



STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

April 3, 2015

City of Tama
Attn: John Lloyd
305 Siegel Street
Tama, IA 50319

RE: Sanitary Sewer Rehabilitation
City of Tama
DNR Project No. S2013-0103
CWSRF No. CS1920669 01

Subject: Variance Request from 567 IAC 64.2(9) and Design Standards Section
12.4, 12.5.3 and 12.6

Dear Mr. Lloyd:

After careful and thorough consideration, the Department has approved your March 23, 2015 request for a variance from Iowa Administrative Code Subrule 64.2(9) and Chapter 12.4, 12.5.3 and 12.6 of the Iowa Wastewater Facilities Design Standards, which specifies sewer material, minimum slope for gravity sewers, and installation methods for gravity sewers.

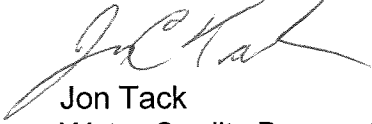
Based on the documentation presented by your Engineer, it is the determination of this Department that satisfactory justification has been presented to warrant the granting of a variance for the installation of a gravity sewer with a slope of 0.18% and installation of gravity sewers by pipe bursting methods utilizing HDPE pipe. The requested variance is deemed to be reasonable and necessary pursuant to the Iowa Code section 455B.181.

The facts presented for the project present unique circumstances and the variance is therefore justified to provide the narrowest exception possible to the provisions of the rule in accordance with Rule 561 IAC 10.5. Since the project planning and construction may last more than one year, the variance is considered to be of a permanent nature. The validity of this variance approval shall last for a period of one year from the date of the construction permit in accordance with Rule 561 IAC 10.5.

This decision is based on our review of justification presented to support the request. Our concurrence with the request is based on the Department's finding that the resulting project will provide substantially equivalent effectiveness as would be provided by technical compliance with the design standard on this issue.

Please feel free to contact Melissa Schlickbernd at 515-725-8424 or melissa.schlickbernd@dnr.iowa.gov if you have any further questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Tack", with a stylized, flowing script.

Jon Tack
Water Quality Bureau Chief

cc: Kelli Scott, P.E., Snyder & Associates (Cedar Rapids)
DNR FO #5
DNR Sewage File 6-86-70-0-02
SRF File CS1920669 01

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: April 3, 2015 2. Reviewer/Engr.: Melissa Schlickbernd 3. Date Received: March 27, 2015 4. Facility Name: City of Tama 5. Facility Number: 6-86-70-0-02 6. County Number: 86 (Tama) 7. Program Area: CP (Wastewater) 8. Facility Type: C01 (Collection/Transport) 9. Subject Area: 310a (Sewer Grade) 10. Rule Reference: 567-64.2(9)a 11. Design Std. Ref.: 12.5.3 12. Consulting Engr.: Snyder & Associates 13. Variance Rule: 567-64.2(9)c	14a. Decision: <i>4/7/15 DCF Approved</i> Date: Expiration Date (if any): 14b. 15. Appealed: Date:
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16. Description of Variance Request:

The City of Tama is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 12 - Iowa Standards for Sewer Systems - 12.5.3 (Slope) for the replacement of one section of existing 8-inch gravity sanitary sewer line at a slope less than those specified in the design standards. The slope proposed is 0.18% in lieu of the required minimum slope of 0.40%.

17. Applicant's/Consulting Engineer's Justification:

The proposed 8-inch sanitary sewer replacement from MH 68W to MH 67W on Harding Street, as shown on Sheet D.03, is limited to the slope of the existing sewer due to the positioning of both the upstream and downstream sewer main.

The City has not had problems with sewer back-ups in the area of the variance requested 0.18% slope. They do have resources available for mitigating sewer backups and have facilitated these efforts in many other parts of town.

18. Department's Justification:

Recommend variance approval.

With the fixed upstream and downstream elevations and the elevation of the service lines in the existing system, a great deal of additional work and expense would be required to install the sewer line at the slightly steeper required slope of 0.40%.

The proposed slope of 0.18% gives a velocity of 1.55 fps at 3/4 depth and 1.34 fps at full flow. Proposed design flow for this portion of sewer is 0.031MGD and the design capacity of an 8-inch sewer line installed at 0.18% is 0.301MGD. Therefore installing the sewer line at 0.18% will provide adequate capacity.

The City confirmed that the existing sanitary sewer line that has been in operation for many years at a slope of 0.18% has not posed any additional maintenance issues in the past but they do have resources available to mitigate any issues should they occur.

19. Precedents Used:

Iowa Great Lakes Sanitary District - Approved 3/24/15
City of Dewitt - Approved 1/20/15
City of Manson - Approved 11/3/14
City of Cedar Rapids - Approved 8/26/13

20. Staff Reviewer:

Melissa Schmitt

*LUB
4/3/15*

Date:

4-3-15

21. Supervisor:

Satya Chennupati

Date:

4/7/15

22. Authorized by:

Jr [Signature]

Date:

4/7/15

VARIANCE REQUEST
Iowa Department of Natural Resources

1. Date: April 3, 2015	14a. Decision: 4/7/15 JED Approved
2. Reviewer/Engr.: Melissa Schlickbernd	Date: Expiration Date
3. Date Received: March 27, 2015	14b. (if any):
4. Facility Name: City of Tama	
5. Facility Number: 6-86-70-0-02	
6. County Number: 86 (Tama)	15. Appealed:
7. Program Area: CP (Wastewater)	Date:
8. Facility Type: C01 (Collection/Transport)	
9. Subject Area: 392b (Pipe Bursting-Materials) and	
10. Rule Reference: 392c (Pipe Bursting-Installation)	
11. Design Std. Ref.: 567-64.2(9)a	
12. Consulting Engr.: 12.4 (Materials); 12.6 (Details of	
13. Variance Rule: Construction)	
13. Variance Rule: Snyder & Associates	
13. Variance Rule: 567-64.2(9)c	

16. Description of Variance Request:

The City of Tama is requesting variance from the Iowa Wastewater Facilities Design Standards Chapter 12 - Iowa Standards for Sewer Systems - 12.4 (Materials) and 12.6 (Details of Construction) for the installation of gravity sewers by pipe bursting utilizing HDPE (high density polyethylene) pipe. The proposed sewer material and installation method is not covered in the Iowa Wastewater Facilities Design Standards.

17. Applicant's/Consulting Engineer's Justification:

To minimize impacts to existing infrastructure, pipe bursting is being considered as an alternative construction measure. Proposed 8-inch sanitary sewer replacement, as shown in the "Sanitary Sewer Pipe Bursting Table - Alternate Bid" on Sheet C.06, indicates sections of proposed sanitary sewer pipe lining or pipe replacement that may alternately be performed as pipe bursting. Pipe bursting is being bid as an alternate and will be ultimately decided following the bid letting, dependent upon relative pricing. These bid items are for pipe bursting utilizing HDPE pipe in lieu of open cut installation utilizing AWWA C900 pipe. HDPE is the pipe material commonly used for pipe bursting sewer installations.

18. Department's Justification:

Recommend variance approval.

Pipe bursting has been approved by the Department by variance at many other locations in the past. The proposed installation makes a clear improvement over the existing condition of the sewer line and these methods are justified by the interference of the existing properties.

Based on previous documentation provided to the Department, use of pipe bursting as a trenchless technology provides an established and acceptable technology for installation in an innovative manner not covered by the Iowa Wastewater Facilities Design Standards.

The submitted construction drawings show that installing this sewer by open trench methods would result in the site disruption for several property owners in that area. The use of the pipe bursting technology will eliminate the potential disruption and damage of the standard open trench installation method and could provide a cost savings. The Engineer and City will be able to verify cost savings by bidding pipe bursting as an add alternate.

19. Precedents Used:

City of Cedar Rapids - Approved 4/8/13
City of Cedar Rapids - Approved 12/10/13
City of Lowden - Approved 10/2/12
City of Grimes - Approved 3/10/10

20. Staff Reviewer:

Melissa Schlicker

4/3/15

Date:

4-3-15

21. Supervisor:

Jatya Chennupati

Date:

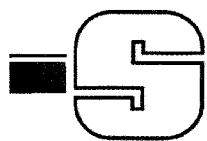
4/7/15

22. Authorized by:

Just MC

Date:

4/7/15



ENGINEERS & PLANNERS
SNYDER & ASSOCIATES, INC.

IOWA | MISSOURI | NEBRASKA | SOUTH DAKOTA | WISCONSIN

March 23, 2015

Jeremy Enano, P.E.
 Iowa Department of Natural Resources
 Wallace State Office Building
 502 E. 9th Street
 Des Moines, IA 50319

RE: City of Tama Sanitary Sewer Rehabilitation S2013-0103
 Wastewater Construction Variance Request

Dear Jeremy:

Per 561 Iowa Administrative Code (IAC) Chapter 10, the City of Tama is requesting a variance to the Iowa Department of Natural Resources (IDNR) Wastewater Facilities Design Standards for the above referenced project and issuance of the related Construction Permit. The applicable Construction Permit applications, fee form and fee were submitted to you on March 19, 2015.00

The following information has been provided per the IDNR's Variance Request Guidance document:

1. The name, address and telephone number of the entity or person for whom a waiver or variance is requested:
 - a. City of Tama
 Representative: John Lloyd, Public Works Director
 305 Siegel Street
 Tama, IA 52339
 (641) 484-3822
2. A description and citation of the specific rule from which a waiver or variance is requested:
 - a. A variance is requested for the methods and details of construction as cited in Chapter 12, Sections 12.4, 12.5, and 12.6 of the IDNR Wastewater Facilities Design Standards.
3. The specific waiver or variance requested, including the precise scope and operative period that the waiver or variance will extend:
 - a. The variance requested is use of HDPE (high-density polyethylene) pipe material for installation of the proposed sanitary sewer piping in lieu of pipe materials outlined in Chapter 12, Section 12.4.

- i. Scope of the variance relates to the bid alternate sections of sanitary sewer main proposed for this project.
 - ii. The variance will extend from construction through the design life of the proposed sanitary sewer main.
 - b. The variance requested is a pipe slope of less than the minimum slope as outlined in Chapter 12, Section 12.5.
 - i. Scope of the variance relates to the 8" section from MH 68W to MH 67W on Harding Street, as shown on Sheet D.03.
 - ii. The variance will extend from construction through the design life of the proposed sanitary sewer main.
 - c. The variance requested is the use of pipe bursting for installation of the proposed sanitary sewer piping in lieu of installation method as outlined in Chapter 12, Section 12.6.
 - i. Scope of the variance relates to the bid alternate sections of the sanitary sewer main proposed for this project.
 - ii. The variance will extend from construction through the design life of the proposed sanitary sewer main.
- 4. The relevant facts that the petitioner believes would justify a waiver or variance:
 - a. To minimize impacts to existing infrastructure, pipe bursting is being considered as an alternative construction measure. Proposed 8" sewer replacement, as shown in the "Sanitary Sewer Pipe Bursting Table – Alternate Bid" on Sheet C.06, indicates sections of proposed sanitary sewer pipe lining or pipe replacement that may alternately performed as pipe bursting. Pipe bursting is being bid as an alternate and will be ultimately decided following the bid letting, dependent upon relative pricing. These bid items utilize HDPE pipe in lieu of open cut installation of AWWA C900 pipe as specified for the remainder of the project. HDPE is the pipe material commonly used for pipe bursting sewer installations.
 - b. Proposed 8" sewer replacement from MH 68W to MH 67W on Harding Street, as shown on Sheet D.03, is limited to the slope of the existing sewer due to the positioning of both upstream and downstream sewer main.
- 5. The history of prior contacts between the Department and the petitioner for the past five years:
 - a. Within the last five years, there have been no administrative orders, contested case proceedings, and/or lawsuits between the petitioner and the Department. A Notice of Violation was issued on December 12, 2013 for wastewater bypass. The City of Tama operates under a current, non-expired, NPDES Permit No. 867002.


6. Information known to the petitioner regarding the Department's treatment of similar cases:
 - a. The Engineer and Applicant understand that variances from Chapter 12, Sections 12.4 and 12.6 allowing pipe bursting construction of sanitary sewers have been granted on multiple occasions.
7. The name, address, and telephone number of any public agency or political subdivision of the state or federal government which also regulates the activity in question, or might be affected by the granting of a waiver or variance:
 - a. At this time we are unaware of other public agency or political subdivisions of the state or federal government that also regulate the activity in questions, or might be affected by the granting of the variance being requested.
8. The name, address, and telephone number of any person or entity that would be adversely affected by the granting of the petition:
 - a. At this time we are unaware of any person or entity that would be adversely affected by the granting of the petition.
9. The identity of those having knowledge of relevant facts concerning the variance:
 - a. John Lloyd, Public Works Director, City of Tama, IA, 305 Siegel Street, Tama, IA, 52339, Office: (563) 379-7483
 - b. Kelli Scott, P.E., Project Engineer, Snyder & Associates, 5005 Bowling St. SW, Suite A, Cedar Rapids, IA 52404, Office: 319.362.9394
10. Signed release:

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.



John Lloyd, Public Works Director, City of Tama

I attest to the accuracy of the facts provided in the petition and the reasons as listed to justify issuance of the variance request.

	I hereby certify that this Engineering Document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the Laws of the State of Iowa.	
	<u>Kelli Scott</u>	<u>3-26-15</u>
	Kelli J. Scott, P.E.	Date
	License Number 19975	
	My License Renewal Date is December 31, 2015	
	Pages or sheets covered by this Seal:	
	<u>Entire Document</u>	

Please feel free to contact me at (319) 362-9394 with any questions pertaining to this variance request. Snyder & Associates, Inc. and the City of Tama would appreciate any efforts to expedite review and approval of this variance request for issuance of the Construction permit.

Sincerely,

SNYDER & ASSOCIATES, INC.

Kelli Scott

Kelli Scott, P.E.
Project Manager

CC: John Lloyd, City of Tama

CITY OF TAMA

305 SIEGEL STREET
Tama, Iowa 52339
641-484-3822 Fax: 641-484-2715
Website: www.tamacity.govoffice2.com
Email: tamacity@iowatelecom.net

April 03, 2015

Department of Natural Resources
Attn: Melissa Schlickbernd, Environmental Engineer
502 E 9th Street
Des Moines, IA 50319

RE: Variance Request – 0.18% Slope

Dear Ms. Schlickbernd:

The City of Tama has not had any previous problems with sewer backups with the section of sewer main between manhole 67W and manhole 68W. The City of Tama does have some resources on hand to mitigate small backups when they occur in other portions of the sewer, but if the backup is too large mitigation is typically handled by Municipal Pipe Tool Company LLC.

Sincerely,



John Lloyd
Public Works Director

Cc: Kelli Scott, P.E., Snyder and Associates

Sanitary Sewer Pipe Patching Table

SHEET NO.	LOCATION	STATION @ BEG	STATION @ END	LENGTH OF REPAIR (In)	PIPE DIAMETER (In)	ESTIMATED SERVICES
D.01	Harding St	104+71	104+73	24	8	0
D.01	Harding St	105+93	105+97	48	8	0
D.01	Harding St	106+59	106+61	24	8	0
D.02	Harding St	116+25	116+27	24	8	0
D.02	Harding St	118+07	118+09	24	8	0
D.02	Harding St	120+73	120+77	48	8	0
D.04	Grant St	157+46	157+48	24	8	0
D.05	Siegel St	202+24	202+26	24	8	0
D.05	Siegel St	210+23	210+27	48	8	0
D.06	McClellan St	254+80	254+82	24	8	1
D.06	McClellan St	254+96	254+98	24	8	0
D.07	McClellan St	255+67	255+69	24	8	0
D.08	McClellan St	276+48	276+50	24	8	0
D.09	State St	319+83	319+85	24	8	0
D.09	Harmon St	352+58	352+66	96	8	2
D.11	Hall St	404+44	404+48	48	8	0
D.15	Wilson St	508+68	508+76	96	8	0
D.16	E 6th St	552+40	552+44	48	10	0
D.17	E 6th St	561+14	561+24	120	10	0
D.18	McClellan St	803+28	803+30	24	8	0
D.18	McClellan St	804+54	804+58	48	8	0
D.19	McClellan St	806+60	806+62	24	8	1
D.20	E 5th St	1004+50	1004+54	48	8	1
D.20	E 5th St	1009+85	1009+87	24	8	0
D.21	E 5th St	1012+99	1013+03	48	8	0
D.21	E 5th St	1019+26	1019+30	48	8	0
D.21	E 5th St	1020+52	1020+54	24	8	0

* - Length shall be centered on repair station, Contractor to verify patch location and make minor adjustments before placing the patch.

Sanitary Sewer Pipe Lining Table

SHEET NO.	LOCATION	UPSTREAM MH	DOWNSTREAM MH	STATION @ BEG	STATION @ END	LENGTH (Ft)	PIPE DIAMETER (In)	ESTIMATED SERVICES
D.01	Harding St	43W	44W	100+86	104+51	365	8	7
D.04	Grant St	76W	77W	150+68	154+78	410	8	7
D.04	Grant St	77W	78W	154+78	158+85	407	8	8
D.05	Siegel St	84W	83W	204+84	208+95	411	8	7
D.09/D.10	Harmon St	104E	103E	350+70	354+32	362	8	6
D.11	Hall St	101EA	100E	400+71	404+33	362	8	7
D.11	Hall St	102E	101E	404+65	407+91	326	8	6
D.12	Oswego St	96E	95E	420+70	424+24	354	8	7
D.12	Oswego St	97E	96E	424+24	424+80	56	8	1
D.12	Oswego St	98E	97E	424+80	427+90	310	8	6
D.12/D.13	Oswego St	99E	98E	427+90	431+05	315	8	8
D.13	W 6th St	25W	44W	600+76	603+58	282	12	5
D.14	Park St	91E	90E	450+72	454+31	359	8	7
D.14	Park St	91EA	91E	454+31	456+35	204	8	4
D.14	Park St	91EB	91EA	456+35	457+22	87	8	3
D.14	Park St	92E	91EB	457+22	457+93	71	8	1
D.14	Park St	93E	92E	457+93	461+09	316	8	6
D.15	Wilson St	85E	84E	503+90	507+48	358	8	9
D.15/D.16	Wilson St	86E	85E	507+48	511+11	363	8	8
D.16	Wilson St	87E	86E	511+11	513+75	264	8	7
D.16/D.17	E 6th St	100E	95E	554+06	557+38	332	10	4
D.18	Grant St	25W	24W	175+47	178+60	313	10	6

ALTERNATE BID INFORMATION

Sanitary Sewer Pipe Bursting Table - ALTERNATE BID

SHEET NO.	LOCATION	UPSTREAM MH	DOWNSTREAM MH	STATION @ BEG	STATION @ END	LENGTH (Ft)	PIPE DIAMETER (In)	ESTIMATED SERVICES
D.09	Harmon St	104E	103E	350+70	354+32	363	8	6
D.10	Harmon St	105E	104E	354+32	357+49	317	8	4
D.11	Hall St	101EA	100E	400+71	404+33	362	8	7
D.14	Park St	91E	90E	450+72	454+31	359	8	7
D.14	Park St	91EA	91E	454+31	456+35	204	8	4
D.14	Park St	91EB	91EA	456+35	457+22	87	8	2
D.14	Park St	92E	91EB	457+22	457+93	71	8	1
D.14	Park St	93E	92E	457+93	461+09	316	8	6

Sanitary Sewer Service Stub Table - ALTERNATE BID

SHEET NO.	LOCATION	SIDE	LENGTH OF SERVICE* (Ft)
D.09	111 E 7th St	LT	16.00
D.09	707 Harmon St	LT	16.00
D.09	708 Harmon St	RT	14.00
D.09	709 Harmon St	LT	16.00
D.09	710 Harmon St	RT	14.00
D.09	711 Harmon St	LT	16.00
D.10	800 Harmon St	RT	15.00
D.10	804 Harmon St	RT	15.00
D.10	808 Harmon St	RT	15.00
D.10	810 Harmon St	RT	15.00
D.14	600 Park St	RT	12.00
D.14	601 Park St	LT	17.00
D.14	604 Park St	RT	12.00
D.14	607 Park St	LT	17.00
D.14	609 Park St	LT	17.00
D.14	610 Park St	RT	12.00
D.14	611 Park St	LT	17.00
D.14	4019 E 7th St	LT	15.00
D.14	702 Park St	RT	14.00
D.14	704 Park St	RT	14.00
D.14	705 Park St	LT	15.00
D.14	708 Park St	RT	14.00
D.14	710 Park St	RT	14.00
D.14	711 Park St	LT	15.00
D.14	800 Park St	RT	14.00
D.14	801 Park St	LT	15.00
D.14	805 Park St	LT	15.00
D.14	806 Park St	RT	14.00
D.14	809 Park St	LT	15.00
D.14	810 Park St	RT	14.00

* - New sanitary service lengths should extend 2 feet beyond the Back of Curb.

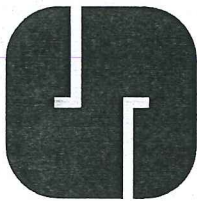
SANITARY SEWER SYSTEM IMPROVEMENTS

GENERAL NOTES AND QUANTITIES

TAMA, IA

SNYDER & ASSOCIATES, INC.

5005 BOWLING STREET S.W.
CEDAR RAPIDS, IA 52404
319-362-9394 | www.snyder-associates.com



Project No: 1130746

Sheet C.06

Sheet C.06

Project No: 1130746

MARK

Engineer: AJB

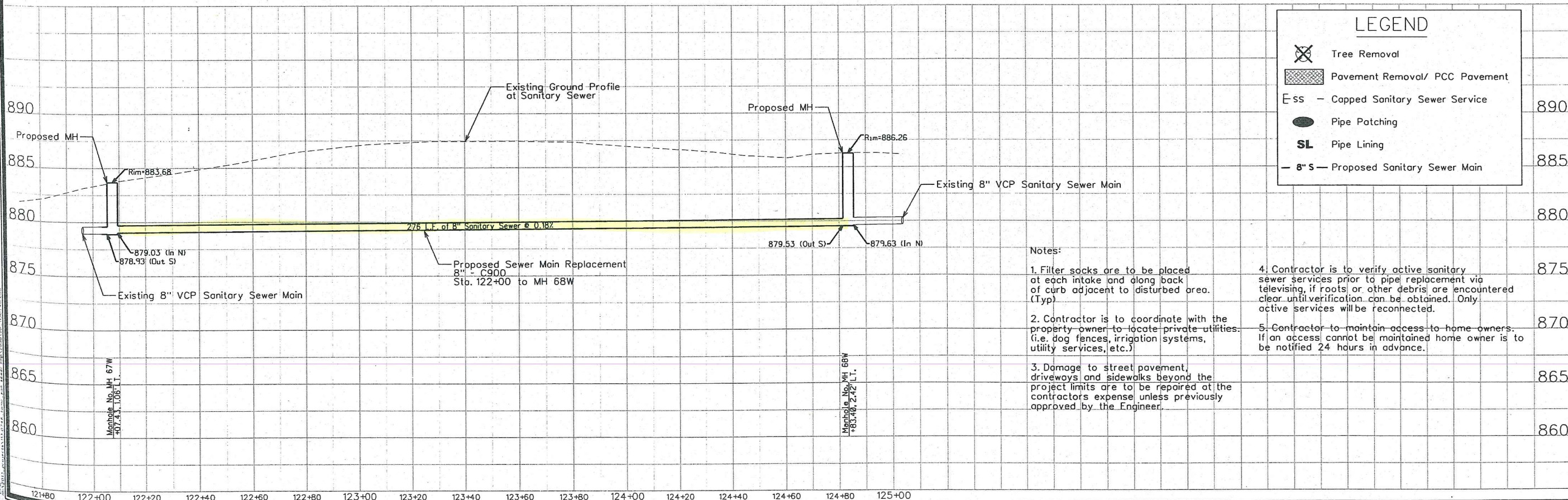
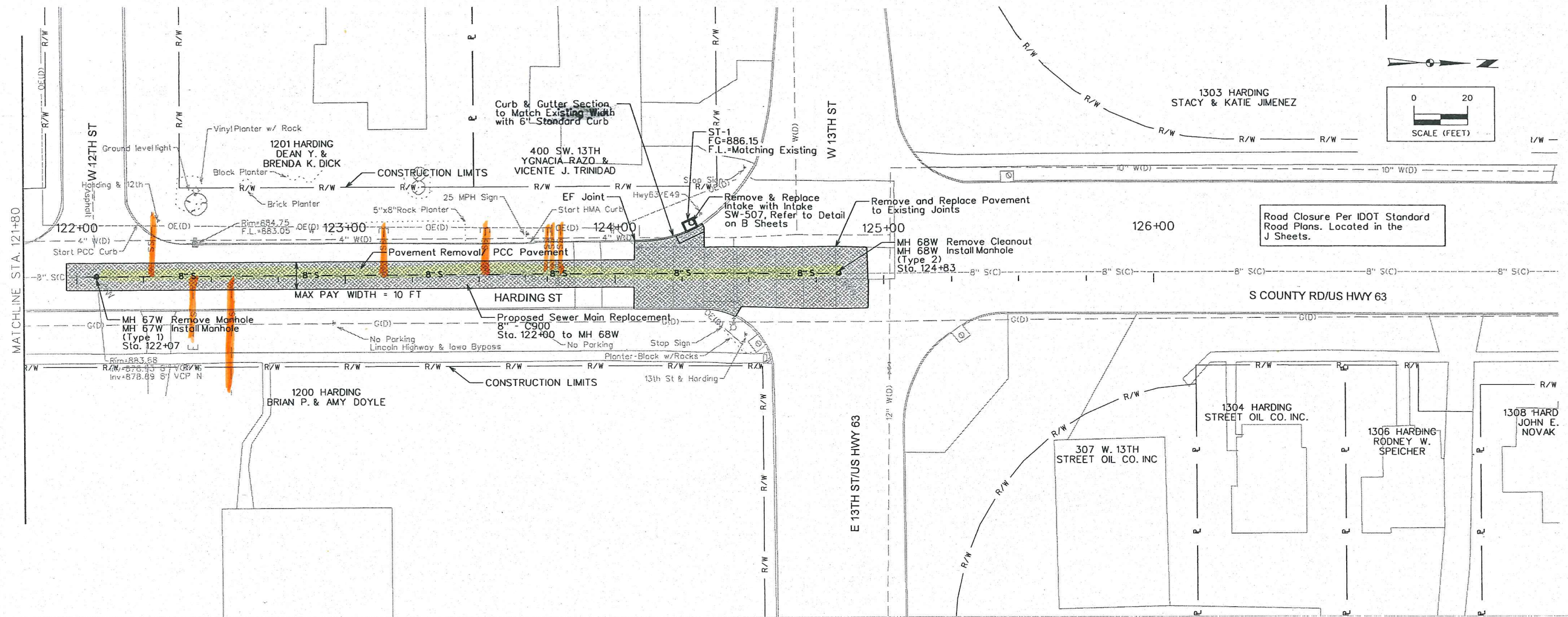
Checked By: KJS

DATE: 11-15

Scale: 1"= 1'

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BY



LEGEND

- Tree Removal
- Pavement Removal/ PCC Pavement
- 8" S - Capped Sanitary Sewer Service
- Pipe Patching
- SL Pipe Lining
- 8" S - Proposed Sanitary Sewer Main

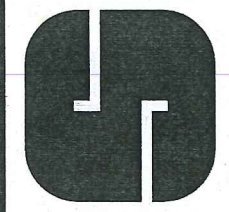
- Notes:**
1. Filter socks are to be placed at each intake and along back of curb adjacent to disturbed area. (Typ)
 2. Contractor is to coordinate with the property owner to locate private utilities (i.e. dog fences, irrigation systems, utility services, etc.)
 3. Damage to street pavement, driveways and sidewalks beyond the project limits are to be repaired at the contractor's expense unless previously approved by the Engineer.
 4. Contractor is to verify active sanitary sewer services prior to pipe replacement via televising, if roots or other debris are encountered clear until verification can be obtained. Only active services will be reconnected.
 5. Contractor to maintain access to home owners. If an access cannot be maintained home owner is to be notified 24 hours in advance.

SANITARY SEWER SYSTEM IMPROVEMENTS

SANITARY SEWER PLAN AND PROFILE VIEW

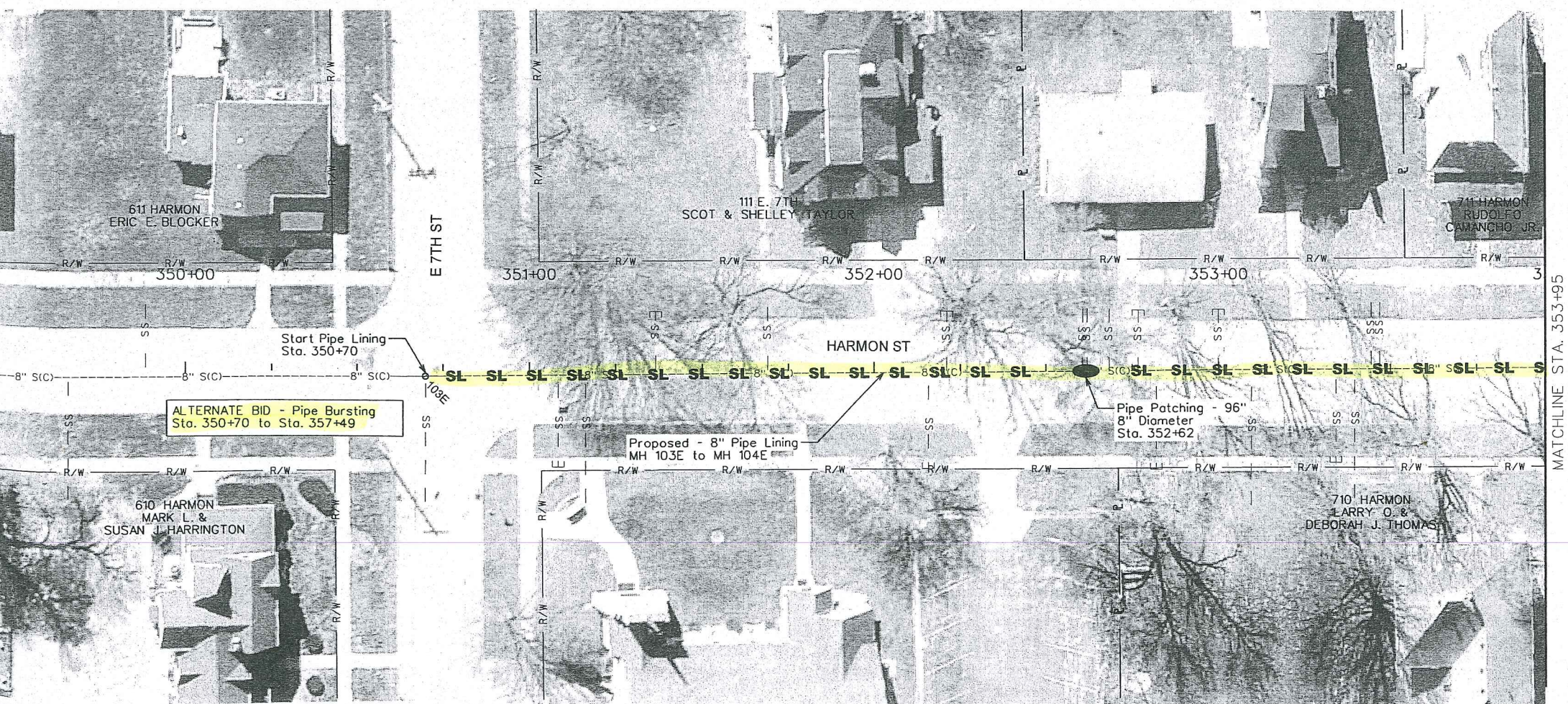
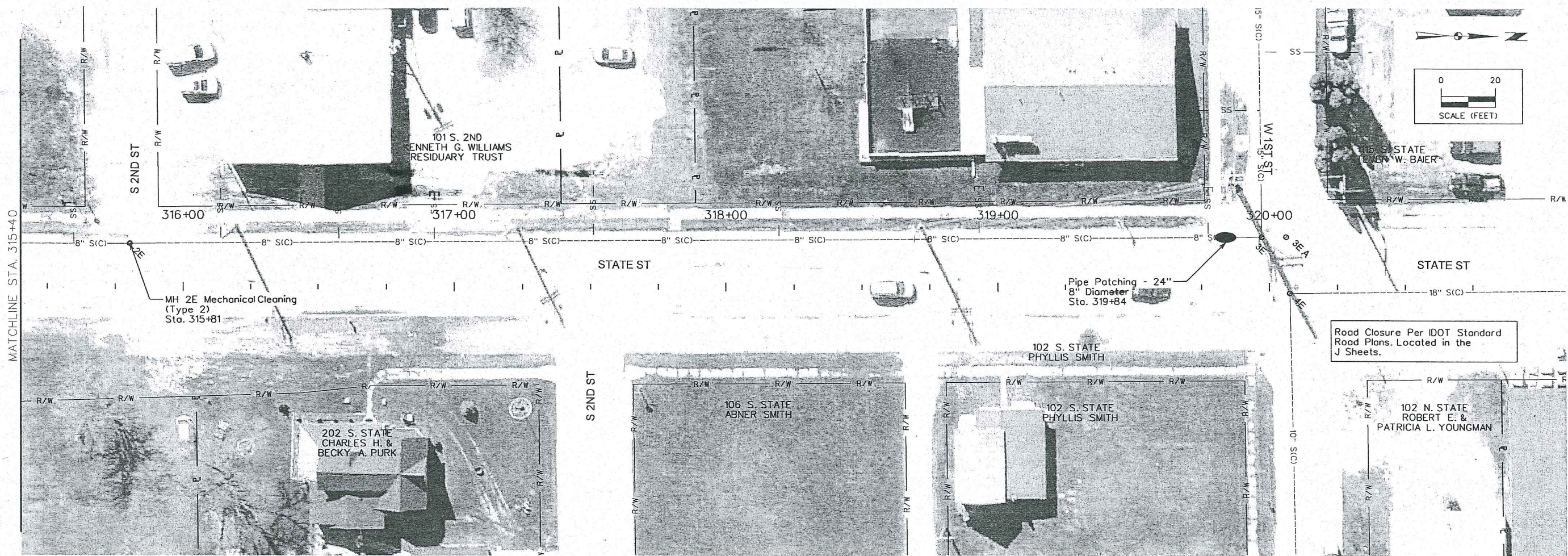
SNYDER & ASSOCIATES, INC.

5005 BOWLING STREET S.W.
CEDAR RAPIDS, IA 52404
319-362-9394 | www.snyder-associates.com



Project No: 1130746
Sheet D.03

MARK	REVISION	DATE	BY
1	Check By: KJS	11-20	
2	Engineer: AJB	03-16-15	
3	Technician: AJB		
Project No: 1130746			Sheet D.03



LEGEND	
	Tree Removal
	Pavement Removal/ PCC Pavement
	Capped Sanitary Sewer Service
	Pipe Patching
	Pipe Lining
	Proposed Sanitary Sewer Main

MARK	REVISION	DATE	BY
Engineer: AUB	Checked By: KJS	Scale: 1"=20'	
Technician: AUB	Date: 03-16-15	Field Bk:	Pg:
Project No:	1130746	Sheet	D.09

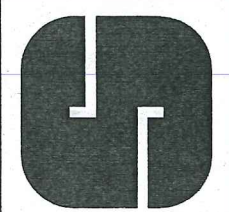
SANITARY SEWER SYSTEM IMPROVEMENTS

SANITARY SEWER PLAN AND PROFILE VIEW

SNYDER & ASSOCIATES, INC.

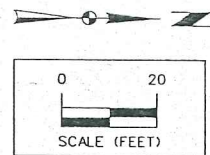
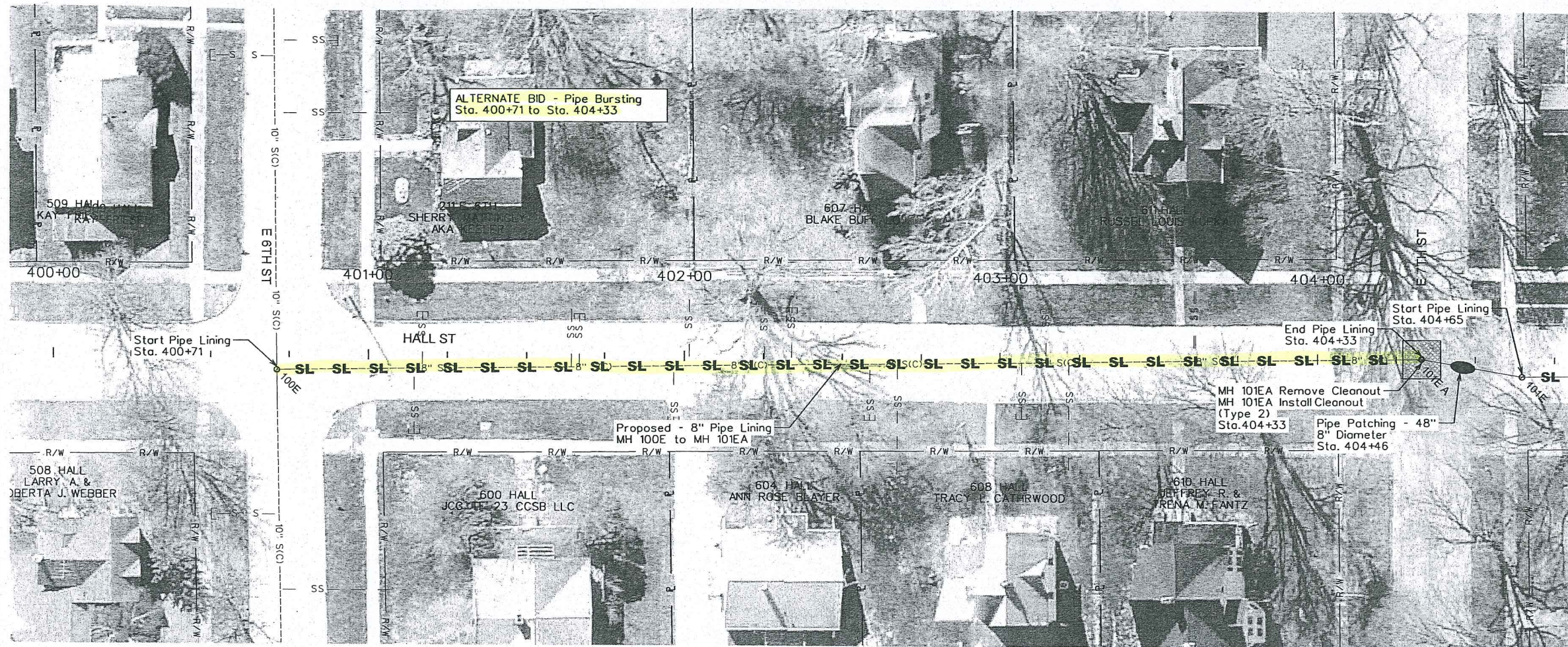
5005 BOWLING STREET S.W.
CEDAR RAPIDS, IA 52404
319-362-9394 | www.snyder-associates.com

TAMA, IA

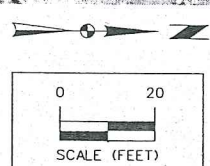
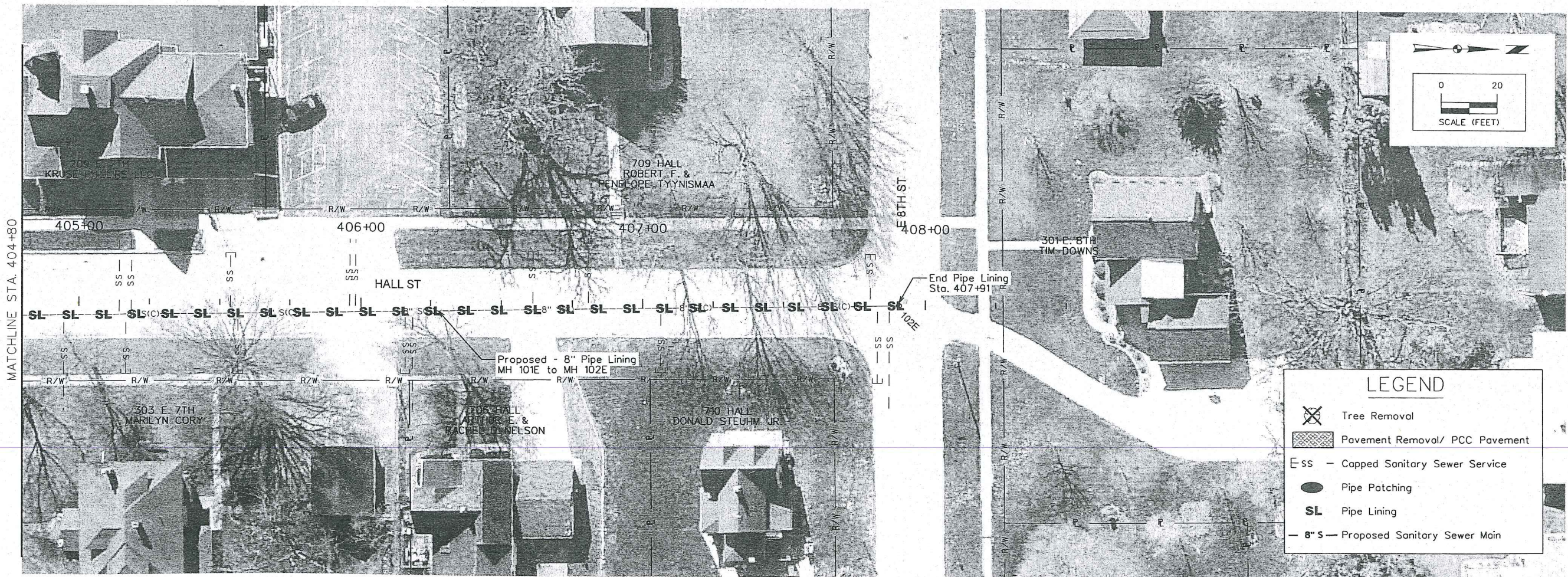


Project No: 1130746

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MATCHLINE STA. 404+80



LEGEND

- Tree Removal
- Pavement Removal/ PCC Pavement
- Capped Sanitary Sewer Service
- Pipe Patching
- Pipe Lining
-

SANITARY SEWER SYSTEM IMPROVEMENTS

SANITARY SEWER PLAN AND PROFILE VIEW

SNYDER & ASSOCIATES, INC.

5005 BOWLING STREET S.W.
CEDAR RAPIDS, IA 52404
319-362-9394 | www.snyder-associates.com

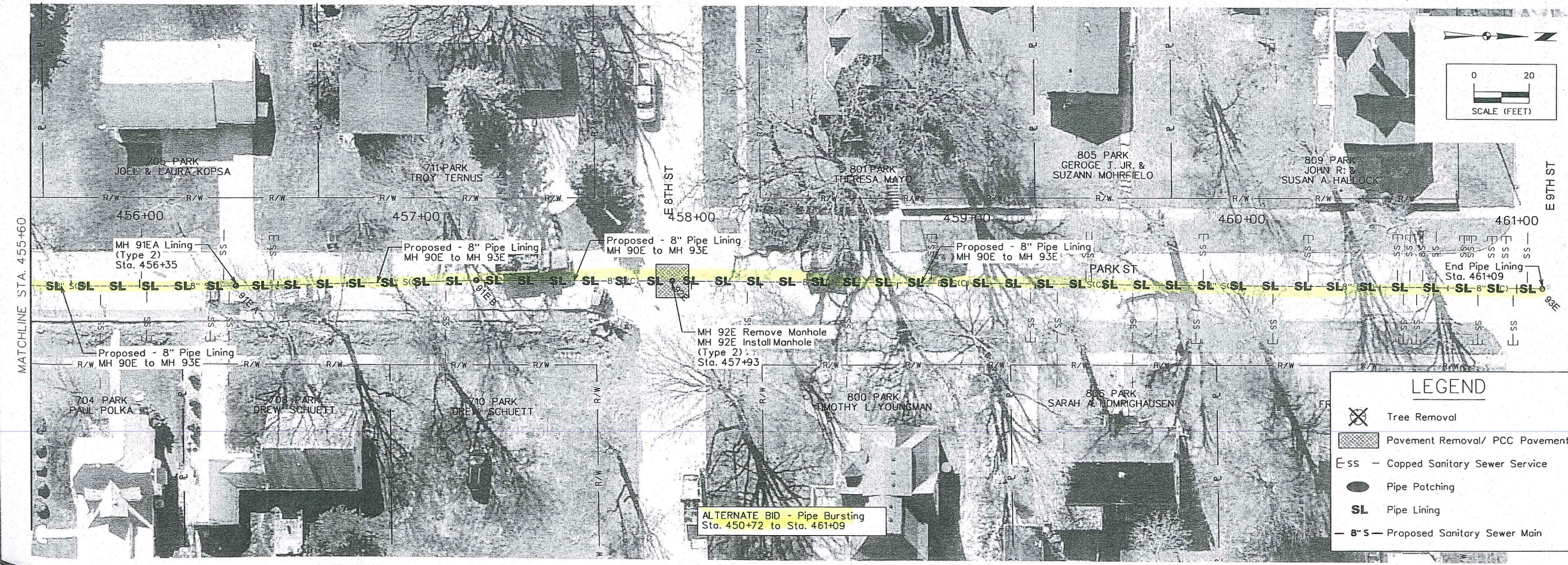
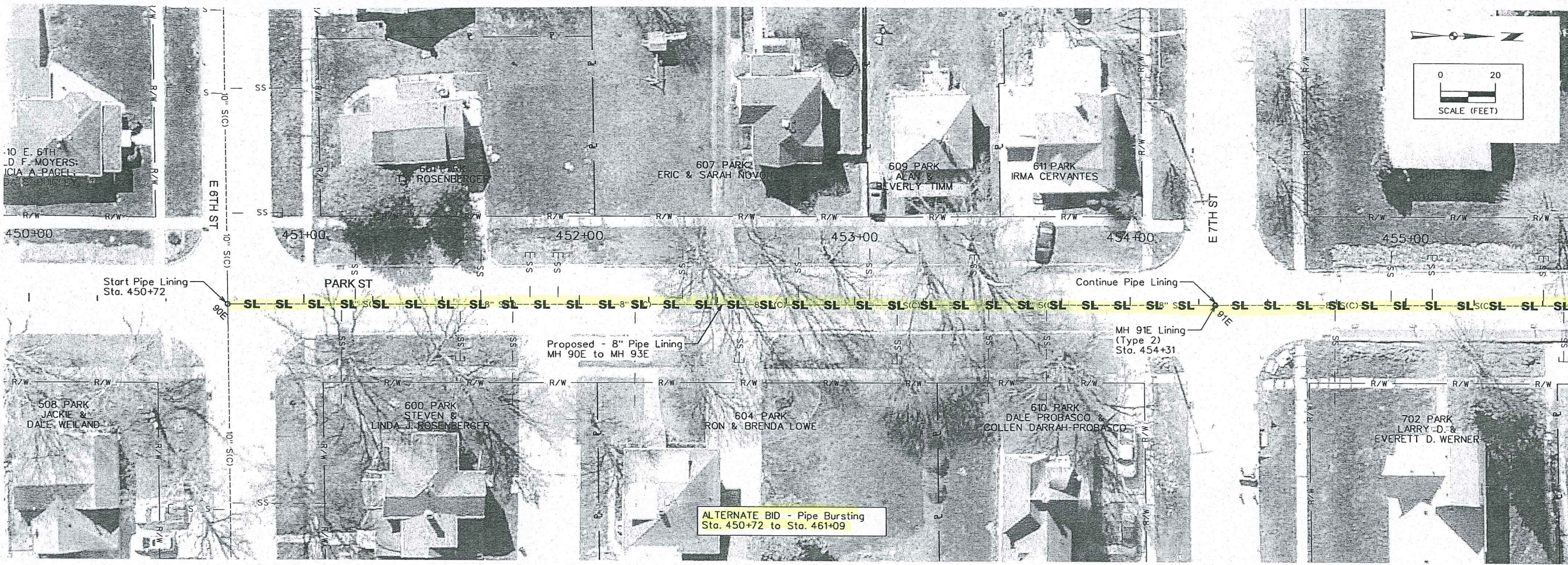
TAMA, IA

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Sheet D.11

Project No: 1130746

Sheet D.11



LEGEND

- Tree Removal
- Pavement Removal/ PCC Pavement
- Capped Sanitary Sewer Service
- Pipe Patching
- Pipe Lining
-

SANITARY SEWER SYSTEM IMPROVEMENTS

SANITARY SEWER PLAN AND PROFILE VIEW

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MARK	REVISION	DATE	BY
Engineer: AJB	Checked By: KJS	Scale: 1"= 20'	
Technician: AJB	Date: 03-16-15	Field Bk:	Pg:

