CITY OF SEWARD
City Council
Regular Meeting
Agenda

Tuesday, February 21, 2023	**7:00 PM**	**Municipal Building Council Chambers**

NOTICE IS HEREBY GIVEN that a meeting of the City Council of the City of Seward, Nebraska will be held at 7:00 PM on Tuesday, February 21, 2023, in the basement of the Civic Center, 616 Bradford Street, Seward, Nebraska in which the meeting will be open to the public. The Mayor and City Council reserve the right to adjourn into Closed Session as per Section 84-1410 of the Nebraska Revised Statutes. An Agenda for such meeting, kept continually current, is available at the Office of the City Clerk, 537 Main Street, Seward, Nebraska, during normal business hours. Individuals requiring physical or sensory accommodations, who desire to attend or participate, please contact the City Clerk's Office at 402.643.2928 no later than 3:30 PM on the Friday preceding the Council Meeting.

City financial claims and related invoices will be available for Council member review, audit and voluntary signatures at the meeting location beginning 30 minutes prior to the scheduled meeting time.

CALL TO ORDER
PLEDGE OF ALLEGIANCE
DISCLOSURE OF OPEN MEETINGS ACT & OTHER NOTIFICATIONS
This is an Open Meeting of the Seward Nebraska Governing Body. The City of Seward abides by the Nebraska Open Meetings Act in conducting business. A copy of the Nebraska Open Meetings Act is displayed on the north wall of this meeting room facility as required. Disclosure of meeting recording processes is posted in the Meeting Room. A participant sign-in sheet is available for use by any Citizen addressing the Council. Presenters shall approach the podium, state their name & address for the Clerk's record and are asked to limit remarks to five minutes. All remarks shall be directed to the Mayor who shall determine by whom any appropriate response shall be made. The City of Seward reserves the right to adjust the order of items on this Agenda if necessary and may elect to take action on any of the items listed.
ROLL CALL
CONSENT AGENDA
1. City Codes Director Report

CURRENT YEAR: January 2023

Permits	Quantity	Permit Fee	Valuation
NEW CONST.	0	$ -	$ -
REMODEL/ADDIT.	20	$ 2,514.25	$ 675,278.18
ACCESSORY	8	$ 183.70	$ 39,664.00
RELOCATE	46	$ 3,213.00	$ 973,929.64
ELECTRIC			
PLUMBING	8	$ 925.00	
MECHANICAL	11	$ 10,011.00	
SEWER TAP	0	$ -	
WATER TAP	0	$ -	
TEMP. ELEC.	0	$ -	
ELECTRIC SER.	0	$ -	
TOTALS	93	$ 16,846.95	$ 1,688,871.82

LAST YEAR: January 2022

Permits	Quantity	Permit Fee	Valuation
NEW CONST.	0	$ -	$ -
REMODEL/ADDIT.	4	$ 340.00	$ 66,293.69
ACCESSORY	5	$ 252.50	$ 10,300.00
RELOCATE	1	$ 50.00	$ 13,619.64
ELECTRIC			
PLUMBING	9	$ 450.00	$ -
MECHANICAL	8	$ 530.00	$ -
SEWER TAP	0	$ -	$ -
WATER TAP	0	$ -	$ -
TEMP. ELEC.	0	$ -	$ -
ELECTRIC SER.	0	$ -	$ -
TOTALS	27	$ 1,622.50	$ 90,213.33

YEAR TO DATE January to December 2023

Permits	Quantitiy	Permit Fee	Valuation
NEW CONST.	0	$ -	$ -
REMODEL/ADDIT.	20	$ 2,514.25	$ 675,278.18
ACCESSORY	8	$ 183.70	$ 39,664.00
RELOCATE	46	$ 3,213.00	$ 973,929.64
ELECTRIC			
PLUMBING	8	$ 925.00	$ -
MECHANICAL	11	$ 10,011.00	$ -
SEWER TAP	0	$ -	$ -
WATER TAP	0	$ -	$ -
TEMP. ELEC.	0	$ -	$ -
ELECTRIC SER.	0	$ -	$ -
TOTALS	93	$ 16,846.95	$ 1,688,871.82

YEAR TO DATE January to December 2022

Permits	Quantity	Permit Fee	Valuation
NEW CONST.	0	$ -	$ -
REMODEL/ADDIT.	4	$ 340.00	$ 66,293.69
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ELECTRIC			
PLUMBING	9	$ 450.00	$ -
MECHANICAL	8	$ 530.00	$ -
SEWER TAP	0	$ -	$ -
WATER TAP	0	$ -	$ -
TEMP. ELEC.	0	$ -	$ -
ELECTRIC SER.	0	$ -	$ -
TOTALS	27	$ 1,622.50	$ 90,213.33

OPEN Property Maintenance Code Violation Report

					Updated 2-13-2023
Property Address	**Violation Type**	**Deadline**	**Owner Information**	**Delivery Type**	**Status**
2023					
716 N 7th St	Fire damage, weeds, vehicles, decayed roof, decayed cellar entrance	4/10/2023	Dennis & Willa Taylor	Mail/In Person by PD	Police Chief Peters and Building Director Dworak met with Dennis and Willa Taylor and discussed the situation. A 60 day notice for yard clean up and construction action plan was delivered. Upon follow up inspection, vehicles have been removed, a full dumpster was in the driveway and clean up had begun
716 N 7th	Vehicles, weeds	1/26/2023	Dennis & Willa Taylor	Letter	Shannon Arena, CSO has verfied the vehicles, weeds, and the water service has not been turned back on

2. City Treasurer Report

Pledges By Pledgee And Maturity

BBA

Pledged To: CITY TREASURER

Jones Bank - Seward, NE

As Of 1/31/2023

Receipt# / CUSIP / Safekeeping Location	ASC 320	Description / Maturity / Prerefund	Pool/Type / Coupon	Moody / S&P	Original Face / Pledged Percent	Pledged: Original Face	Pledged: Par	Pledged: Book Value	Pledged: Market Value
803760FD4 COMM: COMMERCE BANK	AFS	SARPY CO SID #180-REF NE 28 12/15/28 12/28/23 @ 100.00	3.70		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	202,216.00
164543BF6 COMM: COMMERCE BANK	AFS	CHERRY CO NE 40 12/15/40	3.00	Aa3	200,000.00 100.00%	200,000.00	200,000.00	203,321.37	202,892.00
256449BC2 COMM: COMMERCE BANK	AFS	DODGE SD #595-QSCB NE 25 12/15/25	6.00		300,000.00 100.00%	300,000.00	300,000.00	300,000.00	300,339.00
148006EZ8 COMM: COMMERCE BANK	AFS	CASS CO SD #1 NE 26 12/15/26	2.35		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	199,998.00
25933AFG6 COMM: COMMERCE BANK	AFS	DOUGLAS SID #492-REF NE 28 08/15/28	3.20		175,000.00 100.00%	175,000.00	175,000.00	175,000.00	175,001.75
80373YCT1 COMM: COMMERCE BANK	AFS	SARPY CO SID #158-REF NE 29 11/15/29	3.10		155,000.00 100.00%	155,000.00	155,000.00	155,000.00	155,046.50
486890X92 COMM: COMMERCE BANK	AFS	KEARNEY NE 30 10/15/30	2.60	A+	150,000.00 100.00%	150,000.00	150,000.00	150,000.00	150,022.50
0792124W3 COMM: COMMERCE BANK	AFS	BELLEVUE-REF NE 30 12/15/30	3.10		250,000.00 100.00%	250,000.00	250,000.00	250,000.00	250,132.50
751265RA9 COMM: COMMERCE BANK	AFS	RALSTON-VEHICLE NE 32 06/01/32	3.70		300,000.00 100.00%	300,000.00	300,000.00	300,000.00	300,099.00
661615UB8 COMM: COMMERCE BANK	AFS	N PLATTE-REF NE 32 12/15/32	3.00	A	200,000.00 100.00%	200,000.00	200,000.00	200,420.23	200,516.00
698864HR9 COMM: COMMERCE BANK	AFS	PAPILLION MUNI FACS NE 33 12/15/33	3.00	Aa1	175,000.00 100.00%	175,000.00	175,000.00	176,275.95	176,111.25
818468BN9 COMM: COMMERCE BANK	AFS	SEWARD-REF NE 33 12/15/33	2.35	AA	400,000.00 100.00%	400,000.00	400,000.00	400,000.00	374,536.00
943776KA1 COMM: COMMERCE BANK	AFS	WAVERLY NE 34 06/01/34	2.95		335,000.00 100.00%	335,000.00	335,000.00	335,000.00	330,933.10

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Receipt# / Safekeeping Location	CUSIP	ASC 320	Description / Maturity / Prerefund	Pool/Type / Coupon	Moody / S&P	Original Face / Pledged Percent	Pledged: Original Face	Pledged: Par	Pledged: Book Value	Pledged: Market Value
COMM: COMMERCE BANK	840372SX5	AFS	SOUTH SIOUX CITY-REF NE 36 08/01/36	2.20		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	164,558.00
COMM: COMMERCE BANK	25929PDW6	AFS	DOUGLAS SID #491-REF NE 36 09/15/36	2.60		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	162,086.00
COMM: COMMERCE BANK	80378EDN2	AFS	SARPY SID #263-REF NE 36 09/15/36	3.80		260,000.00 100.00%	260,000.00	260,000.00	260,000.00	260,135.20
COMM: COMMERCE BANK	98676TCF8	AFS	YORK NE-B-REF NE 36 10/01/36	1.85		200,000.00 100.00%	200,000.00	200,000.00	198,805.50	157,646.00
COMM: COMMERCE BANK	23087RHC5	AFS	CUMING CO-B-REF NE 36 12/15/36	2.00		250,000.00 100.00%	250,000.00	250,000.00	250,000.00	201,180.00
COMM: COMMERCE BANK	68905WFK3	AFS	OTOE CO NE SD #501-B NE 36 12/15/36	1.70	Aa3	200,000.00 100.00%	200,000.00	200,000.00	200,000.00	157,238.00
COMM: COMMERCE BANK	803787DT4	AFS	SARPY CO SD#46 NE 36 12/15/36	2.00	AA-	200,000.00 100.00%	200,000.00	200,000.00	202,275.96	171,832.00
COMM: COMMERCE BANK	80377XCV4	AFS	SARPY CO SID #190-REF NE 37 10/15/37	4.00		205,000.00 100.00%	205,000.00	205,000.00	205,000.00	206,107.00
COMM: COMMERCE BANK	25929RCY9	AFS	DOUGLAS CO SID #485 NE 38 05/15/38	2.65		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	162,754.00
COMM: COMMERCE BANK	25933VBY5	AFS	DOUGLAS CO SANTN 559 NE 38 06/15/38	4.10		165,000.00 100.00%	165,000.00	165,000.00	165,000.00	165,006.60
COMM: COMMERCE BANK	25932EDK2	AFS	DOUGLAS CO SID #438 NE 38 08/15/38	4.20		250,000.00 100.00%	250,000.00	250,000.00	250,000.00	251,052.50
COMM: COMMERCE BANK	80373RDR9	AFS	SARPY CO DT #220-REF NE 38 08/15/38	4.05		170,000.00 100.00%	170,000.00	170,000.00	170,000.00	170,722.50
COMM: COMMERCE BANK	80387LAP3	AFS	SARPY CO SAN & IMP DT NE 38 08/15/38	2.75		290,000.00 100.00%	290,000.00	290,000.00	290,000.00	232,582.90

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COMM: COMMERCE BANK	25936FBM3	AFS	DOUGLAS CO IMP DT#513 NE 38 10/15/38	2.70		100,000.00 100.00%	100,000.00	100,000.00	100,000.00	83,174.00
COMM: COMMERCE BANK	25939HBX2	AFS	DOUGLAS CO SAN&IMP DT NE 3 11/15/38	2.90		150,000.00 100.00%	150,000.00	150,000.00	150,000.00	122,464.50
COMM: COMMERCE BANK	72778PCU5	AFS	PLATTE CO SD #5 NE 38 12/15/38	2.00	AA-	200,000.00 100.00%	200,000.00	200,000.00	200,467.71	163,918.00
COMM: COMMERCE BANK	80379KDH0	AFS	SARPY CO SID #272-REF NE 38 12/15/38	4.40		215,000.00 100.00%	215,000.00	215,000.00	215,000.00	216,219.05
COMM: COMMERCE BANK	25934MCK3	AFS	DOUGLAS SID #531-REF NE 39 01/15/39	4.35		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	200,850.00
COMM: COMMERCE BANK	25936ECH6	AFS	DOUGLAS CO SID #561 NE 39 01/15/39	4.35		180,000.00 100.00%	180,000.00	180,000.00	180,000.00	180,680.40
COMM: COMMERCE BANK	25930BEE3	AFS	DOUGLAS CO SID #504 NE 39 08/15/39	3.40		215,000.00 100.00%	215,000.00	215,000.00	215,000.00	200,949.75
COMM: COMMERCE BANK	25931EGP9	AFS	DOUGLAS CO SAN #503 NE 39 08/15/39	2.65		225,000.00 100.00%	225,000.00	225,000.00	225,000.00	177,864.75
COMM: COMMERCE BANK	80373XBC1	AFS	SARPY CO SAN & IMPT NE 39 08/15/39	2.60		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	157,624.00
COMM: COMMERCE BANK	80373YDV5	AFS	SARPY CO SID#158-REF NE 39 08/15/39	2.95		190,000.00 100.00%	190,000.00	190,000.00	190,000.00	155,155.90
COMM: COMMERCE BANK	80377BKB7	AFS	SARPY CO SID #264-REF NE 39 10/15/39	2.55		150,000.00 100.00%	150,000.00	150,000.00	150,000.00	116,568.00
COMM: COMMERCE BANK	25931BEJ1	AFS	DOUGLAS SID #507-REF NE 40 05/01/40	3.15		185,000.00 100.00%	185,000.00	185,000.00	185,000.00	149,611.35
COMM: COMMERCE BANK	25933VDM9	AFS	DOUGLAS CO SD #559 NE 40 05/15/40	3.40		175,000.00 100.00%	175,000.00	175,000.00	175,000.00	165,338.25

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BBA

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Jones Bank - Seward, NE

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COMM: COMMERCE BANK	25938TBK5	AFS	DOUGLAS CO SAN & IMPT NE 4(06/01/40	2.85		130,000.00 100.00%	130,000.00	130,000.00	130,000.00	103,519.00
COMM: COMMERCE BANK	25930LDG7	AFS	DOUGLAS CO NE SID#530 NE 40 09/15/40	3.00		150,000.00 100.00%	150,000.00	150,000.00	150,000.00	127,312.50
COMM: COMMERCE BANK	25933EEG9	AFS	DOUGLAS CO SAN & IMPT NE 4(11/15/40	3.15		190,000.00 100.00%	190,000.00	190,000.00	190,000.00	161,272.00
COMM: COMMERCE BANK	80388MBJ3	AFS	SARPY CNTY SANITATION NE 4(12/15/40	4.00		240,000.00 100.00%	240,000.00	240,000.00	240,000.00	242,512.80
COMM: COMMERCE BANK	617775EV9	AFS	MORRILL CO NE 41 06/15/41	2.25		240,000.00 100.00%	240,000.00	240,000.00	240,000.00	184,924.80
COMM: COMMERCE BANK	122861MR5	AFS	BURT CO-REF NE 41 07/01/41	2.40		170,000.00 100.00%	170,000.00	170,000.00	170,000.00	130,084.00
COMM: COMMERCE BANK	25936EDY8	AFS	DOUGLAS CO SID #561 NE 41 07/15/41	2.90		235,000.00 100.00%	235,000.00	235,000.00	235,000.00	184,949.70
COMM: COMMERCE BANK	25939LDA1	AFS	DOUGLAS CO SID #567 NE 41 07/15/41	2.75		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	154,136.00
COMM: COMMERCE BANK	25930LDN2	AFS	DOUGLAS CO SAN #530 NE 41 08/15/41	2.85		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	154,310.00
COMM: COMMERCE BANK	80379QBT3	AFS	SARPY CO NE SAN-REF NE 41 08/15/41	2.75		255,000.00 100.00%	255,000.00	255,000.00	255,000.00	199,608.90
COMM: COMMERCE BANK	80387LAS7	AFS	SARPY CO SAN & IMP DT NE 41 08/15/41	2.90		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	156,554.00
COMM: COMMERCE BANK	25938MDE2	AFS	DOUGLAS CO SAN & IMPT NE 41 09/01/41	2.80		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	152,264.00
COMM: COMMERCE BANK	25933EFW3	AFS	DOUGLAS CO NE SAN-B NE 41 09/15/41	2.85		235,000.00 100.00%	235,000.00	235,000.00	235,000.00	184,425.65

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As Of 1/31/2023

Jones Bank - Seward, NE

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COMM: COMMERCE BANK	25931XDM7	AFS	DOUGLAS CO SID #557 NE 41 11/15/41	2.80		165,000.00 100.00%	165,000.00	165,000.00	165,000.00	129,543.15
COMM: COMMERCE BANK	25939HCU7	AFS	DOUGLAS CO SID#563 NE 41 11/15/41	2.85		200,000.00 100.00%	200,000.00	200,000.00	200,000.00	156,762.00
COMM: COMMERCE BANK	25940MAR2	AFS	DOUGLAS CNTY NE SAN & NE 4 11/15/41	2.75		125,000.00 100.00%	125,000.00	125,000.00	125,000.00	100,446.25
COMM: COMMERCE BANK	119483EL5	AFS	BUFFALO CO SD #0009 NE 41 12/15/41	2.00	A1	200,000.00 100.00%	200,000.00	200,000.00	193,884.83	147,848.00
COMM: COMMERCE BANK	259327W42	AFS	DOUGLAS CO SD #17 NE 41 12/15/41	4.00	AA	250,000.00 100.00%	250,000.00	250,000.00	261,528.02	257,100.00
COMM: COMMERCE BANK	25932XDN4	AFS	DOUGLAS CO NE SID-REF NE 41 12/15/41	2.75		250,000.00 100.00%	250,000.00	250,000.00	250,000.00	197,465.00
COMM: COMMERCE BANK	25940KAS4	AFS	SID DOUGLAS #596-REF NE 41 12/15/41	2.75		275,000.00 100.00%	275,000.00	275,000.00	275,000.00	216,491.00
COMM: COMMERCE BANK	3136AQUZ1	AFS	FNR 2015-92 PA 12/25/41	2.50		1,590,000.00 100.00%	1,590,000.00	428,796.03	429,456.34	398,679.63
COMM: COMMERCE BANK	808290FV7	AFS	SCHUYLER NE 42 03/15/42	2.75		250,000.00 100.00%	250,000.00	250,000.00	250,000.00	215,547.50
COMM: COMMERCE BANK	80376KBN2	AFS	SARPY CO SID #334 NE 42 05/15/42	3.70		215,000.00 100.00%	215,000.00	215,000.00	215,000.00	197,354.95
COMM: COMMERCE BANK	25932XEH6	AFS	DOUGLAS CO SID #524 NE 42 09/15/42	4.65		250,000.00 100.00%	250,000.00	250,000.00	250,000.00	250,960.00
COMM: COMMERCE BANK	25929MEM4	AFS	DOUGLAS CO SID #405-R NE 42 11/15/42	3.55		250,000.00 100.00%	250,000.00	250,000.00	250,000.00	226,407.50
COMM: COMMERCE BANK	006058DK4	AFS	ADAMS CO NE 42 12/15/42	4.00	AA-	300,000.00 100.00%	300,000.00	300,000.00	312,579.04	308,712.00

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COMM: COMMERCE BANK	122873AR3	AFS	BURT CO SCH DT#0020 NE 42 12/15/42	4.38	A2	250,000.00 100.00%	250,000.00	250,000.00	245,922.75	255,252.50
COMM: COMMERCE BANK	98636PBT6	AFS	YORK CO SCH DT#96 NE 42 12/15/42	4.50	Aa3	250,000.00 100.00%	250,000.00	250,000.00	255,031.82	259,792.50
COMM: COMMERCE BANK	3132DMPY5	AFS	FRLMC 30YR 03/01/50	SD0439 3.50		1,000,000.00 100.00%	1,000,000.00	606,251.10	664,079.82	577,668.06
68 Securities Pledged To:			**1010 - CITY TREASURER**				**16,680,000.00**	**15,125,047.13**	**15,209,049.34**	**13,603,065.64**

CASH IN BANK $12,072,487.33

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Report Sequence: sgrp, CUSIP, Ticket

SGrp / STyp / Loc/PI	CUSIP / Description / S&P	Moody	Rate / State	Ticket-P#	Call Type / Next Call Dt / Call Price	Maturity Dt / Issue Dt / Intent	Total Face / Total Par	Pledge Values: Pledged Face / % of Total	Par Value / Book Value	Carrying Value / Interest Rec	Market Value / Collateral Value
PLEDGEE: CITY OF SEWARD (02)											
AGEN	3130AJRQ4		1.000	177048011-1	Cont	6/25/2027					
FHLB	FHLB FIXED RATE NOTE				2/1/2023	6/25/2020	250,000.00	250,000.00	250,000.00	220,008.50	220,008.50
D02/02	AA+	Aaa			100.000	AFS	250,000.00	100.00%	228,552.99	250.00	220,258.50
AGEN	**3130ANK82**		**0.750**	**178004394-1**	**Ann**	**8/26/2026**					
FHLB	**FHLB FIXED RATE NOTE**				**8/26/2023**	**8/26/2021**	**370,000.00**	**370,000.00**	**370,000.00**	**328,548.16**	**328,548.16**
D02/02	**AA+**	**Aaa**			**100.000**	**AFS**	**370,000.00**	**100.00%**	**326,404.97**	**1,194.79**	**329,742.95**
CMO	3137AWU78		1.250	185157011-1		12/15/2027					
FHR	FHR 4145 AC					12/1/2012	1,500,000.00	1,500,000.00	60,249.72	57,402.68	57,402.68
D02/02						AFS	60,249.72	100.00%	60,036.06	62.76	57,465.44
CMO	**3137B0NV2**		**1.500**	**185157163-1**		**9/15/2025**					
FHR	**FHR 4176 EC**					**3/1/2013**	**2,000,000.00**	**2,000,000.00**	**63,786.38**	**61,363.42**	**61,363.42**
D02/02						**AFS**	**63,786.38**	**100.00%**	**63,649.89**	**79.73**	**61,443.15**
GNMA	36176W2B6		4.000	185168920-1		12/15/2026					
GNMA	GNMA POOL 778670					12/1/2011	560,000.00	560,000.00	33,775.79	34,547.34	34,547.34
D02/02						AFS	33,775.79	100.00%	34,576.32	112.59	34,659.93
GNMA	**36179V3Q1**		**2.500**	**177018890-1**		**1/20/2036**					
GNM2	**GNMA2 POOL MA7107**					**1/1/2021**	**500,000.00**	**500,000.00**	**305,601.55**	**286,494.32**	**286,494.32**
D02/02						**AFS**	**305,601.55**	**100.00%**	**320,632.53**	**636.67**	**287,130.99**
GNMA	36202ERL5		5.000	185171012-1		3/20/2023					
GNM2	GNMA2 POOL 4091					3/1/2008	500,000.00	500,000.00	415.81	416.21	416.21
D02/02						AFS	415.81	100.00%	416.24	1.73	417.94
GNMA	**3620A9QG9**		**3.500**	**185171527-1**		**9/15/2024**					
GNMA	**GNMA POOL 723255**					**9/1/2009**	**750,000.00**	**750,000.00**	**13,046.03**	**12,863.57**	**12,863.57**
D02/02						**AFS**	**13,046.03**	**100.00%**	**13,200.00**	**38.05**	**12,901.62**
GNMA	3620ARB59		3.500	185171588-1		5/15/2025					
GNMA	GNMA POOL 737260					5/1/2010	1,000,000.00	1,000,000.00	26,661.38	26,123.79	26,123.79
D02/02						AFS	26,661.38	100.00%	26,925.62	77.76	26,201.55
MBS	**3128MDW74**		**3.500**	**177039340-1**		**12/1/2028**					
FGLM	**FHLMC POOL G14970**					**12/1/2013**	**1,450,000.00**	**1,450,000.00**	**209,081.42**	**208,812.42**	**208,812.42**
D02/02						**AFS**	**209,081.42**	**100.00%**	**218,679.99**	**609.82**	**209,422.24**

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MBS	3128MEHL8		5.000	185145155-1		11/1/2024					
FGLM	FHLMC POOL G15435					5/1/2015	557,000.00	557,000.00	31.96	32.28	32.28
D02/02						AFS	31.96	100.00%	32.32	0.13	32.41
MBS	**3128MMLQ4**		**4.500**	**185145399-1**		**12/1/2024**					
FGLM	**FHLMC POOL G18334**					**12/1/2009**	**1,015,000.00**	**1,015,000.00**	**8,674.27**	**8,825.20**	**8,825.20**
D02/02						**AFS**	**8,674.27**	**100.00%**	**8,757.81**	**32.53**	**8,857.73**
MBS	3128PNBR8		4.000	185147186-1		7/1/2024					
FGLM	FHLMC POOL J09948					6/1/2009	1,300,000.00	1,300,000.00	8,469.19	8,323.81	8,323.81
D02/02						AFS	8,469.19	100.00%	8,563.05	28.23	8,352.04
MBS	**3128PQ4E8**		**4.500**	**185147195-1**		**2/1/2025**					
FGLM	**FHLMC POOL J11721**					**2/1/2010**	**1,200,000.00**	**1,200,000.00**	**11,839.02**	**12,215.16**	**12,215.16**
D02/02						**AFS**	**11,839.02**	**100.00%**	**12,041.87**	**44.40**	**12,259.56**
MBS	3128Q0GL5		4.000	185147609-1		5/1/2027					
FGLM	FHLMC POOL J19203					5/1/2012	425,000.00	425,000.00	24,228.40	24,113.38	24,113.38
D02/02						AFS	24,228.40	100.00%	24,958.83	80.76	24,194.14
MBS	**31329KRS5**		**3.000**	**177051131-1**		**4/1/2033**					
FGLM	**FHLMC POOL ZA2297**					**9/1/2018**	**1,000,000.00**	**1,000,000.00**	**204,533.24**	**197,422.83**	**197,422.83**
D02/02						**AFS**	**204,533.24**	**100.00%**	**194,531.27**	**511.33**	**197,934.16**
MBS	3132A8S34		2.500	177051143-1		1/1/2031					
FGLM	FHLMC POOL ZS7738					9/1/2018	860,000.00	860,000.00	238,346.60	228,238.53	228,238.53
D02/02						AFS	238,346.60	100.00%	226,672.05	496.56	228,735.09
MBS	**3132CWKP8**		**3.000**	**177046215-1**		**4/1/2035**					
FGLM	**FHLMC POOL SB0302**					**3/1/2020**	**810,000.00**	**810,000.00**	**415,218.09**	**401,519.06**	**401,519.06**
D02/02						**AFS**	**415,218.09**	**100.00%**	**409,331.21**	**1,038.05**	**402,557.11**
MBS	3132CWSD7		2.500	178002051-1		4/1/2036					
FGLM	FHLMC POOL SB0516					3/1/2021	500,000.00	500,000.00	387,119.49	364,002.61	364,002.61
D02/02						AFS	387,119.49	100.00%	407,287.96	806.50	364,809.11
MBS	**3132CWVM3**		**3.500**	**177041150-1**		**8/1/2036**					
FGLM	**FHLMC POOL SB0620**					**2/1/2022**	**400,000.00**	**400,000.00**	**351,818.94**	**348,159.86**	**348,159.86**
D02/02						**AFS**	**351,818.94**	**100.00%**	**371,962.75**	**1,026.14**	**349,186.00**
MBS	31335HYR8		5.500	185150298-1		10/1/2023					
FGLM	FHLMC POOL C90720					10/1/2003	3,250,000.00	3,250,000.00	4,445.87	4,432.08	4,432.08
D02/02						AFS	4,445.87	100.00%	4,477.14	20.38	4,452.46

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MBS	3133LPUE5		1.500	177041020-1		3/1/2032					
FGLM	FHLMC POOL RD5081					2/1/2022	500,000.00	500,000.00	441,220.03	397,610.72	397,610.72
D02/02						AFS	441,220.03	100.00%	435,721.70	551.53	398,162.25
MBS	31371LQY8		5.000	185155978-1		6/1/2024					
FNMA	FNMA POOL 255271					5/1/2004	500,000.00	500,000.00	1,631.04	1,642.44	1,642.44
D02/02						AFS	1,631.04	100.00%	1,628.59	6.80	1,649.24
MBS	31375HAP9		4.301	185156211-1		2/1/2026					
FNMV	FNMA ARM POOL 334914					1/1/1996	1,000,000.00	1,000,000.00	467.96	466.68	466.68
D02/02						AFS	467.96	100.00%	468.91	1.68	468.36
MBS	3138AMK38		4.500	185159473-1		7/1/2026					
FNMA	FNMA POOL AI7513					7/1/2011	500,000.00	500,000.00	30,701.54	31,011.42	31,011.42
D02/02						AFS	30,701.54	100.00%	31,388.87	115.13	31,126.55
MBS	3138EJLQ9		4.000	185159924-1		7/1/2027					
FNMA	FNMA POOL AL2134					7/1/2012	443,000.00	443,000.00	28,087.10	28,470.74	28,470.74
D02/02						AFS	28,087.10	100.00%	28,838.21	93.62	28,564.36
MBS	3138EKRM9		3.500	185160071-1		2/1/2028					
FNMA	FNMA POOL AL3191					2/1/2013	500,000.00	500,000.00	37,105.96	36,814.32	36,814.32
D02/02						AFS	37,105.96	100.00%	38,095.50	108.23	36,922.55
MBS	3138EKVV4		2.500	185160087-1		4/1/2023					
FNMA	FNMA POOL AL3327					3/1/2013	525,000.00	525,000.00	312.23	298.70	298.70
D02/02						AFS	312.23	100.00%	312.35	0.65	299.35
MBS	3138EKX75		5.500	177039339-1		2/1/2034					
FNMA	FNMA POOL AL3401					3/1/2013	2,000,000.00	2,000,000.00	299,863.76	311,741.70	311,741.70
D02/02						AFS	299,863.76	100.00%	334,167.56	1,374.38	313,116.08
MBS	3138EKXJ9		5.500	177039338-1		1/1/2034					
FNMA	FNMA POOL AL3380					3/1/2013	2,000,000.00	2,000,000.00	236,022.98	245,348.20	245,348.20
D02/02						AFS	236,022.98	100.00%	261,791.83	1,081.77	246,429.97
MBS	3138ELYF4		4.000	185160221-1		10/1/2028					
FNMA	FNMA POOL AL4309					10/1/2013	1,000,000.00	1,000,000.00	70,536.80	70,619.13	70,619.13
D02/02						AFS	70,536.80	100.00%	72,675.04	235.12	70,854.25
MBS	3138EMCY5		4.000	185160242-1		2/1/2027					
FNMA	FNMA POOL AL4586					12/1/2013	575,000.00	575,000.00	28,231.33	28,462.83	28,462.83
D02/02						AFS	28,231.33	100.00%	29,007.46	94.10	28,556.93

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MBS	3138EMPD7		3.500	184006560-1		3/1/2029					
FNMA	FNMA POOL AL4919					2/1/2014	2,000,000.00	631,641.94	89,895.69	87,916.51	87,916.51
D02/02						AFS	284,641.30	31.58%	94,019.17	262.19	88,178.70
MBS	3138EQ5H1		3.500	176002956-1		11/1/2030					
FNMA	FNMA POOL AL8047					1/1/2016	1,050,000.00	1,050,000.00	256,956.02	251,293.39	251,293.39
D02/02						AFS	256,956.02	100.00%	271,683.19	749.46	252,042.85
MBS	3138WDU82		3.000	178000698-1		1/1/2030					
FNMA	FNMA POOL AS4206					12/1/2014	1,160,000.00	1,160,000.00	155,338.77	153,778.37	153,778.37
D02/02						AFS	155,338.77	100.00%	161,814.74	388.35	154,166.72
MBS	3140FBGJ3		2.000	177051139-1		7/1/2031					
FNMA	FNMA POOL BD3800					7/1/2016	1,375,000.00	1,375,000.00	347,417.94	329,440.20	329,440.20
D02/02						AFS	347,417.94	100.00%	328,275.35	579.03	330,019.23
MBS	3140J5EA3		2.500	177039342-1		12/1/2029					
FNMA	FNMA POOL BM1028					3/1/2017	1,750,000.00	1,750,000.00	319,639.81	303,547.20	303,547.20
D02/02						AFS	319,639.81	100.00%	327,185.84	665.92	304,213.12
MBS	3140J5EA3		2.500	185164038-1		12/1/2029					
FNMA	FNMA POOL BM1028					3/1/2017	300,000.00	300,000.00	54,795.40	52,036.67	52,036.67
D02/02						AFS	54,795.40	100.00%	54,970.61	114.16	52,150.83
MBS	3140QGJ99		2.500	177034617-1		12/1/2035					
FNMA	FNMA POOL CA8387					12/1/2020	500,000.00	500,000.00	368,237.08	348,091.87	348,091.87
D02/02						AFS	368,237.08	100.00%	386,753.55	767.16	348,859.03
MBS	3140X9CH6		2.500	199000173-1		12/1/2035					
FNMA	FNMA POOL FM5471					12/1/2020	465,000.00	465,000.00	345,721.98	326,787.84	326,787.84
D02/02						AFS	345,721.98	100.00%	362,466.00	720.25	327,508.09
MBS	3140X9LK9		3.000	177020855-1		1/1/2041					
FNMA	FNMA POOL FM5729					1/1/2021	500,000.00	500,000.00	289,056.47	268,462.75	268,462.75
D02/02						AFS	289,056.47	100.00%	306,226.14	722.64	269,185.39
MBS	31412P2K6		4.500	185164602-1		7/1/2024					
FNMA	FNMA POOL 931478					6/1/2009	2,900,000.00	2,900,000.00	18,019.01	17,975.72	17,975.72
D02/02						AFS	18,019.01	100.00%	18,227.87	67.57	18,043.29
MBS	31417SAL4		4.500	185165282-1		10/1/2024					
FNMA	FNMA POOL AC5410					10/1/2009	2,040,000.00	2,040,000.00	22,357.81	22,270.18	22,270.18
D02/02						AFS	22,357.81	100.00%	22,674.66	83.84	22,354.02

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MBS	31418AAC2		3.000		185165786-1		11/1/2026					
FNMA	FNMA POOL MA0902						10/1/2011	1,000,000.00	1,000,000.00	31,903.22	30,410.96	30,410.96
D02/02							AFS	31,903.22	100.00%	32,159.51	79.76	30,490.72
MBS	31418AKN7		3.000		177011537-1		10/1/2032					
FNMA	FNMA POOL MA1200						9/1/2012	800,000.00	800,000.00	123,030.58	119,110.02	119,110.02
D02/02							AFS	123,030.58	100.00%	129,175.06	307.58	119,417.60
MBS	31418AQY7		2.500		185166318-1		3/1/2023					
FNMA	FNMA POOL MA1370						2/1/2013	500,000.00	500,000.00	312.42	298.88	298.88
D02/02							AFS	312.42	100.00%	312.49	0.65	299.53
MBS	31418AVK1		3.000		177039341-1		7/1/2028					
FNMA	FNMA POOL MA1517						6/1/2013	1,000,000.00	1,000,000.00	142,184.06	137,931.51	137,931.51
D02/02							AFS	142,184.06	100.00%	145,690.08	355.46	138,286.97
MBS	31418AYS1		2.500		185166625-1		10/1/2023					
FNMA	FNMA POOL MA1620						9/1/2013	587,000.00	587,000.00	6,569.05	6,344.84	6,344.84
D02/02							AFS	6,569.05	100.00%	6,579.85	13.69	6,358.53
MBS	31418B5R3		4.000		177020853-1		6/1/2036					
FNMA	FNMA POOL MA2655						5/1/2016	410,000.00	410,000.00	96,808.32	94,229.54	94,229.54
D02/02							AFS	96,808.32	100.00%	103,502.32	322.69	94,552.23
MBS	31418DRM6		2.000		177046216-1		8/1/2030					
FNMA	FNMA POOL MA4091						7/1/2020	610,000.00	610,000.00	294,922.66	274,558.29	274,558.29
D02/02							AFS	294,922.66	100.00%	285,235.22	491.54	275,049.83
MBS	31418DT77		2.000		177023307-1		11/1/2030					
FNMA	FNMA POOL MA4173						10/1/2020	771,122.00	771,122.00	439,539.53	409,156.24	409,156.24
D02/02							AFS	439,539.53	100.00%	453,197.92	732.57	409,888.81
MBS	31418DZ96		1.500		184010674-1		6/1/2031					
FNMA	FNMA POOL MA4367						5/1/2021	500,000.00	500,000.00	372,790.90	345,769.82	345,769.82
D02/02							AFS	372,790.90	100.00%	379,755.59	465.99	346,235.81
MBS	31418EA83		1.500		177048016-1		2/1/2032					
FNMA	FNMA POOL MA4530						1/1/2022	179,142.00	167,163.35	144,958.96	130,631.50	130,631.50
D02/02							AFS	155,346.48	93.31%	136,826.19	181.20	130,812.70
MUNI	25887CAZ1		2.250	NE	177039343-1	Cont	1/1/2034					
GO	DOUGLAS CNTY NEB S&I #540					1/1/2027	1/5/2022	120,000.00	120,000.00	120,000.00	106,836.00	106,836.00
D02/02						100.000	AFS	120,000.00	100.00%	120,000.00	225.00	107,061.00

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MUNI	259290EB6	3.100 NE	185142828-1	Contin	8/15/2030					
GO	DOUGLAS CNTY NE SAN & IMPT DIS			2/1/2023	6/15/2016	150,000.00	150,000.00	150,000.00	147,672.00	147,672.00
D02/02				100.000	AFS	150,000.00	100.00%	150,000.00	2,144.17	149,816.17
MUNI	**259292CS7**	**2.700 NE**	**185142831-1**	**Contin**	**11/15/2026**					
GO	**DOUGLAS CNTY SAN IMPT DIST 427**			**2/1/2023**	**11/15/2017**	**280,000.00**	**280,000.00**	**280,000.00**	**272,879.60**	**272,879.60**
D02/02				**100.000**	**AFS**	**280,000.00**	**100.00%**	**280,000.00**	**1,596.00**	**274,475.60**
MUNI	259305DT4	2.500 NE	178003667-1	Cont	3/1/2036					
GO	DOUGLAS CNTY NEB S&I #499			3/1/2027	3/1/2022	150,000.00	150,000.00	150,000.00	125,175.00	125,175.00
D02/02				100.000	AFS	150,000.00	100.00%	150,000.00	1,562.50	126,737.50
MUNI	**25930TBJ6**	**2.900 NE**	**184003054-1**	**Cont**	**11/15/2036**					
GO	**DOUGLAS CNTY NEB SANI & #421**			**5/15/2025**	**5/19/2020**	**50,000.00**	**50,000.00**	**50,000.00**	**49,381.00**	**49,381.00**
D02/02				**100.000**	**AFS**	**50,000.00**	**100.00%**	**50,000.00**	**306.11**	**49,687.11**
MUNI	25931BEG7	2.750 NE	184010678-1	Cont	5/1/2035					
GO	DOUGLAS CNTY NEB SAN & IMPT DI			5/1/2026	5/3/2021	175,000.00	175,000.00	175,000.00	155,288.00	155,288.00
D02/02				100.000	AFS	175,000.00	100.00%	175,000.00	1,203.13	156,491.13
MUNI	**25931LCN2**	**2.700 NE**	**185142862-1**	**Contin**	**11/15/2028**					
GO	**DOUGLAS CNTY NE SAN & IMPT**			**2/1/2023**	**11/15/2016**	**170,000.00**	**170,000.00**	**170,000.00**	**166,028.80**	**166,028.80**
D02/02				**100.000**	**AFS**	**170,000.00**	**100.00%**	**170,000.00**	**969.00**	**166,997.80**
MUNI	25931VBN1	3.500 NE	185142866-1	Contin	8/15/2032					
GO	DOUGLAS CNTY NE SAN & IMPT			2/1/2023	7/27/2017	50,000.00	50,000.00	50,000.00	46,756.50	46,756.50
D02/02				100.000	AFS	50,000.00	100.00%	50,000.00	806.94	47,563.44
MUNI	**25931VCF7**	**2.350 NE**	**177020849-1**	**Cont**	**8/15/2035**					
GO	**DOUGLAS CNTY NEB SAN #471**			**2/15/2026**	**2/19/2021**	**100,000.00**	**100,000.00**	**100,000.00**	**84,456.00**	**84,456.00**
D02/02				**100.000**	**AFS**	**100,000.00**	**100.00%**	**100,000.00**	**1,083.61**	**85,539.61**
MUNI	25933BEB6	3.000 NE	184003099-1	Cont	11/15/2035					
GO	DOUGLAS CNTY NEB SAN & IMPT DI			5/15/2025	5/19/2020	150,000.00	150,000.00	150,000.00	142,755.00	142,755.00
D02/02				100.000	AFS	150,000.00	100.00%	150,000.00	950.00	143,705.00
MUNI	**25936RBY1**	**2.400 NE**	**177039345-1**	**Cont**	**1/15/2039**					
GO	**DOUGLAS CNTY NEB S&I #537**			**1/15/2027**	**1/21/2022**	**150,000.00**	**150,000.00**	**150,000.00**	**121,240.50**	**121,240.50**
D02/02				**100.000**	**AFS**	**150,000.00**	**100.00%**	**150,000.00**	**160.00**	**121,400.50**
MUNI	373807CE4	1.850 NE	184010461-1	Cont	12/15/2035					
REV	GERING NEB COMBINED UTILS REV			4/29/2026	4/29/2021	100,000.00	100,000.00	100,000.00	86,618.00	86,618.00
D02/02				100.000	AFS	100,000.00	100.00%	100,000.00	236.39	86,854.39

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Report Sequence: sgrp, CUSIP, Ticket

SGrp / STyp / Loc/Pl	CUSIP / Description / S&P / Moody	Rate / State	Ticket-P#	Call Type / Next Call Dt / Call Price	Maturity Dt / Issue Dt / Intent	Total Face / Total Par	Pledge Values: Pledged Face / % of Total	Par Value / Book Value	Carrying Value / Interest Rec	Market Value / Collateral Value
MUNI	406036HN6	2.400 NE	185176896-1	Contin	12/15/2024					
GO	HALL CNTY NE SCD #2 GRAND IS			2/1/2023	2/9/2015	100,000.00	100,000.00	100,000.00	99,925.00	99,925.00
D02/02				100.000	AFS	100,000.00	100.00%	100,000.00	306.67	100,231.67
MUNI	497593DJ9	4.000 IA	177032959-1	Cont	6/1/2034					
GMCP	KIRKWOOD CMNTY COLLEGE IOWA CT			6/1/2029	3/23/2020	365,000.00	365,000.00	365,000.00	388,089.90	388,089.90
D02/02	AA			100.000	AFS	365,000.00	100.00%	424,722.87	2,433.33	390,523.23
MUNI	505318QS7	2.650 NE	185179244-1	Contin	11/15/2024					
GO	LA VISTA NE			2/1/2023	12/31/2014	115,000.00	115,000.00	115,000.00	115,002.30	115,002.30
D02/02				100.000	AFS	115,000.00	100.00%	115,000.00	643.36	115,645.66
MUNI	57973FDD8	3.150 NE	185181069-1	Contin	12/15/2030					
REV	MCCOOK NE PUBLIC PWR DIST			2/1/2023	8/9/2017	100,000.00	100,000.00	100,000.00	100,019.00	100,019.00
D02/02				100.000	AFS	100,000.00	100.00%	100,000.00	402.50	100,421.50
MUNI	652810G22	3.000 IA	182011996-1	Cont	6/1/2033					
GO	NEWTON IOWA			6/1/2029	4/20/2022	185,000.00	185,000.00	185,000.00	188,137.60	188,137.60
D02/02	AA			100.000	AFS	185,000.00	100.00%	190,382.44	925.00	189,062.60
MUNI	71366VKE9	1.800 NE	177020856-1	Cont	12/15/2036					
REV	PERENNIAL PUB PWR DIST NEB ELE			2/17/2026	2/17/2021	210,000.00	210,000.00	210,000.00	173,247.90	173,247.90
D02/02				100.000	AFS	210,000.00	100.00%	210,000.00	483.00	173,730.90
MUNI	80373YER3	2.800 NE	182012079-1	Cont	10/15/2035					
GO	SARPY CNTY NEB S&I #158			4/15/2027	4/19/2022	150,000.00	150,000.00	150,000.00	133,551.00	133,551.00
D02/02				100.000	AFS	150,000.00	100.00%	150,000.00	1,236.67	134,787.67
MUNI	80376DCN7	3.250 NE	185187210-1	Contin	10/15/2023					
GO	SARPY CNTY NE SAN & IMPT DIST			2/1/2023	10/15/2012	200,000.00	200,000.00	200,000.00	200,050.00	200,050.00
D02/02				100.000	AFS	200,000.00	100.00%	200,000.00	1,913.89	201,963.89
MUNI	80377BKT8	2.350 NE	184010680-1	Cont	8/15/2034					
GO	SARPY CNTY NEB S&I DIST #264			5/3/2026	5/3/2021	180,000.00	180,000.00	180,000.00	161,056.80	161,056.80
D02/02				100.000	AFS	180,000.00	100.00%	180,000.00	1,950.50	163,007.30
MUNI	80377TBE2	2.800 NE	185187220-1	Contin	11/15/2028					
GO	SARPY CNTY NE SAN & IMPT DIST			2/1/2023	11/15/2016	85,000.00	85,000.00	85,000.00	83,448.75	83,448.75
D02/02				100.000	AFS	85,000.00	100.00%	85,000.00	502.44	83,951.19
MUNI	80377TBF9	2.900 NE	185187221-1	Contin	11/15/2029					
GO	SARPY CNTY NE SAN & IMPT DIST			2/1/2023	11/15/2016	85,000.00	85,000.00	85,000.00	84,312.35	84,312.35
D02/02				100.000	AFS	85,000.00	100.00%	85,000.00	520.39	84,832.74

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Report Sequence: sgrp, CUSIP, Ticket

SGrp / STyp / Loc/Pl	CUSIP / Description / S&P / Moody	Rate / State	Ticket-P#	Call Type / Next Call Dt / Call Price	Maturity Dt / Issue Dt / Intent	Total Face / Total Par	Pledge Values: Pledged Face / % of Total	Par Value / Book Value	Carrying Value / Interest Rec	Market Value / Collateral Value
MUNI	80378TEW8	3.850 NE	185187230-1	Contin	10/15/2033					
GO	SARPY CNTY NE SAN & IMPT DIST			4/15/2023	4/15/2018	85,000.00	85,000.00	85,000.00	81,124.00	81,124.00
D02/02				100.000	AFS	85,000.00	100.00%	85,000.00	963.57	82,087.57
MUNI	**80379AEF5**	**2.700 NE**	**177011631-1**	**Cont**	**8/15/2038**					
GO	**SARPY CNTY NEB SAN & IMPT #243**			**8/15/2025**	**8/19/2020**	**290,000.00**	**290,000.00**	**290,000.00**	**238,667.10**	**238,667.10**
D02/02				**100.000**	**AFS**	**290,000.00**	**100.00%**	**290,000.00**	**3,610.50**	**242,277.60**
MUNI	80379KEN6	2.300 NE	177018881-1	Cont	12/15/2034					
GO	SARPY CNTY NEB SAN & IMPT #272			12/15/2025	1/11/2021	50,000.00	50,000.00	50,000.00	43,079.50	43,079.50
D02/02				100.000	AFS	50,000.00	100.00%	50,000.00	146.94	43,226.44
MUNI	**810140LP6**	**2.550 NE**	**182012068-1**	**Cont**	**1/15/2034**					
GO	**SCOTTS BLUFF CNTY NEB**			**4/21/2027**	**4/21/2022**	**250,000.00**	**250,000.00**	**250,000.00**	**239,572.50**	**239,572.50**
D02/02				**100.000**	**AFS**	**250,000.00**	**100.00%**	**250,000.00**	**283.33**	**239,855.83**
MUNI	81847ELK0	2.350 NE	185187545-1	Contin	12/15/2023					
GO	SEWARD NE			2/1/2023	5/18/2012	95,000.00	95,000.00	95,000.00	94,683.65	94,683.65
D02/02				100.000	AFS	95,000.00	100.00%	95,000.00	285.26	94,968.91
MUNI	**818480BF1**	**3.550 NE**	**185187553-1**	**Contin**	**1/15/2024**					
REV	**SEWARD NEB ARPT AUTH**			**2/1/2023**	**9/1/2011**	**25,000.00**	**25,000.00**	**25,000.00**	**25,019.75**	**25,019.75**
D02/02				**100.000**	**AFS**	**25,000.00**	**100.00%**	**25,000.00**	**39.44**	**25,059.19**
MUNI	818483EQ8	2.350 NE	185187554-1	Contin	2/15/2023					
REV	SEWARD NE ELEC REV			1/16/2023	3/27/2012	110,000.00	110,000.00	110,000.00	109,969.20	109,969.20
D02/02				100.000	AFS	110,000.00	100.00%	110,000.00	1,191.97	111,161.17
MUNI	**818483FG9**	**2.450 NE**	**185187557-1**	**Contin**	**2/15/2028**					
REV	**SEWARD NE ELEC REV**			**2/1/2023**	**6/15/2016**	**150,000.00**	**150,000.00**	**150,000.00**	**147,736.50**	**147,736.50**
D02/02				**100.000**	**AFS**	**150,000.00**	**100.00%**	**150,000.00**	**1,694.58**	**149,431.08**
MUNI	886094CD1	2.500 NE	184003102-1	Cont	12/15/2035					
GO	THURSTON CNTY NEB			5/28/2025	5/28/2020	200,000.00	200,000.00	200,000.00	175,460.00	175,460.00
D02/02				100.000	AFS	200,000.00	100.00%	197,431.83	638.89	176,098.89
TAX	**534239FX1**	**3.000 NE**	**177045043-1**		**7/15/2026**					
TAXGO	**LINCOLN NEB**				**8/20/2020**	**100,000.00**	**100,000.00**	**100,000.00**	**97,156.00**	**97,156.00**
D02/02	**AAA**				**AFS**	**100,000.00**	**100.00%**	**99,510.79**	**133.33**	**97,289.33**
TAX	61778RBT8	1.937 NE	177020846-1	Cont	12/1/2031					
TAXGO	MORRILL CNTY NEB SCH DIST #63			12/1/2025	2/25/2021	210,000.00	210,000.00	210,000.00	169,776.60	169,776.60
D02/02	AA A3			100.000	AFS	210,000.00	100.00%	210,000.00	677.95	170,454.55

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SGrp / STyp / Loc/Pl	CUSIP / Description / S&P	Moody	Rate / State	Ticket-P#	Call Type / Next Call Dt / Call Price	Maturity Dt / Issue Dt / Intent	Total Face / Total Par	Pledge Values: Pledged Face / % of Total	Par Value / Book Value	Carrying Value / Interest Rec	Market Value / Collateral Value
TAX	68189TBA3		6.400 NE	185184294-1		2/1/2026					
TAXREV	OMAHA NEB SPL OBLIG					3/25/2008	45,000.00	35,000.00	35,000.00	35,382.20	35,382.20
D02/02	AA+	Aa3				AFS	45,000.00	77.78%	35,000.00	1,120.00	36,502.20
TD	02007GXG3		3.450	177049980-1		8/4/2026					
CD	ALLY BANK CD					8/4/2022	245,000.00	245,000.00	245,000.00	245,000.00	245,000.00
D02/02						AFS	245,000.00	100.00%	245,000.00	4,191.51	249,191.51
TD	02589AC42		2.650	182012070-1		4/6/2027					
CD	AMERICAN EXPR NATL BK CD					4/6/2022	245,000.00	245,000.00	245,000.00	245,000.00	245,000.00
D02/02						AFS	245,000.00	100.00%	245,000.00	2,098.95	247,098.95
TD	89235MNH0		3.200	177046219-1		5/17/2027					
CD	TOYOTA FINANCIAL SGS BK CD					5/17/2022	245,000.00	245,000.00	245,000.00	245,000.00	245,000.00
D02/02						AFS	245,000.00	100.00%	245,000.00	1,632.44	246,632.44
TRSY	91282CDQ1		1.250	177038199-1		12/31/2026					
NOTE	U.S. TREASURY NOTE					12/31/2021	250,000.00	250,000.00	250,000.00	227,734.38	227,734.38
D02/02	AA+	Aaa				AFS	250,000.00	100.00%	249,722.34	276.24	228,010.62
CITY OF SEWARD								54,761,927.29	14,086,979.56 14,269,288.51	13,348,682.77 60,429.12	13,348,682.77 13,409,111.89

CASH IN BANK $10,381,139.49

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TREASURER'S REPORT	MONTH OF:	JANUARY 2023				
VARIANCE AT: 33.33%						
	REVENUE	CURRENT YTD		UNRECEIPTED	PREVIOUS YTD	DIFFERENCE
DEPARTMENT	BUDGET	REVENUE	VARIANCE	BALANCE	REVENUE	B/W BUDGET YEARS
ELECTRIC	11,259,500	3,767,163	33%	7,492,337	3,508,160	259,004
ELEC BOND PYMT						
WATER	2,335,000	706,548	30%	1,628,452	664,416	42,131
WATER BOND PYMTS						
WATER SINKING FUND	20,000	- 0 -	0%	20,000	- 0 -	- 0 -
WASTEWATER TREATMENT	2,129,700	703,247	33%	1,426,453	620,465	82,783
WWTW BOND PYMT						
WWTW SINKING FUND	285,000	- 0 -	0%	285,000	- 0 -	- 0 -
TOTAL BUSINESS-TYPE FUNDS	**16,029,200**	**5,176,958**	**32%**	**10,852,242**	**4,793,041**	**383,918**
GENERAL REVENUES	4,603,723	567,259	12%	4,036,464	374,561	192,698
LEGAL	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
POLICE	48,100	2,215	5%	45,885	1,939	275
E911	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
POLICE EQUITABLE SHARING	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
STREET	3,694,727	469,522	13%	3,225,205	394,438	75,084
STREET STP FUNDS	182,592	7	0%	182,585	1	7
DEBT SERVICE	849,726	680,570	80%	169,156	510,018	170,552
RAIL CAMPUS	- 0 -	3,000	0%	(3,000)	1	2,999
CDBG ECON. DEV. LOAN FUND	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
CDBG DOWNTOWN REVITAL GRANT	335,000	25,319	8%	309,681	17,110	8,208
BLDGS & GRDS (CITY HALL)	36,000	12,000	33%	24,000	12,000	- 0 -
LEVEE ACCREDITATION	146,250	- 0 -	0%	146,250	- 0 -	- 0 -
CIVIC CENTER	304,708	48,307	16%	256,401	41,493	6,814
LIBRARY	49,787	21,839	44%	27,948	23,782	(1,943)
PUBLIC PROPERTIES	27,250	3,515	13%	23,735	1,739	1,776
CEMETERY	50,000	35,825	72%	14,175	23,600	12,225
GOLF COURSE	338,300	25,497	8%	312,803	23,976	1,521
NEW PARK DEVELOPMENT	80	199	249%	(119)	20	179
NEW CEMETERY DEVELOPMENT	250	599	240%	(349)	61	538
GUTHMAN TRUST - REGULAR	400	146	36%	254	92	54
GUTHMAN TRUST - PAVING	30	63	211%	(33)	6	57
PERPETUAL CARE - PRINCIPAL	8,000	4,350	54%	3,650	3,000	1,350
PERPETUAL CARE - INTEREST	320	796	249%	(476)	76	719
BLDGS & GRDS (OTHER)	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
BUILDING INSPECTION	82,750	44,912	54%	37,838	23,035	21,878
FIRE	530,000	36,694	7%	493,306	77	36,617
FIRE EQUIPMENT SINKING FUND	62,300	1,994	3%	60,306	345	1,649
TREE BOARD	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
PLANNING COMMISSION	5,100	1,292	25%	3,808	9,944	(8,652)
ENGINEER	118,143	- 0 -	0%	- 0 -	- 0 -	- 0 -
DOWDING POOL	81,000	280	0%	80,720	421	(140)
CONCESSION STAND	900	- 0 -	0%	900	- 0 -	- 0 -
SWIMMING LESSONS	16,000	- 0 -	0%	16,000	- 0 -	- 0 -
RECREATION	37,550	19,810	53%	17,740	12,785	7,025
SPORTS COMPLEX LIGHTS	50	123	246%	(73)	13	111
SENIOR CENTER	80,500	21,476	27%	59,024	18,552	2,924
SENIOR SHUTTLE	4,569	1,374	30%	3,195	1,038	335
RECYCLING	4,000	500	13%	3,500	5,291	(4,791)
WELLNESS CENTER	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
ECONOMIC DEVELOPMENT (LB840)	284,799	89,696	31%	195,103	82,395	7,301
CAPITAL IMPROVEMENTS FUND	18,890,000	- 0 -	0%	18,890,000	- 0 -	- 0 -
TAX INCREMENT FINANCING	687,206	187,371	27%	499,835	133,813	53,559
TOTAL GOVERNMENTAL FUNDS	**31,560,110**	**2,306,551**	**7%**	**29,135,416**	**1,715,622**	**590,929**
				(UNAUDITED)		

TREASURER'S REPORT	MONTH OF: JANUARY 2023					
VARIANCE AT: 33.33%						
	EXPENDITURES	CURRENT YTD		UNEXPENDED	PREVIOUS YTD	DIFFERENCE
DEPARTMENT	BUDGET	EXPENDITURES	VARIANCE	BALANCE	EXPENDITURES	B/W BUDGET YEARS
ELECTRIC	12,851,033	3,202,328	25%	9,648,705	2,657,909	544,419
ELEC BOND PYMT	496,408	- 0 -	0%	496,408	- 0 -	- 0 -
WATER	5,352,181	909,729	17%	4,442,452	643,163	266,566
WATER BOND PYMTS	330,473	243,468	74%	87,006	245,345	(1,878)
WATER SINKING FUND	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
WASTEWATER TREATMENT	2,567,932	680,411	26%	1,887,521	731,210	(50,799)
WWTW BOND PYMT	294,463	- 0 -	0%	294,463	- 0 -	- 0 -
WWTW SINKING FUND	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
TOTAL BUSINESS-TYPE FUNDS	**21,892,490**	**5,035,936**	**23%**	**16,856,554**	**4,277,627**	**758,309**
GENERAL EXPENSES	2,785,801	121,594	4%	2,664,207	109,790	11,804
LEGAL	72,852	20,582	28%	52,270	22,674	(2,092)
POLICE	1,757,394	591,391	34%	1,166,003	440,427	150,964
E911	233,204	77,735	33%	155,469	63,797	13,938
POLICE EQUITABLE SHARING	- 0 -	- 0 -	0%	- 0 -	242	(242)
STREET	5,335,795	920,657	17%	4,415,138	1,155,381	(234,724)
STREET STP FUNDS	182,589	- 0 -	0%	182,589	3,325	(3,325)
DEBT SERVICE	1,047,926	427,239	41%	620,687	428,252	(1,013)
RAIL CAMPUS	35,500	9,866	28%	25,634	325	9,541
CDBG ECON. DEV. LOAN FUND	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
CDBG-DOWNTOWN REVITAL GRANT	335,000	25,319	8%	309,681	17,110	8,208
BLDGS & GRDS (CITY HALL)	23,826	10,013	42%	13,813	18,240	(8,227)
LEVEE ACCREDITATION	195,000	- 0 -	0%	195,000	- 0 -	- 0 -
CIVIC CENTER	304,708	131,481	43%	173,227	48,523	82,959
LIBRARY	571,336	375,035	66%	196,301	160,110	214,925
PUBLIC PROPERTIES	581,757	234,494	40%	347,263	133,474	101,020
CEMETERY	256,210	109,281	43%	146,929	71,116	38,165
GOLF COURSE	554,926	154,025	28%	400,901	140,062	13,962
NEW PARK DEVELOPMENT	100	- 0 -	0%	100	58	(58)
NEW CEMETERY DEVELOPMENT	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
GUTHMAN TRUST - REGULAR	145	- 0 -	0%	145	- 0 -	- 0 -
GUTHMAN TRUST - PAVING	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
PERPETUAL CARE - PRINCIPAL	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
PERPETUAL CARE - INTEREST	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
BLDGS & GRDS (OTHER)	11,050	930	8%	10,120	1,129	(198)
BUILDING INSPECTION	111,406	34,083	31%	77,323	34,441	(357)
FIRE	775,879	83,613	11%	692,266	50,881	32,732
FIRE EQUIPMENT SINKING FUND	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
TREE BOARD	12,550	375	3%	12,175	450	(75)
PLANNING COMMISSION	23,828	6,569	28%	17,259	9,558	(2,990)
ENGINEER	157,522	49,215	31%	- 0 -	44,970	4,245
DOWDING POOL	266,515	28,224	11%	238,291	29,105	(882)
CONCESSION STAND	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
SWIMMING LESSONS	9,036	- 0 -	0%	9,036	- 0 -	- 0 -
RECREATION	363,259	170,717	47%	192,542	106,804	63,913
SPORTS COMPLEX LIGHTS	- 0 -	- 0 -	0%	- 0 -	- 0 -	- 0 -
SENIOR CENTER	219,128	56,081	26%	163,047	47,111	8,970
SENIOR SHUTTLE	4,569	2,018	44%	2,551	1,301	718
RECYCLING	113,675	10,423	9%	103,252	12,257	(1,835)
WELLNESS CENTER	24,281	- 0 -	0%	24,281	- 0 -	- 0 -
ECONOMIC DEVELOPMENT LB840	284,799	- 0 -	0%	284,799	6	(6)
CAPITAL IMPROVEMENTS FUND	18,890,000	- 0 -	0%	18,890,000	- 0 -	- 0 -
TAX INCREMENT FINANCING	696,706	145,516	21%	551,190	58,004	87,511
TOTAL GOVERNMENTAL FUNDS	**36,238,272**	**3,796,472**	**10%**	**32,333,492**	**3,208,922**	**587,550**
				(UNAUDITED)		

3. Claims & Payables Report

CLAIMS LIST
2-21-23

COUNCIL MEETING

Abbreviations: BE, Benefits; BU, Building Upkeep; CI, Capital Improvements; DO, Donations; EQ, Equipment; EX, Expense; FA, Fixed Asset; GS, Gas; GU, Ground Upkeep; IT, Technology; IV, Inventory; MA, Maintenance; MC, Miscellaneous; MH, Merchandise; MI, Mileage; ML, Meals; MS, Memberships; OI, Oil; OP, Operations; PO, Postage; PU, Publications; RE, Repairs; RI, Reimbursement; SA, Salaries, SE, Services; SL, Sales; ST, Sales Tax; SU, Supplies; TG, Training; TO, Tools; TR, Transfer; UN, Uniforms; UT, Utilities.

Altec Industries Inc	RE	541.55
AKRS Equipment Inc	RE	232.89
All Road Barricades Inc	SU	513.54
Allegiant Utility Service	MS	30.56
Amazon Business	SU	1,016.94
Badger Meter	SE	215.61
Baker & Taylor	SU	4,041.09
Baker Becky J	MI	64.19
Birkels Rock And Gravel	MA	2,502.50
Black Hills Energy	UT	3,511.61
Blackburn Manufacturing C	SU	719.05
Border States Industries	IV	6,434.13
Brandl John	OP	45.00
C N A Surety	MS	100.00
Capital Business-Cheyenne	MA	10.65
Carroll Construction Supp	CI	600.00
Chrastil Bill	SE	175.00
City Seward Library Petty	PO	106.58
City Seward Merchant Serv	SE	2,559.66
City Seward Payroll Accou	SA	177,748.17
City Seward Perpetual Fd	SL	1,050.00
Constellation Newenergy	UT	2,494.86
Culligan Of Crete	GU	60.00
Danko Emergency Equipment	EQ	9,036.20
Dutton-Lainson Co	FA	19,027.50
Electronic Contracting Co	BU	240.00
Emergency Medical Product	EQ	503.96
Estes Emily	RI	1,305.39
Farmers Coop Seward	GS	7,104.94
Fast Mart	GS	17.74
Foltz Fred	SE	275.00
Fyr-Tek	EQ	2,914.89
G T Distributors Inc	FA	388.10
Galls LLC	UN	771.69
Gehring Construction	CI	116,454.14
Great Plains Communicatio	SE	490.00
H O A	MA	302.10
H&S Plumb Heat & Air Inc	BU	880.00
Heyen'S Service & Custom	RE	19.95

Hireright Llc	SE	518.75
Hobson Automotive & Tire	RE	196.28
Husker Electric Supply Co	IV	17,781.04
JEO Consulting Group	SE	3,345.00
Jones Bank	MC	19.85
Kelley Joe	MC	1,200.00
King & Sons Plumbing	MC	126.00
Koranda Lodeen	MC	5,000.00
Koranda Rodney & Carman	MC	5,000.00
Krueger William Kent	SE	500.00
Last Mile Network Consult	IT	75.30
League Ne Municipalities	TG	980.00
Lee'S Refrigeration	BU	1,427.60
Lincoln Journal-Star	PU	166.06
Mailand'S Clothing	UN	54.00
Matheson Tri-Gas Inc	OP	66.21
Memorial Health Care Syst	BU	428.23
Memorial Health-Drug	SE	205.00
Menards North	BU	265.12
Merchant Job Training & S	TG	550.00
Mid-American Benefits Inc	BE	9.00
Midwest Auto Parts	RE	251.66
Midwest Automotive Inc	RE	806.66
Midwest Laboratories Inc	MA	826.63
N M C Exchange Inc	RE	59.53
Nat'L Audio Company	SU	60.88
Nebraska Dept Env/Energy	MS	40.00
Nebraska Door & Window	BU	62.83
Nebraska Fire Marshal	BU	120.00
Nebraska Pub Pow-Desmoine	UT	494,633.80
Nebraska Treasurer	OP	79.30
Niebrugge Bryan A	TG	4,744.40
Norris Public Power Distr	UT	1,203.28
Olsson	SE	5,133.91
One Billing Solutions LLC	SE	2,638.49
One Call Concepts Inc	SE	157.90
One Source Background Che	SE	19.00
O'Reilly Automotive Inc	SU	22.99
Orscheln Farm & Home	SU	975.89
Pac 'N' Save Discount Foo	ML	2,970.50
Pitney Bowes Inc	MA	91.29
Policky Brandon A	RI	155.86
Quill Corp	SU	34.98
Rasmussen Jason	RI	1,154.00
RESCO	SU	222.00
Riverside Portables LLC	SE	120.00
Sam'S Club (Lib-Rec-Pool)	MS	22.42
Sauber Mfg Co	RE	83.73
Seward County Chamber & D	MC	1,001.23
Seward County Clerk/Reg D	SE	38.00

Seward County Ema	SU		3.00
Seward County Independent	PU		760.21
Seward County Treasurer	SE		19,433.67
Seward Lumber & Home Cent	BU		2,314.39
Seward Public Schools	MC		227.57
Seward Wind LLC	UT		42,767.06
Short Elliott Hendrickson	CI		145,702.27
Siteone Landscape Supply	SU		284.78
Sparetime Lounge & Grill	ML		2,568.92
Spickelmier & Son Inc	CI		4,180.00
Sports Express	SU		634.70
St P J Supply Inc	SU		109.90
Stokes Robert	MC		30.00
Stryker Sales Corp	FA		26,967.14
Total Tool Supply Inc	TO		755.76
U S A Bluebook - Cust 812	GU		49.62
ULINE	BU		489.71
Van Kirk Bros Contracting	CI		27,171.60
Verizon Wireless	SE		397.35
Visa - Pinnacle Bank			1,274.10
Amazon	SU	-30.43	
ASCAP	MS	420.00	
BMI	MS	421.00	
Harlequin	SU	53.32	
Mattice Lock & Safe	BU	13.75	
Nextlink	SE	115.00	
Rainbow Resource Center	MS	20.81	
Sam's Club	SU	125.46	
Walmart	SU	119.08	
Zoom	MS	16.11	
Voehl Cindy	MI		19.00
Webcemeteries	IT		4,488.00
Wesco Distribution Inc	IV		46,291.13
Windstream Nebraska Inc	SE		1,725.91
	CLAIMS TOTAL		$1,248,795.57

4. Police Department Report

City of Seward
Police Department

Monthly Statistics
January 2023

Service Calls	606
Accidents	5
Arrests	5
Citations	35
Warnings	100
Parking Tickets	24

Does not include red tag warnings, yellow tag warnings or verbal warnings

5. Draft Minutes of February 7, 2023, City Council Meeting

February 7, 2023

The Seward City Council met at 7:07 p.m. on Tuesday, February 7, 2023, with Mayor Joshua Eickmeier presiding and City Clerk Derek Bargmann recording the proceedings. Upon roll call, the following Councilmembers were present: Megan Kahler, Jessica Kolterman, John Singleton, Tatum Tonniges, Rich Wergin, Jonathon Wilken. Councilmembers Absent: Karl Miller, Matt Stryson. Other officials present: City Administrator Greg Butcher, City Engineer Michael Oneby, Finance Director Nick Wolf, and Chief of Police Brian Peters.

Notice of the meeting was given in advance thereof, and Mayor Eickmeier announced that a copy of the Open Meetings Act and tonight's agenda is posted in the meeting room and is accessible to members of the public. Mayor Eickmeier led those in attendance in the Pledge of Allegiance.

CONSENT AGENDA CONSIDERATION ITEMS

The following Consent Agenda items were approved in one single motion made by Councilmember Singleton, seconded by Councilmember Kolterman.

1. Claims & Payables Report (totaling $1,674,144.45)
2. Draft Minutes of January 17, 2023, Council Meeting
3. Mayor Appointments to Various Boards and Committees:
    a. Appoint Molly Bargmann (replaces Justin Hartman) to the Park & Recreation Board for Remainder of Term
    b. Re-appoint Sue Bowen to the Planning Commission for a 3-Year Term
    c. Re-appoint Ann Underwood to the LB840 Committee for a 3-Year Term
    d. Re-appoint Jon Burhoop, Randy Chapp, and Lacey Koch to the Park & Recreation Board for a 3-Year Term

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

MAYOR APPOINTMENT OF CITY EMPLOYEE

1. APPOINTMENT OF BRANDON KOLL TO SERVE AS WATER/WASTEWATER DIRECTOR

Mr. Koll was present and expressed his excitement to work for the City. He previously served as Wastewater Superintendent for the past ten years at the City of Crete.

Councilmember Wergin moved, seconded by Councilmember Kahler, to appoint Brandon Koll as the Water/Wastewater Director of the City of Seward.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

ADMINISTRATIVE ITEMS

1. PRESENTATION AND ACCEPTANCE OF THE 2021/2022 ANNUAL AUDIT

Marcy Luth of AMGL, P.C., was present via Zoom videoconference and presented a synopsis of their work to complete the annual audit. In sum, she praised the current financial position of the City and proactiveness by the City to ensure the position remains strong into the future.

Councilmember Kolterman moved, seconded by Councilmember Singleton, to approve the 2021/2022 annual audit as presented.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

2. CONSIDERATION OF APPROVAL OF SERVICE PROVIDER AGREEMENT WITH CASELLE, INC. FOR PROVISION OF ACCOUNTING & UTILTIIES SOFTWARE

Finance Director Nick Wolf indicated the review of provider of utilities/accounting software began due to the nearing consideration of the next fiscal year's budget. The auditors have recommended the City update the chart of accounts and move to a true fund accounting system; therefore, these factors were paramount in this deliberation. The proposed provider—Caselle, Inc.—comes highly endorsed from other Nebraska users and provided an on-site demo opportunity for City Hall staff. Mr. Wolf also identified other potential uses of the software for City operation, such as timesheets, leave requests, invoice retrieval, budgeting information, and expanded use of payroll services. After review of all options, City Administration believes the use of another provider will allow the City to implement the auditor's recommendations and improve operative efficiencies.

Councilmember Tonniges inquired as to the terms to release the City from the current provider's agreement. Mr. Wolf responded the agreement is year-to-year; therefore, no cost to the City if it is not renewed at the end of this fiscal year. Councilmember Wergin inquired about the plan to address the transition while continuing normal City operations. Mr. Wolf expressed his understanding of the big undertaking this switch will be but believes the long-term benefit will be worth any difficulties in the implementation. Mr. Wolf asked other providers about the implementation process, and they were complimentary of how Caselle handles these processes.

Councilmember Singleton moved, seconded by Councilmember Kolterman, to approve the service provider agreement with Caselle, Inc. for utilities/accounting software as presented.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

3. CONSIDERATION OF SPECIAL DESIGNATED LICENSE FROM THE NEBRASKA HOP GROWERS ASSOCIATION FOR AN EVENT TO BE HELD AT BOTTLE ROCKET BREWERY ON MARCH 11, 2023

Mayor Eickmeier noted the event will bring craft brewers to do a tasting at Bottle Rocket but will not allow for the sale of their product.

Councilmember Singleton moved, seconded by Councilmember Kolterman, to approve the special designated liquor license from the Nebraska Hop Growers Association as presented.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

4. CONSIDERATION OF A SUPPLEMENTAL CONSTRUCTION SERVICES AGREEMENT WITH SHORT ELLIOTT HENDRICKSON (SEH), INC. FOR THE E SEWARD STREET IMPROVEMENTS PROJECT AND AUTHORIZATION FOR MAYOR TO SIGN ALL DOCUMENTS

City Engineer Oneby noted the agreement would be for construction oversight of the project, which will allow for successful completion of the work. The City will be billed only for hours spent on these services.

Councilmember Kolterman moved, seconded by Councilmember Wergin, to approve the supplemental construction services agreement with SEH, Inc. as presented.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

5. CONSIDERATION OF A CLAIM FROM GENE SELBY, 504 N 8TH STREET, FOR PERSONAL PROPERTY DAMAGE IN THE AMOUNT OF $3,236.39

Councilmember Kolterman moved, seconded by Councilmember Tonniges, to forward the claim to the City's insurance carrier for consideration of payment.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

6. UPDATE ON THE WELLNESS CENTER

City Administrator Butcher updated that the Seward Changing the Game Committee and he were continuing to tour other facilities and review site plans. One item suggested was the expedient hire of an executive director of the facility to assist with the design process and implementation. As such, presented tonight is an ordinance to establish the 'Wellness Center Executive Director' position and begin the hiring process immediately.

A. CONSIDERATION OF AN ORDINANCE TO CREATE A 'WELLNESS CENTER EXECUTIVE DIRECTOR' POSITION AND TO ESTABLISH A PAY RANGE

Councilmember Kolterman introduced Ordinance No. 2023-5. Councilmember Wilken moved, seconded by Councilmember Kahler to dispense with the statutory rule. Councilmember Singleton moved, seconded by Councilmember Kolterman, that the minutes of the proceedings of the Mayor and Council of the City of Seward, Seward County, Nebraska in the matter of passing and adopting: Ordinance No. 2023-5, AN ORDINANCE TO PROVIDE FOR ANNUAL CLASSIFICATION OF OFFICERS AND EMPLOYEES OF THE CITY OF SEWARD, NEBRASKA; TO CREATE THE EXECUTIVE DIRECTOR WELLNESS CENTER POSITION; TO PROVIDE FOR LONGEVITY PAY AND PAYMENT OF PART-TIME EMPLOYEES; TO PROVIDE FOR A DATE SUCH CLASSIFICATION AND PAY RANGES OF COMPENSATION SHALL BECOME EFFECTIVE; TO PROVIDE FOR PUBLICATION IN PAMPHLET FORM; TO PROVIDE FOR A TIME WHEN THIS ORDINANCE SHALL TAKE EFFECT.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.

Nay: None. Absent: Miller, Stryson. Motion carried.

Councilmember Tonniges moved, seconded by Councilmember Kolterman that all ordinances be added to the permanent record.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

CITY ADMINISTRATOR'S REPORT

Councilmember Kolterman moved, seconded by Councilmember Wergin, that City Administrator Butcher's report of February 7, 2023, be accepted.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

FUTURE REQUESTS FOR COUNCIL AGENDA ITEMS OR ADMINISTRATIVE ACTION

Councilmember Singleton – review of the commercial burn site fees

ANNOUNCEMENT OF UPCOMING EVENTS

Annual Employee Appreciation Events – February 10th and February 15th

MOTION TO ADJOURN

Councilmember Wergin moved, seconded by Councilmember Singleton, that the February 7, 2023, City Council Meeting be adjourned.

Aye: Kahler, Kolterman, Singleton, Tonniges, Wergin, Wilken.
Nay: None. Absent: Miller, Stryson. Motion carried.

Adjourned approximately 8:30 p.m.

THE CITY OF SEWARD, NEBRASKA

_____
Joshua Eickmeier, Mayor

_____
Derek Bargmann
City Clerk

6. Mayor Appointments to Boards and Commissions:
   A. Appoint Kathy Hartman to the Housing Appeals Board for a 3-Year Term
   B. Re-appoint Trish Johnson to the LB840 Committee for a 3-Year Term

PUBLIC HEARINGS

1. Public Hearing - 7:00 PM - Consideration of a Voluntary Annexation of Part of Lot 1, Block 5, Prairie View Addition and a Portion of Sunflower Avenue - Building/Zoning & Code Enf Director Dworak

Return to:
City of Seward
537 Main St
Seward, NE 68434

ORDINANCE NO. 2023-6

AN ORDINANCE DECLARING THE ANNEXATION OF CERTAIN CONTIGUOUS AND ADJACENT TRACTS OF LAND, URBAN AND SUBURBAN IN CHARACTER, MORE SPECIFICALLY A PART OF LOT 1, BLOCK 5, PRAIRIE VIEW ADDITION, AND A PART OF SUNFLOWER AVENUE TO THE CITY OF SEWARD, TO THE CORPORATE LIMITS OF THE CITY OF SEWARD, NEBRASKA, AND EXTENDING THE LIMITS THEREOF ACCORDINGLY; TO DESCRIBE THE REAL ESTATE TO BE ANNEXED AND ITS BOUNDARIES; TO PROVIDE FOR PUBLICATION OF THIS ORDINANCE IN PAMPHLET FORM; TO PROVIDE FOR A TIME WHEN THIS ORDINANCE SHALL TAKE EFFECT.

BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF SEWARD, NEBRASKA:

Section 1. TERRITORY ANNEXED; DESCRIPTION. The following described property, having been petitioned for annexation by all of the property owners of said property, is annexed to the corporate limits of the City of Seward, as follows:

> Beginning at a the northeast corner of Lot 1, Block 5, Prairie View Addition, thence south on the east line of Lot 1, a distance of 136.5 feet to the southeast corner of Lot 1; thence westerly on the south line of Lot 1, a distance of 7.4 feet to a point, thence northerly, parallel to the east line of Lot 1, a distance of 136.5 feet to a point on the north line of Lot 1, said point being 7.8 feet east of the northeast corner; thence easterly on the north line of lot 1, 7.8 feet to the point of beginning;
>
> And the east 42.2 feet of Sunflower Avenue; all in a subdivision of a portion of the Southwest Quarter, Section Twenty-Two, Township Eleven North, Range Three East of the Sixth Principal Meridian, City of Seward, Seward County, Nebraska.

Section 2. CORPORATE LIMITS EXTENDED. The corporate limits are hereby extended to include the territory described in Section 1 of this Ordinance as part of the corporate limits of the City of Seward, Nebraska, as the same is designated, and hereby shall be part of and annexed to the City of Seward, Seward County, Nebraska.

Section 3. FILING AND RECORDING. A certified copy of this Ordinance declaring such annexation under the Seal of the City of Seward, Nebraska, shall be filed with the office of the County Clerk of Seward County, Nebraska.

Section 4. BENEFITS TO INHABITANTS. The inhabitants of the above described territory as set forth in Section 1 of this Ordinance, annexed to the corporate limits of the City of Seward Nebraska, shall receive substantially the benefits of all other inhabitants of the City and such inhabitants shall be subject to the Ordinances and Regulations of the City of Seward, Nebraska

Section 5. PAMPHLET FORM; PUBLICATION; WHEN OPERATIVE. This ordinance shall be published in pamphlet form and shall be in full force and effect from and after its passage, approval, and publication as provided by law and city ordinance.

Passed and approved this _____ day of _____, 2023.

THE CITY OF SEWARD, NEBRASKA,

_____
Joshua Eickmeier, Mayor

ATTEST:

_____
Derek Bargmann
City Clerk

June 22, 2022

Tim Dworak
Building/Zoning & Code Enforcement Director
City of Seward, Nebraska
142 N 7th Street
Seward, NE 68434

RE: Prairie View Addition Annexation Request

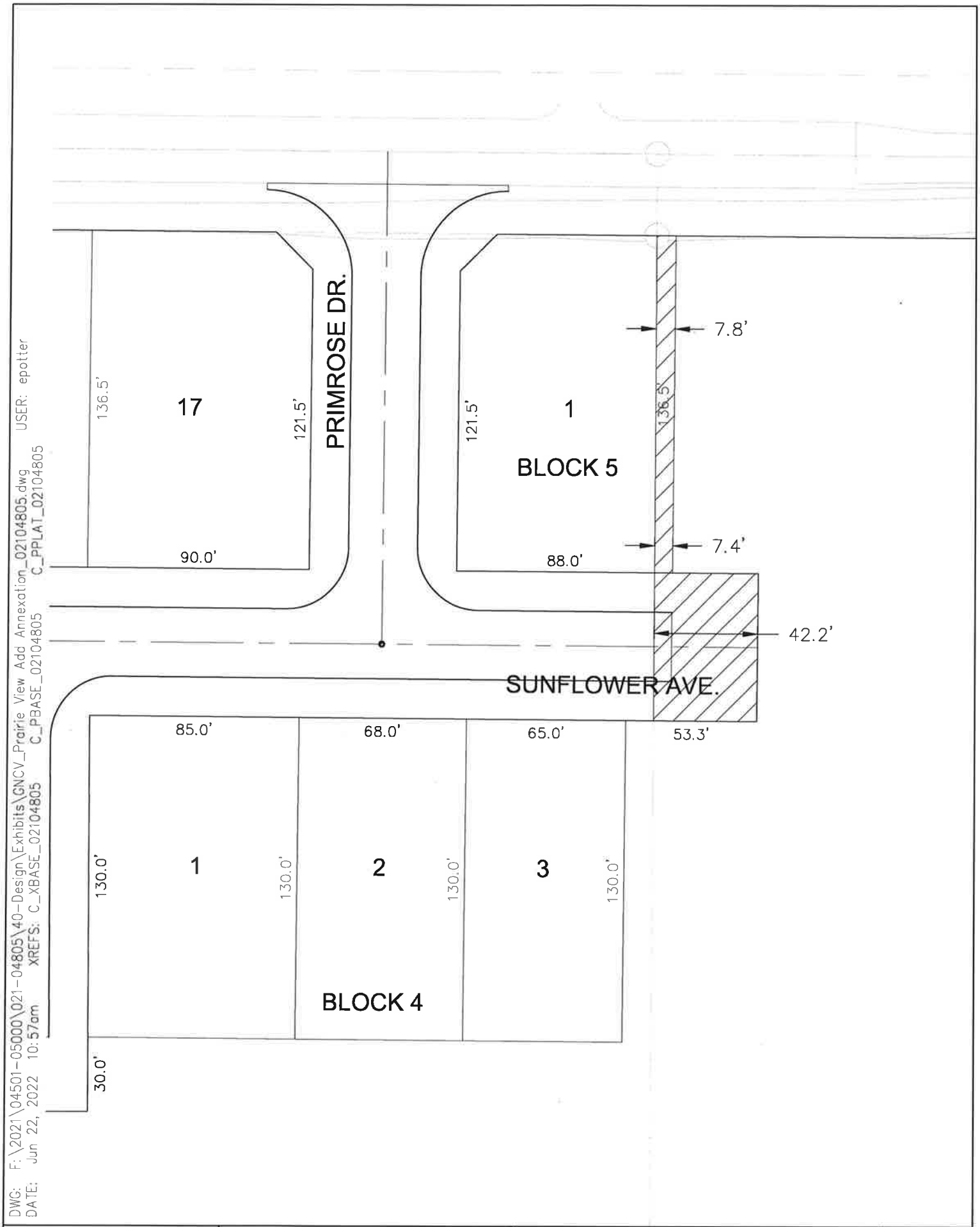
Dear Mr. Dworak,

I am requesting annexation for the remainder of Prairie View Addition that lies outside the current annexation limits. This includes a portion of Block 5 lot 1 and Sunflower Avenue. I've attached an exhibit that displays the area being requested.

Please contact me if you have any questions or require additional information.

Sincerely,

Bob Benes



DWG: F:\2021\04501-05000\021-04805\40-Design\Exhibits\GNCV_Prairie View Add Annexation_02104805.dwg USER: epotter
DATE: Jun 22, 2022 10:57am XREFS: C_XBASE_02104805 C_PBASE_02104805 C_PPLAT_02104805

PROJECT NO: 021-04805 DRAWN BY: EAP DATE: 6/22/22	PRAIRIE VIEW ADD. ANNEXATION	olsson	601 P Street, Suite 200 P.O. Box 84608 Lincoln, NE 68508 TEL 402.474.6311	EXHIBIT 1

City of Seward Planning Commission

142 N 7th St, Seward, NE 68434

Staff Report

Tim Dworak, Building/Zoning & Code Enforcement Director

402-643-2928 opt 3 opt 1

APPLICATION TYPE	FINAL ACTION?	DEVELOPER/OWNER
Annexation Request		1640 LLC/Bob Benes

PC HEARING DATE	RELATED APPLICATIONS	PROPERTY ADDRESS, ZONING DISTRICT/USE
February 13, 2023		1342 Sunflower Ave/R-3/Residential

ADJACENT ZONING DISTRICTS/USE:

North, R-3, Single Family Residential – Rand & Jennifer Hiser, Keyton & Christina Schegg

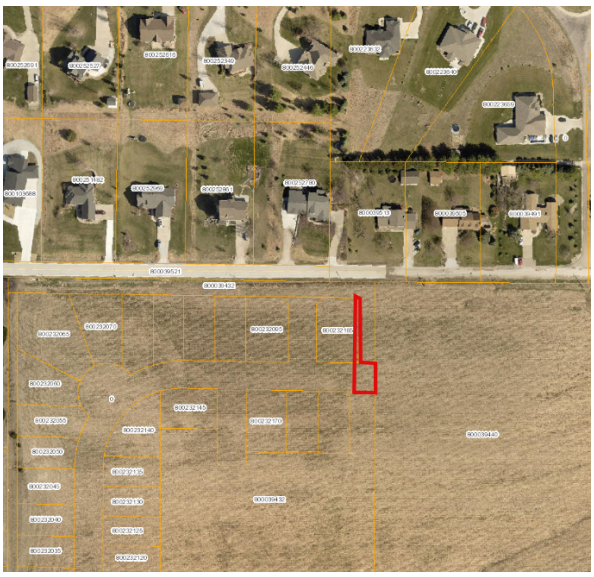
East, R-3, Single Family Residential – 1640 LLC

South, R-3, Single Family Residential – 1640 LLC

West, R-3, Single Family Residential– 1640 LLC

BRIEF SUMMARY OF REQUEST:

A voluntary Annexation request of a portion of lot 5 and Sunflower Ave of Prairie View Addition by Bob Benes.



APPLICATION CONTACT

Bob Benes, O# 402-423-6811

1640 Normandy Ct A, Lincoln, NE 68512

COMPATIBILTY WITH THE COMPREHENSIVE PLAN

Use type matches the comprehensive plan.

ANALYSIS

A voluntary Annex letter from Bob Benes to be read at City Council for the Annexation.

APPROXIMATE LAND AREA:

.08 acres or 3455.4 square feet +/-

LEGAL DESCRIPTION:

BEGINNING AT A THE NORTHEAST CORNER OF LOT 1, BLOCK 5, PRIARIE VIEW ADDITION, THENCE SOUTH ON THE EAST LINE OF LOT 1, A DISTANCE OF 136.5 FEET TO THE SOUTH EAST CORNER OF LOT 1; THENCE WESTLERY ON THE SOUTH LINE OF LOT 1 A DISTANCE OF 7.4 FEET TO A POINT; THENCE NORTHERLY, PARALLEL TO THE EAST LINE OF LOT 1, A DISTANCE OF 136.5 FEET TO A POINT ON THE NORTH LINE OF LOT 1, SAID POINT BEING 7.8 FEET EAST OF THE NORTHEAST CORNER; THENCE EASTERLY ON THE NORTH LINE OF LOT 1, 7.8 FEET TO THE POINT OF BEGINNING;

AND THE EAST 42.2 FEET OF SUNFLOWER AVENUE
(PID 800232185)

Prepared by

Tim Dworak

City of Seward Building - Zoning - Code Enforcement Director

2. Public Hearing - 7:00 PM - Consideration of an Amendment to the City of Seward Unified Land Development (ULDO); Chapter 410 'Zoning and Subdivision', Article 32.5 'Accessory Buildings and Garages' - Building/Zoning & Code Enf Director Dworak

ORDINANCE NO. 2023-7

AN ORDINANCE TO AMEND THE MUNICIPAL CODE OF THE CITY OF SEWARD, CHAPTER 410 ZONING AND SUBDIVISION, ARTICLE 32 SUPPLEMENTAL DEVELOPMENT REGULATIONS TO BETTER DEFINE MAXIMUM SIZE OF RESIDENTIAL ACCESSORY BUILDINGS; TO REPEAL ALL ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT; TO PROVIDE FOR AN EFFECTIVE DATE; TO PROVIDE FOR PUBLICATION OF THIS ORDINANCE IN PAMPHLET FORM.

BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF SEWARD AS FOLLOWS:

That Chapter 410 of the Municipal Code of the City of Seward is hereby amended as follows:

Section 1. That §410-32.5 (B) be amended as follows:

B. Maximum size of residential accessory buildings.

(1) The maximum size of a detached accessory building for a single-family detached, single-family attached, or duplex residential use in the R-1, R-2, R-3, R-4 and R-M Districts shall not exceed the 900 square feet for lots less than one acres in size and 1,200 square feet for lots exceeding one acre in size. An Accessory building may exceed these maximum subject to approval of a conditional use permit and other requirements of this section.

(2) All accessory buildings on a site, taken together, must comply with the building coverage requirements for the zoning district.

SECTION 2. REPEAL. All ordinances or parts of ordinances in conflict herewith are hereby repealed.

SECTION 3. WHEN OPERATIVE; PUBLICATION IN PAMPHLET FORM. This ordinance shall be published in pamphlet form and shall be in full force from and after its passage, approval and publication or posting as required by law.

Dated this _____ day of _____, 2023

CITY OF SEWARD, NEBRASKA

_____
Joshua Eickmeier, Mayor

ATTEST: _____
Derek Bargmann
City Clerk

§ 410-32.5. Accessory buildings and garages. [Amended 11-1-2005 by Ord. No. 54-05]

A. Setbacks and setback flexibility. Accessory buildings are subject to all site development regulations of their zoning district, except as provided below:

(1) Rear yard. The minimum rear yard setback for accessory buildings shall be 7.5 feet. The sum of the width of the alley and the rear yard setback shall be at least 20 feet if the accessory building is a garage with a vehicular entrance door that is directly oriented toward an alley. Double-frontage lots shall require front yard setbacks along both street frontages as required by the individual zoning district. Easements may be incorporated into these required setbacks. No accessory building shall be located within any easement or right-of-way along the rear property line.

(2) Street yards. No accessory building shall be located within 20 feet from any street right-of-way line.

(3) Garage setbacks. Any garage that fronts on a public street must be set back at least 20 feet from such street, regardless of the setback requirement within the zoning district. This shall not be interpreted to waive a larger required minimum setback required by the zoning district.

B. Maximum size of residential accessory buildings.

(1) The maximum size of a detached accessory building for a single-family detached, single-family attached, or duplex residential uses in the R-1, R-2, R-3, R-4 and R-M Districts shall not exceed the square feet for lots less than one acre in size and 1,200 square for lots exceeding one acre in size. An accessory building may exceed these maximums subject to approval of a conditional use permit and other requirements of this section.[1]

(2) All accessory buildings on a site, taken together, must comply with the building coverage requirements for the zoning district.

C. Height of accessory buildings. In residential districts, the maximum height shall be 16 feet for any accessory building. Maximum height for a detached garage and/or other accessory building in an AG or RR District shall be 35 feet.

D. Other requirements for accessory buildings: physical separation, effects on other properties, hazards, and sequencing of construction.

(1) Separation from other buildings. No accessory building shall be placed within five feet of any other building on its own property.

(2) Attached accessory buildings. Any accessory building physically attached to the principal building shall be considered part of the principal building and subject to the development regulations of its zoning district, except as

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1. **Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. I).**

modified in this section.

(3) Effect on adjacent properties. If an adjacent lot is built upon, the accessory building must be entirely to the rear of the line of any principal building on such adjacent lot.

(4) Hazards. Any accessory use that creates a potential fire hazard shall be located a minimum of 10 feet from any residential structure. Such uses include but are not limited to detached fireplaces, barbecue ovens, or storage of flammable materials.

(5) No accessory building shall be built upon any lot until construction of the principal building has begun.

MINUTE RECORD

No. 729—Redfield & Company, Inc., Omaha

October 21, 2003

The Seward City Council met in regular session at 7:30 p.m. on Tuesday, October 21, 2003 in the Council Chambers at the Municipal Building, 142 North 7th Street, Seward, Nebraska, with Mayor Roger E. Glawatz presiding and City Clerk-Treasurer/Administrator Assistant Debra Schaefer recording the proceedings. Upon roll call, the following Councilmembers were present: Barbara Pike, Brett Smith, Matt Stryson, Barbara Springer, Robert Fiala, Cory Mueller, David Stewart III. Absent: John Singleton. Other officials present throughout the meeting were: City Administrator Daniel Berlowitz, Building Director Roger Van Ooyen and Chief of Police Alan Baldwin.

Notice of the meeting was given in advance thereof by the method of communicating advance notice of the regular and special meetings of the City Council of the City of Seward, Nebraska, as stated in Resolution Number 14-99, which was adopted on the 17th day of August, 1999; said method stating that the notice of such meeting, with the agenda thereon, be posted in the following places: City Hall, County Courthouse and Seward Public Library. The certificate of posting notice is attached to these minutes. Notice of this meeting was simultaneously given to the Mayor and all members of the City Council, and a copy of their acknowledgment of receipt of notice and the agenda are attached to these minutes. Availability of the agenda was communicated in the advance notice and in the notice to the Mayor and Council of this meeting. All proceedings hereafter shown were take while the convened meeting was open to the attendance of the public.

THE PLEDGE OF ALLEGIANCE

1a. SPECIAL USE PERMIT - RICHARD MCCONNELL

Building Director Roger Van Ooyen explained that this Special Use Permit is for a garage to be built by Richard McConnell at 1049 N 8th Street. The proposed garage is 688 square feet larger than the 720 square feet allowed for this district and therefore requires a special use permit. All property owners within 300 feet of this residence were notified of this change and no one has expressed any opposition. The Planning Commission has reviewed this request and recommended approval of the permit.

A motion was made by Councilmember Fiala, seconded by Councilmember Smith, to approve the Special Use Permit submitted by Richard McConnell to build a garage 688 square feet larger than the 720 square feet allowed in his residential district.

Aye: Mueller, Stewart, Pike, Smith, Stryson, Springer, Fiala
Nay: None
Absent: Singleton. Motion carried.

1b. AMEND ZONING MAP

Mayor Glawatz noted that this agenda item is being tabled because the Planning Commission has requested more detailed information on it.

1c. AMEND SECTION 11-3205 ON MAXIMUM SIZE OF ACCESSORY BLDGS & GRDS

Building Director Roger Van Ooyen noted that currently City Code requires that the maximum size of accessory buildings in a residential district is 720 square feet no matter what size of lot or parcel a person owns. Staff is recommending that the Code be changed to allow 900 square feet accessory buildings on less than 1 acre tracts and 1,200 square feet buildings on parcels over 1 acre as long as all of the yard and setback requirements can

October 21, 2003

be met.

7:45 p.m. - Councilmember Singleton is present.

After review of this recommendation, Ordinance No. 34-03 which amends the maximum size of residential accessory buildings to 900 square feet for less than 1 acre tracts and 1,200 square feet for over 1 acre tracts was passed and approved.

1d. FINAL PLAT FOR EASTVIEW ADDITION

Building Director Roger Van Ooyen noted that the final plat for Eastview Addition had been reviewed by the Planning Commission and they had recommended approval. However, he noted that he had asked the City Attorney to prepare a necessary access agreement to allow the City access into City property over a month and a half ago and he has not done it yet. Because of this he recommended that this item be tabled, but after additional discussion, he suggested that the Ordinance could be approved with the caveat that it not be filed at the Courthouse until the easement is prepared and signed.

Delbert Sahn of 1314 Eastridge was present and noted that they did not have a problem with the easement or the suggestion from Mr. Van Ooyen.

After review, Ordinance No. 35-03 was passed and approved, subject to the condition that it would not be filed at the County Clerks' Office until the necessary easement is prepared and signed.

Councilmember Pike moved, seconded by Councilmember Fiala, that the minutes of the proceedings of the Mayor and Council of the City of Seward, Seward County, Nebraska in the matter of passing and approving Ordinance No. 34-03, "AN ORDINANCE TO AMEND SECTION 11.3205 OF THE UNIFORM LAND DEVELOPMENT ORDINANCE OF THE CITY OF SEWARD; TO AMEND THE MAXIMUM SIZE OF RESIDENTIAL ACCESSORY BUILDINGS; TO PROVIDE FOR PUBLICATION OF THIS ORDINANCE IN PAMPHLET FORM; TO PROVIDE FOR A TIME WHEN THIS ORDINANCE SHALL TAKE EFFECT", Ordinance No. 35-03, "AN ORDINANCE TO APPROVE THE PLAT ENTITLED "EASTVIEW ADDITION TO THE CITY OF SEWARD, SEWARD COUNTY, NEBRASKA," AS HEREINAFTER SET FORTH, LOCATED NORTH OF HILLCREST DRIVE AND EAST OF EASTSIDE DRIVE; TO PROVIDE FOR PUBLICATION OF THIS ORDINANCE IN PAMPHLET FORM; TO PROVIDE FOR A TIME WHEN THIS ORDINANCE SHALL TAKE EFFECT" be preserved and kept in a separate and distinct volume known as "Ordinance Record, City of Seward, Nebraska" and that said separate and distinct volume be incorporated in and made a part of these proceedings the same as though it were spread at large herein.

Aye: Singleton, Mueller, Stewart, Pike, smith, Stryson, Springer, Fiala
Nay: None
Absent: None. Motion carried.

2. SPECIAL DESIGNATED LIQUOR PERMIT/OUTLAW STEAKHOUSE

A motion was made by Councilmember Mueller, seconded by Councilmember Smith, to approve the special designated liquor permit application submitted by the Outlaw Steakhouse of Garland, Nebraska, for a wedding reception on November 7, 2003 at the Seward County Agricultural Pavilion.

Aye: Singleton, Mueller, Stewart, Pike, Smith, Stryson, Springer, Fiala
Nay: None
Absent: None. Motion carried.

City of Seward Board of Adjustments | Staff Report

142 N 7th St. Seward, NE 68434 | Tim Dworak 402-643-4000

APPLICATION TYPE	FINAL ACTION?	DEVELOPER/OWNER
ULDO Amendment		

PC HEARING DATE	RELATED APPLICATIONS	PROPERTY ADDRESS, ZONING DISTRICT/USE
February 13, 2023		

BRIEF SUMMARY OF REQUEST

Review a Text Amendment to the City of Seward Unified Land Development Ordinance; Article 32 Supplemental Development Regulations; 410-32.5, B Maximum Size of Residential Accessory Buildings.

APPLICATION CONTACT

Tim Dworak

ANALYSIS

It was noted that city code 410-32.5, B, Maximum size of residential Accessory Buildings had omitted the maximum allowable size of an accessory building on lots of less than one acre. After extensive research it was discovered the code was changed and adopted October 21, 2003 to read 900 square feet for lots under one acre. Attached is the signed ordinance and minutes from the Planning Commission meeting.

Prepared by

Tim Dworak

City of Seward Building - Zoning – Code Enforcement Director

ADMINISTRATIVE ITEMS

1. Presentation and Acceptance of Seward Memorial Library Annual Report - Library Director Baker

2021-2022

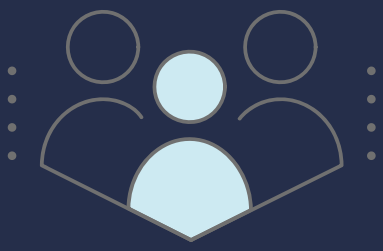
SEWARD MEMORIAL LIBRARY

Annual Report

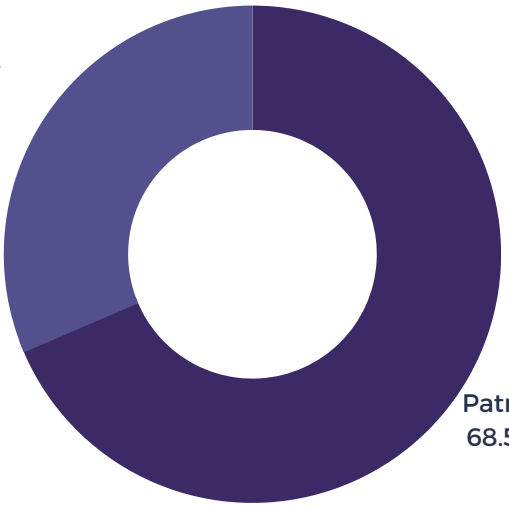
Attendance

51,094 TOTAL

153 DAY AVERAGE

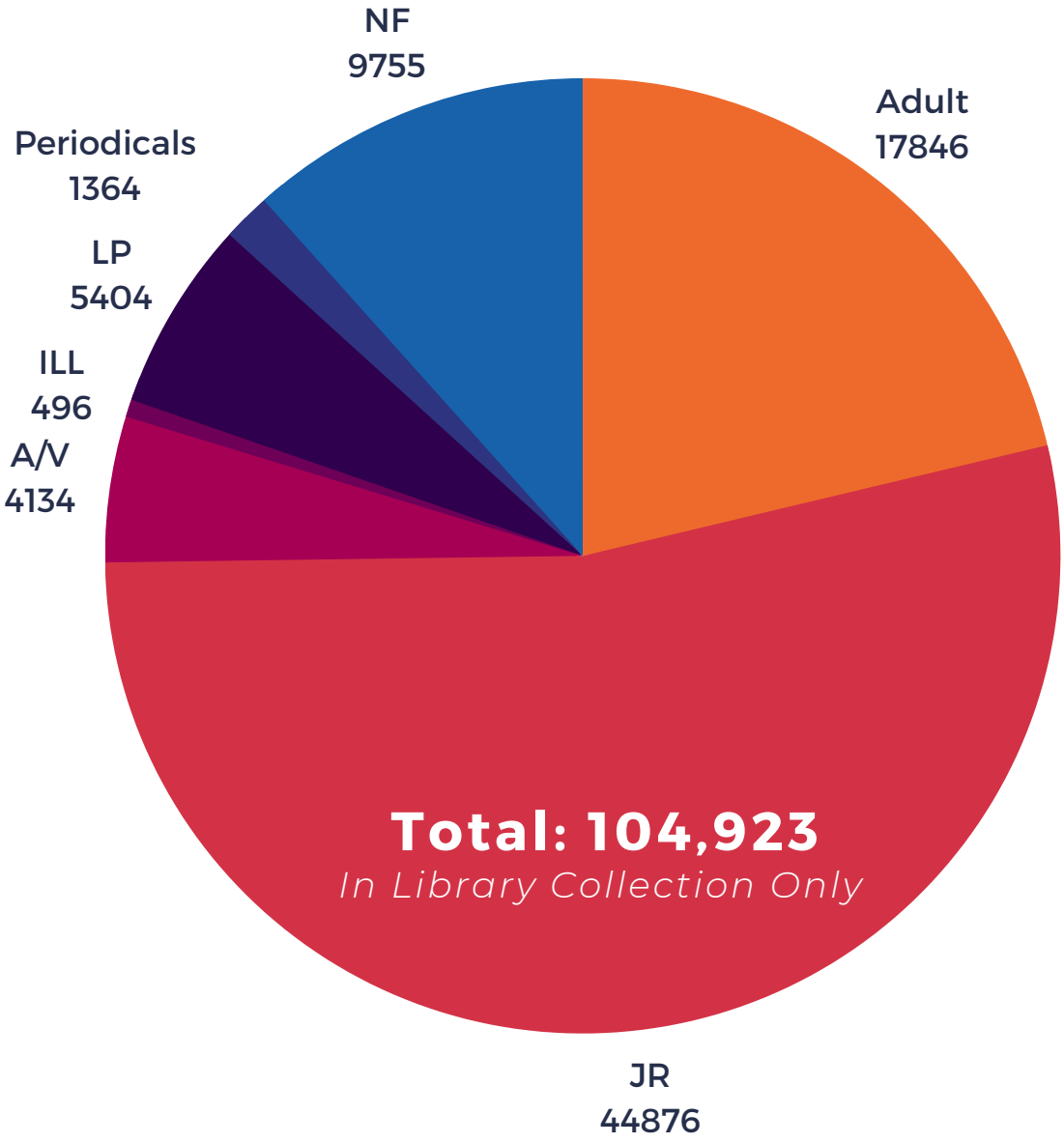


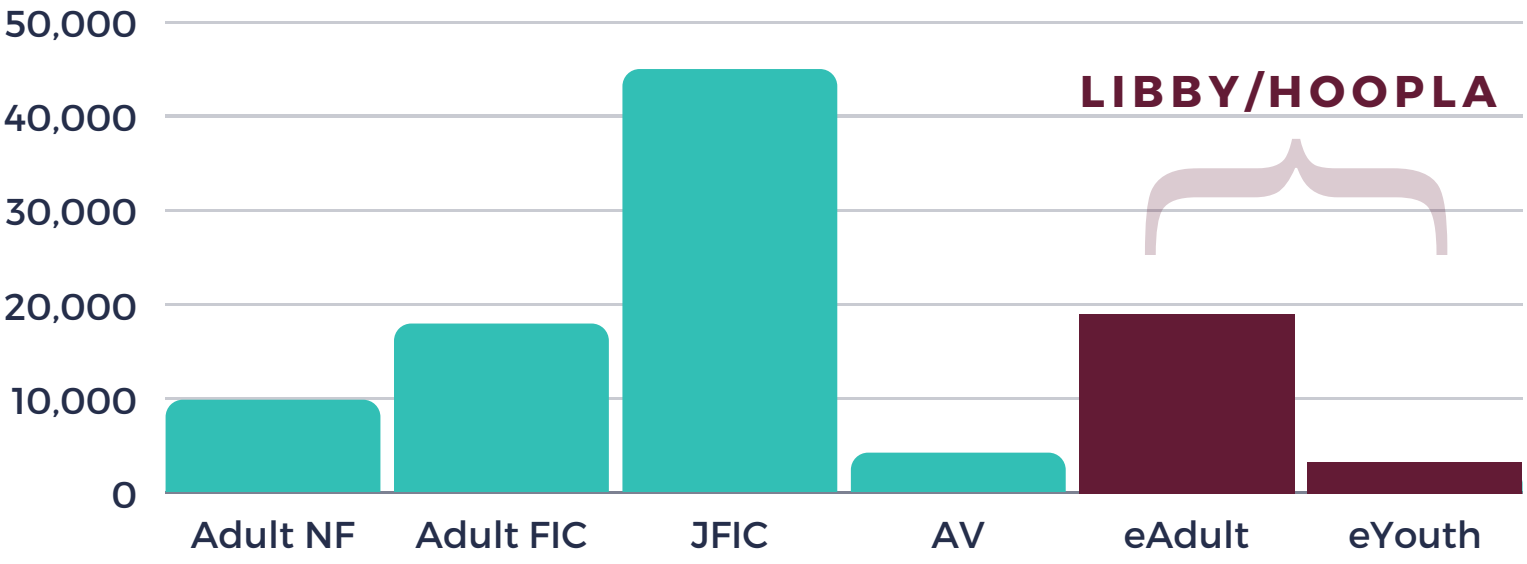
MEETING ROOM USE



LIBRARY USE	452
NON-LIBRARY USE	985

Circulation





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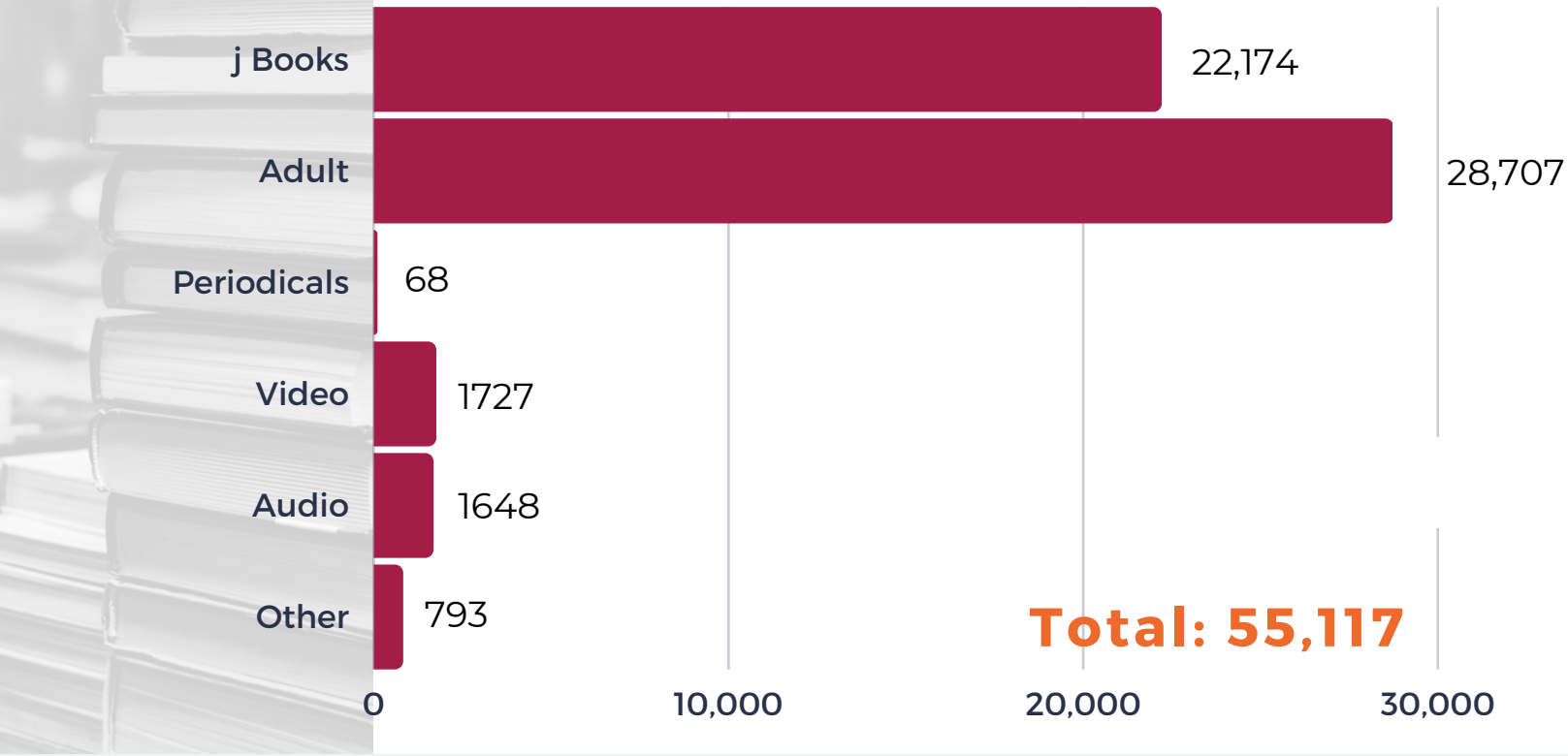


TOTAL ADDITIONS **+3406** WEEDED **-3053**

Budget

APPROPRIATED
$ 614,985

EXPENDED
$ 566,735

92%

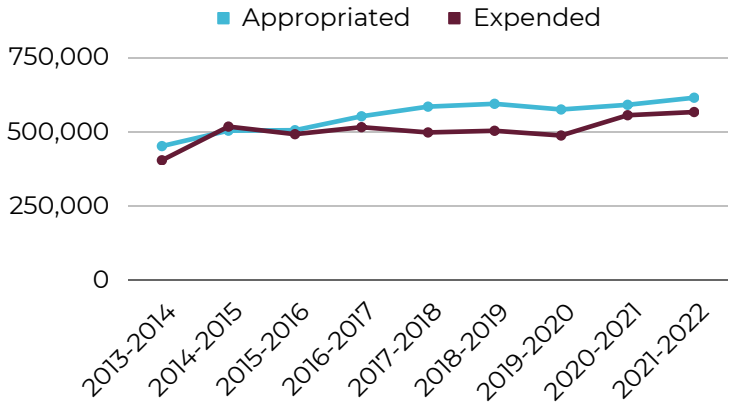
1189
Tech Room Users

92K+
Wireless Users

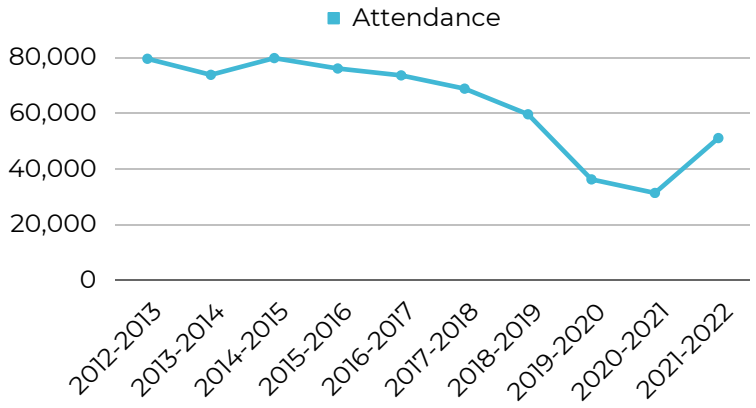
3067
Drive-up Window Users

10 Year Stats

Budget



Attendance



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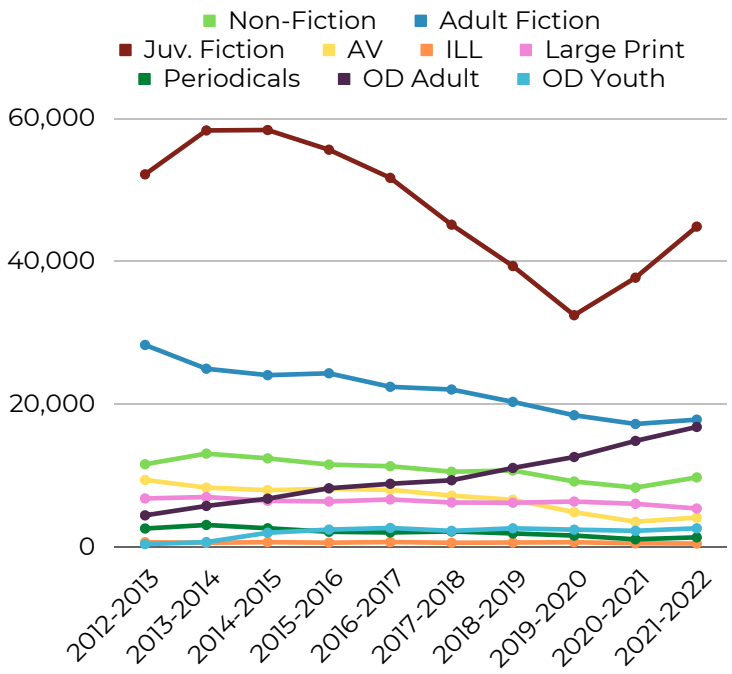
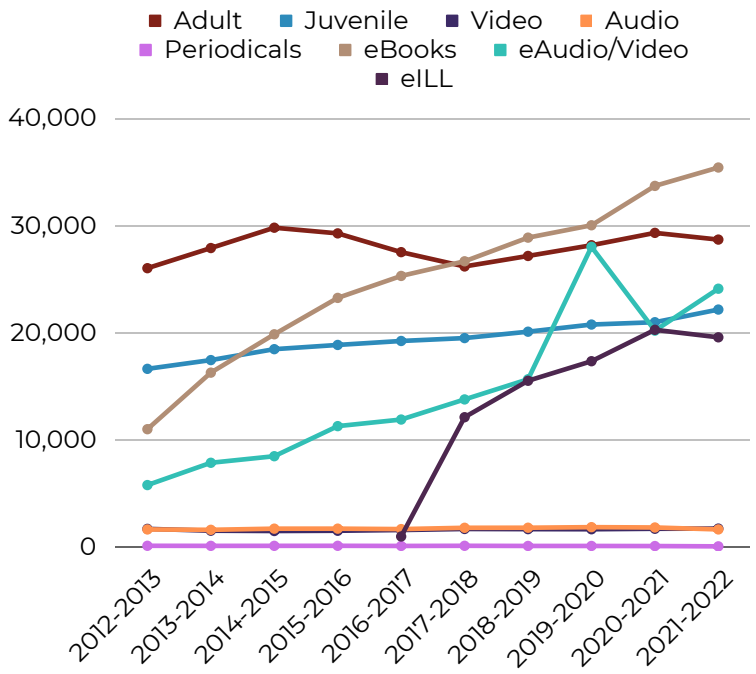
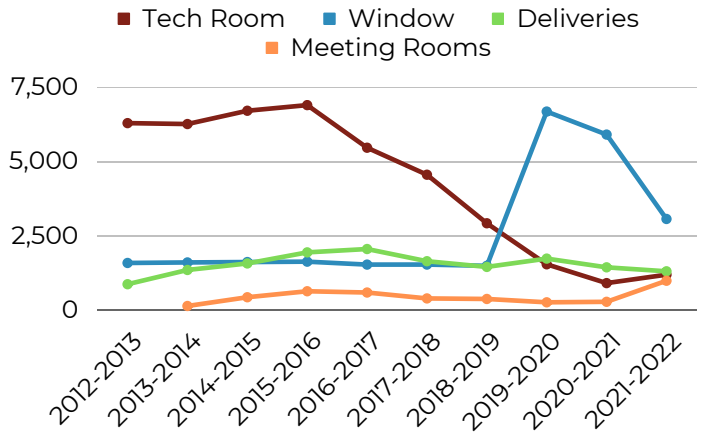


Collection



of Users



2021-2022

SEWARD MEMORIAL LIBRARY

Annual Report

Summer 2022

Top to Bottom, Left to Right: String Beans at the Bandshell, Boggs Balloons, Stuffed Animal Sleepover, Wildlife Encounters (x2), Henry Doorly Zoo, Keith West Magician (x2), Preschool Party

Seward Memorial Library in 2022

Clockwise: New landscaping along Highway 15 on the west, one of our Adult Craft Night, installation of new iPad OPACs on main level, continuation of our story times and after school programs (Toddler Time pictured here), S(h)elf Improvement project that expanded our space for Easy and JFIC titles, Marvin "PeeWee" Schulz with his plaque honoring the late Marilyn "Smiley" Schulz

2. Consideration of a Memorandum of Understanding with Tallgrass Development, Inc., for a Blight Study for Property Located at 534 N 10th Street - City Administrator Butcher

MEMORANDUM OF UNDERSTANDING

Tallgrass Development, Inc. a Nebraska corporation (Developer) and the City of Seward, Nebraska (City) enter into this Memorandum of Understanding for the purpose of setting forth the parties' obligations as it relates to obtaining and paying for a blight study of the following properties:

Lots 1 & 7, All Lots 2-12 & Vac Alley, H M & R Addition, Block 100, Seward, Seward County, Nebraska (Legal Description).

To this end, the parties hereto agree as follows:

1. City will contract with RDG Planning and Design (Consultant) for the purpose of conducting a study of the above described real estate to determine wherrther it is blighted and substandard within the meaning of Neb. Rev. Stat. § 18-2103(3) & (31).

2. Tallgrass Development, Inc. will advance City $2,500.00 toward the cost of said blight and substandard study, which advance City shall use to pay RDG Planning and Design.

3. A RDG Planning and Design representative will attend all public hearings required by the Planning Commission and /or City Council.

4. Upon completion of the study and submission to City, Tallgrass Development, Inc. will pay any remaining balance due RDG Planning and Design by City, provided however, the total paid by Tallgrass Development, Inc., shall not exceed the maximum cost set forth in Section 7 below.

5. City shall conduct a public hearing to receive comment on the issue of whether the real estate described above is blighted and substandard.

6. City may, but is not obligated to, declare the real estate blighted and substandard. Tallgrass Development, Inc. knowingly and intelligently accepts the risk of the cost of the blight and substandard study with no guaranty regarding the results of the study, or whether the City will declare the area blighted and substandard even if the study finds that the area qualifies for such designation.

7. The maximum cost for which Tallgrass Development, Inc. shall be responsible for the blight and substandard study is $4,000.00.

Tallgrass Development, Inc. (Developer)

By: Dana Schmidt

Member

2/9/23

ATTEST

City of Seward, Nebraska

By: _____

Derek Bargmann, City Clerk

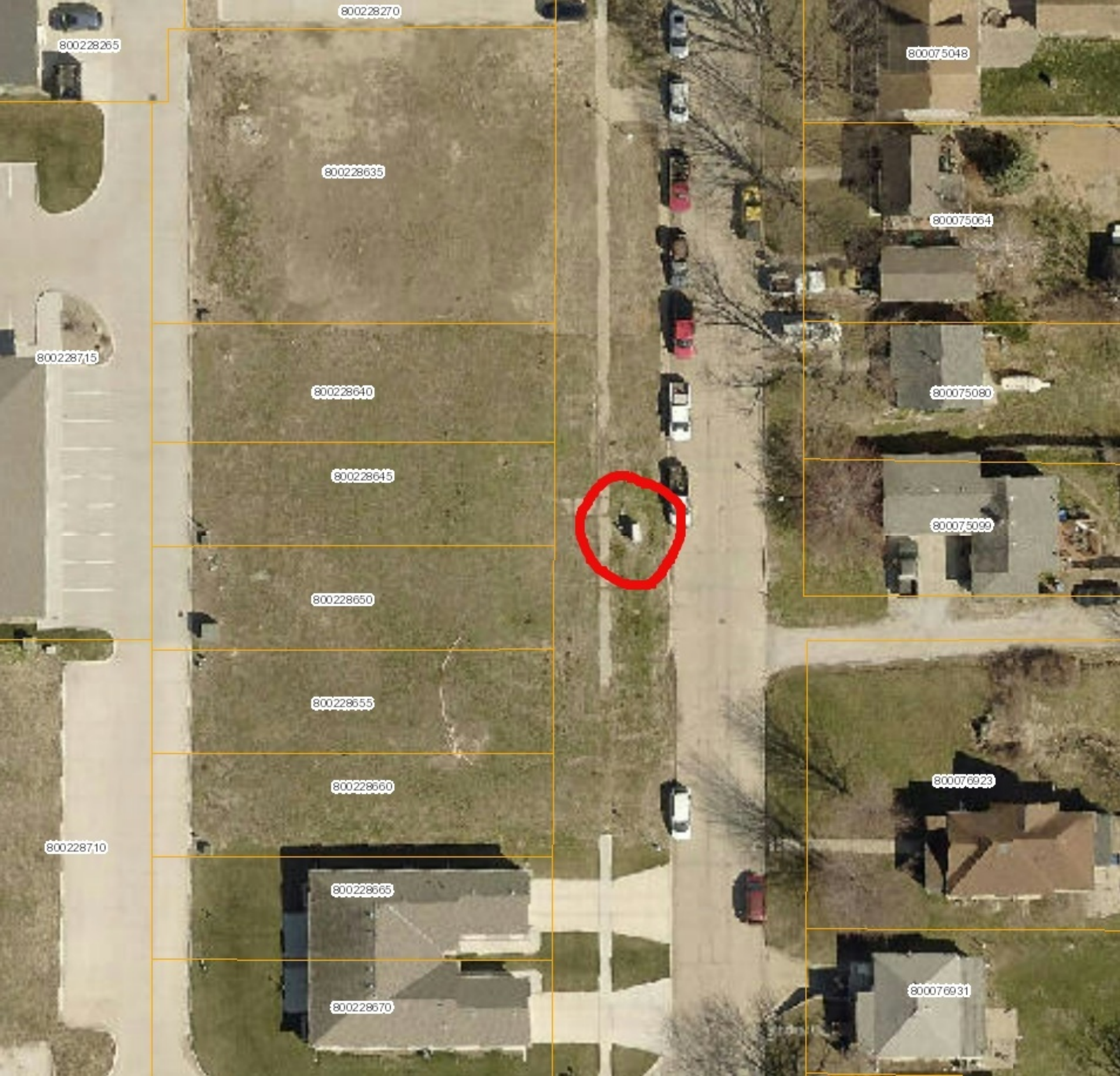
By: _____

Josh Eickmeier, Mayor

3. Consideration of a Request to Allow for the Construction of a Fence in the City Right-of-Way at 353 S 3rd Street - Building/Zoning & Code Enf Director Dworak

WARNING
GAS PIPELINE
DANGER
NO SMOKING,
MATCHES OR
OPEN FLAME

Jan 11, 2023 10:19:02 AM
338 South 3rd Street
Seward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City of Seward City Council

142 N 7th St. Seward, NE 68434

Staff Report

Tim Dworak, Building/Zoning and Codes Director

402-643-2928 opt 3, opt 1

APPLICATION TYPE	FINAL ACTION?	DEVELOPER/OWNER
		Plex Construction, Kyle Jensen
CITY COUNCIL DATE	**RELATED APPLICATIONS**	**PROPERTY ADDRESS, ZONING DISTRICT**
FEBRUARY 21, 2023	BOA fence height variance	353 S 3rd St, CBD, Residential use

ADJACENT ZONING DISTRICTS/USE:

North, CBD, Civic – The Rock Lutheran Church

South, CBD, Residential – Plex Construction

East, R-4, Residential - Jennifer Wood

West, CBD, Commercial – Seward Vision Clinic

BRIEF SUMMARY OF REQUEST

Applicant is seeking approval to install a fence in the front yard Right of Way

APPLICATION CONTACT

Plex Construction, Kyle Peterson

402-316-0352

ANALYSIS

Applicant is seeking approval from the City Council to install a fence in the ROW around a new gas piping and bollard protection barrier. The new gas set up poses both an eye sore in a residential neighborhood and a safety issue for kids in the neighborhood that see the structure as a jungle gym to crawl on. The structure is in the middle of the block and does not pose a threat to any sight lines (sight triangles or driveways). The sale of the units have been difficult as buyers have commented on the view and potential safety issue and chose not to purchase.

When Plex Construction purchased the property and was granted permission to build town home style residential units on the property, there existed a 2 foot by 3 foot cabinet (picture included) that housed the gas piping valves for Black Hills Energy. After town home construction had started, Black Hills upgraded the gas piping system and installed a bollard type protection barrier around the new system (picture included).

Talking to Black Hills Energy it was noted that five of these new systems exist in the City of Seward; the other four units are located throughout the City on non-residential properties such as Hughes Brothers, The Civic Center and Concordia University. The gas sites have been in place for many years and would be very expensive and impracticable to move.

APPROXIMATE LAND AREA:

LEGAL DESCRIPTION:

4. Consideration and Approval of Bid Documents for the Park Ave/Bradford Street Storm Sewer Improvements Project and Authorize the City to Seek Construction Bids - City Engineer Oneby

SCHEMMER

Design with Purpose. Build with Confidence.

Project: Bradford Street Storm Sewer
Cost Estimate

Job No.: SCHEMMER 08586.001 - B

BRADFORD ST 100% SUBMITTAL OPINION OF PROBABLE CONSTRUCTION COSTS

COMPUTED BY: Tyler Lerdahl DATE: 2/14/2023

CHECKED BY: Doug Holle DATE:

UPDATES:

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
0005.01	TRAFFIC CONTROL	1	LS	$5,000.00	$5,000.00
0030.00	MOBILIZATION (10%)	1	LS	$73,000.00	$73,000.00
1000.00	LARGE TREE REMOVAL	7	EA	$2,200.00	$15,400.00
1009.00	GENERAL CLEARING AND GRUBBING	1	LS	$5,000.00	$5,000.00
1011.00	WATER	4	MGAL	$60.00	$240.00
1090.03	ABANDON SEWER PIPE	827	LF	$5.00	$4,135.00
1101.00	REMOVE PAVEMENT	948	SY	$20.00	$18,960.00
1101.25	SAWING PAVEMENT	1,117	LF	$20.00	$22,340.00
1103.00	REMOVE AND SALVAGE BRICK SURFACE	150	SY	$10.00	$1,500.00
1106.00	REMOVE DRIVEWAY	575	SY	$10.00	$5,750.00
1107.00	REMOVE WALK	452	SY	$15.00	$6,780.00
1108.00	REMOVE COMBINATION CURB AND GUTTER	69	LF	$20.00	$1,380.00
1117.00	REMOVE MANHOLE	2	EA	$1,000.00	$2,000.00
1119.00	REMOVE INLET	6	EA	$850.00	$5,100.00
1995.00	STABILIZED CONSTRUCTION EXIT	1	EA	$2,000.00	$2,000.00
3014.09	COMBINATION CONCRETE CURB AND GUTTER	69	LF	$75.00	$5,175.00
3016.21	CONCRETE CLASS 47B-3000 SIDEWALK 4"	615	SY	$60.00	$36,900.00
3016.39	DETECTABLE WARNING PANEL	180	SF	$55.00	$9,900.00
3017.15	CONCRETE HEADER	110	LF	$65.00	$7,150.00
3020.24	CONCRETE CLASS 47B-3500 DRIVEWAY, 6"	607	SY	$70.00	$42,490.00
3075.22	7" CONCRETE PAVEMENT, CLASS 47B-3500	1,097	SY	$75.00	$82,275.00
4015.00	ADJUST MANHOLE TO GRADE	1	EA	$1,000.00	$1,000.00
4016.00	CONSTRUCT 60" MANHOLE	7	EA	$6,000.00	$42,000.00
4043.50	REMOVE SEWER PIPE	484	LF	$20.00	$9,680.00
4107.04	CLASS 47B-3000 CONCRETE FOR CONCRETE COLLARS	0.72	CY	$1,300.00	$936.00
4130.06	CLASS 47B-3000 CONCRETE FOR PIPE CULVERT PLUG	0.55	CY	$1,400.00	$770.00
4157.00	REINFORCING STEEL FOR COLLARS	70	LB	$2.50	$175.00
7309.90	REMOVE AND REINSTALL SIGN	9	EA	$250.00	$2,250.00
9034.00	PREPARATION OF INTERSECTIONS AND DRIVEWAYS	607	SY	$10.00	$6,070.00
9173.20	SUBGRADE PREPARATION	1,113	SY	$5.00	$5,565.00
L010.00	SODDING	1,798	SY	$20.00	$35,960.00
L021.72	CURB INLET PROTECTION	324	LF	$20.00	$6,480.00
L022.11	FABRIC SILT FENCE ' LOW POROSITY'	100	LF	$3.50	$350.00
P700.15	15" STORM SEWER PIPE, TYPE 2	341	LF	$75.00	$25,575.00
P700.36	36" STORM SEWER PIPE, TYPE 2	1,273	LF	$140.00	$178,220.00
W600.03	ADJUST VALVE BOX TO GRADE	5	EA	$1,000.00	$5,000.00
	NDOT STANDARD CURB INLET, PLAN 443 (Y=12')	5	EA	$7,000.00	$35,000.00
	NDOT STANDARD CURB INLET, PLAN 443 (Y=8')	1	EA	$6,500.00	$6,500.00
	REMOVE AND RELOCATE FIRE HYDRANT	1	EA	$2,000.00	$2,000.00
	UTILITY POTHOLING	5	EA	$1,200.00	$6,000.00
	WATER MAIN RECONSTRUCTION (LOOP)	4	EA	$20,000.00	$80,000.00
	SUBTOTAL CONSTRUCTION				$802,006.00
	CONSTRUCTION CONTINGENCIES (15% OF CONSTRUCTION)				$120,301.00
	TOTAL CONSTRUCTION COST				**$922,307.00**
ROW (Approximate Impacts and Costs)					
	TEMPORARY EASEMENT	3,610	SF	$0.00	$0.00
	TOTAL RIGHT-OF-WAY COSTS				**$0.00**
	CONSTRUCTION ENGINEERING & INSPECTION	12%			**$110,677.00**
	BRADFORD WEST GRAND TOTAL				**$1,032,984.00**

PROJECT NO.	SHEET NO.
SCHEMMER NO. 08586001-B	A1

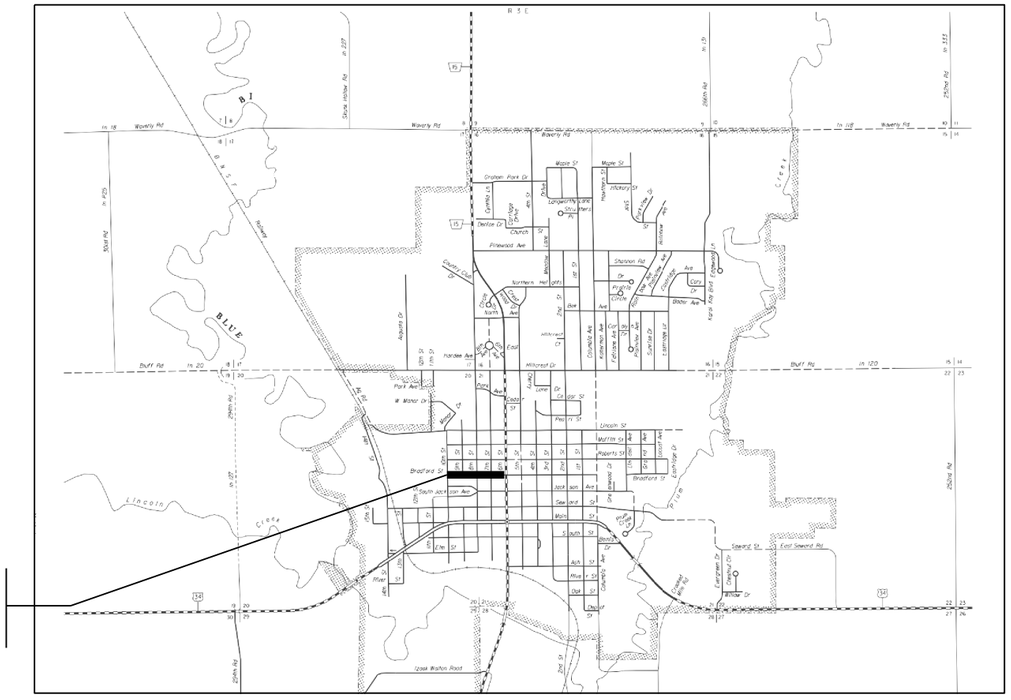
PLANS FOR CONSTRUCTION

BRADFORD STREET, 10TH ST TO 6TH ST
STORM SEWER IMPROVEMENTS
CITY OF SEWARD

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
A1	TITLE SHEET
C1	SUMMARY OF QUANTITIES
F1	HORIZONTAL ALIGNMENT AND CONTROL POINTS
G1 - G2	GENERAL INFORMATION
H1 - H5	CONSTRUCTION PHASING
J1 - J3	GEOMETRICS
J4 - J7	STORM SEWER PLAN AND PROFILES
J8 - J10	CONSTRUCTION AND REMOVAL
J11 - J12	EROSION CONTROL
L1 - L3	ROADWAY PLAN AND PROFILE
U1	SPECIAL PLAN 1C - CURB INLET PROTECTION
W1 - W2	RIGHT-OF-WAY PLANS

STD. PLAN NO.	DESCRIPTION
301	PAVEMENT DETAILS
303	CURB RAMPS
329	8 TO 16 INCH CONCRETE PAVEMENT
411	BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE
425	COLLARS AND ELBOWS FOR CONCRETE PIPE
428	CONCRETE PLUGS AND FIELD TAP DETAILS
435	MANHOLE
443	CURB INLETS AND JUNCTION BOX
501	EROSION CONTROL
502	SILT FENCE DETAILS
920	TRAFFIC CONTROL, CONSTRUCTION & MAINTENANCE
923	TRAFFIC CONTROL ROAD CLOSURE
924	URBAN TRAFFIC CONTROL PLAN



PROJECT LOCATION

THE 2017 ENGLISH EDITION OF THE NEBRASKA STANDARD SPECIFICATIONS AND THE SPECIAL PROVISIONS APPLY TO THIS PROJECT.

THE WORK ON THIS PROJECT CONSISTS OF GROUPS

1-GRADING, 3-SURFACING, 4-DRAINAGE, 7-PAVEMENT MARKING & SIGNING, A-STREET LIGHTING, L-EROSION CONTROL

◣ GROUPS 1, 3, 4, L ARE INCLUDED IN THE LETTING OF _____

▲ GROUPS _____ ARE INCLUDED IN THE LETTING OF _____

■ GROUPS _____ ARE INCLUDED IN THE LETTING OF _____

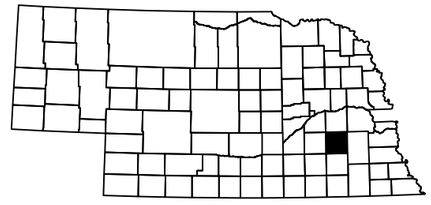
PLANS PREPARED BY:
THE SCHEMMER ASSOCIATES, INC.
333 S. 21ST STREET, SUITE 102
LINCOLN, NE 68510

CONVENTIONAL SIGNS

- FENCE R.O.W. OR WIRE
- GUARDRAIL
- TRAVELED WAY
- DIKE
- CULVERT
- POWER POLE
- TELEPHONE POLE
- MAILBOX
- RAILROAD TRACKS
- MARSH
- TREE - CONIFEROUS
- TREE - DECIDUOUS

R.O.W. LEGEND

- NEW CONTROLLED ACCESS
- PREVIOUS CONTROLLED ACCESS
- LIMITS OF CONSTRUCTION
- PREVIOUS R.O.W.
- NEW R.O.W.
- EXISTING PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXCESS TAKING
- PERMANENT EASEMENT
- EXISTING RAILROAD EASEMENT
- NEW RAILROAD PERMANENT EASEMENT
- NEW RAILROAD TEMPORARY EASEMENT



PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2022
STATE OF NEBRASKA

SEWARD CITY

APPROVED:

DATE

PROJECT NO.	SHEET NO.
08586001-B	C1

SUMMARY OF QUANTITIES

GRADING
GROUP 1

ITEM	QUANTITY	UNITS
TRAFFIC CONTROL	1	LUMP SUM
MOBILIZATION	1	LUMP SUM
LARGE TREE REMOVAL	7	EACH
GENERAL CLEARING AND GRUBBING	1	LUMP SUM
ABANDON SEWER PIPE	827	LINEAL FEET
REMOVE PAVEMENT	948	SQUARE YARDS
SAWING PAVEMENT	1,117	LINEAL FEET
REMOVE & SALVAGE BRICK SURFACE	150	SQUARE YARDS
REMOVE DRIVEWAY	575	SQUARE YARDS
REMOVE WALK	452	SQUARE YARDS
REMOVE COMBINATION CURB AND GUTTER	69	LINEAL FEET
REMOVE MANHOLE	2	EACH
REMOVE INLET	6	EACH
STABLIZED CONSTRUCTION EXIT	1	EACH
UTILITY POTHOLING	5	EACH

SURFACING
GROUP 3

ITEM	QUANTITY	UNITS
COMBINATION CONCRETE CURB AND GUTTER	69	LINEAL FEET
CONCRETE HEADER	110	LINEAL FEET
CONCRETE CLASS 47B-3000 SIDEWALK, 4"	615	SQUARE YARDS
DETECTABLE WARNING PANELS	180	SQUARE FEET
CONCRETE CLASS 47B-3500 DRIVEWAY, 6"	607	SQUARE YARDS
7" CONCRETE PAVEMENT CLASS 47B-3500	1,097	SQUARE YARDS
SUBGRADE PREPARATION	1,113	SQUARE YARDS
WATER	4	MGAL
PREPARATION OF INTERSECTIONS AND DRIVEWAYS	607	SQUARE YARDS

DRAINAGE
GROUP 4

ITEM	QUANTITY	UNITS
ADJUST MANHOLE TO GRADE	1	EACH
ADJUST VALVE BOX TO GRADE	5	EACH
60" MANHOLE	7	EACH
REMOVE SEWER PIPE	484	LINEAL FEET
15" STORM SEWER PIPE, TYPE 2	341	LINEAL FEET
36" STORM SEWER PIPE, TYPE 2	1,273	LINEAL FEET
NDOT STANDARD CURB INLET (Y=12')	5	EACH
NDOT STANDARD CURB INLET (Y=8')	1	EACH
CLASS 47B-3000 CONCRETE FOR COLLARS	0.72	CUBIC YARD
CLASS 47B-3000 CONCRETE FOR PIPE CULVERT PLUG	0.55	CUBIC YARD
REINFORCING STEEL FOR COLLARS	70	POUNDS
WATER MAIN RECONSTRUCTION (LOOP)	4	EACH
REMOVE AND RELOCATE HYDRANT	1	EACH

PAVEMENT MARKING & SIGNING
GROUP 7

ITEM	QUANTITY	UNITS
REMOVE AND REINSTALL SIGN	9	EACH

EROSION CONTROL
GROUP L

ITEM	QUANTITY	UNITS
SODDING	1,798	SQUARE YARDS
FABRIC SILT FENCE 'LOW POROSITY'	100	LINEAL FEET
CURB INLET PROTECTION	324	LINEAL FEET

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA

ROADWAY DESIGN DIVISION.

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Scale: 1:40

PROJECT NO.	SHEET NO.
08586001-B	F1

Beginning chain BRADFORD description

Point B10 N 405,639.434 E 2,441,396.013 Sta 100+00.00

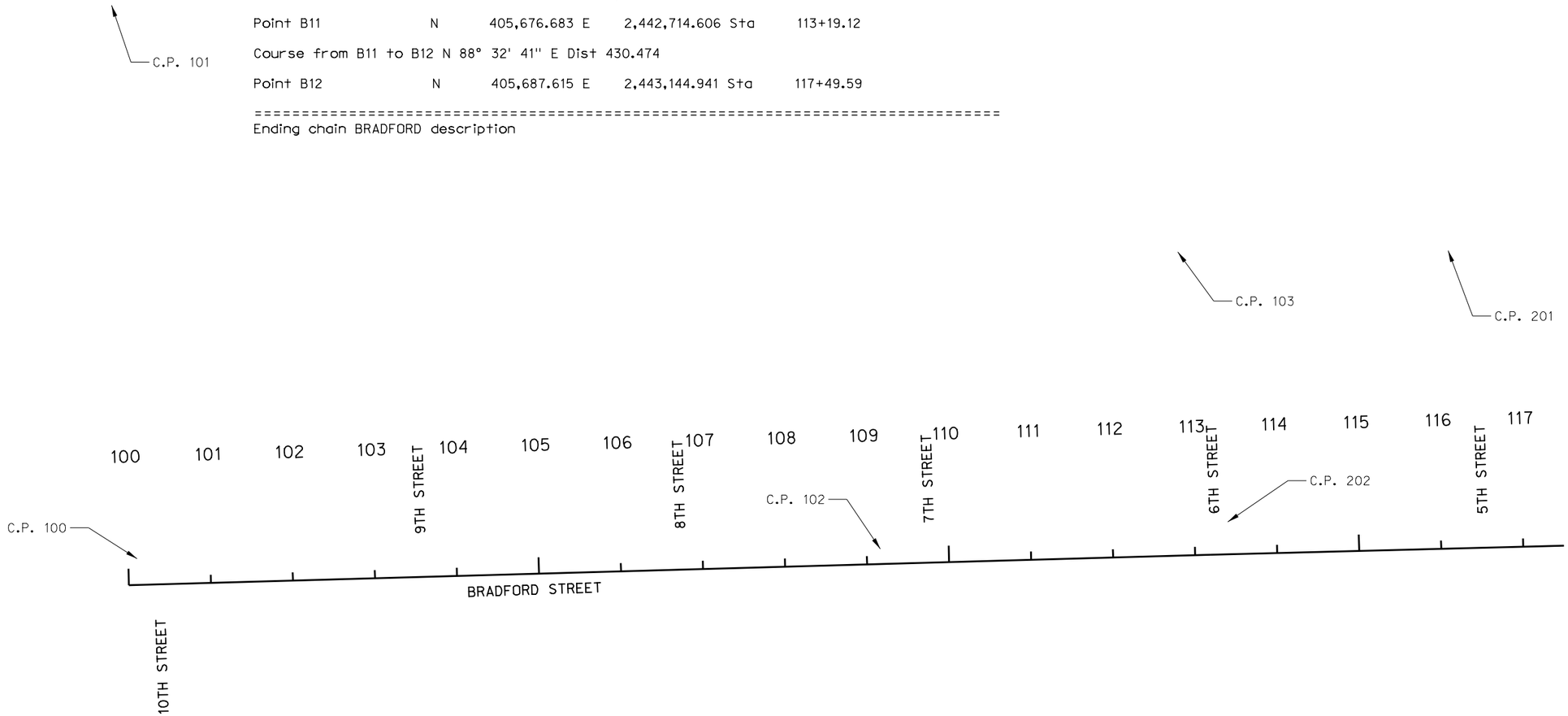
Course from B10 to B11 N 88° 22' 55" E Dist 1,319.120

Point B11 N 405,676.683 E 2,442,714.606 Sta 113+19.12

Course from B11 to B12 N 88° 32' 41" E Dist 430.474

Point B12 N 405,687.615 E 2,443,144.941 Sta 117+49.59

Ending chain BRADFORD description



GEOPAK ALIGNMENT INFORMATION		
ALIGNMENT	CHAIN	PROFILE
BRADFORD STREET	BRADFORD	-

CONTROL POINT DATA			
Control Point	X	Y	Z
CP 100	2441405.993	405671.785	1453.757
CP 101	2441374.924	406345.905	1258.032
CP 102	2442311.839	405683.666	1490.365
CP 103	2442674.444	406045.357	1492.762
CP 201	2443003.792	406047.143	1492.482
CP 202	2442735.249	405716.582	1492.498

HORIZONTAL ALIGNMENT & CONTROL

ROADWAY DESIGN DIVISION.

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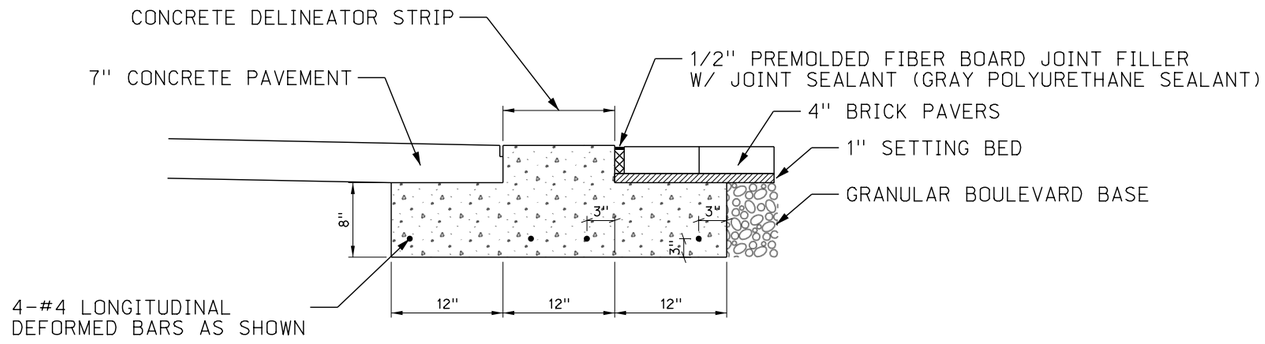
PROJECT NO.	SHEET NO.
08586001-B	G1

GENERAL INFORMATION

LEGEND

- GAS LINE
- ELECTRICAL SERVICE
- POWER LINE
- OVERHEAD POWER LINE
- SANITARY SEWER
- STORM SEWER
- TELEPHONE LINE
- FIBER OPTIC TELE. LINE
- OVERHEAD TELEPHONE LINE
- CABLE TV LINE
- OVERHEAD CABLE TV LINE
- WATER LINE
- FENCE - CHAIN LINK
- FENCE - R.O.W. OR WIRE
- FENCE - WOOD
- FLOWLINE
- CENTER LINE DRIVE
- BENCH MARK
- CENTER PIVOT
- CONTROL POINT
- DIKE
- GAS METER
- GAS VALVE
- GRID TICK
- GUARDRAIL
- GUARD POST
- GUY POLE
- GUY WIRE
- LIGHT POLE
- MAILBOX
- MANHOLE
- MARSH
- OIL WELL
- PHOTO CODE POINT
- POWER BOX
- POWER POLE
- POWER PULL BOX
- PROPANE TANK
- R.O.W. MARKER
- ADVANCED R.R. WARNING SIGN
- RAILROAD WARNING
- RAILROAD TRACKS
- RETAINING WALL
- SATELLITE DISH
- SIGN
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL/ST. LIGHT
- TELEPHONE BOX
- TELE. FIBER OPTICS BOX
- TELEPHONE PULL BOX
- TELEPHONE POLE
- TELEVISION BOX
- TREE - CONIFEROUS
- TREE - DECIDUOUS
- TREE STUMP
- WATER (FIRE) HYDRANT
- WATER VALVE
- WATER METER
- WELL
- WINDMILL

CULVERT PIPE LEGEND		
TYPE		DESCRIPTION
1	RCSP	Reinforced Concrete Sewer Pipe
2	RCP	Reinforced Concrete Pipe
3	GCCMP	Galvanized (zinc) Coated Corrugated Metal Pipe
4	ACCMP	Aluminum Coated Corrugated Metal Pipe
5	PCCMP	Polymer Coated Corrugated Metal Pipe
6	HDPE-CI	High Density Polyethylene (corrugated Interior)
7	HDPE-SI	High Density Polyethylene (smooth Interior)
8	PVC	Polyvinyl Chloride Pipe



CONCRETE HEADER DETAIL

NOTES

The location of all aerial and underground utility facilities may not be indicated in these plans. Underground utilities, whether indicated or not will be located and flagged by the utilities at the request of the contractor. Utilities are located within the project area. Any utility relocation will be at the contractors expense. Nebraska One Call will be utilized.

No excavation will be permitted in the area of underground utility facilities until all such facilities have been located and identified to the satisfaction of all parties. The excavation must be accomplished with extreme care in order to avoid any possibility of damage to the utility facility.

All existing structures shall be removed by the Contractor. The structures will become their property and removed from the site.

Contractor to remove, salvage, and reset any necessary traffic signs in their original location, unless noted otherwise.

Concrete washout stations shall be constructed as needed during the paving operations. This shall be considered subsidiary to other items receiving direct payment.

ROADWAY DESIGN DIVISION.

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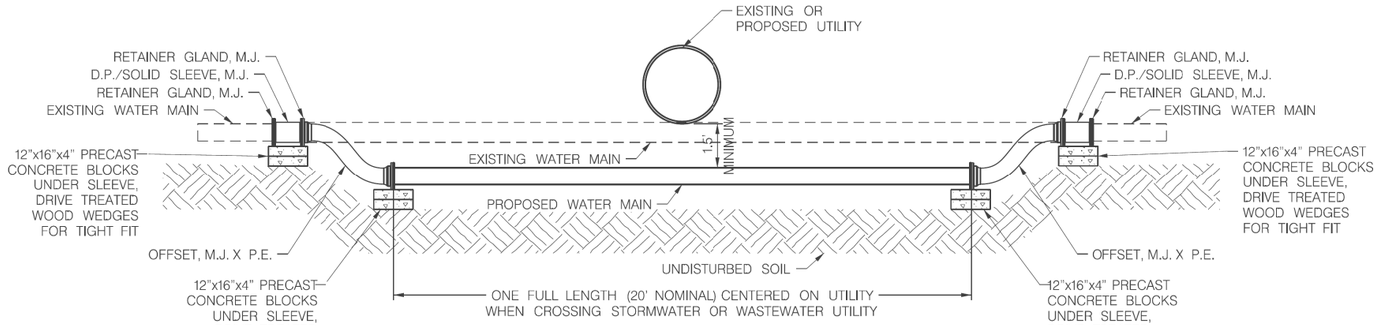
PROJECT NO.	SHEET NO.
08586001-B	G2

GENERAL INFORMATION



WATER MAIN RECONSTRUCTION
USING OFFSETS

NOTE:
NO ANCHORAGES OR
THRUST BLOCKS NEEDED
WITH OFFSETS

NOTE:

THE TOTAL LENGTH OF WATER RECONSTRUCTION IS TO BE POLYWRAPPED, IF DUCTILE IRON PIPE.
SEE STANDARD SPECIFICATIONS

WHEN PROPOSED UTILITY CROSSING IS 36" IN DIA. OR LARGER, CRUSHED ROCK FOUNDATION MATERIAL SHOULD BE USED AS BACKFILL UNDER PROPOSED UTILITY.

ALL CONCRETE SHALL BE L3500

ANY 4" WATER MAIN RECONSTRUCTION IS TO BE COMPLETED USING A MINIMUM OF 6" PIPE AND FITTINGS AND REDUCED TO MEET THE 4" MAIN AT EACH END OF THE RECONSTRUCTION.

WATER PIPE SHALL BE ENCASED WITH FLOWABLE FILL IN SCENARIOS WHERE IT IS RECONSTRUCTED BELOW AN EXISTING OR PROPOSED WASTEWATER LINE.

ROADWAY DESIGN DIVISION.

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File: 08586001cn02Bradford.dgn
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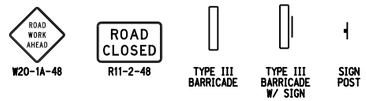
PROJECT NO.	SHEET NO.
08586001-B	H1

ROADWAY DESIGN DIVISION.

GENERAL PHASING AND BARRICADING NOTES

1. ALL BARRICADE AND SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED TO FIT FIELD CONDITIONS.
2. ALL CONTRADICTORY SIGNS SHALL BE COVERED OR REMOVED.
3. ALL VARIATIONS FROM THE PHASING PLANS SHALL BE APPROVED BY THE ENGINEER.
4. SIGN TYPE, SPACING, AND LOCATIONS SHALL MEET THE REQUIREMENTS OUTLINED IN THE MUTCD.
5. BARRICADING TO FOLLOW URBAN TRAFFIC CONTROL STANDARD PLAN 924 GUIDELINES.
6. IF NOT EXPLICITLY STATED IN THE PLANS, MULTIPLE PHASES CAN BE WORKED ON SIMULTANEOUSLY. APPROVAL OF ENGINEER IS REQUIRED.
7. WHERE DOUBLE YELLOW TEMPORARY PAINT IS NOTED IN THE PLANS, REFLECTORIZED TUBULAR POSTS SEPARATING OPPOSING TRAFFIC TO BE ADDED PER STANDARD PLAN 924 AT APPROXIMATELY 70 FEET SPACING.
8. WHERE CONCRETE BARRIERS ARE INTRODUCED ADJACENT TO TRAFFIC, UPSTREAM END OF BARRIER TO BE FLARED OUT INTO THE WORK ZONE 10 FEET OFFSET FROM THE EDGE OF LANE AT A 5:1 TAPER. IF FLARED END OF BARRIER NEEDS TO BE REMOVED FOR PAVING IN THE WORK ZONE, FLAGGERS TO BE REQUIRED.
9. SAW CUTTING TO BE REQUIRED WHEN ENTIRE ROAD WIDTH OF PAVEMENT WILL NOT BE REMOVED IN THE SAME PHASE.
10. ADDITIONAL BARRICADES, SIGNS, BARRIER PROTECTION AND TEMPORARY SURFACING MAY BE ADDED AT DISCRETION OF ENGINEER. INTERSECTION TRAFFIC CONTROL AND/OR TURNING MOVEMENT RESTRICTIONS MAY ALSO BE MODIFIED WITH APPROVAL FROM ENGINEER TO MEET WORK ZONE TRAFFIC CONTROL NEEDS.
11. SEE SPECIAL PROVISIONS FOR ADDTIONAL INFORMATION RELATED TO CONSTRUCTION PHASING.

CONSTRUCTION SIGN LEGEND



CONSTRUCTION SEQUENCING & BARRICADING

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Date: 15-FEB-2023 13:32
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PROJECT NO.	SHEET NO.
08586001-B	H2

ROADWAY DESIGN DIVISION.

TYLER J. LERDAHL E-17138 STATE OF NEBRASKA PROFESSIONAL CIVIL ENGINEER 3-15-2023

PHASE 1

CONSTRUCTION SEQUENCING & BARRICADING

File: 08586001cz01Bradford.dgn
Date: 15-FEB-2023 13:32
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PROJECT NO.	SHEET NO.
08586001-B	H3

ROADWAY DESIGN DIVISION.

TYLER J. LERDAHL E-17138 STATE OF NEBRASKA 3-15-2023

PHASE 2

CONSTRUCTION SEQUENCING & BARRICADING

File: 08586001cz02Bradford.dgn
Date: 15-FEB-2023 13:33
Computer: OMATYLERL
Scale: 1:100

PROJECT NO.	SHEET NO.
08586001-B	H4

ROADWAY DESIGN DIVISION.

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
3-15-2023
STATE OF NEBRASKA

PHASE 3
CONSTRUCTION SEQUENCING & BARRICADING

File: 08586001cz03Bradford.dgn
Scale: 1:100
Date: 15-FEB-2023 13:33
Computer: DMATYLERL

PROJECT NO.	SHEET NO.
08586001-B	H5

ROADWAY DESIGN DIVISION.

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
STATE OF NEBRASKA
3-15-2023

PHASE 4

CONSTRUCTION SEQUENCING & BARRICADING

File: 08586001cz04Bradford.dgn
Scale: 1:100
Date: 15-FEB-2023 13:33
Computer: OMATYLERL

PROJECT NO.	SHEET NO.
08586001-B	J1

ROADWAY DESIGN DIVISION.

① POINT 24.27' RT. STA. 100+14.86
X=2441411.55 Y=405615.60

② POINT 28.17' LT. STA. 100+13.60
X=2441408.82 Y=405667.98

③ 20.00' R.P. 34.99 LT. STA. 100+63.72
X=2441458.72 Y=405676.21
P.C. 28.17' LT. STA. 100+44.92
X=2441440.12 Y=405668.86
P.T. 14.99' LT. STA. 100+63.72
X=2441459.29 Y=405656.22

④ 20.00' R.P. 35.00 RT. STA. 100+64.92
X=2441461.90 Y=405606.28
P.C. 24.27' RT. STA. 100+48.05
X=2441444.72 Y=405616.53
P.T. 15.00' RT. STA. 100+64.92
X=2441461.33 Y=405626.27

⑤ POINT 14.99' LT. STA. 101+00.95
X=2441496.50 Y=405657.27

⑥ POINT 15.00' RT. STA. 101+00.95
X=2441497.34 Y=405627.29

⑦ POINT 31.67' LT. STA. 101+65.32
X=2441560.37 Y=405675.76

⑧ POINT 22.23' LT. STA. 101+65.39
X=2441560.71 Y=405666.32

⑨ POINT 15.20' LT. STA. 101+61.95
X=2441557.46 Y=405659.20

⑩ POINT 31.75' LT. STA. 101+79.32
X=2441574.36 Y=405676.23

⑪ POINT 22.34' LT. STA. 101+79.39
X=2441574.70 Y=405666.83

⑫ POINT 15.36' LT. STA. 101+82.94
X=2441578.45 Y=405659.96

⑬ POINT 31.80' LT. STA. 101+88.77
X=2441583.81 Y=405676.55

⑭ POINT 21.92' LT. STA. 101+88.77
X=2441584.09 Y=405666.68

⑮ POINT 14.92' LT. STA. 101+85.27
X=2441580.79 Y=405659.58

⑯ POINT 31.88' LT. STA. 102+02.77
X=2441597.80 Y=405677.03

⑰ POINT 21.92' LT. STA. 102+02.77
X=2441598.09 Y=405667.07

⑱ POINT 14.92' LT. STA. 102+06.27
X=2441601.78 Y=405660.17

⑲ POINT 32.11' LT. STA. 102+43.02
X=2441638.02 Y=405678.39

⑳ POINT 26.16' LT. STA. 102+42.90
X=2441638.08 Y=405672.44

㉑ POINT 15.03' LT. STA. 102+39.62
X=2441635.11 Y=405661.22

㉒ POINT 32.17' LT. STA. 102+52.98
X=2441647.98 Y=405678.73

㉓ POINT 26.59' LT. STA. 102+53.03
X=2441648.19 Y=405673.16

㉔ POINT 15.03' LT. STA. 102+56.86
X=2441652.35 Y=405661.71

㉕ POINT 32.24' LT. STA. 102+65.10
X=2441660.09 Y=405679.14

㉖ POINT 26.88' LT. STA. 102+65.16
X=2441660.31 Y=405673.79

㉗ POINT 15.11' LT. STA. 102+61.62
X=2441657.10 Y=405661.92

㉘ POINT 32.30' LT. STA. 102+75.70
X=2441670.69 Y=405679.50

㉙ POINT 26.95' LT. STA. 102+75.94
X=2441671.08 Y=405674.16

㉚ POINT 15.11' LT. STA. 102+78.01
X=2441673.48 Y=405662.38

㉛ 20.00' R.P. 34.80 LT. STA. 103+27.87
X=2441722.77 Y=405683.48
P.C. 21.17' LT. STA. 103+42.51
X=2441737.78 Y=405670.26
P.T. 34.17' LT. STA. 103+47.86
X=2441742.77 Y=405683.41

㉜ POINT 39.28' LT. STA. 103+47.95
X=2441742.72 Y=405688.52

㉝ POINT 39.28' LT. STA. 103+77.95
X=2441772.70 Y=405689.37

㉞ 20.00' R.P. 35.00 LT. STA. 103+97.87
X=2441792.74 Y=405685.65
P.C. 34.17' LT. STA. 103+77.89
X=2441772.78 Y=405684.26
P.T. 21.17' LT. STA. 103+83.43
X=2441778.69 Y=405671.42

㉟ POINT 14.99' LT. STA. 104+02.08
X=2441797.51 Y=405665.77

㊱ POINT 12.99' LT. STA. 104+02.08
X=2441797.57 Y=405663.77

㊲ POINT 14.99' LT. STA. 104+27.08
X=2441822.50 Y=405666.48

㊳ POINT 12.99' LT. STA. 104+27.08
X=2441822.56 Y=405664.48

㊴ POINT 15.31' LT. STA. 105+02.20
X=2441897.58 Y=405668.91

㊵ POINT 13.31' LT. STA. 105+02.19
X=2441897.63 Y=405666.91

0 20' 40'
SCALE

㊶ POINT 13.18' LT. STA. 105+21.19
X=2441916.62 Y=405667.33

㊷ POINT 33.50' LT. STA. 105+24.20
X=2441919.06 Y=405687.72

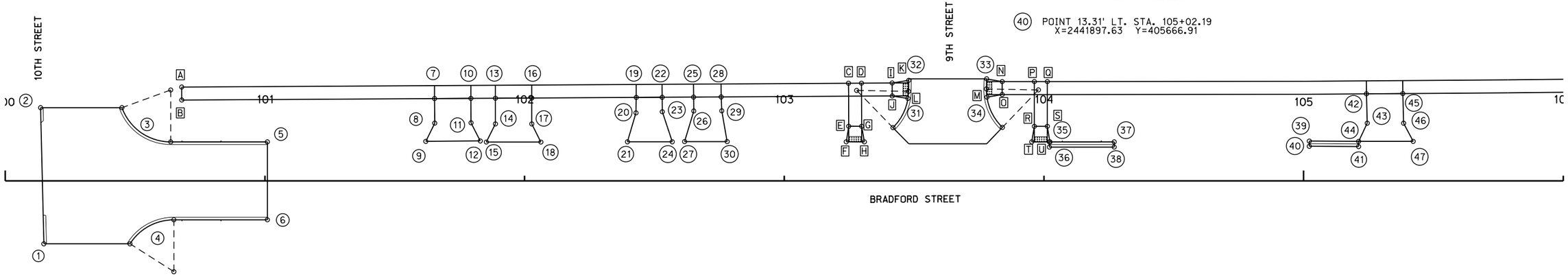
㊸ POINT 22.18' LT. STA. 105+24.51
X=2441919.69 Y=405676.42

㊹ POINT 15.18' LT. STA. 105+21.20
X=2441916.58 Y=405669.33

㊺ POINT 33.60' LT. STA. 105+38.20
X=2441933.05 Y=405688.22

㊻ POINT 22.18' LT. STA. 105+38.51
X=2441933.68 Y=405676.81

㊼ POINT 15.18' LT. STA. 105+42.20
X=2441937.57 Y=405669.92



SIDEWALK GEOMETRICS

Ⓐ SIDEWALK POINT 36.12' LT. STA. 100+67.95
X=2441462.91 Y=405677.45

Ⓑ SIDEWALK POINT 31.12' LT. STA. 100+67.97
X=2441463.08 Y=405672.46

Ⓒ SIDEWALK POINT 37.57' LT. STA. 103+24.74
X=2441719.56 Y=405686.16

Ⓓ SIDEWALK POINT 37.60' LT. STA. 103+29.74
X=2441724.56 Y=405686.33

Ⓔ SIDEWALK POINT 21.01' LT. STA. 103+24.84
X=2441720.12 Y=405669.61

Ⓕ SIDEWALK POINT 15.01' LT. STA. 103+23.87
X=2441719.33 Y=405663.59

Ⓖ SIDEWALK POINT 21.00' LT. STA. 103+29.84
X=2441725.12 Y=405669.74

Ⓗ SIDEWALK POINT 15.00' LT. STA. 103+30.87
X=2441726.33 Y=405663.77

Ⓘ SIDEWALK POINT 37.67' LT. STA. 103+41.54
X=2441736.36 Y=405686.73

Ⓙ SIDEWALK POINT 32.67' LT. STA. 103+41.58
X=2441736.54 Y=405681.74

Ⓚ SIDEWALK POINT 38.71' LT. STA. 103+47.94
X=2441742.72 Y=405687.95

Ⓛ SIDEWALK POINT 31.73' LT. STA. 103+47.63
X=2441742.61 Y=405680.96

Ⓜ SIDEWALK POINT 32.23' LT. STA. 103+78.06
X=2441773.01 Y=405682.33

Ⓝ SIDEWALK POINT 38.22' LT. STA. 103+83.93
X=2441778.71 Y=405688.48

Ⓞ SIDEWALK POINT 33.22' LT. STA. 103+83.93
X=2441778.85 Y=405683.48

Ⓟ SIDEWALK POINT 38.22' LT. STA. 103+96.32
X=2441791.10 Y=405688.83

Ⓠ SIDEWALK POINT 38.22' LT. STA. 104+01.32
X=2441796.10 Y=405688.97

Ⓡ SIDEWALK POINT 20.99' LT. STA. 103+96.32
X=2441791.59 Y=405671.61

Ⓢ SIDEWALK POINT 20.99' LT. STA. 104+01.32
X=2441796.58 Y=405671.75

Ⓣ SIDEWALK POINT 14.99' LT. STA. 103+95.32
X=2441790.76 Y=405665.58

Ⓤ SIDEWALK POINT 14.99' LT. STA. 104+02.32
X=2441797.75 Y=405665.78

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA

GEOMETRICS

Computer: DMATYLERL
Date: 15-FEB-2023 13:33
File: 08586001cg01Bradford.dgn
Scale: 1:40

PROJECT NO.	SHEET NO.
08586001-B	J2

0 20' 40'
SCALE

ROADWAY DESIGN DIVISION.

Computer: DMATYLERL

Date: 15-FEB-2023 13:33

File: 08586001cg02Bradford.dgn
Scale: 1:40

① 20.00' R.P. 34.95 LT. STA. 106+44.31
X=2442039.08 Y=405692.56
P.C. 21.05' LT. STA. 106+58.69
X=2442053.85 Y=405679.07
P.T. 35.49' LT. STA. 106+64.30
X=2442059.05 Y=405693.67

② 20.00' R.P. 34.90 LT. STA. 107+09.31
X=2442104.06 Y=405694.35
P.C. 35.66' LT. STA. 106+89.33
X=2442084.06 Y=405694.54
P.T. 20.99' LT. STA. 106+94.95
X=2442090.09 Y=405680.04

③ POINT 31.92' RT. STA. 106+64.69
X=2442061.34 Y=405626.30

④ POINT 50.95' RT. STA. 106+64.69
X=2442061.88 Y=405607.28

⑤ POINT 32.70' RT. STA. 106+90.03
X=2442086.69 Y=405626.23

⑥ POINT 51.92' RT. STA. 106+90.03
X=2442087.23 Y=405607.02

⑦ POINT 14.98' LT. STA. 107+06.41
X=2442101.72 Y=405674.36

⑧ POINT 15.01' RT. STA. 107+06.41
X=2442102.57 Y=405644.38

⑨ POINT 15.00' LT. STA. 107+31.41
X=2442126.71 Y=405675.08

⑩ POINT 15.00' RT. STA. 107+31.41
X=2442127.56 Y=405645.09

⑪ POINT 34.18' LT. STA. 107+63.69
X=2442158.43 Y=405695.17

⑫ POINT 22.20' LT. STA. 107+63.71
X=2442158.79 Y=405683.19

⑬ POINT 15.20' LT. STA. 107+60.22
X=2442155.50 Y=405676.09

⑭ POINT 34.41' LT. STA. 108+38.19
X=2442232.89 Y=405697.50

⑮ POINT 22.32' LT. STA. 108+38.21
X=2442233.25 Y=405685.41

⑯ POINT 15.32' LT. STA. 108+41.72
X=2442236.97 Y=405678.52

⑰ POINT 14.44' RT. STA. 108+02.16
X=2442198.26 Y=405647.65

⑱ POINT 24.97' RT. STA. 108+06.06
X=2442202.46 Y=405637.23

⑲ POINT 24.46' RT. STA. 108+17.12
X=2442213.50 Y=405638.06

⑳ POINT 14.46' RT. STA. 108+21.92
X=2442218.01 Y=405648.19

㉑ POINT 13.00' RT. STA. 108+22.08
X=2442218.13 Y=405649.65

㉒ POINT 15.00' RT. STA. 108+22.08
X=2442218.19 Y=405647.65

㉓ POINT 15.00' RT. STA. 108+47.08
X=2442243.18 Y=405648.36

㉔ POINT 13.00' RT. STA. 108+47.08
X=2442243.12 Y=405650.35

㉕ 15.00' R.P. 29.90 LT. STA. 109+55.08
X=2442349.87 Y=405696.29
P.C. 18.81' LT. STA. 109+65.18
X=2442360.28 Y=405685.49
P.T. 31.43' LT. STA. 109+70.00
X=2442364.74 Y=405698.24

㉖ POINT 13.65' LT. STA. 109+69.89
X=2442365.13 Y=405680.46

㉗ POINT 13.47' LT. STA. 109+97.55
X=2442392.78 Y=405681.06

㉘ POINT 35.41' RT. STA. 109+97.55
X=2442394.16 Y=405632.20

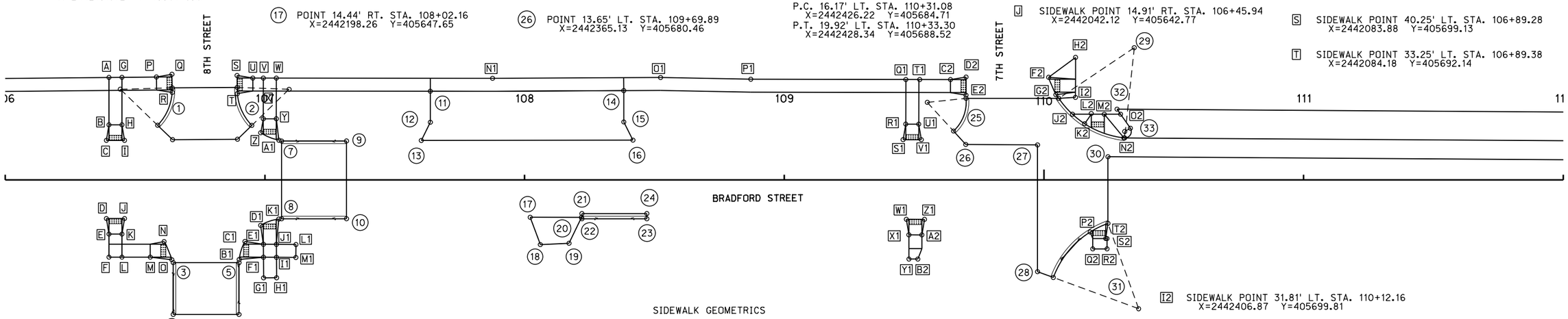
㉙ 15.00' R.P. 50.97 LT. STA. 110+34.78
X=2442428.95 Y=405719.60
P.C. 31.43' LT. STA. 110+05.75
X=2442400.47 Y=405699.25
P.T. 16.17' LT. STA. 110+31.08
X=2442426.22 Y=405684.71

㉚ POINT 8.92' LT. STA. 110+24.67
X=2442420.02 Y=405677.28

㉛ 35.00' R.P. 49.72 RT. STA. 110+36.48
X=2442433.49 Y=405619.00
P.C. 37.65' RT. STA. 110+03.63
X=2442400.31 Y=405630.14
P.T. 16.78' RT. STA. 110+24.67
X=2442420.75 Y=405651.60

㉜ POINT 27.27' LT. STA. 110+28.16
X=2442423.00 Y=405695.72

㉝ 2.50' R.P. 18.67 LT. STA. 110+31.14
X=2442426.21 Y=405687.21
P.C. 16.17' LT. STA. 110+31.08
X=2442426.22 Y=405684.71
P.T. 19.92' LT. STA. 110+33.30
X=2442428.34 Y=405688.52



SIDEWALK GEOMETRICS

Ⓐ SIDEWALK POINT 39.49' LT. STA. 106+39.94
X=2442034.58 Y=405696.98

Ⓑ SIDEWALK POINT 21.23' LT. STA. 106+39.94
X=2442035.10 Y=405678.73

Ⓒ SIDEWALK POINT 15.23' LT. STA. 106+38.94
X=2442034.27 Y=405672.70

Ⓓ SIDEWALK POINT 14.91' RT. STA. 106+38.94
X=2442035.12 Y=405642.57

Ⓔ SIDEWALK POINT 20.91' RT. STA. 106+39.94
X=2442036.29 Y=405636.60

Ⓕ SIDEWALK POINT 29.81' RT. STA. 106+39.94
X=2442036.54 Y=405627.71

Ⓖ SIDEWALK POINT 39.54' LT. STA. 106+44.94
X=2442039.58 Y=405697.17

Ⓗ SIDEWALK POINT 21.23' LT. STA. 106+44.94
X=2442040.10 Y=405678.87

Ⓘ SIDEWALK POINT 15.23' LT. STA. 106+45.94
X=2442041.26 Y=405672.90

Ⓙ SIDEWALK POINT 14.91' RT. STA. 106+45.94
X=2442042.12 Y=405642.77

Ⓚ SIDEWALK POINT 20.91' RT. STA. 106+44.94
X=2442041.29 Y=405636.74

Ⓛ SIDEWALK POINT 29.81' RT. STA. 106+44.94
X=2442041.54 Y=405627.85

Ⓜ SIDEWALK POINT 29.81' RT. STA. 106+55.85
X=2442052.44 Y=405628.16

Ⓝ SIDEWALK POINT 23.81' RT. STA. 106+61.16
X=2442057.59 Y=405634.30

Ⓞ SIDEWALK POINT 30.81' RT. STA. 106+64.16
X=2442060.77 Y=405627.39

Ⓟ SIDEWALK POINT 39.67' LT. STA. 106+58.20
X=2442052.83 Y=405697.68

Ⓠ SIDEWALK POINT 40.73' LT. STA. 106+64.20
X=2442058.79 Y=405698.90

Ⓡ SIDEWALK POINT 33.73' LT. STA. 106+64.32
X=2442059.12 Y=405691.91

Ⓢ SIDEWALK POINT 40.25' LT. STA. 106+89.28
X=2442083.88 Y=405699.13

Ⓣ SIDEWALK POINT 33.25' LT. STA. 106+89.38
X=2442084.18 Y=405692.14

Ⓤ SIDEWALK POINT 39.25' LT. STA. 106+95.33
X=2442089.96 Y=405698.30

Ⓥ SIDEWALK POINT 39.24' LT. STA. 106+99.39
X=2442094.02 Y=405698.41

Ⓦ SIDEWALK POINT 39.24' LT. STA. 107+04.39
X=2442099.01 Y=405698.55

Ⓧ SIDEWALK POINT 23.55' LT. STA. 106+99.38
X=2442094.44 Y=405682.72

Ⓨ SIDEWALK POINT 23.55' LT. STA. 107+04.38
X=2442099.44 Y=405682.86

Ⓩ SIDEWALK POINT 18.16' LT. STA. 106+98.37
X=2442093.59 Y=405677.31

[A1] SIDEWALK POINT 15.30' LT. STA. 107+05.37
X=2442100.67 Y=405674.64

[B1] SIDEWALK POINT 30.71' RT. STA. 106+90.11
X=2442086.71 Y=405628.23

[C1] SIDEWALK POINT 23.77' RT. STA. 106+92.31
X=2442088.71 Y=405635.22

[D1] SIDEWALK POINT 17.54' RT. STA. 106+98.36
X=2442094.58 Y=405641.62

[E1] SIDEWALK POINT 24.84' RT. STA. 106+99.41
X=2442095.84 Y=405634.36

[F1] SIDEWALK POINT 29.84' RT. STA. 106+99.44
X=2442096.02 Y=405629.36

[G1] SIDEWALK POINT 37.80' RT. STA. 106+99.50
X=2442096.30 Y=405621.40

[H1] SIDEWALK POINT 37.77' RT. STA. 107+04.50
X=2442101.29 Y=405621.57

[I1] SIDEWALK POINT 29.88' RT. STA. 107+04.44
X=2442101.02 Y=405629.46

[J1] SIDEWALK POINT 24.88' RT. STA. 107+04.41
X=2442100.84 Y=405634.45

[K1] SIDEWALK POINT 15.13' RT. STA. 107+05.34
X=2442101.50 Y=405644.23

[L1] SIDEWALK POINT 24.94' RT. STA. 107+11.96
X=2442108.39 Y=405634.60

[M1] SIDEWALK POINT 29.94' RT. STA. 107+11.91
X=2442108.49 Y=405629.61

[N1] SIDEWALK POINT 39.16' LT. STA. 107+87.65
X=2442182.24 Y=405700.82

[O1] SIDEWALK POINT 39.48' LT. STA. 108+52.37
X=2442246.92 Y=405702.97

[P1] SIDEWALK POINT 38.80' LT. STA. 108+87.11
X=2442281.67 Y=405703.27

[Q1] SIDEWALK POINT 38.70' LT. STA. 109+46.82
X=2442341.36 Y=405704.85

[R1] SIDEWALK POINT 21.49' LT. STA. 109+46.79
X=2442341.82 Y=405687.65

[S1] SIDEWALK POINT 15.50' LT. STA. 109+45.78
X=2442340.98 Y=405681.63

[T1] SIDEWALK POINT 38.69' LT. STA. 109+51.82
X=2442346.36 Y=405704.98

[U1] SIDEWALK POINT 21.48' LT. STA. 109+51.79
X=2442346.82 Y=405687.79

[V1] SIDEWALK POINT 15.48' LT. STA. 109+52.78
X=2442347.98 Y=405681.82

[Q1] SIDEWALK POINT 15.20' RT. STA. 109+47.02
X=2442343.08 Y=405650.98

[X1] SIDEWALK POINT 21.20' RT. STA. 109+48.00
X=2442344.23 Y=405645.01

[Y1] SIDEWALK POINT 30.56' RT. STA. 109+48.02
X=2442344.52 Y=405635.66

[Z1] SIDEWALK POINT 15.22' RT. STA. 109+54.02
X=2442350.08 Y=405651.15

[A2] SIDEWALK POINT 21.22' RT. STA. 109+53.00
X=2442349.23 Y=405645.13

[B2] SIDEWALK POINT 30.56' RT. STA. 109+51.45
X=2442347.95 Y=405635.76

[C2] SIDEWALK POINT 38.67' LT. STA. 109+64.02
X=2442358.55 Y=405705.31

[D2] SIDEWALK POINT 39.66' LT. STA. 109+70.02
X=2442364.52 Y=405706.47

[E2] SIDEWALK POINT 32.66' LT. STA. 109+70.01
X=2442364.71 Y=405699.47

[F2] SIDEWALK POINT 39.56' LT. STA. 110+01.81
X=2442396.31 Y=405707.27

[G2] SIDEWALK POINT 32.82' LT. STA. 110+04.60
X=2442399.28 Y=405700.61

[H2] SIDEWALK POINT 47.23' LT. STA. 110+12.18
X=2442406.46 Y=405715.23

[I2] SIDEWALK POINT 31.81' LT. STA. 110+12.16
X=2442406.87 Y=405699.81

[J2] SIDEWALK POINT 25.30' LT. STA. 110+10.99
X=2442405.89 Y=405693.27

[K2] SIDEWALK POINT 21.65' LT. STA. 110+15.67
X=2442410.67 Y=405689.76

[L2] SIDEWALK POINT 25.31' LT. STA. 110+18.24
X=2442413.13 Y=405693.48

[M2] SIDEWALK POINT 25.31' LT. STA. 110+23.24
X=2442418.13 Y=405693.63

[N2] SIDEWALK POINT 16.19' LT. STA. 110+30.80
X=2442425.94 Y=405684.73

[O2] SIDEWALK POINT 25.32' LT. STA. 110+29.53
X=2442424.42 Y=405693.81

[P2] SIDEWALK POINT 20.12' RT. STA. 110+17.81
X=2442413.98 Y=405648.06

[Q2] SIDEWALK POINT 26.63' RT. STA. 110+18.81
X=2442415.17 Y=405641.58

[R2] SIDEWALK POINT 26.63' RT. STA. 110+24.31
X=2442420.66 Y=405641.74

[S2] SIDEWALK POINT 22.63' RT. STA. 110+24.31
X=2442420.55 Y=405645.73

[T2] SIDEWALK POINT 22.63' RT. STA. 110+23.81
X=2442420.05 Y=405645.72

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA

GEOMETRICS

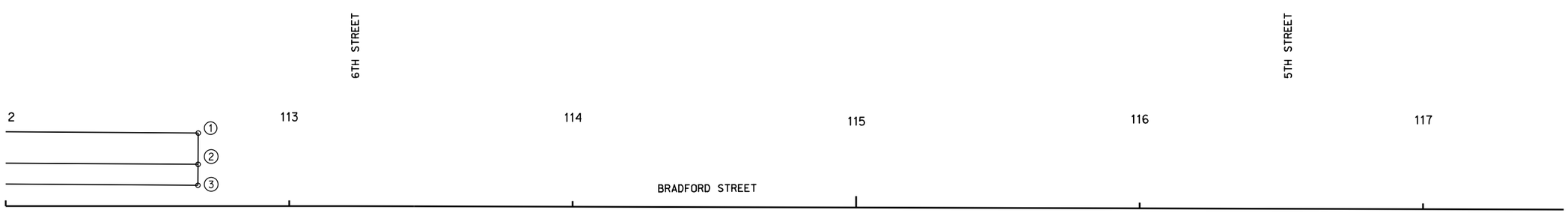
PROJECT NO.	SHEET NO.
08586001-B	J3

0 20' 40'
SCALE

① POINT 25.69' LT. STA. 112+67.92
X=2442662.70 Y=405700.92

② POINT 14.69' LT. STA. 112+67.84
X=2442662.94 Y=405689.92

③ POINT 7.32' LT. STA. 112+67.80
X=2442663.10 Y=405682.55



TYLER J. LERDAHL E-17138 2-15-2023 PROFESSIONAL CIVIL ENGINEER STATE OF NEBRASKA

GEOMETRICS

ROADWAY DESIGN DIVISION.

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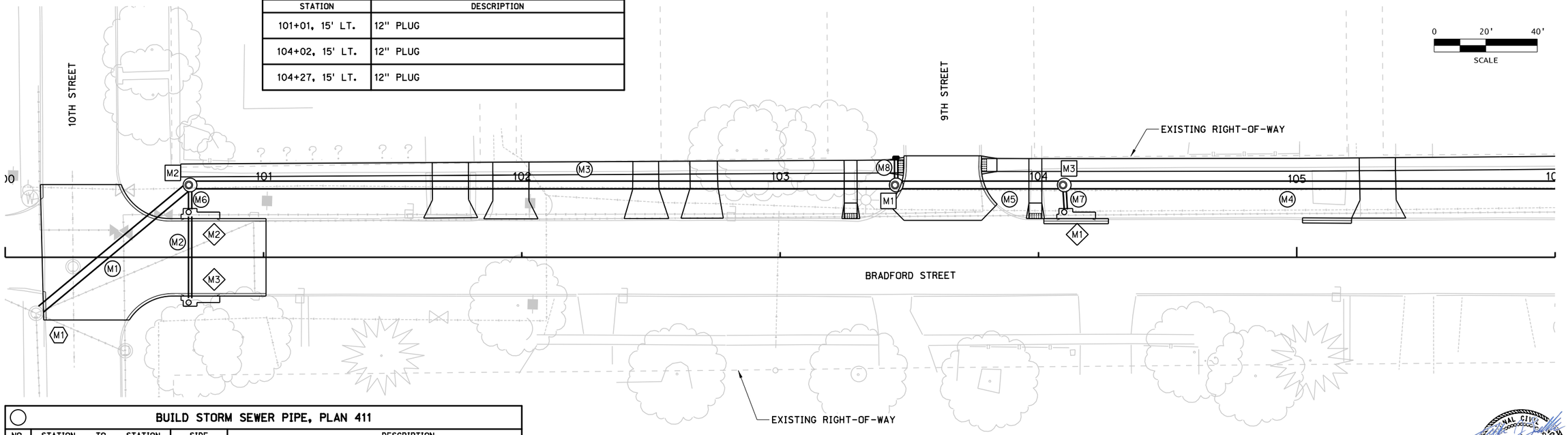
Scale: 1:40
Date: 15-FEB-2023 13:33
Computer: DMATYLERL

PROJECT NO.	SHEET NO.
08586001-B	J4

ROADWAY DESIGN DIVISION.

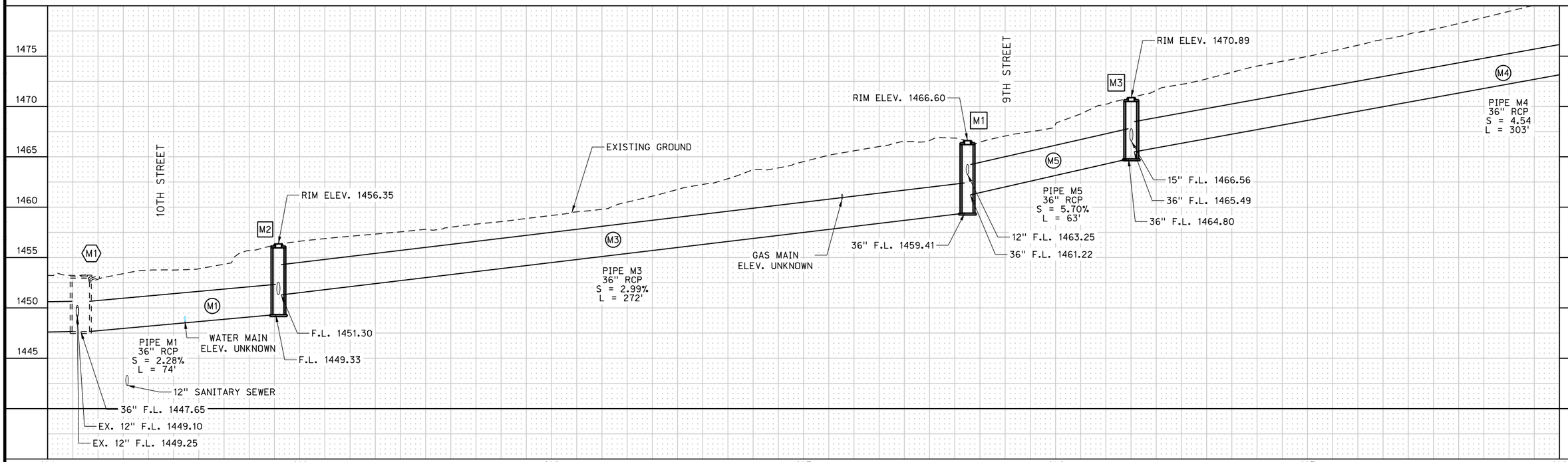
BUILD PIPE PLUG, PLAN 428	
STATION	DESCRIPTION
101+01, 15' LT.	12" PLUG
104+02, 15' LT.	12" PLUG
104+27, 15' LT.	12" PLUG



○ BUILD STORM SEWER PIPE, PLAN 411			
NO.	STATION TO STATION	SIDE	DESCRIPTION
M1	100+13.85 - 100+71.58	LT./RT.	36" × 74', Type 2, CLASS III, Fill = 2'.
M2	100+71.58	LT./RT.	15" × 35', Type 2, CLASS III, Fill = 3'.
M6	100+71.58	LT.	15" × 11', Type 2, CLASS III, Fill = 3'.
M3	100+71.58 - 103+44.95	LT.	36" × 274', Type 2, CLASS III, Fill = 3'.
M8	103+44.95	LT.	15" × 10', Type 2, CLASS III, Fill = 2'.
M5	103+44.95 - 104+10.00	LT.	36" × 65', Type 2, CLASS III, Fill = 2'.
M7	104+10.00	LT.	15" × 11', Type 2, CLASS III, Fill = 2'.
M4	104+10.00 - 107+15.00	LT.	36" × 305', Type 2, CLASS III, Fill = 4'.

□ BUILD MANHOLE, PLAN 435						
NO.	STATION	SIDE	FRAME	FLANGE	RING	COVER TYPE
M2	100+71.58	28.0' LT.	-	-	III	A
M1	103+44.95	28.0' LT.	-	-	III	A
M3	104+10.00	28.0' LT.	-	-	III	A

◇ BUILD CURB INLET, PLAN 443					
NO.	STATION	SIDE	"X"	"A"	"Y"
M2	100+71.00	15.0' LT.	4'-4"	6'-4"	12'-0"
M3	100+71.00	15.0' RT.	3'-8"	2'-8"	12'-0"
M1	104+10.00	15.0' LT.	3'-9"	2'-8"	12'-0"



TYLER J. LERDAHL E-17138 STATE OF NEBRASKA PROFESSIONAL CIVIL ENGINEER 2-15-2023

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Date: 15-FEB-2023 13:33
File: 08586001cd01Bradford.dgn
Scale: 1:40

PROJECT NO.	SHEET NO.
08586001-B	J5

ROADWAY DESIGN DIVISION.

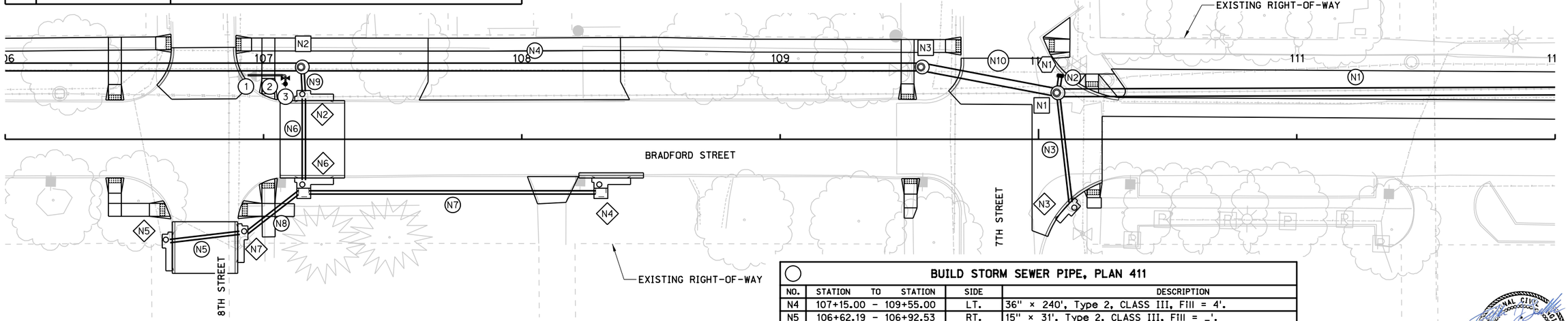
○ REMOVE AND RELOCATE HYDRANT

NO.	STATION	DESCRIPTION
	106+97.28, 24.5' LT.	REMOVE & SALVAGE HYDRANT
1	106+93.81, 24.8' LT.	1 - 6" RETAINER GLAND
2	106+94 - 107+07	6" X 23', WATER MAIN PIPE TO RELOCATED HYDRANT
3	107+08.46, 21.5' LT.	1 - RELOCATED HYDRANT, COMPLETE

BUILD PIPE PLUG, PLAN 428

STATION	DESCRIPTION
107+06, 15' LT.	12" PLUG
107+31, 15' LT.	12" PLUG
109+70, 15' LT.	12" PLUG

0 20' 40'
SCALE



◇ BUILD CURB INLET, PLAN 443

NO.	STATION	SIDE	"X"	"A"	"Y"
N5	106+64.61	38.9' RT.	4'-2"	2'-8"	12'-0"
N7	106+89.94	35.6' RT.	4'-9"	2'-8"	12'-0"
N6	107+15.00	15.0' RT.	5'-3"	4'-4"	12'-0"
N2	107+15.00	15.0' LT.	7'-3"	2'-8"	12'-0"
N3	110+12.00	24.7' RT.	8'-4"	2'-8"	8'-0"

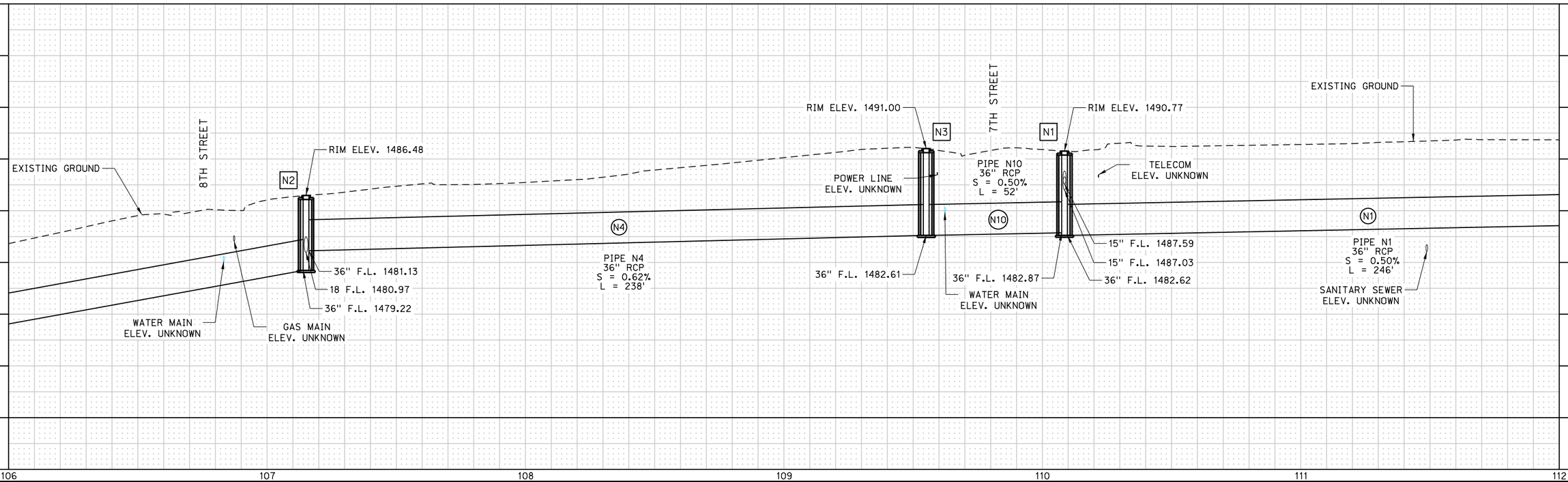
□ BUILD MANHOLE, PLAN 435

NO.	STATION	SIDE	FRAME	FLANGE	RING	COVER TYPE
N2	107+15.00	28.0' LT.	-	-	III	A
N3	109+55.00	28.0' LT.	-	-	III	A
N1	110+07.55	18.0' LT.	II	-	-	A

○ BUILD STORM SEWER PIPE, PLAN 411

NO.	STATION TO STATION	SIDE	DESCRIPTION
N4	107+15.00 - 109+55.00	LT.	36" x 240', Type 2, CLASS III, Fill = 4'.
N5	106+62.19 - 106+92.53	RT.	15" x 31', Type 2, CLASS III, Fill = _'.
N8	106+92.53 - 107+15.00	RT.	15" x 29', Type 2, CLASS III, Fill = _'.
N6	107+15.00	LT./RT.	15" x 35', Type 2, CLASS III, Fill = _'.
N9	107+15.00	LT.	15" x 11', Type 2, CLASS III, Fill = _'.
N7	107+15.00 - 108+30.00	RT.	15" x 115', Type 2, CLASS III, Fill = _'.
N10	109+55.00 - 110+07.55	LT.	36" x 54', Type 2, CLASS III, Fill = 5'
N2	110+07.55	LT.	15" x 7', Type 2, CLASS III, Fill = _'
N3	110+07.55	RT.	15" x 46', Type 2, CLASS III, Fill = _'
N1	110+07.55 - 112+54.85	LT.	36" x 248', Type 2, CLASS III, Fill = 4'

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA



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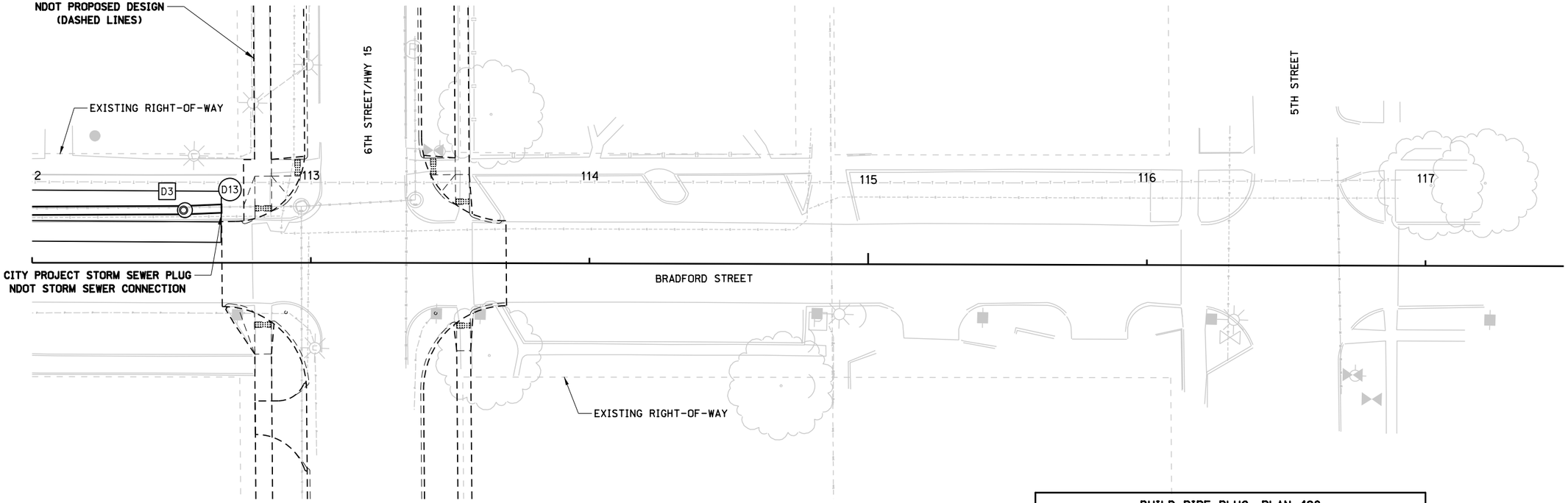
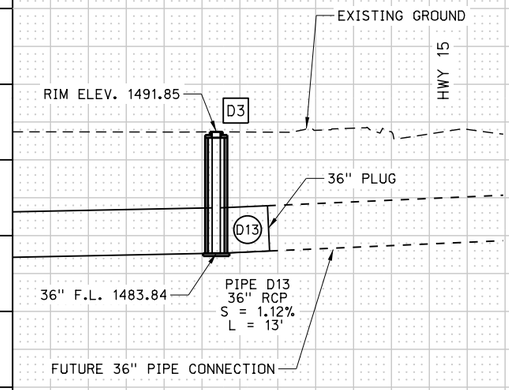
PROJECT NO.	SHEET NO.
08586001-B	J6



○ BUILD STORM SEWER PIPE, PLAN 411			
NO.	STATION TO STATION	SIDE	DESCRIPTION
D13	112+54.85	LT.	36" × 13', Type 2, CLASS III, Fill = 5'.

□ BUILD MANHOLE, PLAN 435						
NO.	STATION	SIDE	FRAME	FLANGE	RING	COVER TYPE
D3	112+54.85	18.9' LT.	II	-	-	A

BUILD PIPE PLUG, PLAN 428	
STATION	DESCRIPTION
112+67.96, 19.4' LT.	36" PLUG



PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA

ROADWAY DESIGN DIVISION.

Computer: DMATYLERL
Date: 15-FEB-2023 13:33
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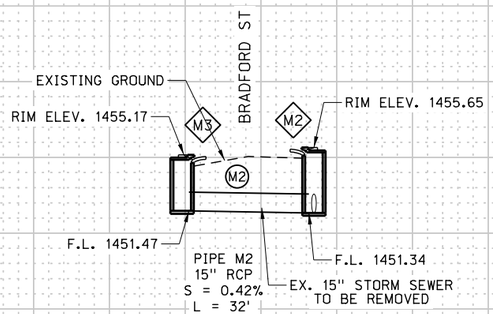

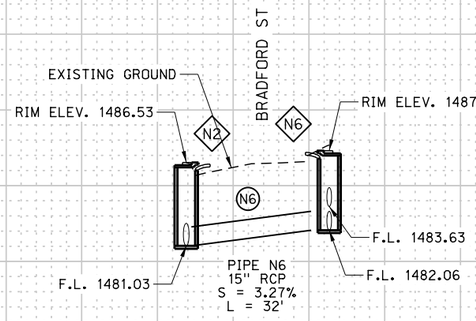

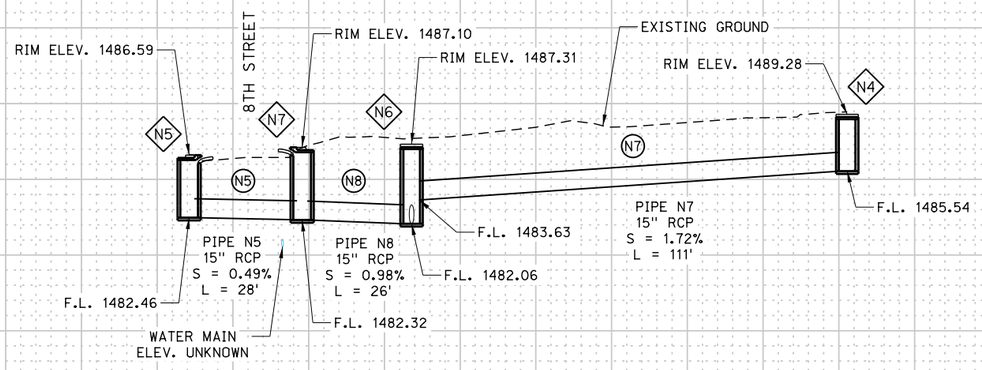

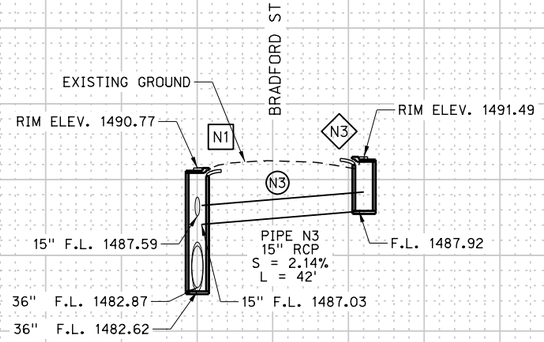

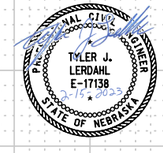

ROADWAY DESIGN DIVISION.

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ROADWAY DESIGN DIVISION.

Computer: GMATYLERL

Date: 15-FEB-2023 13:33

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REMOVE PAVEMENT

STATION	TO	STATION	SIDE	SQ. YDS.
100+13.60	-	101+00.95	LT/RT	382
103+41.90	-	103+84.01	LT	94

REMOVE WALK

STATION	TO	STATION	SIDE	SQ. YDS.
100+67.95	-	103+47.95	LT.	134
103+77.98	-	106+00.00	LT.	103

REMOVE INLET

STATION	SIDE	EACH
100+11.94	22' RT.	1
100+96.16	15' LT.	1
100+96.69	15' RT.	1

REMOVE DRIVEWAY

STATION	TO	STATION	SIDE	SQ. YDS.
101+62.07	-	101+83.37	LT.	31
101+87.44	-	102+02.94	LT.	28
102+39.62	-	102+56.86	LT.	25
102+61.62	-	102+78.01	LT.	25
105+24.56	-	105+38.39	LT.	30

ADJUST VALVE BOX TO GRADE

STATION	SIDE	EACH
100+45.74	8.82' LT.	1
100+44.07	10.38' LT.	1
100+61.25	16.37' LT.	1

REMOVE AND REINSTALL SIGN

STATION	SIDE	EACH
100+51.43	24.07' LT.	1
100+68.25	16.43' LT.	1
103+84.31	23.76' LT.	1

SAWING PAVEMENT

STATION	TO	STATION	SIDE	LIN. FT.
100+13.60	-	100+44.92	28' LT.	32
100+14.86	-	100+48.05	24' RT.	34
101+00.95			LT./RT.	30
103+41.86	-	103+84.01	LT.	48
103+47.95	-	103+77.95	40' LT.	30
104+02.08	-	104+27.08	13' LT.	29
105+02.19	-	105+21.19	13' LT.	23

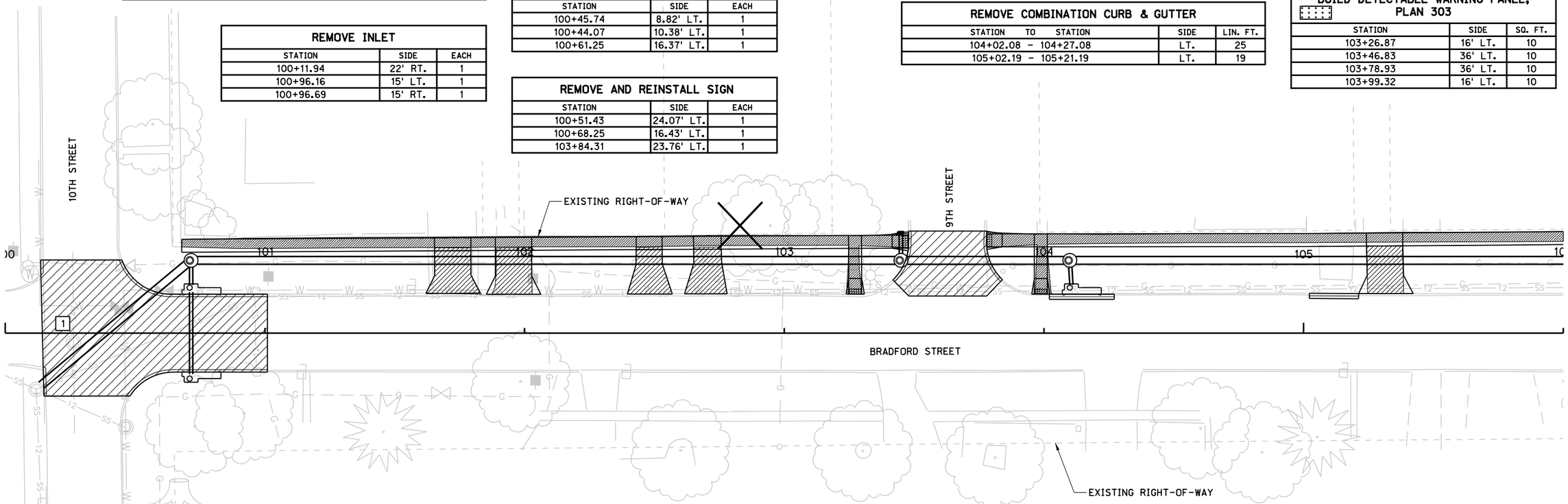
REMOVE COMBINATION CURB & GUTTER

STATION	TO	STATION	SIDE	LIN. FT.
104+02.08	-	104+27.08	LT.	25
105+02.19	-	105+21.19	LT.	19

BUILD DETECTABLE WARNING PANEL, PLAN 303

STATION	SIDE	SQ. FT.
103+26.87	16' LT.	10
103+46.83	36' LT.	10
103+78.93	36' LT.	10
103+99.32	16' LT.	10

0 20' 40'
SCALE



REMOVE SEWER PIPE

STATION	TO	STATION	SIZE	LIN. FT.
100+12	-	100+96	15"	92
100+96.17, LT./RT.			12"	27
104+02	-	104+27	12"	26

BUILD 7" CONCRETE PAVEMENT, PLAN 329

STATION	TO	STATION	SIDE	SQ. YDS.
100+13.60	-	101+00.29	LT./RT.	382
103+41.90	-	103+84.01	LT.	94

BUILD CONCRETE SIDEWALK, PLAN 301

STATION	TO	STATION	SIDE	WIDTH	SQ. YDS.
100+67.97	-	103+47.94	LT.	5'	167
103+77.95	-	106+00.00	LT.	5'	135

LARGE TREE REMOVAL

STATION	SIDE
102+83.30	41' LT.

BUILD COMB. CONCRETE CURB & GUTTER, PLAN 301

STATION	TO	STATION	SIDE	WIDTH	LIN. FT.
104+02.08	-	104+27.08	LT.	2'	25
105+02.19	-	105+21.19	LT.	2'	19

BUILD CONCRETE DRIVEWAY, PLAN 301

STATION	SIDE	SQ. YDS.
101+61.95 - 101+82.94	LT.	29
101+85.27 - 102+06.27	LT.	29
102+39.62 - 102+56.86	LT.	24
102+61.62 - 102+78.01	LT.	25
105+21.20 - 105+42.20	LT.	32

PLUG ENDS & ABANDON PIPE, PLAN 428

STATION	DESCRIPTION
100+97 - 104+02	ABANDON 306' OF 12" STORM SEWER
104+27 - 106+22	ABANDON 195' OF 12" STORM SEWER

ADJUST MANHOLE TO GRADE, PLAN 435

NO.	STATION	SIDE	FRAME	FLANGE	RING	COVER TYPE
1	100+26.27	3.62' RT.	I	I	ADJ	B

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2/15/2023
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ROADWAY DESIGN DIVISION.

REMOVE PAVEMENT			
STATION	TO STATION	SIDE	SQ. YDS.
106+58.70	106+94.95	LT.	65
106+64.69	106+90.03	RT.	57
107+06.41	107+31.41	LT./RT.	84
109+97.55	110+24.67	RT.	34
109+98.59	112+00.00	LT.	176

REMOVE WALK			
STATION	TO STATION	SIDE	SQ. YDS.
106+00.00	106+64.20	LT.	35
106+90.29	107+11.95	RT.	17
106+89.33	109+70.02	LT.	125
109+47.28	109+52.02	RT.	7
110+01.81	110+12.16	LT.	12
110+15.67	110+33.30	LT.	14
110+18.91	110+23.76	RT.	5

REMOVE DRIVEWAY			
STATION	TO STATION	SIDE	SQ. YDS.
107+58.27	108+23.71	LT.	130
108+02.30	108+21.92	RT.	17
110+28.16	112+00.00	LT.	206

ADJUST VALVE BOX TO GRADE		
STATION	SIDE	EACH
106+93.81	24.84' LT.	1
109+45.86	26.82' LT.	1

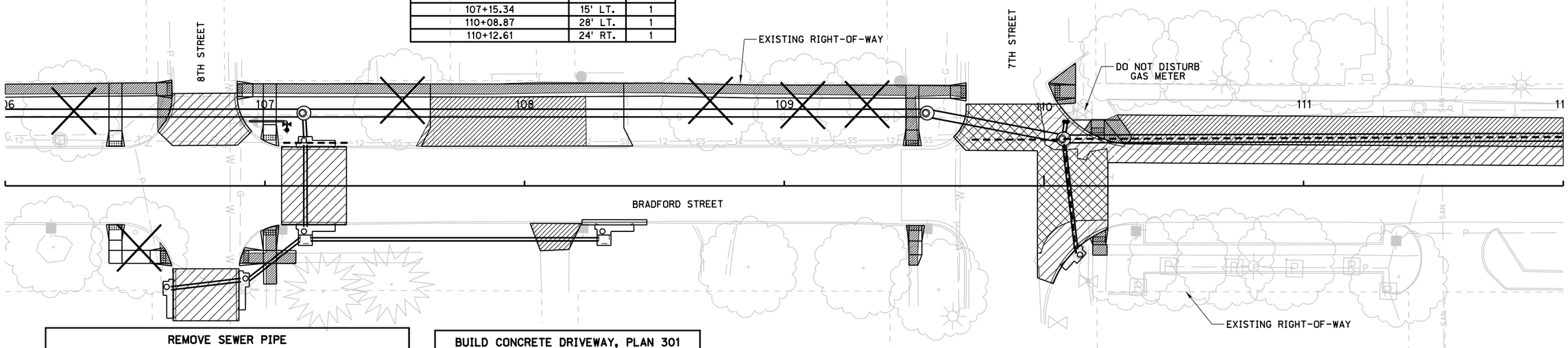
REMOVE & SALVAGE BRICK			
STATION	TO STATION	SIDE	SQ. YDS.
109+65.25	110+24.69	LT./RT.	150

REMOVE INLET		
STATION	SIDE	EACH
107+15.34	15' LT.	1
110+08.87	28' LT.	1
110+12.61	24' RT.	1

SAWING PAVEMENT			
STATION	TO STATION	SIDE	LIN. FT.
106+58.69	106+94.95	LT.	41
106+64.28	106+89.33	LT.	25
106+64.69	106+90.03	RT.	26
106+64.69	106+90.03	RT.	26
107+00.50	107+04.26	RT.	4
107+11.95		RT.	4
107+06.41		LT./RT.	30
107+31.41		LT./RT.	30
108+22.08	108+47.08	RT.	29
109+48.02	109+51.45	RT.	4
109+65.25	110+03.63	LT./RT.	90
109+70.00	110+05.75	LT.	36
110+11.32	110+29.53	LT.	19
110+24.67	112+00.00	LT./RT.	201
110+18.24	112+00.00	LT.	172

BUILD CONCRETE HEADER, SEE SHEET G		
STATION	SIDE	LIN. FT.
109+65.25 – 110+24.69	LT./RT.	110

0 20' 40'
SCALE



REMOVE SEWER PIPE		
STATION	TO STATION	SIZE	LIN. FT.
107+07.08	107+32.08	12"	25
109+71.93	112+67.87	12"	295
110+07.57	110+12.41	12"	45

BUILD 7" CONCRETE PAVEMENT, PLAN 329			
STATION	TO STATION	SIDE	SQ. YDS.
106+58.69	106+94.95	LT.	65
106+64.69	106+90.03	RT.	57
107+06.41	107+31.41	LT./RT.	84
109+65.18	112+00.00	LT./RT.	359

BUILD CONCRETE SIDEWALK, PLAN 301				
STATION	TO STATION	SIDE	WIDTH	SQ. YDS.
106+00.00	106+64.20	LT.	5'	48
106+38.94	106+64.16	RT.	5'	20
106+89.28	109+70.02	LT.	5'	179
106+90.11	107+11.96	RT.	5'	23
109+47.02	109+54.02	RT.	5'	9
110+01.81	110+12.16	LT.	5'	13
110+10.99	110+33.30	LT.	5'	15
110+17.81	110+24.67	RT.	5'	6

BUILD CONCRETE DRIVEWAY, PLAN 301		
STATION	SIDE	SQ. YDS.
107+60.22	108+41.72	LT.	161
108+02.16	108+21.92	RT.	18
110+28.16	112+00.00	RT.	206

REMOVE MANHOLE		
STATION	SIDE	EACH
106+21.17	18' LT.	1
110+07.57	18' LT.	1

PLUG ENDS & ABANDON PIPE, PLAN 428	
STATION	DESCRIPTION
106+21 – 107+07	ABANDON 86' OF 12" STORM SEWER
107+32 – 109+72	ABANDON 240' OF 12" STORM SEWER

BUILD COMB. CONCRETE CURB & GUTTER, PLAN 301			
STATION	TO STATION	SIDE	WIDTH	LIN. FT.
108+22.08	108+47.08	RT.	2'	25

REMOVE COMBINATION CURB & GUTTER		
STATION	TO STATION	SIDE	LIN. FT.
108+22.08	108+47.08	RT.	25

BUILD DETECTABLE WARNING PANEL, PLAN 303		
STATION	SIDE	SQ. FT.
106+42	16' LT.	10
106+42	16' RT.	10
106+61	27' RT.	10
106+63	37' LT.	10
106+90	37' LT.	10
106+93	27' RT.	10
107+02	19' LT.	10
107+02	18' RT.	10
109+49	17' LT.	10
109+50	16' RT.	10
109+69	36' LT.	10
110+05	36' LT.	10
110+21	21' LT.	10
110+21	21' RT.	10

REMOVE AND REINSTALL SIGN		
STATION	SIDE	EACH
106+50.17	17.77' RT.	1
106+99.18	21.99' LT.	1
107+05.96	18.58' LT.	1
109+47.25	16.44' RT.	1
110+10.21	30.14' RT.	1
110+25.77	18.94' RT.	1

LARGE TREE REMOVAL	
STATION	SIDE
106+25.40	29' LT.
106+51.61	24' RT.
107+53.00	33' LT.
108+71.52	33' LT.
109+07.04	31' LT.
109+31.84	32' LT.

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E-17138
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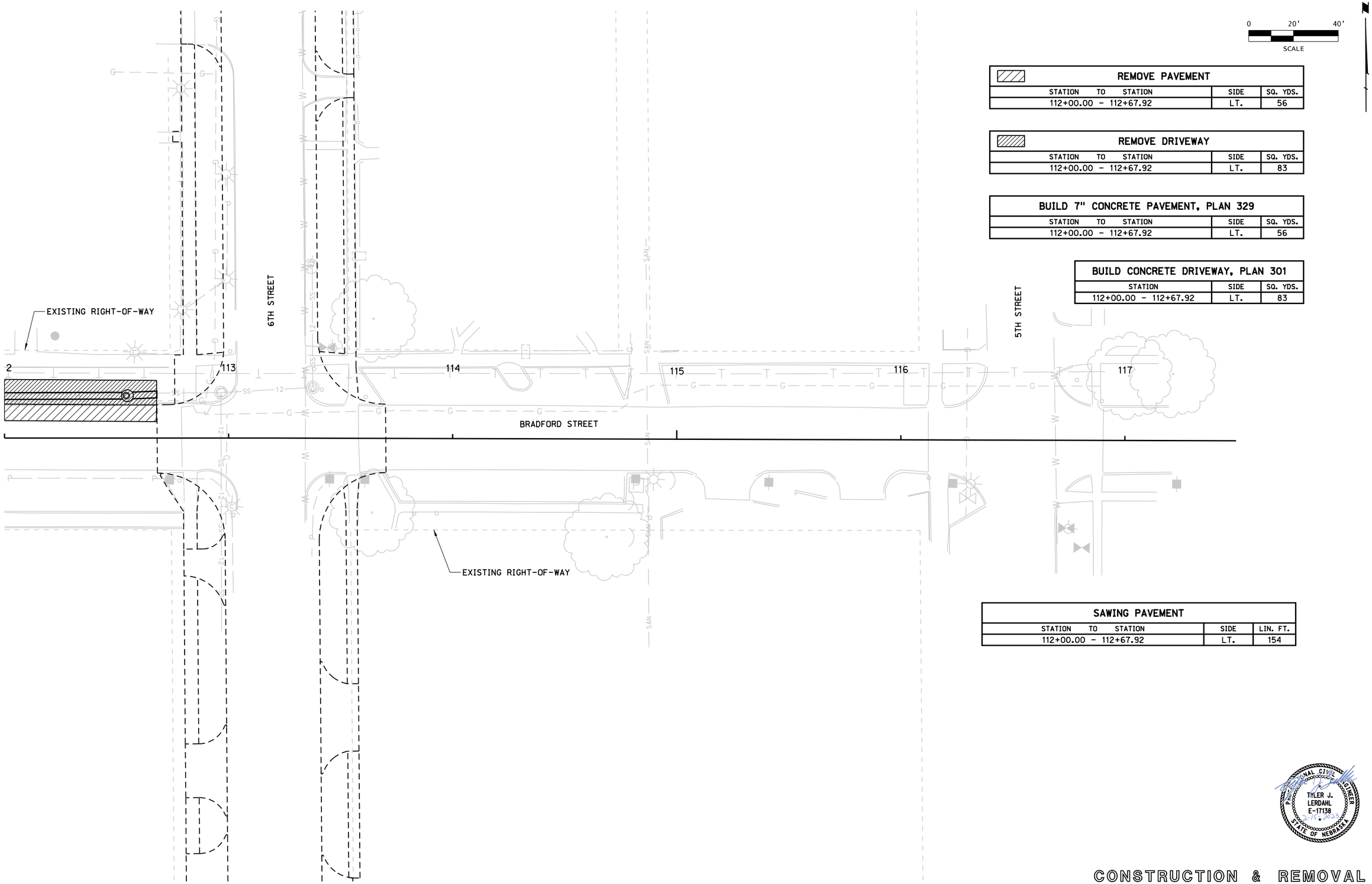
PROJECT NO.	SHEET NO.
08586001-B	J10



REMOVE PAVEMENT		
STATION TO STATION	SIDE	SQ. YDS.
112+00.00 - 112+67.92	LT.	56

REMOVE DRIVEWAY		
STATION TO STATION	SIDE	SQ. YDS.
112+00.00 - 112+67.92	LT.	83

BUILD 7" CONCRETE PAVEMENT, PLAN 329		
STATION TO STATION	SIDE	SQ. YDS.
112+00.00 - 112+67.92	LT.	56

BUILD CONCRETE DRIVEWAY, PLAN 301		
STATION	SIDE	SQ. YDS.
112+00.00 - 112+67.92	LT.	83

SAWING PAVEMENT		
STATION TO STATION	SIDE	LIN. FT.
112+00.00 - 112+67.92	LT.	154

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CONSTRUCTION & REMOVAL

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
08586001-B	J11

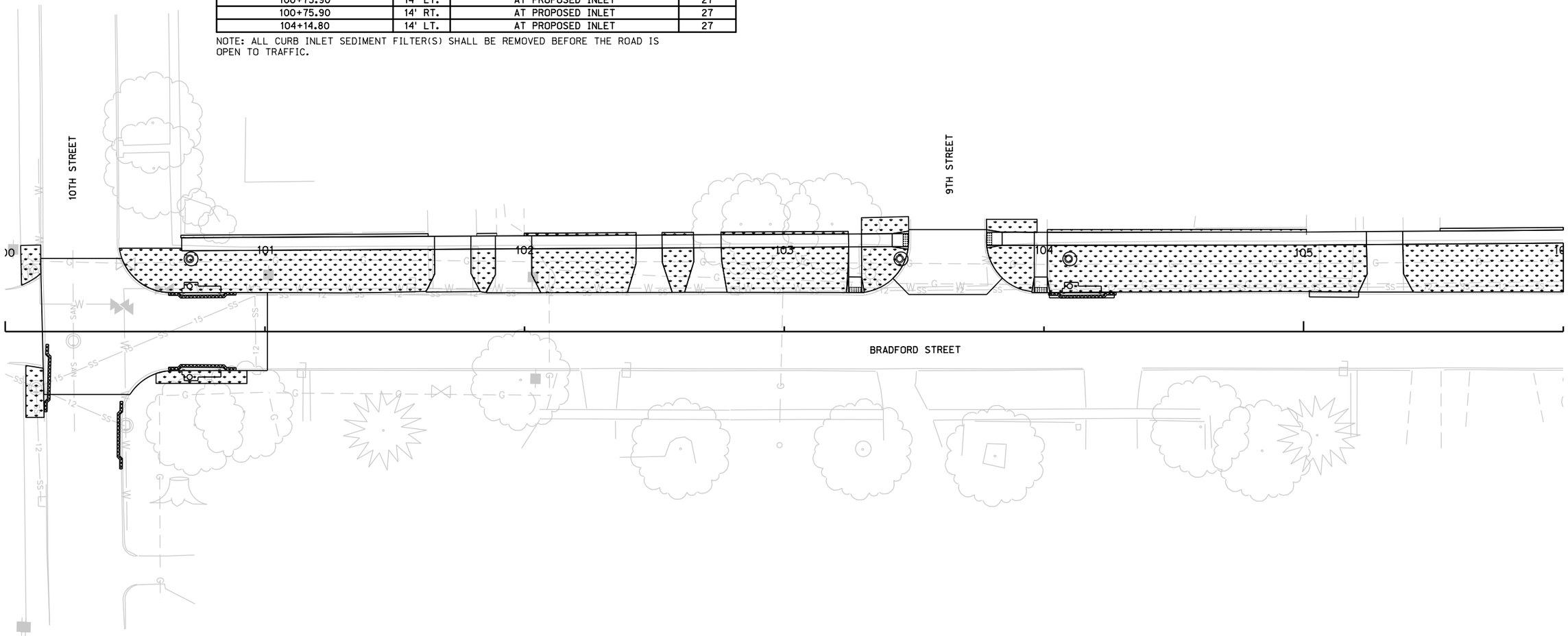
SODDING 924 SQ. YDS.

0 20' 40'
SCALE

BUILD CURB INLET PROTECTION, SPECIAL PLAN 1C

STATION	SIDE	DESCRIPTION	LIN. FT.
100+16.36	18' RT.	AT PROPOSED INLET	27
100+44.17	40' RT.	AT EXISTING INLET	27
100+75.90	14' LT.	AT PROPOSED INLET	27
100+75.90	14' RT.	AT PROPOSED INLET	27
104+14.80	14' LT.	AT PROPOSED INLET	27

NOTE: ALL CURB INLET SEDIMENT FILTER(S) SHALL BE REMOVED BEFORE THE ROAD IS OPEN TO TRAFFIC.



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PROFESSIONAL CIVIL ENGINEER STATE OF NEBRASKA

EROSION CONTROL

ROADWAY DESIGN DIVISION.
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PROJECT NO.	SHEET NO.
08586001-B	J12

ROADWAY DESIGN DIVISION.

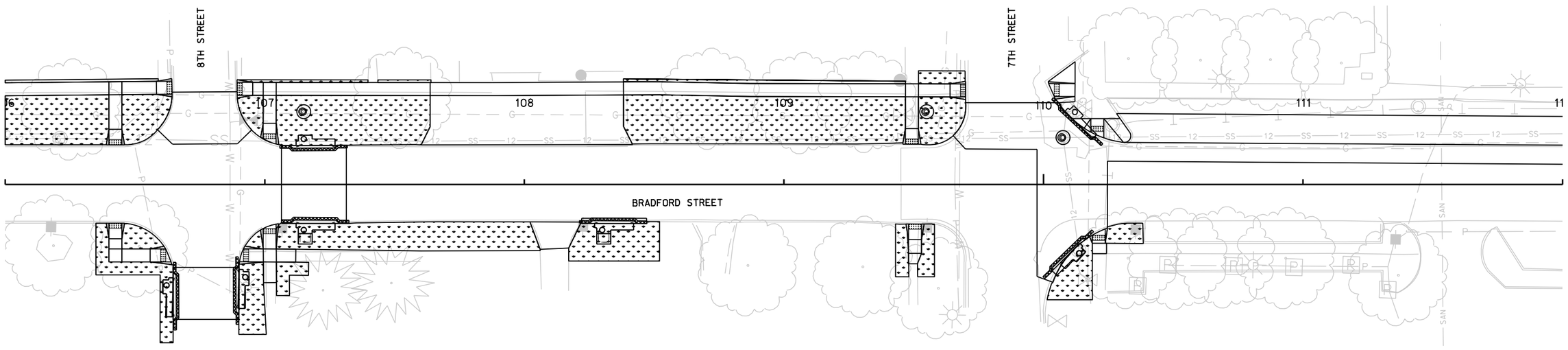
SODDING 874 SQ. YDS.

BUILD CURB INLET PROTECTION, SPECIAL PLAN 1C

STATION	SIDE	DESCRIPTION	LIN. FT.
106+65.82	43' RT.	AT PROPOSED INLET	27
106+88.92	41' RT.	AT PROPOSED INLET	27
107+18.80	14' LT.	AT PROPOSED INLET	27
107+17.42	14' RT.	AT PROPOSED INLET	27
108+34.25	14' RT.	AT PROPOSED INLET	27
110+12.70	24' LT.	AT PROPOSED INLET	27
110+09.25	27' RT.	AT PROPOSED INLET	27

NOTE: ALL CURB INLET SEDIMENT FILTER(S) SHALL BE REMOVED BEFORE THE ROAD IS OPEN TO TRAFFIC.

0 20' 40'
SCALE



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EROSION CONTROL

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PROJECT NO.	SHEET NO.
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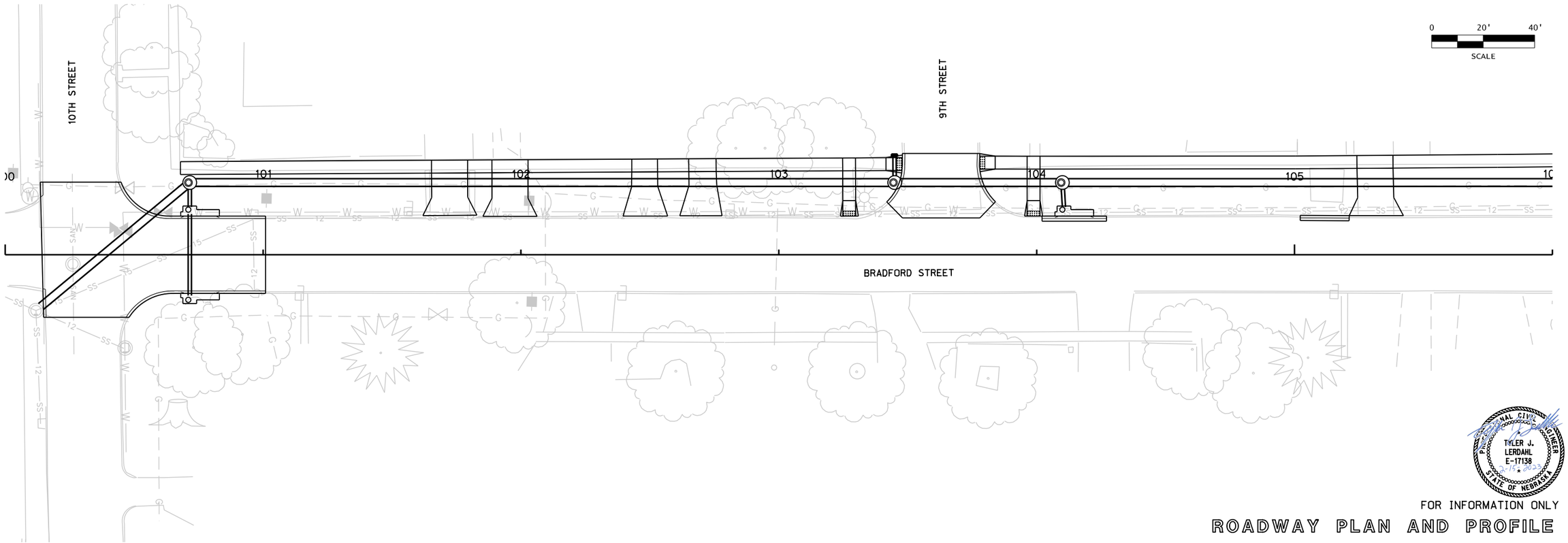
ROADWAY DESIGN DIVISION.



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TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA

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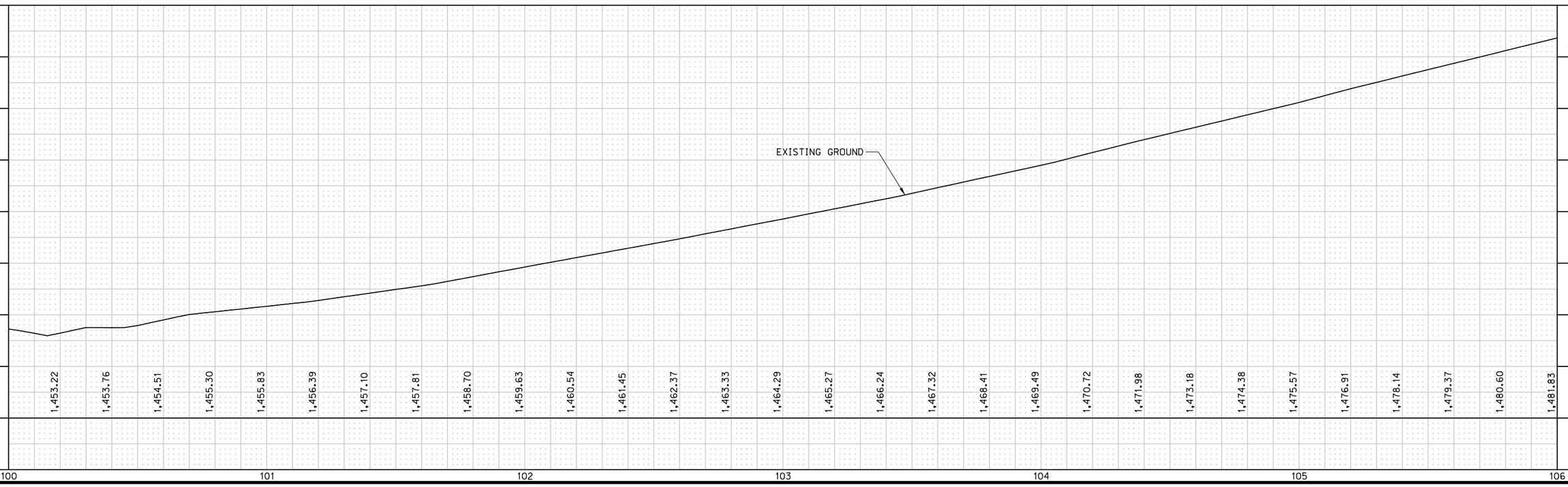
ROADWAY PLAN AND PROFILE



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PROJECT NO.	SHEET NO.
08586001-B	L2

ROADWAY DESIGN DIVISION.

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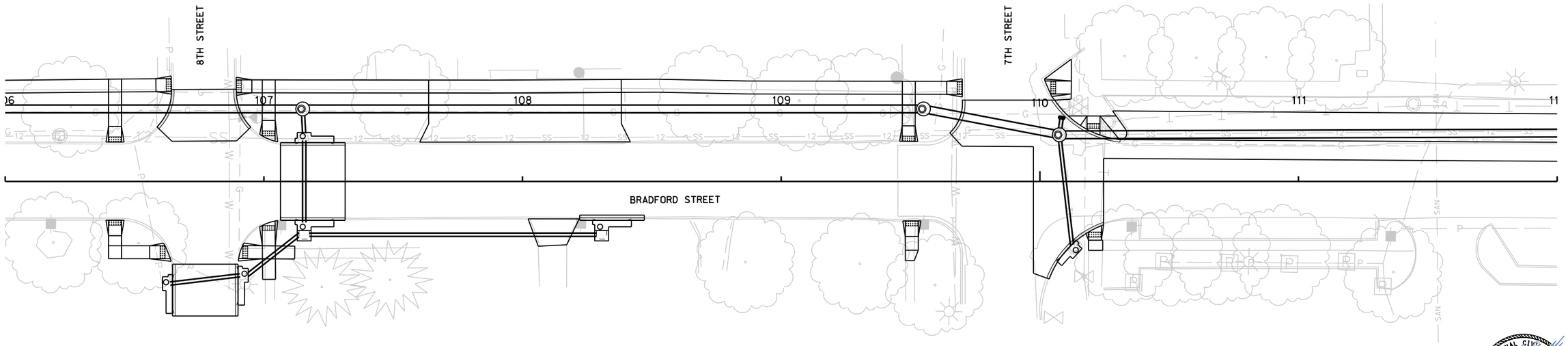
SCALE



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2-15-2023

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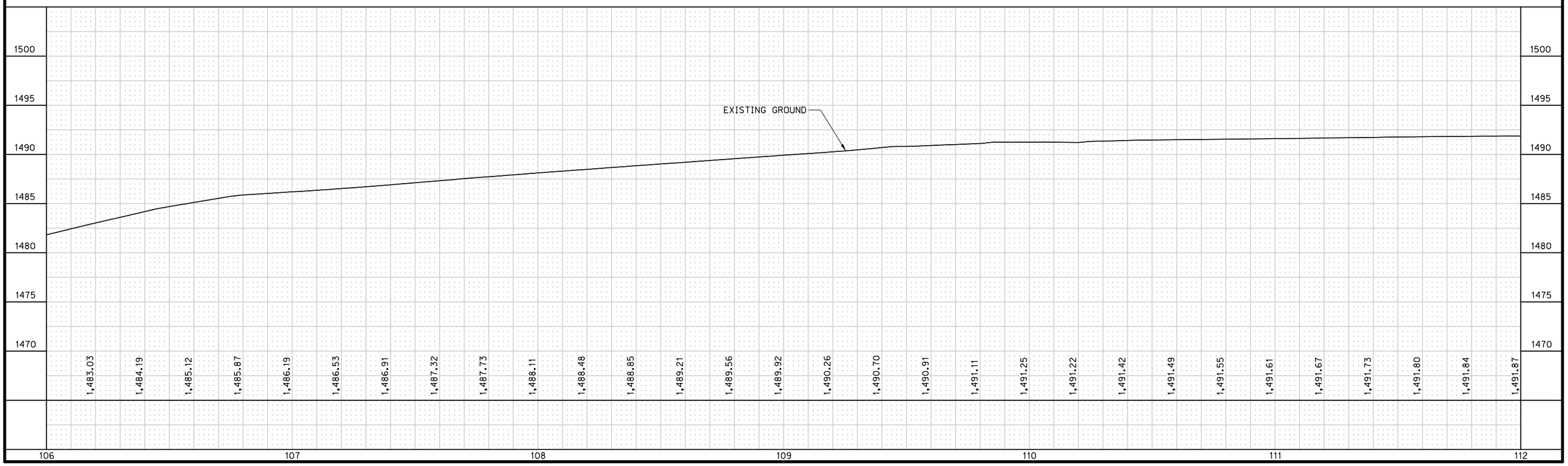
ROADWAY PLAN AND PROFILE



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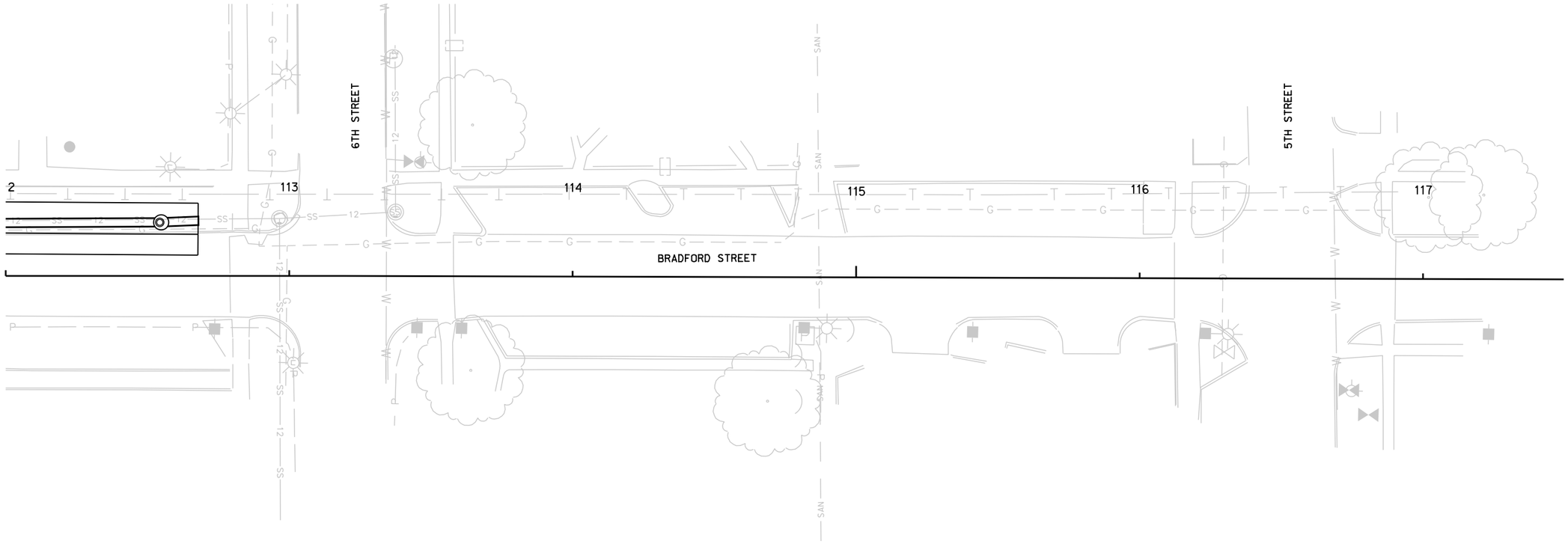
PROJECT NO.	SHEET NO.
08586001-B	L3

ROADWAY DESIGN DIVISION.



0 20' 40'
SCALE

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2-15-2023

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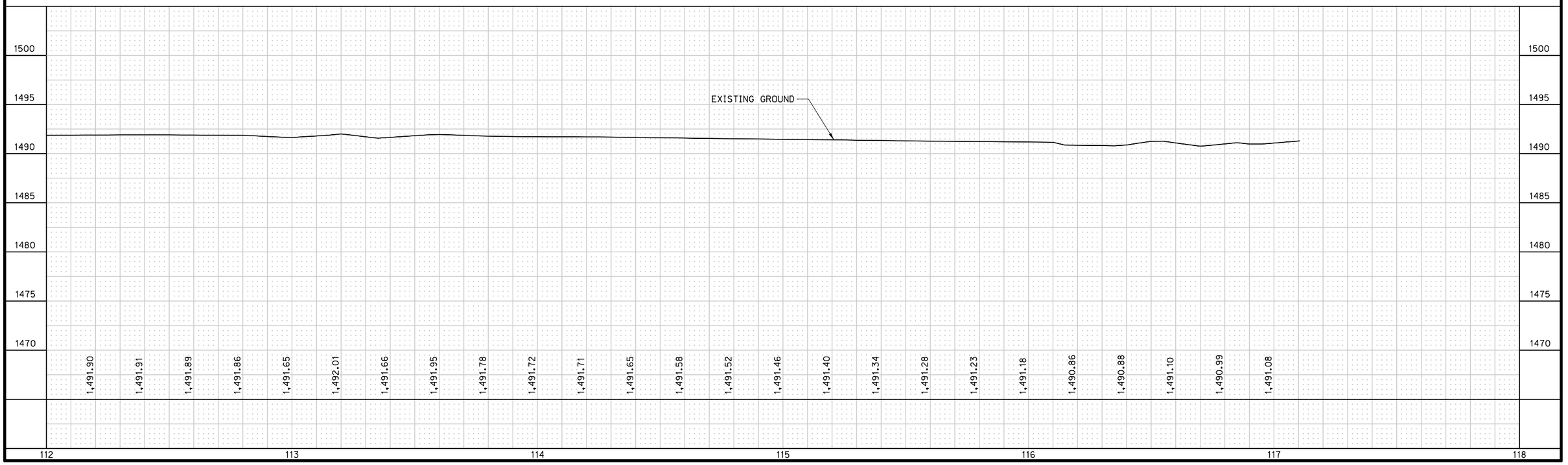
ROADWAY PLAN AND PROFILE



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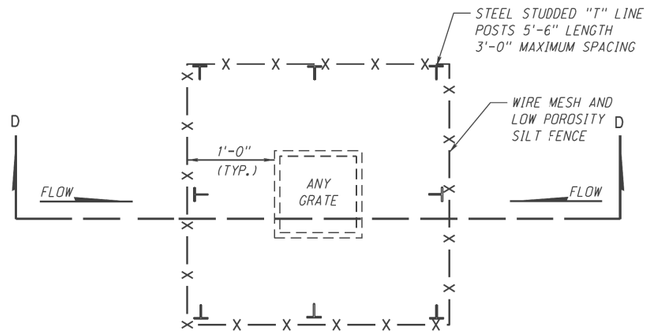
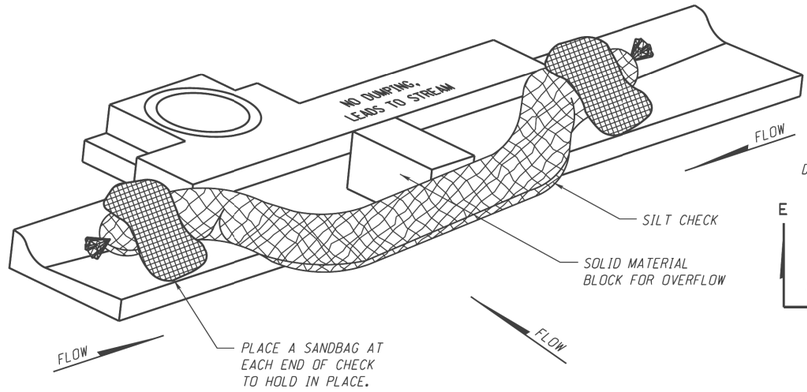
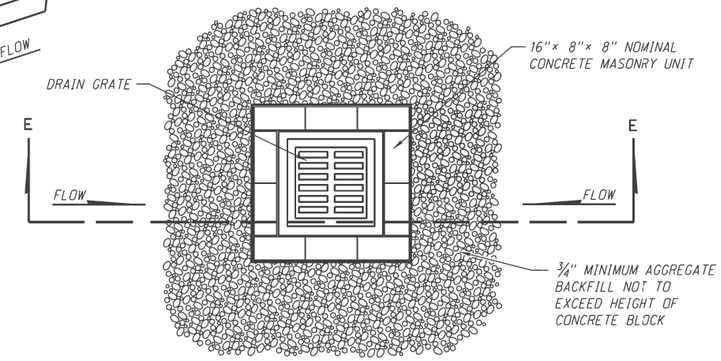
PROJECT NO.	SHEET NO.
08586001-B	U1



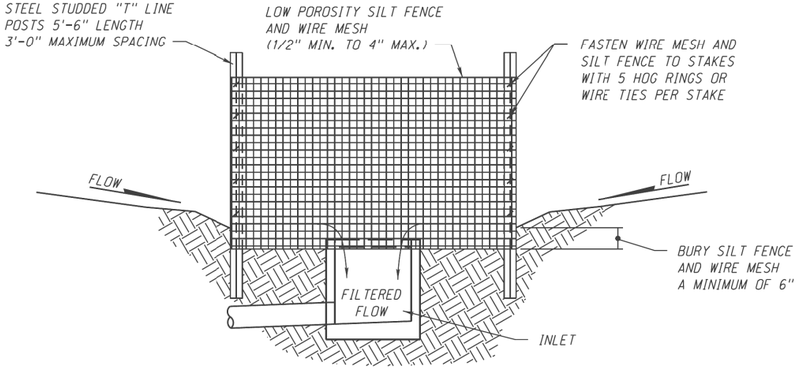
PLAN VIEW



CURB INLET PERSPECTIVE VIEW



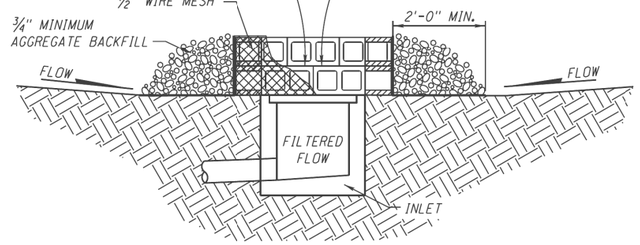
PLAN VIEW



ELEVATION

SECTION D-D

WIRE MESH BACKED SILT FENCE
FILTER AT INLET



SECTION E-E

BLOCK AND GRAVEL
FILTER AT INLET

NOTES:

1. APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.
2. ½" WIRE MESH SHALL COVER ENTIRE VERTICAL FACE OF BLOCKS AND APRON BELOW THE AGGREGATE BACKFILL.
3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.
4. BLOCK COURSES SHOULD OFFSET TO IMPROVE STRUCTURAL STABILITY.

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2/15/2023
STATE OF NEBRASKA

CURB INLET PROTECTION

SHEET 1 OF 1

SPECIAL PLAN 1C

ROADWAY DESIGN DIVISION.

Computer: DMATYLERL

Date: 15-FEB-2023 13:33

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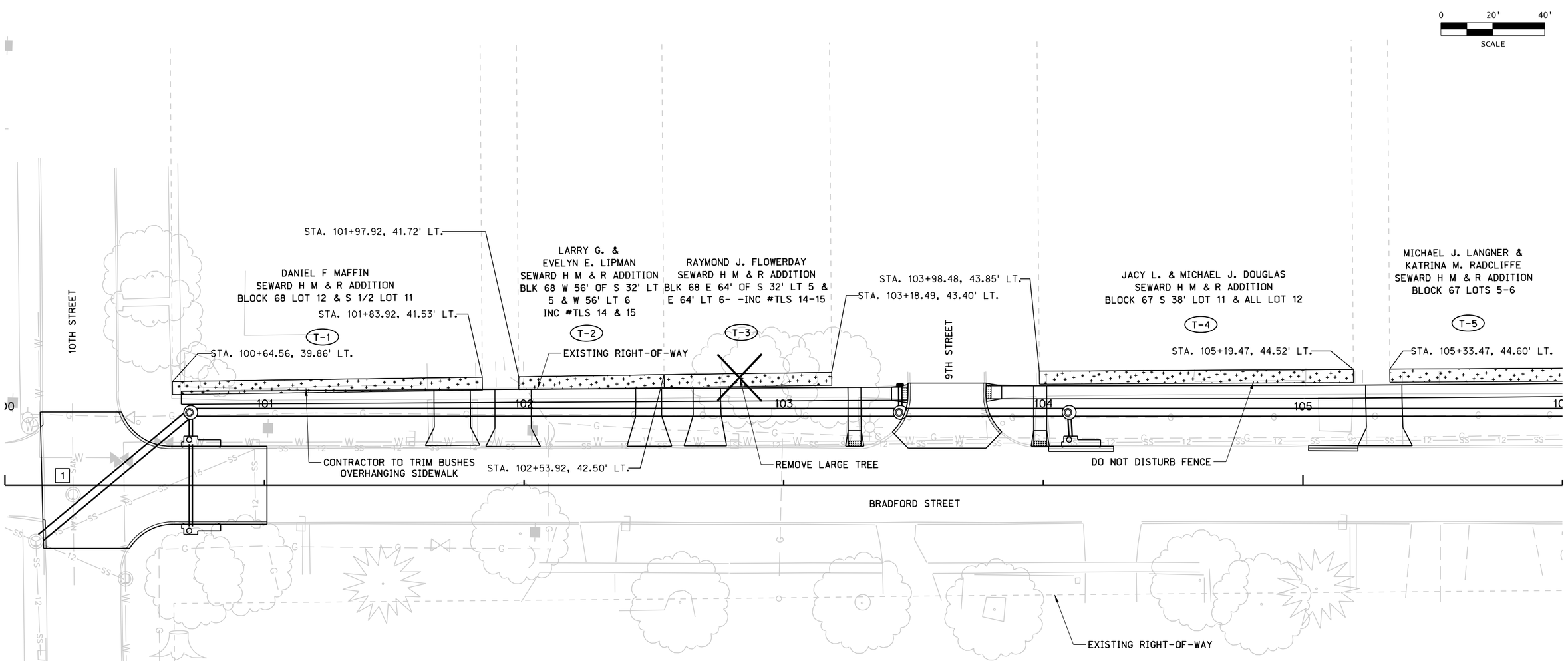
PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

PROJECT NO.	SHEET NO.
08586001-B	W1

ROADWAY DESIGN DIVISION.

0 20' 40'
SCALE



OWNERSHIP				EASEMENTS	
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-1	DANIEL F. MAFFIN	SEWARD H M & R ADDITION BLOCK 68 LOT 12 & S 1/2 LOT 11	-	-	596.86
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-2	LARRY G. & EVELYN E. LIPMAN	SEWARD H M & R ADDITION BLK 68 W 56' OF S 32' LT 5 & W 56' LT 6 INC #TLS 14 & 15	-	-	280.01
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-3	RAYMOND J. FLOWERDAY	SEWARD H M & R ADDITION BLK 68 E 64' OF S 32' LT 5 & E 64' LT 6- -INC #TLS 14-15	-	-	322.88
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-4	JACY L. & MICHAEL J. DOUGLAS	SEWARD H M & R ADDITION BLOCK 67 S 38' LOT 11 & ALL LOT 12	-	-	604.96
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-5	MICHAEL J. LANGNER & KATRINA M. RADCLIFFE	SEWARD H M & R ADDITION BLOCK 67 LOTS 5-6	-	-	604.96

LEGEND

TEMPORARY EASEMENT

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA

RIGHT-OF-WAY

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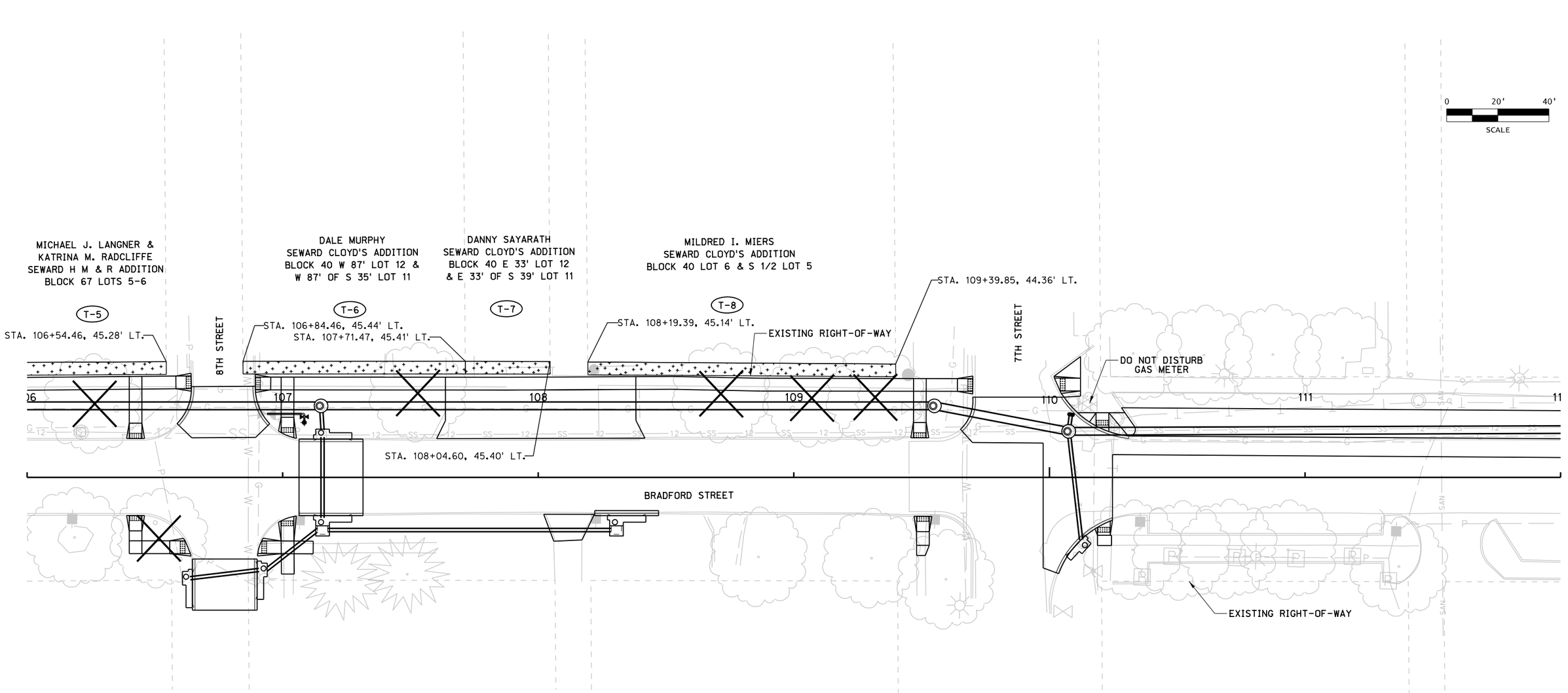
PRELIMINARY PLAN
NOT FINAL - SUBJECT TO CHANGE

PROJECT NO.	SHEET NO.
08586001-B	W2

ROADWAY DESIGN DIVISION.



OWNERSHIP				EASEMENTS	
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-6	DALE MURPHY	SEWARD CLOYD'S ADDITION BLOCK 40 W 87' LOT 12 & W 87' OF S 35' LOT 11	-	-	432.98
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-7	DANNY SAYARATH	SEWARD CLOYD'S ADDITION BLOCK 40 E 33' LOT 12 & E 33' OF S 39' LOT 11	-	-	164.87
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-8	MILDRED I. MIERS	SEWARD CLOYD'S ADDITION BLOCK 40 LOT 6 & S 1/2 LOT 5	-	-	602.29

LEGEND

TEMPORARY EASEMENT

PROFESSIONAL CIVIL ENGINEER
TYLER J. LERDAHL
E-17138
2-15-2023
STATE OF NEBRASKA

RIGHT-OF-WAY

File: 08586001row02Bradford.dgn
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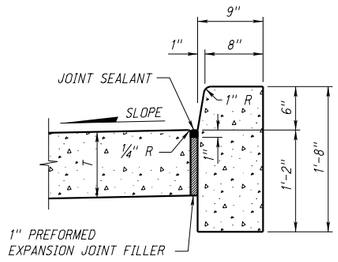
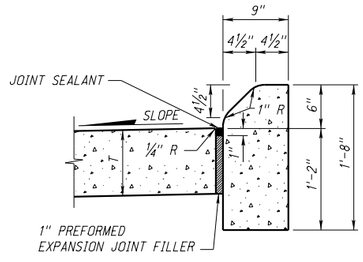
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:17
File: 30100e12.dgn



CONCRETE BARRIER CURB *

QUANTITIES

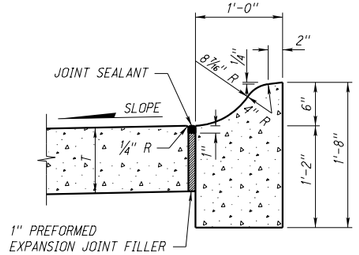
CONCRETE 4.55 CU. YDS./STA.
AREA 1.228 SQ. FT.



CONCRETE MEDIAN CURB *

QUANTITIES

CONCRETE 4.42 CU. YDS./STA.
AREA 1.192 SQ. FT.

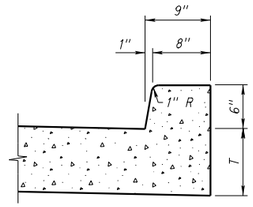


CONCRETE CURB, * TYPE I

QUANTITIES

CONCRETE 5.22 CU. YDS./STA.
AREA 1.408 SQ. FT.

*NOTE: * ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 100 FEET THRU CONCRETE BARRIER CURB, CONCRETE MEDIAN CURB, AND CONCRETE CURB, TYPE I.*

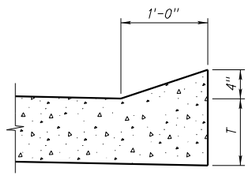


NOTE: MAY BE USED WHEN T IS LESS THAN 1 FOOT.

INTEGRAL CONCRETE BARRIER CURB

QUANTITIES

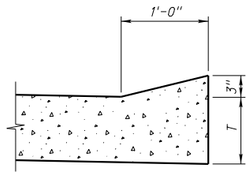
CONCRETE 1.33 CU. YDS./STA.
AREA 0.359 SQ. FT.



INTEGRAL CONCRETE SLOPING CURB

QUANTITIES

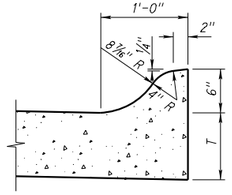
CONCRETE 0.62 CU. YDS./STA.
AREA 0.167 SQ. FT.



INTEGRAL CONCRETE SLOPING CURB

QUANTITIES

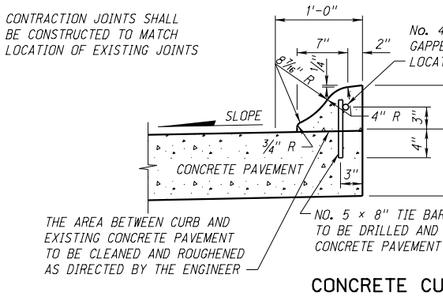
CONCRETE 0.46 CU. YDS./STA.
AREA 0.123 SQ. FT.



INTEGRAL CONCRETE CURB

QUANTITIES

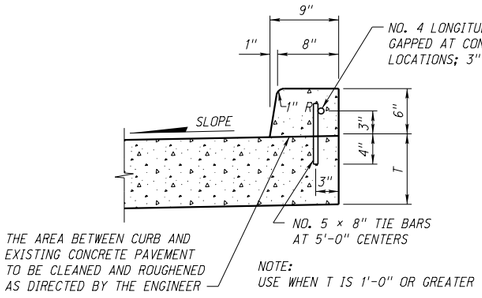
CONCRETE 0.89 CU. YDS./STA.
AREA 0.239 SQ. FT.



CONCRETE CURB, TYPE II

QUANTITIES

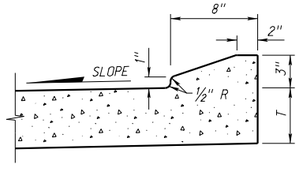
CONCRETE 0.87 CU. YDS./STA.
AREA 0.234 SQ. FT.



CONCRETE BARRIER CURB ALTERNATE

QUANTITIES

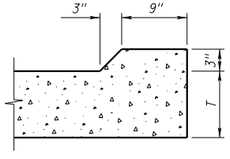
CONCRETE 1.33 CU. YDS./STA.
AREA 0.359 SQ. FT.



INTEGRAL CONCRETE TRUCK APRON CURB

QUANTITIES

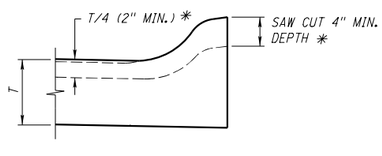
CONCRETE 0.47 CU. YDS./STA.
AREA 0.127 SQ. FT.



EROSION CONTROL CURB

QUANTITIES

CONCRETE 0.81 CU. YDS./STA.
AREA 0.219 SQ. FT.



CONTRACTION JOINT THRU CURB

* FOR NON-INTEGRAL CURB THE CONTRACTION JOINTS MAY BE MADE WITH A DOUBLE EDGER WHILE THE CONCRETE IS STILL PLASTIC.

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
R11	JUL 15	ADDED TRUCK APRON CURB
R10	FEB 09	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 301-R12

PAVEMENT DETAILS

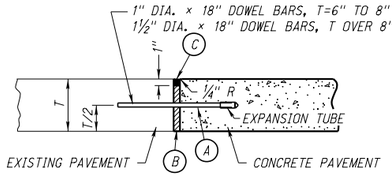
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

DATE

ORIGINAL: JANUARY 31, 1974
DATE

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:17
File: 30100e12.dgn



(A) GREASE DOWEL BAR ON EXPANSION TUB SIDE
(B) 1" PREFORMED EXPANSION JOINT FILLER
(C) JOINT SEALANT

NOTES:

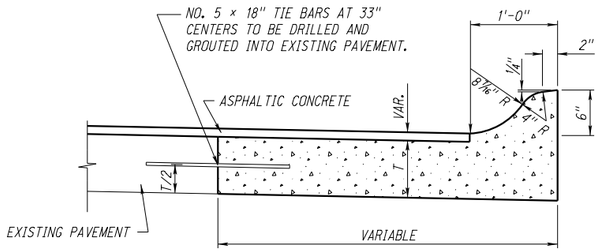
DOWEL BARS SHALL BE DRILLED TO A DEPTH OF 8" INTO EXISTING PAVEMENT AND GROUTED.

DOWEL BARS SHALL BE PLACED AT 1 FOOT CENTERS. THE OUTSIDE DOWEL BAR SHALL BE PLACED 6" FROM THE EDGE OF THE PAVEMENT.

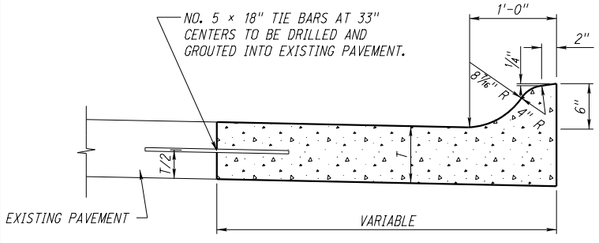
THIS JOINT SHALL BE CONSTRUCTED TRANSVERSE TO THE ROADWAY WHERE THE NEW CONCRETE ABUTS THE EXISTING CONCRETE.

DOWEL BARS SHALL BE PLACED PARALLEL TO THE ROADWAY ℄ AND TO THE ROAD BED.

EXPANSION JOINT (SUBSIDIARY)

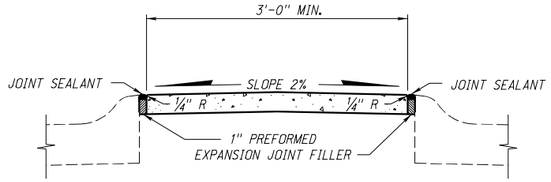


CONCRETE BASE COURSE W/INTEGRAL CURB



THE FOLLOWING NOTE IS TYPICAL FOR CONCRETE BASE COURSE WITH INTEGRAL CURB AND CONCRETE PAVEMENT WIDENING: CONTRACTION AND EXPANSION JOINTS SHALL BE CONSTRUCTED TO MATCH LOCATIONS OF EXISTING JOINTS.

CONCRETE PAVEMENT WIDENING



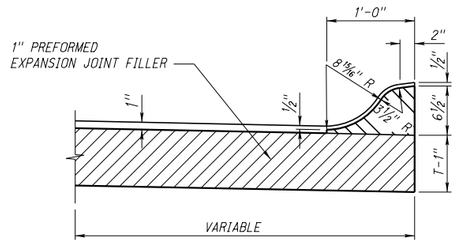
CONCRETE MEDIAN SURFACING

ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED ACROSS THE FULL WIDTH OF THE MEDIAN SURFACING AT INTERVALS OF NOT MORE THAN 49 FEET.

LONGITUDINAL JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS WHEN SURFACING WIDTH IS 16 FEET OR GREATER.

TRANSVERSE JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS AT INTERVALS OF NOT MORE THAN 8 FEET.

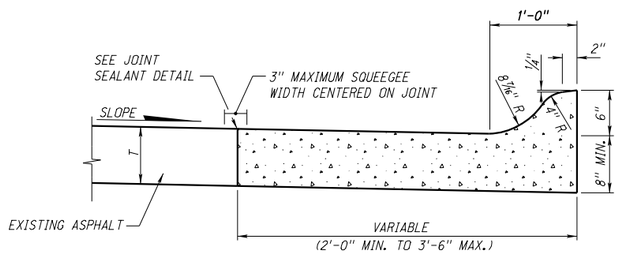
TRANSVERSE AND LONGITUDINAL JOINTS SHALL NOT BE FILLED.



ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERSECTION RETURNS AND WHERE SHOWN ON THE PLANS. TRANSVERSE JOINTS SHALL BE PLACED EVERY 8 FEET OR WHERE SHOWN ON THE PLANS.

NOTE:
RECESS THE EXPANSION JOINT FILLER 1/2" FROM THE TOP SURFACE OF THE CURB UNDER CONSTRUCTION

DETAIL FOR CUTTING & PLACEMENT OF EXPANSION JOINT FILLER

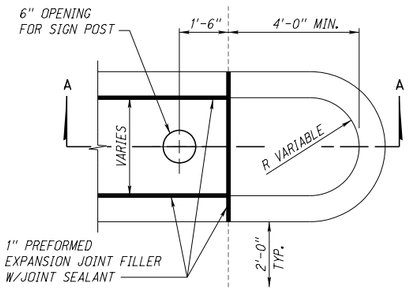


COMBINATION CONCRETE CURB & GUTTER

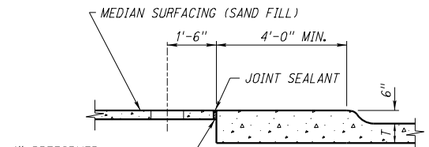
NOTE:

TRANSVERSE JOINTS SHALL BE PLACED EVERY 8 FEET AND JOINTS SHALL BE PLACED AT EACH HEADER, 2-NO. 5 x 18" TIE BARS ARE TO BE USED.

PLACE 1" PREFORMED EXPANSION JOINT FILLER AND SEAL AT THE RETURN OF RADIUS AT INTERSECTIONS.

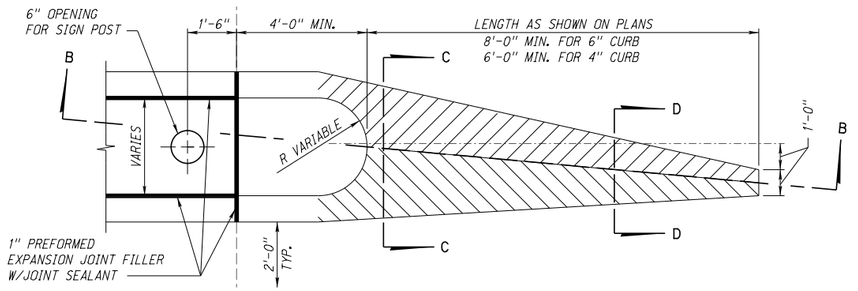


PLAN

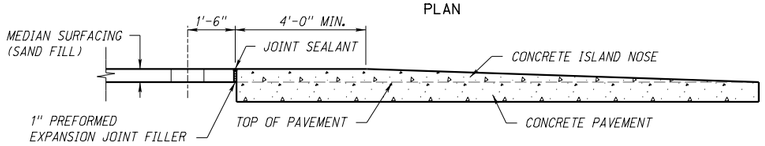


SECTION A-A

END OF MEDIAN ISLAND



PLAN



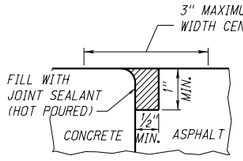
SECTION B-B

SECTION C-C SECTION D-D

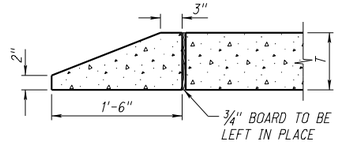
CONCRETE ISLAND NOSE

NOTE:
EXISTING CONCRETE PAVEMENT IS TO BE REMOVED TO BUILD CONCRETE ISLAND NOSE.

NOTE: T = PAVEMENT THICKNESS



JOINT SEALANT DETAIL



CONCRETE HEADER

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
R11	JUL 15	ADDED TRUCK APRON CURB
R10	FEB 09	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 301-R12

PAVEMENT DETAILS

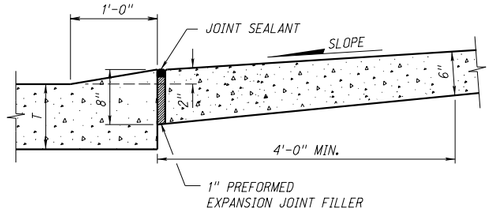
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

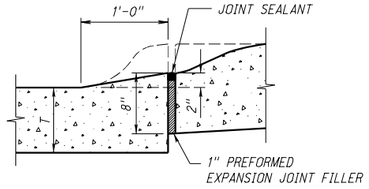
DATE

ORIGINAL: JANUARY 31, 1974
DATE

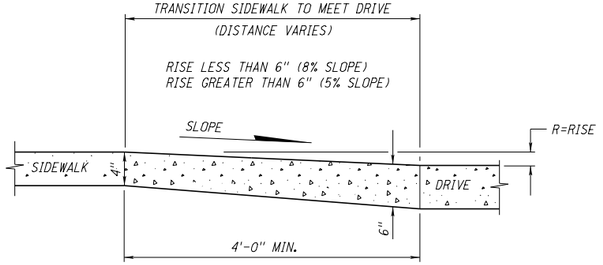
2
3



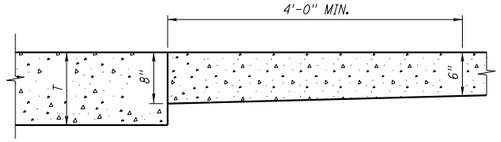
SECTION E-E



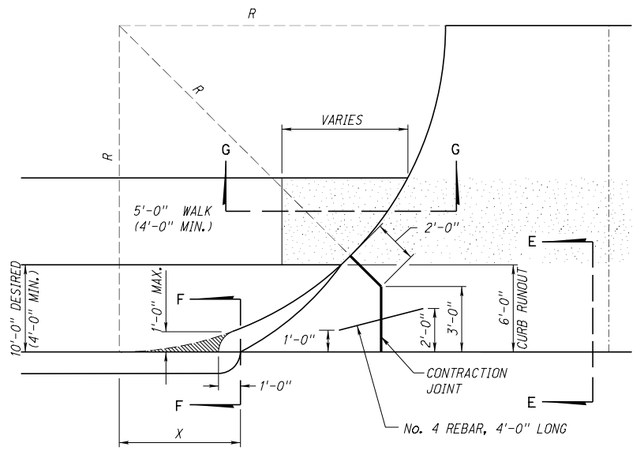
SECTION F-F



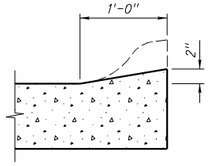
SECTION G-G



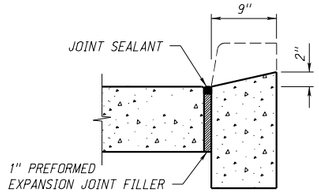
(RURAL DRIVEWAY)



URBAN DRIVEWAY PLAN

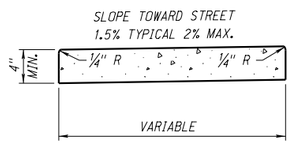


INTEGRAL CURB

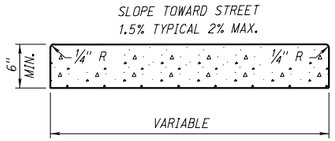


BARRIER CURB

DETAILS OF CURB DROPS



SIDEWALK



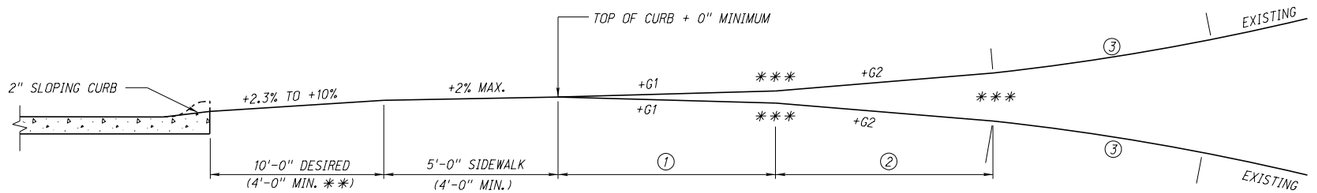
SIDEWALK AT DRIVEWAY

NOTE:

1 INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED IN ALL SIDEWALKS OR CROSSWALKS AT INTERVALS OF NOT MORE THAN 50 FOOT, AND AT ALL POINTS WHERE SIDEWALKS OR CROSSWALKS ARE ADJACENT TO CURB. IF SIDEWALK OR CROSSWALK TO BE CONSTRUCTED IS LESS THAN 50 FOOT IN LENGTH, ONE SUCH EXPANSION JOINT SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

R	X
10'-0"	4.6'
15'-0"	5.6'
20'-0"	6.0'
25'-0"	7.0'
30'-0"	8.0'
35'-0"	8.6'
40'-0"	9.0'

R = RADIUS
$X = \sqrt{(2R-1)}$
(X & R IN FEET)



DRIVEWAY TYPE	G1 (MAX.)	G2 (MAX.)
COMMERCIAL, INDUSTRIAL	±5%	±8%
DWELLINGS (RESIDENTIAL)	±8%	±15%

PROFILE URBAN DRIVEWAY WITH SIDEWALK
(MAXIMUM PERCENT OF GRADE)

① 10'-0" MINIMUM IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±8%
② 10'-0" MINIMUM IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±15%
③ 10'-0" MINIMUM ROUNDING IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±22%

** 0 FEET IS ALLOWED IN URBAN BUSINESS DISTRICTS WITH SIDEWALKS OF 6 FEET MINIMUM WIDTH.
*** 10 FEET MINIMUM ROUNDING DESIRABLE FOR THE FOLLOWING GRADE CHANGES.

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
R11	JUL 15	ADDED TRUCK APRON CURB
R10	FEB 09	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 301-R12

PAVEMENT DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

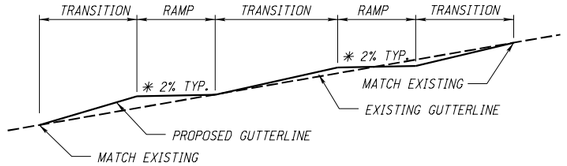
DATE

ORIGINAL:
JANUARY 31, 1974
DATE

3
3

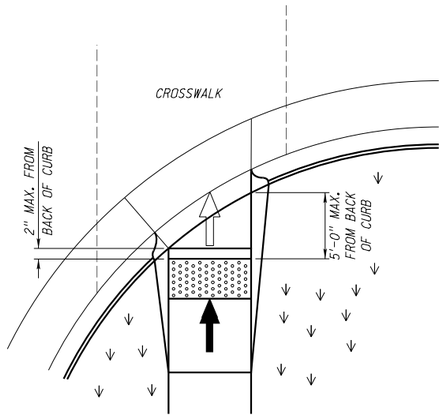
Computer: NDOTDESIGN34
Date: 29-JUN-2021 09:17
File: 301006i2.dgn

ROADWAY DESIGN DIVISION

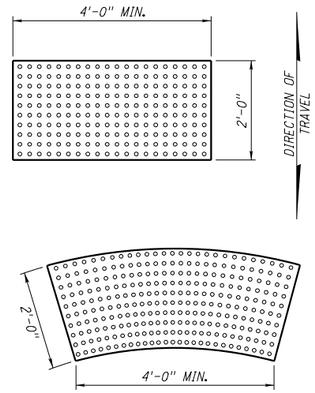


* 2% PREFERRED WHERE TRAFFIC STOPS, UP TO 5% ALLOWED WHERE TRAFFIC CONTINUES THROUGH THE CROSSWALK WITHOUT STOPPING (INCLUDING TRAFFIC SIGNALS).

GUTTER PROFILE DETAIL



DETECTABLE WARNING PANEL PLACEMENT DETAIL

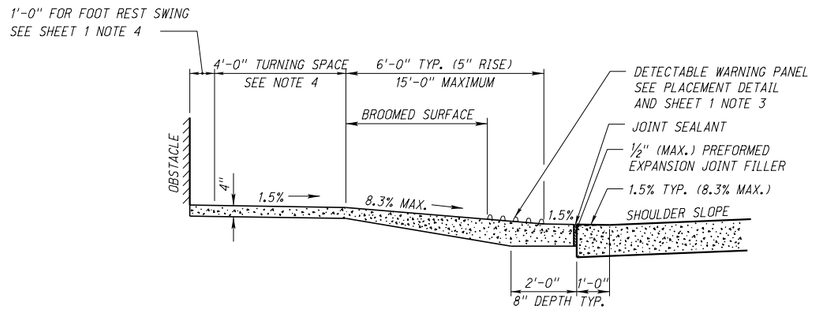


DETECTABLE WARNING PANELS

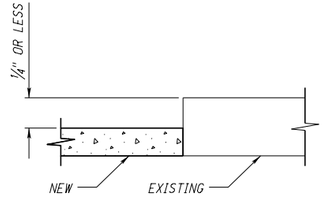
NOTES:

1. THE SURFACE OF ALL CURB RAMPS SHALL BE BROOMED PERPENDICULAR TO THE SLOPE OF THE CURB RAMP.
2. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE CURB RAMP, FREE OF SAGS AND SHORT GRADE CHANGES.
3. DETECTABLE WARNING PANELS SHALL CONTRAST VISUALLY AND EXTEND 2 FT. MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL FOR THE WIDTH OF THE RAMP. TYPE C RAMP; DETECTABLE WARNING PANELS SHALL EXTEND THE FULL LENGTH OF THE TRAVERSABLE CURB.

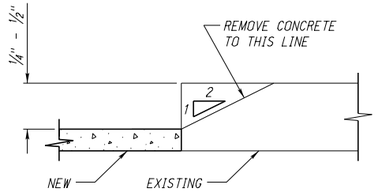
   NEW CURB RAMPS SHALL HAVE CAST IN CONCRETE DETECTABLE WARNING PANELS.
4. TURNING SPACE SHALL HAVE MINIMUM DIMENSIONS OF 4 FT. × 4 FT. AND SHALL BE A MINIMUM OF 1 FT. FROM ANY OBSTACLE SUCH AS A CURB OR RETAINING WALL FOR SWING OF WHEELCHAIR FOOT REST. THE SLOPE SHALL BE 2% MAXIMUM IN ANY DIRECTION.
5. THE WORK OF CONSTRUCTING CURB RAMPS SHALL BE INCLUDED IN THE QUANTITIES FOR "CONCRETE SIDEWALKS", "CONCRETE MEDIAN SURFACING" OR "CONCRETE BIKEWAY". THE WORK OF MODIFICATION OF NEW OR EXISTING CURB WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK FOR WHICH DIRECT PAYMENT IS MADE.



TYPICAL RAMP PROFILE



NO BEVELING



BEVEL AS REQUIRED

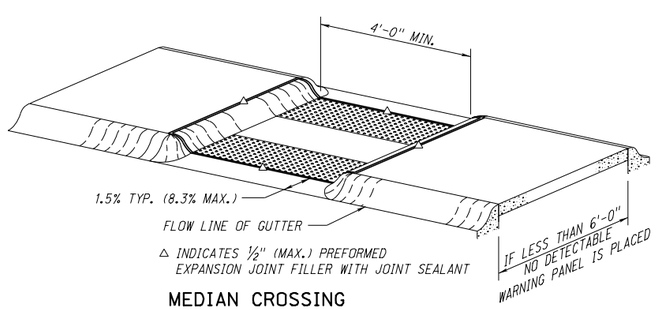
WHEN EXISTING SIDEWALK DOES NOT MEET THE 2% CROSS SLOPE, BEVELING TO MEET PROPOSED GUIDELINES IS REQUIRED.

THE SIDEWALK PANEL ABUTTING THE EXISTING SIDEWALK (WHICH MAY NOT BE 2% SLOPE): BUILD FULL WIDTH OF THE NEW SIDEWALK, ON 2% MAXIMUM CROSS SLOPE AND BEVEL THE EXISTING SIDEWALK EDGE WHERE IT DOES NOT MEET THE NEW WITHIN ¼", THIS WORK IS SUBSIDIARY.

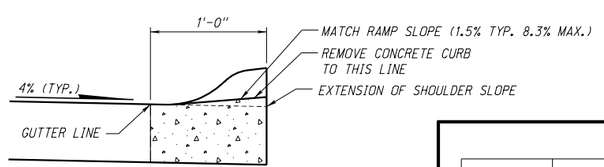
BEVELING DETAIL

LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.



MEDIAN CROSSING



NOTE:
COMBINATION CONCRETE CURB AND GUTTER MAY BE REMOVED AND REPLACED IN LIEU OF MILLING.

CURB DETAIL

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
◁	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE ROADWAY DESIGN ENGINEER. AN EXCEPTION TO THIS IS THE TRANSITIONAL SEGMENT TO EXISTING SIDEWALK MUST CONNECT TO THE EXISTING SIDEWALK PANEL; THIS DOES NOT REQUIRE A STATEMENT OF TECHNICAL INFEASIBILITY. (REF. PROWAG CHAPTER R3 TECHNICAL REQUIREMENTS)

REV. NO.	DATE	DESCRIPTION OF REVISION
R3	JAN 18	NDOR BORDER TO NDOT BORDER
R2	OCT 14	CHANGE PM TO ROADWAY DESIGN ENGINEER
R1	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 303-R3

CURB RAMPS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

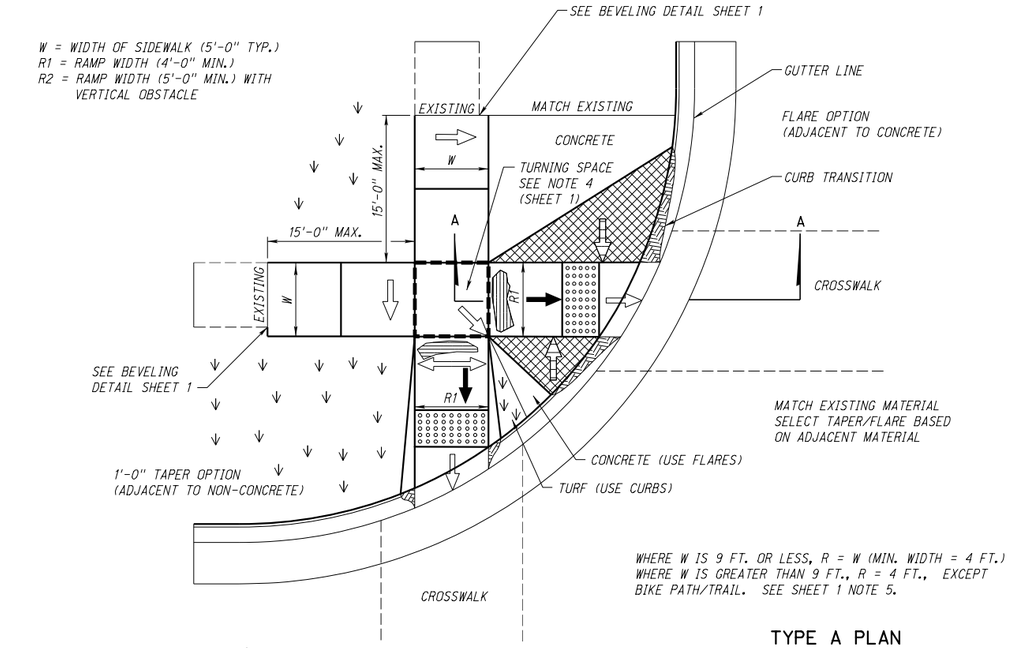
DATE

ORIGINAL: MARCH 22, 2010
DATE

1
5

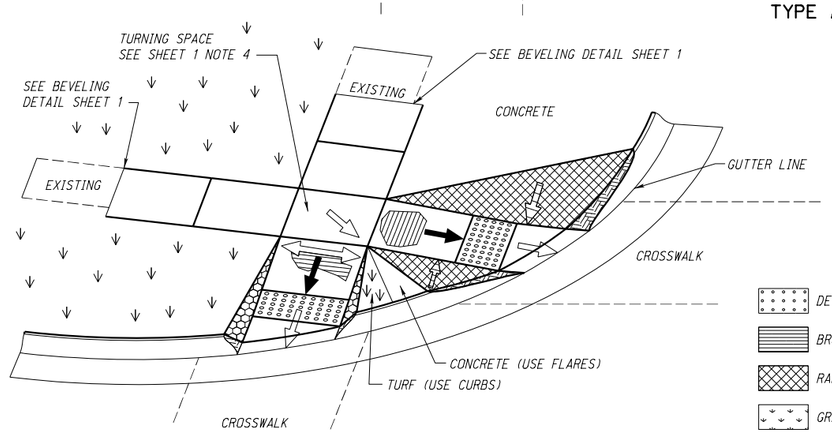
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300603.dgn

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300e03.dgn

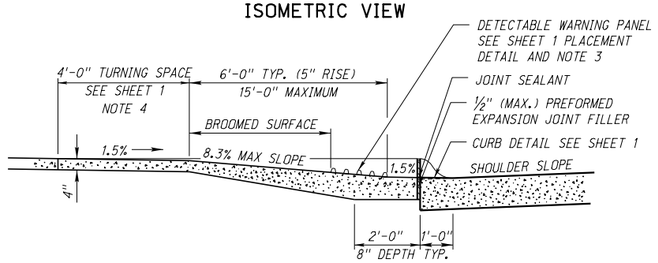


WHERE W IS 9 FT. OR LESS, R = W (MIN. WIDTH = 4 FT.)
WHERE W IS GREATER THAN 9 FT., R = 4 FT., EXCEPT BIKE PATH/TRAIL. SEE SHEET 1 NOTE 5.

TYPE A PLAN



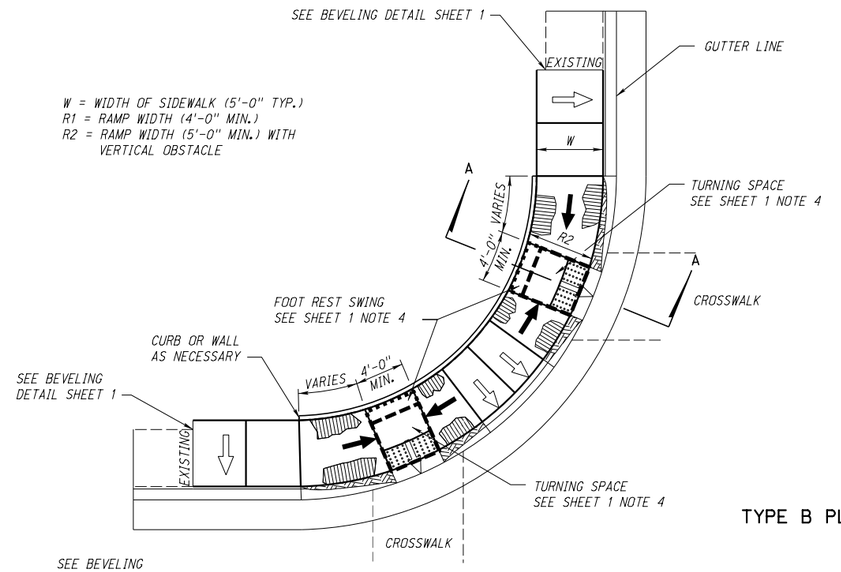
ISOMETRIC VIEW



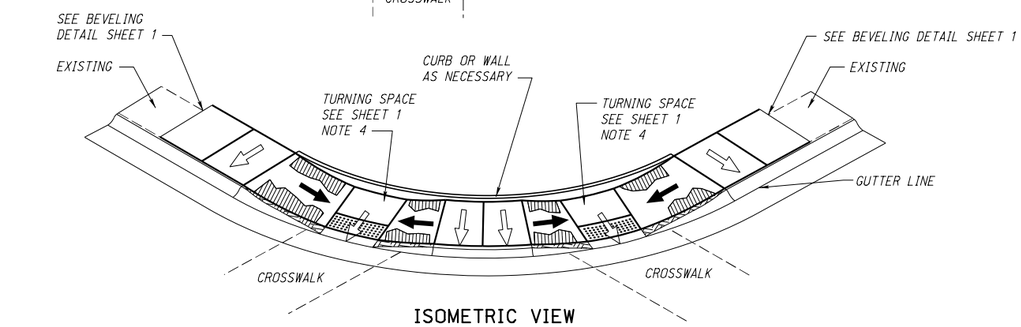
TYPE A CROSS SECTION
SECTION A-A

LEGEND

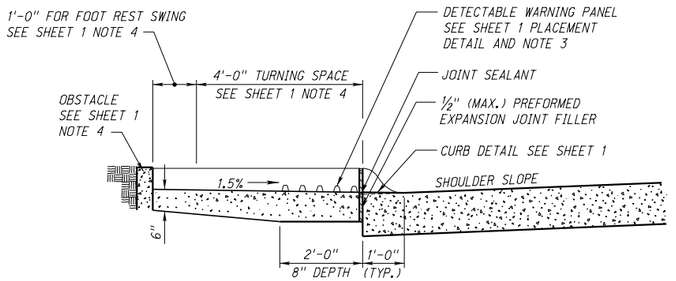
- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.



TYPE B PLAN



ISOMETRIC VIEW



TYPE B CROSS SECTION
SECTION A-A

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
⇦	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE ROADWAY DESIGN ENGINEER. AN EXCEPTION TO THIS IS THE TRANSITIONAL SEGMENT TO EXISTING SIDEWALK MUST CONNECT TO THE EXISTING SIDEWALK PANEL; THIS DOES NOT REQUIRE A STATEMENT OF TECHNICAL INFEASIBILITY. (REF. PROWAG CHAPTER R3 TECHNICAL REQUIREMENTS)

REV. NO.	DATE	DESCRIPTION OF REVISION
R3	JAN 18	NDOR BORDER TO NDOT BORDER
R2	OCT 14	CHANGE PM TO ROADWAY DESIGN ENGINEER
R1	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 303-R3

CURB RAMPS

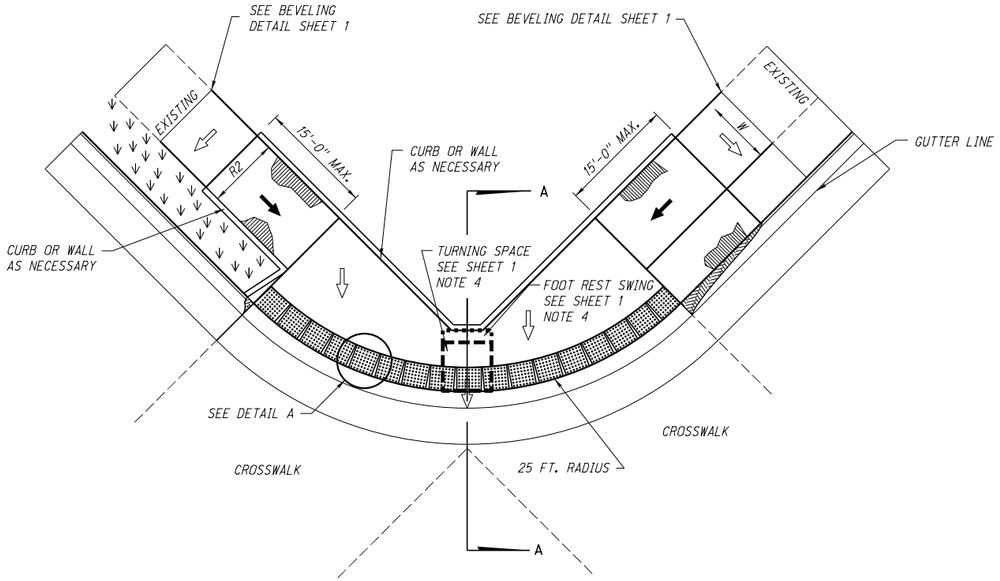
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

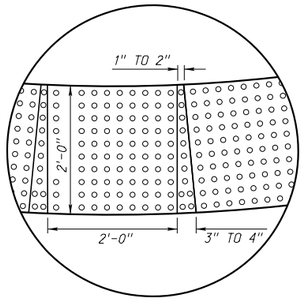
DATE

ORIGINAL:
MARCH 22, 2010
DATE

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN34
Date: 29-JUN-2021 09:18
File: 303000e03.dgn



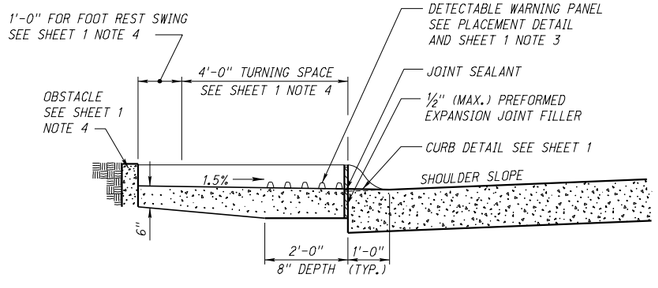
TYPE C PLAN



DETAIL A

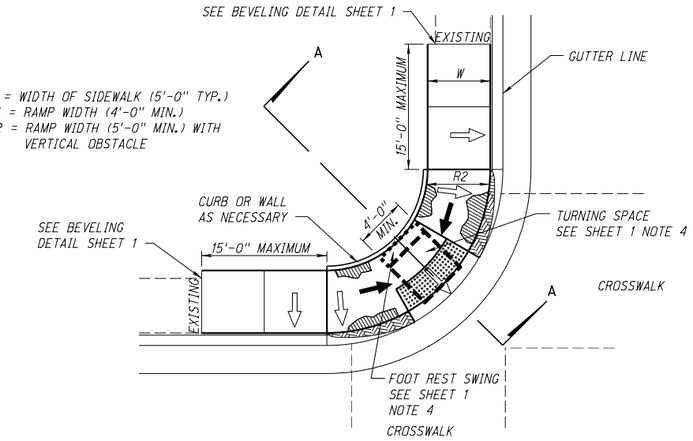
LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.

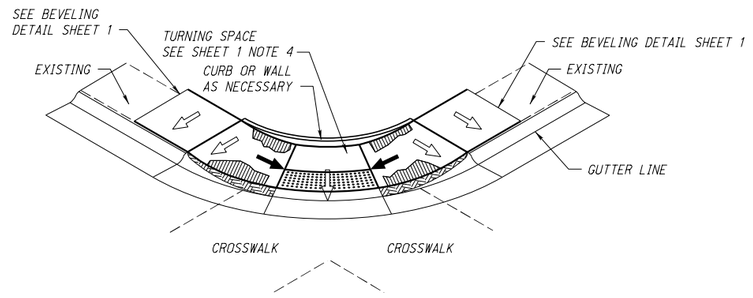


TYPE C CROSS SECTION
SECTION A-A

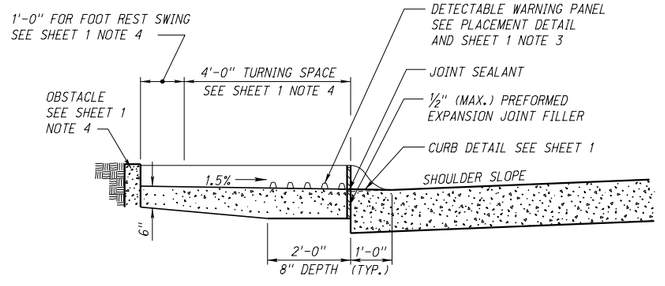
W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



TYPE D PLAN



ISOMETRIC VIEW



TYPE D CROSS SECTION
SECTION A-A

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
⇦	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE ROADWAY DESIGN ENGINEER. AN EXCEPTION TO THIS IS THE TRANSITIONAL SEGMENT TO EXISTING SIDEWALK MUST CONNECT TO THE EXISTING SIDEWALK PANEL; THIS DOES NOT REQUIRE A STATEMENT OF TECHNICAL INFEASIBILITY. (REF. PROWAG CHAPTER R3 TECHNICAL REQUIREMENTS)

REV. NO.	DATE	DESCRIPTION OF REVISION
R3	JAN 18	NDOR BORDER TO NDOT BORDER
R2	OCT 14	CHANGE PM TO ROADWAY DESIGN ENGINEER
R1	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 303-R3

CURB RAMPS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

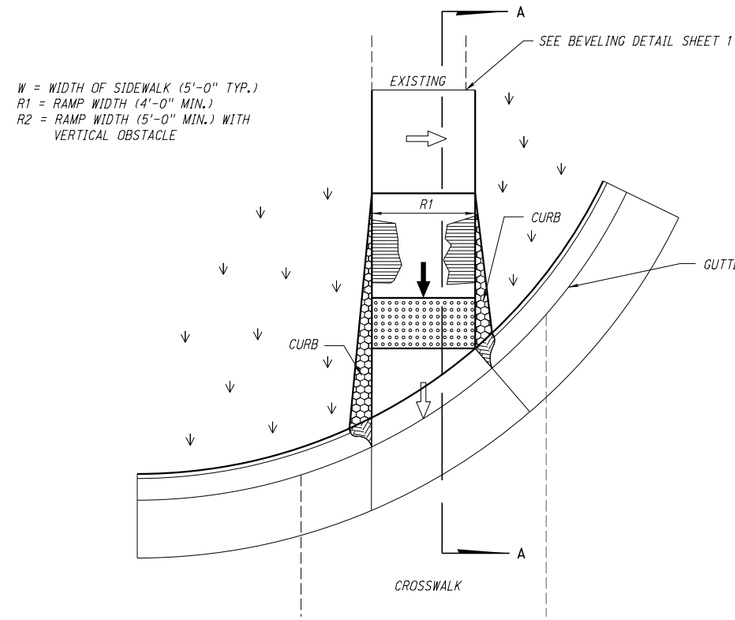
DATE

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

ORIGINAL:
MARCH 22, 2010
DATE

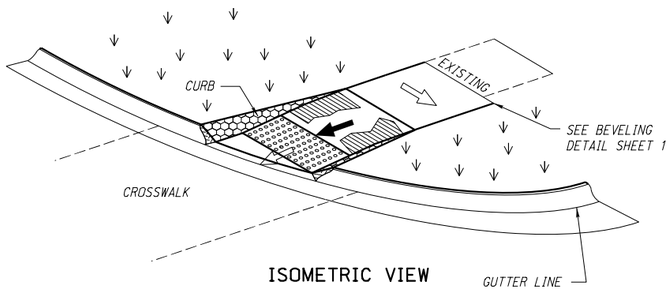
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300e03.dgn

W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



WHERE W IS 9 FT. OR LESS, R = W (MIN. WIDTH = 4 FT.) WHERE W IS GREATER THAN 9 FT., R = 4 FT., EXCEPT BIKE PATH/TRAIL. SEE NOTE 5 (SHEET 1)

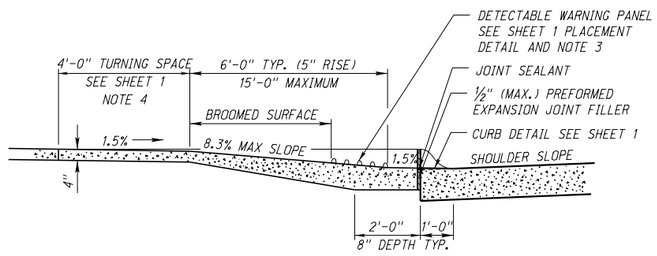
TYPE E PLAN



ISOMETRIC VIEW

LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.



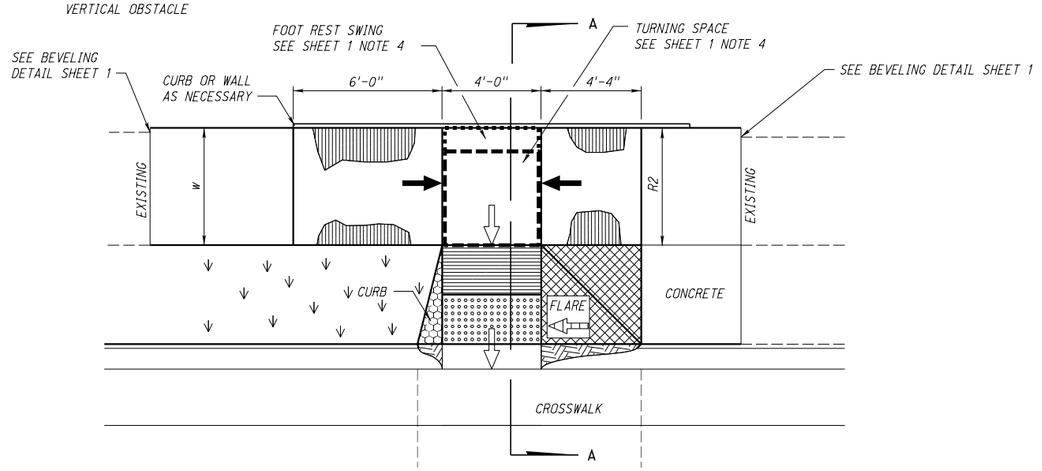
TYPE E CROSS SECTION
SECTION A-A

SLOPE LEGEND

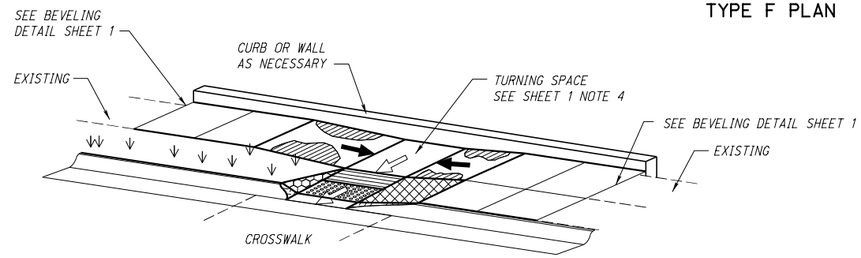
⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
⇦	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE ROADWAY DESIGN ENGINEER. AN EXCEPTION TO THIS IS THE TRANSITIONAL SEGMENT TO EXISTING SIDEWALK MUST CONNECT TO THE EXISTING SIDEWALK PANEL; THIS DOES NOT REQUIRE A STATEMENT OF TECHNICAL INFEASIBILITY. (REF. PROWAG CHAPTER R3 TECHNICAL REQUIREMENTS)

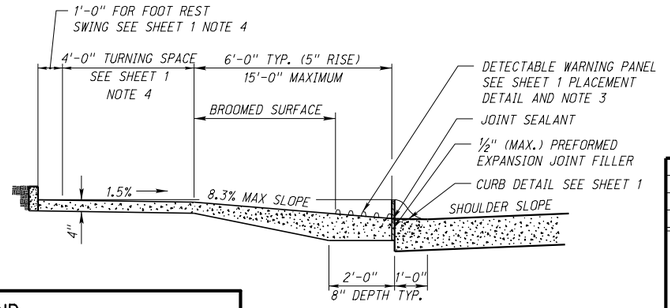
W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



TYPE F PLAN



ISOMETRIC VIEW



TYPE F CROSS SECTION
SECTION A-A

REV. NO.	DATE	DESCRIPTION OF REVISION
R3	JAN 18	NDOR BORDER TO NDOT BORDER
R2	OCT 14	CHANGE PM TO ROADWAY DESIGN ENGINEER
R1	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 303-R3

CURB RAMPS

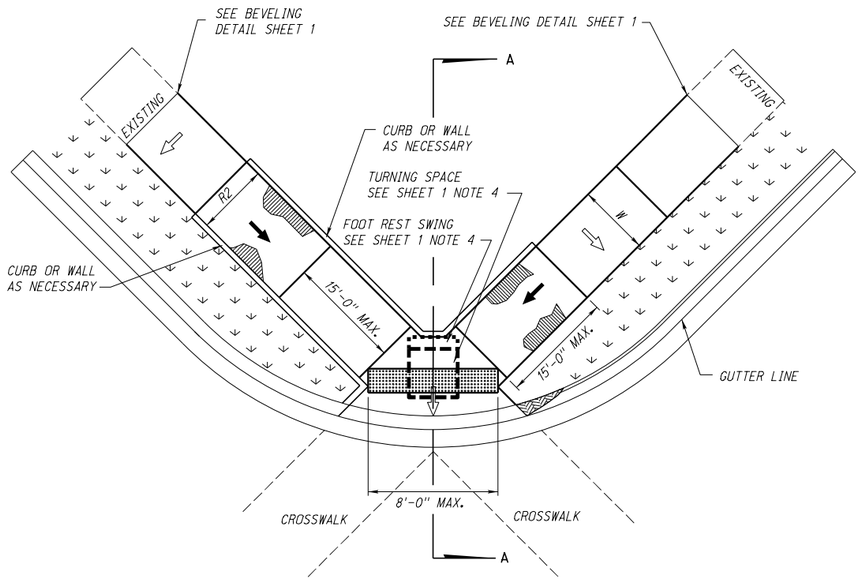
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

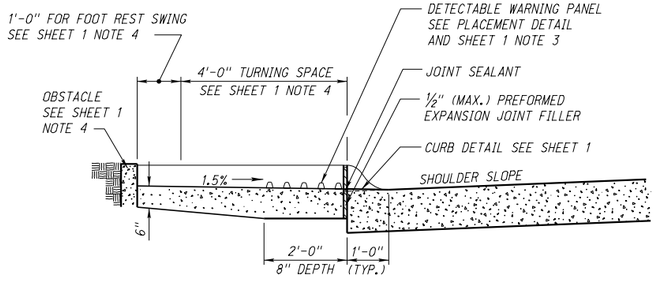
DATE

ORIGINAL: MARCH 22, 2010
DATE

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300e03.dgn



TYPE G PLAN



TYPE G CROSS SECTION
SECTION A-A

LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
⇦	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPES EXCEEDING THE MAXIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE ROADWAY DESIGN ENGINEER. AN EXCEPTION TO THIS IS THE TRANSITIONAL SEGMENT TO EXISTING SIDEWALK MUST CONNECT TO THE EXISTING SIDEWALK PANEL; THIS DOES NOT REQUIRE A STATEMENT OF TECHNICAL INFEASIBILITY. (REF. PROWAG CHAPTER R3 TECHNICAL REQUIREMENTS)

REV. NO.	DATE	DESCRIPTION OF REVISION
R3	JAN 18	NDOR BORDER TO NDOT BORDER
R2	OCT 14	CHANGE PM TO ROADWAY DESIGN ENGINEER
R1	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 303-R3

CURB RAMPS

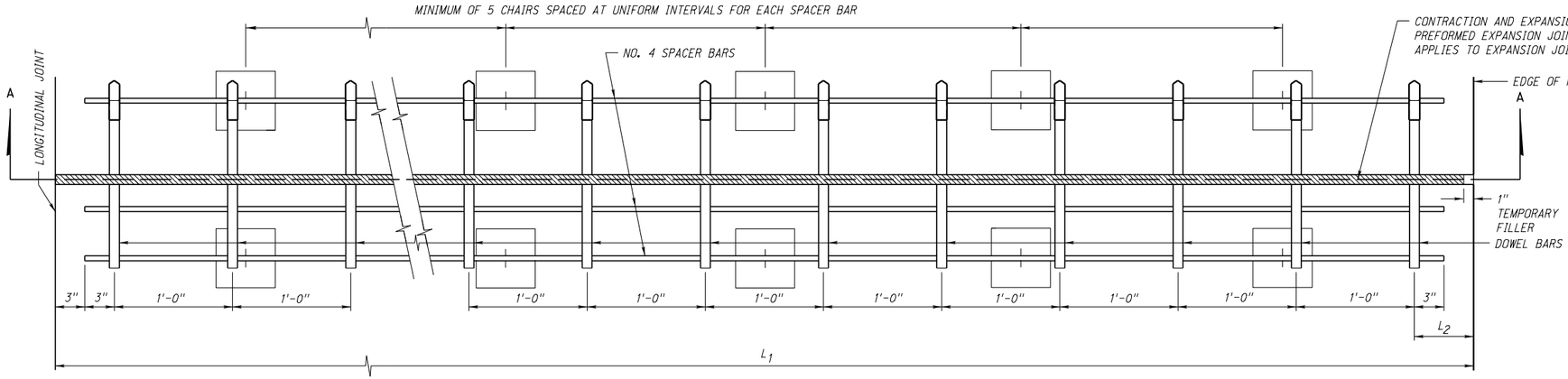
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

DATE

ORIGINAL:
MARCH 22, 2010
DATE

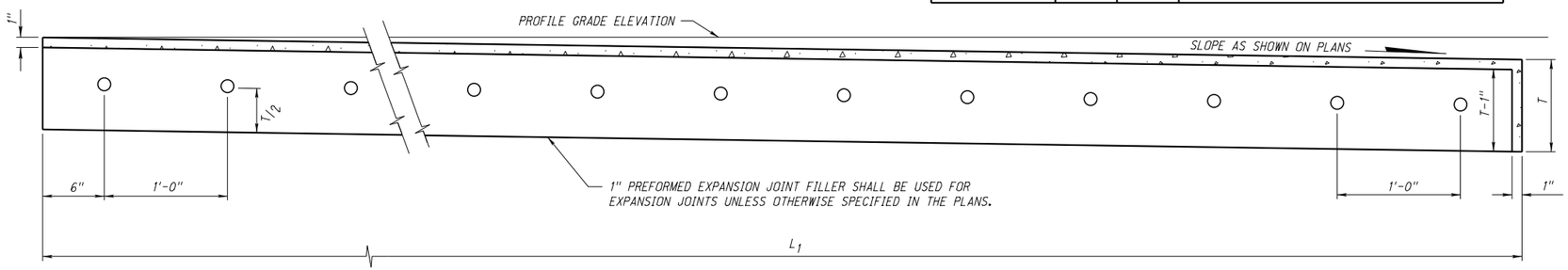
5
5



ASSEMBLY PLAN

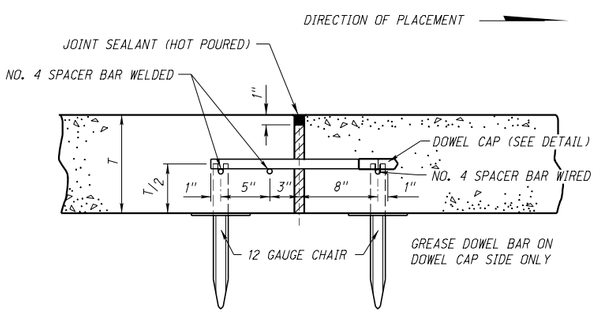
DOWEL BAR HEIGHT AND DIAMETER			
PAVEMENT THICKNESS (T)	MINIMUM BAR DIA.	DOWEL BAR HEIGHT (T/2)	SKEW TOLERANCE
LESS THAN 10"	1¼"	T/2 ± ½"	¼"
10" OR MORE	1½"	T/2 ± ½"	¼"

DOWEL BAR LOCATION TABLE			
L_1	L_2	#BARS	DESCRIPTION
* LESS THAN 12'-0'	6"	VARIES	IRREGULAR AREAS (WIDEN, FILLETS, GORE....)
12'-0"	6"	12	12'-0" PAVEMENT
14'-0"	2'-6"	12	14'-0" PAVEMENT
15'-0"	2'-6"	13	15'-0' PAVEMENT (INCLUDES 3'-0" SHOULDER)
16'-0"	3'-6"	13	16'-0" PAVEMENT (INCLUDES 4'-0" SHOULDER)
16'-0"	6"	16	16'-0" RAMP & LOOPS
LESS THAN 14'-6"	1'-6"	VARIES	PAVEMENT WITH CURB
14'-6" OR MORE	2'-6"	VARIES	

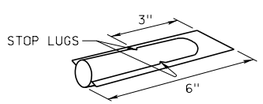


SECTION A-A

CONTRACTION AND EXPANSION JOINTS (PREFORMED EXPANSION JOINTS FILLER APPLIES TO EXPANSION JOINTS ONLY)

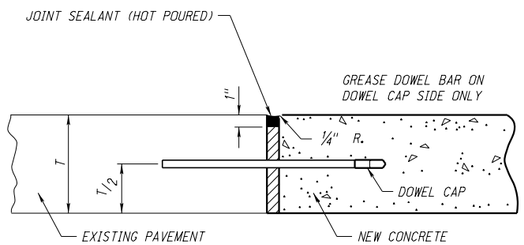


SECTION



DOWEL CAP

EXPANSION JOINT
(SUBSIDIARY)



NOTES:
DOWEL BARS SHALL BE DRILLED TO A DEPTH OF 8" INTO EXISTING PAVEMENT AND EPOXIED.

SECTION

NOTES:

THE CONTRACTOR MAY SUBSTITUTE OTHER DESIGNS FOR EXPANSION AND CONTRACTION JOINT SUPPORTS IN LIEU OF THE TYPE SHOWN WITH PRIOR WRITTEN APPROVAL BY THE ENGINEER.

DOWEL BARS SHALL BE A MINIMUM OF 17¾" IN LENGTH, CENTERED ON JOINTS AND BE SMOOTH BARS.

TIE BARS SHALL BE DEFORMED BARS.

FOR LOAD TRANSFER DEVICES AT EXPANSION JOINTS IN LANES OTHER THAN THE LANES SHOWN, MAINTAIN THE SPACING OF THE 1'-6" DOWEL BARS AT 1 FT. INTERVALS.

THE ENDS OF THE NO. 4 SPACER BARS SHALL NOT BE LESS THAN 3" FROM THE EDGES OF THE PAVEMENT OR THE LONGITUDINAL JOINT.

TIE, DOWEL & SPACER BARS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

KEY TYPE LONGITUDINAL JOINTS AND TRANSVERSE CONSTRUCTION JOINTS SHALL BE EDGED WITH ¼" R. AT TIME OF CONCRETE PLACEMENT.

CONCRETE PAVEMENT SHALL BE TINED UNLESS OTHERWISE SHOWN IN THE PLANS.

EXPANSION JOINTS SHALL BE INSTALLED AT LOCATIONS SHOWN IN THE PLANS.

PAVEMENT PLACED ADJACENT TO R.R. TRACKS REQUIRES 3-EXPANSION JOINTS SPACED AT APPROXIMATELY 49'-6" INTERVALS.

EXPANSION JOINTS SHALL NOT BE SKEWED.

T= PAVEMENT THICKNESS

* *THE DEPARTMENT REQUIRES THAT DOWEL BASKETS BE PLACED IN ALL CONTRACTION JOINTS WHICH ARE 6'-0" OR WIDER. THE DOWEL BASKETS SHALL BE PLACED TRANSVERSE TO THE DIRECTION OF THE PREDOMINANT TRAFFIC DIRECTION.*

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
R10	JAN 18	CHANGED DOWEL BAR LOCATION TABLE
R9	JUL 11	JOINT: EARLY SAW CUT

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

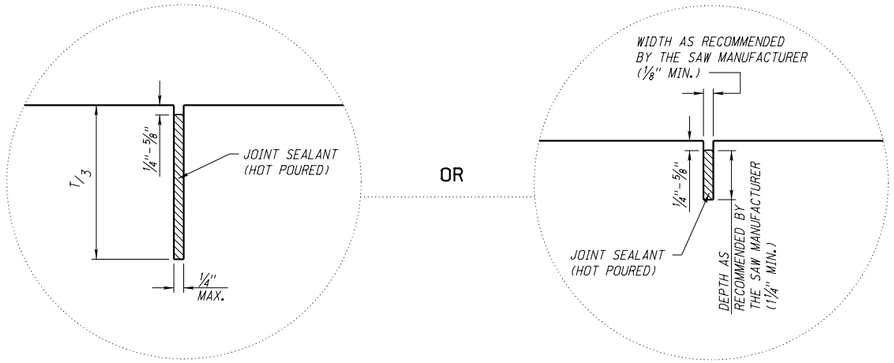
PROFESSIONAL CIVIL ENGINEER * MICK S. SYSLO E-10043 * STATE OF NEBRASKA

DATE

ORIGINAL: OCTOBER 25, 1994
DATE

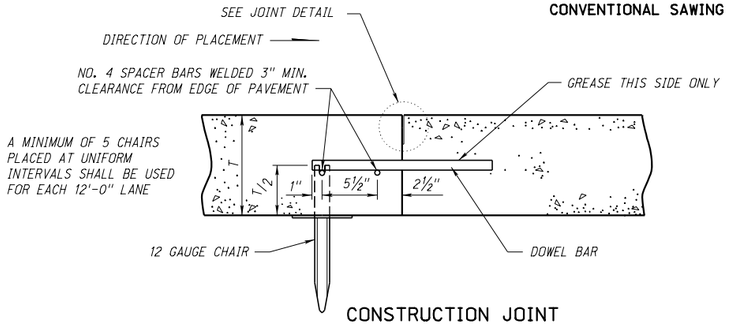
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 329006e11.dgn

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN34
Date: 29-JUN-2021 09:18
File: 329001.dgn



CONVENTIONAL SAWING

EARLY-SAW CUT

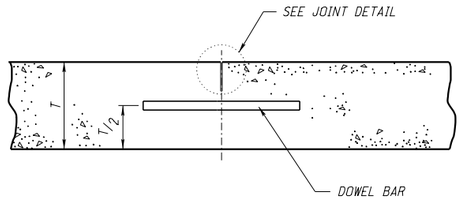


CONSTRUCTION JOINT

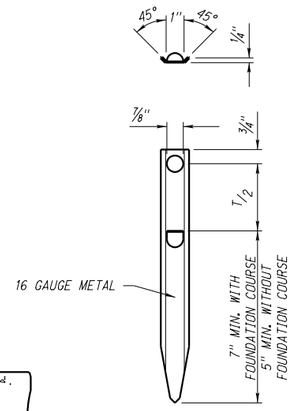
(BARS ARE SUBSIDIARY) TO PAVEMENT

JOINT DETAIL

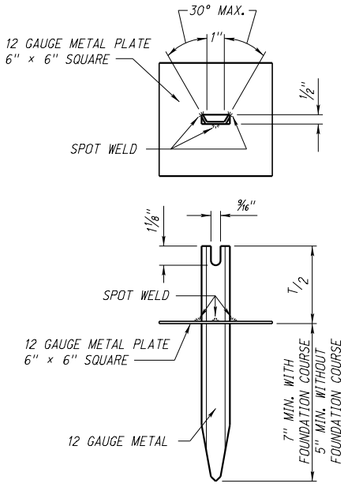
THE DOWEL BAR SPACING SHALL BE THE SAME AS SHOWN FOR THE EXPANSION JOINT. REFER TO DOWEL BAR LOCATION TABLE AND THE DOWEL BAR HEIGHT AND DIAMETER TABLE ON SHEET 1 OF 4.



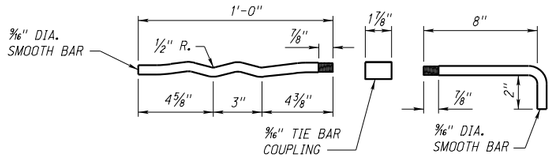
CONTRACTION JOINT



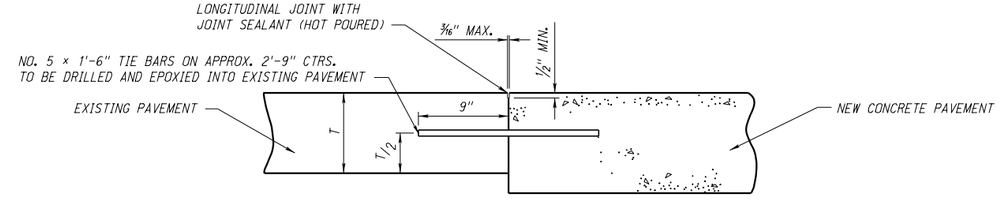
TIE BAR PIN



CHAIR

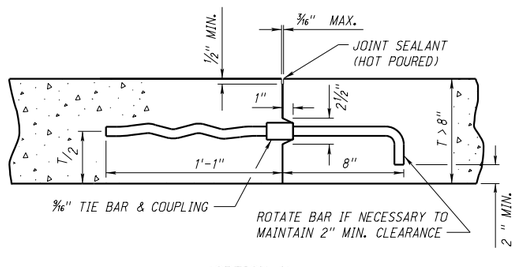


DETAILS OF "W" BAR



TIE BARS ARE TO BE INSTALLED WHERE NEW CONCRETE PAVEMENT IS PLACED ADJACENT TO EXISTING CONCRETE PAVEMENT

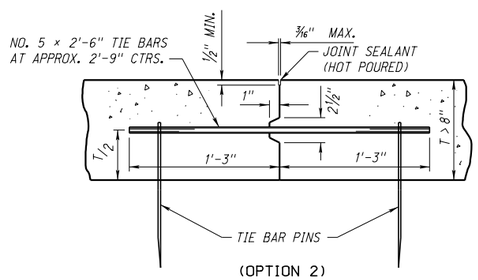
DETAILS OF TIE BAR



(OPTION 1)

KEY TYPE

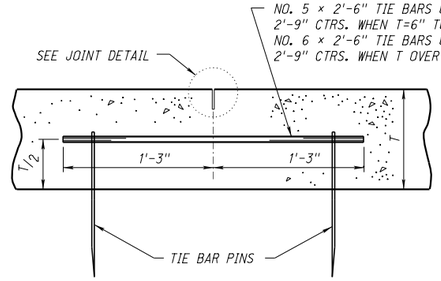
NO. 5 HOOK AND W-BARS AT APPROX. 2'-9" CTRS. OR 3/16" HOOK AND W-BARS AT APPROX. 2'-9" CTRS.



(OPTION 2)

KEY TYPE

KEY TYPE JOINT SHALL BE USED ON ALL LONGITUDINAL CONSTRUCTION JOINTS WHEN THE ADJACENT LANE IS NOT PLACED AT THE SAME TIME



SAWED

WHEN TWO ADJACENT LANES ARE PLACED AT THE SAME TIME, THE LONGITUDINAL JOINT COMMON TO THE LANES SHALL BE SAWED

LONGITUDINAL JOINTS

NOTE:
NO TIE BARS SHALL BE CLOSER THAN 1'-3" TO A TRANSVERSE JOINT. ALL LONGITUDINAL JOINTS BETWEEN LANES AND BETWEEN LANES AND SHOULDERS MUST BE TIED. MEDIAN SHOULD NOT BE TIED.

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
R10	JAN 18	CHANGED DOWEL BAR LOCATION TABLE
R9	JUL 11	JOINT: EARLY SAW CUT

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

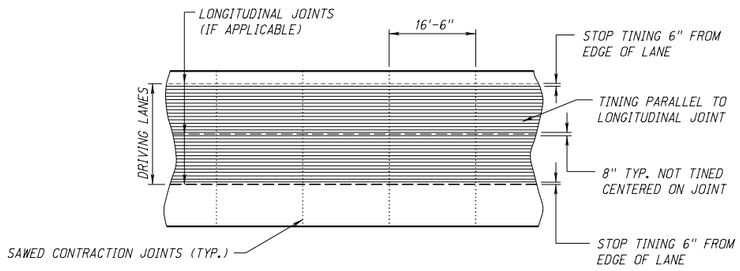
8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

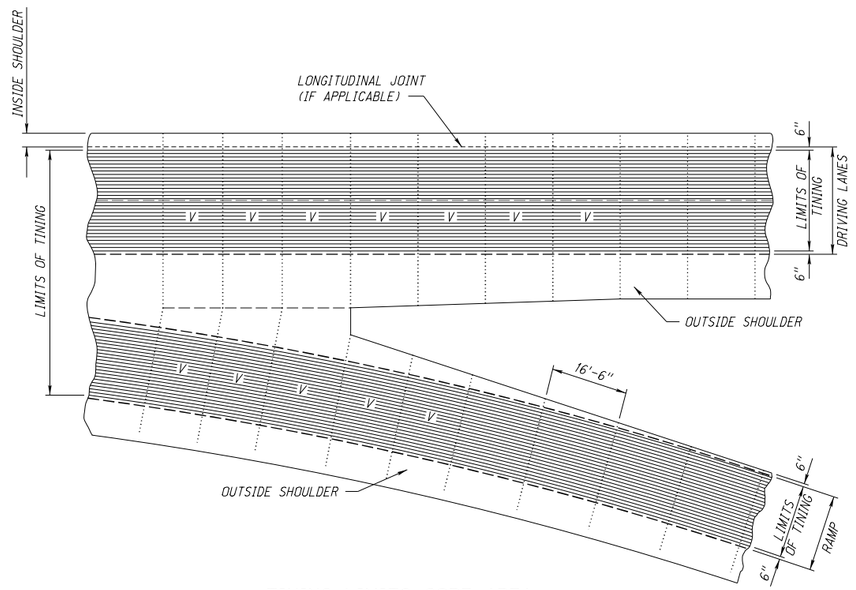
DATE

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

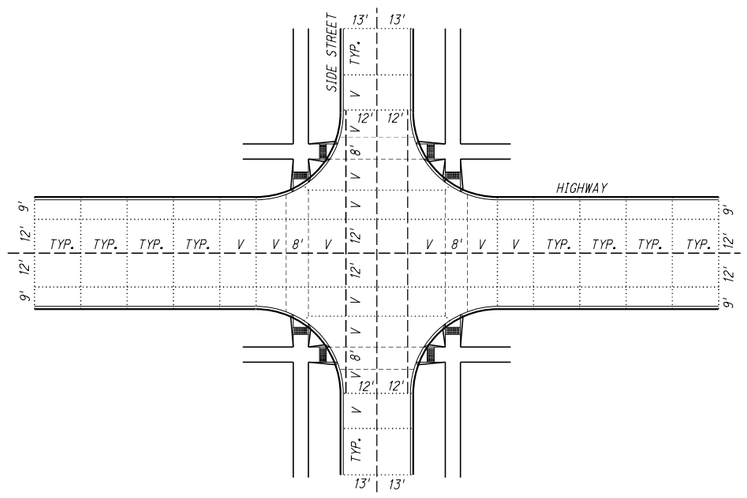
ORIGINAL: OCTOBER 25, 1994
DATE



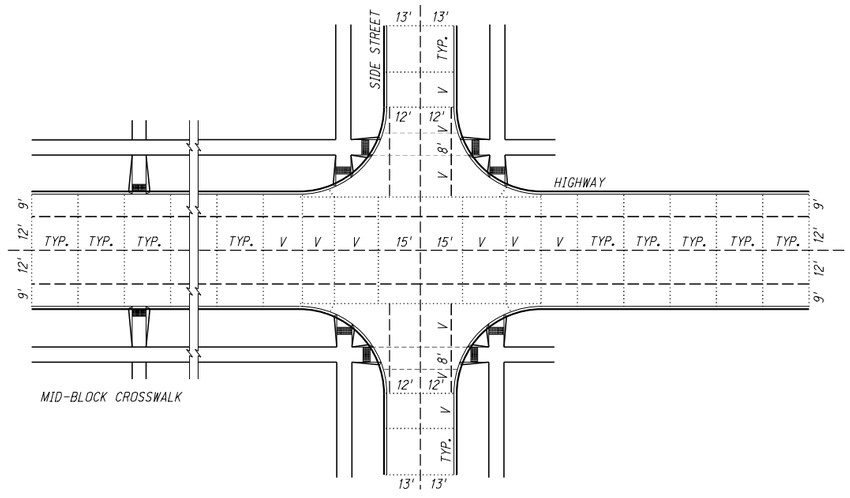
TINING WITH CONCRETE SHOULDER



TINING LIMITS GORE AREA



STOP OR YIELD CONTROL ON ALL FOUR LEGS



STOP OR YIELD CONTROL ON THE SIDE STREETS ONLY

NOTES:

TINING IS REQUIRED FOR PAVEMENT WITH POSTED SPEEDS GREATER THAN 40 MPH (INCLUDING TURN LANES).

16'-6" TRANSVERSE JOINT SPACING IS THE STANDARD JOINT SPACING REGARDLESS OF THE PAVEMENT THICKNESS.

V VARIES FROM 10'-0" TO MAX. 16'-6".

THE LONGITUDINAL JOINT BETWEEN THE SHOULDER AND THE 12'-0" DRIVING LANE IS NOT REQUIRED FOR SHOULDER WIDTHS OF 4'-0" OR LESS.

TRANSVERSE JOINTS FOR DOWELED CONCRETE PAVEMENT SHALL BE CONSTRUCTED PERPENDICULAR TO THE ROADWAY.

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
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R9	JUL 11	JOINT: EARLY SAW CUT

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL:
OCTOBER 25, 1994
DATE

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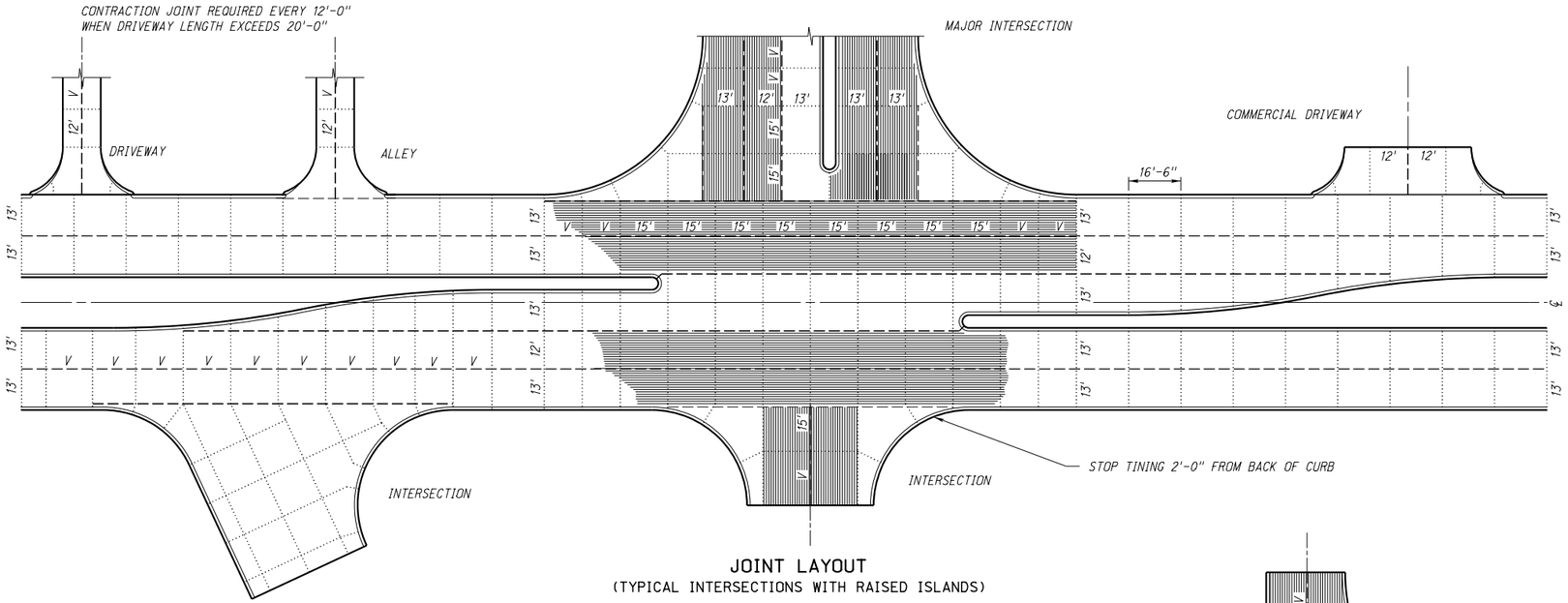
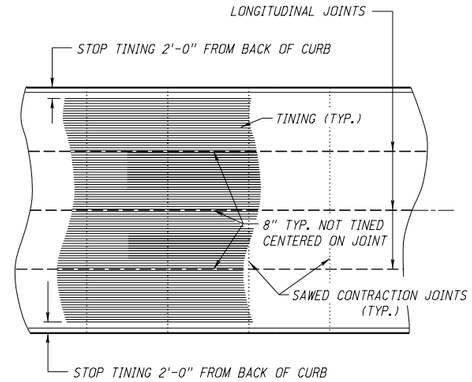
4

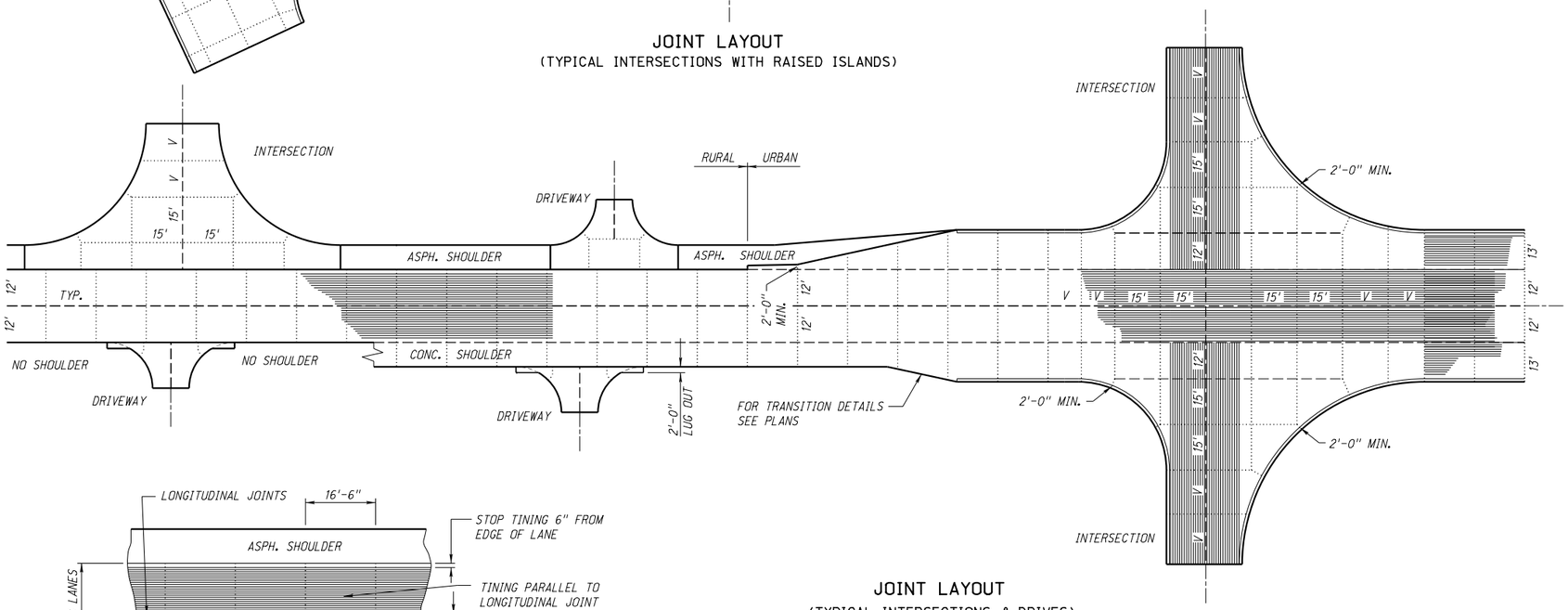
File: 32900e11.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134



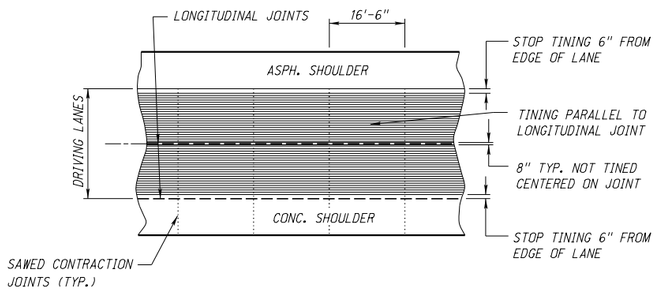
JOINT LAYOUT
(TYPICAL INTERSECTIONS WITH RAISED ISLANDS)



TINING LIMITS



JOINT LAYOUT
(TYPICAL INTERSECTIONS & DRIVES)



RURAL TINING LIMITS WITH SURFACED SHOULDERS

LEGEND

SAWED CONTRACTION JOINT

LONGITUDINAL JOINT

NOTES:

TINING IS REQUIRED FOR PAVEMENT WITH POSTED SPEEDS GREATER THAN 40 MPH (INCLUDING TURN LANES).

16'-6" TRANSVERSE JOINT SPACING IS THE STANDARD JOINT SPACING REGARDLESS OF THE PAVEMENT THICKNESS.

V VARIES FROM 10'-0" TO MAX. 16'-6".

VARIABLE SPACING IS USED AROUND INTERSECTIONS AND LARGE DRIVEWAYS WHICH IS TIED TO THE CONCRETE LANES OR SHOULDERS TO MATCH THE JOINTS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
R10	JAN 18	CHANGED DOWEL BAR LOCATION TABLE
R9	JUL 11	JOINT: EARLY SAW CUT

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL:
OCTOBER 25, 1994
DATE

4
4

File: 329001.dgn
Date: 29-JUN-2021 09:18
Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 41100e02.dgn

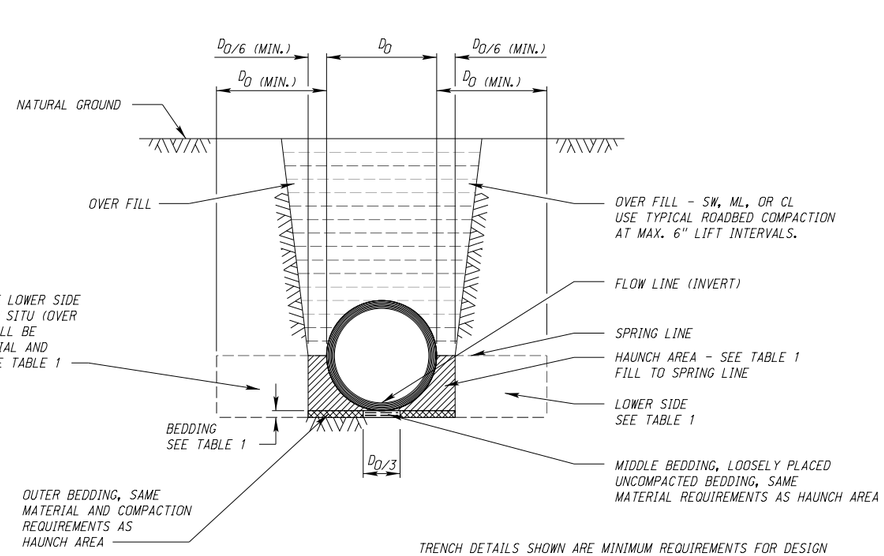
TABLE 1 - CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION, USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML, 100% CL, OR NATURAL SOILS OF EQUAL FIRMNESS
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML, 95% CL, OR NATURAL SOILS OF EQUAL FIRMNESS
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML, 95% CL, OR NATURAL SOILS OF EQUAL FIRMNESS

TABLE 1 NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

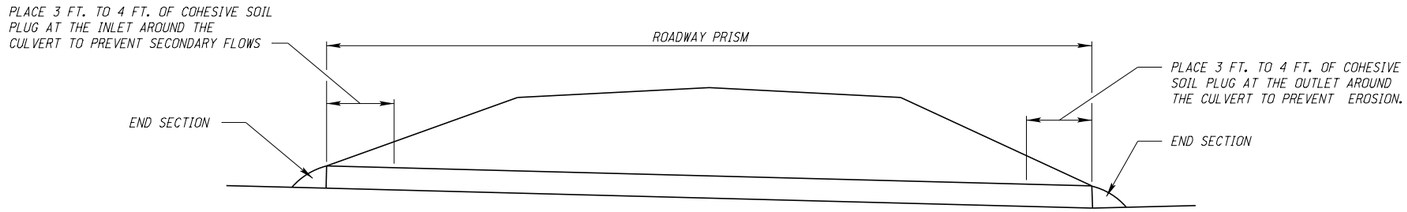
MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.



TRENCH DETAILS SHOWN ARE MINIMUM REQUIREMENTS FOR DESIGN AND CONSTRUCTION. PAYMENT FOR EXCAVATION IS BASED UPON THE GUIDELINES IN THE STANDARD SPECIFICATIONS.

TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH APPROVED SAFETY PRACTICE.

TYPICAL TRENCH INSTALLATION



LIMITS OF BEDDING AND BACKFILL

EXCAVATION, BEDDING AND EMBANKMENT SEQUENCE:

TRENCH INSTALLATION:

(A) DETERMINE THE FLOW LINE AND TRENCH BOTTOM ELEVATIONS.

(B) DETERMINE THE SHAPE OF TRENCH. DECIDE IF SHORING IS NEEDED. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE SAFETY OF ALL WORKERS, EQUIPMENT AND MATERIALS IN THE TRENCH.

(C) PLACE THE BEDDING MATERIAL (SEE CONCRETE - TABLE 1) LOOSELY.

(D) PLACE PIPE ON THE BEDDING AND COMPACT OUTER BEDDING, (SEE TABLE 1).

(E) PLACE AND COMPACT THE LOWER SIDE, HAUNCH AND OVERFILL MATERIAL AT 6 IN. INTERVALS.

EMBANKMENT INSTALLATION:

(A) DETERMINE THE FLOW LINE AND SPRING LINE ELEVATION.

(B) IF FLOW LINE IS ABOVE THE NATURAL GROUND, PLACE AN EMBANKMENT AT LEAST 3DO WIDE WITH 3:1 FORESLOPES OR FLATTER AT SPRING LINE ELEVATION, COMPACTED AT ROADBED REQUIRED COMPACTION.

(C) IF THE FLOW LINE IS BELOW THE NATURAL GROUND BUT THE SPRING LINE IS ABOVE THE NATURAL GROUND, PLACE THE EMBANKMENT SIMILAR TO THE ONE IN STEP B.

(D) EXCAVATE TO PROPER ELEVATION.

(E) PLACE BEDDING MATERIAL (SEE TABLE 1) LOOSELY.

(F) PLACE THE PIPE ON THE BEDDING MATERIAL AND COMPACT OUTER BEDDING MATERIAL (SEE CONCRETE - TABLE 1).

(G) PLACE AND COMPACT THE HAUNCH, LOWER SIDE AND OVERFILL MATERIAL AT 6 IN. INTERVALS.

NOTES FOR TRENCH INSTALLATIONS:

1. *COMPACTION AND SOIL SYMBOLS, I.E. 95% SW, REFER TO SW SOIL MATERIAL WITH MINIMUM STANDARD PROCTOR COMPACTION OF 95%.*
2. *THE TRENCH TOP ELEVATION SHALL BE NO LOWER THAN 1 FT. BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.*
3. *SOIL IN BEDDING AND HAUNCH ZONES SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS SPECIFIED FOR THE MAJORITY OF SOIL IN THE BACKFILL ZONES.*
4. *THE TRENCH WIDTH SHALL BE WIDER THAN SHOWN IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.*
5. *FOR TRENCH WALLS THAT ARE WITHIN 10 DEGREES OF VERTICAL, THE COMPACTION OR FIRMNESS OF THE SOIL IN THE TRENCH WALLS AND LOWER SIDE ZONE NEED NOT TO BE CONSIDERED.*
6. *FOR TRENCH WALLS WITH GREATER THAN 10 DEGREE SLOPES THAT CONSIST OF EMBANKMENT, THE LOWER SIDE SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS SPECIFIED FOR THE SOIL IN THE BACKFILL ZONE.*

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

1/4

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 411006d02.dgn

TABLE 1 - CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION, USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML OR 100% CL
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML OR 95% CL
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML OR 95% CL

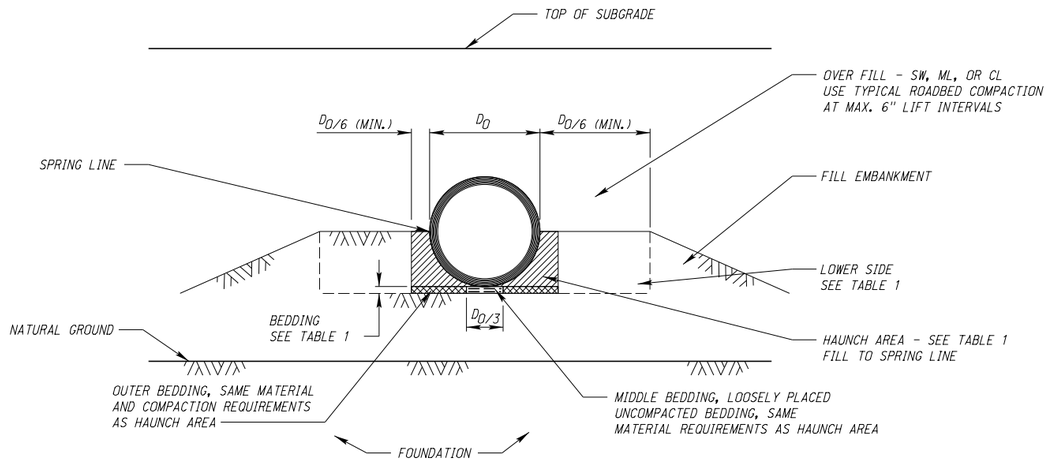
TABLE 1 NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.

TABLE 2 - CONCRETE PIPE DIMENSIONS

NOMINAL PIPE DIAMETER (INCHES)	STANDARD OUTSIDE PIPE DIAMETER, DO (SPAN)			
	ROUND PIPE	ARCH PIPE	H. ELLIP. PIPE	V. ELLIP. PIPE
15	19.5	22.5		
18	23	27	28.5	
21	26.5	31.5		
24	30	34.5	36.5	
27	33.5		41	
30	37	43.25	45.5	
36	44	51.75	54	38
42	51	60.13	63	44
48	58	68.5	71	49
54	65	76	80	55
60	72	85	89	61
66	79		97	67
72	86	102	106	73
78	93		114	79
84	100	118	123	85
90	107			
96	114			
102	121			
108	128			



TYPICAL EMBANKMENT INSTALLATION

TABLE 3 SOIL CLASSIFICATION FOR BEDDING & BACKFILL

ASTM SOIL GROUP SYMBOL D 2487	DESCRIPTION	PERCENTAGE PASSING SIEVE SIZES		
		1½ IN.	NO. 4	NO. 200
SW	WELL GRADED SANDS AND GRAVELLY-SANDS: LITTLE OR NO FINES. NON PLASTIC	100%	> 50% OF "COURSE FRACTION"	< 5%
ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY-FINE-SANDS, SILTS WITH SLIGHT PLASTICITY		100%	> 50%
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELY-CLAYS, SANDY-CLAYS, SILTY-CLAYS, LEAN CLAYS			

NOTES FOR EMBANKMENT INSTALLATIONS:

1. COMPACTION AND SOIL SYMBOLS, I.E. 95% SW, REFER TO SW SOIL MATERIAL WITH A MINIMUM STANDARD PROCTOR COMPACTION OF 95%.

2. SOIL IN THE OUTER BEDDING, HAUNCH, AND LOWER SIDE ZONES, EXCEPT WITHIN THE $D_O/3$ MIDDLE BEDDING, SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS THE MAJORITY OF THE SOIL IN THE OVERFILL ZONES.

3. SUBTRENCHES

3.1 A SUBTRENCH IS DEFINED AS A TRENCH WITH ITS TOP AT AN ELEVATION LOWER THAN 1 FT. BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.

3.2 THE MINIMUM WIDTH OF A SUBTRENCH SHALL BE 1.33DO, OR WIDER IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.

3.3 FOR SUBTRENCHES WITH WALLS OF NATURAL SOIL, ANY PORTION OF THE LOWER SIDE ZONE IN THE SUBTRENCH WALL SHALL BE AT LEAST AS FIRM AS AN EQUIVALENT SOIL PLACED TO THE COMPACTION REQUIREMENTS SPECIFIED FOR THE LOWER SIDE ZONE, AND AS FIRM AS THE MAJORITY OF SOIL IN THE OVERFILL ZONE, OR SHALL BE REMOVED AND REPLACED WITH SOIL COMPACTED TO THE SPECIFIED LEVEL.

GENERAL NOTES:

WHEN IN-SITU LATERAL SOIL RESISTANCE IS NEGLIGIBLE, E.G. PEAT, MUCK, OR HIGHLY EXPANSIVE SOIL, EMBEDMENT SHALL BE PLACED AND COMPACTED AT THE DIRECTION OF THE ENGINEER.

TO PROTECT THE PIPE AND BACKFILL DURING CONSTRUCTION, PROVIDE A MINIMUM OF 36" OF COMPACTED FILL MATERIAL OVER THE TOP OF THE PIPE BEFORE ALLOWING ANY HEAVY EQUIPMENT TO TRAVERSE OVER THE PIPE. EXTREMELY HEAVY EQUIPMENT MAY REQUIRE LARGER COVER AS DETERMINED BY THE CONTRACTOR.

THE PIPE VOLUME SHOULD NOT BE SUBTRACTED FROM THE VOLUME OF EXCAVATION.

THESE DESIGN STANDARDS ARE MINIMUM. IF A MORE RESTRICTIVE DESIGN IS REQUIRED BY THE ENGINEER OR CULVERT MANUFACTURER, THEN THESE STANDARDS SHALL BE MODIFIED. CHANGES TO PAY ITEM QUANTITIES DUE TO UNFORESEEN SITE CONDITIONS SHALL BE CALCULATED AND INCORPORATED INTO THE CONTRACT THRU A CHANGE ORDER.

BOTH ENDS OF THE PIPE SHALL BE SEALED WITH COHESIVE SOIL (AROUND THE PIPE EXTENDING 3 FT. TO 4 FT. FROM EACH END) TO PROTECT AGAINST INFILTRATION AND EROSION.

BEDDING AND BACKFILL MATERIAL IS NOT PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO THE LINEAR FEET OF CULVERT.

BEDDING AND BACKFILL MATERIAL SHALL MEET ASTM D 2487 (SOIL GROUPS AS SHOWN IN TABLE 3).

PERCENT COMPACTION SHALL BE DETERMINED IN ACCORDANCE WITH NDOR STANDARD TEST METHOD T 99.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

2
4

ROADWAY DESIGN DIVISION

TABLE 1 – CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION,USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML OR 100% CL
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML OR 95% CL
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML OR 95% CL

NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.

INSTALLATION TYPE 2 AND TYPE 1 ARE IMPROVED METHODS IN ORDER TO SUPPORT HIGHER FILL HEIGHTS USING CLASS III, IV, AND V CIRCULAR CONCRETE PIPE. INSTALLATION TYPE I WILL PROVIDE THE BEST IN-SITU PERFORMANCE USING GREATER COMPACTION WITH GRANULAR BEDDING AND BACKFILL. THE CONTRACTOR WILL CHOOSE THE INSTALLATION TYPE AND CLASS OF PIPE. ACTUAL PROJECT FILL HEIGHTS MUST BE KNOWN IN ORDER TO USE TABLE 4.

ROUND EQUIVALENT, NON-CIRCULAR PIPE SUCH AS ARCH OR ELLIPTICAL PIPE, MAY BE SELECTED, PROVIDED SUCH PIPE ARE DESIGNED AND MANUFACTURED TO THE SAME D-LOADS AND ULTIMATE STRENGTHS (SEE TABLE 5) AS THE SELECTED CIRCULAR PIPE FROM THE FILL HEIGHT TABLE.

TABLE 4 MAXIMUM FILL HEIGHTS (FEET) FOR STANDARD DESIGN (AASHTO M 170) ROUND CONCRETE PIPE

	INSTALLATION TYPE 3* (NDOR STANDARD)			INSTALLATION TYPE 2			INSTALLATION TYPE 1		
PIPE SIZE (IN.)	CLASS III	CLASS IV	CLASS V	CLASS III	CLASS IV	CLASS V	CLASS III	CLASS IV	CLASS V
15	12	15	21	15	19	26	23	28	40
18	12	17	24	16	22	30	24	32	45
21	13	19	26	16	24	32	25	37	48
24	13	19	26	17	24	33	25	32	45
27	13	17	26	17	21	34	23	26	51
30	12	14	25	15	17	32	20	21	49
36	10	16	24	13	21	31	20	31	47
42	10	15	23	13	19	29	20	29	44
48	10	14	22	13	18	29	20	28	43
54	10	14		13	17		20	27	
60	9	14		12	18		19	28	
66	9	14		12	18		19	28	
72	9	14		12	18		19	28	
78	9			12			19		
84	9			12			19		
90	9			12			20		
96	9			12			19		
102	10			13			20		
108	10			14			22		

TABLE 4 NOTES:

AASHTO M 170 SPECIFICATIONS ARE MODIFIED AS FOLLOWS:

ONLY SINGLE INNER CAGE, CIRCULAR REINFORCING IS ALLOWED FOR CLASS III, 15", 18", 21", AND 24" ROUND RCP AS SHOWN:

PIPE SIZE (IN.)	CLASS	MINIMUM CIRCUMFERENTIAL REINFORCING ($IN.^2$/FT. OF PIPE WALL)
15	III	0.08
18	III	0.10
21	III	0.12
24	III	0.14

APPLICABLE SPECIFICATIONS:

AASHTO M 170---ROUND RCP
AASHTO M 206---ARCH RCP
AASHTO M 207---ELLIPTICAL RCP

GENERAL NOTES:

FILL HEIGHTS SHOWN IN TABLE 4 WERE DEVELOPED USING ASCE STANDARDS FOR DIRECT DESIGN OF BURIED PRECAST CONCRETE PIPE, MANUFACTURED IN ACCORDANCE WITH AASHTO M 170 SPECIFICATION REQUIREMENTS (SEE TABLE 4 FOOTNOTE FOR EXCEPTIONS). FILL HEIGHTS SHOWN APPLY ONLY TO ROUND PIPE (UNDER FULL FLOW CONDITIONS), USED UNDER RIGID AND FLEXIBLE PAVEMENT, WITH SOIL OVERFILL WEIGHING 120 POUNDS PER CUBIC FOOT. UNDER SPECIAL CIRCUMSTANCES (WHERE PAVEMENT IS NOT USED AND LIVE LOAD BECOMES CRITICAL, OR DIFFERENT SOIL DENSITY IS ENCOUNTERED, OR THE ONE FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE PAVEMENT TO THE TOP OF THE PIPE CANNOT BE MAINTAINED) THESE FILL HEIGHTS MAY NEED TO BE MODIFIED. DEEPER FILL HEIGHTS MAY BE USED BY SUBMITTING A SPECIAL STANDARD INSTALLATION DIRECT DESIGN (SIDD) FOR NDOR APPROVAL.

CONCRETE PIPE DESIGNS THAT ARE NOT SHOWN IN APPLICABLE AASHTO SPECIFICATIONS WILL BE CONSIDERED SPECIAL DESIGNS THAT MUST BE SUBMITTED TO NDOR FOR APPROVAL.

TABLE 5 D-LOADS FOR CONCRETE PIPE

PIPE CLASS	III	IV	V
D-LOAD TO PRODUCE A 0.01-IN. CRACK	1350	2000	3000
D-LOAD TO PRODUCE THE ULTIMATE LOAD	2000	3000	3750

NOTES:

LOAD ON PIPE IN POUNDS PER LINEAR FOOT = D-LOAD X INSIDE SPAN IN FEET D-LOAD = TEST LOAD EXPRESSED IN POUNDS-FORCE PER LINEAR FOOT PER FOOT OF DIAMETER

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

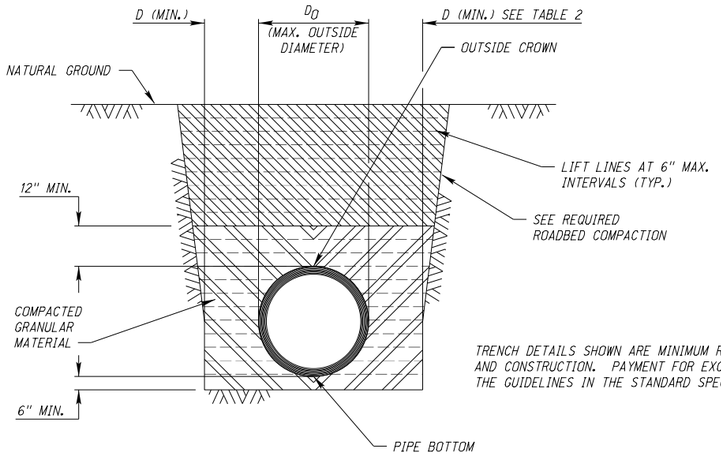
PROFESSIONAL CIVIL ENGINEER * MICK S. SYSLO E-10043 * STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

File: 41100e02.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134

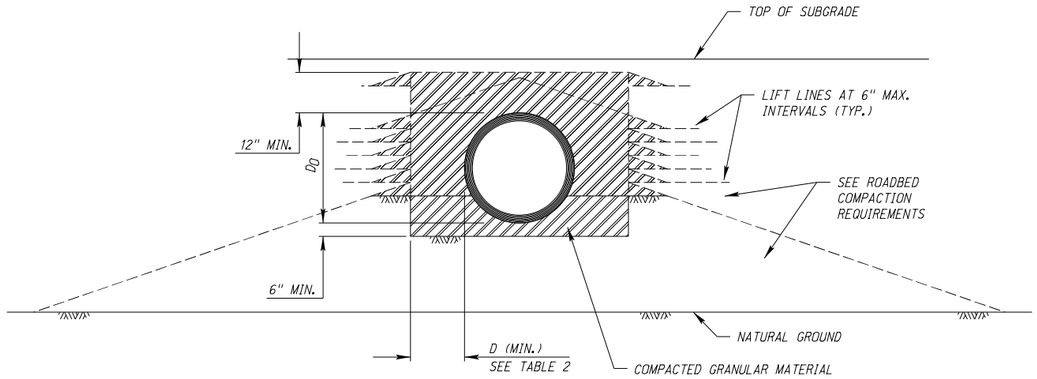
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 41100e02.dgn



TRENCH DETAILS SHOWN ARE MINIMUM REQUIREMENTS FOR DESIGN AND CONSTRUCTION. PAYMENT FOR EXCAVATION IS BASED UPON THE GUIDELINES IN THE STANDARD SPECIFICATIONS.

TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH APPROVED SAFETY PRACTICE.

TYPICAL TRENCH INSTALLATION



TYPICAL EMBANKMENT INSTALLATION

TABLE 1 - PLASTIC
SOIL CLASSIFICATION FOR GRANULAR FILL MATERIAL

SOIL GROUP SYMBOL D 2487	DESCRIPTION	% PASSING SIEVE SIZES		
		1½ IN.	NO. 4	NO. 200
GW	WELL GRADED GRAVEL AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.	100%	< 50% OF COARSE FRACTION	< 5%
GP	POORLY GRADED GRAVEL AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.			
SW	WELL GRADED SAND AND GRAVEL-SANDS; LITTLE OR NO FINES.		> 50% OF COARSE FRACTION	
SP	POORLY GRADED SAND AND GRAVEL-SANDS; LITTLE OR NO FINES.			
E.G. GW-GC SP-SM	SAND AND GRAVELS WHICH ARE BORDER LINE BETWEEN CLEAN AND WITH FINES.	100%	VARIES	5% TO 12%
GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES.	100%	< 50% OF COARSE FRACTION	12% TO 50%
GC	CLAYEY-GRAVEL, GRAVEL-SAND-CLAY MIXTURES.			
SM	SILTY SANDS, SAND-SILT MIXTURES.		> 50% OF COARSE FRACTION	

TABLE 2 - PLASTIC
MINIMUM D (INCHES)

NOMINAL PIPE DIAMETER (INCHES)	TRENCH INSTALLATION		EMBANKMENT INSTALLATION	
	METAL PIPE	PLASTIC PIPE	METAL PIPE	PLASTIC PIPE
15	11	11	15	15
18	12	12	18	18
24	13	13	24	24
30	15	15	24	24
36	17	17	24	24
42	24	24	24	24
48	24	24	24	24
54	24	24	24	24
60	24	24	24	24
66	24		24	
72	24		24	
78	24		24	
84	24		24	

NOTES:

INSTALLATIONS AS SHOWN ARE REQUIRED UNDER ALL SURFACED ROADWAYS. BEDDING AND BACKFILL FOR DRIVE PIPE OR OTHER PIPE OUTSIDE THE ROADWAY PRISM (OR BACK OF CURB-LINE FOR URBAN PROJECTS) MAY BE INSTALLED USING SUITABLE EXISTING SOIL, PLACED AND COMPACTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHERE IN-SITU LATERAL SOIL RESISTANCE IS NEGLIGIBLE E.G. PEAT, MUCK, OR HIGHLY EXPANSIVE SOIL, EMBEDMENT SHALL BE PLACED AND COMPACTED AT THE DIRECTION OF THE ENGINEER.

TO PROTECT THE PIPE AND BACKFILL DURING CONSTRUCTION, PROVIDE A MINIMUM OF 36" OF COMPACTED FILL MATERIAL OVER THE TOP OF THE PIPE BEFORE ALLOWING ANY HEAVY EQUIPMENT TO TRAVERSE OVER THE PIPE. EXTREMELY HEAVY EQUIPMENT MAY REQUIRE LARGER COVER AS DETERMINED BY THE CONTRACTOR.

PIPE VOLUME SHOULD NOT BE SUBTRACTED FROM THE VOLUME OF EXCAVATION.

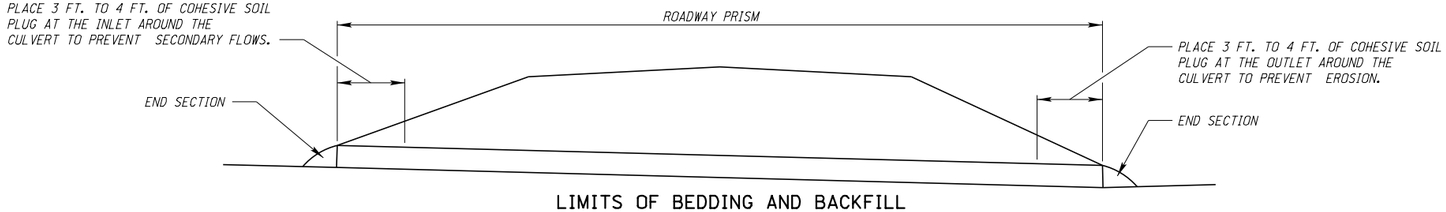
THESE DESIGN STANDARDS ARE MINIMUM. IF A MORE RESTRICTIVE DESIGN IS REQUIRED BY THE ENGINEER OR THE CULVERT MANUFACTURER, THEN THESE STANDARDS SHALL BE MODIFIED. CHANGES TO PAY ITEM QUANTITIES DUE TO UNFORESEEN SITE CONDITIONS SHALL BE CALCULATED AND INCORPORATED INTO THE CONTRACT BY A CHANGE ORDER.

EXPOSED ENDS OF THE PIPE SHALL BE SEALED WITH COHESIVE SOIL (AROUND THE PIPE EXTENDING 3 FT. TO 4 FT. FROM EACH END) TO PROTECT AGAINST INFILTRATION AND EROSION.

GRANULAR FILL MATERIAL IS NOT PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO THE LINEAR FEET OF CULVERT.

GRANULAR MATERIAL SHALL MEET ASTM D 2487 (SOIL GROUP AS SHOWN IN TABLE 1). MATERIAL SHALL BE COMPACTED TO AT LEAST 90% PROCTOR TEST DENSITY.

PERCENT COMPACTION SHALL BE DETERMINED IN ACCORDANCE WITH NDOR STANDARD TEST METHOD T 99.



LIMITS OF BEDDING AND BACKFILL

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR MCCMP, PCCMP, & PLASTIC PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

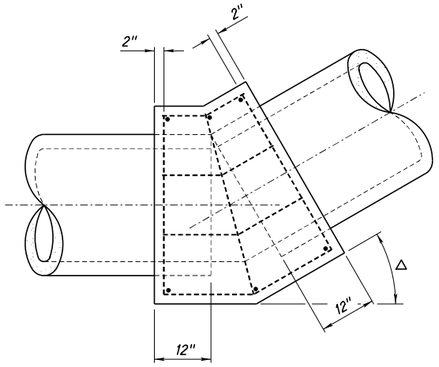
PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

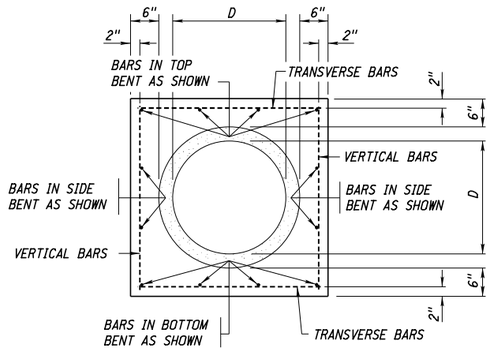
ORIGINAL: JUNE 6, 2008
DATE

4/4

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 42500e05.dgn

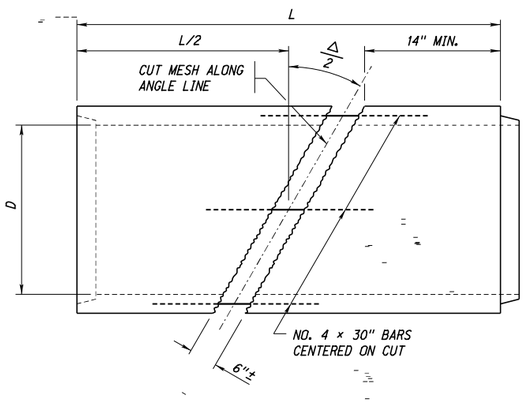


SIDE ELEVATION

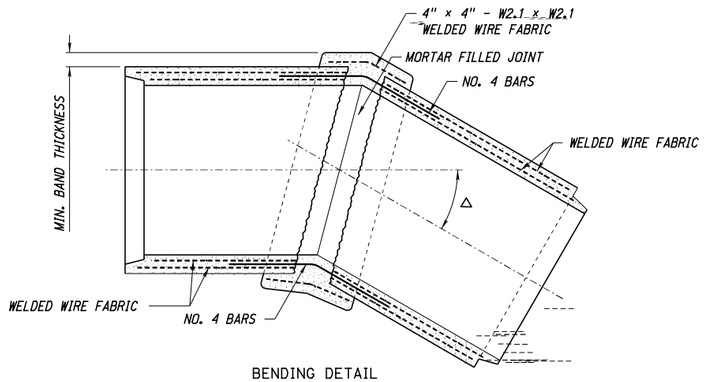


END ELEVATION

DETAILS OF COLLARS

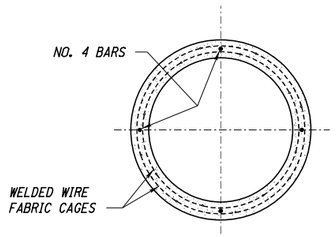


CUTTING DETAIL

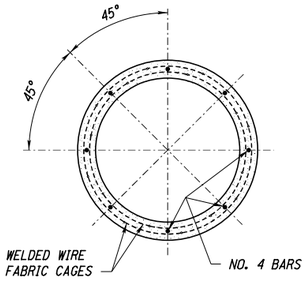


BENDING DETAIL

DETAILS OF CONCRETE ELBOWS



12" THROUGH 24"
PIPE DIAMETERS



OVER 24" PIPE DIAMETER

BAR LOCATION DETAILS

DATA FOR PRECAST ELBOWS			
SIZE OF PIPE "D"	MINIMUM BAND THICKNESS	Δ MAXIMUM	
		L-6'	L-7½'
12"	1"	90°	90°
15"	1"	90°	90°
18"	1"	90°	90°
21"	1"	90°	90°
24"	1⅛"	90°	90°
27"	1⅛"	90°	90°
30"	1¼"	90°	90°
36"	1⅜"	81°	90°
42"	1½"	73°	90°
48"	1¾"	66°	88°
54"	2"	60°	81°
60"	2"	55°	75°

SCHEDULE OF BARS FOR COLLAR					
SIZE OF PIPE "D"	BAR SIZE	NUMBER OF BARS			
		TRANS-VERT	TOP	ONE SIDE	BOTTOM
12"	NO. 4	12	4	2	4
15"	NO. 4	12	4	2	4
18"	NO. 4	12	4	2	4
21"	NO. 4	12	4	2	4
24"	NO. 4	12	4	2	4
27"	NO. 4	12	4	2	5
30"	NO. 4	12	4	2	5
36"	NO. 4	12	4	2	5
42"	NO. 4	12	5	3	6
48"	NO. 4	12	5	3	6
54"	NO. 4	12	5	3	6
60"	NO. 4	12	5	3	6

DATA FOR COLLARS			
SIZE OF PIPE "D"	Δ	CONCRETE (CU. YDS.)	REINF. STEEL (LBS.)
12"	0°	0.30	32
	15°	0.33	33
	30°	0.36	36
	45°	0.39	37
15"	0°	0.36	35
	15°	0.40	36
	30°	0.43	38
	45°	0.47	40
18"	0°	0.42	38
	15°	0.49	41
	30°	0.56	44
	45°	0.64	46
21"	0°	0.47	40
	15°	0.55	42
	30°	0.64	46
	45°	0.74	48
24"	0°	0.53	43
	15°	0.63	45
	30°	0.74	49
	45°	0.86	51
27"	0°	0.57	45
	15°	0.70	48
	30°	0.84	52
	45°	0.99	55
30"	0°	0.63	49
	15°	0.79	53
	30°	0.96	57
	45°	1.14	61
36"	0°	0.77	53
	15°	1.01	58
	30°	1.26	63
	45°	1.53	68
42"	0°	0.96	65
	15°	1.32	72
	30°	1.69	80
	45°	2.09	91
48"	0°	1.16	68
	15°	1.66	77
	30°	2.19	86
	45°	2.75	95
54"	0°	1.34	75
	15°	2.01	84
	30°	2.70	95
	45°	3.44	106
60"	0°	1.54	77
	15°	2.39	89
	30°	3.28	100
	45°	4.23	113

NOTES:

THE DIMENSIONS FOR CONCRETE PIPE SHOWN ON THIS PLAN ARE FOR CLASS III REINFORCED CONCRETE PIPE, AASHTO DESIGNATION M170, WALL "B".

ALL QUANTITIES ARE BASED ON DIMENSIONS SHOWN ON THIS PLAN. NO ADJUSTMENTS WILL BE MADE IN THESE QUANTITIES IF OTHER STRENGTH STANDARD PIPE IS FURNISHED IN ACCORDANCE WITH THE SPECIFICATIONS OR IF COLLARS ARE USED ON PIPE OTHER THAN CONCRETE.

WHEN A CONCRETE COLLAR, CONNECTING EXISTING AND NEW CONCRETE PIPE, IS CONSTRUCTED WITH A BEND, IT SHALL BE CONSIDERED AS A COLLAR NOT AN ELBOW.

ALL REINFORCING STEEL USED SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM DESIGNATIONS A615/A615M, GRADE 60. ALL BAR DESIGNATIONS ARE IN CUSTOMARY U.S. UNITS.

ALL CONCRETE USED SHALL BE CLASS 47B-3000.

FOR A SINGLE LINE OF REINFORCING WIRE MESH, TIE REINFORCING BARS ON THE OUTSIDE OF THE CAGE.

FOR A DOUBLE LINE OF REINFORCING WIRE MESH, TIE REINFORCING WIRE MESH ON THE INSIDE OF THE OUTSIDE CAGE.

REINFORCING BARS SHALL BE LAPPED WHERE THE BEND IS MADE.

REINFORCING WIRE MESH SHALL BE LAPPED AND TIED WHERE THE BEND IS MADE.

WELDED WIRE FABRIC OR EQUAL SHALL BE LAPPED 12" AT SPLICES.

THE ORIENTATION OF THE PIPE SHALL BE MARKED WHEN CASTING TO ASSURE ADEQUATE REINFORCING BAR EMBEDMENT AND PROPER ALIGNMENT WHEN CUTTING AND ROTATING.

ALL PIPE DIMENSIONS SHOWN ARE NOMINAL.

REV. NO.	DATE	DESCRIPTION OF REVISION
R5	JAN 18	NDOR BORDER TO NDOT BORDER
R4	JAN 07	REMOVED REFERENCE TO CONC. AX-3000
R3	AUG 99	COMPUTER FILE/CHANGES

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 425-R5

COLLARS AND ELBOWS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

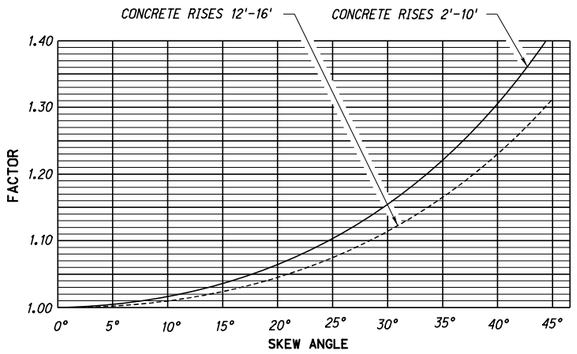
PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

ORIGINAL:
FEBRUARY 22, 1974
DATE

1
1

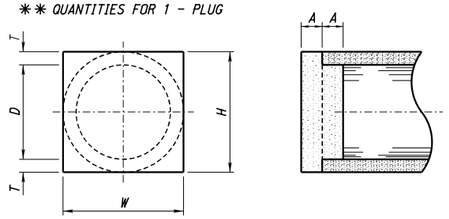
ROADWAY DESIGN DIVISION



BOX CULVERT FACTOR CHART
(CONCRETE)

DIA. (IN.)	A (IN.)	T (IN.)	H (FT/IN)	W (IN.)	CONCRETE ✱✱(CU. YDS.)
12	4	2	1'-4"		0.03
15	4	2¼	1'-7½"		0.05
18	4	2½	1'-11"		0.07
24	4	2¾	2'-5½"		0.11
30	4	3	3'-0"		0.17
36	6	3½	3'-7"	SAME AS H	0.37
42	6	4¼	4'-2½"		0.51
48	6	5	4'-10"		0.66
54	6	5½	5'-5"		0.84
60	8	6	6'-0"		1.37
66	8	6½	6'-7"		1.66
72	8	7	7'-2"		1.97
78	8	7½	7'-9"		2.30
84	8	8	8'-4"		2.66

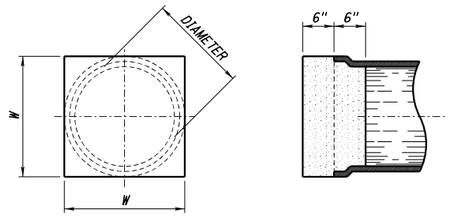
✱✱ QUANTITIES FOR 1 - PLUG



CONCRETE PLUG
(FOR CONCRETE PIPE)

DIA. (IN.)	W (IN.)	CONCRETE ✱✱(CU. YDS.)
8	11	0.02
10	13	0.03
12	16	0.05
15	19	0.07
18	23	0.11
21	26	0.14
24	30	0.19

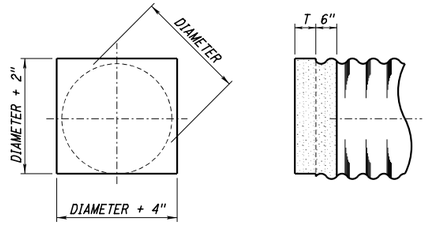
✱✱ QUANTITIES FOR 1 - PLUG



CONCRETE PLUG
(FOR CLAY TILE PIPE)

DIA. (IN.)	T (IN.)	CONCRETE ✱✱(CU. YDS.)
18	6	0.09
24	6	0.15
30	6	0.23
36	6	0.33
42	6	0.44
48	6	0.57
54	8	0.85
60	8	1.04
72	8	1.49

✱✱ QUANTITIES FOR 1 - PLUG



CONCRETE PLUG
(FOR CORRUGATED METAL PIPE)

SPAN (FT.)	RISE (FT.)	X (IN.)	Y (FT/IN)	CONCRETE ✱✱(CU. YDS.)
2	2	6	1'-6"	0.20
3	2	6	1'-6"	0.30
4	2	6	1'-6"	0.41
3	3	6	1'-6"	0.45
4	3	6	1'-6"	0.60
5	3	6	1'-6"	0.75
6	3	6	1'-6"	0.90
8	3	6	1'-6"	1.19
10	3	6	1'-6"	1.50
12	3	6	1'-6"	1.81
4	4	6	1'-6"	0.78
5	4	6	1'-6"	0.98
6	4	6	1'-6"	1.18
8	4	6	1'-6"	1.57
10	4	6	1'-6"	1.97
12	4	6	1'-6"	2.37
4	5	8	2'-0"	1.29
5	5	8	2'-0"	1.62
6	5	8	2'-0"	1.94
8	5	8	2'-0"	2.58
10	5	8	2'-0"	3.23
12	5	8	2'-0"	3.89
4	6	8	2'-0"	1.53
5	6	8	2'-0"	1.92
6	6	8	2'-0"	2.31
8	6	8	2'-0"	3.07
10	6	8	2'-0"	3.85
12	6	8	2'-0"	4.63
5	7	10	2'-6"	2.79
6	7	10	2'-6"	3.35
7	7	10	2'-6"	3.90
8	8	10	2'-6"	5.07
10	8	10	2'-6"	6.35
12	8	10	2'-6"	7.64
10	10	10	3'-0"	8.79
12	10	10	3'-0"	10.54
12	12	10	3'-0"	12.61

✱✱ QUANTITIES FOR 1 - PLUG

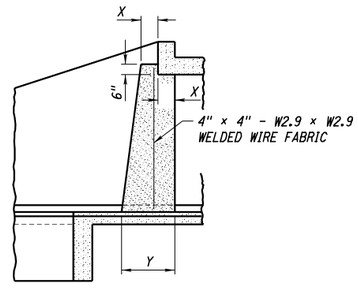
TYPICAL COMPUTATIONS FOR QUANTITY IN ONE SKEWED CONCRETE BOX PLUG

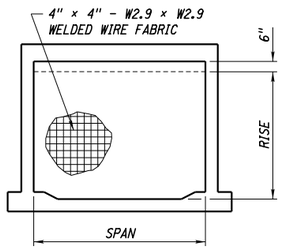
EXAMPLE:

10' x 5' CONCRETE BOX CULVERT, SKEWED 35° FROM TABLE, QUANTITY FOR ONE PLUG:

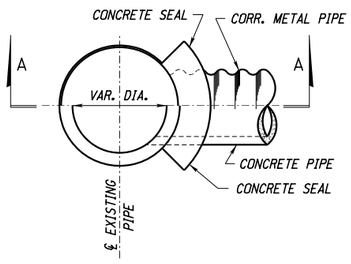
10' x 5' BOX = 3.23 CU. YDS.
FACTOR FOR 35° FROM CHART = 1.221

ADJUSTED QUANTITY FOR ONE PLUG
3.23 x 1.221 = 3.94 CU.YDS.

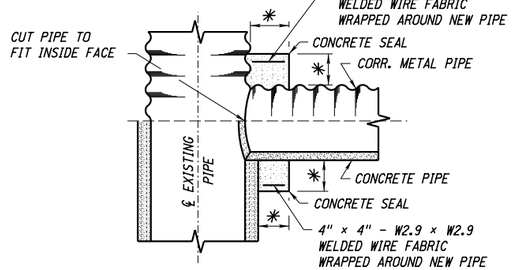




CONCRETE PLUG FOR CONCRETE BOX CULVERT



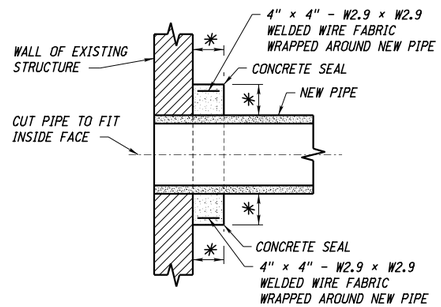
ELEVATION



SECTION A-A

FIELD PIPE TAP DETAILS

NOTES:
DIMENSIONS MARKED THUS, ✱, ARE 6" ON PIPES UP TO 24" DIA. INCLUSIVE AND 8" ON PIPES 30" DIA. AND OVER.



TAP FOR EXISTING STRUCTURE

NOTES:

ALL CONCRETE SHALL BE CLASS 47B-3000.

BEFORE PLACING THE CONCRETE, ALL LOOSE DIRT SHALL BE REMOVED FROM PARTS OF STRUCTURE COMING IN CONTACT WITH NEW CONCRETE.

EXCAVATION FOR CULVERT PLUGS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEMS FOR WHICH PAYMENT IS MADE.

REV. NO.	DATE	DESCRIPTION OF REVISION
R4	JAN 18	NDOR BORDER TO NDOT BORDER
R3	JAN 07	REMOVED REFERENCE TO CONC. AX-3000
R2	AUG 99	CHART CHANGES/WELDED WIRE FABRIC

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 428-R4

CONCRETE PLUGS AND FIELD TAP DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

ORIGINAL:
FEBRUARY 22,1974
DATE

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File: 428000e04.dgn
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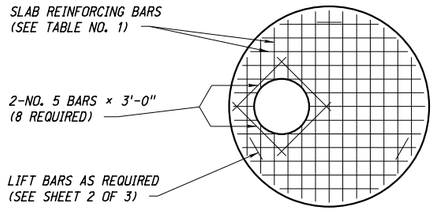
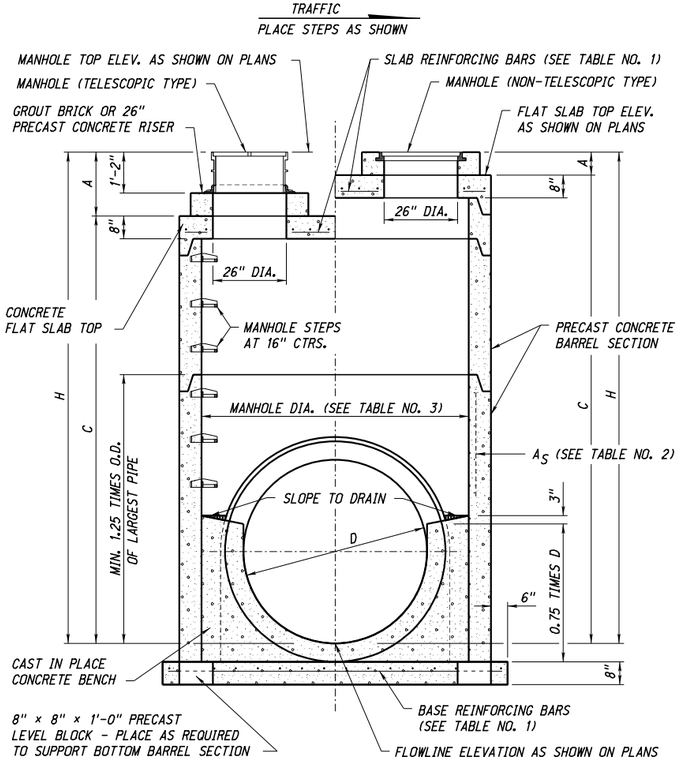


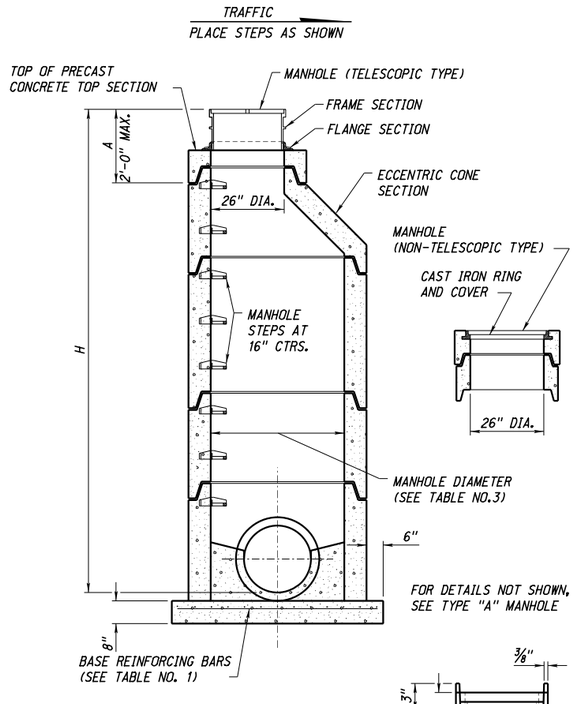
FLAT SLAB BASE

TABLE NO. 1	
BASE AND TOP SLAB FOR ROUND MANHOLE	
MANHOLE DIAMETER	SLAB REINFORCING BAR SIZE AND SPACING
48" - 60"	NO. 4 AT 6" CTRS.
66" & 72"	NO. 5 AT 7½" CTRS.
88" & 96"	NO. 5 AT 6½" CTRS.
120"	NO. 5 AT 5½" CTRS.

TABLE NO. 2	
CIRCUMFERENTIAL REINFORCEMENT PER FOOT OF BARREL	
DIAMETER BARREL SECTION	AREA OF STEEL A_S (SQ. IN./FT.)
84"	0.37
96"	0.47
120"	0.70



TYPE "A"



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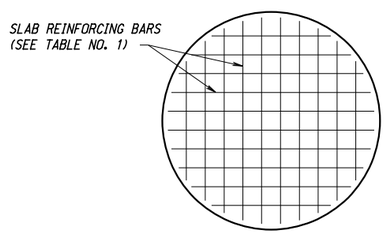
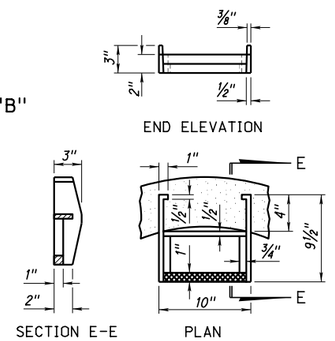
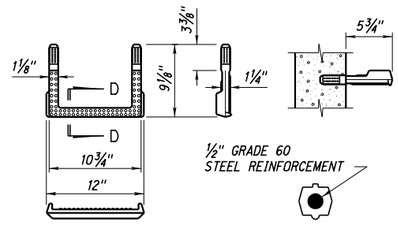


TYPE "A" AND "B" BASE

TABLE NO. 3	
MANHOLE SIZE BASED ON LARGEST PIPE INTO MANHOLE	
LARGEST PIPE DIAMETER	MINIMUM MANHOLE DIAMETER
24" OR LESS	48"
30"	54"
36"	60"
42"	66"
48"	72"
54"	84"
66"	96"
84"	120"



STEPS AT 16" CTRS.
DETAILS OF CAST IRON STEP



STEPS AT 16" CTRS.
DETAILS OF POLYPROPYLENE ENCAPSULATED STEEL ROD STEP
(ALTERNATE DESIGN)

NOTES

DIMENSION "A" SHALL BE THE DIFFERENCE BETWEEN THE MANHOLE TOP ELEVATION AND THE FLAT TOP ELEVATION FOR TYPE "A" MANHOLE. DIMENSION "A" SHALL BE THE DIFFERENCE BETWEEN THE TOP MANHOLE ELEVATION AND THE TOP OF THE ECCENTRIC TRANSITION SECTION FOR TYPE "B" MANHOLE. THE MIN. DIMENSION "A" SHALL BE 9" UNDER PAVEMENT AND 1'-4" OUTSIDE THE PAVEMENT. DIMENSION "A" SHALL NOT EXCEED 2'-0". WHEN RECONSTRUCTING OR ADJUSTING TO GRADE AN EXISTING MANHOLE, TYPE "A" OR "B", DIMENSION "A" MAY BE INCREASED TO 5'-0" MAX., IF THE RECONSTRUCTION WOULD REQUIRE DIMENSION "A" TO BE IN EXCESS OF 5'-0", THEN THE CONE SECTION OF THE FLAT SLAB TOP MUST BE RAISED AND THE 2'-0" MAX. DIMENSION "A" WILL AGAIN APPLY.

DIMENSION "C" SHALL BE THE DIFFERENCE BETWEEN THE FLOWLINE ELEVATION SHOWN ON THE PLANS AND THE FLAT SLAB TOP ELEVATION WHEN SHOWN ON THE PLANS. ONE OR MORE PRECAST CONCRETE BARREL SECTIONS MAY BE PROVIDED TO OBTAIN THE REQUIRED HEIGHT. THE CONTRACTOR MAY PROVIDE ANY COMBINATION OF STANDARD LENGTH PRECAST CONCRETE SECTIONS THAT WILL EQUAL OR EXCEED DIMENSION "C". IF ADDITIONAL LENGTH IS PROVIDED, THE LEVEL BLOCKS SHALL BE SET AT THE PROPER ELEVATION BELOW THE FLOWLINE SO THAT THE FLAT SLAB TOP ELEVATION SHOWN ON THE PLANS WILL BE OBTAINED. ALL ADDITIONAL MATERIAL OR WORK REQUIRED SHALL BE AT THE CONTRACTOR'S EXPENSE.

DIMENSION "H" SHALL BE THE DIFFERENCE BETWEEN THE FLOWLINE ELEVATION SHOWN ON THE PLANS AND THE MANHOLE TOP ELEVATION SHOWN ON THE PLANS.

THE FURNISHING AND PLACING OF MANHOLE STEPS AND LIFT BARS SHALL BE SUBSIDIARY TO THE MANHOLE.

MATCH TOP INSIDE SURFACES OF THE PIPES COMING INTO THE MANHOLE WHENEVER POSSIBLE. THE MANHOLE BENCH SHALL COME UP TO ¾ THE DIA. OF THE LARGEST PIPE AND SLOPE UP 3" TO THE SIDE. CONTOUR THE BENCH TO DRAIN.

THE MIN. CLEARANCE OF REINFORCING STEEL SHALL BE 2".

BARREL DIA. SHOWN ON THE PLAN ARE THE MIN. DIA. THAT MAY BE USED AT EACH LOCATION. THESE DIA. ARE BASED ON CENTER BARREL SECTIONS WHICH ARE USUALLY AVAILABLE FROM THE FABRICATOR. THE CONTRACTOR MAY PROVIDE BARREL SECTIONS OF LARGER DIA. THAN SHOWN ON THE PLAN. NO ADDITIONAL PAYMENT SHALL BE MADE FOR BARREL SECTIONS OF A LARGER DIA. THAN SHOWN ON THE PLANS.

EACH SECTION SHALL BE SET IN A FRESH BED OF MORTAR AND POINTED UP INSIDE AND OUT, OR A COLD FORMED JOINT MATERIAL CONFORMING TO FEDERAL SPECIFICATIONS SS-S-00210.

THE CONTRACTOR MAY, AT HIS OPTION, CAST-IN-PLACE THE FIRST SECTION OF THE MANHOLE WHEN THE STANDARD KNOCKOUTS ARE NOT AVAILABLE. THE CONCRETE WALL THICKNESS AND REINFORCING STEEL AREA SHALL BE AS SHOWN FOR THE RESPECTIVE "H" DIMENSION IN CHART NO. 1 FOR MANHOLE TYPE "C". THE MIN. LS AND SS DIMENSION SHALL BE OF SUFFICIENT DIMENSION TO ACCOMMODATE PIPES ENTERING THE RESPECTIVE WALL. THE TOP OF THE CAST-IN-PLACE SECTION SHALL BE FORMED TO THE SAME DIA. AS THE RESPECTIVE PRECAST SECTION.

UNLESS SPECIFIED IN THE PLANS, THE CONTRACTOR MAY DETERMINE THE TYPE MANHOLE TO BE CONSTRUCTED.

THE CONTRACTOR MAY, AT HIS OPTION, USE TRANSITION SECTIONS TO REDUCE THE BARREL SIZE OF THE MANHOLE. DIMENSION "A" CANNOT EXCEED 2'-0" ON THE 26" DIA. RISER SECTION.

WHEN USING BRICK FOR THE FINAL ADJUSTMENT OF THE FLANGE SECTION, A DOUBLE ROW OF BRICK PLASTERED ½" THICK INSIDE AND OUT SHALL BE USED. THE BRICK SHALL CONFORM TO REQUIREMENTS OF ASTM C32.

PRECAST MANHOLE SECTIONS MAY BE SET WITH EITHER THE TONGUE END UP OR THE GROOVE END UP.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	NOV 98	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 435-R2

MANHOLE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

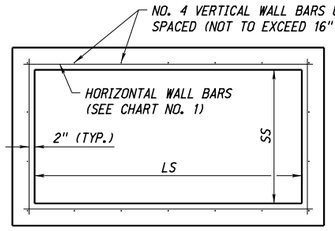
PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

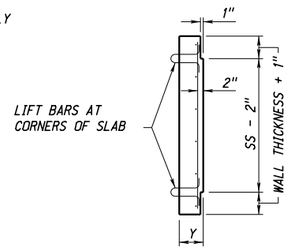
ORIGINAL:
APRIL 4, 1988
DATE

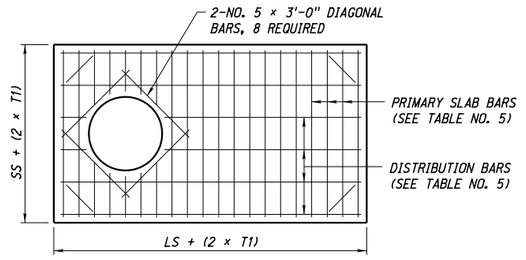
File: 43500e02.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION



SECTION A-A





TOP SLAB

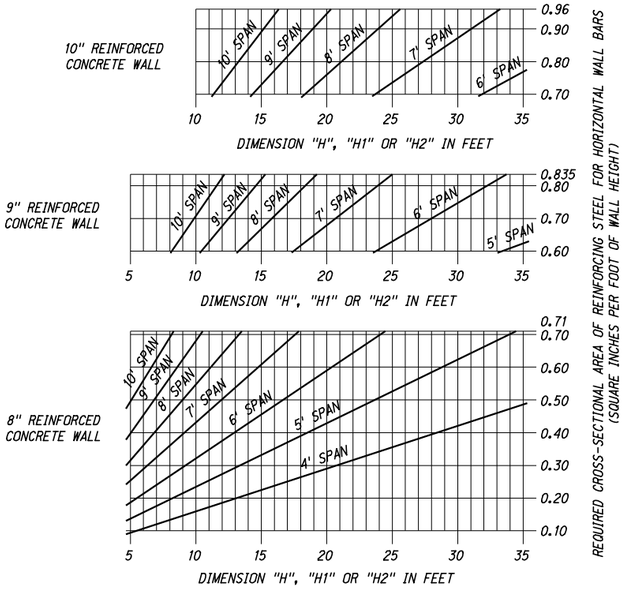


CHART NO. 1

NOTES

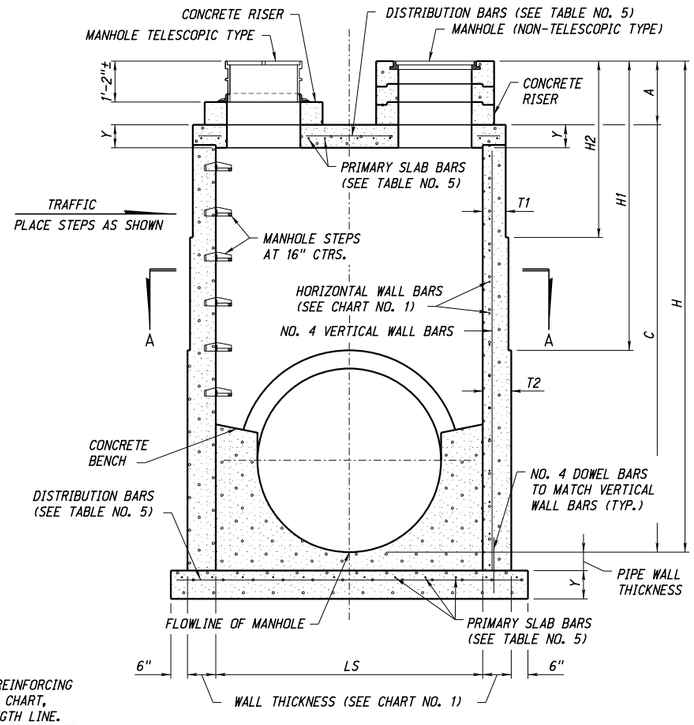
CHART NO. 1 SHALL BE USED TO DETERMINE THE WALL THICKNESS AND THE AMOUNT OF HORIZONTAL REINFORCING STEEL REQUIRED FOR A PARTICULAR VALUE OF "H" AND A LONG SPAN DIMENSION "LS". TO USE THE CHART, LOCATE THE POINT OF INTERSECTION OF A VERTICAL "H" DIMENSION LINE WITH A SLOPING SPAN LENGTH LINE. FROM THIS POINT OF INTERSECTION, DRAW A HORIZONTAL LINE TO THE RIGHT TO FIND THE REQUIRED AMOUNT OF HORIZONTAL REINFORCING STEEL PER FOOT OF WALL HEIGHT. THE REQUIRED WALL THICKNESS WILL BE FOUND AT THE LEFT OF THE PARTICULAR CHART SECTION.

EXAMPLE 1: GIVEN A MANHOLE WITH H = 13 FEET AND LONG SPAN LS = 6 FEET. FROM THE CHART FIND THAT A 8" THICK WALL WITH 0.40 SQ. IN./FT. OF REINFORCING STEEL IS REQUIRED. THE HORIZONTAL BARS MAY BE NO. 4 AT 6" SPACING OR NO. 5 AT 9" SPACING. (SEE TABLE NO. 4)

EXAMPLE 2: GIVEN A MANHOLE WITH H = 19 FEET AND LONG SPAN LS = 7.5 FEET. NOTE THAT THE CENTER SECTION OF THE CHART MUST BE USED WHICH INDICATES THAT A 9" THICK WALL IS REQUIRED. ON THE VERTICAL LINE REPRESENTING H = 19 FEET, FIND A POINT MIDWAY BETWEEN THE 7-FOOT AND 8-FOOT SPAN LENGTH LINES. THE REQUIRED AMOUNT OF HORIZONTAL REINFORCING STEEL WOULD THEN BE READ AS 0.73 SQ. IN./FT., WHICH COULD BE PROVIDED BY USING NO. 5 BARS AT 5" SPACING OR NO. 6 BARS AT 7" SPACING. (SEE TABLE NO. 4)

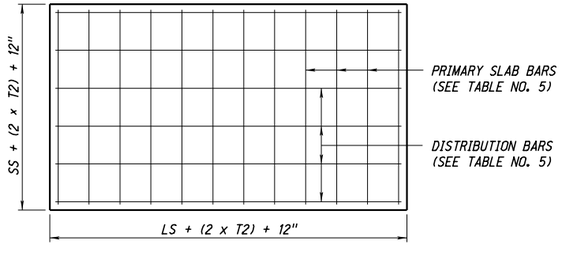
THE WALL THICKNESS AND THE AMOUNT OF HORIZONTAL REINFORCING AS DETERMINED FROM THE CHART SHALL BE USED FOR ALL FOUR WALLS IN A PARTICULAR LIFT OR POUR. THE SAME WALL DESIGN MAY BE USED THROUGHOUT THE HEIGHT OF THE MANHOLE, OR A DIFFERENT WALL DESIGN FOR THE NEXT LIFT MAY BE DETERMINED BY REENTERING THE CHART WITH THE VALUES OF "H1" AND "LS" WALL DESIGN FOR ADDITIONAL LIFTS WOULD BE HANDLED IN THE SAME MANNER.

WHEN DESIGNING A MANHOLE FROM CHART NO. 1, THE MINIMUM VALUE OF "H" SHALL BE 5 FEET (FOR DESIGN PURPOSES ONLY). THE MINIMUM HORIZONTAL REINFORCING SHALL BE NO. 4 BARS AT 12" CENTERS AND THE MINIMUM WALL THICKNESS SHALL BE 8".



FOR DEFINITIONS OF DIMENSIONS "A", "C" AND "H", SEE SHEET 1 OF 3.

TYPE "C"



BASE

TABLE NO. 4

CROSS SECTIONAL AREAS IN SQUARE INCHES OF BARS IN WALL SECTIONS ONE FOOT HIGH

SPACING	BAR SIZE		
	NO. 4	NO. 5	NO. 6
5"	0.46	0.74	1.06
5½"	0.44	0.68	0.96
6"	0.40	0.62	0.88
6½"	0.37	0.57	0.81
7"	0.34	0.53	0.75
7½"	0.32	0.50	0.70
8'	0.30	0.47	0.66
8½"	0.28	0.44	0.62
9"	0.27	0.41	0.59
9½"	0.25	0.39	0.56
10"	0.24	0.37	0.53
10½"	0.23	0.35	0.50
11"	0.22	0.34	0.48
11½"	0.21	0.32	0.46
12"	0.20	0.31	0.44

TABLE NO. 5

BASE AND TOP SLAB FOR RECTANGULAR MANHOLE

SHORT SPAN DIMENSION "SS"	SLAB THICKNESS "Y"	PRIMARY SLAB REINFORCING BAR SIZE & SPACING	DISTRIBUTION REINFORCING BAR SIZE & SPACING
2'-6" TO 4'-11"	8½"	NO. 5 AT 5½" CTRS.	NO. 5 AT 11" CTRS.
5'-0" TO 5'-11"	9"	NO. 5 AT 5" CTRS.	NO. 5 AT 10" CTRS.
6'-0" TO 6'-11"	9½"	NO. 5 AT 4½" CTRS.	NO. 5 AT 9" CTRS.
7'-0" TO 7'-11"	10"	NO. 6 AT 5½" CTRS.	NO. 6 AT 11" CTRS.
8'-0" TO 8'-11"	11"	NO. 6 AT 5½" CTRS.	NO. 6 AT 11" CTRS.
9'-0" TO 10'-0"	12"	NO. 6 AT 5" CTRS.	NO. 6 AT 10" CTRS.

NOTES

FOR TYPE "C" MANHOLE, THE MAX. VALUES OF "H" SHALL BE:
MAX. H = 17 FEET WHEN LS = 10 FEET
MAX. H = 21 FEET WHEN LS = 9 FEET
MAX. H = 26 FEET WHEN LS = 8 FEET
MAX. H = 34 FEET WHEN LS = 7 FEET
MAX. H = 35 FEET WHEN LS = 6 FEET

THE LONGER CLEAR SPAN "LS" OF THE WALLS, AS SEEN IN A HORIZONTAL SECTION, SHALL BE USED TO FIND A WALL DESIGN FROM CHART NO. 1.

THE SHORTER CLEAR SPAN "SS" SHALL BE USED TO FIND A BASE AND TOP SLAB DESIGN FROM THE TABLE NO. 5.

THE MIN. COVERING, MEASURED FROM THE FACE OF THE CONCRETE TO THE SURFACE OF A REINFORCING BAR, SHALL BE 2" EXCEPT AS SHOWN.

THE FURNISHING AND PLACING OF MANHOLE STEPS SHALL BE SUBSIDIARY TO THE MANHOLE.

THE TOP SLAB MAY BE CAST-IN-PLACE OR PRECAST, BUT IF IT IS PRECAST, IT SHALL BE SET IN A FRESH BED OF MORTAR AND POINTED UP INSIDE AND OUT.

FOR RISER AND BENCH DETAILS NOT SHOWN, SEE SHEET 1 OF 3.

THE MIN. "LS" AND "SS" DIMENSION SHALL BE 2'-6" FOR MANHOLES WITH "H" LESS THAN 6 FEET AND SHALL BE 4'-0" FOR MANHOLES WITH "H" GREATER THAN 6 FEET. WHEN "LS" AND "SS" DIMENSIONS ARE NOT SPECIFIED ON THE PLANS, THE DIMENSIONS SHALL BE OF SUFFICIENT DIMENSION TO ACCOMMODATE PIPES ENTERING THE RESPECTIVE WALL. A MIN. OF 6" SHALL BE MAINTAINED BETWEEN THE INSIDE CORNER OF THE MANHOLE AND THE OUTER SHELL OF AN ENTERING PIPE, AND BETWEEN OUTER SHELLS OF PIPE ENTERING THE SAME WALL.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	NOV 98	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 435-R2

MANHOLE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

DATE

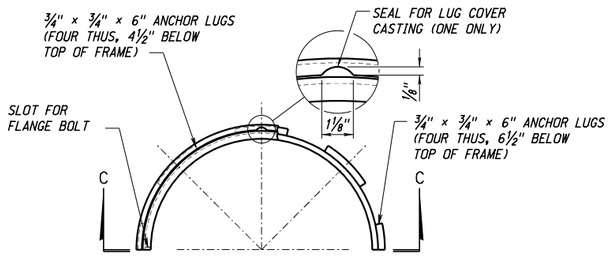
PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

ORIGINAL:
APRIL 4, 1988
DATE

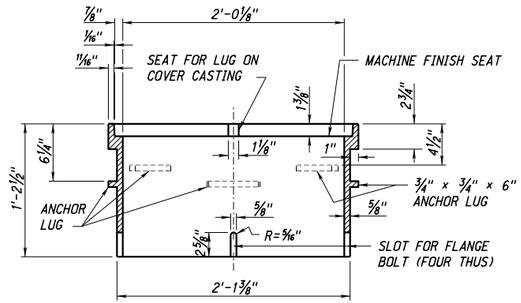
2
3

File: 43500e02.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 43500e02.dgn



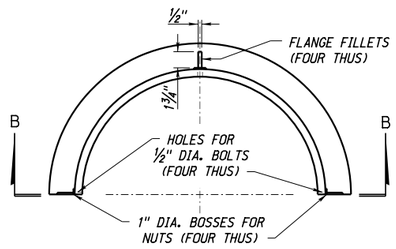
HALF TOP VIEW



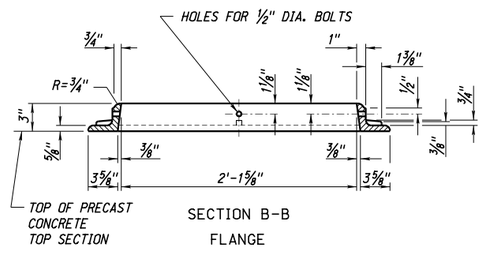
SECTION C-C

FRAME

DURING PAVEMENT CONSTRUCTION, FRAME CASTING TO BE TEMPORARILY HELD IN POSITION BY BOLTING TO FLANGE CASTING. BOLTS TO BE REMOVED AFTER CONCRETE HAS HARDENED.



HALF TOP VIEW

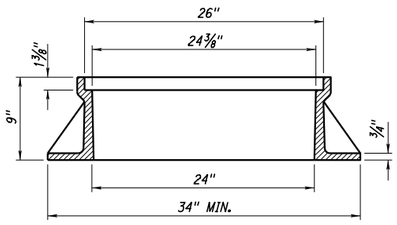


SECTION B-B

FLANGE

TYPE I
DETAILS OF FRAME AND FLANGE

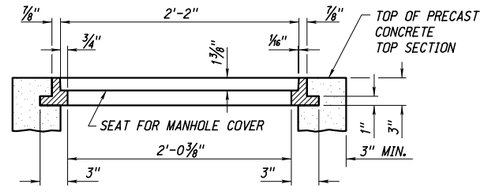
TELESCOPIC TYPE (CAST IRON)



SECTION

TYPE II
DETAILS OF FRAME

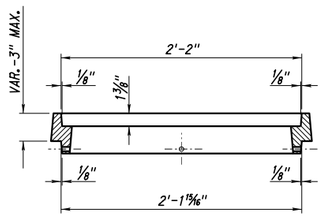
NON-TELESCOPIC TYPE (CAST IRON)



SECTION

TYPE III
DETAILS OF RING

NON-TELESCOPIC TYPE (CAST IRON)



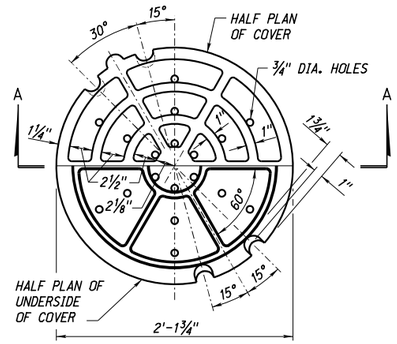
SECTION

ADJUSTING RINGS MAY BE USED IN ORDER TO OBTAIN THE REQUIRED ELEVATION OF EITHER NEW OR EXISTING MANHOLES. THE RINGS ARE SUBSIDIARY TO BUILD MANHOLE, ADJUST MANHOLE TO GRADE OR RECONSTRUCT MANHOLE.

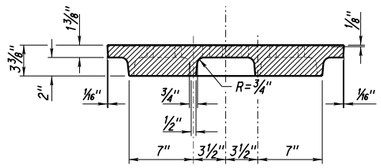
THE ADJUSTING RINGS SHALL BE HELD RIGIDLY TO THE FRAME AND TO EACH OTHER BY USE OF FOUR SET SCREWS IN THE BEARING LEG OF THE RING. ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES.

THE CONTRACTOR SHALL INSPECT THE CONDITION AND VERIFY THE DIMENSIONS OF EXISTING MANHOLE PRIOR TO USING ADJUSTING RINGS.

DETAILS OF ADJUSTING RING



HALF PLAN



SECTION A-A

DETAILS OF COVER

(CAST IRON)

WEIGHTS

(CAST IRON)

TYPE A COVER	225 POUNDS
TYPE B COVER	230 POUNDS
FRAME (TYPE I)	260 POUNDS
FLANGE (TYPE I)	95 POUNDS
FRAME (TYPE II)	275 POUNDS
RING FOR COVER (TYPE III)	120 POUNDS

NOTES

TYPE I AND II ASSEMBLIES NORMALLY USED IN PAVEMENT.

TYPE III ASSEMBLY IS NORMALLY USED OUTSIDE OF PAVEMENT.

FOR TYPE A COVER (STORM SEWER), USE DETAILS AS SHOWN.

FOR TYPE B COVER (SANITARY SEWER), OMIT ¾" DIA. HOLES IN COVER.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	NOV 98	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 435-R2

MANHOLE

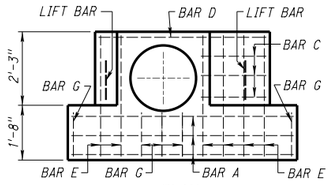
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

ORIGINAL: APRIL 4, 1988
DATE

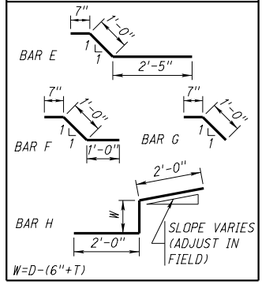
3/3

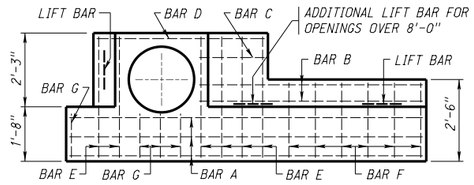


PLAN

INLET COVER

REINFORCING BAR BENDING DIAGRAM FOR CURB INLET



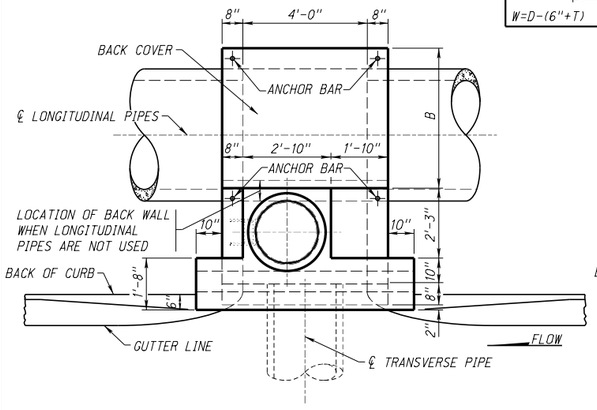


PLAN

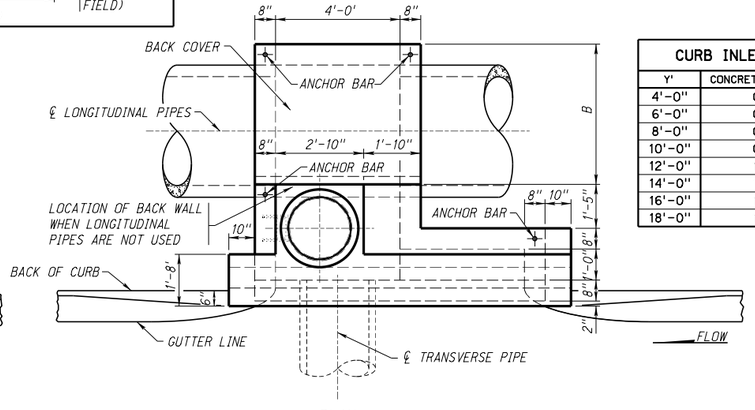
INLET COVER

REINFORCING BAR SCHEDULE FOR CURB INLETS (INCLUDES COVER)

BAR	SIZE	SHAPE	Y = 4'-0"		Y = 6'-0"		Y = 8'-0"		Y = 10'-0"		Y = 12'-0"		Y = 14'-0"		Y = 16'-0"		Y = 18'-0"	
			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
A	8	STR.	3	6'-9"	3	8'-9"	3	10'-9"	3	12'-9"	3	14'-9"	3	16'-9"	3	18'-9"	3	20'-9"
B	6	STR.	--	--	2	4'-10	2	6'-10"	2	8'-10"	2	10'-10"	2	12'-10"	2	14'-10"	2	16'-10"
C	6	STR.	3	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"
D	6	STR.	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"
E	5	BENT	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"
F	5	BENT	--	2'-7"	3	2'-7"	6	2'-7"	8	2'-7"	11	2'-7'	13	2'-7"	16	2'-7"	18	2'-7"
G	5	BENT	5	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"
H	4	BENT	--	--	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"
J	4	STR.	--	--	--	--	--	--	--	--	--	--	2	2'-2"	2	2'-2"	2	2'-2"
K	4	STR.	--	--	--	--	--	--	--	--	--	--	4	1'-9"	4	1'-9"	4	1'-9"
LIFT	4	BENT	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"
M	4	STR.	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1'	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"
N	4	STR.	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3



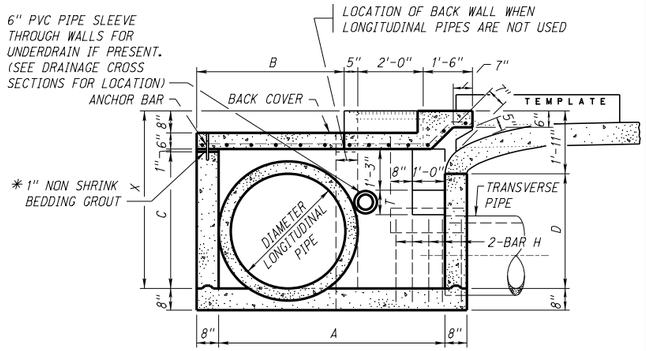
PLAN



PLAN

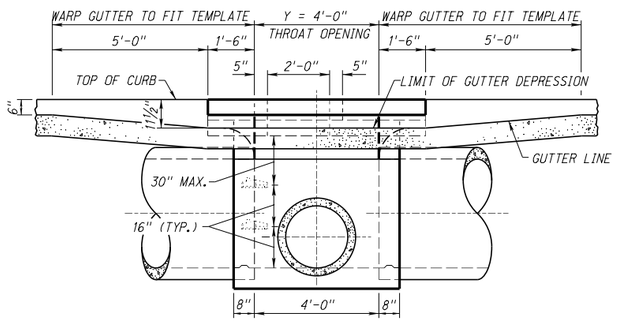
CURB INLET COVER QUANTITIES

Y'	CONCRETE (CU.YDS.)	REINFORCING (LB.)
4'-0"	0.62	46
6'-0"	0.72	58
8'-0"	0.82	71
10'-0"	0.92	83
12'-0"	1.02	95
14'-0"	1.12	112
16'-0"	1.22	122
18'-0"	1.32	136

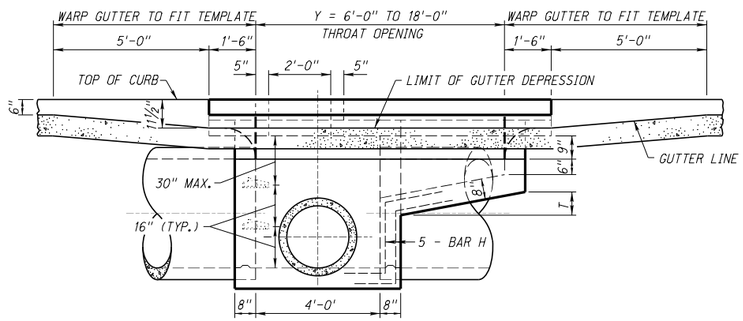


TYPICAL SECTION OF INLETS

* GROUT SHALL BE FINISHED SUCH THAT THE TOP ELEVATION OF THE INLET LID, WHEN INSTALLED, MATCHES THE FINISHED SHOULDER SLOPE OF THE ROADWAY CROSS-SECTIONS.



FRONT ELEVATION



FRONT ELEVATION

CURB INLETS

DATA FOR CURB INLETS (INCLUDES INLET COVER)

DIA. OF LONGIT. PIPE	DIMENSIONS					QUANTITIES															NO. OF M BARS	ADDITIONAL QUANTITIES PER ONE FOOT INCREASE OF DIMENSION "X"	
						CONCRETE, CU. YDS. ③							REINFORCING STEEL, LBS.									CONCRETE CU. YDS.	REINF. STEEL LBS. ④
	X ① (MIN.)	A ②	B	C	D	Y=4'	Y=6'	Y=8'	Y=10'	Y=12'	Y=14'	Y=16'	Y=18'	Y=4'	Y=6'	Y=8'	Y=10'	Y=12'	Y=14'	Y=16'	Y=18'			
--	3'-11"	2'-8"	--	2'-8"	2'-0"	2.08	2.43	2.79	3.15	3.51	4.06	4.46	4.85	113	175	202	231	259	289	316	344	NONE	0.383	6.7
12"	2'-11"	4'-0"	1'-7"	1'-8"	1'-0"	2.14	2.51	2.86	3.21	3.56	3.95	4.30	4.65	133	186	216	245	274	310	340	364	3	0.459	6.7
15"	3'-2"	4'-4"	1'-11"	1'-11"	1'-3"	2.37	2.71	3.07	3.43	3.79	4.21	4.57	4.94	136	193	221	250	277	312	342	370	3	0.473	6.7
18"	3'-5"	4'-7"	2'-2"	2'-2"	1'-6"	2.60	2.95	3.30	3.67	4.03	4.44	4.80	5.16	141	200	228	257	284	318	349	376	4	0.490	6.7
21"	3'-8"	4'-11"	2'-6"	2'-5"	1'-9"	2.83	3.19	3.53	3.90	4.26	4.68	5.04	5.40	144	203	231	260	287	322	351	379	4	0.504	6.7
24"	3'-11"	5'-2"	2'-9"	2'-8"	2'-0"	3.06	3.41	3.76	4.12	4.49	5.04	5.43	5.83	148	210	238	267	294	324	352	379	5	0.518	6.7
27"	4'-2"	5'-6"	3'-1"	2'-11"	2'-3"	3.31	3.66	4.01	4.37	4.74	5.29	5.68	6.08	150	213	241	270	297	327	354	382	5	0.532	6.7
30"	4'-5"	5'-9"	3'-4"	3'-2"	2'-6"	3.54	3.89	4.25	4.61	4.97	5.52	5.92	6.32	151	217	244	273	301	331	358	385	5	0.547	6.7
36"	4'-11"	6'-4"	3'-11"	3'-8"	3'-0"	4.06	4.41	4.77	5.13	5.49	6.04	6.44	6.83	158	226	254	283	310	340	368	395	6	0.576	6.7
42"	5'-5"	6'-11"	4'-6"	4'-2"	3'-6"	4.60	4.95	5.31	5.67	6.03	6.58	6.98	7.38	164	236	264	293	320	350	378	405	7	0.605	6.7
48"	5'-11"	7'-6"	5'-1"	4'-8"	4'-0"	5.18	5.53	5.89	6.25	6.61	7.16	7.56	7.95	171	246	274	303	330	360	387	415	8	0.634	6.7
54"	6'-5"	8'-1"	5'-8"	5'-2"	4'-6"	5.78	6.13	6.49	6.85	7.21	7.76	8.16	8.56	174	253	280	309	337	367	394	421	8	0.663	6.7
60"	6'-11"	8'-8"	6'-3"	5'-8"	5'-0"	6.41	6.76	7.12	7.48	7.84	8.39	8.79	9.19	180	262	290	319	346	376	404	431	9	0.691	6.7
66"	7'-5"	9'-3"	6'-10"	6'-2"	5'-6"	7.07	7.42	7.78	8.14	8.50	9.05	9.45	9.85	187	272	300	329	356	386	414	441	10	0.720	6.7

T = 9" EXCEPT FOR THE FOLLOWING:
T = 6" FOR 6'-0" TO 18'-0" OPENINGS WHEN X = 2'-11" THRU 3'-1"
T = 1'-6" FOR 14'-0" TO 18'-0" OPENINGS WHEN X = 3'-11" THRU 7'-5"

① "X" SHALL NOT EXCEED 7'-6".

② "A" SHALL NOT EXCEED 10'-0".

③ NO DEDUCTIONS WILL BE MADE FOR PIPE OPENINGS.

④ NOT APPLICABLE WHERE Y = 4'-0".

DIAMETER OF PIPE AND MINIMUM "X" IN THIS INLET DATA TABLE ARE BASED ON THE LONGITUDINAL PIPE. DEPTH OF THE INLET MAY BE GOVERNED BY THE TRANSVERSE PIPE (MINIMUM "D" = TRANSVERSE PIPE DIAMETER PLUS 9").

NOTES:

THE MINIMUM COVERING, MEASURED FROM THE FACE OF CONCRETE TO THE SURFACE OF ANY REINFORCING BAR, SHALL BE 1½".

THE QUANTITIES OF CONCRETE AND STEEL FOR CURB INLET INCLUDES THAT PORTION OF CONCRETE AND STEEL BELOW AND BACK OF THE CURB SECTION AS SHOWN ON THIS PLAN.

THE CONCRETE COVERS MAY BE CAST IN PLACE OR PRECAST.

THE CAST IRON COVERS, FRAMES SHALL BE GREY IRON CONFORMING TO THE SPECIFICATIONS. CAST IRON STEPS SHALL BE INSTALLED IN CURB INLETS AND JUNCTION BOXES WHEN THE "X" DIMENSION IS 4'-6" OR GREATER. THE FURNISHING AND PLACING OF CAST IRON STEPS SHALL BE SUBSIDIARY TO THE ITEM FOR WHICH DIRECT PAYMENT IS MADE.

THE GUTTER DEPRESSION TEMPLATE SHALL BE USED THROUGHOUT THE THROAT OPENING.

CLASS OF CONCRETE AND MINIMUM COMPRESSIVE STRENGTH AND TYPE OF STEEL FOR REINFORCING BARS SHALL CONFORM TO THE NDOT "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION."

THE INLET COVER SHALL BE IMPRINTED "NO DUMPING" SEE SHEET 2 OF 2.

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JUL 20	ADDED UNDERDRAIN NOTE & TABLE
R11	JAN 18	NDOR BORDER TO NDOT BORDER
R10	DEC 16	CHANGED TABLE INFORMATION

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 443-R12

CURB INLETS AND JUNCTION BOX

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

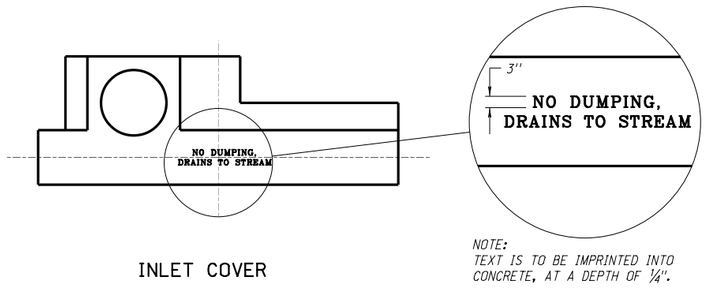
DATE

ORIGINAL: FEBRUARY 22, 1974
DATE

1
2

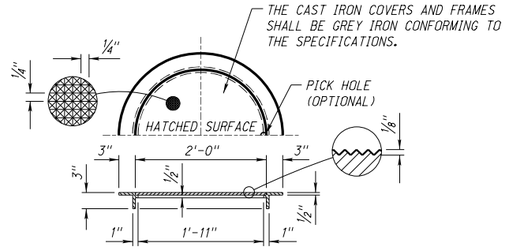
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 443006r2.dgn

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 44300e12.dgn



INLET COVER

NOTE:
TEXT IS TO BE IMPRINTED INTO CONCRETE, AT A DEPTH OF ¼".

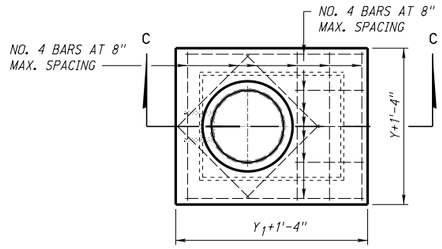


TOTAL WEIGHT = 125 LBS.

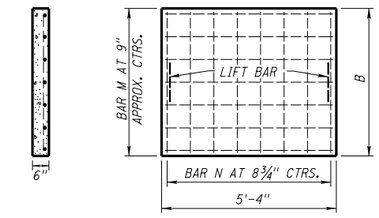
CAST IRON COVER AND FRAME
FOR JUNCTION BOX AND CURB INLET

QUANTITIES FOR JUNCTION BOX			
SIZE Y × Y 1	X = 2'-6"		ADDITIONAL QUANTITIES OF CONCRETE (CU. YDS.) PER ONE FOOT INCREASE OF DIMENSIONS "X" ✱✱
	CONCRETE CU. YDS. ✱	REINFORC. STEEL LBS.	
2'-0" × 2'-0"	0.94	15	0.26
2'-0" × 2'-6"	1.06	18	0.27
2'-0" × 3'-0"	1.18	23	0.31
2'-6" × 2'-6"	1.20	19	0.31
2'-6" × 3'-0"	1.33	22	0.34
3'-0" × 3'-0"	1.47	29	0.36
3'-0" × 3'-6"	1.61	30	0.39
3'-0" × 4'-0"	1.76	34	0.41

✱ NO DEDUCTIONS WILL BE MADE FOR PIPE OPENINGS
✱✱ DIMENSION "X" SHALL NOT EXCEED 5'-6"

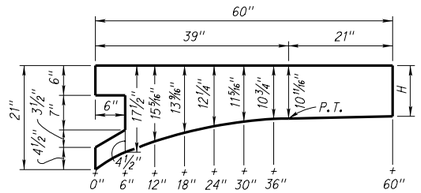


PLAN



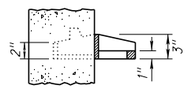
SECTION PLAN

BACK COVER

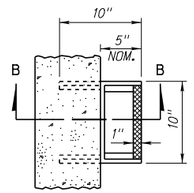


PAVING CROSS SLOPE (FT/FT)	0.01	0.02	0.03	0.04	0.05	0.06
H	10 7⁄16"	10¼"	10⅛"	9⅞"	9⅝"	9⅜"

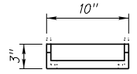
GUTTER DEPRESSION TEMPLATE



SECTION B-B



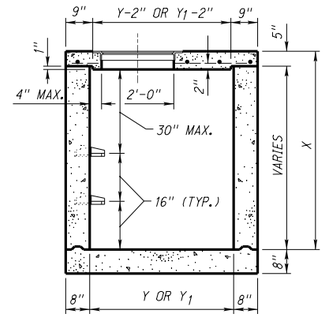
PLAN



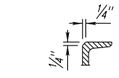
FRONT ELEVATION

STEPS TO BE PLACED AT 16" CENTERS

CAST IRON STEPS

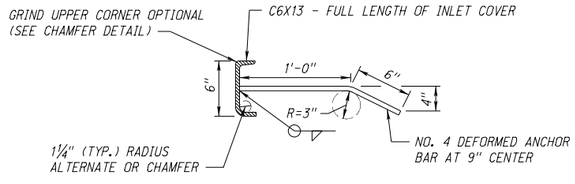


SECTION C-C
JUNCTION BOX
(NOT FOR USE UNDER TRAFFIC)



CHAMFER DETAIL

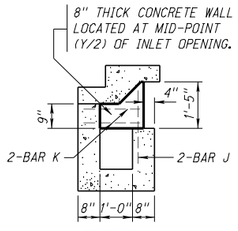
STRUCTURAL STEEL FOR FACE ARMOR	
THROAT OPENING	WEIGHT (LBS.)
4'-0"	100
6'-0"	129
8'-0"	157
10'-0"	186
12'-0"	215
14'-0"	243
16'-0"	272



FACE ARMOR

NOTE:

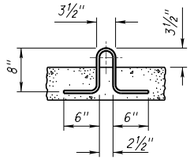
THE COMPLETED FACE ARMOR/ANCHOR BAR ASSEMBLY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.



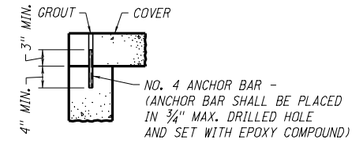
SECTION

FOR 14'-0", 16'-0" & 18'-0" INLET OPENINGS

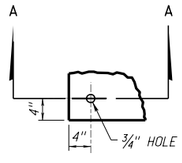
MID-POINT
COVER SUPPORT



LIFT BAR



SECTION A-A



PLAN

ANCHOR BAR

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JUL 20	ADDED UNDERDRAIN NOTE & TABLE
R11	JAN 18	NDOR BORDER TO NDOT BORDER
R10	DEC 16	CHANGED TABLE INFORMATION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 443-R12

CURB INLETS AND JUNCTION BOX

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

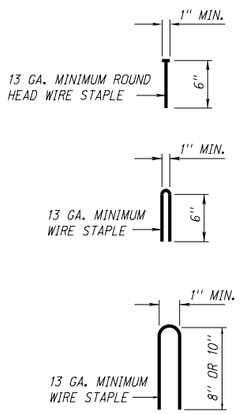
DATE

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

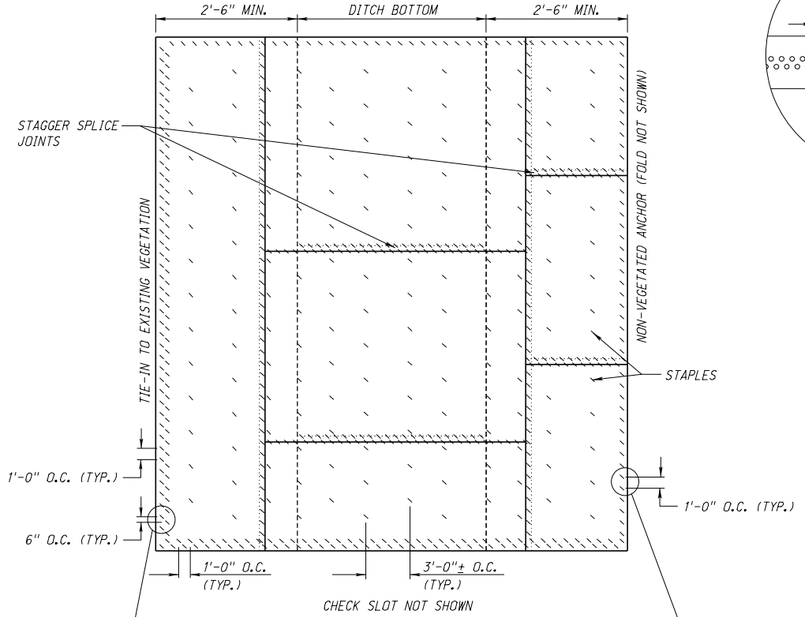
ORIGINAL:
FEBRUARY 22, 1974
DATE

2
2

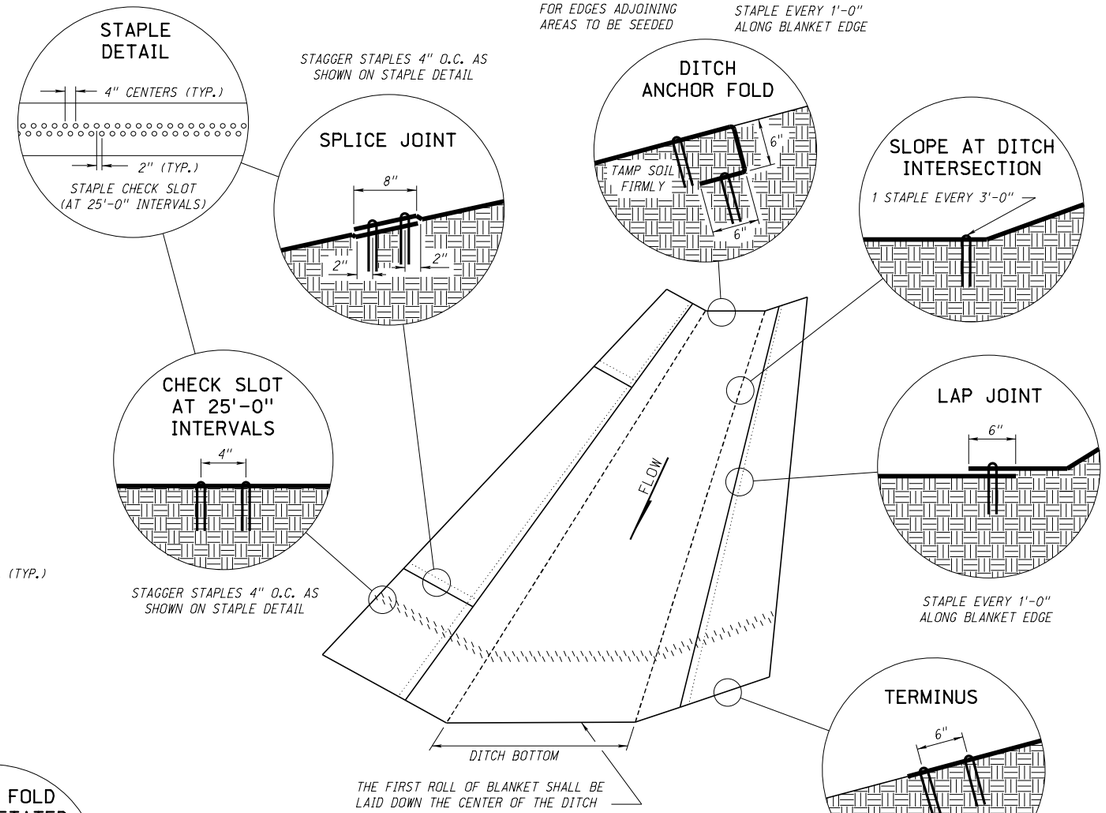
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 50100e07.dgn



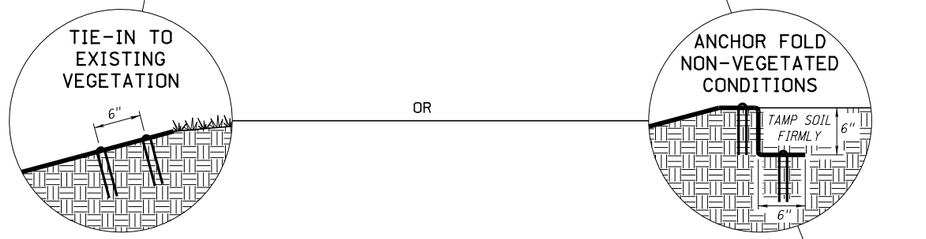
WIRE STAPLE DETAIL

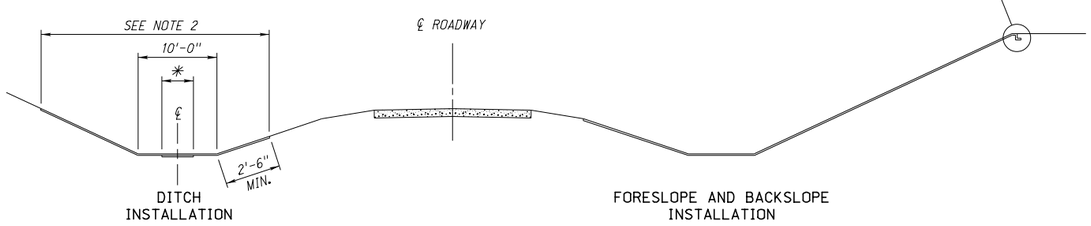


PLAN VIEW STAPLING DIAGRAM



TYPICAL EROSION CONTROL BLANKET INSTALLATION





TYPICAL CROSS-SECTION

* THE FIRST ROLL OF BLANKET SHALL BE LAID DOWN THE CENTER OF THE DITCH

NOTES:

1. THIS PLAN IS APPLICABLE FOR THE FOLLOWING: EROSION CONTROL CLASS 1B, 1C, 1D, 1E, 1F, 2A, 2B & 2C.
2. SOIL RETENTION BLANKET SHALL BE LAID A MINIMUM OF 2'-6" UP THE BACKSLOPE AND FORESLOPE.
3. CHECK SLOTS ARE PLACED PERPENDICULAR TO DITCH CENTER LINE ON 25'-0" INTERVALS.
4. THE MANUFACTURERS' RECOMMENDED STAPLING PATTERNS SHALL GOVERN OVER THE PLANS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 501-R7

EROSION CONTROL

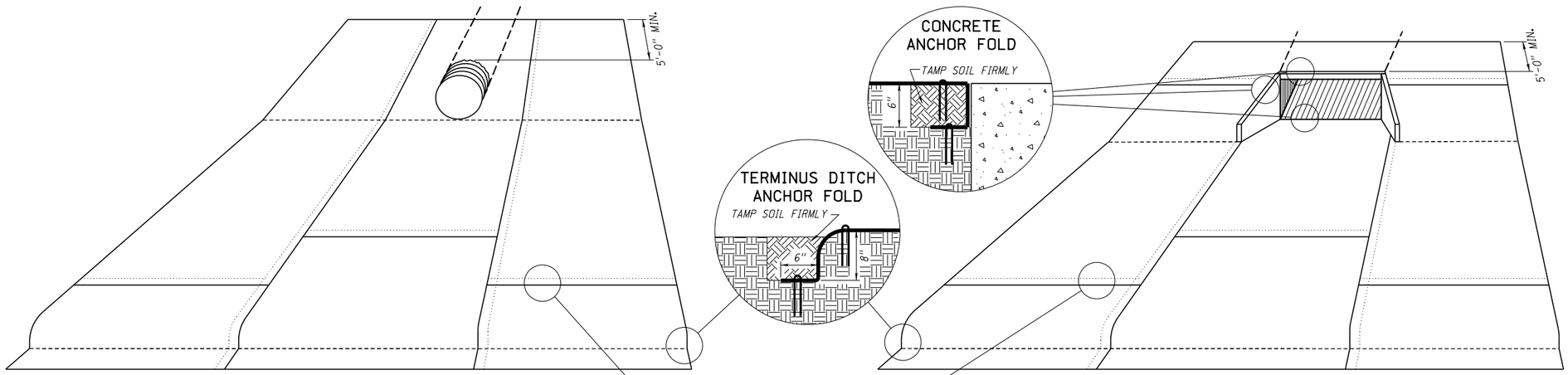
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

DATE

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

ORIGINAL: NOVEMBER 1973
DATE

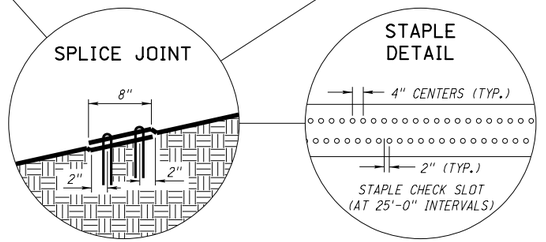
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 50100e07.dgn

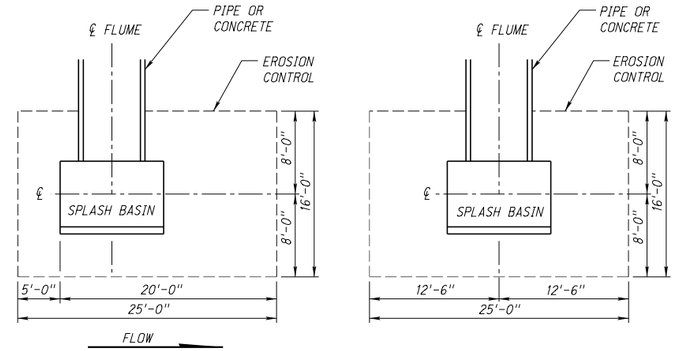


TYPICAL INSTALLATION AT PIPE CULVERT

(SHOWING STRAIGHT PIPE)

TYPICAL INSTALLATION AT BOX CULVERT

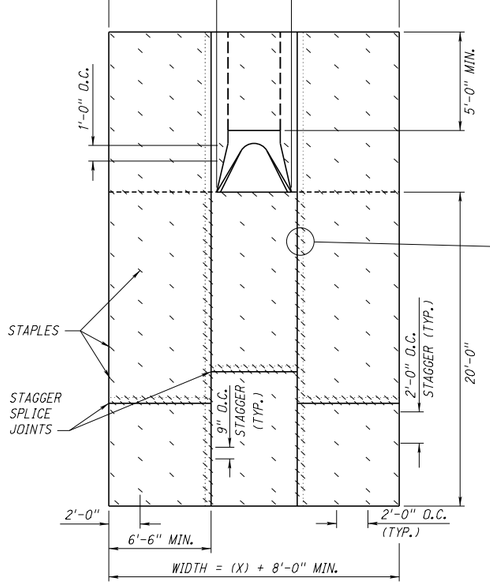




NOTE:
OFFSET EROSION CONTROL PLACEMENT ALONG THE DRAINAGE PATH

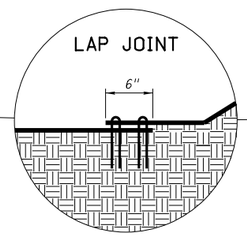
NOTE:
CENTER EROSION CONTROL ON FLUME WHERE THERE IS NO DEFINED DRAINAGE PATH

EROSION CONTROL BLANKET PLACEMENT AT SPLASH BASIN

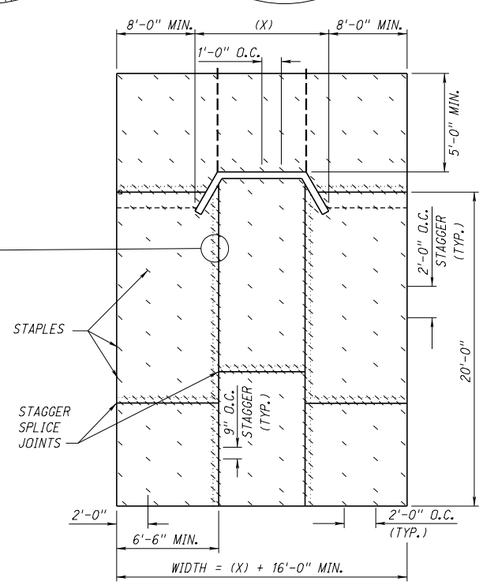


PLAN VIEW STAPLING DIAGRAM

(X) IS EQUAL TO THE OUTSIDE WIDTH OF THE FLARED END SECTION



STAGGER STAPLES EVERY 1'-0" O.C. WITHIN 20'-0" OF PIPE



PLAN VIEW STAPLING DIAGRAM

(X) IS EQUAL TO THE OUTSIDE WIDTH OF THE WING WALLS

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 501-R7

EROSION CONTROL

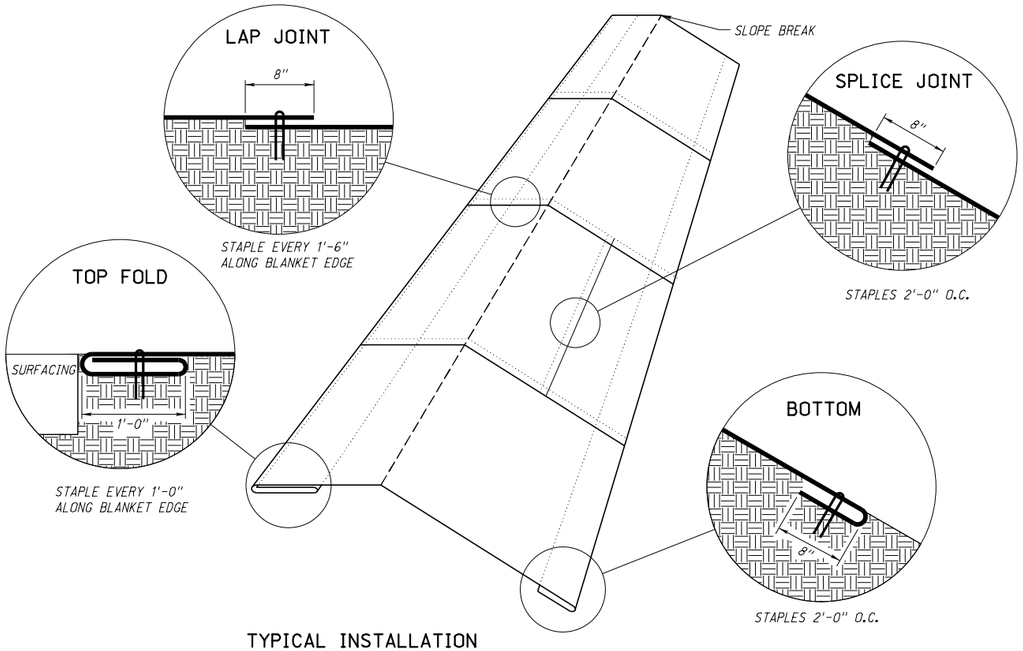
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

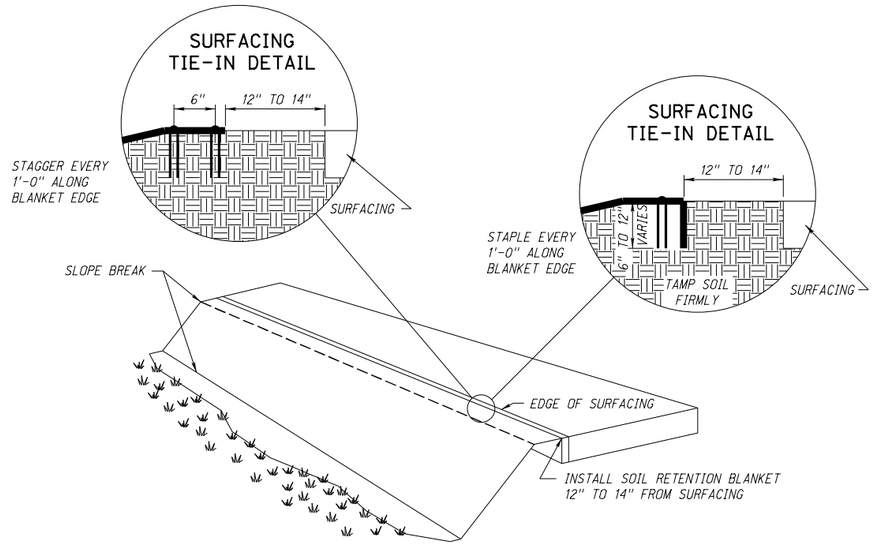
DATE

ORIGINAL:
NOVEMBER 1973
DATE

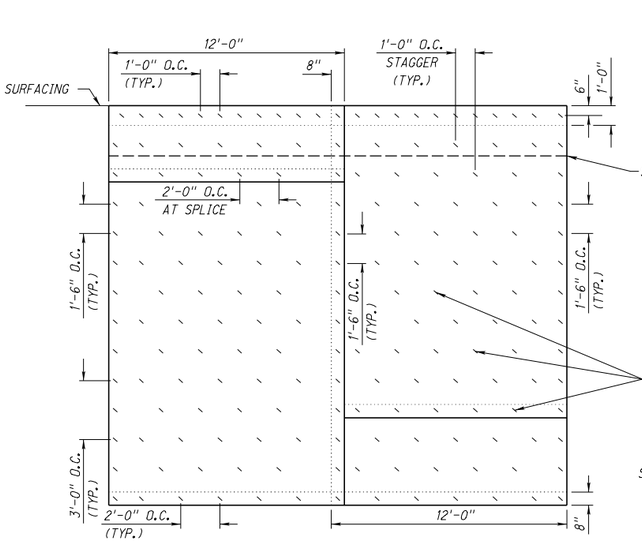
ROADWAY DESIGN DIVISION



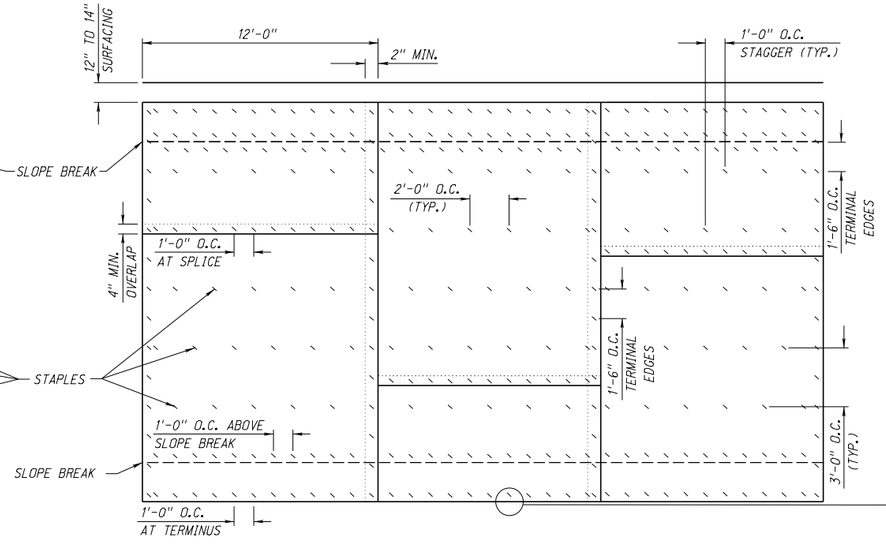
TYPICAL INSTALLATION
CLASS 1A (SLOPE PROTECTION, SAND)



SURFACING INSTALLATION

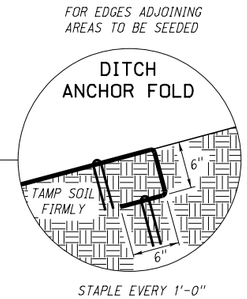


PLAN VIEW STAPLING DIAGRAM FOR
CLASS 1A (SLOPE PROTECTION, SAND)



TERMINATE BLANKET AT THE TOE OF SLOPE OR AT UNDISTURBED VEGETATION

PLAN VIEW STAPLING DIAGRAM FOR
CLASS 1B, 1C, 1D, 1E, 1F, 2A, 2B, & 2C



NOTES:

1. THE MANUFACTURERS' RECOMMENDED STAPLING PATTERNS SHALL GOVERN OVER THE PLANS.
2. SURFACING INSTALLATION IS APPLICABLE FOR ASPHALT, CONCRETE, OR BEVELLED EDGE.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 501-R7

EROSION CONTROL

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

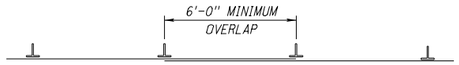
PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

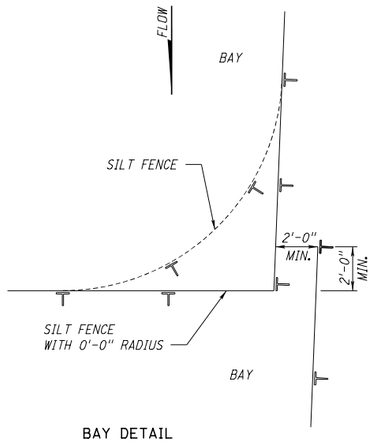
ORIGINAL:
NOVEMBER 1973
DATE

File: 501000607.dgn Date: 29-JUN-2021 09:20 Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 50200e02.dgn

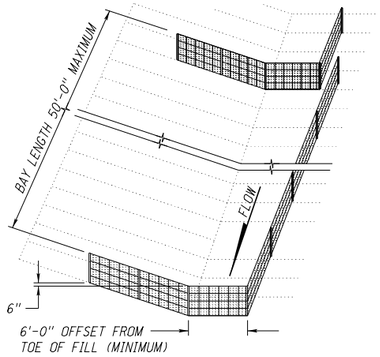


SILT FENCE SPLICE

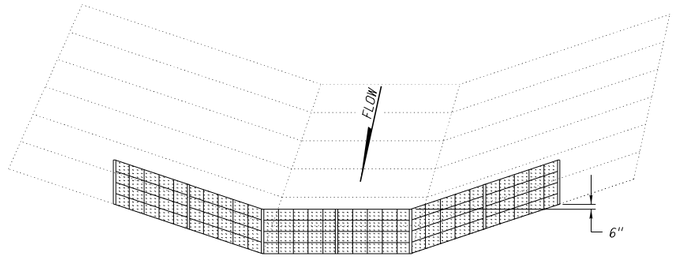


BAY DETAIL

NOTE:
SILT FENCE AT CORNERS SHALL HAVE A RADIUS OF 0'-0" MINIMUM TO 10'-0" MAXIMUM

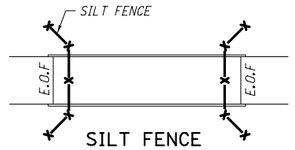


SILT FENCE BAYS

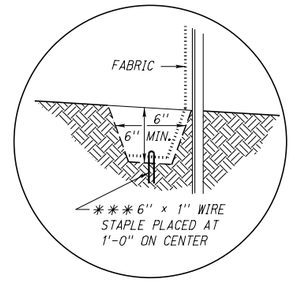


HIGH POROSITY SILT FENCE
(ACROSS DITCH)

NOTE:
POST SPACING 6'-0" MAXIMUM MULTIPLE BAYS MAY BE USED

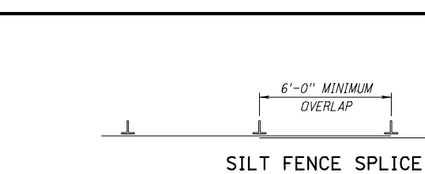


SILT FENCE
(UNDER BRIDGE)

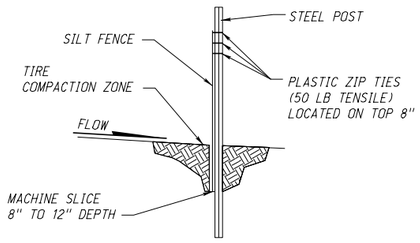


TRENCH DETAIL

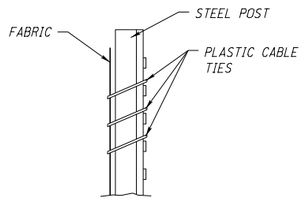
*** SILT FENCE MAY ALSO BE INSTALLED WITH A SILT FENCE PLOW. NO STAPLING IS REQUIRED WHEN THE SILT FENCE PLOW IS USED.



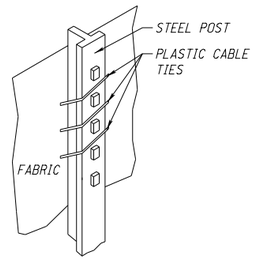
OPTION ONE (PREFERED)
SILT FENCE
(6'-0" OFFSET FROM TOE OF FILL)



SILT FENCE MACHINE SLICED



PROFILE VIEW
ATTACHMENT TO POST



BACK VIEW
ATTACHMENT TO POST

NOTES:

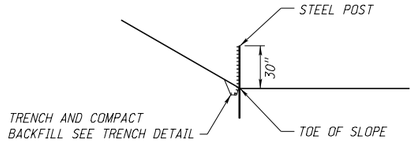
SILT FENCE SHOULD BE 30" ABOVE GRADE (MAY VARY)

SILT FENCE MINIMUM ROLL WIDTH:
LOW POROSITY = 42"
HIGH POROSITY = 42"
LOW PROFILE = 36"
COIR SILT FENCE = 36"

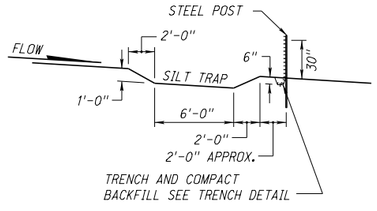
STEEL STUDDED "T" LINE POSTS 5'-6" LENGTH; 6'-0" MAXIMUM SPACING.

FOR EACH STEEL STUDDED "T" LINE POST, 3 PLASTIC CABLE TIES ARE REQUIRED.

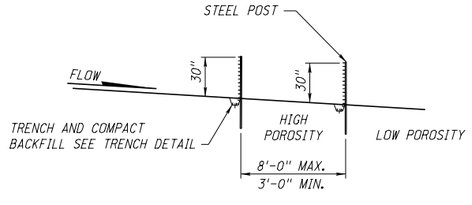
2" x 2" x 6'-0" NOMINAL WOOD STAKES SPACING, 6'-0" MAXIMUM ON CENTER DRIVEN UNTIL FIRM.



OPTION TWO (WITH LIMITED R.O.W.)
SILT FENCE
(AT TOE OF FILL)



HIGH POROSITY SILT
FENCE WITH SILT TRAP
(ACROSS DITCH)



SILT FENCE
(ACROSS DITCH)

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	APR 14	STEEL POST INSTALLATION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 502-R2

SILT FENCE DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

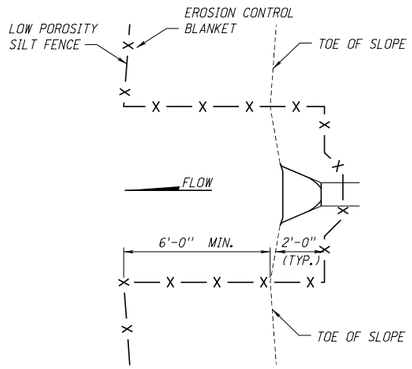
PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

ORIGINAL:
DECEMBER 2006
DATE

1
2

ROADWAY DESIGN DIVISION



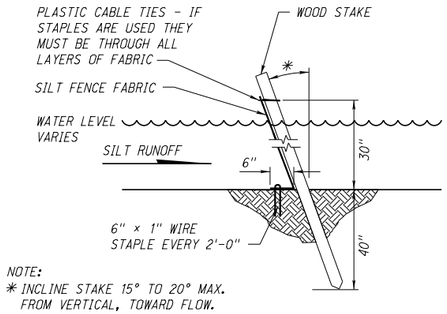
SILT FENCE OUTLET PROTECTION

NOTES:

1. SILT FENCE SHOULD BE BROUGHT FLUSH WITH WING WALLS ON BOX CULVERTS IF IT CAN NOT BE INSTALLED ABOVE THE BOX CULVERT.

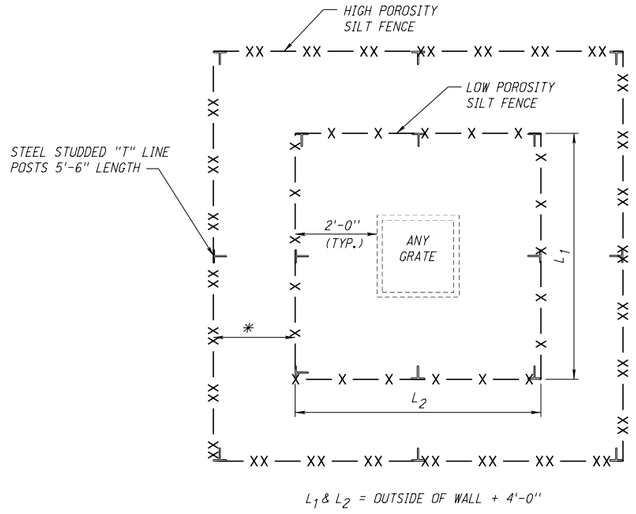
2. IF APPLICABLE, SILT FENCE AROUND THE CULVERT SHOULD BE ADJUSTED TO ALLOW FOR THE INSTALLATION OF EROSION CONTROL AS SHOWN IN STANDARD PLAN 501.

3. SILT CHECKS MAY USED IN PLACE OF SILT FENCE ABOVE THE OPENING OF A CULVERT, AS SHOWN IN SPECIAL PLAN C.



NOTE:
✳ INCLINE STAKE 15° TO 20° MAX. FROM VERTICAL, TOWARD FLOW.

SILT FENCE
(WET & BELOW WATER INSTALLATION)

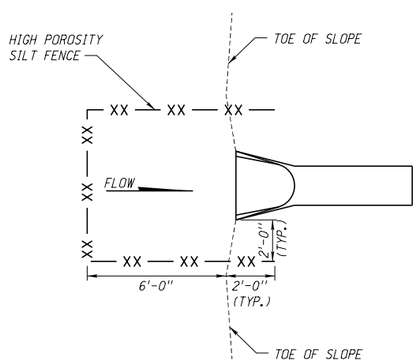


L_1 & L_2 = OUTSIDE OF WALL + 4'-0"

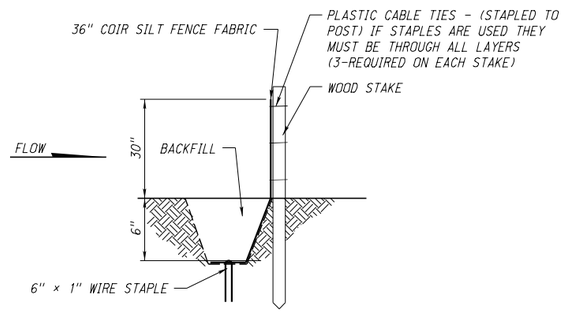
PLAN VIEW

SILT FENCE FOR GRATE, AREA, MEDIAN INLETS OR JUNCTION BOXES

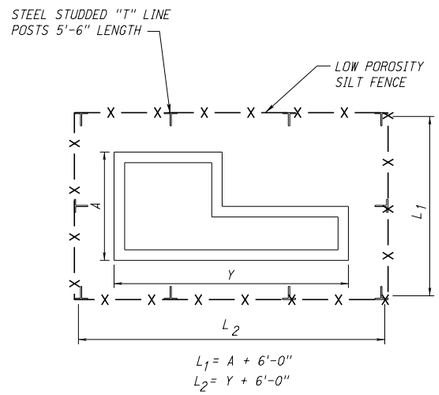
✳ 3'-0" IF POSSIBLE (MAY VARY)



SILT FENCE INLET PROTECTION



COIR SILT FENCE - ON WOOD POSTS - DRY INSTALLATION



L_1 = A + 6'-0"
L_2 = Y + 6'-0"

PLAN VIEW

SILT FENCE CURB INLET

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	APR 14	STEEL POST INSTALLATION

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 502-R2

SILT FENCE DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

DATE

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

ORIGINAL:
DECEMBER 2006
DATE

2
2

Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 502006d02.dgn

CHANNELIZATION DEVICES

THE FUNCTION OF CHANNELIZATION DEVICES IS TO WARN ROAD USERS OF CONDITIONS CREATED BY WORK ACTIVITIES IN OR NEAR THE TRAVELED WAY, TO PROTECT WORKERS IN THE TEMPORARY TRAFFIC CONTROL ZONE, AND TO GUIDE DRIVERS AND PEDESTRIANS SAFELY. CHANNELIZING DEVICES INCLUDE BUT ARE NOT LIMITED TO CONES, TUBULAR POSTS, VERTICAL PANELS, DRUMS, BARRICADES, TRAFFIC LANE DIVIDERS, TEMPORARY RAISED ISLANDS, AND BARRIERS.

DEVICES USED FOR CHANNELIZATION SHOULD PROVIDE FOR SMOOTH AND GRADUAL TRAFFIC MOVEMENT FROM ONE LANE TO ANOTHER, ONTO A BYPASS OR DETOUR, OR TO REDUCE THE WIDTH OF THE TRAVELED WAY. THEY MAY ALSO BE USED TO SEPARATE TRAFFIC FROM THE WORK SPACE, PAVEMENT DROP-OFFS, PEDESTRIAN PATHS, OR OPPOSING DIRECTIONS OF TRAFFIC.

CHANNELIZING DEVICES SHALL MEET THE CRASHWORTHY PERFORMANCE CRITERIA CONTAINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). THEY SHOULD BE CONSTRUCTED AND BALLASTED TO PERFORM IN A PREDICTABLE MANNER WHEN INADVERTENTLY STRUCK BY A VEHICLE. IF STRUCK, THE DEVICE SHOULD YIELD OR BREAK AWAY, FRAGMENTS OR OTHER DEBRIS FROM THE DEVICE SHOULD NOT PENETRATE THE PASSENGER COMPARTMENT OF THE VEHICLE OR BE A POTENTIAL HAZARD TO WORKERS OR PEDESTRIANS IN THE IMMEDIATE AREA.

SPACING OF CHANNELIZING DEVICES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO THE SPEED WHEN USED FOR THE TAPER CHANNELIZATION, AND A DISTANCE IN FEET OF TWICE THE SPEED WHEN USED FOR TANGENT CHANNELIZATION.

SPACING OF CHANNELIZATION DEVICES

SPEED (MPH) S	SPACING OF DEVICES (FEET)	
	TAPER	TANGENT
25	25	50
35	35	70
45	45	90
55	55	110
60	60	120
65	65	130
75	75	150

WARNING LIGHTS MAY BE ADDED TO CHANNELIZING DEVICES IN AREAS WITH FREQUENT FOG, SNOW, OR SEVERE ROADWAY CURVATURE, OR WHERE VISUAL DISTRACTIONS ARE PRESENT, EXCEPT FOR THE SEQUENTIAL FLASHING WARNING LIGHTS, WARNING LIGHTS PLACED ON CHANNELIZING DEVICES USED IN A SERIES TO CHANNELIZE ROAD USERS SHALL BE STEADY-BURN.

THE RETROREFLECTIVE MATERIAL USED ON CHANNELIZING DEVICES SHALL HAVE A SMOOTH, SEALED OUTER SURFACE, MEETING THE REQUIREMENTS OF THE ASTM SPECIFICATION D4956, FOR TYPE IV SHEETING OR TYPE V REBOUNDABLE SHEETING (OR GREATER).

COEFFICIENT OF RETROREFLECTION ($CD/LUX/M^2$)

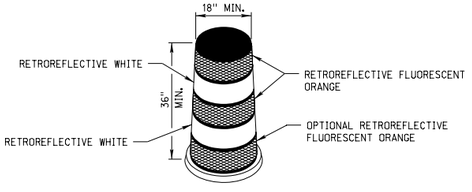
WHITE	ORANGE	RED	YELLOW
250	100	45	170

THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) "QUALITY GUIDELINES FOR WORK ZONE TRAFFIC CONTROL DEVICES" SHALL BE USED AS A VISUAL GUIDE FOR DETERMINING IF A TRAFFIC CONTROL DEVICE/OR SIGN IS ACCEPTABLE, MARGINAL OR UNACCEPTABLE.

THE NAME AND TELEPHONE NUMBER OF THE AGENCY, CONTRACTOR, OR SUPPLIER MAY BE SHOWN ON THE CHANNELIZING DEVICE BACK OR SUPPORT, BUT NOT ON THE DEVICE FACE. THE LETTERS AND NUMBERS SHALL BE A NON-REFLECTIVE COLOR AND NOT OVER 15 SQUARE INCHES IN TOTAL AREA.

PARTICULAR ATTENTION SHOULD BE GIVEN TO MAINTAINING THE CHANNELIZING DEVICES TO KEEP THEM CLEAN, VISIBLE, AND PROPERLY POSITIONED. DEVICES SHALL BE REPLACED THAT ARE DAMAGED AND/OR HAVE LOST A SIGNIFICANT AMOUNT OF THEIR RETROREFLECTIVITY AND EFFECTIVENESS.

REFLECTORIZED PLASTIC DRUMS



DESIGN

REFLECTORIZED PLASTIC DRUMS USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE CONSTRUCTED OF LIGHTWEIGHT, FLEXIBLE, AND DEFORMABLE MATERIALS AND BE A MINIMUM OF 36 INCHES IN HEIGHT AND HAVE A MINIMUM WIDTH OF AT LEAST A 18 INCHES, REGARDLESS OF ORIENTATION. THE PREDOMINANT COLOR OF THE DRUM SHALL BE ORANGE. METAL DRUMS SHALL NOT BE USED. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, SHALL BE CIRCUMFERENTIAL, AND SHALL DISPLAY FOUR 6 INCH WIDE BANDS OF RETROREFLECTIVE SHEETING, ALTERNATING FLUORESCENT ORANGE-WHITE-FLUORESCENT ORANGE-WHITE, DRUMS SHALL HAVE CLOSED TOPS THAT WILL NOT ALLOW COLLECTION OF CONSTRUCTION OR OTHER DEBRIS.

APPLICATION

DRUMS ARE MOST COMMONLY USED TO CHANNELIZE OR DELINEATE TRAFFIC FLOW BUT MAY ALSO BE USED INDIVIDUALLY OR IN GROUPS TO MARK SPECIFIC LOCATIONS. DRUMS ARE HIGHLY VISIBLE AND HAVE GOOD TARGET VALUE; THEY GIVE THE APPEARANCE OF BEING FORMIDABLE OBSTACLES AND, THEREFORE, COMMAND THE RESPECT OF ROAD USERS.

BALLAST SHALL NOT BE PLACED ON TOP OF THE DRUM. DRUMS SHOULD NOT BE WEIGHTED WITH SAND, WATER, OR ANY MATERIAL.

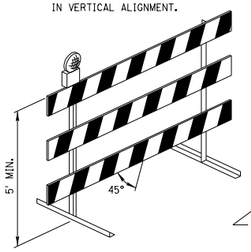
BARRICADES

BARRICADE TYPE	TYPE II	TYPE III
WIDTH OF RAIL ✳	8 INCHES MIN. - 12 INCHES MAX.	8 INCHES MIN. - 12 INCHES MAX.
LENGTH OF RAIL	36 INCHES	8 FEET ✳✳
WIDTH OF STRIPES	6 INCHES	6 INCHES
HEIGHT	36 INCHES	5 FEET
REFLECTIVE SHEETING	TYPE IV	TYPE IV
NUMBER OF REFLECTORIZED RAIL FACES	4 (TWO EACH DIRECTION)	6 (THREE EACH DIRECTION)

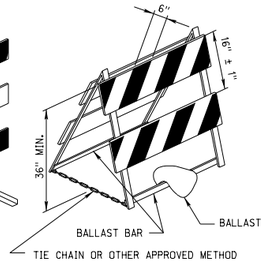
✳NOMINAL DIMENSIONS ARE PERMISSIBLE WHEN CONSTRUCTED FROM LUMBER.
✳✳WHEN LATERAL SPACE IS LIMITED, SOME TYPE III BARRICADES WITH A 4 FOOT LENGTH OF RAIL, MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

TYPE III BARRICADE

TYPICAL MOUNTING OF FLASHING WARNING LIGHTS. LIGHTS SHALL ALWAYS BE IN VERTICAL ALIGNMENT.



TYPE II BARRICADE



BALLAST SHALL NOT BE PLACED OVER ANY REFLECTIVE DEVICE

DESIGN

A BARRICADE IS A PORTABLE OR FIXED DEVICE HAVING TWO OR THREE RAILS WITH APPROPRIATE MARKINGS. IT IS USED TO CONTROL ROAD USERS BY CLOSING, RESTRICTING, OR DELINEATING ALL OR A PORTION OF THE RIGHT-OF-WAY.

BARRICADES SHALL BE ONE OF TWO TYPES; TYPE II OR TYPE III.

STRIPES ON BARRICADE RAILS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION ROAD USERS ARE TO PASS. THE STRIPES SHALL BE 6 INCHES WIDE. THE MINIMUM RAIL LENGTH FOR A TYPE II BARRICADE IS 36 INCHES.

WHERE BARRICADES EXTEND ENTIRELY ACROSS A ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH ROAD USERS MUST TURN. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE STRIPES MAY SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.

BARRICADE RAILS SHOULD BE SUPPORTED IN A MANNER THAT WILL ALLOW THEM TO BE SEEN BY THE ROAD USER, AND IN A MANNER THAT PROVIDES A STABLE SUPPORT THAT IS NOT EASILY BLOWN OVER OR DISPLACED.

ON HIGH-SPEED ROADWAYS OR IN OTHER SITUATIONS WHERE BARRICADES MAY BE SUSCEPTIBLE TO OVERTURNING IN THE WIND, SANDBAGS SHOULD BE USED FOR BALLASTING. SANDBAGS MAY BE PLACED ON LOWER PARTS OF THE FRAME OR STAYS TO PROVIDE THE REQUIRED BALLAST BUT SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY HEAVY OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE.

THE BARRICADE OWNERS NAME, NOT TO EXCEED 15 SQUARE INCHES SHALL BE SHOWN ON THE BARRICADE BACK OR SUPPORT BUT NOT ON ITS FACE.

✳✳ WHEN LATERAL SPACE IS LIMITED, SOME TYPE III BARRICADES WITH A 4 FOOT LENGTH OF RAIL, MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

APPLICATION

TYPE II BARRICADES ARE INTENDED FOR USE IN SITUATIONS WHERE TRAFFIC IS MAINTAINED THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE. THEY MAY BE USED INDIVIDUALLY OR IN GROUPS TO MARK A SPECIFIC CONDITION, OR THEY MAY BE USED IN A SERIES FOR CHANNELIZING TRAFFIC. ON THE INTERSTATE, FREEWAY AND EXPRESSWAY SYSTEM, TYPE II BARRICADES SHALL NOT BE USED FOR CHANNELIZATION.

TYPE III BARRICADES USED AT A ROAD CLOSURE MAY EXTEND COMPLETELY ACROSS A ROADWAY FROM CURB TO CURB. WHERE PROVISION IS MADE FOR ACCESS OF AUTHORIZED EQUIPMENT AND VEHICLES, THE RESPONSIBILITY FOR THE TYPE III BARRICADES SHOULD BE ASSIGNED TO A PERSON WHO SHALL PROVIDE PROPER CLOSURE AT THE END OF EACH WORK DAY.

WHEN A HIGHWAY IS LEGALLY CLOSED BUT ACCESS MUST STILL BE ALLOWED FOR LOCAL TRAFFIC, THE TYPE III BARRICADES MAY NOT BE EXTENDED COMPLETELY ACROSS A ROADWAY. A SIGN WITH THE APPROPRIATE LEGEND CONCERNING PERMISSIBLE USE BY LOCAL TRAFFIC SHALL BE MOUNTED.

NORMALLY PERMANENT SIGNS MOUNTED ON BARRICADES SHALL BE ERECTED ABOVE THE BARRICADE. THE SIGNS "ROAD CLOSED", OR "ROAD WORK AHEAD", FOR EXAMPLE CAN EFFECTIVELY BE MOUNTED ABOVE THE BARRICADE THAT CLOSES THE ROADWAY. TYPE III BARRICADES SHALL BE SUPPLEMENTED WITH A LIGHTING DEVICE UNLESS SPECIFICALLY OMITTED BY THE ENGINEER. DETOUR ARROW AND LARGE WARNING ARROW SIGNS SHOULD BE PLACED ON THE FACE OF BARRICADE.

CONES

DESIGN

CONES SHALL BE PREDOMINANTLY ORANGE, FLOURESCENT RED-ORANGE, OR FLOURESCENT YELLOW/ORANGE. NOT LESS THAN 28 INCHES IN HEIGHT, AND SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT. CONES WHEN ALLOWED ON THE INTERSTATE, FREEWAY OR EXPRESSWAY SYSTEM SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.

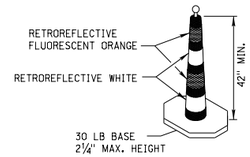
FOR NIGHTTIME USE, CONES SHALL BE RETROREFLECTIVE OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY. RETROREFLECTION OF 28 INCH OR 36 INCH CONES SHALL BE PROVIDED BY A WHITE BAND 6 INCHES WIDE, NO MORE THAN 4 INCHES FROM THE TOP OF THE CONE, AND AN ADDITIONAL 4 INCH WIDE WHITE BAND A MINIMUM OF 2 INCHES BELOW THE 6 INCH BAND.

APPLICATION

TRAFFIC CONES ARE USED TO CHANNELIZE TRAFFIC, DIVIDE OPPOSING TRAFFIC LANES, DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION, AND DELINEATE SHORT-DURATION MAINTENANCE AND UTILITY WORK. CONES SHALL NOT BE USED FOR LANE CLOSURE TAPERS OR SHIFTS, CONES SMALLER THAN 42 INCHES SHALL NOT BE USED AT NIGHT ON RURAL HIGHWAYS, UNLESS SHOWN ON THE PLANS OR AS APPROVED OR DIRECTED BY THE ENGINEER.

STEPS SHOULD BE TAKEN TO ENSURE THAT CONES WILL NOT BE BLOWN OVER OR DISPLACED BY WIND OR MOVING TRAFFIC. CONES CAN BE DOUBLED UP TO INCREASE THEIR WEIGHT. SOME CONES ARE CONSTRUCTED WITH BASES THAT CAN BE FILLED WITH BALLAST. OTHERS HAVE SPECIAL WEIGHTED BASES, OR WEIGHTS SUCH AS SANDBAG RINGS THAT CAN BE DROPPED OVER THE CONES AND ONTO THE BASE TO PROVIDE ADDED STABILITY. BALLAST, HOWEVER, SHOULD NOT PRESENT A HAZARD IF THE CONES ARE INADVERTENTLY STRUCK.

42 INCH CONES



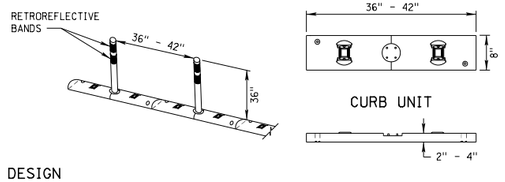
DESIGN

42 INCH CONES SHALL INCLUDE A 30 POUND RUBBER BASE AND DISPLAY FOUR 6 INCH WIDE BANDS OF RETROFEFLECTIVE SHEETING, ALTERNATING FLUORESCENT ORANGE-WHITE-FLOURESCENT ORANGE-WHITE.

APPLICATION

WHEN APPROVED BY THE ENGINEER OR SHOWN IN THE PLANS, 42 INCH REFLECTIVE CONES MAY BE USED IN LIEU OF TYPE II BARRICADES OR REFLECTORIZED DRUMS. 42 INCH CONES SHALL NOT BE USED FOR LANE-CLOSURE TAPERS OR SHIFTS. IF A RECTANGULAR BASE IS USED, THE LONG SIDE OF THE BASE SHOULD BE ORIENTED PARALLEL TO THE DIRECTION OF TRAFFIC.

TUBULAR POST AND CURB SYSTEM



DESIGN

TUBULAR POSTS USED IN THE SYSTEM SHALL BE 36 INCHES HIGH AND A MINIMUM OF 2 INCHES WIDE WHEN FACING TRAFFIC. THE TUBULAR POST AND CURB SYSTEM SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING IMPACTING VEHICLES. THE COLOR SHALL BE AS SHOWN IN THE PLANS.

THE TUBULAR POSTS SHALL BE RETROREFLECTIVE. RETROREFLECTION OF TUBULAR POSTS SHALL BE PROVIDED BY TWO 3-INCH WIDE RETROREFLECTIVE BANDS PLACED A MAXIMUM OF 2 INCHES FROM THE TOP WITH A MAXIMUM OF 6 INCHES BETWEEN THE BANDS. EACH CURB SECTION SHALL CONTAIN ONE RETROREFLECTIVE MARKER FACING EACH DIRECTION OF TRAFFIC. THE COLOR OF THE RETROREFLECTIVE BANDS AND MARKERS SHALL MATCH THE POST/CURB COLOR.

THE CURB SECTIONS SHALL BE CONFIGURED TO ALLOW FOR DRAINAGE FROM THE PAVEMENT SURFACE.

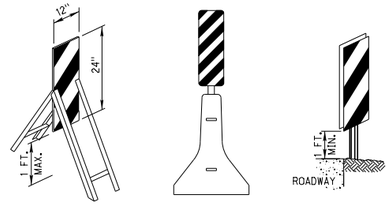
APPLICATION

TUBULAR POST AND CURB SYSTEMS MAY BE USED TO DIVIDE OPPOSING LANES OF TRAFFIC OR TO DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION.

FASTENING THE CURBS TO THE PAVEMENT WITH ANCHOR BOLTS OR OTHER SUITABLE METHODS AS DIRECTED BY THE MANUFACTURER IS REQUIRED TO MINIMIZE THE CHANCE OF BEING MOVED BY TRAFFIC.

TUBULAR POST AND CURB SYSTEMS SHALL BE INSTALLED IN THE LOCATIONS SHOWN IN THE PLANS OR DIRECTED BY THE ENGINEER.

VERTICAL PANELS



DESIGN

RETROREFLECTIVE MATERIAL ON VERTICAL PANELS SHALL BE 12 INCHES WIDE AND AT LEAST 24 INCHES HIGH. THEY SHALL HAVE ALTERNATING ORANGE AND WHITE STRIPES, WHERE THE HEIGHT OF THE RETROREFLECTIVE MATERIAL ON THE VERTICAL PANEL IS MORE THAN 36 INCHES, A PANEL STRIPE WIDTH OF 6 INCHES SHALL BE USED. WHERE THE HEIGHT OF THE RETROREFLECTIVE MATERIAL ON THE VERTICAL PANEL IS 36 INCHES OR LESS, A PANEL STRIPE WIDTH OF 4 INCHES SHALL BE USED. IF USED FOR TWO-WAY TRAFFIC, BACK-TO-BACK PANELS SHALL BE USED.

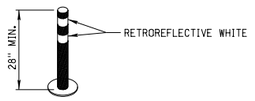
MARKINGS FOR VERTICAL PANELS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTORIZED STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS.

POST MOUNTED VERTICAL PANELS SHALL BE MOUNTED WITH THE BOTTOM A MINIMUM OF 1 FOOT ABOVE THE ROADWAY. VERTICAL PANELS ON A TEMPORARY STAND SHALL BE MOUNTED WITH THE BOTTOM A MAXIMUM OF 1 FOOT ABOVE THE ROADWAY.

APPLICATION

WHERE SPACE IS LIMITED VERTICAL PANELS MAY BE USED TO CHANNEL TRAFFIC, DIVIDE OPPOSING LANES OF TRAFFIC, DIVIDE TRAFFIC LANES OR REPLACE BARRICADES. WHEN APPROVED BY THE ENGINEER, VERTICAL PANELS MAY BE POST-MOUNTED ALONG THE SIDE OF THE ROADWAY.

TUBULAR POSTS



DESIGN

TUBULAR POSTS SHALL BE PREDOMINANTLY ORANGE, NOT LESS THAN 28 INCHES HIGH, BE A MINIMUM OF 2 INCHES WIDE WHEN FACING TRAFFIC, AND MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING IMPACTING VEHICLES.

TUBULAR POSTS SHALL BE RETROREFLECTIVE. RETROREFLECTION OF TUBULAR POSTS SHALL BE PROVIDED BY TWO 3 INCHES WIDE WHITE BANDS PLACED A MAXIMUM OF 2 INCHES FROM THE TOP, WITH A MAXIMUM OF 6 INCHES BETWEEN THE BANDS. THE BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 2 INCHES.

APPLICATION

TUBULAR POSTS HAVE LESS VISIBLE AREA THAN OTHER DEVICES AND SHOULD BE USED ONLY WHERE SPACE RESTRICTIONS DO NOT ALLOW FOR THE USE OF OTHER MORE VISIBLE DEVICES. THEY MAY BE USED EFFECTIVELY TO DIVIDE OPPOSING LANES OF TRAFFIC OR TO DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION.

STEPS SHOULD BE TAKEN TO ASSURE THAT TUBULAR POSTS WILL NOT BE BLOWN OVER OR DISPLACED BY TRAFFIC BY EITHER AFFIXING THEM TO THE PAVEMENT WITH ANCHOR BOLTS OR ADHESIVE, IF A NONCYLINDRICAL DEVICE IS USED, IT SHALL BE ATTACHED TO THE PAVEMENT TO ENSURE THAT THE WIDTH FACING TRAFFIC MEETS THE MINIMUM REQUIREMENTS.

TUBULAR POSTS SHOULD NOT BE USED FOR PEDESTRIAN CHANNELIZATION OR A PEDESTRIAN BARRIERS IN TEMPORARY TRAFFIC CONTROL ZONES ON OR ALONG SIDEWALKS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 920-R7

TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

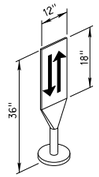
DATE

ORIGINAL: OCTOBER 1998
DATE

1/3

File: 92000e07.dgn Date: 29-JUN-2021 09:21 Computer: NDOTDESIGN134

OPPOSING TRAFFIC LANE DIVIDERS



DESIGN

OPPOSING TRAFFIC LANE DIVIDERS SHALL BE A TWO SIDED UPRIGHT RETROREFLECTORIZED ORANGE PANEL, WITH A WIDTH OF 12 INCHES AND A HEIGHT OF 18 INCHES. THE TOP OF THE PANEL SHALL BE 36 INCHES ABOVE THE PAVEMENT. THE SYMBOL ON EACH SIDE SHALL BE TWO OPPOSING BLACK ARROWS. THE LANE DIVIDER SHALL BE MADE OF LIGHTWEIGHT MATERIAL THAT WILL YIELD UPON IMPACT BY A VEHICLE. THE LANE DIVIDER BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 4 INCHES. THE BASE SHALL BE ATTACHED TO THE EXISTING SURFACE BY EPOXY OR OTHER SUITABLE ADHESIVE, TO ENSURE THAT THE PANEL REMAINS FACING TRAFFIC.

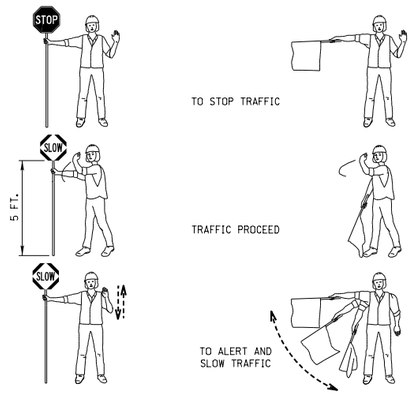
APPLICATION

OPPOSING TRAFFIC LANE DIVIDERS ARE DELINEATION DEVICES USED AS CENTER LANE DIVIDERS TO SEPARATE OPPOSING TRAFFIC ON A TWO-LANE, TWO-WAY OPERATION.

FLAGGERS

REQUIRED METHOD

EMERGENCY USE ONLY



FLAGGER PADDLE

THE STOP/SLOW PADDLE SHALL HAVE AN OCTAGONAL SHAPE ON A RIGID HANDLE. STOP/SLOW PADDLES SHALL BE AT LEAST 18 INCHES WIDE WITH LETTERS AT LEAST 6 INCHES HIGH. IF THE STOP/SLOW PADDLE IS PLACED ON A RIGID STAFF, THE MINIMUM LENGTH OF THE STAFF, MEASURED FROM THE BOTTOM OF THE SIGN TO THE END OF THIS STAFF THAT RESTS ON THE GROUND, SHOULD BE 5 FEET. THE STOP/SLOW PADDLE SHOULD BE THE PRIMARY AND PREFERRED HAND-SIGNALING DEVICE BECAUSE THE STOP/SLOW PADDLE GIVES ROAD USERS MORE POSITIVE GUIDANCE THAN RED FLAGS. USE OF FLAGS SHOULD BE LIMITED TO EMERGENCY SITUATIONS.

FLAGGERS

A FLAGGER MUST BE DRESSED FOR SAFETY. IN ADDITION TO THE REQUIREMENTS OF THE "WORKER VISIBILITY" SECTION LISTED BELOW, FLAGGERS SHALL WEAR:

1. AN ORANGE OR YELLOW/GREEN CAP OR HARD HAT.
2. A SHIRT WITH SLEEVES, PANTS AND SHOES (TANK TOPS, SHORTS OR SANDALS SHALL NOT BE WORN).

FLAGGERS SHALL BE INSTRUCTED IN THE PROPER LOCATION, DUTIES AND PROCEDURES FOR FLAGGING AS OUTLINED IN THE CURRENT MUTCD AND THE DEPARTMENT OF ROADS FLAGGER'S HANDBOOK. AS REQUIRED BY THE DEPARTMENT OF ROADS, THE FLAGGER SHALL BE CERTIFIED, AND HAVE IN THEIR POSSESSION, A VALID FLAGGER CERTIFICATION CARD.

WORKER VISIBILITY

ALL WORKERS WITHIN THE RIGHT-OF-WAY WHO ARE EXPOSED EITHER TO TRAFFIC (VEHICLES USING THE HIGHWAY FOR PURPOSES OF TRAVEL) OR TO CONSTRUCTION EQUIPMENT WITHIN THE WORK AREA SHALL WEAR HIGH-VISIBILITY SAFETY APPAREL. HIGH-VISIBILITY SAFETY APPAREL IS DEFINED TO MEAN PERSONAL PROTECTIVE SAFETY CLOTHING THAT;

1. IS INTENDED TO PROVIDE CONSPICUITY DURING BOTH DAYTIME AND NIGHTTIME USAGE, AND
2. MEETS THE PERFORMANCE CLASS 2 OR CLASS 3 REQUIREMENTS OF THE ANSI/ISEA 107-2004 PUBLICATION ENTITLED "AMERICAN NATIONAL STANDARDS FOR HIGH-VISIBILITY SAFETY APPAREL AND HEADWEAR"

LIGHTING DEVICES

FUNCTION

CONSTRUCTION AND MAINTENANCE ACTIVITIES OFTEN CREATE CONDITIONS ON OR NEAR THE TRAVELED WAY THAT ARE PARTICULARLY HAZARDOUS AT NIGHT. IT IS OFTEN DESIRABLE AND NECESSARY TO SUPPLEMENT THE REFLECTORIZED SIGNS, BARRIERS, AND CHANNELIZING DEVICES WITH LIGHTING DEVICES. STROBE TYPE LIGHTS ARE NOT PERMITTED.

BARRICADE WARNING LIGHTS DESIGN (BATTERY OPERATED)

TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS ARE MOST COMMONLY MOUNTED ON BARRICADES, OR WITH SIGNS AND ARE INTENDED TO WARN THE DRIVER THAT THEY ARE PROCEEDING IN A HAZARDOUS AREA. THESE LIGHTS SHALL NOT BE USED FOR DELINEATION, AS A SERIES OF FLASHING LIGHTS IN A ROW WOULD TEND TO OBSCURE THE DESIRED PATH.

TYPE "A" HIGH INTENSITY FLASHING WARNING LIGHTS ARE NORMALLY MOUNTED ON THE TYPE III BARRICADE THAT ACCOMPANIES THE ADVANCE WARNING SIGNS.

TYPE "C" STEADY BURN LIGHTS AS USED HEREIN, SHALL MEAN A SERIES OF LOW WATTAGE YELLOW ELECTRIC LIGHTS. WHERE LIGHTS ARE NEEDED TO DELINEATE OR MARK THE TRAVELED WAY THROUGH AND AROUND OBSTRUCTIONS IN A CONSTRUCTION MAINTENANCE AREA, THE DELINEATION SHALL BE ACCOMPLISHED BY USE OF STEADY BURNING LIGHTS. WHEN USED TO SUPPLEMENT CHANNELIZATION, THE MAXIMUM SPACING FOR WARNING LIGHTS SHOULD BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS. WHEN USED TO DELINEATE A CURVE, TYPE "C" WARNING LIGHTS SHOULD ONLY BE USED ON DEVICES ON THE OUTSIDE OF THE CURVE, AND NOT ON THE INSIDE OF THE CURVE.

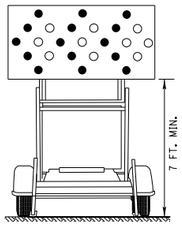
FLASHING ARROW PANEL (DISPLAY)

AN ARROW PANEL IS A SIGN WITH A MATRIX OF ELEMENTS, CAPABLE OF EITHER FLASHING OR SEQUENTIAL DISPLAYS. THIS SIGN SHALL PROVIDE ADDITIONAL WARNING AND DIRECTIONAL INFORMATION TO ASSIST IN MERGING AND CONTROLLING ROAD USERS THROUGH OR AROUND A TEMPORARY TRAFFIC CONTROL ZONE. AN ARROW PANEL SHOULD BE USED IN COMBINATION WITH APPROPRIATE SIGNS, CHANNELIZING DEVICES OR OTHER TRAFFIC CONTROL DEVICES.

DESIGN

ARROW PANELS SHALL MEET THE SIZE AND SPECIFICATIONS OF THE MUTCD FOR TYPE "C" ARROW DISPLAYS.

FLASHING ARROW PANEL SHALL BE RECTANGULAR, OF SOLID APPEARANCE AND FINISHED IN NON-REFLECTIVE BLACK. THE PANEL SHALL BE MOUNTED ON A VEHICLE, TRAILER OR OTHER SUITABLE SUPPORT. MINIMUM MOUNTING HEIGHT MEASURED VERTICALLY FROM THE BOTTOM OF THE PANEL TO THE ROADWAY BELOW IT OR TO THE ELEVATION OF THE NEAR EDGE OF THE ROADWAY. SHALL BE 7 FEET EXCEPT ON VEHICLE-MOUNTED PANELS, WHICH SHOULD BE AS HIGH AS PRACTICAL.



THE FOLLOWING SELECTIONS SHALL BE PROVIDED ON THE ARROW PANEL	
OPERATING MODE	PANEL DISPLAY
FLASHING ARROW	RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL ARROW	RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL CHEVRON	RIGHT SHOWN; LEFT OPPOSITE
FLASHING DOUBLE ARROW	
FLASHING OR ALTERNATING CAUTION	FLASHING LINE OR FLASHING CORNERS OR ALTERNATING DIAMOND CAUTION

THE ARROW PANEL SHALL HAVE A MINIMUM SIZE OF 96 INCHES WIDE AND 48 INCHES HIGH. THE MINIMUM LEGIBILITY DISTANCE SHALL BE 1 MILE. THE PANEL SHALL CONTAIN 25 LAMP ELEMENTS. ARROW PANEL ELEMENTS SHALL BE CAPABLE OF A MINIMUM 50 PERCENT DIMMING, AUTOMATICALLY WHEN AMBIENT LIGHT FALLS BELOW 50 LUX.

THE MINIMUM ELEMENT "ON TIME" SHALL BE 50 PERCENT FOR THE FLASHING MODE AND EQUAL INTERVALS OF 25 PERCENT FOR EACH SEQUENTIAL CHEVRON PHASE. THE FLASHING RATE SHALL BE NO FEWER THAN 25 NOR MORE THAN 40 FLASHES PER MINUTE.

APPLICATION

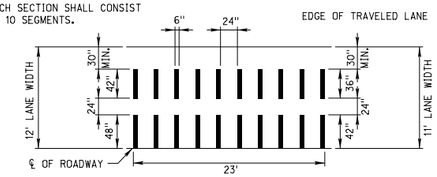
A FLASHING ARROW OR SEQUENTIAL CHEVRON MODE SHALL ONLY BE USED FOR STATIONARY OR MOVING LANE CLOSURES.

FOR SHOULDER WORK BLOCKING THE SHOULDER, FOR ROADSIDE WORK NEAR THE SHOULDER, OR FOR TEMPORARILY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, AN ARROW PANEL SHALL BE USED ONLY IN THE CAUTION MODE.

AN ARROW DISPLAY MODE SHALL NOT BE USED ON A TWO-LANE TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION OR LANE SHIFTS. AN ARROW DISPLAY SHALL NOT BE USED TO LATERALLY SHIFT TRAFFIC.

TEMPORARY RUMBLE STRIPS

EACH SECTION SHALL CONSIST OF 10 SEGMENTS.



DESIGN

TEMPORARY RUMBLE STRIPS MAY BE MADE OF ASPHALT PAVING MATERIAL, EPOXY AND AGGREGATE OR OTHER SUITABLE MATERIAL WHICH WILL MAINTAIN A DESIRABLE RUMBLE EFFECT. THE TEMPORARY RUMBLE STRIP SHOULD HAVE AN INSTALLED HEIGHT OF 5/8". PREFORMED RUMBLE STRIPS MAY BE USED PROVIDED THEY HAVE A MINIMUM ½" HEIGHT.

TRAFFIC SIGNALS

TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN EQUIPMENT CROSSINGS WHERE THE VOLUME OF FILL MATERIAL AND THE NUMBER OF EQUIPMENT CROSSINGS PER HOUR IS HIGH. TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN BRIDGE CONSTRUCTION SITES WHERE A COMBINATION OF ONE-WAY TRAFFIC AND HIGH TRAFFIC VOLUMES WOULD BE BEST SERVED WITH THIS TYPE OF TRAFFIC CONTROL.

ALL TRAFFIC SIGNAL REQUESTS AND METHOD OF INSTALLATION ON THE STATE HIGHWAY SYSTEM SHALL BE IN COMPLIANCE WITH THE MUTCD AND MUST BE APPROVED BY THE STATE TRAFFIC ENGINEER.

IF, AFTER THE SIGNAL ASSEMBLIES ARE ERECTED AND THE ROAD IS OPEN TO PUBLIC TRAVEL, THE SIGNAL SYSTEM IS NOT PUT IMMEDIATELY INTO OPERATION, THE SIGNAL FACES SHALL BE COVERED WITH BURLAP OR OTHER OPAQUE MATERIAL SUBJECT TO THE APPROVAL OF THE ENGINEER. INOPERATIVE SIGNALS ON ROADS OPEN TO THE PUBLIC SHALL ALWAYS BE COVERED. TILTING THE SIGNALS UPWARD IS NOT AN ACCEPTABLE ALTERNATIVE TO COVERING THE HEADS.

FLOODLIGHTS

WHEN NIGHTTIME WORK IS REQUIRED, FLOODLIGHTS SHALL BE USED TO ILLUMINATE FLAGGER STATIONS. FLOODLIGHTS SHOULD BE USED TO ILLUMINATE EQUIPMENT CROSSINGS, AND OTHER AREAS WHERE EXISTING LIGHT IS NOT ADEQUATE FOR THE WORK TO BE PERFORMED SAFELY.

IN NO CASE SHALL FLOODLIGHTING BE PERMITTED TO CREATE A DISABLING GLARE FOR DRIVERS. THE ADEQUACY OF THE FLOODLIGHT PLACEMENT AND ELIMINATION OF POTENTIAL GLARE SHOULD BE CHECKED BY DRIVING THROUGH THE PROJECT.

PAVEMENT MARKING

IT IS INTENDED TO THE EXTENT POSSIBLE, THAT MOTORISTS BE PROVIDED MARKINGS WITHIN A WORK AREA COMPARABLE TO THE MARKINGS NORMALLY MAINTAINED ALONG ADJACENT ROADWAYS, PARTICULARLY AT EITHER END OF THE WORK AREA.

ALL MARKINGS AND DEVICES USED TO DELINEATE VEHICLE AND PEDESTRIAN PATHS SHALL BE CAREFULLY REVIEWED DURING DAYTIME AND NIGHTTIME PERIODS TO AVOID INADVERTENTLY LEADING DRIVERS OR PEDESTRIANS FROM THE INTENDED PATH.

PAVEMENT MARKINGS NO LONGER APPLICABLE SHALL BE REMOVED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

TAPERS

TAPERS ARE CREATED USING A SERIES OF CHANNELIZING DEVICES OR PAVEMENT MARKINGS TO MOVE TRAFFIC OUT OF OR INTO ITS NORMAL PATH.

MERGING TAPER

A MERGING TAPER REQUIRES THE LONGEST DISTANCE BECAUSE DRIVERS ARE REQUIRED TO MERGE INTO COMMON ROAD SPACE. THE TAPER SHOULD BE LONG ENOUGH TO ENABLE MERGING DRIVERS TO HAVE ADEQUATE ADVANCE WARNING AND SUFFICIENT LENGTH TO ADJUST THEIR SPEEDS AND MERGE INTO A SINGLE LANE BEFORE THE DOWNSTREAM END OF THE TRANSITION.

SHIFTING TAPER

A SHIFTING TAPER IS USED WHEN MERGING IS NOT REQUIRED, BUT A LATERAL SHIFT IS NEEDED. APPROXIMATELY ONE-HALF "L" HAS BEEN FOUND TO BE ADEQUATE. WHERE MORE SPACE IS AVAILABLE, IT MAY BE BENEFICIAL TO USE LONGER TAPERS. GUIDANCE FOR CHANGES IN ALIGNMENT MAY ALSO BE ACCOMPLISHED BY USING HORIZONTAL CURVES DESIGNED FOR NORMAL HIGHWAY SPEEDS.

SHOULDER TAPERS

A SHOULDER TAPER MAY BE BENEFICIAL ON HIGH-SPEED ROADWAYS WHERE SHOULDERS ARE PART OF THE ACTIVITY AREA AND ARE CLOSED, OR WHEN IMPROVED SHOULDERS MIGHT BE MISTAKEN AS A DRIVING LANE IN THESE INSTANCES, THE SAME TYPE, BUT ABBREVIATED, CLOSURE PROCEDURES USED ON A NORMAL PORTION OF THE ROADWAY CAN BE USED. IF USED, SHOULDER TAPERS APPROACHING THE ACTIVITY AREA SHOULD HAVE A LENGTH OF ABOUT ONE-THIRD "L".

DOWNSTREAM TAPERS

THE DOWNSTREAM TAPER MAY BE USEFUL IN TERMINATION AREAS TO PROVIDE A VISUAL CUE TO THE DRIVER THAT ACCESS IS AVAILABLE TO THE ORIGINAL LANE OR PATH THAT WAS CLOSED. WHEN USED, IT SHOULD HAVE A MINIMUM LENGTH OF ABOUT 100 FEET PER LANE, WITH DEVICES SPACED ABOUT 20 FEET APART.

ONE LANE, TWO WAY TAPER

THE ONE-LANE, TWO-WAY TAPER IS USED IN ADVANCE OF AN ACTIVITY AREA THAT OCCUPIES PART OF A TWO-WAY ROADWAY IN SUCH A WAY THAT A PORTION OF THE ROAD IS USED ALTERNATELY BY TRAFFIC IN EACH DIRECTION. A SHORT TAPER HAVING A MINIMUM LENGTH OF 50 FEET AND A MAXIMUM LENGTH OF 100 FEET WITH CHANNELZING DEVICES AT APPROXIMATELY 20 FOOT SPACINGS SHOULD BE USED TO GUIDE TRAFFIC INTO THE ONE-LANE-SECTION AND A DOWNSTREAM TAPER WITH A LENGTH OF APPROXIMATELY 100 FEET SHOULD BE USED TO GUIDE TRAFFIC BACK INTO THEIR ORIGINAL LANE.

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES	
TYPE OF TAPER	TAPER LENGTH (FEET)
MERGING TAPER	L MINIMUM
SHIFTING TAPER	1/2 L MINIMUM
SHOULDER TAPER	1/3 L MINIMUM
TWO-WAY TAPER	100 FEET MAXIMUM

FORMULAS FOR L	
SPEED	FORMULA
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR GREATER	L = WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = POSTED SPEED LIMIT PRIOR TO WORK IN MPH

TAPER LENGTH L (FEET)			
SPEED (MPH)	LANE WIDTH		
S	10 FT.	11 FT.	12 FT.
25	105	115	125
30	150	165	180
35	205	225	245
40	270	295	320
45	450	495	540
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780
75	750	825	900

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 920-R7

TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

DATE

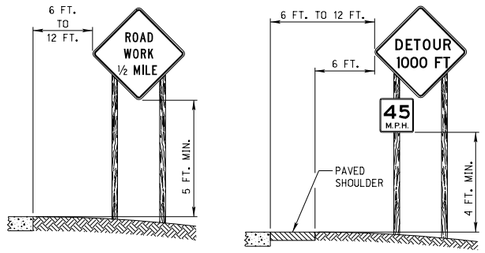
ORIGINAL: OCTOBER 1998
DATE

File: 92000e07.dgn
Date: 29-JUN-2021 09:21
Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION

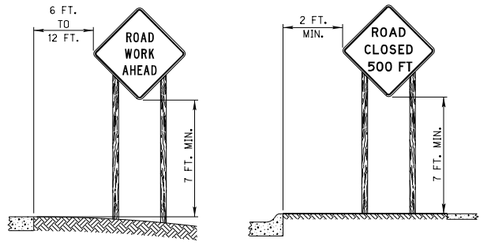
ROADSIDE SIGNS

HEIGHT AND LATERAL LOCATION OF SIGNS
RURAL AREA



WITH SPEED ADVISORY PLATE

URBAN AREA



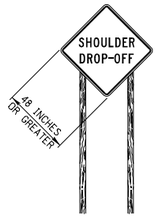
TYPICAL FIRST SIGN AT CONSTRUCTION SITE

WITH TYPE "A" FLASHING WARNING LIGHT MOUNTED ABOVE TYPE III BARRICADE

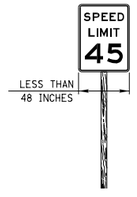
PORTABLE AND TEMPORARY MOUNTING

TYPICAL SIGN MOUNTINGS

POST MOUNTED



SIGNS 48 INCHES OR WIDER REQUIRE TWO POSTS



SIGN WIDTHS LESS THAN 48 INCHES MAY BE MOUNTED WITH ONE POST

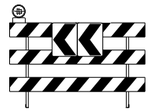
TYPICAL SIGN MOUNTINGS

OTHER THAN POST MOUNTED

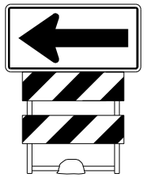
TYPE III BARRICADE WITH SIGN

PORTABLE AND TEMPORARY MOUNTING

TYPE III BARRICADE WITH SIGN AND DETOUR ARROW



TYPE III BARRICADE WITH CHEVRONS



TYPE II BARRICADE WITH DETOUR ARROW OR SIGN

PLASTIC DRUM WITH CHEVRON OR SIGN

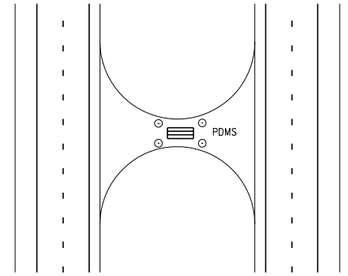
TEMPORARY SIGN SUPPORTS

ALL "TEMPORARY SIGN" SUPPORTS (BASES) SHALL BE NCHRP 350 OR MASH (TL-3) APPROVED.

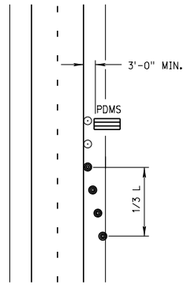
"TEMPORARY SIGNS" ARE ALL TEMPORARILY MOUNTED WORK ZONE SIGNS THAT ARE NOT POST MOUNTED IN THE GROUND AT THE TYPICAL 5 FOOT MOUNTING HEIGHT. TEMPORARY SIGNS ARE CONSIDERED NCHRP 350 OR MASH CATEGORY 2 DEVICES AND ARE MOUNTED ON TEMPORARY SIGN STANDS. TEMPORARY SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT ABOVE THE GROUND, UNLESS OTHERWISE REQUIRED TO BE MOUNTED AT A HIGHER HEIGHT.

TEMPORARY SIGNS AND THEIR SUPPORTS SHALL NOT BE IN PLACE LONGER THAN 3 DAYS. ANY SIGN THAT IS TO BE IN PLACE LONGER THAN 3 DAYS SHALL BE POST MOUNTED OR MOUNTED TO A DRUM, BARRICADE, OR BARRIER, AS REQUIRED BY THE PLANS OR SPECIFICATIONS.

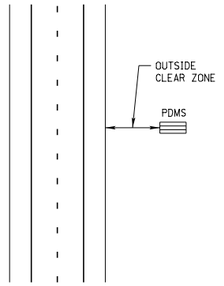
PORTABLE DYNAMIC MESSAGE SIGN DELINEATION



IN MEDIAN



ON SHOULDER



OFF SHOULDER

PORTABLE DYNAMIC MESSAGE SIGNS (PDMS)

THE PLACEMENT OF PDMS SHOULD BE IN THE FOLLOWING ORDER:

WHENEVER POSSIBLE, PDMS SHOULD BE PLACED OFF OF ANY USABLE PORTION OF THE ROADWAY ON THE RIGHT SIDE OF THE ROADWAY. WHEN PLACED OUTSIDE THE CLEAR ZONE OR BEHIND GUARDRAIL OR CONCRETE PROTECTION BARRIERS, DELINEATION IS NOT REQUIRED.

WHERE FIELD CONDITIONS DO NOT ALLOW FOR THIS PLACEMENT, THE SIGNS MAY BE LOCATED ON THE OUTSIDE SHOULDER OF THE ROADWAY OR WITHIN THE MEDIAN.

A. A MINIMUM CLEARANCE OF 3 FEET MEASURED HORIZONTALLY FROM THE EDGE OF THE SIGN TO THE EDGE OF THE TRAVELED WAY IS RECOMMENDED.
B. THE PDMS SHOULD HAVE A MINIMUM MOUNTED HEIGHT OF 7 FEET ON FREEWAYS, EXPRESSWAYS AND IN URBAN AREAS.
C. ALL OTHER RURAL APPLICATIONS SHOULD HAVE A MINIMUM HEIGHT OF 5 FEET.

THESE HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE PAVEMENT.

REFLECTORIZED PLASTIC DRUMS SHOULD BE USED TO DELINEATE EACH SIGN USING A 1/3 L TAPER. THESE DRUMS SHOULD BE POSITIONED ON THE UPSTREAM END OF THE SIGN TO FORM A TAPER LEADING UP TO THE TRAFFIC SIDE OF THE SIGN. FOR A SIGN LOCATED IN THE MEDIAN, THE SIGN SHOULD BE DELINEATED WITH A 42 INCH CONE ON ALL FOUR CORNERS.

WHEN DEPLOYED, THE SIGN SHALL BE SIGHTED AND ALIGNED WITH APPROACHING TRAFFIC TO ENSURE VISIBILITY OF THE MESSAGE. IF MULTIPLE SIGNS ARE USED, THE SIGNS SHOULD BE LOCATED ON THE SAME SIDE OF THE ROAD AND SEPARATED ACCORDING TO PROPER SIGN SPACING.

WHEN PRACTICAL, PDMS SHOULD NOT BE USED TO REPLACE STATIC SIGNS FOR LONG TERM USAGE (OVER 10 DAYS).

WHEN PDMS ARE TO BE DEPLOYED FOR LONG PERIODS, SUCH AS INCIDENT MANAGEMENT ROLES, CONCRETE PADS WITH APPROPRIATE TIE DOWNS SHOULD BE CONSTRUCTED FOR THEIR PLACEMENT.

PDMS NOT ACTIVELY BEING USED IN A CONSTRUCTION OR INCIDENT MANAGEMENT ROLE SHOULD BE REMOVED.

REFER TO NDOR "DMS GUIDELINES" FOR PROPER PDMS MESSAGE INFORMATION.

NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL MEET THE APPLICABLE STANDARDS AND SPECIFICATIONS PRESCRIBED IN PART 6 OF THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD)" AND THE STATE OF NEBRASKA SUPPLEMENT TO THE MUTCD. ALL TRAFFIC CONTROL DEVICES SHALL BE CRASHWORTHY AND QUALIFY AS SUCH ACCORDING TO THE TESTING AND ACCEPTANCE GUIDELINES OF THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. TRAFFIC CONTROL PLANS AND DEVICES SHOULD FOLLOW THE PRINCIPLES SET FORTH, BUT MAY DEVIATE FROM THE TYPICAL DRAWINGS TO ALLOW FOR CONDITIONS AND REQUIREMENTS OF THE PROJECT.
3. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SO AS NOT TO OBSTRUCT THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
4. THE ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE THE USE, AND APPROVE THE LOCATION OF ANY OF THE DEVICES SHOWN IN THESE PLANS.

WORK ZONE SPEED LIMIT NOTES

A. WORK ZONE SPEED LIMITS SHALL NOT BE INSTALLED WITHOUT A SPEED ZONE AUTHORIZATION COMPLETED BY THE DEPARTMENT.
B. REDUCED SPEED LIMITS SHOULD BE USED ONLY IN THE SPECIFIC PORTION OF THE WORK ZONE WHERE CONDITIONS OR RESTRICTIVE FEATURES ARE PRESENT. HOWEVER, FREQUENT CHANGES IN THE SPEED LIMIT SHOULD BE AVOIDED. THE REDUCTION OF SPEED SHOULD BE DESIGNED SO VEHICLES CAN SAFELY TRAVEL THROUGH THE WORK ZONE WITH A SPEED LIMIT REDUCTION OF NO MORE THAN 10 MPH UNLESS OTHERWISE NOTED IN THE PLANS.
C. WORK ZONE SPEED LIMITS SHOWN ARE TYPICAL APPLICATIONS ONLY AND ARE NOT TO BE ASSUMED AS THE SPEED LIMITS REQUIRED FOR THE WORK.
D. EXISTING SPEED LIMIT SIGNS SHALL BE REMOVED OR COVERED WHEN A REDUCED WORK ZONE SPEED LIMIT IS IN EFFECT IN THE SAME AREA.
E. WORK ZONE SPEED LIMIT SIGNS SHALL BE INSTALLED EVERY MILE THROUGH THE WORK AREA WHEN SPEED ZONE IS REDUCED.
F. A SPEED LIMIT SIGN ENDING THE REDUCED SPEED ZONE SHALL BE INSTALLED AT THE END OF EACH ZONE.
G. DOUBLE FINES AND REDUCED SPEED ZONE SIGNING ARE NOT REQUIRED FOR SHORT-DURATION WORK LESS THAN 12 HOURS.

TAPER FORMULA

L = S x W FOR SPEEDS OF 45 MPH OR MORE.

L = $\frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

W = WIDTH OF OFFSET (LANE WIDTH).

LEGEND

- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- PORTABLE DYNAMIC MESSAGE SIGN

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 920-R7

TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

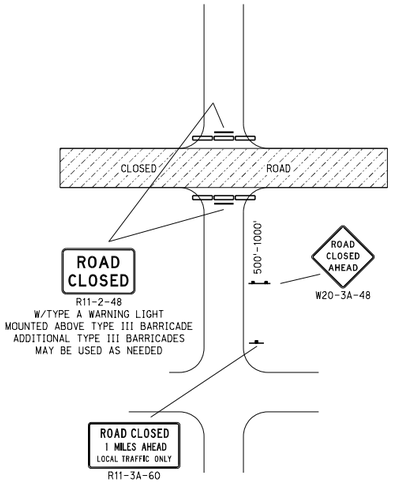
DATE

ORIGINAL:
OCTOBER 1998
DATE

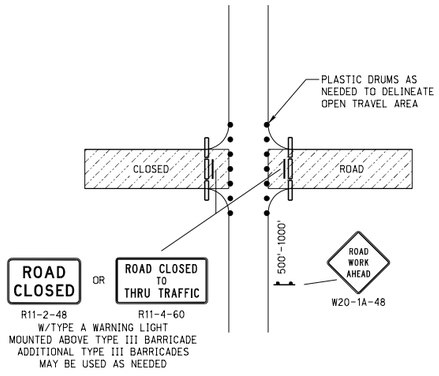
3
3

Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:21
File: 92000e07.dgn

CROSS ROAD INTERSECTING CLOSED ROAD

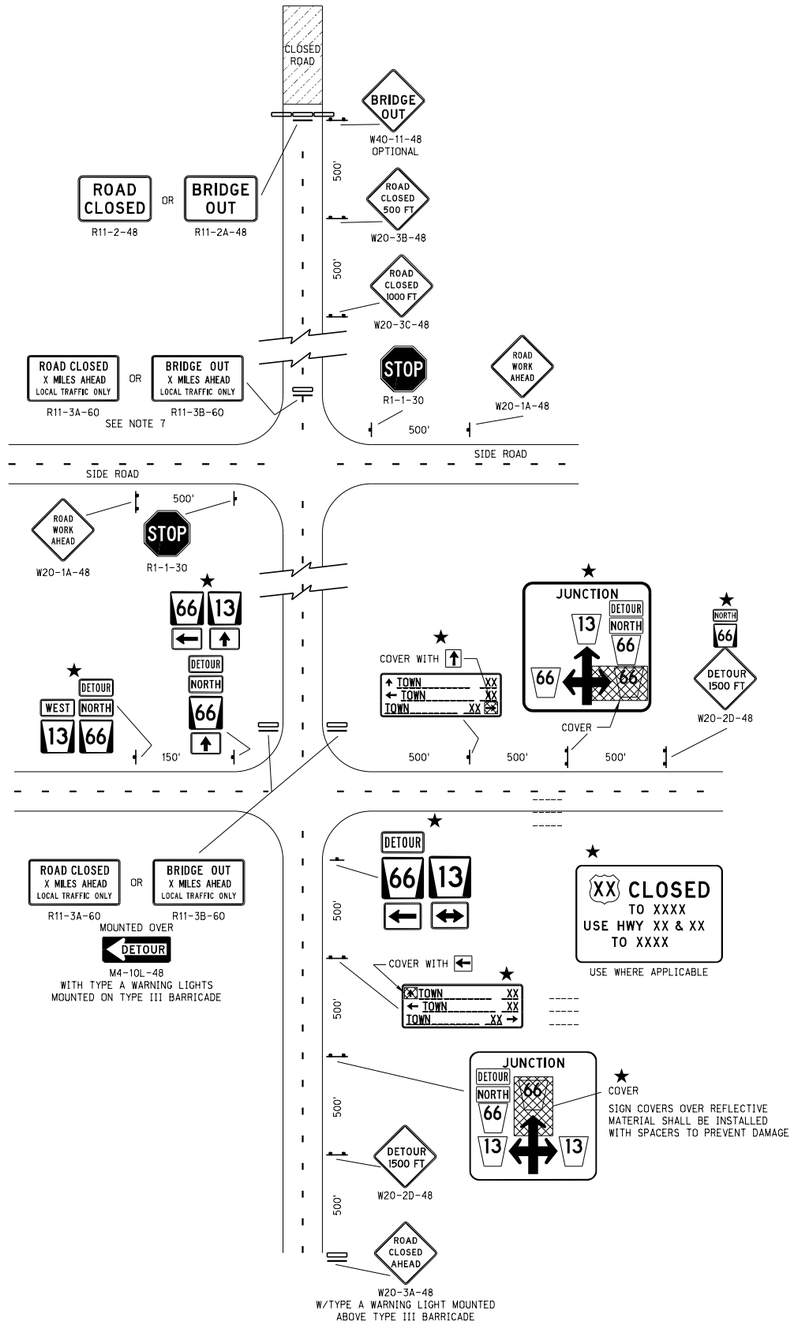


TRAFFIC NOT ALLOWED TO CROSS CLOSED ROAD



TRAFFIC ALLOWED TO CROSS CLOSED ROAD

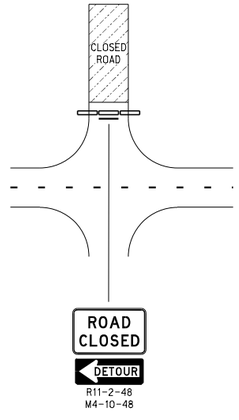
ROAD CLOSED BEYOND JUNCTION



NOTES

1. SIGNS SHOWN ARE USUALLY FOR ONE DIRECTION OF TRAVEL ONLY.
2. THE CONTRACTOR SHALL INSTALL, MAINTAIN, AND REMOVE ALL SIGNS IN ACCORDANCE WITH THE DETAILS OF AND AT THE LOCATIONS SHOWN IN THE PLANS. SIGNS INSTALLED BY THE DEPARTMENT OR OTHER GOVERNMENT AGENCY SHALL BE MAINTAINED AND REMOVED BY THEIR FORCES.
3. WHEN MESSAGE IS NOT PERTINENT, SIGNS SHALL BE TAKEN DOWN, COVERED OR FOLDED. TAPE IS NOT PERMITTED ON THE FACE OF THE SIGN.
4. VEHICLES OR EQUIPMENT SHALL NOT BE PARKED SO AS TO OBSCURE OR DISTRACT FROM TRAFFIC CONTROL DEVICES.
5. FLAGS MAY BE USED TO CALL ATTENTION TO WARNING SIGNS.
6. WHEN APPROPRIATE THE SIGN R11-2B "BRIDGE OUT" MAY BE USED INSTEAD OF R11-2 "ROAD CLOSED".
7. BARRICADE AND SIGN MAY BE PLACED ALONG EDGE OF ROAD IF NEEDED FOR LOCAL TRAFFIC.
8. REFER TO STANDARD PLAN 920 FOR GENERAL INFORMATION NOT SHOWN.

ROAD CLOSED AT JUNCTION



LEGEND

- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- ★ INSTALLED BY OTHERS

TAPER FORMULA

L = S x W FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

W = WIDTH OF OFFSET (LANE WIDTH).

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	JUN 14	2009 MUTCD UPDATES

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 923-R2

TRAFFIC CONTROL ROAD CLOSURE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

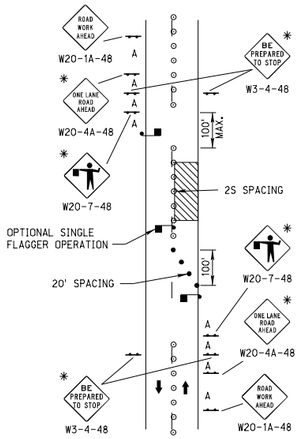
DATE

ORIGINAL: AUGUST 1998
DATE

1
1

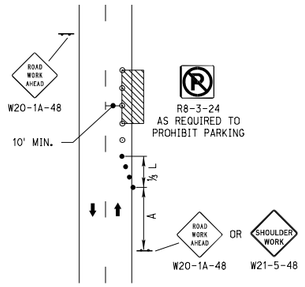
File: 923l0e02.dgn
Date: 29-JUN-2021 09:21
Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:21
File: 92400e04.dgn

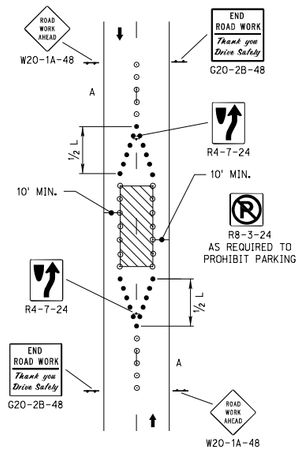


ONE LANE CLOSED
WITH FLAGGER

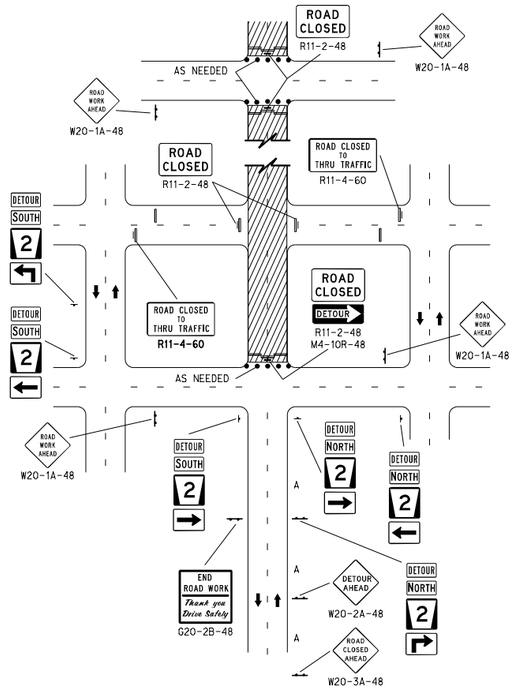
✳ SIGNS AND CONES ARE SUBSIDIARY TO THE FLAGGING OPERATION.



SHOULDER OR PARKING
LANE CLOSED

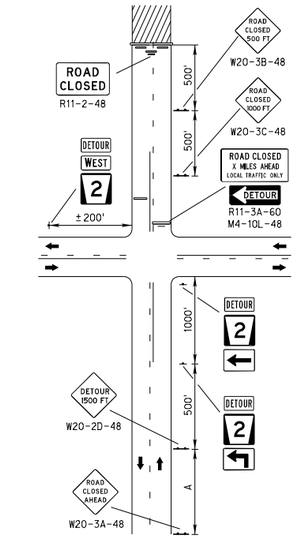


WORK IN CENTER OF
ROAD WITH LOW
TRAFFIC VOLUMES



ROAD CLOSED AT DETOUR

ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS
	A
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'



ROAD CLOSED BEYOND DETOUR

LEGEND

- FLASHING ARROW PANEL
- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- TUBULAR POST
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- FLAGGER
- xxxx PAVEMENT MARKING REMOVAL

TAPER FORMULA

L = S x W FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

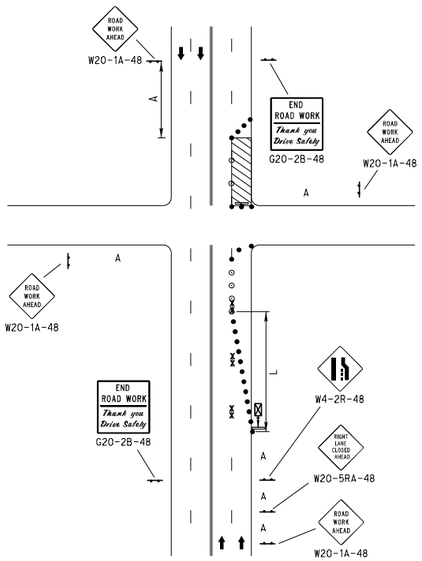
WHERE:
L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

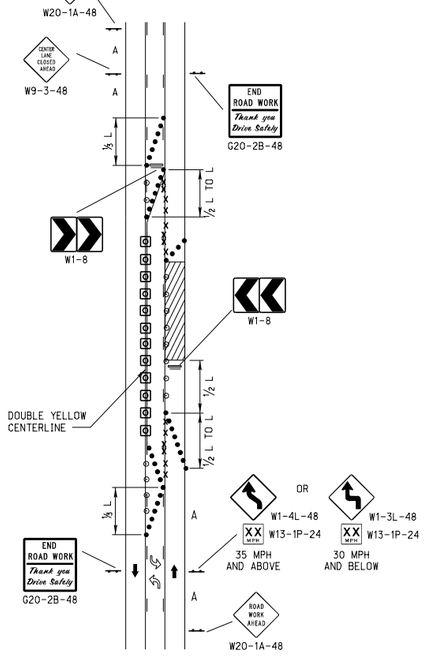
W = WIDTH OF OFFSET (LANE WIDTH).

NOTES

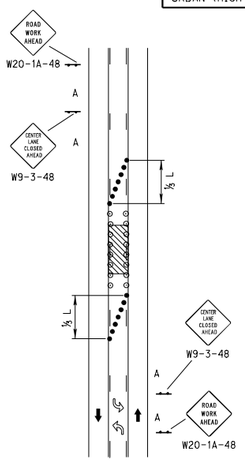
1. ALL BARRICADE AND SIGN LOCATIONS ON THIS PLAN ARE APPROXIMATE, AND MAY BE ADJUSTED TO FIT FIELD CONDITIONS. THE SIGNS SHALL BE INSTALLED SO AS NOT TO OBSCURE THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
2. MINIMUM WIDTH OF TRAVELLED LANE SHALL BE AS REQUIRED BY THE ENGINEER.
3. FLASHING ARROW PANEL REQUIRED ON ALL ROADWAYS WITH POSTED SPEED LIMIT 45 MPH OR HIGHER. THE USE OF A FLASHING ARROW PANEL IS OPTIONAL ON ROADWAYS WITH A POSTED SPEED OF 40 MPH OR LOWER.
4. LONG-TERM FLASHING ARROW PANELS IN URBAN RESIDENTIAL AREAS WHERE DIESEL ENGINE NOISE WILL BE DISRUPTIVE TO RESIDENTS, MAY BE REQUIRED TO OPERATE BY 120 VAC, OR IF SIGHT DISTANCE ALLOWS, A SOLAR POWERED ARROW PANEL MAY BE USED.
5. FOR SHORT-TERM WORK (LESS THAN 24 HOURS) SIGN G20-2B-48 (END ROAD WORK, THANK YOU, DRIVE SAFELY) MAY BE OMITTED.
6. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT (S). WHERE CHANNELIZING DEVICES ARE USED ALONG THE WORK AREA, THE SPACING MAY BE INCREASED TO THE DISTANCE IN FEET EQUAL TO THE SPEED LIMIT, DOUBLED (2 × S). SEE "TAPER FORMULA" TABLE FOR MORE INFORMATION.
7. FOR LANE CLOSURES OVER 72 HOURS, ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED. ON ASPHALT SURFACES, DURABLE PAVEMENT MARKINGS MAY BE COVERED WITH APPROVED BLACK TEMPORARY PAVEMENT MARKING TAPE.
8. DESIGNATION OF SPEED SHOWN ON ADVISORY SPEED SIGNS W13-1P SHALL BE DETERMINED BY THE ENGINEER IN ACCORDANCE WITH MUTCD. THE SPEED DESIGNATION SHALL BE AS HIGH AS PRACTICAL AND FEASIBLE.



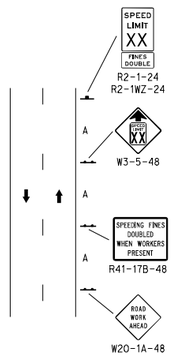
LANE CLOSED NEAR INTERSECTION
(RIGHT LANE CLOSED)



3-LANE ROADWAY
ONE LANE CLOSED



TWO-WAY LEFT TURN
LANE CLOSED



TYPICAL ADVANCED
SIGNING

REV. NO.	DATE	DESCRIPTION OF REVISION
R4	JUL 20	ADDED NOTE TO SHEET ONE
R3	JAN 19	TOOK OUT 1/2 L ON SHEET 2
R2	JAN 18	NDOR BORDER TO NDOT BORDER

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 924-R4

URBAN TRAFFIC CONTROL PLAN

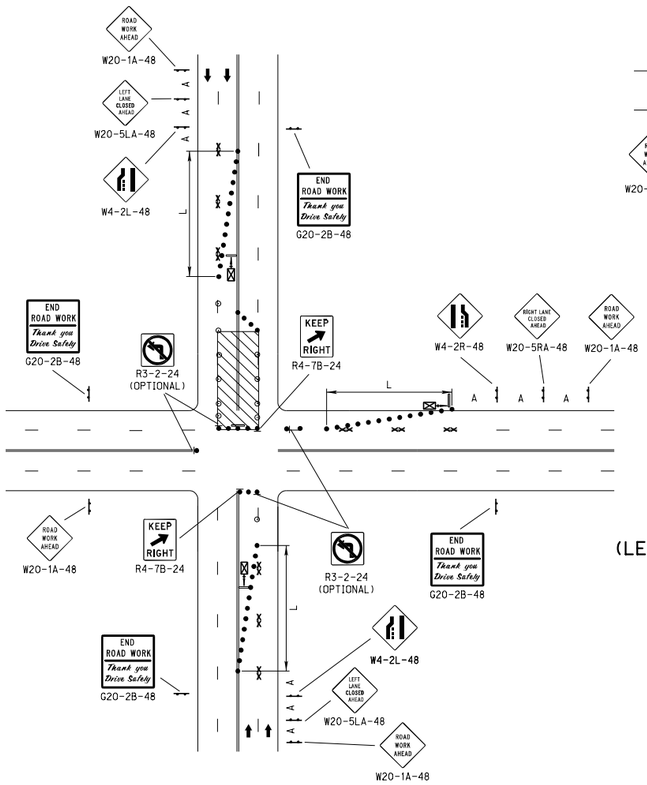
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

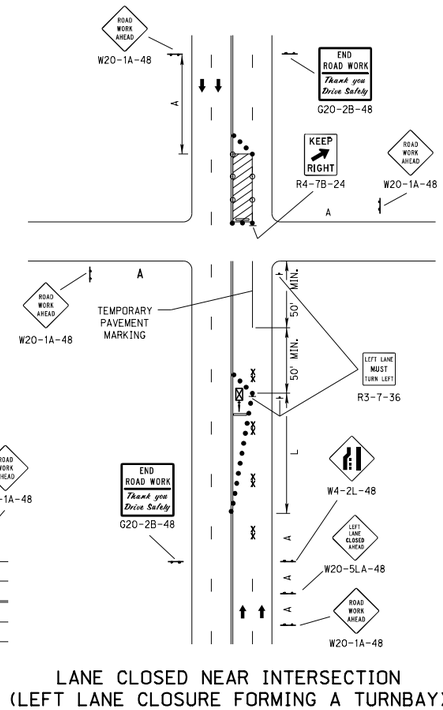
DATE

ORIGINAL:
FEBRUARY 1, 2010
DATE

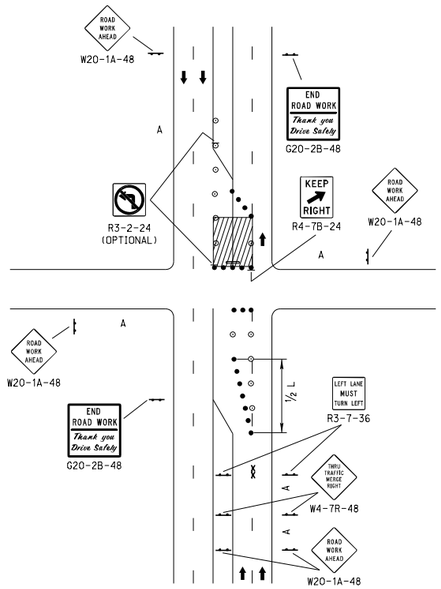
1
3



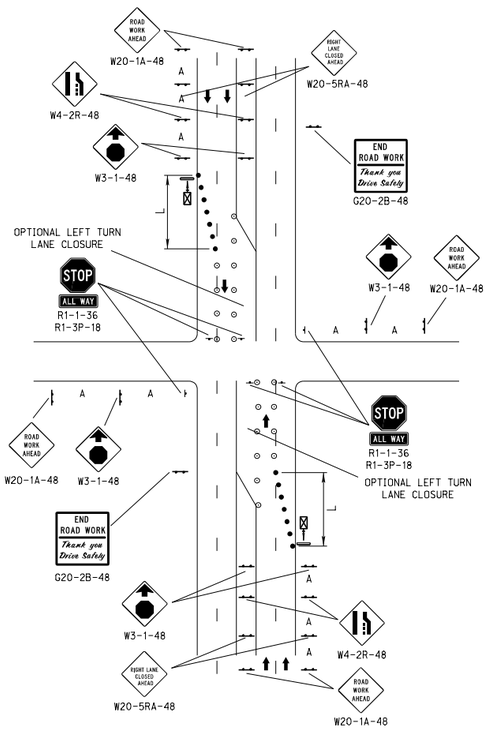
4 LANE UNDIVIDED ROADWAY
CENTER LANES CLOSED
NEAR INTERSECTION



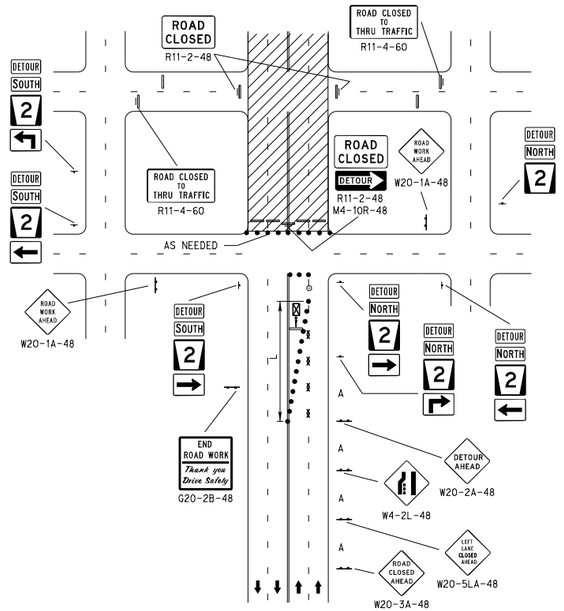
LANE CLOSED NEAR INTERSECTION
(LEFT LANE CLOSURE FORMING A TURNBAY)



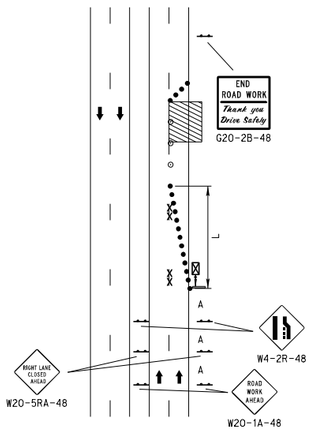
4 LANE DIVIDED ROADWAY
CENTER LANES CLOSED
NEAR INTERSECTION



TEMPORARY ALL-WAY STOP
FOR SIGNAL WORK



ROAD CLOSED AT DETOUR
(OPTIONAL LANE CLOSURE)



DIVIDED ROADWAY
ONE LANE CLOSED

ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS
	A
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'

LEGEND

- FLASHING ARROW PANEL
- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- TUBULAR POST
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- FLAGGER
- xxxx PAVEMENT MARKING REMOVAL

TAPER FORMULA

L = S x W FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:
L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

W = WIDTH OF OFFSET (LANE WIDTH).

REV. NO.	DATE	DESCRIPTION OF REVISION
R4	JUL 20	ADDED NOTE TO SHEET ONE
R3	JAN 19	TOOK OUT 1/2 L ON SHEET 2
R2	JAN 18	NDOR BORDER TO NDOT BORDER

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 924-R4

URBAN TRAFFIC CONTROL PLAN

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

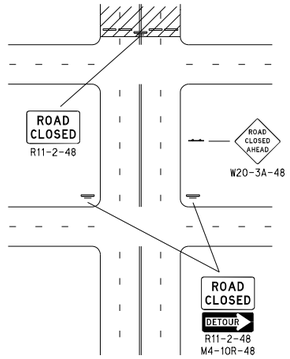
PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

DATE

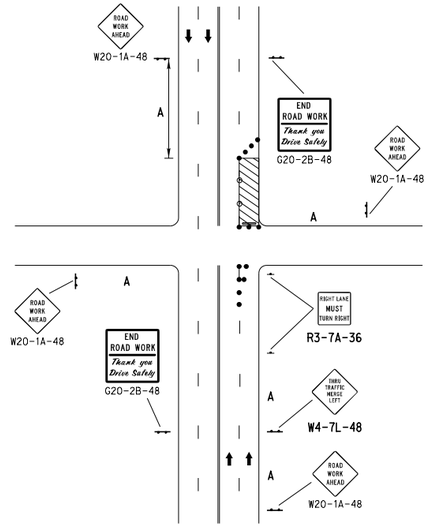
ORIGINAL:
FEBRUARY 1, 2010
DATE

2
3

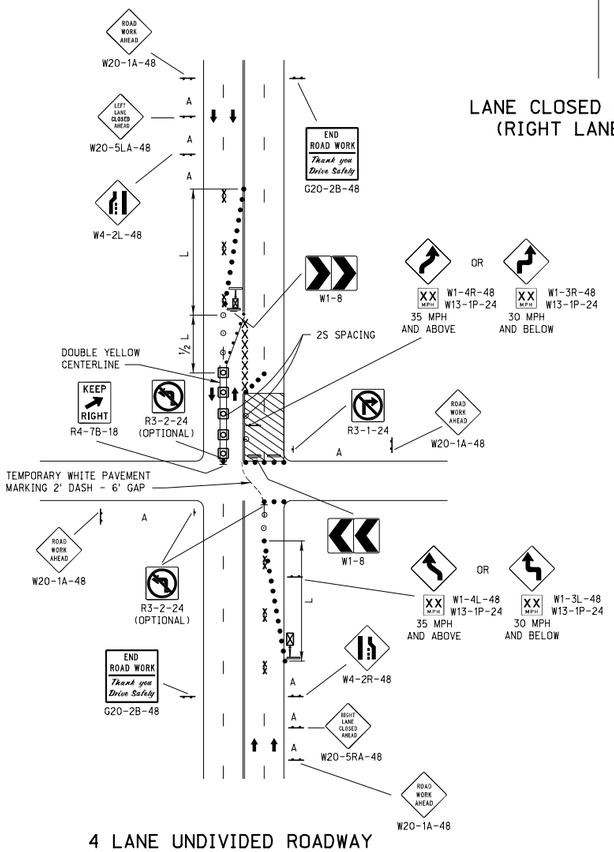
File: 924006e04.dgn
Date: 29-JUN-2021 09:21
Computer: NDOTDESIGN134



ROAD CLOSED
BEYOND DETOUR



LANE CLOSED NEAR INTERSECTION
(RIGHT LANE REMAINS OPEN)



4 LANE UNDIVIDED ROADWAY
TWO LANES CLOSED NEAR INTERSECTION

LEGEND

- FLASHING ARROW PANEL
- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- TUBULAR POST
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- FLAGGER
- XXXX PAVEMENT MARKING REMOVAL

TAPER FORMULA

$L = S \times W$ FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:
L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

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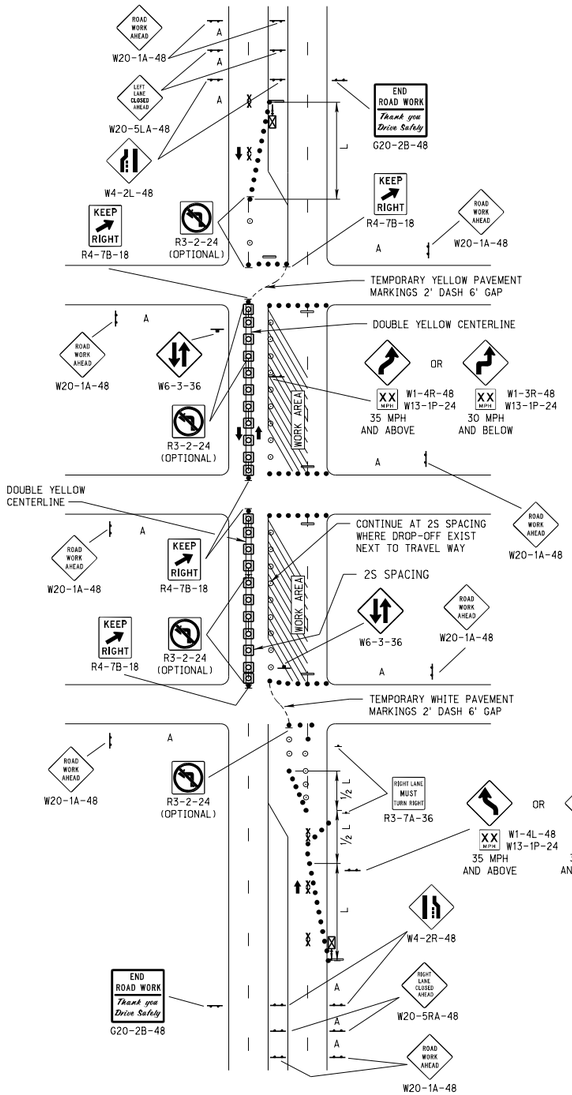
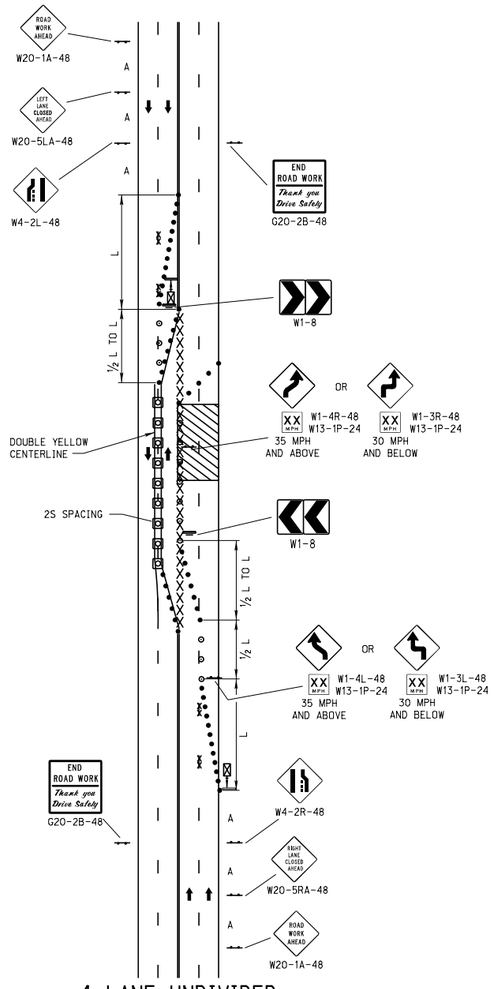


4-LANE DIVIDED
HALF CLOSED

ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS
	A
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'



4-LANE UNDIVIDED
2 LANES CLOSED

REV. NO.	DATE	DESCRIPTION OF REVISION
R4	JUL 20	ADDED NOTE TO SHEET ONE
R3	JAN 19	TOOK OUT 1/2 L ON SHEET 2
R2	JAN 18	NDOR BORDER TO NDOT BORDER

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 924-R4

URBAN TRAFFIC CONTROL PLAN

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

DATE

ORIGINAL:
FEBRUARY 1, 2010
DATE

File: 92400e04.dgn Date: 29-JUN-2021 09:21 Computer: NDOTDESIGN34

Full set is 214 pages and can be viewed at City Hall or the City Engineer's Office during regular business hours, 7A - 4P Mon - Fri.*

CONTRACT DOCUMENTS

CITY OF SEWARD, NE
BRADFORD STREET, 10TH ST. TO 6TH ST.
STORM SEWER IMPROVEMENTS

SCHEMMER PROJECT NO. 08586.001-B

SCHEMMER

Design with Purpose. Build with Confidence.

FEBRUARY 2023

SCHEMMER

Design with Purpose. Build with Confidence.

Project: Park Avenue Storm Sewer
Cost Estimate

Job No.: SCHEMMER 08586.001-A

PARK AVENUE FINAL OPINION OF PROBABLE CONSTRUCTION COSTS

COMPUTED BY: Alex Roth DATE: 2/14/2023

CHECKED BY: Doug Holle DATE: 2/14/2023

UPDATES:

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
0005.01	TRAFFIC CONTROL	1	LS	$5,000.00	$5,000.00
0030.00	MOBILIZATION (10%)	1	LS	$120,000.00	$120,000.00
1000.00	LARGE TREE REMOVAL	10	EA	$2,200.00	$22,000.00
1009.00	GENERAL CLEARING AND GRUBBING	1	LS	$5,000.00	$5,000.00
1011.00	WATER	11	MGAL	$60.00	$648.24
1031.00	ROCK RIPRAP, TYPE B	43	TON	$95.00	$4,085.00
1043.50	RIPRAP FILTER FABRIC	77	SY	$6.00	$462.00
1101.00	REMOVE PAVEMENT	2,933	SY	$20.00	$58,660.00
1101.25	SAWING PAVEMENT	223	LF	$20.00	$4,460.00
1103.00	REMOVE AND SALVAGE BRICK SURFACE	71	SY	$10.00	$710.00
1106.00	REMOVE DRIVEWAY	298	SY	$10.00	$2,980.00
1107.00	REMOVE WALK	364	SY	$15.00	$5,460.00
1114.10	REMOVE RETAINING WALL	17	LF	$30.00	$510.00
1117.00	REMOVE MANHOLE	1	EA	$1,000.00	$1,000.00
1119.00	REMOVE INLET	7	EA	$850.00	$5,950.00
1995.00	STABILIZED CONSTRUCTION EXIT	2	EA	$2,000.00	$4,000.00
2010.00	CRUSHED ROCK SURFACE COURSE	3	CY	$80.00	$240.00
2021.05	REMOVE AND RESET MAILBOX	2	EA	$160.00	$320.00
3016.21	CONCRETE CLASS 47B-3000 SIDEWALK 4"	697	SY	$60.00	$41,820.00
3016.39	DETECTABLE WARNING PANEL	120	SF	$55.00	$6,600.00
3017.15	CONCRETE HEADER	48	LF	$65.00	$3,120.00
3020.24	CONCRETE CLASS 47B-3500 DRIVEWAY 6"	322	SY	$70.00	$22,540.00
3075.22	7" CONCRETE PAVEMENT, CLASS 47B-3500	2,726	SY	$75.00	$204,450.00
3075.58	7" REINFORCED CONCRETE PAVEMENT, CLASS 47B-3500	142	SY	$112.50	$15,975.00
4015.00	ADJUST MANHOLE TO GRADE	2	EA	$1,000.00	$2,000.00
4016.00	72" MANHOLE	1	EA	$8,000.00	$8,000.00
4043.50	REMOVE SEWER PIPE	489	LF	$20.00	$9,780.00
4045.00	REMOVE STRUCTURE (BOX CULVERT)	2	EA	$5,000.00	$10,000.00
4051.01	EXCAVATION FOR BOX CULVERTS	272	CY	$26.00	$7,072.00
4107.04	CLASS 47B-3000 CONCRETE FOR CONCRETE COLLARS	1.00	CY	$1,300.00	$1,300.00
4130.06	CLASS 47B-3000 CONCRETE FOR PIPE CULVERT PLUG	0.85	CY	$1,400.00	$1,190.00
4151.10	EPOXY COATED REINFORCING STEEL FOR BOX CULVERT	21,534	LB	$2.50	$53,835.00
4157.00	REINFORCING STEEL FOR COLLARS	58	LB	$2.50	$145.00
6010.26	CLASS 47BD-4000 CONCRETE FOR BOX CULVERT	111	CY	$850.00	$94,265.00
6310.00	STEEL SHEET PILING	150	SF	$40.00	$6,004.00
7309.90	REMOVE AND REINSTALL SIGN	4	EA	$250.00	$1,000.00
7110.00	TEMPORARY FENCE	177	LF	$5.00	$885.00
8010.00	CRUSHED ROCK FOR BASE COURSE	71	TON	$115.00	$8,142.00
9034.00	PREPARATION OF INTERSECTIONS AND DRIVEWAYS	322	SY	$10.00	$3,220.00
9170.00	EARTH SHOULDER CONSTRUCTION	8.8	STA	$200.00	$1,760.00
9173.20	SUBGRADE PREPARATION	2,868	SY	$5.00	$14,340.00
L010.00	SODDING	1,342	SY	$20.00	$26,840.00
L019.13	EROSION CONTROL, CLASS 1D	119	SY	$10.00	$1,190.00
L021.72	CURB INLET PROTECTION	324	LF	$20.00	$6,480.00
L022.11	FABRIC SILT FENCE ' LOW POROSITY'	356	LF	$3.50	$1,246.00
P700.15	15" STORM SEWER PIPE, TYPE 2	238	LF	$75.00	$17,850.00
P700.18	18" STORM SEWER PIPE, TYPE 2	80	LF	$80.00	$6,400.00
P700.24	24" STORM SEWER PIPE, TYPE 2	53	LF	$112.00	$5,936.00
P700.36	36" STORM SEWER PIPE, TYPE 2	294	LF	$140.00	$41,160.00
P127.36	36" ROUND EQUIVALENT STORM SEWER PIPE, TYPE 2	320	LF	$225.00	$72,000.00
P127.42	42" ROUND EQUIVALENT STORM SEWER PIPE, TYPE 2	806	LF	$250.00	$201,500.00
	NDOT STANDARD CURB INLET, PLAN 443 (Y=12')	11	EA	$7,000.00	$77,000.00
	NDOT STANDARD CURB INLET, PLAN 443 (Y=8')	1	EA	$6,500.00	$6,500.00
	LARGE JUNCTION BOX (Special Plans 2C & 3C)	2	EA	$12,000.00	$24,000.00
	JUNCTION BOX (Special Plans 4C & 5C)	2	EA	$8,000.00	$16,000.00
	REMOVE & REPLACE SANITARY SEWER PIPE	20	LF	$400.00	$8,000.00
	REMOVE AND REINSTALL BARRICADE	1	EA	$1,000.00	$1,000.00

SCHEMMER

Design with Purpose. Build with Confidence.

Project: Park Avenue Storm Sewer
Cost Estimate

Job No.: SCHEMMER 08586.001-A

PARK AVENUE FINAL OPINION OF PROBABLE CONSTRUCTION COSTS

COMPUTED BY: Alex Roth DATE: 2/14/2023

CHECKED BY: Doug Holle DATE: 2/14/2023

UPDATES:

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL COST
	UTILITY POTHOLING	10	EA	$1,200.00	$12,000.00
	WATER MAIN RECONSTRUCTION (LOOP)	2	EA	$20,000.00	$40,000.00
	SUBTOTAL CONSTRUCTION				$1,324,030.24
	CONSTRUCTION CONTINGENCIES (15% OF CONSTRUCTION)				$198,604.54
	PARK AVENUE TOTAL CONSTRUCTION COST				**$1,522,635**
ROW (Approximate Impacts and Costs)					.
	TEMPORARY EASEMENT	6,599	SF	$0.00	$0
	TOTAL RIGHT-OF-WAY COSTS				**$0**
	PARK AVENUE CONSTRUCTION ENGINEERING & INSPECTION	**12%**			**$182,716**
	PARK AVENUE GRAND TOTAL				**$1,705,351**

SCHEMMER
Design with Purpose. Build with Confidence.

PROJECT NO.	SHEET NO.
SCHEMMER NO. 08586001-A	A1

PLANS FOR CONSTRUCTION

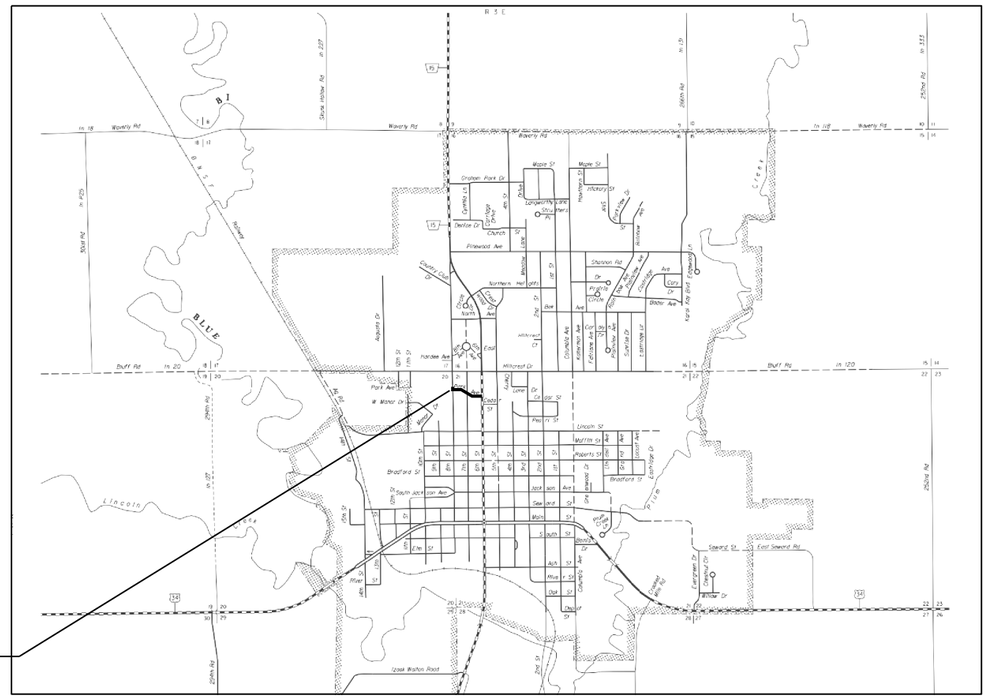
PARK AVENUE
STORM SEWER IMPROVEMENTS
CITY OF SEWARD

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
A1	TITLE SHEET
B1	TYPICAL CROSS SECTIONS
C1	SUMMARY OF QUANTITIES
F1	HORIZONTAL ALIGNMENT AND CONTROL POINTS
G1 - G3	GENERAL INFORMATION
J1 - J3	GEOMETRICS
J4 - J5	JOINTS AND GRADES
J6 - J9	STORM SEWER PLAN AND PROFILES
J10 - J13	CONSTRUCTION AND REMOVAL
L1 - L2	PLAN AND PROFILE
L3 - L4	STORM WATER POLLUTION PREVENTION PLAN
L5 - L6	EROSION CONTROL
T1 - T4	SPECIAL PLAN 1C - BOX CULVERT
T5	SPECIAL PLAN 2C - JUNCTION BOX NO. 1
T6	SPECIAL PLAN 3C - JUNCTION BOX NO. 2
T7	SPECIAL PLAN 4C - JUNCTION BOX NO. 4
T8 - T9	SPECIAL PLAN 5C - JUNCTION BOX NO. 5
U1 - U2	SPECIAL PLAN 6C - CURB INLET PROTECTION
U3	SPECIAL PLAN 7C - CONCRETE WASHOUT & CONSTRUCTION EXIT
W1 - W2	RIGHT-OF-WAY
X1 - X13	CROSS SECTIONS

STD. PLAN NO.	DESCRIPTION
301	PAVEMENT DETAILS
303	CURB RAMPS
329	8 TO 16 INCH CONCRETE PAVEMENT
411	BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE
425	COLLARS AND ELBOWS FOR CONCRETE PIPE
428	CONCRETE PLUGS AND FIELD TAP DETAILS
435	MANHOLE
443	CURB INLETS AND JUNCTION BOX
501	EROSION CONTROL
502	SILT FENCE DETAILS
920	TRAFFIC CONTROL, CONSTRUCTION & MAINTENANCE
923	TRAFFIC CONTROL ROAD CLOSURE
924	URBAN TRAFFIC CONTROL PLAN

PROJECT LOCATION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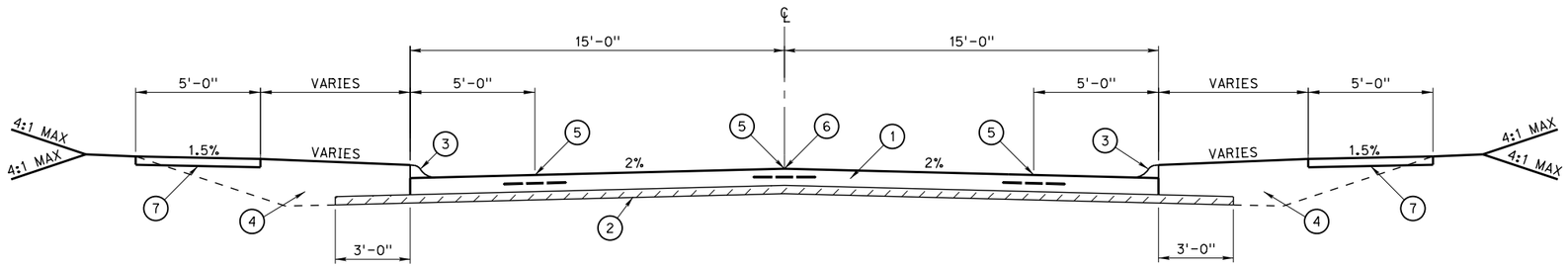
Bluff Rd
Lincoln
Park Ave
Bradford St
Jackson Ave
Main St
Seward St
Jefferson Ave
Columbia Ave
Madison Ave
Monroe Ave
Jackson Ave
Adams Ave
Washington Ave
Jefferson Ave
Lincoln St
Roberts St
Bradford St
Seward St
Madison St
Monroe St
Jackson St
Adams St
Washington St
Jefferson St

PROJECT NO.	SHEET NO.
08586001-A	B1

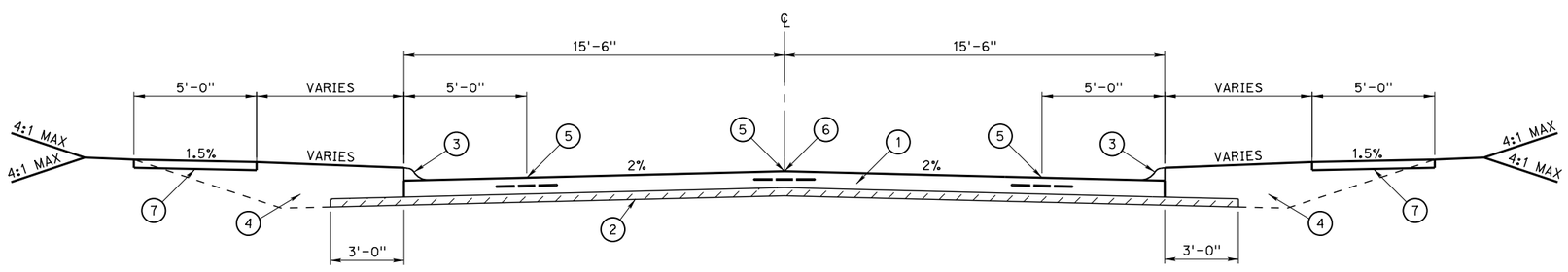
TYPICAL CROSS SECTIONS



PARK AVENUE

STATION TO STATION

STA 500+98 - STA 507+18



7TH STREET

STATION TO STATION

STA 700+14 - STA 702+45

LEGEND

1. 7" CONCRETE PAVEMENT
2. SUBGRADE PREPARATION
3. 6" INTEGRAL CURB
4. EARTH SHOULDER CONSTRUCTION
5. LONGITUDINAL JOINT W/ TIE BAR
6. PROFILE GRADE
7. 4" CONCRETE SIDEWALK

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
08586001-A	C1

SUMMARY OF QUANTITIES

GRADING
GROUP 1

ITEM	QUANTITY	UNITS
TRAFFIC CONTROL	1	LUMP SUM
MOBILIZATION	1	LUMP SUM
LARGE TREE REMOVAL	10	EACH
GENERAL CLEARING AND GRUBBING	1	LUMP SUM
WATER	11	MGALLON
REMOVE PAVEMENT	2933	SQUARE YARDS
SAWING PAVEMENT	223	LINEAL FEET
REMOVE AND SALVAGE BRICK SURFACE	71	SQUARE YARDS
REMOVE DRIVEWAY	298	SQUARE YARDS
REMOVE WALK	364	SQUARE YARDS
REMOVE RETAINING WALL	17	LINEAL FEET
REMOVE MANHOLE	1	EACH
REMOVE INLET	7	EACH
STABLIZED CONSTRUCTION EXIT	2	EACH
REMOVE AND RESET MAILBOX	2	EACH
UTILITY POTHOLING	10	EACH

SURFACING
GROUP 3

ITEM	QUANTITY	UNITS
CONCRETE CLASS 47B-3000 SIDEWALK, 4"	697	SQUARE YARDS
DETECTABLE WARNING PANELS	120	SQUARE FEET
CONCRETE HEADER	48	LINEAL FEET
CONCRETE CLASS 47B-3500 DRIVEWAY, 6"	322	SQUARE YARDS
7" CONCRETE PAVEMENT CLASS 47B-3500	2,726	SQUARE YARDS
7" REINFORCED CONCRETE PAVEMENT CLASS 47B-3500	142	SQUARE YARDS
ADJUST MANHOLE TO GRADE	2	EACH
CRUSHED ROCK SURFACE COURSE	3	CUBIC YARDS
PREPARATION OF INTERSECTIONS AND DRIVEWAYS	322	SQUARE YARDS
EARTH SHOULDER CONSTRUCTION	8.8	STA
SUBGRADE PREPARATION	2,868	SQUARE YARDS

DRAINAGE
GROUP 4

ITEM	QUANTITY	UNITS
72" MANHOLE	1	EACH
REMOVE SEWER PIPE	489	LINEAL FEET
REMOVE STRUCTURE (BOX CULVERTS)	2	EACH
EXCAVATION FOR BOX CULVERTS	272	CUBIC YARDS
CLASS 47B-3000 CONCRETE FOR CONCRETE COLLARS	1	CUBIC YARD
CLASS 47B-3000 CONCRETE FOR PIPE CULVERT PLUG	0.85	CUBIC YARD
EPOXY COATED REINFORCING STEEL FOR BOX CULVERT	21,534	POUNDS
REINFORCING STEEL FOR COLLARS	58	POUNDS
CLASS 47BD-4000 CONCRETE FOR BOX CULVERT	111	CUBIC YARD
STEEL SHEET PILING	150	SQUARE FEET
CRUSHED ROCK FOR BASE COURSE	71	TON
15" STORM SEWER PIPE, TYPE 2	238	LINEAL FEET
18" STORM SEWER PIPE, TYPE 2	80	LINEAL FEET
24" STORM SEWER PIPE, TYPE 2	53	LINEAL FEET
36" STORM SEWER PIPE, TYPE 2	294	LINEAL FEET
36" ROUND EQUIVALENT STORM SEWER PIPE, TYPE 2	320	LINEAL FEET
42" ROUND EQUIVALENT STORM SEWER PIPE, TYPE 2	806	LINEAL FEET
NDOT STANDARD CURB INLET, PLAN 443 (Y=8')	1	EACH
NDOT STANDARD CURB INLET, PLAN 443 (Y=12')	11	EACH
LARGE JUNCTION BOX (SPECIAL PLANS 2C & 3C)	2	EACH
JUNCTION BOX (SPECIAL PLANS 4C & 5C)	2	EACH
REMOVE AND REPLACE SANITARY SEWER PIPE	20	LINEAR FEET
WATER MAIN RECONSTRUCTION (LOOP)	2	EACH

PAVEMENT MARKING & SIGNING
GROUP 7

ITEM	QUANTITY	UNITS
REMOVE AND REINSTALL SIGN	4	EACH
REMOVE AND REINSTALL BARRICADE	1	EACH

EROSION CONTROL
GROUP L

ITEM	QUANTITY	UNITS
ROCK RIPRAP, TYPE B	43	TONS
RIPRAP FILTER FABRIC	77	SQUARE YARDS
TEMPORARY FENCE	177	LINEAL FEET
SODDING	1,342	SQUARE YARDS
EROSION CONTROL, CLASS 1D	119	SQUARE YARDS
FABRIC SILT FENCE 'LOW POROSITY'	356	LINEAL FEET
CURB INLET PROTECTION	324	LINEAL FEET
SWPPP SIGN	1	EACH

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
08586001-A	F1

ROADWAY DESIGN DIVISION.

Computer: DMAALEXR

Date: 14-FEB-2023 09:23

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Control Point Table

SEWARD COUNTY LOW DISTORTION PROJECTION
PROJECTION: LAMBERT CONFORMAL CONIC - 1 STANDARD PARALLEL
SCALE FACTOR: 1.0000661
CENTRAL MERIDIAN: -97°08'00"
STANDARD PARALLEL: 40°51'00"
FALSE NORTHING: 20,000 METERS (65,616,667 US FEET)
FALSE EASTING: 25,000 METERS (82,020,833 US FEET)

Point #	Elevation	Northing	Easting	Description
99	1488.24	89996.19	90283.49	3/4" REBAR
107	1489.00	89995.41	90416.98	3/4" REBAR
108	1485.42	89876.31	90282.08	3/4" REBAR W/PLASTIC CAP
109	1484.15	89874.91	90402.05	3/4" REBAR
110	1483.81	89854.90	90401.78	3/4" REBAR
111	1479.62	89734.93	90400.46	3/4" REBAR
112	1478.90	89734.14	90460.37	3/4" REBAR
113	1477.59	89737.35	90191.87	3/4" REBAR
114	1476.39	89696.87	90825.27	5/8" REBAR IN POT
115	1475.25	89663.66	90858.57	1" SQ. BOLT
116	1475.49	89664.37	90792.54	5/8" REBAR W/PLASTIC CAP
117	1480.49	89661.27	91098.36	1" SQ. BOLT
118	1483.48	89727.20	91102.54	1/2" REBAR
119	1483.69	89660.63	91178.08	1-1/2" OPEN TOP PIPE
120	1489.57	89816.43	91181.71	5/8" REBAR
122	1459.41	89311.15	90795.54	5/8" REBAR
123	1458.25	89314.70	90865.00	1" SQ. BOLT
124	1459.78	89309.74	90985.90	5/8" REBAR W/PLASTIC CAP
125	1459.76	89267.18	91100.52	5/8" REBAR
126	1462.21	89311.45	91180.18	1/2" OPEN TOP PIPE
127	1472.65	89258.77	91435.73	1" SQ. BOLT
128	1474.25	89257.05	91513.08	1/2" OPEN TOP PIPEW/ BOLT ON TOP
129	1466.68	89101.22	91515.12	3/4" OPEN TOP PIPE
130	1469.37	89094.77	91648.78	1/2" OPEN TOP PIPE
131	1470.20	88930.67	91437.65	1/2" OPEN TOP PIPE
132	1465.89	89103.64	91436.33	3/4" IRON
133	1492.49	89723.72	91429.18	1/4" REBAR
134	1492.99	89658.31	91432.01	1" SQUARE BOLT
135	1486.34	89836.28	90856.76	1/4" REBAR
136	1487.88	89830.30	90790.96	1/2" OPEN TOP PIPE
137	1476.33	89665.96	90646.37	3/4" PINCHED TOP PIPE
138	1476.68	89667.17	90546.40	3/4" PINCHED TOP PIPE
139	1463.27	89085.53	91181.52	3/4" IRON
140	1471.22	88948.36	91181.34	3/4" REBAR
141	1473.84	88888.18	91181.77	3/4" OPEN TOP PIPE
142	1465.28	89055.62	91101.22	5/8" REBAR

BENCHMARKS - NAVD88

POINT NAME	NORTHING	EASTING	ELEVATION	LONG DESCRIPTION
BM-101	89990	90411	1491.61	TOP NUT FIRE HYDRANT IN FRONT OF 898 IRONWOOD DR.
BM-102	89678	90407	1481.68	TOP NUT FIRE HYDRANT AT SW CORNER OF IRONWOOD DR. AND HILLCREST
BM-103	89259	90853	1462.48	TOP NUT FIRE HYDRANT AT SE CORNER OF PARK AND 8TH
BM-104	89267	91120	1462.30	TOP NUT FIRE HYDRANT AT NW CORNER OF PARK AND 7TH
BM-105	88943	91504	1472.32	TOP NUT FIRE HYDRANT AT SE CORNER OF CEDAR AND 6TH
BM-106	89737	91167	1489.22	TOP NUT FIRE HYDRANT AT NE CORNER OF HILLCREST AND 7TH

Beginning chain 7TH description
==========
Point 52 N 89,045.2641 E 91,141.0934 Sta 700+00.00
Course from 52 to 53 N 0° 17' 38.64" W Dist 102.7208
Point 53 N 89,147.9835 E 91,140.5662 Sta 701+02.72
Course from 53 to 54 N 0° 16' 07.48" W Dist 120.6802
Point 54 N 89,268.6623 E 91,140.0001 Sta 702+23.40
Course from 54 to 55 N 0° 17' 45.65" W Dist 196.9864
Point 55 N 89,465.6461 E 91,138.9824 Sta 704+20.39
Course from 55 to 56 N 0° 16' 21.12" W Dist 230.5353
Point 56 N 89,696.1789 E 91,137.8859 Sta 706+50.92
==========
Ending chain 7TH description

Beginning chain 8TH description
==========
Point 57 N 89,203.6130 E 90,831.3330 Sta 800+00.00
Course from 57 to 58 N 0° 37' 31.49" W Dist 44.0959
Point 58 N 89,247.7063 E 90,830.8517 Sta 800+44.10
Course from 58 to 59 N 0° 27' 04.84" W Dist 76.3690
Point 59 N 89,324.0729 E 90,830.2501 Sta 801+20.46
Course from 59 to 60 N 0° 30' 47.49" W Dist 182.9382
Point 60 N 89,507.0037 E 90,828.6116 Sta 803+03.40
Course from 60 to 61 N 0° 28' 48.82" W Dist 146.3959
Point 61 N 89,653.3945 E 90,827.3845 Sta 804+49.80
Course from 61 to 62 N 1° 46' 36.90" W Dist 112.8465
Point 62 N 89,766.1868 E 90,823.8854 Sta 805+62.65
Course from 62 to 63 N 0° 26' 19.37" W Dist 66.4906
Point 63 N 89,832.6754 E 90,823.3763 Sta 806+29.14
==========
Ending chain 8TH description

Beginning chain PARK description
==========
Point 15 N 89,284.6348 E 90,720.6474 Sta 500+00.00
Course from 15 to PC PARK1 S 88° 43' 25.64" E Dist 240.5462

Curve Data

Curve PARK1
P.I. Station = 503+10.81 N 89,277.7124 E 91,031.3783
Delta = 32° 53' 42.21" (RT)
Degree = 24° 04' 25.88"
Tangent = 70.2618
Length = 136.6422
Radius = 238.0000
External = 10.1546
Long Chord = 134.7733
Mid. Ord. = 9.7391
P.C. Station = 502+40.55 N 89,279.2773 E 90,961.1339
P.T. Station = 503+77.19 N 89,238.2486 E 91,089.5103
C.C. N 89,041.3363 E 90,955.8332
Back = S 88° 43' 25.64" E
Ahead = S 55° 49' 43.44" E
Chord Bear = S 72° 16' 34.54" E

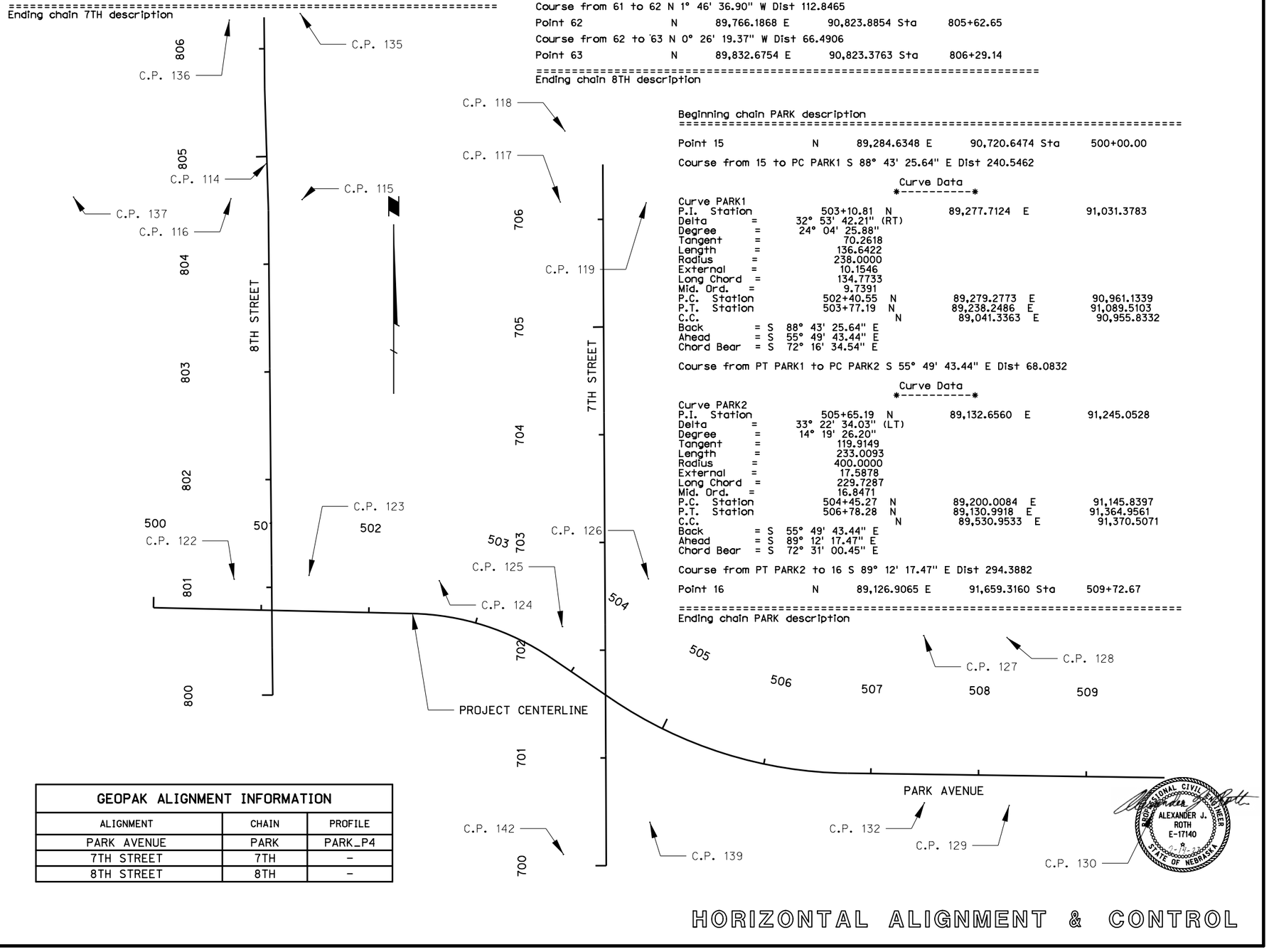
Course from PT PARK1 to PC PARK2 S 55° 49' 43.44" E Dist 68.0832

Curve Data

Curve PARK2
P.I. Station = 505+65.19 N 89,132.6560 E 91,245.0528
Delta = 33° 22' 34.03" (LT)
Degree = 14° 19' 26.20"
Tangent = 119.9149
Length = 233.0093
Radius = 400.0000
External = 17.5878
Long Chord = 229.7287
Mid. Ord. = 16.8471
P.C. Station = 504+45.27 N 89,200.0084 E 91,145.8397
P.T. Station = 506+78.28 N 89,130.9918 E 91,364.9561
C.C. N 89,530.9533 E 91,370.5071
Back = S 55° 49' 43.44" E
Ahead = S 89° 12' 17.47" E
Chord Bear = S 72° 31' 00.45" E

Course from PT PARK2 to 16 S 89° 12' 17.47" E Dist 294.3882

Point 16 N 89,126.9065 E 91,659.3160 Sta 509+72.67
==========
Ending chain PARK description



GEOPAK ALIGNMENT INFORMATION

ALIGNMENT	CHAIN	PROFILE
PARK AVENUE	PARK	PARK_P4
7TH STREET	7TH	-
8TH STREET	8TH	-

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-14-23

HORIZONTAL ALIGNMENT & CONTROL

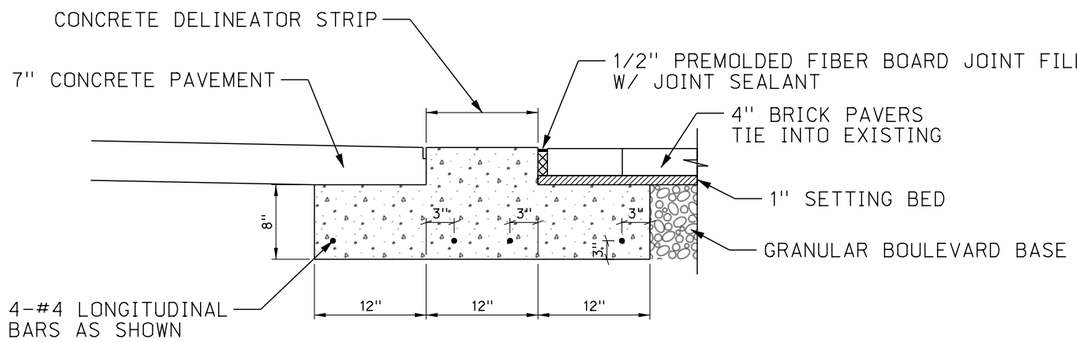
PROJECT NO.	SHEET NO.
08586001-A	G1

GENERAL INFORMATION

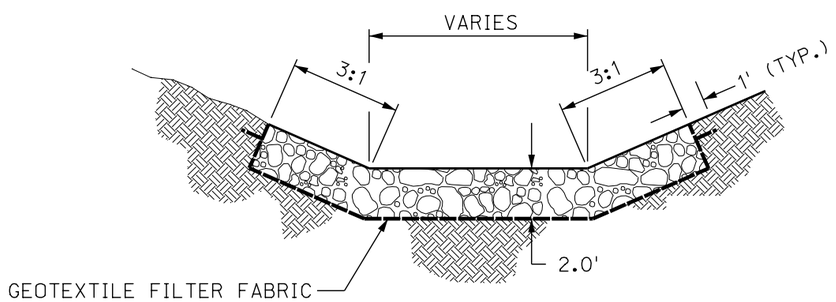
LEGEND

- GAS LINE
- ELECTRICAL SERVICE
- POWER LINE
- OVERHEAD POWER LINE
- SANITARY SEWER
- STORM SEWER
- TELEPHONE LINE
- FIBER OPTIC TELE. LINE
- OVERHEAD TELEPHONE LINE
- CABLE TV LINE
- OVERHEAD CABLE TV LINE
- WATER LINE
- FENCE - CHAIN LINK
- FENCE - R.O.W. OR WIRE
- FENCE - WOOD
- FLOWLINE
- CENTER LINE DRIVE
- BENCH MARK
- CENTER PIVOT
- CONTROL POINT
- DIKE
- GAS METER
- GAS VALVE
- GRID TICK
- GUARDRAIL
- GUARD POST
- GUY POLE
- GUY WIRE
- LIGHT POLE
- MAILBOX
- MANHOLE
- MARSH
- OIL WELL
- PHOTO CODE POINT
- POWER BOX
- POWER POLE
- POWER PULL BOX
- PROPANE TANK
- R.O.W. MARKER
- ADVANCED R.R. WARNING SIGN
- RAILROAD WARNING
- RAILROAD TRACKS
- RETAINING WALL
- SATELLITE DISH
- SIGN
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL/ST. LIGHT
- TELEPHONE BOX
- TELE. FIBER OPTICS BOX
- TELEPHONE PULL BOX
- TELEPHONE POLE
- TELEVISION BOX
- TREE - CONIFEROUS
- TREE - DECIDUOUS
- TREE STUMP
- WATER (FIRE) HYDRANT
- WATER VALVE
- WATER METER
- WELL
- WINDMILL

CULVERT PIPE LEGEND		
TYPE		DESCRIPTION
1	RCSP	Reinforced Concrete Sewer Pipe
2	RCP	Reinforced Concrete Pipe
3	GCCMP	Galvanized (zinc) Coated Corrugated Metal Pipe
4	ACCMP	Aluminum Coated Corrugated Metal Pipe
5	PCCMP	Polymer Coated Corrugated Metal Pipe
6	HDPE-CI	High Density Polyethylene (corrugated Interior)
7	HDPE-SI	High Density Polyethylene (smooth Interior)
8	PVC	Polyvinyl Chloride Pipe



CONCRETE HEADER DETAIL



ROCK RIPRAP, TYPE B INSTALLATION DETAIL

NOTES

The location of all aerial and underground utility facilities may not be indicated in these plans. Underground utilities, whether indicated or not will be located and flagged by the utilities at the request of the contractor. Utilities are located within the project area. Any utility relocation will be at the contractors expense. Nebraska One Call will be utilized.

No excavation will be permitted in the area of underground utility facilities until all such facilities have been located and identified to the satisfaction of all parties. The excavation must be accomplished with extreme care in order to avoid any possibility of damage to the utility facility.

The Contractor will be required to furnish Borrow on this Project.

The Contractor shall furnish and maintain all necessary barricades, warning signs, lights and flaggers per the MUTCD and NDOT Standard Specifications. The Contractor shall inspect and verify all appropriate barricades and signs are placed accordingly and upright at the end of each construction day, or as directed by the Engineer.

Prior to construction, Contractor shall submit to the City Engineer for approval a traffic control plan and construction schedule for road closure. Contractor must give 48 hours notice prior to pavement or tree removals to the City Engineer.

All existing structures shall be removed by the Contractor. The structures will become their property and removed from the site.

All mailboxes shall be temporarily relocated during the project to one location approved by the City. At the end of project, the mailboxes shall be moved back to their original location. Any damage to the mailboxes shall be the responsibility of the Contractor. This shall be paid for under the each "Remove and Reset Mailbox" pay item.

Temporary Fence shall be a minimum of 48" in height. The fencing may be wire/lath construction or synthetic fabric (similar to snow fencing) provided it is free of breaks and breaches. The fencing shall be secured to steel posts at a maximum spacing of 8 feet. Temporary Fence shall be installed prior to construction and shall be removed after all work has been completed.

Contractor to remove, salvage and reset any necessary traffic signs in their original location, unless noted otherwise.

All Round Equivalent (R.E.) pipe shall conform to the requirements of ASTM C507 - Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.

Concrete washout stations shall be constructed as needed during the paving operations. This shall be considered subsidiary to other items receiving direct payment.

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-14-23

ROADWAY DESIGN DIVISION.

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Computer: GMAALEXR

GENERAL INFORMATION

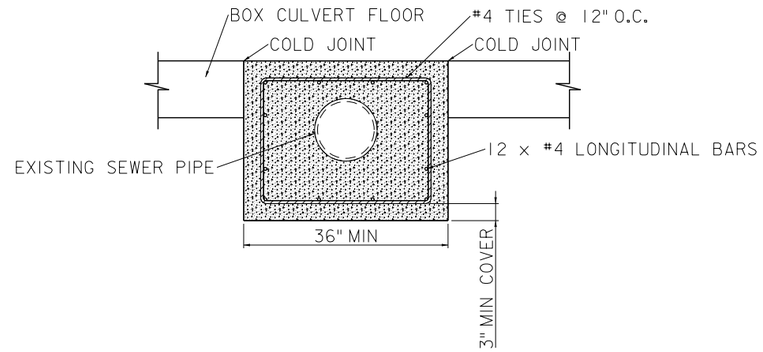
COMPACTION REQUIREMENTS

The following compaction requirements are recommended for the plans.

COMPACTION REQUIREMENTS
Class III (See Specifications)

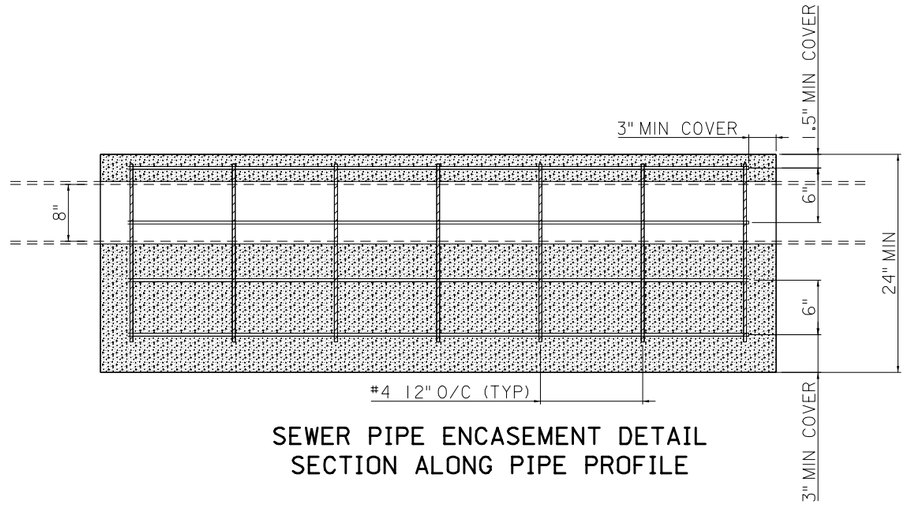
	SOIL TYPE	DEPTH BELOW FINISH SUBGRADE	PERCENT DENSITY	MOISTURE REQUIREMENTS MINIMUM	MOISTURE REQUIREMENTS MAXIMUM
Embankment / Roadway Grading, including driveways, to receive concrete pavement	Silt-Clay	Upper 3 feet	98 Min.	Opt. -3%	Opt. +2%
	Silt-Clay	At depths greater than 3 feet	95 Min.	Opt. -3%	Opt. +2%
	Granular	All depths	100 Min.	**	**
Embankment / Roadway Grading, including driveways, to receive flexible pavement	Silt-Clay	Upper 3 feet	100 Min.	Opt. -2%	Opt. +1%
	Silt-Clay	At depths greater than 3 feet	95 Min.	Opt. -3%	Opt. +2%
	Granular	All depths	100 Min.	**	**
Embankment / Roadway Grading to receive gravel surfacing / crushed rock embedment	All	All depths	95 Min.	**	**
Embankment / Roadway Grading not to be surfaced	All	All depths	95 Min.	Opt. -3%	Opt. +2%
Subgrade Preparation, Shoulder Subgrade Preparation (Concrete Pavement)	Silt-Clay	The upper 6 inches of subgrade soil	98 Min.	Opt. -3%	Opt. +2%
	Granular	The upper 6 inches of subgrade soil	100 Min.	**	**
Subgrade Preparation, Shoulder Subgrade Preparation (Flexible Pavement)	Silt-Clay	The upper 6 inches of subgrade soil	100 Min.	Opt. -2%	Opt. +1%
	Granular	The upper 6 inches of subgrade soil	100 Min.	**	**
Embankment of driveways which are not to be surfaced	All	All depths	Class I	(See Specifications)	
Bituminous Pavement Patching	All	Underlying Material	100 Min.	(See Specifications)	
Foundation Course / Subgrade Stabilization	--	--	100 Min.	(See Specifications)	
Granular Structural Fill (MSE Walls, Granular Fill for bridges, Culverts, etc)	Granular	All depths	100 Min.	Opt. -3%	Opt. +3%

** Moisture as necessary to obtain density.
(A moisture target value at maximum density shall be established in the field by the Contractor during the compaction process. The acceptable moisture content shall be ± 2% of the target value.)



NOTES:
1. COLD JOINTS SHALL BE SEALED PER THE STANDARD SPECIFICATIONS.
2. ALL CONCRETE SHALL BE CLASS "47BD", WITH A 28-DAY STRENGTH OF 4,000 PSI.
3. ALL REINFORCING SHALL BE EPOXY COATED.

SEWER PIPE ENCASEMENT DETAIL ALONG PIPE CROSS SECTION



SEWER PIPE ENCASEMENT DETAIL SECTION ALONG PIPE PROFILE

PROFESSIONAL CIVIL ENGINEER
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STATE OF NEBRASKA

ROADWAY DESIGN DIVISION.

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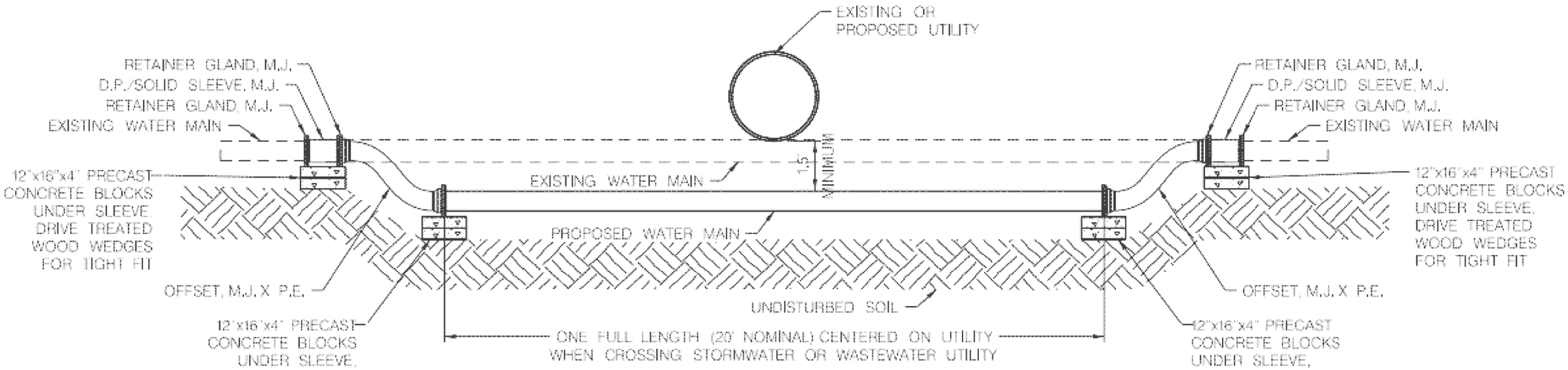
PROJECT NO.	SHEET NO.
08586001-A	G3

G E N E R A L I N F O R M A T I O N



WATER MAIN RECONSTRUCTION
USING OFFSETS

NOTE:
NO ANCHORAGES OR THRUST BLOCKS NEEDED WITH OFFSETS

NOTE:

THE TOTAL LENGTH OF WATER RECONSTRUCTION IS TO BE POLYWRAPPED, IF DUCTILE IRON PIPE.
SEE STANDARD SPECIFICATIONS

WHEN PROPOSED UTILITY CROSSING IS 36" IN DIA. OR LARGER, CRUSHED ROCK FOUNDATION MATERIAL SHOULD BE USED AS BACKFILL UNDER PROPOSED UTILITY.

ALL CONCRETE SHALL BE L3500

ANY 4" WATER MAIN RECONSTRUCTION IS TO BE COMPLETED USING A MINIMUM OF 6" PIPE AND FITTINGS AND REDUCED TO MEET THE 4" MAIN AT EACH END OF THE RECONSTRUCTION.

WATER PIPE SHALL BE ENCASED WITH FLOWABLE FILL IN SCENARIOS WHERE IT IS RECONSTRUCTED BELOW AN EXISTING OR PROPOSED WASTEWATER LINE.

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ROADWAY DESIGN DIVISION.

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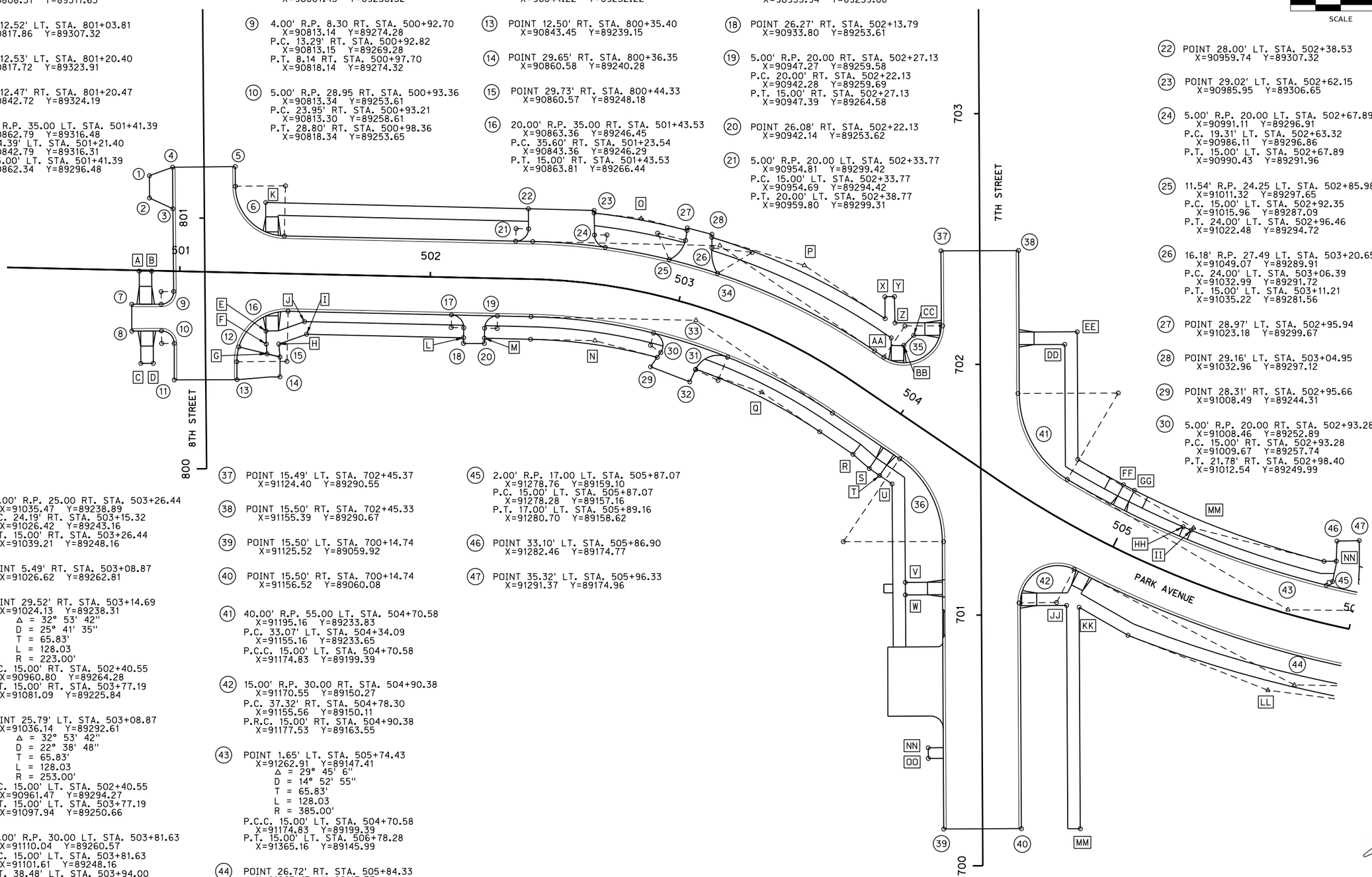
Scale: 1:200

PROJECT NO.	SHEET NO.
08586001-A	J1

ROADWAY DESIGN DIVISION.

File: 08586001cg01ParkAvenue.dgn
Scale: 1:40
Date: 14-FEB-2023 09:24
Computer: OMAALEXR

0 20' 40'
SCALE



(1) POINT 21.80' LT. STA. 801+17.10
X=90808.48 Y=89320.54

(2) POINT 21.84' LT. STA. 801+08.20
X=90808.51 Y=89311.63

(3) POINT 12.52' LT. STA. 801+03.81
X=90817.86 Y=89307.32

(4) POINT 12.53' LT. STA. 801+20.40
X=90817.72 Y=89323.91

(5) POINT 12.47' RT. STA. 801+20.47
X=90842.72 Y=89324.19

(6) 20.00' R.P. 35.00 LT. STA. 501+41.39
X=90862.79 Y=89316.48
P.C. 34.39' LT. STA. 501+21.40
X=90842.79 Y=89316.31
P.T. 15.00' LT. STA. 501+41.39
X=90862.34 Y=89296.48

(7) POINT 29.24' LT. STA. 800+65.87
X=90801.44 Y=89269.25

(8) POINT 29.32' LT. STA. 800+55.14
X=90801.45 Y=89258.52

(9) 4.00' R.P. 8.30 RT. STA. 500+92.70
X=90813.14 Y=89274.28
P.C. 13.29' RT. STA. 500+92.82
X=90813.15 Y=89269.28
P.T. 8.14 RT. STA. 500+97.70
X=90818.14 Y=89274.32

(10) 5.00' R.P. 28.95 RT. STA. 500+93.36
X=90813.34 Y=89253.61
P.C. 23.95' RT. STA. 500+93.21
X=90813.30 Y=89258.61
P.T. 28.80' RT. STA. 500+98.36
X=90818.34 Y=89253.65

(11) POINT 12.56' LT. STA. 800+35.60
X=90818.38 Y=89239.08

(12) POINT 13.40' RT. STA. 800+48.51
X=90844.22 Y=89252.22

(13) POINT 12.50' RT. STA. 800+35.40
X=90843.45 Y=89239.15

(14) POINT 29.65' RT. STA. 800+36.35
X=90860.58 Y=89240.28

(15) POINT 29.73' RT. STA. 800+44.33
X=90860.57 Y=89248.18

(16) 20.00' R.P. 35.00 RT. STA. 501+43.53
X=90863.36 Y=89246.45
P.C. 35.60' RT. STA. 501+23.54
X=90843.36 Y=89246.29
P.T. 15.00' RT. STA. 501+43.53
X=90863.81 Y=89266.44

(17) 5.00' R.P. 20.00 RT. STA. 502+08.79
X=90928.94 Y=89259.99
P.C. 15.00' RT. STA. 502+08.79
X=90929.05 Y=89264.99
P.T. 20.00' RT. STA. 502+13.79
X=90933.94 Y=89259.88

(18) POINT 26.27' RT. STA. 502+13.79
X=90933.80 Y=89253.61

(19) 5.00' R.P. 20.00 RT. STA. 502+27.13
X=90947.27 Y=89259.58
P.C. 20.00' RT. STA. 502+22.13
X=90942.28 Y=89259.69
P.T. 15.00' RT. STA. 502+27.13
X=90947.39 Y=89264.58

(20) POINT 26.08' RT. STA. 502+22.13
X=90942.14 Y=89253.62

(21) 5.00' R.P. 20.00 LT. STA. 502+33.77
X=90954.81 Y=89299.42
P.C. 15.00' LT. STA. 502+33.77
X=90954.69 Y=89294.42
P.T. 20.00' LT. STA. 502+38.77
X=90959.80 Y=89299.31

(22) POINT 28.00' LT. STA. 502+38.53
X=90959.74 Y=89307.32

(23) POINT 29.02' LT. STA. 502+62.15
X=90985.95 Y=89306.65

(24) 5.00' R.P. 20.00 LT. STA. 502+67.89
X=90991.11 Y=89296.91
P.C. 19.31' LT. STA. 502+63.32
X=90986.11 Y=89296.86
P.T. 15.00' LT. STA. 502+67.89
X=90990.43 Y=89291.96

(25) 11.54' R.P. 24.25 LT. STA. 502+85.98
X=91011.32 Y=89297.65
P.C. 15.00' LT. STA. 502+92.35
X=91015.96 Y=89287.09
P.T. 24.00' LT. STA. 502+96.46
X=91022.48 Y=89294.72

(26) 16.18' R.P. 27.49 LT. STA. 503+20.65
X=91049.07 Y=89289.91
P.C. 24.00' LT. STA. 503+06.39
X=91032.99 Y=89291.72
P.T. 15.00' LT. STA. 503+11.21
X=91035.22 Y=89281.56

(27) POINT 28.97' LT. STA. 502+95.94
X=91023.18 Y=89299.67

(28) POINT 29.16' LT. STA. 503+04.95
X=91032.96 Y=89297.12

(29) POINT 28.31' RT. STA. 502+95.66
X=91008.49 Y=89244.31

(30) 5.00' R.P. 20.00 RT. STA. 502+93.28
X=91008.46 Y=89252.89
P.C. 15.00' RT. STA. 502+93.28
X=91009.67 Y=89257.74
P.T. 21.78' RT. STA. 502+98.40
X=91012.54 Y=89249.99

(31) 10.00' R.P. 25.00 RT. STA. 503+26.44
X=91035.47 Y=89238.89
P.C. 24.19' RT. STA. 503+15.32
X=91026.42 Y=89243.16
P.T. 15.00' RT. STA. 503+26.44
X=91039.21 Y=89248.16

(32) POINT 5.49' RT. STA. 503+08.87
X=91026.62 Y=89262.81

(33) POINT 29.52' RT. STA. 503+14.69
X=91024.13 Y=89238.31
Δ = 32° 53' 42"
D = 25° 41' 35"
T = 65.83'
L = 128.03
R = 223.00'
P.C. 15.00' RT. STA. 502+40.55
X=90960.80 Y=89264.28
P.T. 15.00' RT. STA. 503+77.19
X=91081.09 Y=89225.84

(34) POINT 25.79' LT. STA. 503+08.87
X=91036.14 Y=89292.61
Δ = 32° 53' 42"
D = 22° 38' 48"
T = 65.83'
L = 128.03
R = 253.00'
P.C. 15.00' LT. STA. 502+40.55
X=90961.47 Y=89294.27
P.T. 15.00' LT. STA. 503+77.19
X=91097.94 Y=89250.66

(35) 15.00' R.P. 30.00 LT. STA. 503+81.63
X=91110.04 Y=89260.57
P.C. 15.00' LT. STA. 503+81.63
X=91101.61 Y=89248.16
P.T. 38.48' LT. STA. 503+94.00
X=91125.04 Y=89260.64

(36) 40.00' R.P. 55.00 RT. STA. 504+09.61
X=91085.44 Y=89174.53
P.C. 15.00' RT. STA. 504+09.61
X=91107.91 Y=89207.63
P.T. 32.51' RT. STA. 504+42.69
X=91125.44 Y=89174.56

(37) POINT 15.49' LT. STA. 702+45.37
X=91124.40 Y=89290.55

(38) POINT 15.50' RT. STA. 702+45.33
X=91155.39 Y=89290.67

(39) POINT 15.50' LT. STA. 700+14.74
X=91125.52 Y=89059.92

(40) POINT 15.50' RT. STA. 700+14.74
X=91156.52 Y=89060.08

(41) 40.00' R.P. 55.00 LT. STA. 504+70.58
X=91195.16 Y=89233.83
P.C. 33.07' LT. STA. 504+34.09
X=91155.16 Y=89233.65
P.C.C. 15.00' LT. STA. 504+70.58
X=91174.83 Y=89199.39

(42) 15.00' R.P. 30.00 RT. STA. 504+90.38
X=91170.55 Y=89150.27
P.C. 37.32' RT. STA. 504+78.30
X=91155.56 Y=89150.11
P.R.C. 15.00' RT. STA. 504+90.38
X=91177.53 Y=89163.55

(43) POINT 1.65' LT. STA. 505+74.43
X=91262.91 Y=89147.41
Δ = 29° 45' 6"
D = 14° 52' 55"
T = 65.83'
L = 128.03
R = 385.00'
P.C.C. 15.00' LT. STA. 504+70.58
X=91174.83 Y=89199.39
P.T. 15.00' LT. STA. 506+78.28
X=91365.16 Y=89145.99

(44) POINT 26.72' RT. STA. 505+84.33
X=91265.45 Y=89117.37
Δ = 26° 54' 56"
D = 13° 48' 22"
T = 65.83'
L = 128.03
R = 415.00'
P.R.C. 15.00' RT. STA. 504+90.38
X=91177.53 Y=89163.55
P.T. 15.00' RT. STA. 506+78.28
X=91364.75 Y=89115.99

(45) 2.00' R.P. 17.00 LT. STA. 505+87.07
X=91278.76 Y=89159.10
P.C. 15.00' LT. STA. 505+87.07
X=91278.28 Y=89157.16
P.T. 17.00' LT. STA. 505+89.16
X=91280.70 Y=89158.62

(46) POINT 33.10' LT. STA. 505+86.90
X=91282.46 Y=89174.77

(47) POINT 35.32' LT. STA. 505+96.33
X=91291.37 Y=89174.96

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

GEOMETRICS

PROJECT NO.	SHEET NO.
08586001-A	J2

ROADWAY DESIGN DIVISION.

File: 08586001cg02ParkAvenue.dgn
Scale: 1:40
Date: 14-FEB-2023 09:24
Computer: DMAALEXR

SIDEWALK GEOMETRICS

A SIDEWALK POINT 0.32' RT. STA. 500+83.78
X=90804.40 Y=89282.45

B SIDEWALK POINT 0.21' RT. STA. 500+88.74
X=90809.36 Y=89282.45

C SIDEWALK POINT 37.10' RT. STA. 500+85.26
X=90805.06 Y=89245.65

D SIDEWALK POINT 36.94' RT. STA. 500+90.25
X=90810.05 Y=89245.70

E SIDEWALK POINT 23.06' RT. STA. 501+34.91
X=90855.01 Y=89258.58

F SIDEWALK POINT 28.25' RT. STA. 501+35.09
X=90855.08 Y=89253.39

G SIDEWALK POINT 32.17' RT. STA. 501+35.54
X=90855.44 Y=89249.45

H SIDEWALK POINT 28.14' RT. STA. 501+40.11
X=90860.10 Y=89253.38

I SIDEWALK POINT 24.00' RT. STA. 501+51.12
X=90871.19 Y=89257.28

J SIDEWALK POINT 19.00' RT. STA. 501+50.21
X=90870.39 Y=89262.29

K SIDEWALK POINT 28.17' LT. STA. 501+33.66
X=90854.90 Y=89309.83

L SIDEWALK POINT 24.00' RT. STA. 502+13.79
X=90933.85 Y=89255.88

M SIDEWALK POINT 24.00' RT. STA. 502+22.13
X=90942.19 Y=89255.69

N SIDEWALK POINT 22.46' RT. STA. 502+69.02
X=90986.32 Y=89254.71
Δ = 13° 42' 29"
D = 26° 46' 25"
T = 65.83'
L = 128.03
R = 214.00'
P.C. 24.00' RT. STA. 502+40.55
X=90960.60 Y=89255.28
P.T. 24.00' RT. STA. 502+97.49
X=91011.16 Y=89248.06

O SIDEWALK POINT 28.67' LT. STA. 502+79.15
X=91004.75 Y=89303.48
Δ = 8° 7' 52"
D = 21° 32' 23"
T = 65.83'
L = 128.03
R = 266.00'
P.C. 28.00' LT. STA. 502+62.27
X=90985.97 Y=89305.62
P.T. 28.00' LT. STA. 502+96.04
X=91023.05 Y=89298.70

P SIDEWALK POINT 30.78' LT. STA. 503+39.56
X=91069.90 Y=89284.72
Δ = 16° 30' 33"
D = 21° 32' 23"
T = 65.83'
L = 128.03
R = 266.00'
P.C. 28.00' LT. STA. 503+05.27
X=91032.97 Y=89295.91
P.T. 28.00' LT. STA. 503+73.84
X=91102.13 Y=89263.49

Q SIDEWALK POINT 22.18' RT. STA. 503+46.27
X=91052.90 Y=89234.10
Δ = 14° 53' 14"
D = 26° 46' 25"
T = 65.83'
L = 128.03
R = 214.00'
P.C. 24.00' RT. STA. 503+15.35
X=91026.51 Y=89243.33
P.T. 24.00' RT. STA. 503+77.19
X=91076.03 Y=89218.39

R SIDEWALK POINT 24.00' RT. STA. 503+93.19
X=91089.27 Y=89209.40

S SIDEWALK POINT 25.04' RT. STA. 504+01.77
X=91095.78 Y=89203.73

T SIDEWALK POINT 25.04' RT. STA. 504+06.77
X=91099.92 Y=89200.92

U SIDEWALK POINT 25.04' RT. STA. 504+12.77
X=91104.88 Y=89197.55

V SIDEWALK POINT 54.54' RT. STA. 504+39.18
X=91110.17 Y=89158.31

W SIDEWALK POINT 58.65' RT. STA. 504+42.02
X=91110.21 Y=89153.31

X SIDEWALK POINT 35.28' LT. STA. 503+69.59
X=91102.03 Y=89272.22

Y SIDEWALK POINT 37.40' LT. STA. 503+72.34
X=91105.84 Y=89272.30

Z SIDEWALK POINT 28.77' LT. STA. 503+77.64
X=91106.05 Y=89261.80

AA SIDEWALK POINT 22.99' LT. STA. 503+79.76
X=91104.55 Y=89255.82

BB SIDEWALK POINT 23.27' LT. STA. 503+85.62
X=91109.55 Y=89252.77

CC SIDEWALK POINT 28.87' LT. STA. 503+86.63
X=91113.53 Y=89256.83

DD SIDEWALK POINT 59.75' LT. STA. 504+38.53
X=91173.82 Y=89253.23

EE SIDEWALK POINT 66.70' LT. STA. 504+39.83
X=91178.80 Y=89258.25

FF SIDEWALK POINT 24.00' LT. STA. 504+92.30
X=91197.27 Y=89197.24

GG SIDEWALK POINT 24.00' LT. STA. 504+97.50
X=91201.62 Y=89195.02

HH SIDEWALK POINT 19.00' LT. STA. 505+22.61
X=91221.07 Y=89180.48

II SIDEWALK POINT 19.00' LT. STA. 505+26.28
X=91224.29 Y=89179.13

JJ SIDEWALK POINT 29.17' RT. STA. 504+94.18
X=91174.56 Y=89149.12

KK SIDEWALK POINT 27.59' RT. STA. 504+98.67
X=91179.56 Y=89148.37

LL SIDEWALK POINT 31.42' RT. STA. 505+75.32
X=91254.91 Y=89115.31
Δ = 14° 0' 45"
D = 11° 44' 22"
T = 65.83'
L = 128.03
R = 488.07'
P.C. 29.45' RT. STA. 505+19.57
X=91199.07 Y=89137.20
P.T. 27.08' RT. STA. 506+31.12
X=91314.39 Y=89107.58

MM SIDEWALK POINT 20.18' LT. STA. 505+26.86
X=91225.25 Y=89180.01
Δ = 16° 15' 20"
D = 15° 14' 18"
T = 65.83'
L = 128.03
R = 376.00'
P.C. 24.00' LT. STA. 504+70.12
X=91179.04 Y=89207.36
P.T. 24.00' LT. STA. 505+83.60
X=91277.28 Y=89166.70

NN SIDEWALK POINT 25.27' LT. STA. 505+88.65
X=91282.18 Y=89166.78

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

GEOMETRICS

PROJECT NO.	SHEET NO.
08586001-A	J3

ROADWAY DESIGN DIVISION.

① 5.00' R.P. 20.00 LT. STA. 506+04.99
X=91296.09 Y=89158.31
P.C. 19.28' LT. STA. 505+99.79
X=91291.10 Y=89158.61
P.T. 15.01' LT. STA. 506+04.67
X=91294.81 Y=89153.48

② 5.00' R.P. 20.00 LT. STA. 506+04.35
X=91295.50 Y=89158.43
P.C. 15.01' LT. STA. 506+04.67
X=91294.81 Y=89153.48
P.T. 20.06' LT. STA. 506+09.61
X=91300.41 Y=89157.53

③ POINT 24.00' LT. STA. 506+09.61
X=91301.14 Y=89161.41

④ POINT 32.34' LT. STA. 506+08.27
X=91301.46 Y=89169.83

⑤ POINT 33.74' LT. STA. 506+22.29
X=91314.38 Y=89169.02

⑥ POINT 24.00' LT. STA. 506+23.86
X=91314.35 Y=89159.17

⑦ 5.00' R.P. 20.00 LT. STA. 506+04.99
X=91296.09 Y=89158.31
P.C. 19.28' LT. STA. 505+99.79
X=91291.10 Y=89158.61
P.T. 15.01' LT. STA. 506+04.67
X=91294.81 Y=89153.48

⑧ POINT 15.00' RT. STA. 506+31.09
X=91315.94 Y=89119.56

⑨ POINT 27.08' RT. STA. 506+31.12
X=91314.39 Y=89107.58

⑩ POINT 27.01' RT. STA. 506+55.19
X=91339.96 Y=89105.04

⑪ POINT 15.00' RT. STA. 506+55.19
X=91340.82 Y=89117.02

⑫ POINT 15.00' LT. STA. 506+58.41
X=91346.05 Y=89146.73

⑬ POINT 21.95' LT. STA. 506+60.43
X=91348.41 Y=89153.55

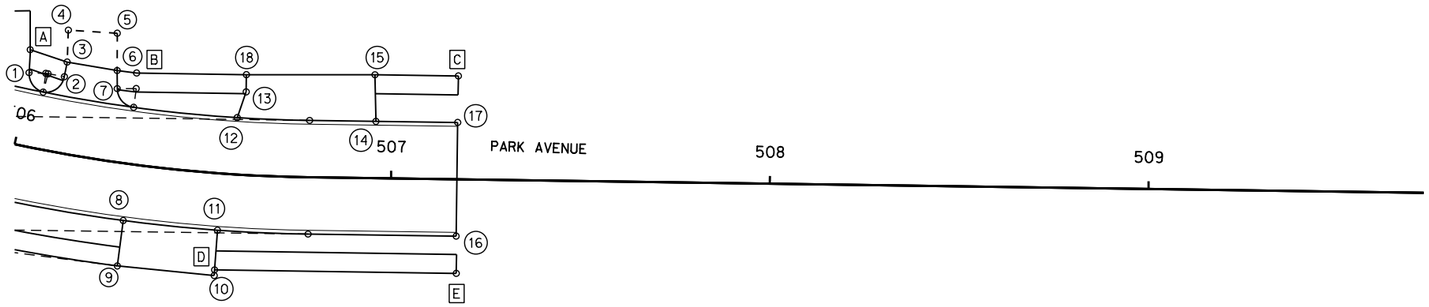
⑭ POINT 15.00' LT. STA. 506+95.80
X=91382.68 Y=89145.75

⑮ POINT 27.30' LT. STA. 506+95.37
X=91382.42 Y=89158.05

⑯ POINT 15.00' RT. STA. 507+17.39
X=91403.85 Y=89115.45

⑰ POINT 15.00' LT. STA. 507+17.39
X=91404.27 Y=89145.45

⑱ POINT 26.46' LT. STA. 506+60.22
X=91348.47 Y=89158.06



SIDEWALK GEOMETRICS

Ⓐ SIDEWALK POINT 25.27' LT. STA. 505+98.73
X=91291.38 Y=89164.67

Ⓑ SIDEWALK POINT 24.09' LT. STA. 506+29.37
X=91319.48 Y=89158.52

Ⓒ SIDEWALK POINT 27.29' LT. STA. 507+17.39
X=91404.44 Y=89157.73

Ⓓ SIDEWALK POINT 24.84' RT. STA. 507+17.56
X=91403.88 Y=89105.61

Ⓔ SIDEWALK POINT 24.84' RT. STA. 507+17.56
X=91403.88 Y=89105.61

0 20' 40'
SCALE

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-14-23

GEOMETRICS

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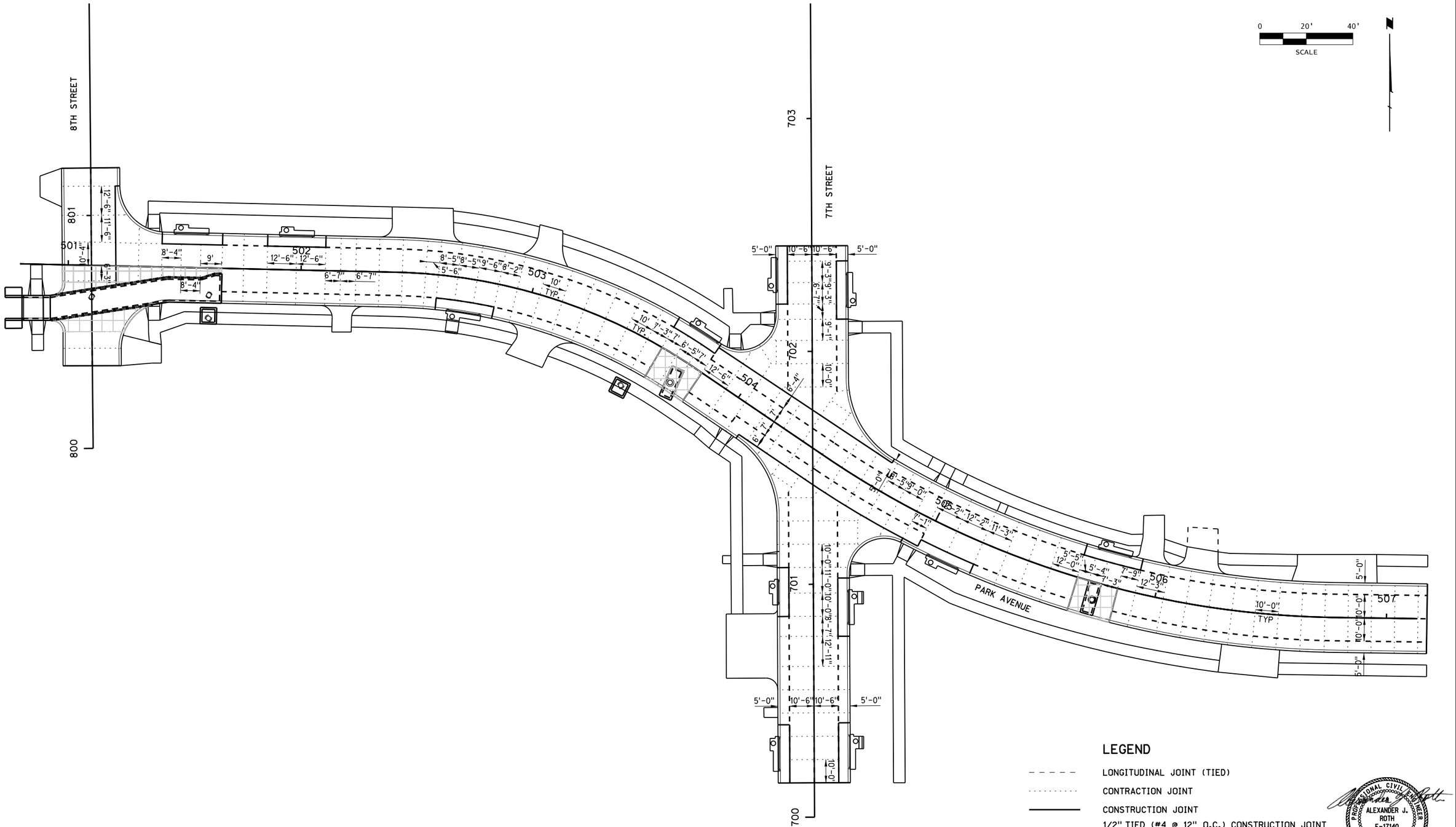
PROJECT NO.	SHEET NO.
08586001-A	J4



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ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

JOINTING PLAN

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
08586001-A	J5

ROADWAY DESIGN DIVISION.

0 20' 40'
SCALE

8TH STREET

7TH STREET

PARK AVENUE

800

700

701

501 502 503 504 505 506 507

MATCH

LEGEND

- LONGITUDINAL JOINT (TIED)
- CONTRACTION JOINT
- CONSTRUCTION JOINT
- 1/2" TIED (#4 @ 12" O.C.) CONSTRUCTION JOINT (ALONG SIDES OF BOX CULVERT)
- REINFORCED PAVEMENT (SEE SHEET J12)

ELEVATION AT CURB LOCATIONS ARE TOP OF CURB, UNLESS SHOWN OTHERWISE.

FOR DETAILS NOT SHOWN SEE PLAN 329 AND SHEET G

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

GRADES

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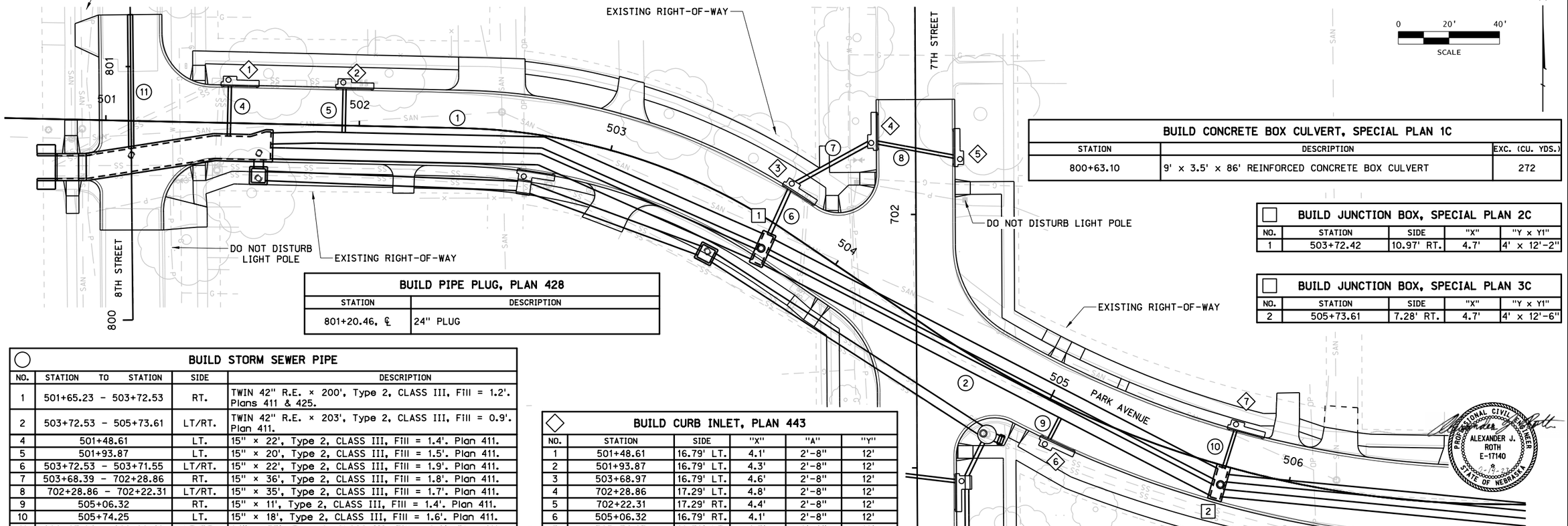
PROJECT NO.	SHEET NO.
08586001-A	J6
C.N.	

ROADWAY DESIGN DIVISION.



BUILD PIPE PLUG, PLAN 428	
STATION	DESCRIPTION
801+20.46, ℄	24" PLUG

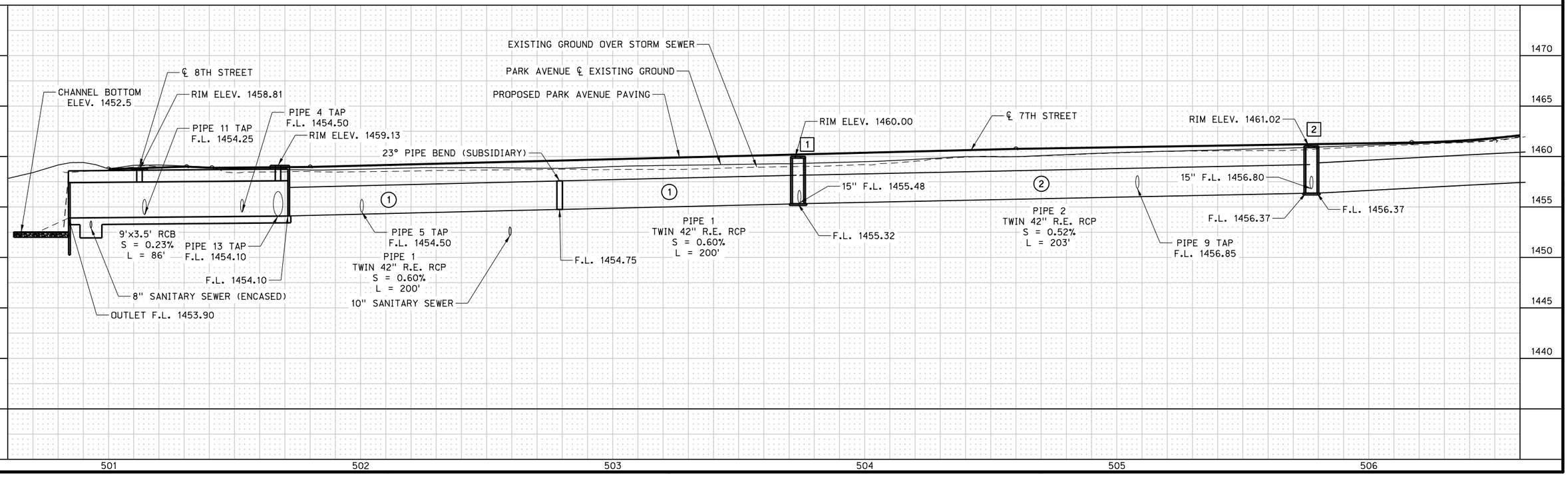
BUILD CONCRETE BOX CULVERT, SPECIAL PLAN 1C		
STATION	DESCRIPTION	EXC. (CU. YDS.)
800+63.10	9' x 3.5' x 86' REINFORCED CONCRETE BOX CULVERT	272

☐ BUILD JUNCTION BOX, SPECIAL PLAN 2C				
NO.	STATION	SIDE	"X"	"Y x Y1"
1	503+72.42	10.97' RT.	4.7'	4' x 12'-2"

☐ BUILD JUNCTION BOX, SPECIAL PLAN 3C				
NO.	STATION	SIDE	"X"	"Y x Y1"
2	505+73.61	7.28' RT.	4.7'	4' x 12'-6"

○ BUILD STORM SEWER PIPE			
NO.	STATION TO STATION	SIDE	DESCRIPTION
1	501+65.23 - 503+72.53	RT.	TWIN 42" R.E. x 200', Type 2, CLASS III, Fill = 1.2'. Plans 411 & 425.
2	503+72.53 - 505+73.61	LT/RT.	TWIN 42" R.E. x 203', Type 2, CLASS III, Fill = 0.9'. Plan 411.
4	501+48.61	LT.	15" x 22', Type 2, CLASS III, Fill = 1.4'. Plan 411.
5	501+93.87	LT.	15" x 20', Type 2, CLASS III, Fill = 1.5'. Plan 411.
6	503+72.53 - 503+71.55	LT/RT.	15" x 22', Type 2, CLASS III, Fill = 1.9'. Plan 411.
7	503+68.39 - 702+28.86	RT.	15" x 36', Type 2, CLASS III, Fill = 1.8'. Plan 411.
8	702+28.86 - 702+22.31	LT/RT.	15" x 35', Type 2, CLASS III, Fill = 1.7'. Plan 411.
9	505+06.32	RT.	15" x 11', Type 2, CLASS III, Fill = 1.4'. Plan 411.
10	505+74.25	LT.	15" x 18', Type 2, CLASS III, Fill = 1.6'. Plan 411.
11	800+67.64 - 801+20.46	LT/RT.	24" x 53', Type 2, CLASS III, Fill = 2.8'. Plan 411.

◇ BUILD CURB INLET, PLAN 443					
NO.	STATION	SIDE	"X"	"A"	"Y"
1	501+48.61	16.79' LT.	4.1'	2'-8"	12'
2	501+93.87	16.79' LT.	4.3'	2'-8"	12'
3	503+68.97	16.79' LT.	4.6'	2'-8"	12'
4	702+28.86	17.29' LT.	4.8'	2'-8"	12'
5	702+22.31	17.29' RT.	4.4'	2'-8"	12'
6	505+06.32	16.79' RT.	4.1'	2'-8"	12'
7	505+74.25	16.79' LT.	4.3'	2'-8"	12'



PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-14-23

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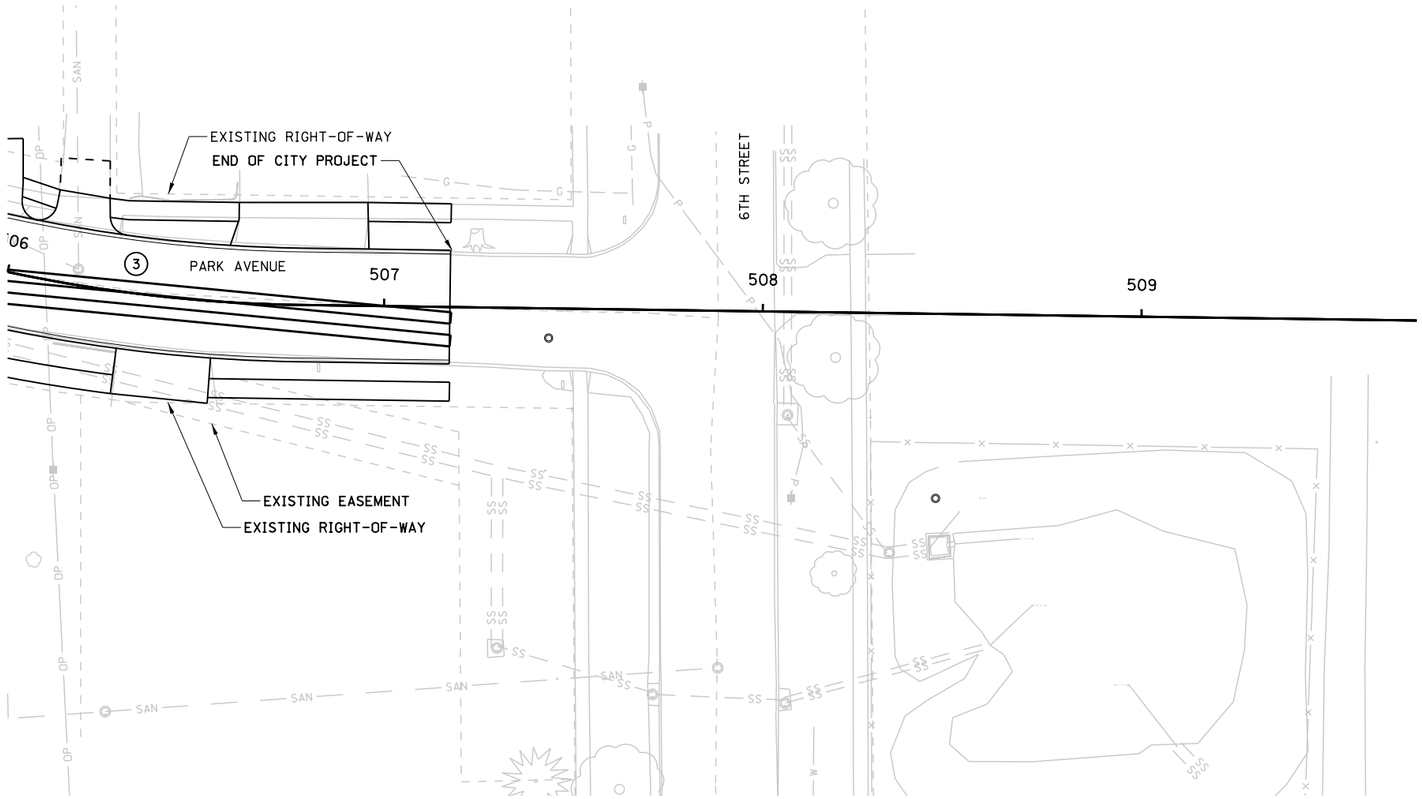
PROJECT NO.	SHEET NO.
08586001-A	J7

C.N.

ROADWAY DESIGN DIVISION.

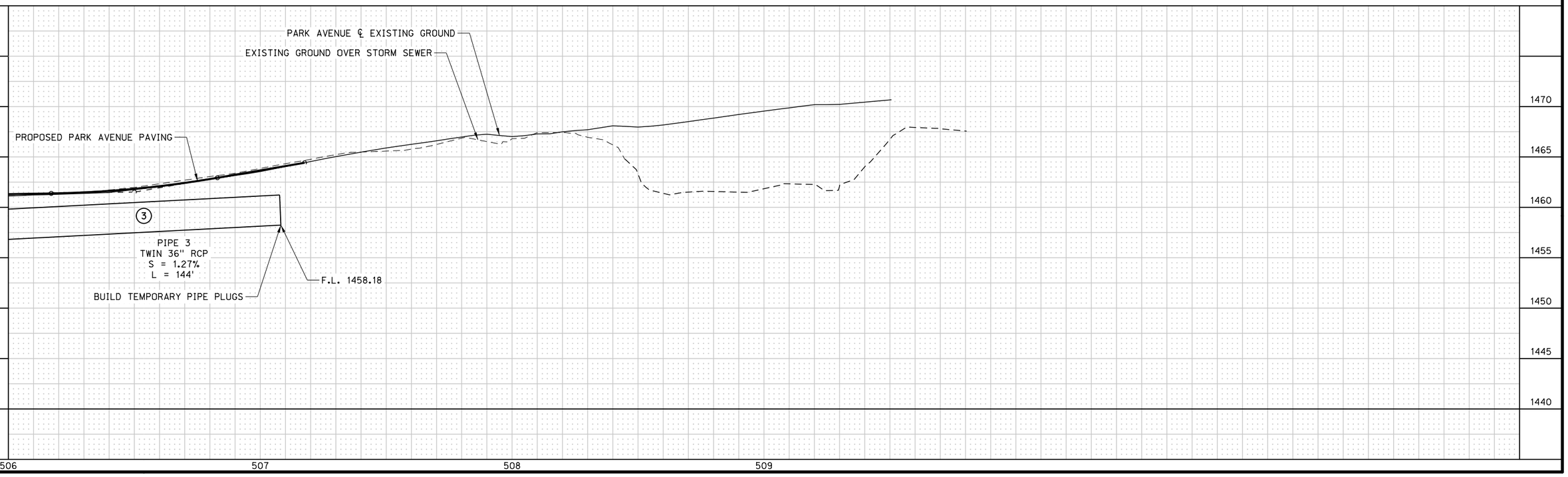


0 20' 40'

SCALE

BUILD PIPE PLUG, PLAN 428	
STATION	DESCRIPTION
507+17.57	2 - 36" PLUGS AT END OF TWIN 36" PIPES

○ BUILD STORM SEWER PIPE			
NO.	STATION TO STATION	SIDE	DESCRIPTION
3	505+73.61 - 507+17.57	LT/RT	TWIN 36" × 144', Type 2, CLASS III, FIll = 0.2'.



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PROJECT NO.	SHEET NO.
08586001-A	J8
C.N.	

ROADWAY DESIGN DIVISION.

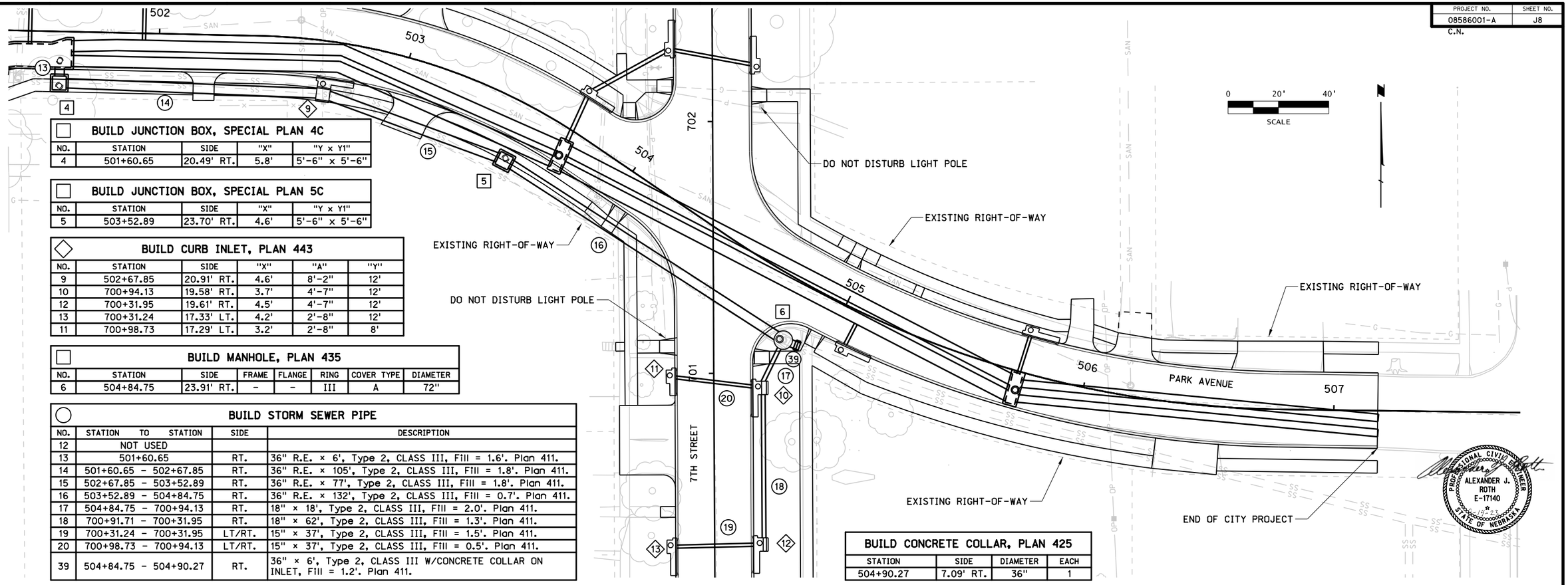
BUILD JUNCTION BOX, SPECIAL PLAN 4C				
NO.	STATION	SIDE	"X"	"Y x Y1"
4	501+60.65	20.49' RT.	5.8'	5'-6" x 5'-6"

BUILD JUNCTION BOX, SPECIAL PLAN 5C				
NO.	STATION	SIDE	"X"	"Y x Y1"
5	503+52.89	23.70' RT.	4.6'	5'-6" x 5'-6"

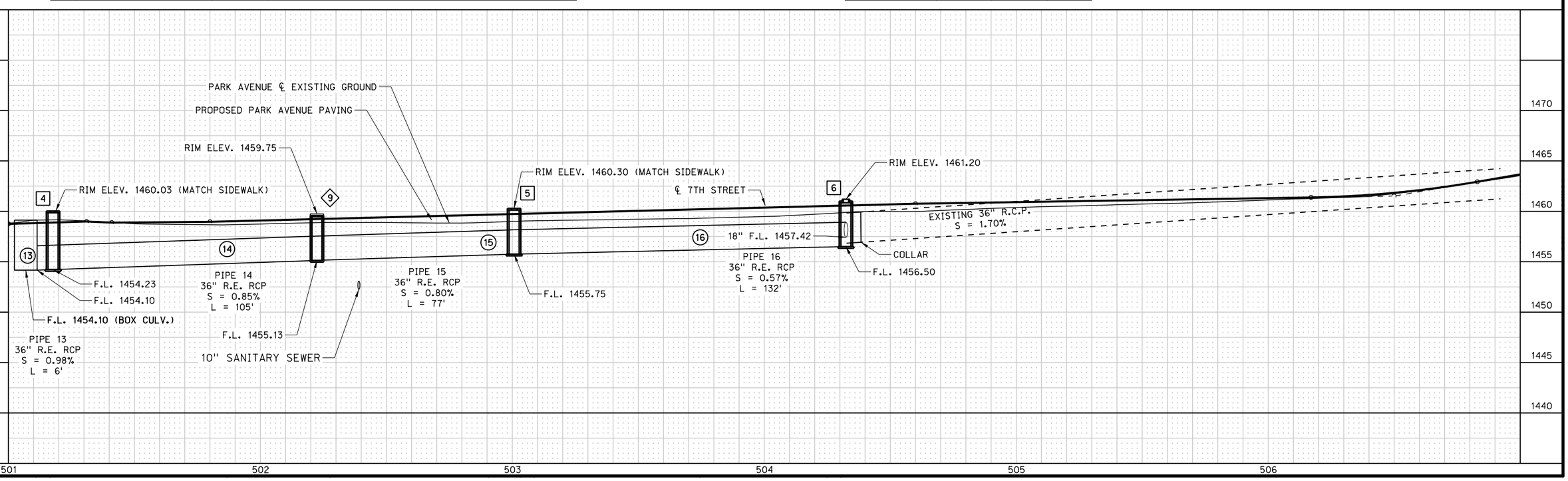
BUILD CURB INLET, PLAN 443					
NO.	STATION	SIDE	"X"	"A"	"Y"
9	502+67.85	20.91' RT.	4.6'	8'-2"	12'
10	700+94.13	19.58' RT.	3.7'	4'-7"	12'
12	700+31.95	19.61' RT.	4.5'	4'-7"	12'
13	700+31.24	17.33' LT.	4.2'	2'-8"	12'
11	700+98.73	17.29' LT.	3.2'	2'-8"	8'

BUILD MANHOLE, PLAN 435							
NO.	STATION	SIDE	FRAME	FLANGE	RING	COVER TYPE	DIAMETER
6	504+84.75	23.91' RT.	-	-	III	A	72"

BUILD STORM SEWER PIPE			
NO.	STATION TO STATION	SIDE	DESCRIPTION
12	NOT USED		
13	501+60.65	RT.	36" R.E. x 6', Type 2, CLASS III, Fill = 1.6'. Plan 411.
14	501+60.65 - 502+67.85	RT.	36" R.E. x 105', Type 2, CLASS III, Fill = 1.8'. Plan 411.
15	502+67.85 - 503+52.89	RT.	36" R.E. x 77', Type 2, CLASS III, Fill = 1.8'. Plan 411.
16	503+52.89 - 504+84.75	RT.	36" R.E. x 132', Type 2, CLASS III, Fill = 0.7'. Plan 411.
17	504+84.75 - 700+94.13	RT.	18" x 18', Type 2, CLASS III, Fill = 2.0'. Plan 411.
18	700+91.71 - 700+31.95	RT.	18" x 62', Type 2, CLASS III, Fill = 1.3'. Plan 411.
19	700+31.24 - 700+31.95	LT/RT.	15" x 37', Type 2, CLASS III, Fill = 1.5'. Plan 411.
20	700+98.73 - 700+94.13	LT/RT.	15" x 37', Type 2, CLASS III, Fill = 0.5'. Plan 411.
39	504+84.75 - 504+90.27	RT.	36" x 6', Type 2, CLASS III W/CONCRETE COLLAR ON INLET, Fill = 1.2'. Plan 411.



BUILD CONCRETE COLLAR, PLAN 425			
STATION	SIDE	DIAMETER	EACH
504+90.27	7.09' RT.	36"	1



ALEXANDER J. ROTH E-17140 PROFESSIONAL CIVIL ENGINEER STATE OF NEBRASKA

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ROADWAY DESIGN DIVISION.
Computer: OMAALEXR
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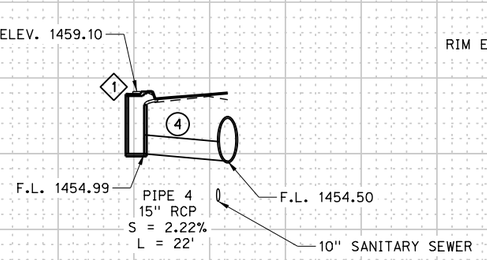
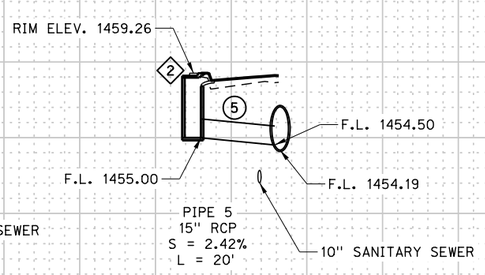
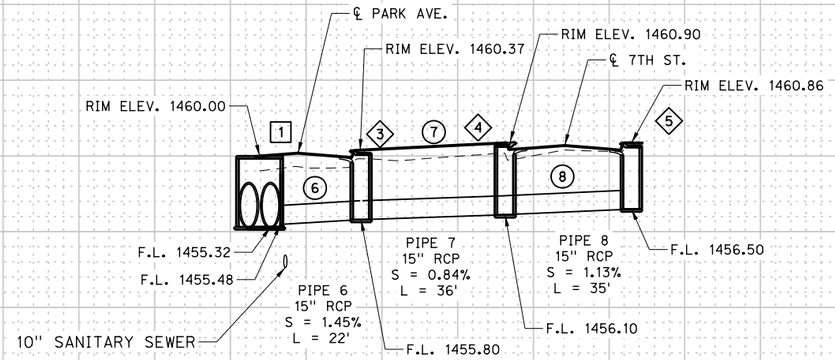
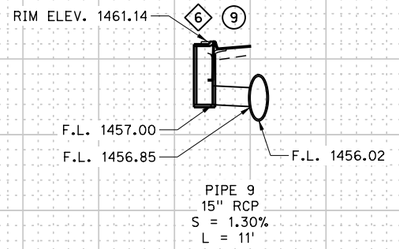
Horizontal Scale 1 : 1 / Vertical Scale 1 : 4	PROJECT NO.	SHEET NO.
C.N.	08586001-A	J9

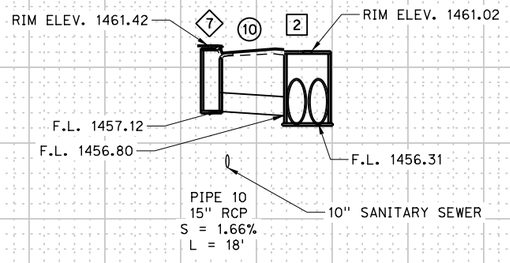
PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-7-23

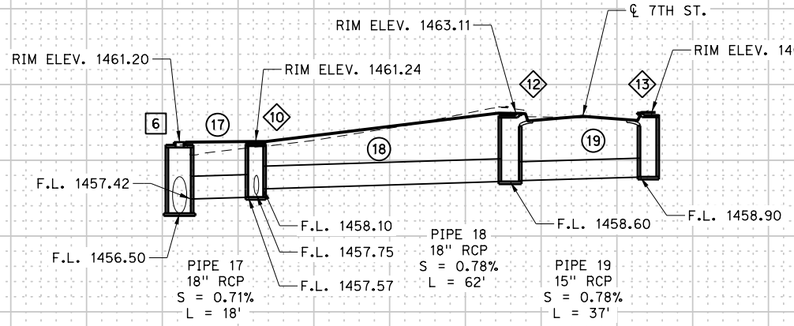


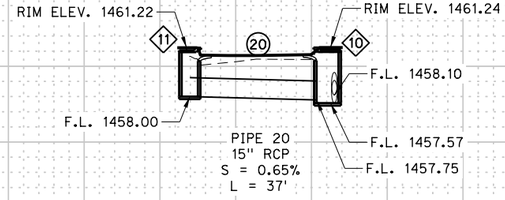


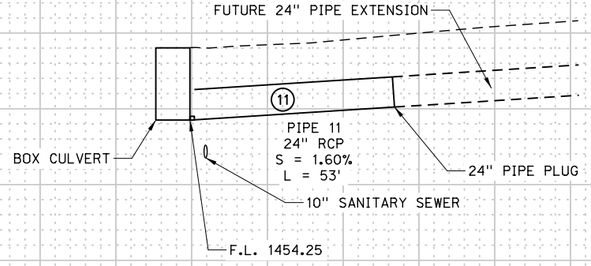




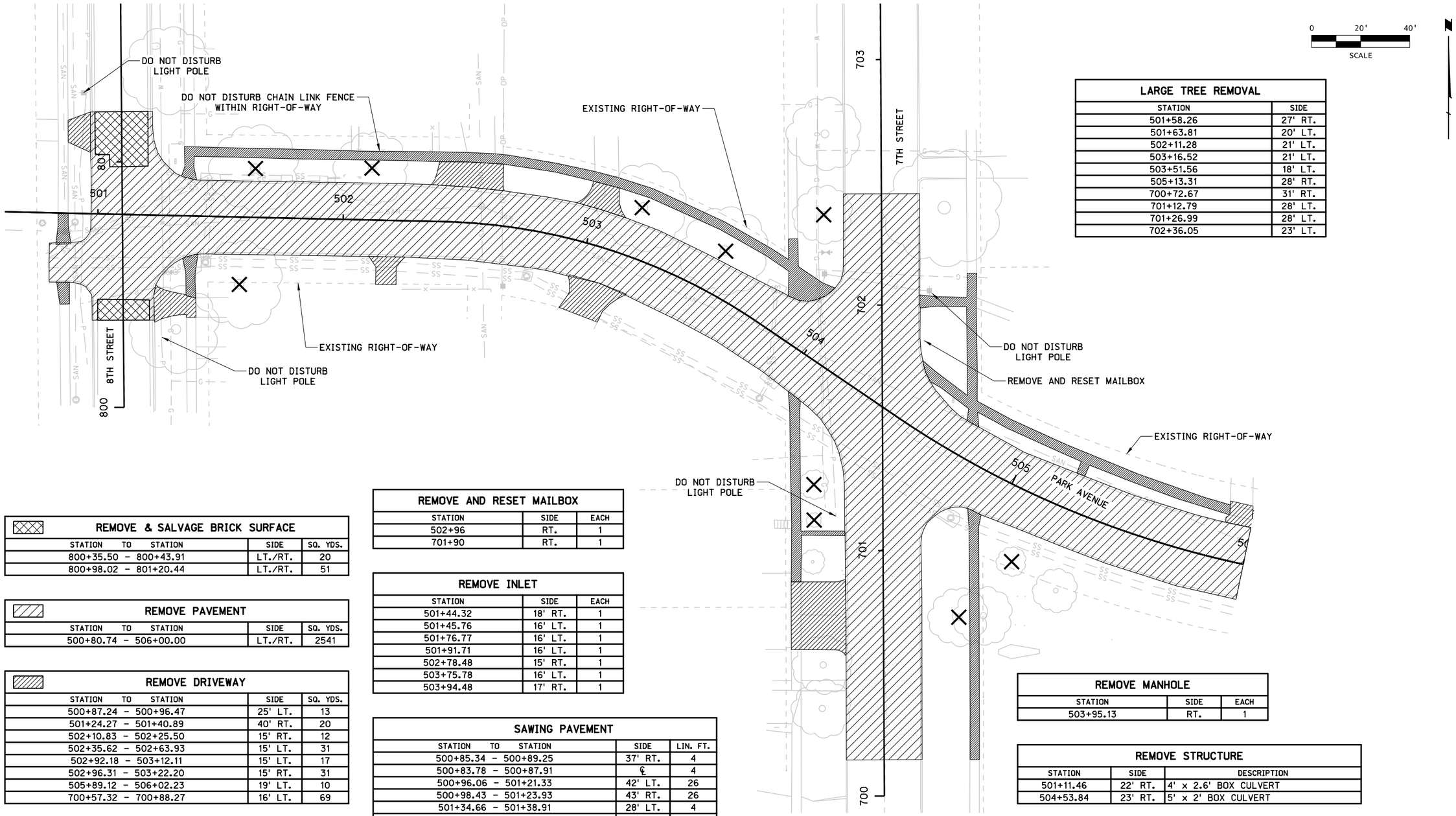








PROJECT NO.	SHEET NO.
08586001-A	J10



LARGE TREE REMOVAL	
STATION	SIDE
501+58.26	27' RT.
501+63.81	20' LT.
502+11.28	21' LT.
503+16.52	21' LT.
503+51.56	18' LT.
505+13.31	28' RT.
700+72.67	31' RT.
701+12.79	28' LT.
701+26.99	28' LT.
702+36.05	23' LT.

REMOVE & SALVAGE BRICK SURFACE		
STATION TO STATION	SIDE	SQ. YDS.
800+35.50 - 800+43.91	LT./RT.	20
800+98.02 - 801+20.44	LT./RT.	51

REMOVE PAVEMENT		
STATION TO STATION	SIDE	SQ. YDS.
500+80.74 - 506+00.00	LT./RT.	2541

REMOVE DRIVEWAY		
STATION TO STATION	SIDE	SQ. YDS.
500+87.24 - 500+96.47	25' LT.	13
501+24.27 - 501+40.89	40' RT.	20
502+10.83 - 502+25.50	15' RT.	12
502+35.62 - 502+63.93	15' LT.	31
502+92.18 - 503+12.11	15' LT.	17
502+96.31 - 503+22.20	15' RT.	31
505+89.12 - 506+02.23	19' LT.	10
700+57.32 - 700+88.27	16' LT.	69

REMOVE WALK		
STATION TO STATION	SIDE	SQ. YDS.
500+83.85 - 500+89.02	28' RT.	5
500+83.26 - 500+89.37	12' RT.	7
501+34.90 - 501+41.17	16' RT.	8
501+33.73 - 503+95.44	25' LT.	136
504+03.36 - 504+54.28	RT.	37
504+25.55 - 505+89.28	20' LT.	97
504+88.81 - 504+94.58	RT.	44

REMOVE AND RESET MAILBOX		
STATION	SIDE	EACH
502+96	RT.	1
701+90	RT.	1

REMOVE INLET		
STATION	SIDE	EACH
501+44.32	18' RT.	1
501+45.76	16' LT.	1
501+76.77	16' LT.	1
501+91.71	16' LT.	1
502+78.48	15' RT.	1
503+75.78	16' LT.	1
503+94.48	17' RT.	1

SAWING PAVEMENT		
STATION TO STATION	SIDE	LIN. FT.
500+85.34 - 500+89.25	37' RT.	4
500+83.78 - 500+87.91	℄	4
500+96.06 - 501+21.33	42' LT.	26
500+98.43 - 501+23.93	43' RT.	26
501+34.66 - 501+38.91	28' LT.	4
501+36.99 - 501+40.89	41' RT.	4
502+13.79 - 502+22.13	26' RT.	9
502+95.66 - 503+14.69	29' RT.	17
502+95.94 - 503+04.95	29' LT.	10
503+69.59 - 503+72.34	37' LT.	4
504+36.70 - 504+39.93	66' LT.	4
700+14.61	35' RT.	4
700+14.74	LT./RT.	31
700+42.94 - 700+47.18	21' LT.	4
700+59.83	37' RT.	4
702+45.37	LT./RT.	31

REMOVE MANHOLE		
STATION	SIDE	EACH
503+95.13	RT.	1

REMOVE STRUCTURE		
STATION	SIDE	DESCRIPTION
501+11.46	22' RT.	4' x 2.6' BOX CULVERT
504+53.84	23' RT.	5' x 2' BOX CULVERT

REMOVE SEWER PIPE	
STATION TO STATION	SIZE
500+78.15 - 501+45.51	24"x76'
501+43.32 - 501+45.51	24"x35'
501+43.32 - 502+78.43	36"x131'
502+78.43 - 503+95.13	36"x107'
503+95.13 - 503+93.96	15"x9'
503+93.96 - 503+75.13	15"x38'
503+95.13 - 504+84.79	36"x93'

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

REMOVAL

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
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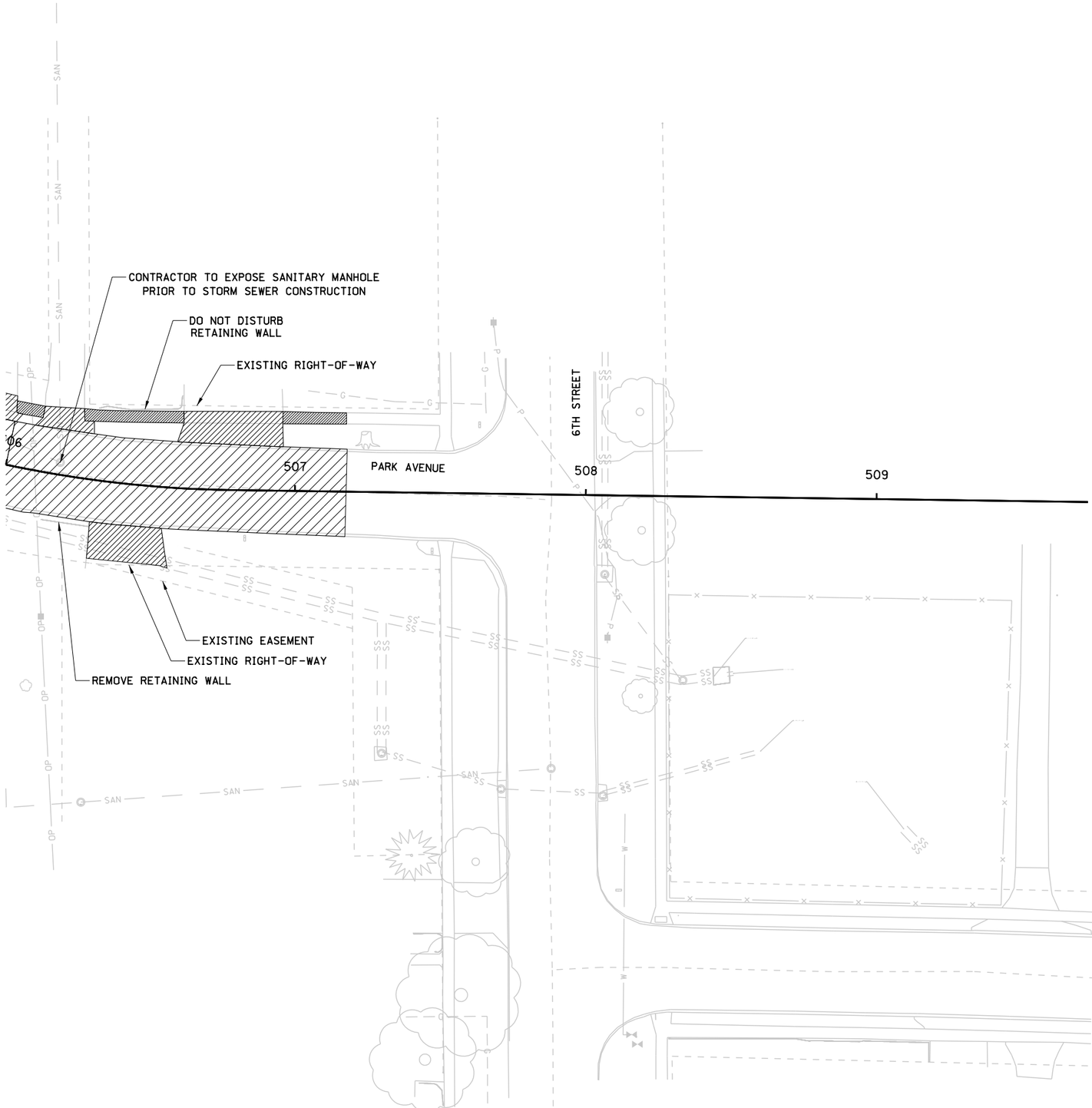
ROADWAY DESIGN DIVISION.



0 20' 40'
SCALE

REMOVE PAVEMENT		
STATION TO STATION	SIDE	SQ. YDS.
506+00.00 - 507+17.57	LT./RT.	392

REMOVE WALK		
STATION TO STATION	SIDE	SQ. YDS.
505+99.30 - 506+09.60	LT.	5
506+23.89 - 506+60.22	LT.	15
506+95.51 - 507+17.39	LT.	10

REMOVE DRIVEWAY		
STATION TO STATION	SIDE	SQ. YDS.
506+07.38 - 506+28.70	LT.	14
506+31.05 - 506+55.04	RT.	37
506+58.67 - 506+95.79	LT.	44

SAWING PAVEMENT		
STATION TO STATION	SIDE	LIN. FT.
507+17.57	LT./RT.	30
507+17.39	23' LT.	4

REMOVE RETAINING WALL		
STATION TO STATION	SIDE	LIN. FT.
506+15.05 - 506+30.92	16' RT.	17

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
12-16-22
STATE OF NEBRASKA

REMOVAL

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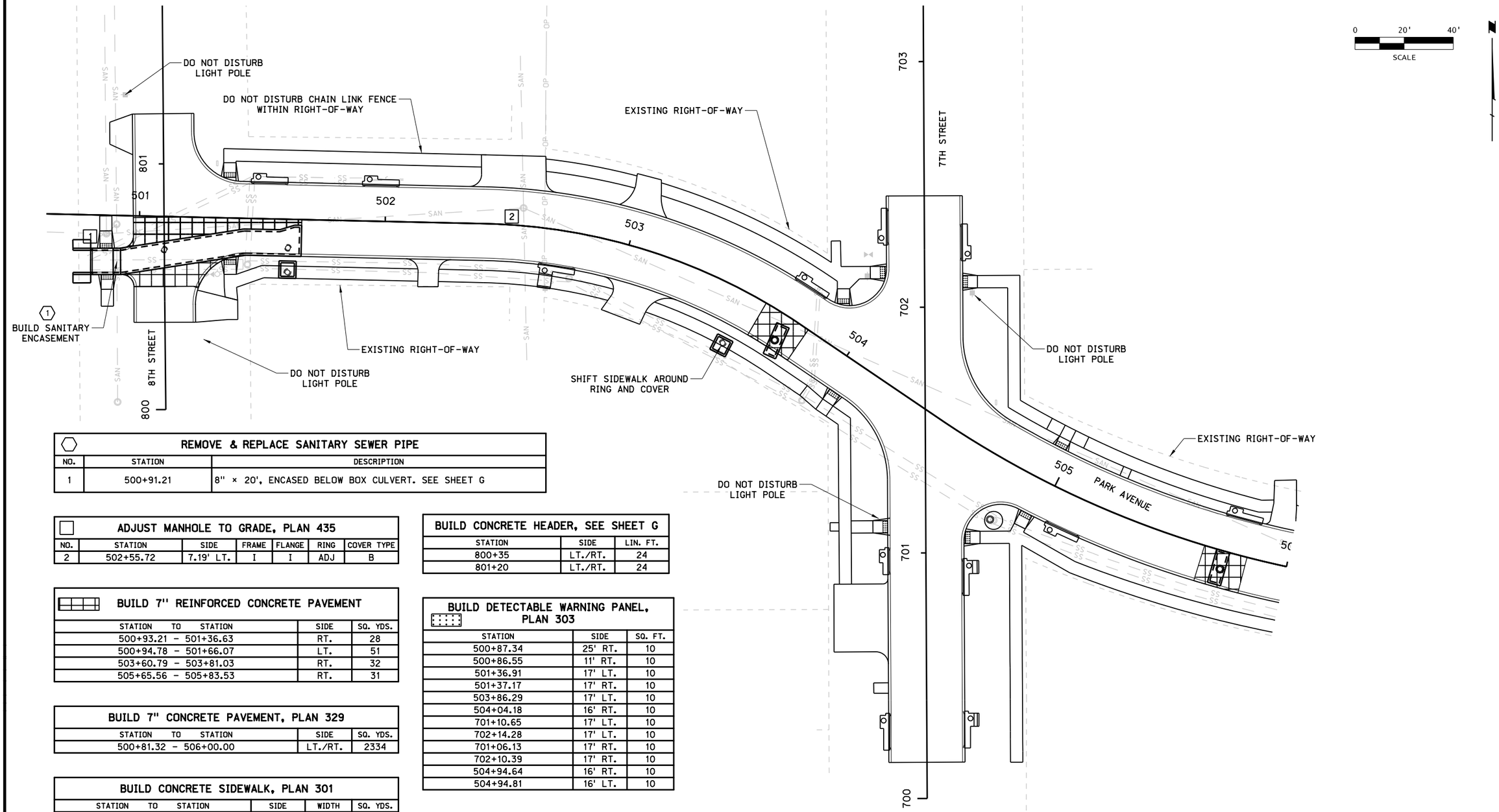
PROJECT NO.	SHEET NO.
08586001-A	J12



REMOVE & REPLACE SANITARY SEWER PIPE		
NO.	STATION	DESCRIPTION
1	500+91.21	8" × 20', ENCASED BELOW BOX CULVERT. SEE SHEET G

ADJUST MANHOLE TO GRADE, PLAN 435						
NO.	STATION	SIDE	FRAME	FLANGE	RING	COVER TYPE
2	502+55.72	7.19' LT.	I	I	ADJ	B

BUILD 7" REINFORCED CONCRETE PAVEMENT		
STATION TO STATION	SIDE	SQ. YDS.
500+93.21 - 501+36.63	RT.	28
500+94.78 - 501+66.07	LT.	51
503+60.79 - 503+81.03	RT.	32
505+65.56 - 505+83.53	RT.	31

BUILD 7" CONCRETE PAVEMENT, PLAN 329		
STATION TO STATION	SIDE	SQ. YDS.
500+81.32 - 506+00.00	LT./RT.	2334

BUILD CONCRETE SIDEWALK, PLAN 301			
STATION TO STATION	SIDE	WIDTH	SQ. YDS.
500+83.10 - 500+90.10	LT.	5'	8
500+83.87 - 500+90.86	RT.	5'	8
501+32.91 - 502+38.53	LT.	5'	64
501+33.71 - 502+13.69	RT.	5'	52
502+22.23 - 502+98.61	RT.	5'	40
502+62.86 - 502+96.42	LT.	5'	21
503+05.27 - 503+92.32	LT.	5'	68
503+15.35 - 700+87.43	RT./LT.	5'	102
504+20.09 - 505+88.93	LT.	5'	108
504+79.64 - 506+00.00	RT.	5'	130
700+42.94 - 700+47.18	LT.	4'	3

BUILD CONCRETE HEADER, SEE SHEET G		
STATION	SIDE	LIN. FT.
800+35	LT./RT.	24
801+20	LT./RT.	24

BUILD DETECTABLE WARNING PANEL, PLAN 303		
STATION	SIDE	SQ. FT.
500+87.34	25' RT.	10
500+86.55	11' RT.	10
501+36.91	17' LT.	10
501+37.17	17' RT.	10
503+86.29	17' LT.	10
504+04.18	16' RT.	10
701+10.65	17' LT.	10
702+14.28	17' LT.	10
701+06.13	17' RT.	10
702+10.39	17' RT.	10
504+94.64	16' RT.	10
504+94.81	16' LT.	10

BUILD 6" CONCRETE DRIVEWAY, PLAN 301		
STATION	SIDE	SQ. YDS.
801+03.81 - 801+20.40	13' LT.	14
800+35.40 - 800+48.51	14' RT.	20
502+08.79 - 502+27.13	15' RT.	12
502+33.77 - 502+67.89	15' LT.	40
502+92.35 - 503+11.21	15' LT.	20
502+93.28 - 503+26.44	15' RT.	28
505+87.07 - 506+04.67	15' LT.	22
700+54.83 - 700+89.46	16' LT.	69

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

CONSTRUCTION

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
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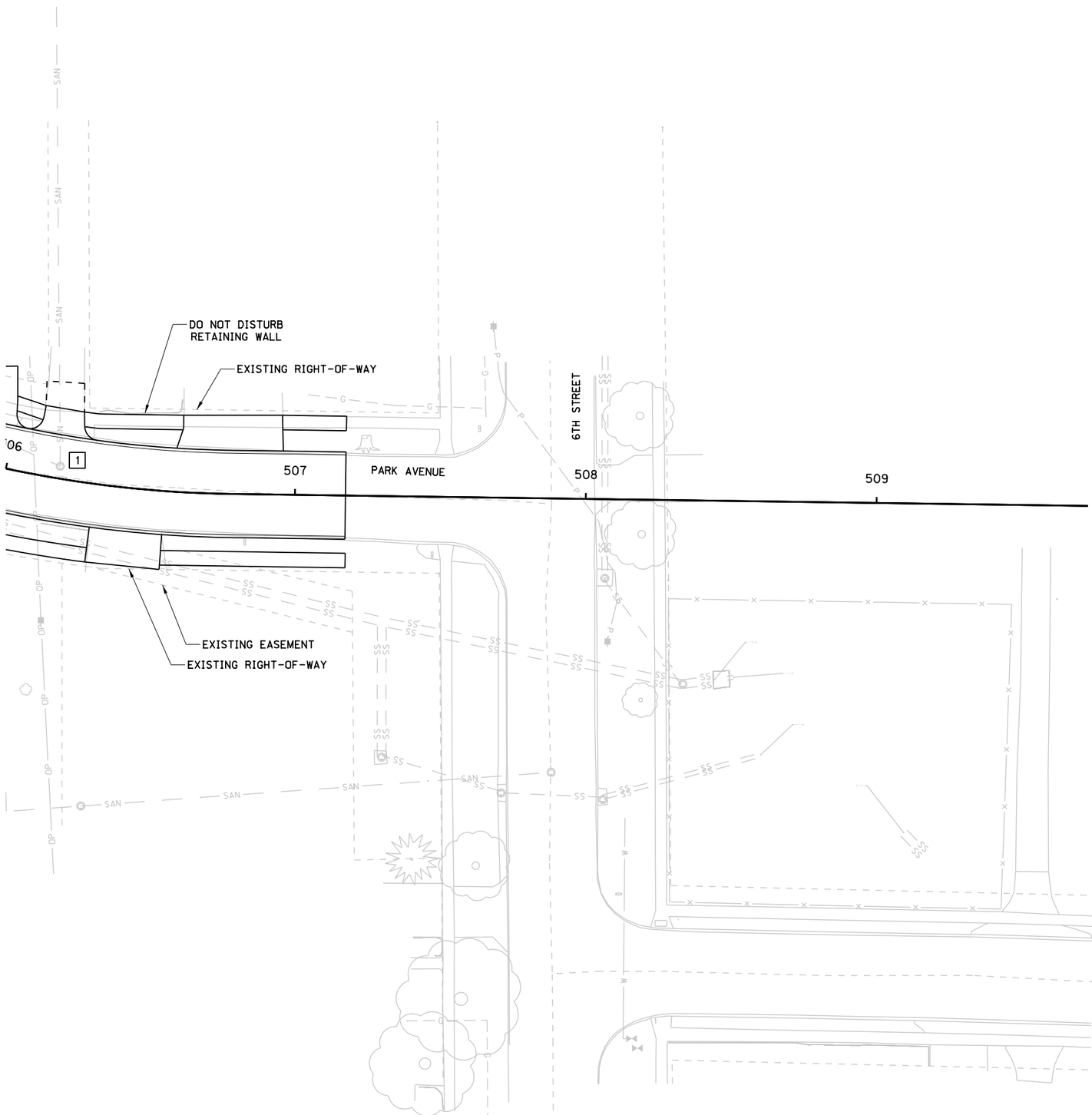

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N

BUILD CRUSHED ROCK SURFACE COURSE		
STATION TO STATION	SIDE	CU. YDS.
506+09.61 - 506+23.86	LT.	3

☐ ADJUST MANHOLE TO GRADE, PLAN 435						
NO.	STATION	SIDE	FRAME	FLANGE	RING	COVER TYPE
1	506+18.37	4.20' LT.	I	I	ADJ	B

NOTE: CONTRACTOR TO EXPOSE SANITARY MANHOLE PRIOR TO STORM SEWER CONSTRUCTION

BUILD 7" CONCRETE PAVEMENT, PLAN 329		
STATION TO STATION	SIDE	SQ. YDS.
506+00.00 - 507+17.57	LT./RT.	392

BUILD CONCRETE SIDEWALK, PLAN 301			
STATION TO STATION	SIDE	WIDTH	SQ. YDS.
505+99.02 - 506+09.61	LT.	5'	6
506+00.00 - 506+31.12	27' RT.	5'	19
506+23.86 - 506+60.22	26' LT.	5'	19
506+55.19 - 507+17.56	24' RT.	5'	36
506+95.37 - 507+17.39	27' LT.	5'	13

BUILD 6" CONCRETE DRIVEWAY, PLAN 301		
STATION	SIDE	SQ. YDS.
506+04.67 - 506+29.52	15' LT.	16
506+31.09 - 506+55.19	15' RT.	34
506+58.41 - 506+95.80	15' LT.	47

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CONSTRUCTION

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
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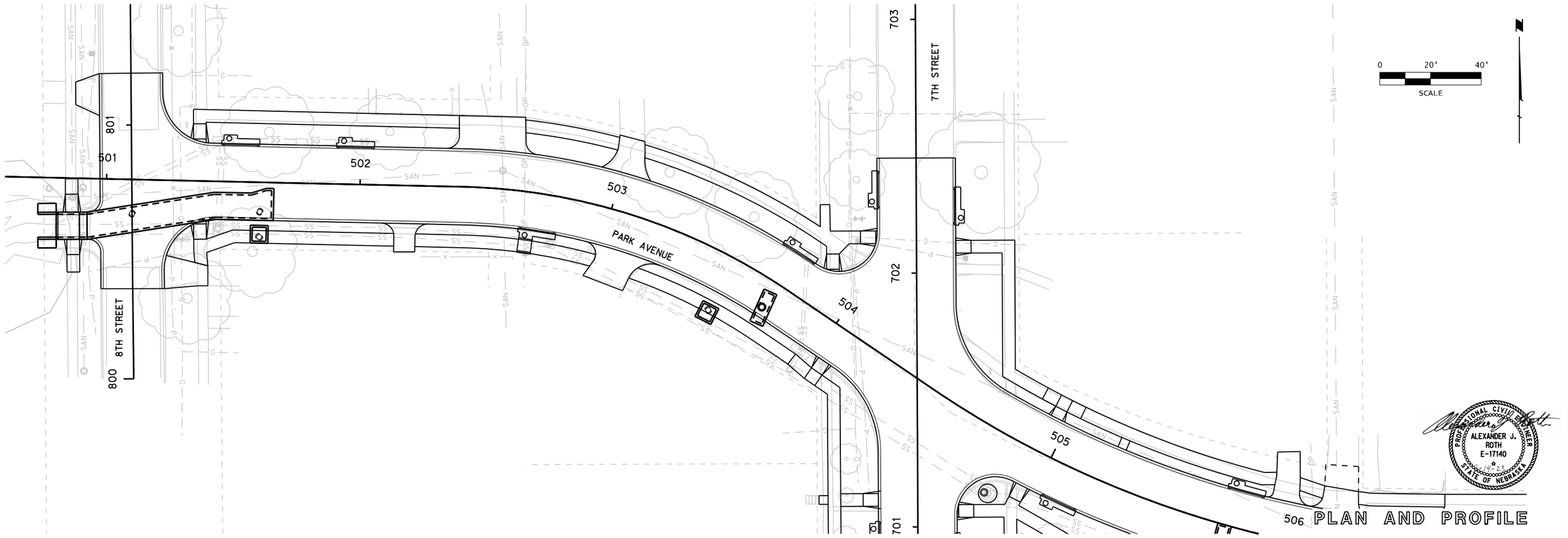
C.N.

ROADWAY DESIGN DIVISION.



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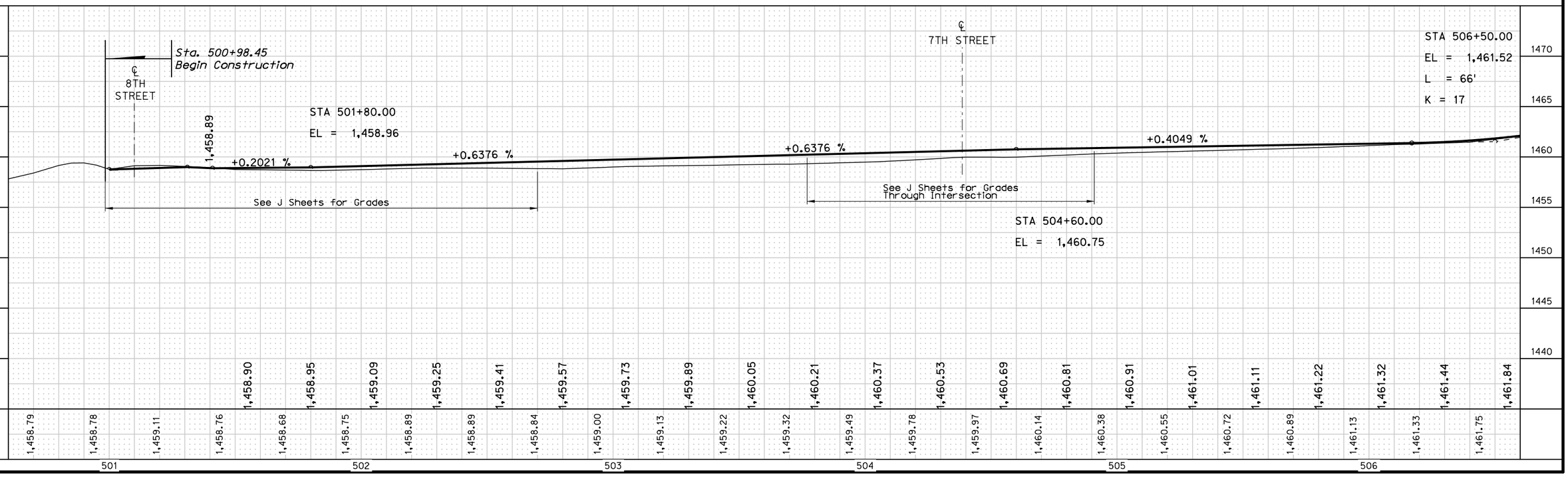
E-17140
PROFESSIONAL CIVIL ENGINEER
STATE OF NEBRASKA

PLAN AND PROFILE



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PROJECT NO.	SHEET NO.
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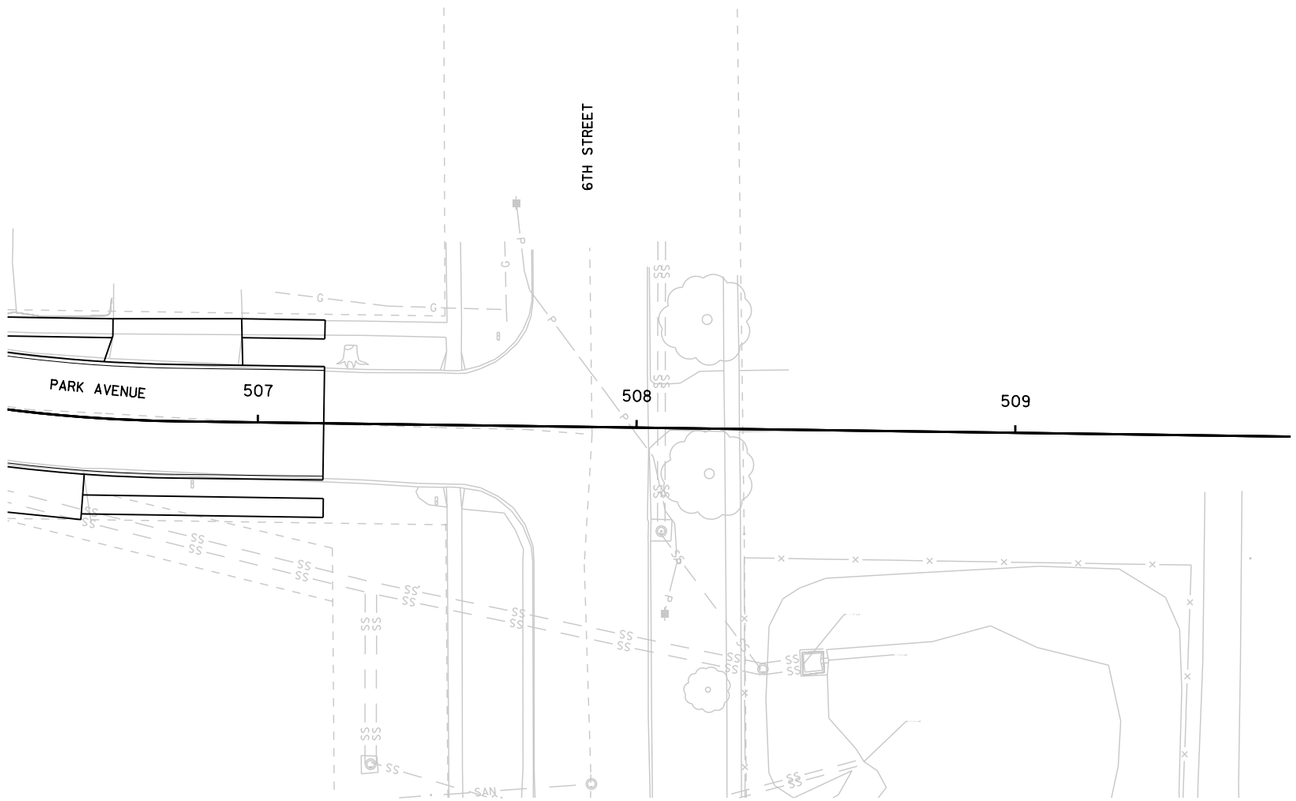
C.N.	

ROADWAY DESIGN DIVISION.



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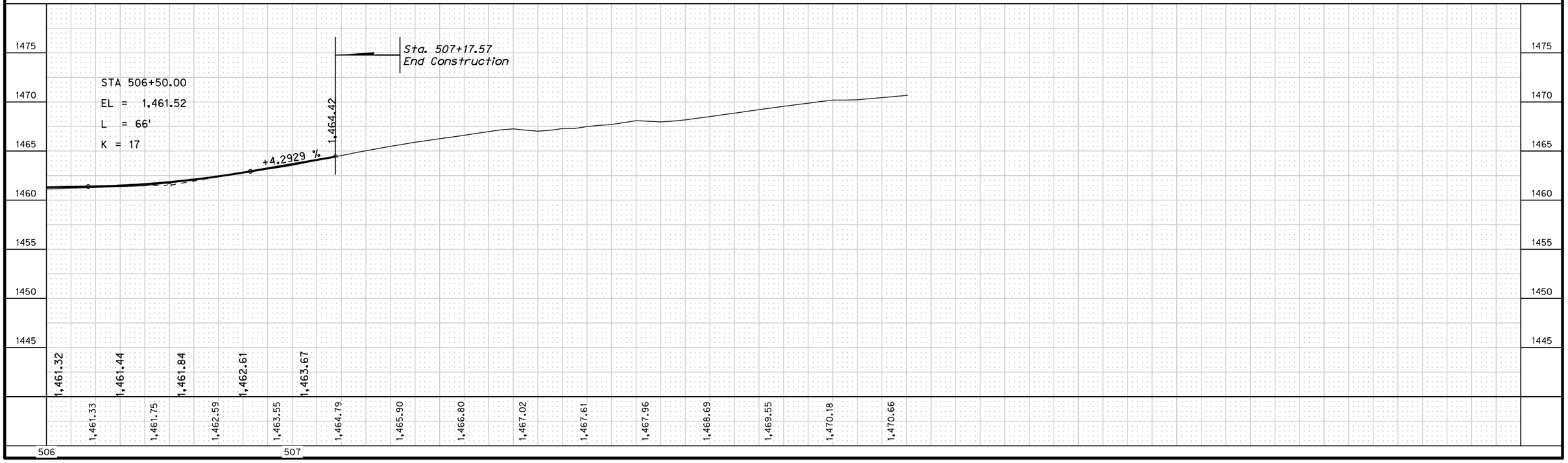
ALEXANDER J. ROTH
E-17140
14 FEB 23
PROFESSIONAL CIVIL ENGINEER
STATE OF NEBRASKA

PLAN AND PROFILE



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PROJECT NO.	SHEET NO.
08586001-A	L3

ROADWAY DESIGN DIVISION.

SITE INFORMATION

Spring 2023	CSW-202207337
Estimated Start Date	NDEQ NOI Number
PARK AVENUE STORM SEWER IMPROVEMENTS	
Project Name	Address
N/A	N/A
Subdivision Name	S&ID #
Seward	Seward
City	County
40.914748	-97.100390
Latitude	Longitude
Nebraska	68434
State	Zip Code
Total Site Area (Acres) 1.1	Estimated Permit Duration (Months) 12
Disturbed Area (Acres) 1.1	
Undisturbed Area (Acres) 0	

GENERAL NOTES

1. All OPERATORS/CONTRACTORS must confirm with the APPLICANT that any and all applicable governmental approvals have been received prior to the start of work.
2. BMP's may not be removed without INSPECTOR and applicable governmental approval.
3. The INSPECTOR will evaluate compliance with the applicable construction stormwater general permit commitments during Storm Event Inspections.
4. The INSPECTOR will perform inspections on projects regulated under the applicable construction stormwater general permit within 24 hours or the next business day following a rain event of 0.5 inches of precipitation or greater or every seven days. For projects located on tribal land, see the inspection frequencies in the EPA Construction General Permit located on the NDOT website (https://dot.nebraska.gov/business-center/contractor/).
5. The CONTRACTOR'S Environmental Representative is not required to accompany the Engineer on Storm Event Inspections.
6. Subject to storm events, inspections may begin on the first day of construction activities cause land disturbance and end on the date of project completion as evidenced by the completion date in the Construction Agreement.
7. The permitee is prohibited from discharging the following:

   Wastewater from the washout of concrete; except in approved concrete washout basin.

   Wastewater from the washout and cleanout of stucco, paint, form release oils, curing compounds, and other constructions materials;

   Fuels, oils, and other pullutants used in vehicle and equipment operation and maintenance; and

   Soaps or solvents used in vehicle equipments washing.

MAINTENANCE SCHEDULE

The following Maintenance Schedule has been provided. The INSPECTOR must perform the inspections. The OPERATOR/CONTRACTOR must perform all needed maintenance. Furthermore, all erosion control feature requiring maintenance may not be listed below. The OPERATOR/CONTRACTOR and INSPECTOR must perform their respective duties on all BMP's that are not listed below as well.

1. Construction Entrance – The entrance shall be maintained in a condition which will prevent tracking or flow of sediment onto public rights-of-way. This may require periodic top dressing with additional stone or the washing and reworking of existing stone as conditions demand and repair and/or cleanout of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. The use of water trucks to remove materials dropped, washed, or tracked onto roadways will not be permitted under any circumstances.

2. Silt Fence – The maintenance measures are as follows: (2.1) silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall, any required repairs shall be made immediately; (2.2) close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting; (2.3) should the fabric on a silt fence decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly; (2.4) sediment deposits must be removed when the level of deposition reaches approximately one-half the height of the barrier; and (2.5) any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform to the existing grade, prepared and seeded.

3. Storm Drain Inlet Protection – The maintenance measures are as follows: (3.1) structures shall be inspected after each rain and repairs made as necessary and (3.2) structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.

4. Temporary Diversion Dike – The measure shall be inspected after every storm and repairs made to the dike, flow channel, outlet or sediment trapping facility, as necessary. Once every two weeks, whether a storm event has occurred or not, the measure shall be inspected and repairs made if needed. Damages caused by construction traffic or other activity must be repaired before the end of each working day.

5. Temporary Fill Diversion – Since the practice is temporary and under most situations will be covered the next working day. The maintenance required should be low. If the practice is to remain in use for more than one day, an inspection shall be made at the end of each work day and repairs made to the measure if needed. The OPERATOR/CONTRACTOR should avoid the placement of any material over the structure while it is in use. Construction traffic should not be permitted to cross the diversion.

6. Temporary Sediment Trap – The maintenance measures are as follows: (6.1) sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design volume of the wet storage, sediment removal from the basin shall be deposited in a suitable area and in such a manner that it will not erode and cause sedimentation problems; (6.2) filter stone shall be regularly checked to ensure that filtration performance is maintained, stone choked with sediment shall be removed and cleaned or replaced; and (6.3) the structure should be checked regularly to ensure that it is structurally sound and has not been damaged by erosion or construction equipment, the height of the stone outlet should be checked to ensure that its center is at least 1 foot below the top of the embankment.

7. Temporary Sediment Basin – The basin embankment should be checked regularly to ensure that it is structurally sound and has not been damaged by erosion or construction equipment. The emergency spillway should be checked regularly to ensure that its lining is well established and erosion-resistant. The basin should be checked after each runoff producing rainfall for sediment cleanout and trash removal. When the sediment reaches the cleanout level, it shall be removed and properly disposed of.

8. Temporary Seeding – Areas which fail to establish vegetative cover adequate to prevent rill erosion will be re-seeded as soon as such areas are identified. Control weeds by mowing.

9. Permanent Seeding – The maintenance measures are as follows: (9.1) in general, a stand of vegetation cannot be determined to be fully established until it has been maintained for one full year after planning; (9.2) new seedlings shall be supplied with adequate moisture, supply water as needed, especially late in the season, in abnormally hot or dry conditions, or on adverse sites, water applications shall be controlled to prevent excessive runoff; (9.3) inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season, if possible; [9.3.a] if stand is inadequate for erosion control, over seed and fertilize using half of the rates originally specified; [9.3.b] if stand is 60% damaged, re-establish following seedbed and seeding recommendations; [9.3.c] if stand has less than 40% cover, re-evaluate choice of plant materials and quantities of lime and fertilizer, the soil must be tested to determine if acidity or nutrient imbalances are responsible, re-establish the stand following seedbed and seeding recommendations.

10. Mulching – All mulches and soil coverings should be inspected periodically (particularly after rainstorms) to check for erosion. Where erosion is observed in mulched areas, additional mulch should be applied. Nets and mats should be inspected after rainstorms for dislocation or failure. If washouts or breakage occur, reinstall netting or matting as necessary after repairing damage to the slope or ditch. Inspections should take place until grasses are firmly established. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface; repair as needed.

11. Soil Stabilization Blankets & Matting – All soil stabilization blankets and matting should be inspected periodically following installation, particularly after rainstorms to check for erosion and undermining. Any dislocation or failure should be repaired immediately. If washouts or breakage occurs, reinstall the material after repairing damage to the slope or ditch. Continue to monitor these areas until which time they become permanently stabilized; at that time an annual inspections should be adequate.

12. Street Cleaning / Sweeping – The maintenance measures are as follows: (12.1) evaluate access points daily for sediment tracking; (12.2) when tracked or spilled sediment is found on paved surfaces, it will be removed daily, during times of heavy track-out, such as during rains, cleaning may be done several times throughout the day; (12.3) unknown spills or objects will not be mixed with the sediment; and (12.4) if sediment is mixed with other pollutants, it will be disposed of properly at an authorized landfill.

CONSTRUCTION ACTIVITIES & SCHEDULING

ACTIVITY	SCHEDULE
Install all BMP's needed and associated with the Grading Phase such as stabilized construction entrances, silt basins, riser pipes, outlet pipes, silt traps, silt fence, diversions, terraces, and etcetera.	Prior to any stripping of existing vegetation or grading.
Proceed with stripping of existing vegetation and grading in accordance with the grading plan, while disturbing no more than necessary.	After installing all BMP's needed and associated with the Grading Phase. Furthermore, INSPECTOR approval must be obtained before the start of any stripping of existing vegetation or grading.
Proceed with infrastructure installation.	Infrastructure installation must occur prior to any lot development.
Implement the installation of Temporary Seeding, Permanent Seeding, and/or Mulching.	Stabilization measures must be initiated as soon as possible in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased
Implement the installation all BMP's needed and associated with the Building Phase.Building	Building Phase BMP's must be installed concurrently with lot development.
Proceed with removal of BMP's.	BMP's may not be removed until each impacted drainage basin has been fully developed. Full development shall mean installation of pavement, buildings, and utilities, landscaping, and fully established permanent seeding. Furthermore, INSPECTOR approval must be obtained before the removal of any BMP's.

PROFESSIONAL CIVIL ENGINEER
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2-14-23
STATE OF NEBRASKA

STORM WATER POLLUTION PREVENTION PLAN

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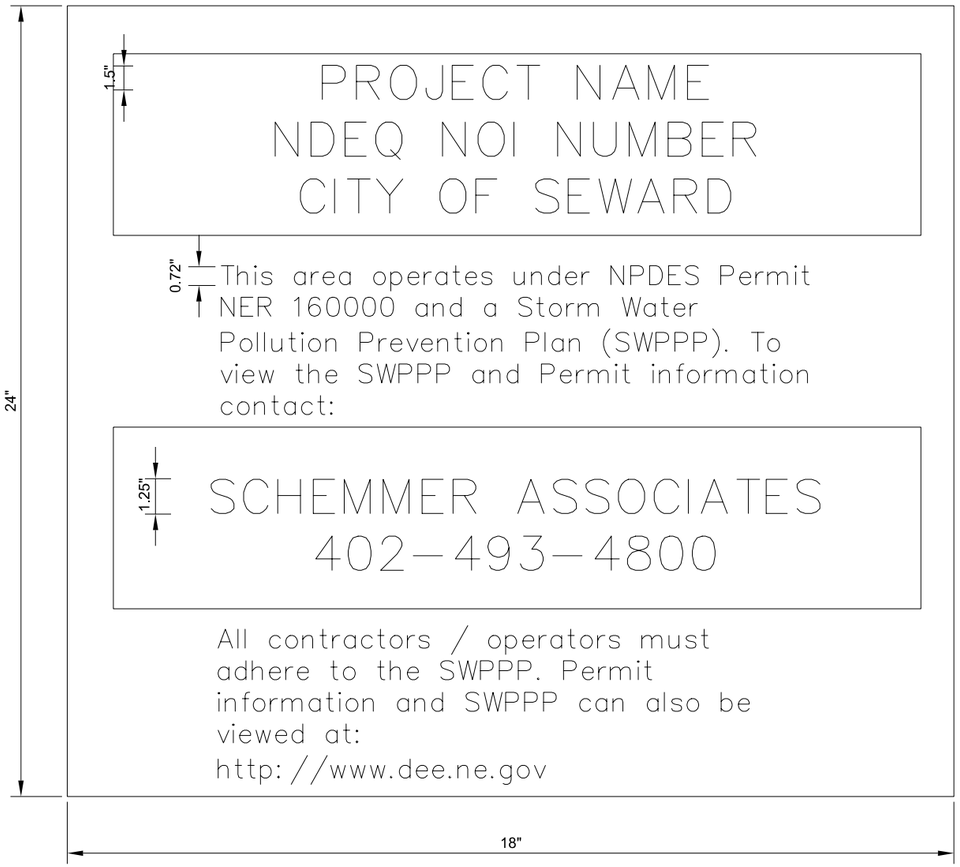

SWPPP NOTIFICATION SIGN

1. *POST AT ENTRANCES TO CONSTRUCTION PROJECTS.*
2. *PROVIDE STURDY BACKING & POST FOR SIGNS.*

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

STORM WATER POLLUTION PREVENTION PLAN

ROADWAY DESIGN DIVISION.

Computer: DMAALEXR
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PROJECT NO.	SHEET NO.
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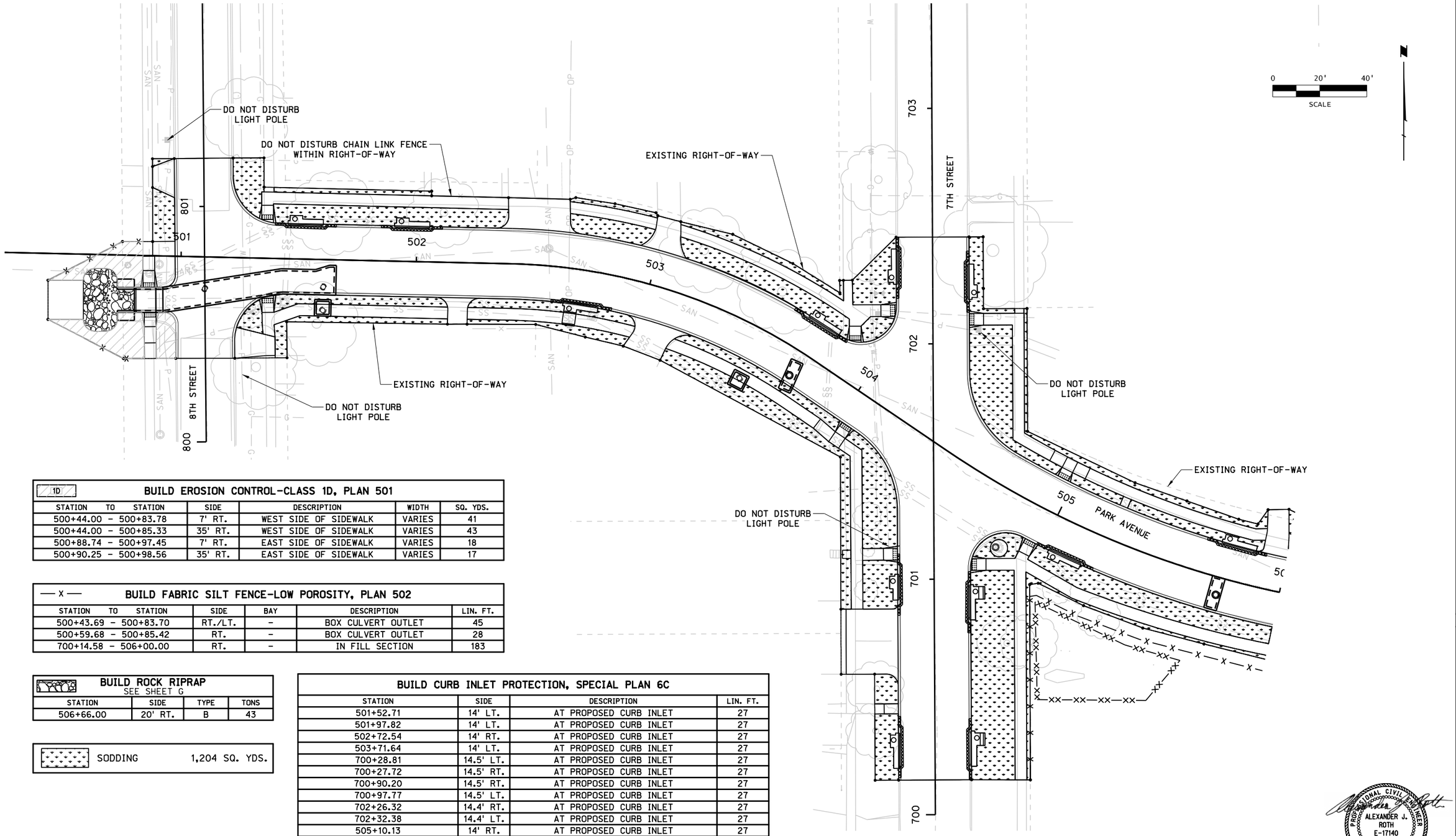

1D	BUILD EROSION CONTROL-CLASS 1D, PLAN 501				
STATION TO STATION		SIDE	DESCRIPTION	WIDTH	SQ. YDS.
500+44.00 - 500+83.78		7' RT.	WEST SIDE OF SIDEWALK	VARIES	41
500+44.00 - 500+85.33		35' RT.	WEST SIDE OF SIDEWALK	VARIES	43
500+88.74 - 500+97.45		7' RT.	EAST SIDE OF SIDEWALK	VARIES	18
500+90.25 - 500+98.56		35' RT.	EAST SIDE OF SIDEWALK	VARIES	17

— X —	BUILD FABRIC SILT FENCE-LOW POROSITY, PLAN 502				
STATION TO STATION		SIDE	BAY	DESCRIPTION	LIN. FT.
500+43.69 - 500+83.70		RT./LT.	-	BOX CULVERT OUTLET	45
500+59.68 - 500+85.42		RT.	-	BOX CULVERT OUTLET	28
700+14.58 - 506+00.00		RT.	-	IN FILL SECTION	183

BUILD ROCK RIPRAP SEE SHEET G			
STATION	SIDE	TYPE	TONS
506+66.00	20' RT.	B	43

SODDING 1,204 SQ. YDS.

BUILD CURB INLET PROTECTION, SPECIAL PLAN 6C			
STATION	SIDE	DESCRIPTION	LIN. FT.
501+52.71	14' LT.	AT PROPOSED CURB INLET	27
501+97.82	14' LT.	AT PROPOSED CURB INLET	27
502+72.54	14' RT.	AT PROPOSED CURB INLET	27
503+71.64	14' LT.	AT PROPOSED CURB INLET	27
700+28.81	14.5' LT.	AT PROPOSED CURB INLET	27
700+27.72	14.5' RT.	AT PROPOSED CURB INLET	27
700+90.20	14.5' RT.	AT PROPOSED CURB INLET	27
700+97.77	14.5' LT.	AT PROPOSED CURB INLET	27
702+26.32	14.4' RT.	AT PROPOSED CURB INLET	27
702+32.38	14.4' LT.	AT PROPOSED CURB INLET	27
505+10.13	14' RT.	AT PROPOSED CURB INLET	27
505+77.63	14' LT.	AT PROPOSED CURB INLET	27

NOTE: ALL CURB INLET SEDIMENT FILTER(S) SHALL BE REMOVED BEFORE THE ROAD IS OPEN TO TRAFFIC.

—XX—XX—	BUILD TEMPORARY FENCE			
STATION TO STATION		SIDE	DESCRIPTION	LIN. FT.
505+07.07 - 505+67.73		RT.	AROUND PLAYGROUND EQUIPMENT	177

PROFESSIONAL CIVIL ENGINEER
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STATE OF NEBRASKA

EROSION CONTROL

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
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ROADWAY DESIGN DIVISION.

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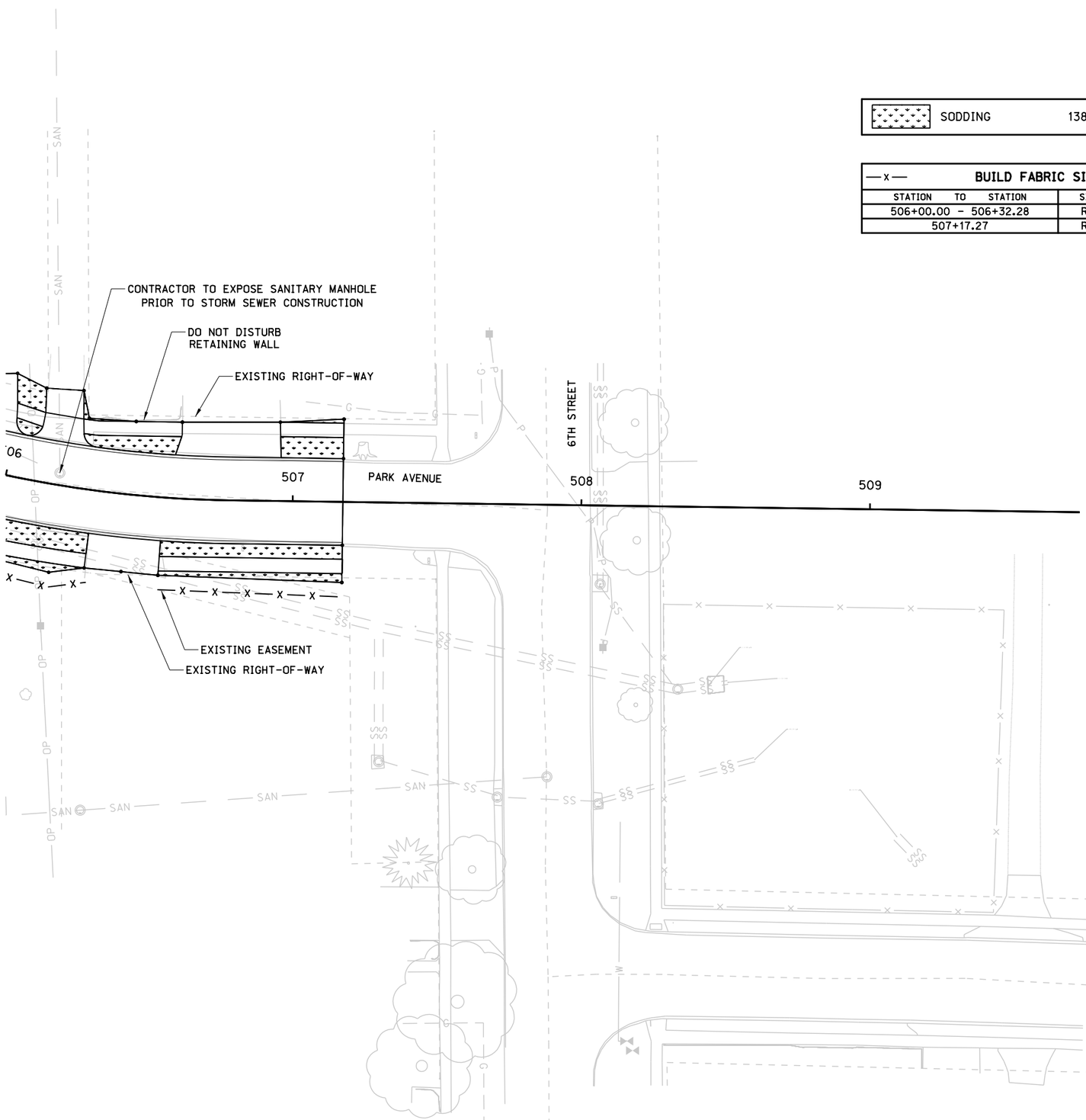
SODDING 138 SQ. YDS.

—x— **BUILD FABRIC SILT FENCE-LOW POROSITY, PLAN 502**

STATION TO STATION	SIDE	BAY	DESCRIPTION	LIN. FT.
506+00.00 - 506+32.28	RT.	-	IN FILL SECTION	36
507+17.27	RT.	-	IN FILL SECTION	64



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ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

EROSION CONTROL

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PROJECT NO.	SHEET NO.
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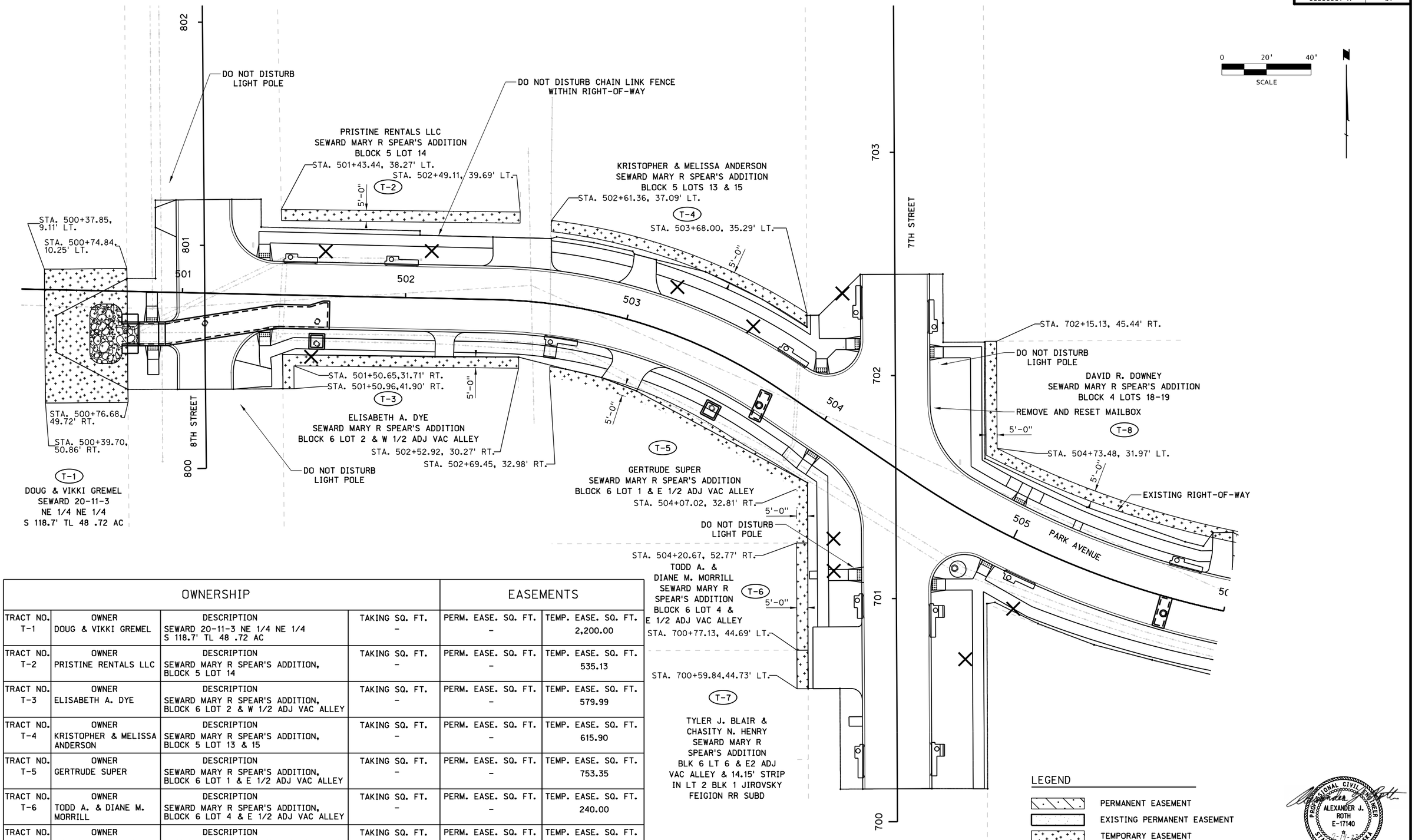

OWNERSHIP				EASEMENTS	
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-1	DOUG & VIKKI GREMEL	SEWARD 20-11-3 NE 1/4 NE 1/4 S 118.7' TL 48 .72 AC	-	-	2,200.00
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-2	PRISTINE RENTALS LLC	SEWARD MARY R SPEAR'S ADDITION, BLOCK 5 LOT 14	-	-	535.13
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-3	ELISABETH A. DYE	SEWARD MARY R SPEAR'S ADDITION, BLOCK 6 LOT 2 & W 1/2 ADJ VAC ALLEY	-	-	579.99
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-4	KRISTOPHER & MELISSA ANDERSON	SEWARD MARY R SPEAR'S ADDITION, BLOCK 5 LOT 13 & 15	-	-	615.90
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-5	GERTRUDE SUPER	SEWARD MARY R SPEAR'S ADDITION, BLOCK 6 LOT 1 & E 1/2 ADJ VAC ALLEY	-	-	753.35
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-6	TODD A. & DIANE M. MORRILL	SEWARD MARY R SPEAR'S ADDITION, BLOCK 6 LOT 4 & E 1/2 ADJ VAC ALLEY	-	-	240.00
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-7	TYLER J. BLAIR & CHASITY N. HENRY	SEWARD MARY R SPEAR'S ADDITION, BLK 6 LT 6 & E2 ADJ VAC ALLEY & 14.15' STRIP IN LT 2 BLK 1 JIROVSKY FEIGION RR SUBD	-	-	86.47
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-8	DAVID R. DOWNEY	SEWARD MARY R SPEAR'S ADDITION, BLOCK 4 LOTS 18-19	-	-	876.41

LEGEND

- PERMANENT EASEMENT
- EXISTING PERMANENT EASEMENT
- TEMPORARY EASEMENT
- NEW RIGHT-OF-WAY

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA

RIGHT-OF-WAY

ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
08586001-A	W2

ROADWAY DESIGN DIVISION.

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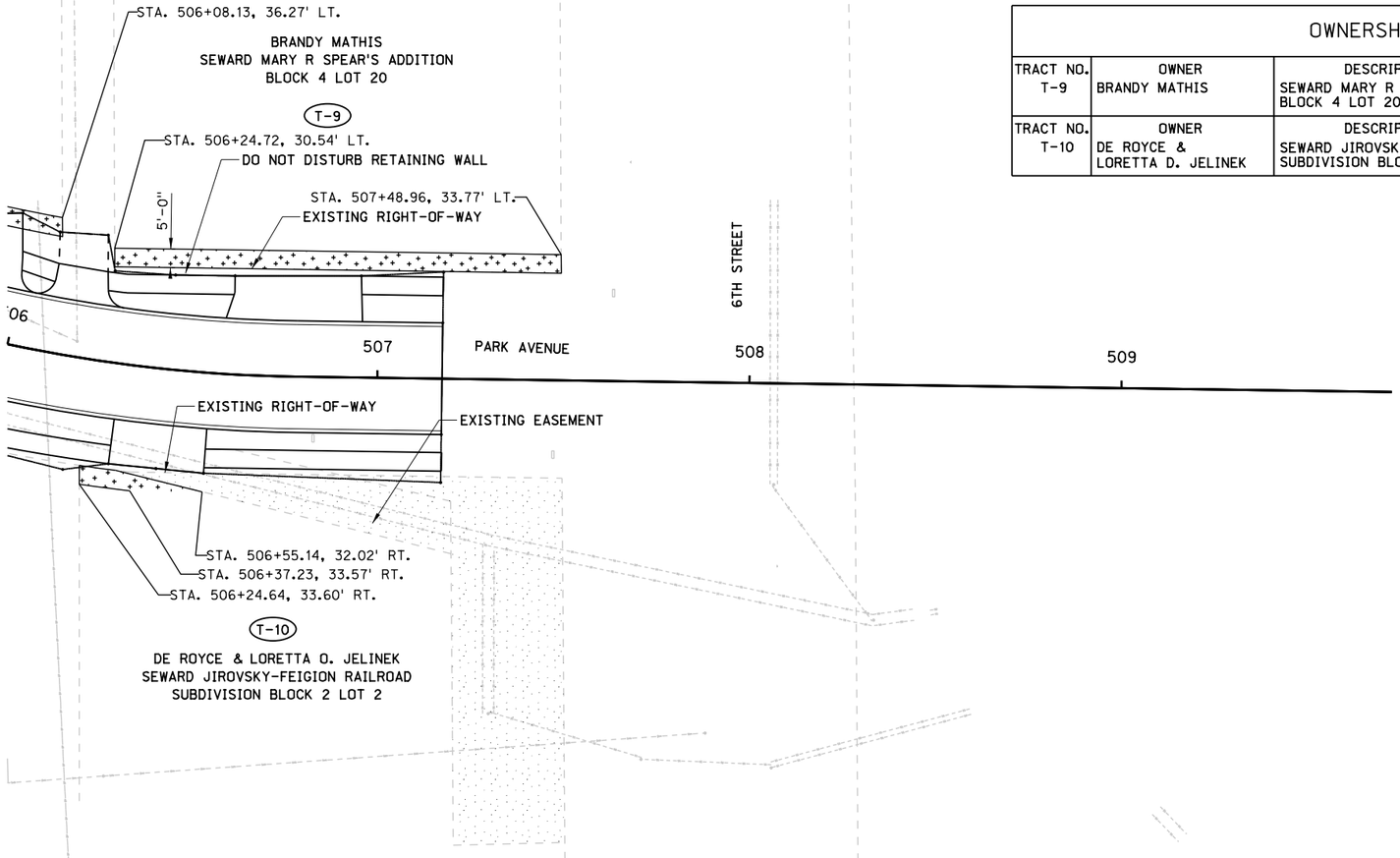
SCALE



OWNERSHIP				EASEMENTS	
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-9	BRANDY MATHIS	SEWARD MARY R SPEAR'S ADDITION, BLOCK 4 LOT 20	-	-	600.00
TRACT NO.	OWNER	DESCRIPTION	TAKING SQ. FT.	PERM. EASE. SQ. FT.	TEMP. EASE. SQ. FT.
T-10	DE ROYCE & LORETTA D. JELINEK	SEWARD JIROVSKY-FEIGION RAILROAD SUBDIVISION BLOCK 2 LOT 2	-	-	111.61

LEGEND

- PERMANENT EASEMENT
- EXISTING PERMANENT EASEMENT
- TEMPORARY EASEMENT
- NEW RIGHT-OF-WAY

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RIGHT-OF-WAY

File: 08586001crow02ParkAvenue.dgn
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Date: 14-FEB-2023 09:25
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Vertical Scale	1 : 10

PROJECT NO.	SHEET NO.
08586001-A	X1

C.N.

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2-14-23

ROADWAY DESIGN DIVISION.

Computer: OMALEXR

Date: 14-FEB-2023 09:25

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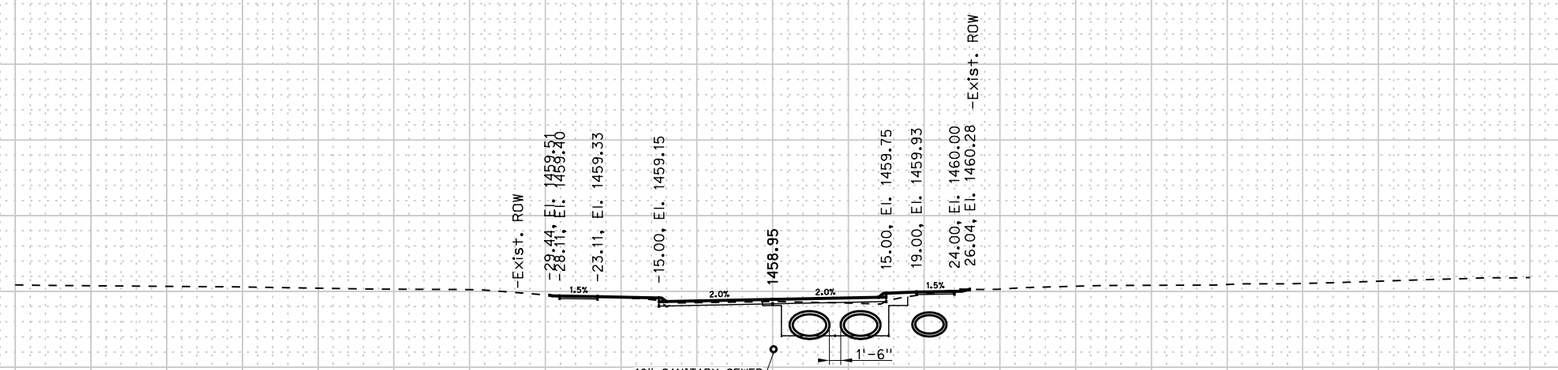

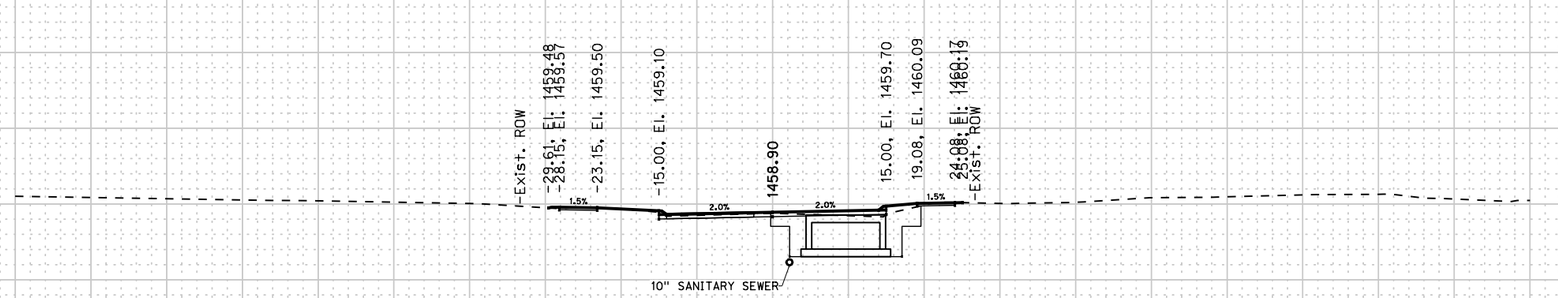

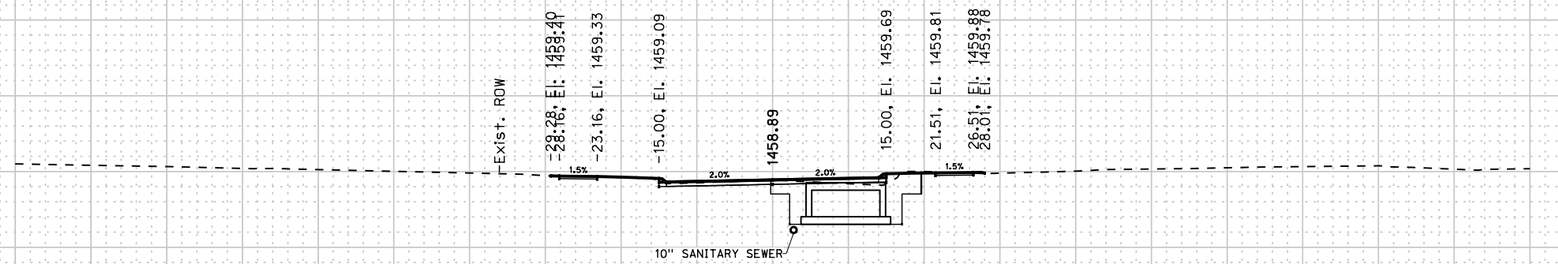

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ROADWAY DESIGN DIVISION.

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PROJECT NO.	SHEET NO.
08586001-A	X2

C.N.

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E-17140
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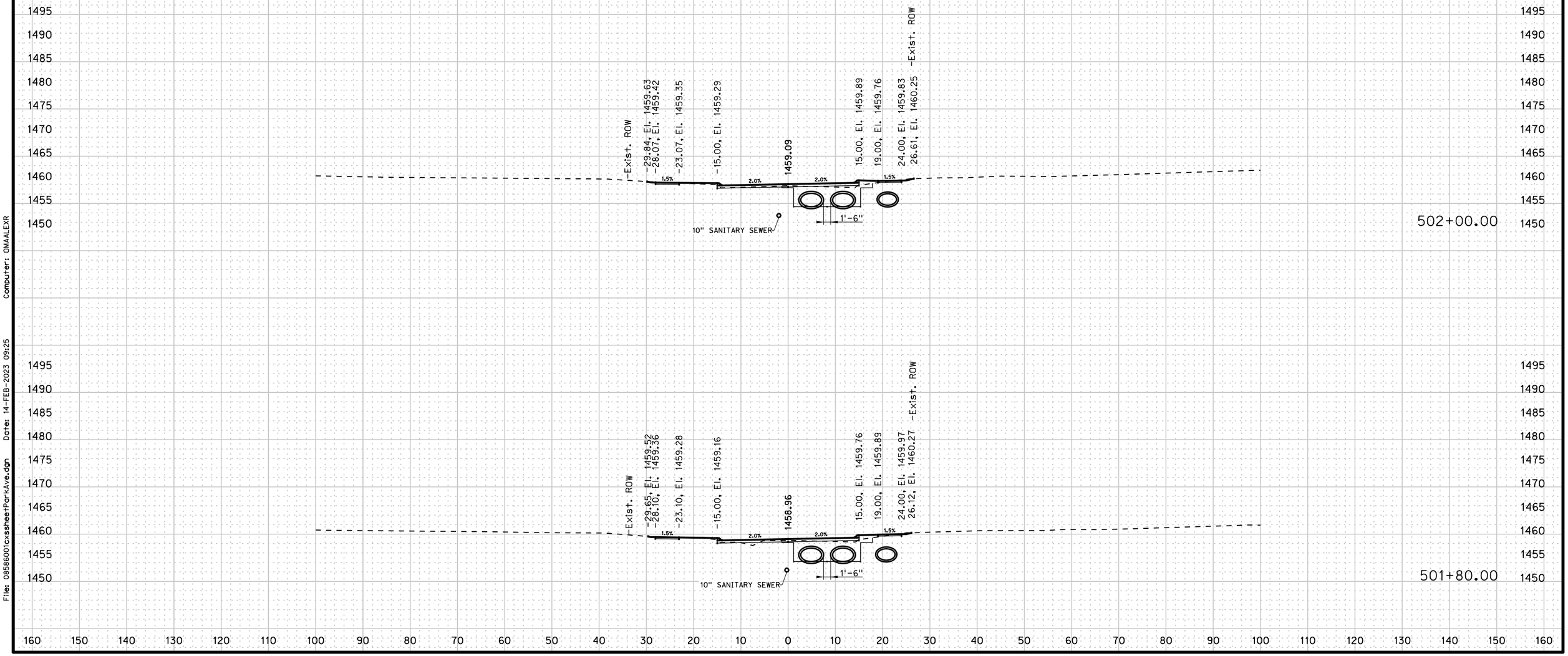
2-7-23



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		C.N.	

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STATE OF NEBRASKA
2-7-23

ROADWAY DESIGN DIVISION.
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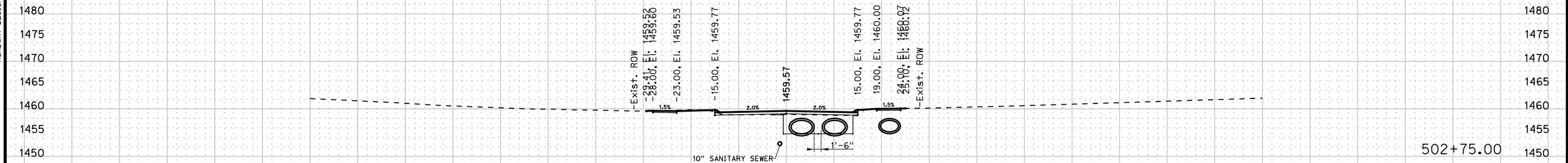
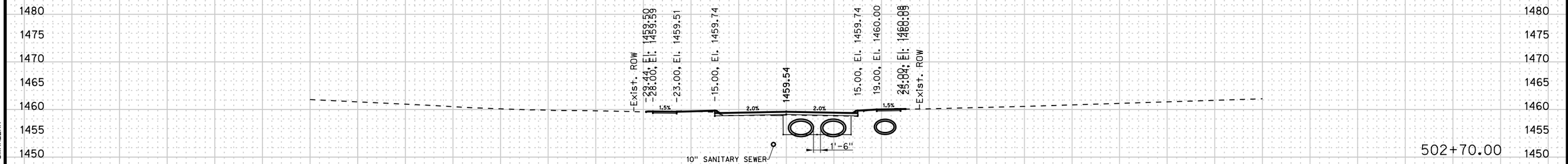
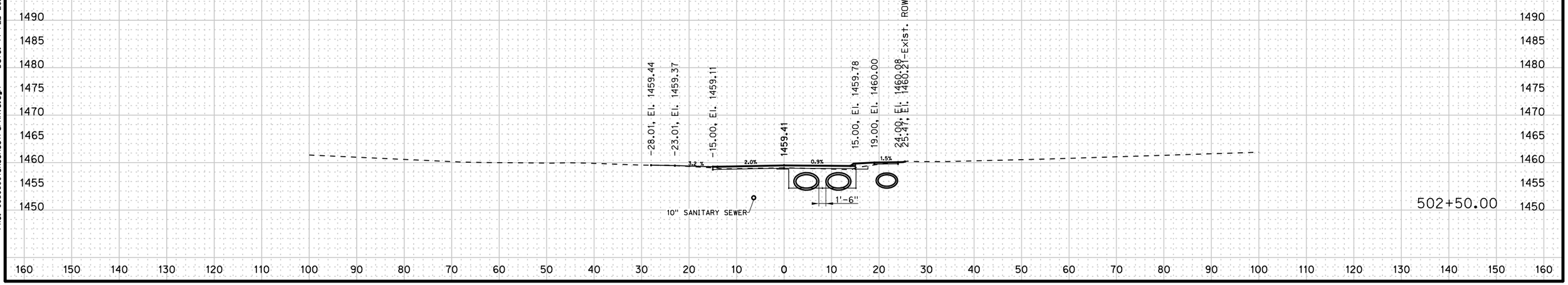
Vertical Scale	1 : 10	08586001-A	X4

C.N.

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-14-23







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PROJECT NO.	SHEET NO.
08586001-A	X5

C.N.

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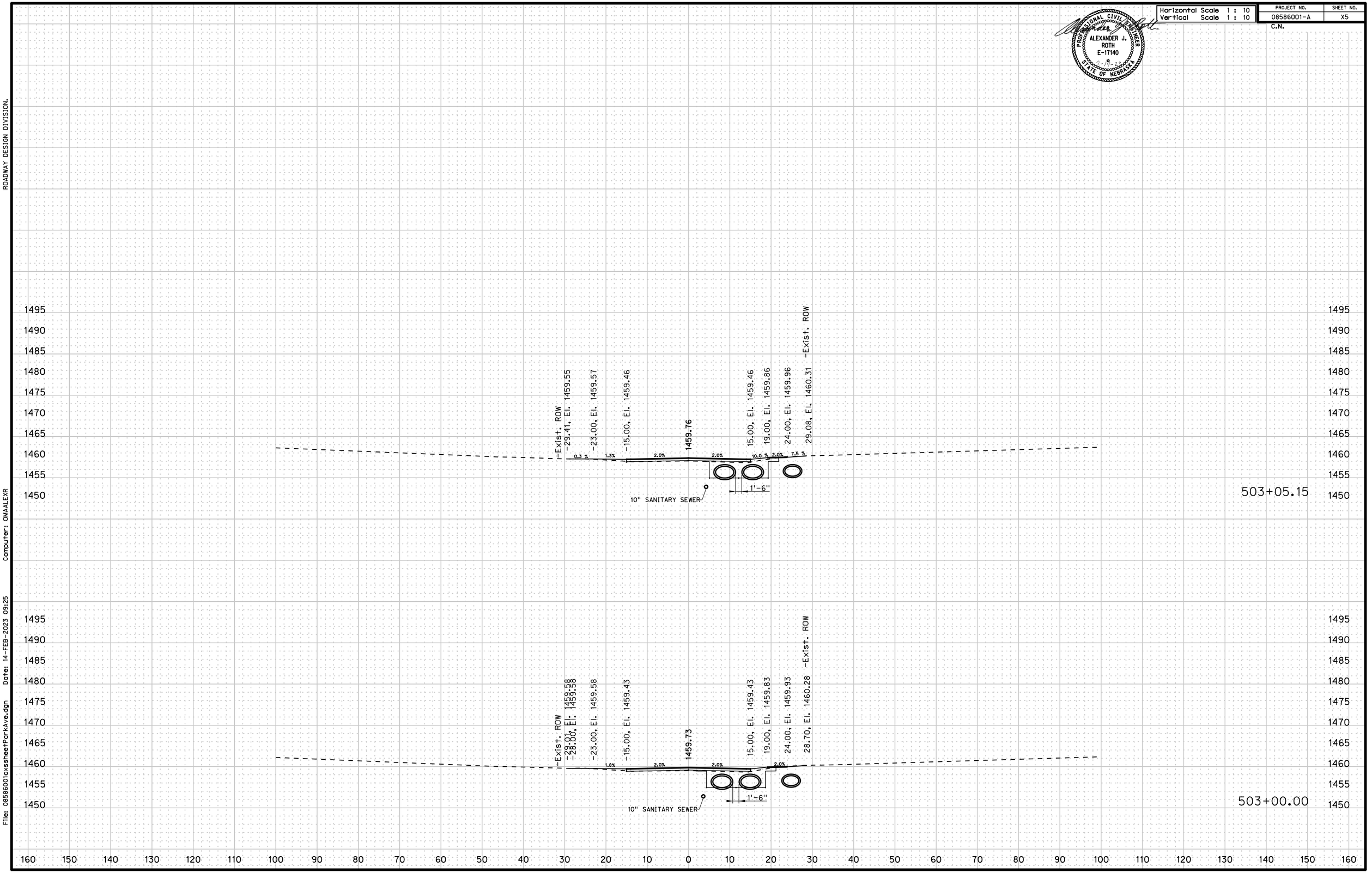
E-17140
STATE OF NEBRASKA
2-14-23



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Horizontal Scale	1 : 10
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PROJECT NO.	SHEET NO.
08586001-A	X6

C.N.

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E-17140
STATE OF NEBRASKA
2-14-23

ROADWAY DESIGN DIVISION.

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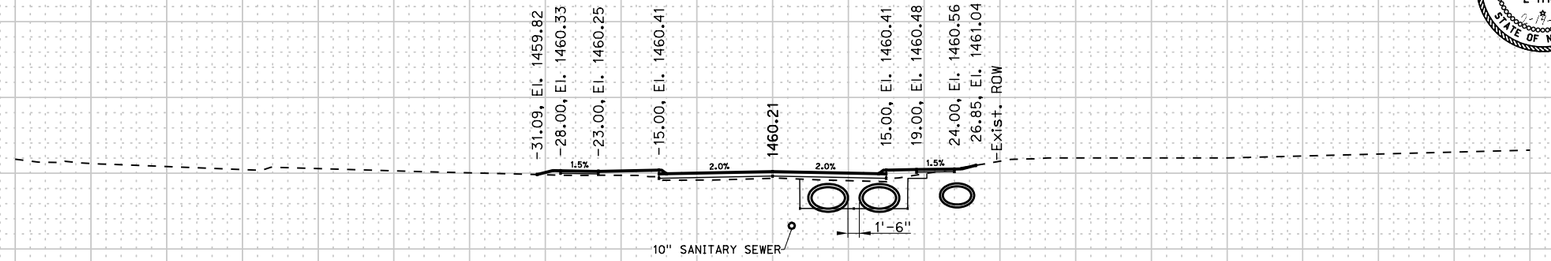

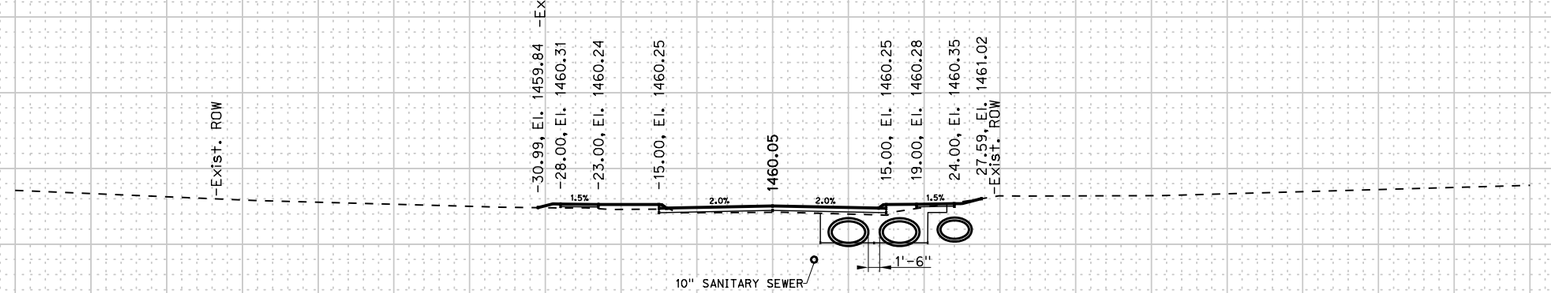

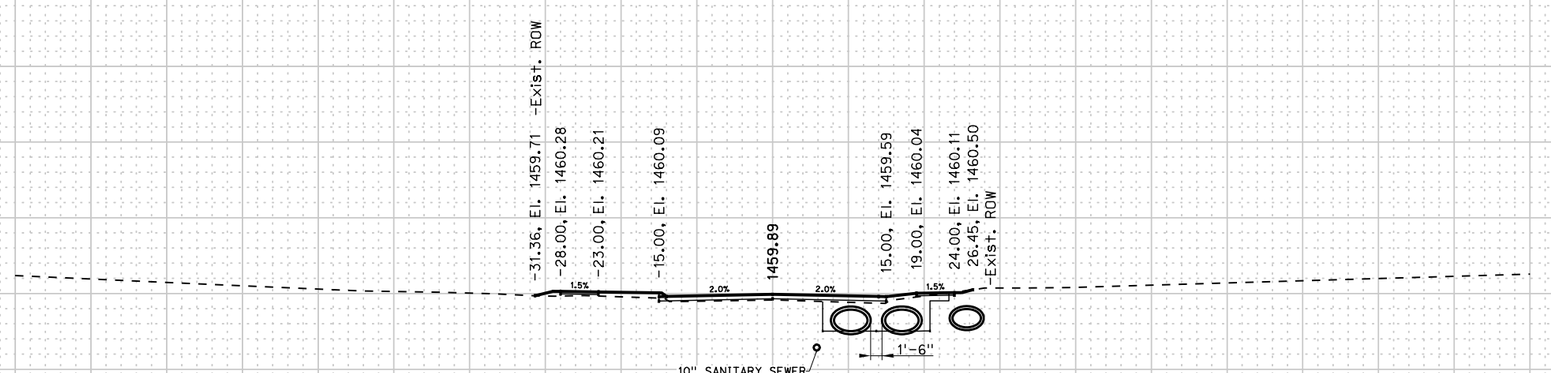

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PROJECT NO.	SHEET NO.
08586001-A	X7

C.N.

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ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-7-23

ROADWAY DESIGN DIVISION.

Computer: DMAALEXR

Date: 14-FEB-2023 09:25

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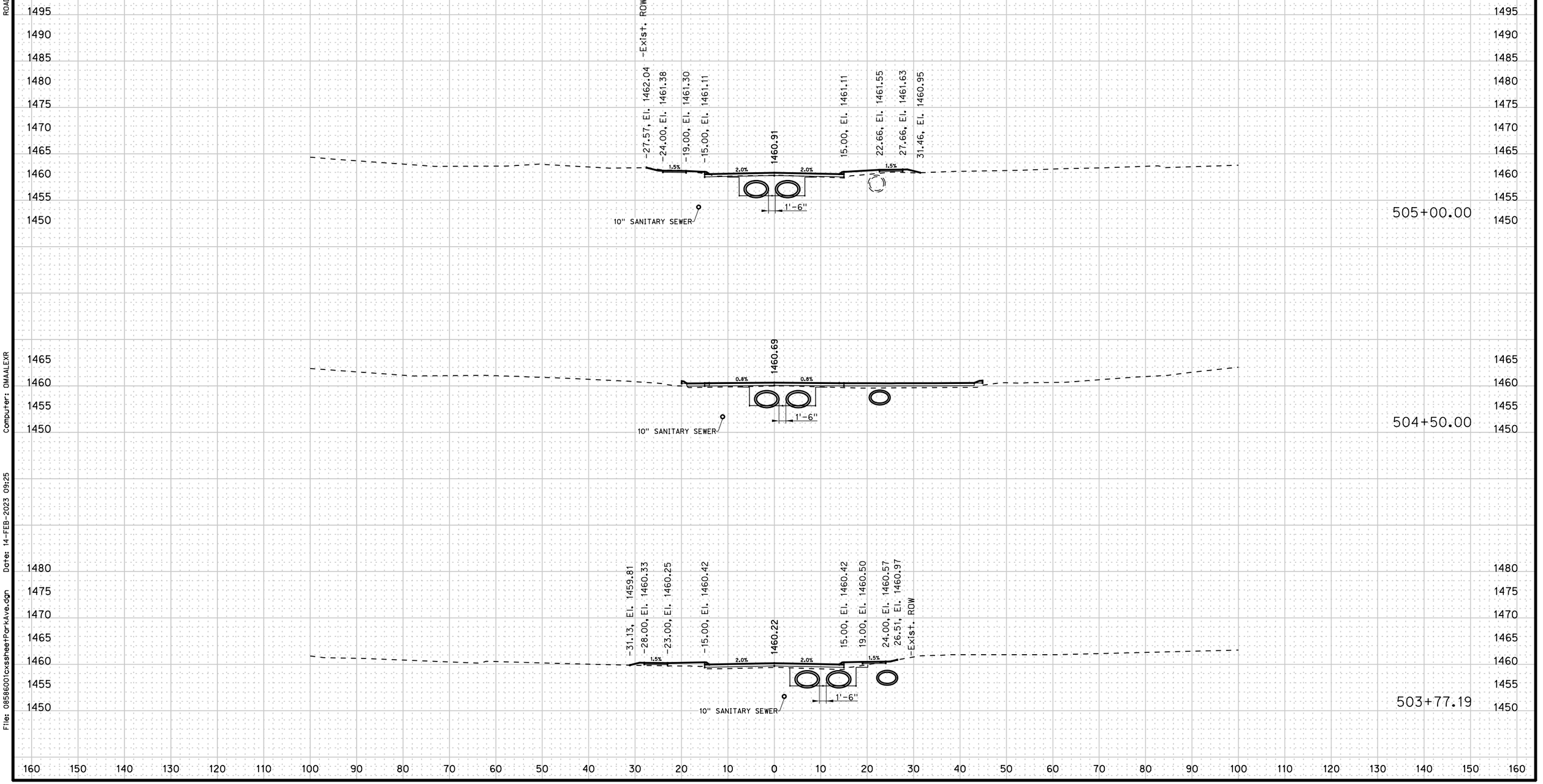

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PROJECT NO.	SHEET NO.
08586001-A	X8

C.N.

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E-17140
STATE OF NEBRASKA
2-14-23

ROADWAY DESIGN DIVISION.

Computer: OMAALEXR

Date: 14-FEB-2023 09:25

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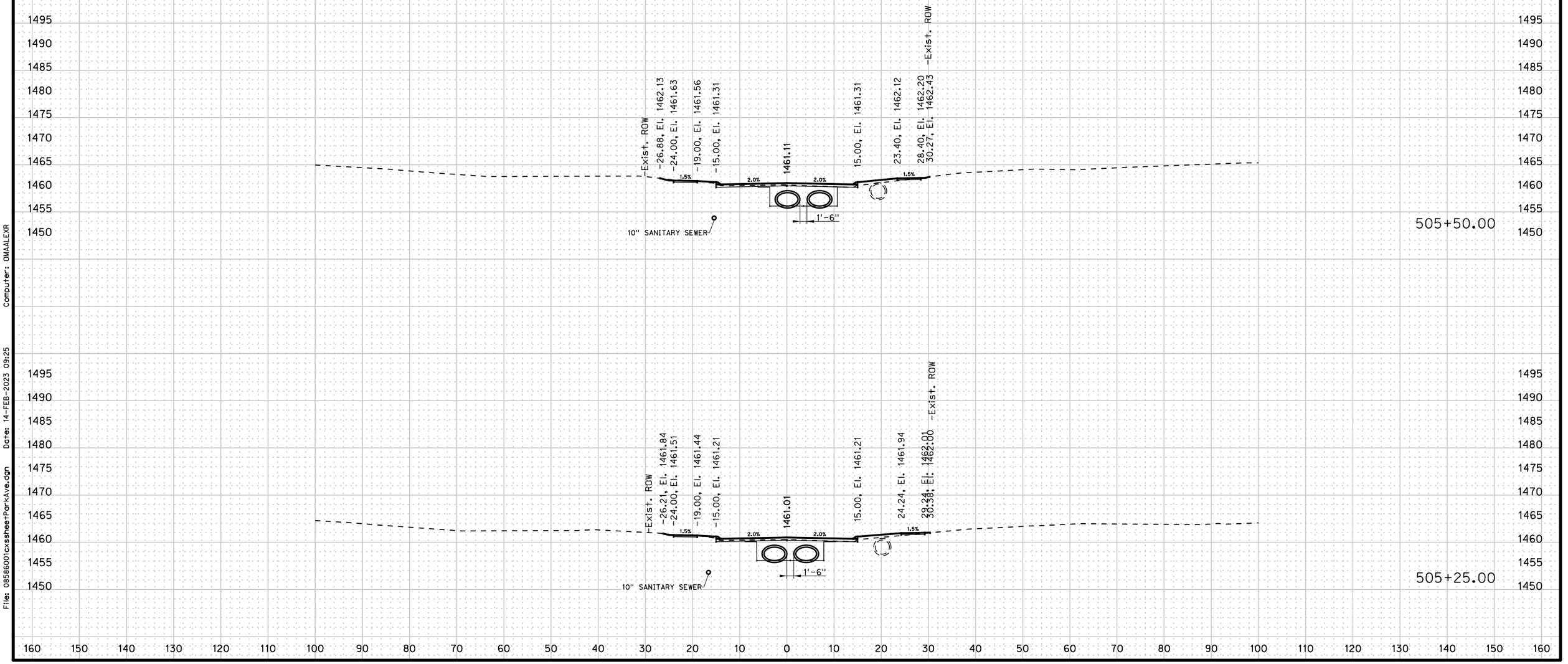

ROADWAY DESIGN DIVISION.

Computer: DMAALEXR

Date: 14-FEB-2023 09:25

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E-17140
STATE OF NEBRASKA
02-14-23

Horizontal Scale	1 : 10
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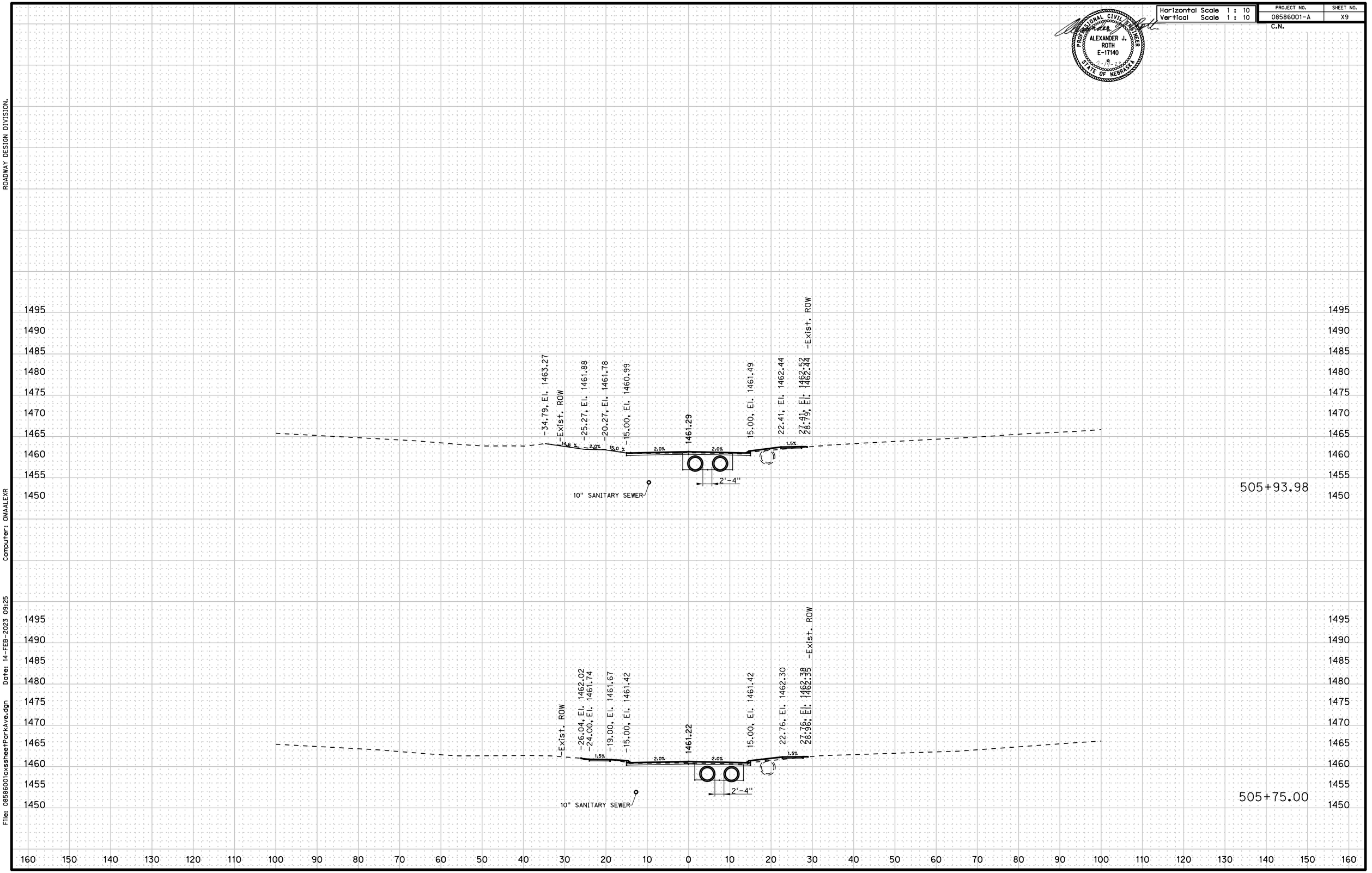
PROJECT NO.	SHEET NO.
08586001-A	X9

C.N.



Horizontal Scale	1 : 10
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PROJECT NO.	SHEET NO.
08586001-A	X10

C.N.

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ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-7-23

ROADWAY DESIGN DIVISION.

Computer: OMAALEXR

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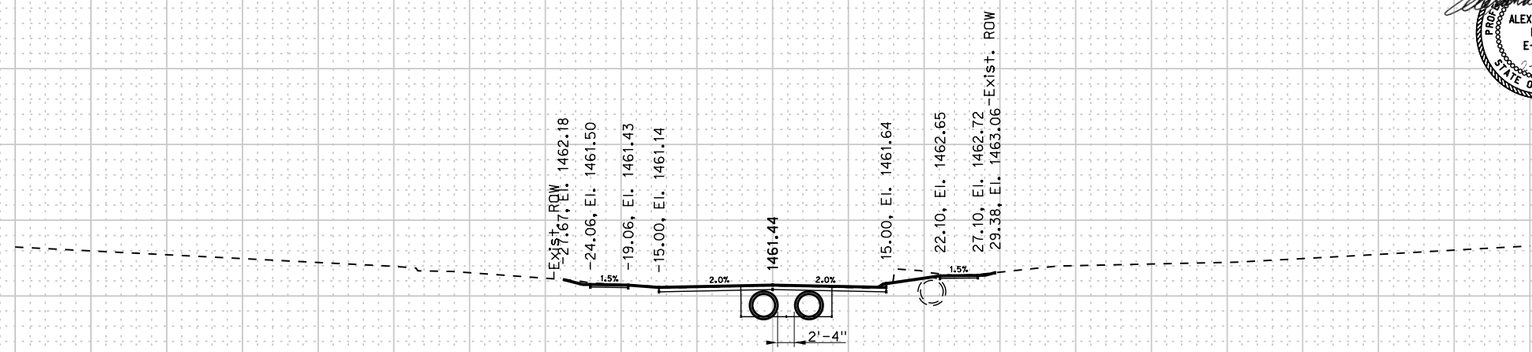

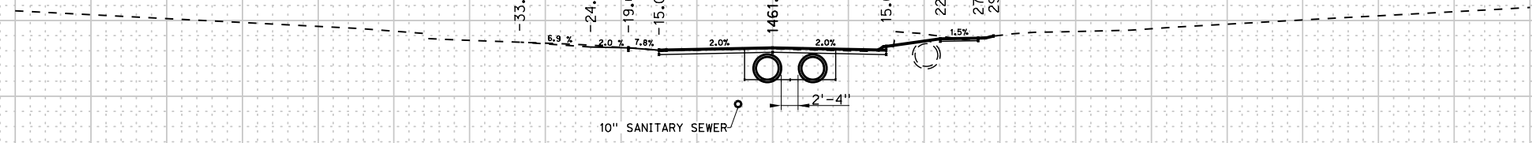

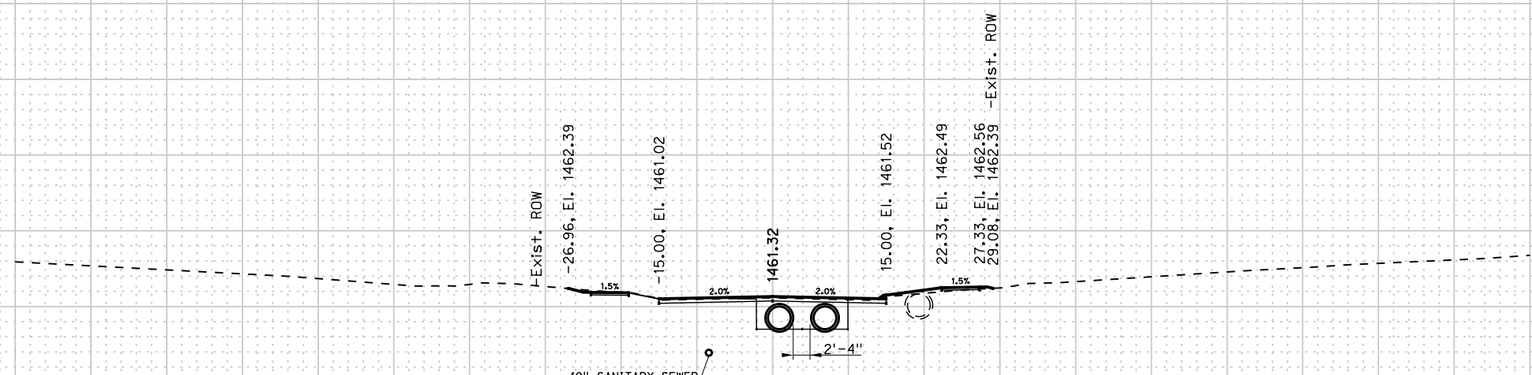

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PROJECT NO.	SHEET NO.
08586001-A	X11

C.N.

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ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-14-23

ROADWAY DESIGN DIVISION.

Computer: DMAALEXR

Date: 14-FEB-2023 09:25

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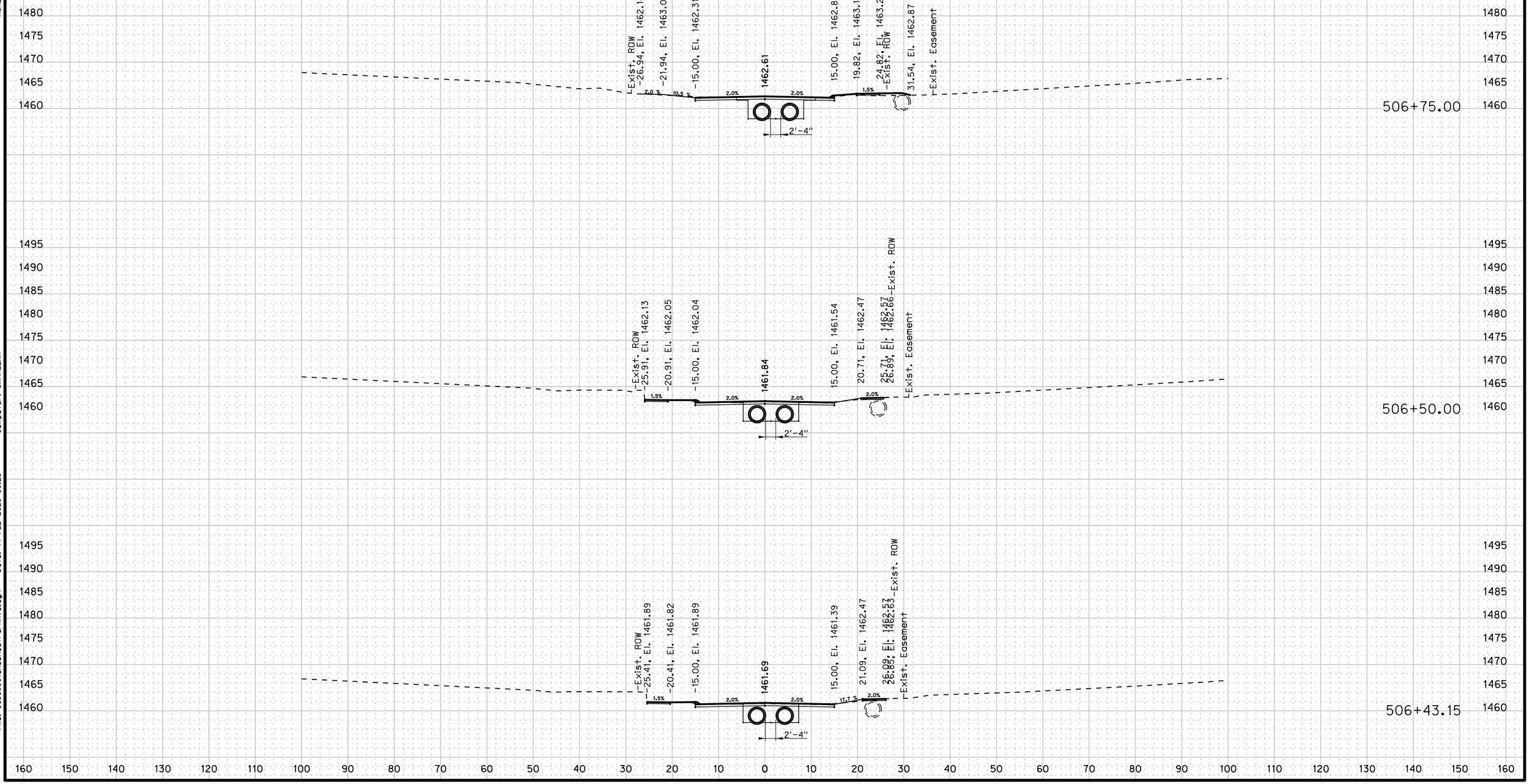

ROADWAY DESIGN DIVISION.

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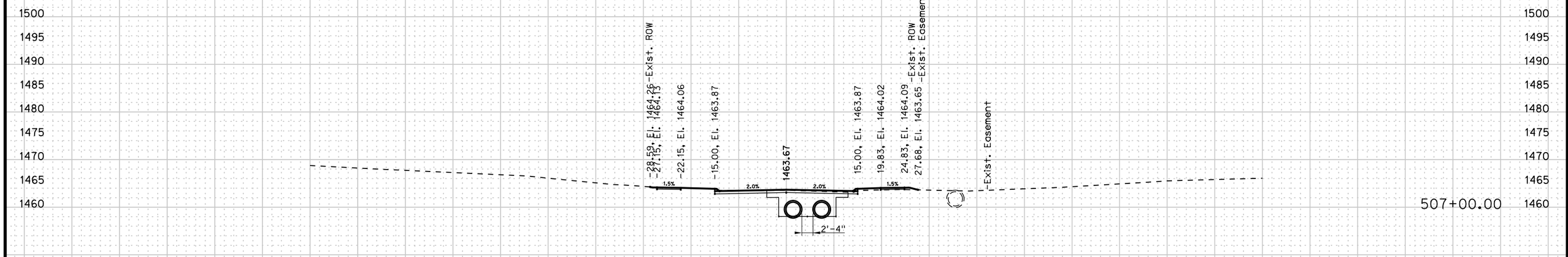
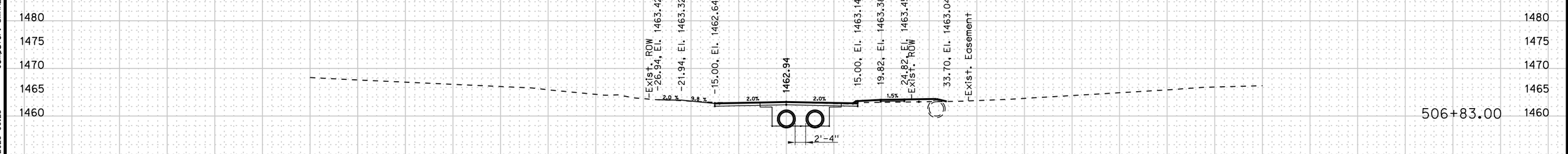
Horizontal Scale	1 : 10
Vertical Scale	1 : 10

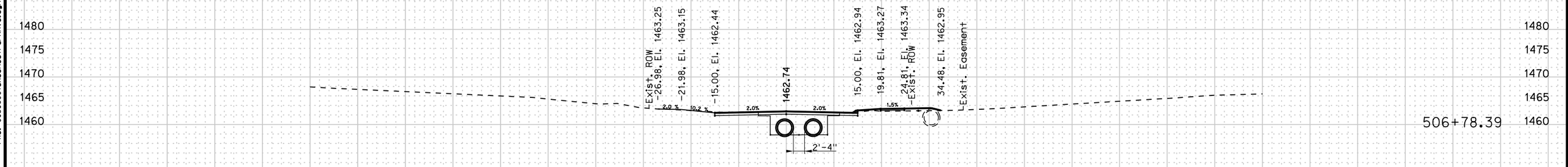
PROJECT NO.	SHEET NO.
08586001-A	X12

C.N.

PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
STATE OF NEBRASKA
2-7-23







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ROADWAY DESIGN DIVISION.

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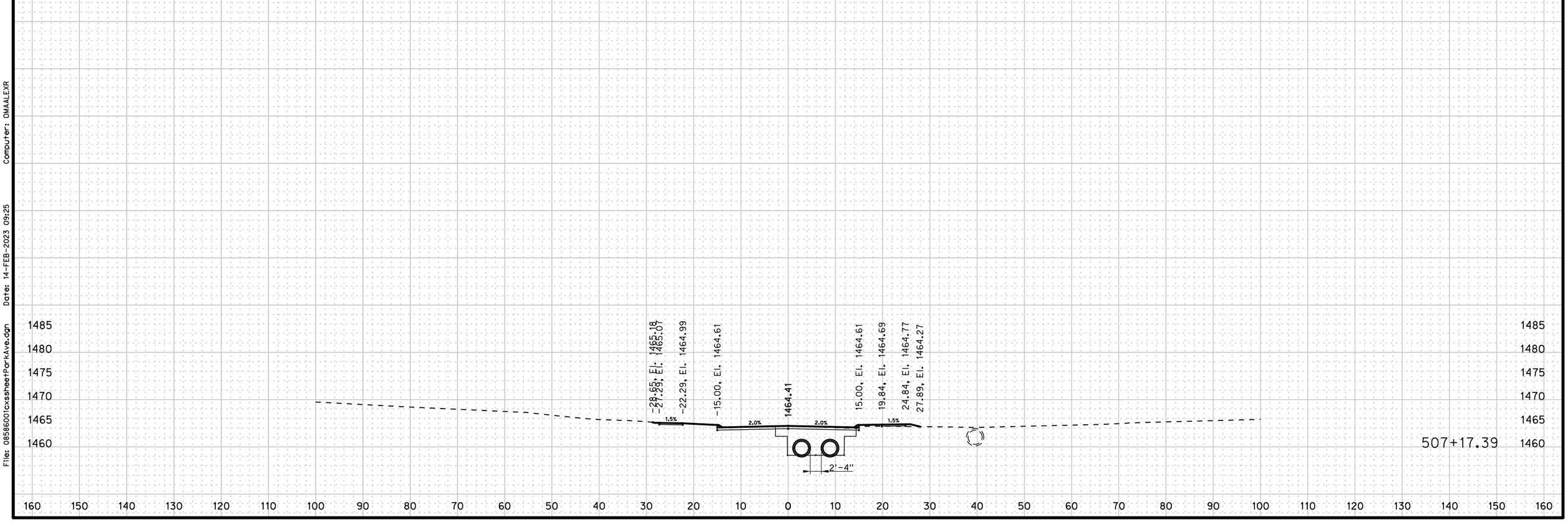
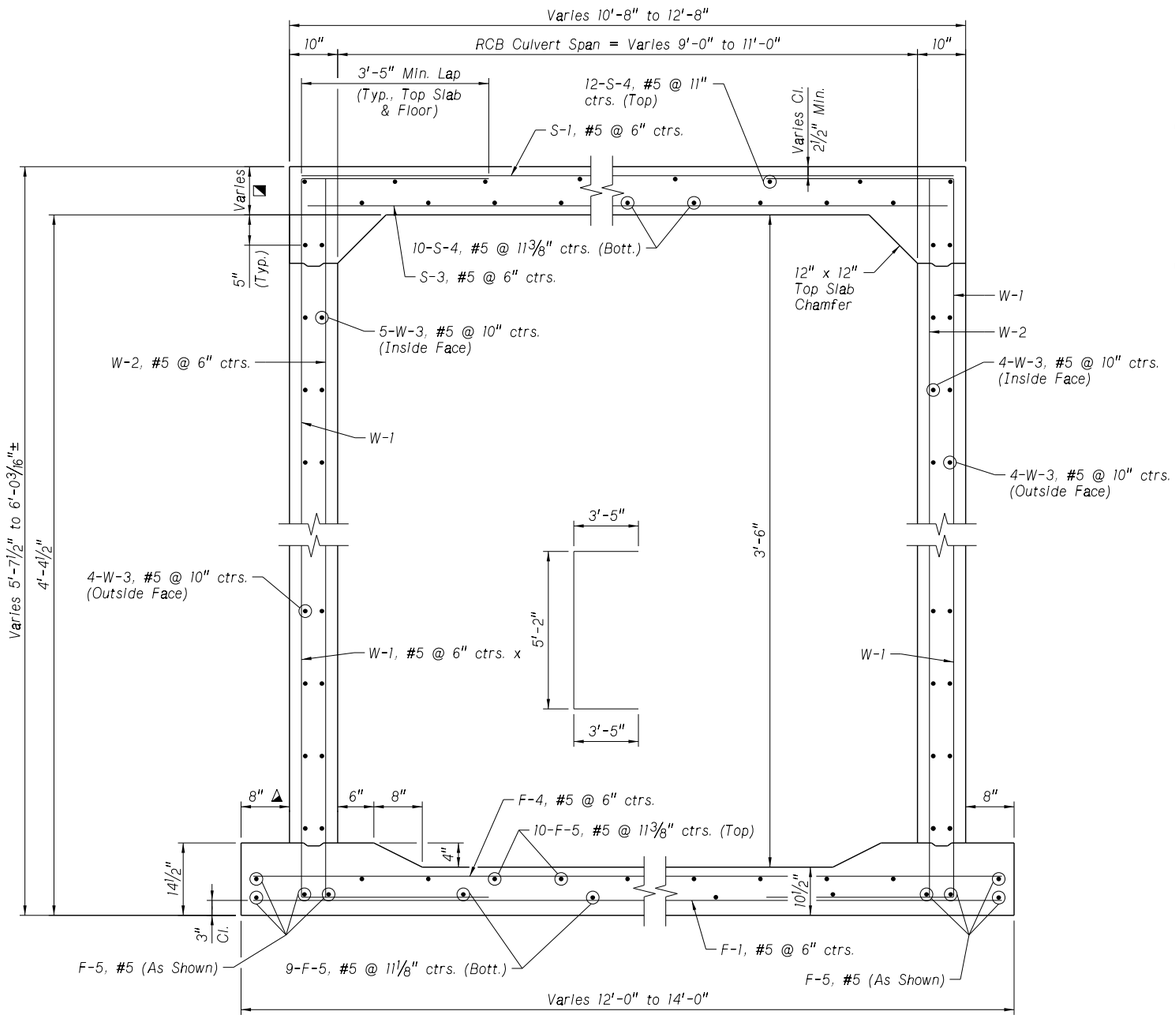
Horizontal Scale	1 : 10
Vertical Scale	1 : 10

PROJECT NO.	SHEET NO.
08586001-A	X13

C.N.

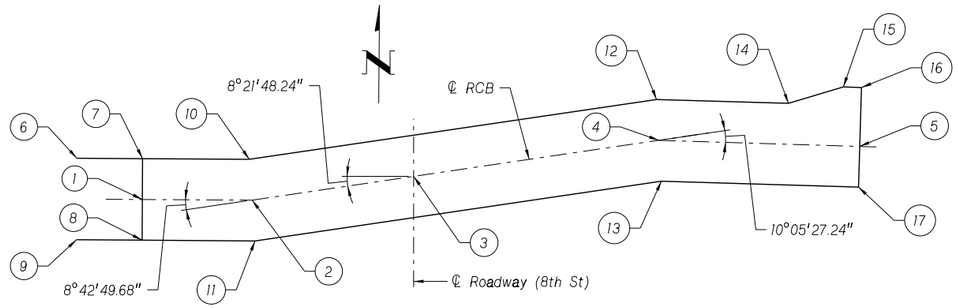
PROFESSIONAL CIVIL ENGINEER
ALEXANDER J. ROTH
E-17140
2-7-23
STATE OF NEBRASKA





TYPICAL SECTION

(Looking East)
Not to Scale



CULVERT ORIENTATION DETAIL

Not to Scale

NOTES:
For this culvert, the Long Wingwall (L.W.) and Short Wingwall (S.W.) are the same length. The culvert wings transition into the 6" curbs (there are no headwalls).

RCB culvert span tapers from 9'-0" at point 14 to 11'-0" at point 15.

The wings are present on the outlet (west end) only. Wings are parallel with ℄ RCB culvert. The inlet is comprised of a reinforced junction wall with pipes. See Wing Details and Miscellaneous Details sheets.

Culvert barrel is skewed and kinked as shown with respect to ℄ Roadway (8th St). The culvert ends are perpendicular to ℄ RCB culvert.

CULVERT LOCATION DATA

POINT	DESCRIPTION	NORTHING	EASTING
1	OUTSIDE FACE OF HEADWALL AT ℄ RCB	89263.92	90800.77
2	KINK POINT AT ℄ RCB	89263.94	90812.89
3	℄ ROADWAY AT ℄ RCB	89266.71	90830.70
4	KINK POINT AT ℄ RCB	89271.78	90863.46
5	INSIDE FACE OF JUNCTION WALL AT ℄ RCB	89271.29	90885.63
6	INSIDE FACE OF WING AT END OF WING	89268.41	90793.51
7	INSIDE FACE OF WING AT OUTSIDE FACE OF HEADWALL	89268.42	90800.76
8	INSIDE FACE OF WING AT OUTSIDE FACE OF HEADWALL	89259.42	90800.77
9	INSIDE FACE OF WING AT END OF WING	89259.41	90793.52
10	KINK POINT OF INSIDE FACE OF WALL AT ℄ RCB	89268.44	90812.54
11	KINK POINT OF INSIDE FACE OF WALL AT ℄ RCB	89259.44	90813.24
12	KINK POINT OF INSIDE FACE OF WALL AT ℄ RCB	89276.29	90863.16
13	KINK POINT OF INSIDE FACE OF WALL AT ℄ RCB	89267.28	90863.75
14	KINK POINT OF INSIDE FACE OF WALL AT ℄ RCB	89275.97	90877.73
15	KINK POINT OF INSIDE FACE OF WALL AT ℄ RCB	89277.83	90883.77
16	INSIDE FACE OF RCB WALL AT JUNCTION WALL	89277.79	90885.77
17	INSIDE FACE OF RCB WALL AT JUNCTION WALL	89266.79	90885.52

GENERAL NOTES:
This structure is a replacement of an existing culvert, with unknown construction date.

This structure is designed in accordance with the AASHTO LRFD Bridge Design Specifications, 9th Edition.

This structure has been designed for 0 feet of fill.

All concrete shall be Class "47BD", with a 28-day strength of 4,000 psi.

All reinforcing shall conform to the requirements of ASTM designation A615/A615M, Grade 60 steel. All reinforcing shall be epoxy coated.

The minimum clearance, measured from the face of the concrete to the surface of any reinforcing bar, shall be 2", except where otherwise noted.

Any construction joints not shown on the plans shall require approval by the Engineer prior to construction of the element.

Burn or drill holes through sheet pile as necessary to pass reinforcing bars.

12" crushed rock base and filter fabric not shown for clarity in plan details. See Miscellaneous Details sheet for placement of crushed rock base and filter fabric.

Backfilling shall not be started against any structure until the concrete develops a compressive strength of at least 2100 psi.

GENERAL NOTES (CONT'D):
Details shown in these plans are generic depictions only. See bar call outs for actual bar numbers, spacings, and configurations. Bars shall be fabricated to fit structure dimensions detailed unless noted otherwise.

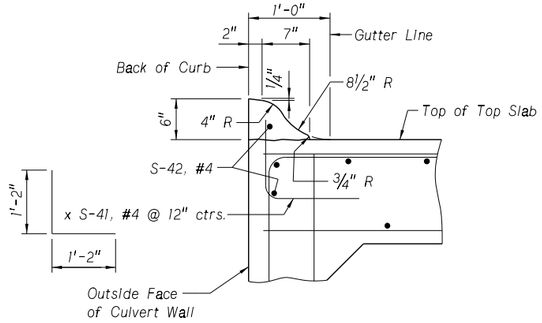
Spacing of bars indicated is between bars of the same mark. Transverse barrel bars, except for S-5 and F-8 bars (if provided), shall be placed normal to the centerline of culvert.

▲ Omit 8" bottom slab extension adjacent to existing sanitary sewer (between points 12 and 16).

◪ Top slab thickness varies from 15", located at the outlet, to 19¹¹⁄₁₆"±, located at the inlet. Size reinforcing for 15" top slab. Elevation of top of top slab shall match elevations given in roadway plans. Clear distance of top mat of reinforcing to top of top slab will vary. When clear distance exceeds 4", an additional layer of #5 at 12" centers in both directions shall be placed at 2½" clear from top of top slab. This additional layer of #5 at 12" centers in both directions is not shown in the details in these plans. The cost for all material and labor associated with placement of the addition #5 bars in both directions shall be considered subsidiary to CLASS 47BD-4000 CONCRETE.

The tied expansion joint and associated expansion material and reinforcing between the top slab and adjacent roadway panels is not depicted in these plans. Contractor shall coordinate with roadway Contractor on placement of expansion joint tie reinforcing and expansion material. See roadway plans for quantities and details pertaining to the tied expansion joint.

The barricade at the outlet of the culvert is not depicted in these plans. The existing barricade shall be salvaged from the existing structure and reinstalled in the top slab of this structure. The barricade shall be installed in 10" deep galvanized sleeves, with the two posts placed 1'-0" in from outlet of box culvert, and centered within the width of the box culvert.



6" CURB ON CULVERT TOP SLAB

Not to Scale

NOTES:
Curb reinforcing to be placed such that reinforcing in curb has 2" of clear to faces of curb.

See Roadway Plans for curb locations.

PROJECT NUMBER	SHEET NO.
08586.001-A	T1

C.N.

STRUCTURE NUMBER

CITY OF SEWARD

VARIES x 3'-6" SINGLE CELL RCB CULVERT

ROADWAY PARK AVENUE
STA. 800+63.10
SKEW VARIES
DESIGN LIVE LOAD HL-93
DESIGNED BY DGB **DETAILED BY** GAA **CHECKED BY** MKR **DATE** NOVEMBER 2022

TYPICAL SECTION & GENERAL NOTES

SCHEMMER

PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

SPECIAL PLAN NO.	
1C	1 / 4

BRIDGE DIVISION.

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11/23/2022

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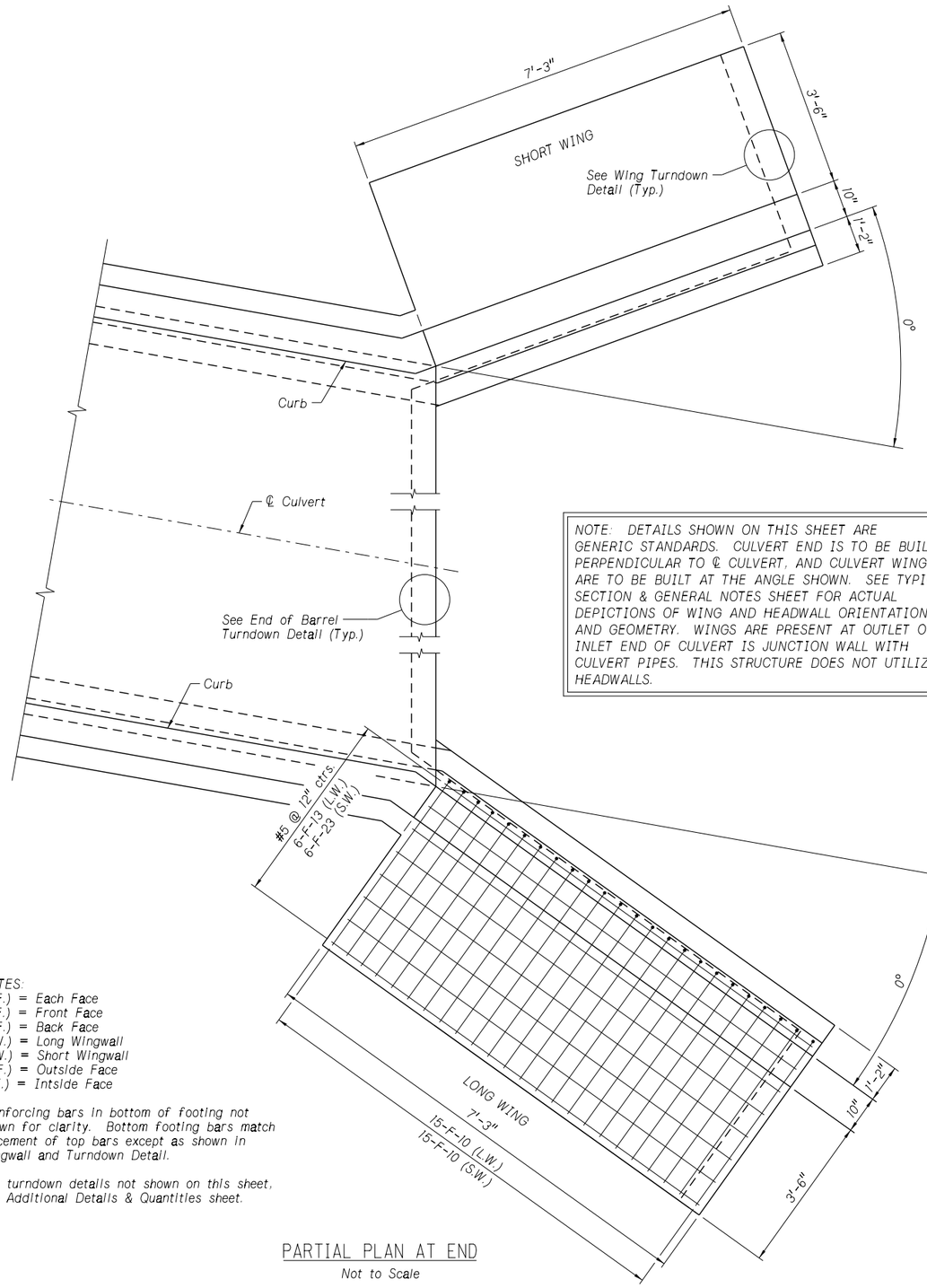
BRIDGE DIVISION.



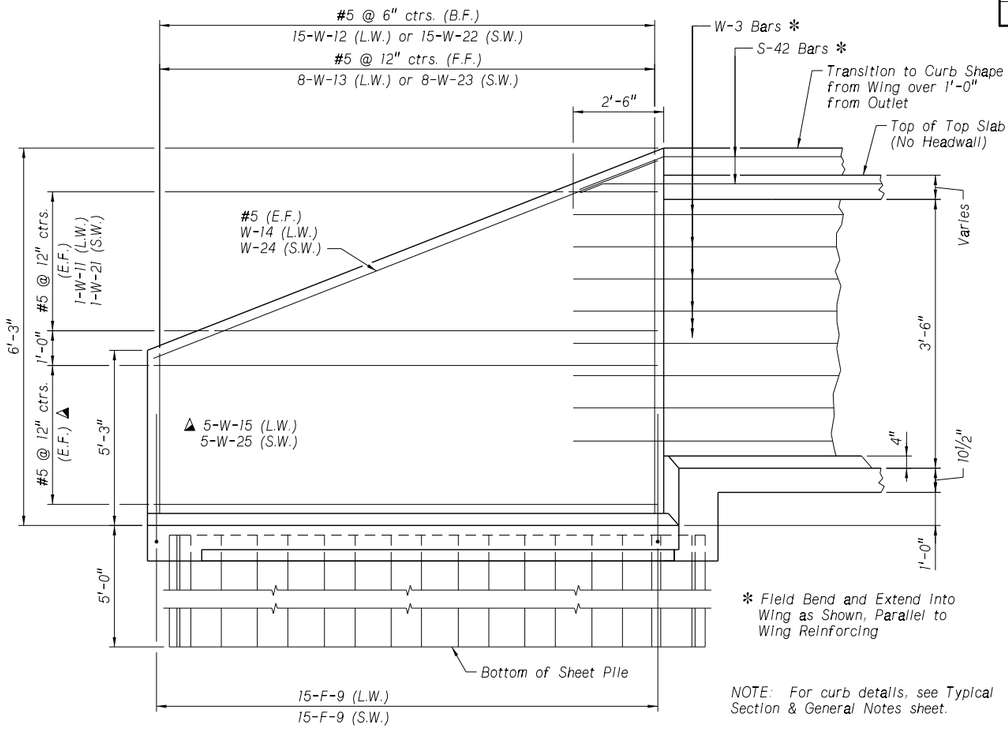
NOTE: DETAILS SHOWN ON THIS SHEET ARE GENERIC STANDARDS. CULVERT END IS TO BE BUILT PERPENDICULAR TO ℄ CULVERT, AND CULVERT WINGS ARE TO BE BUILT AT THE ANGLE SHOWN. SEE TYPICAL SECTION & GENERAL NOTES SHEET FOR ACTUAL DEPICTIONS OF WING AND HEADWALL ORIENTATION AND GEOMETRY. WINGS ARE PRESENT AT OUTLET ONLY. INLET END OF CULVERT IS JUNCTION WALL WITH CULVERT PIPES. THIS STRUCTURE DOES NOT UTILIZE HEADWALLS.

NOTES:
(E.F.) = Each Face
(F.F.) = Front Face
(B.F.) = Back Face
(L.W.) = Long Wingwall
(S.W.) = Short Wingwall
(O.F.) = Outside Face
(I.F.) = Intside Face

Reinforcing bars in bottom of footing not shown for clarity. Bottom footing bars match placement of top bars except as shown in Wingwall and Turndown Detail.

For turndown details not shown on this sheet, see Additional Details & Quantities sheet.

PARTIAL PLAN AT END
Not to Scale



NOTE: For curb details, see Typical Section & General Notes sheet.

ELEVATION OF WINGWALL
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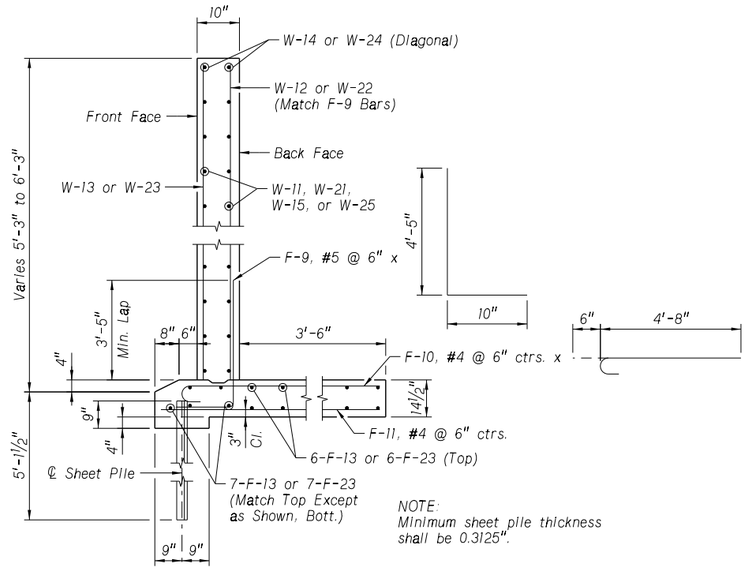

NOTE:
Minimum sheet pile thickness shall be 0.3125".

WINGWALL DETAIL
Not to Scale

PROJECT NUMBER	SHEET NO.
08586.001-A	T2

C.N.
STRUCTURE NUMBER

CITY OF SEWARD

VARIES x 3'-6" SINGLE CELL RCB CULVERT

CHECKED BY MKR **DATE** NOVEMBER 2022

WING DETAILS

ROADWAY PARK AVENUE
STA. 800+63.10
SKEW VARIES
DESIGN LIVE LOAD HL-93
DESIGNED BY DGB **DETAILED BY** GAA **CHECKED BY** MKR

SCHEMMER

PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

SPECIAL PLAN NO.	2 / 4
1C	

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11/23/2022
..._CAD\Struct\08586001brg.dgn

BRIDGE DIVISION.

QUANTITIES - FOR INFORMATION ONLY		
ITEM	UNIT	TOTAL
CONCRETE - BARREL	CY	103.2
CONCRETE - BOTH ENDS ✻	CY	7.1
CONCRETE - CURBS	CY	0.6
REINFORCING STEEL - BARREL	LB	20,174
REINFORCING STEEL - BOTH ENDS ✻	LB	1,173
REINFORCING STEEL - CURBS	LB	187
STEEL SHEET PILE	SF	150.1
CRUSHED ROCK FOR BASE COURSE	TONS	70.8
GEOTEXTILE FILTER FABRIC	SY	191.0

NOTES:
✻ Includes quantities from turndown at barrel and junction wall.

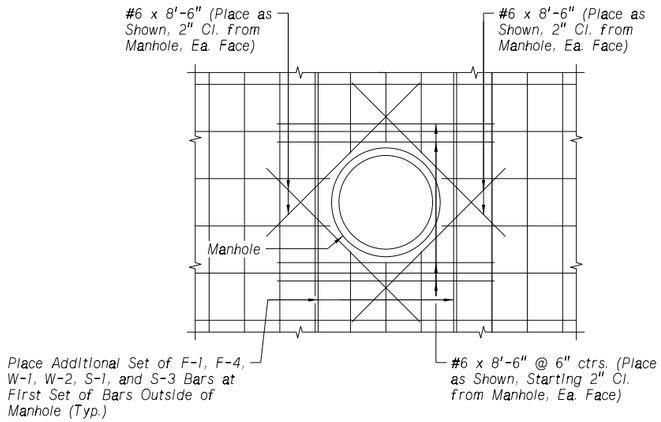
All dimensions and quanitites shown for the box culverts in these plans are in horizontal plane only unless indicated otherwise. No allowances have been made for box culvert slopes, horizontal bends, or vertical breaks.

Reinforcing laps for bars due to phasing, longitudinal reinforcing extensions into adjacent elements (e.g., barrel longitudinal bars into wings or apron), or bars longer than 60'-0", are not included in the quantities listed in the summary table. Any longitudinal reinforcing extensions noted in the details, and any laps not detailed in these plans but required or requested to construct the box culvert and ends as detailed in these plans, shall be considered subsidiary to REINFORCING STEEL and EPOXY COATED REINFORCING STEEL, as applicable, and shall be provided at no additional cost.

The following lap lengths shall be used to splice bars when a lap length is not called out on the plans:
#4 = 1'-10" Min. Lap
#5 = 2'-4" Min. Lap
#6 = 2'-9" Min. Lap
#7 = 3'-6" Min. Lap
#8 = 4'-7" Min. Lap
#9 = 5'-9" Min. Lap
Increase lap length listed by 50% if bars are epoxy-coated.

All reinforcing dimensions shown are out-to-out.

For all bent bars, "Primary Stress" pin diameters listed in in the table shall be used unless noted otherwise.



MANHOLE REINFORCING DETAIL
Not to Scale

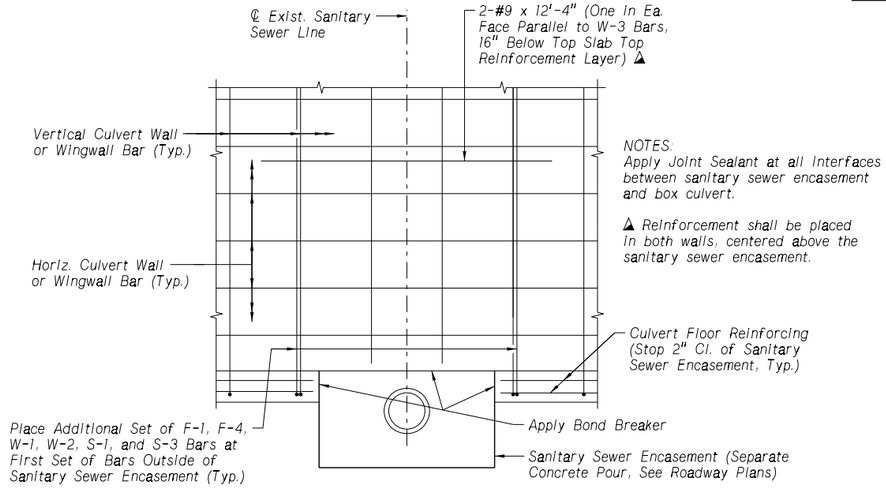
NOTES:
Culvert reinforcing depicted is generic. Actual reinforcing layout may differ. See details on other sheets for reinforcing not shown.

Manhole shall be Type I as detailed in Special Plan 5C. Top of manhole shall be set flush with top of top slab of culvert.

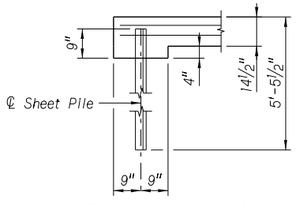
Manhole Locations Along ℄ 8th St:
Sta. 800+65.08 0.02' Lt.
Sta. 800+65.47 50.32' Rt.

Trim culvert top slab reinforcing to clear manhole. The additional #6 reinforcing at manoles shall be centered about the manhole and shifted as necessary to maintain clear.

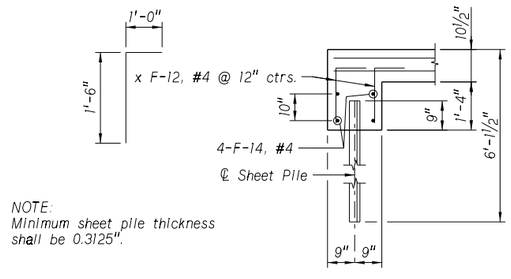
The manole, additional #6, and associated work to construct the manhole as detailed in these plans shall be considered subsidiary to CLASS 47BD-4000 CONCRETE.



SPREADER BEAM DETAIL AT SANITARY SEWER ENCASEMENT
Not to Scale



WING TURNDOWN DETAIL
Not to Scale



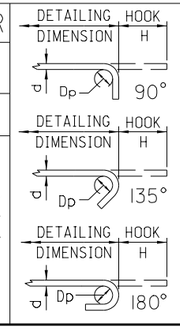
NOTE:
Minimum sheet pile thickness shall be 0.3125".

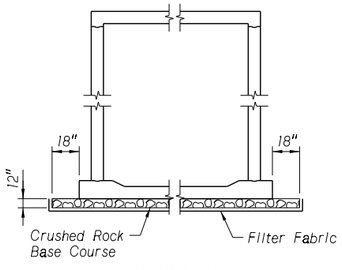
END OF BARREL TURNDOWN DETAIL
Not to Scale

STANDARD HOOK LENGTH					
PRIMARY STRESS BARS			STIRRUPS & TIES		
BAR SIZE	HOOK H 90°	HOOK H 180°	BAR SIZE	HOOK H 90°	HOOK H 135°
4	8"	6"	3	4"	4"
5	10"	7"	4	4½"	4½"
6	12"	8"	5	6"	5½"
7	15"	10"	6	12"	8"
8	17"	11"	7	14"	9"
9	19"	15"	8	16"	10½"
10	23"	17"			
11	24"	19"			

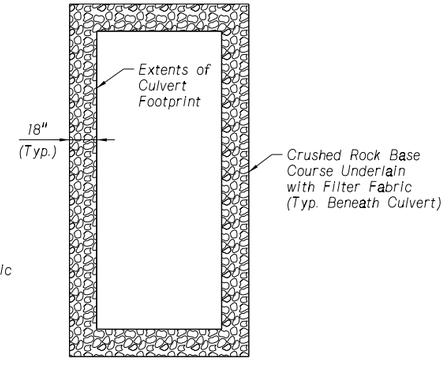
d = BAR SIZE
Dp = PIN DIAMETER

PIN DIAMETER			
PRIMARY STRESS		STIRRUPS & TIES	
BAR SIZE	Dp	BAR SIZE	Dp
4	3"	3	1½"
5	3¾"	4	2"
6	4½"	5	2½"
7	5¼"	6	4½"
8	6"	7	5¼"
9	9½"	8	6"
10	11"		
11	12"		





BASE COURSE SECTIONAL VIEW
Not to Scale



BASE COURSE PLAN VIEW
Not to Scale

PROJECT NUMBER	SHEET NO.
08586.001-A	T3

C.N.
STRUCTURE NUMBER

CITY OF SEWARD

VARIES x 3'-6" SINGLE CELL RCB CULVERT

ROADWAY PARK AVENUE
STA. 800+63.10
SKEW VARIES
DESIGN LIVE LOAD HL-93
DESIGNED BY DGB
DETAILED BY GAA
CHECKED BY MKR
DATE NOVEMBER 2022

ADDITIONAL DETAILS & QUANTITIES

SCHEMMER

PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

SPECIAL PLAN NO. 1C
3/4

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11/23/2022
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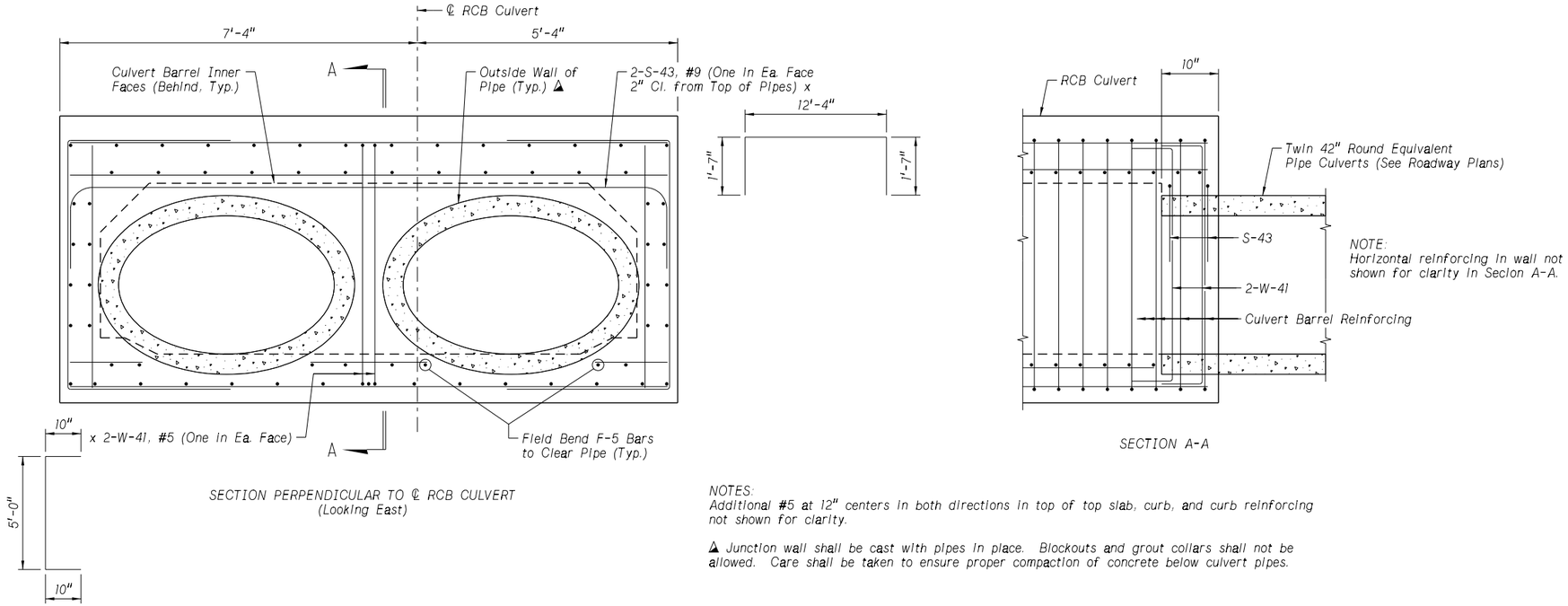


SECTION PERPENDICULAR TO ℄ RCB CULVERT
(Looking East)

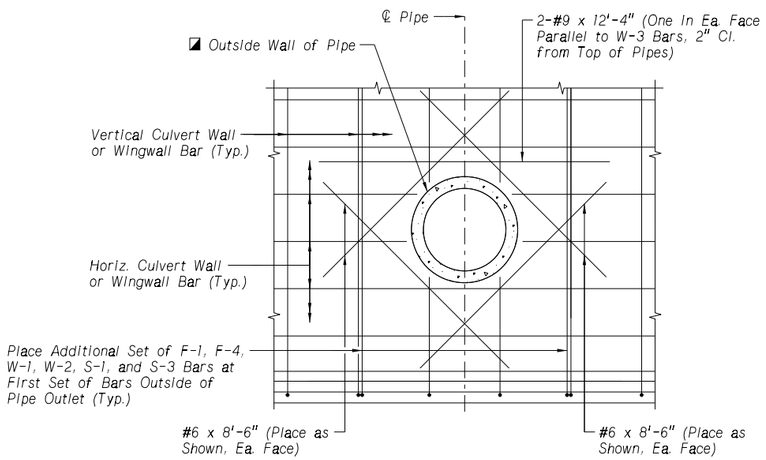
SECTION A-A

NOTES:
Additional #5 at 12" centers in both directions in top of top slab, curb, and curb reinforcing not shown for clarity.

◭ Junction wall shall be cast with pipes in place. Blockouts and grout collars shall not be allowed. Care shall be taken to ensure proper compaction of concrete below culvert pipes.

JUNCTION WALL AT EAST END OF CULVERT

(Looking East)
Not to Scale



PIPE CULVERT OUTLET DETAIL

Not to Scale

NOTES:
Culvert reinforcing depicted is generic. Actual reinforcing layout may differ. See details on other sheets for reinforcing not shown.

◪ Culvert walls and floor slab shall be cast with pipes in place. Blockouts and grout collars shall not be allowed. Care shall be taken to ensure proper compaction of concrete below culvert pipes.

Trim culvert wall and floor reinforcing to clear pipe culvert outlets, except field bend dowels from top and bottom slabs that extend into the wall to clear pipe culvert outlets. The additional #6 reinforcing at pipe outlets shall be centered about pipes and trimmed as necessary to maintain clear. The additional #9 bars shall placed full length and centered about pipes, shifting bars as required to maintain clear.

The additional #6 and #9 bars, and associated work to construct the pipe outlets and spreader beam shall be subsidiary to CLASS 47BD-4000 CONCRETE.

BRIDGE DIVISION.

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11/23/2022

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PROJECT NUMBER	SHEET NO.
08586.001-A	T4

C.N.
STRUCTURE NUMBER

CITY OF SEWARD

VARIES x 3'-6" SINGLE CELL RCB CULVERT

CHECKED BY MKR **DATE** NOVEMBER 2022

ROADWAY PARK AVENUE
STA. 800+63.10
SKEW VARIES
DESIGN LIVE LOAD HL-93
DESIGNED BY DGB **DETAILED BY** GAA **CHECKED BY** MKR

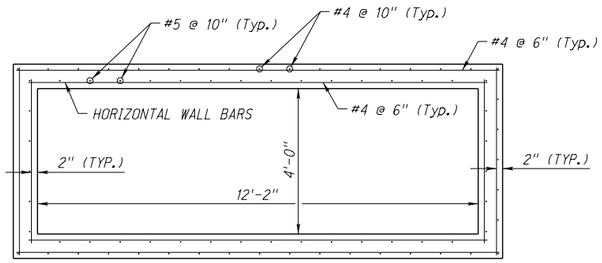
PIPE CULVERT OUTLET DETAILS

SCHEMMER

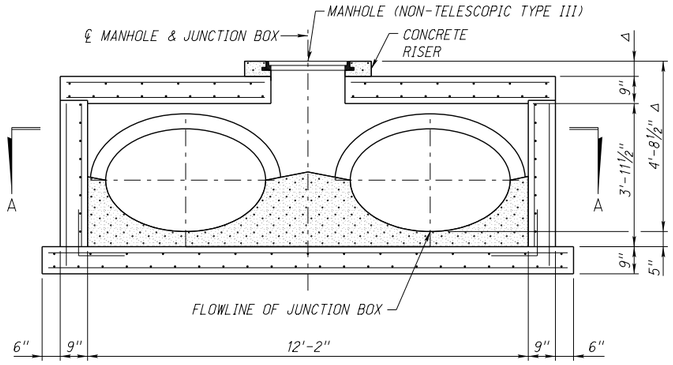
PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

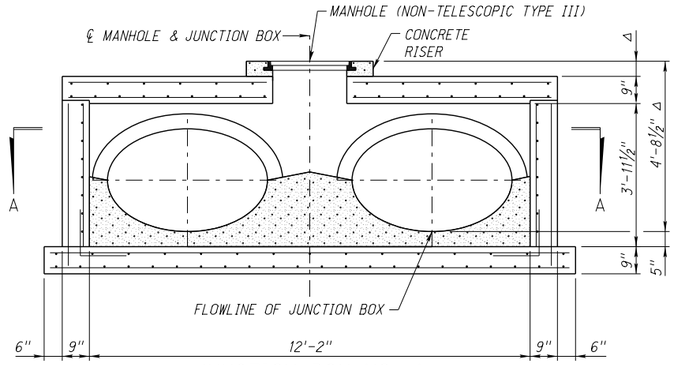
SPECIAL PLAN NO.	4 / 4
1C	



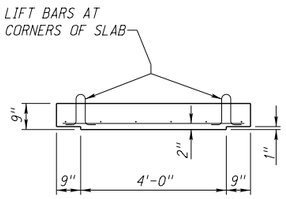
SECTION A-A

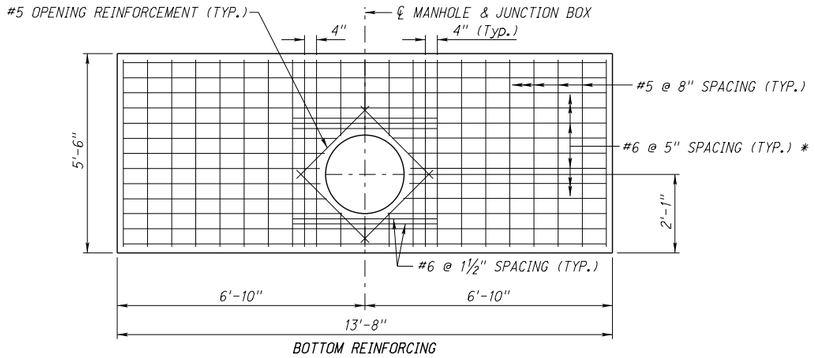


JUNCTION BOX NO. 1
(LOOKING DOWNSTATION)

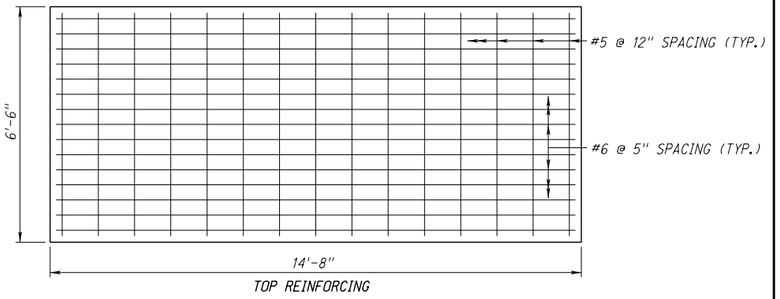


JUNCTION BOX NO. 1
(LOOKING UPSTATION)

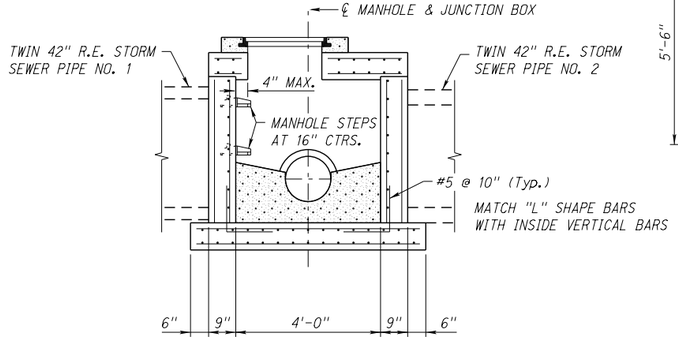




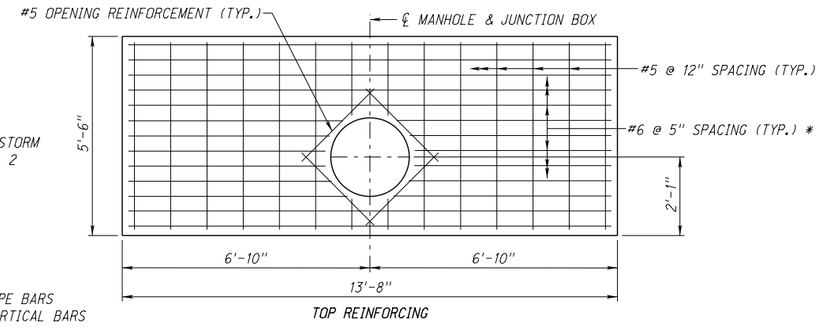
BOTTOM REINFORCING



TOP REINFORCING

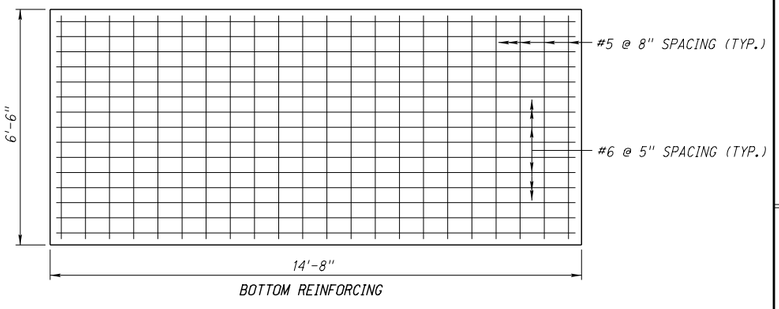


JUNCTION BOX NO. 1
(LOOKING NORTH)



TOP REINFORCING

TOP SLAB



BOTTOM REINFORCING

BOTTOM SLAB

NOTES:

MANHOLE DETAILS SHOWN ON SPECIAL PLAN 5C.

SUMMARY OF REINFORCING STEEL	
LOCATION	TOTAL
BOTTOM SLAB	884
WALLS	860
TOP SLAB	769
TOTAL (LBS.)	2,513
FOR INFORMATION ONLY	

SUMMARY OF CONCRETE QUANTITIES	
LOCATION	TOTAL
BOTTOM SLAB	2.6
WALLS	2.1
TOP SLAB	2.1
INVERT	0.2
TOTAL (CY)	7.0
FOR INFORMATION ONLY	

△ *ADJUST ELEVATION OF MANHOLE LID TO MATCH ELEVATION OF FINISHED ROADWAY SURFACE*
✱ *CLIP AS NECESSARY FOR OPENING*

PROJECT NUMBER	SHEET NO.
08586.001-A	T5

C.N.

STRUCTURE NUMBER

CITY OF SEWARD

JUNCTION BOX NO.1

ROADWAY PARK AVENUE
STA. 503+72.42
SKEW NA
DESIGN LIVE LOAD HL-93
DESIGNED BY DGB **DETAILED BY** GAA **CHECKED BY** MKR **DATE** NOVEMBER 2022

SCHEMMER

PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

SPECIAL PLAN NO.	1 / 1
2C	

BRIDGE DIVISION.

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11/23/2022

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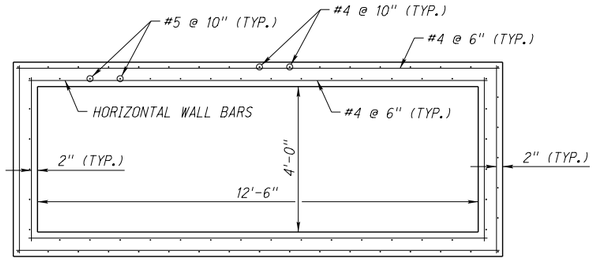
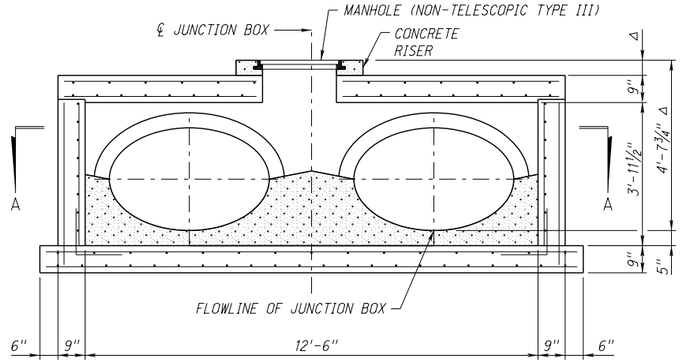
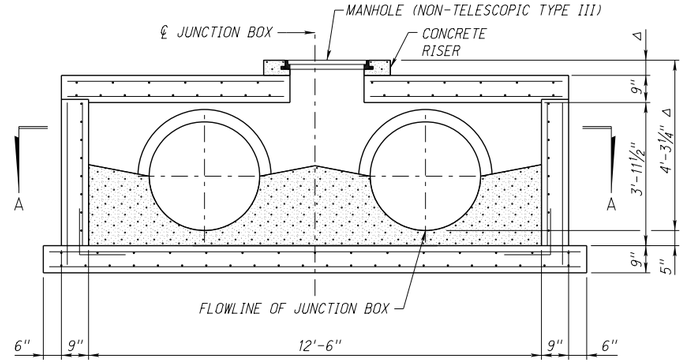


SECTION A-A



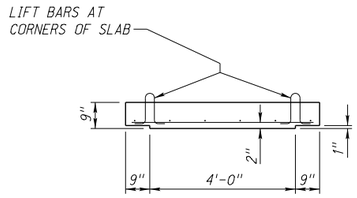
JUNCTION BOX NO. 2

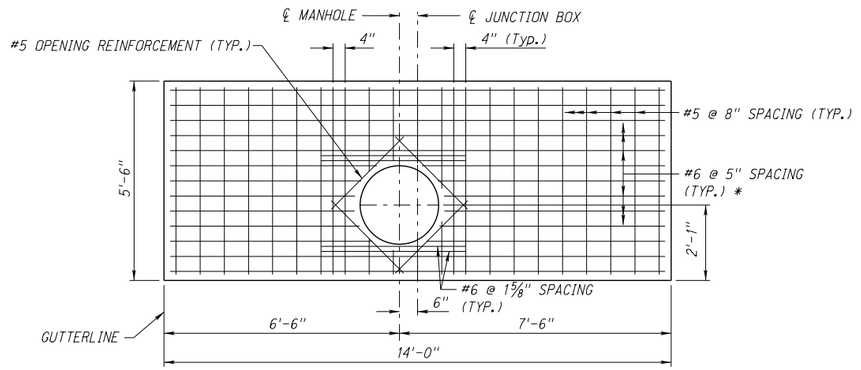
(LOOKING DOWNSTATION)



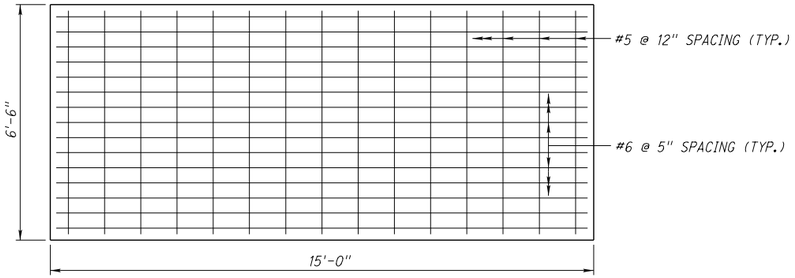
JUNCTION BOX NO. 2

(LOOKING UPSTATION)





BOTTOM REINFORCING



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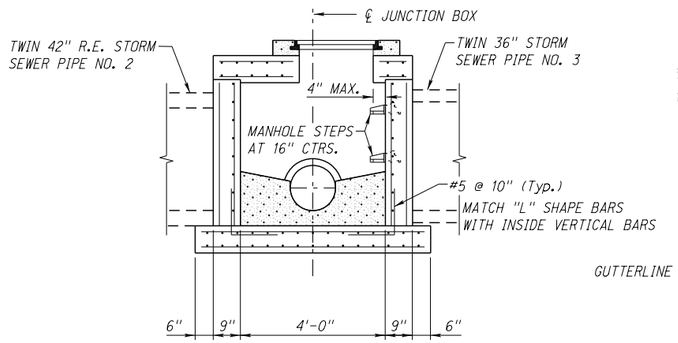
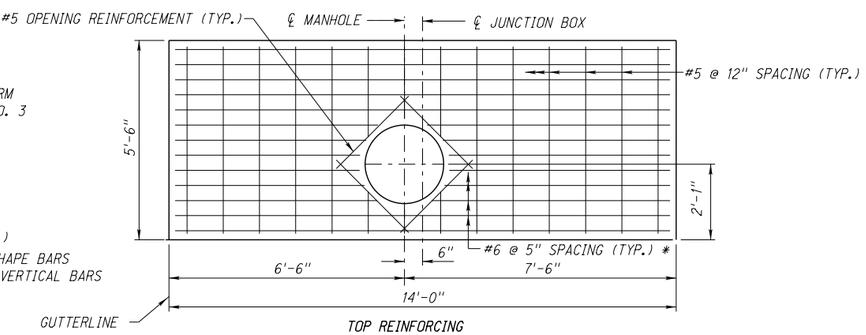


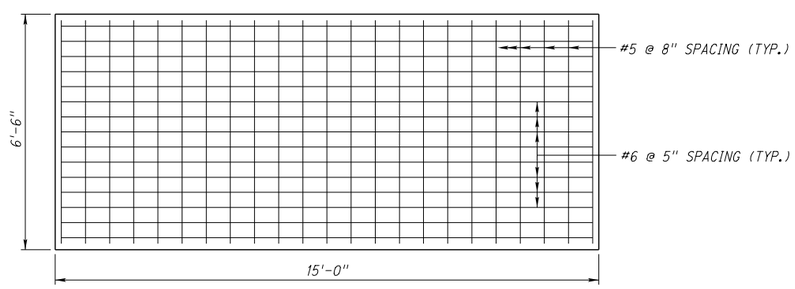
Junction Box No. 2

(LOOKING NORTH)



TOP REINFORCING

TOP SLAB



BOTTOM REINFORCING

BOTTOM SLAB

SUMMARY OF REINFORCING STEEL	
LOCATION	TOTAL
BOTTOM SLAB	905
WALLS	866
TOP SLAB	782
TOTAL (LBS.)	2,553
FOR INFORMATION ONLY	

SUMMARY OF CONCRETE QUANTITIES	
LOCATION	TOTAL
BOTTOM SLAB	2.7
WALLS	2.5
TOP SLAB	2.1
INVERT	0.2
TOTAL (CY)	7.5
FOR INFORMATION ONLY	

NOTES:

MANHOLE DETAILS SHOWN ON SPECIAL PLAN 5C.

△ *ADJUST ELEVATION OF MANHOLE LID TO MATCH ELEVATION OF FINISHED ROADWAY SURFACE*

✱ *CLIP AS NECESSARY FOR OPENING*

PROJECT NUMBER	SHEET NO.
08586.001-A	T6

C.N.

STRUCTURE NUMBER

CITY OF SEWARD

JUNCTION BOX NO.2

ROADWAY *PARK AVENUE*
STA. *505+73.61*
SKEW *NA*
DESIGN LIVE LOAD *HL-93*
DESIGNED BY *DGB* **DETAILED BY** *GAA* **CHECKED BY** *MKR* **DATE** *NOVEMBER 2022*

SCHEMMER

PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

SPECIAL PLAN NO.	
3C	1 / 1

BRIDGE DIVISION.

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11/23/2022

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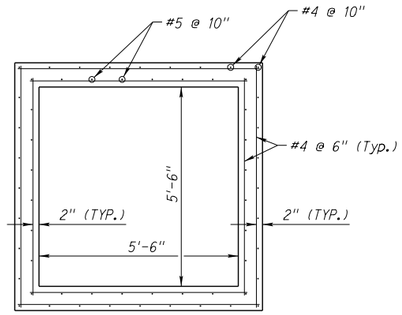
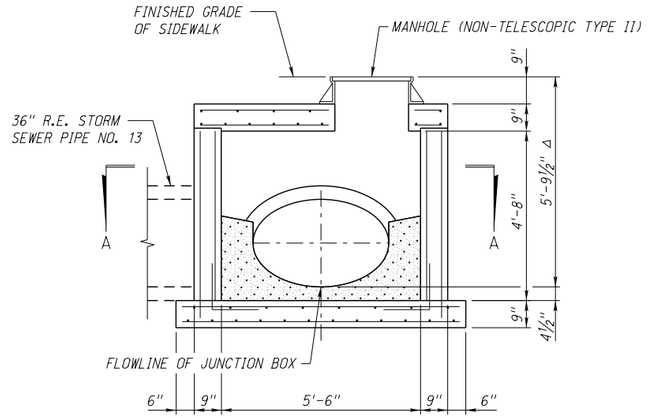
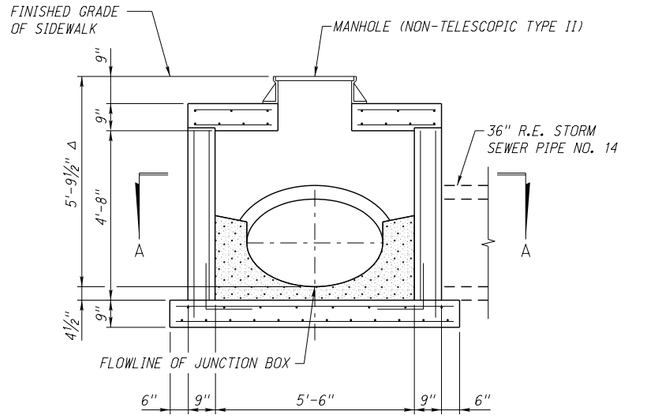


SECTION A-A



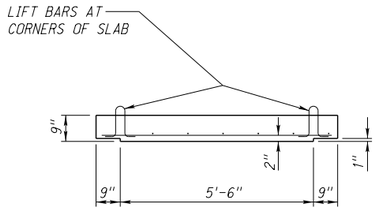
JUNCTION BOX NO. 4

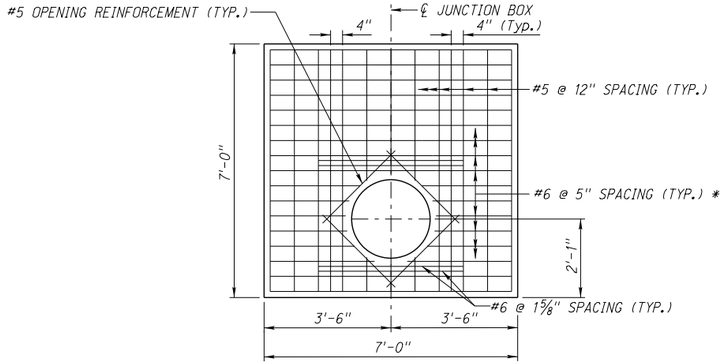
(LOOKING UPSTATION)



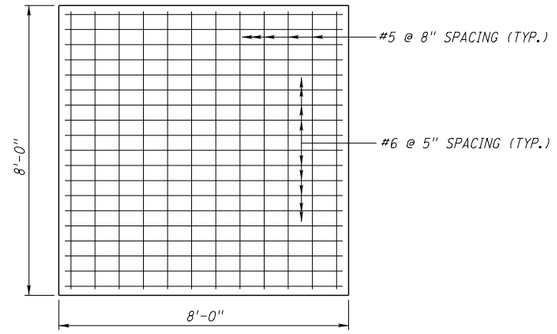
JUNCTION BOX NO. 4

(LOOKING NORTH)

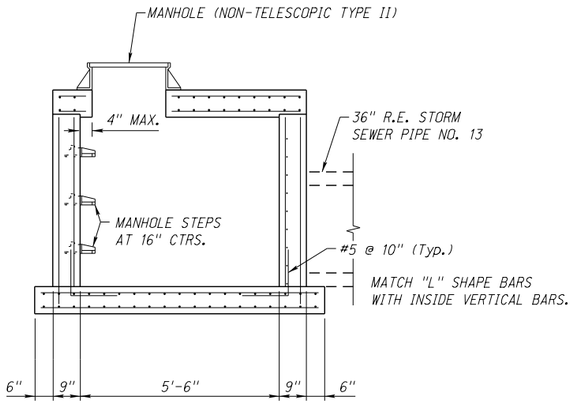




BOTTOM REINFORCING

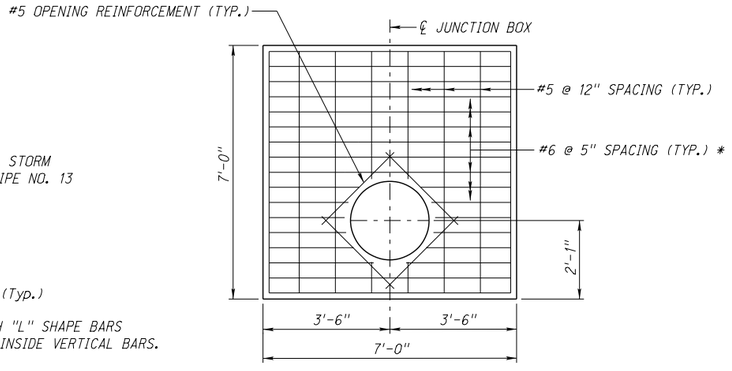


BOTTOM REINFORCING



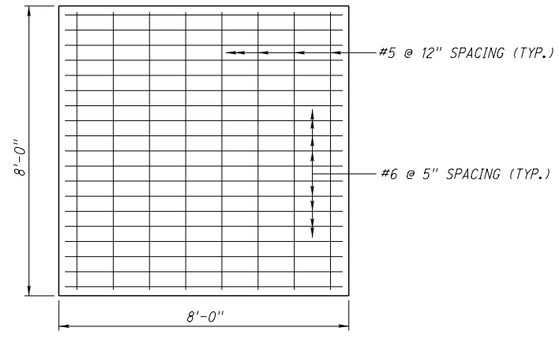
JUNCTION BOX NO. 4

(LOOKING DOWNSTATION)



TOP REINFORCING

TOP SLAB



TOP REINFORCING

BOTTOM SLAB

SUMMARY OF REINFORCING STEEL	
LOCATION	TOTAL
BOTTOM SLAB	598
WALLS	678
TOP SLAB	535
TOTAL (LBS.)	1,811
FOR INFORMATION ONLY	

SUMMARY OF CONCRETE QUANTITIES	
LOCATION	TOTAL
BOTTOM SLAB	1.8
WALLS	2.6
TOP SLAB	1.3
INVERT	0.2
TOTAL (CY)	5.9
FOR INFORMATION ONLY	

NOTES:

MANHOLE DETAILS SHOWN ON SPECIAL PLAN 5C.

Δ ADJUST ELEVATION OF MANHOLE LID MATCH ELEVATION OF FINISHED SIDEWALK SURFACE

** CLIP AS NECESSARY FOR OPENING*

PROJECT NUMBER	SHEET NO.
08586.001-A	T7

C.N.

STRUCTURE NUMBER

CITY OF SEWARD

JUNCTION BOX NO.4

ROADWAY *PARK AVENUE*
STA. *501+60.65*
SKEW *NA*
DESIGN LIVE LOAD *HL-93*
DESIGNED BY *DGB* **DETAILED BY** *GAA* **CHECKED BY** *MKR* **DATE** *NOVEMBER 2022*

SCHEMMER

PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

SPECIAL PLAN NO.	
4C	1 / 1

BRIDGE DIVISION.

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11/23/2022

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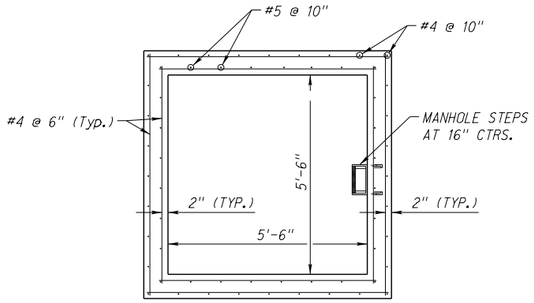
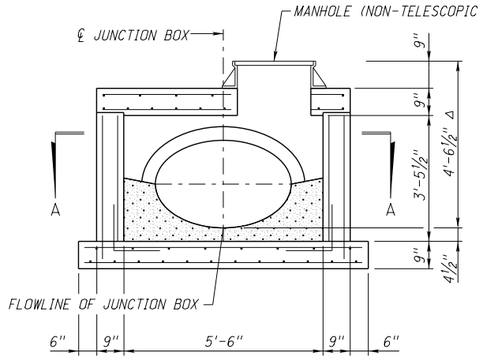
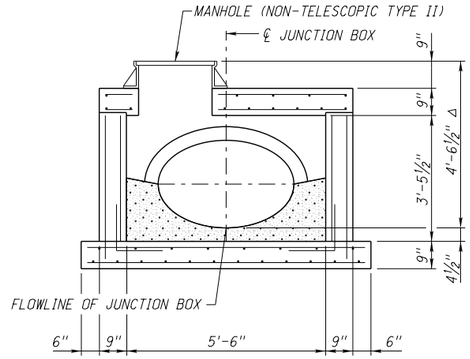


SECTION A-A



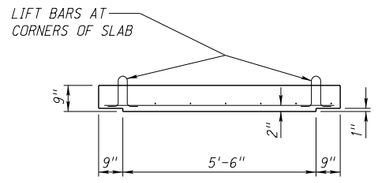
JUNCTION BOX NO. 5

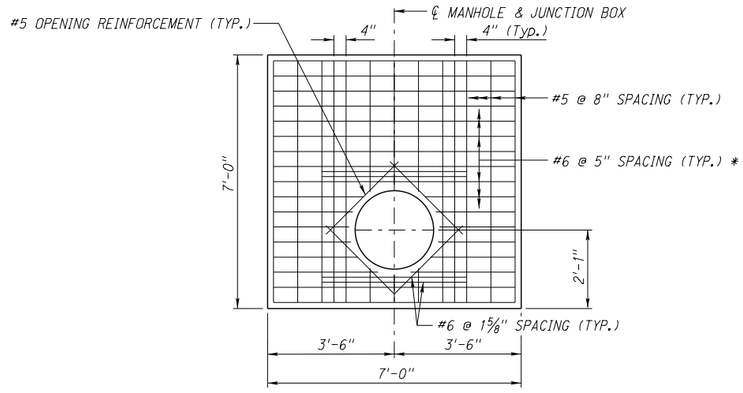
(LOOKING DOWNSTATION)



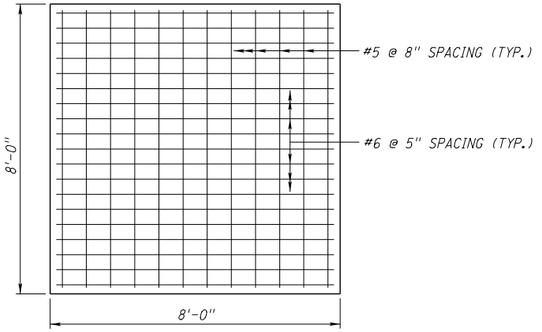
JUNCTION BOX NO. 5

(LOOKING DOWNSTATION)





BOTTOM REINFORCING



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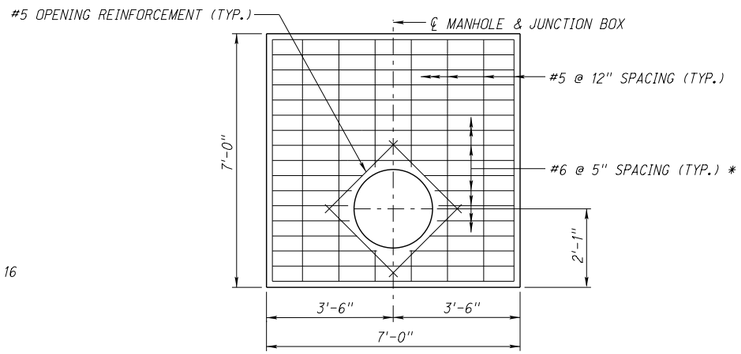

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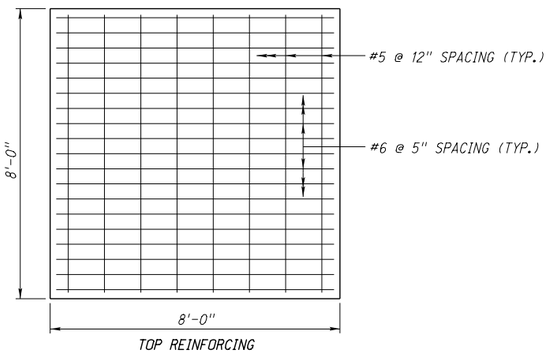
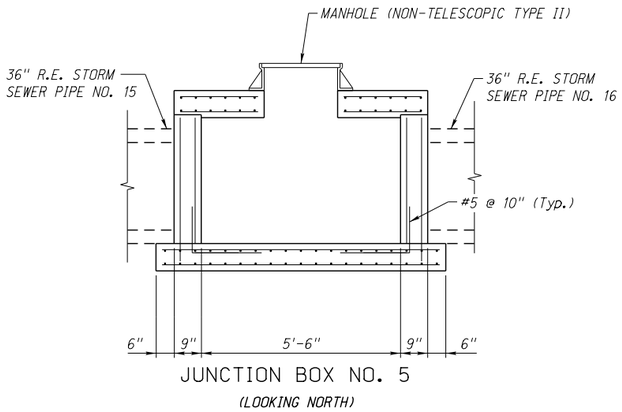


TOP REINFORCING



JUNCTION BOX NO. 5

(LOOKING NORTH)

TOP SLAB

BOTTOM SLAB

NOTES:

MANHOLE STEPS ARE LOCATED AGAINST NORTH WALL.
MATCH "L" SHAPE BARS WITH INSIDE VERTICAL BARS.

SUMMARY OF REINFORCING STEEL	
LOCATION	TOTAL
BOTTOM SLAB	598
WALLS	615
TOP SLAB	535
TOTAL (LBS.)	1,748
FOR INFORMATION ONLY	

SUMMARY OF CONCRETE QUANTITIES	
LOCATION	TOTAL
BOTTOM SLAB	1.8
WALLS	2.1
TOP SLAB	1.3
INVERT	0.2
TOTAL (CY)	5.4
FOR INFORMATION ONLY	

△ *ADJUST ELEVATION OF MANHOLE LID MATCH ELEVATION OF FINISHED SIDEWALK SURFACE*
✱ *CLIP AS NECESSARY FOR OPENING*

PROJECT NUMBER	SHEET NO.
08586.001-A	T8

C.N.

STRUCTURE NUMBER

CITY OF SEWARD

JUNCTION BOX NO.5

ROADWAY *PARK AVENUE*
STA. *503+52.89*
SKEW *NA*
DESIGN LIVE LOAD *HL-93*
DESIGNED BY *DGB* **DETAILED BY** *GAA* **CHECKED BY** *MKR* **DATE** *NOVEMBER 2022*

SCHEMMER

PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

SPECIAL PLAN NO. 5C

1/2

BRIDGE DIVISION.

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11/23/2022

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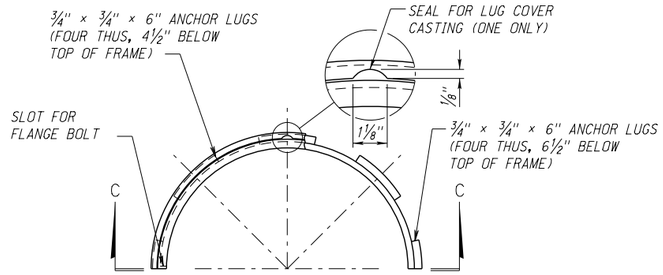
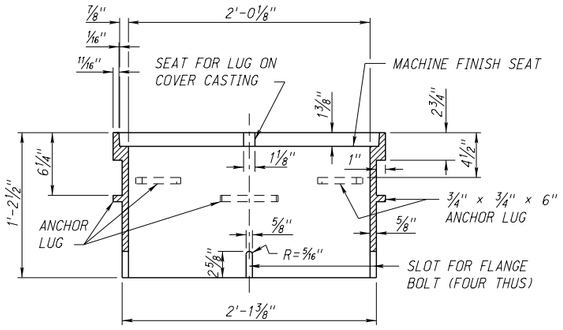
BRIDGE DIVISION.
COMPUTER$$$$$
DATE$$$$$$$$$$$$$
DGNSPEC$$$$$$$$$$$$



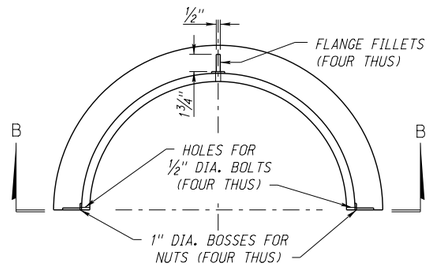
HALF TOP VIEW



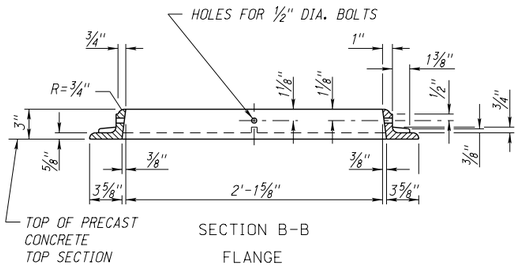
SECTION C-C

FRAME

DURING PAVEMENT CONSTRUCTION, FRAME CASTING TO BE TEMPORARILY HELD IN POSITION BY BOLTING TO FLANGE CASTING. BOLTS TO BE REMOVED AFTER CONCRETE HAS HARDENED.



HALF TOP VIEW

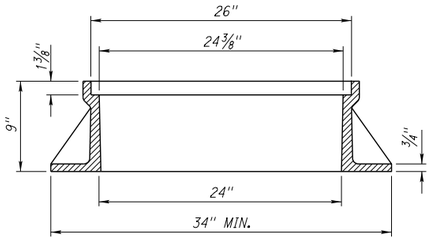


SECTION B-B

FLANGE

TYPE I
DETAILS OF FRAME AND FLANGE

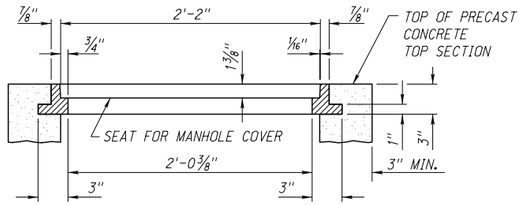
TELESCOPIC TYPE (CAST IRON)



SECTION

TYPE II
DETAILS OF FRAME

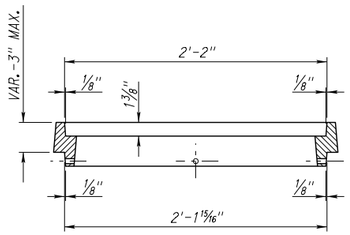
NON-TELESCOPIC TYPE (CAST IRON)



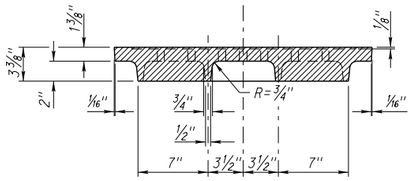
SECTION

TYPE III
DETAILS OF RING

NON-TELESCOPIC TYPE (CAST IRON)



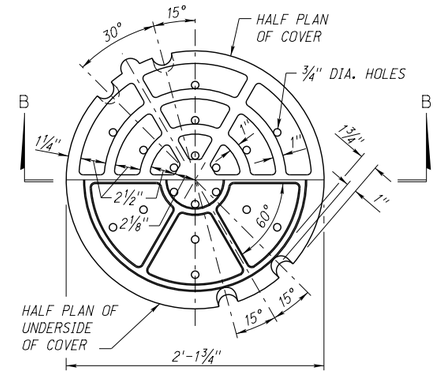
SECTION



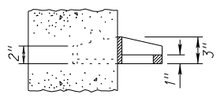
SECTION B-B

DETAILS OF COVER

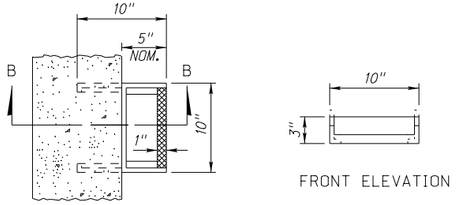
(CAST IRON)



HALF PLAN



SECTION B-B



FRONT ELEVATION

PLAN

STEPS TO BE PLACED AT 16" CENTERS

CAST IRON STEPS

PROJECT NUMBER	SHEET NO.
08586.001-A	T9

C.N.

STRUCTURE NUMBER

CITY OF SEWARD

MANHOLE DETAILS

ROADWAY *PARK AVENUE*
STA. *503+52.89*
SKEW *NA*
DESIGN LIVE LOAD *HL-93*
DESIGNED BY *DGB* **DETAILED BY** *GAA* **CHECKED BY** *MKR* **DATE** *NOVEMBER 2022*

SCHEMMER

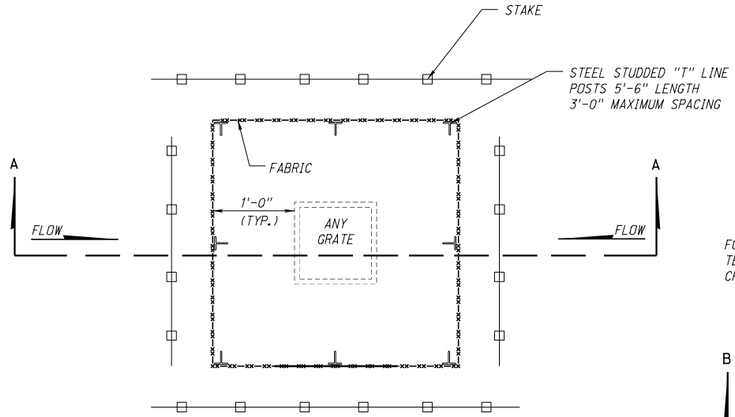
PROFESSIONAL CIVIL ENGINEER
DARIN G. BROWN
E-12246
STATE OF NEBRASKA

11-23-2022

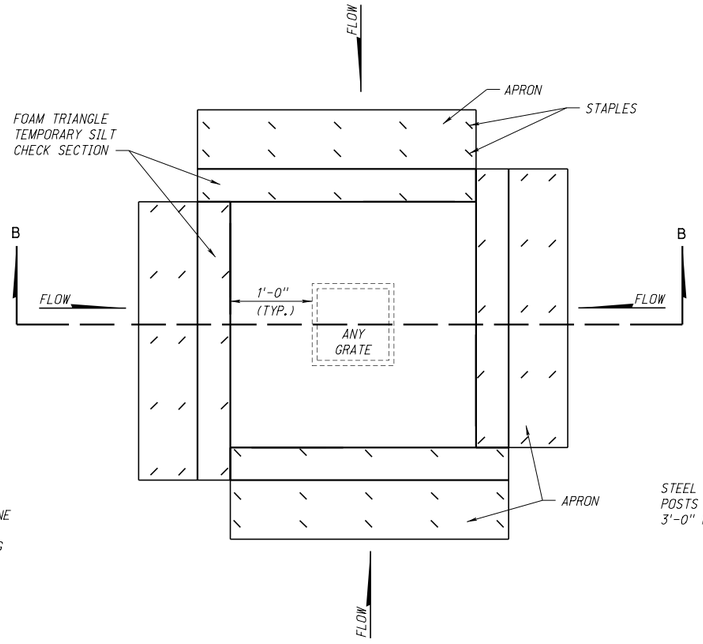
SPECIAL PLAN NO.	2
5C	2

PROJECT NO.	SHEET NO.
	U1

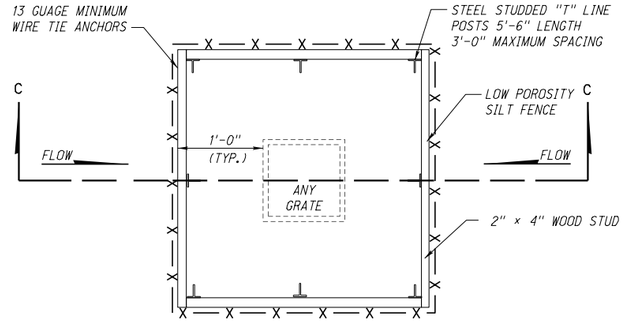
C.N.



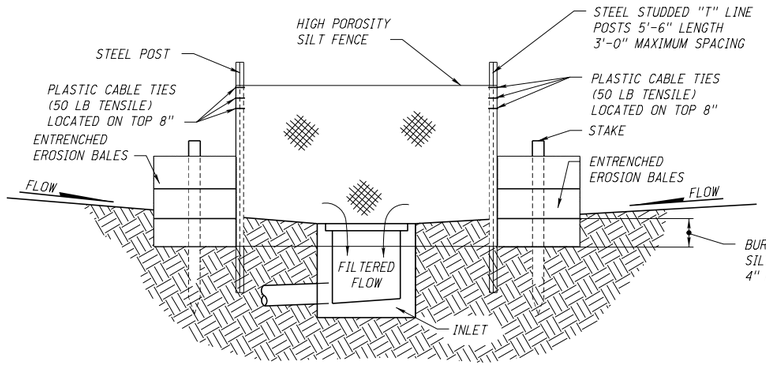
PLAN VIEW



PLAN VIEW



PLAN VIEW



SECTION A-A

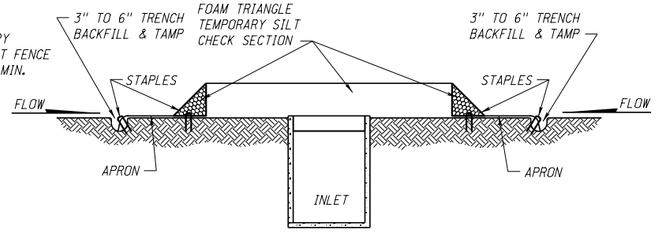
EROSION BALE AND SILT FENCE FILTER AT INLET

NOTES:

STAKES SHALL BE WOOD AND BE 2" x 2" x 3'-0" NOMINAL.

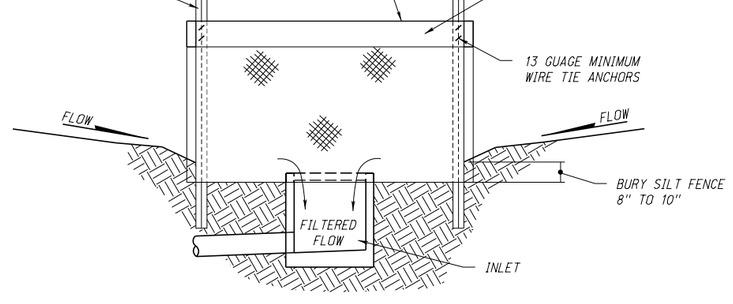
EROSION BALES SHALL BE 18" x 18" x 36".

EROSION BALES SHALL BE ENTRENCHED 4 INCH MINIMUM INTO THE SOIL, TIGHTLY ABUTTED WITH NO GAPS, STAKED, AND BACKFILLED AROUND THE ENTIRE OUTSIDE PERIMETER.



SECTION B-B

FOAM TRIANGLE FILTER AT INLET



ELEVATION

SECTION C-C

SILT FENCE AND WOOD FRAME FILTER AT INLET

NOTES:

1. *THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.*

PROFESSIONAL LANDSCAPE ARCHITECT
RONALD E. POE
L.A. 275
REGISTERED
STATE OF NEBRASKA

INLET PROTECTION

SHEET 1 OF 2

SPECIAL PLAN 6C

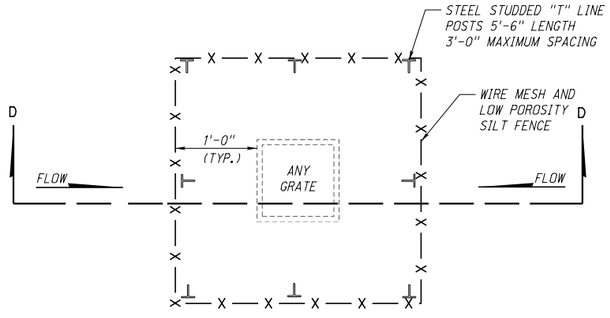
ROADWAY DESIGN DIVISION

Computer: NDOTDESIGN134

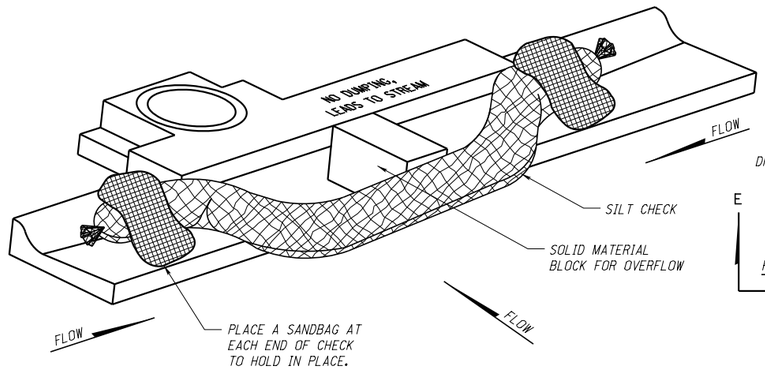
Date: 06-JUL-2021 09:11

File: 5102le00.dgn

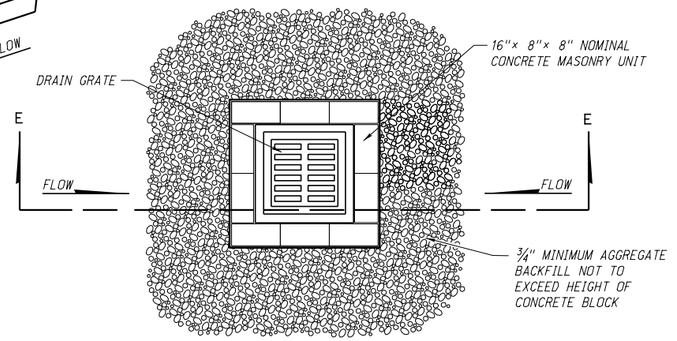
SHEET 1 OF 2 5102e00



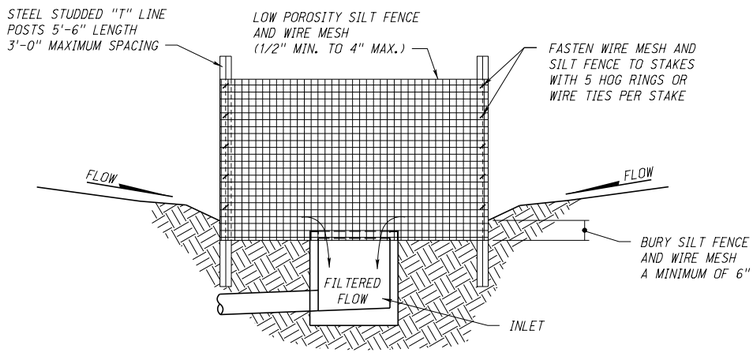
PLAN VIEW



CURB INLET PERSPECTIVE VIEW



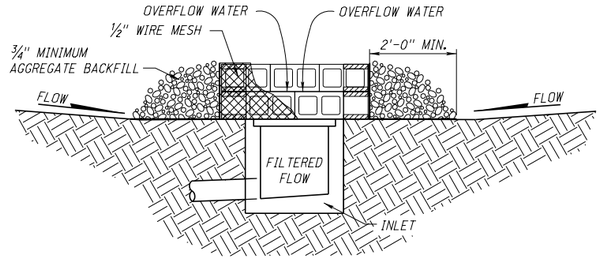
PLAN VIEW



ELEVATION

SECTION D-D

WIRE MESH BACKED SILT FENCE
FILTER AT INLET



SECTION E-E

BLOCK AND GRAVEL
FILTER AT INLET

NOTES:

1. *APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.*
2. *½" WIRE MESH SHALL COVER ENTIRE VERTICAL FACE OF BLOCKS AND APRON BELOW THE AGGREGATE BACKFILL.*
3. *THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.*
4. *BLOCK COURSES SHOULD OFFSET TO IMPROVE STRUCTURAL STABILITY.*

PROFESSIONAL LANDSCAPE ARCHITECT
RONALD E. POE
L.A. 275
REGISTERED
STATE OF NEBRASKA

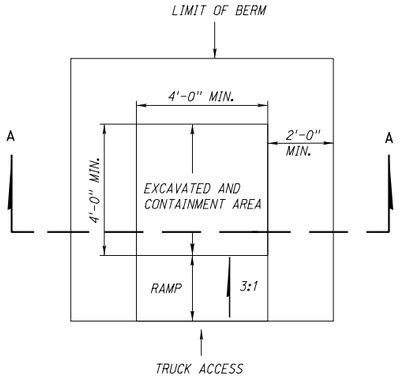
INLET PROTECTION
SHEET 2 OF 2

SPECIAL PLAN 6C

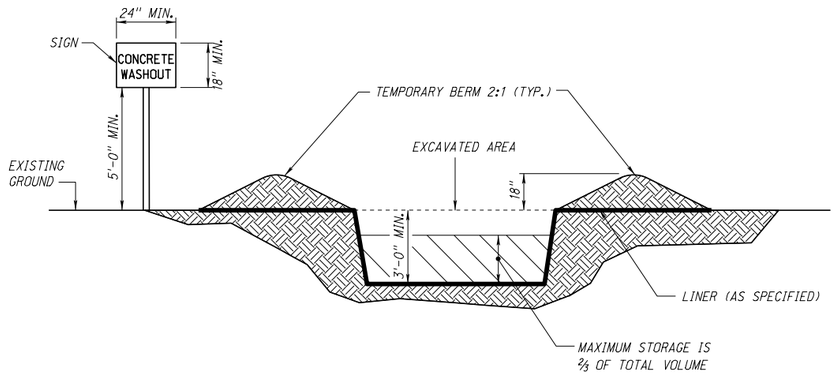
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 06-JUL-2021 09:11
File: 5102le00.dgn
SHEET 2 OF 2 5102le00

PROJECT NO.	SHEET NO.
	U3

C.N.



PLAN VIEW



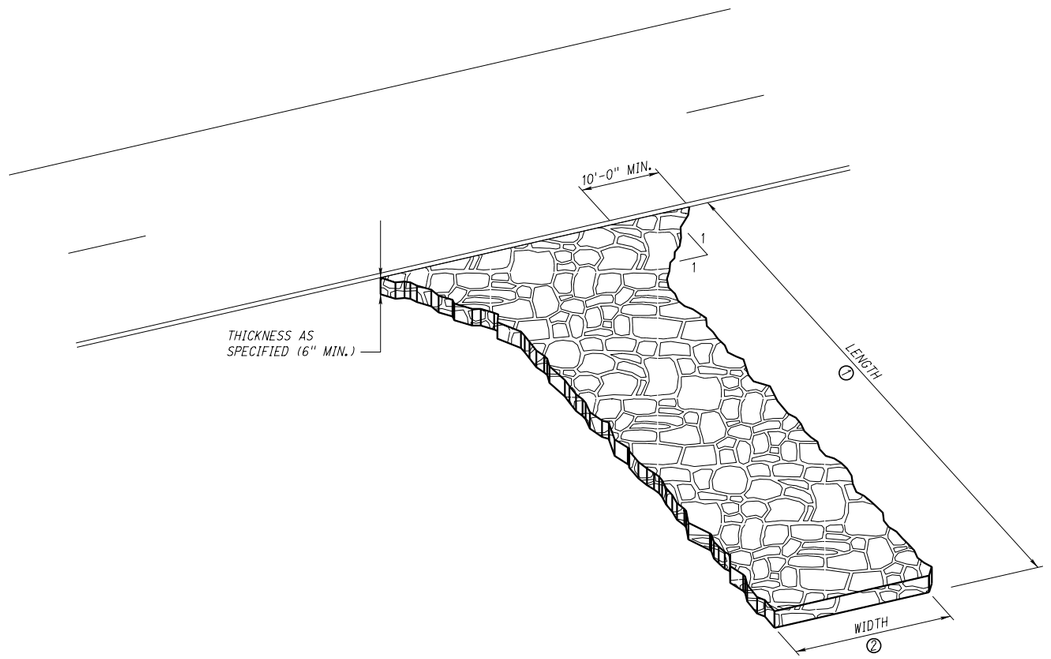
SECTION A-A

NOTES:
EROSION BALES MAY BE USED AS AN ALTERNATIVE FOR THE BERM AREA, EXCEPT AT THE OPENING.

THE CONCRETE WASHOUT SIGN SHALL HAVE LETTERS AT LEAST 3 INCHES HIGH.

STRUCTURE MUST BE LINED WITH MATERIAL NOTED IN SPECIAL PROVISIONS.

CONCRETE WASHOUT STRUCTURE



NOTES:

REMOVE VEGETATION AND EXCAVATE SOFT SOILS FROM EXIT AREA. THOROUGHLY COMPACT SUBGRADE PRIOR TO PLACING STONE.

INSTALL CULVERT UNDER EXIT IF NECESSARY TO MAINTAIN DRAINAGE.

GRADE EXIT TO PREVENT RUNOFF FROM FLOWING ONTO STREET. DIRECT ALL RUNOFF FROM EXIT TO A SEDIMENT RETENTION DEVICE.

WHEN SPECIFIED, INSTALL SUBGRADE STABILIZATION FABRIC PRIOR TO PLACING CRUSHED STONE.

INSTALL LAYER OF CRUSHED STONE TO THE THICKNESS (6 INCH MINIMUM) AND DIMENSIONS SPECIFIED.

① EXIT LENGTH: 30 FT. MINIMUM OR AS SPECIFIED. LENGTH OF EXIT MAY BE INCREASED IF SEDIMENT TRACK-OUT OCCURS.

② EXIT WIDTH: 20 FT. MINIMUM.

STABILIZED CONSTRUCTION EXIT

PROFESSIONAL LANDSCAPE ARCHITECT
RONALD E. POE
L.A. 275
REGISTERED
STATE OF NEBRASKA

CONCRETE WASHOUT & CONSTRUCTION EXIT

SHEET 1 OF 1

SPECIAL PLAN 7C

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 06-JUL-2021 09:11
File: 51011e00.dgn
SHEET 1 OF 1 51011e00

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:17
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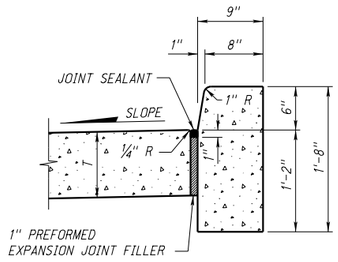
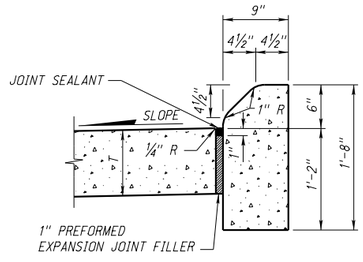


CONCRETE BARRIER CURB *

QUANTITIES

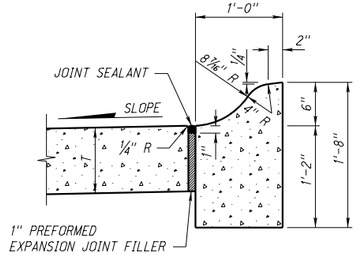
CONCRETE 4.55 CU. YDS./STA.
AREA 1.228 SQ. FT.



CONCRETE MEDIAN CURB *

QUANTITIES

CONCRETE 4.42 CU. YDS./STA.
AREA 1.192 SQ. FT.

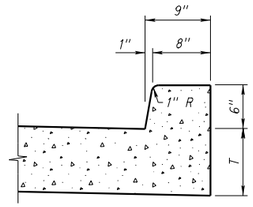


CONCRETE CURB, * TYPE I

QUANTITIES

CONCRETE 5.22 CU. YDS./STA.
AREA 1.408 SQ. FT.

*NOTE: * ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERVALS OF NOT MORE THAN 100 FEET THRU CONCRETE BARRIER CURB, CONCRETE MEDIAN CURB, AND CONCRETE CURB, TYPE I.*

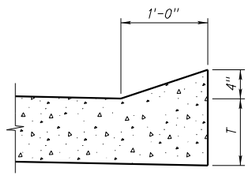


NOTE: MAY BE USED WHEN T IS LESS THAN 1 FOOT.

INTEGRAL CONCRETE BARRIER CURB

QUANTITIES

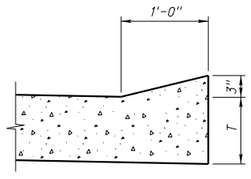
CONCRETE 1.33 CU. YDS./STA.
AREA 0.359 SQ. FT.



INTEGRAL CONCRETE SLOPING CURB

QUANTITIES

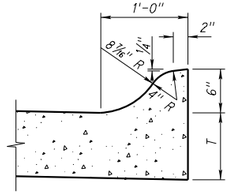
CONCRETE 0.62 CU. YDS./STA.
AREA 0.167 SQ. FT.



INTEGRAL CONCRETE SLOPING CURB

QUANTITIES

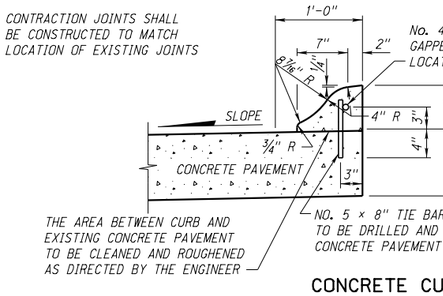
CONCRETE 0.46 CU. YDS./STA.
AREA 0.123 SQ. FT.



INTEGRAL CONCRETE CURB

QUANTITIES

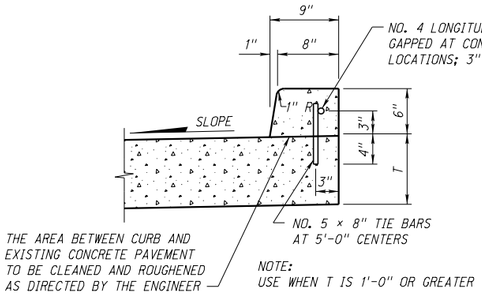
CONCRETE 0.89 CU. YDS./STA.
AREA 0.239 SQ. FT.



CONCRETE CURB, TYPE II

QUANTITIES

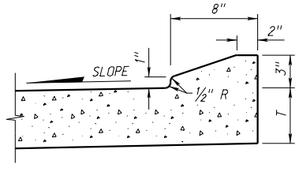
CONCRETE 0.87 CU. YDS./STA.
AREA 0.234 SQ. FT.



CONCRETE BARRIER CURB ALTERNATE

QUANTITIES

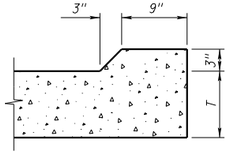
CONCRETE 1.33 CU. YDS./STA.
AREA 0.359 SQ. FT.



INTEGRAL CONCRETE TRUCK APRON CURB

QUANTITIES

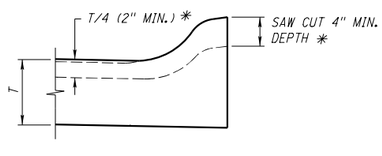
CONCRETE 0.47 CU. YDS./STA.
AREA 0.127 SQ. FT.



EROSION CONTROL CURB

QUANTITIES

CONCRETE 0.81 CU. YDS./STA.
AREA 0.219 SQ. FT.



CONTRACTION JOINT THRU CURB

* FOR NON-INTEGRAL CURB THE CONTRACTION JOINTS MAY BE MADE WITH A DOUBLE EDGER WHILE THE CONCRETE IS STILL PLASTIC.

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
R11	JUL 15	ADDED TRUCK APRON CURB
R10	FEB 09	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 301-R12

PAVEMENT DETAILS

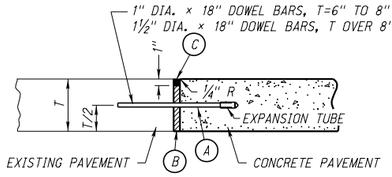
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

DATE

ORIGINAL: JANUARY 31, 1974
DATE

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:17
File: 30100e12.dgn



(A) GREASE DOWEL BAR ON EXPANSION TUB SIDE
(B) 1" PREFORMED EXPANSION JOINT FILLER
(C) JOINT SEALANT

NOTES:

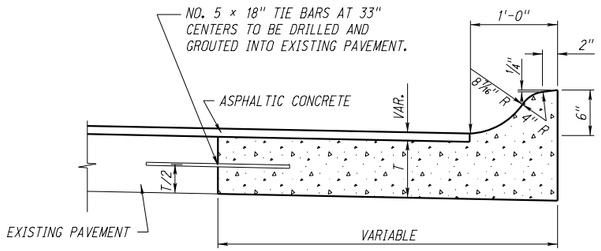
DOWEL BARS SHALL BE DRILLED TO A DEPTH OF 8" INTO EXISTING PAVEMENT AND GROUTED.

DOWEL BARS SHALL BE PLACED AT 1 FOOT CENTERS. THE OUTSIDE DOWEL BAR SHALL BE PLACED 6" FROM THE EDGE OF THE PAVEMENT.

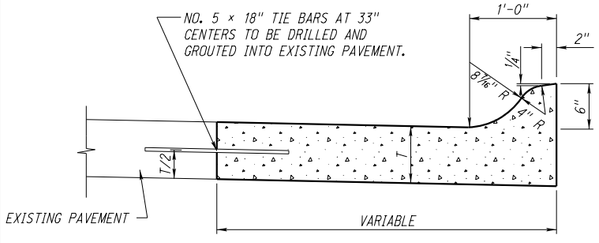
THIS JOINT SHALL BE CONSTRUCTED TRANSVERSE TO THE ROADWAY WHERE THE NEW CONCRETE ABUTS THE EXISTING CONCRETE.

DOWEL BARS SHALL BE PLACED PARALLEL TO THE ROADWAY ℄ AND TO THE ROAD BED.

EXPANSION JOINT (SUBSIDIARY)

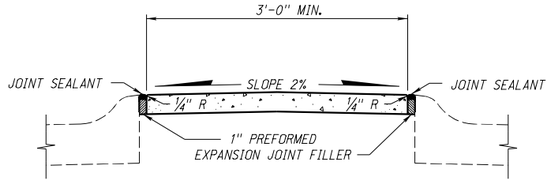


CONCRETE BASE COURSE W/INTEGRAL CURB



THE FOLLOWING NOTE IS TYPICAL FOR CONCRETE BASE COURSE WITH INTEGRAL CURB AND CONCRETE PAVEMENT WIDENING: CONTRACTION AND EXPANSION JOINTS SHALL BE CONSTRUCTED TO MATCH LOCATIONS OF EXISTING JOINTS.

CONCRETE PAVEMENT WIDENING



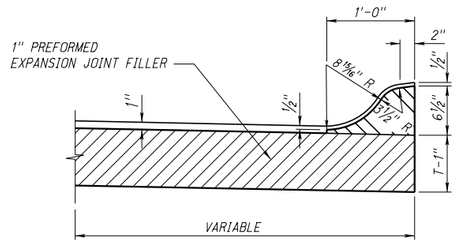
CONCRETE MEDIAN SURFACING

ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED ACROSS THE FULL WIDTH OF THE MEDIAN SURFACING AT INTERVALS OF NOT MORE THAN 49 FEET.

LONGITUDINAL JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS WHEN SURFACING WIDTH IS 16 FEET OR GREATER.

TRANSVERSE JOINTS ONE INCH DEEP SHALL BE MADE IN ALL MEDIANS AT INTERVALS OF NOT MORE THAN 8 FEET.

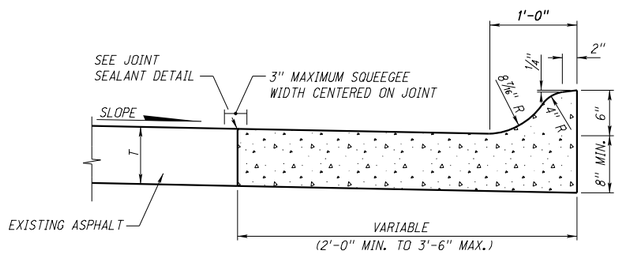
TRANSVERSE AND LONGITUDINAL JOINTS SHALL NOT BE FILLED.



ONE INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED AT INTERSECTION RETURNS AND WHERE SHOWN ON THE PLANS. TRANSVERSE JOINTS SHALL BE PLACED EVERY 8 FEET OR WHERE SHOWN ON THE PLANS.

NOTE:
RECESS THE EXPANSION JOINT FILLER 1/2" FROM THE TOP SURFACE OF THE CURB UNDER CONSTRUCTION

DETAIL FOR CUTTING & PLACEMENT OF EXPANSION JOINT FILLER

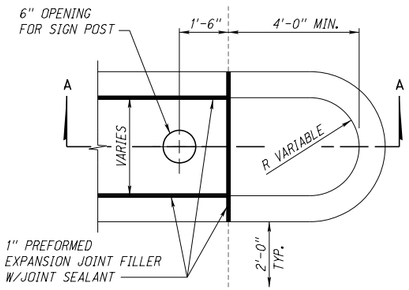


COMBINATION CONCRETE CURB & GUTTER

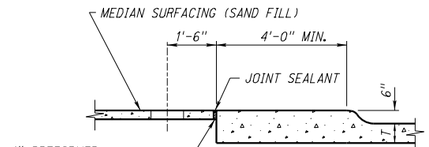
NOTE:

TRANSVERSE JOINTS SHALL BE PLACED EVERY 8 FEET AND JOINTS SHALL BE PLACED AT EACH HEADER, 2-NO. 5 x 18" TIE BARS ARE TO BE USED.

PLACE 1" PREFORMED EXPANSION JOINT FILLER AND SEAL AT THE RETURN OF RADIUS AT INTERSECTIONS.

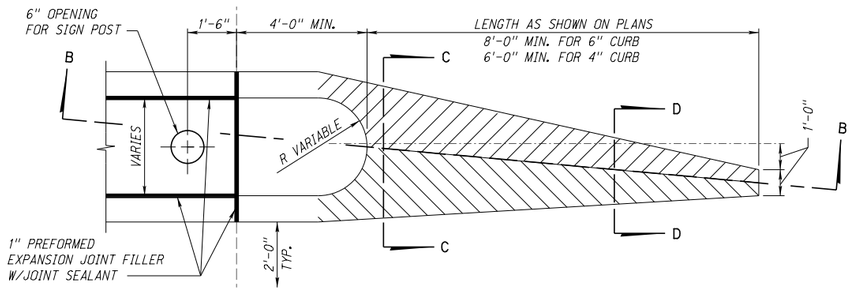


PLAN

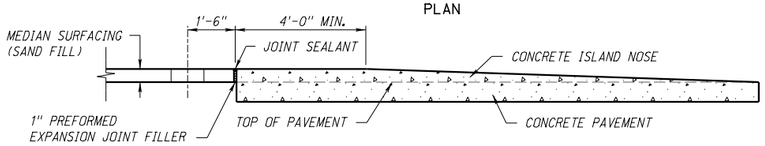


SECTION A-A

END OF MEDIAN ISLAND



PLAN



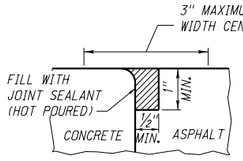
SECTION B-B

SECTION C-C SECTION D-D

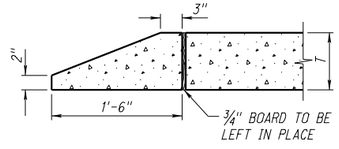
CONCRETE ISLAND NOSE

NOTE:
EXISTING CONCRETE PAVEMENT IS TO BE REMOVED TO BUILD CONCRETE ISLAND NOSE.

NOTE: T = PAVEMENT THICKNESS



JOINT SEALANT DETAIL



CONCRETE HEADER

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JAN 18	NDOR BORDER TO NDOT BORDER
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NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 301-R12

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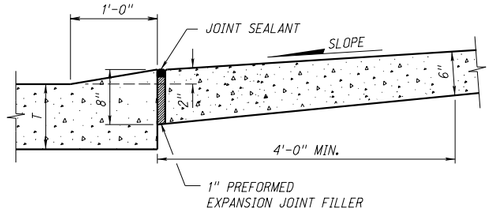
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

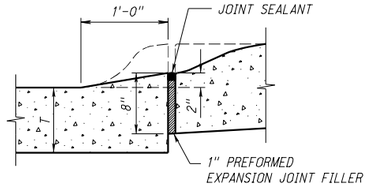
DATE

ORIGINAL: JANUARY 31, 1974
DATE

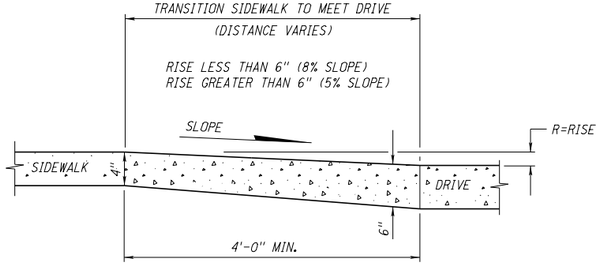
2
3



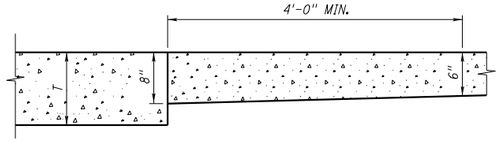
SECTION E-E



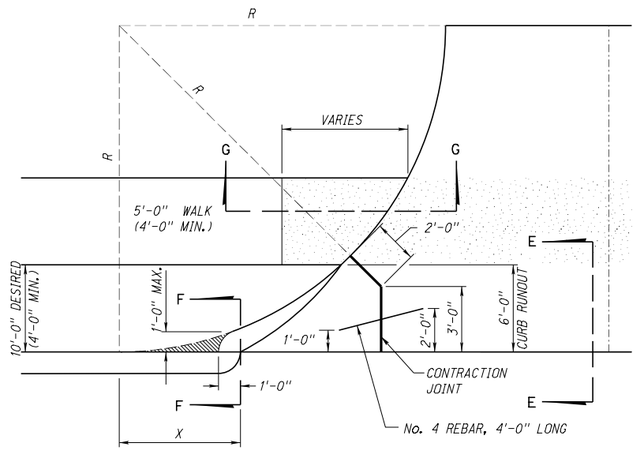
SECTION F-F



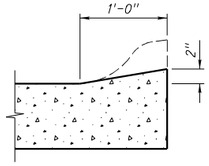
SECTION G-G



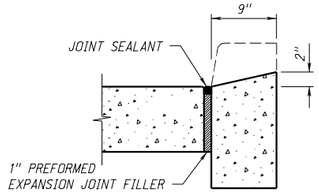
(RURAL DRIVEWAY)



URBAN DRIVEWAY PLAN

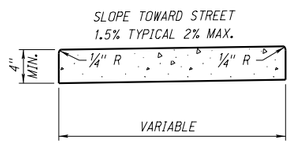


INTEGRAL CURB

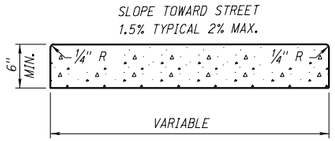


BARRIER CURB

DETAILS OF CURB DROPS



SIDEWALK



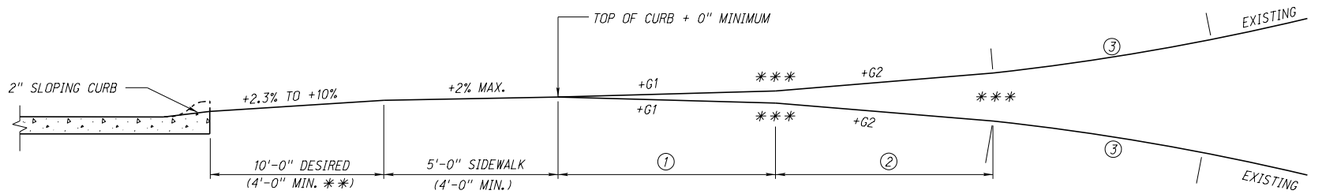
SIDEWALK AT DRIVEWAY

NOTE:

1 INCH PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED IN ALL SIDEWALKS OR CROSSWALKS AT INTERVALS OF NOT MORE THAN 50 FOOT, AND AT ALL POINTS WHERE SIDEWALKS OR CROSSWALKS ARE ADJACENT TO CURB. IF SIDEWALK OR CROSSWALK TO BE CONSTRUCTED IS LESS THAN 50 FOOT IN LENGTH, ONE SUCH EXPANSION JOINT SHALL BE PLACED AS DIRECTED BY THE ENGINEER.

R	X
10'-0"	4.6'
15'-0"	5.6'
20'-0"	6.0'
25'-0"	7.0'
30'-0"	8.0'
35'-0"	8.6'
40'-0"	9.0'

R = RADIUS
$X = \sqrt{(2R-1)}$
(X & R IN FEET)



DRIVEWAY TYPE	G1 (MAX.)	G2 (MAX.)
COMMERCIAL, INDUSTRIAL	±5%	±8%
DWELLINGS (RESIDENTIAL)	±8%	±15%

PROFILE URBAN DRIVEWAY WITH SIDEWALK
(MAXIMUM PERCENT OF GRADE)

① 10'-0" MINIMUM IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±8%
② 10'-0" MINIMUM IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±15%
③ 10'-0" MINIMUM ROUNDING IS REQUIRED WHEN THE EXISTING GRADE IS GREATER THAN ±22%

** 0 FEET IS ALLOWED IN URBAN BUSINESS DISTRICTS WITH SIDEWALKS OF 6 FEET MINIMUM WIDTH.
*** 10 FEET MINIMUM ROUNDING DESIRABLE FOR THE FOLLOWING GRADE CHANGES.

NOTE: T = PAVEMENT THICKNESS

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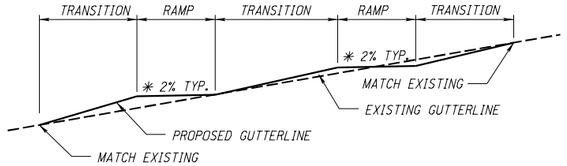
DATE

ORIGINAL:
JANUARY 31, 1974
DATE

3
3

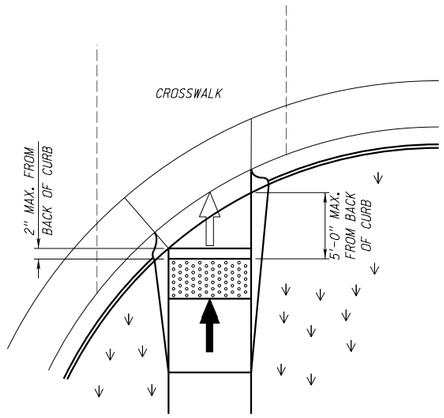
Computer: NDOTDESIGN34
Date: 29-JUN-2021 09:17
File: 301006i2.dgn

ROADWAY DESIGN DIVISION

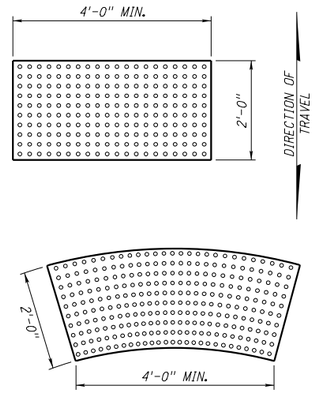


* 2% PREFERRED WHERE TRAFFIC STOPS, UP TO 5% ALLOWED WHERE TRAFFIC CONTINUES THROUGH THE CROSSWALK WITHOUT STOPPING (INCLUDING TRAFFIC SIGNALS).

GUTTER PROFILE DETAIL



DETECTABLE WARNING PANEL PLACEMENT DETAIL

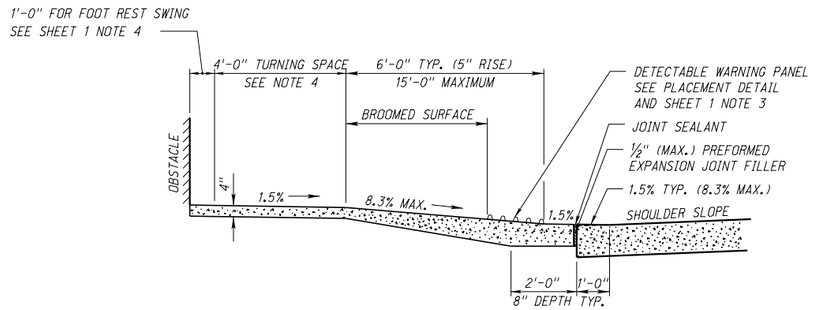


DETECTABLE WARNING PANELS

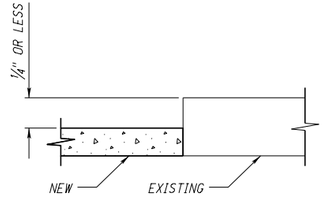
NOTES:

1. THE SURFACE OF ALL CURB RAMPS SHALL BE BROOMED PERPENDICULAR TO THE SLOPE OF THE CURB RAMP.
2. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE CURB RAMP, FREE OF SAGS AND SHORT GRADE CHANGES.
3. DETECTABLE WARNING PANELS SHALL CONTRAST VISUALLY AND EXTEND 2 FT. MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL FOR THE WIDTH OF THE RAMP. TYPE C RAMP; DETECTABLE WARNING PANELS SHALL EXTEND THE FULL LENGTH OF THE TRAVERSABLE CURB.

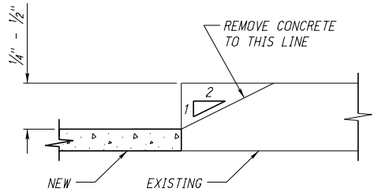
   NEW CURB RAMPS SHALL HAVE CAST IN CONCRETE DETECTABLE WARNING PANELS.
4. TURNING SPACE SHALL HAVE MINIMUM DIMENSIONS OF 4 FT. × 4 FT. AND SHALL BE A MINIMUM OF 1 FT. FROM ANY OBSTACLE SUCH AS A CURB OR RETAINING WALL FOR SWING OF WHEELCHAIR FOOT REST. THE SLOPE SHALL BE 2% MAXIMUM IN ANY DIRECTION.
5. THE WORK OF CONSTRUCTING CURB RAMPS SHALL BE INCLUDED IN THE QUANTITIES FOR "CONCRETE SIDEWALKS", "CONCRETE MEDIAN SURFACING" OR "CONCRETE BIKEWAY". THE WORK OF MODIFICATION OF NEW OR EXISTING CURB WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS OF WORK FOR WHICH DIRECT PAYMENT IS MADE.



TYPICAL RAMP PROFILE



NO BEVELING



BEVEL AS REQUIRED

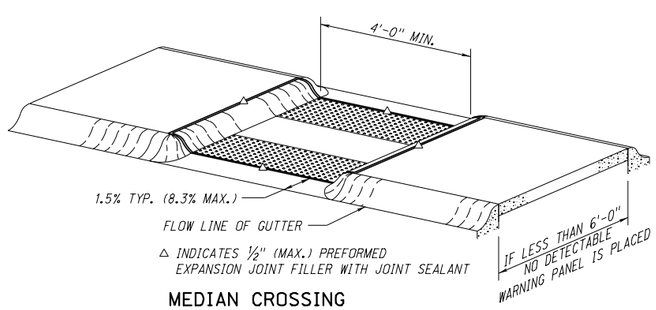
WHEN EXISTING SIDEWALK DOES NOT MEET THE 2% CROSS SLOPE, BEVELING TO MEET PROPOSED GUIDELINES IS REQUIRED.

THE SIDEWALK PANEL ABUTTING THE EXISTING SIDEWALK (WHICH MAY NOT BE 2% SLOPE): BUILD FULL WIDTH OF THE NEW SIDEWALK, ON 2% MAXIMUM CROSS SLOPE AND BEVEL THE EXISTING SIDEWALK EDGE WHERE IT DOES NOT MEET THE NEW WITHIN ¼", THIS WORK IS SUBSIDIARY.

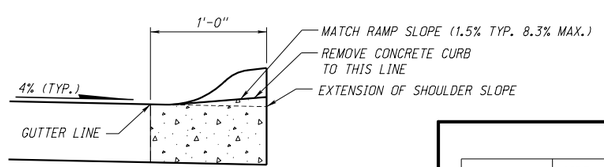
BEVELING DETAIL

LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.



MEDIAN CROSSING



NOTE:
COMBINATION CONCRETE CURB AND GUTTER MAY BE REMOVED AND REPLACED IN LIEU OF MILLING.

CURB DETAIL

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
◁	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

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REV. NO.	DATE	DESCRIPTION OF REVISION
R3	JAN 18	NDOR BORDER TO NDOT BORDER
R2	OCT 14	CHANGE PM TO ROADWAY DESIGN ENGINEER
R1	FEB 13	ALL OF PLAN REWORKED (PROWAG)

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 303-R3

CURB RAMPS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

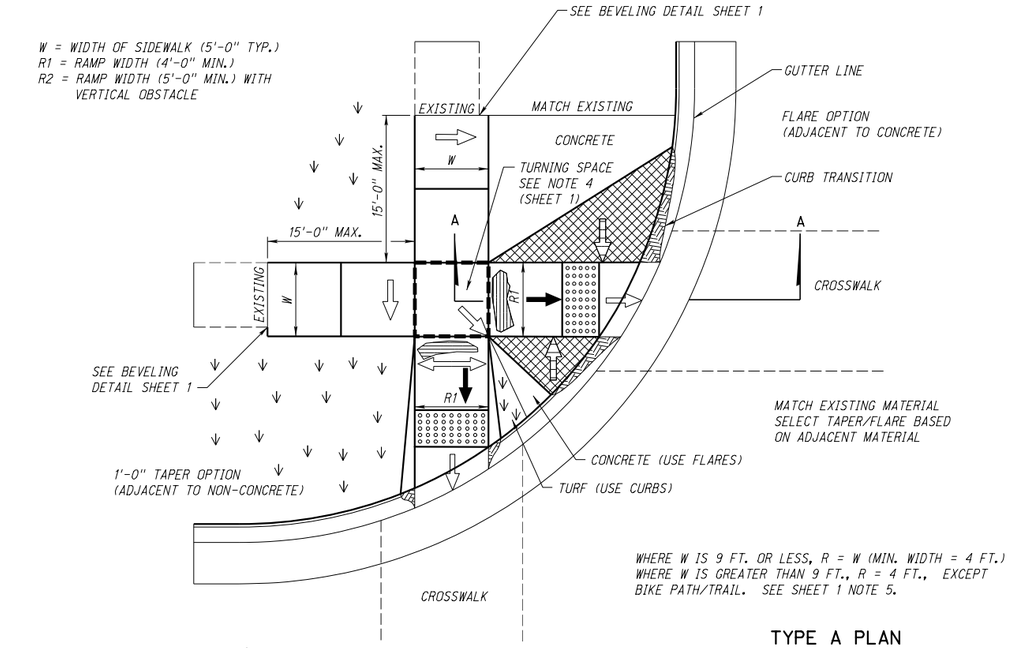
DATE

ORIGINAL: MARCH 22, 2010
DATE

1
5

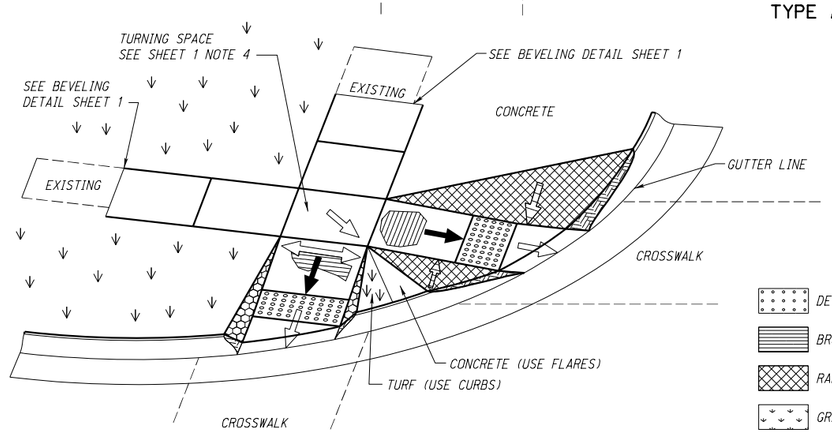
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300603.dgn

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300e03.dgn

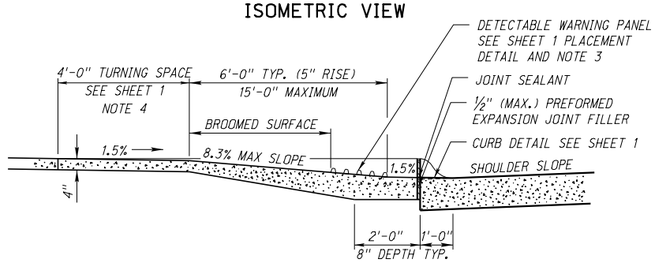


WHERE W IS 9 FT. OR LESS, R = W (MIN. WIDTH = 4 FT.)
WHERE W IS GREATER THAN 9 FT., R = 4 FT., EXCEPT BIKE PATH/TRAIL. SEE SHEET 1 NOTE 5.

TYPE A PLAN



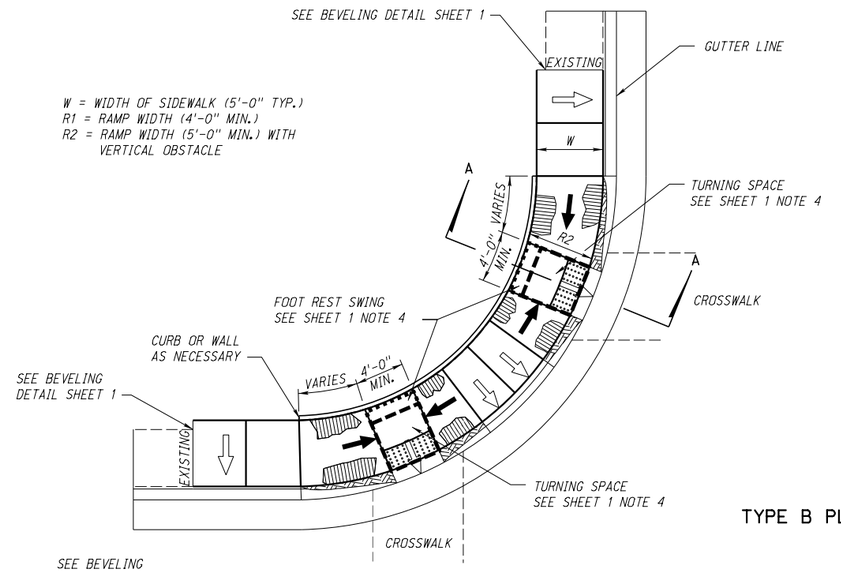
ISOMETRIC VIEW



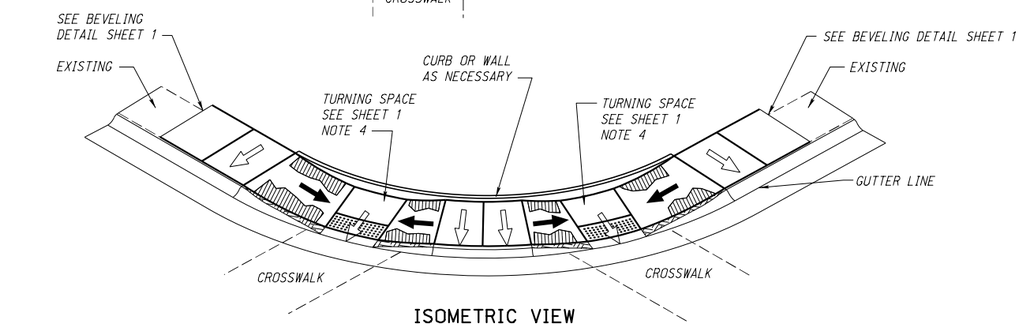
TYPE A CROSS SECTION
SECTION A-A

LEGEND

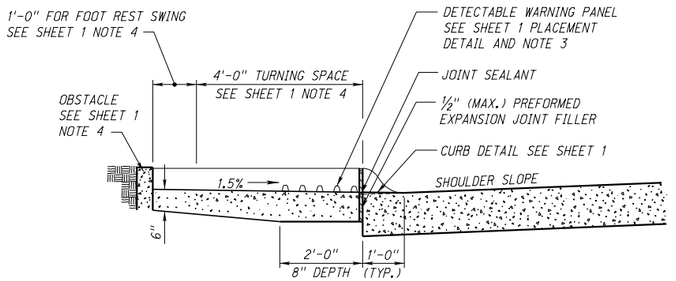
- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.



TYPE B PLAN



ISOMETRIC VIEW



TYPE B CROSS SECTION
SECTION A-A

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
⇦	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

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NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 303-R3

CURB RAMPS

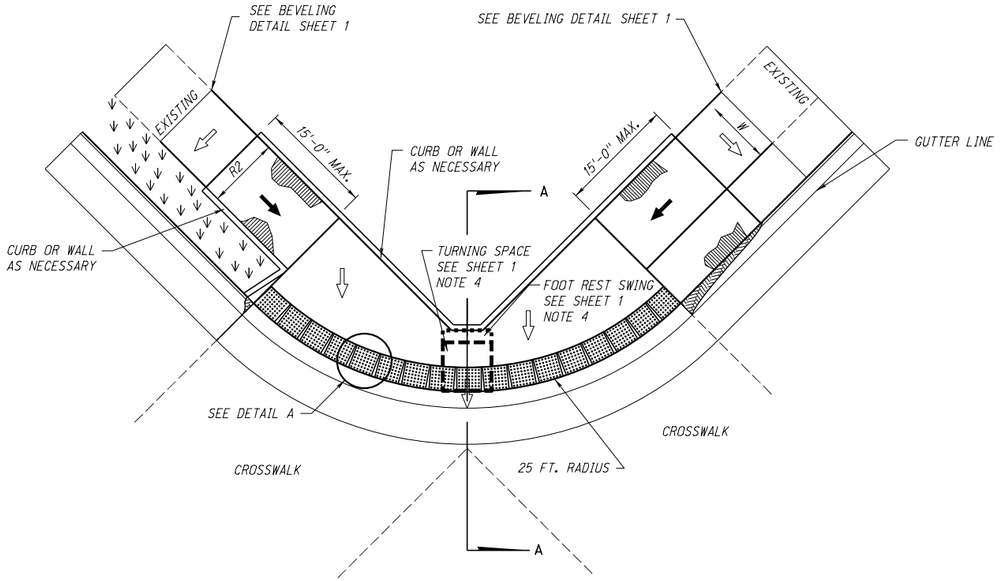
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

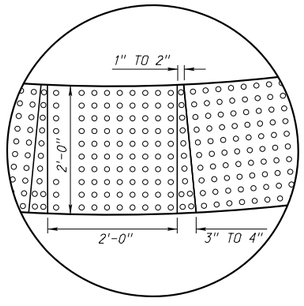
DATE

ORIGINAL:
MARCH 22, 2010
DATE

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN34
Date: 29-JUN-2021 09:18
File: 303000e03.dgn



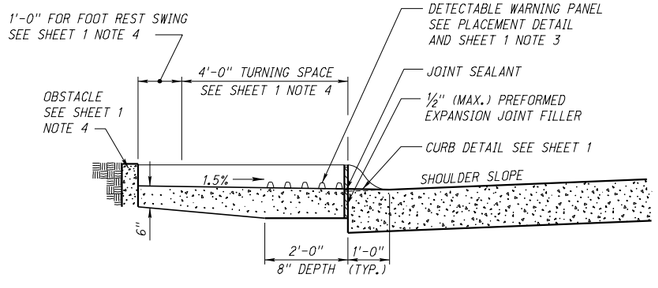
TYPE C PLAN



DETAIL A

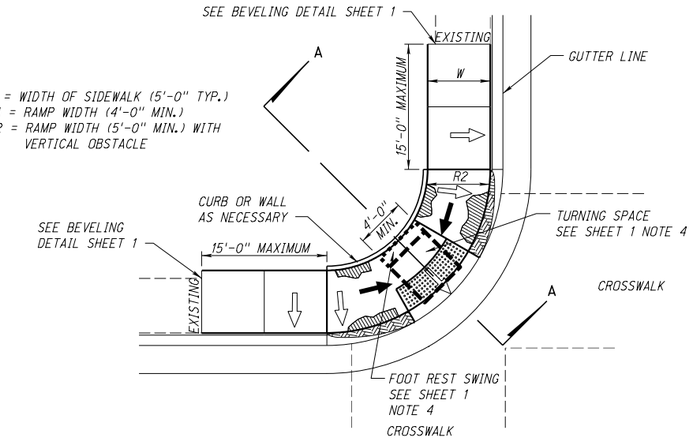
LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.

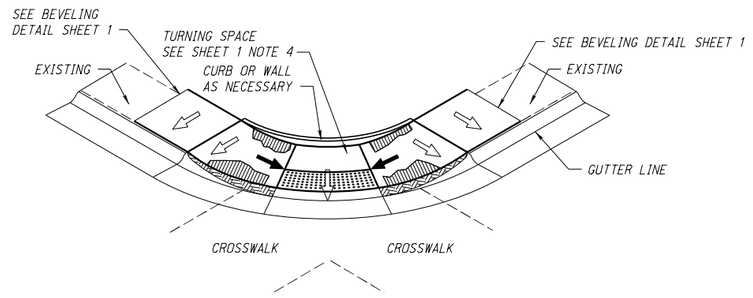


TYPE C CROSS SECTION
SECTION A-A

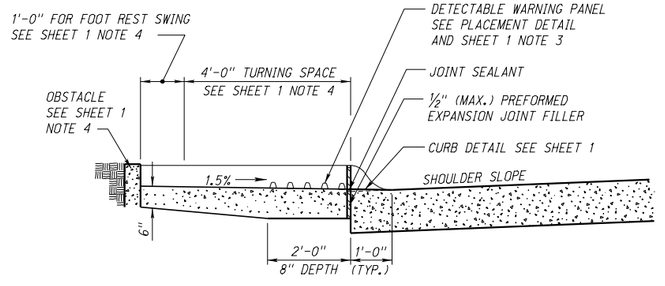
W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



TYPE D PLAN



ISOMETRIC VIEW



TYPE D CROSS SECTION
SECTION A-A

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
⇦	FLARE 90° TO RAMP 9.0% TYPICAL, 10.0% MAX. SLOPE

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NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 303-R3

CURB RAMPS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

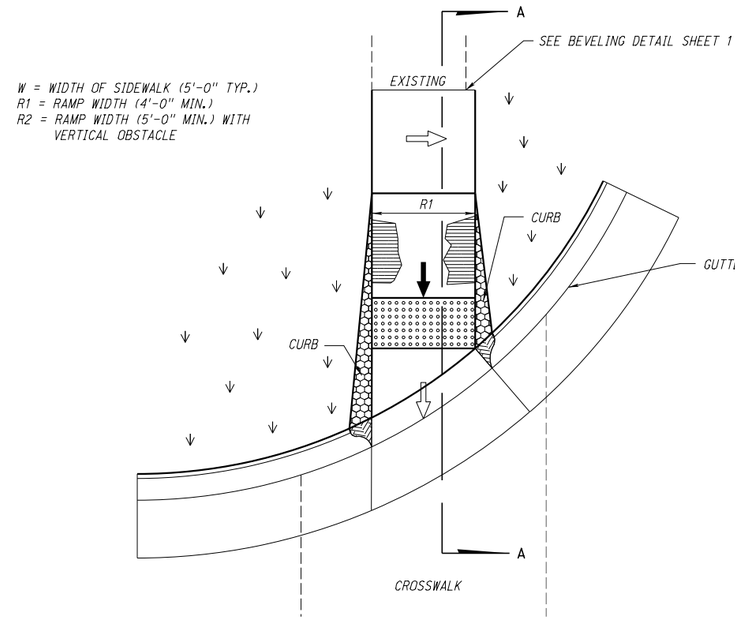
DATE

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

ORIGINAL:
MARCH 22, 2010
DATE

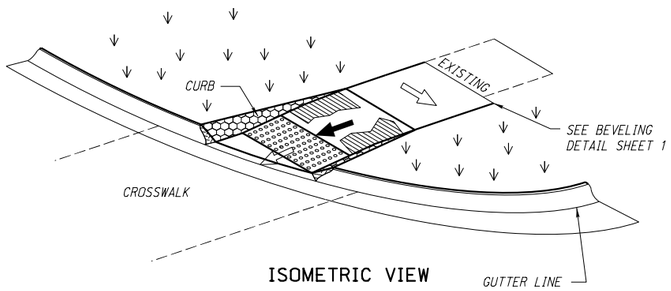
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300e03.dgn

W = WIDTH OF SIDEWALK (5'-0" TYP.)
R1 = RAMP WIDTH (4'-0" MIN.)
R2 = RAMP WIDTH (5'-0" MIN.) WITH VERTICAL OBSTACLE



WHERE W IS 9 FT. OR LESS, R = W (MIN. WIDTH = 4 FT.) WHERE W IS GREATER THAN 9 FT., R = 4 FT., EXCEPT BIKE PATH/TRAIL. SEE NOTE 5 (SHEET 1)

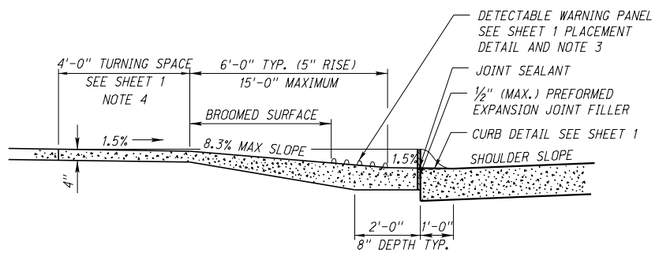
TYPE E PLAN



ISOMETRIC VIEW

LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.



TYPE E CROSS SECTION
SECTION A-A

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
⬅	RAMP RUNNING SLOPE 8.0% TYPICAL, 8.3% MAX. SLOPE
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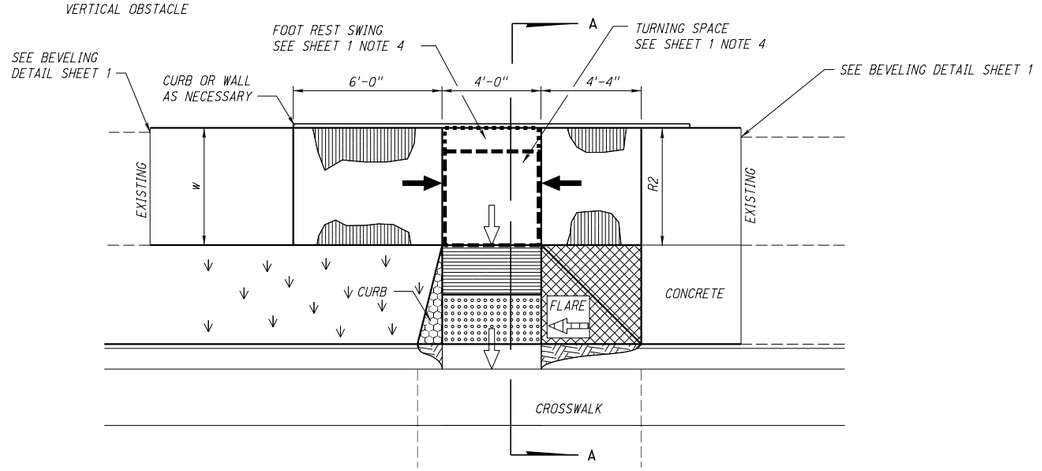
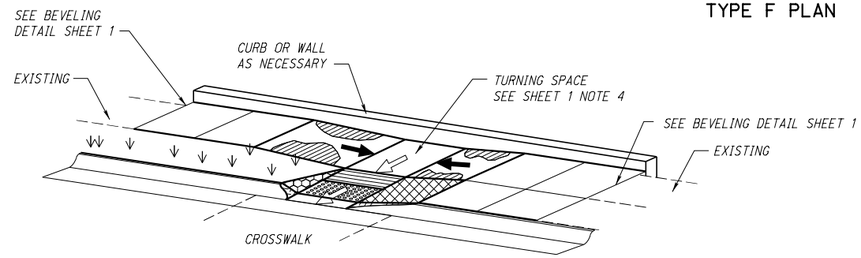
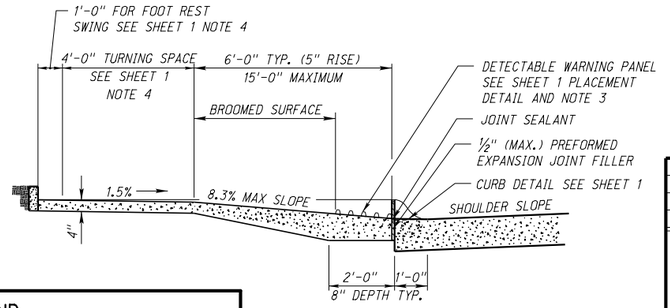


TYPE F PLAN



ISOMETRIC VIEW



TYPE F CROSS SECTION
SECTION A-A

REV. NO.	DATE	DESCRIPTION OF REVISION
R3	JAN 18	NDOR BORDER TO NDOT BORDER
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NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 303-R3

CURB RAMPS

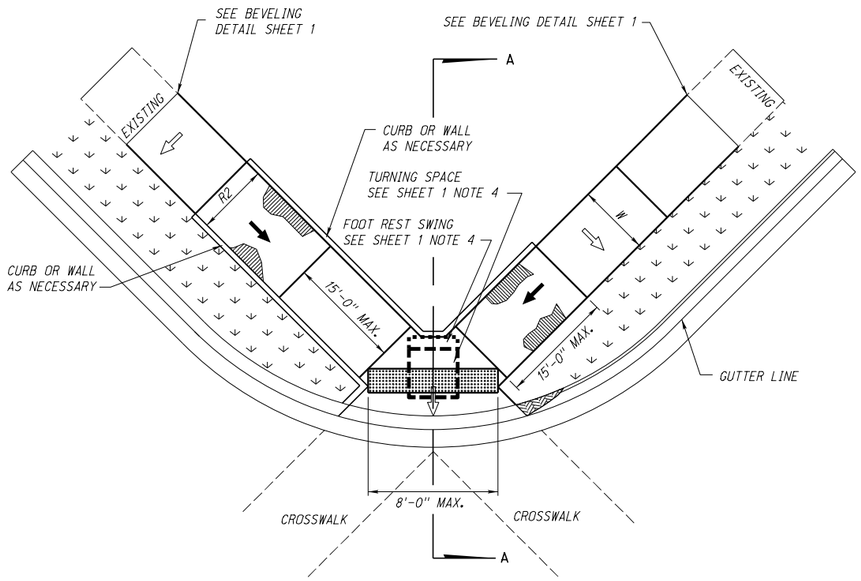
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

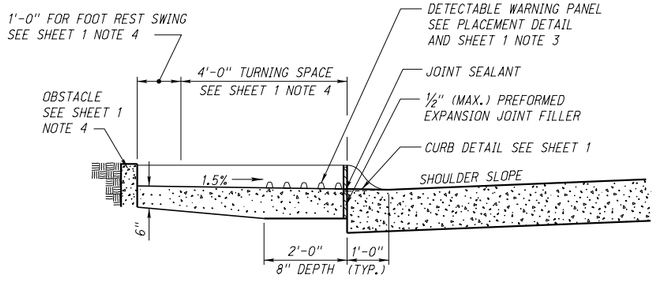
DATE

ORIGINAL: MARCH 22, 2010
DATE

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 30300e03.dgn



TYPE G PLAN



TYPE G CROSS SECTION
SECTION A-A

LEGEND

- DETECTABLE WARNING PANEL
- BROOMED CURB RAMP WHEN 5% TO 8.3%
- RAMP FLARE
- GRASS OR NON WALKING SURFACE
- CURB TRANSITION
- CURB FACE SLOPE 1 VERT. : 2 HORZ.

SLOPE LEGEND

⇦	SIDEWALK/TURNING SPACE AND RAMP CROSS SLOPE 1.5% TYPICAL, 2.0% MAX. SLOPE
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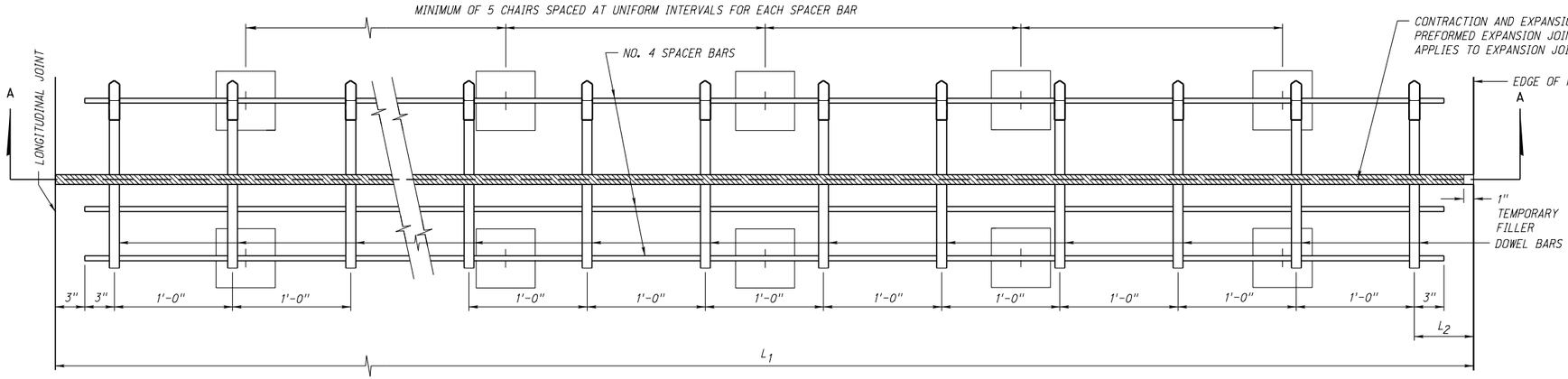
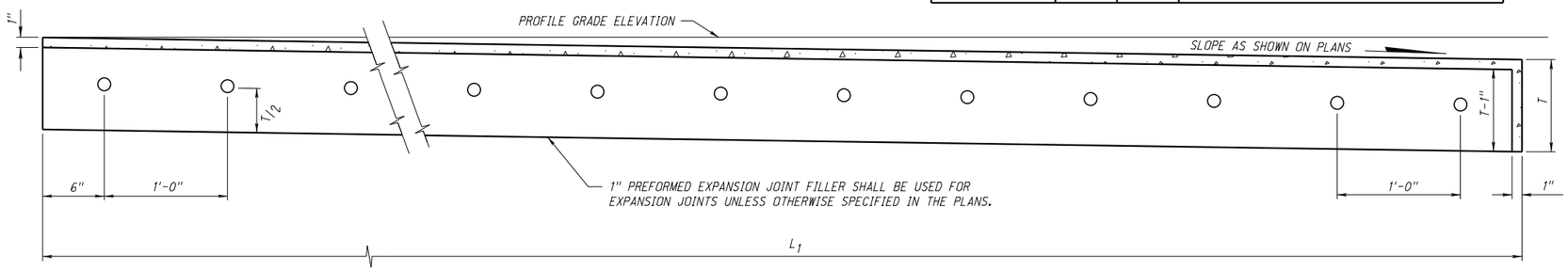


ASSEMBLY PLAN

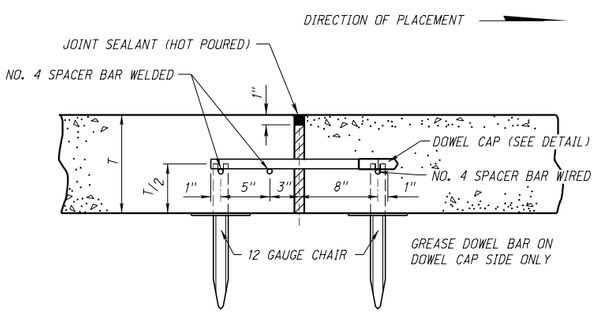
DOWEL BAR HEIGHT AND DIAMETER			
PAVEMENT THICKNESS (T)	MINIMUM BAR DIA.	DOWEL BAR HEIGHT (T/2)	SKEW TOLERANCE
LESS THAN 10"	1¼"	T/2 ± ½"	¼"
10" OR MORE	1½"	T/2 ± ½"	¼"

DOWEL BAR LOCATION TABLE			
L_1	L_2	#BARS	DESCRIPTION
* LESS THAN 12'-0'	6"	VARIES	IRREGULAR AREAS (WIDEN, FILLETS, GORE....)
12'-0"	6"	12	12'-0" PAVEMENT
14'-0"	2'-6"	12	14'-0" PAVEMENT
15'-0"	2'-6"	13	15'-0' PAVEMENT (INCLUDES 3'-0" SHOULDER)
16'-0"	3'-6"	13	16'-0" PAVEMENT (INCLUDES 4'-0" SHOULDER)
16'-0"	6"	16	16'-0" RAMP & LOOPS
LESS THAN 14'-6"	1'-6"	VARIES	PAVEMENT WITH CURB
14'-6" OR MORE	2'-6"	VARIES	

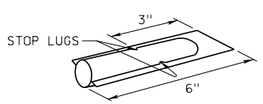


SECTION A-A

CONTRACTION AND EXPANSION JOINTS (PREFORMED EXPANSION JOINTS FILLER APPLIES TO EXPANSION JOINTS ONLY)

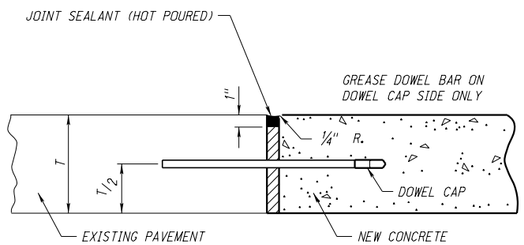


SECTION



DOWEL CAP

EXPANSION JOINT
(SUBSIDIARY)



NOTES:
DOWEL BARS SHALL BE DRILLED TO A DEPTH OF 8" INTO EXISTING PAVEMENT AND EPOXIED.

SECTION

NOTES:

THE CONTRACTOR MAY SUBSTITUTE OTHER DESIGNS FOR EXPANSION AND CONTRACTION JOINT SUPPORTS IN LIEU OF THE TYPE SHOWN WITH PRIOR WRITTEN APPROVAL BY THE ENGINEER.

DOWEL BARS SHALL BE A MINIMUM OF 17¾" IN LENGTH, CENTERED ON JOINTS AND BE SMOOTH BARS.

TIE BARS SHALL BE DEFORMED BARS.

FOR LOAD TRANSFER DEVICES AT EXPANSION JOINTS IN LANES OTHER THAN THE LANES SHOWN, MAINTAIN THE SPACING OF THE 1'-6" DOWEL BARS AT 1 FT. INTERVALS.

THE ENDS OF THE NO. 4 SPACER BARS SHALL NOT BE LESS THAN 3" FROM THE EDGES OF THE PAVEMENT OR THE LONGITUDINAL JOINT.

TIE, DOWEL & SPACER BARS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

KEY TYPE LONGITUDINAL JOINTS AND TRANSVERSE CONSTRUCTION JOINTS SHALL BE EDGED WITH ¼" R. AT TIME OF CONCRETE PLACEMENT.

CONCRETE PAVEMENT SHALL BE TINED UNLESS OTHERWISE SHOWN IN THE PLANS.

EXPANSION JOINTS SHALL BE INSTALLED AT LOCATIONS SHOWN IN THE PLANS.

PAVEMENT PLACED ADJACENT TO R.R. TRACKS REQUIRES 3-EXPANSION JOINTS SPACED AT APPROXIMATELY 49'-6" INTERVALS.

EXPANSION JOINTS SHALL NOT BE SKEWED.

T= PAVEMENT THICKNESS

* *THE DEPARTMENT REQUIRES THAT DOWEL BASKETS BE PLACED IN ALL CONTRACTION JOINTS WHICH ARE 6'-0" OR WIDER. THE DOWEL BASKETS SHALL BE PLACED TRANSVERSE TO THE DIRECTION OF THE PREDOMINANT TRAFFIC DIRECTION.*

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
R10	JAN 18	CHANGED DOWEL BAR LOCATION TABLE
R9	JUL 11	JOINT: EARLY SAW CUT

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

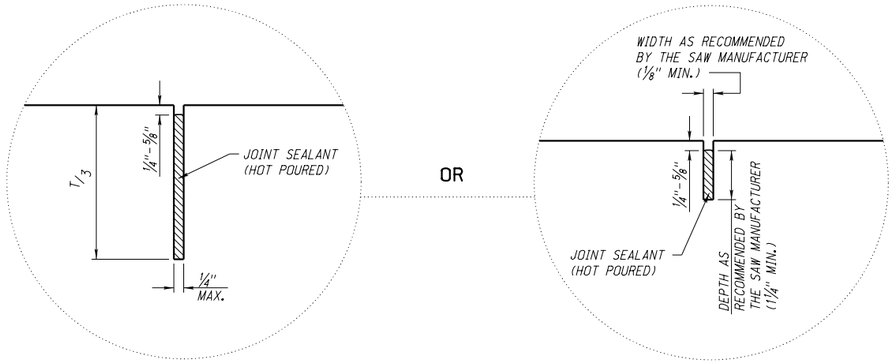
PROFESSIONAL CIVIL ENGINEER * MICK S. SYSLO E-10043 * STATE OF NEBRASKA

DATE

ORIGINAL: OCTOBER 25, 1994
DATE

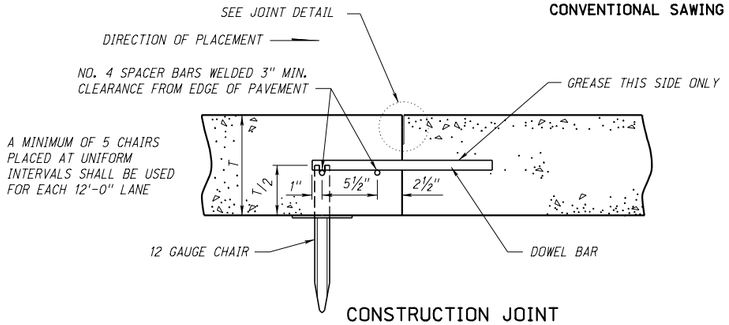
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 329006e11.dgn

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN34
Date: 29-JUN-2021 09:18
File: 329001.dgn



CONVENTIONAL SAWING

EARLY-SAW CUT

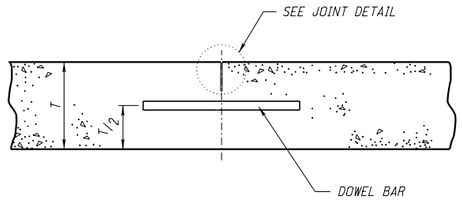


CONSTRUCTION JOINT

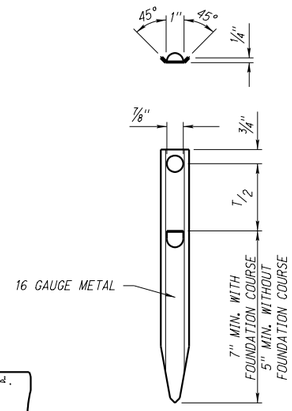
(BARS ARE SUBSIDIARY) TO PAVEMENT

JOINT DETAIL

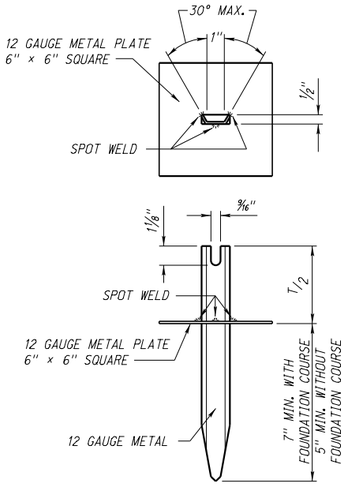
THE DOWEL BAR SPACING SHALL BE THE SAME AS SHOWN FOR THE EXPANSION JOINT. REFER TO DOWEL BAR LOCATION TABLE AND THE DOWEL BAR HEIGHT AND DIAMETER TABLE ON SHEET 1 OF 4.



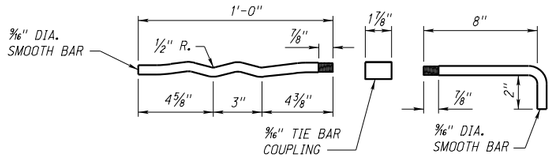
CONTRACTION JOINT



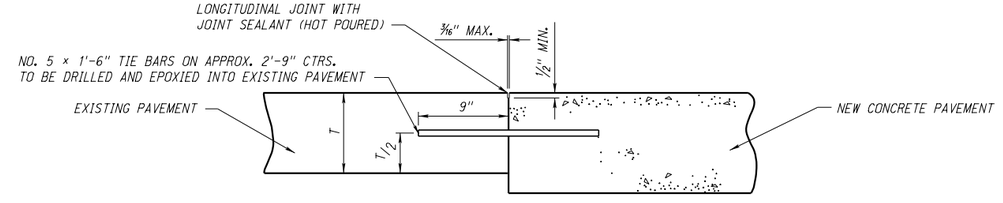
TIE BAR PIN



CHAIR

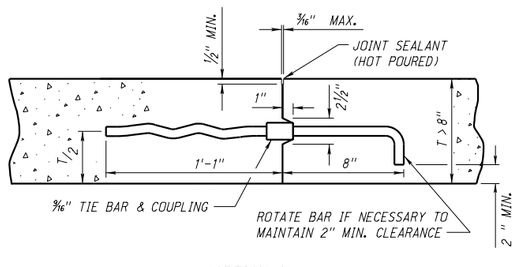


DETAILS OF "W" BAR



TIE BARS ARE TO BE INSTALLED WHERE NEW CONCRETE PAVEMENT IS PLACED ADJACENT TO EXISTING CONCRETE PAVEMENT

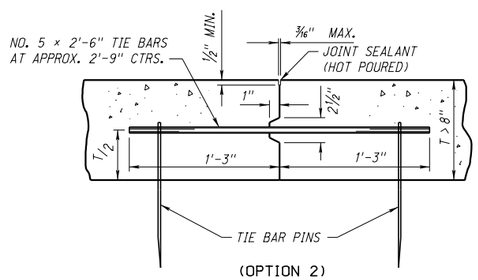
DETAILS OF TIE BAR



(OPTION 1)

KEY TYPE

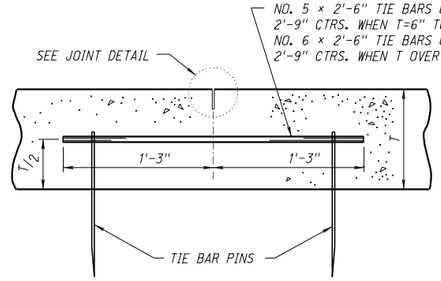
NO. 5 HOOK AND W-BARS AT APPROX. 2'-9" CTRS. OR 3/16" HOOK AND W-BARS AT APPROX. 2'-9" CTRS.



(OPTION 2)

KEY TYPE

KEY TYPE JOINT SHALL BE USED ON ALL LONGITUDINAL CONSTRUCTION JOINTS WHEN THE ADJACENT LANE IS NOT PLACED AT THE SAME TIME



SAWED

WHEN TWO ADJACENT LANES ARE PLACED AT THE SAME TIME, THE LONGITUDINAL JOINT COMMON TO THE LANES SHALL BE SAWED

LONGITUDINAL JOINTS

NOTE:
NO TIE BARS SHALL BE CLOSER THAN 1'-3" TO A TRANSVERSE JOINT. ALL LONGITUDINAL JOINTS BETWEEN LANES AND BETWEEN LANES AND SHOULDERS MUST BE TIED. MEDIAN SHOULD NOT BE TIED.

NOTE: T = PAVEMENT THICKNESS

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
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NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

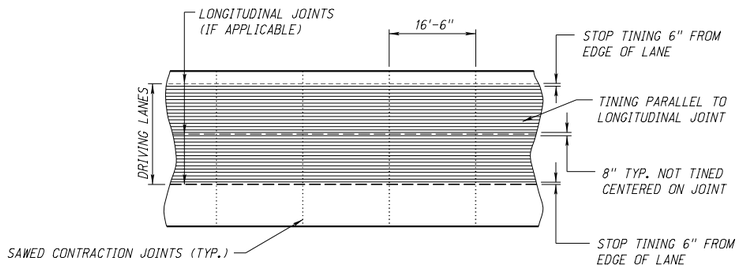
8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

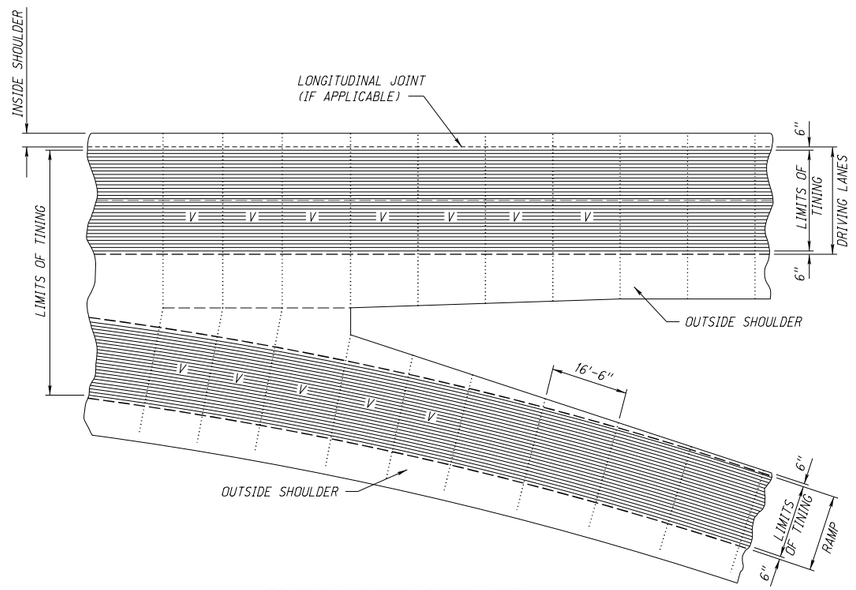
DATE

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

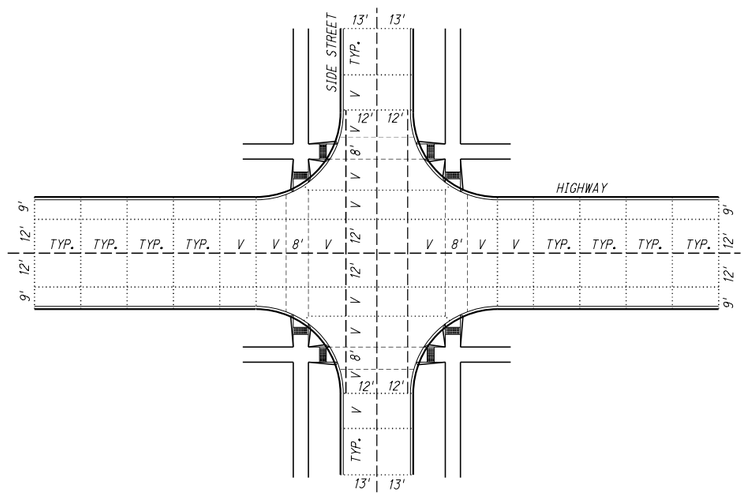
ORIGINAL: OCTOBER 25, 1994
DATE



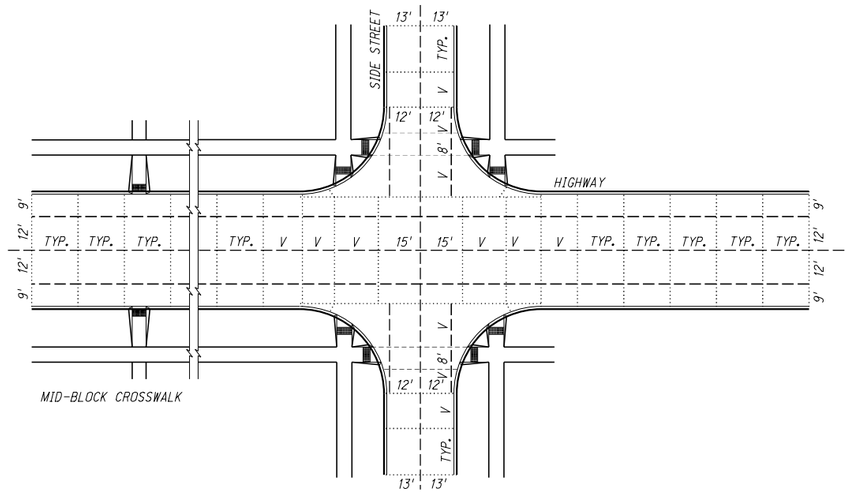
TINING WITH CONCRETE SHOULDER



TINING LIMITS GORE AREA



STOP OR YIELD CONTROL ON ALL FOUR LEGS



STOP OR YIELD CONTROL ON THE SIDE STREETS ONLY

NOTES:

TINING IS REQUIRED FOR PAVEMENT WITH POSTED SPEEDS GREATER THAN 40 MPH (INCLUDING TURN LANES).

16'-6" TRANSVERSE JOINT SPACING IS THE STANDARD JOINT SPACING REGARDLESS OF THE PAVEMENT THICKNESS.

V VARIES FROM 10'-0" TO MAX. 16'-6".

THE LONGITUDINAL JOINT BETWEEN THE SHOULDER AND THE 12'-0" DRIVING LANE IS NOT REQUIRED FOR SHOULDER WIDTHS OF 4'-0" OR LESS.

TRANSVERSE JOINTS FOR DOWELED CONCRETE PAVEMENT SHALL BE CONSTRUCTED PERPENDICULAR TO THE ROADWAY.

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
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NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL:
OCTOBER 25, 1994
DATE

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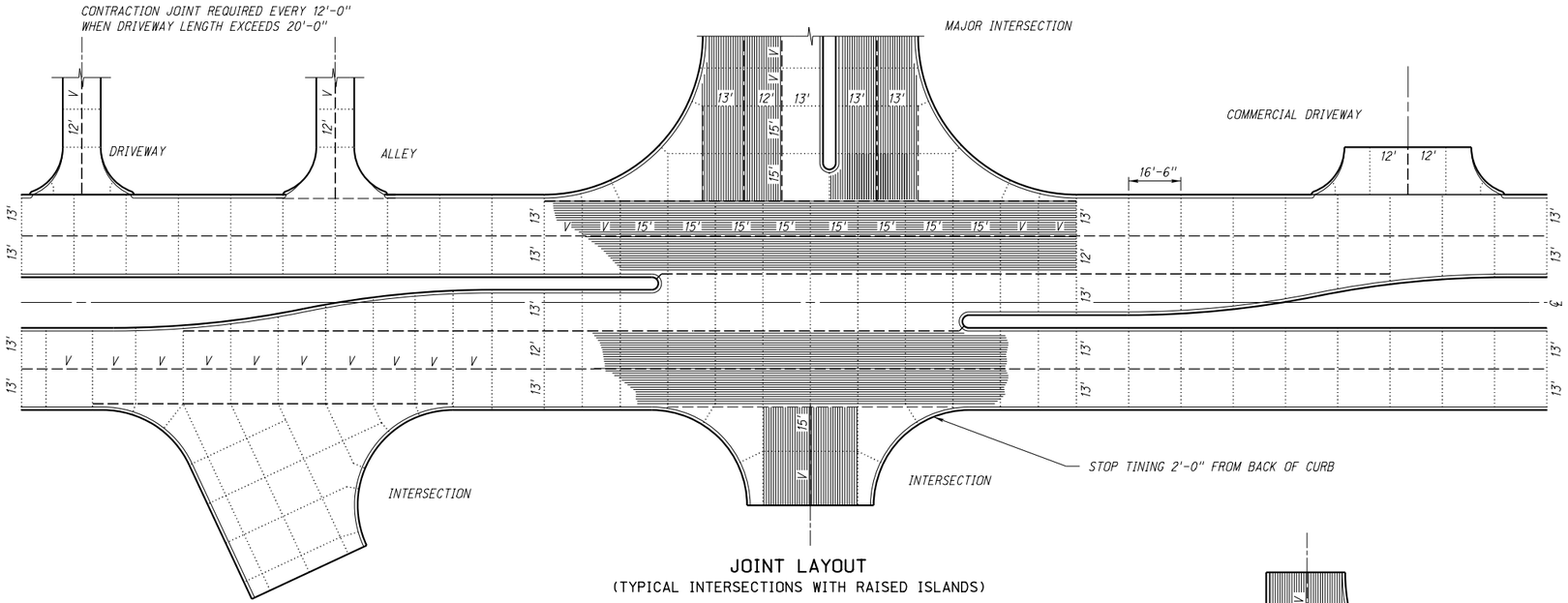
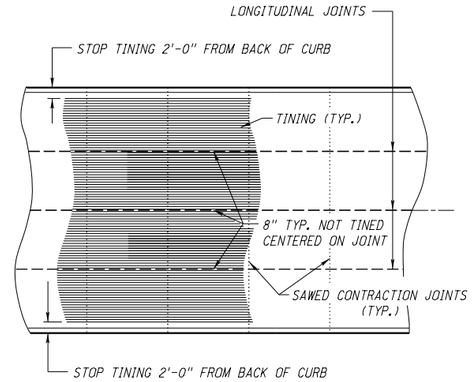
4

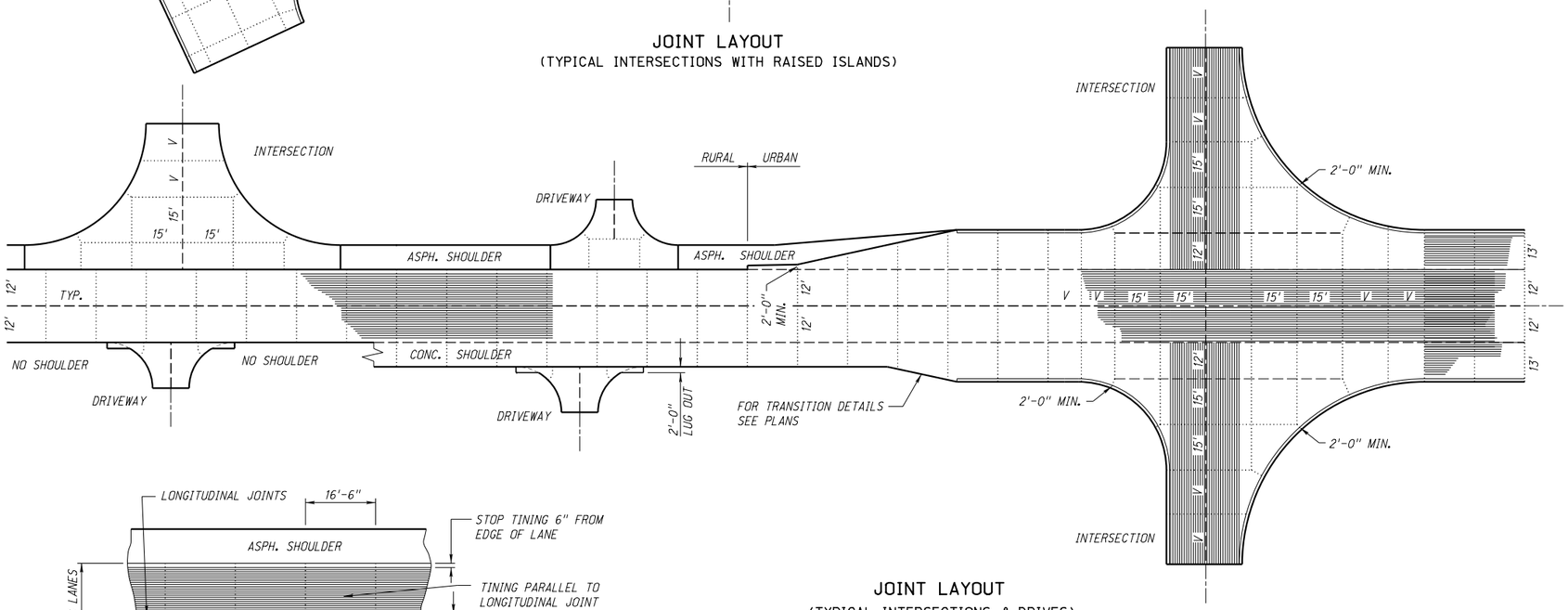
File: 32900e11.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134



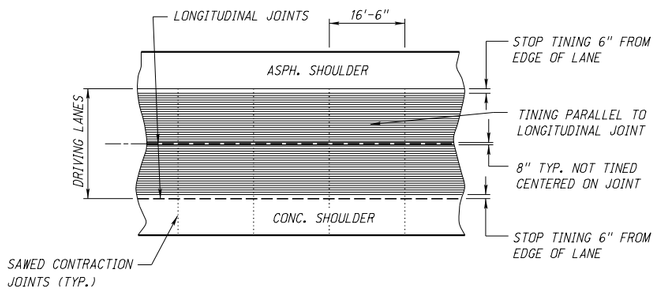
JOINT LAYOUT
(TYPICAL INTERSECTIONS WITH RAISED ISLANDS)



TINING LIMITS



JOINT LAYOUT
(TYPICAL INTERSECTIONS & DRIVES)



RURAL TINING LIMITS WITH SURFACED SHOULDERS

LEGEND

SAWED CONTRACTION JOINT

LONGITUDINAL JOINT

NOTES:

TINING IS REQUIRED FOR PAVEMENT WITH POSTED SPEEDS GREATER THAN 40 MPH (INCLUDING TURN LANES).

16'-6" TRANSVERSE JOINT SPACING IS THE STANDARD JOINT SPACING REGARDLESS OF THE PAVEMENT THICKNESS.

V VARIES FROM 10'-0" TO MAX. 16'-6".

VARIABLE SPACING IS USED AROUND INTERSECTIONS AND LARGE DRIVEWAYS WHICH IS TIED TO THE CONCRETE LANES OR SHOULDERS TO MATCH THE JOINTS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R11	JUL 20	CHANGED TINING INFORMATION
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NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 329-R11

8 TO 16 INCH CONCRETE PAVEMENT

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL:
OCTOBER 25, 1994
DATE

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Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 41100e02.dgn

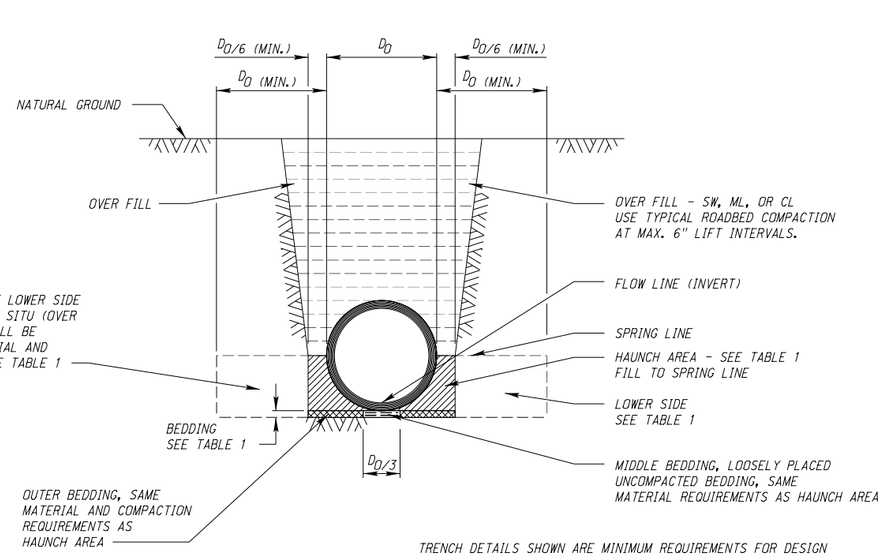
TABLE 1 - CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION, USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML, 100% CL, OR NATURAL SOILS OF EQUAL FIRMNESS
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML, 95% CL, OR NATURAL SOILS OF EQUAL FIRMNESS
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML, 95% CL, OR NATURAL SOILS OF EQUAL FIRMNESS

TABLE 1 NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

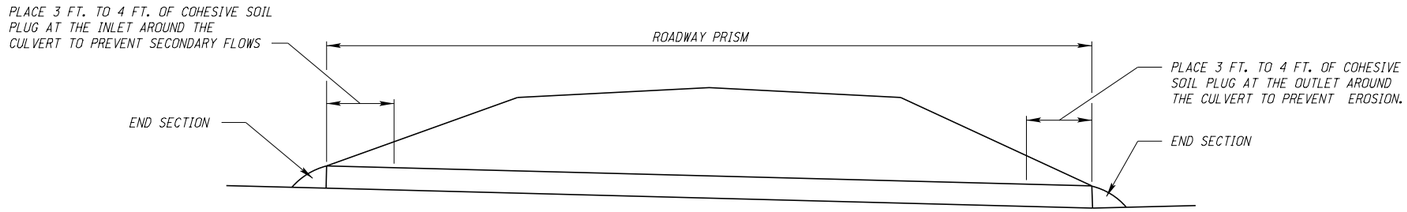
MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.



TRENCH DETAILS SHOWN ARE MINIMUM REQUIREMENTS FOR DESIGN AND CONSTRUCTION. PAYMENT FOR EXCAVATION IS BASED UPON THE GUIDELINES IN THE STANDARD SPECIFICATIONS.

TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH APPROVED SAFETY PRACTICE.

TYPICAL TRENCH INSTALLATION



LIMITS OF BEDDING AND BACKFILL

EXCAVATION, BEDDING AND EMBANKMENT SEQUENCE:

TRENCH INSTALLATION:

(A) DETERMINE THE FLOW LINE AND TRENCH BOTTOM ELEVATIONS.

(B) DETERMINE THE SHAPE OF TRENCH. DECIDE IF SHORING IS NEEDED. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE SAFETY OF ALL WORKERS, EQUIPMENT AND MATERIALS IN THE TRENCH.

(C) PLACE THE BEDDING MATERIAL (SEE CONCRETE - TABLE 1) LOOSELY.

(D) PLACE PIPE ON THE BEDDING AND COMPACT OUTER BEDDING, (SEE TABLE 1).

(E) PLACE AND COMPACT THE LOWER SIDE, HAUNCH AND OVERFILL MATERIAL AT 6 IN. INTERVALS.

EMBANKMENT INSTALLATION:

(A) DETERMINE THE FLOW LINE AND SPRING LINE ELEVATION.

(B) IF FLOW LINE IS ABOVE THE NATURAL GROUND, PLACE AN EMBANKMENT AT LEAST 3DO WIDE WITH 3:1 FORESLOPES OR FLATTER AT SPRING LINE ELEVATION, COMPACTED AT ROADBED REQUIRED COMPACTION.

(C) IF THE FLOW LINE IS BELOW THE NATURAL GROUND BUT THE SPRING LINE IS ABOVE THE NATURAL GROUND, PLACE THE EMBANKMENT SIMILAR TO THE ONE IN STEP B.

(D) EXCAVATE TO PROPER ELEVATION.

(E) PLACE BEDDING MATERIAL (SEE TABLE 1) LOOSELY.

(F) PLACE THE PIPE ON THE BEDDING MATERIAL AND COMPACT OUTER BEDDING MATERIAL (SEE CONCRETE - TABLE 1).

(G) PLACE AND COMPACT THE HAUNCH, LOWER SIDE AND OVERFILL MATERIAL AT 6 IN. INTERVALS.

NOTES FOR TRENCH INSTALLATIONS:

1. *COMPACTION AND SOIL SYMBOLS, I.E. 95% SW, REFER TO SW SOIL MATERIAL WITH MINIMUM STANDARD PROCTOR COMPACTION OF 95%.*
2. *THE TRENCH TOP ELEVATION SHALL BE NO LOWER THAN 1 FT. BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.*
3. *SOIL IN BEDDING AND HAUNCH ZONES SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS SPECIFIED FOR THE MAJORITY OF SOIL IN THE BACKFILL ZONES.*
4. *THE TRENCH WIDTH SHALL BE WIDER THAN SHOWN IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.*
5. *FOR TRENCH WALLS THAT ARE WITHIN 10 DEGREES OF VERTICAL, THE COMPACTION OR FIRMNESS OF THE SOIL IN THE TRENCH WALLS AND LOWER SIDE ZONE NEED NOT TO BE CONSIDERED.*
6. *FOR TRENCH WALLS WITH GREATER THAN 10 DEGREE SLOPES THAT CONSIST OF EMBANKMENT, THE LOWER SIDE SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS SPECIFIED FOR THE SOIL IN THE BACKFILL ZONE.*

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

1/4

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 411006d02.dgn

TABLE 1 - CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION, USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML OR 100% CL
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML OR 95% CL
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML OR 95% CL

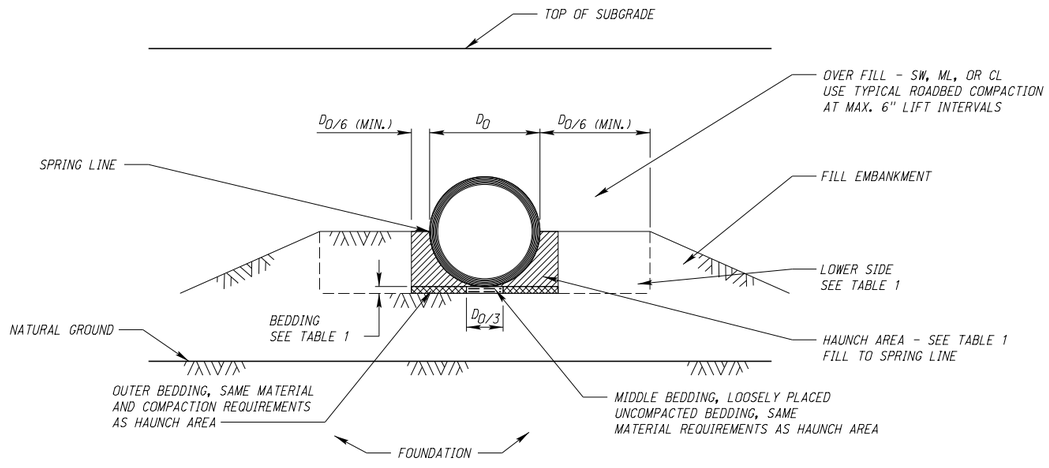
TABLE 1 NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.

TABLE 2 - CONCRETE PIPE DIMENSIONS

NOMINAL PIPE DIAMETER (INCHES)	STANDARD OUTSIDE PIPE DIAMETER, DO (SPAN)			
	ROUND PIPE	ARCH PIPE	H. ELLIP. PIPE	V. ELLIP. PIPE
15	19.5	22.5		
18	23	27	28.5	
21	26.5	31.5		
24	30	34.5	36.5	
27	33.5		41	
30	37	43.25	45.5	
36	44	51.75	54	38
42	51	60.13	63	44
48	58	68.5	71	49
54	65	76	80	55
60	72	85	89	61
66	79		97	67
72	86	102	106	73
78	93		114	79
84	100	118	123	85
90	107			
96	114			
102	121			
108	128			



TYPICAL EMBANKMENT INSTALLATION

TABLE 3 SOIL CLASSIFICATION FOR BEDDING & BACKFILL

ASTM SOIL GROUP SYMBOL D 2487	DESCRIPTION	PERCENTAGE PASSING SIEVE SIZES		
		1½ IN.	NO. 4	NO. 200
SW	WELL GRADED SANDS AND GRAVELLY-SANDS: LITTLE OR NO FINES. NON PLASTIC	100%	> 50% OF "COURSE FRACTION"	< 5%
ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY-FINE-SANDS, SILTS WITH SLIGHT PLASTICITY		100%	> 50%
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELY-CLAYS, SANDY-CLAYS, SILTY-CLAYS, LEAN CLAYS			

NOTES FOR EMBANKMENT INSTALLATIONS:

1. COMPACTION AND SOIL SYMBOLS, I.E. 95% SW, REFER TO SW SOIL MATERIAL WITH A MINIMUM STANDARD PROCTOR COMPACTION OF 95%.

2. SOIL IN THE OUTER BEDDING, HAUNCH, AND LOWER SIDE ZONES, EXCEPT WITHIN THE $D_O/3$ MIDDLE BEDDING, SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS THE MAJORITY OF THE SOIL IN THE OVERFILL ZONES.

3. SUBTRENCHES

3.1 A SUBTRENCH IS DEFINED AS A TRENCH WITH ITS TOP AT AN ELEVATION LOWER THAN 1 FT. BELOW THE BOTTOM OF THE PAVEMENT BASE MATERIAL.

3.2 THE MINIMUM WIDTH OF A SUBTRENCH SHALL BE 1.33DO, OR WIDER IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.

3.3 FOR SUBTRENCHES WITH WALLS OF NATURAL SOIL, ANY PORTION OF THE LOWER SIDE ZONE IN THE SUBTRENCH WALL SHALL BE AT LEAST AS FIRM AS AN EQUIVALENT SOIL PLACED TO THE COMPACTION REQUIREMENTS SPECIFIED FOR THE LOWER SIDE ZONE, AND AS FIRM AS THE MAJORITY OF SOIL IN THE OVERFILL ZONE, OR SHALL BE REMOVED AND REPLACED WITH SOIL COMPACTED TO THE SPECIFIED LEVEL.

GENERAL NOTES:

WHEN IN-SITU LATERAL SOIL RESISTANCE IS NEGLIGIBLE, E.G. PEAT, MUCK, OR HIGHLY EXPANSIVE SOIL, EMBEDMENT SHALL BE PLACED AND COMPACTED AT THE DIRECTION OF THE ENGINEER.

TO PROTECT THE PIPE AND BACKFILL DURING CONSTRUCTION, PROVIDE A MINIMUM OF 36" OF COMPACTED FILL MATERIAL OVER THE TOP OF THE PIPE BEFORE ALLOWING ANY HEAVY EQUIPMENT TO TRAVERSE OVER THE PIPE. EXTREMELY HEAVY EQUIPMENT MAY REQUIRE LARGER COVER AS DETERMINED BY THE CONTRACTOR.

THE PIPE VOLUME SHOULD NOT BE SUBTRACTED FROM THE VOLUME OF EXCAVATION.

THESE DESIGN STANDARDS ARE MINIMUM. IF A MORE RESTRICTIVE DESIGN IS REQUIRED BY THE ENGINEER OR CULVERT MANUFACTURER, THEN THESE STANDARDS SHALL BE MODIFIED. CHANGES TO PAY ITEM QUANTITIES DUE TO UNFORESEEN SITE CONDITIONS SHALL BE CALCULATED AND INCORPORATED INTO THE CONTRACT THRU A CHANGE ORDER.

BOTH ENDS OF THE PIPE SHALL BE SEALED WITH COHESIVE SOIL (AROUND THE PIPE EXTENDING 3 FT. TO 4 FT. FROM EACH END) TO PROTECT AGAINST INFILTRATION AND EROSION.

BEDDING AND BACKFILL MATERIAL IS NOT PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO THE LINEAR FEET OF CULVERT.

BEDDING AND BACKFILL MATERIAL SHALL MEET ASTM D 2487 (SOIL GROUPS AS SHOWN IN TABLE 3).

PERCENT COMPACTION SHALL BE DETERMINED IN ACCORDANCE WITH NDOR STANDARD TEST METHOD T 99.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

2
4

ROADWAY DESIGN DIVISION

TABLE 1 – CONCRETE STANDARD INSTALLATIONS, SOILS AND MINIMUM COMPACTION REQUIREMENTS

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH AND OUTER BEDDING	LOWER SIDE
TYPE 1	$D_O/24$ MINIMUM, NOT LESS THAN 3" IF ROCK FOUNDATION,USE $D_O/12$ MINIMUM, NOT LESS THAN 6".	95% SW	90% SW, 95% ML OR 100% CL
TYPE 2		90% SW OR 95% ML	85% SW, 90% ML OR 95% CL
*TYPE 3		85% SW, 90% ML, OR 95% CL	85% SW, 90% ML OR 95% CL

NOTES:

** THE TYPE 3 INSTALLATION (SHADED) IN TABLE 4 IS THE NDOR MINIMUM STANDARD, USING EITHER A SHAPED TRENCH ACCORDING TO THE STANDARD SPECIFICATIONS, OR AT THE OPTION OF THE CONTRACTOR, THE BEDDING WITH COMPACTIONS AS SHOWN.*

MAXIMUM FILL HEIGHTS FOR THE TYPE 1, 2, AND 3 INSTALLATIONS ARE SHOWN IN TABLE 4.

INSTALLATION TYPE 2 AND TYPE 1 ARE IMPROVED METHODS IN ORDER TO SUPPORT HIGHER FILL HEIGHTS USING CLASS III, IV, AND V CIRCULAR CONCRETE PIPE. INSTALLATION TYPE I WILL PROVIDE THE BEST IN-SITU PERFORMANCE USING GREATER COMPACTION WITH GRANULAR BEDDING AND BACKFILL. THE CONTRACTOR WILL CHOOSE THE INSTALLATION TYPE AND CLASS OF PIPE. ACTUAL PROJECT FILL HEIGHTS MUST BE KNOWN IN ORDER TO USE TABLE 4.

ROUND EQUIVALENT, NON-CIRCULAR PIPE SUCH AS ARCH OR ELLIPTICAL PIPE, MAY BE SELECTED, PROVIDED SUCH PIPE ARE DESIGNED AND MANUFACTURED TO THE SAME D-LOADS AND ULTIMATE STRENGTHS (SEE TABLE 5) AS THE SELECTED CIRCULAR PIPE FROM THE FILL HEIGHT TABLE.

TABLE 4 MAXIMUM FILL HEIGHTS (FEET) FOR STANDARD DESIGN (AASHTO M 170) ROUND CONCRETE PIPE

	INSTALLATION TYPE 3* (NDOR STANDARD)			INSTALLATION TYPE 2			INSTALLATION TYPE 1		
PIPE SIZE (IN.)	CLASS III	CLASS IV	CLASS V	CLASS III	CLASS IV	CLASS V	CLASS III	CLASS IV	CLASS V
15	12	15	21	15	19	26	23	28	40
18	12	17	24	16	22	30	24	32	45
21	13	19	26	16	24	32	25	37	48
24	13	19	26	17	24	33	25	32	45
27	13	17	26	17	21	34	23	26	51
30	12	14	25	15	17	32	20	21	49
36	10	16	24	13	21	31	20	31	47
42	10	15	23	13	19	29	20	29	44
48	10	14	22	13	18	29	20	28	43
54	10	14		13	17		20	27	
60	9	14		12	18		19	28	
66	9	14		12	18		19	28	
72	9	14		12	18		19	28	
78	9			12			19		
84	9			12			19		
90	9			12			20		
96	9			12			19		
102	10			13			20		
108	10			14			22		

TABLE 4 NOTES:

AASHTO M 170 SPECIFICATIONS ARE MODIFIED AS FOLLOWS:

ONLY SINGLE INNER CAGE, CIRCULAR REINFORCING IS ALLOWED FOR CLASS III, 15", 18", 21", AND 24" ROUND RCP AS SHOWN:

PIPE SIZE (IN.)	CLASS	MINIMUM CIRCUMFERENTIAL REINFORCING ($IN.^2$/FT. OF PIPE WALL)
15	III	0.08
18	III	0.10
21	III	0.12
24	III	0.14

APPLICABLE SPECIFICATIONS:

AASHTO M 170---ROUND RCP
AASHTO M 206---ARCH RCP
AASHTO M 207---ELLIPTICAL RCP

GENERAL NOTES:

FILL HEIGHTS SHOWN IN TABLE 4 WERE DEVELOPED USING ASCE STANDARDS FOR DIRECT DESIGN OF BURIED PRECAST CONCRETE PIPE, MANUFACTURED IN ACCORDANCE WITH AASHTO M 170 SPECIFICATION REQUIREMENTS (SEE TABLE 4 FOOTNOTE FOR EXCEPTIONS). FILL HEIGHTS SHOWN APPLY ONLY TO ROUND PIPE (UNDER FULL FLOW CONDITIONS), USED UNDER RIGID AND FLEXIBLE PAVEMENT, WITH SOIL OVERFILL WEIGHING 120 POUNDS PER CUBIC FOOT. UNDER SPECIAL CIRCUMSTANCES (WHERE PAVEMENT IS NOT USED AND LIVE LOAD BECOMES CRITICAL, OR DIFFERENT SOIL DENSITY IS ENCOUNTERED, OR THE ONE FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE PAVEMENT TO THE TOP OF THE PIPE CANNOT BE MAINTAINED) THESE FILL HEIGHTS MAY NEED TO BE MODIFIED. DEEPER FILL HEIGHTS MAY BE USED BY SUBMITTING A SPECIAL STANDARD INSTALLATION DIRECT DESIGN (SIDD) FOR NDOR APPROVAL.

CONCRETE PIPE DESIGNS THAT ARE NOT SHOWN IN APPLICABLE AASHTO SPECIFICATIONS WILL BE CONSIDERED SPECIAL DESIGNS THAT MUST BE SUBMITTED TO NDOR FOR APPROVAL.

TABLE 5 D-LOADS FOR CONCRETE PIPE

PIPE CLASS	III	IV	V
D-LOAD TO PRODUCE A 0.01-IN. CRACK	1350	2000	3000
D-LOAD TO PRODUCE THE ULTIMATE LOAD	2000	3000	3750

NOTES:

LOAD ON PIPE IN POUNDS PER LINEAR FOOT = D-LOAD X INSIDE SPAN IN FEET D-LOAD = TEST LOAD EXPRESSED IN POUNDS-FORCE PER LINEAR FOOT PER FOOT OF DIAMETER

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

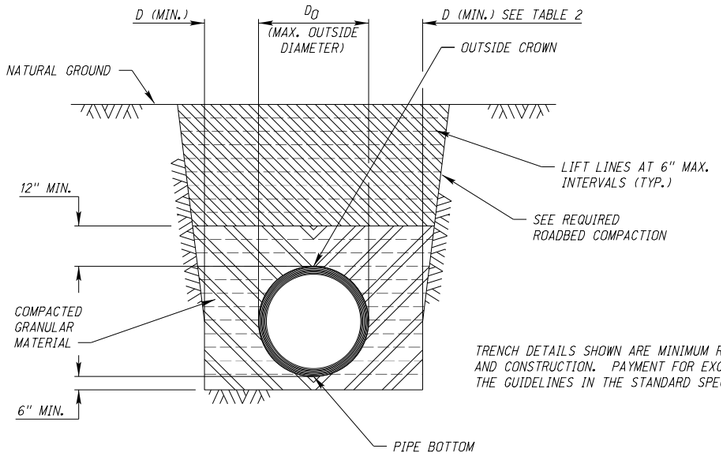
PROFESSIONAL CIVIL ENGINEER * MICK S. SYSLO E-10043 * STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

File: 41100e02.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134

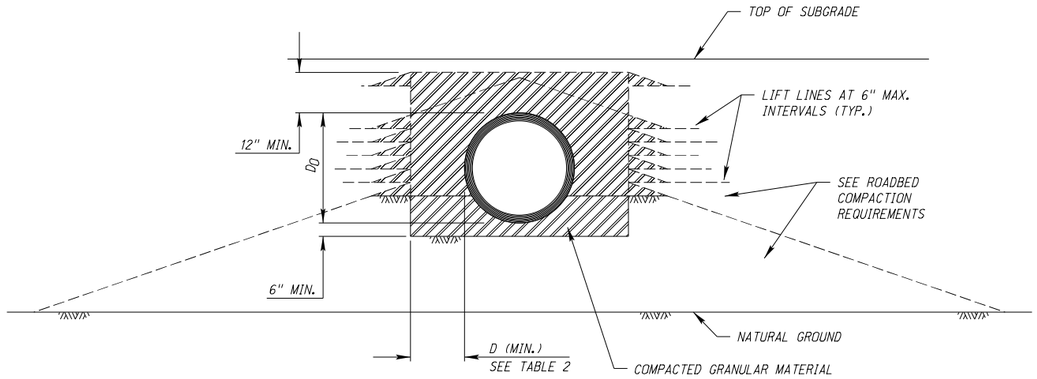
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 41100e02.dgn



TRENCH DETAILS SHOWN ARE MINIMUM REQUIREMENTS FOR DESIGN AND CONSTRUCTION. PAYMENT FOR EXCAVATION IS BASED UPON THE GUIDELINES IN THE STANDARD SPECIFICATIONS.

TRENCHES SHALL BE EXCAVATED IN ACCORDANCE WITH APPROVED SAFETY PRACTICE.

TYPICAL TRENCH INSTALLATION



TYPICAL EMBANKMENT INSTALLATION

TABLE 1 - PLASTIC
SOIL CLASSIFICATION FOR GRANULAR FILL MATERIAL

SOIL GROUP SYMBOL D 2487	DESCRIPTION	% PASSING SIEVE SIZES		
		1½ IN.	NO. 4	NO. 200
GW	WELL GRADED GRAVEL AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.	100%	< 50% OF COARSE FRACTION	< 5%
GP	POORLY GRADED GRAVEL AND GRAVEL-SAND MIXTURES; LITTLE OR NO FINES.			
SW	WELL GRADED SAND AND GRAVEL-SANDS; LITTLE OR NO FINES.		> 50% OF COARSE FRACTION	
SP	POORLY GRADED SAND AND GRAVEL-SANDS; LITTLE OR NO FINES.			
E.G. GW-GC SP-SM	SAND AND GRAVELS WHICH ARE BORDER LINE BETWEEN CLEAN AND WITH FINES.	100%	VARIES	5% TO 12%
GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES.	100%	< 50% OF COARSE FRACTION	12% TO 50%
GC	CLAYEY-GRAVEL, GRAVEL-SAND-CLAY MIXTURES.			
SM	SILTY SANDS, SAND-SILT MIXTURES.		> 50% OF COARSE FRACTION	

TABLE 2 - PLASTIC
MINIMUM D (INCHES)

NOMINAL PIPE DIAMETER (INCHES)	TRENCH INSTALLATION		EMBANKMENT INSTALLATION	
	METAL PIPE	PLASTIC PIPE	METAL PIPE	PLASTIC PIPE
15	11	11	15	15
18	12	12	18	18
24	13	13	24	24
30	15	15	24	24
36	17	17	24	24
42	24	24	24	24
48	24	24	24	24
54	24	24	24	24
60	24	24	24	24
66	24		24	
72	24		24	
78	24		24	
84	24		24	

NOTES:

INSTALLATIONS AS SHOWN ARE REQUIRED UNDER ALL SURFACED ROADWAYS. BEDDING AND BACKFILL FOR DRIVE PIPE OR OTHER PIPE OUTSIDE THE ROADWAY PRISM (OR BACK OF CURB-LINE FOR URBAN PROJECTS) MAY BE INSTALLED USING SUITABLE EXISTING SOIL, PLACED AND COMPACTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

WHERE IN-SITU LATERAL SOIL RESISTANCE IS NEGLIGIBLE E.G. PEAT, MUCK, OR HIGHLY EXPANSIVE SOIL, EMBEDMENT SHALL BE PLACED AND COMPACTED AT THE DIRECTION OF THE ENGINEER.

TO PROTECT THE PIPE AND BACKFILL DURING CONSTRUCTION, PROVIDE A MINIMUM OF 36" OF COMPACTED FILL MATERIAL OVER THE TOP OF THE PIPE BEFORE ALLOWING ANY HEAVY EQUIPMENT TO TRAVERSE OVER THE PIPE. EXTREMELY HEAVY EQUIPMENT MAY REQUIRE LARGER COVER AS DETERMINED BY THE CONTRACTOR.

PIPE VOLUME SHOULD NOT BE SUBTRACTED FROM THE VOLUME OF EXCAVATION.

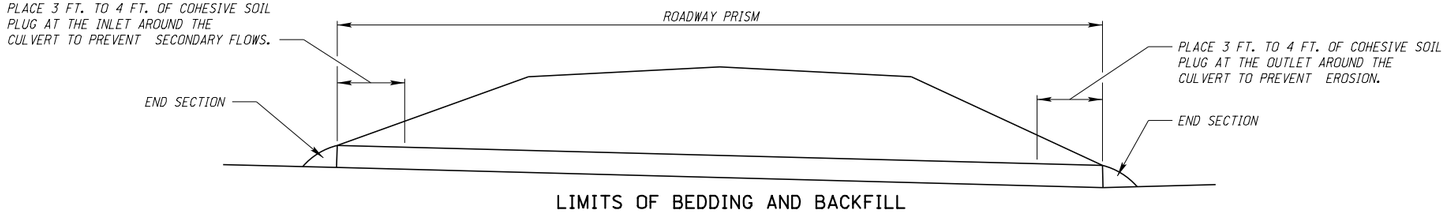
THESE DESIGN STANDARDS ARE MINIMUM. IF A MORE RESTRICTIVE DESIGN IS REQUIRED BY THE ENGINEER OR THE CULVERT MANUFACTURER, THEN THESE STANDARDS SHALL BE MODIFIED. CHANGES TO PAY ITEM QUANTITIES DUE TO UNFORESEEN SITE CONDITIONS SHALL BE CALCULATED AND INCORPORATED INTO THE CONTRACT BY A CHANGE ORDER.

EXPOSED ENDS OF THE PIPE SHALL BE SEALED WITH COHESIVE SOIL (AROUND THE PIPE EXTENDING 3 FT. TO 4 FT. FROM EACH END) TO PROTECT AGAINST INFILTRATION AND EROSION.

GRANULAR FILL MATERIAL IS NOT PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO THE LINEAR FEET OF CULVERT.

GRANULAR MATERIAL SHALL MEET ASTM D 2487 (SOIL GROUP AS SHOWN IN TABLE 1). MATERIAL SHALL BE COMPACTED TO AT LEAST 90% PROCTOR TEST DENSITY.

PERCENT COMPACTION SHALL BE DETERMINED IN ACCORDANCE WITH NDOR STANDARD TEST METHOD T 99.



LIMITS OF BEDDING AND BACKFILL

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN. 18	NDOR BORDER TO NDOT BORDER
R1	OCT. 14	UP TO 60" PLASTIC ALLOWED IN ALL OF TABLE 1 - PLASTIC

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 411-R2

BEDDING AND BACKFILL REQUIREMENTS FOR MCCMP, PCCMP, & PLASTIC PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICK S. SYSLO
E-10043
STATE OF NEBRASKA

DATE

ORIGINAL: JUNE 6, 2008
DATE

4/4

ROADWAY DESIGN DIVISION
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Date: 29-JUN-2021 09:18
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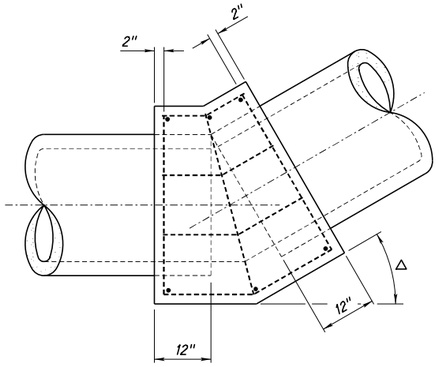
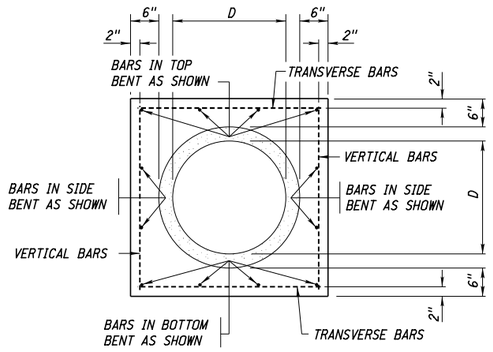
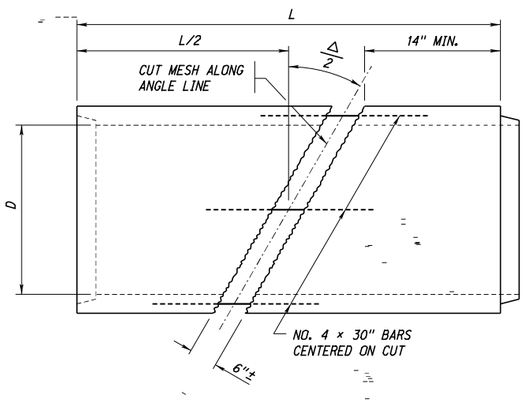


SIDE ELEVATION

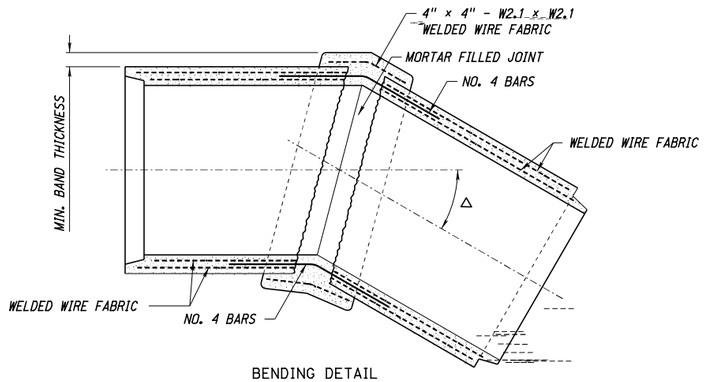


END ELEVATION

DETAILS OF COLLARS

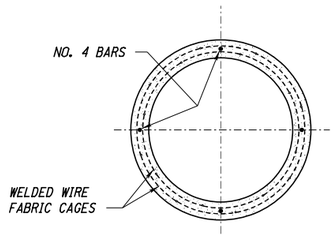


CUTTING DETAIL

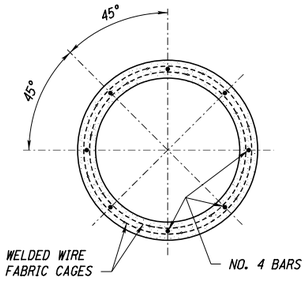


BENDING DETAIL

DETAILS OF CONCRETE ELBOWS



12" THROUGH 24"
PIPE DIAMETERS



OVER 24" PIPE DIAMETER

BAR LOCATION DETAILS

DATA FOR PRECAST ELBOWS			
SIZE OF PIPE "D"	MINIMUM BAND THICKNESS	Δ MAXIMUM	
		L-6'	L-7½'
12"	1"	90°	90°
15"	1"	90°	90°
18"	1"	90°	90°
21"	1"	90°	90°
24"	1⅛"	90°	90°
27"	1⅛"	90°	90°
30"	1¼"	90°	90°
36"	1⅜"	81°	90°
42"	1½"	73°	90°
48"	1¾"	66°	88°
54"	2"	60°	81°
60"	2"	55°	75°

SCHEDULE OF BARS FOR COLLAR					
SIZE OF PIPE "D"	BAR SIZE	NUMBER OF BARS			
		TRANS-VERT	TOP	ONE SIDE	BOTTOM
12"	NO. 4	12	4	2	4
15"	NO. 4	12	4	2	4
18"	NO. 4	12	4	2	4
21"	NO. 4	12	4	2	4
24"	NO. 4	12	4	2	4
27"	NO. 4	12	4	2	5
30"	NO. 4	12	4	2	5
36"	NO. 4	12	4	2	5
42"	NO. 4	12	5	3	6
48"	NO. 4	12	5	3	6
54"	NO. 4	12	5	3	6
60"	NO. 4	12	5	3	6

DATA FOR COLLARS			
SIZE OF PIPE "D"	Δ	CONCRETE (CU. YDS.)	REINF. STEEL (LBS.)
12"	0°	0.30	32
	15°	0.33	33
	30°	0.36	36
	45°	0.39	37
15"	0°	0.36	35
	15°	0.40	36
	30°	0.43	38
	45°	0.47	40
18"	0°	0.42	38
	15°	0.49	41
	30°	0.56	44
	45°	0.64	46
21"	0°	0.47	40
	15°	0.55	42
	30°	0.64	46
	45°	0.74	48
24"	0°	0.53	43
	15°	0.63	45
	30°	0.74	49
	45°	0.86	51
27"	0°	0.57	45
	15°	0.70	48
	30°	0.84	52
	45°	0.99	55
30"	0°	0.63	49
	15°	0.79	53
	30°	0.96	57
	45°	1.14	61
36"	0°	0.77	53
	15°	1.01	58
	30°	1.26	63
	45°	1.53	68
42"	0°	0.96	65
	15°	1.32	72
	30°	1.69	80
	45°	2.09	91
48"	0°	1.16	68
	15°	1.66	77
	30°	2.19	86
	45°	2.75	95
54"	0°	1.34	75
	15°	2.01	84
	30°	2.70	95
	45°	3.44	106
60"	0°	1.54	77
	15°	2.39	89
	30°	3.28	100
	45°	4.23	113

NOTES:

THE DIMENSIONS FOR CONCRETE PIPE SHOWN ON THIS PLAN ARE FOR CLASS III REINFORCED CONCRETE PIPE, AASHTO DESIGNATION M170, WALL "B".

ALL QUANTITIES ARE BASED ON DIMENSIONS SHOWN ON THIS PLAN. NO ADJUSTMENTS WILL BE MADE IN THESE QUANTITIES IF OTHER STRENGTH STANDARD PIPE IS FURNISHED IN ACCORDANCE WITH THE SPECIFICATIONS OR IF COLLARS ARE USED ON PIPE OTHER THAN CONCRETE.

WHEN A CONCRETE COLLAR, CONNECTING EXISTING AND NEW CONCRETE PIPE, IS CONSTRUCTED WITH A BEND, IT SHALL BE CONSIDERED AS A COLLAR NOT AN ELBOW.

ALL REINFORCING STEEL USED SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM DESIGNATIONS A615/A615M, GRADE 60. ALL BAR DESIGNATIONS ARE IN CUSTOMARY U.S. UNITS.

ALL CONCRETE USED SHALL BE CLASS 47B-3000.

FOR A SINGLE LINE OF REINFORCING WIRE MESH, TIE REINFORCING BARS ON THE OUTSIDE OF THE CAGE.

FOR A DOUBLE LINE OF REINFORCING WIRE MESH, TIE REINFORCING WIRE MESH ON THE INSIDE OF THE OUTSIDE CAGE.

REINFORCING BARS SHALL BE LAPPED WHERE THE BEND IS MADE.

REINFORCING WIRE MESH SHALL BE LAPPED AND TIED WHERE THE BEND IS MADE.

WELDED WIRE FABRIC OR EQUAL SHALL BE LAPPED 12" AT SPLICES.

THE ORIENTATION OF THE PIPE SHALL BE MARKED WHEN CASTING TO ASSURE ADEQUATE REINFORCING BAR EMBEDMENT AND PROPER ALIGNMENT WHEN CUTTING AND ROTATING.

ALL PIPE DIMENSIONS SHOWN ARE NOMINAL.

REV. NO.	DATE	DESCRIPTION OF REVISION
R5	JAN 18	NDOR BORDER TO NDOT BORDER
R4	JAN 07	REMOVED REFERENCE TO CONC. AX-3000
R3	AUG 99	COMPUTER FILE/CHANGES

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 425-R5

COLLARS AND ELBOWS FOR CONCRETE PIPE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

ORIGINAL:
FEBRUARY 22, 1974
DATE

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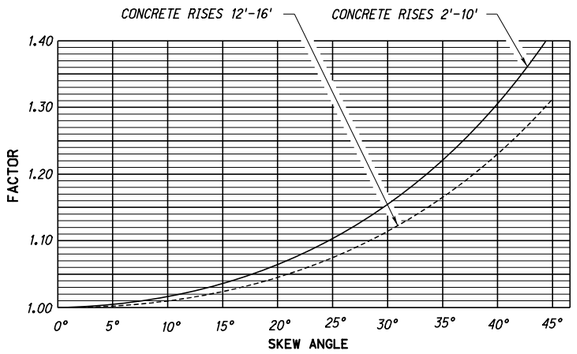
1

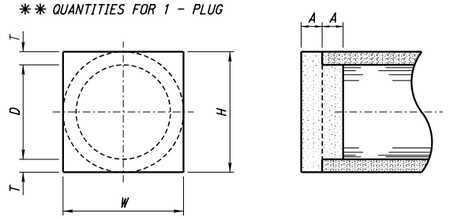
ROADWAY DESIGN DIVISION



BOX CULVERT FACTOR CHART
(CONCRETE)

DIA. (IN.)	A (IN.)	T (IN.)	H (FT/IN)	W (IN.)	CONCRETE ✱✱(CU. YDS.)
12	4	2	1'-4"		0.03
15	4	2¼	1'-7½"		0.05
18	4	2½	1'-11"		0.07
24	4	2¾	2'-5½"		0.11
30	4	3	3'-0"		0.17
36	6	3½	3'-7"	SAME AS H	0.37
42	6	4¼	4'-2½"		0.51
48	6	5	4'-10"		0.66
54	6	5½	5'-5"		0.84
60	8	6	6'-0"		1.37
66	8	6½	6'-7"		1.66
72	8	7	7'-2"		1.97
78	8	7½	7'-9"		2.30
84	8	8	8'-4"		2.66

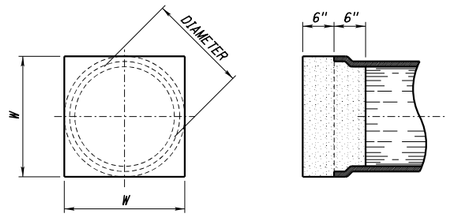
✱✱ QUANTITIES FOR 1 - PLUG



CONCRETE PLUG
(FOR CONCRETE PIPE)

DIA. (IN.)	W (IN.)	CONCRETE ✱✱(CU. YDS.)
8	11	0.02
10	13	0.03
12	16	0.05
15	19	0.07
18	23	0.11
21	26	0.14
24	30	0.19

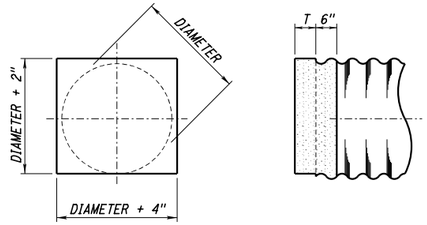
✱✱ QUANTITIES FOR 1 - PLUG



CONCRETE PLUG
(FOR CLAY TILE PIPE)

DIA. (IN.)	T (IN.)	CONCRETE ✱✱(CU. YDS.)
18	6	0.09
24	6	0.15
30	6	0.23
36	6	0.33
42	6	0.44
48	6	0.57
54	8	0.85
60	8	1.04
72	8	1.49

✱✱ QUANTITIES FOR 1 - PLUG



CONCRETE PLUG
(FOR CORRUGATED METAL PIPE)

SPAN (FT.)	RISE (FT.)	X (IN.)	Y (FT/IN)	CONCRETE ✱✱(CU. YDS.)
2	2	6	1'-6"	0.20
3	2	6	1'-6"	0.30
4	2	6	1'-6"	0.41
3	3	6	1'-6"	0.45
4	3	6	1'-6"	0.60
5	3	6	1'-6"	0.75
6	3	6	1'-6"	0.90
8	3	6	1'-6"	1.19
10	3	6	1'-6"	1.50
12	3	6	1'-6"	1.81
4	4	6	1'-6"	0.78
5	4	6	1'-6"	0.98
6	4	6	1'-6"	1.18
8	4	6	1'-6"	1.57
10	4	6	1'-6"	1.97
12	4	6	1'-6"	2.37
4	5	8	2'-0"	1.29
5	5	8	2'-0"	1.62
6	5	8	2'-0"	1.94
8	5	8	2'-0"	2.58
10	5	8	2'-0"	3.23
12	5	8	2'-0"	3.89
4	6	8	2'-0"	1.53
5	6	8	2'-0"	1.92
6	6	8	2'-0"	2.31
8	6	8	2'-0"	3.07
10	6	8	2'-0"	3.85
12	6	8	2'-0"	4.63
5	7	10	2'-6"	2.79
6	7	10	2'-6"	3.35
7	7	10	2'-6"	3.90
8	8	10	2'-6"	5.07
10	8	10	2'-6"	6.35
12	8	10	2'-6"	7.64
10	10	10	3'-0"	8.79
12	10	10	3'-0"	10.54
12	12	10	3'-0"	12.61

✱✱ QUANTITIES FOR 1 - PLUG

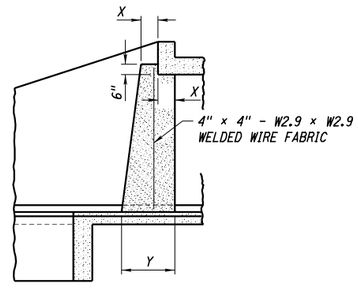
TYPICAL COMPUTATIONS FOR QUANTITY IN ONE SKEWED CONCRETE BOX PLUG

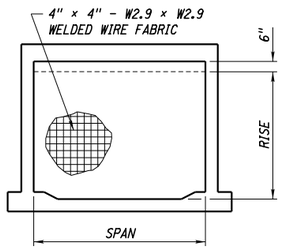
EXAMPLE:

10' x 5' CONCRETE BOX CULVERT, SKEWED 35° FROM TABLE, QUANTITY FOR ONE PLUG:

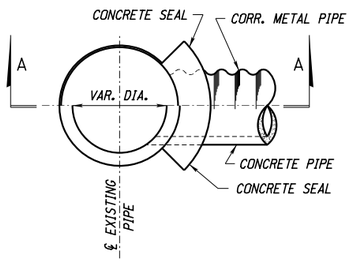
10' x 5' BOX = 3.23 CU. YDS.
FACTOR FOR 35° FROM CHART = 1.221

ADJUSTED QUANTITY FOR ONE PLUG
3.23 x 1.221 = 3.94 CU.YDS.

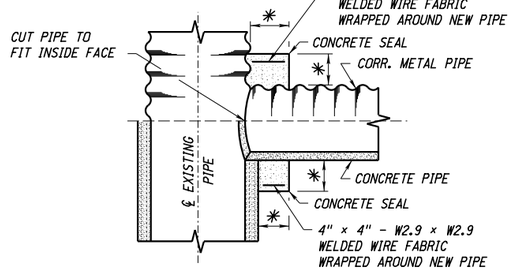




CONCRETE PLUG FOR CONCRETE BOX CULVERT



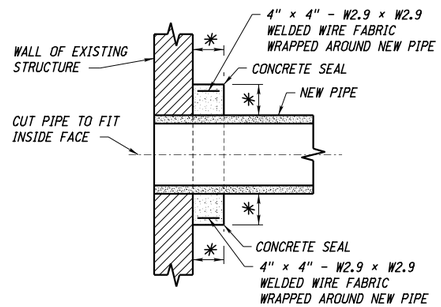
ELEVATION



SECTION A-A

FIELD PIPE TAP DETAILS

NOTES:
DIMENSIONS MARKED THUS, ✱, ARE 6" ON PIPES UP TO 24" DIA. INCLUSIVE AND 8" ON PIPES 30" DIA. AND OVER.



TAP FOR EXISTING STRUCTURE

NOTES:

ALL CONCRETE SHALL BE CLASS 47B-3000.

BEFORE PLACING THE CONCRETE, ALL LOOSE DIRT SHALL BE REMOVED FROM PARTS OF STRUCTURE COMING IN CONTACT WITH NEW CONCRETE.

EXCAVATION FOR CULVERT PLUGS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO ITEMS FOR WHICH PAYMENT IS MADE.

REV. NO.	DATE	DESCRIPTION OF REVISION
R4	JAN 18	NDOR BORDER TO NDOT BORDER
R3	JAN 07	REMOVED REFERENCE TO CONC. AX-3000
R2	AUG 99	CHART CHANGES/WELDED WIRE FABRIC

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 428-R4

CONCRETE PLUGS AND FIELD TAP DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

ORIGINAL:
FEBRUARY 22,1974
DATE

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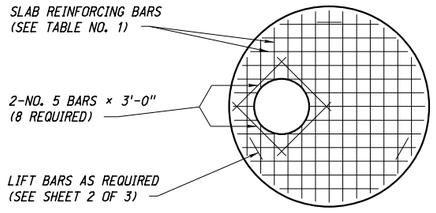
1

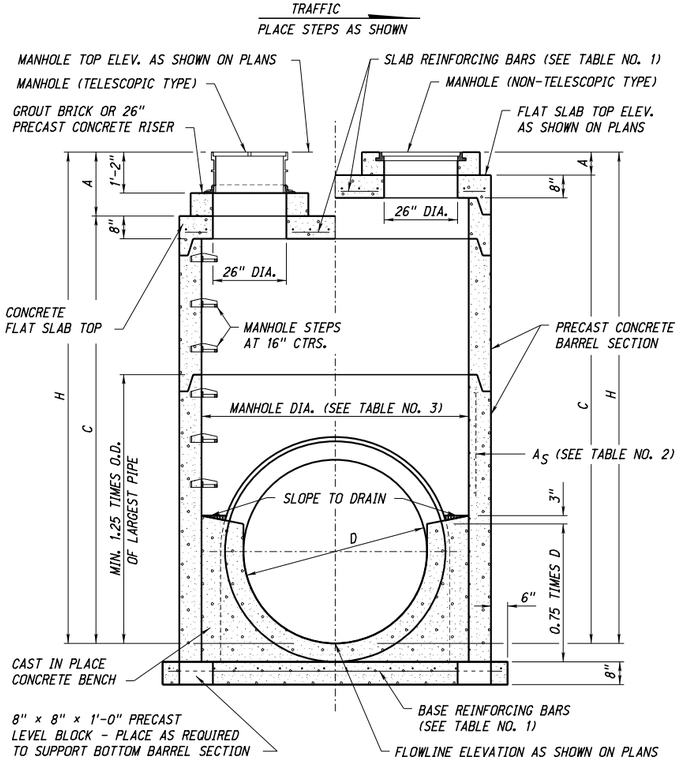
File: 428000e04.dgn
Date: 29-JUN-2021 09:18
Computer: NDOTDESIGN134



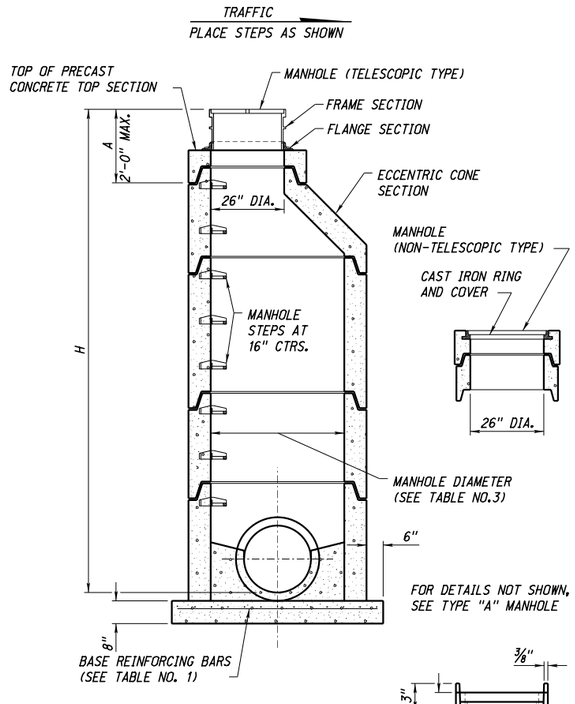
FLAT SLAB BASE

TABLE NO. 1	
BASE AND TOP SLAB FOR ROUND MANHOLE	
MANHOLE DIAMETER	SLAB REINFORCING BAR SIZE AND SPACING
48" - 60"	NO. 4 AT 6" CTRS.
66" & 72"	NO. 5 AT 7½" CTRS.
88" & 96"	NO. 5 AT 6½" CTRS.
120"	NO. 5 AT 5½" CTRS.

TABLE NO. 2	
CIRCUMFERENTIAL REINFORCEMENT PER FOOT OF BARREL	
DIAMETER BARREL SECTION	AREA OF STEEL A_S (SQ. IN./FT.)
84"	0.37
96"	0.47
120"	0.70



TYPE "A"



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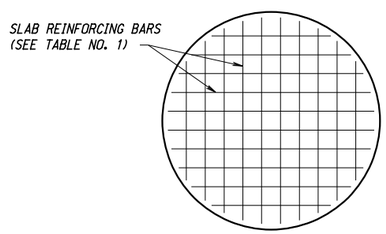
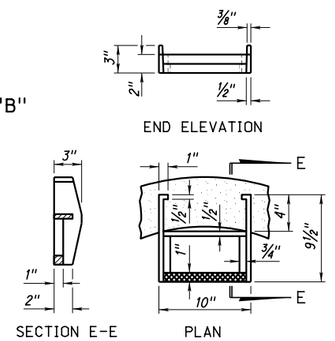
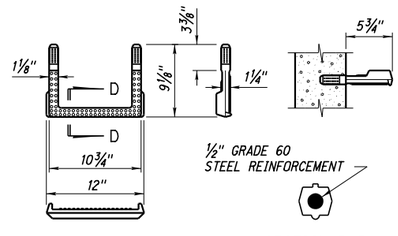


TYPE "A" AND "B" BASE

TABLE NO. 3	
MANHOLE SIZE BASED ON LARGEST PIPE INTO MANHOLE	
LARGEST PIPE DIAMETER	MINIMUM MANHOLE DIAMETER
24" OR LESS	48"
30"	54"
36"	60"
42"	66"
48"	72"
54"	84"
66"	96"
84"	120"



STEPS AT 16" CTRS.
DETAILS OF CAST IRON STEP



STEPS AT 16" CTRS.
DETAILS OF POLYPROPYLENE ENCAPSULATED STEEL ROD STEP
(ALTERNATE DESIGN)

NOTES

DIMENSION "A" SHALL BE THE DIFFERENCE BETWEEN THE MANHOLE TOP ELEVATION AND THE FLAT TOP ELEVATION FOR TYPE "A" MANHOLE. DIMENSION "A" SHALL BE THE DIFFERENCE BETWEEN THE TOP MANHOLE ELEVATION AND THE TOP OF THE ECCENTRIC TRANSITION SECTION FOR TYPE "B" MANHOLE. THE MIN. DIMENSION "A" SHALL BE 9" UNDER PAVEMENT AND 1'-4" OUTSIDE THE PAVEMENT. DIMENSION "A" SHALL NOT EXCEED 2'-0". WHEN RECONSTRUCTING OR ADJUSTING TO GRADE AN EXISTING MANHOLE, TYPE "A" OR "B", DIMENSION "A" MAY BE INCREASED TO 5'-0" MAX., IF THE RECONSTRUCTION WOULD REQUIRE DIMENSION "A" TO BE IN EXCESS OF 5'-0", THEN THE CONE SECTION OF THE FLAT SLAB TOP MUST BE RAISED AND THE 2'-0" MAX. DIMENSION "A" WILL AGAIN APPLY.

DIMENSION "C" SHALL BE THE DIFFERENCE BETWEEN THE FLOWLINE ELEVATION SHOWN ON THE PLANS AND THE FLAT SLAB TOP ELEVATION WHEN SHOWN ON THE PLANS. ONE OR MORE PRECAST CONCRETE BARREL SECTIONS MAY BE PROVIDED TO OBTAIN THE REQUIRED HEIGHT. THE CONTRACTOR MAY PROVIDE ANY COMBINATION OF STANDARD LENGTH PRECAST CONCRETE SECTIONS THAT WILL EQUAL OR EXCEED DIMENSION "C". IF ADDITIONAL LENGTH IS PROVIDED, THE LEVEL BLOCKS SHALL BE SET AT THE PROPER ELEVATION BELOW THE FLOWLINE SO THAT THE FLAT SLAB TOP ELEVATION SHOWN ON THE PLANS WILL BE OBTAINED. ALL ADDITIONAL MATERIAL OR WORK REQUIRED SHALL BE AT THE CONTRACTOR'S EXPENSE.

DIMENSION "H" SHALL BE THE DIFFERENCE BETWEEN THE FLOWLINE ELEVATION SHOWN ON THE PLANS AND THE MANHOLE TOP ELEVATION SHOWN ON THE PLANS.

THE FURNISHING AND PLACING OF MANHOLE STEPS AND LIFT BARS SHALL BE SUBSIDIARY TO THE MANHOLE.

MATCH TOP INSIDE SURFACES OF THE PIPES COMING INTO THE MANHOLE WHENEVER POSSIBLE. THE MANHOLE BENCH SHALL COME UP TO ¾ THE DIA. OF THE LARGEST PIPE AND SLOPE UP 3" TO THE SIDE. CONTOUR THE BENCH TO DRAIN.

THE MIN. CLEARANCE OF REINFORCING STEEL SHALL BE 2".

BARREL DIA. SHOWN ON THE PLAN ARE THE MIN. DIA. THAT MAY BE USED AT EACH LOCATION. THESE DIA. ARE BASED ON CENTER BARREL SECTIONS WHICH ARE USUALLY AVAILABLE FROM THE FABRICATOR. THE CONTRACTOR MAY PROVIDE BARREL SECTIONS OF LARGER DIA. THAN SHOWN ON THE PLAN. NO ADDITIONAL PAYMENT SHALL BE MADE FOR BARREL SECTIONS OF A LARGER DIA. THAN SHOWN ON THE PLANS.

EACH SECTION SHALL BE SET IN A FRESH BED OF MORTAR AND POINTED UP INSIDE AND OUT, OR A COLD FORMED JOINT MATERIAL CONFORMING TO FEDERAL SPECIFICATIONS SS-S-00210.

THE CONTRACTOR MAY, AT HIS OPTION, CAST-IN-PLACE THE FIRST SECTION OF THE MANHOLE WHEN THE STANDARD KNOCKOUTS ARE NOT AVAILABLE. THE CONCRETE WALL THICKNESS AND REINFORCING STEEL AREA SHALL BE AS SHOWN FOR THE RESPECTIVE "H" DIMENSION IN CHART NO. 1 FOR MANHOLE TYPE "C". THE MIN. LS AND SS DIMENSION SHALL BE OF SUFFICIENT DIMENSION TO ACCOMMODATE PIPES ENTERING THE RESPECTIVE WALL. THE TOP OF THE CAST-IN-PLACE SECTION SHALL BE FORMED TO THE SAME DIA. AS THE RESPECTIVE PRECAST SECTION.

UNLESS SPECIFIED IN THE PLANS, THE CONTRACTOR MAY DETERMINE THE TYPE MANHOLE TO BE CONSTRUCTED.

THE CONTRACTOR MAY, AT HIS OPTION, USE TRANSITION SECTIONS TO REDUCE THE BARREL SIZE OF THE MANHOLE. DIMENSION "A" CANNOT EXCEED 2'-0" ON THE 26" DIA. RISER SECTION.

WHEN USING BRICK FOR THE FINAL ADJUSTMENT OF THE FLANGE SECTION, A DOUBLE ROW OF BRICK PLASTERED ½" THICK INSIDE AND OUT SHALL BE USED. THE BRICK SHALL CONFORM TO REQUIREMENTS OF ASTM C32.

PRECAST MANHOLE SECTIONS MAY BE SET WITH EITHER THE TONGUE END UP OR THE GROOVE END UP.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	NOV 98	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 435-R2

MANHOLE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

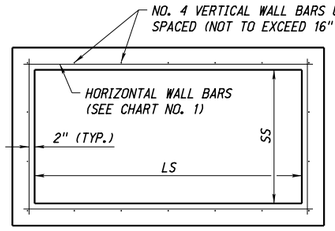
PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

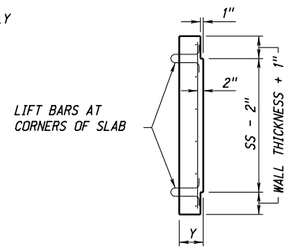
ORIGINAL:
APRIL 4, 1988
DATE

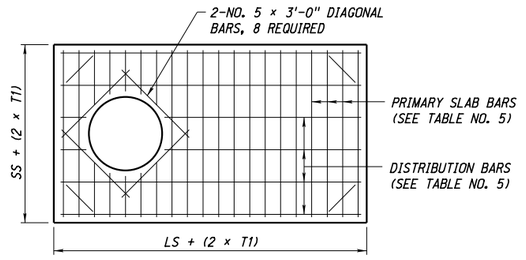
File: 43500e02.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION



SECTION A-A





TOP SLAB

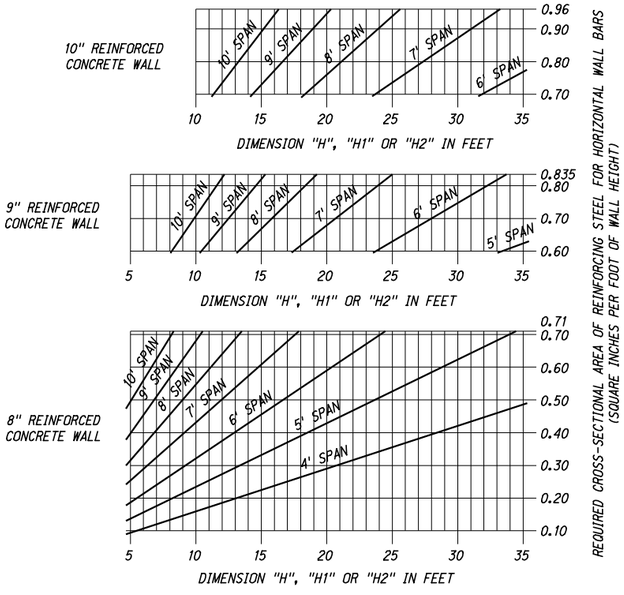


CHART NO. 1

NOTES

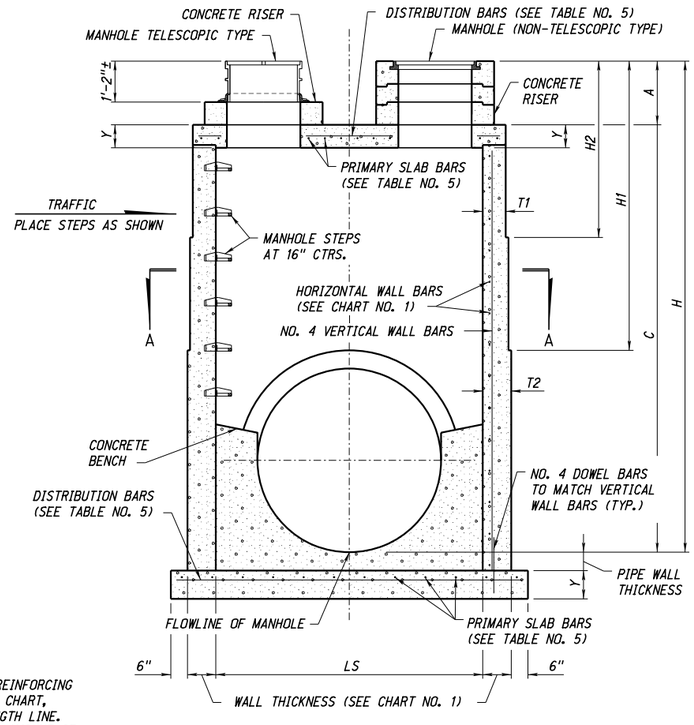
CHART NO. 1 SHALL BE USED TO DETERMINE THE WALL THICKNESS AND THE AMOUNT OF HORIZONTAL REINFORCING STEEL REQUIRED FOR A PARTICULAR VALUE OF "H" AND A LONG SPAN DIMENSION "LS". TO USE THE CHART, LOCATE THE POINT OF INTERSECTION OF A VERTICAL "H" DIMENSION LINE WITH A SLOPING SPAN LENGTH LINE. FROM THIS POINT OF INTERSECTION, DRAW A HORIZONTAL LINE TO THE RIGHT TO FIND THE REQUIRED AMOUNT OF HORIZONTAL REINFORCING STEEL PER FOOT OF WALL HEIGHT. THE REQUIRED WALL THICKNESS WILL BE FOUND AT THE LEFT OF THE PARTICULAR CHART SECTION.

EXAMPLE 1: GIVEN A MANHOLE WITH H = 13 FEET AND LONG SPAN LS = 6 FEET. FROM THE CHART FIND THAT A 8" THICK WALL WITH 0.40 SQ. IN./FT. OF REINFORCING STEEL IS REQUIRED. THE HORIZONTAL BARS MAY BE NO. 4 AT 6" SPACING OR NO. 5 AT 9" SPACING. (SEE TABLE NO. 4)

EXAMPLE 2: GIVEN A MANHOLE WITH H = 19 FEET AND LONG SPAN LS = 7.5 FEET. NOTE THAT THE CENTER SECTION OF THE CHART MUST BE USED WHICH INDICATES THAT A 9" THICK WALL IS REQUIRED. ON THE VERTICAL LINE REPRESENTING H = 19 FEET, FIND A POINT MIDWAY BETWEEN THE 7-FOOT AND 8-FOOT SPAN LENGTH LINES. THE REQUIRED AMOUNT OF HORIZONTAL REINFORCING STEEL WOULD THEN BE READ AS 0.73 SQ. IN./FT., WHICH COULD BE PROVIDED BY USING NO. 5 BARS AT 5" SPACING OR NO. 6 BARS AT 7" SPACING. (SEE TABLE NO. 4)

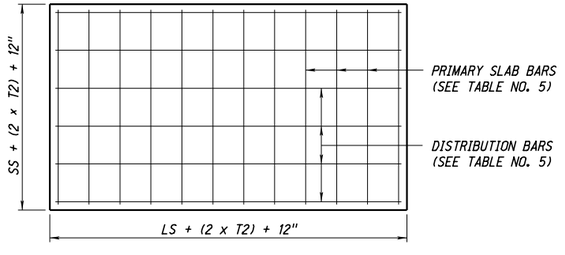
THE WALL THICKNESS AND THE AMOUNT OF HORIZONTAL REINFORCING AS DETERMINED FROM THE CHART SHALL BE USED FOR ALL FOUR WALLS IN A PARTICULAR LIFT OR POUR. THE SAME WALL DESIGN MAY BE USED THROUGHOUT THE HEIGHT OF THE MANHOLE, OR A DIFFERENT WALL DESIGN FOR THE NEXT LIFT MAY BE DETERMINED BY REENTERING THE CHART WITH THE VALUES OF "H1" AND "LS" WALL DESIGN FOR ADDITIONAL LIFTS WOULD BE HANDLED IN THE SAME MANNER.

WHEN DESIGNING A MANHOLE FROM CHART NO. 1, THE MINIMUM VALUE OF "H" SHALL BE 5 FEET (FOR DESIGN PURPOSES ONLY). THE MINIMUM HORIZONTAL REINFORCING SHALL BE NO. 4 BARS AT 12" CENTERS AND THE MINIMUM WALL THICKNESS SHALL BE 8".



FOR DEFINITIONS OF DIMENSIONS "A", "C" AND "H", SEE SHEET 1 OF 3.

TYPE "C"



BASE

TABLE NO. 4

CROSS SECTIONAL AREAS IN SQUARE INCHES OF BARS IN WALL SECTIONS ONE FOOT HIGH

SPACING	BAR SIZE		
	NO. 4	NO. 5	NO. 6
5"	0.46	0.74	1.06
5½"	0.44	0.68	0.96
6"	0.40	0.62	0.88
6½"	0.37	0.57	0.81
7"	0.34	0.53	0.75
7½"	0.32	0.50	0.70
8'	0.30	0.47	0.66
8½"	0.28	0.44	0.62
9"	0.27	0.41	0.59
9½"	0.25	0.39	0.56
10"	0.24	0.37	0.53
10½"	0.23	0.35	0.50
11"	0.22	0.34	0.48
11½"	0.21	0.32	0.46
12"	0.20	0.31	0.44

TABLE NO. 5

BASE AND TOP SLAB FOR RECTANGULAR MANHOLE

SHORT SPAN DIMENSION "SS"	SLAB THICKNESS "Y"	PRIMARY SLAB REINFORCING BAR SIZE & SPACING	DISTRIBUTION REINFORCING BAR SIZE & SPACING
2'-6" TO 4'-11"	8½"	NO. 5 AT 5½" CTRS.	NO. 5 AT 11" CTRS.
5'-0" TO 5'-11"	9"	NO. 5 AT 5" CTRS.	NO. 5 AT 10" CTRS.
6'-0" TO 6'-11"	9½"	NO. 5 AT 4½" CTRS.	NO. 5 AT 9" CTRS.
7'-0" TO 7'-11"	10"	NO. 6 AT 5½" CTRS.	NO. 6 AT 11" CTRS.
8'-0" TO 8'-11"	11"	NO. 6 AT 5½" CTRS.	NO. 6 AT 11" CTRS.
9'-0" TO 10'-0"	12"	NO. 6 AT 5" CTRS.	NO. 6 AT 10" CTRS.

NOTES

FOR TYPE "C" MANHOLE, THE MAX. VALUES OF "H" SHALL BE:
MAX. H = 17 FEET WHEN LS = 10 FEET
MAX. H = 21 FEET WHEN LS = 9 FEET
MAX. H = 26 FEET WHEN LS = 8 FEET
MAX. H = 34 FEET WHEN LS = 7 FEET
MAX. H = 35 FEET WHEN LS = 6 FEET

THE LONGER CLEAR SPAN "LS" OF THE WALLS, AS SEEN IN A HORIZONTAL SECTION, SHALL BE USED TO FIND A WALL DESIGN FROM CHART NO. 1.

THE SHORTER CLEAR SPAN "SS" SHALL BE USED TO FIND A BASE AND TOP SLAB DESIGN FROM THE TABLE NO. 5.

THE MIN. COVERING, MEASURED FROM THE FACE OF THE CONCRETE TO THE SURFACE OF A REINFORCING BAR, SHALL BE 2" EXCEPT AS SHOWN.

THE FURNISHING AND PLACING OF MANHOLE STEPS SHALL BE SUBSIDIARY TO THE MANHOLE.

THE TOP SLAB MAY BE CAST-IN-PLACE OR PRECAST, BUT IF IT IS PRECAST, IT SHALL BE SET IN A FRESH BED OF MORTAR AND POINTED UP INSIDE AND OUT.

FOR RISER AND BENCH DETAILS NOT SHOWN, SEE SHEET 1 OF 3.

THE MIN. "LS" AND "SS" DIMENSION SHALL BE 2'-6" FOR MANHOLES WITH "H" LESS THAN 6 FEET AND SHALL BE 4'-0" FOR MANHOLES WITH "H" GREATER THAN 6 FEET. WHEN "LS" AND "SS" DIMENSIONS ARE NOT SPECIFIED ON THE PLANS, THE DIMENSIONS SHALL BE OF SUFFICIENT DIMENSION TO ACCOMMODATE PIPES ENTERING THE RESPECTIVE WALL. A MIN. OF 6" SHALL BE MAINTAINED BETWEEN THE INSIDE CORNER OF THE MANHOLE AND THE OUTER SHELL OF AN ENTERING PIPE, AND BETWEEN OUTER SHELLS OF PIPE ENTERING THE SAME WALL.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	NOV 98	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 435-R2

MANHOLE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

DATE

PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

ORIGINAL:
APRIL 4, 1988
DATE

2
3

File: 43500e02.dgn Date: 29-JUN-2021 09:18 Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
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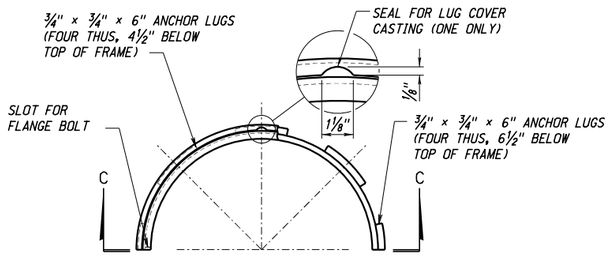
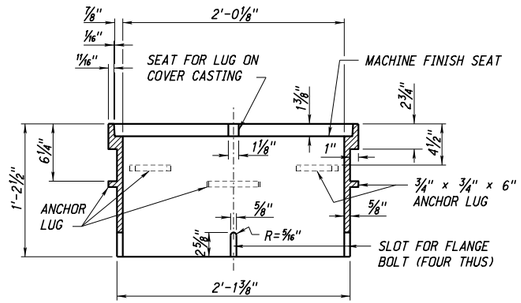


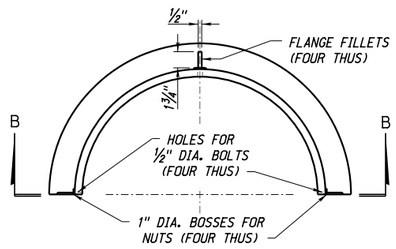
HALF TOP VIEW



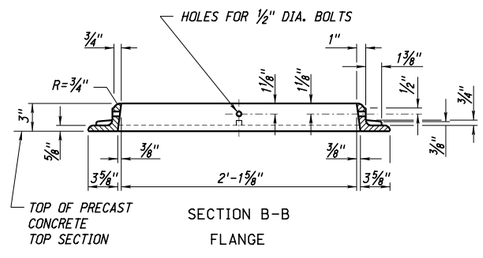
SECTION C-C

FRAME

DURING PAVEMENT CONSTRUCTION, FRAME CASTING TO BE TEMPORARILY HELD IN POSITION BY BOLTING TO FLANGE CASTING. BOLTS TO BE REMOVED AFTER CONCRETE HAS HARDENED.



HALF TOP VIEW

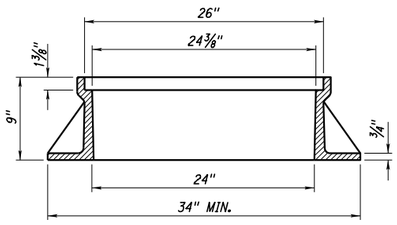


SECTION B-B

FLANGE

TYPE I
DETAILS OF FRAME AND FLANGE

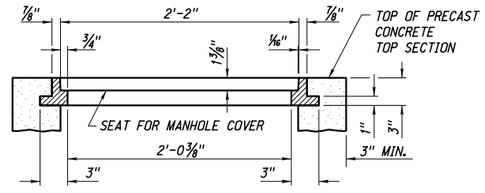
TELESCOPIC TYPE (CAST IRON)



SECTION

TYPE II
DETAILS OF FRAME

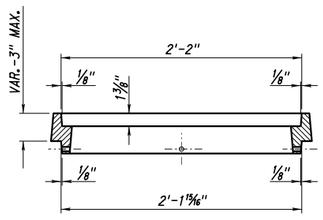
NON-TELESCOPIC TYPE (CAST IRON)



SECTION

TYPE III
DETAILS OF RING

NON-TELESCOPIC TYPE (CAST IRON)



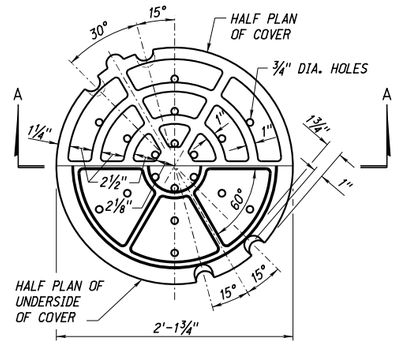
SECTION

ADJUSTING RINGS MAY BE USED IN ORDER TO OBTAIN THE REQUIRED ELEVATION OF EITHER NEW OR EXISTING MANHOLES. THE RINGS ARE SUBSIDIARY TO BUILD MANHOLE, ADJUST MANHOLE TO GRADE OR RECONSTRUCT MANHOLE.

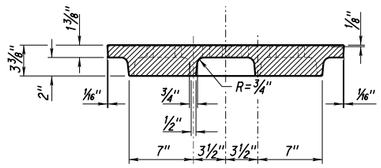
THE ADJUSTING RINGS SHALL BE HELD RIGIDLY TO THE FRAME AND TO EACH OTHER BY USE OF FOUR SET SCREWS IN THE BEARING LEG OF THE RING. ADJUSTING RINGS MAY BE USED TO A MAXIMUM HEIGHT OF 12 INCHES.

THE CONTRACTOR SHALL INSPECT THE CONDITION AND VERIFY THE DIMENSIONS OF EXISTING MANHOLE PRIOR TO USING ADJUSTING RINGS.

DETAILS OF ADJUSTING RING



HALF PLAN



SECTION A-A

DETAILS OF COVER

(CAST IRON)

WEIGHTS

(CAST IRON)

TYPE A COVER	225 POUNDS
TYPE B COVER	230 POUNDS
FRAME (TYPE I)	260 POUNDS
FLANGE (TYPE I)	95 POUNDS
FRAME (TYPE II)	275 POUNDS
RING FOR COVER (TYPE III)	120 POUNDS

NOTES

TYPE I AND II ASSEMBLIES NORMALLY USED IN PAVEMENT.

TYPE III ASSEMBLY IS NORMALLY USED OUTSIDE OF PAVEMENT.

FOR TYPE A COVER (STORM SEWER), USE DETAILS AS SHOWN.

FOR TYPE B COVER (SANITARY SEWER), OMIT ¾" DIA. HOLES IN COVER.

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	NOV 98	MULTIPLE REVISIONS

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 435-R2

MANHOLE

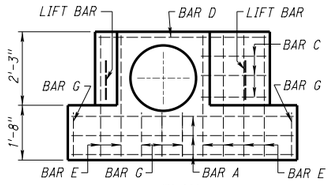
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MARK J. TRAYNOWICZ
E-8119
STATE OF NEBRASKA

DATE

ORIGINAL: APRIL 4, 1988
DATE

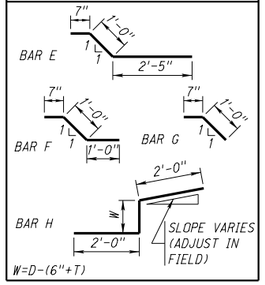
3/3

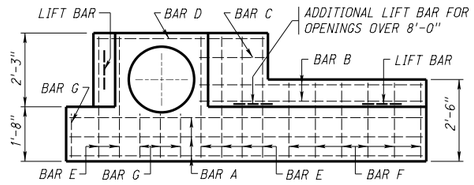


PLAN

INLET COVER

REINFORCING BAR BENDING DIAGRAM FOR CURB INLET



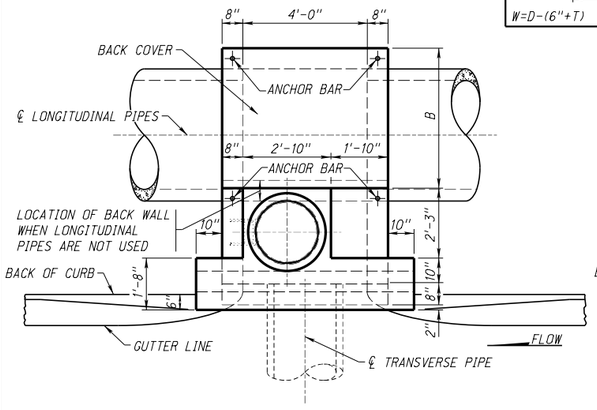


PLAN

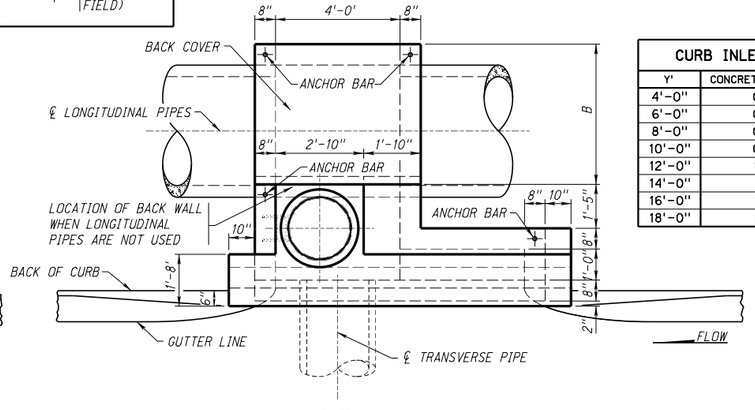
INLET COVER

REINFORCING BAR SCHEDULE FOR CURB INLETS (INCLUDES COVER)

BAR	SIZE	SHAPE	Y = 4'-0"		Y = 6'-0"		Y = 8'-0"		Y = 10'-0"		Y = 12'-0"		Y = 14'-0"		Y = 16'-0"		Y = 18'-0"	
			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
A	8	STR.	3	6'-9"	3	8'-9"	3	10'-9"	3	12'-9"	3	14'-9"	3	16'-9"	3	18'-9"	3	20'-9"
B	6	STR.	--	--	2	4'-10	2	6'-10"	2	8'-10"	2	10'-10"	2	12'-10"	2	14'-10"	2	16'-10"
C	6	STR.	3	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"
D	6	STR.	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"
E	5	BENT	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"
F	5	BENT	--	2'-7"	3	2'-7"	6	2'-7"	8	2'-7"	11	2'-7'	13	2'-7"	16	2'-7"	18	2'-7"
G	5	BENT	5	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"
H	4	BENT	--	--	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"
J	4	STR.	--	--	--	--	--	--	--	--	--	--	2	2'-2"	2	2'-2"	2	2'-2"
K	4	STR.	--	--	--	--	--	--	--	--	--	--	4	1'-9"	4	1'-9"	4	1'-9"
LIFT	4	BENT	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"
M	4	STR.	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1'	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"
N	4	STR.	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3



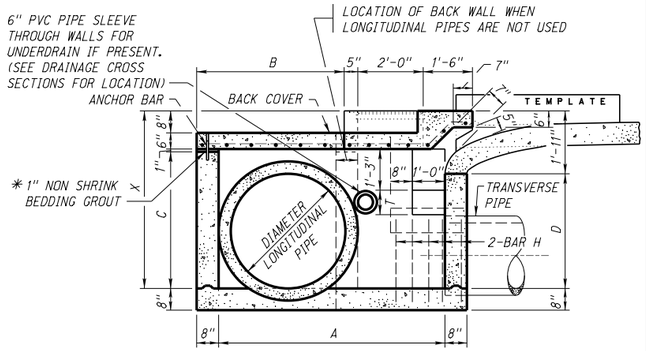
PLAN



PLAN

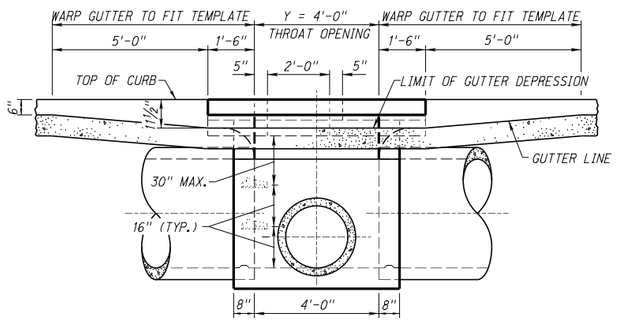
CURB INLET COVER QUANTITIES

Y'	CONCRETE (CU.YDS.)	REINFORCING (LB.)
4'-0"	0.62	46
6'-0"	0.72	58
8'-0"	0.82	71
10'-0"	0.92	83
12'-0"	1.02	95
14'-0"	1.12	112
16'-0"	1.22	122
18'-0"	1.32	136

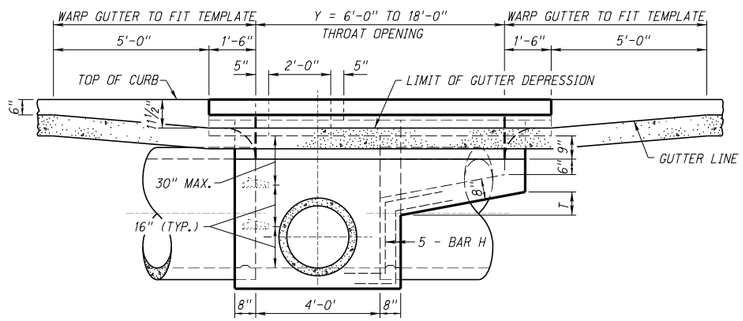


TYPICAL SECTION OF INLETS

* GROUT SHALL BE FINISHED SUCH THAT THE TOP ELEVATION OF THE INLET LID, WHEN INSTALLED, MATCHES THE FINISHED SHOULDER SLOPE OF THE ROADWAY CROSS-SECTIONS.



FRONT ELEVATION



FRONT ELEVATION

CURB INLETS

DATA FOR CURB INLETS (INCLUDES INLET COVER)

DIA. OF LONGIT. PIPE	DIMENSIONS					QUANTITIES															NO. OF M BARS	ADDITIONAL QUANTITIES PER ONE FOOT INCREASE OF DIMENSION "X"	
						CONCRETE, CU. YDS. ③							REINFORCING STEEL, LBS.									CONCRETE CU. YDS.	REINF. STEEL LBS. ④
	X ① (MIN.)	A ②	B	C	D	Y=4'	Y=6'	Y=8'	Y=10'	Y=12'	Y=14'	Y=16'	Y=18'	Y=4'	Y=6'	Y=8'	Y=10'	Y=12'	Y=14'	Y=16'	Y=18'			
--	3'-11"	2'-8"	--	2'-8"	2'-0"	2.08	2.43	2.79	3.15	3.51	4.06	4.46	4.85	113	175	202	231	259	289	316	344	NONE	0.383	6.7
12"	2'-11"	4'-0"	1'-7"	1'-8"	1'-0"	2.14	2.51	2.86	3.21	3.56	3.95	4.30	4.65	133	186	216	245	274	310	340	364	3	0.459	6.7
15"	3'-2"	4'-4"	1'-11"	1'-11"	1'-3"	2.37	2.71	3.07	3.43	3.79	4.21	4.57	4.94	136	193	221	250	277	312	342	370	3	0.473	6.7
18"	3'-5"	4'-7"	2'-2"	2'-2"	1'-6"	2.60	2.95	3.30	3.67	4.03	4.44	4.80	5.16	141	200	228	257	284	318	349	376	4	0.490	6.7
21"	3'-8"	4'-11"	2'-6"	2'-5"	1'-9"	2.83	3.19	3.53	3.90	4.26	4.68	5.04	5.40	144	203	231	260	287	322	351	379	4	0.504	6.7
24"	3'-11"	5'-2"	2'-9"	2'-8"	2'-0"	3.06	3.41	3.76	4.12	4.49	5.04	5.43	5.83	148	210	238	267	294	324	352	379	5	0.518	6.7
27"	4'-2"	5'-6"	3'-1"	2'-11"	2'-3"	3.31	3.66	4.01	4.37	4.74	5.29	5.68	6.08	150	213	241	270	297	327	354	382	5	0.532	6.7
30"	4'-5"	5'-9"	3'-4"	3'-2"	2'-6"	3.54	3.89	4.25	4.61	4.97	5.52	5.92	6.32	151	217	244	273	301	331	358	385	5	0.547	6.7
36"	4'-11"	6'-4"	3'-11"	3'-8"	3'-0"	4.06	4.41	4.77	5.13	5.49	6.04	6.44	6.83	158	226	254	283	310	340	368	395	6	0.576	6.7
42"	5'-5"	6'-11"	4'-6"	4'-2"	3'-6"	4.60	4.95	5.31	5.67	6.03	6.58	6.98	7.38	164	236	264	293	320	350	378	405	7	0.605	6.7
48"	5'-11"	7'-6"	5'-1"	4'-8"	4'-0"	5.18	5.53	5.89	6.25	6.61	7.16	7.56	7.95	171	246	274	303	330	360	387	415	8	0.634	6.7
54"	6'-5"	8'-1"	5'-8"	5'-2"	4'-6"	5.78	6.13	6.49	6.85	7.21	7.76	8.16	8.56	174	253	280	309	337	367	394	421	8	0.663	6.7
60"	6'-11"	8'-8"	6'-3"	5'-8"	5'-0"	6.41	6.76	7.12	7.48	7.84	8.39	8.79	9.19	180	262	290	319	346	376	404	431	9	0.691	6.7
66"	7'-5"	9'-3"	6'-10"	6'-2"	5'-6"	7.07	7.42	7.78	8.14	8.50	9.05	9.45	9.85	187	272	300	329	356	386	414	441	10	0.720	6.7

T = 9" EXCEPT FOR THE FOLLOWING:
T = 6" FOR 6'-0" TO 18'-0" OPENINGS WHEN X = 2'-11" THRU 3'-1"
T = 1'-6" FOR 14'-0" TO 18'-0" OPENINGS WHEN X = 3'-11" THRU 7'-5"

① "X" SHALL NOT EXCEED 7'-6".

② "A" SHALL NOT EXCEED 10'-0".

③ NO DEDUCTIONS WILL BE MADE FOR PIPE OPENINGS.

④ NOT APPLICABLE WHERE Y = 4'-0".

DIAMETER OF PIPE AND MINIMUM "X" IN THIS INLET DATA TABLE ARE BASED ON THE LONGITUDINAL PIPE. DEPTH OF THE INLET MAY BE GOVERNED BY THE TRANSVERSE PIPE (MINIMUM "D" = TRANSVERSE PIPE DIAMETER PLUS 9").

NOTES:

THE MINIMUM COVERING, MEASURED FROM THE FACE OF CONCRETE TO THE SURFACE OF ANY REINFORCING BAR, SHALL BE 1½".

THE QUANTITIES OF CONCRETE AND STEEL FOR CURB INLET INCLUDES THAT PORTION OF CONCRETE AND STEEL BELOW AND BACK OF THE CURB SECTION AS SHOWN ON THIS PLAN.

THE CONCRETE COVERS MAY BE CAST IN PLACE OR PRECAST.

THE CAST IRON COVERS, FRAMES SHALL BE GREY IRON CONFORMING TO THE SPECIFICATIONS. CAST IRON STEPS SHALL BE INSTALLED IN CURB INLETS AND JUNCTION BOXES WHEN THE "X" DIMENSION IS 4'-6" OR GREATER. THE FURNISHING AND PLACING OF CAST IRON STEPS SHALL BE SUBSIDIARY TO THE ITEM FOR WHICH DIRECT PAYMENT IS MADE.

THE GUTTER DEPRESSION TEMPLATE SHALL BE USED THROUGHOUT THE THROAT OPENING.

CLASS OF CONCRETE AND MINIMUM COMPRESSIVE STRENGTH AND TYPE OF STEEL FOR REINFORCING BARS SHALL CONFORM TO THE NDOT "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION."

THE INLET COVER SHALL BE IMPRINTED "NO DUMPING" SEE SHEET 2 OF 2.

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JUL 20	ADDED UNDERDRAIN NOTE & TABLE
R11	JAN 18	NDOR BORDER TO NDOT BORDER
R10	DEC 16	CHANGED TABLE INFORMATION

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 443-R12

CURB INLETS AND JUNCTION BOX

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

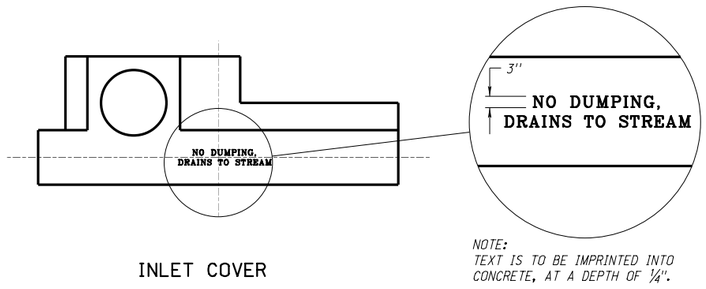
DATE

ORIGINAL: FEBRUARY 22, 1974
DATE

1
2

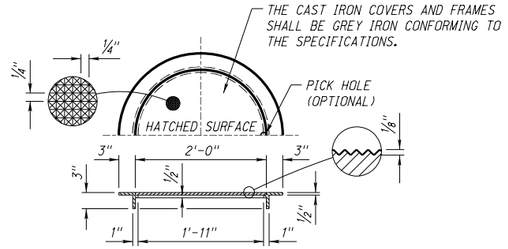
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 443006r2.dgn

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:18
File: 44300e12.dgn



INLET COVER

NOTE:
TEXT IS TO BE IMPRINTED INTO CONCRETE, AT A DEPTH OF ¼".

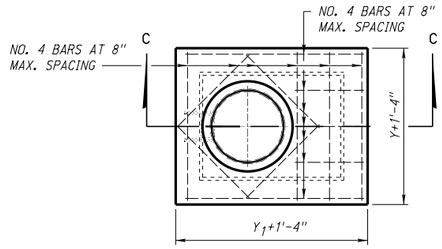


TOTAL WEIGHT = 125 LBS.

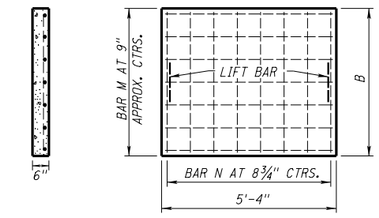
CAST IRON COVER AND FRAME
FOR JUNCTION BOX AND CURB INLET

QUANTITIES FOR JUNCTION BOX			
SIZE Y × Y 1	X = 2'-6"		ADDITIONAL QUANTITIES OF CONCRETE (CU. YDS.) PER ONE FOOT INCREASE OF DIMENSIONS "X" ✱✱
	CONCRETE CU. YDS. ✱	REINFORC. STEEL LBS.	
2'-0" × 2'-0"	0.94	15	0.26
2'-0" × 2'-6"	1.06	18	0.27
2'-0" × 3'-0"	1.18	23	0.31
2'-6" × 2'-6"	1.20	19	0.31
2'-6" × 3'-0"	1.33	22	0.34
3'-0" × 3'-0"	1.47	29	0.36
3'-0" × 3'-6"	1.61	30	0.39
3'-0" × 4'-0"	1.76	34	0.41

✱ NO DEDUCTIONS WILL BE MADE FOR PIPE OPENINGS
✱✱ DIMENSION "X" SHALL NOT EXCEED 5'-6"

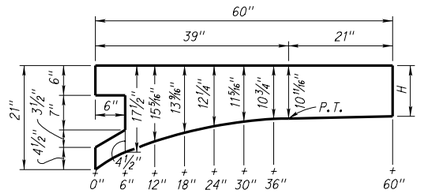


PLAN



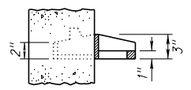
SECTION PLAN

BACK COVER

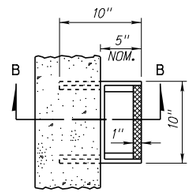


PAVING CROSS SLOPE (FT/FT)	0.01	0.02	0.03	0.04	0.05	0.06
H	10 7⁄16"	10¼"	10⅛"	9⅞"	9⅝"	9⅜"

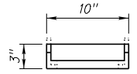
GUTTER DEPRESSION TEMPLATE



SECTION B-B



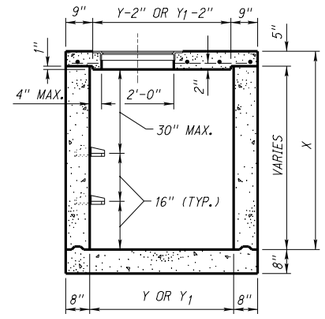
PLAN



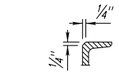
FRONT ELEVATION

STEPS TO BE PLACED AT 16" CENTERS

CAST IRON STEPS

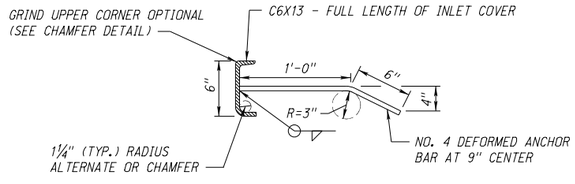


SECTION C-C
JUNCTION BOX
(NOT FOR USE UNDER TRAFFIC)



CHAMFER DETAIL

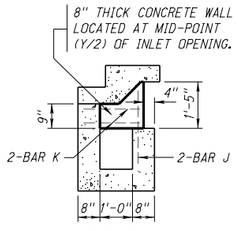
STRUCTURAL STEEL FOR FACE ARMOR	
THROAT OPENING	WEIGHT (LBS.)
4'-0"	100
6'-0"	129
8'-0"	157
10'-0"	186
12'-0"	215
14'-0"	243
16'-0"	272



FACE ARMOR

NOTE:

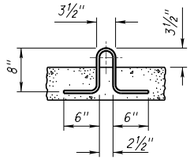
THE COMPLETED FACE ARMOR/ANCHOR BAR ASSEMBLY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.



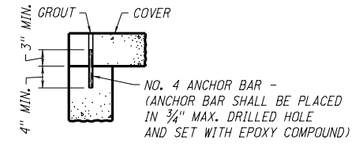
SECTION

FOR 14'-0", 16'-0" & 18'-0" INLET OPENINGS

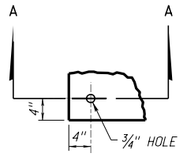
MID-POINT
COVER SUPPORT



LIFT BAR



SECTION A-A



PLAN

ANCHOR BAR

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JUL 20	ADDED UNDERDRAIN NOTE & TABLE
R11	JAN 18	NDOR BORDER TO NDOT BORDER
R10	DEC 16	CHANGED TABLE INFORMATION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 443-R12

CURB INLETS AND JUNCTION BOX

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

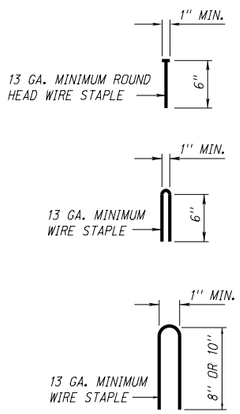
DATE

PROFESSIONAL CIVIL ENGINEER
MICHAEL H. OWEN
E-6515
STATE OF NEBRASKA

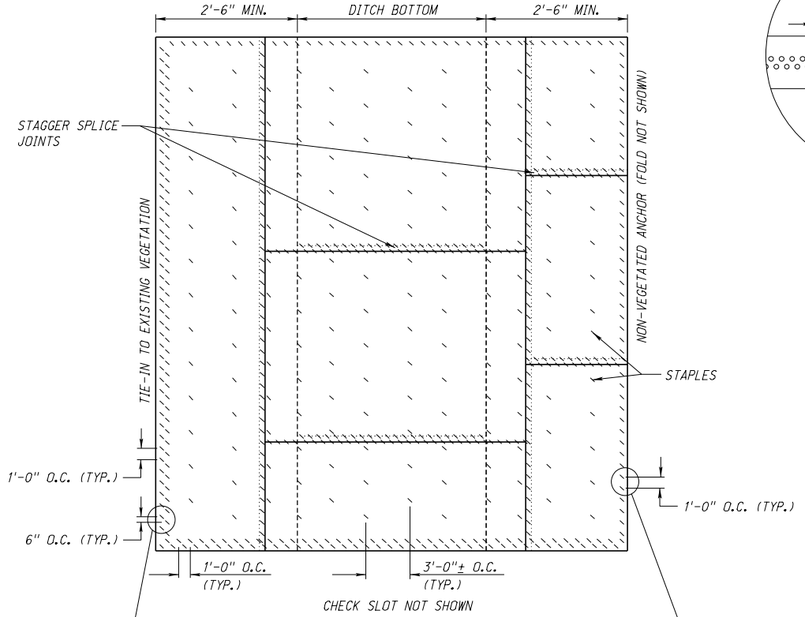
ORIGINAL:
FEBRUARY 22, 1974
DATE

2
2

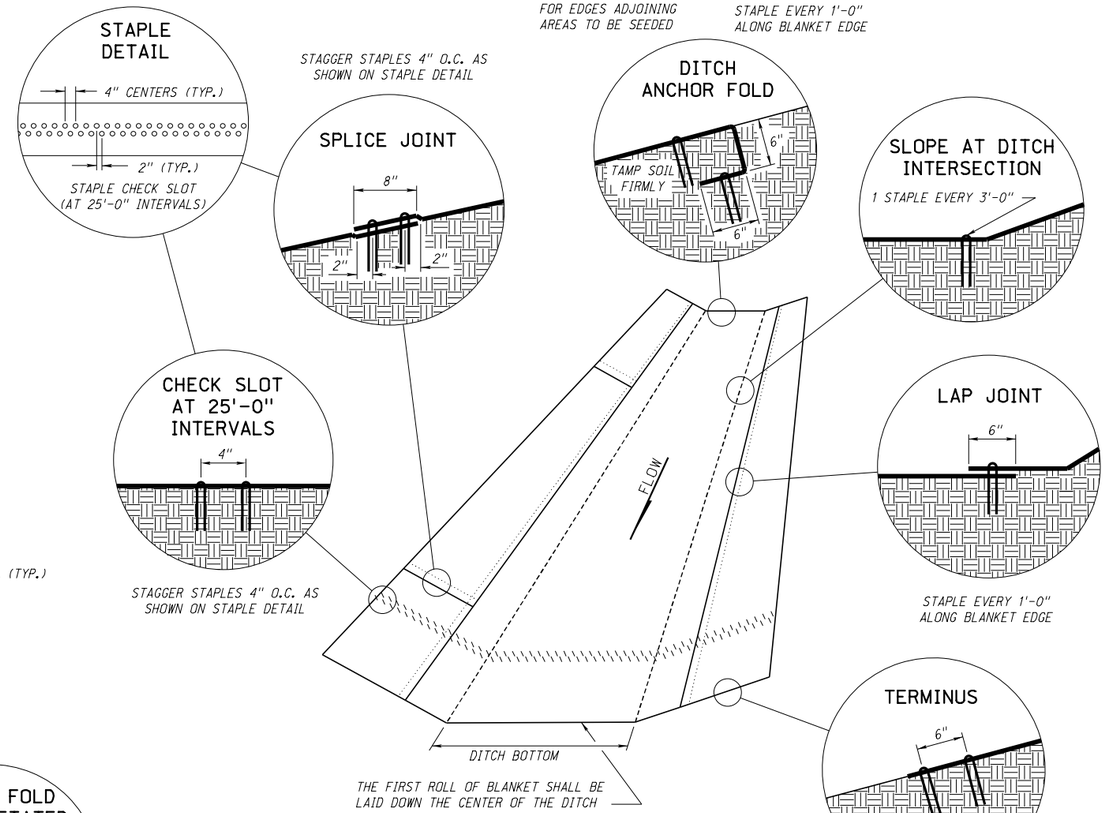
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 50100e07.dgn



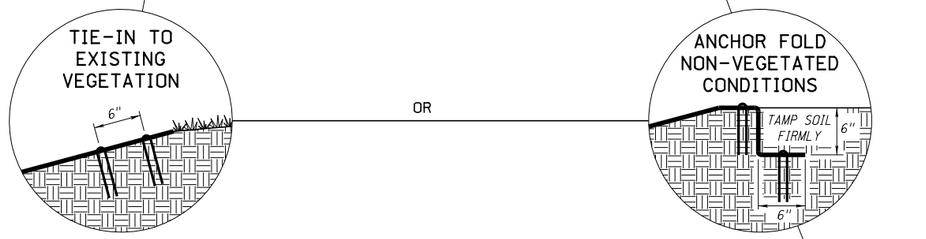
WIRE STAPLE DETAIL

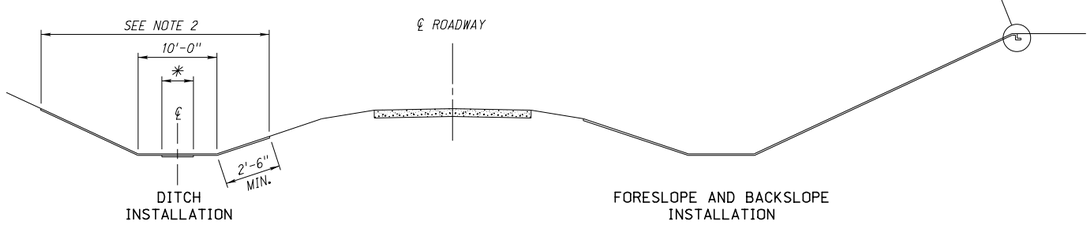


PLAN VIEW STAPLING DIAGRAM



TYPICAL EROSION CONTROL BLANKET INSTALLATION





TYPICAL CROSS-SECTION

* THE FIRST ROLL OF BLANKET SHALL BE LAID DOWN THE CENTER OF THE DITCH

NOTES:

1. THIS PLAN IS APPLICABLE FOR THE FOLLOWING: EROSION CONTROL CLASS 1B, 1C, 1D, 1E, 1F, 2A, 2B & 2C.
2. SOIL RETENTION BLANKET SHALL BE LAID A MINIMUM OF 2'-6" UP THE BACKSLOPE AND FORESLOPE.
3. CHECK SLOTS ARE PLACED PERPENDICULAR TO DITCH CENTER LINE ON 25'-0" INTERVALS.
4. THE MANUFACTURERS' RECOMMENDED STAPLING PATTERNS SHALL GOVERN OVER THE PLANS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 501-R7

EROSION CONTROL

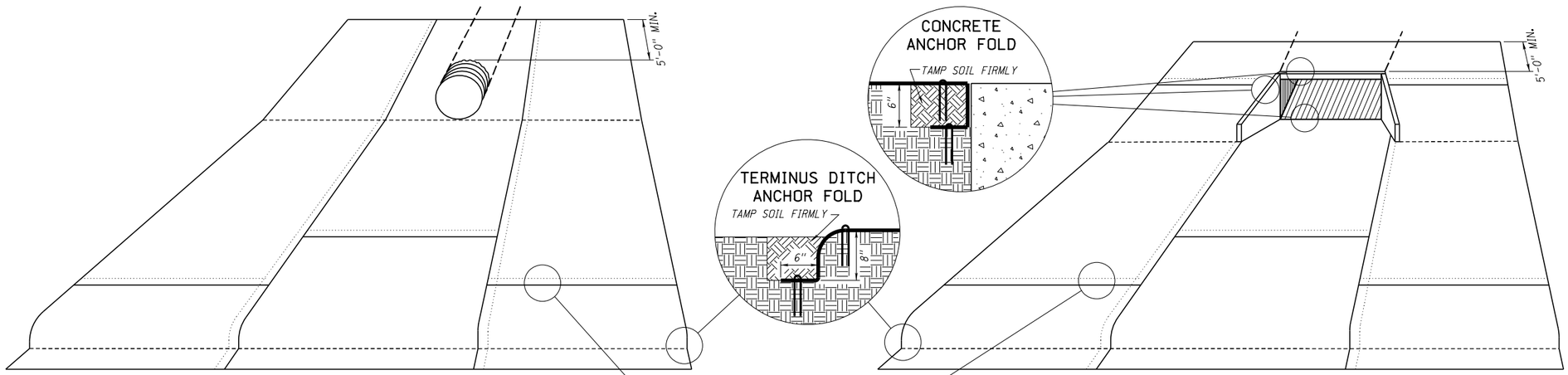
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

DATE

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

ORIGINAL: NOVEMBER 1973
DATE

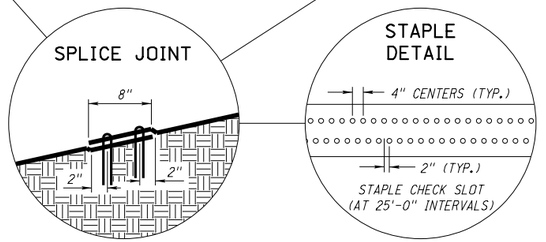
ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 50100e07.dgn

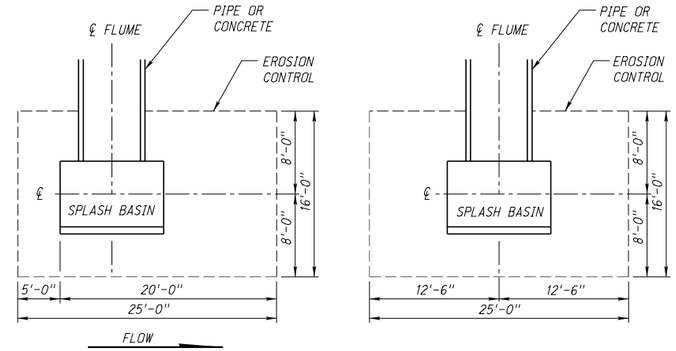


TYPICAL INSTALLATION AT PIPE CULVERT

(SHOWING STRAIGHT PIPE)

TYPICAL INSTALLATION AT BOX CULVERT

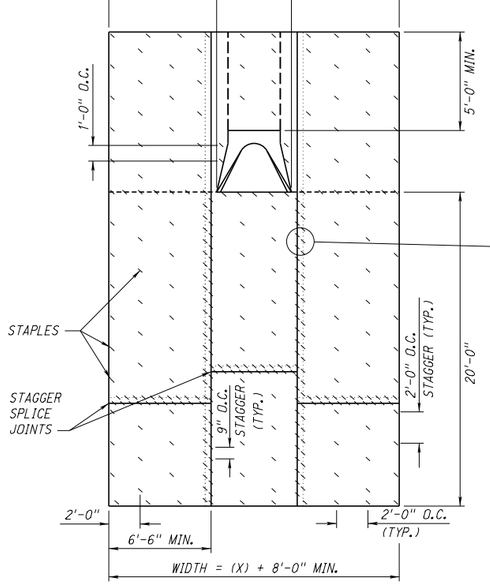




NOTE:
OFFSET EROSION CONTROL PLACEMENT ALONG THE DRAINAGE PATH

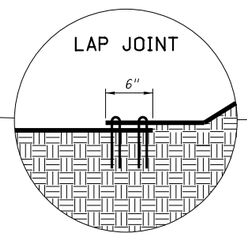
NOTE:
CENTER EROSION CONTROL ON FLUME WHERE THERE IS NO DEFINED DRAINAGE PATH

EROSION CONTROL BLANKET PLACEMENT AT SPLASH BASIN

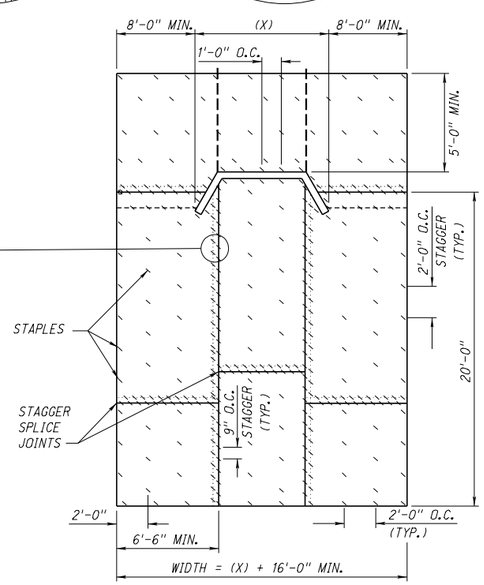


PLAN VIEW STAPLING DIAGRAM

(X) IS EQUAL TO THE OUTSIDE WIDTH OF THE FLARED END SECTION



STAGGER STAPLES EVERY 1'-0" O.C. WITHIN 20'-0" OF PIPE



PLAN VIEW STAPLING DIAGRAM

(X) IS EQUAL TO THE OUTSIDE WIDTH OF THE WING WALLS

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 501-R7

EROSION CONTROL

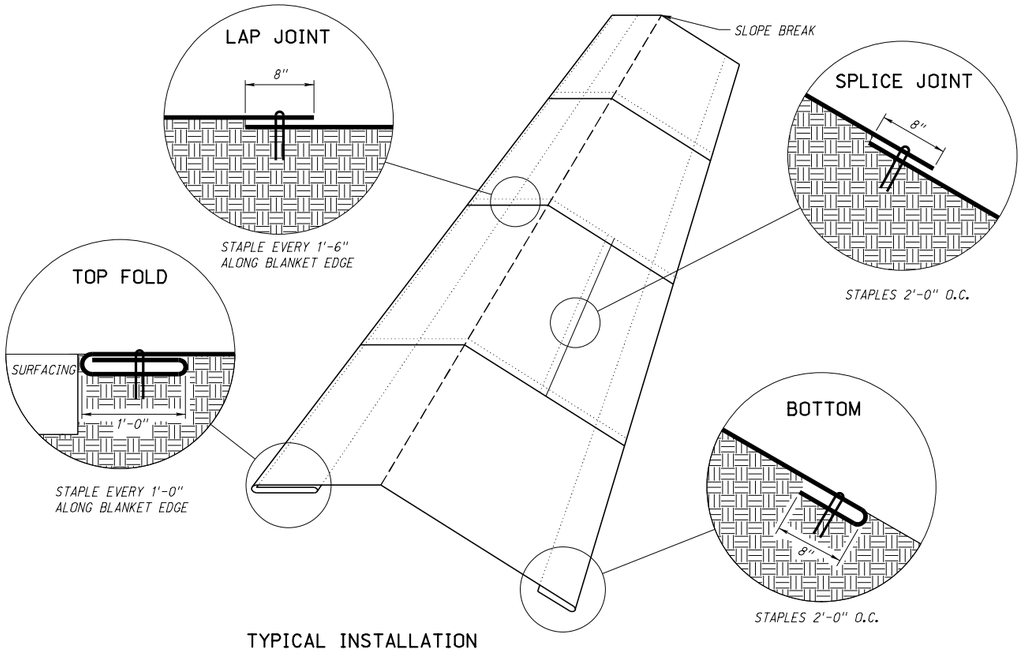
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

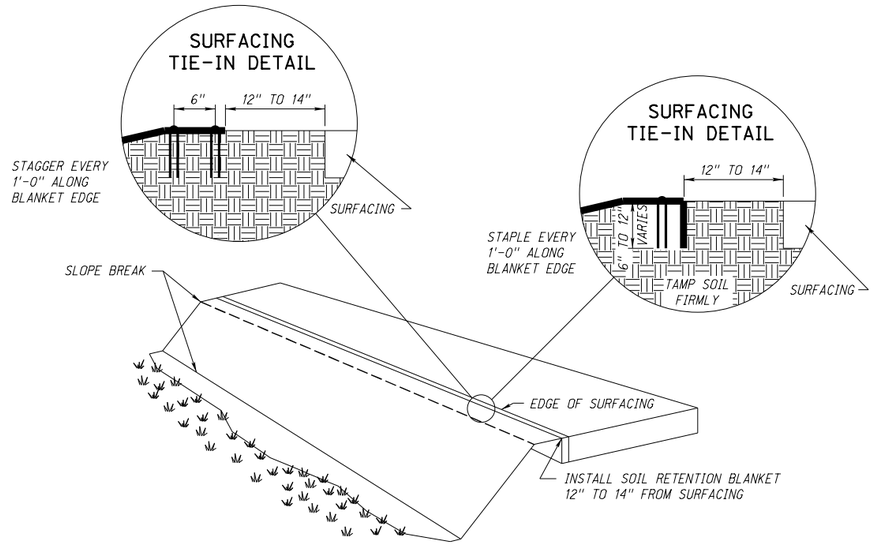
DATE

ORIGINAL:
NOVEMBER 1973
DATE

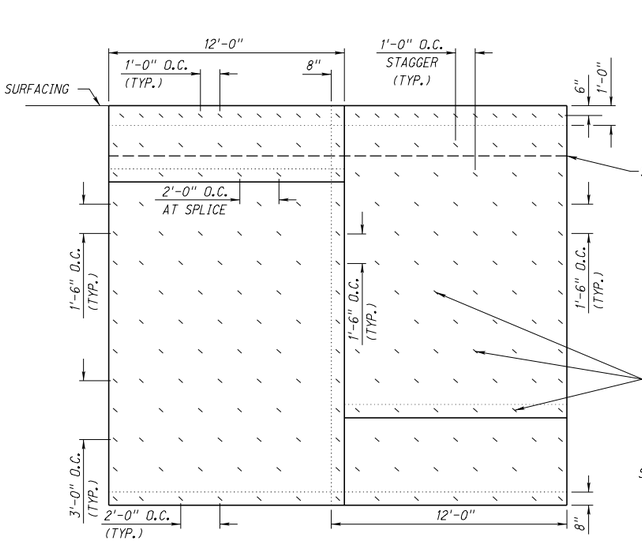
ROADWAY DESIGN DIVISION



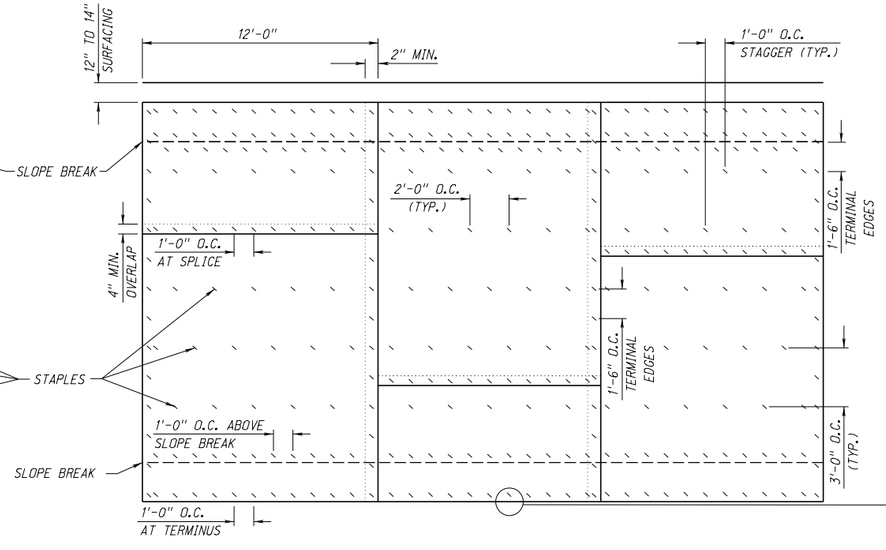
TYPICAL INSTALLATION
CLASS 1A (SLOPE PROTECTION, SAND)



SURFACING INSTALLATION

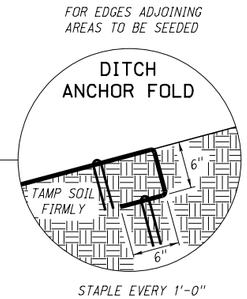


PLAN VIEW STAPLING DIAGRAM FOR
CLASS 1A (SLOPE PROTECTION, SAND)



TERMINATE BLANKET AT THE TOE OF SLOPE OR AT UNDISTURBED VEGETATION

PLAN VIEW STAPLING DIAGRAM FOR
CLASS 1B, 1C, 1D, 1E, 1F, 2A, 2B, & 2C



NOTES:

1. THE MANUFACTURERS' RECOMMENDED STAPLING PATTERNS SHALL GOVERN OVER THE PLANS.
2. SURFACING INSTALLATION IS APPLICABLE FOR ASPHALT, CONCRETE, OR BEVELLED EDGE.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	APR 14	UPDATE INSTALLATION METHOD
R5	OCT 07	EROSION CONTROL AT SPLASH BASIN

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 501-R7

EROSION CONTROL

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

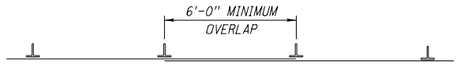
PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

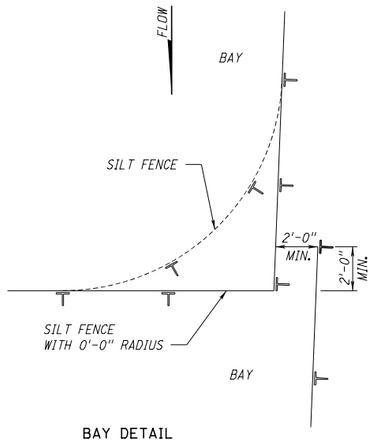
ORIGINAL:
NOVEMBER 1973
DATE

File: 501000607.dgn Date: 29-JUN-2021 09:20 Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 50200e02.dgn

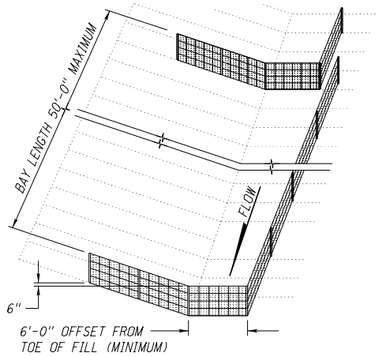


SILT FENCE SPLICE

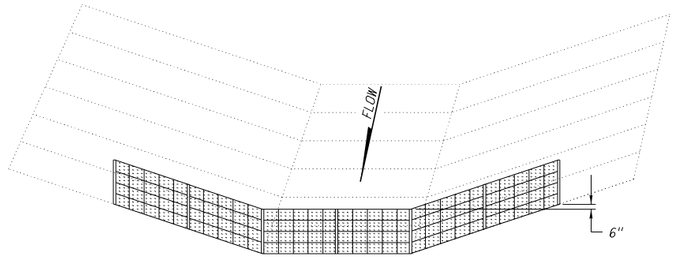


BAY DETAIL

NOTE:
SILT FENCE AT CORNERS SHALL HAVE A RADIUS OF 0'-0" MINIMUM TO 10'-0" MAXIMUM

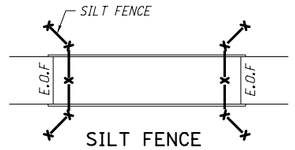


SILT FENCE BAYS

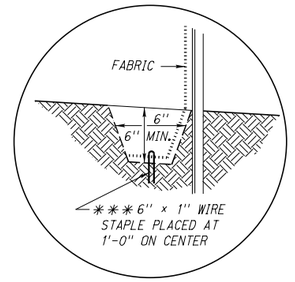


HIGH POROSITY SILT FENCE
(ACROSS DITCH)

NOTE:
POST SPACING 6'-0" MAXIMUM MULTIPLE BAYS MAY BE USED

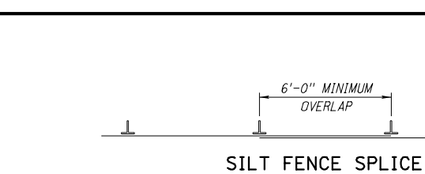


SILT FENCE
(UNDER BRIDGE)

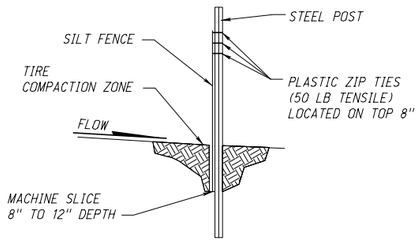


TRENCH DETAIL

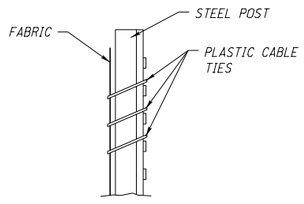
*** SILT FENCE MAY ALSO BE INSTALLED WITH A SILT FENCE PLOW. NO STAPLING IS REQUIRED WHEN THE SILT FENCE PLOW IS USED.



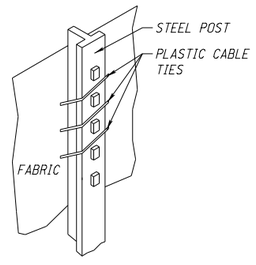
OPTION ONE (PREFERED)
SILT FENCE
(6'-0" OFFSET FROM TOE OF FILL)



SILT FENCE MACHINE SLICED



PROFILE VIEW
ATTACHMENT TO POST



BACK VIEW
ATTACHMENT TO POST

NOTES:

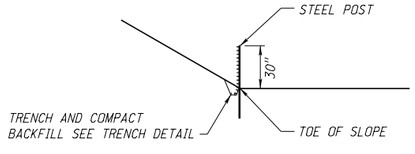
SILT FENCE SHOULD BE 30" ABOVE GRADE (MAY VARY)

SILT FENCE MINIMUM ROLL WIDTH:
LOW POROSITY = 42"
HIGH POROSITY = 42"
LOW PROFILE = 36"
COIR SILT FENCE = 36"

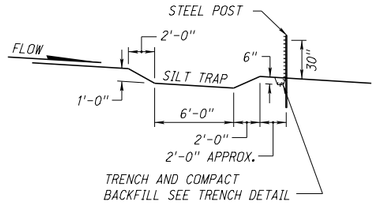
STEEL STUDDED "T" LINE POSTS 5'-6" LENGTH; 6'-0" MAXIMUM SPACING.

FOR EACH STEEL STUDDED "T" LINE POST, 3 PLASTIC CABLE TIES ARE REQUIRED.

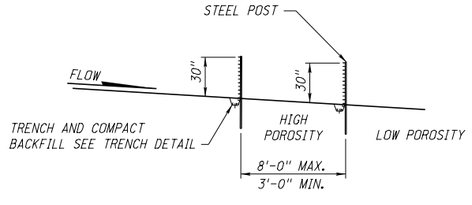
2" x 2" x 6'-0" NOMINAL WOOD STAKES SPACING, 6'-0" MAXIMUM ON CENTER DRIVEN UNTIL FIRM.



OPTION TWO (WITH LIMITED R.O.W.)
SILT FENCE
(AT TOE OF FILL)



HIGH POROSITY SILT
FENCE WITH SILT TRAP
(ACROSS DITCH)



SILT FENCE
(ACROSS DITCH)

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	APR 14	STEEL POST INSTALLATION

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 502-R2

SILT FENCE DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

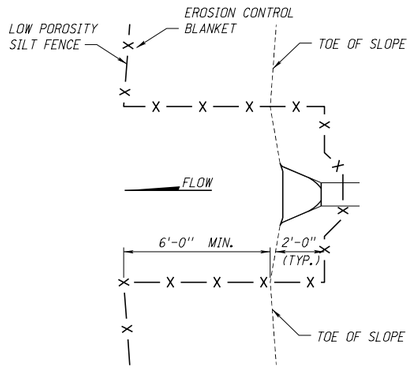
PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

DATE

ORIGINAL:
DECEMBER 2006
DATE

1
2

ROADWAY DESIGN DIVISION



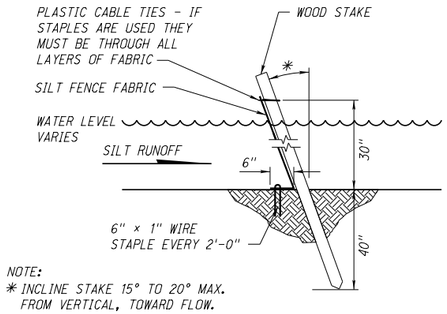
SILT FENCE OUTLET PROTECTION

NOTES:

1. SILT FENCE SHOULD BE BROUGHT FLUSH WITH WING WALLS ON BOX CULVERTS IF IT CAN NOT BE INSTALLED ABOVE THE BOX CULVERT.

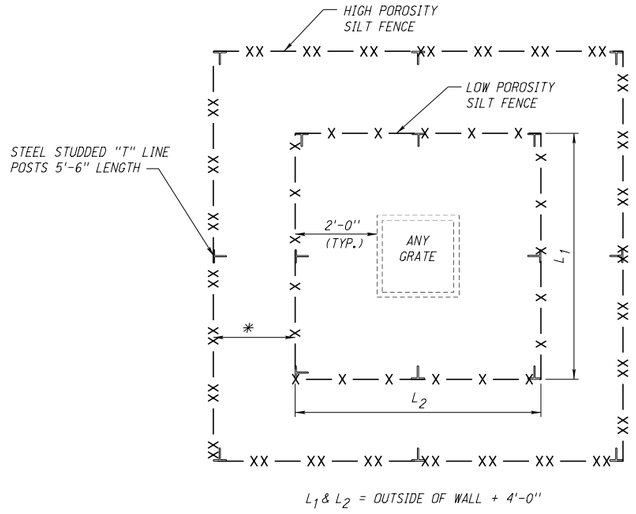
2. IF APPLICABLE, SILT FENCE AROUND THE CULVERT SHOULD BE ADJUSTED TO ALLOW FOR THE INSTALLATION OF EROSION CONTROL AS SHOWN IN STANDARD PLAN 501.

3. SILT CHECKS MAY USED IN PLACE OF SILT FENCE ABOVE THE OPENING OF A CULVERT, AS SHOWN IN SPECIAL PLAN C.



NOTE:
✳ INCLINE STAKE 15° TO 20° MAX. FROM VERTICAL, TOWARD FLOW.

SILT FENCE
(WET & BELOW WATER INSTALLATION)

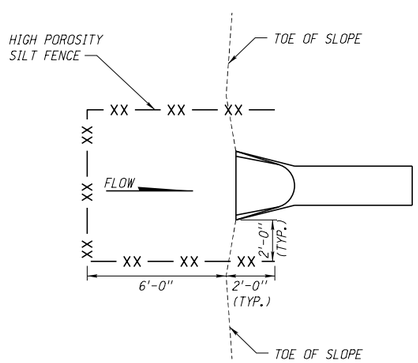


L_1 & L_2 = OUTSIDE OF WALL + 4'-0"

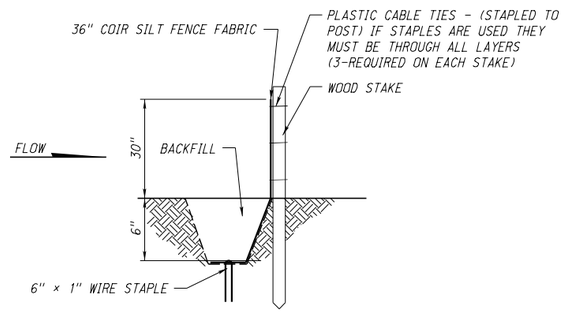
PLAN VIEW

SILT FENCE FOR GRATE, AREA, MEDIAN INLETS OR JUNCTION BOXES

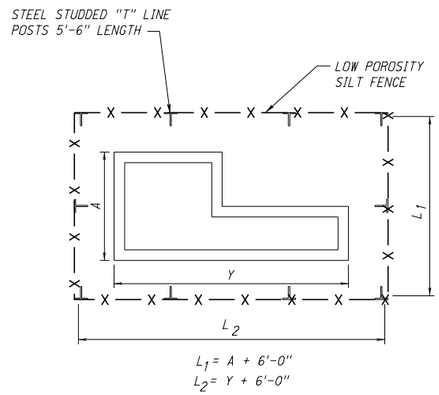
✳ 3'-0" IF POSSIBLE (MAY VARY)



SILT FENCE INLET PROTECTION



COIR SILT FENCE - ON WOOD POSTS - DRY INSTALLATION



L_1 = A + 6'-0"
L_2 = Y + 6'-0"

PLAN VIEW

SILT FENCE CURB INLET

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	APR 14	STEEL POST INSTALLATION

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 502-R2

SILT FENCE DETAILS

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

DATE

PROFESSIONAL CIVIL ENGINEER
BRANDIE S. NEEMANN
E-11829
STATE OF NEBRASKA

ORIGINAL:
DECEMBER 2006
DATE

2
2

Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:20
File: 502006d02.dgn

CHANNELIZATION DEVICES

THE FUNCTION OF CHANNELIZATION DEVICES IS TO WARN ROAD USERS OF CONDITIONS CREATED BY WORK ACTIVITIES IN OR NEAR THE TRAVELED WAY, TO PROTECT WORKERS IN THE TEMPORARY TRAFFIC CONTROL ZONE, AND TO GUIDE DRIVERS AND PEDESTRIANS SAFELY. CHANNELIZING DEVICES INCLUDE BUT ARE NOT LIMITED TO CONES, TUBULAR POSTS, VERTICAL PANELS, DRUMS, BARRICADES, TRAFFIC LANE DIVIDERS, TEMPORARY RAISED ISLANDS, AND BARRIERS.

DEVICES USED FOR CHANNELIZATION SHOULD PROVIDE FOR SMOOTH AND GRADUAL TRAFFIC MOVEMENT FROM ONE LANE TO ANOTHER, ONTO A BYPASS OR DETOUR, OR TO REDUCE THE WIDTH OF THE TRAVELED WAY. THEY MAY ALSO BE USED TO SEPARATE TRAFFIC FROM THE WORK SPACE, PAVEMENT DROP-OFFS, PEDESTRIAN PATHS, OR OPPOSING DIRECTIONS OF TRAFFIC.

CHANNELIZING DEVICES SHALL MEET THE CRASHWORTHY PERFORMANCE CRITERIA CONTAINED IN THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH). THEY SHOULD BE CONSTRUCTED AND BALLASTED TO PERFORM IN A PREDICTABLE MANNER WHEN INADVERTENTLY STRUCK BY A VEHICLE. IF STRUCK, THE DEVICE SHOULD YIELD OR BREAK AWAY, FRAGMENTS OR OTHER DEBRIS FROM THE DEVICE SHOULD NOT PENETRATE THE PASSENGER COMPARTMENT OF THE VEHICLE OR BE A POTENTIAL HAZARD TO WORKERS OR PEDESTRIANS IN THE IMMEDIATE AREA.

SPACING OF CHANNELIZING DEVICES SHOULD NOT EXCEED A DISTANCE IN FEET EQUAL TO THE SPEED WHEN USED FOR THE TAPER CHANNELIZATION, AND A DISTANCE IN FEET OF TWICE THE SPEED WHEN USED FOR TANGENT CHANNELIZATION.

SPACING OF CHANNELIZATION DEVICES

SPEED (MPH) S	SPACING OF DEVICES (FEET)	
	TAPER	TANGENT
25	25	50
35	35	70
45	45	90
55	55	110
60	60	120
65	65	130
75	75	150

WARNING LIGHTS MAY BE ADDED TO CHANNELIZING DEVICES IN AREAS WITH FREQUENT FOG, SNOW, OR SEVERE ROADWAY CURVATURE, OR WHERE VISUAL DISTRACTIONS ARE PRESENT, EXCEPT FOR THE SEQUENTIAL FLASHING WARNING LIGHTS, WARNING LIGHTS PLACED ON CHANNELIZING DEVICES USED IN A SERIES TO CHANNELIZE ROAD USERS SHALL BE STEADY-BURN.

THE RETROREFLECTIVE MATERIAL USED ON CHANNELIZING DEVICES SHALL HAVE A SMOOTH, SEALED OUTER SURFACE, MEETING THE REQUIREMENTS OF THE ASTM SPECIFICATION D4956, FOR TYPE IV SHEETING OR TYPE V REBOUNDABLE SHEETING (OR GREATER).

COEFFICIENT OF RETROREFLECTION ($CD/LUX/M^2$)

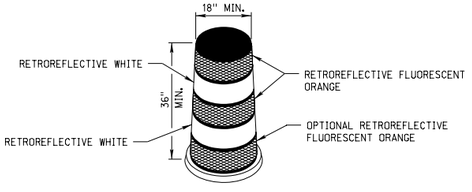
WHITE	ORANGE	RED	YELLOW
250	100	45	170

THE AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) "QUALITY GUIDELINES FOR WORK ZONE TRAFFIC CONTROL DEVICES" SHALL BE USED AS A VISUAL GUIDE FOR DETERMINING IF A TRAFFIC CONTROL DEVICE/OR SIGN IS ACCEPTABLE, MARGINAL OR UNACCEPTABLE.

THE NAME AND TELEPHONE NUMBER OF THE AGENCY, CONTRACTOR, OR SUPPLIER MAY BE SHOWN ON THE CHANNELIZING DEVICE BACK OR SUPPORT, BUT NOT ON THE DEVICE FACE. THE LETTERS AND NUMBERS SHALL BE A NON-REFLECTIVE COLOR AND NOT OVER 15 SQUARE INCHES IN TOTAL AREA.

PARTICULAR ATTENTION SHOULD BE GIVEN TO MAINTAINING THE CHANNELIZING DEVICES TO KEEP THEM CLEAN, VISIBLE, AND PROPERLY POSITIONED. DEVICES SHALL BE REPLACED THAT ARE DAMAGED AND/OR HAVE LOST A SIGNIFICANT AMOUNT OF THEIR RETROREFLECTIVITY AND EFFECTIVENESS.

REFLECTORIZED PLASTIC DRUMS



DESIGN

REFLECTORIZED PLASTIC DRUMS USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE CONSTRUCTED OF LIGHTWEIGHT, FLEXIBLE, AND DEFORMABLE MATERIALS AND BE A MINIMUM OF 36 INCHES IN HEIGHT AND HAVE A MINIMUM WIDTH OF AT LEAST A 18 INCHES, REGARDLESS OF ORIENTATION. THE PREDOMINANT COLOR OF THE DRUM SHALL BE ORANGE. METAL DRUMS SHALL NOT BE USED. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, SHALL BE CIRCUMFERENTIAL, AND SHALL DISPLAY FOUR 6 INCH WIDE BANDS OF RETROREFLECTIVE SHEETING, ALTERNATING FLUORESCENT ORANGE-WHITE-FLUORESCENT ORANGE-WHITE, DRUMS SHALL HAVE CLOSED TOPS THAT WILL NOT ALLOW COLLECTION OF CONSTRUCTION OR OTHER DEBRIS.

APPLICATION

DRUMS ARE MOST COMMONLY USED TO CHANNELIZE OR DELINEATE TRAFFIC FLOW BUT MAY ALSO BE USED INDIVIDUALLY OR IN GROUPS TO MARK SPECIFIC LOCATIONS. DRUMS ARE HIGHLY VISIBLE AND HAVE GOOD TARGET VALUE; THEY GIVE THE APPEARANCE OF BEING FORMIDABLE OBSTACLES AND, THEREFORE, COMMAND THE RESPECT OF ROAD USERS.

BALLAST SHALL NOT BE PLACED ON TOP OF THE DRUM. DRUMS SHOULD NOT BE WEIGHTED WITH SAND, WATER, OR ANY MATERIAL.

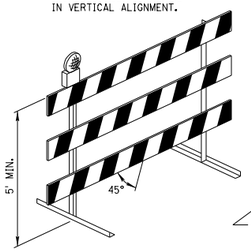
BARRICADES

BARRICADE TYPE	TYPE II	TYPE III
WIDTH OF RAIL ✳	8 INCHES MIN. - 12 INCHES MAX.	8 INCHES MIN. - 12 INCHES MAX.
LENGTH OF RAIL	36 INCHES	8 FEET ✳✳
WIDTH OF STRIPES	6 INCHES	6 INCHES
HEIGHT	36 INCHES	5 FEET
REFLECTIVE SHEETING	TYPE IV	TYPE IV
NUMBER OF REFLECTORIZED RAIL FACES	4 (TWO EACH DIRECTION)	6 (THREE EACH DIRECTION)

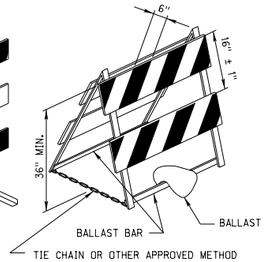
✳NOMINAL DIMENSIONS ARE PERMISSIBLE WHEN CONSTRUCTED FROM LUMBER.
✳✳WHEN LATERAL SPACE IS LIMITED, SOME TYPE III BARRICADES WITH A 4 FOOT LENGTH OF RAIL, MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

TYPE III BARRICADE

TYPICAL MOUNTING OF FLASHING WARNING LIGHTS. LIGHTS SHALL ALWAYS BE IN VERTICAL ALIGNMENT.



TYPE II BARRICADE



BALLAST SHALL NOT BE PLACED OVER ANY REFLECTIVE DEVICE

DESIGN

A BARRICADE IS A PORTABLE OR FIXED DEVICE HAVING TWO OR THREE RAILS WITH APPROPRIATE MARKINGS. IT IS USED TO CONTROL ROAD USERS BY CLOSING, RESTRICTING, OR DELINEATING ALL OR A PORTION OF THE RIGHT-OF-WAY.

BARRICADES SHALL BE ONE OF TWO TYPES; TYPE II OR TYPE III.

STRIPES ON BARRICADE RAILS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTIVE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION ROAD USERS ARE TO PASS. THE STRIPES SHALL BE 6 INCHES WIDE. THE MINIMUM RAIL LENGTH FOR A TYPE II BARRICADE IS 36 INCHES.

WHERE BARRICADES EXTEND ENTIRELY ACROSS A ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH ROAD USERS MUST TURN. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE STRIPES MAY SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.

BARRICADE RAILS SHOULD BE SUPPORTED IN A MANNER THAT WILL ALLOW THEM TO BE SEEN BY THE ROAD USER, AND IN A MANNER THAT PROVIDES A STABLE SUPPORT THAT IS NOT EASILY BLOWN OVER OR DISPLACED.

ON HIGH-SPEED ROADWAYS OR IN OTHER SITUATIONS WHERE BARRICADES MAY BE SUSCEPTIBLE TO OVERTURNING IN THE WIND, SANDBAGS SHOULD BE USED FOR BALLASTING. SANDBAGS MAY BE PLACED ON LOWER PARTS OF THE FRAME OR STAYS TO PROVIDE THE REQUIRED BALLAST BUT SHALL NOT BE PLACED ON TOP OF ANY STRIPED RAIL. BARRICADES SHALL NOT BE BALLASTED BY HEAVY OBJECTS SUCH AS ROCKS OR CHUNKS OF CONCRETE.

THE BARRICADE OWNERS NAME, NOT TO EXCEED 15 SQUARE INCHES SHALL BE SHOWN ON THE BARRICADE BACK OR SUPPORT BUT NOT ON ITS FACE.

✳✳ WHEN LATERAL SPACE IS LIMITED, SOME TYPE III BARRICADES WITH A 4 FOOT LENGTH OF RAIL, MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

APPLICATION

TYPE II BARRICADES ARE INTENDED FOR USE IN SITUATIONS WHERE TRAFFIC IS MAINTAINED THROUGH THE TEMPORARY TRAFFIC CONTROL ZONE. THEY MAY BE USED INDIVIDUALLY OR IN GROUPS TO MARK A SPECIFIC CONDITION, OR THEY MAY BE USED IN A SERIES FOR CHANNELIZING TRAFFIC. ON THE INTERSTATE, FREEWAY AND EXPRESSWAY SYSTEM, TYPE II BARRICADES SHALL NOT BE USED FOR CHANNELIZATION.

TYPE III BARRICADES USED AT A ROAD CLOSURE MAY EXTEND COMPLETELY ACROSS A ROADWAY FROM CURB TO CURB. WHERE PROVISION IS MADE FOR ACCESS OF AUTHORIZED EQUIPMENT AND VEHICLES, THE RESPONSIBILITY FOR THE TYPE III BARRICADES SHOULD BE ASSIGNED TO A PERSON WHO SHALL PROVIDE PROPER CLOSURE AT THE END OF EACH WORK DAY.

WHEN A HIGHWAY IS LEGALLY CLOSED BUT ACCESS MUST STILL BE ALLOWED FOR LOCAL TRAFFIC, THE TYPE III BARRICADES MAY NOT BE EXTENDED COMPLETELY ACROSS A ROADWAY. A SIGN WITH THE APPROPRIATE LEGEND CONCERNING PERMISSIBLE USE BY LOCAL TRAFFIC SHALL BE MOUNTED.

NORMALLY PERMANENT SIGNS MOUNTED ON BARRICADES SHALL BE ERECTED ABOVE THE BARRICADE. THE SIGNS "ROAD CLOSED", OR "ROAD WORK AHEAD", FOR EXAMPLE CAN EFFECTIVELY BE MOUNTED ABOVE THE BARRICADE THAT CLOSES THE ROADWAY. TYPE III BARRICADES SHALL BE SUPPLEMENTED WITH A LIGHTING DEVICE UNLESS SPECIFICALLY OMITTED BY THE ENGINEER. DETOUR ARROW AND LARGE WARNING ARROW SIGNS SHOULD BE PLACED ON THE FACE OF BARRICADE.

CONES

DESIGN

CONES SHALL BE PREDOMINANTLY ORANGE, FLOURESCENT RED-ORANGE, OR FLOURESCENT YELLOW/ORANGE. NOT LESS THAN 28 INCHES IN HEIGHT, AND SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING VEHICLES ON IMPACT. CONES WHEN ALLOWED ON THE INTERSTATE, FREEWAY OR EXPRESSWAY SYSTEM SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.

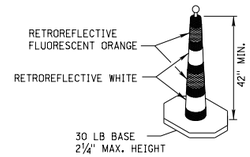
FOR NIGHTTIME USE, CONES SHALL BE RETROREFLECTIVE OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY. RETROREFLECTION OF 28 INCH OR 36 INCH CONES SHALL BE PROVIDED BY A WHITE BAND 6 INCHES WIDE, NO MORE THAN 4 INCHES FROM THE TOP OF THE CONE, AND AN ADDITIONAL 4 INCH WIDE WHITE BAND A MINIMUM OF 2 INCHES BELOW THE 6 INCH BAND.

APPLICATION

TRAFFIC CONES ARE USED TO CHANNELIZE TRAFFIC, DIVIDE OPPOSING TRAFFIC LANES, DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION, AND DELINEATE SHORT-DURATION MAINTENANCE AND UTILITY WORK. CONES SHALL NOT BE USED FOR LANE CLOSURE TAPERS OR SHIFTS, CONES SMALLER THAN 42 INCHES SHALL NOT BE USED AT NIGHT ON RURAL HIGHWAYS, UNLESS SHOWN ON THE PLANS OR AS APPROVED OR DIRECTED BY THE ENGINEER.

STEPS SHOULD BE TAKEN TO ENSURE THAT CONES WILL NOT BE BLOWN OVER OR DISPLACED BY WIND OR MOVING TRAFFIC. CONES CAN BE DOUBLED UP TO INCREASE THEIR WEIGHT. SOME CONES ARE CONSTRUCTED WITH BASES THAT CAN BE FILLED WITH BALLAST. OTHERS HAVE SPECIAL WEIGHTED BASES, OR WEIGHTS SUCH AS SANDBAG RINGS THAT CAN BE DROPPED OVER THE CONES AND ONTO THE BASE TO PROVIDE ADDED STABILITY. BALLAST, HOWEVER, SHOULD NOT PRESENT A HAZARD IF THE CONES ARE INADVERTENTLY STRUCK.

42 INCH CONES



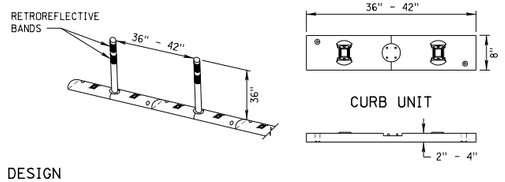
DESIGN

42 INCH CONES SHALL INCLUDE A 30 POUND RUBBER BASE AND DISPLAY FOUR 6 INCH WIDE BANDS OF RETROFEFLECTIVE SHEETING, ALTERNATING FLUORESCENT ORANGE-WHITE-FLOURESCENT ORANGE-WHITE.

APPLICATION

WHEN APPROVED BY THE ENGINEER OR SHOWN IN THE PLANS, 42 INCH REFLECTIVE CONES MAY BE USED IN LIEU OF TYPE II BARRICADES OR REFLECTORIZED DRUMS. 42 INCH CONES SHALL NOT BE USED FOR LANE-CLOSURE TAPERS OR SHIFTS. IF A RECTANGULAR BASE IS USED, THE LONG SIDE OF THE BASE SHOULD BE ORIENTED PARALLEL TO THE DIRECTION OF TRAFFIC.

TUBULAR POST AND CURB SYSTEM



DESIGN

TUBULAR POSTS USED IN THE SYSTEM SHALL BE 36 INCHES HIGH AND A MINIMUM OF 2 INCHES WIDE WHEN FACING TRAFFIC. THE TUBULAR POST AND CURB SYSTEM SHALL BE MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING IMPACTING VEHICLES. THE COLOR SHALL BE AS SHOWN IN THE PLANS.

THE TUBULAR POSTS SHALL BE RETROREFLECTIVE. RETROREFLECTION OF TUBULAR POSTS SHALL BE PROVIDED BY TWO 3-INCH WIDE RETROREFLECTIVE BANDS PLACED A MAXIMUM OF 2 INCHES FROM THE TOP WITH A MAXIMUM OF 6 INCHES BETWEEN THE BANDS. EACH CURB SECTION SHALL CONTAIN ONE RETROREFLECTIVE MARKER FACING EACH DIRECTION OF TRAFFIC. THE COLOR OF THE RETROREFLECTIVE BANDS AND MARKERS SHALL MATCH THE POST/CURB COLOR.

THE CURB SECTIONS SHALL BE CONFIGURED TO ALLOW FOR DRAINAGE FROM THE PAVEMENT SURFACE.

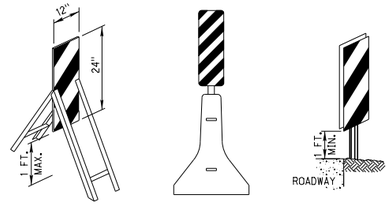
APPLICATION

TUBULAR POST AND CURB SYSTEMS MAY BE USED TO DIVIDE OPPOSING LANES OF TRAFFIC OR TO DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION.

FASTENING THE CURBS TO THE PAVEMENT WITH ANCHOR BOLTS OR OTHER SUITABLE METHODS AS DIRECTED BY THE MANUFACTURER IS REQUIRED TO MINIMIZE THE CHANCE OF BEING MOVED BY TRAFFIC.

TUBULAR POST AND CURB SYSTEMS SHALL BE INSTALLED IN THE LOCATIONS SHOWN IN THE PLANS OR DIRECTED BY THE ENGINEER.

VERTICAL PANELS



DESIGN

RETROREFLECTIVE MATERIAL ON VERTICAL PANELS SHALL BE 12 INCHES WIDE AND AT LEAST 24 INCHES HIGH. THEY SHALL HAVE ALTERNATING ORANGE AND WHITE STRIPES, WHERE THE HEIGHT OF THE RETROREFLECTIVE MATERIAL ON THE VERTICAL PANEL IS MORE THAN 36 INCHES, A PANEL STRIPE WIDTH OF 6 INCHES SHALL BE USED. WHERE THE HEIGHT OF THE RETROREFLECTIVE MATERIAL ON THE VERTICAL PANEL IS 36 INCHES OR LESS, A PANEL STRIPE WIDTH OF 4 INCHES SHALL BE USED. IF USED FOR TWO-WAY TRAFFIC, BACK-TO-BACK PANELS SHALL BE USED.

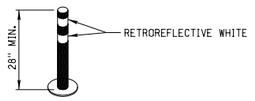
MARKINGS FOR VERTICAL PANELS SHALL BE ALTERNATING ORANGE AND WHITE RETROREFLECTORIZED STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS.

POST MOUNTED VERTICAL PANELS SHALL BE MOUNTED WITH THE BOTTOM A MINIMUM OF 1 FOOT ABOVE THE ROADWAY. VERTICAL PANELS ON A TEMPORARY STAND SHALL BE MOUNTED WITH THE BOTTOM A MAXIMUM OF 1 FOOT ABOVE THE ROADWAY.

APPLICATION

WHERE SPACE IS LIMITED VERTICAL PANELS MAY BE USED TO CHANNEL TRAFFIC, DIVIDE OPPOSING LANES OF TRAFFIC, DIVIDE TRAFFIC LANES OR REPLACE BARRICADES. WHEN APPROVED BY THE ENGINEER, VERTICAL PANELS MAY BE POST-MOUNTED ALONG THE SIDE OF THE ROADWAY.

TUBULAR POSTS



DESIGN

TUBULAR POSTS SHALL BE PREDOMINANTLY ORANGE, NOT LESS THAN 28 INCHES HIGH, BE A MINIMUM OF 2 INCHES WIDE WHEN FACING TRAFFIC, AND MADE OF A MATERIAL THAT CAN BE STRUCK WITHOUT DAMAGING IMPACTING VEHICLES.

TUBULAR POSTS SHALL BE RETROREFLECTIVE. RETROREFLECTION OF TUBULAR POSTS SHALL BE PROVIDED BY TWO 3 INCHES WIDE WHITE BANDS PLACED A MAXIMUM OF 2 INCHES FROM THE TOP, WITH A MAXIMUM OF 6 INCHES BETWEEN THE BANDS. THE BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 2 INCHES.

APPLICATION

TUBULAR POSTS HAVE LESS VISIBLE AREA THAN OTHER DEVICES AND SHOULD BE USED ONLY WHERE SPACE RESTRICTIONS DO NOT ALLOW FOR THE USE OF OTHER MORE VISIBLE DEVICES. THEY MAY BE USED EFFECTIVELY TO DIVIDE OPPOSING LANES OF TRAFFIC OR TO DIVIDE TRAFFIC LANES WHEN TWO OR MORE LANES ARE KEPT OPEN IN THE SAME DIRECTION.

STEPS SHOULD BE TAKEN TO ASSURE THAT TUBULAR POSTS WILL NOT BE BLOWN OVER OR DISPLACED BY TRAFFIC BY EITHER AFFIXING THEM TO THE PAVEMENT WITH ANCHOR BOLTS OR ADHESIVE, IF A NONCYLINDRICAL DEVICE IS USED, IT SHALL BE ATTACHED TO THE PAVEMENT TO ENSURE THAT THE WIDTH FACING TRAFFIC MEETS THE MINIMUM REQUIREMENTS.

TUBULAR POSTS SHOULD NOT BE USED FOR PEDESTRIAN CHANNELIZATION OR A PEDESTRIAN BARRIERS IN TEMPORARY TRAFFIC CONTROL ZONES ON OR ALONG SIDEWALKS.

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 920-R7

TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

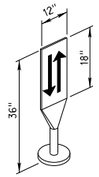
DATE

ORIGINAL: OCTOBER 1998
DATE

1/3

File: 92000e07.dgn Date: 29-JUN-2021 09:21 Computer: NDOTDESIGN134

OPPOSING TRAFFIC LANE DIVIDERS



DESIGN

OPPOSING TRAFFIC LANE DIVIDERS SHALL BE A TWO SIDED UPRIGHT RETROREFLECTORIZED ORANGE PANEL, WITH A WIDTH OF 12 INCHES AND A HEIGHT OF 18 INCHES. THE TOP OF THE PANEL SHALL BE 36 INCHES ABOVE THE PAVEMENT. THE SYMBOL ON EACH SIDE SHALL BE TWO OPPOSING BLACK ARROWS. THE LANE DIVIDER SHALL BE MADE OF LIGHTWEIGHT MATERIAL THAT WILL YIELD UPON IMPACT BY A VEHICLE. THE LANE DIVIDER BASE SHALL NOT BE WIDER THAN 12 INCHES OR HIGHER THAN 4 INCHES. THE BASE SHALL BE ATTACHED TO THE EXISTING SURFACE BY EPOXY OR OTHER SUITABLE ADHESIVE, TO ENSURE THAT THE PANEL REMAINS FACING TRAFFIC.

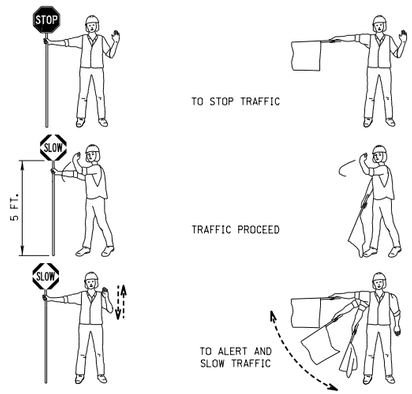
APPLICATION

OPPOSING TRAFFIC LANE DIVIDERS ARE DELINEATION DEVICES USED AS CENTER LANE DIVIDERS TO SEPARATE OPPOSING TRAFFIC ON A TWO-LANE, TWO-WAY OPERATION.

FLAGGERS

REQUIRED METHOD

EMERGENCY USE ONLY



FLAGGER PADDLE

THE STOP/SLOW PADDLE SHALL HAVE AN OCTAGONAL SHAPE ON A RIGID HANDLE. STOP/SLOW PADDLES SHALL BE AT LEAST 18 INCHES WIDE WITH LETTERS AT LEAST 6 INCHES HIGH. IF THE STOP/SLOW PADDLE IS PLACED ON A RIGID STAFF, THE MINIMUM LENGTH OF THE STAFF, MEASURED FROM THE BOTTOM OF THE SIGN TO THE END OF THIS STAFF THAT RESTS ON THE GROUND, SHOULD BE 5 FEET. THE STOP/SLOW PADDLE SHOULD BE THE PRIMARY AND PREFERRED HAND-SIGNALING DEVICE BECAUSE THE STOP/SLOW PADDLE GIVES ROAD USERS MORE POSITIVE GUIDANCE THAN RED FLAGS. USE OF FLAGS SHOULD BE LIMITED TO EMERGENCY SITUATIONS.

FLAGGERS

A FLAGGER MUST BE DRESSED FOR SAFETY. IN ADDITION TO THE REQUIREMENTS OF THE "WORKER VISIBILITY" SECTION LISTED BELOW, FLAGGERS SHALL WEAR:

1. AN ORANGE OR YELLOW/GREEN CAP OR HARD HAT.
2. A SHIRT WITH SLEEVES, PANTS AND SHOES (TANK TOPS, SHORTS OR SANDALS SHALL NOT BE WORN).

FLAGGERS SHALL BE INSTRUCTED IN THE PROPER LOCATION, DUTIES AND PROCEDURES FOR FLAGGING AS OUTLINED IN THE CURRENT MUTCD AND THE DEPARTMENT OF ROADS FLAGGER'S HANDBOOK. AS REQUIRED BY THE DEPARTMENT OF ROADS, THE FLAGGER SHALL BE CERTIFIED, AND HAVE IN THEIR POSSESSION, A VALID FLAGGER CERTIFICATION CARD.

WORKER VISIBILITY

ALL WORKERS WITHIN THE RIGHT-OF-WAY WHO ARE EXPOSED EITHER TO TRAFFIC (VEHICLES USING THE HIGHWAY FOR PURPOSES OF TRAVEL) OR TO CONSTRUCTION EQUIPMENT WITHIN THE WORK AREA SHALL WEAR HIGH-VISIBILITY SAFETY APPAREL. HIGH-VISIBILITY SAFETY APPAREL IS DEFINED TO MEAN PERSONAL PROTECTIVE SAFETY CLOTHING THAT;

1. IS INTENDED TO PROVIDE CONSPICUITY DURING BOTH DAYTIME AND NIGHTTIME USAGE, AND
2. MEETS THE PERFORMANCE CLASS 2 OR CLASS 3 REQUIREMENTS OF THE ANSI/ISEA 107-2004 PUBLICATION ENTITLED "AMERICAN NATIONAL STANDARDS FOR HIGH-VISIBILITY SAFETY APPAREL AND HEADWEAR"

LIGHTING DEVICES

FUNCTION

CONSTRUCTION AND MAINTENANCE ACTIVITIES OFTEN CREATE CONDITIONS ON OR NEAR THE TRAVELED WAY THAT ARE PARTICULARLY HAZARDOUS AT NIGHT. IT IS OFTEN DESIRABLE AND NECESSARY TO SUPPLEMENT THE REFLECTORIZED SIGNS, BARRIERS, AND CHANNELIZING DEVICES WITH LIGHTING DEVICES. STROBE TYPE LIGHTS ARE NOT PERMITTED.

BARRICADE WARNING LIGHTS DESIGN (BATTERY OPERATED)

TYPE "A" LOW INTENSITY FLASHING WARNING LIGHTS ARE MOST COMMONLY MOUNTED ON BARRICADES, OR WITH SIGNS AND ARE INTENDED TO WARN THE DRIVER THAT THEY ARE PROCEEDING IN A HAZARDOUS AREA. THESE LIGHTS SHALL NOT BE USED FOR DELINEATION, AS A SERIES OF FLASHING LIGHTS IN A ROW WOULD TEND TO OBSCURE THE DESIRED PATH.

TYPE "A" HIGH INTENSITY FLASHING WARNING LIGHTS ARE NORMALLY MOUNTED ON THE TYPE III BARRICADE THAT ACCOMPANIES THE ADVANCE WARNING SIGNS.

TYPE "C" STEADY BURN LIGHTS AS USED HEREIN, SHALL MEAN A SERIES OF LOW WATTAGE YELLOW ELECTRIC LIGHTS. WHERE LIGHTS ARE NEEDED TO DELINEATE OR MARK THE TRAVELED WAY THROUGH AND AROUND OBSTRUCTIONS IN A CONSTRUCTION MAINTENANCE AREA, THE DELINEATION SHALL BE ACCOMPLISHED BY USE OF STEADY BURNING LIGHTS. WHEN USED TO SUPPLEMENT CHANNELIZATION, THE MAXIMUM SPACING FOR WARNING LIGHTS SHOULD BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS. WHEN USED TO DELINEATE A CURVE, TYPE "C" WARNING LIGHTS SHOULD ONLY BE USED ON DEVICES ON THE OUTSIDE OF THE CURVE, AND NOT ON THE INSIDE OF THE CURVE.

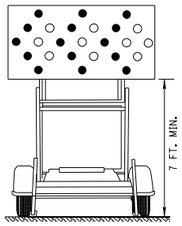
FLASHING ARROW PANEL (DISPLAY)

AN ARROW PANEL IS A SIGN WITH A MATRIX OF ELEMENTS, CAPABLE OF EITHER FLASHING OR SEQUENTIAL DISPLAYS. THIS SIGN SHALL PROVIDE ADDITIONAL WARNING AND DIRECTIONAL INFORMATION TO ASSIST IN MERGING AND CONTROLLING ROAD USERS THROUGH OR AROUND A TEMPORARY TRAFFIC CONTROL ZONE. AN ARROW PANEL SHOULD BE USED IN COMBINATION WITH APPROPRIATE SIGNS, CHANNELIZING DEVICES OR OTHER TRAFFIC CONTROL DEVICES.

DESIGN

ARROW PANELS SHALL MEET THE SIZE AND SPECIFICATIONS OF THE MUTCD FOR TYPE "C" ARROW DISPLAYS.

FLASHING ARROW PANEL SHALL BE RECTANGULAR, OF SOLID APPEARANCE AND FINISHED IN NON-REFLECTIVE BLACK. THE PANEL SHALL BE MOUNTED ON A VEHICLE, TRAILER OR OTHER SUITABLE SUPPORT. MINIMUM MOUNTING HEIGHT MEASURED VERTICALLY FROM THE BOTTOM OF THE PANEL TO THE ROADWAY BELOW IT OR TO THE ELEVATION OF THE NEAR EDGE OF THE ROADWAY. SHALL BE 7 FEET EXCEPT ON VEHICLE-MOUNTED PANELS, WHICH SHOULD BE AS HIGH AS PRACTICAL.



THE FOLLOWING SELECTIONS SHALL BE PROVIDED ON THE ARROW PANEL	
OPERATING MODE	PANEL DISPLAY
FLASHING ARROW	RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL ARROW	RIGHT SHOWN; LEFT OPPOSITE
SEQUENTIAL CHEVRON	RIGHT SHOWN; LEFT OPPOSITE
FLASHING DOUBLE ARROW	
FLASHING OR ALTERNATING CAUTION	FLASHING LINE OR FLASHING CORNERS OR ALTERNATING DIAMOND CAUTION

THE ARROW PANEL SHALL HAVE A MINIMUM SIZE OF 96 INCHES WIDE AND 48 INCHES HIGH. THE MINIMUM LEGIBILITY DISTANCE SHALL BE 1 MILE. THE PANEL SHALL CONTAIN 25 LAMP ELEMENTS. ARROW PANEL ELEMENTS SHALL BE CAPABLE OF A MINIMUM 50 PERCENT DIMMING, AUTOMATICALLY WHEN AMBIENT LIGHT FALLS BELOW 50 LUX.

THE MINIMUM ELEMENT "ON TIME" SHALL BE 50 PERCENT FOR THE FLASHING MODE AND EQUAL INTERVALS OF 25 PERCENT FOR EACH SEQUENTIAL CHEVRON PHASE. THE FLASHING RATE SHALL BE NO FEWER THAN 25 NOR MORE THAN 40 FLASHES PER MINUTE.

APPLICATION

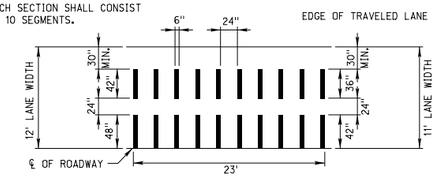
A FLASHING ARROW OR SEQUENTIAL CHEVRON MODE SHALL ONLY BE USED FOR STATIONARY OR MOVING LANE CLOSURES.

FOR SHOULDER WORK BLOCKING THE SHOULDER, FOR ROADSIDE WORK NEAR THE SHOULDER, OR FOR TEMPORARILY CLOSING ONE LANE ON A TWO-LANE, TWO-WAY ROADWAY, AN ARROW PANEL SHALL BE USED ONLY IN THE CAUTION MODE.

AN ARROW DISPLAY MODE SHALL NOT BE USED ON A TWO-LANE TWO-WAY ROADWAY FOR TEMPORARY ONE-LANE OPERATION OR LANE SHIFTS. AN ARROW DISPLAY SHALL NOT BE USED TO LATERALLY SHIFT TRAFFIC.

TEMPORARY RUMBLE STRIPS

EACH SECTION SHALL CONSIST OF 10 SEGMENTS.



DESIGN

TEMPORARY RUMBLE STRIPS MAY BE MADE OF ASPHALT PAVING MATERIAL, EPOXY AND AGGREGATE OR OTHER SUITABLE MATERIAL WHICH WILL MAINTAIN A DESIRABLE RUMBLE EFFECT. THE TEMPORARY RUMBLE STRIP SHOULD HAVE AN INSTALLED HEIGHT OF 5/8". PREFORMED RUMBLE STRIPS MAY BE USED PROVIDED THEY HAVE A MINIMUM ½" HEIGHT.

TRAFFIC SIGNALS

TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN EQUIPMENT CROSSINGS WHERE THE VOLUME OF FILL MATERIAL AND THE NUMBER OF EQUIPMENT CROSSINGS PER HOUR IS HIGH. TRAFFIC SIGNALS MAY BE ALLOWED AT CERTAIN BRIDGE CONSTRUCTION SITES WHERE A COMBINATION OF ONE-WAY TRAFFIC AND HIGH TRAFFIC VOLUMES WOULD BE BEST SERVED WITH THIS TYPE OF TRAFFIC CONTROL.

ALL TRAFFIC SIGNAL REQUESTS AND METHOD OF INSTALLATION ON THE STATE HIGHWAY SYSTEM SHALL BE IN COMPLIANCE WITH THE MUTCD AND MUST BE APPROVED BY THE STATE TRAFFIC ENGINEER.

IF, AFTER THE SIGNAL ASSEMBLIES ARE ERECTED AND THE ROAD IS OPEN TO PUBLIC TRAVEL, THE SIGNAL SYSTEM IS NOT PUT IMMEDIATELY INTO OPERATION, THE SIGNAL FACES SHALL BE COVERED WITH BURLAP OR OTHER OPAQUE MATERIAL SUBJECT TO THE APPROVAL OF THE ENGINEER. INOPERATIVE SIGNALS ON ROADS OPEN TO THE PUBLIC SHALL ALWAYS BE COVERED. TILTING THE SIGNALS UPWARD IS NOT AN ACCEPTABLE ALTERNATIVE TO COVERING THE HEADS.

FLOODLIGHTS

WHEN NIGHTTIME WORK IS REQUIRED, FLOODLIGHTS SHALL BE USED TO ILLUMINATE FLAGGER STATIONS. FLOODLIGHTS SHOULD BE USED TO ILLUMINATE EQUIPMENT CROSSINGS, AND OTHER AREAS WHERE EXISTING LIGHT IS NOT ADEQUATE FOR THE WORK TO BE PERFORMED SAFELY.

IN NO CASE SHALL FLOODLIGHTING BE PERMITTED TO CREATE A DISABLING GLARE FOR DRIVERS. THE ADEQUACY OF THE FLOODLIGHT PLACEMENT AND ELIMINATION OF POTENTIAL GLARE SHOULD BE CHECKED BY DRIVING THROUGH THE PROJECT.

PAVEMENT MARKING

IT IS INTENDED TO THE EXTENT POSSIBLE, THAT MOTORISTS BE PROVIDED MARKINGS WITHIN A WORK AREA COMPARABLE TO THE MARKINGS NORMALLY MAINTAINED ALONG ADJACENT ROADWAYS, PARTICULARLY AT EITHER END OF THE WORK AREA.

ALL MARKINGS AND DEVICES USED TO DELINEATE VEHICLE AND PEDESTRIAN PATHS SHALL BE CAREFULLY REVIEWED DURING DAYTIME AND NIGHTTIME PERIODS TO AVOID INADVERTENTLY LEADING DRIVERS OR PEDESTRIANS FROM THE INTENDED PATH.

PAVEMENT MARKINGS NO LONGER APPLICABLE SHALL BE REMOVED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

TAPERS

TAPERS ARE CREATED USING A SERIES OF CHANNELIZING DEVICES OR PAVEMENT MARKINGS TO MOVE TRAFFIC OUT OF OR INTO ITS NORMAL PATH.

MERGING TAPER

A MERGING TAPER REQUIRES THE LONGEST DISTANCE BECAUSE DRIVERS ARE REQUIRED TO MERGE INTO COMMON ROAD SPACE. THE TAPER SHOULD BE LONG ENOUGH TO ENABLE MERGING DRIVERS TO HAVE ADEQUATE ADVANCE WARNING AND SUFFICIENT LENGTH TO ADJUST THEIR SPEEDS AND MERGE INTO A SINGLE LANE BEFORE THE DOWNSTREAM END OF THE TRANSITION.

SHIFTING TAPER

A SHIFTING TAPER IS USED WHEN MERGING IS NOT REQUIRED, BUT A LATERAL SHIFT IS NEEDED. APPROXIMATELY ONE-HALF "L" HAS BEEN FOUND TO BE ADEQUATE. WHERE MORE SPACE IS AVAILABLE, IT MAY BE BENEFICIAL TO USE LONGER TAPERS. GUIDANCE FOR CHANGES IN ALIGNMENT MAY ALSO BE ACCOMPLISHED BY USING HORIZONTAL CURVES DESIGNED FOR NORMAL HIGHWAY SPEEDS.

SHOULDER TAPERS

A SHOULDER TAPER MAY BE BENEFICIAL ON HIGH-SPEED ROADWAYS WHERE SHOULDERS ARE PART OF THE ACTIVITY AREA AND ARE CLOSED, OR WHEN IMPROVED SHOULDERS MIGHT BE MISTAKEN AS A DRIVING LANE IN THESE INSTANCES, THE SAME TYPE, BUT ABBREVIATED, CLOSURE PROCEDURES USED ON A NORMAL PORTION OF THE ROADWAY CAN BE USED. IF USED, SHOULDER TAPERS APPROACHING THE ACTIVITY AREA SHOULD HAVE A LENGTH OF ABOUT ONE-THIRD "L".

DOWNSTREAM TAPERS

THE DOWNSTREAM TAPER MAY BE USEFUL IN TERMINATION AREAS TO PROVIDE A VISUAL CUE TO THE DRIVER THAT ACCESS IS AVAILABLE TO THE ORIGINAL LANE OR PATH THAT WAS CLOSED. WHEN USED, IT SHOULD HAVE A MINIMUM LENGTH OF ABOUT 100 FEET PER LANE, WITH DEVICES SPACED ABOUT 20 FEET APART.

ONE LANE, TWO WAY TAPER

THE ONE-LANE, TWO-WAY TAPER IS USED IN ADVANCE OF AN ACTIVITY AREA THAT OCCUPIES PART OF A TWO-WAY ROADWAY IN SUCH A WAY THAT A PORTION OF THE ROAD IS USED ALTERNATELY BY TRAFFIC IN EACH DIRECTION. A SHORT TAPER HAVING A MINIMUM LENGTH OF 50 FEET AND A MAXIMUM LENGTH OF 100 FEET WITH CHANNELZING DEVICES AT APPROXIMATELY 20 FOOT SPACINGS SHOULD BE USED TO GUIDE TRAFFIC INTO THE ONE-LANE-SECTION AND A DOWNSTREAM TAPER WITH A LENGTH OF APPROXIMATELY 100 FEET SHOULD BE USED TO GUIDE TRAFFIC BACK INTO THEIR ORIGINAL LANE.

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES	
TYPE OF TAPER	TAPER LENGTH (FEET)
MERGING TAPER	L MINIMUM
SHIFTING TAPER	1/2 L MINIMUM
SHOULDER TAPER	1/3 L MINIMUM
TWO-WAY TAPER	100 FEET MAXIMUM

FORMULAS FOR L	
SPEED	FORMULA
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR GREATER	L = WS

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = POSTED SPEED LIMIT PRIOR TO WORK IN MPH

TAPER LENGTH L (FEET)			
SPEED (MPH)	LANE WIDTH		
S	10 FT.	11 FT.	12 FT.
25	105	115	125
30	150	165	180
35	205	225	245
40	270	295	320
45	450	495	540
50	500	550	600
55	550	605	660
60	600	660	720
65	650	715	780
75	750	825	900

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 920-R7

TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

DATE

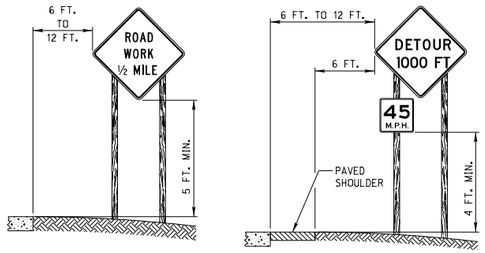
ORIGINAL: OCTOBER 1998
DATE

File: 92000e07.dgn
Date: 29-JUN-2021 09:21
Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION

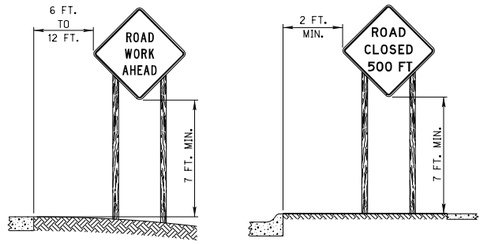
ROADSIDE SIGNS

HEIGHT AND LATERAL LOCATION OF SIGNS
RURAL AREA



WITH SPEED ADVISORY PLATE

URBAN AREA



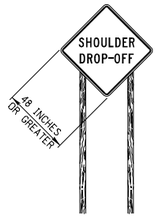
TYPICAL FIRST SIGN AT CONSTRUCTION SITE

WITH TYPE "A" FLASHING WARNING LIGHT MOUNTED ABOVE TYPE III BARRICADE

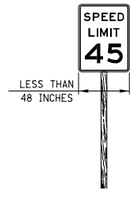
PORTABLE AND TEMPORARY MOUNTING

TYPICAL SIGN MOUNTINGS

POST MOUNTED



SIGNS 48 INCHES OR WIDER REQUIRE TWO POSTS



SIGN WIDTHS LESS THAN 48 INCHES MAY BE MOUNTED WITH ONE POST

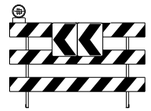
TYPICAL SIGN MOUNTINGS

OTHER THAN POST MOUNTED

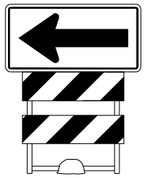
TYPE III BARRICADE WITH SIGN

PORTABLE AND TEMPORARY MOUNTING

TYPE III BARRICADE WITH SIGN AND DETOUR ARROW



TYPE III BARRICADE WITH CHEVRONS



TYPE II BARRICADE WITH DETOUR ARROW OR SIGN

PLASTIC DRUM WITH CHEVRON OR SIGN

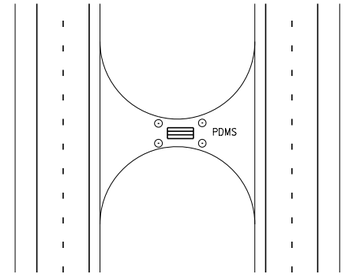
TEMPORARY SIGN SUPPORTS

ALL "TEMPORARY SIGN" SUPPORTS (BASES) SHALL BE NCHRP 350 OR MASH (TL-3) APPROVED.

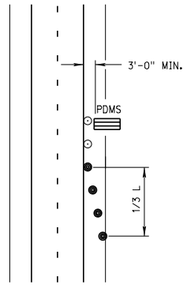
"TEMPORARY SIGNS" ARE ALL TEMPORARILY MOUNTED WORK ZONE SIGNS THAT ARE NOT POST MOUNTED IN THE GROUND AT THE TYPICAL 5 FOOT MOUNTING HEIGHT. TEMPORARY SIGNS ARE CONSIDERED NCHRP 350 OR MASH CATEGORY 2 DEVICES AND ARE MOUNTED ON TEMPORARY SIGN STANDS. TEMPORARY SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT ABOVE THE GROUND, UNLESS OTHERWISE REQUIRED TO BE MOUNTED AT A HIGHER HEIGHT.

TEMPORARY SIGNS AND THEIR SUPPORTS SHALL NOT BE IN PLACE LONGER THAN 3 DAYS. ANY SIGN THAT IS TO BE IN PLACE LONGER THAN 3 DAYS SHALL BE POST MOUNTED OR MOUNTED TO A DRUM, BARRICADE, OR BARRIER, AS REQUIRED BY THE PLANS OR SPECIFICATIONS.

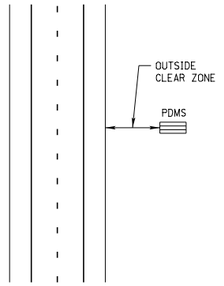
PORTABLE DYNAMIC MESSAGE SIGN DELINEATION



IN MEDIAN



ON SHOULDER



OFF SHOULDER

PORTABLE DYNAMIC MESSAGE SIGNS (PDMS)

THE PLACEMENT OF PDMS SHOULD BE IN THE FOLLOWING ORDER:

WHENEVER POSSIBLE, PDMS SHOULD BE PLACED OFF OF ANY USABLE PORTION OF THE ROADWAY ON THE RIGHT SIDE OF THE ROADWAY. WHEN PLACED OUTSIDE THE CLEAR ZONE OR BEHIND GUARDRAIL OR CONCRETE PROTECTION BARRIERS, DELINEATION IS NOT REQUIRED.

WHERE FIELD CONDITIONS DO NOT ALLOW FOR THIS PLACEMENT, THE SIGNS MAY BE LOCATED ON THE OUTSIDE SHOULDER OF THE ROADWAY OR WITHIN THE MEDIAN.

A. A MINIMUM CLEARANCE OF 3 FEET MEASURED HORIZONTALLY FROM THE EDGE OF THE SIGN TO THE EDGE OF THE TRAVELED WAY IS RECOMMENDED.
B. THE PDMS SHOULD HAVE A MINIMUM MOUNTED HEIGHT OF 7 FEET ON FREEWAYS, EXPRESSWAYS AND IN URBAN AREAS.
C. ALL OTHER RURAL APPLICATIONS SHOULD HAVE A MINIMUM HEIGHT OF 5 FEET.

THESE HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF THE PAVEMENT.

REFLECTORIZED PLASTIC DRUMS SHOULD BE USED TO DELINEATE EACH SIGN USING A 1/3 L TAPER. THESE DRUMS SHOULD BE POSITIONED ON THE UPSTREAM END OF THE SIGN TO FORM A TAPER LEADING UP TO THE TRAFFIC SIDE OF THE SIGN. FOR A SIGN LOCATED IN THE MEDIAN, THE SIGN SHOULD BE DELINEATED WITH A 42 INCH CONE ON ALL FOUR CORNERS.

WHEN DEPLOYED, THE SIGN SHALL BE SIGHTED AND ALIGNED WITH APPROACHING TRAFFIC TO ENSURE VISIBILITY OF THE MESSAGE. IF MULTIPLE SIGNS ARE USED, THE SIGNS SHOULD BE LOCATED ON THE SAME SIDE OF THE ROAD AND SEPARATED ACCORDING TO PROPER SIGN SPACING.

WHEN PRACTICAL, PDMS SHOULD NOT BE USED TO REPLACE STATIC SIGNS FOR LONG TERM USAGE (OVER 10 DAYS).

WHEN PDMS ARE TO BE DEPLOYED FOR LONG PERIODS, SUCH AS INCIDENT MANAGEMENT ROLES, CONCRETE PADS WITH APPROPRIATE TIE DOWNS SHOULD BE CONSTRUCTED FOR THEIR PLACEMENT.

PDMS NOT ACTIVELY BEING USED IN A CONSTRUCTION OR INCIDENT MANAGEMENT ROLE SHOULD BE REMOVED.

REFER TO NDOR "DMS GUIDELINES" FOR PROPER PDMS MESSAGE INFORMATION.

NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL MEET THE APPLICABLE STANDARDS AND SPECIFICATIONS PRESCRIBED IN PART 6 OF THE LATEST ADOPTED EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD)" AND THE STATE OF NEBRASKA SUPPLEMENT TO THE MUTCD. ALL TRAFFIC CONTROL DEVICES SHALL BE CRASHWORTHY AND QUALIFY AS SUCH ACCORDING TO THE TESTING AND ACCEPTANCE GUIDELINES OF THE NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. TRAFFIC CONTROL PLANS AND DEVICES SHOULD FOLLOW THE PRINCIPLES SET FORTH, BUT MAY DEVIATE FROM THE TYPICAL DRAWINGS TO ALLOW FOR CONDITIONS AND REQUIREMENTS OF THE PROJECT.
3. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SO AS NOT TO OBSTRUCT THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
4. THE ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE THE USE, AND APPROVE THE LOCATION OF ANY OF THE DEVICES SHOWN IN THESE PLANS.

WORK ZONE SPEED LIMIT NOTES

A. WORK ZONE SPEED LIMITS SHALL NOT BE INSTALLED WITHOUT A SPEED ZONE AUTHORIZATION COMPLETED BY THE DEPARTMENT.
B. REDUCED SPEED LIMITS SHOULD BE USED ONLY IN THE SPECIFIC PORTION OF THE WORK ZONE WHERE CONDITIONS OR RESTRICTIVE FEATURES ARE PRESENT. HOWEVER, FREQUENT CHANGES IN THE SPEED LIMIT SHOULD BE AVOIDED. THE REDUCTION OF SPEED SHOULD BE DESIGNED SO VEHICLES CAN SAFELY TRAVEL THROUGH THE WORK ZONE WITH A SPEED LIMIT REDUCTION OF NO MORE THAN 10 MPH UNLESS OTHERWISE NOTED IN THE PLANS.
C. WORK ZONE SPEED LIMITS SHOWN ARE TYPICAL APPLICATIONS ONLY AND ARE NOT TO BE ASSUMED AS THE SPEED LIMITS REQUIRED FOR THE WORK.
D. EXISTING SPEED LIMIT SIGNS SHALL BE REMOVED OR COVERED WHEN A REDUCED WORK ZONE SPEED LIMIT IS IN EFFECT IN THE SAME AREA.
E. WORK ZONE SPEED LIMIT SIGNS SHALL BE INSTALLED EVERY MILE THROUGH THE WORK AREA WHEN SPEED ZONE IS REDUCED.
F. A SPEED LIMIT SIGN ENDING THE REDUCED SPEED ZONE SHALL BE INSTALLED AT THE END OF EACH ZONE.
G. DOUBLE FINES AND REDUCED SPEED ZONE SIGNING ARE NOT REQUIRED FOR SHORT-DURATION WORK LESS THAN 12 HOURS.

TAPER FORMULA

L = S x W FOR SPEEDS OF 45 MPH OR MORE.

L = $\frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

W = WIDTH OF OFFSET (LANE WIDTH).

LEGEND

- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- PORTABLE DYNAMIC MESSAGE SIGN

REV. NO.	DATE	DESCRIPTION OF REVISION
R7	JAN 18	NDOR BORDER TO NDOT BORDER
R6	JUN 14	2009 MUTCD UPDATE
R5	OCT 98	REVISE CHANNELIZATION DEVICES, TAPER

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 920-R7

TRAFFIC CONTROL, CONSTRUCTION AND MAINTENANCE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

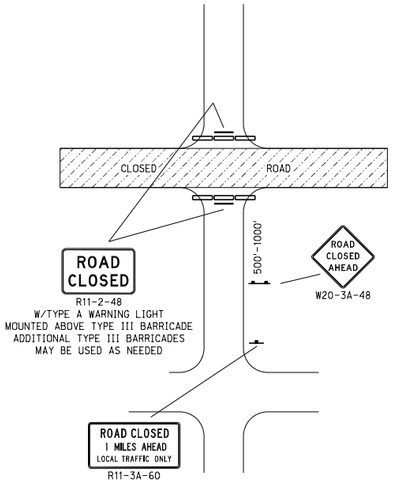
DATE

ORIGINAL:
OCTOBER 1998
DATE

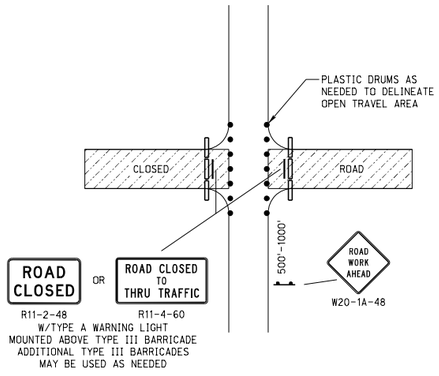
3
3

Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:21
File: 92000e07.dgn

CROSS ROAD INTERSECTING CLOSED ROAD

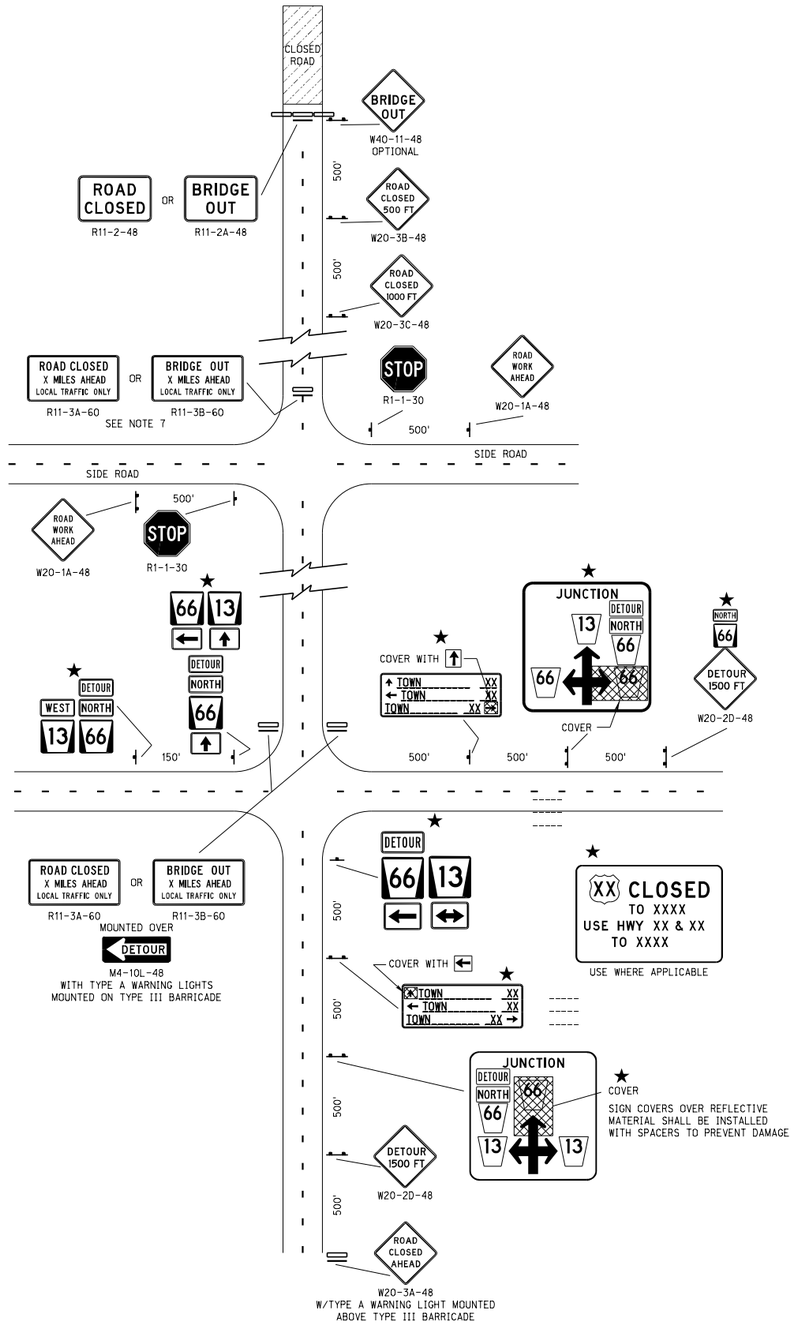


TRAFFIC NOT ALLOWED TO CROSS CLOSED ROAD



TRAFFIC ALLOWED TO CROSS CLOSED ROAD

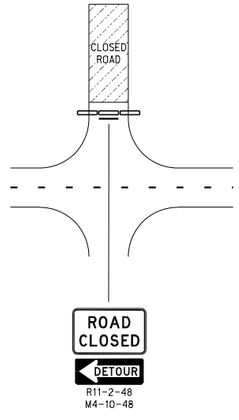
ROAD CLOSED BEYOND JUNCTION



NOTES

1. SIGNS SHOWN ARE USUALLY FOR ONE DIRECTION OF TRAVEL ONLY.
2. THE CONTRACTOR SHALL INSTALL, MAINTAIN, AND REMOVE ALL SIGNS IN ACCORDANCE WITH THE DETAILS OF AND AT THE LOCATIONS SHOWN IN THE PLANS. SIGNS INSTALLED BY THE DEPARTMENT OR OTHER GOVERNMENT AGENCY SHALL BE MAINTAINED AND REMOVED BY THEIR FORCES.
3. WHEN MESSAGE IS NOT PERTINENT, SIGNS SHALL BE TAKEN DOWN, COVERED OR FOLDED. TAPE IS NOT PERMITTED ON THE FACE OF THE SIGN.
4. VEHICLES OR EQUIPMENT SHALL NOT BE PARKED SO AS TO OBSCURE OR DISTRACT FROM TRAFFIC CONTROL DEVICES.
5. FLAGS MAY BE USED TO CALL ATTENTION TO WARNING SIGNS.
6. WHEN APPROPRIATE THE SIGN R11-2B "BRIDGE OUT" MAY BE USED INSTEAD OF R11-2 "ROAD CLOSED".
7. BARRICADE AND SIGN MAY BE PLACED ALONG EDGE OF ROAD IF NEEDED FOR LOCAL TRAFFIC.
8. REFER TO STANDARD PLAN 920 FOR GENERAL INFORMATION NOT SHOWN.

ROAD CLOSED AT JUNCTION



LEGEND

- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- ★ INSTALLED BY OTHERS

TAPER FORMULA

L = S x W FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

W = WIDTH OF OFFSET (LANE WIDTH).

REV. NO.	DATE	DESCRIPTION OF REVISION
R2	JAN 18	NDOR BORDER TO NDOT BORDER
R1	JUN 14	2009 MUTCD UPDATES

NEBRASKA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN NO. 923-R2

TRAFFIC CONTROL ROAD CLOSURE

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

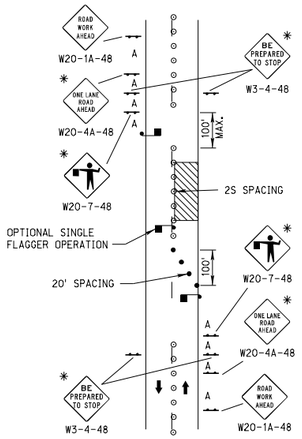
DATE

ORIGINAL: AUGUST 1998
DATE

1
1

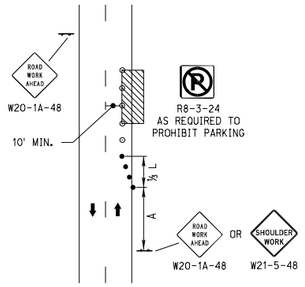
File: 923l0e02.dgn
Date: 29-JUN-2021 09:21
Computer: NDOTDESIGN134

ROADWAY DESIGN DIVISION
Computer: NDOTDESIGN134
Date: 29-JUN-2021 09:21
File: 92400e04.dgn

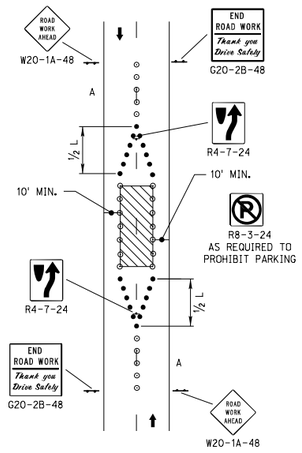


ONE LANE CLOSED
WITH FLAGGER

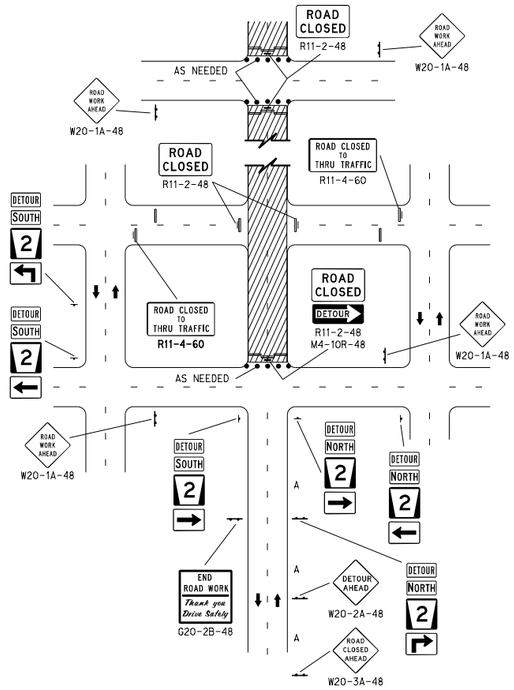
✳ SIGNS AND CONES ARE SUBSIDIARY TO THE FLAGGING OPERATION.



SHOULDER OR PARKING
LANE CLOSED

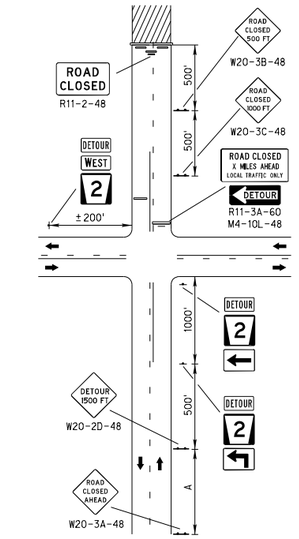


WORK IN CENTER OF
ROAD WITH LOW
TRAFFIC VOLUMES



ROAD CLOSED AT DETOUR

ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS
	A
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'



ROAD CLOSED BEYOND DETOUR

LEGEND

- FLASHING ARROW PANEL
- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- TUBULAR POST
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- FLAGGER
- xxxx PAVEMENT MARKING REMOVAL

TAPER FORMULA

L = S x W FOR SPEEDS OF 45 MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

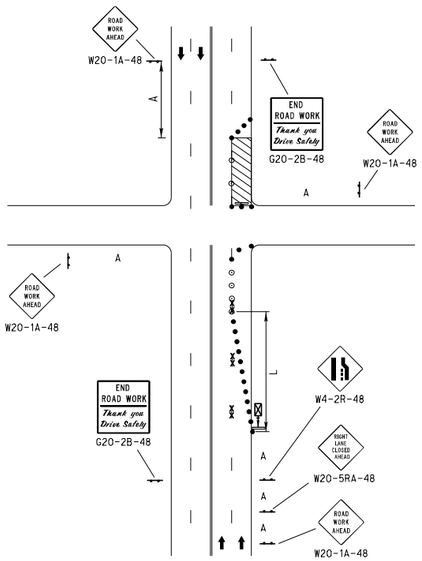
WHERE:
L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK.

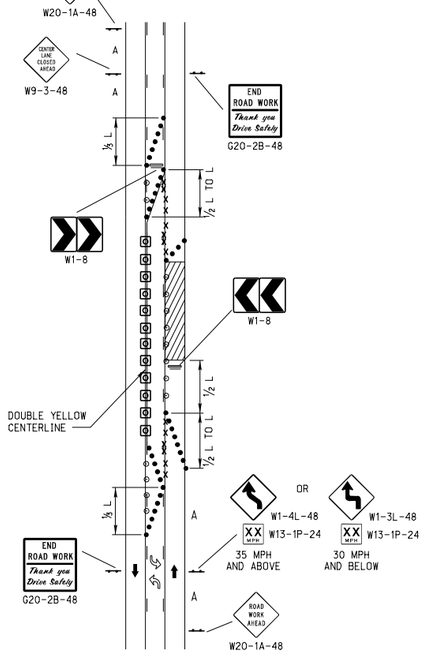
W = WIDTH OF OFFSET (LANE WIDTH).

NOTES

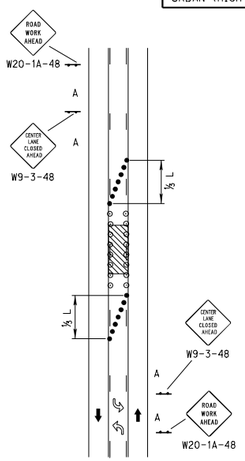
1. ALL BARRICADE AND SIGN LOCATIONS ON THIS PLAN ARE APPROXIMATE, AND MAY BE ADJUSTED TO FIT FIELD CONDITIONS. THE SIGNS SHALL BE INSTALLED SO AS NOT TO OBSCURE THE VIEW OF OTHER TRAFFIC CONTROL DEVICES.
2. MINIMUM WIDTH OF TRAVELLED LANE SHALL BE AS REQUIRED BY THE ENGINEER.
3. FLASHING ARROW PANEL REQUIRED ON ALL ROADWAYS WITH POSTED SPEED LIMIT 45 MPH OR HIGHER. THE USE OF A FLASHING ARROW PANEL IS OPTIONAL ON ROADWAYS WITH A POSTED SPEED OF 40 MPH OR LOWER.
4. LONG-TERM FLASHING ARROW PANELS IN URBAN RESIDENTIAL AREAS WHERE DIESEL ENGINE NOISE WILL BE DISRUPTIVE TO RESIDENTS, MAY BE REQUIRED TO OPERATE BY 120 VAC, OR IF SIGHT DISTANCE ALLOWS, A SOLAR POWERED ARROW PANEL MAY BE USED.
5. FOR SHORT-TERM WORK (LESS THAN 24 HOURS) SIGN G20-2B-48 (END ROAD WORK, THANK YOU, DRIVE SAFELY) MAY BE OMITTED.
6. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT (S). WHERE CHANNELIZING DEVICES ARE USED ALONG THE WORK AREA, THE SPACING MAY BE INCREASED TO THE DISTANCE IN FEET EQUAL TO THE SPEED LIMIT, DOUBLED (2 × S). SEE "TAPER FORMULA" TABLE FOR MORE INFORMATION.
7. FOR LANE CLOSURES OVER 72 HOURS, ALL CONFLICTING PAVEMENT MARKINGS SHALL BE REMOVED. ON ASPHALT SURFACES, DURABLE PAVEMENT MARKINGS MAY BE COVERED WITH APPROVED BLACK TEMPORARY PAVEMENT MARKING TAPE.
8. DESIGNATION OF SPEED SHOWN ON ADVISORY SPEED SIGNS W13-1P SHALL BE DETERMINED BY THE ENGINEER IN ACCORDANCE WITH MUTCD. THE SPEED DESIGNATION SHALL BE AS HIGH AS PRACTICAL AND FEASIBLE.



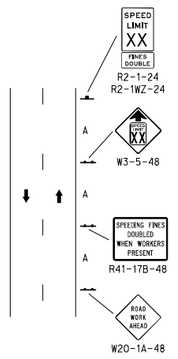
LANE CLOSED NEAR INTERSECTION
(RIGHT LANE CLOSED)



3-LANE ROADWAY
ONE LANE CLOSED



TWO-WAY LEFT TURN
LANE CLOSED



TYPICAL ADVANCED
SIGNING

REV. NO.	DATE	DESCRIPTION OF REVISION
R4	JUL 20	ADDED NOTE TO SHEET ONE
R3	JAN 19	TOOK OUT 1/2 L ON SHEET 2
R2	JAN 18	NDOR BORDER TO NDOT BORDER

NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 924-R4

URBAN TRAFFIC CONTROL PLAN

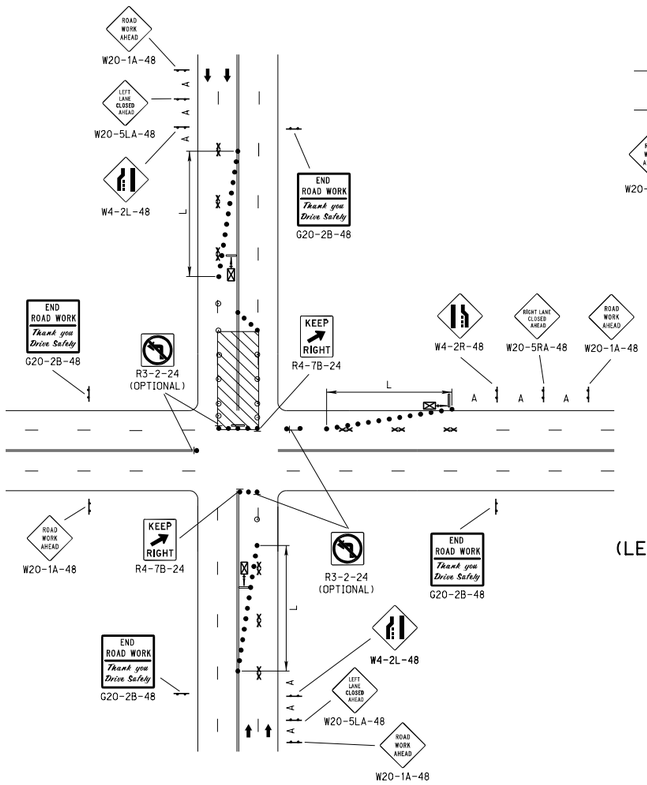
ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

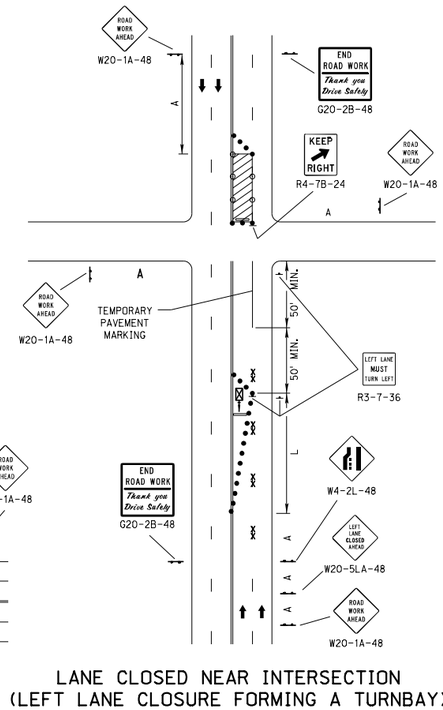
DATE

ORIGINAL:
FEBRUARY 1, 2010
DATE

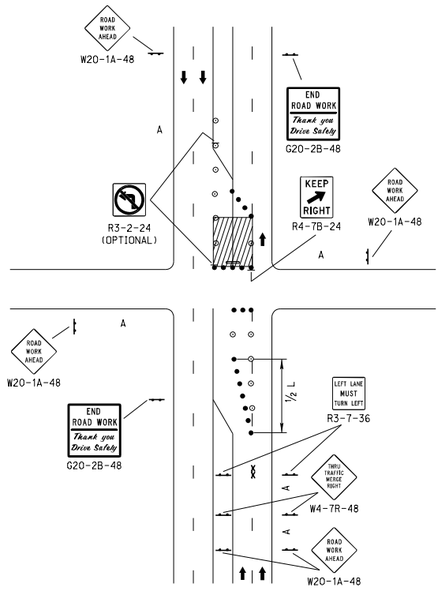
1
3



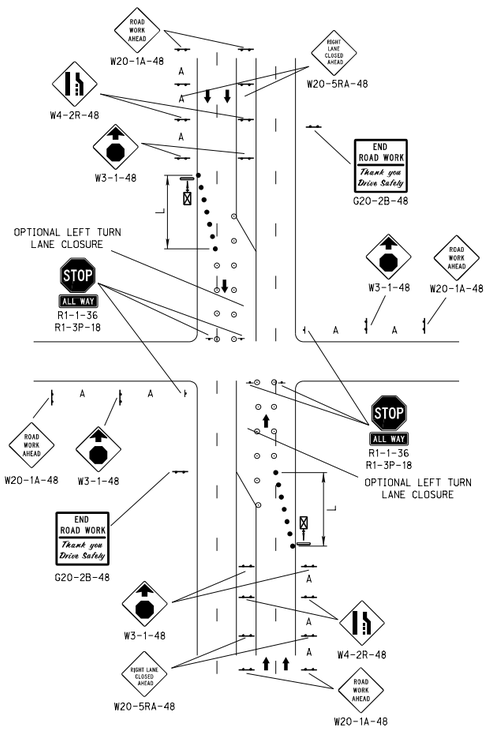
4 LANE UNDIVIDED ROADWAY
CENTER LANES CLOSED
NEAR INTERSECTION



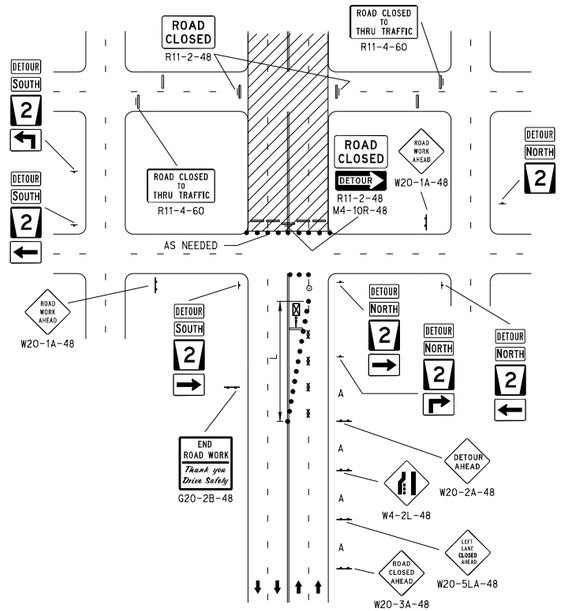
LANE CLOSED NEAR INTERSECTION
(LEFT LANE CLOSURE FORMING A TURNBAY)



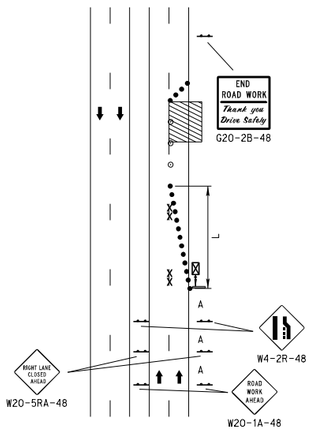
4 LANE DIVIDED ROADWAY
CENTER LANES CLOSED
NEAR INTERSECTION



TEMPORARY ALL-WAY STOP
FOR SIGNAL WORK



ROAD CLOSED AT DETOUR
(OPTIONAL LANE CLOSURE)



DIVIDED ROADWAY
ONE LANE CLOSED

ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS
	A
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'

LEGEND

- FLASHING ARROW PANEL
- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- TUBULAR POST
- REFLECTORIZED PLASTIC DRUM OR 42" CONE
- SINGLE POSTED SIGN
- DOUBLE POSTED SIGN
- FLAGGER
- xxxx PAVEMENT MARKING REMOVAL

TAPER FORMULA

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$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 MPH OR LESS.

WHERE:
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R4	JUL 20	ADDED NOTE TO SHEET ONE
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NEBRASKA DEPARTMENT OF TRANSPORTATION
STANDARD PLAN NO. 924-R4

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ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

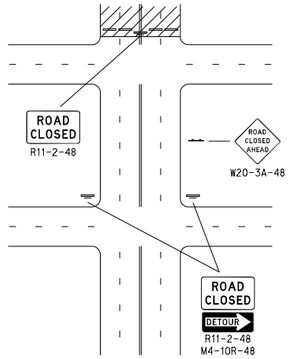
PROFESSIONAL CIVIL ENGINEER
DANIEL J. WADDLE
E-6289
STATE OF NEBRASKA

DATE

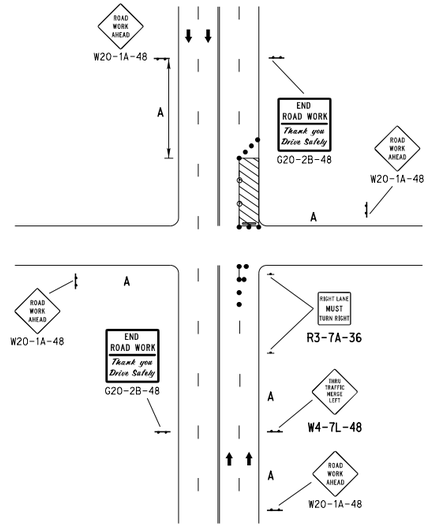
ORIGINAL:
FEBRUARY 1, 2010
DATE

2
3

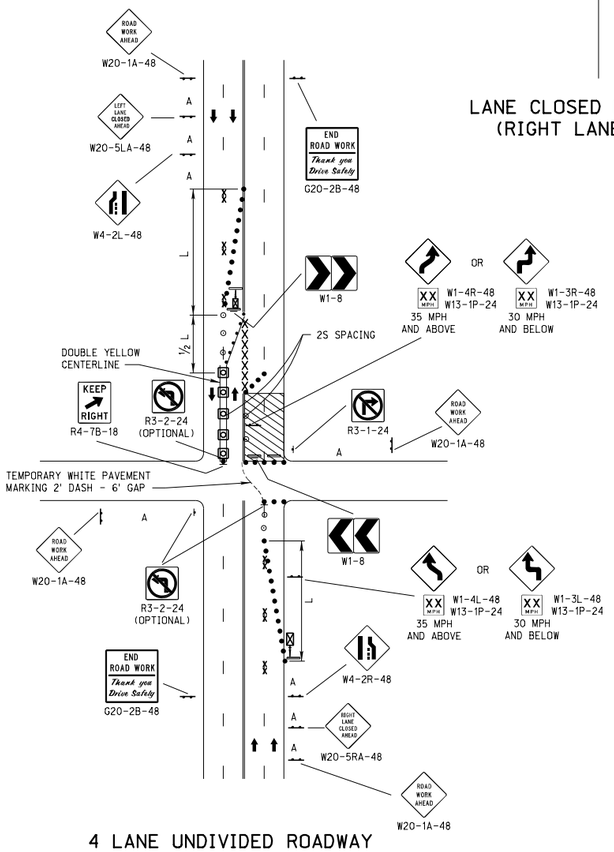
File: 924006e04.dgn
Date: 29-JUN-2021 09:21
Computer: NDOTDESIGN134



ROAD CLOSED
BEYOND DETOUR



LANE CLOSED NEAR INTERSECTION
(RIGHT LANE REMAINS OPEN)



4 LANE UNDIVIDED ROADWAY
TWO LANES CLOSED NEAR INTERSECTION

LEGEND

- FLASHING ARROW PANEL
- TYPE III BARRICADE
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- DOUBLE POSTED SIGN
- FLAGGER
- XXXX PAVEMENT MARKING REMOVAL

TAPER FORMULA

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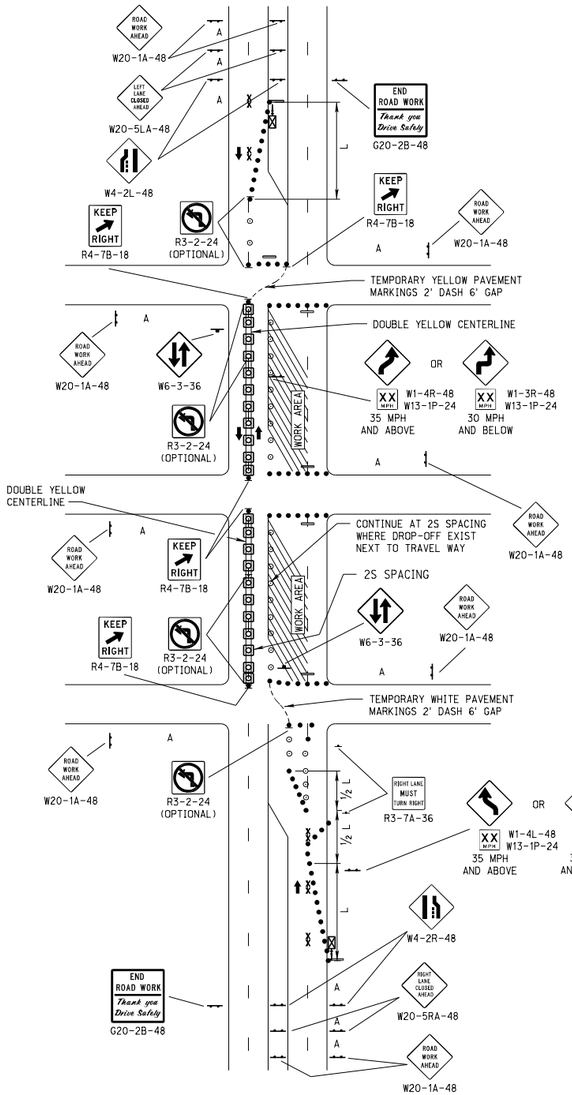
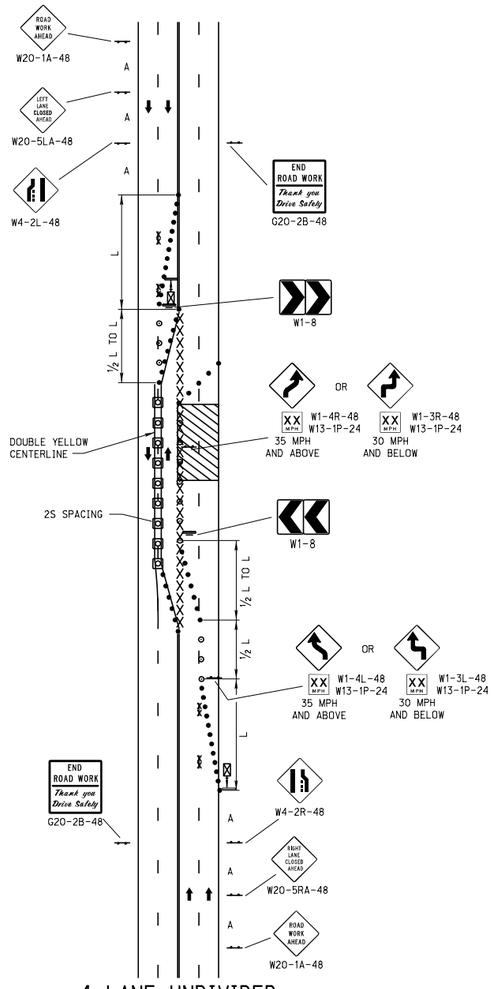


4-LANE DIVIDED
HALF CLOSED

ROAD TYPE	MINIMUM DISTANCE BETWEEN SIGNS
	A
URBAN (LOW SPEED - 25 MPH TO 40 MPH)	100'
URBAN (HIGH SPEED - 45 MPH OR HIGHER)	350'



4-LANE UNDIVIDED
2 LANES CLOSED

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R4	JUL 20	ADDED NOTE TO SHEET ONE
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E-6289
STATE OF NEBRASKA

DATE

ORIGINAL:
FEBRUARY 1, 2010
DATE

File: 92400e04.dgn Date: 29-JUN-2021 09:21 Computer: NDOTDESIGN34

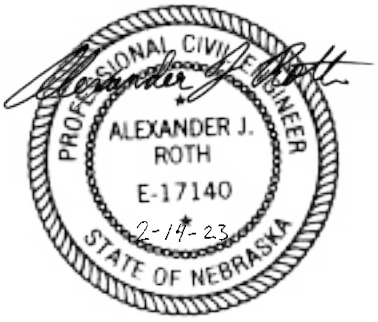
Full set is 220 pages and can be viewed at City Hall or the City Engineer's Office during regular business hours, 7A - 4P Mon - Fri.*

CONTRACT DOCUMENTS

CITY OF SEWARD, NE
PARK AVENUE STORM SEWER IMPROVEMENTS
SCHEMMER PROJECT NO. 08586.001-A

SCHEMMER

Design with Purpose. Build with Confidence.



FEBRUARY 2023

5. Consideration and Approval of Bid Documents for the Water Tower Construction Project and Authorize the City to Seek Construction Bids - City Engineer Oneby

200,000 GALLON WATER TOWER DEMOLITION

SEWARD, NEBRASKA

2023

CITY OF SEWARD

MAYOR

JOSHUA EICKMEIER

COUNCIL MEMBERS

MEGAN KAHLER
JESSICA KOLTERMAN
MATT STRYSON
TATUM TONNIGES
JOHN SINGLETON
RICH WERGIN
JONATHON WILKEN
KARL MILLER

CITY ADMINISTRATOR

GREG BUTCHER

CLERK

DEREK BARGMANN

CITY ENGINEER

MICHAEL ONEBY, PE

WATER/WASTEWATER SUPERINTENDENT

BRANDON KOLL

FINANCE DIRECTOR/TREASURER

NICHOLAS WOLF

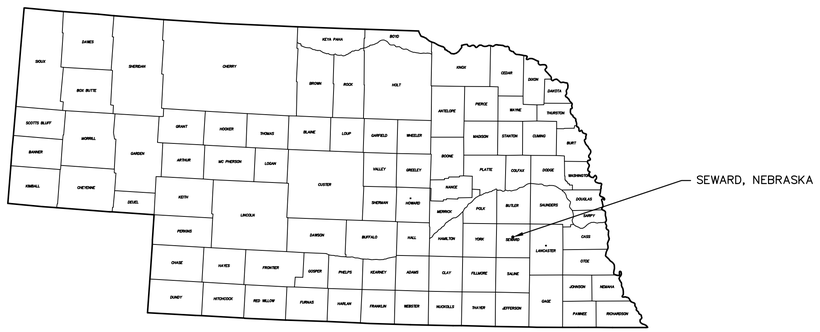
CITY ATTORNEY

KELLY HOFFSCHNEIDER

LOCATION MAP

N

NOT TO SCALE



SHEET INDEX	
SHEET NUMBER	SHEET TITLE
GENERAL	
G-001	COVER SHEET
CIVIL	
C-100	EXISTING SITE PLAN
C-501	EXISTING 200,000-GALLON WATER TOWER DEMO
C-502	EXISTING 200,000-GALLON WATER TOWER DEMO ELEVATION

DIAL BEFORE YOU DIG

THE CONTRACTOR SHALL CONTACT "Nebraska811". AT LEAST 48 HOURS PRIOR TO AND NOT MORE THAN TEN WORKING DAYS BEFORE ANY DIGGING OR EXCAVATING WILL TAKE PLACE. ALL LOCATION REQUESTS ARE TO BE MADE THROUGH "Nebraska811" AT 811 (TOLL FREE) OR 1-800-331-5666 (STATEWIDE).

ne1call.com 800-331-5666
Nebraska 811
Know what's below. Call before you dig.

COORDINATING PROFESSIONAL

I, OWEN KILLHAM, AM THE COORDINATING PROFESSIONAL FOR THE INSERT NAME OF PROJECT HERE – WILL APPEAR ON THE COVER SHEET AND ALL TITLEBLOCKS PROJECT, SEWARD, NEBRASKA.

WHEN THIS DRAWING IS PRINTED TO THE SCALE SHOWN, THE BAR SHOWN BELOW WILL BE 1" LONG.

olsson
601 P Street, Suite 200
P.O. Box 84608
Lincoln, NE 68508
TEL 402.474.6311
FAX 402.474.5160
www.olsson.com

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

COVER SHEET

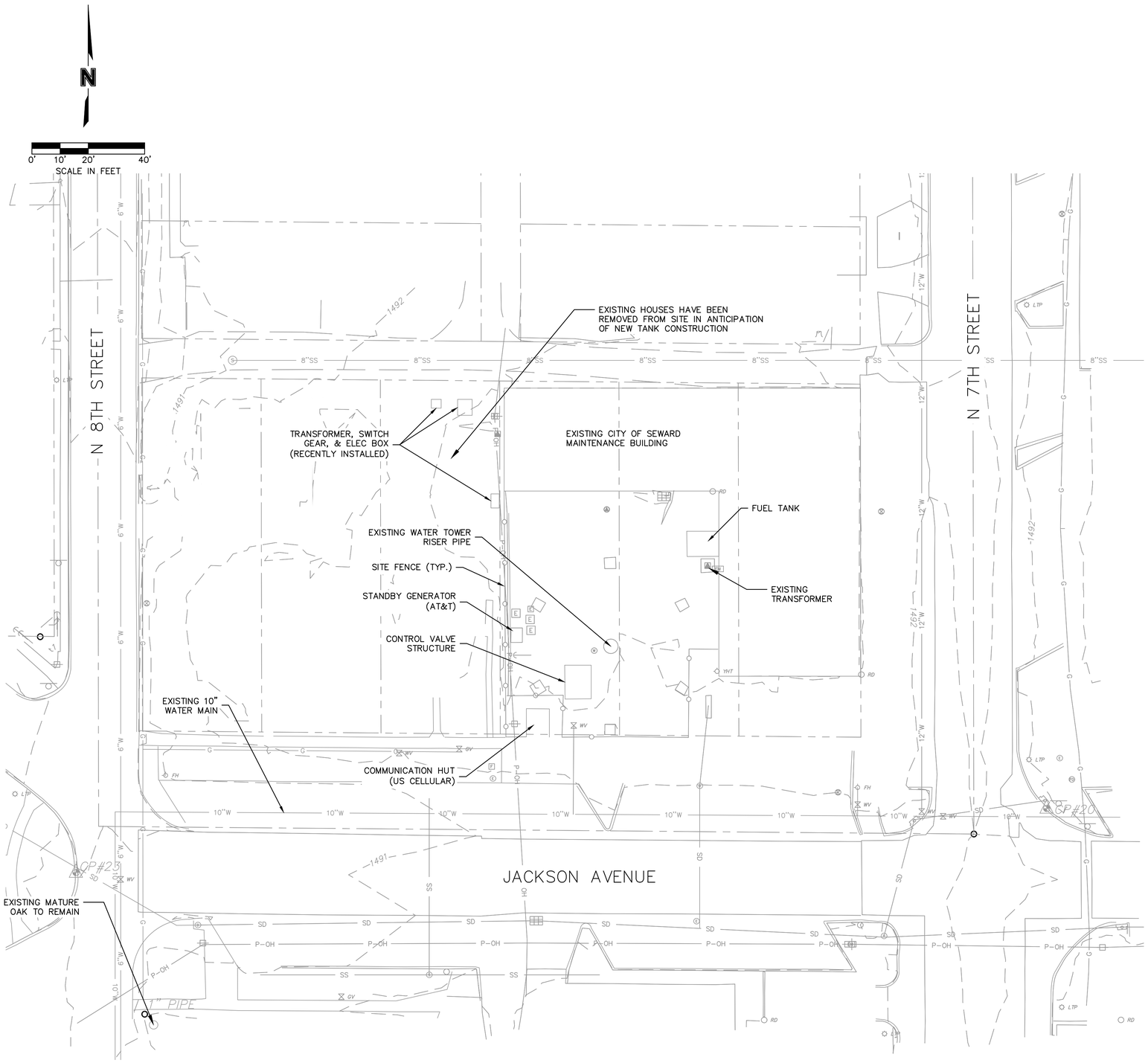
200,000 GALLON WATER TOWER DEMOLITION

SEWARD, NEBRASKA 2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-03180
drawing no.:
date: 02/17/2023

G-001
1 OF 4

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Existing Tank Demolition Sheets\P_TTL01_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 3:48pm XREFS: P_TBLK_0193180_EX TANK DEMO



NOTES:

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THIS INCLUDES PRIVATE AND PUBLIC UTILITIES.

2. TREE SIZES ARE THE TRUNK SIZE AT APPROX. 3' FROM GROUND LEVEL. TREE CANOPY SIZES ARE NOT INCLUDED.

3. HORIZONTAL CONTROL IS: CITY OF SEWARD.

4. THE SURVEY SHOWS THE CONDITIONS AS OF SEPTEMBER 27, 2021. SITE IS CURRENTLY UNDERGOING DEMOLITION/CONSTRUCTION ACTIVITIES.

CONTROL POINTS

PNT.	NORTHING	EASTING	ELEV.	DESC.
20	148961.82	173195.12	1491.87	CHISELED 'X'
21	149321.33	173190.19	1491.29	CHISELED 'X'
22	149327.80	172848.04	1484.89	CHISELED 'X'
23	148939.08	172850.74	1490.49	CHISELED 'X'

BENCHMARKS

1. CHISELED 'X' ON TOP OF CURB, S. SIDE OF INLET AT NE. CORNER OF N. 7TH STREET AND JACKSON AVE.
CONTROL POINT #20
ELEV.=1491.87 (N.A.V.D. 1988)

2. CHISELED 'X' ON TOP OF CURB, N. SIDE OF INLET AT NE. CORNER OF N. 7TH STREET AND BRANFORD STREET.
CONTROL POINT #21
ELEV.=1491.29 (N.A.V.D. 1988)

3. CHISELED 'X' ON TOP OF CURB, S. SIDE OF E/W SIDEWALK AT NW. CORNER OF N. 8TH STREET AND BRADFORD STREET.
CONTROL POINT #22
ELEV.=1484.89 (N.A.V.D. 1988)

4. CHISELED 'X' ON TOP OF CURB, W. SIDE OF N. 8TH STREET, MID-POINT OF CURVE AT JACKSON AVENUE SPLIT.
CONTROL POINT #23
ELEV.=1480.49 (N.A.V.D 1988)

olsson
601 P Street, Suite 200
P.O. Box 84608
Lincoln, NE 68508
TEL 402.474.6311
FAX 402.474.5160
www.olsson.com

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

EXISTING SITE PLAN

200,000 GALLON WATER TOWER DEMOLITION

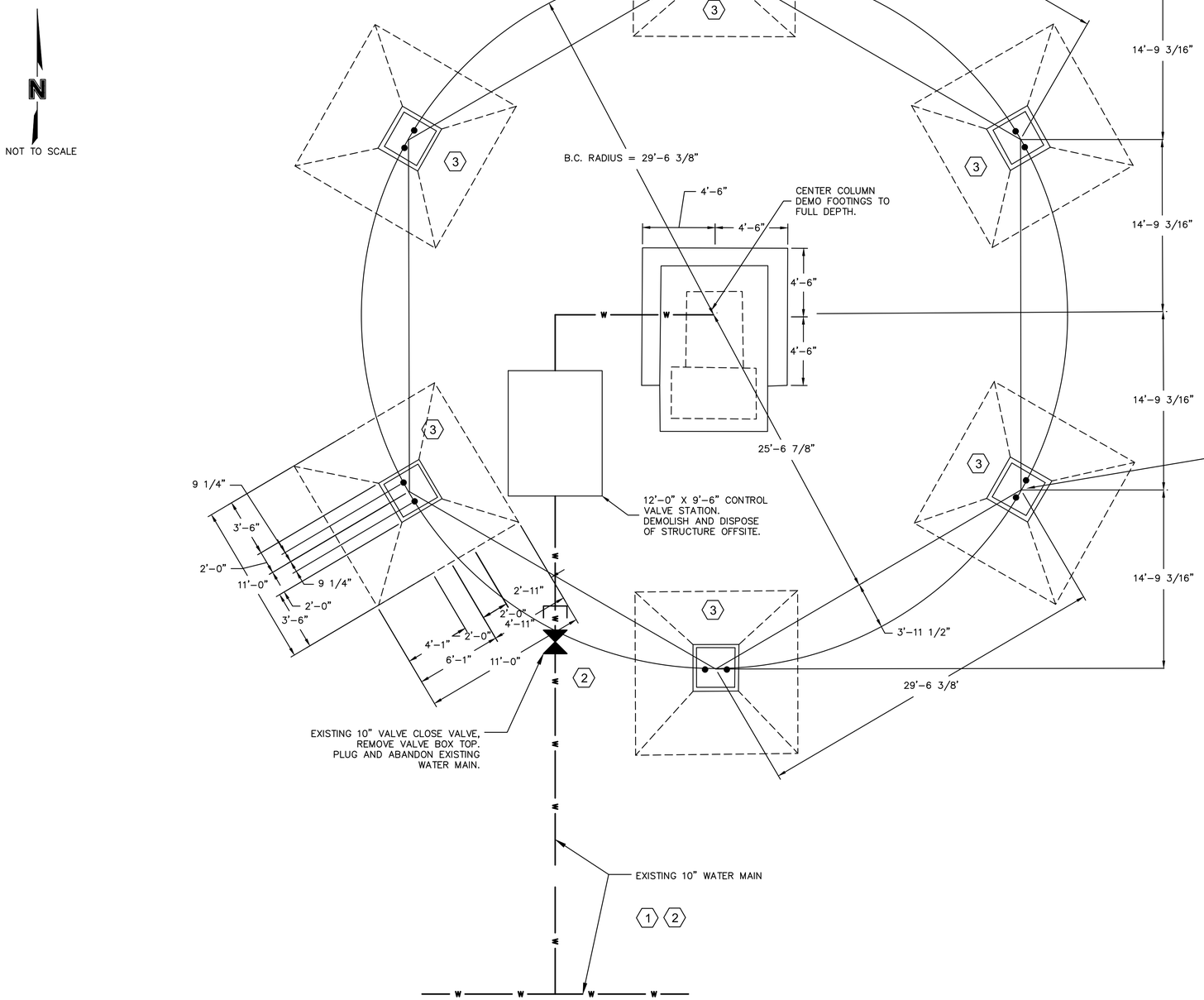
SEWARD, NEBRASKA

2023

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-03180
drawing no.:	
date:	02/17/2023

C-100
2 OF 4

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWV\Existing Tank Demolition Sheets\P_SIT02_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 3:49pm XREFS: V_XTOPO_0193180 P_PWATR_0193180 P_PBASE_0193180 P_PPAT_0193180 ALTERED V_XTOPO_0193180 P_PTBLK_0193180_EX TANK DEMO



NOT TO SCALE

SHEET KEYNOTES:

1. DRAIN WATER TOWER INTO DISTRIBUTION SYSTEM AND OR THROUGH THE NEAREST HYDRANT. CLOSE SUPPLY VALVE TO TOWER.
2. CLOSE ONSITE VALVES, PLUG AND ABANDON EXISTING WATER MAINS (IN PLACE) REMOVE VALVE BOX TOPS.
3. DEMOLISH, REMOVE, AND DISPOSE OF WATER TOWER, LEG FOUNDATIONS, SPLASH PAD, AND OTHER MISCELLANEOUS ASSOCIATED ITEMS PER THE SPECIFICATIONS. REMOVE FOUNDATIONS TO FULL DEPTH AND PATCH CONCRETE PAVEMENT.

NOTES:

1. COATINGS SYSTEM ON EXISTING WATER TOWER ARE LEAD-CONTAINING. SEE SPECIFICATIONS FOR FULL DETAILS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING THEMSELVES AWARE OF, AND PAYING ALL ASSOCIATED COSTS FOR THE DISPOSAL OF SPENT ABRASIVE, REMOVED COATINGS, EQUIPMENT TO BE REMOVED FROM SITE, AND ALL WASTE GENERATED DURING CONSTRUCTION. ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, SUBSIDIARY TO THE PROJECT.

2. CONTRACTOR SHALL COORDINATE THE REMOVAL/RELOCATION OF ANTENNA, SHEDS, AND EQUIPMENT ON EXISTING TOWER PRIOR TO DEMOLITION OF TANK.

3. WATER SYSTEM TO REMAIN IN SERVICE AT ALL TIMES DURING DEMOLITION OPERATIONS.

4. PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.

5. DEMOLISH AND REMOVE EXISTING CONTROL VALVE STRUCTURE AND ASSOCIATED EQUIPMENT.

6. UNLESS GIVEN PERMISSION BY ENGINEER, DEMOLITION OF EXISTING WATER TOWER MAY NOT OCCUR UNTIL NEW WATER TOWER IS COMPLETE AND IN SERVICE.

7. COORDINATE ALL NECESSARY ROAD CLOSURES AND UTILITY SERVICE INTERRUPTIONS WITH ENGINEER, ALL COSTS ASSOCIATED WITH TRAFFIC CONTROL OPERATIONS SHALL BE SUBSIDIARY TO THE PROJECT.

8. THE INFORMATION PROVIDED ON THIS SHEET IS DERIVED FROM THE ORIGINAL FABRICATION DRAWINGS. DRAWINGS AND DIMENSIONS ARE PROVIDED FOR INFORMATION PURPOSES ONLY. THIS SHEET MAY NOT SHOW ALL APPURTENANCES AND OTHER MODIFICATIONS TO THE WATER TANK. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO DEMOLITION. EXISTING TANK PLANS ARE INCLUDED AS AN APPENDIX TO THE SPECIFICATIONS.

9. CURRENT TENANTS ON EXISTING TOWER:

- AT&T: SEWARD US ID 156447
  JERRY HEALY
  JHEALY@VERCOMINC.COM
  (612) 978-7057
  VERCOM SHIPPING ADDRESS:
  422 MAIN ST
  SOMERSET, WI 54025
  MAILING ADDRESS:
  PO BOX 270
  STILLWATER, MN 55082
- US CELLULAR:
  WATER TOWER @ 855391 – SEWARD DT. II
  ROBERT WINCHESTER
  GSS PROJECT MANAGER – CONSTRUCTION
  (712) 661-8281
  RWINCHESTER@GSSMIDWEST.COM
  GSS INC.
  3311 109TH ST
  URBANDALE, IA 50322
- FOR LAST MILE NETWORKS:
  JAMES NOE
  OPERATIONS OFFICER
  (402) 643-8300
  JAMES@LMNCG.COM
  LAST MILE NETWORKS
  PO BOX 4291
  LINCOLN NE 68504

10. CONTRACTOR SHALL COORDINATE EXISTING ANTENNA REMOVAL WITH OWNER.

11. REMOVE AND SALVAGE CHECK VALVE, BUTTERFLY VALVE, ACTUATORS, AND CONTROLS EQUIPMENT WITHIN VALVE STRUCTURE. RETURN TO OWNER.

12. COMMUNICATIONS EQUIPMENT TO BE DISPOSED OF BY TELECOMMUNICATIONS PROVIDERS.

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601 P Street, Suite 200
P.O. Box 84608
Lincoln, NE 68508
TEL 402.474.6311
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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

EXISTING 200,000-GALLON WATER TOWER FOUNDATION PLAN

200,000 GALLON WATER TOWER DEMOLITION

SEWARD, NEBRASKA

2023

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-03180
drawing no.:	
date:	02/17/2023

C-501
3 OF 4

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Existing_Tank_Demolition_Sheets\P_DEMO1_0193180.dwg USER: clnelson
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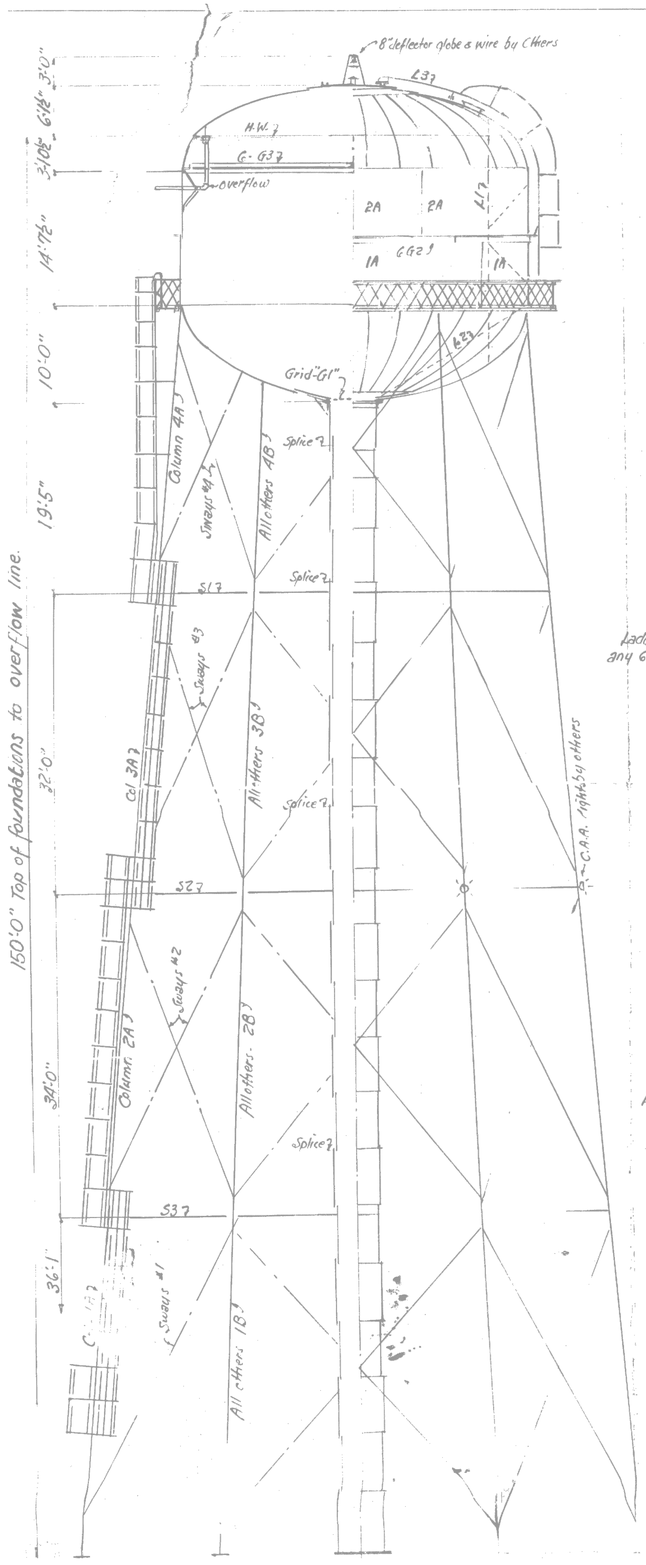
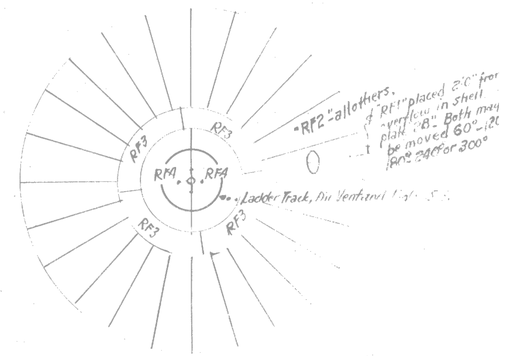
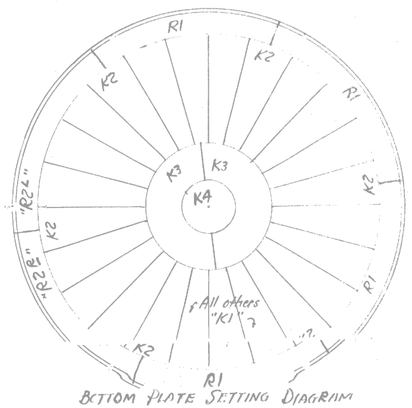
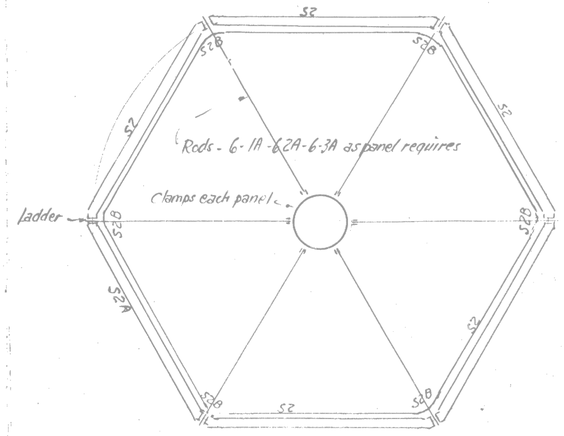




TOP VIEW OF ROOF PLATE SETTING



BOTTOM PLATE SETTING DIAGRAM



SECTION AT SECOND PANEL SPLICE - - -
1st and 3rd panel similar, except for cat-walk.

NOTE
RIVETS
O. HOLES
PAINT
IN SHOP
BILLED

NOTES:

1. COATINGS SYSTEM ON EXISTING WATER TOWER ARE LEAD-CONTAINING. SEE SPECIFICATIONS FOR FULL DETAILS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING THEMSELVES AWARE OF, AND PAYING ALL ASSOCIATED COSTS FOR THE DISPOSAL OF SPENT ABRASIVE, REMOVED COATINGS, EQUIPMENT TO BE REMOVED FROM SITE, AND ALL WASTE GENERATED DURING CONSTRUCTION. ALL COSTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, SUBSIDIARY TO THE PROJECT.

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  SOMERSET, WI 54025
  MAILING ADDRESS:
  PO BOX 270
  STILLWATER, MN 55082

- US CELLULAR:
  WATER TOWER @ 855391 – SEWARD DT. II
  ROBERT WINCHESTER
  GSS PROJECT MANAGER – CONSTRUCTION
  (712) 661-8281
  RWINCHESTER@GSSMIDWEST.COM
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  URBANDALE, IA 50322

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

EXISTING 200,000-GALLON WATER TOWER ELEVATION

200,000 GALLON WATER TOWER DEMOLITION

2023

SEWARD, NEBRASKA

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-03180
drawing no.:
date: 02/17/2023

C-502
4 OF 4

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTTW\Existing Tank Demolition Sheets\P_DEMO1_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 3:50pm XREFS: ALTERED V_XTOPO_0193180 P_SITE2_0193180 P_PBASE_0193180 P_PTBLK_0193180_EX TANK DEMO
P_PPAT_0193180 P_PWATR_0193180

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

CITY OF SEWARD

MAYOR

JOSHUA EICKMEIER

COUNCIL MEMBERS

MEGAN KAHLER
JESSICA KOLTERMAN
MATT STRYSON
TATUM TONNIGES
JOHN SINGLETON
RICH WERGIN
JONATHON WILKEN
KARL MILLER

CITY ADMINISTRATOR

GREG BUTCHER

CLERK

DEREK BARGMANN

CITY ENGINEER

MICHAEL ONEBY, PE

WATER/WASTEWATER SUPERINTENDENT

BRANDON KOLL

FINANCE DIRECTOR/TREASURER

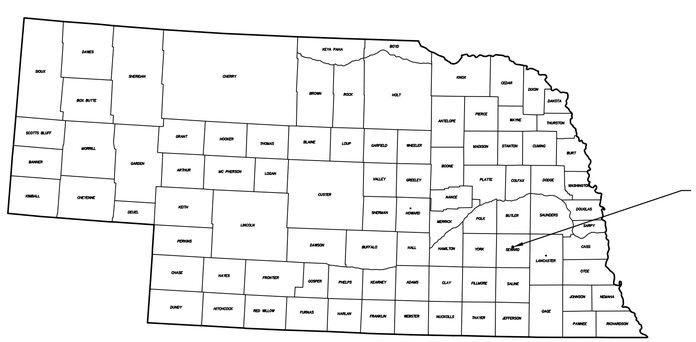
NICHOLAS WOLF

CITY ATTORNEY

KELLY HOFFSCHNEIDER

LOCATION MAP

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
GENERAL	
G-001	COVER SHEET
G-002	GENERAL NOTES
G-003	ABBREVIATIONS AND ANNOTATIONS LEGEND
G-004	LINETYPES, SURVEY NOTES AND LEGEND
CIVIL	
C-100	EXISTING SITE PLAN
C-101	SITE PAVEMENT AND SIDEWALK DEMOLITON PLAN
C-102	OVERALL SITE PLAN
C-103	SITE PIPING PLAN
C-104	SITE GRADING PLAN
C-105	PLAN & PROFILE STA 10+00 -12+84.17
C-106	PLAN & PROFILE STA 20+00 - 21+14.67
C-107	PLAN & PROFILE STA 30+00-31+65.13 & DETAILS
C-501	MISC DETAILS
C-502	WATER TOWER OVERFLOW DETAILS
C-503	SIDEWALK AND PAVING PLAN
C-504	SIDEWALK & PAVEMENT DRAINAGE PLAN
C-505	LANDSCAPING PLAN
ELECTRICAL	
E-100	ELECTRICAL SITE PLAN



DIAL BEFORE YOU DIG

THE CONTRACTOR SHALL CONTACT "Nebraska811", AT LEAST 48 HOURS PRIOR TO AND NOT MORE THAN TEN WORKING DAYS BEFORE ANY DIGGING OR EXCAVATING WILL TAKE PLACE. ALL LOCATION REQUESTS ARE TO BE MADE THROUGH "Nebraska811" AT 811 (TOLL FREE) OR 1-800-331-5666 (STATEWIDE).

ne1call.com 800-331-5666
Nebraska811
Know what's below. Call before you dig.

COORDINATING PROFESSIONAL

I, OWEN KILLHAM, AM THE COORDINATING PROFESSIONAL FOR THE 500,000 GALLON WATER TOWER UTILITIES AND SITE WORK PROJECT, SEWARD, NEBRASKA.

WHEN THIS DRAWING IS PRINTED TO THE SCALE SHOWN, THE BAR SHOWN BELOW WILL BE 1" LONG.

olsson
601 P Street, Suite 200
P.O. Box 84608
Lincoln, NE 68508
TEL 402.474.6311
FAX 402.474.5160
www.olsson.com

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

COVER SHEET

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: ONK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

G-001
1 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Utilities and Sitework Sheets\P_TTL01_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 4:01pm XREFS: P_TBLK_0193180_UTIL AND SITE WORK

GENERAL NOTES

1. CONTRACTOR SHALL BE FAMILIAR WITH AND IS RESPONSIBLE TO ENSURE ALL EXCAVATIONS ARE MADE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CONSTRUCTION STANDARDS AND ALL ASSOCIATED AMENDMENTS AND REVISIONS.

2. THE CONTRACTOR IS RESPONSIBLE FOR OWN SAFETY PLAN AND PROVIDING PROPERTY SAFETY EQUIPMENT FOR EMPLOYEES IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING, PAYING FEES, AND ADHERING TO PERMITS AS REQUIRED AS INDICATED WITHIN CONTRACT DOCUMENTS, INCLUDING LAND DISTURBANCE, AND CONSTRUCTION PERMITS (INCLUDING ALL REQUIRED NOTIFICATIONS).

4. CONTRACTOR RESPONSIBLE TO ENSURE ALL CONSTRUCTION OPERATIONS ARE WITHIN PUBLIC RIGHT-OF-WAY AND/OR CONSTRUCTION AREAS AS SHOWN ON THE CONSTRUCTION DOCUMENTS.

5. THE CONSTRUCTION DOCUMENTS (E.G. CONTRACT, BOND, INSURANCE CERTIFICATE, SPECIFICATIONS, AND CONSTRUCTION PLANS) ARE ESSENTIAL AND A REQUIREMENT IN ONE PART IS AS BINDING AS THOUGH OCCURRING IN ALL. THUS, THE CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY IN NATURE. THE DOCUMENTS DESCRIBE AND PROVIDE THE COMPLETE CONSTRUCTION PROJECT. THE CONTRACTOR MAY NOT TAKE ADVANTAGE OF ANY APPARENT CONSTRUCTION PROJECT ERRORS OR OMISSIONS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR PROMPTLY OF ANY OMISSIONS OR ERRORS. IN THE CASE OF A DISCREPANCY BETWEEN PARTS OF THE CONSTRUCTION DOCUMENTS, THE MOST STRINGENT CONSTRUCTION METHODOLOGY SHALL RULE.

6. THE EXISTENCE OF UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS MADE AVAILABLE TO OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. NOT ALL LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF EXISTING UTILITIES (I.E. UNDERGROUND POWER, TELEPHONE, FIBER OPTIC CABLE, DUCTWAYS, SPRINKLERS SYSTEMS, SEPTIC SYSTEM, WATER, GAS, SEWER SERVICE LINES, ETC.) ARE INDICATED. OTHER UTILITIES AND STRUCTURES MAY BE PRESENT. PRIOR TO START OF CONSTRUCTION ACTIVITY, CONTRACTOR TO CONTACT THE DIGGERS HOT LINE OF NEBRASKA FOR UTILITY LOCATION BY DIALING 811.

7. THE CONTRACTOR SHALL NOTIFY ALL IMPACTED UTILITY COMPANIES, VIA ONE CALL (DIAL 811 OR 800-331-5666), 48 HOURS BEFORE WORK IS STARTED TO VERIFY UTILITY LOCATIONS. THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION ON ANY UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) SHALL BE COORDINATED WITH THE OWNER OF EACH UTILITY BEFORE CONSTRUCTION IS STARTED.

8. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING DEPTH OF ALL UTILITIES AND OVERHEAD INTERFERENCES WHICH MAY AFFECT THEIR OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. NO EXCAVATION WILL BE PERMITTED UNTIL ALL SUCH UTILITIES HAVE BEEN LOCATED AND IDENTIFIED TO THE SATISFACTION OF ALL PARTIES. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENT OR STRUCTURES DAMAGED BY THE OTHER CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE INSPECTOR AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.

9. TOPOGRAPHIC DATA AND EXISTING INFRASTRUCTURE ON PLANS IS FOR THE INFORMATION OF THE CONTRACTOR ONLY. INFORMATION NOT SHOWN ON PLANS IS FOR CLARIFICATION AND VISUALIZATION PURPOSES. CONTRACTOR TO FIELD VERIFY ALL WORK OF OTHER POTENTIAL CONFLICTS.

10. THE CONTRACTOR MUST ADHERE TO GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES AT ALL TIMES. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES FOCUS ON KEEPING THE WORK SITE CLEAN AND ORDERLY WHILE HANDLING MATERIALS AND WASTE IN A MANNER THAT ELIMINATES THE POTENTIAL FOR POLLUTANT RUNOFF.

11. SPECIAL CONSTRUCTION REQUIREMENTS, TEMPORARY PROTECTIVE FENCING OR BARRICADES, AND SPECIAL SURFACE RESTORATION REQUIREMENTS AT CERTAIN LOCATIONS MAY BE INDICATED ON THE DRAWINGS TO BRING CONTRACTORS ATTENTION TO SENSITIVE AREAS. THE CONTRACTOR SHALL PROVIDE APPROPRIATE MEASURES OF PROTECTION AND RESTORATION AT LOCATIONS AS REQUIRED BY CONSTRUCTION OPERATIONS, AND AS DIRECTED BY THE ENGINEER.

12. THE EXISTING TOPSOIL AT ALL AREAS WHICH IS TO BE DISTURBED DURING CONSTRUCTION SHALL BE STRIPPED AT A DEPTH OF 12 INCHES PRIOR TO EXCAVATION AND STOCKPILED. THE STOCKPILED TOPSOIL SHALL BE SPREAD OVER ALL AREAS WHICH ARE SCHEDULED TO BE SEEDED.

13. CONTRACTOR TO MAINTAIN DRAINAGE DURING CONSTRUCTION AND RESTORE TO EXISTING CONDITIONS AFTER COMPLETION. UNLESS NOTED OTHERWISE, DISTURBED AREAS TO BE RETURNED TO ORIGINAL GRADE. CONTRACTOR RESPONSIBLE FOR SITE STABILIZATION AND RESEEDING DISTURBED AREA.

14. FENCES, TREES/BUSHES, SIGNS, OR OTHER IMPROVEMENTS REQUIRED TO BE DISTURBED OR REMOVED TO PERMIT CONSTRUCTION SHALL BE RESTORED OR REPLACED IN THE SAME LOCATION AND IN A CONDITION AS GOOD AS OR BETTER THAN THAT IN WHICH THEY WERE FOUND. DISTURBANCE OR REMOVAL/REPLACEMENT SHALL REQUIRE APPROVAL FROM OWNER. THIS WORK SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF THE CONTRACTOR.

15. CONTRACTOR SHALL MAKE OWN DETERMINATION OF EXISTING SUBSURFACE CONDITIONS. ANY SUBSURFACE INVESTIGATION REPORTS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY, IF MADE AVAILABLE. CONTRACTOR SHALL DISPOSE OF ALL UNSUITABLE MATERIALS ENCOUNTERED IN THE REMOVAL AND GRADING OPERATIONS OFF THE PROJECT SITE, INCLUDING CONCRETE, ASPHALT, BRICK, ROCK, ETC. SUITABLE EXCESS MATERIAL MAY BE UTILIZED FOR FILL; NO UNSUITABLE MATERIAL SHALL BE USED FOR BACKFILLING. THE COST FOR DISPOSAL OF UNSUITABLE OR EXCESS MATERIAL SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF THE CONTRACTOR.

16. CONTRACTOR RESPONSIBLE FOR SHEETING, SHORING, OR BRACING ALL UTILITY INFRASTRUCTURE (I.E. PIPING, STRUCTURES, POLES, ETC.) AND/OR TRENCHES AS REQUIRED TO MAINTAIN STABILITY DURING CONSTRUCTION UNLESS OTHERWISE NOTED. CONTRACTOR SHALL COORDINATE SUPPORT OR RELOCATION OF UTILITIES WITH OWNER AS NECESSARY.

17. CONTRACTOR PARKING AND STAGING AREAS MAY NOT IMPEDE FLOW OF TRAFFIC ON ROADWAYS ADJACENT TO PROJECT AREA.

18. CONTRACTOR SHALL NOT PLACE FILL OR WASTE MATERIAL ON ANY PRIVATE PROPERTY WITHOUT PRIOR WRITTEN AGREEMENT WITH THE PROPERTY OWNER. IF THE CONTRACTOR PLACES EXCESS MATERIAL IN AREAS WITHOUT WRITTEN PERMISSION, HE SHALL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM SUCH FILL, AND HE SHALL MOVE THE MATERIAL AT HIS OWN COST IF THE OWNER SO DIRECTS.

19. CONTRACTOR SHALL AVOID PLACING EXCESSIVE AMOUNTS OF EXCAVATED OR EMBEDMENT MATERIALS ABOVE OTHER EXISTING PIPELINES IN ORDER TO AVOID DAMAGING THESE FACILITIES.

20. OWNERS OPERATIONS SHALL NOT BE IMPACTED BY CONSTRUCTION ACTIVITIES UNLESS PREVIOUSLY APPROVED BY OWNER.

21. BEFORE FINAL COMPLETION OF THIS WORK, ALL ROADWAYS, SLOPES, DITCHES, SIGNS, AND BERMS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

22. CONTRACTOR SHALL DOCUMENT ALL PRECONSTRUCTION CONDITIONS AS INDICATED IN THE SPECIFICATIONS.

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

GENERAL NOTES & WATER SYSTEM SCHEMATIC

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

G-002
2 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Utilities and Sitework Sheets\P_GEN01_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 4:02pm XREFS: P_UTIL_SCHEMATIC_0193180 P_PTBLK_0193180_UTIL AND SITE WORK

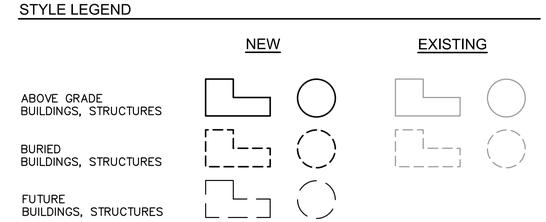
ABBREVIATIONS

AB	ANCHOR BOLT
AC	AIR CONDITIONING
ACST	ACOUSTICAL
AD	ACCESS DOOR, AREA DRAIN, AIR DAMPER, ANODE, AUTOMATIC DAMPER
ADJ	ADJUSTABLE, ADJACENT
ADMIN	ADMINISTRATION
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AH	AHEAD, ACCESS HATCH
AHU	AIR HANDLING UNIT
AL	ACTIVE LEAF
ALT	ALTERNATE, ALTERNATIVE
ALUM	ALUMINUM
AP	ACCESS PANEL
APPR	APPROACH
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
AS	AMMETER SWITCH
ASSY	ASSEMBLY
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
B	BEAM, BELT DRIVE
B TO B	BACK TO BACK
BA	BEARING AREA
BAL	BALANCE
BC	BEGIN CURVE
BCV	BEGINNING OF VERTICAL CURVE
BD	BOARD
BD	BACKDRAFT DAMPER
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BH	BASEBOARD HEATER
BHP	BRAKE HORSEPOWER
BITUM	BITUMINOUS
BK	BACK
BL	BOTTOM LEVEL
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
BOD	BOTTOM OF DUCT ELEVATION
BOL	BEGINNING OF LINE
BOT	BOTTOM
BPMK	BASEPLATE MARK NUMBER
BR	BOILER
BRG	BEARING
BRK	BRICK
BS	BOTH SIDES
BSMT	BASEMENT
B&S	BELL AND SPIGOT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT–HOUR
BU	BELL–UP
BUR	BUILT UP ROOFING
BV	BALL VALVE
BVC	BEGIN VERTICAL CURVE
C	COUNTER, COOLING (MAKE ON RISE), CONDUIT
CB	CATCH BASIN
CBD	COUNTERBALANCE BACKDRAFT
CC	DAMPER
CD	COOLING COIL
CENTR	CEILING DIFFUSER, CONTROL DAMPER
CF	CENTRIFUGAL
CFM	CABINET FAN
C&G	CUBIC FEET PER MINUTE
CHKD	CURB AND GUTTER
CHKD	CHECKERED
PL	CHECKERED PLATE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CIMH	CAST IRON MANHOLE
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CJ	CONTRACTION JOINT
CJT	CONTROL JOINT
CL^2	CHLORINE
CL^2	CHLORINE SOLUTION
(S) CLG	CEILING
CLO	CLOSET
CLR	CLEAR (ANCE)
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMB	COMBINATION
COMP	COMPRESSOR, COMPRESSED
CON	CONVECTOR
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE (OUS), (ATION)
COR	CORNER
CORR	CORRIDOR, CORRUGATED
CPLG	COUPLING
CRS	COURSES
CS	CONTROL SWITCH, CONTROL STATION, CUP SINK
CSK	COUNTERSUNK
CT	CERAMIC TILE, CYCLE TIMER
C TO C	CENTER TO CENTER
CTR(S)	CENTER(S)
CU	CUBIC
CV	CHECK VALVE
CW	COLD WATER
CWD	COOLING WATER DISCHARGE
CU	CHEMICAL SYMBOL FOR COPPER
CU YD	CUBIC YARD
D	DOOR
DBL	DOUBLE
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DEHUM	DEHUMIDIFIER
DEPT	DEPARTMENT
DET	DETAIL
DH	DOOR HEIGHT
DI	DUCTILE IRON
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DEAD LOAD
DM	DAMPER MOTOR
DN	DOWN
DO	DOOR OPENING
DPDT	DOUBLE POLE DOUBLE THROW
DPR	DAMPER
DPST	DOUBLE POLE SINGLE THROW
DPT	DEW POINT TRANSMITTER
DR	DRAIN
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
DV	DRAIN VALVE, DISCHARGE VALVE
E	EAST, ELECTRIC
EA	EACH, EXHAUST AIR
EC	END CURVE
ECC	ECCENTRIC
ECC RED	ECCENTRIC REDUCER
EDE	EXHAUST DIFFUSER
EW	EMERGENCY EYEWASH
EF	EACH FACE, EXHAUST FAN
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEV	ELEVATION
EM	EMERGENCY
ENCL	ENCLOSURE
ENT	ENTRANCE
EOL	END OF LINE
EPV	ECCENTRIC PLUG VALVE
EQ	EQUAL, EQUATION
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ES	EMERGENCY SHOWER OR EXPOSED STRUCTURE
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EWEF	EACH WAY EACH FACE
EXIST	EXISTING
EXP	EXPANSION, EXPOSED
EXP JT	EXPANSION JOINT
EXS	EXISTING
EXT	EXTENSION, EXTERIOR, EXTERNAL
F	DEGREES FAHRENHEIT, FLUORIDE
F TO F	FACE TO FACE
FB	FACE BRICK
FBD	FACE AND BYPASS DAMPER
FC	FLEXIBLE CONNECTION, FLOW CONTROL, FAN COIL, FIRE CODE
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN, FIRE DAMPER
FFE	FINISHED FLOOR ELEVATION
FH	FLAT HEAD, FIRE HYDRANT
FHMS	FLAT HEAD MACHINE SCREW
FIN	FINISH
FG	FINISH GRADE
FL	FLOOR, FLOW LINE, FLANGE
FLEX	FLEXIBLE
FLG	FLANGE, FLASHING
FP	FLUOROPOLYMER PAINT
FNDN	FOUNDATION
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
FS	FLOOR SLEEVE, FLOAT SWITCH, FLOW SWITCH
FT	FOOT, FINNED TUBE
FTG	FOOTING
FURN	FURNISH, FURNISHED
FV	FLAP VALVE
FWD	FORWARD
FXC	FIRE EXTINGUISHER CABINET
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERAL, GENERATOR
GFI	GROUND FAULT INTERRUPTER
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE, GROOVE
GUH	GAS UNIT HEATER
GT	GLAZED TILE
GV	GATE VALVE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEATING (MAKE ON FALL), HUMIDISTAT
HB	HOSE BIBB
HC	HEATING COIL
HCG	HARDWARE CLOTH GRILLE
HD	HEAD
HE	HEAT EXCHANGER
HEX	HEXAGONAL
HF	HOSE FAUCET
HM	HOLLOW METAL
HMC	HARNESSED MECHANICAL COUPLING
HMJ	HARNESSED MECHANICAL JOINT
HORIZ	HORIZONTAL
HP	HORSEPOWER
HR	HOUR, HANDRAIL
HS	HIGH STRENGTH
HSW	HOT SERVICE WATER
HSWR	HEATING SYSTEM WATER RETURN
HSWS	HEATING SYSTEM WATER SUPPLY
HUH	HYDRONIC UNIT HEATER, HOT WATER UNIT HEATER
HV	HOSE VALVE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HVU	HEATING VENTILATION UNIT
HW	HOT WATER
HWET	HEATING WATER EXPANSION TANK
HWL	HIGH WATER LEVEL
HWP	HEATING WATER PUMP
HWR	POTABLE HOT WATER CIRCULATING
HYDRO	HYDROPNEUMATIC
I	INDICATOR, INTAKE
ID	INSIDE DIAMETER, INLET DAMPER
IF	INSIDE FACE
IH	INTAKE HOOD
IN	INCHES
INC	INCORPORATED
INCR	INCREASE
INST	INSTRUMENT
INSUL	INSULATE (ATION), (ING)
INT	INTERIOR, INTERNAL
INV	INVERT
IPS	IRON PIPE SIZE
JAN	JANITOR
JC	JUNCTION CABINET
JT	JOINT
K	KIPS
KCM	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KS	KITCHEN SINK
L	LOUVER, LENGTH, LENGTH OF CURVE
LAB	LABORATORY
LAM	LAMINATE(D)
LAV	LAVATORY
LB(S)	POUNDS
LH	LEFT HAND
LIN	LINEAL, LINEAR
LJ	LONGITUDINAL JOINT
LO	LOUVER OPENING
LP	LOW PRESSURE, LIGHT POLE, LOW POINT, LIGHTING PANEL
LPS	LOW PRESSURE SWITCH
LR	LONG RADIUS
LS	LABORATORY SINK, LEVEL SWITCH
LT	LEFT
LVL	LEVEL
LWL	LOW WATER LEVEL
MACH	MACHINE
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MECHANICAL COUPLING
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MED	MEDIUM
MET	METAL
MFR	MANUFACTURE(R)
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE, MOUNTING HEIGHT
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MLS	MANUAL LOADING STATION
MO	MASONRY OPENING, MOTOR OPERATED, MIDDLE ORDINATE MACHINE SCREW
MSB	MAIN SWITCH BOARD
MSL	MEAN SEA LEVEL
MTD	MOUNTED
MTL	MATERIAL
MTR	MOTOR
MXR	MIXER
N	NORTH
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEUT	NEUTRAL
NH^3	AMMONIA
NO	NORMALLY OPEN
NO.(S)	NUMBER(S)
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NPW	NONPOTABLE WATER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE, OVERFLOW
OH	OVERHEAD
OPER	OPERATING
OPNG	OPENING
OPP	OPPOSITE
OZ	OUNCE
OZG	OZONE FEED GAS
OZO	OZONE OFF–GAS
P	POLYMER
PAV	PURGE AIR VENT
PEV	POWERED EXHAUST VENTILATOR
PC	POINT OF CURVE
PCCP	PRESTRESSED CONCRETE CYLINDER
PD	PIPE DIAMETER
PE	PLAIN END
PG	PRESSURE GAUGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PL	PLATE
PLCS	PLACES
PNT	PAINT
POLY	POLYMER
POS	POSITION
POT	POINT ON TANGENT
PP	POLYPHOSPHATE, POWER POLE
PRLV	PRESSURE RELIEF VALVE
PROP	PROPELLER
PRS	PRESSURE REDUCING STATION
PRV	POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE
PS	PIPE SUPPORT, PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVPS	PINE VALLEY PUMPING STATION
PW	POTABLE WATER
PWR	POTABLE WATER RETURN
PWS	POTABLE WATER SUPPLY
QT	QUARRYTILE
R	RADIUS, RISER
RA	REACTIVATION AIR, RETURN AIR
RCP	REINFORCED CONCRETE PIPE
RCCP	REINFORCED CONCRETE CULVERT PIPE
RD	ROOF DRAIN, ROAD, RETURN DIFFUSER
RDL	ROOF DRAIN LEADER
RECIRC	RECIRCULATING
RED	REDUCE (R), (ING)
REG	REGULATOR, REGULATING
REF	REFERENCE
REFRIG	REFRIGERATION, REFRIGERATOR
REINF	REINFORCING
REM	REMOVABLE
REQD	REQUIRED
RG	RETAINER GLAND, RETURN GRILLE
RH	ROOF HOOD, RIGHT HAND, ROUND HEAD
RHMS	ROUND HEAD MACHINE SCREW
RHWS	ROUND HEAD WOOD SCREW
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RT	RIGHT
RSC	RIGID STEEL CONDUIT
RTU	ROOF TOP UNIT
RV	REGULATING VALVE
RWP	RAW WASTE PUMP
S	SOUTH, SEWER
SA	SUPPLY AIR
SCD	SMOKE CONTROL DAMPER
SCHED	SCHEDULE
SCV	SPRINKLER CONTROL VALVE
SD	SUPPLY DIFFUSER, SMOKE DAMPER
SEC	SECOND
SECT	SECTION
SG	SUPPLY GRILLE, SLUICE GATE
SH	SHEET, SHOWER
SIM	SIMILAR
SM	SHEET METAL
SMD	SMOKE DETECTOR
SQ	SQUARE
SP	EXTERNAL STATIC PRESSURE (INCHES WATER), STEEL PIPE
SR	SUPPLY REGISTER
SS	STAINLESS STEEL, SAMPLE SINK
SSK	SERVICE SINK
SST	SYSTEM STATIC TRANSMITTER
ST	SELF TAPPING
STA	STATION
STD	STANDARD
STL	STEEL
STR	STRUCTURAL
SUSP	SUSPENDED
SV	SHUTOFF VALVE
SW	SERVICE WATER
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
ST	STAIN
STRM	STORM SEWER
SSWR	SANITARY SEWER
T	THERMOSTAT, TREAD, TRANSFORMER
TAN	TANGENT
T&B	TOP AND BOTTOM
TBBO	TO BE BY OTHERS
TBM	TEMPORARY BENCHMARK
TC	TOWEL CABINET
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TE	TEMPERATURE ELEMENT
TEMP	TEMPERATURE, TEMPORARY
TERM	TERMINAL
TEX	TEXURED
T&G	TONGUE & GROOVE
TH	TEST HOLE
THK	THICK, THICKNESS
THR	THRESHOLD
TL	TOP LEVEL
TOC	TOP OF CONCRETE, TOP OF CURB
TOS	TOP OF STEEL
TRANS	TRANSFORMER, TRANSMITTER, TRANSFER
TS	TEMPERATURE SWITCH
TT	TEMPERATURE TRANSMITTER
TYP	TYPICAL
UH	UNIT HEATER
UR	URINAL
URD	UNDERGROUND RESIDENTIAL DISTRIBUTION
USC & GS	UNITED STATES COAST & GEODETIC SURVEY
USGS	UNITED STATES GEOLOGICAL SURVEY
V	VALVE, VOLT, VENT
VAC	VACUUM
VANE	VANEAXIAL
VAT	VINYL ASBESTOS TILE
VB	VACUUM BREAKER
VC	VERTICAL CURVE, VICTAULIC COUPLING
VCD	VOLUME CONTROL DAMPER
VCP	VITRIFIED CLAY PIPE
VCU	VOLUME CONTROL UNIT
VERT	VERTICAL
VF	VACUUM FILTER
VFC	VARIABLE FREQUENCY CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE
VFI	VACUUM FAULT INTERRUPTER
VIB	VIBRATION
VPI	VERTICAL POINT OF INTERSECTION
W	WEST, WIDTH, WINDOW, WATT
W/	WITH
WB	WALLBOARD
WC	WATER COLUMN
WD	WOOD, WIDTH
WF	WALL FITTING
WH	WALL HYDRANT, WALL HEATER
WL	WATER LEVEL
WM	WATER METER
WO	WINDOW OPENING
W/O	WITHOUT
WP	WATERPROOF, WORKING POINT WEATHERPROOF
WR	WASTE RECEPTACLE
WS	WATER SUPPLY, WATER SURFACE, WATER STOP
WW	WETWELL, WASHWATER
WWF	WELDED WIRE FABRIC
WWR	WASH WATER RECOVERY
WV	WATER VALVE, WATER CONTROL VALVE
x	BY
XFMR	TRANSFORMER
YH	YARD HYDRANT
&	AND
@	AT
CL	CENTERLINE
∠	DEFLECTION ANGLE
ø	DIAMETER
#	NUMBER
%	PERCENT

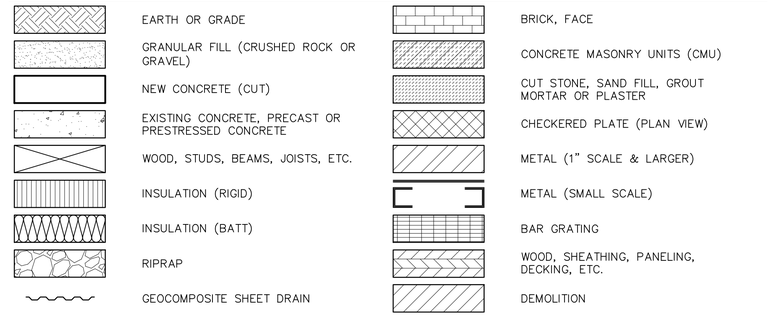
GENERAL NOTES:

1. THESE LEGENDS ARE COMPOSED OF STANDARD SYMBOLS AND ARE PERTINENT TO THE CONDITIONS OF THIS SET OF DRAWINGS TO THE EXTENT APPLICABLE.
2. ADDITIONAL AND/OR SUPPLEMENTARY LEGENDS MAY APPEAR IN THIS SET OF DRAWINGS AND ARE TO PREVAIL (IN LIEU OF SYMBOLS SHOWN ON THIS SHEET) IN THE EVENT OF ANY DIFFERENCES.

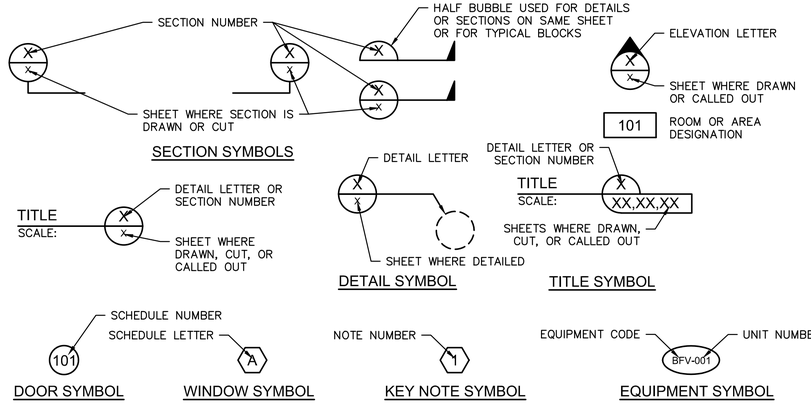
STYLE LEGEND



MATERIALS LEGEND



ANNOTATION LEGEND



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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

ABBREVIATIONS AND ANNOTATIONS LEGEND

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-3180
drawing no.:	
date:	02/17/2023

G-003
3 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Utilities and Sitework Sheets\P_GEN01_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 4:02pm XREFS: P_FUTIL_SCHEMATIC_0193180 P_PTBLK_0193180_UTIL AND SITE WORK

LINETYPE LEGEND

- CENTER LINE
- CONTOUR LINE
- EASEMENT LINE
- PROPERTY LINE
- SECTION LINE
- FENCE
- WOOD FENCE
- CHAIN LINK FENCE
- WIRE FENCE
- TREE MASS
- TREE ROW/BUSHES
- CONTOUR LINE
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATER LINE
- SANITARY SEWER FORCE MAIN
- AIR LINE
- ACID WASTE VENT LINE
- ACID WASTE LINE
- CABLE TV LINE
- UNDERGROUND CABLE TELEVISION LINE
- CHEMICAL FEED LINE
- CHLORINE SOLUTION LINE
- COMMUNICATIONS LINE
- CROP LINE
- CHILLED WATER RETURN LINE
- CHILLED WATER SUPPLY LINE
- DRAIN LINE
- DIGESTER GAS LINE
- EFFLUENT REUSE WATER LINE
- FLOURIDE LINE
- IRON SALTS LINE
- FIBER OPTIC LINE
- UNDERGROUND FIBER OPTIC LINE
- GAS LINE
- UNDERGROUND GAS MAIN
- GEOTHERMAL LINE
- HEATING SYSTEM WATER RETURN LINE
- HEATING SYSTEM WATER SUPPLY LINE
- IRRIGATION LINE
- LIMITS OF CONSTRUCTION
- LIMITS OF GRADING
- LIQUID PROPANE LINE
- NATURAL GAS LINE
- AMMONIA LINE
- NON-POTABLE WATER LINE
- OVERFLOW LINE
- POLYMER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
- UNDERGROUND POWER AND COMMUNICATIONS LINES
- PRIMARY CLARIFIER SLUDGE LINE
- POLYPHOSPHATE LINE
- POTABLE WATER LINE
- RETURN ACTIVATED SLUDGE LINE
- RIGHT OF WAY LINE
- SCUM LINE
- SLUDGE LINE
- SUPERNATANT LINE
- STEAM LINE
- STEAM TUNNEL
- SUPERNATANT SLUDGE LINE
- UNDERGROUND TRAFFIC LINE
- TELEPHONE LINE
- UNDERGROUND TELEPHONE LINE
- OVERHEAD TELEPHONE LINE
- THICKENED WASTE ACTIVATED SLUDGE LINE
- UNIDENTIFIED OVERHEAD LINE
- UNIDENTIFIED UNDERGROUND LINE
- VENT LINE
- WASTE ACTIVATED SLUDGE LINE
- WETLAND BOUNDARY

SURVEY LEGEND

- ALUMINUM CAP FLUSH
- ALUMINUM CAP IN HAND HOLE
- AERIAL CONTROL POINT
- AIR CONDITIONING UNIT
- AREA INLET
- ALUMINUM MONUMENT
- ANTENNA
- ABANDONED POWER POLE
- ANTI-SIPHON VALVE
- AXLE
- AZIMUTH MARK
- BASKETBALL HOOP
- BREAKER BOX
- BIRD BATH
- BRASS CAP FLUSH
- BRASS CAP IN HAND HOLE
- BIRDHOUSE
- BEEHIVE
- BACKFLOW PREVENTER
- BORE HOLE
- WATER BIB
- BILLBOARD
- BENCHMARK
- BOLLARD
- BLOW-OFF VALVE
- BUSH
- CAMERA
- CABLE BOX
- CABLE VAULT
- CURB INLET
- CATCH BASIN ROUND
- CATCH BASIN SQUARE
- CONTROL BOX
- CISTERN
- CAST IRON MONUMENT
- CLOTHES LINE POLE
- COLUMN
- CONTROL POINT
- CURB STOP
- CONIFEROUS TREE
- DRINKING FOUNTAIN
- DRILL HOLE
- DRAIN GATE
- DECIDUOUS TREE
- DRYWELL
- ELECTRIC BOX
- ELECTRIC CABINET
- ELECTRIC OUTLET
- ELECTRIC RISER
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC VAULT
- FOUND REBAR
- FIRE DEPARTMENT CONNECTION
- FUEL FILL PORT
- FIRE HYDRANT
- FOUND IRON PIPE
- FLAG POLE
- FIBER OPTIC BOX
- FIBER OPTIC PEDESTAL
- FOUND REBAR
- FOUND REBAR IN HAND HOLE
- FUEL PUMP
- GAS RISER
- GUARD POST
- GOAL POST
- GROUND LITE
- GAS MANHOLE
- GAS MARKER
- GAS METER
- GUY POLE
- GAS REGULATOR
- GRILL
- GRATE INLET
- GREASE TRAP
- GUY WIRE
- GAS VALVE
- GAS VAULT
- IRON BAR
- IRRIGATION GATE VALVE
- IRRIGATION MANHOLE
- IRON PIPE
- IRRIGATION WELL
- IRRIGATION STAND PIPE
- IRRIGATION VALVE
- JUNCTION BOX
- JUDICIAL LANDMARK
- LIGHT POLE BASE
- LIFT STATION
- LIGHT POLE
- MAILBOX
- MILE POST MARKER
- MONITORING WELL
- PICNIC TABLE
- POST INDICATOR VALVE
- PARKING METER
- POWER POLE W/ LIGHT
- POWER POLE
- RADIO TOWER
- RAILROAD CONTROL BOX
- RAILROAD CROSSING SIGN
- ROOF DRAIN
- RIGHT-OF-WAY MARKER
- RUNWAY STROBE LIGHT
- SATELLITE DISH
- SOIL BORING
- SANITARY SEWER CLEANOUT
- SET COTTON PICKER SPINDLE
- SECTION CORNER
- SPRINKLER CONTROL VALVE
- STORM DRAIN MANHOLE
- SANITARY SEWER SERVICE
- SIGN
- SET IRON PIPE
- STREET LIGHT
- SPRINKLER BOX
- SPRINKLER HEAD
- SPEAKER BOX
- STEEL POST
- SPRINKLER CONTROL VALVE
- SET REBAR
- SANITARY SEWER MANHOLE
- STEAM MANHOLE
- STUMP
- SANITARY SEWER VALVE
- TRAFFIC CONTROL BOX
- TELEPHONE BOOTH
- TELEPHONE CABINET
- TELEPHONE PEDESTAL
- TELEPHONE RISER
- TRAFFIC LIGHT POLE
- TELEPHONE MANHOLE
- TRANSFORMER
- TRANSMISSION TOWER
- TRAFFIC SIGNAL W/ ARM
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CABINET
- TRAFFIC SIGNAL MANHOLE
- TRAFFIC SIGNAL POLE
- TELEVISION PEDESTAL
- TELEVISION RISER
- VENT PIPE
- WATER WELL
- WOOD POST
- WATER MANHOLE
- WATER METER PIT
- WATER METER
- WATER FAUCET
- WATER VALVE
- YARD LIGHT
- YARD HYDRANT
- VENT PIPE
- CONTOUR LINE
- CENTER LINE
- PROPERTY LINE
- SECTION LINE
- EASEMENT LINE
- WOOD FENCE
- CHAIN LINK FENCE
- WIRE FENCE
- SANITARY SEWER LINE
- STORM SEWER LINE
- WATER LINE
- UNDERGROUND GAS MAIN
- OVERHEAD POWER
- UNDERGROUND POWER
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND CABLE TELEVISION LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND TRAFFIC LINE
- STEAM TUNNEL
- TREE MASS
- TREE ROW/BUSHES

GENERAL SYMBOLS

- B-4 OB — BORE HOLE, NUMBER AND AREA
- 2003 — SPOT GRADE ELEVATION
- 18+00 — ALIGNMENT WITH STATIONING
- FIRE HYDRANT
- YARD HYDRANT
- CP\BM — CONTROL POINT\BENCHMARK
- DECIDUOUS TREE
- ELECTRIC BOX
- ELECTRIC METER
- ELECTRIC RISER
- FLAG POLE
- GRATE INLET
- JUNCTION BOX
- LIGHT POLE
- MAILBOX
- SANITARY SEWER MANHOLE
- SIGN
- TELEPHONE RISER
- TELEVISION RISER
- TRANSFORMER
- WATER VALVE
- YARD LIGHT
- SMALLER THAN 12" / 12" AND LARGER — PIPING

SURVEY NOTES

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THIS INCLUDES PRIVATE AND PUBLIC UTILITIES.
2. TREE SIZES ARE THE TRUNK SIZE AT APPROX. 3' FROM GROUND LEVEL. TREE CANOPY SIZES ARE NOT INCLUDED.
3. HORIZONTAL CONTROL IS: CITY OF SEWARD
4. THE SURVEY SHOWS THE CONDITIONS AS OF SEPTEMBER 27, 2021. SITE IS CURRENTLY UNDERGOING DEMOLITION/CONSTRUCTION ACTIVITIES.

CONTROL POINTS

PNT.	NORTHING	EASTING	ELEV.	DESC.
20	148961.82	173195.12	1491.87	CHISELED 'X'
21	149321.33	173190.19	1491.29	CHISELED 'X'
22	149327.80	172848.04	1484.89	CHISELED 'X'
23	148939.08	172850.74	1490.49	CHISELED 'X'

BENCHMARKS

NONE

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REV. NO.	DATE	REVISIONS DESCRIPTION

LINETYPE, SURVEY NOTES AND LEGEND

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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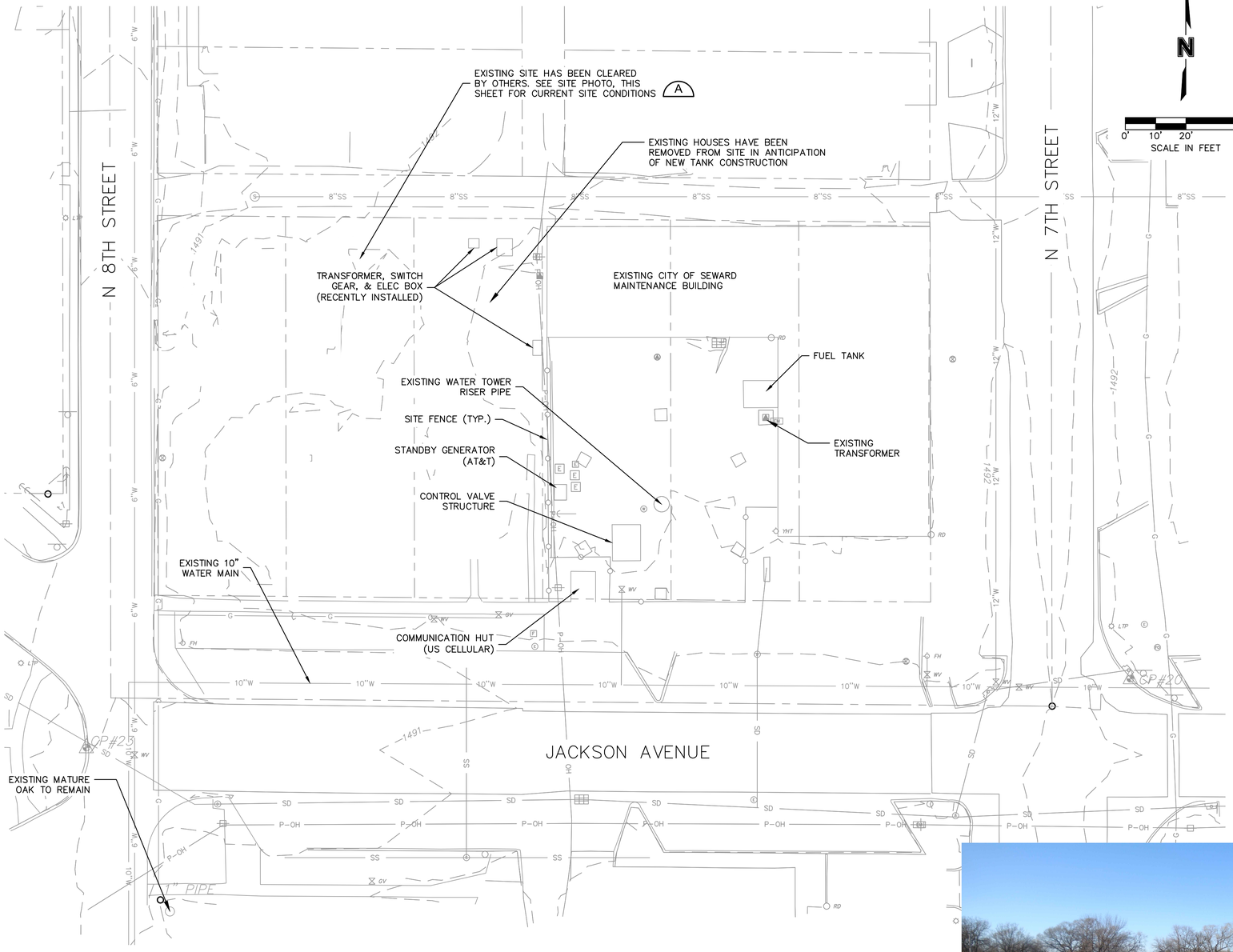

NOTES:

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THIS INCLUDES PRIVATE AND PUBLIC UTILITIES.

2. TREE SIZES ARE THE TRUNK SIZE AT APPROX. 3' FROM GROUND LEVEL. TREE CANOPY SIZES ARE NOT INCLUDED.

3. HORIZONTAL CONTROL IS: CITY OF SEWARD.

4. THE SURVEY SHOWS THE CONDITIONS AS OF SEPTEMBER 27, 2021. SITE IS CURRENTLY UNDERGOING DEMOLITION/CONSTRUCTION ACTIVITIES.

CONTROL POINTS

PNT.	NORTHING	EASTING	ELEV.	DESC.
20	148961.82	173195.12	1491.87	CHISELED 'X'
21	149321.33	173190.19	1491.29	CHISELED 'X'
22	149327.80	172848.04	1484.89	CHISELED 'X'
23	148939.08	172850.74	1490.49	CHISELED 'X'

BENCHMARKS

1. CHISELED 'X' ON TOP OF CURB, S. SIDE OF INLET AT NE. CORNER OF N. 7TH STREET AND JACKSON AVE.
CONTROL POINT #20
ELEV.=1491.87 (N.A.V.D. 1988)

2. CHISELED 'X' ON TOP OF CURB, N. SIDE OF INLET AT NE. CORNER OF N. 7TH STREET AND BRANFORD STREET.
CONTROL POINT #21
ELEV.=1491.29 (N.A.V.D. 1988)

3. CHISELED 'X' ON TOP OF CURB, S. SIDE OF E/W SIDEWALK AT NW. CORNER OF N. 8TH STREET AND BRADFORD STREET.
CONTROL POINT #22
ELEV.=1484.89 (N.A.V.D. 1988)

4. CHISELED 'X' ON TOP OF CURB, W. SIDE OF N. 8TH STREET, MID-POINT OF CURVE AT JACKSON AVENUE SPLIT.
CONTROL POINT #23
ELEV.=1480.49 (N.A.V.D 1988)

CURRENT SITE CONDITIONS A

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REV. NO.	DATE	REVISIONS DESCRIPTION

REVISIONS

EXISITNG SITE PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

2023

SEWARD, NEBRASKA

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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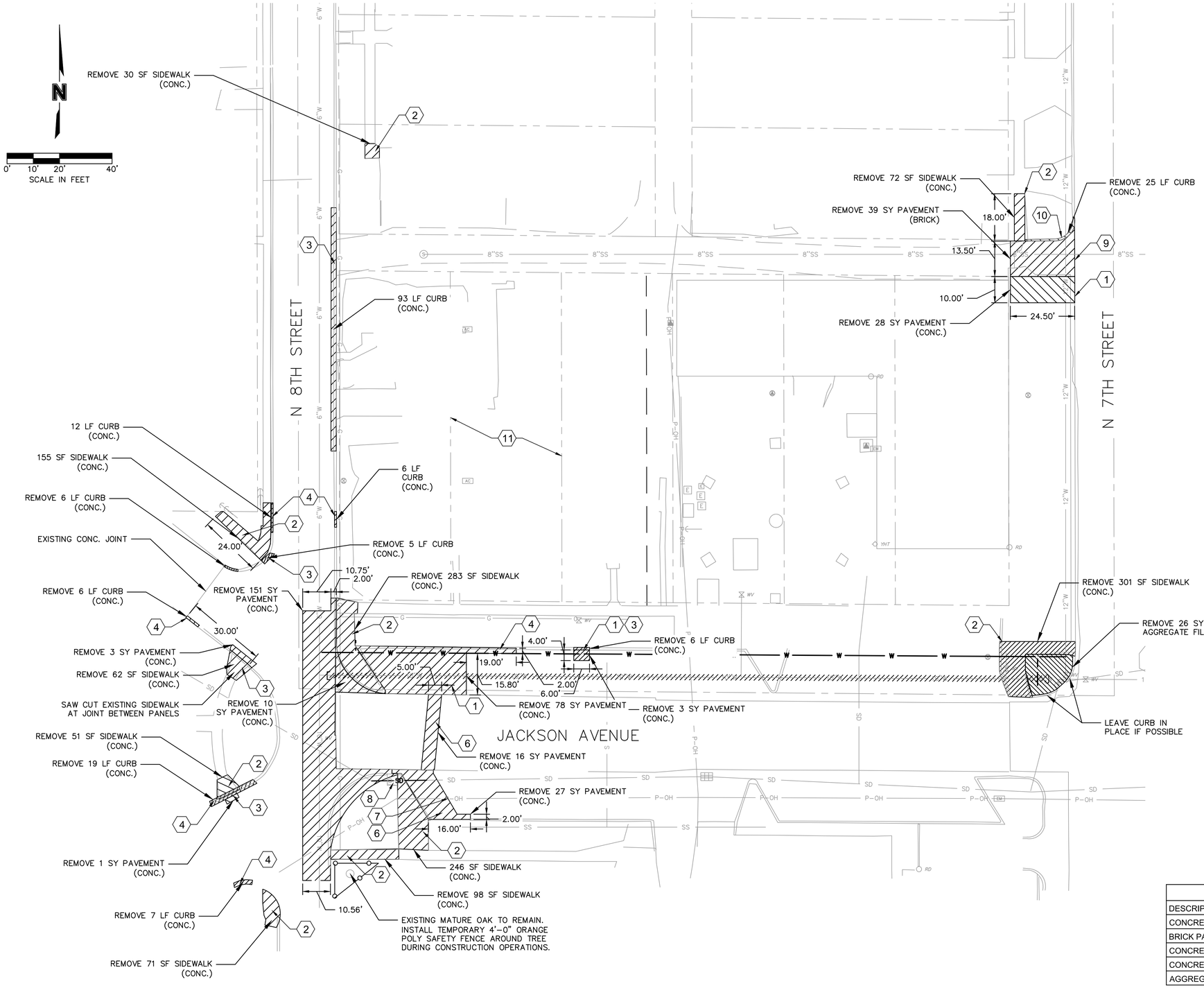

NOTES:

1. CONTRACTOR SHALL COORDINATE ALL STREET AND SIDEWALK CLOSURES WITH CITY STREET SUPERINTENDENT. DURATION OF CLOSURES SHALL BE MINIMIZED.
2. PROTECT ALL TREES FROM DAMAGE TO ROOTS, TRUNK, BRANCHES, AND FOLIAGE. NO TREES SHALL BE REMOVED WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER.
3. STRIP SITE OF TOPSOIL. STOCKPILE ONSITE IN AREA DESIGNATED BY THE OWNER. AVOID STRIPPING AREAS CONTAMINATED WITH CLAY. AVOID CONTAMINATING SALVAGED TOPSOIL WITH SUBSOIL.
4. CONTRACTOR SHALL REPAIR OR REPLACE ALL ROADS, PAVEMENT, SIDEWALK, AND CURBS DAMAGED DURING CONSTRUCTION.
5. SAW CUT ALL JOINTS BETWEEN DEMOLISHED AND RETAINED PAVEMENT PRIOR TO REMOVAL. SAW CUT AT SUFFICIENT DEPTH TO AVOID DISTURBING RETAINED PAVEMENT.
6. SAW CUT ALONG ASPHALT/CONCRETE JOINT PRIOR TO REMOVAL.
7. RETAINED PAVEMENT THAT IS DISTURBED DURING DEMOLITION SHALL BE REMOVED AND REPLACED.

SHEET KEYNOTES:

1. REMOVE PAVEMENT, INCLUDING INTEGRAL CURB. SAW CUT PERIMETER OF REMOVED PANEL. REMOVE CAREFULLY TO AVOID DAMAGE TO RETAINED PAVEMENT.
2. REMOVE SIDEWALK. SAW FULL DEPTH AT PANEL JOINT, SEPARATING RETAINED PAVEMENT FROM DEMOLISHED PAVEMENT PRIOR TO REMOVING SIDEWALK.
3. SAW CUT ROAD, PAVEMENT ALONG A LINE PARALLEL TO AND TWO FEET FROM BACK OF CURB, FULL WIDTH OF CURB RAMP AND FLARES. AT EACH END, SAW CUT PERPENDICULAR TO BACK OF CURB. AVOID SAW CUTTING INTO RETAINED PAVEMENT. REMOVE PAVEMENT AND CURB FROM SITE AND DISPOSE OF.
4. GRIND CURB FOR CURB RAMP AND CURB FLARES. REMOVE DEBRIS.
5. SAW CUT ASPHALT OVERLAYMENT. REMOVE FROM SITE AND DISPOSE OF.
6. SAW ASPHALT OVERLAYMENT 2 FT. WIDER THAN REQUIRED TRENCH. SAW CONCRETE PAVEMENT TO WIDTH OF TRENCH. REMOVE CONCRETE PAVEMENT WITHOUT DAMAGING RETAINED ASPHALT OVERLAY.
7. SAW CUT ALONG EXISTING CONTRACTION JOINT.
8. REMOVE BRICK, CONCRETE AND IRON INLET STRUCTURE.
9. REMOVE BRICK PAVERS. SALVAGE AND PALLETIZE WHOLE BRICKS IN GOOD CONDITION OR BETTER. DELIVER TO 880 S. COLUMBIA, SEWARD, NE. DISPOSE OF REMAINING BRICK.
10. REMOVE CURB FROM SITE AND DISPOSE OF. REMOVE CAREFULLY TO AVOID DAMAGE TO RETAINED BRICK PAVEMENT.
11. EXISTING HOUSES HAVE BEEN CLEARED FROM SITE IN ANTICIPATION OF TANK AND SITEWORK CONSTRUCTION.

REMOVAL QTY		
DESCRIPTION	QTY	UNIT
CONCRETE PAVEMENT	317	SY
BRICK PAVEMENT	39	SY
CONCRETE SIDEWALK	1369	SF
CONCRETE CURB	185	LF
AGGREGATE	26	SY

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

SITE PAVEMENT AND SIDEWALK DEMOLITION PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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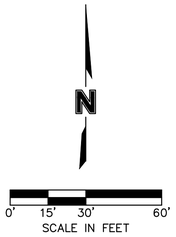

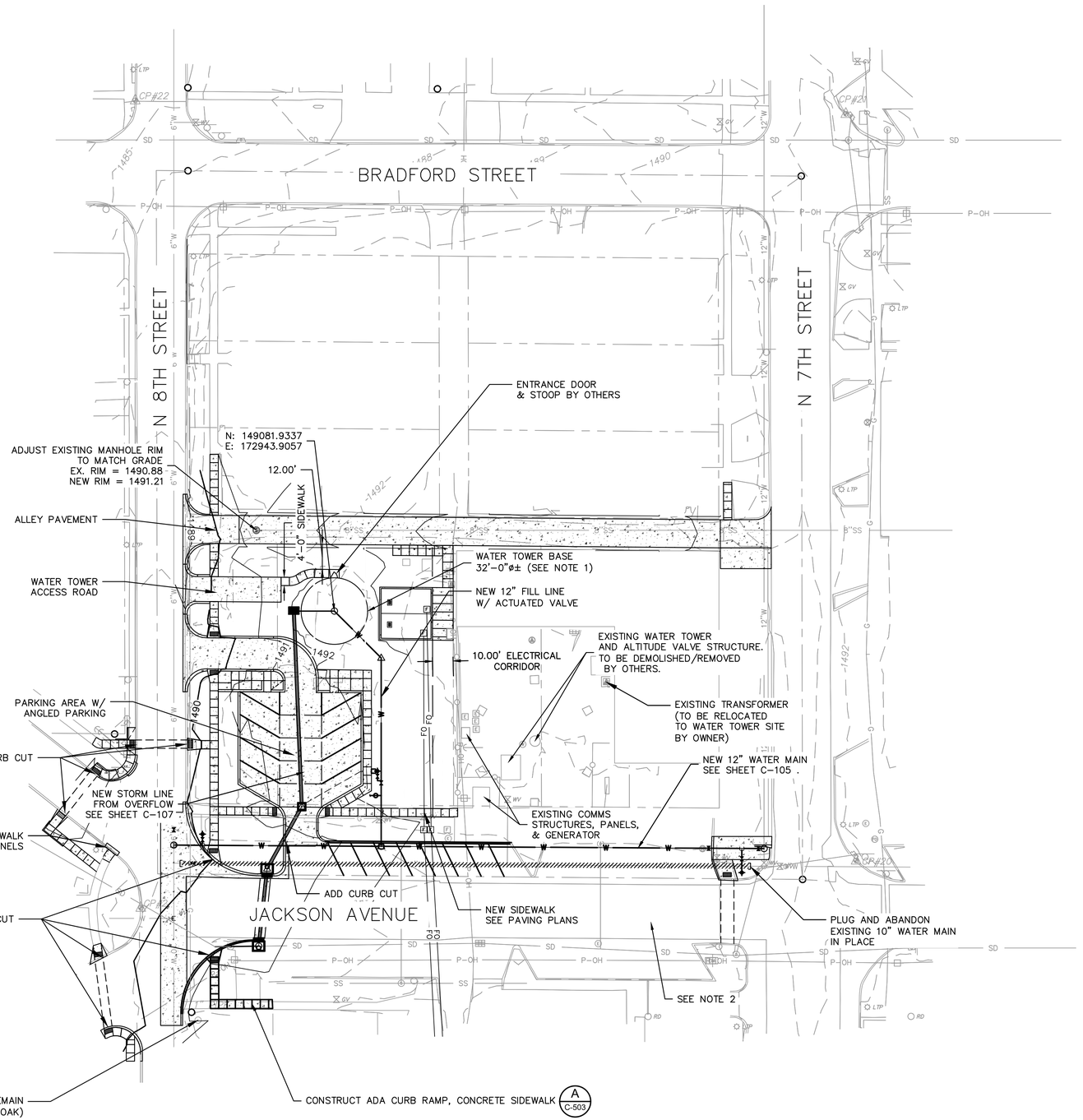

NOTES:

1. TANK SHOWN (TO BE CONSTRUCTED BY OTHERS) IS OF A SIZE TYPICAL OF A 500,000 – GALLON SPHEROID–STYLE TANK AND IS PROVIDED FOR INFORMATION PURPOSES ONLY. FINAL DIMENSIONS TO BE CONFIRMED BY TANK MANUFACTURER DURING ITS CONSTRUCTION. COORDINATE FINAL PLACEMENT/DIMENSIONS OF TANK WITH TANK CONTRACTOR DURING CONSTRUCTION.
2. JACKSON AVENUE SHALL REMAIN OPEN AT ALL TIMES ON JULY 4TH WITH NO OBSTRUCTIONS TO TRAFFIC.
3. CONTRACTOR SHALL COORDINATE ALL STREET AND SIDEWALK CLOSURES WITH CITY STREET SUPERINTENDENT. DURATION OF CLOSURES SHALL BE MINIMIZED.
4. TREES TO BE REMOVED ARE INDICATED ON THESE PLANS NO OTHER TREES SHALL BE REMOVED WITHOUT PERMISSION FROM THE OWNER.
5. EXISTING TANK AND ASSOCIATED EQUIPMENT TO BE DEMOLISHED/REMOVED BY OTHERS.

PAVING IMPROVEMENTS

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REV. NO.	DATE	REVISIONS DESCRIPTION
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OVERALL SITE PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

2023

SEWARD, NEBRASKA

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWV\Utilities and Sitework Sheets\P_SIT02_0193180.dwg USER: clnelson
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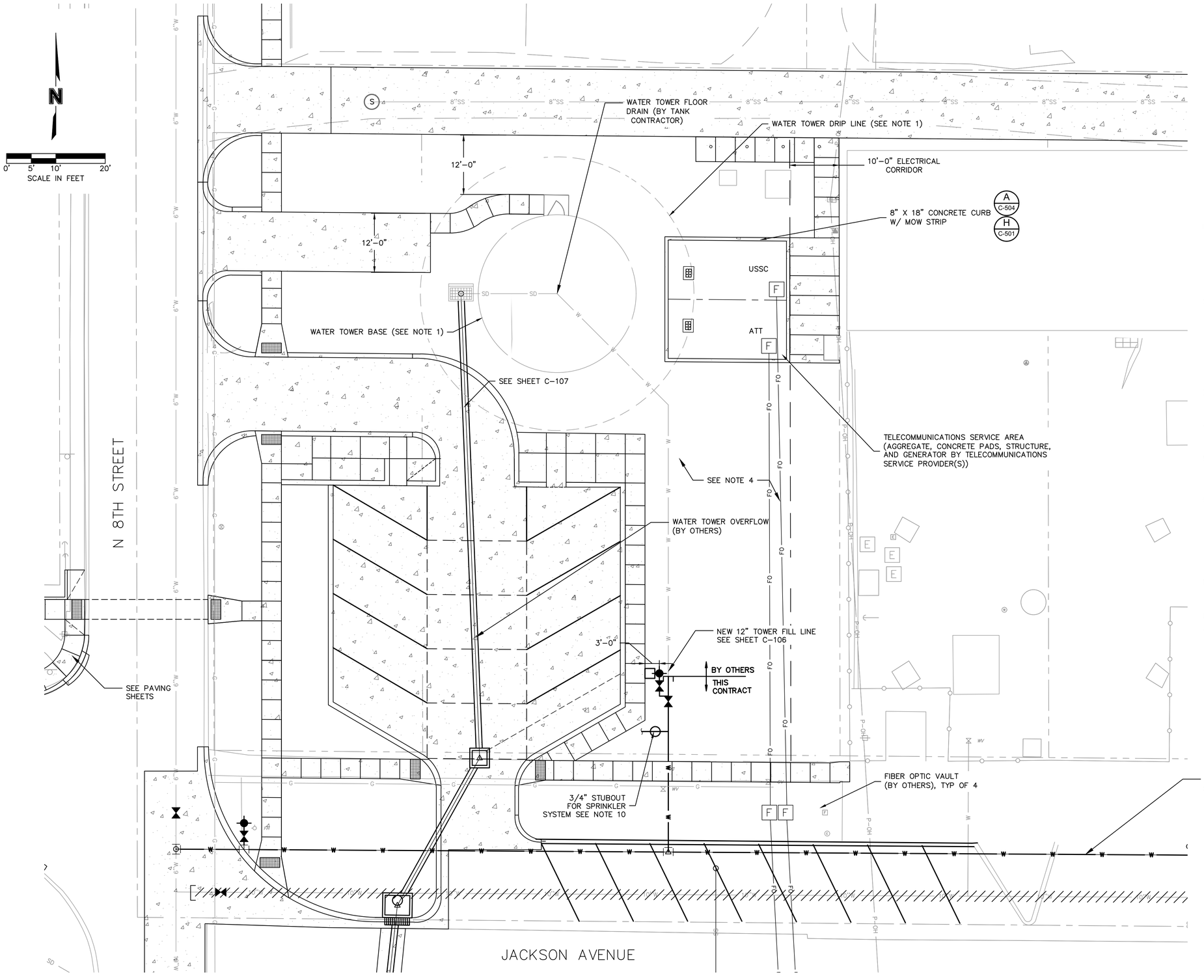

NOTES:

1. TANK DIMENSIONS SHOWN ARE FROM SUPPLIER LITERATURE. FINAL SIZE TO BE PROVIDED BY TANK CONTRACTOR DURING ITS CONSTRUCTION. COORDINATE FINAL TANK LOCATION/DIMENSIONS WITH TANK CONTRACTOR.
2. SITE DISTURBANCE IS ANTICIPATED TO BE LESS THAN ONE ACRE, THEREFORE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS NOT REQUIRED. IF DISTURBANCE EXCEEDS ONE ACRE, CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT, ACQUISITION, INSTALLATION, MAINTENANCE, AND REMOVAL OF A SWPPP, SUBSIDIARY TO THE PROJECT.
3. STRIP 12-INCHES OF TOPSOIL AND STOCKPILE ONSITE. SEE LANDSCAPING PLAN.
4. BRACE UTILITY POLES AS REQUIRED TO MAINTAIN THEIR STABILITY DURING CONSTRUCTION.
5. CONTRACTOR SHALL NOT ACCESS OR PLACE MATERIALS ON PRIVATE PROPERTY WITHOUT THE PERMISSION FROM PROPERTY OWNER.
6. CONTRACTOR SHALL MAINTAIN EXISTING ROADS, WALKS, AND ALLEYS DURING CONSTRUCTION. REPAIR DAMAGES PRIOR TO LEAVING SITE.
7. COORDINATE ALL ROAD CLOSURES WITH THE OWNER. JACKSON AVENUE SHALL BE OPEN, WITH NO OBSTRUCTIONS PRESENT, AT ALL TIMES ON JULY 4TH.
8. CITY TO HAVE ABANDONED THREE EXISTING SEWER SERVICES PRIOR TO CONTRACTOR'S MOBILIZATION TO SITE.
9. EXISTING GAS SHUTOFFS TO REMAIN.
10. CONTRACTOR TO TAP NEW FILL LINE AND PROVIDE STUBOUT FOR SPRINKLER INSTALLER TO CONNECT TO UNDER A SEPARATE CONTRACT.

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

SITE PIPING PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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8 OF 18

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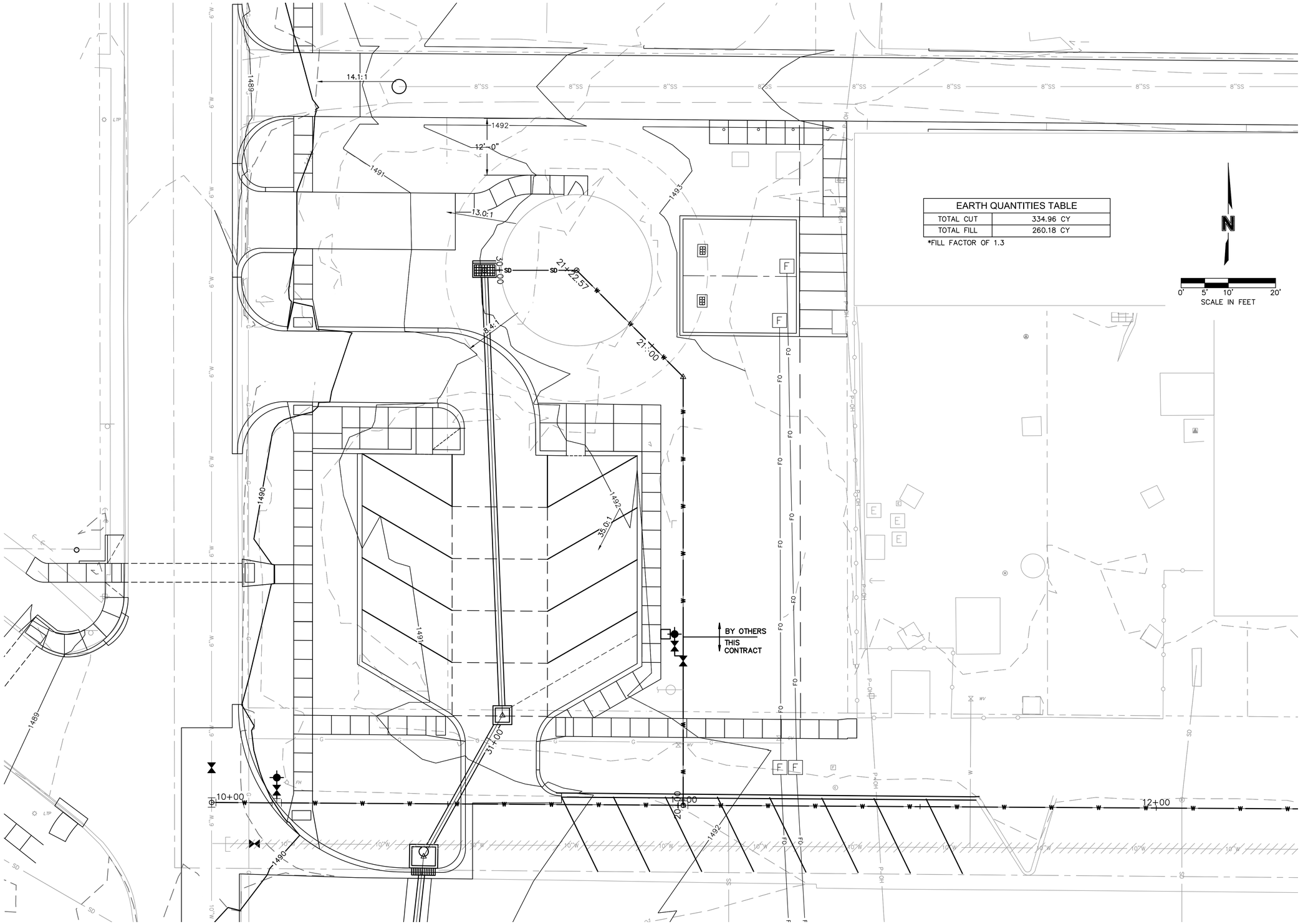
USER: clnelson



EARTH QUANTITIES TABLE	
TOTAL CUT	334.96 CY
TOTAL FILL	260.18 CY

*FILL FACTOR OF 1.3

N

0' 5' 10' 20'
SCALE IN FEET

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REV. NO.	DATE	REVISIONS DESCRIPTION
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SITE GRADING PLAN

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-3180
drawing no.:	
date:	02/17/2023

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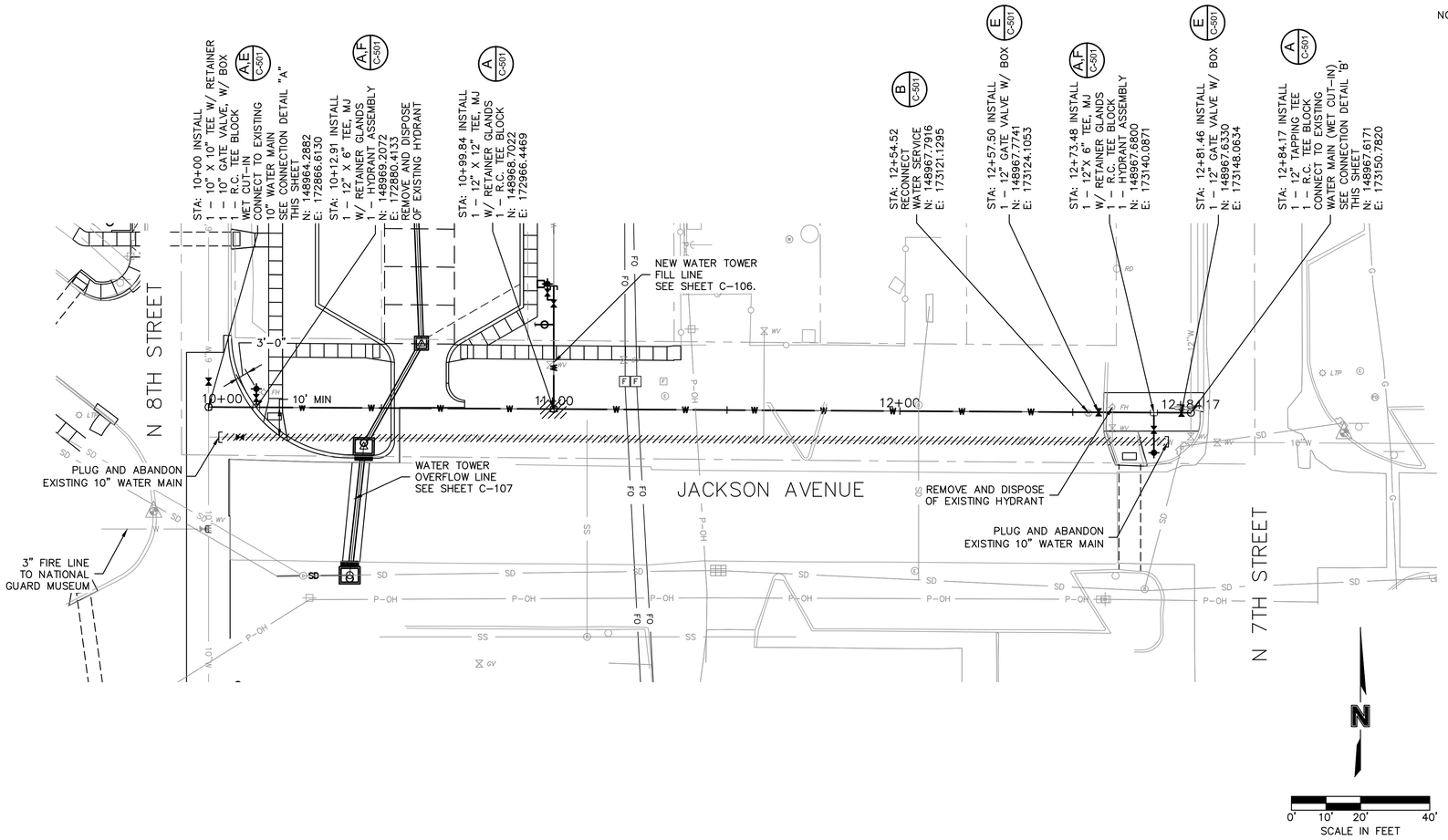
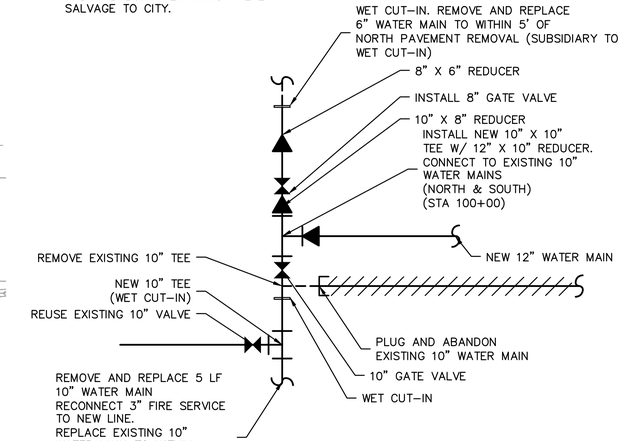


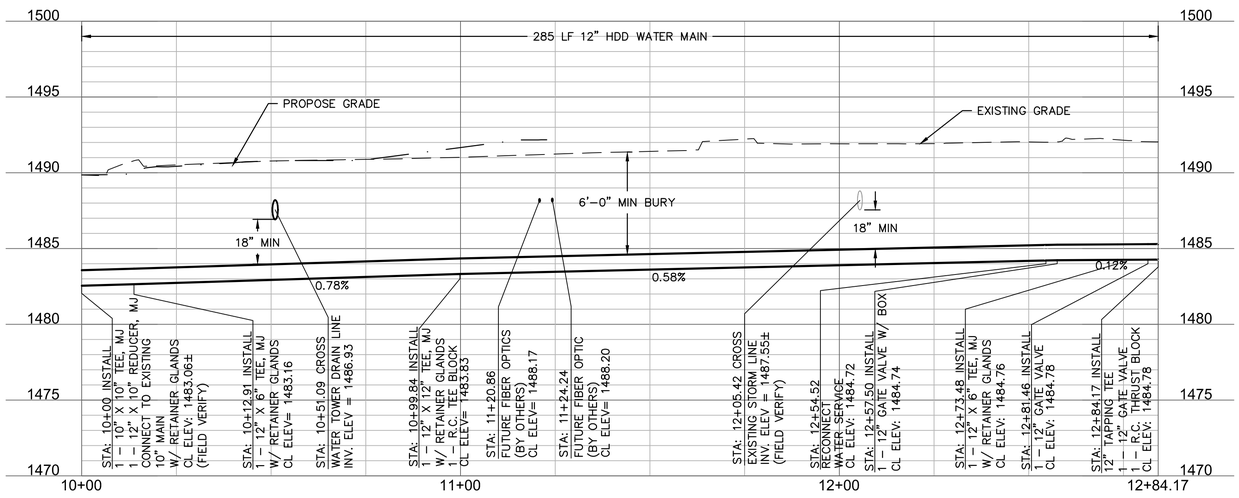
NOTES:

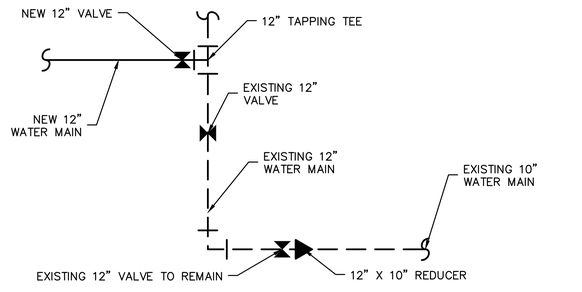
1. EXISTING FACILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH SIMILAR MATERIALS AT NO ADDITIONAL COST TO THE OWNER.
2. LOCATION OF ALL EXISTING WATER AND SEWER SERVICES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS.
3. CONTRACTOR SHALL ABANDON EXISTING WATER MAIN ONCE SERVICES AND CONNECTIONS ARE MADE TO NEW WATER MAIN. INSTALL CAPS/PLUGS AT EACH OPEN END AND WHERE SPECIFIED.
4. ABANDON EXISTING VALVES IN CLOSED POSITION. IF VALVE BOX IS LOCATED IN ROADWAY, REMOVE VALVE STEM AND FILL VALVE BOX W/ CONCRETE. IF VALVE BOX IS LOCATED OFF ROADWAY, REMOVE TOP OF VALVE BOX RISER AND CONCRETE PAD AND BURY REMAINING VALVE. SALVAGE TO CITY.
5. CONTRACTOR SHALL CONNECT EXISTING WATER SERVICES TO NEW MAIN. PROVIDE NEW TAPPING SADDLE, CORP STOP, AND CURB STOP BY BOX, EXTENSION ROD, AND CENTERING RING. CURB STOPS SHALL BE INSTALLED WITHIN 5' OF WATER MAIN. FIELD VERIFY LOCATIONS.
6. EXISTING WATER SERVICES SHALL REMAIN OPERATIONAL WHILE WATER MAIN IS BEING INSTALLED.
7. COORDINATE W/ CITY TO ISOLATE WATER MAINS FOR WET CUT–IN. CITY SHALL OPERATE ALL VALVES.
8. COORDINATE ALL ROAD CLOSURES WITH THE OWNER. JACKSON AVENUE SHALL BE OPEN, WITH NO OBSTRUCTIONS PRESENT, AT ALL TIMES ON JULY 4TH.



CONNECTION DETAIL "A"
NOT TO SCALE

NOTES:
1. PIPE SPOOLS, COUPLINGS NOT CALLED OUT FOR CLARITY.





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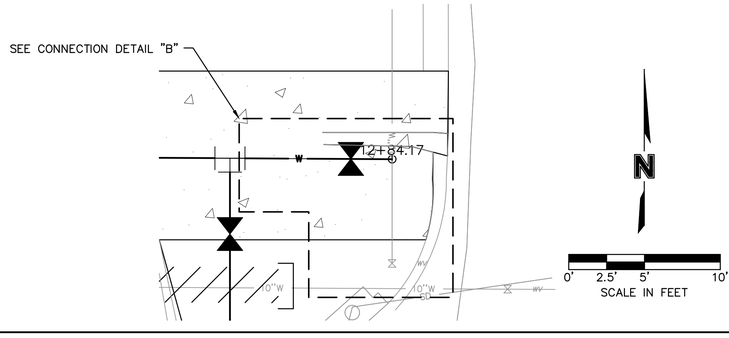

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

PLAN & PROFILE STA 10+00 -12+84.17

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-3180
drawing no.:	
date:	02/17/2023

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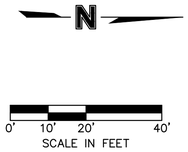
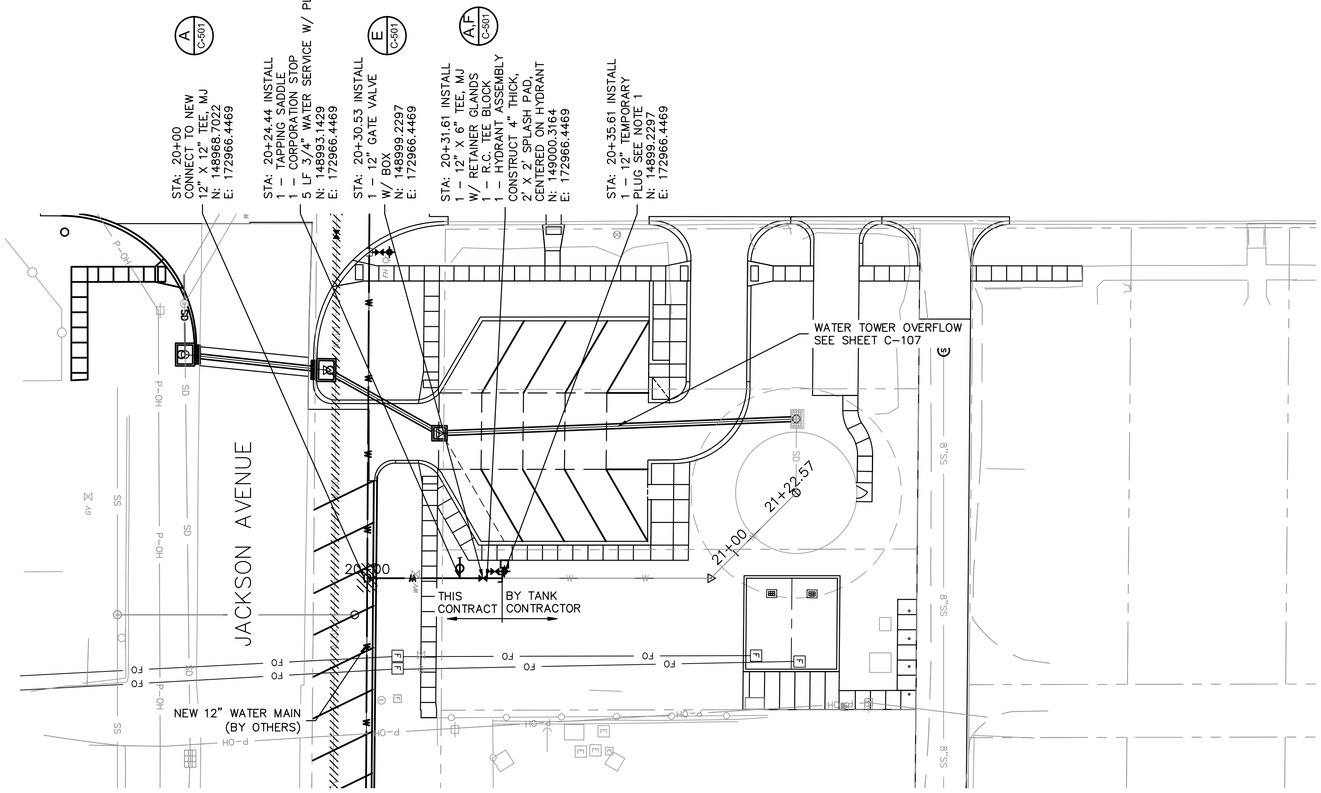
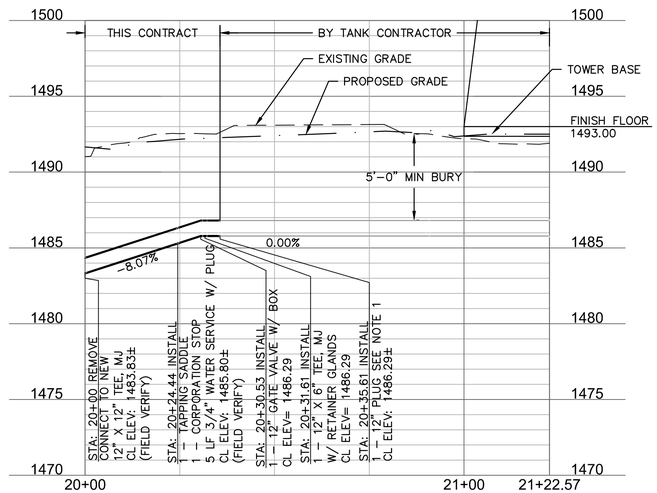
USER: clnelson P_PPAT_0193180 ALTERED V_XTOPO_0193180 P_PBASE_0193180





NOTES:
1. TEMPORARY 12" PLUG SHALL BE REMOVED BY TANK CONTRACTOR WHEN RECONNECTING TO WATER MAIN DURING TOWER CONSTRUCTION



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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

PLAN & PROFILE STA 20+00 - 21+14.67

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-106
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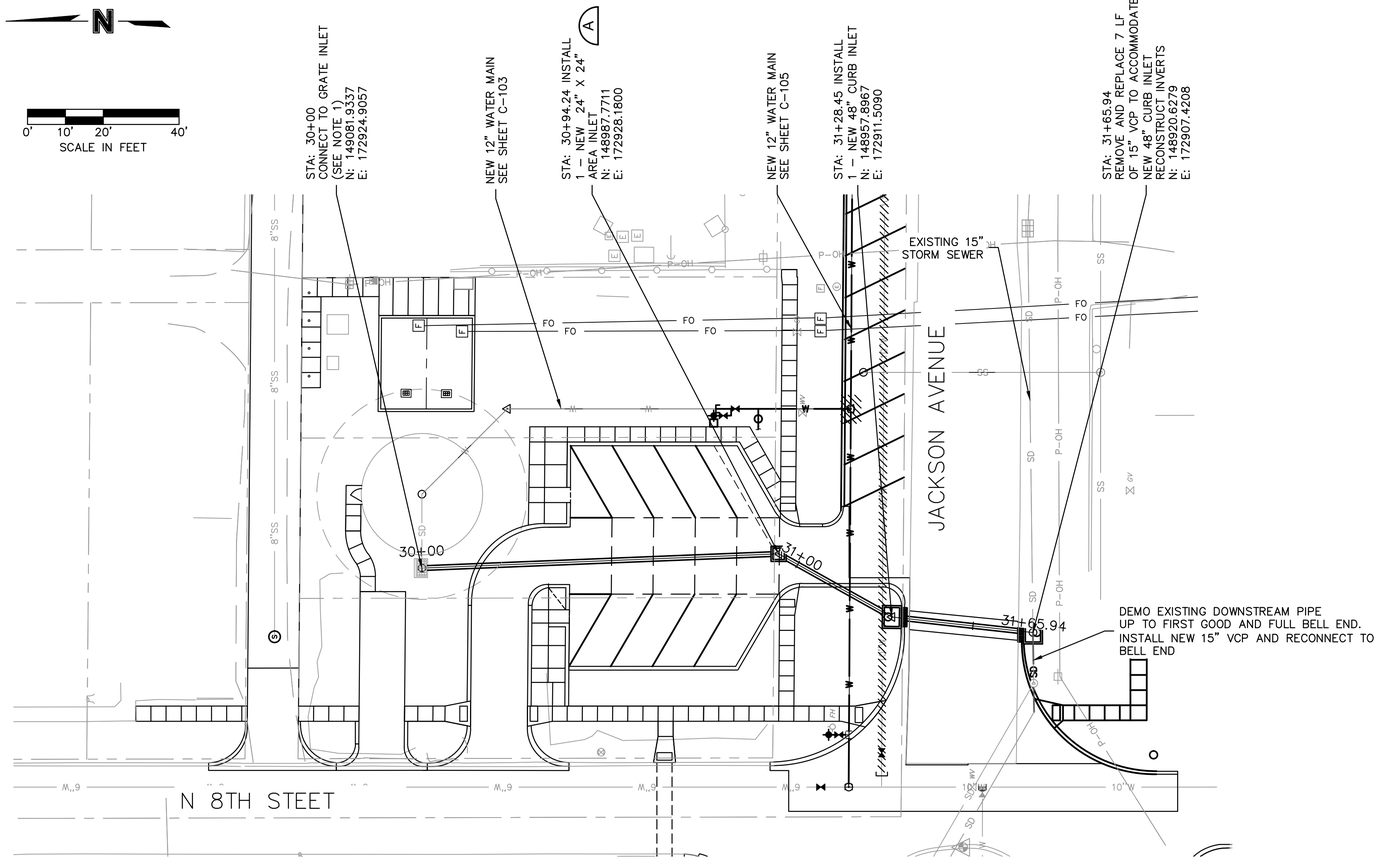

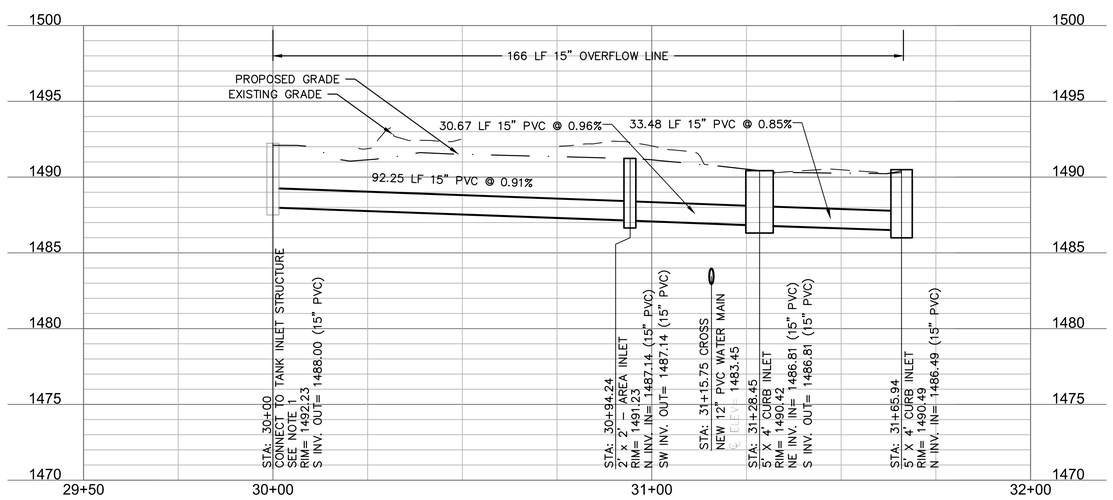

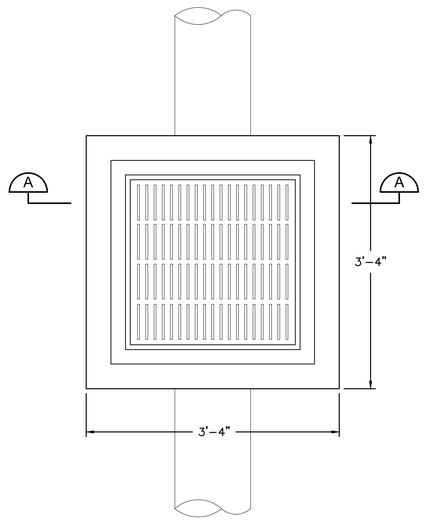

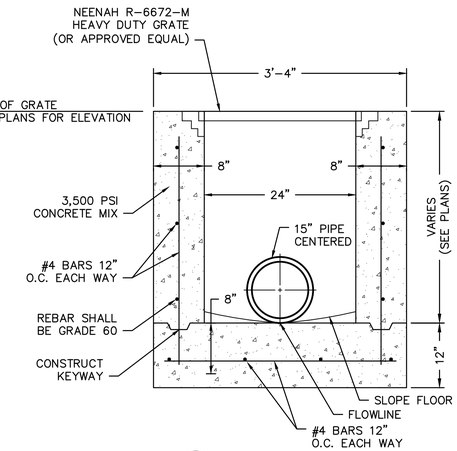

24" X 24" CONCRETE STORM SEWER INLET A
NO SCALE

NOTE:
1. TANK CONTRACTOR SHALL INSTALL GRATE INLET AND FORM INVERT. UTILITIES CONTRACTOR SHALL CORE DRILL INLET TO CONNECT.

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

PLAN & PROFILE STA 30+00-31+65.13 & DETAILS

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

2023

SEWARD, NEBRASKA

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-3180
drawing no.:	
date:	02/17/2023

C-107
12 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Utilities and Sitework Sheets\P_WATO1_0193180.dwg USER: clnelson
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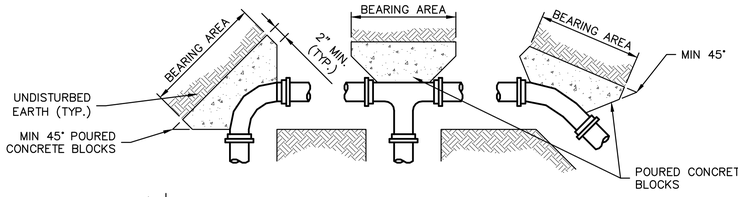
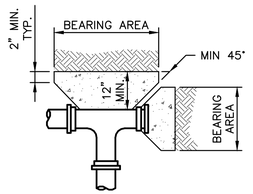




NOTES:

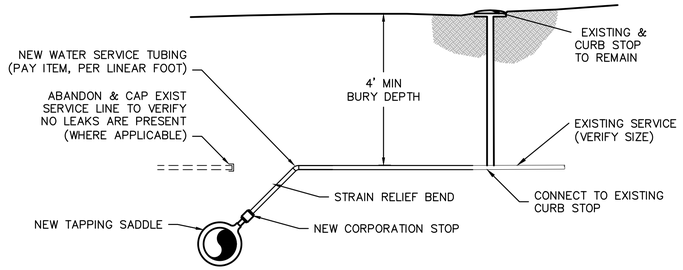
1. PLACE 4 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING (CONCRETE SHALL NOT INTERFERE WITH JOINT.).
2. MINIMUM CONCRETE THICKNESS SHALL BE 12 INCHES.
3. THE HORIZONTAL DIMENSION OF THE BEARING AREA SHALL BE BETWEEN 0.8 AND 1.25 TIMES THE VERTICAL DIMENSION.
4. THRUST BLOCK ORIENTATION SHALL BE SUCH THAT THE CENTER OF THE FITTING CORRESPONDS WITH THE CENTER OF THE THRUST BLOCK.
5. THE MINIMUM ALLOWABLE ANGLE (EITHER VERTICAL OR HORIZONTAL) SHALL BE 45 DEGREES.

TYPICAL THRUST BLOCKING (A)
SCALE: 1/2" = 1'–0"

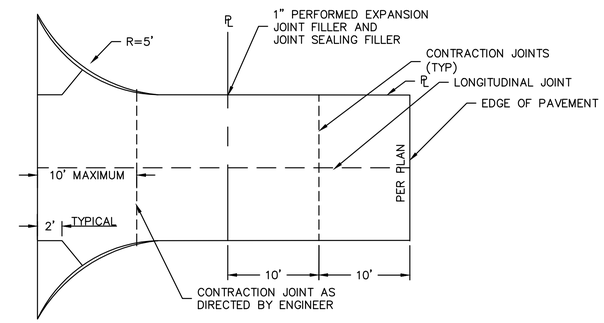
BEARING AREA OF BLOCK IN SQ. FT.				
PIPE SIZES	TEE & END	90° BEND	45° BEND	22° BEND
4" DIA.	0.70	0..90	0.50	0.30
6" DIA.	1.50	2.00	1.10	0.60
8" DIA.	2.60	3.60	2.00	1.00
10" DIA.	4.00	5.60	3.10	1.50
12" DIA.	6.67	9.77	5.22	2.86

SERVICE CONNECTION NOTES:

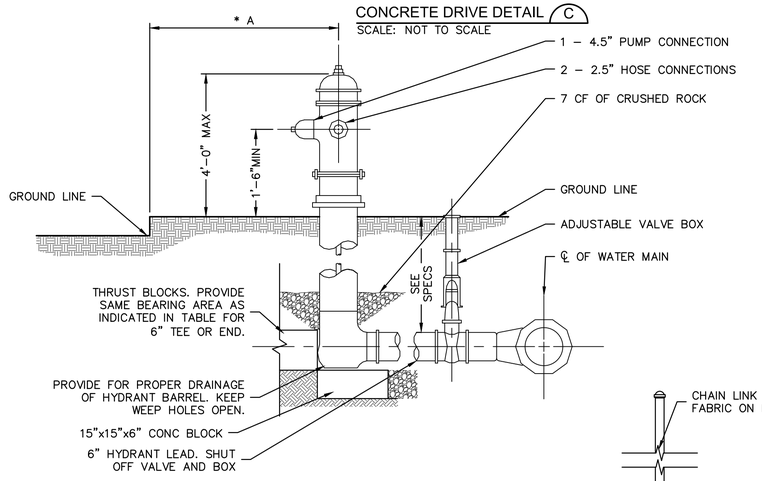
1. ALL WATER SERVICE TUBING SHALL BE 3/8" IN DIA. TUBING SHALL BE JM EAGLE PURE–CORE IPS UNLESS OTHERWISE DIRECTED
2. IF CURB STOP IS UNABLE TO BE REUSED, PROVIDE AND INSTALL A NEW CURB STOP AND DISPOSE OF EXISTING CURB STOP (SUBSIDIARY).



CONNECT TO EXISTING SERVICE (B)
SCALE: 1/2" = 1'–0"

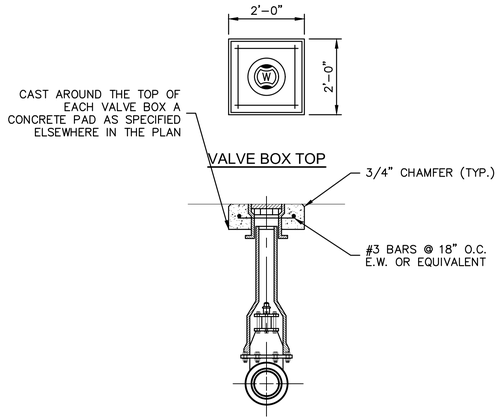


CONCRETE DRIVE DETAIL (C)
SCALE: NOT TO SCALE

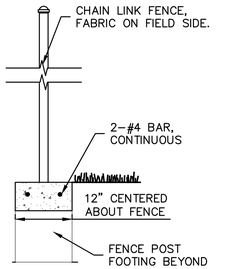


* A = 7'–0" FROM BACK OF PAVEMENT WHERE NO CURB EXISTS OR 4'–0" FROM BACK OF CURB.

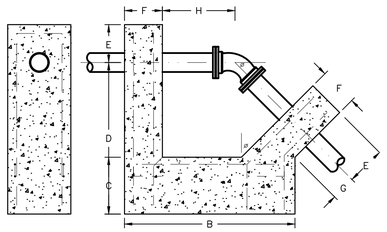
TYPICAL FIRE HYDRANT SETTING (F)
SCALE: 3/4" = 1'–0"



VALVE BOX - SQUARE (E)
SCALE: 1/2" = 1'–0"



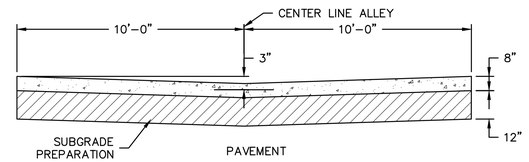
MOW STRIP & CURB DETAIL (H)
SCALE: 3/4" = 1'–0"

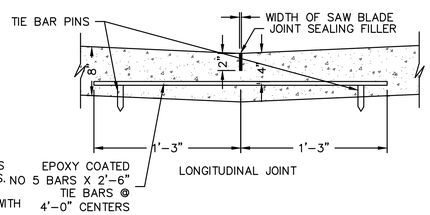


REINFORCED CONCRETE ANCHORAGE (D)
SCALE: 1/2"=1'–0"

REINFORCED CONCRETE ANCHORAGE											
Ø = 45°											
DIA.	A	B	C	D	E	F	G	H	CONCRETE CY	BAR SIZE	STEEL (LBS)
6&8	2'–0"	4'–6"	1'–6"	2'–6"	1'–0"	1'–0"	0'–8"	1'–11"	0.94	4	34
10	2'–6"	5'–0"	1'–6"	3'–0"	1'–3"	1'–0"	1'–0"	2'–4"	1.31	4	42
12	3'–0"	5'–0"	2'–0"	3'–6"	1'–6"	1'–0"	1'–6"	3'–1"	1.98	4	48

REINFORCED CONCRETE ANCHORAGE											
Ø = 22.5°											
DIA.	A	B	C	D	E	F	G	H	CONCRETE CY	BAR SIZE	STEEL (LBS)
6&8	2'–0"	4'–6"	0'–9"	1'–6"	1'–0"	1'–0"	0'–8"	1'–7"	0.54	4	28
10	2'–6"	5'–0"	0'–9"	1–9"	1'–3"	1'–0"	0'–9"	1'–8"	0.75	4	32
12	3'–0"	5'–0"	0'–9"	2'–0"	1'–6"	1'–0"	1'–0"	1'–9'	1.05	4	36

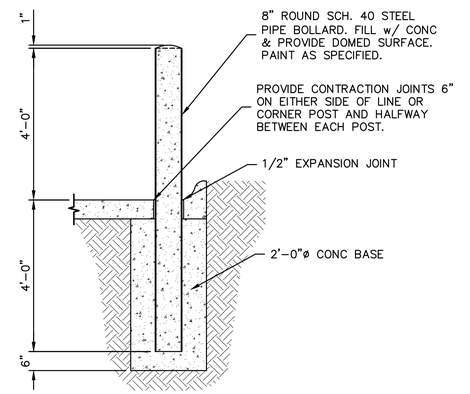




NOTES:

1. CONTRACTOR SHALL SUBMIT EXPANSION/CONTRACTION JOINT MATERIALS PER THE SUBMITTALS SECTION OF THE SPECIFICATIONS. NO
2. ALL JOINTS SHALL BE SEALED WITH JOINT SEALING FILLER PER THE SPECIFICATIONS.
3. THE CONTRACTOR MAY USE MACHINE FOR PLACING THE LONGITUDINAL TIE BARS, OR INSTALL WITH TIE BAR PINS, AT HIS OPTION. CONTRACTOR SHALL SUBMIT HIS PROPOSED METHOD PER THE SUBMITTALS SECTION OF THE SPECIFICATIONS.

ALLEY PAVEMENT DETAILS (G)
SCALE: NOT TO SCALE



BOLLARD DETAIL (I)
SCALE: 1/2" = 1'–0"

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

MISC DETAILS

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

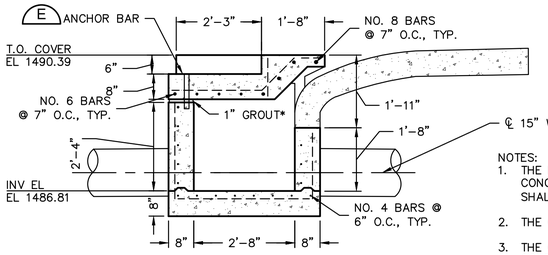
2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-501
13 OF 18

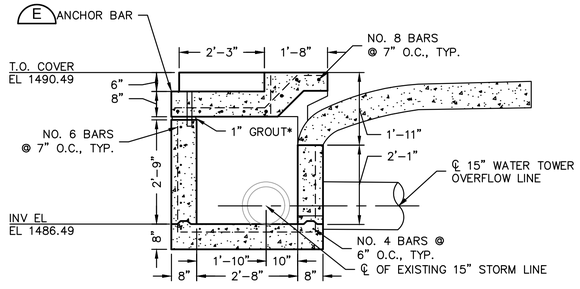
DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Utilities and Sitework Sheets\P_DTL01_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 4:07pm XREFS: P_PTBLK_0193180_UTIL AND SITE WORK

*GROUT SHALL BE FINISHED SUCH THAT THE TOP ELEVATION OF THE INLET LID, WHEN INSTALLED, MATCHES THE FINISHED SHOULDER SLOPE OF THE ROADWAY CROSS-SECTIONS.

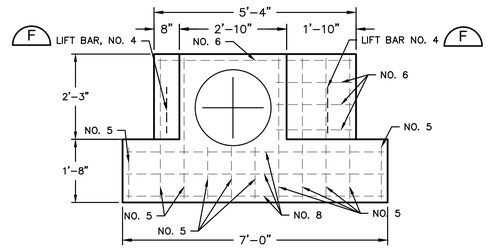


SECTION 2

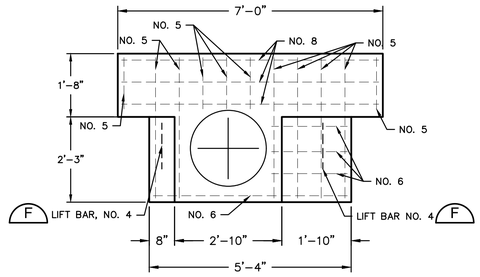
NOTES:
1. THE MINIMUM COVERING, MEASURED FROM THE FACE OF CONCRETE TO THE SURFACE OF ANY REINFORCING BAR, SHALL BE 1 1/2".
2. THE CONCRETE COVERS SHALL BE PRECAST.
3. THE CAST IRON COVERS, FRAMES SHALL BE GREY IRON CONFORMING TO THE SPECIFICATIONS.
4. THE INLET COVER SHALL BE IMPRINTED "NO DUMPING".



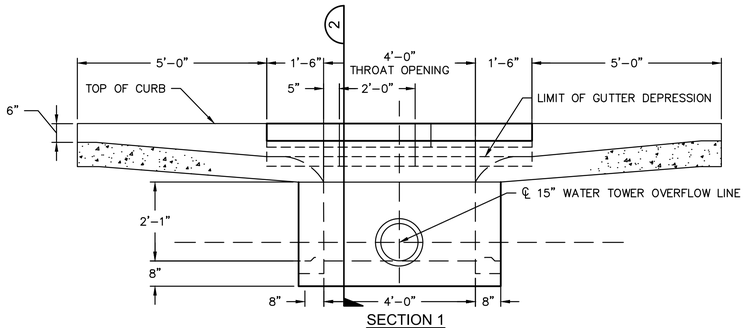
SECTION 2



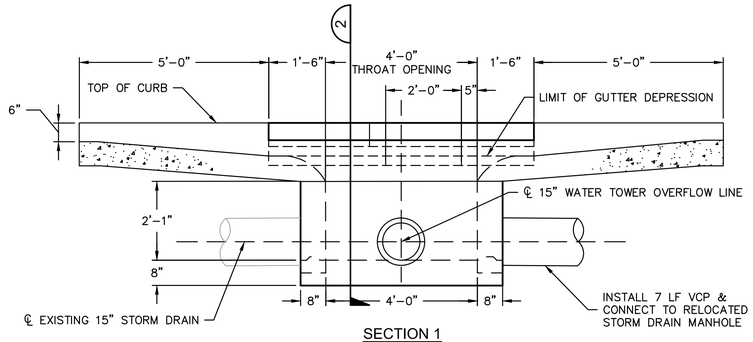
INLET COVER C
SCALE: 1/2" = 1'-0"



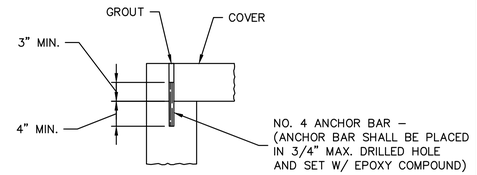
INLET COVER D
SCALE: 1/2" = 1'-0"



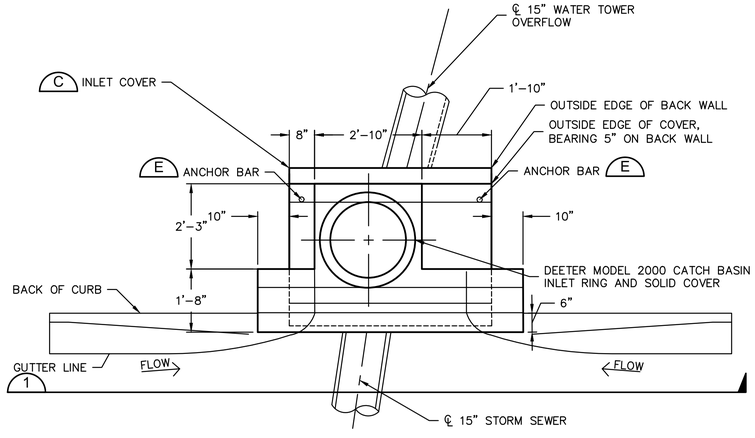
SECTION 1



SECTION 1

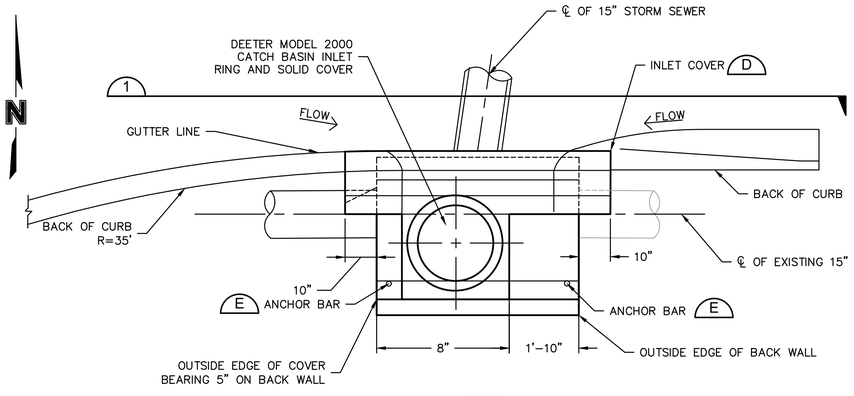


SECTION 1



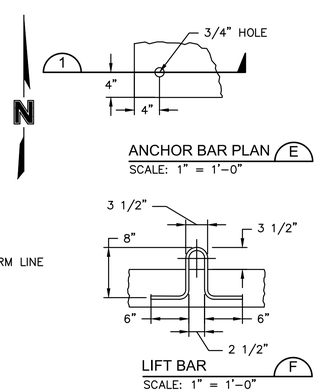
PLAN

STORM SEWER JUNCTION BOX A
SCALE: 1/2" = 1'-0"

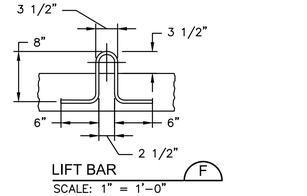


PLAN

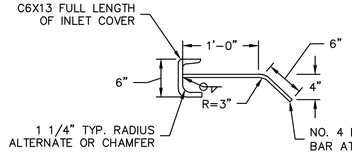
STORM SEWER JUNCTION BOX B
SCALE: 1/2" = 1'-0"



ANCHOR BAR PLAN E
SCALE: 1" = 1'-0"



LIFT BAR F
SCALE: 1" = 1'-0"



NOTE:
1. THE COMPLETED FACE ARMOR/ANCHOR BAR ASSEMBLY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.

FACE ARMOR G
SCALE: 1" = 1'-0"

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

WATER TOWER OVERFLOW DETAILS

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-502
14 OF 18

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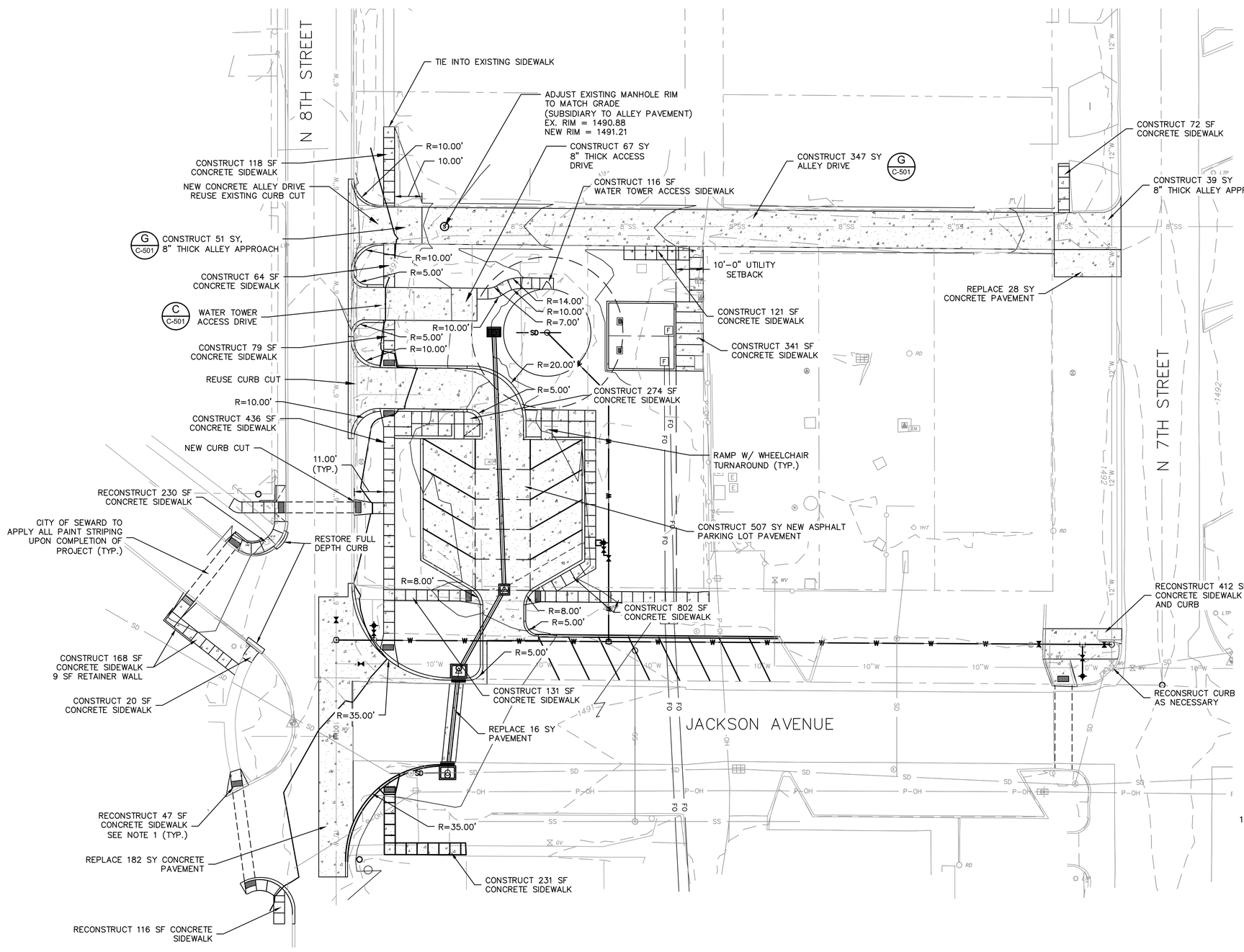
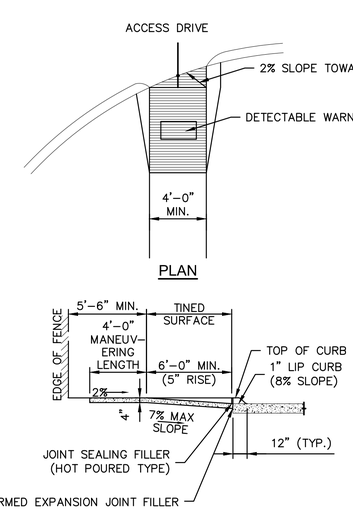


NOTES:

1. CONSTRUCT ALL CURB RAMPS, WITH DETECTABLE WARNING PANELS IN CONFORMANCE WITH NEBRASKA DEPARTMENT OF TRANSPORTATION (NDOT) STANDARD PLAN NO. 303-R3
2. SEE SHEET C-504 FOR DRAINAGE PLAN



TYPICAL RAMP PLAN & PROFILE (A)
SCALE: 3/16" = 1'-0"

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

SIDEWALK AND PAVING PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

2023

SEWARD, NEBRASKA

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-503
15 OF 18

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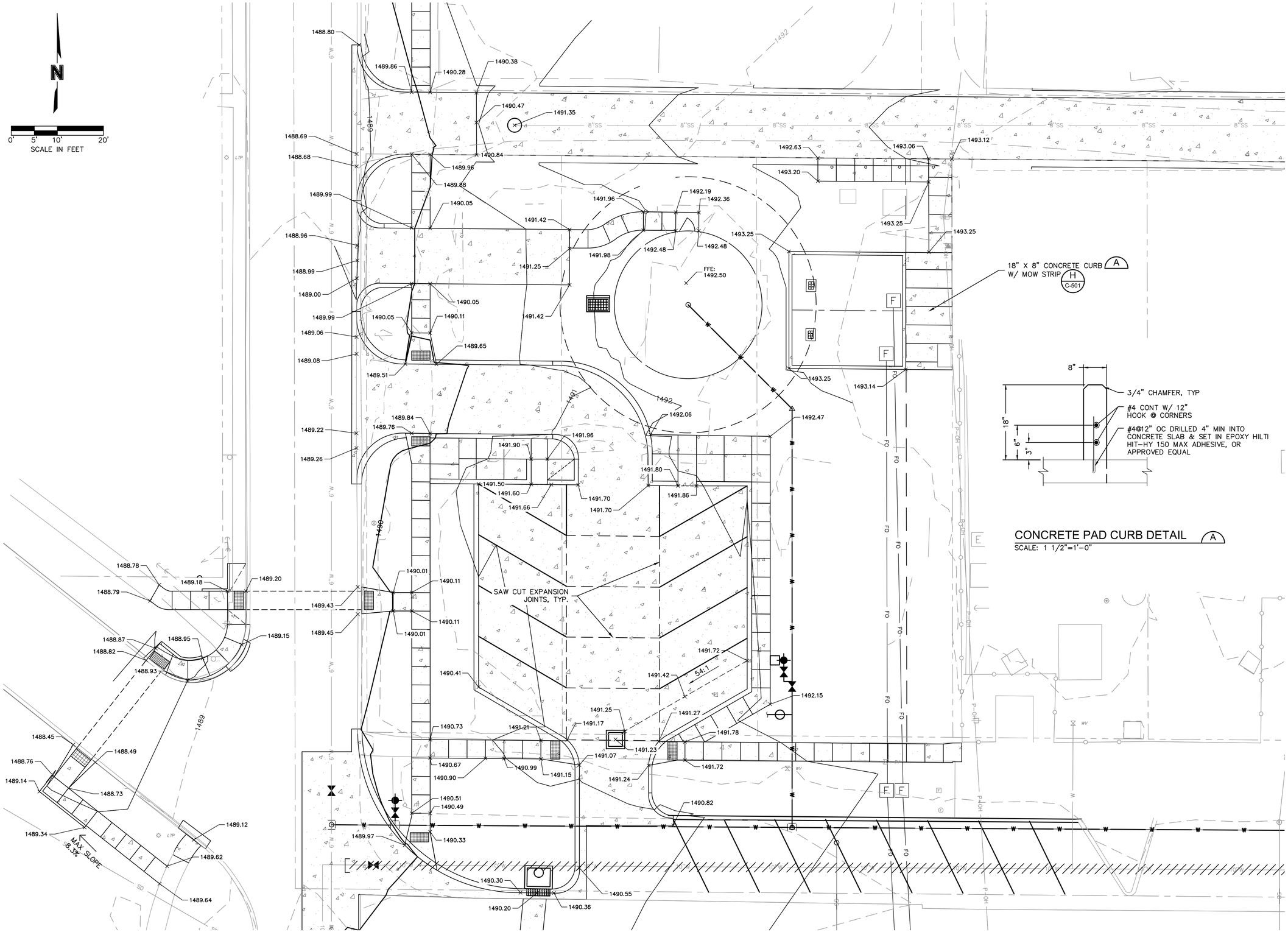

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

SIDEWALK & PAVEMENT DRAINAGE PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

2023

SEWARD, NEBRASKA

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-3180
drawing no.:	
date:	02/17/2023

C-504
16 OF 18

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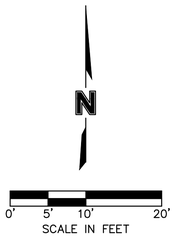

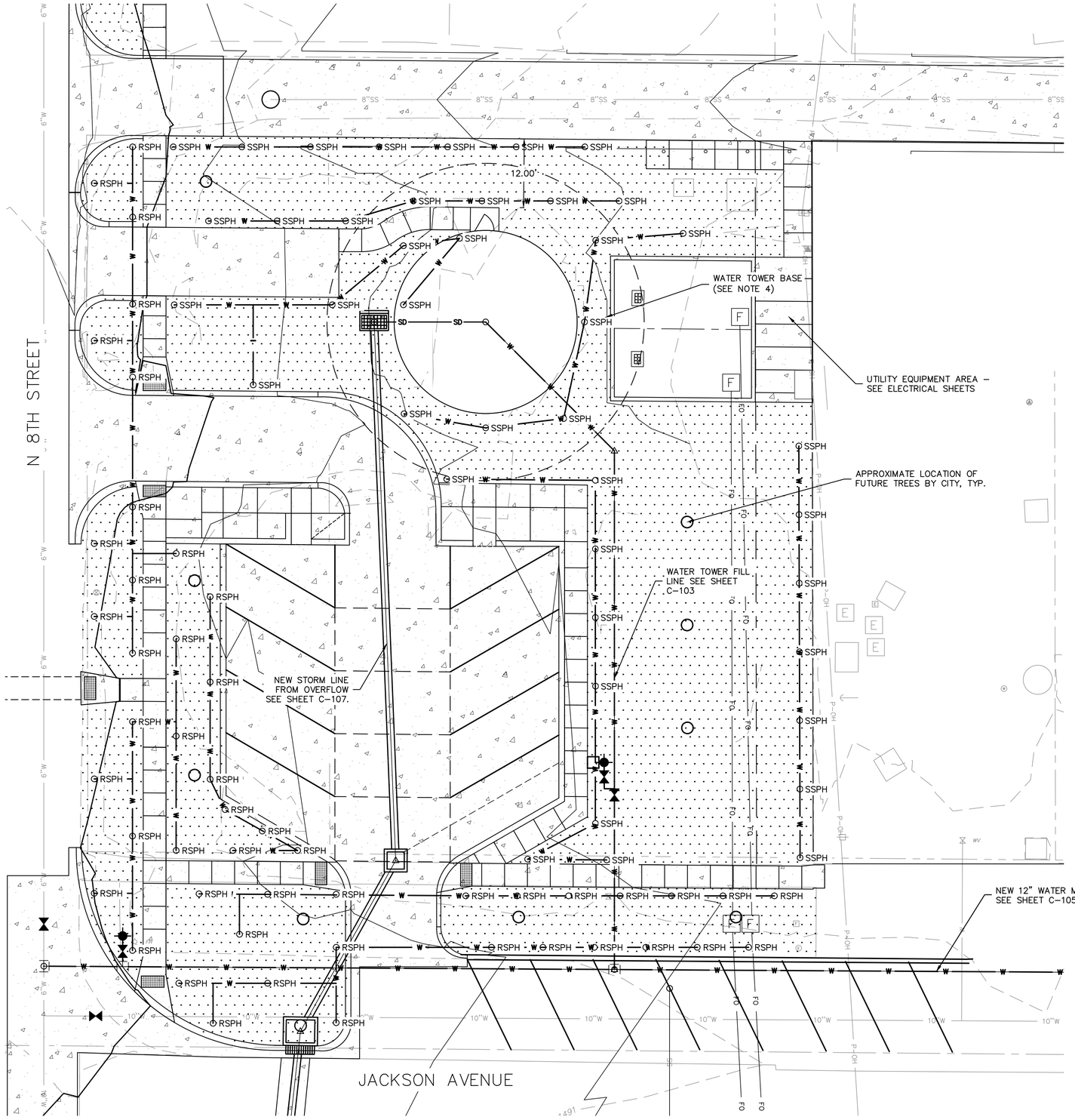

NOTES:

1. CONTRACTOR SHALL PROVIDE AND SPREAD A MINIMUM OF 5" OF TOPSOIL CAPABLE OF ACCOMMODATING TURF GRASS/SOD.
2. SITE SPRINKLER SYSTEM TO BE PROVIDED PER THE ALLOWANCE IN THE SPECIFICATIONS. CONTRACTOR SHALL COORDINATE SPRINKLER INSTALLATION.
3. SOD INSTALLER TO PROVIDE FINE GRADING AND SOD INSTALLATION, PER THE ALLOWANCE IN THE SPECIFICATIONS. CONTRACTOR SHALL COORDINATE SOD INSTALLATION.
4. TANK DIMENSIONS SHOWN ARE APPROXIMATE AND WILL BE FINALIZED BY THE TANK CONTRACTOR DURING ITS CONSTRUCTION.

LEGEND

	SODDING (SEE NOTE 1)
	NEW PAVEMENT (SEE PAVING SHEETS)
OSSPH	SPRAY SPRINKLER HEAD
ORSPH	ROTOR SPRINKLER HEAD

ESTIMATED QUANTITIES

DESCRIPTION	QTY	UNIT
SODDING	10186	SF

olsson
601 P Street, Suite 200
P.O. Box 84608
Lincoln, NE 68508
TEL 402.474.6311
FAX 402.474.5160
www.olsson.com

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

LANDSCAPING PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

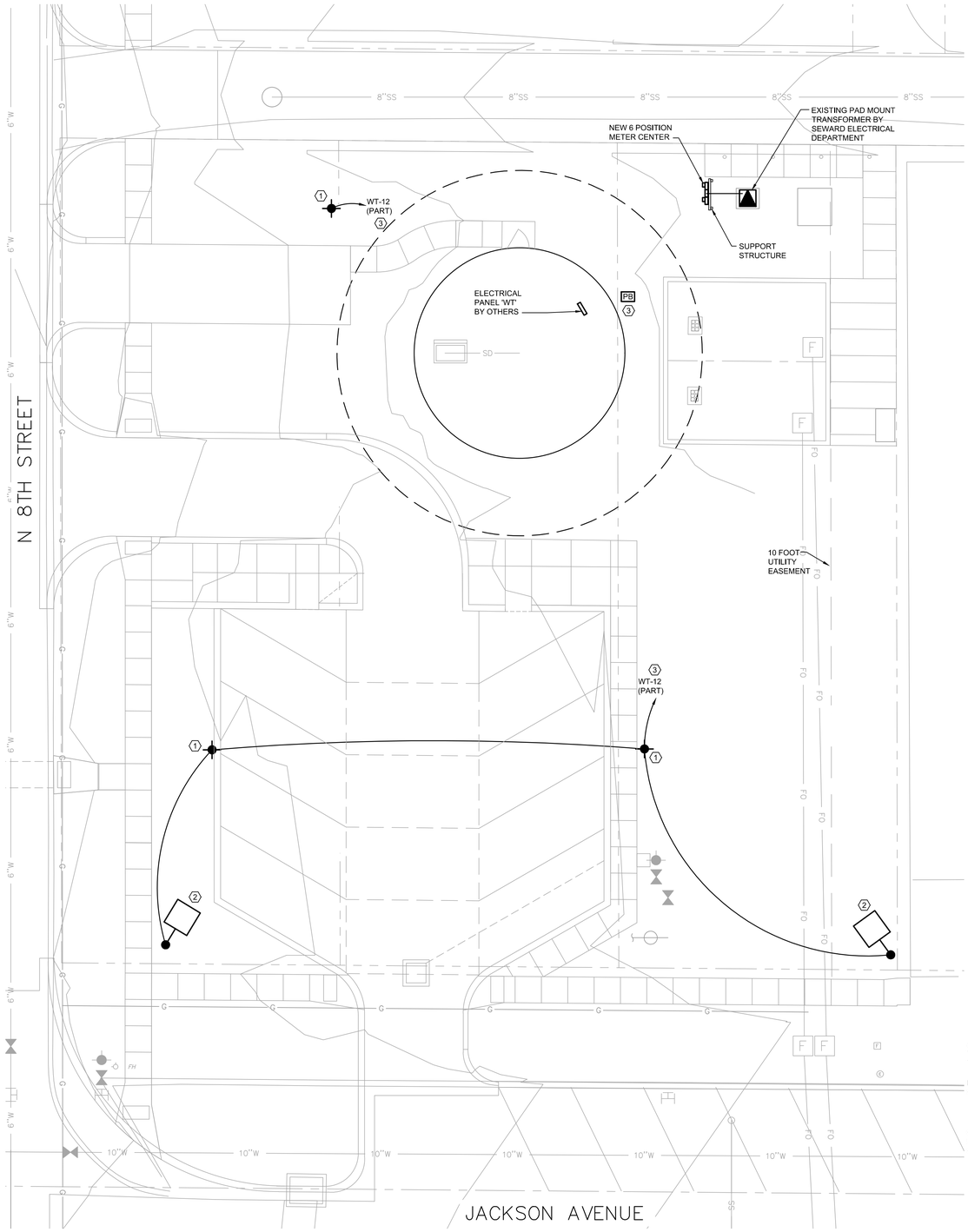
SEWARD, NEBRASKA

2023

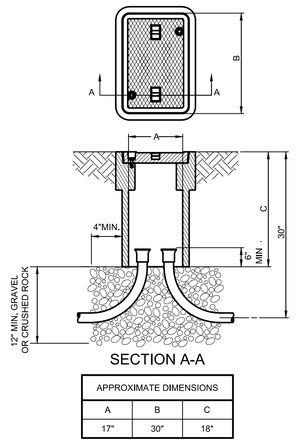
drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-505
17 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\Utilities and Sitework Sheets\P_SIT03_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 4:09pm XREFS: V_XTOPO_0193180 P_PWATR_0193180 P_PTBLK_0193180_UTIL AND SITE WORK P_PBASE_0193180 P_PPAT_0193180 P_PPAT2_0193180



1 ELECTRICAL SITE PLAN
SCALE: 1" = 10'-0"



SECTION A-A

APPROXIMATE DIMENSIONS		
A	B	C
17"	30"	18"

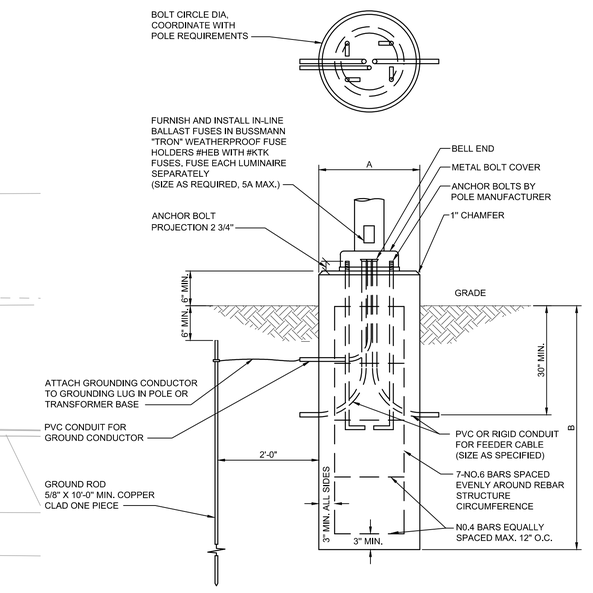
2 IN-GRADE PULL BOX DETAIL
NOT TO SCALE

NOTES

1. ACCESS DUCTS, BENDS AND/OR SWEEPS, ARE SUBSIDIARY TO THE ITEM "PULL BOX, TYPE PB".
2. FILL MATERIAL SHALL BE GRAVEL OR CRUSHED ROCK COMPOSED OF CLEAN, HARD, DURABLE AND UNCOATED
3. PROLONGED EXPOSURE OF THE PULL BOX AND COVER TO SUNLIGHT, COMMON ICE MELTING CHEMICALS OR FERTILIZERS SHALL NOT CAUSE SIGNIFICANT DAMAGE TO THE PULL BOX OR COVER, OR IMPAIR ITS FUNCTION.
4. CONDUIT TERMINATIONS IN PULL BOX SHALL BE FITTED WITH BELL OR FLARED END.
5. CONCRETE SHALL BE CLASS 47B-3000.
6. PULL BOXES ARE IN GROUND, GRADE LEVEL ENCLOSURES INTENDED TO BE INSTALLED WHERE NON-DELIBERATE VEHICULAR TRAFFIC IS ANTICIPATED.
7. PULL BOX ILLUSTRATIONS ARE TYPICAL AND ARE NOT INTENDED TO LIMIT DESIGN. BOXES OF SQUARE OR CIRCULAR PLAN-SECTION AND OF EQUAL OR GREATER VOLUME ARE ACCEPTABLE. A MINIMUM DEPTH OF 18 INCHES, MUST BE MAINTAINED.
8. THE PULL BOX ENCLOSURES (BOX AND COVER) SHALL BE NON-METALLIC AND GREEN OR GRAY IN COLOR.
9. PULL BOX COVERS SHALL BE OF HEAVY-DUTY CONSTRUCTION TO WITHSTAND THE STRUCTURAL REQUIREMENTS OF THE SPECIFICATIONS. COVERS SHALL FIT SUFFICIENTLY TIGHT TO PREVENT THE ENTRANCE OF RUN-OFF WATER. COVERS SHALL BE EMBOSSED WITH AN ANTI-SLIP SURFACE, THE MANUFACTURER'S NAME AND THE LOGO "ELECTRIC". COVERS SHALL BE HELD SECURELY IN PLACE BY TWO OR MORE 3/8" (MIN. DIA.) STAINLESS STEEL HEX HEAD BOLTS WITH FLAT WASHER. BOLTS SHALL BE HELD CAPTIVE TO THE COVER. ALL COVERS SHALL BE EQUIPPED WITH A RECESSED "LIFT PIN" AND HAVE A MINIMUM 0.50 COEFFICIENT OF FRICTION SKID RESISTANT SURFACE.
10. EACH PULL BOX ASSEMBLY (BOX WITH HEAVY-DUTY COVER SECURELY ATTACHED) SHALL CONFORM TO ALL TEST PROVISIONS AND REQUIREMENTS FOR TIER 15 APPLICATIONS AS OUTLINED IN THE LATEST ISSUE OF THE ANSI/SCTE 77 2002 STANDARD TITLED "SPECIFICATION FOR UNDER GROUND ENCLOSURE INTEGRITY". INDEPENDENT THIRD-PARTY TEST REPORTS TOGETHER WITH CERTIFICATION THAT ALL TEST PROVISIONS OF THE ANSI/SCTE 77 2002 STANDARD HAVE BEEN MET WILL BE REQUIRED FOR EACH TYPE OF PULL BOX BEING FURNISHED. ALL TESTS SHALL BE DATED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER AND SHALL BEAR THE LETTERHEAD OF THE TESTING AGENCY.

LIGHTING FOUNDATION DATA				
MOUNTING HEIGHT	A	B	STEEL	CONCRETE
UP TO 30'	2'-0"	5'-0"	50 lb.	0.58 CU. YDS.
31' TO 40'	2'-0"	5'-6"	55 lb.	0.64 CU. YDS.
41' TO 50'	2'-6"	6'-0"	63 lb.	1.10 CU. YDS.

CONCRETE CLASS "47B-3000"
REINFORCING STEEL: GRADE 60
ANCHOR BOLTS: 1" DIA. (AASHTO M314, GR.55)
HEAVY HEX GALVANIZED NUTS: (AASHTO M291, GR A)
FLAT WASHERS GALVANIZED: (AASHTO M293)



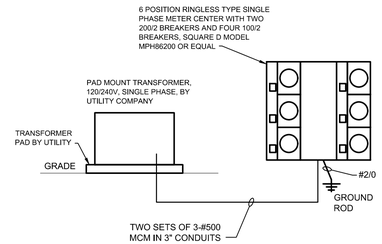
4 POLE BASE DETAIL
NOT TO SCALE

GENERAL SHEET NOTES

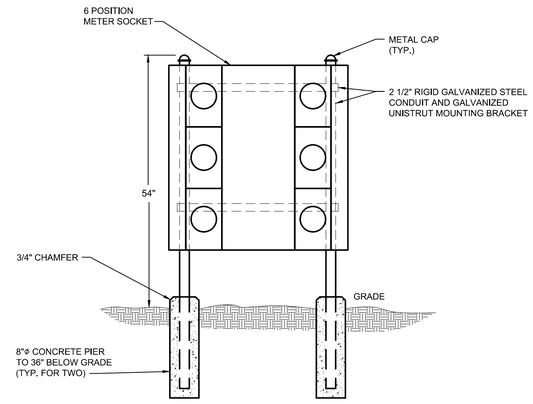
A. COORDINATE NEW SERVICE LOCATION AND REQUIREMENTS WITH SEWARD ELECTRICAL DEPARTMENT.

SHEET KEYNOTES

1. OWNER FURNISHED POST TOP AREA LIGHT, CONTRACTOR INSTALLED, DIRECT BURIED, 14 FOOT FIBERGLASS POLE WITH LED LIGHT FIXTURE AND PHOTOCELL CONTROL. COORDINATE WITH SEWARD ELECTRICAL DEPARTMENT FOR OWNER PROVIDED EQUIPMENT.
2. WATER TOWER SPOT LIGHT, COOPER-STREETWORKS MODEL UFLD-L-CA4-240-750-U-33-S-AP-10K-PR-OA/RA1014-TS2HW/NFFLD-XX OR EQUAL. PROVIDE FIXTURE WITH DIE CAST ALUMINUM HOUSING GREY FINISH, SLIPFITTER MOUNTING WITH LEADS THROUGH SLIPFITTER, 240 WATTS, 70 CRI, 5000K, 31,340 LUMENS, TOP AND SIDE VISORS, 3H X 3V SPOT DISTRIBUTION, PHOTOCELL CONTROL. MOUNT ON 40 FOOT TALL ROUND TAPERED ALUMINUM POLE, COOPER MODEL RTA0L40AV2XDGV OR EQUAL. PROVIDE POLE WITH GREY FINISH TO MATCH FIXTURE, 2-3/8" TENON TOP MOUNTING, BASE COVER, GROUND LUG, AND VIBRATION DAMPENER. LIGHT AND POLE TO HAVE 5 YEAR WARRANTY. FIELD AIM TO PROPERLY LIGHT UP LOGO ON WATER TOWER.
3. PROVIDE 2-#12 AWG, #12 GND IN 3/4" CONDUIT FOR ENTIRE CIRCUIT. ROUTE BACK TO WATER TOWER PANEL THROUGH 1" CONDUIT STUBBED OUT UNDER FOUNDATION BY OTHERS AND CONNECT TO EXISTING BREAKER. PROVIDE PULL BOX AT STUBBED OUT CONDUIT TO TRANSITION CONDUITS.



3 ONE-LINE DIAGRAM
NOT TO SCALE



5 SUPPORT STRUCTURE ELEVATION DETAIL
NOT TO SCALE

SYMBOLS LEGEND

- SURFACE MOUNTED POWER PANEL
- POST TOP AREA LIGHT FIXTURE
- POLE MOUNTED SPOT LIGHT FIXTURE
- PB — IN-GRADE PULL BOX
- BRANCH CIRCUIT POWER WIRING
- HOME RUN 3/4" CONDUIT, 2#12 AND 1#12 GROUND, UNLESS OTHERWISE NOTED. NOTE: HOME RUN SHALL BE FROM FIRST ELECTRICAL DEVICE JUNCTION BOX IN CIRCUIT TO ELECTRICAL PANEL.

N

0' 5' 10' 20'
SCALE IN FEET

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

ELECTRICAL SITE PLAN

500,000 GALLON WATER TOWER
UTILITIES AND SITE WORK

SEWARD, NEBRASKA

2023

drawn by: FLE
checked by: FLE
approved by: FLE
QA/QC by: TLF
project no.: 019-3180
drawing no.:
date: 02/17/2023

E-100
18 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\MECH\Electrical\Utilities & Sitework\E_NSIT_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 4:10pm XREFS: V_XTOPO_0193180 P_PWATR_0193180 P_SIT02_0193180 P_PTBLK_0193180_UTIL AND SITE WORK P_XBASE_0193180 P_PBASE_0193180

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

CITY OF SEWARD

MAYOR

JOSHUA EICKMEIER

COUNCIL MEMBERS

MEGAN KAHLER
JESSICA KOLTERMAN
MATT STRYSON
TATUM TONNIGES
JOHN SINGLETON
RICH WERGIN
JONATHON WILKEN
KARL MILLER

CITY ADMINISTRATOR

GREG BUTCHER

CLERK

DEREK BARGMANN

CITY ENGINEER

MICHAEL ONEBY, PE

WATER/WASTEWATER SUPERINTENDENT

BRANDON KOLL

FINANCE DIRECTOR/TREASURER

NICHOLAS WOLF

CITY ATTORNEY

KELLY HOFFSCHNEIDER

LOCATION MAP

N

NOT TO SCALE

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
GENERAL	
G-001	COVER SHEET
G-002	GENERAL NOTES & WATER SYSTEM SCHEMATIC
G-003	ABBREVIATIONS AND ANNOTATIONS LEGEND
G-004	LINETYPES, SURVEY NOTES AND LEGEND
CIVIL	
C-100	EXISTING SITE PLAN
C-101	SITE PIPING PLAN
C-102	SITE GRADING PLAN
C-103	PLAN & PROFILE STA 20+00 – 21+14.67
C-501	WATER TOWER DETAILS
C-502	MISC DETAILS
C-503	WATER TOWER DETAILS
ELECTRICAL	
E-100	ELECTRICAL SITE PLAN
E-102	PLANS AND DETAILS
INSTRUMENTATION	
I – 101	NETWORK ARCHITECTURE
I – 102	CONTROL WIRING
I – 501	INSTRUMENT DETAILS
I – 502	GENERAL NOTES AND SCOPE
I – 503	INSTRUMENTATION AND IO SCHEDULES

DIAL BEFORE YOU DIG

THE CONTRACTOR SHALL CONTACT "Nebraska811", AT LEAST 48 HOURS PRIOR TO AND NOT MORE THAN TEN WORKING DAYS BEFORE ANY DIGGING OR EXCAVATING WILL TAKE PLACE. ALL LOCATION REQUESTS ARE TO BE MADE THROUGH "Nebraska811" AT 811 (TOLL FREE) OR 1-800-331-5666 (STATEWIDE).

ne1call.com 800-331-5666
Nebraska811
Know what's below. Call before you dig.

COORDINATING PROFESSIONAL

I, OWEN KILLHAM, AM THE COORDINATING PROFESSIONAL FOR THE SEWARD WATER TOWER & TRANSMISSION MAIN PROJECT, SEWARD, NEBRASKA.

WHEN THIS DRAWING IS PRINTED TO THE SCALE SHOWN, THE BAR SHOWN BELOW WILL BE 1" LONG.

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P.O. Box 84608
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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

COVER SHEET

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

G-001
1 OF 18

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DATE: Feb 15, 2023 3:53pm XREFS: P_TBLK_0193180

GENERAL NOTES

1. CONTRACTOR SHALL BE FAMILIAR WITH AND IS RESPONSIBLE TO ENSURE ALL EXCAVATIONS ARE MADE IN ACCORDANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) CONSTRUCTION STANDARDS AND ALL ASSOCIATED AMENDMENTS AND REVISIONS.

2. THE CONTRACTOR IS RESPONSIBLE FOR OWN SAFETY PLAN AND PROVIDING PROPERTY SAFETY EQUIPMENT FOR EMPLOYEES IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

3. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING, PAYING FEES, AND ADHERING TO PERMITS AS REQUIRED AS INDICATED WITHIN CONTRACT DOCUMENTS, INCLUDING LAND DISTURBANCE, AND CONSTRUCTION PERMITS (INCLUDING ALL REQUIRED NOTIFICATIONS).

4. CONTRACTOR RESPONSIBLE TO ENSURE ALL CONSTRUCTION OPERATIONS ARE WITHIN PUBLIC RIGHT–OF–WAY AND/OR CONSTRUCTION AREAS AS SHOWN ON THE CONSTRUCTION DOCUMENTS.

5. THE CONSTRUCTION DOCUMENTS (E.G. CONTRACT, BOND, INSURANCE CERTIFICATE, SPECIFICATIONS, AND CONSTRUCTION PLANS) ARE ESSENTIAL AND A REQUIREMENT IN ONE PART IS AS BINDING AS THOUGH OCCURRING IN ALL. THUS, THE CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY IN NATURE. THE DOCUMENTS DESCRIBE AND PROVIDE THE COMPLETE CONSTRUCTION PROJECT. THE CONTRACTOR MAY NOT TAKE ADVANTAGE OF ANY APPARENT CONSTRUCTION PROJECT ERRORS OR OMISSIONS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR PROMPTLY OF ANY OMISSIONS OR ERRORS. IN THE CASE OF A DISCREPANCY BETWEEN PARTS OF THE CONSTRUCTION DOCUMENTS, THE MOST STRINGENT CONSTRUCTION METHODOLOGY SHALL RULE.

6. THE EXISTENCE OF UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS MADE AVAILABLE TO OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. NOT ALL LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF EXISTING UTILITIES (I.E. UNDERGROUND POWER, TELEPHONE, FIBER OPTIC CABLE, DUCTWAYS, SPRINKLERS SYSTEMS, SEPTIC SYSTEM, WATER, GAS, SEWER SERVICE LINES, ETC.) ARE INDICATED. OTHER UTILITIES AND STRUCTURES MAY BE PRESENT. PRIOR TO START OF CONSTRUCTION ACTIVITY, CONTRACTOR TO CONTACT THE DIGGERS HOT LINE OF NEBRASKA FOR UTILITY LOCATION BY DIALING 811.

7. THE CONTRACTOR SHALL NOTIFY ALL IMPACTED UTILITY COMPANIES, VIA ONE CALL (DIAL 811 OR 800–331–5666), 48 HOURS BEFORE WORK IS STARTED TO VERIFY UTILITY LOCATIONS. THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION ON ANY UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) SHALL BE COORDINATED WITH THE OWNER OF EACH UTILITY BEFORE CONSTRUCTION IS STARTED.

8. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING DEPTH OF ALL UTILITIES AND OVERHEAD INTERFERENCES WHICH MAY AFFECT THEIR OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. NO EXCAVATION WILL BE PERMITTED UNTIL ALL SUCH UTILITIES HAVE BEEN LOCATED AND IDENTIFIED TO THE SATISFACTION OF ALL PARTIES. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENT OR STRUCTURES DAMAGED BY THE OTHER CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE INSPECTOR AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.

9. TOPOGRAPHIC DATA AND EXISTING INFRASTRUCTURE ON PLANS IS FOR THE INFORMATION OF THE CONTRACTOR ONLY. INFORMATION NOT SHOWN ON PLANS IS FOR CLARIFICATION AND VISUALIZATION PURPOSES. CONTRACTOR TO FIELD VERIFY ALL WORK OF OTHER POTENTIAL CONFLICTS.

10. THE CONTRACTOR MUST ADHERE TO GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES AT ALL TIMES. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES FOCUS ON KEEPING THE WORK SITE CLEAN AND ORDERLY WHILE HANDLING MATERIALS AND WASTE IN A MANNER THAT ELIMINATES THE POTENTIAL FOR POLLUTANT RUNOFF.

11. SPECIAL CONSTRUCTION REQUIREMENTS, TEMPORARY PROTECTIVE FENCING OR BARRICADES, AND SPECIAL SURFACE RESTORATION REQUIREMENTS AT CERTAIN LOCATIONS MAY BE INDICATED ON THE DRAWINGS TO BRING CONTRACTORS ATTENTION TO SENSITIVE AREAS. THE CONTRACTOR SHALL PROVIDE APPROPRIATE MEASURES OF PROTECTION AND RESTORATION AT LOCATIONS AS REQUIRED BY CONSTRUCTION OPERATIONS, AND AS DIRECTED BY THE ENGINEER.

12. THE EXISTING TOPSOIL AT ALL AREAS WHICH IS TO BE DISTURBED DURING CONSTRUCTION SHALL BE STRIPPED AT A DEPTH OF 12 INCHES PRIOR TO EXCAVATION AND STOCKPILED. THE STOCKPILED TOPSOIL SHALL BE SPREAD OVER ALL AREAS WHICH ARE SCHEDULED TO BE SEEDED.

13. CONTRACTOR TO MAINTAIN DRAINAGE DURING CONSTRUCTION AND RESTORE TO EXISTING CONDITIONS AFTER COMPLETION. UNLESS NOTED OTHERWISE, DISTURBED AREAS TO BE RETURNED TO ORIGINAL GRADE. CONTRACTOR RESPONSIBLE FOR SITE STABILIZATION AND RESEEDING DISTURBED AREA.

14. FENCES, TREES/BUSHES, SIGNS, OR OTHER IMPROVEMENTS REQUIRED TO BE DISTURBED OR REMOVED TO PERMIT CONSTRUCTION SHALL BE RESTORED OR REPLACED IN THE SAME LOCATION AND IN A CONDITION AS GOOD AS OR BETTER THAN THAT IN WHICH THEY WERE FOUND. DISTURBANCE OR REMOVAL/REPLACEMENT SHALL REQUIRE APPROVAL FROM OWNER. THIS WORK SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF THE CONTRACTOR.

15. CONTRACTOR SHALL MAKE OWN DETERMINATION OF EXISTING SUBSURFACE CONDITIONS. ANY SUBSURFACE INVESTIGATION REPORTS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY, IF MADE AVAILABLE. CONTRACTOR SHALL DISPOSE OF ALL UNSUITABLE MATERIALS ENCOUNTERED IN THE REMOVAL AND GRADING OPERATIONS OFF THE PROJECT SITE, INCLUDING CONCRETE, ASPHALT, BRICK, ROCK, ETC. SUITABLE EXCESS MATERIAL MAY BE UTILIZED FOR FILL; NO UNSUITABLE MATERIAL SHALL BE USED FOR BACKFILLING. THE COST FOR DISPOSAL OF UNSUITABLE OR EXCESS MATERIAL SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF THE CONTRACTOR.

16. CONTRACTOR RESPONSIBLE FOR SHEETING, SHORING, OR BRACING ALL UTILITY INFRASTRUCTURE (I.E. PIPING, STRUCTURES, POLES, ETC.) AND/OR TRENCHES AS REQUIRED TO MAINTAIN STABILITY DURING CONSTRUCTION UNLESS OTHERWISE NOTED. CONTRACTOR SHALL COORDINATE SUPPORT OR RELOCATION OF UTILITIES WITH OWNER AS NECESSARY.

17. CONTRACTOR PARKING AND STAGING AREAS MAY NOT IMPEDE FLOW OF TRAFFIC ON ROADWAYS ADJACENT TO PROJECT AREA.

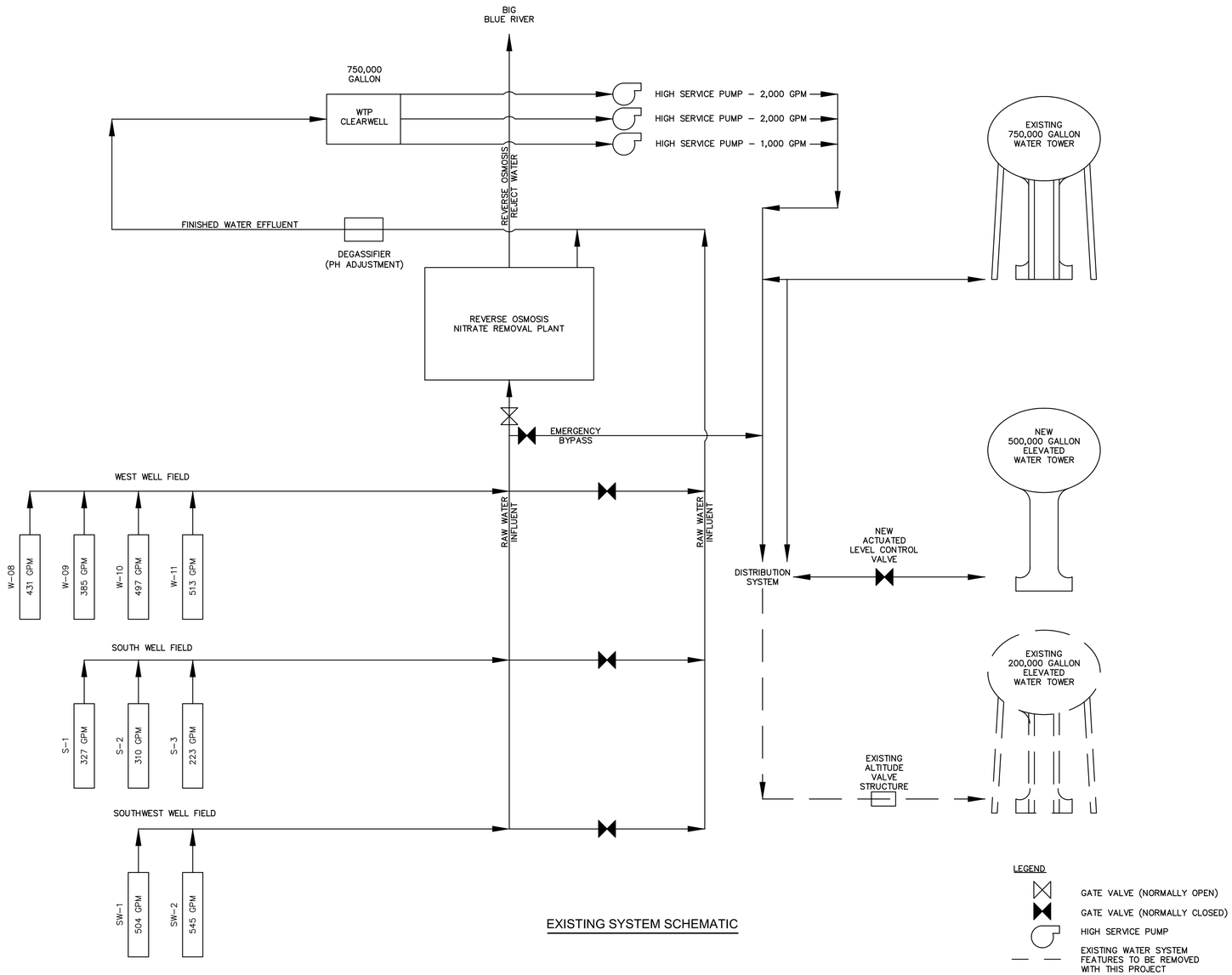
18. CONTRACTOR SHALL NOT PLACE FILL OR WASTE MATERIAL ON ANY PRIVATE PROPERTY WITHOUT PRIOR WRITTEN AGREEMENT WITH THE PROPERTY OWNER. IF THE CONTRACTOR PLACES EXCESS MATERIAL IN AREAS WITHOUT WRITTEN PERMISSION, HE SHALL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM SUCH FILL, AND HE SHALL MOVE THE MATERIAL AT HIS OWN COST IF THE OWNER SO DIRECTS.

19. CONTRACTOR SHALL AVOID PLACING EXCESSIVE AMOUNTS OF EXCAVATED OR EMBEDMENT MATERIALS ABOVE OTHER EXISTING PIPELINES IN ORDER TO AVOID DAMAGING THESE FACILITIES.

20. OWNERS OPERATIONS SHALL NOT BE IMPACTED BY CONSTRUCTION ACTIVITIES UNLESS PREVIOUSLY APPROVED BY OWNER.

21. BEFORE FINAL COMPLETION OF THIS WORK, ALL ROADWAYS, SLOPES, DITCHES, SIGNS, AND BERMS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

22. CONTRACTOR SHALL DOCUMENT ALL PRECONSTRUCTION CONDITIONS AS INDICATED IN THE SPECIFICATIONS.



EXISTING SYSTEM SCHEMATIC

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

GENERAL NOTES & WATER SYSTEM SCHEMATIC

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

G-002
2 OF 18

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DATE: Feb 15, 2023 3:53pm XREFS: P_PTBLK_0193180 P_PUTIL_SCHEMATIC_0193180

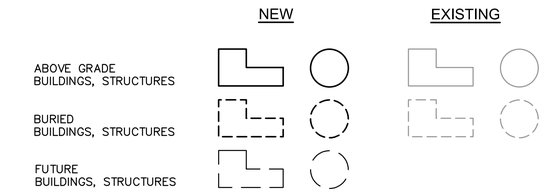
ABBREVIATIONS

AB	ANCHOR BOLT
AC	AIR CONDITIONING
ACST	ACOUSTICAL
AD	ACCESS DOOR, AREA DRAIN, AIR DAMPER, ANODE, AUTOMATIC DAMPER
ADJ	ADJUSTABLE, ADJACENT
ADMIN	ADMINISTRATION
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AH	AHEAD, ACCESS HATCH
AHU	AIR HANDLING UNIT
AL	ACTIVE LEAF
ALT	ALTERNATE, ALTERNATIVE
ALUM	ALUMINUM
AP	ACCESS PANEL
APPR	APPROACH
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
AS	AMMETER SWITCH
ASSY	ASSEMBLY
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAGE
B	BEAM, BELT DRIVE
B TO B	BACK TO BACK
BA	BEARING AREA
BAL	BALANCE
BC	BEGIN CURVE
BCV	BEGINNING OF VERTICAL CURVE
BD	BOARD
BD	BACKDRAFT DAMPER
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BH	BASEBOARD HEATER
BHP	BRAKE HORSEPOWER
BITUM	BITUMINOUS
BK	BACK
BL	BOTTOM LEVEL
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
BOD	BOTTOM OF DUCT ELEVATION
BOL	BEGINNING OF LINE
BOT	BOTTOM
BPMK	BASEPLATE MARK NUMBER
BR	BOILER
BRG	BEARING
BRK	BRICK
BS	BOTH SIDES
BSMT	BASEMENT
B&S	BELL AND SPIGOT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT–HOUR
BU	BELL–UP
BUR	BUILT UP ROOFING
BV	BALL VALVE
BVC	BEGIN VERTICAL CURVE
C	COUNTER, COOLING (MAKE ON RISE), CONDUIT
CB	CATCH BASIN
CBD	COUNTERBALANCE BACKDRAFT
CC	DAMPER
CD	COOLING COIL
CENTR	CEILING DIFFUSER, CONTROL DAMPER
CF	CENTRIFUGAL
CFM	CABINET FAN
C&G	CUBIC FEET PER MINUTE
CHKD	CURB AND GUTTER
CHKD	CHECKERED
PL	CHECKERED PLATE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CMH	CAST IRON MANHOLE
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CJ	CONTRACTION JOINT
CJT	CONTROL JOINT
CL^2	CHLORINE
CL^2	CHLORINE SOLUTION
(S) CLG	CEILING
CLO	CLOSET
CLR	CLEAR (ANCE)
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMB	COMBINATION
COMP	COMPRESSOR, COMPRESSED
CON	CONVECTOR
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE (OUS), (ATION)
COR	CORNER
CORR	CORRIDOR, CORRUGATED
CPLG	COUPLING
CRS	COURSES
CS	CONTROL SWITCH, CONTROL STATION, CUP SINK
CSK	COUNTERSUNK
CT	CERAMIC TILE, CYCLE TIMER
C TO C	CENTER TO CENTER
CTR(S)	CENTER(S)
CU	CUBIC
CV	CHECK VALVE
CW	COLD WATER
CWD	COOLING WATER DISCHARGE
CU	CHEMICAL SYMBOL FOR COPPER
CU YD	CUBIC YARD
D	DOOR
DBL	DOUBLE
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DEHUM	DEHUMIDIFIER
DEPT	DEPARTMENT
DET	DETAIL
DH	DOOR HEIGHT
DI	DUCTILE IRON
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DEAD LOAD
DM	DAMPER MOTOR
DN	DOWN
DO	DOOR OPENING
DPDT	DOUBLE POLE DOUBLE THROW
DPR	DAMPER
DPST	DOUBLE POLE SINGLE THROW
DPT	DEW POINT TRANSMITTER
DR	DRAIN
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
DV	DRAIN VALVE, DISCHARGE VALVE
E	EAST, ELECTRIC
EA	EACH, EXHAUST AIR
EC	END CURVE
ECC	ECCENTRIC
ECC RED	ECCENTRIC REDUCER
EDE	EXHAUST DIFFUSER
EW	EMERGENCY EYEWASH
EF	EACH FACE, EXHAUST FAN
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEV	ELEVATION
EM	EMERGENCY
ENCL	ENCLOSURE
ENT	ENTRANCE
EOL	END OF LINE
EPV	ECCENTRIC PLUG VALVE
EQ	EQUAL, EQUATION
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ES	EMERGENCY SHOWER OR EXPOSED STRUCTURE
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EWEF	EACH WAY EACH FACE
EXIST	EXISTING
EXP	EXPANSION, EXPOSED
EXP JT	EXPANSION JOINT
EXS	EXISTING
EXT	EXTENSION, EXTERIOR, EXTERNAL
F	DEGREES FAHRENHEIT, FLUORIDE
F TO F	FACE TO FACE
FB	FACE BRICK
FBD	FACE AND BYPASS DAMPER
FC	FLEXIBLE CONNECTION, FLOW CONTROL, FAN COIL, FIRE CODE
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN, FIRE DAMPER
FFE	FINISHED FLOOR ELEVATION
FH	FLAT HEAD, FIRE HYDRANT
FHMS	FLAT HEAD MACHINE SCREW
FIN	FINISH
FG	FINISH GRADE
FL	FLOOR, FLOW LINE, FLANGE
FLEX	FLEXIBLE
FLG	FLANGE, FLASHING
FP	FLUOROPOLYMER PAINT
FNDN	FOUNDATION
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
FS	FLOOR SLEEVE, FLOAT SWITCH, FLOW SWITCH
FT	FOOT, FINNED TUBE
FTG	FOOTING
FURN	FURNISH, FURNISHED
FV	FLAP VALVE
FWD	FORWARD
FXC	FIRE EXTINGUISHER CABINET
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERAL, GENERATOR
GFI	GROUND FAULT INTERRUPTER
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE, GROOVE
GUH	GAS UNIT HEATER
GT	GLAZED TILE
GV	GATE VALVE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEATING (MAKE ON FALL), HUMIDISTAT
HB	HOSE BIBB
HC	HEATING COIL
HCG	HARDWARE CLOTH GRILLE
HD	HEAD
HE	HEAT EXCHANGER
HEX	HEXAGONAL
HF	HOSE FAUCET
HM	HOLLOW METAL
HMC	HARNESSED MECHANICAL COUPLING
HMJ	HARNESSED MECHANICAL JOINT
HORIZ	HORIZONTAL
HP	HORSEPOWER
HR	HOUR, HANDRAIL
HS	HIGH STRENGTH
HSW	HOT SERVICE WATER
HSWR	HEATING SYSTEM WATER RETURN
HSWS	HEATING SYSTEM WATER SUPPLY
HUH	HYDRONIC UNIT HEATER, HOT WATER UNIT HEATER
HV	HOSE VALVE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HVU	HEATING VENTILATION UNIT
HW	HOT WATER
HWET	HEATING WATER EXPANSION TANK
HWL	HIGH WATER LEVEL
HWP	HEATING WATER PUMP
HWR	POTABLE HOT WATER CIRCULATING
HYDRO	HYDROPNEUMATIC
I	INDICATOR, INTAKE
ID	INSIDE DIAMETER, INLET DAMPER
IF	INSIDE FACE
IH	INTAKE HOOD
IN	INCHES
INC	INCORPORATED
INCR	INCREASE
INST	INSTRUMENT
INSUL	INSULATE (ATION), (ING)
INT	INTERIOR, INTERNAL
INV	INVERT
IPS	IRON PIPE SIZE
JAN	JANITOR
JC	JUNCTION CABINET
JT	JOINT
K	KIPS
KCM	THOUSAND CIRCULAR MILS
KV	KILOVOLT
KS	KITCHEN SINK
L	LOUVER, LENGTH, LENGTH OF CURVE
LAB	LABORATORY
LAM	LAMINATE(D)
LAV	LAVATORY
LB(S)	POUNDS
LH	LEFT HAND
LIN	LINEAL, LINEAR
LJ	LONGITUDINAL JOINT
LO	LOUVER OPENING
LP	LOW PRESSURE, LIGHT POLE, LOW POINT, LIGHTING PANEL
LPS	LOW PRESSURE SWITCH
LR	LONG RADIUS
LS	LABORATORY SINK, LEVEL SWITCH
LT	LEFT
LVL	LEVEL
LWL	LOW WATER LEVEL
MACH	MACHINE
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MECHANICAL COUPLING
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MED	MEDIUM
MET	METAL
MFR	MANUFACTURE(R)
MHMS	FLAT HEAD MACHINE SCREW
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE, MOUNTING HEIGHT
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MLS	MANUAL LOADING STATION
MO	MASONRY OPENING, MOTOR OPERATED, MIDDLE ORDINATE MACHINE SCREW
MSB	MAIN SWITCH BOARD
MSL	MEAN SEA LEVEL
MTD	MOUNTED
MTL	MATERIAL
MTR	MOTOR
MXR	MIXER
N	NORTH
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEUT	NEUTRAL
NH^3	AMMONIA
NO	NORMALLY OPEN
NO.(S)	NUMBER(S)
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NPW	NONPOTABLE WATER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE, OVERFLOW
OH	OVERHEAD
OPER	OPERATING
OPNG	OPENING
OPP	OPPOSITE
OZ	OUNCE
OZG	OZONE FEED GAS
OZO	OZONE OFF–GAS
P	POLYMER
PAV	PURGE AIR VENT
PEV	POWERED EXHAUST VENTILATOR
PC	POINT OF CURVE
PCCP	PRESTRESSED CONCRETE CYLINDER
PD	PIPE DIAMETER
PE	PLAIN END
PG	PRESSURE GAUGE
PH	PIPE HANGER
PI	POINT OF INTERSECTION
PL	PLATE
PLCS	PLACES
PNT	PAINT
POLY	POLYMER
POS	POSITION
POT	POINT ON TANGENT
PP	POLYPHOSPHATE, POWER POLE
PRLV	PRESSURE RELIEF VALVE
PROP	PROPELLER
PRS	PRESSURE REDUCING STATION
PRV	POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE
PS	PIPE SUPPORT, PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT OF TANGENCY
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVPS	PINE VALLEY PUMPING STATION
PW	POTABLE WATER
PWR	POTABLE WATER RETURN
PWS	POTABLE WATER SUPPLY
QT	QUARRYTILE
R	RADIUS, RISER
RA	REACTIVATION AIR, RETURN AIR
RCP	REINFORCED CONCRETE PIPE
RCCP	REINFORCED CONCRETE CULVERT PIPE
RD	ROOF DRAIN, ROAD, RETURN DIFFUSER
RDL	ROOF DRAIN LEADER
RECIRC	RECIRCULATING
RED	REDUCE (R), (ING)
REG	REGULATOR, REGULATING
REF	REFERENCE
REFRIG	REFRIGERATION, REFRIGERATOR
REINF	REINFORCING
REM	REMOVABLE
REQD	REQUIRED
RG	RETAINER GLAND, RETURN GRILLE
RH	ROOF HOOD, RIGHT HAND, ROUND HEAD
RHMS	ROUND HEAD MACHINE SCREW
RHWS	ROUND HEAD WOOD SCREW
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RT	RIGHT
RSC	RIGID STEEL CONDUIT
RTU	ROOF TOP UNIT
RV	REGULATING VALVE
RWP	RAW WASTE PUMP
S	SOUTH, SEWER
SA	SUPPLY AIR
SCD	SMOKE CONTROL DAMPER
SCHED	SCHEDULE
SCV	SPRINKLER CONTROL VALVE
SD	SUPPLY DIFFUSER, SMOKE DAMPER
SEC	SECOND
SECT	SECTION
SG	SUPPLY GRILLE, SLUICE GATE
SH	SHEET, SHOWER
SIM	SIMILAR
SM	SHEET METAL
SMD	SMOKE DETECTOR
SQ	SQUARE
SP	EXTERNAL STATIC PRESSURE (INCHES WATER), STEEL PIPE
SR	SUPPLY REGISTER
SS	STAINLESS STEEL, SAMPLE SINK
SSK	SERVICE SINK
SST	SYSTEM STATIC TRANSMITTER
ST	SELF TAPPING
STA	STATION
STD	STANDARD
STL	STEEL
STR	STRUCTURAL
SUSP	SUSPENDED
SV	SHUTOFF VALVE
SW	SERVICE WATER
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
ST	STAIN
STRM	STORM SEWER
SSWR	SANITARY SEWER
T	THERMOSTAT, TREAD, TRANSFORMER
TAN	TANGENT
T&B	TOP AND BOTTOM
TBBO	TO BE BY OTHERS
TBM	TEMPORARY BENCHMARK
TC	TOWEL CABINET
TCP	TEMPERATURE CONTROL PANEL
TCV	TEMPERATURE CONTROL VALVE
TE	TEMPERATURE ELEMENT
TEMP	TEMPERATURE, TEMPORARY
TERM	TERMINAL
TEX	TEXURED
T&G	TONGUE & GROOVE
TH	TEST HOLE
THK	THICK, THICKNESS
THR	THRESHOLD
TL	TOP LEVEL
TOC	TOP OF CONCRETE, TOP OF CURB
TOS	TOP OF STEEL
TRANS	TRANSFORMER, TRANSMITTER, TRANSFER
TS	TEMPERATURE SWITCH
TT	TEMPERATURE TRANSMITTER
TYP	TYPICAL
UH	UNIT HEATER
UR	URINAL
URD	UNDERGROUND RESIDENTIAL DISTRIBUTION
USC & GS	UNITED STATES COAST & GEODETIC SURVEY
USGS	UNITED STATES GEOLOGICAL SURVEY
V	VALVE, VOLT, VENT
VAC	VACUUM
VANE	VANEAXIAL
VAT	VINYL ASBESTOS TILE
VB	VACUUM BREAKER
VC	VERTICAL CURVE, VICTAULIC COUPLING
VCD	VOLUME CONTROL DAMPER
VCP	VITRIFIED CLAY PIPE
VCU	VOLUME CONTROL UNIT
VERT	VERTICAL
VF	VACUUM FILTER
VFC	VARIABLE FREQUENCY CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE
VFI	VACUUM FAULT INTERRUPTER
VIB	VIBRATION
VPI	VERTICAL POINT OF INTERSECTION
W	WEST, WIDTH, WINDOW, WATT
W/	WITH
WB	WALLBOARD
WC	WATER COLUMN
WD	WOOD, WIDTH
WF	WALL FITTING
WH	WALL HYDRANT, WALL HEATER
WL	WATER LEVEL
WM	WATER METER
WO	WINDOW OPENING
W/O	WITHOUT
WP	WATERPROOF, WORKING POINT WEATHERPROOF
WR	WASTE RECEPTACLE
WS	WATER SUPPLY, WATER SURFACE, WATER STOP
WW	WETWELL, WASHWATER
WWF	WELDED WIRE FABRIC
WWR	WASH WATER RECOVERY
WV	WATER VALVE, WATER CONTROL VALVE
x	BY
XFMR	TRANSFORMER
YH	YARD HYDRANT
&	AND
@	AT
CL	CENTERLINE
∠	DEFLECTION ANGLE
ø	DIAMETER
#	NUMBER
%	PERCENT

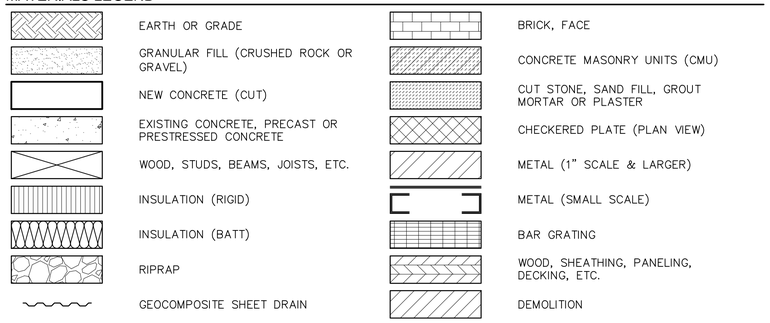
GENERAL NOTES:

1. THESE LEGENDS ARE COMPOSED OF STANDARD SYMBOLS AND ARE PERTINENT TO THE CONDITIONS OF THIS SET OF DRAWINGS TO THE EXTENT APPLICABLE.
2. ADDITIONAL AND/OR SUPPLEMENTARY LEGENDS MAY APPEAR IN THIS SET OF DRAWINGS AND ARE TO PREVAIL (IN LIEU OF SYMBOLS SHOWN ON THIS SHEET) IN THE EVENT OF ANY DIFFERENCES.

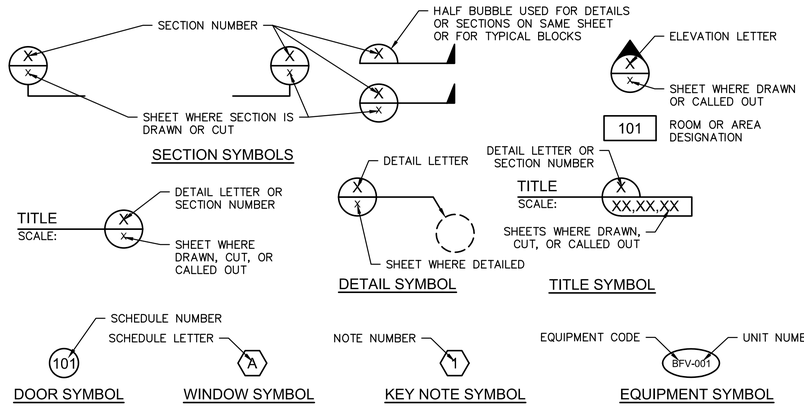
STYLE LEGEND



MATERIALS LEGEND



ANNOTATION LEGEND



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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

ABBREVIATIONS AND ANNOTATIONS LEGEND

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-3180
drawing no.:	
date:	02/17/2023

G-003
3 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWV\P_GEN01_0193180.dwg USER: clnelson
DATE: Feb 15, 2023 3:53pm XREFS: P_PTBLK_0193180 P_PUTIL_SCHEMATIC_0193180

LINETYPE LEGEND

- CENTER LINE
- CONTOUR LINE
- EASEMENT LINE
- PROPERTY LINE
- SECTION LINE
- FENCE
- WOOD FENCE
- CHAIN LINK FENCE
- WIRE FENCE
- TREE MASS
- TREE ROW/BUSHES
- CONTOUR LINE
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATER LINE
- SANITARY SEWER FORCE MAIN
- AIR LINE
- ACID WASTE VENT LINE
- ACID WASTE LINE
- CABLE TV LINE
- UNDERGROUND CABLE TELEVISION LINE
- CHEMICAL FEED LINE
- CHLORINE SOLUTION LINE
- COMMUNICATIONS LINE
- CROP LINE
- CHILLED WATER RETURN LINE
- CHILLED WATER SUPPLY LINE
- DRAIN LINE
- DIGESTER GAS LINE
- EFFLUENT REUSE WATER LINE
- FLOURIDE LINE
- IRON SALTS LINE
- FIBER OPTIC LINE
- UNDERGROUND FIBER OPTIC LINE
- GAS LINE
- UNDERGROUND GAS MAIN
- GEOTHERMAL LINE
- HEATING SYSTEM WATER RETURN LINE
- HEATING SYSTEM WATER SUPPLY LINE
- IRRIGATION LINE
- LIMITS OF CONSTRUCTION
- LIMITS OF GRADING
- LIQUID PROPANE LINE
- NATURAL GAS LINE
- AMMONIA LINE
- NON-POTABLE WATER LINE
- OVERFLOW LINE
- POLYMER LINE
- OVERHEAD POWER LINE
- UNDERGROUND POWER LINE
- UNDERGROUND POWER AND COMMUNICATIONS LINES
- PRIMARY CLARIFIER SLUDGE LINE
- POLYPHOSPHATE LINE
- POTABLE WATER LINE
- RETURN ACTIVATED SLUDGE LINE
- RIGHT OF WAY LINE
- SCUM LINE
- SLUDGE LINE
- SUPERNATANT LINE
- STEAM LINE
- STEAM TUNNEL
- SUPERNATANT SLUDGE LINE
- UNDERGROUND TRAFFIC LINE
- TELEPHONE LINE
- UNDERGROUND TELEPHONE LINE
- OVERHEAD TELEPHONE LINE
- THICKENED WASTE ACTIVATED SLUDGE LINE
- UNIDENTIFIED OVERHEAD LINE
- UNIDENTIFIED UNDERGROUND LINE
- VENT LINE
- WASTE ACTIVATED SLUDGE LINE
- WETLAND BOUNDARY

SURVEY LEGEND

- ALUMINUM CAP FLUSH
- ALUMINUM CAP IN HAND HOLE
- AERIAL CONTROL POINT
- AIR CONDITIONING UNIT
- AREA INLET
- ALUMINUM MONUMENT
- ANTENNA
- ABANDONED POWER POLE
- ANTI-SIPHON VALVE
- AXLE
- AZIMUTH MARK
- BASKETBALL HOOP
- BREAKER BOX
- BIRD BATH
- BRASS CAP FLUSH
- BRASS CAP IN HAND HOLE
- BIRDHOUSE
- BEEHIVE
- BACKFLOW PREVENTER
- BORE HOLE
- WATER BIB
- BILLBOARD
- BENCHMARK
- BOLLARD
- BLOW-OFF VALVE
- BUSH
- CAMERA
- CABLE BOX
- CABLE VAULT
- CURB INLET
- CATCH BASIN ROUND
- CATCH BASIN SQUARE
- CONTROL BOX
- CISTERN
- CAST IRON MONUMENT
- CLOTHES LINE POLE
- COLUMN
- CONTROL POINT
- CURB STOP
- CONIFEROUS TREE
- DRINKING FOUNTAIN
- DRILL HOLE
- DRAIN GATE
- DECIDUOUS TREE
- DRYWELL
- ELECTRIC BOX
- ELECTRIC CABINET
- ELECTRIC OUTLET
- ELECTRIC RISER
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC VAULT
- FOUND REBAR
- FIRE DEPARTMENT CONNECTION
- FUEL FILL PORT
- FIRE HYDRANT
- FOUND IRON PIPE
- FLAG POLE
- FIBER OPTIC BOX
- FIBER OPTIC PEDESTAL
- FOUND REBAR
- FOUND REBAR IN HAND HOLE
- FUEL PUMP
- GAS RISER
- GUARD POST
- GOAL POST
- GROUND LITE
- GAS MANHOLE
- GAS MARKER
- GAS METER
- GUY POLE
- GAS REGULATOR
- GRILL
- GRATE INLET
- GREASE TRAP
- GUY WIRE
- GAS VALVE
- GAS VAULT
- IRON BAR
- IRRIGATION GATE VALVE
- IRRIGATION MANHOLE
- IRON PIPE
- IRRIGATION WELL
- IRRIGATION STAND PIPE
- IRRIGATION VALVE
- JUNCTION BOX
- JUDICIAL LANDMARK
- LIGHT POLE BASE
- LIFT STATION
- LIGHT POLE
- MAILBOX
- MILE POST MARKER
- MONITORING WELL
- PICNIC TABLE
- POST INDICATOR VALVE
- PARKING METER
- POWER POLE W/ LIGHT
- POWER POLE
- RADIO TOWER
- RAILROAD CONTROL BOX
- RAILROAD CROSSING SIGN
- ROOF DRAIN
- RIGHT-OF-WAY MARKER
- RUNWAY STROBE LIGHT
- SATELLITE DISH
- SOIL BORING
- SANITARY SEWER CLEANOUT
- SET COTTON PICKER SPINDLE
- SECTION CORNER
- SPRINKLER CONTROL VALVE
- STORM DRAIN MANHOLE
- SANITARY SEWER SERVICE
- SIGN
- SET IRON PIPE
- STREET LIGHT
- SPRINKLER BOX
- SPRINKLER HEAD
- SPEAKER BOX
- STEEL POST
- SPRINKLER CONTROL VALVE
- SET REBAR
- SANITARY SEWER MANHOLE
- STEAM MANHOLE
- STUMP
- SANITARY SEWER VALVE
- TRAFFIC CONTROL BOX
- TELEPHONE BOOTH
- TELEPHONE CABINET
- TELEPHONE PEDESTAL
- TELEPHONE RISER
- TRAFFIC LIGHT POLE
- TELEPHONE MANHOLE
- TRANSFORMER
- TRANSMISSION TOWER
- TRAFFIC SIGNAL W/ ARM
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CABINET
- TRAFFIC SIGNAL MANHOLE
- TRAFFIC SIGNAL POLE
- TELEVISION PEDESTAL
- TELEVISION RISER
- VENT PIPE
- WATER WELL
- WOOD POST
- WATER MANHOLE
- WATER METER PIT
- WATER METER
- WATER FAUCET
- WATER VALVE
- YARD LIGHT
- YARD HYDRANT
- VENT PIPE
- CONTOUR LINE
- CENTER LINE
- PROPERTY LINE
- SECTION LINE
- EASEMENT LINE
- WOOD FENCE
- CHAIN LINK FENCE
- WIRE FENCE
- SANITARY SEWER LINE
- STORM SEWER LINE
- WATER LINE
- UNDERGROUND GAS MAIN
- OVERHEAD POWER
- UNDERGROUND POWER
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND CABLE TELEVISION LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND TRAFFIC LINE
- STEAM TUNNEL
- TREE MASS
- TREE ROW/BUSHES

GENERAL SYMBOLS

- BORE HOLE, NUMBER AND AREA
- SPOT GRADE ELEVATION
- ALIGNMENT WITH STATIONING
- FIRE HYDRANT
- YARD HYDRANT
- CONTROL POINT\BENCHMARK
- DECIDUOUS TREE
- ELECTRIC BOX
- ELECTRIC METER
- ELECTRIC RISER
- FLAG POLE
- GRATE INLET
- JUNCTION BOX
- LIGHT POLE
- MAILBOX
- SANITARY SEWER MANHOLE
- SIGN
- TELEPHONE RISER
- TELEVISION RISER
- TRANSFORMER
- WATER VALVE
- YARD LIGHT
- PIPING

SURVEY NOTES

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THIS INCLUDES PRIVATE AND PUBLIC UTILITIES.
2. TREE SIZES ARE THE TRUNK SIZE AT APPROX. 3' FROM GROUND LEVEL. TREE CANOPY SIZES ARE NOT INCLUDED.
3. HORIZONTAL CONTROL IS: CITY OF SEWARD
4. THE SURVEY SHOWS THE CONDITIONS AS OF SEPTEMBER 27, 2021. SITE IS CURRENTLY UNDERGOING DEMOLITION/CONSTRUCTION ACTIVITIES.

CONTROL POINTS

PNT.	NORTHING	EASTING	ELEV.	DESC.
20	148961.82	173195.12	1491.87	CHISELED 'X'
21	149321.33	173190.19	1491.29	CHISELED 'X'
22	149327.80	172848.04	1484.89	CHISELED 'X'
23	148939.08	172850.74	1490.49	CHISELED 'X'

BENCHMARKS

NONE

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

LINETYPES, SURVEY NOTES AND LEGEND

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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4 OF 18

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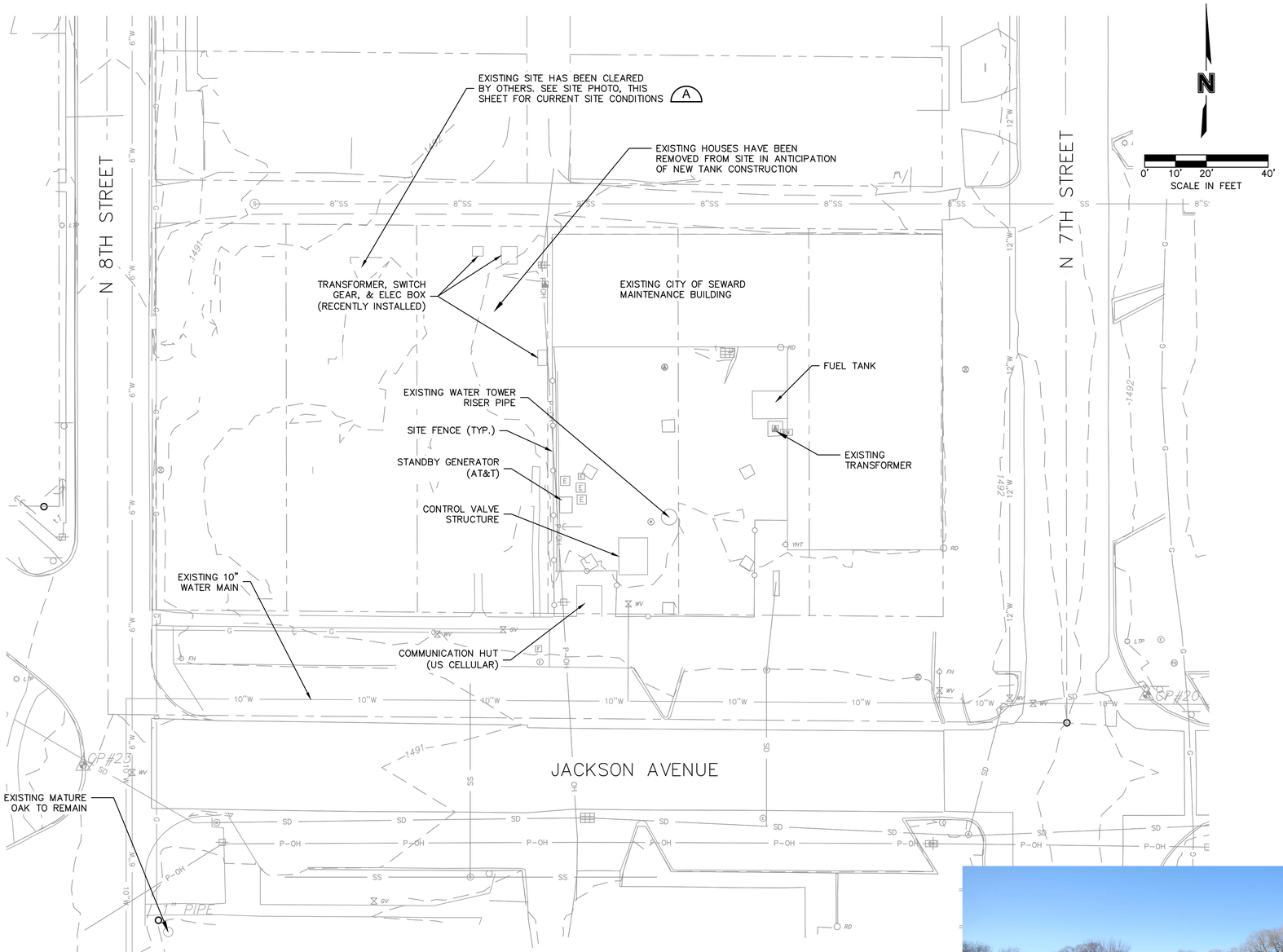

NOTES:

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. THIS INCLUDES PRIVATE AND PUBLIC UTILITIES.

2. TREE SIZES ARE THE TRUNK SIZE AT APPROX. 3' FROM GROUND LEVEL. TREE CANOPY SIZES ARE NOT INCLUDED.

3. HORIZONTAL CONTROL IS: CITY OF SEWARD.

4. THE SURVEY SHOWS THE CONDITIONS AS OF SEPTEMBER 27, 2021. SITE IS CURRENTLY UNDERGOING DEMOLITION/CONSTRUCTION ACTIVITIES.

CONTROL POINTS

PNT.	NORTHING	EASTING	ELEV.	DESC.
20	148961.82	173195.12	1491.87	CHISELED 'X'
21	149321.33	173190.19	1491.29	CHISELED 'X'
22	149327.80	172848.04	1484.89	CHISELED 'X'
23	148939.08	172850.74	1490.49	CHISELED 'X'

BENCHMARKS

1. CHISELED 'X' ON TOP OF CURB, S. SIDE OF INLET AT NE. CORNER OF N. 7TH STREET AND JACKSON AVE.
CONTROL POINT #20
ELEV.=1491.87 (N.A.V.D. 1988)

2. CHISELED 'X' ON TOP OF CURB, N. SIDE OF INLET AT NE. CORNER OF N. 7TH STREET AND BRANFORD STREET.
CONTROL POINT #21
ELEV.=1491.29 (N.A.V.D. 1988)

3. CHISELED 'X' ON TOP OF CURB, S. SIDE OF E/W SIDEWALK AT NW. CORNER OF N. 8TH STREET AND BRADFORD STREET.
CONTROL POINT #22
ELEV.=1484.89 (N.A.V.D. 1988)

4. CHISELED 'X' ON TOP OF CURB, W. SIDE OF N. 8TH STREET, MID-POINT OF CURVE AT JACKSON AVENUE SPLIT.
CONTROL POINT #23
ELEV.=1480.49 (N.A.V.D 1988)

CURRENT SITE CONDITIONS (A)

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

EXISTING SITE PLAN

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by:	CLN
checked by:	OMK
approved by:	OMK
QA/QC by:	CTR
project no.:	019-3180
drawing no.:	
date:	02/17/2023

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5 OF 18

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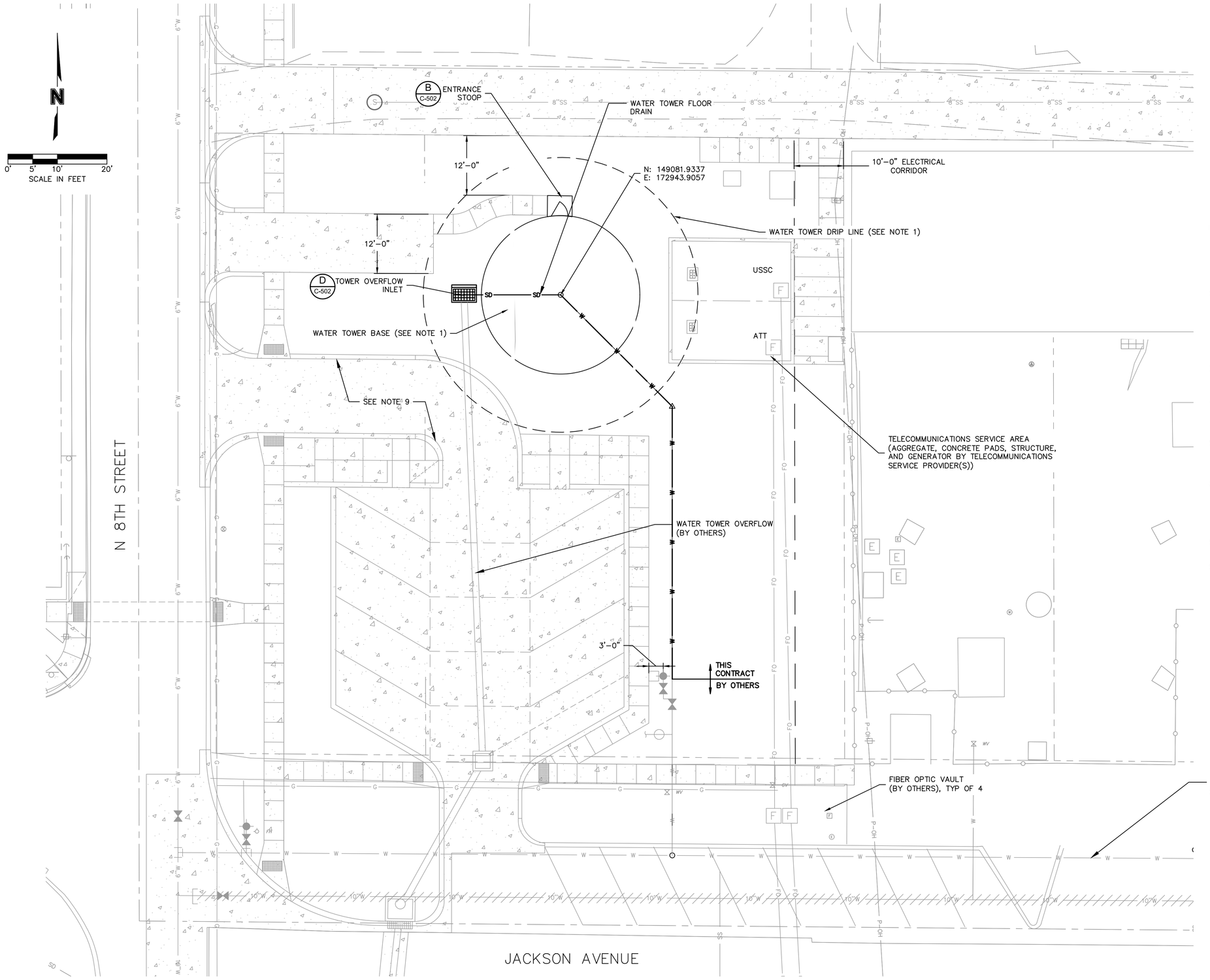

NOTES:

1. TANK DIMENSIONS ARE FROM SUPPLIER LITERATURE AND ARE PROVIDED FOR INFORMATION PURPOSES ONLY. FINAL SIZE TO BE PROVIDED BY TANK CONTRACTOR DURING SHOP DRAWING REVIEW.
2. SITE DISTURBANCE IS ANTICIPATED TO BE LESS THAN ONE ACRE, THEREFORE A SWPPP IS NOT REQUIRED. IF DISTURBANCE EXCEEDS ONE ACRE, CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEVELOPMENT, ACQUISITION, INSTALLATION, MAINTENANCE, AND REMOVAL OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
3. BRACE UTILITY POLES AS REQUIRED TO MAINTAIN THEIR STABILITY DURING CONSTRUCTION.
4. CONTRACTOR SHALL NOT ACCESS OR PLACE MATERIALS ON PRIVATE PROPERTY WITHOUT THE PERMISSION FROM PROPERTY OWNER.
5. CONTRACTOR SHALL MAINTAIN EXISTING ROADS, WALKS, AND ALLEYS DURING CONSTRUCTION. REPAIR DAMAGES PRIOR TO LEAVING SITE.
6. COORDINATE ALL ROAD CLOSURES WITH THE OWNER. JACKSON AVENUE SHALL BE OPEN, WITH NO OBSTRUCTIONS PRESENT, AT ALL TIMES ON JULY 4TH.
7. EXISTING GAS SHUTOFFS TO REMAIN.
8. SEE SPECIFICATIONS FOR NEW WATER TOWER FAA DETERMINATION.
9. NEW PAVING IS SHOWN FOR INFORMATION PURPOSES ONLY AND SHALL BE CONSTRUCTED BY OTHERS UNDER A SEPARATE CONTRACT.

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

SITE PIPING PLAN

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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6 OF 18

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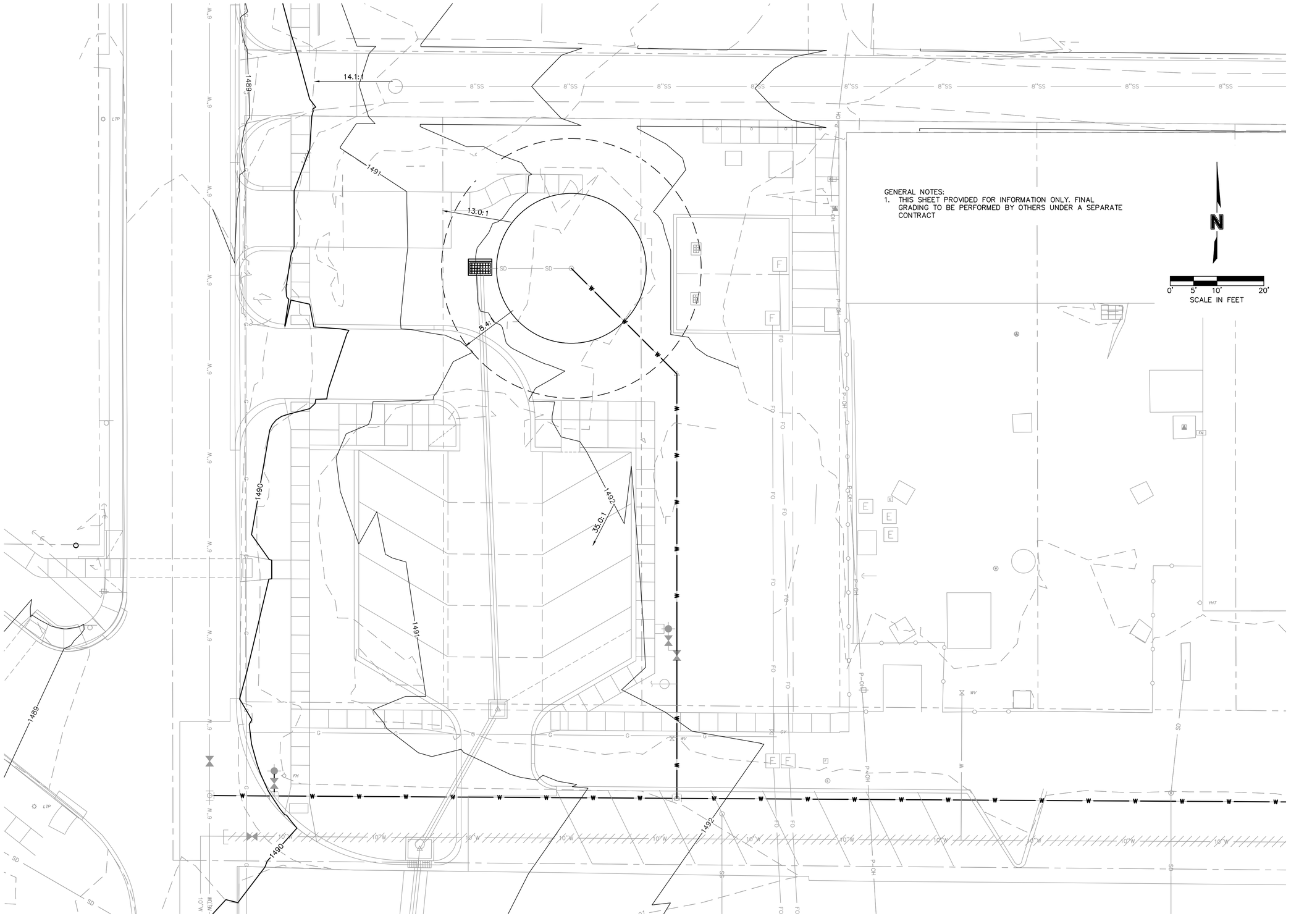
P_PPAT_0193180 ALTERED V_XTOPO_0193180



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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

SITE GRADING PLAN

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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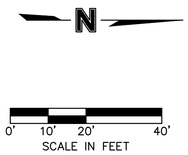

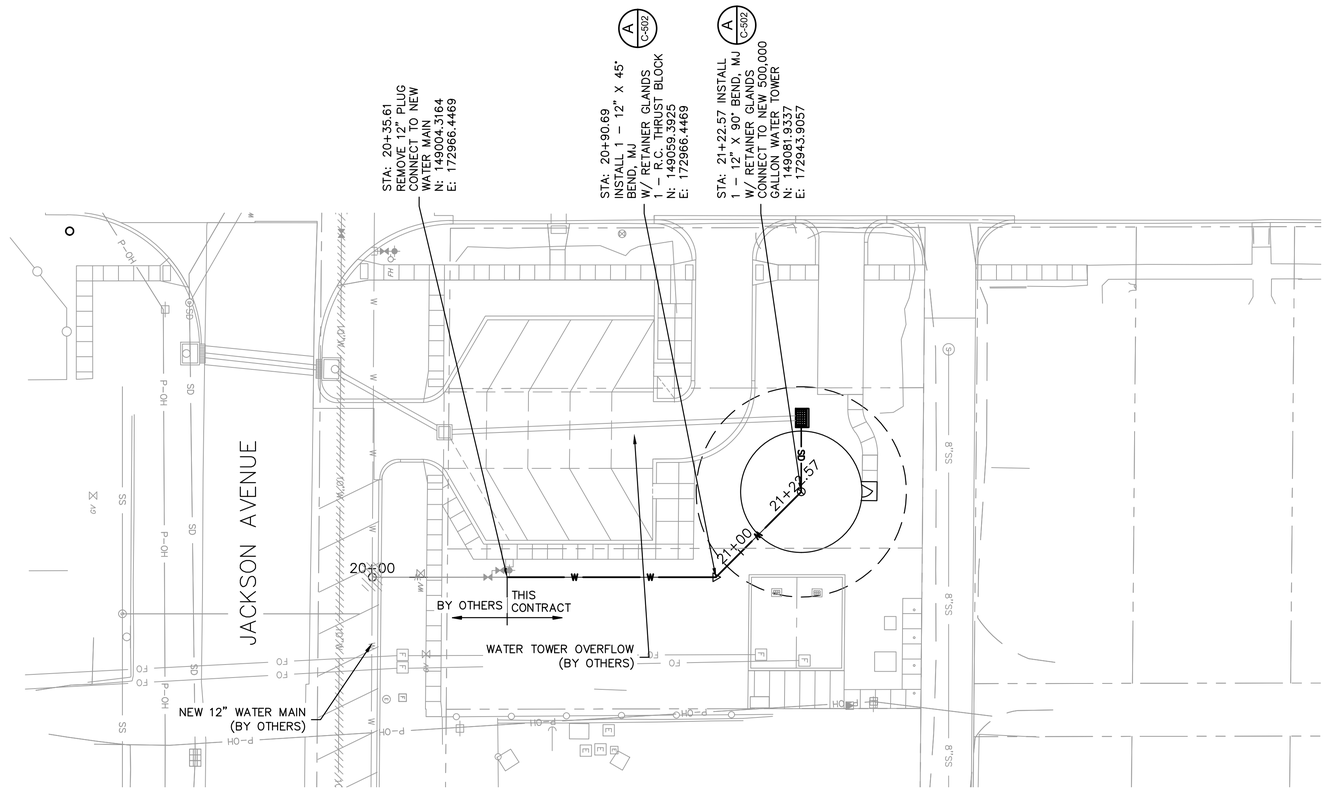

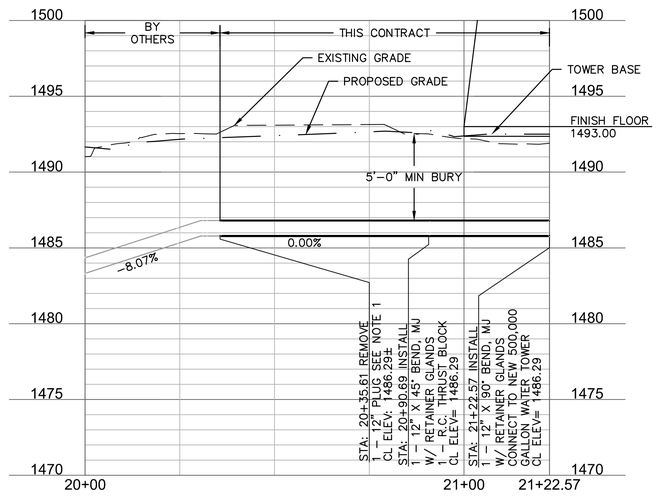

NOTES:
1. TEMPORARY 12" PLUG (INSTALLED BY OTHERS) SHALL BE REMOVED BY TANK CONTRACTOR WHEN RECONNECTING TO WATER MAIN DURING TOWER CONSTRUCTION

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

PLAN & PROFILE STA 20+00 - 21+22.57
WATER MAIN

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

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8 OF 18

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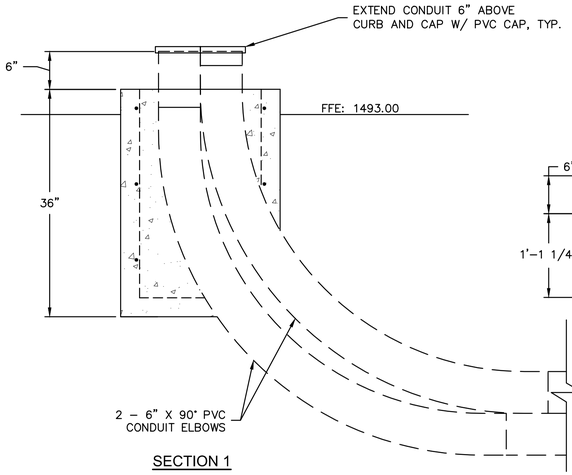
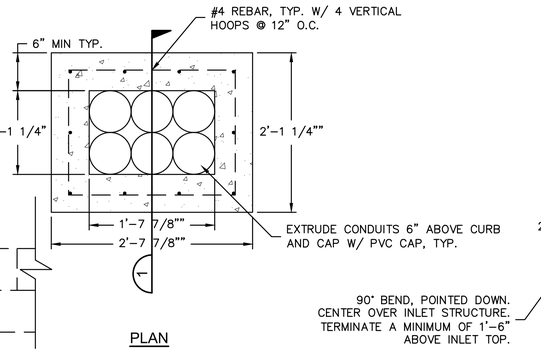


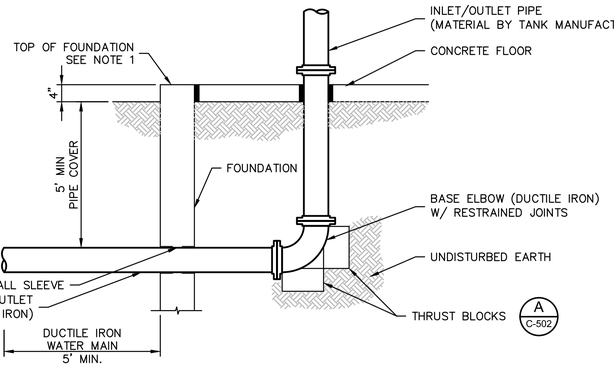
SECTION 1

NOTES:
1. INCORPORATE COMMUNICATIONS DUCT BANK INTO TANK FOUNDATION REINFORCING.
2. PROVIDE SIMILAR RISER WITHIN TELECOMMUNICATIONS AREA OUTSIDE OF TOWER PERIMETER.

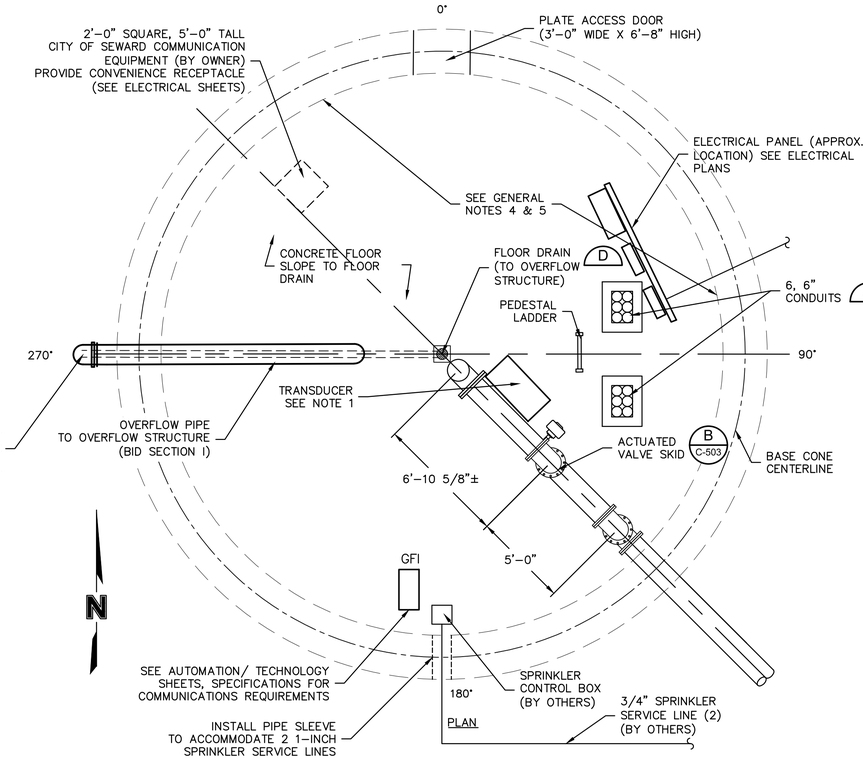


PLAN

CONDUIT BANK DETAIL (A)
SCALE: 1" = 1'-0"



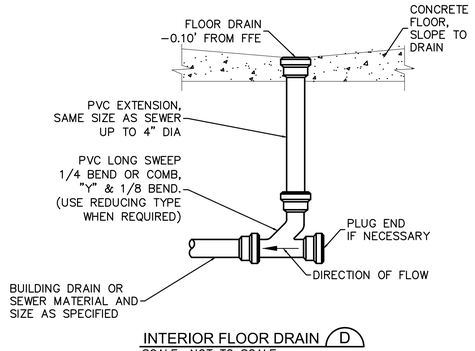
INLET/OUTLET PIPE ENTRANCE DETAIL (B)
NOT TO SCALE



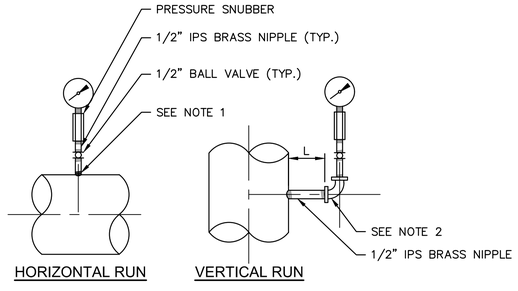
PLAN

TOWER BASE ORIENTATION (C)
SCALE: 1/4" = 1'-0"

GENERAL NOTES:
1. TANK LEVEL TRANSDUCER BY TANK CONTRACTOR. SEE INSTRUMENTATION PLANS/SPECIFICATIONS FOR CONTROLS REQUIREMENTS.
2. SLOPE FLOOR TO FLOOR DRAIN
3. ALL PIPING WITHIN, AND A MINIMUM OF 5 FEET OUTSIDE THE WATER TOWER FOUNDATION SHALL BE DUCTILE IRON. PROVIDE ALL TRANSITION COUPLINGS TO CONNECT PIPE OF DIFFERING MATERIAL.
4. PROVIDE SPRAY APPLIED CLOSED CELL POLYURETHANE FOAM, AS SPECIFIED, TO THICKNESS OF 3" (R–VALUE BETWEEN 18.5 AND 21) TO THE ENTIRE INTERIOR OF THE BOTTOM CONE WALLS AND UNDERSIDE OF PLATFORM, AND BEVELED AT THE EDGES. FOAM SHALL NOT BE APPLIED TO THE ACCESS HATCH AROUND THE LADDER. FOAM SHALL BE ADDED TO THE PRIMARY AT–GRADE ACCESS DOOR, BUT SHALL NOT INTERFERE WITH PROPER OPERATION OF THE DOOR LATCHES, HANDLES, AND HINGES. MODIFY THESE DOOR COMPONENTS TO ACCOUNT FOR INSULATION ADDITION (I.E. DEEPER HANDLES, ETC). FOAM SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATIONS.
5. AFTER POLYURETHANE FOAM IS APPLIED, PREPARE FOAM FOR AND APPLY INTUMESCENT COATING FOR FULL COVERAGE IN ACCORDANCE WITH THE MANUFACTURER'S SURFACE PREPARATION AND APPLICATION RECOMMENDATIONS. THIS COATING SHALL BRING THE FOAMED AND COATED SYSTEM INTO COMPLIANCE WITH THE THERMAL AND IGNITION BARRIER REQUIREMENTS OF THE IBC. APPLY IFTI DC315, OR APPROVED EQUAL, AT A MINIMUM WET FILM THICKNESS (WFT) OF 14 MILS OR 9 DRY FILM THICKNESS (DFT). COLOR SHALL BE "ICE GRAY".
6. COORDINATE WITH AND PROTECT ELECTRICAL AND CONTROLS COMPONENTS TO ACCOUNT FOR SPRAY APPLIED FOAM THICKNESS, APPLICATION, AND COATING.



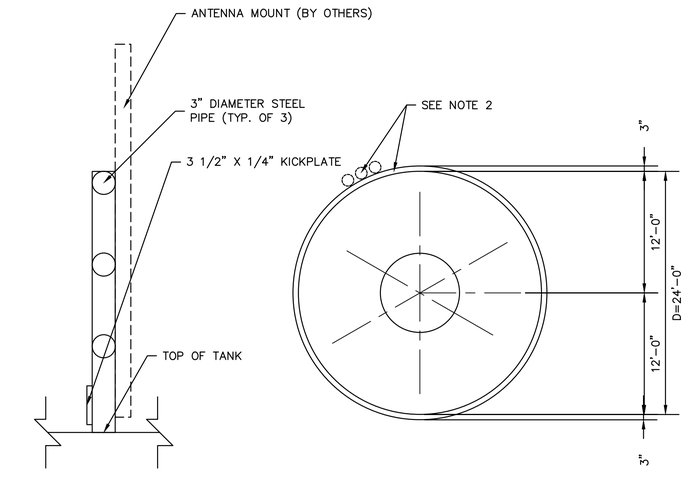
INTERIOR FLOOR DRAIN (D)
SCALE: NOT TO SCALE



HORIZONTAL RUN VERTICAL RUN

NOTES:
1. A TAPPING SADDLE MAY BE PROVIDED IN LIEU OF DIRECT TAPPING IF PIPE THICKNESS CLASS DOES NOT EQUAL OR EXCEED THE MINIMUM REQUIRED THICKNESS CLASS.
2. ANSI B16.15, CLASS 125 BRONZE THREADED FITTING.
3. DIMENSION "L" SHALL BE SUFFICIENT TO PREVENT CONTACT BETWEEN THE GAUGE CASE OR VALVE OPERATING LEVER AND ADJACENT PIPING BUT SHALL NOT EXCEED 4 INCHES UNLESS OTHERWISE PERMITTED BY THE ENGINEER.

GAUGE INSTALLATION DETAILS (E)
SCALE: 1/2" = 1'-0"



TANK HANDRAIL - SECTION VIEW TANK HANDRAIL - PLAN VIEW

NOTES:
1. TANK CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION OF THE HANDRAIL ON THE NEW TANK. COMMUNICATIONS TENANTS SHALL BE RESPONSIBLE FOR INSTALLING THE ANTENNA MOUNT.
2. SEE APPENDIX "D" OF THE SPECIFICATIONS FOR HANDRAIL AND ANTENNA MOUNT DETAILS AND SPECIFICATIONS.

TANK HANDRAIL DETAIL (F)
NOT TO SCALE

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REV. NO.	DATE	REVISIONS DESCRIPTION
1	11/15/2022	REVISED PER ADDENDUM #3

REVISIONS

WATER TOWER DETAILS

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-501
9 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\P_DTL01_0193180.dwg USER: clnelson
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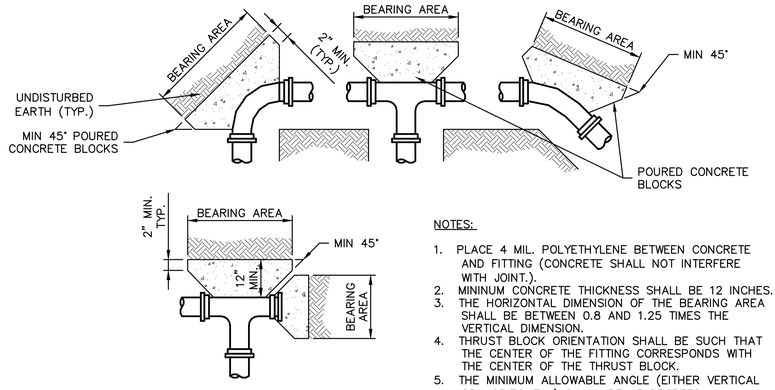
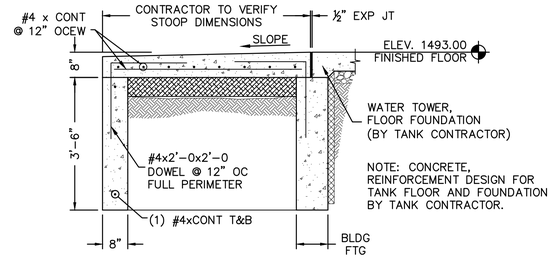


NOTES:

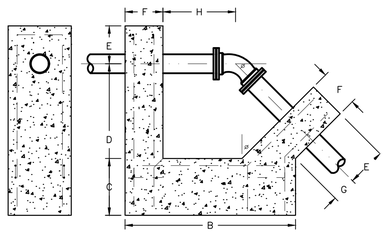
1. PLACE 4 MIL. POLYETHYLENE BETWEEN CONCRETE AND FITTING (CONCRETE SHALL NOT INTERFERE WITH JOINT.).
2. MININUM CONCRETE THICKNESS SHALL BE 12 INCHES.
3. THE HORIZONTAL DIMENSION OF THE BEARING AREA SHALL BE BETWEEN 0.8 AND 1.25 TIMES THE VERTICAL DIMENSION.
4. THRUST BLOCK ORIENTATION SHALL BE SUCH THAT THE CENTER OF THE FITTING CORRESPONDS WITH THE CENTER OF THE THRUST BLOCK.
5. THE MINIMUM ALLOWABLE ANGLE (EITHER VERTICAL OR HORIZONTAL) SHALL BE 45 DEGREES.

TYPICAL THRUST BLOCKING (A)
SCALE: 1/2" = 1'-0"

BEARING AREA OF BLOCK IN SQ. FT.				
PIPE SIZES	TEE & END	90° BEND	45° BEND	22° BEND
4" DIA.	0.70	0..90	0.50	0.30
6" DIA.	1.50	2.00	1.10	0.60
8" DIA.	2.60	3.60	2.00	1.00
10" DIA.	4.00	5.60	3.10	1.50
12" DIA.	6.67	9.77	5.22	2.86



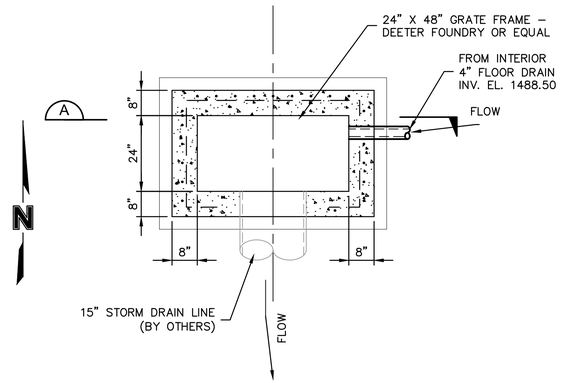
ENTRANCE DOOR STOOP (B)
SCALE: NOT TO SCALE



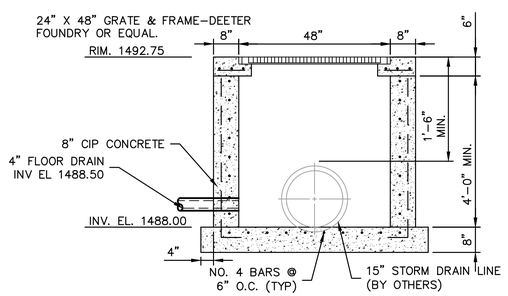
REINFORCED CONCRETE ANCHORAGE (C)
SCALE: 1/2"=1'-0"

REINFORCED CONCRETE ANCHORAGE											
Ø = 45°											
DIA.	A	B	C	D	E	F	G	H	CONCRETE CY	BAR SIZE	STEEL (LBS)
6&8	2'-0"	4'-6"	1'-6"	2'-6"	1'-0"	1'-0"	0'-8"	1'-11"	0.94	4	34
10	2'-6"	5'-0"	1'-6"	3'-0"	1'-3"	1'-0"	1'-0"	2'-4"	1.31	4	42
12	3'-0"	5'-0"	2'-0"	3'-6"	1'-6"	1'-0"	1'-6"	3'-1"	1.98	4	48

REINFORCED CONCRETE ANCHORAGE											
Ø = 22.5°											
DIA.	A	B	C	D	E	F	G	H	CONCRETE CY	BAR SIZE	STEEL (LBS)
6&8	2'-0"	4'-6"	0'-9"	1'-6"	1'-0"	1'-0"	0'-8"	1'-7"	0.54	4	28
10	2'-6"	5'-0"	0'-9"	1-9"	1'-3"	1'-0"	0'-9"	1'-8"	0.75	4	32
12	3'-0"	5'-0"	0'-9"	2'-0"	1'-6"	1'-0"	1'-0"	1'-9'	1.05	4	36



PLAN



SECTION A - A

TOWER OVERFLOW INLET (D)
SCALE: 1/2" = 1'-0"

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

MISC DETAILS

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-502
10 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\P_DTL01_0193180.dwg USER: clnelson
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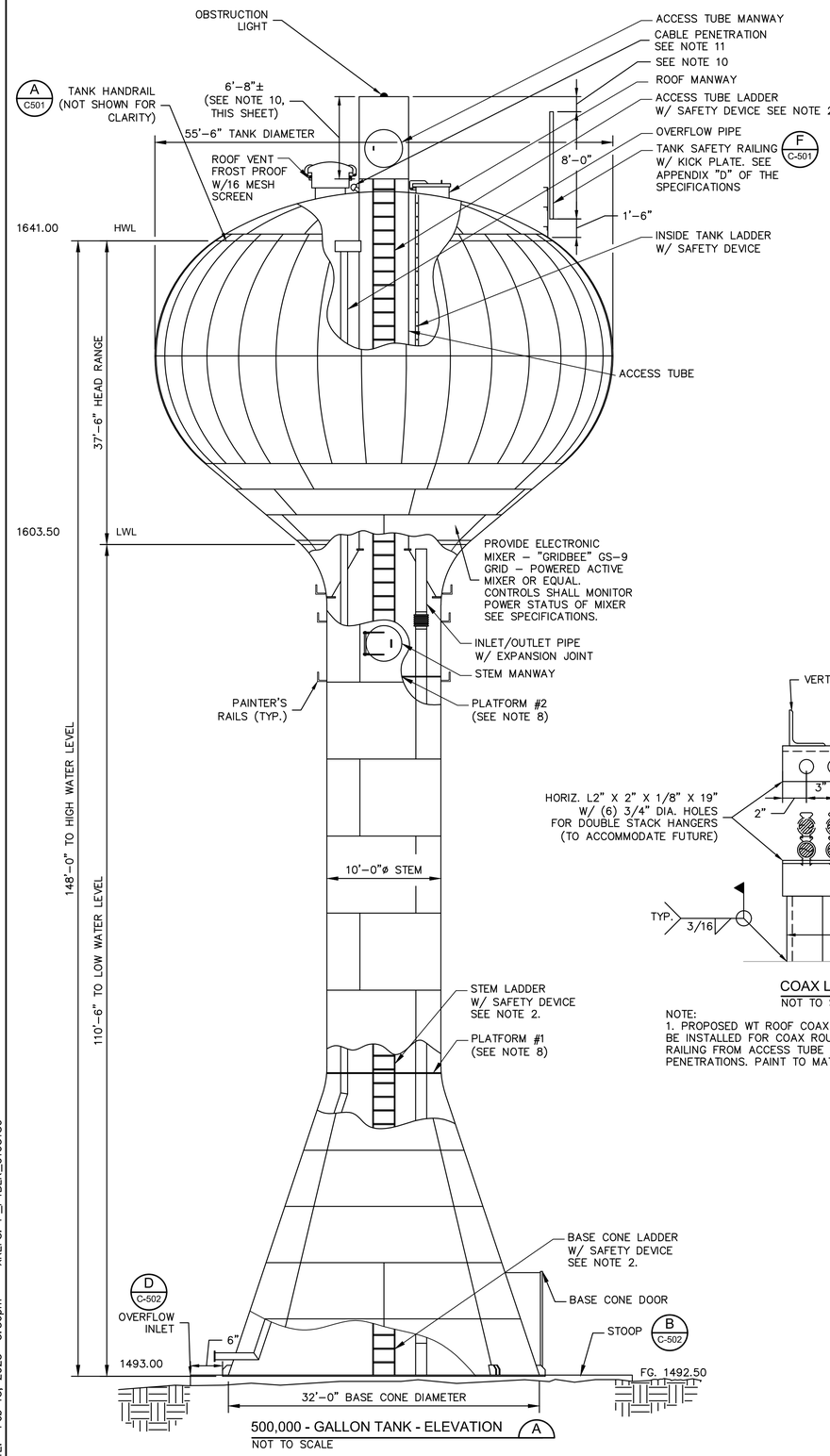


500,000 - GALLON TANK - ELEVATION (A)
NOT TO SCALE

GENERAL TANK NOTES:

1. DIMENSIONS SHOWN ARE TYPICAL FOR A 500,000 – GALLON SPHEROID TANK, PROVIDED FOR INFORMATION PURPOSES ONLY. DIAMETER OF BASE CONE AND FOUNDATION SHALL BE DETERMINED BY TANK CONTRACTOR.

2. PROVIDE A LADDER SAFETY DEVICE MEETING CURRENT OSHA STANDARDS. PROVIDE TWO COMPATIBLE SAFETY HARNESSES UPON COMPLETION OF PROJECT INSTALL FIVE METAL HOOKS INSIDE CONE TO HANG SAFETY EQUIPMENT.

3. SEE SPECIFICATIONS FOR ADDITIONAL ACCESSORIES

4. SEE INSTRUMENTATION SHEETS/SPECIFICATIONS FOR COMMUNICATION EQUIPMENT REQUIREMENTS

5. PROVIDE TWO 1'–0" X 2'–0" CONC. COMMUNICATIONS DUCT BANK & ONE 2" CONDUIT THROUGH FOUNDATION/FINISHED FLOOR TO HOUSE ANTENNA & SPRINKLER SYSTEM CONTROL WIRING. UTILIZE WALL SLEEVES AND CAP DUCT BANK CONDUIT(S) ON BOTH ENDS.

6. FULL HAND RAIL NOT SHOWN IN THIS VIEW FOR CLARITY.

7. TOWER BASE CONE TO BE INSULATED AND HEATED FOR PROTECTION AGAINST FREEZING. SEE GENERAL NOTES 4–6, SHEET C–501.

8. PROVIDE TWELVE 2–IN CABLE PENETRATIONS THROUGH EACH PLATFORM. SEE DETAIL "C", THIS SHEET.

9. FURNISH AND INSTALL (WELD) TWELVE CABLE SUPPORTS ON INSIDE SURFACE OF PEDESTAL AND ACCESS TUBE AT 10'–0" INTERVALS, OR AS RECOMMENDED BY CABLE SUPPLIER.

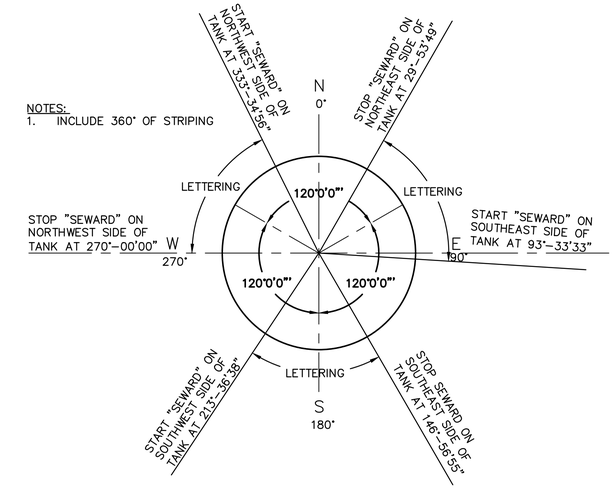
10. WATER TOWER ACCESS TUBE HEIGHT IS PROVIDED FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL SIZE TUBE SUCH THAT THE OBSTRUCTION LIGHT IS INSTALLED ABOVE THE TOP OF ANY ANTENNA MOUNTED TO THE SAFETY RAIL. SUBMIT A DIMENSIONED SET OF DRAWINGS DURING THE 'SUBMITTALS' SECTION OF THE SPECIFICATIONS FOR REVIEW DURING THE SHOP DRAWING REVIEW PERIOD.

11. PROVIDE TWELVE CABLE PENETRATIONS THROUGH ACCESS TUBE. SEE DETAIL C, THIS SHEET.

12. ALL ITEMS ASSOCIATED WITH THE INSTALLATION OF THE HANDRAIL ON TOP OF THE TANK SHALL BE THE RESPONSIBILITY OF THE TANK CONTRACTOR. ANY ADDITIONAL ACCESSORIES REQUIRED FOR THE INSTALLATION OF COMMUNICATIONS EQUIPMENT ON THE HANDRAILS SHALL BE THE RESPONSIBILITY OF THE COMMUNICATIONS TENANTS. INSTALLATION OF COMMUNICATIONS EQUIPMENT SHALL BE COORDINATED WITH THE CONSTRUCTION AND COATING OF THE HANDRAIL. ANY DAMAGES TO THE TANK, RAILING, OR COATING SYSTEM DURING THE INSTALLATION OF COMMUNICATION EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE COMMUNICATIONS TENANTS AND SHALL BE REPAIRED TO PREINSTALLATION CONDITIONS.

13. REFER TO APPENDIX "D" OF THE SPECIFICATIONS FOR THE SAFETY RAIL DESIGN.

14. 1" METER (BY CITY) AND BFP (WATTS STANDARD DOUBLE) TO BE INCLUDED ABOVE GRADE AND INSIDE TOWER BASE.

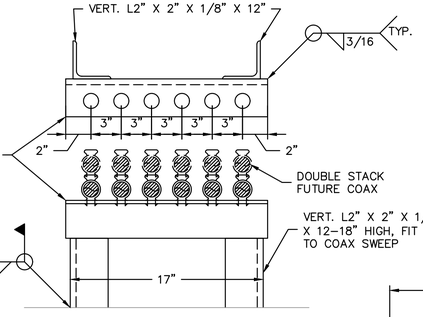


PLAN - WATER TANK LETTERING
NOT TO SCALE

WATER TANK LETTERING (BASE BID)
NOT TO SCALE

NOTES:
1. CONTRACTOR SHALL PROVIDE A FULLY DIMENSIONED FIGURE PER THE SUBMITTALS SECTION OF THE SPECIFICATIONS FOR APPROVAL PRIOR TO PAINTING LETTERING

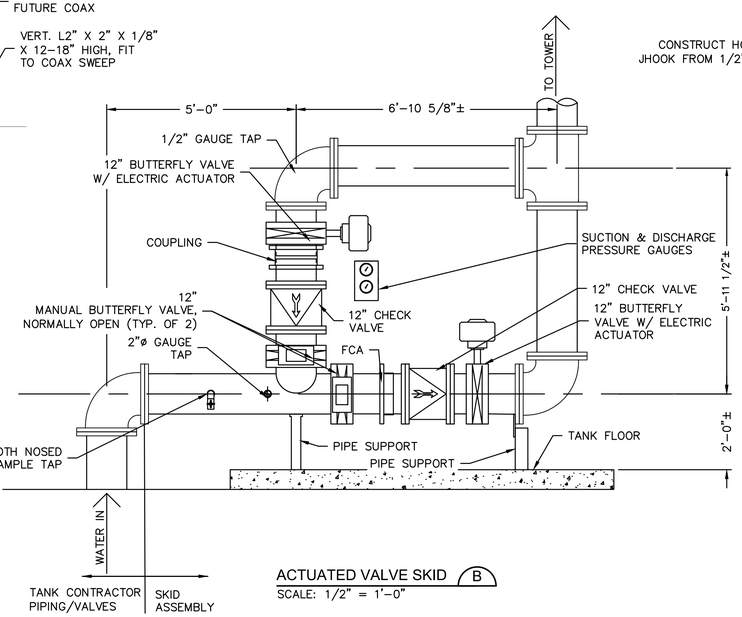
2. DETAIL DEPICTS BASE BID – SEE SPECIFICATIONS FOR ALTERNATE BID.



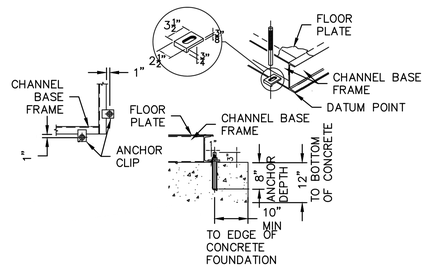
COAX LADDER DETAIL (C)
NOT TO SCALE

NOTE:
1. PROPOSED WT ROOF COAX LADDER TO BE INSTALLED FOR COAX ROUTING TO RAILING FROM ACCESS TUBE PENETRATIONS. PAINT TO MATCH WT.

CABLE PENETRATION DETAIL (D)
NOT TO SCALE



ACTUATED VALVE SKID (B)
SCALE: 1/2" = 1'-0"



BASE FRAME ANCHOR DETAIL
CHANNEL FRAMING MEMBERS
NOT TO SCALE

NOTE:
1. ANCHOR CLIPS FURNISHED BY SKID MANUFACTURER.
2. ANCHOR BOLTS AND NUTS BY TANK CONTRACTOR.
3. SHIMS MAY BE REQUIRED AROUND PERIMETER OF BASE FRAME FOR LEVELNESS.
4. ANCHOR BOLTS SHALL BE PLACED WITHIN 12" OF EACH CORNER WITH THE REMAINING ANCHORS BEING SPACED NO MORE THAN 6" APART ALONG ALL SIDES OF THE SKID PERIMETER WITH ANY SIDE OF 7 FEET OR LESS HAVING TWO ANCHOR BOLTS, ALL ACCORDING TO IBC 2308.6, 2006 ED.

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

WATER TOWER DETAILS

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: CLN
checked by: OMK
approved by: OMK
QA/QC by: CTR
project no.: 019-3180
drawing no.:
date: 02/17/2023

C-503
11 OF 18

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\WTWW\P_DTL01_0193180.dwg USER: clnelson
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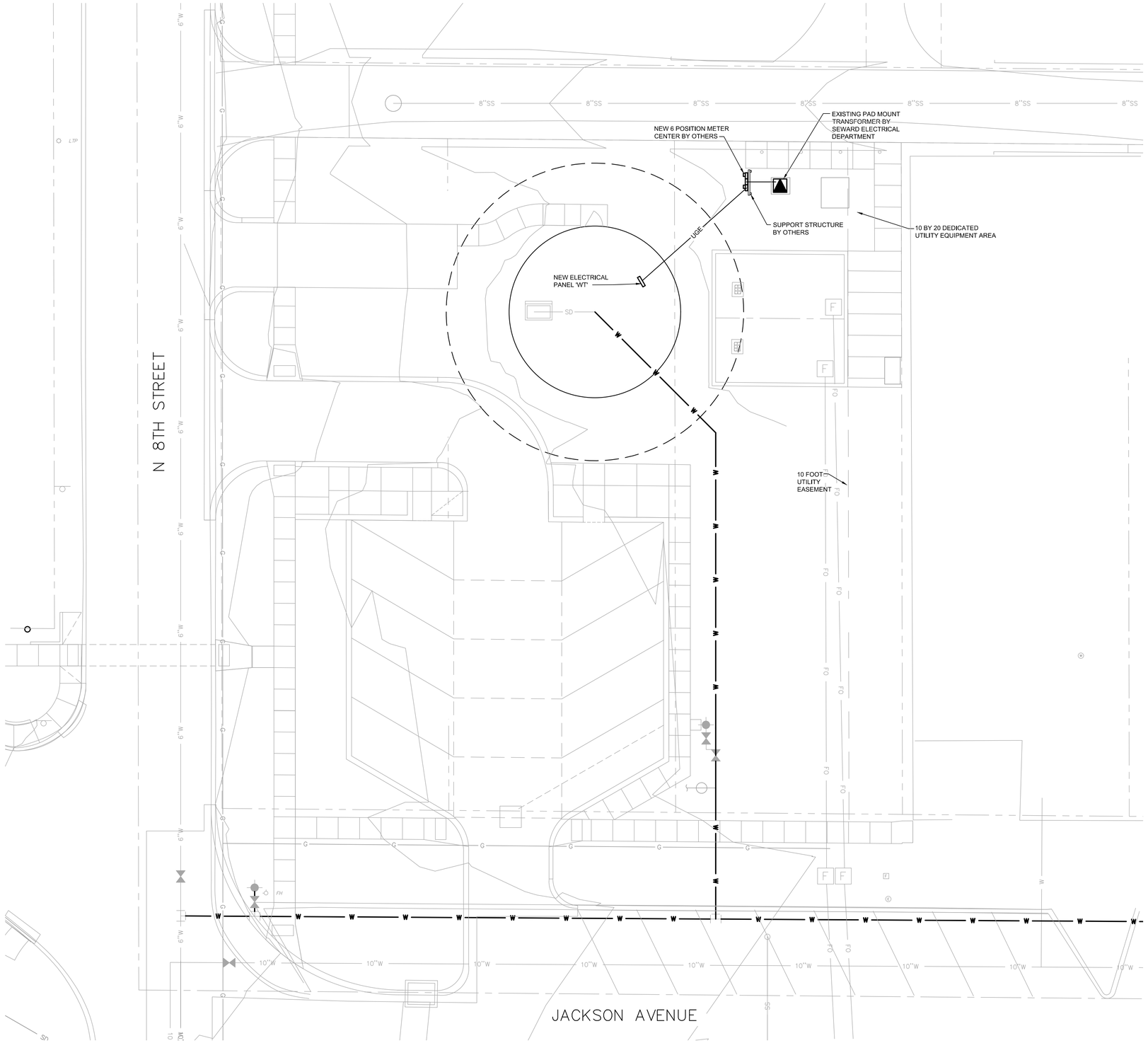

1 ELECTRICAL SITE PLAN
SCALE: 1" = 10'-0"

N

0' 5' 10' 20'
SCALE IN FEET

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

ELECTRICAL SITE PLAN

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: FLE
checked by: FLE
approved by: FLE
QA/QC by: TLF
project no.: 019-3180
drawing no.:
date: 02/17/2023

E-100
12 OF 18

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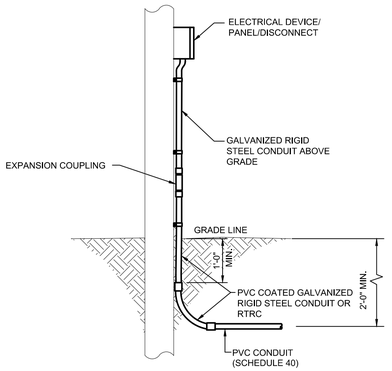
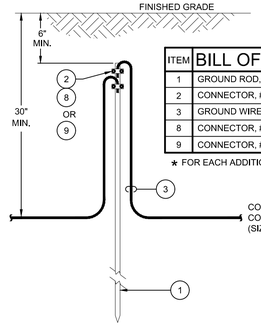


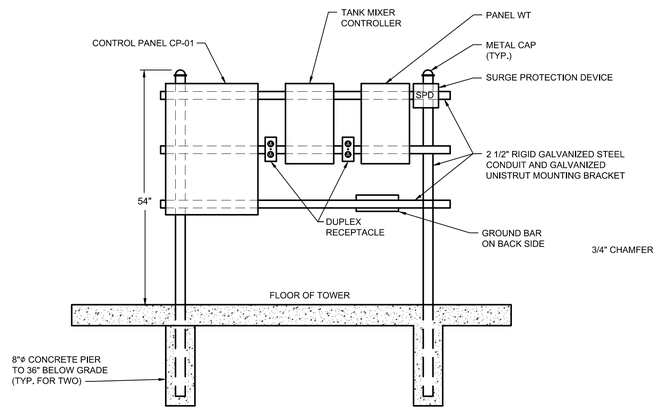
2 EXPOSED CONDUIT DETAIL
NOT TO SCALE



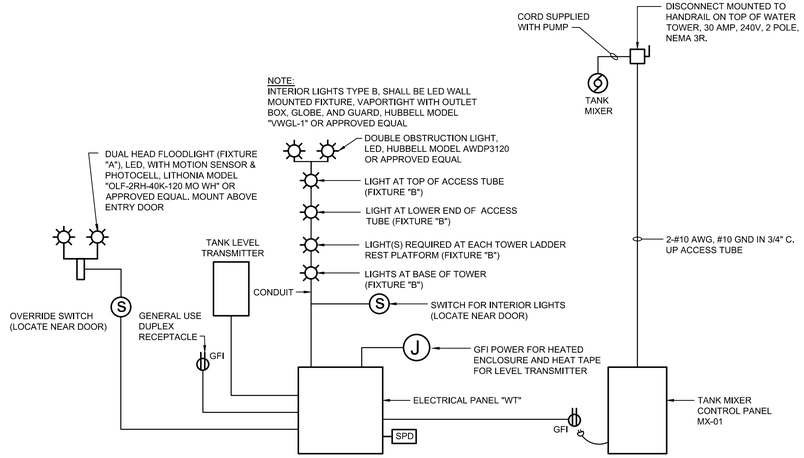
ITEM	BILL OF MATERIAL
1	GROUND ROD, 3/4" DIA. x 10' LONG, COPPER CLAD STEEL
2	CONNECTOR, #4 SOLID THRU #2/0 STR, CABLE TO GND, ROD, BURNDY #GAR-6426
3	GROUND WIRE, STRANDED DIRECT-BURRIED COPPER
8	CONNECTOR, #2/0 SOLID THRU 250KCMIL STR. CABLE TO GND. ROD, BURNDY #GAR-6429
9	CONNECTOR, #8 SOLID THRU #4 STR. CABLE TO GND, ROD, BURNDY #GAR-644C

★ FOR EACH ADDITIONAL CABLE CONNECTION ADD 1 CONNECTOR.

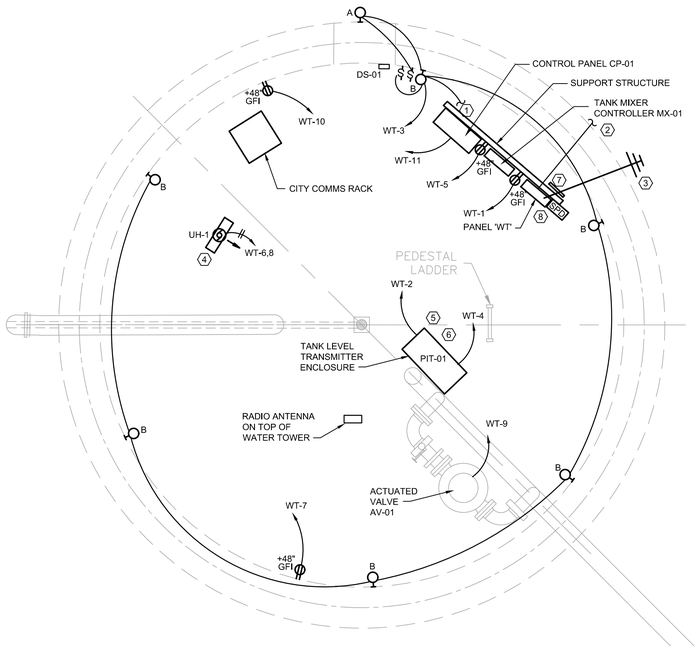
3 GROUND ROD INSTALLATION
NOT TO SCALE



4 SUPPORT STRUCTURE ELEVATION DETAIL
NOT TO SCALE



5 ELECTRICAL SCHEMATIC
NOT TO SCALE



1 ELECTRICAL POWER FLOOR PLAN
SCALE: 1/4" = 1'-0"

PANEL NO.	WT		TYPE	LIGHTING & APPLIANCE					
SERVICE VOLTAGE	120/240-1Ø		PHASE BUS RATING	100A			MOUNTING	Surface	
MAIN BREAKER SIZE	100A		NEUTRAL BUS RATING	100A			SHORT CIRCUIT RATING	10kAIC	

DESCRIPTION	C/B AMP	VOLT AMPS A	VOLT AMPS B	CKT. NO.	CKT. NO.	VOLT AMPS A	VOLT AMPS B	C/B AMP	DESCRIPTION
RECEPTACLE	20/1	180		1	2	200		20/1	TANK LEVEL TRANSMITTER
LIGHTS	20/1		500	3	4		500	20/1*	ENCLOSURE HEATER (GFCI CB)
TANK MIXER	20/1	800		5	6	5000		60/2	HEATER
LAWN IRRIGATION SYSTEM	20/1		180	7	8		5000	---	----
ACTUATED VALVE	20/1	200		9	10	1000		20/1	CITY COMMS RACK
CONTROL PANEL CP-01	20/1		500	11	12		690	20/1	AREA LIGHTS/ TOWER SPOTS
SPARE	20/1	0		13	14	0		20/1	SPARE
SPARE	20/1		0	15	16		0	20/1	SPARE
SPACE	---	0		17	18	0		---	SPACE
SPACE	---		0	19	20		0	---	SPACE
SPACE	---	0		21	22	0		30/2	SURGE PROTECTION DEVICE
SPACE	---		0	23	24		0	---	----

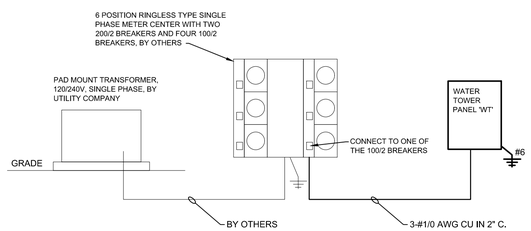
TOTAL PHASE A: 61,5 AMPS 7.4 KVA
TOTAL PHASE B: 63,9 AMPS 7.7 KVA
TOTAL CONNECTED LOADS: 14.8 KVA
ESTIMATED DEMAND LOADS: 15.1 KVA

BRANCH CIRCUIT COPPER CONDUCTOR AND CONDUIT SIZE ★ ★★

PROTECTION DEVICE RATING (AMPS)	REQUIRED CONDUCTOR SIZE	EQUIPMENT GROUNDING CONDUCTOR SIZE	SINGLE PHASE 2 WIRE + GND, CONDUIT SIZE	SINGLE PHASE 3 WIRE + GND, CONDUIT SIZE ★	THREE PHASE 3 WIRE + GND, CONDUIT SIZE	THREE PHASE 4 WIRE + GND, CONDUIT SIZE ★
15	12 AWG	12 AWG	3/4"	3/4"	3/4"	3/4"
20	12 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
25	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
30	10 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
35	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
40	8 AWG	10 AWG	3/4"	3/4"	3/4"	3/4"
45	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
50	6 AWG	10 AWG	3/4"	3/4"	3/4"	1"
60	4 AWG	10 AWG	1"	1"	1"	1-1/4"
70	4 AWG	8 AWG	1"	1"	1"	1-1/4"
80	3 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
90	2 AWG	8 AWG	1"	1-1/4"	1-1/4"	1-1/4"
100	1 AWG	8 AWG	1-1/4"	1-1/2"	1-1/2"	1-1/2"

★ = UNLESS OTHERWISE NOTED ON THE DRAWINGS.

★★ = ALL CONDUCTORS SIZED ON THE POWER RISER DIAGRAM OR IN BRANCH CIRCUIT CONDUCTOR TABLE ARE BASED ON 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE. CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE NEC IF 4 OR MORE CONDUCTORS ARE PLACED IN A RACEWAY OR CABLE.



6 ONE-LINE DIAGRAM
NOT TO SCALE

GENERAL SHEET NOTES

A. COORDINATE NEW ELECTRICAL SERVICE AND TRANSFORMER LOCATION WITH SEWARD ELECTRICAL DEPARTMENT.

SHEET KEYNOTES

1. CONTINUE CONDUIT AND CIRCUIT UP TOWER FOR LIGHTS AT LADDER PLATFORMS AND ACCESS TUBE.
2. CONTINUE TO SERVICE DISCONNECT.
3. MAKE CONNECTION TO GROUND ROD, WATER PIPE, UFER GROUND, AND TANK STEEL.
4. PROVIDE MARKEL MODEL HF2B5110CA1L OR EQUAL UNIT HEATER (UH-1). 10.0 KW ELECTRIC HEATING ELEMENT AT 240V/1PH, 41.2 AMPS, WEIGHT 55 LBS, 18 GAUGE POWDER COATED STEEL CABINET, 700 CFM DISCHARGE. BUILT-IN THERMOSTAT (PRESET AT 60°F), BUILT-IN DISCONNECT SWITCH. PROVIDE WITH WALL MOUNTING BRACKET AND LOUVER FIN DIFFUSER FOR THROW ADJUSTMENT. MOUNT BOTTOM OF HEATER AT 10'-0" A.F.F..
5. PROVIDE NEMA 12 INSULATED ENCLOSURE WITH STRIP HEATER AND THERMOSTAT FOR HOUSING TANK LEVEL TRANSMITTER. COORDINATE EXACT LOCATION WITH EQUIPMENT SUPPLIER IN FIELD PRIOR TO ROUGH-IN.
6. PROVIDE HEAT TRACE FOR LEVEL TRANSMITTER WATER LINES. COORDINATE QUANTITY AND REQUIREMENTS WITH EQUIPMENT SUPPLIER AND FIELD CONDITIONS PRIOR TO ROUGH-IN.
7. PROVIDE 4" X 24" X 1/4" GROUND BAR LOCATED ON BACK OF SUPPORT STRUCTURE FOR GROUNDING OF ELECTRICAL PANEL AND COMMUNICATIONS CARRIERS. BOND TO ELECTRICAL PANEL, WATER PIPE, TANK STEEL, AND GROUND ROD WITH #6 GND. BOND TO UFER GROUND WITH #4 GND.
8. PROVIDE 1" CONDUIT STUBBED OUT THROUGH FOUNDATION FROM ELECTRICAL PANEL FOR SITE LIGHTING BY OTHERS.

SYMBOLS LEGEND

▬	SURFACE MOUNTED POWER PANEL
	ELECTRICAL POWER TRANSFORMER
XX	ELECTRICAL MOTOR: NUMBER ON SIDE INDICATES MOTOR SIZE.
	DUPLEX RECEPTACLE; MOUNT AT 18" TO CENTER OF DEVICE AFF UNLESS OTHERWISE NOTED.
GFI	GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE
	WALL MOUNTED LIGHT FIXTURE; LABEL INDICATES FIXTURE TYPE
$	SINGLE-POLE SWITCH
———	BRANCH CIRCUIT POWER WIRING
——→	HOME RUN 3/4" CONDUIT. 2#12 AND 1#12 GROUND. UNLESS OTHERWISE NOTED. NOTE: HOME RUN SHALL BE FROM FIRST ELECTRICAL DEVICE JUNCTION BOX IN CIRCUIT TO ELECTRICAL PANEL.
— UGE —	UNDERGROUND ELECTRICAL
— UGC —	UNDERGROUND CONDUIT
— G —	GROUND CONDUCTOR
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
GFI	GROUND FAULT INTERRUPTER
SPD	SURGE PROTECTION DEVICE

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

PLANS AND DETAILS

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by:	FLE
checked by:	FLE
approved by:	FLE
QA/QC by:	TLF
project no.:	019-3180
drawing no.:	
date:	02/17/2023

E-101
13 OF 18

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REV. NO.	DATE	REVISIONS DESCRIPTION
		REVISIONS

NETWORK ARCHITECTURE

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: GMM
checked by: NJC
approved by: NJC
QA/QC by: WJH
project no.: 019-3180
drawing no.: I - 102
date: 02/17/2023

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\TFTC\11-03-2021_TFTC_ARCH_019-31800.dwg USER: clnelson
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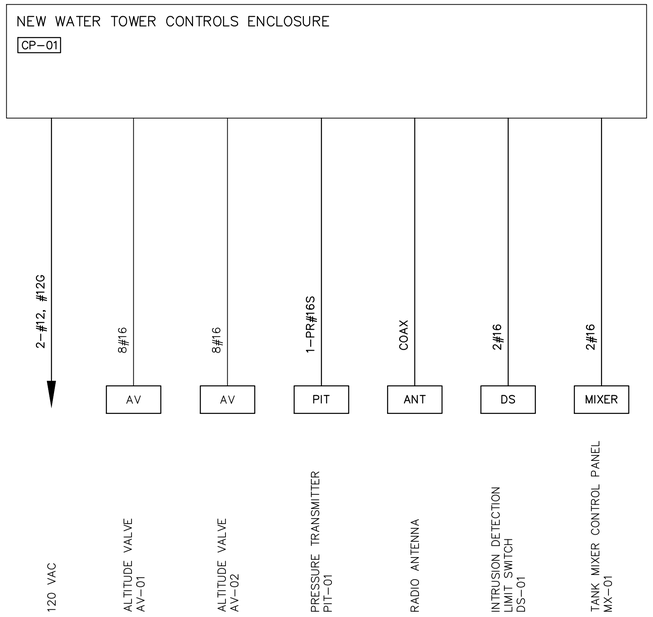
GENERAL SHEET NOTES

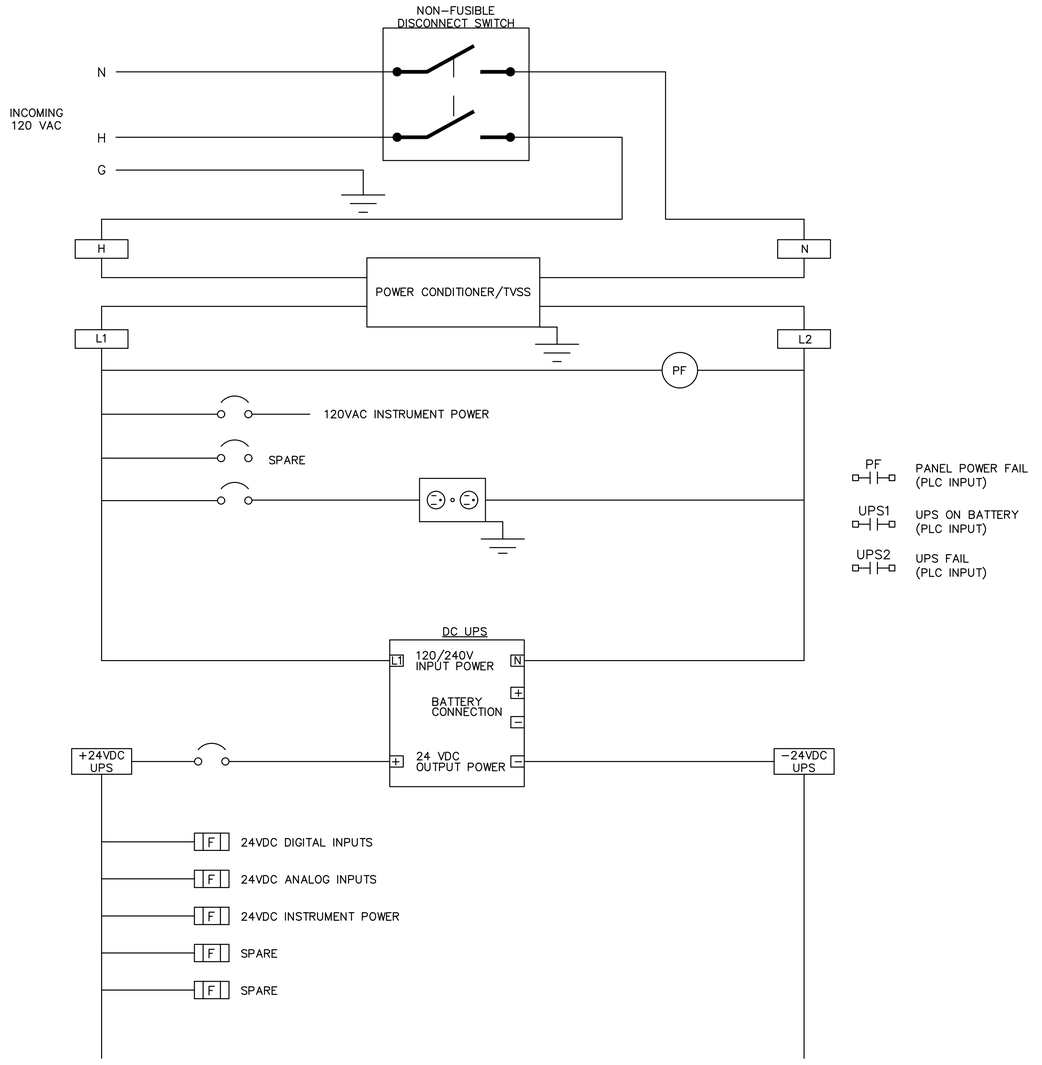
A. LOW VOLTAGE CONTROL WIRING SHALL NOT SHARE CONDUIT WITH 120VAC OR ABOVE.

B. PROVIDE MINIMUM $\frac{3}{4}$" CONDUIT FOR CONTROL WIRING. WHERE MULTIPLE CONDUCTORS SHARE SAME CONDUIT, CONDUIT FILL PERCENTAGES SHALL MEET NEC CONDUIT FILL REQUIREMENTS.



1 CONTROL WIRING ONELINE DIAGRAM

NOT TO SCALE



2 CONTROL PANEL POWER DISTRIBUTION

NOT TO SCALE. TYPICAL FOR CP-01

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

CONTROL ONELINES

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: GMM
checked by: NJC
approved by: NJC
QA/QC by: VJH
project no.: 019-3180
drawing no.: I - 103
date: 02/17/2023

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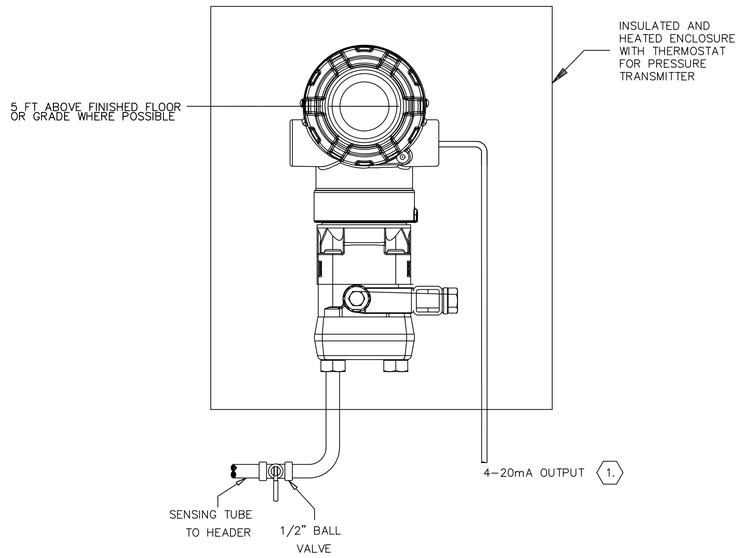
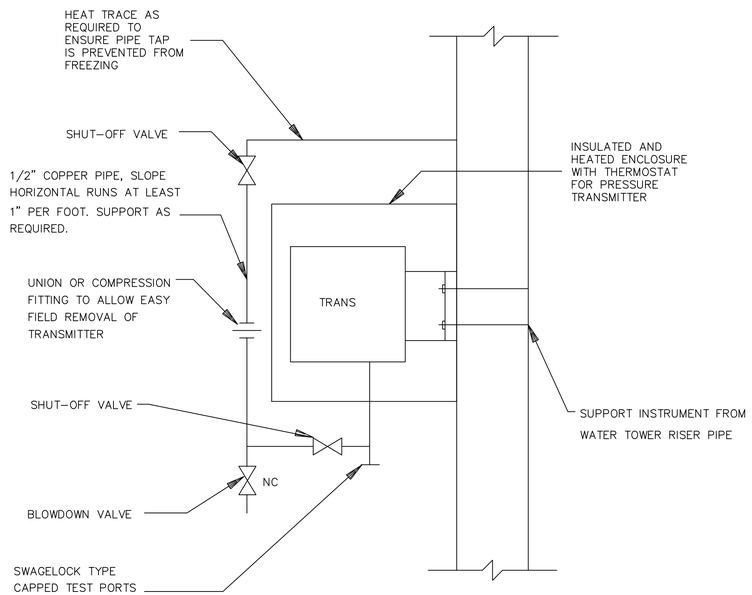
DATE: Feb 15, 2023 3:58pm XREFS: P_PTBLK_0193180



1

STATIC PRESSURE TRANSMITTER

NOT TO SCALE



2

STATIC PRESSURE TRANSMITTER MOUNTING

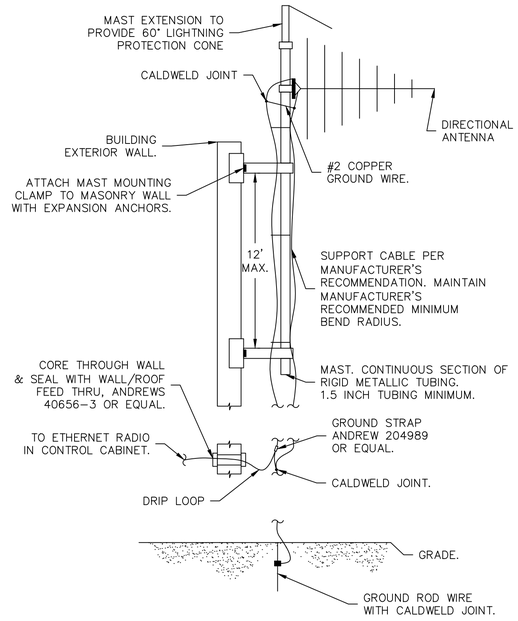
NOT TO SCALE

GENERAL SHEET NOTES

1. ALL CONTROL WIRING SHALL BE RAN IN MINIMUM $\frac{3}{4}$" CONDUIT. NEC CONDUIT FILL REQUIREMENTS SHALL BE FOLLOWED WHERE MULTIPLE CONDUCTORS SHARE COMMON CONDUIT.
2. LOW VOLTAGE CABLING SHALL NOT SHARE CONDUIT WITH 120VAC OR ABOVE.

SHEET KEYNOTES

1. TWISTED SHIELDED PAIR SHALL HAVE THEIR DRAIN WIRE TERMINATED AT ONLY ONE END OF THE CONNECTION.



3

ANTENNA MAST INSTALLATION DETAIL

NOT TO SCALE

olsson
601 P Street, Suite 200
P.O. Box 84608
Lincoln, NE 68508
TEL 402.474.6311
FAX 402.474.5160
www.olsson.com

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

INSTRUMENT DETAILS

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: GMM
checked by: NJC
approved by: NJC
QA/QC by: WJH
project no.: 019-3180
drawing no.: I - 501
date: 02/17/2023

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\TFTC\11-03-2021_TFTC_DETAIL_019-31800.dwg USER: clnelson
DATE: Feb 15, 2023 3:58pm XREFS: P_PIBLK_0193180

GENERAL REQUIREMENTS FOR PLANT SCADA SYSTEM

1. RELATED SECTIONS INCLUDE THE FOLLOWING:
   1.1. SECTION 40 63 43 PROGRAMMABLE LOGIC CONTROLLERS
   1.2. SECTION 40 66 13 COMMUNICATIONS AND NETWORKING EQUIPMENT
   1.3. SECTION 40 66 53 WIRELESS RADIOS
   1.4. SECTION 40 67 00 CONTROL SYSTEM EQUIPMENT PANELS AND RACKS
   1.5. SECTION 40 73 26 GAUGE-PRESSURE TRANSMITTERS

2. THE CONTRACTOR SHALL FURNISH AND INSTALL SCADA ENCLOSURES, CONDUIT AND CABLE AS INDICATED ON THE DRAWINGS.

3. FIELD WIRING INSTALLED BY THE CONTRACTOR SHALL BE TERMINATED AT BOTH ENDS AND CLEARLY LABELED AND COILED AT THE SCADA PANEL END.

4. SCADA SYSTEM CONFIGURATION WILL BE PROVIDED BY THE ENGINEER OUTSIDE THIS CONTRACT. ENGINEER SHALL BE PRESENT FOR ON-SITE STARTUP.

5. THE CONTRACTOR SHALL PROVIDE ALL SCADA SUBMITTALS AND O&M DOCUMENTATION FOR EQUIPMENT PROVIDED.

6. THE CONTRACTOR SHALL MOUNT ALL DEVICES ACCORDING TO THE MANUFACTURER RECOMMENDED PROCEDURES. THE MANUFACTURER RECOMMENDED PROCEDURES SHALL TAKE PRECEDENCE OVER THE DRAWINGS.

7. CONTRACTOR SHALL PROVIDE AND INSTALL ETHERNET RADIO ANTENNA PER THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR TO PROVIDE SITE SURVEY TO ENSURE BEST INSTALLATION LOCATION FOR COMMUNICATIONS BACK TO WTP. CONTRACTOR TO SIZE ANTENNA CABLING AND CONTRACTOR TO TEST AND PROVIDE VSWR RESULTS OF ANTENNA AND CABLING FOR AS PART OF COMMISSIONING.

SPARE PARTS

1. EACH CONTRACTOR PROVIDING INSTRUMENTATION AND CONTROL SYSTEM COMPONENTS SHALL PROVIDE SPARE PARTS TO MEET THE FOLLOWING REQUIREMENTS.
   1.1. ONE SPARE PLC I/O MODULE OF EACH TYPE USED.
   1.2. ONE SPARE PLC POWER SUPPLY FOR EACH TYPE USED.
   1.3. 100 PERCENT SPARE OF ALL LAMPS AND FUSES.
   1.4. 10 PERCENT SPARE AUXILIARY OR INTERPOSING RELAYS OF EACH TYPE USED.
   1.5. ONE SPARE OF EACH TYPE OF INSTRUMENT (24VDC) POWER SUPPLY USED.
2. ALL SPARE PARTS UTILIZED DURING SYSTEM STARTUP SHALL BE REPLACED BY THE CONTRACTOR PRIOR TO FINAL COMPLETION.

FACTORY ACCEPTANCE TESTING (FAT)

1. SCADA ENCLOSURES SHALL BE FACTORY ASSEMBLED AND SHALL BE STAGED AND TESTED ACCORDING TO THE FOLLOWING CRITERIA.
   1.1. POWER SHALL BE APPLIED THE THE MAIN CONTROL PANEL TERMINALS FOR A 24-HOUR BURN IN PERIOD BEFORE THE FAT BEGINS.
   1.2. DIGITAL INPUTS
      1.2.1. ALL DIGITAL INPUT WIRING SHALL BE VERIFIED BY APPLYING POWER TO THE INPUT TERMINALS AND VERIFYING THAT THE CONTROLLER RECEIVES THE INPUT.
   1.3. DIGITAL OUTPUTS
      1.3.1. IN THE CASE THAT TRANSISTOR OUTPUTS ARE USED, EACH OUTPUT SHALL BE FORCED ON IN THE CONTROLLER AND VOLTAGE AT THE TERMINAL SHALL BE VERIFIED.
      1.3.2. IN THE CASE THAT RELAY OUTPUTS ARE USED, EACH OUTPUT SHALL BE FORCED ON IN THE CONTROLLER AND CONTINUITY SHALL BE VERIFIED ACROSS THE RELAY CONTACT.
   1.4. ANALOG INPUTS
      1.4.1. USING A LOOP CALIBRATOR, A SIGNAL SHALL BE INJECTED AT 0%, 25%, 50%, 75% AND 100% OF FULL SPAN, AND THE ANALOG VALUES PRODUCED BY THE CONTROLLER SHALL BE RECORDED.
   1.5. ANALOG OUTPUTS
      1.5.1. THE OUTPUT REGISTER SHALL BE VARIED IN THE CONTROLLER TO PRODUCE OUTPUTS AT 0%, 25%, 50%, 75% AND 100% OF FULL SPAN, AND THE CURRENT OR VOLTAGE READING AT THE OUTPUT TERMINALS SHALL BE RECORDED.
2. THE CONTRACTOR SHALL PRODUCE A REPORT THAT DOCUMENTS EACH I/O POINT TESTED, ALONG WITH THE DATE TESTED AND THE INITIALS OF THE INDIVIDUAL PERFORMING THE TEST. THIS REPORT SHALL BE SUBMITTED TO THE ENGINEER.
3. THE CONTRACTOR SHALL INFORM THE ENGINEER AT LEAST 30 DAYS IN ADVANCE OF THE FAT DATE(S). THE ENGINEER AND/OR THE OWNER RESERVE THE RIGHT TO ATTEND THE FAT AND TO VIEW ALL SYSTEM TESTING. IF THE ENGINEER OR OWNER ARE PROVIDING SOFTWARE OR HARDWARE, THEY MAY BRING THESE ITEMS FOR CONNECTIONS TO THE CONTRACTOR'S PORTION OF THE SYSTEM DURING THE FAT.
4. UPON COMPLETION OF THE FAT AND A REVIEW OF THE TEST RESULTS, THE ENGINEER SHALL PROVIDE ACCEPTANCE OR REJECTION OF THE TEST RESULTS. SYSTEMS SHALL NOT BE SHIPPED TO THE PROJECT SITE WITHOUT THE ENGINEER'S ACCEPTANCE OF THE TEST RESULTS.

SITE ACCEPTANCE TESTING (SAT)

1. UPON COMPLETION OF SYSTEM INSTALLATION, THE CONTRACTOR SHALL CONDUCT SITE ACCEPTANCE TESTING TO VERIFY THE SCADA SYSTEM I/O AND POWER WIRING. EACH CONTROL PANEL OR DEVICE SHALL BE PUT INTO SERVICE AND EACH I/O POINT SHALL BE INDIVIDUAL CHECKED FOR ACCEPTABLE OPERATION. WHERE POSSIBLE, SCADA SYSTEM INPUTS SHALL BE TESTED BY MANIPULATING THE SENSOR OR FIELD DEVICE TO VERIFY CORRECT OPERATION. WHERE POSSIBLE, SCADA SYSTEM OUTPUTS SHALL BE TESTED BY MANIPULATING REGISTERS IN THE CONTROLLER AND OBSERVING THE FINAL CONTROL ELEMENT FOR CORRECT OPERATION. THE CONTRACTOR SHALL DEMONSTRATE ACCEPTABLE OPERATION OF THE ETHERNET CONNECTIONS BY DOING A "PING" TEST BETWEEN A COMPUTER AT ONE END OF THE SEGMENT AND A COMPUTER OR PLC AT THE OPPOSITE END.
   1.1. THE CONTRACTOR SHALL INFORM THE ENGINEER AT LEAST 15 DAYS IN ADVANCE OF THE SITE ACCEPTANCE TESTING DATE(S). THE ENGINEER AND/OR THE OWNER RESERVE THE RIGHT TO OBSERVE SITE ACCEPTANCE TESTING.
   1.2. IF SITE ACCEPTANCE TESTING MUST BE PERFORMED ON AN OPERATING PROCESS, AND IT PLANT SYSTEMS MUST BE MODIFIED OR SHUT DOWN TO FACILITATE TESTING, THE CONTRACTOR MAY REQUEST THAT THE OWNER OR THE ENGINEER BE PRESENT TO VIEW SUCH TESTING.
2. THE CONTRACTOR SHALL PRODUCE A REPORT THAT DOCUMENTS EACH I/O POINT TESTED, ALONG WITH THE DATE TESTED AND THE INITIALS OF THE INDIVIDUAL PERFORMING THE TEST. THIS REPORT SHALL BE SUBMITTED TO THE ENGINEER.
3. IF SCADA CONFIGURATION IS PERFORMED BY OTHERS, MANIPULATION AND OBSERVATION OF SCADA HARDWARE/SOFTWARE WILL BE PROVIDED FOR SITE ACCEPTANCE TESTING.

GENERAL REQUIREMENTS FOR PLANT SCADA SYSTEM (CONTINUED)

SYSTEM INSTALLATION AND COMMISSIONING

1. SYSTEM INSTALLATION AND COMMISSIONING SHALL BE SCHEDULED TO CAUSE THE LEAST POSSIBLE AMOUNT OF SYSTEM DOWN-TIME. THE CONTRACTOR SHALL SUBMIT A PROPOSED INSTALLATION SCHEDULE TO THE ENGINEER IN WRITING AT LEAST 15 DAYS PRIOR TO THE WORK BEING PERFORMED.
2. THE CONTRACTOR SHALL INFORM THE ENGINEER AT LEAST 15 DAYS IN ADVANCE OF THE INSTALLATION DATE(S). THE ENGINEER AND/OR OWNER RESERVE THE RIGHT TO OBSERVE COMMISSIONING AND STARTUP ACTIVITIES,
3. IF COMMISSIONING AND STARTUP MUST BE PERFORMED ON AN OPERATING PROCESS, AND IF SYSTEMS MUST BE MODIFIED OR SHUT DOWN TO FACILITATE COMMISSIONING, THE CONTRACTOR MAY REQUEST THAT THE OWNER OR ENGINEER BE PRESENT TO VIEW THE COMMISSIONING.

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601 P Street, Suite 200
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Lincoln, NE 68508
TEL 402.474.6311
FAX 402.474.5160
www.olsson.com

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION
1		

GENERAL NOTES AND SCOPE - I&C

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: GMM
checked by: NJC
approved by: NJC
QA/QC by: WJH
project no.: 019-3180
drawing no.: I - 502
date: 02/17/2023

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\TFTC\12-22-2021_TFTC_SCM_019-31800.dwg USER: clnelson
DATE: Feb 15, 2023 3:58pm XREFS: P_PTBLK_019318O

NEW WATER TOWER INSTRUMENTATION SCHEDULE

Tag	Service Description	Device Type	EU Low	EU High	EU	Output Type	Class 1 Div 2	Intrinsic Barrier	Specification	Furnished By	New/Existing
PIT-01	WATER TOWER LEVEL	STATIC PRESSURE TRANSMITTER	0	50	FEET	4-20 mADC	No	No	40 73 26	CONTRACTOR	New
DS-01	INTRUSION DETECTION LIMIT SWITCH	DOOR SWITCH	-	-	-	24VDC	No	No	40 90 60	CONTRACTOR	New

NEW WATER TOWER INPUT/OUTPUT SCHEDULE

Base PLC	Type	Device	Description	AnaSigLvl	AnaSigPwr	DigSigLvl	DigONState	DigOFFState	EULow	EUHigh	EU	Interposing Relay Required	Remarks1	Remarks2
NEW WATER TOWER PLC PANEL														
TOWER PLC	DI	CP-01	PANEL POWER FAIL	-	-	24VDC	NO PANEL POWER FAIL	PANEL POWER FAIL	-	-	-	-	-	-
TOWER PLC	DI	UPS-01	UPS ON BATTERY	-	-	24VDC	UPS ON BATTERY	UPS NOT ON BATTERY	-	-	-	-	-	-
TOWER PLC	DI	UPS-01	UPS FAIL	-	-	24VDC	NOT FAIL	FAIL	-	-	-	-	-	-
TOWER PLC	DI	DS-01	INTRUSION DETECTION - DOOR OPEN	-	-	24VDC	DOOR CLOSED	DOOR OPEN	-	-	-	-	-	-
TOWER PLC	DI	MX-01	TANK MIXER RUNNING INDICATION	-	-	24VDC	MIXER RUNNING	MIXER NOT RUNNING	-	-	-	-	-	-
TOWER PLC	DI	AV-01	ALTITUDE VALVE OPEN INDICATION	-	-	24VDC	OPEM	NOT OPEN	-	-	-	-	-	-
TOWER PLC	DI	AV-01	ALTITUDE VALVE CLOSED INDICATION	-	-	24VDC	CLOSED	NOT CLOSED	-	-	-	-	-	-
TOWER PLC	DI	AV-01	ALTITUDE VALVE FAIL	-	-	24VDC	FAIL	NOT FAIL	-	-	-	-	-	-
TOWER PLC	DI	AV-01	ALTITUDE VALVE IN AUTO	-	-	24VDC	AUTO	NOT AUTO	-	-	-	-	-	-
TOWER PLC	DO	AV-01	ALTITUDE VALVE OPEN COMMAND	-	-	24VDC	OPEN COMMAND	NOT OPEN COMMAND	-	-	-	YES	-	-
TOWER PLC	DO	AV-01	ALTITUDE VALVE CLOSED COMMAND	-	-	24VDC	CLOSE COMMAND	NOT CLOSE COMMAND	-	-	-	YES	-	-
TOWER PLC	AI	PIT-01	WATER TOWER LEVEL	4-20 mADC	LOOP	-	-	-	0	50	FEET	-	-	-
CONTROL PANEL LED READOUT	AO	PIT-01	WATER TOWER LEVEL	4-20 mADC	FIELD	-	-	-	0	50	FEET	-	-	-

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION

INSTRUMENTATION AND IO SCHEDULES

500,000 GALLON WATER TOWER

SEWARD, NEBRASKA

2023

drawn by: GMM
checked by: NJC
approved by: NJC
QA/QC by: WJH
project no.: 019-3180
drawing no.: I - 503
date: 02/17/2023

DWG: F:\2019\3001-3500\019-3180\40-Design\AutoCAD\Final Plans\Sheets\TFTC\11-03-2021_TFTC_SCHEDULES_019-31800.dwg USER: clnelson
DATE: Feb 15, 2023 3:59pm XREFS: P_PTBLK_0193180

6. Consideration of an Agreement with B's Sweet Freeze, LLC to Operate a Concession Stand at the Dowding Municipal Pool for the 2023 Season - City Administrator Butcher

AGREEMENT TO OPERATE CONCESSION STAND

THIS AGREEMENT is made this 15 day of February, 2023 by and between the CITY OF SEWARD, NEBRASKA a municipal corporation ("CITY") and MEGAN BOGGS, doing business as B'S SWEET FREEZE LLC, ("TENANT"), and

WITNESSETH:

WHEREAS, CITY owns a concession stand at the Dowding Municipal Pool located at 167 North 14th Street, Seward, NE 68434, and

WHEREAS, CITY desires to have the Dowding Municipal Pool stand operated for the sale of food, candy and beverages to users of the Dowding Municipal Pool; and

WHEREAS, TENANT desires to operate the concession stand at the Dowding Municipal Pool for the 2022 pool season.

NOW, THEREFORE, the parties hereto mutually agree as follows:

1. CITY hereby awards to TENANT, and TENANT hereby accepts, a revocable license to operate the Dowding Municipal Pool concession stand for the 2023 pool season.

2. TENANT shall install and equip, at no expense to CITY, all of the equipment necessary for the operation of the concession stand for the sale of food, candy, beverages, and other consumables. No popcorn will be sold at the concession stand.

3. TENANT agrees that the equipment to be installed, as well as the items to be served and the prices to be charged shall be subject to the approval of the Parks and Recreation Director of CITY, who shall make such approval in writing. TENANT shall have the option to develop package pricing for parties and special events to partner with the Dowding Pool offerings, subject to the approval of the Parks and Recreation Director of CITY. The Parks and Recreation Director may also require that a price list be posted for the benefit of the public in such a place on the premises as may be designated by him. It is further agreed that TENANT shall retain the ownership to all items of equipment installed in the concession stand and reserves the right to remove the same at the termination of this Agreement, provided that the concession stand is left in its original condition, reasonable wear and tear excepted.

4. Except as otherwise provided herein, upon termination of this Agreement, all permanent improvements made and fixtures installed by CITY or TENANT to the concession stand shall be the property of CITY,

and CITY shall be in no way liable to TENANT for the cost of any of the improvements or fixtures.

5. TENANT shall pay CITY the sum of NINE HUNDRED AND 00/100 DOLLARS ($900.00) to CITY by August 31st of each year of operation.

6. The term of this Agreement shall be from the date of this Agreement to the end of the 2022 pool season as determined by the CITY and provided that both CITY and TENANT shall have the right to terminate this Agreement without cause and without penalty upon thirty (30) days' written notice to the other party, with all annual payments due that season paid in full.

7. CITY reserves the right to cancel this Agreement for violation of any of the terms hereof, or any violation of any law or ordinance, provided, however, that ten (10) days' written notice shall be given the TENANT to correct the condition prior to the cancellation. Failure to correct a violation within ten (10) days after notice shall result in automatic termination without any further notice.

8. TENANT shall pay all of the concession stand bills within ten (10) days after the due date thereof.

9. No merchandise sold by the TENANT shall be given to the customers in glass bottles, and no vending machine shall be permitted on the premises without the written approval of the Parks and Recreation Director.

10. The area in which the concession stand is located, including the building and the equipment used therein, shall be maintained by TENANT in a safe, neat, clean, and orderly condition in accordance with the instructions of the Parks and Recreation Director and meet with his approval. The disposal of papers, towels, and other burnable goods plus food scraps will be the responsibility of the TENANT.

11. CITY agrees to pay all utility expenses incurred in connection with the operation of the concession stand, including water, sewer, garbage and electricity.

12. TENANT shall not sell, lease, assign or sublet any rights under this Agreement without the advance permission in writing of CITY.

13. TENANT shall defend, indemnify, save and hold harmless CITY, its officers, agents and employees, from any claims or lawsuits arising out of injury to, or death of, any person or damage to any property caused by or alleged to have been caused by any negligent act or omission of TENANT, its officers, agents, employees, volunteers, assignees, lessors or subcontractors, in carrying out the terms of this Agreement.

14. TENANT, at its sole expense, shall maintain in full force and effect throughout the term of this Agreement the following described insurance coverage, insuring not only TENANT, its officers, agents,

employees, volunteers, assignees, lessees and subcontractors, if any, but also, with the exception of Workers' Compensation, CITY, its officers, agents and employees:

15. A certificate of such insurance evidencing such coverage shall be filed by TENANT concurrently with the execution of this Agreement in a form satisfactory to the City Administrator for the CITY naming the CITY as an additional insured.

16. TENANT shall be available and shall the concession stand in operation at all times during the operating hours as specified by the Parks and Recreation Director.

17. TENANT shall install and maintain an adequate set of bookkeeping records from which statements of profit and loss and a balance sheet can be readily prepared and agrees to make the books available to CITY for examination upon request for the purposes of calculating payments under this Agreement. TENANT shall maintain a record for all items sold and the original invoices for all goods purchased during the term of this Agreement, and make such available to CITY for its inspection.

18. TENANT shall obtain at its own expense any and all permits and licenses that may be required by law or ordinance in the conduct of the concession and shall pay any and all taxes that may be assessed against it for whatever purposes in the operation of the concession. TENANT shall contact and meet with and obtain the consent of the State of Nebraska Health Department before and during the operation of the concession stand.

19. No alcoholic beverages shall be consumed at or sold at the concession stand.

20. TENANT shall make no alterations, additions, or changes, to any portion of the concession stand or to any CITY equipment without first securing in writing the approval of the Parks and Recreation Director of CITY to such alteration, addition or change. Any such alterations, additions or changes, if approved, shall be made at the expense of the TENANT.

21. This Agreement constitutes the whole and integrated understanding of the parties hereto. It may be amended only in writing.

22. Notices to the parties shall be sent by first-class United States mail, postage prepaid, or delivered to the following addresses:

TENANT:
Megan Boggs
125 N. 2nd Street
Seward, NE 68434

CITY OF SEWARD:
Greg Butcher
City Administrator
537 Main Street
Seward, NE 68434

Either party may change the address for notification by sending the other party notice of such change.

THIS AGREEMENT TO OPERATE CONCESSION STAND is entered into effective as of the 15 day of February, 2023.

TENANT

Megan Boggs

By: Megan Boggs

CITY OF SEWARD

By: Joshua Eickmeier, Mayor

STATE OF NEBRASKA)
) ss.
COUNTY OF SEWARD)

The foregoing instrument was acknowledged before me this 15 day of February, 2023, by Megan Boggs.

Julie A Moody
Notary Public

STATE OF NEBRASKA)
) ss.
COUNTY OF SEWARD)

The foregoing instrument was acknowledged before me this ____ day of _____, 2023, by Joshua Eickmeier, Mayor of the City of Seward, a Nebraska municipal corporation, on behalf of said corporation.

_____
Notary Public

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 02/15/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER

State Farm

Brenda Henning
23 Main Street

Seward NE 684342111

CONTACT NAME: Brenda Henning
PHONE (A/C, No, Ext): 402-643-4548 **FAX (A/C, No):**
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : State Farm Fire and Casualty Company	25143
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED

SETH BOGGS
125 N 2nd St

Seward NE 68434-2134

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADD INSD	SUB WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [ ] PRO-JECT [X] LOC [ ] OTHER:			97-B6-C801-7	05/01/2022	05/01/2023	EACH OCCURRENCE	$ 1000000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 300000
							MED EXP (Any one person)	$ 5000
							PERSONAL & ADV INJURY	$ 1000000
							GENERAL AGGREGATE	$ 2000000
							PRODUCTS - COMP/OP AGG	$ 2000000
								$
	AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident)	$
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE	$
							AGGREGATE	$
								$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N [ ] N / A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						[ ] PER STATUTE [ ] OTH-ER	$
							E.L. EACH ACCIDENT	$
							E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

City of Seward
537 Main Street

Seward NE 68434

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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7. Update on the Wellness Center - City Administrator Butcher

CITY ADMINISTRATOR'S REPORT

CITY ADMINISTRATORS REPORT – 2/21/23

- Monitoring a number of street projects bids on East Seward, design on East Hillcrest, and drainage near Park Street & Bradford Street.
- Assisting City Attorney with a number of real estate items and related matters.
- Assisted with Civic Center items and issues, working with Commission on Design Build RFP.
- Reviewed additional DTR items and worked with applicants on needed documents, met with applicants and SENDD.
- Worked with Water/Wastewater Department on a number of items including metering.
- Met with RDG Planning on blight study request, updates to Downtown Plan.
- Met with BVH and Wellness Center Committee on design updates.
- Reviewed CMR RFP responses for the Seward Wellness Center.
- Met with Dale Grimes and Corp of Engineers on Levee items.
- Worked with Ben Benson and Dame Global on data mine project in Rail Campus.
- Attended WWTP design meeting with staff and SEH.
- Onboarding of new Water/Wastewater Director Brandon Koll.
- Met with numerous applicants for LB 840 funds.
- Held a CARC meeting for oversite of the LB 840 program.
- Met with Thomas Kayton and property owners in the Redwood Estates to work on property items.
- Conducted two (2) site visits for the Seward Wellness Center RFP.
- Met with Michael Bash regarding a number of levee items.
- Met with Seth Boggs on potential design ideas for painting the new downtown water tower.
- Met with representatives from ALLO for City services and general implementation questions.
- Began 2023 comparability study with staff.

The departments are working on the following projects to name a few:

Police Department

- Civil Service Commission 5pm Thursday, Feb. 23 at the Municipal Building.
- Set PO-I test/interview date.

City Clerk/Human Resources/City Hall

- Annual Employee Appreciation breakfast is on Feb. 15. Vendor thank you letters will be sent out by the end of the week.
- Awaiting update from NPPD for (new City website).
- CCCFF Grant.
- Reviewing with Greg & Nick over a Salary Comparability study.

Water/Wastewater Department

- SW 3 Well electrical controls and SCADA changes next/ongoing until completed.
- Weekly Wastewater samples.
- Monthly manhole check list.
- Scheduling cleaning of the R.O. membranes at the WTP.

Parks and Rec/Cemetery/Golf/Pool

- Cleaning off flowerbeds.
- Tree trimming and removal from parks.
- Fixing boards on trail bridge.
- Reviewing applications for Cemetery position.

Civic Center

- Meetings as usual.

- Still waiting on boiler valve and new sprinkler head.
- Meeting with build sub-committee and administration on Feb. 16.

Electric Department

- Follow up on ALLO installations.
- Work on Petsource service.
- Set pole on East Seward.
- Recloser training Tuesday.
- Unload transformers for Petsource.

Street Department

- Stump removal.
- Tree removal.
- Work on signage.
- Prep for snow.

Library

- Children's programs continue through March.
- Training new hires.
- Reorganizing Heritage Room after combining with Genealogy Room items; making room for microfilm reader/cabinet.
- Cleaning lower level staff storage room.

Building Inspection/Planning Department

- Planning Commission Meeting Feb. 13 at the Municipal Building regarding the Prairie View Annexation, Code 410-32.5 Accessory building and garages text amendment (900 sf missing from the text), Summit Minor Plat.
- Pon 5 ROW permit review for Allo.
- Plan review for tower equipment change out at 1350 Hillcrest for Viaero.
- Seward County Commissioners meeting Feb. 14 for downtown signage.

Engineering

- Kickoff meeting Feb. 13, develop scope and negotiate fee for Levee Pump Station.
- Storm sewer, road closure for East Seward Street (County).
- Site walk through, meeting w/EES, design review meeting, USDA or WIFIA funding.
- Edits divided plan sets, contact potential bidders, review coating spec, revised handrail design and send communication tenant agreements to City Attorney.
- Comments on 90% design, depth of existing water and sewer utilities, council approval (Feb. 21) for Park St.
- Comments on 90% design, depth of existing water and sewer utilities, council approval (Feb. 21) for Bradford.

Finance Dept.

- Distribute February TIF receipts.
- LB840 reports for Greg.
- Comparability meeting Feb. 16.
- Kirsten out on maternity leave, Rhonda filling in for meter read.

FUTURE REQUESTS FOR COUNCIL AGENDA ITEMS OR ADMINSTRATIVE ACTION
ANNOUNCEMENT OF UPCOMING EVENTS
MOTION TO ADJOURN

I, Derek Bargmann, the duly appointed qualified and acting City Clerk of the City of Seward, Nebraska, hereby certify that the foregoing Notice of Meeting and Agenda for such meeting has been posted in the following places: Seward City Hall, Seward Municipal Building, Seward County Courthouse, Seward Memorial Library and CityofSewardNE.gov

IN WITNESS WHEREOF, I have hereunto set my hand officially and affixed the seal of the City.

_____ _____

Derek Bargmann, City Clerk Date