RESOLUTION #4-20-2015C

A Resolution approving plans and specifications, form of contract, opinion of probate cost and the proposed improvements described thereby for the 2015 Cityf of Mount Vernon, Iowa, First Avenue (IA Hwy1) and First Street Intersection Improvements Project.

Motion made by _____, seconded by _____ to _____ Resolution #4-20-2015C.

Resolution #4-20-2015C _____ on April 20, 2015, by the following roll call vote:

YES:

NO:

ABSTAIN:

ABSENT:

MOUNT VERNON CITY COUNCIL
MOUNT VERNON, IOWA

_____
James L. Moore, Mayor

ATTEST:

_____
Sue Ripke
Assistant City Administrator/Clerk

00100
NOTICE OF HEARING AND LETTING
FOR
2015 CITY OF MOUNT VERNON, IOWA
FIRST AVENUE (IA HWY 1) AND FIRST STREET
INTERSECTION IMPROVEMENTS PROJECT

NOTICE OF HEARING

At 6:30 p.m., local time, on the 20th day of April, 2015 at the Council Chambers, City Hall, in the City of Mount Vernon, Iowa, a hearing will be conducted on the proposed plans, specifications, form of contract, opinion of probable cost and the proposed improvements described thereby for the 2015 City of Mount Vernon, Iowa, First Avenue (IA Hwy 1) and First Street Intersection Improvements Project. The City Council has previously filed these documents with the City Clerk of the City of Mount Vernon, Iowa. The City Engineer's opinion of probable construction cost for the Work is $440,000. The proceedings of the City Council referring to the proposed plans, specifications, form of contract, and cost opinion are also made part of this notice. At this hearing, any interested person may file written and/or oral objections to these documents and the proposed improvements.

NOTICE OF LETTING

Description of Work

The Work generally consists of approximately 540 SY of 10" PCC pavement, 665 SY of Pavement Removal, 480 SY of PCC Sidewalk, New Traffic Signal, 120 SY Decorative Brick Pavers, 200 CY of Class 10 Excavation, and miscellaneous associated work.

Type of Bid

Bids shall be on a unit price basis. The estimated quantities are not guaranteed, but are solely for the purpose of comparison of units. Final payment will be based on actual quantities constructed.

Contract Time Information

Start Date:	July 27, 2015 early
	August 31, 2015 late
Working Days:	40

Bid Opening Time, Date and Location

The City Council will receive sealed bids at the office of the City Clerk until 4:00 p.m. on Thursday, April 30, 2015. Bids received after this time will not be opened. The bids will be opened and read aloud at the Council Chambers, City Hall, in the City of Mount Vernon, Iowa.

Examination and Procurement of Documents

Bid Documents may be examined at the following locations:

City of Mount Vernon, Iowa
Office of the City Clerk
213 First Street NW
Mount Vernon, IA 52314

CMD
Document Processing Center
30 Technology Pkwy S, Ste 500
Norcross, GA 30092-2912

Construction Update Network
e-mail: mbiplanroom-dsm@mbionline.com
phone: 515-288-7339

BidClerk
28 N. Clark Street, Ste. 450
Chicago IL 60602

North Iowa Builders Exchange
9 North Federal Ave
Mason City, IA 50401

McGraw Hill Construction Dodge
4300 Beltway Place, Ste. 180
Arlington TX 76018

Dodge Plan Room
3315 Central Avenue
Hot Springs, AR 71913

Copies of the Bidding Documents may be obtained at Anderson Bogert, 4001 River Ridge Drive NE, Cedar Rapids, Iowa, 52402, phone no. (319) 377-4629, in accordance with the Instructions to Bidders. No deposit will be required for the documents.

Bid Security and Other Bonds
Bid security in the amount of 10 percent of the Bid must accompany each Bid in accordance with the Instructions to Bidders. The successful bidder shall be required to provide performance and payment Bonds, each in the amount of 100 percent of the Contract Price.

Applicable Laws and Regulations
By virtue of statutory authority, preference will be given to Iowa produced products and Iowa domestic labor to the extent lawfully required under State Statutes, providing that award of contract will be made to the bidder submitting the lowest responsible bid.

In all contracts to be awarded for a public improvement, which shall include building or construction Work to be paid for in whole or in part by the use of funds of the municipality, resident bidders shall be allowed a preference against nonresident bidders from a state or foreign country which gives or requires a preference to bidders from that state or foreign country. The preference is equal to the preference given or required by the state or foreign country with which the nonresident bidder is a resident. "Resident bidder" means a person authorized to transact business in Iowa and having a place of business for transacting business within Iowa at which it is and had conducted business for at least six months prior to the first advertisement for the public improvement and in the case of a corporation, at least fifty percent of the common stock is owned by residents of this state. If another state or foreign country has a more stringent definition of a resident bidder, the more stringent definition is applicable as to bidders from that state or foreign country.

OWNER's Right to Reject Bids
The City Council of the City of Mount Vernon, Iowa, reserves the right to reject any and all bids, to waive informalities and technicalities, and to enter such contracts as it deems in the best interest of the City. The City reserves the right to defer acceptance of any proposal for 30 calendar days after the bids have been received and opened.

By order of the City Council, City of Mount Vernon.

Dated this 6th day of April, 2015.

By:_____, Mayor

ATTEST:

By:_____, City Clerk

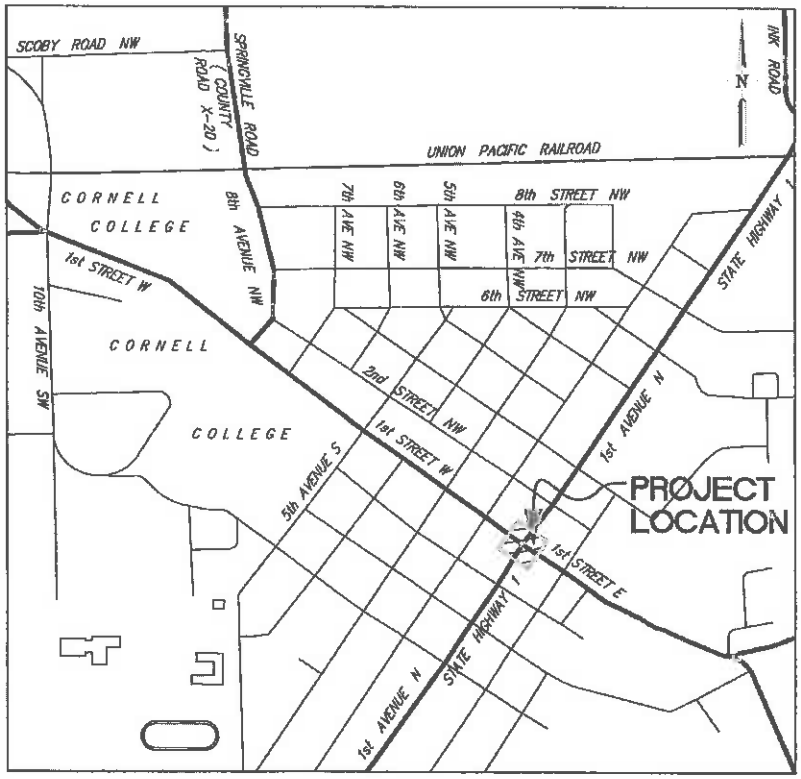
Letting Date: April 30, 2015

2015 CITY OF MOUNT VERNON, IOWA

FIRST AVENUE (IA HWY 1) AND FIRST STREET INTERSECTION IMPROVEMENTS PROJECT

SHEET INDEX

PAGE NO.	DESCRIPTION
A.01	Cover
A.02	General Notes & Legend
B.01–B.02	Typical Cross Sections
C.01–C.03	Tabulations and Estimate Reference Information
F.01	Removals
G.01	Survey Control and Alignment Information
J.01–J.04	Construction Phasing and Traffic Control
K.01–K.04	Intersection Details
L.01–L.03	Landscaping
N.01–N.07	Traffic Signals
O.01–O.02	Water Main
P.01	Pavement Markings
S.01–S.04	Sidewalk and Sidewalk Ramps
U.01–U.17	Details



LOCATION MAP

UTILITY AND EMERGENCY TELEPHONE NUMBERS
CITY OF MT. VERNON, IOWA

EMERGENCY – POLICE:	911
EMERGENCY – FIRE DEPT.:	911
CITY OF MT. VERNON ENGINEERING DEPARTMENT	(319)–895–0880
POLICE DEPARTMENT (NON-EMERGENCY)	(319)–895–6141
SEWER MAINTENANCE DEPARTMENT	(319)–895–8402
WATER DEPARTMENT	(319)–895–6818
BUSINESS	(319)–895–8742
UTILITIES	
IOWA ONE-CALL	(800)–292–8989 or 811
ELECTRIC & GAS	
ALLIANT ENERGY	(319)–455–1901 CONTACT: MICK BENNETT
LINN COUNTY R.E.C. (RURAL ELECTRIC COOPERATIVE)	(319)–377–1587
TELEPHONE	
AT&T	(319)–364–6111
CENTURY LINK (QWEST)	(319)–399–7408 CONTACT: KEVIN HERREN
NORTHWESTERN BELL	(319)–399–7495
CABLE	
MEDIACOM BUSINESS	(319)–395–9899
MEDIACOM ENGINEERING	(319)–395–9699, ext 354 CONTACT: JOE ERNSTER

EXCEPT WHERE SPECIFICALLY NOTED, ALL CONSTRUCTION WORK, MATERIALS AND METHODS SHOWN ON THIS PLAN SHALL CONFORM TO THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.

CITY ADMINISTRATION AND DEPARTMENTS
CITY OF MT. VERNON, IOWA

CITY ADMINISTRATOR: MICHAEL R. BEIMER

CITY CLERK: SUE RIPKE

CITY ENGINEER: DAVE SCHECHINGER

MAYOR: JAMES L. MOORE

MAYOR PRO TEM: FRANCESCA THOMPSON

CITY COUNCIL: JAMIE HAMPTON, MARIANNE TAYLOR, ERIC S. ROUDABUSH, WILLIAM J. NIEMI

ANDERSON BOGERT
4001 River Ridge Drive N.E. Cedar Rapids, Iowa 52402
Phone:(319) 377-4629

LICENSED PROFESSIONAL ENGINEER BRYAN J. JANSSEN 21975 IOWA

I hereby certify that this Engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Engineer under the laws of the State of Iowa.

Bryan J. Janssen, Iowa Reg No. 21975

My License renewal date is December 31, 2015

Pages covered by this seal: ALL

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				
	CHECKED BY:				
	APPROVED BY: JCM				
	DATE: 4/10/15				
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

COVER PAGE

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895–8742

SHEET A.01 OF A.02

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GENERAL NOTES:

1. Contractor shall be responsible for obtaining all permits required for construction.

2. Not all utilities are shown on the drawings. The Contractor shall notify all utility companies and agencies prior to starting any excavation on the project to establish locations and meet requirements of Utility Companies.

3. Plan and profile sheets included in the project are for the purpose of alignment, location and specific directions for the work to be performed under this contract. Irrelevant data on these sheets is not to be considered a part of this contract.

4. All holes resulting from operations of the Contractor, including removal of posts, trees, foundations, and foundation studies shall be filled and consolidated to finish grade as directed by the Engineer to prevent future settlement. The voids shall be filled as soon as practical – preferably the day created and not later than the following day. This operation shall be considered incidental to other bid items in the project.

5. It shall be the Contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or pavement rubble) which is not desirable to be incorporated into the work involved on this project. No payment for overhaul will be allowed for material hauled to these sites.
No material shall be placed within the right-of-way, unless specifically stated in the plans or approved by the Engineer. All waste and debris shall become the property of the Contractor and shall be cleaned up and removed by the Contractor.

6. As directed by the Engineer, the Contractor shall apply necessary moisture to the construction area to prevent the spread of dust. Water and spreading of water for dust control shall be incidental to the other bid items of the contract.

7. Unless otherwise directed, all portland cement concrete, asphaltic cement concrete and other bituminous materials which are not specifically addressed or described in the plans shall become the property of the Contractor. All such material must be disposed of by the Contractor in accordance with the latest rules and regulations of the Iowa Department of Natural Resources.

8. In order to avoid any unnecessary surface breaks or premature spalling, the Contractor is cautioned to exercise extreme care when performing any of the necessary saw cutting operations for the proposed pavement removal.

9. The Contractor shall not disturb desirable grass or trees outside the construction limits. No other trees or shrubs shall be disturbed unless otherwise noted on the plans or approved by the owner.

10. All disturbed areas shall be stabilized immediately after grading ceases.

11. The Contractor shall be responsible to maintain access to individual properties during construction, unless working directly in front of the property. Temporary Access to the doors shall be maintained by the Contractor.

12. All sawcutting is incidental.

13. All sewer main bid items include excavation and compaction necessary for the work. Granular backfill shall be paid at the bid unit price.

14. Contractor is responsible for all trench shoring and site safety including the fencing and signing of the site.

15. Contractor shall exercise extreme caution when removing existing pavement/sidewalk adjacent to the buildings, so as not to damage the foundations or building exteriors. Contractor shall use full depth sawcutting where it is deemed necessary to minimize the impact to the buildings.

16. Contractor shall submit pre construction photos of the building faces, walls and basement walls prior to construction. The Contractor shall submit post construction photos from the same location and angle to demonstrate the condition of the buildings post construction.

17. Certified plant inspection is not required for portland cement concrete (PCC) or hot mix asphalt (HMA) bid items in this project.

18. Pavement smoothness requirements shall only be for bumps and dips per Section 2316 of the Standard Specifications.

19. All costs for maturity method testing, including probes, development of maturity curves, tests, and any other labor, equipment, or materials, are incidental to the PCC Pavement items.

LEGEND

Existing		Proposed
	ACC / PCC / Curb	
	Gravel / Drive / Sidewalk	
	Building	
	Centerline	
	CATV	C
	Electric (Underground)	E
	Electric (Overhead)	OHE
	Fiber Optic Cable	F
	Force Main	FM
	Gas	G
	Sanitary Sewer (Size Unknown)	(SS)
	6" Sanitary Sewer	6" SS
	8" Sanitary Sewer	8" SS
	Storm Sewer (Size Unknown)	ST
	6" Storm Sewer	6" ST
	12" Storm Sewer	12" ST
	Subdrain	
	Steam	S
	Telephone	T
	Water (Size Unknown)	W
	8" Water	8" W
	10" Water	10" W
	Fence	X
	Wall	
	Right of Way	ROW
	Utility Easement	
	Temporary Construction Easement	
	Boundary Line	
	Adjoining Lot Line	
	Section Line	
	Proposed Property Lot Line	
	Building Setback	
	Grading Limits	
	Light Pole w/o Mast	
	Fire Hydrant	
	Utility Pole	
	Guy Anchor	
	Telephone Pedestal	
	Handhole	
	Utility/Control Cabinet	
	Drainage/Sanitary/Utility Manhole	
	Grate Intake	DR
	RA-3 or RA-5 Intake	
	RA-6 Intake	
	RA-8 Intake	
	Valve, Water or Gas	
	Valve Manhole	
	Cleanout, Storm or Sanitary	
	Water Blowoff	
	Flared End Section	
	Benchmark	
	Soil Boring	
	Light Pole w/ Mast	
	Traffic Signal	
	Mailbox	
	Bollard	
	CATV Pedestal	
	Sign	
	Well	
	Deciduous Tree	
	Coniferous Tree	
	Bush	

PLOT DATE: Apr 14, 2015	DRAWN BY: BJJ				/ /
	CHECKED BY:				/ /
	APPROVED BY: JCM				/ /
	DATE: 4/10/15				/ /
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

GENERAL NOTES AND LEGEND

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET A.02 OF A.02

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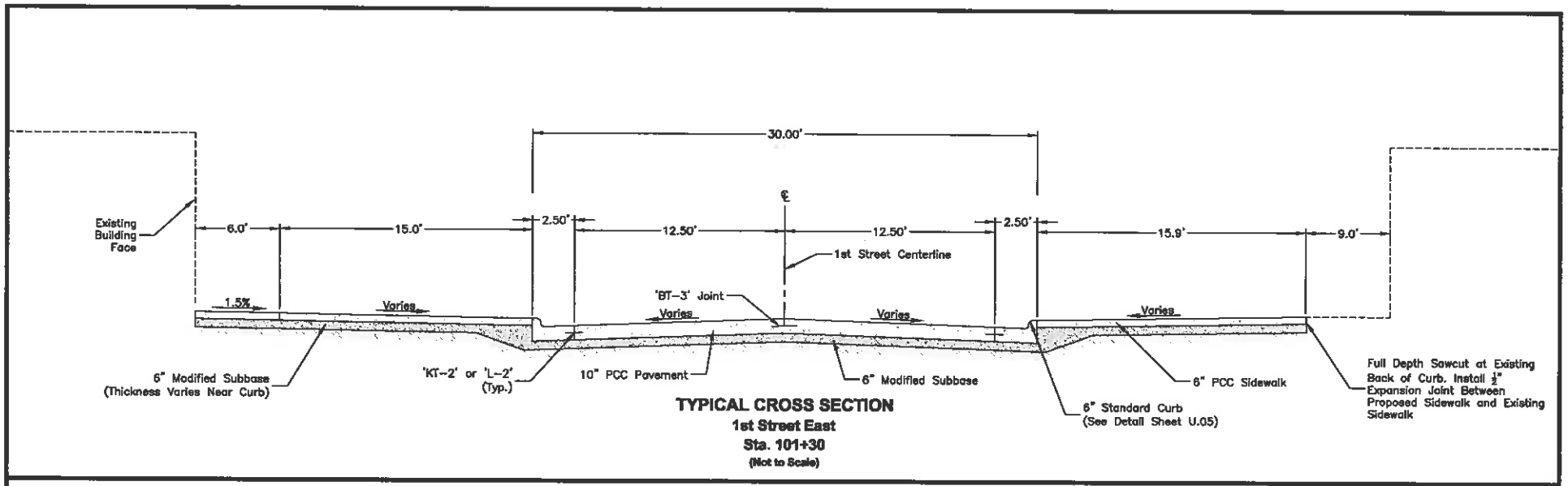
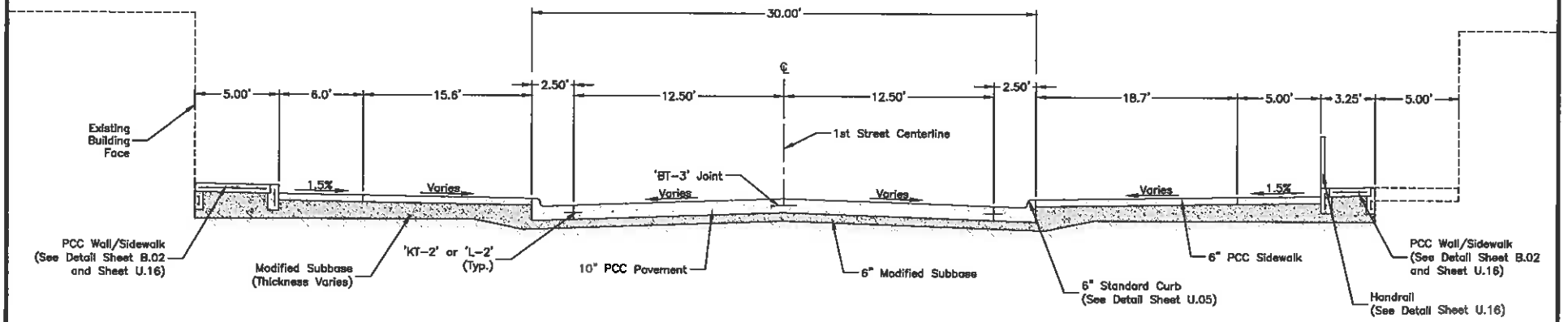


TYPICAL CROSS SECTION
1st Street East
Sta. 101+30
(Not to Scale)



TYPICAL CROSS SECTION
1st Street West
Sta. 100+48
(Not to Scale)

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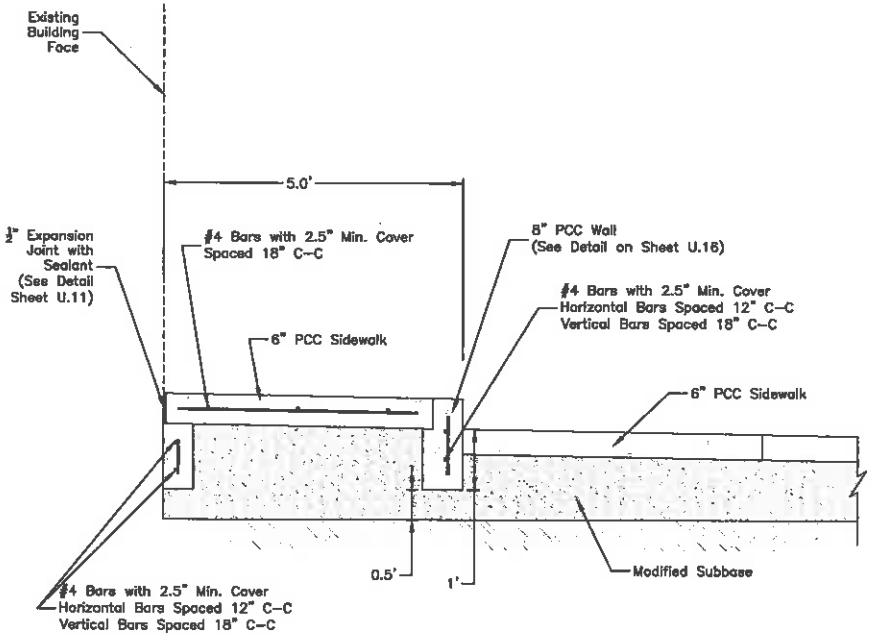
PLOT DATE: Apr 14, 2015	DRAWN BY: BJJ				/ /
	CHECKED BY:				/ /
	APPROVED BY: JCM				/ /
	DATE: 4/10/15				/ /
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

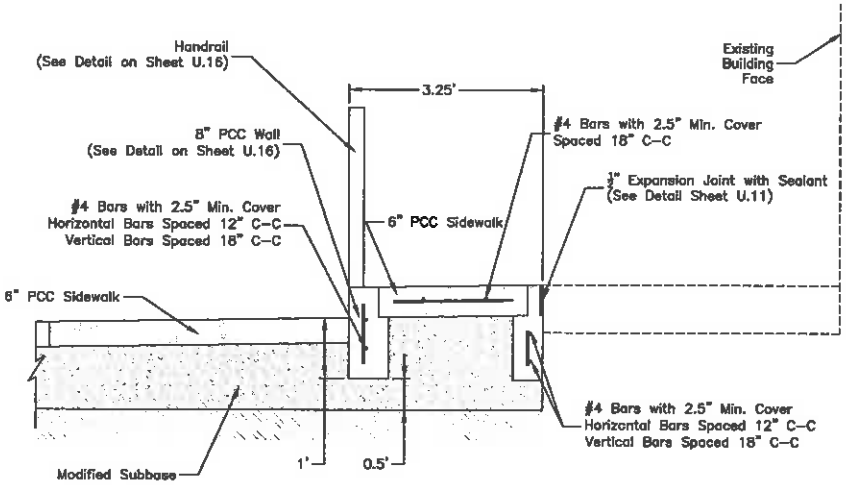
2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

Typical Cross Sections

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742



TYPICAL CROSS SECTION
1st Street West
Sta. 100+48, LT Side
(Not to Scale)



TYPICAL CROSS SECTION
1st Street West
Sta. 100+48, RT Side
(Not to Scale)

PLOT DATE: Apr 14, 2015	DRAWN BY: BJJ				/ /	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	Typical Cross Sections	CITY OF Mt. VERNON CITY HALL 213 1st. STREET W. Mt. VERNON, IOWA 52314 (319) 895-8742	SHEET B.02 OF B.02
	CHECKED BY:				/ /				
	APPROVED BY: JCM				/ /				
	DATE: 4/10/15				/ /				
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE				

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ESTIMATED PROJECT QUANTITIES

ITEM NO.	ITEM	UNIT	TOTAL
1	CLEARING AND GRUBBING	LS	1.0
2	EXCAVATION, CL 10, ROADWAY AND BORROW	CY	318
3	SUBGRADE STABILIZATION MATERIAL	SY	117.4
4	MODIFIED SUBBASE	TON	379.8
5	STD/S-F PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN., CROSSWALK BRICK PAVER BASE	SY	47.0
6	STD/S-F PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 10 IN.	SY	539.8
7	REMOVALS, AS PER PLAN	LS	1.0
8	STEEL PIPE PEDESTRIAN HAND RAIL	LF	14.0
9	REMOVAL OF PAVEMENT	SY	665.0
10	REMOVAL OF SIDEWALK	SY	478.3
11	SIDEWALK, P.C. CONCRETE, 4 IN., BRICK PAVER BASE	SY	73.1
12	SIDEWALK, P.C. CONCRETE, 6 IN.	SY	481.3
13	DETECTABLE WARNING	SF	112.0
14	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	2.0
15	TRAFFIC SIGNALIZATION	LS	1.0
16	REMOVAL OF TRAFFIC SIGNALIZATION	LS	1.0
17	CONSTRUCTION SURVEY	LS	1.0
18	PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	LF	1235.1
19	TRAFFIC CONTROL	LS	1.0
20	FLAGGERS	EACH	30.0
21	MOBILIZATION	LS	1.0
22	WATER MAIN, TRENCHED, PVC, 6 IN.	LF	24.9
23	WATER MAIN, TRENCHED, PVC, 8 IN.	LF	2.0
24	FITTINGS BY WEIGHT, DUCTILE IRON	LB	176.0
25	REMOVE AND REINSTALL FIRE HYDRANT ASSEMBLY	EACH	1.0
26	VALVE BOX ADJUSTMENT	EACH	6.0
27	TRAFFIC SIGNAL POLE FOOTING 3' DIA. X 8.5'	EACH	1.0
28	TRAFFIC SIGNAL POLE FOOTING 3' DIA. X 10.5'	EACH	1.0
29	TRAFFIC SIGNAL PEDESTAL FOOTING 2' DIA. X 3'	EACH	2.0
30	TRAFFIC SIGNAL POLE AND 22' MAST ARM	EACH	1
31	TRAFFIC SIGNAL POLE AND 32' MAST ARM	EACH	1
32	TRAFFIC SIGNAL PEDESTAL	EACH	2
33	TRAFFIC SIGNAL LOOP DETECTORS	EACH	2
34	DECORATIVE BRICK PAVERS	SY	214.1
35	TEMPORARY COLD MIX ASPHALT	TON	20.1
36	LIMESTONE BLOCK PLANTERS	SF	198.7
37	PCC FOOTING FOR PLANTERS	CY	2.4
38	PLANTING SOIL	CY	19.5
39	PCC WALL, 5"	SY	7.6
40	PCC WALL, 8"	SY	12.1

ESTIMATE REFERENCE INFORMATION

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM NO.	ITEM	DESCRIPTION
1	CLEARING AND GRUBBING	A. Bid item includes the removal and disposal of the sapling on the SW corner of the intersection and the tree stump on the NW corner of the intersection. A. See F sheets.
2	EXCAVATION, CL 10, ROADWAY AND BORROW	A. Quantity calculated is based on the volume of cut required for the installation of modified subbase plus the difference between the existing surface and top of finished surface. Estimated Cut = 246 CY and Estimated Fill = 72 CY. A shrinkage factor of 0.3 for fill was used for calculations.
3	SUBGRADE STABILIZATION MATERIAL	A. Quantity is based on 20% of the PCC Pavement area. Item includes the supply and installation of subgrade stabilization material as well as Macadam Stone for the backfill material. The macadam stone backfill shall be installed at 1 foot thick.
4	MODIFIED SUBBASE	A. Used for the 6 inch modified subbase under PCC Pavement and PCC Sidewalk.
5	STD/S-F PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN., CROSSWALK BRICK PAVER BASE	A. See K Sheets and Tab on Sheet C.02. B. Item to be used as a brick paver base in the crosswalks.
6	STD/S-F PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 10 IN.	A. See K Sheets, Tab on Sheet C.02, and Detail on Sheet U.17. B. Curb is incidental to this bid item.
7	REMOVALS, AS PER PLAN	A. See F Sheets. B. Bid item includes the removal of concrete footings, water main, street lights, benches, electrical wiring and conduit, and street light handholes.
8	STEEL PIPE PEDESTRIAN HAND RAIL	A. See S Sheets, Tab on Sheet C.02, and Detail on Sheet U.16.
9	REMOVAL OF PAVEMENT	A. See F Sheets and Tab on Sheet C.02.
10	REMOVAL OF SIDEWALK	A. See F Sheets and Tab on Sheet C.02.
11	SIDEWALK, P.C. CONCRETE, 4 IN., BRICK PAVER BASE	A. See S Sheets, Tab on Sheet C.03, and Detail on Sheet U.17. B. Item to be used as a brick paver base in the sidewalk accent border areas.
12	SIDEWALK, P.C. CONCRETE, 6 IN.	A. See S Sheets and Tab on Sheet C.03.
13	DETECTABLE WARNING	A. See S Sheets and Tab on Sheet C.03. See Detail on Sheets U.12-U.13. B. Detectable warnings shall be plastic and colored red. They shall be similar to panels manufactured by ADA Solutions or Armor-Tile.
14	REMOVE AND REINSTALL SIGN AS PER PLAN	A. See P Sheets and Tab on Sheet C.02.
15	TRAFFIC SIGNALIZATION	A. See N Sheets. B. Contractor shall reinstall the existing traffic signal controller and cabinet.
16	REMOVAL OF TRAFFIC SIGNALIZATION	A. See F Sheets.
17	CONSTRUCTION SURVEY	A. Adequate staking shall be provided for the construction of all bid items as shown in the plans, including sidewalk ramps, so that they can be built according to the plans and follow ADA guidelines.
18	PAINTED PAVEMENT MARKINGS, HIGH-BUILD WATERBORNE	A. See P Sheets.
19	TRAFFIC CONTROL	A. See J Sheets.
20	FLAGGERS	A. To be used when traffic signals are not in operation. See J and N Sheets. May also be used on an as needed basis for construction activities.
21	MOBILIZATION	A. Includes the mobilization of all necessary equipment, materials, and labor to perform the work in the contract.
22	WATER MAIN, TRENCHED, PVC, 6 IN.	A. See O Sheets and Tab on Sheet C.02. B. Installation of tracer wire is incidental. Water main bedding shall be Class P-2.
23	WATER MAIN, TRENCHED, PVC, 8 IN.	A. See O Sheets and Tab on Sheet C.02. B. Installation of tracer wire is incidental. Water main bedding shall be Class P-2.
24	FITTINGS BY WEIGHT, DUCTILE IRON	A. See O Sheets and Tab on Sheet C.02. B. Nitrile gaskets are to be utilized. Installation of polyethylene wrap and tracer wire are incidental to this bid item. See details on U-Sheets. Water main bedding shall be Class P-2.
25	REMOVE AND REINSTALL FIRE HYDRANT ASSEMBLY	A. See O Sheets and Tab on Sheet C.02. B. Includes the removal and installation of existing hydrant, 6 inch gate valve, valve box, and 6 inch anchor coupling. Polyethylene wrap, tracer wire, and other piping materials required for the installation and adjustment to finished grade are incidental to this bid item.
26	VALVE BOX ADJUSTMENT	A. See O Sheets and Tab on Sheet C.02. See Detail on Sheet U.02. B. Bit item includes the raising or lowering of existing water service stop boxes and the furnishing and installing of new water service casting/lids.
27	TRAFFIC SIGNAL POLE FOOTING 3' DIA. X 8.5'	A. See N Sheets.
28	TRAFFIC SIGNAL POLE FOOTING 3' DIA. X 10.5'	A. See N Sheets.
29	TRAFFIC SIGNAL PEDESTAL FOOTING 2' DIA. X 3'	A. See N Sheets.
30	TRAFFIC SIGNAL POLE AND 22' MAST ARM	A. See N Sheets.
31	TRAFFIC SIGNAL POLE AND 32' MAST ARM	A. See N Sheets.
32	TRAFFIC SIGNAL PEDESTAL	A. See N Sheets.
33	TRAFFIC SIGNAL LOOP DETECTORS	A. See N Sheets.
34	DECORATIVE BRICK PAVERS	A. Bid item for Decorative Brick Pavers shall be measured on an area basis by the Engineer. Payment for this item shall be full compensation for supplying and installing brick pavers, sand setting course, engineering fabric, compaction, fitting, and cuting. The bricks in the sidewalk accent border shall be installed in a "Herringbone" pattern. The bricks in the crosswalk shall be installed in a "Running Bond" pattern. Pavers shall be Copethorne pavers manufactured by Unilock (7.87" L x 2.56" W x 2.36" H). Pavers shall be a 3 color blend (Burgundy Red, Burnt Clay, and Old Oak) with equal and random distribution. B. See Tab on Sheet C.03.
35	TEMPORARY COLD MIX ASPHALT	A. Item to be used as a temporary walking surface around the traffic signals in case the proposed traffic signals can not be installed until after the corresponding construction phase. Item shall be paid on a weight basis for the material placed, as determined by the Engineer from certified weight receipts. B. See J Sheets.
36	LIMESTONE BLOCK PLANTERS	A. See L Sheets and Tab on Sheet C.03 B. Limestone block planters shall be paid on an area basis as measured by the Engineer. The amount paid shall be the area measured along the face of the planter walls.
37	PCC FOOTING FOR PLANTERS	A. See L Sheets and Tab on Sheet C.03 B. Bid item shall be paid on a volume basis. There will be no measurement for this bid item. The amount paid shall be plan quantity.
38	PLANTING SOIL	A. See L Sheets and Tab on Sheet C.03 B. Bid item shall be paid on a volume basis. There will be no measurement for this bid item. The amount paid shall be plan quantity.
39	PCC WALL, 5"	A. See S Sheets. B. Item shall be paid on an area basis as measured by the Engineer. The amount paid shall be the area measured along the face of the wall.
40	PCC WALL, 8"	A. See S Sheets. B. Item shall be paid on an area basis as measured by the Engineer. The amount paid shall be the area measured along the face of the wall.

Note: Any relocation of planters, benches, trash cans, or other moveable objects shall be incidental to construction.

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

QUANTITIES AND ESTIMATE REFERENCE INFORMATION

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

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REMOVAL OF PAVEMENT

STREET IDENTIFICATION	STATION TO STATION	PAVEMENT TYPE	AREA SY	REMARKS
1st St and 1st Ave	Pavement			
NW Quadrant	100+24.19, 29.77' L TO 100+75.82, 76.09' L	PCC AND HMA	179.9	
SW Quadrant	100+26.07, 29.88' R TO 100+79.88, 83.62' R	PCC AND HMA	165.3	
NW Quadrant	100+99.76, 76.84' L TO 101+52.23, 29.57' L	PCC AND HMA	160.7	
NW Quadrant	101+03.89, 62.92' R TO 101+52.99, 29.64' R	PCC AND HMA	159.1	
	TOTAL		665.0	

REMOVAL OF SIDEWALK

STREET IDENTIFICATION	STATION TO STATION	PAVEMENT TYPE	AREA SY	REMARKS
1st St and 1st Ave				
NW Quadrant	100+24.08, 30.57' L TO 100+71.97, 78.11' L	PCC and HMA	147.4	
SW Quadrant	100+25.52, 30.48' R TO 100+76.17, 63.61' R	PCC and HMA	121.9	
NE Quadrant	101+02.97, 76.94' L TO 101+52.38, 30.12' L	PCC and HMA	129.6	
SW Quadrant	101+34.90, 30.66' R TO 101+07.25, 62.71' R	PCC and HMA	79.4	
		TOTAL	478.3	

REMOVAL OF EXISTING FIRE HYDRANT ASSEMBLY

NO	STATION	OFFSET	REMARKS
1	100+53.29	32.09 L	

REMOVE AND REINSTALL SIGNS

NO	EXISTING STATION	OFFSET	PROPOSED STATION	OFFSET	NEW POLE LENGTH (FT)	DESCRIPTION
1	101+10.42	38.79 L	101+14.09	36.92' L		HWY 1 NORTH. MOUNT ON POLE 3
1	100+64.06	54.41 R	100+55.17	24.95' L		HWY 1 SOUTH. MOUNT ON POLE 1
2	TOTAL				0	

TABULATION OF PAVEMENT MARKINGS

1 24" Stop Line (White) 3 24" Crosswalk Bar (White)
2 6" Crosswalk Line (White)

LOCATION				LENGTH (LF)			REMARKS	
ROAD IDENTIFICATION	STATION TO STATION	SIDE L	SIDE R	1	2	3		
1st Street	100+60.88		X	14.52				
1st Street	101+26.15	X		14.67				
1st Ave	100+91.98 TO 101+05.97		X	14.99				
1st Ave	100+73.60 TO 100+88.46	X		14.88				
1st Ave	100+71.76 TO 101+11.31		X		39.55			
1st Ave	100+74.99 TO 101+07.51		X		32.52			
1st Ave	100+70.14 TO 101+06.32	X			36.18			
1st Ave	100+72.99 TO 101+03.88	X			30.89			
1st Ave	100+75.75 TO 101+03.73		X			56.00		
1st Ave	100+74.21 TO 101+02.19	X				56.00		
	LENGTH SUBTOTALS			59.06	139.14	112.00		
	QUANTITY FACTORS			6.00	1.50	6.00	4" WIDE LINE = 1 QUANTITY FACTOR	
	TOTAL			354.36	208.71	672.00	Length Total (LF) = 1235.07	Symbol Total (EACH) =

ADJUSTMENT OF VALVE BOXES

NUMBER	LOCATION STATION	TYPE
1	100+34.27, 31.59' L	Water Valve Box
2	100+64.44, 54.88' L	Water Valve Box
3	100+51.12, 31.07' R	Water Valve Box
4	100+81.99, 30.10' R	Water Valve Box
5	101+45.81, 30.97' L	Water Valve Box
6	101+52.59, 27.41' R	Water Valve Box
	TOTAL	6

WATER MAIN VALVE AND FITTING SCHEDULE

Location				
Station	Offset	6" x 90° Bend	6" Sleeve	8" x 6" Tee
100+28.11	22.88' L	1		
100+28.22	15.87' L			1
100+30.92	16.27' L		1	
Total Number		1	1	1
Weight/Fitting (lbs.)		39	65	72
Total Weight (lbs.)		39	65	72
Total (lbs.)				176

Note:
1 Station locations are given at the center of the fitting. Exact locations of bends and tees will vary in the field.

PCC PAVEMENT

LOCATION	STATION TO STATION	SIDE	AREA SY	REMARKS
10" PCC PAVEMENT				
NW Quadrant	100+25.00 TO 100+77.93	L	144.8	
SW Quadrant	100+25.00 TO 100+77.93	R	131.8	
NE Quadrant	101+02.13 TO 101+52.70	L	134.6	
SE Quadrant	101+02.13 TO 101+52.70	R	128.5	
	TOTAL		539.8	
8" PCC BRICK PAVER BASE				
1st Street West	100+55.45, 13.46' L TO 100+62.36, 16.44' L	L	11.5	
	100+56.30, 13.12' R TO 100+63.38, 15.70' R	R	11.1	
1st Street East	101+13.57, 17.17' L TO 101+20.69, 13.76' L	L	11.9	
	101+14.75, 18.30' R TO 101+21.52, 14.39' R	R	12.5	
	TOTAL		47.0	

WATER MAIN

FROM		TO		6-IN (LF)	NOTES
STA	OFFSET	STA	OFFSET		
100+28.20	16.93 L	100+28.10	23.09 L	6.2	
100+28.67	23.51 L	100+47.32	23.80 L	18.7	
			TOTAL	24.9	

PEDESTRIAN HANDRAIL

STREET IDENTIFICATION	STATION TO STATION	LENGTH (LF)	REMARKS
SW Quadrant	100+38.38, 36.47' R TO 100+54.71, 36.98' R	14	
	TOTAL	14	

FIRE HYDRANT ASSEMBLIES

NO.	STATION	OFFSET	REMARKS
1	100+47.33	23.80 L	

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

QUANTITIES AND ESTIMATE REFERENCE INFORMATION

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DECORATIVE BRICK PAVERS

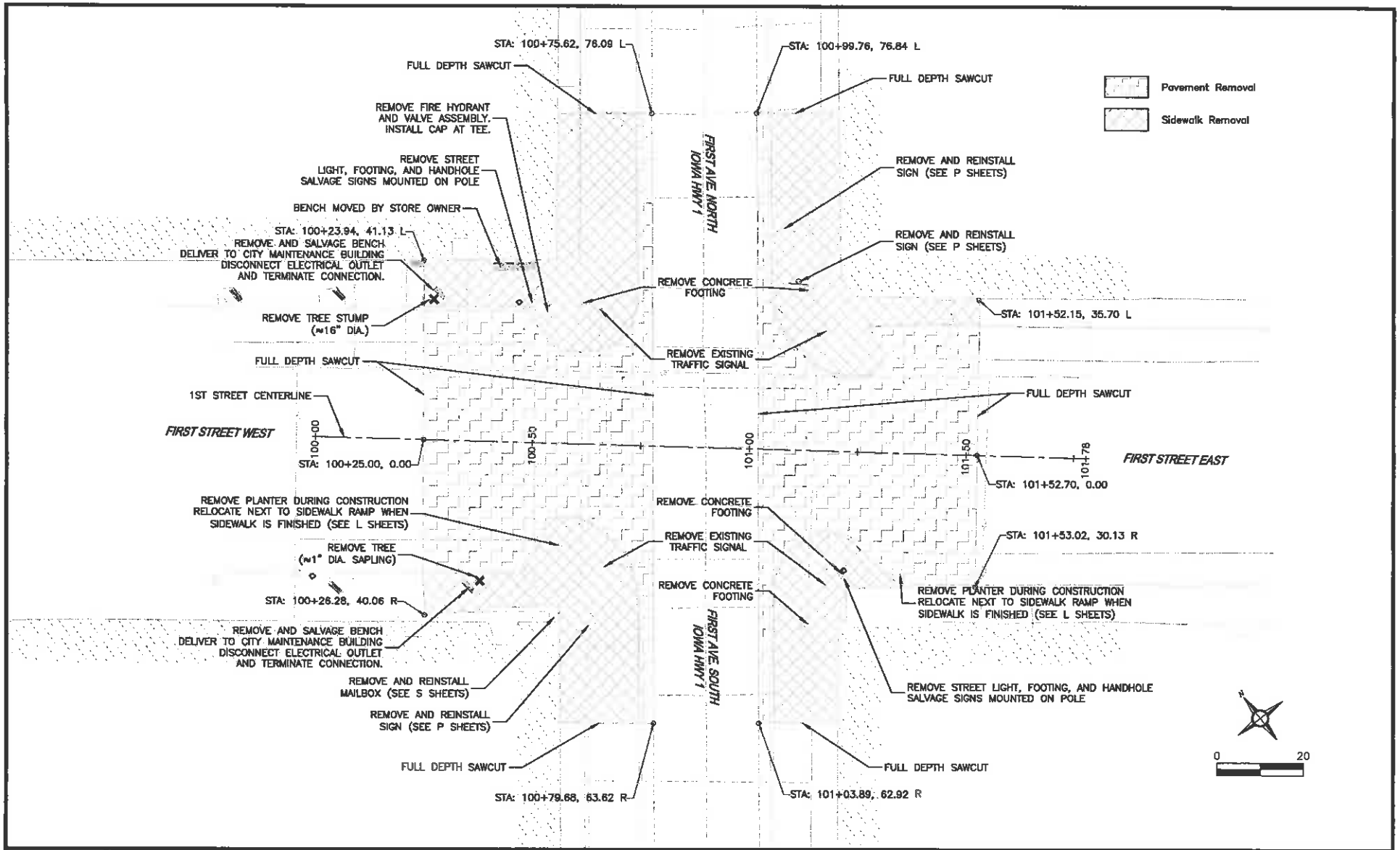
STREET IDENTIFICATION	STATION TO STATION	AREA SY	REMARKS
Crosswalk			
1st Street West	100+56.45, 13.48' L TO 100+62.36, 18.44' L	11.5	Install in a "Running Bond" pattern. Pavers shall be a 3 color blend (Burgundy Red, Burnt Clay, and Old Oak) with equal and randomn distribution.
	100+56.30, 13.12' R TO 100+63.38, 15.70' R	11.1	
1st Street East	101+13.57, 17.17' L TO 101+20.69, 13.75' L	11.9	
	101+14.75, 18.30' R TO 101+21.62, 14.39' R	12.5	
	SUBTOTAL	47.0	
Sidewalk Accent			
NW Quadrant	100+30.48, 30.47 L TO 100+54.40, 15.79' L	6.3	Install in a "Herringbone" pattern. Pavers shall be a 3 color blend (Burgundy Red, Burnt Clay, and Old Oak) with equal and randomn distribution.
	100+62.03, 26.74' L TO 100+69.09, 26.31' L	2.9	
	100+58.80, 73.07' L TO 100+72.69, 35.10' L	10.7	
SW Quadrant	100+39.11, 27.04' R TO 100+55.40, 15.48' R	7.5	
	100+63.71, 26.17' R TO 100+70.60, 25.11' R	2.9	
	100+63.78, 61.59' R TO 100+74.73, 33.79' R	8.1	
NE Quadrant	101+04.38, 36.08' L TO 101+14.62, 74.80' L	10.3	
	101+07.37, 27.31' L TO 101+13.20, 28.38' L	2.6	
	101+21.55, 16.11' L TO 101+37.52, 30.13' L	7.6	
SE Quadrant	101+07.74, 32.68' R TO 101+16.13, 60.04' R	7.4	
	101+22.64, 16.68' R TO 101+49.36, 30.23' R	6.9	
	SUBTOTAL	167.1	
	TOTAL	214.1	

PLANTERS

LOCATION	PLAN VIEW AREA SF	HEIGHT INCHES	AREA ALONG FACE OF WALL SF	VOLUME CY	REMARKS
LIMESTONE BLOCKS					
SW Quadrant		12	36.2		
NW Quadrant		12	82.6		
NE Quadrant		12	79.9		
TOTAL			198.7		
PCC FOOTING					
SW Quadrant	17.1	8		0.42	
NW Quadrant	40.3	8		1.00	
NE Quadrant	38.9	8		0.96	
TOTAL				2.38	
PLANTING SOIL					
SW Quadrant	57.5	15		2.7	
NW Quadrant	209.6	15		9.7	
NE Quadrant	153.4	15		7.1	
TOTAL				19.5	

SIDEWALK

STREET IDENTIFICATION	STATION TO STATION	WIDTH FT	4" PCC Sidewalk SY	6" PCC Sidewalk SY	DETECTABLE WARNINGS SF	REMARKS
1st St and 1st Ave						
NW Quadrant	100+24.38 TO 100+72.07			149.3	28.0	2'x7' Panel per ramp
SW Quadrant	100+25.76 TO 100+76.30			125.8	28.0	2'x7' Panel per ramp
NE Quadrant	101+02.97 TO 101+52.39			122.9	28.0	2'x7' Panel per ramp
SE Quadrant	101+07.40 TO 101+49.36			83.2	28.0	2'x7' Panel per ramp
		TOTAL		481.3	112.0	
Brick Paver Base						
NW Quadrant	100+30.48, 30.47 L TO 100+54.40, 15.79' L		6.3			
	100+62.03, 26.74' L TO 100+69.09, 26.31' L		2.9			
	100+58.80, 73.07' L TO 100+72.69, 35.10' L		10.7			
SW Quadrant	100+39.11, 27.04' R TO 100+55.40, 15.48' R		7.5			
	100+63.71, 26.17' R TO 100+70.60, 25.11' R		2.9			
	100+63.78, 61.59' R TO 100+74.73, 33.79' R		8.1			
NE Quadrant	101+04.38, 36.08' L TO 101+14.62, 74.80' L		10.3			
	101+07.37, 27.31' L TO 101+13.20, 28.38' L		2.6			
	101+21.55, 16.11' L TO 101+37.52, 30.13' L		7.6			
SE Quadrant	101+07.74, 32.68' R TO 101+16.13, 60.04' R		7.4			
	101+22.64, 16.68' R TO 101+49.36, 30.23' R		6.9			
		TOTAL	73.1			



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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

REMOVALS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
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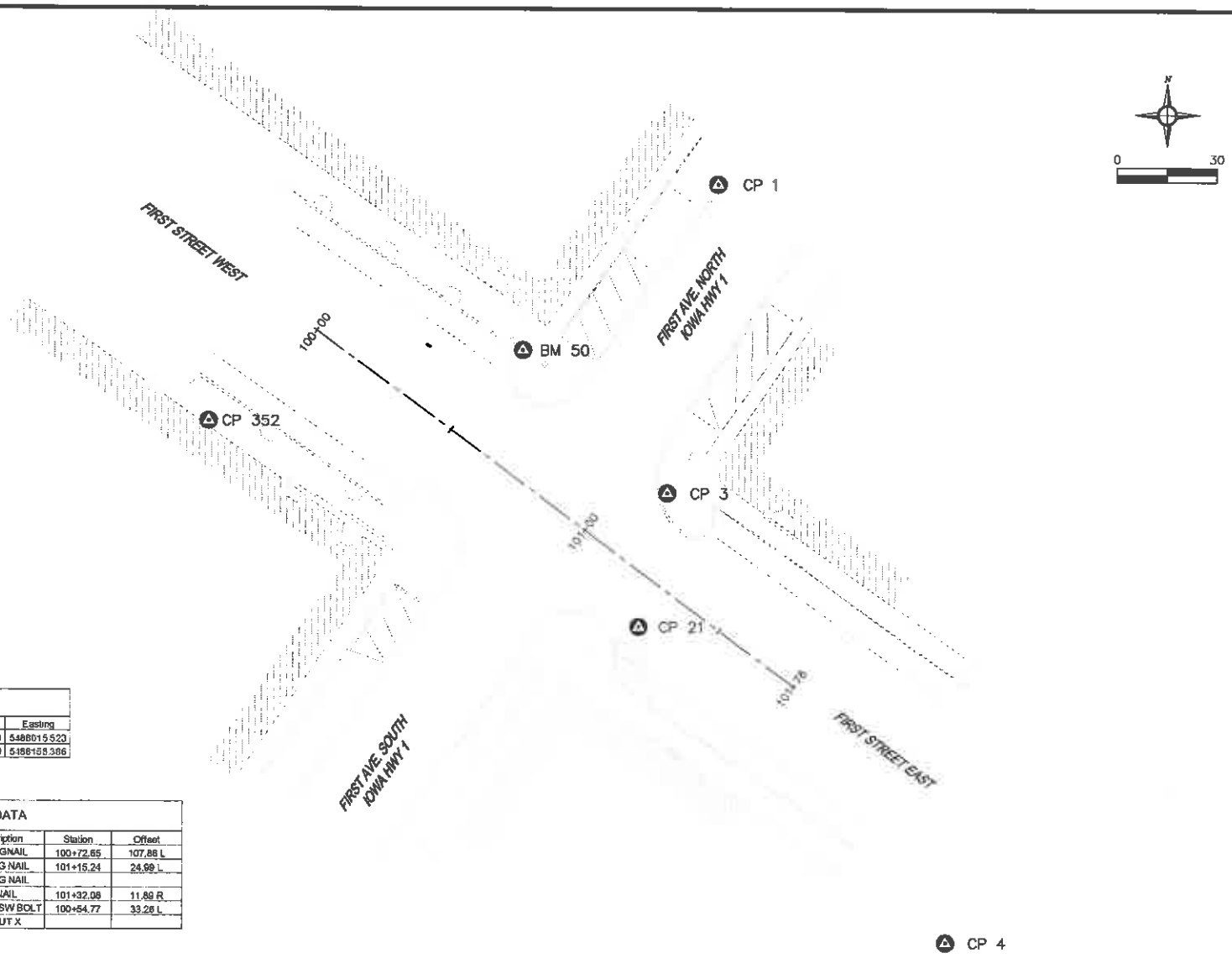

ALIGNMENT DATA				
Alignment	Point	Station	Northing	Easting
1st Street	BP	100+00.00	3441751.003	5488015.523
	EP	101+77.70	3441645.319	5488158.386

SURVEY CONTROL DATA						
Point #	Northing	Easting	Elevation	Description	Station	Offset
1	3441794.51	5488135.57	876.62	CP MAGNAIL	100+72.65	107.88 L
3	3441702.55	5488120.53	883.04	CP MAG NAIL	101+15.24	24.98 L
4	3441569.28	5488204.09	878.74	CP MAG NAIL		
21	3441662.90	5488112.14	882.20	CP NAIL	101+32.08	11.89 R
50	3441745.16	5488077.21	887.15	BM X ON SW BOLT	100+54.77	33.26 L
352	3441723.90	5487983.43	887.89	CP CUT X		

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SURVEY CONTROL AND ALIGNMENT INFORMATION

CITY OF Mt. VERNON
CITY HALL
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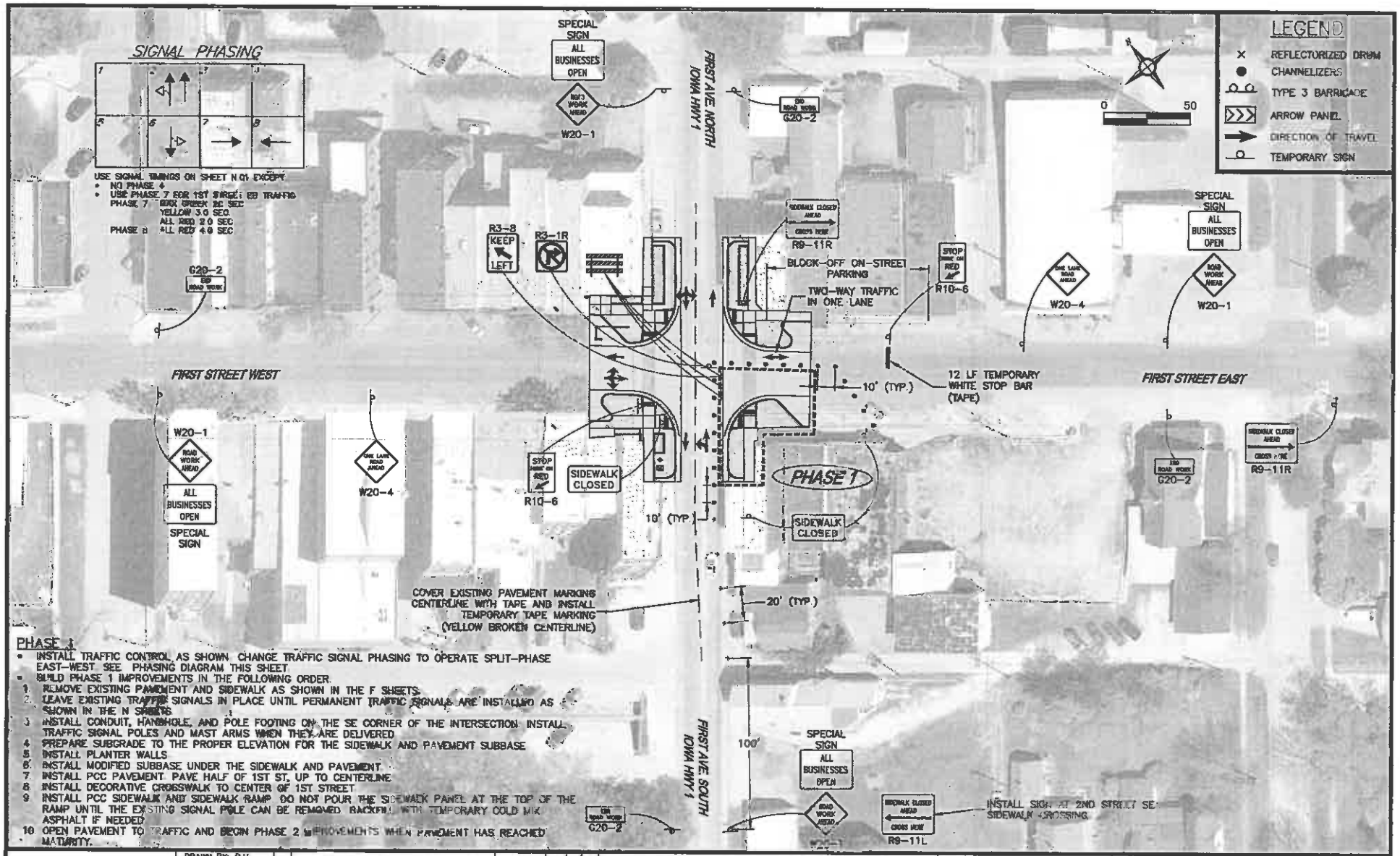

PHASE 1

- INSTALL TRAFFIC CONTROL AS SHOWN. CHANGE TRAFFIC SIGNAL PHASING TO OPERATE SPLIT-PHASE EAST-WEST. SEE PHASING DIAGRAM THIS SHEET.
- BUILD PHASE 1 IMPROVEMENTS IN THE FOLLOWING ORDER.

1. REMOVE EXISTING PAVEMENT AND SIDEWALK AS SHOWN IN THE F SHEETS.
2. LEAVE EXISTING TRAFFIC SIGNALS IN PLACE UNTIL PERMANENT TRAFFIC SIGNALS ARE INSTALLED AS SHOWN IN THE N SHEETS.
3. INSTALL CONDUIT, HANDHOLE, AND POLE FOOTING ON THE SE CORNER OF THE INTERSECTION. INSTALL TRAFFIC SIGNAL POLES AND MAST ARMS WHEN THEY ARE DELIVERED.
4. PREPARE SUBGRADE TO THE PROPER ELEVATION FOR THE SIDEWALK AND PAVEMENT SUBBASE.
5. INSTALL PLANTER WALLS.
6. INSTALL MODIFIED SUBBASE UNDER THE SIDEWALK AND PAVEMENT.
7. INSTALL PCC PAVEMENT. PAVE HALF OF 1ST ST. UP TO CENTERLINE.
8. INSTALL DECORATIVE CROSSWALK TO CENTER OF 1ST STREET.
9. INSTALL PCC SIDEWALK AND SIDEWALK RAMP. DO NOT POUR THE SIDEWALK PANEL AT THE TOP OF THE RAMP UNTIL THE EXISTING SIGNAL POLE CAN BE REMOVED. BACKFILL WITH TEMPORARY COLD MIX ASPHALT IF NEEDED.
10. OPEN PAVEMENT TO TRAFFIC AND BEGIN PHASE 2 IMPROVEMENTS WHEN PAVEMENT HAS REACHED MATURITY.

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

CONSTRUCTION PHASING AND TRAFFIC CONTROL PHASE 1

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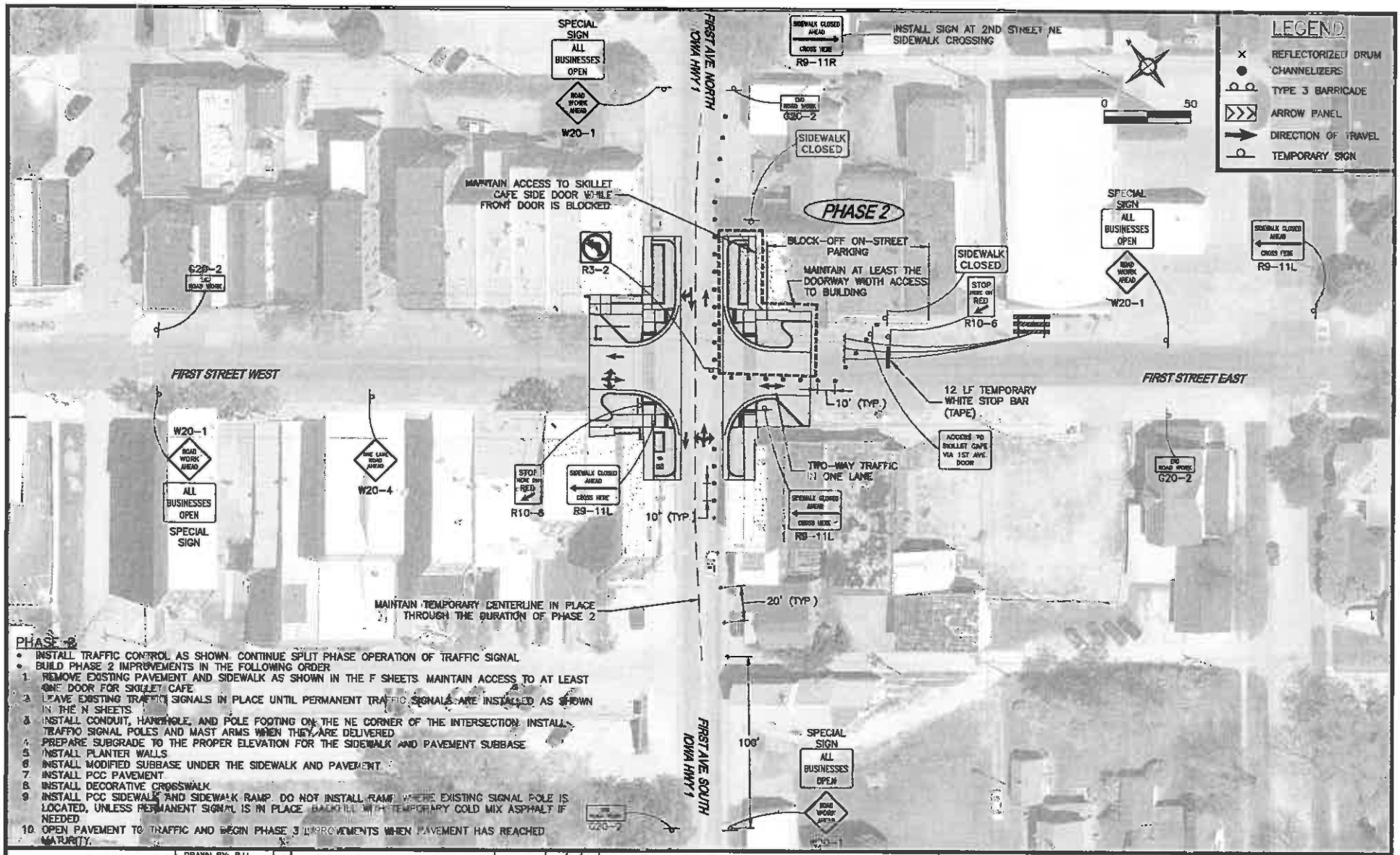

PHASE 2

- INSTALL TRAFFIC CONTROL AS SHOWN. CONTINUE SPLIT PHASE OPERATION OF TRAFFIC SIGNAL.
- BUILD PHASE 2 IMPROVEMENTS IN THE FOLLOWING ORDER

1. REMOVE EXISTING PAVEMENT AND SIDEWALK AS SHOWN IN THE F SHEETS. MAINTAIN ACCESS TO AT LEAST ONE DOOR FOR SKILLET CAFE.
2. LEAVE EXISTING TRAFFIC SIGNALS IN PLACE UNTIL PERMANENT TRAFFIC SIGNALS ARE INSTALLED AS SHOWN IN THE N SHEETS.
3. INSTALL CONDUIT, HANDHOLE, AND POLE FOOTING ON THE NE CORNER OF THE INTERSECTION. INSTALL TRAFFIC SIGNAL POLES AND MAST ARMS WHEN THEY ARE DELIVERED.
4. PREPARE SUBGRADE TO THE PROPER ELEVATION FOR THE SIDEWALK AND PAVEMENT SUBBASE.
5. INSTALL PLANTER WALLS.
6. INSTALL MODIFIED SUBBASE UNDER THE SIDEWALK AND PAVEMENT.
7. INSTALL PCC PAVEMENT.
8. INSTALL DECORATIVE CROSSWALK.
9. INSTALL PCC SIDEWALK AND SIDEWALK RAMP. DO NOT INSTALL RAMP WHERE EXISTING SIGNAL POLE IS LOCATED, UNLESS PERMANENT SIGNAL IS IN PLACE. BACKFILL WITH TEMPORARY COLD MIX ASPHALT IF NEEDED.
10. OPEN PAVEMENT TO TRAFFIC AND BEGIN PHASE 3 IMPROVEMENTS WHEN PAVEMENT HAS REACHED MATURITY.

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

CONSTRUCTION PHASING AND TRAFFIC CONTROL PHASE 2

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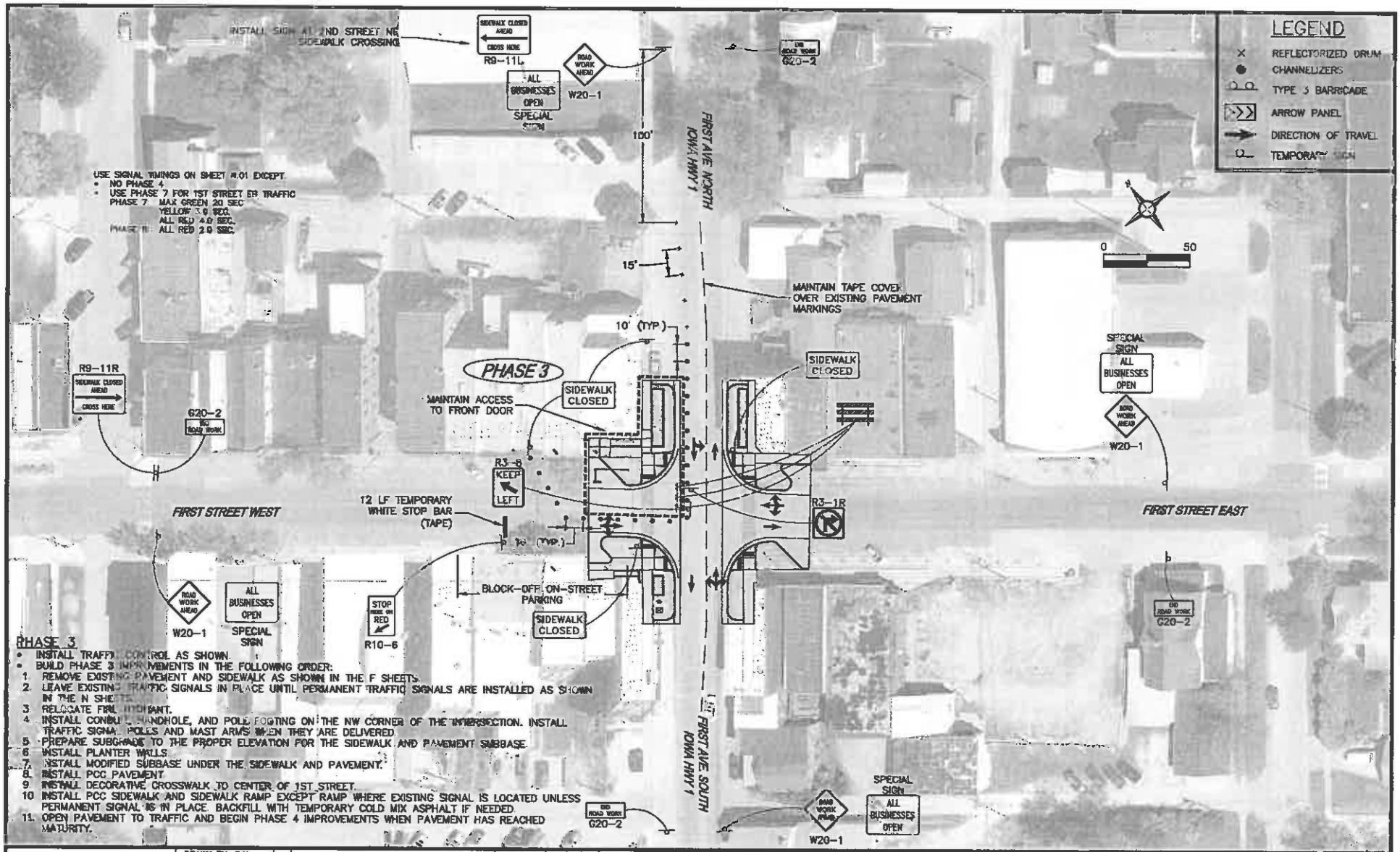

PHASE 3

- INSTALL TRAFFIC CONTROL AS SHOWN.
- BUILD PHASE 3 IMPROVEMENTS IN THE FOLLOWING ORDER:

1. REMOVE EXISTING PAVEMENT AND SIDEWALK AS SHOWN IN THE F SHEETS.
2. LEAVE EXISTING TRAFFIC SIGNALS IN PLACE UNTIL PERMANENT TRAFFIC SIGNALS ARE INSTALLED AS SHOWN IN THE N SHEETS.
3. RELOCATE FIRE HYDRANT.
4. INSTALL CONDUIT, HANDHOLE, AND POLE FOOTING ON THE NW CORNER OF THE INTERSECTION. INSTALL TRAFFIC SIGNAL POLES AND MAST ARMS WHEN THEY ARE DELIVERED.
5. PREPARE SUBGRADE TO THE PROPER ELEVATION FOR THE SIDEWALK AND PAVEMENT SUBBASE.
6. INSTALL PLANTER WALLS.
7. INSTALL MODIFIED SUBBASE UNDER THE SIDEWALK AND PAVEMENT.
8. INSTALL PCC PAVEMENT.
9. INSTALL DECORATIVE CROSSWALK TO CENTER OF 1ST STREET.
10. INSTALL PCC SIDEWALK AND SIDEWALK RAMP EXCEPT RAMP WHERE EXISTING SIGNAL IS LOCATED UNLESS PERMANENT SIGNAL IS IN PLACE. BACKFILL WITH TEMPORARY COLD MIX ASPHALT IF NEEDED.
11. OPEN PAVEMENT TO TRAFFIC AND BEGIN PHASE 4 IMPROVEMENTS WHEN PAVEMENT HAS REACHED MATURITY.

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

CONSTRUCTION PHASING AND TRAFFIC CONTROL PHASE 4

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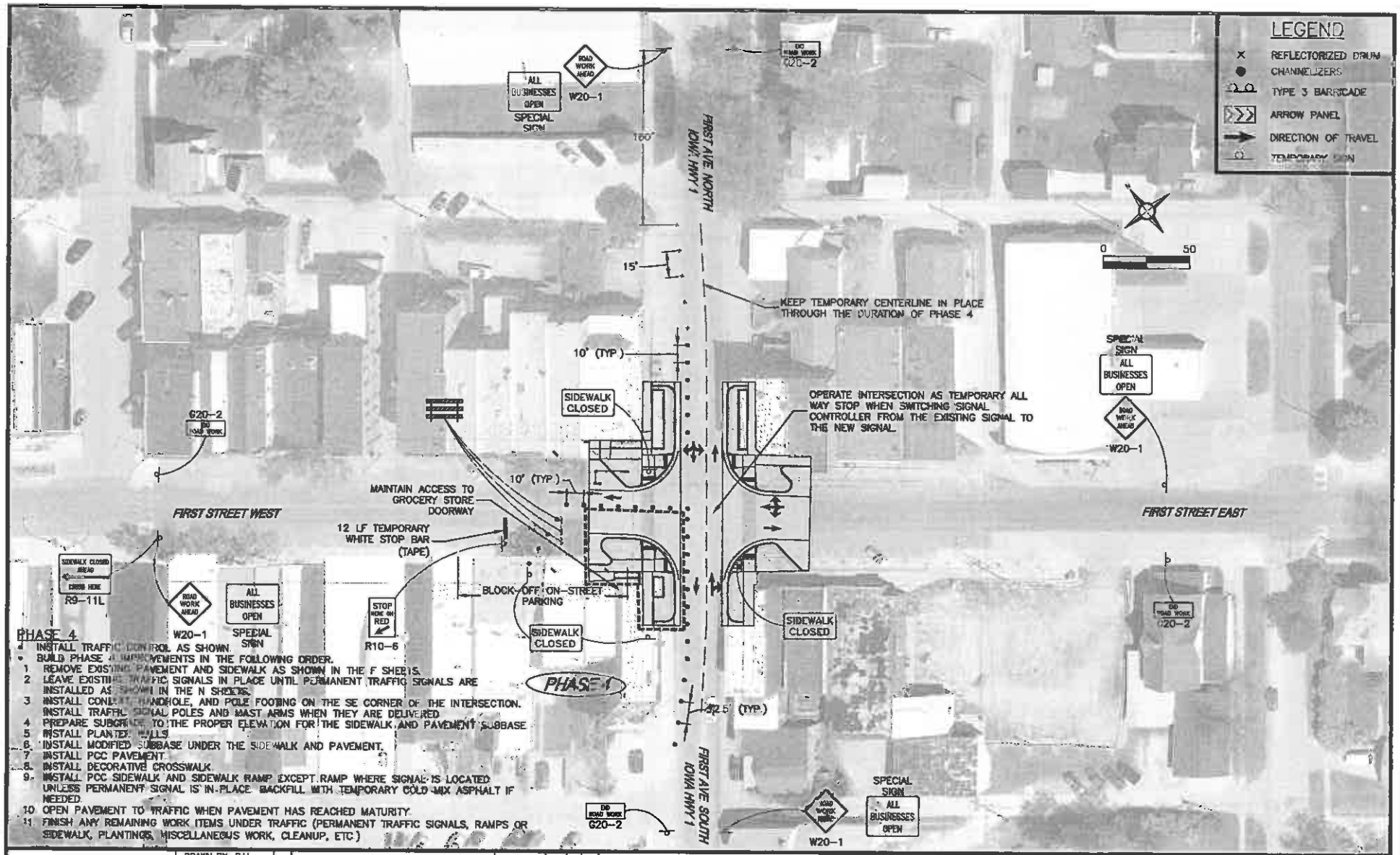

PHASE 4

- INSTALL TRAFFIC CONTROL AS SHOWN.
- BUILD PHASE 4 IMPROVEMENTS IN THE FOLLOWING ORDER.

1. REMOVE EXISTING PAVEMENT AND SIDEWALK AS SHOWN IN THE F SHEETS.
2. LEAVE EXISTING TRAFFIC SIGNALS IN PLACE UNTIL PERMANENT TRAFFIC SIGNALS ARE INSTALLED AS SHOWN IN THE N SHEETS.
3. INSTALL CONDUIT, HANDHOLE, AND POLE FOOTING ON THE SE CORNER OF THE INTERSECTION. INSTALL TRAFFIC SIGNAL POLES AND MAST ARMS WHEN THEY ARE DELIVERED.
4. PREPARE SUBGRADE TO THE PROPER ELEVATION FOR THE SIDEWALK AND PAVEMENT SUBBASE.
5. INSTALL PLANTER WALLS.
6. INSTALL MODIFIED SUBBASE UNDER THE SIDEWALK AND PAVEMENT.
7. INSTALL PCC PAVEMENT.
8. INSTALL DECORATIVE CROSSWALK.
9. INSTALL PCC SIDEWALK AND SIDEWALK RAMP EXCEPT RAMP WHERE SIGNAL IS LOCATED UNLESS PERMANENT SIGNAL IS IN PLACE. BACKFILL WITH TEMPORARY COLD MIX ASPHALT IF NEEDED.
10. OPEN PAVEMENT TO TRAFFIC WHEN PAVEMENT HAS REACHED MATURITY.
11. FINISH ANY REMAINING WORK ITEMS UNDER TRAFFIC (PERMANENT TRAFFIC SIGNALS, RAMPS OR SIDEWALK, PLANTINGS, MISCELLANEOUS WORK, CLEANUP, ETC.)

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

CONSTRUCTION PHASING AND TRAFFIC CONTROL

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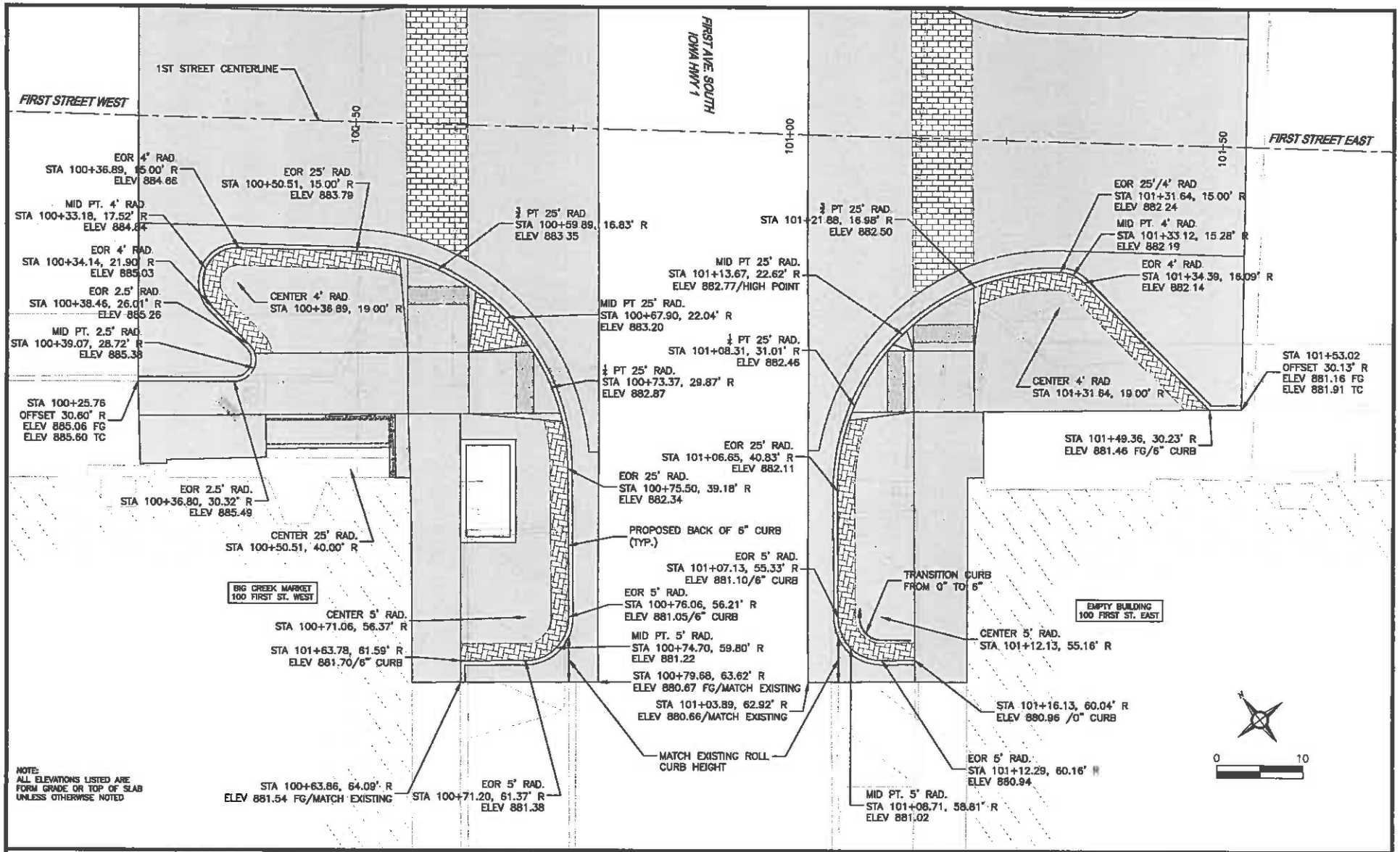

NOTE:
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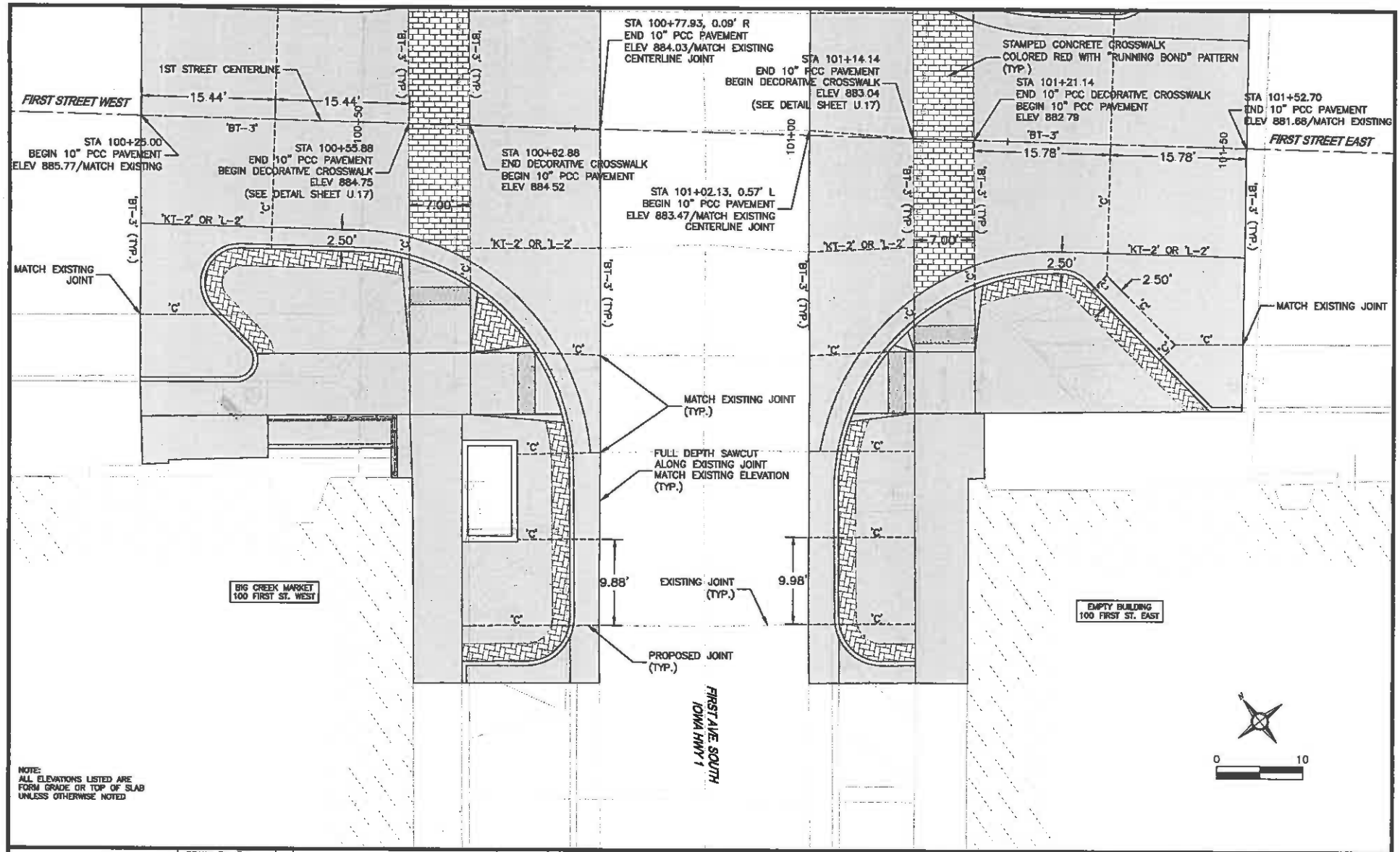
2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

INTERSECTION DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742



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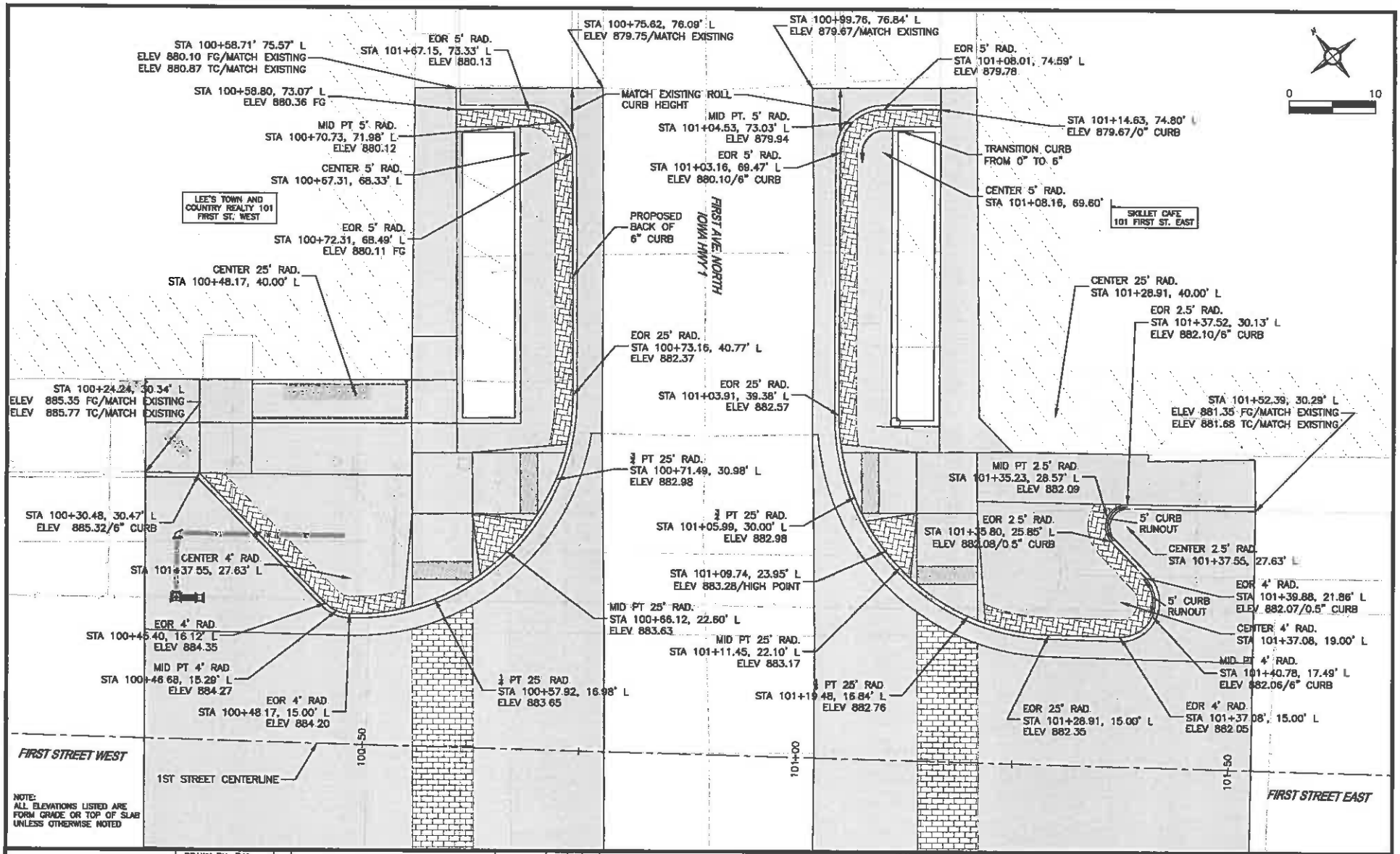

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

INTERSECTION DETAILS

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CITY HALL
213 1st. STREET W.
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(319) 895-8742

SHEET K.03 OF K.04

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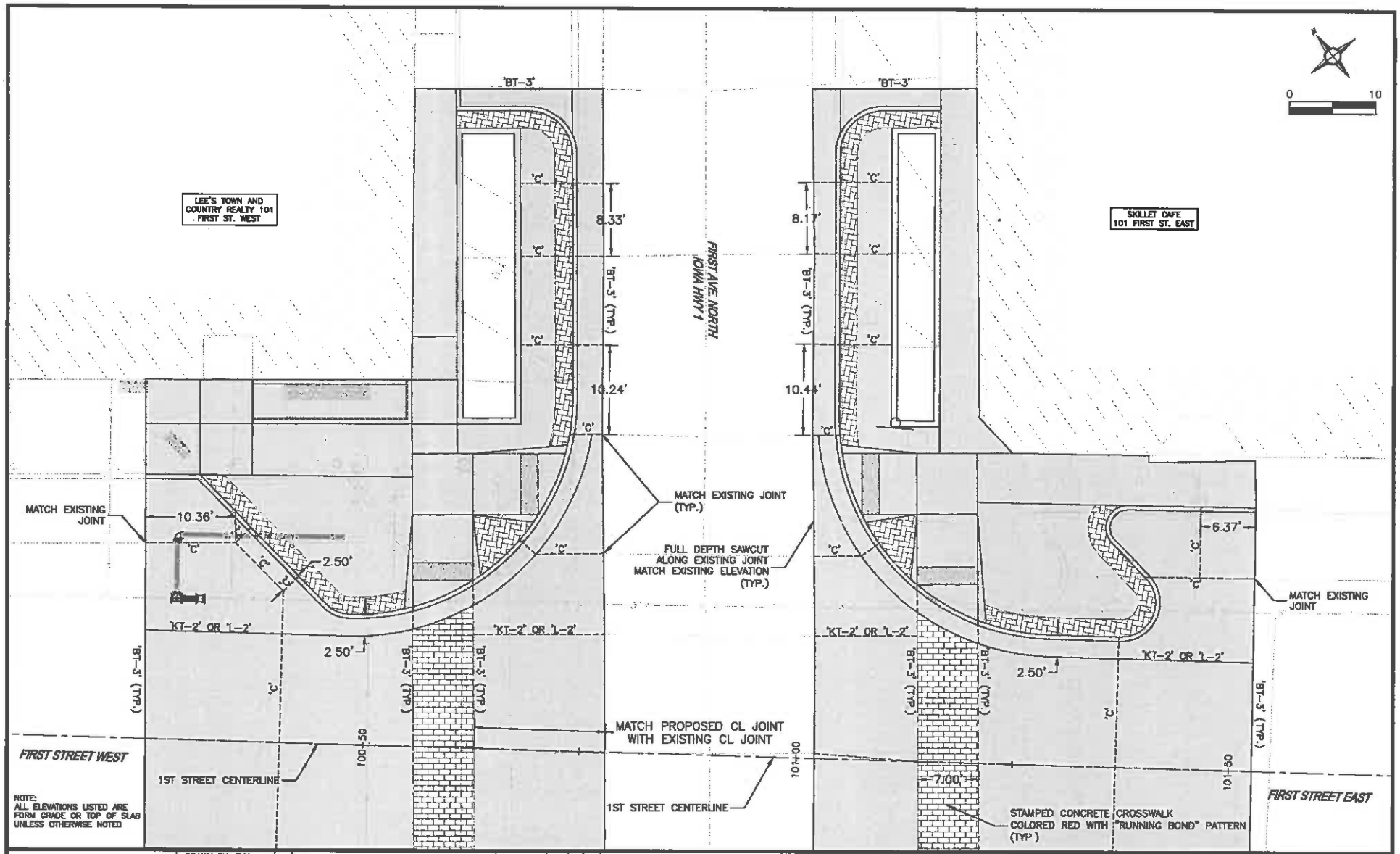

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

INTERSECTION DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET K.04 OF K.04

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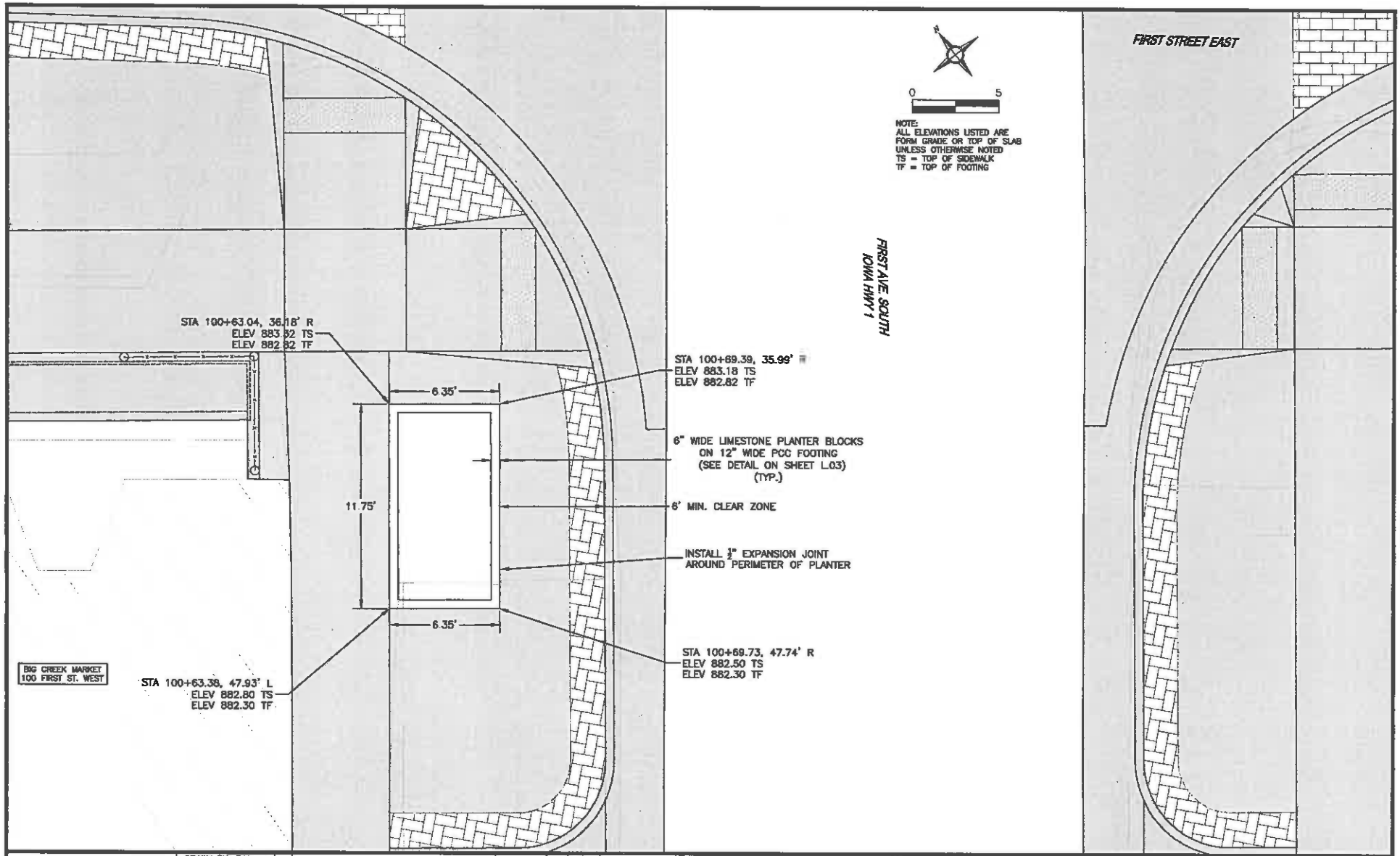

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

LANDSCAPING

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET L.01 OF L.03

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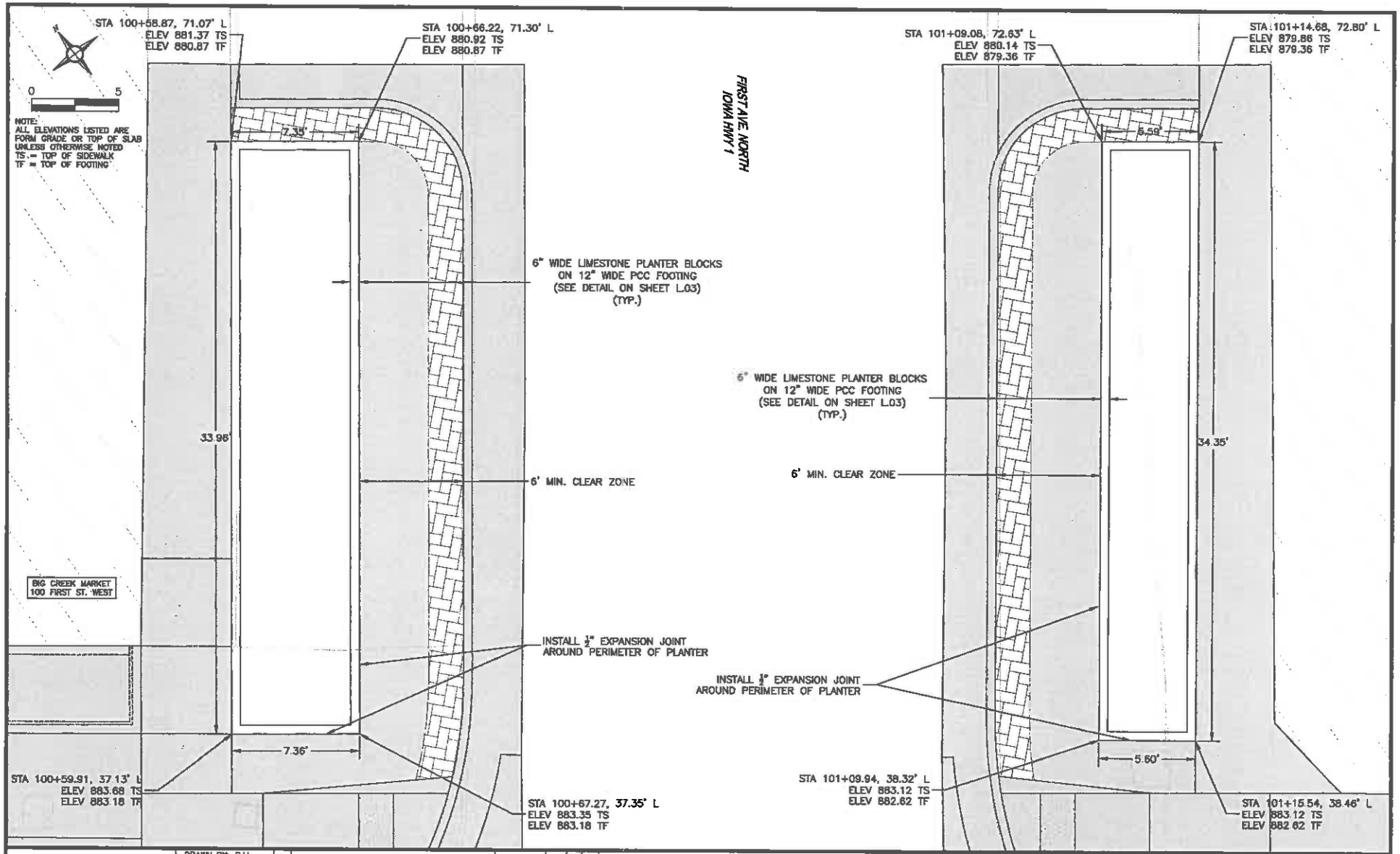

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

LANDSCAPING

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213 1st. STREET W.
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SHEET L.02 OF L.03

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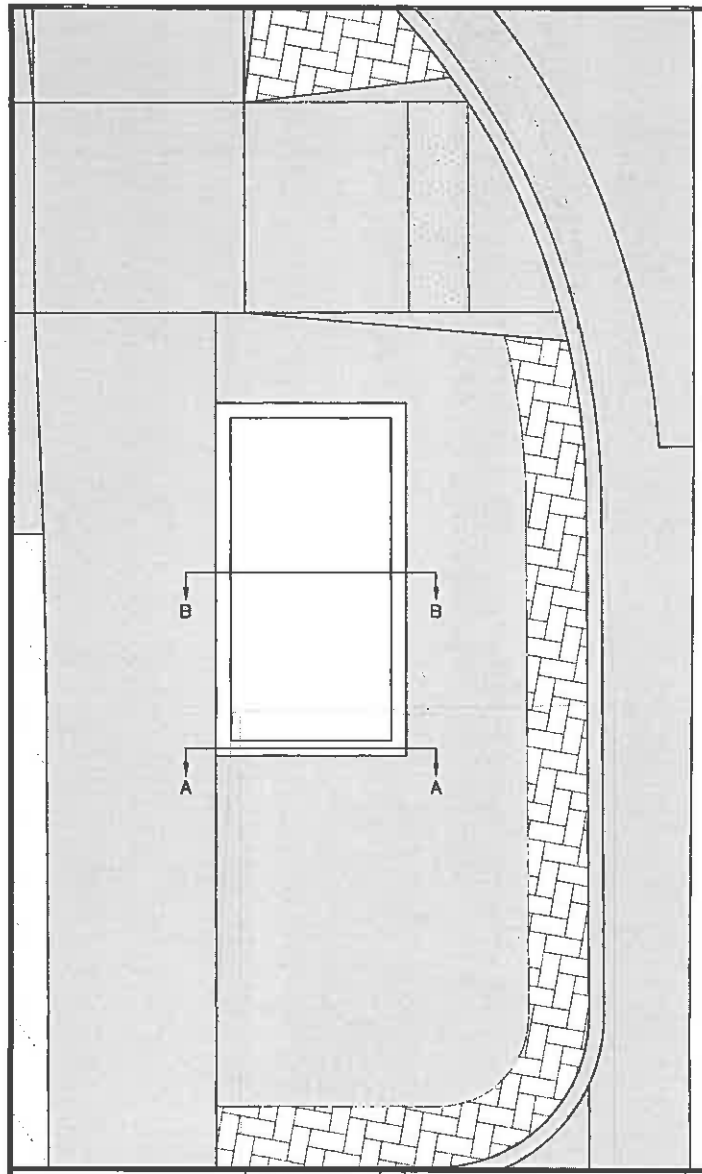
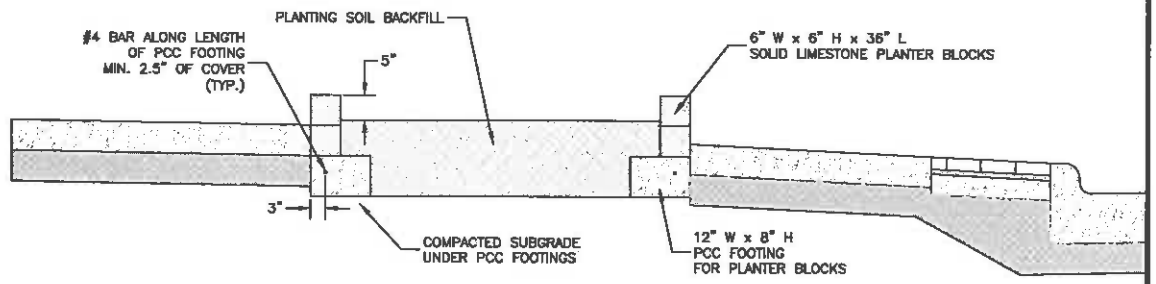
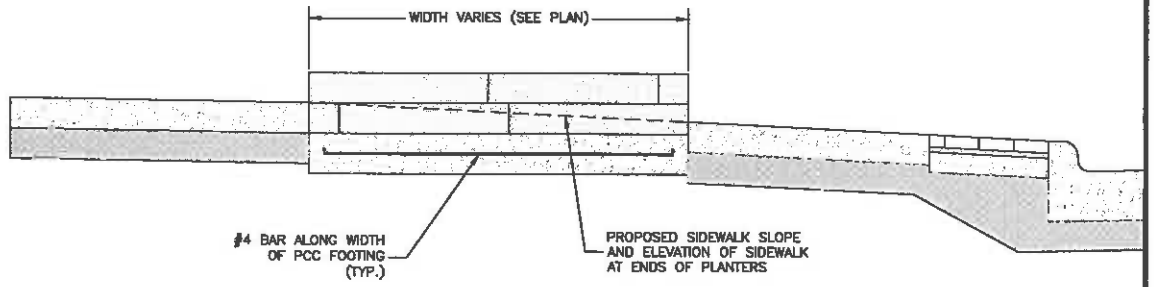




LIMESTONE BLOCK PLANTER DETAIL
SECTION B-B

NOTE:
PLANTS AND MULCH WILL BE FURNISHED AND INSTALLED BY CITY



LIMESTONE BLOCK PLANTER DETAIL
SECTION A-A

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				
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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

LANDSCAPING

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET L.03 OF L.03

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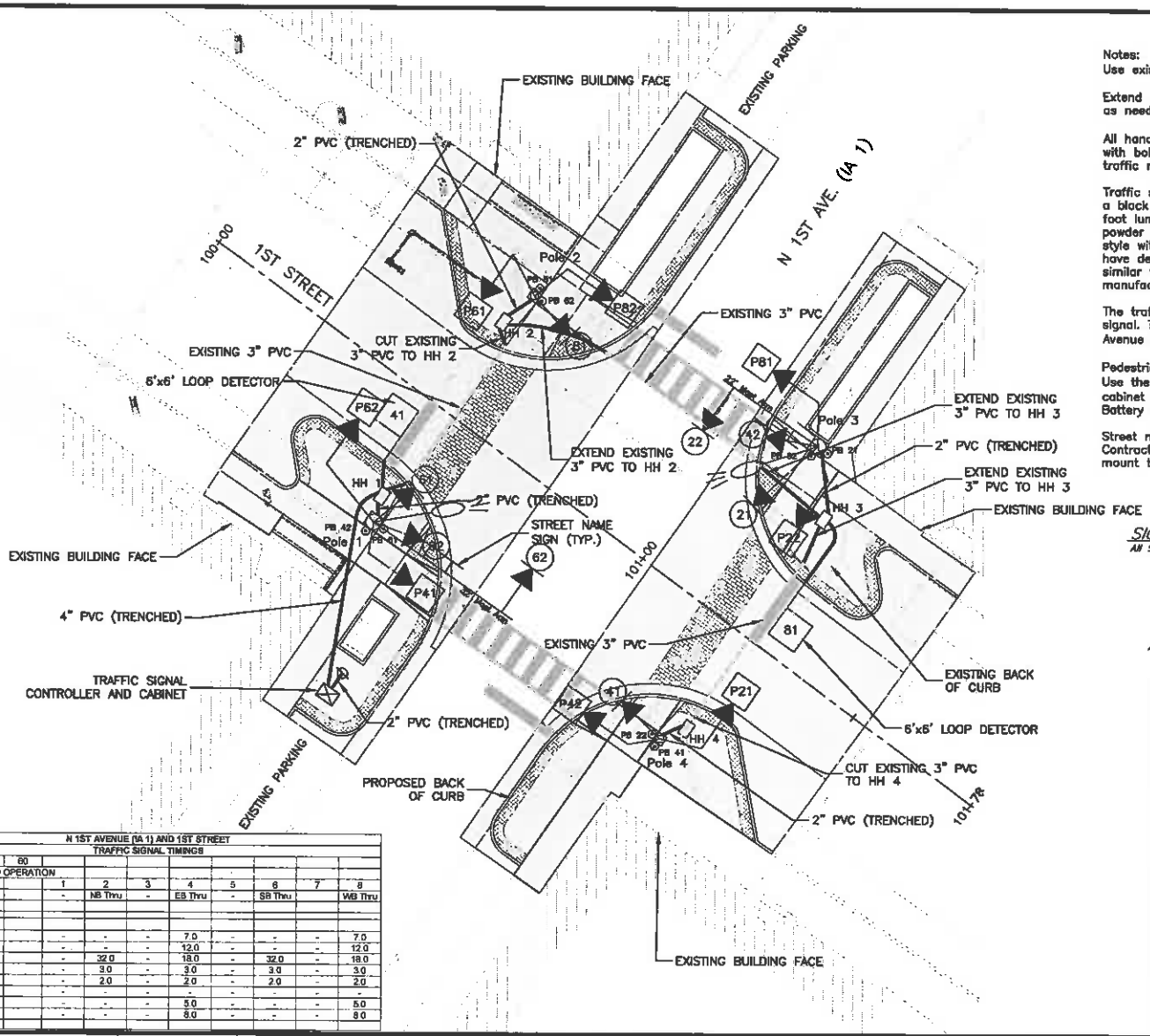

Notes:
Use existing 3" conduits as constructed.

Extend existing 3" conduits to new handhole locations as needed.

All handholes are 24"x36" preformed polymer concrete with bolt down lids. The handholes shall be heavy traffic rated.

Traffic signal poles shall be tapered smooth poles with a black powder coated finish. Poles shall have a 15 foot luminaire extension mast arm also with a black powder coated finish. Lights shall be LED cobra head style with a photo eye attached on top. All poles shall have decorative two piece composite base covers similar to Natchez NZ Composite Base Covers manufactured by Valmont.

The traffic signal shall operate as a semi-actuated signal. The traffic signal shall rest in green on 1st Avenue (IA 1) until call is received from 1st St.

Pedestrian pushbuttons shall be solid state (Non-APS). Use the City's existing traffic signal controller and cabinet (currently operating the temporary signal). Battery Backup system is not required.

Street name signs shall be provided by the City. Contractor shall supply all brackets and hardware and mount the signs on the mast arms.

N

0 20

SIGNAL INDICATIONS*

All Signal Indications Shall be LED

R
Y
G

ALL OTHERS

P21, P22
P41, P42
P61, P62
P81, P82

SIGNAL PHASING

1	2 Ped	3	4 Ped
5	6 Ped	7	8 Ped

TRAFFIC SIGNAL LEGEND

- TRAFFIC SIGNAL HEAD W/ BACKPLATE
- PEDESTRIAN HEAD
- MAST ARM AND BASE
- PEDESTAL
- SIGNAL CABINET
- 24" x 36" HANDHOLE
- CONCRETE HANDHOLE
- PLASTIC HANDHOLE
- VEHICLE DETECTOR LOOP
- PEDESTRIAN PUSH BUTTON
- SERVICE ORIGIN
- PVC TRAFFIC SIGNAL CONDUIT
- HDPE CONDUIT
- SIGN
- COMBINATION STREETLIGHT
- WIRELESS ACCESS POINT
- WIRELESS DETECTOR

N 1ST AVENUE (IA 1) AND 1ST STREET
TRAFFIC SIGNAL TIMINGS

CYCLE LENGTH:	60								
2-PHASE PRETIMED OPERATION									
PHASE		1	2	3	4	5	6	7	8
DESCRIPTION		-	NB Thru	-	EB Thru	-	SB Thru		WB Thru
COMMENT									
MIN GREEN		-	-	-	7.0	-	-	-	7.0
MIN SPLIT		-	-	-	12.0	-	-	-	12.0
MAX GREEN		-	32.0	-	18.0	-	32.0	-	18.0
YELLOW		-	3.0	-	3.0	-	3.0	-	3.0
RED		-	2.0	-	2.0	-	2.0	-	2.0
PASSAGE		-	-	-	-	-	-	-	-
WALK		-	-	-	5.0	-	-	-	5.0
COUNTDOWN		-	-	-	8.0	-	-	-	8.0

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

TRAFFIC SIGNAL PLAN

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET N.01 OF N.07

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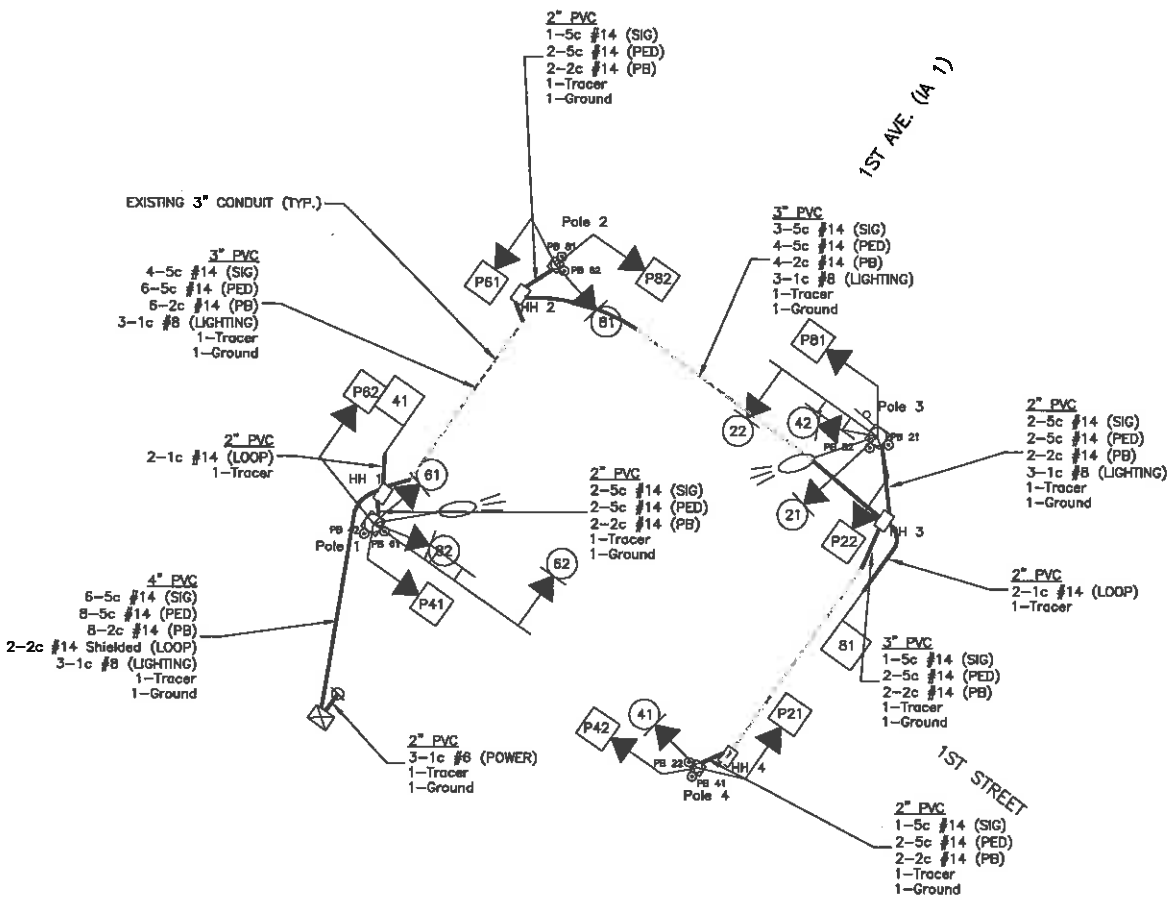

Notes:
Use existing 3" conduits as constructed.

Extend existing 3" conduits to new handhole locations as needed.

All handholes are 24"x36" preformed polymer concrete with bolt down lids.

Power to come from existing pole near controller. Alliant will install new service pole at location shown. Mount service disconnect and meter on contoller cabinet per local utility requirements. Coordinate with utility for power connection. Contractor to supply all materials as required by the local utility and install those portions normally installed by the power customer, per the utility's requirements.

Splice 5c for heads 21 and 22 and heads 61 and 62 in their respective pole bases. Run one 5c back to the controller for each pair of heads.

SIGNAL INDICATIONS*

*All Signal Indications Shall be LED**

R, Y, G	P21, P22 P41, P42 P61, P62 P81, P82
ALL OTHERS	

TRAFFIC SIGNAL LEGEND

- TRAFFIC SIGNAL HEAD W/ BACKPLATE
- PEDESTRIAN HEAD
- MAST ARM AND BASE
- PEDESTAL
- SIGNAL CABINET
- 24" x 36" HANDHOLE
- CONCRETE HANDHOLE
- PLASTIC HANDHOLE
- VEHICLE DETECTOR LOOP
- PEDESTRIAN PUSH BUTTON
- SERVICE ORIGIN
- PVC TRAFFIC SIGNAL CONDUIT
- HDPE CONDUIT
- SIGN
- COMBINATION STREETLIGHT
- WIRELESS ACCESS POINT
- WIRELESS DETECTOR

PLOT DATE: Apr 14, 2015	DRAWN BY: BJJ				/ /
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2014 SIGNAL REPLACEMENT AND
INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

TRAFFIC SIGNAL WIRING

CITY OF MT. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET N.02 OF N.07

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CONDUIT: 1ST AVENUE (IA 1) AND 1ST STREET								
FROM	TO	CTR TO CTR DISTANCE	TRENCH PVC			BORED PVC		REMARKS
			1"	1½"	4"	2"	4"	
X	HH1	38			38			
HH1	HH2	40		8			0	Use Existing Conduit under 1st St.
HH2	HH3	58		34				37' of Existing Conduit
HH3	HH4	45		8				37' of Existing Conduit
HH1	P1	3	3					
HH2	P2	5	6					
HH3	P3	11	11					
HH4	P4	4	4					
Ø	X	5	5					
Loop	HH3	14	14					
Loop	HH1	5	5					
TOTAL			48	50	38	0	0	

NEW CABLE												
FROM	TO	CTR TO CTR DISTANCE	LIGHTING		POWER	CONTROL				GROUND	TRACER	ACCESS POINT	REMARKS
			1c #6	1c #8	1c#6	1c #14 Loop	5c #14	2c #14	2c #14 Loop	1c#6	1c #10	Cat5e	
X	HH1	38		132			610	348	55	44	44		
HH1	HH2	40		129			430	258	45	46	46		
HH2	HH3	58		177			413	238	61	62	62		
HH3	HH4	45					144	98		51	51		
HH1	P1	3		144			150	36		9	9		
HH2	P2	6					89	38		12	12		
HH3	P3	11		162			164	48		17	17		
HH4	P4	4					83	34		10	10		
Ø	X	5			180					11	11		Includes wire to top of Riser
Loop	HH3	14	14			89							
Loop	HH1	5	5			89							
		TOTAL	19	744	180	178	2043	1094	162	262	262	0	

Notes:

Use City supplied traffic signal controller and cabinet. Existing controller is a Multisonic 820A which is capable of accommodating vehicle detection. Contractor to supply and install a 24" tall polymer concrete riser base. Attach riser base to concrete footing and attach existing cabinet to riser base. Contractor to pre-measure the existing cabinet prior to ordering riser base.

When new traffic signal is operational, contractor shall remove the existing temporary traffic signal. Coordinate with City what parts of the temporary traffic signal City wants to keep. All other temporary signal parts become the property of the Contractor. At a minimum, the traffic signal heads will be retained by the City and the existing controller and cabinet shall be re-used for the permanent installation.

POLE & MAST ARM SIGNS		
LEGEND	QUANTITY	COMMENT
STREET NAME	2	CITY SUPPLIED
EXISTING HWY 1 SIGNS	2	MOUNT ON POLE

Street Name Signs to be supplied by City. Contractor to provide hardware and brackets and to install on mast arms. Supply and install of signal signs is incidental. Push button signs shall be R10-3e.

TRAFFIC SIGNAL HEAD AND PUSHBUTTON QUANTITIES								
POLE NUMBER	SIGNAL HEAD NUMBER	3-SECTION	4-SECTION (FLASH LT ARROW)	5-SECTION	COUNTDOWN HAND / MAN	PEDESTRIAN PUSHBUTTON	MOUNTING	
							OVERHEAD	SIDE
1	61	1						1
1	62	1					1	
1	82	1						1
1	P41 / P82				2			2
1	PB42 / PB61					2		
2	81	1						1
2	PB62 / PB81					2		
2	P82 / P61				2			2
3	21	1						1
3	22	1					1	
3	42	1						1
3	PB21 / PB62					2		
3	P22 / P61				2			2
4	41	1						1
4	P21 / P42				2			2
4	PB22 / PB41					2		
TOTALS		8	0	0	8	8	2	14

POLE NUMBER	LOCATION: 1ST AVENUE (IA 1) AND 1ST STREET		FOOTING		
	TYPE	MAST ARM LENGTH	DIAMETER	DEPTH PER SCHEDULE	TOP OF FOOTING
1	Mast Arm	32'	3'	10'5"	883.55
2	Pedestal		2'	3'-0"	883.75
3	Mast Arm	22'	3'	8'6"	883.40
4	Pedestal		2'	3'-0"	882.91

DETECTOR SUMMARY								
DETECTOR NUMBER	SIZE	PED PUSHBUTTON	PHASE CALLED	PHASE EXTENDED	DELAY TIME (SEC)	NO. OF CHANNELS	IN SERIES	COMMENT
41	6' x 6'		4	4		1		Install at stop bar
61	6' x 6'		6	6		1		Install at stop bar
PB21		X	2					Pole mounted
PB22		X	2					Pole mounted
PB41		X	4					Pole mounted
PB42		X	4					Pole mounted
PB61		X	6					Pole mounted
PB62		X	6					Pole mounted
PB81		X	8					Pole mounted
PB82		X	8					Pole mounted

POLE NUMBER	HANDHOLE NUMBER	LOCATION: 1ST AVENUE (IA 1) AND 1ST STREET			REMARKS
		APPROACH	STATION OFFSET	ELEVATION	
1		SB 1ST AVENUE	100+85.17, 24.95' R	883.55	
2		WB 1ST STREET	100+54.00, 27.55' L	883.75	
3		NB 1ST AVENUE	101+14.08, 35.82' L	883.40	
4		EB 1ST STREET	101+22.98, 25.23' R	882.91	
	1	SB 1ST AVENUE	100+53.52, 20.06' R		24X36 Polymer Conc.
	2	WB 1ST STREET	100+52.24, 20.12' L		24X36 Polymer Conc.
	3	NB 1ST AVENUE	101+11.10, 25.76' L		24X36 Polymer Conc.
	4	EB 1ST STREET	101+25.86, 20.64' R		24X36 Polymer Conc.

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

TRAFFIC SIGNAL QUANTITIES

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

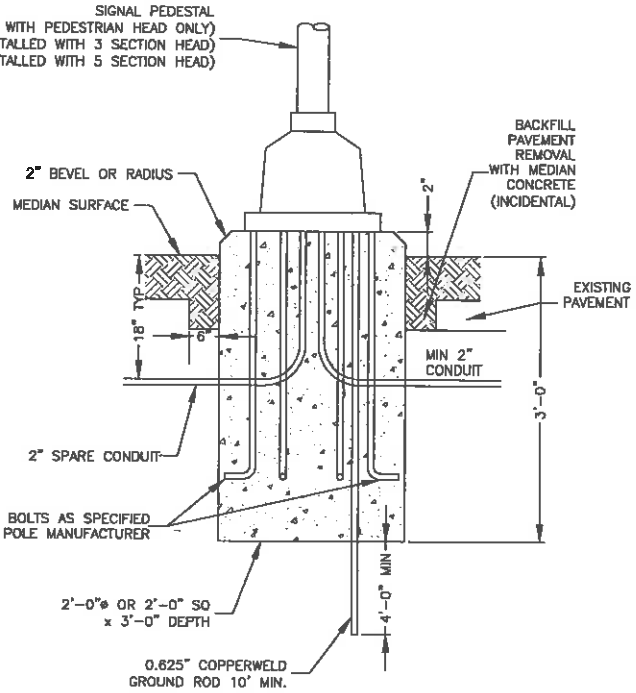
NOTES:
1. SEE SPECIAL PROVISIONS FOR SPARE CONDUITS (ALL FOOTINGS)

2. GROUNDING SHALL BE IN ACCORDANCE WITH SECTION 2523A AND ELECTRICAL TESTS PERFORMED IN ACCORDANCE WITH SECTION 2523.21 OF IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY & BRIDGE CONSTRUCTION.

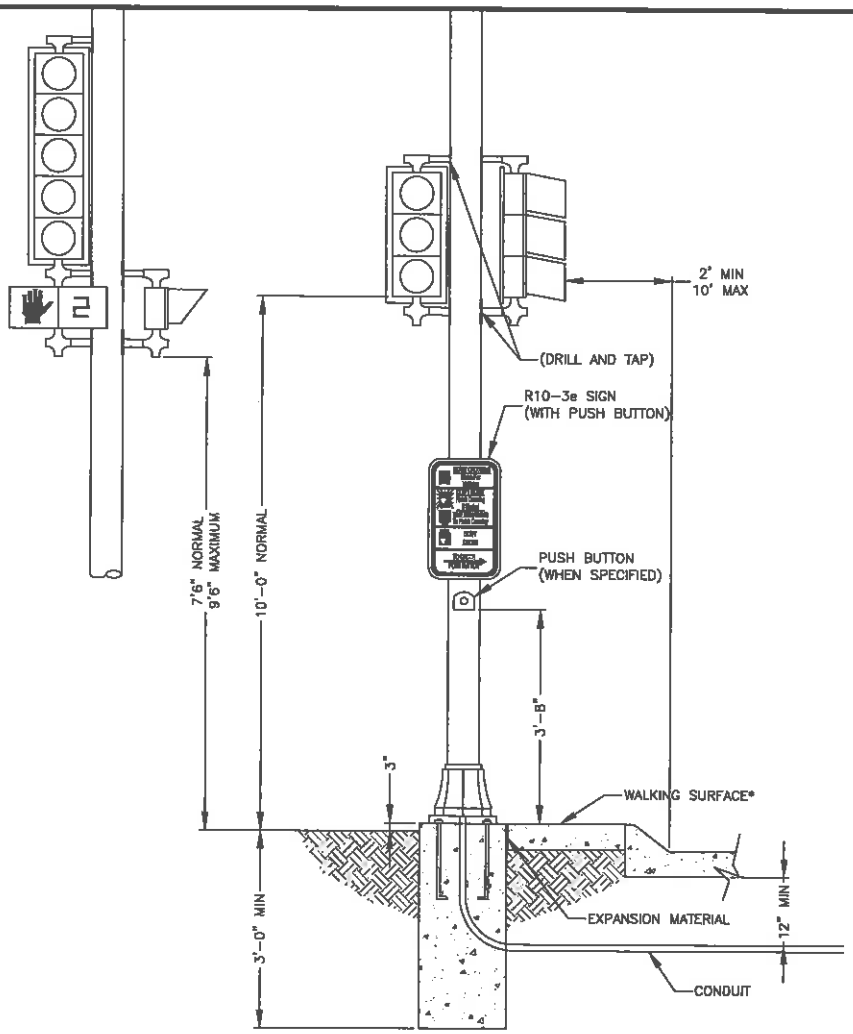
3. TOP AND BOTTOM H BARS MAY BE WELDED TO V BARS.

4. IN SIDEWALK AREAS, TOP 12" OF FOOTINGS SHALL BE FORMED IN A SQUARE. EXPANSION MATERIAL SHALL BE PLACED BETWEEN FOOTING AND SIDEWALK AREA.

5. 2'-0" FOOTING DIAMETER TYPICAL FOR PEDESTAL POLE FOOTINGS
3'-0" FOOTING DIAMETER TYPICAL FOR MAST ARM POLE FOOTINGS



PEDESTAL FOOTING



*WHEN WALKING SURFACE IS IN A CUT THROUGH ISLAND WITH A RAISED CURB, MOUNT PUSHBUTTON AT 3'8" ABOVE WALKING SURFACE (OR 3' ABOVE TOP OF CURB. WHERE BRICK PAVERS ARE PRESENT, INSTALL BRICK PAVERS FLUSH WITH PCC FOOTING

SIDE OF POLE MOUNTINGS

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

TRAFFIC SIGNAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET N.04 OF N.07

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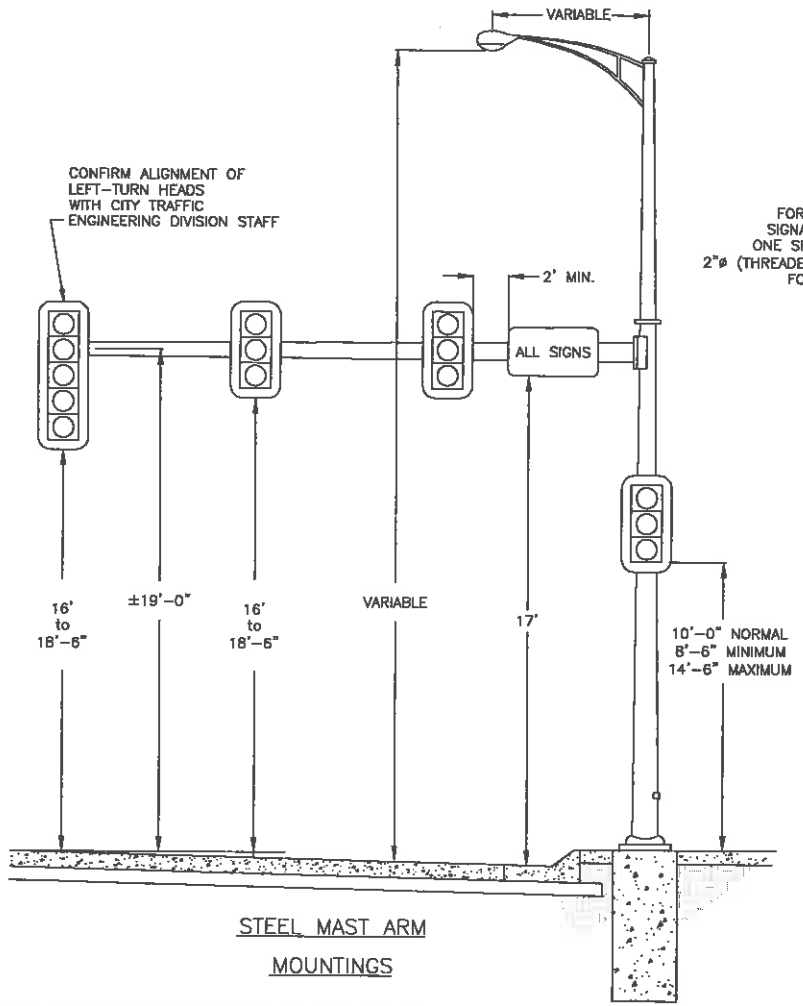
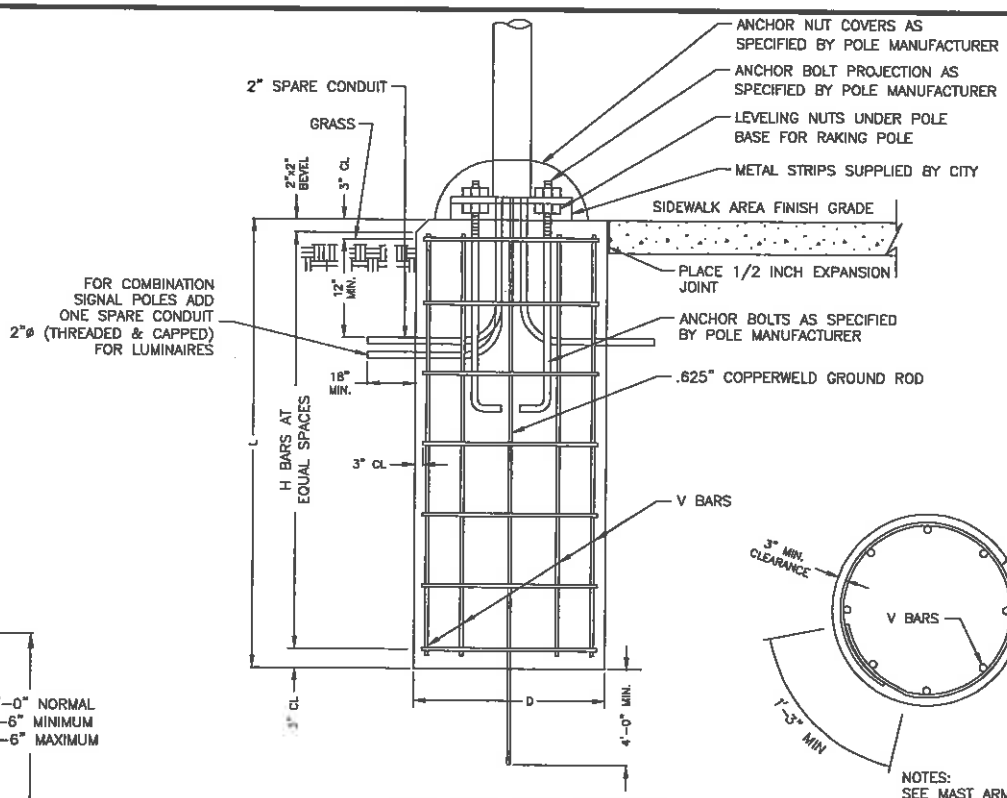


STEEL MAST ARM MOUNTINGS

CENTER ASTRO-BRAC MOUNTED SIGNAL ON THE MAST ARM. HEIGHT DIMENSIONS TO SIGNAL HEADS ARE MEASURED TO BOTTOM OF SIGNAL HOUSING.



MAST ARM POLE FOOTING

NOTES:
SEE MAST ARM POLE & PEDESTAL FOOTING SCHEDULE FOR REQUIRED REBAR

MAST ARM POLE & PEDESTAL FOOTING SCHEDULE

MAST ARM LENGTH	FOOTING DIAMETER (D)	DEPTH (L)	V BARS	H BARS
PEDESTAL BASES	2'	3'	NO STEEL REQUIRED	NO STEEL REQUIRED
20' OR LESS	3'	7.5'	8-# 7 BARS X 7'-0"	8-#4 BARS @ 12" MAX
22' - 28'	3'	8.5'	8-# 7 BARS X 8'-0"	9-#4 BARS @ 12" MAX
30' - 44'	3'	10.5'	8-# 7 BARS X 10'-0"	11-#4 BARS @ 12" MAX
46' - 48'	3'	11.5'	8-# 7 BARS X 11'-0"	12-#4 BARS @ 12" MAX
50' - 55'	3'	12'	8-# 7 BARS X 11'-6"	16-#4 BARS @ 12" MAX
56' - 60'	3'	14'	8-# 7 BARS X 13'-0"	16-#4 BARS @ 12" MAX
61' - 70'	3'	16'	8-# 7 BARS X 15'-0"	16-#4 BARS @ 12" MAX
<70'			SEE QUANTITIES SHEET	

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	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

TRAFFIC SIGNAL DETAILS

CITY OF MT. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

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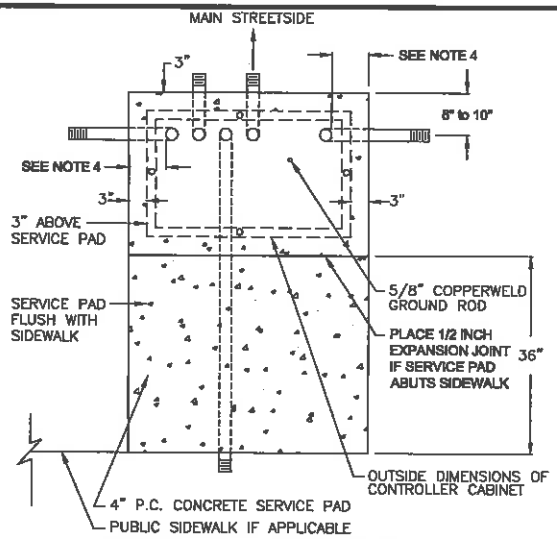
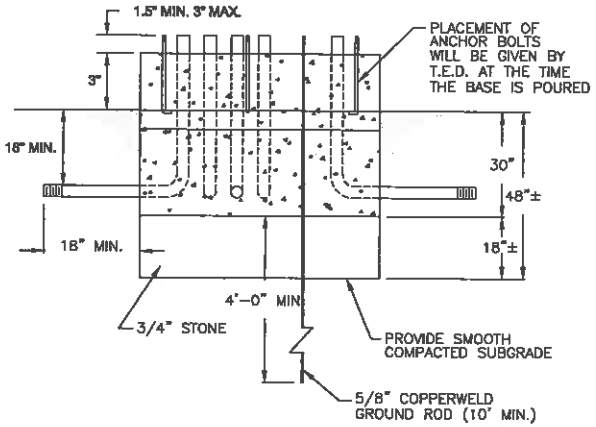


CONTROLLER CABINET PLAN

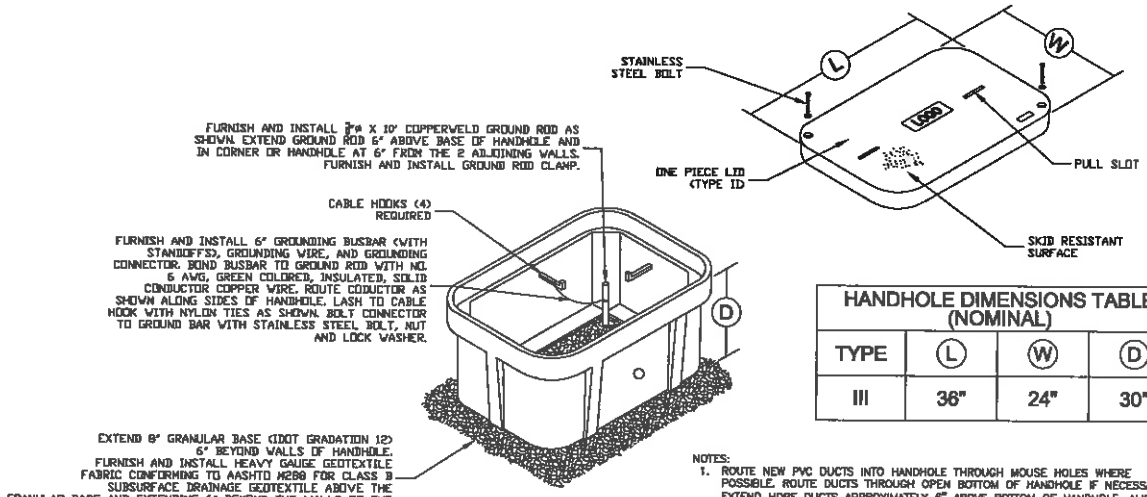
NOTES:

1. UNUSED STUBS WILL BE THREADED AND CAPPED WITH THREADED METAL PIPE CAPS.
2. ALL USED STUBS WILL HAVE METAL GROUNDING BUSHING WITH #6 WIRE.
3. MINIMUM CLEARANCE BETWEEN CONDUITS WILL BE 2".
4. MINIMUM CLEARANCE FROM SIDES WILL BE 10"
5. UNUSED STUBS WILL EXTEND OUT BEYOND THE BASE NOT LESS THAN 18".
6. ALL STUBS EXTENDING UP TO THE SURFACE OF THE BASE SHALL NOT BE LESS THAN 1.5" AND NOT BE MORE THAN 3" ABOVE THE SURFACE OF THE BASE.
7. PIPES AND CAPS SHALL BE IN PLACE WITH AN APPROVED TIE BAR BEFORE THE BASE IS POURED.
8. ALL STUBS EXTENDING ABOVE AND BELOW THE BASE SHALL HAVE THE PIPES CAPPED BEFORE POURING THE BASE, EXCEPT WHERE THE PIPE STUB IS TO BE USED. THOSE STUBS USED SHALL BE CONNECTED TO THE CONDUIT NETWORK AND CAPPED ON THE ENDS EXTENDING UP TO THE SURFACE OF THE BASE BEFORE THE BASE IS POURED.
9. EXPOSED CONCRETE SURFACES SHALL BE CURED USING WHITE-PIGMENTED CURING COMPOUND OR PLASTIC FILM MEETING THE REQUIREMENTS OF SECTIONS 4105 AND 4106 OF IOWA D.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST EDITION.
10. CONDUIT CONNECTED TO THE CONDUIT SYSTEM SHALL BE CONNECTED BY A THREADED COUPLING SUCH AS THAT SUPPLIED WITH CONDUIT. NO SET SCREW TYPE CONNECTOR WILL BE ALLOWED.
11. PROVIDE (2) 2" RIGID STEEL CONDUIT STUBS FOR FUTURE USE.



CONTROLLER CABINET SECTION

CONTROLLER CABINET BASE
NOT TO SCALE



HANDHOLE DIMENSIONS TABLE (NOMINAL)			
TYPE	L	W	D
III	36"	24"	30"

NOTES:
1. ROUTE NEW PVC DUCTS INTO HANDHOLE THROUGH MOUSE HOLES WHERE POSSIBLE. ROUTE DUCTS THROUGH OPEN BOTTOM OF HANDHOLE IF NECESSARY. EXTEND HDPE DUCTS APPROXIMATELY 6" ABOVE BOTTOM OF HANDHOLE. ALIGN SIDE OF HANDHOLE WITH THE MOUSE HOLES IN DIRECTION OF ENTRY OF HDPE DUCTS. ROUTE HDPE DUCTS FOR FIBER CABLE THROUGH OPPOSITE SIDES OF HANDHOLE.
2. GROUND ROD, GROUND WIRE, CLAMPS, HOOKS, GEOTEXTILE FABRIC, GRANULAR SUBBASE, AND ALL OTHER MATERIALS SHOWN IN THIS DETAIL ARE INCIDENTAL TO THE BID ITEM FOR HANDHOLES AND JUNCTION BOXES.

TYPICAL PRECAST POLYMER CONCRETE HANDHOLE
NOT TO SCALE

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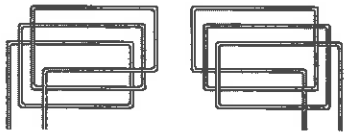
2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

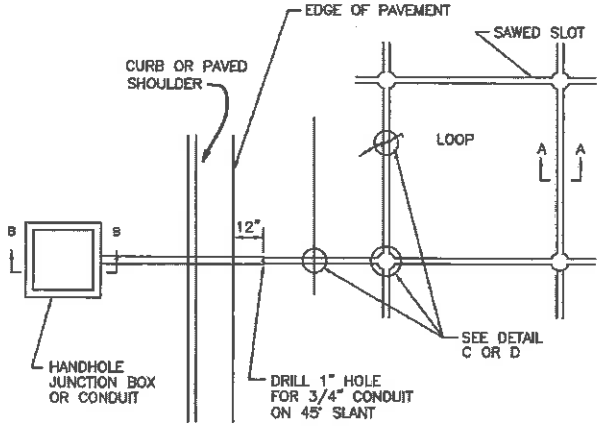
TRAFFIC SIGNAL DETAILS

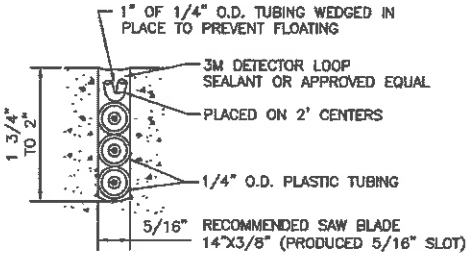
CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

DETECTOR LOOP DETAILS



ALL DETECTOR LOOPS SHALL BE WOUND IN A CLOCKWISE CONFIGURATION, AS VIEWED FROM THE LEAD-IN CONNECTION SLOT. FROM THE LEAD-IN CONNECTION, THE BOTTOM CONDUCTOR IN THE SAWED SLOT SHALL BE IDENTIFIED AND LABELED AS THE NEGATIVE LEAD. THE NEGATIVE LEAD SHALL BE CONNECTED TO THE BLACK CONDUCTOR OF THE CABLE PATH AND THE POSITIVE LEAD SHALL BE CONNECTED TO THE COLOR CODED CONDUCTOR OF THE CABLE PAIR.



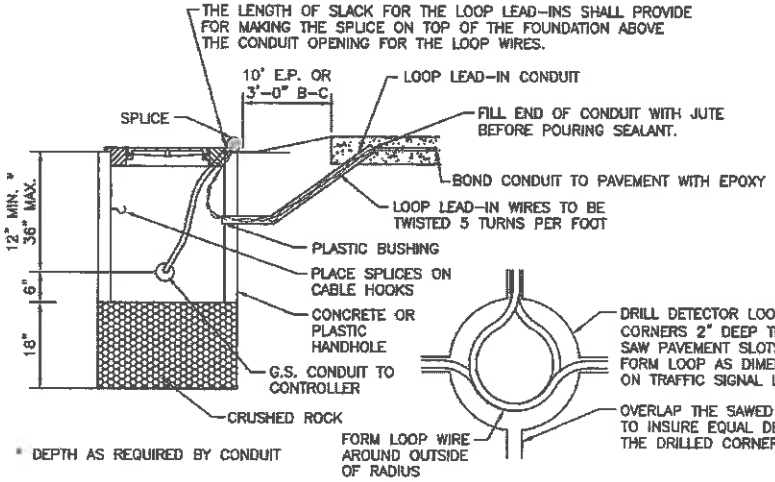


SECTION A-A

GENERAL NOTES:

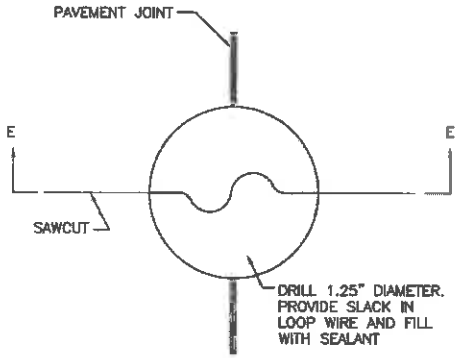
1. ALL LOOPS SHALL HAVE SEPARATE LEAD-IN SAWCUTS AND CONDUIT BETWEEN THE LOOP AND THE HANDHOLE.

2. SAWING OF NEW P.C. CONCRETE PAVEMENT SHALL NOT OCCUR UNTIL AT LEAST SEVEN DAYS AFTER PLACEMENT UNLESS APPROVED BY ENGINEER.

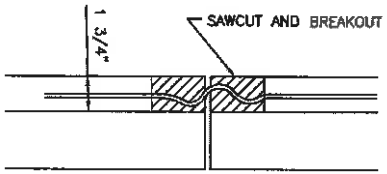


SECTION B-B

DETAIL C



DETAIL D



SECTION E-E

(LOOP WIRE TREATMENT AT PAVEMENT JOINTS AND CRACKS)

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

TRAFFIC SIGNAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
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SHEET N.07 OF N.07

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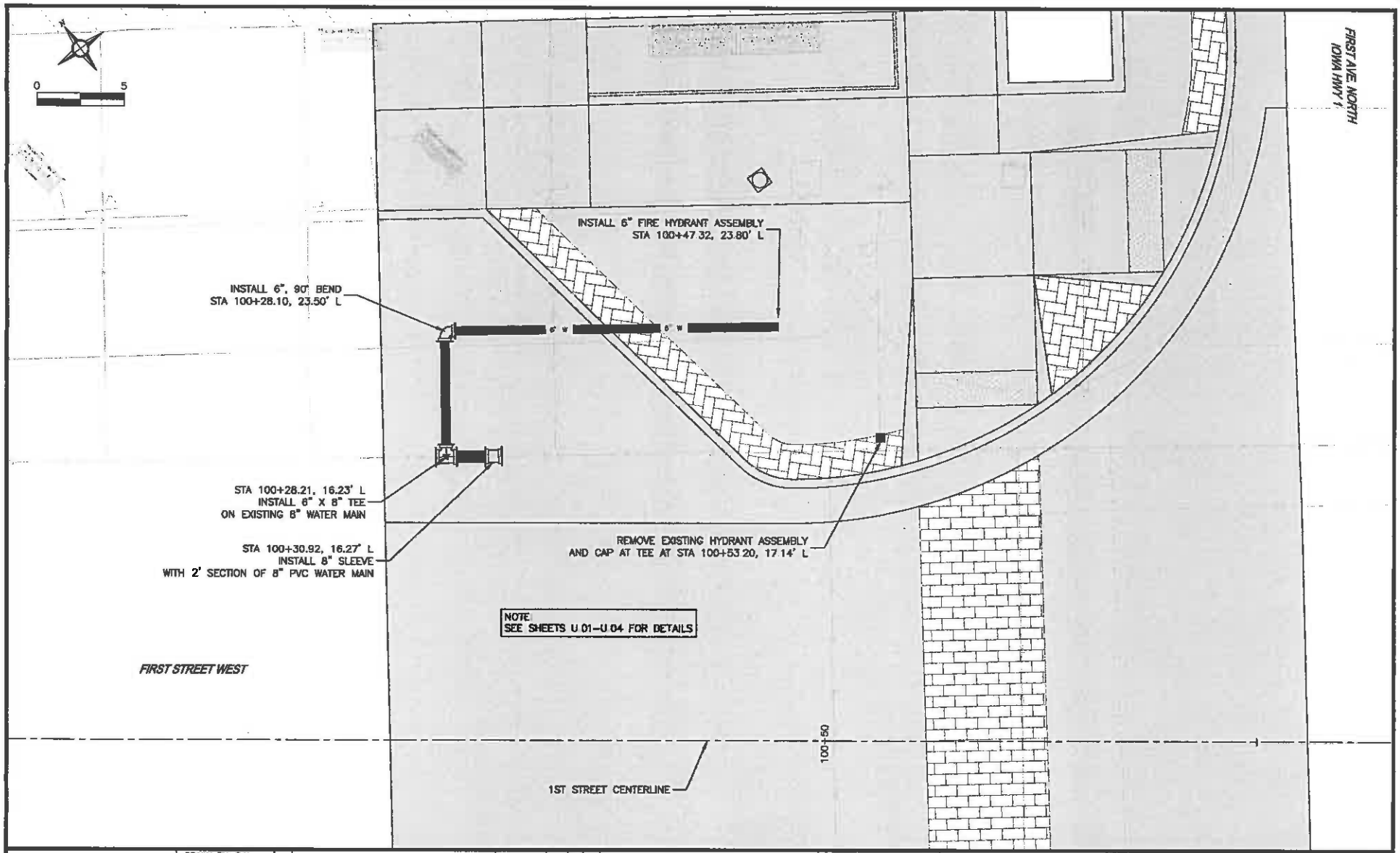

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CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
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SHEET 0.01 OF 0.02

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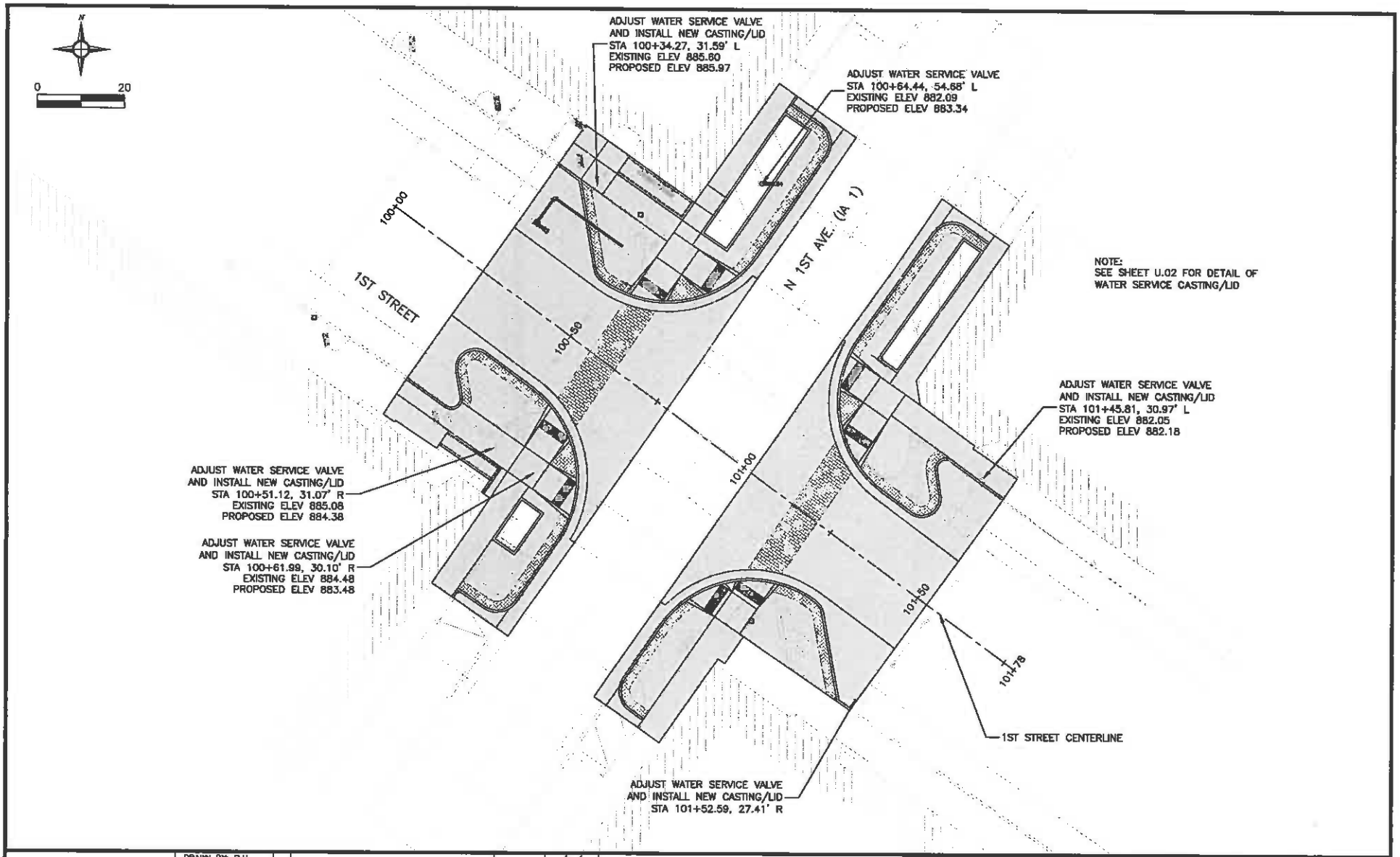

PLOT DATE: Apr 14, 2015	DRAWN BY: BJJ				/ /	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	WATER MAIN
	CHECKED BY:				/ /		
	APPROVED BY: JCM				/ /		
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CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
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(319) 895-8742

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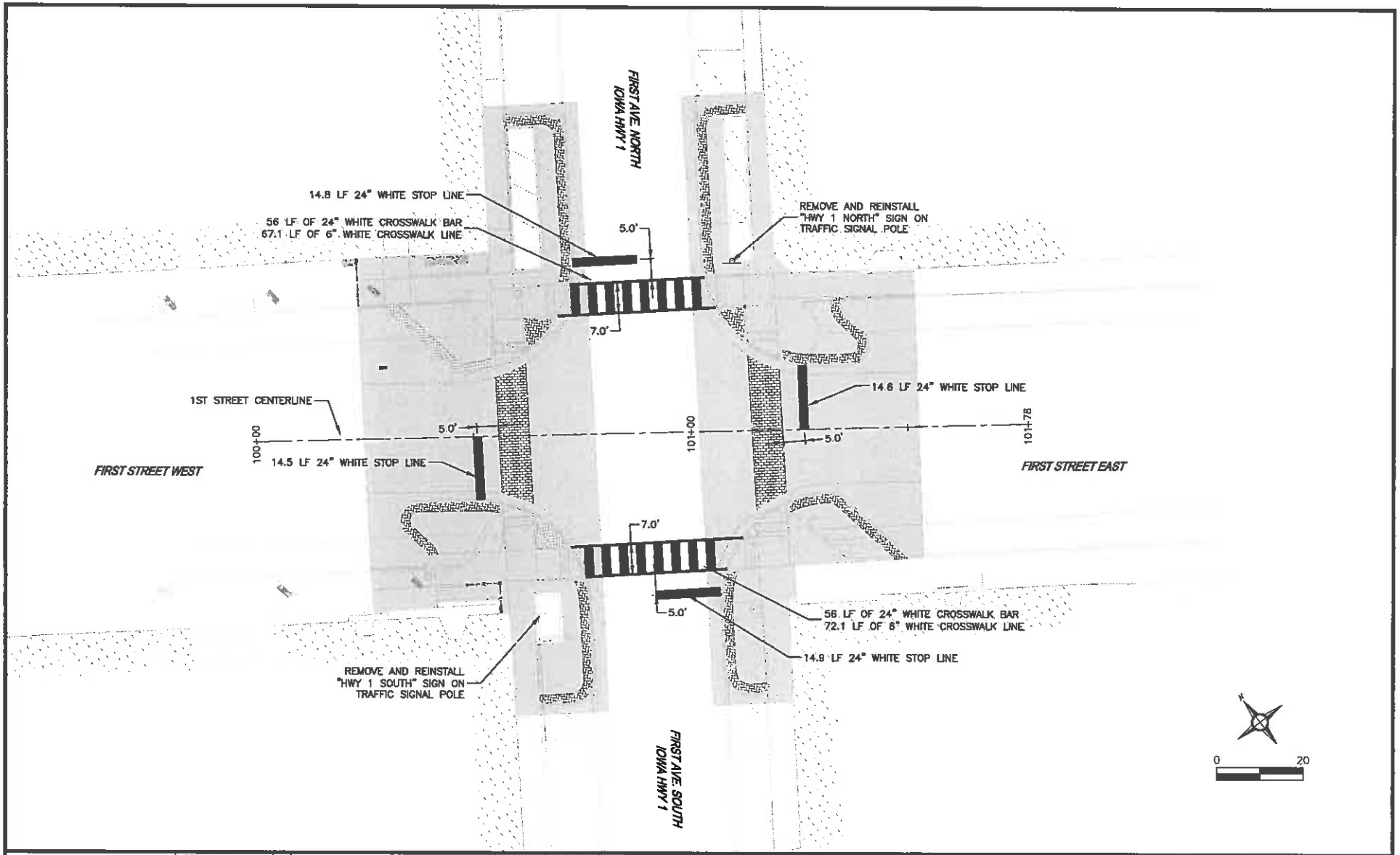

PLOT DATE: Apr 09, 2015	DRAWN BY: BJJ CHECKED BY: APPROVED BY: JCM DATE: 4/10/15 FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	PAVEMENT MARKING AND SIGNING	CITY OF Mt. VERNON CITY HALL 213 1st. STREET W. Mt. VERNON, IOWA 52314 (319) 895-8742	SHEET P.01 OF P.01

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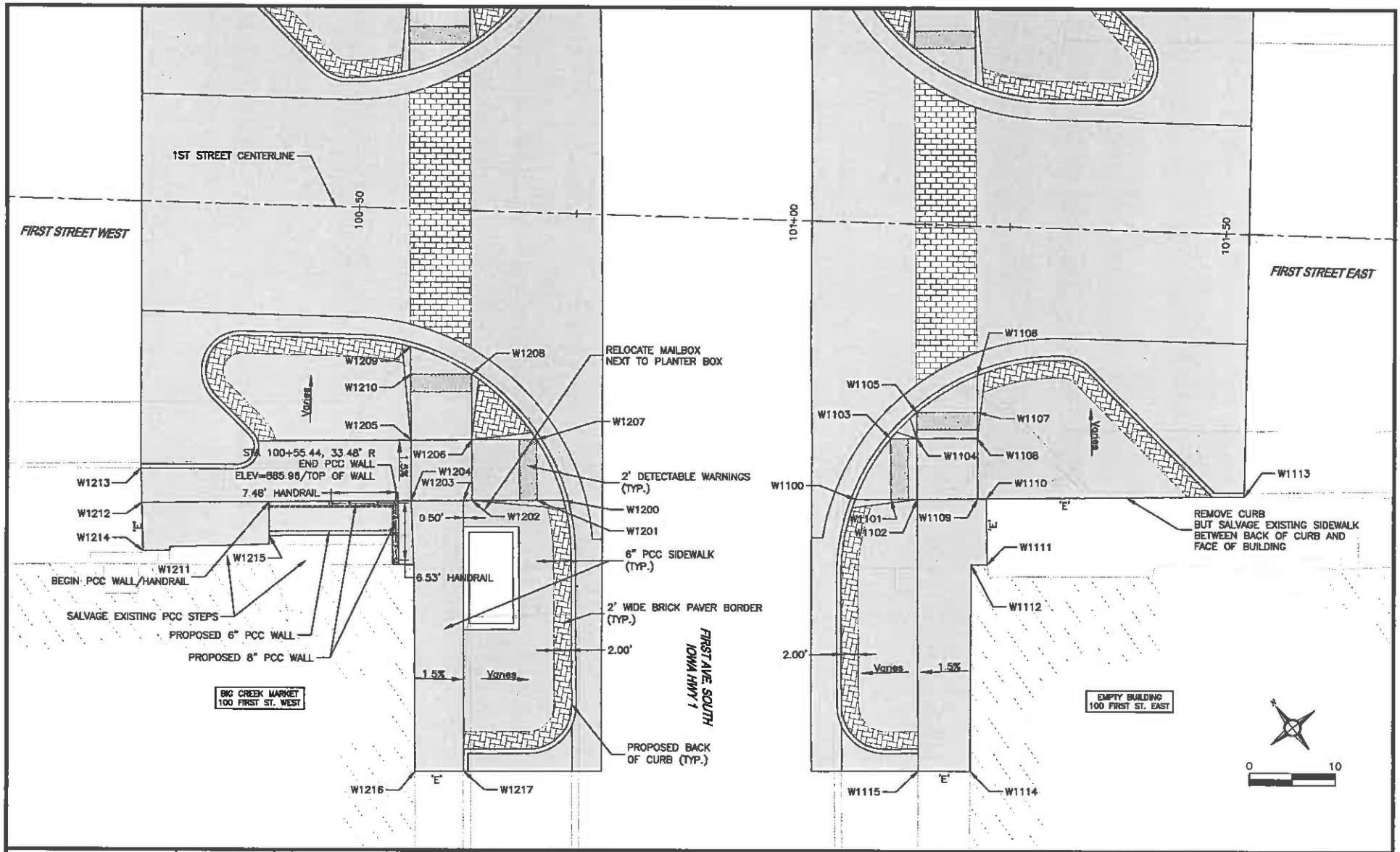

PLOT DATE: Apr 08, 2015	DRAWN BY: BJJ				
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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SIDEWALK DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET S.01 OF S.04

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SIDEWALK COMPLIANCE

113-58
10-15-13

* Does not include curb

Point to Point		Sidewalk Designation	Distance*	Δ Elevation	Slope	Legally Acceptable Range	Difference between Designed Slope and Maximum Legally Acceptable Range	Acceptable Constructed Range	Measured Slope	Initials	Remarks
			FT	FT	%	Pos. or Neg.		Pos. or Neg.	%		
W1100	W1101	Sidewalk Running Slope	4.13	0.18	4.40%	0.5% to 5.0%	0.6%	0.5% to 5.6%			
W1101	W1102	Ramp Running Slope	3.01	0.23	7.60%	0.5% to 8.3%	0.7%	0.5% to 8.3%			
W1101	W1103	Crosswalk Cross Slope - No Yield Condition	7.00	0.05	0.70%	0.0% to 5.0%	4.3%	0.0% to 5.0%			
W1102	W1104	Landing/Turning Space	7.00	-0.05	-0.70%	0.1% to 2.0%	1.3%	0.1% to 2.0%			
W1102	W1109	Landing/Turning Space	7.00	0.10	1.40%	0.1% to 2.0%	0.6%	0.1% to 2.0%			
W1102	W1115	Ramp Running Slope	31.06	-2.12	-6.80%	0.5% to 8.3%	1.5%	0.5% to 8.3%			Slope required to match existing conditions
W1103	W1104	Ramp Running Slope	3.01	0.13	4.30%	0.5% to 8.3%	4.0%	0.5% to 8.3%			
W1104	W1105	Ramp Running Slope	3.03	-0.09	-3.00%	0.5% to 8.3%	5.3%	0.5% to 8.3%			
W1104	W1106	Landing/Turning Space	7.00	0.05	0.70%	0.1% to 2.0%	1.3%	0.1% to 2.0%			
W1105	W1107	Crosswalk Cross Slope - No Yield Condition	7.00	-0.04	-0.60%	0.0% to 5.0%	4.4%	0.0% to 5.0%			
W1106	W1107	Sidewalk Running Slope	4.29	0.18	4.30%	0.5% to 5.0%	0.7%	0.5% to 5.0%			
W1107	W1108	Ramp Running Slope	3.03	0.18	5.90%	0.5% to 8.3%	2.4%	0.5% to 8.3%			
W1108	W1109	Landing/Turning Space	7.00	0.10	1.40%	0.1% to 2.0%	0.6%	0.1% to 2.0%			
W1109	W1110	Sidewalk Running Slope	1.02	0.01	1.00%	0.5% to 5.0%	4.0%	0.5% to 5.0%			
W1110	W1111	Match Existing Cross Slope	7.56	0.13	1.70%	Match Existing	FALSE	Match Existing			
W1110	W1113	Sidewalk Running Slope	29.84	-1.11	-3.70%	0.5% to 5.0%	1.3%	0.5% to 5.0%			
W1111	W1112	Sidewalk Running Slope	1.86	-0.06	-3.20%	0.5% to 5.0%	1.8%	0.5% to 5.0%			
W1112	W1114	Ramp Running Slope	23.54	-2.19	-9.30%	0.5% to 8.3%	-1.0%	0.5% to 10.3%			Slope required to match existing conditions
W1114	W1115	Match Existing Cross Slope	5.99	-0.11	-1.80%	Match Existing	FALSE	Match Existing			

FOR INFORMATION ONLY: VALUES USED TO DETERMINE DESIGNED SLOPES			
Point	Station	Offset	Elevation
W1100	101+88.05	31.73	882.58
W1101	102+12.18	31.59	882.60
W1102	102+15.29	31.49	882.91
W1103	102+11.95	24.59	882.73
W1104	102+14.95	24.50	882.86
W1105	102+14.85	21.47	882.77
W1106	102+21.71	17.06	882.55
W1107	102+21.85	21.24	882.73
W1108	102+21.95	24.27	882.91
W1109	102+22.18	31.25	883.01
W1110	102+23.28	31.22	883.02
W1111	102+23.49	38.78	883.15
W1112	102+23.53	36.86	883.09
W1113	102+53.02	39.13	881.91
W1114	102+22.28	62.98	880.90
W1115	102+16.22	62.53	880.79

SIDEWALK COMPLIANCE

113-58
10-15-13

* Does not include curb

Point to Point		Sidewalk Designation	Distance*	Δ Elevation	Slope	Legally Acceptable Range	Difference between Designed Slope and Maximum Legally Acceptable Range	Acceptable Constructed Range	Measured Slope	Initials	Remarks
			FT	FT	%	Pos. or Neg.		Pos. or Neg.	%		
W1200	W1201	Sidewalk Running Slope	3.05	0.14	4.60%	0.5% to 5.0%	0.4%	0.5% to 5.0%			
W1201	W1202	Ramp Running Slope	7.47	0.56	7.50%	0.5% to 8.3%	0.8%	0.5% to 8.3%			
W1201	W1207	Crosswalk Cross Slope - No Yield Condition	7.00	0.28	4.00%	0.0% to 5.0%	1.0%	0.0% to 5.0%			
W1202	W1203	Landing/Turning Space	8.99	0.01	1.00%	0.1% to 2.0%	1.0%	0.1% to 2.0%			
W1202	W1206	Landing/Turning Space	7.00	0.09	0.00%	0.1% to 2.0%	2.0%	0.1% to 2.0%			
W1203	W1204	Landing/Turning Space	6.01	0.10	1.70%	0.1% to 2.0%	0.3%	0.1% to 2.0%			
W1203	W1217	Sidewalk Running Slope	30.08	-1.41	-4.60%	0.5% to 5.0%	0.4%	0.5% to 5.0%			
W1204	W1205	Landing/Turning Space	7.00	0.00	0.00%	0.1% to 2.0%	2.0%	0.1% to 2.0%			
W1204	W1213	Ramp Running Slope	16.37	2.50	15.30%	0.5% to 8.3%	-7.0%	0.5% to 8.3%			Slope required to match existing conditions
W1204	W1216	Sidewalk Running Slope	30.98	-1.32	-4.30%	0.5% to 5.0%	0.7%	0.5% to 5.0%			
W1205	W1206	Landing/Turning Space	7.00	-0.11	-1.60%	0.1% to 2.0%	0.4%	0.1% to 2.0%			
W1205	W1210	Ramp Running Slope	7.56	-0.57	-0.90%	0.5% to 8.3%	7.4%	0.5% to 8.3%			
W1206	W1207	Ramp Running Slope	7.46	-0.28	-3.80%	0.5% to 8.3%	4.5%	0.5% to 8.3%			
W1206	W1208	Ramp Running Slope	7.53	-0.11	-1.50%	0.5% to 8.3%	6.8%	0.5% to 8.3%			
W1208	W1210	Crosswalk Cross Slope - No Yield Condition	7.00	0.15	2.10%	0.0% to 5.0%	2.9%	0.0% to 5.0%			
W1209	W1210	Sidewalk Running Slope	3.13	0.03	1.00%	0.5% to 5.0%	4.0%	0.5% to 5.0%			
W1211	W1212	Sidewalk Running Slope	14.03	-0.01	-0.10%	0.5% to 5.0%	4.9%	0.5% to 5.0%			
W1211	W1215	Sidewalk Cross Slope	8.29	0.06	1.50%	0.5% to 2.0%	0.5%	0.5% to 2.0%			
W1212	W1213	Match Existing Cross Slope	3.92	0.02	0.50%	Match Existing	FALSE	Match Existing			
W1212	W1214	Match Existing Cross Slope	5.56	-0.02	-0.40%	Match Existing	FALSE	Match Existing			
W1216	W1217	Match Existing Cross Slope	5.60	-0.19	-3.40%	Match Existing	FALSE	Match Existing			

FOR INFORMATION ONLY: VALUES USED TO DETERMINE DESIGNED SLOPES			
Point	Station	Offset	Elevation
W1200	100+74.46	32.83	882.74
W1201	100+71.48	32.93	882.88
W1202	100+63.94	33.17	883.44
W1203	100+62.95	33.28	883.45
W1204	100+56.94	33.48	883.55
W1205	100+36.72	26.40	883.55
W1206	100+63.72	26.17	883.44
W1207	100+71.18	25.93	883.36
W1208	100+63.48	18.62	883.33
W1209	100+56.28	15.79	883.45
W1210	100+56.48	18.85	883.48
W1211	100+40.58	33.99	886.05
W1212	100+23.98	34.51	886.04
W1213	100+23.76	38.60	886.06
W1214	100+26.28	48.06	885.82
W1215	100+40.72	37.87	886.11
W1216	100+58.26	64.25	882.23
W1217	100+63.86	64.09	882.04

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SIDEWALK DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

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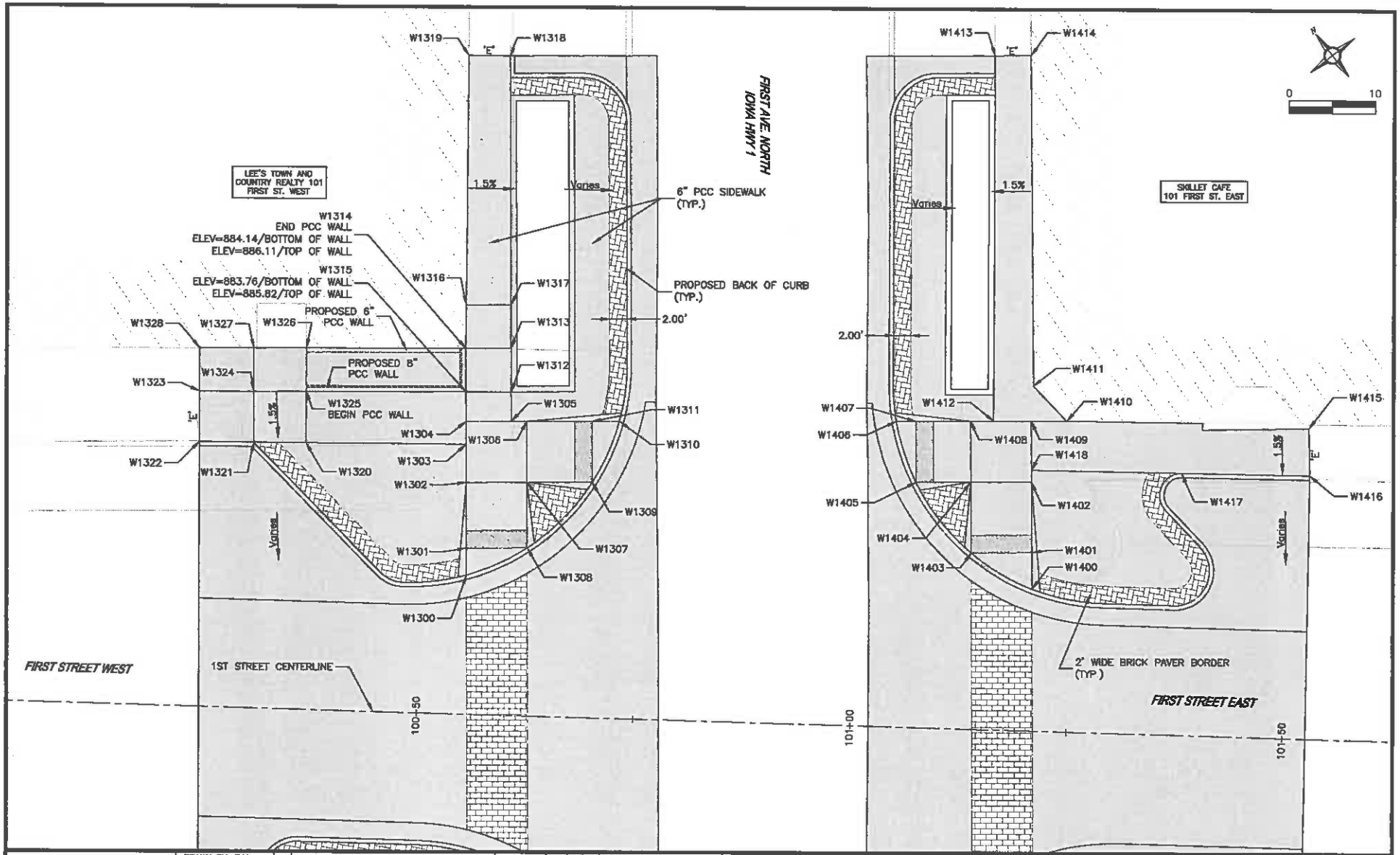

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
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SIDEWALK DETAILS

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SIDEWALK COMPLIANCE

113-10
10-15-13

* Does not include curb

Point to Point		Sidewalk Designation	Distance*	Δ Elevation	Slope	Legally Acceptable Range	Difference between Designed Slope and Maximum Legally Acceptable Range	Acceptable Constructed Range	Measured Slope	Initials	Remarks
			FT	FT	%	Pos. or Neg.		Pos. or Neg.	%		
W1300	W1301	Sidewalk Running Slope	3.07	0.02	0.78%	0.5% to 5.0%	4.3%	0.5% to 5.0%			
W1301	W1302	Ramp Running Slope	5.46	0.03	0.55%	0.5% to 8.3%	7.8%	0.5% to 8.3%			Drainage issues were considered
W1301	W1303	Crosswalk Cross Slope - No Yield Condition	7.00	-0.05	-0.76%	0.0% to 5.0%	4.3%	0.0% to 5.0%			
W1302	W1303	Landing/Turning Space	4.37	-0.03	-0.76%	0.1% to 2.0%	1.3%	0.1% to 2.0%			
W1302	W1307	Landing/Turning Space	7.00	-0.04	-0.60%	0.1% to 2.0%	1.4%	0.1% to 2.0%			
W1303	W1304	Landing/Turning Space	2.64	-0.01	-0.40%	0.1% to 2.0%	1.6%	0.1% to 2.0%			
W1303	W1320	Ramp Running Slope	18.42	2.01	10.90%	0.5% to 8.3%	-2.6%				Slope required to match existing conditions
W1304	W1305	Landing/Turning Space	5.21	-0.08	-1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1304	W1315	Ramp Running Slope	3.41	0.05	1.50%	0.5% to 8.3%	6.8%	0.5% to 8.3%			
W1305	W1306	Landing/Turning Space	1.79	-0.02	-1.10%	0.1% to 2.0%	0.9%	0.1% to 2.0%			
W1305	W1312	Ramp Running Slope	3.39	0.05	1.50%	0.5% to 8.3%	6.8%	0.5% to 8.3%			
W1306	W1307	Landing/Turning Space	7.00	0.10	1.40%	0.1% to 2.0%	0.6%	0.1% to 2.0%			
W1306	W1311	Ramp Running Slope	7.53	-0.58	-7.70%	0.5% to 8.3%	0.6%	0.5% to 8.3%			
W1307	W1308	Ramp Running Slope	7.45	-0.04	-0.54%	0.5% to 8.3%	7.8%	0.5% to 8.3%			Drainage issues were considered
W1307	W1309	Ramp Running Slope	7.52	-0.50	-6.66%	0.5% to 8.3%	1.7%	0.5% to 8.3%			
W1309	W1311	Crosswalk Cross Slope - No Yield Condition	7.00	-0.18	-2.60%	0.0% to 5.0%	2.4%	0.0% to 5.0%			
W1310	W1311	Sidewalk Running Slope	3.15	0.14	4.40%	0.5% to 5.0%	0.6%	0.5% to 5.0%			
W1312	W1313	Ramp Running Slope	5.00	0.38	7.60%	0.5% to 8.3%	0.7%	0.5% to 8.3%			
W1312	W1315	Landing/Turning Space	5.21	0.08	1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1313	W1314	Landing/Turning Space	5.21	0.08	1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1313	W1317	Landing/Turning Space	5.00	0.07	1.40%	0.1% to 2.0%	0.6%	0.1% to 2.0%			
W1314	W1315	Ramp Running Slope	5.00	-0.38	-7.60%	0.5% to 8.3%	0.7%	0.5% to 8.3%			
W1314	W1316	Landing/Turning Space	5.00	0.07	1.40%	0.1% to 2.0%	0.6%	0.1% to 2.0%			
W1315	W1325	Ramp Running Slope	18.35	2.06	11.20%	0.5% to 8.3%	-2.9%				Slope required to match existing conditions
W1316	W1317	Landing/Turning Space	5.15	-0.08	-1.60%	0.1% to 2.0%	0.4%	0.1% to 2.0%			
W1316	W1319	Ramp Running Slope	28.52	-3.23	-11.30%	0.5% to 8.3%	-3.0%	0.5% to 12.3%			Slope required to match existing conditions
W1317	W1318	Ramp Running Slope	28.45	-3.28	-11.50%	0.5% to 8.3%	-3.2%	0.5% to 12.5%			Slope required to match existing conditions
W1318	W1319	Match Existing Cross Slope	4.74	0.13	2.70%	Match Existing	FALSE	Match Existing			
W1320	W1321	Landing/Turning Space	5.99	0.09	1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1320	W1325	Landing/Turning Space	5.89	0.09	1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1321	W1322	Sidewalk Running Slope	6.24	-0.05	-0.80%	0.5% to 5.0%	4.2%	0.5% to 5.0%			
W1321	W1324	Landing/Turning Space	5.64	0.09	1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1322	W1323	Match Existing Cross Slope	5.79	0.34	5.90%	Match Existing	FALSE	Match Existing			
W1323	W1324	Sidewalk Running Slope	6.24	-0.20	-3.20%	0.5% to 5.0%	1.8%	0.5% to 5.0%			
W1323	W1328	Match Existing Cross Slope	5.00	0.26	5.20%	Match Existing	FALSE	Match Existing			
W1324	W1325	Landing/Turning Space	6.04	-0.09	-1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1324	W1327	Ramp Running Slope	5.00	0.34	6.80%	0.5% to 8.3%	1.5%	0.5% to 8.3%			
W1325	W1326	Ramp Running Slope	5.00	0.29	5.80%	0.5% to 8.3%	2.5%	0.5% to 8.3%			
W1326	W1327	Match Existing Cross Slope	6.04	0.14	2.30%	Match Existing	FALSE	Match Existing			
W1327	W1328	Sidewalk Running Slope	6.24	0.12	1.90%	0.5% to 5.0%	3.1%	0.5% to 5.0%			

FOR INFORMATION ONLY: VALUES USED TO DETERMINE DESIGNED SLOPES

Point	Station	Offset	Elevation
W1300	100+55.37	-16.06	883.70
W1301	100+55.27	-19.13	883.72
W1302	100+55.03	-26.56	883.75
W1303	100+54.89	-30.94	883.72
W1304	100+54.81	-33.56	883.71
W1305	100+60.01	-33.74	883.03
W1306	100+61.81	-33.79	883.01
W1307	100+62.03	-26.80	883.71
W1308	100+62.27	-19.35	883.67
W1309	100+69.55	-27.03	883.21
W1310	100+72.47	-34.12	882.89
W1311	100+69.33	-34.03	883.03
W1312	100+59.91	-37.13	883.68
W1313	100+50.75	-42.14	884.06
W1314	100+54.53	-43.98	884.14
W1315	100+54.78	-46.98	883.76
W1316	100+54.45	-46.98	884.21
W1317	100+59.00	-47.14	884.13
W1318	100+58.72	-75.57	880.85
W1319	100+53.97	-75.49	880.90
W1320	100+36.47	-30.58	885.73
W1321	100+30.48	-30.47	885.82
W1322	100+24.24	-30.34	885.77
W1323	100+24.08	-36.13	886.11
W1324	100+30.32	-36.30	885.91
W1325	100+36.36	-36.47	885.82
W1326	100+36.22	-41.47	886.11
W1327	100+30.16	-41.30	886.25
W1328	100+23.94	-41.13	886.37

SIDEWALK COMPLIANCE

113-10
10-15-13

* Does not include curb

Point to Point		Sidewalk Designation	Distance*	Δ Elevation	Slope	Legally Acceptable Range	Difference between Designed Slope and Maximum Legally Acceptable Range	Acceptable Constructed Range	Measured Slope	Initials	Remarks
			FT	FT	%	Pos. or Neg.		Pos. or Neg.	%		
W1400	W1401	Sidewalk Running Slope	4.15	0.18	4.30%	0.5% to 5.0%	0.7%	0.5% to 5.0%			
W1401	W1402	Ramp Running Slope	8.03	0.43	5.40%	0.5% to 8.3%	2.9%	0.5% to 8.3%			
W1401	W1403	Crosswalk Cross Slope - No Yield Condition	7.00	0.17	2.40%	0.0% to 5.0%	2.6%	0.0% to 5.0%			
W1402	W1404	Landing/Turning Space	7.00	0.08	0.80%	0.1% to 2.0%	2.0%	0.1% to 2.0%			
W1402	W1418	Landing/Turning Space	1.36	0.02	1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1403	W1404	Ramp Running Slope	8.04	0.26	3.20%	0.5% to 8.3%	5.1%	0.5% to 8.3%			
W1404	W1405	Ramp Running Slope	6.32	-0.26	-4.10%	0.5% to 8.3%	4.2%	0.5% to 8.3%			
W1405	W1407	Crosswalk Cross Slope - No Yield Condition	7.00	-0.21	-3.00%	0.0% to 5.0%	2.0%	0.0% to 5.0%			
W1406	W1407	Sidewalk Running Slope	2.27	0.10	4.40%	0.5% to 5.0%	0.6%	0.5% to 5.0%			
W1407	W1408	Ramp Running Slope	5.31	0.47	7.40%	0.5% to 8.3%	0.9%	0.5% to 8.3%			
W1408	W1412	Landing/Turning Space	2.65	0.04	1.50%	0.1% to 2.0%	0.5%	0.1% to 2.0%			
W1409	W1410	Sidewalk Running Slope	4.12	0.04	1.00%	0.5% to 5.0%	4.0%	0.5% to 5.0%			
W1409	W1411	Ramp Running Slope	4.05	0.04	1.00%	0.5% to 8.3%	7.3%	0.5% to 8.3%			
W1409	W1412	Landing/Turning Space	4.35	-0.06	-1.40%	0.1% to 2.0%	0.6%	0.1% to 2.0%			
W1409	W1418	Landing/Turning Space	5.86	-0.08	-1.40%	0.1% to 2.0%	0.6%	0.1% to 2.0%			
W1411	W1414	Ramp Running Slope	37.82	-4.03	-10.70%	0.5% to 8.3%	-2.4%	0.5% to 11.7%			Slope required to match existing conditions
W1412	W1413	Ramp Running Slope	41.86	-3.96	-9.50%	0.5% to 8.3%	-1.2%	0.5% to 10.5%			Slope required to match existing conditions
W1413	W1414	Match Existing Cross Slope	4.15	0.03	0.70%	Match Existing	FALSE	Match Existing			
W1415	W1416	Match Existing Cross Slope	5.42	-0.03	-0.60%	Match Existing	FALSE	Match Existing			
W1416	W1417	Sidewalk Running Slope	14.86	0.67	4.50%	0.5% to 5.0%	0.5%	0.5% to 5.0%			
W1417	W1418	Sidewalk Running Slope	17.38	0.78	4.50%	0.5% to 5.0%	0.5%	0.5% to 5.0%			

FOR INFORMATION ONLY: VALUES USED TO DETERMINE DESIGNED SLOPES

Point	Station	Offset	Elevation
W1400	101+20.00	-16.42	882.75
W1401	101+20.46	-20.57	882.93
W1402	101+20.19	-26.59	883.36
W1403	101+13.47	-28.34	883.18
W1404	101+13.28	-26.38	883.36
W1405	101+06.88	-28.18	883.18
W1406	101+04.38	-35.11	882.79
W1407	101+05.66	-35.18	882.89
W1408	101+12.97	-35.37	883.36
W1409	101+19.96	-35.61	883.46
W1410	101+24.08	-39.72	883.50
W1411	101+20.09	-39.66	883.50
W1412	101+15.62	-35.46	883.40
W1413	101+14.57	-77.30	879.44
W1414	101+18.72	-77.45	879.47
W1415	101+52.15	-35.70	881.96
W1416	101+52.39	-38.29	881.93
W1417	101+37.52	-30.13	882.60
W1418	101+20.15	-29.95	883.38

DRAWN BY: BJJ				/ /	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET
CHECKED BY:				/ /	
APPROVED BY: JCM				/ /	
DATE: 4/10/15				/ /	
FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE	

PLOT DATE: Apr 09, 2015

SIDEWALK DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET S.04 OF S.04

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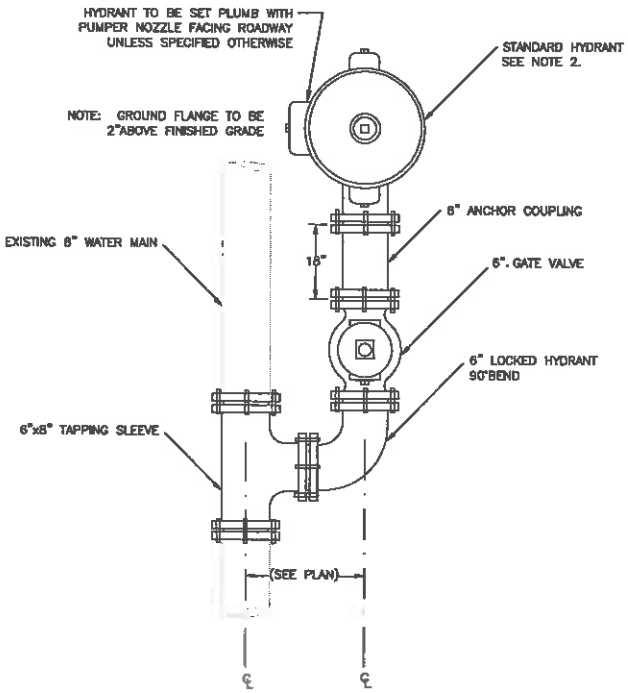
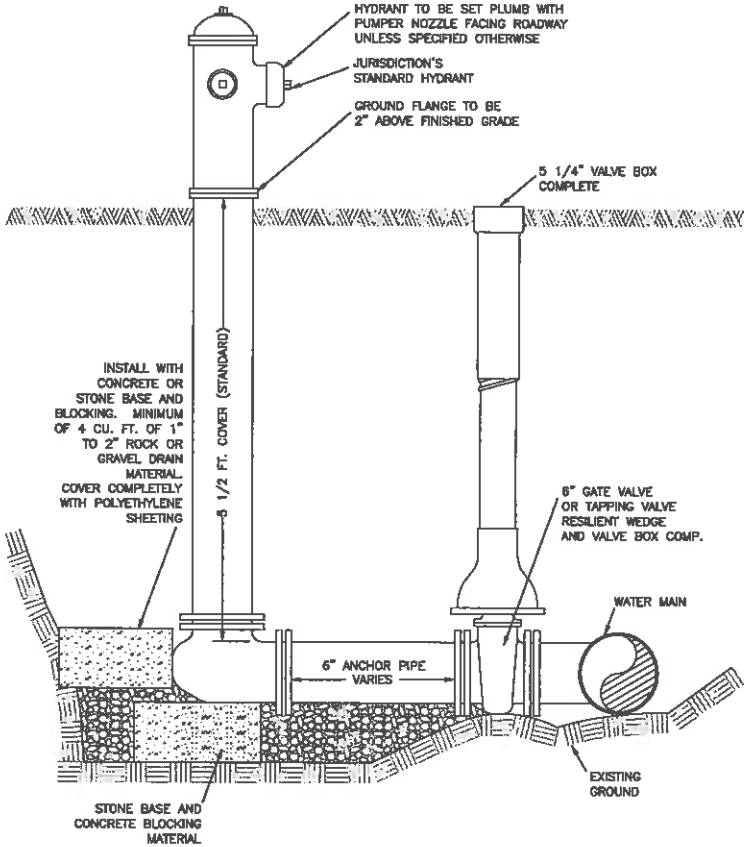


NOTES:

1. THIS DETAIL APPLIES TO CONSTRUCTION ACCORDING TO SECTON 02500 SPECIAL PROVISIONS.
2. INSTALL WITH CONCRETE OR STONE BASE AND BLOCKING. PROVIDE MINIMUM OF 4 CU. FT OF 1" TO 2" ROCK OR GRAVEL DRAIN MATERIAL.
3. ENTIRE ASSEMBLY, BELOW GRADE, SHALL BE WRAPPED WITH POLYETHYLENE SHEETING. LEAVE OPENING FOR DRAIN.

Fire Hydrant Detail
(N.T.S.)



NOTE: SEE SPECIAL PROVISIONS

Typical Hydrant Set Detail

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ					2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET
	CHECKED BY:					
	APPROVED BY: JCM					
	DATE: 4/10/15					
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE	

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

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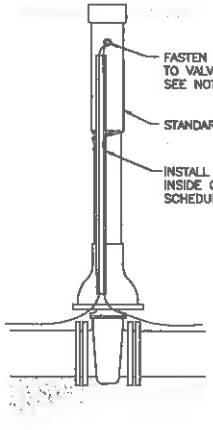
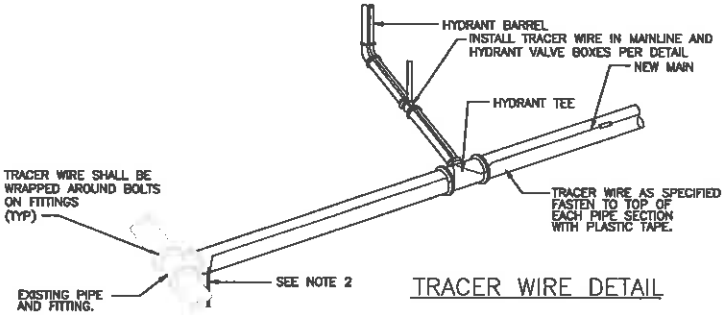


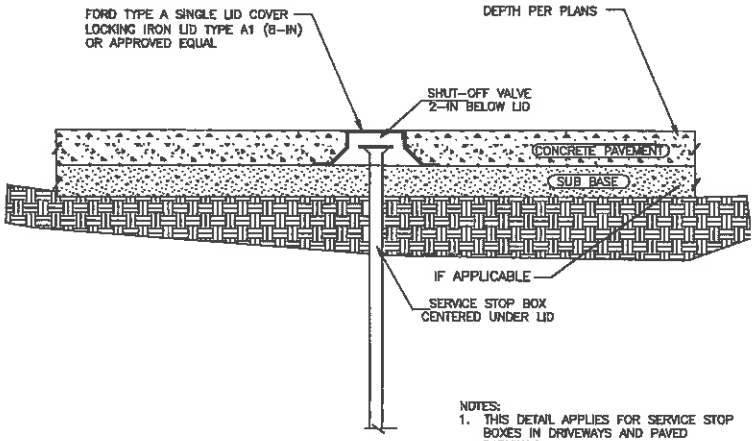
INSTALLATION OF TRACER WIRE IN VALVE BOX



TRACER WIRE DETAIL

NOTES:
1. NO WIRE SPLICES ALLOWED FOR WIRE LENGTHS LESS THAN 500 FEET.
2. GROUND RODS SHALL BE INSTALLED IF SPECIFIED.
3. CARE MUST BE EXERCISED TO PRESERVE THE INTEGRITY OF THE INSULATION ON THE TRACER WIRE. REPAIR ANY DAMAGE.
4. TRACER WIRE SHALL BE FASTENED TO VALVE BOX USING STAINLESS STEEL HARDWARE. DRILL 5/8" DIA BOLT HOLE IN VALVE BOX.
5. IF INDICATED IN PLANS, TRACER WIRE SHALL BE FASTENED TO HYDRANT BARREL IN LIEU OF AUXILLARY VALVE.

Tracer Wire Detail



NOTES:
1. THIS DETAIL APPLIES FOR SERVICE STOP BOXES IN DRIVEWAYS AND PAVED PARKINGS
2. THIS DETAIL APPLIES FOR BOTH PCC OR HMA PAVEMENTS

Water Service Stop Box

	DRAWN BY: BJJ				/ /
	CHECKED BY:				/ /
	APPROVED BY: JCM				/ /
	DATE: 4/10/15				/ /
PLOT DATE: Apr 13, 2015	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

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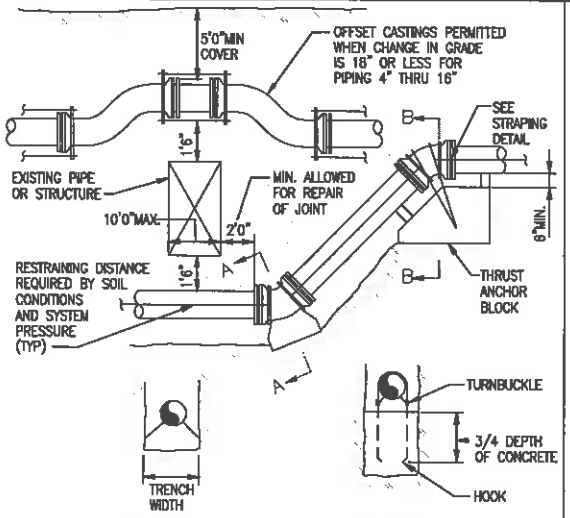
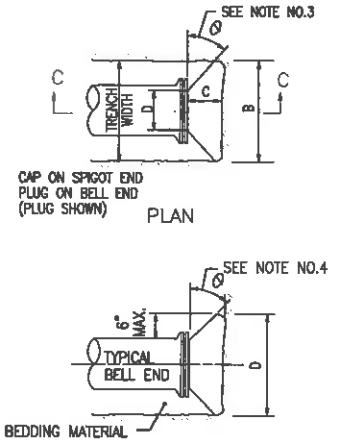
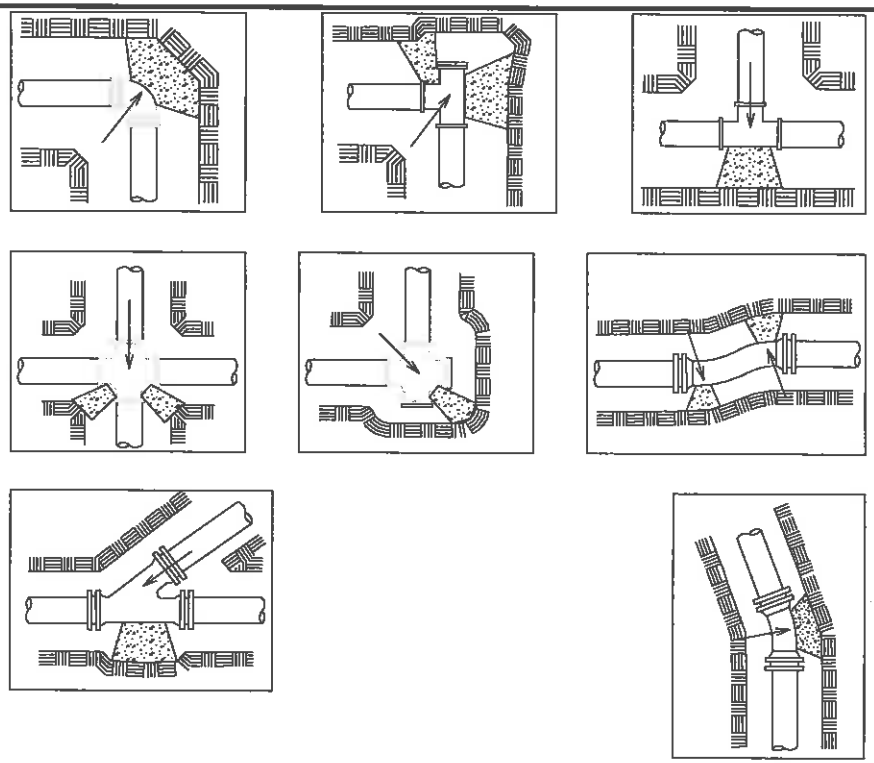
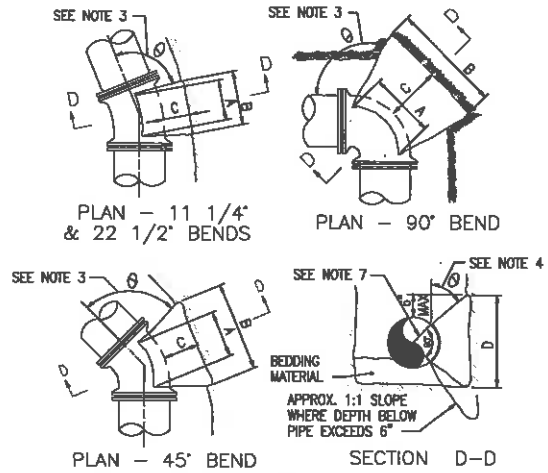


DETAIL FOR PRESSURE PIPE OFFSET

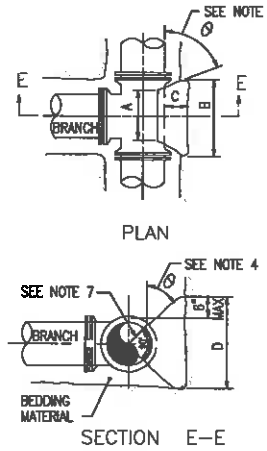


THRUST BLOCK DETAIL FOR DEAD END





THRUST BLOCK DETAIL FOR BENDS



THRUST BLOCK DETAIL FOR TEES

NOTES:

1. WHERE A HORIZONTAL BEND IS MADE, THE PIPING SHALL BE RESTRAINED BY MEANS OF A THRUST BLOCK AS DETAILED ON THIS SHEET. WHERE VERTICAL OFFSETS ARE MADE , THE TOP BEND SHALL BE RESTRAINED BY RESTRAINING RODS AND STRAPS, CONCRETE THRUST ANCHOR BLOCKS AND RESTRAINING RODS, OR A COMBINATION OF BOTH. THE BOTTOM BENDS SHALL BE RESTRAINED BY THRUST BLOCKS AS DETAILED.
2. "A","B" AND "D" DIMENSIONS SHALL BE AS LARGE AS POSSIBLE WITHOUT INTERFERRING WITH THE MECHANICAL JOINTS OR THE M.J. BOLTS.
3. "C" DIMENSIONS SHALL BE LARGE ENOUGH TO MAKE ANGLE θ EQUAL TO OR LARGER THAN 45°.
4. ANGLE θ SHALL BE EQUAL TO OR LARGER THAN 45°.
5. "B" AND "D" DIMENSIONS SHALL PROVIDE REQUIRED BLOCKING AREA AS LISTED IN SHEETS 3 AND 4 OF THIS DETAIL. REFER TO THE SPECIFICATIONS FOR THE PRESSURE RATING OF THE PIPING SYSTEMS.
6. CONCRETE SHALL BEAR ON THE CONCRETE QUADRANT OF PIPE AS A MINIMUM. SEE DETAIL ABOVE.
7. THE THRUST BLOCK AREAS SHOWN ON SHEETS 3 AND 4 OF THIS DETAIL ARE CALCULATED USING A SOIL BEARING CAPACITY OF 2000 PSF. IF GREATER SOIL BEARING CAPACITY IS AVAILABLE, THE CONTRACTOR MAY, AFTER REVIEW BY THE ENGINEER, REDUCE THE THRUST BLOCK AREAS SHOWN. THE THRUST BLOCK AREA SHALL BE INCREASED IF THE SOIL IS NOT CAPABLE OF PROVIDING 2000 PSF SOIL BEARING CAPACITY.

Thrust Restraint Details

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ CHECKED BY: APPROVED BY: JCM DATE: 4/10/15 FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895–8742

SHEET U.03 OF U.17

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THRUST RESTRAINT DETAILS

RESULTANT THRUST AT FITTINGS, POUNDS
FOR TEST WATER PRESSURE OF 100 PSI

SIZE IN.	TEE OR DEAD END	90-DEG BEND	45-DEG BEND	22.5-DEG BEND	11.25-DEG BEND
4	1,810	2,559	1,385	706	355
6	3,739	5,288	2,862	1,459	733
8	6,433	9,097	4,923	2,510	1,261
10	9,677	13,685	7,406	3,776	1,897
12	13,685	19,353	10,474	5,340	2,683
16	23,779	33,628	18,199	9,278	4,661
20	36,644	51,822	28,046	14,298	7,183
24	52,279	73,934	40,013	20,398	10,249
30	80,425	113,738	61,554	31,380	15,766
36	115,209	162,931	88,177	44,952	22,585
42	155,528	219,950	119,036	60,684	30,489
48	202,683	286,637	155,127	79,083	39,733
54	256,072	362,140	195,989	99,914	50,199

MINIMUM AREA FOR THRUST BEARING, SQ. FT.
FOR TEST WATER PRESSURE OF 100 PSI

SIZE IN	TEE OR DEAD END	90-DEG BEND	45-DEG BEND	22.5-DEG BEND	11.25-DEG BEND
4	1.0	1.3	1.0	1.0	1.0
6	1.9	2.6	1.4	1.0	1.0
8	3.2	4.5	2.5	1.3	1.0
10	4.8	6.8	3.7	1.9	1.0
12	6.8	9.7	5.2	2.7	1.3
16	11.9	16.8	9.1	4.6	2.3
20	18.3	25.9	14.0	7.1	3.6
24	26.1	37.0	20.0	10.2	5.1
30	40.2	56.9	30.8	15.7	7.9
36	57.6	81.5	44.1	22.5	11.3
42	77.8	110.0	59.5	30.3	15.2
48	101.3	143.3	77.6	39.5	19.9
54	128.0	181.1	98.0	50.0	25.1

THE ABOVE AREAS ARE BASED UPON A SOIL BEARING CAPACITY OF 2000 PSF. IF ACTUAL SOIL BEARING STRENGTH IS LESS THAN 2000 PSF, THE THRUST BEARING AREA SHALL BE INCREASED BASED ON THE ACTUAL SOIL BEARING STRENGTH.

THRUST RESTRAINT DETAILS

RESULTANT THRUST AT FITTINGS, POUNDS
FOR TEST WATER PRESSURE OF 150 PSI

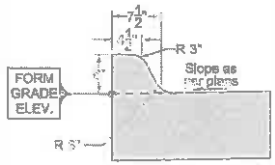
SIZE IN.	TEE OR DEAD END	90-DEG BEND	45-DEG BEND	22.5-DEG BEND	11.25-DEG BEND
4	2,715	3,839	2,078	1,059	533
6	5,609	7,932	4,293	2,189	1,100
8	9,650	13,646	7,385	3,765	1,892
10	14,516	20,528	11,109	5,664	2,846
12	20,528	29,030	15,711	8,010	4,025
16	35,669	50,442	27,299	13,917	6,992
20	54,966	77,733	42,069	21,447	10,775
24	78,419	110,901	60,020	30,597	15,374
30	120,638	170,607	92,331	47,070	23,649
36	172,814	244,397	132,266	67,428	33,878
42	233,292	329,925	178,554	91,026	45,734
48	304,025	429,956	232,691	118,625	59,600
54	384,108	543,210	293,984	149,871	75,299

MINIMUM AREA FOR THRUST BEARING, SQ. FT.
FOR TEST WATER PRESSURE OF 150 PSI

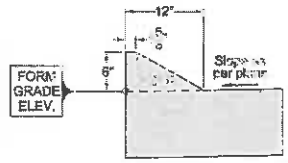
SIZE IN.	TEE OR DEAD END	90-DEG BEND	45-DEG BEND	22.5-DEG BEND	11.25-DEG BEND
4	1.4	1.9	1.0	1.0	1.0
6	2.8	4.0	2.1	1.1	1.0
8	4.8	6.8	3.7	1.9	1.0
10	7.3	10.3	5.6	2.8	1.4
12	1.03	14.5	7.9	4.0	2.0
16	17.8	25.2	13.6	7.0	3.5
20	27.5	38.9	21.0	10.7	5.4
24	39.2	55.5	30.0	15.3	7.7
30	60.3	85.3	46.2	23.5	11.8
36	86.4	122.2	66.1	33.7	16.9
42	116.6	165.0	89.3	45.5	22.9
48	152.0	215.0	116.3	59.3	29.8
54	192.1	271.6	147.0	74.9	37.6

THE ABOVE AREAS ARE BASED UPON A SOIL BEARING CAPACITY OF 2000 PSF. IF ACTUAL SOIL BEARING STRENGTH IS LESS THAN 2000 PSF, THE THRUST BEARING AREA SHALL BE INCREASED BASED ON THE ACTUAL SOIL BEARING STRENGTH.

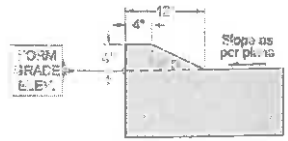
Thrust Restraint Details (Continued)



6" STANDARD CURB



6" SLOPED CURB



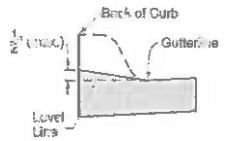
4" SLOPED CURB

For joint details, see PV-101.

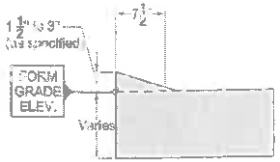
① 6" Standard Curb, 6" Sloped Curb, or 4" Sloped Curb as specified.

② ⅛" if Proposed Pavement is HMA. No elevation difference if Proposed Pavement is PCC.

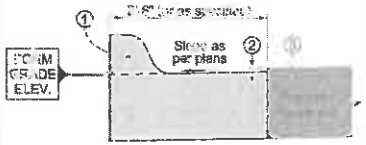
③ 'BT', 'KT', or 'L' joint if Proposed Pavement is PCC. 'B' joint if Proposed Pavement is HMA.



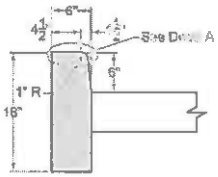
DROP CURB AT SIDEWALK



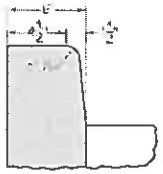
DRIVEWAY DROP CURB



CURB AND GUTTER UNIT



BEAM CURB*
*For short replacement sections, match existing curb profile



DETAIL A

FIGURE 7010.102 SHEET 1 OF 2

SUDAS | Iowa Department of Transportation | LAWSON 3 04-15-14

FIGURE 7010.102 | STANDARD ROAD PLAN | PV-102 SHEET 1 of 2

REVISIONS: Added the Joining Diagram for Curb and Gutter and page 2.

PCC CURB DETAILS

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				/ /
	CHECKED BY:				/ /
	APPROVED BY: JCM				/ /
	DATE: 4/10/15				/ /
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET U.05 OF U.17

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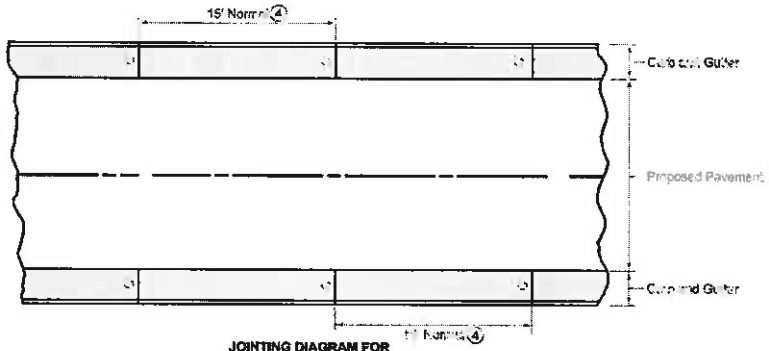
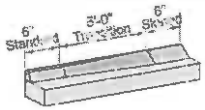


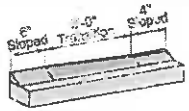
JOINTING DIAGRAM FOR CURB AND GUTTER UNIT

(4) If proposed pavement is PCC, match joint spacing for proposed pavement. Place 'E' joints in curb and gutter section where expansion joints are to be placed in proposed pavement.

CURB RUNOUT FOR ALL CURBS



CURB TRANSITION FROM 6" STANDARD TO 6" SLOPED



CURB TRANSITION FROM 6" SLOPED TO 4" SLOPED

CURB TRANSITION FROM 6" STANDARD TO 4" SLOPED

FIGURE 7010.102 SHEET 2 OF 2

SUDAS | Iowa Department of Transportation | REVISION 3 04-15-14

FIGURE 7010.102 | STANDARD ROAD PLAN | PV-102 | SHEET 2 of 2

REVISIONS: Added the Jointing Diagram for Curb and Gutter and page 2.

PCC CURB DETAILS

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				/ /
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	APPROVED BY: JCM				/ /
	DATE: 4/10/15				/ /
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
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213 1st. STREET W.
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SHEET U.06 OF U.17

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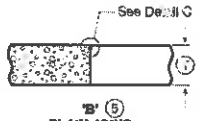
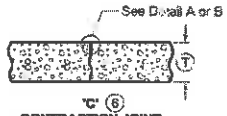
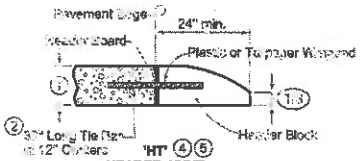


'B' ⑤
PLAIN JOINT
(Abutting Pavement Slabs)

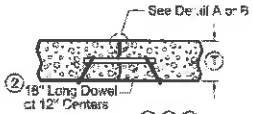
'DW' ③④⑦
DAY'S WORK JOINT(Non-working)



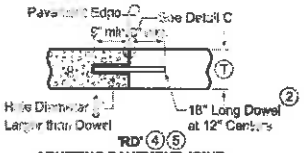
'C' ⑥
CONTRACTION JOINT



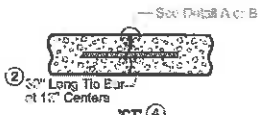
'HT' ④⑤
HEADER JOINT
(End Rigid Pavement)



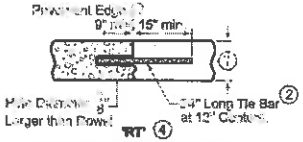
'CD' ①④⑥
DOWELED CONTRACTION JOINT



'RD' ④⑤
ABUTTING PAVEMENT JOINT



'CT' ④
TIED CONTRACTION JOINT



'RT' ④
ABUTTING PAVEMENT JOINT
RIGID TIE

TRANSVERSE CONTRACTION

① See dowel assemblies for fabrication details.

② See Bar Size Table.

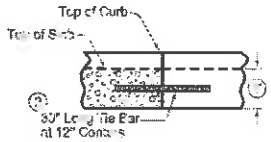
③ Locate 'DW' joint at a mid-panel location between future 'C' or 'CD' joints. Place no closer than 5 feet to a 'C' or 'CD' joint.

④ Place bars within the limits shown under dowel assemblies.

⑤ Edge with 1/4 inch tool for length of joint indicated if formed; edging not required when cut with diamond blade saw. Remove header block and board when second slab is placed.

⑥ Unless otherwise specified, use 'CD' transverse contraction joints in mainline pavement when (T) is greater or equal to 8 inches. Use 'C' joints when (T) is less than 8 inches.

⑦ 'RT' joint may be used in lieu of 'DW' joint at the end of the days work. Remove any pavement damaged due to the drilling at no additional cost to the Contracting Authority.



'DW - CG' ③④
DAY'S WORK JOINT
CURB AND GUTTER UNIT

FIGURE 7010.101 | SHEET 1 OF 8

SUDAS	IOWA DOT	REVISION 5 04-23-15
FIGURE 7010.101	STANDARD ROAD PLAN	PV-101 SHEET 1 of 8

REVISIONS: Added Detail D-D and removed language on Detail D-1 on page 4. Added Detail D-D as an option for 'K' and 'L' joints on page 5.

JOINTS

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				/ /
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	DATE: 4/10/15				/ /
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2014 SIGNAL REPLACEMENT AND
INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
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SHEET U.07 OF U.17

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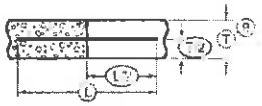
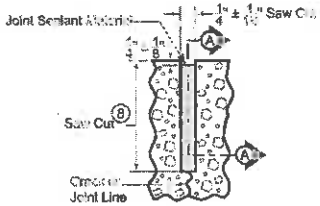
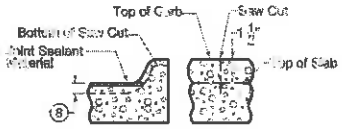


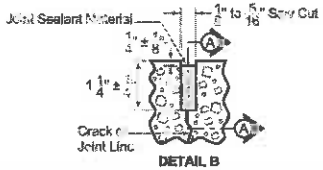
BAR PLACEMENT
(Applies to all joints unless otherwise detailed.)



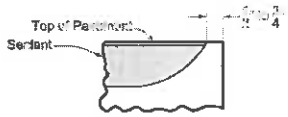
DETAIL A
(Saw cut formed by conventional concrete sawing equipment.)



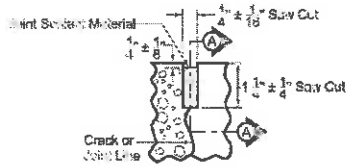
'C' JOINT IN CURB
(Match 'CT', 'CD', or 'C' joint in pavement.)



DETAIL B
(Saw cut formed by approved early concrete sawing equipment.)



SECTION A-A
(Detail at Edge of Pavement)



DETAIL C

⑧ Saw 'CD' joint to a depth of T/3 ± 1/4"; saw 'C' joint to a depth of T/4 ± 1/4".

⑨ When tying into old pavement, (T) represents the depth of sound PCC.

BAR SIZE TABLE		
(T)	Dowel Diameter	Tie Bar Size
< 8"	3/4"	#6
≥ 8" but < 10"	1 1/4"	#10
≥ 10"	1 1/2"	#11

TRANSVERSE CONTRACTION

FIGURE 7010.101 | SHEET 2 OF 6

SUDAS | IOWA DOT | REVISION 5 04-21-15

FIGURE 7010.101 | STANDARD ROAD PLAN | PV-101 | SHEET 2 of 8

REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-5 as an option for 'W' and 'T' joints on page 5.

JOINTS

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2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
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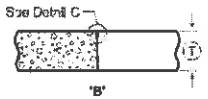
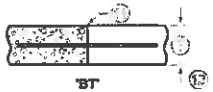
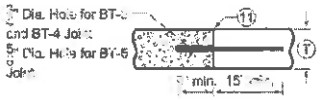


'B'
PLAIN JOINT
(Abutting Pavement Slabs)



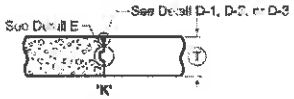
'BT'
ABUTTING PAVEMENT JOINT - RIGID TIE

T	Joint	Bars	Bar Length and Spacing
< 8"	'BT-1'	#4	36" Long at 30" Centers
≥ 8"	'BT-2'	#5	36" Long at 30" Centers

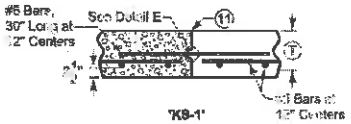


'BT'
ABUTTING PAVEMENT JOINT - RIGID TIE (Drilled)

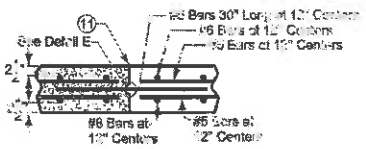
T	Joint	Bars	Bar Length and Spacing
< 8"	'BT-5'	#4	24" Long at 30" Centers
≥ 8"	'BT-3'	#5	24" Long at 30" Centers
	'BT-4'		24" Long at 16" Centers



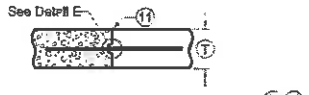
'K'
KEYED JOINT FOR ADJACENT SLABS
(Where T is 8" or more)



'KS-1'
[Single Reinforced Pavement (Bridge Approach)]



'KS-2'
[Double Reinforced Pavement (Bridge Approach)]



'KT'
ABUTTING PAVEMENT JOINT - KEYWAY TIE

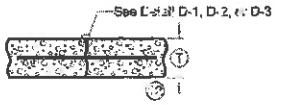
T	Joint	Bars	Bar Length and Spacing
< 8"	'KT-1'	#4	30" Long at 30" Centers
≥ 8"	'KT-2'	#5	30" Long at 30" Centers
	'KT-3'		30" Long at 15" Centers

LONGITUDINAL CONTRACTION

10 Bar supports may be necessary for fixed form paving to ensure the bar remains in a horizontal position in the plastic concrete.

11 Sawing or sealing of joint not required.

12 The following joints are interchangeable, subject to the pouring sequence:
'BT-1', 'L-1', and 'KT-1'
'KT-2' and 'L-2'
'KT-3' and 'L-3'



'L'
CONTRACTION JOINT

T	Joint	Bars	Bar Length and Spacing
< 8"	'L-1'	#4	36" Long at 30" Centers
≥ 8"	'L-2'	#5	36" Long at 30" Centers
	'L-3'		36" Long at 15" Centers

SUDAS | IOWA DOT | REV. JCH 6 04-21-15
FIGURE 7010.101 | STANDARD ROAD PLAN | PV-101 | SHEET 3 of 8
REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-3 as an option for 'K' and 'L' joints on page 8.
Robert D. Wiegand | Brian Smith
ROAD DESIGN ENGINEER | DIRECTOR, DESIGN BUREAU

JOINTS

FIGURE 7010.101 | SHEET 3 OF 8

DRAWN BY: BJJ					/ /
CHECKED BY:					/ /
APPROVED BY: JCM					/ /
DATE: 4/10/15					/ /
FIELD BOOK:	NO.	REVISION DESCRIPTION		APPROVED	DATE

PLOT DATE: Apr 13, 2015

2014 SIGNAL REPLACEMENT AND
INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

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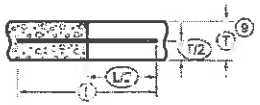
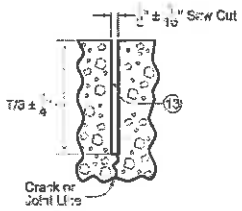


TIE BAR PLACEMENT
(Applies to all joints unless otherwise detailed.)



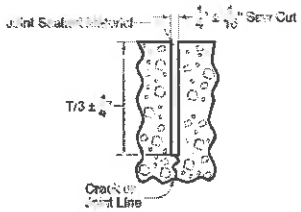
DETAIL D-1
(Required when specified in the contract documents.)

(T) When tying into old pavement, (T) represents the depth of sound PCC.

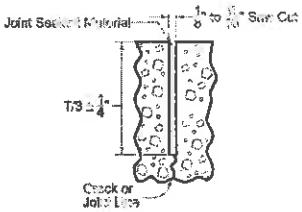
(9) Sealant or cleaning not required.

DETAIL E

KEYWAY DIMENSIONS			
Keyway Type	Pavement Thickness (T)	(A)	(B)
Standard	8" or greater	1 3/4"	2 3/4"
Narrow	Less than 8"	1"	2"



DETAIL D-2
(Required when the Department of Transportation is not the Contracting Authority, or when specified in the contract documents)



DETAIL D-3
(Required when the Department of Transportation is the Contracting Authority, or when specified in the contract documents)

FIGURE 7010.101 | SHEET 4 OF 8

LONGITUDINAL CONTRACTION

SUDAS | IOWA DOT | REVISION 8 | 04-21-15
FIGURE 7010.101 | STANDARD ROAD PLAN | PV-101 | SHEET 4 of 8

REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-2 as an option for 'A' and 'C' joints on page 5.

Paul D. Wiegand | Bruce Brown
SIGNATURE (PROJECT ENGINEER) | SIGNATURE (CONSTRUCTION ENGINEER)

JOINTS

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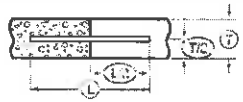
DATE: 4/10/15					/ /
FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE	

PLOT DATE: Apr 13, 2015

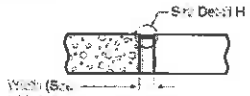
2014 SIGNAL REPLACEMENT AND
INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

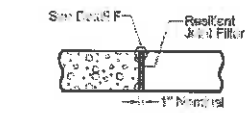


DOWEL PLACEMENT
(Applies to all joints unless otherwise detailed.)

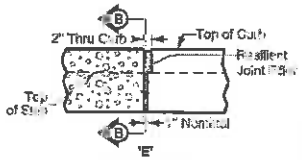


'CF' JOINT

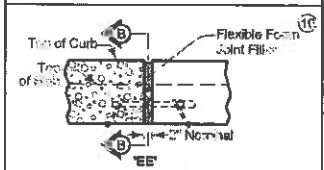
TYPE	WIDTH
CF-1	2"
CF-2	2½"
CF-3	3"
CF-4	3½"



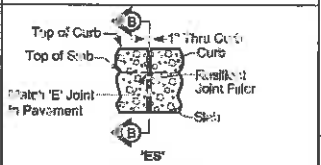
'E'
1" EXPANSION JOINT



'E'
JOINT IN CURB
(View at Back of Curb)

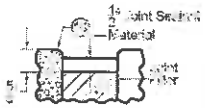


'EE'
JOINT IN CURB
(View at Back of Curb)

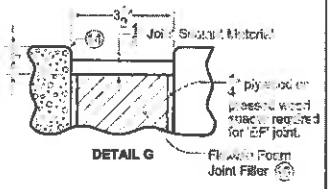


'ES'
JOINT IN CURB
(View at Back of Curb)

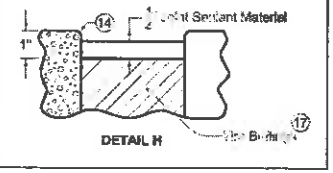
SECTION B-B



DETAIL F

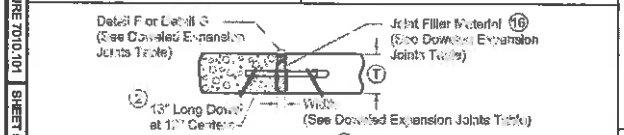


DETAIL G



DETAIL H

EXPANSION



'ED', 'EE', 'EF'
DOWELED EXPANSION JOINT

② See Bar Size Table.

④ Edge with 1/4 inch tool for length of joint indicated if formed; edging not required when cut with diamond blade saw.

⑮ See Dowel Assemblies for fabrication details and placement limits. Coat the free end of dowel bar to prevent bond with pavement. At intake locations, dowel bars may be cast-in-place.

⑯ Predrill or preform holes in joint material for appropriate dowel size.

⑰ Compact tire buffings by spading with a square-nose shovel.

DOWELED EXPANSION JOINTS		
TYPE	WIDTH	FILLER MATERIAL ⑯
ED	1"	Resilient (Detail F)
EE	2"	Flexible Foam (Detail F)
EF	3½"	Flexible Foam (Detail G)

BAR SIZE TABLE			
Ⓣ	< 8"	≥ 8" but < 10"	≥ 10"
Dowel Diameter	¾"	1¼"	1½"

SUDAS | IOWA DOT | REVISION 0 04-21-15
FIGURE 7010.101 | STANDARD ROAD PLAN | PV-101 | SHEET 5 of 8

REVISIONS: Added Detail D-4 and moved language on Detail D-1 on page 4. Added Detail D-5 as an option for 'H' and 'I' table on page 3.

JOINTS

FIGURE 7010.101 SHEET 5 OF 8

DRAWN BY: BJJ					/ /
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APPROVED BY: JCM					/ /
DATE: 4/10/15					/ /
FIELD BOOK:	NO.	REVISION DESCRIPTION		APPROVED	DATE

PLOT DATE: Apr 13, 2015

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET U.11 OF U.17

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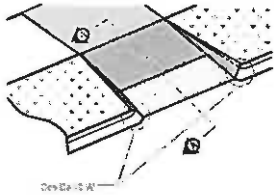
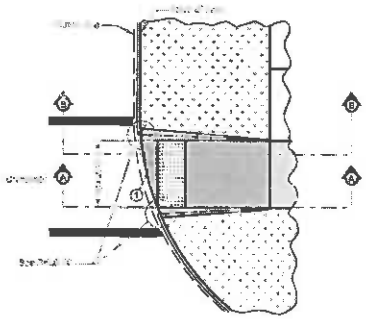


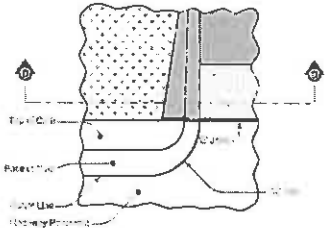
CURB RAMP PERPENDICULAR TO CURB



CURB RAMP NOT PERPENDICULAR TO CURB

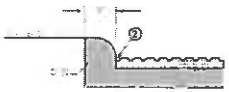
(3) Unless curb ramp is aligned perpendicular to the street radius, provide an area of special sloping at the bottom of the ramp. This area allows the grade break at the bottom of the ramp to be perpendicular to the ramp and provides a smooth transition to gutterline for wheelchair access.

(4) Use vertical curb adjacent to ramp unless flares are specified in the project plans. Install Detectable Warnings so that no gap is left between warning panel and base of curb.

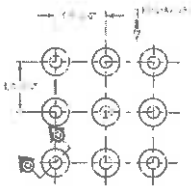


DETAIL W

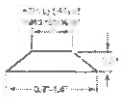
LEGEND



SECTION D-D



SQUARE PATTERN
(Parallel alignment)



SECTION C-C

DOME DETAILS ON DETECTABLE WARNINGS

Possible Contract Items:
Detectable Warnings
Sidewalk, P.C. Concrete, 6 in.
Sidewalk, P.C. Concrete, 4 in.
Removal of Sidewalk

Possible Tabulation:
113-1

Iowa Department of Transportation

STANDARD ROAD PLAN

REVISION 6 10-18-02

MI-220

SHEET 1 of 3

REVISION: Removed DETAIL B on page 2 and placed similar detail on SW-402. Modified DETAIL A on page 1.

Jeanne Neifeld
APPROVED BY DESIGN PROJECT ENGINEER

DETECTABLE WARNINGS AND PEDESTRIAN RAMP

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				/ /
	CHECKED BY:				/ /
	APPROVED BY: JCM				/ /
	DATE: 4/10/15				/ /
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET U.12 OF U.17

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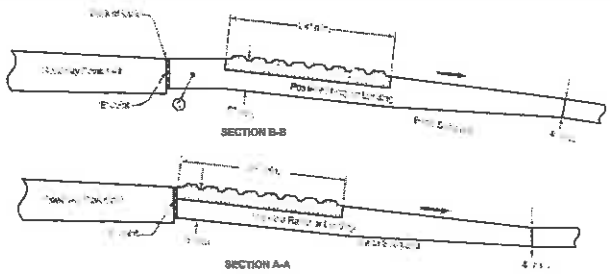
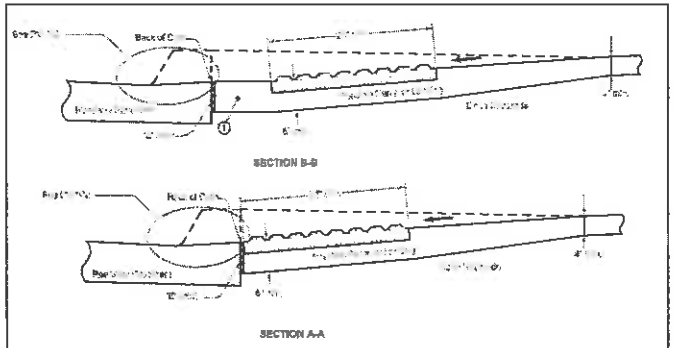


TYPICAL INSTALLATION DETECTABLE WARNING
WITH NON CURBED ROADWAY

① Unless curb ramp is aligned perpendicular to the street radius, provide an area of special shaping at the bottom of the ramp. This area allows the grade break at the bottom of the ramp to be perpendicular to the ramp and provides a smooth transition to gutterline for wheelchair access.



TYPICAL INSTALLATION DETECTABLE WARNING
WITH CURBED ROADWAY

LEGEND

- Ramp
- Landing
- Detectable Warnings
- Sidewalk

Iowa Department of Transportation

STANDARD ROAD PLAN

REVISION 5 10-16-12

MI-220

SHEET 2 of 3

REVISIONS: Removed DETAIL B on page 2 and placed similar detail on PV-102. Modified DETAIL A on page 1.

Deanna Maifeld
ADMINISTRATOR, SOFTWARE DEVELOPMENT PROGRAM

DETECTABLE WARNINGS
AND PEDESTRIAN RAMP

	DRAWN BY: BJJ				
	CHECKED BY:				
	APPROVED BY: JCM				
	DATE: 4/10/15				
PLOT DATE: Apr 13, 2015	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE

2014 SIGNAL REPLACEMENT AND
INTERSECTION IMPROVEMENT PROJECT
FIRST AVENUE (IA Hwy 1) AND FIRST STREET

SPECIAL DETAILS

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET U.13 OF U.17

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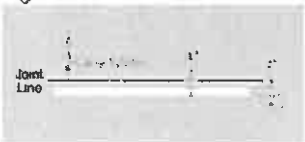
BCY4 BROKEN CENTERLINE (Yellow)

BLW4 BROKEN LANE LINE (White)

SLW4 SOLID LANE LINE (White)



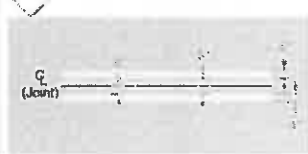
Lane layouts shown are typical.

Centerlines and lane lines may be painted either side of centerline.

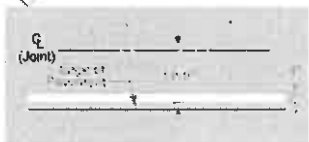
Drawings on sheets 1 and 2 are oriented to represent direction of traffic moving from left to right.

NPY4 NO PASSING ZONE LINE (Yellow)

DCY4 DOUBLE CENTERLINE (Yellow)

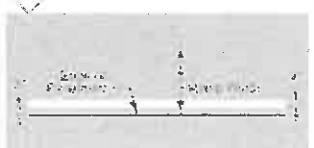


ELW4 EDGE LINE RIGHT (White)



ELY4 EDGE LINE LEFT (Yellow)

RLW4 RAMP EDGE LINE RIGHT (White)



RLY4 RAMP EDGE LINE LEFT (Yellow)

Possible Contract Item:
Pavement Marking Line Items

Possible Tabulation:
108-22

Iowa Department of Transportation

STANDARD ROAD PLAN

REVISION 1 04-16-13

PM-110

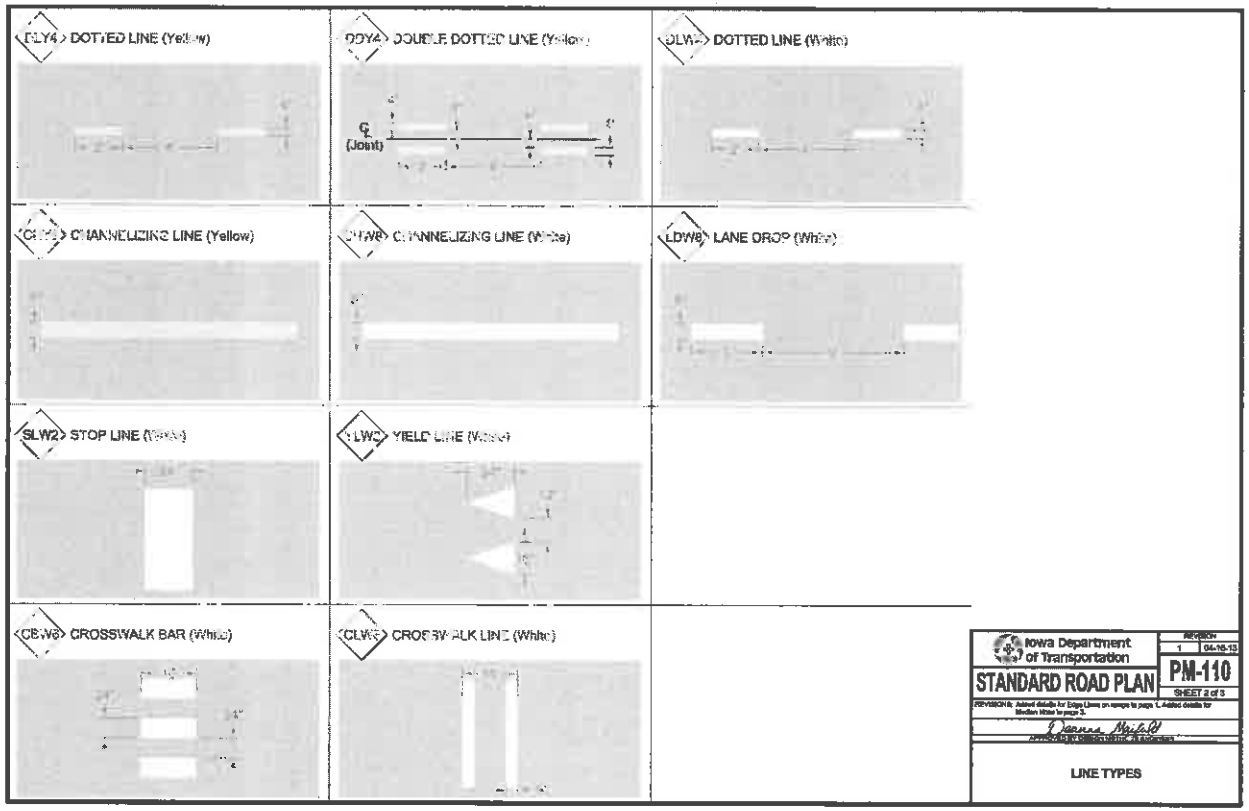
SHEET 1 of 2

REVISION(S): Added details for Edge Lines on ramps to page 1. Added details for Median Nose to page 2.

Joanna Mulfold
ASSISTANT DESIGN STANDARDS ENGINEER

LINE TYPES

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				/ /	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	SPECIAL DETAILS	CITY OF Mt. VERNON CITY HALL 213 1st. STREET W. Mt. VERNON, IOWA 52314 (319) 895-8742	SHEET U.14 OF U.17
	CHECKED BY:				/ /				
	APPROVED BY: JCM				/ /				
	DATE: 4/10/15				/ /				
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE				



Iowa Department of Transportation

STANDARD ROAD PLAN

REVISION 1 04-16-13

PM-110

SHEET 2 of 5

REVISION 1: Added details for Edge Lines on ramps to page 1. Added details for Median Mast to page 3.

Deanna Maifeld

APPROVED BY ROADWAY DESIGN ENGINEER

LINE TYPES

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ				/ /	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	SPECIAL DETAILS
	CHECKED BY:				/ /		
	APPROVED BY: JCM				/ /		
	DATE: 4/10/15				/ /		
	FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE		

CITY OF Mt. VERNON
CITY HALL
213 1st. STREET W.
Mt. VERNON, IOWA 52314
(319) 895-8742

SHEET U.15 OF U.17

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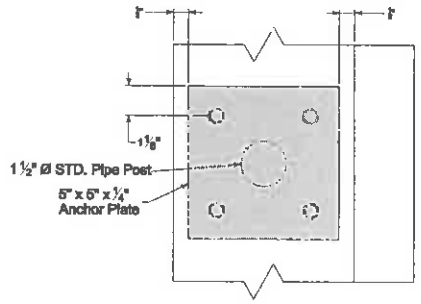
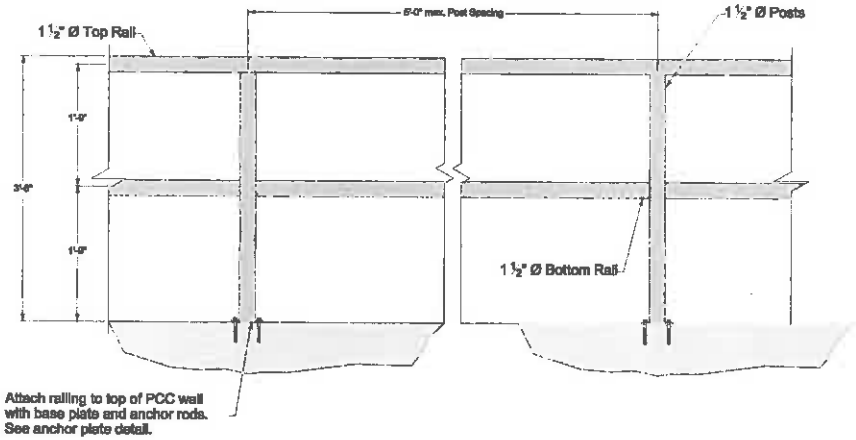
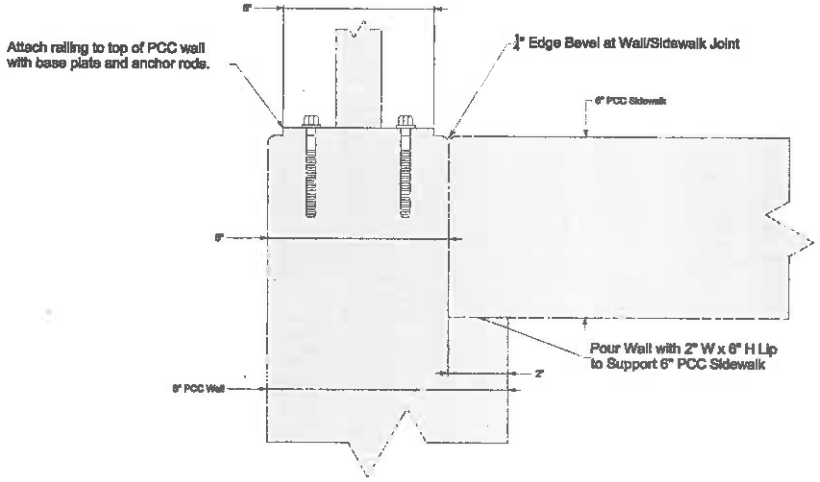
HANDRAIL DESIGN SPECIFICATIONS

1. Guardrails and handrails shall be the product of a company normally engaged in the manufacture of pipe railing.
2. The handrail shall be made of pipes joined together with component fittings and/or welded together. Samples of all components, bases, and pipe shall be submitted for approval at the request of the Engineer. Components that are pop-riveted or glued at the joints will not be acceptable. All components must be mechanically fastened with stainless steel hardware.
3. Railings shall be 1 ½" Schedule 40 steel pipe. Posts shall be 1 ½" Schedule 40 steel pipe. Post spacing shall be a maximum of 5'0".
4. Guardrails and handrails shall be designed to withstand a 200 pound concentrated load applied in any direction and at any point on the top rail.
5. The manufacturer shall submit calculations for approval at the request of the Engineer. Testing of base coatings or base extrusions by an independent lab or manufacturer's lab will be an acceptable substitute for calculations. Calculations will be required for approval of all other design aspects.
6. Posts shall not interrupt the continuation of the top rail at any point along the railing, including corners and end terminations (OSHA 1910.23). The top surface of the top railings shall be smooth and shall not be interrupted by projected fittings.
7. The mid-rail at a corner return shall be able to withstand a 200 pound load without loosening. The manufacturer is to determine this dimension for their system and provide physical laboratory tests to confirm compliance.
8. Concrete anchors shall be stainless steel type 303 or 304 and shall be furnished by the handrail manufacturer. The anchor design shall include the appropriate reduction factors for spacing and edge distances in accordance with the manufacturer's published data.
9. Railing, posts, base plates, and all other connections shall be black powder coat finish.
10. Steel surfaces in contact with concrete, grout or dissimilar metals will be protected with a coat of bituminous paint, mylar isolators or other approved material.



ANCHOR PLATE DETAIL





HANDRAIL ATTACHMENT TO PCC WALL SECTION VIEW DETAIL

Weld all components with 1/4 inch fillet welds. Grind welds and connections as required to provide a smooth surface, free of burrs.

Touch up any field welds or where needed with black paint after the installation of the hand rail.

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ CHECKED BY: APPROVED BY: JCM DATE: 4/10/15 FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	SPECIAL DETAILS	CITY OF Mt. VERNON CITY HALL 213 1st. STREET W. Mt. VERNON, IOWA 52314 (319) 895-8742

SHEET U.16 OF U.17

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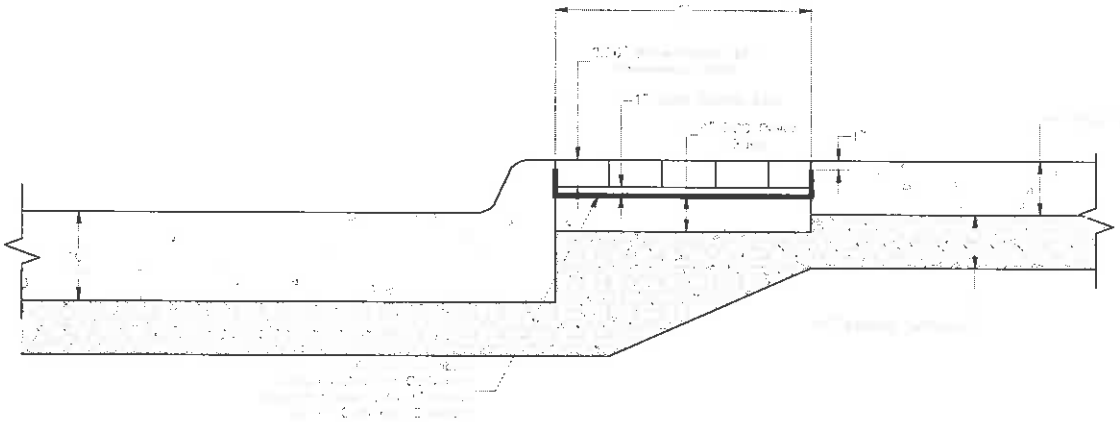
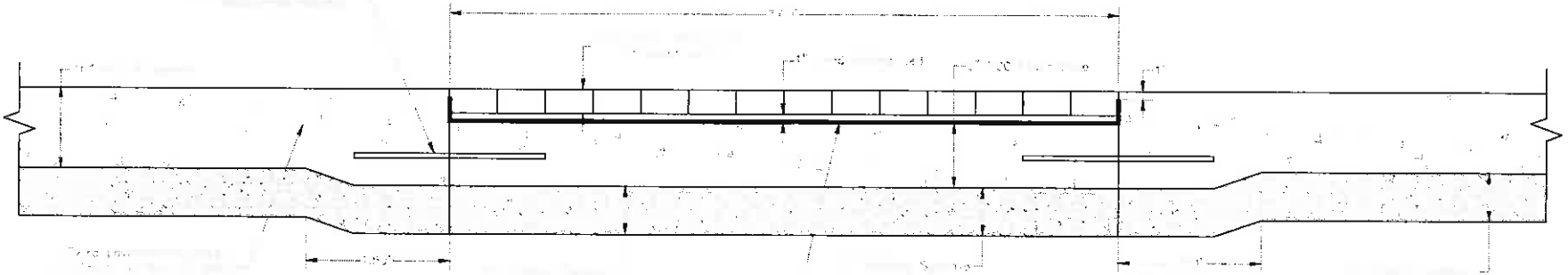


Decorative Brick Paver Borders and Highlights



Decorative Brick Paver Crosswalk

PLOT DATE: Apr 13, 2015	DRAWN BY: BJJ CHECKED BY: APPROVED BY: JCM DATE: 4/10/15 FIELD BOOK:	NO.	REVISION DESCRIPTION	APPROVED	DATE	2014 SIGNAL REPLACEMENT AND INTERSECTION IMPROVEMENT PROJECT FIRST AVENUE (IA Hwy 1) AND FIRST STREET	SPECIAL DETAILS	CITY OF Mt. VERNON CITY HALL 213 1st. STREET W. Mt. VERNON, IOWA 52314 (319) 895-8742

SHEET U.17 OF U.17

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