STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	25003	1	1

CITY OF WEST FARGO

TMACR-8-992(059)

City Improvement District Number 9067

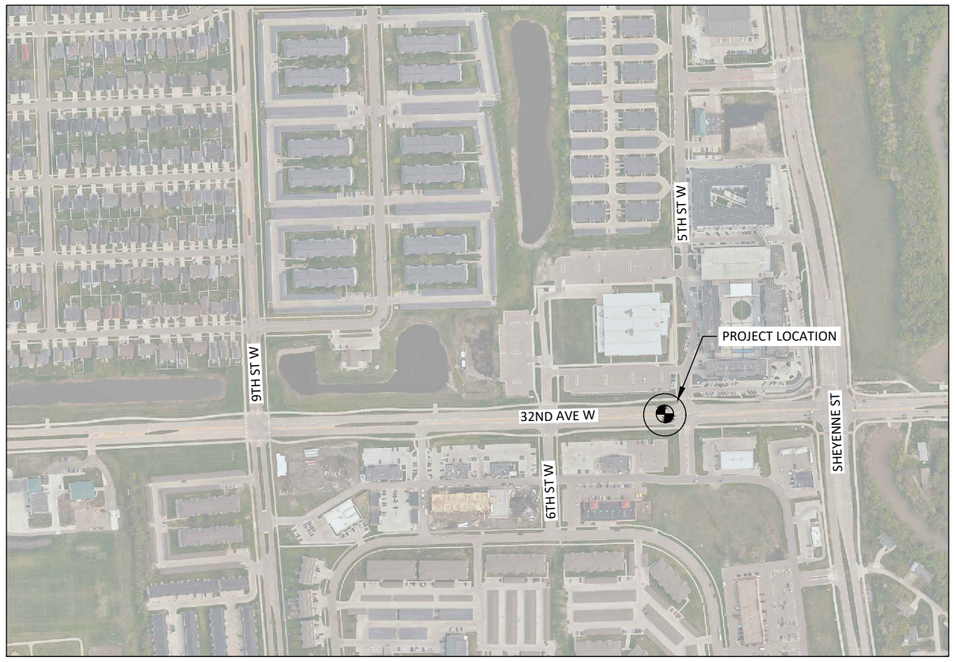
CASS COUNTY

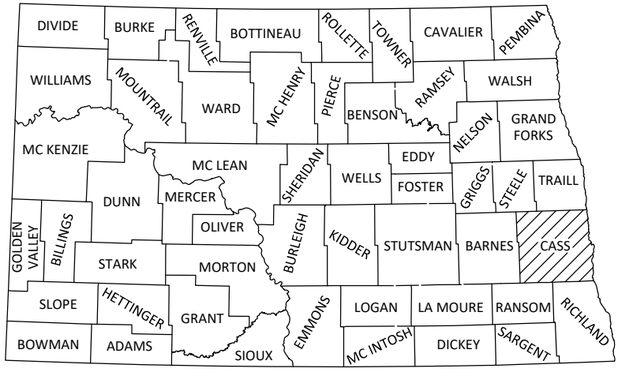
WEST FARGO, NORTH DAKOTA

32ND AVE W & 5TH ST W RRFBs AND MEDIAN REFUGE

GOVERNING SPECIFICATIONS	Date Published and Adopted
NDDOT Standard Specifications	7/1/2025

PROJECT NUMBER	NET MILES	GROSS MILES
TMACR-8-992(059)	0.011	0.011





STATE COUNTY MAP

DESIGNERS

Marisa Shiland

Jordan Reihe

City of West Fargo

Jerry Wallace

Date 8/21/26

Bolton & Menk. INC.

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

8/20/2026 9:17:56 AM marisa.shiland H:\WFARGO_CI_ND\25X140119000\CAD\C3D\140119G001

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	1	2

EXISTING TOPOGRAPHIC SYMBOLS

- ACCESS GRATE
- AIR CONDITION UNIT
- ANTENNA
- AUTO SPRINKLER CONNECTION
- BARRICADE PERMANENT
- BASKETBALL POST
- BENCH
- BIRD FEEDER
- BOLLARD
- BUSH
- CATCH BASIN RECTANGULAR CASTING
- CATCH BASIN CIRCULAR CASTING
- CURB STOP
- CLEAN OUT
- CULVERT END
- DRINKING FOUNTAIN
- DOWN SPOUT
- ELECTRIC CAR CHARGE STATION
- FILL PIPE
- FIRE HYDRANT
- FLAG POLE
- FLARED END / APRON
- FUEL PUMP
- GRILL
- GUY WIRE ANCHOR
- HANDHOLE
- HANDICAP SPACE
- IRRIGATION SPRINKLER HEAD
- IRRIGATION VALVE BOX
- LIFT STATION CONTROL PANEL
- LIFT STATION
- LIGHT POLE
- MAILBOX
- MANHOLE-COMMUNICATION
- MANHOLE-ELECTRIC
- MANHOLE-GAS
- MANHOLE-HEAT
- MANHOLE-RECLAIMED WATER
- MANHOLE-SANITARY SEWER
- MANHOLE-STORM SEWER
- MANHOLE-UTILITY
- MANHOLE-WATER
- METER
- DRIVE-THRU MICROPHONE
- PARKING METER
- PAVEMENT MARKING
- PEDESTAL-COMMUNICATION
- PEDESTAL-ELECTRIC
- PEDESTRIAN PUSH BUTTON
- PICNIC TABLE
- POLE-UTILITY
- POST
- RAILROAD SIGNAL POLE
- REGULATION STATION GAS
- SATELLITE DISH
- SIGN TRAFFIC
- SIGNAL CONTROL CABINET
- SOIL BORING
- SIREN
- TELEPHONE BOOTH
- TILE INLET
- TILE OUTLET
- TILE RISER
- TRANSFORMER-ELECTRIC
- TREE-CONIFEROUS
- TREE-DEAD
- TREE-DECIDUOUS
- TREE STUMP
- TRAFFIC ARM BARRIER
- TRAFFIC SIGNAL
- TRASH CAN
- UTILITY MARKER
- VALVE
- VALVE POST INDICATOR
- VALVE VAULT
- VAULT
- VENT PIPE
- WATER SPIGOT
- WELL
- WETLAND DELINEATED MARKER
- WETLAND
- WET WELL
- YARD HYDRANT

PROPOSED TOPOGRAPHIC SYMBOLS

- CLEANOUT
- MANHOLE
- LIFT STATION
- STORM SEWER CIRCULAR CASTING
- STORM SEWER RECTANGULAR CASTING
- STORM SEWER FLARED END / APRON
- STORM SEWER OUTLET STRUCTURE
- STORM SEWER OVERFLOW STRUCTURE
- CURB BOX
- FIRE HYDRANT
- WATER VALVE
- WATER REDUCER
- WATER BEND
- WATER TEE
- WATER CROSS
- WATER SLEEVE
- WATER CAP / PLUG
- RIP RAP
- DRAINAGE FLOW
- TRAFFIC SIGNS

SURVEY SYMBOLS

- BENCHMARK LOCATION
- CONTROL POINT
- MONUMENT FOUND
- CAST IRON MONUMENT
- STONE MONUMENT

EXISTING TOPOGRAPHIC LINES

- RETAINING WALL
- FENCE
- FENCE-DECORATIVE
- GUARD RAIL
- TREE LINE
- BUSH LINE

SURVEY LINES

- CONTROLLED ACCESS
- BOUNDARY
- CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- SETBACK LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- TEMPORARY EASEMENT

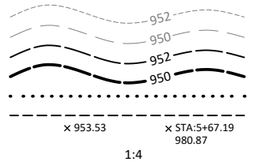
EXISTING UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE
- RECLAIMED WATER

PROPOSED UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE
- PIPE CASING
- TRENCHLESS PIPE (PLAN VIEW)
- TRENCHLESS PIPE (PROFILE VIEW)

GRADING INFORMATION



- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED GRADING LIMITS / SLOPE LIMITS
- PROJECT LIMITS
- PROPOSED SPOT ELEVATION
- RISE:RUN (SLOPE)

HATCH PATTERNS

- BITUMINOUS
- GRAVEL
- CONCRETE

EXISTING PRIVATE UTILITY LINES

NOTE:
EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES".

- F — UNDERGROUND FIBER OPTIC
- E — UNDERGROUND ELECTRIC
- G — UNDERGROUND GAS
- C — UNDERGROUND COMMUNICATION
- OE — OVERHEAD ELECTRIC
- OC — OVERHEAD COMMUNICATION
- OU — OVERHEAD UTILITY

UTILITIES IDENTIFIED WITH A QUALITY LEVEL :

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL
EXAMPLE: G-A — UNDERGROUND GAS, QUALITY LEVEL A
UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-22.

UTILITY QUALITY LEVELS:

QUALITY LEVEL D: PROVIDES THE MOST BASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. RECORDS MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES, CONSTRUCTION PLANS, ETC.

QUALITY LEVEL C: INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. INCLUDES QUALITY LEVEL D ACTIVITIES.

QUALITY LEVEL B: INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND COLLECTING THE INFORMATION THROUGH A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL A: PROVIDES THE HIGHEST LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN QUALITY LEVELS B, C, AND D. THE LOCATED FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND PROFILE INFORMATION.

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT
ADJ	ADJUST	GU	GUTTER	RT	RIGHT
ALT	ALTERNATE	GV	GATE VALVE	SAN	SANITARY SEWER
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BIT	BITUMINOUS	HH	HANDHOLE	SERV	SERVICE
BLDG	BUILDING	HP	HIGH POINT	SHLD	SHOULDER
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STA	STATION
BR	BEGIN RADIUS	HYD	HYDRANT	STD	STANDARD
BV	BUTTERFLY VALVE	I	INVERT	STM	STORM SEWER
CB	CATCH BASIN	K	CURVE COEFFICIENT	TC	TOP OF CURB
C&G	CURB AND GUTTER	L	LENGTH	TE	TEMPORARY EASEMENT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TEMP	TEMPORARY
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	TNH	TOP NUT HYDRANT
CL	CENTER LINE	LT	LEFT	TP	TOP OF PIPE
CL.	CLASS	MAX	MAXIMUM	TYP	TYPICAL
CLVT	CULVERT	MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VERT	VERTICAL
C.O.	CHANGE ORDER	MR	MID RADIUS	VPC	VERTICAL POINT OF CURVE
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	VPI	VERTICAL POINT OF INTERSECTION
CON	CONCRETE	NMC	NON-METALLIC CONDUIT	VPT	VERTICAL POINT OF TANGENT
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE	WM	WATERMAIN
DIA	DIAMETER	NWL	NORMAL WATER LEVEL		
DIP	DUCTILE IRON PIPE	OHW	ORDINARY HIGH WATER LEVEL		
DWY	DRIVEWAY	PC	POINT OF CURVE	AC	ACRES
E	EXTERNAL CURVE DISTANCE	PCC	POINT OF COMPOUND CURVE	CF	CUBIC FEET
ELEC	ELECTRIC	PE	PERMANENT EASEMENT	CV	COMPACTED VOLUME
ELEV	ELEVATION	PED	PEDESTRIAN, PEDESTAL	CY	CUBIC YARD
EOF	EMERGENCY OVERFLOW	PERF	PERFORATED PIPE	EA	EACH
ER	END RADIUS	PERM	PERMANENT	EV	EXCAVATED VOLUME
ESMT	EASEMENT	PI	POINT OF INTERSECTION	LB	POUND
EX	EXISTING	PL	PROPERTY LINE	LF	LINEAR FEET
FES	FLARED END SECTION	PRC	POINT OF REVERSE CURVE	LS	LUMP SUM
F-F	FACE TO FACE	PT	POINT OF TANGENT	LV	LOOSE VOLUME
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE PIPE	SF	SQUARE FEET
F&I	FURNISH AND INSTALL	PVMT	PAVEMENT	SV	STOCKPILE VOLUME
FM	FORCEMAIN	R	RADIUS	SY	SQUARE YARD
FO	FIBER OPTIC	R/W	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RCP	REINFORCED CONCRETE PIPE		
GRAN	GRANULAR	RET	RETAINING		

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	2	1

TABLE OF CONTENTS

PLAN SECTIONS

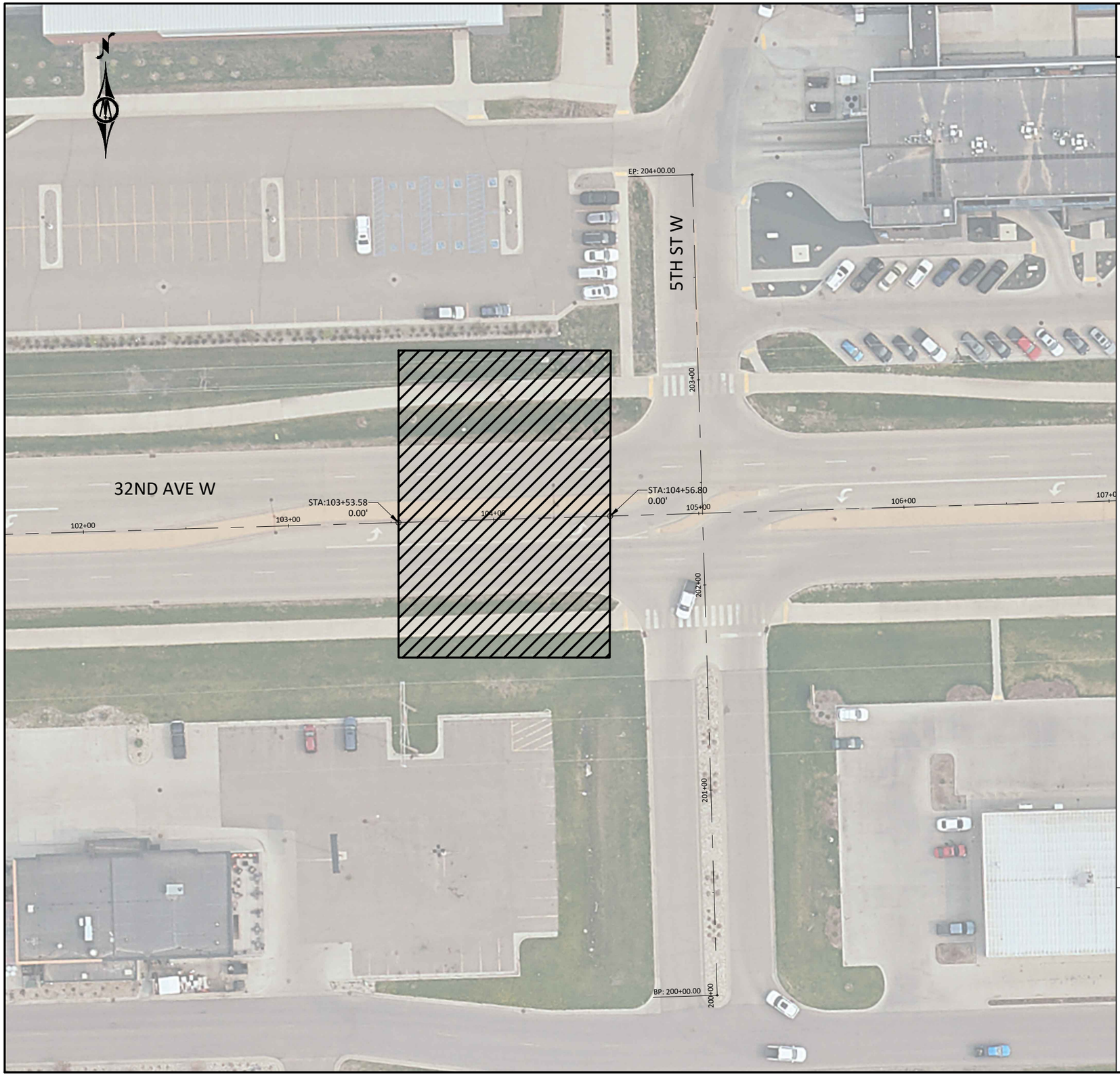
Section	Page(s)	Description
1	1	Title Sheet & Legend
2	1	Table of Contents
4	1	Scope of Work
6	1 - 2	Notes
8	1	Quantities
20	1 - 2	General Details
30	1	Typical Sections
40	1	Removals
76	1	Temporary Erosion Control
77	1	Permanent Erosion Control
80	1	ADA Ramp Layouts
100	1 - 5	Work Zone Traffic Control
110	1 - 2	Signing
120	1	Pavement Marking
150	1 - 2	Signals

LIST OF STANDARD DRAWINGS

Number	Description
D-261-1	Erosion Control - Fiber Roll Placement Details
D-704-7	Breakaway Systems For Construction Zone Signs - Perforated Tube
D-704-8	Breakaway Systems For Construction Zone Signs - U-Channel Post
D-704-9	Construction Sign Details - Terminal And Guide Signs
D-704-13	Barricade And Channelizing Device Details
D-704-14	Construction Sign Punching And Mounting Details
D-704-25	Lane Closures On Urban Streets Layouts
D-704-50	Portable Sign Support Assembly
D-748-1	Curb & Gutter And Valley Gutter
D-750-2	Sidewalk
D-750-3	Curb Ramp Retrofit Details
D-750-4	Curb Ramp Retrofit Transitional Area Details
D-754-23	Perforated Tube Assembly Details
D-754-24, 25	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System For Perforated Tubes
D-754-28	Sign Punching, Stringer and Support Location Details Regulatory, Warning and Guide Signs
D-754-80	Light Standard, Signal Standard, and Span Wire Mounted Sign Assembly Detail
D-770-1	Concrete Foundations (Traffic Signals & Highway Lighting)
D-772-2	Traffic Signal Standards

SPECIAL PROVISIONS

Number	Description
SP 598(25)	Utility Coordination



	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	4	1

- Remove concrete sidewalk on north and south side of 32nd Ave, west of 5th St W. Remove existing raised median.
- Install concrete sidewalk and pedestrian ramps for 32nd Ave crossing.
- No changes to roadway pavement section.
- Install overhead RRFB system.
- Install roadway striping and signage.

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

SCOPE OF WORK

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE # 28892
DATE: 8/21/2026
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	6	1

NOTES

GENERAL NOTES

100-P01 NOISE ORDINANCE: A noise ordinance is in effect within the City of West Fargo between the hours of 10 pm and 6:30 am. No work will be performed during these hours unless otherwise approved by the Engineer. Submit request to Engineer a minimum of 48 hours in advance

100-P02 CONTRACTOR PARKING / STAGING AREA RESTRICTIONS: Parking of personal vehicles, construction equipment, storage of construction materials, or work areas on private property is prohibited without written permission by the property owner.

Staging of construction materials, storing of personal vehicles or construction equipment in the City's Right-of-Way outside of the construction work zone is prohibited.

100-P03 SAND VEIN: Existing sand veins may exist in the project area and portions of the project area may be affected. The sand vein may cause water infiltration when excavating, and dewatering will be needed in these areas. The contractor will be responsible for any additional temporary casing requirements for the signal foundation installation.

105-P01 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic. Sweep pedestrian detour routes as needed to the satisfaction of the Engineer. Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection. Use a vacuum or pick-up type sweeper to perform this work.

105-P02 PLAN STATIONING: All stations and offsets are measured from 32nd Avenue West.

105-P03 TOPSOIL: Restore topsoil depths and existing ground surface within grading limits to pre-construction condition or better. Salvage existing topsoil and stockpile for re-use onsite after improvements are complete. Volume of topsoil to salvage & stockpile assumes existing depth is 6-inches. After improvements are complete spread stockpiled topsoil at an even depth equal to or greater than 6-inches. The cost to salvage, stockpile, and spread topsoil to be included in the price bid for "SEEDING CLASS III".

202-P01 PAVEMENT REMOVALS: Removal of pavement consists of concrete median pavement, concrete sidewalk and associated steel reinforcing tie/dowl bars. Existing pavement thicknesses are averaged based on historical plan set as-built information and maintenance data. Include all costs, materials, equipment, and labor in the contract unit price for "REMOVAL OF CONCRETE PAVEMENT".

202-P02 CURB AND GUTTER REMOVALS: Any saw cutting required for curb and gutter removals shall be included in the price bid for "REMOVAL OF CURB & GUTTER".

202-P03 COMMON EXCAVATION: Removals of underlying aggregate base and subgrade may be required below existing concrete median, curb & gutter, and proposed concrete sidewalk. Include all costs, materials, equipment, and labor in the contract unit price for "REMOVAL OF CONCRETE PAVEMENT".

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

Species	Pounds Live Seed / Acre
Kentucky Bluegrass	120
Fine Lead Perennial Ryegrass	60
Creeping Red Fescue	20

Rate of seeding = 200 lbs / Acre = 4 to 6 lbs./1,000 sq. ft.

Prior to or during grading and tillage operations, rake and clear the ground surface of all brush, sticks, roots, stones larger than ½ inch in diameter, concrete chunks, rebar, wire or any other material that may hinder seeding operations and future maintenance operations such as mowing. Dispose of any accumulated material at no additional cost to the City.

Spread seed mixture evenly to the ground either by hand or with equipment. Ensure embedment within the topsoil so the seed does not blow away. Apply fertilizer and hydraulic mulch after seed application.

Seeding to occur between August 10th and September 30th to ensure proper germination. Areas of turf that do not germinate or survive the winter will be reseeded in the spring at the Contractor's cost.

Include all costs for labor, equipment and materials (including fertilizer) necessary to complete the work in the contract unit price for "SEEDING CLASS III".

704-P01 TRAFFIC CONTROL PHASING: The traffic control devices and signing required are shown in the traffic control devices layout within plan section 100. No construction traffic may block vehicular or pedestrian traffic outside of the marked construction areas at any time. Include all costs for labor, equipment and materials necessary to complete the work in the contract unit price for "TEMPORARY TRAFFIC CONTROL".

Phase 1: Phase 1 work consists of all work within the median area. Set up and maintain single lane closures on 32nd Ave directly adjacent to the work area. Keep the intersection open at all times.

Phase 2: Phase 2 work consists of all work within the south boulevard area. Set up and maintain single lane closures on 32nd Ave directly adjacent to the work area(s). Keep the intersection open at all times. Phase 2 & 3 can not occur concurrently.

Phase 3: Phase 3 work consists of all work within the north boulevard area. Set up and maintain single lane closures on 32nd Ave directly adjacent to the work area(s). Keep the intersection open at all times. Phase 2 & 3 can not occur concurrently.

708-P01 INLET PROTECTION SPECIAL: Place inlet protection as per the details. Include all costs for furnishing, installing, maintaining (cleaning), and replacing damaged devices in the bid price for "INLET PROTECTION SPECIAL". Keep all installed devices in place until the turf has been established.

748-P01 CURB AND GUTTER TYPE I: Place tie bars, at the interface of existing curb and gutter with new curb and gutter, into pre-drilled holes that have been cleaned and filled with an approved epoxy. Include all costs, materials, equipment, and labor in the contract unit price for "CURB & GUTTER TYPE I".

750-P01 SIDEWALK CONCRETE 5IN: Place tie bars, at the interface of existing sidewalk with new sidewalk, into pre-drilled holes that have been cleaned and filled with an approved epoxy. Include all costs, materials, equipment, and labor in the contract unit price for "SIDEWALK CONCRETE 5IN".

See Section 20 detail for continuous steel reinforcement bars in sidewalk concrete. Reinforcement is considered incidental to sidewalk construction.

750-P02 SIDEWALK CONCRETE 6IN: Place tie bars, at the interface of existing sidewalk with new sidewalk, into pre-drilled holes that have been cleaned and filled with an approved epoxy. Include all costs, materials, equipment, and labor in the contract unit price for "SIDEWALK CONCRETE 6IN".

See Section 20 detail for continuous steel reinforcement bars in sidewalk concrete. The cost of reinforcement bars will be included in the price bid for "SIDEWALK CONCRETE 6IN".

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE-28892
DATE: 8/21/2026
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	6	2

NOTES

750-P03 CURB RAMPS AND LANDINGS: Ensure that all reconstructed curb ramps and landings meet current design standards. Landings & ADA ramp thickness is to be 6-inches, matching sidewalk section thickness.

The concrete landings, as designated in Section 80 detail sheets and labeled “B”, must be installed first prior to adjacent curb ramps and/or sidewalks allowing for a minimum of 24 hours of cure time.

Adjust the elevations of the landings so that maximum grades are not exceeded. Any reconstructed sidewalk, curb ramp, or landing found to exceed maximum grades will be considered “non-compliant” and be required to be removed and replaced with the correct grades by the Contractor at their own expense.

Construct sidewalks, curb ramps and landings in accordance with the detail layouts shown in Section 80. See Section 20 detail for continuous steel reinforcement bars in sidewalk concrete.

750-P04 DETECTABLE WARNING PANELS: Install cast-iron detectable warning panels. Color to be unpainted iron.

750-P05 Aggregate base course material will be required for sidewalk concrete and concrete curb and gutter. Include all costs, materials, equipment, labor in the contract unit price for “SIDEWALK CONCRETE 5IN, “SIDEWALK CONCRETE 6IN” and “CURB AND GUTTER-TYPE I”.

772-P01 RAPID RECTANGULAR FLASHING BEACON (RRFB) SYSTEM – MA MOUNTED: Install two complete overhead, mast arm-mounted, solar-powered RRFB system(s) at the locations shown in the plans. The RRFB system shall include MUTCD-compliant LED flash beacons with alternating flash patterns and required visibility distances, weatherproof and corrosion-resistant housings. Solar power components including a minimum 50-watt solar panel, a replaceable 12-volt sealed battery with a minimum capacity of 60 amp-hours. Wireless activation and synchronization equipment with a minimum operating range of 250 feet, and a controller with adjustable flash duration, circuit protection for solar, battery, and load circuits, and clearly labeled wiring connections.

The work shall include, but is not limited to, traffic signal standards, mast arms, RRFB assemblies, pedestrian pushbuttons, pushbutton posts, vehicular and pedestrian indications, controller cabinet, foundations, solar panels, batteries, conduit, cable, wiring, mounting hardware, system testing, commissioning, site restoration, and all appurtenant materials required for a complete and operational system. The manufacturer shall provide a minimum five-year warranty on all system components. Refer to Section 150 plans for additional information. Bid in the contract unit price for “RAPID RECTANGULAR FLASHING BEACON SYSTEM – MA MOUNTED”.

772-P02 PEDESTRIAN PUSHBUTTON UNITS: Mount each pedestrian sign and pushbutton on one framed enclosure to the signal pole or bolt directly to the pedestrian pushbutton post. Do not use bandit for this purpose. Do not extend the top of the pushbutton signs above the top of the pedestrian pushbutton post. Accessible pedestrian push buttons shall be ADA and PROWAG compliant and include a tactile arrow, visual confirmation indicator, and audible locator tone. Orient the pushbutton and its sign (with arrow) in accordance with the positioning shown in the plans. One spare pushbutton unit is required per intersection. All equipment will be black in color.

Pedestrian push button posts will be manufactured by Frey Manufacturing or Pelco Part #PB-5237-SCH40-5-P33, will be black in color. Post will be mounted onto concrete according to manufactures specifications and will include all parts to tether post to an anchor bolt.

Include the cost for labor, materials, and equipment necessary for furnishing, and installing the pedestrian pushbutton units in the contract unit included for “RAPID RECTANGULAR FLASHING BEACON SYSTEM – MA MOUNTED”.

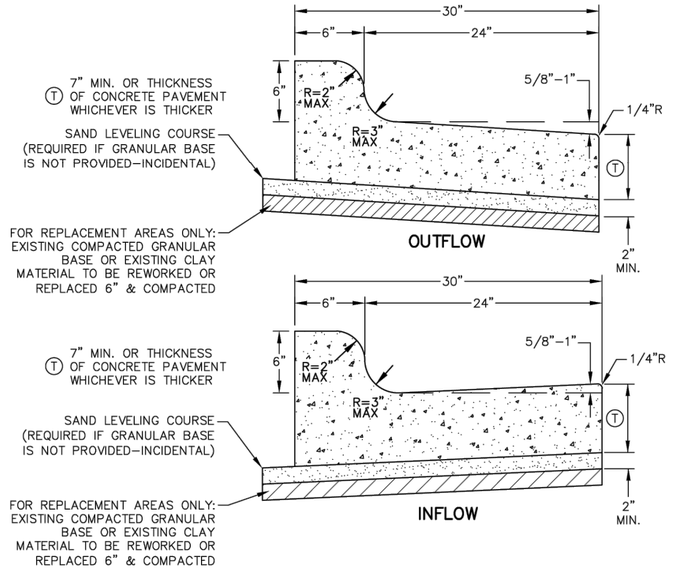


STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	8	1

Estimated Quantities

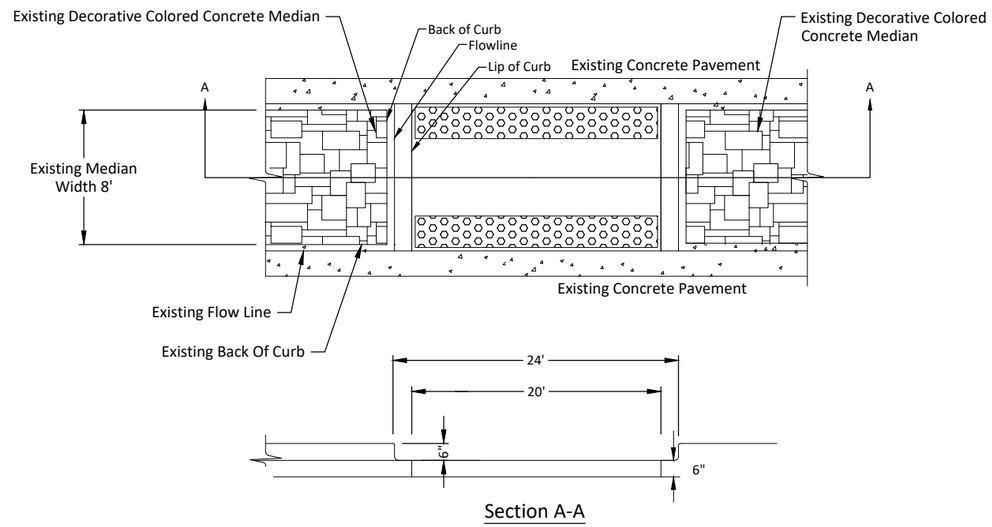
SPEC	CODE	ITEM DESCRIPTION	UNIT	Quantity	TOTAL
103	0100	CONTRACT BOND	L SUM	1	1
201	0370	REMOVAL OF TREES 10IN	EA	1	1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	136	136
202	0130	REMOVAL OF CURB & GUTTER	LF	113	113
251	0310	SEEDING CLASS III	SY	200	200
253	0200	HYDRAULIC MULCH	SY	200	200
261	0112	FIBER ROLLS 12IN	LF	150	150
261	0113	REMOVE FIBER ROLLS 12IN	LF	150	150
261	0200	WEIGHTED FIBER ROLLS	LF	5	5
261	0201	REMOVE WEIGHTED FIBER ROLLS	LF	5	5
702	0100	MOBILIZATION	L SUM	1	1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	581	581
704	1052	TYPE III BARRICADE	EA	1	1
704	1054	SIDEWALK BARRICADE	EA	4	4
704	1060	DELINEATOR DRUMS	EA	34	34
704	1085	SEQUENCING ARROW PANEL-TYPE A	EA	1	1
708	1540	INLET PROTECTION-SPECIAL	EA	1	1
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	1	1
748	0140	CURB & GUTTER-TYPE I	LF	107	107
750	0125	SIDEWALK CONCRETE 5IN	SY	157	157
750	0140	SIDEWALK CONCRETE 6IN	SY	44	44
750	2115	DETECTABLE WARNING PANELS	SF	160	160
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	53	53
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	91	91
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED	LF	260	260
762	0136	EPOXY PVMT MK MESSAGE-GROOVED	SF	54	54
772	2170	RAPID RECT FLASHING BEACON SYSTEM-MA MOUNTED	EA	2	2

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	20	1



CURB AND GUTTER TYPE I

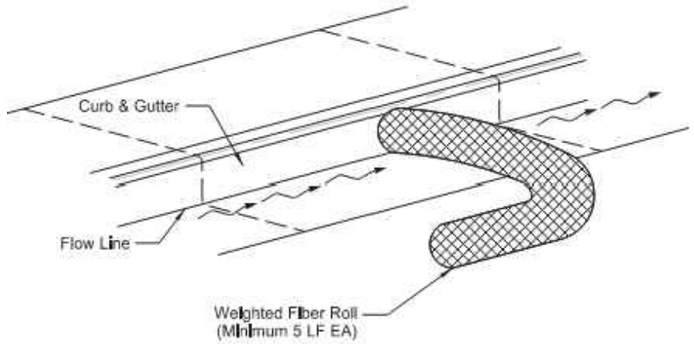
NO SCALE



Section A-A

MEDIAN REFUGE ISLAND

NO SCALE



Installation Notes:

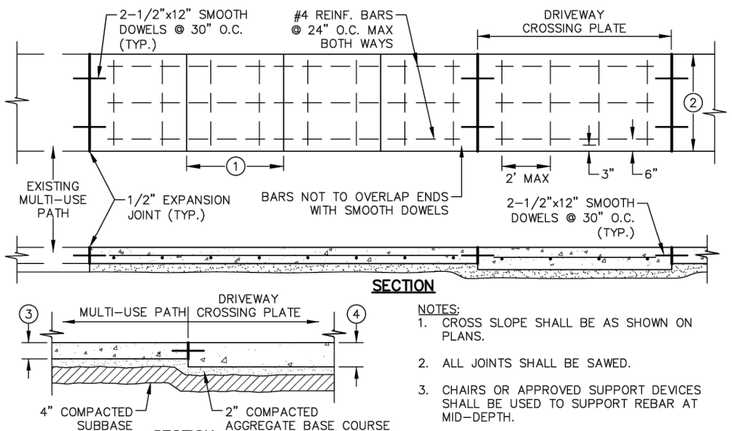
1. Place device tightly against pavement, curb and gutter, to prevent gaps.
2. Place downstream from unprotected workzones.

General Notes:

1. Remove and properly dispose of material accumulated by device after a rain event or as necessary to maintain effectiveness of device.
2. Provide materials that meet the following specifications:
   A photo degradable extruded netting tube filled with wood curled excelsior and weighted inner core.
   Roll Diameter: 6 Inches
   Weight: Not less than 8.33 Pounds per Lineal Foot
3. Remove weighted fiber rolls after the up gradient surfaces are stabilized and surrounding streets and gutters are clean of debris. Costs related to this work to be included in the unit price bid for "Weighted Fiber Rolls".
4. See Section 76 of the plans for locations.

WEIGHTED FIBER ROLL

NO SCALE



NOTATIONS:

1. JOINTS TO BE SPACED AT 5'.
2. AS SHOWN ON PLANS.
3. 5" THICK FOR MULTI–USE PATH.
4. SAME AS ADJACENT DRIVEWAY.

NOTES:

1. CROSS SLOPE SHALL BE AS SHOWN ON PLANS.
2. ALL JOINTS SHALL BE SAWED.
3. CHAIRS OR APPROVED SUPPORT DEVICES SHALL BE USED TO SUPPORT REBAR AT MID–DEPTH.
4. CONTRACTOR STAMP TO BE PLACED AT EXPANSION JOINTS.
5. EXPANSION JOINTS SHALL BE PLACED AT PROPERTY LINES WHERE POSSIBLE.
6. SAW CENTERLINE JOINT ON 10'–0" WIDTH OR LARGER PATHS. IT SHALL BE SPLIT WIDTH AND ON CURVES FOLLOW THOSE CURVES, I.E. NO STRAIGHT LINE SEGMENTS.

CONCRETE MULTI-USE PATH

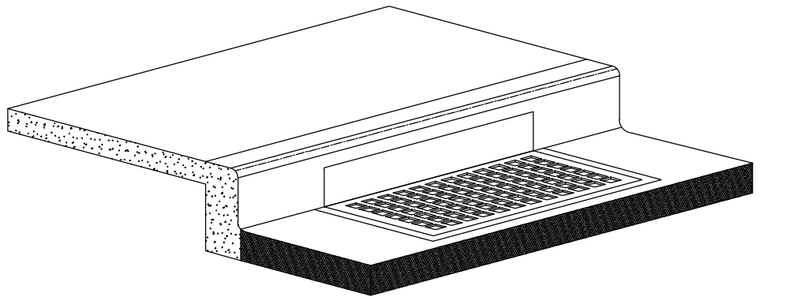
NO SCALE

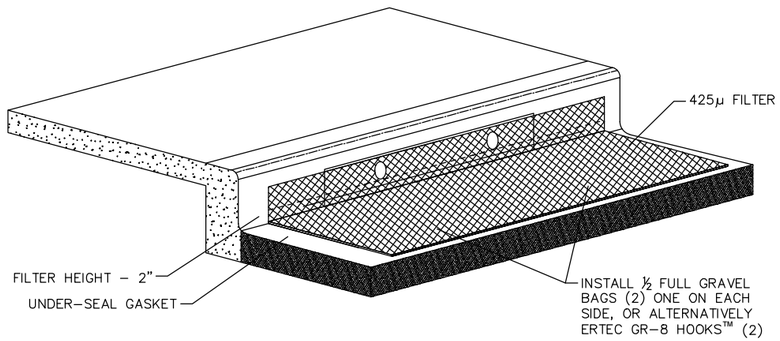
32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

GENERAL DETAILS

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE 28892
DATE: 8/21/2026
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	20	2

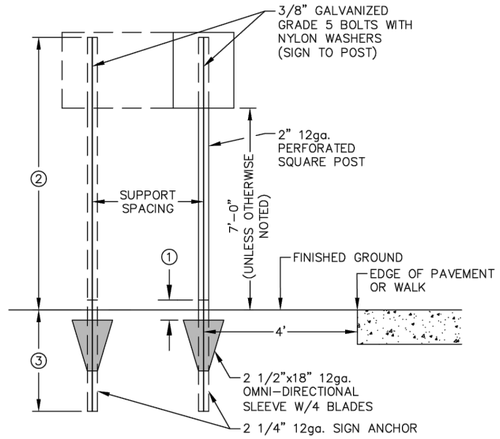




NOTES
1. INLET PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE PROJECT.
2. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE MINNESOTA DEPARTMENT OF TRANSPORTATION'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.
3. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOESN NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

INSTALLATION NOTES:
1. PLACE DEVICE TIGHTLY AGAINST DRAIN OPENING AND COVER ENTIRE GRATE. THE DEVICE SHOULD EXTEND AT LEAST 2 INCHES PAST GRATE TOWARD STREET.
2. OVERLAP THE SEGMENTS AT LONGER OPENINGS.
3. ANCHOR THE DEVICE SO THAT WATER CANNOT FLOW BEHIND IT.

INLET PROTECTION-CURB GRATE
NO SCALE



① POST AND ANCHOR OVERLAP INSIDE OF OMNI–DIRECTIONAL SLEEVE SHALL BE A MINIMUM OF 6"..

② POST.

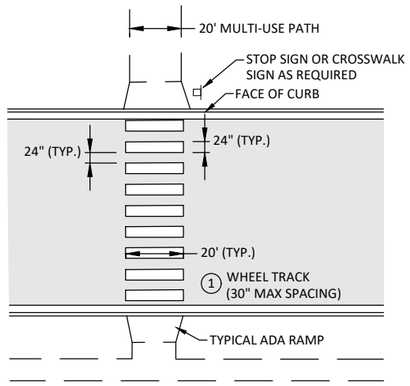
③ 4' ANCHOR.

④ REFER TO NDDOT STANDARD DRAWING D–754–24 FOR SIGN POST MOUNTING DETAILS ON PERFORATED TUBE ANCHOR AND SLEEVE.

⑤ REFER TO NDDOT STANDARD DRAWING D–754–24 FOR SURFACE MOUNT BASE DETAIL. USE WHERE APPLICABLE (i.e. MEDIANS).

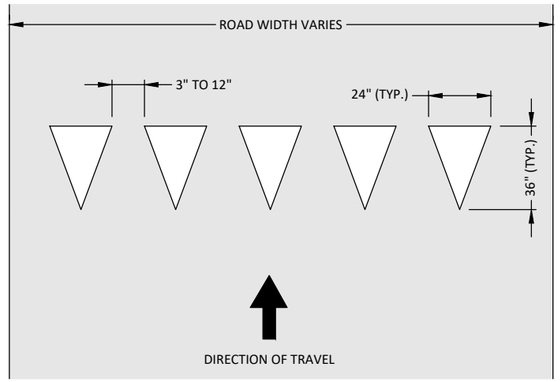
⑥ STANDARD ROADWAY SIGNS: 84".
ACCESSIBLE PARKING: 60" MIN. – 66" MAX.
MULTI–USE PATH: 48" MIN. – 60" MAX.
OTHERS: 48' MIN. – 84" MAX.

SIGN PLACEMENT - PAVEMENT & WALK
NO SCALE



NOTE:
1. SPACE CROSSWALK OPENING SUCH THAT THEY CORRESPOND WITH EXISTING WHEEL TRACKS IF POSSIBLE.

CROSSWALK STRIPING
NO SCALE



NOTE:
1. TRIANGLE HEIGHT IS EQUAL TO 1.5 TIMES THE DIMENSION.

YIELD LINE LAYOUT
NO SCALE

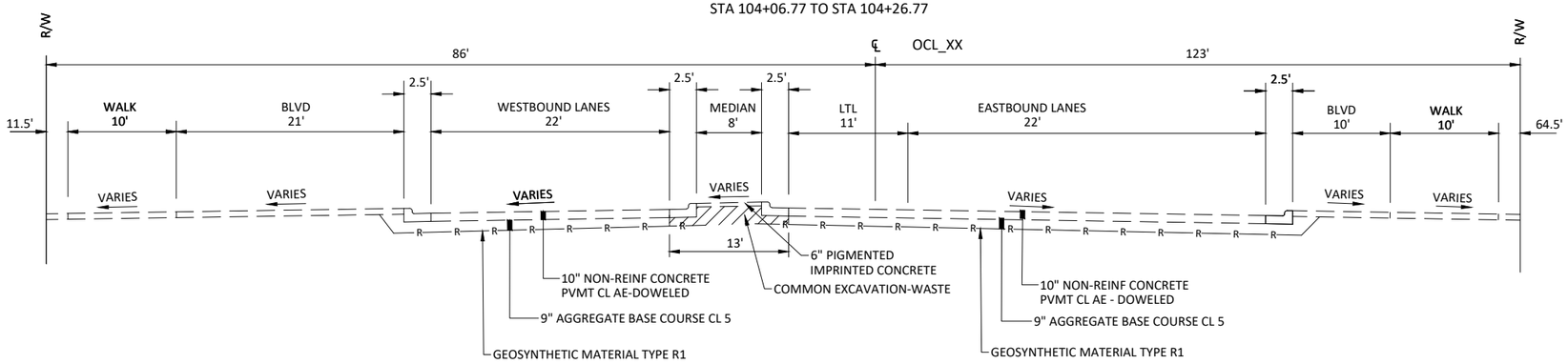
32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

GENERAL DETAILS

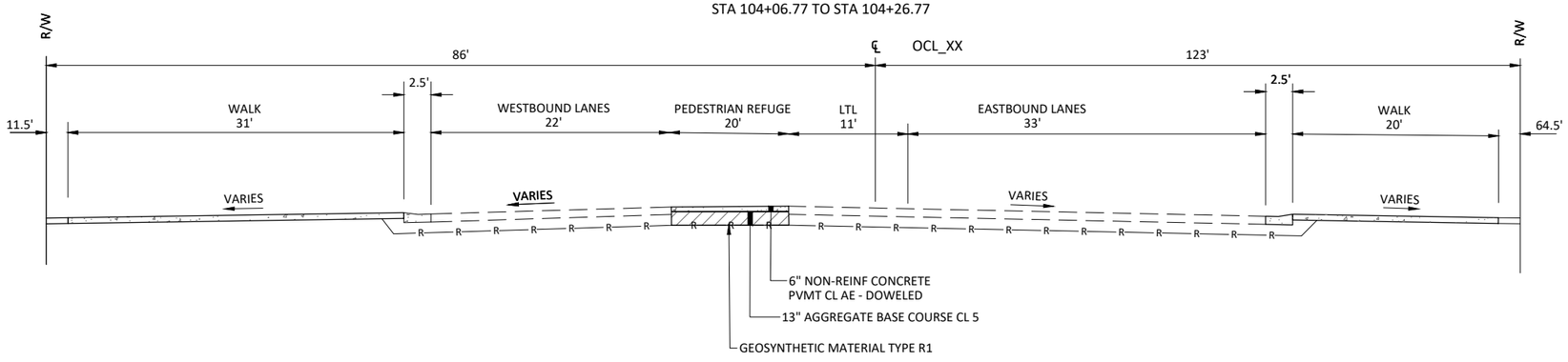
REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 26892
DATE: 8/21/2026
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	30	1

EXISTING TYPICAL SECTION
32ND AVE W
STA 104+06.77 TO STA 104+26.77



PROPOSED TYPICAL SECTION
32ND AVE W
STA 104+06.77 TO STA 104+26.77



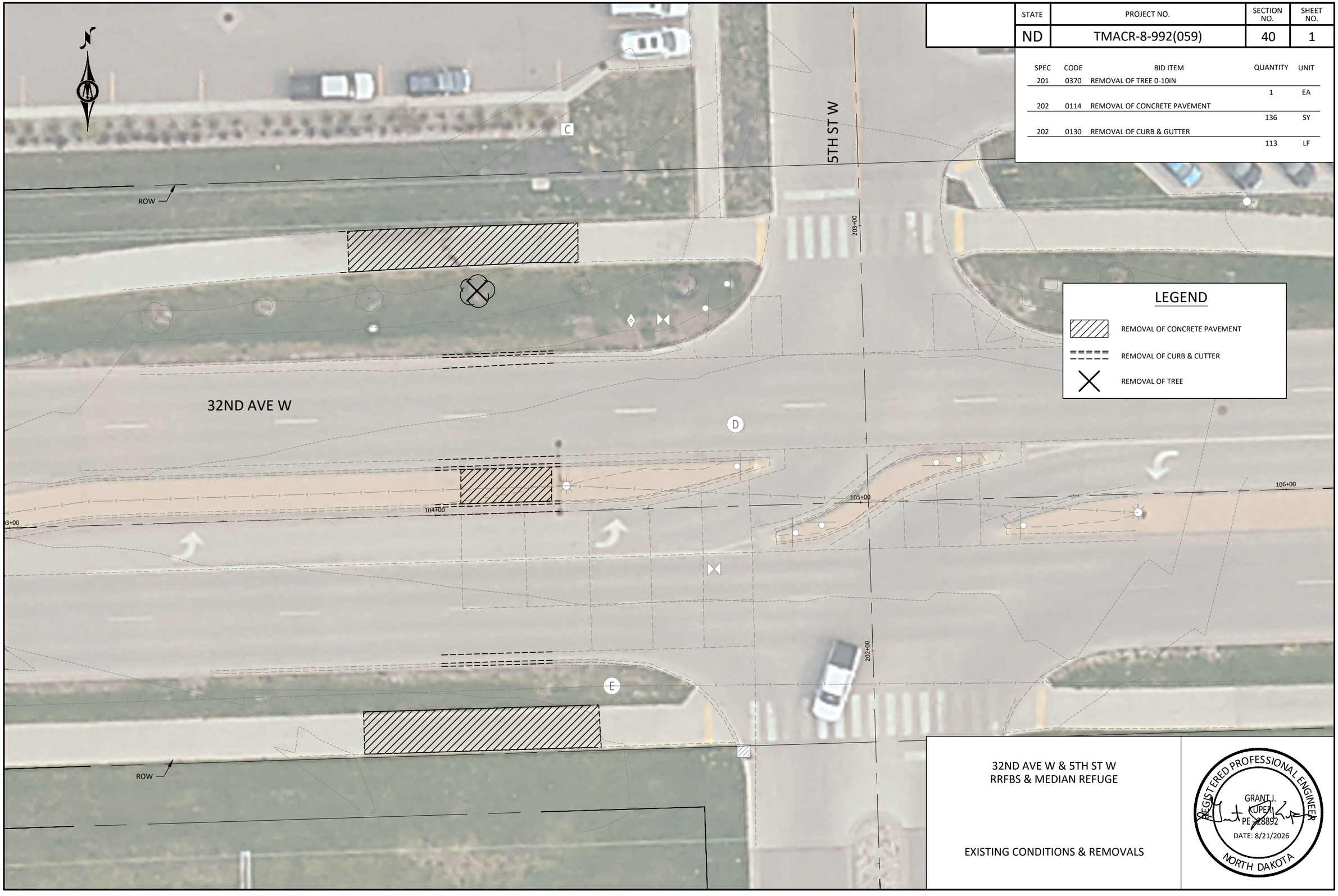
32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

TYPICAL SECTIONS

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	40	1

SPEC	CODE	BID ITEM	QUANTITY	UNIT
201	0370	REMOVAL OF TREE 0-10IN	1	EA
202	0114	REMOVAL OF CONCRETE PAVEMENT	136	SY
202	0130	REMOVAL OF CURB & GUTTER	113	LF



LEGEND

- REMOVAL OF CONCRETE PAVEMENT
- REMOVAL OF CURB & CUTTER
- REMOVAL OF TREE

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

EXISTING CONDITIONS & REMOVALS

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE 28892
DATE: 8/21/2026
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	76	1

SPEC	CODE	BID ITEM	QUANTITY	UNIT
261	0112	FIBER ROLLS 12IN	150	LF
261	0113	REMOVE FIBER ROLLS 12IN	150	LF
261	0200	WEIGHTED FIBER ROLLS	5	LF
261	0201	REMOVE WEIGHTED FIBER ROLLS	5	LF
708	1540	INLET PROTECTION - SPECIAL	1	EA
708	1541	REMOVE INLET PROTECTION - SPECIAL	1	EA

LEGEND

- INLET PROTECTION - SPECIAL
- FIBER ROLLS 12IN
- WEIGHTED FIBER ROLLS
- PROPOSED DRAINAGE ARROW
- EXISTING DRAINAGE ARROW

32ND AVE W

5TH ST W

ROW

ROW

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

TEMPORARY EROSION CONTROL

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

8/21/2026 3:26:32 PM marisa.shiland H:\WFARGO_CI_ND\25X140119000\CAD\C3D\140119C201

PERMANENT EROSION CONTROL

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	77	1

SPEC	CODE	BID ITEM	QUANTITY	UNIT
251	0310	SEEDING CLASS III	200	SY
253	0200	HYDRAULIC MULCH	200	SY

NOTE:
ANY AREAS DISTURBED OUTSIDE OF THE LIMITS SHALL BE RESTORED INCLUDING HYDRAULIC MULCH AT NO ADDITIONAL COST TO THE OWNER. THE COST TO SALVAGE, STOCKPILE, AND SPREAD TOPSOIL TO BE INCLUDED IN THE PRICE BID FOR SEEDING CLASS III.

LEGEND

- HYDRAULIC MULCH
- PROPOSED DRAINAGE ARROW
- EXISTING DRAINAGE ARROW

32ND AVE W

5TH ST W

ROW

203+00

202+00

104+00

105+00

106+00

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

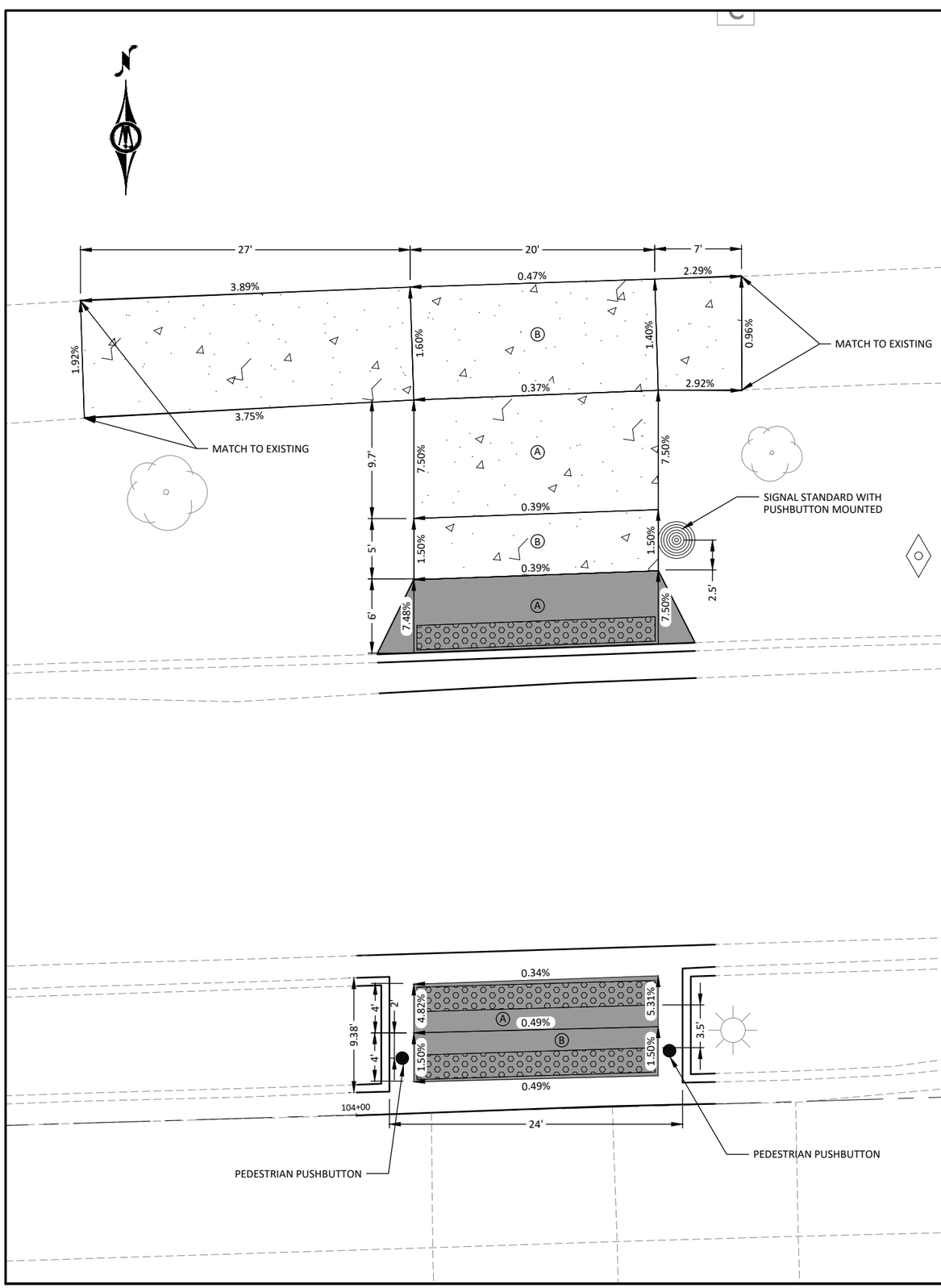
PERMANENT EROSION CONTROL

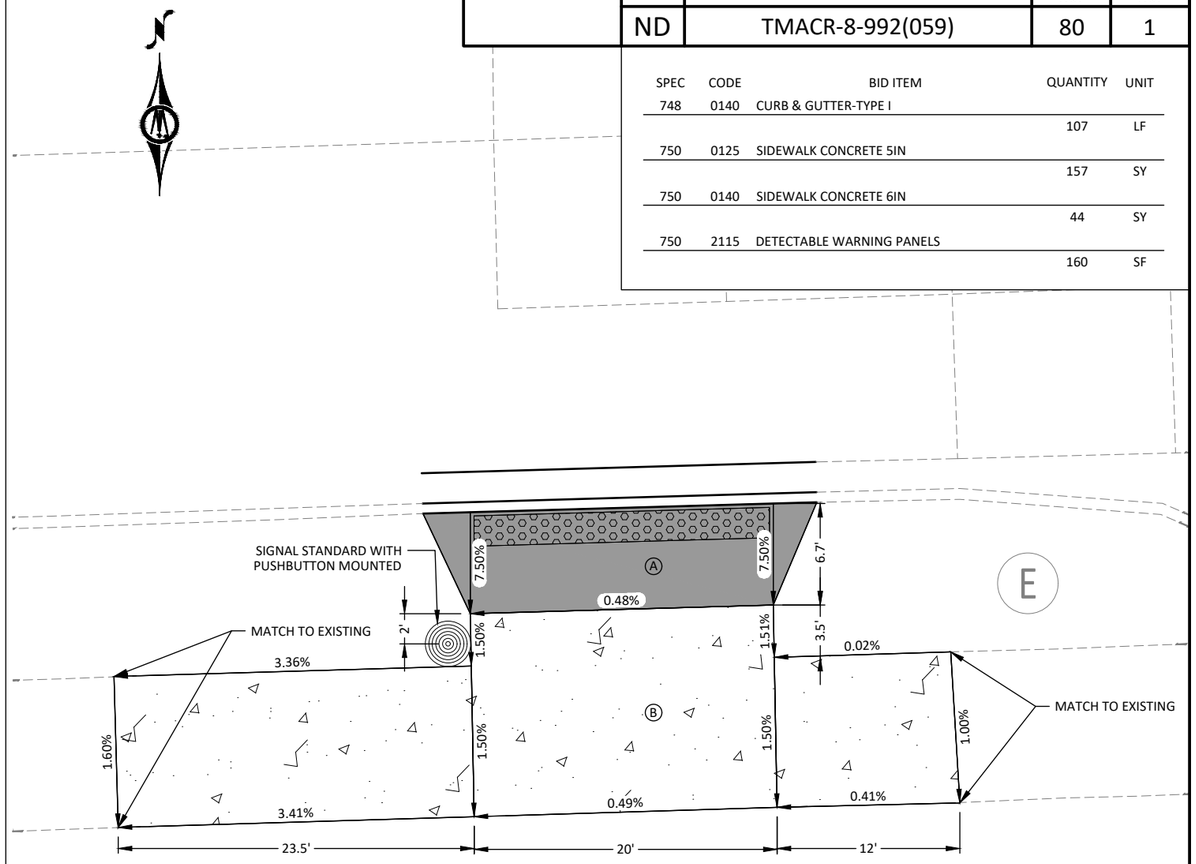
REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

8/21/2026 3:26:32 PM marisa.shiland H:\WFARGO_CI_ND\25X140119000\CAD\C3D\140119C201

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	80	1

SPEC	CODE	BID ITEM	QUANTITY	UNIT
748	0140	CURB & GUTTER-TYPE I	107	LF
750	0125	SIDEWALK CONCRETE 5IN	157	SY
750	0140	SIDEWALK CONCRETE 6IN	44	SY
750	2115	DETECTABLE WARNING PANELS	160	SF





LEGEND

- SIDEWALK CONCRETE 5IN - MULTI USE PATH
- SIDEWALK CONCRETE 6IN - CURB RAMP
- DETECTABLE WARNING PANEL
- Ⓐ RAMP
- Ⓑ TURNING SPACE
- CURB & GUTTER

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

ADA RAMP LAYOUTS

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE		35	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES		28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)		18	
G20-2-48	**48"x24"**	**END ROAD WORK**	**4**	**26**	**104**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)		18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR		18	
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS		43	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW		36	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT		59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)		11	
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 (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)		7	
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)		9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)		9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)		7	
R1-1-48	48"x48"	STOP		32	
R1-2-60	60"x60"	YIELD		29	
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)		30	
R2-1-48	48"x60"	SPEED LIMIT __		39	
R2-1aP-24	24"x18"	MINIMUM FEE $150 (Mounted on Speed Limit post)		10	
R3-2-48	**48"x48"**	**NO LEFT TURN**	**1**	**35**	**35**
R4-1-48	48"x60"	DO NOT PASS		39	
R4-7-48	48"x60"	KEEP RIGHT		39	
R5-1-48	48"x48"	DO NOT ENTER		35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)		14	
R7-1-12	12"x18"	NO PARKING ANY TIME		11	
R9-9-24	**24"x12"**	**SIDEWALK CLOSED (Mounted on barricade)**	**2**	**3**	**6**
R9-10-24	**24"x12"**	**SIDEWALK CLOSED USE OTHER SIDE (Mounted on barricade)**	**2**	**3**	**6**
R10-6-24	24"x36"	STOP HERE ON RED		16	
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)		12	
R11-2a-48	48"x30"	STREET CLOSED (Mounted on barricade)		12	
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)		15	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)		15	
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT		35	
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT		35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT		35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW		26	
W3-1-48	48"x48"	STOP AHEAD		35	
W3-3-48	48"x48"	SIGNAL AHEAD		35	
W3-4-48	48"x48"	BE PREPARED TO STOP		35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD		35	
W4-2-48	**48"x48"**	**LANE ENDS RIGHT or LEFT**	**2**	**35**	**70**
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		35	
W8-1-48	48"x48"	BUMP		35	
W8-3-48	48"x48"	PAVEMENT ENDS		35	
W8-7-48	48"x48"	LOOSE GRAVEL		35	
W8-11-48	48"x48"	UNEVEN LANES		35	
W8-12-48	48"x48"	NO CENTER LINE		35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL		35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY		35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE		35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE		35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY		35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL		35	
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)		14	
W14-3-64	64"x48"	NO PASSING ZONE		28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)		10	
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**4**	**35**	**140**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT or _ MILE		35	
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT or _ MILE		35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE		35	
W20-5-48	**48"x48"**	**RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE**	**4**	**35**	**140**
W20-7-48	48"x48"	FLAGGER		35	
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back		5	
W20-52P-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)		12	
W21-1-48	48"x48"	WORKERS		35	
W21-2-48	48"x48"	FRESH OIL		35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE		35	
W21-5-48	48"x48"	SHOULDER WORK		35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED		35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE		35	
W21-6-48	48"x48"	SURVEY CREW		35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT		35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY		35	
W21-52-48	48"x48"	PAVEMENT BREAKS		35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD		35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK		35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE		35	

SPECIAL SIGNS

R3-8AC	**36"X30"**	**LEFT/STRAIGHT ONLY**	**2**	**18**	**36**
M4-9aMR	**18"X12"**	**BIKE & PEDESTRIAN DETOUR RIGHT ARROW**	**2**	**11**	**22**
M4-9aML	**18"X12"**	**BIKE & PEDESTRIAN DETOUR LEFT ARROW**	**2**	**11**	**22**

SPEC & CODE

SPEC & CODE			
704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**581**

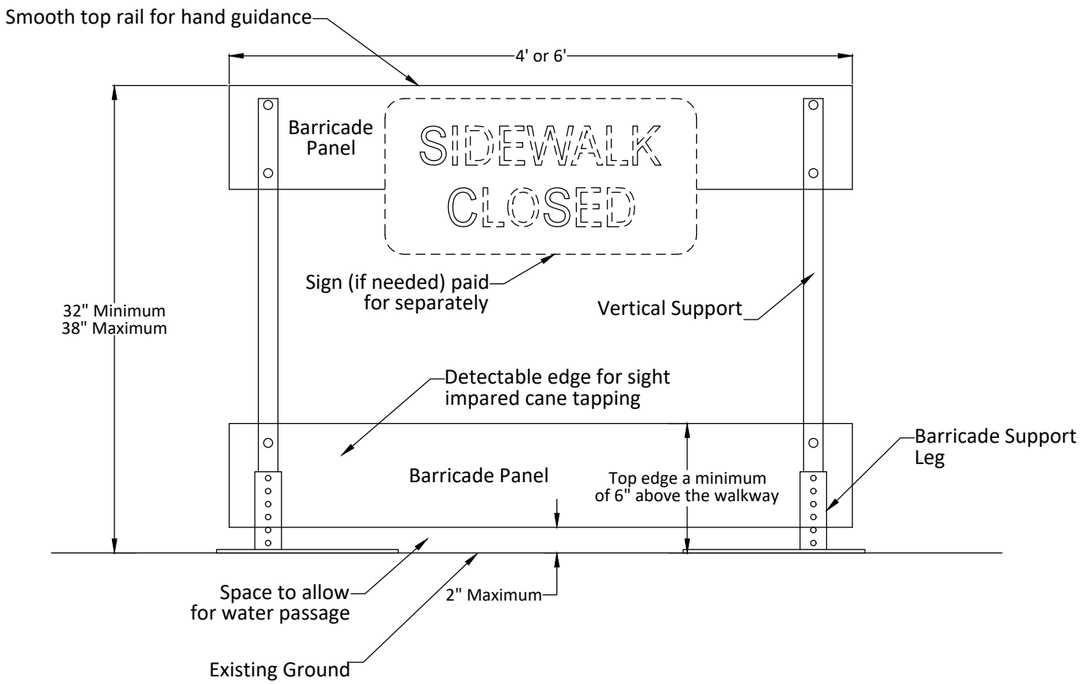
SPEC & CODE	DESCRIPTION	UNIT	QUANTITY
704-0100	FLAGGING	MHR	
704-1048	PORTABLE RUMBLE STRIPS	EACH	
704-1050	TYPE I BARRICADES	EACH	
704-1052	**TYPE III BARRICADES**	**EACH**	**1**
704-1054	**SIDEWALK BARRICADE**	**EA**	**4**
704-1060	**DELINEATOR DRUMS**	**EACH**	**34**
704-1065	TRAFFIC CONES	EACH	
704-1067	TUBULAR MARKERS	EACH	
704-1070	DELINEATOR	EACH	
704-1072	FLEXIBLE DELINEATORS	EACH	
704-1080	STACKABLE VERTICAL PANELS	EACH	
704-1081	VERTICAL PANELS - BACK TO BACK	EACH	
704-1085	**SEQUENCING ARROW PANEL - TYPE A**	**EACH**	**1**
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH	
704-1087	SEQUENCING ARROW PANEL - TYPE C	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	

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

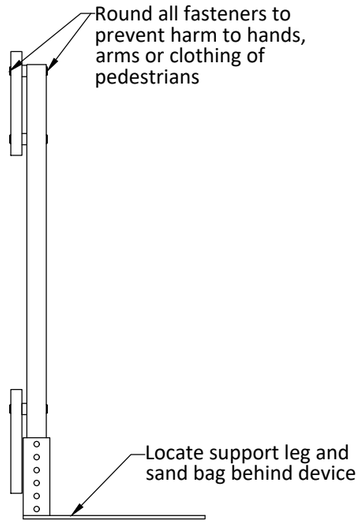
REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

Traffic Control Devices List

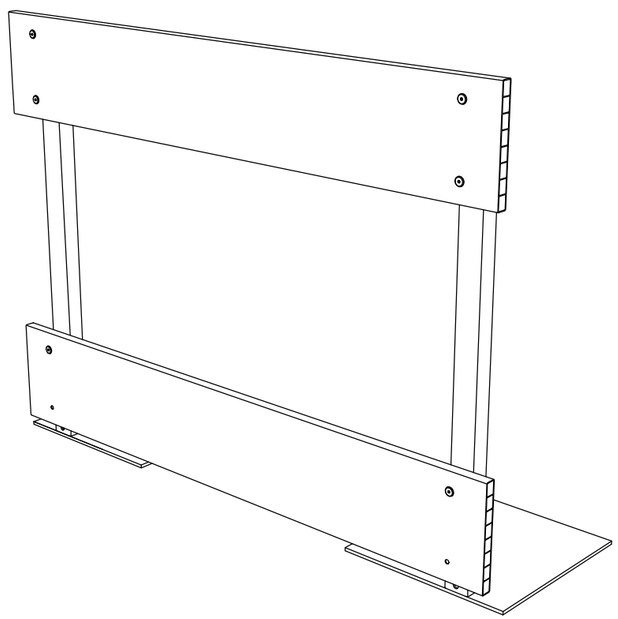
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	100	2



Front View



End View



Perspective View

NOTES:

Sidewalk Barricades

1. Provide self standing sidewalk barricade with no supports extending into the pedestrians path.
2. Use orange or orange and white diagonal striped barricade panels contrasting with the walkway surface.
3. Provide ADA compliant and NCHRP 350 or Mash Test Level 3 (TL3) approved sidewalk barricades.
4. Include all costs to furnish, maintain and remove sidewalk barricades in the price bid for "Sidewalk Barricade".

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

SIDEWALK BARRICADE

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	100	3

LEGEND

- WORK ZONE
- SIDEWALK BARRICADE
- TYPE 3 BARRICADE
- ELECTRONIC ARROW BOARD
- DELINEATOR DRUM

32ND AVE W

5TH ST W

6TH ST W

170TH AVE SE

BP: 100+00.00

EP: 204+00.00

BP: 200+00.00

EP: 110+00.00

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00

203+00 202+00 201+00 200+00

100' MIN

25' MAX

W20-1 (48 X 48) ROAD WORK AHEAD

W20-5L (48X48) LEFT LANE CLOSED AHEAD

G20-2A (48 X 24) END ROAD WORK

R3-2 (24 X 24)

W4-2L (48X48)

SEQUENTIAL ARROW

NOTES

1. ALL SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MUTCD AND SHALL EXTEND TO NO LESS THAN 3" FROM EITHER EDGE OF THE EXISTING SIDEWALK.
2. ANY DEVIATIONS FROM THIS TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE ENGINEER IN WRITING A MINIMUM OF 48 HOURS PRIOR TO THE CHANGE.
3. TRAFFIC CONTROL SHALL CONFORM WITH THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION REQUIREMENTS AS WELL AS THE MUTCD.
4. MINIMUM SIGN DIMENSION REQUIREMENTS SHOWN. FOLLOW MUTCD SIZE REQUIREMENTS IF LARGER SIGNS ARE USED.

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

WORK ZONE TRAFFIC CONTROL
PHASE 1

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

8/21/2026 4:43:34 PM marisa.shiland H:\WFARGO_CI_ND\25X140119000\CAD\C3D\140119C701

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	100	4

LEGEND

- WORK ZONE
- SIDEWALK BARRICADE
- TYPE 3 BARRICADE
- ELECTRONIC ARROW BOARD
- DELINEATOR DRUM

W20-1 (48 X 48) ROAD WORK AHEAD

M4-9aMR (18 X 12) DETOUR

M4-9aML (18 X 12) DETOUR

W4-2R (48X48)

R3-8AC (36 X 30) ONLY ONLY

32ND AVE W

BP: 100+00.00

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00

EP: 204+00.00

5TH ST W

203+00

202+00

201+00

200+00

BP: 200+00.00

EP: 110+00.00

170TH AVE SE

25' MAX

100' MIN

100' MIN

SEQUENTIAL ARROW

R9-9 (30 X 18) SIDEWALK CLOSED

R9-10ML (24 X 12) SIDEWALK CLOSED USE OTHER SIDE

G20-2A (48 X 24) END ROAD WORK

R9-10MR (24 X 12) SIDEWALK CLOSED USE OTHER SIDE

6TH ST W

NOTES

1. ALL SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MUTCD AND SHALL EXTEND TO NO LESS THAN 3" FROM EITHER EDGE OF THE EXISTING SIDEWALK. PHASE 2 AND PHASE 3 CAN NOT BE PERFORMED CONCURRENTLY. PEDESTRIAN TRAFFIC MUST BE ALLOWED AT ALL TIMES ON EITHER NORTH OR SOUTH SIDE OF 32ND THROUGH THE WORK AREA.
2. ANY DEVIATIONS FROM THIS TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE ENGINEER IN WRITING A MINIMUM OF 48 HOURS PRIOR TO THE CHANGE.
3. TRAFFIC CONTROL SHALL CONFORM WITH THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION REQUIREMENTS AS WELL AS THE MUTCD.
4. MINIMUM SIGN DIMENSION REQUIREMENTS SHOWN. FOLLOW MUTCD SIZE REQUIREMENTS IF LARGER SIGNS ARE USED.

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

WORK ZONE TRAFFIC CONTROL
PHASE 2

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE - 28892
DATE: 8/21/2026
NORTH DAKOTA

8/21/2026 1:15:54 PM marisa.shiland H:\WFARGO_CI_ND\25X140119000\CAD\C3D\140119C701

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	100	5

LEGEND

- WORK ZONE
- SIDEWALK BARRICADE
- TYPE 3 BARRICADE
- ELECTRONIC ARROW BOARD
- DELINEATOR DRUM

32ND AVE W

5TH ST W

6TH ST W

170TH AVE SE

R9-10MR (24 X 12) SIDEWALK CLOSED USE OTHER SIDE

G20-2A (48 X 24) END ROAD WORK

R9-9 (30 X 18) SIDEWALK CLOSED

SEQUENTIAL ARROW

R3-8AC (36 X 30) ONLY ONLY

W4-2R (48X48)

R9-10ML (24 X 12) SIDEWALK CLOSED USE OTHER SIDE

W20-1 (48 X 48) ROAD WORK AHEAD

100' MIN

100' MIN

BP: 100+00.00

EP: 110+00.00

100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00

25' MAX

M4-9aML (18 X 12) DETOUR

M4-9aMR (18 X 12) DETOUR

NOTES

1. ALL SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MUTCD AND SHALL EXTEND TO NO LESS THAN 3" FROM EITHER EDGE OF THE EXISTING SIDEWALK. PHASE 2 AND PHASE 3 CAN NOT BE PERFORMED CONCURRENTLY. PEDESTRIAN TRAFFIC MUST BE ALLOWED AT ALL TIMES ON EITHER NORTH OR SOUTH SIDE OF 32ND THROUGH THE WORK AREA.
2. ANY DEVIATIONS FROM THIS TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE ENGINEER IN WRITING A MINIMUM OF 48 HOURS PRIOR TO THE CHANGE.
3. TRAFFIC CONTROL SHALL CONFORM WITH THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION REQUIREMENTS AS WELL AS THE MUTCD.
4. MINIMUM SIGN DIMENSION REQUIREMENTS SHOWN. FOLLOW MUTCD SIZE REQUIREMENTS IF LARGER SIGNS ARE USED.

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

WORK ZONE TRAFFIC CONTROL
PHASE 3

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE # 8892
DATE: 8/21/2026
NORTH DAKOTA

8/21/2026 1:15:54 PM marisa.shiland H:\WFARGO_CI_ND\25X140119000\CAD\C3D\140119C701

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	N.D.	TMACR-8-992(059)	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
101+55 Rt	W11-2, W16-9P			8.3	13.8				7.0	2.25 x 2.25 12 ga	14.6	3.2				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
103+55 Rt	R1-5	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
103+55 Lt mdn	R1-5	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
104+53 Lt	R1-5	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
104+53 Lt	R1-5	16		9.0	9.9				7.0	2.5 x 2.5 12 ga	10.5						1	4	3 x 3 7 ga				
106+53 Lt	W11-2, W16-9P			8.3	13.8				7.0	2.25 x 2.25 12 ga	14.6	3.2				2.5 x 2.5 12 ga	1	4	3 x 3 7 ga			1	
Sub Total			0.0	52.6		**Total**	67.2										**Total**	24.0		0	0	2	
Grand Total			**0.0**	**52.6**		**Total**	**67.2**										**Total**	**24**	**0**	**0**	**0**	**2**	

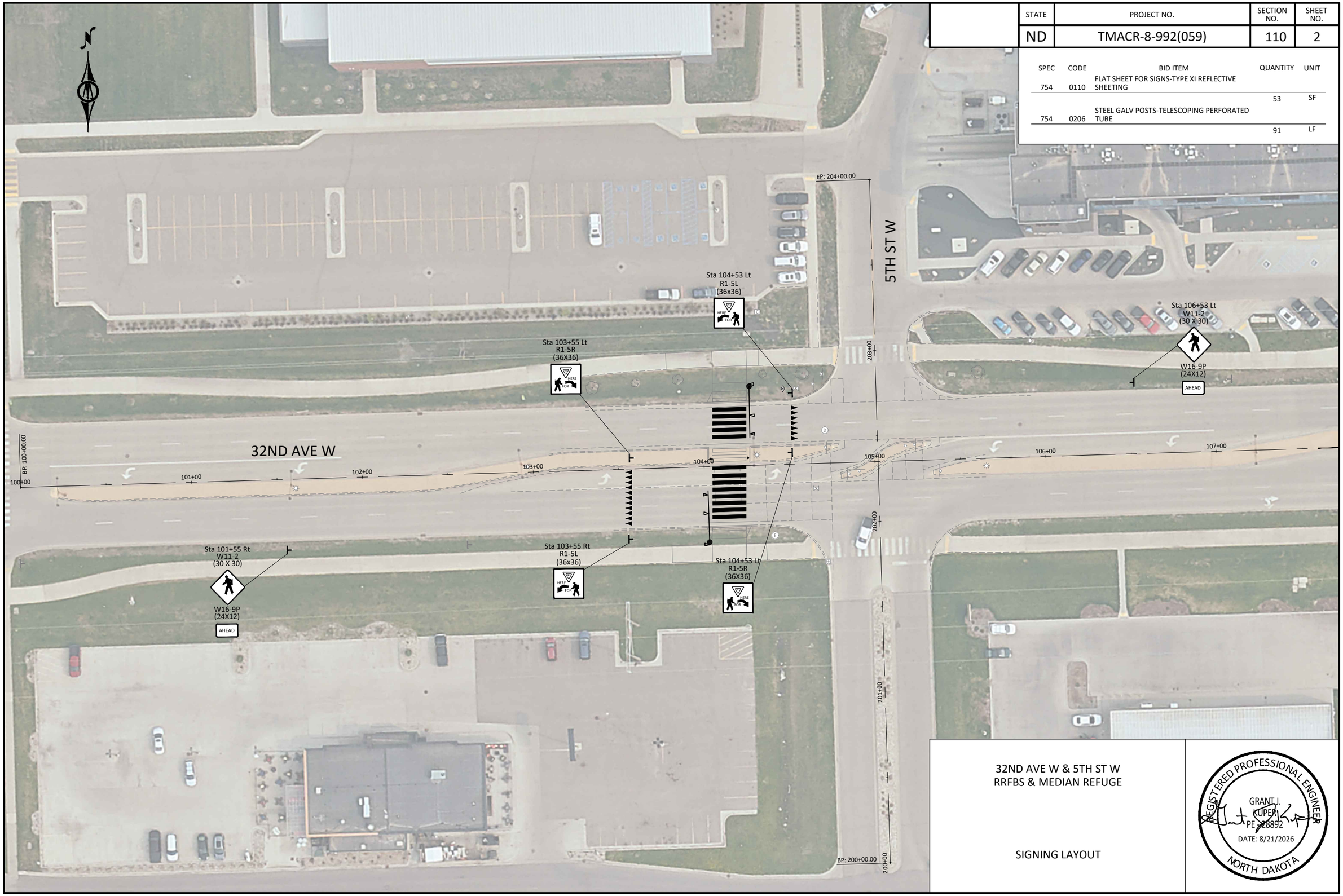


Sign Summary
Perforated Tube

32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	110	2

SPEC	CODE	BID ITEM	QUANTITY	UNIT
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFLECTIVE SHEETING	53	SF
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	91	LF



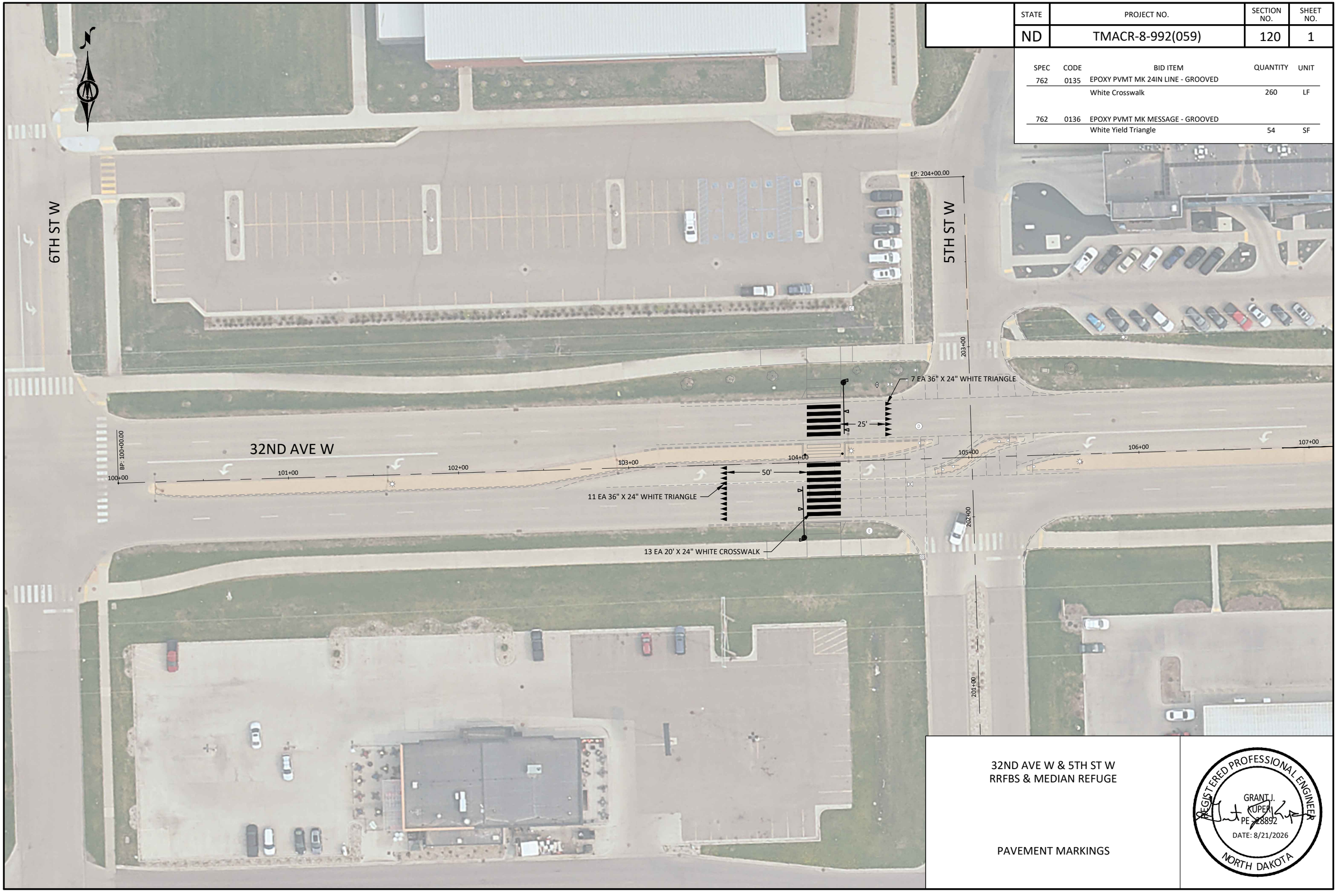
32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

SIGNING LAYOUT

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE 28892
DATE: 8/21/2026
NORTH DAKOTA

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TMACR-8-992(059)	120	1

SPEC	CODE	BID ITEM	QUANTITY	UNIT
762	0135	EPOXY PVMT MK 24IN LINE - GROOVED		
		White Crosswalk	260	LF
762	0136	EPOXY PVMT MK MESSAGE - GROOVED		
		White Yield Triangle	54	SF



32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

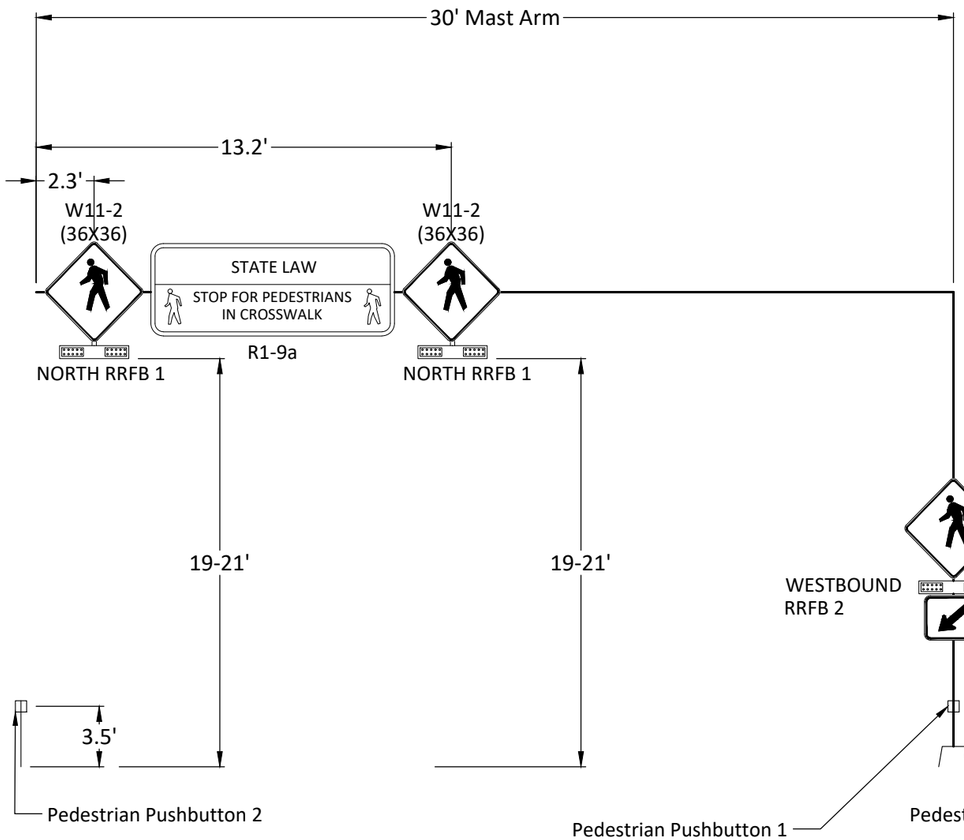
PAVEMENT MARKINGS

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE 28892
DATE: 8/21/2026
NORTH DAKOTA

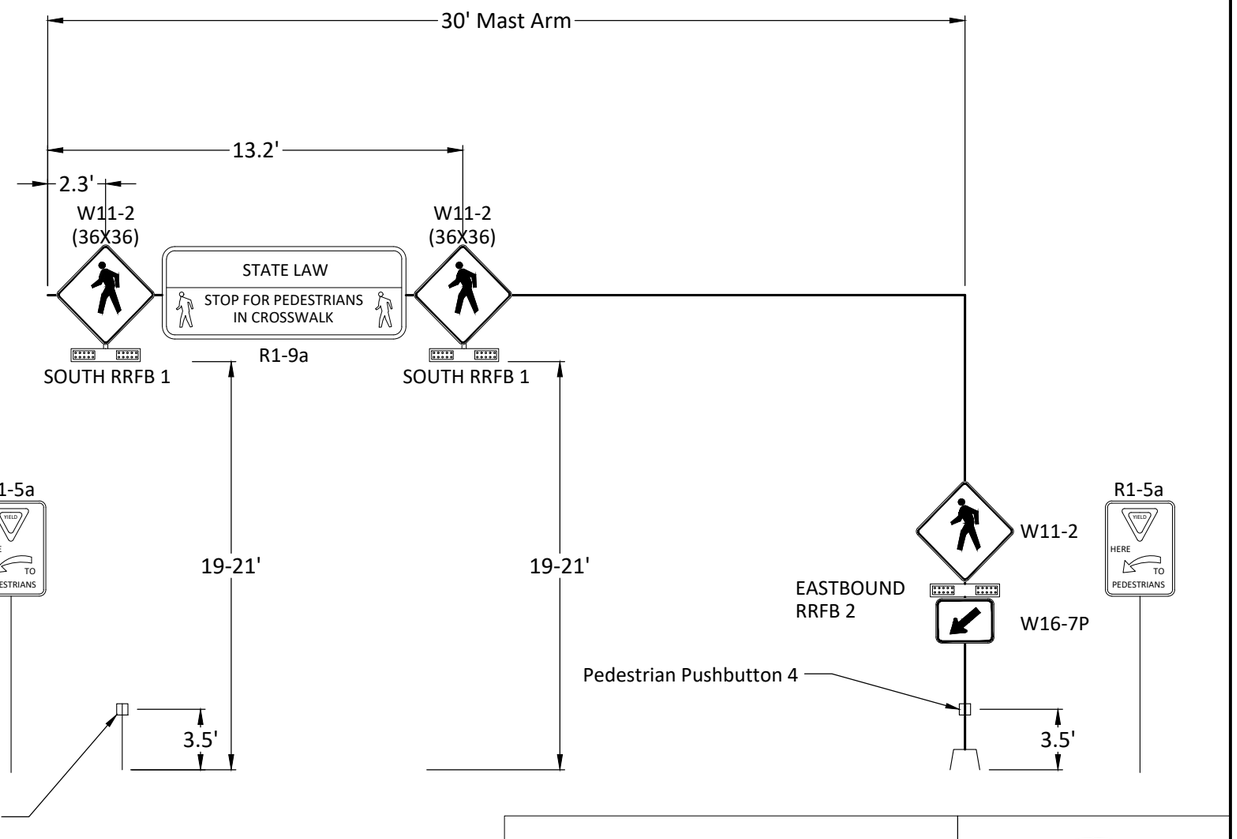
8/21/2026 3:33:02 PM marisa.shiland H:\WFARGO_CI_ND\25X140119000\CAD\C3D\140119C703

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	150	1

Westbound Pedestrian Std. RRFB



Eastbound Pedestrian Std. RRFB

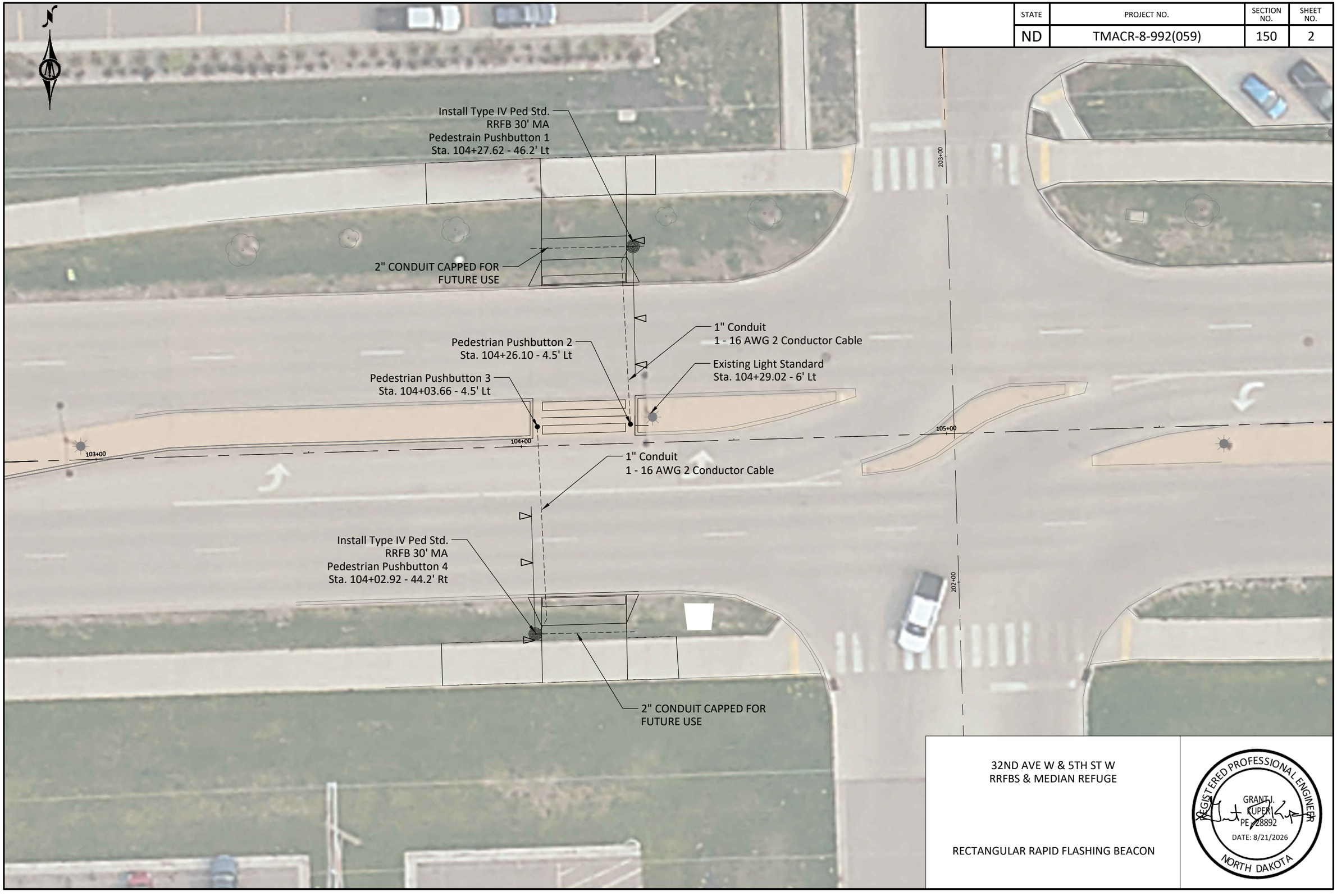


32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

RECTANGULAR RAPID FLASHING BEACON

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE 28892
DATE: 8/21/2026
NORTH DAKOTA

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMACR-8-992(059)	150	2



32ND AVE W & 5TH ST W
RRFBS & MEDIAN REFUGE

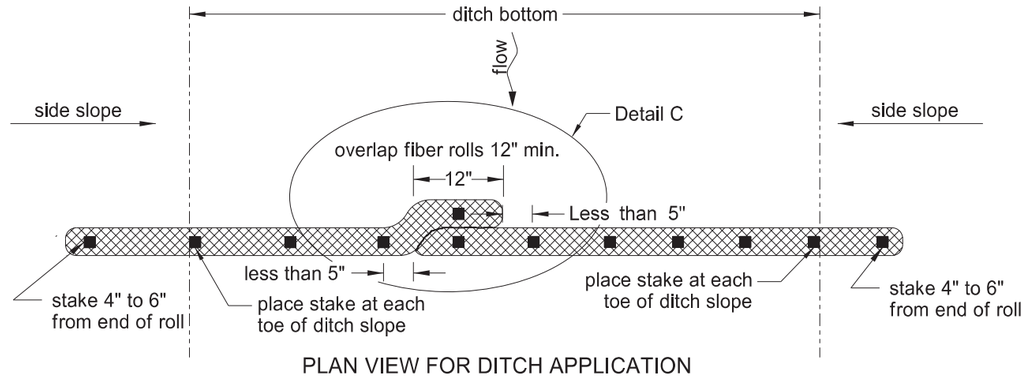
RECTANGULAR RAPID FLASHING BEACON

REGISTERED PROFESSIONAL ENGINEER
GRANT J. KUPER
PE-28892
DATE: 8/21/2026
NORTH DAKOTA

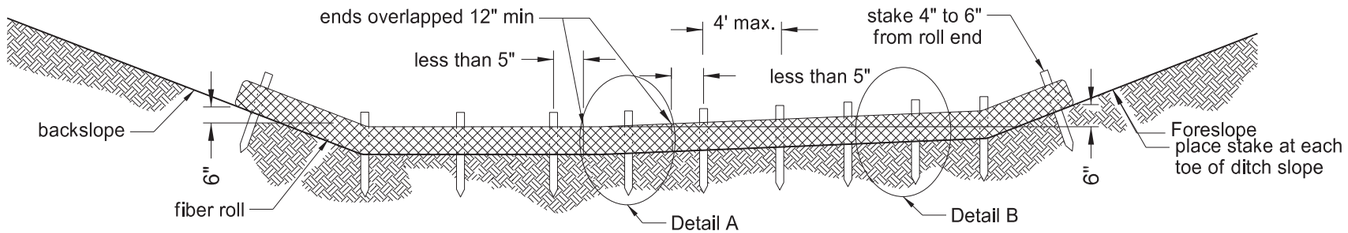
Docusign Envelope ID: 2C12B4C2-AA38-4A01-B483-3D5495EBE37A

EROSION CONTROL
FIBER ROLL PLACEMENT DETAILS

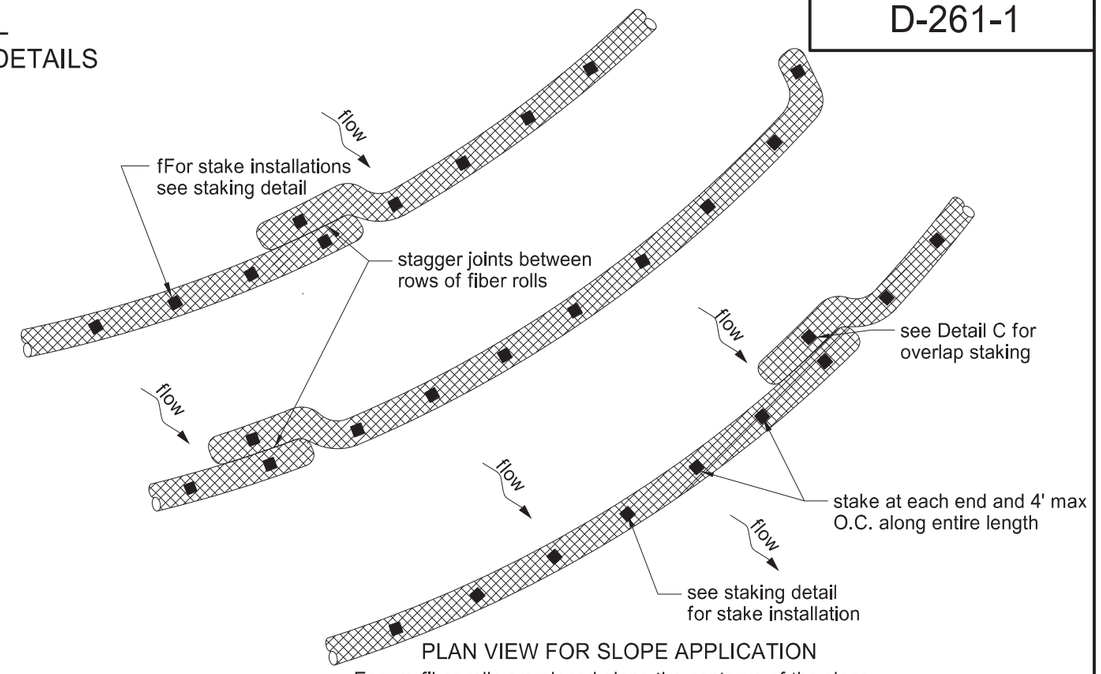
D-261-1



PLAN VIEW FOR DITCH APPLICATION

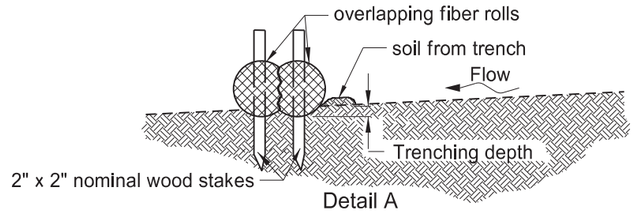


12 OR 20 INCH FIBER ROLL - DITCH BOTTOM



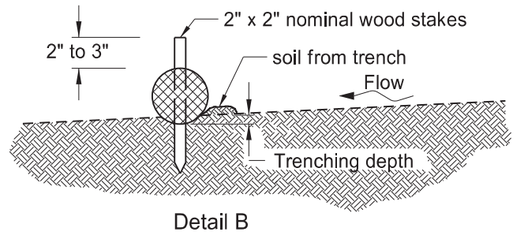
PLAN VIEW FOR SLOPE APPLICATION

Ensure fiber rolls are placed along the contours of the slope.



Detail A

FIBER ROLL OVERLAPPING STAKING DETAIL

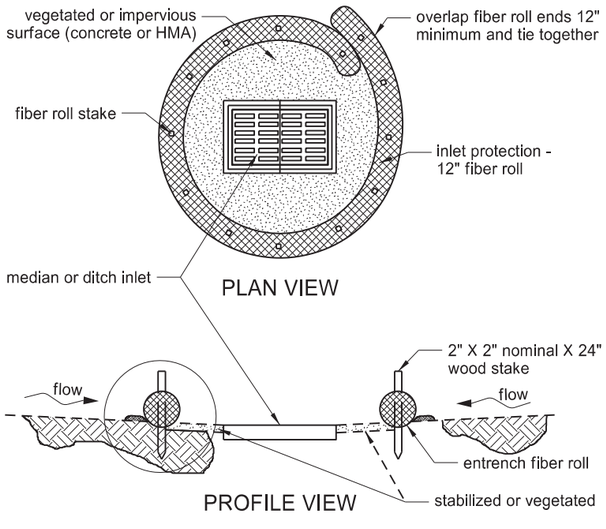


Detail B

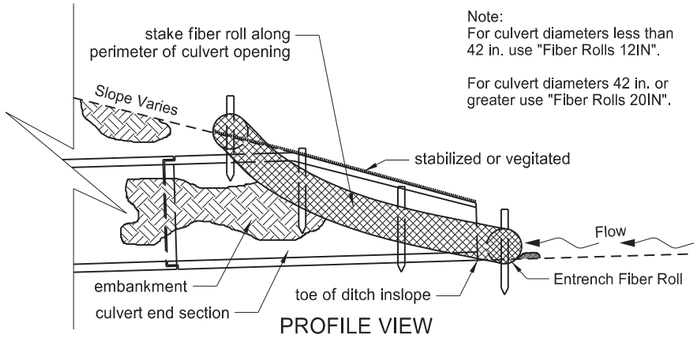
FIBER ROLL STAKING DETAIL

NOTE: Do not allow runoff to run under or around roll.

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

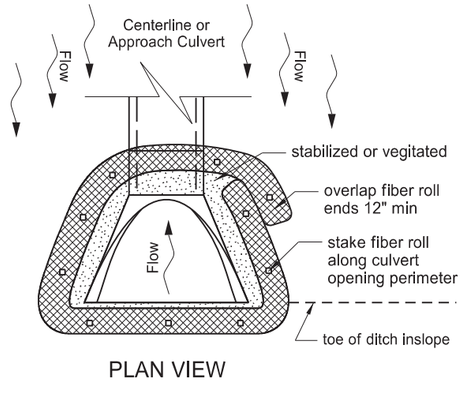


FIBER ROLL PROTECTION (MEDIAN OR DITCH INLET)



Note:
For culvert diameters less than 42 in. use "Fiber Rolls 12IN".

For culvert diameters 42 in. or greater use "Fiber Rolls 20IN".



FIBER ROLL PROTECTION (INLET OF CULVERT)

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
08-27-19	New Design Engineer PE Stamp
04-22-24	Slope Plan View-overlap change
03-13-25	Added D-708-6 Culvert Inlet detail
09-02-25	Added D-708-6 Inlet detail

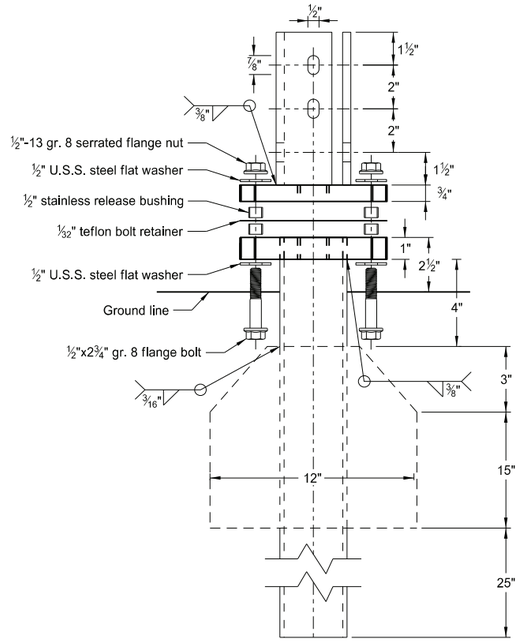
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

09/02/25

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

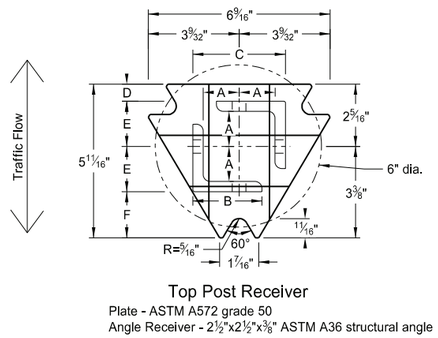
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-7

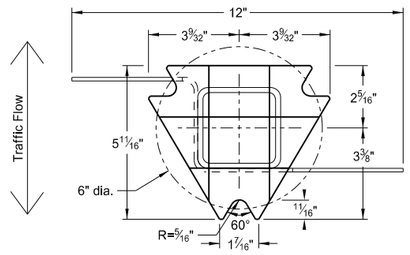


Multi-Directional
Slip Base Assembly

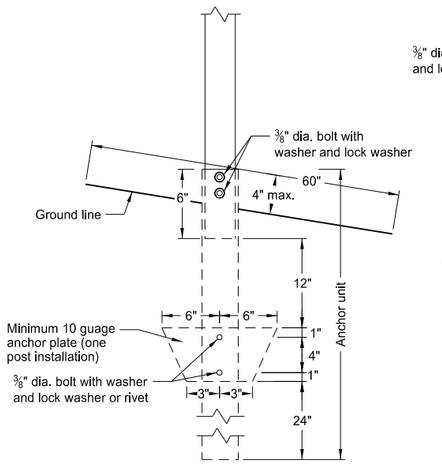
Perforated Tube



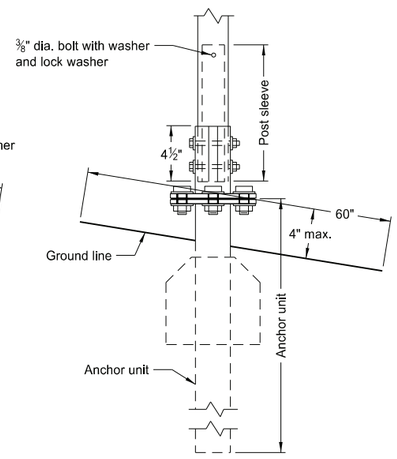
Top Post Receiver
Plate - ASTM A572 grade 50
Angle Receiver - 2½"x2½"x⅜" ASTM A36 structural angle



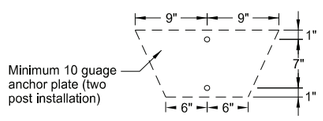
Bottom Soil Stub
Tube - 3"x3"x7 gauge ASTM A500 grade B tube
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011
Plate - ASTM A572 grade 50

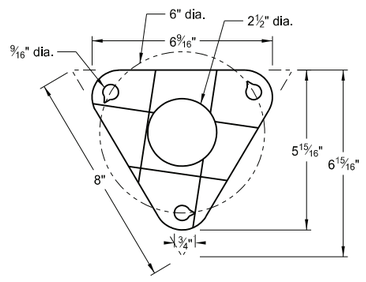


Anchor Unit and Post Assembly



Multi-Directional
Slip Base Anchor Unit
and Post Sleeve Assembly





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

Notes:

1. Torque slip base bolts as specified by manufacturer.
2. Use anchor with 43.9 KSI yield strength and 59.3 KSI tensile strength.
3. Provide 4" vertical clearance for anchor or breakaway base. Measure the 4"x60" measurement above and below post location and back and ahead of post.
4. In concrete sidewalk, use same anchor without wings.
5. Provide more than 7' between the first and fourth posts of a four post sign.

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"	1 7/8"
2½"x10 ga.	1 9/32"	2½"	3 5/16"	⅝"	1 21/32"	1¾"

(A) Use breakaway base when support is placed in weak soils. Engineer determines if soils are weak.

(B) For additional wind load, insert the 2 3/16"x10 ga. into 2½"x10 ga.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

2-28-14

REVISIONS

DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

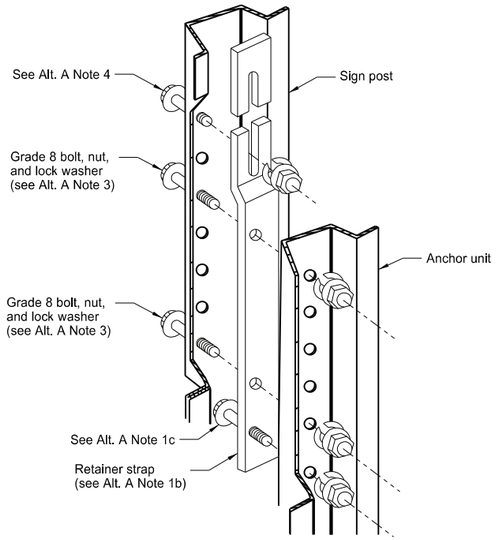
08/01/24

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

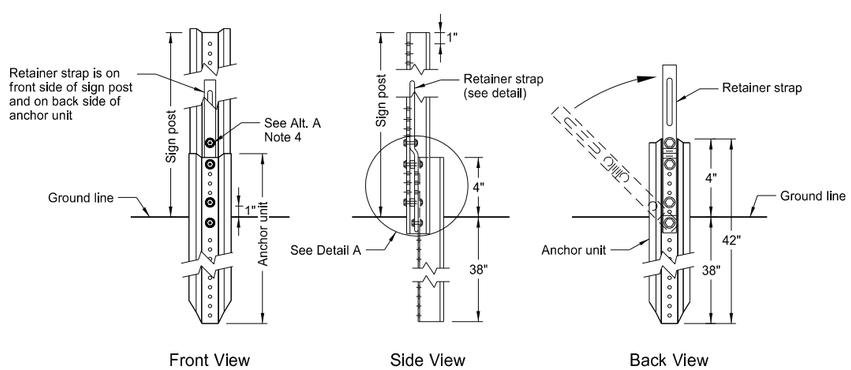
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

U-Channel Post



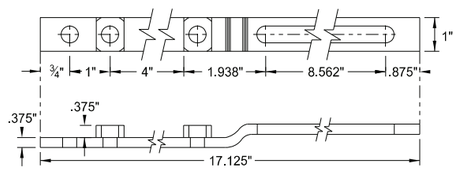
Detail A



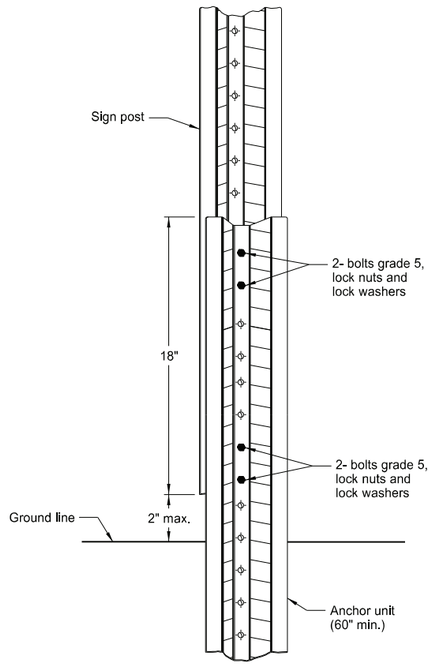
Front View | Side View | Back View

Breakaway U-Channel Detail Alternate A

Install a maximum of 2 posts within 7'.

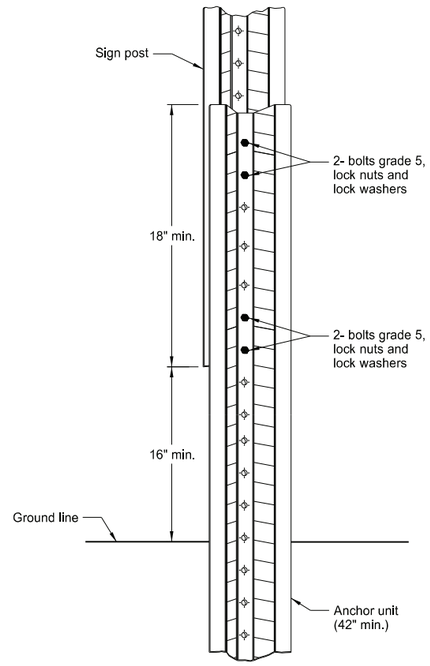


Retainer Strap Detail



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

Install a maximum of 3 posts within 7'.



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

Install a maximum of 3 posts within 7'.

Alternate A Steps of Installation:

1. a) Drive anchor unit to within 12" of ground level.
   b) Establish proper assembly by lining up bottom hole of retainer strap with 6th hole from the top of the anchor unit.
   c) Assemble strap to back of anchor unit using $\frac{5}{16}$"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 $\frac{5}{16}$"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 $\frac{5}{16}$"x2" bolt (this fastens sign post to retainer strap).
5. Properly nest base post, strap, and sign post. 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.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
10-03-19	New Design Engr PE Stamp
8-01-24	Electronic Stamp/Signature

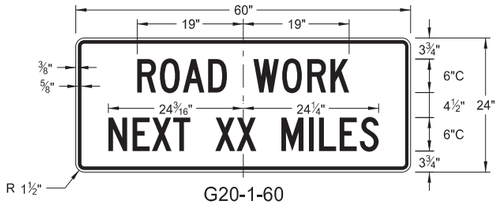
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

08/01/24

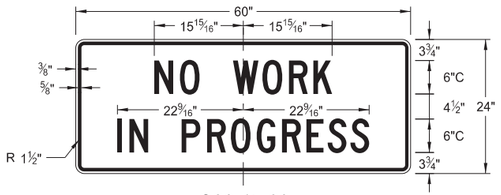
Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

CONSTRUCTION SIGN DETAILS
TERMINAL AND GUIDE SIGNS

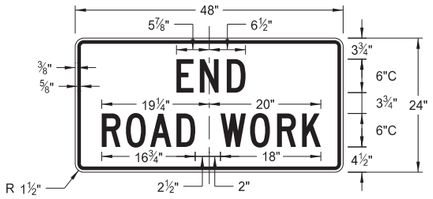
D-704-9



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

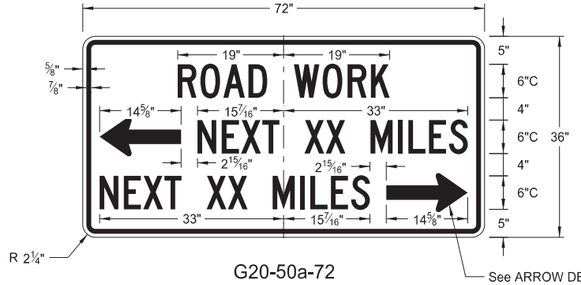


G20-1b-60
Legend: black (non-refl)
Background: orange



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

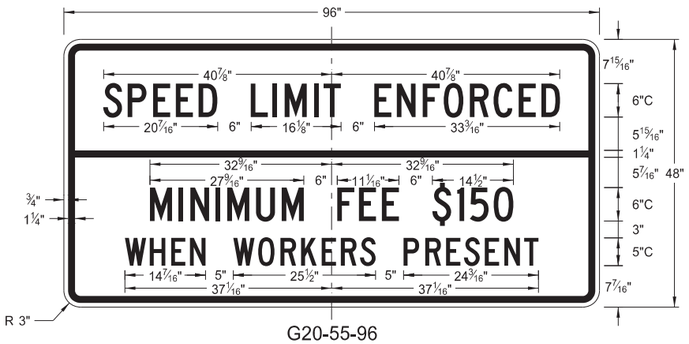
G20-4b-36
Legend: black (non-refl)
Background: orange



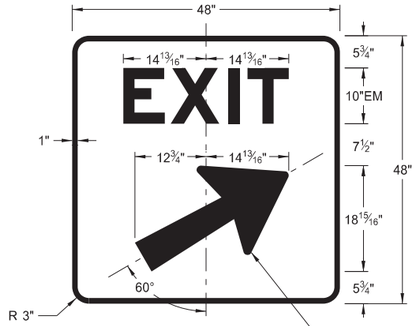
G20-50a-72
Legend: black (non-refl)
Background: orange
See ARROW DETAILS



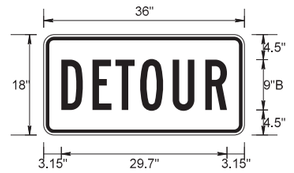
G20-52a-72
Legend: black (non-refl)
Background: orange
See ARROW DETAILS



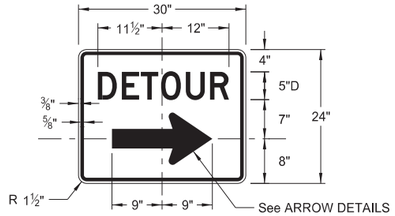
G20-55-96
Legend: black (non-refl)
Background: orange



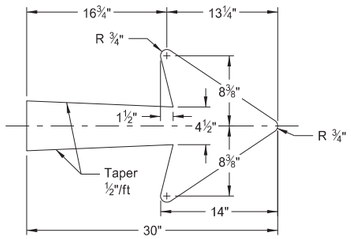
E5-1(L or R)-48
Legend: white
Background: green (orange optional)
See ARROW DETAILS



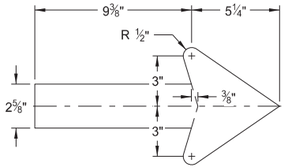
M4-8-36
Legend: black (non-refl)
Background: orange



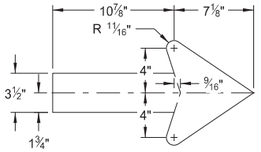
M4-9(L or R)-30 &
M4-9-30
Legend: black (non-refl)
Background: orange
See ARROW DETAILS



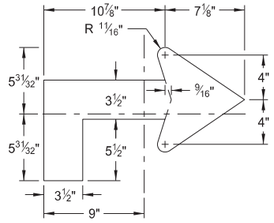
E5-1-48



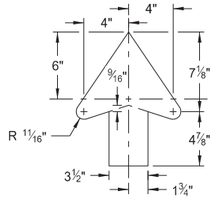
G20-50a-72
G20-52a-72



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



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



M4-9-30
Straight

ARROW DETAILS

NOTES:

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

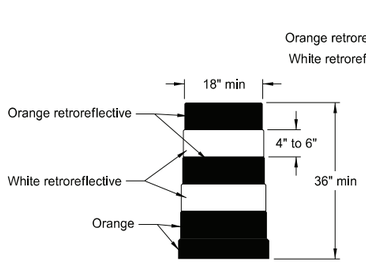
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE
08-17-17	Added sign & background color
10-03-19	New Design Engineer PE Stamp
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

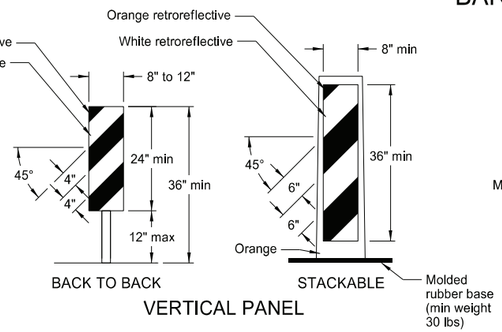
BARRICADE AND CHANNELIZING DEVICE DETAILS

D-704-13



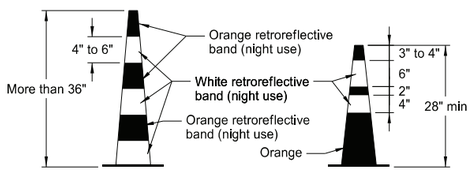
DELINEATOR DRUM

Provide horizontal, circumferential, alternating orange and white retroreflective stripes 4" to 6" wide for drum markings. Use a minimum of two orange and two white stripes with the top stripe being orange for each drum. Do not exceed 3" nonretroreflectorized spaces between the horizontal orange and white stripes. Avoid placement of stripes on drum ribs or indentations. Use closed top drums that will not allow collection of debris. Do not place ballast on the top of drum.



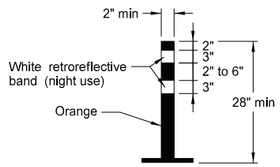
VERTICAL PANEL

Provide alternating orange and white retroreflective stripes, sloping downward in direction vehicular traffic is to pass. Place retroreflective sheeting on both sides of panel with 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, use a stripe width of 6 inches.



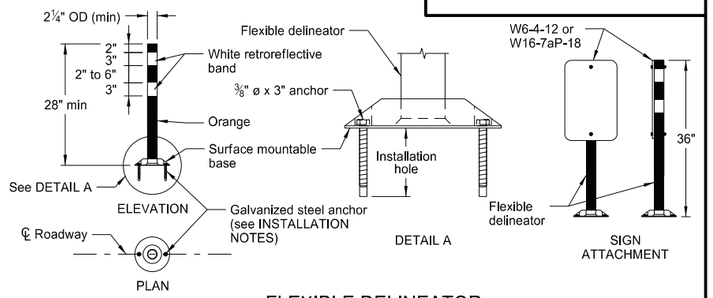
TRAFFIC CONE

Provide retroreflectorization of cones more than 36" in height by alternating orange and white retroreflective stripes. Use a minimum of two orange and two white stripes for each cone with the top stripe being orange. Use maximum 3" nonretroreflectorized space between the orange and white stripes.



TUBULAR MARKER

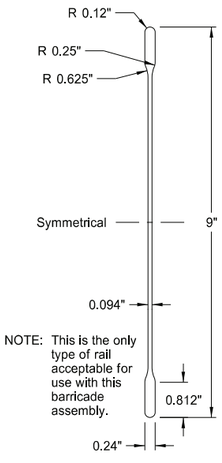
Provide retroreflectorization of tubular markers more than 42" in height by alternating four 4" to 6" wide orange and white stripes with the top stripe being orange.



FLEXIBLE DELINEATOR

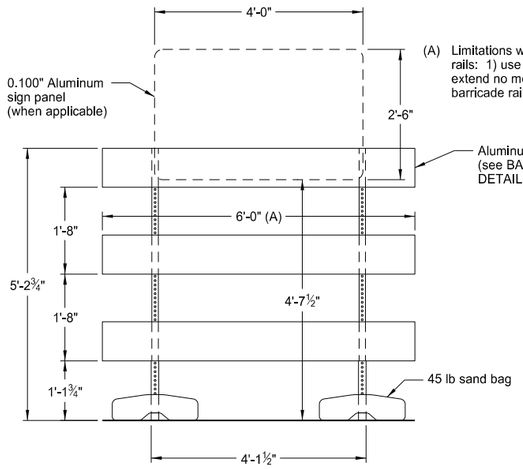
INSTALLATION NOTES:

1. Drill installation holes to diameter and depth 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, use an 8" x 8" butyl pad or hot melt butyl. Remove butyl as close as possible to pavement surface.



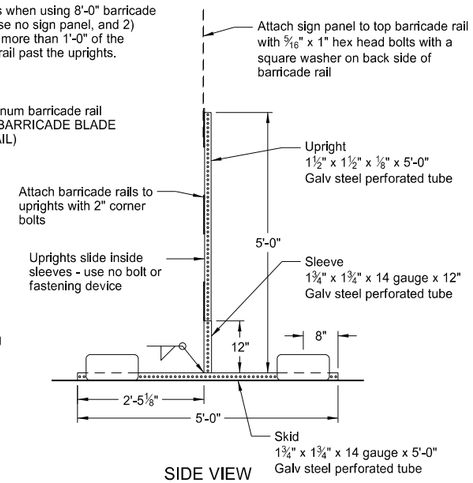
NOTE: This is the only type of rail acceptable for use with this barricade assembly.

BARRICADE BLADE DETAIL



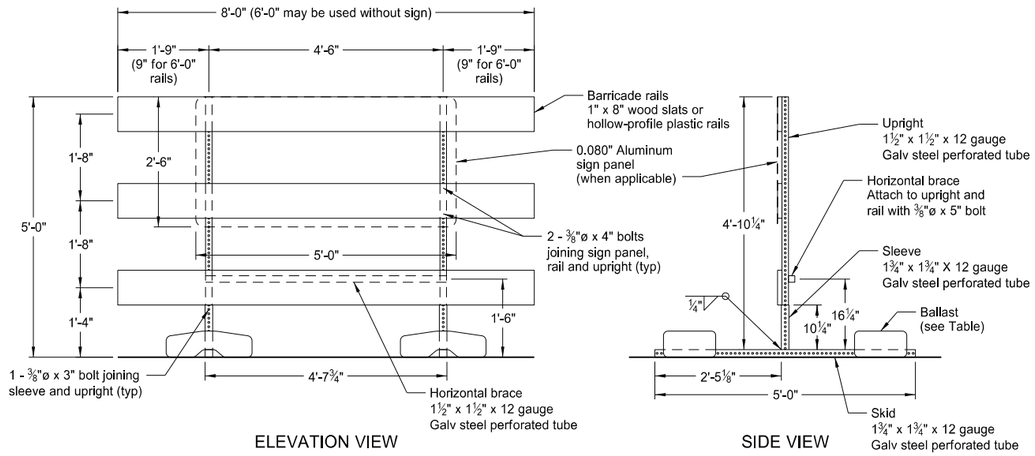
(A) Limitations when using 8'-0" barricade rails: 1) use no sign panel, and 2) extend no more than 1'-0" of the barricade rail past the uprights.

ELEVATION VIEW



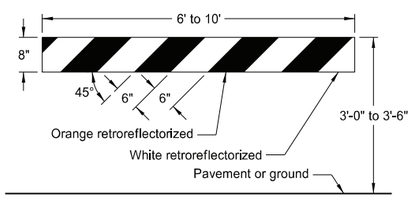
SIDE VIEW

BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)

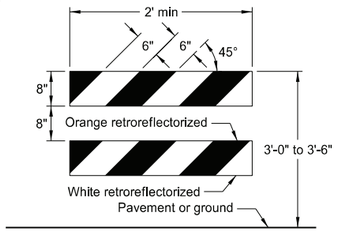


BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)

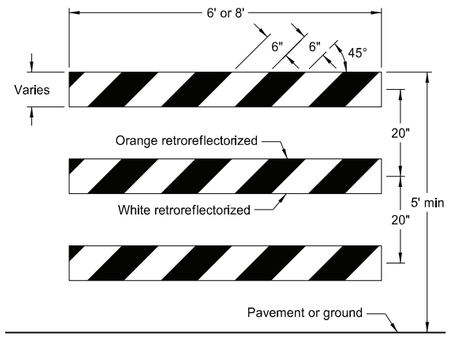
NOTE: For barricade markings use alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Place retroreflective sheeting on both sides of the rails with a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36", use a rail stripe width of 4".



TYPE I BARRICADE

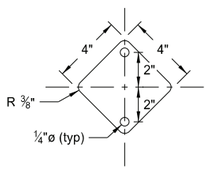


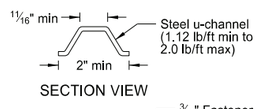
TYPE II BARRICADE

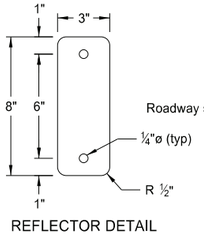


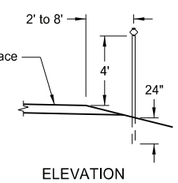
TYPE III BARRICADE

BARRICADE RAIL DETAILS









DELINEATORS

MINIMUM BALLAST
(For each side of barricade support)

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

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
9-27-17	Updated to active voice
11-01-19	Revised details for Flexible Delineator
8-01-24	Electronic Stamp/Signature

KIRK J. HOFFE
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

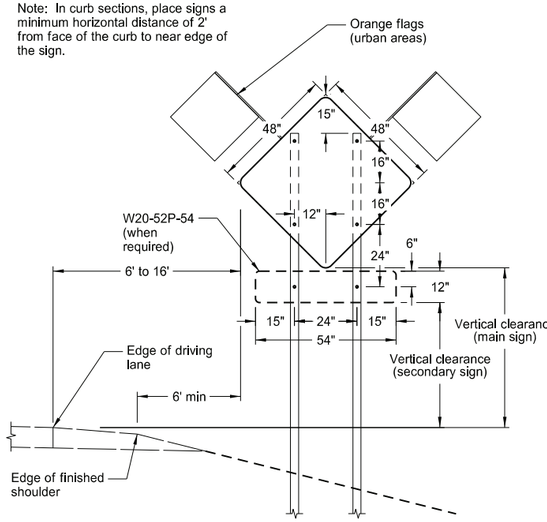
08/01/24

DocuSign Envelope ID: B6D1C72A-6E5E-4E5C-A02F-4D3D1C582775

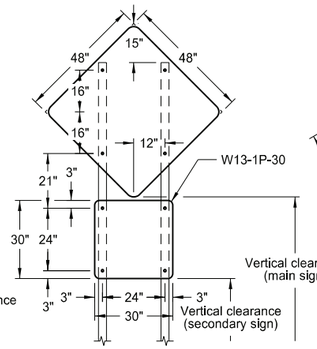
CONSTRUCTION SIGN PUNCHING AND MOUNTING DETAILS

D-704-14

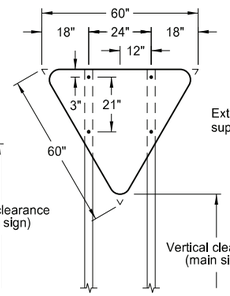
Note: In curb sections, place signs a minimum horizontal distance of 2' from face of the curb to near edge of the sign.



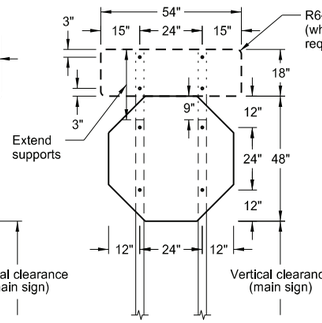
TYPICAL SECTION
(48" x 48" diamond warning sign shown)



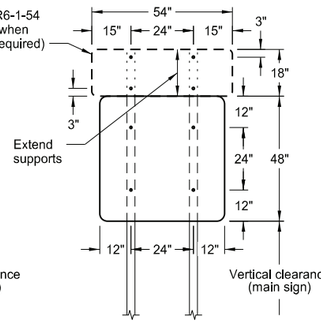
48" x 48" DIAMOND SIGN
(with 30" x 30" secondary sign)



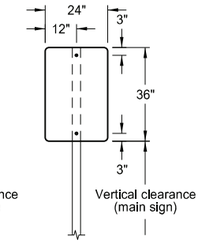
R1-2-60 - YIELD SIGN



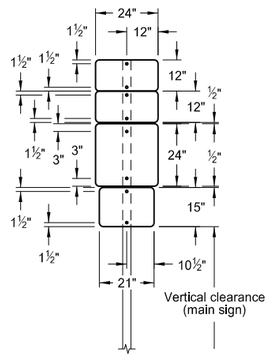
R1-1-48 - STOP SIGN
(with R6-1-54 sign as required)



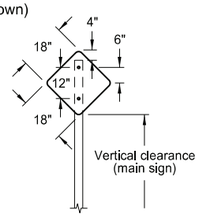
48" x 48" SIGN
(with R6-1-54 sign as required)



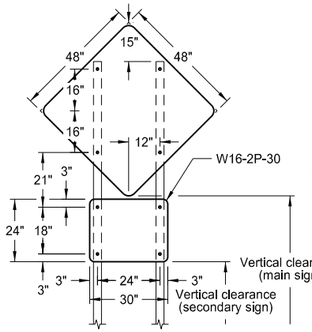
24" x 36" SIGN



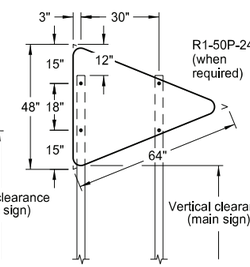
24" x 24"
ROUTE MARKER
ASSEMBLY



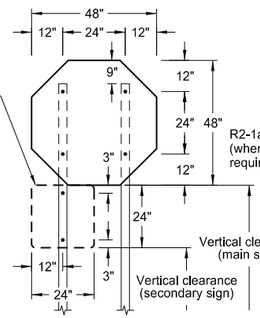
18" x 18"
DIAMOND SIGN



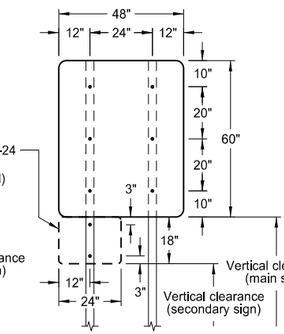
48" x 48" DIAMOND SIGN
(with 30" x 24" secondary sign)



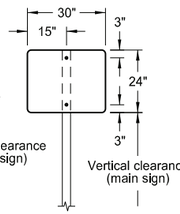
W14-3-64 - PENNANT SIGN



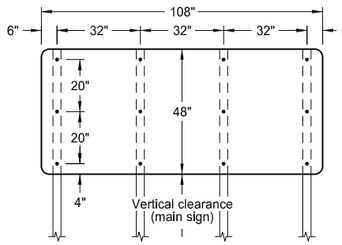
R1-1-48 - STOP SIGN
(with R1-50P-24 sign as required)



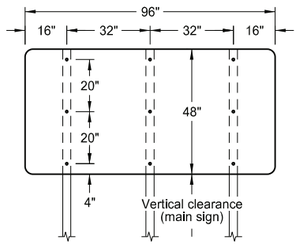
48" x 48" SIGN
(with R2-1aP-24 sign as required)



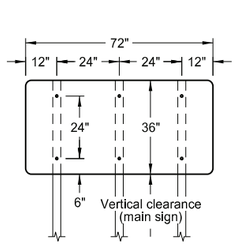
30" x 24" SIGN



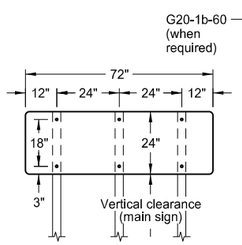
108" x 48" SIGN



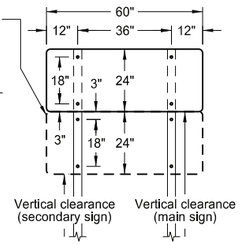
96" x 48" SIGN



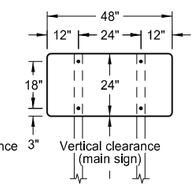
72" x 36" SIGN



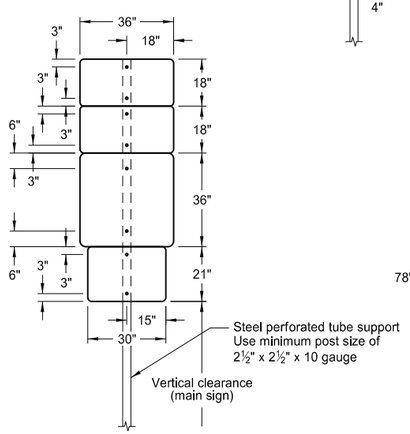
72" x 24" SIGN



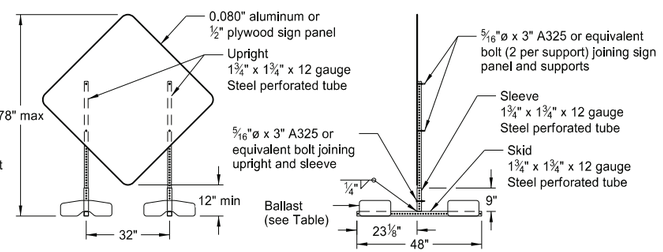
60" x 24" SIGN



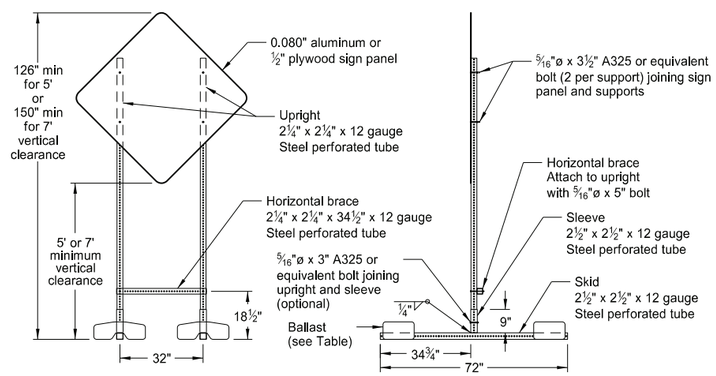
48" x 24" SIGN



36" x 36"
ROUTE MARKER
ASSEMBLY



PORTABLE SIGN SUPPORT
LOW-MOUNTING HEIGHT



PORTABLE SIGN SUPPORT
HIGH-MOUNTING HEIGHT

NOTES:

1. Sign Supports: Galvanize or paint supports. 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, minimum post size for assemblies containing a secondary sign is 3.0 lb/ft. Post sizes based on a wind speed of 55 MPH.

   Place signs over 50 square feet on 2½" x 2½" perforated tube supports as a minimum.

   Do not attach guy wires to sign supports. Attach wind beams behind sign panels when used with u-posts.

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

3. Alternate Messages: Install and remove alternate message signs on reflectorized plate (without borders) as required. (i.e. "Left" and "Right" message on 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 stated above.

   Provide a minimum clearance of 7'-0" from the ground at the post for signs with an area exceeding 50 square feet.

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

   Use of low-mounting height (minimum 12" vertical clearance) portable signs for 5 days or less, is allowed 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. Use of R9-8 through R9-11a series, W1-6 through W1-8 series, M4-10, and E5-1 is allowed for longer than 5 days.

   Restrict signs mounted on portable sign supports shown in the LOW-MOUNTING HEIGHT and HIGH-MOUNTING HEIGHT details to 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. Place sandbags at or near the ends of skids.

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

10-4-13

REVISIONS

DATE	CHANGE
11-14-13	Revised Note 6
9-27-17	Updated to active voice
11-01-19	Revised 60"x24" sign detail
8-01-24	Electronic Stamp/Signature

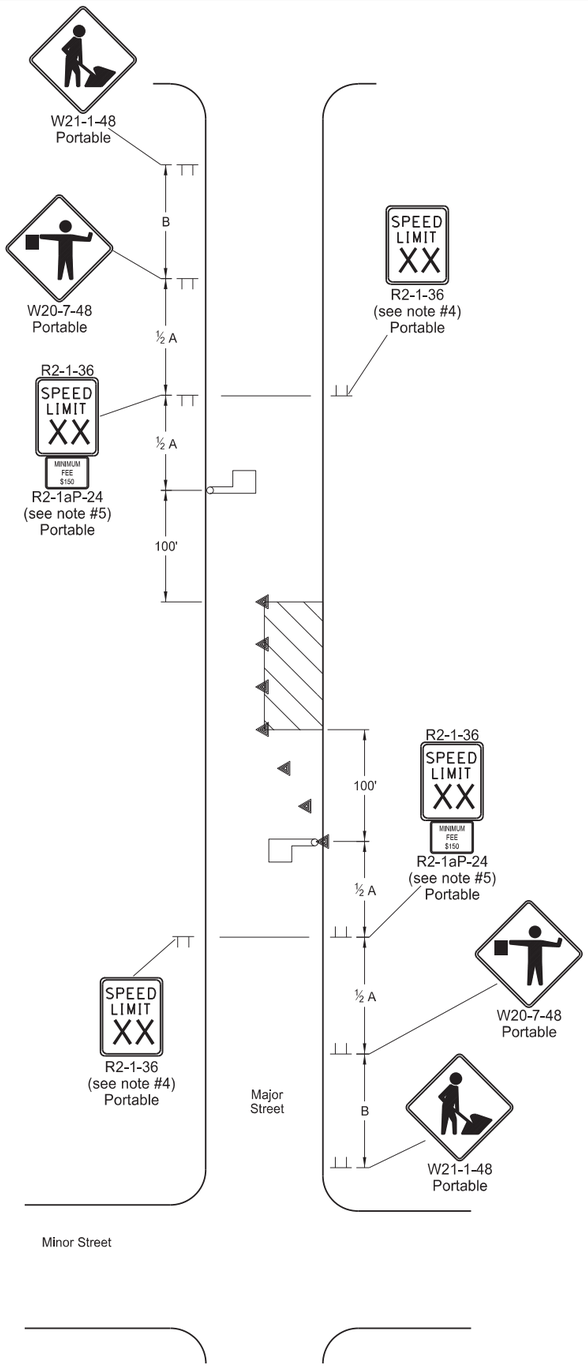
KIRK J. HOFFA
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/01/24

Docusign Envelope ID: 2F5C9714-A0E1-42BB-B36B-42204844BFCB

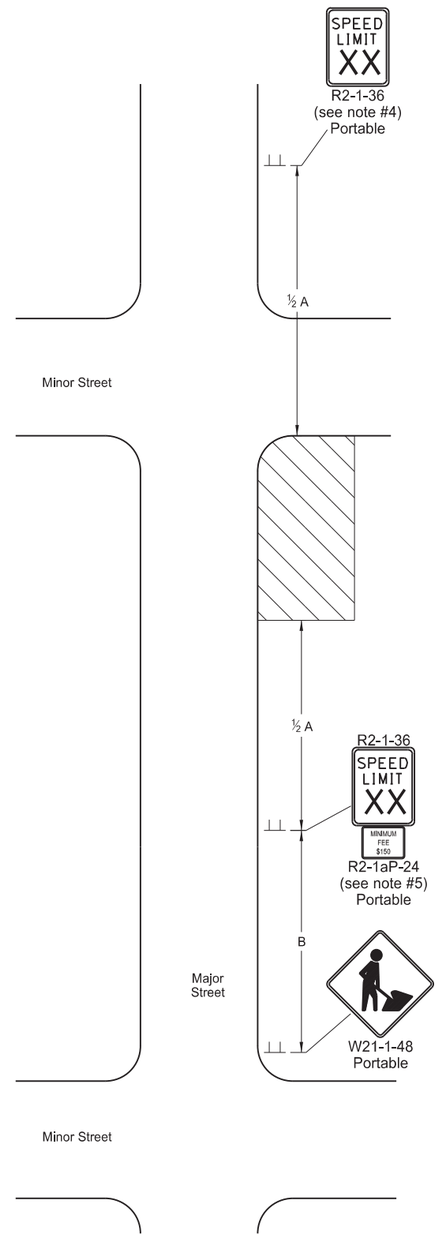
LANE CLOSURES ON URBAN STREETS LAYOUTS

D-704-25



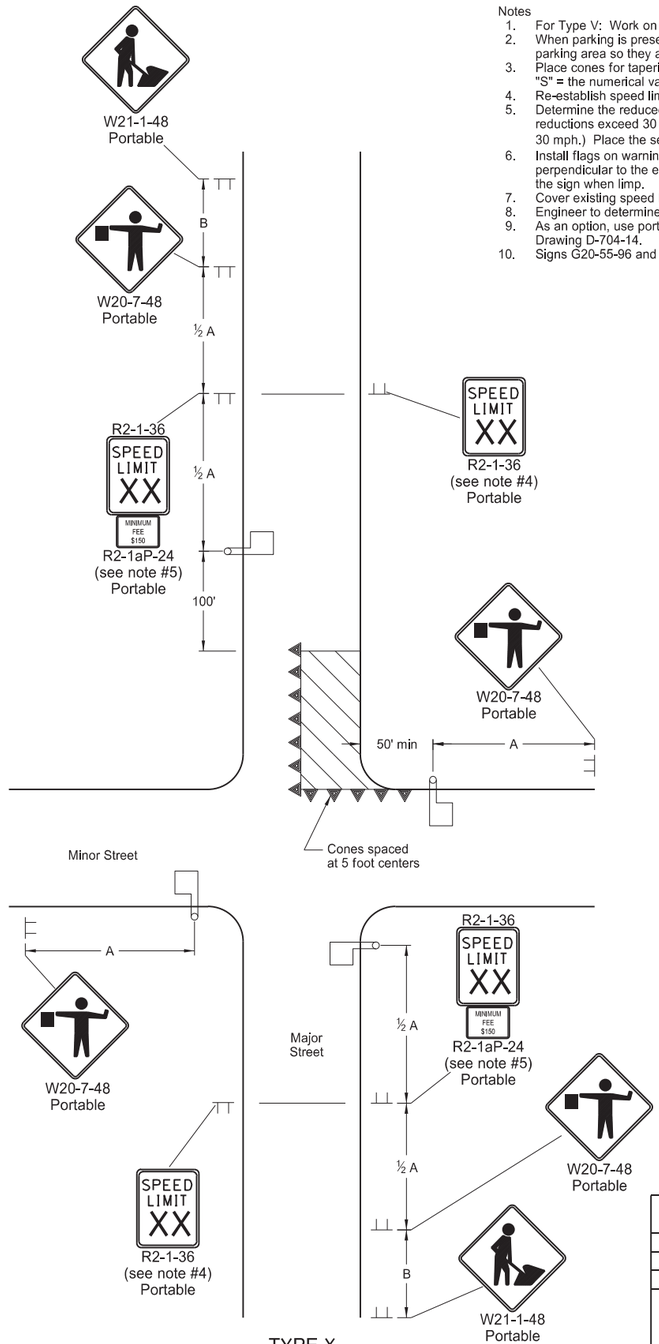
TYPE V
LANE CLOSURE ON URBAN STREET

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 Drawing D-704-14.
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 80 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

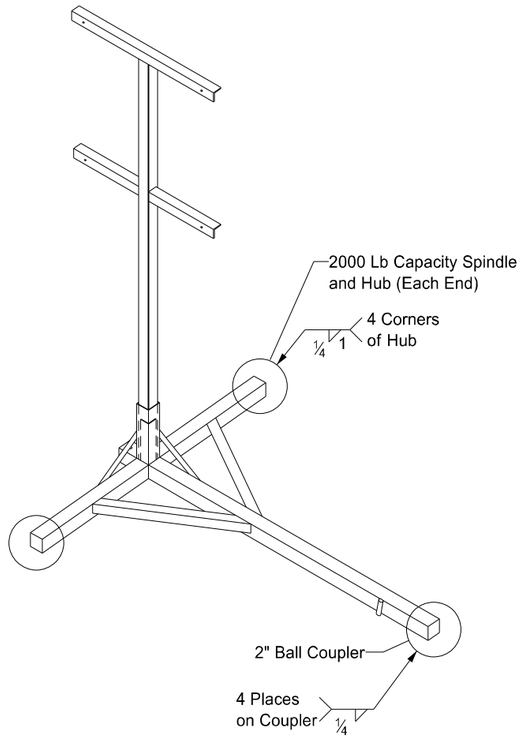
REVISIONS

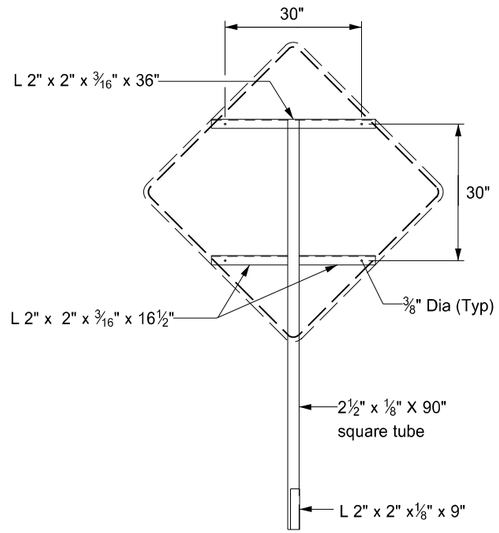
DATE	CHANGE
08-17-17	Updated notes & removed signs
11-01-19	Revised note & added Min Fee sign
08-01-24	Electronic Stamp/Signature
06-30-25	Legislative Changes

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
06/30/25
ENGINEER
NORTH DAKOTA

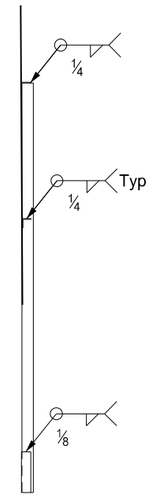
PORTABLE SIGN SUPPORT ASSEMBLY

D-704-50





FRONT

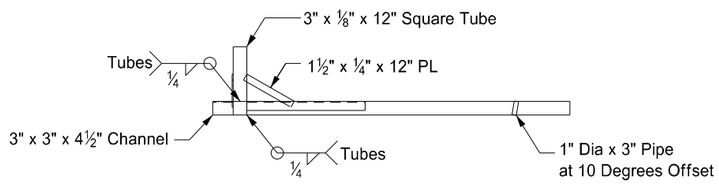


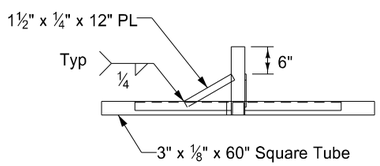
RIGHT

SIGN SUPPORT

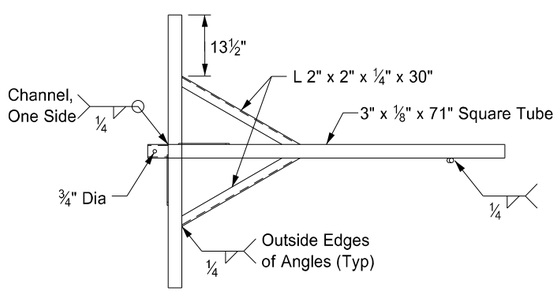
Notes:

1. Maximum 250 pound weight of assembly.
2. Use a 14" wheel and tire.
3. Use no automotive and equipment axle assemblies for trailer-mounted sign supports.
4. Other NCHRP 350 or MASH crash tested assemblies are acceptable.





RIGHT



TOP

TRAILER

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-23-10	
REVISIONS	
DATE	CHANGE
12/02/2020	Updated Note to active voice.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

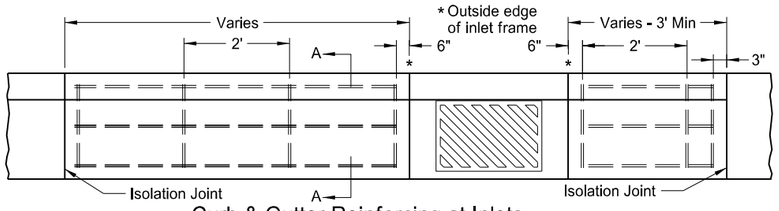
Kirk J Hoff

12 02 2020

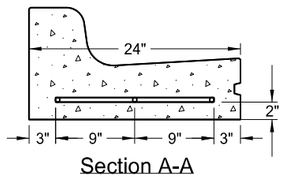
DocuSign Envelope ID: 8071F1C0-4FD3-4297-BAED-6F9FA4C58F28

Curb & Gutter and Valley Gutter

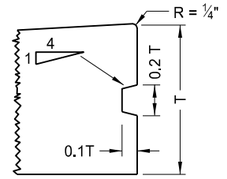
D-748-1



Curb & Gutter Reinforcing at Inlets



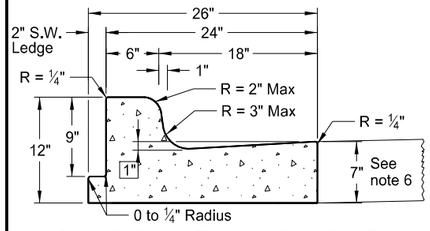
Section A-A



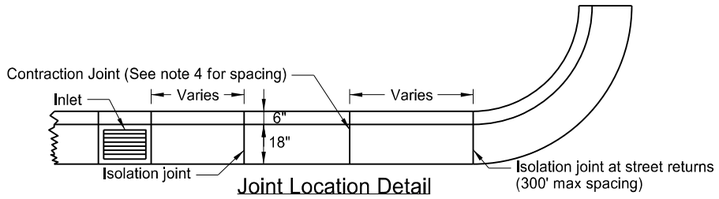
Keyway Detail for Curb & Gutter

(To be used with PCC Pavement and Drives)

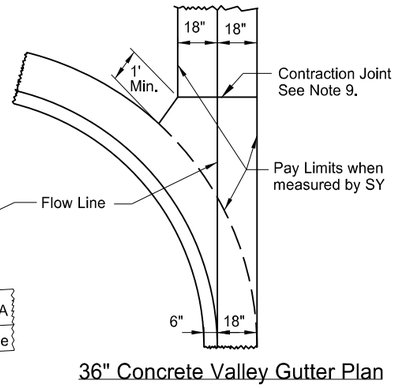
T= Thickness of pavement unless otherwise noted on plans.



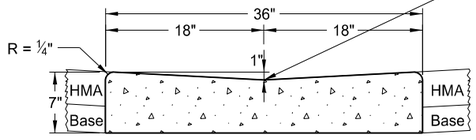
Curb & Gutter Type 1 (Sec. A & B)
Adjacent to Concrete Sidewalk, Median, or Parking Lot. (Sec. A shown. See Sec B for additional details.)



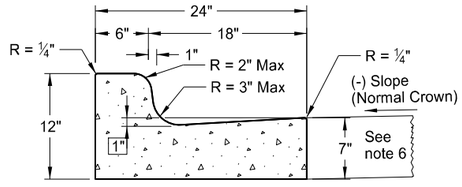
Joint Location Detail



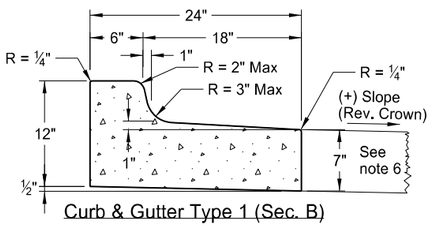
36" Concrete Valley Gutter Plan



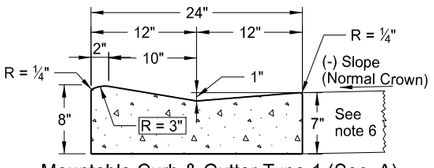
36" Concrete Valley Gutter Detail



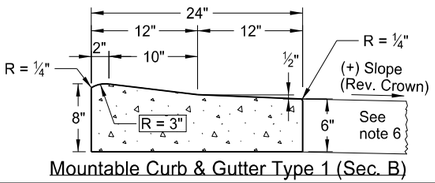
Curb & Gutter Type 1 (Sec. A)



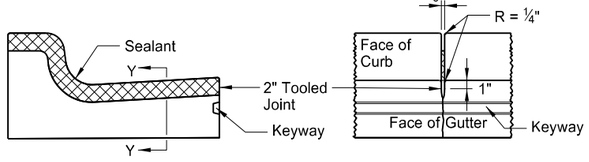
Curb & Gutter Type 1 (Sec. B)



Mountable Curb & Gutter Type 1 (Sec. A)



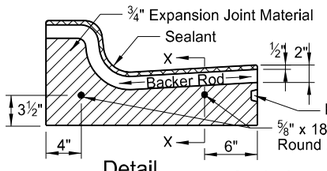
Mountable Curb & Gutter Type 1 (Sec. B)



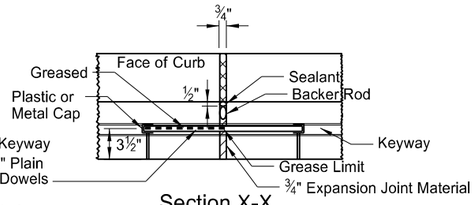
Detail
(10' Max Spacing)

Section Y-Y

Contraction Joint

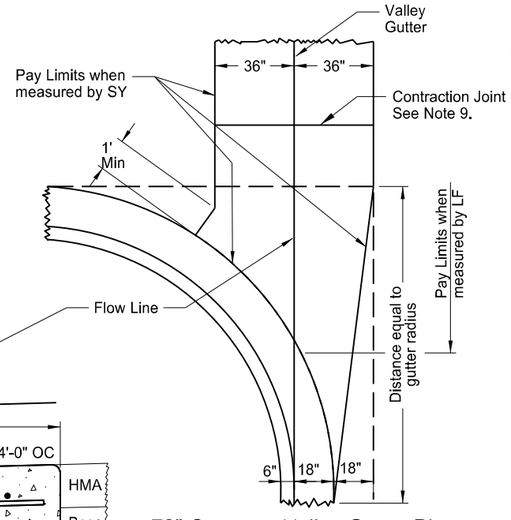


Detail

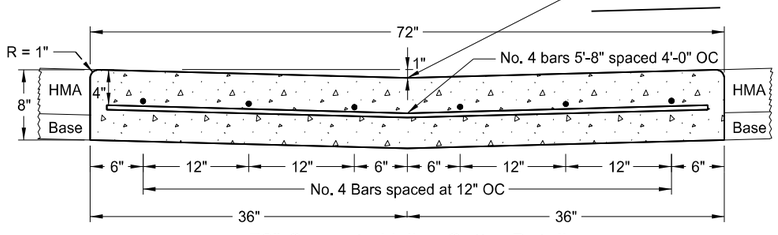


Section X-X

Isolation Joint



72" Concrete Valley Gutter Plan



72" Concrete Valley Gutter Detail

NOTES:

1. Use Curb and Gutter Type 1 (Sec. A & B). Use section "A" with (-) pavement slopes and section "B" with (+) pavement slopes.
2. Contraction Joints: Tool the Curb & Gutter 2" as shown on the contraction joint details.
3. Isolation Joints: Use ¾" expansion joint material for isolation joints. Form the backer rod and joint sealant opening with a pre-cut piece of wood or other material approved by the engineer. Dowel supports are not required on the second pour at a cold joint. Install plastic or metal caps and greased dowels in the cold joint for the second pour.
4. Joint Spacing: For hot mix asphalt pavements use a 10' max joint spacing for the curb and gutter with panels on each side of the inlets. For concrete pavements match the joint spacing for the curb and gutter to the pavement joint on PCC Pavements (approximately 15' spacing.)
5. Joint sealing: For contraction joint, use joint sealant that conforms to section 826.02B. Use sealant for expansion joints specified in note 3 above. Tool and install sealant in accordance with the manufacturer's recommendations.
6. Curb & Gutter-Pavement Interface: For hot mix asphalt pavement use gutter depth shown. For PCC pavements, either match gutter depth to adjacent pavement depth or construct gutter depth shown.
7. Tie curb and gutter to abutting PCC pavement with No. 4 bars, 2'-0" in length, spaced at 3'-9" centers for 15' joint spacing (maximum spacing of 4' centers).
8. On street returns and other locations where new curb and gutter ends and does not abut existing curb and gutter, taper the last two (2) feet of the curb from 6" in height to 0". Install a 1/2" premolded full depth isolation joint (the same shape as the curb and gutter just ahead of the taper) with an 18" plain round bar across the joint.
9. Valley Gutter Joints: Form, saw, or score ⅛" min. to ⅜" max. width contraction joints (a minimum 2" depth) at approx 10' intervals. Seal the joints with hot poured elastic type joint sealer (Section 826.02A.2 of the Standard Specifications.) Include all costs for the joint and sealant in the price bid for Valley Gutter.
10. Reinforcing at Inlets: Use #4 deformed reinforcing bars without splices. Include all costs for reinforcing bars at inlets (even inlets located on radii) in the price bid for "Curb & Gutter - Type 1" or "Curb & Gutter Mountable - Type 1." Extend reinforcement to the second joint (with rebar placed through the first joint) in cases where the 3' minimum panel length can't be obtained.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

8-7-2013

REVISIONS

DATE	CHANGE
10-17-17	Updated to active voice.
08-27-19	New Design Engr PE Stamp.
10-30-24	Revised bar size & notes.

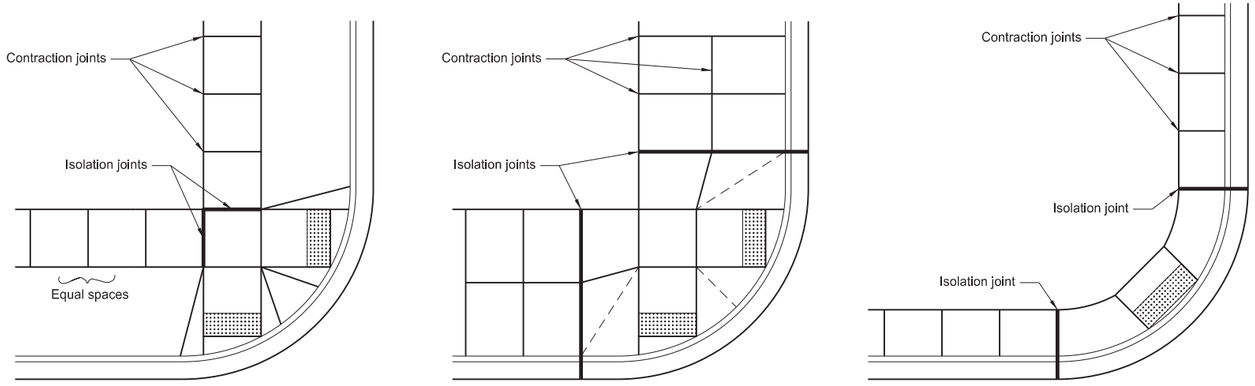
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

10/30/24

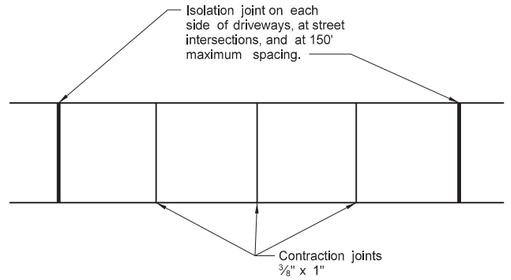
DocuSign Envelope ID: C174DEDF-0A0D-4A6A-B116-79082F516368

SIDEWALK

D-750-2



Typical Joint Layouts



NOTES:

1. Curb ramp and detectable warning panel layouts for informational purposes only. See Standard Drawing D-750-3 for curb ramp and detectable warning panel details.
2. Joint Spacing: Vary transverse contraction joint spacing from 4' to 6' to create approximate square panels.

   Use longitudinal contraction joints when sidewalk width is 8' or greater, and space at half the sidewalk width.

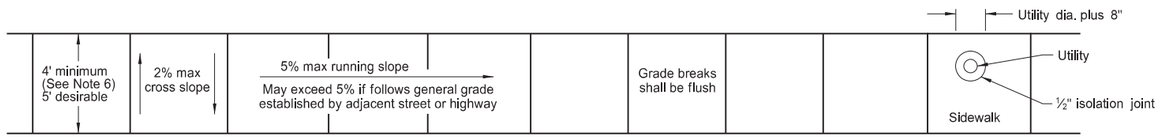
   Saw or groove contraction joints to a minimum depth of 1/3 the depth of the concrete.

   When sidewalk is adjacent to curb & gutter, vary the sidewalk joint spacing to match curb & gutter joints.

   Use isolation joints between separate concrete pours, or between old and new concrete.
3. Include all costs for labor, equipment, and material necessary to construct contraction and isolation joints in the price bid for sidewalk concrete.
4. Use 4" sidewalk concrete thickness unless otherwise specified.
5. Use 4" base material thickness unless otherwise specified. Include all costs for labor and materials necessary to place the base material in the price bid for "Salvage Base Course" or "Aggregate Base Course CL 5."

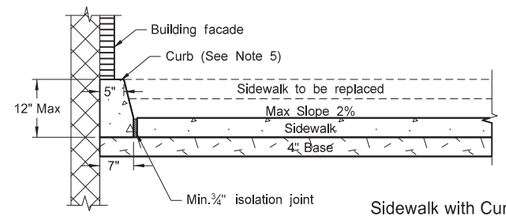
   Modify existing ground slope with landscaping as needed. If not possible, such as adjacent buildings, use a vertical curb as shown in the detail below. The Engineer will measure curb at the unit price bid for "Curb - Type I" per lineal foot.
6. Sidewalk Width & Grade: Provide a continuous 4' min clear width pedestrian access route with max 2% concrete cross slope, excluding flares. The width of the curb cannot be counted as part of the pedestrian access route.

   When clear width of pedestrian access routes is less than 5.0', provide passing spaces at a maximum of 200' with a minimum size of 5.0' by 5.0'.

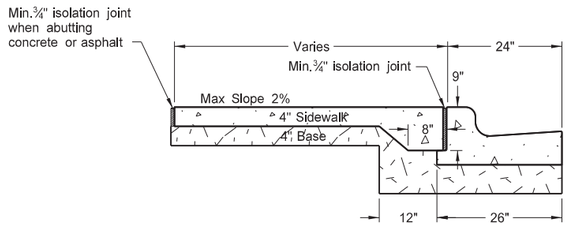


Sidewalk Width and Grade

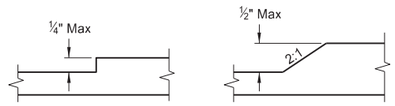
Utility Blockout



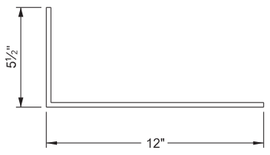
Sidewalk with Curb Detail
(Building face application)



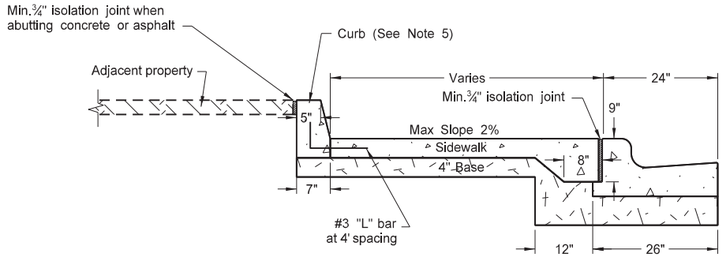
Sidewalk Detail
(Installed adjacent to curb and gutter)



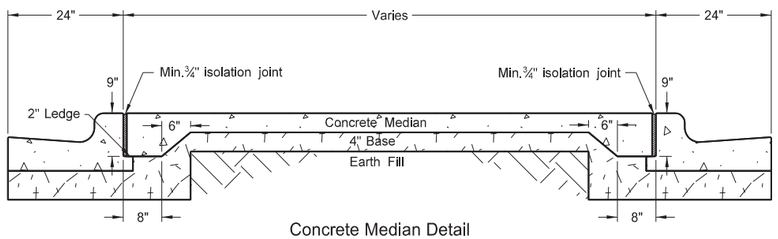
Vertical Discontinuities
(As needed for utility covers, vaults, grating, etc..)



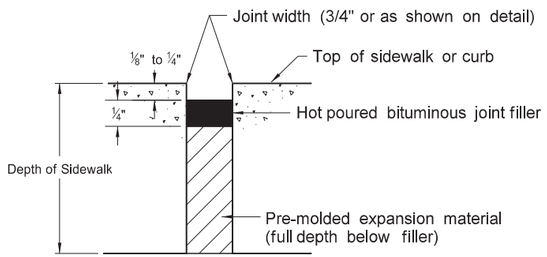
"L"Bar Detail
#3 Bar



Sidewalk with Curb Detail
(Adjacent property application)



Concrete Median Detail



Typical Isolation Joint Seal
(longitudinal and transverse)

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-26-13	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice.
09-05-18	Added sidewalk details for width & grade & passing lane requirements.
08-27-19	New Design Engineer PE Stamp.
08-09-24	Electronic Stamp/Signature.

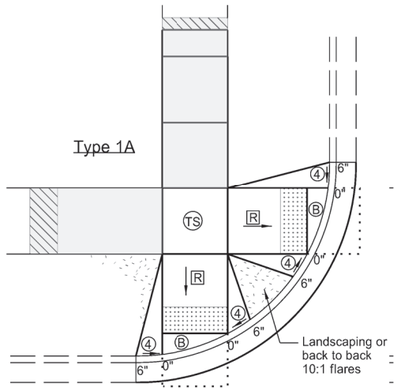
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/09/24

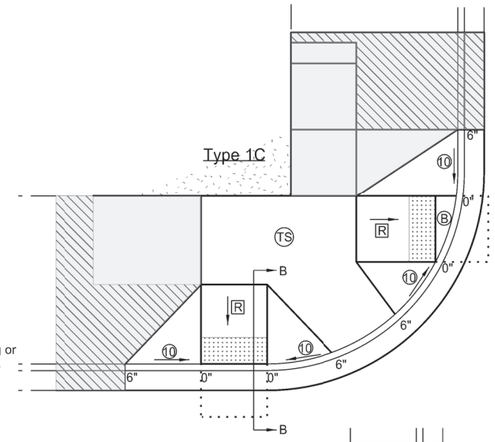
CURB RAMP RETROFIT DETAILS

D-750-3

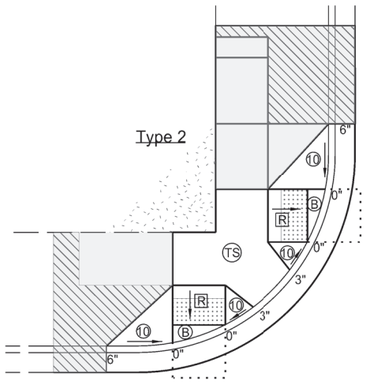
Type 1A



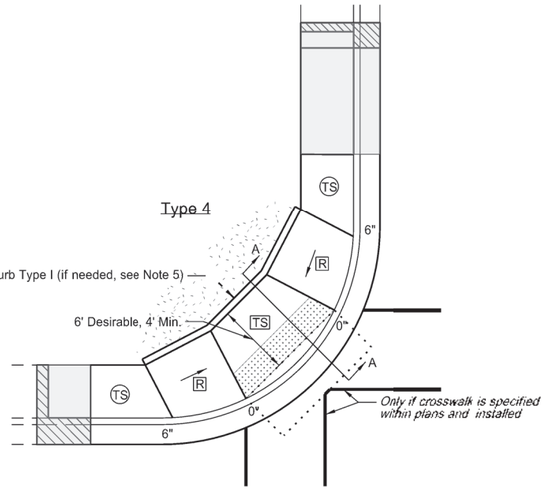
Type 1C



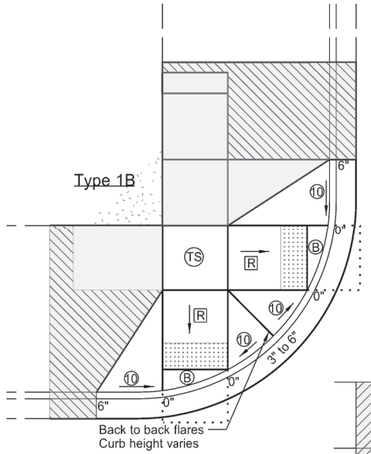
Type 2



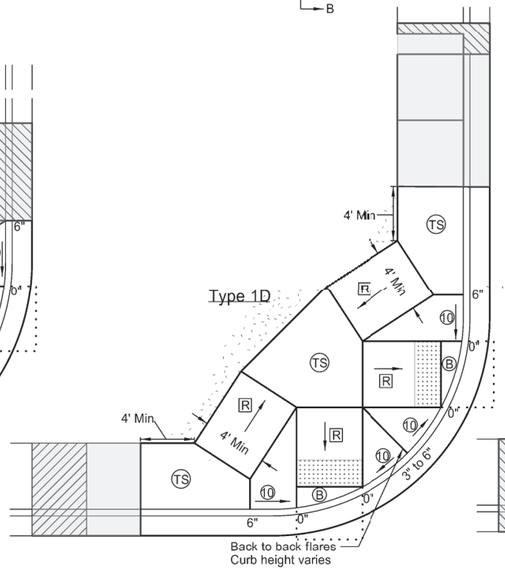
Type 4



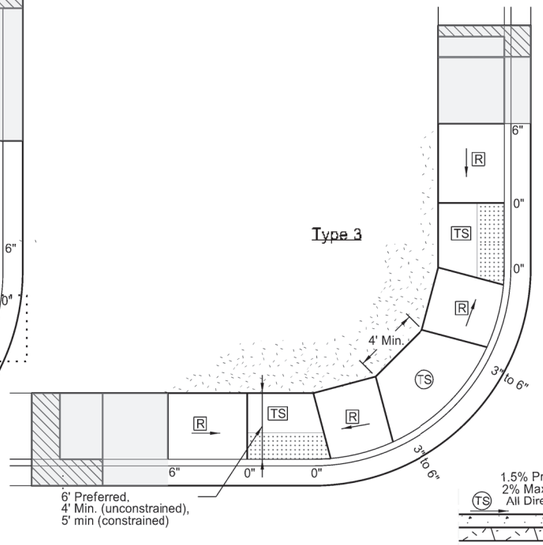
Type 1B



Type 1D



Type 3



5½"
12"
#3 "L" Bar

Curb Type I (if needed, see Note 5)
L Bar (48" spacing)
4" Sidewalk Concrete
Detectable Warning Panel
#3 x 12" Bar (18" spacing)
5% Max Counter Slope
4" Base
12"
4' Min

Section A-A

1.5% Preferred 2% Max Slope All Directions
5% to 8.3% Max 7.5% Preferred Max
4" Sidewalk Concrete
Detectable Warning Panel
#3 x 12" Bar (18" spacing)
5% Max Counter Slope
4" Base
4' Min
15' Max
4' Min
12"

Section B-B

NOTES:

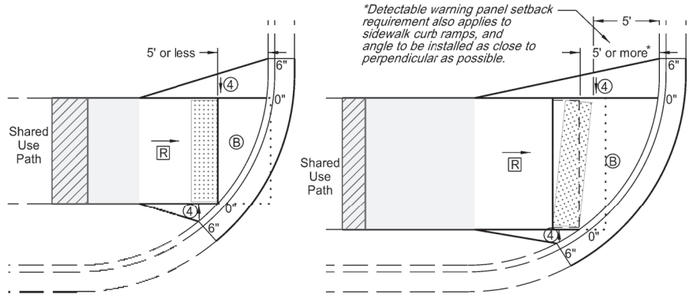
1. Ramp width is the useable portion of the ramp, excluding flares. Match curb ramp width to Existing Pedestrian Facility (EPF) width (4' minimum or 5' for island ramps.) Match ramp width to existing shared use path width. Maximum ramp length is 15'.
2. Provide turning space with desirable 5' x 5' size or larger and minimum 4' x 4' unconstrained size, for any change of direction. Provide landing 5' long x width of path at the bottom and top of parallel ramps and at the top of perpendicular ramps. Turning spaces and Landings may overlap.
3. Match detectable warning panel width to ramp width. Radial panels are allowed. Place detectable warning panel within the lower turning space.
4. Provide a continuous 4' minimum width EPF with 1.5% preferred cross slope and max 2% constructed cross slope.
5. Modify existing ground slope with landscaping, as needed. If not possible, use a vertical curb as detailed on Standard D-750-2. The Engineer will measure curb at the unit price bid for "Curb - Type I" per lineal foot.
6. Islands: If the profile of the island curb ramp is 2% or less, provide a minimum distance of 2' between warning panels. If the profile of the island curb ramp is steeper than 2%, provide a turning space between the ramps.
7. Provide generally planar vertical alignments. Provide grade breaks, perpendicular to the direction of the pedestrian travel, at the top and bottom of curb ramps (1.5% preferred, 2% max constructed cross slope).
8. See Curb Ramp Retrofit Transition Details Standard D-750-4 for additional information. Also See PROWAG for full compliance in the curb ramp area.
9. Grade transitions shall be flush.

LEGEND:

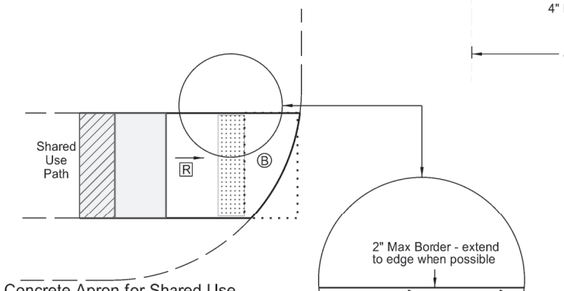
- : Detectable Warning Panel.
- : Landscaping.
- : Transitional tie-in to nearest joint, if needed.
- : Curb Ramp Retrofit Transitional Area (See Standard Drawing D750-4)
- : 4' long x width of EPF or 4' minimum Clear space outside traffic lanes of travel. 1.5% preferred cross slope 2% maximum cross slope 4.7% preferred running and counter slope 5% maximum running and counter slope
- TS : Turning Space Use at top of ramp or when changing directions. 1.5% preferred slope (2% maximum) all directions.
- R : Preferred Ramp Grade = 5% to 7.5%. Maximum Constructed Grade = 8.3%. Preferred Cross Slope = 1.5%. Maximum Constructed Cross Slope = 2%.
- B : 1.5% preferred cross slope 2% maximum constructed cross slope running slope consistent with the EPF 4.7% preferred max counter slope 5.0% max constructed counter slope
- 10 : 10:1 maximum constructed slope.
- 4 : 4:1 maximum constructed slope.

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

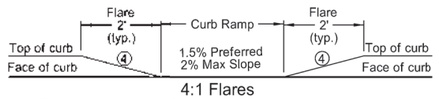
*Detectable warning panel setback requirement also applies to sidewalk curb ramps, and angle to be installed as close to perpendicular as possible.



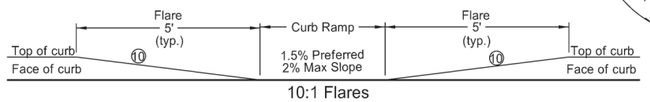
Concrete Apron for Shared Use Paths with Curb and Gutter



Concrete Apron for Shared Use Paths without Curb and Gutter

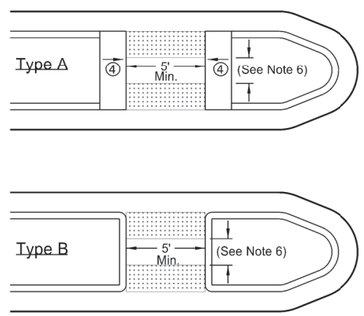


4:1 Flares
(To be used when flare is adjacent to landscaping)



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

Median Refuge Islands (Cut-Through)



NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

11-26-13

REVISIONS

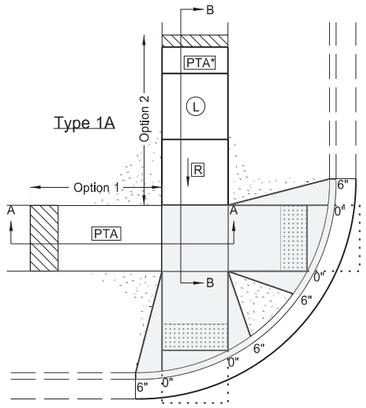
DATE	CHANGE
10-17-17	Updated to active voice.
09-05-18	Revised Notes, Revision for Turning Space, Added Passing Space Requirements, Turned Detectable Warning Panel
03-15-21	Slope & other clarifications.
05-19-21	Separate Curb Ramp Transition Area from Curb Ramp area

KIRK J. HOFF
REGISTERED
Kirk J Hoff
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA
05 19 2021

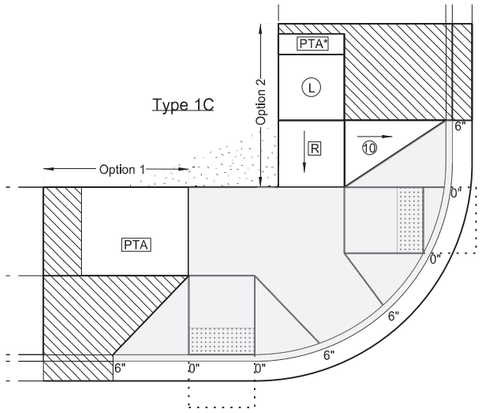
CURB RAMP RETROFIT TRANSITIONAL AREA DETAILS

D-750-4

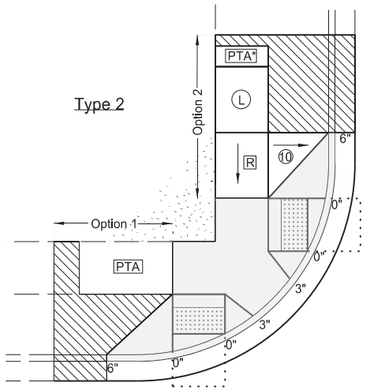
Type 1A



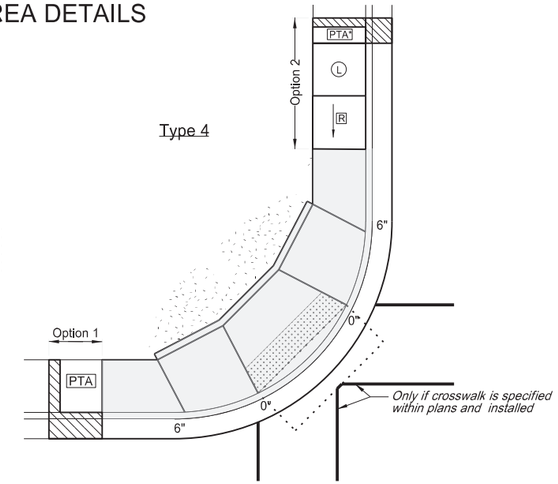
Type 1C



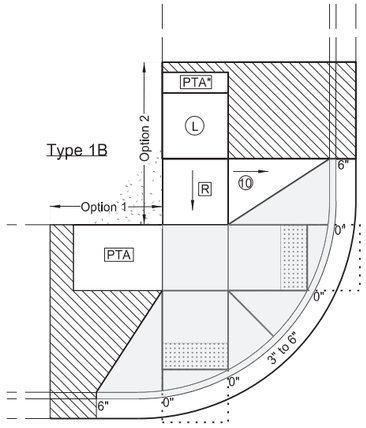
Type 2



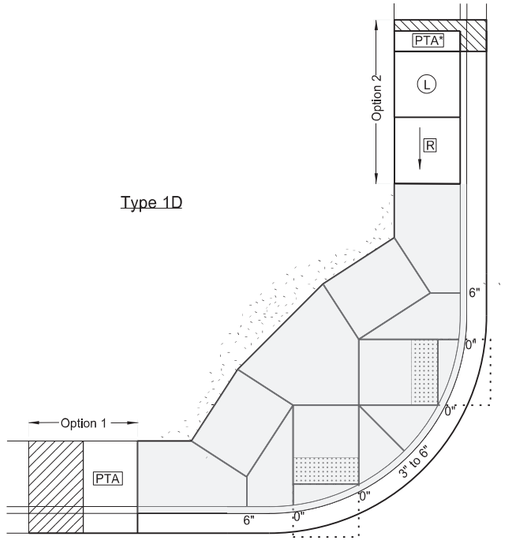
Type 4



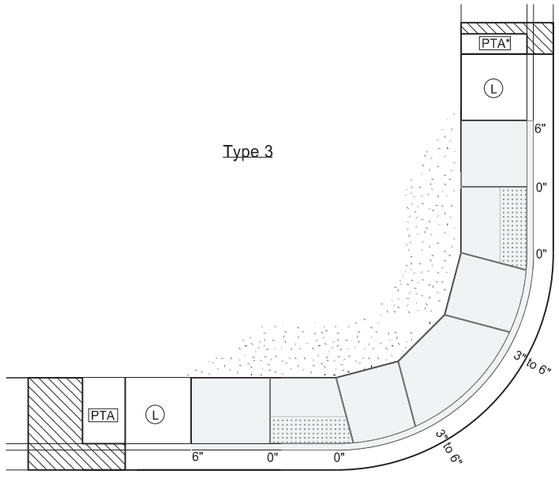
Type 1B

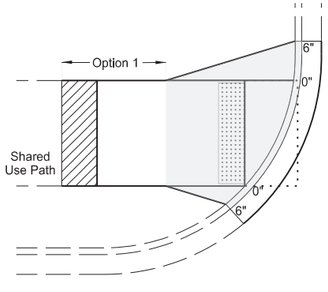


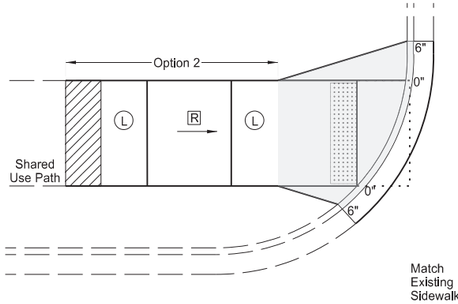
Type 1D



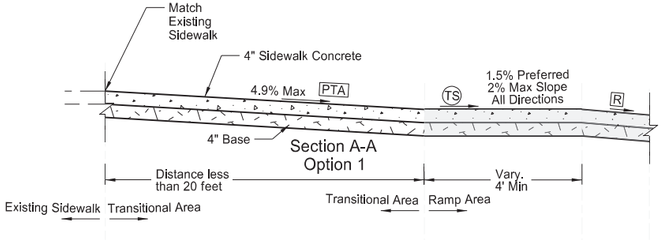
Type 3

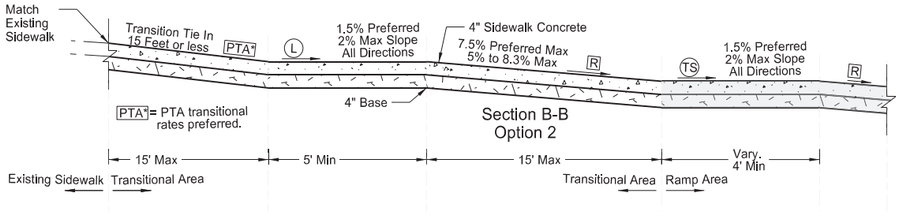






Transition Areas for
Shared Use Paths





NOTES:

1. Curb Ramp Transitional Areas are to transition from the Curb Ramp area into the Existing Pedestrian Facility (EPF). Each layout shows example transitions. Use any combination for transitions from the Ramp Area into the EPF that allows for similar or gentler slopes to that of the existing condition, yet transitions in the shortest distance possible. In some cases, if grades allow, the Ramp area can immediately transition into the EPF and no transitional area is needed.
2. Option 1: Use this transition when existing running slope grades are less than 5%. Transition from the ramp area to the EPF using the Pedestrian Access Transition Area (PTA) transition rates and in less than 20 feet.
3. Option 2: Use this transition when existing running slopes are greater than 5% and option 1 is not able to be met.

   Add a ramp and a landing immediately after the ramp area. Then transition from the compliant landing into the EPF using the PTA rates (preferred), or in less than 15 feet (which ever is shorter).
4. Transitional Areas for Shared Use Paths can be concrete or asphalt.
5. See Curb Ramp Retrofit Details Standard D-750-3 for additional information.

LEGEND:

- : Detectable Warning Panel.
- : Landscaping.
- : Transitional tie-in to nearest joint, if needed.
- : Curb Ramp Retrofit Area (See Standard Drawing D750-3)
- : 4' long x width of EPF or 4' minimum Clear space outside traffic lanes of travel.
  1.5% preferred cross slope
  2% maximum cross slope
  4.7% preferred running slope
  5% maximum running slope
- PTA : Pedestrian Access Transition Area
  Running Slope less than 4.9%.
  Transition Cross Section at 1/2 percent per foot from the from Ramp Area to EPF.
- (L) (TS) : Turning Space/Landing
  Use at top of ramp or when changing directions.
  1.5% preferred slope (2% maximum) all directions.
- R :Preferred Ramp Grade = 5% to 7.5%.
  Maximum Constructed Grade = 8.3%.
  Preferred Cross Slope = 1.5%.
  Maximum Constructed Cross Slope = 2%
  Maximum Length = 15 feet
- (10) : 10:1 maximum constructed slope.
- (4) : 4:1 maximum constructed slope.

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

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
05-19-21	
REVISIONS	
DATE	CHANGE

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA
05 19 2021

DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

PERFORATED TUBE ASSEMBLY DETAILS

D-754-23

Notes:

1. Curbed Roadways: Use a 3' clearance from face of the curb except where right of way or sidewalk width is limited; Use a minimum 2' clearance. Increase the horizontal clearance if required to maintain a minimum sidewalk clear width of 4' from the sign support, not including any attached curb.

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

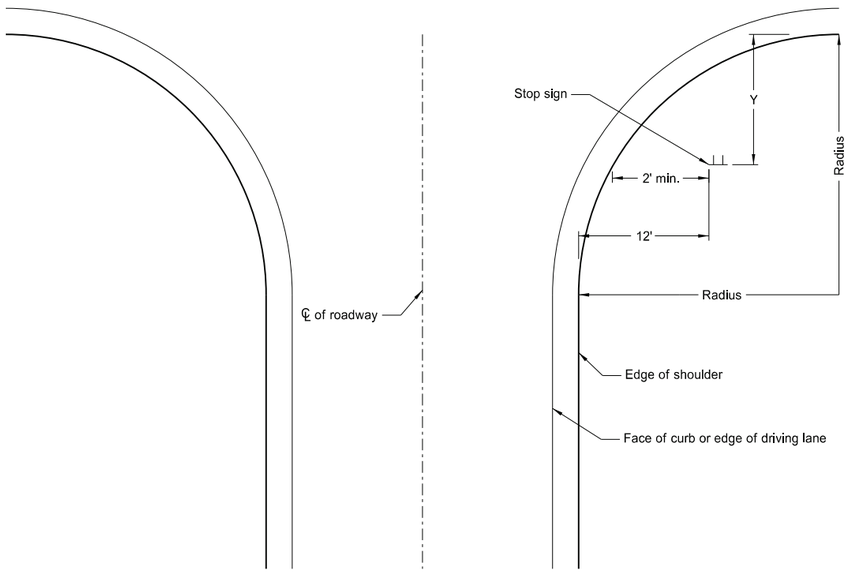
   Install signs on expressways a minimum height of 7'.

   Install adopt-a-highway signs on Freeways at least 7' above the edge of the driving lane.

   Maximum vertical clearance is 6" greater than the minimum vertical clearance.

3. Offset signs: Use a vertical clearance of 5' above the edge of the driving lane for signs placed 30 feet or more from the edge of the traveled way.

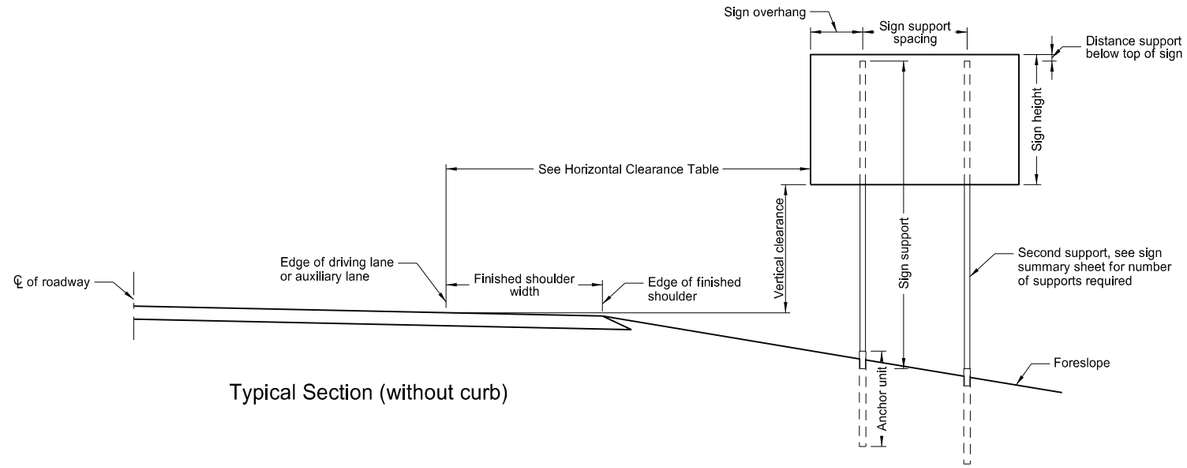
4. Provide a horizontal clearance from edge of shared use path to edge of sign of 3', except where width is limited. Provide a minimum clearance of 2'.



Stop Sign Location
Wide Throat Intersection

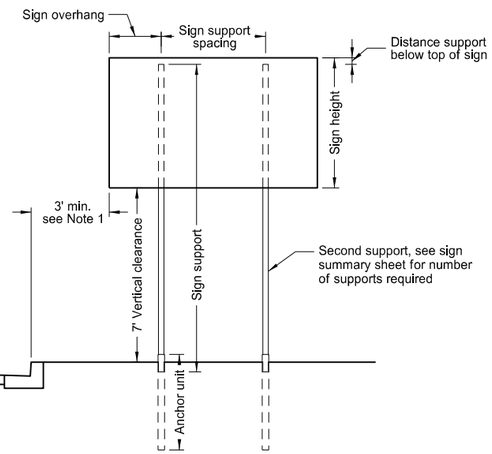
Use layout for the placement of "Stop" signs.

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



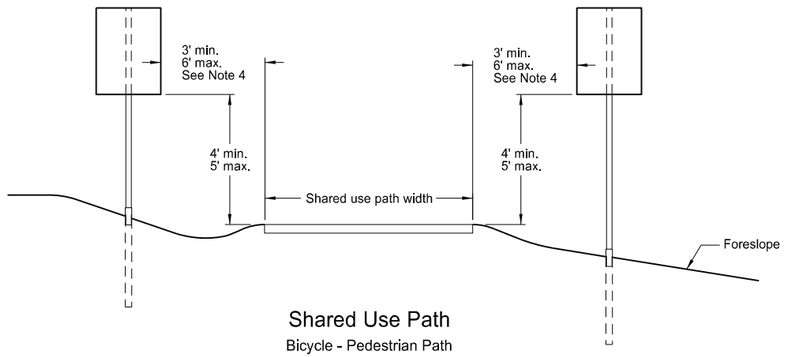
Typical Section (without curb)

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.
8-30-18	Updated notes to active voice.
8-29-19	New Design Engineer PE Stamp.
8-05-24	Electronic Stamp/Signature.

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/05/24

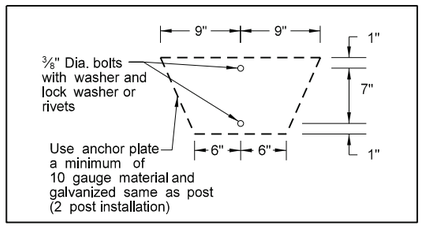
DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

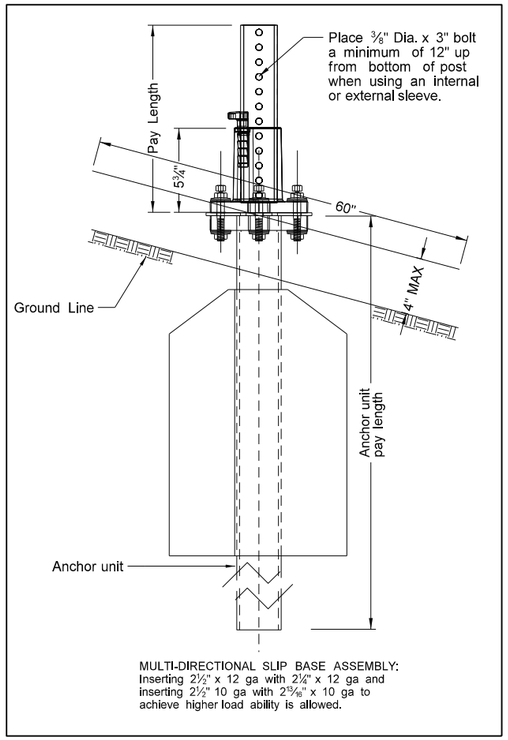
Mounting Details Perforated Tube

D-754-24

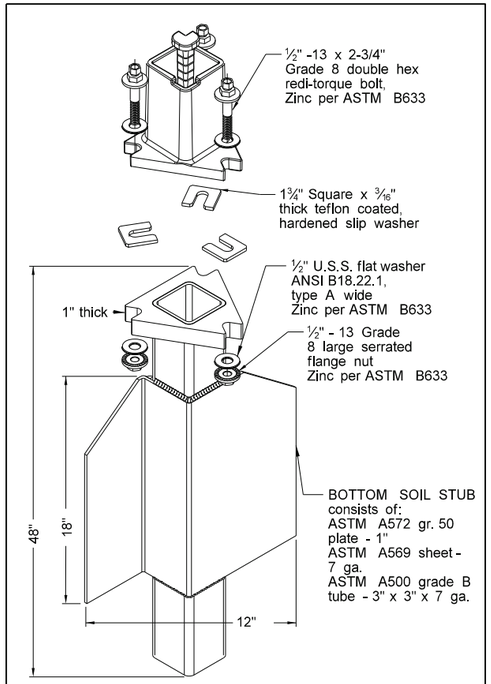
Number of Posts	Telescoping Perforated Tube: Post Size In.	Wall Thick-ness Gauge	Sleeve Size In.	Wall Thick-ness Gauge	Slip Base	Anchor Size Without Slip Base In.	Anchor Wall Thick-ness Gauge
1	2	12			No	2¼	12
1	2¼	12			No	2½	12
1	2½	12			(B)	3(C)	7
1	2½	10			Yes		7
1	2¼	12	2½(D)	12	Yes		7
1	2½	12	2¼	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	2⅜16	10	Yes		7

(B) - Provide a shim as specified by the manufacturer when placing 2½", 12 gauge posts in standard soils without breakaway bases. Provide breakaway base when placing the support in weak soils. The Engineer will 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.

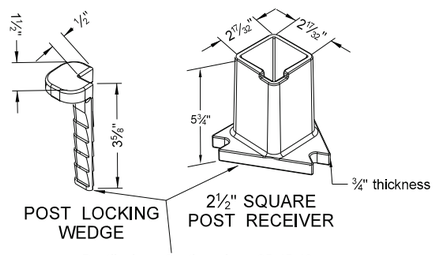


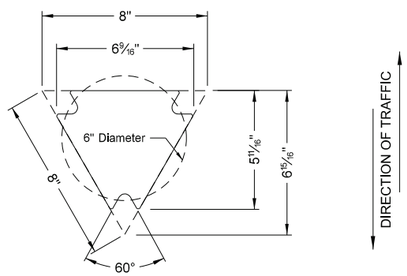


MULTI-DIRECTIONAL SLIP BASE ASSEMBLY:
Inserting 2½" x 12 ga with 2¼" x 12 ga and inserting 2½" 10 ga with 2¹⁵⁄₁₆" x 10 ga to achieve higher load ability is allowed.



SLIP BASE FOR 2½" POST





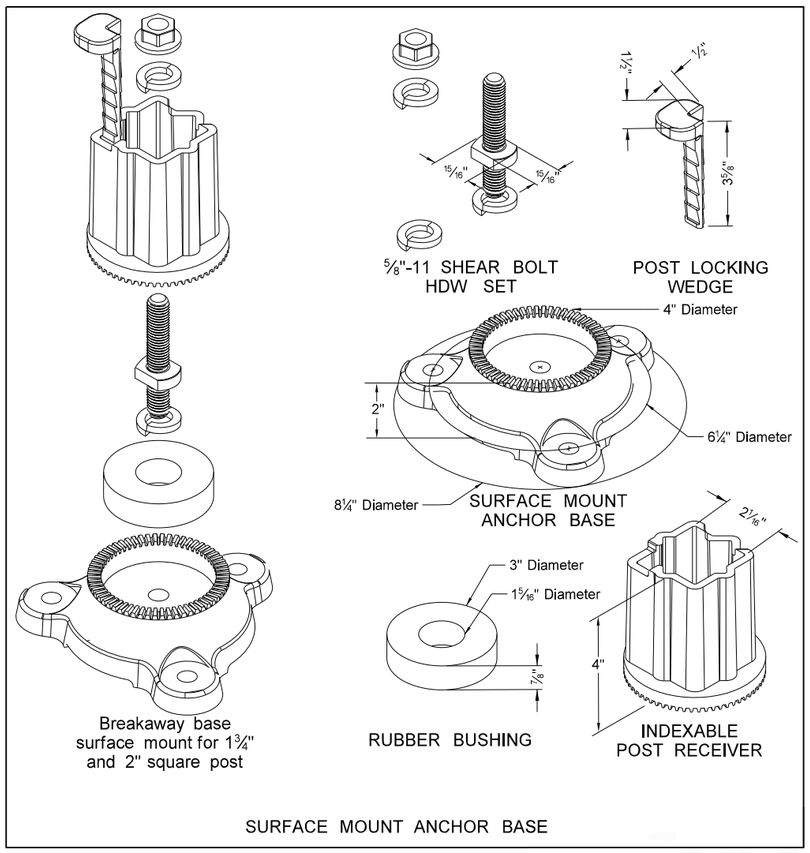
SLIP BASE DETAIL

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 Modulud 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
2⅜16 x 2⅜16	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.

NOTE:

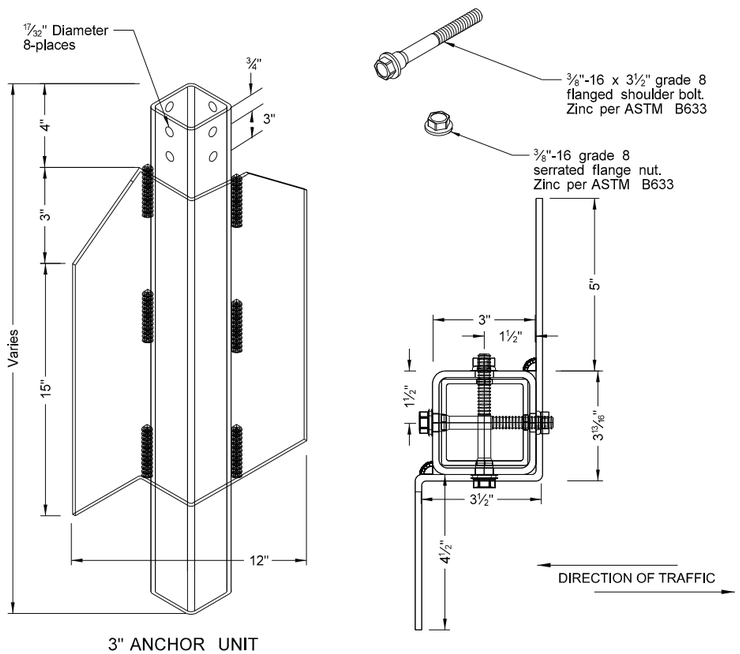
1. 4" Vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.
2. Provide 7 guage HRPO commmercial quality ASTM A569 and 3" x 3" x 7" guage ASTM A500 grade B anchor material with 43.9 KSI yield strength and 59.3 KSI tensile strength. Hot dip galvanize anchor per ASTM A123/153. Tolerances on anchor unit and slip base bottom assembly are +/- 0.005" unless otherwise noted.
3. Eliminate wings when anchor is used in concrete sidewalk.
4. Provide a minimum 8' distance between the first and fourth post on four post signs.
5. Install in accordance with manufacturers recommendation.
6. Use a minimum ½" diameter x 4" grade 8 concrete fastener for surface mount breakaway base.



SURFACE MOUNT ANCHOR BASE

SHOULDER BOLT

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



3" ANCHOR UNIT

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-6-09	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice & corrected max height of base.
8-29-19	New Design Engineer PE Stamp.
8-05-24	Electronic Stamp/Signature.

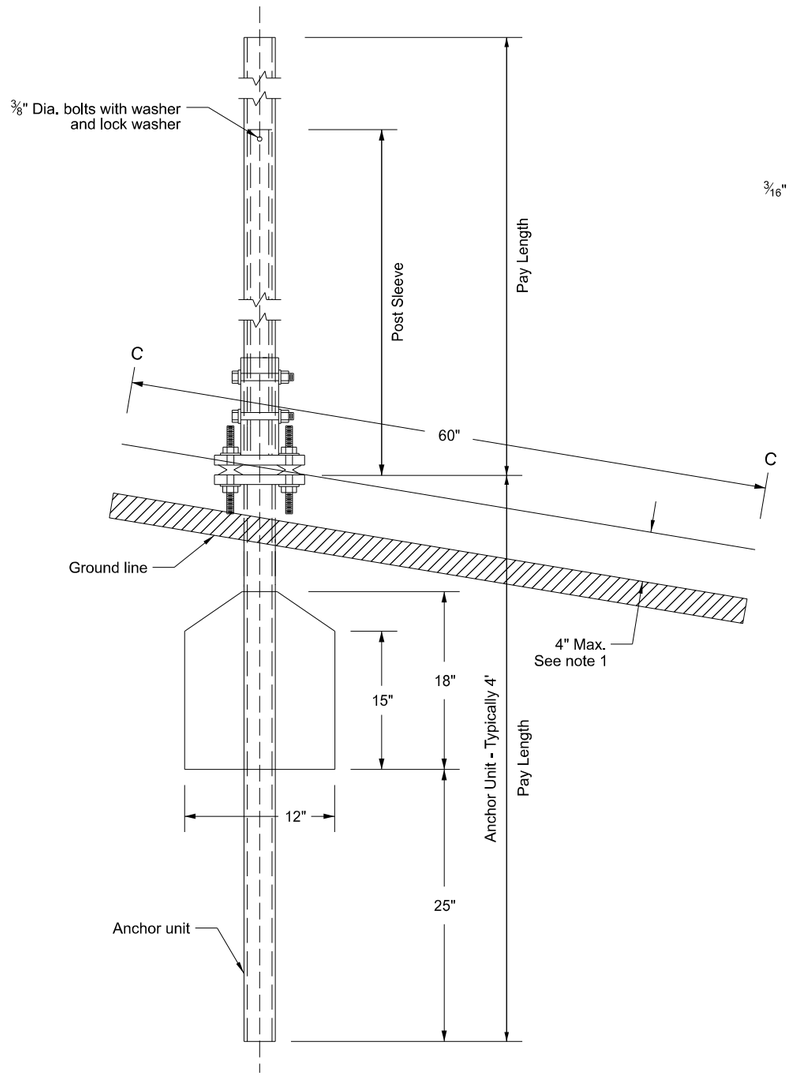
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

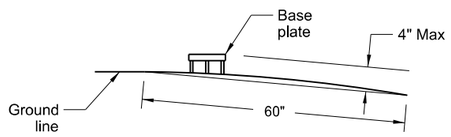
08/05/24

Docusign Envelope ID: B2017174-2071-4D82-BD09-F2B4B86DFDCB

Breakaway Coupler System for Perforated Tubes

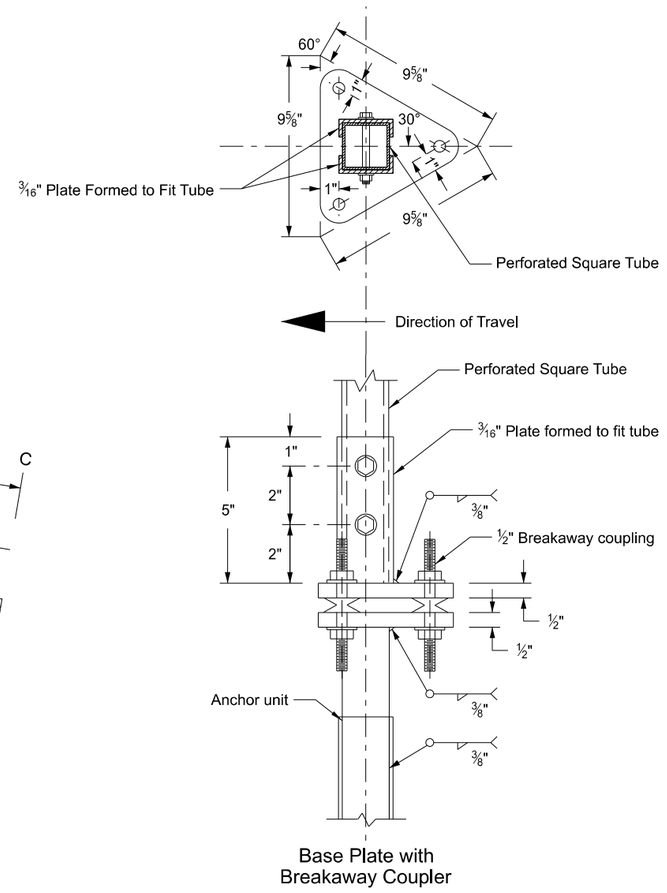
D-754-24A



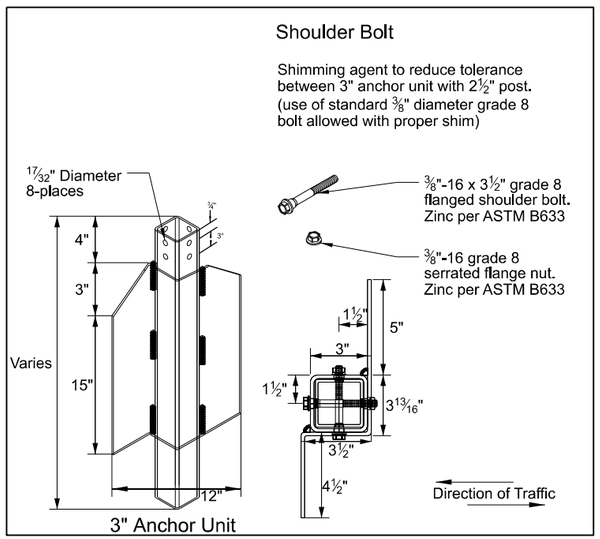


Section C-C

Max projection 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 is above and below post location and also back and ahead of post.
2. Use anchor unit of the same size and specification as the post.
3. Provide a minimum 8' distance between the first and fourth post on four post signs.
4. Use the breakaway base system on standard D-754-24 or the breakaway coupling system manufactured from material meeting the requirements of ASTM A325 fasteners with the special requirements 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) - 2½" 12 gauge posts do not need breakaway bases unless support is placed in boggy, wet, or loose soil areas.

(C) - 3" anchor unit

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

10-3-2013

REVISIONS

DATE	CHANGE
08-30-18	Updated notes to active voice.
08-30-19	New Design Engr PE Stamp.
08-05-24	Electronic Stamp/Signature.
07-22-25	Corrected "typo" in C-C note.

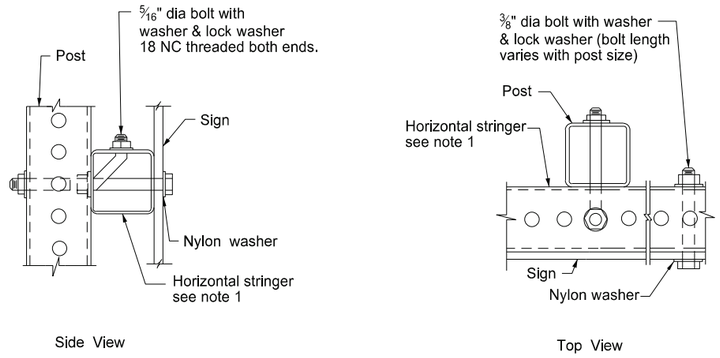
KIRK J. HOFF REGISTERED PROFESSIONAL PE-4683 ENGINEER NORTH DAKOTA

07/22/25

DocuSign Envelope ID: 3BB6949C-35F3-4834-B8EF-90A4185B6E25

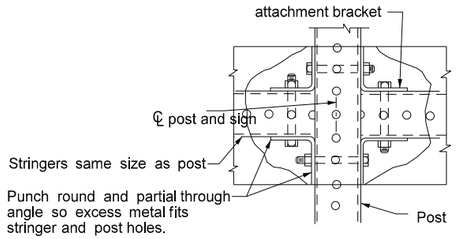
Mounting Details Perforated Tube

D-754-25



Side View Top View

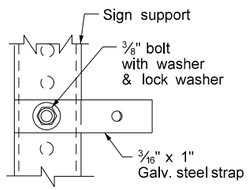
STRINGER MOUNTING
(WITH STRINGER IN FRONT OF POST)



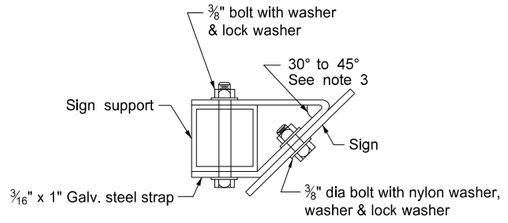
STREET NAME SIGNS AND ONE WAY SIGNS
SINGLE POST ASSEMBLY
ONE STRINGER OR BACK TO BACK MOUNTING

Note:

1. Horizontal stringers - Use perforated tubes or 1¾" x 3/16" thick, 1.08 lbs./ft aluminum or 3.16 lbs./ft steel z bar stringers.
2. Use minimum outside diameter 15/16" ±1/16" and 10 gauge thick metal washers on sign face.
3. Place No Parking signs with directional arrows at a 30 to 45 degree angle with the line of traffic flow. Turning the support to the correct angle for No Parking signs requiring the above angles is allowed. If the No Parking sign is placed with another sign that requires placement at a 90 degree angle with the line of traffic flow, use the detailed angle strap to mount the No Parking sign. Use flat washers and lock washers with all nylon washers.
4. Punching the sign backing and placing the bolt through the sign, the stringer and the post is allowed in lieu of using the bent bolt to attach the post to the stringer.
5. 4" vertical clearance of anchor or breakaway base. The 4" x 60" measurement is above and below post location and also back and ahead of post.

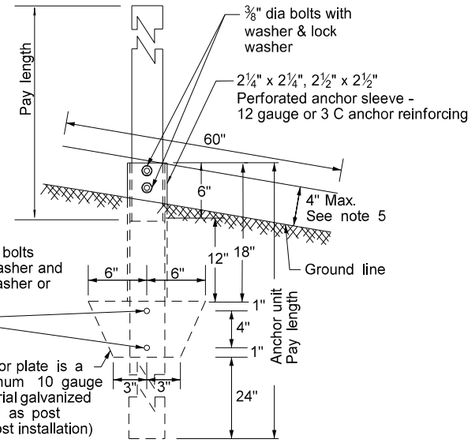


Side View



Top View

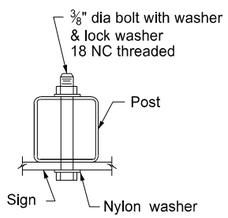
STRAP DETAIL



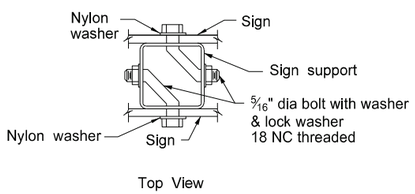
ANCHOR UNIT AND POST ASSEMBLY

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) - When placing 2½", 12 gauge posts in standard soils without breakaway bases, provide a shim as specified by the manufacturer. Provide breakaway base when placing the support in weak soils. Engineer will determine if 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.

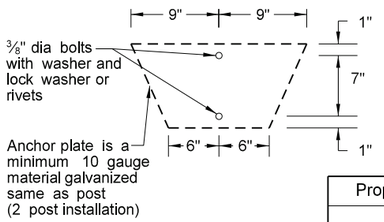


BOLT MOUNTING



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.
8-30-18	Updated notes to active voice.
8-30-19	New Design Engr PE Stamp.
8-05-24	Electronic Stamp/Signature.

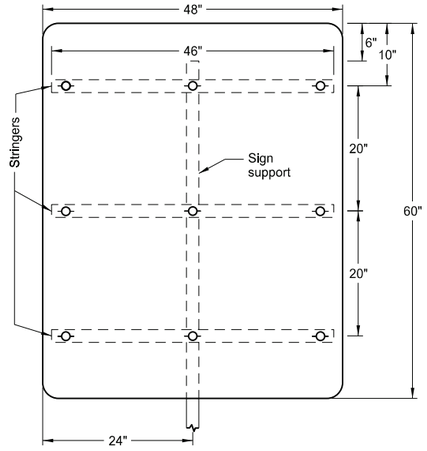
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/05/24

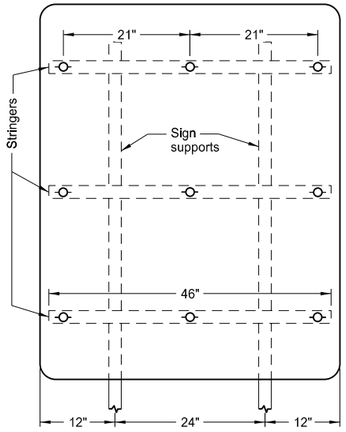
DocuSign Envelope ID: 245AF61F-5CB3-4068-9ABB-3DD8A55F5268

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

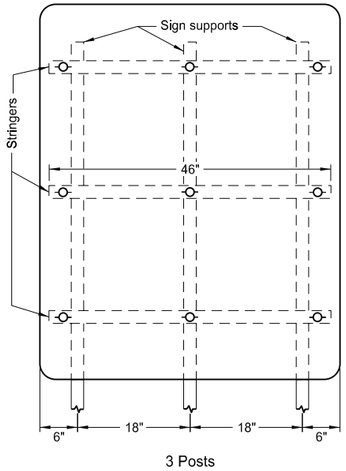
D-754-28



1 Post

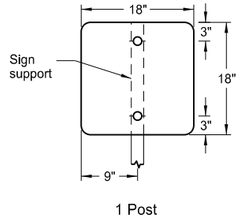


2 Posts



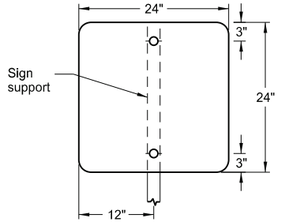
3 Posts

Assembly No. 12

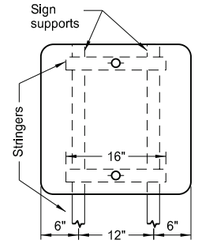


1 Post

Assembly No. 13

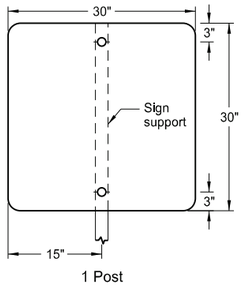


1 Post

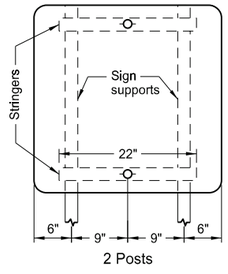


2 Posts

Assembly No. 14

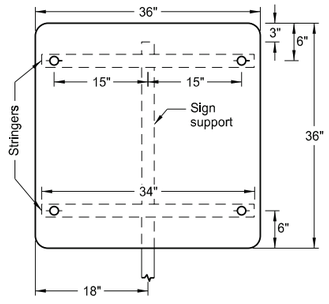


1 Post

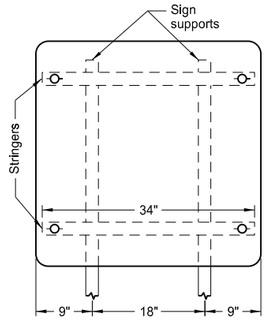


2 Posts

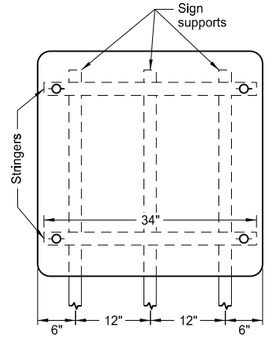
Assembly No. 15



1 Post

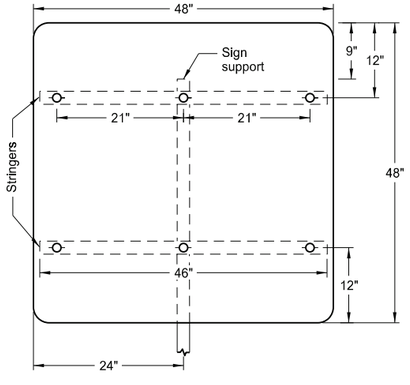


2 Posts

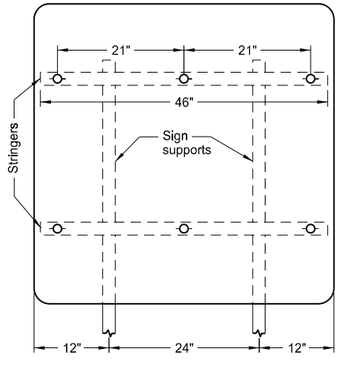


3 Posts

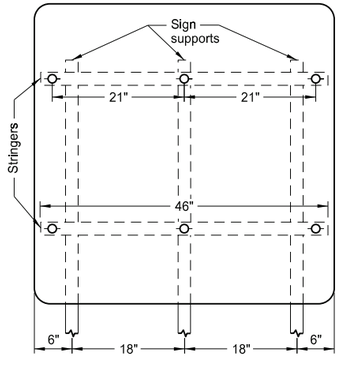
Assembly No. 16



1 Post



2 Posts



3 Posts

Assembly No. 17

Notes:

1. Use 0.100 inch minimum thickness sign backing material.
2. Use 1½" x 1½" perforated square tube stringers.
3. Punch holes round for ⅜" bolt.

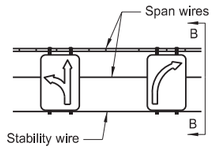
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
12-1-10	
REVISIONS	
DATE	CHANGE
8-30-18	Updated to active voice & changed Assembly 16 post spacing.
8-30-19	New Design Engineer PE Stamp.
8-06-24	Electronic Stamp/Signature.

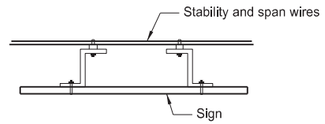
KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/06/24

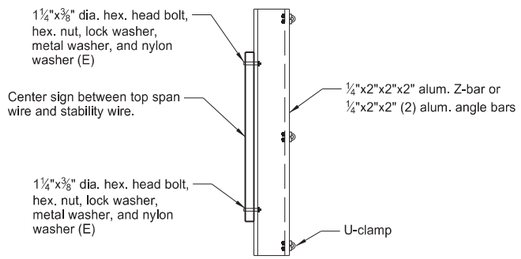
DocuSign Envelope ID: C3490446-F65D-4226-AC76-79FBB84E9BA5

LIGHT STANDARD, SIGNAL STANDARD, AND SPAN WIRE MOUNTED SIGN ASSEMBLY DETAIL



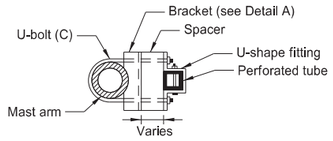


Plan

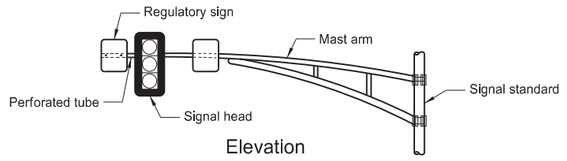


Section B-B

Span Wire Mounted Sign Detail



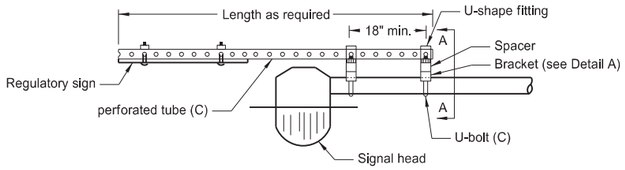
Section A-A



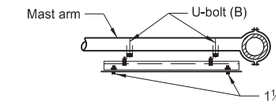
Elevation



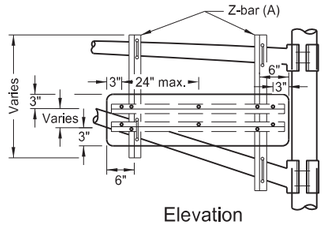
Plan



Sign Mounted Beyond End of Mast Arm Detail

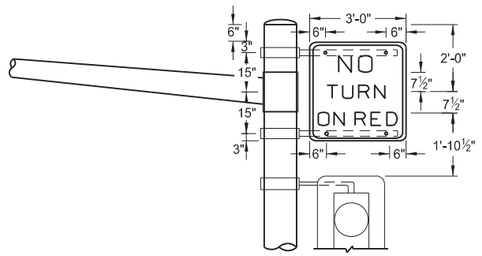


Plan

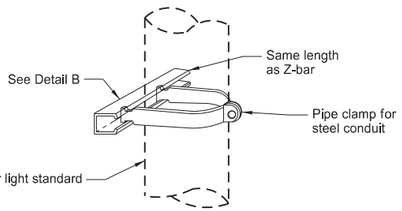


Elevation

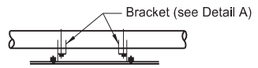
Mast Arm Mounted Street Name Sign Detail



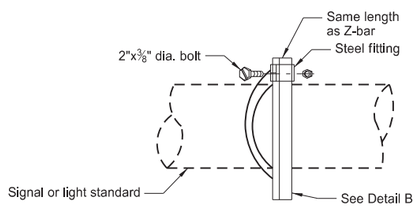
Signal Standard Mounted Sign Attachment Detail



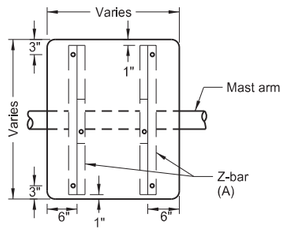
Vertical Mounting
(Use 2 clamps per sign)

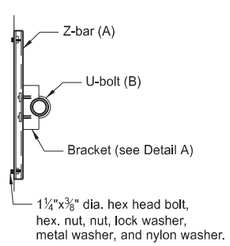


Plan



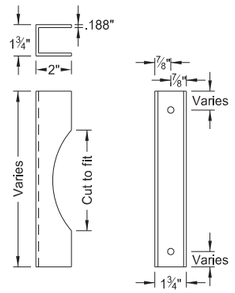
Horizontal Mounting
alternate clamp mounting
(Use 2 clamps per sign)



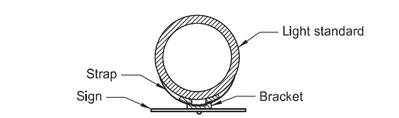


Elevation Side View

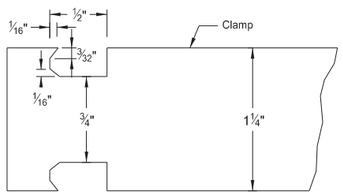
Mast Arm Mounted Regulatory Sign Detail



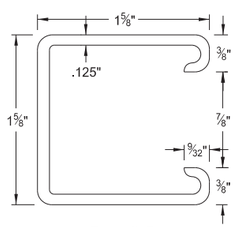
Detail A



Light Standard Mounted Sign Bracket Detail
Max. 24"x30" signs (D)



Clamp Detail



Detail B
Steel Channel

Post Size dia.	Clamp Gauge min.
3½" to 5"	11
6" to 12"	10

Clamp	
Post Size dia. in.	D in.
3½	3
4	3 3/16
5	5 1/8
6	7 7/16
8	13 1/16
10	20 3/4
12	29 5/8

Notes:

(A) Use 1¾"x3/16" thick 1.08 lb/ft aluminum alloy Z-bar. In place of Z-bar, use two 1¾"x1¾"x3/16" angles bolted together or a 1¾"x2"x.188" channel.

(B) ⅜" U-bolt, hex. nut, lock washer, and bracket (U-bolt length depends on dia. of mast arm.)

(C) ⅜" U-bolt, hex. nut, lock washer, and bracket (U-bolt length depends on dia. of mast arm.)

Maximum perforated tube lengths for mounting signs beyond end of mast arm:
2"x2" maximum support length 9.9'
2½"x2½" maximum support length 12.6'
2½"x2½" maximum support length 15.7'

(D) Use galv. steel strap and sign attachment bracket similar to the one shown in the detail. Include all costs of bracket assembly in the price bid for flat sheet signs. Punch as shown on Standard Drawings. Provide a 7' minimum vertical clearance to the bottom of signs mounted on light standards.

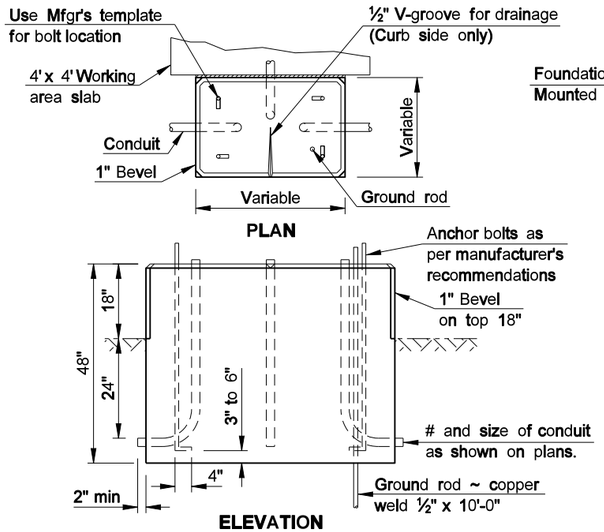
(E) Use metal washers and nylon washers with a minimum outside dia. of 15/16" ± 1/16" and 10 gauge thickness on sign face.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
DATE	CHANGE
8-30-18	Updated notes to active voice.
9-05-19	New Design Engineer PE Stamp.
8-08-24	Electronic Stamp/Signature.

KIRK J. HOFFA
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA
08/08/24

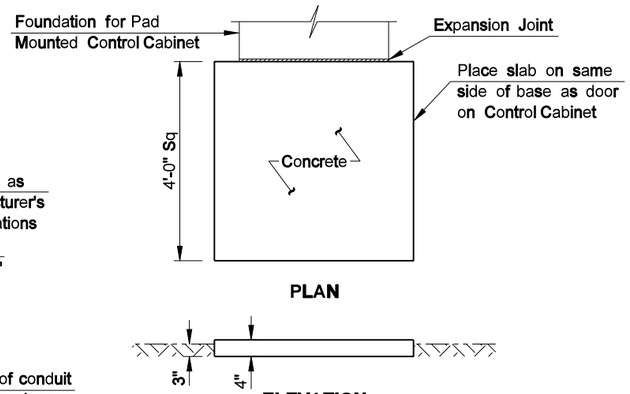
CONCRETE FOUNDATIONS
(TRAFFIC SIGNALS & HIGHWAY LIGHTING)

D-770-1



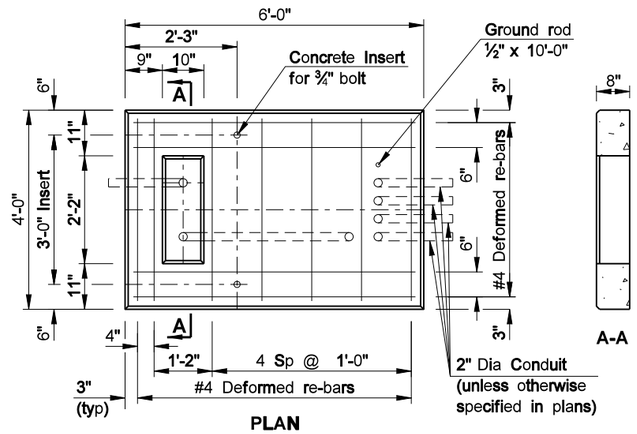
CONTROLLER CABINET FOUNDATION PAD MOUNT

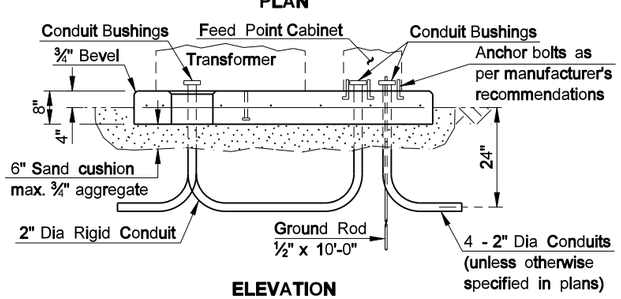
The Controller Cabinet Foundation shall be bid as Concrete Foundation - Traffic Signals.



WORKING AREA SLAB

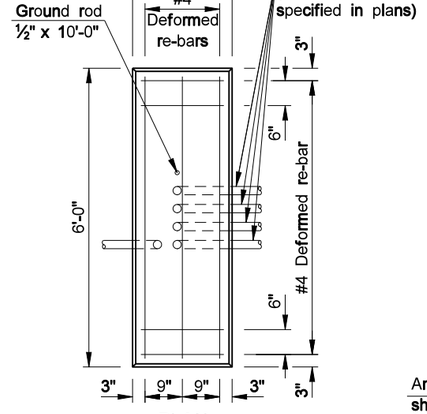
The Working Area Slab shall be installed where shown on the plans and shall not be bid separately but shall be included in the price bid for Concrete Foundation - Traffic Signals.

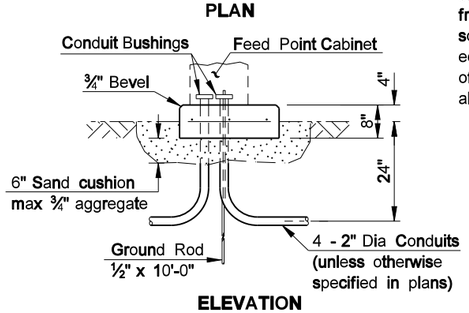




TRANSFORMER & FEED POINT CABINET FOUNDATION PAD MOUNT

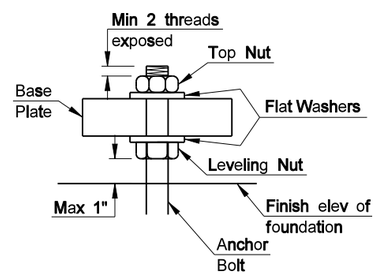
The Transformer & Feed Point Cabinet Foundation Pad Mount shall be bid as Concrete Foundation ~ Feed Point ~ Type A.



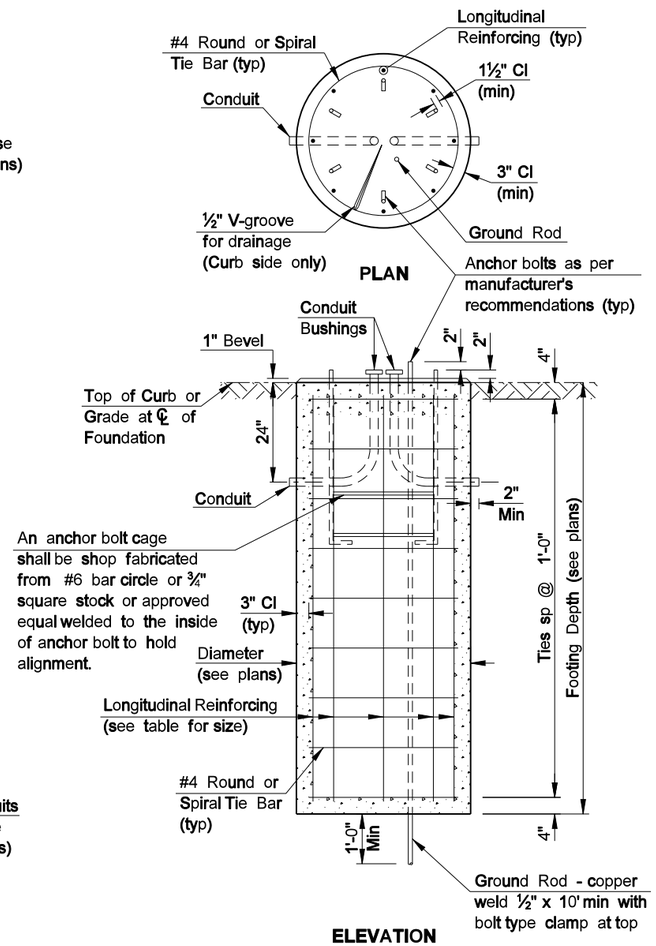


FEED POINT CABINET FOUNDATION PAD MOUNT

The Feed Point Cabinet Foundation Pad Mount shall be bid as Concrete Foundation ~ Feed Point ~ Type B.



ANCHOR BOLT DETAIL



LIGHT & SIGNAL STANDARD FOUNDATION

NOTES:

LIGHT & SIGNAL STANDARD FOUNDATIONS: See plans for conduit size, number of bends and correct position for each foundation. When conduit does not continue beyond the foundation, conduit with a 105° bend and bushings on both ends may be substituted for the 90° bends shown. See plans for correct size & location of foundations. The grade and exact location shall be established by the Engineer in the field. All reinforcing shall be Grade 60. Tie bars shall have a minimum of a 12" lap. Reinforcing may be omitted for Type I, II, V, VI & VII signal standard foundations if the anchor bolts extend to within 3" to 6" above the bottom of the foundation. A minimum of 6 anchor bolts shall be used for cantilevered structures.

CONTROLLER CABINET FOUNDATION PAD MOUNT FOUNDATION: See plans for the number of 90° bends per foundation and correct positioning. The foundation for Pad Mounted Controller Cabinet shall be of sufficient size so that there is a minimum of 3" of clearance from the outside edge of cabinet to the outside edge of the foundation on any side. The contractor shall ensure a water-tight seal between the controler cabinet and the foundation by caulking, except for V-groove.

WORKING AREA SLAB: The materials and preparation of this slab shall be as approved by the Engineer in the field.

TRANSFORMER & FEED POINT CABINET FOUNDATION PAD MOUNTED: The foundation shall have a wood float finish. All conduits shown shall be installed. Conduit that is not used at this time shall be plugged with an expandable plug.

FEED POINT CABINET FOUNDATION PAD MOUNTED: The foundation shall have a wood float finish. All conduits shown shall be installed. Conduit that is not used at this time shall be plugged with an expandable plug.

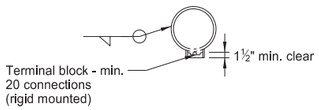
LIGHT & SIGNAL FOUNDATION TABLE	
FOOTING DEPTH (ft)	LONGITUDINAL REINFORCING
≤ 12	8 - #5
13 - 14	8 - #6
15 - 16	8 - #7
17 - 19	8 - #8

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
6-15-10	
REVISIONS	
DATE	CHANGE

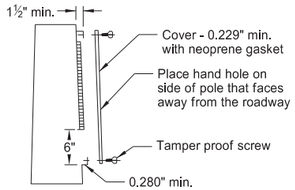
This document was originally issued and sealed by Terrence R. Udland Registration Number PE- 2674 , on 6/15/10 and the original document is stored at the North Dakota Department of Transportation

Docusign Envelope ID: CBA567C7-C11B-4F0B-89AF-E47B33997859

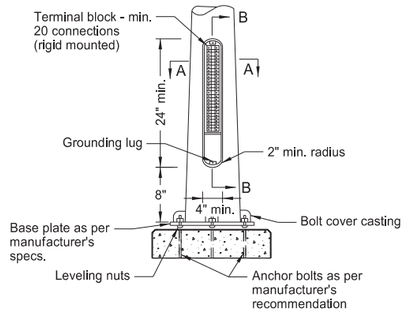
TRAFFIC SIGNAL STANDARDS



Section A-A

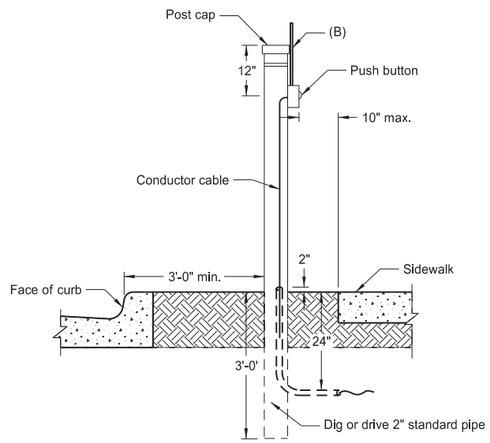


Section B-B

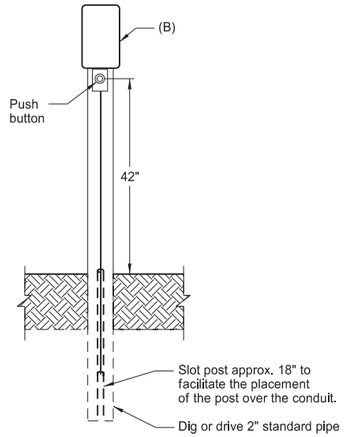


Alternate Signal Standard Base

For use only with Type V, VI, and VII signal standards.

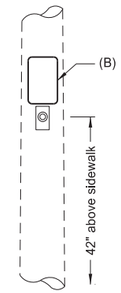


Side View

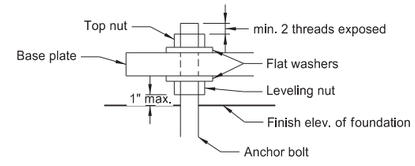


Front View

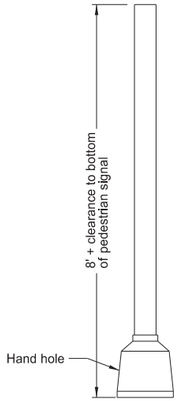
Pedestrian Push Button Post Details (A)



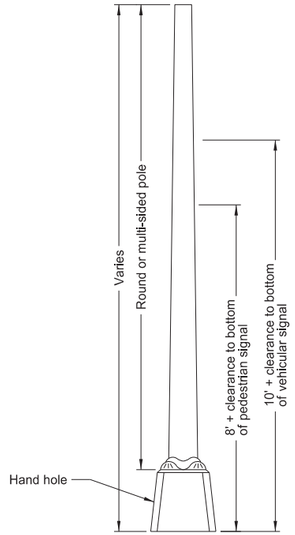
Signal Standard Mounted
Pedestrian Push Button Detail



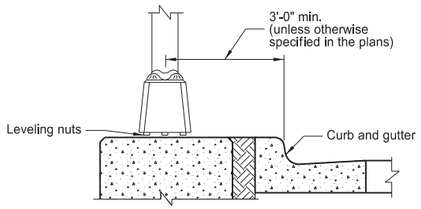
Anchor Bolt Detail

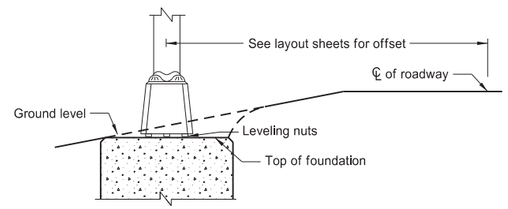


Type II



Type V, VI, VII





Signal Standard
Minimum Clearance Details

(A) Use positioning of the sign, pushbutton, and direction of arrow to clearly indicate which crosswalk is actuated by the push button. Place type of sign based on the jurisdiction in which placed.

(B) Attach sign to post using rust resistant 0.081 aluminum bracket and banding. See Standard Signs book for dimensions and legend series. See plans for type of sign.

Notes:

Signal Heads: See traffic signal layout for correct mounting position, number, size, and arrangement of lenses.

Steel Standards: Place signal standard a minimum of 3 ft. from the face of the curb to center of signal standard, unless shown otherwise on layout sheets.

Paint: See note sheet for required color of paint.

Transformer Base: In lieu of transformer base use alternate signal standard base.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
11-14-13	
REVISIONS	
DATE	CHANGE
10-17-17	Updated to active voice
10-25-19	Added 10" dim for ped pushbutton
08-20-25	Added physical stamp & signature

KIRK J. HOFF
REGISTERED
PROFESSIONAL
PE-4683
ENGINEER
NORTH DAKOTA

08/20/25