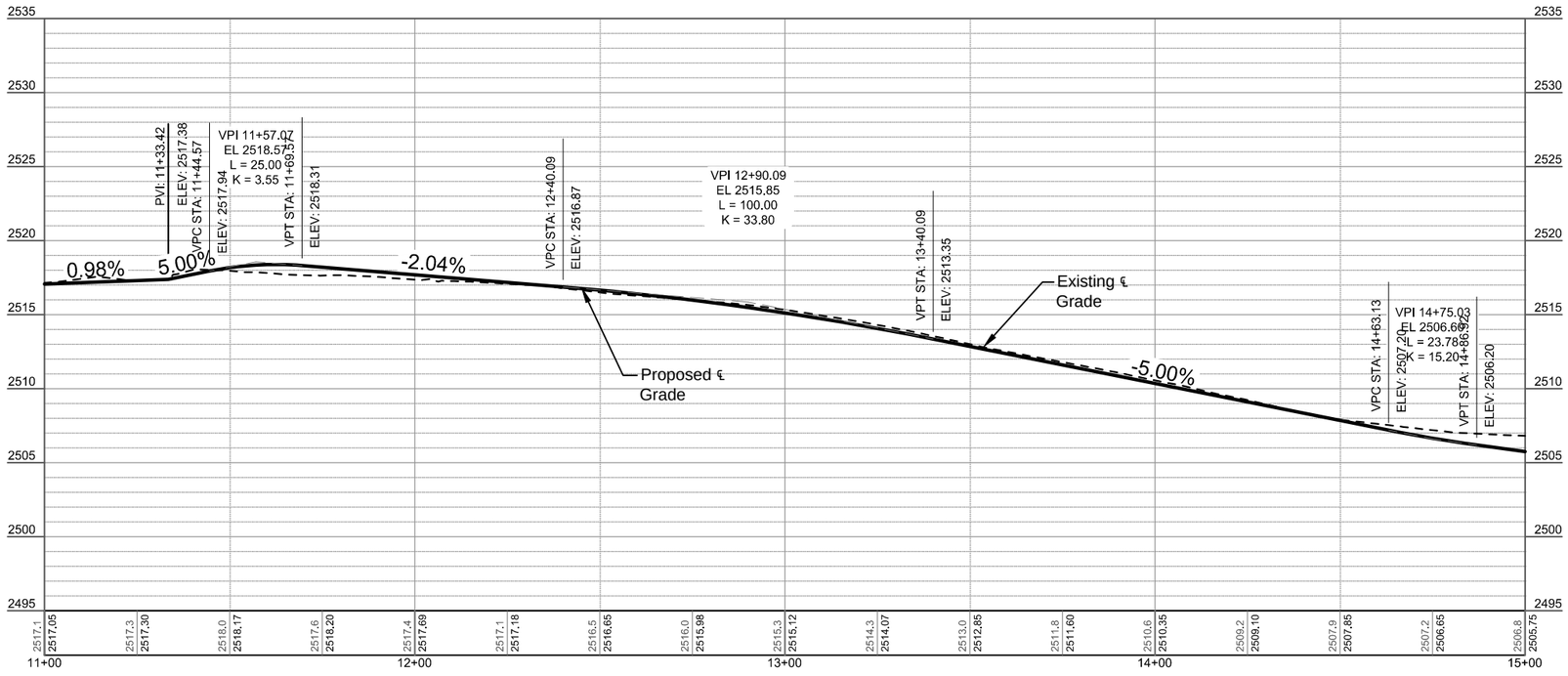
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	4

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*





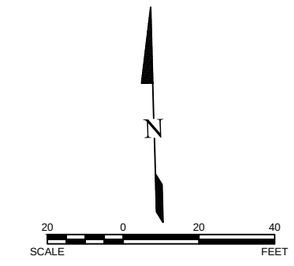
REMOVAL OF CURB AND GUTTER
STA. 11+33 = 14 L.F.

AGGREGATE BASE COURSE CL. 5
STA. 11+34 to 15+00 = 102 TON

CURB & GUTTER-TYPE I
STA. 11+33 = 14 L.F.

SIDEWALK CONCRETE 4IN
STA. 11+33 to 15+00 = 408 S.Y.

DETECTABLE WARNING PANELS
STA. 11+34 = 20 S.F.



LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL

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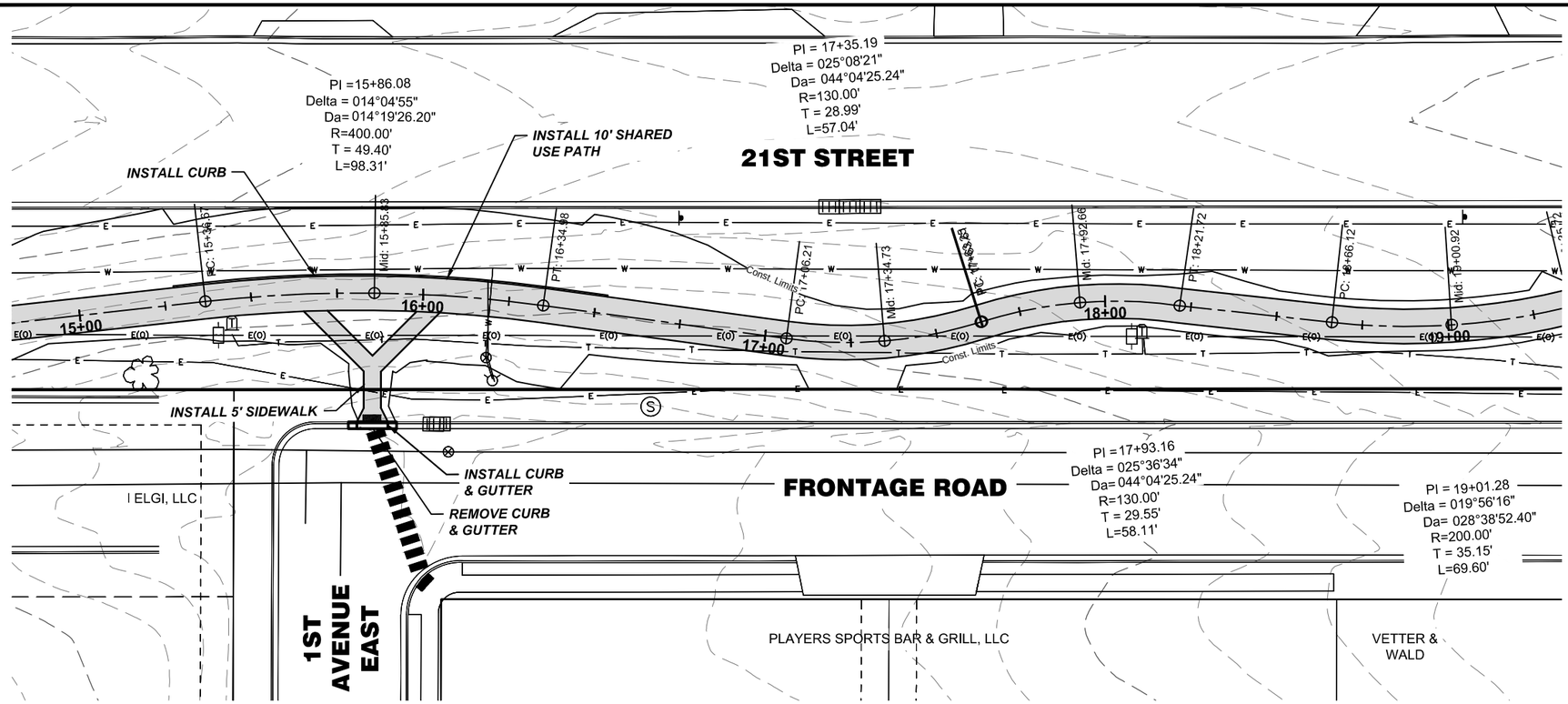
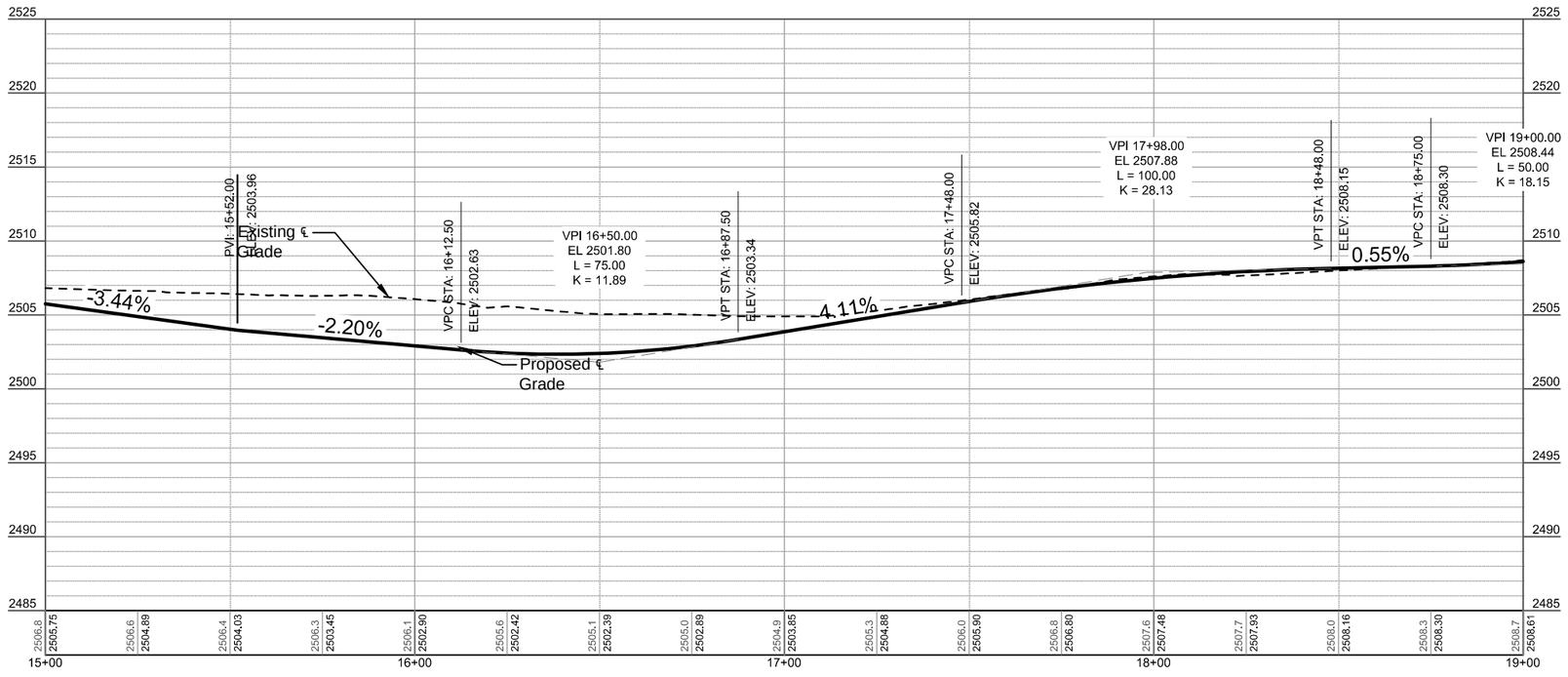
PLAN & PROFILE
STA. 11+00 TO STA. 15+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	5

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

REMOVAL OF CURB AND GUTTER
STA. 15+80 to 15+91, 37' RT = 9 L.F.

AGGREGATE BASE COURSE CL. 5
STA. 15+00 to 19+00 = 118 TON

CURB & GUTTER-TYPE I
STA. 15+80 to 15+91, 37' RT = 9 L.F.

CURB -TYPE I
STA 15+25 to 16+50, 5' LT = 125 L.F.

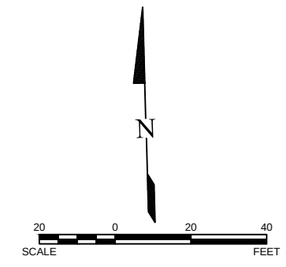
SIDEWALK CONCRETE 4IN
STA. 15+00 to 19+00 = 459 S.Y.

DETECTABLE WARNING PANELS
STA. 15+85, 36' RT = 10 S.F.

LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL



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PLAN & PROFILE
STA. 15+00 TO STA. 19+00

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JJK	AK	201606

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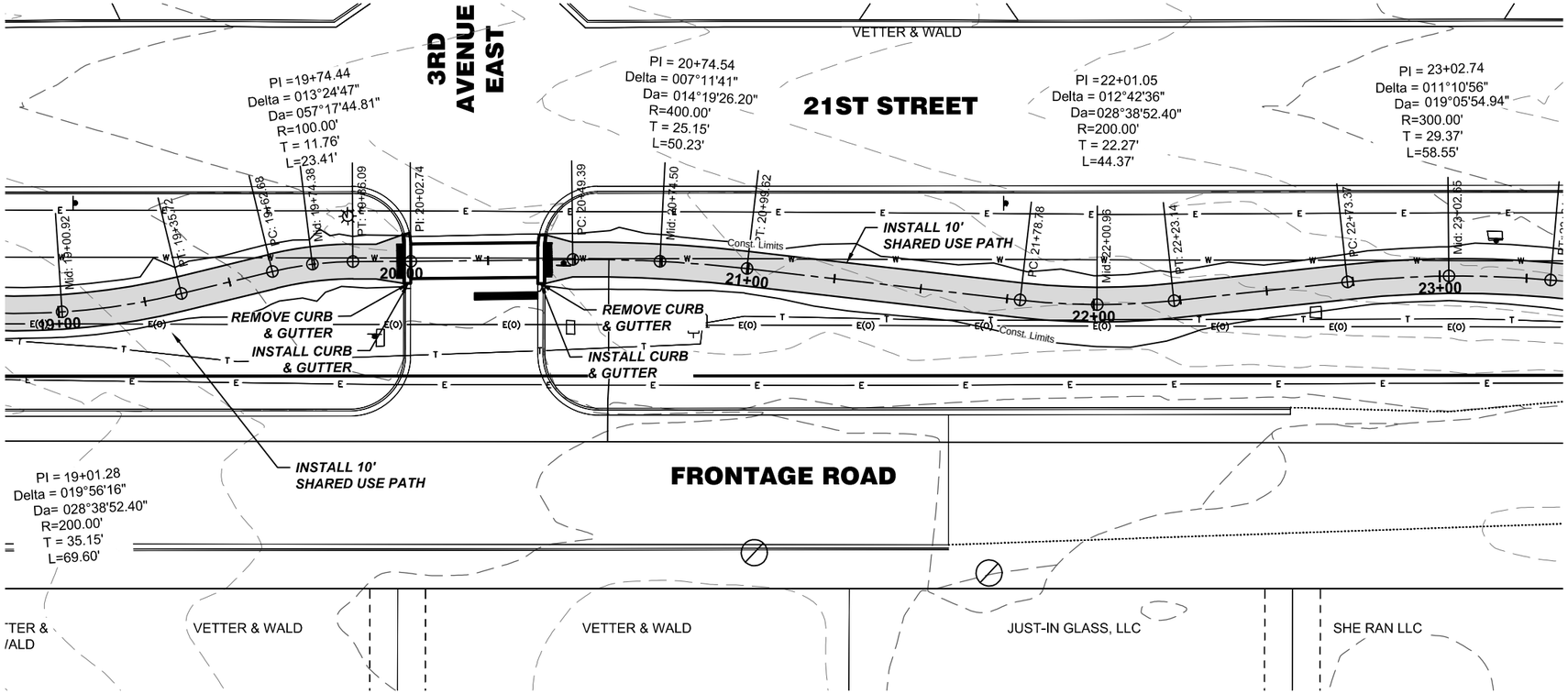
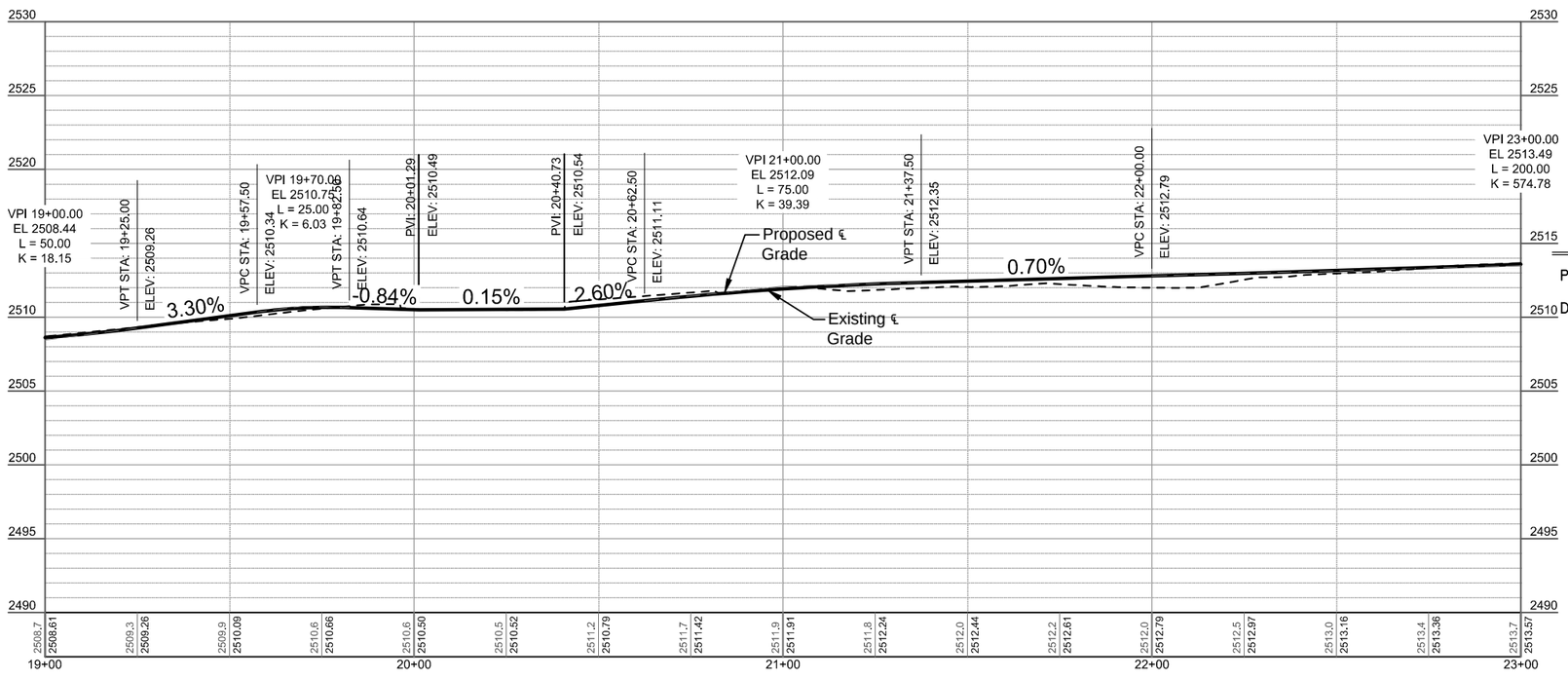
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	6





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

REMOVAL OF CURB AND GUTTER
STA. 20+01 = 14 L.F.
STA. 20+40 = 14 L.F.

AGGREGATE BASE COURSE CL. 5
STA. 19+00 to 20+00 = 28 TON
STA. 20+41 to 23+00 = 72 TON

CURB & GUTTER-TYPE I
STA. 20+01 = 14 L.F.
STA. 20+40 = 14 L.F.

SIDEWALK CONCRETE 4IN
STA. 19+00 to 20+00 = 114 S.Y.
STA. 20+41 to 23+00 = 289 S.Y.

DETECTABLE WARNING PANELS
STA. 19+99 = 20 S.F.
STA. 20+42 = 20 S.F.

N

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL

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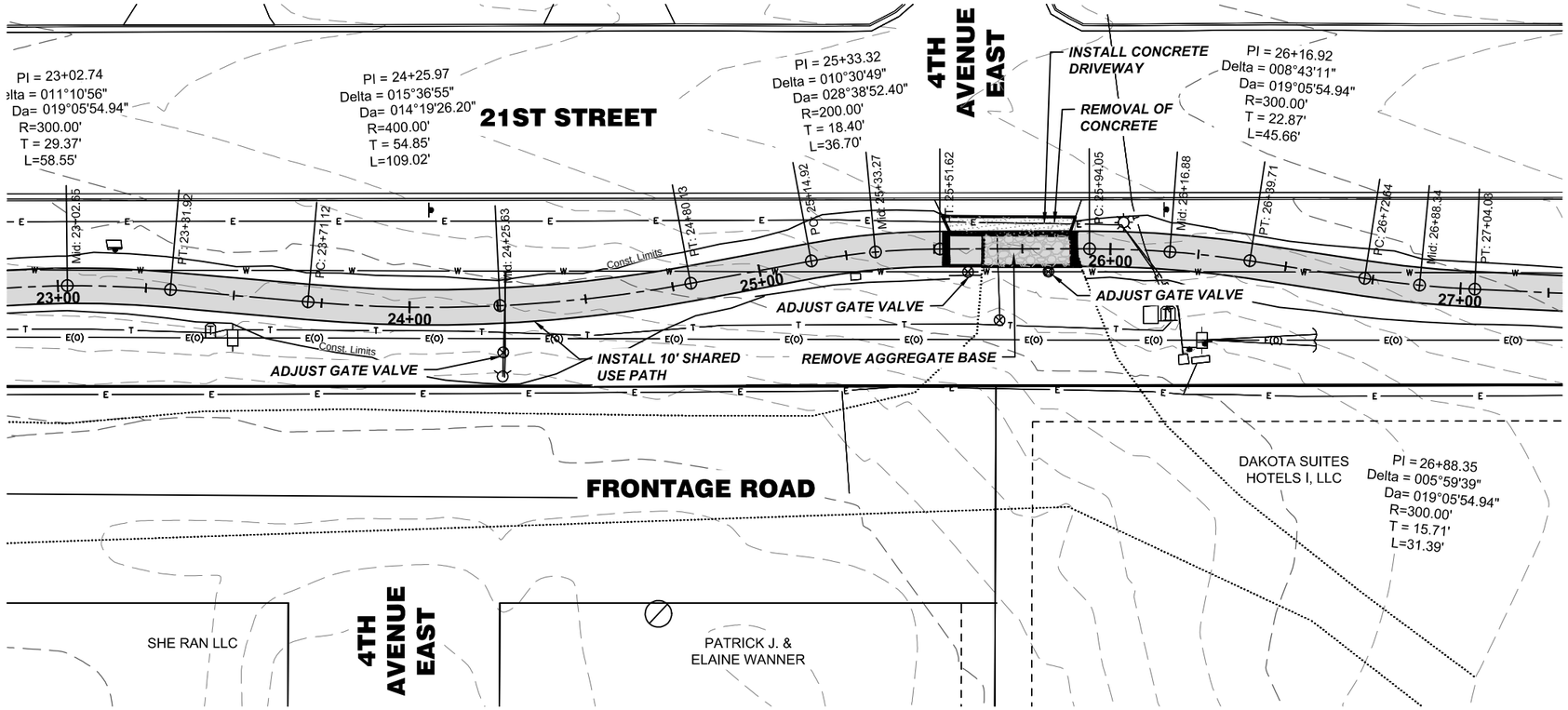
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

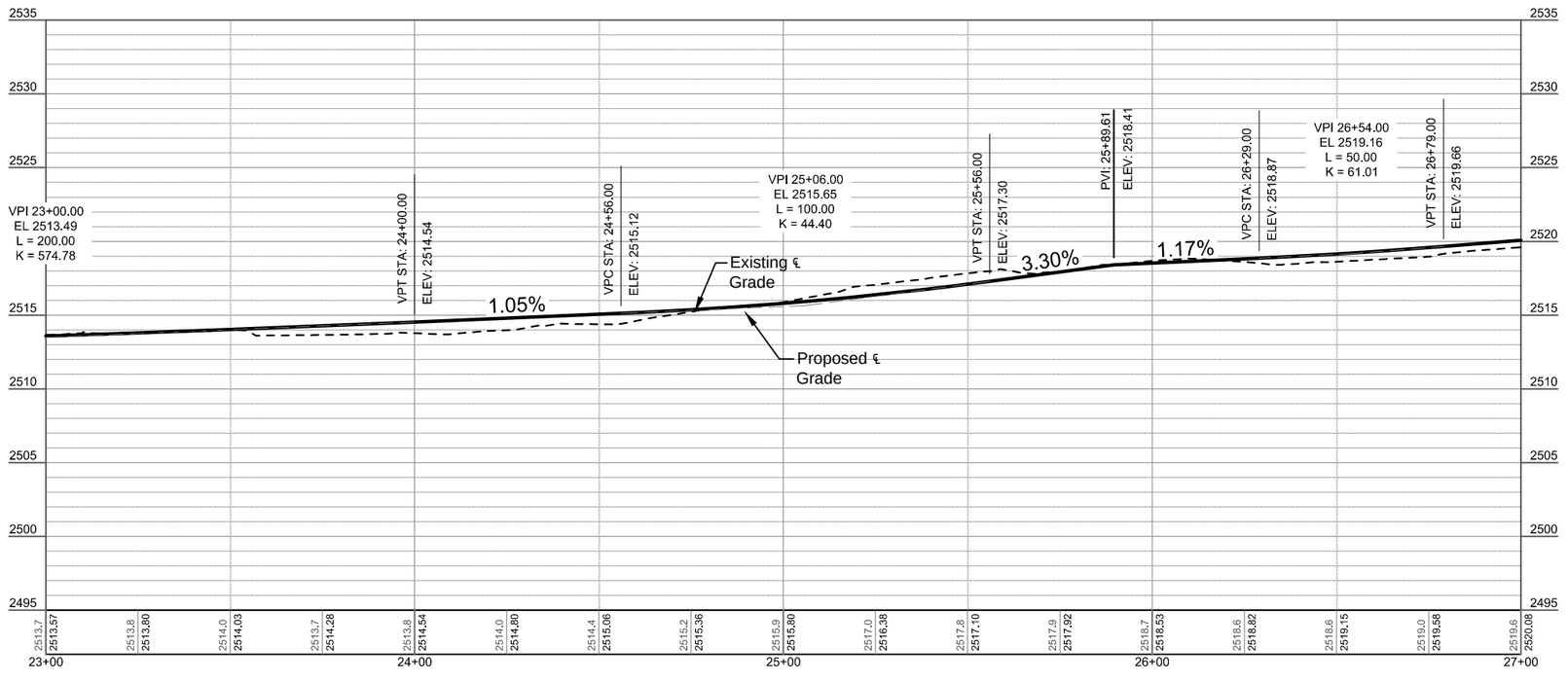
PLAN & PROFILE
STA. 19+00 TO STA. 23+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

Aug 30, 2017 - 7:30am - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\3416103(201606)SharedUsePathDesign.dwg (PP (6))

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	7





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

REMOVAL OF CONCRETE
STA. 25+52 to 25+90 = 20 S.Y.

AGGREGATE BASE COURSE CL. 5
STA. 23+00 to 27+00 (Trail) = 111 TON
STA. 25+52 to 25+90 = 10 TON

ADJUST GATE VALVE BOX
STA. 24+25, 13.2' RT = 1 EA.
STA. 25+95, 6.5' RT = 1 EA.
STA. 25+82, 6.5' RT = 1 EA.

SIDEWALK CONCRETE 4IN
STA. 23+00 to 27+00 = 407 S.Y.

DRIVEWAY CONCRETE
STA. 25+52 to 25+90 (8")= 55 S.Y.

DETECTABLE WARNING PANELS
STA. 25+53 = 20 S.F.
STA. 25+89 = 20 S.F.

N

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL

REMOVAL OF CONCRETE PVMT

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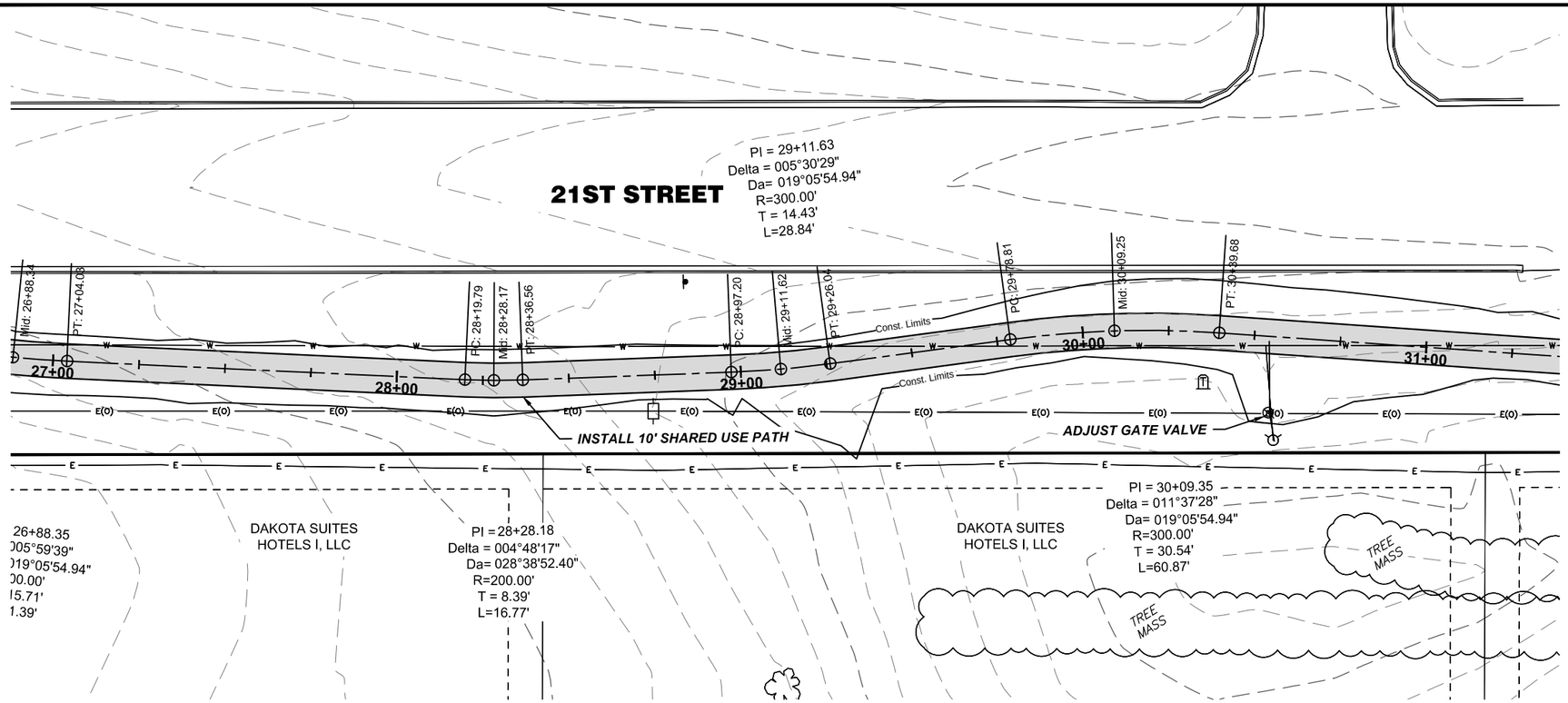
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

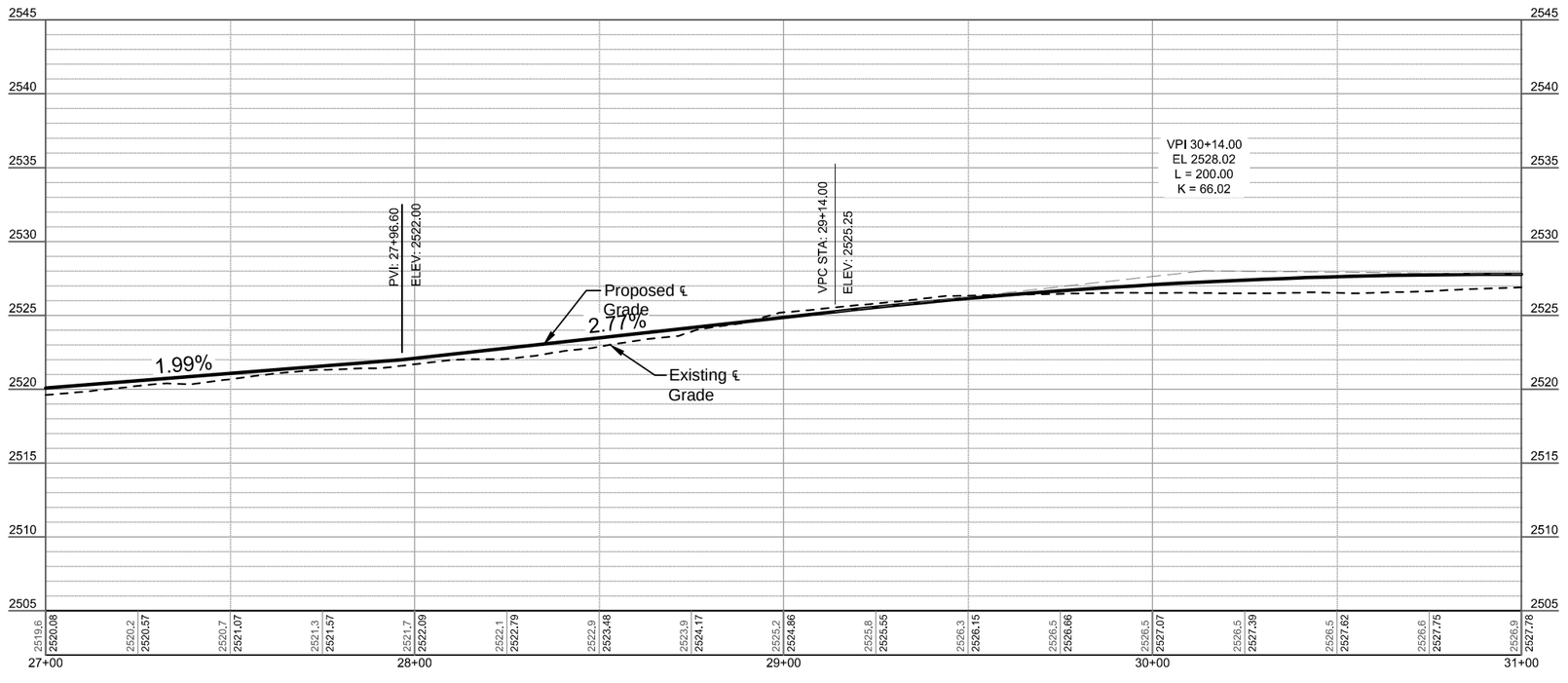
PLAN & PROFILE
STA. 23+00 TO STA. 27+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

Aug 30, 2017 - 7:31am - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\3416103(201606)SharedUsePathDesign.dwg (PP (7))

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	8





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

AGGREGATE BASE COURSE CL. 5
STA. 27+00 to 31+00 = 111 TON

ADJUST GATE VALVE BOX
STA. 30+55, 22' RT = 1 EA.

SIDEWALK CONCRETE 4IN
STA. 27+00 to 31+00 = 444 S.Y.

LEGEND

PROPOSED PATH

N

20 0 20 40
SCALE FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 27+00 TO STA. 31+00

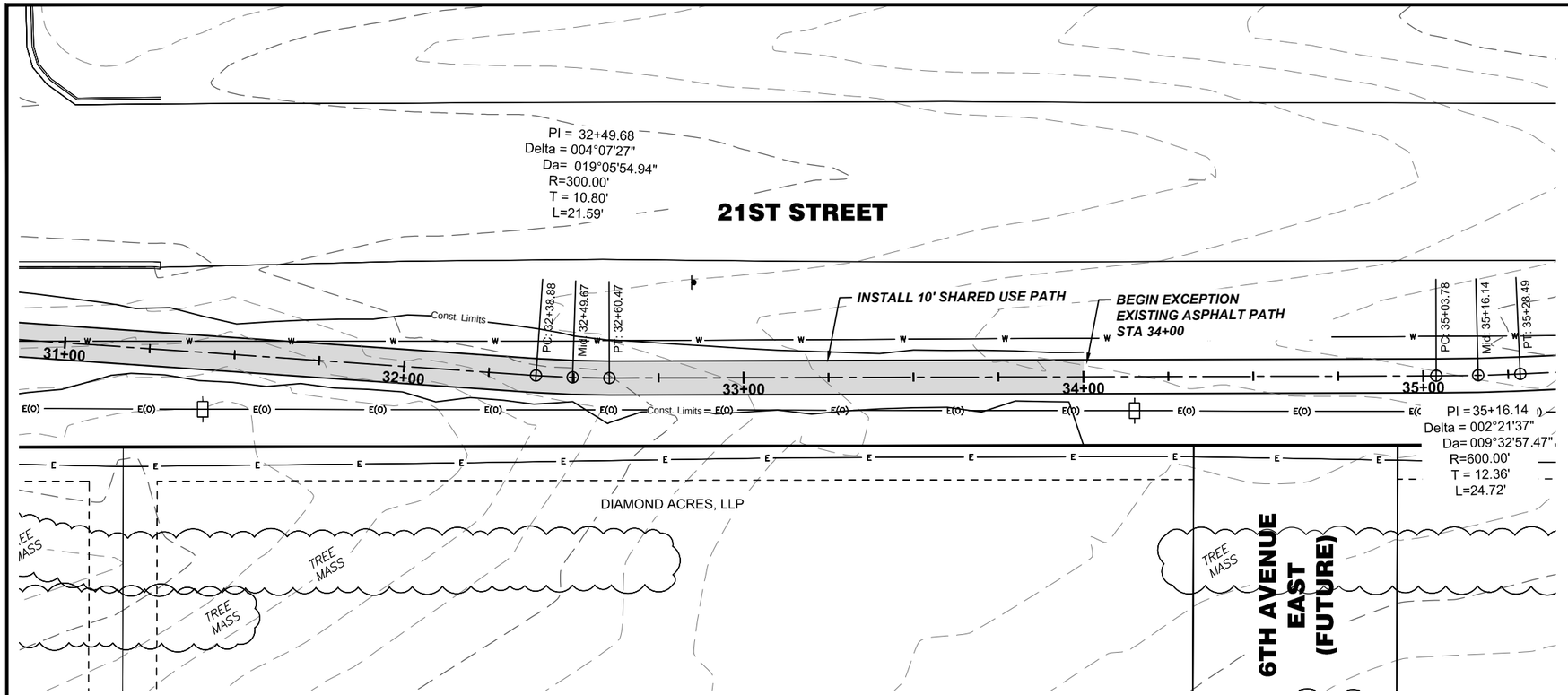
DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

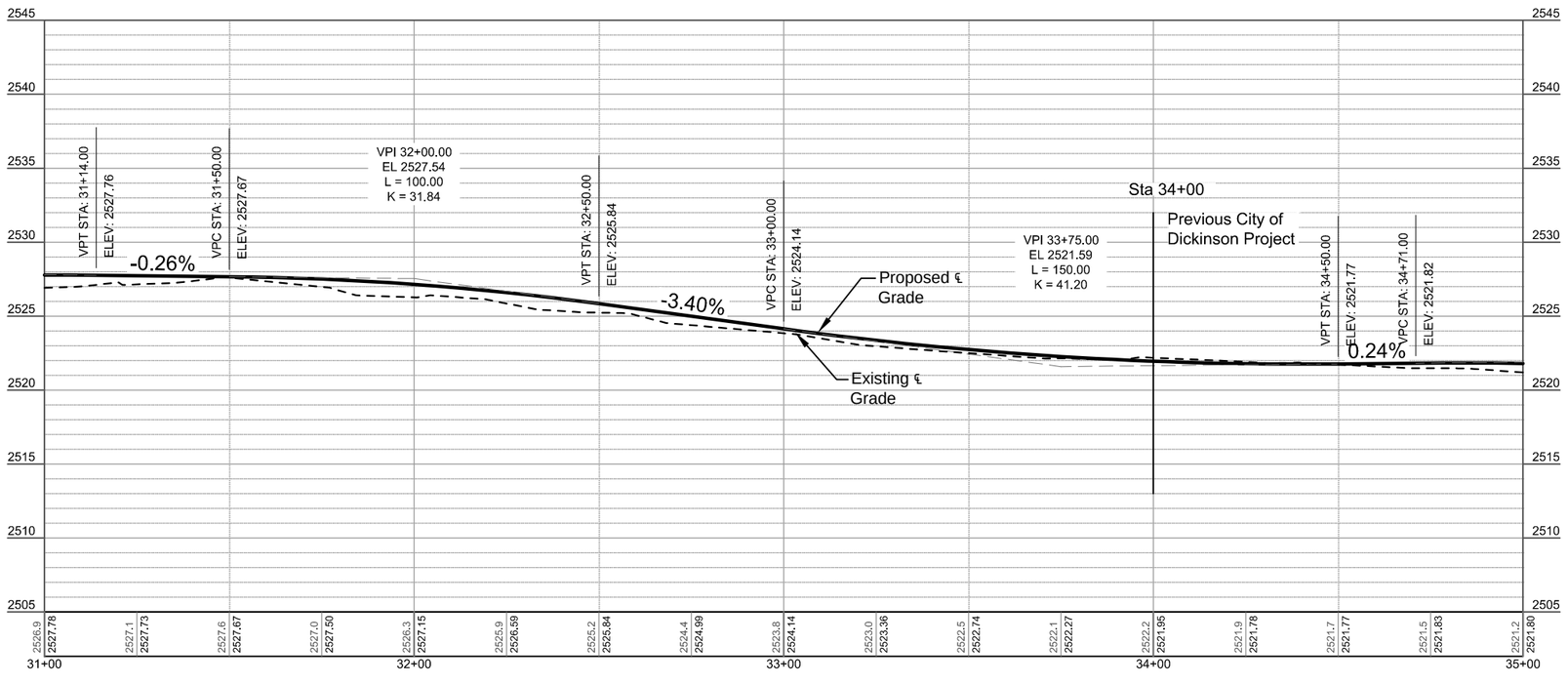
Aug 30, 2017 - 7:32am - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\3416103(201606)SharedUsePathDesign.dwg (PP (8))

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	9

NOTES:

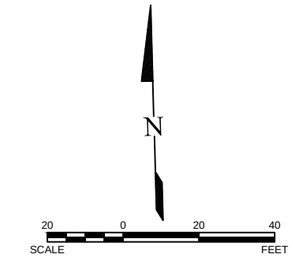
1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*





AGGREGATE BASE COURSE CL. 5
STA. 31+00 to 34+00 = 83 TON

SIDEWALK CONCRETE 4IN
STA. 31+00 to 34+00 = 333 S.Y.



LEGEND

PROPOSED PATH

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 31+00 TO STA. 35+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

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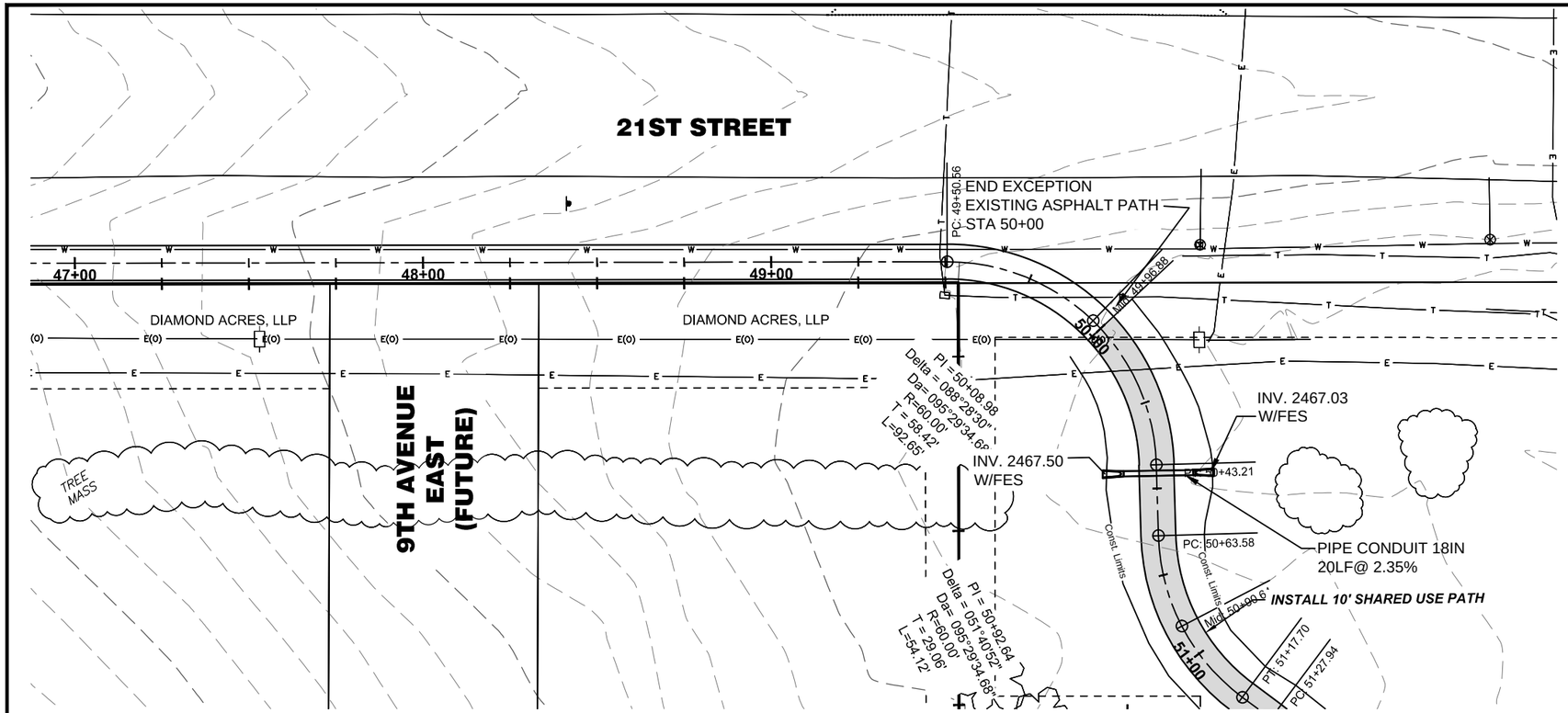
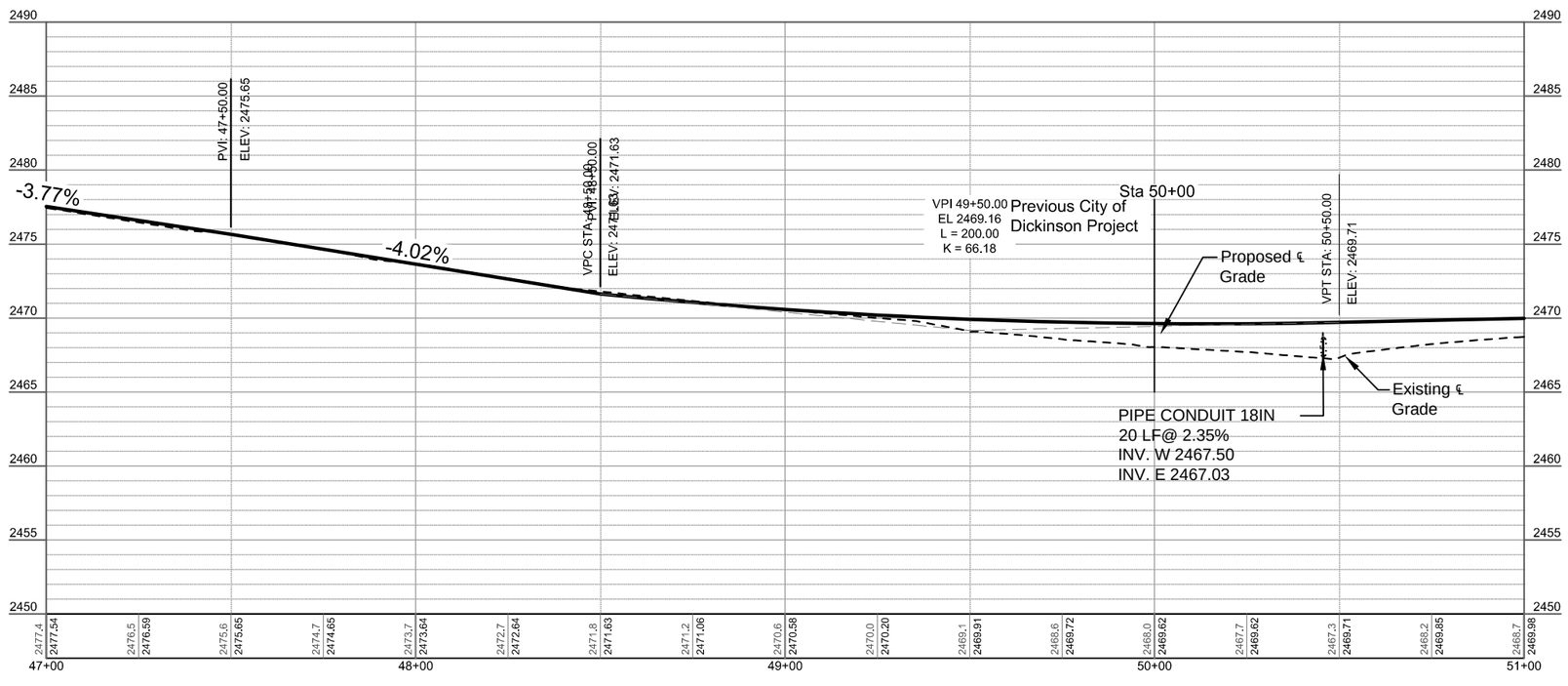
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	10





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

PIPE CONDUIT 18IN
STA. 50+45, 10.5' LT to 9.5' RT = 20 LF

AGGREGATE BASE COURSE CL. 5
STA. 50+00 to 51+00 = 28 TON

SIDEWALK CONCRETE 4IN
STA. 50+00 to 51+00 = 111 S.Y.

N

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 47+00 TO STA. 51+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

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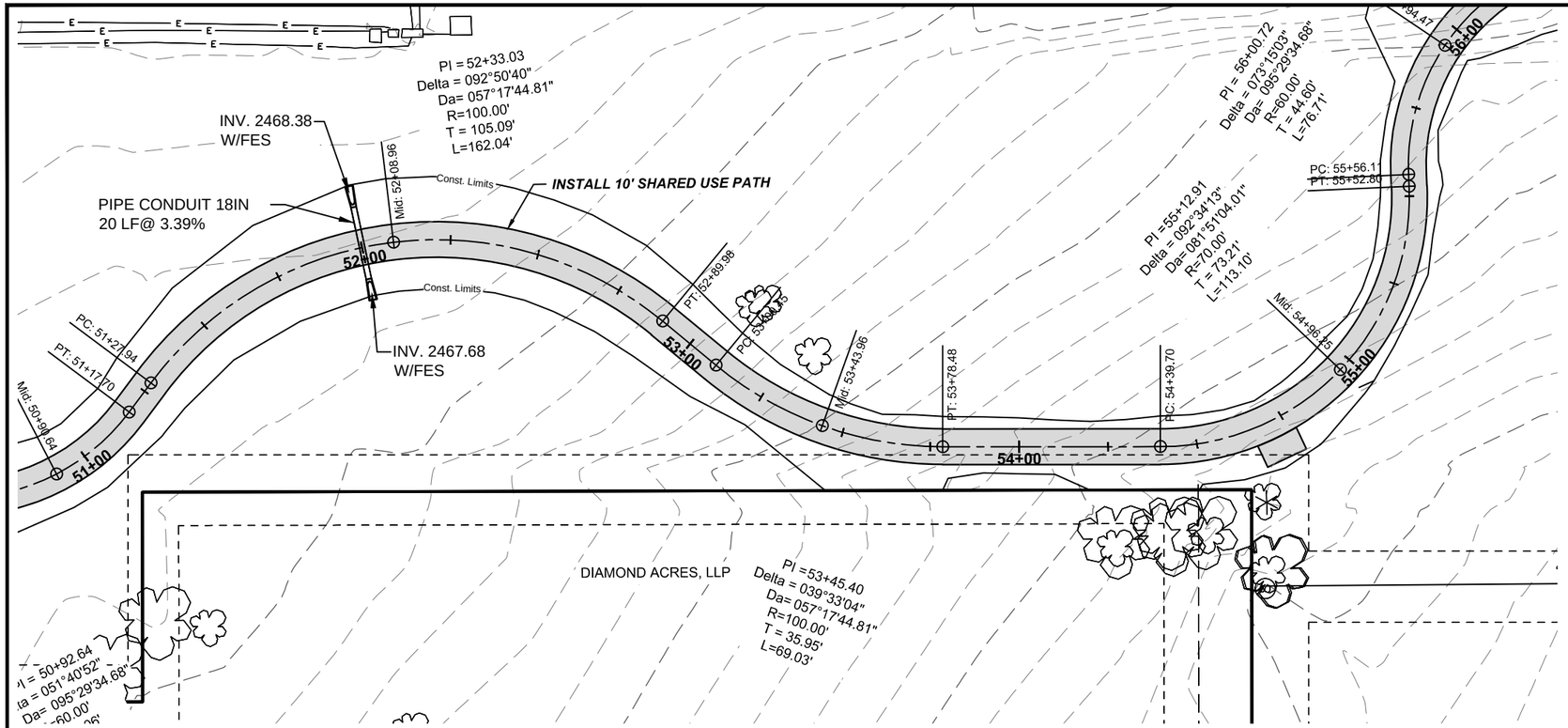
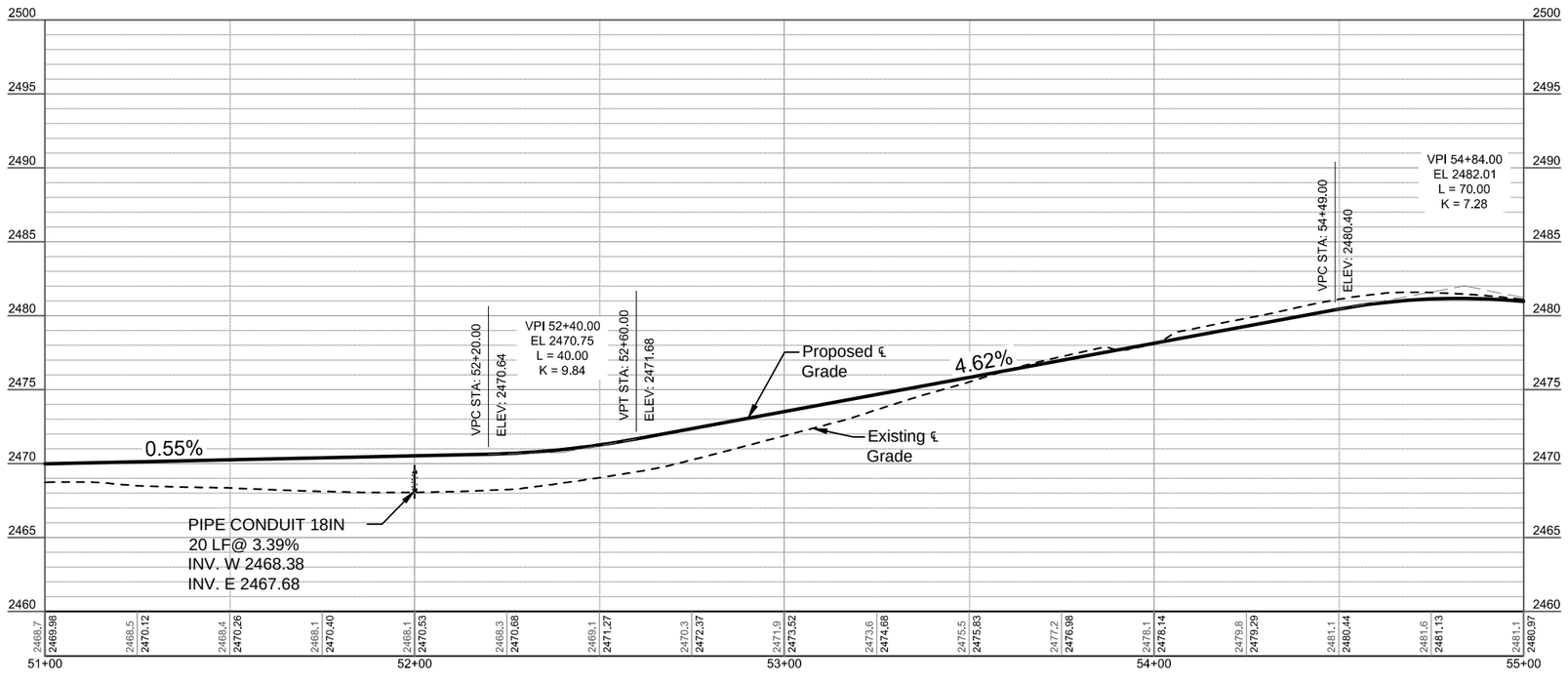
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	11





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

PIPE CONDUIT 18IN
STA. 52+00, 11.0' LT to 9.0' RT = 20 LF

AGGREGATE BASE COURSE CL. 5
STA. 50+00 to 54+00 = 113 TON

SIDEWALK CONCRETE 4IN
STA. 50+00 to 54+00 = 454 S.Y.

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

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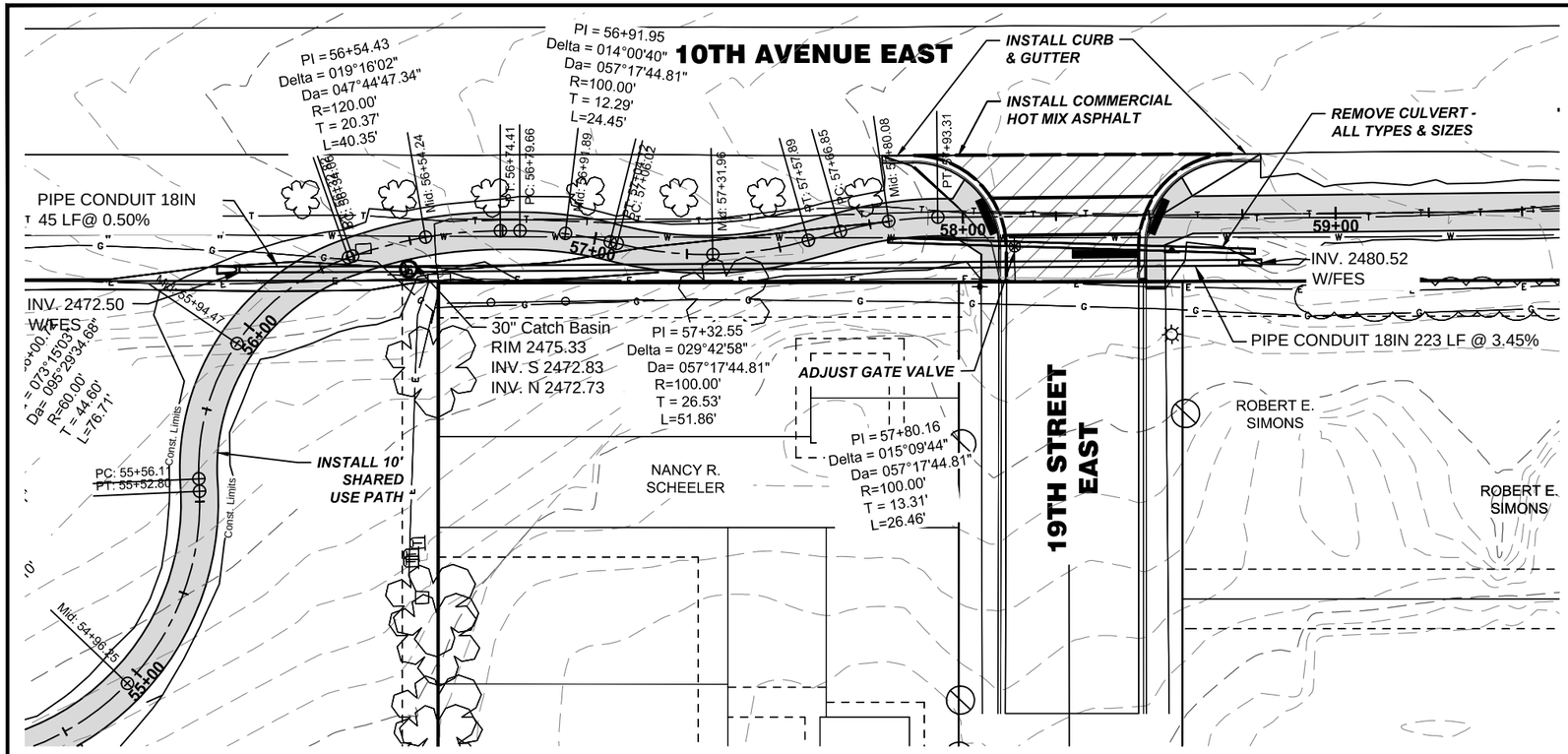
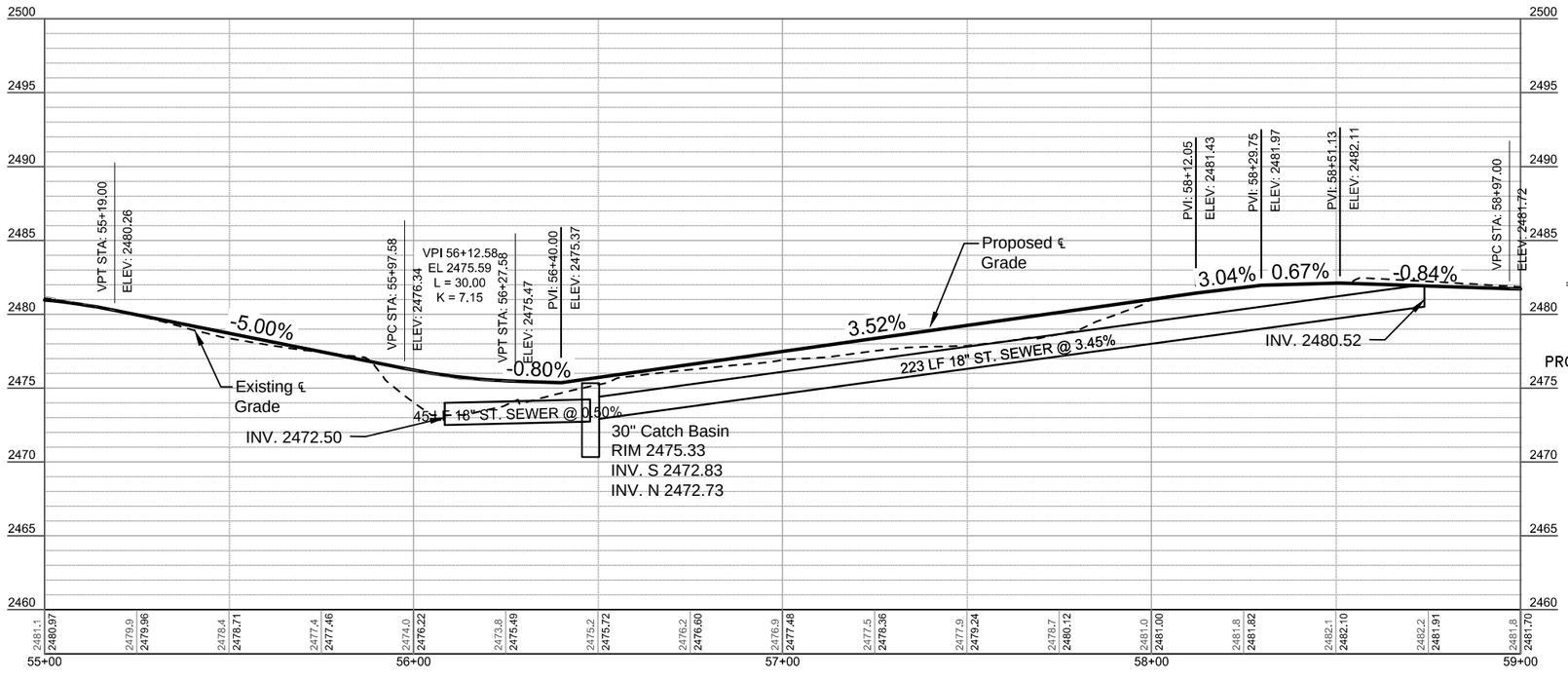
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 51+00 TO STA. 55+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606





STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	12

NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

AGGREGATE BASE COURSE CL. 5
STA. 55+00 to 58+09 = 88 TON
STA. 58+49 to 59+00 = 16 TON

SIDEWALK CONCRETE 4IN
STA. 55+00 to 58+09 = 353 S.Y.
STA. 58+49 to 59+00 = 66 S.Y.

DETECTABLE WARNING PANELS
STA. 58+04 = 20 S.F.
STA. 58+54 = 20 S.F.

NON PARTICIPATING
REMOVAL OF BITUMINOUS SURFACING
STA. 57+80 to 58+80 = 220 S.Y.

REMOVAL OF CULVERTS-ALL TYPES & SIZES
STA. 57+79, 5' RT to 58+78, 10' RT = 98 L.F.

AGGREGATE BASE COURSE CL. 5
STA. 58+09 to 58+49 (12") = 103 TON

COMMERCIAL GRADE HOT MIX ASPHALT
STA. 57+80 to 58+80 (4") = 36 TON

ADJUST GATE VALVE BOX
STA. 58+13, 8' RT = 1 EA.

CURB & GUTTER-TYPE I
STA. 57+80 to 58+09 = 53 L.F.
STA. 58+49 to 58+80 = 53 L.F.

PIPE CONDUIT 18IN
STA. 56+48, 9.5' RT to 58+74, 13' RT = 223 L.F.
STA. 56+12, 8.5' LT to 56+48, 9.5' RT = 45 L.F.

CATCH BASIN - TYPE A
STA. 56+48, 9.5' RT = 1 EA.

SCALE 20 0 20 40 FEET

LEGEND
- PROPOSED PATH
- PROPOSED BITUMINOUS SURFACING
- DETECTABLE WARNING PANEL

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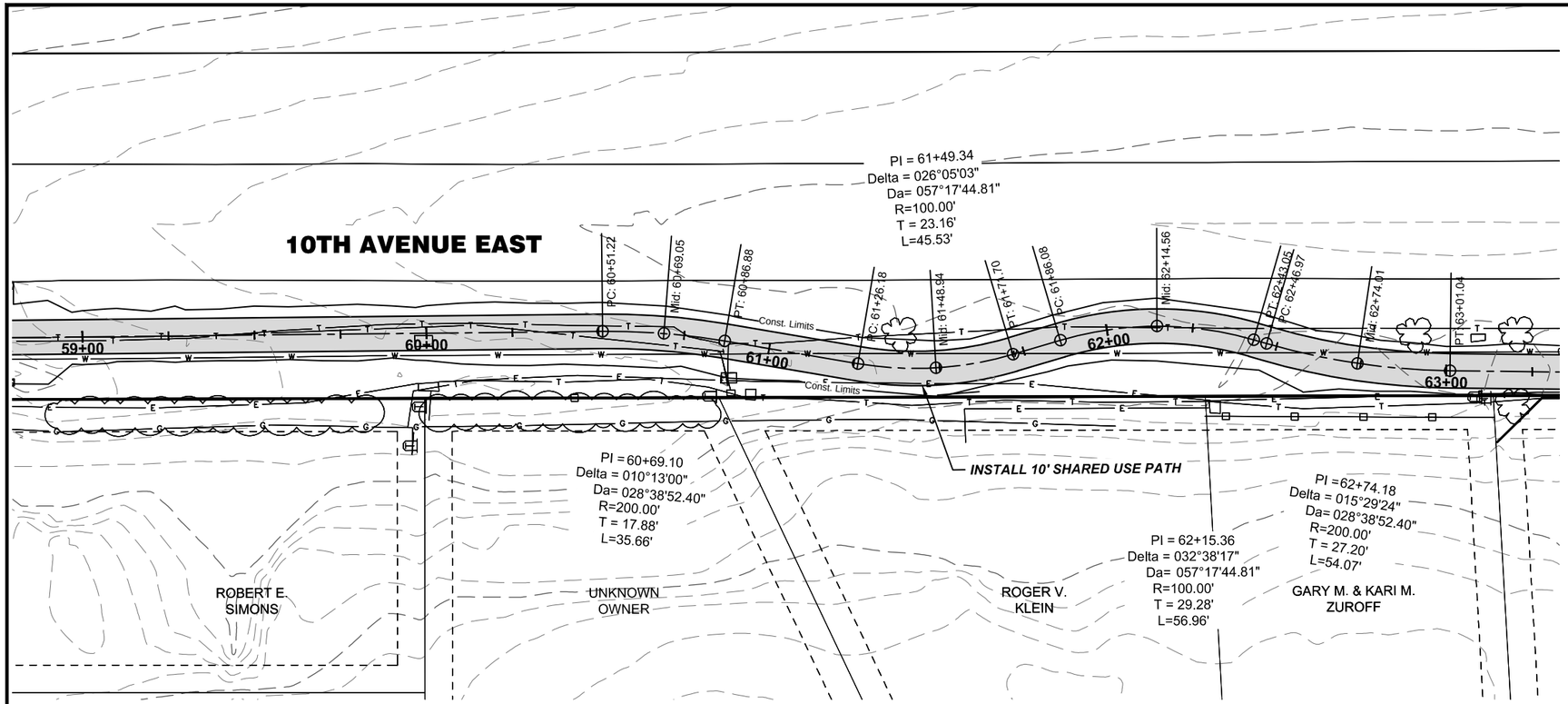
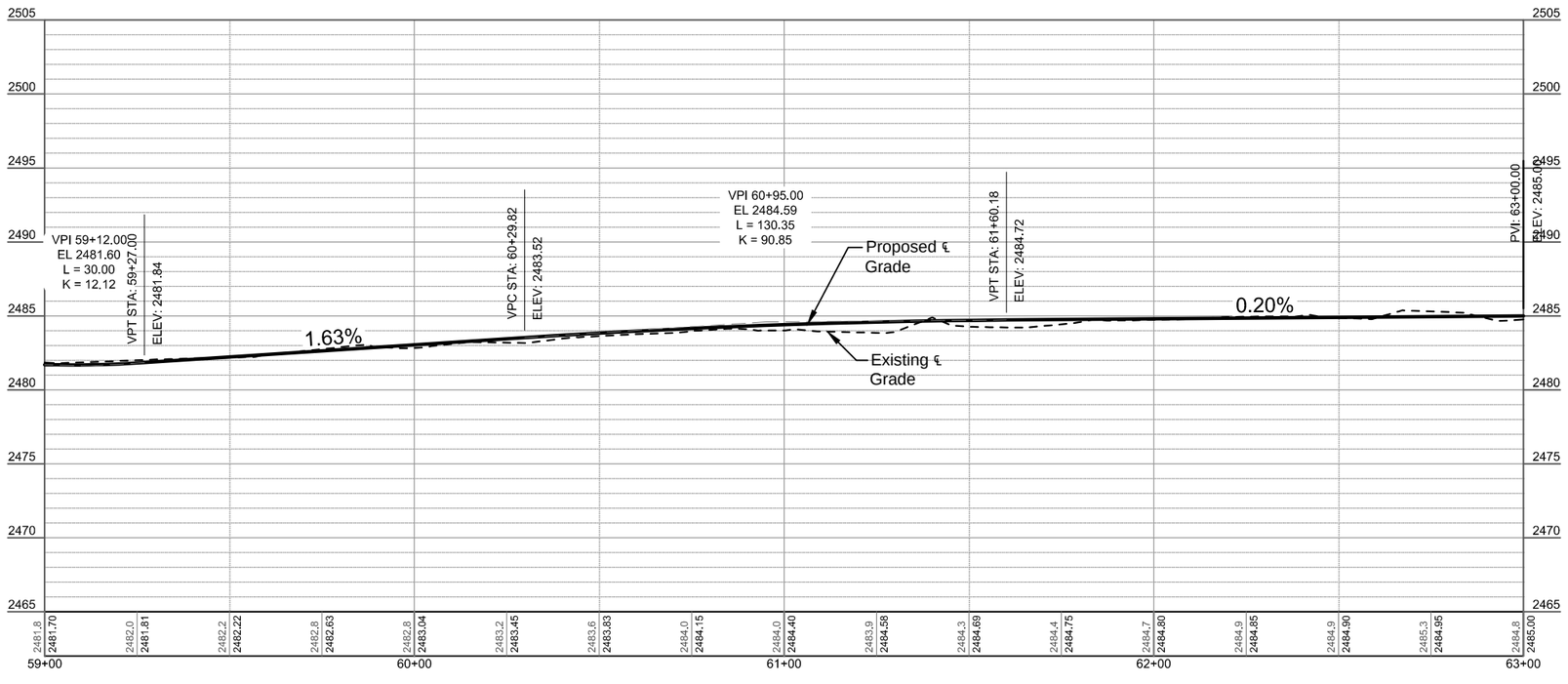
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 55+00 TO STA. 59+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	13





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

AGGREGATE BASE COURSE CL. 5
STA. 59+00 to 63+00 = 111 TON

SIDEWALK CONCRETE 4IN
STA. 59+00 to 63+00 = 444 S.Y.

LEGEND

PROPOSED PATH

N

20 0 20 40
SCALE FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 59+00 TO STA. 63+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

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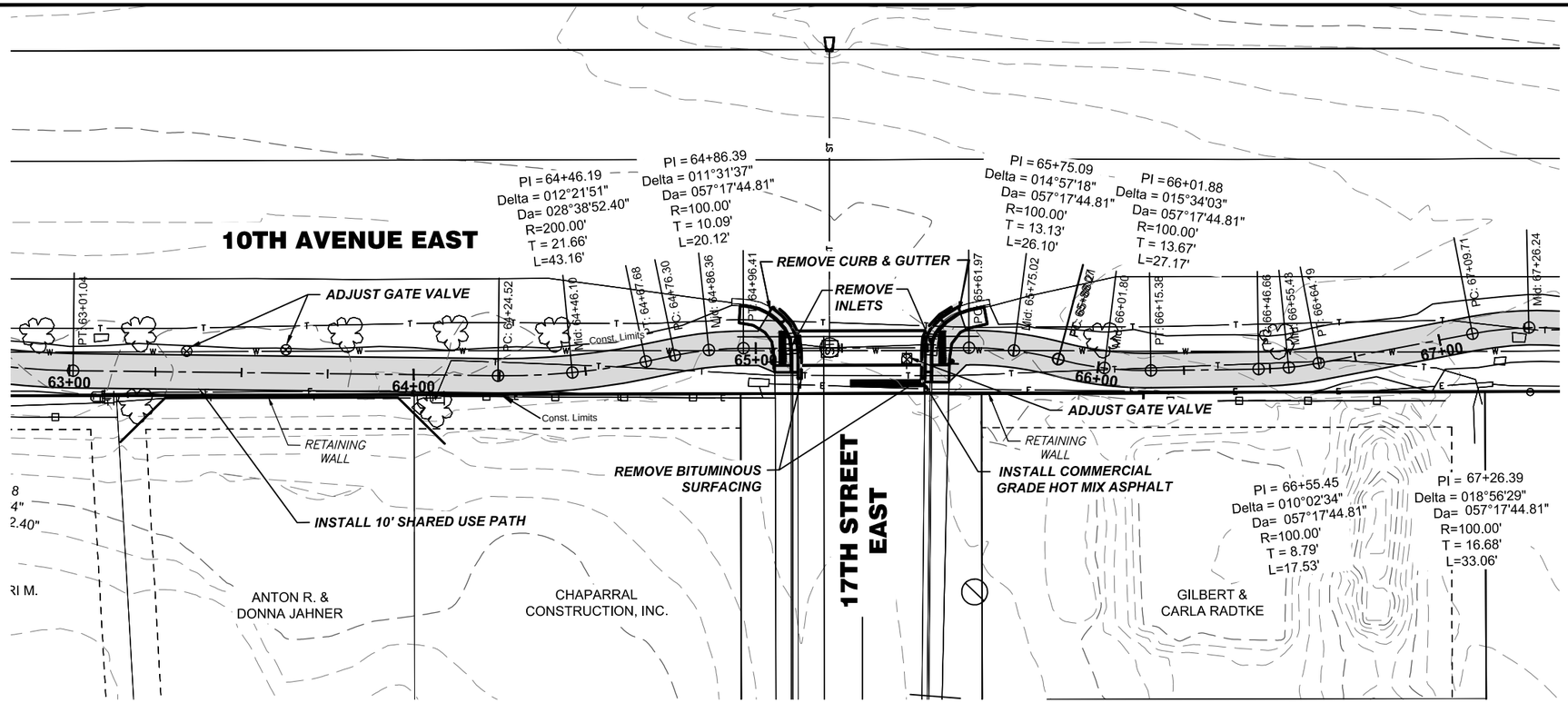
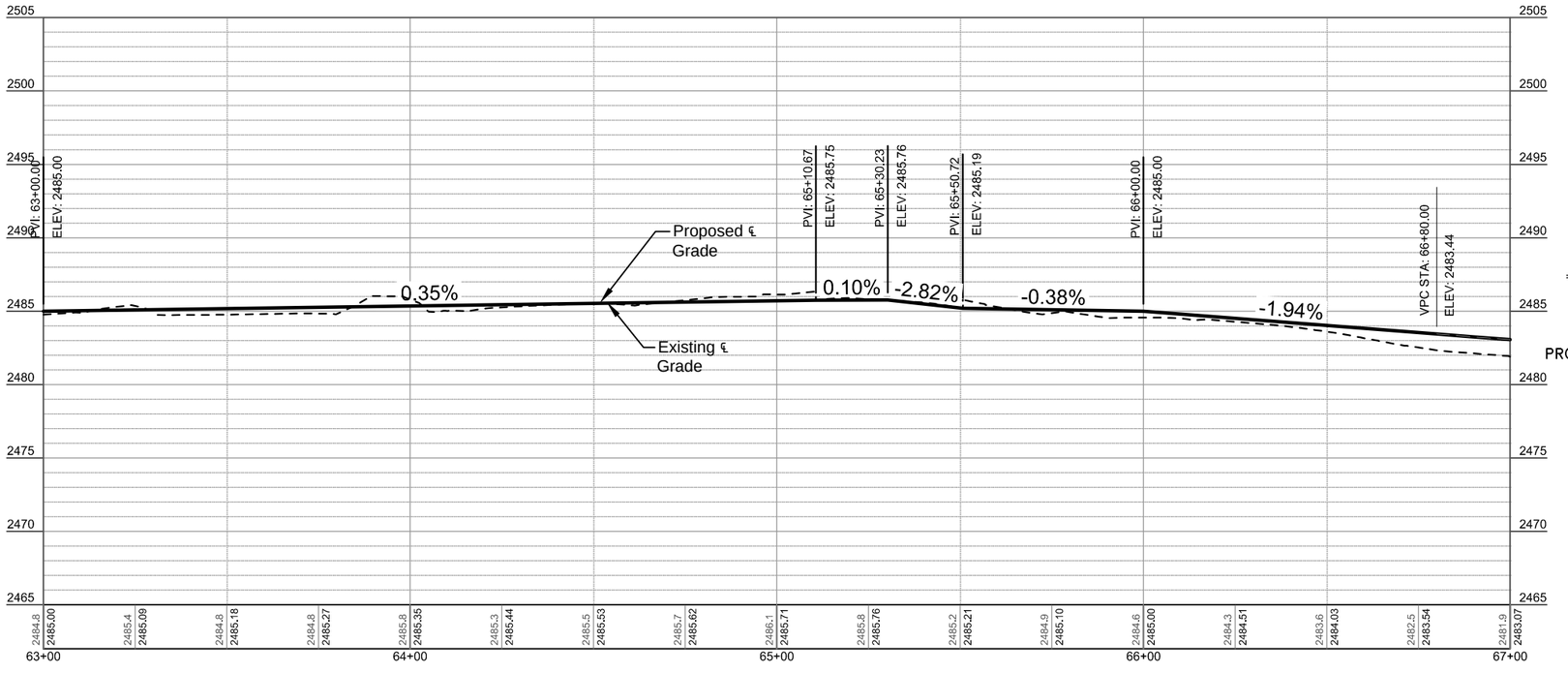
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	14





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

REMOVAL OF CONCRETE
STA. 65+04 = 4 S.Y.
STA. 65+60 = 5 S.Y.

REMOVAL OF CURB AND GUTTER
STA. 65+04 = 20 L.F.
STA. 65+60 = 24 L.F.

REMOVAL OF BITUMINOUS SURFACING
STA. 65+04 = 2 S.Y.
STA. 65+60 = 3 S.Y.

REMOVAL OF INLETS
STA. 65+11 = 1 EA.
STA. 65+50 = 1 EA.

AGGREGATE BASE COURSE CL. 5
STA. 63+00 to 65+10 = 60 TON
STA. 65+51 to 67+00 = 44 TON

COMMERCIAL GRADE HOT MIX ASPHALT
STA. 65+04 = 2 TON
STA. 65+60 = 2 TON

ADJUST GATE VALVE BOX
STA. 63+64, 6' LT = 1 EA.
STA. 63+62, 6.5' LT = 1 EA.

CURB & GUTTER-TYPE I
STA. 65+04 = 20 L.F.
STA. 65+60 = 24 L.F.

SIDEWALK CONCRETE 4IN
STA. 63+00 to 65+10 = 242 S.Y.
STA. 65+51 to 67+00 = 177 S.Y.

DETECTABLE WARNING PANELS
STA. 65+07 = 20 S.F.
STA. 65+54 = 20 S.F.

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

PROPOSED BITUMINOUS SURFACING

DETECTABLE WARNING PANEL

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

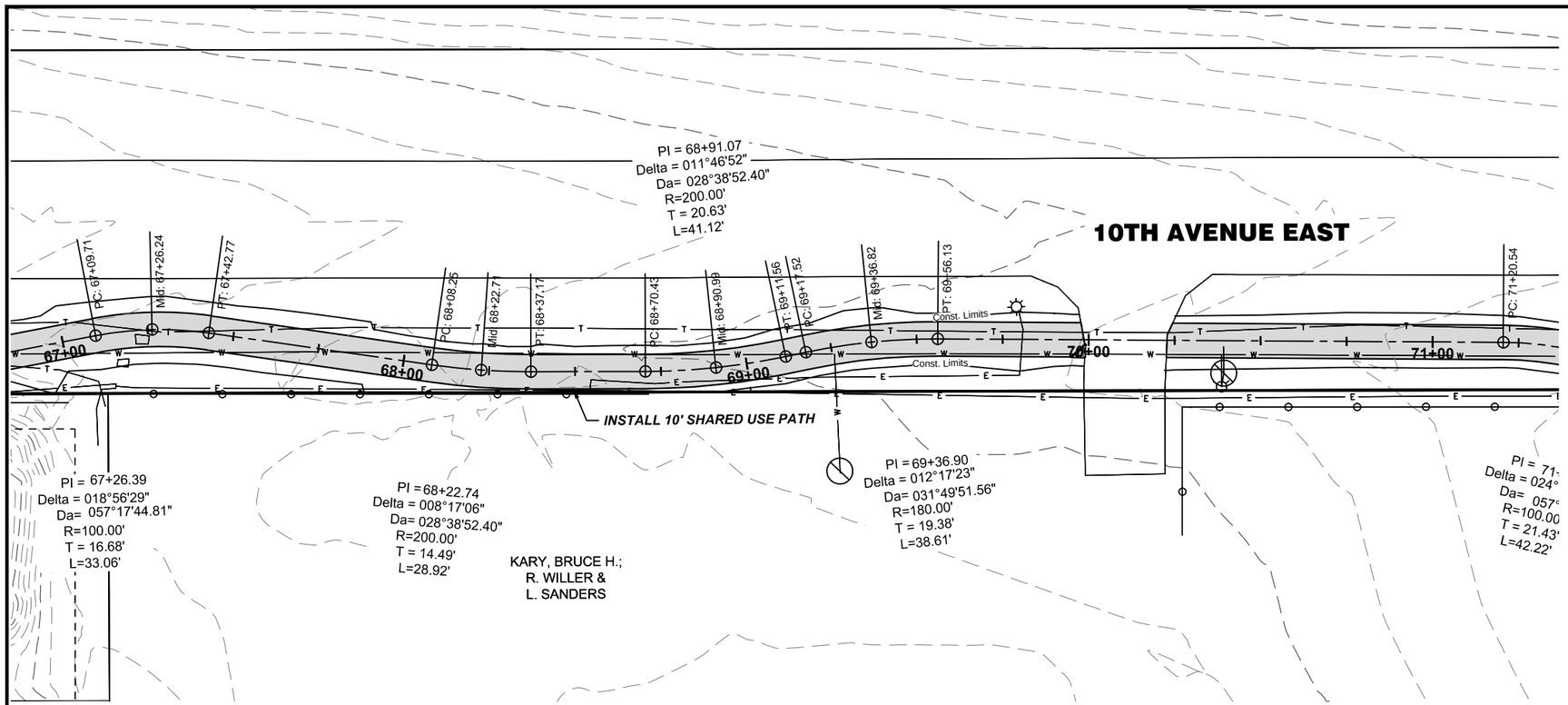
PLAN & PROFILE
STA. 63+00 TO STA. 67+00

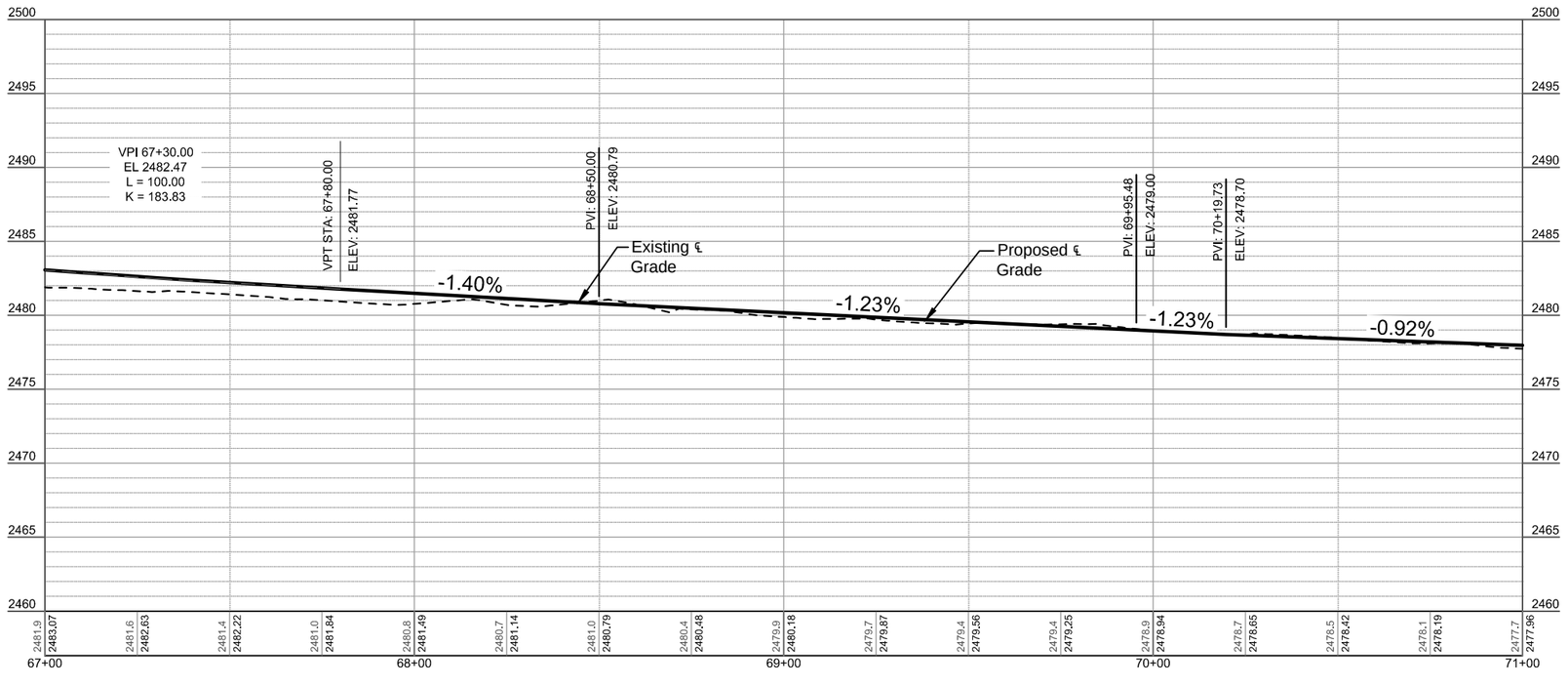
DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	15

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*



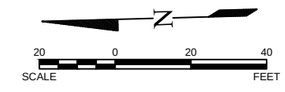


AGGREGATE BASE COURSE CL. 5
STA. 67+00 to 69+98 = 83 TON
STA. 70+22 to 71+00 = 21 TON

SIDEWALK CONCRETE 4IN
STA. 67+00 to 69+98 = 332 S.Y.
STA. 70+22 to 71+00 = 86 S.Y.

LEGEND

PROPOSED PATH



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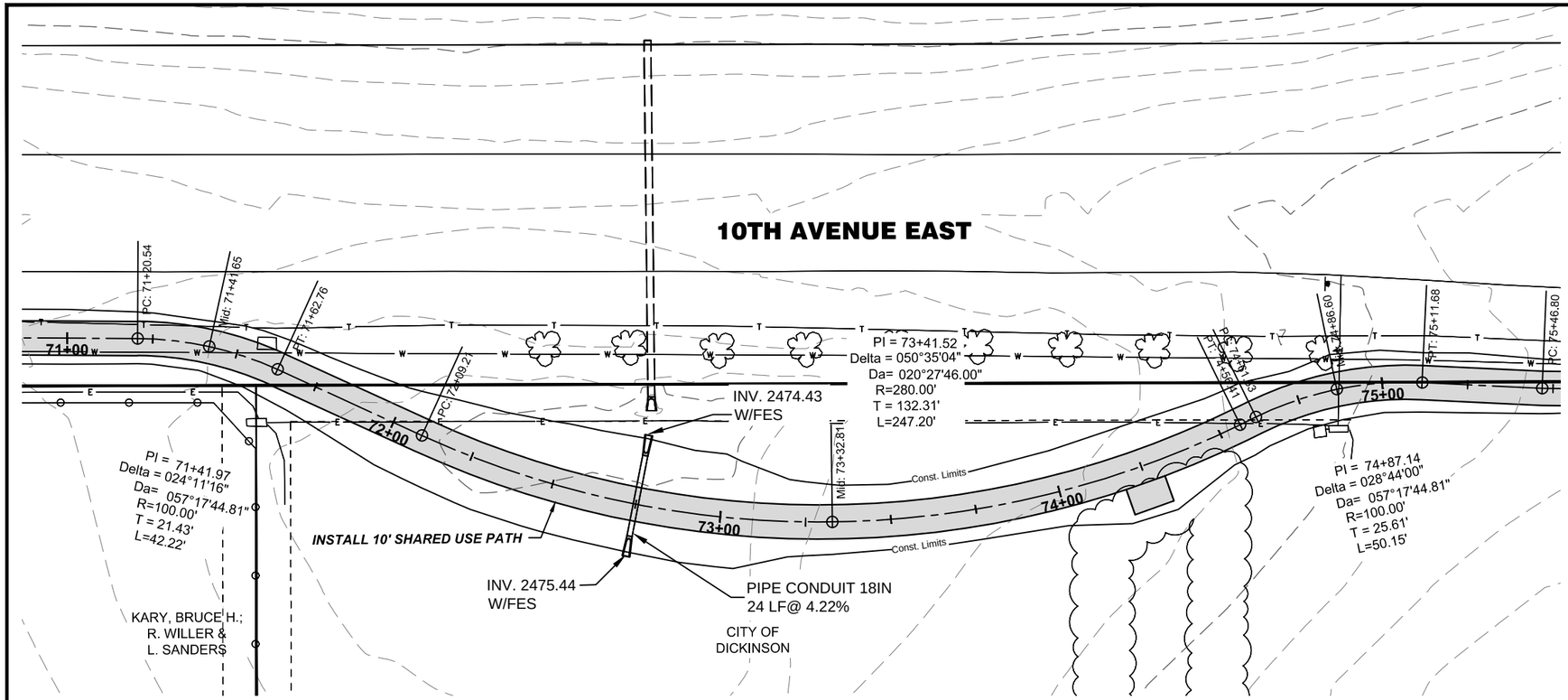
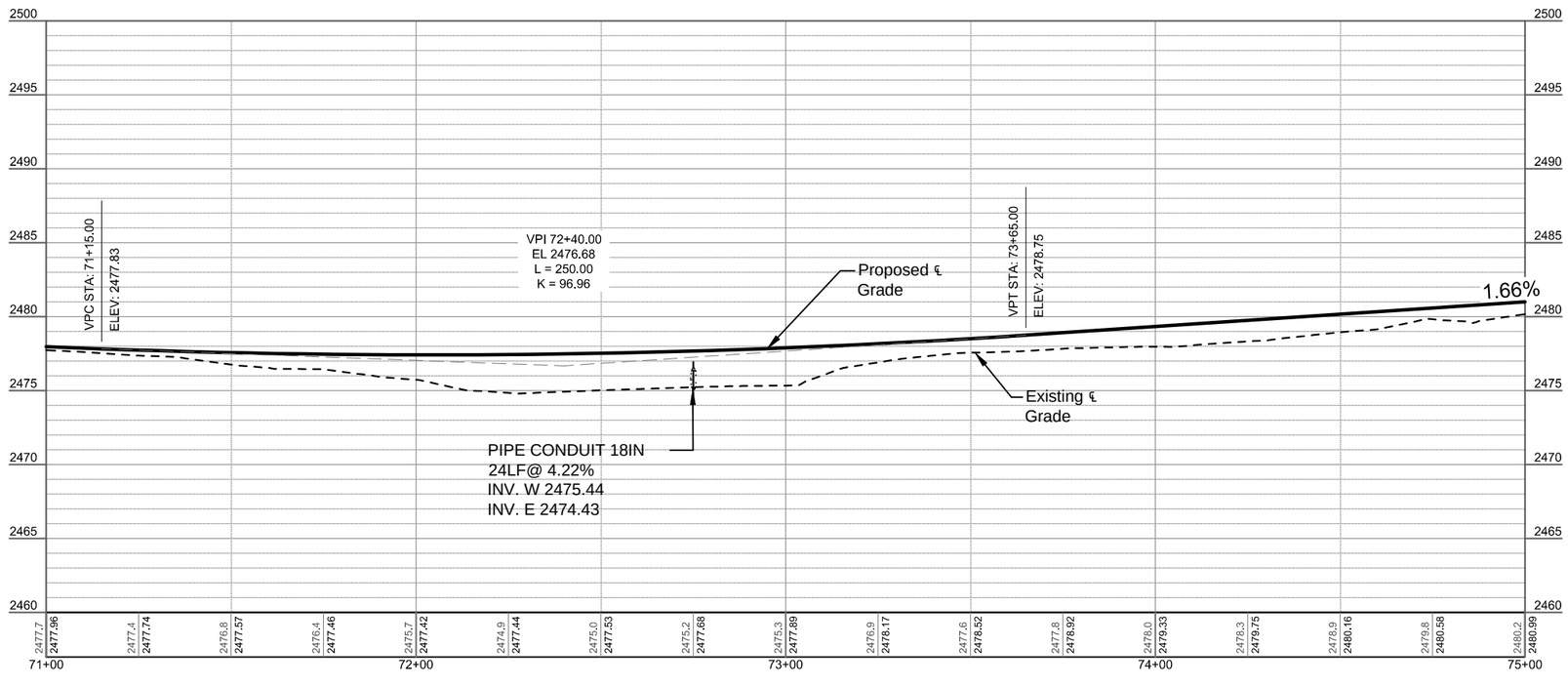
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 67+00 TO STA. 71+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	16





NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

PIPE CONDUIT 18IN
STA. 72+74, 14.5 LT to 9.5 RT = 24 LF

AGGREGATE BASE COURSE CL. 5
STA. 71+00 to 75+00 = 113 TON

SIDEWALK CONCRETE 4IN
STA. 71+00 to 75+00 = 453 S.Y.

N

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

PLAN & PROFILE
STA. 71+00 TO STA. 75+00

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

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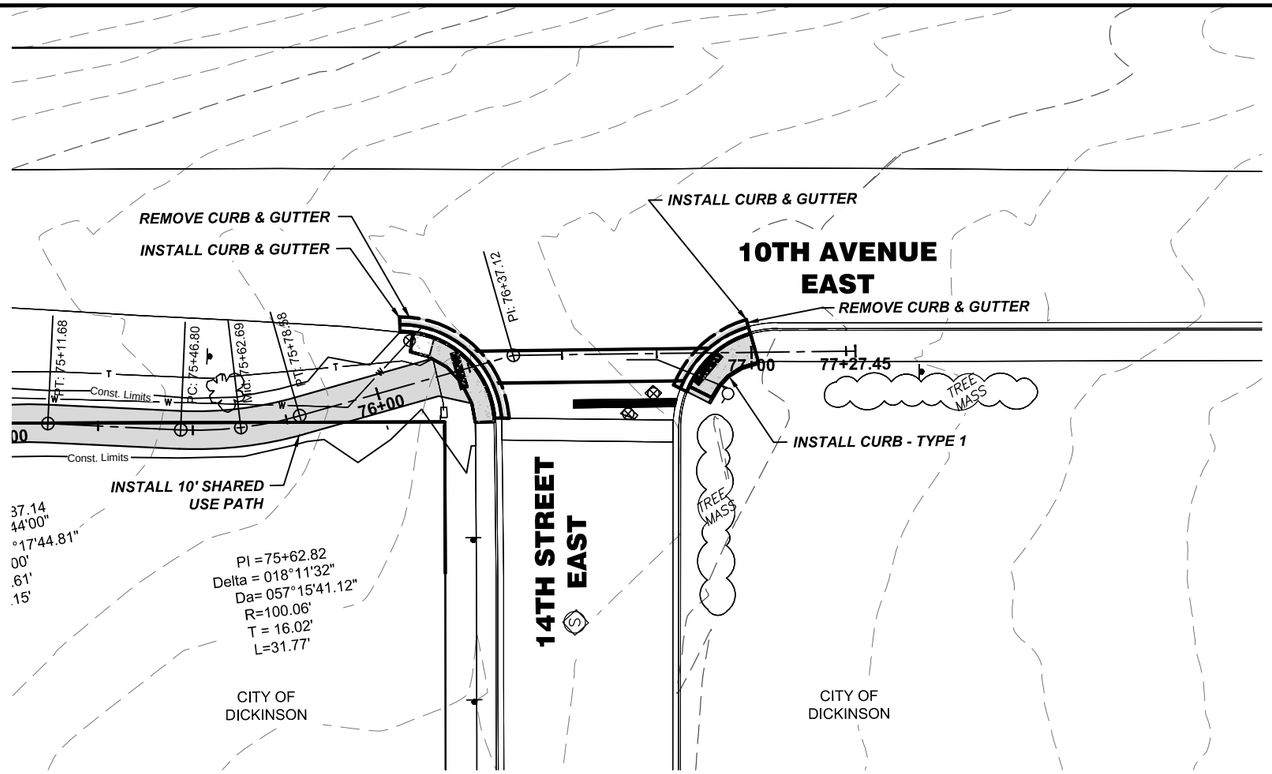
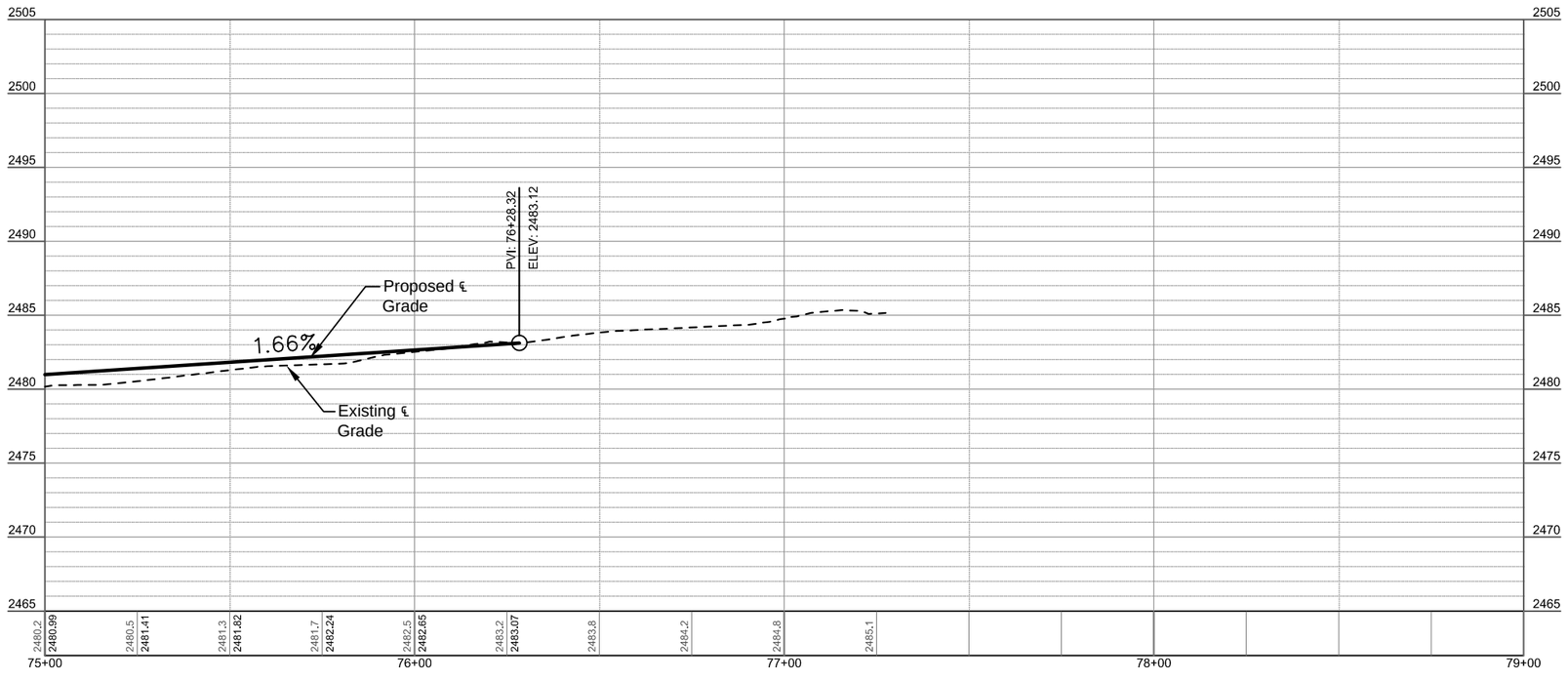
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	60	17





NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

REMOVAL OF CONCRETE
STA. 76+10 to 76+27 = 18 S.Y.
STA. 76+82 to 76+99 = 15 S.Y.

REMOVAL OF CURB AND GUTTER
STA. 76+10 to 76+27 = 37 L.F.
STA. 76+82 to 76+99 = 24 L.F.

AGGREGATE BASE COURSE CL. 5
STA. 75+00 to 76+27 = 37 TON
STA. 76+82 to 76+99 = 4 TON

ADJUST GATE VALVE BOX
STA. 76+11, 11' LT = 1 EA.

CURB - TYPE I
STA. 76+89 to 77+02 = 23 L.F.

CURB & GUTTER-TYPE I
STA. 76+10 to 76+27 = 37 L.F.
STA. 76+82 to 76+99 = 24 L.F.

SIDEWALK CONCRETE 4IN
STA. 75+00 to 76+27 = 150 S.Y.
STA. 76+82 to 76+99 = 16 S.Y.

DETECTABLE WARNING PANELS
STA. 76+22 = 20 S.F.
STA. 76+88 = 20 S.F.

N

20 0 20 40
SCALE FEET

LEGEND

PROPOSED PATH

DETECTABLE WARNING PANEL

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

PLAN & PROFILE
STA. 75+00 TO STA. 77+27

DRWN. BY	CHK'D BY	PROJECT NO.
JJK	AK	201606

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	76	1

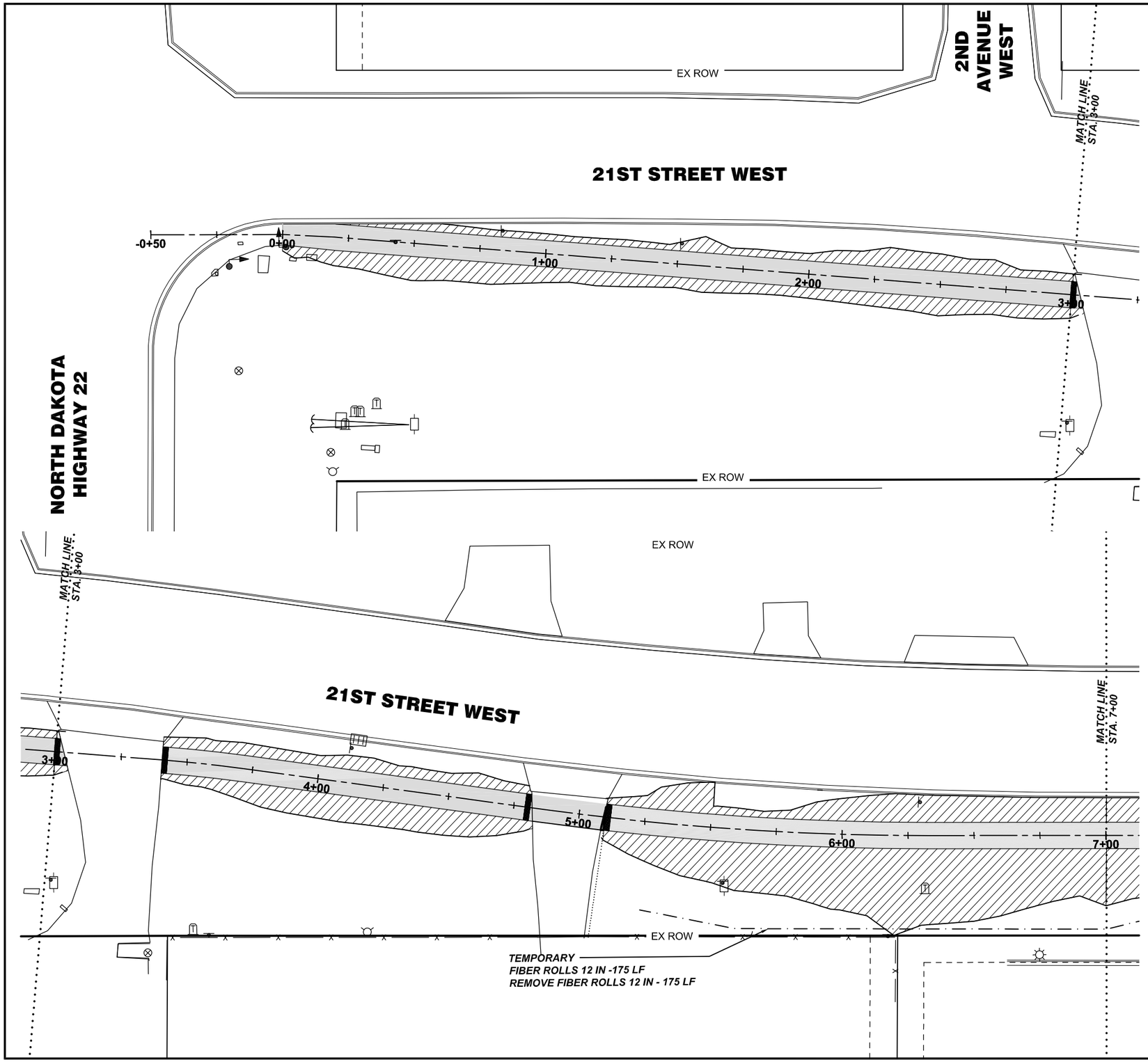
NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

TEMPORARY EROSION CONTROL
FIBER ROLLS 12IN
STA. 5+25 TO STA 7+00 RT= 175 L.F.

REMOVE FIBER ROLLS 12IN
STA. 5+25 TO STA 7+00 RT = 175 L.F.

PERMANENT EROSION CONTROL
SEEDING CLASS III
STA. 0+00 TO STA 7+00 = 0.23 ACRE

HYDRAULIC MULCH
STA. 0+00 TO STA 7+00 = 0.23 ACRE



LEGEND

PROPOSED PATH	
FIBER ROLL 12IN	
SEEDING CLASS III/ HYDRAULIC MULCH	

20 0 20 40
SCALE FEET

N

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

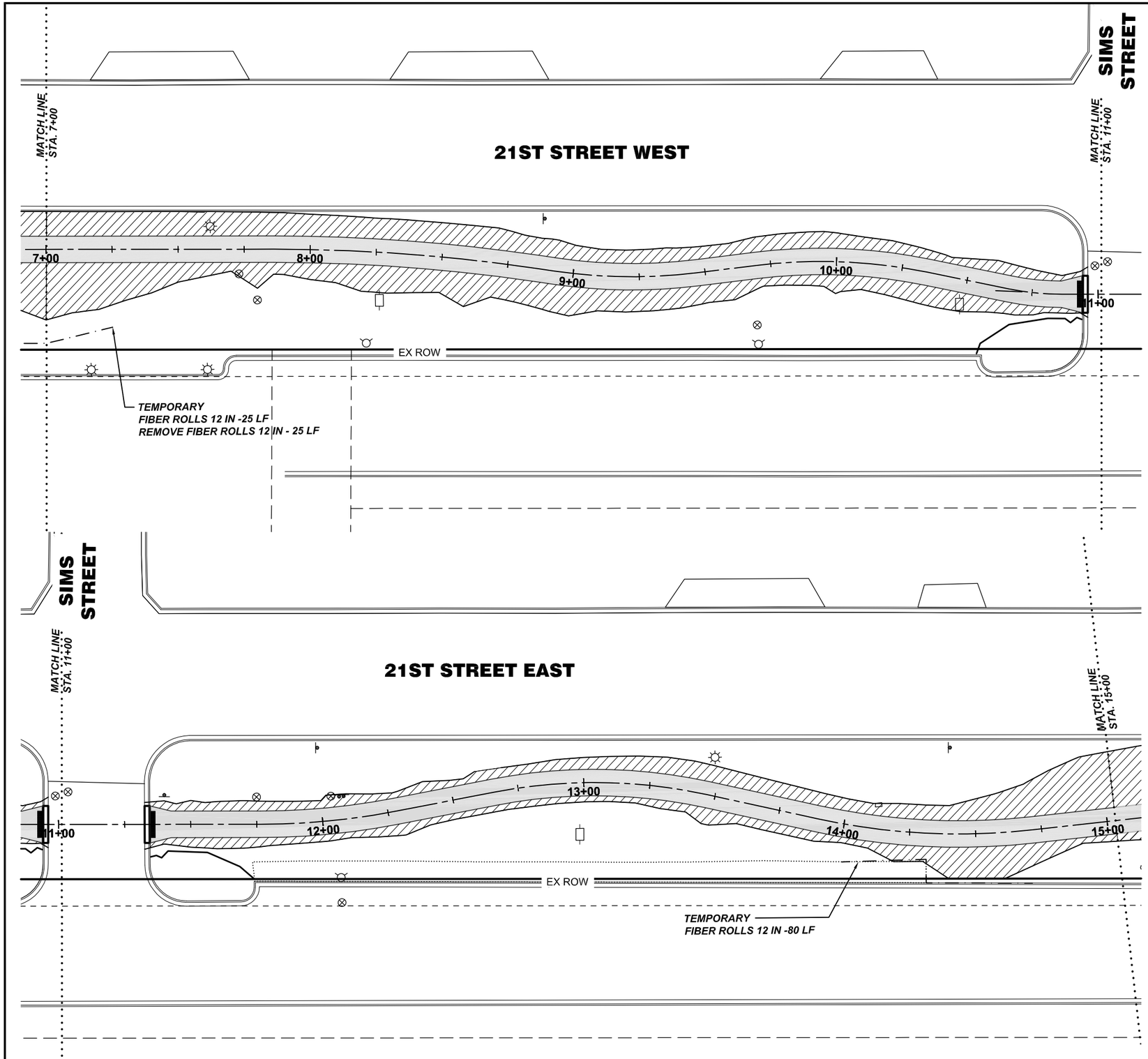
KLJ

STA. 0+00 TO STA. 7+00 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

Aug 25, 2017 - 4:26pm - \\dksn-files01\P\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)ErosionControl_20150825.dwg (76-1)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	76	2



NOTES:

1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

TEMPORARY EROSION CONTROL

FIBER ROLLS 12IN

STA. 7+00 TO STA 7+25 RT= 25 L.F.
STA. 14+00 TO STA 14+60 RT= 80 L.F.
TOTAL = 105 L.F.

REMOVE FIBER ROLLS 12IN

STA. 7+00 TO STA 7+25 RT = 25 L.F.

PERMANENT EROSION CONTROL

SEEDING CLASS III

STA. 7+00 TO STA 15+00 = 0.22 ACRE

HYDRAULIC MULCH

STA. 7+00 TO STA 15+00 = 0.22 ACRE

LEGEND

PROPOSED PATH

FIBER ROLL 12IN

SEEDING CLASS III/ HYDRAULIC MULCH

20 0 20 40
SCALE FEET

N

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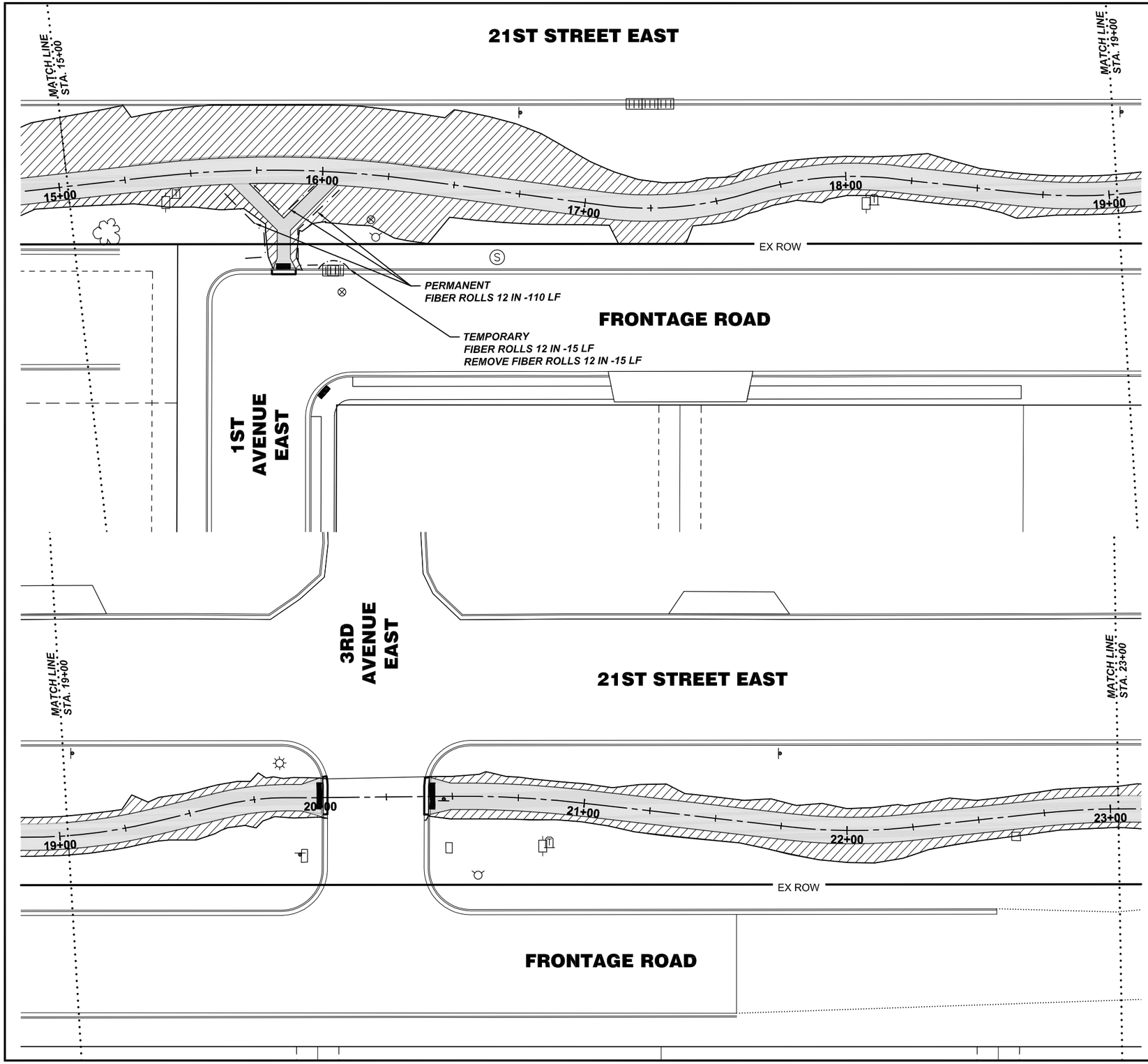
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 7+00 TO STA. 15+00 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	76	3



NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

TEMPORARY EROSION CONTROL

FIBER ROLLS 12IN
STA. 16+00 RT= 15 L.F.

REMOVE FIBER ROLLS 12IN
STA. 16+00 RT = 15 L.F.

PERMANENT EROSION CONTROL

SEEDING CLASS III
STA. 15+00 TO STA. 23+00 = 0.22 ACRE

HYDRAULIC MULCH
STA. 15+00 TO STA. 23+00 = 0.22 ACRE

FIBER ROLLS 12IN
STA. 15+50 TO STA. 16+10 = 110 L.F.

LEGEND

PROPOSED PATH
FIBER ROLL 12IN
SEEDING CLASS III/ HYDRAULIC MULCH

20 0 20 40
SCALE FEET

N

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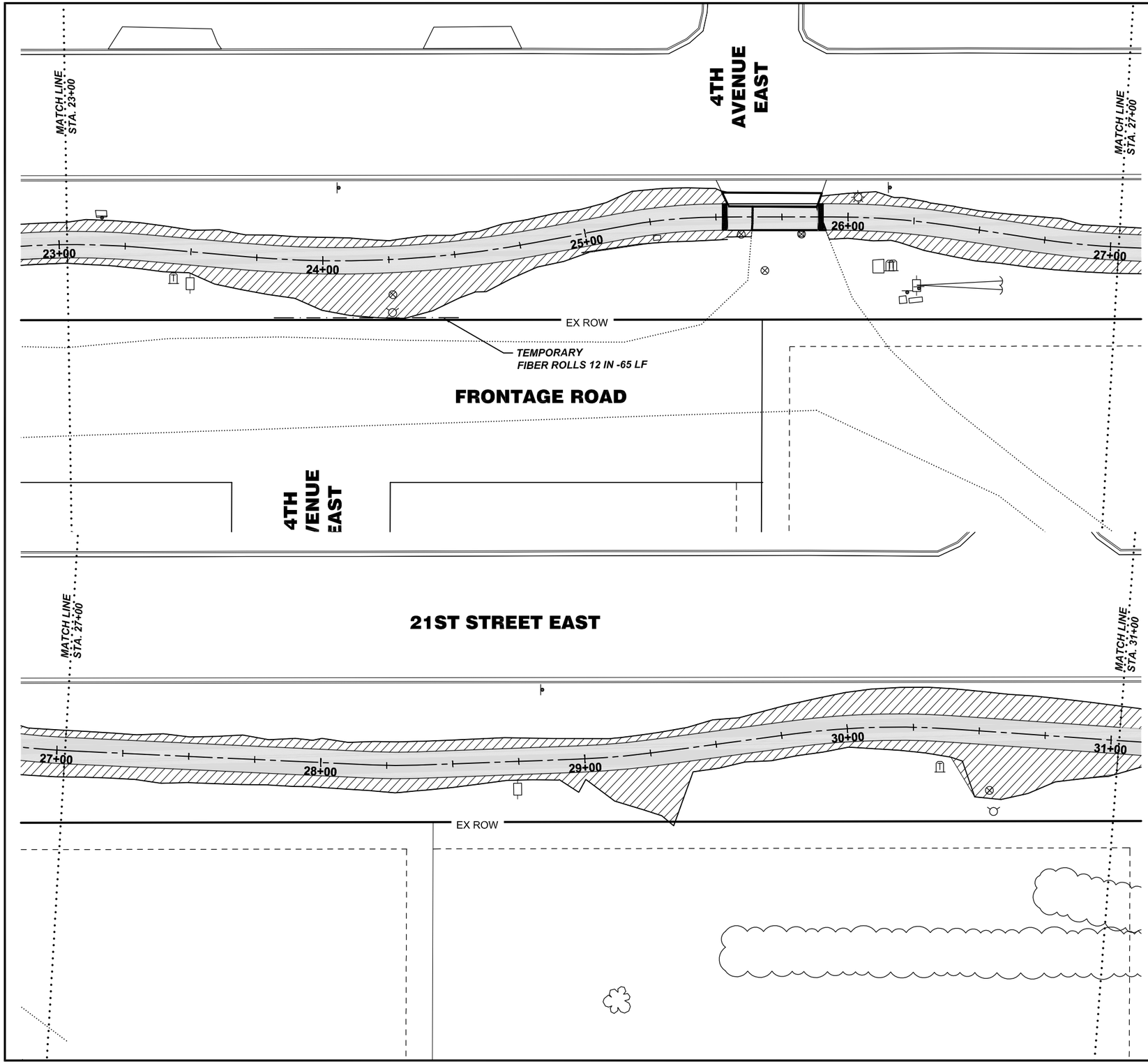
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 15+00 TO STA. 23+00 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	76	4



NOTES:

1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

TEMPORARY EROSION CONTROL

FIBER ROLLS 12IN

STA. 23+85 TO STA 24+50 RT= 65 L.F.

PERMANENT EROSION CONTROL

SEEDING CLASS III

STA. 23+00 TO STA. 31+00 = 0.20 ACRE

HYDRAULIC MULCH

STA. 23+00 TO STA. 31+00 = 0.20 ACRE

LEGEND

PROPOSED PATH

FIBER ROLL 12IN

SEEDING CLASS III/ HYDRAULIC MULCH

20 0 20 40

SCALE FEET

N

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.

CITY OF DICKINSON

DICKINSON, ND

STA. 23+00 TO STA. 31+00 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	76	5

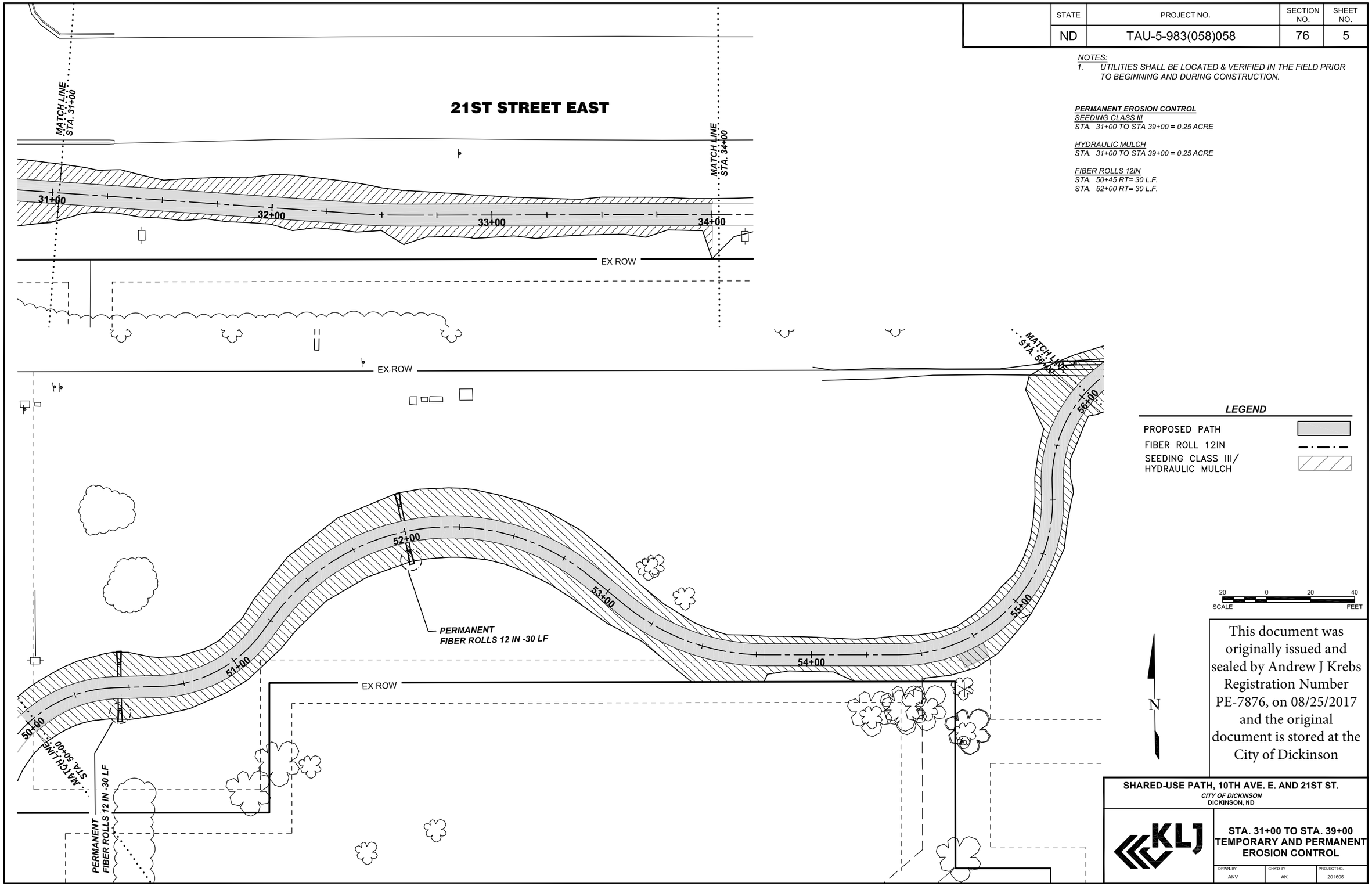
NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PERMANENT EROSION CONTROL

SEEDING CLASS III
STA. 31+00 TO STA 39+00 = 0.25 ACRE

HYDRAULIC MULCH
STA. 31+00 TO STA 39+00 = 0.25 ACRE

FIBER ROLLS 12IN
STA. 50+45 RT= 30 L.F.
STA. 52+00 RT= 30 L.F.



LEGEND

- PROPOSED PATH
- FIBER ROLL 12IN
- SEEDING CLASS III/ HYDRAULIC MULCH

SCALE: 20 0 20 40 FEET

N

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 31+00 TO STA. 39+00 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	76	6

EX ROW

10TH AVENUE EAST

MATCH LINE
STA. 56+00

MATCH LINE
STA. 60+00

56+00 57+00 58+00 59+00 60+00

EX ROW

PERMANENT FIBER ROLLS 12 IN -30 LF

PERMANENT FIBER ROLLS 12 IN -30 LF

19TH STREET EAST

EX ROW

MATCH LINE
STA. 60+00

10TH AVENUE EAST

MATCH LINE
STA. 64+00

60+00 61+00 62+00 63+00 64+00

EX ROW

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

PERMANENT EROSION CONTROL

SEEDING CLASS III
STA. 56+00 TO STA. 64+00 = 0.13 ACRE

HYDRAULIC MULCH
STA. 56+00 TO STA. 64+00 = 0.13 ACRE

FIBER ROLLS 12IN
STA. 56+64 RT= 30 L.F.
STA. 58+75 RT= 30 L.F.

LEGEND

PROPOSED PATH

FIBER ROLL 12IN

SEEDING CLASS III/
HYDRAULIC MULCH

N

20 0 20 40
SCALE FEET

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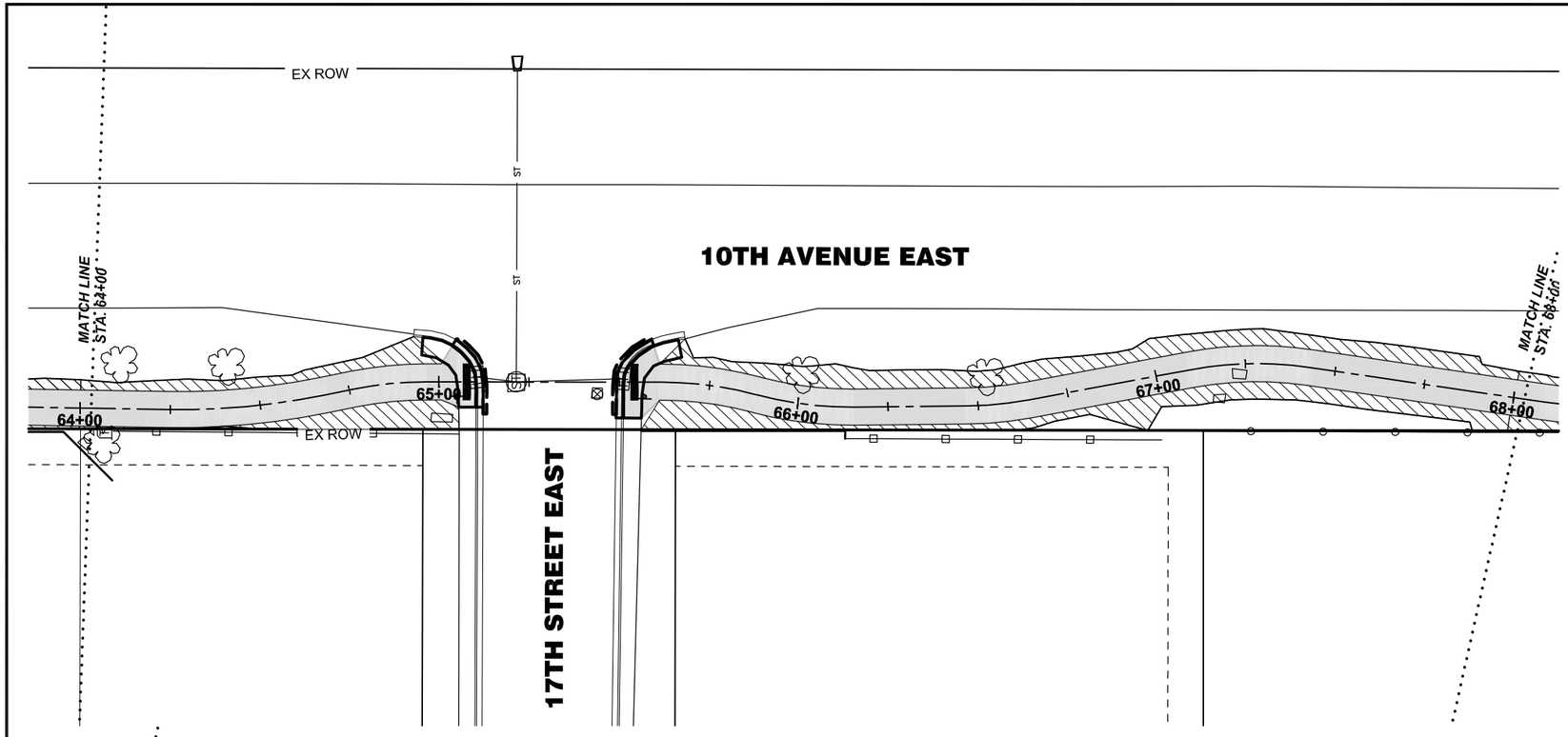
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

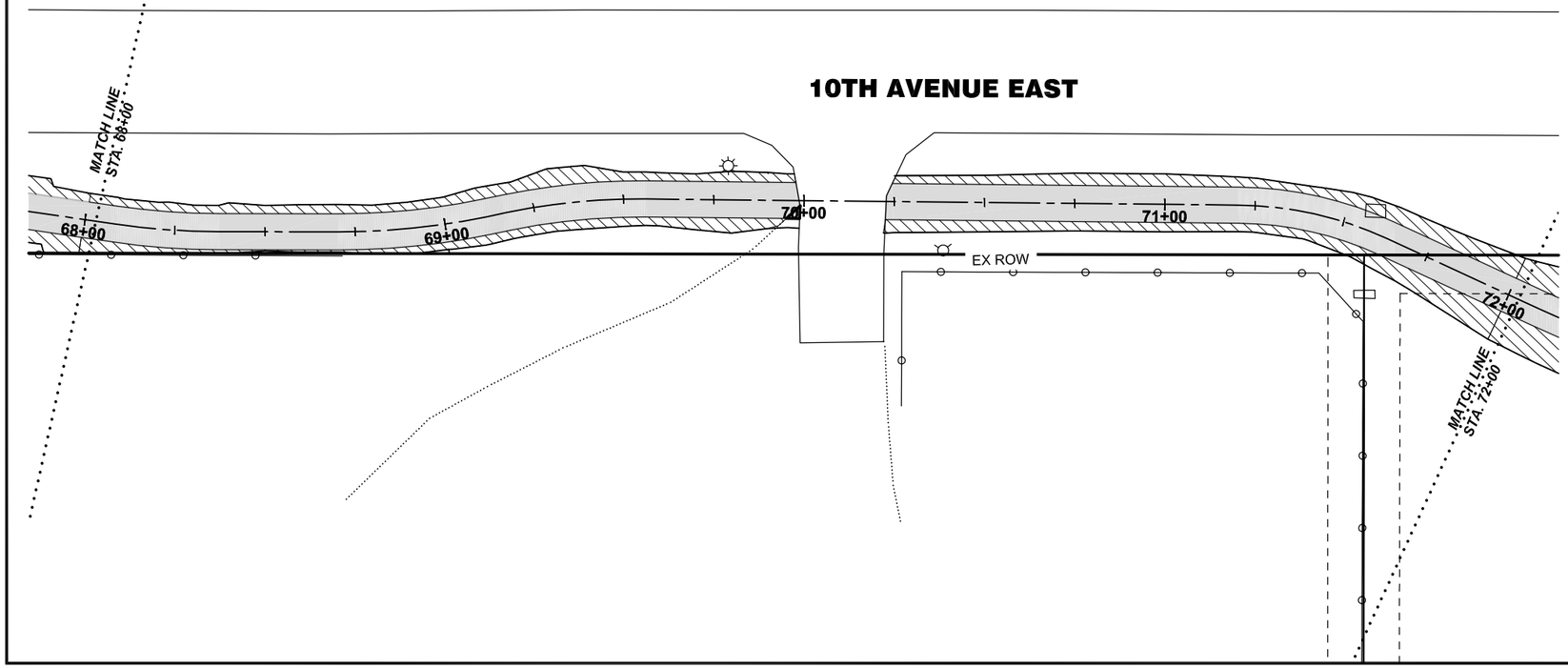
KLJ

STA. 56+00 TO STA. 64+00 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	76	7





NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PERMANENT EROSION CONTROL

SEEDING CLASS III

STA. 64+00 TO STA. 68+00 = 0.11 ACRE

HYDRAULIC MULCH

STA. 64+00 TO STA. 68+00 = 0.11 ACRE

LEGEND

PROPOSED PATH

FIBER ROLL 12IN

SEEDING CLASS III/ HYDRAULIC MULCH

N

20 0 20 40

SCALE FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.

CITY OF DICKINSON

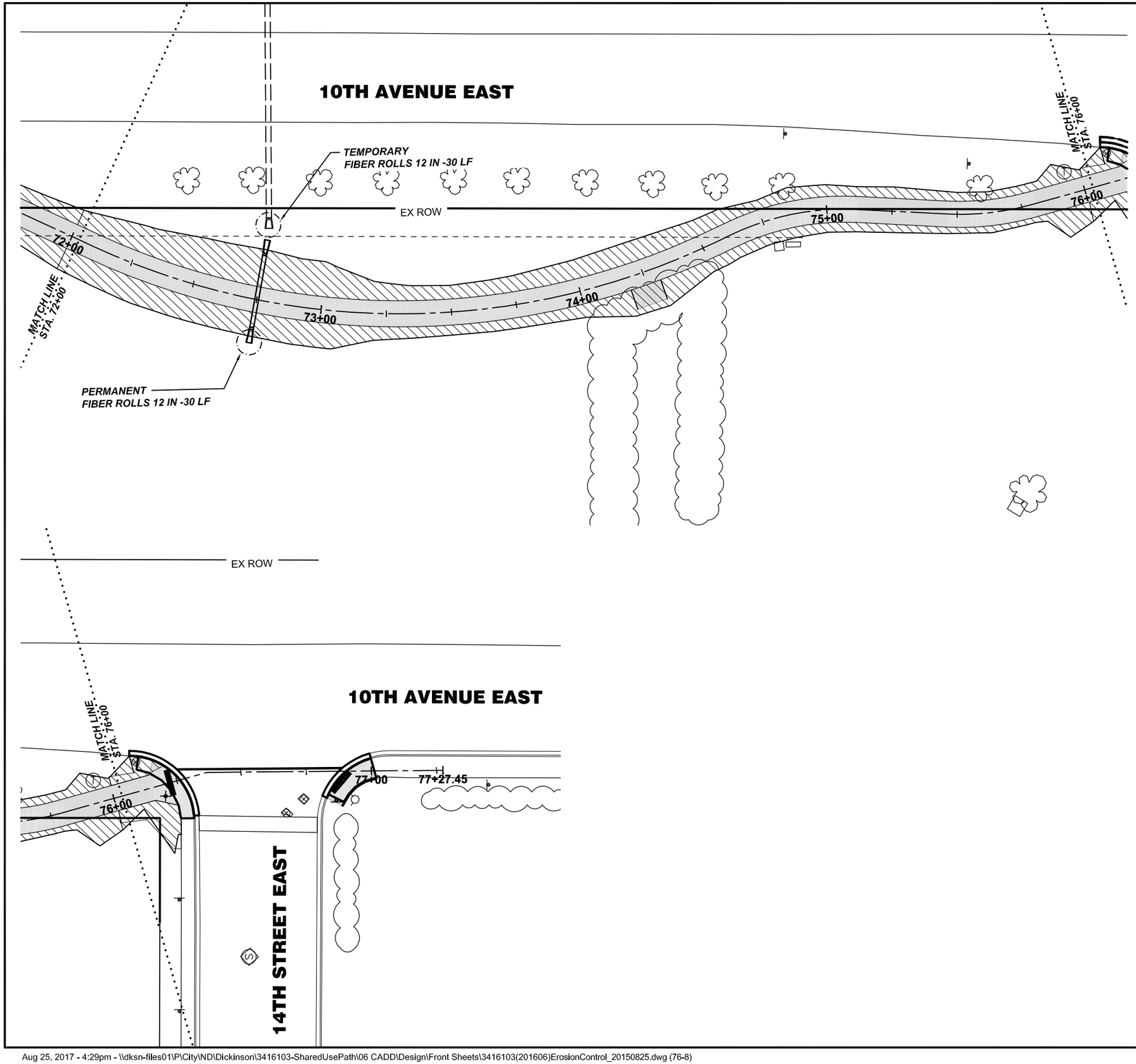
DICKINSON, ND

STA. 64+00 TO STA. 72+00 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

Aug 25, 2017 - 4:29pm - \\dksn-files01\P\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)ErosionControl_20150825.dwg (76-7)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	76	8



NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

TEMPORARY EROSION CONTROL

FIBER ROLLS 12IN

STA. 72+75 LT= 30 L.F.

PERMANENT EROSION CONTROL

SEEDING CLASS III

STA. 72+00 TO STA 77+27 = 0.13 ACRE

HYDRAULIC MULCH

STA. 72+00 TO STA 77+27 = 0.13 ACRE

FIBER ROLLS 12IN

STA. 72+75 RT= 30 L.F.

LEGEND

PROPOSED PATH

FIBER ROLL 12IN

SEEDING CLASS III/ HYDRAULIC MULCH

N

20 0 20 40

SCALE FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.

CITY OF DICKINSON

DICKINSON, ND

STA. 72+00 TO STA. 77+27.45 TEMPORARY AND PERMANENT EROSION CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
ANV	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	81	1

PI Station	Northing	Easting	Distance	Direction
50	459,913.8009'	1,396,289.6770'		
			50.000'	S88° 33' 02.08"E
0	459,912.5361'	1,396,339.6610'		
			19.811'	S85° 30' 08.71"E
0+19.81	459,910.9826'	1,396,359.4107'		
			336.594'	S83° 56' 44.20"E
3+56.40	459,875.4813'	1,396,694.1271'		
			204.088'	S80° 40' 19.80"E
5+60.48	459,842.4021'	1,396,895.5160'		
			275.999'	S88° 27' 30.38"E
8+36.26	459,834.9772'	1,397,171.4151'		
			84.081'	S80° 00' 24.97"E
9+20.16	459,820.3867'	1,397,254.2205'		
			82.364'	N84° 30' 46.41"E
10+02.19	459,828.2625'	1,397,336.2074'		
			74.710'	S76° 52' 32.06"E
10+76.33	459,811.2984'	1,397,408.9656'		
			125.950'	S88° 27' 10.40"E
12+02.21	459,807.8979'	1,397,534.8702'		
			104.957'	N80° 37' 42.72"E
13+07.01	459,824.9885'	1,397,638.4263'		
			125.035'	S76° 05' 55.23"E
14+30.91	459,794.9488'	1,397,759.7992'		
			155.897'	N85° 13' 56.31"E
15+86.08	459,807.9064'	1,397,915.1572'		
			149.615'	S80° 41' 09.02"E
17+35.19	459,783.6915'	1,398,062.7994'		
			58.896'	N74° 10' 30.12"E
17+93.16	459,799.7524'	1,398,119.4629'		
			109.095'	S81° 38' 23.06"E
19+01.28	459,783.8903'	1,398,227.3983'		

PI Station	Northing	Easting	Distance	Direction
			73.873'	N77° 53' 36.66"E
19+74.44	459,799.3837'	1,398,299.6286'		
			28.405'	S88° 41' 36.06"E
20+02.74	459,798.7360'	1,398,328.0261'		
			71.801'	S89° 02' 14.56"E
20+74.54	459,797.5297'	1,398,399.8170'		
			126.579'	S81° 50' 33.37"E
22+01.05	459,779.5690'	1,398,525.1155'		
			101.876'	N85° 26' 50.70"E
23+02.74	459,787.6553'	1,398,626.6700'		
			123.410'	S83° 22' 12.87"E
24+25.97	459,773.4073'	1,398,749.2549'		
			108.037'	N81° 00' 52.08"E
25+33.32	459,790.2811'	1,398,855.9665'		
			83.701'	S88° 28' 18.69"E
26+16.92	459,788.0489'	1,398,939.6381'		
			71.517'	S79° 45' 07.68"E
26+88.35	459,775.3256'	1,399,010.0139'		
			139.856'	S85° 44' 46.91"E
28+28.18	459,764.9522'	1,399,149.4850'		
			83.463'	N89° 26' 55.69"E
29+11.63	459,765.7552'	1,399,232.9438'		
			97.744'	N83° 56' 27.18"E
30+09.35	459,776.0725'	1,399,330.1416'		
			240.536'	S84° 26' 04.56"E
32+49.68	459,752.7448'	1,399,569.5443'		
			266.467'	S88° 33' 31.23"E
35+16.14	459,746.0423'	1,399,835.9271'		
			136.053'	N89° 04' 52.07"E
36+52.19	459,748.2241'	1,399,971.9630'		
			1,356.800'	S88° 30' 19.98"E

PI Station	Northing	Easting	Distance	Direction
50+08.98	459,712.8386'	1,401,328.3012'		
			107.857'	S0° 01' 49.53"E
50+92.64	459,604.9813'	1,401,328.3584'		
			144.382'	S51° 42' 41.04"E
52+33.03	459,515.5193'	1,401,441.6834'		
			160.513'	S41° 07' 59.21"W
53+45.40	459,394.6235'	1,401,336.0963'		
			170.392'	S1° 34' 55.29"W
55+12.91	459,224.2969'	1,401,331.3921'		
			121.131'	N89° 00' 41.93"E
56+00.72	459,226.3863'	1,401,452.5051'		
			66.208'	S17° 44' 15.36"E
56+54.43	459,163.3259'	1,401,472.6759'		
			37.908'	S1° 31' 46.95"W
56+91.95	459,125.4313'	1,401,471.6639'		
			40.725'	S15° 32' 26.80"W
57+32.55	459,086.1956'	1,401,460.7528'		
			48.800'	S14° 10' 30.95"E
57+80.16	459,038.8818'	1,401,472.7033'		
			289.095'	S0° 59' 13.44"W
60+69.10	458,749.8299'	1,401,467.7231'		
			80.338'	S11° 12' 13.64"W
61+49.34	458,671.0228'	1,401,452.1135'		
			66.821'	S14° 52' 49.04"E
62+15.36	458,606.4428'	1,401,469.2731'		
			60.408'	S17° 45' 27.47"W
62+74.18	458,548.9129'	1,401,450.8492'		
			172.342'	S2° 16' 03.50"W
64+46.19	458,376.7060'	1,401,444.0301'		
			40.372'	S10° 05' 47.56"E
64+86.39	458,336.9593'	1,401,451.1076'		

PI Station	Northing	Easting	Distance	Direction
			88.771'	S1° 25' 49.87"W
65+75.09	458,248.2159'	1,401,448.8914'		
			26.937'	S16° 23' 07.66"W
66+01.88	458,222.3731'	1,401,441.2926'		
			53.739'	S0° 49' 04.97"W
66+55.45	458,168.6391'	1,401,440.5254'		
			70.984'	S9° 13' 29.14"E
67+26.39	458,098.5735'	1,401,451.9046'		
			96.655'	S9° 42' 59.73"W
68+22.74	458,003.3050'	1,401,435.5917'		
			68.377'	S1° 25' 53.94"W
68+91.07	457,934.9496'	1,401,433.8833'		
			45.978'	S10° 20' 57.65"E
69+36.90	457,889.7197'	1,401,442.1432'		
			205.218'	S1° 56' 25.65"W
71+41.97	457,684.6196'	1,401,435.1944'		
			200.186'	S26° 07' 41.87"W
73+41.52	457,504.8904'	1,401,347.0359'		
			163.040'	S24° 27' 22.33"E
74+87.14	457,356.4784'	1,401,414.5342'		
			76.762'	S4° 12' 36.92"W
75+62.82	457,279.9232'	1,401,408.8985'		
			74.566'	S14° 14' 14.26"E
76+37.12	457,207.6472'	1,401,427.2372'		
			90.327'	S0° 52' 16.21"W
77+27.45	457,117.3307'	1,401,425.8639'		

SURVEY NOTES

THIS SURVEY DOES NOT CONSTITUTE A BOUNDARY SURVEY. THE PROPERTY AND RIGHT-OF-WAY LINES DEPICTED HEREIN ARE FOR PLANNING PURPOSES ONLY. THE LOCATIONS OF LOT AND PROPERTY LINES WERE DETERMINED FROM RECORD DOCUMENTS AND FOUND MONUMENTS.

THE LOCATION OF UTILITIES DEPICTED HEREON WERE DERIVED FROM UTILITY LOCATES FROM NORTH DAKOTA ONE CALL, UTILITY MAPS, AND FOUND APPURTENANCES. CONTACT THE APPROPRIATE UTILITY COMPANIES FOR THE EXACT LOCATION AND NATURE OF UTILITIES.

FIELD SURVEY CONDUCTED IN FEBRUARY OF 20167

KLJ FIELD BOOK INFORMATION

FIELD BOOK M-1136, PAGES 1-20

BASIS OF SURVEY

THE BASIS OF BEARING AND COORDINATES FOR THIS SURVEY ARE IN NORTH DAKOTA STATE PLANE SOUTH ZONE, NAD-83(2011) IN US SURVEY FEET. DIMENSIONS SHOWN HEREIN ARE GRID BEARINGS AND GRID DISTANCES.

VERTICAL DATUM IS NAVD-88.

COMBINED SCALE FACTOR TO CONVERT FROM STATE PLANE DISTANCES (GRID) TO GROUND DISTANCES IS 1.00018063262.

This document was originally issued and sealed by Eric L Hearon Registration Number LS-9654, on 08/25/2017 and the original document is stored at the City of Dickinson

SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

ALIGNMENT TABLE

DRWN BY	CHKD BY	PROJECT NO.
SR	EH	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	81	2

SURVEY CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	LATITUDE	LONGITUDE	DESCRIPTION
1	450,262.57	1,402,952.85	2,451.77	46°52'44.37610"	-102°45'42.59773"	CP
10	459,822.12	1,396,356.12	2,504.36	46°54'16.81327"	-102°47'21.53215"	TOP NUT FH
11	459,809.79	1,396,754.28	2,507.66	46°54'16.80607"	-102°47'15.79487"	TOP NUT FH
12	459,799.84	1,397,155.38	2,508.13	46°54'16.82307"	-102°47'10.01728"	TOP NUT FH
13	459,795.29	1,397,303.74	2,515.13	46°54'16.82092"	-102°47'07.87827"	TOP NUT FH
14	459,787.61	1,397,539.07	2,516.91	46°54'16.81281"	-102°47'04.48743"	TOP NUT FH
15	459,778.55	1,397,948.53	2,504.45	46°54'16.84008"	-102°46'58.58844"	TOP NUT FH
16	459,767.83	1,398,384.18	2,513.01	46°54'16.86006"	-102°46'52.31272"	TOP NUT FH
17	459,757.09	1,398,749.38	2,513.49	46°54'16.85806"	-102°46'47.04973"	TOP NUT FH
18	459,741.48	1,399,375.35	2,530.61	46°54'16.88379"	-102°46'38.03218"	TOP NUT FH
19	459,723.93	1,400,274.59	2,510.83	46°54'16.96764"	-102°46'25.07818"	TOP NUT FH
20	459,854.79	1,401,338.66	2,472.55	46°54'18.56260"	-102°46'09.81428"	TOP NUT FH
21	459,583.87	1,401,328.60	2,468.89	46°54'15.88674"	-102°46'09.84603"	BM21
22	459,097.51	1,401,555.49	2,475.86	46°54'11.15207"	-102°46'06.37790"	BM22
23	458,306.89	1,401,535.47	2,483.61	46°54'03.34600"	-102°46'06.33663"	BM23
24	457,157.80	1,401,505.59	2,483.06	46°53'51.99884"	-102°46'06.28980"	BM24

This document was originally issued and sealed by Eric L Hearon Registration Number LS-9654, on 08/25/2017 and the original document is stored at the City of Dickinson

SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

SURVEY CONTROL POINTS

DRWN BY	CHK'D BY	PROJECT NO.
SR	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)		6	
G20-1-60	**60"x24"**	**ROAD WORK NEXT __ MILES**	**2**	**34**	**68**
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)		26	
G20-2-48	**48"x24"**	**END ROAD WORK**	**5**	**19**	**95**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-10-108	108"x48"	CONTRACTOR SIGN		64	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS		37	
G20-52a-72	**72"x24"**	**ROAD WORK NEXT __ MILES RT or LT ARROW**	**6**	**30**	**180**
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)		10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)		10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)		7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)		7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)		7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)		7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)		7	
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT		15	
M4-10-48	48"x18"	DETOUR ARROW RIGHT or LEFT		23	
M5-1-21	21"x15"	ARROW AHD AND RT or LT(Mounted on route marker post)		7	
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)		7	
M6-1-21	21"x15"	ARROW RT or LT (Mounted on route marker post)		7	
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)		7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-1a-18	**18"x18"**	**STOP and SLOW PADDLE Back to Back**	**2**	**5**	**10**
R1-2-60	60"x60"	YIELD		29	
R2-1-36	**36"x48"**	**SPEED LIMIT __**	**4**	**23**	**92**
R2-1-48	48"x60"	SPEED LIMIT __		39	
R2-1a-24	24"x18"	MINIMUM FEE $80 (Mounted on Speed Limit post)		10	
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT		35	
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT		13	
R7-1-12	12"x18"	NO PARKING		11	
R9-9-24	**24"x12"**	**SIDEWALK CLOSED**	**8**	**12**	**96**
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED		28	
R11-2a-48	**48"x30"**	**STREET CLOSED**	**2**	**28**	**56**
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY		31	
R11-4a-60	**60"x30"**	**STREET CLOSED TO THRU TRAFFIC**	**2**	**31**	**62**
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW		35	
W1-4-48	48"x48"	RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW		35	
W1-6-48	48"x24"	LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL		35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	**48"x48"**	**SPEED REDUCTION AHEAD**	**2**	**35**	**70**
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL		35	
W5-1-48	48"x48"	ROAD NARROWS		35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE		35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW		35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL		35	
W8-1-48	**48"x48"**	**BUMP**	**4**	**35**	**140**
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER STRIPE		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	**48"x48"**	**TRUCKS ENTERING AHEAD or __ FT.**	**2**	**35**	**70**
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT.		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL		35	
W13-1-24	24"x24"	__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)		11	
W13-4-48	48"x60"	RAMP ARROW		39	
W14-3-48	48"x36"	NO PASSING ZONE		23	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**6**	**35**	**210**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT.		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.		35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.		35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**	**2**	**35**	**70**
W20-7k-24	24"x18"	__ FEET (Mounted on warning sign post)		10	
W20-8-48	48"x48"	STREET CLOSED		35	
W20-51-48	48"x48"	EQUIPMENT WORKING		35	
W20-52-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)		12	
W21-1a-48	**48"x48"**	**WORKERS SYMBOL**	**2**	**35**	**70**

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT		35	
W21-5-48	**48"x48"**	**SHOULDER WORK**	**2**	**35**	**70**
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.		35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)		11	

SPECIAL SIGNS

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**1359**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH	
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH	
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1051	TYPE II BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**32**
704-1060	**DELINEATOR DRUMS**	**EACH**	**40**
704-1065	TRAFFIC CONES	EACH	
704-1067	**TUBULAR MARKERS**	**EACH**	**100**
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH	
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH	
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH	
704-1095	TYPE B FLASHERS	EACH	
704-1500	OBLITERATION OF PVMT MK	SF	
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF	
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH	
762-0200	RAISED PAVEMENT MARKERS	EACH	
762-0420	SHORT TERM 4IN LINE - TYPE R	LF	
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF	
772-2110	FLASHING BEACON - POST MOUNTED	EACH	

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-19.06 of the Design Manual.
http://www.dot.nd.gov/

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Traffic Control Devices List

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	100	2

BEGIN PROJECT

ROAD WORK NEXT 1 MILES
G20-52a-72 POST MOUNTED

G20-2-48 POST MOUNTED
END ROAD WORK

ROAD WORK AHEAD
W20-1-48 SKID MOUNTED

ROAD WORK NEXT 1 MILES
G20-52a-72 POST MOUNTED

STREET CLOSED
*R11-2a-48 BARRICADE MOUNTED

ROAD WORK AHEAD
W20-1-48 SKID MOUNTED

STREET CLOSED TO THRU TRAFFIC
*R11-4-60 BARRICADE MOUNTED

STREET CLOSED
*R11-2a-48 BARRICADE MOUNTED

ROAD WORK NEXT 0.5MILES
G20-52a-72 SKID MOUNTED

ROAD WORK AHEAD
W20-1-48 POST MOUNTED

ROAD WORK NEXT 1 MILES
G20-52a-72 POST MOUNTED

TIE IN TO EXISTING PATH

TIE IN TO EXISTING PATH

*R11-4-60 BARRICADE MOUNTED
STREET CLOSED TO THRU TRAFFIC

STREET CLOSED
*R11-2a-48 BARRICADE MOUNTED

EATON DRIVE

G20-2-48 POST MOUNTED
END ROAD WORK

ROAD WORK NEXT 0.5MILES
G20-52a-72 POST MOUNTED

END PROJECT

ROAD WORK AHEAD
W20-1-48 POST MOUNTED

G20-2-48 POST MOUNTED
END ROAD WORK

ROAD WORK AHEAD
W20-1-48 POST MOUNTED

N

TRAFFIC LANE
COMPACTED MATERIAL
4:1
SAW CUT LINE
WEDGE DETAIL

LEGEND
- DELINEATOR DRUM
- TUBULAR MARKER

SHARED USE PATH
6'
5'
5' TYPICAL

VERTICAL DROP OFF TRAFFIC CONTROL DETAIL

SCALE 250 0 250 500 FEET

*Note: For use during intersection reconstruction.

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

WORK ZONE TRAFFIC CONTROL

DRWN. BY	CHK'D BY	PROJECT NO.
AK	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
N.D.	TAU-5-983(058)058	110	1

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	Support Size	Max Post Len LF	Sleeve Length 1st LF	2nd LF	3rd LF	4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
0+18 Rt	D11-1		7.0		7.40				5.0	2 x 2 12 ga	13.0						1	4	2.25 x 2.25 12 ga				SA A, Mounted with M4-14 (W facing) M4-6 (E facing)
0+83 Lt	SN-1	9			7.70				5.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga	1			
1+51 Lt	R2-1	9			7.70				5.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga	1			
3+46 Rt	R1-1	1		5.2	7.70				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
5+13 Rt	R1-1	1		5.2	7.70				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
6+30 Lt	R8-3a	9			7.70				5.0	2 x 2 12 ga	11.5						1	4	2.25 x 2.25 12 ga	1			
10+86 Lt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
11+40 Rt	R1-1	1			7.70				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1			
11+46 Rt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
15+93 Rt	W11-2			8.3	10.70				7.0	2.5 x 2.5 12 ga	11.8						1	4	3 x 3 7 ga				SA B, Mount with W16-7PL-24
16+03 Rt	W11-2			8.3	10.70				7.0	2.5 x 2.5 12 ga	11.8						1	4	3 x 3 7 ga				SA B, Mount with W16-7PL-24
16+13 Rt	W11-2			8.3	10.70				7.0	2.5 x 2.5 12 ga	11.8						1	4	3 x 3 7 ga				SA B, Mount w/ 16-9P-24
16+96 Rt	W11-2			8.3	10.70				7.0	2.5 x 2.5 12 ga	11.8						1	4	3 x 3 7 ga				SA B, Mount w/ W16-9P-24
19+92 Lt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
20+46 Rt	R1-1	1			7.70				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga	1			
20+52 Rt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
25+98 Rt	R1-1	1		5.2	7.70				5.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
48+51 Lt	W1-5L	102		2.3	7.20				5.0	2 x 2 12 ga	17.8						1	4	2.25 x 2.25 12 ga				
57+92 Lt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
58+59 Rt	R1-1		15.0		11.40				7.0	2.5 x 2.5 12 ga	12.5						1	4	3 x 3 7 ga	1			SA 2E, Standard Drawing D-754-87, Mount with SS1 (2) and SS4 (2)
58+64 Lt	W1-5L	102		2.3	7.20				5.0	2 x 2 12 ga	17.8						1	4	2.25 x 2.25 12 ga				
58+74 Rt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
64+95 Lt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
65+61 Rt	R1-1		15.0		11.40				7.0	2.5 x 2.5 12 ga	12.5						1	4	3 x 3 7 ga	1			
65+67 Rt	D11-1	29	3.0		6.90				5.0	2 x 2 12 ga	13.6						1	4	2.25 x 2.25 12 ga				
76+13 Lt	D11-1		7.0		7.40				5.0	2 x 2 12 ga	13.0						1	4	2.25 x 2.25 12 ga				SA A, Mount w/ M4-14(S Facing) and M4-6(N Facing)
76+87 Rt	R1-1		15.0		11.40				7.0	2.5 x 2.5 12 ga	12.5						1	4	3 x 3 7 ga	1			SA 2E, Standard Drawing D-754-87, Mount w/ SS1 (2) and SS2 (2)
Sub Total			83.00	53.40	**Total**	223.00											**Total**	108		8	0	0	
Grand Total			**83.0**	**53.4**	**Total**	**223.00**											**Total**	**108**	**0**	**8**	**0**	**0**	

Basis of Estimate Sign Support Lengths
The sign support lengths have been calculated using the following vertical clearances:
Bike Route - 60"
Urban Section outside of pedestrian movements - 60"
Areas where parking and/or pedestrian movement will occur - 84"

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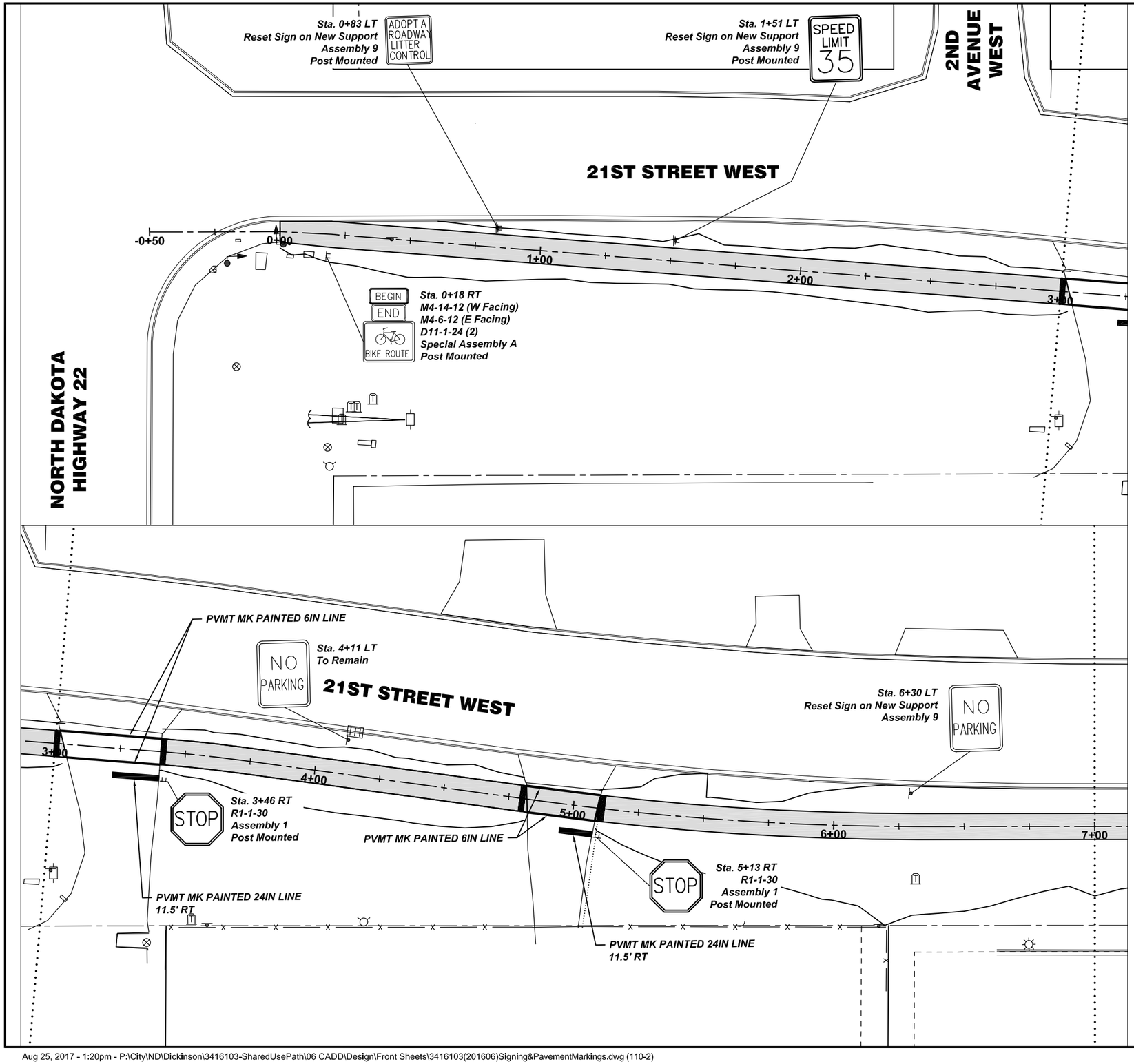
Sign Summary
Perforated Tube

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	110	2

NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PVMT MK PAINTED 6IN LINE
Crosswalk 133 LF

PVMT MK PAINTED 24IN LINE
Stop Bar 31 LF



LEGEND

PROPOSED PATH

20 0 20 40
SCALE FEET

N

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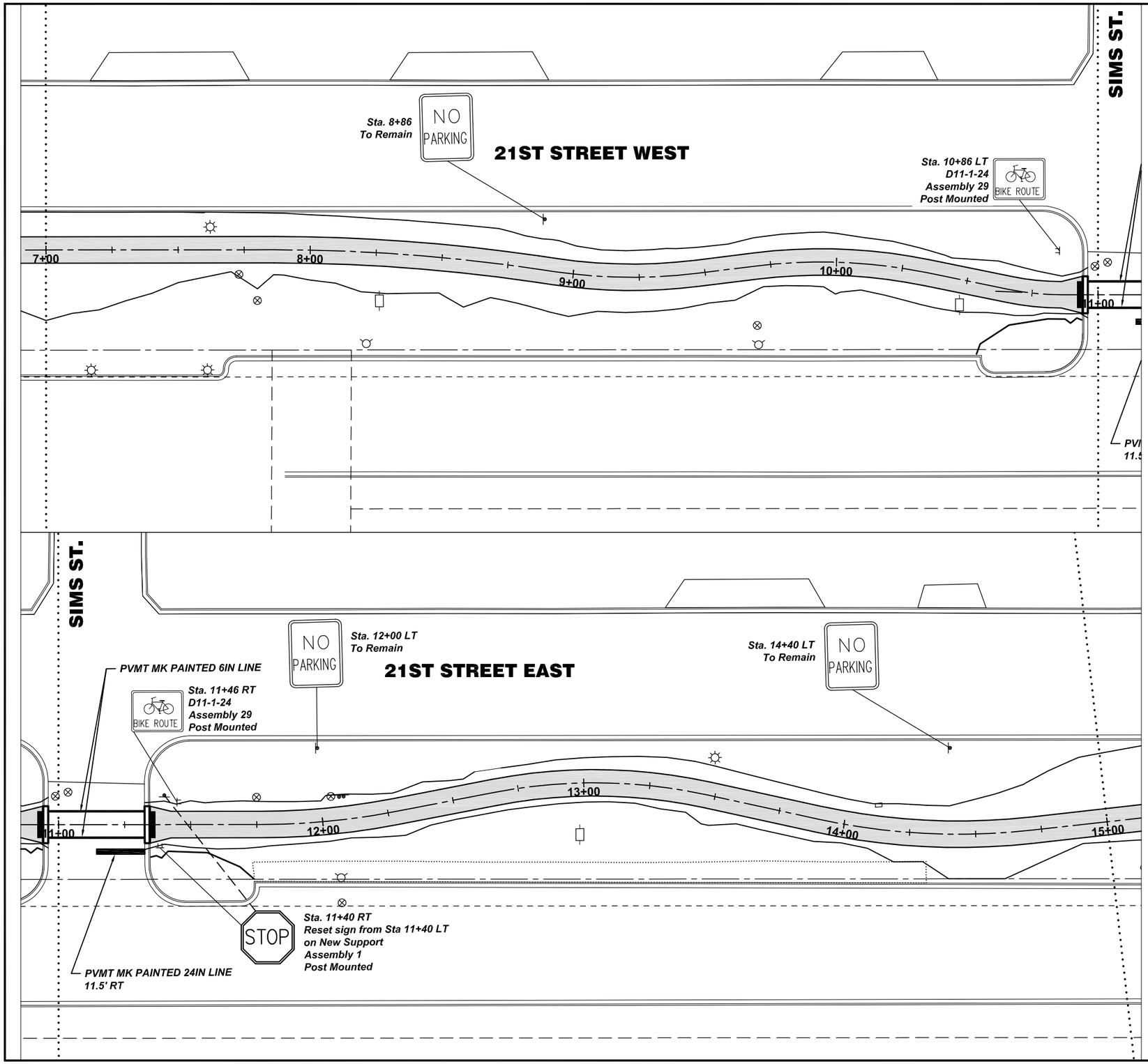
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

STA. 0+00 TO STA. 7+00
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	3



NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PVMT MK PAINTED 6IN LINE
Crosswalk 73 LF

PVMT MK PAINTED 24IN LINE
Stop Bar 19 LF

LEGEND

PROPOSED PATH

20 0 20 40
SCALE FEET

N

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

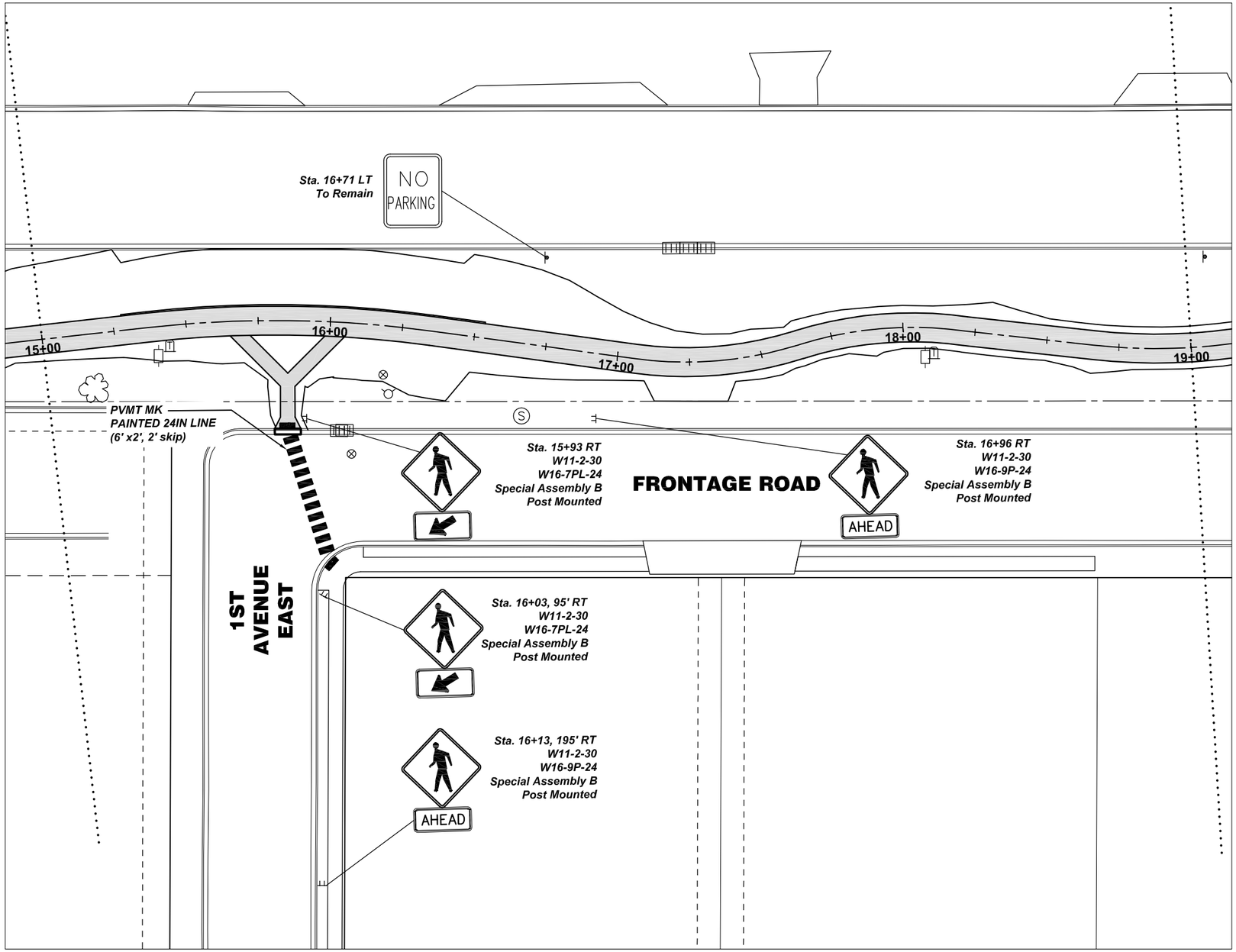
KLJ

STA. 7+00 TO STA. 15+00
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

Aug 25, 2017 - 1:21pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Signing&PavementMarkings.dwg (110-3)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	4



NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PVMT MK PAINTED 24IN LINE
Crosswalk 66 LF

LEGEND

PROPOSED PATH

20 0 20 40
SCALE FEET

N

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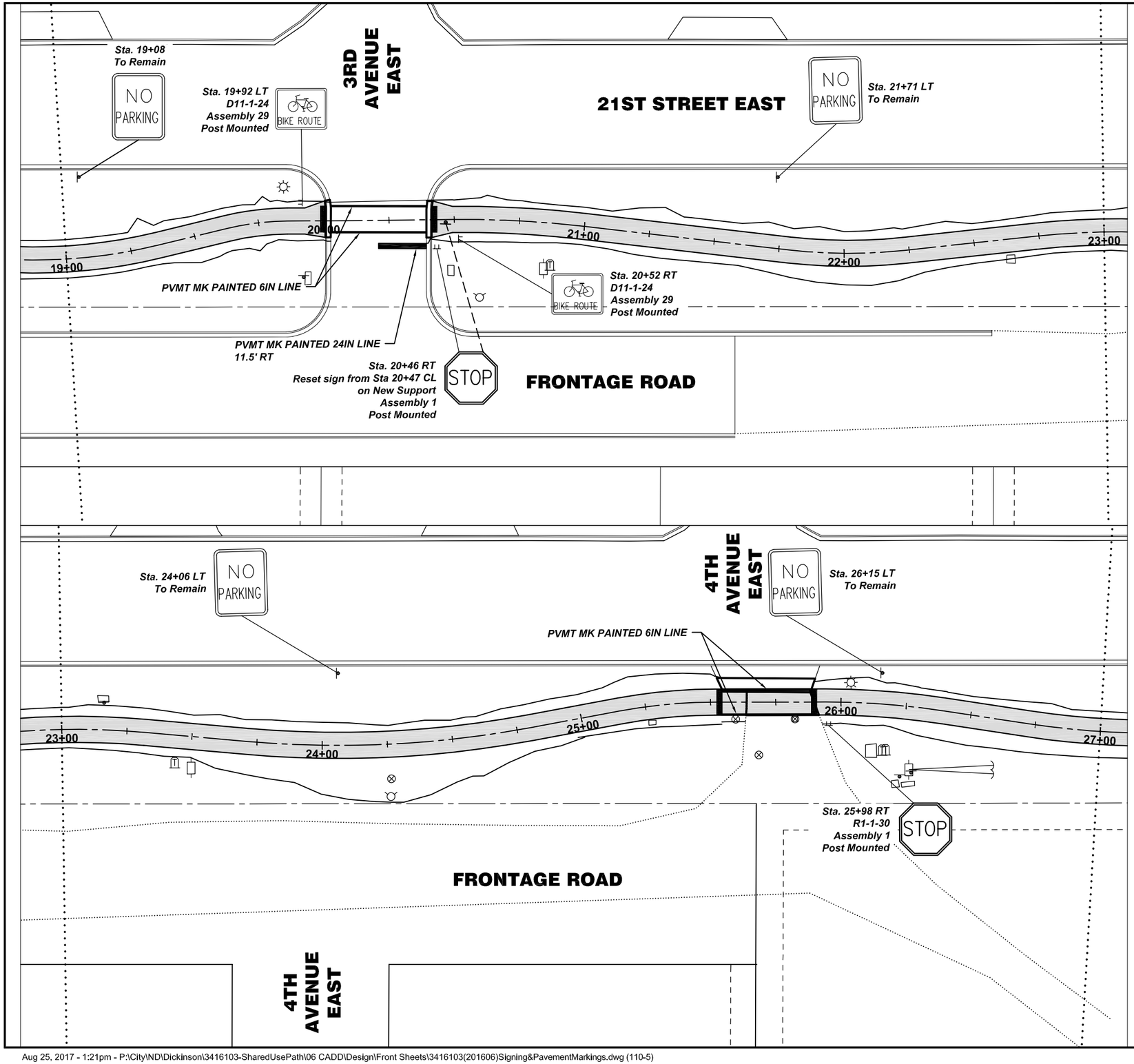
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 15+00 TO STA. 19+00
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	5



NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PVMT MK PAINTED 6IN LINE
Crosswalk 144 LF

PVMT MK PAINTED 24IN LINE
Stop Bar 18 LF

LEGEND

PROPOSED PATH

20 0 20 40
SCALE FEET

N

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 19+00 TO STA. 27+00
PERMANENT SIGNING

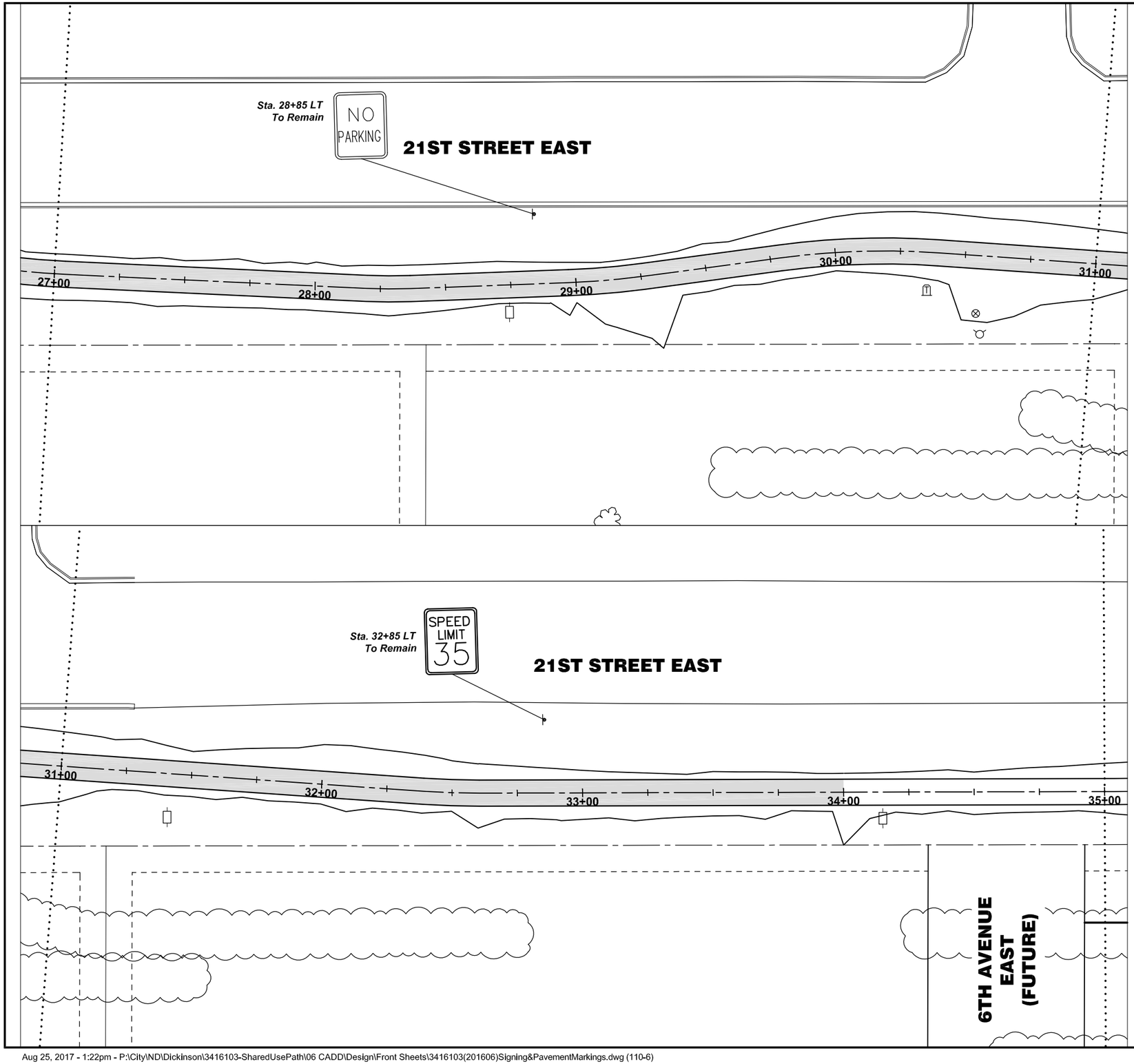
DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

Aug 25, 2017 - 1:21pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Signing&PavementMarkings.dwg (110-5)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	6

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*



LEGEND

PROPOSED PATH

20 0 20 40
SCALE FEET

N

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

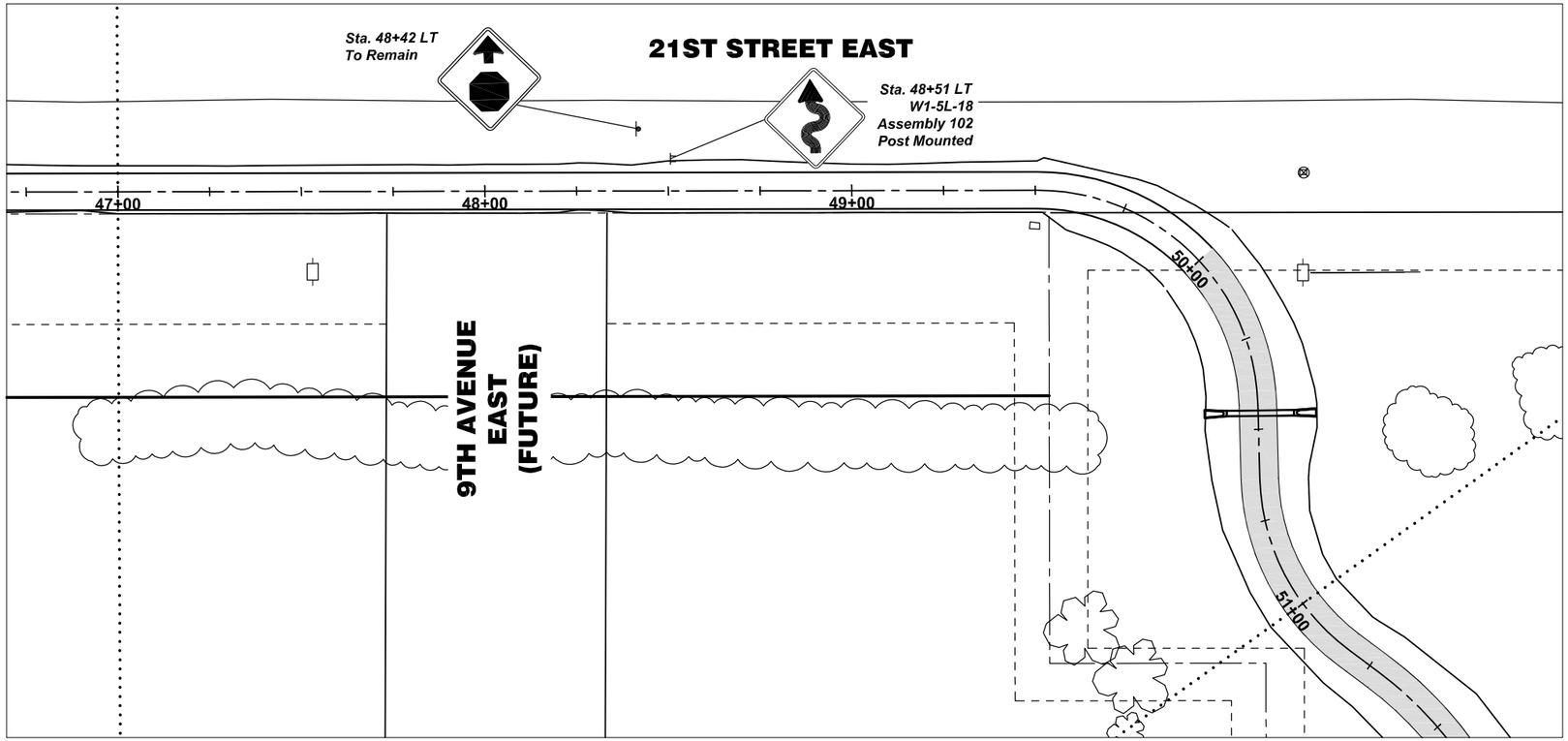
KLJ

STA. 27+00 TO STA. 34+00
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

Aug 25, 2017 - 1:22pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Signing&PavementMarkings.dwg (110-6)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	7



NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

LEGEND

PROPOSED PATH

20 0 20 40
SCALE FEET

N

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 47+00 TO STA. 53+00
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	110	8

NOTES:

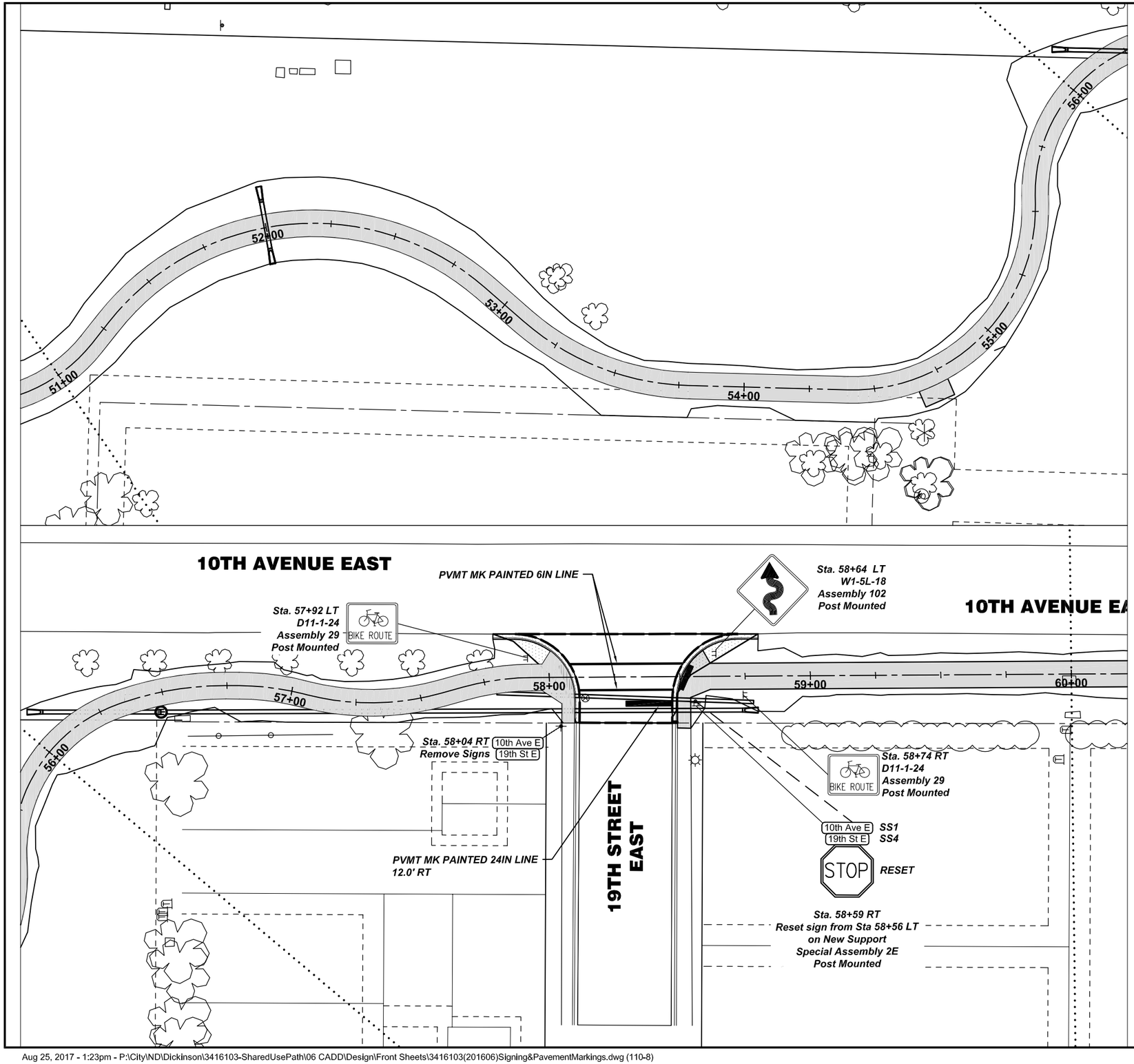
1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*

PVMT MK PAINTED 6IN LINE
Crosswalk *80 LF*

PVMT MK PAINTED 24IN LINE
Stop Bar *18 LF*

LEGEND

PROPOSED PATH



N

20 0 20 40
SCALE FEET

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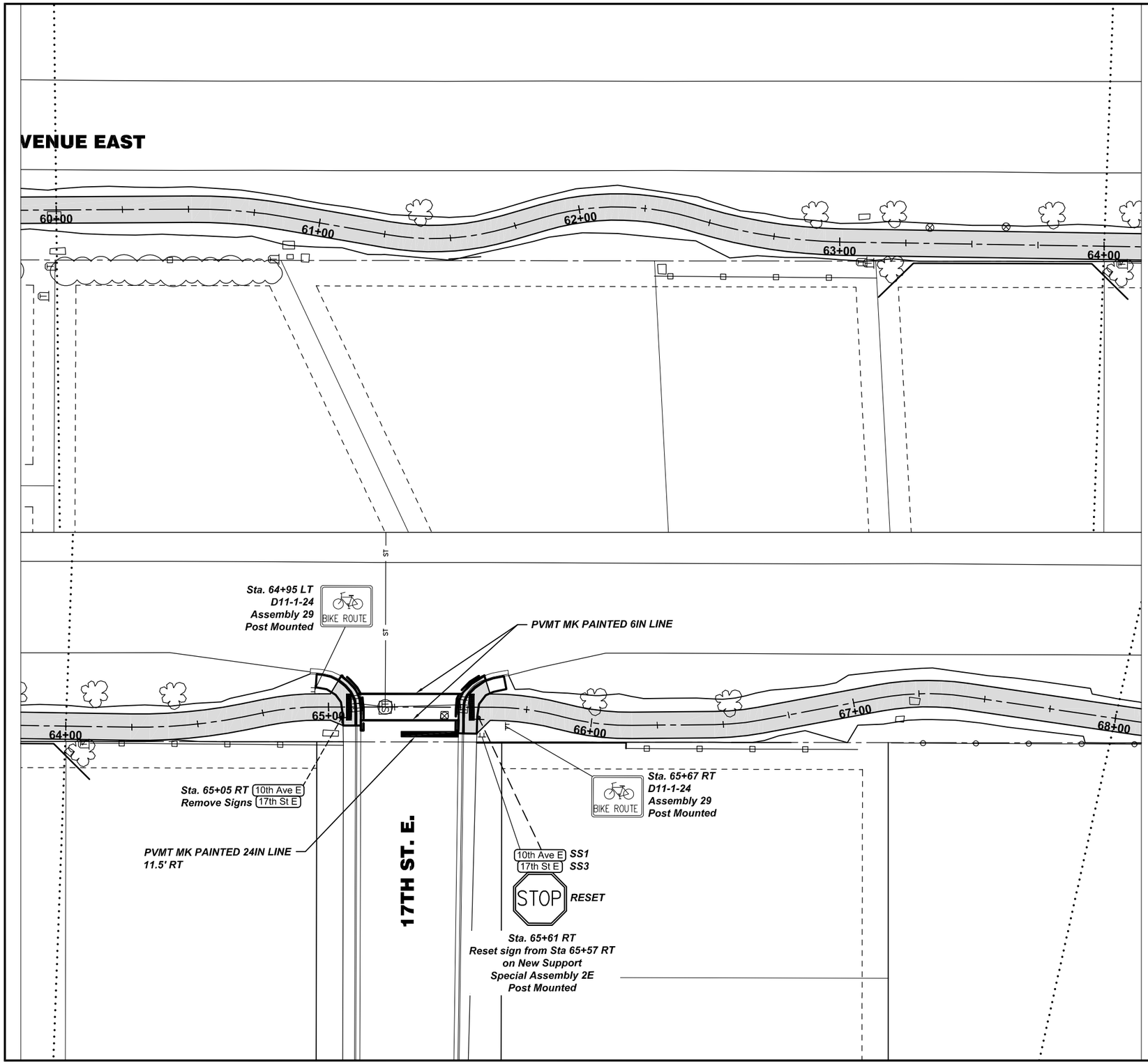
SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 51+00 TO STA. 60+00
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

Aug 25, 2017 - 1:23pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Signing&PavementMarkings.dwg (110-8)

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-5-983(058)058	110	9



NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PVMT MK PAINTED 6IN LINE
Crosswalk 77 LF

PVMT MK PAINTED 24IN LINE
Stop Bar 19 LF

LEGEND

PROPOSED PATH

N

SCALE 20 0 20 40 FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

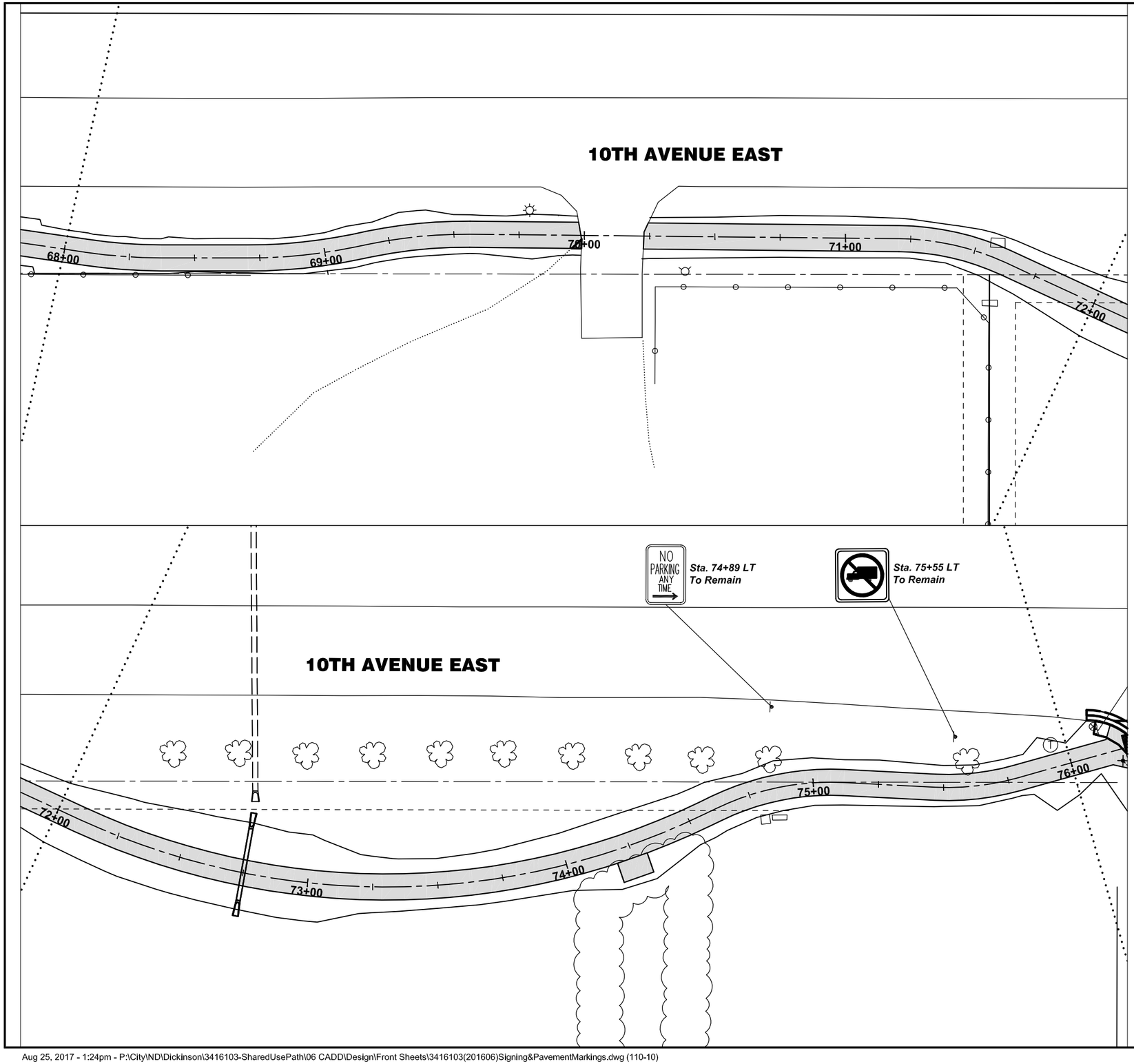
STA. 60+00 TO STA. 68+00
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	10

NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*



LEGEND

PROPOSED PATH

N

20 0 20 40

SCALE FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.

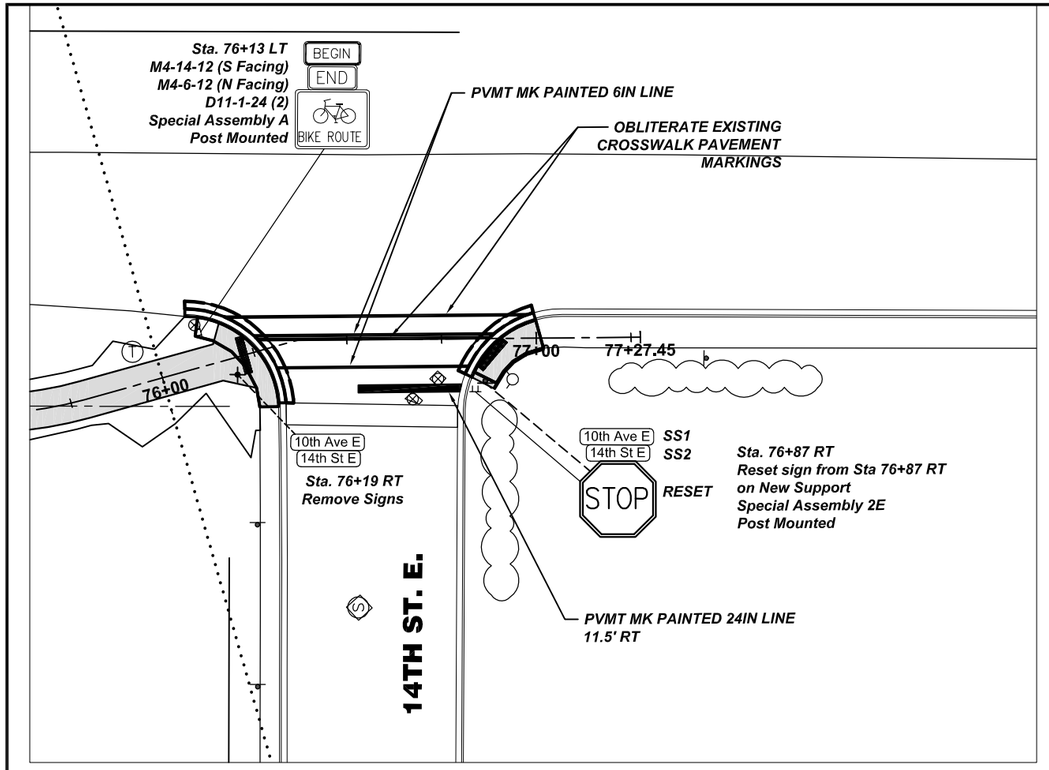
CITY OF DICKINSON
DICKINSON, ND

KLJ

STA. 68+00 TO STA. 76+00 PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

Aug 25, 2017 - 1:24pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Signing&PavementMarkings.dwg (110-10)



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	11

NOTES:
1. UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.

PVMT MK PAINTED 6IN LINE
Crosswalk 114 LF

PVMT MK PAINTED 24IN LINE
Stop Bar 24 LF

LEGEND

PROPOSED PATH

N

20 0 20 40
SCALE FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

STA. 76+00 TO STA. 77+27.45
PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

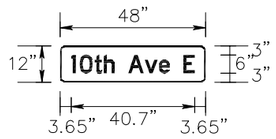
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	12

SIGN NUMBER	SS1
WIDTH x HEIGHT	4'–0" x 1'–0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
58+59, 65+61, 76+87

AREA: 4.0 Sq.Ft.



Dimensions are in inches
Letter locations are panel edge to lower left corner
PANEL STYLEND_Street_Name_Conv_Border.ssi

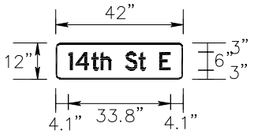
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
1	0	t	h		A	v	e		E									40.7	6/4.5	D 2000
3.6	6.5	11.4	14.4	18	22.5	27.9	32.6	36.2	40.7											

SIGN NUMBER	SS2
WIDTH x HEIGHT	3'–6" x 1'–0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
76+87

AREA: 3.5 Sq.Ft.



Dimensions are in inches
Letter locations are panel edge to lower left corner
PANEL STYLEND_Street_Name_Conv_Border.ssi

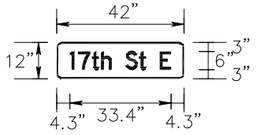
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
1	4	t	h		S	t		E										33.8	6/4.5	D 2000
4.1	6.5	11.7	14.8	18.3	22.8	27.3	29.7	34.2												

SIGN NUMBER	SS3
WIDTH x HEIGHT	3'–6" x 1'–0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
65+61

AREA: 3.5 Sq.Ft.



Dimensions are in inches
Letter locations are panel edge to lower left corner
PANEL STYLEND_Street_Name_Conv_Border.ssi

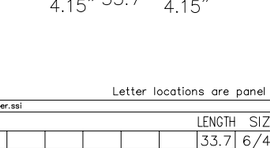
LETTER POSITION (X)																		LENGTH	SIZE	SERIES
1	7	t	h		S	t		E										33.4	6/4.5	D 2000
4.3	7	11.5	14.6	18.1	22.6	27.1	29.5	34												

SIGN NUMBER	SS4
WIDTH x HEIGHT	3'–6" x 1'–0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
58+59

AREA: 3.5 Sq.Ft.



Dimensions are in inches
Letter locations are panel edge to lower left corner
PANEL STYLEND_Street_Name_Conv_Border.ssi

LETTER POSITION (X)																		LENGTH	SIZE	SERIES
1	9	t	h		S	t		E										33.7	6/4.5	D 2000
4.1	7	11.7	14.8	18.3	22.8	27.2	29.6	34.1												

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

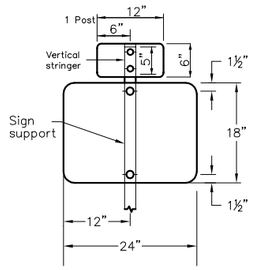
SIGN DETAILS PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
JM	AK	201606

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	110	13

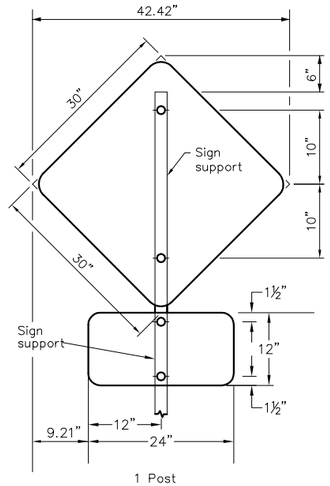
NOTES:

1. *UTILITIES SHALL BE LOCATED & VERIFIED IN THE FIELD PRIOR TO BEGINNING AND DURING CONSTRUCTION.*



1 Post

SPECIAL ASSEMBLY A



1 Post

SPECIAL ASSEMBLY B

20 0 20 40
SCALE FEET

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

SPECIAL ASSEMBLIES PERMANENT SIGNING

DRWN. BY	CHK'D BY	PROJECT NO.
PG	AK	201606

Aug 25, 2017 - 1:25pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)Signing&PavementMarkings.dwg (SPECIAL ASSEMBLY)

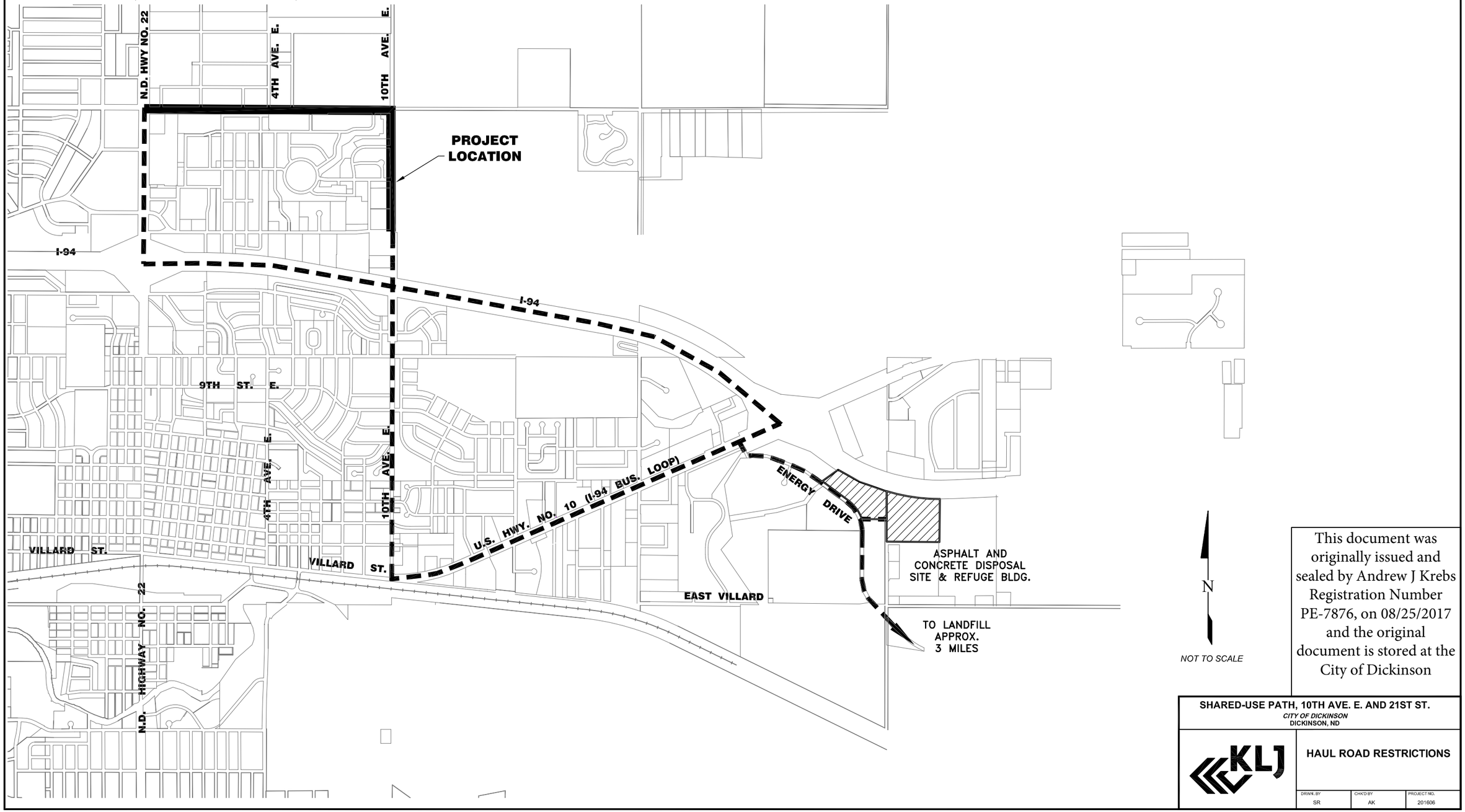
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-5-983(058)058	190	1

HAUL ROAD LOCATIONS

DICKINSON, STARK COUNTY, NORTH DAKOTA

THIS PROJECT

HAUL ROAD



NOT TO SCALE

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SHARED-USE PATH, 10TH AVE. E. AND 21ST ST.
CITY OF DICKINSON
DICKINSON, ND

KLJ

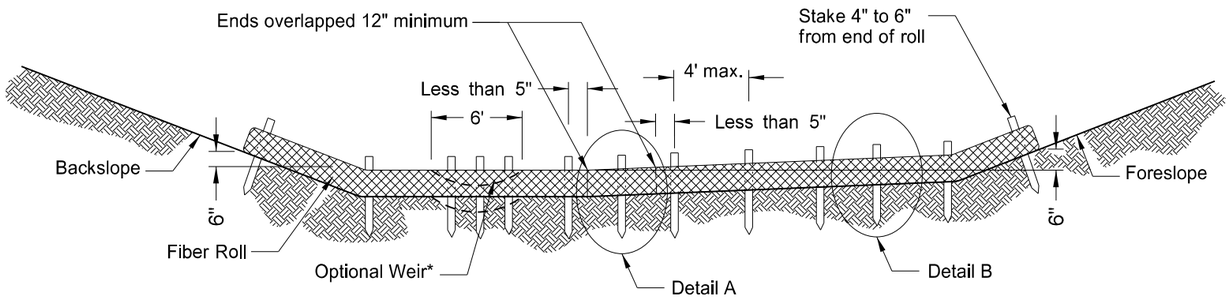
HAUL ROAD RESTRICTIONS

DRWN. BY	CHK'D BY	PROJECT NO.
SR	AK	201606

Aug 25, 2017 - 1:11pm - P:\City\ND\Dickinson\3416103-SharedUsePath\06 CADD\Design\Front Sheets\3416103(201606)HaulRoad.dwg (HLRD)

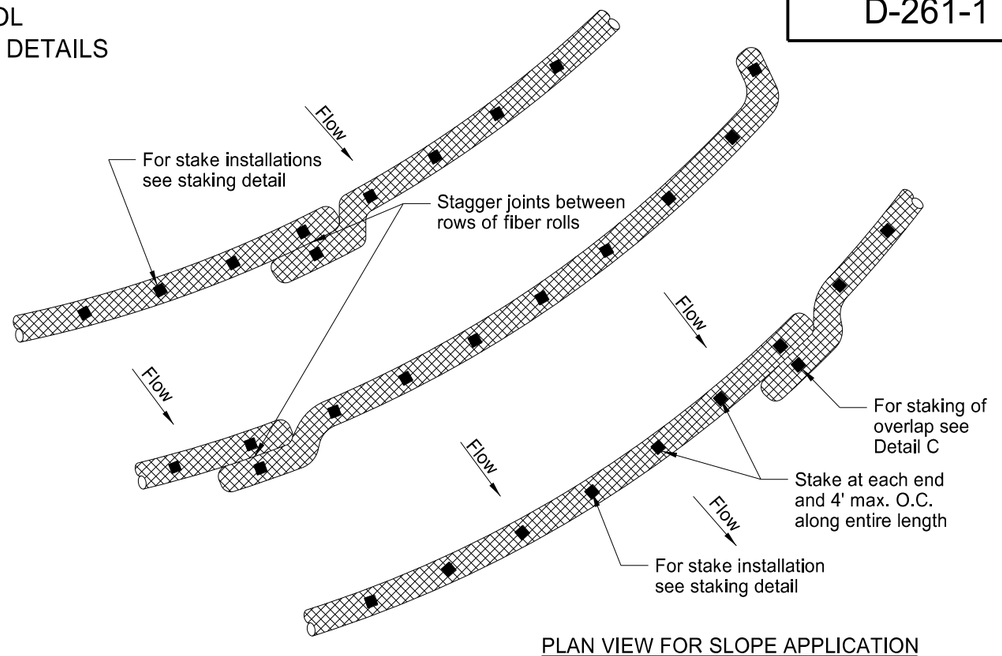
D-261-1

EROSION CONTROL
FIBER ROLL PLACEMENT DETAILS

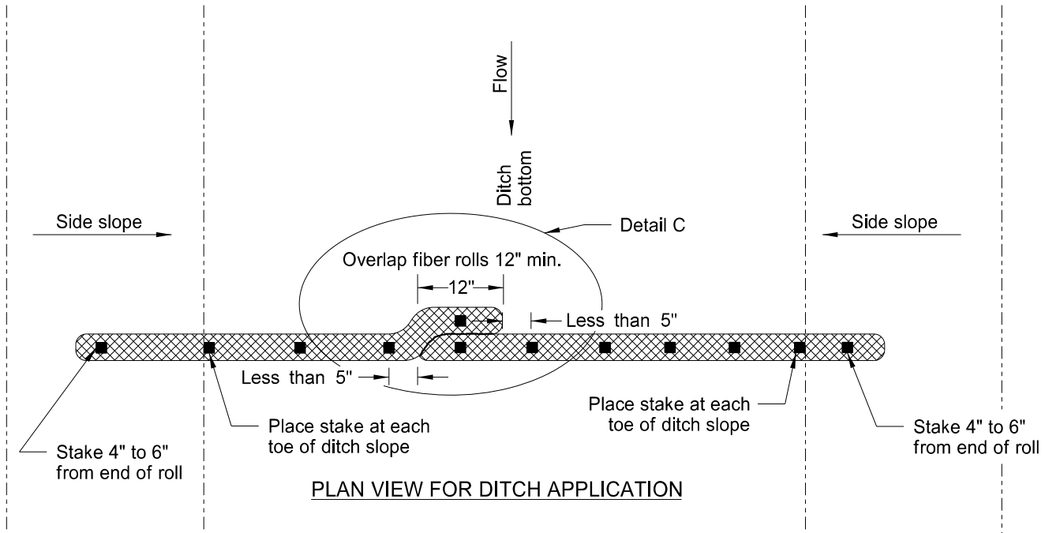


*Optional Weir. Use in flat areas, such as the Red River Valley, where there is potential for water to back up on adjacent property. Lower fiber roll enough to prevent water from backing up on adjacent property. Do not use 20-inch fiber rolls in flat areas where there is potential for water to back up on adjacent property.

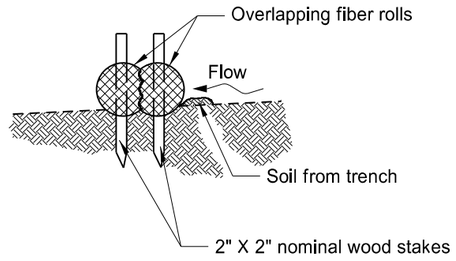
12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



PLAN VIEW FOR SLOPE APPLICATION

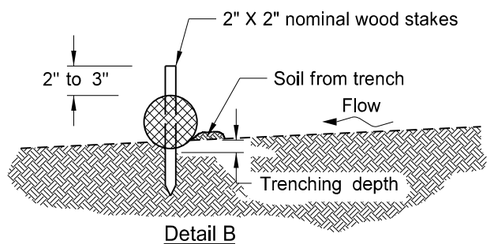


PLAN VIEW FOR DITCH APPLICATION



Detail A

Fiber Roll Overlapping Staking Detail



Detail B

Fiber Roll Staking Detail

FIBER ROLL DIAMETER	NOMINAL STAKE SIZE	MINIMUM STAKE LENGTH	MINIMUM TRENCH DEPTH	MAXIMUM TRENCH DEPTH
6"	2" x 2"	18"	2"	2"
12"	2" x 2"	24"	2"	3"
20"	2" x 2"	36"	3"	5"

NOTE: Runoff must not be allowed to run under or around roll.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

11-18-10

REVISIONS

DATE	CHANGE
06-10-13	Added plan view for ditch and slope application. Added table with values for stake and trench dimensions.
10-04-13	Revised fiber roll overlap detail.
06-26-14	Changed standard drawing number from D-708-7 to D-261-1

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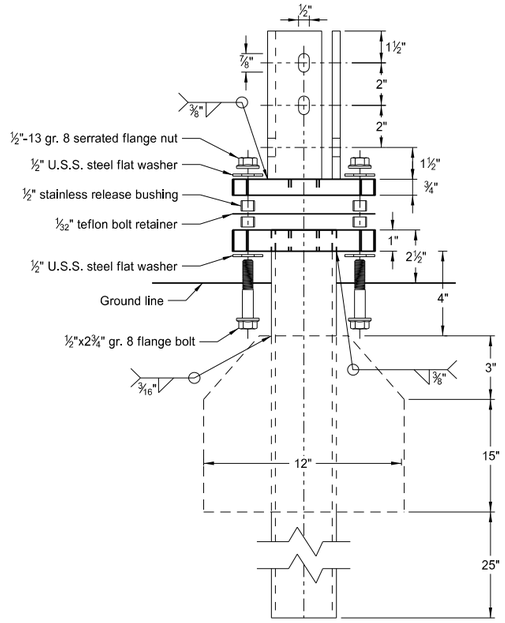
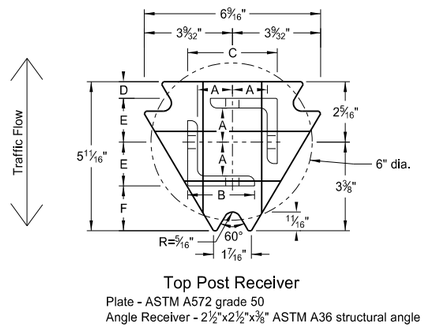
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-7

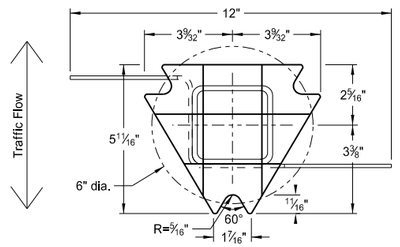


Multi-Directional
Slip Base Assembly

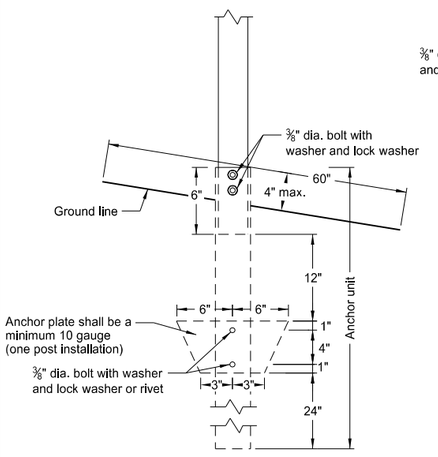
Perforated Tube



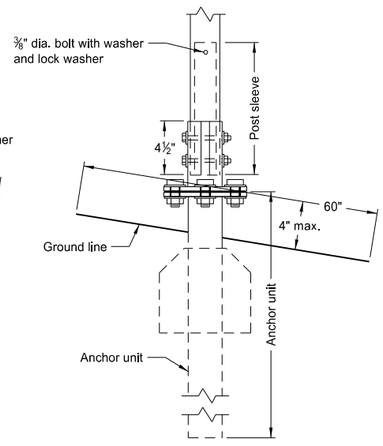
Top Post Receiver
Plate - ASTM A572 grade 50
Angle Receiver - 2½"x2½"x⅜" ASTM A36 structural angle



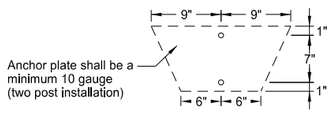
Bottom Soil Stub
Tube - 3"x3"x7 gauge ASTM A500 grade B tube
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011
Plate - ASTM A572 grade 50

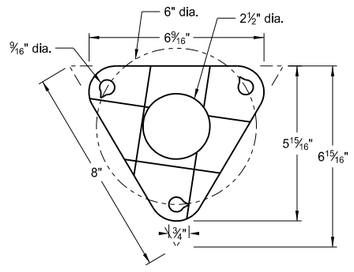


Anchor Unit and Post Assembly



Multi-Directional
Slip Base Anchor Unit
and Post Sleeve Assembly





Bolt Retainer for Base Connection
Bolt Retainer- 1/32" Reprocessed Teflon

Notes:

1. Slip base bolts shall be torqued as specified by the manufacturer.
2. Anchor shall have a yield strength of 43.9 KSI and tensile strength of 59.3 KSI.
3. The 4" vertical clearance is required for the anchor or breakaway base. The 4"x60" measurement shall be made above and below post location and also back and ahead of the post.
4. When used in concrete sidewalk, anchor shall be same except without the wings.
5. Four post signs shall have over 7' between the first and the fourth posts.

Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thick-ness Gauge	Sleeve Size in.	Wall Thick-ness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2¼
1	2¼	12			No	2½
1	2½	12			(A)	3
1	2½	10			Yes	
1	2¼	12	2	12	Yes	
1	2½	12	2¼	12	Yes	
2	2	12			No	2¼
2	2¼	12			No	2½
2	2½	12			Yes	
2	2½	12			Yes	
2	2¼	10	2	12	Yes	
2	2½	12	2¼	12	Yes	
3 & 4	2½	12			Yes	
3 & 4	2½	10			Yes	
3 & 4	2½	12	2¼	12	Yes	
3 & 4	2¼	12	2	12	Yes	
3 & 4	2½	10	2 3/16	10	Yes	

Properties of Telescoping Perforated Tube						
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia $in.^4$	Cross Sec. Area $in.^2$	Section Modulus $in.^3$
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.785

Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16"x10 ga.	1 9/64"	2½"	3 1/32"	25/32"	1 33/64"	1⅞"
2½"x10 ga.	1 9/32"	2½"	3 5/16"	⅝"	1 21/32"	1¾"

(A) The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak.

(B) The 2 3/16"x10 ga. may be inserted into 2½"x10 ga. for additional wind load.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE

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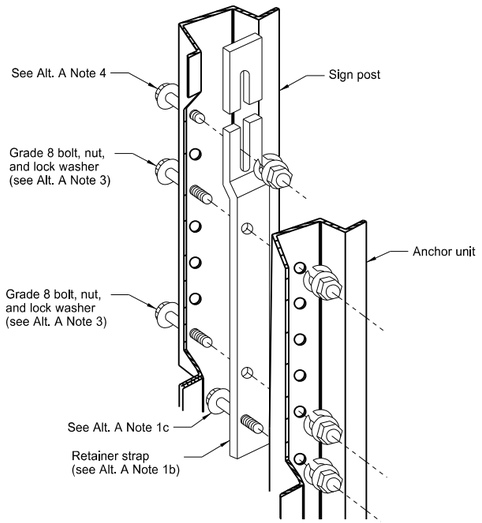
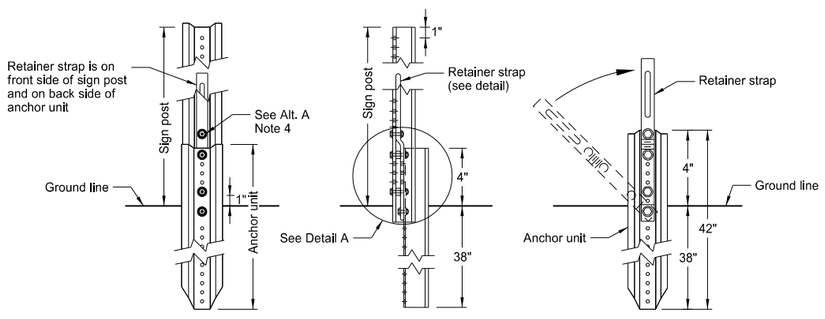
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post



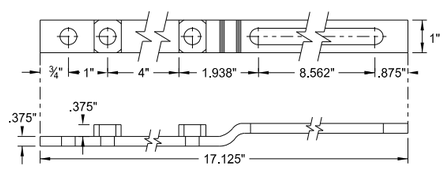
Detail A



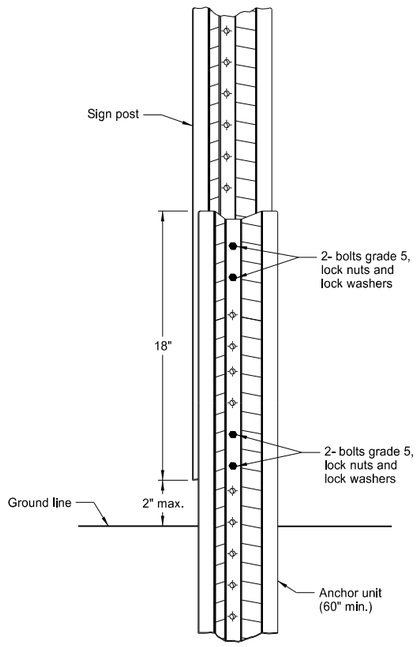
Front View Side View Back View

Breakaway U-Channel Detail
Alternate A

A maximum of 2 posts shall be installed within 7'.

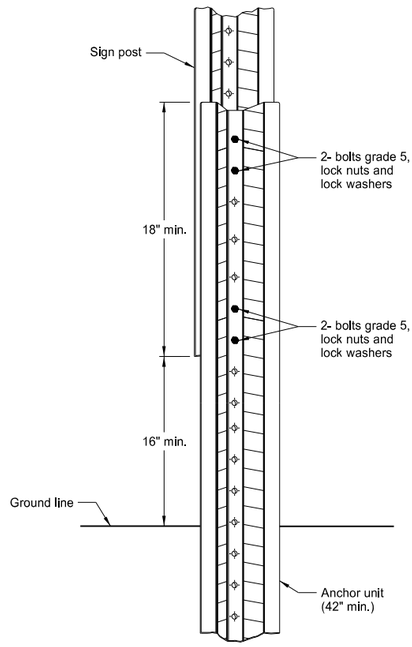


Retainer Strap Detail



Breakaway U-Channel Splice Detail
Alternate B
(2.5 and 3 lb/ft)

A maximum of 3 posts shall be installed within 7'.



Breakaway U-Channel Splice Detail
Alternate C
(2.5 and 3 lb/ft)

A maximum of 3 posts shall be installed within 7'.

Alternate A Steps of Installation:

1. a) Drive anchor unit to within 12" of ground level.
   b) Proper assembly established by lining up the bottom hole of retainer strap with the 6th hole from the top of the anchor unit.
   c) Assemble strap to back of anchor unit using 5/16"x2" bolt, lock washer and nut.
   d) Rotate strap 90° to left.
2. a) Drive anchor unit to 4" above ground.
   b) Rotate strap to vertical position.
3. a) Place 5/16"x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.
   b) Alternately tighten two connector bolts.
4. Complete assembly by tightening 5/16"x2" bolt (this fastens sign post to retainer strap).
5. The base post, strap and sign post shall be properly nested. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

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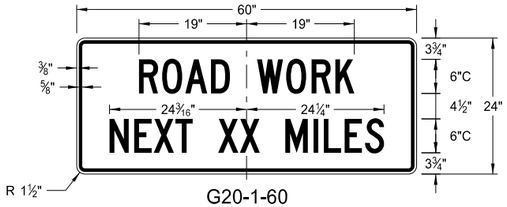
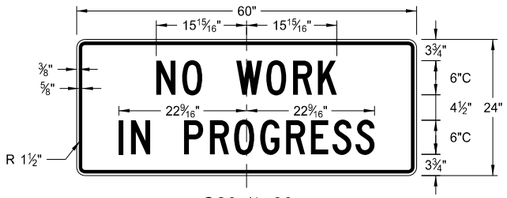
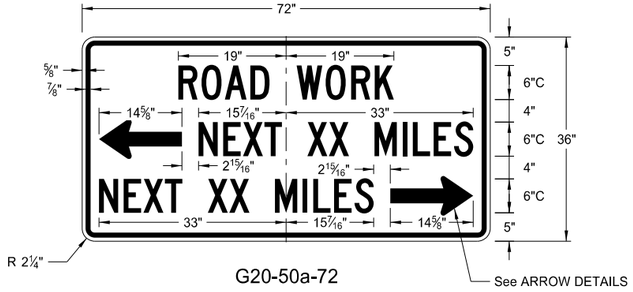
CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS



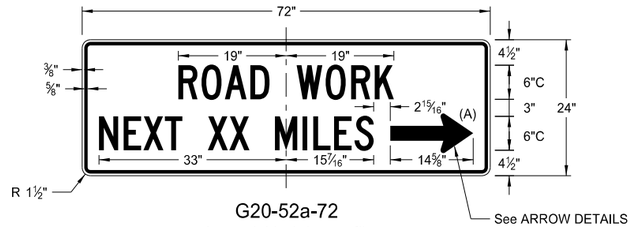
G20-1-60
Legend: black (non-refl)
Background: orange



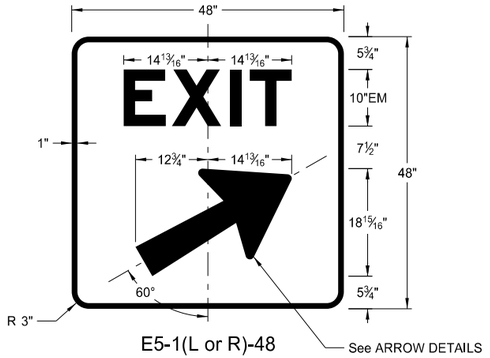
G20-1b-60
Legend: black (non-refl)
Background: orange



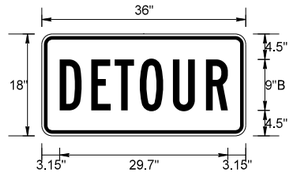
G20-50a-72
Legend: black (non-refl)
Background: orange



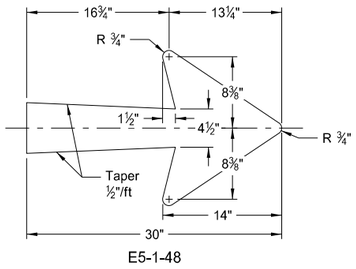
G20-52a-72
Legend: black (non-refl)
Background: orange



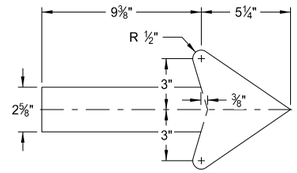
E5-1(L or R)-48
Legend: white
Background: green (orange optional)



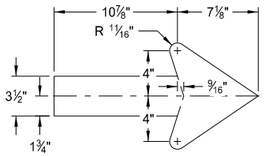
M4-8-36
Legend: black (non-refl)
Background: orange



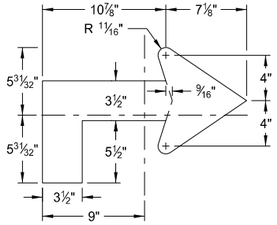
E5-1-48



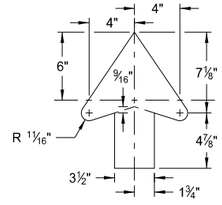
G20-50a-72
G20-52a-72



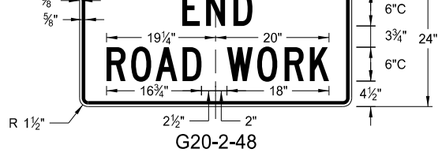
M4-9(L or R)-30
Right or Left



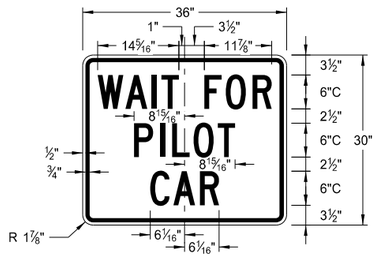
M4-9(L or R)-30
Advanced Right or Left



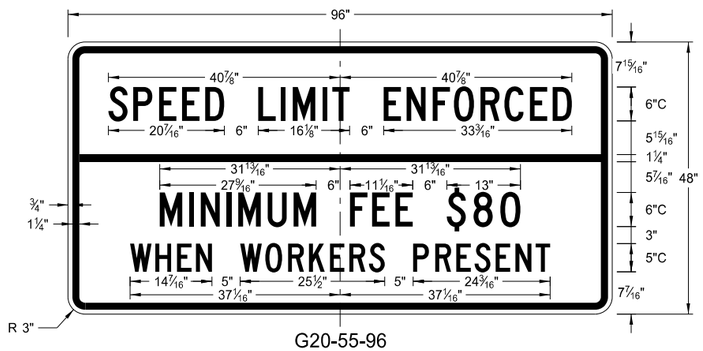
M4-9-30
Straight



G20-2-48
Legend: black (non-refl)
Background: orange



G20-4b-36
Legend: black (non-refl)
Background: orange



G20-55-96
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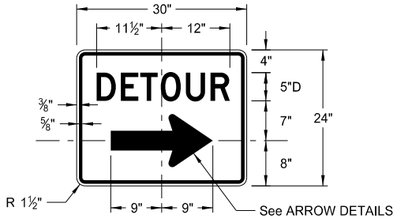
Background: orange



M4-9(L or R)-30 &
M4-9-30
Legend: black (non-refl)
Background: orange

ARROW DETAILS

NOTES:

(A) Arrow may be right or left of the legend to indicate construction to the right or left.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Added sign & background color

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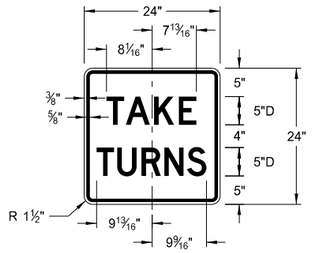
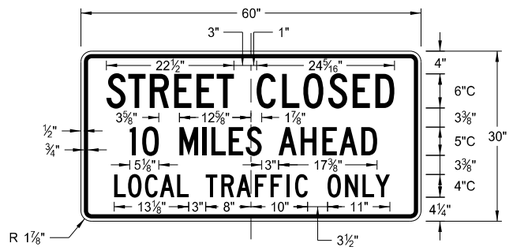
CONSTRUCTION SIGN DETAILS
REGULATORY SIGNS



R1-50P-24
Legend: black (non-refl)
Background: white



R11-3c-60
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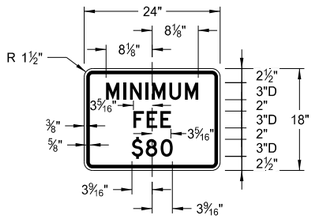
Background: white



R2-1aP-24
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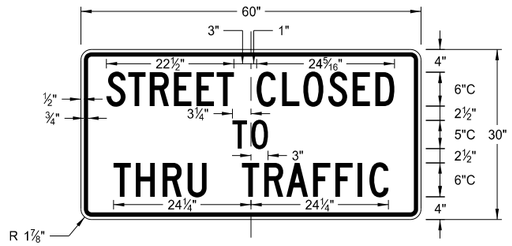
Background: white



R11-4a-60
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Background: white

R11-2a-48
Legend: black (non-refl)
Background: white

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Revised sign number

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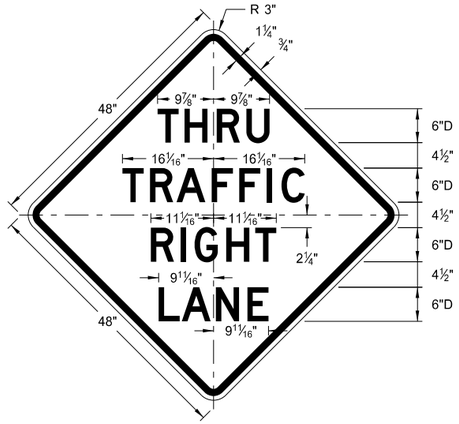
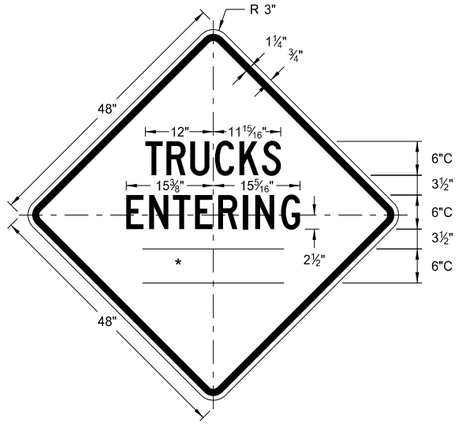
CONSTRUCTION SIGN DETAILS
WARNING SIGNS



W5-8-48
Legend: black (non-refl)
Background: orange



W8-54-48
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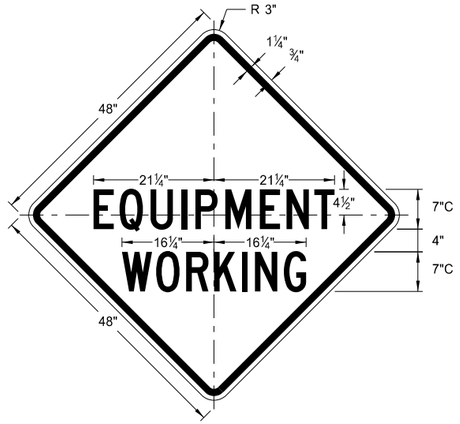
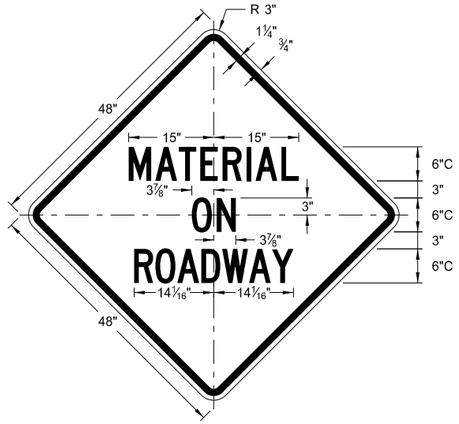
Background: orange



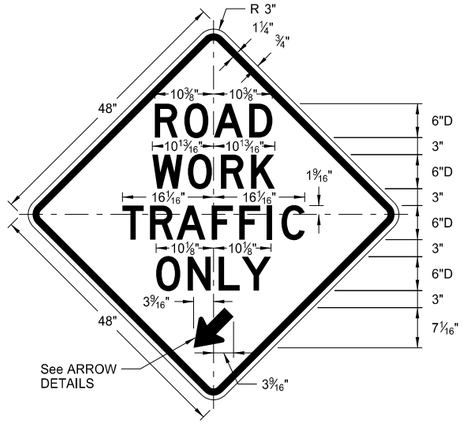
W20-51-48
Legend: black (non-refl)
Background: orange



W21-51-48
Legend: black (non-refl)
Background: orange

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

* DISTANCE MESSAGES



W5-9-48
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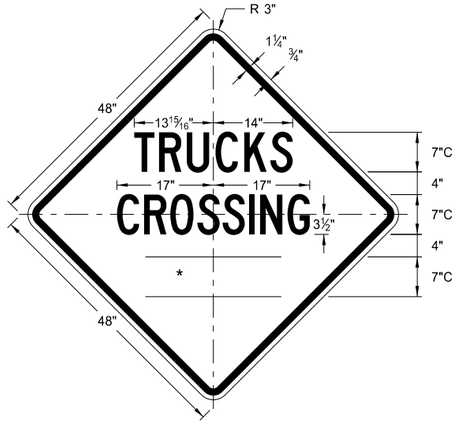
Background: orange



W8-55-48
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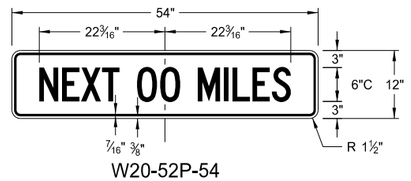
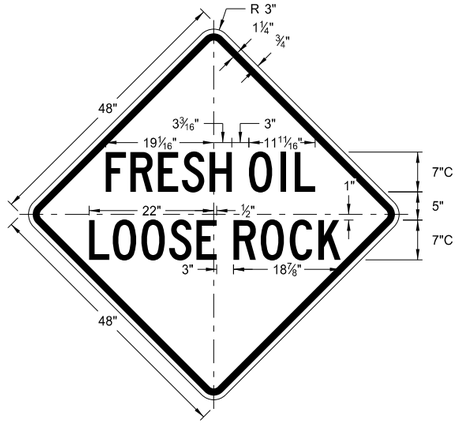
Background: orange



W20-52P-54
Legend: black (non-refl)
Background: orange



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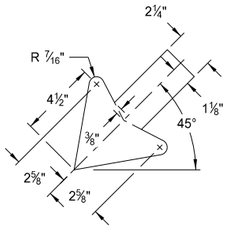
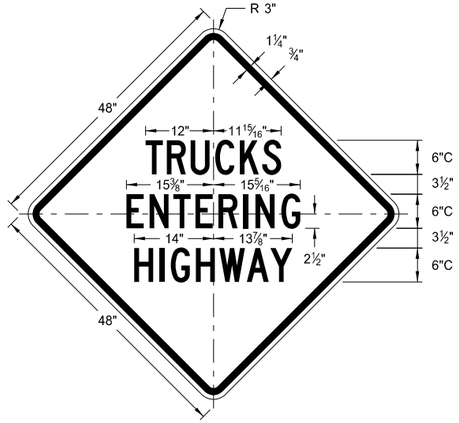


W5-9-48

ARROW DETAILS



W8-53-48
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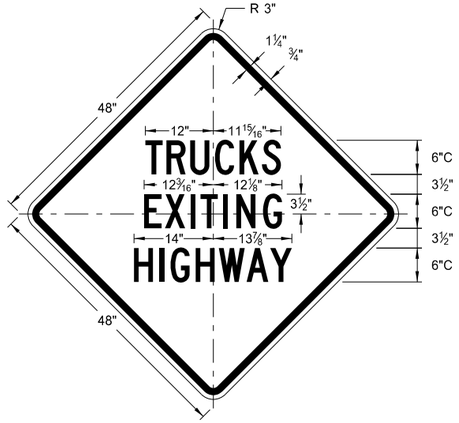

W8-56-48
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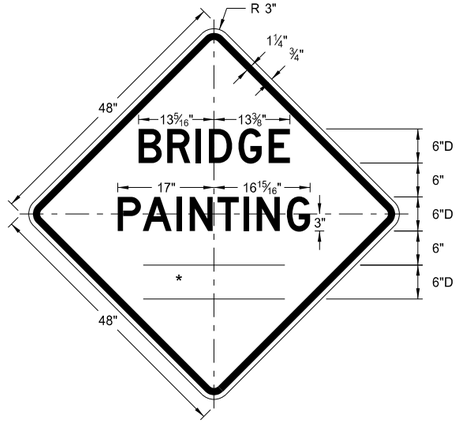
Background: orange



W21-50-48
Legend: black (non-refl)
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
8-17-17	Updated sign number

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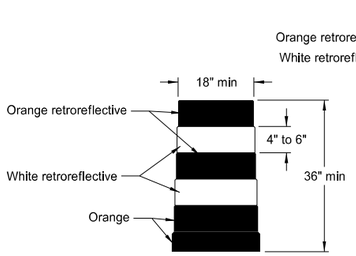
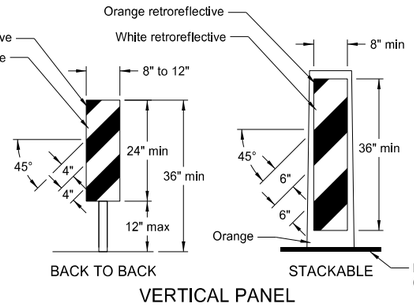
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



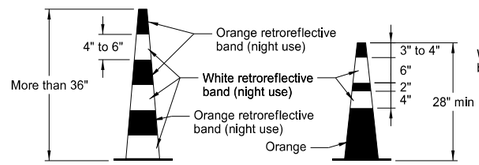
DELINEATOR DRUM

The markings on drums shall be horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide. Each drum shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectorized spaces between the horizontal orange and white stripes shall not exceed 3" wide. Stripes shall not be placed on ribs or indentations in the drum. Drums shall have closed tops that will not allow collection of construction debris or other debris. Ballast shall not be placed on the top of a drum.



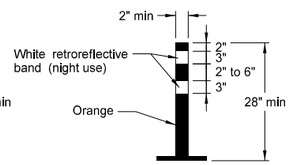
VERTICAL PANEL

Markings for vertical panels shall be alternating orange and white retroreflective stripes, sloping downward in the direction vehicular traffic is to pass. Retroreflective sheeting shall be placed on both sides of panel and shall have a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective material on the vertical panel is 36 inches or more, a stripe width of 6 inches shall be used.



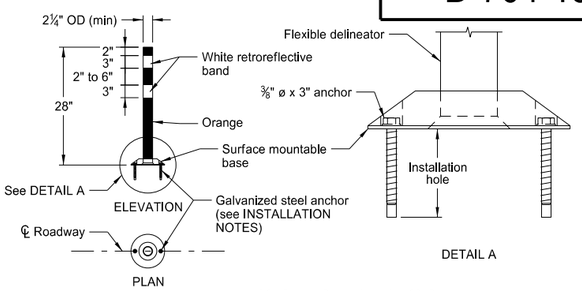
TRAFFIC CONE

Retroreflectorization of cones more than 36" in height shall be provided by alternating orange and white retroreflective stripes. Each cone shall have a minimum of two orange and two white stripes with the top stripe being orange. Any nonretroreflectorized space between the orange and white stripes shall not exceed 3" wide.



TUBULAR MARKER

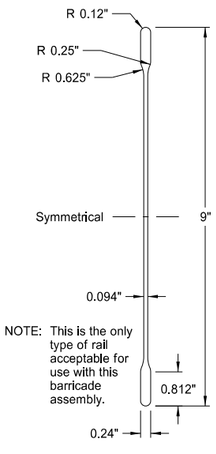
Retroreflectorization of tubular markers more than 42" in height shall be provided by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



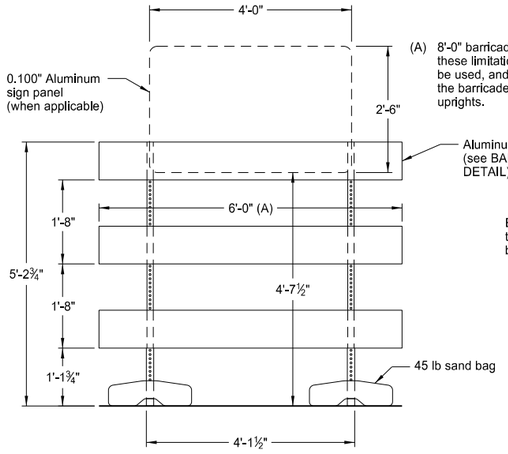
FLEXIBLE DELINEATOR

INSTALLATION NOTES:

1. Drill installation holes to diameter and depth as required by manufacturer's specifications.
2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
3. In lieu of bolted down base, the contractor may use an 8" x 8" butyl pad or hot melt butyl. Butyl shall be removed as close as possible to pavement surface.

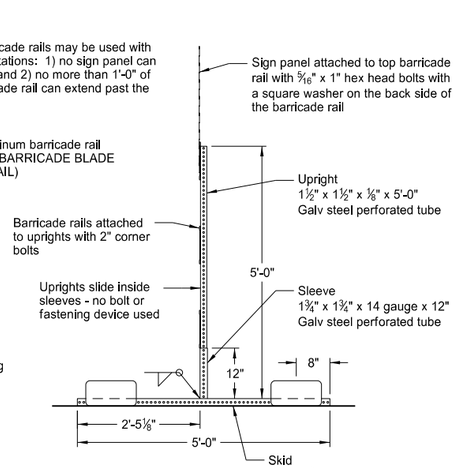


BARRICADE BLADE DETAIL



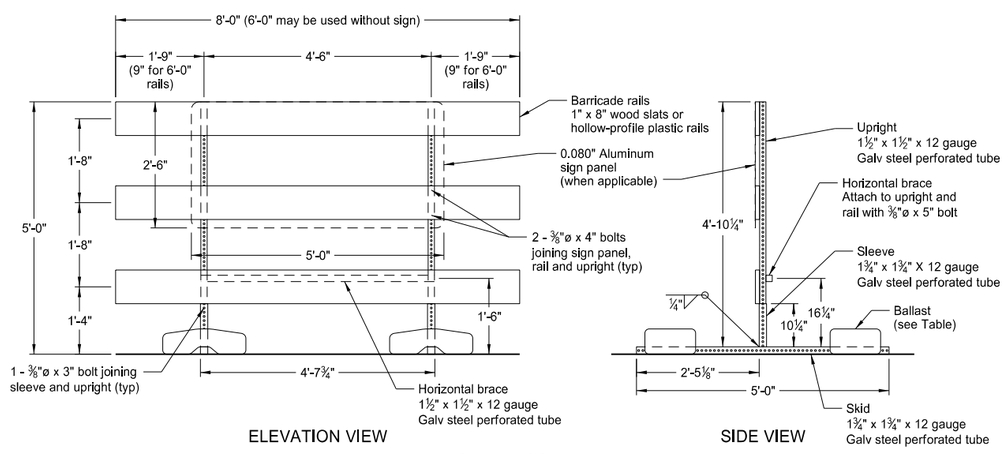
ELEVATION VIEW

(A) 8'-0" barricade rails may be used with these limitations: 1) no sign panel can be used, and 2) no more than 1'-0" of the barricade rail can extend past the uprights.



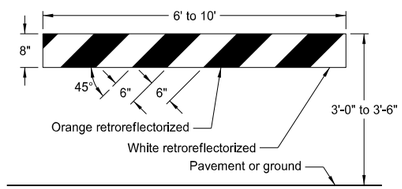
SIDE VIEW

BARRICADE ASSEMBLY DETAIL
(Aluminum Barricade Rails)

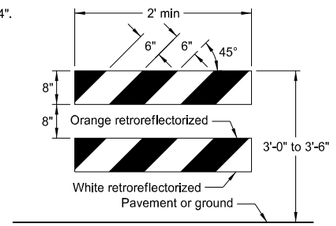


BARRICADE ASSEMBLY DETAIL
(Wood or Plastic Rails)

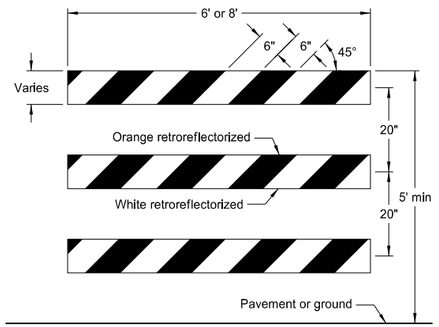
NOTE: Markings for barricades shall be alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Retroreflective sheeting shall be placed on both sides of the rails and shall have a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", the rail stripe width shall be 4".



TYPE I BARRICADE

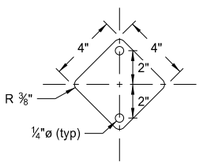


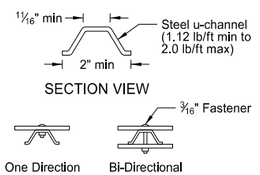
TYPE II BARRICADE

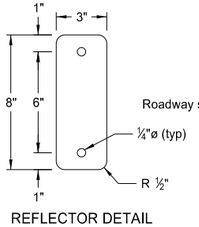


TYPE III BARRICADE

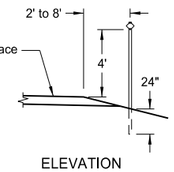
BARRICADE RAIL DETAILS







REFLECTOR DETAIL



ELEVATION

DELINEATORS

MINIMUM BALLAST
(For each side of barricade support)

Without Sign	4 - 25 lb sandbags
With Sign	6 - 25 lb sandbags

Note: The number of sandbags are based on a wind speed of 55 MPH. The sandbags are assumed to be placed at or near the ends of the skids.

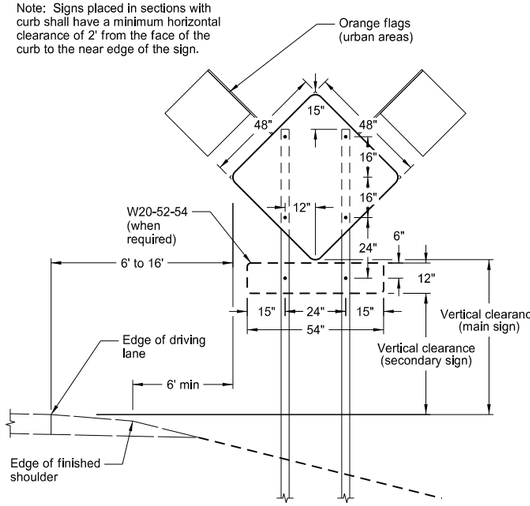
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE

This document was originally issued and sealed by Roger Weigel, Registration Number PE-2930, on 10/3/13 and the original document is stored at the North Dakota Department of Transportation

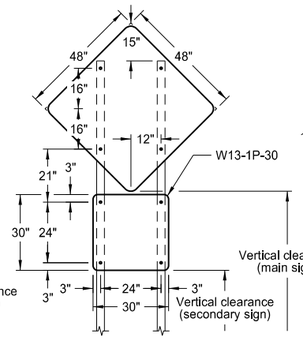
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

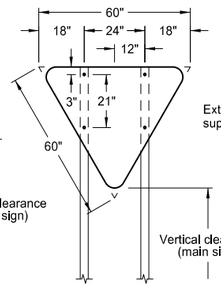
Note: Signs placed in sections with curb shall have a minimum horizontal clearance of 2' from the face of the curb to the near edge of the sign.



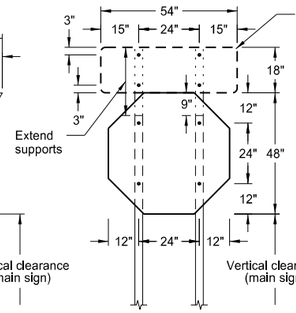
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



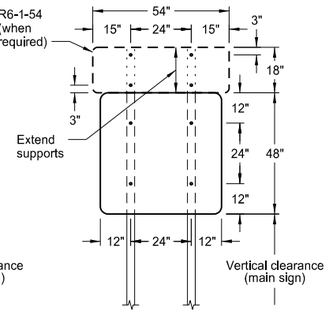
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



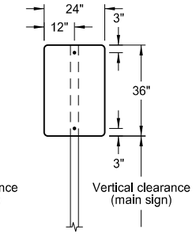
R1-2-60 - YIELD SIGN



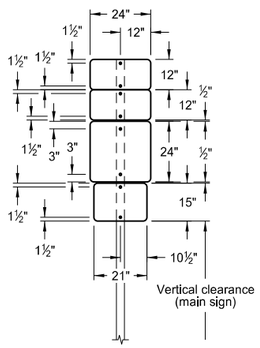
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



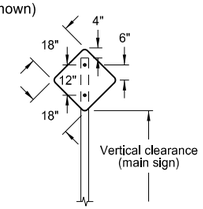
48" x 48" SIGN
(with R6-1-54 sign as required)



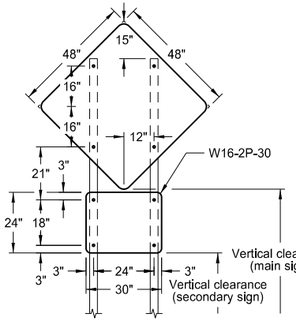
24" x 36" SIGN



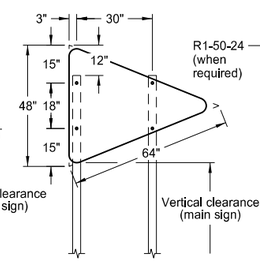
24" x 24"
ROUTE MARKER
ASSEMBLY



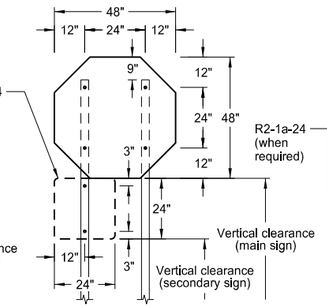
18" x 18"
DIAMOND SIGN



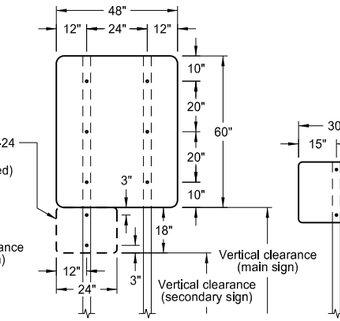
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



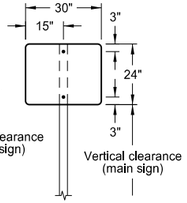
W14-3-64 - PENNANT SIGN



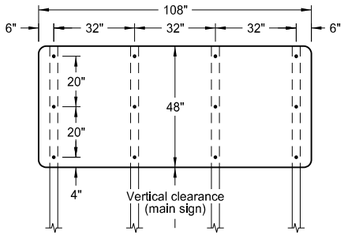
R1-1-48 - STOP SIGN
(with R1-50-24 sign as required)



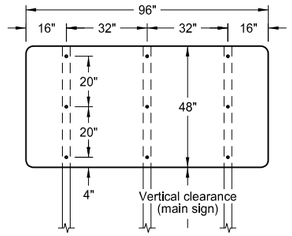
48" x 48" SIGN
(with R2-1a-24 sign as required)



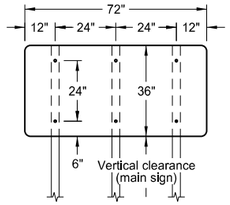
30" x 24" SIGN



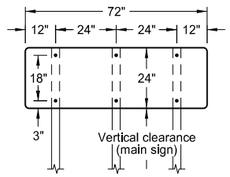
108" x 48" SIGN



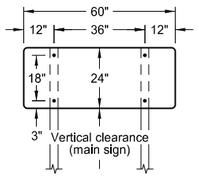
96" x 48" SIGN



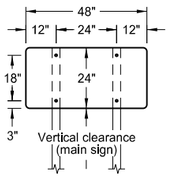
72" x 36" SIGN



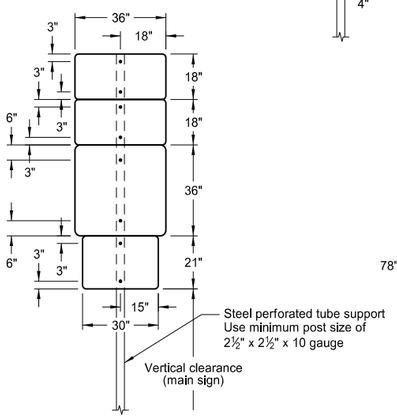
72" x 24" SIGN



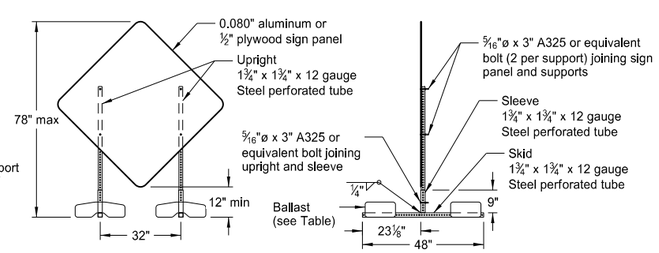
60" x 24" SIGN



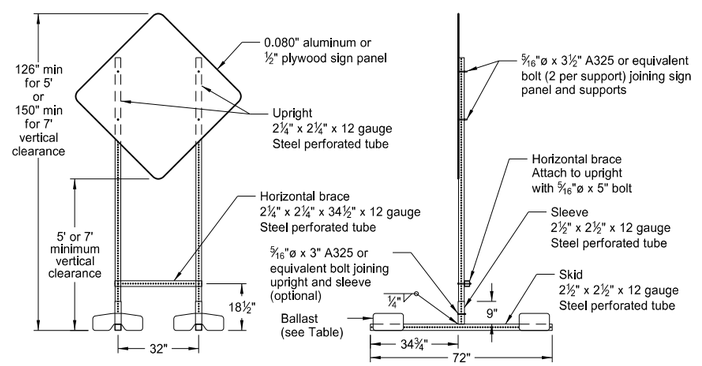
48" x 24" SIGN



36" x 36"
ROUTE MARKER
ASSEMBLY



PORTABLE SIGN SUPPORT
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT
HIGH-MOUNTING HEIGHT

NOTES:

1. Sign Supports: Supports shall be galvanized or painted. Minimum post sizes are 2.5 lb/ft u-channel or 2" x 2" x 12 gauge steel perforated tube, except where noted. When installing signs on u-channel, the minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes are based on a wind speed of 55 MPH.

   Signs over 50 square feet should be installed on 2½" x 2½" perforated tube supports as a minimum.

   Guy wires shall not be attached to sign supports. Wind beams may be attached to u-posts behind the sign panels.

2. Sign Panels: Provide sign panels made of 0.100" aluminum, ½" plywood, or other approved material, except where noted. All holes to be punched round for ⅜" bolts.

3. Alternate Messages: The signs that have alternate messages may have these alternate messages placed on a reflectorized plate (without a border) and installed and removed as required. (i.e. "Left" and "Right" message on a lane closure sign)

4. Route Marker Auxiliary Signs: Provide route marker auxiliary signs, such as the cardinal direction and directional arrows, with a background and legend that match the route marker they are used with:

   Interstate - white legend on blue background
   Interstate Business Loop - white legend on green background
   US and State - black legend on white background
   County - yellow legend on blue background

5. Vertical Clearance: Install signs with a vertical clearance of 5'-0" (see TYPICAL SECTION.) In areas where parking or pedestrian movements are likely or the view of the sign may be obstructed, install signs with a vertical clearance of 7'-0" from the top of the curb or from the near edge of the driving lane in absence of a curb.

   The vertical clearance to secondary signs is 1'-0" less than the vertical clearance as stated above.

   Large signs having an area exceeding 50 square feet shall have a minimum clearance of 7'-0" from the ground at the post.

6. Portable Signs: Provide portable signs that meet the vertical clearance as stated above. Use portable signs when it is necessary to place signs within the pavement surface.

   When portable signs are used for 5 days or less, low-mounting height (minimum 12" vertical clearance) sign supports may be used as long as the view of the sign is not obstructed. Time delays caused by unforseen circumstances, such as equipment breakdown, rain, subgrade failures, etc., will not accrue towards the 5 day period. The R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 may be used for longer than 5 days.

   Signs mounted to the portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT Details shall have a maximum surface area of 16 square feet.

MINIMUM BALLAST
(For each side of sign support base)

Sign Panel Mounting Height (ft)	Number of 25 lb sandbags for 4' x 4' sign panel
1'	6
5'	8
7'	10

Note: The number of sandbags are based on a wind speed of 55 MPH. The sandbags are assumed to be placed at or near the ends of the skids.

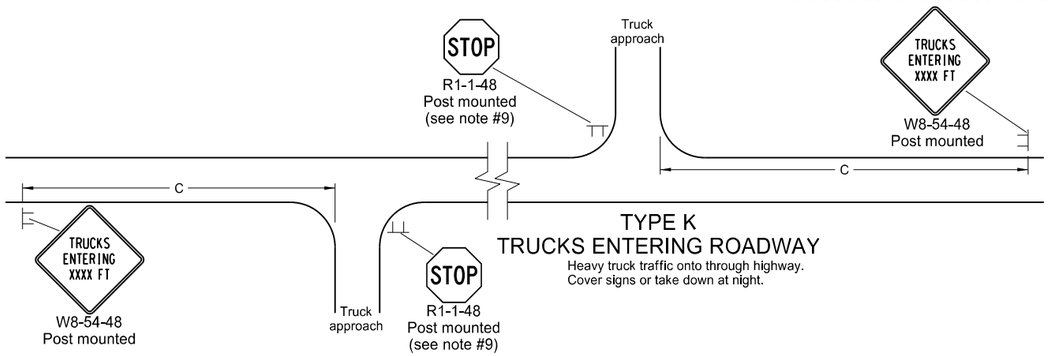
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-4-13	
REVISIONS	
DATE	CHANGE
11-14-13	Revised Note 6.

This document was originally issued and sealed by Roger Weigel, Registration Number PE-2930, on 11/14/13 and the original document is stored at the North Dakota Department of Transportation

CONSTRUCTION TRUCK AND TEMPORARY DETOUR LAYOUTS

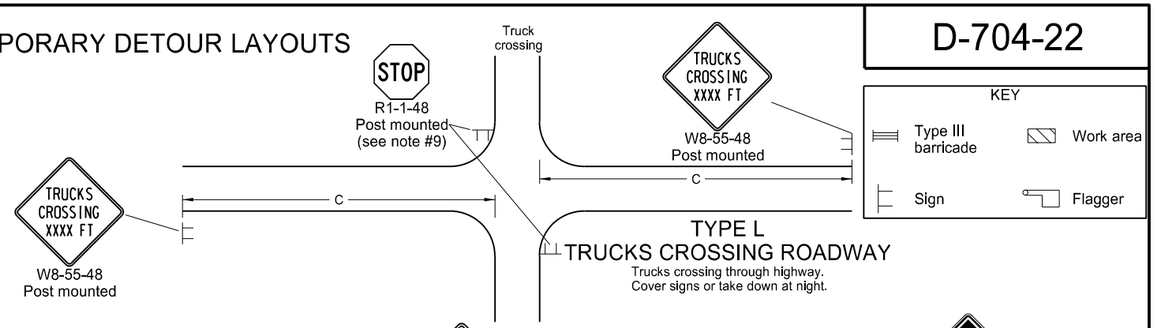
D-704-22

KEY
- Type III barricade
- Work area
- Sign
- Flagger



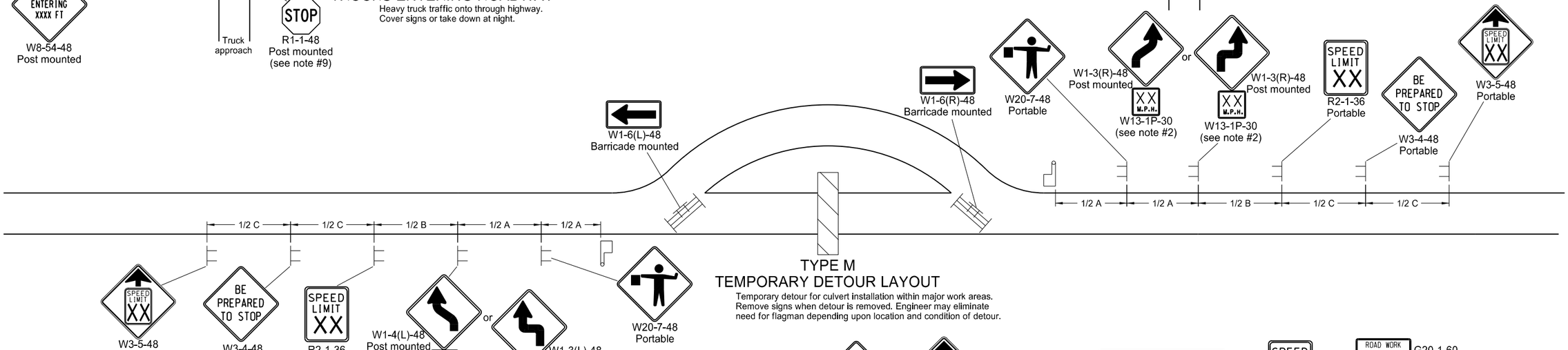
TYPE K
TRUCKS ENTERING ROADWAY

Heavy truck traffic onto through highway.
Cover signs or take down at night.



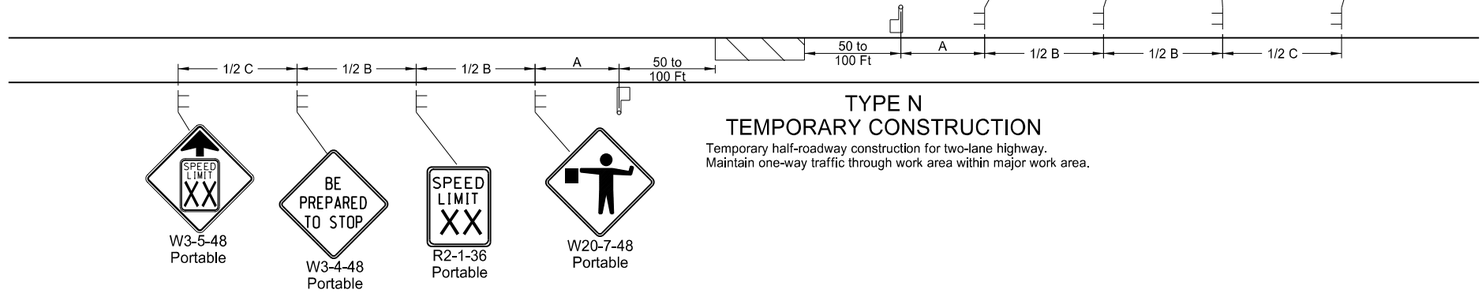
TYPE L
TRUCKS CROSSING ROADWAY

Trucks crossing through highway.
Cover signs or take down at night.



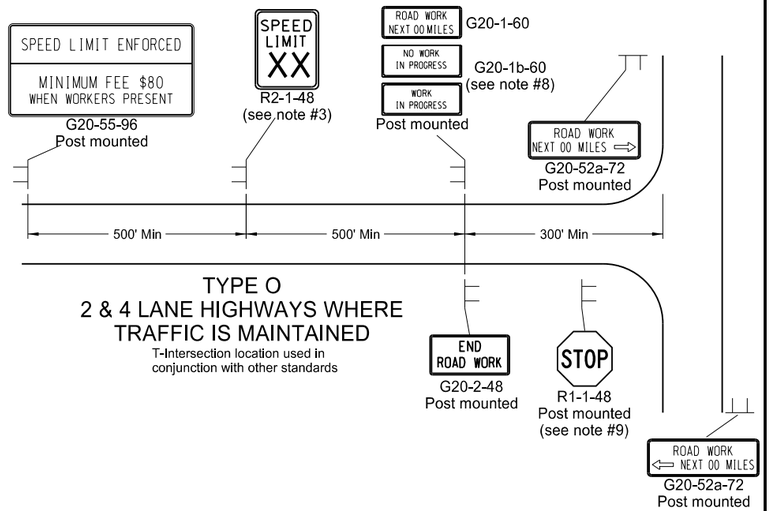
TYPE M
TEMPORARY DETOUR LAYOUT

Temporary detour for culvert installation within major work areas.
Remove signs when detour is removed. Engineer may eliminate need for flagman depending upon location and condition of detour.



TYPE N
TEMPORARY CONSTRUCTION

Temporary half-roadway construction for two-lane highway.
Maintain one-way traffic through work area within major work area.



TYPE O
2 & 4 LANE HIGHWAYS WHERE TRAFFIC IS MAINTAINED

T-Intersection location used in conjunction with other standards

Notes
1. Place barricades on a moveable assemblies and signs on portable assemblies when located on roadway.
2. Where necessary, safe speed to be determined by the Engineer.
3. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
4. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
5. Cover existing speed limit signs within a reduced speed zone.
6. Covered (when approved by engineer) or obliterated pavement marking measured as Obliteration of Pavement Marking.
7. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
8. Install sign G20-1b-60 when work is suspended for winter.
9. If existing stop sign is in place, a 48" stop sign is not required.
10. Sign G20-55-96 is not required if layout is part of other traffic control or if work is less than 15 days.
11. Recommend using 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft) A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

9-27-13

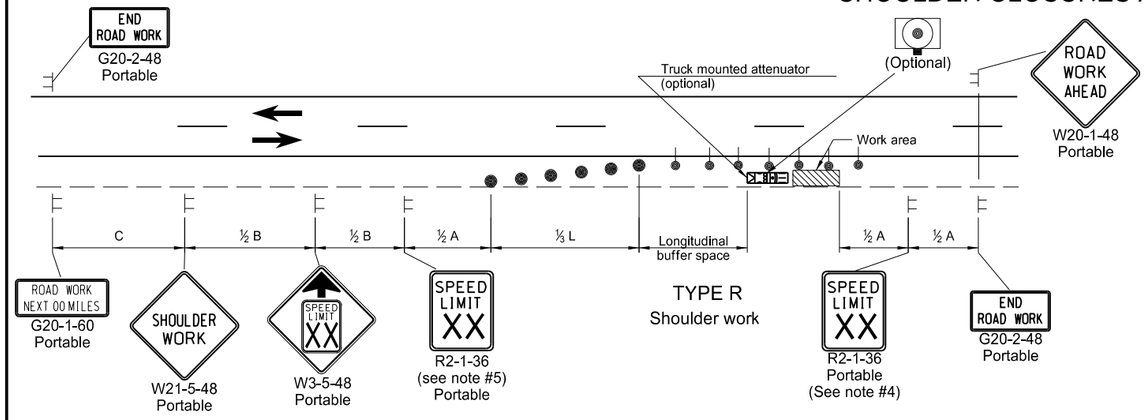
REVISIONS

DATE	CHANGE
8-17-17	Update notes & sign numbers

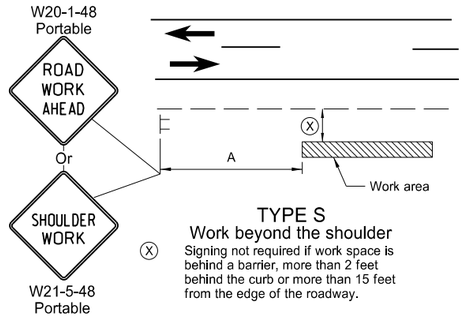
This document was originally issued and sealed by Roger Weigel Registration Number PE-2930, on 08/17/17 and the original document is stored at the North Dakota Department of Transportation

SHOULDER CLOSURES AND BRIDGE PAINTING LAYOUTS

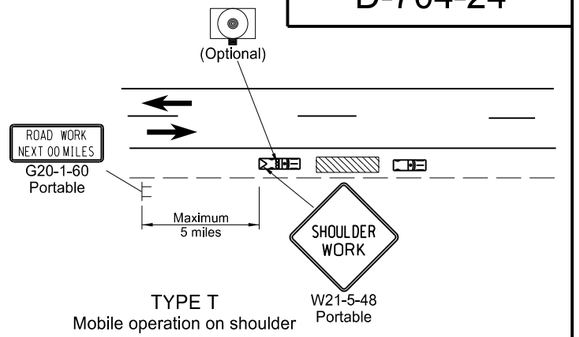
D-704-24



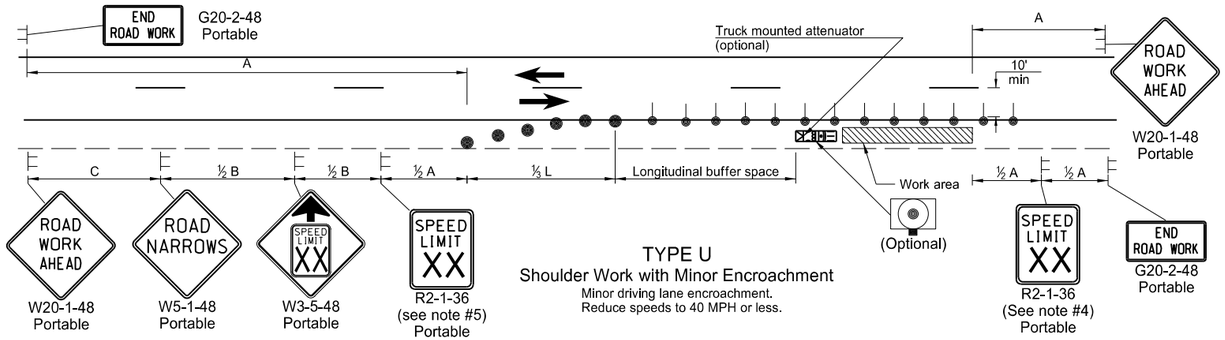
TYPE R
Shoulder work



TYPE S
Work beyond the shoulder
Signing not required if work space is behind a barrier, more than 2 feet behind the curb or more than 15 feet from the edge of the roadway.

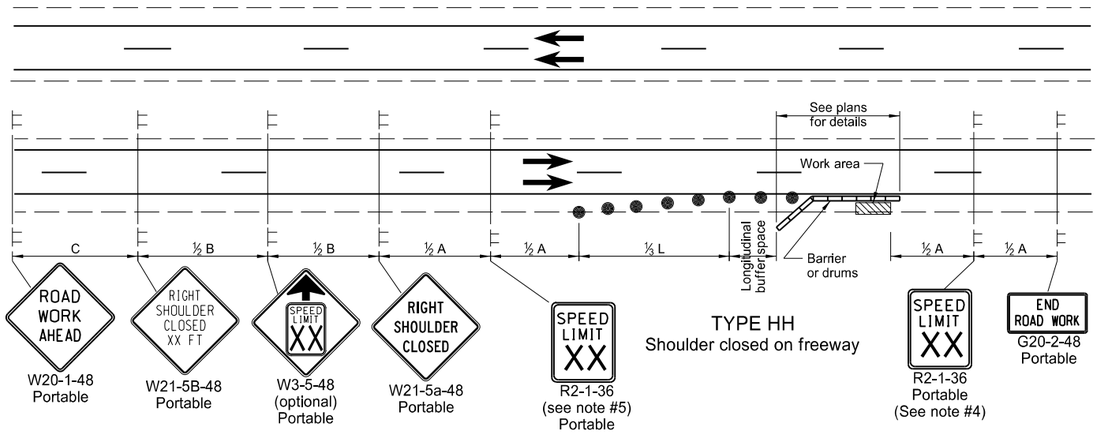


TYPE T
Mobile operation on shoulder

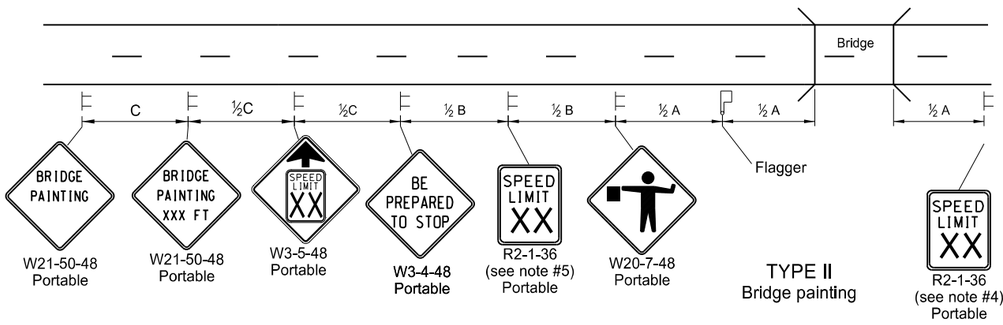


TYPE U
Shoulder Work with Minor Encroachment
Minor driving lane encroachment.
Reduce speeds to 40 MPH or less.

Notes
1. Variables
   S = Numerical value of speed limit or 85th percentile.
   W = The width of the taper in feet.
   L = Minimum length of taper, S x W for freeways, expressways, and all other roads with speeds of 45 mph or greater, or W x S^2 /60 for urban, residential, and other streets with speeds of 40 mph or less.
2. Space delineator drums for tapering traffic at dimension "S". Space delineator drums or tubular markers for tangents at 2 times "S".
3. Sequencing Arrow Panels
   Use Type A on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).
   UseType B on roadways with moderate traffic speeds and volumes (40 mph or less and 5000 ADT or less).
   Use Type C on roadways with high traffic speeds and volumes (over 40 mph or over 5000 ADT).
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½B.
6. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
7. Cover existing speed limit signs within a reduced speed zone.
8. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
9. Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.



TYPE HH
Shoulder closed on freeway



TYPE II
Bridge painting

KEY

Sign	Work area
Delineator Drum	Tubular Marker
Sequencing Arrow Panel (Caution Mode)	

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft) A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Longitudinal Buffer Space

Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

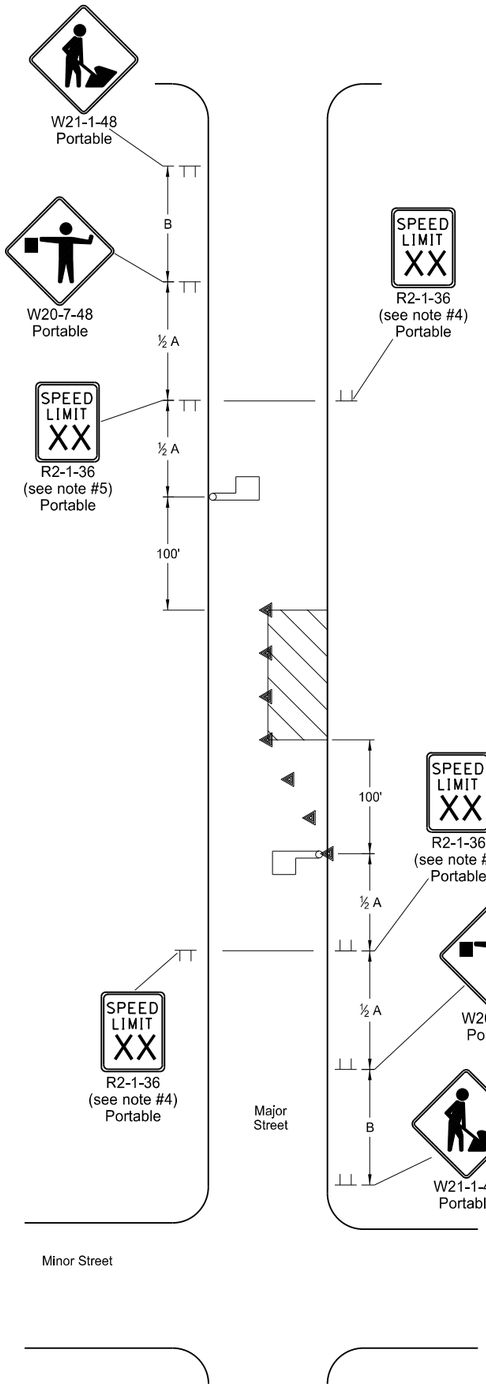
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
9-27-13
REVISIONS

DATE	CHANGE
8-17-17	Updated notes & revised signs

This document was originally issued and sealed by Roger Weigel Registration Number PE-2930, on 08/17/17 and the original document is stored at the North Dakota Department of Transportation

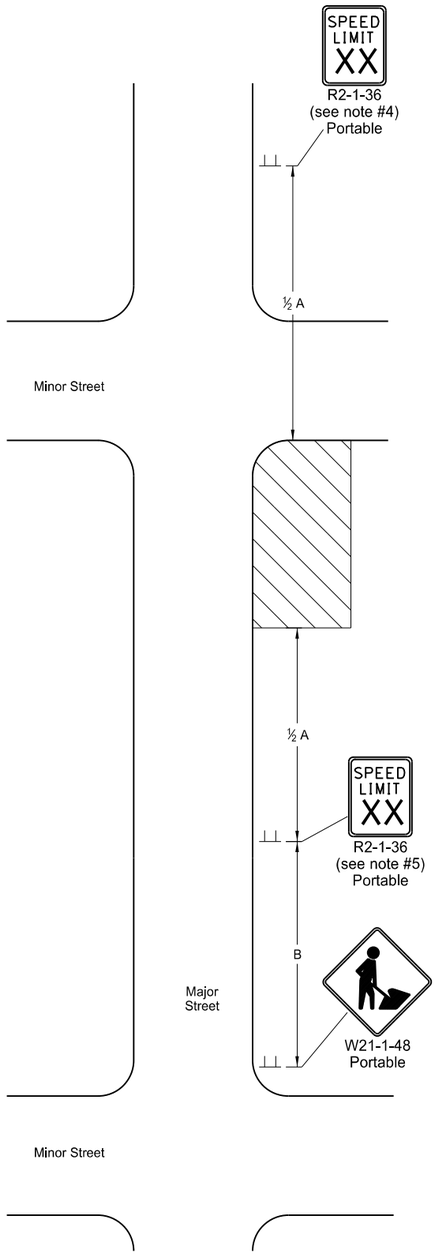
LANE CLOSURES ON URBAN STREETS LAYOUTS

D-704-25



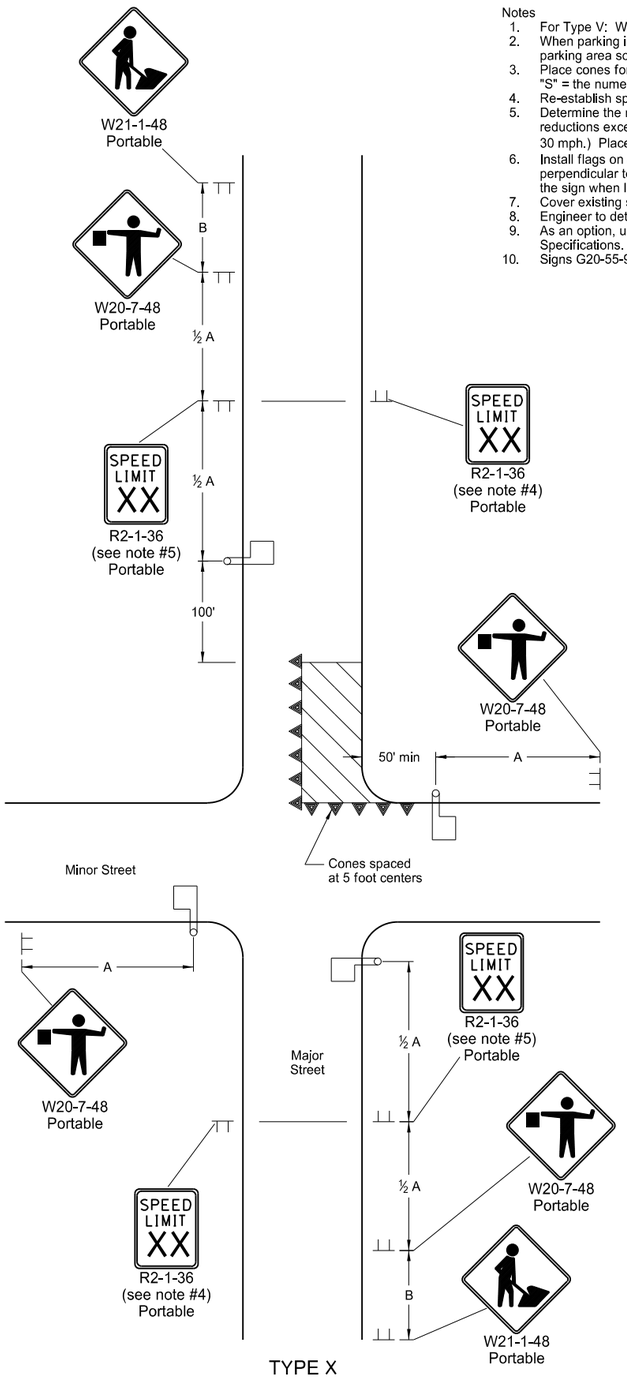
TYPE V
LANE CLOSURE ON URBAN STREET

Portion of roadway closed to traffic only
during daylight hours (mid block location).



TYPE W
WORK BEYOND CURB ON URBAN STREET

Work area outside driving lane and no closure necessary.



TYPE X
LANE CLOSURE NEAR INTERSECTION ON URBAN STREET

Portion of roadway closed to traffic only
during daylight hours (end block location).

Notes

1. For Type V: Work on one side of roadway at a time so as not to block off more than one lane of traffic.
2. When parking is present, place signs so they are entirely visible above parked vehicles or at the edge of the parking area so they are visible to oncoming traffic. Place signs on portable mounts when located on roadway.
3. Place cones for tapering traffic at 3 equal spaces and cones for tangents at dimension "S".
   "S" = the numerical value of speed limit.
4. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
5. Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½ B.
6. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inches square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
7. Cover existing speed limit signs within reduced speed zones.
8. Engineer to determine safe speed, when necessary.
9. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
10. Signs G20-55-96 and R2-1aP-24 are not required for urban projects.

ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

KEY

Sign | Work area | Cones | Flagger

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

9-27-13

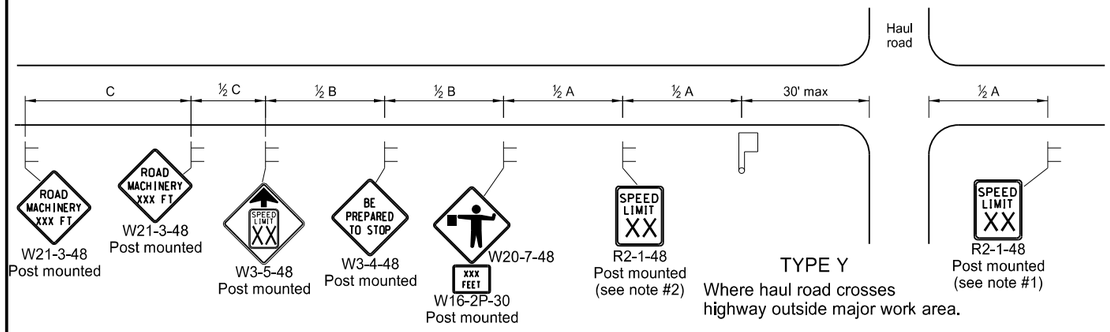
REVISIONS

DATE	CHANGE
8-17-17	Updated notes & removed signs

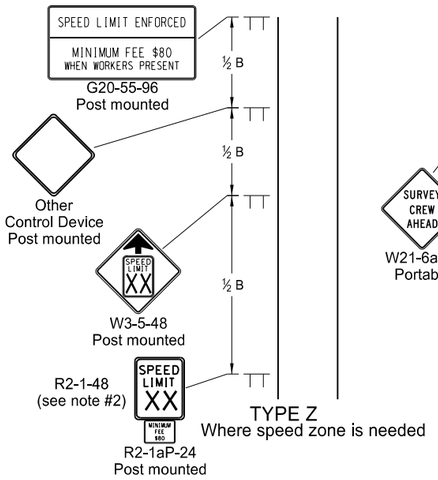
This document was originally issued and sealed by Roger Weigel Registration Number PE-2930, on 08/17/17 and the original document is stored at the North Dakota Department of Transportation

MISCELLANEOUS SIGN LAYOUTS

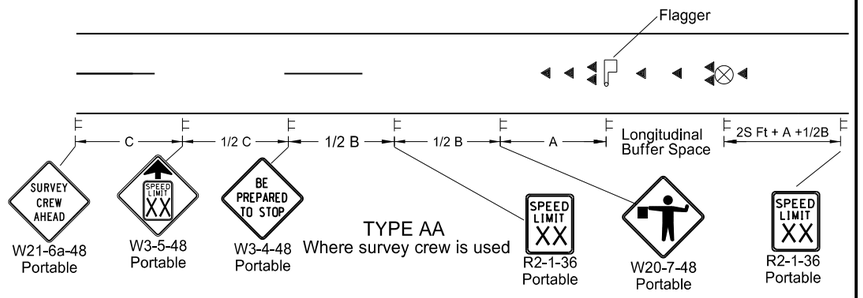
D-704-26



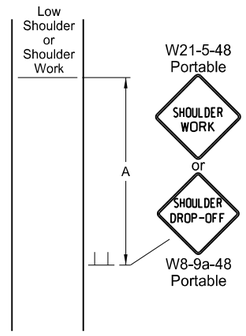
TYPE Y
Where haul road crosses highway outside major work area.



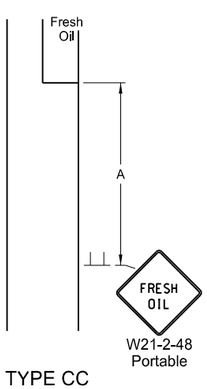
TYPE Z
Where speed zone is needed



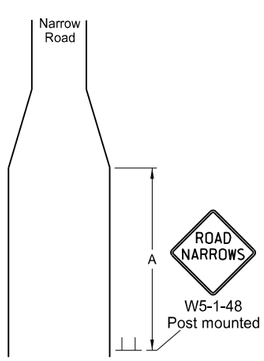
TYPE AA
Where survey crew is used



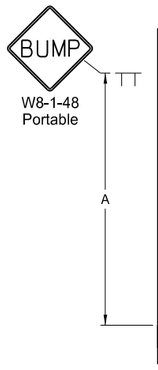
TYPE BB
Within major work area where sign conditions exist



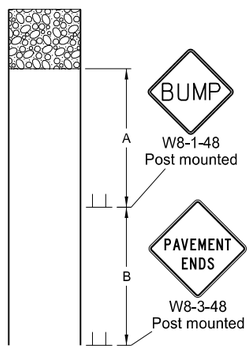
TYPE CC
Where sign conditions exist



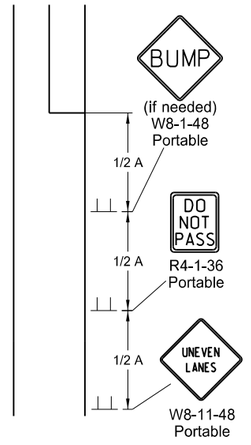
TYPE DD
Where sign conditions exist



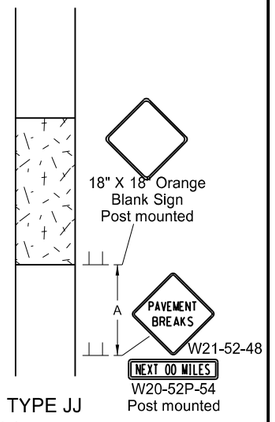
TYPE EE
Where sign conditions exist



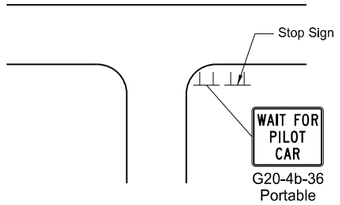
TYPE FF
Where sign conditions exist



TYPE GG
Where elevation difference exists between lanes



TYPE JJ
For break in pavement.
Install signs when conditions exist and remove when not applicable.



TYPE KK
At major intersections within pilot car control area

Notes
1. Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
2. Determine reduced speed limit based on in-place speed limit before construction. Where speed reductions exceed 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at ½B.
3. Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
4. Cover existing speed limit signs within reduced speed zones.
5. As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
6. Sign G20-55-96 is not required if this standard is part of other traffic control layouts, or work is less than 15 days.
7. When pilot car operation is used, place sign G20-4b-36 "Wait For Pilot Car" at major intersections within pilot car control area.
8. Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

Longitudinal Buffer Space	
*Speed (mph)	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

* Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

KEY

Sign Flagger Cones

S = Numerical value of speed limit or 85th percentile.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE
8-17-17	Added speed limit signs. Updated notes & sign numbers

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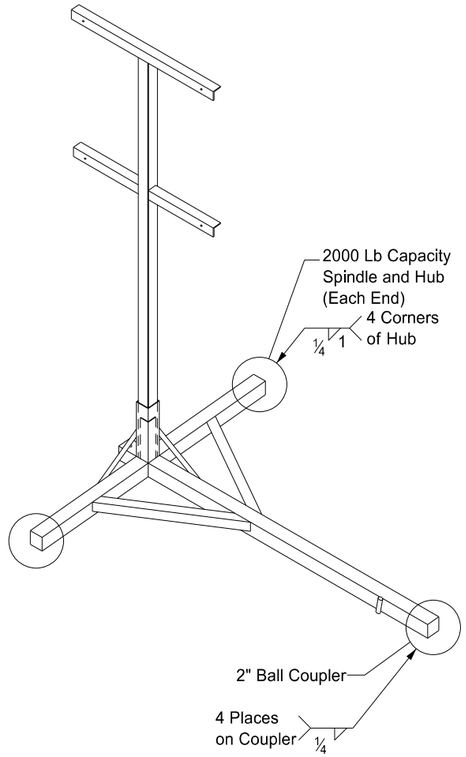
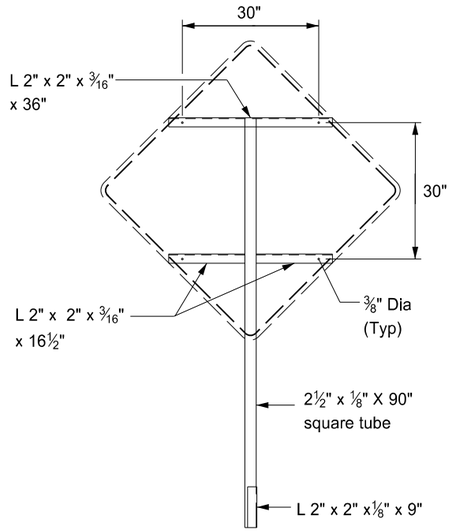
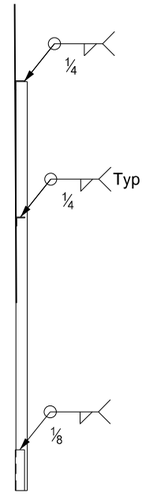
PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50



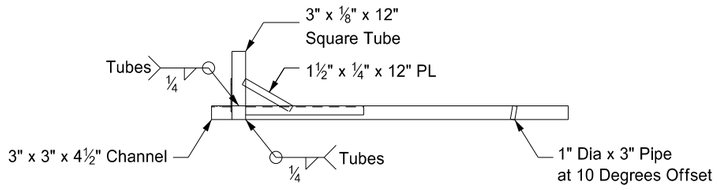


FRONT



RIGHT

SIGN SUPPORT



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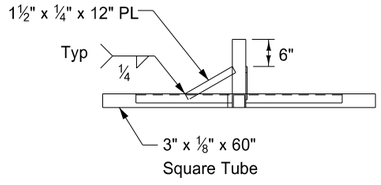

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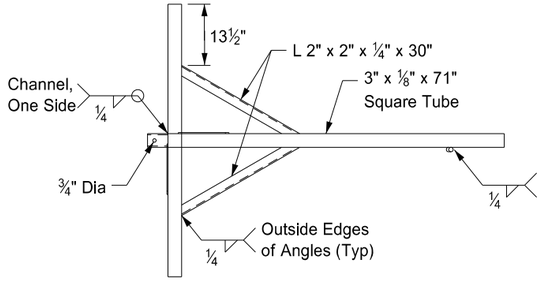


TOP

TRAILER

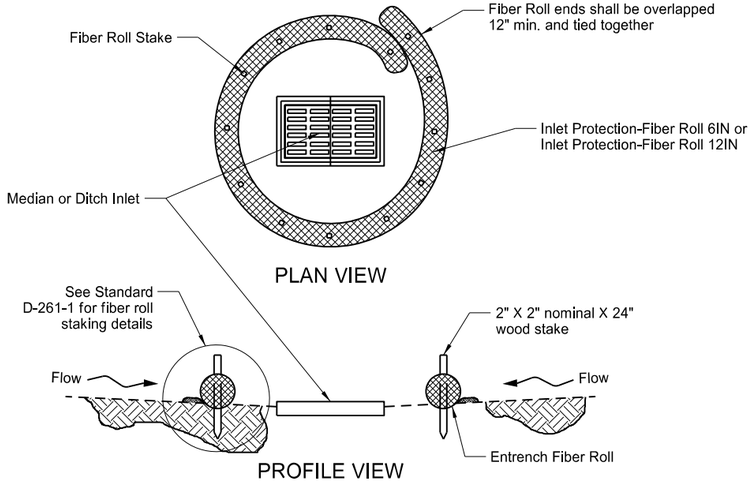
Notes:

1. The maximum weight of the assembly is 250 pounds.
2. Use a 14" wheel and tire.
3. Automotive and equipment axle assemblies may not be used for trailer-mounted sign supports.
4. Other NCHRP 350 crash tested assemblies are acceptable.

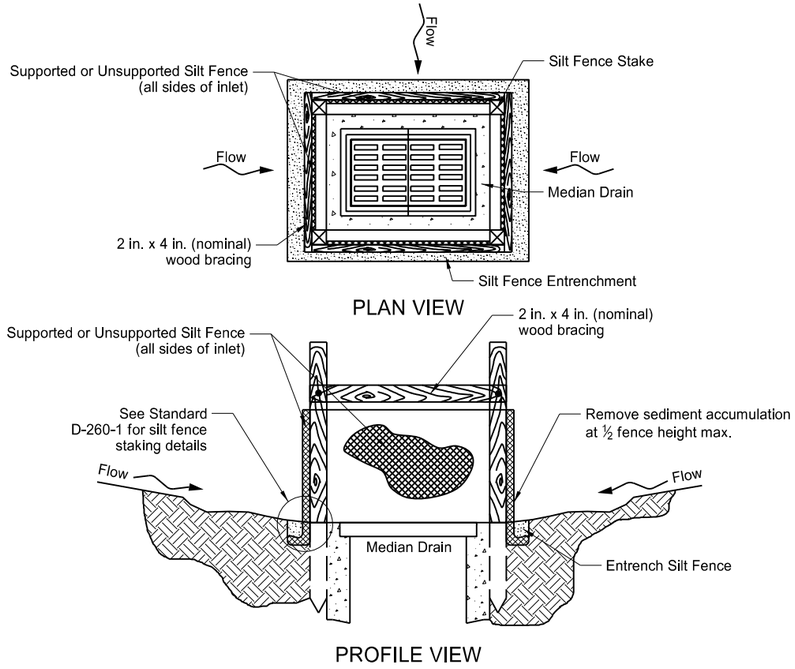
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE

This document was originally issued and sealed by Roger Weigel Registration Number PE- 2930 , on 11/23/10 and the original document is stored at the North Dakota Department of Transportation

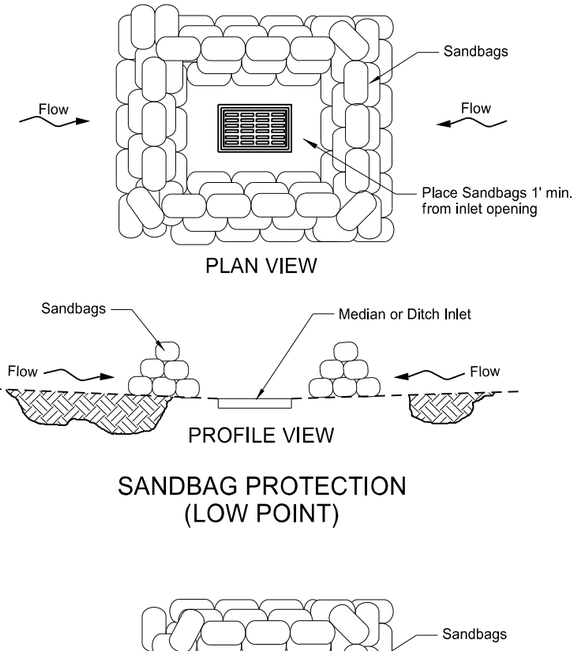
EROSION AND SILTATION CONTROLS
MEDIAN OR DITCH INLET PROTECTION



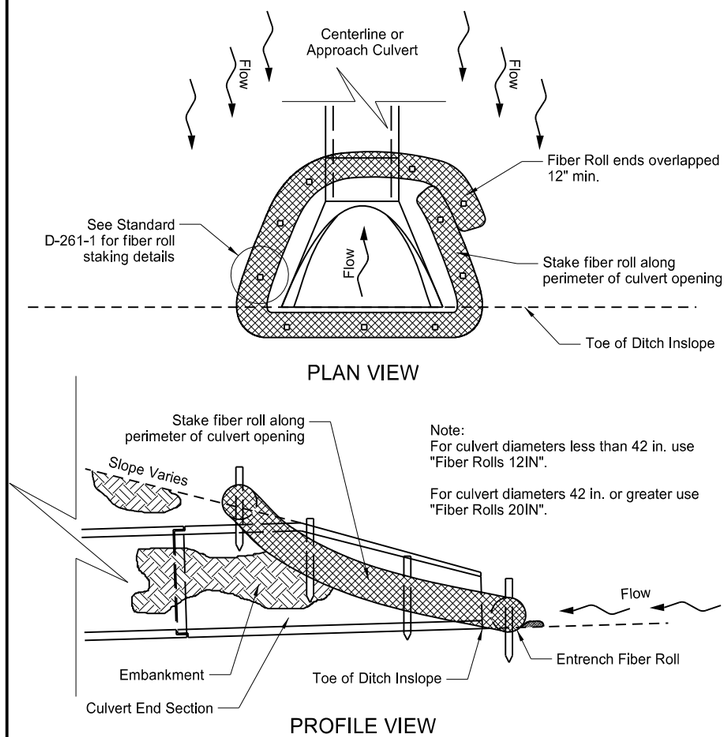
FIBER ROLL PROTECTION (MEDIAN OR DITCH INLET)



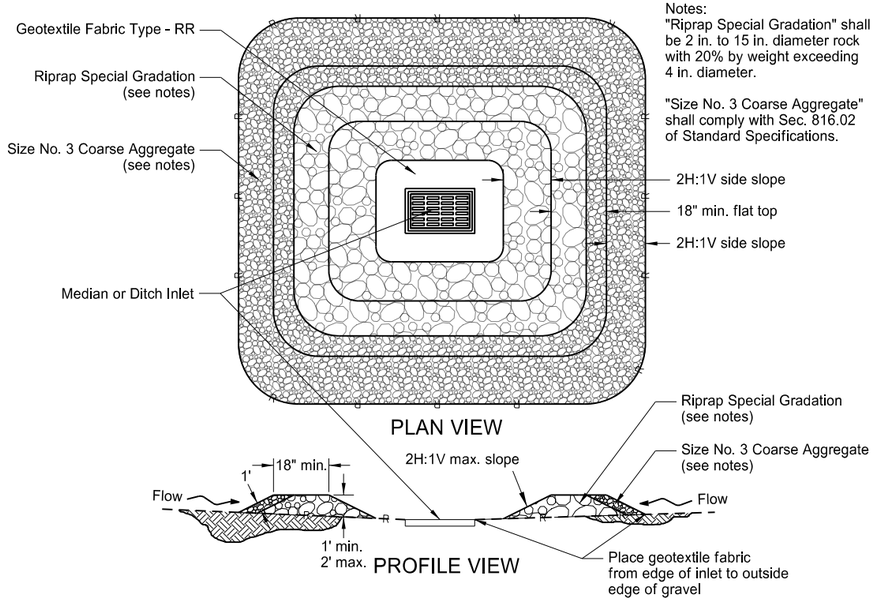
SILT FENCE PROTECTION (MEDIAN OR DITCH INLET)



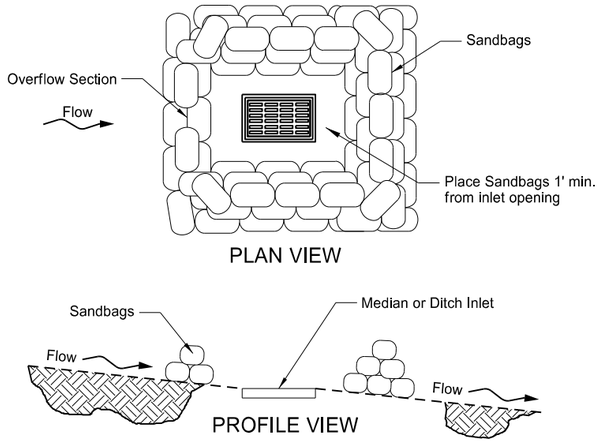
SANDBAG PROTECTION (LOW POINT)



FIBER ROLL PROTECTION (INLET OF CULVERT)



GRAVEL INLET PROTECTION (MEDIAN OR DITCH INLET)



SANDBAG PROTECTION (ON SLOPE)

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Updated reference to standard drawing number for fiber roll staking details.
10-01-14	Updated reference to standard drawing number for silt fence.

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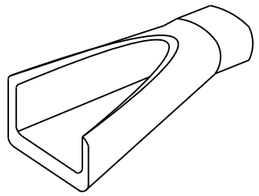
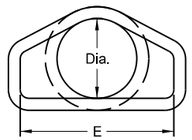
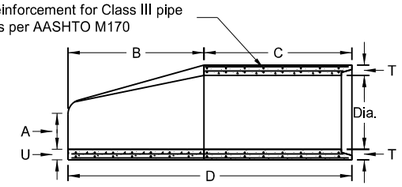
REINFORCED CONCRETE PIPE CULVERTS AND END SECTIONS
(Round Pipe)



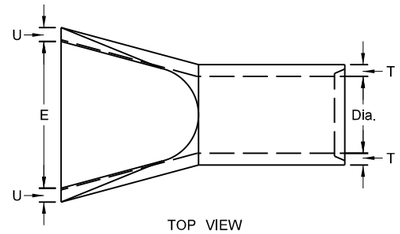
PERSPECTIVE



END VIEW



SIDE VIEW



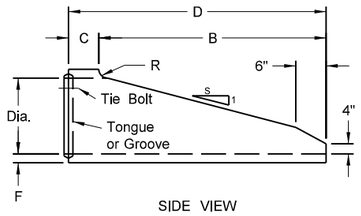
TOP VIEW

REINFORCED CONCRETE PIPE - FLARED END SECTION

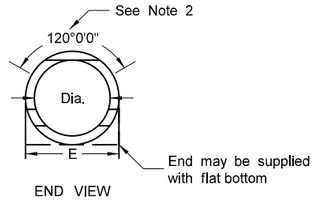
Reinforcement to be equivalent to Class III RCP

FLARED END SECTION						
TERMINAL DIMENSIONS						
DIA	A	B	C	D	E	U
12	0'-4"	2'-0"	4'-0⅞"	6'-0⅞"	2'-0"	2"
15	0'-6"	2'-3"	3'-10"	6'-1"	2'-6"	2¼"
18	0'-9"	2'-3"	3'-10"	6'-1"	3'-0"	2½"
21	0'-9"	3'-0"	3'-1"	6'-1"	3'-6"	2¾"
24	0'-9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3"
27	0'-10½"	4'-0"	2'-1½"	6'-1½"	4'-6"	3¼"
30	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3½"
36	1'-3"	5'-3"	2'-9"	8'-0"	6'-0"	4"
42	1'-9"	5'-3"	2'-9"	8'-0"	6'-6"	4½"
48	2'-0"	6'-0"	2'-0"	8'-0"	7'-0"	5"
54	2'-3"	5'-5"	2'-9¼"	8'-2¼"	7'-6"	5½"
60	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"	5"
66	2'-6"	6'-0"	2'-3"	8'-3"	8'-6"	5½"
72	3'-0"	6'-6"	1'-9"	8'-3"	9'-0"	6"
78	3'-0"	7'-6"	1'-9"	9'-3"	9'-6"	6½"
84	3'-0"	7'-6½"	1'-9"	9'-3½"	10'-0"	6½"
90	3'-5"	7'-3½"	2'-0"	9'-3½"	11'-0"	6½"

TRAVERSABLE END SECTION							
DIA	B	C	D	E	F	R	S
15"	4'	9"	4'-9"	1'-7½"	2¼"	3"	6
18"	5'-9"	9"	6'-6"	1'-11"	2½"	3"	6
24"	6'	1'	7'	2'-6"	3"	3"	4
30"	7'-6"	1'	8'-6"	3'-1"	3½"	3½"	4
36"	7'-3"	15"	8'-6"	3'-8"	4"	3"	4



SIDE VIEW



END VIEW

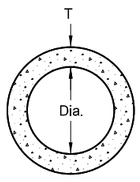
NOTES (Traversable End Section):

1. Manufactured in accordance with applicable portions of ASTM C76/AASHTO M170.
2. Reinforcement per Class III RCP with double reinforcement in the upper 120° of the full barrel portion.

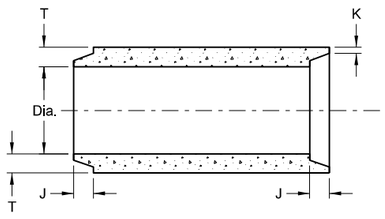
REINFORCED CONCRETE PIPE - TRAVERSABLE END SECTION

Reinforcement to be equivalent to Class III RCP

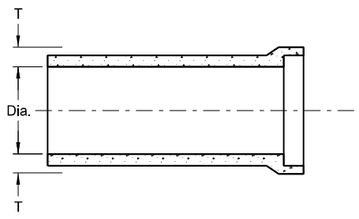
All Classifications of Round Concrete Pipe					
Internal Dia of pipe in Inches	Cross-Sectional Water Area	Weight per lin. foot of Pipe Std. Wall	Joint J Groove End Min./Max.	Joint K Tongue End Min.	Minimum Wall Thickness (T)
Dia	Sq. ft.	Lbs.	In.	In.	In.
12	0.79	92	1⅛-2⅛	¾	2
15	1.23	127	1¾-2¾	⅞	2¼
18	1.77	168	1⅞-2⅛	1	2½
21	2.40	214	1⅞-3⅛	1⅛	2¾
24	3.14	265	2⅛-3¾	1⅛	3
27	3.98	322	2¾-4	1¼	3¼
30	4.91	384	3¼-4¼	1¼	3½
33	5.94	452	3¼-4¼	1½	3¾
36	7.07	524	3½-4¼	1½	4
42	9.62	685	3¾-4¾	1¾	4½
48	12.57	685	3⅞-4¾	1⅞	5
54	15.90	1070	4⅛-5¼	2	5½
60	19.63	1296	4½-5½	2¼	6
66	23.76	1542	5-6	2⅝	6½
72	28.27	1810	5½-6¾	2⅝	7
78	33.18	2098	6¼-7¼	2⅝	7½
84	38.48	2410	5⅝-7¾	3⅜	8
90	44.18	2793	6¾-8½	3⅛	8½
96	50.27	3092	7-8¼	3½	9
102	56.75	3466	7-8¼	3½	9½
108	63.62	3864	7¼-8½	3¾	10



END VIEW



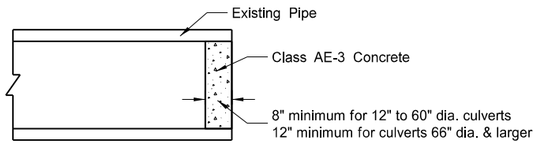
TONGUE & GROOVE JOINT



BELL & SPIGOT JOINT

CIRCULAR PIPE

JOINTS FOR REINFORCED CONCRETE PIPE



CONCRETE PIPE PLUG

NOTES:

1. All reinforcing steel shall meet AASHTO M170 requirements.
2. All circular, longitudinal, and elliptical reinforcement shall be assembled and securely fastened in cage fashion so as to maintain reinforcement in exact shape and correct positions within the forms.
3. Laying length of pipe: 12" to 66" (incl.) = not less than 4 feet
   66" to 108" (incl.) = not less than 6 feet
4. Joints shall be sealed with rubber gaskets or with sealer approved by the engineer whenever pipe are specified for storm drain or sanitary sewers.
5. For Class IV and Class V reinforced concrete pipe and end section sizes which do not have reinforcement specified by AASHTO M170, shop drawings and design calculations shall be prepared and sealed by a Professional Engineer and submitted for the Engineer's review.

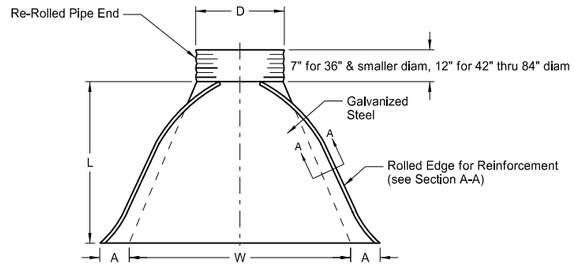
SEE STANDARD DRAWING D-714-22 FOR DETAILS OF CONCRETE PIPE TIES (TIE BOLTS).

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
05-12-14	
REVISIONS	
DATE	CHANGE
01-21-15	Revised Note 5
11-21-16	Revised End Section Dimensions

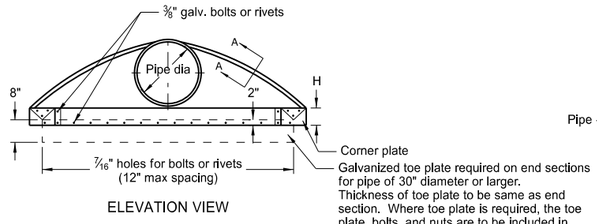
This document was originally issued and sealed by Jon Ketterling Registration Number PE-4684, on 11/21/16 and the original document is stored at the North Dakota Department of Transportation

ROUND CORRUGATED STEEL PIPE CULVERTS AND END SECTIONS

D-714-4

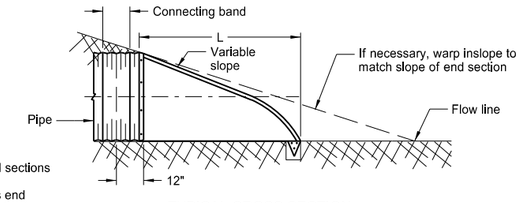


PLAN VIEW



ELEVATION VIEW

Galvanized toe plate required on end sections for pipe of 30" diameter or larger. Thickness of toe plate to be same as end section. Where toe plate is required, the toe plate, bolts, and nuts are to be included in price bid for end sections.



TYPICAL CROSS SECTION
(showing connector section)

* * PIPE DIA. IN	GALV. THICK. IN	END SECTION DIMENSIONS A IN	B IN	H IN	L IN	W IN	APPROX. SLOPE RATE	BODY PIECE
15	0.064	7	8	6	26	30	2½:1	1
18	0.064	8	10	6	31	36	2½:1	1
24	0.064	10	13	6	41	48	2½:1	1
30	0.079	12	16	8	51	60	2½:1	1 or 2
36	0.079	14	19	9	60	72	2½:1	2
42	0.109	16	22	11	69	84	2½:1	2
48	0.109	18	27	12	78	90	2¼:1	2
54	0.109	18	30	12	84	102	2:1	2
* 60	0.109	18	33	12	87	114	1¾:1	3
* 66	0.109	18	36	12	87	120	1½:1	3
* 72	0.109	18	39	12	87	126	1 1/3 :1	3
* 78	0.109	18	42	12	87	132	1¼:1	3
* 84	0.109	18	45	12	87	138	1 1/6 :1	3

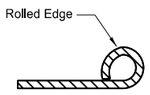
* These sizes have 0.109" sides and 0.138" center panels.

* * Pipe diameter is equal to dimension "D" of end section.

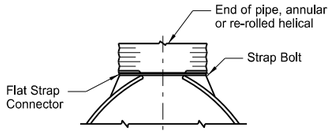
Manufacturers tolerances of above dimensions will be allowed.

Splices to be the lap riveted type.

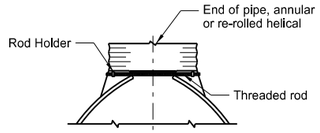
Multiple panel bodies shall have lap seams which are to be tightly joined with ⅜" dia. galv. bolts or rivets. Nuts to be torqued to 25 foot-lbs ±.



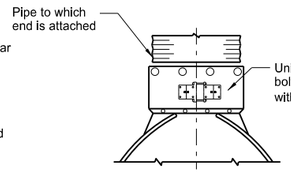
SECTION A-A



TYPE #1
For circular pipes with diameter 24" & smaller



TYPE #2
For circular pipes with diameter 30" through 36"

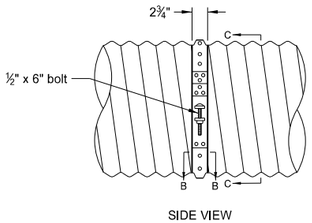


TYPE #3
For all pipe sizes

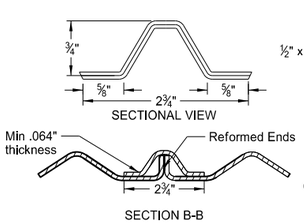
COUPLING BAND DIMENSIONS				
COUPLING TYPE	CORRUGATION PITCH x DEPTH	PIPE SIZE	COUPLING BAND LENGTH	MIN. BAND THICKNESS
Hat Band	2⅔" x ½"	12" - 48"	2¾"	.064"
Annular Band	2⅔" x ½"	12" - 72"	12"	.052"
		78" - 84"	12"	.079"
	3" x 1"	48" - 120"	14"	.052"
Hugger Band	2⅔" x ½" Rerolled End	12" - 72"	10½"	.052"
		78" - 84"	10½"	.079"
	3" x 1" Rerolled End	48" - 120"	10½"	.052"
	5" x 1" Rerolled End	48" - 120"	12"	.064"

NOTES:

1. Pipes and connecting bands shall conform to applicable sections of NDDOT Standard Specifications and to AASHTO M-36.
2. Top edge of all end sections to have rolled edges for reinforcement (see Section A-A). The reinforced edges are to be supplemented with 2" x 2" x ¼" galv. angle for 60" through 72" dia. and 2½" x 2½" x ¼" galv. angle for 78" and 84" dia.. Angles to be attached by galv. ⅜" dia. bolts and nuts. Angles are to extend from pipe to the corner wing bend.
3. Elongated pipes shall be factory preformed so that the vertical diameter shall be 5% greater and the horizontal diameter 5% less than a circular pipe.
4. Coupling bands shall be two-piece for pipes larger than 36" as shown in Section C-C & D-D details. For pipes 36" and smaller, a one-piece band is acceptable.
5. ½" x 8" bolts may be used as a substitute for the ½" x 6" bolts shown in the details.
6. Coupling bands wider than 14" may be used if a minimum of four ½" bolts with maximum spacing of 5½" are used for the connection.
7. Length of spot welds shall be minimum ½".

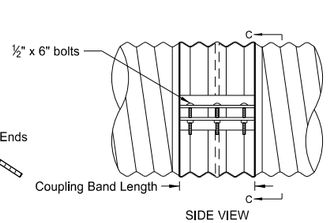


SIDE VIEW

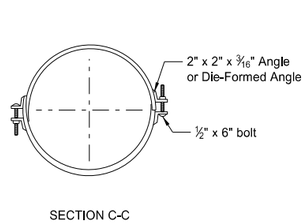


SECTION B-B

HAT BAND FOR FLANGED END PIPE

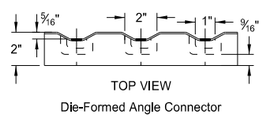


SIDE VIEW



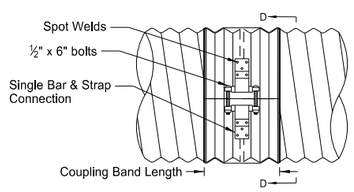
SECTION C-C
Angle Connection

ANNULAR BAND

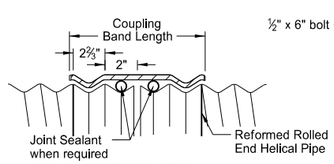


TOP VIEW

Die-Formed Angle Connector

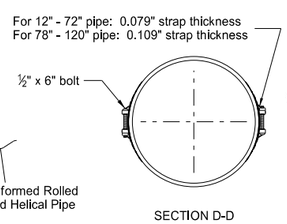


SIDE VIEW

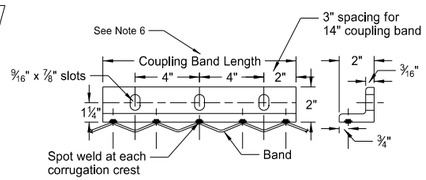


SECTIONAL VIEW

HUGGER COUPLING BAND



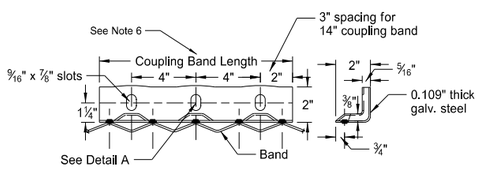
SECTION D-D
Bar & Strap Connection



SIDE VIEW

END VIEW

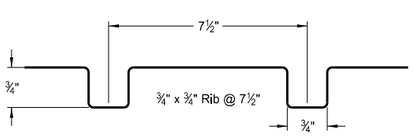
2" x 2" x 3/16" Angle Connector

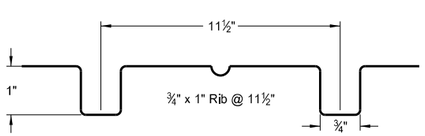


SIDE VIEW

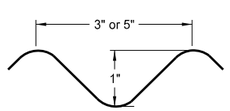
END VIEW

Die-Formed Angle Connector

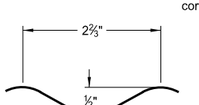




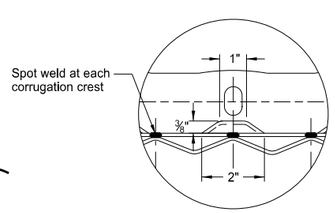
SPIRAL RIB CORRUGATIONS



3" x 1" CORRUGATIONS or
5" x 1" CORRUGATIONS



2⅔" x ½" CORRUGATIONS



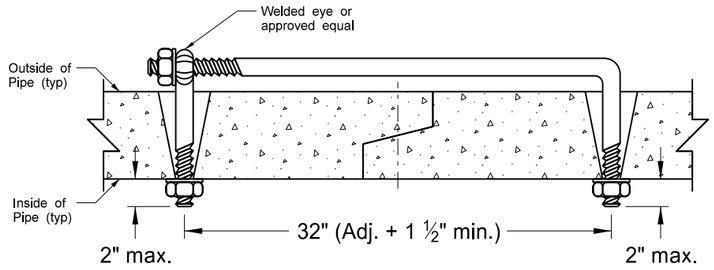
Detail A

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
08-06-13	
REVISIONS	
DATE	CHANGE
01-07-14	End Section Plan View
02-27-14	3" x 1" Corrugation Detail

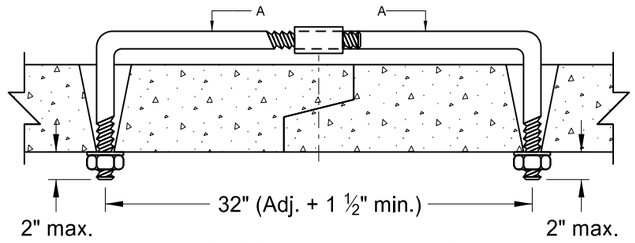
This document was originally issued and sealed by Terrence R. Udland, Registration Number PE- 2674 , on 02/27/2014 and the original document is stored at the North Dakota Department of Transportation

CONCRETE PIPE, CATTLE PASS, OR PRECAST CONCRETE BOX CULVERT TIES

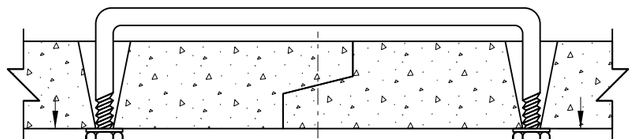
D-714-22



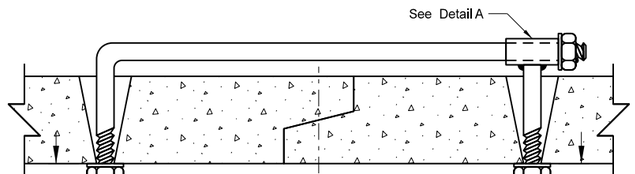
EYE BOLT TIE (PIPES ONLY)



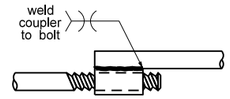
ADJUSTABLE TIE (RCB AND PIPES ONLY)



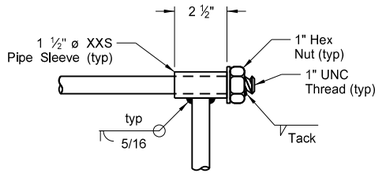
U BOLT TIE (RCB, PIPES, OR CATTLE PASSES)



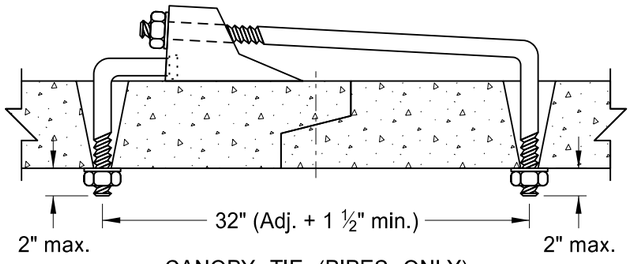
WELDED TIE (RCB AND PIPES ONLY)



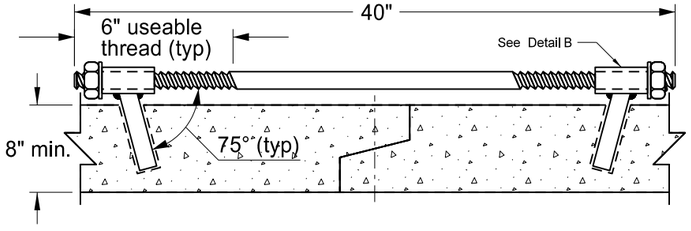
SECTION A-A



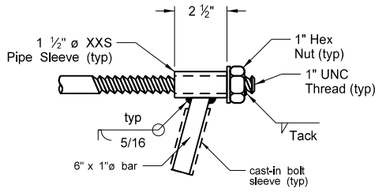
DETAIL A



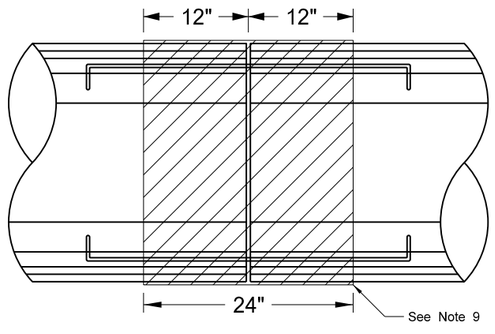
CANOPY TIE (PIPES ONLY)



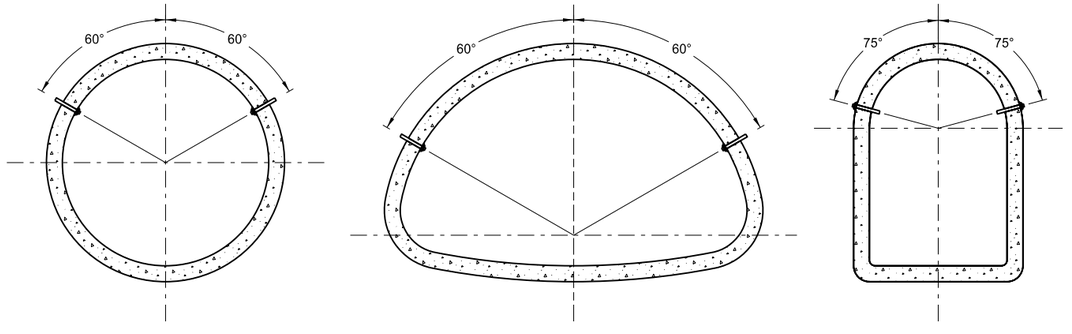
HIDDEN TIE (RCB ONLY)



DETAIL B



PLAN VIEW



END VIEW

REQUIRED SIZE OF TIE BOLTS		
Pipe Size	Thread ø	XXS Pipe Sleeve Inner ø
18" - 24"	⅝" See note 2	¾"
30" - 66"	¾"	1"
72" - 78"	1"	1 ¼"
RCB/Cattle Pass		

NOTES:

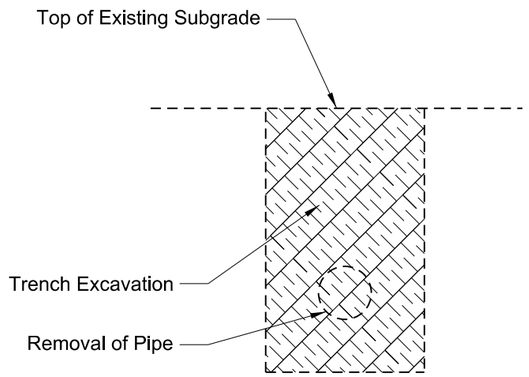
1. The pipe size listed is the inside diameter of round pipe or the equivalent diameter of pipe arch.
2. Cattle Pass and Jacked and Bored pipes shall have pipe ties inserted from the inside of the pipes and grouted into place. Jacked and bored pipes with a diameter of 24" or less do not require pipe ties.
3. Nuts and washers are not required on Jacked and Bored pipes or pipes with a 24" diameter or less. Where nuts and washers are not used, the tie bars shall be inserted and grouted into place.
4. Ties are only for holding pipe or RCB sections together, not for pulling sections tight.
5. Tie bolt assembly shall be hot dip galvanized in accordance with AASHTO M232.
6. Holes in pipes to accommodate tie bolts can be precast or drilled. Tapered holes are permitted when precast. Holes shall have a diameter ¼" larger than the diameter of the thread. Holes in precast RCB's shall contain cast-in bolt sleeves with an inside diameter of 1 ¼".
7. The contractor has the option of selecting the type of tie bolt used from those shown.
8. The cost of precasting or drilling the required holes and furnishing and installing the tie bolts shall be included in the price bid for the appropriate conduit or RCB pay item.
9. All centerline and approach RCP culvert joints shall be tied. Storm drain systems shall have the first three joints including the end section of all free ends tied. Free ends are defined as any storm drain end which does not terminate at an inlet or manhole. Outfall culverts with end sections which drain adjacent ditches are examples of free ends.
10. Place joint wrap prior to installing ties. Overlap the joint by 12" in both directions.
11. Tie bolts shall conform to ASTM A 36. Nuts shall be be heavy hex and conform to ASTM A 563. Washers shall conform to ASTM F 436, Type 1. Welded pipe sleeves and cast-in bolt sleeves shall conform to ASTM A 53, Grade B.
12. RCB tie locations shall be as shown on the plans.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
3-18-14	
REVISIONS	
DATE	CHANGE
7-21-15	Note 8
6-6-17	Notes 2-11, Table, Title, Lables

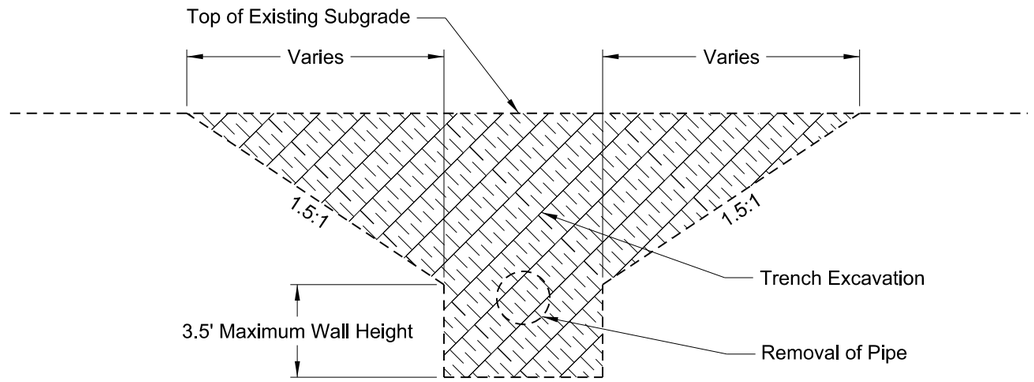
This document was originally issued and sealed by Jonathan David Ketterling, Registration Number PE-4684, on 6/6/2017 and the original document is stored at the North Dakota Department of Transportation

PIPE INSTALLATION DETAIL FOR LONGITUDINAL MAINLINE PIPE OR PIPE NOT UNDER THE ROADWAY

D-714-27



EXCAVATION DETAIL A



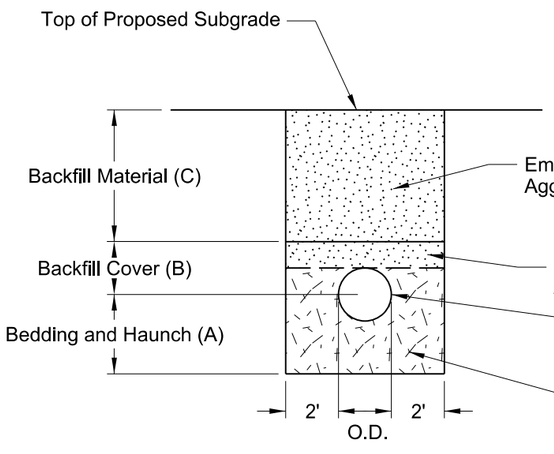
EXCAVATION DETAIL B

Pay Items
1) Pipe*
2) Removal of Pipe (if required)

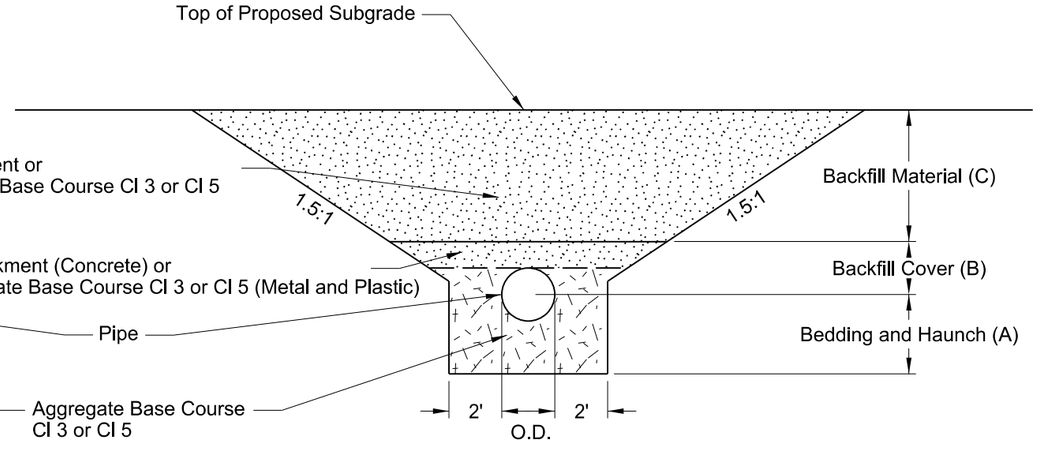
*Included in Pipe Pay Item
1) Pipe
2) Trench excavation
3) Aggregate base course Cl 3 or Cl 5
4) Embankment

NOTES:
1) This drawing does not apply to pipes in approaches.
2) It is the contactor's option to select Detail A or B.
3) Embankment may be either Borrow Excavation or Common Excavation - Type A

Bedding and Haunch (A)
Pipes Not Under Roadway = 0.5 O.D. + 4 Inches
Pipes Under the Roadway = 0.5 O.D. + 2 Feet
Backfill Cover (B)
Concrete Pipe = 0.5 O.D.
Metal and Plastic = 0.5 O.D. + 1 Foot
Backfill Material (C)
Top of Pipe 4 Feet or Less Below the Top of Proposed Subgrade = Aggregate Base Course Cl3 or Cl 5
Top of Pipe Greater than 4 Feet Below the Top of Proposed Subgrade = Common Excavation - Type A
Pipe Not Under Roadway = Common Excavation - Type B



BACKFILL DETAIL A



BACKFILL DETAIL B

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
7-26-13	
REVISIONS	
DATE	CHANGE
10-15-13 1-21-15 12-10-15	Label Formatting Nomenclature Added Plastic Pipe

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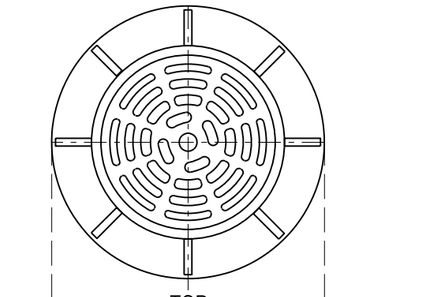
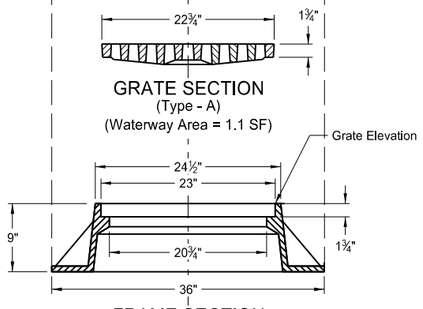
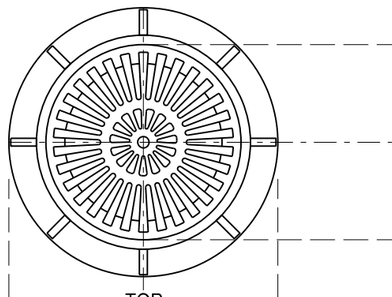
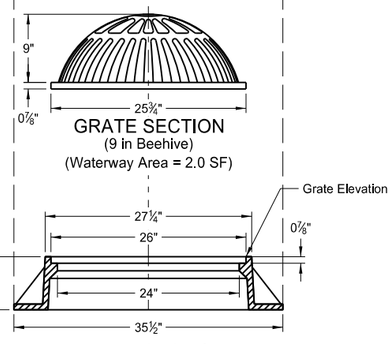
INLET - CATCH BASIN

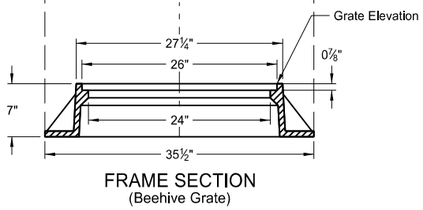
D-722-1A

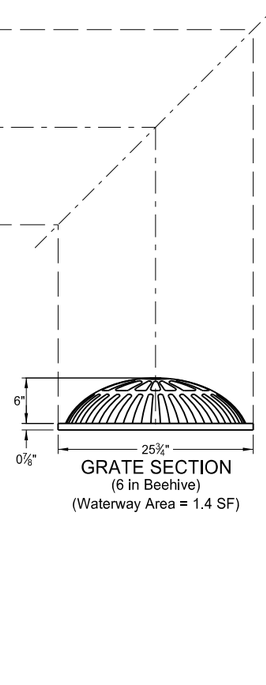


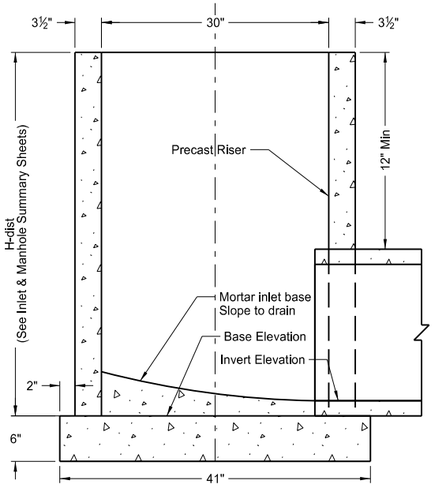


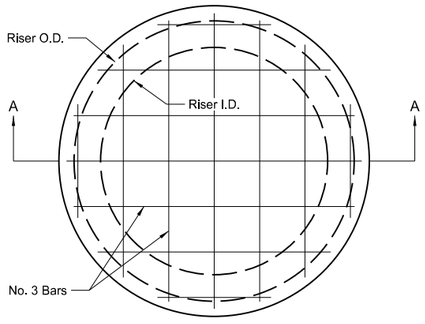


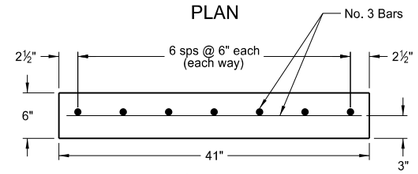












NOTES:

1. Other castings, similar in dimension, may be used if the casting conforms to the riser section and has a grate style as specified in the plans which meets or exceeds the waterway area listed. If modifications to the inlet are required to facilitate similar castings the contractor must receive written approval from the Engineer.
2. Castings shall be manufactured in accordance with AASHTO M306-09. Metal used in the manufacture of castings shall conform to AASHTO M105 Class 35B.
3. The contractor shall have the option of using precast or cast-in-place bases. Class of concrete shall be AE. The aggregate size shall be approved by the engineer in the field. Construction shall be in accordance with the NDDOT Standard Specifications.
4. Precast concrete risers shall be constructed in accordance with AASHTO M199.
5. On projects with P.C.C. pavement all inlet risers shall be constructed 4 to 5 inches below final elevation and adjusted to final grade after paving. Adjustment may be done with adjusting rings, masonry or cast-in-place concrete. All costs for this adjustment shall be included in the price bid for the inlet.
6. All reinforcing steel shall be Grade 60 steel.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
05-14-13	
REVISIONS	
DATE	CHANGE
6-24-14	Revised Note 3

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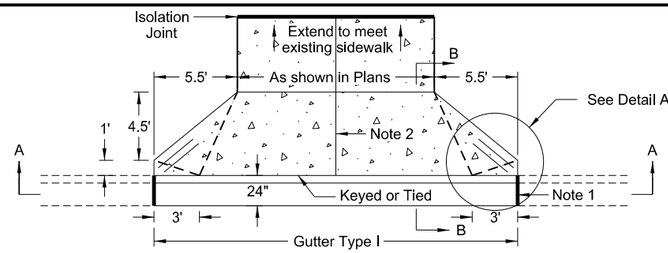
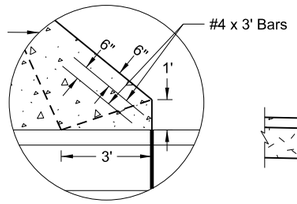
CONCRETE DRIVEWAY - URBAN

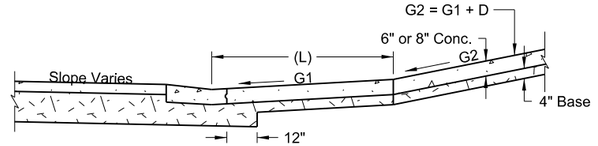
D-750-1



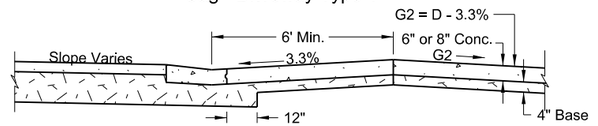
Driveway Type 1



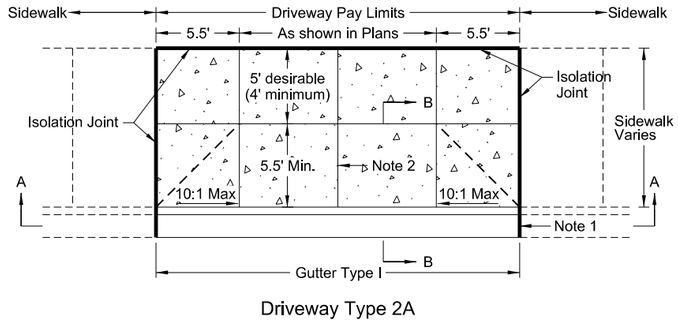
Detail A



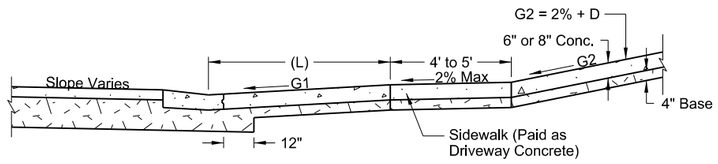
Sag - Driveway Type 1



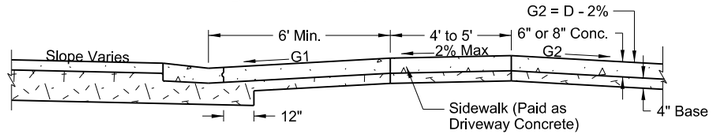
Summit - Driveway Type 1



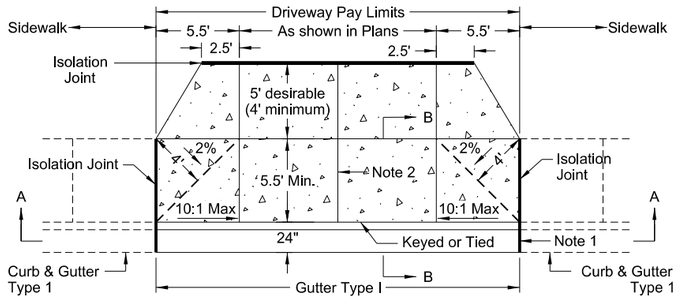
Driveway Type 2A



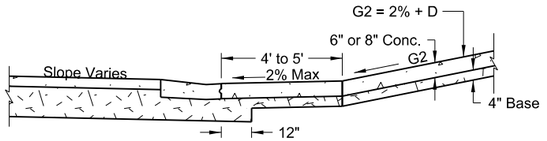
Sag - Driveway Types 2A & 2B



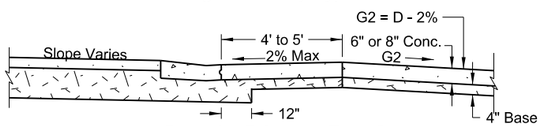
Summit - Driveway Types 2A & 2B



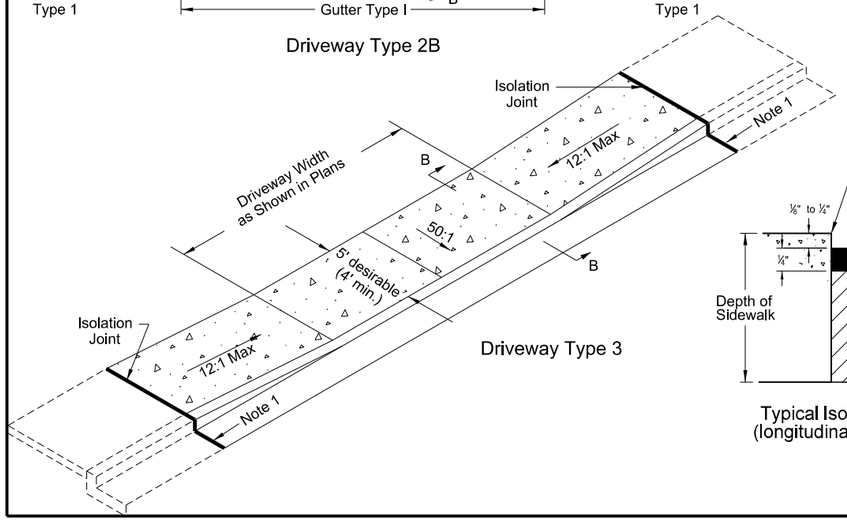
Driveway Type 2B



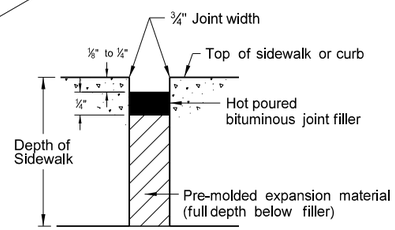
Sag - Driveway Type 3



Summit - Driveway Type 3



Driveway Type 3



Typical Isolation Joint Seal
(longitudinal and transverse)

Driveway ADT	Grade G1		Dimension (L) ft.		Grade Changes (D)	
	Desirable	Maximum	Desirable	Maximum	Desirable	Maximum
(0-500)	5%	12% or controlled by vehicle clearance	12	6	6%	15% or controlled by vehicle clearance
(500-1500)	3%	8%	20	20	3%	6%
(> 1500)	2%	5%	40	40	0%	3%

NOTES:

1. See Standard D-748-1 for curb and gutter isolation joint detail. On PCC roadways, the curb and gutter joints should match those of the pavement as much as practical.
2. Joint Spacing: 1 Center contraction joint to be used on all driveways 20' width or less, 2 center contraction joints for driveways > 20' to 30' width, and 3 center contraction joints for driveways greater than 30' width.

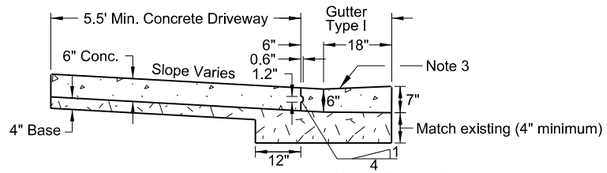
   The contraction joints may be sawed or a grooved joint, and shall be a minimum of 1/3 the depth of the concrete.

   Isolatoin joints should also be used between seperately poured cocretes, or between old and new concrete.

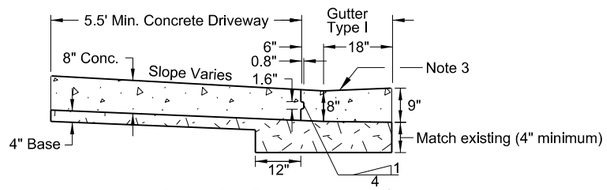
   All joints shall be sealed with hot pour bituminous filler or low modulus silicone. The sealant shall be installed and tooled in accordance with the manufacturer's recommendations.

   All costs for labor, equipment, and material necessary to construct and seal joints shall be included in the price bid for the driveway.
3. Gutter-Type 1 shall be paid for at the unit price bid for "Curb and Gutter-Type 1".
4. 6" Driveway to be used unless otherwise specified.
5. 4" base material shall be placed under the concrete driveway. All labor and materials necessary to place the base material shall be included in the price bid for Salvage Base Course or Aggregate Base Course CL 5.
6. Sidewalk that falls behind a driveway shall be constructed to the same thickness as the driveway and shall be paid for as driveway concrete.

Section A-A



6" Section B-B



8" Section B-B

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-13-2014	
REVISIONS	
DATE	CHANGE

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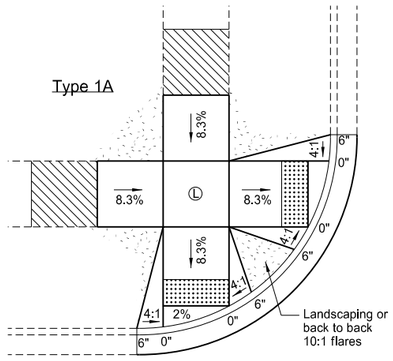
CURB RAMP DETAILS

D-750-3

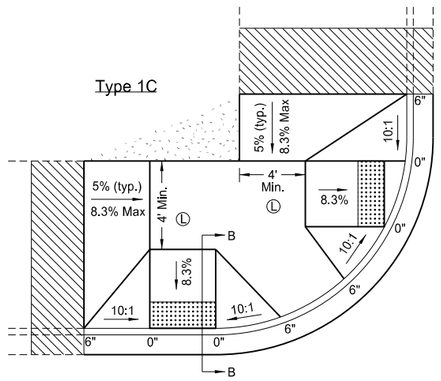
+More Right of Way

Less Right of Way-

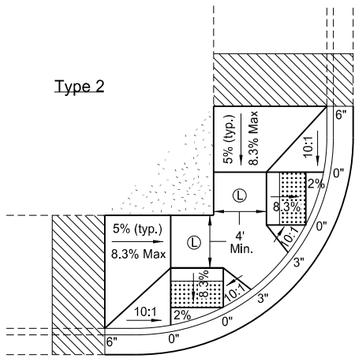
Type 1A



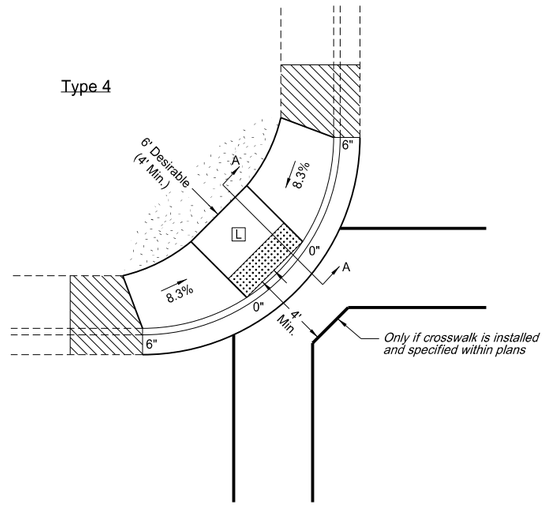
Type 1C



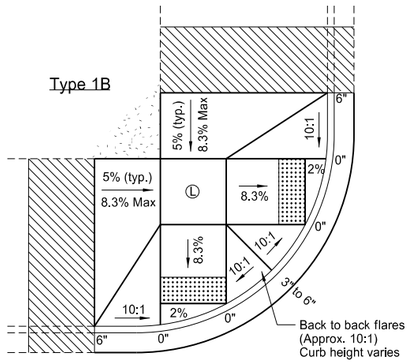
Type 2



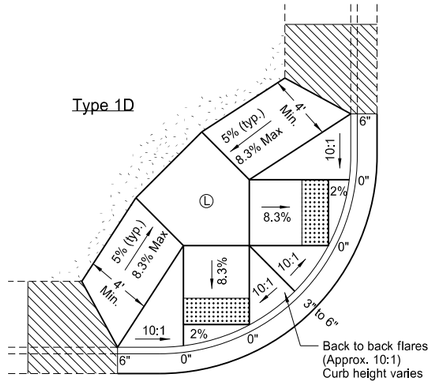
Type 4



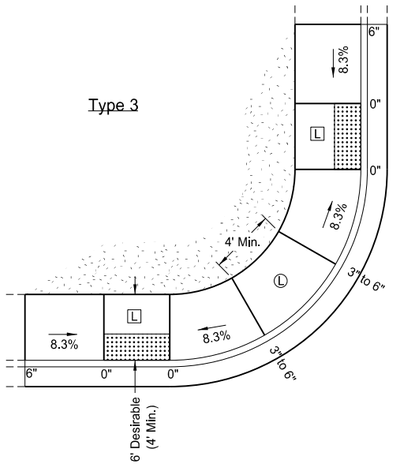
Type 1B



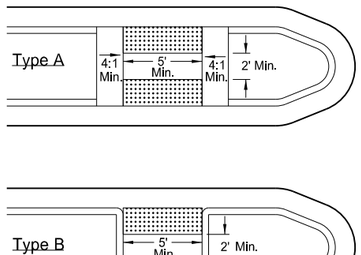
Type 1D



Type 3



Median Refuge Islands (Cut-Through)



NOTES:

1. Ramp width is defined as the useable portion of the ramp, excluding flares if used.

   Curb ramp width should match the existing sidewalk width. 4' width minimum.

   Ramp width for shared-use paths should match the existing shared use path width.

   Ramp length shall be maximum of 15'.

2. Landings shall be a minimum of 4' x 4' and shall have a max 2% slope in any direction. Landings are desirably 5' x 5' or larger.

3. Detectable warning panels shall match the ramp width. Radial panels may also be used. The detectable warning panel may be located within the lower landing.

4. The pedestrian access route shall be continuous 4' min. width. Max 2% cross slope applies to all concrete, excluding flares.

5. Landscaping is preferred to modify existing ground slope changes as needed. If not possible, such as adjacent buildings, a vertical curb may be used as shown in the detail below. The curb will be paid for at the unit price bid for the item "Curb - Type I" per lineal foot.

LEGEND:

: Detectable Warning Panel

: Landscaping

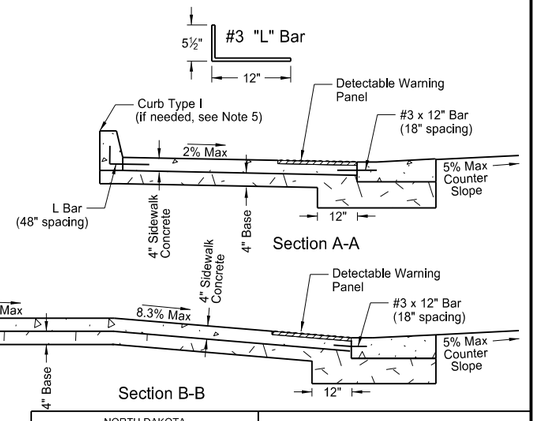
: Transitional tie-in segment if needed for retrofits. Max grade slope 8.3%.

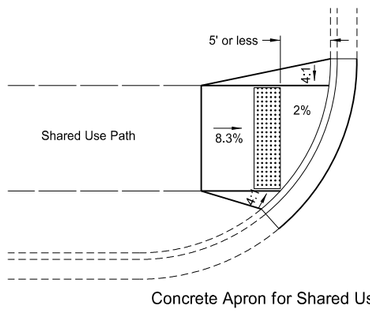
Ⓛ : Upper Landing

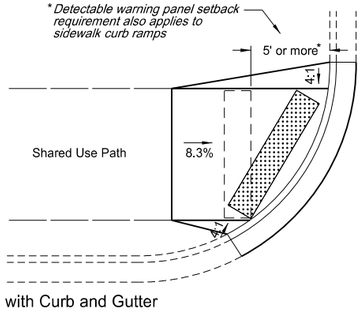
L : Lower Landing

0", 3", or 6" : Curb Height

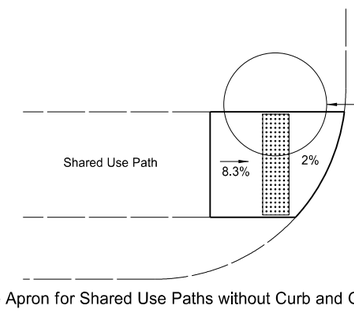
8.3% : All slopes shown are max grades. Flatter slopes may be used.



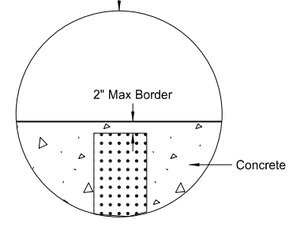


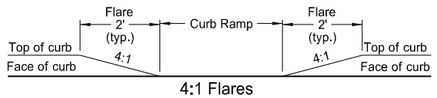


Concrete Apron for Shared Use Paths with Curb and Gutter

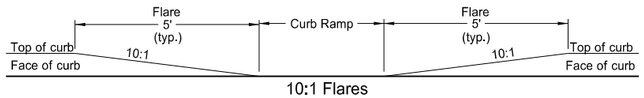


Concrete Apron for Shared Use Paths without Curb and Gutter





4:1 Flares
(To be used when flare is adjacent to landscaping)



10:1 Flares
(To be used when flare is adjacent to sidewalk)

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-26-13	
REVISIONS	
DATE	CHANGE

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PERFORATED TUBE ASSEMBLY DETAILS

D-754-23

Notes:

1. Curbed Roadways: The clearance from the face of the curb should be 3' except where right of way or sidewalk width is limited, a minimum clearance of 2' shall be provided. The horizontal clearance may need to be increased to maintain a minimum sidewalk clear width of 4' from the sign support, not including any attached curb.

2. Minimum vertical clearance: Signs installed at the side of the road in rural districts shall be at least 5' measured from the bottom of the sign to the edge of the driving lane or auxiliary lane. Where parking or pedestrian movements occur, the clearance to the bottom of the sign shall be at least 7'.

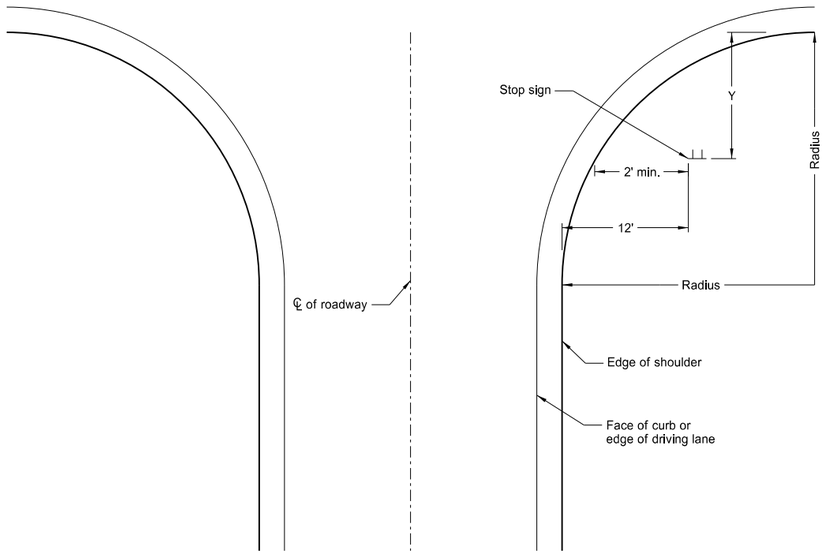
   Signs on expressways shall be installed with a minimum height of 7'.

   Adopt-a-highway signs installed on Freeways shall be at least 7' above the edge of the driving lane.

   The vertical clearance shall have a maximum height of 6" above the vertical clearance specified above.

3. Offset signs: Where signs are placed at least 30 feet or more from the edge of the traveled way, the height to the bottom of such sign shall be 5' above the edge of the driving lane.

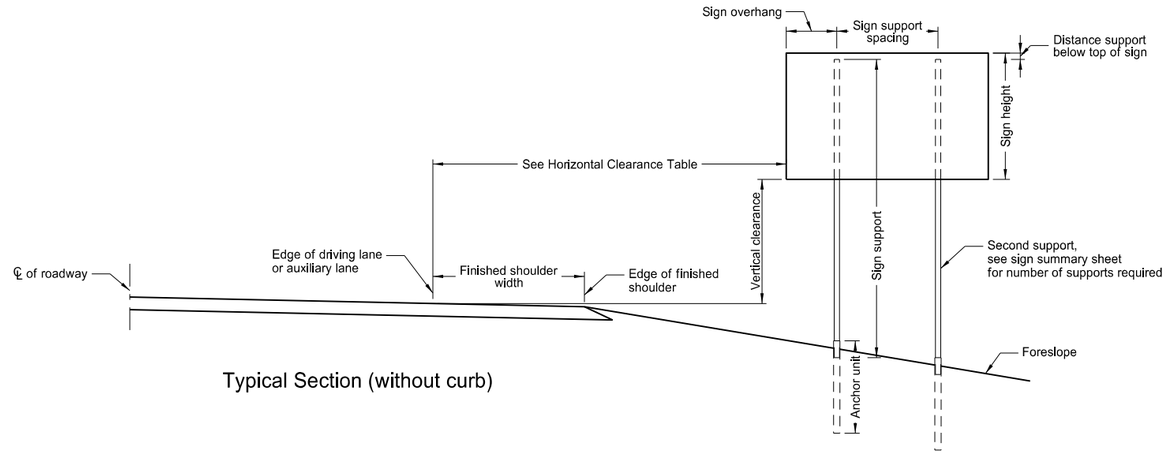
4. The clearance from edge of shared use path to edge of sign should be 3' except where width is limited, a minimum clearance of 2' shall be provided.



Stop Sign Location
Wide Throat Intersection

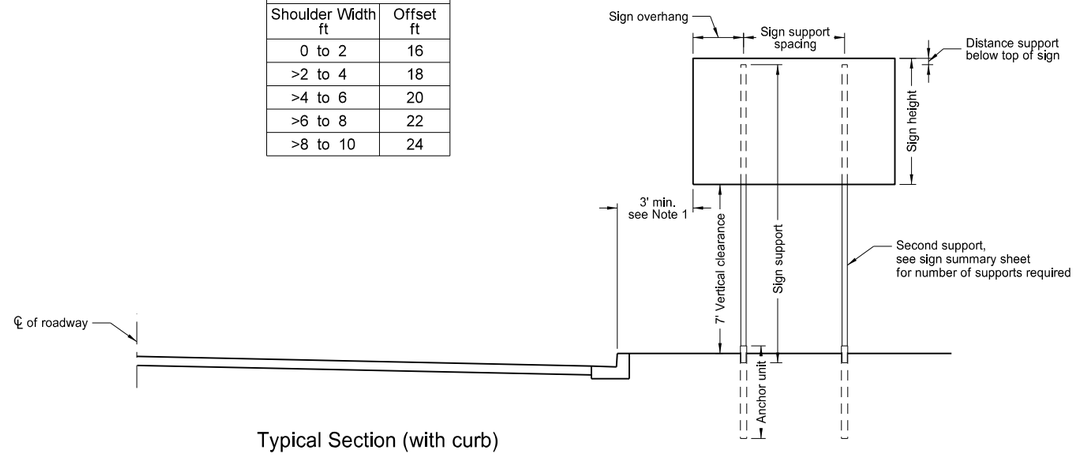
This layout is to be used for the placement of "Stop" signs.

Radius ft.	Y-max. ft.	Y-min. ft.
40	50	15
45	50	18
50	50	21
55	50	25
60	50	28
65	50	32
70	50	35
75	50	39
80	50	43



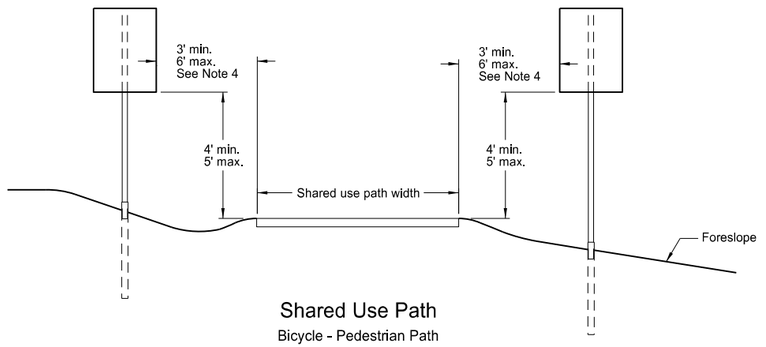
Typical Section (without curb)

Horizontal Clearance Table	
Shoulder Width ft	Offset ft
0 to 2	16
>2 to 4	18
>4 to 6	20
>6 to 8	22
>8 to 10	24



Typical Section (with curb)

Residential or Business District



Shared Use Path

Bicycle - Pedestrian Path

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
7-8-14	Revised note 2, added note 4.

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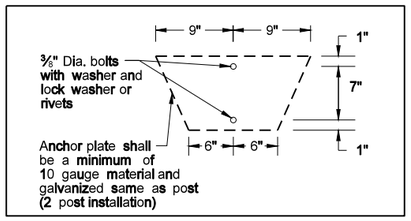
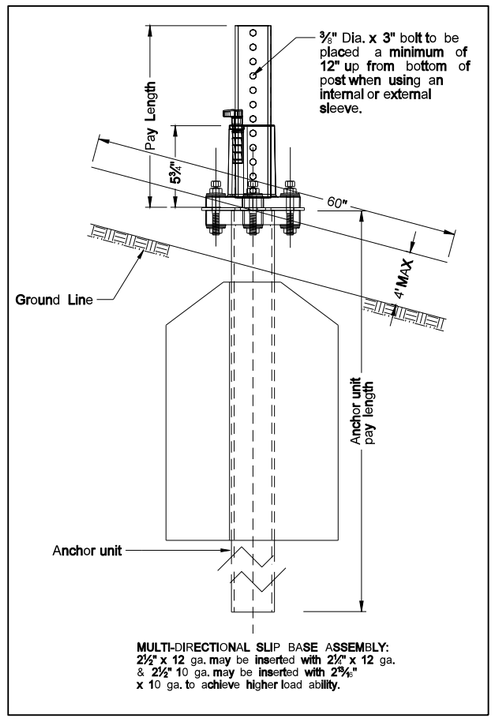
Mounting Details Perforated Tube

D-754-24

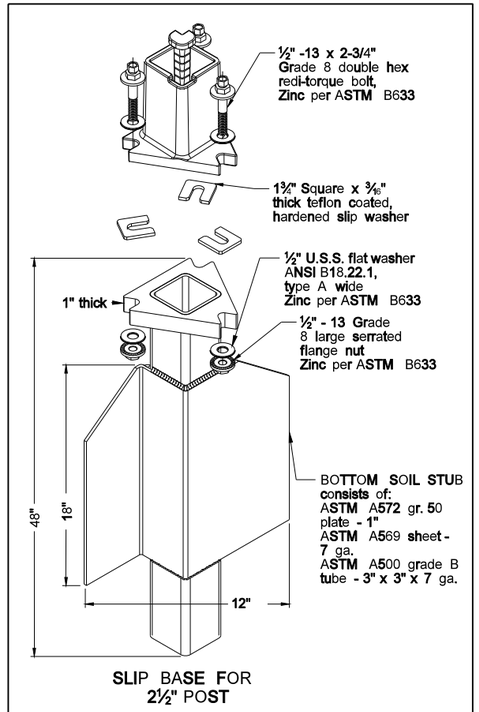
Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thickness Gauge	Sleeve Size In.	Wall Thickness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Gauge
1	2	12			No	2½	12
1	2½	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2½(D)	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2½(D)	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2½(D)	12	Yes		7
3 & 4	2½	10	2⅜	10	Yes		7

(B) - The 2½", 12 gauge posts do not need breakaway bases when placed in standard soils, but require a shim as specified by the manufacturer. The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
(C) - 3" anchor unit
(D) - 2½" x 12 ga. x 18" minimum length external sleeve required.

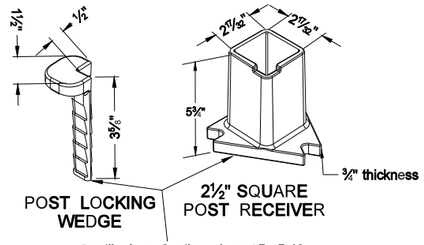




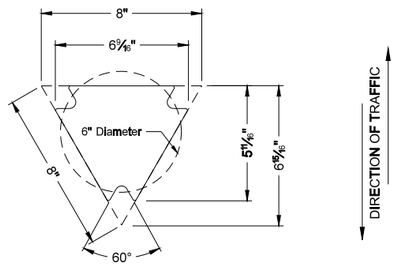
MULTI-DIRECTIONAL SLIP BASE ASSEMBLY: 2½" x 12 ga. may be inserted with 2½" x 12 ga. & 2½" 10 ga. may be inserted with 2⅜" x 10 ga. to achieve higher load ability.



SLIP BASE FOR 2½" POST



Ductile Iron Casting class 65-45-12. Hot Dip Galvanize ASTM A153



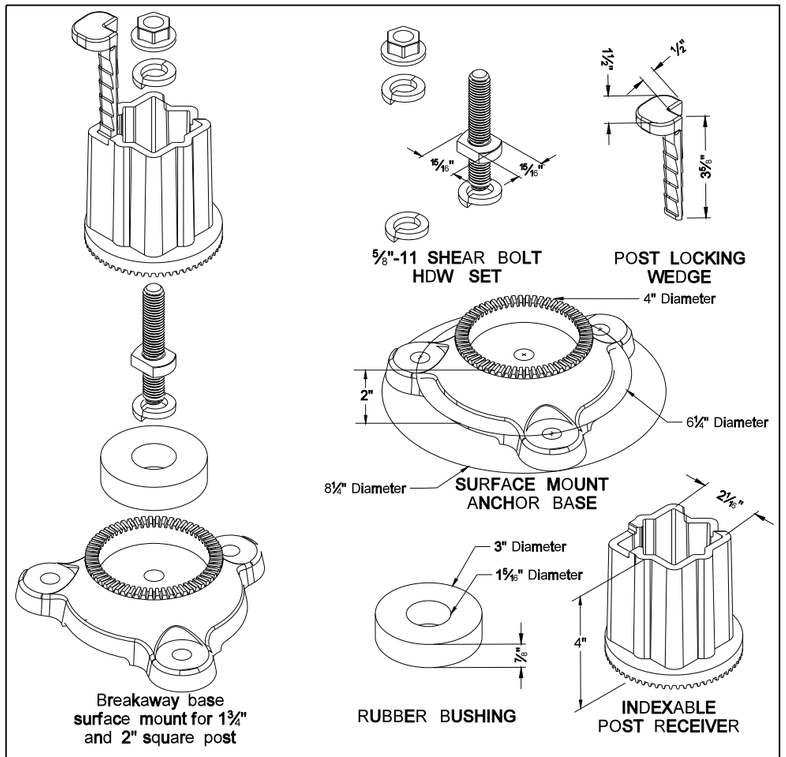
SLIP BASE DETAIL

Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness in.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia in.⁴	Cross Sect. Area in.²	Section Modulus in.³
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2⅜ x 2⅜	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.783

The 2 ⅜" size 10 gauge is shown as 2.19" size on the plans; The 2½" size is shown as 2.51" size on the plans.

NOTE:

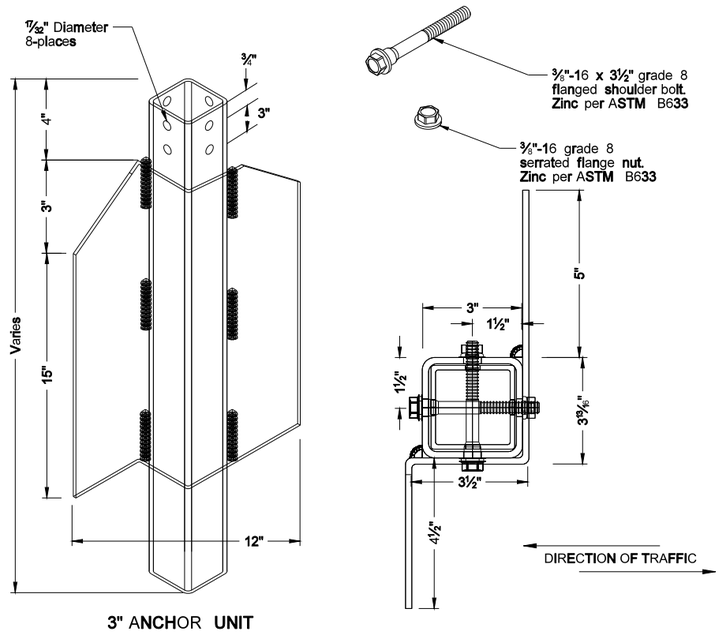
1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement shall be made above and below post location and also back and ahead of post.
2. Anchor material shall be 7 guage H.R.P.O. Commmercial quality ASTM A569 and 3" x 3" x 7" guage ASTM A500 grade B. Anchor shall have a yield strength 43.9 KSI and tensile strength of 59.3 KSI. Anchor shall be hot dipped galvanized per ASTM A123/153. All tolerances on anchor unit and slip base bottom assembly are +/- 0.005" unless otherwise noted.
3. When used in concrete sidewalk, anchor shall be the same concept without the wings
4. Four post signs shall have over 8' between the first and fourth posts.
5. Installation procedures as per manufacturers recommendation.
6. Concrete fasteners for surface mount breakaway base shall be a minimum ½" diameter x 4" grade 8.



SURFACE MOUNT ANCHOR BASE

SHOULDER BOLT

Shimming agent to reduce tolerance between 3" anchor unit and 2½" post. (standard ⅜" diameter grade 8 bolt may be used with proper shim)



3" ANCHOR UNIT

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE

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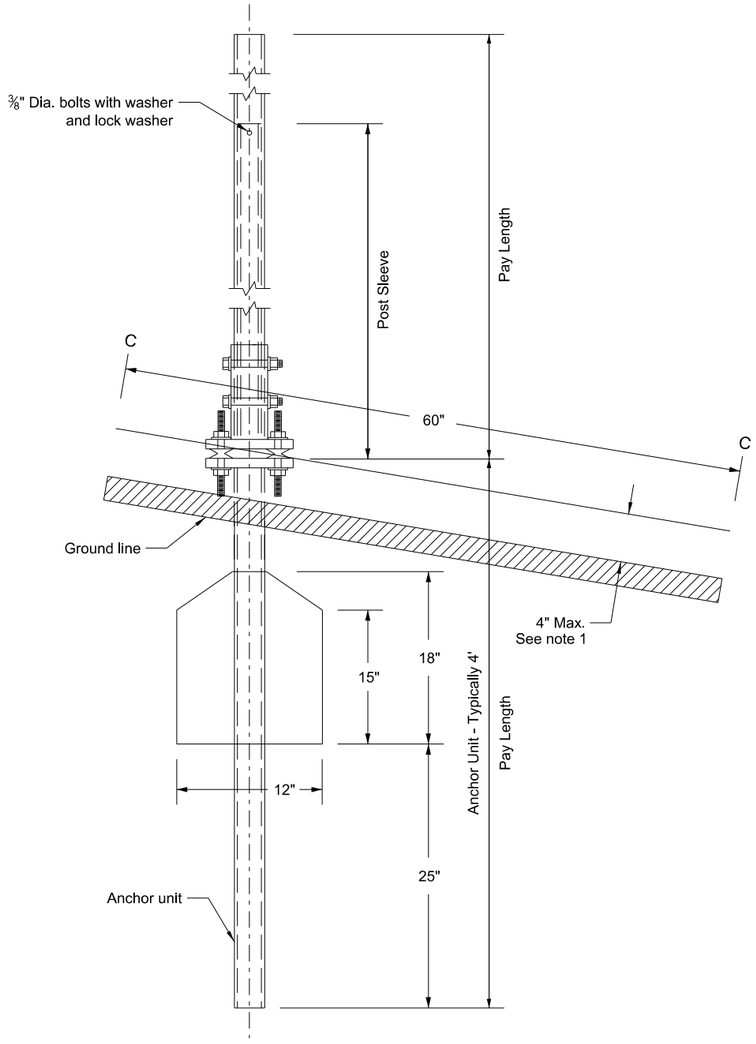
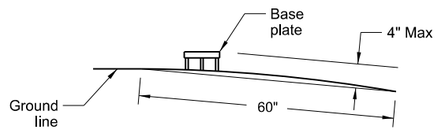
D-754-24A

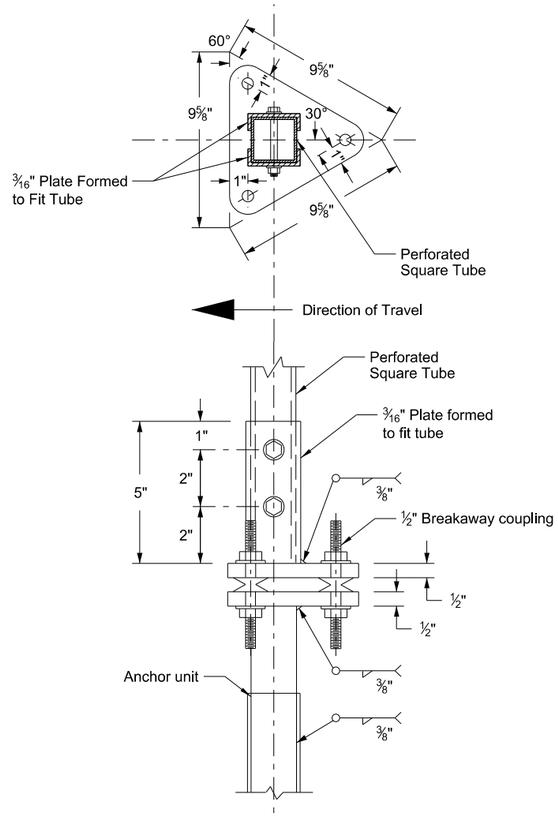
Breakaway Coupler System for Perforated Tubes



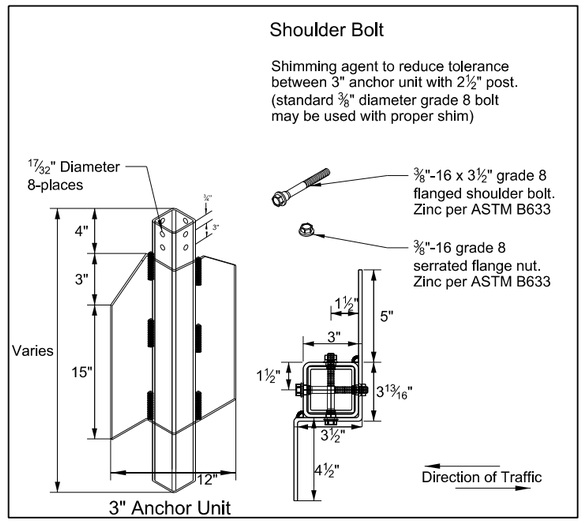


Section C-C

Max. protection of the stub post is 4" above a 60" chord aligned radially to the center line of the highway and connecting any point, within the length of the chord, on the ground surface on one side of the support to a point in the ground surface on the other side.



Base Plate with Breakaway Coupler



3" Anchor Unit

Notes:

1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement shall be made above and below post location and also back and ahead of post.
2. Anchor unit shall be the same size as the post and shall have the same specification as the post.
3. Four post signs shall have over 8' between the first and fourth post.
4. In lieu of the breakaway base system on standard D-754-24 the breakaway coupling system may be used. The breakaway coupler system shall be manufactured from material meeting the requirements of ASTM A325 fasteners with the special requirements as specified by DENT BREAKAWAY IND., INC. which meets the test requirements of NCHRP Report 350.

Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thickness Guage
1	2	12			No	2¼	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2	12	Yes		7
3 & 4	2½	10	2 3/16	10	Yes		7

(B) - The 2½" 12 gauge posts do not need breakaway bases when placed in standard soils. The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.

(C) - 3" anchor unit

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-2013	
REVISIONS	
DATE	CHANGE

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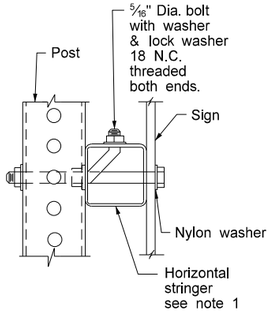
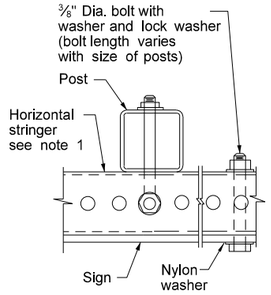
Mounting Details Perforated Tube

D-754-25

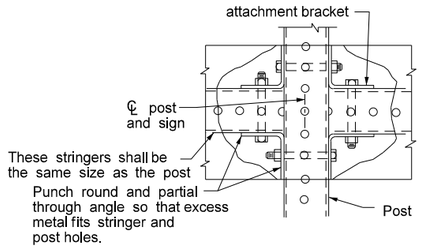


Side View



Top View

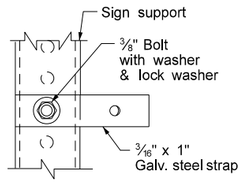
STRINGER MOUNTING
(WITH STRINGER IN FRONT OF POST)



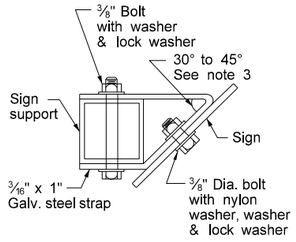
STREET NAME SIGNS
AND ONE WAY SIGNS
SINGLE POST ASSEMBLY
ONE STRINGER OR
BACK TO BACK MOUNTING

Note:

1. Horizontal stringers - In lieu of perforated tubes, the contractor may substitute z bar stringers. The z bar stringers shall be 1¾" x 3/16" thick, 1.08 lbs./ft aluminum or 3.16 lbs./ft steel.
2. Metal washers used on sign face shall have a minimum outside diameter of 15/16" ± 1/16" and 10 gauge thickness.
3. No Parking Signs: All no parking signs with directional arrows shall be placed at a 30 to 45 degree angle with the line of traffic flow. No parking signs required at the above angles may have the support turned to the correct angle. If the no parking sign is placed with another sign that has to be placed at a 90 degree angle with the line of traffic flow, the detailed angle strap should be used to mount the no parking sign. Flat washers and lock washers shall be used with all nylon washers.
4. In lieu of using the bent bolt to attach the post to the stringer, the contractor may choose to punch the sign backing and place the bolt through the sign, the stringer and the post.
5. 4" vertical clearance of anchor or breakaway base. The 4" x 60" measurement shall be made above and below post location and also back and ahead of post.

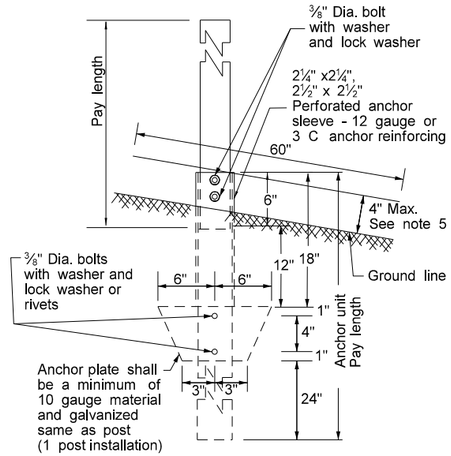


Side View



Top View

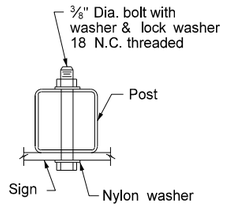
STRAP DETAIL



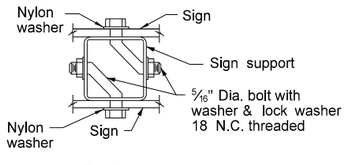
ANCHOR UNIT AND
POST ASSEMBLY

Number of Posts	Telescoping Perforated Tube						
	Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thick-ness Gauge
1	2	12			No	2¼	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2½(D)	12	Yes		7
1	2½	12	2¼	12	Yes		7
2	2½	10			Yes		7
2	2¼	12	2½(D)	12	Yes		7
2	2½	12	2¼	12	Yes		7
3 & 4	2½	12			Yes		7
3 & 4	2½	10			Yes		7
3 & 4	2½	12	2¼	12	Yes		7
3 & 4	2¼	12	2½(D)	12	Yes		7
3 & 4	2½	10	2 3/16	10	Yes		7

(B) - The 2½", 12 gauge posts do not need breakaway bases when placed in standard soils, but require a shim as specified by the manufacturer. The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak. Weak soils are classified as boggy, wet, or loose soil areas.
(C) - 3" anchor unit
(D) - 2½" x 12 ga. x 18" minimum length external sleeve required.

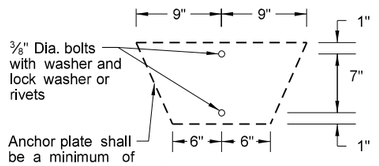


BOLT MOUNTING



Top View

BACK TO BACK
MOUNTING



Properties of Telescoping Perforated Tubes						
Tube Size In.	Wall Thickness In.	U.S. Standard Gauge	Weight Per Foot Lbs.	Moment of Inertia $In.^4$	Cross Sect. area $In.^2$	Section Modulus $In.^3$
1½ x 1½	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2¼ x 2¼	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2½ x 2½	0.105	12	3.141	0.804	0.803	0.643
2½ x 2½	0.135	10	4.006	0.979	1.010	0.783

The 2 3/16" size 10 gauge is shown as 2.19" size on the plans.
The 2½" size is shown as 2.51" size on the plans.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

8-6-09

REVISIONS

DATE	CHANGE
7-8-14	Revised Note 3

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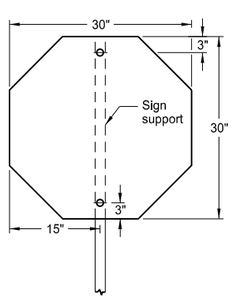
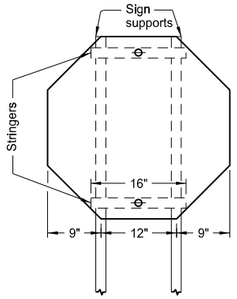
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS

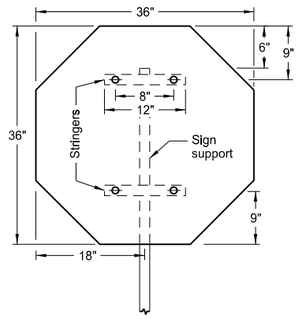


1 Post



2 Posts

Assembly No. 1



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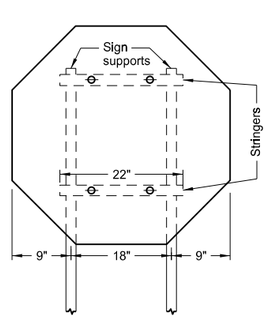
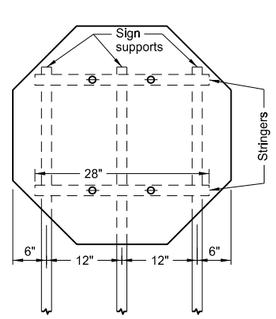


2 Posts



3 Posts

Assembly No. 2

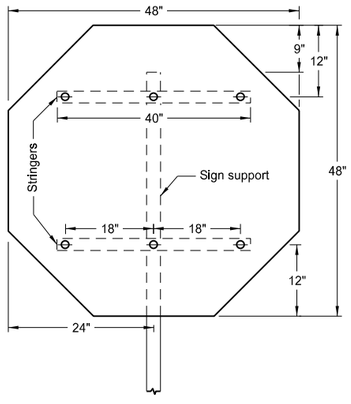
Notes:

1. See Standard D-754-25 for mounting details.

2. The minimum sign backing material thickness shall be 0.100 inch.

3. Perforated square tube stringer shall be 1½" x 1½".

4. All holes shall be punched round for ⅜" bolt.



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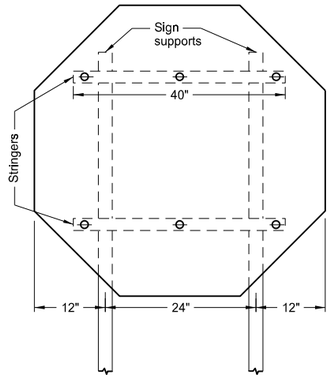
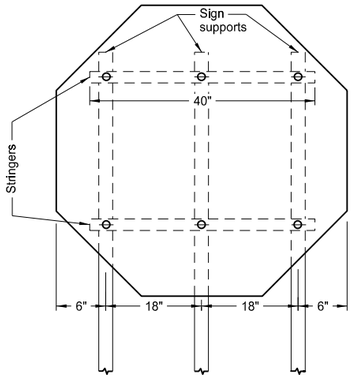
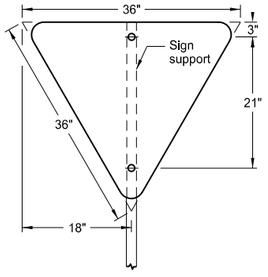


2 Posts



3 Posts

Assembly No. 3



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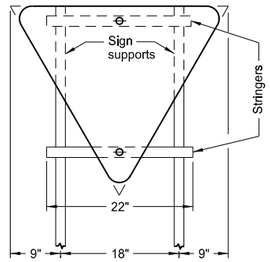
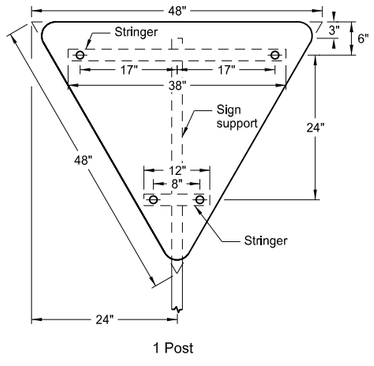


2 Posts

Assembly No. 4



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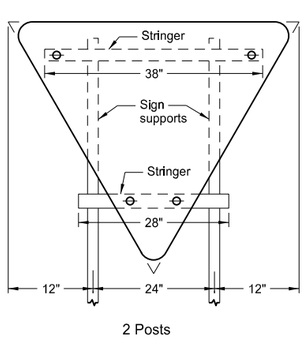
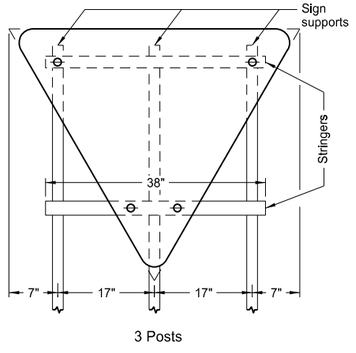


2 Posts



3 Posts

Assembly No. 5

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE

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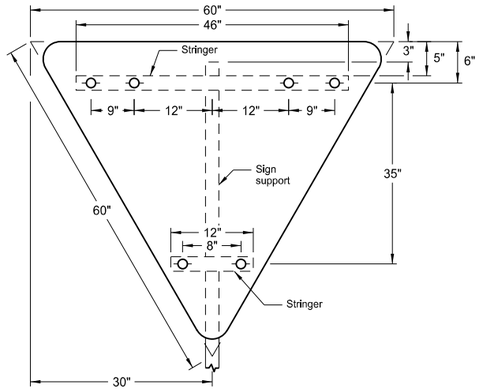
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS

D-754-27



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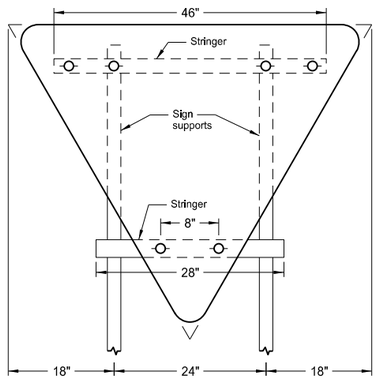
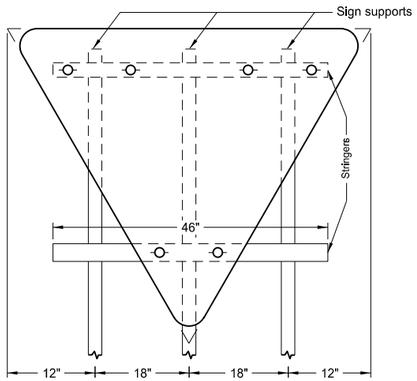


2 Posts



3 Posts

Assembly No. 6

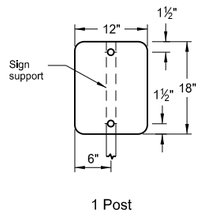
Notes:

1. See Standard D-754-25 for mounting details.

2. The minimum sign backing material thickness shall be 0.100 inch.

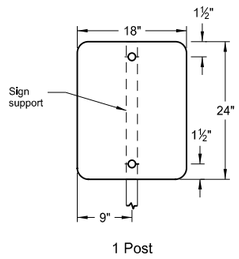
3. Perforated square tube stringer shall be 1½" x 1½".

4. All holes shall be punched round for ⅜" bolt.



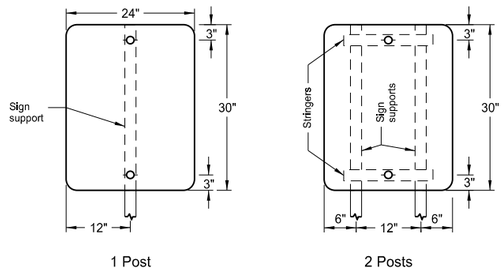
1 Post

Assembly No. 7



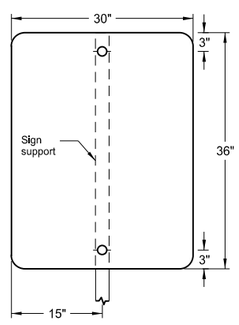
1 Post

Assembly No. 8

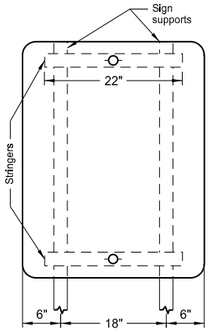


1 Post 2 Posts

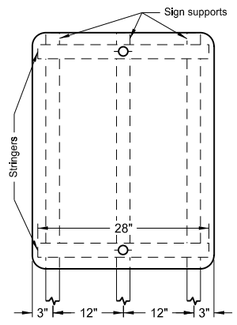
Assembly No. 9



1 Post

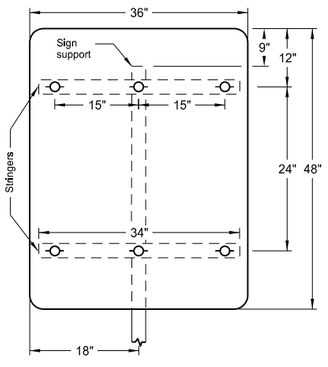


2 Posts

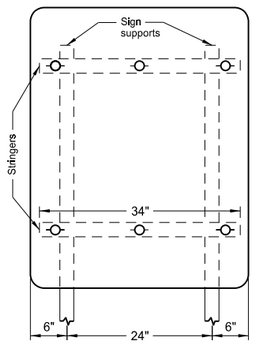


3 Posts

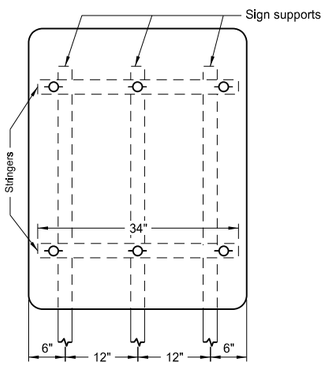
Assembly No. 10



1 Post



2 Posts



3 Posts

Assembly No. 11

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE

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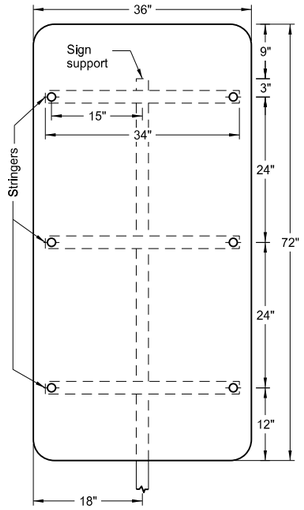
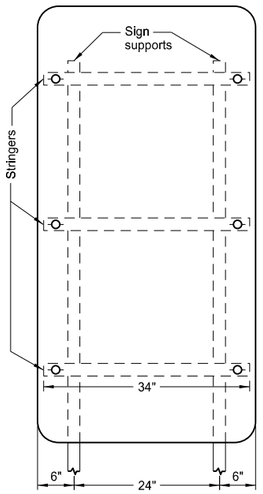
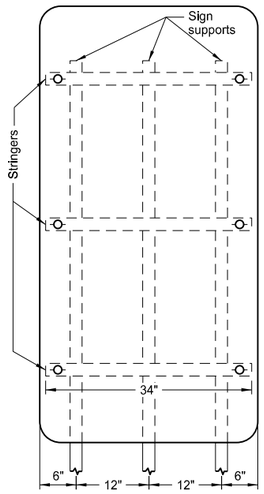
SIGN PUNCHING, STRINGER AND SUPPORT LOCATION
DETAILS REGULATORY, WARNING AND GUIDE SIGNS



1 Post

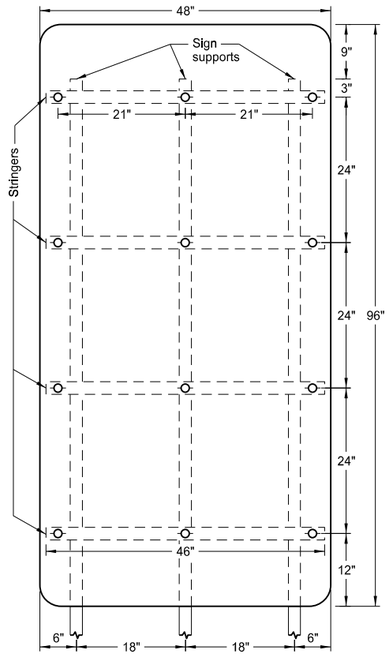


2 Posts



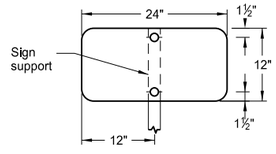
3 Posts

Assembly No. 24



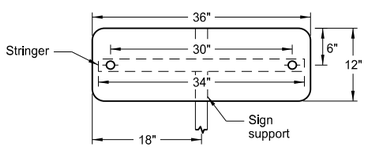
3 Posts

Assembly No. 25



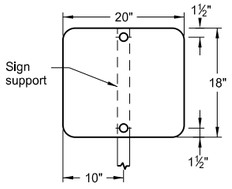
1 Post

Assembly No. 26



1 Post

Assembly No. 27



1 Post

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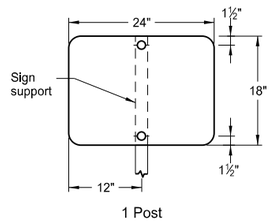
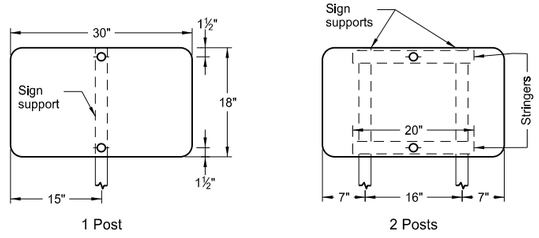


1 Post

Assembly No. 29



1 Post 2 Posts

Assembly No. 30

Notes:

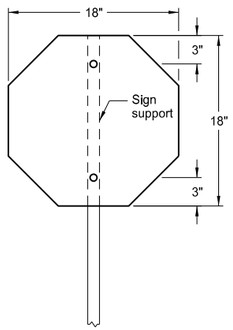
1. See Standard D-754-25 for mounting details.
2. The minimum sign backing material thickness shall be 0.100 inch.
3. Perforated square tube stringer shall be 1½" x 1½".
4. All holes shall be punched round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE

This document was originally issued and sealed by Roger Weigel, Registration Number PE-2930, on 12-1-10 and the original document is stored at the North Dakota Department of Transportation

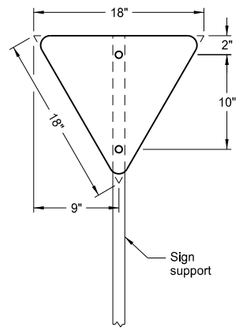
PUNCHING, STRINGER, AND SUPPORT LOCATION DETAILS FOR REGULATORY, WARNING AND GUIDE BIKE ROUTE SIGNS

D-754-46



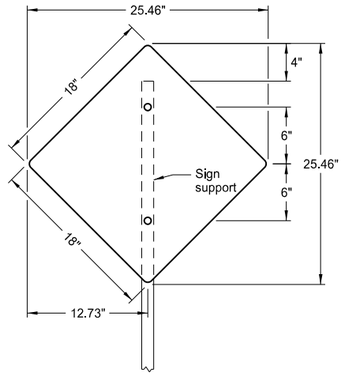
1 Post

Assembly No. 100



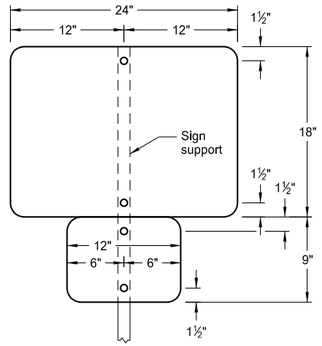
1 Post

Assembly No. 101



1 Post

Assembly No. 102



1 Post

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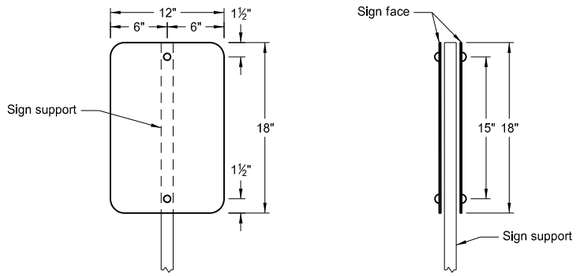
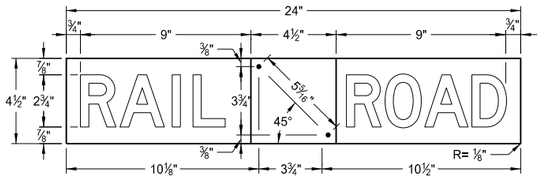
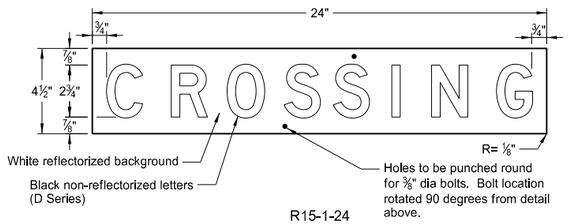


1 Post
back to back

Assembly No. 104

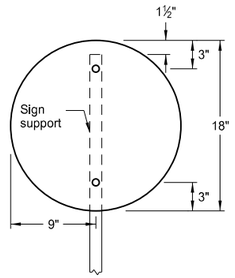


R15-1-24



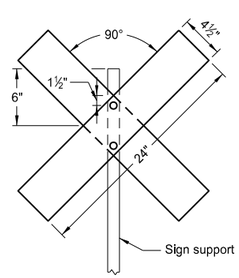
R15-1-24

Railroad Crossing Sign Details



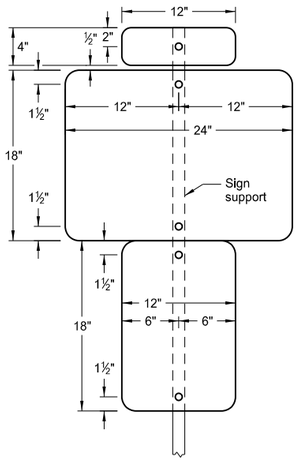
1 Post

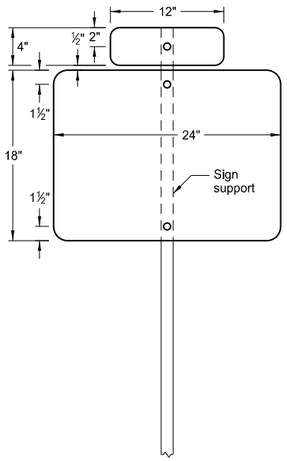
Assembly No. 106

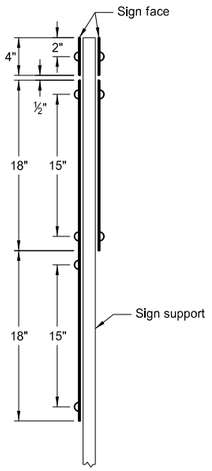


1 Post

Assembly No. 107

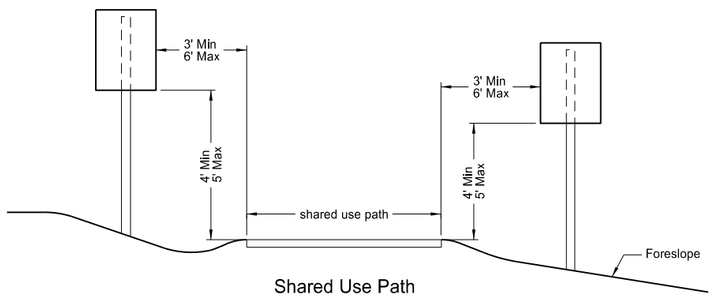






1 Post
back to back

Assembly No. 105



Shared Use Path

Bicycle - Pedestrian Path

Notes:

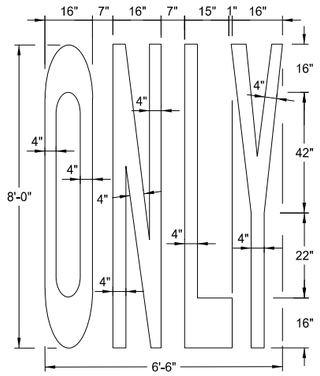
1. The minimum sign backing material thickness shall be 0.100 inch.
2. All holes shall be punched round for ⅜" bolt.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-22-12	
REVISIONS	
DATE	CHANGE
9-18-15	Revised Title Name

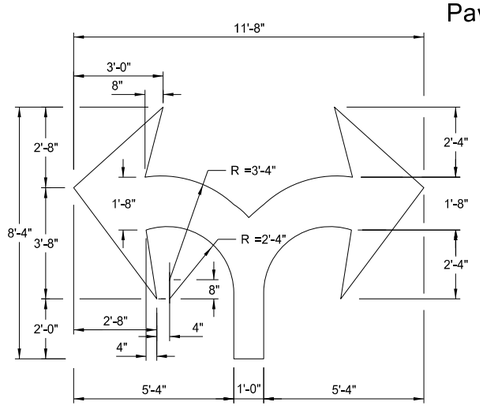
This document was originally issued and sealed by Roger Weigel, Registration Number PE-2930, on 9/18/15 and the original document is stored at the North Dakota Department of Transportation

Pavement Marking Message Details

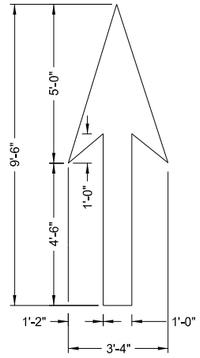
D-762-1



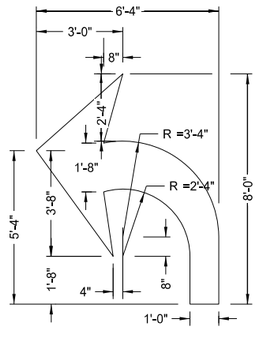
22 S. F.



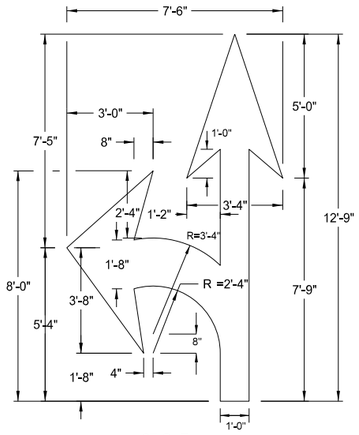
29 S. F.



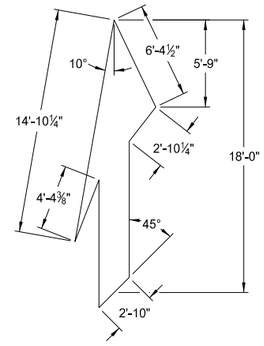
12 S. F.



16 S. F.

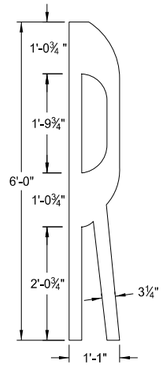


27 S. F.

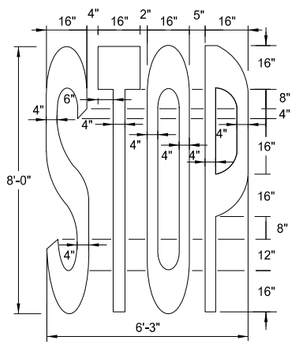


41 S. F.

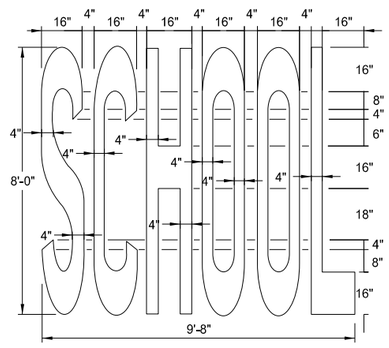
Note:
The merge arrow shall be rotated 20° from the edge of the roadway.



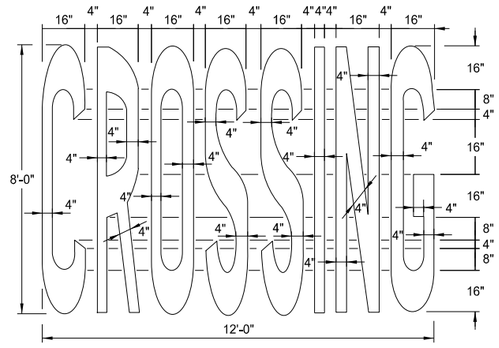
4 S. F.



22 S. F.



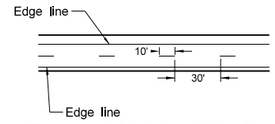
34.5 S. F.



46 S. F.

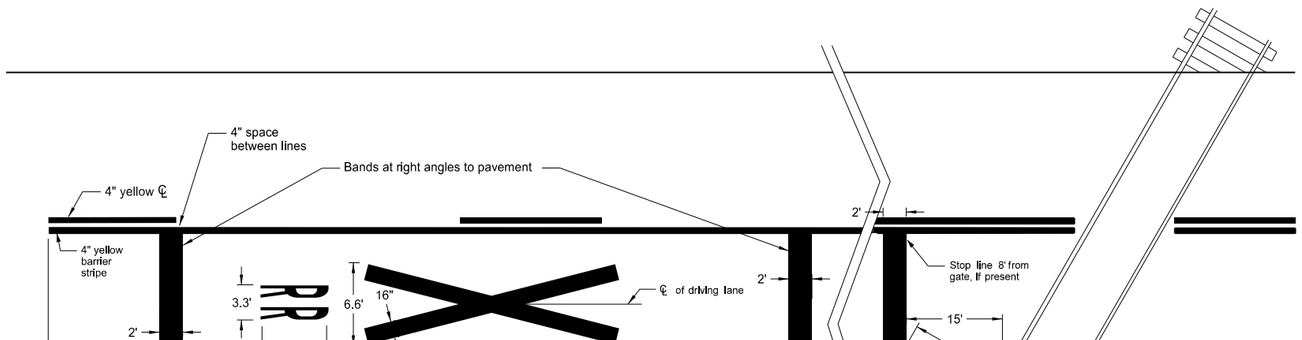
Speed Limit	Chevron Width	Chevron Spacing 45° to Traffic
0-25 mph	8"	5'
30-40 mph	8"	15'
45 mph and above	12"	25'

Chevron Crosshatching Table



Centerline Pavement Marking Skip Spacing Detail

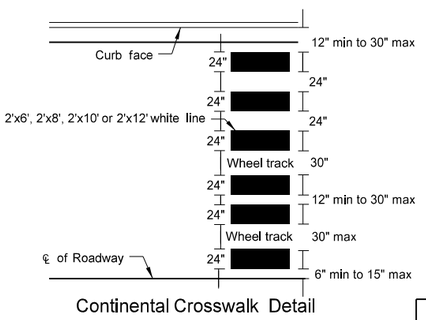
Advance Placement Distance for Railroad Warning Signs	
Posted or 85th Percentile Speed	Advance Distance
20 mph	min. 100 ft
25 mph	min. 100 ft
30 mph	min. 100 ft
35 mph	min. 100 ft
40 mph	125 ft
45 mph	175 ft
50 mph	250 ft
55 mph	325 ft
60 mph	400 ft
65 mph	475 ft
70 mph	550 ft



Railroad cross & 2 R's 60.5 S.F.
3 Bands (12' lane) 72 S.F.

Notes:
A three lane roadway should be marked with a centerline for two-lane approach operation on the approach to a crossing. On multi-lane roads, the transverse bands should extend across all approach lanes, and individual R X R symbols should be used in each approach lane.

See plans for correct message. All pavement markings shall be white unless noted otherwise.



Continental Crosswalk Detail

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-6-11	
REVISIONS	
DATE	CHANGE

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