

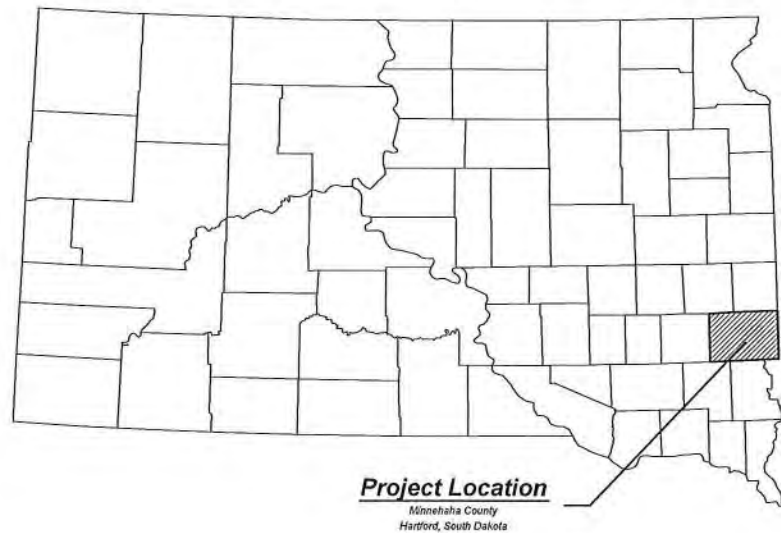


**City of Hartford**  
**Minnehaha County**  
**Plans for Proposed Permanent Signing**  
**& Pavement Marking**  
**Project P SRTS(21)**  
**Safe Routes to School Infrastructure**  
**Project in Hartford**  
**PCN 03C5**  
**SEI No. 6412**



**Index of Sheets**

SHEET NO. A-1	TITLE SHEET
SHEET NO. B-1	ESTIMATE OF QUANTITIES
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**Location Map**

Drawing indicates general utility locations only. Neither the correctness or completeness of locations are guaranteed.

Prior to excavation contact:  
SOUTH DAKOTA ONE CALL (1-800-781-7474)



I, Nicholas D. Borns, hereby certify that these plans were prepared by me, or under my direct supervision and that I am a duly registered engineer under the laws of the State of South Dakota.

*Nicholas D. Borns*      1-28-13  
Nicholas D. Borns      S.D. No. 10966      Date

**ESTIMATE OF QUANTITIES**

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	1	LS
110E5020	Salvage Traffic Sign	8	Each
250E0020	Incidental Work, Grading	1	LS
632E1320	2.0"x2.0" Perforated Tube Post	79	Ft
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	81	SqFt
633E1000	Epoxy Pavement Marking Paint, White	0.5	Gal
633E1130	Epoxy Pavement Marking Paint, 24" White	40	Ft
633E5051	Surface Preparation for Pavement Marking	104	SqFt
634E0120	Traffic Control, Miscellaneous	1	LS
635E5960	Solar Powered Flashing Beacon	4	Each



**SAFE ROUTES TO SCHOOL**  
PHASE 4  
HARTFORD, SD

ESTIMATE OF QUANTITIES  
 DESIGNER: F.Y.N.F.  
 DRAWN: F.Y.N.F.  
 CHECKED: F.Y.N.F.  
 REVISIONS:  
 DATE: / /  
 DATE: / /  
 DATE: / /

**STOCKWELL ENGINEERS**  
SIOUX FALLS, SD

## GENERAL NOTES

### PROJECT SCOPE

This project consists of installing pedestrian crossing beacons, signs and pavement striping for two existing SRTS street crossing locations. The two street crossings are for SD highway 38 at E. 2<sup>nd</sup> Street and Railroad St., east of S. Vandemark Ave.

### SPECIFICATIONS TO BE USED

The most current edition of the South Dakota Department of Transportation Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata and required provisions, supplemental specifications, and/or special provisions as included in the Project Manual are hereby made a part of these specifications in its entirety unless otherwise revised, deleted, or supplemented herein.

### ORDER OF PRECEDENCE

If conflicts arise, the order of precedence of the contract documents shall be as follows: Plans over Supplemental Specifications over South Dakota Department of Transportation Supplemental Specifications and Errata over South Dakota Department of Transportation Standard Specifications for Roads and Bridges.

### CONSTRUCTION LIMITS

The construction limits shall be within the right-of-way and easement areas. Material storage and vehicle and equipment traffic shall be limited to the construction limits. All paved streets adjacent to the project are to be cleaned at the end of each working day.

It shall be the responsibility of the contractor to coordinate with the property owners relating to access to their property and any subsequent damages.

### GRADE STAKES, BENCHMARKS AND MONUMENTS

All stakes, stones, and monuments now in place and marking lines and corners of boundaries which are likely to be affected by the work herein provided for shall be carefully preserved by the Contractor. In no case shall any excavation be made within five feet (5') of any such stake, stone or monument until they have been properly reset, witnessed, or otherwise cared for by the Engineer and permission is given to proceed with the work.

All lines, grade stakes, and benchmarks set by the Engineer in connection with the work herein provided for shall be carefully preserved by the Contractor and shall not be disturbed nor moved from the exact position and elevation as set by the Engineer. No excavated material shall be thrown over or against said stakes and, except where necessary to remove the stakes as the work progresses, all stakes shall be carefully preserved in the original position and elevation until the work has passed final inspection and been accepted. Stakes, which must be removed as the work progresses shall be so removed only upon the order of the Engineer.

All stakes, stones, monuments, and benchmarks disturbed or removed through carelessness or without proper authority will be reset at the expense of the Contractor.

### SUBMITTALS

The following documents shall be submitted by the Contractor:

1. Construction Schedule
2. Materials Certifications
3. Manufacturer's Experience
4. Shop Drawings

### CONSTRUCTION SCHEDULE

The Contractor shall prepare a construction schedule for approval to the Engineer that will ensure the completion of the project within the time frame specified. This schedule must be

provided to the Engineer for review a minimum of 3 days prior to the preconstruction meeting. The notice to proceed will not be issued until the schedule has been approved by the City. The construction schedule shall be in bar or network diagram form and show the start and completion dates for significant items of work in their respective phases. Significant items of work include but are not limited to: erosion control, removals, grading, the installation of sidewalk, and pavement markings. When applicable the schedule shall include submission dates for shop drawings, manufacturing and installation of materials, supplies, equipment, and testing for various parts of the work.

If it appears the rate of progress is such that the contract will not be completed within the time frame allowed the Contractor will be required to provide written documentation as to what measures they will take to complete the project within the specified time frame or to prosecute work in a satisfactory manner.

### ACCEPTANCE TESTING

The City will be responsible for taking the first acceptance test and a backup test if required. All subsequent tests required due to failures will be paid by the Contractor by deducting the cost from the pay request. Costs associated with acceptance testing can be obtained from the City or Stockwell Engineers, Inc.

### DRAINAGE

Drainage is the Contractor's responsibility. Contractor shall be aware of existing drainage conditions and facilities, and shall provide for drainage during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense and to the satisfaction of the Engineer.

### UTILITIES

All utilities shall be verified by the Contractor prior to starting work. Any time existing utilities impede the progress of work, the Contractor shall immediately notify the Engineer.

All utilities, whether privately or publicly owned, shall be moved, relocated, and/or replaced as necessary, by the respective utility company or companies except as noted in the plans. These modifications shall take place in advance of construction when applicable or when advised by the Engineer. No payment shall be made to the Contractor unless specified in the contract documents.

The Contractor shall safeguard all utilities and coordinate his efforts to coincide with utility work by others in order to minimize inconvenience to the public and utility companies. When pipe utility installation crosses existing utilities, the Contractor shall be responsible for supporting the utilities in a manner that is acceptable to the owner of the utility. Any damage caused to the utilities due to Contractor carelessness shall be repaired at the Contractor's expense to the satisfaction of the utility owner.

Abandoned utilities (gas lines, telephone lines, etc.) encountered during construction shall be removed and disposed of by the Contractor. Costs associated with this work shall be incidental to the various bid items associated with work adjacent to the abandoned utility.

The Contractor shall be responsible for the coordination of all work associated with the disturbance, removal, or replacement of unidentified metallic natural gas mains or services when encountered. The Contractor shall, in advance and prior to proceeding with the work, coordinate with the City of Hartford, Golden West Telecommunications, and all other companies related to the associated work. All costs associated with utility coordination shall be incidental to the various contract items.

The Contractor shall contact South Dakota One Call system, utility companies, and the City of Hartford to verify locations of all existing utilities prior to excavation.

The Contractor shall be responsible for notifying South Dakota One Call 1-800-781-7474 to have utilities field located.

The following utility companies are known to have facilities on the project:

Golden West Telecommunications  
Ray Schulte  
(605) 528-3211

Sioux Valley Energy  
Joel Boy  
(605) 528-3158

MidAmerican Energy Company  
Eric Berg  
1200 S. Blauvelt  
Sioux Falls, SD 57105  
(605) 373-6038

City of Hartford  
Craig Wagner  
PO Box 727  
Hartford, SD 57106  
(605) 528-6509

The Contractor shall cooperate with and coordinate his efforts to work with the utility companies and their contractors. Each bidder shall be responsible prior to bid letting, for determining the effects of utility work on the project work scope and schedule, and shall account for all such effects in his bid. No consideration will be given to the Contractor after the bid letting on account of utility work done by others.

All costs to coordinate and verify locations of existing utilities shall be incidental to the contract.

### INCIDENTAL WORK, GRADING

Incidental work, grading shall include any grading, seeding, fertilizing, mulching and any other work required to restore any grass areas disturbed by construction.

All costs associated with restoring disturbed grass areas shall be included in the bid item "Incidental Work, Grading". Incidental work, grading shall be paid on a lump sum basis.

### TRAFFIC CONTROL, MISCELLANEOUS

Installation of traffic control shall conform to the Manual of Uniform Traffic Control Devices (MUTCD) most current addition unless otherwise modified in the plans. All work shall be protected from the public and the public shall be protected from hazards of the construction site. The contractor shall be fully responsible for the construction site including all safety issues for the public and workmen.

All costs associated with protecting the site shall be included in the bid item "Traffic Control, Misc." Traffic control shall be paid on a lump sum basis. All costs for devices and installation of items such as barricades, signs, flagging or other items that do not include a separate bid item shall be considered incidental and shall be included in the lump sum price.

### HISTORICAL PRESERVATION OFFICE CLEARANCES

To obtain State Historical Preservation Office (SHPO) clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. In lieu of a cultural resources survey, the Contractor could request a records search from Jim Donohue, State Archaeological Research Center (SARC). Provide SARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site. The Contractor shall arrange and pay for the cultural resource survey and/or records search.

If any earth disturbing activities occur within the current geographical or historic boundaries of any South Dakota reservation, the Contractor shall obtain Tribal Historical Preservation Office (THPO) clearance. If no THPO exists, the required SHPO clearance shall suffice, with documentation of Tribal contact efforts provided to SHPO.



To facilitate SHPO or THPO responses, the Contractor should submit a records search or cultural resources survey report to the DOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3268). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO/THPO approval. The Contractor is responsible for obtaining all required permits and clearances for staging areas, borrow sites, waste disposal sites, and all material processing sites. The Contractor shall provide the required permits and clearances to the Engineer at the preconstruction meeting.

#### WASTE DISPOSAL SITE

The Contractor will be required to furnish a site(s) for the disposal of construction/demolition debris generated by this project.

Construction/demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction/demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction/demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".
2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

## REMOVALS

#### SALVAGE TRAFFIC SIGN

The contractor shall remove the "Pedestrian Crosswalk" symbol signs and "Left Diagonal Arrow Plaque" signs currently in place and install the signs on the Solar Powered Flashing Beacon Units. The contractor shall also salvage the posts for the City.

Salvage Traffic Sign shall be measured on a per each removed and installed basis. All costs associated with removal and resetting the signs shall be included in the bid item "Salvage Traffic Sign."

## PERMANENT SIGNAGE & STRIPING

#### EPOXY PAVEMENT MARKING PAINT, WHITE

Pavement markings shall meet the requirements of the MUTCD.

Triangles for yield bars shall have a height of 36". Triangle height shall also be 1.5 times the base dimension. Triangle spacing shall be 12 inches. Triangles for yield bars shall be paid under the bid item "Pavement Marking Paint, Symbol" on a per each basis.

The thickness of the Epoxy Pavement Marking Paint, White shall be .02".

"Epoxy Pavement Marking Paint, White" shall be measured on a per gallon basis to the nearest 1/2 gallon. All costs associated with the yield bars marking shall be included in the bid item "Epoxy Pavement Marking Paint, White."

#### EPOXY PAVEMENT MARKING PAINT, 24" WHITE

Pavement markings shall meet the requirements of the MUTCD.

Crosswalk striping shall be applied geometrically as it is currently.

"Epoxy Pavement Marking Paint, 24" White" shall be measured on a per foot basis. All costs associated with the crosswalk striping shall be included in the bid item "Epoxy Pavement Marking Paint, 24" White."

#### SURFACE PREPARATION FOR PAVEMENT MARKING

All pavement surfaces shall be ground lightly prior to the air blast and epoxy application. Light grinding is defined as surface abrasion 15 mils to 20 mils deep to establish a roughened surface free of surface treatments, laitance, loose paint chips, loose seal aggregate, and surface impurities. If the light grinding does not remove all of the existing or temporary pavement markings, the Contractor shall increase the grinding depth sufficient to remove the existing pavement marking material. Removal depth is measured vertically from the bottom of a 3-foot or longer straight edge placed on the roadway surface to the ground surface. Meet the following removal limits:

- a. Grind not more than 2 inches wider than the stripe.
- b. Grind no more than 4 inches from the beginning or end of the stripe.
- c. Remove the remains of existing pavement marking.

Immediately following the surface preparation grinding, the Contractor shall broom the surface and vacuum up the removed residue with a vacuum truck or pickup broom.

#### PERMANENT SIGNING

The Contractor shall furnish all signs, posts, stiffeners, bases, hardware, and labor for installation of permanent signs in size, type, and quantity as shown in these plans and/or as required by the Engineer.

The Contractor shall provide all labor and equipment necessary to install permanent signing, as detailed in these plans and/or as required by the Engineer. Payment for furnishing and installing permanent signs will be paid for at the contract unit price per square foot of "Flat Aluminum Sign, Nonremovable Copy High Intensity." Payment for new signposts, hardware, bases, and labor will be made at the contract unit price per foot for "2.0" x 2.0" Perforated Tube Post." See breakaway post details, and fixed post details regarding posts, hardware, bases, and footings. Measurement of post lengths for payment will be for above ground post lengths as field measured. The sign post contract items shall include post bases and all hardware. The lengths of posts in the estimate of quantities are approximate lengths only. The post lengths shall be verified by the Contractor. The Contractor is urged to cut posts to length on job site after site by site verifications of post length.

The Contractor shall use Telespar brand (or equals) posts and bases on all new standard highway signs as approved by the Engineer. All post materials shall conform to Section 982 of the Standard Specifications, and be in accordance with ASTM specifications. Signs designated as requiring a shear slip base shall have a 4 foot long base assembly with a shear breakaway base connecting the base to the signpost. The height of the post shall not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign shall be cut off. No separate payment will be made for cutting the post or for that length cut off. All posts and bases shall be accompanied by Certificates of Compliance and shall meet all safety standards as set forth in the current edition of the manual on Uniform Traffic Control Devices (MUTCD).

The Contractor shall stake the signs and the Engineer will verify the location prior to installation. The lateral distance from the roadway and the height of the sign shall be established by the Contractor according to the Standard Plates in the plans and the MUTCD.

#### PERFORATED TUBE POST:

Payment for 2.0" x 2.0" perforated tube post shall include all cost for labor, equipment, and materials necessary to complete the following work:

1. Furnish all posts, stiffeners, breakaway bases, soil stabilizers, and hardware.
2. Assembly and installation of breakaway base sign supports as per details shown in these plans.
3. Assembly of sign(s) to sign post as per erection details for Highway Signs as shown in these plans.
4. Installation of signpost and sign(s).
5. Installation of 2.25" x 2.25" perforated tube post anchor and 2.5" x 2.5" perforated tube post stiffener sleeve are also considered incidental to the contract unit price per foot for "2.0" x 2.0" Perforated Tube Post." See detail on sheet K-5.

#### SOLAR POWERED FLASHING BEACON

Solar Powered Flashing Beacons shall meet the requirements of Chapter 4F of the MUTCD. Beacons shall be provided at the locations specified in the plans and constructed in accordance with the detail in section "K" of the plans. Beacons shall operate in a flash pattern in conformance with the MUTCD. Activation of the beacon shall be pedestrian actuated by means of a push button. The unit shall be Tapco RRFB-XL or approved equal.

Support poles and bases shall meet the requirements for traffic signals and structural supports as required by AASHTO. The support poles and bases shall be Pelco Products, Tapco, or approved equal.

A foundation anchor shall be installed to anchor the pedestal. Foundation anchors shall be hot dip galvanized per ASTM A-123. Bolts shall be Grade 5 galvanized. Foundation anchors shall have a minimum shaft length of 60-inches. The anchors shall be provided by Pelco Products, Inc. or approved equal.

Pedestrian beacons shall be measured on a per each installed basis and shall include all costs to supply and erect the beacon. All costs for items such as the signal pole, footing, foundation anchor, signage, control cabinet, push button, solar panel, any mounting hardware, labor and other items that do not include a separate bid item but are necessary to construct the beacon as specified shall be considered incidental to the beacon and shall be included in the contractor's unit price.

The contractor shall stake the locations of each "Solar Powered Flashing Beacon" and the Engineer will verify the location prior to installation.



PLAN SHEET	DESCRIPTION	SIGN CODE	SIZE	TRAFFIC SIGN AREA (SF)	2.0"x2.0" Tube (FT)	INSTALL TRAFFIC SIGN ON POST (EACH)	F&I TRAFFIC SIGN ON BEACON (EACH)	SALVAGE TRAFFIC SIGN AND USE ON SOLAR POWERED FLASHING BEACON
K-2	YIELD HERE TO PEDESTRIANS	R1-5L	18"X18"	2.25	9'-0"	1		
K-2	YIELD HERE TO PEDESTRIANS	R1-5L	18"X18"	2.25	9'-0"	1		
K-3	YIELD HERE TO PEDESTRIANS	R1-5L	18"X18"	2.25	9'-0"	1		
K-3	YIELD HERE TO PEDESTRIANS	R1-5L	18"X18"	2.25	9'-0"	1		
K-2	AHEAD	R3-17a	30"x12"	2.5		1		
K-2	AHEAD	R3-17a	30"x12"	2.5		1		
K-3	AHEAD	R3-17a	30"x12"	2.5		1		
K-3	AHEAD	R3-17a	30"x12"	2.5		1		
K-2	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8	10'-8"	1		
K-2	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8	10'-8"	1		
K-3	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8	10'-8"	1		
K-3	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8	10'-8"	1		
K-2	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8			1	1
K-2	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8			1	1
K-3	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8			1	1
K-3	SCHOOL CROSSING SYMBOL	S1-1	36"X36"	6.8			1	1
K-2	RT. DIAGONAL ARROW PLAQUE	W16-7pR	24"X12"	2.0			1	
K-2	RT. DIAGONAL ARROW PLAQUE	W16-7pR	24"X12"	2.0			1	
K-3	RT. DIAGONAL ARROW PLAQUE	W16-7pR	24"X12"	2.0			1	
K-3	RT. DIAGONAL ARROW PLAQUE	W16-7pR	24"X12"	2.0			1	
K-2	LT. DIAGONAL ARROW PLAQUE	W16-7pL	24"X12"	N/A				1
K-2	LT. DIAGONAL ARROW PLAQUE	W16-7pL	24"X12"	N/A				1
K-3	LT. DIAGONAL ARROW PLAQUE	W16-7pL	24"X12"	N/A				1
K-3	LT. DIAGONAL ARROW PLAQUE	W16-7pL	24"X12"	N/A				1
<b>TOTALS</b>				<b>81.4</b>	<b>78'8"</b>	<b>12</b>	<b>8</b>	<b>8</b>



DESIGNED BY: NDB  
DRAWN BY: RK  
CHECKED BY: NDB  
REVISIONS:

GENERAL NOTES  
ACAD FILE: 4412 - General Notes.dwg  
DATE: 1/13  
BY: NDB  
DATE:



PEDESTRIAN CROSSING.  
SEE SHEET K-3

WEST CENTRAL SCHOOL

SECOND STREET

SD HIGHWAY 38

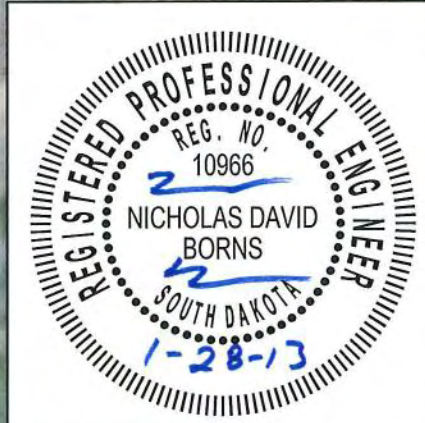
VANDERMARK AVENUE

FEYDER AVENUE

PEDESTRIAN CROSSING.  
SEE SHEET K-2

RAILROAD STREET

EXISTING SAFE ROUTES TO  
SCHOOL PEDESTRIAN BRIDGE



SAFE ROUTES TO SCHOOL

PHASE 4  
HARTFORD, SD

STRIPING & SIGNAGE PLAN

DESIGNED BY: NDB  
DRAWN BY: JPK  
CHECKED BY: NDB  
REVISIONS:  
ACAD FILE: 6412 - Striping & Signage.dwg  
DATE: 1/24/13  
BY: NDB  
DATE:

STOCKWELL ENGINEERS  
SIOUX FALLS, SD

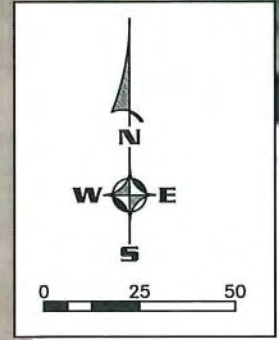
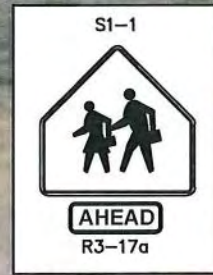
SHEET NO.  
K-1



RAILROAD STREET

-INSTALL SOLAR POWERED FLASHING BEACON  
 -SALVAGE TRAFFIC SIGNS - 2 EA  
 -SEE DETAIL SHEET K-4

-INSTALL SOLAR POWERED FLASHING BEACON  
 -SALVAGE TRAFFIC SIGNS - 2 EA  
 -SEE DETAIL SHEET K-4



SAFE ROUTES TO SCHOOL

PHASE 4  
 HARTFORD, SD

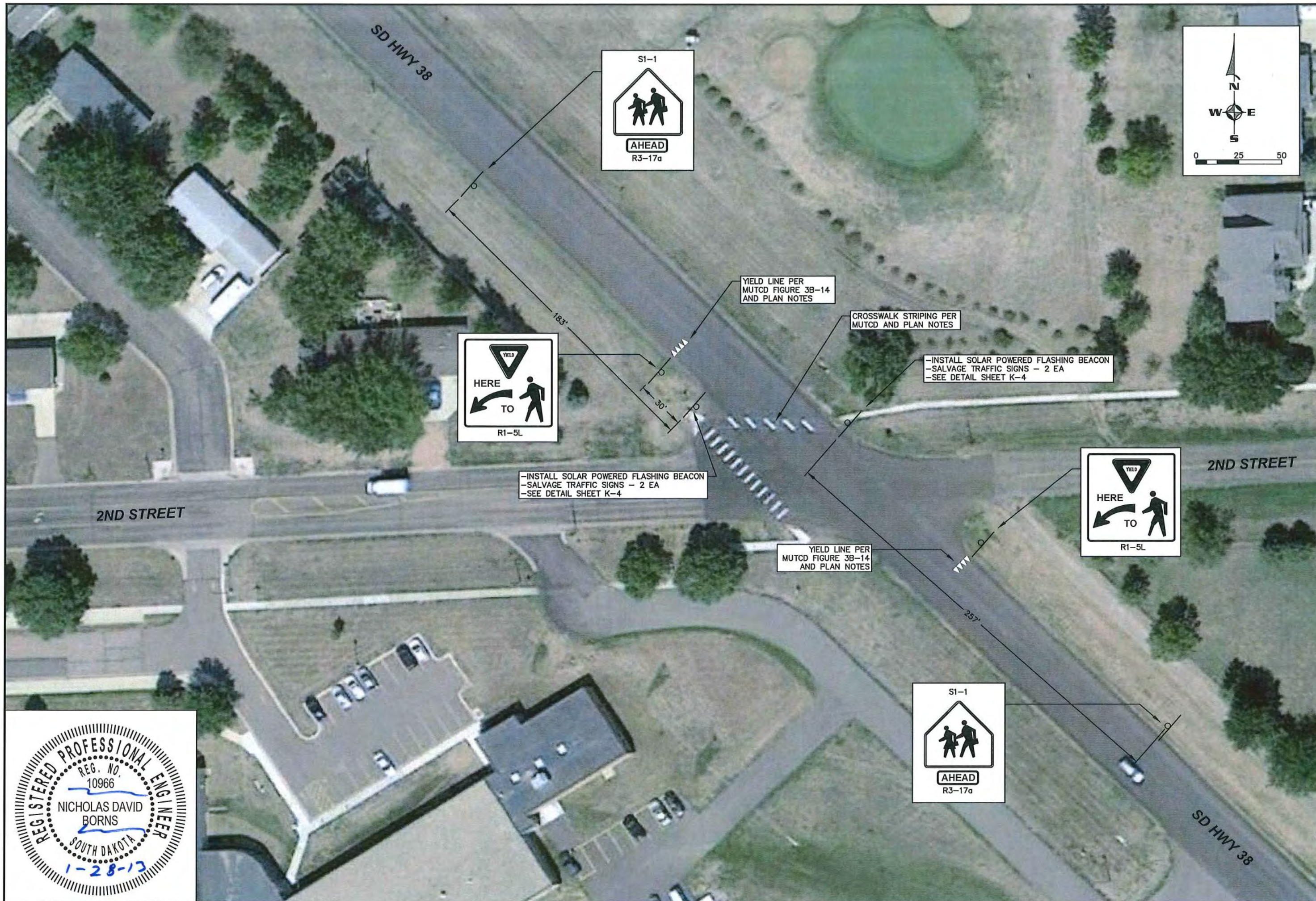
STIPING & SIGNAGE PLAN

DESIGNED BY: NDB  
 DRAWN BY: JMK  
 CHECKED BY: NDB  
 ACAD FILE: 6417 - Stiping & Signage.dwg  
 DATE: 1/28/13  
 REVISIONS:  
 BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_ DATE: \_\_\_\_\_

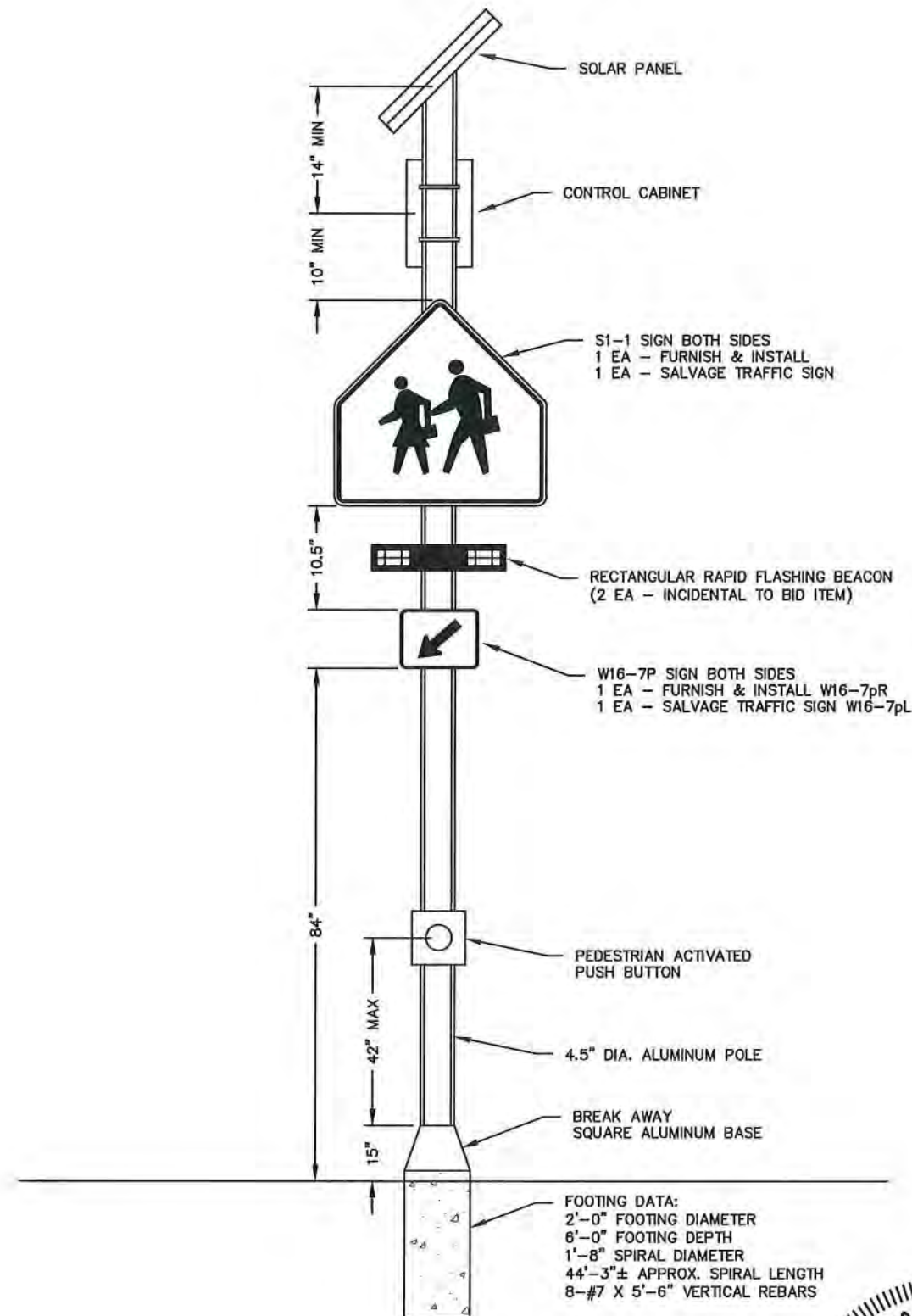
STOCKWELL ENGINEERS  
 SIOUX FALLS, SD

SHEET NO.

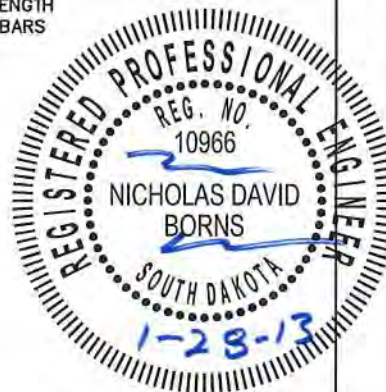
K-2



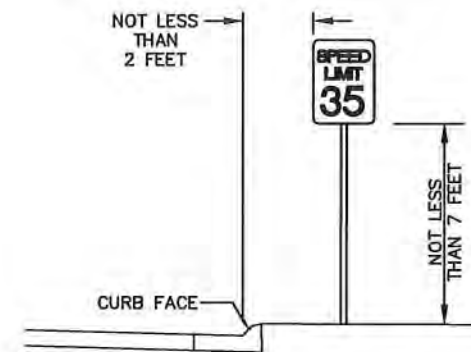




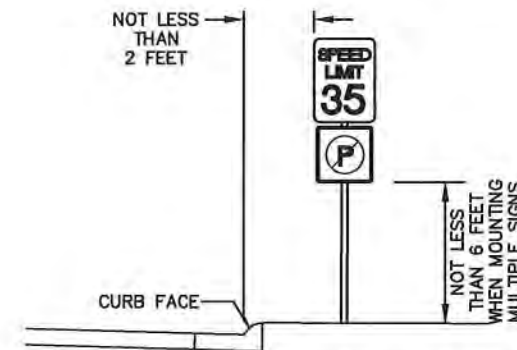
**SOLAR POWERED FLASHING BEACON**



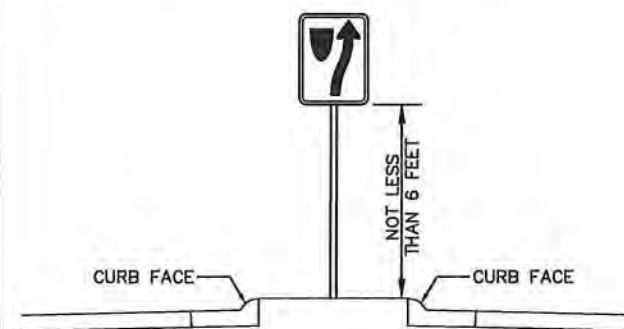
**ROADSIDE SINGLE SIGN**



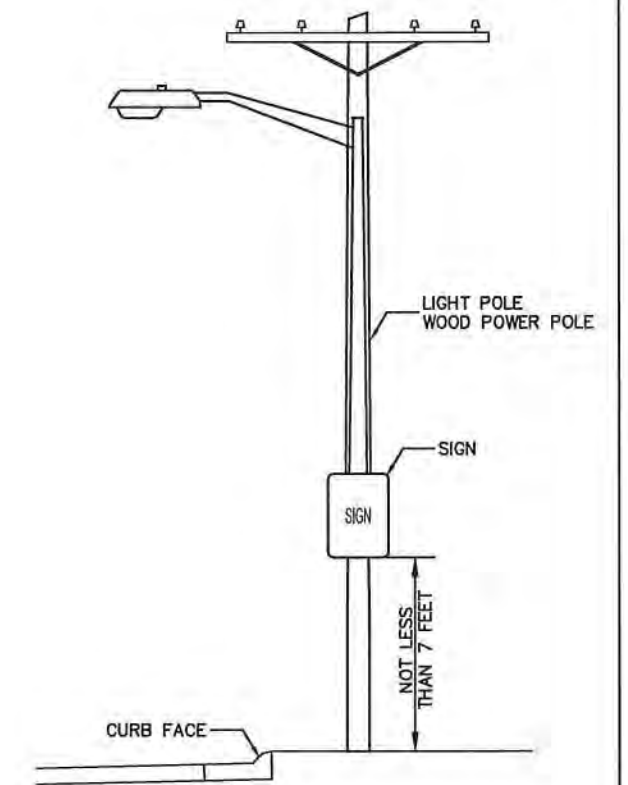
**ROADSIDE MULTIPLE SIGN**



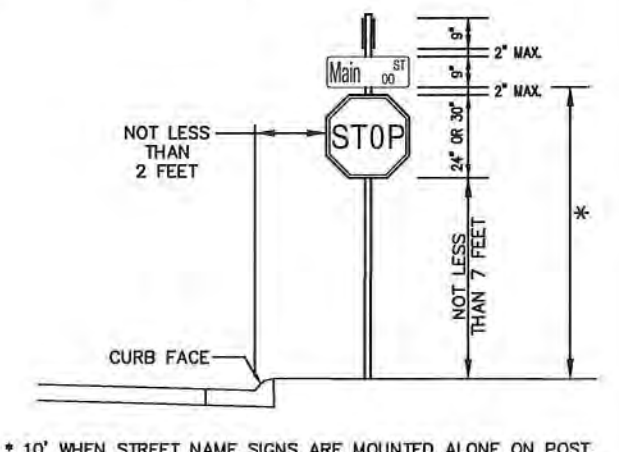
**SIGN ON NOSE OF MEDIAN**



**STREET LIGHT/WOODEN POWER POLE MOUNT**



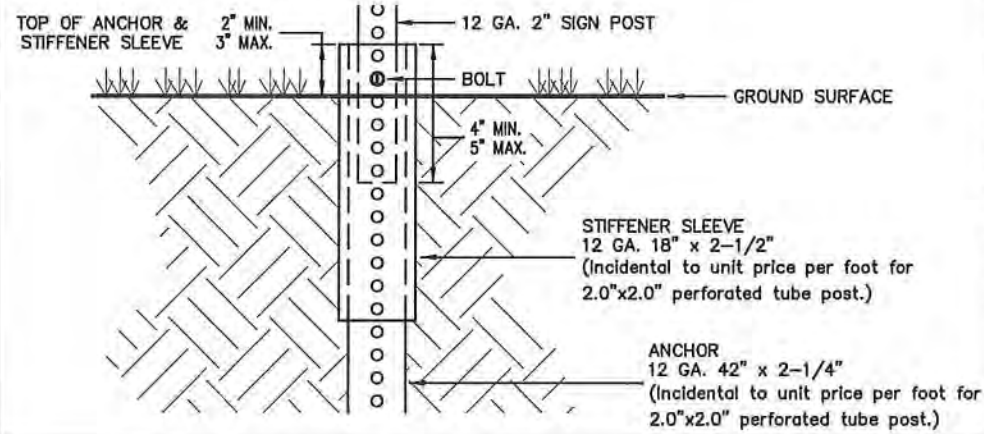
**STOP/STREET NAME SIGNS**



NOTE: ALL R7 & R8 SERIES SIGNS WITH ARROWS SHALL BE INSTALLED AT A 45 DEGREE ANGLE TO THE STREET.

**HEIGHTS AND LATERAL LOCATIONS OF SIGNS FOR TYPICAL URBAN INSTALLATION**

**PERFORATED TUBE POST  
(TELESPAR POST)**



**NOTES**

BOLTS AND WASHERS USED FOR MOUNTING TRAFFIC SIGNS SHALL BE STAINLESS STEEL. FLAT WASHERS SHALL BE MIL. SPEC. MS813.

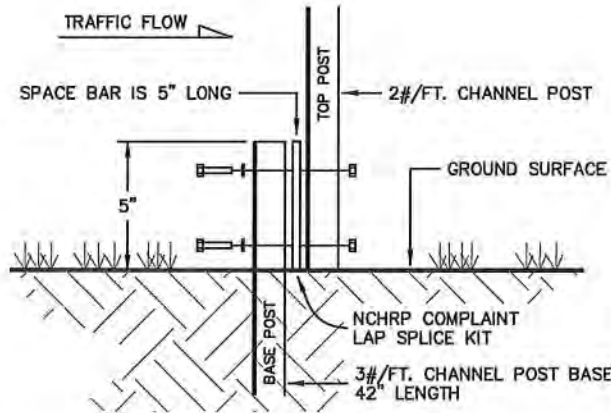
NUTS USED FOR MOUNTING TRAFFIC SIGNS SHALL BE A NYLOC (SELF-LOCKING) TYPE.

SIGNS SHALL BE MOUNTED USING A PLASTIC / NYLON WASHER PLACED BETWEEN THE SIGN FACE AND THE METALLIC FLAT WASHER.

LAG SCREWS USED TO MOUNT TRAFFIC SIGNS TO WOODEN POWER POLES SHALL BE ZINC COATED.

ALL HARDWARE REQUIRED FOR MOUNTING THE SIGNS SHALL BE INCIDENTAL TO THE COST OF INSTALLING THE SIGNS.

**FLANGED CHANNEL POST  
(U-POST)**

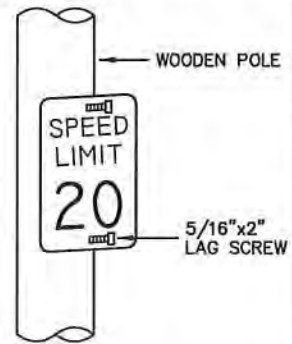


**SIGN SAVER PLATE  
3"x3" PUNCHED  
RIBBED ALUMINUM**



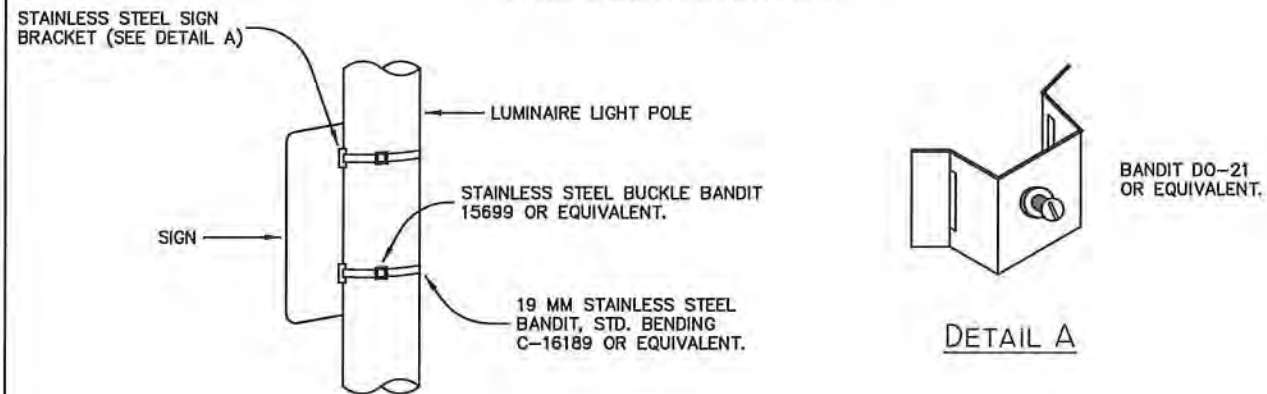
TO BE USED WHEN MOUNTING SIGNS ON CHANNEL POST.

**SIGN MOUNTING ON  
WOODEN POWER POLE**



**STAINLESS STEEL BAND MOUNTING SYSTEM**

TO BE USED WHEN MOUNTING SIGNS ON METALLIC AND FIBERGLASS POLES.



**SIGN MOUNTING SPECIFICATIONS**

