

NOTICE OF PUBLIC MEETING

Governmental Body: Van Meter Planning and Zoning Commission

Date of Meeting: Monday June 7th, 2021

Time/Location of Meeting: 5:30 PM – City Hall, 310 Mill Street

Agenda:

1. Call to Order/Roll Call
2. Approval of Agenda
3. Approval of Minutes – 5-3-2021
4. Discussion and Action – Hudson Heights Plat 1 Preliminary Plat
5. Discussion and Action Trindle Ridge Preliminary Plat
6. Adjournment

Posted this 4th day of June 2021

Meeting Minutes

Governmental Body: Van Meter Planning and Zoning Commission

Date of Meeting: Monday, May 3rd, 2021

Time/Location of Meeting: 5:30 PM – 310 Mill Street

Agenda:

1. Call to Order/Roll Call
Wahlert called the meeting to order at 5:31
Roll was called: Harrison, Feldman, Wahler, Akers, Bruins present. DeVore, Hulse absent. Bruins departed at 5:54, did not participate in action on items 4 and 5.
Staff present included City Administrator Kyle Michel, City Engineer Bob Veenstra
2. Approval of Agenda
Feldman moved, supported by Harrison, to approve the agenda as published. Motion carried unanimously.
3. Approval of Minutes –4-5-2021 Meeting Minutes
Bruins moved, supported by Feldman, to approve the minutes. Motion carried unanimously.
4. Discussion and Action: Hudson Heights Plat 1 Preliminary Plat
Paul Clausen, CEC, was present to represent the project. Paul provided an overview and update of the preliminary plat for Coon Creek/Hudson Heights Plat 1 that was submitted and approved by Council in 2019. The property is under new ownership and the developer desires to pursue renewed approval of the Hudson Heights Plat 1 Preliminary Plat.
City Engineer Veenstra provided an overview of his comments on both the preliminary plat and the stormwater management report.
Discussion ensued regarding various comments made by the City Engineer in his report.
Wahlert moved, supported by Akers, to recommend approval of the preliminary plat for Hudson Heights Plat 1 to the Van Meter City Council subject to satisfactory resolution of the outstanding comments of the City Engineer. Wahlert also requested that Council give consideration to adopting formal policy or Code language with regards to stormwater detention basins to account for long term ownership and maintenance. Motion carried unanimously.
5. Adjournment
Motion by Wahlert, supported by Feldman. Motion carried unanimously.
The meeting was adjourned at 6:10 pm.

PRELIMINARY PLAT

HUDSON HEIGHTS PLAT I

VAN METER, IOWA



VICINITY SKETCH

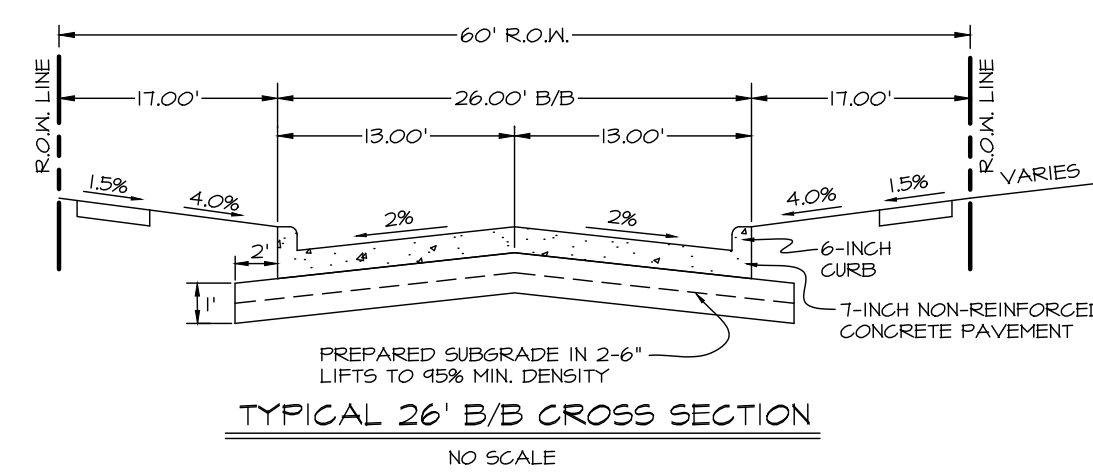
NORTH
SCALE: 1"=1000'

NPDES/SWPPP

- OWNER AND/OR CONTRACTOR ARE REQUIRED TO OBTAIN NPDES PERMIT AND FOLLOW REQUIREMENTS OF ASSOCIATED STORM WATER POLLUTION PREVENTION PLAN PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.

GRADING NOTES

- STRIP TOPSOIL FROM ALL AREAS WHICH ARE TO RECEIVE STRUCTURAL FILL.
- ALL AREAS TO RECEIVE FILL TO BE BENCHED.
- PREPARE BOTTOM OF BENCH FOR FILL BY DISCING TO A DEPTH OF 6-INCHES.
- ALL SITE GRADING FILL SHALL BE COMPACTED TO DENSITY THAT IS NOT LESS THAN 95% STANDARD PROCTOR. MOISTURE CONTENT OF FILL MATERIAL SHALL MATCH URBAN STANDARD.
- MAINTAIN ALL CUT AND FILL AREAS FOR SURFACE DRAINAGE AT ALL TIMES.
- FINAL GRADES WITHIN PAVED AREAS SHALL BE WITHIN 0.1' OF PLAN GRADE, ALL OTHER AREAS TO BE WITHIN 0.2' OF PLAN GRADE.
- STRIP BLACK DIRT AND RE-SPREAD. (8" MINIMUM)
- ADDITIONAL SILT FENCING MAY BE REQUIRED BY CITY AFTER FIELD INSPECTION.



BENCHMARKS
XXXXX

PROPERTY OWNER / APPLICANT:

HUDSON HEIGHTS LLC
P.O. BOX 267
JOHNSTON IA 50131
CONTACT: JOHN LARSON

ZONING

R-1 SINGLE FAMILY RESIDENTIAL DISTRICT

SETBACKS:

FRONT - 35'
SIDE - 8' MINIMUM
REAR - 35'

FLOOD ZONE

ZONE 'X'
FEMA FIRM FLOOD INSURANCE RATE MAP NUMBER
19044C0340F, REVISED 12-7-2018.

LEGAL DESCRIPTION

LOT 1 AND A PORTION OF LOT 2, WEIGEL ADDITION PLAT 4, AN OFFICIAL PLAT RECORDED IN BOOK 7, PAGE 48, CITY OF VAN METER, DALLAS COUNTY, IOWA THAT IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SE CORNER OF SAID LOT 1; THENCE S89°55'39"W, 526.50 FEET ALONG THE SOUTH LINE OF SAID LOT 1 TO THE SW CORNER OF SAID LOT 1; SAID POINT ALSO BEING THE SE CORNER OF SAID LOT 2; THENCE N84°50'20"W, 883.49 FEET ALONG THE SOUTH LINE OF SAID LOT 2 TO A POINT; THENCE N00°35'47"E, 560.45 FEET TO A POINT ON THE NORTH LINE OF SAID LOT 2; THENCE S84°35'53"E, 191.53 FEET ALONG SAID NORTH LINE OF LOT 2 TO THE SW CORNER OF PARK VIEW ESTATES PLAT 1, AN OFFICIAL PLAT RECORDED IN BOOK 817, PAGE 104; THENCE S89°44'24"E, 389.56 FEET ALONG SAID NORTH LINE OF LOT 2 AND THE SOUTH LINE OF SAID PARK VIEW ESTATES PLAT 1 TO THE SE CORNER OF SAID PARK VIEW ESTATES PLAT 1; SAID POINT ALSO BEING THE SW CORNER OF WEIGEL ADDITION PLAT 2, AN OFFICIAL PLAT RECORDED IN BOOK 5, PAGE 489; THENCE S89°44'24"E, 389.56 FEET ALONG SAID NORTH LINE OF LOT 2 AND THE SOUTH LINE OF SAID PARK VIEW ESTATES PLAT 1 TO THE NE CORNER OF SAID LOT 1; SAID POINT ALSO BEING THE NE CORNER OF SAID WEIGEL ADDITION PLAT 2 TO THE NE CORNER OF SAID LOT 2 AND THE SE CORNER OF SAID WEIGEL ADDITION PLAT 2; SAID POINT ALSO BEING THE NW CORNER OF SAID LOT 1; WEIGEL ADDITION PLAT 4 AND THE SW CORNER OF WEIGEL ADDITION PLAT 1, AN OFFICIAL PLAT RECORDED IN BOOK 5, PAGE 167; THENCE S89°38'54"E, 356.82 FEET ALONG THE NORTH LINE OF SAID LOT 1 AND THE SOUTH LINE OF SAID WEIGEL ADDITION PLAT 1 TO THE NE CORNER OF SAID LOT 1 AND THE SE CORNER OF SAID WEIGEL ADDITION PLAT 1; SAID POINT ALSO BEING ON THE WEST LINE OF PARCEL 'Y' IN THE PLAT OF SURVEY RECORDED IN BOOK 2009, PAGE 697; THENCE S06°51'05"W, 916.6 FEET ALONG THE EAST LINE OF SAID LOT 1 AND THE SAID WEST LINE OF PARCEL 'Y' TO A POINT; THENCE S04°51'13"E, 471.43 FEET ALONG SAID EAST LINE OF LOT 1 AND SAID WEST LINE OF PARCEL 'Y' AS WELL AS THE WEST LINE OF PARCEL 'Z' IN SAID PLAT OF SURVEY TO THE POINT OF BEGINNING AND CONTAINING 17.44 ACRES MORE OR LESS.

NOTES:

- PARCEL MAY BE SUBJECT TO EASEMENTS, LICENSES, OR AGREEMENTS OF RECORD. NO TITLE WORK WAS PERFORMED BY SURVEYOR.
- ALLOWABLE ERROR OF CLOSURE FOR BOUNDARY IS 1:10,000 AND ALLOWABLE ERROR OF CLOSURE FOR EACH LOT IS 1:5,000.
- MONUMENTS TO BE SET WITHIN ONE YEAR OF FINAL PLAT'S RECORDING DATE.
- LOT 'A' IS TO BE DEDICATED TO CITY OF VAN METER.
- OUTLOT 'X' SHALL BE TIED TO LOT 22
- OUTLOT 'Y' SHALL BE TIED TO LOT 23
- OUTLOT 'Z' SHALL BE TIED TO LOT 24
- SOME LOTS ACCEPT DRAINAGE FROM ADJACENT PROPERTY. BUILDING ON THESE LOTS MUST TAKE INTO ACCOUNT UPSTREAM DRAINAGE.
- ALL UTILITIES INDICATED ON PLAT ARE PUBLIC UNLESS OTHERWISE NOTED.
- WATER SERVICES TO BE 1-INCH PVC AND SHALL BE BORED WHEN FEASIBLE, STOP BOXES TO BE FORD BALL VALVE TYPE CURB STOPS.
- AN HOA SHALL BE ESTABLISHED AND RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER DETENTION BASIN.

GENERAL NOTES

- ONE WEEK PRIOR TO CONSTRUCTION, CONTRACTOR SHALL CONTACT:
 - CITY OF VAN METER, (515) 946-2644
 - HUDSON HEIGHTS, LLC (515) 491-4090
 - CIVIL ENGINEERING CONSULTANTS INC. (515) 276-4884
 - IOWA ONE CALL
- LOCATION OF EXISTING FACILITIES AND APPURTENANCES SHOWN ON PLAN ARE BASED ON AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING TO DETERMINE EXACT FACILITIES LOCATIONS. CIVIL ENGINEERING CONSULTANTS, INC. DOES NOT GUARANTEE LOCATIONS OF EXISTING FACILITIES AS SHOWN, OR THAT ALL EXISTING FACILITIES ARE SHOWN. IT IS CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL PUBLIC AND PRIVATE UTILITY PROVIDERS SERVING AREA, AND IOWA ONE CALL, TO DETERMINE EXTENT AND PRECISE LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION BEGINS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH 2021 URBAN STANDARD SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION AND PROTECT ALL UTILITIES AND STRUCTURES. DAMAGE TO UTILITIES AND STRUCTURES SHALL BE REPAIRED BY CONTRACTOR AT CONTRACTOR'S EXPENSE TO SATISFACTION OF OWNER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING AS-BUILT LOCATIONS OF UTILITY SERVICES.
- CONTRACTOR SHALL RECONNECT ALL FIELD TILE INTERCEPTED DURING CONSTRUCTION.
- ALL STATIONING IS BASED ON STREET CENTERLINE MEASUREMENT AND SPECIFICATIONS.

UTILITIES

WATER: VAN METER MUNICIPAL SERVICES
SANITARY: CITY OF VAN METER

PARKLAND DEDICATION:

CALCULATION FOR PARKLAND DEDICATION IS PER CHAPTER 173 - DEDICATION OF PARKLAND WITHIN ORDINANCE 2021-02.
24 LOTS * 2.8 PEOPLE PER LOT * 0.005 AC = 0.336 ACRES OR 14,636 SF.
MINIMUM DEDICATION REQUIRED FOR ANY DEVELOPMENT: 20,000 SF.

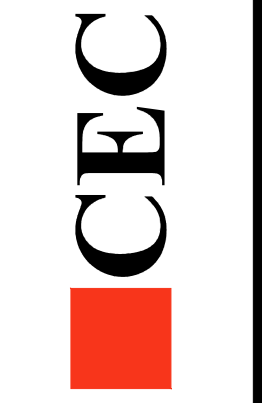
Sheet List Table

SHEET NUMBER	SHEET TITLE
01	COVER SHEET
02	DIMENSION SHEET
03	GRADING & UTILITY SHEET
04	GRADING & UTILITY SHEET

GENERAL LEGEND

PROPOSED	EXISTING

Civil Engineering Consultants, Inc.
2400 86th Street Unit 12, Des Moines, Iowa 50322
515.276.4884 · Fax: 515.276.7084 · mail@cecinc.com



DATE:	REVISIONS	COMMENTS
MAY 20, 2021	1	
	2	
	3	
	4	
	5	
	6	

HUDSON HEIGHTS PLAT I
VAN METER, IOWA
COVER SHEET

SHEET 01 OF 04

E-6228



PRELIMINARY

PRELIMINARY

CERTIFICATIONS

<p>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.</p> <p>PAUL J.D. CLAUSEN, IOWA LICENSED NO. 28712 DATE MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021 PAGES OR SHEETS COVERED BY THIS SEAL:</p> <p style="text-align: center;">ALL SHEETS</p>	<p>I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF IOWA.</p> <p style="text-align: right;">May 20, 2021</p> <p>JEFFREY A. GADDIS, IOWA LICENSE NO. 10391 DATE MY LICENSE RENEWAL DATE IS DECEMBER 31, 2022</p>
--	--

CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	82°46'43"	33.00'	47.68'	29.08'	43.64'	S48°40'04"W
C2	21°07'41"	33.00'	12.11'	6.15'	12.10'	S74°22'36"E
C3	27°14'45"	33.00'	15.74'	8.02'	15.59'	S55°08'50"E
C4	71°15'59"	62.00'	77.12'	44.44'	72.24'	S77°06'57"E
C5	54°12'24"	62.00'	58.66'	31.73'	56.50'	N40°08'44"E
C6	54°13'19"	62.00'	58.67'	31.74'	56.51'	N4°04'05"W
C7	48°21'32"	33.00'	21.91'	14.85'	27.09'	N16°56'57"W



CURVE	DELTA	RADIUS	LENGTH	TANGENT	CHORD	CH. BEARING
C1	82°46'43"	33.00'	47.68'	29.08'	43.64'	S48°40'04"W
C2	21°07'41"	33.00'	12.11'	6.15'	12.10'	S74°22'36"E
C3	27°14'45"	33.00'	15.74'	8.02'	15.59'	S55°08'50"E
C4	71°15'59"	62.00'	77.12'	44.44'	72.24'	S77°06'57"E
C5	54°12'24"	62.00'	58.66'	31.73'	56.50'	N40°08'44"E
C6	54°13'19"	62.00'	58.67'	31.74'	56.51'	N4°04'05"W
C7	48°21'32"	33.00'	21.91'	14.85'	27.09'	N16°56'57"W



1" = 60' PRINTED ON 22"x34" SHEET
 1" = 120' PRINTED ON 11"x17" SHEET

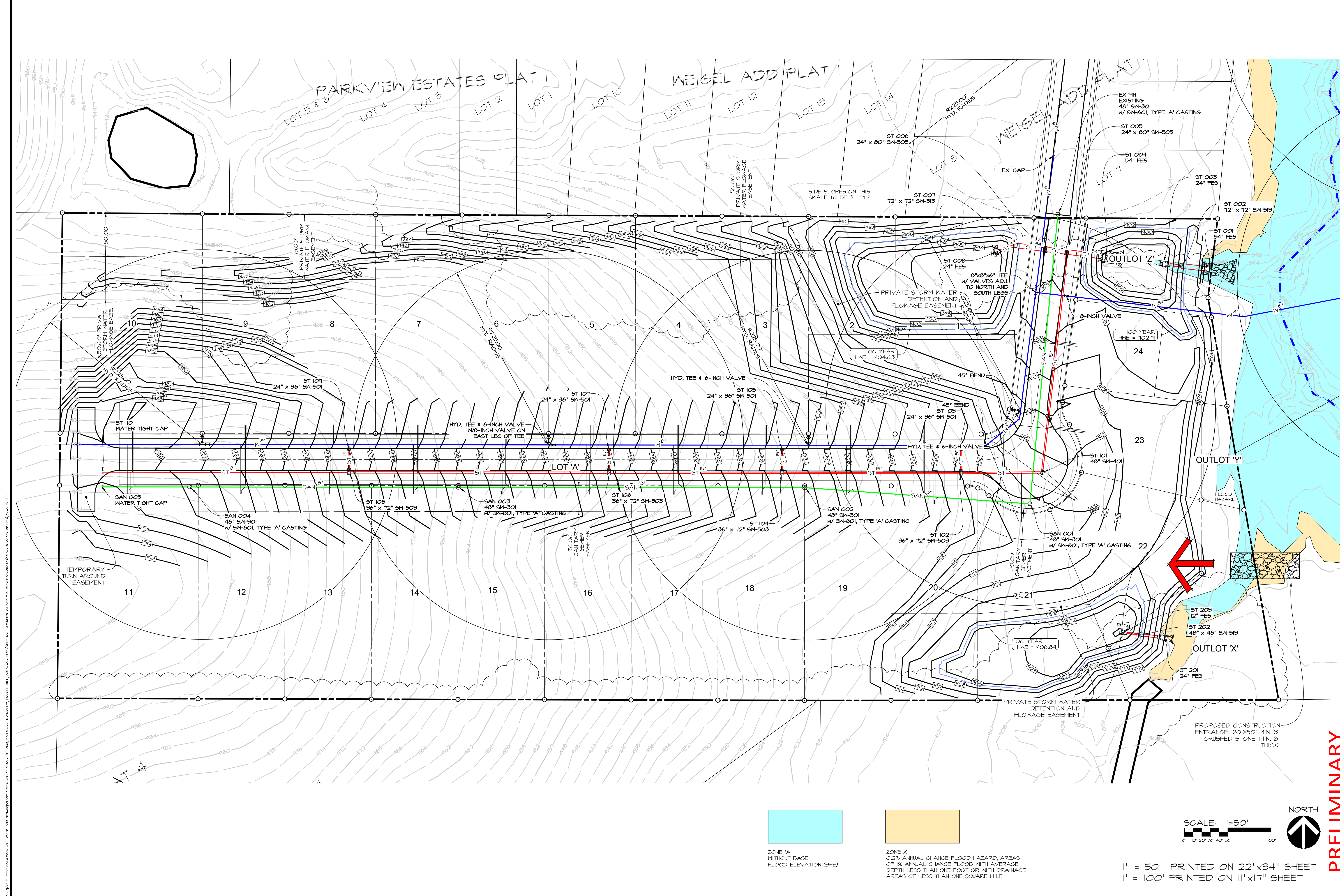
CEC
 Civil Engineering Consultants, Inc.
 2400 86th Street Unit 12 Des Moines, Iowa 50322
 515.276.4884 Fax: 515.276.7084 mail@cecinc.com

DATE	REVISIONS	COMMENTS
MAY 20, 2021	1	
	2	
	3	
	4	
	5	
	6	

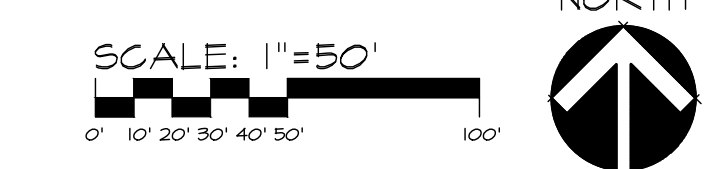
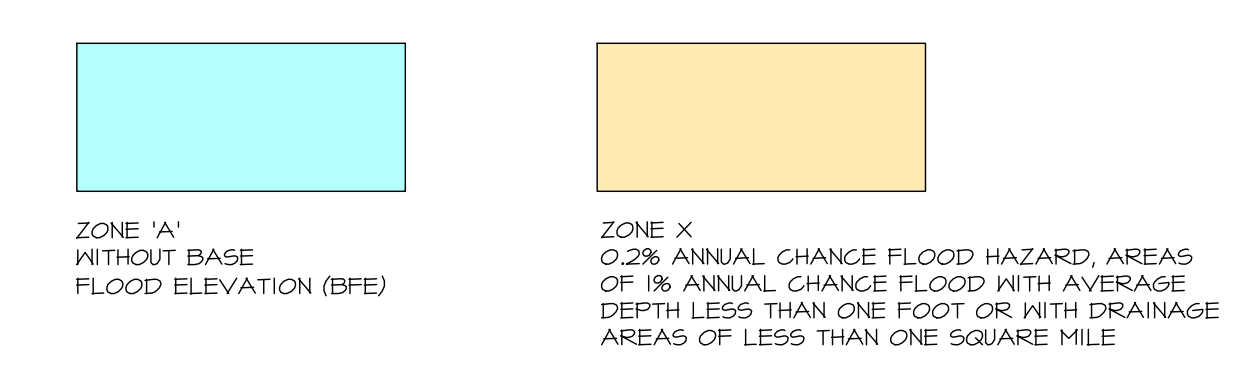
DATE OF SURVEY: 10-14-2019
 DESIGNED BY: PC
 DRAWN BY: MEH

PRELIMINARY
 HUDSON HEIGHTS PLAT 1
 VAN METER, IOWA
 DIMENSION SHEET

SHEET 02 OF 04
 E-6228



PLOT: 9\FE\FLENE-6000\6000.dwg, 5/20/2021 11:21:18 PM, MARTIN HILL, AUTOCAD PLOT, GENERAL DOCUMENTATION, AND EMBED D (BLACK X 22.00 INCHES), SCALE: 1:1
 P:\FILES\6000\6000.dwg, 5/20/2021 11:21:18 PM, MARTIN HILL, AUTOCAD PLOT, GENERAL DOCUMENTATION, AND EMBED D (BLACK X 22.00 INCHES), SCALE: 1:1



1" = 50' PRINTED ON 22"x34" SHEET
 1" = 100' PRINTED ON 11"x17" SHEET

Civil Engineering Consultants, Inc.
 2400 86th Street, Unit 12, Des Moines, Iowa, 50322
 515.276.4884 · Fax: 515.276.7084 · mail@cecinc.com

DATE:	REVISIONS	COMMENTS
MAY 20, 2021	1	
	2	
	3	
	4	
	5	
	6	

DATE OF SURVEY: 10-14-2019
 DESIGNED BY: PC
 DRAWN BY: MEH

SHEET
03
 OF
 04

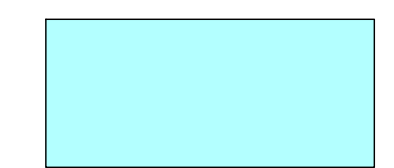
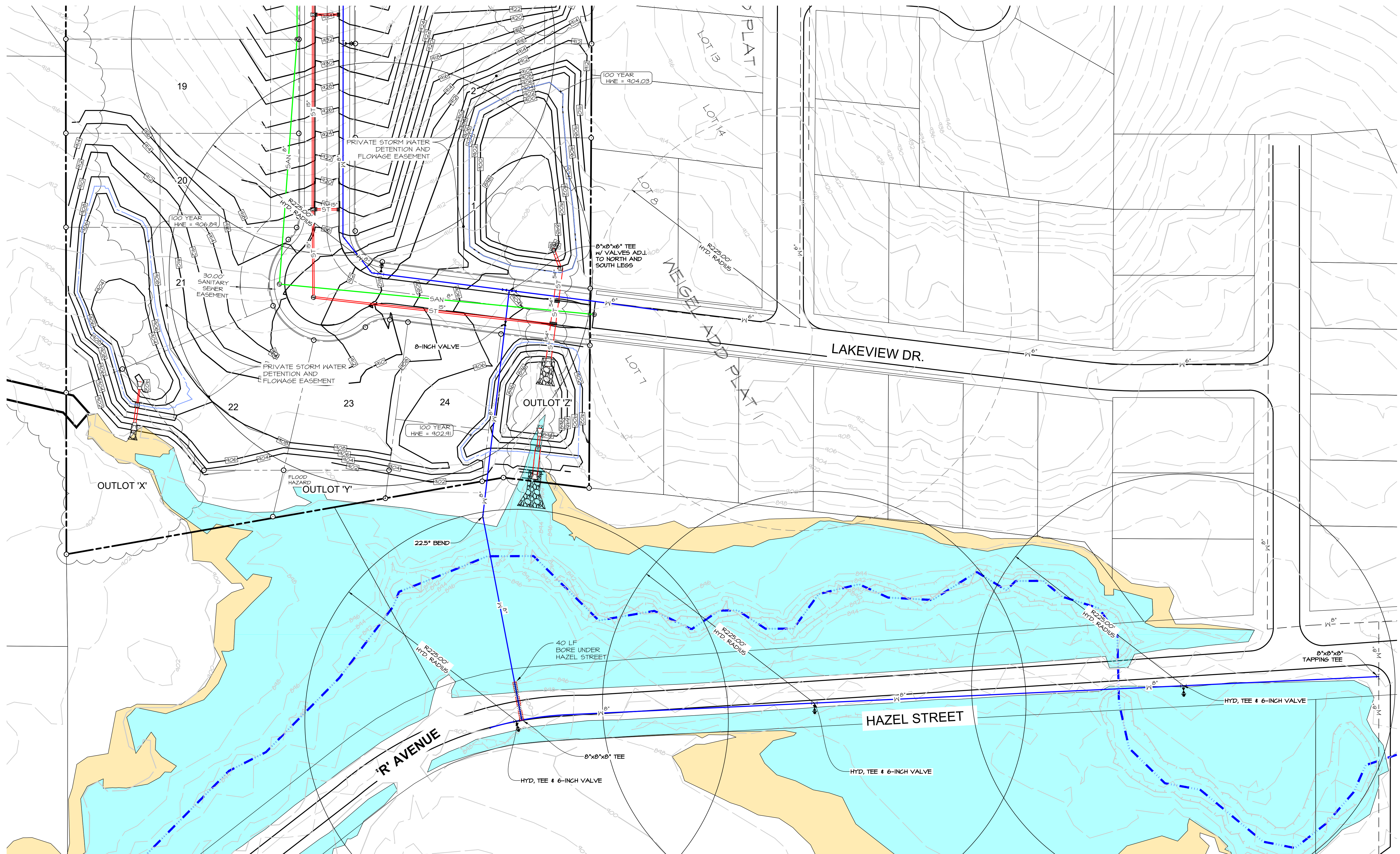
HUDSON HEIGHTS PLAT 1
 VAN METER, IOWA

GRADING & UTILITY SHEET

PRELIMINARY

E-6228

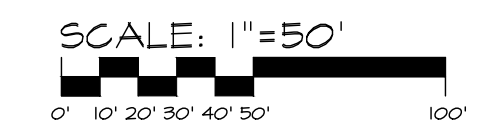
PLOT: 9\FE\FILE-600046228 - 2018_03_08\dwg\PLAT\PLAT1.DWG, 5/20/2021, 12:58 PM, MARTIN HILL, AUTOCAD PDF (GENERAL DOCUMENTATION), ANSI EXPAND D (34.40 X 22.00 INCHES), SCALE: 1:1



ZONE 'A'
WITHOUT BASE
FLOOD ELEVATION (BFE)



ZONE X
0.2% ANNUAL CHANCE FLOOD HAZARD, AREAS
OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE
DEPTH LESS THAN ONE FOOT OR WITH DRAINAGE
AREAS OF LESS THAN ONE SQUARE MILE



1" = 50' PRINTED ON 22"x34" SHEET
1" = 100' PRINTED ON 11"x17" SHEET

PRELIMINARY

HUDSON HEIGHTS PLAT I
VAN METER, IOWA

GRADING & UTILITY SHEET

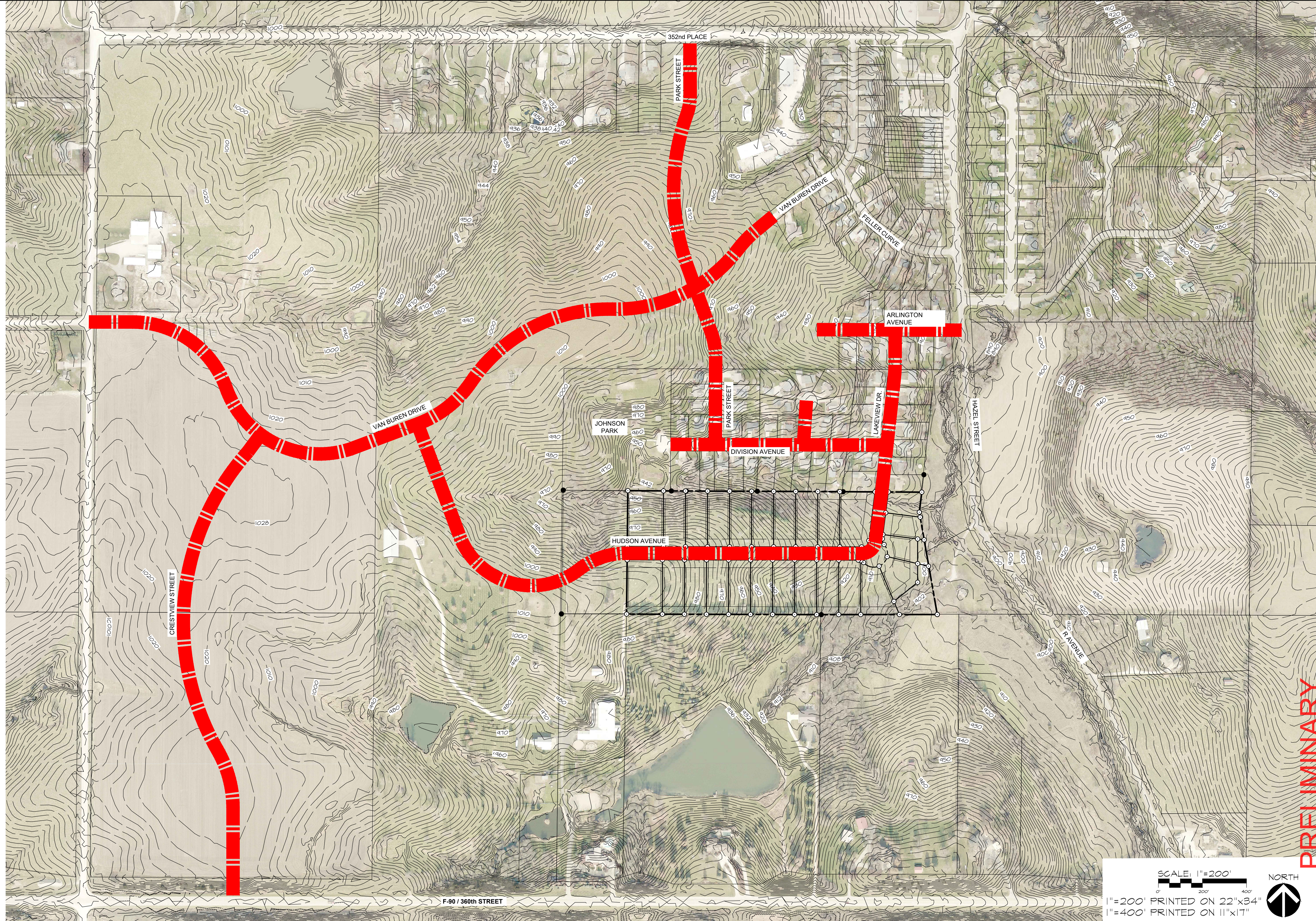
SHEET
04
OF
04

E-6228

DATE:	REVISIONS	COMMENTS
MAY 20, 2021	1	
	2	
	3	
	4	
	5	
	6	

CEC
Civil Engineering Consultants, Inc.
2400 86th Street Unit 12 Des Moines, Iowa 50322
515.276.4884 Fax: 515.276.7084 mail@cecinc.com

Q:\FILES\800018496\ CTD Drawings\Schematics\8496 SD.dwg, 5/20/2021 10:23:54 AM, kbrady, 1:1



PRELIMINARY



VAN METER MASTER PLAN
VAN METER, IOWA
VAN METER CONCEPTUAL STREET LAYOUT

SHEET
9 of 01
E8446

DATE:	May, 20, 2021
DATE OF SURVEY:	#####
DESIGNED BY:	#####
DRAWN BY:	PC
	MEH

CEC
Civil Engineering Consultants, Inc.
2400 86th Street Unit 12 · Des Moines, Iowa 50322
515.276.4884 · mail@cecinc.com



May 21, 2021

Kyle Michel
City Administrator
City of Van Meter
505 Grant Street
P.O. Box 160
Van Meter, Iowa 50261-0160

VAN METER, IOWA
HUDSON HEIGHTS PLAT 1
LONG RANGE STREET PLAN

The writer has completed a review of the conceptual street plan developed by Civil Engineering Consultants, Inc. for the area west of Hazel Street and south of De Soto Road (352nd PI). For your information enclosed is the conceptual street plan.

The conceptual street plan shows Hudson Avenue extending westerly from Hudson Heights Plat 1 to connect to a future extension of Van Buren Drive. Van Buren Drive is shown to extend from its current terminus westerly to connect to the intersection of Old Portland Road and 355th Street.

The long range plan shows an extension of Park Street northerly to connect to De Soto Road (352nd PI). The long range street plan shows a future street extending from Van Buren Drive southerly to 360th Street (F90) along an alignment parallel to and easterly of Old Portland Road.

The street plan does not show the extension of two existing streets west of Hazel Street. The plan does not show Division Avenue extending westerly from its current terminus into the Johnson Park area. The plan does not show Arlington Avenue extending westerly to intercept the extension of Park Street.

In considering this long range street plan it is important to consider the slope of future streets. SUDAS has established design standards for residential and collector streets. SUDAS recommends a maximum slope of 12% in a residential zone and either 9% or 10% in a nonresidential zone with a speed limit of 25 miles per hour. As the speed limit increases, the percent of slope decreases. At 35 miles per hour the maximum recommended slope is 11% on local streets and 10% on a collector street.

Based on review it would be very difficult to extend Division Avenue either westerly or westerly and southerly within the 12% slope limitation without significant grading. While it would be

Kyle Michel
May 21, 2021
Page 2

possible to extend Arlington Avenue westerly some distance at a slope of not greater than 12%, it appears marginal whether Arlington Avenue can connect to Park Street without at least some portion of the extension of Arlington Avenue exceeding 12%.

The writer is of the opinion the conceptual street plan set forth by Civil Engineering Consultants, Inc. is reasonable. If Hudson Avenue is to extend beyond the plat area a westerly extension is clearly preferred with that extension connecting to Van Buren Avenue. Excluding the extension of Division Avenue from a future interconnected street plan is reasonable, as any extension of Division Avenue would be very difficult without exceeding a slope of 12%.

With the connectivity at Van Buren and Park Street the interconnectivity with Arlington Avenue is much less critical. Unlike Division Avenue where it appears there is no reasonable alternative to extend Division Avenue, it would be possible to extend Arlington Avenue if the City was willing to accept reaches of street in excess of 12%.

While the future extension of Arlington Avenue may be viable for a local residential street, the writer would not consider the extension of Arlington Avenue a part of the interconnectivity plan as the goal would be to keep the major streets shown on the plan at slopes not exceeding 12%.

If you have any questions or comments concerning the project, please contact the writer at 225-8000 or bveenstra@v-k.net.

VEENSTRA & KIMM, INC.



H. R. Veenstra Jr.

HRVJr:kld
0-11
Enclosure

PRELIMINARY PLAT TRINDEL RIDGE

Sheet 1 of 7

OWNERS
JON & JULIE STECK
3569 RICHLAND CIRCLE
VAN METER, IOWA 50261

PATRICK & MARY FERRING
3567 RICHLAND CIRCLE
VAN METER, IOWA 50261

APPLICANT
TRINDEL RIDGE, LLC
101 MAIN STREET
PO BOX 82
BOONEVILLE, IOWA 50038

ZONING
EXISTING: R-1 SINGLE FAMILY RESIDENCE DISTRICT

BULK REGULATIONS
MIN. LOT AREA - 10,000 S.F.
MIN. LOT WIDTH - 80'

SETBACKS
FRONT - 35'
REAR - 35'
SIDE - 8'

LEGAL DESCRIPTION
LOTS 3, 4, 5 AND 6, REPLAT OF TRAXLER SUBDIVISION AMENDED PLAT, AN OFFICIAL PLAT, DALLAS COUNTY, IOWA, CONTAINING 29.729 ACRES MORE OR LESS (INCLUDES 0.140 ACRES COUNTY ROAD RIGHT-OF-WAY).

NOTES
1. PUBLIC UTILITY EASEMENTS ARE SUBORDINATE TO THE CITY'S USE OF ITS DESIGNATED EASEMENT IN AREAS WHERE THEY OVERLAP.
2. ALL EASEMENTS ARE PUBLIC UNLESS OTHERWISE NOTED.

LEGEND

	PLAT BOUNDARY
	EXISTING/PROPOSED ST 18"
	SAN 8"
	W 8"
	WATER MAIN & SIZE
	MANHOLE
	STORM INTAKE
	FIRE HYDRANT
	VALVE
	F.E.S.
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SILT FENCE OR APPROVED FILTRATION SOCK

CERTIFICATION

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.

BRADLEY R. COOPER, IOWA LICENSE NO. 12980
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021
PAGES OR SHEETS COVERED BY THIS SEAL:
Sheets 1-7

COOPER CRAWFORD & ASSOCIATES, L.L.C.
CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
PHONE: (515) 224-1344 FAX: (515) 224-1345

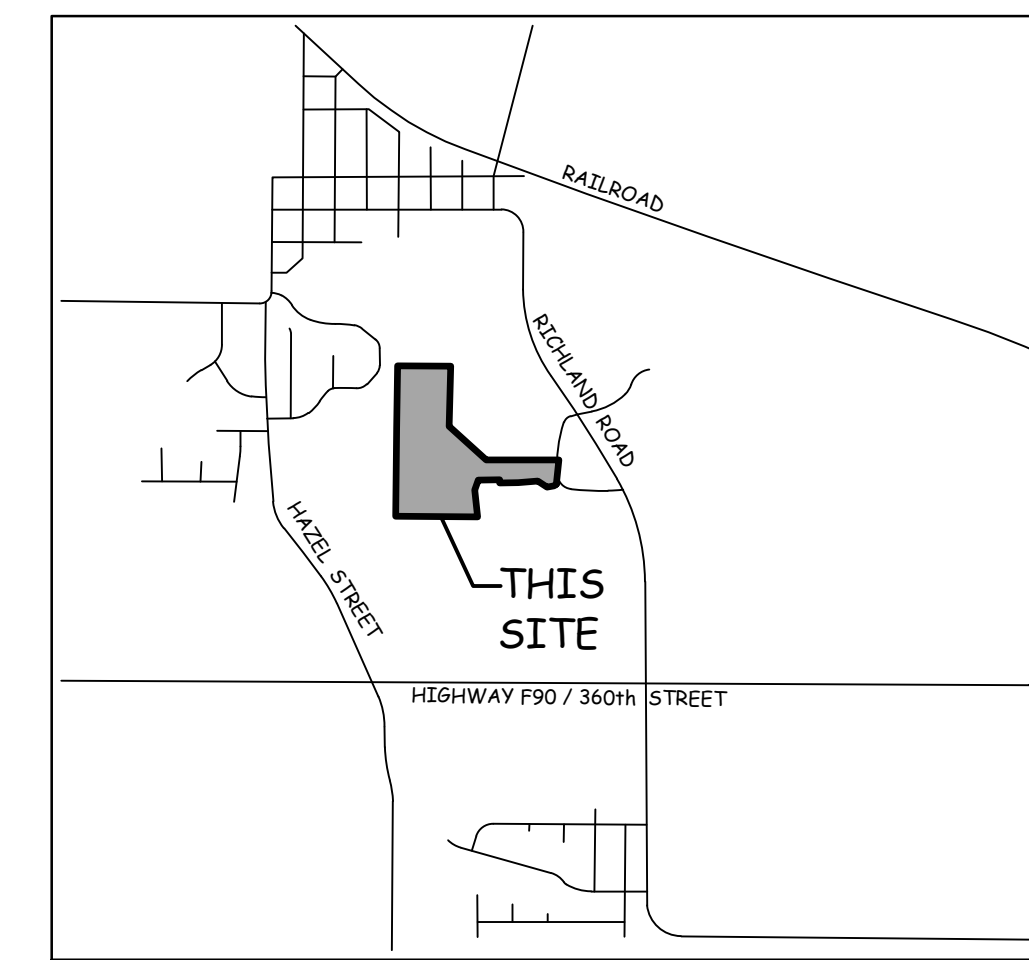
DATE: 6-2-2021
REVISIONS:

APPROVED: INITIALS: --- AS-BUILT: ---

SCALE: 1"=100'

CC 2314

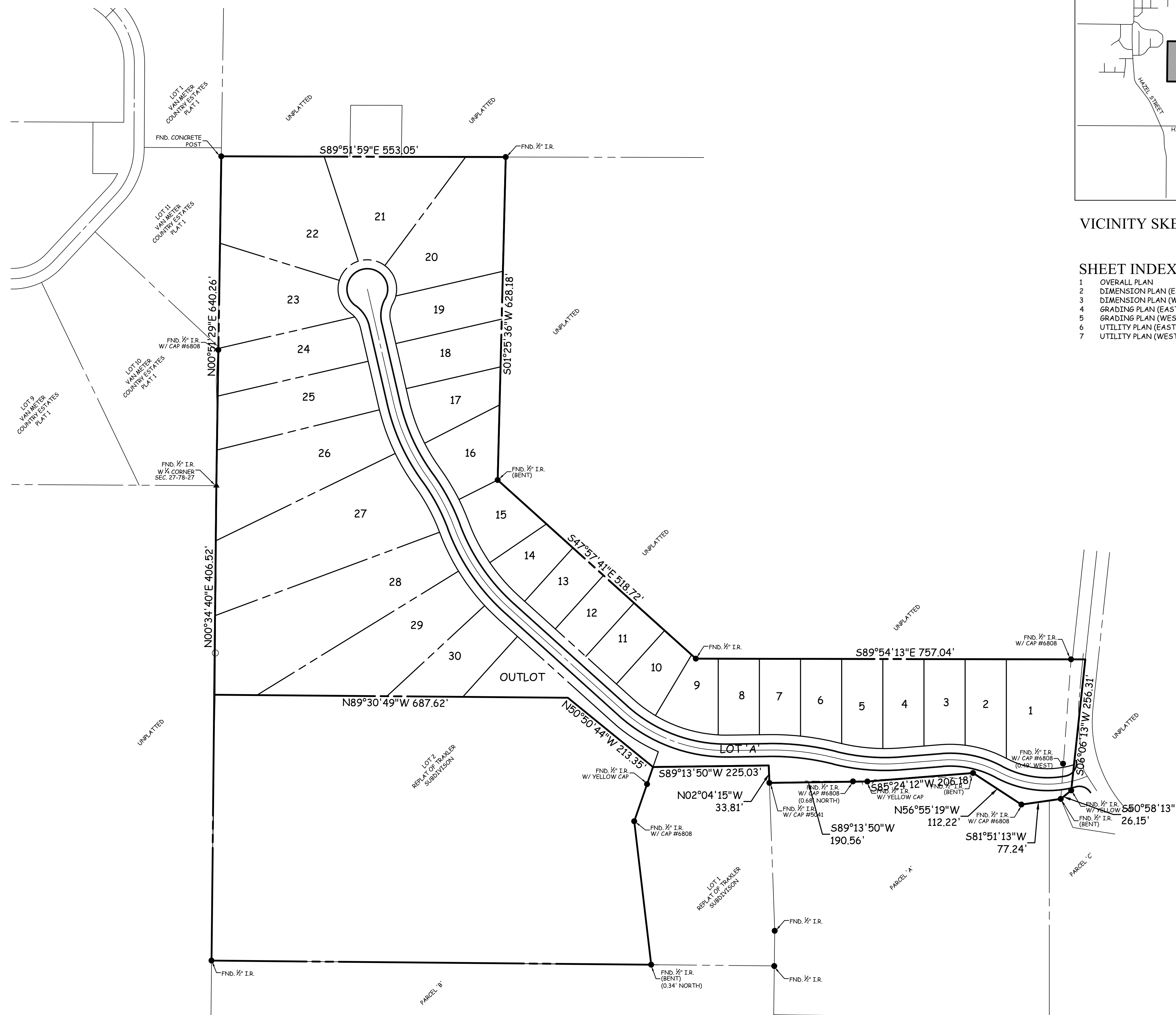
PRELIMINARY PLAT TRINDEL RIDGE SHEET 1 OF 7



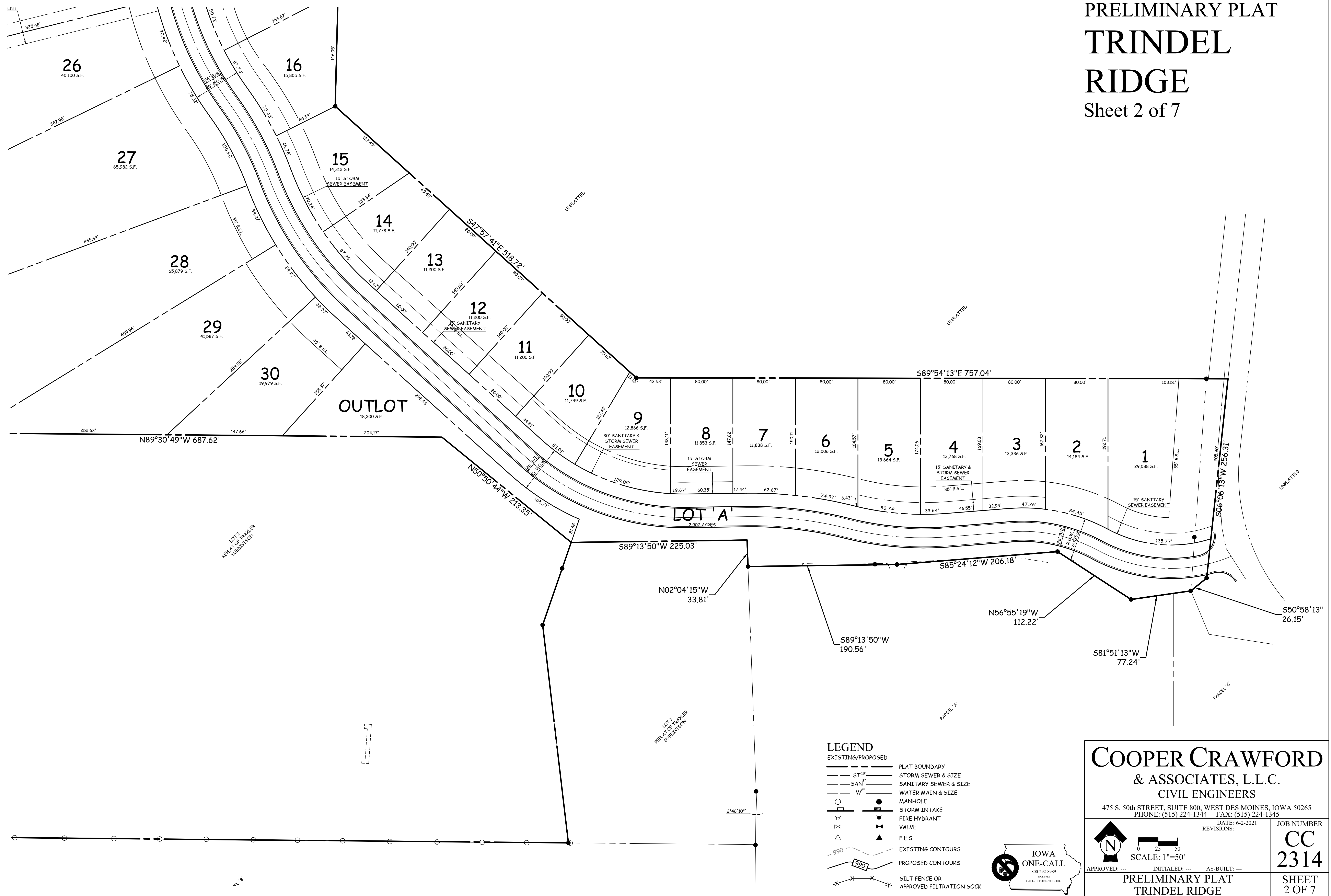
VICINITY SKETCH

SHEET INDEX

- 1 OVERALL PLAN
- 2 DIMENSION PLAN (EAST)
- 3 DIMENSION PLAN (WEST)
- 4 GRADING PLAN (EAST)
- 5 GRADING PLAN (WEST)
- 6 UTILITY PLAN (EAST)
- 7 UTILITY PLAN (WEST)



PRELIMINARY PLAT
**TRINDEL
 RIDGE**
 Sheet 2 of 7



- LEGEND**
 EXISTING/PROPOSED
- PLAT BOUNDARY
 - ST 15" STORM SEWER & SIZE
 - SAN 15" SANITARY SEWER & SIZE
 - W 12" WATER MAIN & SIZE
 - MANHOLE
 - STORM INTAKE
 - △ FIRE HYDRANT
 - ▽ VALVE
 - ▲ F.E.S.
 - - - EXISTING CONTOURS
 - - - PROPOSED CONTOURS
 - ✕ SILT FENCE OR APPROVED FILTRATION SOCK



COOPER CRAWFORD & ASSOCIATES, L.L.C.
 CIVIL ENGINEERS
 475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS:

APPROVED: _____ INITIALS: _____ AS-BUILT: _____

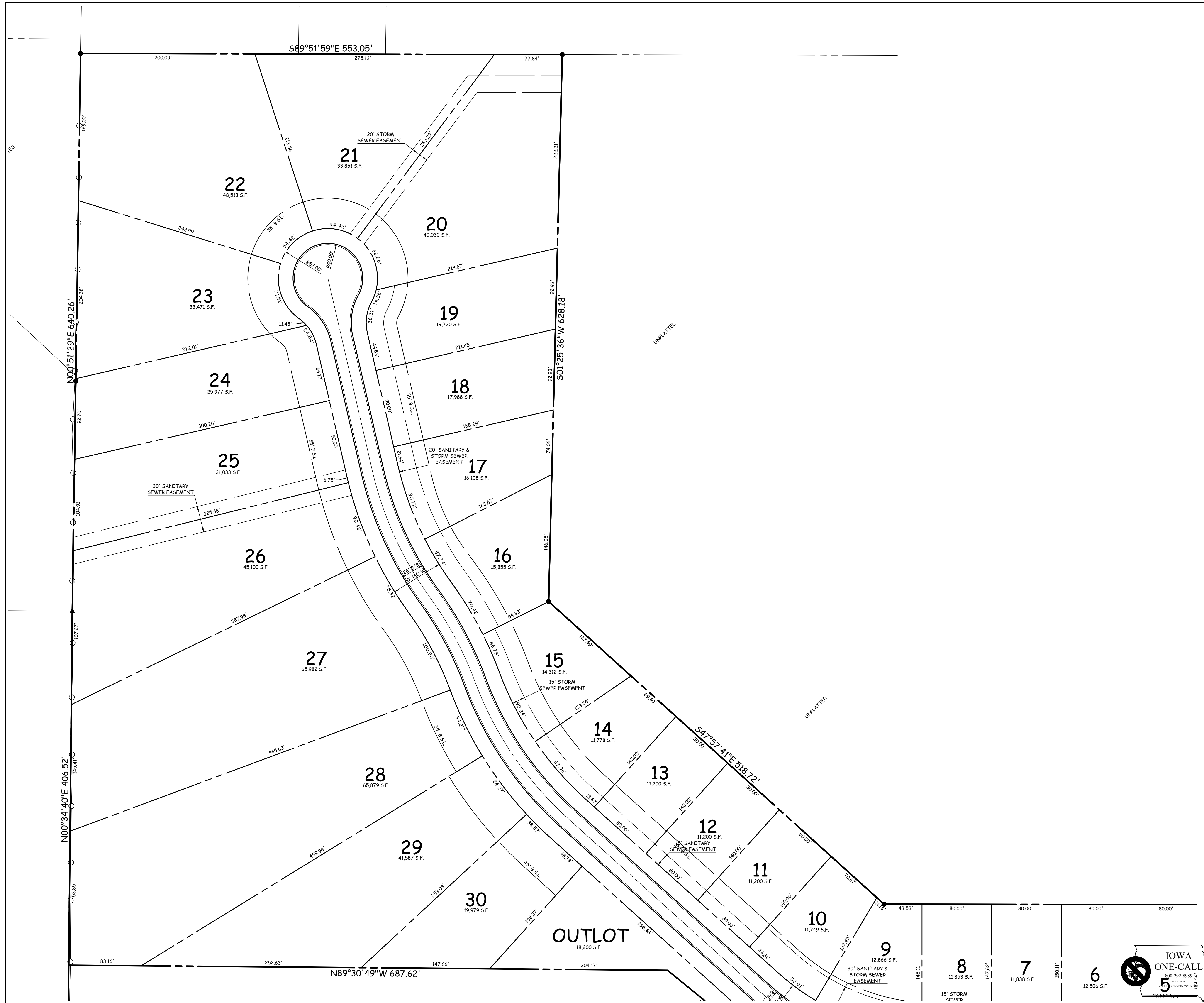
SCALE: 1"=50'

JOB NUMBER
CC 2314

PRELIMINARY PLAT
 TRINDEL RIDGE

SHEET
 2 OF 7

PRELIMINARY PLAT
**TRINDEL
 RIDGE**
 Sheet 3 of 7



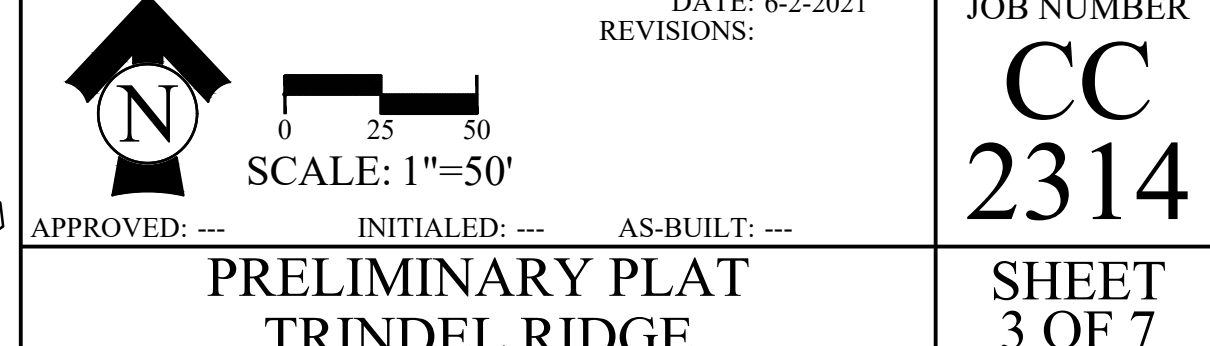
LEGEND

EXISTING/PROPOSED	
	PLAT BOUNDARY
	STORM SEWER & SIZE
	SANITARY SEWER & SIZE
	WATER MAIN & SIZE
	MANHOLE
	STORM INTAKE
	FIRE HYDRANT
	VALVE
	F.E.S.
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SILT FENCE OR APPROVED FILTRATION SOCK

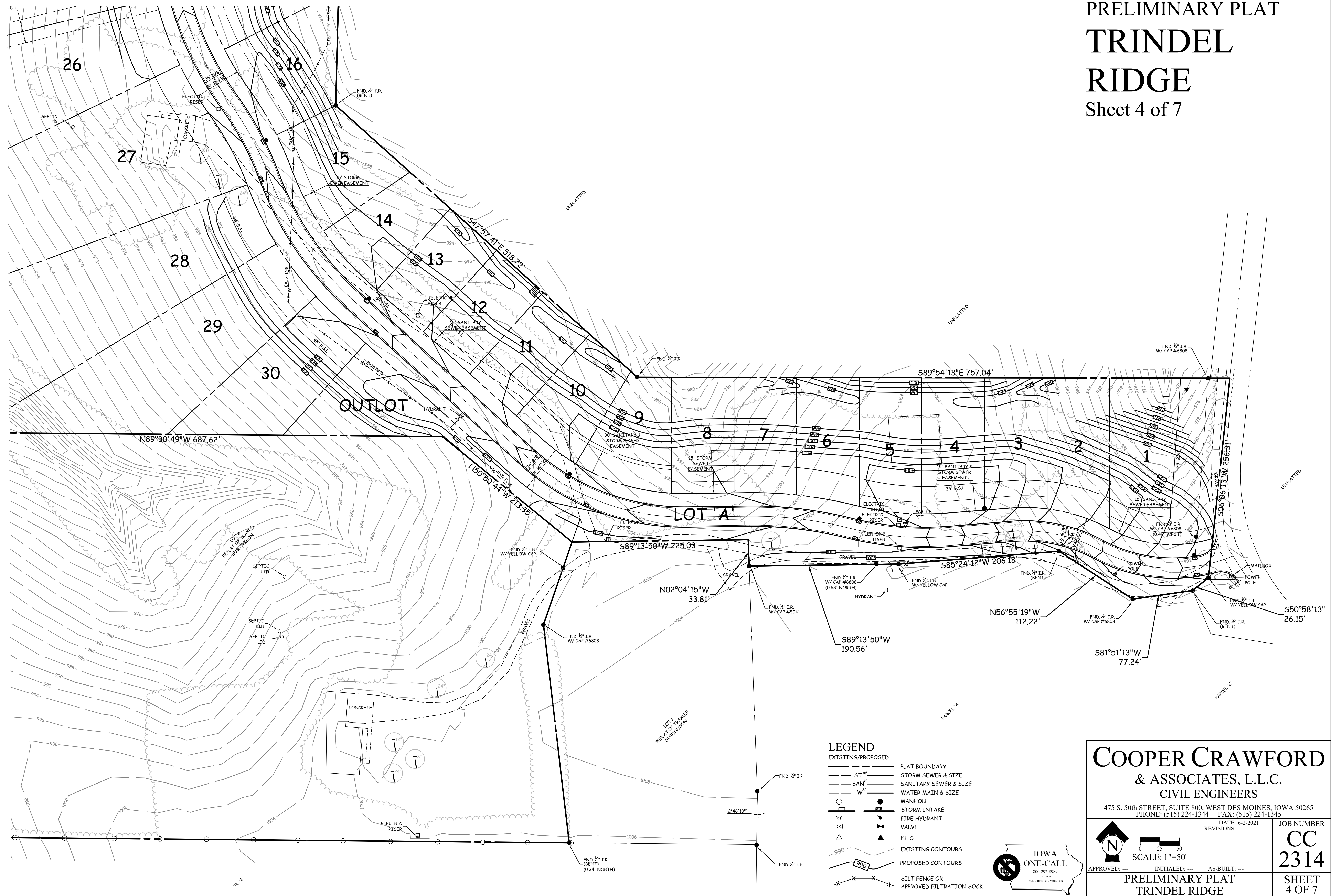
**COOPER CRAWFORD
 & ASSOCIATES, L.L.C.**
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021	JOB NUMBER
REVISIONS:	CC 2314
APPROVED:	AS-BUILT: ---
PRELIMINARY PLAT TRINDEL RIDGE	
SHEET 3 OF 7	



PRELIMINARY PLAT
**TRINDEL
 RIDGE**
 Sheet 4 of 7



LEGEND

EXISTING/PROPOSED	
	PLAT BOUNDARY
	STORM SEWER & SIZE
	SANITARY SEWER & SIZE
	WATER MAIN & SIZE
	MANHOLE
	STORM INTAKE
	FIRE HYDRANT
	VALVE
	F.E.S.
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SILT FENCE OR APPROVED FILTRATION SOCK

COOPER CRAWFORD & ASSOCIATES, L.L.C.
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS:

APPROVED: _____ INITIALED: _____ AS-BUILT: _____

SCALE: 1"=50'

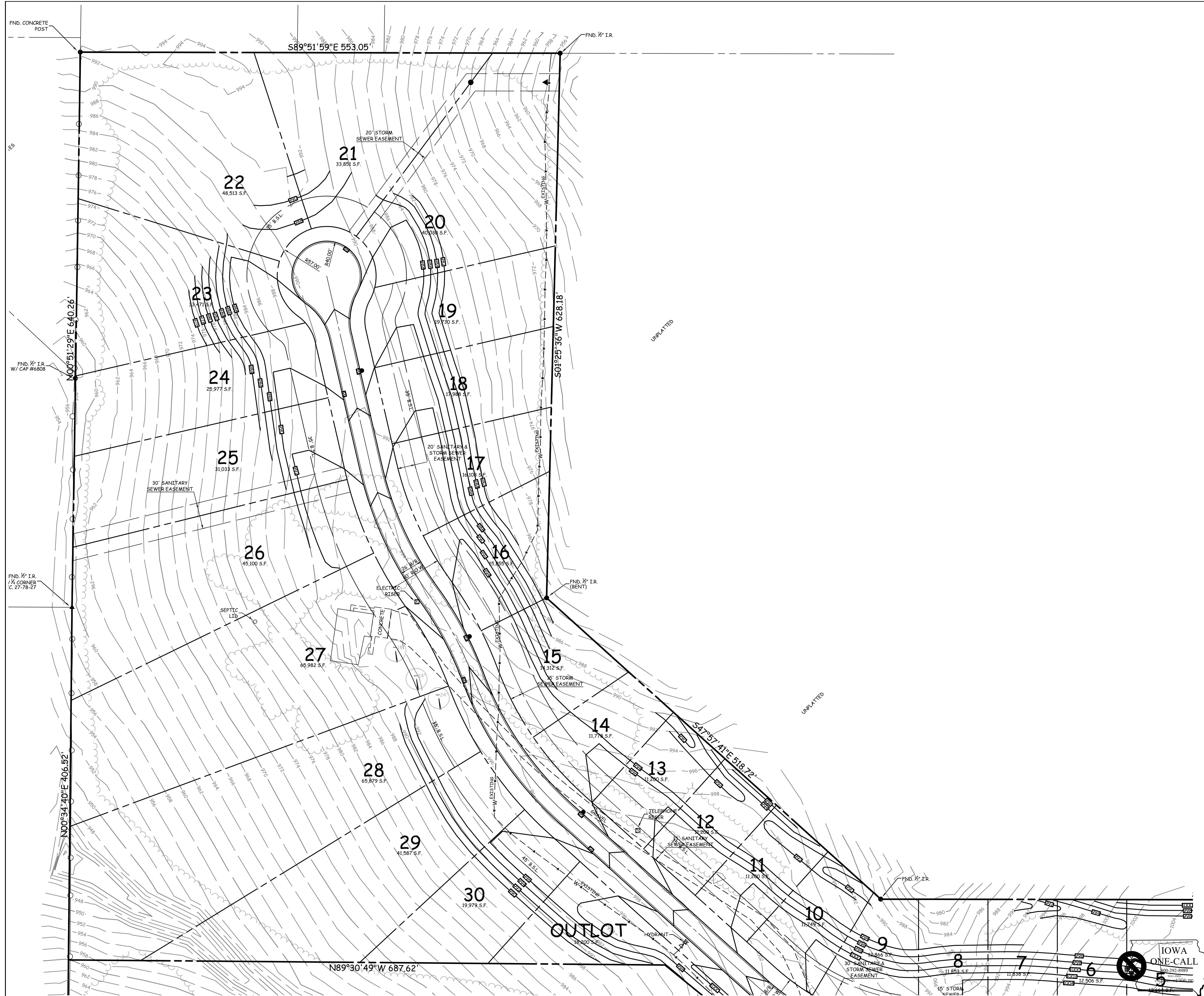
CC 2314

PRELIMINARY PLAT
 TRINDEL RIDGE

SHEET
 4 OF 7



PRELIMINARY PLAT
**TRINDEL
 RIDGE**
 Sheet 5 of 7



LEGEND

EXISTING/PROPOSED	
—	PLAT BOUNDARY
—	ST 18" STORM SEWER & SIZE
—	SAN 18" SANITARY SEWER & SIZE
—	W 4" WATER MAIN & SIZE
○	MANHOLE
◻	STORM INTAKE
⊕	FIRE HYDRANT
⊗	VALVE
△	F.E.S.
- - -	EXISTING CONTOURS
- - -	PROPOSED CONTOURS
* * *	SILT FENCE OR APPROVED FILTRATION SOCK

COOPER CRAWFORD & ASSOCIATES, L.L.C.
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS:

APPROVED: _____ INITIALS: _____ AS-BUILT: _____

PRELIMINARY PLAT
 TRINDEL RIDGE

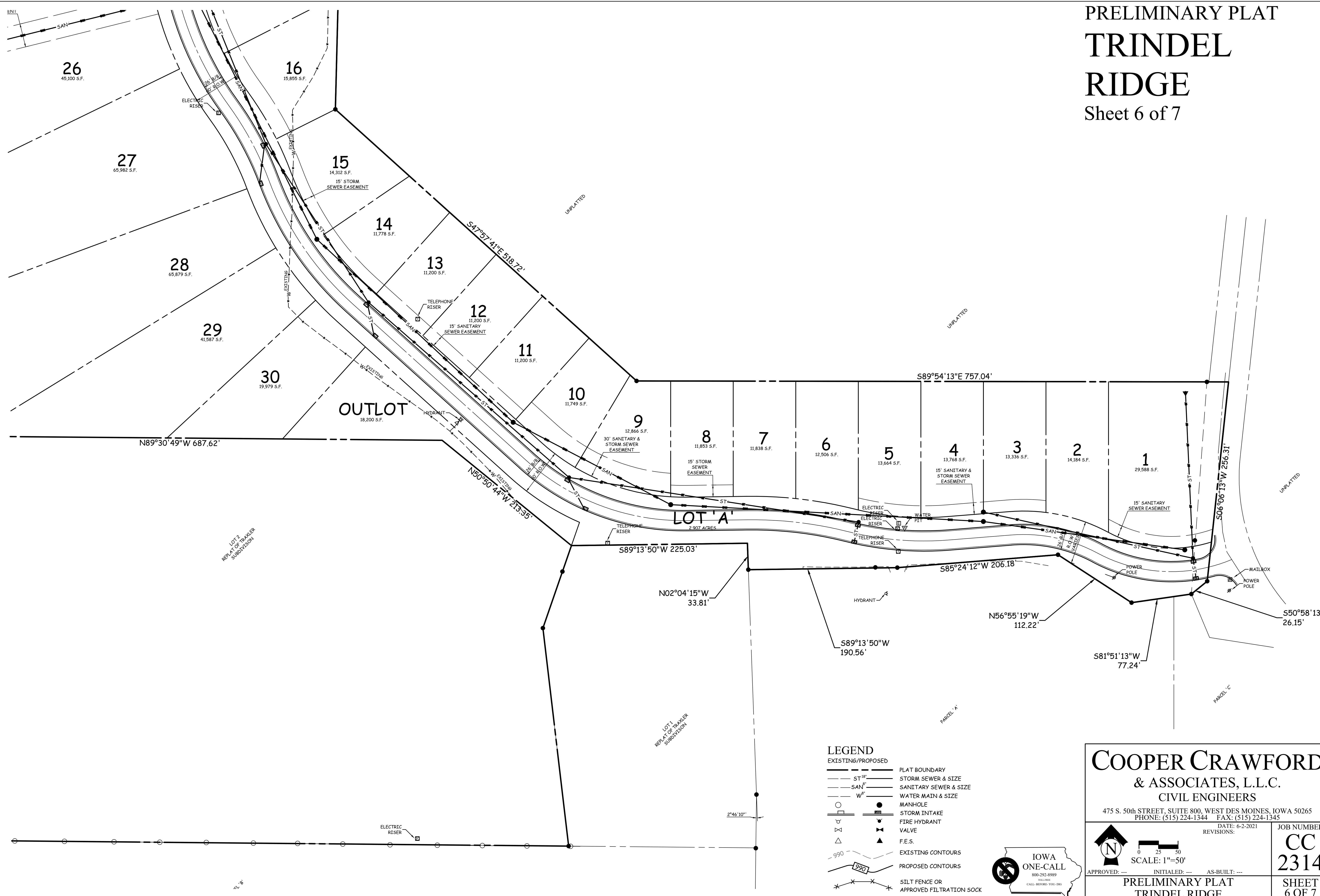
SCALE: 1"=50'

IOWA ONE-CALL

JOB NUMBER
CC 2314

SHEET
5 OF 7

PRELIMINARY PLAT
**TRINDEL
 RIDGE**
 Sheet 6 of 7



- LEGEND**
 EXISTING/PROPOSED
- PLAT BOUNDARY
 - ST 15" STORM SEWER & SIZE
 - SAN 15" SANITARY SEWER & SIZE
 - W 8" WATER MAIN & SIZE
 - MANHOLE
 - STORM INTAKE
 - ⊕ FIRE HYDRANT
 - ⊘ VALVE
 - ▲ F.E.S.
 - - - EXISTING CONTOURS
 - - - PROPOSED CONTOURS
 - ✕ SILT FENCE OR APPROVED FILTRATION SOCK

**COOPER CRAWFORD
 & ASSOCIATES, L.L.C.**
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS:

APPROVED: _____ INITIALED: _____ AS-BUILT: _____

SCALE: 1"=50'

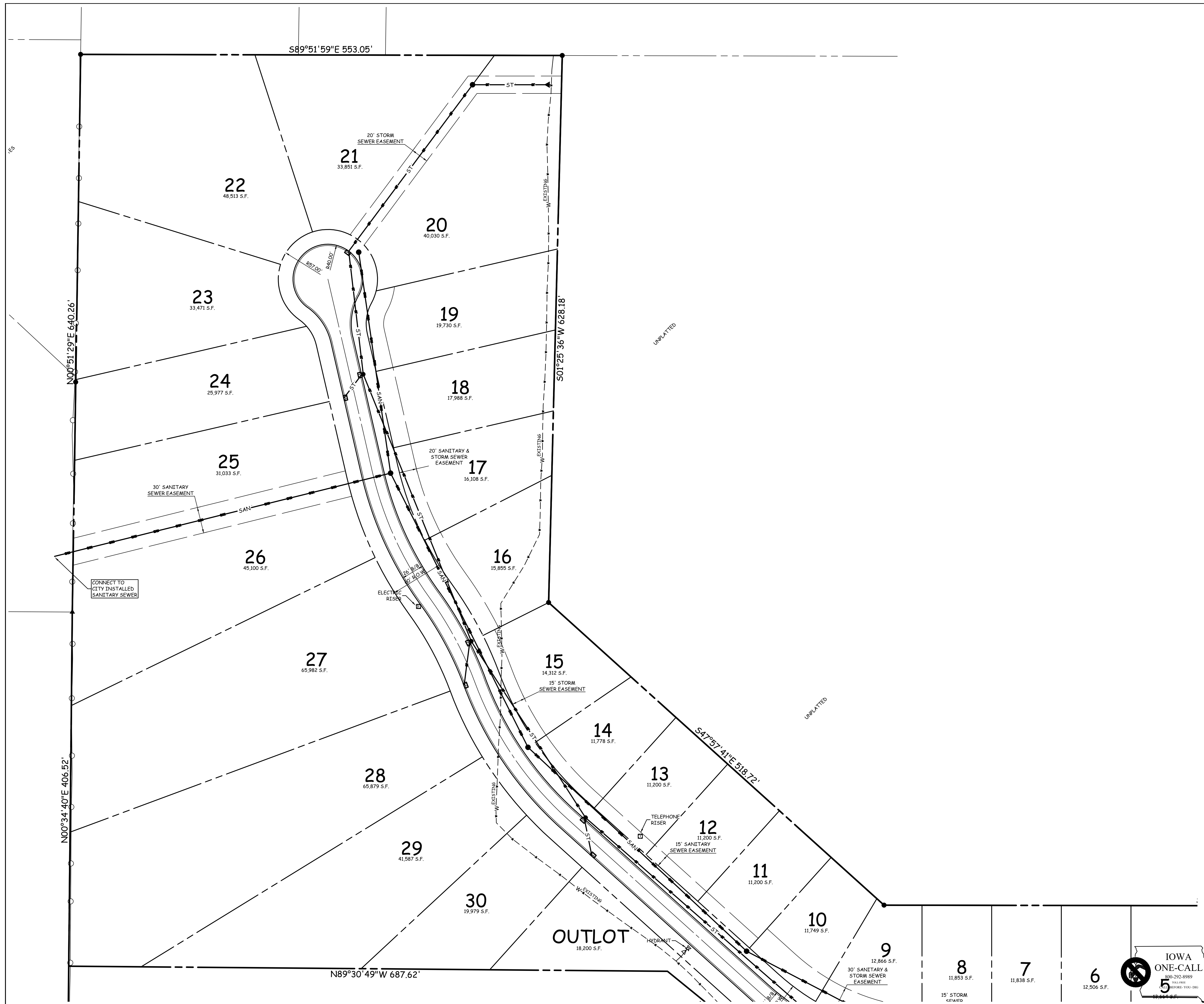
**CC
 2314**

PRELIMINARY PLAT
 TRINDEL RIDGE

SHEET
 6 OF 7



PRELIMINARY PLAT
**TRINDEL
 RIDGE**
 Sheet 7 of 7



LEGEND

EXISTING/PROPOSED	
	PLAT BOUNDARY
	STORM SEWER & SIZE
	SANITARY SEWER & SIZE
	WATER MAIN & SIZE
	MANHOLE
	STORM INTAKE
	FIRE HYDRANT
	VALVE
	F.E.S.
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SILT FENCE OR APPROVED FILTRATION SOCK

COOPER CRAWFORD & ASSOCIATES, L.L.C.
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS:
 JOB NUMBER: **CC 2314**

SCALE: 1"=50'

APPROVED: _____ INITIALED: _____ AS-BUILT: _____

**PRELIMINARY PLAT
 TRINDEL RIDGE**

SHEET 7 OF 7

IOWA ONE-CALL 800-292-8889
 CALL BEFORE YOU DIG

PRELIMINARY PLAT

TRINDLE

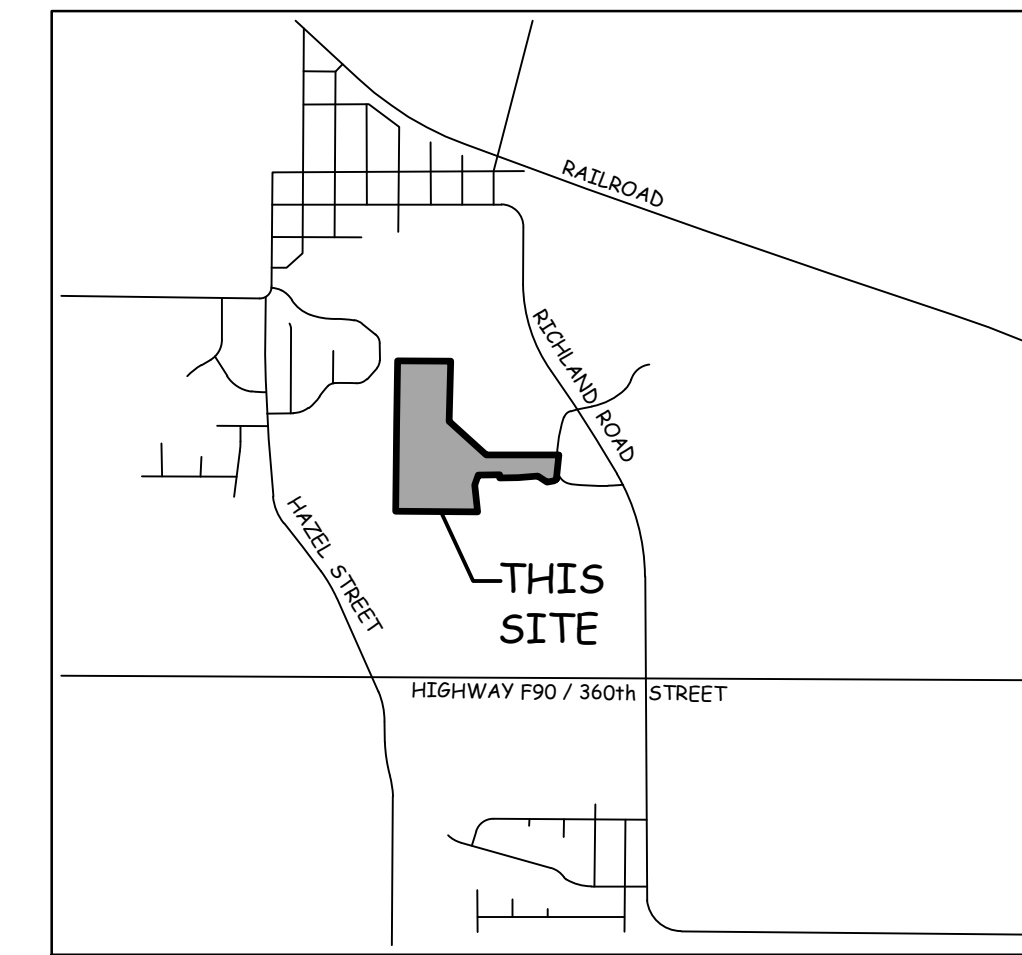
RIDGE

Sheet 1 of 7

OWNERS
 JON & JULIE STECK
 3569 RICHLAND CIRCLE
 VAN METER, IOWA 50261

PATRICK & MARY FERRING
 3567 RICHLAND CIRCLE
 VAN METER, IOWA 50261

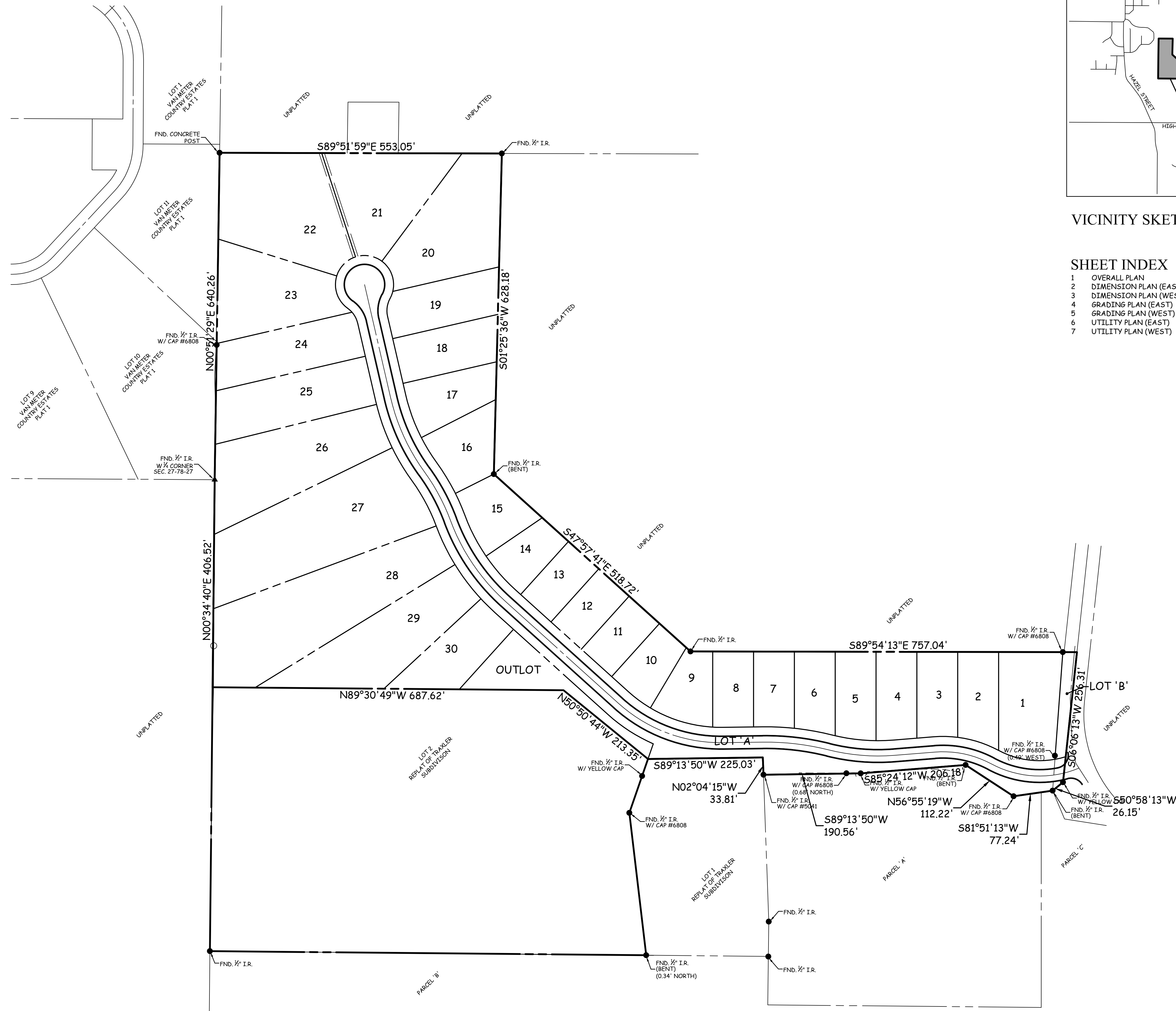
APPLICANT
 TRINDEL RIDGE, LLC
 101 MAIN STREET
 PO BOX 82
 BOONEVILLE, IOWA 50038



VICINITY SKETCH

SHEET INDEX

- 1 OVERALL PLAN
- 2 DIMENSION PLAN (EAST)
- 3 DIMENSION PLAN (WEST)
- 4 GRADING PLAN (EAST)
- 5 GRADING PLAN (WEST)
- 6 UTILITY PLAN (EAST)
- 7 UTILITY PLAN (WEST)



ZONING

EXISTING: R-1 SINGLE FAMILY RESIDENCE DISTRICT

BULK REGULATIONS

MIN. LOT AREA - 10,000 S.F.
 MIN. LOT WIDTH - 80'

SETBACKS
 FRONT - 35'
 REAR - 35'
 SIDE - 8'

LEGAL DESCRIPTION

LOTS 3, 4, 5 AND 6, REPLAT OF TRAXLER SUBDIVISION AMENDED PLAT, AN OFFICIAL PLAT, DALLAS COUNTY, IOWA, CONTAINING 29.729 ACRES MORE OR LESS (INCLUDES 0.140 ACRES COUNTY ROAD RIGHT-OF-WAY).

NOTES

1. PUBLIC UTILITY EASEMENTS ARE SUBORDINATE TO THE CITY'S USE OF ITS DESIGNATED EASEMENT IN AREAS WHERE THEY OVERLAP.
2. ALL EASEMENTS ARE PUBLIC UNLESS OTHERWISE NOTED.

LEGEND

- EXISTING/PROPOSED**
- PLAT BOUNDARY
 - ST 18" STORM SEWER & SIZE
 - SAN 8" SANITARY SEWER & SIZE
 - W" WATER MAIN & SIZE
 - MANHOLE
 - STORM INTAKE
 - FIRE HYDRANT
 - VALVE
 - F.E.S.
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - SILT FENCE OR APPROVED FILTRATION SOCK

CERTIFICATION

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.

BRADLEY R. COOPER, IOWA LICENSE NO. 12980
 MY LICENSE RENEWAL DATE IS DECEMBER 31, 2021
 PAGES OR SHEETS COVERED BY THIS SEAL:
 Sheets 1-7

COOPER CRAWFORD & ASSOCIATES, L.L.C.
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS: 6-4-2021

APPROVED: [Signature] INITIALS: [Signature] AS-BUILT: [Signature]

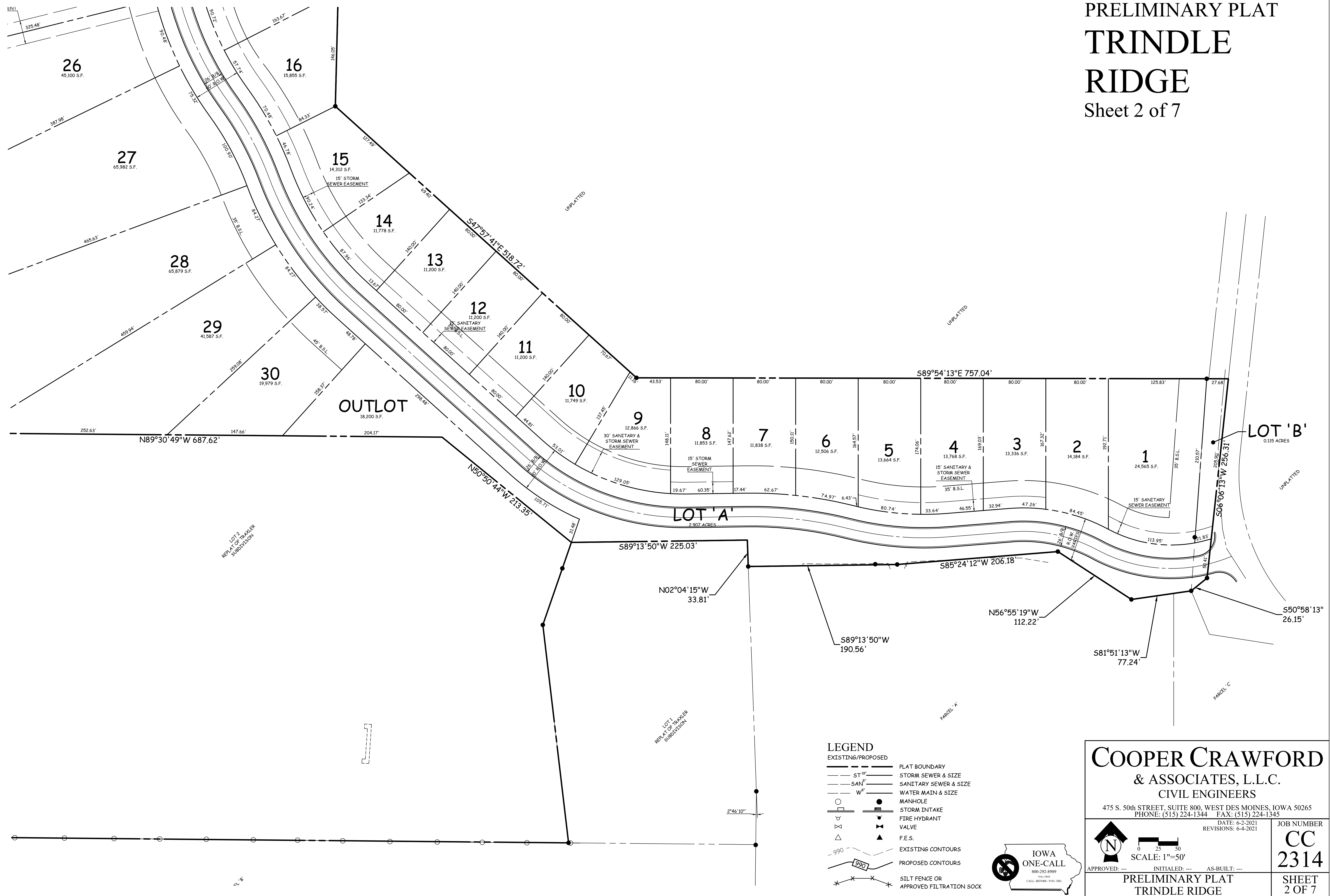
SCALE: 1"=100'

PRELIMINARY PLAT TRINDLE RIDGE

JOB NUMBER
CC 2314
 SHEET 1 OF 7



PRELIMINARY PLAT
**TRINDLE
 RIDGE**
 Sheet 2 of 7



LEGEND
 EXISTING/PROPOSED

	PLAT BOUNDARY
	STORM SEWER & SIZE
	SANITARY SEWER & SIZE
	WATER MAIN & SIZE
	MANHOLE
	STORM INTAKE
	FIRE HYDRANT
	VALVE
	F.E.S.
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SILT FENCE OR APPROVED FILTRATION SOCK



**COOPER CRAWFORD
 & ASSOCIATES, L.L.C.**
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS: 6-4-2021

APPROVED: _____ INITIALS: _____ AS-BUILT: _____

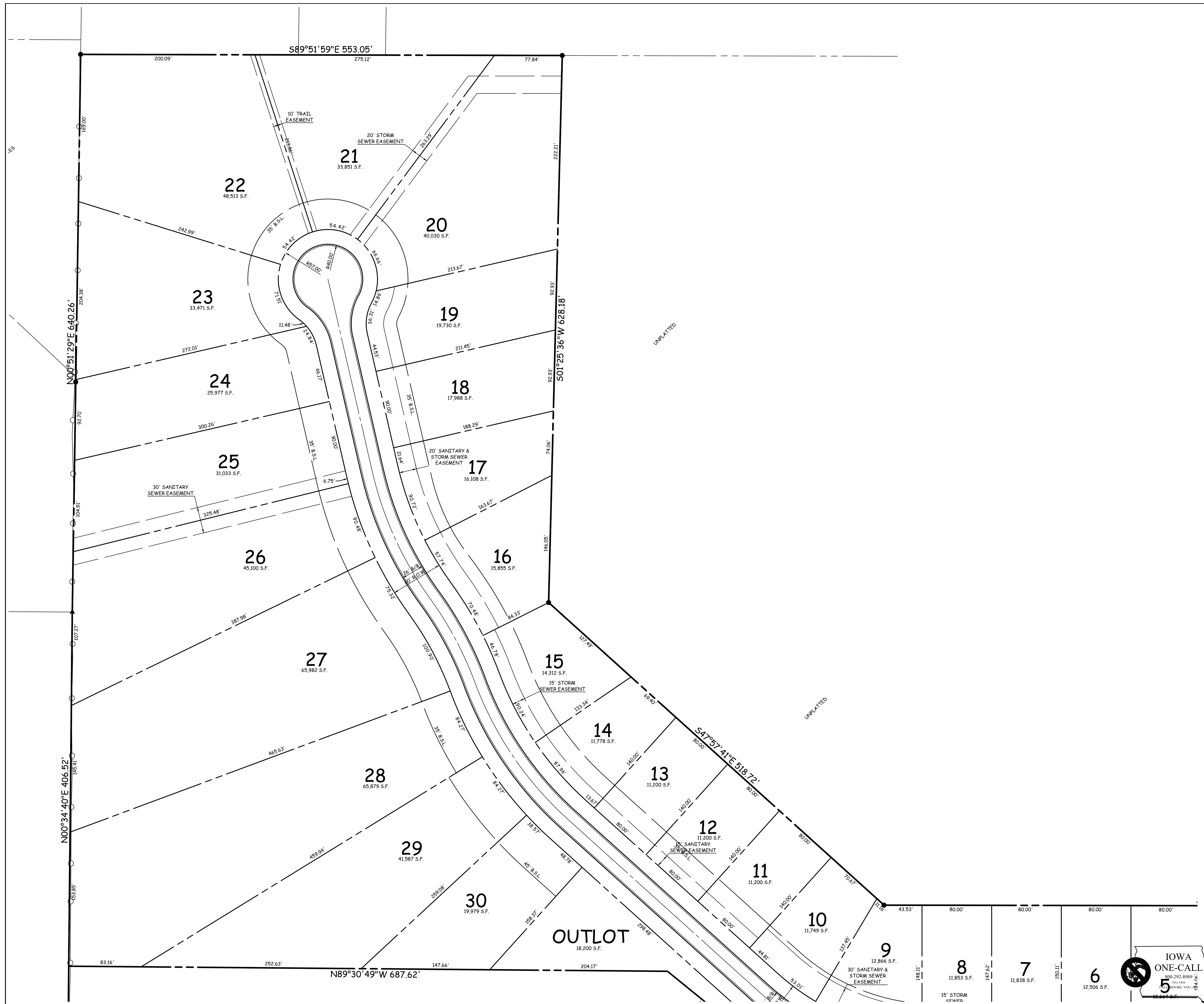
SCALE: 1"=50'

PRELIMINARY PLAT
 TRINDLE RIDGE

JOB NUMBER
**CC
 2314**

SHEET
 2 OF 7

PRELIMINARY PLAT
**TRINDLE
 RIDGE**
 Sheet 3 of 7



LEGEND

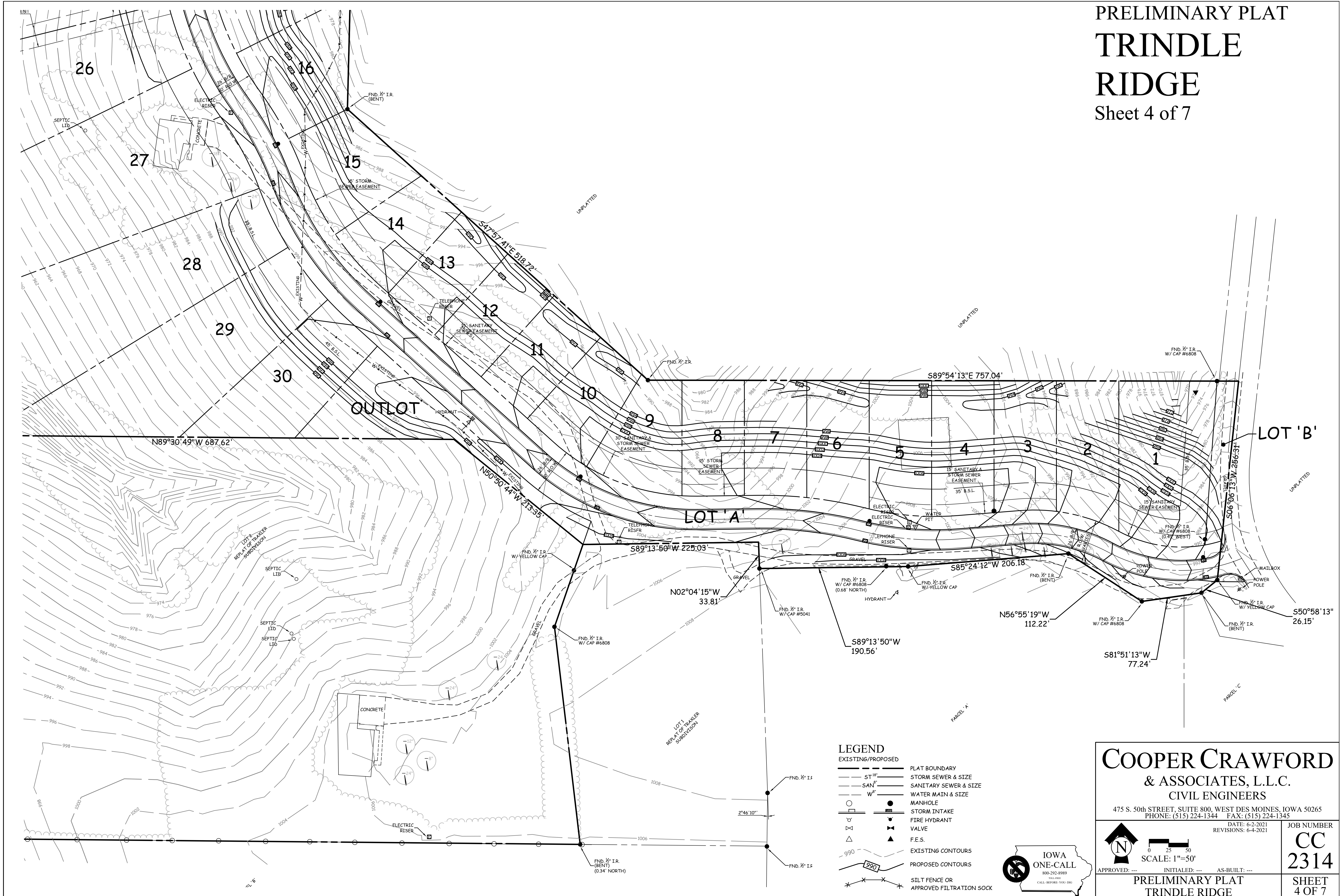
---	EXISTING/PROPOSED	---	PLAT BOUNDARY
---	ST 18"	---	STORM SEWER & SIZE
---	SAN 8"	---	SANITARY SEWER & SIZE
---	W 8"	---	WATER MAIN & SIZE
○	MANHOLE	●	MANHOLE
⊠	STORM INTAKE	⊠	STORM INTAKE
⊠	FIRE HYDRANT	⊠	FIRE HYDRANT
⊠	VALVE	⊠	VALVE
△	F.E.S.	▲	F.E.S.
- - - 990	EXISTING CONTOURS	- - - 990	EXISTING CONTOURS
- - - 990	PROPOSED CONTOURS	- - - 990	PROPOSED CONTOURS
* * *	SILT FENCE OR APPROVED FILTRATION SOCK	* * *	SILT FENCE OR APPROVED FILTRATION SOCK

**COOPER CRAWFORD
 & ASSOCIATES, L.L.C.**
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

 DATE: 6-2-2021 REVISIONS: 6-4-2021	JOB NUMBER CC 2314
APPROVED: --- INITIALS: --- AS-BUILT: ---	IOWA ONE-CALL 800-292-8889 515-281-5555 BEFORE YOU DIG
PRELIMINARY PLAT TRINDLE RIDGE	SHEET 3 OF 7

PRELIMINARY PLAT
**TRINDLE
 RIDGE**
 Sheet 4 of 7



LEGEND
 EXISTING/PROPOSED

—	PLAT BOUNDARY
— ST 18"	STORM SEWER & SIZE
— SAN 12"	SANITARY SEWER & SIZE
— W 8"	WATER MAIN & SIZE
○	MANHOLE
●	STORM INTAKE
⊕	FIRE HYDRANT
⊘	VALVE
▲	F.E.S.
- - -	EXISTING CONTOURS
- - -	PROPOSED CONTOURS
✕	SILT FENCE OR APPROVED FILTRATION SOCK

**COOPER CRAWFORD
 & ASSOCIATES, L.L.C.**
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS: 6-4-2021

DATE: 6-2-2021
 REVISIONS: 6-4-2021

SCALE: 1"=50'

APPROVED: _____ INITIALED: _____ AS-BUILT: _____

**PRELIMINARY PLAT
 TRINDLE RIDGE**

**CC
 2314**

**SHEET
 4 OF 7**

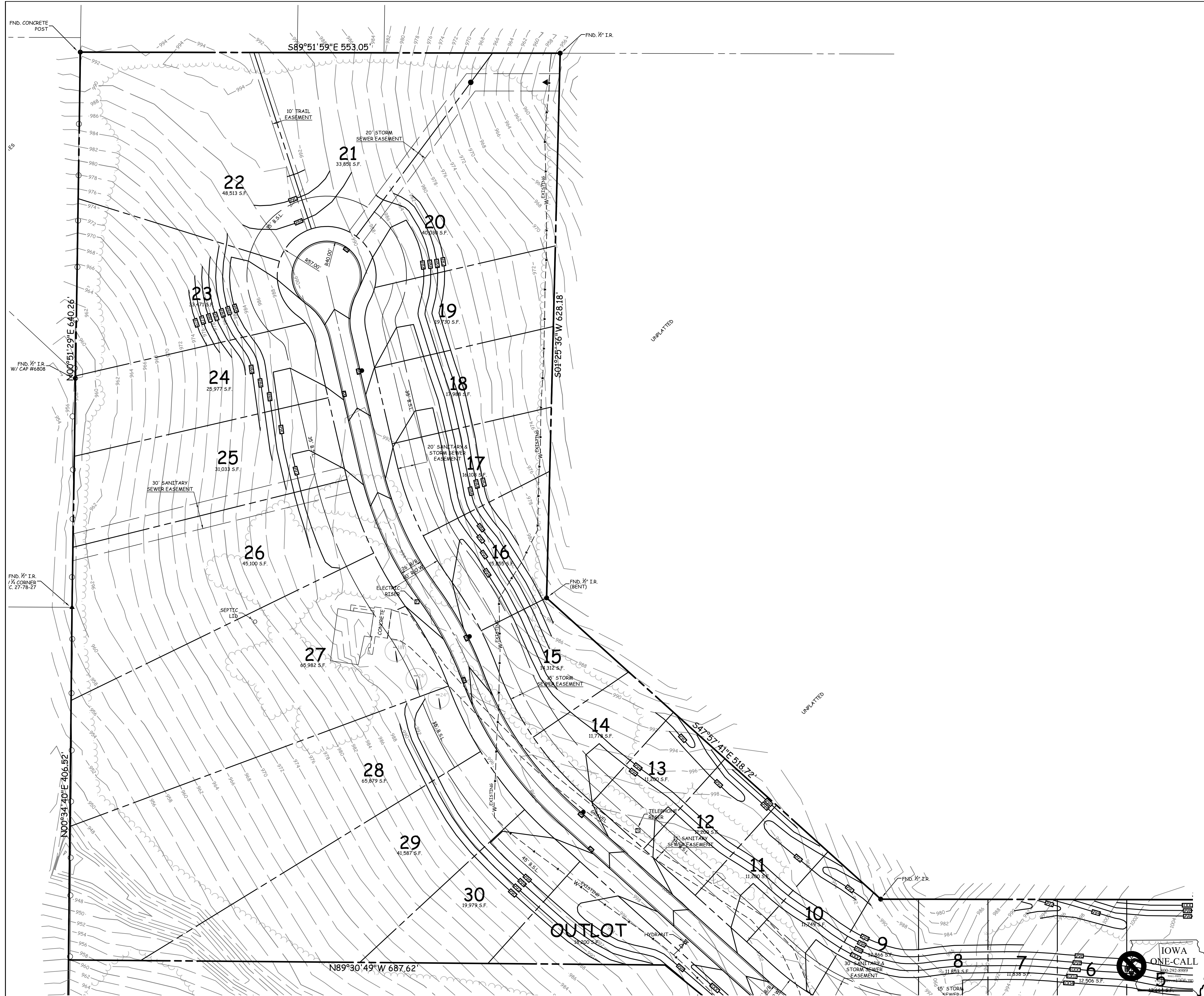


PRELIMINARY PLAT

TRINDLE

RIDGE

Sheet 5 of 7



LEGEND

EXISTING/PROPOSED	
	PLAT BOUNDARY
	STORM SEWER & SIZE
	SANITARY SEWER & SIZE
	WATER MAIN & SIZE
	MANHOLE
	STORM INTAKE
	FIRE HYDRANT
	VALVE
	F.E.S.
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SILT FENCE OR APPROVED FILTRATION SOCK

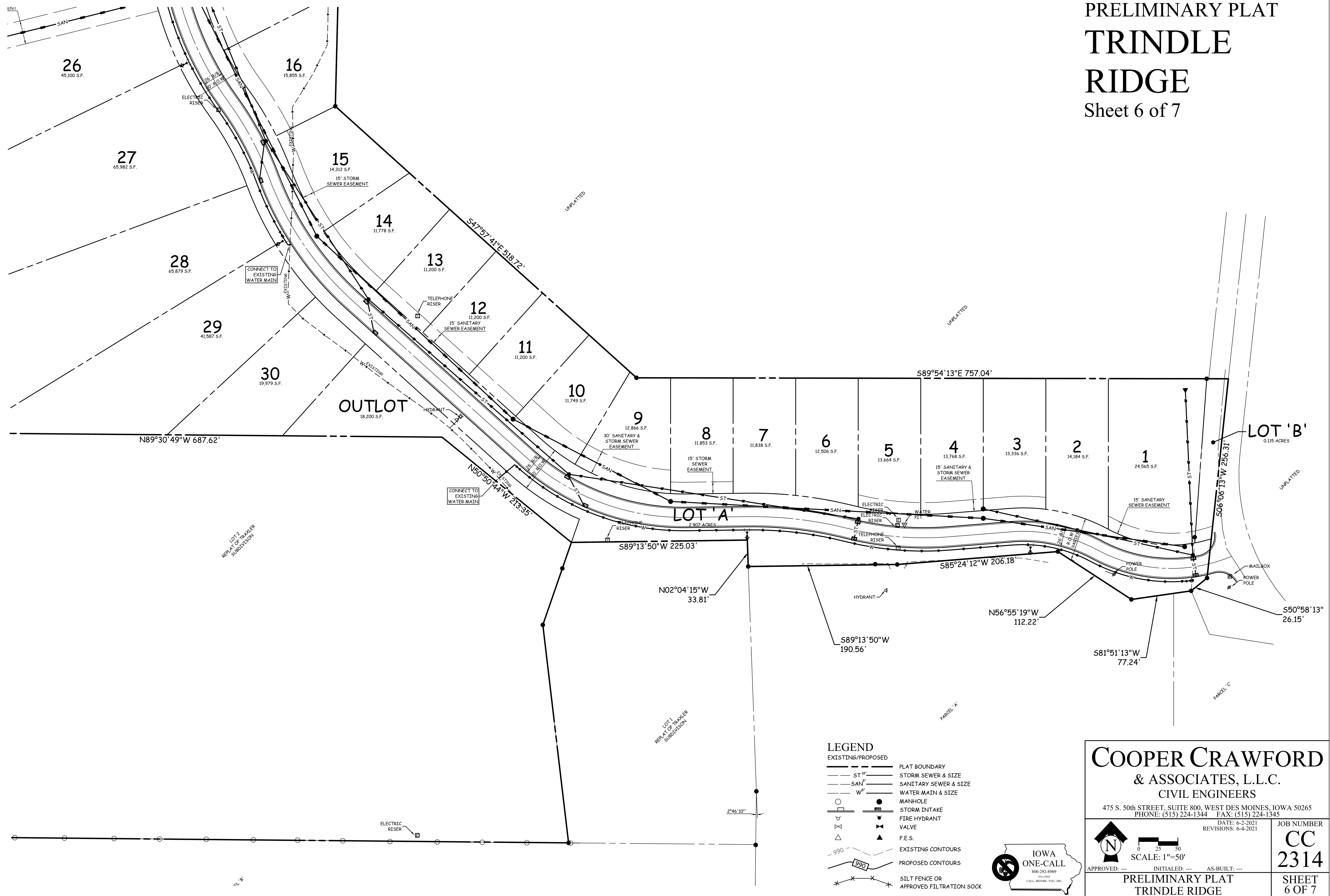
COOPER CRAWFORD & ASSOCIATES, L.L.C.
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

 DATE: 6-2-2021 REVISIONS: 6-4-2021	JOB NUMBER CC 2314
SCALE: 1"=50' APPROVED: --- INITIALS: --- AS-BUILT: ---	SHEET 5 OF 7

PRELIMINARY PLAT
TRINDLE RIDGE

PRELIMINARY PLAT
**TRINDLE
 RIDGE**
 Sheet 6 of 7



- LEGEND**
 EXISTING/PROPOSED
- PLAT BOUNDARY
 - ST 15" STORM SEWER & SIZE
 - SAN 15" SANITARY SEWER & SIZE
 - W 12" WATER MAIN & SIZE
 - MANHOLE
 - STORM INTAKE
 - ⊕ FIRE HYDRANT
 - ⊕ VALVE
 - ▲ F.E.S.
 - - - EXISTING CONTOURS
 - - - PROPOSED CONTOURS
 - * * * SILT FENCE OR APPROVED FILTRATION SOCK

**COOPER CRAWFORD
 & ASSOCIATES, L.L.C.**
 CIVIL ENGINEERS

475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS: 6-4-2021

DATE: 6-2-2021
 REVISIONS: 6-4-2021

SCALE: 1"=50'

APPROVED: _____ INITIALED: _____ AS-BUILT: _____

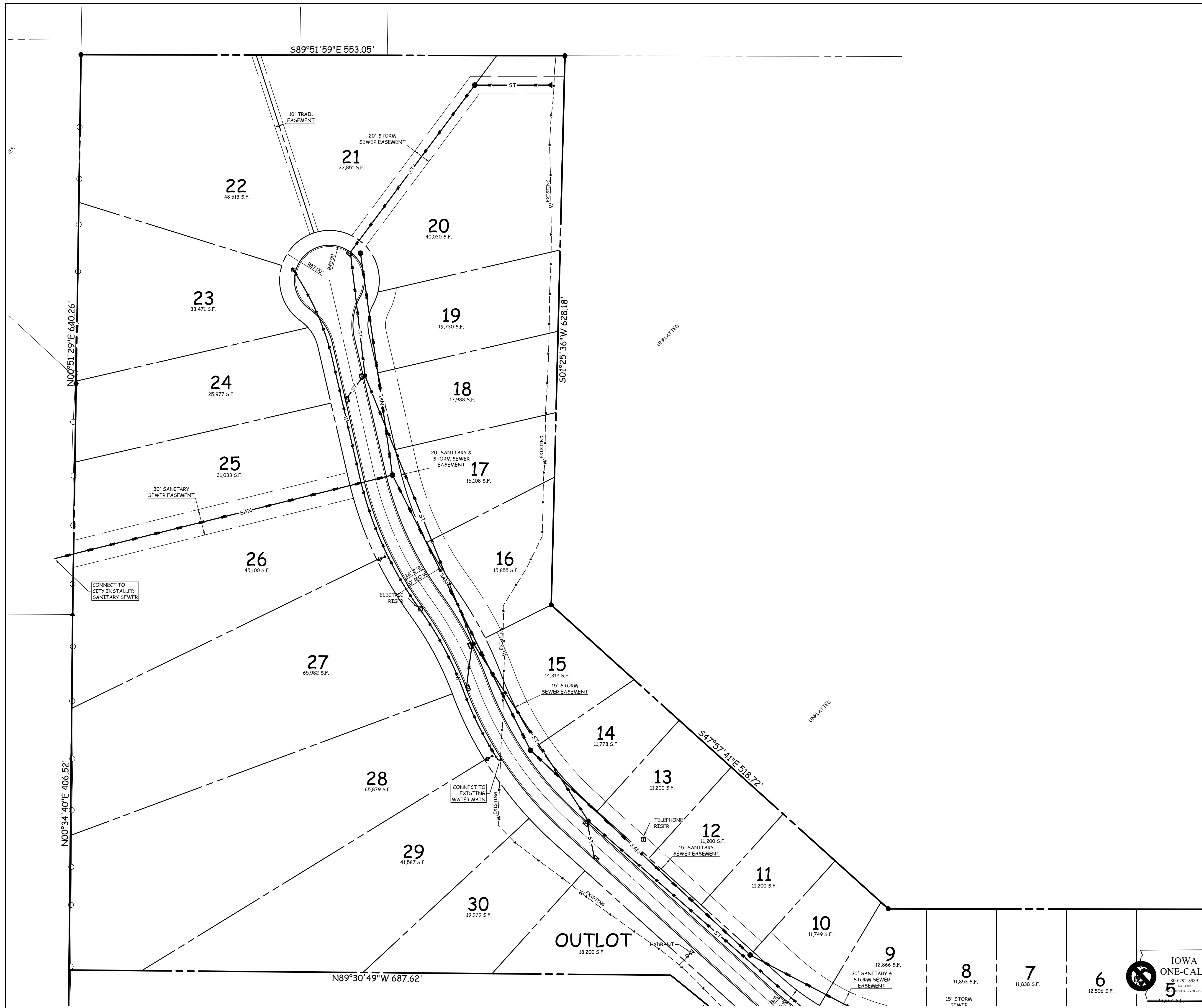
PRELIMINARY PLAT
 TRINDLE RIDGE

JOB NUMBER
**CC
 2314**

SHEET
 6 OF 7



PRELIMINARY PLAT
**TRINDLE
 RIDGE**
 Sheet 7 of 7



LEGEND

EXISTING/PROPOSED	
	PLAT BOUNDARY
	STORM SEWER & SIZE
	SANITARY SEWER & SIZE
	WATER MAIN & SIZE
	MANHOLE
	STORM INTAKE
	FIRE HYDRANT
	VALVE
	F.E.S.
	EXISTING CONTOURS
	PROPOSED CONTOURS
	SILT FENCE OR APPROVED FILTRATION SOCK

COOPER CRAWFORD & ASSOCIATES, L.L.C.
 CIVIL ENGINEERS
 475 S. 50th STREET, SUITE 800, WEST DES MOINES, IOWA 50265
 PHONE: (515) 224-1344 FAX: (515) 224-1345

DATE: 6-2-2021
 REVISIONS: 6-4-2021

APPROVED: _____ INITIALED: _____ AS-BUILT: _____

SCALE: 1"=50'

CC 2314

PRELIMINARY PLAT
 TRINDLE RIDGE

SHEET
 7 OF 7

IOWA ONE-CALL
 800-292-8889
 CALL BEFORE YOU DIG



June 3, 2021

Kyle Michel
City Administrator
City of Van Meter
505 Grant Street
P.O. Box 160
Van Meter, Iowa 50261-0160

VAN METER, IOWA
TRINDEL RIDGE
PRELIMINARY PLAT
REVIEW COMMENTS

The writer has completed a review of the first submittal of the preliminary plat of Trindel Ridge. Based on review of the preliminary plat the following comments are offered:

1. The project involves 30 single family residential lots, a street lot, and an outlot.
2. The parcel is zoned R1. All of the lots appear to meet the minimum lot area and lot width requirements.
3. The preliminary plat shows a 35-foot front yard building setback line on Lots No. 1 through 28. The front yard setback line meets the requirements of the zoning ordinance.
4. The preliminary plat shows a 45-foot front yard building setback line on Lots No. 29 and 30. The front yard setback line illustrated on the preliminary plat exceeds the minimum requirement of the ordinance. If the final plat shows a building setback line that is greater than required in the ordinance the building setback line on the final plat will govern.
5. It is suggested the preliminary plat show the rear yard and side yard setback lines. For some of the lots, such as Lot No. 15 and 16, the combination of the front yard setback distance and rear yard setback distance limit the area of the lot that is considered developable. While there is still space on the lot for a residence, it would appear preferable for the impact of building setback lines to be shown in the preliminary plat.
6. The preliminary plat shows Outlot A as a street lot. This lot will be dedicated to the City.

7. On Lot No. 1 the eastern part of the lot should be a right-of-way of Richland Circle. The preliminary plat shows what appears to be three property corners that would delineate the eastern part of the lot that should be part of the right-of-way of Richland Circle. It is recommended the portion of Lot No. 1 identified as right-of-way be designated as a street lot and dedicated to the City in fee title. This change does not appear to affect the building setback line as the setback line appears to be drawn from the edge of the way area.
8. The proposed street connects to the existing Richland Circle. The City of Van Meter has previously discussed with the developer its intent to upgrade Richland Circle between Richland Road and the new plat.
9. The preliminary plat shows the proposed street to generally be 26-foot wide street in a 60-foot right-of-way. The ordinance requirement for a "minor" street is 25-foot wide in a 50-foot right-of-way.
10. In the area of Lot No. 2 and Lot No. 3 the right-of-way width is noted as varying and in some areas the right-of-way width on the southerly side of the street would be less than the normal distance of 17 feet between the edge of street and edge of right-of-way. However, it appears the right-of-way is at least 50 feet in width even if it is not symmetrical.
11. The street in Trindel Ridge is a long cul-de-sac. The total length of the cul-de-sac is approximately 1,700 feet and would be in excess of the 600-foot limitation for a cul-de-sac in the subdivision ordinance. However, the topography of the area does not lend itself to the street in Trindel Ridge being interconnected to other portions of the City street network. The City would need to waive the ordinance length limitation in order to approve the plat.
12. The preliminary plat does not show slope of the street. A review of the contours would indicate the street slope is in conformance with SUDAS requirements for residential streets.
13. Sanitary sewer service is provided by a sanitary sewer that starts with a connection to the City constructed offsite sanitary sewer along the lot line between Lot No. 25 and Lot No. 26. The sanitary sewer continues easterly along the lot line to Street Lot A.
14. A sanitary sewer is shown flowing southerly from the cul-de-sac to the sanitary sewer between Lot No. 25 and No. 26.

15. A sanitary sewer is shown flowing northwesterly from Lot No. 1 along Street Lot A to the sanitary sewer between Lot No. 25 and Lot No. 26.
16. No information is provided on the depth, slope or flow line of the sanitary sewer. Review of the sanitary sewer profile will need to await submittal of the construction plans.
17. The existing water main is shown on the preliminary plat. The existing water main is located in the rear yard areas of Lots No. 16 through 20 and crosses to the southerly side of the street between Lot No. 15 and No. 29. The water main continues southeasterly along the southerly side of the street to the area of the Outlot before it leaves the plat area.
18. The preliminary plat shows one hydrant located in the area of Lot No. 11.
19. The preliminary plat must show hydrant coverage circles.
20. Based on the location of the existing water main and no proposed water main the vast majority of the lots will be located outside of the required hydrant coverage.
21. The preliminary plat must address how water service will be provided to all of the lots within the plat.
22. The preliminary plat will need to address a means of providing adequate fire protection. Adequate fire protection may require the construction of additional water main.
23. The preliminary plat shows a storm sewer system located in the eastern part of the development, including a storm sewer outlet to the north on Lot No. 1 and a longitudinal storm sewer from Lot No. 1 to Lot No. 4.
24. A second, and larger, storm sewer system is shown starting with an outlet storm sewer between Lot No. 20 and No. 21. The storm sewer continues southerly and southeasterly along the Street Lot A and terminates near the west boundary of Lot No. 5.
25. The proposed storm sewer would appear to be generally adequate and provides a stormwater service outlet to all of the residences for sump pump discharge.
26. No stormwater detention appears to be proposed as part of the plat development.

Kyle Michel
June 3, 2021
Page 4

27. No stormwater management plan was submitted with the preliminary plat. A more detailed stormwater management plan will need to be provided as part of the construction plans.
28. The grading plan indicates on site grading will generally be provided on the northerly and easterly side of the street encompassing Lots No. 1 through 20.
29. On the westerly side of the street minimal grading is proposed between the street and front yard setback. The majority of the lots on the west side of the street will remain unchanged by development.
30. The grading plan would indicate intent is for the front yards to drain toward the street and the rear yards to drain away from the street toward the plat boundary.

If you have any questions or comments concerning the project, please contact the writer at 225-8000 or bveenstra@v-k.net.

VEENSTRA & KIMM, INC.

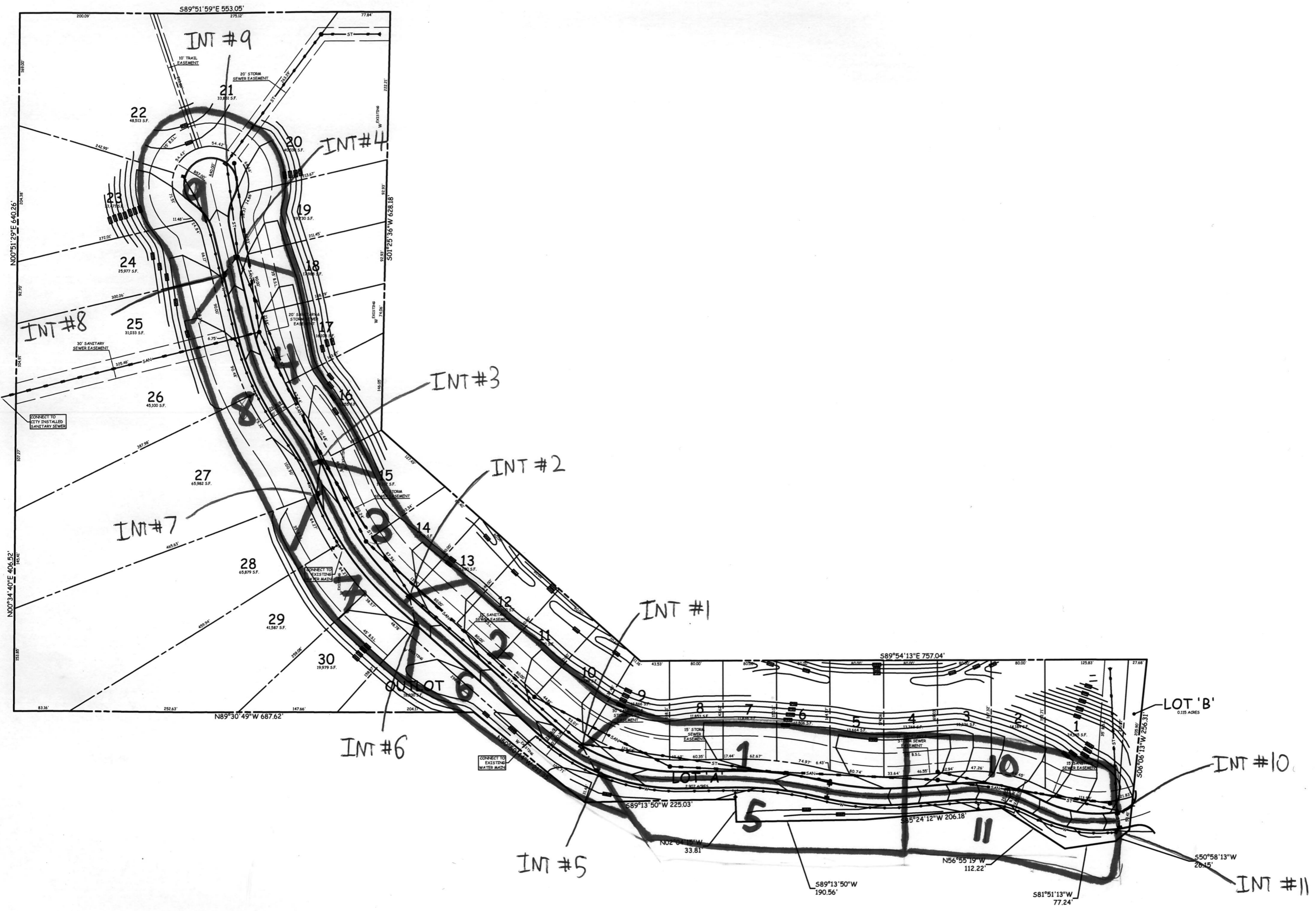


H. R. Veenstra Jr.

HRVJr:kld

0-11

Cc: Brad Cooper, Cooper & Crawford



Trindle Ridge

CC2314

DRAINAGE CALCULATIONS

DESIGN YEAR = 10-YEAR / 100-YEAR

CREATED: 6/3/21
 UPDATED:

#1

#2

#3

#4

#5

#6

#7

#8

#9

#10

#11 #12

#13

#14

#15

#	DRAINAGE AREA		RUNOFF						STUCTURE		GUTTER FLOW & AND INTAKE INTERCEPTION														PIPE DESIGN										REMARKS													
	A (acres)	T _C (min.)	C10	C100	I10 (in/hr.)	I100 (in/hr.)	Q10 (cfs)	Q100 (cfs)	#	TYPE	LOCATION	Q10 (cfs)	Q100 (cfs)	S _L (ft./ft.)	S _T (ft./ft.)	Z	d10 (ft.)	d100 (ft.)	d10 LOW PT. (ft.)	d100 LOW PT. (ft.)	T ₅ (ft.)	T ₁₀₀ (ft.)	T ₅ LOW PT. (ft.)	T ₁₀₀ LOW PT. (ft.)	K	R _F	Q _{N-10} (cfs)	Q _{N-100} (cfs)	Q _{N-10} LOW PT. (cfs)	Q _{N-100} LOW PT. (cfs)	Q _{BYPASS-10} (cfs)	Q _{BYPASS-100} (cfs)	BYPASS TO AREA # (cfs)	FROM STRUCTURE #		TO STRUCTURE #	TYPE OF PIPE	DIAMETER (in)	DIAMETER (ft.)	n	SLOPE (ft./ft.)	AREA (ft ²)	HYDRAULIC RADIUS (ft.)	DESIGN Q (cfs)	ACTUAL Q (cfs)	ACTUAL Q100 (cfs)	Velocity	% FULL
1	0.92	15	0.45	0.65	4.82	7.44	2.00	4.45	1	SW-503		2.00	4.45	0.0200	0.020	50.00	0.16	0.22			8.20	11.08			27.0	0.90	2.39	3.94			0.00	0.51	2	5	1	RCP	15	1.25	0.013	0.0100	1.23	0.31	6.46	3.24	5.35	5.26		
2	0.71	15	0.45	0.65	4.82	7.44	1.54	3.43	2	SW-503		1.54	3.94	0.0150	0.020	50.00	0.16	0.22			7.85	11.17			27.0	0.90	2.22	4.00			0.00	0.00	3	1	2	RCP	15	1.25	0.013	0.0200	1.23	0.31	9.14	5.24	9.30	7.44		
3	0.50	15	0.45	0.65	4.82	7.44	1.08	2.42	3	SW-503		1.08	2.42	0.0250	0.020	50.00	0.13	0.17			6.26	8.45			27.0	0.90	1.52	2.51			0.00	0.00	4	6	2	RCP	15	1.25	0.013	0.0100	1.23	0.31	6.46	1.55	4.83	5.26		
4	0.62	15	0.45	0.65	4.82	7.44	1.34	3.00	4	SW-503		1.34	3.00	0.0100	0.020	50.00	0.16	0.22			8.06	10.88			27.0	0.90	2.32	3.83			0.00	0.00	9	2	3	RCP	18	1.50	0.013	0.0300	1.77	0.38	18.19	8.33	18.07	10.30		
5	1.50	15	0.45	0.65	4.82	7.44	3.25	7.25	5	SW-501		3.25	7.25	0.0200	0.020	50.00	0.20	0.27			9.85	13.31			27.0	0.90	3.24	5.35			0.01	1.90	6	7	3	RCP	15	1.25	0.013	0.0100	1.23	0.31	6.46	1.08	2.83	5.26		
6	0.71	15	0.45	0.65	4.82	7.44	1.54	3.43	6	SW-501		1.55	5.34	0.0150	0.020	50.00	0.16	0.25			7.88	12.52			27.0	0.90	2.23	4.83			0.00	0.50	7	3	4	RCP	21	1.75	0.013	0.0250	2.41	0.44	25.05	10.50	23.31	10.42		
7	0.50	15	0.45	0.65	4.82	7.44	1.08	2.42	7	SW-501		1.08	2.92	0.0250	0.020	50.00	0.13	0.18			6.26	9.07			27.0	0.90	1.52	2.83			0.00	0.09	8	8	4	RCP	15	1.25	0.013	0.0100	1.23	0.31	6.46	1.52	3.48	5.26		
8	0.70	15	0.45	0.65	4.82	7.44	1.52	3.39	8	SW-501		1.52	3.48	0.0100	0.020	50.00	0.17	0.23			8.43	11.50			27.0	0.90	2.50	4.20			0.00	0.00	9	4	9	RCP	24	2.00	0.013	0.0200	3.14	0.50	31.99	13.36	29.79	10.18		
9	1.10	15	0.45	0.65	4.82	7.44	2.39	5.32	9	SW-501		2.39	5.32	0.0100	0.020	50.00	0.20	0.27			9.99	13.49			27.0	0.90	3.32	5.48			0.00	0.00				RCP	24	2.00	0.013	0.0250	3.14	0.50	35.77	15.75	35.11	11.39		To offsite area
10	0.68	15	0.45	0.65	4.82	7.44	1.47	3.29	10	SW-503		1.47	3.29	0.0500	0.020	50.00	0.12	0.17			6.17	8.33			27.0	0.90	1.49	2.45			0.00	0.84				RCP	15	1.25	0.013	0.0100	1.23	0.31	6.46	1.51	2.50	5.26		
11	0.70	15	0.45	0.65	4.82	7.44	1.52	3.39	11	SW-501		1.52	3.39	0.0500	0.020	50.00	0.12	0.17			6.23	8.42			27.0	0.90	1.51	2.50			0.01	0.89				RCP	15	1.25	0.013	0.0100	1.23	0.31	6.46	2.99	4.95	5.26		To offsite area

ABBREVIATIONS

T_C = time of concentration (min.)
 I = rainfall intensity (in/hr.)
 A = area (acres) (for runoff calculation)
 Q = discharge (cfs)
 FES = flared end section
 M-A = type 'M-A' intake
 M-C = type 'M-C' combination intake
 AREA = type 'RCP' area intake
 M-B = type 'M-B' manhole
 S_L = longitudinal street slope (ft./ft.)
 S_T = transverse street slope (ft./ft.)
 Z = 1/S_T = reciprocal of transverse slope
 d = depth of flow in gutter at face of curb (ft.)
 T = spread of water in gutter from face of curb (ft.)
 K = value used in equation Q=Kd (from fig. 5.3 & 5.4)
 R_F = reduction factor
 Q_N = allowable flow intercepted by intake (cfs)
 RCP = reinforced concrete pipe
 n = Manning's roughness coefficient
 H = total head (ft.) = d+a
 a = intake depression = 0.167' for vane grates
 A = area (ft²) (for pipe capacity calculation)
 D = diameter of pipe (in. or ft.)
 Pi = 3.14159
 R_H = hydraulic radius (ft.)
 S = slope of pipe (ft./ft.)

EQUATIONS

- #1: Q=C*I*A
- #2: Q=Q (from drainage area) + Q_{BYPASS} (from upstream area)
- #3: Z=1/S_T
- #4: d=(Q/(.36*(Z/n)*(S_L^{1.485})))^{0.375}
 where n = 0.016
- #5: SEE NOTES TO RIGHT
- #6: T=Z*d
- #7: Q_N=K*d^{1.485}/3 * R_F (straight grade)
- #8: Q_N=(8.44*(H^{1.485})+(8.25*(H^{1.485}))) * R_F (low point)
 where H=d+a
 where a=0.167' for vane grates
- #9: Q_{BYPASS}=Q_N * Q (in gutter)
- #10: D (ft.) = D (in.) / 12
- #11: A=(Pi/4)*(D²)
- #12: R_H=D/4
- #13: DESIGN Q=A*(1.486/n)*(R_H^{483/400})*(S^{1.485})
 where n=0.013
- #14: ACTUAL Q = Q_N + all flows coming in
- #15: % FULL = ACTUAL Q / DESIGN Q

STREET CAPACITY FOR MINOR STORMS

LOCAL STREET
 **max spread to crown of street
 T_{max} = 13.0'
 d_{max} = 13.0' * 2.00% = 0.26'

COLLECTOR STREET
 ** max spread must be 8' from centerline of street
 T_{max} = 15.5' - 8' = 7.5'
 d_{max} = 7.5' * 2.50% = 0.19'

COLLECTOR STREET
 ** max spread must be 12' from centerline of street
 T_{max} = 32.5' - 12' = 20.5'
 d_{max} = 11' * 3.00%+9.5' * 2.00% = 0.52'

STREET CAPACITY FOR MAJOR STORMS

LOCAL STREET
 ** inundated area shall not exceed ROW or 3' above street crown, whichever is less
 d_{max} = (13.0' * 2.00%)+0.25' = 0.51'

COLLECTOR STREET
 ** inundated area shall not exceed ROW or 3' above street crown, whichever is less
 d_{max} = (15.5' * 2.50%)+0.25' = 0.64'

COLLECTOR STREET
 ** inundated area shall not exceed ROW or 3' above street crown, whichever is less
 d_{max} = (11' * 3.00%+13.5' * 2.00%+8' * 1.00%)+0.25' = 0.93'