DESIGN DATA				
Traffic	Average Daily			
Current	Pass: 4,255	Trucks: 1,420	Total: 5,675	
Forecast	Pass: 6,325	Trucks: 2,108	Total: 8,433	
Clear Zone Distance: 14 FT		Design Speed: 25 MPH		
Minimum Sight Dist. for Stopping: 155 FT		Bridges: N/A		
Sight Dist. for No Passing Zone: 450 FT				
Pavement Design Life 20 (years)				
Design Accumulated One-way Flexible ESALs: N/A				

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	20347	1	1

JOB # 17
NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

SRC-5-022(114)104
City of Killdeer High St to Lincoln St

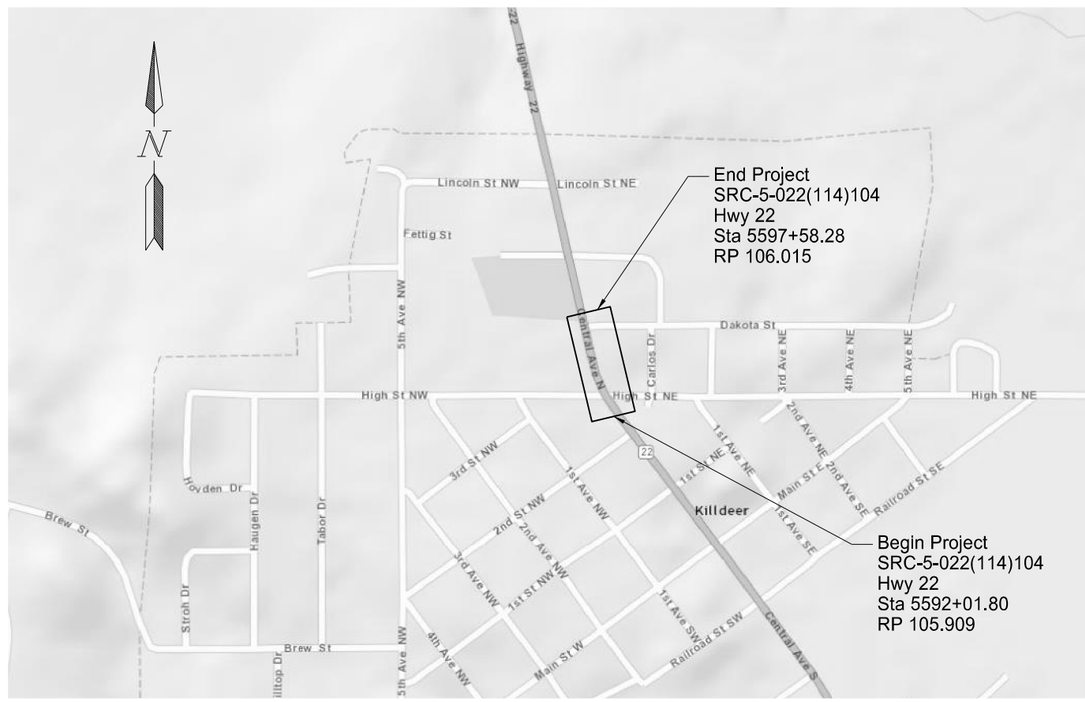
Dunn County
City of Killdeer
Killdeer Safe Routes to School

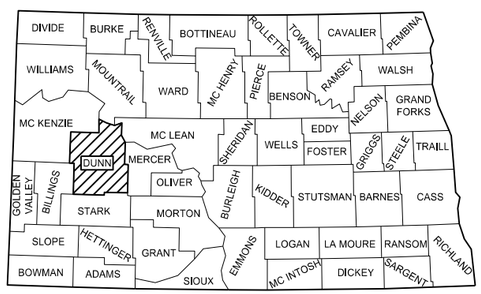
Concrete Median, ADA Ramp Improvements, Sidewalk, Pavement Markings,
HBP Paving, Signing, Flashing Beacons and Incidentals

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

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
SRC-5-022(114)104	0.106	0.106

LEGAL DESCRIPTION
Sec 14 T145N R95W
Sec 23 T145N R95W





STATE COUNTY MAP

DESIGNERS

Nicholas J. Erpelding, PE

Ryan Schuehle

Justine Fedde

APPROVED DATE 2/20/15

Robert Fode /s/
OFFICE OF PROJECT DEVELOPMENT
ND DEPARTMENT OF TRANSPORTATION

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.

APPROVED DATE 2/20/15

John A. Saiki /s/
SRF Consulting Group, Inc.

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SRF Consulting Group, Inc.

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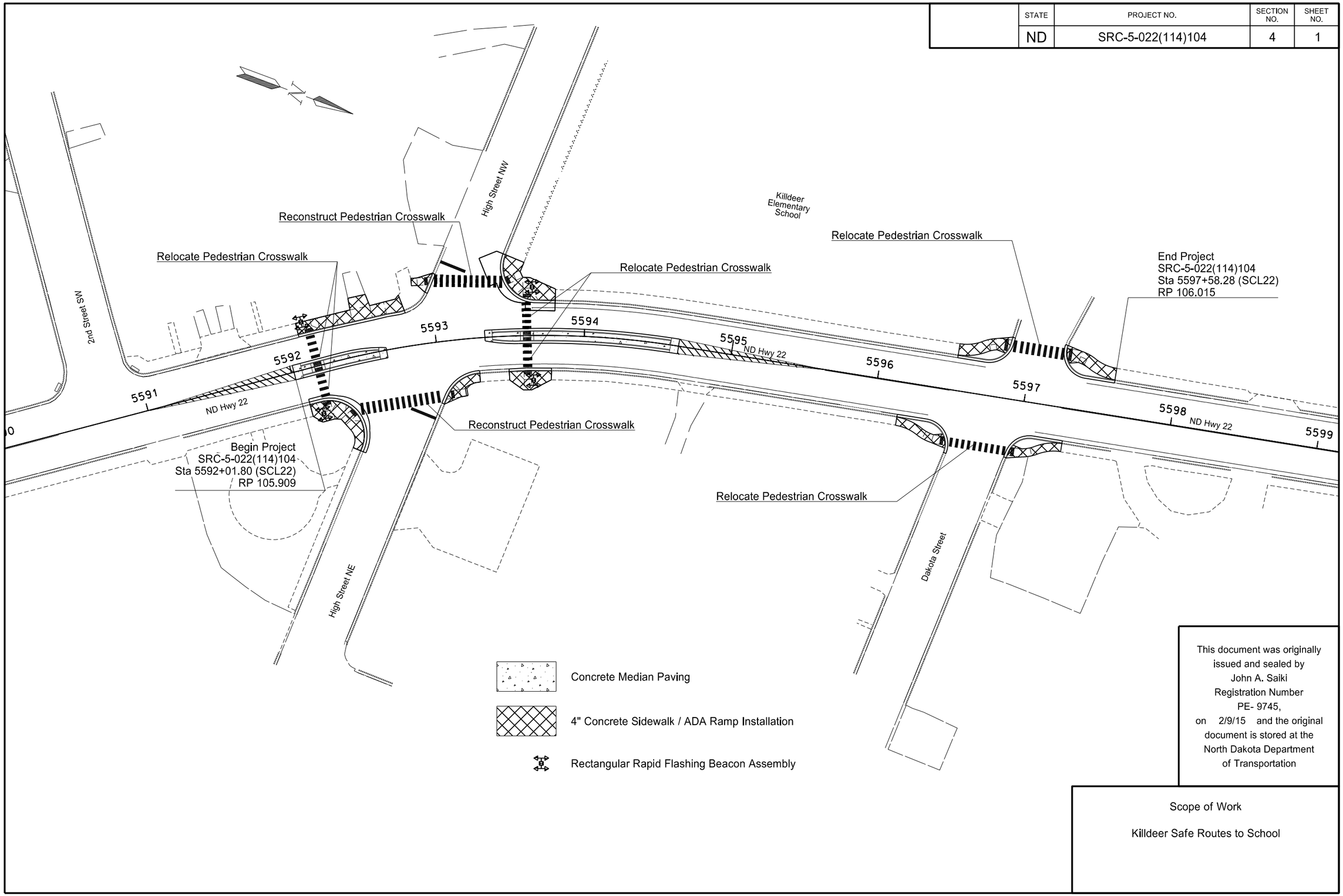
LIST OF STANDARD DRAWINGS

Standard No.	Description
D-101-1	NDDOT Abbreviations
D-101-2	NDDOT Abbreviations
D-101-3	NDDOT Abbreviations
D-101-10	NDDOT Utility Company and Organization Abbreviations
D-101-20	Line Styles
D-101-21	Line Styles
D-101-30	Symbols
D-101-31	Symbols
D-101-32	Symbols
D-704-5	Contractor Sign Detail
D-704-7	Breakaway Systems for Construction Zone Signs – Perforated Tube
D-704-8	Breakaway Systems for Construction Zone Signs – U-Channel Post
D-704-9	Construction Sign Details-Terminal and Guide Signs
D-704-10	Construction Sign Details-Regulatory Signs
D-704-11	Construction Sign Details-Warning Signs
D-704-12	Shoulder Closure Tapers
D-704-13	Barricade and Channelizing Device Details
D-704-14	Construction Sign Punching and Mounting Details
D-704-15	Road Closure Layouts
D-704-17	Sign Layout for One Lane Closure Two Lane Roadway
D-704-19	Road Closure and Lane Closure on a Two Lane Road Layouts
D-704-21	Detour and Roadway Diversion Sign Layouts
D-704-23	Short Term Urban Detour and Lane Closure on a Divided Highway Layouts
D-704-25	Lane Closures on Urban Streets Layouts
D-704-27	Traffic Control Plan for Moving Operations
D-704-31	Construction Sign Layout Non-signalized Low Volume One Lane Closures
D-704-50	Portable Sign Support Assembly
D-714-1	Reinforced Concrete Pipe Culverts and End Sections (Round Pipe)
D-714-4	Round Corrugated Steel Pipe Culverts and End Sections
D-714-25	Transverse Mainline Pipe Installation Detail for Pipes More Than 4 Feet Below The Top of Proposed Subgrade
D-714-27	Pipe Installation Detail for Longitudinal Mainline Pipe or Pipe Not Under the Roadway
D-722-1B	Inlet – Special
D-722-2	Inlet – Type 2
D-722-3A	Inlet – Slotted Drain
D-722-5	Manhole Details
D-748-1	Curb & Gutter and Valley Gutter
D-750-1	Concrete Driveway - Urban
D-750-2	Sidewalk
D-750-3	Curb Ramp Detail
D-754-21	Reflectorized Delineators
D-754-23	Perorated Tube Assembly Details
D-754-24	Mounting Details Perforated Tube
D-754-24A	Breakaway Coupler System for Perforated Tubes
D-754-25	Mounting Details Perforated Tube
D-754-27	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-754-87	Sign Punching, Stringer and Support Location Details for Street Name Signs and 911 Signs
D-762-1	Pavement Marking Message Details
D-762-4	Pavement Marking
D-770-2	Feed Points
D-770-2A	Combination Feed Point Details
D-772-1	Feed Point - Traffic Signals
D-772-2	Traffic Signal Standards

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	4	1



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Scope of Work

Killdeer Safe Routes to School

NOTES

202-P01 REMOVAL OF PAVEMENT: Removal of pavement consists of removing concrete sidewalks, curb and gutter, bituminous pavement and aggregate base. The material shall be removed without disturbing the material that is designated to remain. The new pavement, walk or curb shall be placed so as to provide a smooth transition from existing to proposed. Existing pavement thicknesses are assumed based on available as-built plan sets and are shown in the basis of estimate. See section 107.17 of the standard specification for proper disposal of removed materials.

202-P02 EXCAVATION: A quantity of excavation will be required for the installation of the pay item “Aggregate Base Course CL 5” under the sidewalk, curb & gutter and bituminous pavement. The cost for all necessary excavation and wasting of material shall be included in the price of bid for “Aggregate Base Course CL 5.”

430-P01 COMMERCIAL GRADE ASPHALT: The 4.5” hot bituminous pavement shall be laid in two (2) lifts. The top lift shall be placed at 2” depth using PG 64-34 Asphalt Cement. The bottom lift shall be placed at 2.5” depth using PG 64-34 Asphalt Cement. All costs associated with hot bituminous paving including asphalt cement and tack coat shall be included in the unit bid price “Commercial Grade Asphalt.”

704-255 TRAFFIC CONTROL FOR SHOULDER DROP-OFF: If the shoulder and adjacent driving lane are not even at the end of the day, the following criteria will apply:

Place the following sign assembly at the locations listed below.

Sign Assembly: Sign No. W8-9a-48 "Shoulder Drop Off" and supplemental plate Sign No. W20-52-54 to identify the distance.

Locations:
- •In advance of the drop off;
- •Spaced at each mile from the advance sign; and
- •At major intersections (CMC routes, state and US highways, and Interstate Ramps).

If the difference in elevation between the shoulder and the driving lane is 2" or greater, construct a slough on the driving lane that is 4:1 or flatter.

If the difference in elevation between the shoulder and driving lane is less than 2", no slough is required.

Sign assemblies will be measured and paid for according to Section 704 "Temporary Traffic Control".

704-P01 TRAFFIC CONTROL: Traffic control shall consist of temporary lane closures, flagging and a detour. The traffic control devices list has been developed using the following layouts on the Standard Drawings for traffic control:

D-704-12 for shoulder closure used with lane closure when shoulder is 8’ or wider.
D-704-15 Type C for half road closure on a multilane highway
D-704-19 Type E for road closure with off-site detour
D-704-19 Type F for lanes closure using flaggers
D-704-21 Type I for detour sign layouts
D-704-23 Type Q for short tern urban detours
D-704-25 Type V for urban lane closures
D-704-27 for striping operation

Standard Drawings D-704-5, 7, 8, 9, 10, 11, 13, 14, 17, 31, and 50 are applicable.

The traffic control requires flagging during working hours. The “NO CENTER STRIPE” sign (W8-12-48) shall be used during the daytime prior to the centerline pavement markings being placed before sunset.

The required traffic control signs and devices are included in the “Traffic Control Devices List” and will be measured and paid at the Contract Unit Price for each device. Additional devices required to accommodate the contractor’s operation shall be the contractor’s responsibility.

722-P01 INLET SLOTTED DRAIN 24IN: The existing CSP angled fitting that outlets into existing structure at Sta 5593+46 – 48’ LT will need to be removed and replaced. The quantity for the line item “Inlet Slotted Drain 24IN” is allotted for the new angled fitting. All costs associated with installing the angled fitting shall be included in the unit bid price “Inlet Slotted Drain 24IN.”

See Standard Drawing D-722-3A for angled fitting details.

750-P01 PIGMENTED IMPRINTED CONCRETE: Pigmenting and imprinting is to be performed on the median paving shown in Section 90.

Provide the required thickness of concrete that is stamped with a Wood Plank pattern. Use the integral color maplewood, dark gray color hardener, dark gray release agent, and clear seal manufactured by Increte (http://www.increte.com/), Scofield (http://www.scofield.com/) or an approved equal.

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

A 12” x 12” or larger, sample of colored, hardened, stamped, sealed and cured concrete shall be submitted to the engineer for approval prior to placing any pigmented imprinted concrete on the project site.

Mix and apply integral color, color hardener, release agent and clear seal in accordance with the manufacturer’s recommendations.

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NOTES

754-P01 REMOVE SIGNS: The removed signs, existing supports and breakaway assemblies removed shall remain property of the state and shall be delivered to the NDDOT Dickinson District. The cost of removing and delivering the sign supports and breakaway assemblies shall be included in the price bid for “Flat Sheet for Signs-Type XI Refl Sheeting”.

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NOTES

772-P01 FLASHING BEACON-POST MOUNTED-SCHOOL: The flashing beacon system shall include the crosswalks on the north and south legs of the intersection of ND Highway 22 and High Street. The flashing beacon assemblies at the north crosswalk shall operate independently of the flashing beacon assemblies at the south crosswalk. Each flashing beacon shall be a Rectangular Rapid Flashing Beacon (RRFB). The RRFBs shall meet the conditions set forth by the FHWA for interim approval for optional use of RRFBs as well as all current FHWA interpretations. Each RRFB assembly shall include two fluorescent yellow-green S1-1 signs and two W16-7P plaques mounted back to back for each direction of travel and a double-sided LED-array based light source. There shall be a total of four assemblies with two on the east side and two on the west side of ND Highway 22. Flashing beacons and signs shall be mounted on a Type II signal standard as shown in the detail and as required by NDDOT specifications.

The RRFB shall normally be dark, shall initiate operation only upon pedestrian actuation, and shall cease operation at a predetermined, but adjustable, time of 22 seconds after the pedestrian actuation. All RRFBs associated with a given crosswalk shall, when activated, simultaneously commence operation of their alternating rapid flashing indications and shall cease operation simultaneously. Assemblies shall flash according to MUTCD specifications.

The flashing beacons shall be powered by the existing 120 volt electrical service/revised feed point as shown on the plans and shall not be wireless. The control enclosure shall be installed as shown on the plans and shall not be battery or solar powered. One control enclosure is permitted to power each RRFB pedestal assembly or as required by the manufacturer.

Cable for signal and power shall be routed in separate conduit with the exception of LED modules that use low voltage power. Wiring shall conform to the NEC. Each beacon light bar shall contain two SAE J595 class 1 certified, rectangular array, yellow LED light sources with side-mounted LEDs for indication to pedestrians. Dimming is not permitted.

The system shall not be wireless. Pedestrian pushbuttons and the control enclosure shall be hardwired together and shall not be wireless. Control enclosures shall communicate via underground 16 AWG 2 conductor cable called for on the plans or as recommended by the manufacturer and daisy chained with the pushbuttons. Contractor shall provide cable as required by the manufacturer and it shall be incidental to the system. Equipment shall be mounted as recommended by the manufacturer and to NDDOT standards. All enclosures and equipment shall be outdoor rated. The Contractor shall supply shop drawings for the flashing beacon to the Engineer prior to ordering materials.

The flashing beacon system shall be measured and paid for as one complete system. Included shall be the revised feed point, all cable and conduit, Type II signal standards and foundations, flasher cabinets, LED flashers, pedestrian pushbuttons, signs, and any other material and labor needed to complete the installation. All costs associated with supplying and installing four functional flashing beacon assemblies shall be included in the price bid for “Flashing Beacon-Post Mounted-School.”

772-P02 REVISE FLASHING BEACON FEED POINT: The existing flashing beacon electrical service shall be reused. The Contractor shall remove the existing flasher cabinet including timer used to operate the existing flashing beacons and disconnect. Existing meter socket shall remain in place. The Contractor shall provide a new 30 amp fused main disconnect switch rated for service entrance. The Contractor shall provide new grounding as required by the NEC and State Electrical Code. All cost for labor and materials shall be included in the bid item “Flashing Beacon-Post Mounted-School.”

772-P03 REMOVE FLASHING BEACON SYSTEM: The Contractor shall remove existing post mounted flashing beacons. Included in the removal shall be the mounting posts, concrete footings, signs, beacons, conductors, and exposed conduit. Underground conduit may be abandoned in place. Conductors underground installed inside conduit shall be pulled and removed. The existing electrical service meter shall remain in place for reconnection. The existing disconnect and flasher cabinet shall be removed. All cost for labor and materials shall be included in the bid items “Remove Flashing Beacon System,” one per intersection.

This document was originally issued and sealed by Nicholas J. Erpelding, Registration Number PE-5870, on 2/13/15 and the original document is stored at the North Dakota Department of Transportation.

ENVIRONMENTAL COMMITMENTS

ENVIRONMENTAL COMMITMENTS (EC): The City of Killdeer, the North Dakota Department of Transportation and the Federal Highway Administration have made environmental commitments to secure approval of this project. The environmental commitments are as follows:

NO WETLAND IMPACTS OR ENVIRONMENTAL COMMITMENTS EXIST:

Based on the NEPA documentation, no additional permits or environmental commitments have been identified beyond what is covered by the NDDOT's Standard Specification of Road and Bridge Construction.

Wetland Number	Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetlands	Impacts to Wetlands	
						Temp.	Perm.
NO WETLANDS PRESENT							
TOTALS:			0.00			0.00	0.00

Spec	Code	Item Description	Unit	Quantity
103	0100	Contract Bond	L SUM	1
202	0130	Removal of Curb & Gutter	LF	476
202	0136	Removal of Pavement	TON	206
202	0174	Removal of Pipe All Types And Sizes	LF	53
202	0210	Removal of Manholes	EA	1
202	0230	Removal of Inlets	EA	1
203	0109	Topsoil	CY	55
216	0100	Water	M GAL	20
251	0200	Seeding Class II	ACRE	0.06
251	2000	Temporary Cover Crop	ACRE	0.06
253	0201	Hydraulic Mulch	ACRE	0.12
302	0120	Aggregate Base Course CL 5	TON	177
430	0500	Commercial Grade Hot Mix Asphalt	TON	17
702	0100	Mobilization	L SUM	1
704	0100	Flagging	MHR	500
704	1000	Traffic Control Signs	UNIT	1,591
704	1052	Type III Barricade	EA	23
704	1060	Delineator Drums	EA	59
704	1067	Tubular Markers	EA	29
704	1087	Sequencing Arrow Panel - Type C	EA	2
708	1540	Inlet Protection-Special	EA	7
708	1541	Remove Inlet Protection-Special	EA	7
714	4097	Pipe Conduit 15IN-Storm Drain	LF	51
714	4107	Pipe Conduit 24IN-Storm Drain	LF	8
722	3510	Inlet-Type 2	EA	1
722	3761	Inlet Special-Type 2 60IN	EA	1
722	3940	Inlet Slotted Drain 24IN	LF	5
748	0140	Curb & Gutter-Type 1	LF	809
750	0030	Pigmented Imprinted Concrete	SY	114
750	0115	Sidewalk Concrete 4"	SY	358
750	0210	Concrete Median Nose Paving	SY	21
750	2115	Detectable Warning Panels	SF	168
754	0110	Flat Sheet For Signs-Type XI Refl Sheeting	SF	22.8
754	0170	Flexible Delineators	EA	12
754	0206	Steel Galv Posts-Telescoping Perforated Tube	LF	47.2
754	0592	Reset Sign Panel	EA	4
754	0596	Reset Mile Post	EA	1
762	0113	Epoxy PVMT MK 4IN Line	LF	4,448
762	0115	Epoxy PVMT MK 8IN Line	LF	284
762	0117	Epoxy PVMT MK 24IN Line	LF	478
762	1500	Obliteration of PVMT MK	SF	1,750
772	2120	Flashing Beacon-Post Mounted-School	EA	1
772	3150	Remove Flashing Beacon System	EA	2

Quantities

Killdeer Safe Routes to School

BASIS OF ESTIMATE

Removal of Pavement
Salvaged Base Course @ 1.875 Ton/CY
Bituminous @ 2 Ton/CY
Concrete @ 2 Ton/CY

Existing Sections			
Location	**Concrete**	**Asphalt**	**Aggregate**
Hwy 22 (4.5" HBP, 15" Base)	-	4.5"	15"
Concrete sidewalk (4" PCC, 4" Base)	4"	-	4"

Aggregate base to be removed under HBP: 2.5”
Aggregate base to be removed under concrete sidewalks: 2”

Aggregate Base Course CL 5
Aggregate Base Course CL 5 @ 1.875 Ton/CY

Aggregate Sections	
Location	**Thickness**
Median	8"
HBP	15"
Sidewalk	4"

Asphalt Pavement
Tack Coat @ 0.05 Gal/SY (included in the price bid for Commercial Grade Asphalt)
Commercial Grade Asphalt @ 2 Ton/CY
PG 64-34 Asphalt Cement @ 6.1% (included in the price bid for Commercial Grade Asphalt)

Lift Thicknesses:
Lift # 1 - 2.5” PG 64-34 Lift # 2 - 2.0” PG 64-34

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

Seeding & Hydraulic Mulch
Estimated 4ft width along all replaced sidewalk areas.
Exception to areas near ROW. See Section 76 and 77

Topsoil
Estimated 4ft width along all replaced sidewalk areas at a 6-inch depth.
225SY x 6IN = 38 CY

Topsoil affected beyond 4ft and under new sidewalk areas at a 6-inch depth.
100SY x 6IN = 17 CY

Topsoil Total = 55 CY

Pavement Marking Obliteration Summary

Pavement Marking Obliteration			
Location	4" Double Yellow (LF)	6" Crosswalk (LF)	24" Stop Bar or Continental X-Walk (LF)
ND Hwy 22 Sta 5587+50 to 5603+92	2,886	208	342
Obliteration of Pvmt MK (SF) Total	**962**	**104**	**684**
	1,750 SF		

Note: Existing markings are to be obliterated as section 100 requires and will be completed prior to installation of permanent pavement markings.

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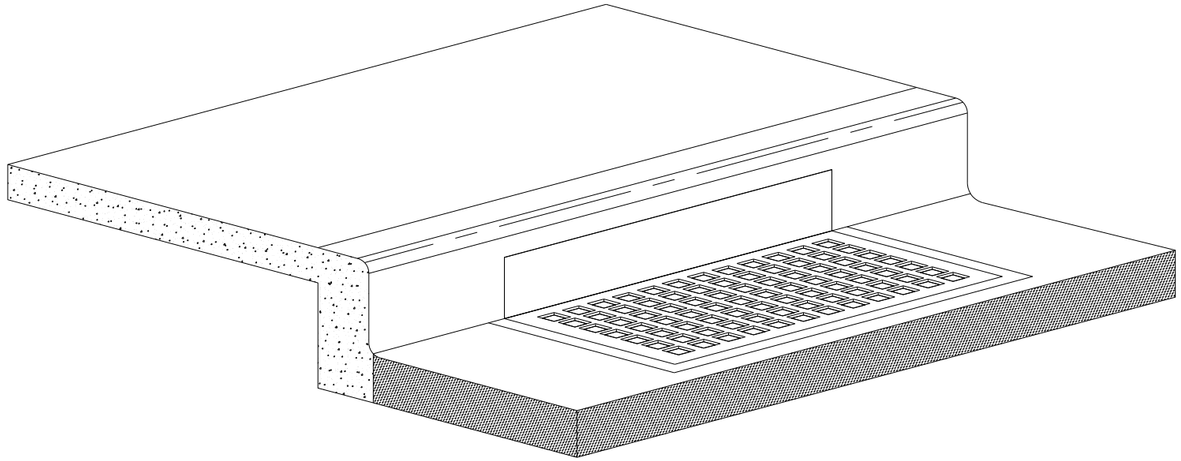
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	20	1



Inlet Protection Device

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.

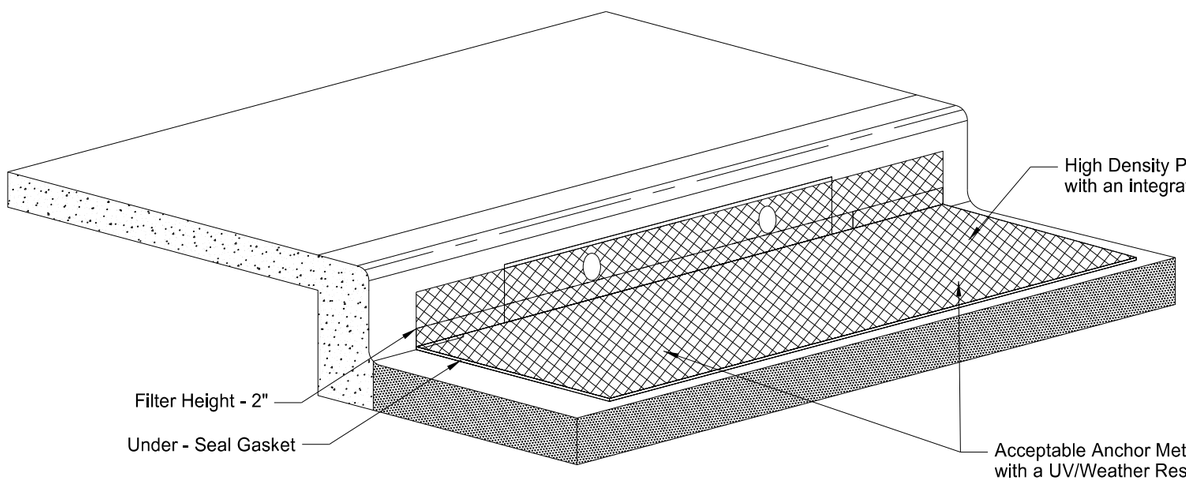
General Notes:

1. Inlet Protection shall be maintained or replaced at the direction of the engineer.

2. Manufactured alternatives may be substituted at the direction of the engineer.

3. When removing or maintaining inlet protection, care shall be taken so that fabric does not fall into the inlet. Any material falling into the inlet shall be removed immediately.

4. Inlet protection is to be used (and reused) as needed to prevent material from entering inlets as the work progresses through the project.



Acceptable Anchor Method: Fasten to inlet casting grate with a UV/Weather Resistant Plastic Cable Zip Ties - 16 to 24 in. Install zip ties at each corner of the inlet near the perimeter and two additional zip ties near the middle of the casting. Punch hole through filter and run cable tie downward around grate and back up to fasten.

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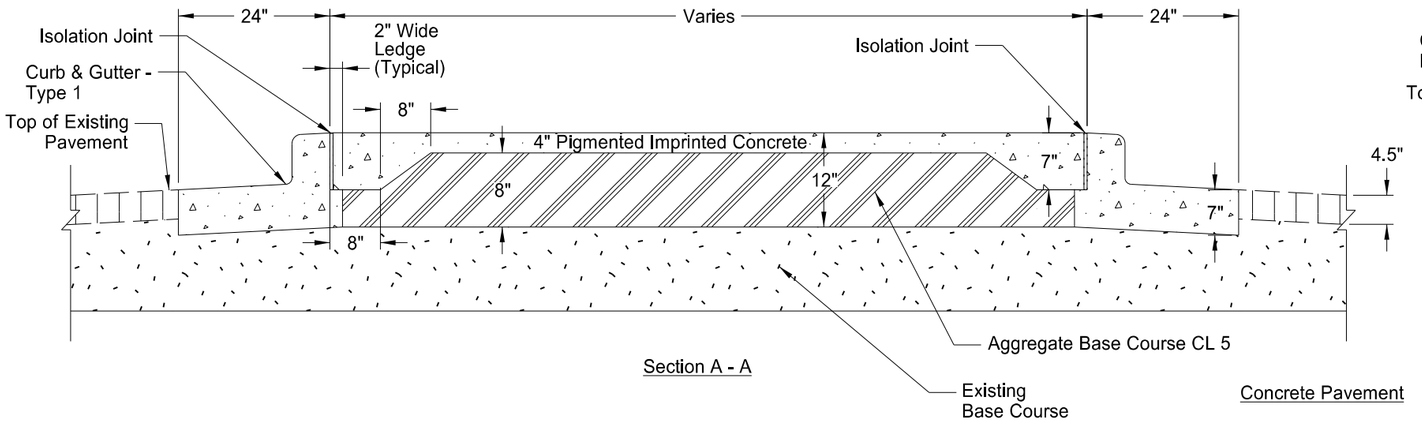
General Details

Killdeer Safe Routes to School

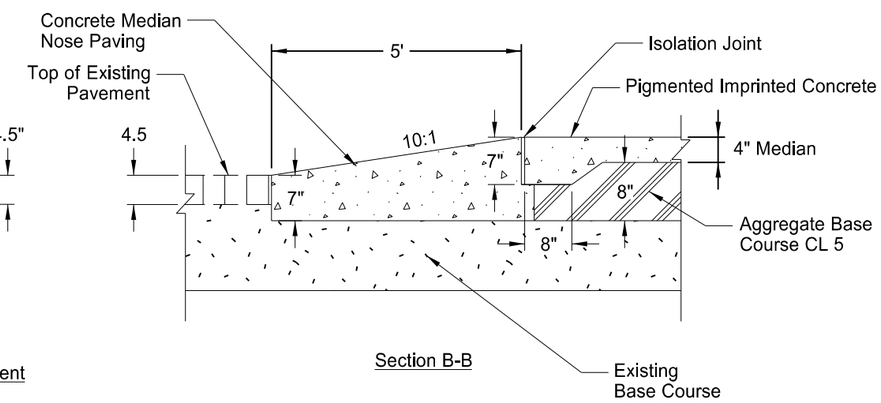
Inlet Protection Device

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	20	2

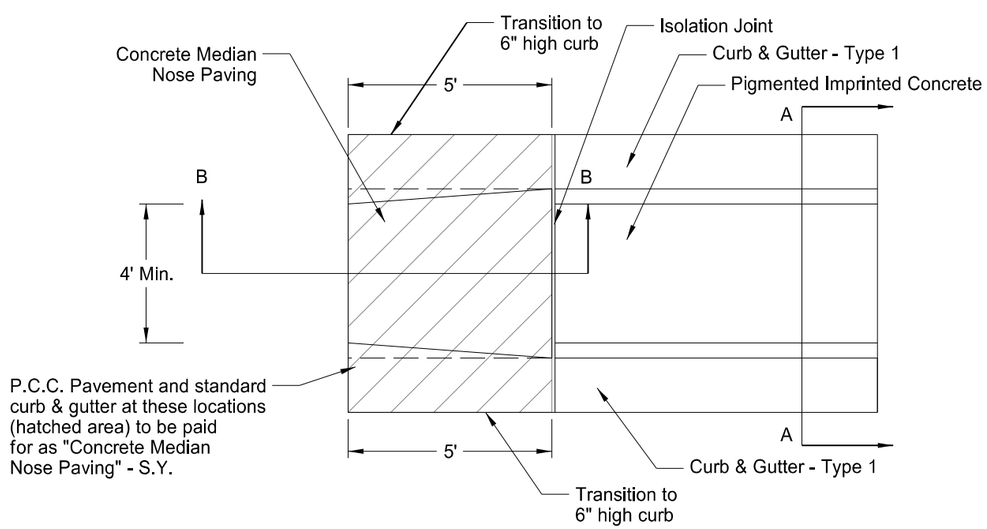


Section A - A

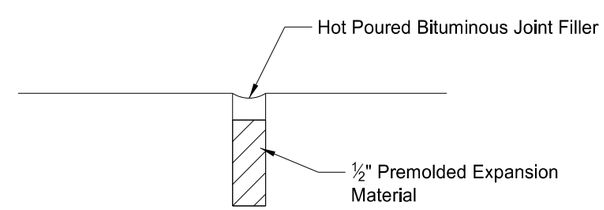
Concrete Pavement



Section B-B



Median Plan View



Isolation Joint

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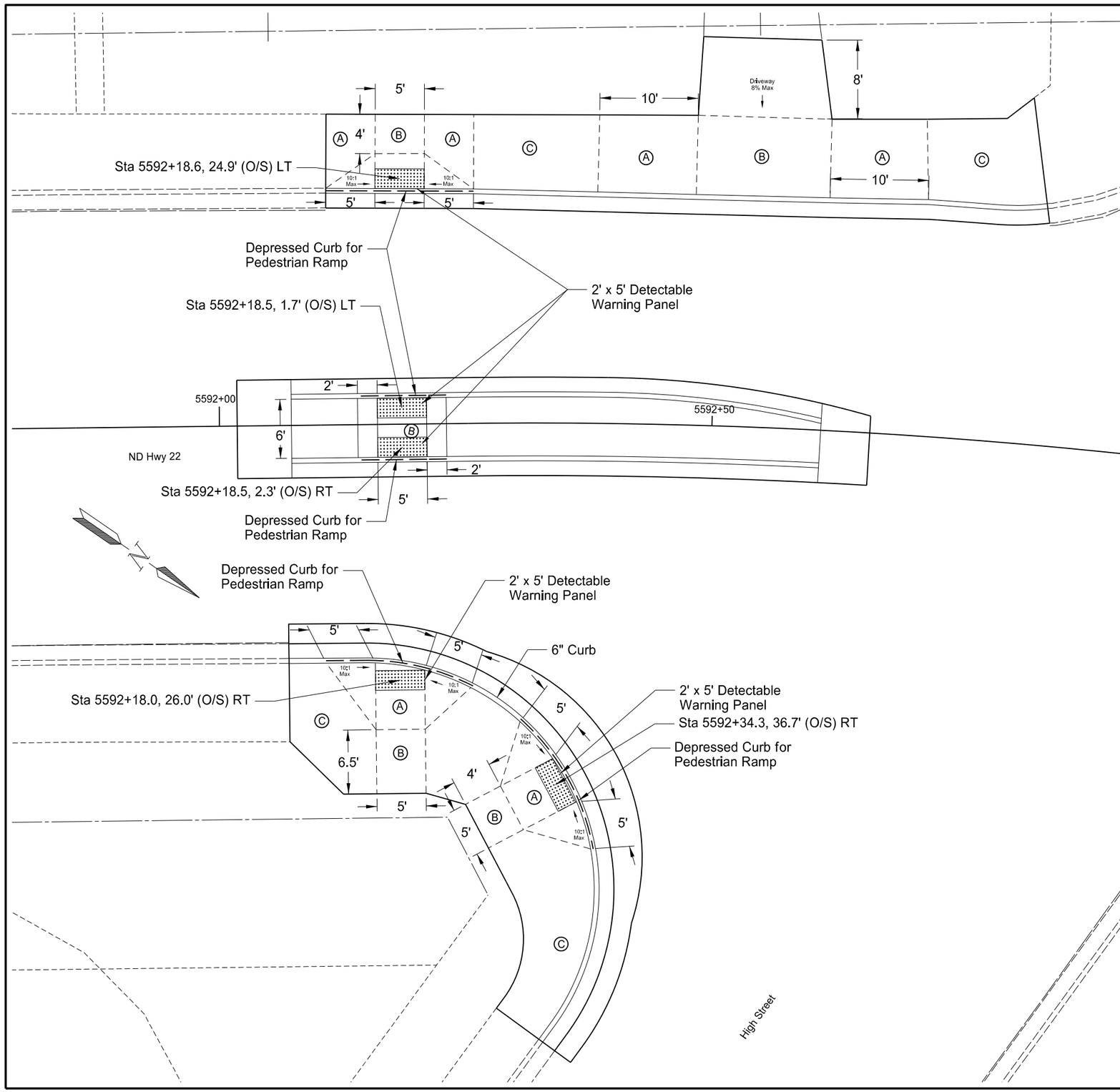
General Details

Killdeer Safe Routes to School

Concrete Median Paving Detail

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	20	3



Notes:

1. The Engineer shall approve all form grades prior to placement of concrete.

2. Dimensions shown may vary from actual. Contractor shall field adjust if maximum slopes cannot be met with dimensions shown.

3. Stations and offsets given are to the center of the detectable warning panel.

4. All curb ramp flares are graded unless otherwise noted.

5. See standard drawing D-750-3 for more details.

(A) Curb Ramp
12:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

(B) Landing
50:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

(C) Variable Width Sidewalk
20:1 MaximumLongitudinal Slope
50:1 Maximum Cross Slope

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General Details

Killdeer Safe Routes to School

ADA Ramp Details
ND Hwy 22 & High Street

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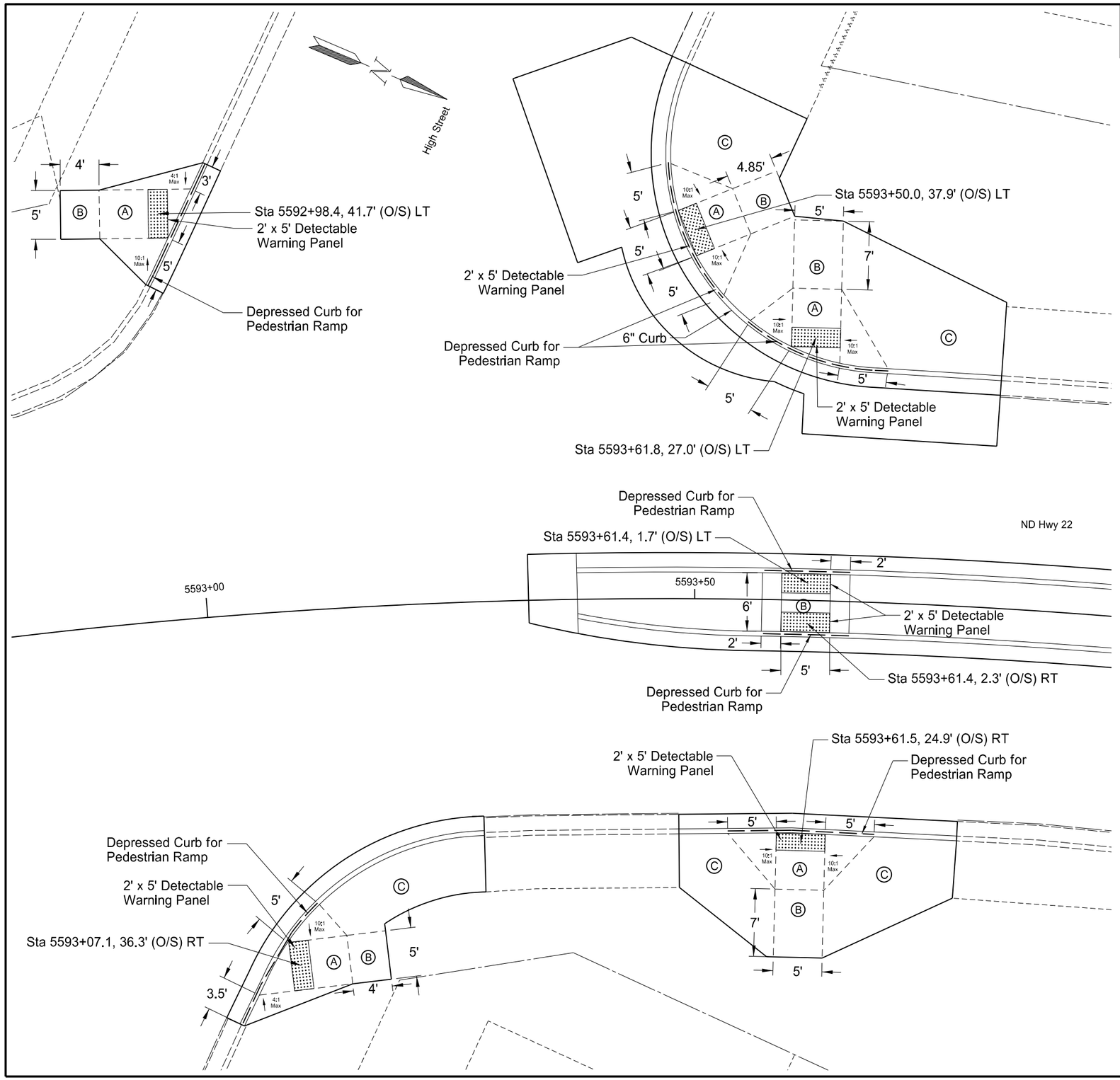
ND	SRC-5-022(114)104	20	4



Notes:

1. The Engineer shall approve all form grades prior to placement of concrete.

2. Dimensions shown may vary from actual. Contractor shall field adjust if maximum slopes cannot be met with dimensions shown.

3. Stations and offsets given are to the center of the detectable warning panel.

4. All curb ramp flares are graded unless otherwise noted.

5. See standard drawing D-750-3 for more details.

(A) Curb Ramp
12:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

(B) Landing
50:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

(C) Variable Width Sidewalk
20:1 MaximumLongitudinal Slope
50:1 Maximum Cross Slope

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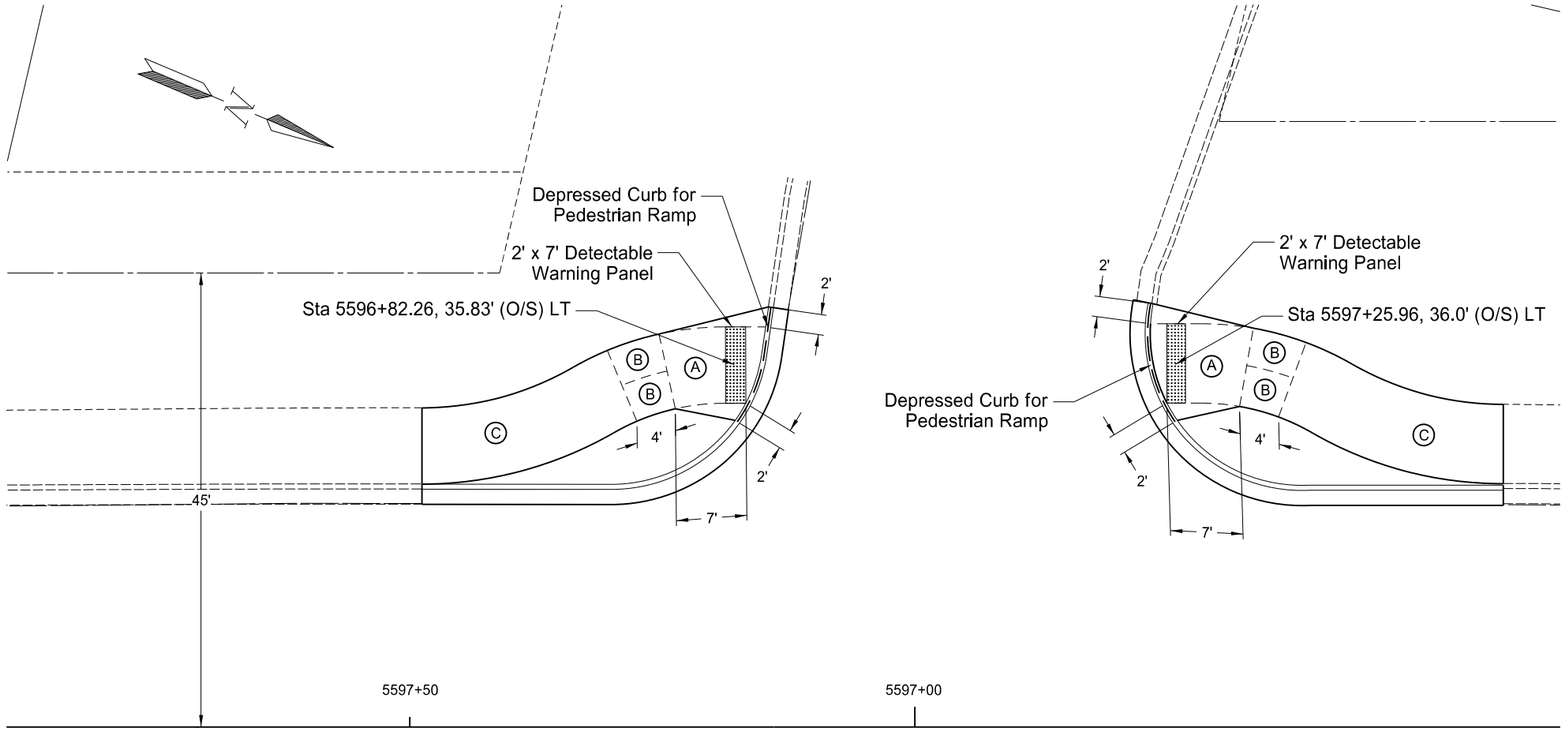
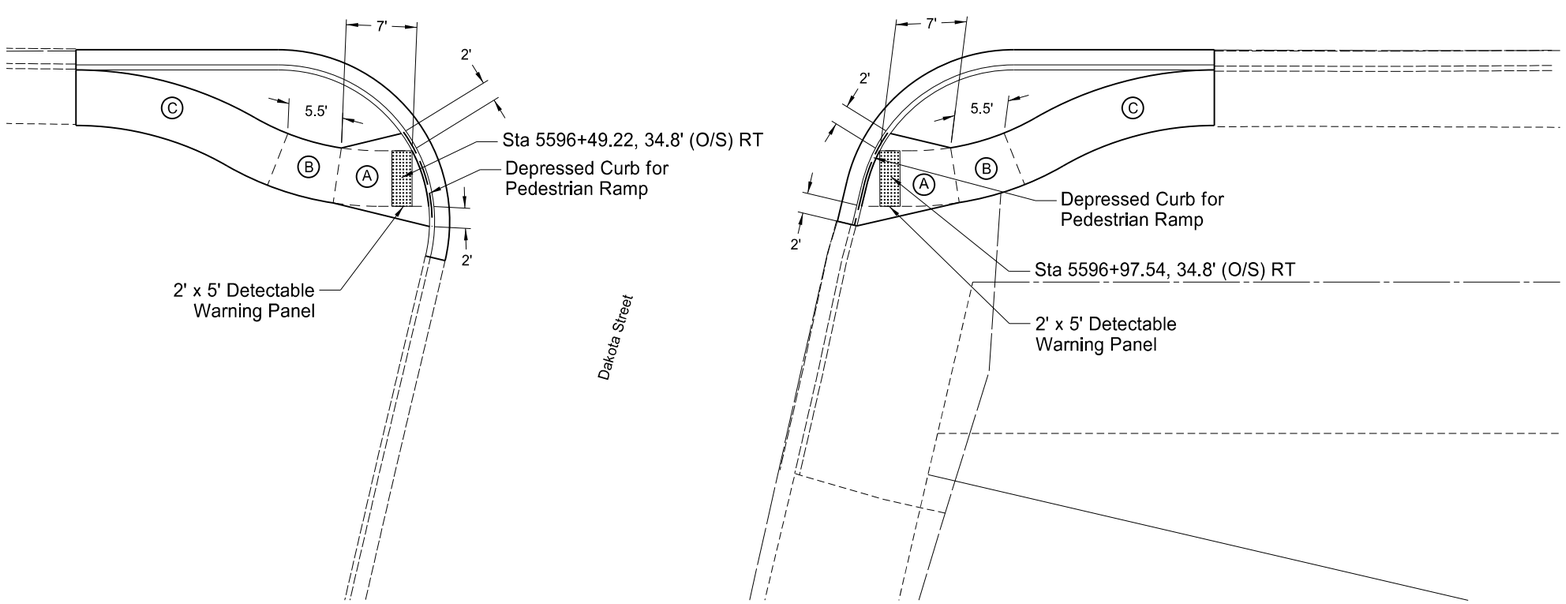
General Details

Killdeer Safe Routes to School

ADA Ramp Details
ND Hwy 22 & High Street

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	20	5





Notes:

1. The Engineer shall approve all form grades prior to placement of concrete.

2. Dimensions shown may vary from actual. Contractor shall field adjust if maximum slopes cannot be met with dimensions shown.

3. Stations and offsets given are to the center of the detectable warning panel.

4. All curb ramp flares are graded unless otherwise noted.

5. See standard drawing D-750-3 for more details.

(A) Curb Ramp
12:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

(B) Landing
50:1 Maximum Longitudinal Slope
50:1 Maximum Cross Slope

(C) Variable Width Sidewalk
20:1 MaximumLongitudinal Slope
50:1 Maximum Cross Slope

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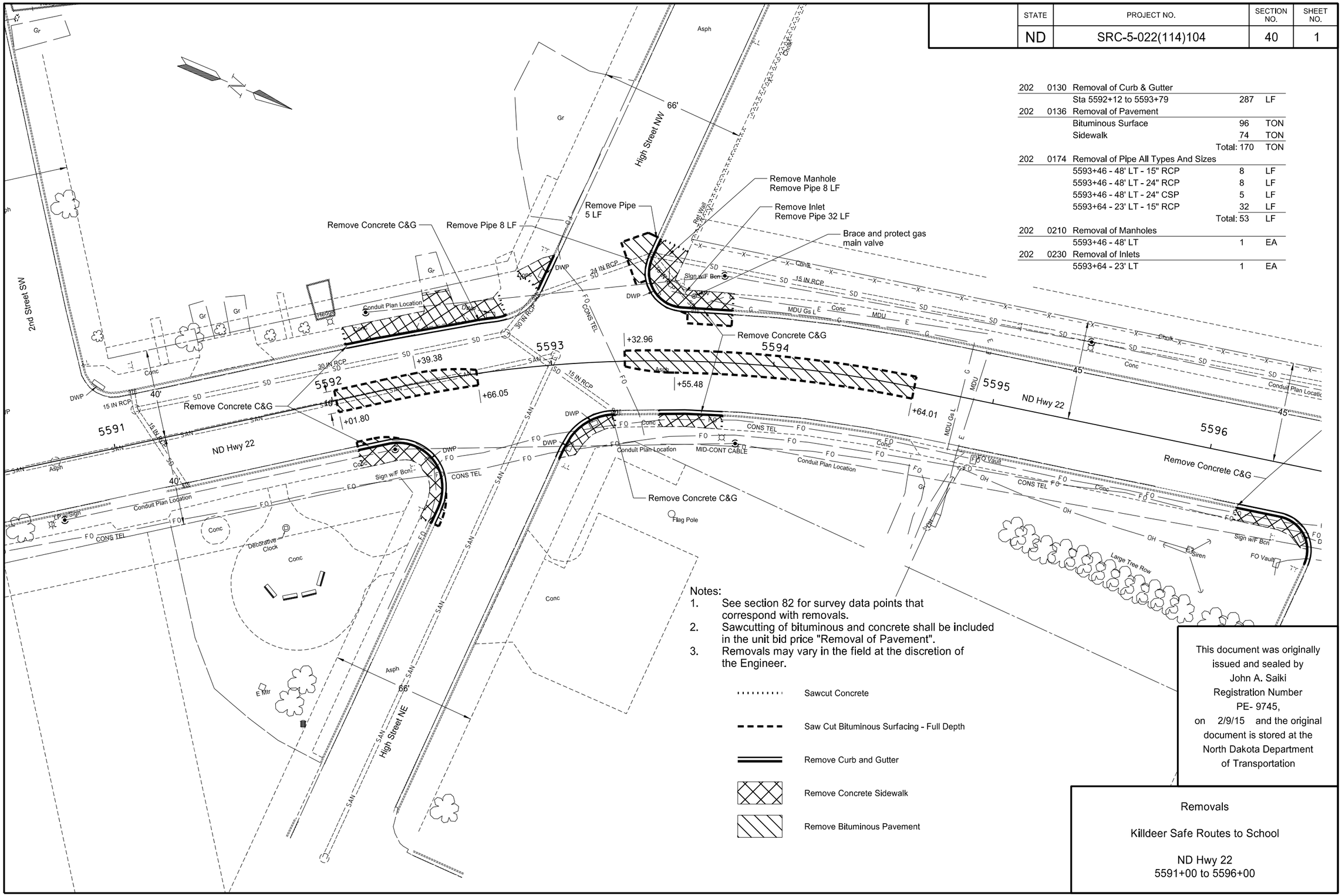
General Details

Killdeer Safe Routes to School

ADA Ramp Details
ND Hwy 22 & Dakota Street

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	40	1

202	0130	Removal of Curb & Gutter		
		Sta 5592+12 to 5593+79	287	LF
202	0136	Removal of Pavement		
		Bituminous Surface	96	TON
		Sidewalk	74	TON
		Total:	170	TON
202	0174	Removal of Pipe All Types And Sizes		
		5593+46 - 48' LT - 15" RCP	8	LF
		5593+46 - 48' LT - 24" RCP	8	LF
		5593+46 - 48' LT - 24" CSP	5	LF
		5593+64 - 23' LT - 15" RCP	32	LF
		Total:	53	LF
202	0210	Removal of Manholes		
		5593+46 - 48' LT	1	EA
202	0230	Removal of Inlets		
		5593+64 - 23' LT	1	EA



Notes:

1. See section 82 for survey data points that correspond with removals.
2. Sawcutting of bituminous and concrete shall be included in the unit bid price "Removal of Pavement".
3. Removals may vary in the field at the discretion of the Engineer.

Sawcut Concrete

Saw Cut Bituminous Surfacing - Full Depth

Remove Curb and Gutter

Remove Concrete Sidewalk

Remove Bituminous Pavement

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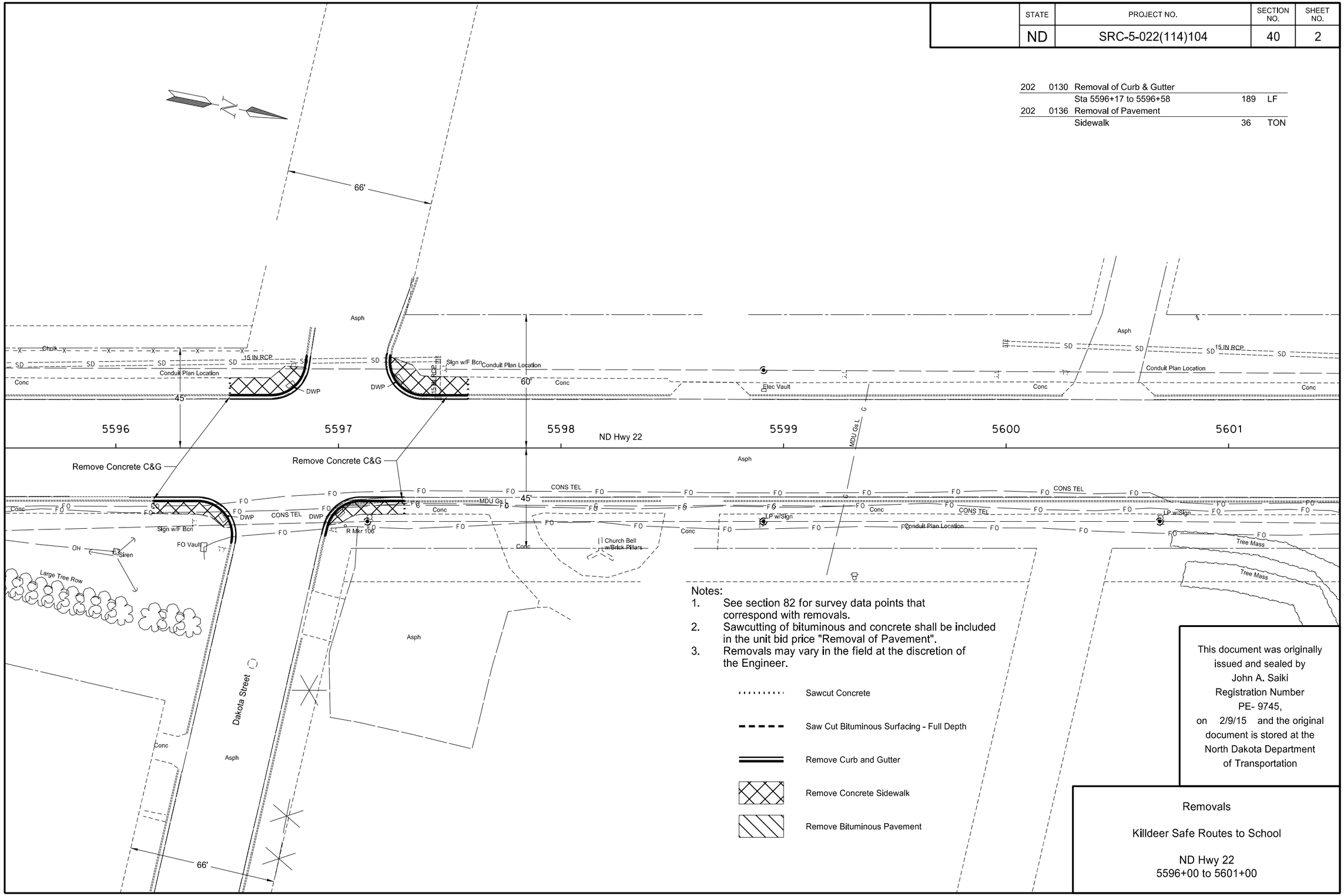
Removals

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	40	2

202	0130	Removal of Curb & Gutter		
		Sta 5596+17 to 5596+58	189	LF
202	0136	Removal of Pavement		
		Sidewalk	36	TON



Notes:

1. See section 82 for survey data points that correspond with removals.
2. Sawcutting of bituminous and concrete shall be included in the unit bid price "Removal of Pavement".
3. Removals may vary in the field at the discretion of the Engineer.

Sawcut Concrete

Saw Cut Bituminous Surfacing - Full Depth

Remove Curb and Gutter

Remove Concrete Sidewalk

Remove Bituminous Pavement

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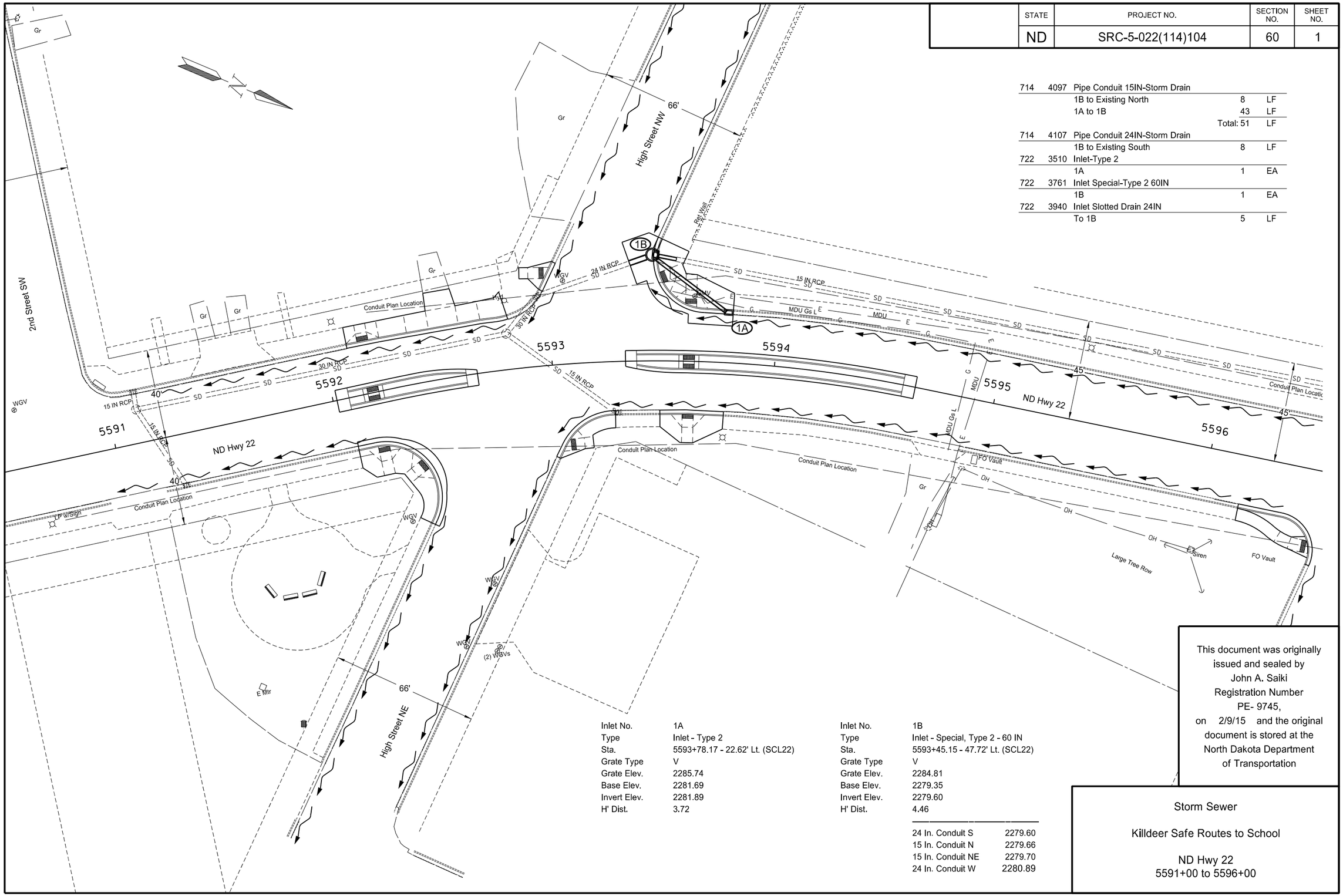
Removals

Killdeer Safe Routes to School

ND Hwy 22
5596+00 to 5601+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	60	1

714	4097	Pipe Conduit 15IN-Storm Drain		
		1B to Existing North	8	LF
		1A to 1B	43	LF
			Total: 51	LF
714	4107	Pipe Conduit 24IN-Storm Drain		
		1B to Existing South	8	LF
722	3510	Inlet-Type 2		
		1A	1	EA
722	3761	Inlet Special-Type 2 60IN		
		1B	1	EA
722	3940	Inlet Slotted Drain 24IN		
		To 1B	5	LF



Inlet No.	1A
Type	Inlet - Type 2
Sta.	5593+78.17 - 22.62' Lt. (SCL22)
Grate Type	V
Grate Elev.	2285.74
Base Elev.	2281.69
Invert Elev.	2281.89
H' Dist.	3.72

Inlet No.	1B
Type	Inlet - Special, Type 2 - 60 IN
Sta.	5593+45.15 - 47.72' Lt. (SCL22)
Grate Type	V
Grate Elev.	2284.81
Base Elev.	2279.35
Invert Elev.	2279.60
H' Dist.	4.46

24 In. Conduit S	2279.60
15 In. Conduit N	2279.66
15 In. Conduit NE	2279.70
24 In. Conduit W	2280.89

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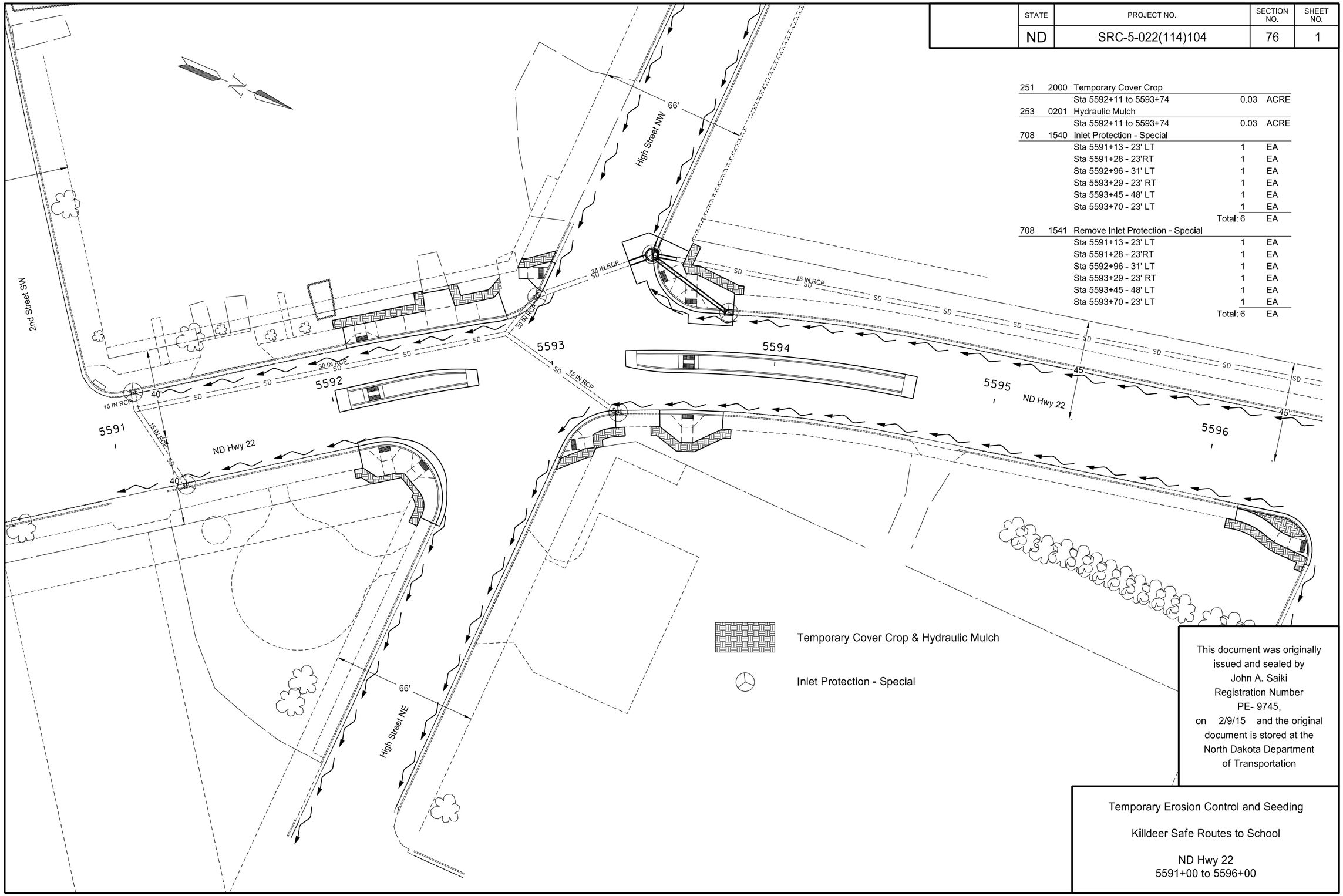
Storm Sewer

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	76	1

251	2000	Temporary Cover Crop		
		Sta 5592+11 to 5593+74	0.03	ACRE
253	0201	Hydraulic Mulch		
		Sta 5592+11 to 5593+74	0.03	ACRE
708	1540	Inlet Protection - Special		
		Sta 5591+13 - 23' LT	1	EA
		Sta 5591+28 - 23'RT	1	EA
		Sta 5592+96 - 31' LT	1	EA
		Sta 5593+29 - 23' RT	1	EA
		Sta 5593+45 - 48' LT	1	EA
		Sta 5593+70 - 23' LT	1	EA
			Total: 6	EA
708	1541	Remove Inlet Protection - Special		
		Sta 5591+13 - 23' LT	1	EA
		Sta 5591+28 - 23'RT	1	EA
		Sta 5592+96 - 31' LT	1	EA
		Sta 5593+29 - 23' RT	1	EA
		Sta 5593+45 - 48' LT	1	EA
		Sta 5593+70 - 23' LT	1	EA
			Total: 6	EA



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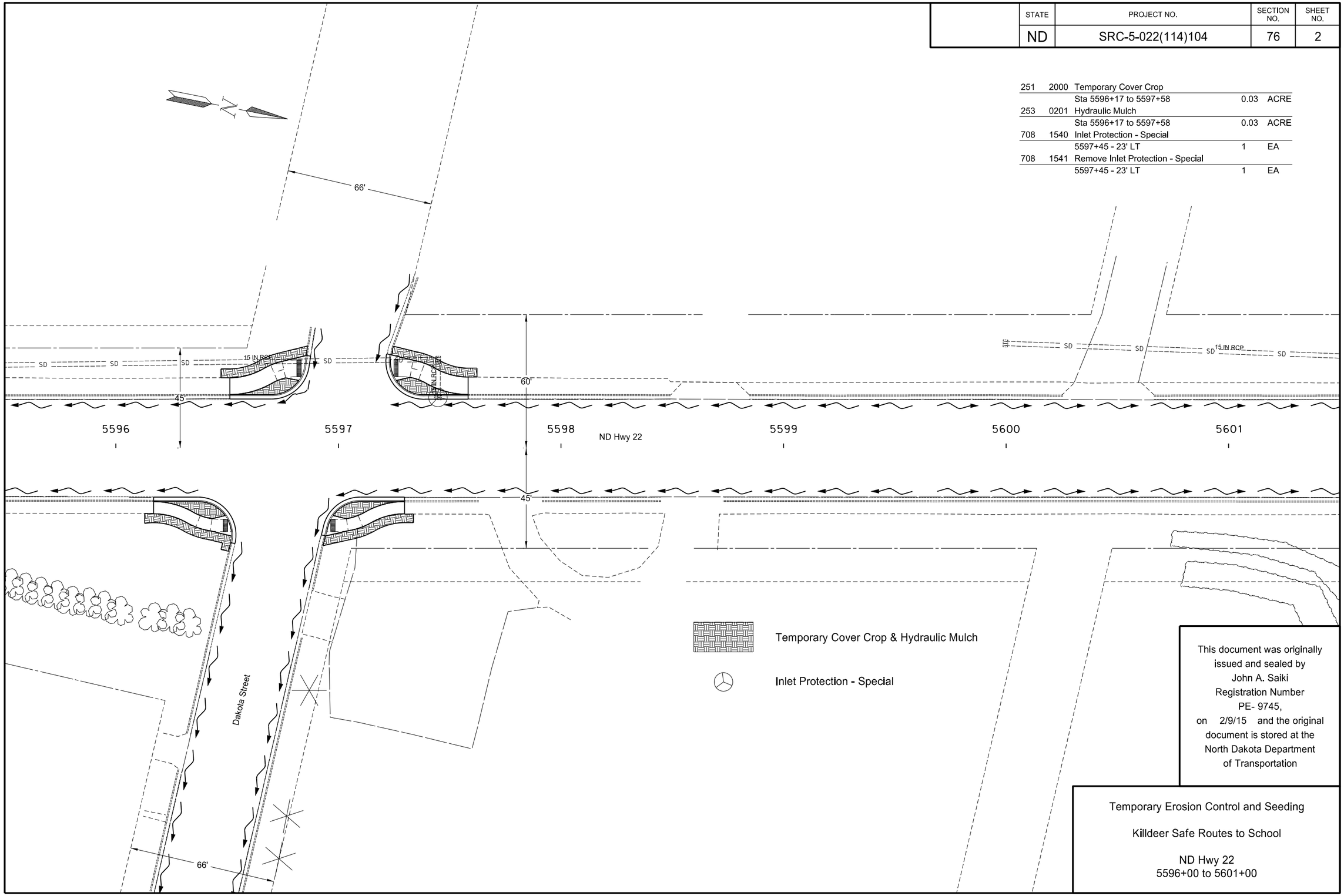
Temporary Erosion Control and Seeding

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	76	2

251	2000	Temporary Cover Crop		
		Sta 5596+17 to 5597+58	0.03	ACRE
253	0201	Hydraulic Mulch		
		Sta 5596+17 to 5597+58	0.03	ACRE
708	1540	Inlet Protection - Special		
		5597+45 - 23' LT	1	EA
708	1541	Remove Inlet Protection - Special		
		5597+45 - 23' LT	1	EA



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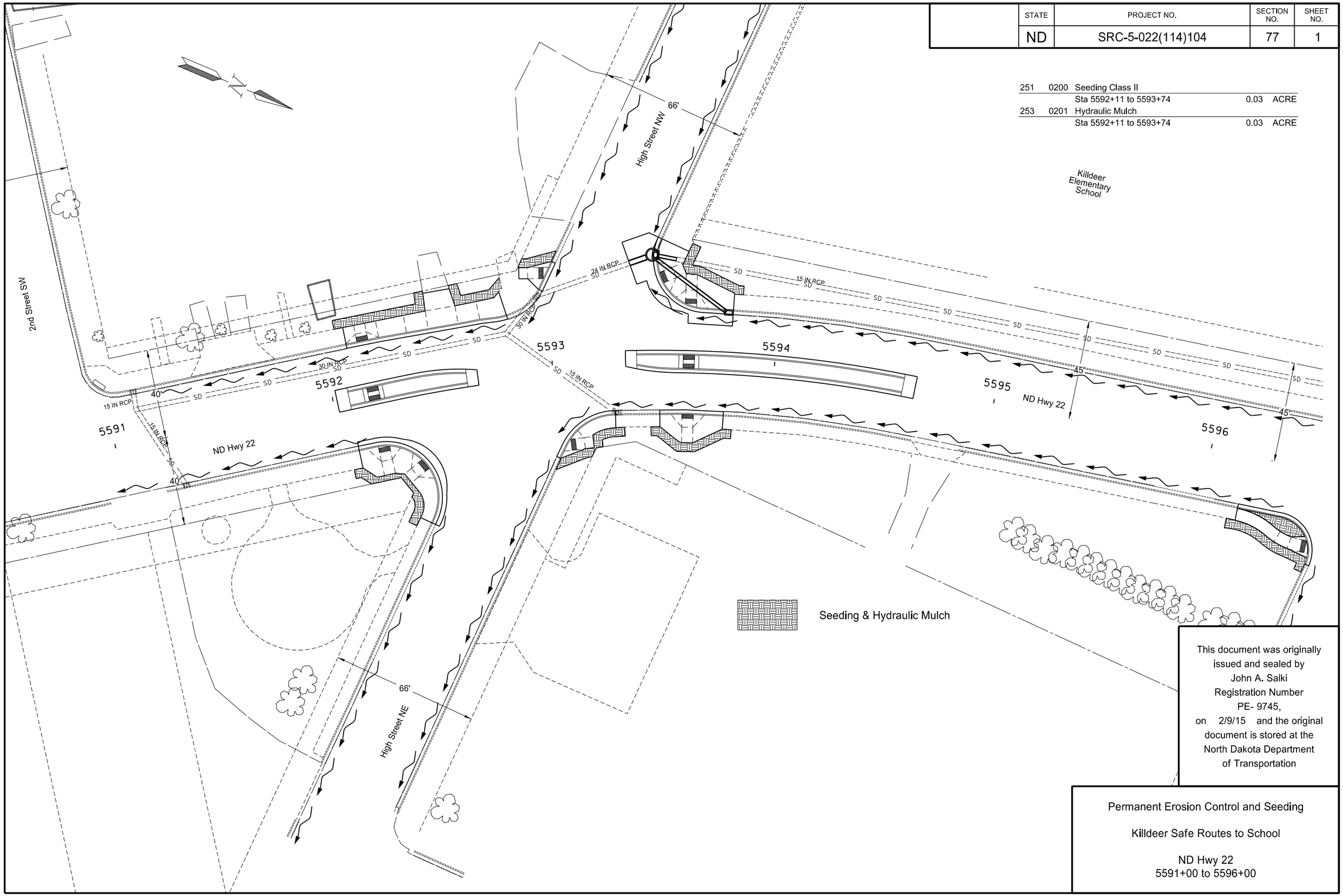
Temporary Erosion Control and Seeding

Killdeer Safe Routes to School

ND Hwy 22
5596+00 to 5601+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	77	1

251	0200	Seeding Class II		
		Sta 5592+11 to 5593+74	0.03	ACRE
253	0201	Hydraulic Mulch		
		Sta 5592+11 to 5593+74	0.03	ACRE



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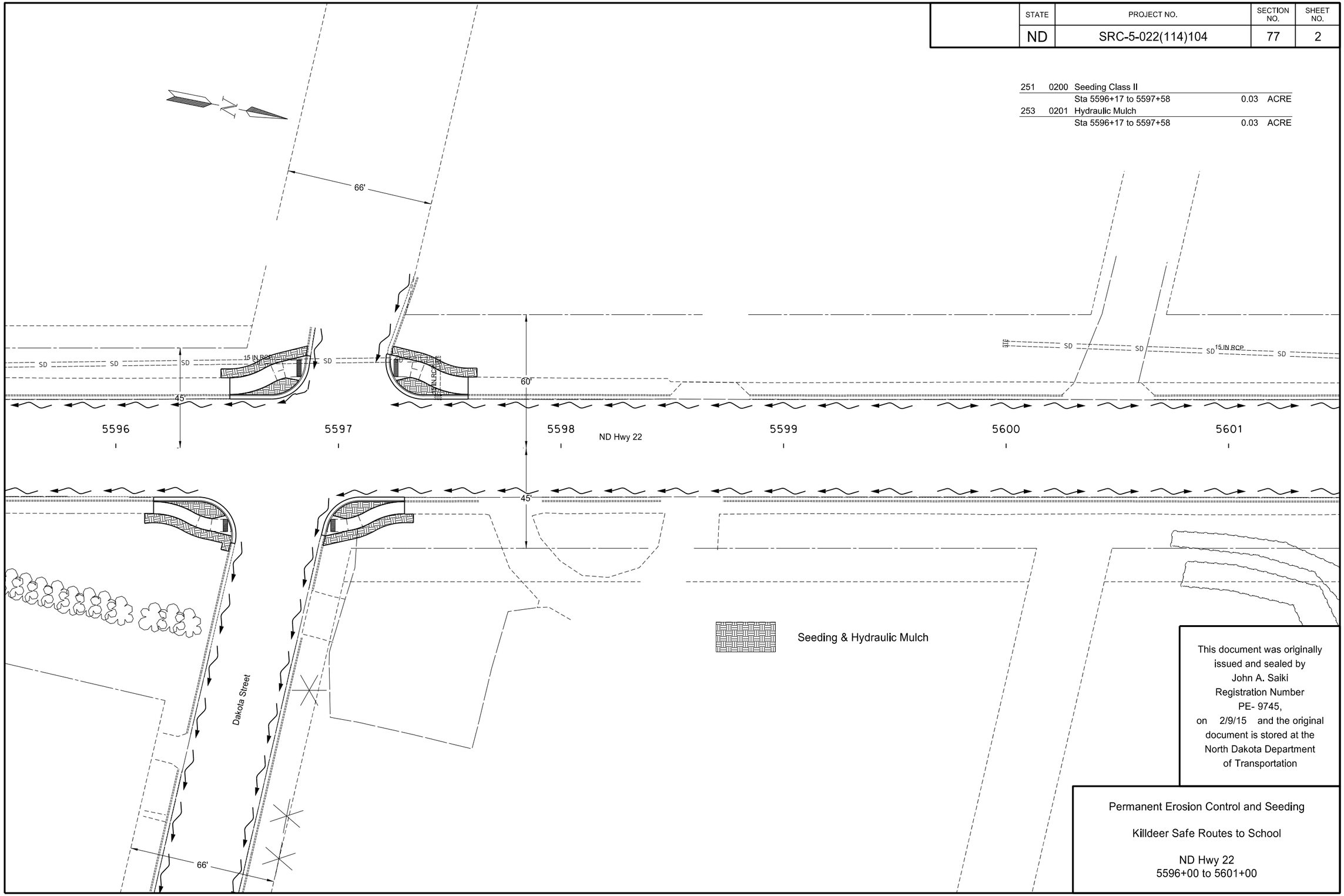
Permanent Erosion Control and Seeding

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	77	2

251	0200	Seeding Class II		
		Sta 5596+17 to 5597+58	0.03	ACRE
253	0201	Hydraulic Mulch		
		Sta 5596+17 to 5597+58	0.03	ACRE



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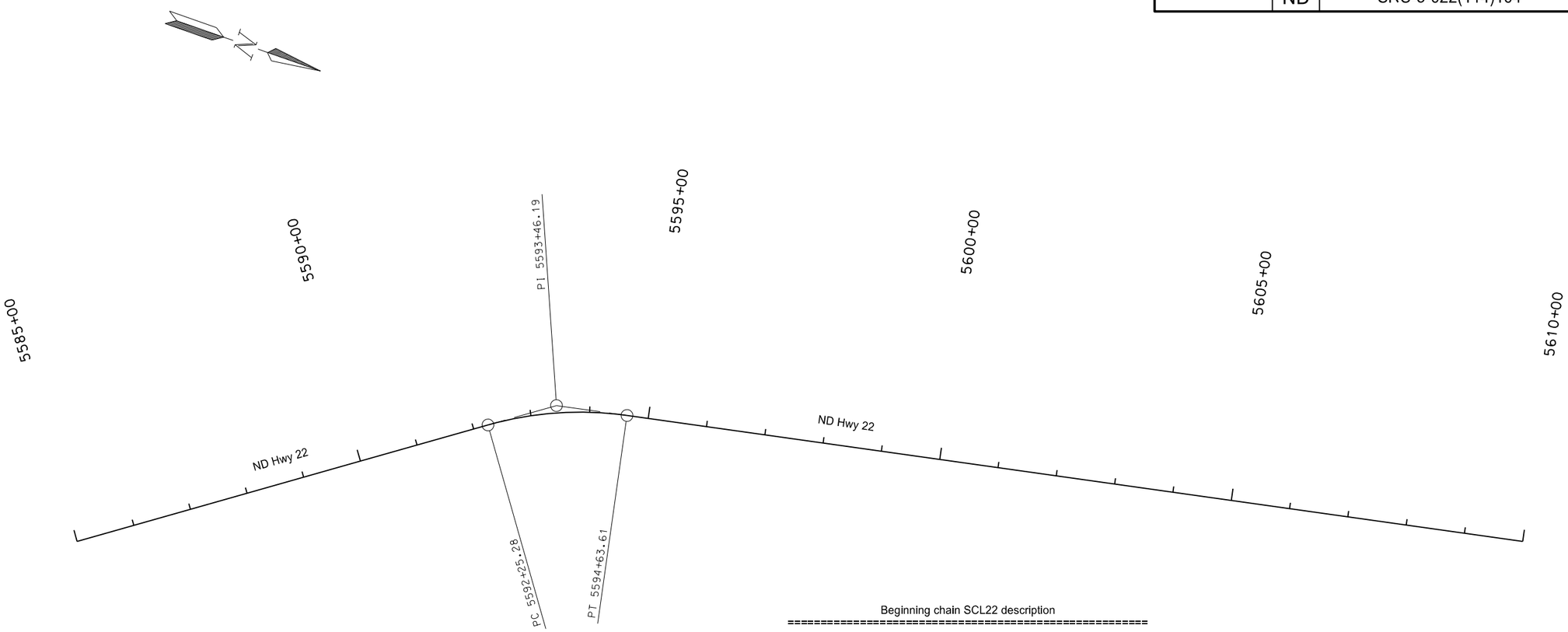
Permanent Erosion Control and Seeding

Killdeer Safe Routes to School

ND Hwy 22
5596+00 to 5601+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	82	1



Curve C35
PI = 5593+46.19
Delta = 23° 49' 60" (RT)
Da = 9° 59' 60"
R = 572.96
T = 120.92
L = 238.33

Beginning chain SCL22 description

==========

Point 10 N 629,390.63 E 1,410,650.66 Sta 5585+00.00

Course from 10 to 11 N 35° 08' 27.99" W Dist 1,780.77

Point 11 N 629,983.71 E 1,410,233.19 Sta 5592+25.28

Curve Data

——

Curve C35

P.I. Station	5593+46.19	N	630,082.59 E	1,410,163.60
	Delta =	23° 49' 59.98" (RT)		
	Degree =	9° 59' 59.86"		
	Tangent =	120.92		
	Length =	238.33		
	Radius =	572.96		
	External =	12.62		
	Long Chord =	236.62		
	Mid. Ord. =	12.35		
P.C. Station	5592+25.28	N	629,983.71 E	1,410,233.19
P.T. Station	5594+63.61	N	630,201.16 E	1,410,139.89
C.C.		N	630,313.51 E	1,410,701.72
	Back	= N 35° 08' 27.99" W		
	Ahead	= N 11° 18' 28.01" W		
	Chord Bear	= N 23° 13' 28.00" W		

Point 12 N 630,201.16 E 1,410,139.89 Sta 5594+63.61

Course from 12 to 13 N 11° 18' 28.01" W Dist 4,095.27

Point 13 N 631,707.72 E 1,409,838.63 Sta 5610+00.00

==========

Ending chain SCL22 description

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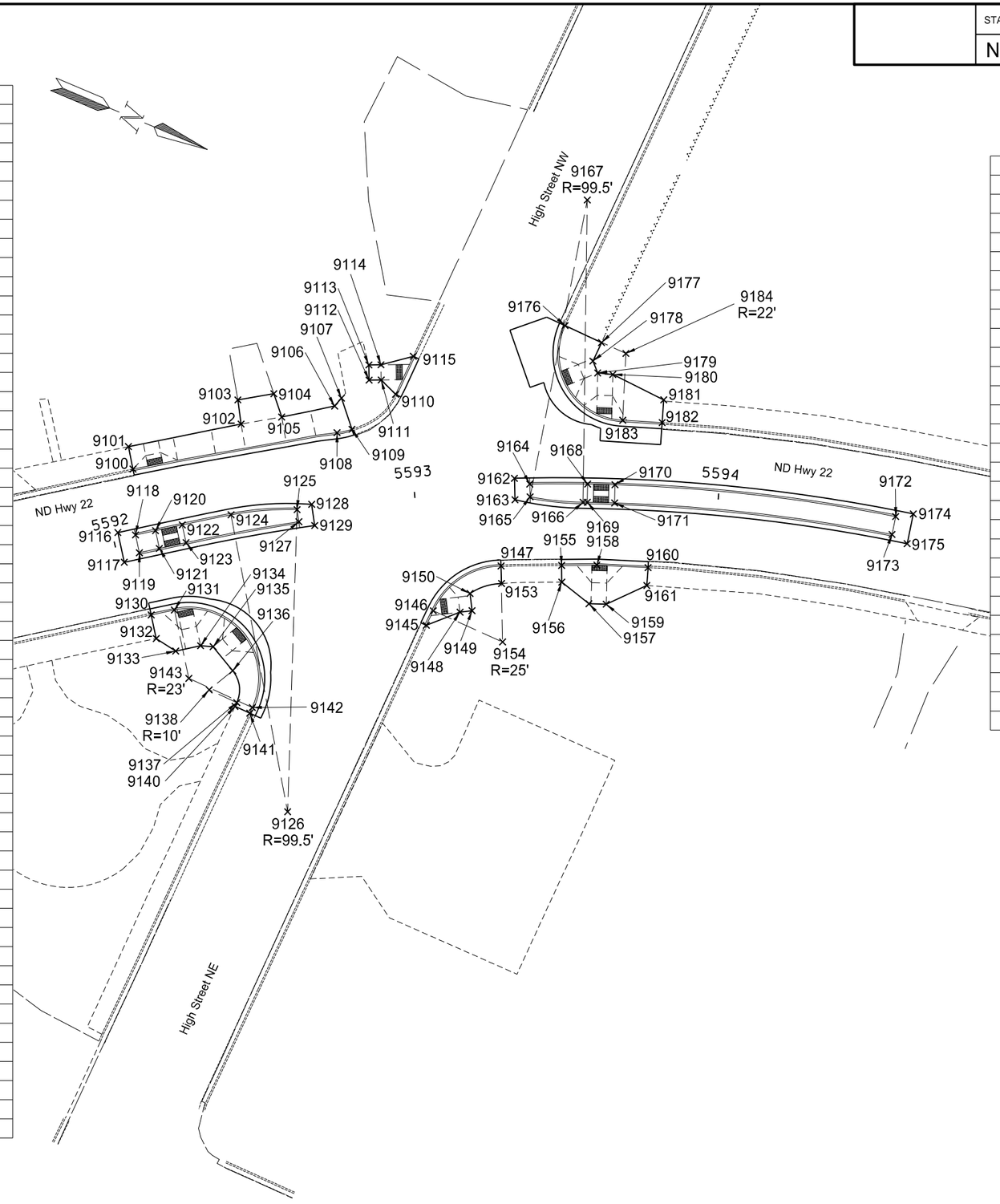
Existing Survey Data Layout

Killdeer Safe Routes to School

ND Hwy 22
5585+00 to 5610+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	82	2

ND Hwy 22 Curb & Gutter / Sidewalk				
Point	North	East	Station	Offset
9100	629958.26	1410221.72	5592+11.07	-24.04
9101	629954.01	1410215.50	5592+11.18	-31.57
9102	629985.26	1410194.19	5592+47.76	-31.47
9103	629981.19	1410187.29	5592+48.07	-39.48
9104	629991.28	1410180.79	5592+59.30	-39.57
9105	629996.67	1410186.84	5592+60.63	-31.60
9106	630011.31	1410176.71	5592+77.45	-32.82
9107	630012.37	1410173.42	5592+79.86	-35.14
9108	630015.46	1410184.46	5592+77.19	-24.02
9109	630019.54	1410181.53	5592+81.98	-24.55
9110	630028.27	1410165.31	5592+96.67	-34.57
9111	630022.09	1410162.84	5592+92.66	-39.67
9112	630018.43	1410164.45	5592+88.93	-40.01
9113	630016.42	1410159.87	5592+89.34	-45.00
9114	630020.08	1410158.26	5592+93.03	-44.66
9115	630028.78	1410151.52	5593+03.07	-46.55
9130	629982.50	1410263.59	5592+06.79	24.16
9131	629988.91	1410259.12	5592+14.60	24.18
9132	629987.08	1410270.10	5592+06.79	32.11
9133	629994.58	1410271.40	5592+12.17	37.49
9134	630001.43	1410266.58	5592+20.55	37.49
9135	630005.37	1410265.26	5592+24.53	38.68
9136	630014.38	1410270.00	5592+29.52	47.73
9137	630019.71	1410279.17	5592+28.58	58.31
9138	630009.71	1410278.85	5592+20.26	52.30
9140	630019.66	1410280.54	5592+27.67	59.41
9141	630024.99	1410280.70	5592+32.47	62.56
9142	630025.05	1410278.66	5592+33.82	60.91
9143	630002.06	1410277.98	5592+14.50	47.18
9145	630011.31	1410268.39	5592+27.78	44.65
9146	630067.25	1410231.40	5593+00.33	42.07
9147	630082.31	1410203.82	5593+27.61	24.00
9148	630075.79	1410223.09	5593+12.58	38.55
9149	630079.26	1410221.10	5593+16.85	38.29
9150	630076.41	1410216.14	5593+16.44	32.58
9153	630084.70	1410209.08	5593+27.57	29.77
9154	630092.51	1410226.64	5593+27.22	48.99
9155	630100.60	1410195.87	5593+48.43	24.13
9156	630102.79	1410200.92	5593+48.50	29.63
9157	630113.80	1410203.97	5593+58.07	36.64
9158	630111.23	1410191.25	5593+60.53	23.87
9159	630119.09	1410201.88	5593+64.16	36.64
9160	630127.10	1410185.43	5593+78.17	24.05
9161	630129.00	1410191.01	5593+78.06	29.94
9176	630070.87	1410122.73	5593+49.32	-54.82
9177	630084.09	1410123.21	5593+60.38	-49.39
9178	630083.85	1410129.92	5593+57.87	-43.24
9179	630086.82	1410132.90	5593+59.41	-39.37
9180	630091.61	1410131.42	5593+64.09	-39.00
9181	630110.30	1410132.56	5593+80.21	-31.39
9182	630112.75	1410139.69	5593+80.12	-23.86
9183	630100.47	1410144.01	5593+67.63	-24.05
9184	630092.86	1410123.37	5593+67.86	-46.05



Concrete Median				
Point	North	East	Station	Offset
9116	630098.98	1410173.97	5593+55.48	3.26
9117	630061.45	1410081.81	5593+55.42	-96.24
9118	630098.04	1410167.87	5593+56.90	-2.74
9119	630100.27	1410173.44	5593+56.88	3.26
9120	630106.41	1410164.56	5593+65.86	-2.74
9121	630108.64	1410170.13	5593+65.93	3.26
9122	630195.61	1410138.16	5594+58.54	-2.80
9123	630196.79	1410144.04	5594+58.48	3.20
9124	630200.61	1410135.09	5594+64.01	-4.81
9125	630202.57	1410144.90	5594+64.01	5.19
9126	630070.87	1410122.73	5593+49.32	-54.82
9127	630084.09	1410123.21	5593+60.38	-49.39
9128	630083.85	1410129.92	5593+57.87	-43.24
9129	630086.82	1410132.90	5593+59.41	-39.37
9162	630373.02	1410042.70	5596+51.19	-61.60
9163	630395.87	1410061.15	5596+69.99	-39.03
9164	630412.49	1410087.38	5596+81.14	-10.05
9165	630435.09	1410133.39	5596+94.27	39.50
9166	630435.16	1410131.39	5596+94.74	37.55
9167	630435.24	1410129.36	5596+95.21	35.57
9168	630435.85	1410125.65	5596+96.54	32.05
9169	630440.07	1410130.41	5596+99.74	37.55
9170	630438.99	1410125.02	5596+99.74	32.05
9171	630450.33	1410119.42	5597+11.96	28.79
9172	630453.96	1410123.56	5597+14.71	33.55
9173	630466.77	1410111.30	5597+29.67	24.05
9174	630467.85	1410116.70	5597+29.67	29.55
9175	630447.29	1410115.20	5597+09.80	24.05

Note: Curb and gutter points are to back of curb

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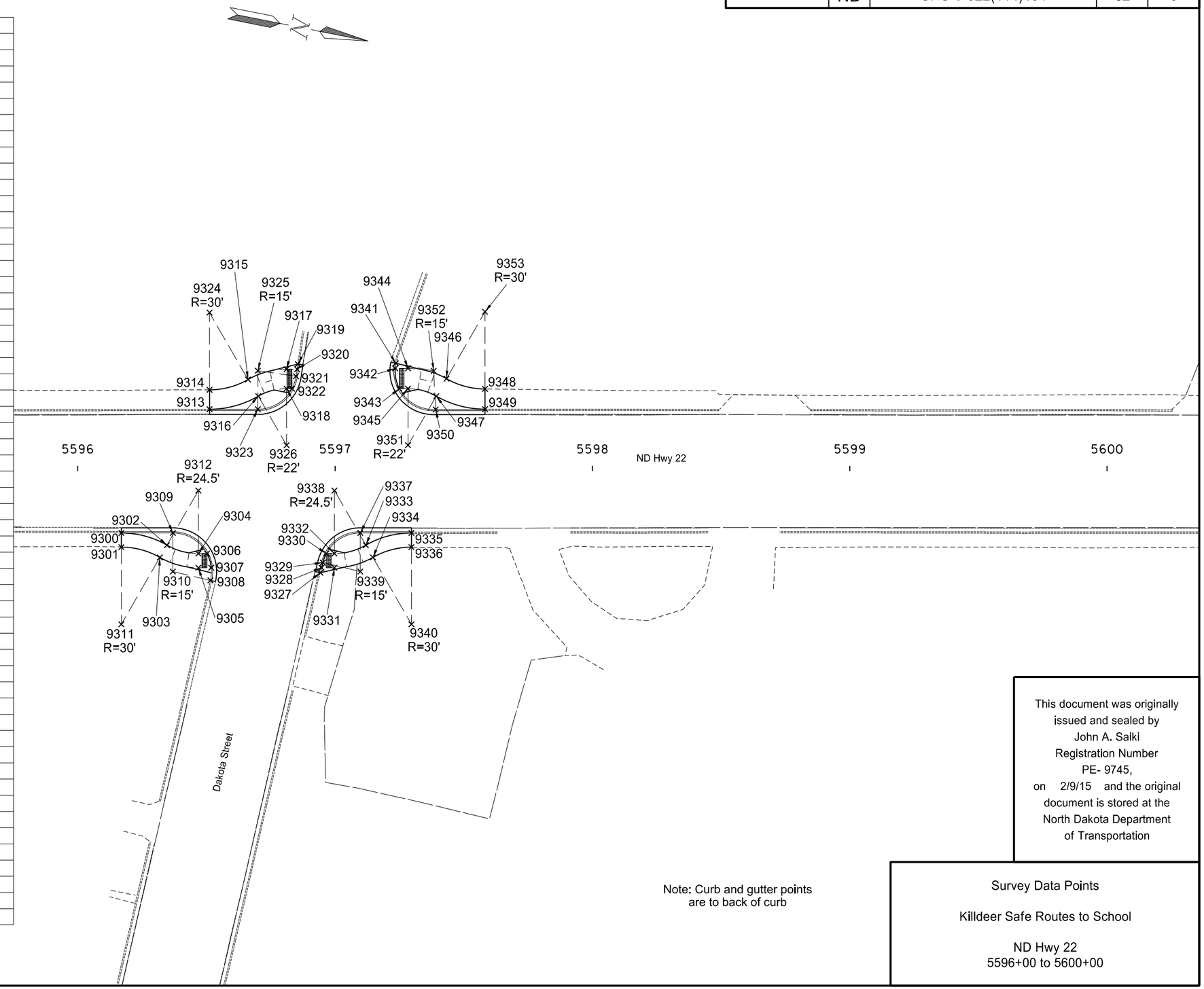
Survey Data Points

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	82	3

ND Hwy 22 Curb & Gutter / Sidewalk				
Point	North	East	Station	Offset
9300	630356.23	1410133.41	5596+16.94	24.05
9301	630357.31	1410138.80	5596+16.94	29.55
9302	630374.52	1410134.58	5596+34.65	28.79
9303	630372.77	1410139.79	5596+31.91	33.55
9304	630387.15	1410135.38	5596+46.88	32.05
9305	630388.23	1410140.78	5596+46.88	37.55
9306	630390.43	1410134.73	5596+50.22	32.05
9307	630393.13	1410139.80	5596+51.88	37.55
9308	630393.78	1410144.70	5596+51.55	42.49
9309	630375.85	1410129.48	5596+36.95	24.05
9310	630378.79	1410144.19	5596+36.95	39.05
9311	630363.19	1410168.22	5596+16.94	59.55
9312	630382.35	1410111.36	5596+46.88	7.55
9313	630380.39	1410079.53	5596+51.20	-24.04
9314	630378.91	1410072.12	5596+51.20	-31.60
9315	630392.80	1410065.26	5596+66.16	-35.60
9316	630397.99	1410070.84	5596+70.16	-29.12
9317	630406.69	1410058.40	5596+81.13	-39.61
9318	630408.17	1410065.81	5596+81.13	-32.05
9319	630410.60	1410055.60	5596+85.51	-41.59
9320	630410.71	1410057.59	5596+85.23	-39.61
9321	630410.85	1410060.35	5596+84.83	-36.88
9322	630410.26	1410065.39	5596+83.26	-32.05
9323	630398.81	1410075.86	5596+69.98	-24.03
9324	630373.02	1410042.70	5596+51.19	-61.60
9325	630395.87	1410061.15	5596+69.99	-39.03
9326	630412.49	1410087.38	5596+81.14	-10.05
9327	630435.09	1410133.39	5596+94.27	39.50
9328	630435.16	1410131.39	5596+94.74	37.55
9329	630435.24	1410129.36	5596+95.21	35.57
9330	630435.85	1410125.65	5596+96.54	32.05
9331	630440.07	1410130.41	5596+99.74	37.55
9332	630438.99	1410125.02	5596+99.74	32.05
9333	630450.33	1410119.42	5597+11.96	28.79
9334	630453.96	1410123.56	5597+14.71	33.55
9335	630466.77	1410111.30	5597+29.67	24.05
9336	630467.85	1410116.70	5597+29.67	29.55
9337	630447.29	1410115.20	5597+09.80	24.05
9338	630434.18	1410100.99	5596+99.74	7.55
9339	630450.23	1410129.91	5597+09.80	39.05
9340	630473.73	1410146.12	5597+29.67	59.55
9341	630447.89	1410047.81	5597+23.61	-41.91
9342	630448.02	1410049.81	5597+23.34	-39.93
9343	630451.15	1410057.19	5597+24.97	-32.07
9344	630452.92	1410048.83	5597+28.34	-39.93
9345	630454.46	1410056.53	5597+28.34	-32.07
9346	630468.38	1410049.81	5597+43.31	-35.93
9347	630465.80	1410057.25	5597+39.32	-29.14
9348	630483.84	1410050.80	5597+58.27	-31.93
9349	630485.38	1410058.50	5597+58.28	-24.08
9350	630466.59	1410062.39	5597+39.09	-23.95
9351	630458.78	1410078.10	5597+28.35	-10.07
9352	630462.89	1410047.85	5597+38.31	-38.93
9353	630477.95	1410021.38	5597+58.27	-61.93



Note: Curb and gutter points are to back of curb

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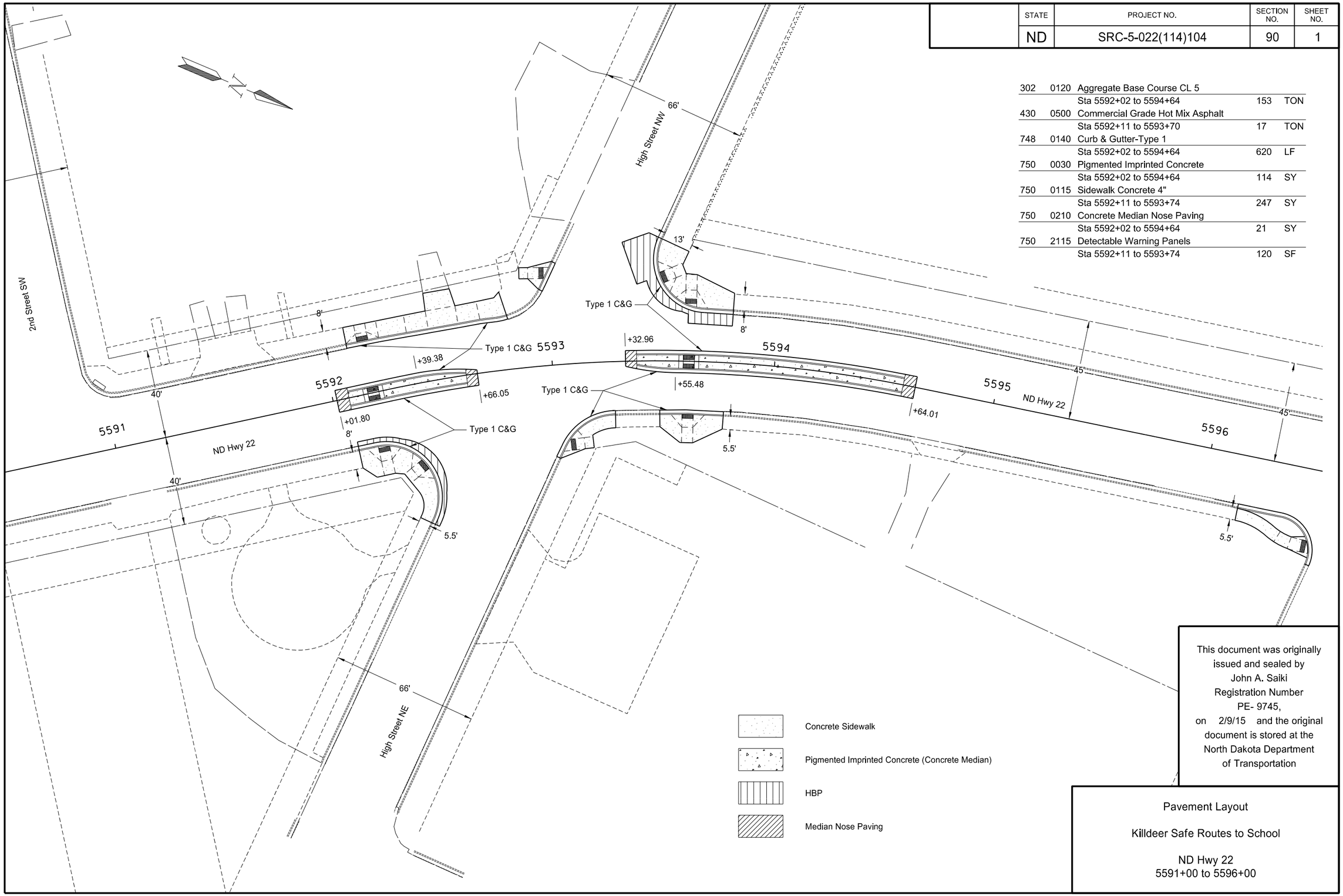
Survey Data Points

Killdeer Safe Routes to School

ND Hwy 22
5596+00 to 5600+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	90	1

302	0120	Aggregate Base Course CL 5		
		Sta 5592+02 to 5594+64	153	TON
430	0500	Commercial Grade Hot Mix Asphalt		
		Sta 5592+11 to 5593+70	17	TON
748	0140	Curb & Gutter-Type 1		
		Sta 5592+02 to 5594+64	620	LF
750	0030	Pigmented Imprinted Concrete		
		Sta 5592+02 to 5594+64	114	SY
750	0115	Sidewalk Concrete 4"		
		Sta 5592+11 to 5593+74	247	SY
750	0210	Concrete Median Nose Paving		
		Sta 5592+02 to 5594+64	21	SY
750	2115	Detectable Warning Panels		
		Sta 5592+11 to 5593+74	120	SF



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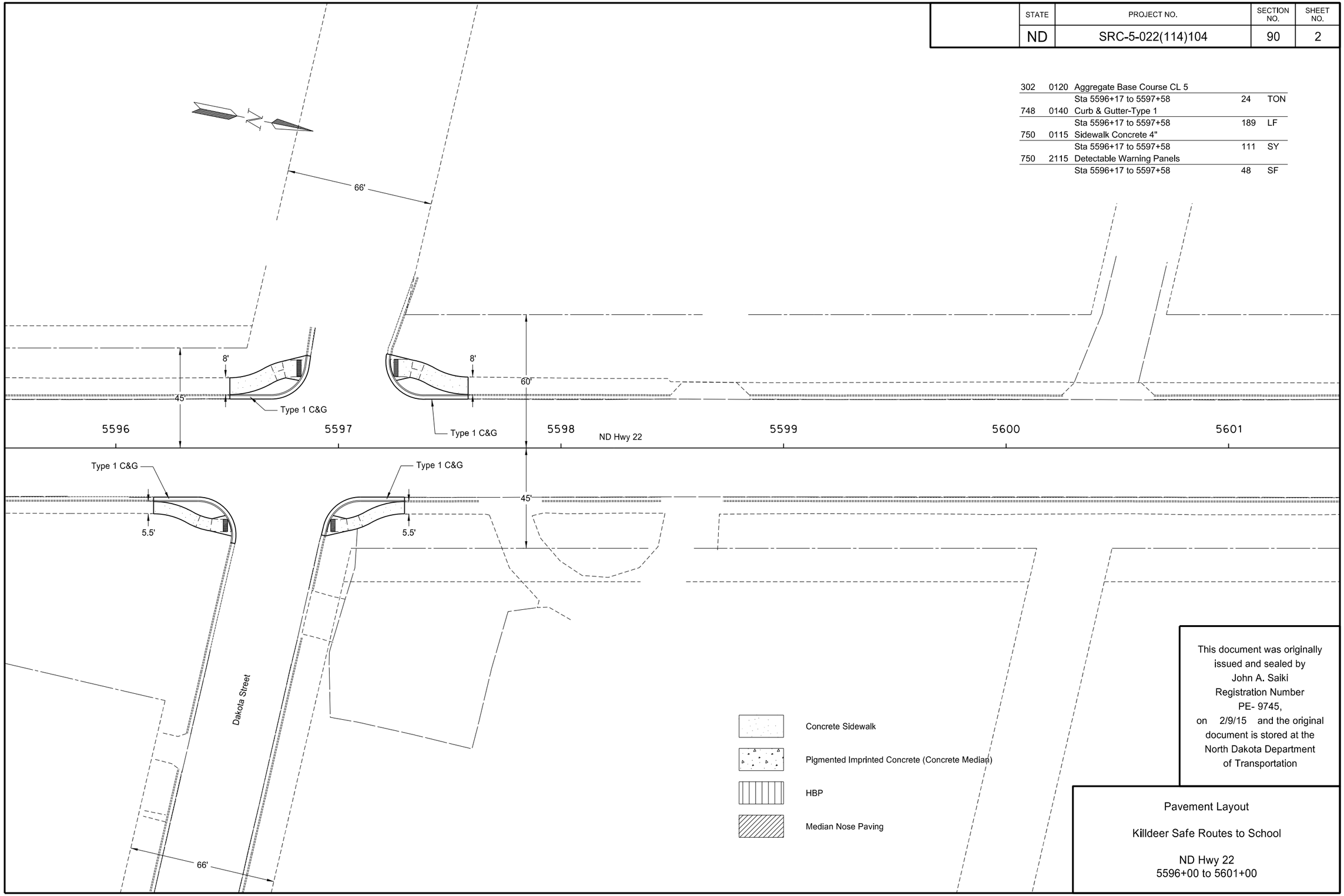
Pavement Layout

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	90	2

302	0120	Aggregate Base Course CL 5		
		Sta 5596+17 to 5597+58	24	TON
748	0140	Curb & Gutter-Type 1		
		Sta 5596+17 to 5597+58	189	LF
750	0115	Sidewalk Concrete 4"		
		Sta 5596+17 to 5597+58	111	SY
750	2115	Detectable Warning Panels		
		Sta 5596+17 to 5597+58	48	SF



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Pavement Layout

Killdeer Safe Routes to School

ND Hwy 22
5596+00 to 5601+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
D3-36	36"x6"	STREET NAME SIGN (Sign and installation only)						6	
G20-1-60	60"x24"	ROAD WORK NEXT __ MILES						34	
G20-1b-60	60"x24"	WORK IN PROGRESS/ NO WORK IN PROGRESS (Sign and installation only)						26	
G20-2-48	**48"x24"**	**END ROAD WORK**	**2**	**2**	**2**		**2**	**19**	**38**
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)						18	
G20-10-108	**108"x48"**	**CONTRACTOR SIGN**	**2**	**2**	**2**		**2**	**64**	**128**
G20-50a-72	72"x36"	ROAD WORK NEXT __ MILES RT & LT ARROWS						37	
G20-52a-72	72"x24"	ROAD WORK NEXT __ MILES RT or LT ARROW						30	
G20-55-96	**96"x48"**	**SPEED LIMIT ENFORCED - MINIMUM FEE $80 WHEN WORKERS PRESENT**	**2**	**2**	**2**		**2**	**59**	**118**
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)						10	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)						10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)						10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)						7	
M3-2-24	**24"x12"**	**EAST (Mounted on route marker post)**	**7**				**7**	**7**	**49**
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)						7	
M3-4-24	**24"x12"**	**WEST (Mounted on route marker post)**	**9**				**9**	**7**	**63**
M4-8-24	**24"x12"**	**DETOUR (Mounted on route marker post)**	**16**				**16**	**7**	**112**
M4-9-30	30"x24"	DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT						15	
M4-10-48	**48"x18"**	**DETOUR ARROW RIGHT or LEFT**	**2**				**2**	**23**	**46**
M5-1-21	**21"x15"**	**ARROW AHD AND RT or LT(Mounted on route marker post)**	**7**				**7**	**7**	**49**
M5-2-21	21"x15"	ARROW AHD UP & RT or LT (Mounted on route marker post)						7	
M6-1-21	**21"x15"**	**ARROW RT or LT (Mounted on route marker post)**	**9**				**9**	**7**	**63**
M6-2-21	21"x15"	ARROW UP & RT or LT (Mounted on route marker post)						7	
M6-3-21	21"x15"	ARROW AHD (Mounted on route marker post)						7	
R1-1-48	48"x48"	STOP						32	
R1-1a-18	18"x18"	STOP and SLOW PADDLE Back to Back						5	
R1-2-60	60"x60"	YIELD						29	
R2-1-48	48"x60"	SPEED LIMIT __						39	
R2-1a-24	24"x18"	MINIMUM FEE $80 (Mounted on Speed Limit post)						10	
R3-7-48	48"x48"	LEFT or RIGHT LANE MUST TURN LEFT or RIGHT						35	
R4-1-48	48"x60"	DO NOT PASS						39	
R4-7-48	48"x60"	KEEP RIGHT SYMBOL						39	
R5-1-48	48"x48"	DO NOT ENTER						35	
R6-1-36	36"x12"	ONE WAY RIGHT or LEFT						13	
R7-1-12	12"x18"	NO PARKING						11	
R9-9-24	**24"x12"**	**Sidewalk Closed**	**14**	**8**	**6**		**14**	**7**	**98**
R10-6-24	24"x36"	STOP HERE ON RED						16	
R11-2-48	**48"x30"**	**ROAD CLOSED**	**2**				**2**	**28**	**56**
R11-2a-48	48"x30"	STREET CLOSED						28	
R11-3a-60	**60"x30"**	**ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY**	**1**				**1**	**31**	**31**
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY						31	
R11-4a-60	60"x30"	STREET CLOSED TO THRU TRAFFIC						31	
W1-3-48	48"x48"	RIGHT or LEFT SHARP REVERSE CURVE ARROW						35	
W1-4-48	**48"x48"**	**RIGHT or LEFT REVERSE CURVE ARROW**	**4**	**3**			**4**	**35**	**140**
W1-4b-48	48"x48"	DOUBLE RIGHT or LEFT REVERSE CURVE ARROW						35	
W1-6-48	48"x24"	LARGE ARROW						26	
W3-1-48	48"x48"	STOP AHEAD SYMBOL						35	
W3-3-48	48"x48"	SIGNAL AHEAD SYMBOL						35	
W3-4-48	48"x48"	BE PREPARED TO STOP						35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD						35	
W4-2-48	48"x48"	RIGHT or LEFT LANE TRANSITION SYMBOL						35	
W5-1-48	48"x48"	ROAD NARROWS						35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE						35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW						35	
W6-3-48	48"x48"	TWO WAY TRAFFIC SYMBOL						35	
W8-1-48	48"x48"	BUMP						35	
W8-3-48	48"x48"	PAVEMENT ENDS						35	
W8-7-48	48"x48"	LOOSE GRAVEL						35	
W8-9a-48	48"x48"	SHOULDER DROP-OFF						35	
W8-11-48	48"x48"	UNEVEN LANES						35	
W8-12-48	48"x48"	NO CENTER STRIPE						35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY						35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT.						35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT.						35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY						35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL						35	
W12-2-48	48"x48"	LOW CLEARANCE SYMBOL						35	
W13-1-24	24"x24"	__ MPH ADVISORY SPEED PLATE (Mounted on warning sign post)						11	
W13-4-48	48"x60"	RAMP ARROW						39	
W14-3-48	48"x36"	NO PASSING ZONE						23	
W16-2-30	**30"x24"**	**__ Feet**			**2**		**2**	**10**	**20**
W20-1-48	**48"x48"**	**ROAD WORK AHEAD or _FT or _ MILE**	**3**	**5**	**4**		**5**	**35**	**175**
W20-2-48	**48"x48"**	**DETOUR AHEAD or __ FT**	**2**				**2**	**35**	**70**
W20-3-48	**48"x48"**	**ROAD or STREET CLOSED AHEAD or __ FT.**	**3**				**3**	**35**	**105**
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT.						35	
W20-5-48	48"x48"	RIGHT or LEFT LANE CLOSED AHEAD or __ FT.						35	
W20-7a-48	**48"x48"**	**FLAGGING SYMBOL**			**2**		**2**	**35**	**70**
W20-7k-24	24"x18"	__ FEET (Mounted on warning sign post)						10	
W20-8-48	48"x48"	STREET CLOSED						35	
W20-51-48	48"x48"	EQUIPMENT WORKING						35	
W20-52-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)						12	
W21-1a-48	48"x48"	WORKERS SYMBOL						35	

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3		TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
W21-2-48	48"x48"	FRESH OIL						35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT						35	
W21-5-48	48"x48"	SHOULDER WORK						35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED						35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT.						35	
W21-6a-48	48"x48"	SURVEY CREW AHEAD						35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT.						35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY						35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK						35	
	24"x24"	TAKE TURNS (6" D letters) (Mounted on stop sign post)						11	

SPECIAL SIGNS

Consign 1	**36"x18"**	**High St**	**16**				**16**	**10**	**160**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**1591**

SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2	3		TOTAL QUANTITY
704-0100	**FLAGGING**	MHR			**500**		**500**
704-1041	ATTENUATION DEVICE-TYPE B-55	EACH					
704-1043	ATTENUATION DEVICE-TYPE B-65	EACH					
704-1044	ATTENUATION DEVICE-TYPE B-70	EACH					
704-1050	TYPE I BARRICADES	EACH					
704-1051	TYPE II BARRICADES	EACH					
704-1052	**TYPE III BARRICADES**	EACH	**20**	**8**	**23**		**23**
704-1060	**DELINEATOR DRUMS**	EACH	**58**	**59**	**23**		**59**
704-1065	TRAFFIC CONES	EACH					
704-1067	**TUBULAR MARKERS**	EACH	**27**	**29**			**29**
704-1070	DELINEATOR	EACH					
704-1072	FLEXIBLE DELINEATORS	EACH					
704-1081	VERTICAL PANELS - BACK TO BACK	EACH					
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH					
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH					
704-1087	**SEQUENCING ARROW PANEL - TYPE C**	EACH	**2**	**2**			**2**
704-1088	SEQUENCING ARROW PANEL - TYPE C - CROSSOVER	EACH					
704-1095	TYPE B FLASHERS	EACH					
704-1500	OBLITERATION OF PVMT MK	SF					
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF					
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH					
762-0200	RAISED PAVEMENT MARKERS	EACH					
762-0420	SHORT TERM 4IN LINE - TYPE R	LF					
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF					
772-2110	FLASHING BEACON - POST MOUNTED	EACH					

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

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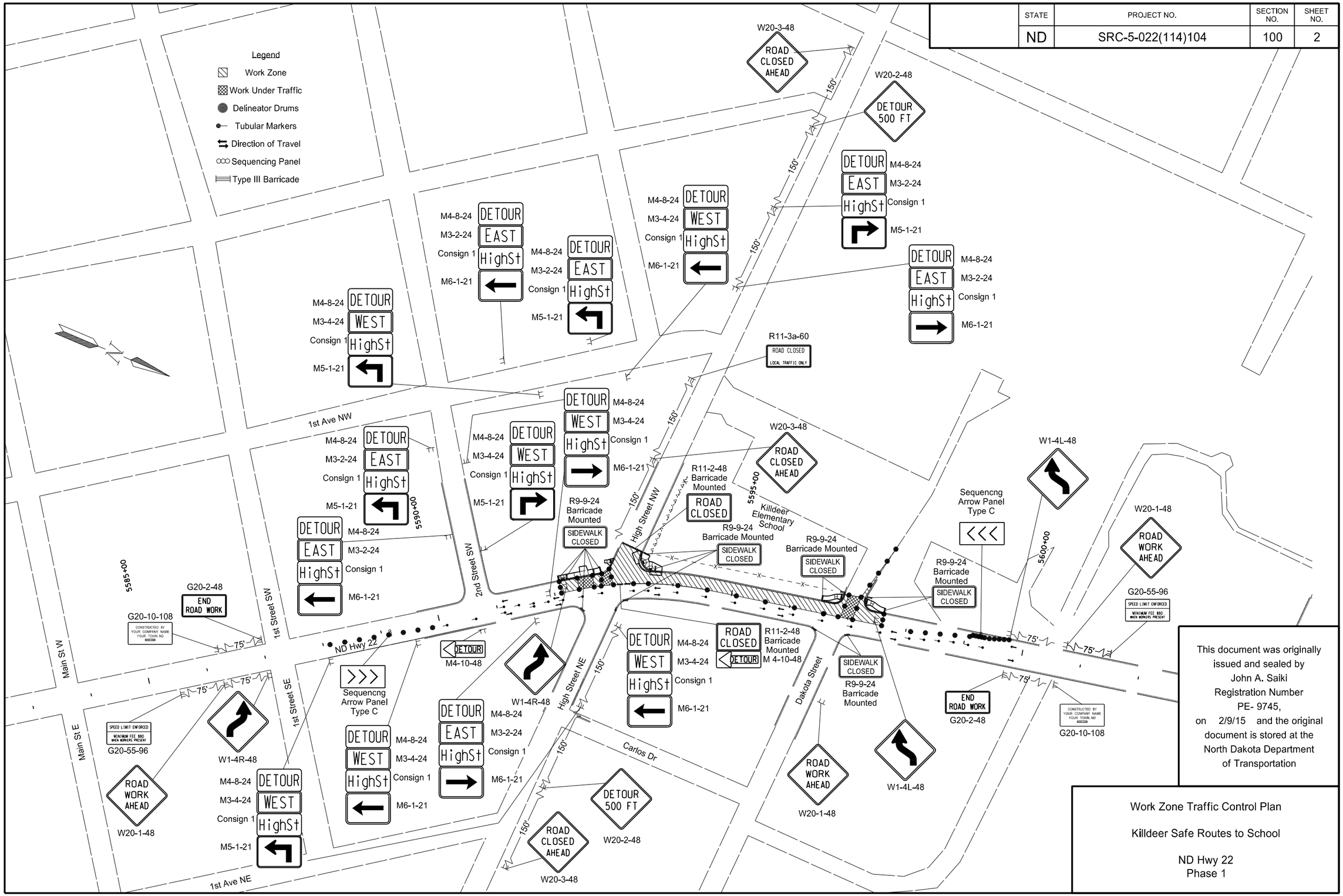
Traffic Control Devices List

Killdeer Safe Routes to School

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	100	2



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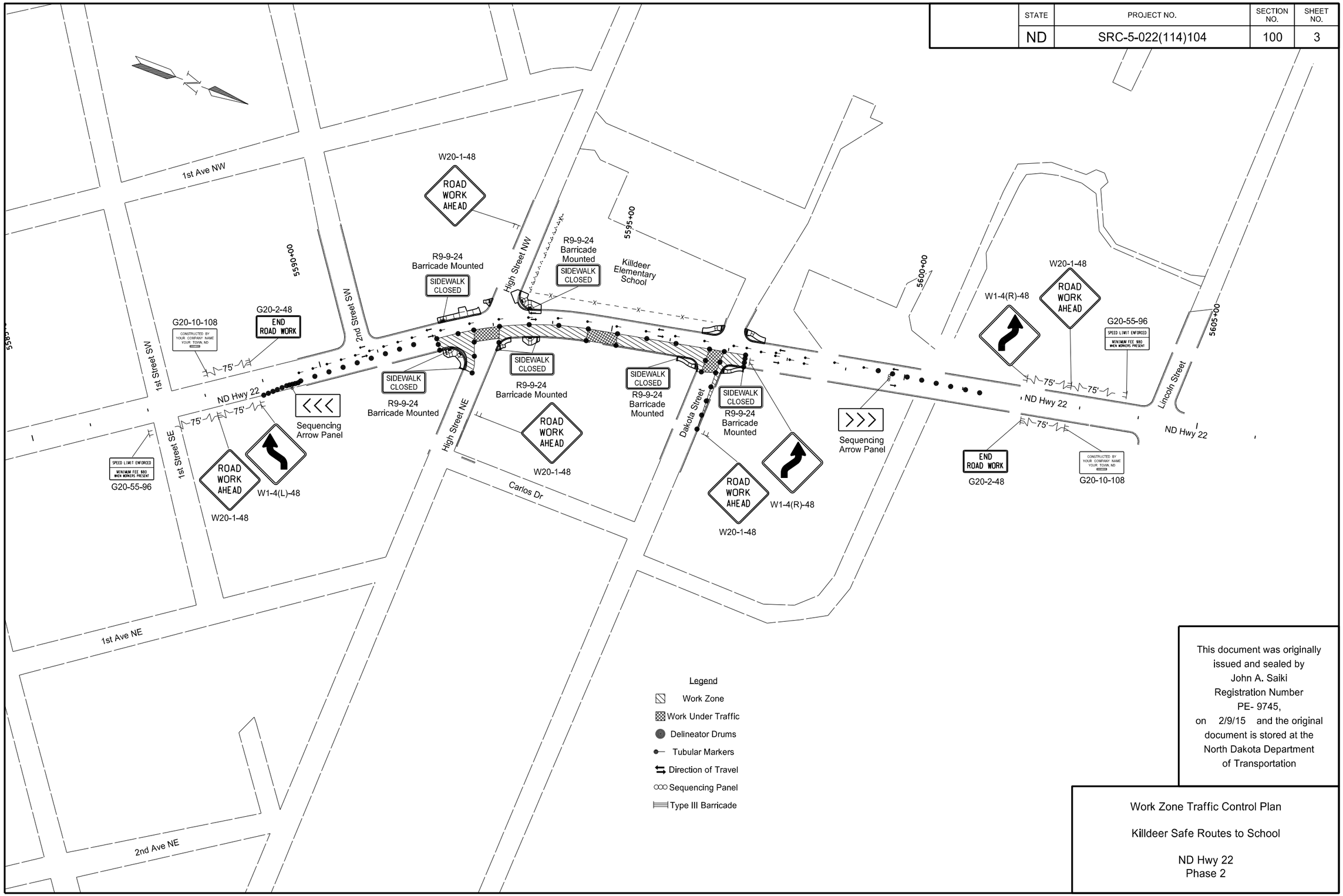
Work Zone Traffic Control Plan

Killdeer Safe Routes to School

ND Hwy 22
Phase 1

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	100	3



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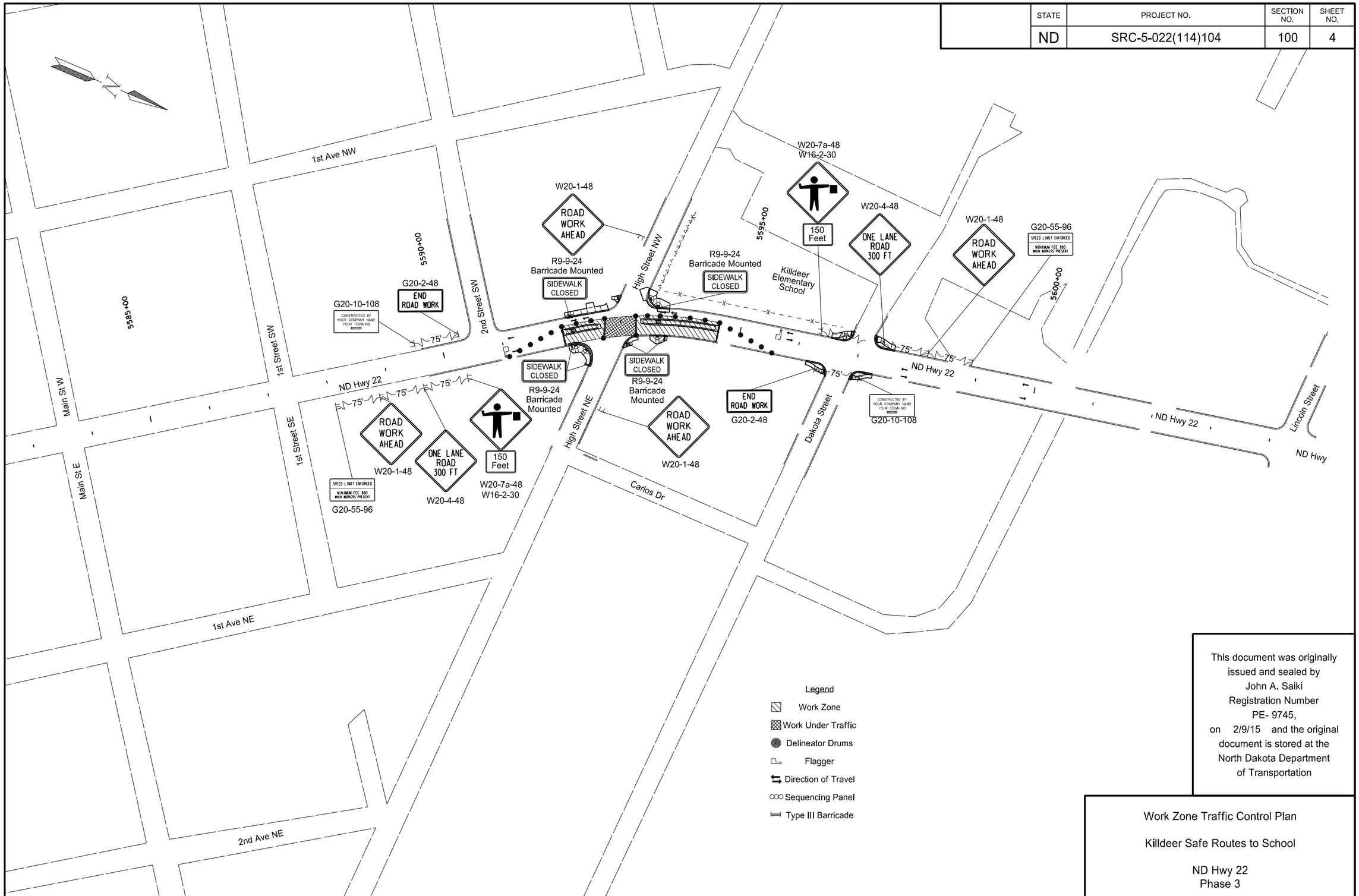
Work Zone Traffic Control Plan

Killdeer Safe Routes to School

ND Hwy 22
Phase 2

2/9/2015 1:56:30 PM rschuehle O:\Projects\8195.01\50022104.114\Design\Plan\100WZ_003.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	100	4



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Work Zone Traffic Control Plan

Killdeer Safe Routes to School

ND Hwy 22
Phase 3

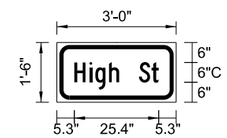
2/9/2015 1:56:31 PM rschuehle O:\Projects\8195.01\50022104.114\Design\Plan\100WZ_004.dgn

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	100	5

SIGN NUMBER	Consign 1
WIDTH x HEIGHT	3'-0" x 1'-6"
BORDER WIDTH	0" (inset 0.75")
CORNER RADIUS	3"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

AREA: 4.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Const_Conv_Special.sst

LETTER POSITION (X)																			LENGTH	SIZE	SERIES
H	i	g	h		S	t													25.4	6/4.5	C 2000
5.3	9.8	11.6	15.7	18.8	24.8	28.6															

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Work Zone Traffic Control Plan

Killdeer Safe Routes to School

ND Hwy 22
Construcion Signing Details

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	110	1

Sta/RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	Sign Support Length 2nd LF	Sign Support Length 3rd LF	Sign Support Length 4th LF	Support Size	Max Post Len LF	Sleeve Length 1st LF	Sleeve Length 2nd LF	Sleeve Length 3rd LF	Sleeve Length 4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
ND Hwy 22																						
5587+47 Rt				8.4																		Mount on Light Standard, *
5589+75 Rt				2.0																		Mount on Existing Supports, *
5592+30 Rt		8			9.4				2 x 2 12 ga	14.6						1	4	2.25 x 2.25 12 ga	1			
5593+83 Lt				2.0																		Mount on Existing Supports, *
5595+38 Rt				8.4																		Mount on Light Standard, *
5596+80 Lt	SA 2E				11.4				2.5 x 2.5 12 ga	12.6	3.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1	
5596+98 Rt	SA 2E				11.4				2.5 x 2.5 12 ga	12.6	3.3				2.25 x 2.25 12 ga	1	4	3 x 3 7 ga	1		1	
5599+28 Lt				2.0																		Mount on Existing Supports, *
5601+69 Rt		7			8.9				2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga	1			
Sub Total			0.0	22.8		**Total**	41.2									**Total**	16		4	0	2	
Grand Total			0.0	22.8		**Total**	41.2									**Total**	16		4	0	2	

***** = Fluorescent Yellow-Green

Basis of Estimate
Sign Support Lengths

The sign support lengths have been calculated
using the following vertical clearances:

Areas where parking and/or pedestrian movement will occur - 84"
Urban/rural expressway and freeway - 84" (Offset - 60")
Rural Roadway - 60"
Bike route – 60"

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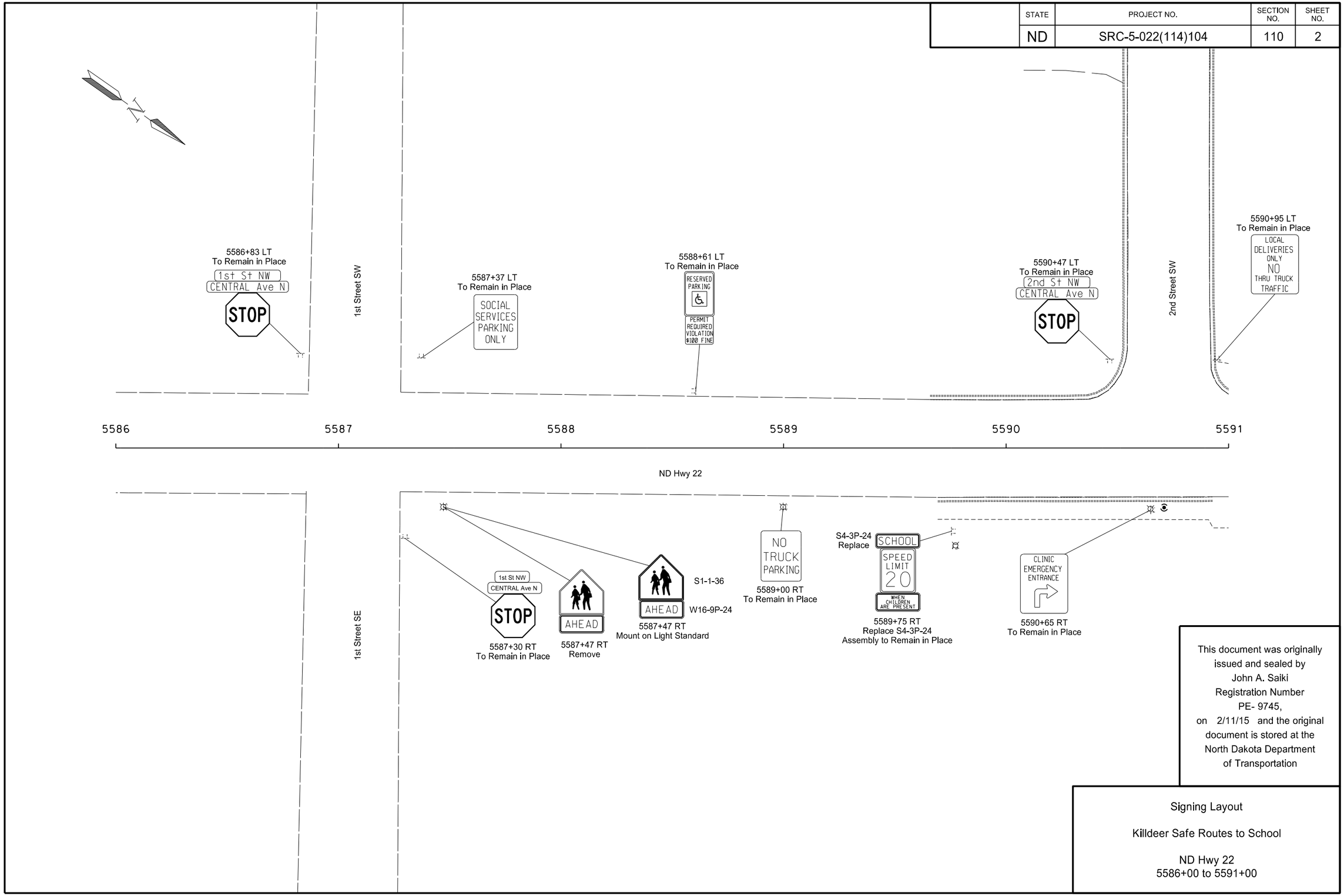
Signing Summary

Killdeer Safe Routes to School
ND Hwy 22

Perforated Tube

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	110	2



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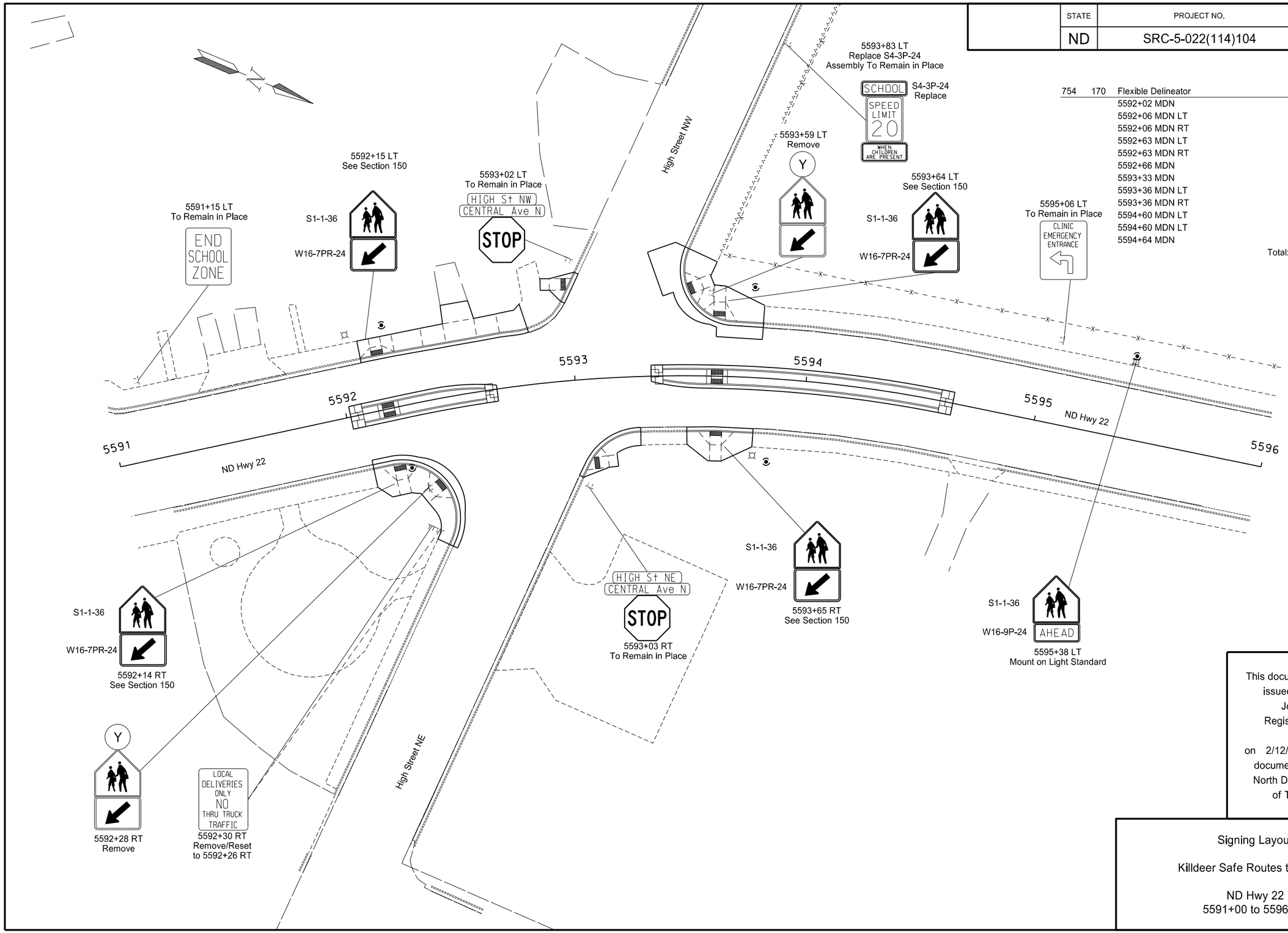
Signing Layout

Killdeer Safe Routes to School

ND Hwy 22
5586+00 to 5591+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	110	3



754	170	Flexible Delineator		
		5592+02 MDN	1	EA
		5592+06 MDN LT	1	EA
		5592+06 MDN RT	1	EA
		5592+63 MDN LT	1	EA
		5592+63 MDN RT	1	EA
		5592+66 MDN	1	EA
		5593+33 MDN	1	EA
		5593+36 MDN LT	1	EA
		5593+36 MDN RT	1	EA
		5594+60 MDN LT	1	EA
		5594+60 MDN LT	1	EA
		5594+64 MDN	1	EA
		Total:	12	EA

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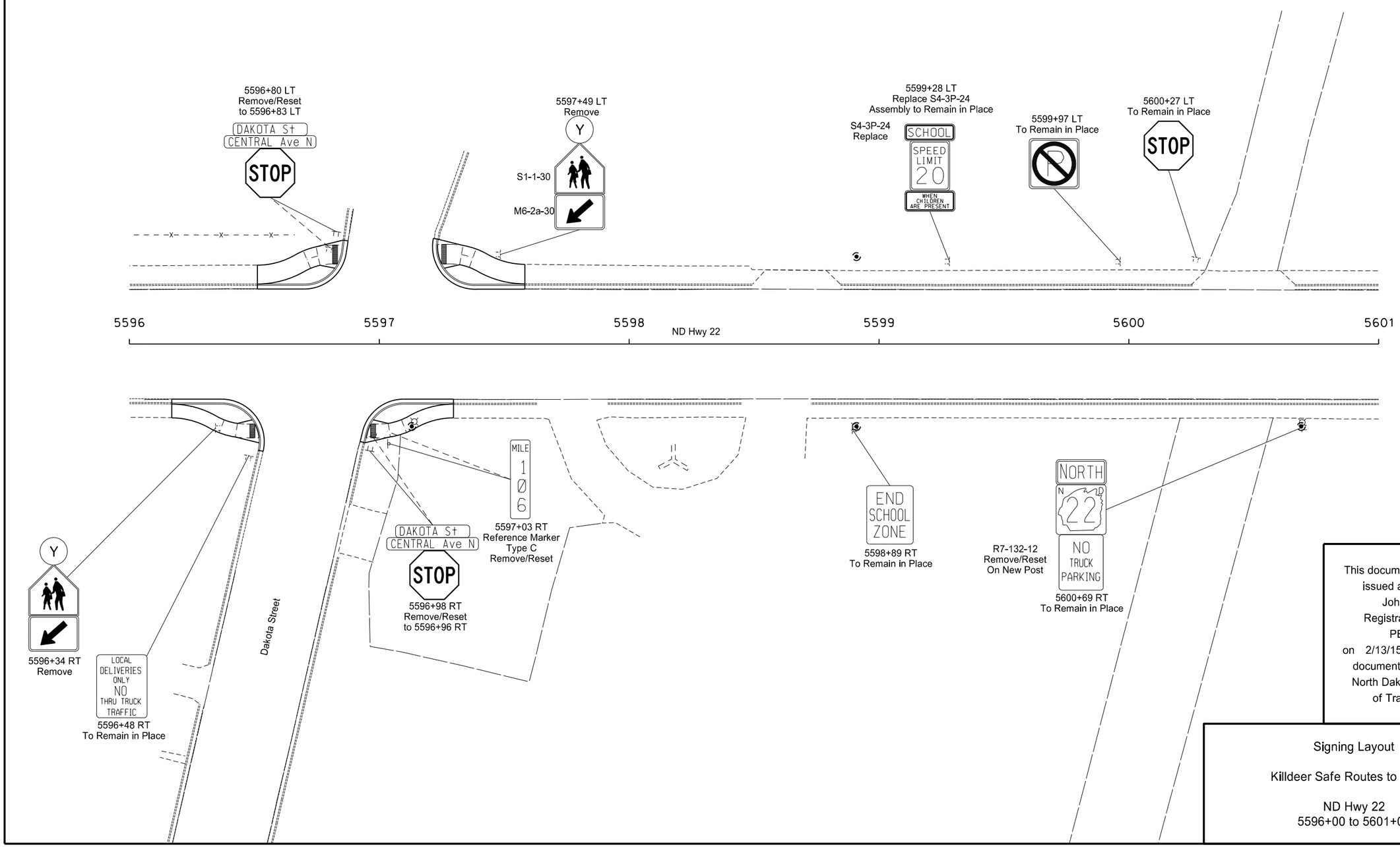
Signing Layout

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	110	4

754	597	Reset Mile Post 5597+03 RT	1	EA



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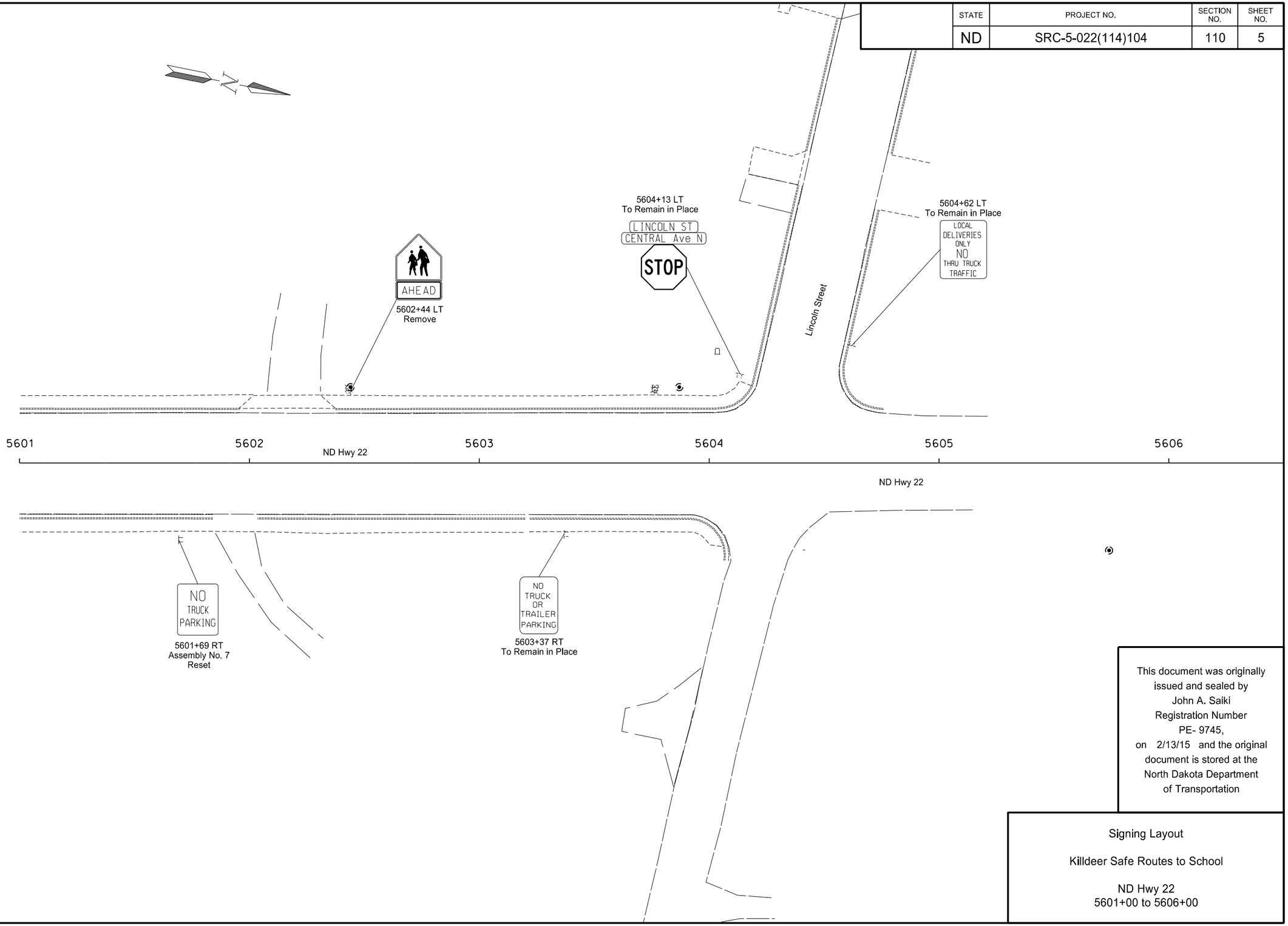
Signing Layout

Killdeer Safe Routes to School

ND Hwy 22
5596+00 to 5601+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	110	5



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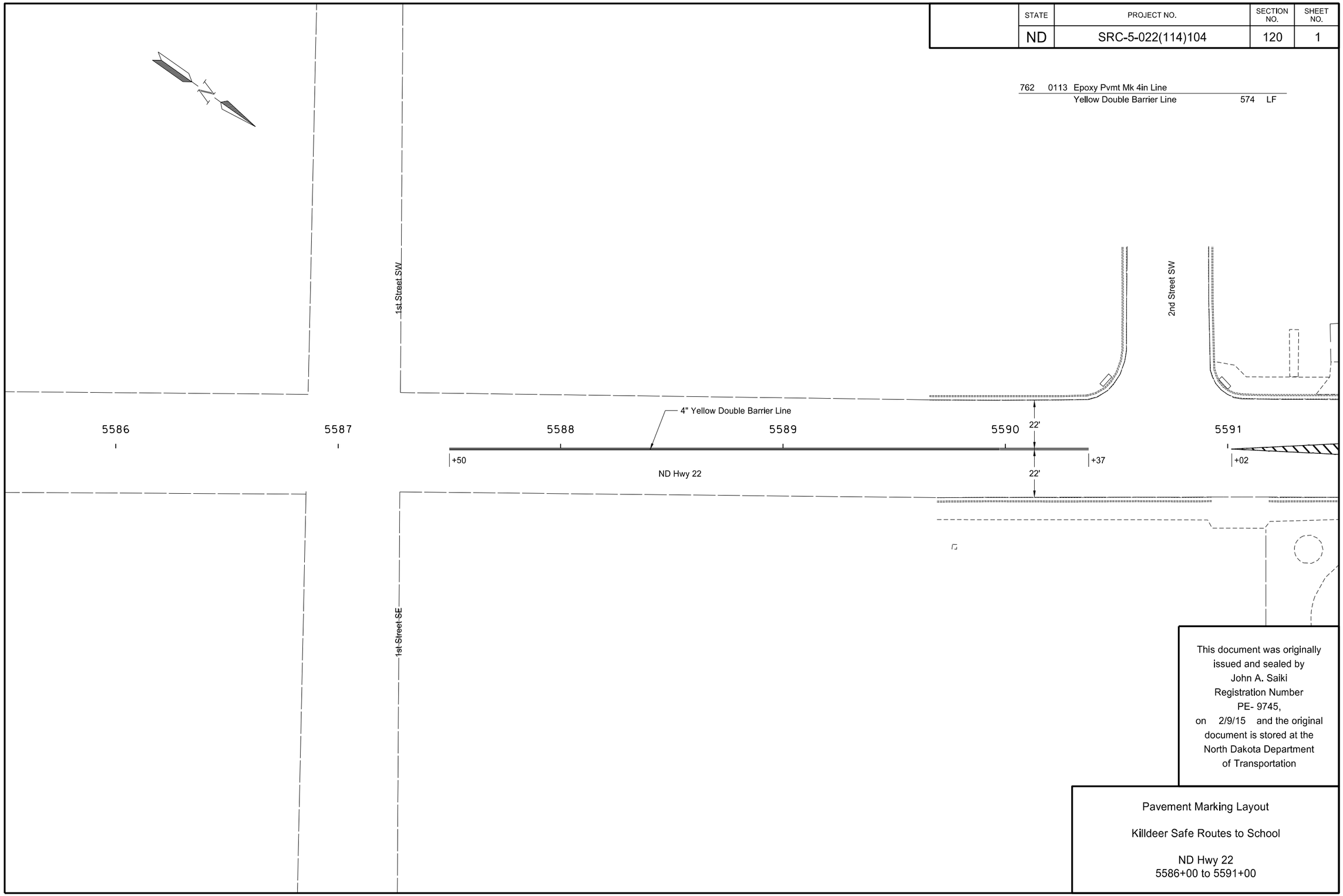
Signing Layout

Killdeer Safe Routes to School

ND Hwy 22
5601+00 to 5606+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	120	1

762 0113 Epoxy Pvmt Mk 4in Line
Yellow Double Barrier Line 574 LF



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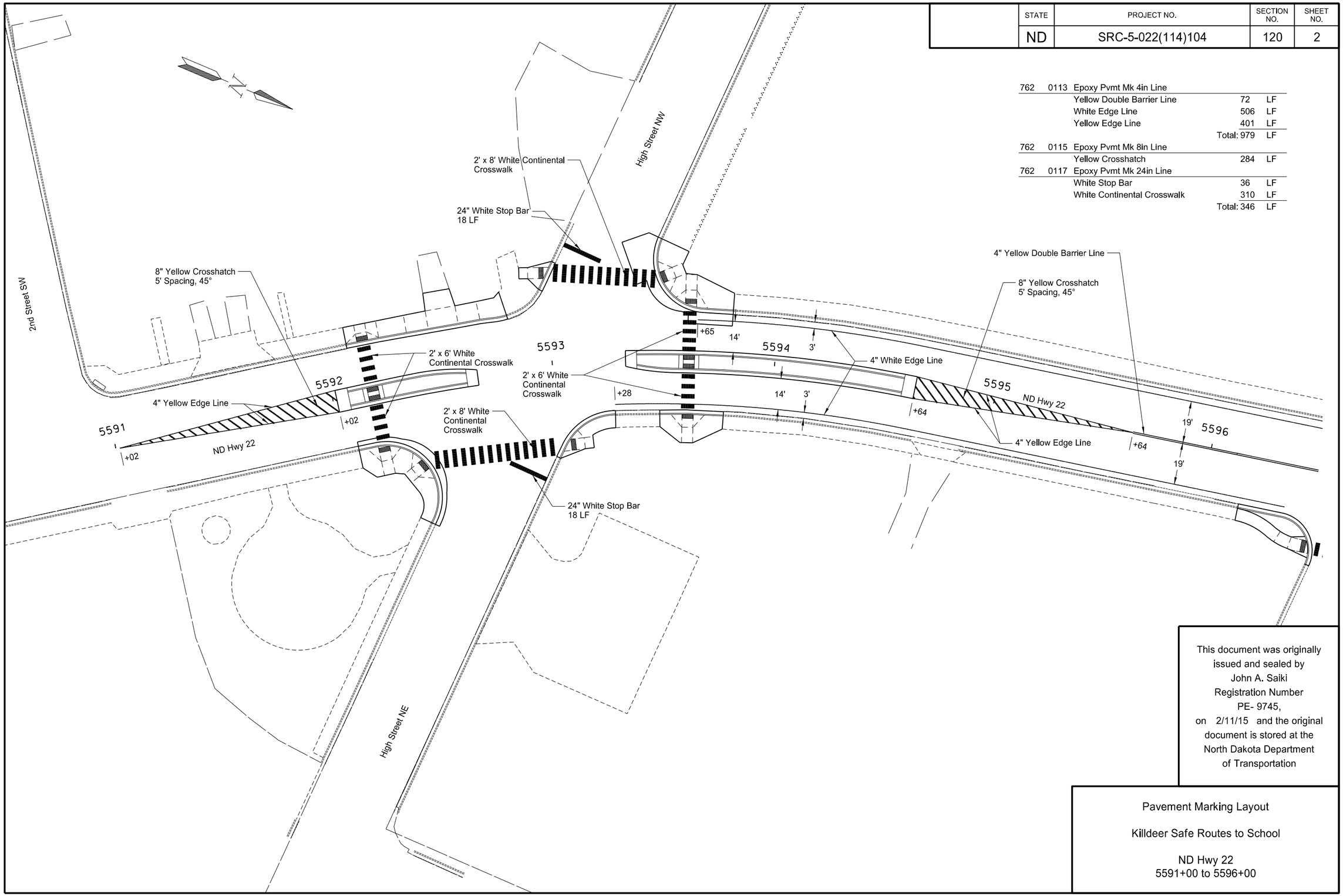
Pavement Marking Layout

Killdeer Safe Routes to School

ND Hwy 22
5586+00 to 5591+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	120	2

762	0113	Epoxy Pvmt Mk 4in Line		
		Yellow Double Barrier Line	72	LF
		White Edge Line	506	LF
		Yellow Edge Line	401	LF
			Total: 979	LF
762	0115	Epoxy Pvmt Mk 8in Line		
		Yellow Crosshatch	284	LF
762	0117	Epoxy Pvmt Mk 24in Line		
		White Stop Bar	36	LF
		White Continental Crosswalk	310	LF
			Total: 346	LF



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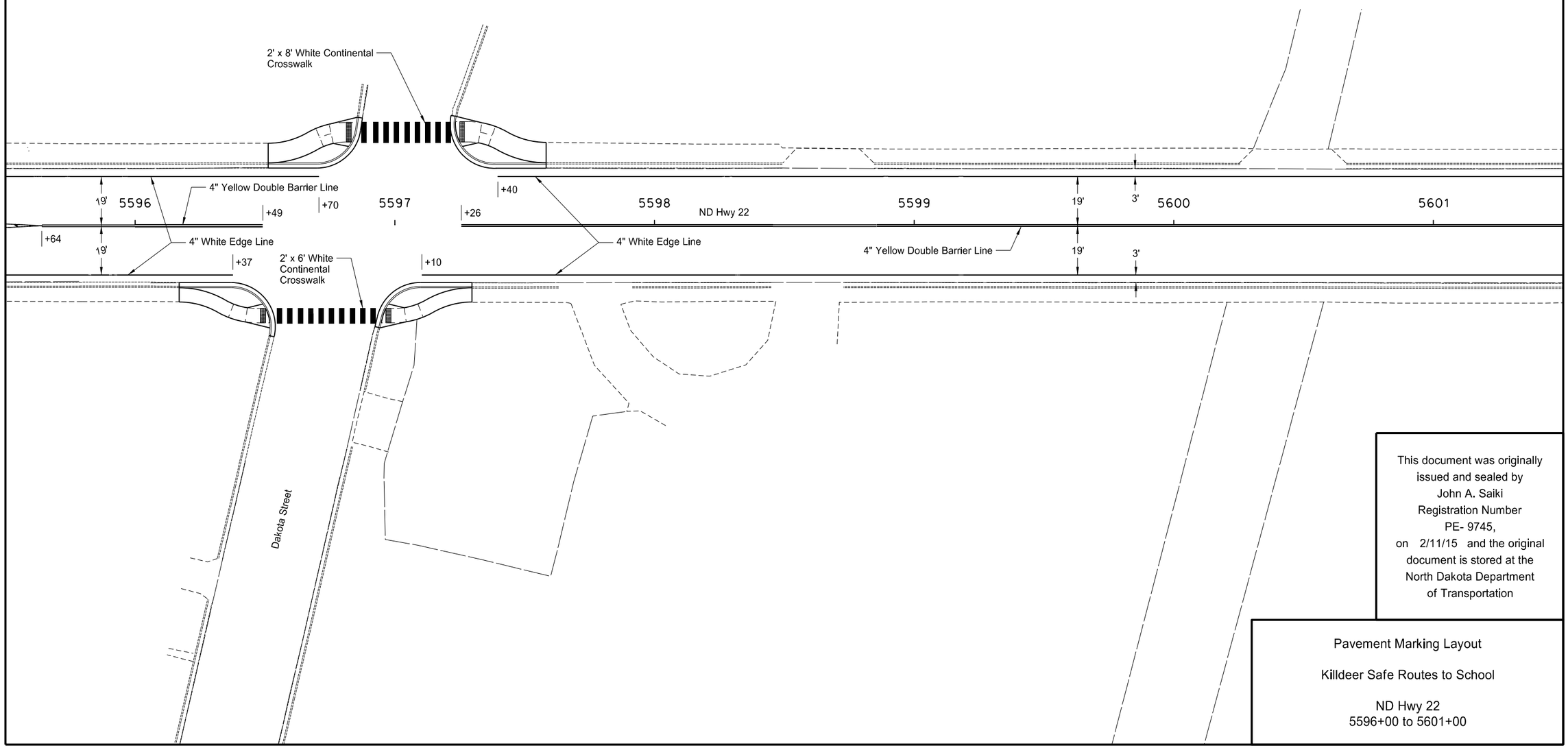
Pavement Marking Layout

Killdeer Safe Routes to School

ND Hwy 22
5591+00 to 5596+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	120	3

762	0113	Epoxy Pvmt Mk 4in Line		
		Yellow Double Barrier Line	848	LF
		White Edge Line	859	LF
			Total: 1707	LF
762	0117	Epoxy Pvmt Mk 24in Line		
		White Continental Crosswalk	132	LF



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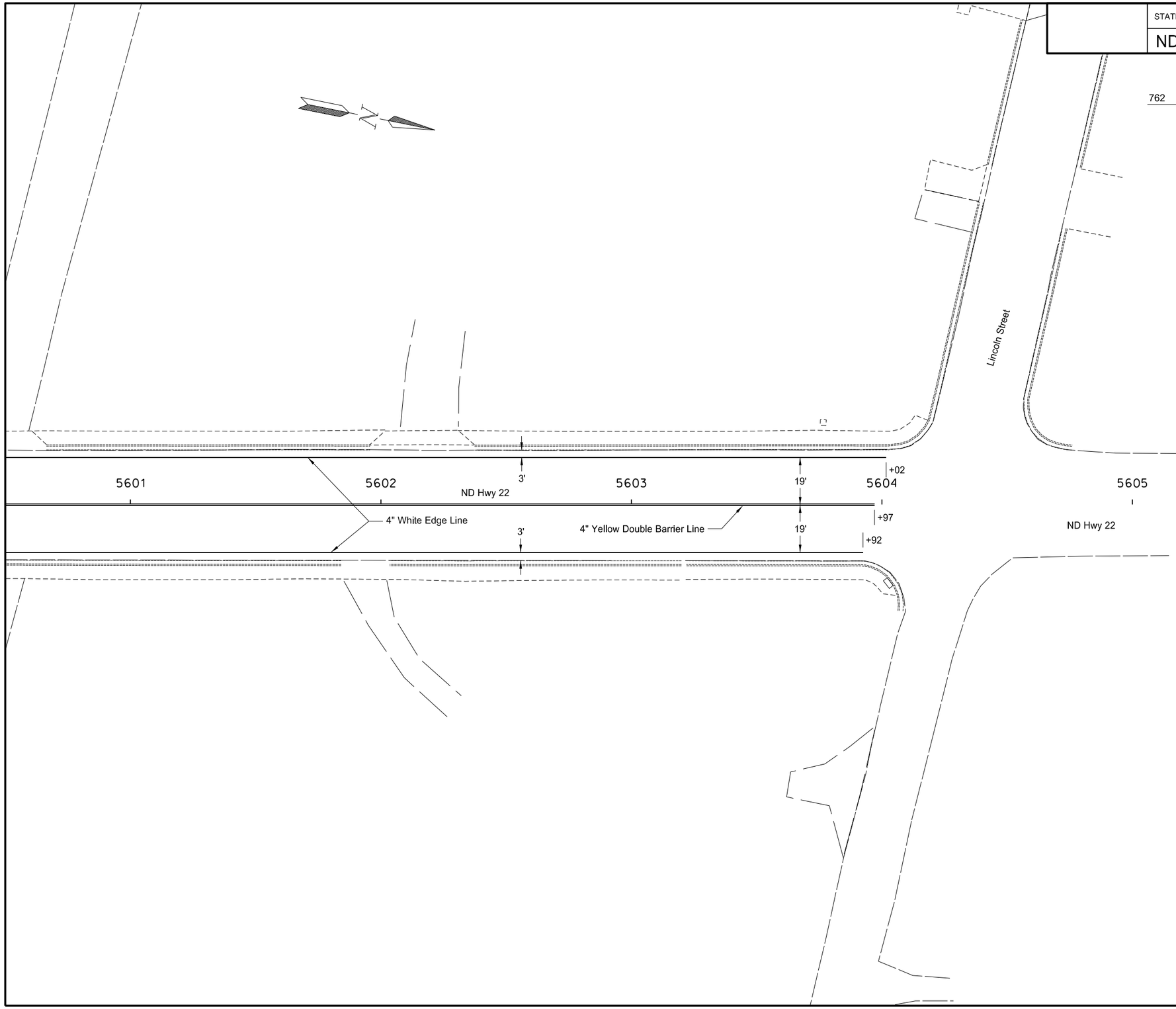
Pavement Marking Layout

Killdeer Safe Routes to School

ND Hwy 22
5596+00 to 5601+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	120	4

762	0113	Epoxy Pvmt Mk 4in Line		
		Yellow Double Barrier Line	594	LF
		White Edge Line	594	LF
			Total: 1188	LF



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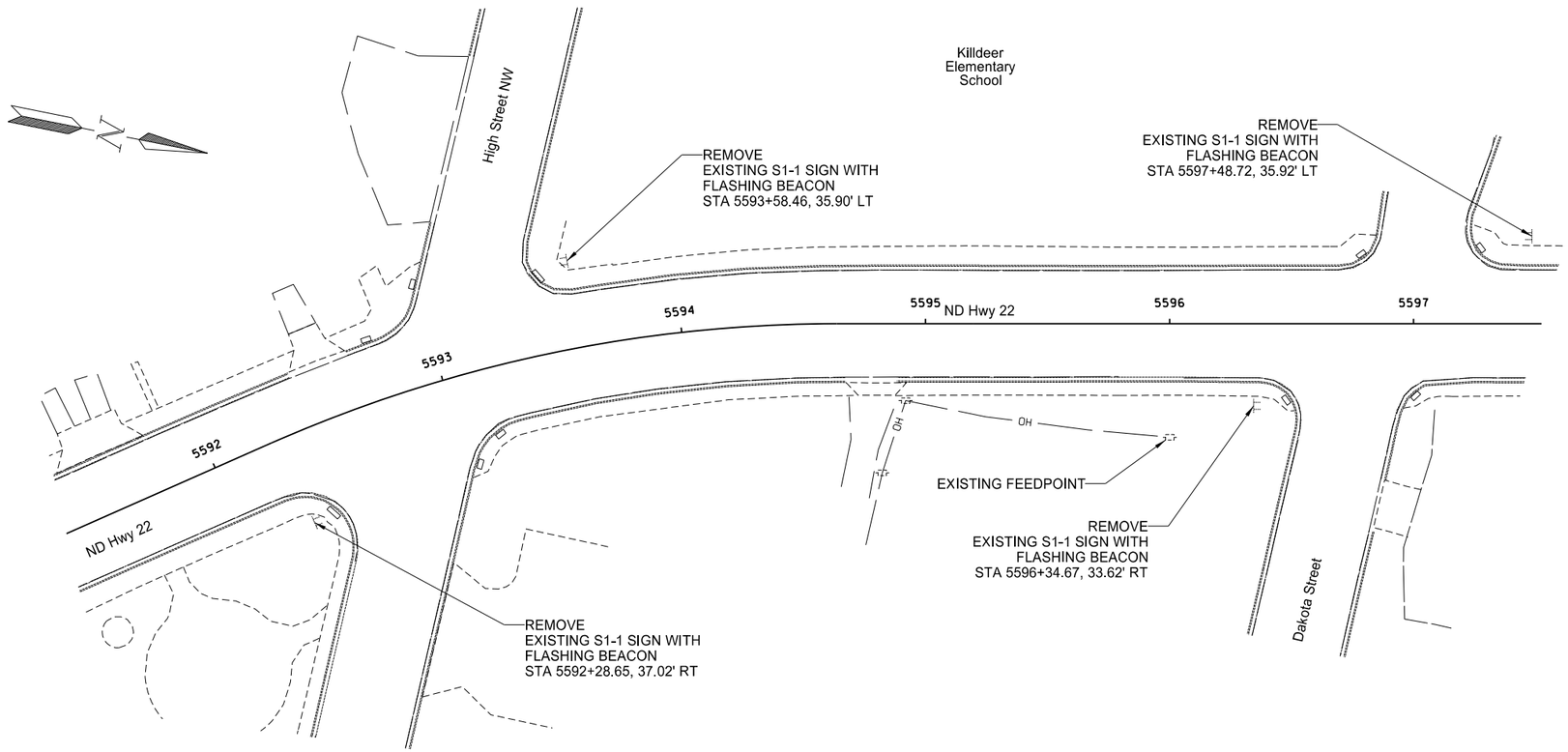
Pavement Marking Layout

Killdeer Safe Routes to School

ND Hwy 22
5601+00 to 5606+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	150	1



QUANTITIES				
SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
772	3149	REMOVE FLASHING BEACON	EA	4
772	3150	REMOVE FLASHING BEACON SYSTEM	EA	2
ITEMS SHOWN ABOVE ARE FOR INFORMATIONAL PURPOSES; CONTRACTOR SHALL PROVIDE ALL LABOR AND EQUIPMENT NECESSARY FOR THE REMOVAL OF THE FLASHING BEACON SYSTEM AS SHOWN IN THE PLANS. ITEMS SHALL BE INCLUDED IN THE CORRESPONDING PRICE BID FOR "REMOVE FLASHING BEACON SYSTEM."				

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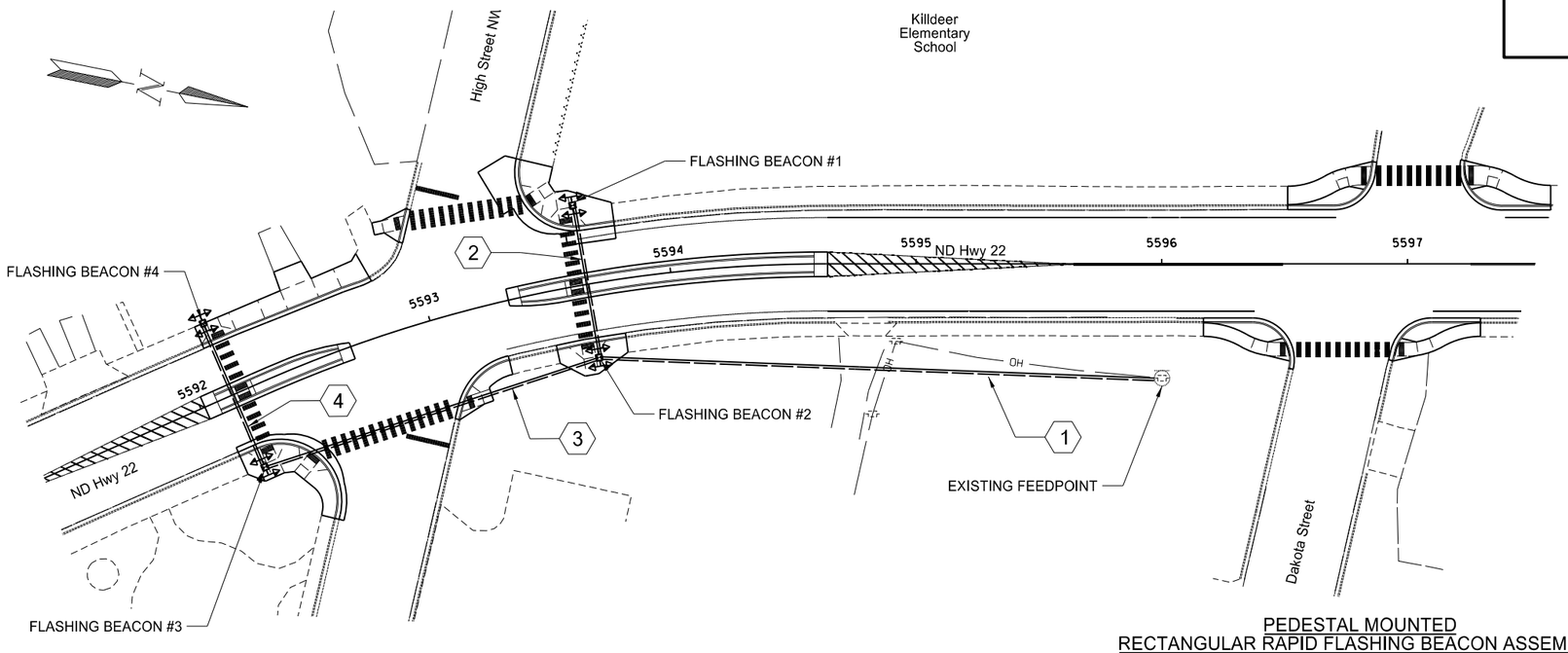
Flashing Beacon System

Killdeer Safe Routes to School

ND Hwy 22
Flashing Beacon Removals

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SRC-5-022(114)104	150	2



PEDESTAL MOUNTED RECTANGULAR RAPID FLASHING BEACON ASSEMBLY

QUANTITIES				
SPEC	CODE	ITEM DESCRIPTION	UNIT	TOTAL
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	70
770	9270	MODIFY EXISTING FEED POINT	EA	1
772	0003	SIGNAL STANDARD FOUNDATION	EA	4
772	0240	2IN DIAMETER RIGID CONDUIT	LF	635
772	0303	UNDERGROUND CONDUCTOR NO10-TYPE RHW	LF	1090
772	0310	UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	545
772	0420	NO16 AWG 2 CONDUCTOR CABLE	LF	150
772	0601	TYPE II SIGNAL STANDARD	EA	4
772	2210	PEDESTRIAN PUSHBUTTON	EA	4
772		RRFB CONTROL EQUIPMENT PER CROSSWALK	EA	2
772		RECTANGULAR RAPID FLASHING BEACON (DOUBLE-SIDED)	EA	4
772	2120	FLASHING BEACON-POST MOUNTED-SCHOOL	EA	1

ITEMS SHOWN ABOVE ARE FOR INFORMATIONAL PURPOSES; CONTRACTOR SHALL PROVIDE ALL LABOR AND EQUIPMENT NECESSARY FOR THE FLASHING BEACON TO BE FULLY OPERATIONAL AS SHOWN IN THE PLANS. ITEMS SHALL BE INCLUDED IN THE CORRESPONDING PRICE BID FOR "FLASHING BEACON-POST MOUNTED-SCHOOL."

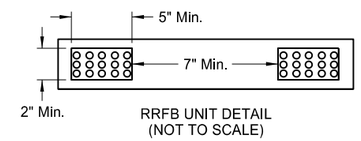
CABLE AND CONDUIT SCHEDULE							
PLAN RUN	STATION,OFFSET	ITEM	CONDUIT RUN		CABLE RUN		
			LENGTH (LF)	SIZE (IN)	QTY	LENGTH (LF)	TYPE
1	5596+00.11, 46.56' RT to 5593+65.44, 30.17' RT	EXISTING FEEDPOINT to FLASHING BEACON #2	230	2	2	480	UNDERGROUND CONDUCTOR NO10-TYPE RHW
					1	240	UNDERGROUND CONDUCTOR NO6-TYPE THW
2	5593+65.44, 30.17' RT to 5593+65.29, 32.67' LT	FLASHING BEACON #2 to FLASHING BEACON #1	65	2	2	150	UNDERGROUND CONDUCTOR NO10-TYPE RHW
					1	75	UNDERGROUND CONDUCTOR NO6-TYPE THW
			65	2	1	75	NO16 AWG 2 CONDUCTOR CABLE
3	5593+65.44, 30.17' RT to 5592+14.30, 32.20' RT	FLASHING BEACON #2 to FLASHING BEACON #3	145	2	2	310	UNDERGROUND CONDUCTOR NO10-TYPE RHW
					1	155	UNDERGROUND CONDUCTOR NO6-TYPE THW
4	5592+14.30, 32.20' RT to 5592+14.95, 31.51' LT	FLASHING BEACON #3 to FLASHING BEACON #4	65	2	2	150	UNDERGROUND CONDUCTOR NO10-TYPE RHW
					1	75	UNDERGROUND CONDUCTOR NO6-TYPE THW
			65	2	1	75	NO16 AWG 2 CONDUCTOR CABLE

SPECIFIC NOTES

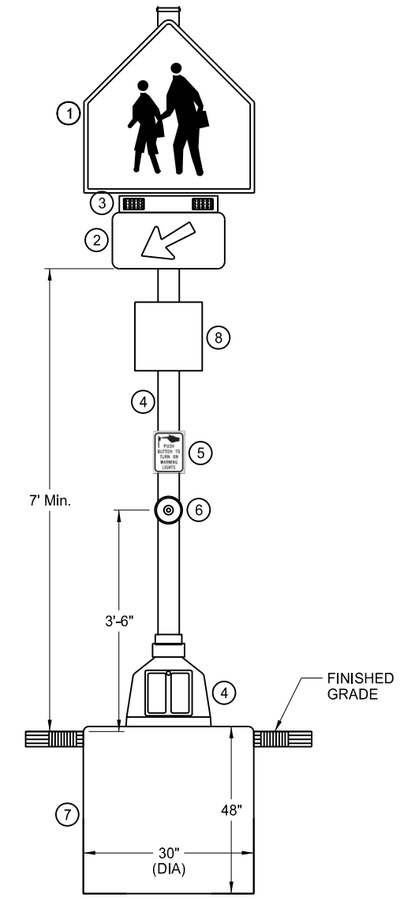
1. 2-S1-1 FLUORESCENT YELLOW-GREEN (36" X 36") (MOUNTED BACK-TO-BACK).
2. 1-W16-7PR FLUORESCENT YELLOW-GREEN (24" X 12") AND 1-W16-7PL FLUORESCENT YELLOW-GREEN (24" X 12") (MOUNTED BACK-TO-BACK WITH ARROWS POINTING TOWARD CROSSWALK).
3. DOUBLE-SIDED RECTANGULAR RAPID-FLASHING BEACON (RRFB) UNIT. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. SEE DETAIL BELOW.
4. SEE NDDOT STANDARD DRAWING D-772-2 TYPE II TRAFFIC SIGNAL STANDARD FOR PEDESTAL DETAILS.
5. R10-25 BLACK ON WHITE (9" X 12")
6. SOLID STATE PEDESTRIAN PUSHBUTTON.
7. SEE NDDOT STANDARD DRAWING D-770-1 "SIGNAL STANDARD FOUNDATION" FOR TYPE II SIGNAL STANDARD FOUNDATION DETAILS.
8. RRFB CONTROLLER CABINET. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

GENERAL NOTES

1. ALL WIRING SHALL BE KEPT INSIDE POLE. POLE OPENINGS SHALL BE MADE WATER TIGHT USING APPROVED GASKETS, GROMMETS & SEALANT.
2. PEDESTRIAN PUSH BUTTON & RRFB CONTROLLER CABINET SHALL BE MOUNTED PER MANUFACTURER SPECIFICATION USING VANDAL PROOF HARDWARE.
3. PAID FOR UNDER ITEM "FLASHING BEACON-POST MOUNTED-SCHOOL". ALL WIRING AND HARDWARE REQUIRED TO PROVIDE A FUNCTIONING SYSTEM SHALL BE INCIDENTAL.
4. EACH CROSSWALK SHALL OPERATE INDEPENDENTLY.
5. DURATION OF FLASHING WARNING INTERVAL DISPLAYED UPON PEDESTRIAN ACTIVATION SHALL BE NO LESS THAN 22 SECONDS.



RRFB UNIT DETAIL
(NOT TO SCALE)



PEDESTAL MOUNTED RRFB ASSEMBLY DETAIL
(NOT TO SCALE)

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Flashing Beacon System

Killdeer Safe Routes to School

ND Hwy 22
Flashing Beacon Layout