T-82N

R-8W

FAIRFAX
POP.
2123

Angle Rd

Morgan Bridge Rd

80th Street
Entrance Construction

80th St SW

Drainage Ditch 1

STA. 903+15.44
SUSPEND PROJECT

Corporate Limits

Prairie Creek Bridge
Design No. 0518

Stallman Drive

Drainage Ditch 1
Design No. 0618

Prairie Creek Wall
Design No. 0918

UPRR Bridge
Design No. 0418

Prairie Creek

Losey Ave.

Prairie Ave.

Church St.

STA. 843+47.28
BEGIN PROJECT

East Cemetery Rd

Beverly Rd

Selzer Rd

151

STA. 971+42.45
RESUME PROJECT

Drainage Ditch 2

STA. 987+43.71
END PROJECT

Drainage Ditch 2
Design No. 0718

Beverly Road
Culvert

33rd Ave SW

Nursery Rd

Valley View Dr

UP

Prairie Creek

OLD BRIDGE RD

3

4

9

2

11

N

LOCATION MAP SCALE
0 0.25 0.5
Miles

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	A.2

5:41:29 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158A01.sht

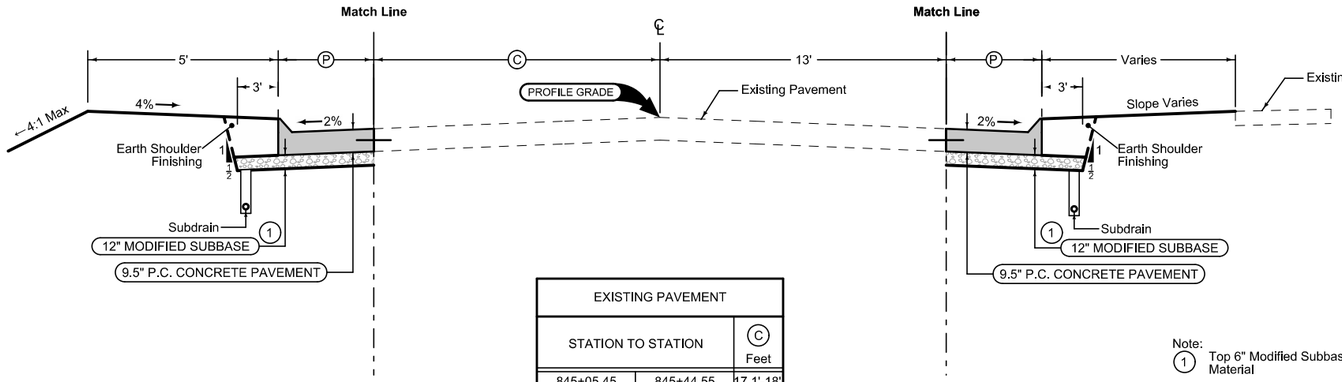
Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
845+05.45	848+30.33	3'	6" Sloped



EXISTING PAVEMENT		
STATION TO STATION		(C) Feet
845+05.45	845+44.55	17.1'-18'
845+44.55	848+30.33	18'

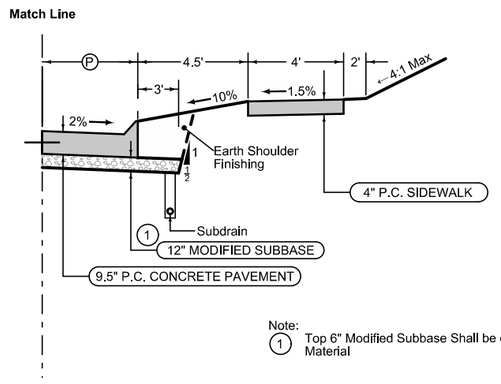
Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
843+88.58	845+60.00	2.9'-6.7'	6" Sloped

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



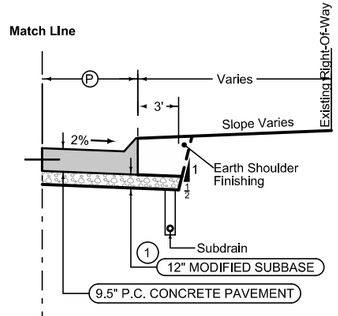
Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
845+60.00	846+17.11	6.7'-8'	6" Sloped
846+17.11	847+90.50	8'	6" Sloped

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
847+90.50	848+30.33	8'	6" Sloped

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

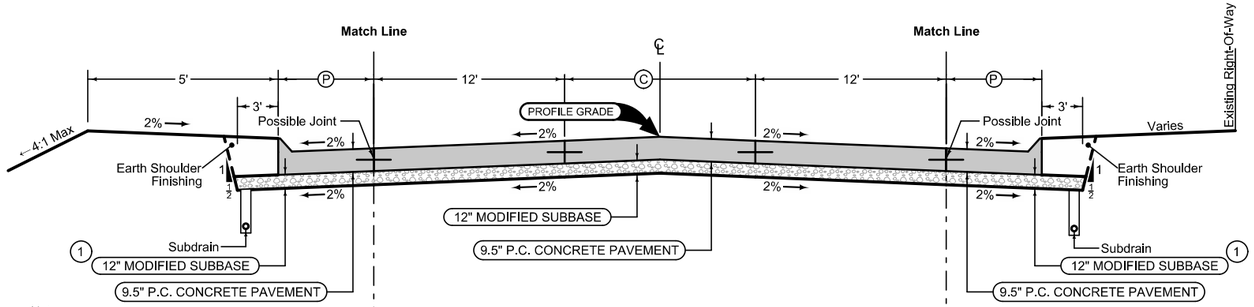
US HIGHWAY 151

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
848+30.33	848+69.80	3'	6" Sloped



Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

		2P_TWLTL_ 10-19-10
STATION TO STATION		(C) Feet
848+30.33	853+34.27	12'
853+34.27	855+59.10	12'-2.1'
859+06.10	861+73.36	0'-12'
861+73.36	863+59.72	12'
863+59.72	864+57.82	12'-14'
864+57.82	865+48.61	14'
869+26.20	879+38.00	14'
882+34.00	898+00.00	14'

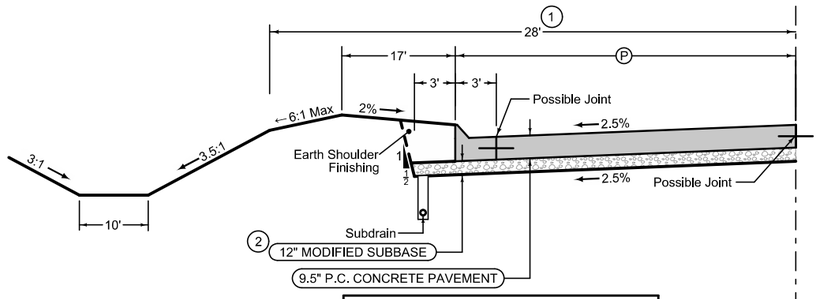
Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
848+30.33	848+70.64	3'	6" Sloped

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



Curbed Shoulder

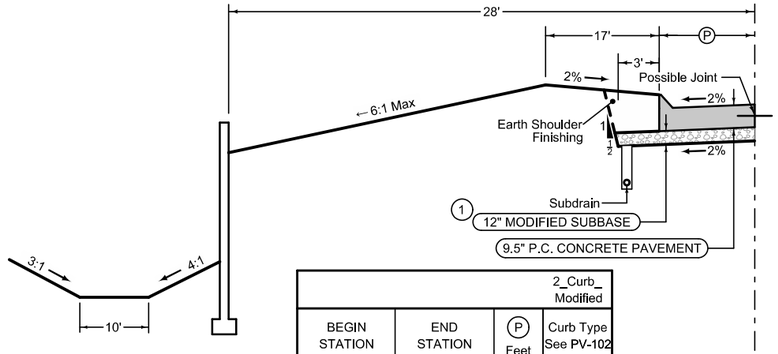
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
850+01.96	853+34.27	15'	6" Sloped
853+34.27	855+14.27	15'-3'	6" Sloped

Note:
(1) Where "P" Plus 17' Exceeds 28' Clear Zone, Eliminate 6:1 Slope.

(2) Top 6" Modified Subbase Shall be of Virgin Material



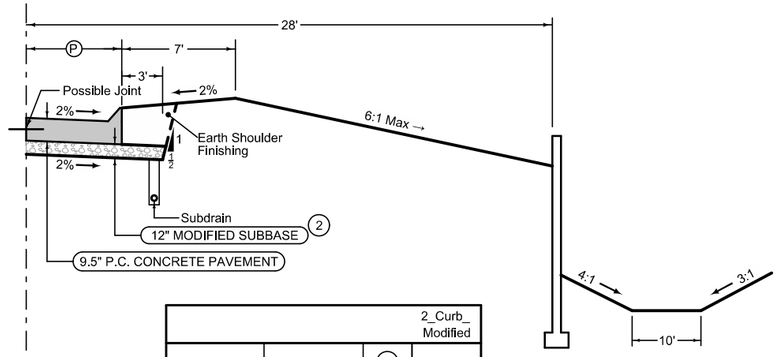
			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
855+14.27	855+59.10	3'-6'	6" Sloped
859+06.10	861+73.23	9'-3'	6" Sloped
861+73.23	863+87.58	3'	6" Sloped

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing



			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
849+97.65	853+34.27	3'	Sloped (1)
853+34.27	855+59.10	3'-8'	6" Sloped
859+06.10	859+93.36	9'	6" Sloped
864+74.60	865+48.61	3'	4" Sloped

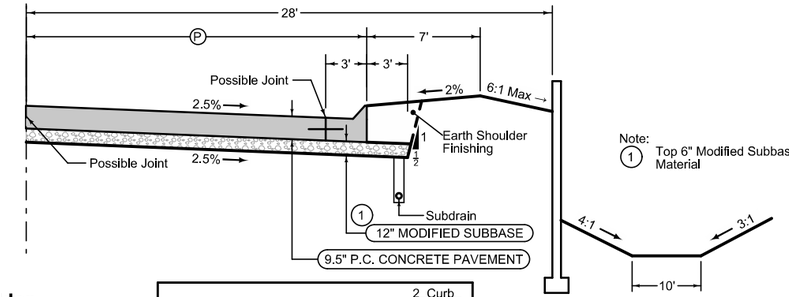
NOTE:
(1) Refer to L-Sheets for Curb Type at Guardrail installations

(2) Top 6" Modified Subbase Shall be of Virgin Material

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing



			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
859+93.36	861+73.36	3'-15'	6" Sloped
861+73.36	863+58.36	15'	6" Sloped

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

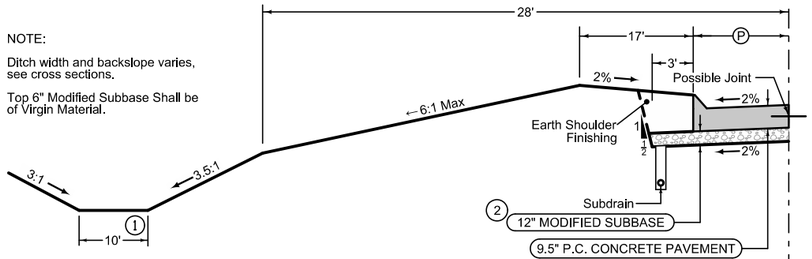
See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

US HIGHWAY 151

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER B.2

Match Line



NOTE:

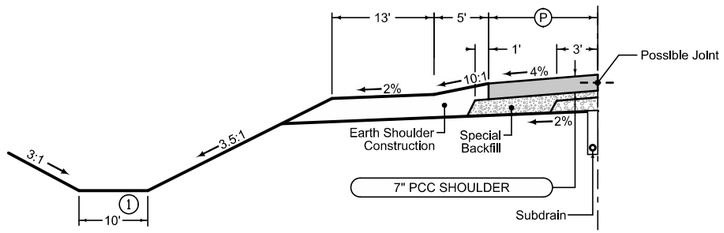
1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.

Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
864+64.13	865+48.61	3'	6" Sloped
869+26.20	870+00.00	3'	4" Sloped
870+00.00	870+70.00	3'-10'	4" Sloped



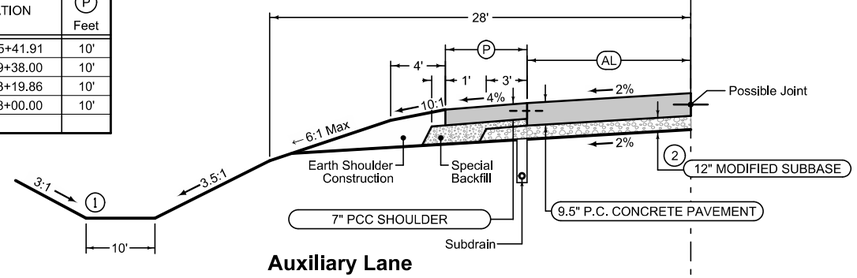
NOTE:

1. Ditch width varies, see cross sections

PCC Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing

		2_P_PCC_ Modified
STATION TO STATION		(P) Feet
870+70.00	875+41.91	10'
876+49.90	879+38.00	10'
882+34.00	883+19.86	10'
890+21.24	898+00.00	10'



NOTES:

1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.

Auxiliary Lane

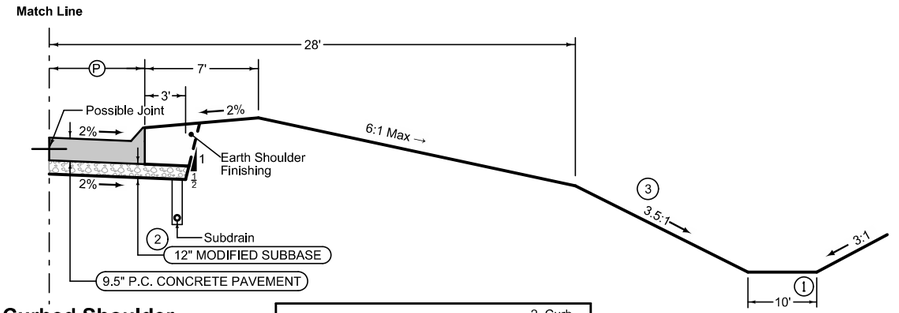
Longitudinal joint: L or KT
Transverse joint: Match Mainline

		2_AuxLane_PCC_ Modified		2_AL_Shldr_PCC_ Modified
STATION TO STATION		(AL) Feet		(P) Feet
884+25.93	888+43.66	12'		6'
888+43.66	889+31.04	12'-4'		6'
889+31.04	890+21.24	4'-0'		6'-10'

Auxiliary Lane
PCC Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing

Match Line



Curbed Shoulder

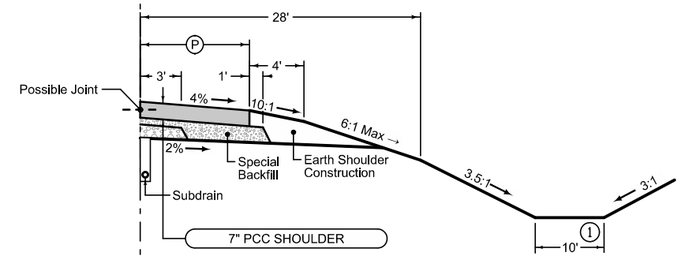
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

			2_Curb_ Modified
BEGIN STATION	END STATION	(P) Feet	Curb Type See PV-102
869+26.20	870+00.00	3'	6" Sloped
870+00.00	870+70.00	3'-10'	6" Sloped

NOTE:

1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.
3. Foreslope varies, see cross sections.



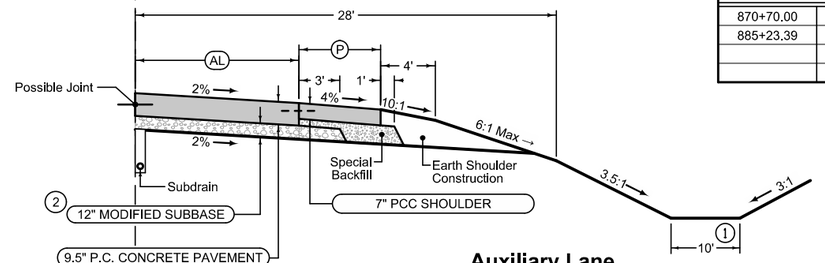
NOTE:

1. Ditch width varies, see cross sections

PCC Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing

		2_P_PCC_ Modified
STATION TO STATION		(P) Feet
870+70.00	879+38.00	10'
885+23.39	898+00.00	10'



Auxiliary Lane
PCC Shoulder

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing

Longitudinal joint: L or KT
Transverse joint: Match Mainline

		2_AuxLane_PCC_ Modified		2_AL_Shldr_PCC_ Modified
STATION TO STATION		(AL) Feet		(P) Feet
882+34.00	882+78.25	8.5'-12'		6'
882+78.25	883+76.66	12'		6'
883+76.66	883+95.73	12'		6'-8'

NOTE:

1. Ditch width and backslope varies, see cross sections.
2. Top 6" Modified Subbase Shall be of Virgin Material.

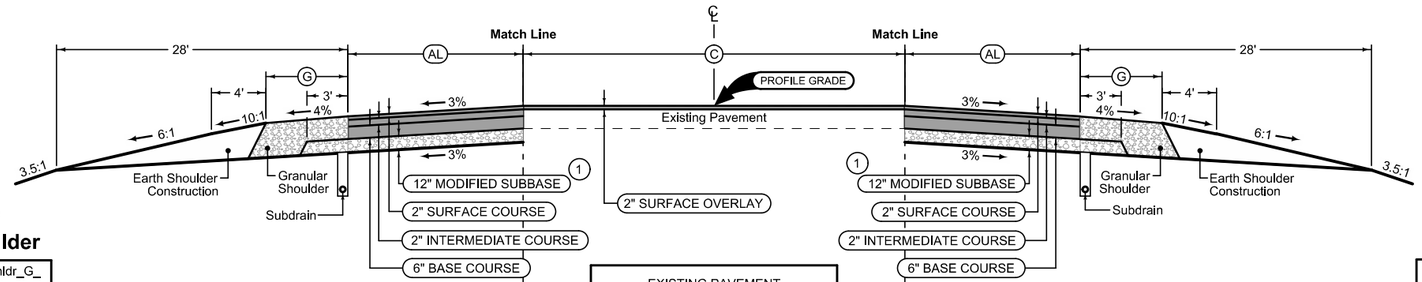
See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

US HIGHWAY 151

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	B.3

8:25:40 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158B01.sht



Auxiliary Lane

Longitudinal joint: B

Auxiliary Lane Granular Shoulder

STATION TO STATION		2_AuxLane_HMA_ 10-18-16 (AL) Feet	2_AL_Shldr_G_ Modified (G) Feet
898+00.00	900+09.70	5.2'-0'	6'
900+09.70	902+58.42	0'	6'

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

EXISTING PAVEMENT		
STATION TO STATION		(C) Feet
898+00.00	900+00.00	34'-38.3'
900+00.00	902+58.42	38.3'-55.6'

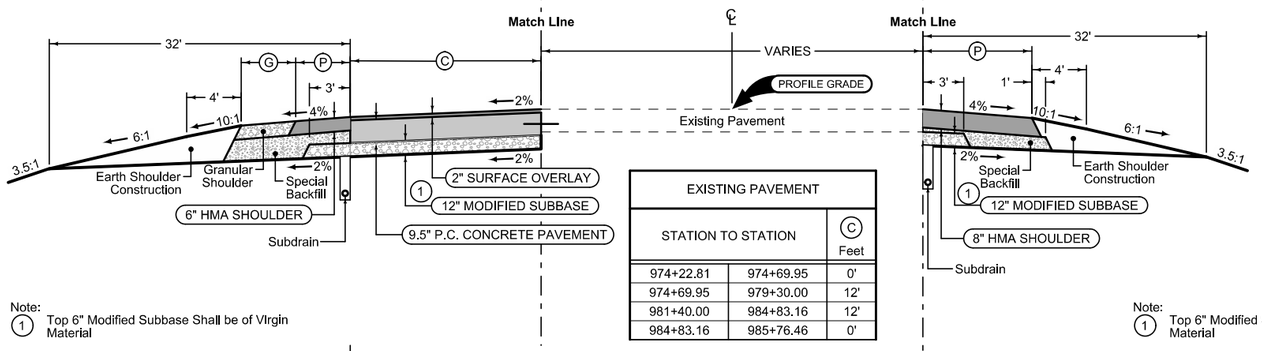
Auxiliary Lane

Longitudinal joint: B

Auxiliary Lane Granular Shoulder

STATION TO STATION		2_AuxLane_HMA_ 10-18-16 (AL) Feet	2_AL_Shldr_G_ Modified (G) Feet
898+00.00	901+81.55	6.8'-1.7'	6'
901+81.55	902+58.42	1.7'-2'	6'

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		2_C_ Modified (P) Feet	(G) Feet
974+22.81	974+69.65	0'-4'	6'
974+69.95	979+30.00	4'	6'
981+40.00	982+06.34	13.3'	0'
982+06.34	982+49.54	13.3'-15	0'
982+49.54	982+76.24	15'	0'
982+76.24	984+83.16	4'	6'
984+83.16	985+76.45	0'	6'-0'

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

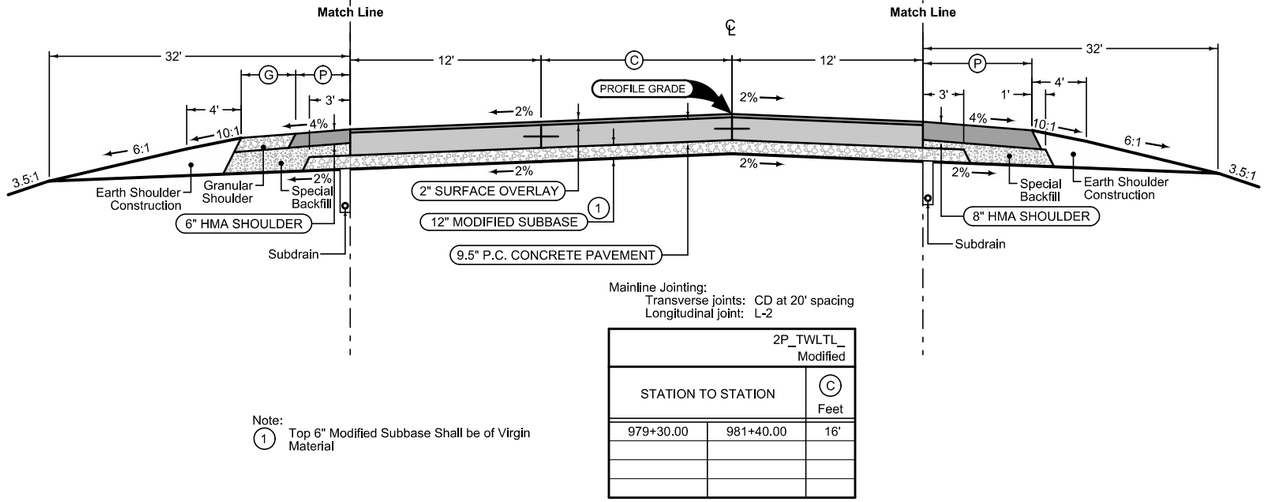
EXISTING PAVEMENT		
STATION TO STATION		(C) Feet
974+22.81	974+69.95	0'
974+69.95	979+30.00	12'
981+40.00	984+83.16	12'
984+83.16	985+76.46	0'

HMA Shoulder

Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		2_P_HMA_ Modified (P) Feet
977+55.34	977+81.50	0'
977+81.50	978+01.97	6.9'-5.2'
978+01.97	978+51.41	5.2'-3.2'
978+51.41	979+30.00	3.2'

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material



Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		2_C_ Modified (P) Feet	(G) Feet
979+30.00	979+80.09	4'	6'
979+80.09	981+40.00	13.3'	0'

Note:
(1) Top 6" Modified Subbase Shall be of Virgin Material

Mainline Jointing:
Transverse joints: CD at 20' spacing
Longitudinal joint: L-2

STATION TO STATION		2P_TWLTL_ Modified (C) Feet
979+30.00	981+40.00	16'

HMA Shoulder

Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		2_P_HMA_ Modified (P) Feet
979+30.00	980+65.15	13.3'
980+65.15	981+40.00	10'

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

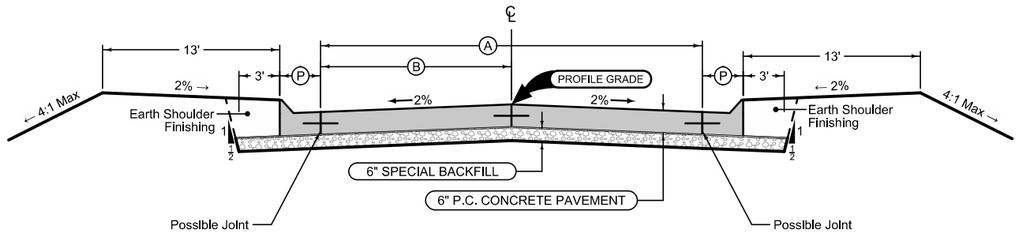
US HIGHWAY 151

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	B.4

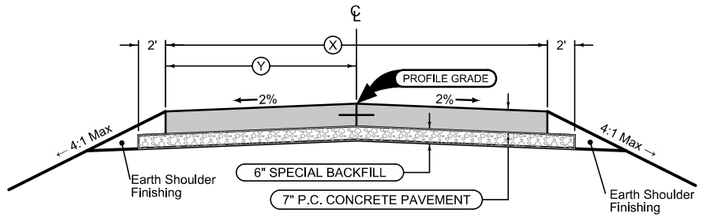
Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 15' spacing



LOCATION			DIMENSIONS			2_Curb_ Modified
ROAD IDENTIFICATION	STATION TO STATION		(A) Feet	(B) Feet	(P) Feet	Curb Type See PV-102
CHURCH STREET	1848+56.14	1849+04.97	36'	18'	3'	6" Std.
CHURCH STREET	1849+52.97	1850+11.77	31'	15.5'	3'	6" Std.
PRARIE AVENUE	2864+82.50	2865+30.81	23'	11.5'	2.5'	6" Std.

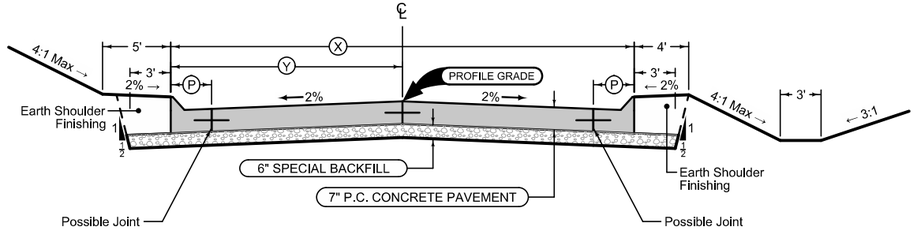


LOCATION			DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION		(X) Feet	(Y) Feet
CHURCH STREET	1847+69.25	1848+56.14	36'	18'
CHURCH STREET	1850+11.77	1851+01.77	37'-25'	18.5'-12.5'
CHURCH STREET	1851+01.77	1851+25.00	25'	12.5'
PRAIRIE AVENUE	2865+30.81	2866+56.00	23'	11.5
STALLMAN DRIVE	4874+25.00	4875+43.95	25'	12.5'
CEMETERY ROAD	5882+30.00	5883+60.60	25'	12.5'

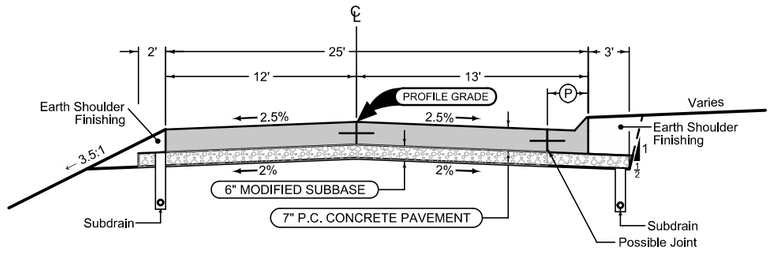
Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 15' spacing



LOCATION			DIMENSIONS			2_Curb_ Modified
ROAD IDENTIFICATION	STATION TO STATION		(X) Feet	(Y) Feet	(P) Feet	Curb Type See PV-102
LOSEY AVENUE	3862+86.45	3864+80.81	23'	11.5'	2.5'	6" Std.



Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

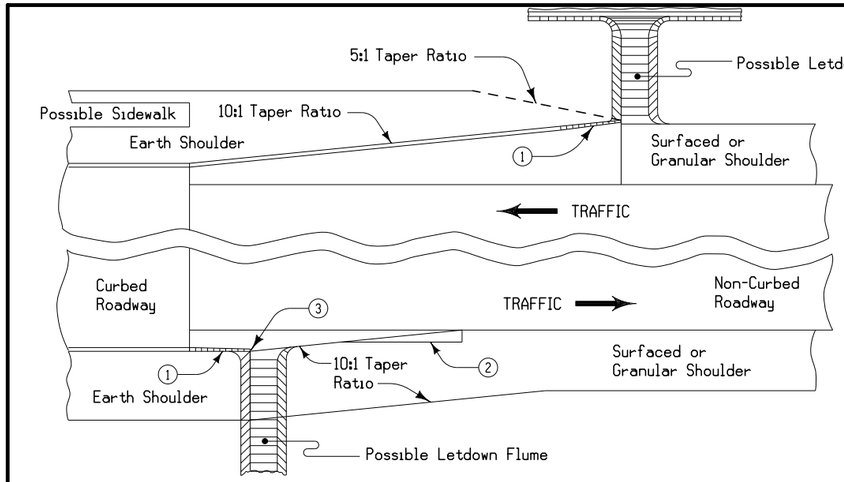
Single pour: L-2
Staged : KT-2
Transverse:C at 15' spacing

LOCATION			2_Curb_ Modified	
ROAD IDENTIFICATION	STATION TO STATION		(P) Feet	Curb Type See PV-102
CEMETERY ROAD	5884+86.04	5885+42.00	2.5'	6" Std.

See Tab 100-24 for pavement quantities.

SIDEROADS

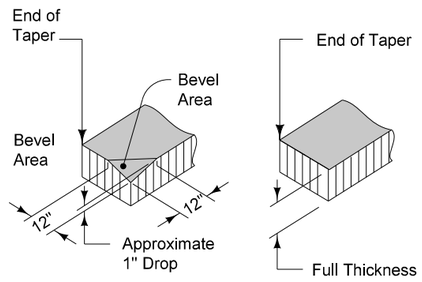
6147
10-20-15



1. Runout curb according to PV-102
2. End of Taper Details see Typical Detail 7101
3. End earth shoulder at the end of the curb transition when no flume is needed.

TRANSITION BETWEEN CURBED AND NON-CURBED ROADWAYS

7101
10-19-10



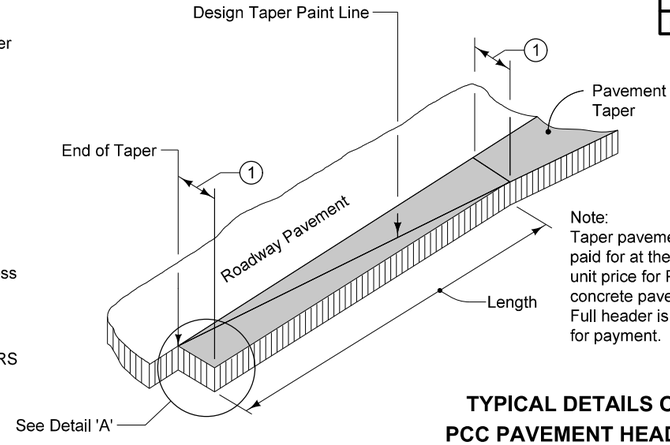
DETAIL 'A'

FOR
GRANULAR SHOULDERS

DETAIL 'A'

FOR
PAVED SHOULDERS

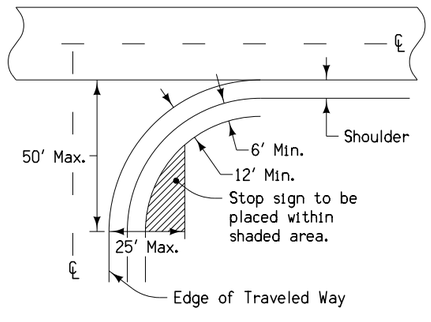
(1) Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).



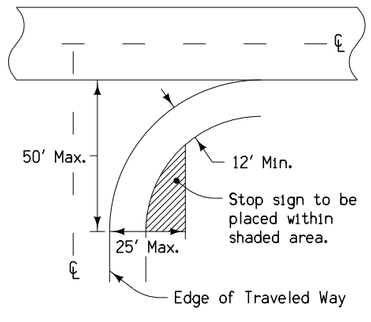
Note:
Taper pavement to be paid for at the contract unit price for P.C. concrete pavement. Full header is included for payment.

TYPICAL DETAILS OF PCC PAVEMENT HEADER

9503
07-15-97



CASE 'A'
WITH SHOULDER



CASE 'B'
WITHOUT SHOULDER

NOTES:

Stop signs should be confined to the shaded areas, but as close to the approach roadway as possible to provide the motorist with the best visual impact.

If possible, stop signs should be placed at the point where vehicles are to stop or as near as practical.

In rural areas, the lateral clearance should not be closer than 6' from the edge of a usable shoulder, or if none, 12' from edge of the traveled way.

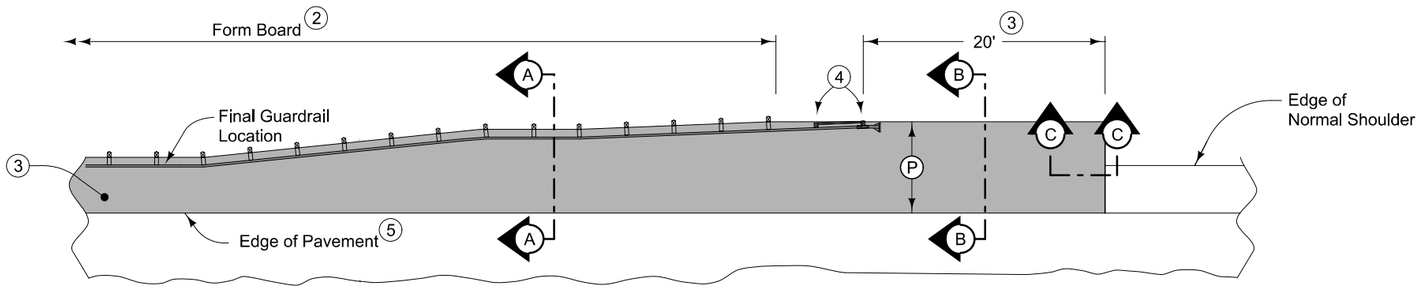
In urban areas, stop signs should be placed a minimum of 6' from the near edge of the intersected street or a minimum of 4' in advance of the near edge of a marked crosswalk. Lateral clearance may be reduced to a minimum of 2' from the face of a curb.

Where the approach roadway consists of two lanes of traffic, a second stop sign should be placed where it is visible to traffic in the inner lane.

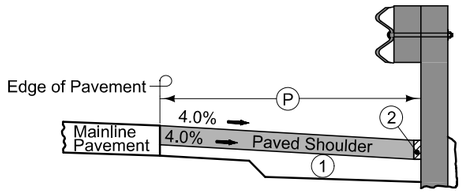
At channelized intersections, the additional stop sign may be placed on a channelized island or median.

STOP SIGN PLACEMENT

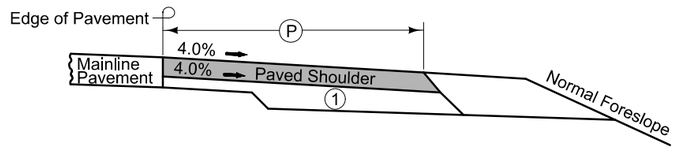
7156
Modified



PLAN VIEW

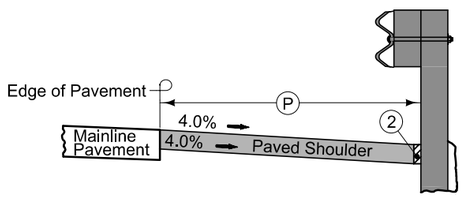


Section A-A

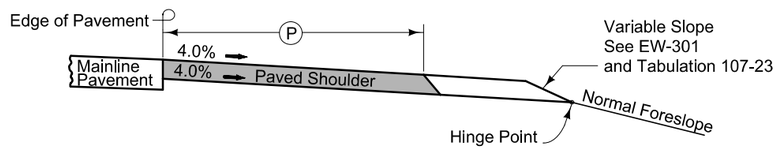


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

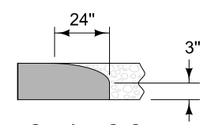
(1) For subgrade treatment, refer to other details in the plan.

(2) PCC: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.

(3) Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.

(4) Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

(5) 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.



Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL

LOCATION			DIMENSIONS						6" Special Backfill	Earth Shoulder Construction	Area
			HMA			PCC					
ROAD IDENTIFICATION	STATION TO STATION		(PW) Feet	(T) Inches	(SGW) Feet	(PW) Feet	(T) Inches	(SGW) Feet	Tons	Station	SY
Hwy 151 - Stage 1C	869+08.50	870+79.40	0-21	9	0-27.3	0-21	8	0-26.9	41	1.71	
	870+79.40	877+08.33	21	9	27.3	21	8	26.9	455	6.29	
	877+08.33	877+82.62	21-15.5	9	27.3-21.8	21-15.5	8	26.9-21.4	47	0.74	1,901.8
	877+82.62	878+58.49	15.5-7.5	9	21.8-13.8	15.5-7.5	8	21.4-13.4	31	0.76	
	878+58.49	879+14.71	7.5-6	9	13.8-12.3	7.5-6	8	13.4-11.9	14	0.56	
Hwy 151 - Stage 1C	882+63.44	883+85.91	0-7.4	9	0-13.7	0-7.4	8	0-13.3	15	1.22	46.6
	883+85.91	883+99.64	1.1-0	9	7.4-0	1.1-0	8	7-0	2	0.14	
Hwy 151 - Stage 1C	884+99.85	885+73.34	0-21	9	0-27.3	0-21	8	0-26.9	37	0.73	
	885+73.34	890+52.10	21	9	27.3	21	8	26.9	346	4.79	1,258.5
	890+52.10	890+92.18	12.1-0	9	18.4-0	12.1-0	8	18-0	16	0.40	
Hwy 151 - Stage 1C	891+27.79	891+39.51	0-12.5	9	0-18.8	0-12.5	8	0-18.4	3	0.12	
	891+39.51	893+78.67	21	9	27.3	21	8	26.9	176	2.39	593.1
	893+78.67	893+96.76	19-0	9	25.3-0	19-0	8	24.9-0	9	0.18	
Hwy 151 - Stage 1C	894+37.55	894+56.81	0-19	9	0-25.3	0-19	8	0-24.9	10	0.19	
	894+56.81	895+38.01	21	9	25.3	21	8	24.9	60	0.81	247.1
	895+38.01	895+56.49	19-0	9	25.3-0	19-0	8	24.9-0	10	0.18	
Hwy 151 - Stage 1C	895+98.24	896+18.20	0-18.5	9	0-24.8	0-18.5	8	0-4.4	10	0.20	
	896+18.20	898+00.16	20.5	9	26.8	20.5	8	26.4	133	1.82	
	898+00.16	899+40.00	20.5-13.5	9	26.8-19.8	20.5-13.5	8	26.4-19.4	84	1.40	1,110.3
	899+40.00	900+97.41	13.5	9	19.8	13.5	8	19.4	75	1.57	
	900+97.41	902+84.49	13.5-0	9	19.8-0	13.5-0	8	19.4-0	48	1.87	
Hwy 151 - Stage 2A	860+81.21	863+59.72	0-17.5	9	0-23.8	0-17.5	8	0-23.4	86	2.79	
	863+59.72	864+64.09	17.5-16.5	9	23.8-22.8	17.5-16.5	8	23.4-22.4	63	1.04	720.4
	864+64.09	865+98.61	16.5-17	9	22.8-23.3	16.5-17	8	22.4-22.9	80	1.35	
Hwy 151 - Stage 2A	868+76.20	870+70.00	18	9	24.3	18	8	23.9	123	1.94	439.2
	870+70.00	872+09.69	8-0	9	14.3-0	8-0	8	13.9-0	16	1.40	
Hwy 151 - Stage 2A	876+23.77	876+99.08	0-8	9	0-8.8	0-2.5	8	0-8.4	14	0.75	
	876+99.08	878+42.11	8	9	14.3	8	8	13.9	41	1.43	325.4
	878+42.11	879+40.54	8-13.2	9	14.3-19.5	8-13.2	8	13.9-19.1	36	0.98	
	879+40.54	879+68.00	13.2	9	19.5	13.2	8	19.1	13	0.27	
Hwy 151 - Stage 2A	882+04.00	882+45.25	13.2	9	19.5	13.2	8	19.1	20	0.41	
	882+45.25	883+41.78	13.2-8	9	19.5-14.3	13.2-8.05	8	19.1-13.9	36	0.97	176.0
	883+41.78	883+46.75	8-0	9	14.3-0	8-0	8	13.9-0	1	0.05	
Hwy 151 - Stage 2B	898+00.00	901+97.45	6-0	9	12.3-0	8-0	8	11.9-0	287	3.97	203.1
								Total:	2,438	45.42	7,021.5

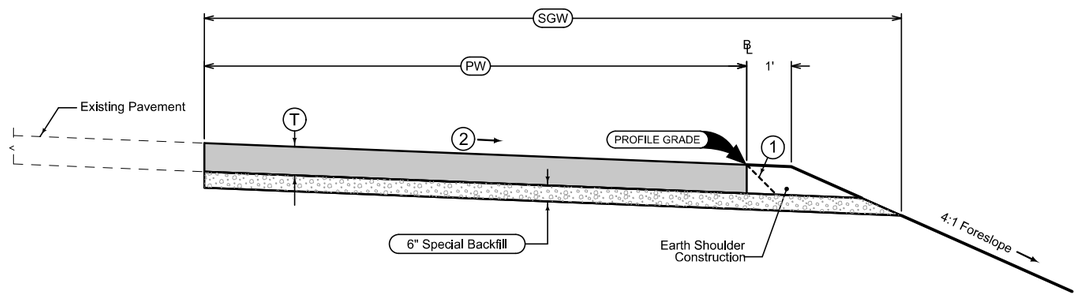
Quantity calculations based on vertical pavement edges.

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

(1) Possible HMA 1:1 slope

(2) Match Existing Pavement Slope

D_Detour A
Modified



DETOUR PAVING AT STAGE 1C AND STAGE 2A

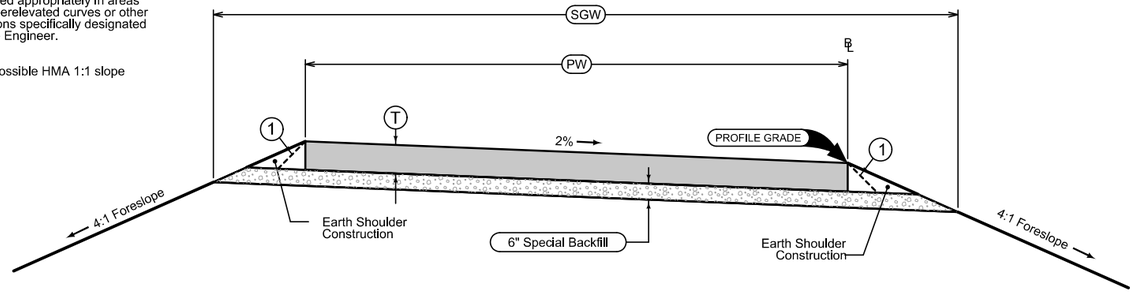
LOCATION			DIMENSIONS						6" Special Backfill	Earth Shoulder Construction	Area
			HMA			PCC					
ROAD IDENTIFICATION	STATION TO STATION		(PW) Feet	(T) Inches	(SGW) Feet	(PW) Feet	(T) Inches	(SGW) Feet	Tons	Station	SY
Hwy 151 - DD No. 2	1978+22.02	1979+03.23	0-24	9	0-28	0-24	8	0-27.7	37	0.81	
	1979+03.23	1980+76.44	24	9	28-32.7	24	8	27.7-32.1	146	3.46	1,124.8
	1980+76.44	1982+12.34	24-0	9	28-0	24-0	8	27.7-0	60	1.36	
								Total:	243	5.63	1,124.8

Quantity calculations based on vertical pavement edges.

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

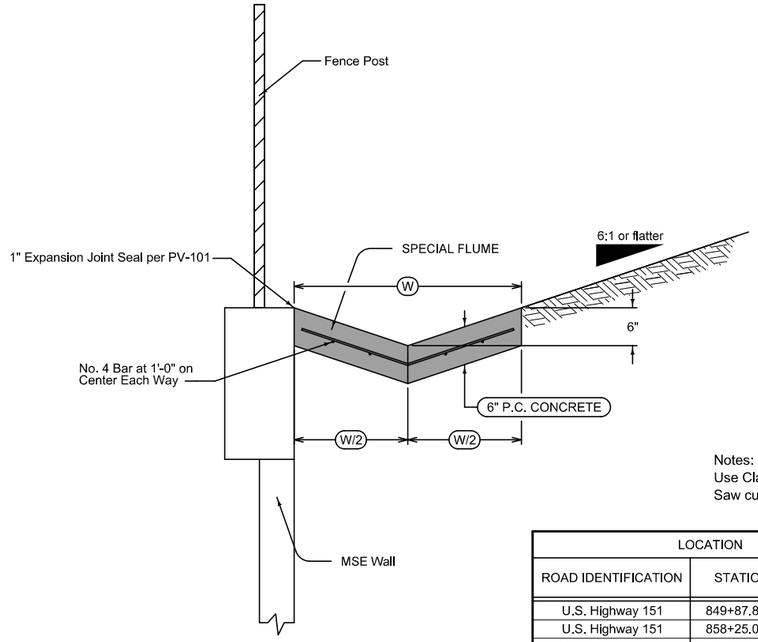
(1) Possible HMA 1:1 slope

D_Detour B
Modified



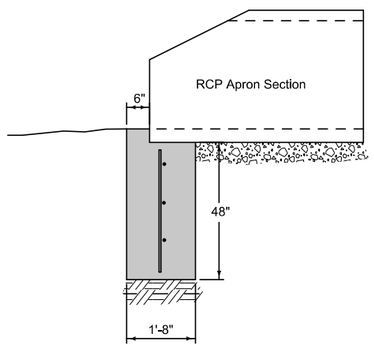
DETOUR PAVING AT DRAINAGE DITCH #2

Flume

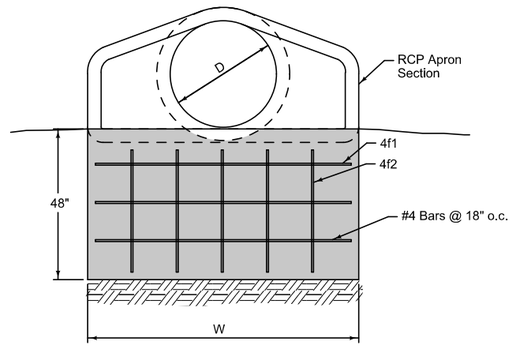


Notes:
Use Class C Concrete.
Saw cut Transverse Joints at 8'-0" on Center.

LOCATION				DIMENSIONS		REMARKS
ROAD IDENTIFICATION	STATION TO STATION		SIDE	LENGTH	WIDTH (W)	
U.S. Highway 151	849+87.80	856+66.00	RT	678.2'	4'	MSE Wall No. 1
U.S. Highway 151	858+25.00	863+52.00	RT	527.0'	4'	MSE Wall No. 2
U.S. Highway 151	858+56.40	863+42.00	LT	485.6'	4'	MSE Wall No. 3



TYPICAL SECTION



ELEVATION

REINFORCING BAR LIST

D	W	Mark	Size	Length	Count
12"	2'-4"	4f1	4	2'-0"	3
		4f2	4	3'-8"	2
15"	2'-10 ½"	4f1	4	2'-6 ½"	3
		4f2	4	3'-8"	2
18"	3'-5"	4f1	4	3'-1"	3
		4f2	4	3'-8"	3
24"	4'-6"	4f1	4	4'-2"	3
		4f2	4	3'-8"	3
30"	5'-7"	4f1	4	5'-3"	3
		4f2	4	3'-8"	4
36"	6'-8"	4f1	4	6'-4"	3
		4f2	4	3'-8"	5
42"	7'-3"	4f1	4	6'-11"	3
		4f2	4	3'-8"	5

D	W	Mark	Size	Length	Count
48"	7'-10"	4f1	4	7'-6"	3
		4f2	4	3'-8"	6
54"	8'-5"	4f1	4	8'-1"	3
		4f2	4	3'-8"	6
60"	8'-11"	4f1	4	8'-7"	3
		4f2	4	3'-8"	6
66"	8'-11"	4f1	4	8'-7"	3
		4f2	4	3'-8"	6
72"	10'-0"	4f1	4	9'-8"	3
		4f2	4	3'-8"	7
78"	10'-7"	4f1	4	10'-3"	3
		4f2	4	3'-8"	7
84"	11'-1"	4f1	4	10'-9"	3
		4f2	4	3'-8"	8

FIGURE 4030.221 SHEET 1 OF 1

SUDAS

REVISION 1 10-21-14

4030.221

SHEET 1 of 1

SUDAS Standard Specifications

RCP APRON SECTION FOOTING

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	B.9

8:25:50 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158B01.sht

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 1: State Funding
Division 2: City of Fairfax Funding
Division 3: State/City of Fairfax Shared Funding
Division 4: City of Cedar Rapids Funding
Division 5: Retaining Wall Design No. 918

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
1	2101-0850001	CLEARING & GRUBBING	ACRE	2.8					2.8					
2	2101-0850002	CLEARING & GRUBBING	UNIT	131					131					
3	2102-0425070	SPECIAL BACKFILL	TON	6868.8	81.1				6949.9					
4	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	4778					4778					
5	2102-2710070	EXCAVATION CLASS 10, ROADWAY & BORROW	CY	79102	169				79271					
6	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	50					50					
7	2105-8425005	TOPSOIL, FURNISH AND SPREAD	CY	4099					4099					
8	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	11492	47				11539					
9	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	59691					59691					
10	2107-3825025	GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN	CY	2361					2361					
11	2115-0100000	MODIFIED SUBBASE	CY	16116.2					16116.2					
12	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	846.7					846.7					
13	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.	SY	4544.4					4544.4					
14	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.	SY	776.1					776.1					
15	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN.	SY	347.4					347.4					
16	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	120.85					120.85					
17	2123-7450020	SHOULDER FINISHING, EARTH	STA	120.85					120.85					
18	2213-7100400	RELOCATION OF MAIL BOXES	EACH	10					10					
19	2214-5145150	PAVEMENT SCARIFICATION	SY	576.1					576.1					
20	2301-0690203	BRIDGE APPROACH, BR-203	SY	1678.6					1678.6					
21	2301-0690205	BRIDGE APPROACH, BR-205	SY	1188.8					1188.8					
22	2301-1033070	STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 2 DURABILITY, 7 IN.	SY	4131.6	347.6				4479.2					
23	2301-1033095	STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9.5 IN.	SY	21572.7					21572.7					
24	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	1					1					
25	2303-1041500	HOT MIX ASPHALT HIGH TRAFFIC, BASE COURSE, 1/2 IN. MIX	TON	129.9					129.9					
26	2303-1042500	HOT MIX ASPHALT HIGH TRAFFIC, INTERMEDIATE COURSE, 1/2 IN. MIX	TON	43.3					43.3					
27	2303-1043502	HOT MIX ASPHALT HIGH TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2	TON	546.1					546.1					
28	2303-1258284	ASPHALT BINDER, PG 58-28H, HIGH TRAFFIC	TON	43.2					43.2					
29	2304-0100000	DETOUR PAVEMENT	SY	8146.3					8146.3					
30	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	414					414					
31	2401-6750001	REMOVALS, AS PER PLAN	LS	1					1					
32	2402-0425030	GRANULAR BACKFILL	TON	54423.4					54423.4					
33	2402-0425040	FLOODED BACKFILL	CY	285.2					285.2					
34	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	975.5					975.5					
35	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY			1.4			1.4					
36	2404-7775000	REINFORCING STEEL	LB			21			21					
37	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE	SY	5485					5485					
38	2416-0100012	APRONS, CONCRETE, 12 IN. DIA.	EACH		2				2					
39	2416-0100015	APRONS, CONCRETE, 15 IN. DIA.	EACH	1	1				2					
40	2416-0100018	APRONS, CONCRETE, 18 IN. DIA.	EACH	2		1			3					
41	2416-0100030	APRONS, CONCRETE, 30 IN. DIA.	EACH			1			1					
42	2416-0100042	APRONS, CONCRETE, 42 IN. DIA.	EACH	4					4					
43	2416-0101136	REMOVE AND REINSTALL CONCRETE PIPE APRONS GREATER THAT 36 IN.	EACH	1					1					
44	2416-1160030	CULVERT, CONCRETE ENTRANCE PIPE, 30 INCH	LF	56					56					
45	2416-1180042	CULVERT, CONCRETE ROADWAY PIPE, 42 INCH	LF	244					244					
46	2416-1180048	CULVERT, CONCRETE ROADWAY PIPE, 48 INCH	LF	2					2					
47	2417-0225012	APRONS, METAL, 12 IN. DIA	EACH	2					2					
48	2417-0225018	APRONS, METAL, 18 IN. DIA.	EACH	6					6					
49	2417-1007000	CORRUGATED PIPE CULVERT, ENTRANCE PIPE, 12 IN. DIA.	LF	28					28					
50	2417-1040018	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 18 IN. DIA.	LF	150					150					
51	2432-0000100	MECHANICALLY STABILIZED EARTH RETAINING WALL	SF	31998					31998					
52	2435-0130148	MANHOLE, SANITARY SEWER, SW-301, 48 IN.	EACH		1				1					
53	2435-0130160	MANHOLE, SANITARY SEWER, SW-301, 60 IN.	EACH				4		4					
54	2435-0140148	MANHOLE, STORM SEWER, SW-401, 48 IN.	EACH	1	1				2					
55	2435-0140172	MANHOLE, STORM SEWER, SW-401, 72 IN.	EACH			1			1					
56	2435-0250700	INTAKE, SW-507	EACH		1	1			2					
57	2435-0250900	INTAKE, SW-509	EACH	12		1			13					
58	2435-0251000	INTAKE, SW-510	EACH	3					3					
59	2435-0251230	INTAKE, SW-512, 30 IN.	EACH			1			1					
60	2435-0251300	INTAKE, SW-513	EACH	3	1				4					
61	2435-0600020	MANHOLE ADJUSTMENT, MAJOR	EACH		5				5					
62	2435-0700010	CONNECTION TO EXISTING MANHOLE	EACH		1		1		2					
63	2435-0700020	CONNECTION TO EXISTING INTAKE	EACH			1			1					
64	2499-3575000	SPECIAL FLUME	EACH	3					3					
65	2501-8400172	TEMPORARY SHORING	LS	1					1					
66	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER), 4 IN. DIA.	LF	10826					10826					
67	2502-8221303	SUBDRAIN OUTLET, DR-303	EACH	32					32					
68	2502-8221305	SUBDRAIN OUTLET, DR-305	EACH	36					36					
69	2503-0114212	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 12 IN.	LF		82				82					
70	2503-0114215	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 15 IN.	LF	820	66	528			1414					
71	2503-0114218	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 18 IN.	LF	200		262			462					
72	2503-0114224	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 24 IN.	LF	62	106				168					
73	2503-0114230	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 30 IN.	LF	46		362			408					
74	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF	1331					1331					
75	2503-0500401	BRIDGE END DRAIN, DR-401	EACH	6					6					
76	2504-0114010	SANITARY SEWER GRAVITY MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 10 IN.	LF		146				146					
77	2504-0116024	SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 24 IN.	LF				277		277					
78	2504-0146024	SAN. SWR. GTY. MAIN WITH CASING PIPE, TRENCHLESS, DUCTILE IRON PIPE (DIP), 24 IN.	LF				155		155					
79	2504-0240036	REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF				100		100					
80	2504-0240236	SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA.	LF				246		246					

ESTIMATED PROJECT QUANTITIES
(UP TO A 5 DIVISION PROJECT)

Division 1: State Funding
Division 2: City of Fairfax Funding
Division 3: State/City of Fairfax Shared Funding
Division 4: City of Cedar Rapids Funding
Division 5: Retaining Wall Design No. 918

Item No.	Item Code	Item	Unit	Quantities										
				Estimated						As Built				
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
81	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	2596.4					2596.4					
82	2505-4008300	STEEL BEAM GUARDRAIL	LF	1562.5					1562.5					
83	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201	EACH	8					8					
84	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	8					8					
85	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM	EACH	2					2					
86	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	10					10					
87	2505-4502100	STEEL BEAM GUARDRAIL, POST ADAPTER UNIT, BA-210	EACH	22					22					
88	2507-3250005	ENGINEERING FABRIC	SY	409.6					409.6					
89	2507-6800061	REVETMENT, CLASS E	TON	399.5					399.5					
90	2510-6745850	REMOVAL OF PAVEMENT	SY	33775.8					33775.8					
91	2510-6750600	REMOVAL OF INTAKES AND UTILITY ACCESSES	EACH	13			3		16					
92	2511-6745900	REMOVAL OF SIDEWALK	SY	49.8					49.8					
93	2511-7526004	SIDEWALK, P.C. CONCRETE, 4 IN.	SY	60.3					60.3					
94	2515-2475006	DRIVEWAY, P.C. CONCRETE, 6 IN.	SY	2739.4					2739.4					
95	2515-6745600	REMOVAL OF PAVED DRIVEWAY	SY	1907.3					1907.3					
96	2518-6910000	SAFETY CLOSURE	EACH	47					47					
97	2519-1004072	FENCE, CHAIN LINK, 72 IN. HEIGHT, ON WALL	LF	1782.5					1782.5					
98	2519-4200190	REMOVAL OF FENCE, AS PER PLAN	LF	155.1					155.1					
99	2526-8285000	CONSTRUCTION SURVEY	LS	0.93	0.04		0.03		1					
100	2527-9263109	PAINTED PAVEMENT MARKING WATERBORNE OR SOLVENT-BASED	STA	312.1					312.1					
101	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	LF	548.93					548.93					
102	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	43					43					
103	2527-9263158	PAVEMENT MARKINGS REMOVED	STA	380.93					380.93					
104	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	11825					11825					
105	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	2					2					
106	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	5					5					
107	2528-8445110	TRAFFIC CONTROL	LS	0.93	0.04		0.03		1					
108	2528-8445113	FLAGGERS	EACH											
109	2528-8445115	PILOT CARS	EACH											
110	2528-9109020	TEMPORARY LANE SEPARATOR SYSTEM	LF	1764					1764					
111	2529-5070110	PATCHES, FULL DEPTH FINISH, BY AREA	SY	80					80					
112	2529-5070120	PATCHES, FULL DEPTH FINISH, BY COUNT	EACH	2					2					
113	2533-4980005	MOBILIZATION	LS	0.93	0.04		0.03		1					
114	2551-0000110	TEMPORARY CRASH CUSHION	EACH	3					3					
115	2551-0000130	TEMPORARY CRASH CUSHION, SEVERE USE (SU)	EACH	31					31					
116	2552-0000230	SPECIAL PIPE EMBEDMENT OR ENCASEMENT	LF				95		95					
117	2552-0000300	TRENCH COMPACTION TESTING	LS				1		1					
118	2554-0114008	WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN.	LF		45				45					
119	2554-0114012	WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN.	LF		15				15					
120	2554-0134008	WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN.	LF		84				84					
121	2554-0134012	WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN.	LF		130				130					
122	2554-0207008	VALVE, GATE, DIP, 8 IN.	EACH		2				2					
123	2554-0207012	VALVE, GATE, DIP, 12 IN.	EACH		2				2					
124	2554-0210201	FIRE HYDRANT ASSEMBLY, WM-201	EACH		6				6					
125	2554-0214000	FIRE HYDRANT ADJUSTMENT	EACH		5				5					
126	2595-0005150	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR UNION PACIFIC RAILROAD CO.	LS	1					1					
127	2599-9999010	INTERMEDIATE FOUNDATION IMPROVEMENTS	LS	1					1					
128	2599-9999010	INTERMEDIATE FOUNDATION IMPROVEMENTS VERIFICATION TESTING	LS	1					1					
129	2601-2634100	MULCHING	ACRE	12.6					12.6					
130	2601-2634105	MULCHING, BONDED FIBER MATRIX	ACRE	12.6					12.6					
131	2601-2636015	NATIVE GRASS SEEDING	ACRE	5.9					5.9					
132	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.9					0.9					
133	2601-2636044	SEEDING AND FERTILIZING (URBAN)	ACRE	5.8					5.8					
134	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT	SQ	1539					1539					
135	2601-2642100	STABILIZE CROP - SEEDING AND FERTILIZING	ACRE	12.6					12.6					
136	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION	MGAL	307.8					307.8					
137	2601-2643300	MOBILIZATION FOR WATERING	EACH	3					3					
138	2602-0000020	SILT FENCE	LF	7540					7540					
139	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	1880					1880					
140	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	4519					4519					
141	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	910					910					
142	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE	LF	1400					1400					
143	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	5799					5799					
144	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	LF	5799					5799					
145	2602-0000400	TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY	EACH	25					25					
146	2602-0000410	MAINTENANCE OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY	EACH	25					25					
147	2602-0000420	REMOVAL OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY	EACH	25					25					
148	2602-0000500	OPEN-THROAT CURB INTAKE SEDIMENT FILTER	LF	136					136					
149	2602-0000510	MAINTENANCE OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER	EACH	18					18					
150	2602-0000520	REMOVAL OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER	EACH	18					18					
151	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	5					5					
152	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	5					5					
		Refer to Sheet V.1 for Reinforced Concrete Retaining Wall (Division 5) Quantities												

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	CLEARING & GRUBBING
2	2101-0850002	CLEARING & GRUBBING
		Refer to Tab. 110-17 and D Sheets for locations. Clearing and grubbing areas shall be approved by the Engineer prior to beginning of clearing operations. Take care to protect all trees and other plant material to remain.
3	2102-0425070	SPECIAL BACKFILL
		Refer to typical sections on B Sheets and Tab. 112-9 for locations. Includes material for construction of detour pavement.
4	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED
5	2102-2710070	EXCAVATION CLASS 10, ROADWAY & BORROW
		Refer to T Sheets. Quantity includes excavation needed for construction of MSE walls and detour pavement. Quantity includes 79,271 CY adjusted roadway cut and 84,049 adjusted fill +30% shrink for a net furnish of 4,778 CY. There will be no additional compensation for overhaul of excavated materials.
6	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS
		Refer to sheet CS.1 and Q Sheets.
7	2105-8425005	TOPSOIL, FURNISH AND SPREAD
8	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD
		Refer to T Sheets. Quantity includes: 7,440 CY of strip and 11,539 CY of placement +40% shrink. Contractor to be responsible for a net furnish of 4,099 CY. There will be no additional compensation for overhaul of excess materials.
9	2107-0875100	COMPACTION WITH MOISTURE CONTROL
10	2107-3825025	GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN
		Refer to Sheet CS.1 and Q Sheets.
11	2115-0100000	MODIFIED SUBBASE
		Refer to Tab 100-24 and B Sheets for locations. On mainline paving, top six inches of modified subbase shall be of virgin material.
12	2121-7425010	GRANULAR SHOULDERS, TYPE A
13	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.
14	2122-5500060	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 6 IN.
15	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8 IN.
		Refer to Tab. 112-9, Tab. 100-25, and B Sheets for locations.
16	2123-7450000	SHOULDER CONSTRUCTION, EARTH
17	2123-7450020	SHOULDER FINISHING, EARTH
		Refer to B Sheets for locations. Includes backfill and finish grading behing all curbs. Includes locations of detour pavement.
18	2213-7100400	RELOCATION OF MAIL BOXES
		Relocated mailboxs at station 863+80, 877+10, 897+15, 899+40, 983+45, 2866+25 and 4874+75. Item includes removing, salvaging, and maintaining temporary mailboxes during construction. After project is completed, reinstall mailboxes per https://www.usps.com/manage/mailboxes.htm. Contact Clifford Brause, Postmaster - (319) 984-6230 to ascertain the requirements for maintenance of postal service to residents and businesses within the project area. Place and maintain mailboxes at temporary locations as designated by the postmaster. Reinstalled mailboxes to be approved by the postmaster following construction. Not less than 48 hours prior to removing any mailbox, notify each affected property owner in writing notifying them of the move and the location of the temporary mailbox. Temporary mailboxes shall be in a place so postal service is maintained at all times. Any permanent mailbox that must be removed shall be stored on the property to which it belongs and at a sufficient distance from the work area to ensure it will not be damaged during construction. Provide an accessible route to the temporary mailbox location for each property. Each mailbox relocated will be counted for payment. Payment will be at contract unit price for each and includes all material, labor, equipment, and coordination to maintain postal service to property owners and properly reinstall mailboxes.
19	2214-5145150	PAVEMENT SCARIFICATION
		Item includes milled wedge from Sta. 901+58 to Sta. 902+58 to transition HMA overlay to match existing pavement elevation. Refer to Tab. 102-16.
20	2301-0690203	BRIDGE APPROACH, BR-203
21	2301-0690205	BRIDGE APPROACH, BR-205
		Refer to Tab. 112-6 for locations.
22	2301-1033070	STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 2 DURABILITY, 7 IN.
23	2301-1033095	STD OR SLIP FORM PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9.5 IN.
24	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES
		Refer to Tab. 100-24 and B Sheets. Quantity includes curb and gutter area.
25	2303-1041500	HOT MIX ASPHALT HIGH TRAFFIC, BASE COURSE, 1/2 IN. MIX
26	2303-1042500	HOT MIX ASPHALT HIGH TRAFFIC, INTERMEDIATE COURSE, 1/2 IN. MIX
27	2303-1043502	HOT MIX ASPHALT HIGH TRAFFIC, SURFACE COURSE, 1/2 IN. MIX, FRICTION L-2
28	2303-1258284	ASPHALT BINDER, PG 58-28H, HIGH TRAFFIC
		Refer to Tab. 100-25 and B Sheets for locations. Binder quantity is based on 6.0% binder content. Items include 5% to account for overruns.
29	2304-0100000	DETOUR PAVEMENT
		Refer to details on Sheet B.8 and J Sheets.
30	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE
		Refer to Tab. 102-3.

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
31	2401-6750001	REMOVALS, AS PER PLAN
		Refer to Tab. 110-2.
32	2402-0425030	GRANULAR BACKFILL
		For material placed as part of the MSE Wall construction. Material depth is assumed to be equal to the wall height. Actual material quantity will be determined based on wall design and delivery tickets.
33	2402-0425040	FLOODED BACKFILL
34	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT
		Refer to Tab. 104-3 for locations and quantities.
35	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)
36	2404-7775000	REINFORCING STEEL
		For construction of apron footings, refer to detail on B Sheets. Refer to Sheet M.1 for location.
37	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE
		Refer to Tab. 100-28.
38	2416-0100012	APRONS, CONCRETE, 12 IN. DIA.
39	2416-0100015	APRONS, CONCRETE, 15 IN. DIA.
40	2416-0100018	APRONS, CONCRETE, 18 IN. DIA.
41	2416-0100030	APRONS, CONCRETE, 30 IN. DIA.
42	2416-0100042	APRONS, CONCRETE, 42 IN. DIA.
		Refer to the M and V Sheets, Tab. 102-3, Tab 104-3 and Tab. 104-5B for locations. Install apron guards on all aprons. Apron guards are incidental to the contract unit price for each apron.
43	2416-0101136	REMOVE AND REINSTALL CONCRETE PIPE APRONS GREATER THAT 36 IN.
		Refer to Tab. 104-3 and Sheet V.21.
44	2416-1160030	CULVERT, CONCRETE ENTRANCE PIPE, 30 INCH
		Refer to Tab. 102-3.
45	2416-1180042	CULVERT, CONCRETE ROADWAY PIPE, 42 INCH
46	2416-1180048	CULVERT, CONCRETE ROADWAY PIPE, 48 INCH
		Refer to Tab. 104-3 and V Sheets.
47	2417-0225012	APRONS, METAL, 12 IN. DIA
48	2417-0225018	APRONS, METAL, 18 IN. DIA.
		Refer to Tab. 102-3.
49	2417-1007000	CORRUGATED PIPE CULVERT, ENTRANCE PIPE, 12 IN. DIA.
		Refer to Tab. 102-3. Materials, construction, method of measurement and basis of payment shall be per specification section 2417.
50	2417-1040018	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 18 IN. DIA.
		Refer to Tab. 102-3.
51	2432-0000100	MECHANICALLY STABILIZED EARTH RETAINING WALL
		Refer to D Sheets for retaining wall locations and U Sheets for retaining wall situation plans.
52	2435-0130148	MANHOLE, SANITARY SEWER, SW-301, 48 IN.
		Refer to Tab. 104-5B and M Sheets.
53	2435-0130160	MANHOLE, SANITARY SEWER, SW-301, 60 IN.
		Refer to U Sheets. Manhole joints shall be tied per details on Sheet U.5. Manhole lids shll be bolt down type. Item includes external chimney seal, bold-down frame and lid, adjusting rings (pro-ring) and PVC liner. Sanitary sewer bypass pumping and dewatering are incidental to sanitay sewer construciton.
54	2435-0140148	MANHOLE, STORM SEWER, SW-401, 48 IN.
55	2435-0140172	MANHOLE, STORM SEWER, SW-401, 72 IN.
56	2435-0250700	INTAKE, SW-507
57	2435-0250900	INTAKE, SW-509
58	2435-0251000	INTAKE, SW-510
59	2435-0251230	INTAKE, SW-512, 30 IN.
60	2435-0251300	INTAKE, SW-513
		Refer to Tab. 104-5B and M Sheets.
61	2435-0600020	MANHOLE ADJUSTMENT, MAJOR
		Refer to Tab. 104-10.
62	2435-0700010	CONNECTION TO EXISTING MANHOLE
		Refer to M Sheets and U Sheets.
63	2435-0700020	CONNECTION TO EXISTING INTAKE
		Refer to M Sheets.
64	2499-3575000	SPECIAL FLUME
		Construct flume at each MSE wall location, refer to flume detail on Sheet B.9. Concrete shall meet the requriements of specification section 2403. Reinforcing shall meet the requirements of specification section 2404. Compact sub-grade 6" below each flume per specification section 2109. Each flume propertly installed will be counted for payment. Payment will be at the contract unit price of each and includes all materials, labor

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
		and equipment needed to construct each flume per plans.
65	2501-8400172	TEMPORARY SHORING
		Install temporary shoring as needed for MSE wall construction. Temporary shoring will be measured and paid for at the contract unit price of lump sum.
66	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER), 4 IN. DIA.
67	2502-8221303	SUBDRAIN OUTLET, DR-303
68	2502-8221305	SUBDRAIN OUTLET, DR-305
		Refer to Tab. 104-9.
69	2503-0114212	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 12 IN.
70	2503-0114215	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 15 IN.
71	2503-0114218	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 18 IN.
72	2503-0114224	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 24 IN.
73	2503-0114230	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 30 IN.
		Refer to Tab. 104-5B and M Sheets. Installed O-ring or profile gasketed joints where indicated.
74	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN.
		Refer to Tab. 110-14 for locations. Item includes disposal of material offsite. Removal of aprons is included in this item.
75	2503-0500401	BRIDGE END DRAIN, DR-401
		Refer to Tab.104-8A
76	2504-0114010	SANITARY SEWER GRAVITY MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 10 IN.
		Refer to Tab. 104-5B and M Sheets. Pipe shall be SDR-26.
77	2504-0116024	SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 24 IN.
		Pipe shall be 24" DIP with ceramic epoxy lining, restrained joints and encased in polyethylene. Dewatering and any necessary temporay stream diversion is incidental. Pipe bedding to be Class F-3 per Standard Road Plan SW-103, modify where Special Pipe Embedment or Encasement is used. Pipe bedding material shall be granular backfill. Disposal of excess material from trench shall be incidental.
78	2504-0146024	SAN. SWR. GTY. MAIN WITH CASING PIPE, TRENCHLESS, DUCTILE IRON PIPE (DIP), 24 IN.
		Refer to U Sheets. Access for launching and receiving pits is limited to the temporary easements. Casing pipe shall be coal tar expoxied and incidental. Steel casing pipe shall be 48" diameter and minimum wall thickness shall be 0.344". Carrier pipe shall be 24" DIP with ceramic epoxy lining and restrained joints. Any necessary or temporary stream diversion is incidental.
79	2504-0240036	REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN.
		Refer to U Sheets. Dispose of removed pipe.
80	2504-0240236	SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA.
		Refer to U Sheets. Remove and dispose of existing manhole cone sections. Pipe and remaining manhole sections to be filled with flowable mortar. Plug upstream and downstream pipe ends.
81	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL
		Refer to Tab. 110-7A.
82	2505-4008300	STEEL BEAM GUARDRAIL
83	2505-4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-201
84	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED
85	2505-4021020	STEEL BEAM GUARDRAIL END ANCHOR, W-BEAM
86	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205
87	2505-4502100	STEEL BEAM GUARDRAIL, POST ADAPTER UNIT, BA-210
		Refer to Tab. 108-8A and Tab. 108-8C.
88	2507-3250005	ENGINEERING FABRIC
89	2507-6800061	REVETMENT, CLASS E
		Refer to Tab. 100-23.
90	2510-6745850	REMOVAL OF PAVEMENT
		Refer to Tab. 102-5 and Tab 110-1. If the removal limits are within 2-feet of an existing joint, extend removal to the joint. The Contractor is responsible for replacing any damaged pavement beyond the removal limits, no additional payment will be allowed for this work.
91	2510-6750600	REMOVAL OF INTAKES AND UTILITY ACCESSES
		Refer to Tab. 110-15 and M Sheets.
92	2511-6745900	REMOVAL OF SIDEWALK
		Refer to Tab. 110-5. Contractor is responsible for replacing any damaged pavement beyond the removal limits.
93	2511-7526004	SIDEWALK, P.C. CONCRETE, 4 IN.
		Refer to Tab. 113-1 and B Sheets. Refer to sheet L.1 for shaping information. Sidewalk through driveways shall be paid for as PCC Driveway. Use Class C concrete for all sidewalk construction.
94	2515-2475006	DRIVEWAY, P.C. CONCRETE, 6 IN.
		Refer to Tab. 102-3. Quantity includes sidewalk area within driveways.
95	2515-6745600	REMOVAL OF PAVED DRIVEWAY
		Refer to Tab. 110-8. Contractor is responsible for replacing any damaged pavement beyond the removal limits.

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
96	2518-6910000	SAFETY CLOSURE
		Refer to Tab. 108-13A and J Sheets.
97	2519-1004072	FENCE, CHAIN LINK, 72 IN. HEIGHT, ON WALL
		Refer to Tab. 100-7. Install per wall manufacturer's recommendations.
98	2519-4200190	REMOVAL OF FENCE, AS PER PLAN
		Refer to Tab. 100-08.
99	2526-8285000	CONSTRUCTION SURVEY
		Includes construction survey for all project divisions.
100	2527-9263109	PAINTED PAVEMENT MARKING WATERBORNE OR SOLVENT-BASED
101	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS
102	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED
103	2527-9263158	PAVEMENT MARKINGS REMOVED
		Refer to Tab. 108-22 and Tab. 108-29. Refer to J Sheets for layout. Pavement cure shall be completely removed from pavement surface prior to application of pavement markings and symbols and legends.
104	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE
		Refer to Tab. 108-33 and J Sheets.
105	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE
		Refer to J Sheets.
106	2528-8400256	TEMPORARY TRAFFIC SIGNALS
		Refer to Tab. 108-28 and J Sheets.
107	2528-8445110	TRAFFIC CONTROL
		Refer to J Sheets.
110	2528-9109020	TEMPORARY LANE SEPARATOR SYSTEM
		Refer to Tab. 108-35 and J Sheets.
111	2529-5070110	PATCHES, FULL DEPTH FINISH, BY AREA
112	2529-5070120	PATCHES, FULL DEPTH FINISH, BY COUNT
		Refer to Tab. 102-6C.
114	2551-0000110	TEMPORARY CRASH CUSHION
115	2551-0000130	TEMPORARY CRASH CUSHION, SEVERE USE (SU)
		Refer to Tab. 108-30 and J Sheets.
116	2552-0000230	SPECIAL PIPE EMBEDMENT OR ENCASEMENT
		Refer to U Sheets and detail on sheet U.5. Applies to pipe P-3.
117	2552-0000300	TRENCH COMPACTION TESTING
		Includes testing for sanitary sewer shown on U Sheets, performed by an independent testing labratory. Provide a minimum of 6 tests ramdomly spaced over sanitary sewer trench. No compensation will be made for re-testing failed tests.
118	2554-0114008	WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN.
119	2554-0114012	WATER MAIN, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN.
120	2554-0134008	WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 8 IN.
121	2554-0134012	WATER MAIN WITH CASING PIPE, TRENCHED, POLYVINYL CLORIDE PIPE (PVC), 12 IN.
122	2554-0207008	VALVE, GATE, DIP, 8 IN.
123	2554-0207012	VALVE, GATE, DIP, 12 IN.
124	2554-0210201	FIRE HYDRANT ASSEMBLY, WM-201
		Refer to D Sheets and M Sheets. Steel casing pipe shall be 20" diameter for both 8" and 12" water main. Install tracer wire system for all water main per standard road plan WM-102. Provide restrained joint PVC pipe and stainless steel nuts and bolts for all water main fixtures and connections. Fire Hydrant Assembly shall be either Clow or Waterous with Storz connections.
125	2554-0214000	FIRE HYDRANT ADJUSTMENT
		Refer to Tab. 104-10.
127	2599-9999010	INTERMEDIATE FOUNDATION IMPROVEMENTS
128	2599-9999010	INTERMEDIATE FOUNDATION IMPROVEMENTS VERIFICATION TESTING
		Refer to special provisions for Intermediate Foundation Improvements for additional information, method of measurement and basis of payment.
129	2601-2634100	MULCHING
130	2601-2634105	MULCHING, BONDED FIBER MATRIX
131	2601-2636015	NATIVE GRASS SEEDING
132	2601-2636043	SEEDING AND FERTILIZING (RURAL)
133	2601-2636044	SEEDING AND FERTILIZING (URBAN)
		Seeding, fertilizing, and mulching are intended for use on all final restoration areas within the project limits. Mulching is intended to be used for temporary seeding needed to comply with the NPDES Permit. Use Mulching, Bonded Fiber Matrix for permanent seeding areas. Refer to Pollution Prevention Plan sheets for seeding areas.
134	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
		Item for slope protection of long steep slopes, generally near structures. Refer to Tab. 100-22.
135	2601-2642100	STABILIZE CROP - SEEDING AND FERTILIZING
		Item intended to be used for temporary seeding needed to comply with NPDES Permit.
136	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION
137	2601-2643300	MOBILIZATION FOR WATERING
		Items associated with installation of slope protection. Refer to Tab. 100-22.
138	2602-0000020	SILT FENCE
		Refer to Tab. 100-17. The tabulation includes estimated locations for placement of silt fence to address possible erosion during construction. Verify the specific locations with the Engineer prior to placement. Bid item includes 25% additional quantity for field adjustments and replacements.
139	2602-0000030	SILT FENCE FOR DITCH CHECKS
		Refer to Tab. 100-18. The tabulation includes estimated locations for placement of silt fence for ditch checks to address possible erosion during construction. Verify the specific locations with the Engineer prior to placement. Bid item includes 50% additional quantity for field adjustments and replacements.
140	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS
		This item is included for silt fence and silt fence for ditch check removal required for staging reasons, for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth.
141	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK
		This item is included for cleanout and repair of the silt fence and silt fence for ditch checks during the project.
142	2602-0000150	STABILIZED CONSTRUCTION ENTRANCE
		Install as necessary for access to work areas during staged construction. Refer to Sheet C.28 - C.30.
143	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.
144	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE
		Refer to Tab. 100-19.
145	2602-0000400	TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY
146	2602-0000410	MAINTENANCE OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY
147	2602-0000420	REMOVAL OF TEMPORARY INTAKE OR MANHOLE COVER ASSEMBLY
		Refer to Tab. 100-11 and details on B Sheets.
148	2602-0000500	OPEN-THROAT CURB INTAKE SEDIMENT FILTER
149	2602-0000510	MAINTENANCE OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER
150	2602-0000520	REMOVAL OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER
		Refer to Tab. 100-36 and details on B sheets.
151	2602-0010010	MOBILIZATIONS, EROSION CONTROL
152	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL
		Includes erosion control mobilizations for all project divisions.

100-1D
10-18-05

PROJECT DESCRIPTION

This project includes grading and paving of a U.S. Highway 151, a two lane roadway with turn lanes and a two-way left turn lane from south of Church Street, north approximately 0.5 mile to west of the U.S. Highway 151 intersection with 80th Street SW in Fairfax.

This project also includes pavement improvements associated with the structure replacement at Drainage Ditch No. 2, between Stoney Point Road and Dean Road.

Associated projects include replacement of bridges at UPRR, Prairie Creek, Drainage Ditch No. 1 and Drainage Ditch No. 2 and project signing.

111-25
10-18-11

INDEX OF TABULATIONS

100-26
10-15-13

INCIDENTAL ITEMS

Special or unique items where method of measurement / basis of payment is not indicated in the specifications or other contract documents.

No.	Incidental Item	Unit	Quantity	Incidental To		Remarks
				Item Code	Item	
1	Maintenance of Postal Service	LS	1	2213-7100400	Relocation of Mail Boxes	
2	Maintenance of Garbage Service	LS	1	2528-8445110	Traffic Control	
3	Maintain Property Access and Parking	LS	1	2528-8445110	Traffic Control	

281-1
10-18-16

SECTION 404 PERMIT AND CONDITIONS

Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 2018-458. A copy of this permit is available from the Iowa DOT website (http://www.envpermits.iowadot.gov/). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

262-6
10-18-05

UTILITIES
(NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
BA-200	10-18-16	Steel Beam Guardrail Components
BA-201	04-18-17	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-203	10-18-11	Steel Beam Guardrail W-Beam End Anchor
BA-205	04-19-16	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-210	04-19-16	Guardrail Post Adaptor Unit
BA-211	10-21-14	Steel Beam Guardrail Long - Span System for Post Conflicts
BA-250	10-18-16	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-252	04-19-16	Steel Beam Guardrail Installation at Side Obstacle (One-Way Protection)
BA-401	04-16-13	Temporary Barrier Rail (Precast Concrete)
BA-500	04-19-16	Temporary Crash Cushions Sand Barrel
BR-101	04-21-15	Bridge Approach Section (General Details)
BR-203	10-17-17	Double Reinforced 12" Approach
BR-205	10-16-18	Double Reinforced 12" Approach (Slab Bridge)
BR-211	10-17-17	Bridge Approach (Abutting PCC or Composite Pavement)
BR-231	10-17-17	Bridge Approach (Multi-Lane, Curbed Roadway)
DR-101	04-18-17	Pipe Culvert (Bedding and Backfill)
DR-102	04-21-15	Pipe Culvert (Cover and Camber)
DR-103	04-21-15	Pipe Culvert (Installation Details)
DR-104	04-19-16	Depth of Cover Tables for Concrete and Corrugated Pipe
DR-121	10-17-17	Connected Pipe Joints
DR-122	10-18-16	Construction of Type "C" Concrete Adaptors for Pipe Culvert Connections
DR-141	04-18-17	Pipe Bends and Half Pipe
DR-201	10-16-18	Concrete Aprons
DR-213	10-17-17	Pipe Apron Guard
DR-303	10-17-17	Subdrains (Longitudinal)
DR-305	04-17-18	Subdrain Outlets (Standard Subdrain, Pressure Release and Special)
DR-306	10-16-18	Precast Concrete Headwall for Subdrain Outlets
DR-401	04-17-18	Scour Protection for Bridge End Drain
DR-601	04-18-17	Reinforced Concrete Pipe Culvert
DR-621	04-18-17	Pipe Extension
EC-101	04-19-16	Wood Excelsior Mat for Ditch Protection
EC-103	04-21-15	Wood Excelsior Mat for Slope Protection
EC-104	04-17-18	Turf Reinforced Mat (TRM)
EC-105	04-17-18	Transition Mat
EC-201	10-16-18	Silt Fence
EC-204	04-18-17	Perimeter and Slope Sediment Control Devices
EC-301	10-18-16	Rock Erosion Control (REC)
EC-602	10-16-18	Open-Throat Curb Intake Sediment Filter
EW-101	10-17-17	Embankment and Rebuilding Embankments
EW-102	10-20-15	Allowable Placement of Unsuitable Soil in Embankments
EW-103	10-20-15	Embankment Subgrade Treatment, Moisture Density Control and Special Compaction
EW-201	04-19-16	Bridge Berm Grading without Recoverable Slope (Barnroof Section)
EW-301	10-20-15	Guardrail Grading
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad
EW-402	04-18-17	Temporary Stream Diversion
EW-501	10-20-15	Rural Entrance
EW-503	10-20-15	Side Road Grading
MI-101	10-20-15	Fencing Layout
MI-102	10-20-15	Chain Link Fence Construction
MI-103	10-20-15	Deer Fence and Field Fence Construction
MI-210	10-20-15	PCC Driveways and Alleys
MI-220	10-20-15	Detectable Warnings and Pedestrian Ramp
PM-110	10-16-18	Line Types
PM-111	04-21-15	Symbols and Legends
PM-120	10-21-14	Stop Lines and Islands
PM-210	10-18-11	Separation in Two-Lane Roadway
PM-521	04-19-11	Two-Lane Roadway with Right Turn Lanes
PM-522	10-16-12	Two-Lane Roadway with Left Turn Lanes
PM-550	04-19-11	Two-Lane Roadway with Two-Way Left Turn Lane
PR-103	10-21-14	Full Depth PCC Patch with Dowels
PR-202	10-21-14	Notches for Resurfacing (with or without Runout)
PV-101	10-16-18	Joints
PV-102	10-18-16	PCC Curb Details
PV-103	04-19-11	Manhole Boxouts in PCC Pavement
PV-105	10-21-14	PCC Pavement Widening
PV-121	04-21-15	Jointing PCC Pavement Widening
PV-203	10-15-13	HMA Base Widening
PV-301	04-19-11	Superelevation Details Two Lane Roadway
SI-101	04-19-16	Locations - Type 'A' Signs
SI-111	04-19-16	Support Structures - Wood Posts
SI-131	10-18-16	Installation - Type 'A' Signs
SI-171	04-18-17	Reference Location Sign Posts
SI-172	04-19-16	Delineators
SI-173	04-19-16	Object Markers
SI-211	10-18-16	Object Marker and Delineator Placement with Guardrail
SI-881	10-17-17	Special Signs for Workzones
SI-882	10-18-16	Special Signs for Restricted Width Traffic Control Zones
SW-101	04-17-18	Trench Bedding and Backfill Zones
SW-102	04-18-17	Rigid Gravity Pipe Trench Bedding
SW-301	04-17-18	Circular Sanitary Sewer Manhole
SW-401	04-17-18	Circular Storm Sewer Manhole
SW-507	04-17-18	Single Open-Throat Intake, Small Box
SW-509	04-17-18	Double Open-Throat Curb Intake, Small Box

105-4
10-18-11

STANDARD ROAD PLANS

The following Standard Road Plans apply to construction work on this project.

Number	Date	Title
SW-510	04-17-18	Double Open-Throat Curb Intake, Large Box
SW-511	04-17-18	Rectangular Area Intake
SW-512	04-17-18	Circular Area Intake
SW-513	04-17-18	Open-Sided Area Intake
SW-601	04-21-15	Castings for Sanitary Sewer Manholes
SW-602	04-21-15	Castings for Storm Sewer Manholes
SW-603	10-16-18	Castings for Grate Intakes
SW-604	04-17-18	Castings for Area Intakes
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-81	04-20-10	Restricted Width Signing (Less Than 14.5 Feet)
TC-202	04-21-15	Work Within 15 ft of Traveled Way
TC-213	04-17-12	Lane Closure with Flaggers
TC-214	10-17-17	Lane Closure with Flaggers for use with Pilot Car
TC-216	10-18-16	Lane Closure with Signals
TC-217	10-18-16	Lane Closure with Signals and TBR
TC-252	04-19-16	Routes Closed to Traffic
TC-253	10-18-16	Paved On-Site Detour
WM-101	10-18-16	Thrust Blocks
WM-102	10-18-16	Tracer System
WM-201	04-18-17	Fire Hydrant Assembly

110-17
04-18-17

CLEARING AND GRUBBING

Location			Trees, Stumps, and Logs and Down Timber Material Diameters												All Other Materials		Estimated Quantities			
Station to Station or Ref. Loc. Sign to Ref. Loc. Sign or Description	Direction of Travel	Work and Material Type	3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Length	Width	Units	Area	Herbicide Application	Remarks
																FT	FT	Units	Acres	Each	
Highway 151																					
864+11 to 866+82	SB	Trees - Clearing and Grubbing																	0.5		
864+47 to 867+38	NB	Trees - Clearing and Grubbing																	0.2		
867+50 to 871+88	SB	Trees - Clearing and Grubbing																	0.4		
867+99 to 871+24	NB	Trees - Clearing and Grubbing																	0.2		
877+85	SB	Trees - Clearing and Grubbing							1									29.0	0.1		
878+40 to 881+15	SB	Trees - Clearing and Grubbing																	0.1		
881+33 to 881+60	SB	Trees - Clearing and Grubbing																	0.1		
882+78	SB	Trees - Clearing and Grubbing					1											13.5	0.5		
882+78	SB	Trees - Clearing and Grubbing						1										22.0			
882+85	SB	Trees - Clearing and Grubbing				1												9.4			
882+89	SB	Trees - Clearing and Grubbing						1										22.0			
979+60 to 982+14	SB	Trees - Clearing and Grubbing																	0.5		
Church Street																					
1847+74	EB	Trees - Clearing and Grubbing				1												9.4			
1848+12	WB	Trees - Clearing and Grubbing				1												9.4			
1848+28 to 1848+45	WB	Brush - Clearing														20.0	15.0	2.4			
Losey Avenue																					
3864+45	NB	Trees - Clearing and Grubbing					1											13.5			
																	Total:	131.0	2.8		

100-08
04-17-18

REMOVAL OF FENCE

Removal of Field Fence is incidental to Clearing and Grubbing.

Location				Type	Length	Remarks
From		To				
Station	Offset	Station	Offset		LF	
865+07.45	78.2' LT	866+06.64	77.4' LT	Chain Link	99.2	
870+54.67	89.6' LT	873+54.10	84.1' LT	Field	313.3	
880+48.18	72.7' LT	880+55.72	123.1' LT	Wood	55.9	Salvage to Property Owner
880+48.25	72.7' LT	881+31.85	127.3' LT	Field	110.1	Electric Wire Fence, Salvage to Property Owner
				Total:	155.1	

232-10
04-18-17

EMERALD ASH BORER

Any living, dead, cut or fallen material of the ash (Fraxinus spp.) including trees, nursery stock, logs, firewood, stumps, roots, branches, and composted or uncomposted ash chips can be freely moved within the yellow areas of the most recent Federal EAB Quarantine & Authorized Transit.

https://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab_quarantine_map.pdf.

Obtain appropriate Compliance Agreements from USDA APHIS PPQ prior to moving any of the above listed ash articles to areas outside the yellow zone on the map.

For questions, concerns, and general assistance, contact:

USDA APHIS PPQ, Iowa office, 515-414-3295

Or

Iowa Department of Agriculture & Land Stewardship
515-725-1470
Entomology@IowaAgriculture.gov

100-7
10-16-12

FENCING

* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5

Location				Side	Chain Link				Deer				Field				Channel Crossing		Remarks
From		To			Fence		Gate				Gate				Gate				
Station	Offset	Station	Offset		Length*	Type	No.*	Type	Fence Length*	Brace Panels*	No.*	Type	Fence Length*	Brace Panels*	No.*	Type	Length*	Type	
					LF		EACH		LF	EACH	EACH		LF	EACH	EACH		LF		
849+79.84	46.5	856+74.00	40.5	RT	694.2	72 IN.													Install on MSE Wall No. 1
858+17.00	40.5	863+60.00	46.5	RT	543.1	72 IN.													Install on MSE Wall No. 2
858+05.00	37.1	863+50.00	46.5	LT	545.2	72 IN.													Install on MSE Wall No. 3
		Total:			1782.5														

EXISTING PAVEMENT

No.	Location					Year	Type	Project Number	Surface		Base		Subbase		Removal		Coarse Aggregate			Reinforcement	Remarks
	County	Route	Dir. of Travel	Begin Ref. Loc. Sign	End Ref. Loc. Sign				Type	Depth IN	Type	Depth IN	Type	Depth IN	Type	Depth IN	Source	Type	Durability Class	Type	
	Linn	US 151	Both	2156	2494	2007	HMA	STPN-151-3(120)--2J-57	HMA	2	HMA	2			HMA	2	BEVERLY	C.LST.			Surface Treatment
						2007	HMA	STPN-151-3(120)--2J-51	HMA	4	HMA	7.5	Modified	12	HMA	3.5	BEVERLY	C.LST.			Widening Project
						1995	PCC	NHS-151-2(3)--19-06	PCC	9											Grade and Replace
						1985	PCC	FN-149-4(16)--21-57	PCC	12											Paved Shoulder Widening
						1983	HMA	FR-151-1(3)--2G-48	RAC	1.5											
						1966	HMA	FN-255	AAC	1.5	AAC	1.5					CEDAR RAPIDS	C.LST.			Surfacing
						1961	PCC	FN-255	PCC	10											Widening roadway from 18' to 24'
						1952	HMA	P-10027	HMA	1.5	HMA	1.5					OTIS QRY.	C.LST.			
						1934	PCC	NRH-NRM-255	PCC	7							GLORY	C.LST.	1		C. Rapids St. = 1

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5

* Not a Bid Item

Begin Station	End Station	Side	Pavement Type	Area SY	Saw Cut* LF	Remarks
U.S. 151						
843+88.58	848+30.33	RT	PCC	147.8	444.7	Remove Per Staging Plans
845+05.45	848+30.33	LT	PCC	255.2	327.8	Remove Per Staging Plans
848+30.33	856+50.14	BOTH	PCC/HMA	3912.8	45.2	Includes C&G and Bridge Approach Pavement
857+96.21	866+58.37	BOTH	PCC/HMA	3528.2	253.9	Includes C&G and Brg. Apch. Pvmt. Remove Per Staging.
868+26.68	880+76.66	BOTH	PCC/HMA	4958.8	1310.9	Includes Bridge Approach Pvmt. Remove Per Staging.
881+03.15	898+00.00	BOTH	PCC/HMA	7108.4	1795.8	Includes Bridge Approach Pvmt. Remove Per Staging.
974+69.95	979+30.00	LT	HMA	394.4	472.1	Remove per Staging Plans
979+30.00	980+04.24	BOTH	PCC/HMA	309.5	44.7	Includes Bridge Approach Pvmt. Remove Per Staging.
908+33.64	981+40.00	BOTH	PCC/HMA	459.0	42.1	Includes Bridge Approach Pvmt. Remove Per Staging.
981+40.00	984+83.16	LT	HMA	316.9	355.2	Remove Per Staging Plans
CHURCH ST						
1849+50.70	1851+25.00	BOTH	HMA	681.7	25.5	Remove Per Staging Plans
PRAIRIE AVE						
2864+31.44	2866+56.00	BOTH	HMA	789.4	56.1	Remove Per Staging Plans
LOSEY AVE						
3862+86.45	3864+78.80	BOTH	HMA	552.1	107.6	Includes C&G Removal. Remove Per Staging Plans.
STALLMAN DR						
4874+25.00	4876+09.97	BOTH	HMA	1098.5	21.8	Remove Per Staging Plans
CEMETERY RD						
5882+30.00	5884+06.32	BOTH	HMA	526.5	24.4	Remove Per Staging Plans
5884+13.31	5885+42.00	BOTH	PCC	640.1	25.0	Remove Per Staging Plans
DETOUR PVMT.						
869+62.80	879+14.71	RT	TEMP. PVMT.	1859.8	0.0	Stage 1C Detour Pavement, Remove Per Staging.
882+63.44	883+99.64	RT	TEMP. PVMT.	46.6	0.0	Stage 1C Detour Pavement, Remove Per Staging.
884+99.85	890+92.91	RT	TEMP. PVMT.	1258.5	0.0	Stage 1C Detour Pavement, Remove Per Staging.
891+27.79	893+96.76	RT	TEMP. PVMT.	593.1	0.0	Stage 1C Detour Pavement, Remove Per Staging.
894+37.55	895+56.60	RT	TEMP. PVMT.	247.1	0.0	Stage 1C Detour Pavement, Remove Per Staging.
895+98.24	902+84.49	RT	TEMP. PVMT.	1102.8	0.0	Stage 1C Detour Pavement, Remove Per Staging.
860+76.91	865+98.61	LT	TEMP. PVMT.	720.4	0.0	Stage 2A Detour Pavement, Remove Per Staging.
868+76.20	872+09.69	LT	TEMP. PVMT.	439.2	0.0	Stage 2A Detour Pavement, Remove Per Staging.
876+23.77	879+68.00	LT	TEMP. PVMT.	325.4	0.0	Stage 2A Detour Pavement, Remove Per Staging.
882+04.00	883+46.75	LT	TEMP. PVMT.	175.7	0.0	Stage 2A Detour Pavement, Remove Per Staging.
898+00.00	901+97.45	LT	TEMP. PVMT.	203.1	0.0	Stage 2B Detour Pavement, Remove Per Staging.
977+97.82	982+28.46	LT	TEMP. PVMT.	1124.8	0.0	DD No. 2 Stage 1 Detour Pavement, Remove Per Staging.
			Total:	33775.8	5352.8	

ADJUSTMENT OF FIXTURES

No.	Location Station	Type of Fixture	Adjustment
1	844+66.07	Fire Hydrant	Minor Adjustment, Raise 0.06', Refer to Sheet D.2, Division 2
2	844+67.84	Water Valve	Minor Adjustment (Incidental), Raise 0.11', Refer to Sheet D.2
3	875+18.26	Gas Valve	Minor Adjustment (By Others), Raise 0.39', Refer to Sheet D.4, Contact Utility Company
4	877+81.86	Water Valve	Minor Adjustment, Adjust to Propsoed Grade, Refer to Sheet D.3
5	877+82.08	Fire Hydrant	Minor Adjustment, Adjust to Proposed Grade, Refer to Sheet D.3, Division 2
6	879+46.82	Gas Valve	Minor Adjustment (By Others), Raise 1.86', Refer to Sheet D.4, Contact Utility Company
7	882+66.49	Sanitary Sewer Manhole	Major Adjustment, Raise 0.41', Refer to Sheet D.5, Division 2
8	885+38.91	Water Valve	Major Adjustment (Incidental), Lower 1.49', Refer to Sheet D.5
9	887+15.05	Gas Valve	Minor Adjustment (By Others), Raise 1.43', Refer to Sheet D.5, Contact Utility Company
10	888+23.42	Water Valve	Major Adjustment (Incidental), Lower 1.58', Refer to Sheet D.5
11	888+23.46	Fire Hydrant	Minor Adjustment (Incidental), Lower 0.74', Refer to Sheet D.5, Division 2
12	888+85.61	Gas Valve	Minor Adjustment (By Others), Raise 1.48', Refer to Sheet D.5, Contact Utility Company
13	890+58.90	Gas Valve	Minor Adjustment (By Others), Lower 0.04', Refer to Sheet D.5, Contact Utility Company
14	893+91.45	Gas Valve	Minor Adjustment (By Others), Adj. to Grade, Refer to Sheet D.5, Contact Utility Company
15	897+07.51	Water Valve	Minor Adjustment (Incidental), Raise 0.70', Refer to Sheet D.6
16	897+07.66	Fire Hydrant	Major Adjustment, Raise 1.48', Refer to Sheet D.6, Division 2
17	897+12.00	Water Valve	Minor Adjustment (Incidental), Raise 0.65', Refer to Sheet D.6
18	899+40.71	Gas Valve	Minor Adjustment (By Others), Raise 0.56', Refer to Sheet D.6, Contact Utility Company
19	1848+95.23	Sanitary Sewer Manhole	Major Adjustment, Raise 0.80', Refer to Sheet D.2, E.1, M.1 and M.8, Division 2
20	1850+41.44	Sanitary Sewer Manhole	Major Adjustment, Lower 0.40', Refer to Sheet E.1, Division 2
21	2865+79.64	Sanitary Sewer Manhole	Major Adjustment, Raise 0.98', Refer to Sheet E.2 Division 2
22	2864+84.91	Water Valve	Major Adjustment (Incidental), Raise 2.93' to Proposed Grade, Refer to Sheet E.2
23	2864+87.18	Water Valve	Major Adjustment (Incidental), Raise 2.47' to Proposed Grade, Refer to Sheet E.2
24	5884+86.59	Water Valve	Minor Adjustment (Incidental), Raise 0.32', Refer to Sheet E.5
25	5884+92.92	Water Valve	Minor Adjustment (Incidental), Raise 0.32', Refer to Sheet E.5
26	5885+20.44	Water Valve	Minor Adjustment (Incidental), Raise 0.51', Refer to Sheet E.5
27	5885+19.57	Fire Hydrant	Minor Adjustment, Raise 0.49', Refer to Sheet E.5, Division 2
28	5885+28.77	Storm Sewer Manhole	Major Adjustment, Lower 0.19', Refer to Sheet E.5, Division 2
	Totals:	5	MANHOLE ADJUSTMENT, MAJOR
		5	FIRE HYDRANT ADJUSTMENT

SIDEWALK REMOVAL

* Not a bid item

Begin Station	End Station	Area SY	Saw Cut* LF	Remarks
845+60.00	845+80.00	9.4	24.0	
846+24.70	847+08.40	33.4	0.0	
1850+41.51	1850+57.84	7.0	3.8	
	Total:	49.8	27.8	

REMOVAL OF CONCRETE DRIVES

* Not a Bid Item

Location Station	Side	Area SY	Saw Cut* LF	Remarks
846+44.00	RT	69.1	41.6	
846+93.00	LT	60.3	37.7	
847+60.50	RT	96.9	0.0	
849+21.00	LT	161.2	41.3	Includes Asphalt Removal
877+50.00	RT	239.5	34.2	
890+96.75	LT	195.8	36.7	
891+10.00	RT	298.7	23.9	
894+18.50	RT	241.8	47.8	Includes C&G Removal
894+21.00	LT	316.6	49.4	
895+76.54	RT	223.5	43.3	Includes C&G Removal
2866+42.33	LT	3.9	15.6	
Total:		1907.3	371.5	

110-14
04-16-13

SANITARY OR STORM SEWER ABANDONMENT OR REMOVAL

* Not a bid item

Location/Description	Sanitary or Storm Sewer	Abandonment, Plug Only or Abandonment, Plug and Fill or Removal	Length of Pipe ≤ 36 inch diameter (LF)	Length of Pipe > 36 inch diameter (LF)	Fill Material* Flowable Mortar or CLSM (CY)	Remarks
845+05 to 848+34, LT	Storm Sewer	Removal	329			
845+68 to 848+35, RT	Storm Sewer	Removal	266			
848+38.75, 29.2' LT to 15.8' RT	Storm Sewer	Removal	45			
848+41 to 849+64, LT	Storm Sewer	Removal	129			
849+82, 16.8' RT to 31.7' LT	Storm Sewer	Removal	49			
849+82, 35.7' LT to 59.9' LT	Storm Sewer	Removal	25			
852+52, 17.2' RT to 26.3' LT	Storm Sewer	Removal	44			
852+55, 29.7' LT to 104.1' LT	Storm Sewer	Removal	77			
863+54 to 865+24, RT	Storm Sewer	Removal	175			
863+81 to 864+64, LT	Storm Sewer	Removal	88			
866+39, 13.2' RT to 14.5' LT	Storm Sewer	Removal	28			
866+39, 18.5' LT to 60.7' LT	Storm Sewer	Removal	43			
3863+08, 11.2' LT to 18.8' RT	Storm Sewer	Removal	33			Losey Avenue
979+67.8, 152.7' RT to 979+91.9, 107.5' RT	Sanitary Sewer	Removal	50			Refer to U Sheets
980+70.6, 98.9' LT to 980+71.2, 148.9' LT	Sanitary Sewer	Removal	50			Refer to U Sheets
980+71.2, 148.9' RT to 979+67.8, 152.7' RT	Sanitary Sewer	Abandonment, Plug and Fill	246		28.6 CY Flowable Mortar	Refer to U Sheets
Totals:	Storm Sewer	Removal	1331			
	Sanitary Sewer	Removal	100			
	Sanitary Sewer	Abandonment, Plug and Fill	246			

110-2
04-16-13

REMOVAL OF EXISTING STRUCTURES

Location	Description	Remarks
850+66 to 856+73, RT	Existing Block Retaining Wall	Refer to Sheet D.3
859+87 to 861+89, LT	Existing Block Retaining Wall	Refer to Sheet D.3
1850+18, 22' LT	Existing Block Retaining Wall	Refer to Sheet E.1
2865+65.30, 19.9' LT	Water Meter Pit	Existing Pit is Abandoned. Refer to Sheet E.2

110-15
04-16-13

REMOVAL OF INTAKES AND UTILITY ACCESSES

No.	Location/Description	Type	Remarks
1	845+63, 17.2' RT	Intakes	
2	848+39, 17.5' RT	Intakes	
3	848+38, 31.2' LT	Intakes	
4	849+82, 33.6' LT	Intakes	
5	849+82, 18.8' RT	Intakes	
6	851+14, 32' LT	Utilities	Utility Handhole, Coordinate with Utility Company
7	852+52, 19.2' RT	Intakes	
8	852+52, 28.1' LT	Intakes	
9	863+49, 18.9' RT	Intakes	
10	863+76, 27.3' LT	Intakes	
11	866+39, 15.2' RT	Intakes	
12	866+39, 16.5' LT	Intakes	
13	979+91.50, 107.9' RT	Utilities	Sanitary Sewer Manhole, Refer to U Sheets
14	980+67.30, 44.3' RT	Utilities	Sanitary Sewer Manhole, Refer to U Sheets
15	980+70.60, 62.0' LT	Utilities	Sanitary Sewer Manhole, Refer to U Sheets
16	3863+00, 13.2' LT	Intakes	
	Total:	16	

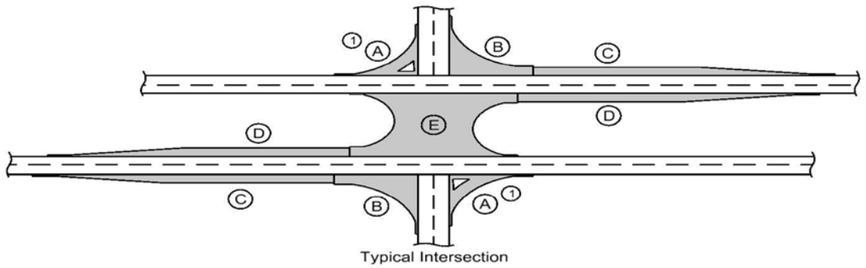
104-3
04-21-15

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

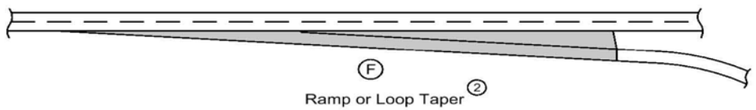
Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
* Not a bid item
(1) Diameter or equivalent diameter
(2) UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe

Drainage Area (ACRE)	Location	Type	Size (1) (IN)	Kind Of Pipe (2)	Length New Const. (LF)	Bedding Class	Design Cover (H) (FT)	Camber* (DR-102) (FT)	Apron No. IN	Apron No. OUT	Apron Guard* (DR-213) No.	Elbow* (DR-141) No.	Diaphragm* (DR-501) No.	Tee Section* (DR-142) No.	"D" Section* (DR-141) No.	Reducer* No.	Type 'C' Connections* (DR-122) Type	Type 'C' Connections* (DR-122) No.	Connected Pipe Joint* (DR-121) Type	4" Perforated Subdrain* (FT)	Flow Line Elevations Lt.	Flow Line Elevations Rt.	Flow Line Elevations Other	Flow Line Elevations Other	Dimensions Lin. Ft. Total Lt.	Dimensions Lin. Ft. Total Rt.	Dimensions Lin. Ft. Extensions Lt.	Dimensions Lin. Ft. Extensions Rt.	Skew Ahead Degrees Lt.	Skew Ahead Degrees Rt.	Dike Rt.	Dike Location Station	Dike Top Elevation	Dike Type	Class 20 (CY)	Flowable Mortar (CY)	Floodable* Backfill (A) (CY)	Porous* Backfill (B) (CY)	Flooded Backfill (A+B) (CY)	Remarks
12.0	852+26.00	3000D	42	RCP	170	B	18.9	0.33	1	1	2								Type 2		752.04	754.30			125.0	61.0									792.2		148.2	9.0	157.2	Sheet V.20
67.0	900+60.27	2000D	48	RCP	2	B	0.5												Type 2			753.22	753.30			47.5		2.0							6.9					Sheet V.21
40.3	6957+40.00	2000D	42	RCP	74	B	5.3	0.08	1	1	2								Type 2		772.40	773.30			49.5	40.5									176.4		121.1	6.9	128.0	Sheet V.22
	Totals:								4	42"																						Totals:		975.5		269.3	15.9	285.2	

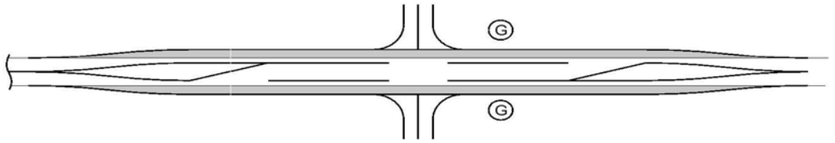
PCC PAVEMENT



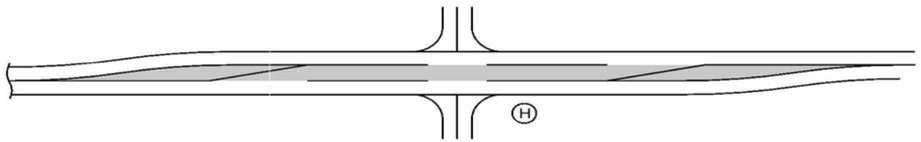
Typical Intersection



Ramp or Loop Taper (2)



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

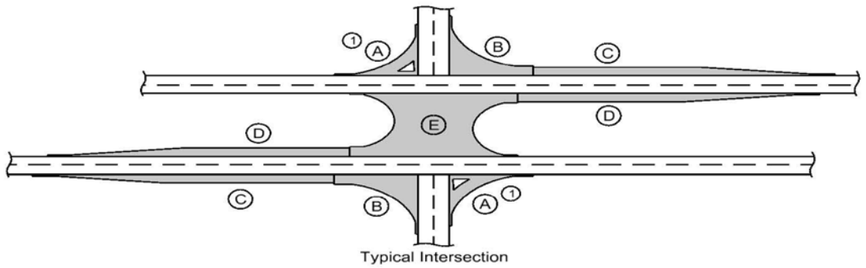
(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

(2) Refer to PV-410, PV-411, PV-412, and PV-414.

(3) Quantity includes Pavement Header.

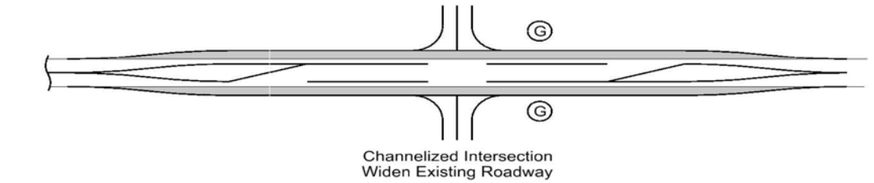
Location				Mainline			Area (3)								Total Area By Pavement Thickness		Special Backfill	Modified Subbase	Granular Subbase	Remarks
Road Identification	Direction of Travel	Station to Station		Width	Length	Area	A (1)	B	C	D	E	F (2)	G	H	SY					
				FT	FT	SY	SY	SY	SY	SY	SY	SY	SY	SY	9.5 IN	7 IN	TONS	CY	SY	
U.S. Highway 151	NB	843+88.58	846+17.11	VARIES	228.5								138.7		138.7			135.4		
U.S. Highway 151	SB	845+05.45	848+30.33	3.0	324.9								108.3		108.3			136.5		
U.S. Highway 151	NB	846+17.11	848+30.33	8.0	213.2								189.6		189.6			164.2		
U.S. Highway 151	NB/SB	848+30.33	848+69.80	42.0	39.5	184.2									184.2			132.6		
U.S. Highway 151	NB/SB	848+69.80	850+01.96	36.0	132.2	528.7									528.7			333.1		
U.S. Highway 151	NB/SB	850+01.96	855+14.27	39.0	512.3	2220.1									2220.1			1506.4		
U.S. Highway 151	SB	850+01.96	853+34.27	15.0	332.3				553.9						553.9			418.8		
U.S. Highway 151	SB	853+34.27	855+14.27	VARIES	180.0				180.0						180.0			151.3		
U.S. Highway 151	NB/SB	855+14.27	855+59.10	42.0	44.8	209.3									209.3			150.5		
																				UPRR Bridge and Approach Pavement
U.S. Highway 151	NB/SB	859+06.10	859+93.36	42.0	87.3	407.3									407.3			293.2		
U.S. Highway 151	NB/SB	859+93.36	863+87.58	39.0	394.2	1708.3									1708.3			1159.1		
U.S. Highway 151	NB	859+93.36	861+73.36	VARIES	180.0				180.0						180.0			151.3		
U.S. Highway 151	NB	861+73.36	863+58.36	15.0	185.0				308.4						308.4			233.1		
U.S. Highway 151	NB/SB	863+87.58	864+74.60	40.0	87.0	386.8									386.8			262.0		
U.S. Highway 151	NB/SB	864+74.60	865+48.61	44.0	74.0	361.9									361.9			259.1		
																				Prairie Creek Bridge and Approach Pavement
U.S. Highway 151	NB/SB	869+26.20	870+00.00	44.0	73.8	360.9									360.9			258.2		
U.S. Highway 151	NB	870+00.00	870+70.00	VARIES	70.0				51.3						51.3			46.9		Transition to Rural Section
U.S. Highway 151	SB	870+00.00	870+70.00	VARIES	70.0				49.9						49.9			46.4		Transition to Urban Section
U.S. Highway 151	NB/SB	870+00.00	879+38.00	38.0	938.0	3960.5									3960.5			2836.7		
																				Drainage Ditch No. 1 Bridge and Approach Pavement
U.S. Highway 151	NB/SB	882+34.00	898+00.00	38.0	1566.0	6612.0									6612.0			4614.3		
U.S. Highway 151	NB	882+34.00	882+78.46	VARIES	44.5				50.4						50.4			40.9		
U.S. Highway 151	NB	882+78.46	883+95.73	12.0	117.3				154.4						154.4			121.5		
U.S. Highway 151	SB	884+25.93	888+43.66	12.0	417.7				564.3						564.3			444.5		
U.S. Highway 151	SB	888+43.66	890+21.24	VARIES	177.6				99.0						99.0			100.6		
																				Project Gap
U.S. Highway 151	SB	974+69.95	979+30.00	12.0	460.1								613.5		613.5			483.1		
U.S. Highway 151	NB/SB	979+30.00	981+40.00	40.0	210.0	933.4									933.4			676.2		
U.S. Highway 151	SB	981+40.00	984+83.16	12.0	343.2								457.6		457.6			360.4		
Church Street	EB/WB	1847+69.25	1848+56.14	36.0	86.9	347.6										347.6	81.1			
Church Street	EB	1848+56.14	1849+16.97	VARIES	60.8		82.1									82.1	23.0			
Church Street	WB	1848+56.14	1849+16.97	VARIES	60.8			146.1								146.1	35.5			
Church Street	EB/WB	1848+56.14	1849+16.97	36.0	60.8	243.4										243.4	51.1			
Church Street	EB/WB	1849+52.97	1850+01.77	31.0	48.8	168.1										168.1	35.3			
Church Street	EB	1849+52.97	1850+01.77	VARIES	48.8			81.4								81.4	22.0			
Church Street	WB	1849+52.97	1850+01.77	VARIES	48.8		79.5									79.5	21.9			
Church Street	EB/WB	1850+01.77	1850+11.77	37.0	10.0	41.2										41.2	10.1			
Church Street	EB/WB	1850+11.77	1851+01.77	VARIES	90.0	310.0										310.0	73.7			
Church Street	EB/WB	1851+01.77	1851+25.00	25.0	23.2	64.6										64.6	15.7			
Prairie Avenue	EB/WB	2864+37.80	2864+86.31	23.0	48.5	124.0										124.0	26.1			
Prairie Avenue	EB	2864+37.80	2864+86.31	VARIES	48.5			162.1								162.1	38.2			
Prairie Avenue	WB	2864+37.80	2864+86.31	VARIES	48.5		70.9									70.9	19.5			
Prairie Avenue	EB/WB	2864+86.31	2865+30.81	25.5	44.5	126.1										126.1	29.6			
Prairie Avenue	EB/WB	2865+30.81	2866+56.00	23.0	125.2	320.0										320.0	78.9			

PCC PAVEMENT

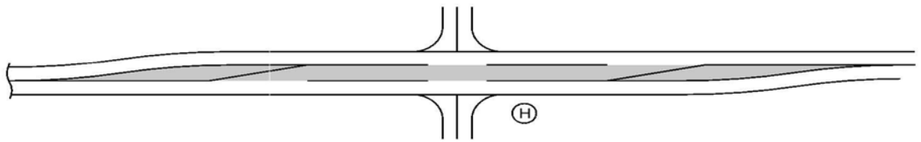


Typical Intersection

Ramp or Loop Taper (2)



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

(2) Refer to PV-410, PV-411, PV-412, and PV-414.

(3) Quantity includes Pavement Header.

Location				Mainline			Area (3)								Total Area By Pavement Thickness		Special Backfill	Modified Subbase	Granular Subbase	Remarks
Road Identification	Direction of Travel	Station to Station		Width	Length	Area	A (1)	B	C	D	E	F (2)	G	H	SY					
				FT	FT	SY	SY	SY	SY	SY	SY	SY	SY	SY	9.5 IN	7 IN	TONS	CY	SY	
Losey Avenue	NB/SB	3862+86.45	3864+56.28	23.0	169.8	434.1										434.1	115.0			
Losey Avenue	NB/SB	3864+56.28	3864+83.31	17.0	27.0	51.1										51.1	10.8			
Losey Avenue	NB	3864+56.28	3864+83.31	VARIES	27.0			30.4								30.4	9.0			
Stallman Drive	NB/SB	4874+25.00	4875+07.57	25.0	82.6	229.4										229.4	55.9			
Stallman Drive	NB/SB	4875+07.57	4875+43.95	22.0	36.4	89.0										89.0	21.3			
Stallman Drive	NB	4875+07.57	4875+81.00	VARIES	73.4			68.6								68.6	18.1			
Stallman Drive	NB/SB	4875+43.95	4875+81.00	19.0	37.0	78.3										78.3	16.5			
Stallman Drive	SB	4875+43.95	4875+81.00	VARIES	37.0		62.0									62.0	16.1			
Cemetery Road	EB/WB	5882+30.00	5883+88.70	25.0	158.7	440.9										440.9	102.7			
Cemetery Road	EB	5883+15.59	5883+88.70	VARIES	73.1			96.8								96.8	23.4			
Cemetery Road	WB	5883+60.60	5883+88.70	VARIES	28.1		33.3									33.3	9.0			
Cemetery Road	EB/WB	5884+37.80	5885+42.00	25.0	104.2	289.5										289.5		98.3		
Cemetery Road	EB	5884+37.80	5884+86.04	VARIES	48.2			46.8								46.8		21.1		
Cemetery Road	WB	5884+37.80	5885+27.53	VARIES	89.7		161.9									161.9		57.2		
														Total:	21572.7	4479.2	959.5	15692.9		

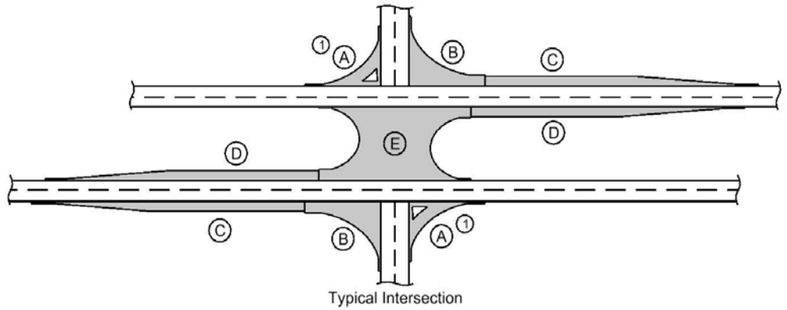
BRIDGE APPROACH SECTION

Refer to the BR Series.

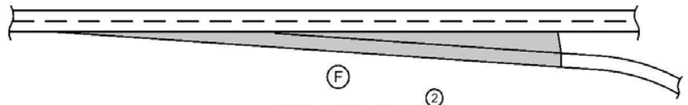
* Not a bid item

Location				Approach Pavement					Standard Road Plans BR Series			Subdrain								Remarks
Bridge Station	End	Skew Ahead Degrees		T Thickness	Pay Length	Non-Reinf. Pavement Area	Single-Reinf. Pavement Area	Double-Reinf. Pavement Area	Approach	Fixed or Movable Abutment	Abutting Pavement	* Perforated Subdrain 4"	* Subdrain Outlet		* Porous Backfill	* Class 'A' Crushed Stone Backfill	* Modified Subbase	* Polymer Grid	* Special Backfill	
		LEFT	RIGHT	Inches	FT	SY	SY	SY				LF	STA	Side	CY	CY	TON	SY	TON	
857+32.60	S		4	12.0	70.0	140.9	94.5	122.5	BR-203	Movable	BR-211	74.0	855+69.10	LT	2.3		344.500	398.2		UPRR Bridge (BRF-151-3(141)--38-57)
	N		4	12.0	70.0	140.9	94.4	129.2	BR-203	Movable	BR-211	54.0	858+96.10	LT	1.7		352.200	404.8		Connect Subdrain to Longitudinal Subdrain, Avoid GR Post
867+41.69	S		30	12.0	86.8	146.7	102.8	228.3	BR-203	Movable	BR-211	78.0	865+58.61	LT	2.4		460.800	523.7		Prairie Creek Bridge (BRF-151-3(142)--38-57)
	N		30	12.0	78.3	146.7	102.8	228.9	BR-203	Movable	BR-211	78.0	869+16.20	RT	2.4		461.500	521.4		Prairie Creek Bridge (BRF-151-3(142)--38-57)
880+85.25	S	15		12.0	76.9	126.7	169.6	296.8	BR-205	Movable	BR-211	80.0	879+48.00	RT	2.5		601.500	635.7		Drainage Ditch No. 1 Bridge (BRF-151-3(152)--38-57)
	N	15		12.0	78.3	149.8		445.9	BR-205	Movable	BR-211	82.0	882+24.00	RT	2.5		590.900	638.7		Ext. Dbl. Reinf. Section to End of Sep. Rail. Sheet L.17
							Total:	1678.6	BR-203											
								1188.8	BR-205											

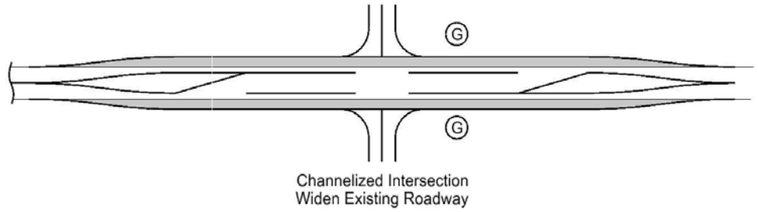
HMA PAVEMENT



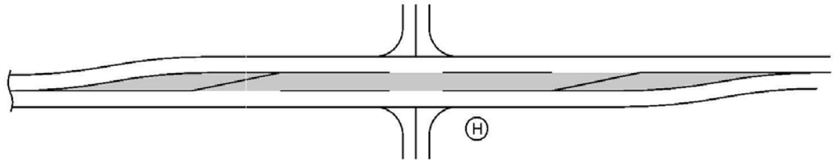
Typical Intersection



Ramp or Loop Taper (2)



Channelized Intersection
Widen Existing Roadway



Channelized Intersection
Reconstructed Roadway

(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.

(2) Refer to PV-410, PV-411, PV-412, and PV-414.

(3) Quantity includes Pavement Header.

Calculations assume a surface course unit weight (lbs/cf) of 155, an intermediate course unit weight (lbs/cf) of 150, a base course unit weight (lbs/cf) of 150, and a special backfill unit weight (lbs/cf) of 140.

Location				Mainline			Area (3)								Bid Items												
															Hot Mix Asphalt Pavement						Binder						
Road Identification	Direction of Travel	Station to Station		Width	Length	Area	A (1)	B	C	D	E	F (2)	G	H	Surface		Intermediate		Base		Surface	Intermediate	Base	Special Backfill	Modified Subbase	Granular Subbase	Pavement Scarification	Remarks
				FT	FT	SY	SY	SY	SY	SY	SY	SY	SY	SY	TONS	SY	TONS	SY	TONS	SY	TONS	TONS	TONS	TONS	CY	SY	SY	
U.S. Highway 151	NB	898+00.00	902+58.42	Varies	458.4								298.3				33.6	298.3	100.7	298.3		2.0	6.0		284.1			
U.S. Highway 151	SB	898+00.00	900+09.70	Varies	209.7								68.2				7.7	68.2	23.0	68.2		0.5	1.4		139.2			
U.S. Highway 151	NB/SB	898+00.00	902+58.42	Varies	458.4	2469.0									287.0	2469.0					17.2							
U.S. Highway 151	SB	974+69.95	979+30.00	12.0	460.1	613.5									71.3	613.5					4.3							
U.S. Highway 151	NB/SB	979+30.00	981+40.00	40.0	210.0	933.4									108.5	933.4					6.5							
U.S. Highway 151	SB	981+40.00	984+83.16	12.0	343.2	457.6									53.2	457.6					3.2							
														Total:	546.1	4473.5	43.3	366.5	129.9	366.5	32.8	2.6	7.8		423.3			

NOTCHES AND RUNOUTS FOR RESURFACING

Refer to PR-201 and PR-202.

(1) Bid item. Applies only to Types 'N1' and 'N3' on PR-202. Refer to 100-25 for remaining values.

Location Station	Type of Notch or Runout	S	I	DI	L	M	Pavement Scarification (1)	Remarks
		IN	IN	IN	FT	IN	SY	
902+58.42	Type 'N1'	2.0			100.0	2.0	576.1	
	Total:						576.1	

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) Bid Item
(3) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(4) Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 155, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Location					Quantities																
Road Identification	(1) Direction Of Traffic	Station to Station		Side	(P) Width	(G) Width	(L) Length	Class 13 Excavation (3)	Hot Mix Asphalt		Binder	Paved Shoulder	Reinforced Paved Shoulder	Special Backfill				Modified Subbase	Granular Shoulder		Earth Shoulder Construction Alternates			Remarks
														HMA Alternate		PCC Alternate					STA (2)	HMA	PCC	
					FT	FT	FT	CY (2)	TON	TON/STA	TONS	SY (2)	SY (2)	TON (2)	TON/STA	TON (2)	TON/STA	CY (2)	TON (2)	TON/STA		CY (4)	CY (4)	
U.S. 151	NB	870+70.00	877+25.85	RT	10.0		655.9					710.2				416.858	63.560				6.6	126.8	124.9	7" PCC
U.S. 151	SB	870+70.00	872+78.04	LT	10.0		208.0					224.9				132.230	63.560				2.1	40.2	39.6	7" PCC
U.S. 151	SB	873+21.96	875+71.16	LT	10.0		249.2					258.7				158.392	63.560				2.5	48.2	47.4	7" PCC
U.S. 151	SB	876+25.92	879+68.00	LT	10.0		342.1					374.8				217.426	63.560				3.4	66.1	65.1	7" PCC
U.S. 151	NB	877+76.88	879+68.00	RT	10.0		191.1					228.2				121.476	63.560				1.9	36.9	36.4	7" PCC
U.S. 151	NB	882+04.00	884+48.42	RT	6.0		244.4					168.7				86.231	35.280				2.4	53.0	52.2	7" PCC
U.S. 151	SB	882+04.00	883+41.77	LT	6.0		137.8					179.6				48.605	35.280				1.4	29.9	29.4	7" PCC
U.S. 151	SB	884+02.90	890+71.27	LT	6 to 10		668.4					476.2				330.308	49.420				6.7	137.1	136.1	7" PCC
U.S. 151	NB	884+94.40	890+90.79	RT	6 to 10		596.4					677.2				294.736	49.420				6.0	122.4	121.5	7" PCC
U.S. 151	SB	891+22.89	893+98.36	LT	10.0		275.5					287.6				175.089	63.560				2.8	53.3	52.4	7" PCC
U.S. 151	NB	891+30.24	893+93.86	RT	10.0		263.6					268.9				167.557	63.560				2.6	51.0	50.2	7" PCC
U.S. 151	NB	894+44.14	895+47.30	RT	10.0		103.2					96.1				65.568	63.560				1.0	19.9	19.6	7" PCC
U.S. 151	SB	894+43.64	898+00.00	LT	10.0		356.4					386.7				226.502	63.560				3.6	68.9	67.8	7" PCC
U.S. 151	NB	896+05.78	898+00.00	RT	10.0		194.2					206.6				123.446	63.560				1.9	37.5	37.0	7" PCC
U.S. 151	NB	898+00.00	902+58.42	RT		6.0	458.4												216.283	47.180	4.6	99.5	98.0	
U.S. 151	SB	898+00.00	902+58.42	LT		6.0	458.4												216.283	47.180	4.6	99.5	98.0	
U.S. 151	SB	974+22.81	979+80.09	LT	4.0	6.0	557.3		86.378	15.500	5.183	238.1		173.983	31.220				262.925	47.180	5.6	121.0	119.1	6" HMA
U.S. 151	SB	979+80.09	982+76.24	LT	13.3 to 15		296.2		162.383	54.831	9.743	446.0		215.597	72.800						3.0	64.3	63.3	6" HMA
U.S. 151	SB	982+76.24	984+83.16	LT	4.0	6.0	206.9		32.073	15.500	1.924	92.0		118.193	57.120				97.625	47.180	2.1	40.0	39.4	6" HMA
U.S. 151	SB	984+83.16	985+76.46	LT		6 to 0	93.3							29.128	31.220				22.009	23.590	0.9	18.0	17.8	
U.S. 151	NB	977+81.50	979+30.00	RT	3.9 to 3.2		148.5		39.130	26.350	2.348	64.5		55.094	37.100						1.5	32.2	31.7	8" HMA
U.S. 151	NB	979+30.00	980+65.15	RT	13.3		135.1		92.871	68.717	5.572	199.7		98.389	72.800						1.4	26.1	25.7	8" HMA
U.S. 151	NB	980+65.15	981+40.00	RT	10.0		74.9		38.673	51.667	2.320	83.2		54.491	72.800						0.7	15.4	15.2	8" HMA
Beverly Rd.	WB	6957+24.62	6957+55.38	LT		9.3 to 9	30.8												16.149	52.500	0.3			
Beverly Rd.	EB	6957+25.37	6957+54.63	RT		9.3 to 10	29.3												15.362	52.500	0.3			
							Totals:					4544.4	7" PCC	744.900		2564.500			846.700		69.8			
												776.1	6" HMA											
												347.4	8" HMA											

FULL-DEPTH PATCHES

Possible Standards: PR-101, PR-102, PR-103, PR-104, PR-105 and PR-140.

Location				Dimension			PCC Patches				HMA Patches	Composite HMA	Subbase Patches	Subbase Patch w/ 'EF' Joint	Patch Subdrain	'CD' Joints	'CT' Joints	'EF' Joints	Anchor Lugs Removal	Remarks
Count	Station	Reference Location Sign	Lane	Length	Width	Patch Thickness	With Dowels	Without Dowels	C R C	Ramp with Dowels										
							PR-103	PR-102	PR-104	PR-105			PR-140	PR-101	PR-101 or PR-140			PR-101		
			L, R, or B	FT	FT	IN	SY	SY	SY	SY	SY	TON	SY	SY	No.	No.	No.	No.	No.	
2	6957+40.00		B	30.0	24.0	8.0	80.0									3				Beverly Road Culvert Installation

PROPOSED POSTED SPEED LIMIT

Road Identification	Begin Station	End Station	Proposed Posted Speed Limit			Remarks
			35 or less	40 - 45	over 45	
U.S. Highway 151	843+47.28	887+00.00		45		End Station is Approximate
U.S. Highway 151	887+00.00	897+00.00			50	Approximate Location
U.S. Highway 151	897+00.00	903+15.44			55	Begin Station is Approximate
U.S. Highway 151	971+42.45	987+43.71			55	
Church Street	1847+69.25	1849+00.00	25			
Church Street	1849+56.00	1851+25.00	25			
Prairie Avenue	2864+42.00	2866+56.00	25			
Losey Avenue	3862+86.45	3864+80.81	25			
Stallman Drive	4874+25.00	4875+81.00	25			
Cemetery Road	5882+30.00	5883+74.00	25			
Cemetery Road	5884+44.00	5885+42.00	25			
80th Street SW	7906+60.00	7912+00.00			55	Assumed Speed Limit
Beverly Road	6955+00.00	6958+89.23		45		

LONGITUDINAL GROOVING

Location	Total SY	Remarks
UPRR	278.0	South Approach
UPRR	847.0	Bridge Deck
UPRR	278.0	North Approach
Prairie Creek	409.0	South Approach, Includes Sidewalk Area
Prairie Creek	1274.0	Bridge Deck, Includes Sidewalk Area
Prairie Creek	402.0	North Approach, Includes Sidewalk Area
Drain Ditch 1	482.0	South Approach, Includes Sidewalk Area
Drain Ditch 1	1026.0	Bridge Deck, Includes Sidewalk Area
Drain Ditch 1	489.0	North Approach, Includes Sidewalk Area
Total	5485.0	

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Corrugated Metal Pipe.
(1) Refer to MI-210
(2) Refer to EW-501.
(3) Refer to EW-501 or EW-502.
*Predetermined for access point not constructed with this project.

Location		Type	Length of Opening (1)			W	(1) (2) PR	(2) SR	Pipe Culvert (3)					Aprons	Driveway Surface Area		Driveway Surfacing Material	Remarks
Station	Side	A, B, C, Safety Ramp, or Predetermined*	Case	1½" Dropped Curb	3" Dropped Curb				H	Size	Pipe Length	Lt.	Rt.		HMA	PCC		
			1 or 2	LF	LF	FT	FT	FT	FT	IN	LF	LF	LF	No.	SY	SY	TON	
U.S. Hwy 151																		
844+91.50	R	C	2	26.8		20.0										28.8		
845+34.00	L	C	2	30.0		20.0										28.3		
845+97.50	R	B	2	40.0		35.0										36.2		
846+44.00	R	C	2	24.5		20.0										31.2		
846+93.00	L	B	2	44.0		34.0										81.2		
847+60.50	R	B	2	64.5		60.0										57.8		Ex. Entrance 65' wide
864+19.80	L	C	1	71.2		25.0	VAR									493.6		Refer to L Sheets
864+19.80	L	C				15.0											126.700	Refer to L Sheets
873+00.00	L	B	1			30.0	30.0	15.0								142.7		
877+50.00	R	B	1			34.2	30.0	15.0								202.2		
878+31.00	L	C				20.0		15.0									51.000	Refer to M Sheets
890+96.75	L	B	1			37.0	30.0		1.2	18	56.0	29.7	31.7	2		181.0		CMP Pipe
891+10.00	R	B	1			24.0	30.0		1.5	18	44.0	24.9	23.8	2		238.5		CMP Pipe
894+18.50	R	B	1			40.0	30.0									241.9		
894+21.00	L	B	1			30.0	30.0									230.8		Includes Curb
895+76.54	R	B	1			43.0	30.0									233.4		Incl. Curb, UAC Ex. Pipe
897+64.90	R	C				26.0		15.0									35.100	UAC Existing Pipe
983+85.00	L	C				15.0		15.0	2.4	18	50.0	33.7	28.5	2			69.100	Remove Existing Pipe
Church St.																		
1847+85.30	R	B	2			24.0										169.9		
1850+17.23	R	B	2			30.0										83.2		
1850+31.75	L	C	2			12.0										21.2		
1850+68.00	R	C	2			12.0			1.0	12	28.0	15.4	13.6	2		35.7		CMP Pipe
1851+11.39	R	C	2			16.0										32.8		
Prairie Ave.																		
2865+51.90	L	C	2			10.0										75.4		
2866+00.00	R	C	2			16.0										23.9		
2866+42.33	L	C	2			16.0										23.4		
Losey Ave.																		
3863+77.60	R	C	2	34.4		24.0										46.3		
80th St. SW																		
7910+00.00	L	C						20.0	1.2	30	56.0	31.6	36.0	2			132.100	RCP Pipe
					Totals:					12	28.0	CMP	Apron:	2		2739.4	414.000	
										18	150.0	CMP	Apron:	6				
										30	56.0	RCP	Apron:	2				

290-01
04-15-14

SIDEWALK CONSTRAINTS

1. Widths:
   Widths listed in the S sheets are minimums.

2. Cross Slopes:
   Construct all sidewalks, curb ramps, and landings/turning spaces at a target cross slope of 1.5%. Cross slopes exceeding 2.0% will not be allowed, except for areas tying into existing pavement. In these areas, transition from existing pavement cross slope to a cross slope of less than 2.0% within one panel at a rate not to exceed 1.0% per foot.

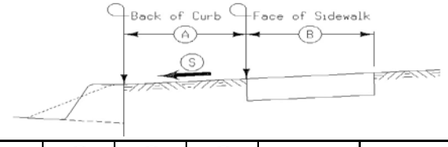
3. Longitudinal Slopes:
   a. Sidewalk:
      i. Roadway slope exceeds 5.0%: Sidewalk longitudinal slope exceeding the roadway slope by more than 2.0% will not be allowed.
      ii. Roadway slope 5.0% or less: Sidewalk longitudinal slope exceeding 5.0% will not be allowed.
   b. Ramps:
      i. Ramps 15.0’ in length or less: Longitudinal slope exceeding 8.3% will not be allowed.
      ii. Ramps greater than 15.0’ in length: Construct with the longitudinal slope necessary to conform to the design.

4. Landing/Turning Spaces:
   Longitudinal slopes exceeding 2.0% will not be allowed.

113-1
10-16-18

SIDEWALKS

See MI-220 and S Sheets



Intersection	Quadrant	Length	(A)	(B)	(S)	4" PCC Sidewalk	6" PCC Sidewalk	8" PCC Sidewalk	10" PCC Sidewalk	Detectable Warnings	Remarks
			FT	FT	%	SY	SY	SY	SY	SF	
845+60.00 - 845+80.00		20	5.30	4.00		8.9					U.S. Highway 151
846+15.00 - 846+34.00		19	4.50	4.00		8.5					U.S. Highway 151
846+54.00 - 847+30.50		76.5	4.50	4.00		34.0					U.S. Highway 151
1850+37.75 - 1850+57.84		20	8.50	4.00		8.9					Church Street
					Total:	60.3					

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

Refer to Soils Sheets

* Not a bid item. Bridge berm quantities assume a trench depth of 24 inches.

Location					Longitudinal Subdrain (DR-303)							Subdrain Outlet		Porous* Backfill	Class "A"* Crushed Stone	Remarks
Line No.	Road or Lane Identification	Station to Station		Side	Depth D	Shoulder		Backslope		Bridge Berm (EW-203 or EW-204)			DR-303, DR-305 or DR-306			
						Size	Length	Size	Length	Standard Road Plan and Type	Size	Length	Station	Standard Road Plan and Type		
					IN	IN	FT	IN	FT		IN	FT			CY	CY	
1	US 151	843+88.65	845+64.97	RT	45.0	4.0	180.3						843+88.65	DR-303	18.1		Type 12, Cap End
													845+64.97	DR-303			Type 12, Outlet into Intake ST-03
2	US 151	845+64.97	847+21.58	RT	45.0	4.0	158.1						845+64.97	DR-303	15.9		Type 12, Outlet into Intake ST-03
													847+21.58	DR-303			Type 12, Outlet into Intake ST-05
3	US 151	847+21.58	848+39.00	RT	45.0	4.0	119.0						847+21.58	DR-303	11.9		Type 12, Outlet into Intake ST-05
													848+39.00	DR-303			Type 12, Outlet into Intake ST-06
4	US 151	848+39.00	849+89.38	RT	45.0	4.0	152.4						848+39.00	DR-303	15.3		Type 12, Outlet into Intake ST-06
													849+89.38	DR-303			Type 12, Outlet into Intake ST-11
5	US 151	849+89.38	851+50.00	RT	45.0	4.0	162.3						849+89.38	DR-303	16.3		Type 12, Outlet into Intake ST-11
													851+50.00	DR-303			Type 12, Outlet into Intake ST-12
6	US 151	851+50.00	853+25.60	RT	45.0	4.0	176.4						851+50.00	DR-303	17.7		Type 12, Outlet into Intake ST-12
													853+25.60	DR-303			Type 12, Outlet into Intake ST-18
7	US 151	853+25.60	855+69.10	RT	45.0	4.0	316.3						853+25.60	DR-303	31.7		Type 12, Outlet into Intake ST-18
													855+69.10	DR-305, Type A			Type 7A, Outlet to Left
8	US 151	858+96.10	861+82.03	RT	45.0	4.0	305.1						858+96.10		30.6		Connect to Approach Pavement Subdrain
													861+82.03	DR-303			Type 12, Outlet into Intake ST-22
9	US 151	861+82.03	863+51.70	RT	45.0	4.0	170.4						861+82.03	DR-303	17.1		Type 12, Outlet into Intake ST-22
													863+51.70	DR-303			Type 12, Outlet into Intake ST-24
10	US 151	863+51.70	865+66.60	RT	45.0	4.0	239.3						863+51.70	DR-303	24.0		Type 12, Outlet into Intake ST-24
													865+66.60	DR-305, Type A			Type 7A, Outlet to Left
11	US 151	869+26.20	870+70.00	RT	45.0	4.0	195.8						869+26.20	DR-305, Type A	19.6		Type 7A
													870+70.00	DR-305, Type A			Type 12
12	US 151	870+70.00	875+24.64	RT	45.0	4.0	507.1						870+70.00	DR-305, Type A	50.9		Type 7A
													875+24.64	DR-305, Type A			Type 7A
13	US 151	875+24.64	879+37.99	RT	45.0	4.0	464.9						875+24.64	DR-305, Type A	46.6		Type 7A
													879+37.99	DR-305, Type A			Type 7A
14	US 151	882+29.22	885+23.39	RT	45.0	4.0	330.2						882+29.22	DR-305, Type A	33.1		Type 7A
													885+23.39	DR-305, Type A			Type 7A
15	US 151	885+23.39	888+50.00	RT	45.0	4.0	371.6						885+23.39	DR-305, Type A	37.3		Type 7A
					30.0								888+50.00	DR-305, Type A			Type 7A
16	US 151	888+50.00	893+00.00	RT	30.0	4.0	486.2						888+50.00	DR-305, Type A	30.0		Type 7A
					45.0								893+00.00	DR-305, Type A			Type 7A
17	US 151	893+00.00	898+00.00	RT	45.0	4.0	546.6						893+00.00	DR-305, Type A	54.8		Type 7A
													898+00.00	DR-305, Type A			Type 7A
18	US 151	898+00.00	902+58.42	RT	45.0	4.0	507.8						898+00.00	DR-305, Type A	50.9		Type 7A
													902+58.42	DR-305, Type A			Type 7A
19	US 151	845+05.46	846+64.33	LT	45.0	4.0	162.7						845+05.46	DR-303	16.3		Type 12, Outlet into Intake ST-02
													846+64.33	DR-303			Type 12, Outlet into Intake ST-04
20	US 151	846+64.33	848+39.00	LT	45.0	4.0	176.3						846+64.33	DR-303	17.7		Type 12, Outlet into Intake ST-04
													848+39.00	DR-303			Type 12, Outlet into Intake ST-07
21	US 151	848+39.00	849+89.28	LT	45.0	4.0	151.2						848+39.00	DR-303	15.2		Type 12, Outlet into Intake ST-07
													849+89.28	DR-303			Type 12, Outlet into Intake ST-14
22	US 151	849+89.28	851+50.00	LT	45.0	4.0	162.3						849+89.28	DR-303	16.3		Type 12, Outlet into Intake ST-14
													851+50.00	DR-303			Type 12, Outlet into Intake ST-13
23	US 151	851+50.00	853+25.60	LT	45.0	4.0	176.2						851+50.00	DR-303	17.7		Type 12, Outlet into Intake ST-13
													853+25.60	DR-303			Type 12, Outlet into Intake ST-18
24	US 151	853+25.60	855+69.10	LT	45.0	4.0	278.2						853+25.60	DR-303	27.9		Type 12, Outlet into Intake ST-18
													855+69.10				Connect to Approach Pavement Subdrain
25	US 151	858+96.10	861+82.03	LT	45.0	4.0	304.8						858+96.10	DR-305, Type A	30.6		Type 7A
													861+82.03	DR-303			Type 12, Outlet into Intake ST-21
26	US 151	861+82.03	863+51.69	LT	45.0	4.0	170.4						861+82.03	DR-303	17.1		Type 12, Outlet into Intake ST-21
													863+51.69	DR-303			Type 12, Outlet into Intake ST-23
27	US 151	863+51.69	865+66.60	LT	45.0	4.0	255.8						863+51.69	DR-303	25.7		Type 12, Outlet into Intake ST-23
													865+66.60	DR-305, Type A			Type 7A
28	US 151	869+16.20	870+70.00	LT	45.0	4.0	218.9						869+16.20	DR-305, Type A	22.0		Type 7A
													870+70.00	DR-305, Type A			Type 12
29	US 151	870+70.00	875+24.64	LT	45.0	4.0	565.9						870+70.00	DR-305, Type A	56.8		Type 7A
					30.0								875+24.64	DR-305, Type A			Type 7A
30	US 151	875+24.64	879+37.99	LT	30.0	4.0	511.0						875+24.64	DR-305, Type A	31.5		Type 7A
					30.0								879+37.99	DR-305, Type A			Type 7A
31	US 151	882+29.22	883+19.86	LT	45.0	4.0	164.1						882+29.22	DR-305, Type A	16.5		Type 7A
													883+19.86	DR-305, Type A			Type 7A
32	US 151	883+19.86	888+11.75	LT	45.0	4.0	553.4						883+19.86	DR-305, Type A	55.5		Type 7A
													888+11.75	DR-305, Type A			Type 7A
33	US 151	888+11.75	893+07.78	LT	24.0	4.0	538.0						888+11.75	DR-305, Type A	24.9		Type 7A
					24.0								893+07.78	DR-305, Type A			Type 7A
34	US 151	893+07.78	898+00.00	LT	24.0	4.0	541.7						893+07.78	DR-305, Type A	25.1		Type 7A
					45.0								898+00.00	DR-305, Type A			Type 7A
35	US 151	898+00.00	902+58.42	LT	45.0	4.0	504.5						898+00.00	DR-305, Type A	50.6		Type 7A
													902+58.42	DR-305, Type A			Type 7A
	Totals:						10826.0						DR-303	32	989.2		
													DR-305	36			

107-23
10-18-11

GRADING FOR GUARDRAIL INSTALLATIONS

(1) Lane(s) to which the installation is adjacent. Refer to EW-301

Location				Foreslope at Guardrail	Dimensions (Feet)									Earthwork		Remarks
No.	(1) Direction of Traffic	Station	Side		X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Excavation Class 10	Embankment In Place	
														CY	CY	
1	NB	880+00.67	R	6:1					78.6	5.0	129.5	7.0	47.1			Earthwork Included in Template Quantities
2	SB	882+04.00	L	6:1					36.3	5.0	88.4	7.1	49.9			Earthwork Included in Template Quantities
3	NB	979+26.40	R	6:1					74.9	5.0	124.4	7.0	46.7			Approach Side , Ewrk. Included in Template Qtys
4	NB	979+26.40	R	6:1							118.8	4.0	46.1			Departure Side, Ewrk. Included in Template Qtys
5	SB	981+18.84	L	6:1					87.4	5.0	130.7	6.7	59.3			Approach Side , Ewrk. Included in Template Qtys
6	SB	981+18.84	L	6:1							118.8	4.0	46.1			Departure Side, Ewrk. Included in Template Qtys

110-7A
04-17-12

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

Location					
No.	(1) Direction of Traffic	Station to Station		Side	Removal of Guardrail (2)
					LF
1	NB	849+74.84	856+50.00	RT	675.5
2	SB	855+61.06	856+51.59	LT	90.9
3	NB	857+94.75	858+84.84	RT	90.4
4	SB	857+94.97	862+96.35	LT	502.1
5	NB	865+77.61	866+60.69	RT	83.3
6	SB	865+78.29	866+61.42	LT	83.6
7	NB	868+27.45	869+48.28	RT	121.4
8	SB	868+27.61	869+48.29	LT	121.3
9	NB	879+15.90	880+63.70	RT	146.3
10	SB	880+03.84	880+61.94	LT	59.1
11	NB	881+15.77	881+75.06	RT	58.9
12	SB	881+17.73	882+62.14	LT	146.4
13	NB	978+35.42	979+83.13	RT	148.0
14	SB	979+46.38	980+06.71	LT	60.5
15	NB	980+31.32	980+91.56	RT	60.5
16	SB	980+54.10	982+02.06	LT	148.2
				Total:	2596.4

108-8A
Modified

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Location				Layout Lengths BA-250, BA-260, LS-630, or LS-635				Long-Span System		Delineators and Object Markers (2)					Bid Items										Remarks
																		BA-250 or LS-630						BA-260 or LS-635		
No.	(1) Direction of Traffic	Side O = Outside M = Median	Station	Offset	VT1	VF	VT2	ET	BA-211 STATION	BA-211 TYPE	SI-211 TYPE	Delineator SI-172 Type 1 White	Object Marker SI-173 Type 2 OM2-2	Type 3 OM3-L	Type 3 OM3-R	Bolted End Anchor BA-202 TYPE	Bolted End Anchor BA-202 EACH	Post Adapter BA-210	Steel Beam Guardrail BA-200	Barrier Transition Section BA-201	End Terminal Tangent BA-205	End Terminal Flared BA-206	End Terminal Tangent LS-625	End Terminal Flared LS-626	Barrier Transition Section BA-221	End Terminal Tangent BA-225	
				FT	LF	LF	LF	LF				EACH	EACH	EACH	EACH		EACH	EACH	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
1	SB	O	856+09.10	20.0	40.625			47.7			2		2	1		B	1		0.0	1	1						
2	NB	O	856+23.50	20.8	578.125			47.7	851+39.73	2	2		24		1	A	1		537.5	1	1						Span Intake
									853+14.73	2																	Span Intake
3	NB	O	858+44.50	20.8	165.625			47.7			2		7	1		A	1		125.0	1	1						
4	SB	O	858+56.11	20.0	365.625	62.50	25.00	47.7	861+71.12	2	2		19		1	B	1		412.5	1	1						Span Intake
5	NB	O	866+41.74	23.6	78.125			47.7			2		4		1	A	1		37.5	1	1						
6	SB	O	868+76.20	23.0	65.625			47.7			2		3		1	B	1		25.0	1	1						
7	NB	O	880+00.67	29.6	78.125			47.7			3				1	A	1		37.5	1	1						
8	SB	O	882+04.00	29.0	40.625			47.7			3				1	A	1		0.0	1	1						
															Total:		8		1175.0	8	8						

108-8C
04-19-16

STEEL BEAM GUARDRAIL FOR SIDE OBSTACLE (ONE-WAY PROTECTION)

Possible Standards: BA-200, BA-203, BA-205, BA-206, BA-210, BA-211, BA-252, LS-625, LS 626, LS-632, SI-172, SI-173, and SI-211.

(1) Lane(s) to which the obstacle is adjacent.

Location				O_L	D_O	Layout Lengths BA-252 or LS-632 Approach Side (A)				Trailing Side (T)		Long-Span System BA-211		Delineators and Object Markers					Bid Items					Remarks
																					End Terminal			
No.	(1) Direction of Traffic	Side O= Outside M= Median	Station			ET	$VT2_A$	VF_A	$VT1_A$	$VT1_T$	EA	STATION	TYPE	SI-211 TYPE	Delineator SI-172 Type 1 White EACH	Object Marker SI-173 Type 2 OM2-2 EACH	Type 3 OM3-L EACH	Type 3 OM3-R EACH	Steel Beam Guardrail BA-200 LF	W-Beam End Anchor BA-203 EACH	Standard	Count EACH	Post Adapter BA-210 EACH	
				FT	FT	LF	LF	LF	LF	LF	LF													
1	NB	O	979+26.40	99.63	12.00	47.7			75.00	118.75	9.375								187.5	1	BA-205	1	11	
2	SB	O	981+18.84	99.63	12.00	47.7			87.50	118.75	9.375								200.0	1	BA-205	1	11	
																		Total:	387.5	2		2	22	

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	Linn COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER C.16

11/30/2018 10:53:41 AM ncarhoff PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\Excel\57151158C01.xlsm

108-33
04-19-16

TEMPORARY BARRIER RAIL

Possible Standards: BA-400, BA-401

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

No.	Station to Station		Length LF	(Select One) Steel BA-400	(Select One) Concrete BA-401	Anchored* (Y/N)	Modular Glare Screen System (Y/N)	Remarks
1	865+04.00	865+68.00	62.5		X	No	No	Stage 2A
2	865+68.00	868+88.00	325.0		X	Yes	No	Prairie Creek Bridge, Stage 2A/2B
3	868+88.00	873+37.00	450.0		X	No	No	Stage 2A
4	875+69.00	880+06.00	437.5		X	No	No	Stage 2A
5	880+06.00	881+97.00	187.5		X	Yes	No	Drainage Ditch No. 1, Stage 2A/2B
6	881+97.00	890+08.00	812.5		X	No	No	Stage 2A
7	891+88.00	903+13.00	1125.0		X	No	No	Stage 2A
8	864+14.00	865+04.00	87.5		X	No	No	Additional for Stage 2B
9	873+37.00	875+69.00	237.5		X	No	No	Relocate from Stage 2A for Stage 2B
10	890+08.00	891+58.00	150.0		X	No	No	Relocate from Stage 2A for Stage 2B
11	891+58.00	891+88.00	25.0		X	No	No	Additional for Stage 2B
12	863+42.00	865+58.00	212.5		X	No	No	Stage 3A
13	865+58.00	869+04.00	350.0		X	Yes	No	Prairie Creek Bridge Stage 3A/3B
14	865+42.00	866+06.00	62.5		X	Yes	No	Prairie Creek Bridge Stage 3A/3B
15	866+06.00	868+61.00	250.0		X	Yes	No	Prairie Creek Bridge Stage 3A/3B
16	848+61.00	869+12.00	2050.0		X	No	No	Prairie Creek Bridge Stage 3A/3B
17	868+69.00	869+33.00	62.5		X	Yes	No	Prairie Creek Bridge Stage 3A/3B
18	869+04.00	876+57.00	750.0		X	No	No	Stage 3A
19	878+35.00	879+49.00	112.5		X	No	No	Stage 3A
20	879+49.00	882+29.00	275.0		X	Yes	No	Drainage Ditch No. 1 Stage 3A/3B
21	879+34.00	879+97.00	62.5		X	Yes	No	Drainage Ditch No. 1 Stage 3A/3B
22	881+97.00	882+60.00	62.5		X	Yes	No	Drainage Ditch No. 1 Stage 3A/3B
23	880+22.00	882+10.00	187.5		X	Yes	No	Drainage Ditch No. 1 Stage 3A/3B
24	882+10.00	882+59.00	50.0		X	Yes	No	Drainage Ditch No. 1 Stage 3A/3B
25	882+29.00	893+37.00	1112.5		X	No	No	Stage 3A
26	895+05.00	903+23.00	812.5		X	No	No	Stage 3A
27	865+08.00	865+59.00	50.0		X	No	No	Relocate from Stage 3A for Stage 3B
28	882+29.00	883+39.00	112.5		X	No	No	Relocate from Stage 3A for Stage 3B
29	885+49.00	886+48.00	100.0		X	No	No	Relocate from Stage 3A for Stage 3B
30	892+10.00	894+77.00	262.5		X	No	No	Relocate from Stage 3A for Stage 3B
31	896+72.00	897+09.00	37.5		X	No	No	Relocate from Stage 3A for Stage 3B
32	978+79.00	981+69.00	287.5		X	Yes	No	Drainage Ditch No. 2 Stage 1
33	978+96.00	981+47.00	250.0		X	Yes	No	Drainage Ditch No. 2 Stage 2
34	978+53.00	982+59.00	412.5		X	Yes	No	Drainage Ditch No. 2 Stage 2
		Total:	11825.0					

108-13A
08-01-08

SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

Station	Closure Type Road Qty.	Closure Type Hazard Qty.	Remarks
848+09.00	1		Hwy 151 Stage 1A
1848+00.00	1		Church Street Stage 1A
1850+07.00	1		Church Street Stage 1A
846+97.00	1		Hwy 151 Stage 1B
849+81.00	1		Hwy 151 Stage 1B/1C/2A/2B
1849+76.00	1		Church Street Stage 1B
1851+36.00	1		Church Street Stage 1B
863+67.00	1		Hwy 151 Stage 1C/2A/2B
864+54.00	1		Hwy 151 Stage 2A
873+76.00	1		Hwy 151 Stage 2A
875+29.00	1		Hwy 151 Stage 2A
5882+10.00	1		Cemetery Road Stage 2A
894+17.00	1		Driveway Stage 2A
890+43.00	1		Hwy 151 Stage 2A
981+51.00	1		Hwy 151 Stage 2A
902+74.00	1		Hwy 151 Stage 2A/2B
864+94.00	1		Hwy 151 Stage 2B
4874+17.00	1		Stallman Dr. Stage 2B
883+06.00	1		Hwy 151 Stage 2B
884+57.00	1		Hwy 151 Stage 2B
890+96.00	1		Driveway Stage 2B
893+81.00	1		Hwy 151 Stage 2B
894+54.00	1		Hwy 151 Stage 2B
3862+80.00	1		Losey Ave. Stage 3A
863+44.00	1		Hwy 151 Stage 3A
876+94.00	1		Hwy 151 Stage 3A
878+14.00	1		Hwy 151 Stage 3A
5885+53.00	1		Cemetery Road Stage 3A
891+20.00	1		Driveway Stage 3A
893+83.00	1		Hwy 151 Stage 3A
894+53.00	1		Hwy 151 Stage 3A
895+75.00	1		Hwy 151 Stage 3A
902+66.00	1		Hwy 151 Stage 3A/3B
865+24.00	1		Hwy 151 Stage 3B
876+66.00	1		Hwy 151 Stage 3B
876+35.00	1		Hwy 151 Stage 3B
883+14.00	1		Hwy 151 Stage 3B
885+83.00	1		Hwy 151 Stage 3B
890+55.00	1		Hwy 151 Stage 3B
891+62.00	1		Hwy 151 Stage 3B
894+15.00	1		Driveway Stage 3B
894+81.00	1		Hwy 151 Stage 3B
896+70.00	1		Hwy 151 Stage 3B
6956+19.00	1		Beverly Road
6958+18.00	1		Beverly Road
978+90.00	1		Hwy 151 At DD No. 1 Stage 2
981+55.00	1		Hwy 151 At DD No. 1 Stage 3
Total:	47		

108-35
Modified

TEMPORARY LANE SEPARATOR SYSTEM

Station to Station		Length LF	Remarks
870+96.50	873+62.50	266	Prairie Creek, Stage 2A/2B
904+14.50	907+40.00	326	Stage 2A/2B
972+95.00	976+10.00	315	DD No. 2, Stage 1
984+93.00	987+24.00	231	DD No. 2, Stage 1
864+40.00	865+13.50	74	Prairie Creek, Stage 3A/3B
869+60.50	870+34.00	74	Prairie Creek, Stage 3A/3B
878+34.00	879+07.50	74	DD No. 1, Stage 3A/3B
882+85.00	883+41.00	56	DD No. 1, Stage 3A/3B
890+21.00	893+71.00	350	Stage 4
	Total:	1764	

108-28
08-01-08

TEMPORARY TRAFFIC SIGNALS

No.	Location Station	Type One Lane Traffic	Type Haul Road	Type Intersection	Remarks
1	864+26.00	YES	NO	US 151/Driveway	Stage 2A/2B
2	864+32.00	YES	NO	US 151/Prairie Ave.	Stage 2A/2B
3	870+26.00	YES	NO	Praire Creek Bridge	Stage 2A/2B
4	976+80.00	YES	NO	Drain. Ditch No. 2	Stage 1
5	984+20.00	YES	NO	Drain. Ditch No. 2	Stage 1

252-1
10-16-12

TEMPORARY CROSSINGS AND DETOURS

Blading, shaping, and other work in preparation for maintaining temporary crossings or detours is incidental to other work. Furnish and spread additional granular surfacing needed for temporary crossings or detours during construction at the contract price.

CRASH CUSHIONS

* Bid Item
(1) Lane(s) to which the installation is adjacent.
(2) Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500

No.	(1) Direction of Traffic	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					Sand Barrel Details (2)					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	V Length	W Length	X Length	Y Length	Z Length	Excavation Class 10	Embankment in Place	Permanent	Permanent Severe Use		
				FT						FT	FT	FT	FT	FT	CY	CY	EACH	EACH		
1	SB	865+04.00	RT	1.88			1												Temporary Barrier Rail	Stage 2A
2	SB	873+37.00	RT	1.88			1												Temporary Barrier Rail	Stage 2A
3	SB	875+69.00	RT	1.88			1												Temporary Barrier Rail	Stage 2A
4	SB	890+08.00	RT	1.88			1												Temporary Barrier Rail	Stage 2A
5	SB	891+88.00	RT	1.88			1												Temporary Barrier Rail	Stage 2A
6	SB	903+13.00	RT	1.88	1														Temporary Barrier Rail	Stg 2A/2B
7	SB	882+74.00	RT	1.88			1												Temporary Barrier Rail	Stage 2B
8	SB	884+92.00	RT	1.88			1												Temporary Barrier Rail	Stage 2B
9	SB	893+41.00	RT	1.88			1												Temporary Barrier Rail	Stage 2B
10	SB	893+95.00	RT	1.88			1												Temporary Barrier Rail	Stage 2B
11	NB	863+42.00	RT	1.88			1												Temporary Barrier Rail	Stage 3A
12	NB	865+42.00	LT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
13	SB	869+12.00	RT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
14	SB	869+33.00	LT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
15	NB	876+57.00	RT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
16	NB	878+35.00	RT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
17	NB	879+34.00	LT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
18	SB	882+59.00	RT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
19	SB	882+60.00	LT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
20	NB	893+37.00	RT	1.88			1												Temporary Barrier Rail	Stage 3A
21	NB	895+05.00	RT	1.88			1												Temporary Barrier Rail	Stage 3A
22	NB	903+22.00	RT	1.88			1												Temporary Barrier Rail	Stg 3A/3B
23	NB	883+39.00	RT	1.88			1												Temporary Barrier Rail	Stage 3B
24	NB	885+49.44	RT	1.88			1												Temporary Barrier Rail	Stage 3B
25	NB	890+05.00	RT	1.88			1												Temporary Barrier Rail	Stage 3B
26	NB	892+10.00	RT	1.88			1												Temporary Barrier Rail	Stage 3B
27	NB	894+77.00	RT	1.88			1												Temporary Barrier Rail	Stage 3B
28	NB	896+72.00	RT	1.88			1												Temporary Barrier Rail	Stage 3B
29	SB	978+79.00	RT	1.88	1														Temporary Barrier Rail	DD2 Stg. 1
30	SB	981+69.00	RT	1.88	1														Temporary Barrier Rail	DD2 Stg. 2
31	SB	978+53.00	RT	1.88			1												Temporary Barrier Rail	DD2 Stg. 2
32	NB	978+96.00	RT	1.88			1												Temporary Barrier Rail	DD2 Stg. 2
33	NB	981+47.00	RT	1.88			1												Temporary Barrier Rail	DD2 Stg. 2
34	SB	982+58.00	RT	1.88			1												Temporary Barrier Rail	DD2 Stg. 2
				Total:	3		31													

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25
DCY4: Double Centerline (Yellow) @ 2.00
NPY4: No Passing Zone Line (Yellow) @ 1.25
BLW4: Broken Lane Line (White) @ 0.25
ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00
SLW4: Solid Lane Line (White) @ 1.00
DLW4: Dotted Line (White) @ 0.33
CHY8: Channelizing Line (Yellow) @ 2.00
SLW2: Stop Line (White) @ 6.00
CHW8: Channelizing Line (White) @ 2.00

Location								Length by Line Type (Unfactored)														
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4	SLW4	DLW4	CHY8	SLW2	CHW8					Remarks
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
STAGE 1A																							
US 151	843+05.21	848+61.10	NB	Removal of Paint			X					5.56											
	844+44.63	849+06.02	SB	Removal of Paint			X					4.61											
	843+15.27	843+63.64	BOTH	Removal of Paint		X			0.48														
	843+63.64	848+89.13	BOTH	Removal of Paint		X										5.25							
	863+43.03	863+86.67	NB	Removal of Paint			X					0.44											
	863+43.03	883+61.30	BOTH	Removal of Paint		X			20.18														
	863+43.03	866+23.80	SB	Removal of Paint			X								2.81								
	864+73.88	883+85.71	NB	Removal of Paint			X					19.12											
	866+23.80	872+81.22	SB	Removal of Paint			X					6.57											
	872+81.22	875+06.67	SB	Removal of Paint			X								2.25								
	875+06.67	883+15.10	SB	Removal of Paint			X					8.08											
	882+57.57	884+07.82	NB	Removal of Paint			X							1.50									
	883+15.10	884+35.77	SB	Removal of Paint			X								1.21								
	884+07.82	885+34.50	NB	Removal of Paint			X								1.27								
	884+35.77	886+69.70	SB	Removal of Paint			X							2.34									
	884+35.77	902+58.42	SB	Removal of Paint			X					18.23											
	884+95.42	897+41.17	BOTH	Removal of Paint		X			12.46														
	885+34.50	903+67.56	NB	Removal of Paint			X					18.33											
	897+41.17	903+67.54	BOTH	Removal of Paint		X										6.26							
	902+97.41	903+67.55	NB	Removal of Paint	X									0.70									
	972+69.70	987+40.69	SB	Removal of Paint			X					14.71											
	973+03.60	978+73.23	BOTH	Removal of Paint		X										5.70							
	974+66.78	978+83.75	NB	Removal of Paint			X					4.17											
	978+73.23	979+88.23	BOTH	Removal of Paint		X			1.15														
	979+88.23	987+40.50	BOTH	Removal of Paint		X										7.52							
	843+15.27	846+73.01	BOTH	Wet Retroreflective Removable Tape		X			3.58														
	864+26.66	900+33.77	BOTH	Wet Retroreflective Removable Tape		X			36.07														
	900+33.77	903+67.54	BOTH	Wet Retroreflective Removable Tape		X										3.34							
	900+33.77	903+67.56	NB	Wet Retroreflective Removable Tape			X					3.34											
	902+97.41	903+67.55	NB	Wet Retroreflective Removable Tape	X									0.70									
	967+48.23	974+69.74	BOTH	Wet Retroreflective Removable Tape		X										7.22							
	972+69.66	987+40.69	SB	Wet Retroreflective Removable Tape			X					14.71											
	974+66.78	987+83.75	NB	Wet Retroreflective Removable Tape			X					13.17											
	974+69.74	976+10.00	BOTH	Wet Retroreflective Removable Tape		X			1.40														
	976+10.00		NB	Wet Retroreflective Removable Tape		X											0.11						
	984+92.67		SB	Wet Retroreflective Removable Tape		X											0.11						
	984+93.06	987+83.75	BOTH	Wet Retroreflective Removable Tape		X										2.91							
STAGE 1B																							
US 151	843+15.27	846+73.01	BOTH	Removal of Removable Tape		X			3.58														
	843+15.27	848+85.83	BOTH	Wet Retroreflective Removable Tape		X			5.71														
STAGE 2A																							
US 151	843+15.27	848+85.83	BOTH	Removal of Removable Tape		X			5.71														
	864+26.66	900+33.77	BOTH	Removal of Removable Tape		X			36.07														
	900+33.77	903+67.54	BOTH	Removal of Removable Tape		X										3.34							
	900+33.77	903+67.56	NB	Removal of Removable Tape			X					3.34											
	902+58.42	907+90.11	SB	Removal of Paint			X					5.32											
	902+97.41	903+67.55	BOTH	Removal of Removable Tape	X									0.70									
	903+67.55	907+88.37	BOTH	Removal of Paint		X										4.21							
	903+67.55	908+46.42	NB	Removal of Paint	X									4.79									
	903+67.56	908+46.42	NB	Removal of Paint			X					4.79											
	972+85.46	974+69.74	BOTH	Removal of Removable Tape		X										1.84							
	974+69.74	976+10.00	BOTH	Removal of Removable Tape		X			1.40														
	976+10.00		NB	Removal of Removable Tape		X											0.11						
	976+10.19	987+40.69	SB	Removal of Removable Tape			X					11.31											
	976+78.36	984+07.88	NB	Removal of Removable Tape			X					7.30											
	984+92.67		SB	Removal of Removable Tape		X											0.11						
	984+92.67	987+83.75	BOTH	Removal of Removable Tape		X										2.91							
	987+40.66	988+78.46	SB	Removal of Paint			X					1.38											
	987+83.75	922+16.81	BOTH	Removal of Paint		X										65.67							
	870+96.50		SB	Wet Retroreflective Removable Tape		X											0.11						
	870+96.50	904+14.47	BOTH	Wet Retroreflective Removable Tape		X			33.18														
	902+58.05	907+90.11	SB	Wet Retroreflective Removable Tape			X					5.32											
	902+58.71	905+63.73	NB	Wet Retroreflective Removable Tape			X					3.05											
	904+14.47	905+34.13	BOTH	Wet Retroreflective Removable Tape		X										1.20							
	905+34.13	907+88.75	BOTH	Wet Retroreflective Removable Tape		X										2.55							
	905+88.42	908+46.42	NB	Wet Retroreflective Removable Tape	X									2.58									
	905+89.66	908+46.42	NB	Wet Retroreflective Removable Tape			X					2.57											
	972+85.46	986+49.80	BOTH	Wet Retroreflective Removable Tape		X			13.82														
	976+78.38	984+07.88	NB	Wet Retroreflective Removable Tape			X					7.41											
	976+78.38	988+78.48	SB	Wet Retroreflective Removable Tape			X					12.72											
	986+49.80	992+10.80	BOTH	Wet Retroreflective Removable Tape		X										5.61							
Prairie Ave	2864+63.88		WB	Wet Retroreflective Removable Tape		X											0.11						

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25
DCY4: Double Centerline (Yellow) @ 2.00
NPY4: No Passing Zone Line (Yellow) @ 1.25
BLW4: Broken Lane Line (White) @ 0.25
ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00
SLW4: Solid Lane Line (White) @ 1.00
DLW4: Dotted Line (White) @ 0.33
CHY8: Channelizing Line (Yellow) @ 2.00
SLW2: Stop Line (White) @ 6.00
CHW8: Channelizing Line (White) @ 2.00

Location								Length by Line Type (Unfactored)														Remarks
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4	SLW4	DLW4	CHY8	SLW2	CHW8					
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
	2864+63.88	2865+30.81	BOTH	Wet Retroreflective Removable Tape		X			0.67													
STAGE 3A																						
US 151	870+96.50			Removal of Removable Tape		X											0.11					
	870+96.50	904+14.47	BOTH	Removal of Removable Tape		X			33.18													
	902+58.05	907+90.11	SB	Removal of Removable Tape			X					5.32										
	902+58.71	905+63.73	NB	Removal of Removable Tape			X					3.05										
	904+14.47	905+34.13	BOTH	Removal of Removable Tape		X										1.20						
	905+88.42	908+46.42	NB	Removal of Removable Tape	X									2.58								
	972+85.46	986+49.80	BOTH	Removal of Removable Tape		X			13.82													
	976+78.38	984+07.88	NB	Removal of Removable Tape			X					7.41										
	976+78.38	988+78.48	SB	Removal of Removable Tape			X					12.72										
	986+49.80	992+10.80	BOTH	Removal of Removable Tape		X										5.61						
Praire Ave	2864+63.88		WB	Removal of Removable Tape		X											0.11					
	2864+63.88	2865+30.81	BOTH	Removal of Removable Tape		X			0.67													
US 151	859+03.36	864+62.18	BOTH	Wet Retroreflective Removable Tape		X			5.59													
	864+62.18	869+93.99	BOTH	Wet Retroreflective Removable Tape		X										5.32						
	869+93.99	878+66.58	BOTH	Wet Retroreflective Removable Tape		X			8.73													
	878+66.58	883+19.14	BOTH	Wet Retroreflective Removable Tape		X										4.53						
	883+19.14	903+45.90	BOTH	Wet Retroreflective Removable Tape		X			20.27													
	890+92.65	903+45.31	NB	Wet Retroreflective Removable Tape			X					12.53										
	890+92.65	903+46.49	SB	Wet Retroreflective Removable Tape			X					12.54										
	903+45.90	908+46.34	BOTH	Wet Retroreflective Removable Tape		X										5.00						
	976+20.09	979+79.88	BOTH	Wet Retroreflective Removable Tape		X										3.60						
	979+79.88	980+77.49	BOTH	Wet Retroreflective Removable Tape		X			0.98													
	980+77.49	985+07.58	BOTH	Wet Retroreflective Removable Tape		X										4.30						
STAGE 3B																						
US 151	976+20.09	979+79.88	BOTH	Removal of Removable Tape		X										3.60						
	979+79.88	980+77.49	BOTH	Removal of Removable Tape		X			0.98													
	980+77.49	985+07.58	BOTH	Removal of Removable Tape		X										4.30						
	882+91.42	890+92.65	NB	Wet Retroreflective Removable Tape			X					8.01										
	883+43.68	890+92.65	SB	Wet Retroreflective Removable Tape			X					7.49										
STAGE 4A																						
US 151	859+03.36	864+62.18	BOTH	Removal of Removable Tape		X			5.59													
	864+62.18	869+93.99	BOTH	Removal of Removable Tape		X										5.32						
	869+93.99	878+66.58	BOTH	Removal of Removable Tape		X			8.73													
	878+66.58	883+19.14	BOTH	Removal of Removable Tape		X										4.53						
	882+91.42	890+92.65	NB	Removal of Removable Tape			X					8.01										
	883+19.14	903+45.90	BOTH	Removal of Removable Tape		X			20.27													
	883+43.68	890+92.65	SB	Removal of Removable Tape			X					7.49										
	890+92.65	903+45.31	NB	Removal of Removable Tape			X					12.53										
	890+92.65	903+46.49	SB	Removal of Removable Tape			X					12.54										
	903+45.90	908+46.34	BOTH	Removal of Removable Tape		X										5.00						
	859+03.36	890+21.29	BOTH	Wet Retroreflective Removable Tape		X			31.18													
	861+73.36	863+59.65	NB	Wet Retroreflective Removable Tape			X							1.86								
	882+78.25	883+95.73	NB	Wet Retroreflective Removable Tape			X							1.17								
	884+25.93	888+42.90	SB	Wet Retroreflective Removable Tape			X							4.17								
	888+42.90	890+21.31	SB	Wet Retroreflective Removable Tape			X								1.78							
	890+21.24	892+66.28	SB	Wet Retroreflective Removable Tape			X											2.45				
	890+21.24	893+71.50	BOTH	Wet Retroreflective Removable Tape		X										3.50						
	890+21.24	893+71.50	BOTH	Wet Retroreflective Removable Tape		X												3.50				
STAGE 4A																						
US 151	859+03.36	890+21.29	BOTH	Removal of Removable Tape		X			31.18													
	861+73.36	863+59.65	NB	Removal of Removable Tape			X							1.86								
	882+78.25	883+95.73	NB	Removal of Removable Tape			X							1.17								
	884+25.93	888+42.90	SB	Removal of Removable Tape			X							4.17								
	888+42.90	890+21.31	SB	Removal of Removable Tape			X								1.78							
	890+21.24	892+66.28	SB	Removal of Removable Tape			X											2.45				
	890+21.24	893+71.50	BOTH	Removal of Removable Tape		X										3.50						
	890+21.24	893+71.50	BOTH	Removal of Removable Tape		X												3.50				
STAGE 5																						
US 151	843+47.01	848+87.11	SB	Waterborne/Solvent Paint			X					5.40										
	843+47.14	848+85.83	NB	Waterborne/Solvent Paint			X					5.39										
	843+47.28	847+37.11	BOTH	Waterborne/Solvent Paint		X										3.90						
	847+37.11	848+87.11	BOTH	Waterborne/Solvent Paint		X			1.50													
	847+37.11	848+87.11	NB	Waterborne/Solvent Paint	X									1.50								
	849+82.84	863+58.36	NB	Waterborne/Solvent Paint			X					13.76										
	849+82.84	863+59.72	BOTH	Waterborne/Solvent Paint		X			13.77													
	849+82.84	853+34.27	SB	Waterborne/Solvent Paint			X							3.51								
	849+82.84	853+34.27	SB	Waterborne/Solvent Paint	X									3.51								
	849+84.27	863+59.72	SB	Waterborne/Solvent Paint			X					13.75										
	853+34.27	856+04.15	SB	Waterborne/Solvent Paint			X								2.70							

PAVEMENT MARKING LINE TYPES

See PM-110

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - For estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY4 - Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.25
DCY4: Double Centerline (Yellow) @ 2.00
NPY4: No Passing Zone Line (Yellow) @ 1.25
BLW4: Broken Lane Line (White) @ 0.25
ELW4: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 1.00
SLW4: Solid Lane Line (White) @ 1.00
DLW4: Dotted Line (White) @ 0.33
CHY8: Channelizing Line (Yellow) @ 2.00
SLW2: Stop Line (White) @ 6.00
CHW8: Channelizing Line (White) @ 2.00

Location								Length by Line Type (Unfactored)													
Road ID	Station to Station		Dir. of Travel	Marking Type	Side			BCY4*	DCY4	NPY4**	BLW4	ELW4	ELY4	SLW4	DLW4	CHY8	SLW2	CHW8					Remarks
					L	C	R	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
	853+34.26	856+04.27	SB	Waterborne/Solvent Paint	X										2.70								
	859+03.36	861+73.36	NB	Waterborne/Solvent Paint	X										2.70								
	859+03.48	861+73.36	NB	Waterborne/Solvent Paint			X								2.70								
	861+73.36	863+59.72	NB	Waterborne/Solvent Paint	X									1.86									
	861+73.36	863+59.72	NB	Waterborne/Solvent Paint			X							1.86									
	864+57.82	875+41.91	SB	Waterborne/Solvent Paint			X					10.84											
	864+57.82	865+28.73	SB	Waterborne/Solvent Paint	X									0.71									
	864+57.82	866+07.82	BOTH	Waterborne/Solvent Paint		X			1.50														
	864+73.10	883+95.73	NB	Waterborne/Solvent Paint			X					19.23											
	866+07.82	873+92.46	BOTH	Waterborne/Solvent Paint		X				7.85													
	866+07.82	873+92.46	BOTH	Waterborne/Solvent Paint		X				7.85													
	873+92.46	875+41.91	BOTH	Waterborne/Solvent Paint		X			1.49														
	874+71.65	875+41.91	NB	Waterborne/Solvent Paint	X									0.70									
	876+51.53	883+19.86	SB	Waterborne/Solvent Paint			X					6.68											
	876+51.53	881+81.40	BOTH	Waterborne/Solvent Paint		X				5.30													
	876+51.53	881+90.88	BOTH	Waterborne/Solvent Paint		X				5.39													
	881+58.25	883+19.31	NB	Waterborne/Solvent Paint			X								1.61								
	881+81.40	883+33.93	BOTH	Waterborne/Solvent Paint		X			1.53														
	882+74.38	883+56.04	NB	Waterborne/Solvent Paint	X									0.82									
	883+19.31	883+75.59	NB	Waterborne/Solvent Paint			X							0.56									
	884+25.93	902+58.42	SB	Waterborne/Solvent Paint			X					18.32											
	884+47.51	888+43.66	SB	Waterborne/Solvent Paint			X							3.96									
	884+70.51	886+48.98	SB	Waterborne/Solvent Paint	X									1.78									
	884+98.43	886+48.98	BOTH	Waterborne/Solvent Paint		X			1.51														
	885+23.39	903+15.00	NB	Waterborne/Solvent Paint			X					17.92											
	886+48.98	898+00.00	BOTH	Waterborne/Solvent Paint		X				11.51													
	887+48.62	898+00.00	BOTH	Waterborne/Solvent Paint		X				10.51													
	888+43.66	890+21.24	SB	Waterborne/Solvent Paint			X								1.78								
	898+00.00	903+15.00	BOTH	Waterborne/Solvent Paint		X										5.15							
	971+42.45	987+43.71	BOTH	Waterborne/Solvent Paint		X										16.01							
	974+24.12	987+43.71	SB	Waterborne/Solvent Paint			X					13.20											
	976+81.50	982+15.00	NB	Waterborne/Solvent Paint			X					5.34											
Church St	1848+69.25	1849+04.89	BOTH	Waterborne/Solvent Paint		X				0.36													
	1848+69.25	1849+05.04	EB	Waterborne/Solvent Paint			X							0.36									
	1849+52.90	1850+11.77	WB	Waterborne/Solvent Paint			X							0.59									
	1849+53.05	1851+25.00	BOTH	Waterborne/Solvent Paint		X				1.72													
				Factored Total: Waterborne/Solvent Paint				-	42.59	63.11	-	129.82	-	21.74	4.73	50.12	-	-	-	-	-	-	
				Factored Total: Wet Retroreflective Removable Tape				-	322.33	-	-	102.85	-	10.49	0.59	98.12	2.64	11.91	-	-	-	-	
				Factored Total: Removal of Paint				-	68.55	-	-	111.31	-	9.33	2.51	189.23	-	-	-	-	-	-	
				Factored Total: Removal of Removable Tape				-	322.33	-	-	91.01	-	10.49	0.59	82.29	2.64	11.91	-	-	-	-	
				Bid Quantity: Painted Pavement Markings, Waterborne or Solvent-Based							312.10												
				Bid Quantity: Wet Retroreflective Removable Tape Markings							548.93												
				Bid Quantity: Pavement Markings Removed							380.93												
				Incidental Removal of Removable Tape							521.26												

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Road Identification	Location		STAW	RTAW	LTAW	CSRW	CSLW	CSTW	CRLW	FERW	LLRW	RLRW	RRCW	BLSW	WCSW	WPSB	SCLW	XNGW	STPW	AHDW	ONLW	BIKW	LANW	XITW	Groove Cuts	Remarks
	Station	Side	↑	↱	↰	↳	↲	↕	↩↪	↑	↗	↖	✕	🚲	♿	♿	SCHOOL	XING	STOP	AHEAD	ONLY	BIKE	LANE	EXIT	EACH	
US 151	847+87.00	RT			1																					
US 151	848+25.00	RT																			1					
US 151	848+62.00	RT			1																					
US 151	850+08.00	LT		1	1																					
US 151	850+45.00	LT																			1					
US 151	851+58.00	LT		1	1																					
US 151	853+08.00	LT		1	1																					
US 151	862+60.00	RT		1	1																					
US 151	862+97.00	RT																			1					
US 151	863+35.00	RT		1	1																					
US 151	864+83.00	LT			1																					
US 151	865+20.00	LT																			1					
US 151	865+58.00	LT			1																					
US 151	870+10.00				1																					TWLT
US 151	870+25.00				1																					TWLT
US 151	874+52.00	RT			1																					
US 151	874+89.00	RT																			1					
US 151	875+27.00	RT			1																					
US 151	878+61.00				1																					TWLT
US 151	878+77.00				1																					TWLT
US 151	882+41.00	RT			1																					
US 151	882+78.00	RT																			1					
US 151	882+97.00	RT		1																						
US 151	883+16.00	RT			1																					
US 151	883+55.00	RT		1																						
US 151	884+81.00	LT		1	1																					
US 151	885+19.00	LT																			1					
US 151	885+56.00	LT		1	1																					
US 151	888+34.00				1																					TWLT
US 151	888+50.00				1																					TWLT
US 151	894+28.00				1																					TWLT
US 151	894+44.00				1																					TWLT
US 151	897+73.00				1																					TWLT
US 151	897+89.00				1																					TWLT
Church St	1848+95.00				1																					
Church St	1849+68.00				1																					
	Total:			9	27																7					

100-34
10-17-17

STORMWATER DRAINAGE BASIN AND STORAGE

Refer to EC Standards and 570s Details.

Drainage Basin Location						Summary of Stormwater Storage							
Basin No.	Station to Station		Side	Discharge Point Station	Discharge Point Side	Total Disturbed Area	Disturbed Area with Storage Provided	Disturbed Area without Storage Provided	Best Management Practice	Total Storage Volume Provided	Total Storage Volume Required	Storage Volume Met?	Remarks
						Acres	Acres	Acres		CF	CF	Yes/No	
1	843+88.58	857+32.60	B	856+47.00	L	5.5	5.1	0.3	Silt Fence for Ditch Check (EC-201)	18500.1	19700.3	No	BMP - Add Silt Fence and Perimeter Control in Urban Section
2	857+19.65	863+87.05	L	857+95.00	L	1.0	1.5	-0.6	Silt Fence for Ditch Check (EC-201)	5456.5	3447.4	Yes	
3	857+32.60	862+11.74	R	857+75.00	R	0.7	0.0	0.7	Silt Fence Installation for Shallow or No Ditch (570-4)	0.0	2376.7	No	BMP - Silt Fence on toe and sides of Bridge Berm
4	857+32.60	867+43.51	R	867+35.00	R	1.7	0.5	1.2	Silt Fence for Ditch Check (EC-201)	1628.8	6016.7	No	BMP - Add Silt Fence and Perimeter Control in Urban Section
5	863+26.51	877+50.00	B	869+15.00	R	2.9	1.7	1.2	Silt Fence for Ditch Check (EC-201)	6120.3	10282.7	No	BMP - Silt Fence on toe and sides of Bridge Berm
6	863+64.55	866+97.78	L	866+40.00	L	0.5	0.5	0.0	Silt Fence for Ditch Check (EC-201)	1736.3	1882.8	No	BMP - Silt Fence on sides of Bridge Berm
7	867+32.12	876+88.72	L	867+50.00	L	1.4	2.5	-1.1	Silt Fence for Ditch Check (EC-201)	9115.4	4990.3	Yes	
8	876+00.00	881+42.33	L	880+94.00	L	0.6	1.5	-0.8	Silt Fence for Ditch Check (EC-201)	5230.8	2333.2	Yes	
9	877+50.00	880+85.25	R	881+50.00	R	0.8	1.7	-0.9	Silt Fence for Ditch Check (EC-201)	6076.9	2714.0	Yes	
10	880+85.25	894+18.50	R	880+90.00	R	2.9	3.5	-0.6	Silt Fence for Ditch Check (EC-201)	12732.6	10473.1	Yes	
11	881+10.56	883+97.52	L	881+18.70	L	0.5	0.0	0.5	Silt Fence Installation for Shallow or No Ditch (570-4)	0.0	1713.6	No	BMP - Silt Fence on toe and sides of Bridge Berm
12	883+02.70	894+18.50	L	883+94.00	L	1.2	3.4	-2.2	Silt Fence for Ditch Check (EC-201)	12153.9	4401.4	Yes	
13	894+18.50	902+58.42	B	900+65.00	L	2.0	2.0	0.0	Silt Fence for Ditch Check (EC-201)	7177.4	7056.4	Yes	
14	957+90.14	959+26.08	L	959+15.00	L	0.1	0.0	0.1	Silt Fence Installation for Shallow or No Ditch (570-4)	0.0	463.0	No	BMP - Silt Fence on up and downstream ends of culvert
15	974+69.95	980+87.89	L	980+66.77	L	1.1	1.5	-0.4	Silt Fence for Ditch Check (EC-201)	5425.5	3842.3	Yes	
16	977+80.36	980+18.00	R	979+48.00	R	0.4	0.0	0.4	Silt Fence Installation for Shallow or No Ditch (570-4)	0.0	1305.0	No	BMP - Silt Fence on toe of foreslope and edge of culvert
17	979+54.70	981+15.00	R	979+61.25	R	0.4	0.2	0.1	Silt Fence for Ditch Check (EC-201)	842.5	1359.4	No	BMP - Silt Fence on toe of foreslope and edge of culvert
18	980+18.00	985+76.79	L	980+66.77	L	0.9	1.0	-0.1	Silt Fence for Ditch Check (EC-201)	3760.6	3321.4	Yes	
19	2863+12.74	2863+63.66	L	2863+00.00	L	0.2	0.0	0.2	Silt Fence Installation for Shallow or No Ditch (570-4)	0.0	888.5	No	BMP - Silt Fence on toe slope tie in
20	2864+71.51	2866+50.03	B	2866+50.03	B	0.2	0.0	0.2	Silt Fence Installation for Shallow or No Ditch (570-4)	0.0	652.3	No	BMP - Silt Fence on toe sbope tie in

100-23
04-17-18

ROCK EROSION CONTROL

Refer to EC-301 and Detail 570-8

Location				Rock Erosion Control (REC)							Material Bid Quantities			
Road Identification	Begin Station	End Station	Side	L	W	Type 1 Rock Ditch Check	Type 2 Rock Ditch	Type 3 Rock Flume	Type 4 Rock Splash Basin	Type 5 Rock Slope Protection	Eng. Fabric	Class E Revetment	Erosion Stone	Remarks
			Lt./Rt.	FT	FT						SY	TON	TON	
U.S. Highway 151	849+84.00		RT	8	4				X		3.6	4.5		
U.S. Highway 151	850+50.00		LT	19	11				X		36.6	29.3		
U.S. Highway 151	852+26.00		LT	40	12.5				X		76.6	70.0		
U.S. Highway 151	853+23.50		LT	16	8.5				X		26.2	19.1		
U.S. Highway 151	856+70.00		RT	8	4				X		3.6	4.5		
U.S. Highway 151	858+21.00		RT	8	4				X		3.6	4.5		
U.S. Highway 151	863+46.00		LT	8	4				X		3.6	4.5		
U.S. Highway 151	863+56.00		RT	8	4				X		3.6	4.5		
U.S. Highway 151	890+65.73		LT	15.6	9				X		26.8	19.7		
U.S. Highway 151	890+84.92		RT	15.6	9				X		26.8	19.7		
U.S. Highway 151	983+56.50		LT	19	9				X		31.3	24.0		
80th Street SW	7909+70.00		LT	32	17.5				X		62.3	78.4		
Church Street	1850+50.00		RT	19	9				X		31.3	24.0		
Beverly Rd.	6957+40.00		LT	30	12.5				X		41.7	52.5		
Beverly Rd.	6957+40.00		RT	23	12.5				X		32.0	40.3		
										Total:	409.6	399.5		

104-8A
10-17-17

SCOUR PROTECTION OR ROCK FLUME FOR BRIDGE END DRAIN

Refer to Standard Road Plan DR-401 and DR-402

Location			Bid Items		PCC Paved Shoulder			Scour Protection (DR-401)			Rock Flume (DR-402)			Remarks
Bridge Station	Bridge Corner	Distance DI-1 or DI-2	PCC Paved Shoulder	Bridge End Drain	Panels Required	Polymer Grid	Modified Subbase	Special Ditch Control, Wood Excelsior Mat	Turf Reinforced Mat (TRM), Type 2	Transition Mat	Macadam Stone Base	Engineering Fabric	Erosion Stone	
								EC-101	EC-104	EC-105				
		FT	SY	TYPE	A B C or D	SY	TONS	SQ	SQ	SF	TONS	SY	TONS	
857+32.60	SW	14.7		DR-401				12.8	13.2	32				
867+41.69	NW	40.0		DR-401				4.3	4.6	32				
867+41.69	NW	248.8		DR-401				4.9	5.2	32				
867+41.69	NE	211.9		DR-401				3.1	3.4	32				
880+85.25	SE	27.2		DR-401				1.5	1.8	32				
880+85.25	NE	45.4		DR-401				3.2	3.5	32				
Total:				6				29.8	31.7	192				

100-17
04-20-10

TABULATION OF SILT FENCES

Refer to EC-201

Location			Length	Remarks
Begin Station	End Station	Side	LF	
856+50.00	856+72.74	R	40.0	
856+30.00	857+06.47	R	110.0	
857+61.74	862+11.90	R	525.0	
857+86.47	858+57.24	R	100.0	
868+13.66	870+60.23	R	300.0	
881+00.59	881+41.41	R	45.0	
897+87.39	900+57.87	R	300.0	
900+62.87	902+63.35	R	215.0	
980+05.18	980+81.26	R	100.0	
849+52.94	850+48.22	L	200.0	
849+71.92	856+47.40	L	735.0	
850+87.26	856+86.53	L	650.0	
853+17.90	856+68.52	L	385.0	
856+18.50	856+72.02	L	75.0	
856+26.96	856+67.90	L	45.0	
857+97.04	860+22.74	L	270.0	
862+75.00	864+55.00	L	310.0	
867+61.12	867+91.93	L	65.0	
881+39.12	882+79.31	L	220.0	
881+81.81	883+03.62	L	195.0	
897+87.24	902+62.55	L	505.0	
958+85.92	959+32.40	L	85.0	
975+50.00	980+35.62	L	510.0	
2866+37.26	2866+50.00	R	20.0	
2866+37.26	2866+50.00	L	20.0	
	Total:		6025.0	
	Bid Quantity:		7540.0	plus 25% adjustment
	Maintenance:		760.0	10% of bid
	Removal:		3770.0	50% of bid

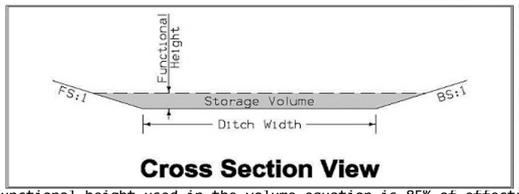
281-3
10-17-17

STORM WATER BEST MANAGEMENT PRACTICES

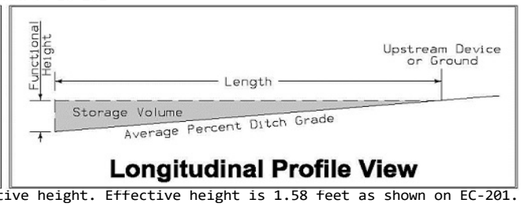
When the following best management practices are used, they are intended to account for disturbed areas where storage volume cannot be provided:

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



Cross Section View



Longitudinal Profile View

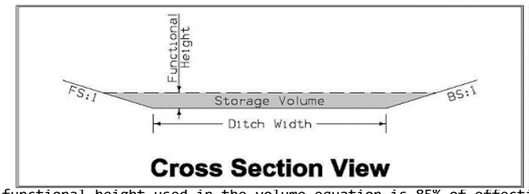
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: $[0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]$

Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope	Volume*	
				LF	LF	LF	FS:1	BS:1	FT	Ditch Grade	CF	
1	1	851+00.88	L	23.0	2.3	11.5	3.5	3.0	10.0	0.3%	3038.5	
1	1	854+10.82	L	23.0	2.3	11.5	3.5	3.0	10.0	0.3%	3038.5	
1	1	856+47.43	L	44.0	4.4	22.0	3.5	3.0	28.0	0.3%	6845.9	
1	1	852+00.00	R	24.0	2.4	12.0	4.0	3.0	10.0	1.2%	987.1	
1	1	852+50.00	R	24.0	2.4	12.0	4.0	3.0	10.0	1.1%	1530.1	
1	1	854+00.00	R	24.0	2.4	12.0	4.0	3.0	10.0	1.1%	1530.1	
1	1	855+50.00	R	24.0	2.4	12.0	4.0	3.0	10.0	1.1%	1530.1	
						0.0						
2	1	857+60.88	L	23.0	2.3	11.5	4.0	3.0	10.0	0.3%	3109.5	
2	1	858+31.97	L	26.0	2.6	13.0	4.0	3.0	10.0	0.3%	3109.5	
2	1	860+01.80	L	21.0	2.1	10.5	4.0	3.0	7.0	3.0%	392.8	
2	1	860+35.00	L	21.0	2.1	10.5	4.0	3.0	5.0	3.0%	325.7	
2	1	860+73.46	L	19.0	1.9	9.5	4.0	3.0	5.0	3.0%	325.7	
2	1	861+73.46	L	19.0	1.9	9.5	4.0	3.0	5.0	1.2%	651.4	
2	1	862+73.46	L	19.0	1.9	9.5	4.0	3.0	5.0	1.2%	651.4	
						0.0						
3	1	865+55.00	R	23.0	2.3	11.5	4.0	3.0	10.0	3.3%	444.2	
3	1	866+00.00	R	23.0	2.3	11.5	4.0	3.0	10.0	3.3%	444.2	
3	1	866+75.00	R	23.0	2.3	11.5	4.0	3.0	10.0	1.9%	740.4	
						0.0						
5	1	871+00.00	R	24.0	2.4	12.0	4.0	3.0	10.0	0.8%	1530.1	
5	1	872+50.00	R	30.0	3.0	15.0	4.0	3.0	10.0	0.8%	1530.1	
5	1	874+00.00	R	30.0	3.0	15.0	4.0	3.0	10.0	0.8%	1530.1	
5	1	875+50.00	R	30.0	3.0	15.0	4.0	3.0	10.0	0.8%	1530.1	
						0.0						
6	1	864+95.00	L	24.0	2.4	12.0	3.5	3.0	10.0	3.5%	434.1	
6	1	865+40.00	L	24.0	2.4	12.0	3.5	3.0	10.0	3.5%	434.1	
6	1	865+85.00	L	24.0	2.4	12.0	3.5	3.0	10.0	3.5%	434.1	
6	1	866+30.00	L	24.0	2.4	12.0	3.5	3.0	10.0	3.5%	434.1	
						0.0						
7	1	868+50.00	L	24.0	2.4	12.0	3.5	3.0	10.0	0.3%	3038.5	
7	1	871+50.00	L	24.0	2.4	12.0	3.5	3.0	10.0	0.3%	3038.5	
7	1	874+50.00	L	24.0	2.4	12.0	3.5	3.0	10.0	0.3%	3038.5	
						0.0						
8	1	877+90.00	L	19.0	1.9	9.5	3.5	3.0	6.0	0.2%	2192.4	
8	1	879+50.00	L	24.0	2.4	12.0	3.5	3.0	10.0	0.2%	3038.5	
						0.0						
9	1	878+00.00	R	24.0	2.4	12.0	3.5	3.0	10.0	0.2%	3038.5	
9	1	879+50.00	R	24.0	2.4	12.0	3.5	3.0	10.0	0.2%	3038.5	
						0.0						
10	1	881+64.00	R	24.0	2.4	12.0	3.5	3.0	10.0	1.0%	1495.1	
10	1	882+50.00	R	24.0	2.4	12.0	3.5	3.0	10.0	1.0%	1495.1	
10	1	883+50.00	R	24.0	2.4	12.0	3.5	3.0	10.0	1.0%	1495.1	
10	1	885+35.00	R	24.0	2.4	12.0	3.5	3.0	10.0	1.6%	723.4	
10	1	886+10.00	R	24.0	2.4	12.0	3.5	3.0	10.0	1.6%	723.4	
10	1	886+85.00	R	24.0	2.4	12.0	3.5	3.0	10.0	1.6%	723.4	
10	1	890+00.00	R	24.0	2.4	12.0	3.5	3.0	10.0	0.4%	3038.5	
10	1	891+50.00	R	24.0	2.4	12.0	3.5	3.0	10.0	0.3%	3038.5	
						0.0						
12	1	883+68.00	L	18.0	1.8	9.0	3.5	3.0	10.0	0.6%	1495.1	
12	1	884+22.00	L	28.0	2.8	14.0	3.5	3.0	10.0	0.6%	1495.1	
12	1	885+00.00	L	24.0	2.4	12.0	3.5	3.0	10.0	0.6%	3038.5	
12	1	886+50.00	L	19.0	1.9	9.5	3.5	3.0	10.0	0.3%	3038.5	
12	1	889+50.00	L	18.0	1.8	9.0	3.5	3.0	10.0	0.3%	3038.5	
12	1	891+50.00	L	18.0	1.8	9.0	3.5	3.0	10.0	0.3%	3038.5	
						0.0						
13	1	895+40.00	R	18.0	1.8	9.0	3.5	3.0	5.0	1.5%	628.8	
13	1	895+50.00	L	24.0	2.4	12.0	3.5	3.0	10.0	0.3%	3038.5	
13	1	897+30.00	R	19.0	1.9	9.5	3.5	3.0	5.0	1.9%	471.6	
13	1	898+00.00	L	24.0	2.4	12.0	3.5	3.0	10.0	0.3%	3038.5	
						0.0						
15	1	975+50.00	L	22.0	2.2	11.0	6.0	3.0	4.0	1.1%	674.4	
15	1	976+00.00	L	24.0	2.4	12.0	6.0	3.0	6.0	2.0%	606.5	
15	1	976+50.00	L	24.0	2.4	12.0	6.0	3.0	6.0	2.0%	606.5	
15	1	977+00.00	L	6.0	0.6	3.0	6.0	3.0	6.0	3.0%	404.4	
15	1	977+50.00	L	24.0	2.4	12.0	6.0	3.0	6.0	3.0%	404.4	
15	1	978+00.00	L	24.0	2.4	12.0	6.0	3.0	6.0	2.0%	606.5	

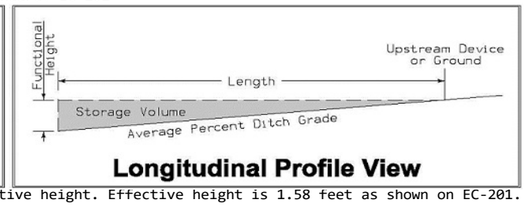
100-18
10-16-18

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



Cross Section View



Longitudinal Profile View

* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: $[0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]$

Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope	Volume*	
				LF	LF	LF	FS:1	BS:1	FT	Ditch Grade	CF	
15	1	978+50.00	L	19.0	1.9	9.5	3.5	3.0	6.0	2.0%	522.0	
15	1	979+58.00	L	19.0	1.9	9.5	3.5	3.0	6.0	1.0%	1078.8	
15	1	980+35.62	L	19.0	1.9	9.5	3.5	3.0	6.0	1.6%	522.0	
						0.0						
17	1	980+05.18	R	16.0	1.6	8.0	3.5	3.0	3.0	5.9%	123.6	
17	1	980+23.67	R	16.0	1.6	8.0	3.5	3.0	3.0	5.9%	123.6	
17	1	980+44.66	R	16.0	1.6	8.0	3.5	3.0	3.0	2.8%	247.3	
17	1	980+81.26	R	19.0	1.9	9.5	3.5	3.0	6.0	2.8%	348.0	
						0.0						
18	1	981+75.00	L	24.0	2.4	12.0	6.0	3.0	6.0	0.7%	1253.5	
18	1	983+25.00	L	24.0	2.4	12.0	6.0	3.0	6.0	0.7%	1253.5	
18	1	984+55.00	L	24.0	2.4	12.0	6.0	3.0	6.0	0.7%	1253.5	
		Totals:		1880.0	150.0	749.0						

232-3A
10-20-15

EROSION CONTROL (RURAL SEEDING)

Following the completion of work in a disturbed area, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

232-3B
10-20-15

EROSION CONTROL (URBAN SEEDING)

Following the completion of work in a disturbed area, place seed, fertilizer, and mulch on the disturbed area as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,4 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

232-11
10-20-15

EROSION CONTROL (STABILIZING CROP SEEDING)

Following the completion of work in a disturbed area, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,1 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

100-11
04-18-17

EROSION CONTROL FOR INTAKE OR MANHOLE WELL

Possible Detail: 570-5

Location Station	Side	Cover Assembly			Remarks
		Installation	Maintenance	Removal	
		EACH	EACH	EACH	
845+64.97	R	1	1	1	
846+64.33	L	1	1	1	
847+21.58	R	1	1	1	
848+39.00	R	1	1	1	
848+39.00	L	1	1	1	
849+89.12	R	1	1	1	
849+89.35	L	1	1	1	
851+48.00	R	1	1	1	
851+50.00	R	1	1	1	
851+50.00	L	1	1	1	
853+25.60	R	1	1	1	
853+25.60	L	1	1	1	
861+82.03	R	1	1	1	
861+82.03	L	1	1	1	
861+84.00	L	1	1	1	
861+84.00	R	1	1	1	
863+51.69	L	1	1	1	
863+51.70	R	1	1	1	
1848+52.82	R	1	1	1	
1848+59.16	L	1	1	1	
1849+85.00	L	1	1	1	
1850+50.00	L	1	1	1	
2864+80.06	L	1	1	1	
3864+00.00	R	1	1	1	
3864+00.00	L	1	1	1	
Totals:		25	25	25	

100-36
10-16-18

OPEN-THROAT CURB INTAKE SEDIMENT FILTER

Possible Standard: EC-602

Location Station	Side	Installation	Maintenance	Removal	Remarks
		LF	EACH	EACH	
845+65.00	R	8.0	1	1	
846+64.33	L	8.0	1	1	
847+21.58	R	8.0	1	1	
848+39.00	R	8.0	1	1	
848+39.00	L	8.0	1	1	
849+89.12	R	8.0	1	1	
849+89.35	L	8.0	1	1	
851+50.00	R	8.0	1	1	
851+50.00	L	8.0	1	1	
853+25.60	R	8.0	1	1	
853+25.60	L	8.0	1	1	
861+82.03	R	8.0	1	1	
861+82.03	L	8.0	1	1	
863+51.70	R	8.0	1	1	
863+51.70	L	8.0	1	1	
2864+80.06	L	8.0	1	1	
3864+00.00	R	4.0	1	1	
3864+00.00	L	4.0	1	1	
Totals:		136.0	18	18	

100-19
04-19-16

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Location			Length of Installation			Remarks
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	
			LF	LF	LF	
843+82.80	844+80.61	R			105.0	
845+02.39	845+60.29	R			62.0	
845+53.50	845+74.49	R			23.0	PLACE DEVICE AROUND ST-03
845+70.14	845+78.87	R			12.0	
846+16.12	847+16.92	R			103.0	
847+08.92	847+32.25	R			27.0	PLACE DEVICE AROUND ST-05
847+26.64	847+29.38	R			5.0	
847+91.50	848+34.33	R			49.0	
848+26.33	848+51.67	R			29.0	PLACE DEVICE AROUND ST-06
848+43.67	849+14.43	R			115.0	
849+52.80	849+85.25	R			89.0	
849+78.87	850+01.85	R			27.0	PLACE DEVICE AROUND ST-11
849+93.65	851+45.33	R			154.0	
851+39.33	851+62.67	R			27.0	PLACE DEVICE AROUND ST-12
851+54.67	853+20.93	R			168.0	
853+14.93	853+38.27	R			27.0	PLACE DEVICE AROUND ST-18
853+30.27	856+27.50	R			299.0	
858+40.50	861+77.30	R			338.0	
861+69.36	861+92.70	R			27.0	PLACE DEVICE AROUND ST-22
861+86.70	863+47.03	R			162.0	
863+39.03	863+62.37	R			27.0	PLACE DEVICE AROUND ST-24
863+56.36	863+94.37	R			235.0	
864+38.58	866+45.74	R			227.0	
868+68.20	870+69.91	R			202.0	
891+34.27		R			20.0	PLACE DEVICE AROUND FLARED END SECTION INLET
845+01.31	845+23.11	L			29.0	
845+44.89	846+59.66	L			121.0	
846+51.66	846+75.00	L			27.0	PLACE DEVICE AROUND ST-04
846+70.10	846+75.00	L			21.0	
847+11.00	848+34.33	L			140.0	
848+26.33	848+51.67	L			29.0	PLACE DEVICE AROUND ST-07
848+43.67	849+13.96	L			110.0	
849+57.96	849+86.40	L			54.0	
849+79.55	850+01.91	L			27.0	PLACE DEVICE AROUND ST-14
849+95.31	851+45.33	L			152.0	
851+39.33	851+62.67	L			27.0	PLACE DEVICE AROUND ST-13
851+54.67	853+20.93	L			168.0	
852+26.00		R			50.0	PLACE DEVICE AROUND FLARED END SECTION INLET
853+14.93	853+38.27	L			27.0	PLACE DEVICE AROUND ST-19
853+30.30	856+09.10	L			280.0	
858+56.11	861+77.36	L			322.0	
861+69.36	861+92.70	L			27.0	PLACE DEVICE AROUND ST-21
861+86.70	863+47.02	L			162.0	
863+39.03	863+62.37	L			27.0	PLACE DEVICE AROUND ST-23
863+56.35	864+01.57	L			187.0	
864+64.13	866+19.58	L			156.0	
868+34.07	870+70.00	L			237.0	
878+00.00		L			20.0	PLACE DEVICE AROUND FLARED END SECTION INLET
891+26.45		L			20.0	PLACE DEVICE AROUND FLARED END SECTION INLET
1847+58.76	1847+69.25	R			12.0	
1847+99.25	1848+04.15	R			45.0	
1848+03.25	1848+56.14	R			53.0	
1848+52.82		R			20.0	PLACE DEVICE AROUND ST-16
1850+50.00		R			20.0	PLACE DEVICE AROUND ST-08
1850+75.00	1850+79.96	R			24.0	
1850+83.37		R			20.0	PLACE DEVICE AROUND FLARED END SECTION INLET
1851+20.06	1851+25.17	R			16.0	
1850+38.75	1851+20.00	L			90.0	
2865+30.81	2865+91.27	R			67.0	
2866+07.73	2866+50.00	R			48.0	
2863+13.40	2863+35.85	L			102.0	
2863+47.68	2863+97.37	L			78.0	
2864+69.49	2864+90.74	L			26.0	PLACE DEVICE AROUND ST-24
2864+84.75	2865+30.81	L			47.0	
2865+30.81	2865+46.05	L			18.0	
2865+57.76	2866+49.96	L			94.0	
3863+35.85		R			20.0	PLACE DEVICE AROUND FLARED END SECTION INLET
3864+20.00		R			20.0	PLACE DEVICE AROUND FLARED END SECTION INLET
				Total:	5799.0	

104-5C
10-17-17

LIST OF SUBDRAIN WORK

Possible Standards: DR-121, DR-201, DR-203, DR-301, DR-302, DR-303, DR-305 and DR-306. Possible Detail: 500-10.

* Not a bid item

Location			Pipe			Aprons		Outlets				Connected Pipe Joints*		Trench Drain	Granular Material	Porous Backfill*	Class "A" Crushed Stone*	Remarks
No.	Station to Station		Type of Installation DR-301, DR-302, DR-303	Concrete, C.M.P., or Plastic	Dia. IN	Length LF	DR-201 No.	DR-203 No.	500-10 No.	DR-305 Type	DR-305 No.	DR-306 No.	DR-121 Type	DR-121 No.	LF	Blanket CY	CY	CY	
US 151																			
1	850+00.00	856+06.00														708.0			Working blanket in the left existing ditch
2	864+35.00	866+76.00														320.0			Working blanket in the left existing ditch
3	868+93.00	873+00.00														975.0			Working blanket in the left existing ditch
4	868+80.00	873+30.00														358.0			Working blanket in the right existing ditch
															Total	2361.0			

Note:
1. The Working Blankets shown on the Q sheets and Tab 104-5C may be deleted if determined not to be necessary at the time of construction.
2. The Working Blanket design thickness is 1 foot.

103-6
10-17-17

EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Stability berms placed outside the normal foreslope template and topsoil will not require Moisture Control.

103-7
08-01-08

SHRINKAGE DATA

Material	%	Remarks
Barrow & Template Cut	30%	
Topsoil	40%	
Estimated Boulder Quantity		50 CY

103-10
04-18-17

TOPSOIL STRIPPING AND PLACEMENT

Location				Topsoil Stripping Thickness	Topsoil Placement Thickness	Remarks
Road Identification	Dir. of Traffic	Begin Station	End Station	IN	IN	
US 151	NB/SB	850+00.00	856+00.00	4.0		
US 151	NB/SB	858+50.00	866+50.00	4.0		
US 151	NB/SB	869+00.00	879+50.00	4.0		
US 151	NB/SB	882+00.00	903+00.00	4.0		

107-31
04-19-11

PLOWING AND SHAPING

Refer to Standard Road Plan EW-101

Station to Station		D FT	Remarks
US 151			
861+00.00	863+50.00	5.0	Refer to W Sheets
980+00.00	981+00.00	5.0	Refer to W Sheets

GEOTECHNICAL DESIGN

LICENSED PROFESSIONAL ENGINEER
MATTHEW D. CUSHMAN
20478
IOWA

I hereby certify that this engineering document was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Matthew D. Cushman 08/21/18
Signature Date

MATTHEW D. CUSHMAN
Printed or Typed Name

My license renewal date is December 31, 2018

Pages or sheets covered by this seal: CS.1 & Q.1-Q.24

Survey Information

General Information

Measurement units for this survey are US survey feet. This survey was performed for multiple projects as listed above for improvements along the Iowa 151 corridor near Fairfax in Linn County. Project datum and control information matches the coordinate system and vertical datum used for BRFN-151-3(134)--39-57 (SAP 0623). This project is a complete field survey for the digital terrain model.

Vertical Control

Vertical datum for this survey is relative to NAVD88.

A Digital level loop was run from BM #589 (established from SAP 0623) through the project benchmarks and returned to BM # 589. The loop error was allowable and the error was distributed proportionately among the project marks.

Vertical equations are as follows:

Datum Benchmark
BM #589 (SAP 0623) Elevation = 791.713
= BM #589 (This Survey) Elevation = 791.713

Horizontal Control

The horizontal control matches the coordinate system used for SAP 0623.

Even though Linn County is in Iowa North Zone the major portion of this project control network is in the Iowa South Zone. As a result this bridge project is also in the Iowa South Zone modified to Ground using the parameters below.

STATE PLANE COORDINATE ZONE 1402 (IOWA SOUTH LAMBERT)

STATE PLANE COORDINATES HELD AT POINT g030

G030 N= 686745.854 E= 2084369.752 (U.S. Ft.)

AVERAGE PROJECT LATITUDE = 41 51 40.20597

RESULTING RADIUS = 6363875.949

MEAN PROJECT ELEVATION = 235.000 meters

SEA LEVEL FACTOR = 0.999963074

AVERAGE PROJECT SCALE FACTOR = 1.000015404

COMBINED FACTOR (GRID) = 0.999978478

1 / GRID = 1.000021523

HORIZONTAL DATUM = NAD 83(HARN)

Alignment Information

The horizontal alignment for this survey was created for SAP 0623 (originally from SAP 159), Project BRFN-151-3(134)--39-57.

ML1
(from SAP 159)
THE ALIGNMENT FOR THIS SURVEY IS A RETRACE OF THE EXISTING ALIGNMENT ON US # 151 FROM HOMESTEAD NORTH EAST TO NEW US # 30/218.

PI STA 101+08.45 THIS SURVEY=
PI STA 1267+96.48 PLANS PROJECT # FR-6-6(23)

PI STA 165+48.10 THIS SURVEY (DATUM STATIONING) =
PI STA 65+48.10 PLANS PROJECT # FN-149-2(13)

PI STA 242+02.93 THIS SURVEY=
PI STA 138+19.1 PLANS PROJECT # FN-194

POT STA 276+83.37 THIS SURVEY=
POT STA 120+78.52 PLANS PROJECT # FN-151-1(5)

PI STA 580+67.72 THIS SURVEY=
PI STA 426+85.76 PLANS PROJECT # NHS-151-2(3)

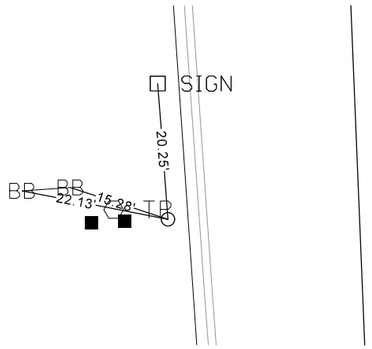
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
BM100	702680.804	2107578.854	780.530	841+08.15	23.119	BM	ARROW ON HYDRANT, EAST SIDE OF HWY 151, SOUTH END
BM1	703233.002	2107556.082	763.600	846+60.81	23.069	BM	GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
BM2	705704.166	2107504.303	750.420	871+35.96	70.098	BM	RR SPIKE IN POWER POLE, EAST SIDE HWY 151, 200' +/- NORTH OF NORTH END OF RIVER BRIDGE AT BEGINNING OF CLEARING
BM3	706904.792	2107804.979	760.370	883+94.08	-58.416	BM	RR SPIKE IN POWER POLE, NW QUADRANT OF CEMETARY ROAD AND HWY 151
BM4	708415.446	2109892.014	767.940	909+53.51	-171.787	BM	RR SPIKE IN POWER POLE, SOUTH SIDE OF 80TH ST SW, 70' +/- WEST OF STOP SIGN ON HWY 151
BM5	710868.765	2114183.819	781.810	958+96.64	-109.701	BM	GIN SPIKE IN LIGHT POLE, NW QUADRANT OF BEVERLY DRIVE WEST AND HWY 151
BM587	711354.287	2115052.646	791.920	968+91.68	-87.544	BM	RR SPIKE IN POWER POLE, NW QUADRANT HWY 151 AND STUNEY POINT, 80' +/- NW OF TRAFFIC LIGHT
BM588	711811.381	2116047.826	781.700	979+81.20	23.191	BM	CUT TRIANGLE ON BASE WALL OF REINFORCED CONCRETE BOX CULVERT
BM589	712237.496	2116803.443	791.710	988+48.54	39.136	BM	IDOT DISK IN HIGHWAY, EAST SIDE HWY 151, 50' +/- SOUTH OF TURNOOUT FOR DEAN ROAD

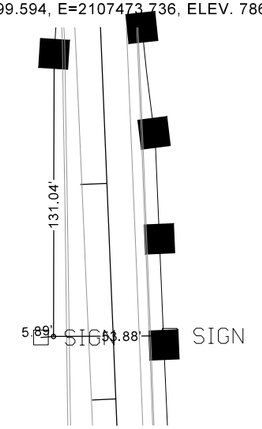
CP STA 837+45.84, 38.77 FT RT
CP 118, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=702310.552, E=2107568.859, ELEV. 790.030

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

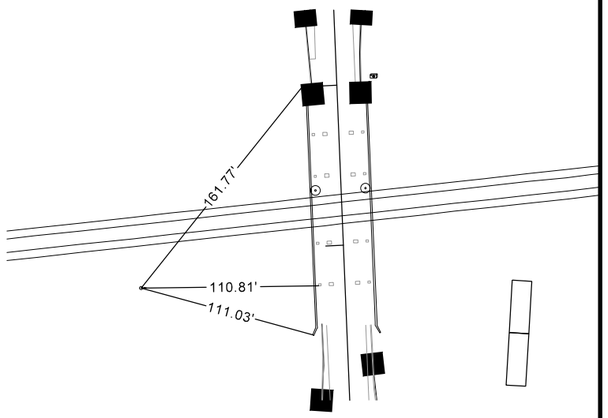
CP STA 846+36.12, 28.47 FT LT
CP 100, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=703206.207, E=2107505.596, ELEV. 763.43



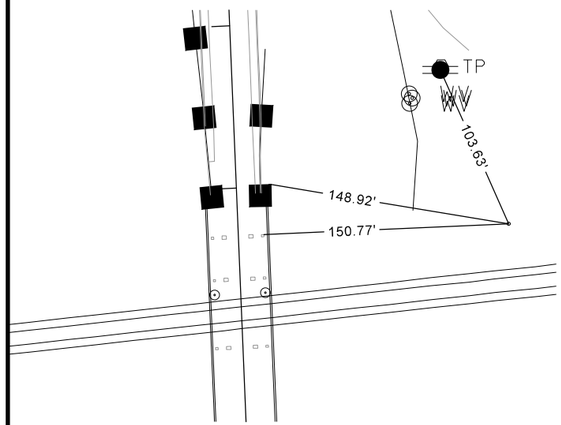
CP STA 854+30.14, 27.69 FT LT
CP 101, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=703999.594, E=2107473.736, ELEV. 786.630



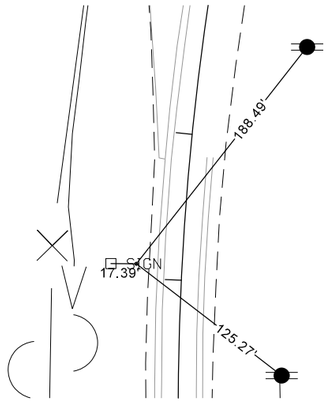
CP STA 856+78.46, 127.36 FT LT
CP 201, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=704243.606, E=2107363.943, ELEV. 758.070



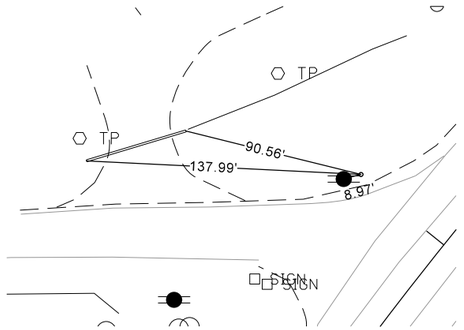
CP STA 857+71.20, 166.58 FT RT
CP 200, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=704348.351, E=2107653.822, ELEV. 763.240



CP STA 872+09.67, 31.26 FT LT
CP 102, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=705780.492, E=2107405.482, ELEV. 757.250



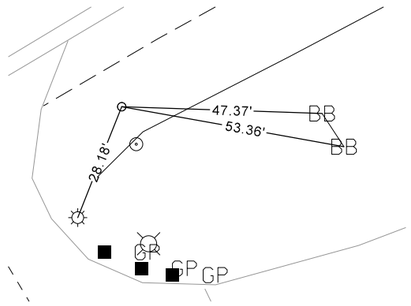
CP STA 884+01.50, 54.56 FT LT
CP 104, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=706908.345, E=2107812.761, ELEV. 759.410



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER G.2

6:00:51 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158G01.sht

CP STA 894+61.29, 36.19 FT RT
CP 105, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=707479.442, E=2108711.388, ELEV. 757.700



CP STA 901+36.51, 40.43 FT RT
CP 106, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=707817.955, E=2109295.639, ELEV. 757.510

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 908+95.75, 56.20 FT LT
CP 107, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=708286.528, E=2109900.851, ELEV. 767.350

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 917+25.17, 29.59 FT RT
CP 108, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=708633.222, E=2110659.204, ELEV. 789.030

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 926+88.32, 36.90 FT RT
CP 109, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=709115.364, E=2111493.021, ELEV. 808.330

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 937+41.40, 38.08 FT RT
CP 110, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=709648.405, E=2112401.235, ELEV. 828.150

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

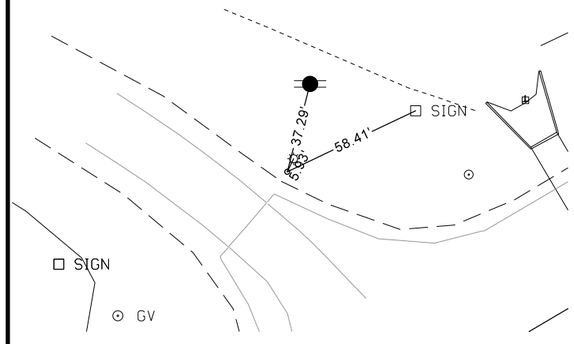
CP STA 948+82.87, 40.35 FT RT
CP 111, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710225.327, E=2113386.176, ELEV. 800.680

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

CP STA 953+99.85, 42.76 FT RT
CP 112, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710485.430, E=2113832.974, ELEV. 783.030

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

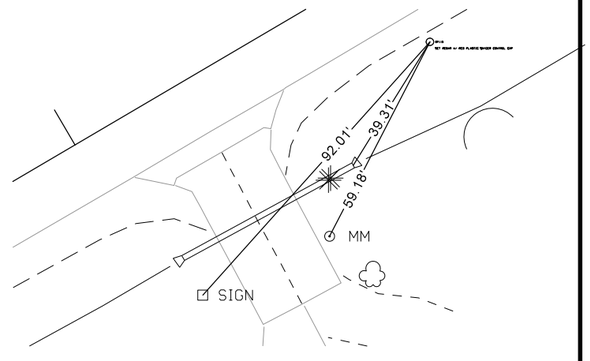
CP STA 958+91.52, 106.92 FT LT
CP 113, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=710863.774, E=2114180.813, ELEV. 781.940



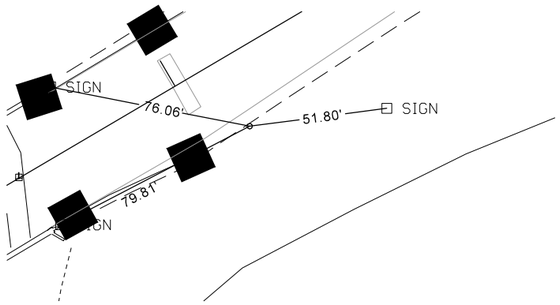
CP STA 968+92.74, 78.50 FT LT
CP 114, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=711347.028, E=2115058.146, ELEV. 790.110

MONUMENT MAY BE LOCATED BY
STAKING OUT COORDINATE

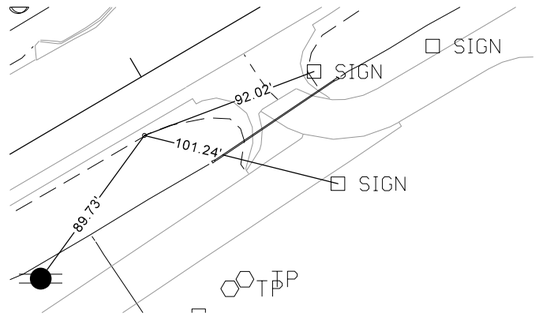
CP STA 973+96.87, 24.64 FT RT
CP 115, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=711513.799, E=2115544.949, ELEV. 785.140



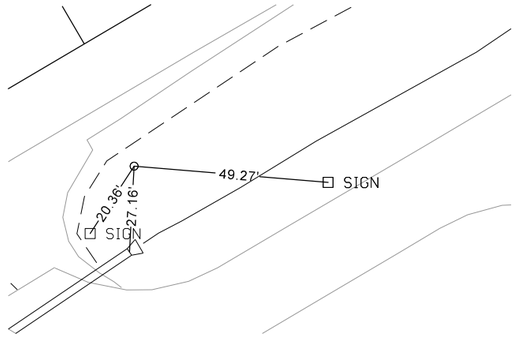
CP STA 981+16.48, 27.08 FT RT
CP 116, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=711876.636, E=2116166.395, ELEV. 778.680



CP STA 991+86.29, 26.37 FT RT
CP 373, SET HINGE NAIL IN ACC
N=712419.779, E=2117088.065, ELEV. 799.640



CP STA 992+95.16, 33.05 FT RT
CP 117, SET REBAR W/ RED PLASTIC SNYDER CONTROL CAP
N=712469.239, E=2117185.291, ELEV. 801.310



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	G.4

6:00:53 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158G01.sht

DESCRIBE CHAIN ML151 (US HIGHWAY 151)

Chain ML151 contains:
1 2 CUR CUR1 CUR CUR2 CUR CUR3 CUR CUR4 CUR CUR5 CUR CUR6 CUR CUR7 CUR CUR8 CU-R CUR9 CUR CUR10 33

Beginning chain ML151 description

Point 1 N 687,471.81 E 2,084,954.51 Sta 550+54.72

Course from 1 to 2 N 83° 13′ 17.03″ E Dist 2,968.75

Point 2 N 687,822.22 E 2,087,902.50 Sta 580+23.47

Course from 2 to PC CUR1 N 89° 05′ 00.94″ E Dist 1,078.93

Curve Data

Curve CUR1
P.I. Station 596+55.40 N 687,848.32 E 2,089,534.22
Delta = 1° 06′ 21.45″ (LT)
Degree = 0° 06′ 00.00″
Tangent = 553.00
Length = 1,105.96
Radius = 57,295.78
External = 2.67
Long Chord = 1,105.94
Mid. Ord. = 2.67
P.C. Station 591+02.40 N 687,839.48 E 2,088,981.30
P.T. Station 602+08.36 N 687,867.84 E 2,090,086.87
C.C. N 745,127.93 E 2,088,064.89
Back = N 89° 05′ 00.80″ E
Ahead = N 87° 58′ 39.35″ E
Chord Bear = N 88° 31′ 50.08″ E

Course from PT CUR1 to PC CUR2 N 87° 58′ 39.41″ E Dist 2,643.13

Curve Data

Curve CUR2
P.I. Station 632+35.31 N 687,974.66 E 2,093,111.94
Delta = 30° 00′ 04.08″ (LT)
Degree = 3° 59′ 59.94″
Tangent = 383.83
Length = 750.03
Radius = 1,432.40
External = 50.53
Long Chord = 741.49
Mid. Ord. = 48.81
P.C. Station 628+51.49 N 687,961.11 E 2,092,728.36
P.T. Station 636+01.52 N 688,178.19 E 2,093,437.36
C.C. N 689,392.62 E 2,092,677.80
Back = N 87° 58′ 39.30″ E
Ahead = N 57° 58′ 35.22″ E
Chord Bear = N 72° 58′ 37.26″ E

Course from PT CUR2 to PC CUR3 N 57° 58′ 34.93″ E Dist 456.06

Curve Data

Curve CUR3
P.I. Station 645+17.23 N 688,663.76 E 2,094,213.73
Delta = 13° 43′ 25.46″ (LT)
Degree = 1° 30′ 00.00″
Tangent = 459.66
Length = 914.92
Radius = 3,819.72
External = 27.56
Long Chord = 912.73
Mid. Ord. = 27.36
P.C. Station 640+57.57 N 688,420.02 E 2,093,824.02
P.T. Station 649+72.49 N 688,993.00 E 2,094,534.49
C.C. N 691,658.50 E 2,091,798.55
Back = N 57° 58′ 35.60″ E
Ahead = N 44° 15′ 10.14″ E
Chord Bear = N 51° 06′ 52.87″ E

Course from PT CUR3 to PC CUR4 N 44° 15′ 09.36″ E Dist 440.29

Curve Data

Curve CUR4
P.I. Station 656+91.27 N 689,507.84 E 2,095,036.07
Delta = 1° 17′ 58.31″ (RT)
Degree = 0° 14′ 00.00″
Tangent = 278.48
Length = 556.94
Radius = 24,555.33
External = 1.58
Long Chord = 556.93
Mid. Ord. = 1.58
P.C. Station 654+12.78 N 689,308.37 E 2,094,841.74
P.T. Station 659+69.72 N 689,702.85 E 2,095,234.88
C.C. N 672,173.05 E 2,112,429.95
Back = N 44° 15′ 09.90″ E
Ahead = N 45° 33′ 08.21″ E
Chord Bear = N 44° 54′ 09.05″ E

Course from PT CUR4 to PC CUR5 N 45° 33′ 08.19″ E Dist 1,496.18

Curve Data

Curve CUR5
P.I. Station 677+66.26 N 690,960.89 E 2,096,517.41
Delta = 2° 48′ 09.95″ (LT)
Degree = 0° 28′ 00.00″
Tangent = 300.36
Length = 600.59
Radius = 12,277.67
External = 3.67
Long Chord = 600.53
Mid. Ord. = 3.67
P.C. Station 674+65.91 N 690,750.56 E 2,096,302.98
P.T. Station 680+66.50 N 691,181.45 E 2,096,721.29
C.C. N 699,515.46 E 2,087,705.44
Back = N 45° 33′ 08.10″ E
Ahead = N 42° 44′ 58.15″ E
Chord Bear = N 44° 09′ 03.12″ E

Course from PT CUR5 to PC CUR6 N 42° 44′ 58.22″ E Dist 4,614.96

Curve Data

Curve CUR6
P.I. Station 729+84.38 N 694,792.79 E 2,100,059.52
Delta = 3° 01′ 42.98″ (RT)
Degree = 0° 30′ 00.02″
Tangent = 302.93
Length = 605.71
Radius = 11,459.00
External = 4.00
Long Chord = 605.64
Mid. Ord. = 4.00
P.C. Station 726+81.46 N 694,570.34 E 2,099,853.89
P.T. Station 732+87.17 N 695,004.06 E 2,100,276.61
C.C. N 686,792.04 E 2,108,268.56
Back = N 42° 44′ 58.20″ E
Ahead = N 45° 46′ 41.18″ E
Chord Bear = N 44° 15′ 49.69″ E

Course from PT CUR6 to PC CUR7 N 45° 46′ 41.21″ E Dist 3,685.12

Curve Data

Curve CUR7
P.I. Station 775+07.55 N 697,947.52 E 2,103,301.12
Delta = 10° 40′ 27.65″ (LT)
Degree = 1° 00′ 00.00″
Tangent = 535.27
Length = 1,067.44
Radius = 5,729.58
External = 24.95
Long Chord = 1,065.89
Mid. Ord. = 24.84
P.C. Station 769+72.29 N 697,574.21 E 2,102,917.53
P.T. Station 780+39.72 N 698,385.43 E 2,103,608.93
C.C. N 701,680.28 E 2,098,921.49
Back = N 45° 46′ 41.10″ E
Ahead = N 35° 06′ 13.45″ E
Chord Bear = N 40° 26′ 27.27″ E

Course from PT CUR7 to PC CUR8 N 35° 06′ 13.54″ E Dist 2,462.06

Curve Data

Curve CUR8
P.I. Station 810+89.91 N 700,880.82 E 2,105,362.97
Delta = 28° 47′ 05.99″ (RT)
Degree = 2° 30′ 00.00″
Tangent = 588.12
Length = 1,151.40
Radius = 2,291.83
External = 74.26
Long Chord = 1,139.33
Mid. Ord. = 71.93
P.C. Station 805+01.79 N 700,399.68 E 2,105,024.76
P.T. Station 816+53.18 N 701,139.67 E 2,105,891.07
C.C. N 699,081.74 E 2,106,899.74
Back = N 35° 06′ 13.40″ E
Ahead = N 63° 53′ 19.39″ E
Chord Bear = N 49° 29′ 46.39″ E

Course from PT CUR8 to PC CUR9 N 63° 53′ 19.54″ E Dist 1,263.38

Curve Data

Curve CUR9
P.I. Station 835+39.61 N 701,969.91 E 2,107,584.97
Delta = 66° 14′ 42.26″ (LT)
Degree = 5° 59′ 59.99″
Tangent = 623.05
Length = 1,104.08
Radius = 954.93
External = 185.28
Long Chord = 1,043.61
Mid. Ord. = 155.17
P.C. Station 829+16.57 N 701,695.70 E 2,107,025.51
P.T. Station 840+20.65 N 702,592.43 E 2,107,559.35
C.C. N 702,553.17 E 2,106,605.23
Back = N 63° 53′ 19.50″ E
Ahead = N 2° 21′ 22.76″ W
Chord Bear = N 30° 45′ 58.37″ E

Course from PT CUR9 to PC CUR10 N 2° 21′ 22.88″ W Dist 3,009.23

Curve Data

Curve CUR10
P.I. Station 881+74.79 N 706,743.06 E 2,107,388.56
Delta = 61° 52′ 59.64″ (RT)
Degree = 3° 00′ 00.00″
Tangent = 1,144.91
Length = 2,062.78
Radius = 1,909.86
External = 316.88
Long Chord = 1,963.96
Mid. Ord. = 271.79
P.C. Station 870+29.88 N 705,599.11 E 2,107,435.63
P.T. Station 890+92.65 N 707,323.68 E 2,108,375.32
C.C. N 705,677.64 E 2,109,343.87
Back = N 2° 21′ 22.90″ W
Ahead = N 59° 31′ 36.74″ E
Chord Bear = N 28° 35′ 06.92″ E

Course from PT CUR10 to 33 N 59° 31′ 36.72″ E Dist 12,137.87

Point 33 N 713,479.21 E 2,118,836.55 Sta 1012+30.52

Ending chain ML151 description

DESCRIBE CHAIN SRCHURCH (CHURCH STREET)

Chain SRCHURCH contains:
SRCHURCH102 SRCHURCH103

Beginning chain SRCHURCH description

Point SRCHURCH102 N 703,497.26 E 2,107,216.91 Sta 1846+30.00

Course from SRCHURCH102 to SRCHURCH103 N 88° 21′ 40.74″ E Dist 670.00

Point SRCHURCH103 N 703,516.42 E 2,107,886.64 Sta 1853+00.00

Ending chain SRCHURCH description

DESCRIBE CHAIN SRPRAIRIE (PRAIRIE AVENUE)

Chain SRPRAIRIE contains:
2863 2864 2865

Beginning chain SRPRAIRIE description

Point 2863 N 704,983.08 E 2,107,341.09 Sta 2863+00.00

Course from 2863 to 2864 N 86° 54′ 11.73″ E Dist 300.00

Point 2864 N 704,999.28 E 2,107,640.65 Sta 2866+00.00

Course from 2864 to 2865 N 83° 28′ 37.57″ E Dist 200.00

Point 2865 N 705,022.00 E 2,107,839.35 Sta 2868+00.00

Ending chain SRPRAIRIE description

DESCRIBE CHAIN SRLOSEY (LOSEY AVENUE)

Chain SRLOSEY contains:
3862 CUR SRLOSEY-1 CUR SRLOSEY-2 3863

Beginning chain SRLOSEY description

Point 3862 N 704,699.51 E 2,107,551.37 Sta 3862+00.00

Course from 3862 to PC SRLOSEY-1 N 6° 16′ 07.27″ W Dist 86.45

Curve Data

Curve SRLOSEY-1
P.I. Station 3863+17.99 N 704,816.79 E 2,107,538.49
Delta = 9° 00′ 55.63″ (RT)
Degree = 14° 19′ 26.20″
Tangent = 31.53
Length = 62.94
Radius = 400.00
External = 1.24
Long Chord = 62.87
Mid. Ord. = 1.24
P.C. Station 3862+86.45 N 704,785.44 E 2,107,541.93
P.T. Station 3863+49.39 N 704,848.29 E 2,107,540.00
C.C. N 704,829.12 E 2,107,939.54
Back = N 6° 16′ 07.27″ W
Ahead = N 2° 44′ 48.36″ E
Chord Bear = N 1° 45′ 39.45″ W

Curve Data

Curve SRLOSEY-2
P.I. Station 3863+67.22 N 704,866.09 E 2,107,540.86
Delta = 5° 06′ 11.25″ (LT)
Degree = 14° 19′ 26.20″
Tangent = 17.83
Length = 35.63
Radius = 400.00
External = 0.40
Long Chord = 35.61
Mid. Ord. = 0.40
P.C. Station 3863+49.39 N 704,848.29 E 2,107,540.00
P.T. Station 3863+85.02 N 704,883.90 E 2,107,540.12
C.C. N 704,867.46 E 2,107,140.46
Back = N 2° 44′ 48.36″ E
Ahead = N 2° 21′ 22.88″ W
Chord Bear = N 0° 11′ 42.74″ E

Course from PT SRLOSEY-2 to 3863 N 2° 21′ 22.88″ W Dist 214.98

Point 3863 N 705,098.70 E 2,107,531.28 Sta 3866+00.00

Ending chain SRLOSEY description

DESCRIBE CHAIN SRSTALLMAN (STALLMAN DRIVE)

Chain SRSTALLMAN contains:
4873 CUR SRSTALLMAN-1 4874

Beginning chain SRSTALLMAN description

Point 4873 N 706,409.81 E 2,107,401.91 Sta 4873+00.00

Course from 4873 to PC SRSTALLMAN-1 S 2° 22′ 51.16″ E Dist 179.34

Curve Data

Curve SRSTALLMAN-1
P.I. Station 4875+23.63 N 706,186.37 E 2,107,411.20
Delta = 72° 52′ 18.32″ (LT)
Degree = 95° 29′ 34.68″
Tangent = 44.29
Length = 76.31
Radius = 60.00
External = 14.58
Long Chord = 71.27
Mid. Ord. = 11.73
P.C. Station 4874+79.34 N 706,230.63 E 2,107,409.36
P.T. Station 4875+55.65 N 706,175.10 E 2,107,454.04
C.C. N 706,233.12 E 2,107,469.31
Back = S 2° 22′ 51.16″ E
Ahead = S 75° 15′ 09.49″ E
Chord Bear = S 38° 49′ 00.32″ E

Course from PT SRSTALLMAN-1 to 4874 S 75° 15′ 09.49″ E Dist 144.35

Point 4874 N 706,138.35 E 2,107,593.64 Sta 4877+00.00

Ending chain SRSTALLMAN description

DESCRIBE CHAIN SRCEMETERY (CEMETERY ROAD)

Chain SRCEMETERY contains:
5880 5881 CUR SRCEMETERY-1 5882 5883

Beginning chain SRCEMETERY description

Point 5880 N 706,872.56 E 2,107,449.44 Sta 5880+00.00

Course from 5880 to 5881 N 88° 28′ 15.30″ E Dist 432.27

Point 5881 N 706,884.09 E 2,107,881.55 Sta 5884+32.27

Course from 5881 to PC SRCEMETERY-1 S 83° 10′ 44.90″ E Dist 45.02

Curve Data

Curve SRCEMETERY-1
P.I. Station 5885+27.68 N 706,872.76 E 2,107,976.29
Delta = 9° 36′ 05.14″ (LT)
Degree = 9° 32′ 57.47″
Tangent = 50.39
Length = 100.55
Radius = 600.00
External = 2.11
Long Chord = 100.43
Mid. Ord. = 2.10
P.C. Station 5884+77.29 N 706,878.75 E 2,107,926.26
P.T. Station 5885+77.84 N 706,875.21 E 2,108,026.62
C.C. N 707,474.50 E 2,107,997.52
Back = S 83° 10′ 44.90″ E
Ahead = N 87° 13′ 09.96″ E
Chord Bear = S 87° 58′ 47.47″ E

Course from PT SRCEMETERY-1 to 5882 N 87° 13′ 09.96″ E Dist 61.46

Point 5882 N 706,878.19 E 2,108,088.01 Sta 5886+39.30

Course from 5882 to 5883 N 88° 27′ 55.32″ E Dist 361.76

Point 5883 N 706,887.88 E 2,108,449.64 Sta 5890+01.06

Ending chain SRCEMETERY description

DESCRIBE CHAIN SR80TH (80TH STREET)

Chain SR80TH contains:

SR801 SR802 SR803
Beginning chain SR80TH description

Point SR801 N 707,360.26 E 2,109,980.58 Sta 7897+74.35

Course from SR801 to SR802 N 2° 29′ 54.80″ W Dist 131.69

Point SR802 N 707,491.82 E 2,109,974.84 Sta 7899+06.04

Course from SR802 to SR803 N 2° 29′ 54.80″ W Dist 1,413.05

Point SR803 N 708,903.53 E 2,109,913.24 Sta 7913+19.08

Ending chain SR80TH description

DESCRIBE CHAIN SRBEVERLY (BEVERLY ROAD)

Chain SRBEVERLY contains:
6952 CUR SRBEVERLY-1 6953

Beginning chain SRBEVERLY description

Point 6952 N 710,953.98 E 2,113,601.63 Sta 6952+00.00

Course from 6952 to PC SRBEVERLY-1 N 89° 33′ 06.71″ E Dist 249.20

Curve Data

Curve SRBEVERLY-1
P.I. Station 6956+71.71 N 710,957.67 E 2,114,073.33
Delta = 49° 58′ 30.00″ (RT)
Degree = 12° 00′ 00.44″
Tangent = 222.52
Length = 416.45
Radius = 477.46
External = 49.31
Long Chord = 403.38
Mid. Ord. = 44.69
P.C. Station 6954+49.20 N 710,955.93 E 2,113,850.82
P.T. Station 6958+65.65 N 710,788.40 E 2,114,217.76
C.C. N 710,478.48 E 2,113,854.55
Back = N 89° 33′ 06.71″ E
Ahead = S 40° 28′ 23.29″ E
Chord Bear = S 65° 27′ 38.29″ E

Course from PT SRBEVERLY-1 to 6953 S 40° 28′ 23.29″ E Dist 23.58

Point 6953 N 710,770.46 E 2,114,233.07 Sta 6958+89.23

Ending chain SRBEVERLY description

DESCRIBE CHAIN DD2 (DRAINAGE DITCH #2)

DESCRIBE CHAIN DD2

Chain DD2 contains:
DD2-9 CUR DD2-10 8974

Beginning chain DD2 description

Curve Data

Curve DD2-9
P.I. Station 8977+51.45 N 712,093.14 E 2,115,952.05
Delta = 101° 12′ 47.17″ (LT)
Degree = 88° 08′ 50.47″
Tangent = 79.15
Length = 114.82
Radius = 65.00
External = 37.42
Long Chord = 100.46
Mid. Ord. = 23.75
P.C. Station 8976+72.30 N 712,159.56 E 2,115,995.10
P.T. Station 8977+87.13 N 712,063.83 E 2,116,025.58
C.C. N 712,124.21 E 2,116,049.65
Back = S 32° 56′ 36.72″ W
Ahead = S 68° 16′ 10.44″ E
Chord Bear = S 17° 39′ 46.86″ E

Curve Data

Curve DD2-10
P.I. Station 8978+30.80 N 712,047.66 E 2,116,066.15
Delta = 67° 47′ 47.16″ (RT)
Degree = 88° 08′ 50.47″
Tangent = 43.68
Length = 76.91
Radius = 65.00
External = 13.31
Long Chord = 72.50
Mid. Ord. = 11.05
P.C. Station 8977+87.13 N 712,063.83 E 2,116,025.58
P.T. Station 8978+64.04 N 712,003.99 E 2,116,066.51
C.C. N 712,003.45 E 2,116,001.51
Back = S 68° 16′ 10.44″ E
Ahead = S 0° 28′ 23.28″ E
Chord Bear = S 34° 22′ 16.86″ E

Course from PT DD2-10 to 8974 S 0° 28′ 23.28″ E Dist 424.42

Point 8974 N 711,579.58 E 2,116,070.02 Sta 8982+88.46

Ending chain DD2 description

SUPERELEVATION DATA

See PV-300 Series

Road Identification	Circular Curve or Spiral Curve Name	Radius	Superelevation Data			Standard Road Plan	Section A-A	Section B-B	Section C-C	Section D-D	Section E-E	Section F-F	Case A	Case B	Case C	Case S	Case T	Case U	Remarks
			e	L	x														
		FT	%	FT	FT														
U.S. Hwy. 151	CUR10	1910	4.2	120	57	PV-301	868+88.88	869+45.88	870+02.88	870+65.88			870+29.88			870+60.17	870+60.17		
							892+33.65	891+76.65	891+19.65	890+56.65			890+92.65			890+62.36	890+62.36		
U.S. Hwy. 151	CUR10	1910	4.2	120	57														
							885+98.30	886+55.30	887+12.30	887+75.30									SB Rt. Turn Lane Transition

108-23A
08-01-08

TRAFFIC CONTROL PLAN

U.S. 151 will be closed to through traffic throughout the project area for the duration of the project. Through traffic will use the detour route details on Sheets J.3-J.7. The road will remain open to local traffic throughout construction, with the exception of the UPRR Bridge, which will be closed. Refer to Staging Notes for additional information. All conflicting route markers along detour route shall be covered or removed. Detour signing and traffic control devices shall be in place prior to start of work. At the direction of the Engineer, remove, cover relocate or adjust existing signs for temporary traffic control, this shall be considered incidental to the project.

Church Street
Access to Church Street from U.S. 151 must be maintained between May 1st and August 15th. Church Street may be closed at U.S. 151 during intersection reconstruction. Road closure per Standard Road Plan TC-252.

Prairie Avenue
Acccess to Prairie Avenue from U.S. 151 shall be maintained through Stage 2. Following completion and opening of U.S. Highway 151 bridge at UPRR, access will be closed to complete intersection reconstruction.

Stallman Drive
Stallman Drive will be closed at U.S. 151 during intersection construction. Access to Stallman Drive via West Cemetery Road and access to West Cemetery Road intersection at U.S. 151 shall be maintained during Stallman Drive intersection closure.

Cemetery Road
Cemetery Road will be closed at U.S. 151 during intersection reconstruction. West Cemetery Road and East Cemetery Road intesections shall not be closed at the same time. West Cemetery Road and Stallman Drive intersetions with U.S. 151 shall not be closed at the same time.

Beverly Road
Beverly Road will be closed at U.S. 151 during culvert installation. Road closure par Standard Road Plan TC-252.

Access to properties within the project area shall be maintained at all times. Provide access to emergency vehicles at all times during construction. Maintain garbage and mail service to properties as necessary throughout construciton, this shall be considered incidental to other project items.

111-01
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
BRF-151-3(141)--38-57	UPRR Bridge
BRF-151-3(142)--38-57	Prairie Creek Bridge
BRF-151-3(152)--38-57	Drainage Ditch No. 1 Bridge
NHSX-151-3(134)--3H-57	Drainage Ditch No. 2 Structure
NHSX-151-3(169)--3H-57	Traffic Signs

108-26A
08-01-08

STAGING NOTES

Staging designations may not match designations shown in structural plans.

U.S. HIGHWAY 151, SOUTH OF CHURCH STREET

Stage 1A:
Close U.S. 151 from north of Church Street to south of Prairie Avenue for bridge and wall construction. Traffic utilizes existing pavement, U.S. 151 south of Church Street shall remain open to maintain access to properties located adjacent to construction area. Shift traffic to westen half of existing pavement. Construct U.S. 151 improvements on east side. Construct Church Street intersection from western limit to eastern end of radius. Sub-stage driveway replacement to maintain property access.

Stage 1B:
U.S. 151 remains closed from north of Church Street to south of Prairie Avenue. Shift traffic to east half of existing pavement utilizing previously constructed pavement. Construct U.S. Highway 151 improvements on west side. Construct remaining portion of Church Street east of U.S. Highway 151. Sub-stage driveway replacement as much as practical to maintain property access. Upon completion, open Church Street intersection to local traffic.

U.S. HIGHWAY 151, CHURCH STREET TO PRAIRIE AVENUE (UPRR BRIDGE CONSTRUCTION)

Stage 1A-2B:
U.S. 151 remains closed from north of Church Street to south of Prairie Avenue. Construct walls, bridge, pavement and temporary pavement. Perform longitudinal grooving on the bridge deck and approach pavement prior to opening to traffic.

U.S. HIGHWAY 151, UPRR TO 80TH STREET

Stage 1C:
Traffic utilizes existing roadway. Construct temporary pavement along east side of U.S. 151 between Prairie Creek and STA 902+85.

Stage 2A:
Shift traffic to east side of U.S. Highway 151. Install temporary traffic signal at Prairie Avenue and north of Prairie Creek Bridge, install per these plans and TC-216. Traffic will utilize a single lane across the existing Prairie Creek Bridge. North of Prairie Creek Bridge, two lanes of traffic will utilize existing pavement and previously constructed temporary pavement. Maintain access to Stallman Drive, close West Cemetery Road at U.S. Highway 151 to complete intersection improvements. Construct proposed improvements on west half of U.S. Highway 151 and install temporary pavement at the Prairie Creek and Drainage Ditch #1 Bridge. Close and reconstruct entrance at STA 894+21 (LT), maintain access to entrance at STA 890+96.75 (LT).

Stage 2B:
Maintain traffic as described in Stage 2A. Reopen U.S. Highway 151 intersection at West Cemetery Road. Close and reconstruct Stallman Drive intersection. Reopen driveway at STA 894+21 (LT), close and reconstruct entrance at STA 890+96.75 (LT). Construct improvements on west half of U.S. Highway 151 from STA 898+00 to STA 903+15. Construct temporary pavement to maintain a minimum of 29’ from centerline. Perform longitudinal grooving on the bridge deck and approach pavement prior to opening to traffic.

Stage 3A:
Open U.S. Highway 151 bridge at UPRR. Shift traffic to the west side of U.S. Highway 151. Two lanes of traffic will utilize previously constructed pavement and temporary pavement. Close access to U.S. Highway 151 at Prairie Avenue intersection, construct Prairie Avenue and Losey Avenue. Construct proposed improvements on east half of U.S. Highway 151. Maintain access at STA 877+50 (RT). Close East Cemetery Road intersection at U.S. Highway 151. Close and reconstruct entrance at STA 891+10 (RT) and STA 895+76.54, maintain access to entrance at STA 894+18.50 (Casey's General Store). Close and reconstruct entrance at STA 897+94.90 (RT).

Stage 3B:
Maintain traffic as described in Stage 3A. Reopen U.S. Highway 151 access to East Cemetery Road and driveways constructed in Stage 3A. Reconstruct entrance at STA 877+50 (RT), sub-stage to maintain access. Close and reconstruct entrance at STA. 894+18.50 (RT). Construct improvements on east half of U.S. Highway 151 from STA 898+00 to STA 903+15. Perform longitudinal grooving on the bridge deck and approach pavement prior to opening to traffic.

Stage 4:
Shift traffic to east side of previously constructed pavement. Remove temporary pavement and construct remaining improvements on west side.

BEVERLY ROAD

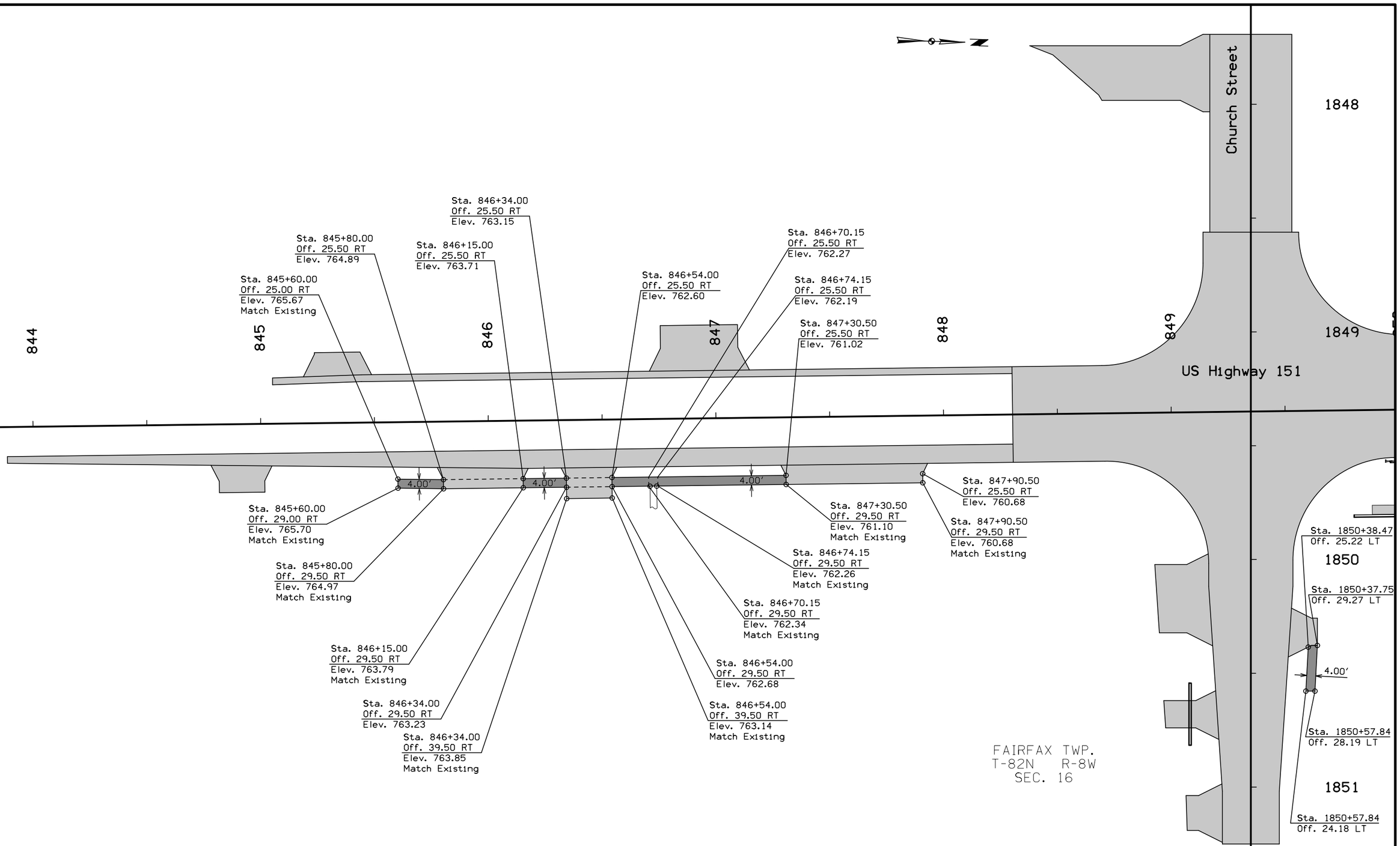
Stage 1: Close Beverly Road at U.S. Highway 151 intersection, utilize Standard Road Plan TC-252. Complete proposed improvements.

U.S. HIGHWAY 151, DRAINAGE DITCH #2

Stage 1:
Traffic utilizes existing roadway. Traffic will utilize a single lane across the existing Drainage Ditch #2 Bridge. Install temporary signals on east and west side of bridge per these plans and TC-216. Construct portion of structure and U.S. highway 151 improvements left of centerline and construct temporary detour pavement to accommodate two-way traffic in Stage 2.

Stage 2:
Shift traffic to temporary detour pavement constructed in previous stage. Construct remaining portion of structure and U.S. Highway 151 improvements right of centerline.

Stage 3:
Shift traffic to previously constructed pavement. Remove temporary pavement. Construct shoulder and grade foreslope left of centerline.



NOTES:

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

0 FEET 20

Geometric Details
Sidewalk Southeast of Intersection
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.1

10:25:04 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

CIRCULAR CURVE DATA

Name	Δ	D	T	L	E	R
CURVE SRCHRCH_RET_1-2	90° 43′ 03.62″	127° 19′ 26.24″	45.57′	71.25′	19.04′	45′
CURVE SRCHRCH_RET_2-1	89° 16′ 56.38″	127° 19′ 26.24″	44.44′	70.12′	18.24′	45′
CURVE SRCHRCH_RET_3-1	90° 43′ 03.62″	127° 19′ 26.24″	45.57′	71.25′	19.04′	45′
CURVE SRCHRCH_RET_4-1	89° 16′ 56.38″	127° 19′ 26.24″	44.44′	70.12′	18.24′	45′

End Church Street Construction
Sta 1847+69.25 18.00′ RT

End Church Street Construction
Sta 1847+69.25 18.00′ LT

SRCHRCH_RET_2

Church Street

18.00′ 18.00′

1848

SRCHRCH_RET_1

Sta 1848+56.14 21.00′ RT
Sta 1+90.12 SRCHRCH_RET_2

PT Sta 1848+69.79 21.00′ RT
Sta 1+80.12 SRCHRCH_RET_2

30′ Radius Point
Curve SRCHRCH_RET_2-1
Sta 848+69.80 66.00′ LT

PC Sta 1848+56.14 21.00′ LT
Sta 1+00.00 SRCHRCH_RET_1

30′ Radius Point
Curve SRCHRCH_RET_1-2
Sta 850+01.96 78.00′ LT

CURVE SRCHRCH_RET_2-1

CURVE SRCHRCH_RET_1-2

PC Sta 848+69.80 21.00′ LT
Sta 1+10.00 SRCHRCH_RET_2

PT Sta 850+01.96 33.00′ LT
Sta 1+71.25 SRCHRCH_RET_1

Begin Taper
Sta 853+34.27 33.00′ LT

848 849 850 851 852 853

1849

15:1 Taper

Sta 849+34.97 US HWY 151 =
Sta 1849+34.97 Church Avenue

US Highway 151

33.00′

21.00′ 3.00′

21.00′ 8.00′

89°16′56.38″ 90°43′3.62″

PT Sta 849+97.65 21.00 RT
Sta 1+80.12 SRCHRCH_RET_4

CURVE SRCHRCH_RET_4-1

PC Sta 848+70.64 21.00′ RT
Sta 1+10.00 SRCHRCH_RET_3

CURVE SRCHRCH_RET_3-1

1850

30′ Radius Point
Curve SRCHRCH_RET_3
Sta 849+97.65 66.00′ RT

18.50′ 18.50′

PC Sta 1850+00.18 18.50′ LT
Sta 1+10.00 CHRCH_RET_4

30′ Radius Point
Curve SRCHRCH_RET_3
Sta 848+70.64 66.00′ RT

End Taper
Sta 1850+11.77 18.50′ LT

PT Sta 1850+01.77 18.50′ RT
Sta 1+81.25 SRCHRCH_RET_3

SRCHRCH_RET_4

FAIRFAX TWP.
T-82N R-8W
SEC. 16

SRCHRCH_RET_3

End Taper
Sta 1850+11.77 18.50′ RT

15:1 Taper

15:1 Taper

Begin Taper
Sta 1851+01.77 12.50′ RT

Begin Taper
Sta 1851+01.77 12.50′ LT

Begin Church Street Construction
Sta 1851+25.00 12.50′ RT

1851

12.50′ 12.50′

Begin Church Street Construction
Sta 1851+25.00 12.50′ LT

NOTES:

Dimensions shown are to the back of curb.

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

0 20
FEET

Geometric Details
Intersection of
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.2

10:25:05 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

SRCHRCH_RET_2

SRCHRCH_RET_1

SRCHRCH_RET_3

SRCHRCH_RET_4

Church Street

US Highway 151

1848

1849

1850

1851

848

849

850

851

852

853

2.0% 18.0′

Constant 2.0% Slope

Sta 1847+91.97

Uniform Transition

Elev = 760.10

Elev = 760.01

Sta 1848+91.97

Sta 1+35.91 SRCHRCH_RET_1
= Sta 1848+88.36 34.58′ LT
Elev = 761.67

Special Shaping

Sta 1+43.89 SRCHRCH_RET_2
= Sta 1849+02.24 34.82′ RT
Elev = 760.65

2.0% 20.7′

U.T.

2.3% 20.6′

2.65% 21.6′

Elev = 763.22

Elev = 761.83

Elev = 760.44

Sta 848+55.33

2.5% 15.0′

Constant 2.5% Slope

Elev = 761.21

U.T.

2.0% 15.0′

2.0% 28.6′

Constant 2.0% Slope

3.5% 21.0′

Uniform Transition

2.0% 18.0′

Elev = 761.18

2.2% 18.5′

2.49% 18.5′

Elev = 762.04

Elev = 763.38

Elev = 760.45

Sta 848+75.33

Special Shaping

Sta 849+80.00
Begin 4" Sloped Curb

Sta 850+45.98
End 4" Sloped Curb

Sta 1+45.06 SRCHRCH_RET_4
= Sta 1849+68.56 31.48′ LT
Elev = 761.76

Sta 1+45.62 SRCHRCH_RET_3
= Sta 1849+69.75 31.88′ RT
Elev = 760.67

Sta 1849+66.21

Elev = 760.59

Elev = 760.07

Constant 2.0% Slope

Uniform Transition

2.0% 15.0′

Sta 1850+65.00

Constant 2.0% Slope

2.0% 12.5′

2.0% 12.5′

U.T.

U.T.

Sta 1851+01.77

0.5% 12.5′

0.7% 12.5′

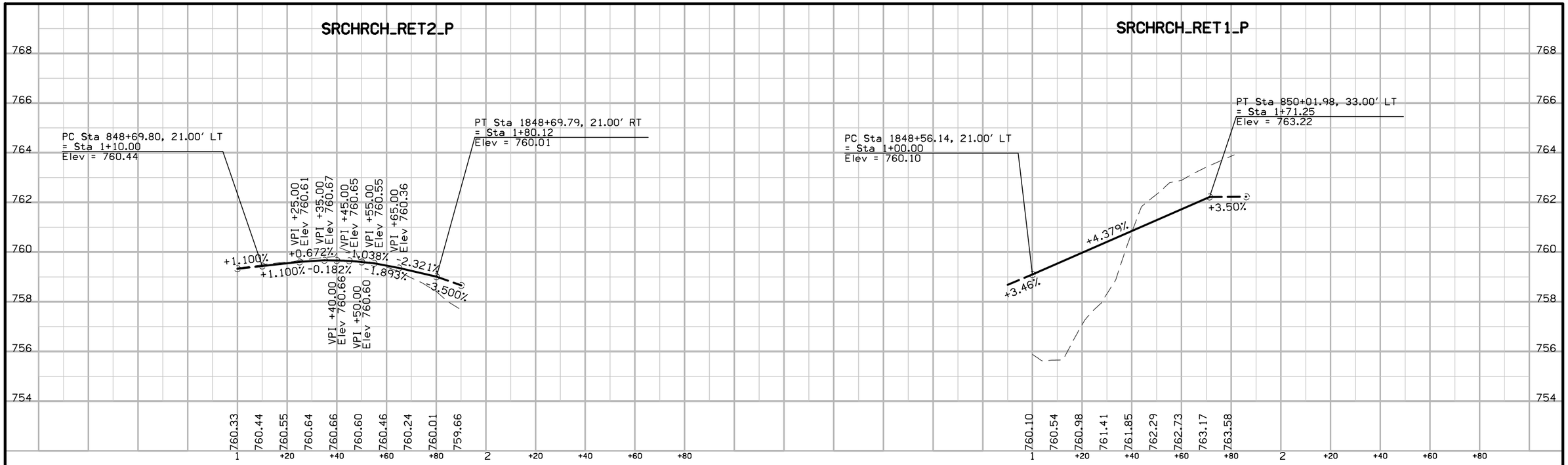
0 20
FEET

FAIRFAX TWP.
T-82N R-8W
SEC. 16

Staking Details
Intersection of
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.3

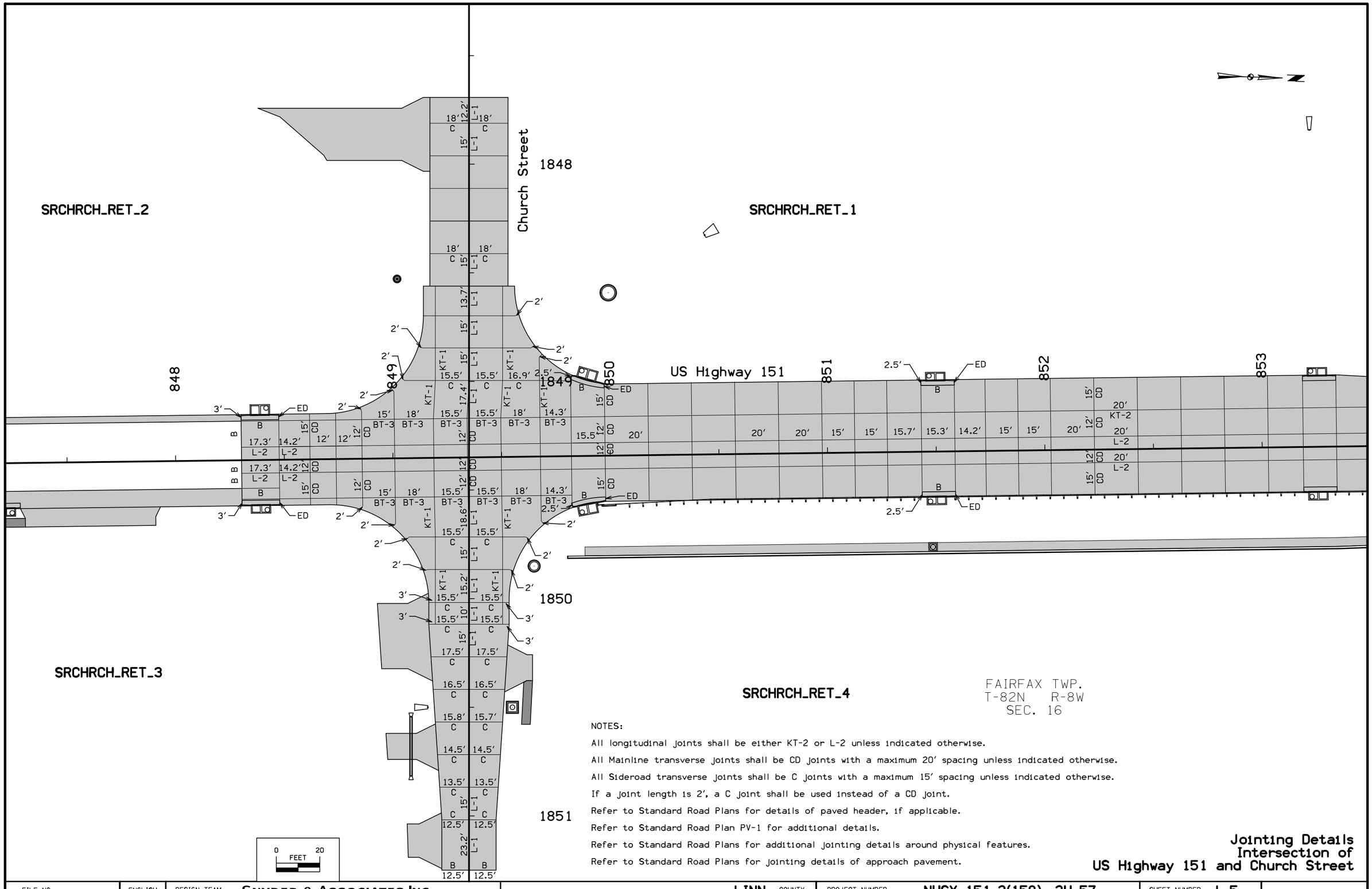
10:25:07 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



Edge Return Profiles
Intersection of
US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.4

10:25:09 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



FAIRFAX TWP.
T-82N R-8W
SEC. 16

NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All Mainline transverse joints shall be CD joints with a maximum 20′ spacing unless indicated otherwise.

All Sideroad transverse joints shall be C joints with a maximum 15′ spacing unless indicated otherwise.

If a joint length is 2′, a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

Refer to Standard Road Plans for jointing details of approach pavement.

Jointing Details Intersection of US Highway 151 and Church Street

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.5

10:25:10 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

FAIRFAX TWP.
T-82N R-8W
SEC. 16

FAIRFAX TWP.
T-82N R-8W
SEC. 9

Union Pacific Railroad

Sta 856+14.67, 36.42' LT
Elev = 792.99

Sta 856+09.10, 36.42' LT
Elev = 792.88

Sta 856+09.10, 21.00' LT
Elev = 793.11

Sta 855+89.10, 21.00' LT
Elev = 793.18

Sta 855+59.10, 21.00' LT
Elev = 792.42

End Taper
Sta 855+14.27, 21.00' LT
Elev = 791.00

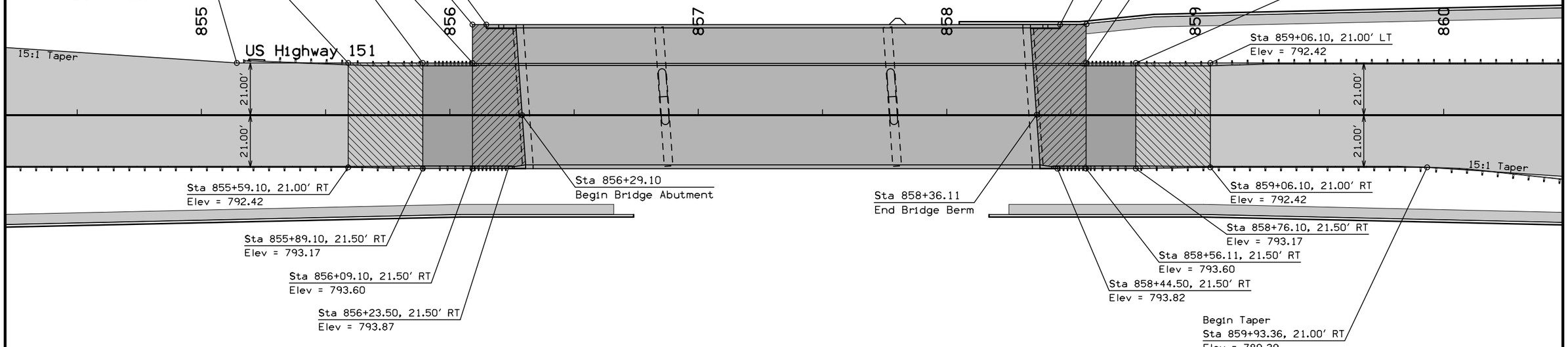
Sta 858+45.67, 36.42' LT
Elev = 793.08

Sta 858+56.11, 36.42' LT
Elev = 792.88

Sta 858+56.11, 21.00' LT
Elev = 793.11

Sta 858+76.10, 21.00' LT
Elev = 793.18

Sta 859+06.10, 21.00' LT
Elev = 792.42



Sta 855+59.10, 21.00' RT
Elev = 792.42

Sta 855+89.10, 21.50' RT
Elev = 793.17

Sta 856+09.10, 21.50' RT
Elev = 793.60

Sta 856+23.50, 21.50' RT
Elev = 793.87

Sta 856+29.10
Begin Bridge Abutment

Sta 858+36.11
End Bridge Berm

Sta 859+06.10, 21.00' RT
Elev = 792.42

Sta 858+76.10, 21.50' RT
Elev = 793.17

Sta 858+56.11, 21.50' RT
Elev = 793.60

Sta 858+44.50, 21.50' RT
Elev = 793.82

Begin Taper
Sta 859+93.36, 21.00' RT
Elev = 789.39

Notes:
Follow Standard Road Plan BR-203 For
Bridge Approach Pavement

Refer to G sheets for horizontal alignment
information.

Legend

Unreinforced Section

Single Reinforced Section

Double Reinforced Section

0 20
FEET

Geometric Details
Union Pacific Railroad Bridge

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.6

2:19:04 PM 3/13/2019 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

CIRCULAR CURVE DATA

Name	Δ	D	T	L	E	R
CURVE SRPRAIR_RET_1-1	67° 24′ 00.13″	91° 40′ 23.69″	41.68′	73.68′	12.62′	62.5′
CURVE SRPRAIR_RET_1-2	67° 24′ 00.13″	143° 14′ 22.02″	26.68′	47.05′	8.08′	40′
CURVE SRPRAIR_RET_2-1	105° 28′ 54.30″	21° 58′ 18.71″	19.72′	27.62′	9.78′	15′
CURVE SRPRAIR_RET_2-2	53° 28′ 43.61″	152° 47′ 19.48″	18.89′	35.00′	4.49′	37.5′
CURVE SRPRAIR_RET_4-1	90° 44′ 25.39″	143° 14′ 22.02″	40.52′	63.35′	16.94′	40′
CURVE SRLOSEY_RET_3-1	137° 31′ 07.99″	212° 57′ 29.06″	25.73′	24.00′	17.60′	10′
CURVE SRLOSEY_RET_3-2	42° 28′ 52.01″	114° 35′ 29.61″	19.43′	37.07′	3.64′	50′
CURVE SRLOSEY_RET_4-1	89° 15′ 34.61″	229° 10′ 59.22″	24.68′	38.95′	10.13′	25′
CURVE 1	72° 25′ 14.37″	1145° 54′ 56.12″	3.661′	6.319′	1.19	5′
CURVE 2	88° 16′ 07.09″	381° 58′ 18.71″	14.55′	23.11′	5.89′	15′
CURVE 3	88° 16′ 07.09″	1145° 54′ 56.12″	4.85′	7.70′	1.96′	5′
CURVE 4	72° 25′ 14.37″	381° 58′ 18.71″	10.98′	18.96′	3.59′	15′

PT Sta 2863+34.05 49.19′ RT
Sta 1+20.00 SRPRAIR_RET_1
PT Sta 2863+59.05 49.52′ RT
Sta 1+82.62 SRPRAIR_RET_2
Sta 2863+33.64 80.79′ RT
End Pavement
Sta 2863+14.33 129.51′ RT
End Pavement
Sta 2863+25.95 134.12′ RT
Sta 2863+46.11 83.25′ RT
SRPRAIR_RET_2
End Pavement
Sta 2863+45.39 138.84′ RT
End Pavement
Sta 2863+57.89 139.01′ RT
2863
SRPRAIR_RET_1
CURVE SRPRAIR_RET_1-1
PCC Sta 2863+73.27 8.01′ LT
Sta 1+93.52 SRPRAIR_RET_1
STA 864+19.80 (US HWY 151) =
STA 2864+19.80 (PRAIRIE AVENUE)
CURVE SRPRAIR_RET_1-2
STA 2864+94.81 (PRAIRIE AVENUE) =
STA 3864+94.81 (LOSEY AVENUE)
CURVE SRPRAIR RET 2-2
PCC Sta 2863+74.62 19.58′ RT
Sta 1+47.62 SRPRAIR_RET_2
CURVE SRPRAIR RET 2-1
PC Sta 863+92.97 22.00′ LT
Sta 1+20.00 SRPRAIR_RET_2
Sta 863+87.58 22.00′ LT
PCC Sta 863+92.13 46.13′ RT
Sta 1+44.00 SRLOSEY_RET_3
PC Sta 864+64.13 22.00′ LT
Sta 2+40.58 SRPRAIR_RET_1
2864
862
863
864
865
866
867
US Highway 151
21.00′
22.00′
22.00′
33.00′
End Taper
Sta 861+73.36 33.00′ RT
15:1 Taper
CURVE SRLOSEY_RET_3-1
CURVE SRLOSEY_RET_3-2
PT Sta 863+58.36 33.00′ RT
Sta 1+81.07 SRLOSEY_RET_3
90°44′25.39″
89°15′34.61″
PT Sta 864+74.60 22.00′ RT
Sta 1+73.35 SRPRAIR_RET_4
CURVE SRPRAIR_RET_4-1
3862
3863
3864
3865
3866
10′ Radius Point
Curve SRLOSEY_RET_3-1
Sta 2864+72.85 35.11′ RT
PC Sta 3864+59.42 11.50′ LT
Sta 1+20.00 SRLOSEY_RET_3
SRLOSEY_RET_3
End Pavement
Sta 3862+86.45 11.50′ LT
40′ Radius Point
Curve SRPRAIR_RET_4-1
Sta 864+74.60 62.00′ RT
PC Sta 2864+82.50 14.00′ LT
Sta 1+10.00 SRPRAIR_RET_4
SRPRAIR_RET_4
Losey Avenue
CURVE 2
2865
90°44′25.39″
89°15′34.61″
Sta 2865+09.04 47.42′ LT
Sta 2865+11.11 54.71′ LT
Sta 2865+18.66 44.69′ LT
Sta 2865+20.73 51.98′ LT
CURVE 3
Sta 2865+21.96 38.55′ LT
Sta 2865+18.94 29.02′ LT
End Pavement
Sta 3862+86.45 11.50′ RT
Sta 3863+49.39 11.50′ LT
Sta 3863+49.39 11.50′ RT
Sta 3863+85.02 11.50′ LT
Sta 3863+85.02 11.50′ RT
14.00′ 14.00′
11.50′ 11.50′
End 28′ Wide Pavement
Sta 2865+30.81 14.00′ LT
Begin 23′ Wide Pavement
Sta 2865+30.81 11.50′ LT
Sta 2865+46.44 30.80′ LT
Sta 2865+43.42 21.27′ LT
CURVE 1
CURVE 4
Sta 2865+46.90 16.50′ LT
Sta 2865+43.90 11.50′ LT
Sta 2865+56.90 16.50′ LT
Sta 2865+59.90 11.50′ LT
50′ Radius Point
Curve SRLOSEY_RET_3-2
Sta 2865+02.00 62.50′ RT
PC Sta 3864+56.28 11.50′ RT
Sta 1+20.00 SRLOSEY_RET_4
CURVE SRLOSEY_RET_4-1
25′ Radius Point
Curve SRLOSEY_RET_4-1
Sta 2865+30.81 39.00′ RT
SRLOSEY_RET_4
PT Sta 2865+30.81 14.00′ RT
Sta 1+58.95 SRLOSEY_RET_4
Begin 23′ Wide Pavement
Sta 2865+30.81 11.50′ RT
Sta 2866+00.00 11.51′ RT
Prairie Avenue
2866
Sta 2865+99.66 11.50′ LT
FAIRFAX TWP.
T-82N R-8W
SEC. 9
End Prairie Avenue Construction
Sta 2866+56.00 11.50′ RT
End Prairie Avenue Construction
Sta 2866+56.00 11.50′ LT

NOTES:

Dimensions shown are to the back of curb.

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

0 20
FEET

Geometric Details
Intersection of
US Highway 151 and Prairie Avenue and Losey Avenue

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.7

10:25:26 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

2863

MATCH EXISTING
Elev = 764.35
MATCH EXISTING
Elev = 765.01
MATCH EXISTING
Elev = 764.35
MATCH EXISTING
Elev = 765.01
Sta 863+87.58
End 4" Sloped Curb

SRPRAIR_RET_2

SRPRAIR_RET_1

Elev = 767.07
Elev = 766.07
Elev = 767.66
Elev = 765.16

Sta 862+21.12
Begin 4" Sloped Curb

Sta 1+43.48 SRLOSEY_RET_3
= Sta 2864+65.93 27.89' RT Prairie Avenue
= Sta 3864+66.55 28.51' LT Losey Avenue
Elev = 765.96

862 863 864 865 866 867

US Highway 151

2864

Constant 2.0% Slope
2.0% 21'
Constant 2.0% Slope
2.0% 21'
Constant 2.0% Slope
2.0% 22'
Constant 2.0% Slope

Constant 2.0% Slope
2.0% 18'
Constant 2.0% Slope
2.0% 18'
Constant 2.0% Slope
2.0% 18'
2.0% 15'
Constant 2.0% Slope

Constant 2.5% Slope
2.5% 15'
Constant 2.5% Slope

Elev = 766.22
Elev = 764.85

Elev = 768.81
Elev = 766.86
3.7% 3.6%
14' 14'
2.5% 15'

Special Shaping
Sta 864+59.90
Begin 4" Sloped Curb

Sta 865+98.61
End 4" Sloped Curb

3862 3863 3864 3865 3866

Elev = 778.79

Sta 1+31.31 SRLOSEY_RET_3
= Sta 2864+77.23 26.12' RT Prairie Avenue
= Sta 3864+68.47 17.24' LT Losey Avenue
Elev = 764.81

SRLOSEY_RET_3

Special Shaping

Uniform Transition

Sta 1+43.55 SRPRAIR_RET_4
= Sta 2864+52.75, 27.27' LT Prairie Avenue
Elev = 765.39

Elev = 765.85
Elev = 764.89

Sta 3862+96.45
Sta 3864+10.81
Elev = 764.40
Elev = 765.26

1.7% 2.0% U.T. 11.5'
Constant 2.0% Slope
2.0% 11.5'
Uniform Transition
5.2% 11.5'
2.0% 11.5'

Losey Avenue

5.7%
Uniform Transition
2.0% 11.5'
Constant 2.0% Slope
2.0% 11.5'
Uniform Transition
5.3% 11.5'
2.0% 14.0'

Sta 2864+82.80

2865

SRPRAIR_RET_4

Sta 3863+51.45
Sta 3864+50.95
Elev = 763.61
Elev = 763.95

Special Shaping

Constant 2.0% Slope
Constant 2.0% Slope

2.0% 11.5'
2.0% 11.5'

Sta 1+39.47 SRLOSEY_RET_4
= Sta 2865+13.24 21.21' RT Prairie Avenue
= Sta 3864+73.84 18.71' RT Losey Avenue
Elev = 763.40

Sta 2865+12.62
Elev = 762.96

Constant 2.0% Slope
Constant 2.0% Slope

Prairie Avenue

2866

SRLOSEY_RET_4

Sta 2866+15.00
2.0% 11.5'
Sta 2866+30.00
2.0% 11.5'
Uniform Transition
U.T.
0.1% 11.5'
0.9% 11.5'

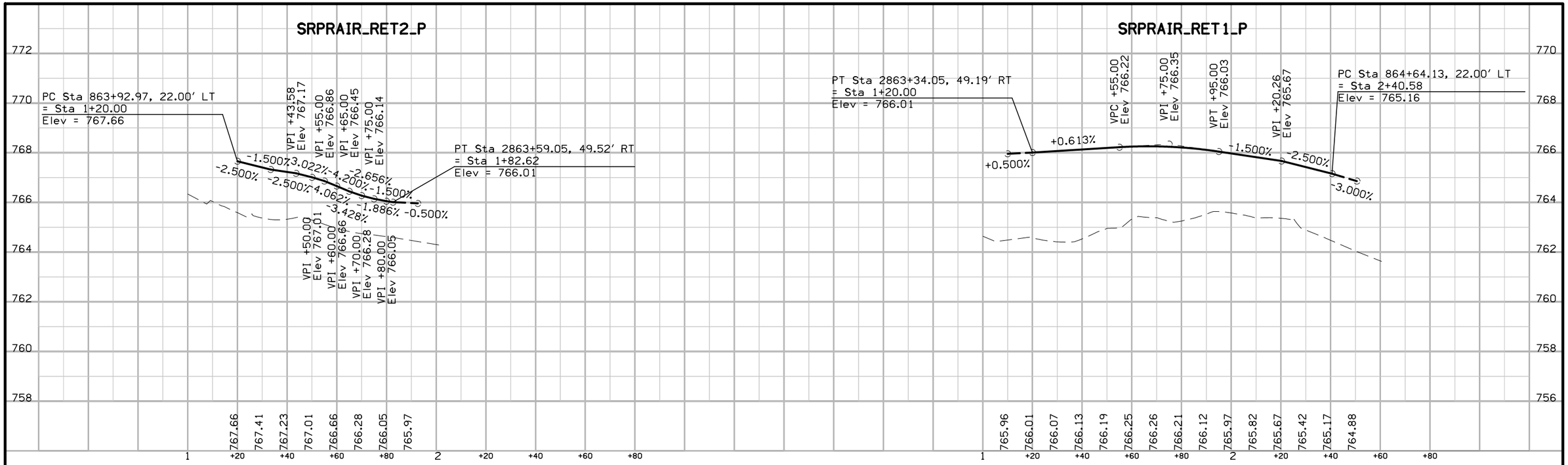
FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20
FEET

Staking Details
Intersection of
US Highway 151 and Prairie Avenue and Losey Avenue

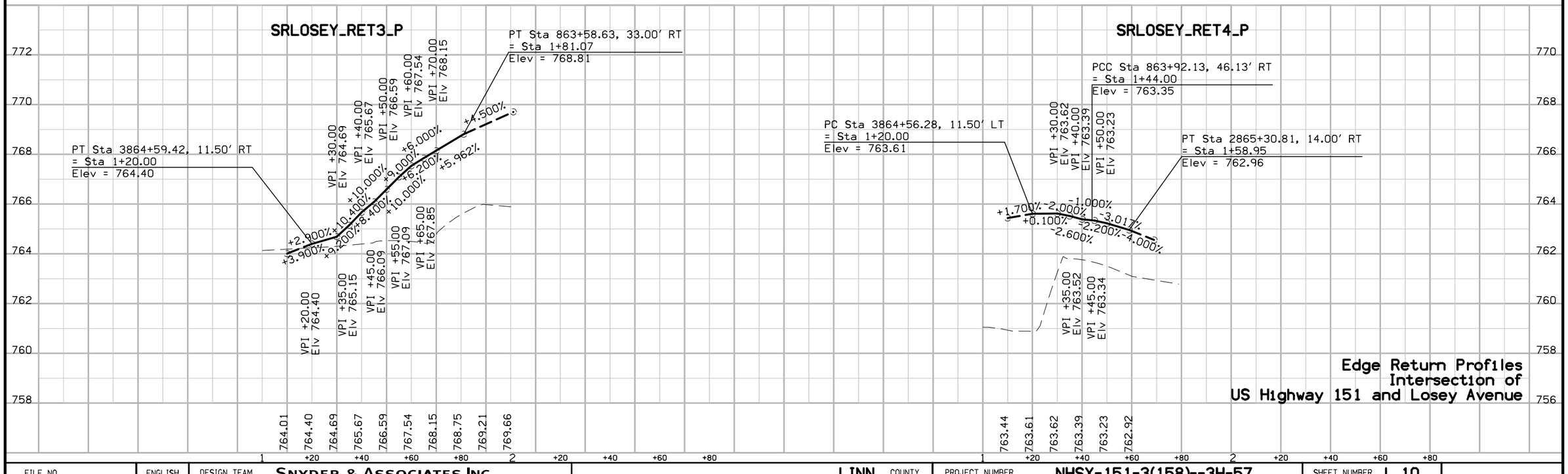
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.8

10:25:27 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.9

10:25:29 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.10

10:25:30 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

SRPRAIR_RET_2

SRPRAIR_RET_1

SRPRAIR_RET_4

SRLOSEY_RET_3

SRLOSEY_RET_4

US Highway 151

Losey Avenue

Prairie Avenue

2863

2864

2865

2866

862

863

864

865

866

867

3862

3863

3864

3865

3866

FAIRFAX TWP.
T-82N R-8W
SEC. 9

NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All Mainline transverse joints shall be CD joints with a maximum 20′ spacing unless indicated otherwise.

All Sideroad transverse joints shall be C joints with a maximum 15′ spacing unless indicated otherwise.

If a joint length is 2′, a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

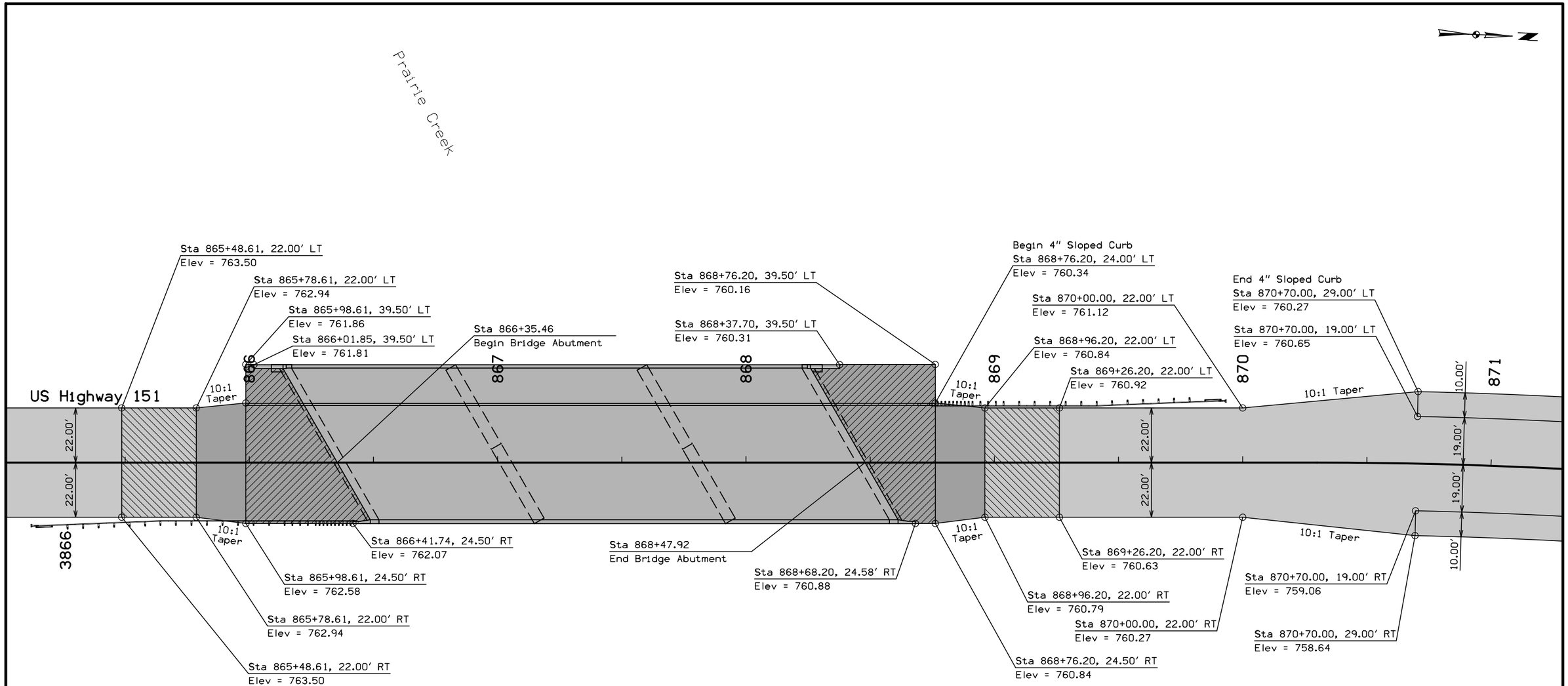
Refer to Standard Road Plans for jointing details of approach pavement.

0 FEET 20

Jointing Details Intersection of US Highway 151 and Prairie Avenue and Losey Avenue

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.11

10:25:32 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



Notes:
Follow Standard Road Plan BR-203 For
Bridge Approach Pavement.

Refer to G sheets for horizontal alignment
information.

Legend

- Unreinforced Section
- Single Reinforced Section
- Double Reinforced Section

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 FEET 20

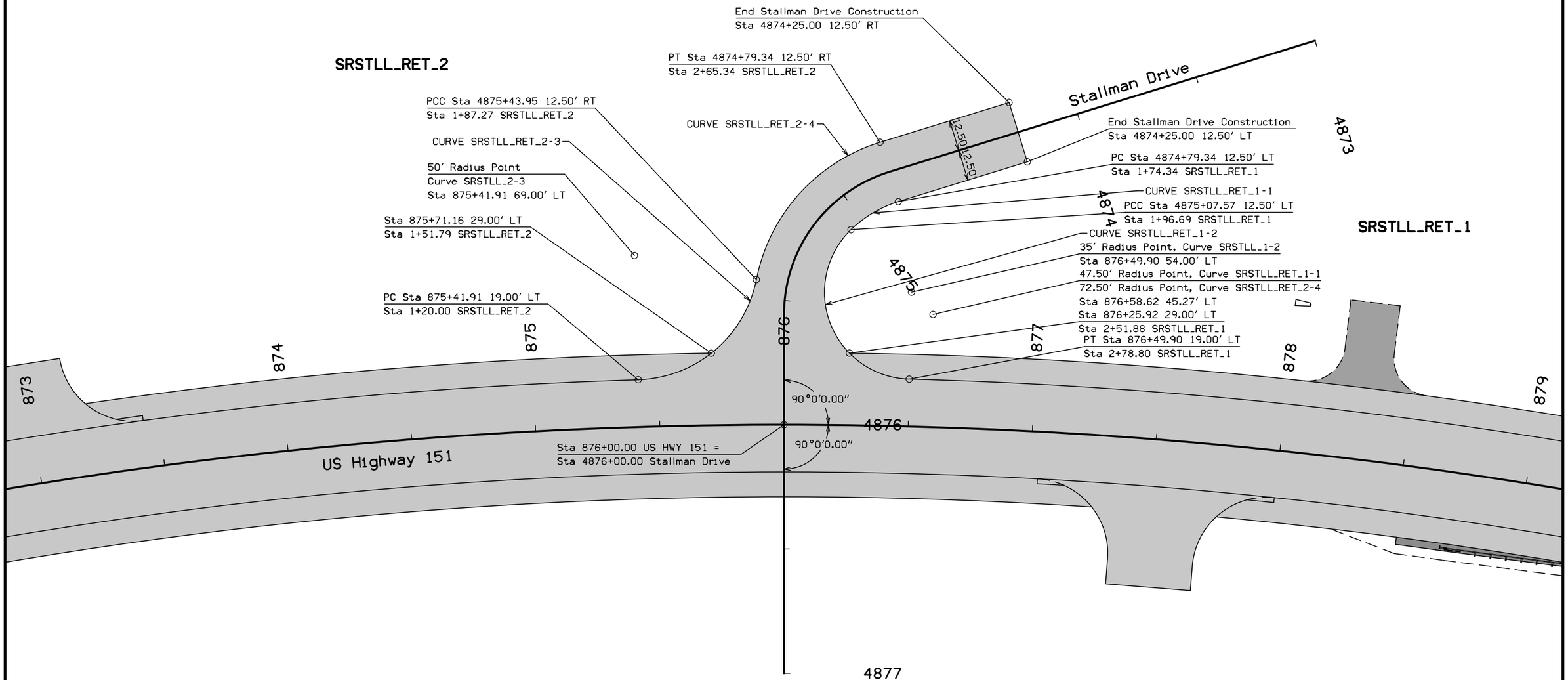
Geometric Details
Prairie Creek Bridge

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.12

10:25:33 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

CIRCULAR CURVE DATA

Name	Δ	D	T	L	E	R
CURVE SRSTLL_RET_1-1	26° 57′ 38.81″	120° 37′ 21.70″	11.39′	22.35′	1.35′	47.50′
CURVE SRSTLL_RET_1-2	134° 24′ 50.55″	163° 42′ 08.02″	83.29′	82.11′	55.35′	35.00′
CURVE SRSTLL_RET_2-3	77° 05′ 10.18″	114° 35′ 29.61″	39.83′	67.27′	13.93′	50.00′
CURVE SRSTLL_RET_2-4	61° 42′ 02.18″	79° 01′ 43.18″	43.31′	78.07′	11.95′	72.50′



NOTES:

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20
FEET

Geometric Details
Intersection of
US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.13

10:25:35 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

SRSTLL_RET_2

SRSTLL_RET_1

Stallman Drive

Elev = 758.89

CONSTANT 2.0% SLOPE

2.0% 12.5'

2.0% 12.5'

CONSTANT 2.0% SLOPE

Elev = 758.89

Elev = 758.78

Sta 4875+46.00

Elev = 758.89

Sta 1+57.00 SRSTLL_RET_2
= Sta 4875+67.79 25.36' RT Stallman Drive
Elev = 758.72

Special Shaping

2.0% 12.5'

Sta 4875+56.00

2.0% 12.5'

Special Shaping

Sta 2+50.11 SRSTLL_RET_1
= Sta 4875+69.88 25.10' LT Stallman Drive
Elev = 759.09

US Highway 151

Uniform Transition

Uniform Transition

873 874 875 876 877 878 879

4873 4874 4875 4876 4877

CONSTANT 3.8% SLOPE

3.8% 10'

Elev = 758.70

Elev = 758.52

0.72% 12.5'

0.80% 12.5'

Elev = 758.89

Elev = 759.26

3.8% 10'

CONSTANT 3.8% SLOPE

3.8% 10'

UNIFORM TRANSITION

CONSTANT 4.2% SLOPE

4.2% 38'

CONSTANT 4.2% SLOPE

4.2% 10'

4.2% 10'

4.2% 10'

CONSTANT 4.2% SLOPE

4.2% 10'

4.2% 38'

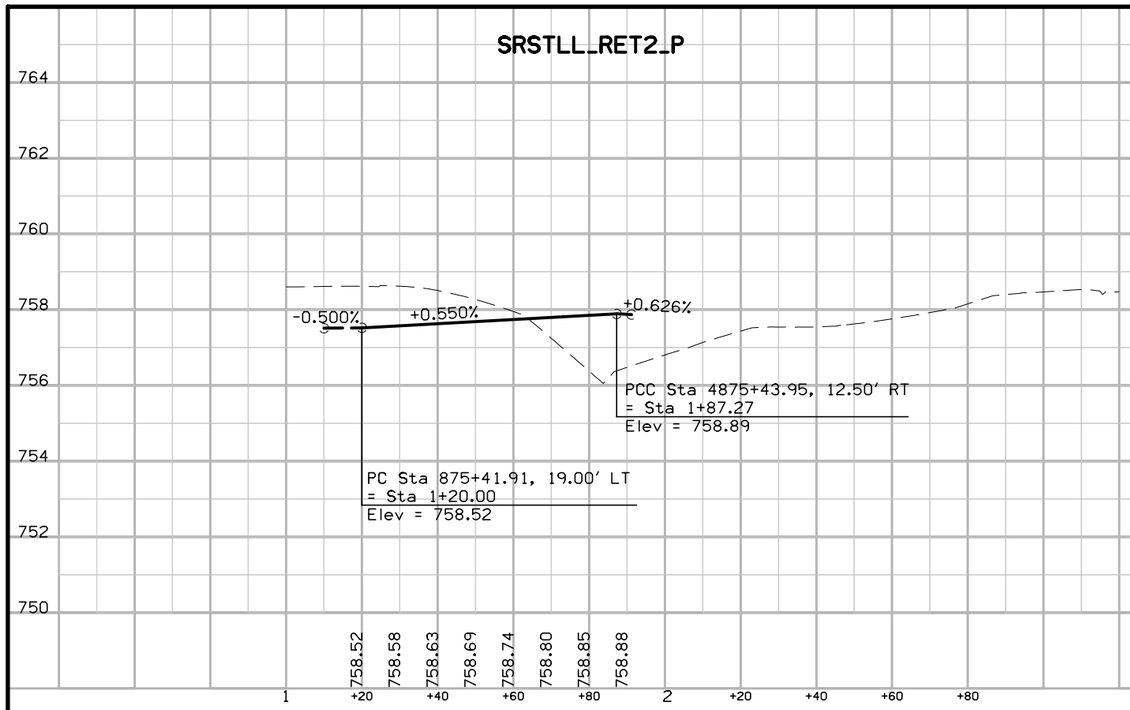
FAIRFAX TWP.
T-82N R-8W
SEC. 9

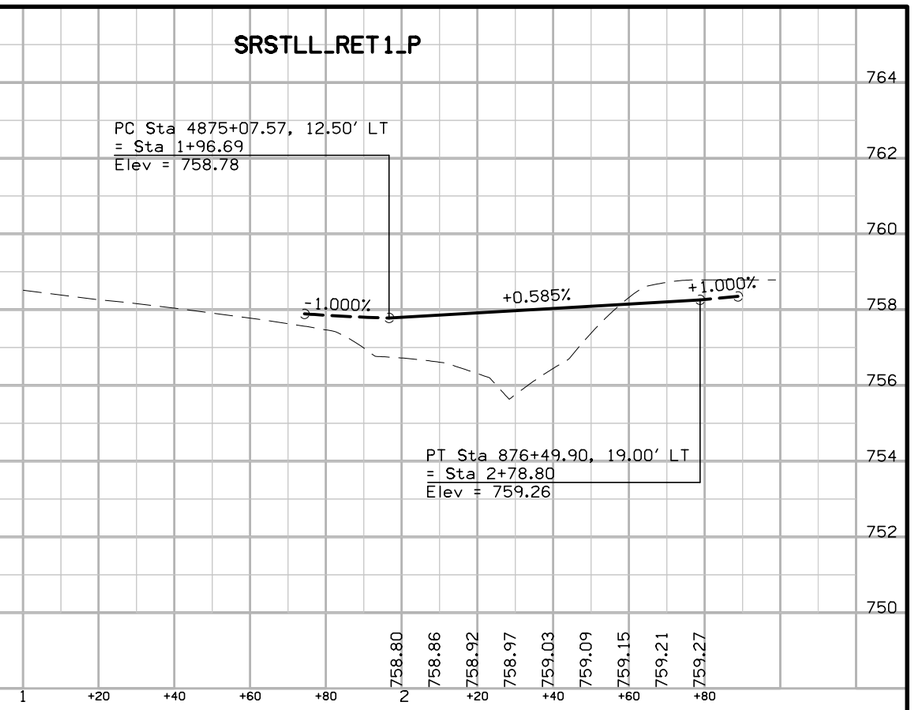
0 FEET 20

Staking Details
Intersection of
US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.14

10:25:36 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

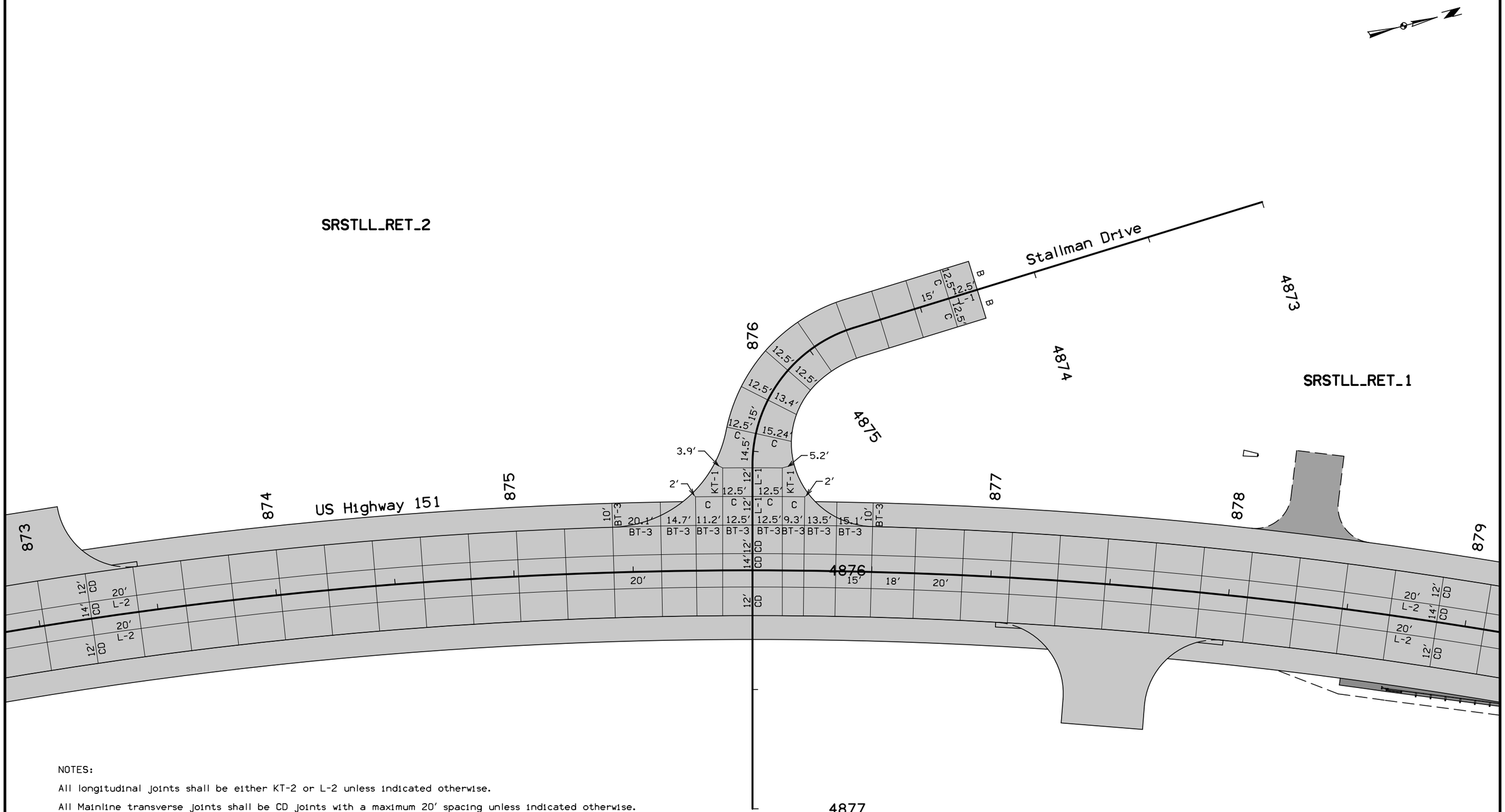




Edge Return Profiles
Intersection of
US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.15

10:25:37 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All Mainline transverse joints shall be CD joints with a maximum 20′ spacing unless indicated otherwise.

All Sideroad transverse joints shall be C joints with a maximum 15′ spacing unless indicated otherwise.

If a joint length is 2′, a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

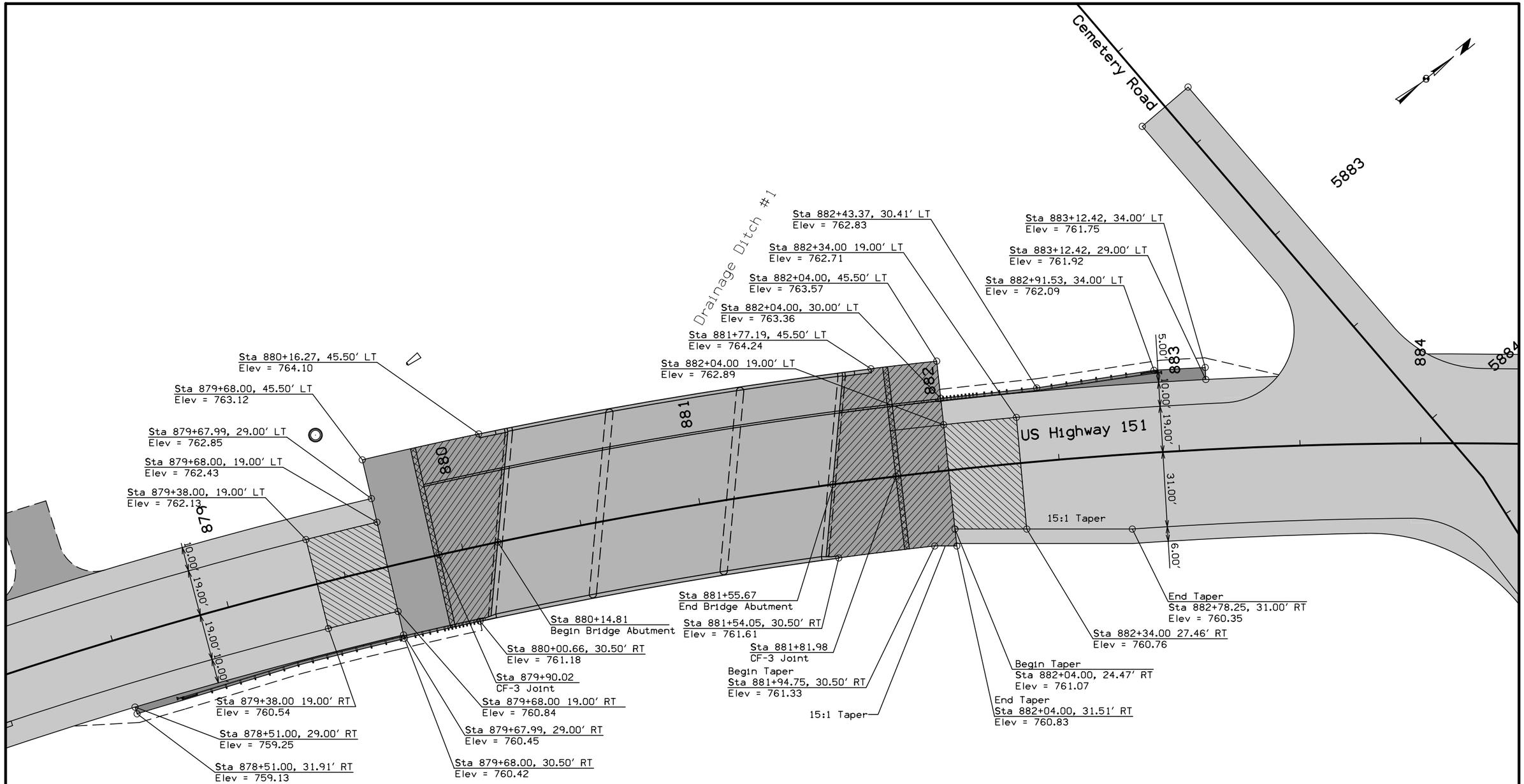
Refer to Standard Road Plans for additional jointing details around physical features.

Refer to Standard Road Plans for jointing details of approach pavement.

Jointing Details Intersection of US Highway 151 and Stallman Drive

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.16

10:25:39 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



Note:
Follow Standard Road Plan BR-205 for Bridge Approach Pavement. For North Abutment Extend Double Reinforced Section to End of Separation Rail, No Single Reinforced Section.

Legend

- Unreinforced Section
- Single Reinforced Section
- Double Reinforced Section

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20
FEET

Geometric Details
Drainage Ditch #1 Bridge

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.17

10:25:40 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

CIRCULAR CURVE DATA

Name	Δ	D	T	L	E	R
SRCEMET_RET_1-1	48° 56′ 43.89″	114° 35′ 29.61″	22.76′	42.71′	4.95′	50′
SRCEMET_RET_2-2	127° 52′ 20.06″	190° 59′ 09.35″	61.33′	66.95′	38.28′	30′
SRCEMET_RET_3-2	52° 29′ 27.50″	143° 14′ 22.02″	19.72′	36.65′	4.59′	40′
SRCEMET_RET_4-2	130° 25′ 29.97″	143° 14′ 22.02″	86.62′	91.05′	55.41′	40′

5882

Begin Cemetery Road Construction
Sta 5882+30.00 12.50′ LT

Begin Cemetery Road Construction
Sta 5882+30.00 12.50′ RT

SRCEMET_RET_2

12.50′

12.50′

5883

PC Sta 5883+60.60 12.50′ LT
Sta 1+20.00 SRCEMET_RET_1

SRCEMET_RET_1

50′ Radius Point
Curve SRCEMET_RET_1-1
Sta 884+25.93 81.00′ LT

PT Sta 5883+15.59 12.50′ RT
Sta 1+86.95 SRCEMET_RET_2

CURVE SRCEMET_RET_2-3

30′ Radius Point
Curve SRCEMET_RET_2-2
Sta 883+19.86 49.00′ LT

CURVE SRCEMET_RET_1-1

PT Sta 884+25.93 31.00′ LT
Sta 1+62.71 SRCEMET_RET_1

PC Sta 883+19.86 19.00′ LT
Sta 1+20.00 SRCEMET_RET_2

882 883 884 5884 885 886 887

10.00′

6.00′

US Highway 151

19.00′

31.00′

49°23′26.74″

Sta 884+13.63 US HWY 151
= Sta 5884+13.63 Cemetery Road

122°15′33.46″

15:1 Taper

Sta 882+78.25 31.00′ RT
Sta 1+00.00 SRCEMET_RET_3

PC Sta 883+95.73 31.00′ RT
Sta 1+20.00 SRCEMET_RET_3

5885

PT Sta 885+23.39 19.00′ RT
Sta 2+26.28 SRCEMET_RET_4

40′ Radius Point
Curve SRCEMET_RET_4-2
Sta 885+23.39 59.00′ RT

CURVE SRCEMET_RET_3-2

CURVE SRCEMET_RET_4-2

40′ Radius Point
Curve SRCEMET_RET_3-2
Sta 883+95.73 71.00′ RT

13.00′

12.00′

PC Sta 5885+27.53 12.00′ LT
Sta 1+35.22 SRCEMET_RET_4

SRCEMET_RET_3

PT Sta 5884+60.69 15.49′ RT
Sta 1+56.65 SRCEMET_RET_3

5886

SRCEMET_RET_4

Sta 5884+86.04 13.00′ RT
Sta 1+82.32 SRCEMET_RET_3

End Cemetery Road Construction
Sta 5885+42.00 12.00′ LT
Sta 1+21.04 SRCEMET_RET_4

Sta 5884+92.07 13.00′ RT
Sta 1+88.48 SRCEMET_RET_3

End Cemetery Road Construction
Sta 5885+42.00 13.00′ RT

Cemetery Road

FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20
FEET

NOTES:

Dimensions shown are to the back of curb.

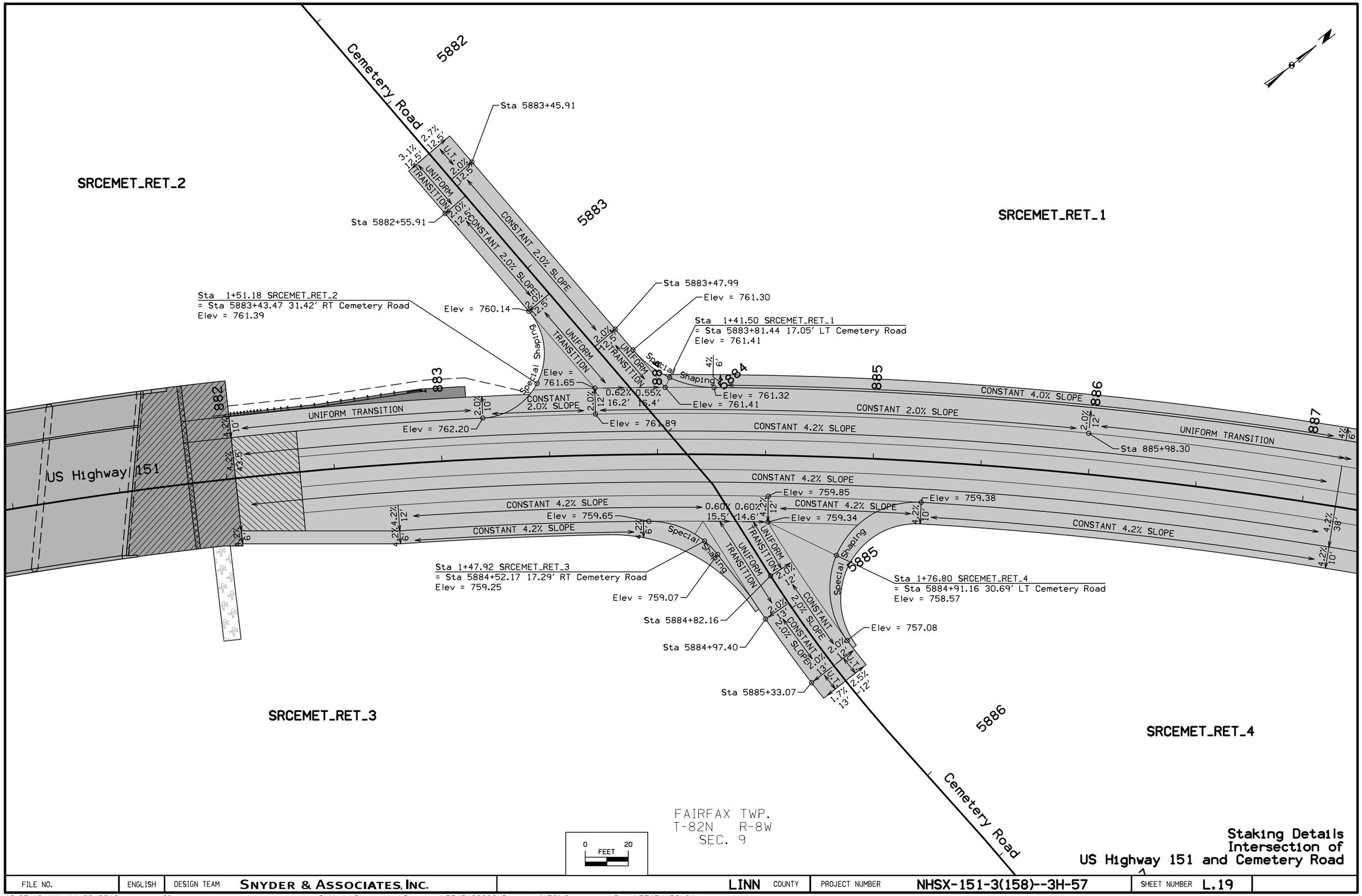
Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

Geometric Details Intersection of US Highway 151 and Cemetery Road

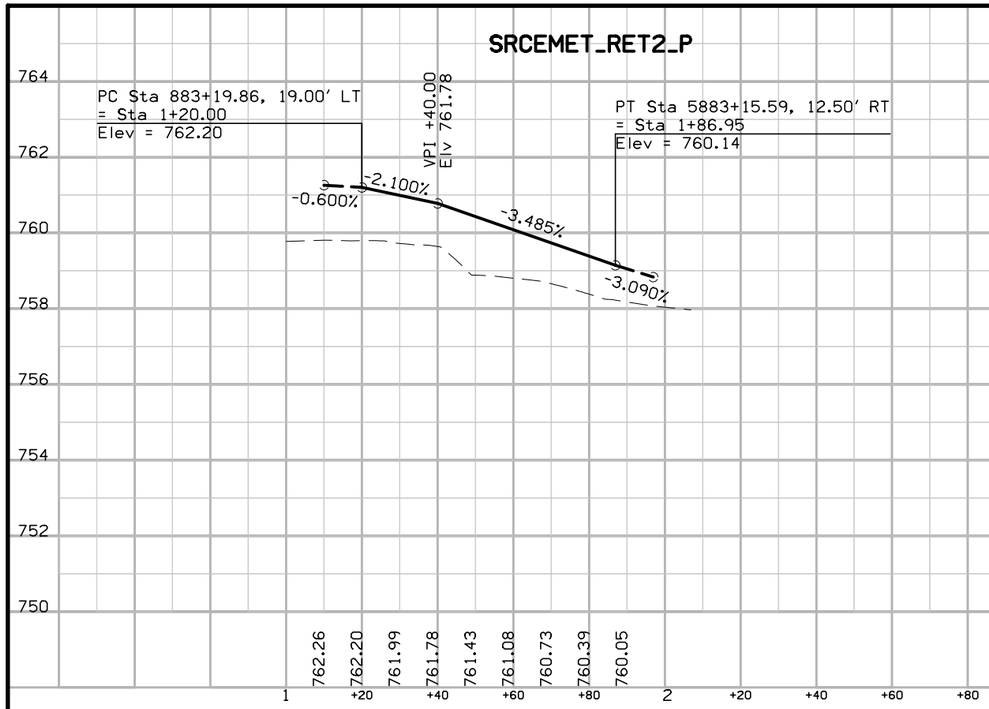
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.18

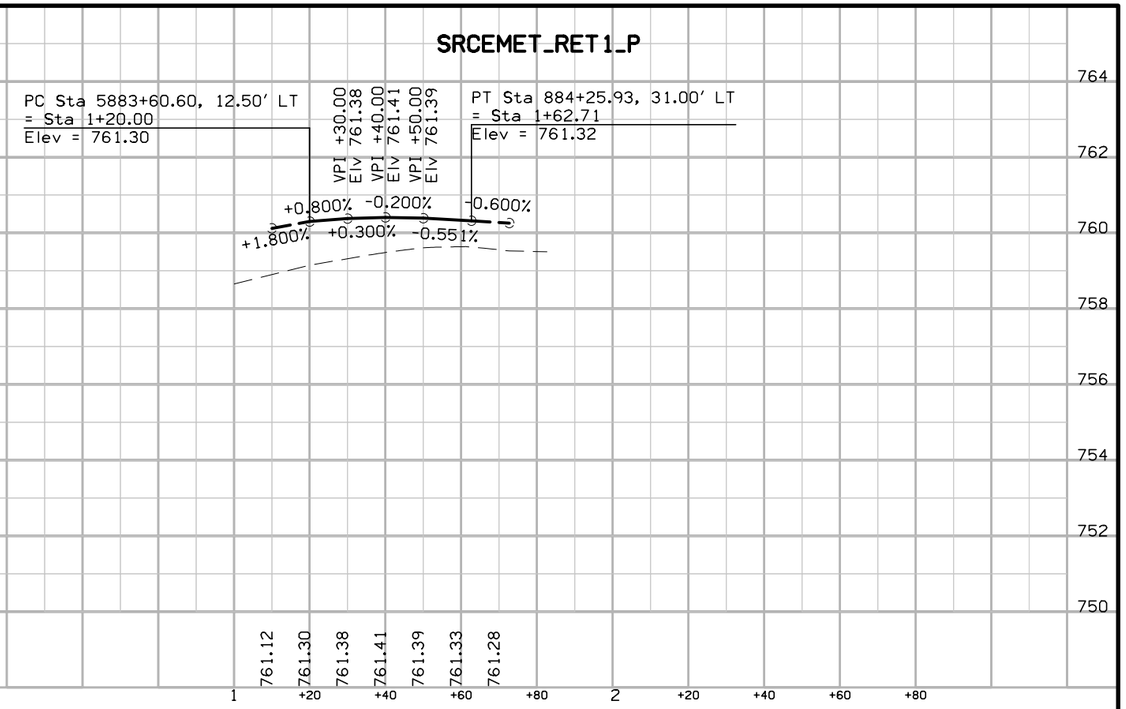
10:25:41 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

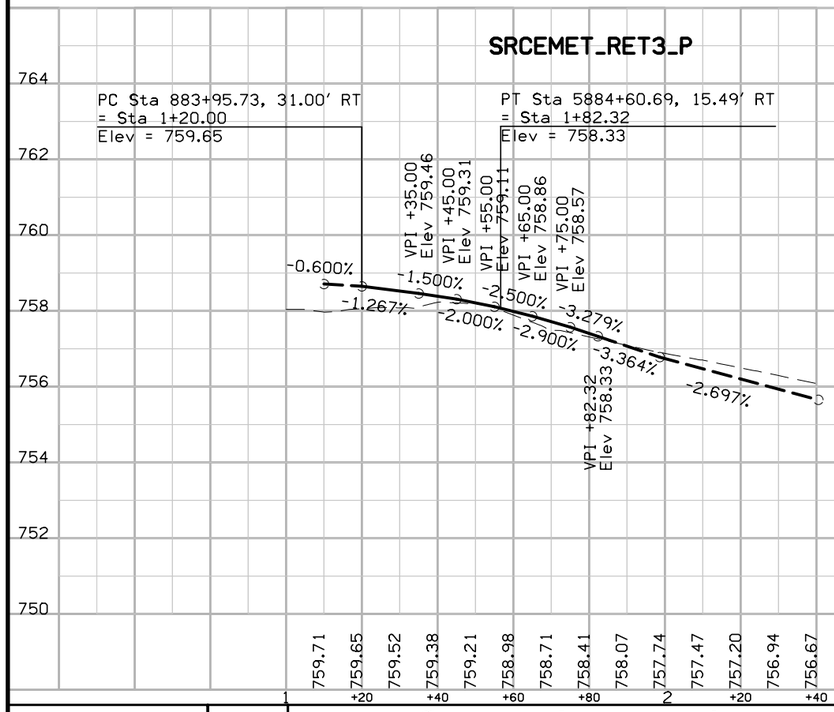


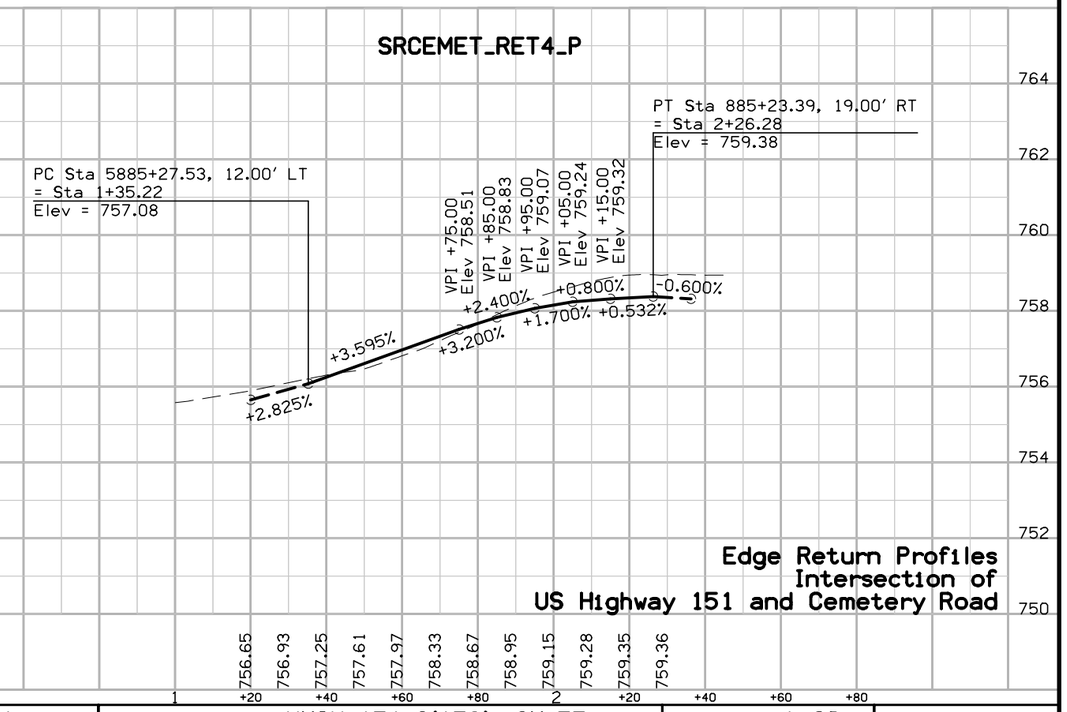
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.19

10:25:43 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht









Edge Return Profiles
Intersection of
US Highway 151 and Cemetery Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.20

10:25:45 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

SRCEMET_RET_2

SRCEMET_RET_1

SRCEMET_RET_3

SRCEMET_RET_4

Cemetery Road

US Highway 151

5882 5883 5884 5885 5886

882 883 884 885 886 887

NOTES:

All longitudinal joints shall be either KT-2 or L-2 unless indicated otherwise.

All Mainline transverse joints shall be CD joints with a maximum 20′ spacing unless indicated otherwise.

All Sideroad transverse joints shall be C joints with a maximum 15′ spacing unless indicated otherwise.

If a joint length is 2′, a C joint shall be used instead of a CD joint.

Refer to Standard Road Plans for details of paved header, if applicable.

Refer to Standard Road Plan PV-1 for additional details.

Refer to Standard Road Plans for additional jointing details around physical features.

Refer to Standard Road Plans for jointing details of approach pavement.

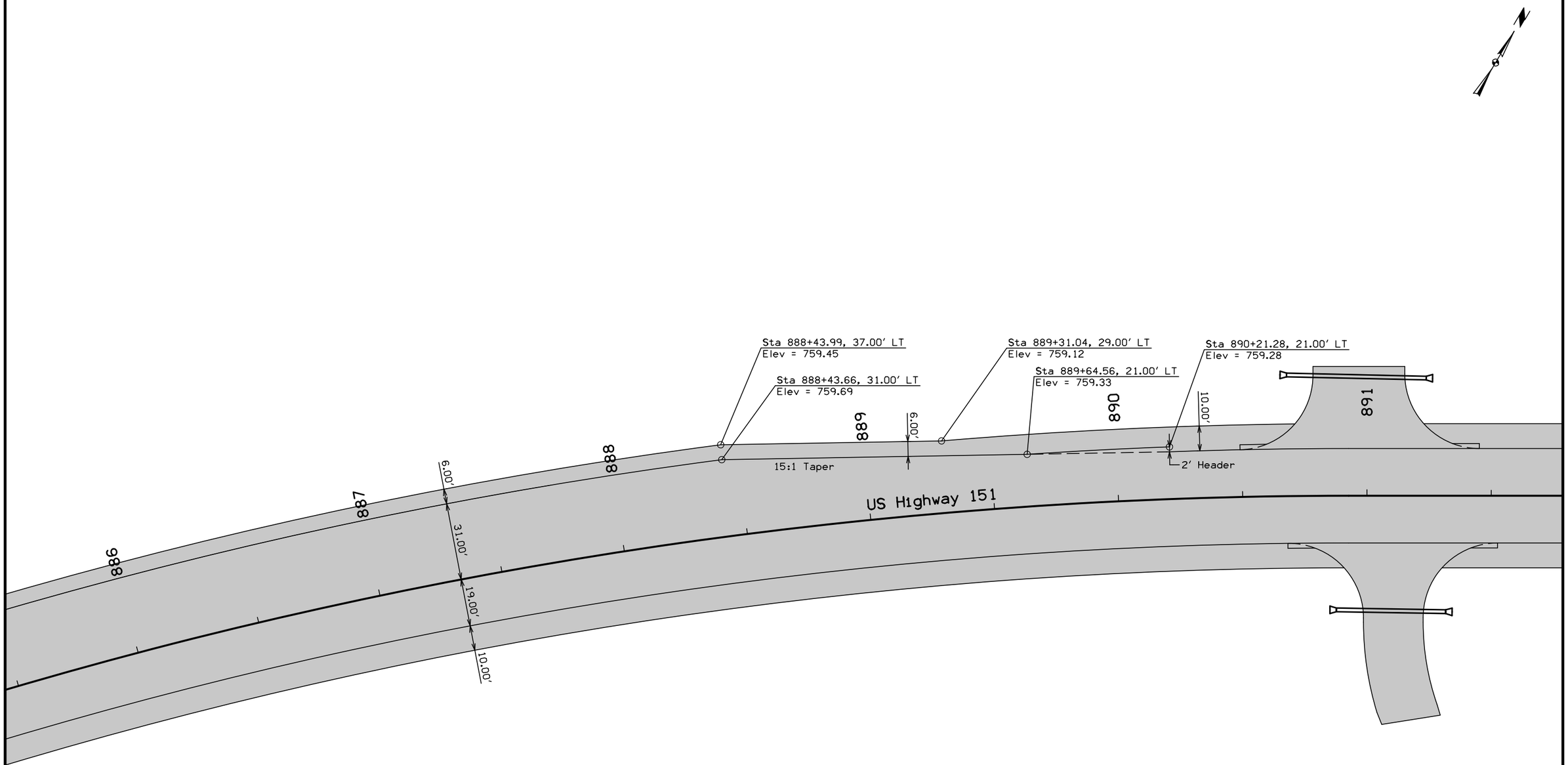
FAIRFAX TWP.
T-82N R-8W
SEC. 9

0 20 FEET

Jointing Details Intersection of US Highway 151 and Cemetery Road

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	L.21

10:25:46 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht



FAIRFAX TWP.
T-82N R-8W
SEC. 9

NOTES:

Refer to G sheets for horizontal alignment information.

Refer to appropriate Standard Road Plans for additional information.

0 20
FEET

Geometric Details
Right Turn Lane

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER L.22

10:25:48 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158L01.sht

STORM AND SANITARY SEWER

(1) Diameter or equivalent diameter
* Bid Item
** For SW-545

INTAKES AND UTILITY ACCESSES

No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
ST-01	841+87.00, 16.00 LT					Existing Intake
ST-02	845+01.00, 20.00 LT					Existing Intake
ST-03	845+65.00, 19.84 RT	SW-509	764.25	760.00		
ST-04	846+64.33, 21.00 LT	SW-509	761.61	757.18		
ST-05	847+21.58, 21.00 RT	SW-509	760.54	755.14		
ST-06	848+39.00, 21.00 RT	SW-509	759.85	754.60		
ST-07	848+39.00, 21.00 LT	SW-510	760.12	754.30		
ST-08	1850+50.00, 25.00 RT	DR-201 (15-Inch)	756.56			Division 2
ST-09	1850+50.00, 20.00 LT	SW-513 (4'x 4')	758.23	754.48		Note 1 & Div.2
ST-10	1849+85.00, 30.00 LT	SW-401 (48-Inch)	761.83	754.10		Division 2
ST-11	849+89.12, 22.51 RT	SW-510	762.96	753.70		
ST-12	851+48.00, 43.90 RT	SW-513 (3'x 3')	768.83	765.88		Note 2
ST-13	851+50.00, 21.00 RT	SW-509	770.62	765.60		
ST-14	851+50.00, 33.00 LT	SW-509	770.31	764.69		
ST-15	849+89.35, 35.68 LT	SW-510	762.65	753.00		
ST-16	1848+30.00, 30.00 RT	SW-512 (30-Inch)	758.75	754.26		Type 5 Cstg, Div. 3
ST-17	850+00.00, 75.00 LT	SW-401 (72-Inch)	758.25	752.55		Division 3
ST-18	850+50.00, 104.06 LT	DR-201 (30-Inch)	752.50			Apron Ftg, Div. 3
ST-19	853+25.60, 21.00 RT	SW-509	781.16	776.45		
ST-20	853+25.60, 33.00 LT	SW-509	780.85	775.64		
ST-21	853+23.50, 152.00 LT	DR-201 (15-Inch)	751.79			
ST-22	861+84.00, 43.90 LT	SW-513 (3'x 3')	778.50	775.50		Note 2
ST-23	861+84.00, 43.90 RT	SW-513 (3'x 3')	778.20	775.20		Note 2
ST-24	861+82.03, 21.00 LT	SW-509	778.61	773.61		
ST-25	861+82.03, 33.00 RT	SW-509	778.30	772.70		
ST-26	863+51.70, 21.00 LT	SW-509	769.42	764.35		
ST-27	863+51.70, 33.00 RT	SW-509	769.10	759.10		
ST-28	3863+35.00, 30.20 RT	DR-201 (12-Inch)	760.40			Division 2
ST-29	3864+20.00, 26.80 RT	DR-201 (12-Inch)	761.15			Division 2
ST-30	3864+00.00, 11.50 RT	SW-507	762.92	758.00		Division 2
ST-31	3864+00.00, 11.50 LT	SW-507	762.92	757.67		Division 3
ST-32	2864+80.00, 14.00 LT	SW-509	764.95	754.95		Division 3
ST-33	865+25.00, 60.00 RT	DR-201 (18-Inch)	750.66			Division 3
ST-34	878+00.00, 60.00 LT	DR-201 (18-Inch)	756.30			
ST-35	879+52.00, 60.00 LT	SW-401 (48-Inch)	758.38	753.78		
ST-36	879+99.50, 81.36 LT	DR-201 (18-Inch)	754.00			
SN-01	1848+95.23, 40.95 RT	Existing Sanitary Manhole	761.33			Adjust +0.80'
SN-02	1847+73.25	SW-301	757.98			Division 2

Note 1: Form Grade Elev. = Inlet Elev.
Note 2: Provide Precast Base, Form Grade Elev. = Inlet Elev.

PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. Additional length is added to each side of the Design Length to account for estimated length to center of structures, rounded to nearest 2-feet.

Line Number	Intake/ Utility Access No. From	To	Class 'D'	(1) Pipe Size IN	Bid* Length FT	Design Length FT	Slope %	Connected Pipe Joint (DR-121) Type	Flow Lines: Inlet Elevation	Outlet Elevation	Other Elevation	Pipe Profile Sheet No.	Notes
P-01	ST-01	ST-02	2000	12					771.69	762.18			Existing Pipe
P-02	ST-02	ST-04	2000	15	164	155.4	2.64		761.98	757.88		M.3	Division 3
P-03	ST-03	ST-05	2000	15	158	148.6	2.42		760.50	756.90		M.3	Division 3
P-04	ST-04	ST-07	2000	18	176	166.7	1.13		757.68	755.80		M.3	Division 3
P-05	ST-05	ST-06	2000	30	118	109.4	0.40		755.64	755.20		M.3	Division 3
P-06	ST-06	ST-07	2000	30	46	42.0	0.50		755.10	754.89		M.3	
P-07	ST-07	ST-15	2000	30	152	143.9	0.49		754.80	754.10		M.3	Gasket Pipe, Div. 3
P-08	ST-08	ST-09	2000	15	40	36.9	2.05		756.44	755.58	756.56	M.5	Apron Inlet, Div. 2
P-09	ST-09	ST-10	2000	24	68	62.8	0.45		754.98	754.70		M.5	Division 2
P-10	ST-10	ST-11	2000	24	38	30.9	0.97		754.60	754.30		M.5	Division 2
P-11	ST-11	ST-15	2000	24	62	57.2	0.88		754.20	753.70		M.5	
P-12	ST-12	ST-13	2000	15	22	18.4	1.00		766.38	766.20		M.4	
P-13	ST-13	ST-14	2000	15	58	54.0	1.50		766.10	765.29		M.4	
P-14	ST-14	ST-15	2000	15	160	152.3	6.46		765.19	755.35		M.4	
P-15	ST-15	ST-17	2000	30	40	33.9	1.03		753.50	753.15		M.5	Division 3
P-16	ST-16	ST-17	2000	15	98	93.1	0.76		754.76	754.05		M.4	Division 3
P-17	ST-17	ST-18	2000	30	52	48.7	1.00	Type 3	753.05	752.56	752.50	M.5	Aprn Outlet, Div. 3
P-19	ST-19	ST-20	2000	15	58	54.0	1.50		776.95	776.14		M.4	
P-20	ST-20	ST-21	2000	15	114	109.9	Var.	Type 3	776.04	751.85	751.79	M.4	Let Down Pipe
P-22	ST-22	ST-24	2000	15	22	18.4	5.50		776.00	774.96		M.6	
P-23	ST-23	ST-25	2000	15	10	6.4	15.20		775.70	774.65		M.6	
P-24	ST-24	ST-25	2000	15	58	54.0	1.50		774.11	773.30		M.6	
P-25	ST-25	ST-27	2000	15	170	161.7	5.66		773.20	764.05		M.6	
P-26	ST-26	ST-27	2000	15	58	54.0	1.50		764.85	764.04		M.6	
P-27	ST-27	ST-32	2000	15	90	82.2	4.38		759.60	756.00		M.6	
P-28	ST-28	ST-30	2000	12	64	60.1	2.71		760.25	758.7	760.4	M.6	Apron Inlet, Div. 2
P-29	ST-29	ST-30	2000	12	18	16.6	12.24		760.55	758.7	761.15	M.6	Apron Inlet, Div. 2
P-30	ST-30	ST-31	2000	15	26	23.0	1.00		758.5	758.27		M.6	Division 2
P-31	ST-31	ST-32	2000	15	108	104.6	2.07		758.17	756		M.6	Division 3
P-32	ST-32	ST-33	2000	18	86	81.4	Var.	Type 3	755.45	750.78	750.66	M.6	Aprn Outlet, Div. 3
P-34	ST-34	ST-35	2000	18	152	148.7	1.24		756.23	754.38	756.3	M.7	Apron Inlet
P-35	ST-35	ST-36	2000	18	48	46.1	0.54		754.28	754.03	754	M.7	Apron Outlet
P-S01		SN-02	PVC	10	14	12.0	0.30		752.42	752.38		M.8	Stub Pipe, Div. 2
P-S02	SN-02	SN-01	PVC	10	132	126.7	0.30		752.38	752		M.8	Division 2

SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- PPA Power Pole Co. 1
- PLG Location of General Photo
- IN Storm Sewer Intake
- SI SIGN Sign
- LC Lot Corner
- BB Billboard
- WV Water Valve
- WH WHD Water Hydrant
- TP TPD Telephone Pedestal
- TDC Tree Deciduous
- TEV Evergeen Tree
- SHR Shrub
- PR Electric Riser Pole
- SL SIGN Speed Limit Sign
- MH Utility Access (Manhole)
- MIS Miscellaneous
- MM Mile Marker Post
- WEL Well
- LUM Luminaire
- GP Guard Post (Less Than 4 Posts)
- GV Gas Valve
- EB Electrical Box
- UB Utility Box
- FLG Flg Flag Poles
- FHD Fire Hydrants
- STP Stump
- OUT Tile Outlet
- INB Storm Sewer Beehive Intake
- S Soil Sampling Site (Wetlands)
- TVP TV Pedestal
- SP Stream Profile
- TW Top of Water
- BLD Building or Foundation
- LIN Miscellaneous Line
- ST Spiral Point
- RET Retaining Walls
- BRG Bridge
- TLNR Tree Line Right
- TLNL Tree Line Left
- CON Concrete or A/C Slab
- CUL Culvert
- FCL Chain Link and Security Fence
- GDL Guard Rail Steel
- BL Topo Breakline
- FWD Wood Fence
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- FW Wire Fence
- PIP Pipe Culvert
- RRR Railroad Rail
- CU Back of Curb
- ENU Edge Unpaved Entrance & Parking
- ENP Edge Paved Entrance & Park Lot
- EP Edge of Paved Roads (ML or SR)
- GU Gutter In Front of Curb
- SNP Unpaved Shoulder
- BNK Stream Bank
- EG Edge of Gravel Road
- EW Edge of Water
- ENT Centerline BL of Entrance
- SH Paved Shoulder
- RIP Rip-Rap
- TRL Trail
- SWK Sidewalk
- TV Satelite TV Dish
- TR Telephone Riser Pole
- TSB Telephone Switch Box
- UV Underground Utility Vault
- VS Channel Cross Section
- BLS Bridge Low Steel

- G(C) – GL1C Gas Line Co. 1 - Quality C
- GL1D Gas Line Co. 1 - Quality D
- Default_Chain Default Chain Feature
- WL3D Water Line Co. 3 - Quality D
- SA1D Sanitary Sewer Co. 1- Quality D
- T(C) – TL1C Telephone Line Co. 1 - Quality C
- St.S.(C) ST1C Storm Sewer Co. 1 - Quality C
- ST Spiral Point
- San.(C) SA1C Sanitary Sewer Co. 1- Quality C
- SA2D Sanitary Sewer Co. 2 - Quality D

UTILITY LEGEND

- PPA Alliant Energy
- TP TPD Telephone Pedestal
- WV WV Water Valve
- WH WHD Water Hydrant
- PR Electric Riser Pole
- GV GV Gas Valve
- EB EB Electrical Box
- UB UB Utility Box
- FHD Fire Hydrants
- TVP TVP TV Pedestal
- GLA MidAmerican Energy
- ELB Linn County Rural Electric Cooperative
- FOA South Slope Phone Internet Television
- FOB Mediacom
- FO3(C)– FOC Sprint/Nextel
- San.(C) SA1C City of Fairfax
- SA1D City of Fairfax
- SA2D City of Cedar Rapids
- TLA South Slope Phone Internet Television
- TLB Centurylink
- TVA Underground TV Cable Co. 1
- Water Line City of Cedar
- Water Line City of Cedar Rapids
- Water Line City of Fairfax

PLAN VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Gray, Dark	(112)	Existing Topographic Features, Utilities, and Labels
Black	(17)	Proposed Storm Sewer Details, Alignment, Stationing, Tic Marks, and Alignment Annotation
SHADING	Design Color No.	
Gray, Light	(48)	Proposed Pavement Shading

PROFILE VIEW COLOR LEGEND OF STORM SEWER SHEETS

LINEWORK	Design Color No.	
Gray, Dark	(112)	Existing Ground Line Profile and Existing Utilities Information
Black	(17)	Proposed Pipes and Intakes

PLAN VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- Plug and Abandon Existing Pipe or Structure
- Removal of Existing Pipe or Structure
- Previously Constructed Pipe or Structure
- Direction of Pipe Flow

PROFILE VIEW LINE STYLE LEGEND OF STORM SEWER SHEETS

- Existing Ground
- Proposed Ground
- Previously Constructed Pipe or Structure
- Proposed Pipe or Structure

Reference Point
Station

- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Clearing & Grubbing Area
- Pavement Removal

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Borrow
- Easement (Temporary)
- Easement
- Excess
- A/C Access Control

STORM SEWER LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES M)

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.2

10:30:06 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158LGD.sht

Connect To Existing Structure. Protect Intake.

Remove Existing Storm Sewer

Remove Existing Intake

Remove Existing Storm Sewer

Remove Existing Intake

Remove Existing Intake

Remove Existing Storm Sewer

Remove Exist. Storm Sewer

Remove Existing Intake

Remove Existing Intake

U.S. Highway 151

Church Street

845 846 847 848 849 850

1849

1850

P-01 P-02 P-03 P-04 P-05 P-06 P-07 P-09 P-10 P-11 P-14 P-15 P-16 P-17

ST-02 ST-04 ST-03 ST-05 ST-06 ST-07 ST-16 ST-17 ST-15 ST-11 ST-10

0 20 FEET

STORM SEWER

ST-02 (Existing) (Protect)
Sta. 845+0.01, 20.00 Lt.

F.L.= 761.98

P-02
155.36 LF
15" 2000D
2.64%

ST-04
SW-509L
Sta. 846+64.33, 21.00 Lt.
FG= 761.61

F.L.= 757.88

F.L.= 757.68

Proposed Ground Line

P-04
166.67 LF
18" 2000D
1.13%

Gas Main

ST-07
SW-510S
Sta. 848+39.00, 21.00 Lt.
FG= 760.12

F.L.= 755.80

F.L.= 754.80

F.L.= 754.89

Sanitary Sewer

P-07 Gasket Pipe
143.85 LF
30" 2000D
0.49%

ST-15
SW-510R
Sta. 849+89.35, 35.68 Lt.
FG= 762.65

Existing Ground Line

Existing Storm Sewer
(To Be Removed)

Telephone Line

F.L.= 754.10

F.L.= 753.50

F.L.= 755.35

F.L.= 754.00

Telephone Line

Duct Bank

ST-03
SW-509R
Sta. 845+65.00, 19.84 Rt.
FG= 764.25

F.L.= 760.50

P-03
148.64 LF
15" 2000D
2.42%

ST-05
SW-509R
Sta. 847+21.58, 21.00 Rt.
FG= 760.54

F.L.= 756.90

F.L.= 755.64

Existing Ground Line

P-05
109.42 LF
30" 2000D
0.40%

ST-06
SW-509S
Sta. 848+39.00, 21.00 Rt.
FG= 759.85

F.L.= 755.20

F.L.= 755.10

ST-07
SW-510S
Sta. 848+39.00, 21.00 Lt.
FG= 760.12

F.L.= 755.10

F.L.= 754.89

F.L.= 755.80

F.L.= 754.80

P-06
42.00 LF
30" 2000D
0.50%

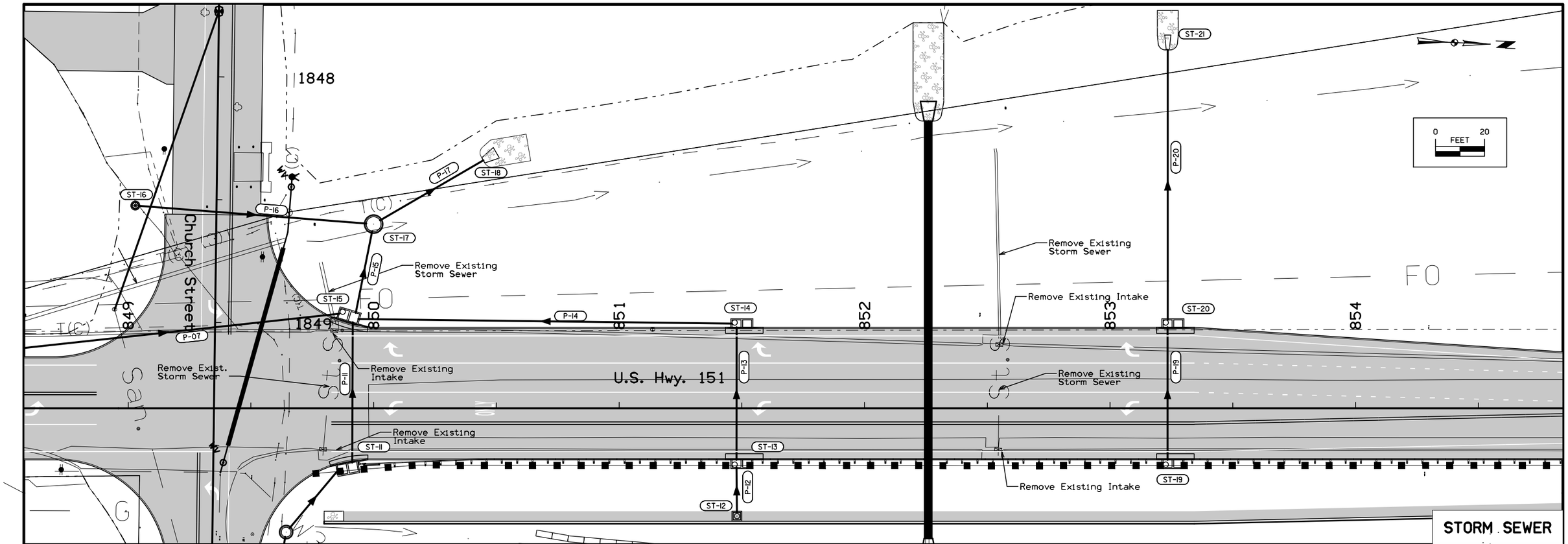
ST-06
SW-509S
Sta. 848+39.00, 21.00 Rt.
FG= 759.85

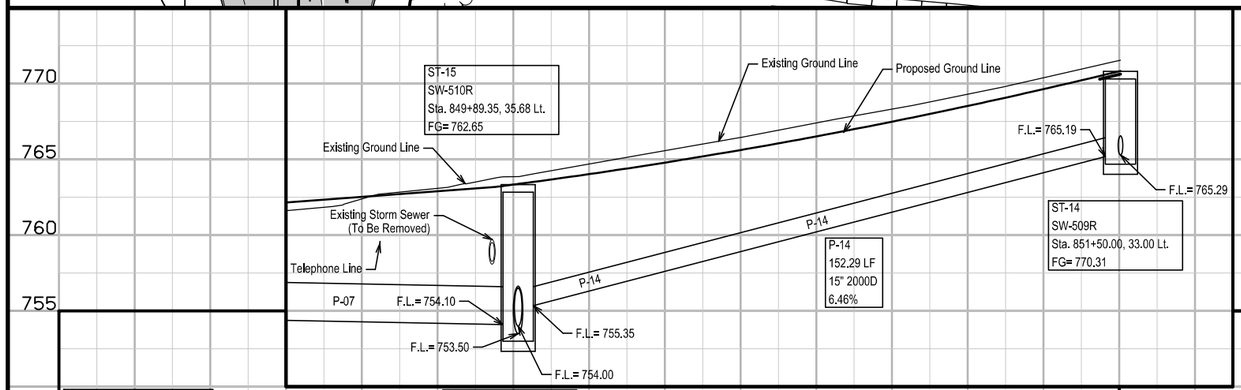
F.L.= 755.20

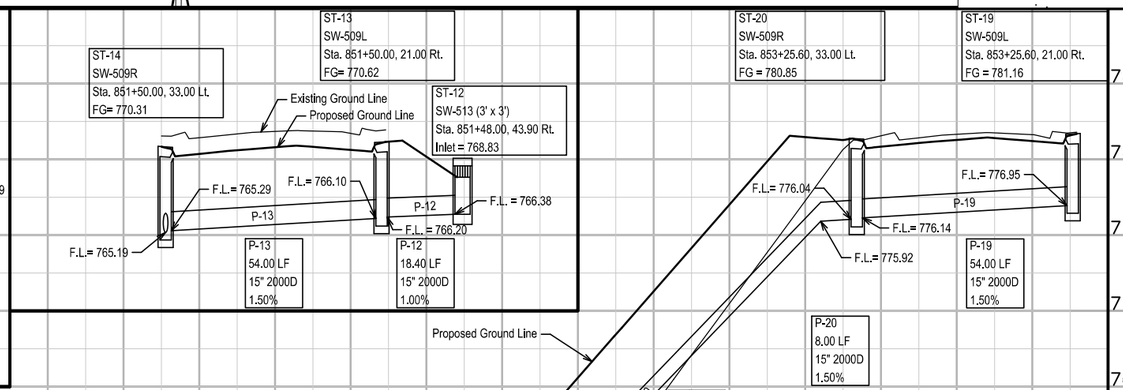
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.3

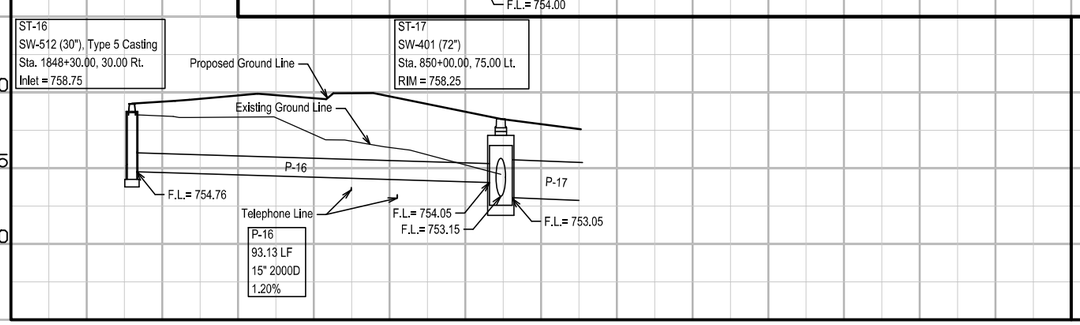
10:30:15 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht

STORM SEWER



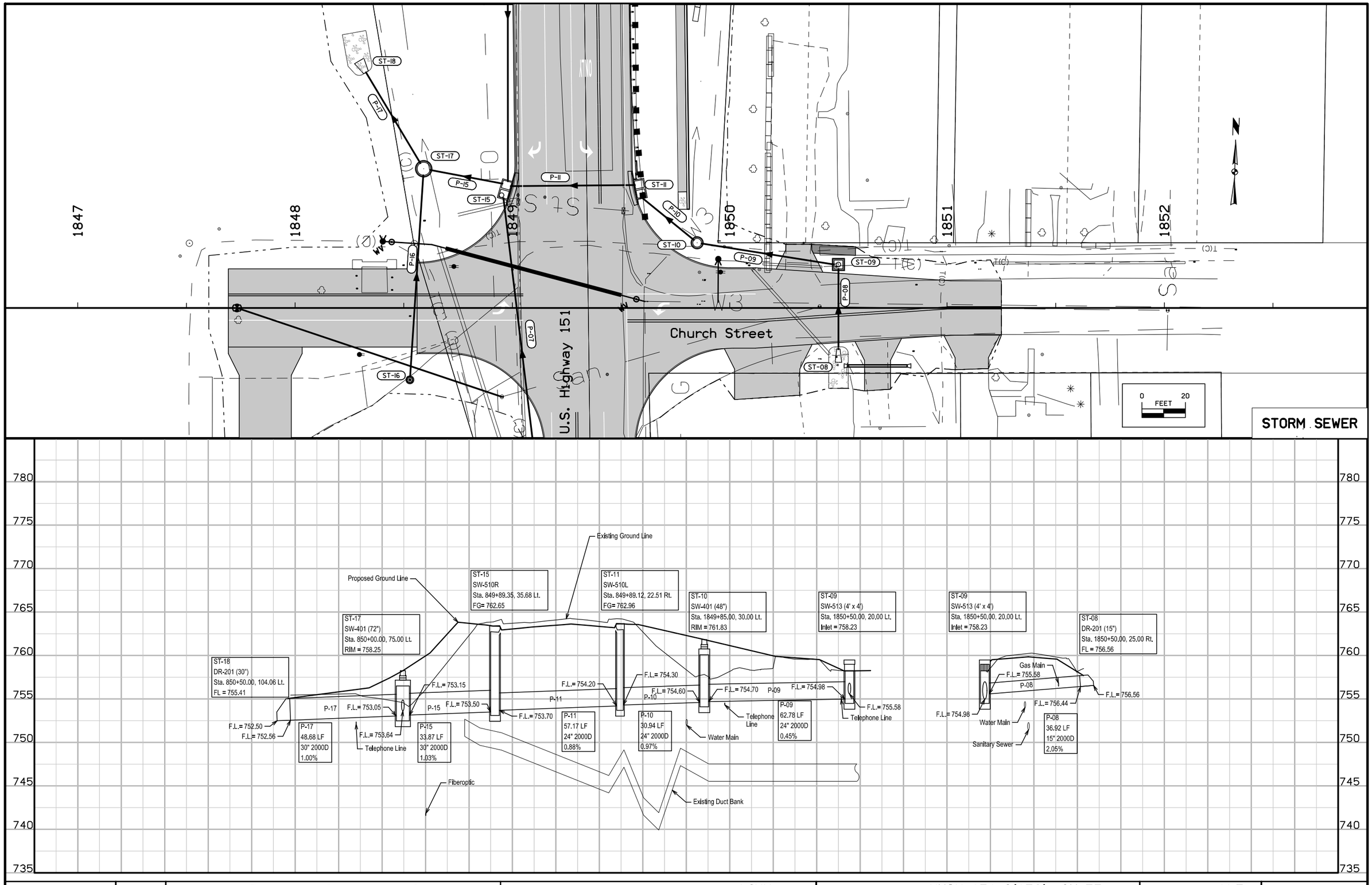






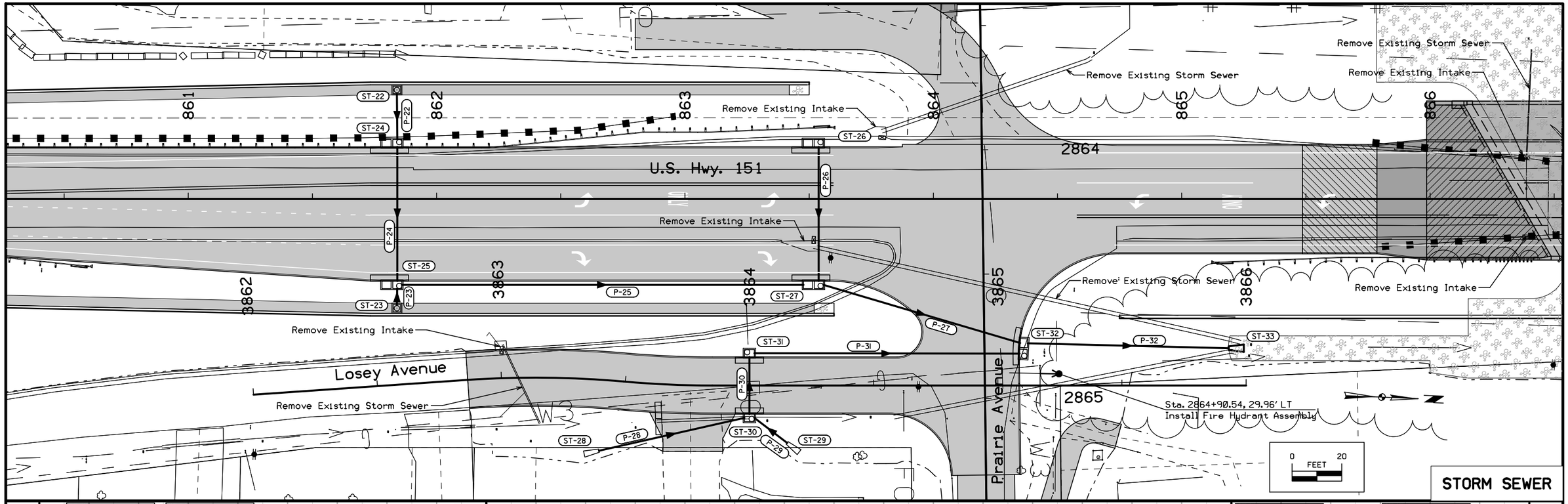
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.4

10:30:16 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.5

10:30:18 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht



STORM SEWER

ST-22
SW-513 (3' x 3')
Sta. 861+84.00, 43.90 Lt.
Inlet = 778.50

ST-24
SW-509L
Sta. 861+82.03, 21.00 Lt.
FG= 778.61

ST-25
SW-509R
Sta. 861+82.03, 33.00 Rt.
FG= 778.30

ST-23
SW-513 (3' x 3')
Sta. 861+84.00, 43.90 Rt.
Inlet = 778.20

F.L. = 776.00
F.L. = 774.96
F.L. = 774.11
F.L. = 773.30
F.L. = 775.70
F.L. = 774.65
F.L. = 773.20

P-22
18.40 LF
15" 2000D
5.50%

P-24
54.00 LF
15" 2000D
1.50%

P-23
6.40 LF
15" 2000D
15.20%

ST-25
SW-509R
Sta. 861+82.03, 33.00 Rt.
FG= 778.30

F.L. = 773.20
F.L. = 773.30

P-25
161.67 LF
15" 2000D
5.66%

ST-27
SW-509R
Sta. 863+51.70, 33.00 Rt.
FG= 769.10

ST-26
SW-509L
Sta. 863+51.70, 21.00 Lt.
FG= 769.42

ST-27
SW-509R
Sta. 863+51.70, 33.00 Rt.
FG= 769.10

F.L. = 764.85
F.L. = 764.04
F.L. = 764.05
F.L. = 759.60

Existing Storm Sewer
(To Be Removed)

P-26
54.00 LF
15" 2000D
1.50%

Proposed Ground Line
Existing Ground Line

ST-32
SW-509L
Sta. 2864+80.00, 14.00 Lt.
FG= 764.95

P-27
82.23 LF
15" 2000D
4.38%

Gas Main
Fiberoptic

ST-33
DR-201 (18")
Sta. 865+25.00, 60.00 Rt.
FL= 750.66

F.L. = 764.04
F.L. = 759.60
F.L. = 756.00
F.L. = 755.45
F.L. = 750.82
F.L. = 750.66
F.L. = 750.78

P-32
75.64 LF
18" 2000D
6.12%

P-32
8.00 LF
18" 2000D
0.50%

ST-28
DR-201 (12")
Sta. 3863+35.00, 30.20 Rt.
FL = 760.40

ST-30
SW-507S
Sta. 3864+00.00, 11.50 Rt.
FG= 762.92

ST-29
DR-201 (12")
Sta. 3864+20.00, 26.80 Rt.
FL = 761.15

ST-31
SW-507S
Sta. 3864+00.00, 11.50 Lt.
FG= 762.92

ST-30
SW-507S
Sta. 3864+00.00, 11.50 Rt.
FG= 762.92

ST-31
SW-507S
Sta. 3864+00.00, 11.50 Lt.
FG= 762.92

F.L. = 760.40
F.L. = 760.25
F.L. = 758.70
F.L. = 758.70
F.L. = 758.50
F.L. = 761.15
F.L. = 760.55

P-28
60.06 LF
12" 2000D
2.71%

P-29
16.60 LF
12" 2000D
12.24%

F.L. = 758.50
F.L. = 758.17
F.L. = 758.27
F.L. = 758.70

Gas Main
Water Main

P-30
23.00 LF
15" 2000D
1.00%

Proposed Ground Line
Existing Ground Line

ST-32
SW-509L
Sta. 2864+80.00, 14.00 Lt.
FG= 764.95

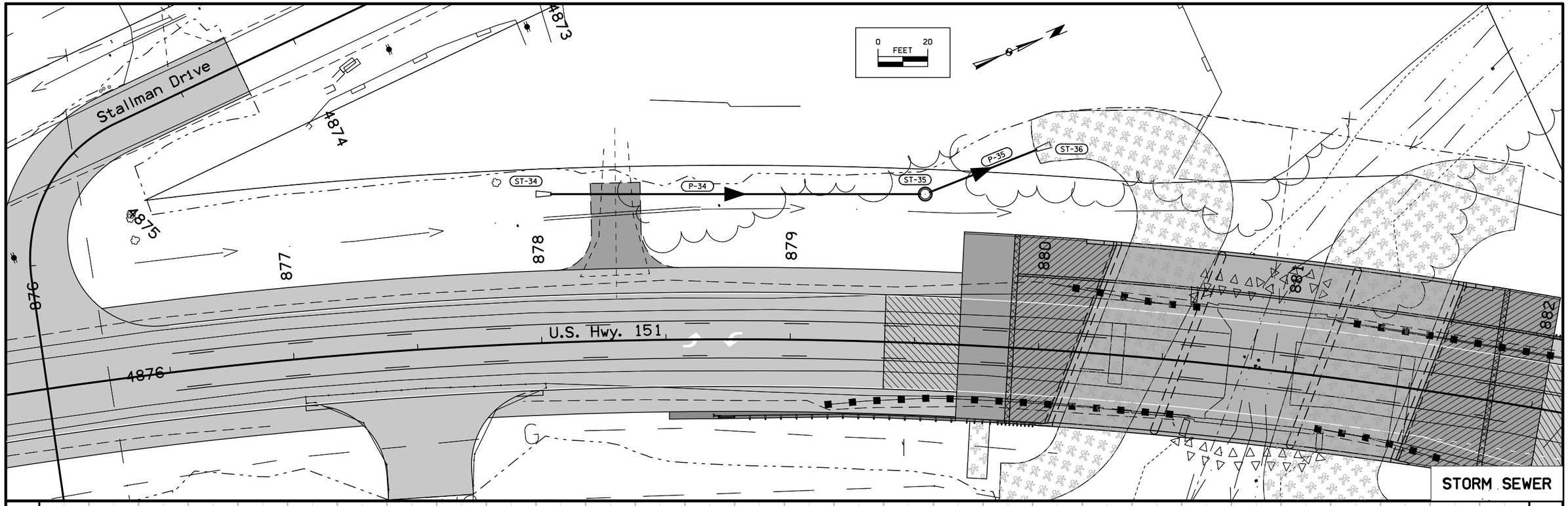
F.L. = 758.17
F.L. = 758.27
F.L. = 756.00
F.L. = 755.45

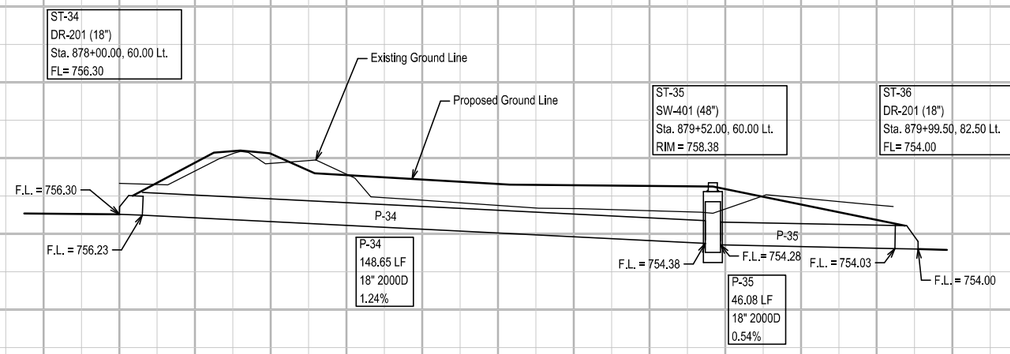
Gas Main
Fiberoptic

P-31
104.64 LF
15" 2000D
2.07%

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.6

10:30:19 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht





FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.7

10:30:21 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht

Sta. 1847+73.25
Install SW-301 (48") Manhole

1847 1848 1849 1850 1851 1852

Church Street

U.S. Highway 151

Connect to Existing Manhole,
Protect Existng Structure

Sta. 1848+95.23, 40.95' RT
Existing Manhole, Adjust +0.80'

0 FEET 20

SANITARY SEWER

SN-02
SW-301
Sta. 1847+73.25
FG= 757.98

SN-01
Existing MH, Adjust +0.80'
Sta. 1848+95.23, 40.95' Rt.
FG= 761.33

Proposed Ground Line
Existing Ground Line
Fiber optic
Existing Storm Sewer
(To Be Removed)
Proposed Storm Sewer
Cap End of Pipe
F.L.= 752.42
F.L.= 752.38
F.L.= 752.38
F.L.= 752.00
F.L.= 751.94 (Ex.)

P-S01
4.00 LF
10" PVC
0.30%

P-S02
126.67 LF
10" PVC
0.30%

770 765 760 755 750 745 740 735 730 725

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.8

10:30:23 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht

Sta. 1848+69.26, 27.45' LT
End of Casing Pipe

Sta. 1848+40.35, 30.63' LT
Install Fire Hydrant Assembly

Sta. 1849+50.13, 5.88' LT
End of Casing Pipe

Connect to Existing Water Main

Sta. 1849+94.74, 22.52' LT
Install Fire Hydrant Assembly

Sta. 1849+56.09, 4.29' LT
Install 8" Gate Valve

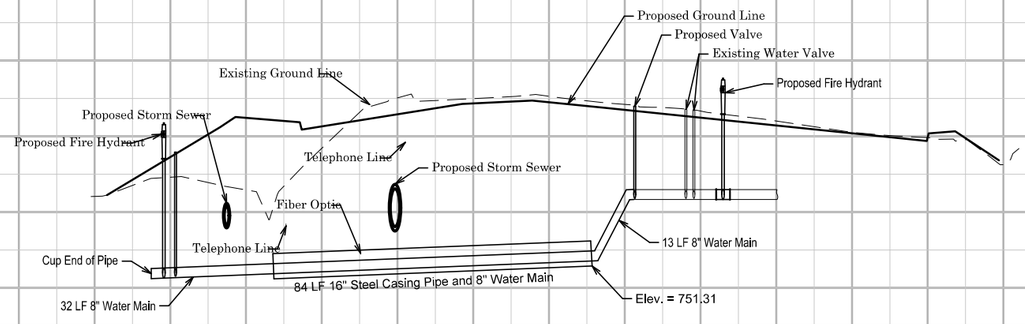
1847 1848 1849 1850 1851 1852

Church Street

U.S. Highway 151

0 FEET 20

WATER MAIN CASING PIPE



770 765 760 755 750 745 740 735 730 725

757.17 756.45 750.61 758.67 750.81 762.31 751.01 762.37 751.21 762.61 762.05 761.65 760.99 760.24 759.85 758.23

1849 1850

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.9

10:30:25 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht

Sta. 884+02.98, 71.78' LT
Install 12" Gate Valve
Cap End of Pipe

Sta. 884+00.47, 68.11' LT
Install Fire Hydrant Assembly

Sta. 884+03.60, 65.17' LT
End of Casing Pipe

Sta. 884+16.63, 64.17' RT
End of Casing Pipe

Sta. 884+17.07, 67.13' RT
Install 12" Gate Valve

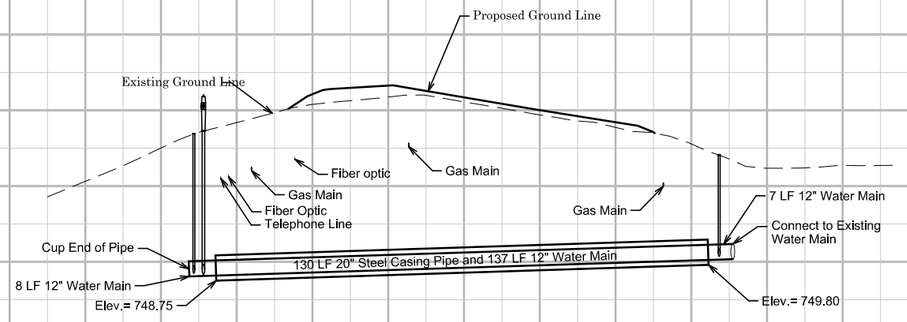
Connect to Existing Water Main

Cemetery Road

U.S. Hwy. 151

0 FEET 20

WATER MAIN CASING PIPE



750.66 / 759.66
750.82 / 760.64
750.98 / 760.99
751.14 / 760.13
751.30 / 759.29
751.46 / 758.51

1884

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	M.10

10:30:27 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158M03.sht

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
CEMETERY																						
5882+50.00																						
5883+00.00	53	51	2	51	0	2	44	46	60	-9	0	0	2	2	3	-1						
5883+50.00	32	29	3	29	52	3	109	164	213	-184	0	0	3	17	24	-21						
5884+00.00	0	0	0	0	0			0	0	0	0	0	0	0	0	0						
5884+50.00	210	173	37	173	11	37	86	134	174	-1	0	0	37	33	46	-9						
5885+00.00	288	256	32	256	6	32	128	166	216	40	0	0	32	24	34	-2						
CEMETERY																						
Totals:	583	509	74	509	69	74	367	510	663	-154	0	0	74	76	107	-33						

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)-3H-57	SHEET NUMBER T.1

11/30/2018 6:24:04 AM ncarhoff PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\Geopak\Earthwork\57151158T01.xlsm

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

					Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
Station	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
CHURCH																						
1847+69.25																						
1848+00.00	19	10	9	10	7	9		16	21	-11	0	0	9	2	3	6						
1848+50.00	37	5	32	5	58	32		90	117	-112	0	0	32	16	22	10						
1848+56.14	7	1	6	1	18	6		24	31	-30	0	0	6	2	3	3						
1848+69.79	10	2	8	2	72	8	6	86	112	-110	0	0	8	4	6	2						
1849+00.00	33	29	4	29	102	4	29	135	176	-147	0	0	4	8	11	-7						
1850+00.00	224	206	18	206	27	18	74	119	155	51	0	0	18	19	27	-9						
1850+01.77	5	4	1	4	2	1	2	5	7	-3	0	0	1	1	1	0						
1850+11.77	21	17	4	17	7	4	12	23	30	-13	0	0	4	3	4	0						
1850+50.00	84	71	13	71	13	13	39	65	85	-14	0	0	13	11	15	-2						
1851+00.00	105	92	13	92	6	13	44	63	82	10	0	0	13	15	21	-8						
1851+01.77	2	2	0	2	0		2	2	3	-1	0	0	0	0	0	0						
CHURCH																						
Totals:	547	439	108	439	312	108	208	628	817	-378	0	0	108	81	114	-6						

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)-3H-57	SHEET NUMBER T.2

11/30/2018 6:24:04 AM ncarhoff PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\Geopak\Earthwork\57151158T01.xlsm

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
LOSEY																						
3863+00.00																						
3863+49.39	73	73	0	73	32		38	70	91	-18	0	0	0	13	18	-18						
3863+50.00	14	1	13	1	1	13		14	18	-17	0	0	13	0	0	13						
3863+85.02	50	50	0	50	15		24	39	51	-1	0	0	0	4	6	-6						
3864+00.00	27	21	6	21	7	6	9	22	29	-8	0	0	6	2	3	3						
3864+50.00	65	62	3	62	58	3	29	90	117	-55	0	0	3	14	20	-17						
3864+56.28	24	6	18	6	11	18		29	38	-32	0	0	18	2	3	15						
3864+59.42	5	2	3	2	7	3		10	13	-11	0	0	3	1	1	2						
LOSEY																						
Totals:	258	215	43	215	131	43	100	274	357	-142	0	0	43	36	51	-8						

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)-3H-57	SHEET NUMBER T.3

11/30/2018 6:24:04 AM ncarhoff PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\Geopak\Earthwork\57151158T01.xlsm

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
ML151																						
844+00.00																						
844+50.00	32	26	6	26	0	6		6	8	18	0	0	6	4	6	0						
845+00.00	35	21	14	21	0	14	57	71	92	-71	0	0	14	2	3	11						
845+50.00	35	35	0	35	0		60	60	78	-43	0	0	0	2	3	-3						
846+00.00	54	48	6	48	0	6	62	68	88	-40	0	0	6	3	4	2						
846+50.00	40	38	2	38	0	2	65	67	87	-49	0	0	2	2	3	-1						
847+00.00	47	41	6	41	1	6	67	74	96	-55	0	0	6	2	3	3						
847+50.00	46	41	5	41	2	5	69	76	99	-58	0	0	5	3	4	1						
848+00.00	49	45	4	45	1	4	72	77	100	-55	0	0	4	5	7	-3						
848+50.00	101	93	8	93	2	8	74	84	109	-16	0	0	8	8	11	-3						
850+00.00	468	414	54	414	151	54	77	282	367	47	0	0	54	67	94	-40						
850+50.00	332	276	56	276	204	56	81	341	443	-167	0	0	56	75	105	-49						
851+00.00	521	435	86	435	309	86	83	478	621	-186	0	0	86	118	165	-79						
851+50.00	590	496	94	496	378	94	83	555	722	-226	0	0	94	128	179	-85						
852+00.00	671	569	102	569	560	102	84	746	970	-401	0	0	102	139	195	-93						
852+50.00	763	653	110	653	787	110	83	980	1,274	-621	0	0	110	150	210	-100						
853+00.00	900	782	118	782	1,027	118	81	1,226	1,594	-812	0	0	118	160	224	-106						
853+50.00	1,054	926	128	926	1,287	128	78	1,493	1,941	-1,015	0	0	128	175	245	-117						
854+00.00	1,199	1,061	138	1,061	1,501	138	76	1,715	2,230	-1,169	0	0	138	191	267	-129						
854+50.00	1,362	1,217	145	1,217	1,648	145	73	1,866	2,426	-1,209	0	0	145	204	286	-141						
855+00.00	1,504	1,352	152	1,352	1,816	152	71	2,039	2,651	-1,299	0	0	152	216	302	-150						
855+50.00	1,649	1,490	159	1,490	2,010	159	68	2,237	2,908	-1,418	0	0	159	227	318	-159						
856+00.00	1,788	1,621	167	1,621	2,225	167	66	2,458	3,195	-1,574	0	0	167	238	333	-166						
858+50.00	1,323	1,202	121	1,202	1,145	121	64	1,330	1,729	-527	0	0	121	167	234	-113						
859+00.00	1,394	1,273	121	1,273	550	121	62	733	953	320	0	0	121	161	225	-104						
859+50.00	1,217	1,109	108	1,109	671	108	60	839	1,091	18	0	0	108	147	206	-98						
860+00.00	968	868	100	868	762	100	48	910	1,183	-315	0	0	100	136	190	-90						
860+50.00	651	571	80	571	823	80	60	963	1,252	-681	0	0	80	105	147	-67						
861+00.00	372	311	61	311	836	61	60	957	1,244	-933	0	0	61	72	101	-40						
861+50.00	263	206	57	206	796	57	60	913	1,187	-981	0	0	57	63	88	-31						
862+00.00	197	142	55	142	697	55	60	812	1,056	-914	0	0	55	58	81	-26						
862+50.00	143	93	50	93	549	50	60	659	857	-764	0	0	50	52	73	-23						
863+00.00	111	63	48	63	423	48	63	534	694	-631	0	0	48	50	70	-22						
863+50.00	78	30	48	30	345	48	67	460	598	-568	0	0	48	53	74	-26						
864+50.00	206	82	124	82	926	124	70	1,120	1,456	-1,374	0	0	124	169	237	-113						
865+00.00	171	88	83	88	804	83	83	970	1,261	-1,173	0	0	83	120	168	-85						
865+50.00	201	110	91	110	1,087	91	94	1,272	1,654	-1,544	0	0	91	126	176	-85						
866+00.00	209	115	94	115	1,181	94	83	1,358	1,765	-1,650	0	0	94	119	167	-73						
868+50.00	141	86	55	86	410	55	69	534	694	-608	0	0	55	62	87	-32						
869+00.00	188	101	87	101	487	87	64	638	829	-728	0	0	87	113	158	-71						
869+50.00	172	62	110	62	959	110	39	1,108	1,440	-1,378	0	0	110	157	220	-110						
870+00.00	169	59	110	59	916	110	60	1,086	1,412	-1,353	0	0	110	157	220	-110						
870+50.00	178	66	112	66	916	112	72	1,100	1,430	-1,364	0	0	112	152	213	-101						
871+00.00	164	64	100	64	727	100	73	900	1,170	-1,106	0	0	100	125	175	-75						
871+50.00	152	65	87	65	464	87	66	617	802	-737	0	0	87	102	143	-56						
872+00.00	179	94	85	94	378	85	59	522	679	-585	0	0	85	99	139	-54						
872+50.00	205	122	83	122	314	83	56	453	589	-467	0	0	83	96	134	-51						
873+00.00	195	141	54	141	156	54	55	265	345	-204	0	0	54	61	85	-31						
873+50.00	219	173	46	173	18	46	55	119	155	18	0	0	46	27	38	8						
874+00.00	282	235	47	235	14	47	61	122	159	76	0	0	47	33	46	1						
874+50.00	344	316	28	316	8	28	75	111	144	172	0	0	28	44	62	-34						
875+00.00	427	388	39	388	1	39	91	131	170	218	0	0	39	54	76	-37						
875+50.00	382	346	36	346	0	36	110	146	190	156	0	0	36	39	55	-19						
876+00.00	298	278	20	278	0	20	97	117	152	126	0	0	20	19	27	-7						
876+50.00	307	274	33	274	11	33	65	109	142	132	0	0	33	28	39	-6						
877+00.00	287	240	47	240	31	47	57	135	176	65	0	0	47	34	48	-1						
877+50.00	223	184	39	184	50	39	57	146	190	-6	0	0	39	31	43	-4						
878+00.00	193	154	39	154	60	39	57	156	203	-49	0	0	39	35	49	-10						
878+50.00	151	105	46	105	55	46	57	158	205	-100	0	0	46	40	56	-10						
879+00.00	89	41	48	41	148	48	59	255	332	-291	0	0	48	46	64	-16						
879+50.00	64	15	49	15	272	49	63	384	499	-484	0	0	49	51	71	-22						
880+00.00	109	50	59	50	420	59	67	546	710	-660	0	0	59	60	84	-25						
882+00.00	156	72	84	72	726	84	71	881	1,145	-1,073	0	0	84	88	123	-39						
882+50.00	98	28	70	28	484	70	88	642	835	-807	0	0	70	75	105	-35						
883+00.00	84	27	57	27	169	57	82	308	400	-373	0	0	57	56	78	-21						
883+50.00	99	58	41	58	63	41	85	189	246	-188	0	0	41	43	60	-19						
884+00.00	147	87	60	87	9	60	94	163	212	-125	0	0	60	19	27	33						
884+50.00	173	173	0	173	0		101	101	131	42	0	0	0	19	27	-27						
Subtotals:	26,619	22,047	4,572	22,047	33,770	4,572	4,629	42,971	55,862	-33,815	0	0	4,572	5,682	7,955	-3,383						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
884+50.00	244	216	28	216	0	28	100	128	166	50	0	0	28	33	46	-18						
885+00.00	319	277	42	277	0	42	95	137	178	99	0	0	42	48	67	-25						
885+50.00	441	380	61	380	7	61	83	151	196	184	0	0	61	72	101	-40						
886+00.00	461	399	62	399	19	62	75	156	203	196	0	0	62	73	102	-40						
886+50.00	480	422	58	422	25	58	75	158	205	217	0	0	58	67	94	-36						
887+00.00	495	437	58	437	28	58	73	159	207	230	0	0	58	63	88	-30						
887+50.00	508	449	59	449	28	59	68	155	202	248	0	0	59	61	85	-26						
888+00.00	520	461	59	461	27	59	61	147	191	270	0	0	59	59	83	-24						
888+50.00	519	462	57	462	23	57	56	136	177	285	0	0	57	58	81	-24						
889+00.00	510	455	55	455	13	55	55	123	160	295	0	0	55	58	81	-26						
889+50.00	492	437	55	437	9	55	55	119	155	282	0	0	55	60	84	-29						
890+00.00	451	411	40	411	7	40	55	102	133	278	0	0	40	51	71	-31						
890+50.00	753	686	67	686	4	67	55	126	164	522	0	0	67	73	102	-35						
891+50.00	313	271	42	271	0	42	55	97	126	145	0	0	42	36	50	-8						
892+00.00	303	260	43	260	0	43	55	98	127	133	0	0	43	34	48	-5						
892+50.00	292	250	42	250	0	42	55	97	126	124	0	0	42	26	36	6						
893+00.00	277	235	42	235	0	42	55	97	126	109	0	0	42	25	35	7						
893+50.00	792	658	134	658	10	134	55	199	259	399	0	0	134	87	122	12						
895+00.00	226	188	38	188	10	38	54	102	133	55	0	0	38	29	41	-3						
895+50.00	193	164	29	164	13	29	54	96	125	39	0	0	29	25	35	-6						
896+00.00	229	189	40	189	18	40	55	113	147	42	0	0	40	32	45	-5						
896+50.00	243	191	52	191	29	52	55	136	177	14	0	0	52	40	56	-4						
897+00.00	213	164	49	164	30	49	56	135	176	-12	0	0	49	36	50	-1						
897+50.00	176	126	50	126	48	50	56	154	200	-74	0	0	50	37	52	-2						
898+00.00	135	81	54	81	70	54	57	181	235	-154	0	0	54	42	59	-5						
898+50.00	127	73	54	73	66	54	58	178	231	-158	0	0	54	43	60	-6						
899+00.00	129	76	53	76	60	53	59	172	224	-148	0	0	53	42	59	-6						
899+50.00	119	72	47	72	48	47	61	156	203	-131	0	0	47	35	49	-2						
900+00.00	111	69	42	69	43	42	64	149	194	-125	0	0	42	29	41	1						
900+50.00	116	74	42	74	32	42	66	140	182	-108	0	0	42	28	39	3						
901+00.00	104	69	35	69	24	35	69	128	166	-97	0	0	35	25	35	0						
901+50.00	94	66	28	66	30	28	75	133	173	-107	0	0	28	21	29	-1						
902+00.00	101	69	32	69	36	32	83	151	196	-127	0	0	32	22	31	1						
902+50.00	100	72	28	72	25	28	90	143	186	-114	0	0	28	23	32	-4						
975+00.00	127	92	35	92	25	35	63	123	160	-68	0	0	35	33	46	-11						
975+50.00	90	58	32	58	35	32	69	136	177	-119	0	0	32	27	38	-6						
976+00.00	71	43	28	43	47	28	67	142	185	-142	0	0	28	22	31	-3						
976+50.00	73	44	29	44	54	29	67	150	195	-151	0	0	29	24	34	-5						
977+00.00	78	46	32	46	73	32	67	172	224	-178	0	0	32	28	39	-7						
977+50.00	94	47	47	47	141	47	68	256	333	-286	0	0	47	29	41	6						
978+00.00	118	58	60	58	166	60	73	299	389	-331	0	0	60	43	60	0						
978+50.00	126	66	60	66	135	60	76	271	352	-286	0	0	60	57	80	-20						
979+00.00	182	124	58	124	144	58	76	278	361	-237	0	0	58	60	84	-26						
979+50.00	261	178	83	178	1,009	83	76	1,168	1,518	-1,340	0	0	83	87	122	-39						
980+00.00	259	160	99	160	1,563	99	59	1,721	2,237	-2,077	0	0	99	104	146	-47						
980+50.00	246	176	70	176	792	70	47	909	1,182	-1,006	0	0	70	62	87	-17						
981+00.00	174	120	54	120	526	54	63	643	836	-716	0	0	54	45	63	-9						
981+50.00	102	53	49	53	429	49	73	551	716	-663	0	0	49	48	67	-18						
982+00.00	101	63	38	63	148	38	68	254	330	-267	0	0	38	35	49	-11						
982+50.00	91	54	37	54	148	37	66	251	326	-272	0	0	37	35	49	-12						
983+00.00	155	120	35	120	64	35	66	165	215	-95	0	0	35	33	46	-11						
983+50.00	230	196	34	196	0	34	67	101	131	65	0	0	34	33	46	-12						
984+00.00	170	136	34	136	1	34	70	105	137	-1	0	0	34	33	46	-12						
984+50.00																						
ML151 Totals:	39,953	32,790	7,163	32,790	40,052	7,163	8,103	55,318	71,914	-39,124	0	0	7,163	8,013	11,219	-4,056						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
PRAIRIE																						
2864+82.50																						
2865+00.00	1	0	1	0	22	1		23	30	-30	0	0	1	6	8	-7						
2865+30.81	6	1	5	1	40	5	16	61	79	-78	0	0	5	10	14	-9						
2865+50.00	10	1	9	1	11	9	24	44	57	-56	0	0	9	2	3	6						
2866+00.69	24	22	2	22	8	2	14	24	31	-9	0	0	2	2	3	-1						
2866+50.00	51	48	3	48	0	3	36	39	51	-3	0	0	3	0	0	3						
PRAIRIE																						
Totals:	92	72	20	72	81	20	90	191	249	-177	0	0	20	20	28	-8						

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)-3H-57	SHEET NUMBER T.6

11/30/2018 6:24:04 AM ncarhoff PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\Geopak\Earthwork\57151158T01.xlsm

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
STAGE1C																						
870+00.00	72	72	0	72	94			94	122	-50	0	0	0	0	0	0						
870+50.00	65	65	0	65	74			74	96	-31	0	0	0	0	0	0						
871+00.00	60	60	0	60	87			87	113	-53	0	0	0	0	0	0						
871+50.00	58	58	0	58	117			117	152	-94	0	0	0	0	0	0						
872+00.00	58	58	0	58	121			121	157	-99	0	0	0	0	0	0						
872+50.00	66	66	0	66	98			98	127	-61	0	0	0	0	0	0						
873+00.00	80	80	0	80	97			97	126	-46	0	0	0	0	0	0						
873+50.00	95	95	0	95	116			116	151	-56	0	0	0	0	0	0						
874+00.00	113	113	0	113	123			123	160	-47	0	0	0	0	0	0						
874+50.00	100	100	0	100	117			117	152	-52	0	0	0	0	0	0						
875+00.00	68	68	0	68	89			89	116	-48	0	0	0	0	0	0						
875+50.00	61	61	0	61	59			59	77	-16	0	0	0	0	0	0						
876+00.00	61	61	0	61	39			39	51	10	0	0	0	0	0	0						
876+50.00	61	61	0	61	28			28	36	25	0	0	0	0	0	0						
877+00.00	68	68	0	68	15			15	20	49	0	0	0	0	0	0						
877+50.00	71	71	0	71	1			1	1	70	0	0	0	0	0	0						
878+00.00	67	67	0	67	7			7	9	58	0	0	0	0	0	0						
878+50.00	68	68	0	68	19			19	25	43	0	0	0	0	0	0						
879+00.00	21	21	0	21	7			7	9	12	0	0	0	0	0	0						
879+50.00	0	0	0	0	0			0	0	0	0	0	0	0	0	0						
880+00.00	0	0	0	0	0			0	0	0	0	0	0	0	0	0						
882+00.00	0	0	0	0	0			0	0	0	0	0	0	0	0	0						
882+50.00	67	67	0	67	54			54	70	-3	0	0	0	0	0	0						
883+00.00	102	102	0	102	47			47	61	41	0	0	0	0	0	0						
883+50.00	112	112	0	112	23			23	30	82	0	0	0	0	0	0						
884+00.00	0	0	0	0	0			0	0	0	0	0	0	0	0	0						
884+50.00	109	109	0	109	11			11	14	95	0	0	0	0	0	0						
885+50.00	83	83	0	83	31			31	40	43	0	0	0	0	0	0						
886+00.00	79	79	0	79	40			40	52	27	0	0	0	0	0	0						
886+50.00	78	78	0	78	36			36	47	31	0	0	0	0	0	0						
887+00.00	72	72	0	72	34			34	44	28	0	0	0	0	0	0						
887+50.00	64	64	0	64	34			34	44	20	0	0	0	0	0	0						
888+00.00	60	60	0	60	34			34	44	16	0	0	0	0	0	0						
888+50.00	59	59	0	59	33			33	43	16	0	0	0	0	0	0						
889+00.00	59	59	0	59	28			28	36	23	0	0	0	0	0	0						
889+50.00	59	59	0	59	26			26	34	25	0	0	0	0	0	0						
890+00.00	76	76	0	76	15			15	20	57	0	0	0	0	0	0						
890+50.00	80	80	0	80	0			0	0	80	0	0	0	0	0	0						
891+00.00	35	35	0	35	9			9	12	23	0	0	0	0	0	0						
891+50.00	59	59	0	59	46			46	60	-1	0	0	0	0	0	0						
892+00.00	58	58	0	58	51			51	66	-8	0	0	0	0	0	0						
892+50.00	59	59	0	59	40			40	52	7	0	0	0	0	0	0						
893+00.00	60	60	0	60	28			28	36	24	0	0	0	0	0	0						
893+50.00	78	78	0	78	11			11	14	64	0	0	0	0	0	0						
894+00.00	25	25	0	25	0			0	0	25	0	0	0	0	0	0						
894+50.00	82	82	0	82	1			1	1	81	0	0	0	0	0	0						
895+00.00	73	73	0	73	1			1	1	72	0	0	0	0	0	0						
895+50.00	14	14	0	14	0			0	0	14	0	0	0	0	0	0						
896+00.00	75	75	0	75	1			1	1	74	0	0	0	0	0	0						
896+50.00	60	60	0	60	35			35	46	15	0	0	0	0	0	0						
897+00.00	59	59	0	59	43			43	56	3	0	0	0	0	0	0						
897+50.00	61	61	0	61	53			53	69	-8	0	0	0	0	0	0						
898+00.00	61	61	0	61	84			84	109	-48	0	0	0	0	0	0						
898+50.00	62	62	0	62	80			80	104	-42	0	0	0	0	0	0						
899+00.00	64	64	0	64	79			79	103	-39	0	0	0	0	0	0						
899+50.00	66	66	0	66	75			75	98	-32	0	0	0	0	0	0						
900+00.00	69	69	0	69	75			75	98	-29	0	0	0	0	0	0						
900+50.00	72	72	0	72	71			71	92	-20	0	0	0	0	0	0						
901+00.00	77	77	0	77	44			44	57	20	0	0	0	0	0	0						
901+50.00	85	85	0	85	23			23	30	55	0	0	0	0	0	0						
902+00.00	92	92	0	92	58			58	75	17	0	0	0	0	0	0						
902+50.00																						
STAGE1C																						
Totals:	3,918	3,918	0	3,918	2,662	0	0	2,662	3,461	458	0	0	0	0	0	0						

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)-3H-57	SHEET NUMBER T.7

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
STALLMAN																						
4874+50.00																						
4874+79.34	49	44	5	44	0	5	21	26	34	10	0	0	5	4	6	-1						
4875+00.00	27	24	3	24	0	3	15	18	23	1	0	0	3	2	3	0						
4875+07.57	8	7	1	7	0	1	6	7	9	-2	0	0	1	1	1	0						
4875+11.36	4	3	1	3	0	1	3	4	5	-2	0	0	1	0	0	1						
4875+43.95	27	13	14	13	16	14		30	39	-26	0	0	14	6	8	6						
4875+50.00	4	0	4	0	8	4		12	16	-16	0	0	4	1	1	3						
4875+55.65	5	1	4	1	7	4		11	14	-13	0	0	4	0	0	4						
STALLMAN Totals:	124	92	32	92	31	32	45	108	141	-49	0	0	32	14	20	13						

Refer to Standard Road Plans EW-101 and EW-102.

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

Station	Cut				Fill						Checks (EW-102)		Topsoil									
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Existing Pavement Undercut (+Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink						
Summary:																						
CEMETERY	583	509	74	509	69	74	367	510	663	-154	0	0	74	76	107	-33						
CHURCH	547	439	108	439	312	108	208	628	817	-378	0	0	108	81	114	-6						
LOSEY	258	215	43	215	131	43	100	274	357	-142	0	0	43	36	51	-8						
ML151	39,953	32,790	7,163	32,790	40,052	7,163	8,103	55,318	71,914	-39,124	0	0	7,163	8,013	11,219	-4,056						
PRAIRIE	92	72	20	72	81	20	90	191	249	-177	0	0	20	20	28	-8						
STAGE1C	3,918	3,918	0	3,918	2,662	0	0	2,662	3,461	458	0	0	0	0	0	0						
STALLMAN	124	92	32	92	31	32	45	108	141	-49	0	0	32	14	20	13						
MSE WALL 1	15,482	0	0	15,482	0	0	0	0	0	15,482	0	0	0	0	0	0						
MSE WALL 2	2,470	0	0	2,470	0	0	0	0	0	2,470	0	0	0	0	0	0						
MSE WALL 3	6,845	0	0	6,845	0	0	0	0	0	6,845	0	0	0	0	0	0						
STAGE 2B	590	0	0	590	574	0	0	0	746	-156	0	0	0	0	0	0						
UPRR S. ABUT.	3,386	0	0	3,386	1,797	0	0	0	2,336	1,050	0	0	0	0	0	0						
UPRR N. ABUT	3,629	0	0	3,629	257	0	0	0	334	3,295	0	0	0	0	0	0						
P. CREEK S. ABUT.	1,867	0	0	1,867	656	0	0	0	853	1,014	0	0	0	0	0	0						
P. CREEK N. ABUT.	2,526	0	0	2,526	634	0	0	0	824	1,702	0	0	0	0	0	0						
DD1 S. ABUT.	2,654	0	0	2,654	346	0	0	0	450	2,204	0	0	0	0	0	0						
DD1 N. ABUT.	1,787	0	0	1,787	695	0	0	0	904	883	0	0	0	0	0	0						
Project Totals:	86,711	38,035	7,440	79,271	48,297	7,440	8,913	59,691	84,049	-4,777	0	0	7,440	8,240	11,539	-4,098						

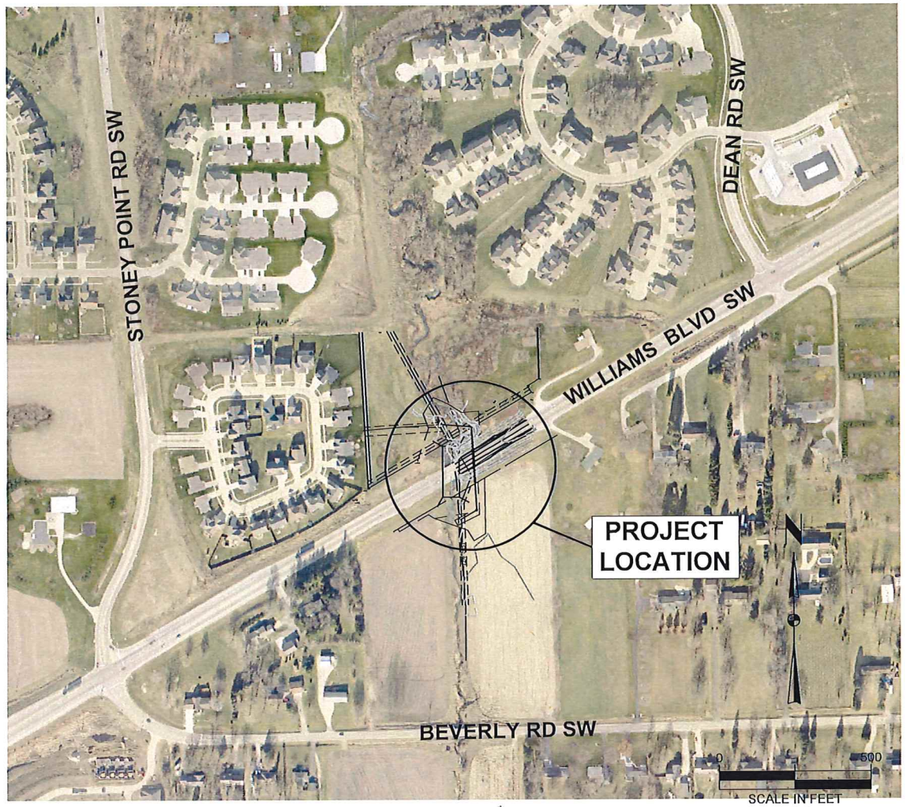
FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)-3H-57	SHEET NUMBER T.9

11/30/2018 6:24:04 AM ncarhoff PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\Geopak\Earthwork\57151158T01.xlsm

LEGEND

EXISTING		PROPOSED (AS-BUILT)
(SS)	SANITARY SEWER	SS
(ST)	STORM SEWER	ST
	SUBDRAIN	
(FM)	FORCE MAIN	FM
(W)	WATER	W
(G)	GAS	G
(S)	STEAM	S
OHE	ELECTRICAL - OVERHEAD	OHE
(E)	ELECTRICAL - UNDERGROUND	E
OHT	TELEPHONE - OVERHEAD	OHT
(T)	TELEPHONE - UNDERGROUND	T
OHC	CATV - OVERHEAD	OHC
(C)	CATV - UNDERGROUND	C
OHF	FIBER OPTIC - OVERHEAD	OHF
(FO)	FIBER OPTIC - UNDERGROUND	FO
	FENCE LINE	
	REMOVALS	
	LIGHT POLE W/O MAST	
	LIGHT POLE W/MAST	
	FIRE HYDRANT	
	UTILITY POLE	
	GUY ANCHOR	
	TELEPHONE PEDESTAL	
	HANDHOLE	
	MANHOLE	
	VALVE, WATER OR GAS	
	CLEANOUT, STORM OR SANITARY	
	CURB AND APRON INTAKE	
OR	GRATE INTAKE	OR
	METRO RA-3 OR RA-5 INTAKE	
	METRO RA-8 INTAKE	
	FLARED END SECTION	
	UTILITY/CONTROL CABINET	
	TRAFFIC SIGNAL	
BM #	BENCHMARK	BM #
B #	SOIL BORING	B #
	VALVE MANHOLE	
	WATER BLOWOFF	

TABLE OF QUALITY LEVEL OF UTILITY INVESTIGATION IN ACCORDANCE WITH CI/ASCE 38-02		
UTILITY	OWNER	QUALITY LEVEL
EXISTING SANITARY SEWER	CITY OF CEDAR RAPIDS	C



Design drawings U.1-U.5 incorporate underground utility information based upon subsurface utility engineering practices and standard guidelines for the collection and depiction of existing subsurface utility data (CI/ASCE 38-02).

Utility quality level A: Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner.

Utility quality level B: Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents.

Utility quality level C: Information obtained by surveying and plotting visible above-ground utility features and by using professional judgement in correlating this information to quality level D information.

Utility quality level D: Information derived from existing records or oral recollections.

GENERAL NOTES:

1. PROTECT ALL EXISTING UTILITIES AND PAVED AREAS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES, SOD, LANDSCAPE AND/OR PAVED AREAS CAUSED BY TRENCHING, GRADING, AND PAVING OPERATIONS NOT IDENTIFIED FOR REPLACEMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE.
2. ALL DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE.
3. ALL WORK TO BE COMPLETED WITHIN EASEMENTS AND PUBLIC R.O.W.
4. WORK ITEMS NOT SPECIFICALLY CALLED OUT FOR PAYMENT SHALL BE INCIDENTAL TO CONTRACT ITEMS.
5. REFER TO G-SHEETS FOR CONTROL POINT INFORMATION.
6. INSPECTION FOR SANITARY SEWER CONSTRUCTION WILL BE PROVIDED BY THE CEDAR RAPIDS PUBLIC WORKS DEPARTMENT CONSTRUCTION ENGINEERING DIVISION. PROVIDE A MINIMUM OF 72 HOURS NOTICE PRIOR TO STARTING CONSTRUCTION.
7. THE CONTRACTOR SHALL ASSIST THE CITY'S INSPECTOR WITH DAILY RECORD KEEPING INCLUDING DOCUMENTING ALL NECESSARY FIELD LOCATIONS AND MEASUREMENTS. THE CONTRACTOR IS REQUIRED TO ATTEND FINAL AND INTERMEDIATE INSPECTIONS OF THE PROJECT AND IS RESPONSIBLE FOR OPENING ALL MANHOLES FOR INSPECTION.
8. TRAFFIC CONTROL SHALL CONFORM TO OTHER PROJECT STAGING PLANS AND SHALL NOT CONFLICT WITH SAID PLAN.
9. ANY TEMPORARY GRADING AND SUBSEQUENT RESTORATION REQUIRED FOR SITE ACCESS SHALL BE INCIDENTAL TO SANITARY SEWER CONSTRUCTION.

NOTE:
THE PROPOSED SANITARY SEWER IMPROVEMENTS INCLUDED IN THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) (LATEST EDITION) WITH NO DESIGN EXCEPTIONS.

LICENSED PROFESSIONAL ENGINEER
MATTHEW J. FEUERHELM
21301
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Matthew Feuerhelm 9/4/18

MATTHEW J. FEUERHELM, P.E. DATE
LICENSE NUMBER: 21301
MY LICENSE RENEWAL DATE IS: DECEMBER 31, 2019

PAGES OR SHEETS COVERED BY THIS SEAL: U.1-U.5

FILE NO.	ENGLISH	DESIGN TEAM CITY OF CEDAR RAPIDS	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER U.1

8/29/2018 1:38 PM w:\projects\cip\611 (655)\6550045 williams blvd san sewer relocation\design\6550045 design.dwg

SANITARY SEWER

UTILITY ACCESSES

* Bid Item

No.	Location Station and Offset	Type or Standard Road Plan*	Rim Elev.	Bottom Well Elev.	Notes
SMH-01	979+67.8, 152.7' Rt.	SW-301 (60")	772.03	758.34	Bolt-down lid, connected manhole joints, A-Lok Flexible Pipe Connections
SMH-02	980+26.8, 152.7' Rt.	SW-301 (60")	770.33	758.52	Bolt-down lid, connected manhole joints, A-Lok Flexible Pipe Connections
SMH-03	981+51.2, 93.4' Lt.	SW-301 (60")	769.45	759.47	Bolt-down lid, connected manhole joints, A-Lok Flexible Pipe Connections
SMH-04	980+71.2, 148.9' Lt.	SW-301 (60")	769.77	759.86	Replace Ex. Structure, bolt-down lid, connected manhole joints, A-Lok Flexible Pipe Connections

PIPES

1 LENGTH COMPUTED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

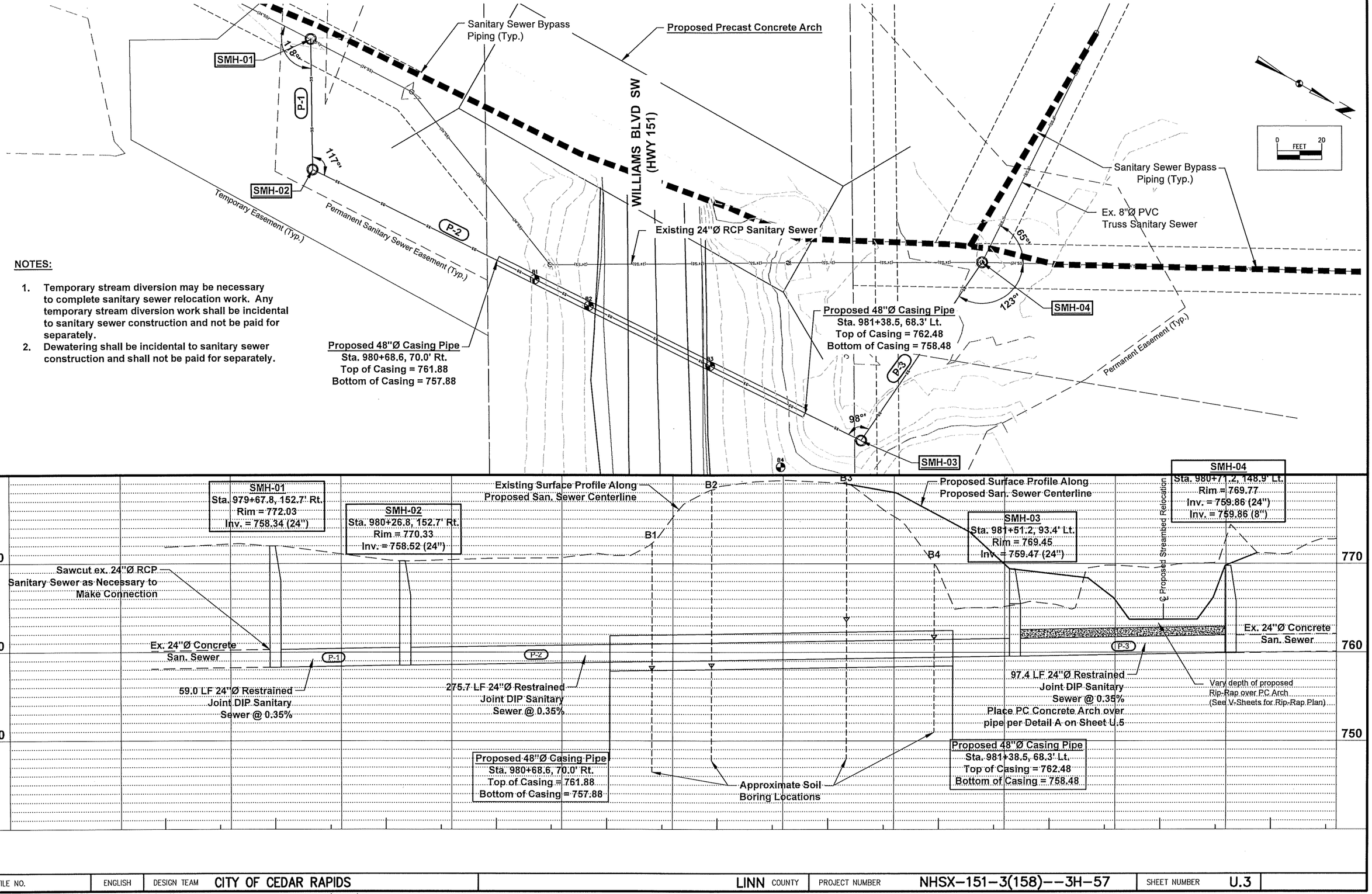
No.	UTILITY ACCESS NO. FROM	UTILITY ACCESS NO. TO	TYPE	PIPE SIZE IN.	LENGTH[1] FT	SLOPE %	FLOW LINES INLET ELEVATION	FLOW LINES OUTLET ELEVATION	Pipe Profile Sheet No.	Notes
P-1	SMH-01	SMH-02	DIP	24"	59.0	0.35	758.52	758.34	U.3	Restrained Joint DIP w/ Ceramic Epoxy interior lining
P-2	SMH-02	SMH-03	DIP	24"	275.7	0.35	759.47	758.52	U.3	Restrained Joint DIP w/ Ceramic Epoxy interior lining, 48" Dia. Casing Pipe
P-3	SMH-03	SMH-04	DIP	24"	97.3	0.35	759.86	759.47	U.3	Restrained Joint DIP w/ Ceramic Epoxy interior lining, PC Concrete Arch

SANITARY SEWER ABANDONMENT, FILL AND PLUG, LESS THAN OR EQUAL TO 36 IN. DIA.

Location	Length (LF)	Remarks
Sta. 979+91.9, 107.5' Rt. to Sta. 980+70.6, 98.9' Lt.	246	Plug upstream and downsteam ends, remove and dispose of existing cone sections. Fill pipe with flowable mortar.

REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN.

Location	Length (LF)	Remarks
Sta. 979+67.8, 152.7' Rt. to Sta. 979+91.9, 107.5' Rt	50	Remove ex. 24" RCP from SMH-01 upstream to Ex. MH
Sta. 980+70.6, 98.9' Lt. to Sta. 980+71.2, 148.9' Lt.	50	Remove ex. 24" RCP to 50' downstream of SMH-04.



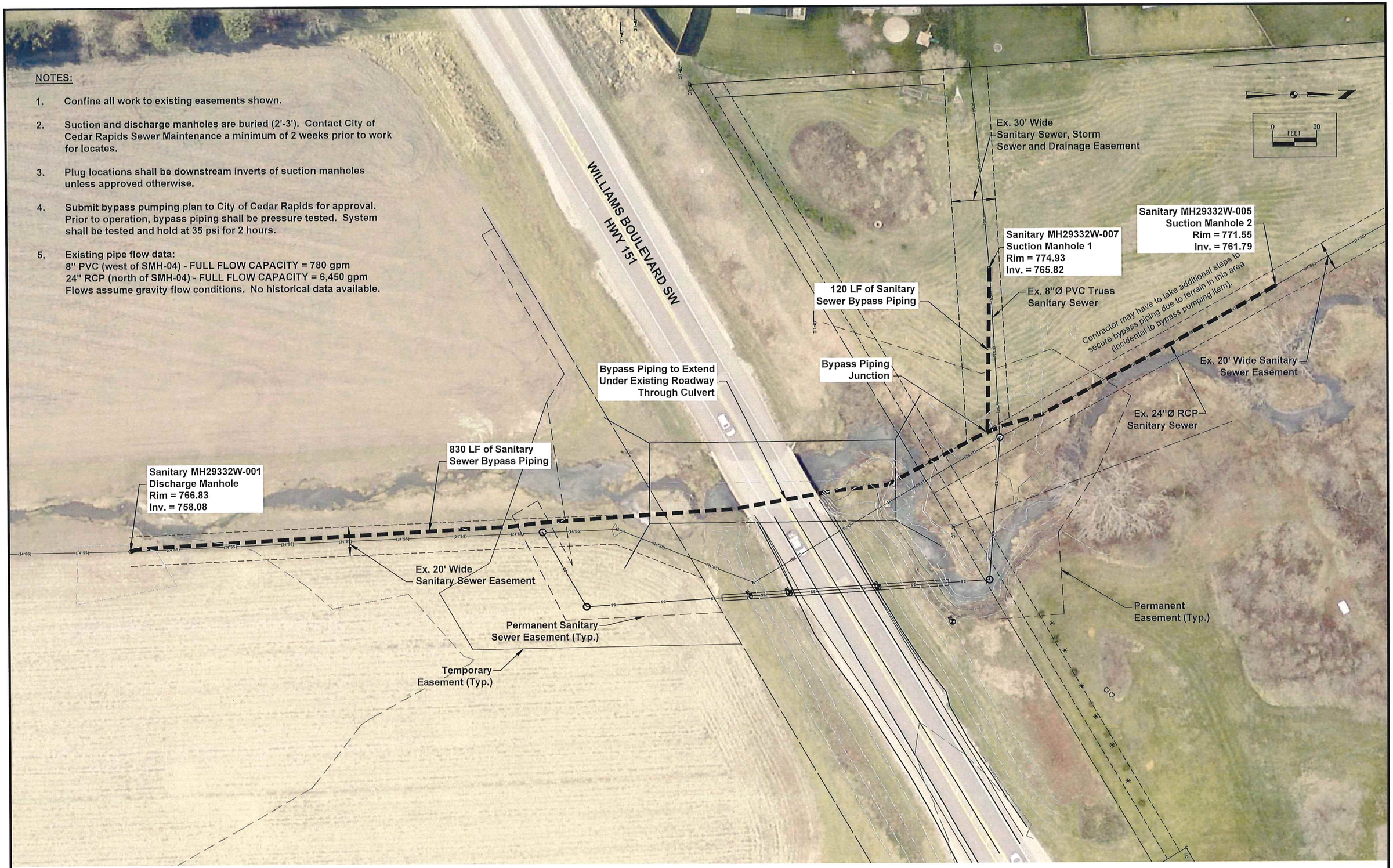
NOTES:

1. Temporary stream diversion may be necessary to complete sanitary sewer relocation work. Any temporary stream diversion work shall be incidental to sanitary sewer construction and not be paid for separately.
2. Dewatering shall be incidental to sanitary sewer construction and shall not be paid for separately.

FILE NO.	ENGLISH	DESIGN TEAM	CITY OF CEDAR RAPIDS	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	U.3

NOTES:

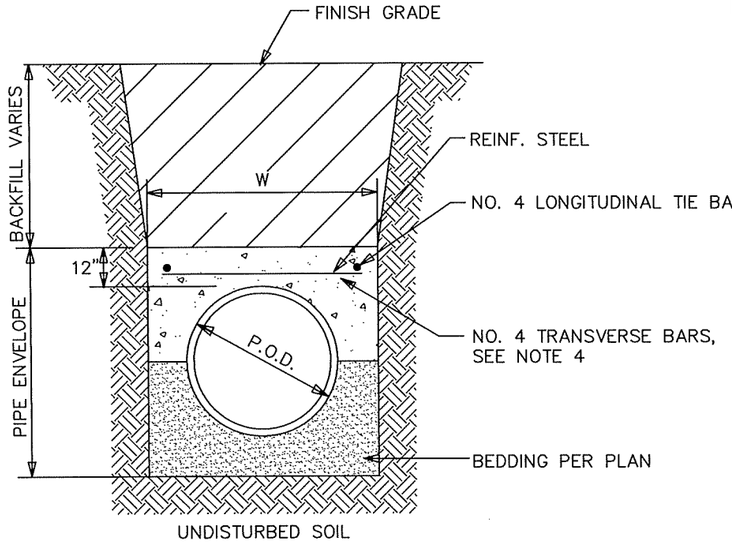
1. Confine all work to existing easements shown.
2. Suction and discharge manholes are buried (2'-3'). Contact City of Cedar Rapids Sewer Maintenance a minimum of 2 weeks prior to work for locates.
3. Plug locations shall be downstream inverts of suction manholes unless approved otherwise.
4. Submit bypass pumping plan to City of Cedar Rapids for approval. Prior to operation, bypass piping shall be pressure tested. System shall be tested and hold at 35 psi for 2 hours.
5. Existing pipe flow data:
   8" PVC (west of SMH-04) - FULL FLOW CAPACITY = 780 gpm
   24" RCP (north of SMH-04) - FULL FLOW CAPACITY = 6,450 gpm
   Flows assume gravity flow conditions. No historical data available.



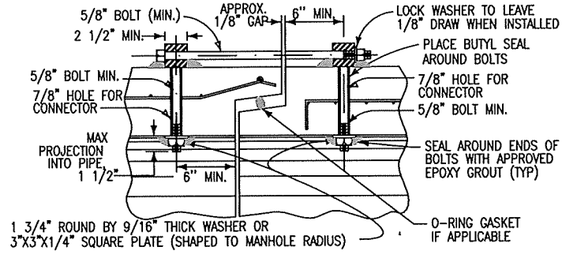
FILE NO.	ENGLISH	DESIGN TEAM CITY OF CEDAR RAPIDS	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER U.4

8/29/2018 1:39 PM w:\projects\cip\611 (655)\6550045 williams blvd san sewer relocation\design\6550045 design.dwg

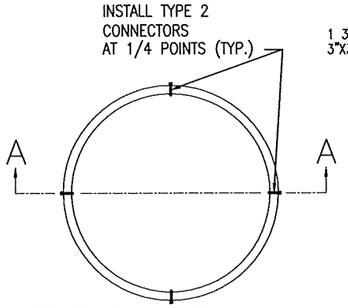
DETAIL A



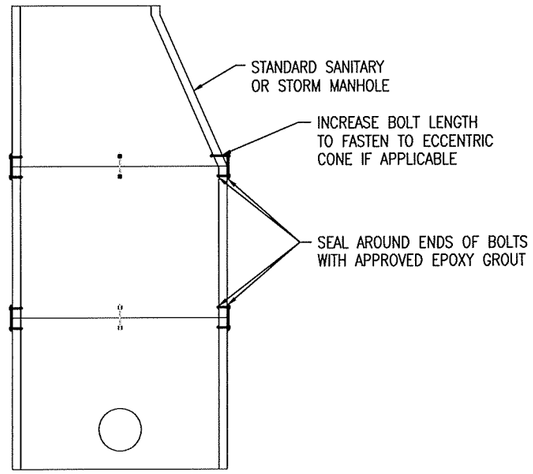
NOTES:
1. CONCRETE SHALL BE CLASS "C" UNLESS OTHERWISE NOTED.
2. BACKFILL ABOVE PIPE ENVELOPE SHALL BE ACCORDING TO SW-101 AND SW-103.
3. PIPE ENVELOPE (W) SHALL BE ACCORDING TO SW-103.
4. SPACING OF TRANSVERSE BARS SHALL BE 12-INCHES.



SECTION OF TYPICAL MANHOLE CONNECTOR



TYPICAL PLAN

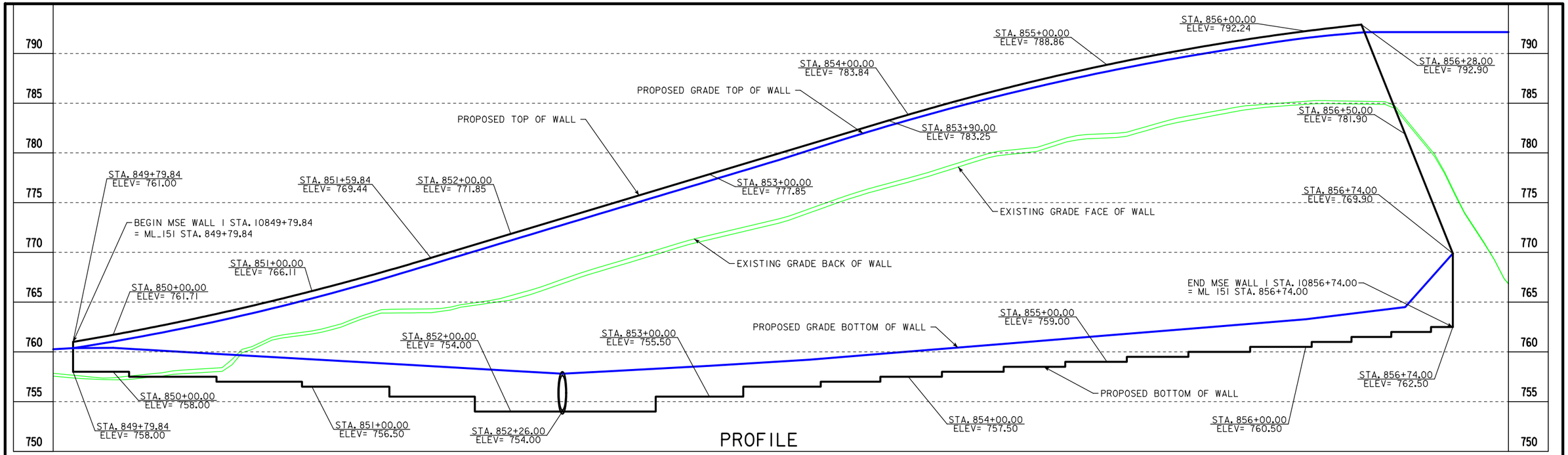


SECTION A-A

CEDAR RAPIDS METROPOLITAN AREA
STANDARD DETAILS FOR PUBLIC IMPROVEMENTS

INSTALLATION OF CONNECTED MANHOLE JOINTS

DETAIL B



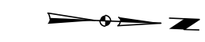
PROFILE

BENCH MARK: BM1
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60

UTILITIES LEGEND:

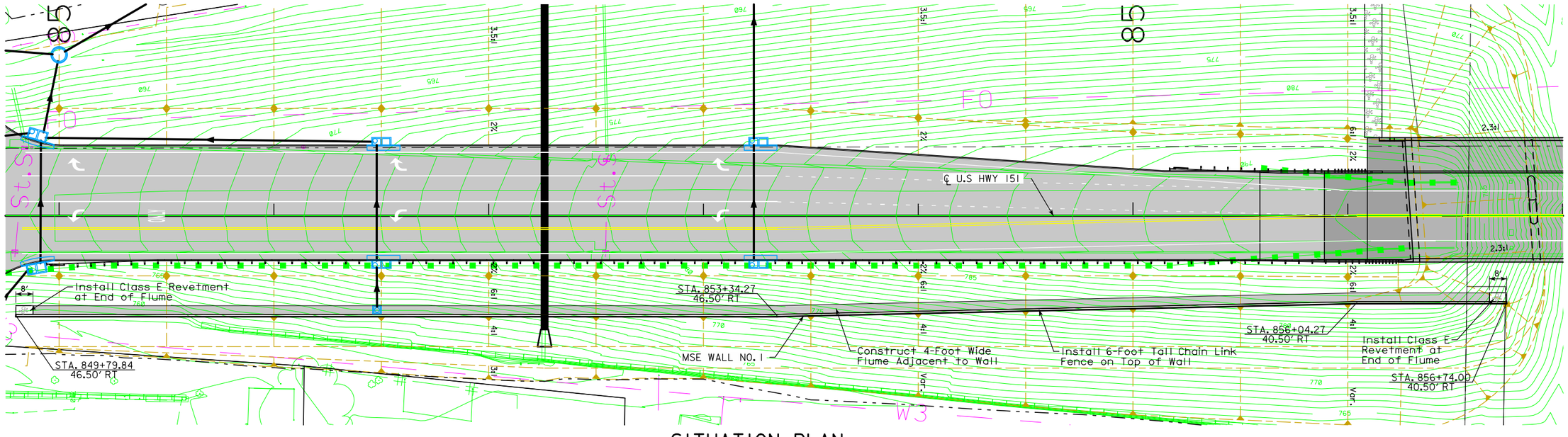
REFER TO SHEET D.1

LOCATION



U.S. 151
T-82N R-8W
SECTION 16
FAIRFAX TOWNSHIP
LINN COUNTY

0 ENGLISH 50
SCALE IN FEET

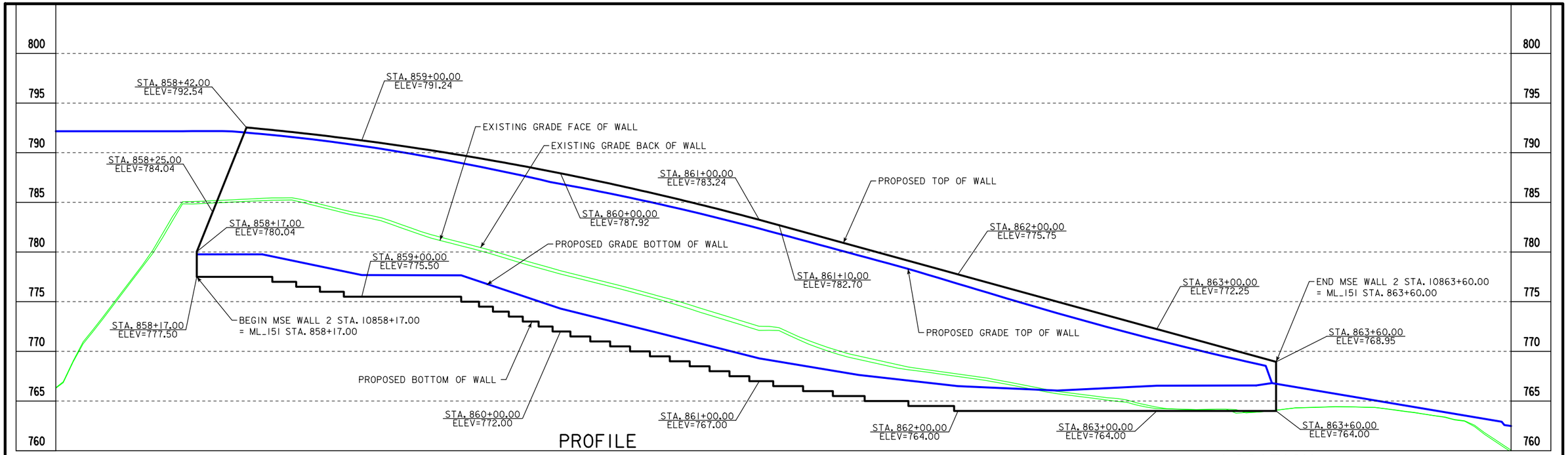


SITUATION PLAN

MSE WALL NO. 1
SITUATION PLAN

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	U.6

1:15:49 PM 3/13/2019 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158U06.sht



PROFILE

BENCH MARK: BM1
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60

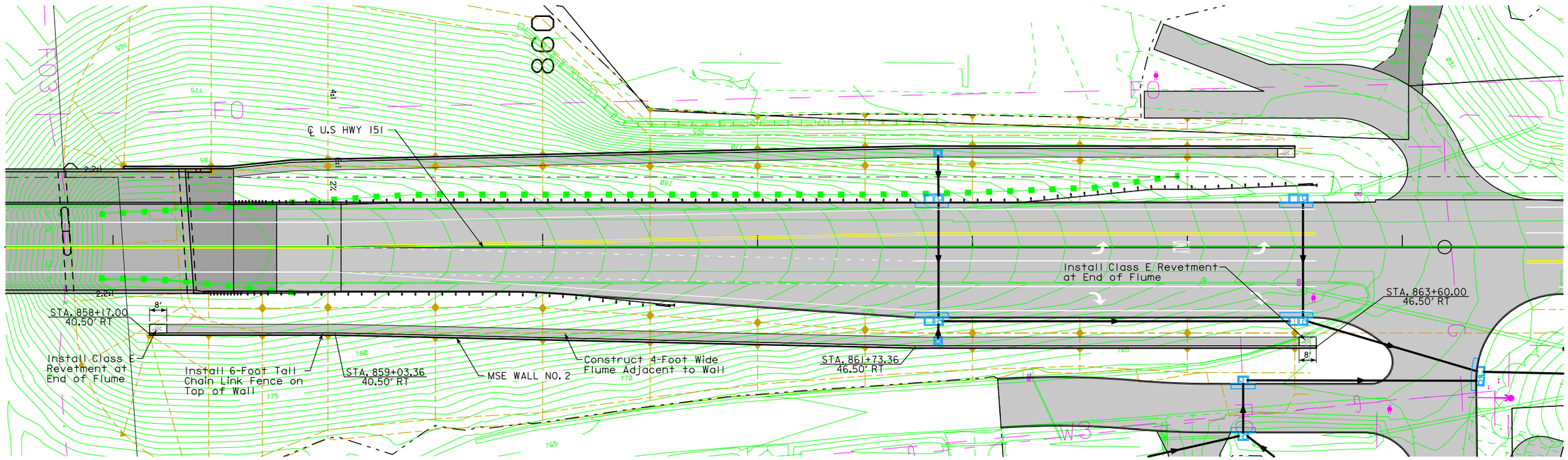
UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 16
FAIRFAX TOWNSHIP
LINN COUNTY

0 ENGLISH 50
SCALE IN FEET

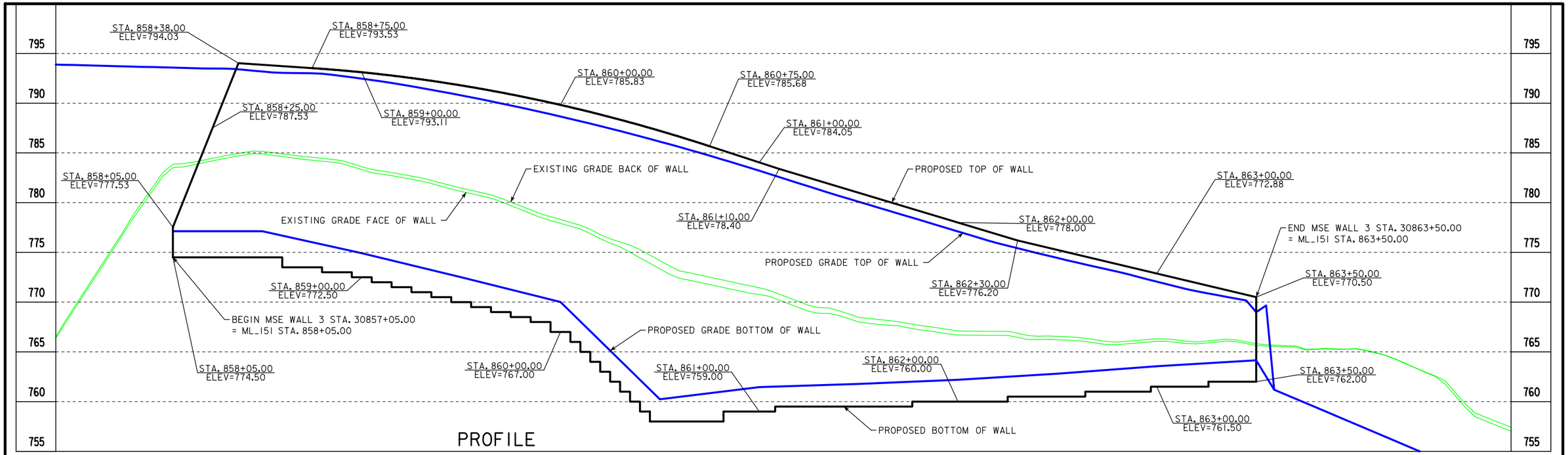


SITUATION PLAN

MSE WALL NO. 2 SITUATION PLAN

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	U.7

1:15:50 PM 3/13/2019 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158U06.sht



PROFILE

BENCH MARK: BM1
DESCRIPTION: GIN SPIKE IN POWER POLE, EAST SIDE HWY 151, ACROSS FROM "PIT STOP"
STA. 846+60.91, 23.069' RT.
ELEV. = 763.60

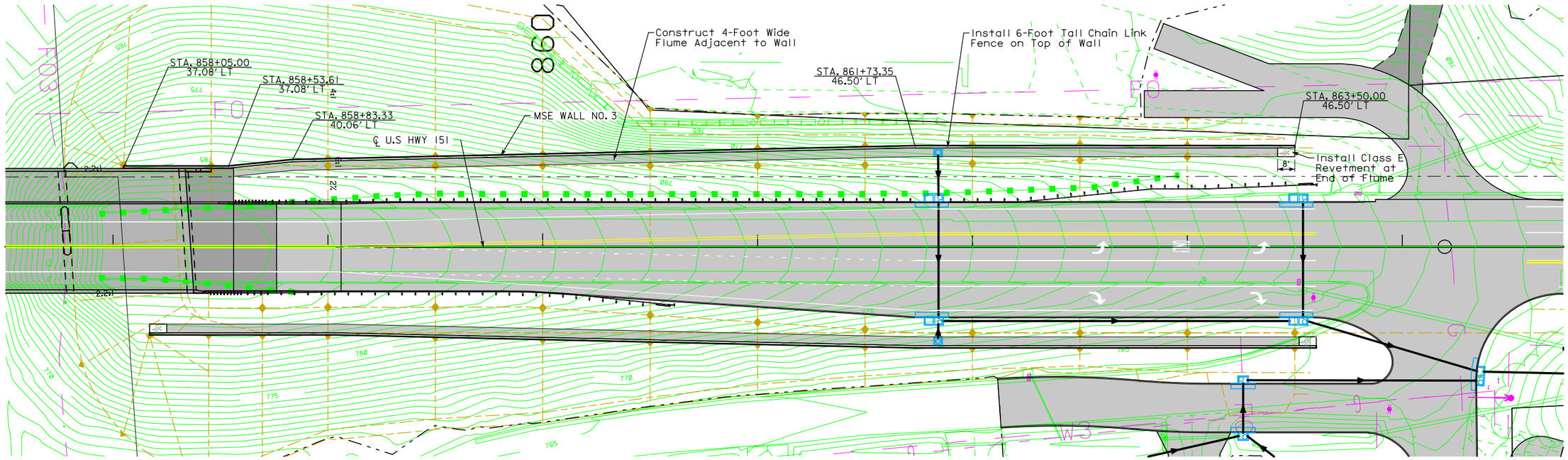
UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 151
T-82N R-8W
SECTION 16
FAIRFAX TOWNSHIP
LINN COUNTY

0 ENGLISH 50
SCALE IN FEET



SITUATION PLAN

MSE WALL NO. 3
SITUATION PLAN

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	U.8

1:15:51 PM 3/13/2019 hfitz pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158U06.sht

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subrade Treatment
- Granular Shoulder
- Pavement
- Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

- Topsoil (Class 10)
- SLOPE DRESSING — Slope Dressing Only
- Class 10 Materials
- Select Loams And Clay-Loams
- Select Sand
- Unsuitable Type A Disposal
- Unsuitable Type B Disposal
- Unsuitable Type C Disposal
- Shale
- Waste
- Broken and Weathered Rock
- Solid Rock
- Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing ROW — Existing Right-of-Way Limit

Proposed ROW — Proposed Right-of-Way Limit

Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
766.34
13.00
766.73
18.44
Ex Water
Ex ROW
844+91.50
Prop. Type "C"
Ent. Rt.
Ex Gas
845+00.00

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
766.56
13.00
766.96
18.25
4.516%
Ex Water
Ex ROW
Prop. Type "C"
Ent. Rt.
Ex Gas
844+91.50

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
767.66
13.00
768.07
17.34
Ex Water
768.89
25.02
Ex ROW
Ex Gas
844+50.00

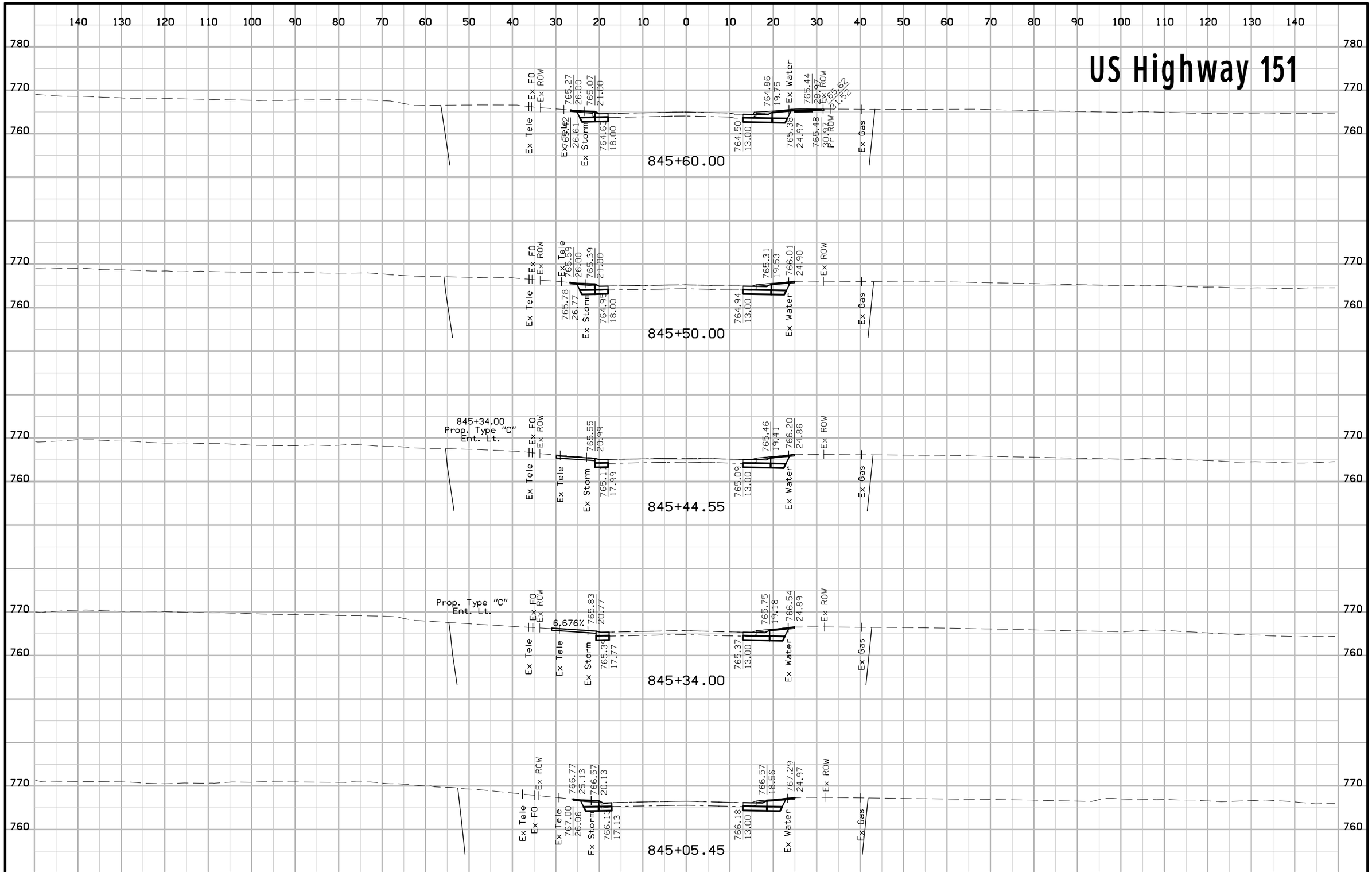
Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
769.05
13.00
769.49
16.25
Ex Water
770.05
25.15
Ex ROW
Ex Gas
844+00.00

Ex Tele
Ex FO
Ex ROW
Ex Tele
Ex Storm
769.37
13.00
769.81
16.00
Ex Water
770.34
25.19
Ex ROW
Ex Gas
843+88.58

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.2

9:40:45 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

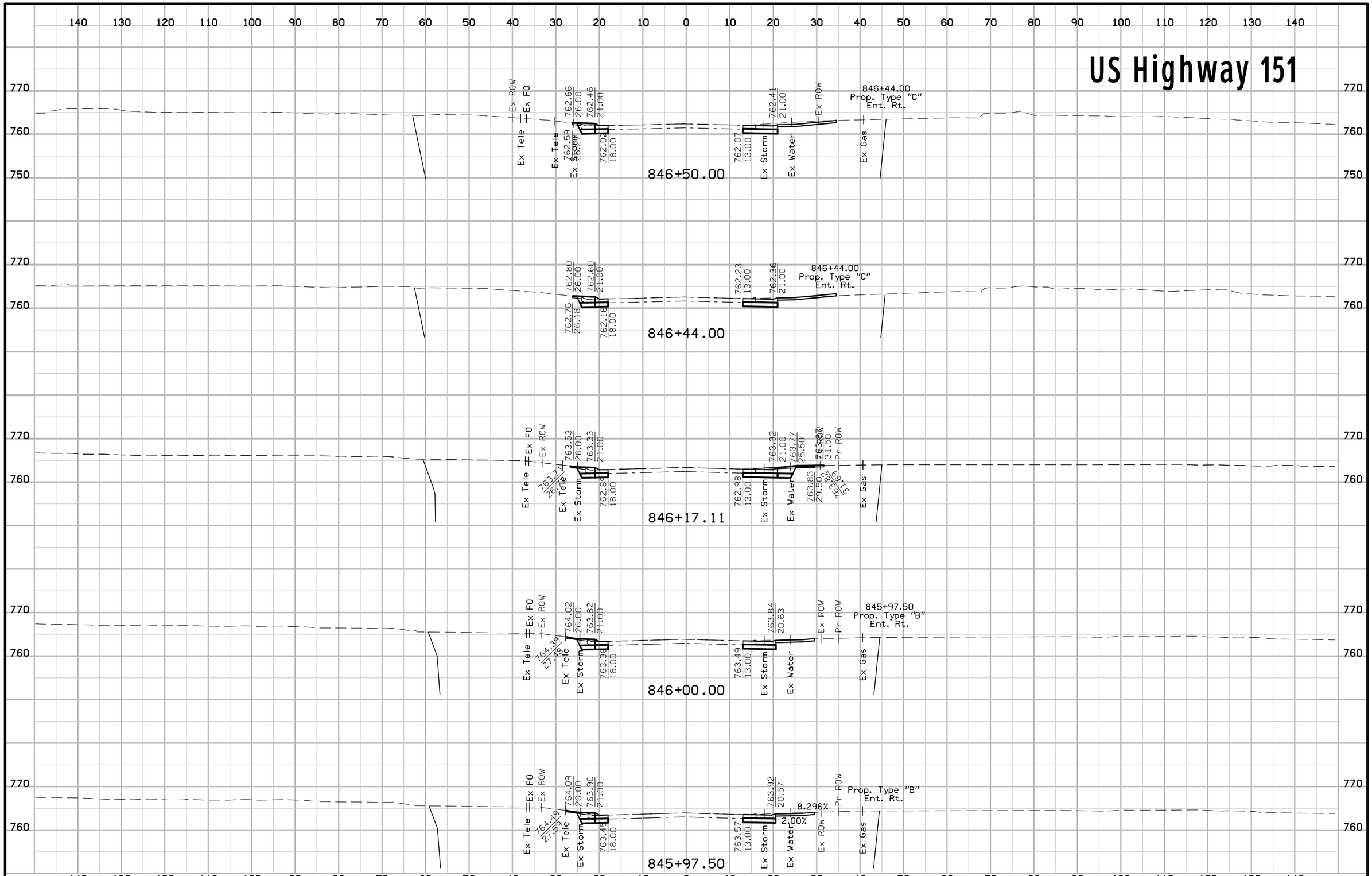
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.3

9:40:50 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

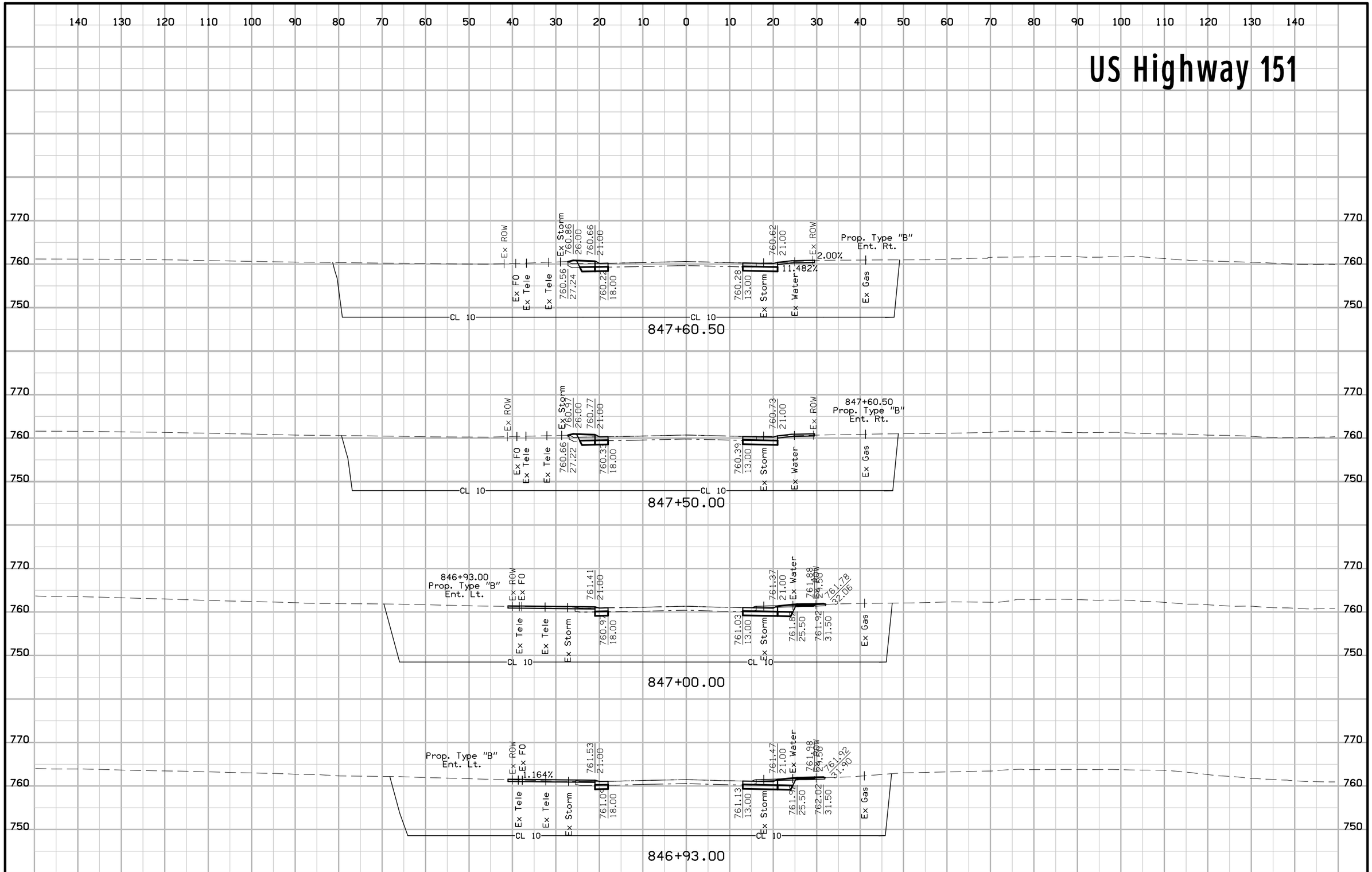
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.4

9:40:55 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

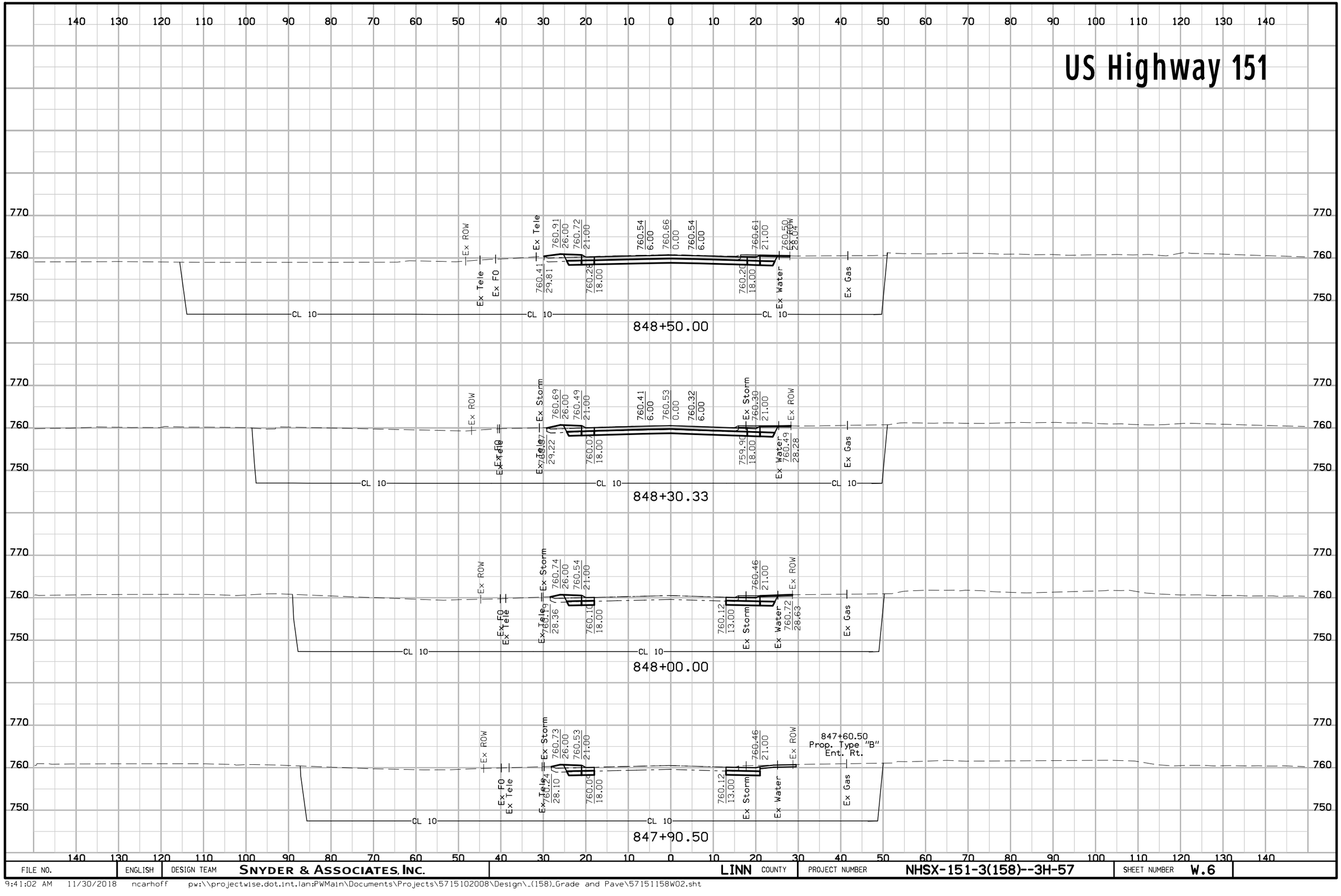
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.5

9:40:59 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.6

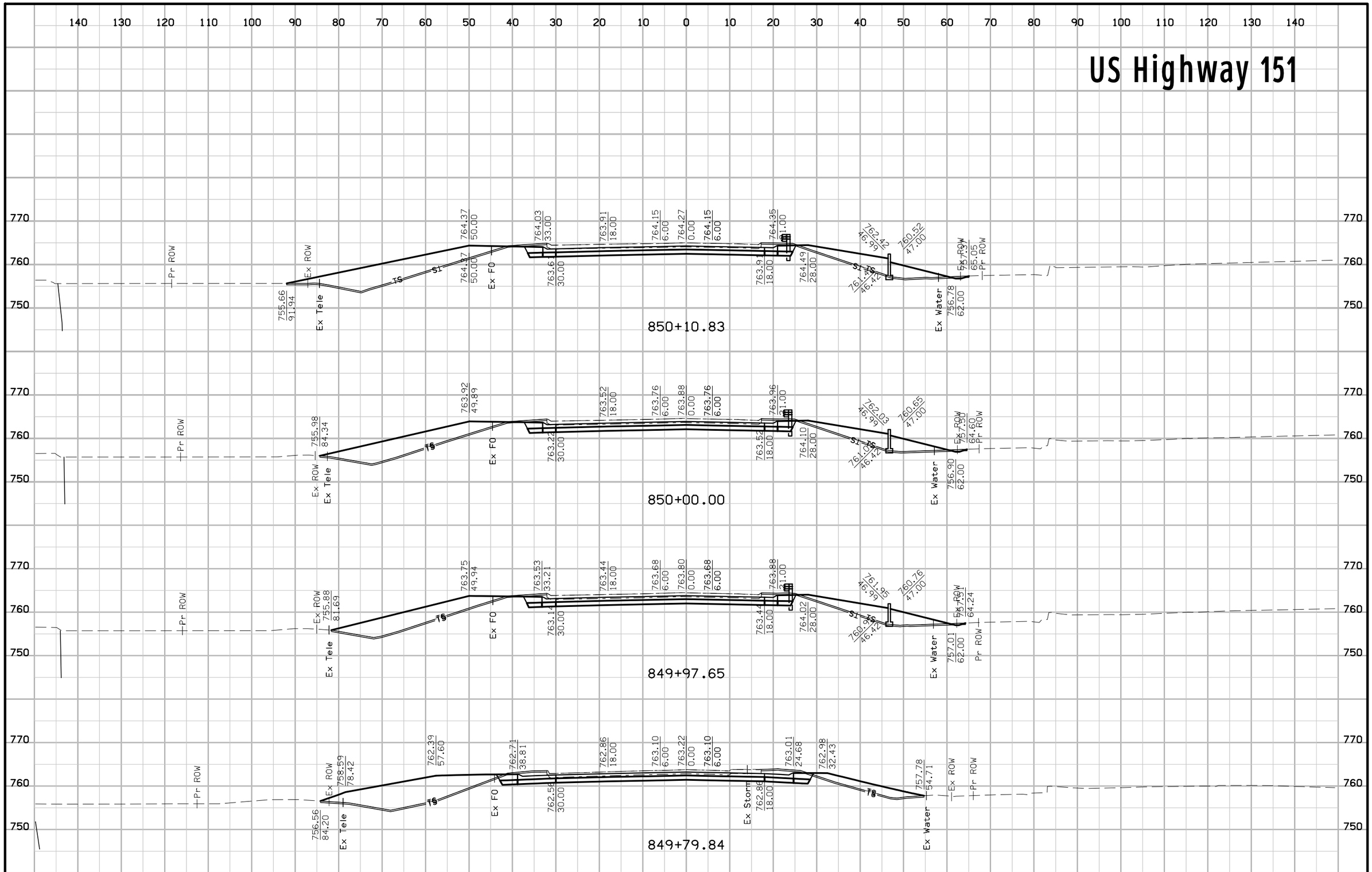
9:41:02 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.7

9:41:05 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

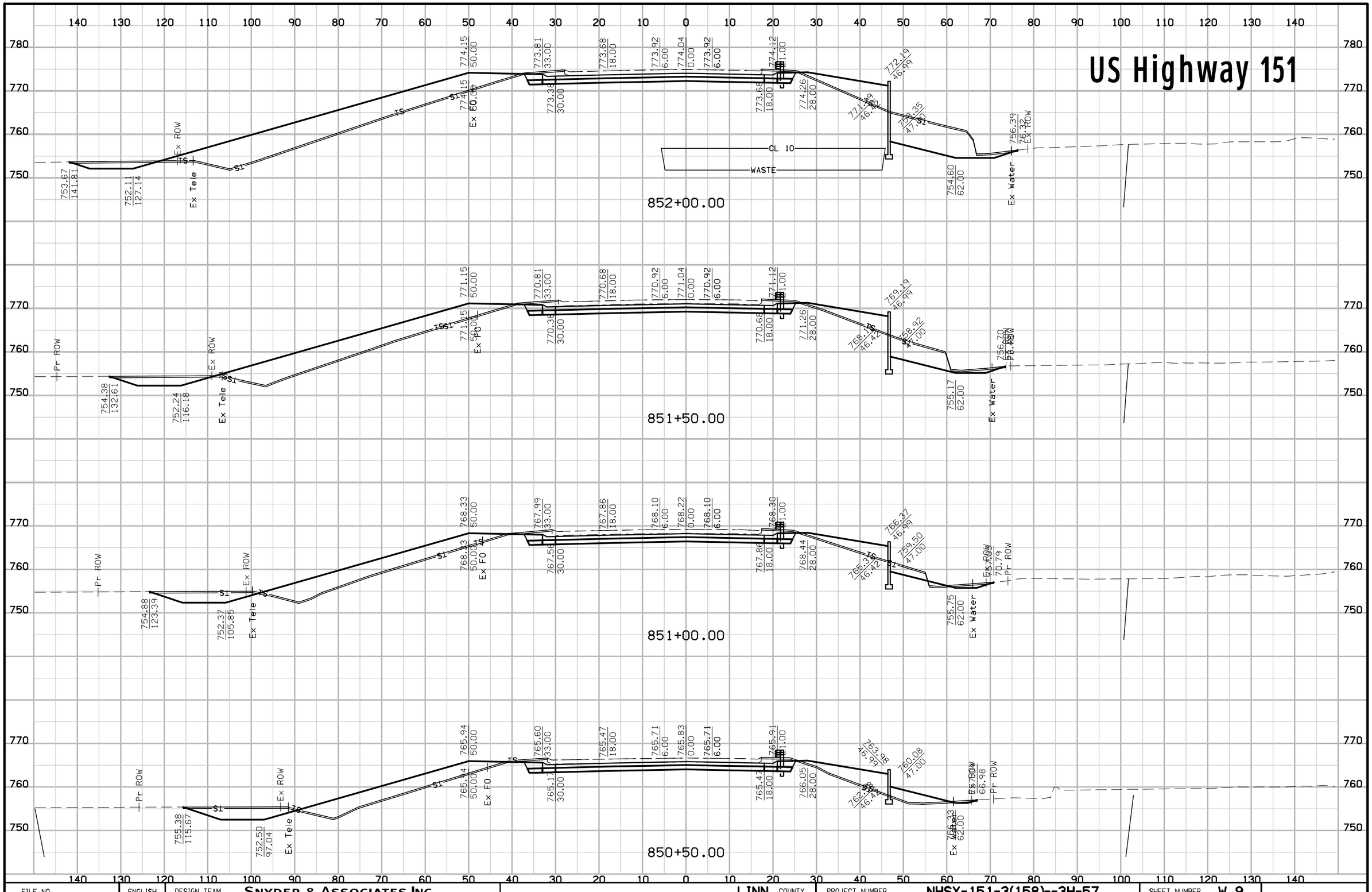
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.8

9:41:09 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

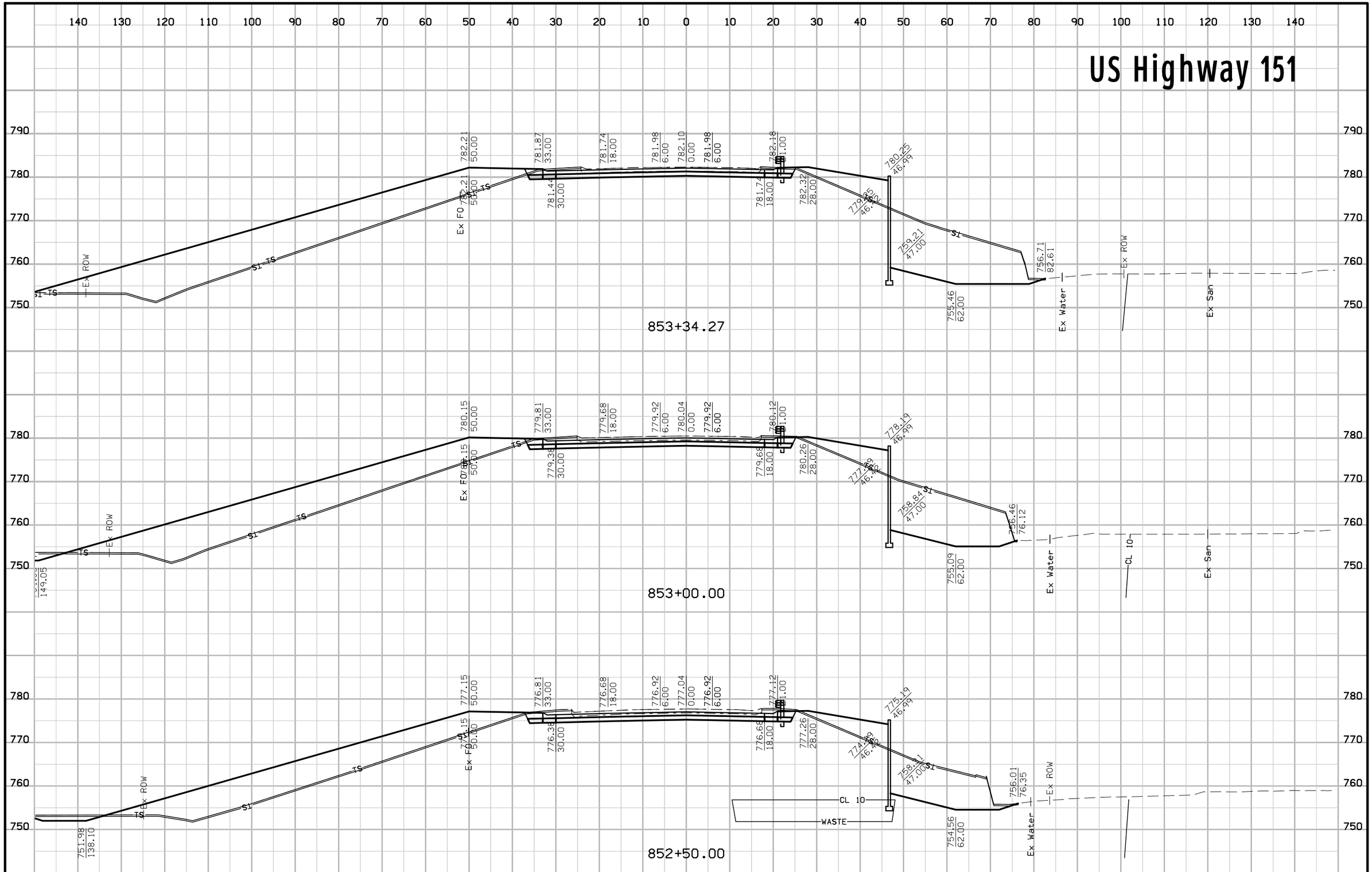
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.9

9:41:12 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.10

9:41:15 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\57151102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

790 780 770 760 750

788.66 42.28 | 788.32 25.28 | 788.00 18.00 | 788.24 6.00 | 788.36 0.00 | 788.24 6.00 | 788.44 1.00 | 786.94 44.42

788.45 43.64 | 787.89 22.28 | 788.00 18.00 | 788.58 28.00 | 785.94 43.46

761.09 44.43 | 757.27 91.40 | 756.70 62.00

TS | S1 | Ex FO | Ex ROW | Ex Water | Ex San

CL 10 CL 10 CL 10 CL 10

854+50.00

786.11 45.62 | 785.77 28.62 | 785.54 18.00 | 785.78 6.00 | 785.90 0.00 | 785.78 6.00 | 785.98 1.00 | 784.29 45.53

786.11 45.62 | 785.38 25.62 | 785.54 18.00 | 786.12 28.00 | 783.79 44.46

760.28 45.54 | 757.00 88.36 | 756.16 62.00

TS | S1 | Ex FO | Ex ROW | Ex Water | Ex San

CL 10 CL 10 CL 10 CL 10

854+00.00

783.18 48.95 | 782.84 31.95 | 782.68 18.00 | 782.92 6.00 | 783.04 0.00 | 782.92 6.00 | 783.12 1.00 | 781.25 46.64

783.18 48.95 | 782.47 28.95 | 782.68 18.00 | 783.26 28.00 | 780.25 46.47

759.46 46.65 | 756.88 85.76 | 755.63 62.00

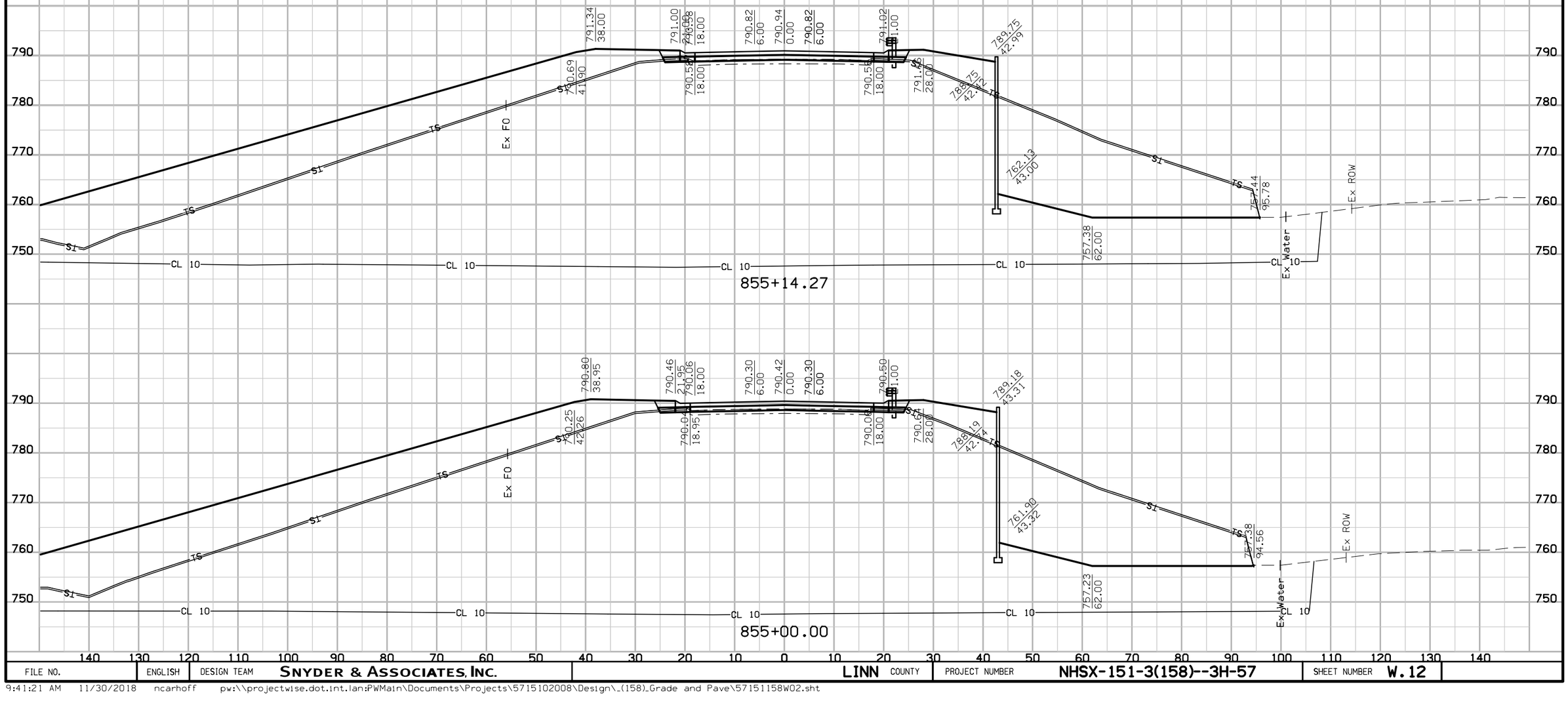
SS | S1 | Ex FO | Ex ROW | Ex Water | Ex San

853+50.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.11

9:41:18 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

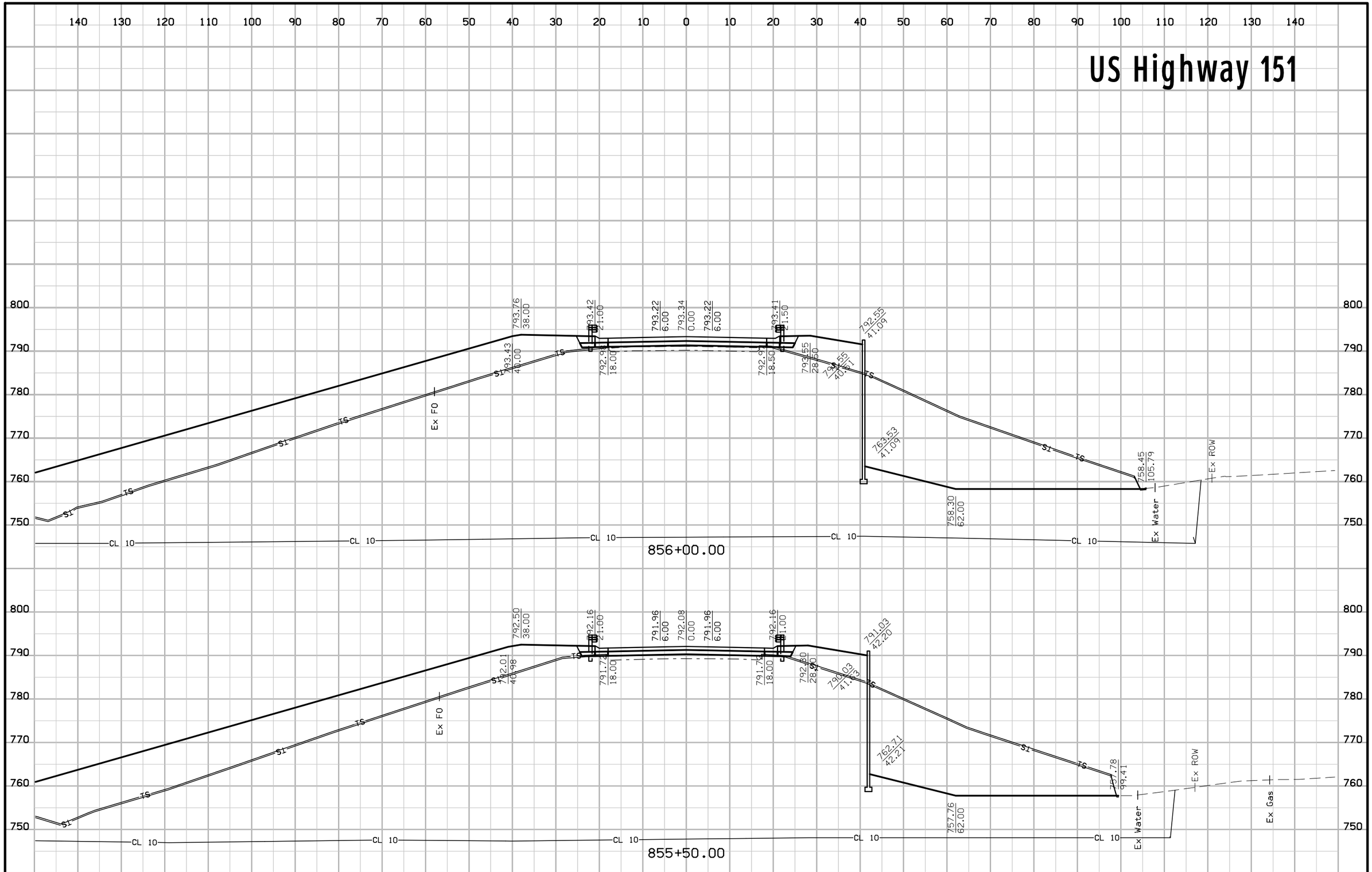
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.12

9:41:21 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

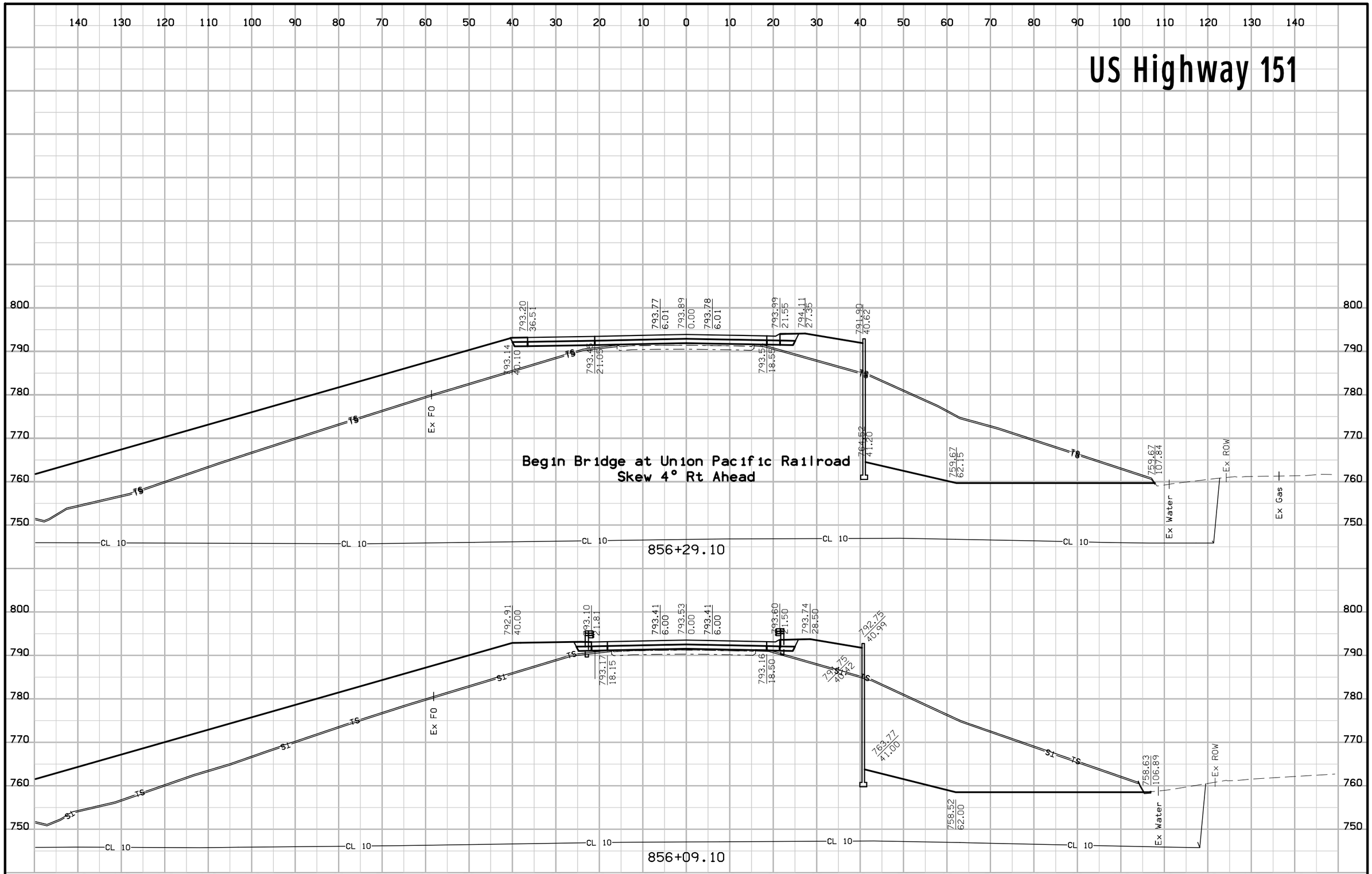
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.13

9:41:24 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

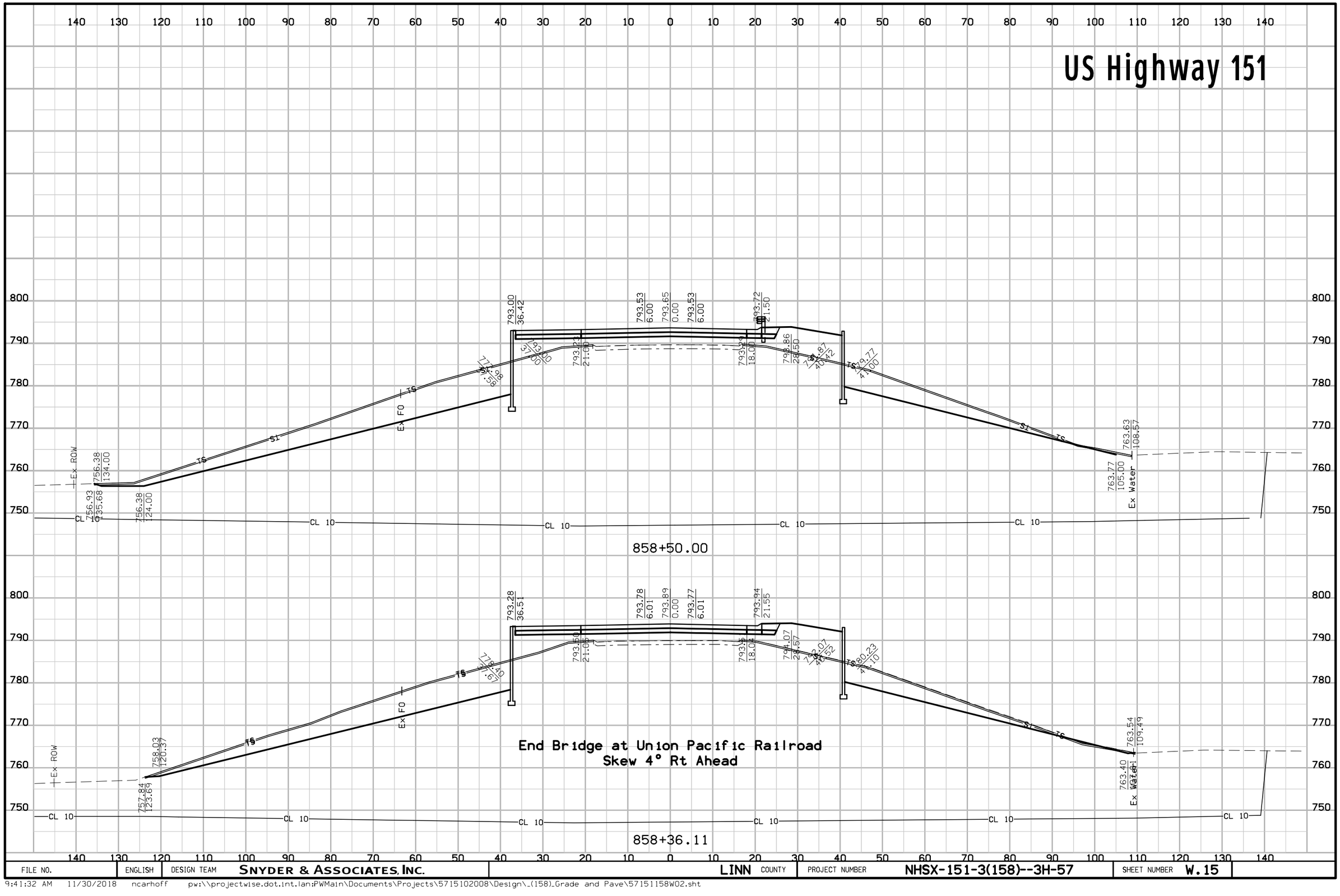
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.14

9:41:28 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

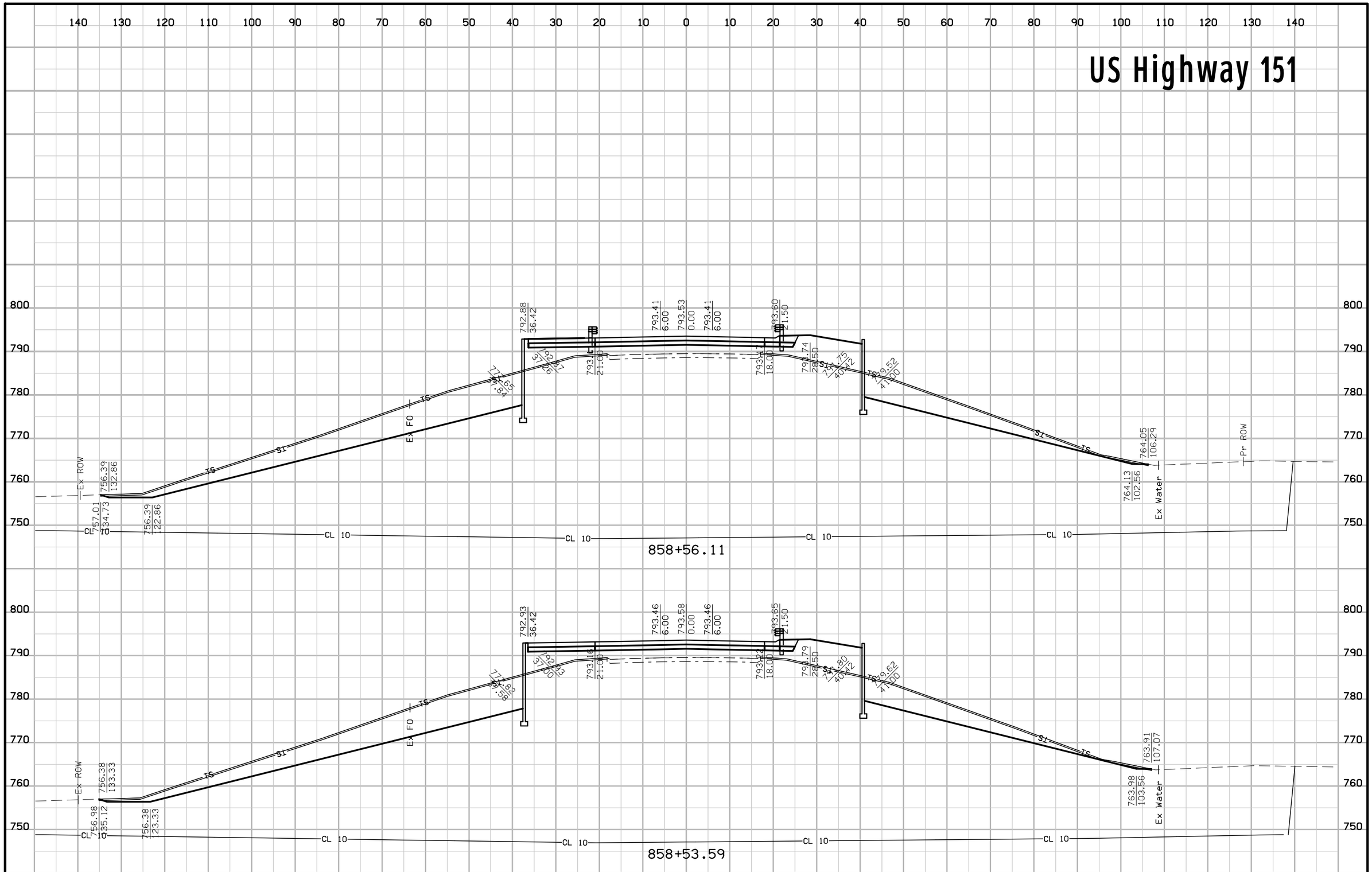
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.15

9:41:32 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

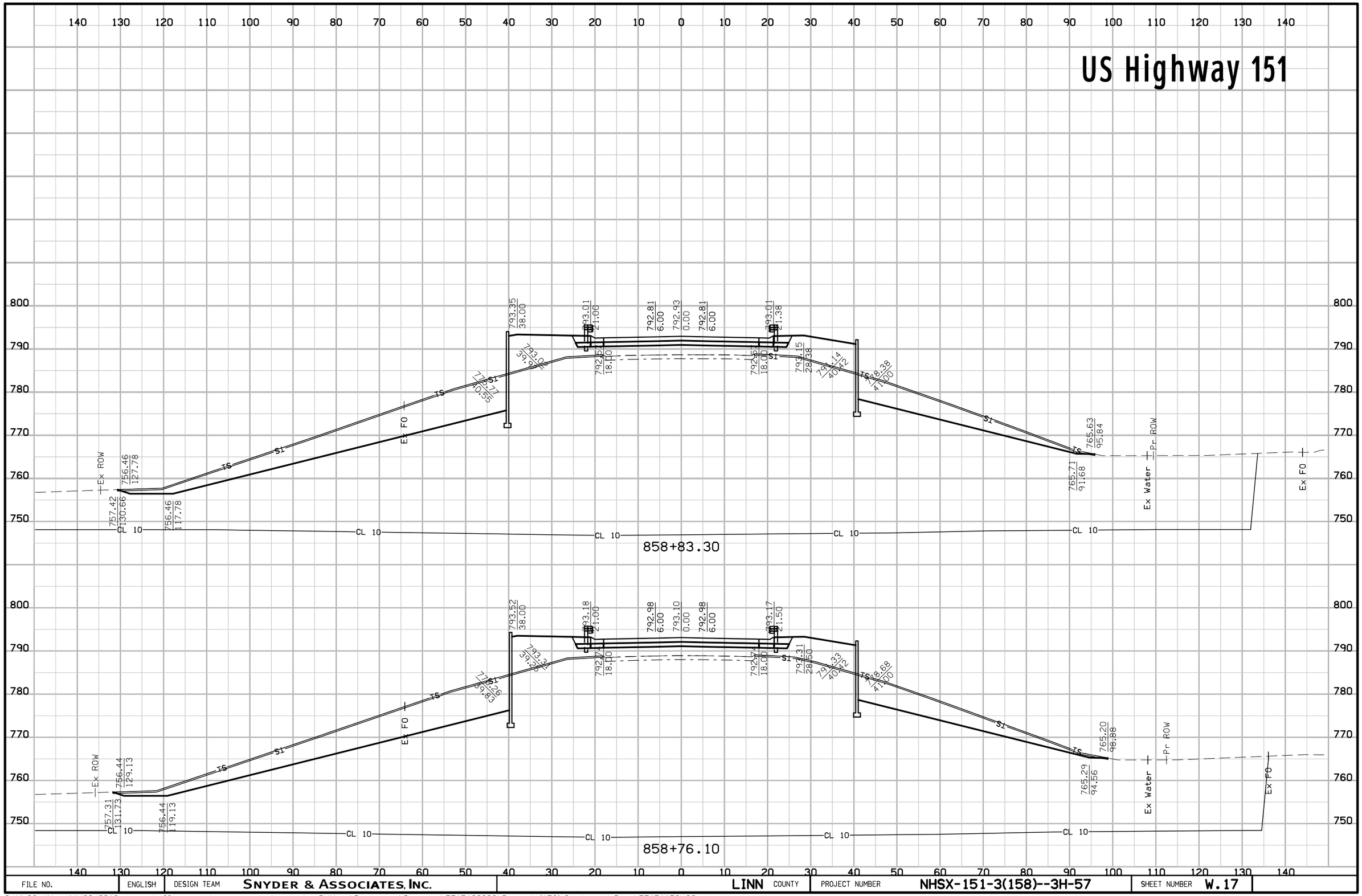
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.16

9:41:35 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

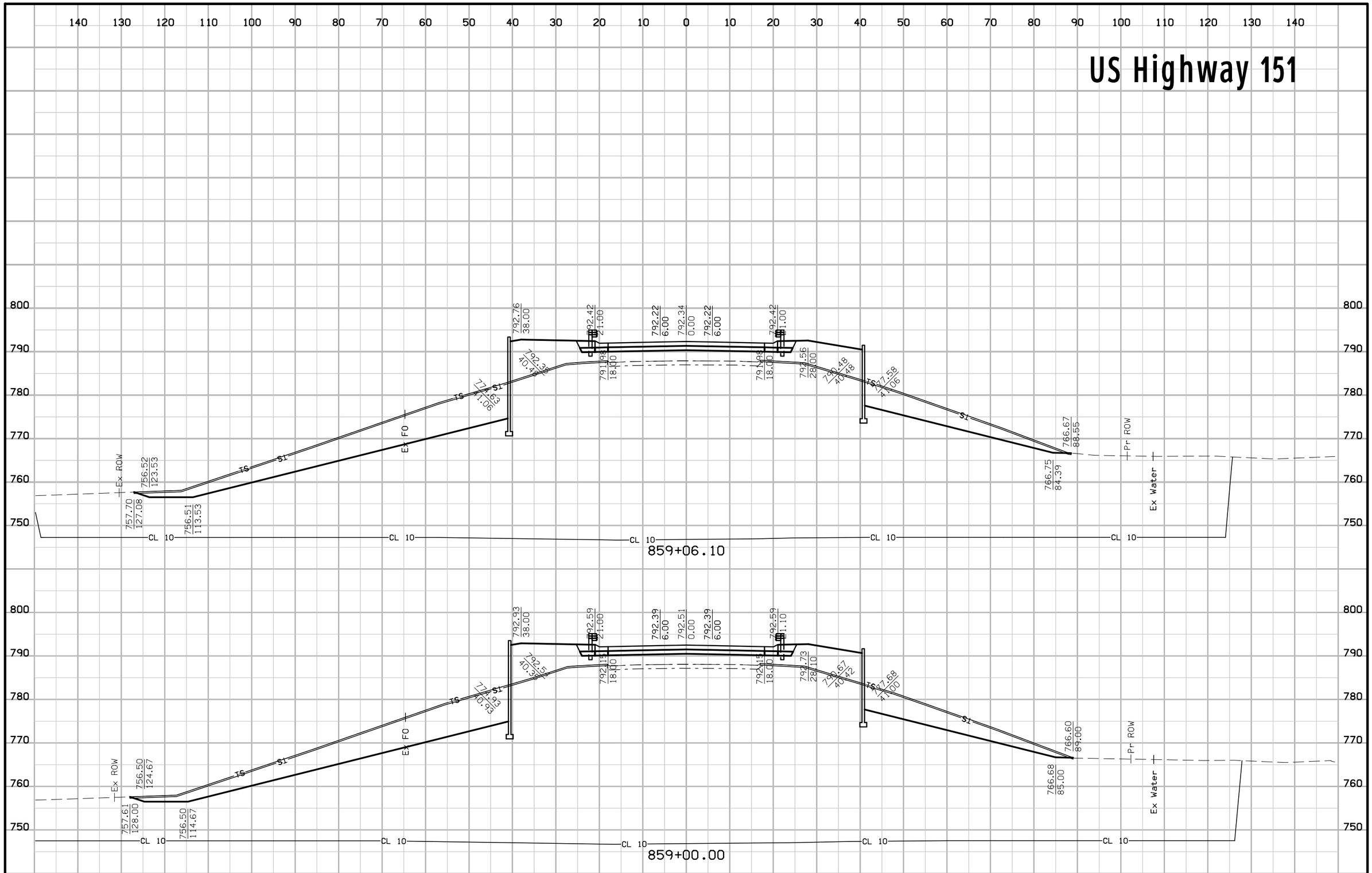
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.17

9:41:38 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

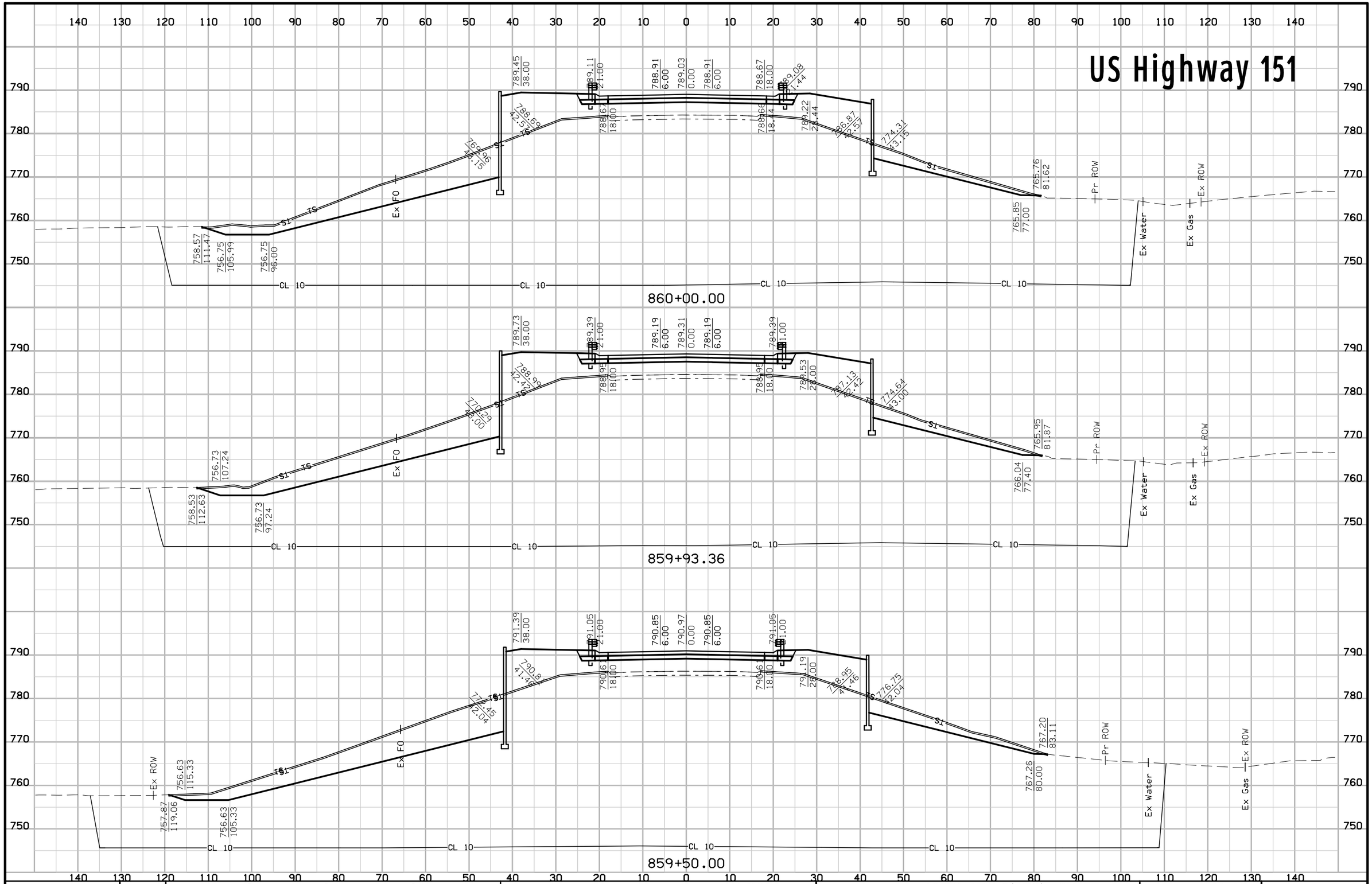
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.18

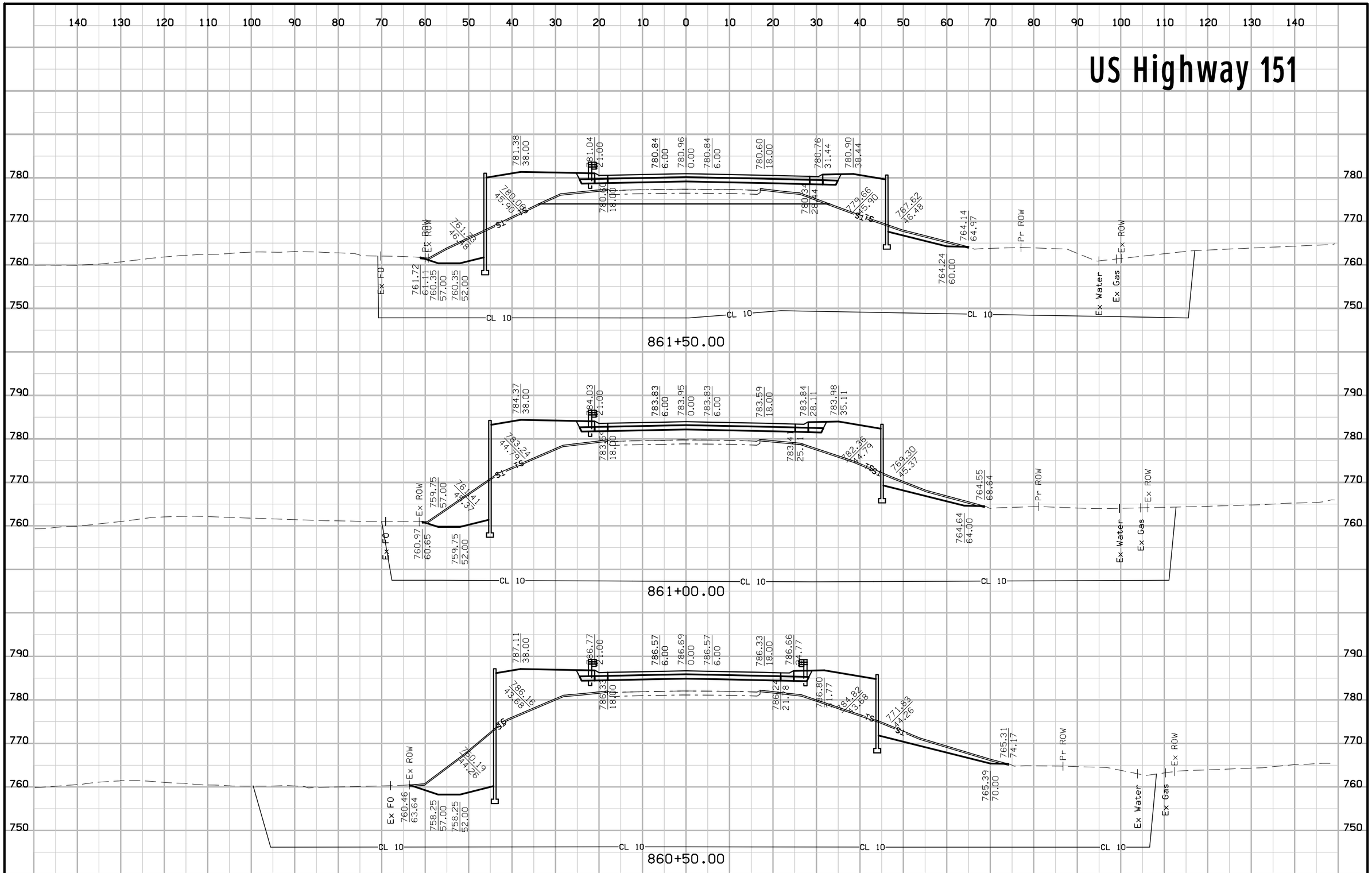
9:41:41 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.19

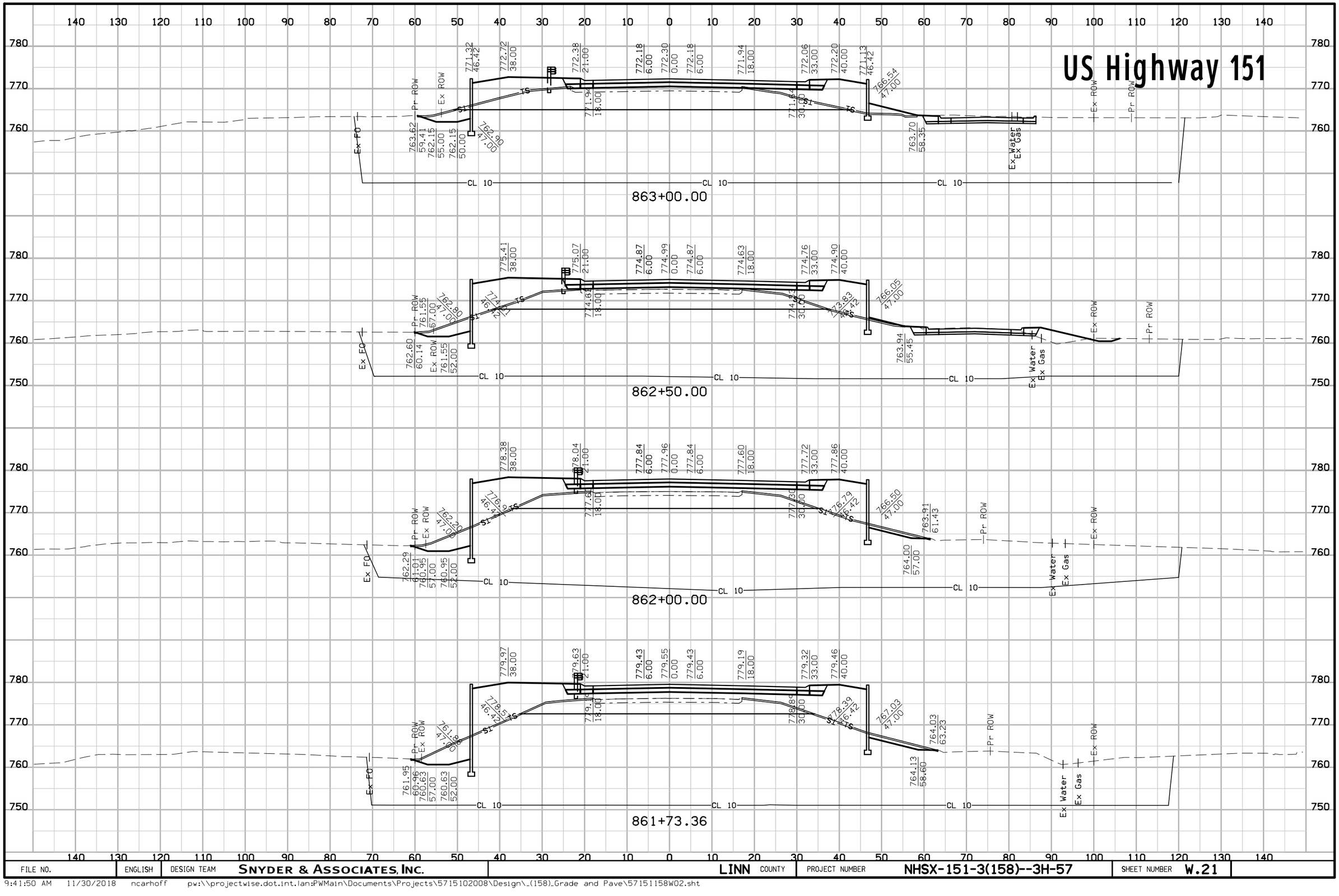
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.20

9:41:47 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\57151102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.21

9:41:50 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770 / 760

Prop. Type "C" Paved Ent. Lt.
5.390%
2.00%
0.50%
15.0%
Prop. Type "C" Granular Ent. Lt.
Pr ROW
Ex ROW
Ex FO
Ex Gas
Ex Gas
766.66 21.46
766.95 6.61
767.09 0.00
766.95 6.61
766.73 18.00
766.43 30.00
Ex Gas
Ex Water

864+19.80

864+19.80
Prop. Type "C" Paved Ent. Lt.
Pr ROW
Ex ROW
Ex FO
767.40 21.18
767.70 6.41
767.83 0.00
767.70 6.41
767.47 18.00
767.17 30.00
Ex Water

864+00.00

Ex FO
Pr ROW
Ex ROW
764.90 54.75
767.40 46.00
768.74 38.00
TS
S1
768.40 21.00
767.90 18.08
768.19 6.28
768.32 0.00
768.19 6.28
767.96 18.00
767.66 30.00
767.08 42.43
766.74 49.13
765.08 57.54
Ex Water
Ex ROW
Pr ROW

863+87.58

Ex FO
Pr ROW
Ex ROW
764.40 60.80
768.63 46.00
769.96 38.00
TS
S1
769.62 21.00
769.18 18.00
769.42 6.00
769.54 0.00
769.42 6.00
769.18 18.00
769.31 33.00
769.45 40.00
768.45 46.00
763.70 58.53
Ex Water
Ex ROW
Pr ROW

863+58.36

Ex FO
Pr ROW
Ex ROW
764.25 62.63
769.00 46.00
770.33 38.00
TS
S1
769.99 21.00
769.55 18.00
769.79 6.00
769.91 0.00
769.79 6.00
769.55 18.00
769.68 33.00
769.82 40.00
766.58 47.00
763.70 58.50
Ex Water
Ex ROW
Pr ROW

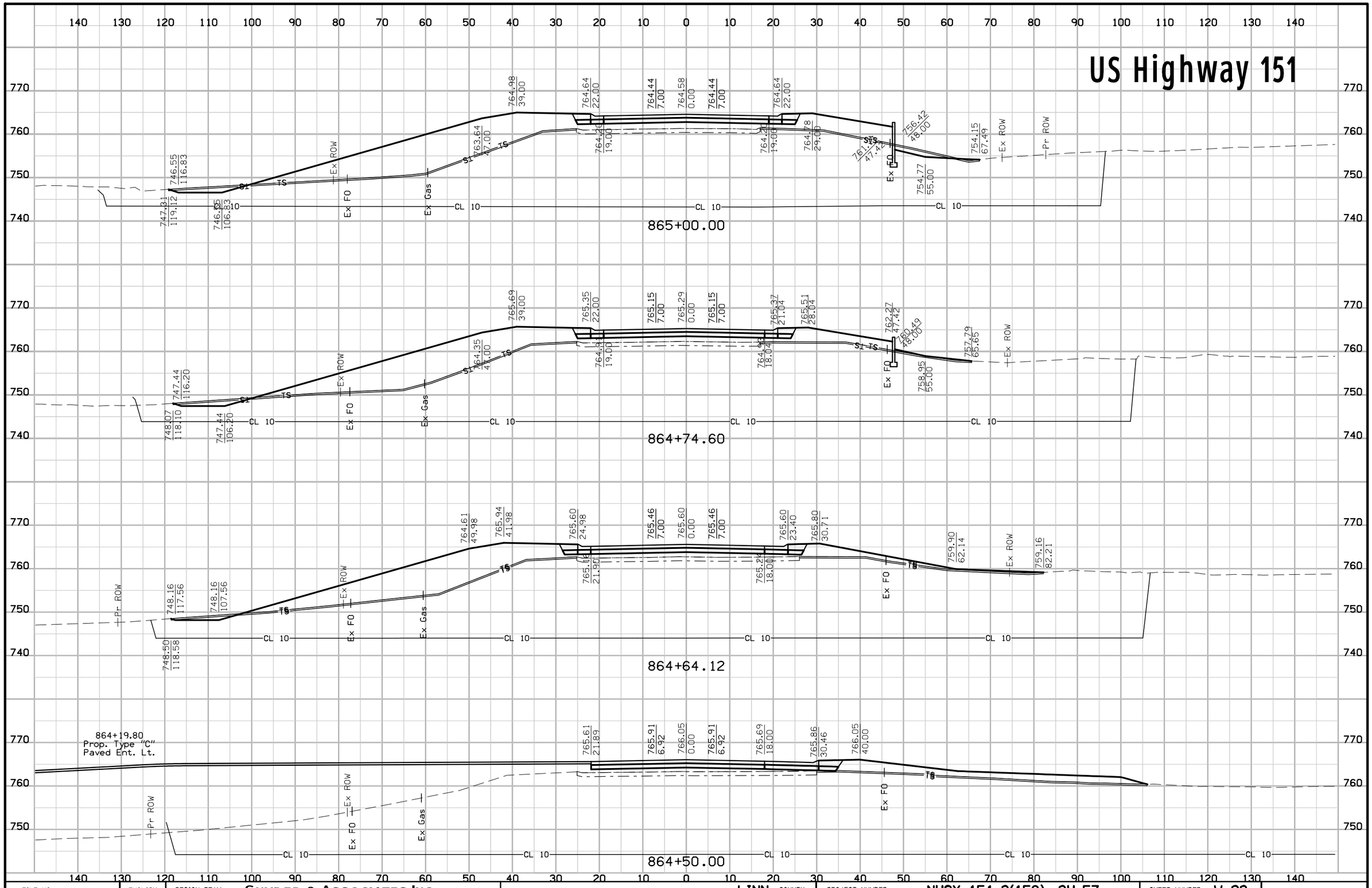
863+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.22

9:41:53 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

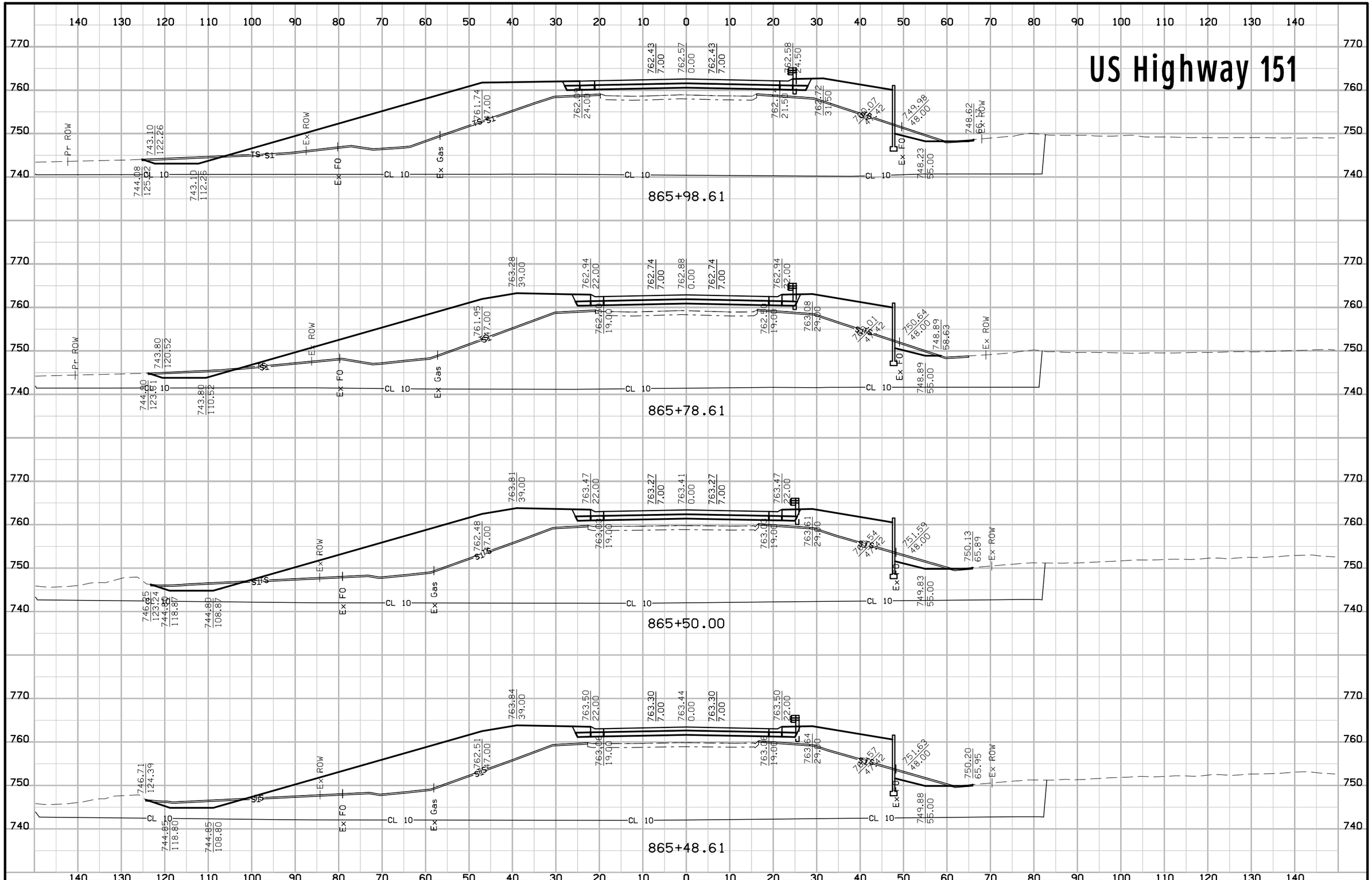
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.23

9:41:56 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.24

9:42:00 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

868+50.00

End Bridge at Priarie Creek
Skew 30° Rt Ahead
868+47.92

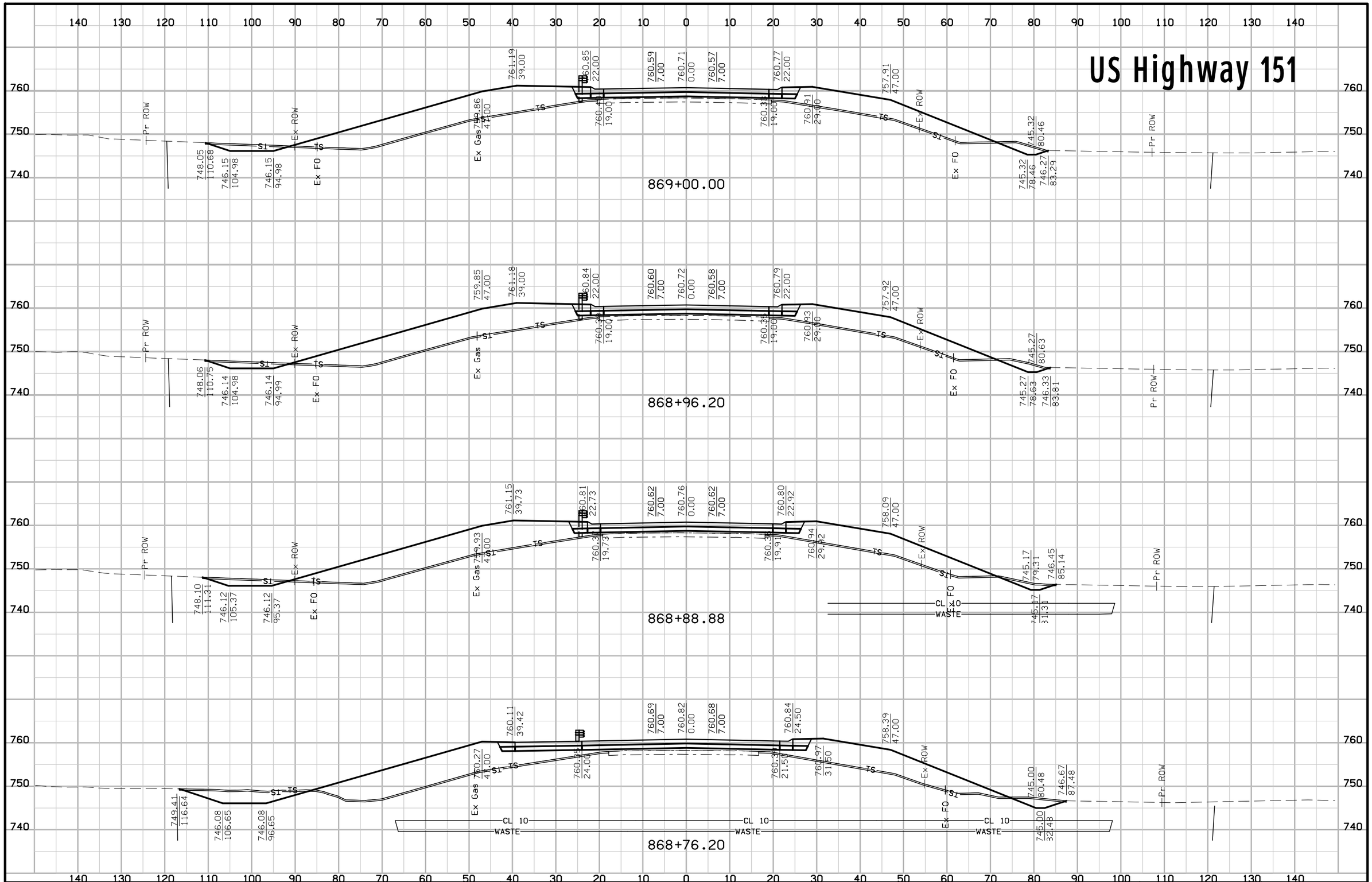
Begin Bridge at Priarie Creek
Skew 30° Rt Ahead
866+35.46

866+00.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.25

9:42:04 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

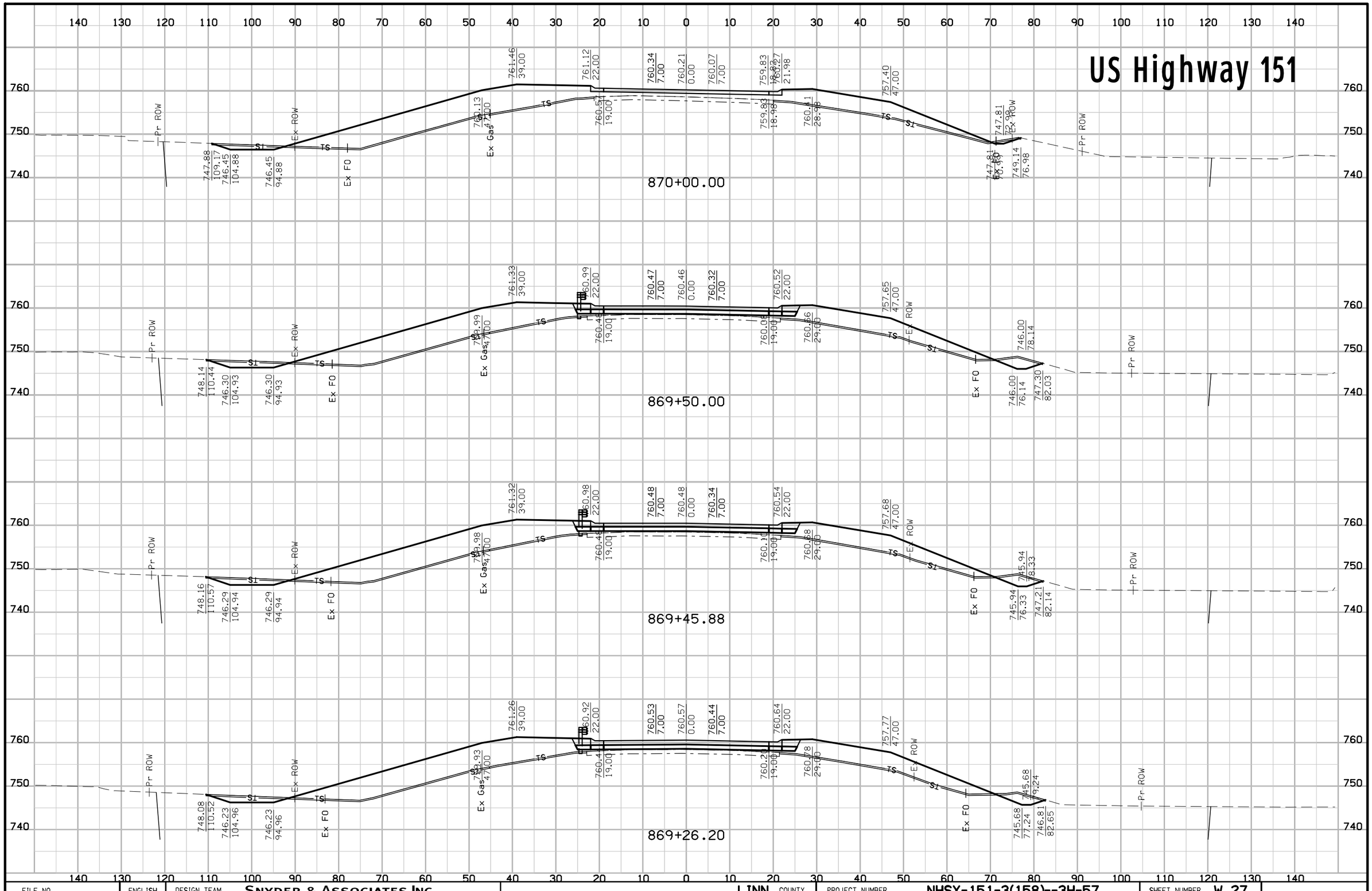
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.26

9:42:08 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

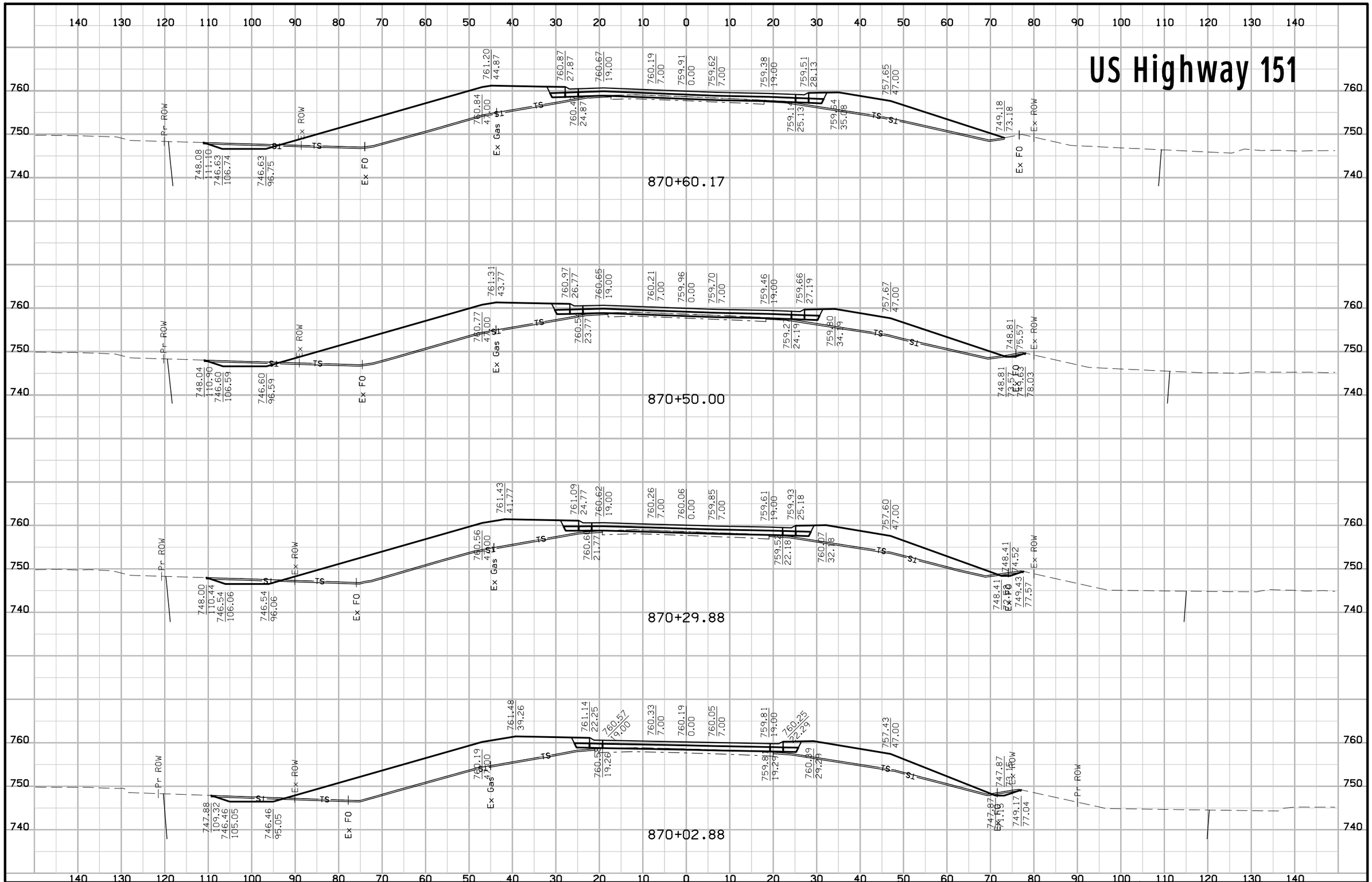
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.27

9:42:11 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

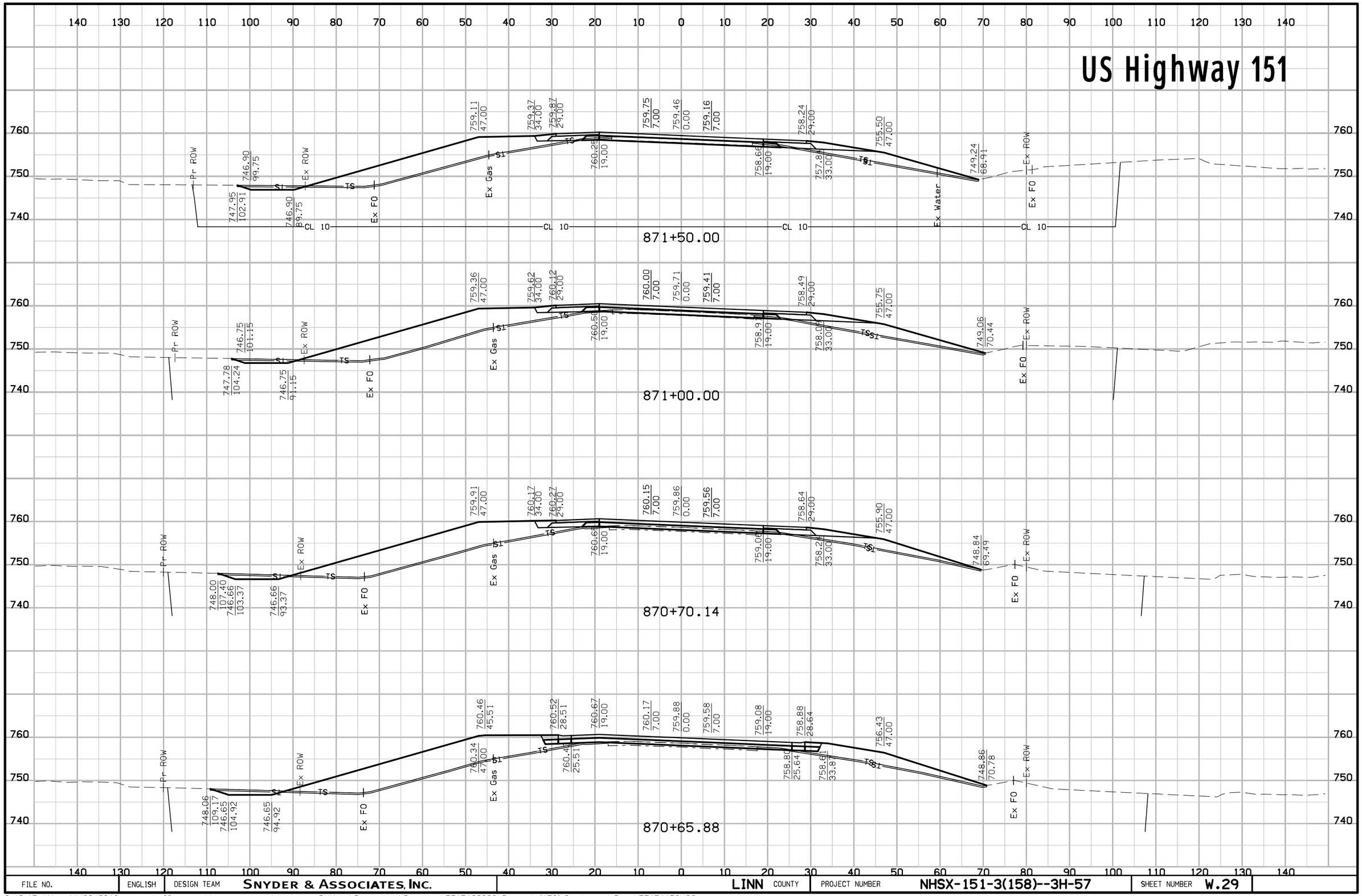
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.28

9:42:14 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

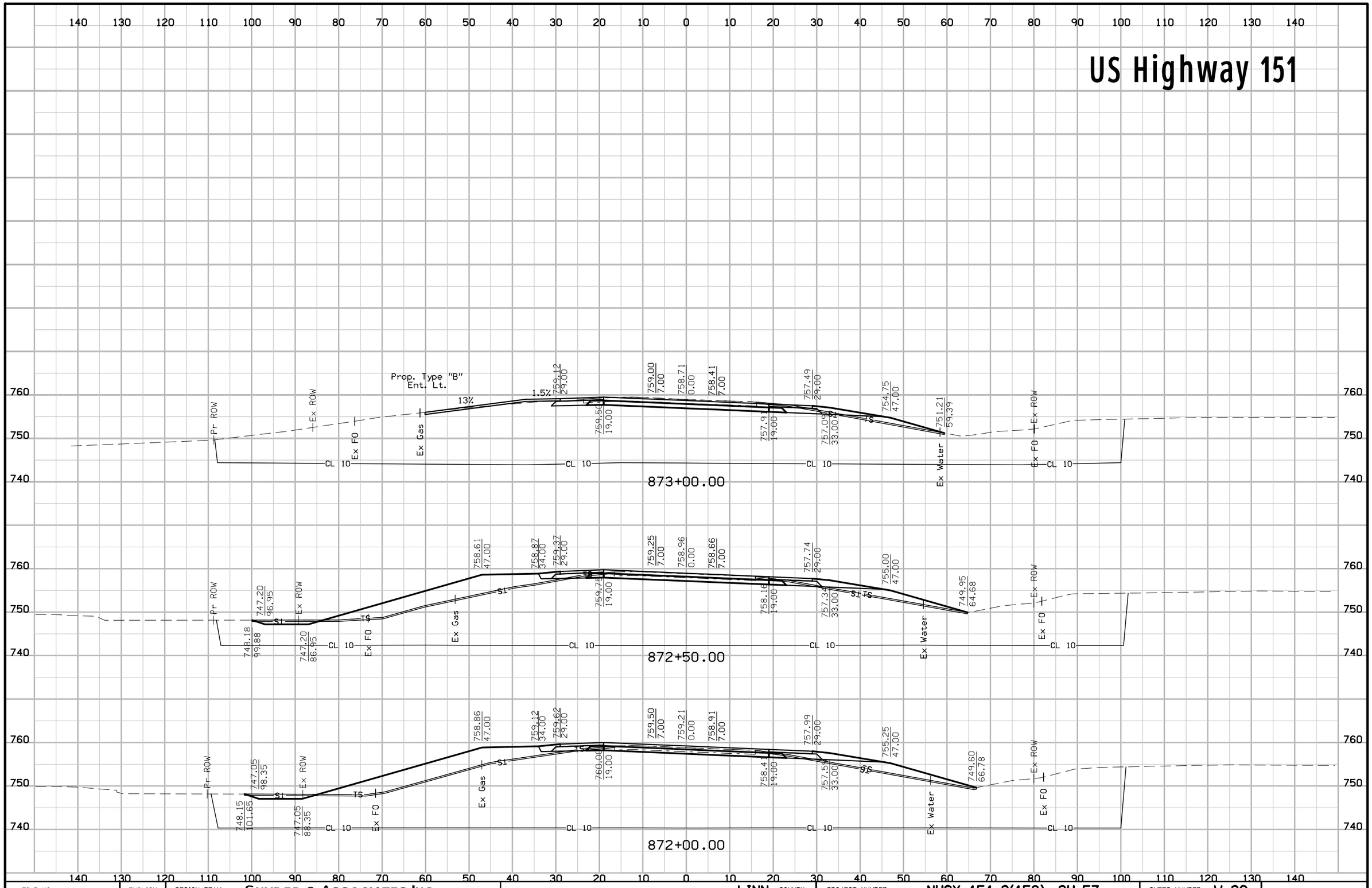
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.29

9:42:17 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

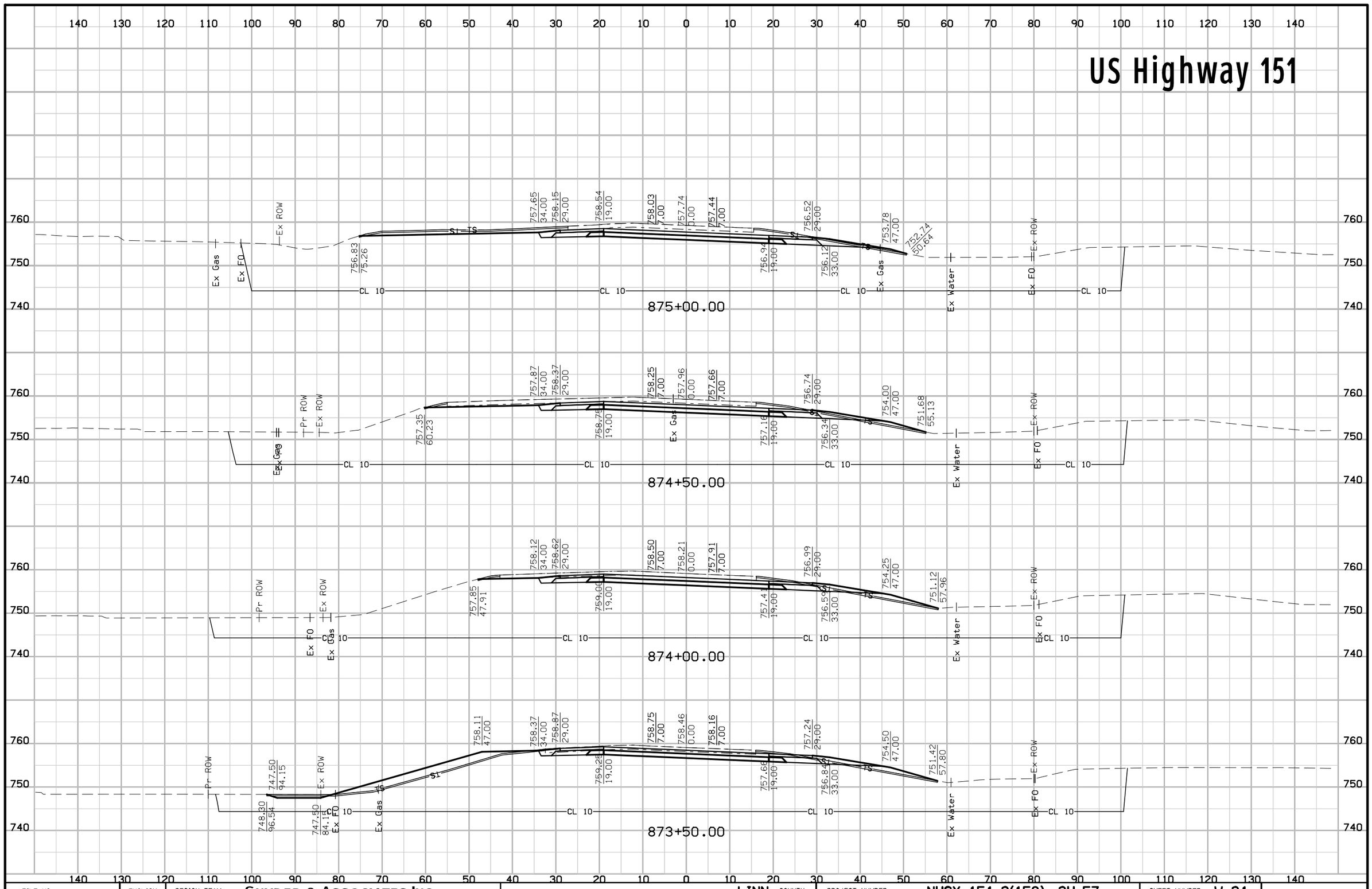
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.30

9:42:21 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.31

9:42:25 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

760 / 750

Ex ROW | Ex FO | 756.60 62.30 | 757.15 63.94 | 758.11 47.00 | 758.37 34.00 | 758.87 29.00 | 759.25 19.00 | 758.75 7.00 | 758.46 0.00 | 758.16 7.00 | 757.66 19.00 | 757.24 29.00 | 756.94 36.00 | 755.57 44.24 | Ex Gas | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

876+50.00

760 / 750

Ex ROW | Ex FO | 756.97 51.69 | 758.11 47.00 | 758.37 34.00 | 758.87 29.00 | 759.25 19.00 | 758.75 7.00 | 758.46 0.00 | 758.16 7.00 | 757.66 19.00 | 757.24 29.00 | 756.94 36.00 | 755.56 44.32 | Ex Gas | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

876+49.90

760 / 750

Ex Gas | Ex FO | Ex ROW | 758.44 90.83 | 758.79 85.05 | 758.79 19.00 | 758.28 7.00 | 757.99 0.00 | 757.69 7.00 | 757.19 19.00 | 756.77 29.00 | 756.48 36.00 | 754.64 47.00 | 754.37 47.96 | Ex Gas | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

876+00.00

760 / 750

Ex Gas | Ex FO | Ex ROW | 756.58 91.43 | 757.74 33.83 | 758.54 19.00 | 758.23 29.00 | 758.03 7.00 | 757.74 0.00 | 757.44 7.00 | 756.94 19.00 | 756.52 29.00 | 756.22 36.00 | 753.59 49.82 | Ex Gas | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

875+50.00

760 / 750

Ex Gas | Ex FO | Ex ROW | 756.54 88.81 | 757.64 34.00 | 758.14 29.00 | 758.53 19.00 | 758.01 7.00 | 757.72 0.00 | 757.43 7.00 | 756.92 19.00 | 756.50 29.00 | 756.08 34.79 | 753.65 48.38 | Ex Gas | Ex Water | Ex FO | Ex ROW

CL 10 — CL 10 — CL 10 — CL 10

875+41.91

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.32

9:42:28 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770 760 750

Ex ROW | Ex ROW | Prop. Type "C" Ent. Lt. | 0.56% | 760.75 29.00 | 760.56 7.00 | 760.27 0.00 | 759.97 7.00 | 759.05 29.00 | 757.98 37.00 | 757.08 42.38 | Ex Water | Ex ROW | Ex FO | CL 10

761.06 19.00 | 759.47 19.00 | 758.65 33.00 | Ex Gas

878+31.00

Ex ROW | Ex ROW | 759.89 47.00 | SP | 760.15 34.00 | 760.65 29.00 | 760.49 7.00 | 760.20 0.00 | 759.90 7.00 | 758.98 29.00 | 757.91 37.00 | 757.29 40.74 | Ex Water | Ex ROW | Ex FO | CL 10

759.84 68.36 | 757.60 61.61 | 757.60 56.61 | 760.94 19.00 | 759.40 19.00 | 758.58 33.00 | Ex Gas

878+24.00

Ex ROW | Ex ROW | 759.61 47.00 | IS1 | 759.87 34.00 | 760.37 29.00 | 760.25 7.00 | 759.96 0.00 | 759.66 7.00 | 758.74 29.00 | 757.60 37.42 | Ex Water | Ex ROW | Ex FO | CL 10

758.51 70.24 | 756.30 63.60 | 756.30 58.60 | 760.75 19.00 | 759.16 19.00 | 758.34 33.00 | Ex Gas

878+00.00

Ex ROW | Ex ROW | 756.40 64.00 | 759.11 47.00 | SIS | 759.37 34.00 | 759.87 29.00 | 759.75 7.00 | 759.46 0.00 | 759.16 7.00 | 758.24 29.00 | 877+50.00 Prop. Type "B" Ent. Rt. | -5.593% | Ex Water | Ex ROW | Ex FO | CL 10

757.60 67.60 | 756.40 56.50 | 760.25 19.00 | 758.66 19.00 | Ex Gas

877+50.00

Ex ROW | Ex ROW | 756.50 64.40 | 758.61 47.00 | SIS | 758.87 34.00 | 759.37 29.00 | 759.25 7.00 | 758.96 0.00 | 758.66 7.00 | 757.74 29.00 | 757.44 36.00 | 756.09 44.14 | Ex Water | Ex ROW | Ex FO | CL 10

757.22 66.55 | 756.50 54.40 | 759.75 19.00 | 758.16 19.00 | Ex Gas

CL 10 | CL 10 | CL 10 | CL 10

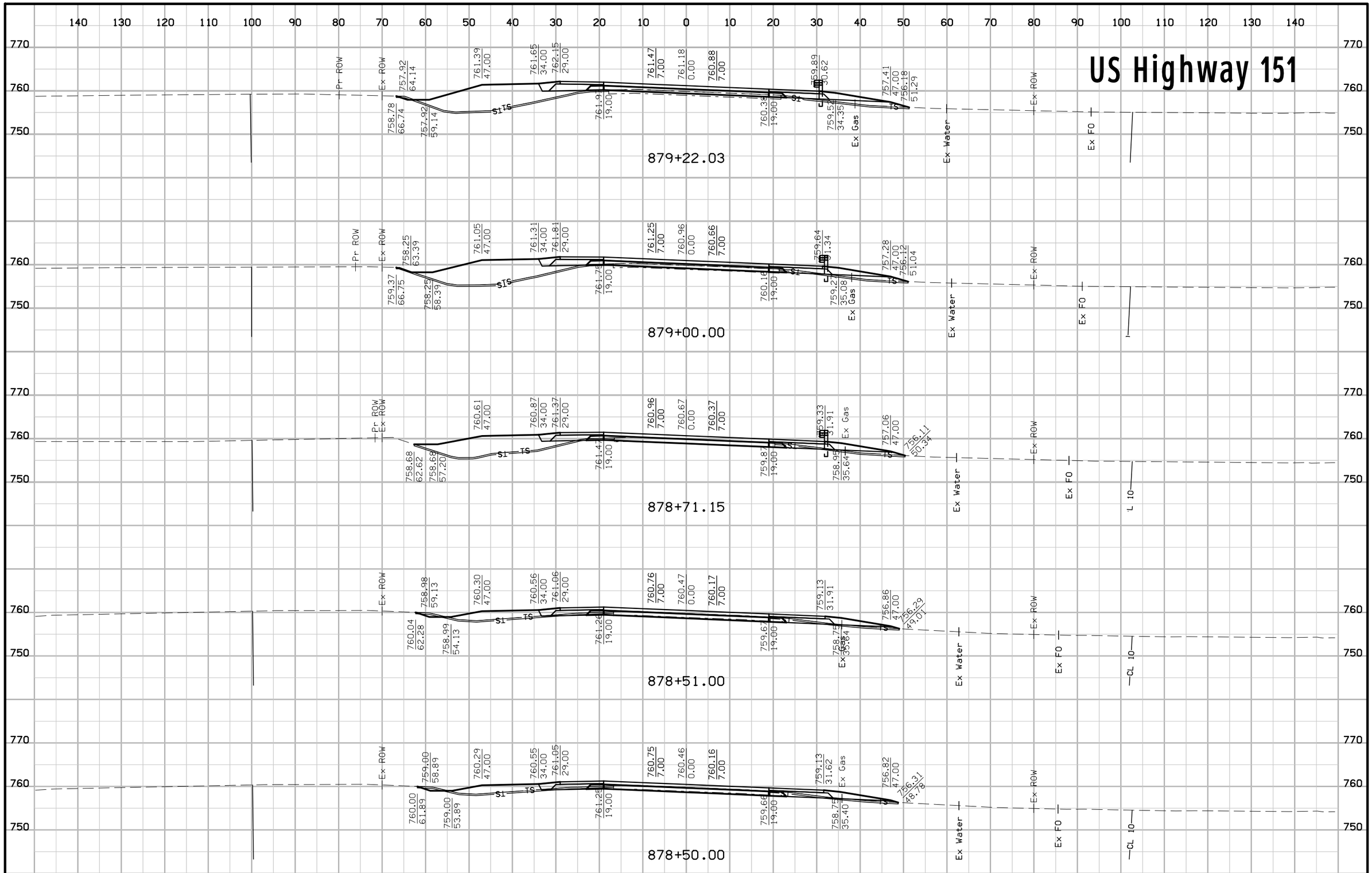
877+00.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.33

9:42:32 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

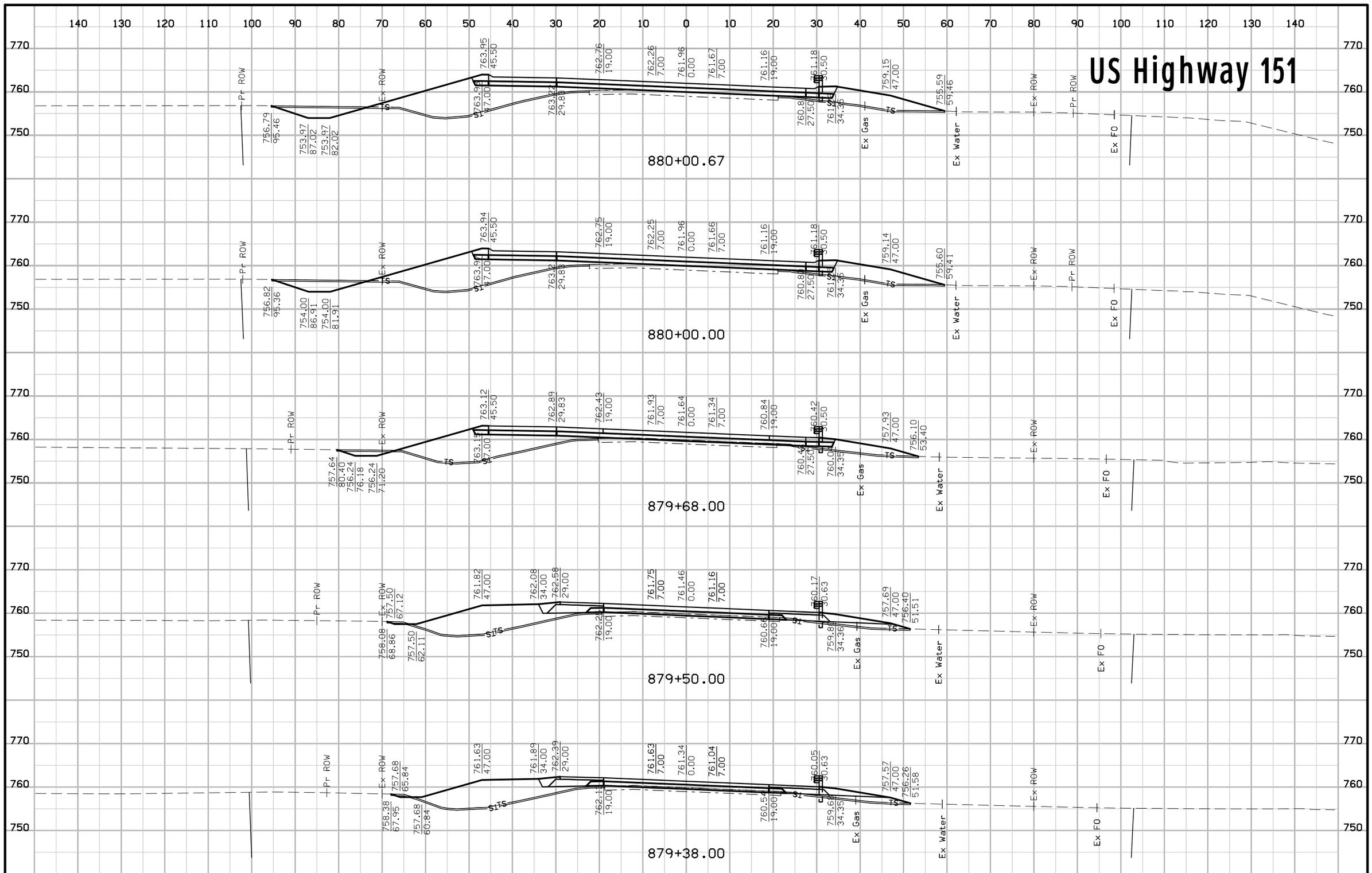
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.34

9:42:38 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

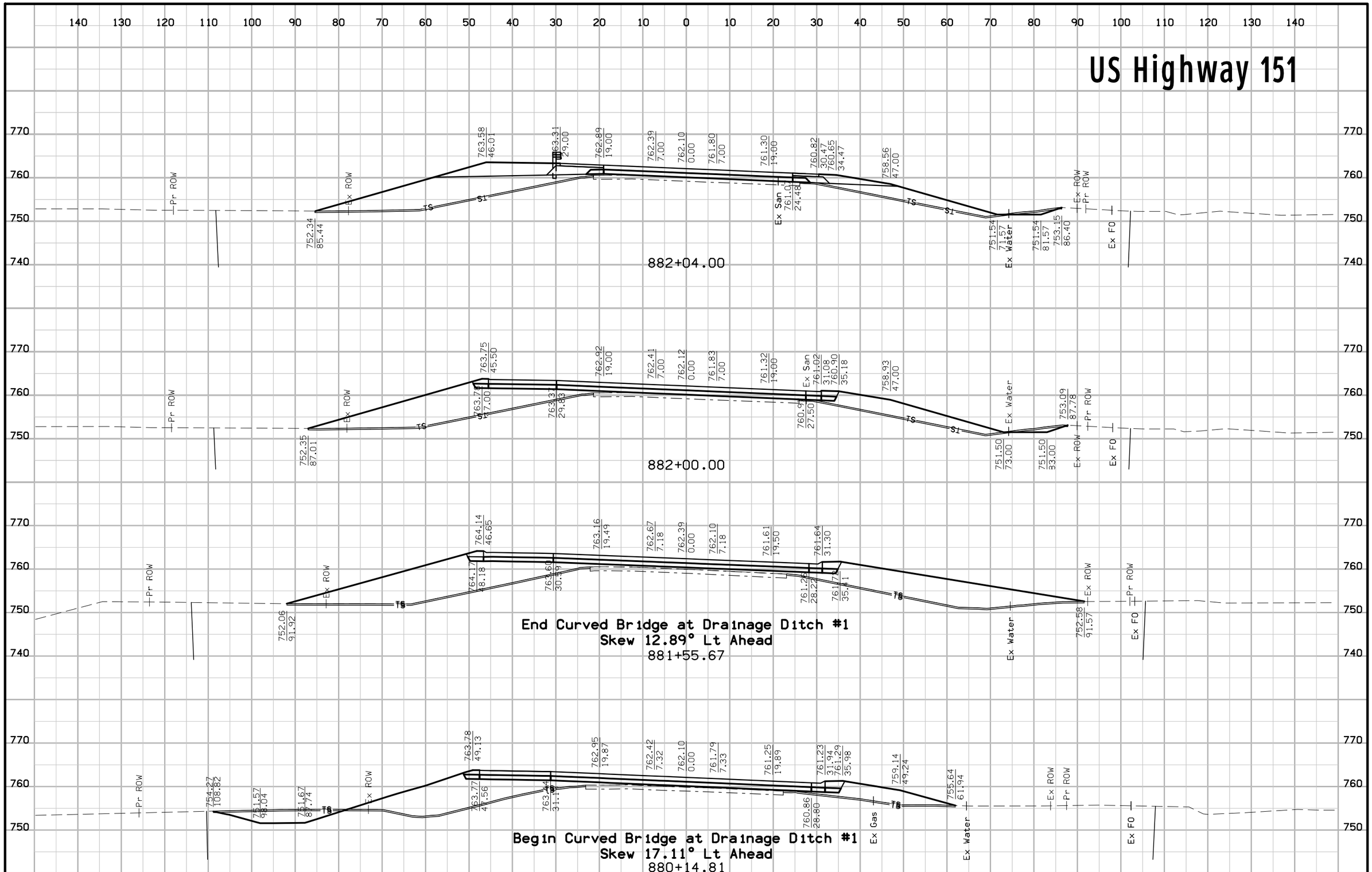
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.35

9:42:42 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

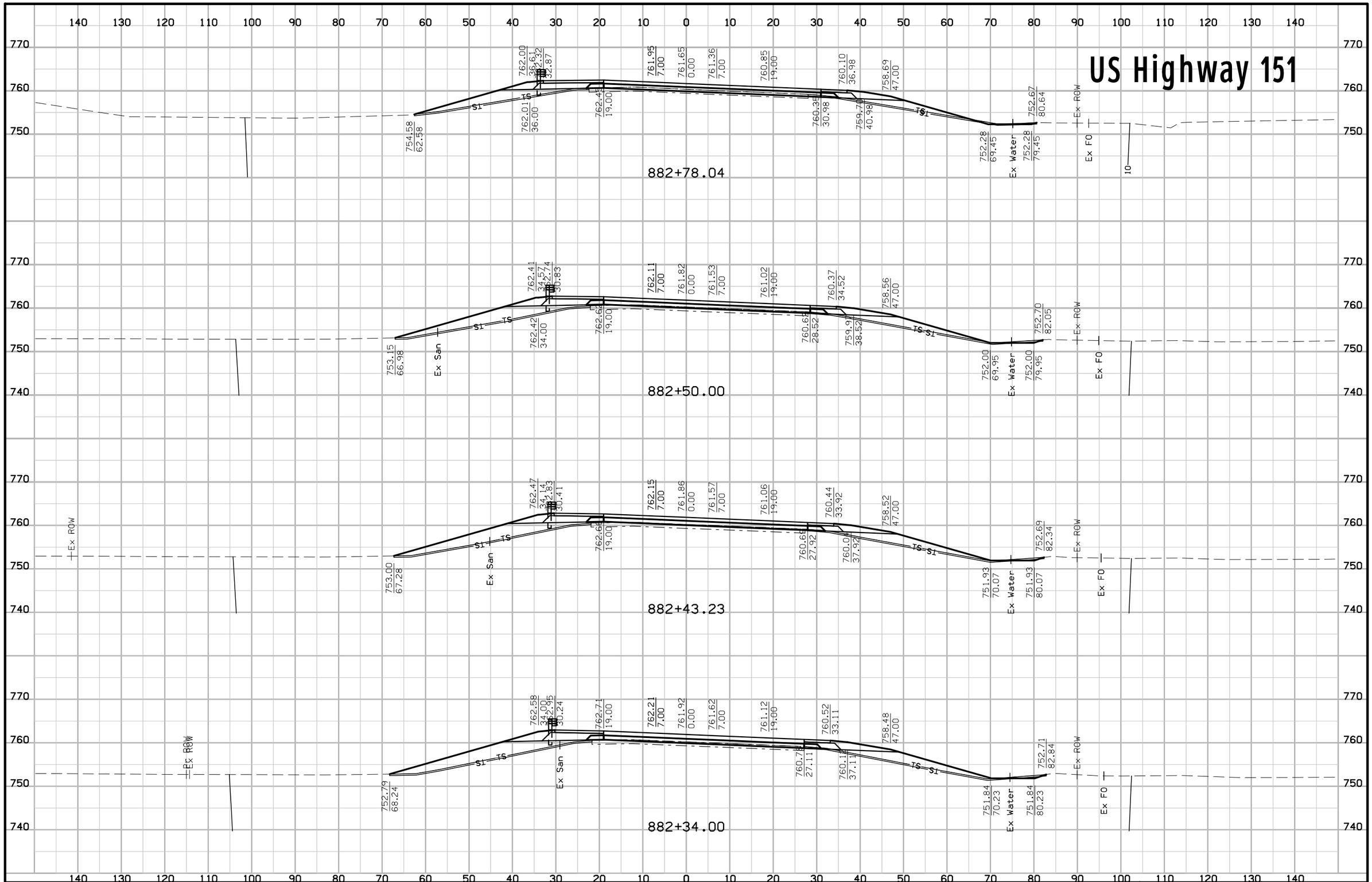
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.36

9:42:46 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.37

9:42:49 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

760 750

759.71 40.79 | 761.57 29.63 | 762.06 19.00 | 761.56 7.00 | 761.27 0.00 | 760.97 7.00 | 760.47 19.00 | 759.71 37.00 | 758.31 47.00 | 759.96 31.00 | 759.31 41.00 | 752.92 65.86 | 752.92 75.86 | 753.23 76.97

Ex Tel
Ex Gas
Ex FO
Ex Water
Ex FO
Ex ROW
CL 10
S1
TS
SITS

883+42.30

770 760 750

759.00 43.32 | 761.13 35.86 | 761.82 29.00 | 762.20 19.00 | 761.70 7.00 | 761.40 0.00 | 761.11 7.00 | 760.60 19.00 | 759.85 37.00 | 758.45 47.00 | 760.10 31.00 | 759.45 41.00 | 752.70 67.12 | 752.70 77.12 | 752.84 77.54

Ex Water
Ex FO
Ex ROW
CL 10
S1
TS
SITS

883+19.86

770 760 750

761.51 38.00 | 761.75 33.99 | 761.55 36.00 | 762.20 19.00 | 761.74 7.00 | 761.45 0.00 | 761.15 7.00 | 760.65 19.00 | 759.89 37.00 | 758.49 47.00 | 760.14 31.00 | 759.49 41.00 | 752.62 67.54 | 752.78 78.02 | 752.62 77.54

757.66 51.47

Ex Water
Ex FO
Ex ROW
CL 10
S1
TS
SITS

883+12.42

770 760 750

761.71 38.00 | 761.95 34.00 | 761.75 36.00 | 762.32 19.00 | 761.81 7.00 | 761.52 0.00 | 761.23 7.00 | 760.72 19.00 | 759.97 37.00 | 758.57 47.00 | 760.22 31.00 | 759.57 41.00 | 752.50 68.23 | 752.72 78.88 | 752.50 78.23

756.42 56.53

Ex Water
Ex FO
Ex ROW
CL 10
S1
TS
SITS

883+00.00

770 760 750

761.80 38.00 | 762.04 34.00 | 761.84 36.00 | 762.31 19.00 | 761.85 7.00 | 761.55 0.00 | 761.26 7.00 | 760.76 19.00 | 760.00 37.00 | 758.60 47.00 | 760.29 31.00 | 759.60 41.00 | 752.44 68.54 | 752.69 79.27 | 752.45 78.54

755.87 58.77

Ex Water
Ex FO
Ex ROW
CL 10
S1
TS
SS

882+94.45

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.38

9:42:52 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

884+50.00

884+25.93

884+00.00

883+95.73

883+50.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.39

9:42:56 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

886+00.00

885+98.30

885+50.00

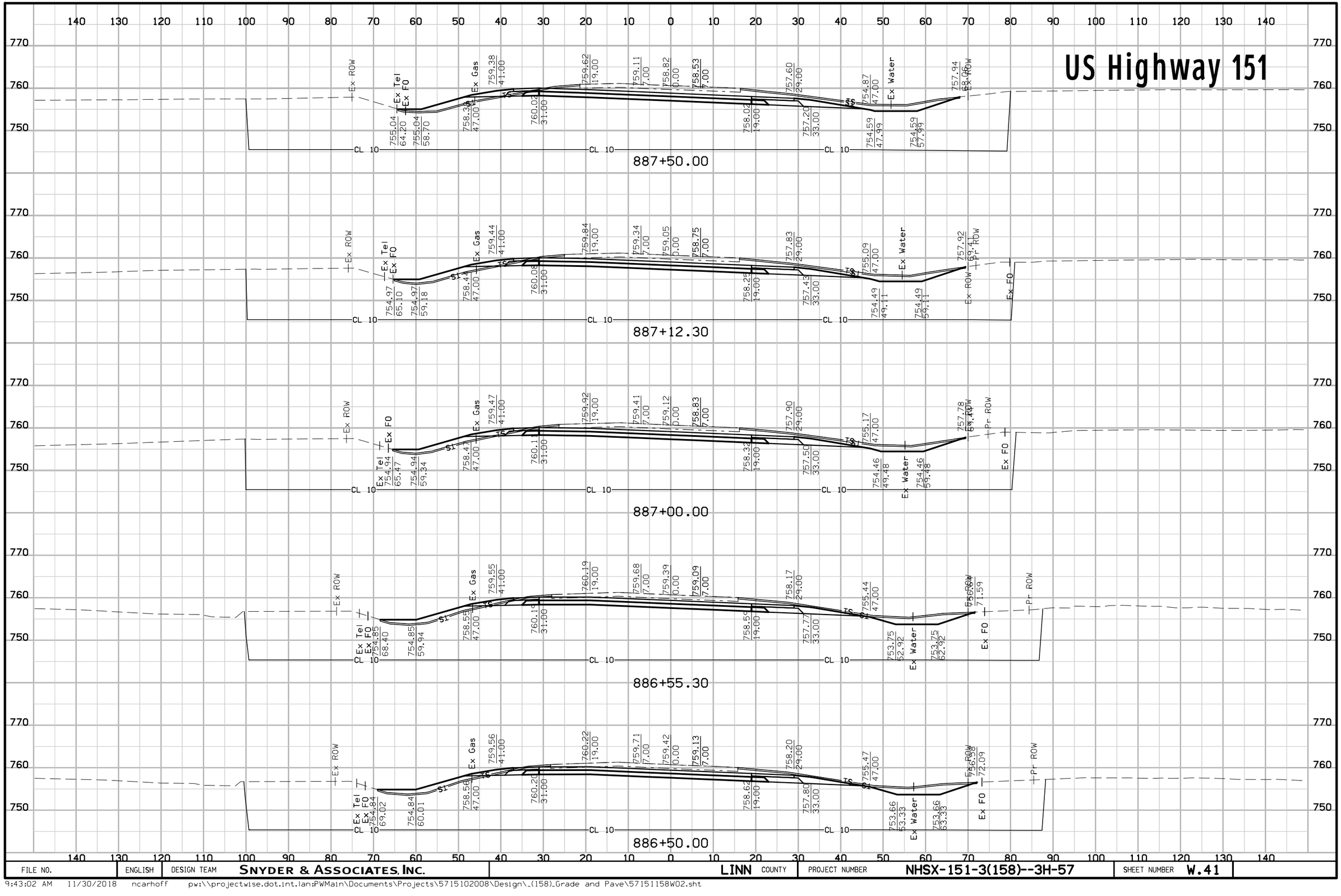
885+23.39

885+00.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.40

9:42:59 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

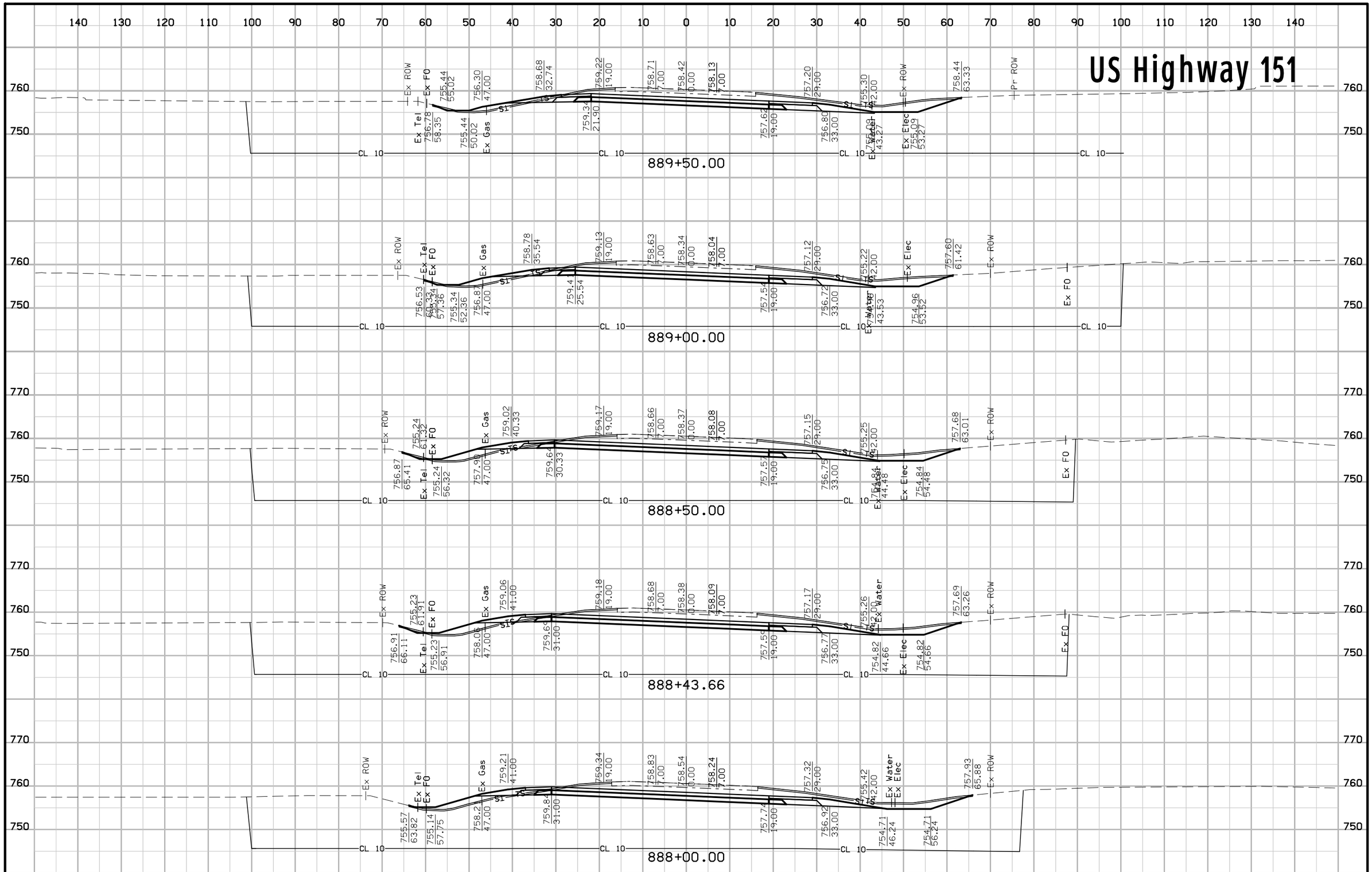
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.41

9:43:02 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

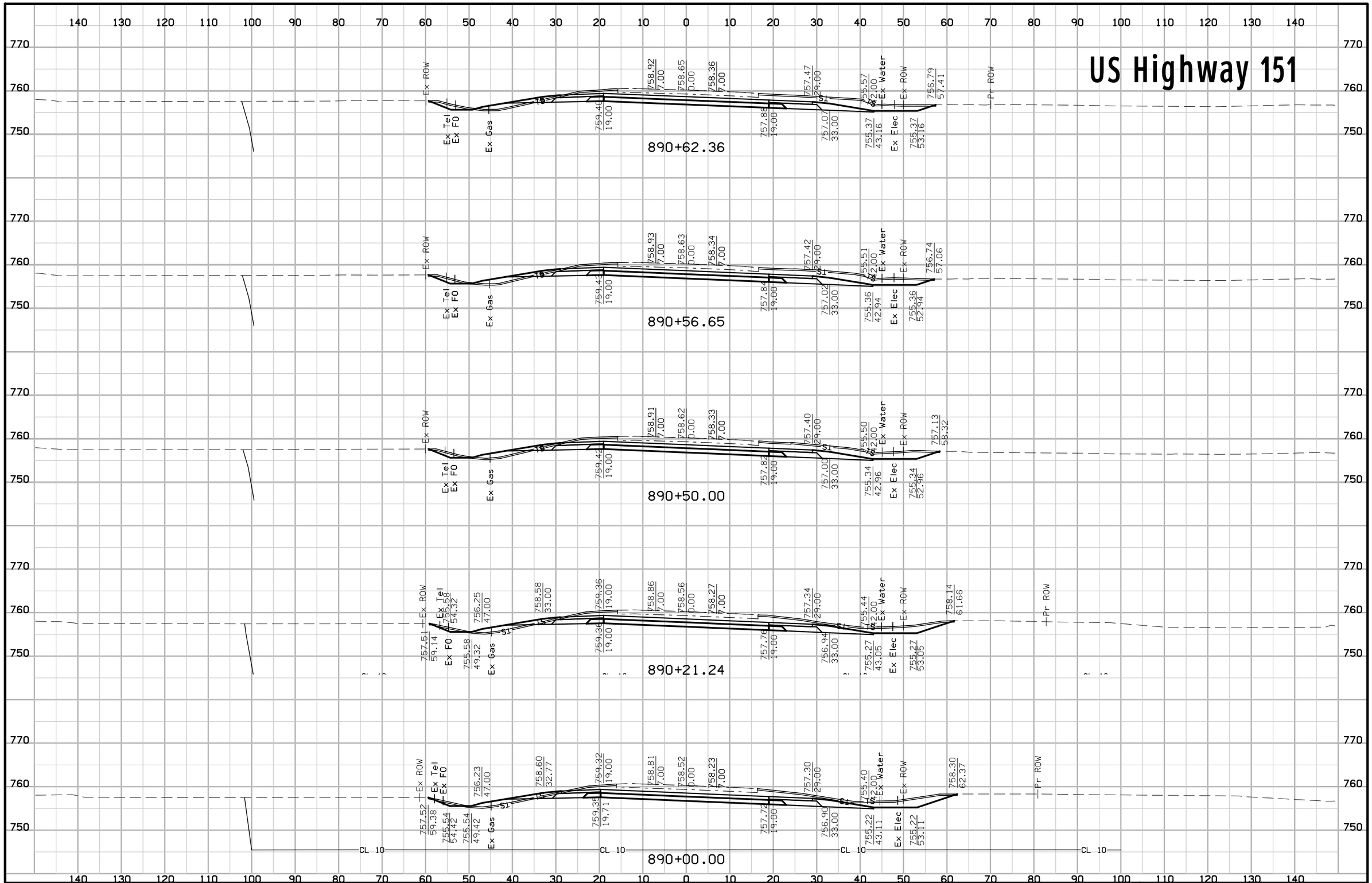
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.42

9:43:08 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\57151102008\Design_(158)_Grade and Pave\57151158W02.sht

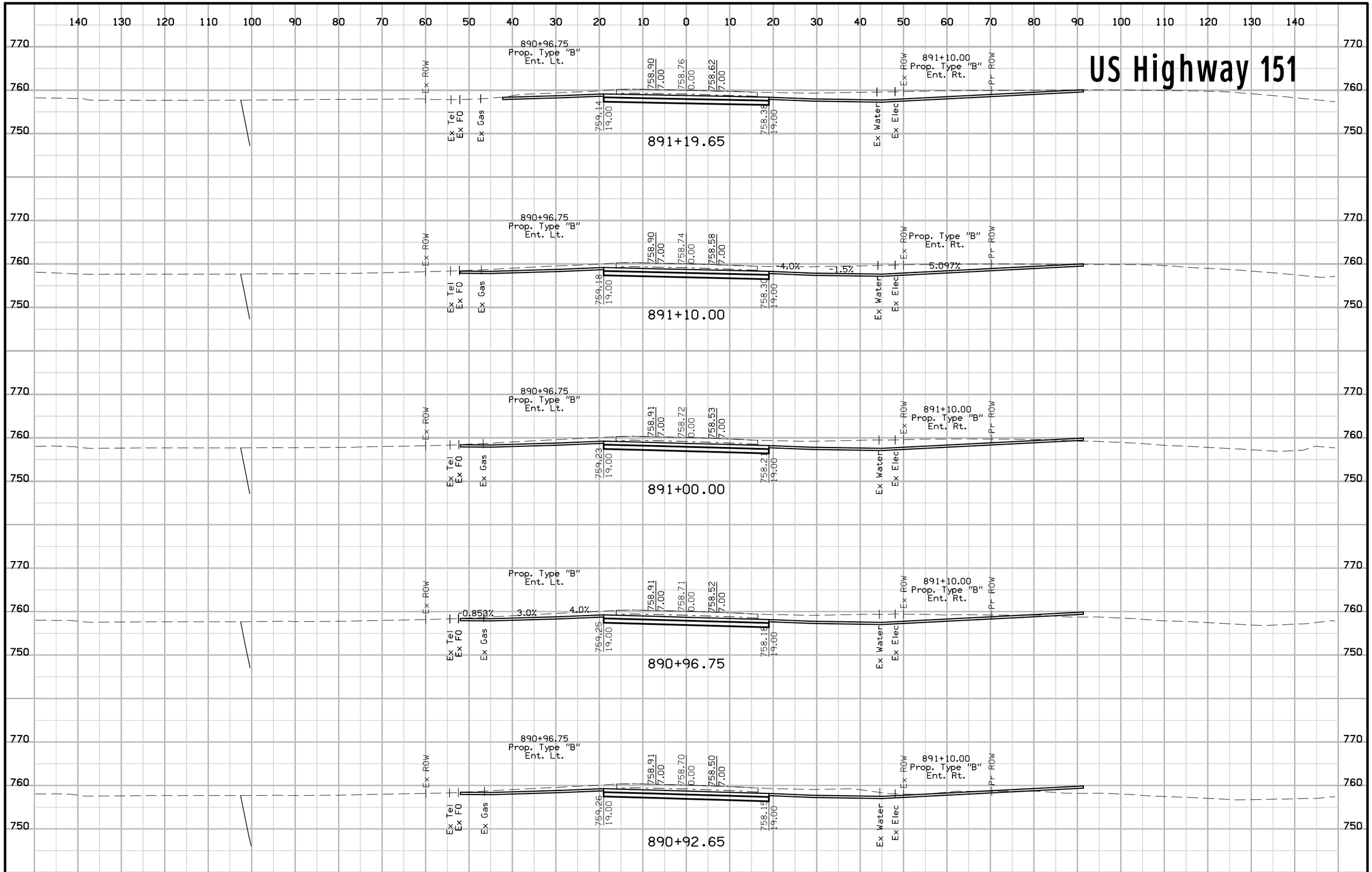
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.43

9:43:11 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

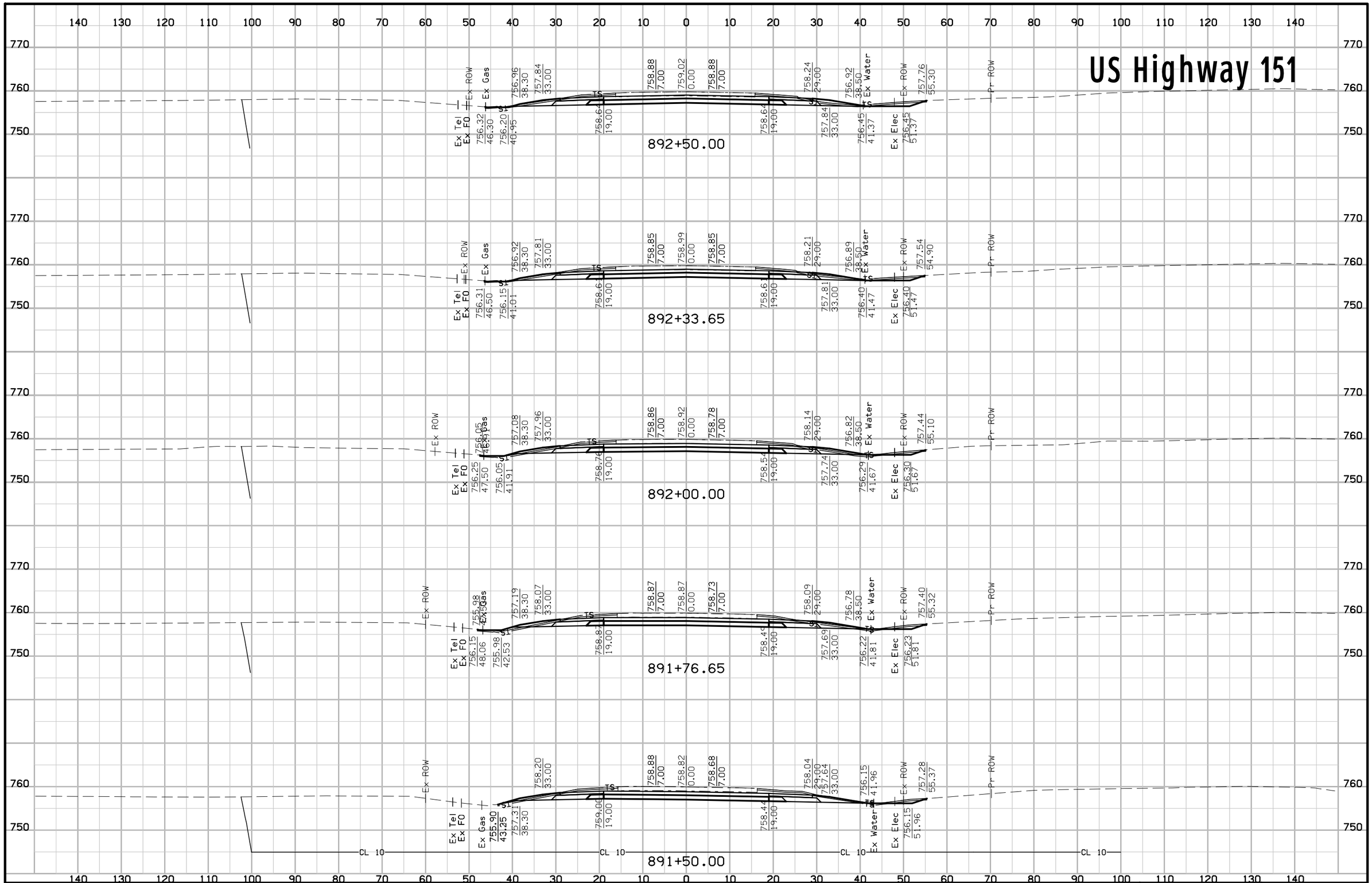
US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.44

9:43:14 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.45

9:43:17 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770 760 750

Prop. Type "B"
Joint Ent. Lt.
Ex ROW
-1.692%
4.0%
4.0%
759.22 7.00
759.36 0.00
759.22 7.00
894+18.50
Prop. Type "B"
Ent. Rt.
Ex ROW
Ex Tel
Ex FO
Ex Gas
758.98 19.00
758.98 19.00
Ex Water
Ex Elec
894+21.00

894+21.00
Prop. Type "B"
Joint Ent. Lt.
Ex ROW
759.22 7.00
759.36 0.00
759.22 7.00
Prop. Type "B"
Ent. Rt.
-4.0%
-2.0%
5.374%
Ex ROW
Ex Tel
Ex FO
Ex Gas
758.98 19.00
758.98 19.00
Ex Water
Ex Elec
894+18.50

894+21.00
Prop. Type "B"
Joint Ent. Lt.
Ex ROW
759.18 7.00
759.32 0.00
759.18 7.00
894+18.50
Prop. Type "B"
Ent. Rt.
Ex
Ex Tel
Ex FO
Ex Gas
758.94 19.00
758.94 19.00
Ex Water
Ex Elec
894+00.00

760 750

Ex ROW
Ex Gas
757.16 38.30
758.04 33.00
759.08 7.00
759.22 0.00
759.08 7.00
758.44 29.00
757.12 38.50
Ex ROW
757.44 52.85
Pr ROW
TS
SC
CS
ST
Ex Tel
Ex FO
756.69 46.16
756.50 40.60
758.84 19.00
758.84 19.00
758.04 33.00
Ex Water
756.74 40.77
Ex Elec
756.75 50.77
893+50.00

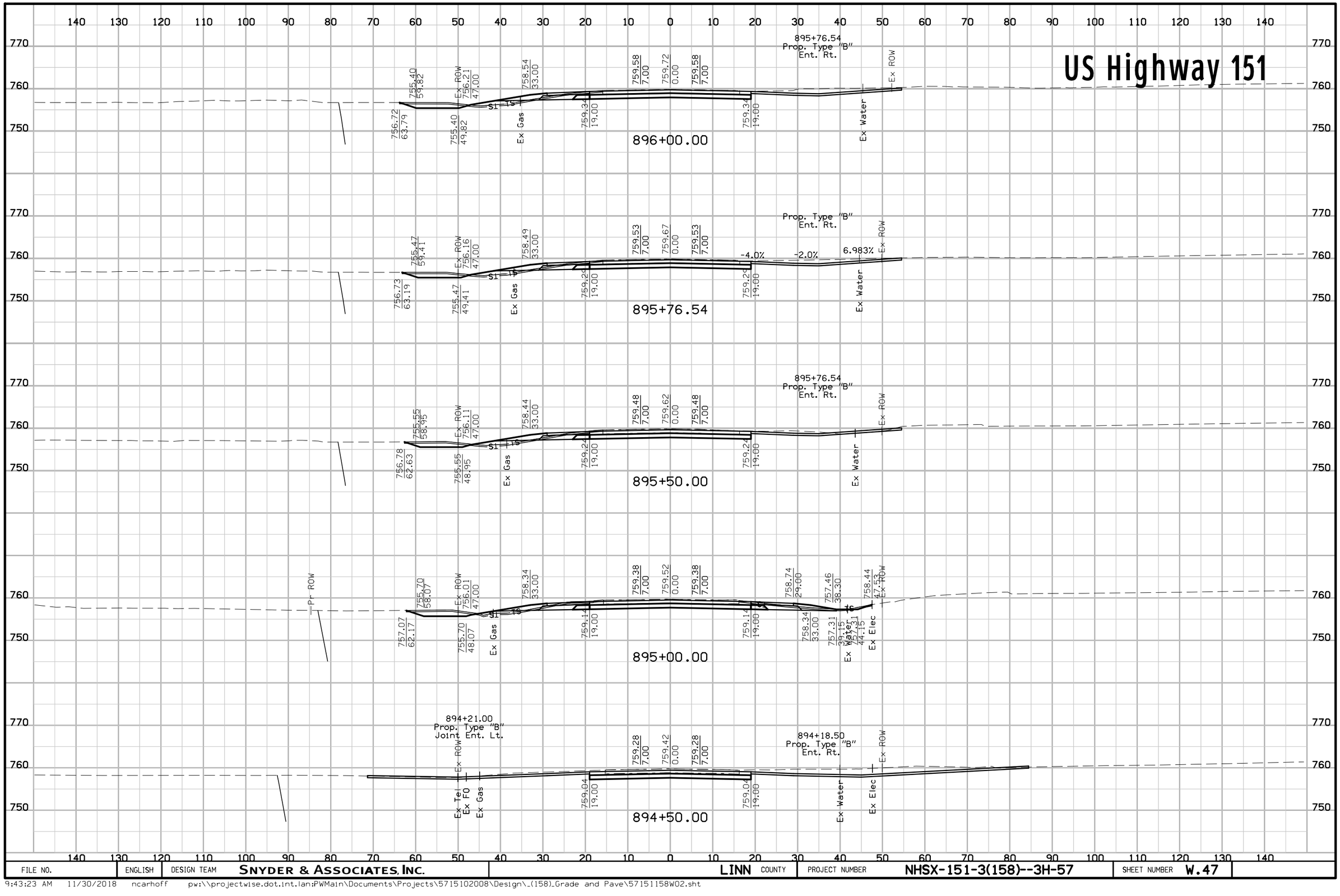
Ex ROW
Ex Gas
757.06 38.30
757.94 33.00
758.98 7.00
759.12 0.00
758.98 7.00
758.34 29.00
757.02 38.50
Ex ROW
757.71 54.43
Pr ROW
TS
SC
CS
ST
Ex Tel
Ex FO
756.41 45.94
756.35 40.77
758.74 19.00
758.74 19.00
757.94 33.00
Ex Water
Ex Elec
756.60 51.07
CL 10
893+00.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.46

9:43:20 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.47

9:43:23 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

FILE NO.	ENGLISH	DESIGN TEAM	**SNYDER & ASSOCIATES, INC.**		**LINN** COUNTY	PROJECT NUMBER	**NHSX-151-3(158)--3H-57**	SHEET NUMBER **W.48**

9:43:27 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

760 750

Pr ROW | Ex ROW | Ex Gas | Ex Water | CL 10 | S1 | TS

754.25 54.34		756.34 47.01	758.68 33.00	759.32 22.98		759.78 0.00	759.49 14.53	759.23 23.00	758.99 29.00		756.29 46.79	754.79 52.03

900+09.61

760 750

Pr ROW | Ex ROW | Ex Gas | Ex Water | CL 10 | S1 | TS

754.29 54.19		756.34 47.00	758.68 33.00	759.35 21.73	759.32 23.00	759.79 0.00	759.50 14.56	759.25 23.00	759.01 29.00		756.27 47.00	754.71 52.45

900+00.00

760 750

Pr ROW | Ex ROW | Ex Gas | Ex Water | CL 10 | S1 | TS

755.26 67.32	754.35 64.60	756.52 47.00	758.85 33.00	759.58 20.26	759.50 23.00	759.98 0.00	759.69 14.67	759.44 23.00	759.20 29.00		756.46 47.00	754.55 53.69
	754.35 54.60											

899+50.00

760 750

Pr ROW | Ex ROW | Ex Gas | Ex Water | CL 10 | S1 | TS

755.60 67.82	754.68 64.52	756.65 47.00	758.98 33.00	759.75 18.82	759.62 23.00	760.12 0.00	759.83 14.69	759.58 23.00	759.34 29.00		756.61 47.00	754.49 54.41
	754.50 54.52											

899+00.00

760 750

Pr ROW | Ex ROW | Ex Gas | Ex Water | CL 10 | S1 | TS

755.87 67.78	754.65 64.11	756.68 47.00	759.02 33.00	759.82 17.44	759.66 23.00	760.17 0.00	759.87 15.08	759.63 23.00	759.39 29.00		756.66 47.00	754.58 54.28
	754.65 54.11											

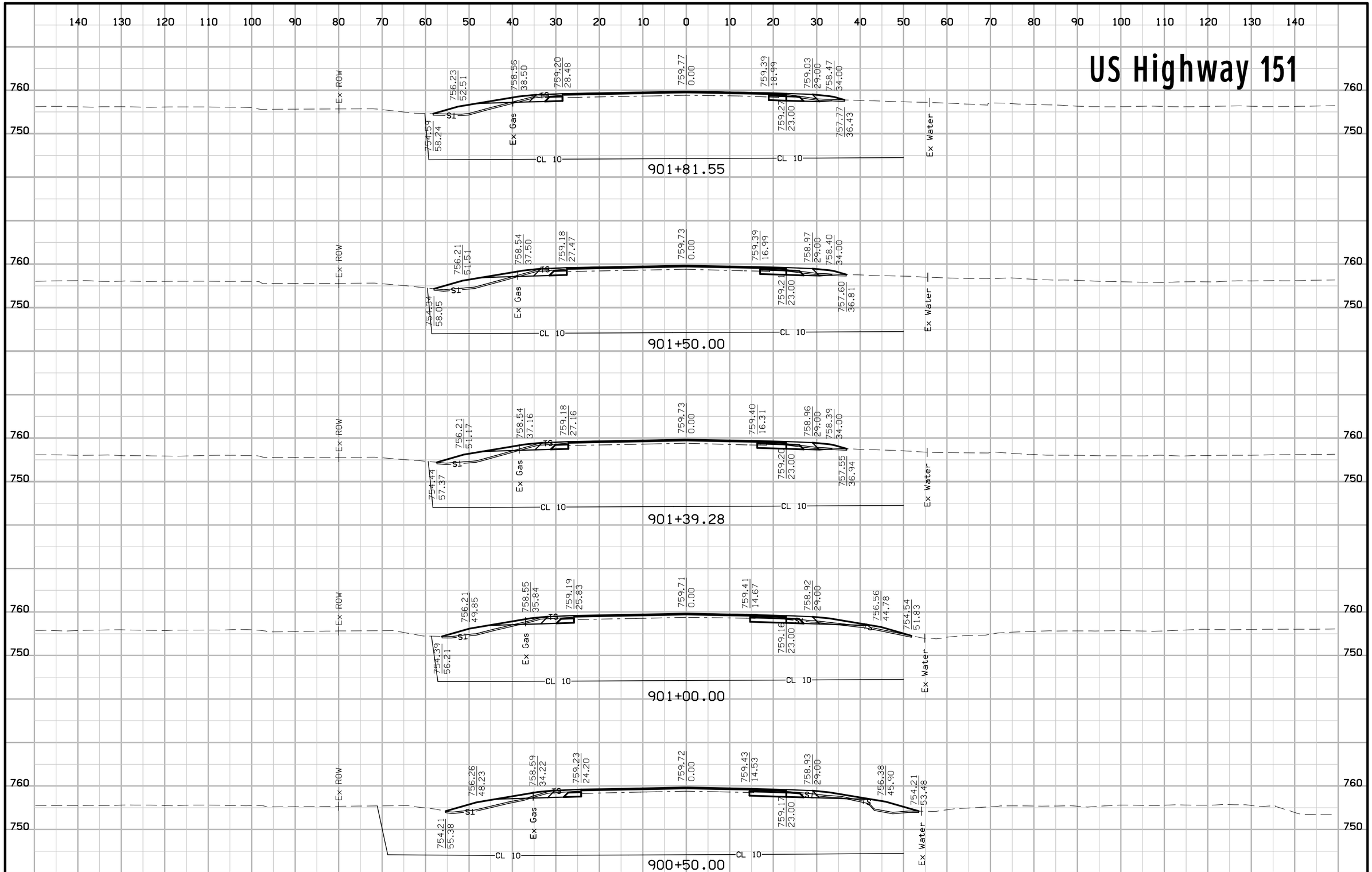
898+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.49

9:43:32 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.50

9:43:35 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

790
780

781.91
56.65

784.35
42.00

784.75
38.00

784.99
32.00

974+22.81

790
780

781.99
56.64

784.43
42.00

784.83
38.00

785.05
32.43

974+18.24

760
750

Ex ROW

754.81
58.80

756.28
53.66

758.61
39.66

759.01
35.66

759.25
29.67

759.84
0.00

759.38
23.33

759.02
33.34

758.62
37.34

756.58
49.56

754.83
55.70

Ex Gas

759.26
27.34

Ex Water

CL 10

902+58.42

CL 10

760
750

Ex ROW

754.84
58.63

756.26
53.66

758.60
39.66

759.24
29.67

759.83
0.00

759.36
23.33

759.00
33.34

756.56
49.56

754.81
55.71

Ex Gas

759.24
27.34

Ex Water

CL 10

902+50.00

CL 10

760
750

Ex ROW

754.79
58.07

756.24
52.97

758.58
38.97

759.22
29.02

759.80
0.00

759.39
20.16

759.03
30.17

758.47
35.17

759.27
24.17

757.83
37.39

Ex Gas

Ex Water

CL 10

902+00.00

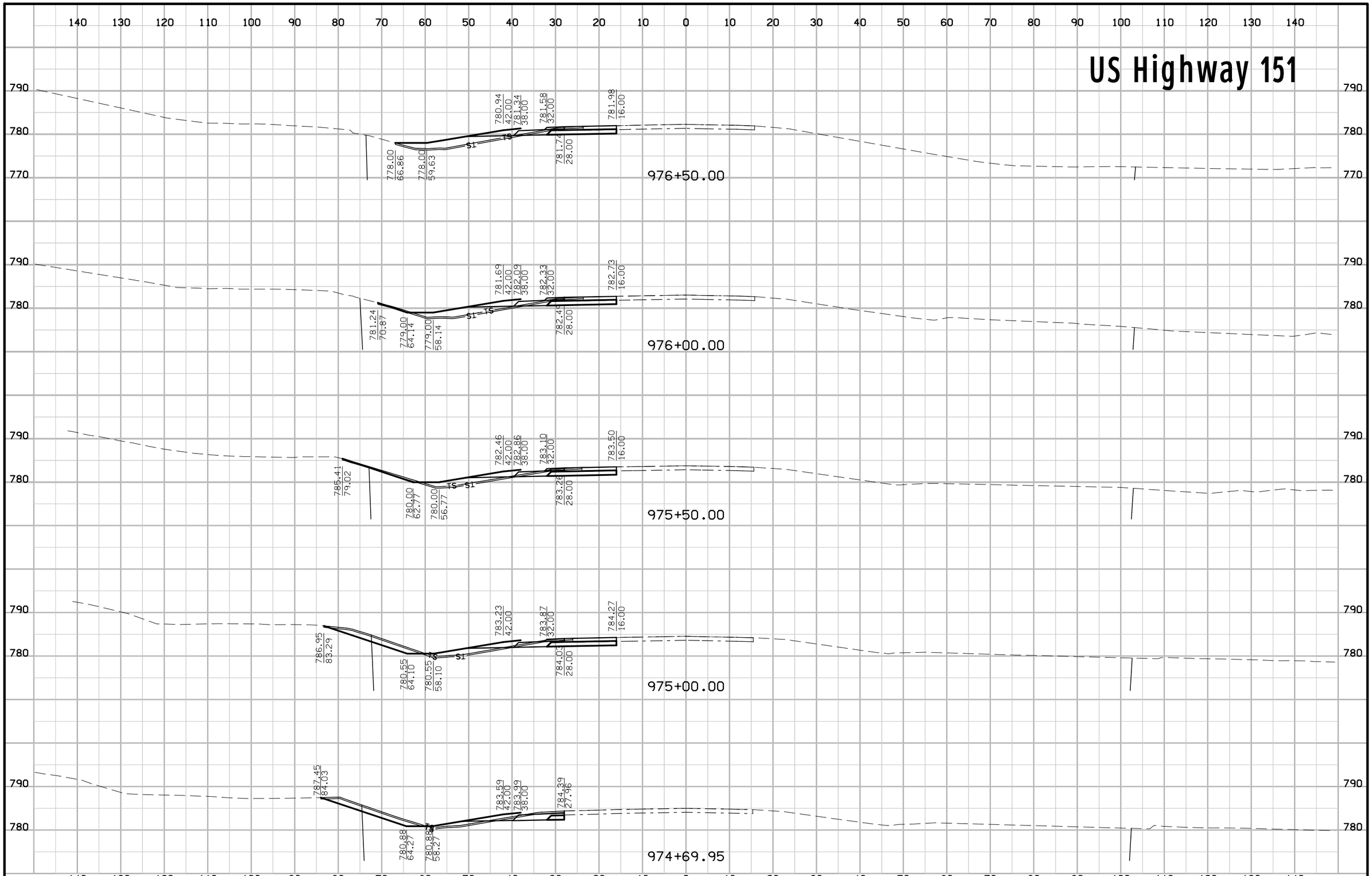
CL 10

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.51

9:43:38 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.52

9:43:41 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

780
770

773.13 76.90
773.00 76.51
773.00 70.51
776.00 60.00
779.00 42.00
779.40 38.00
779.64 32.00
779.80 28.00
780.04 16.00
779.86 21.92
779.65 27.25
779.27 30.97
777.10 44.00
770.85 65.90
TSS1
S1
TS

978+00.00

773.37 75.89
773.81 69.90
776.19 60.00
779.20 42.00
779.60 38.00
779.84 32.00
780.00 28.00
780.24 16.00
779.83 24.28
779.16 30.97
776.99 44.00
770.89 65.33
TS

977+81.50

773.92 76.83
773.92 69.08
776.51 60.00
779.51 42.00
779.91 38.00
780.15 32.00
780.31 28.00
780.55 16.00
TS

977+54.19

774.00 76.98
774.00 68.98
776.56 60.00
779.56 42.00
779.96 38.00
780.20 32.00
780.31 28.00
780.61 16.00
TSS1

977+50.00

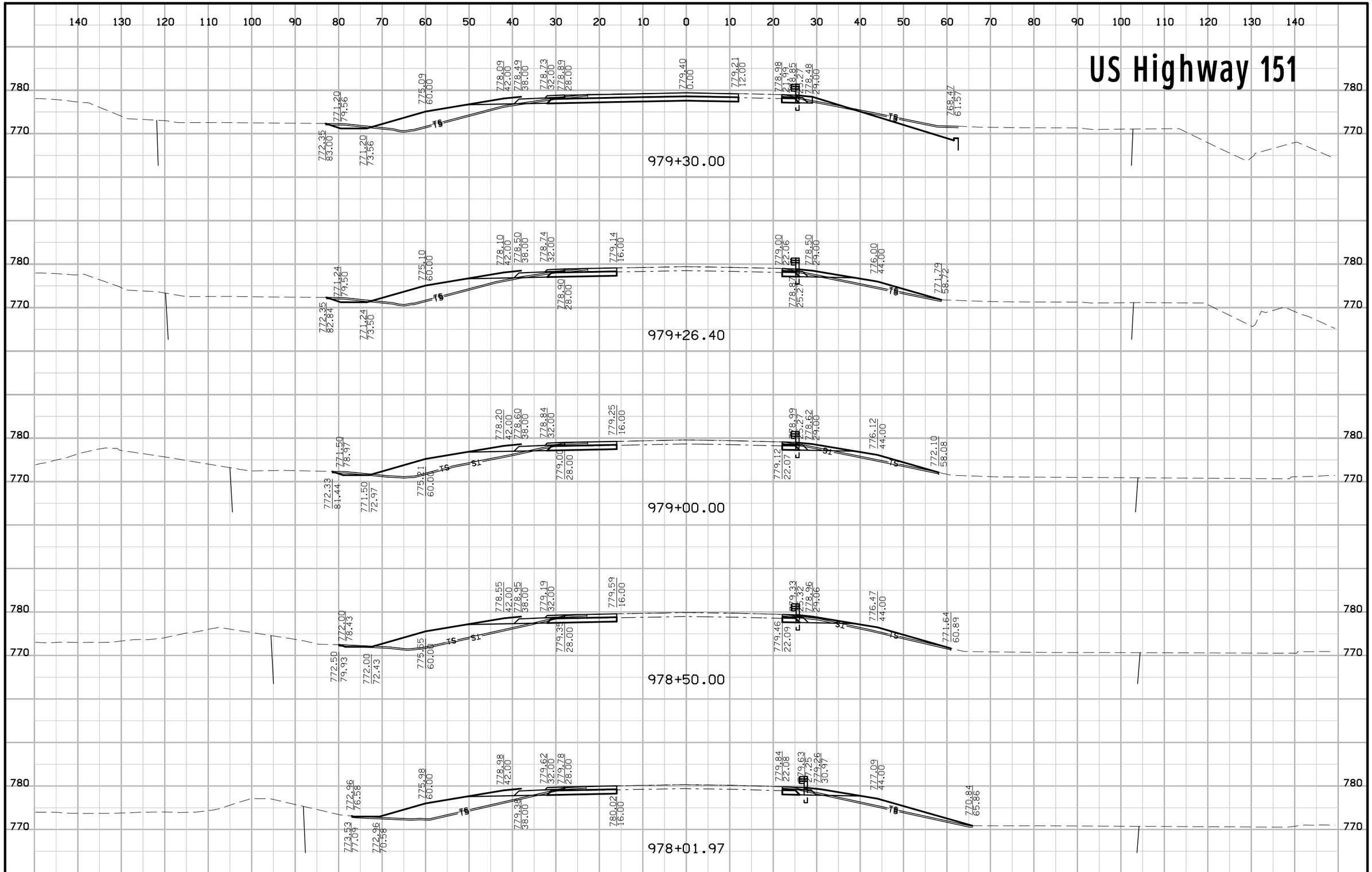
776.52 75.08
775.50 72.02
775.50 66.02
777.23 60.00
780.22 42.00
780.62 38.00
780.86 32.00
781.02 28.00
781.26 16.00
S1

977+00.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.53

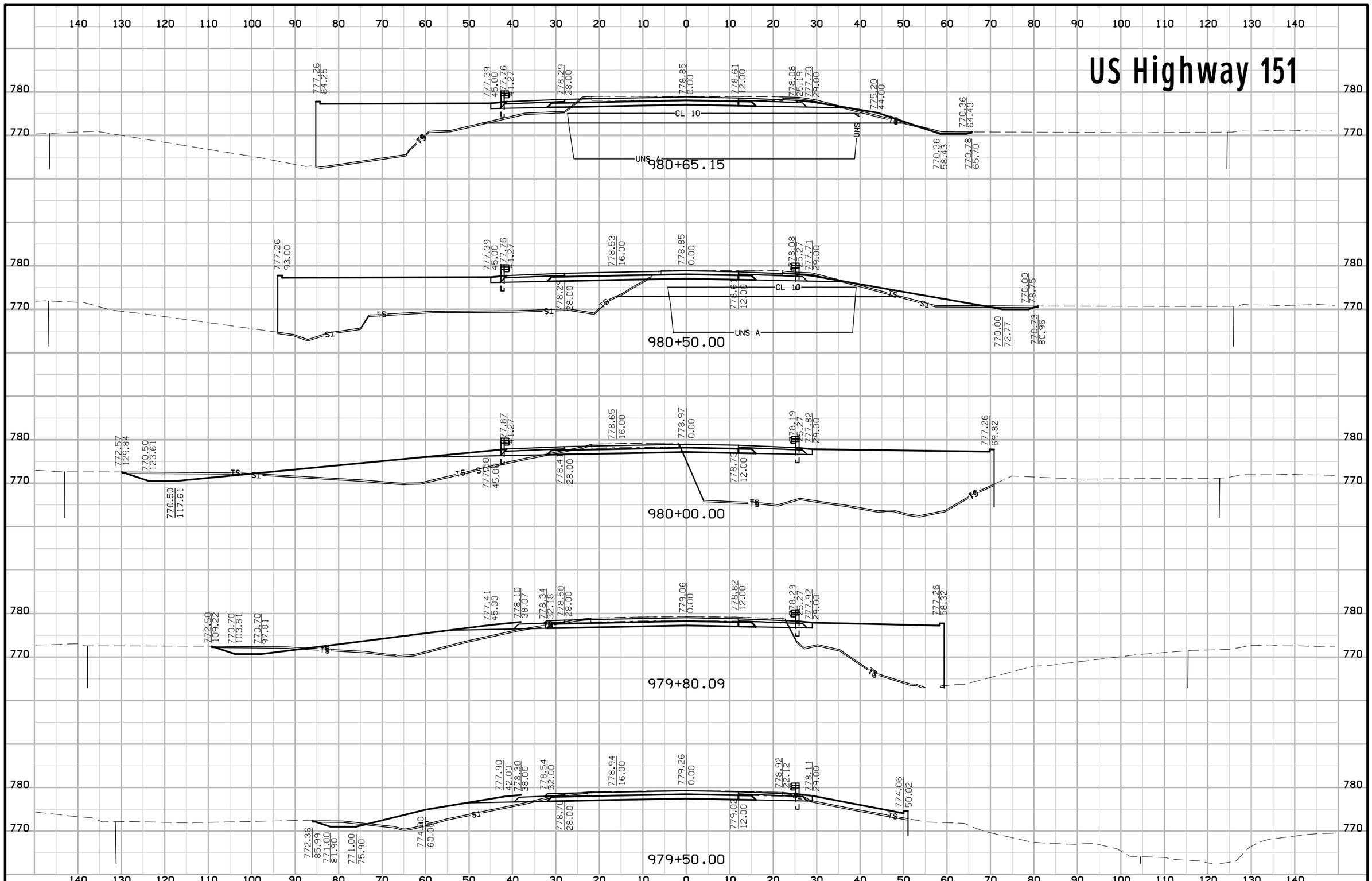
9:43:45 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151



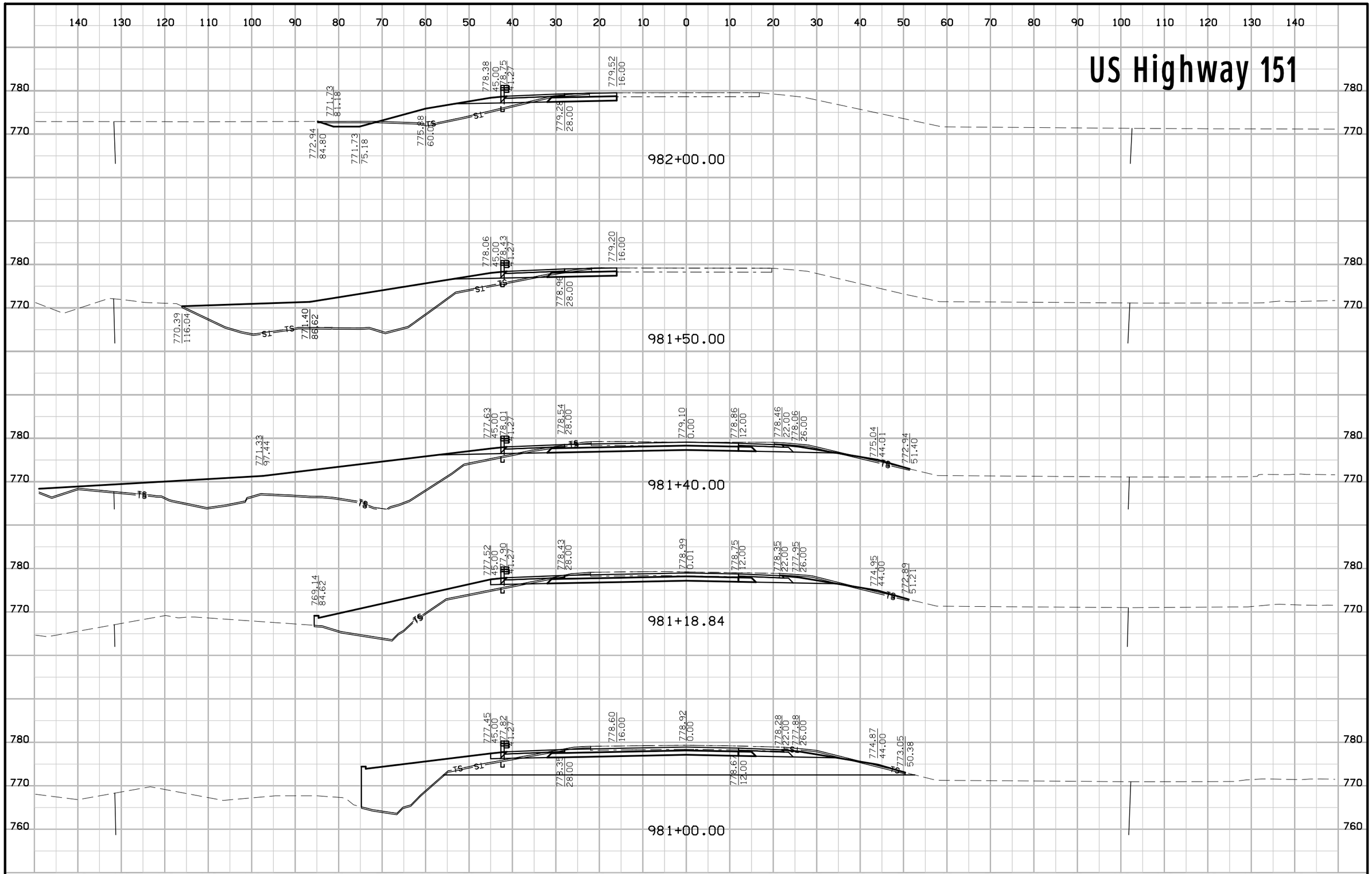
FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.54

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.55

US Highway 151



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER W.56

9:43:56 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

780
770

773.55 80.26
776.71 60.00
779.71 42.00
780.11 38.00
780.35 32.00
780.51 28.00
780.75 16.00
773.06 78.78
773.06 72.78
TS

983+10.50

772.40 80.39
779.57 42.00
779.97 38.00
780.21 32.00
780.61 16.00
772.98 82.35
772.40 74.59
776.67 60.00
780.31 28.00
TS
S1

983+00.00

772.87 83.07
776.88 60.00
779.09 46.73
780.07 28.00
772.24 75.18
772.24 81.18
779.47 42.96
780.31 16.00
TS

982+76.24

772.07 81.18
778.81 46.73
779.19 43.00
780.03 16.00
772.82 83.42
772.07 75.18
776.60 60.00
779.79 28.00
TS
S1

982+50.00

772.92 84.62
771.78 81.18
775.93 60.00
778.81 41.27
779.34 28.00
779.58 16.00
771.78 75.18
778.43 45.00
TS

982+06.32

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.57

9:43:59 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

US Highway 151

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

790
780

781.78
78.71
778.95
70.22
778.95
64.22
780.16
60.00
783.16
42.00
783.56
38.00
783.80
32.00
783.96
28.00
784.19
16.09

984+83.16

790
780
770

781.17
80.33
778.05
70.95
778.05
64.95
779.46
60.00
782.46
42.00
782.86
38.00
783.10
32.00
783.26
28.00
783.50
16.00

984+50.00

790
780
770

780.25
82.01
776.78
71.60
776.78
65.60
778.38
60.00
781.38
42.00
781.78
38.00
782.02
32.00
782.18
28.00
782.42
16.00

984+00.00

790
780

Prop. Type "C"
Ent. Lt.
-1.983%

781.69
32.00
781.85
28.00
782.09
16.00

983+85.00

790
780
770

777.77
79.19
775.52
66.45
777.37
60.00
780.37
42.00
780.77
38.00
781.01
32.00
781.17
28.00
781.41
16.00

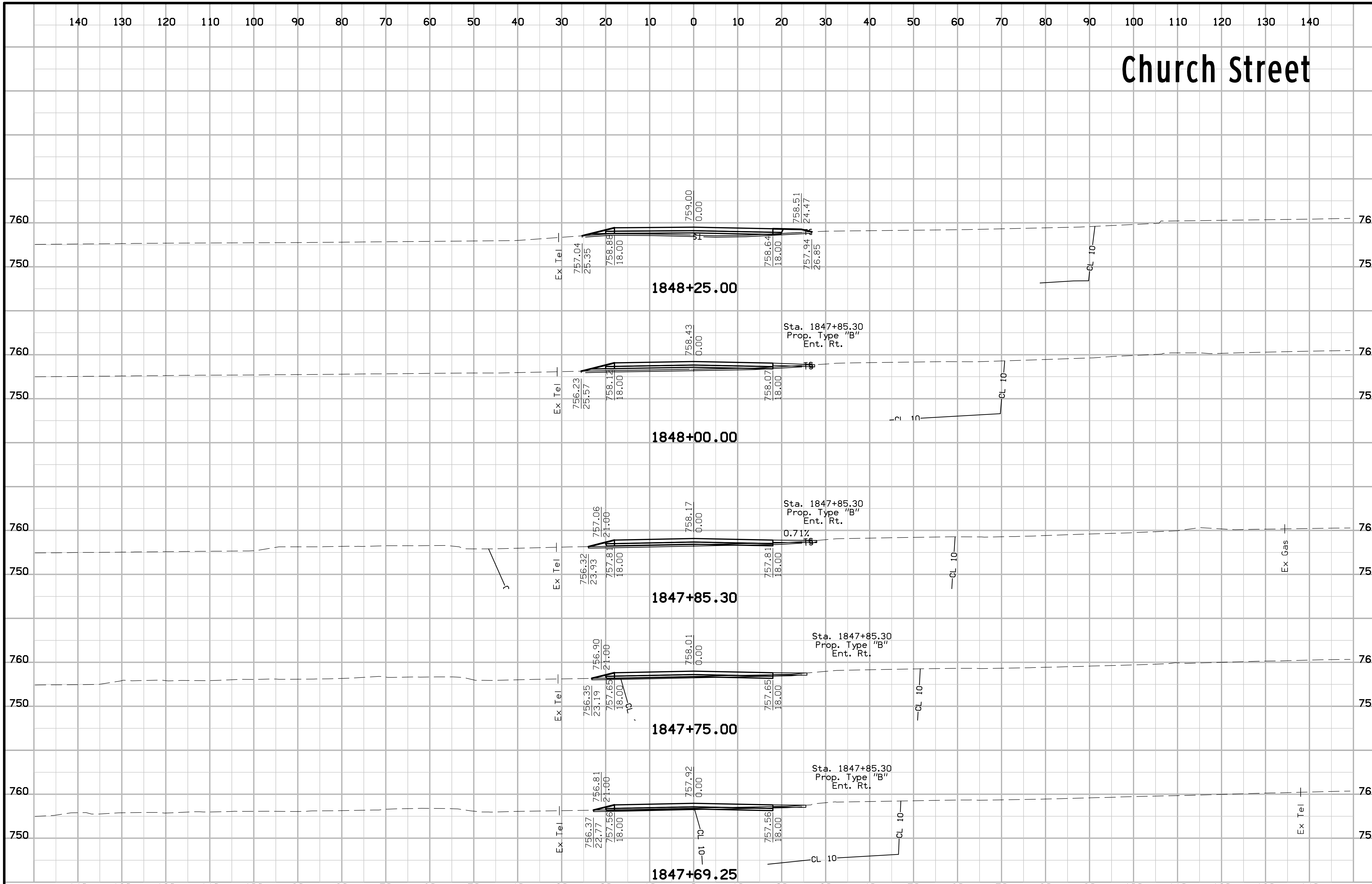
983+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	W.58

9:44:03 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158W02.sht

Church Street


1848+25.00
759.00
0.00
758.51
24.47
757.04
25.35
758.88
18.00
758.64
18.00
757.94
26.85
Ex Tel
CL 10
1848+00.00
Sta. 1847+85.30
Prop. Type "B"
Ent. Rt.
758.43
0.00
756.23
25.57
758.12
18.00
758.07
18.00
1847+85.30
757.06
21.00
758.17
0.00
0.71%
756.32
23.93
757.81
18.00
757.81
18.00
Ex Gas
1847+75.00
756.90
21.00
758.01
0.00
756.35
23.19
757.65
18.00
757.65
18.00
1847+69.25
756.81
21.00
757.92
0.00
756.37
22.77
757.56
18.00
757.56
18.00
760
750

FILE NO.	ENGLISH	DESIGN TEAM Snyder & Associates, Inc.	LINN COUNTY	PROJECT NUMBER NHSX-151-3(158)--3H-57	SHEET NUMBER X.1

11:00:31 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Church Street

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770 760 780

763.25 55.95 | Ex Tel | Ex Tel | 761.62 18.00 | 761.22 0.00 | 760.84 18.00 | 761.13 32.64 | 761.33 44.77 | 760.56 49.36 | Ex San | TS

1849+00.00

762.0(66.24 | 762.22 42.28 | 761.45 25.15 | Ex Tel | 760.82 18.00 | TS | 760.59 0.00 | 760.23 18.00 | 760.63 21.30 | Ex Tel | Ex Tel | 760.92 33.60 | Ex ROW | 759.00 41.33 | TS

760 750

1848+75.00

770 760 750

760.92 66.17 | 761.79 38.35 | 761.21 23.12 | Ex Tel | 760.52 18.00 | TS | 760.43 0.00 | Ex Tel | Ex Tel | 760.07 18.00 | Ex ROW | 760.50 37.00 | 760.16 34.00 | Pr ROW | 758.85 41.63 | TS

CL 10 CL 10

1848+69.79

770 760 750

757.93 66.00 | 760.82 34.00 | Ex Tel | Ex ROW | 760.56 21.00 | Ex Tel | 760.04 18.00 | TS | 759.95 0.00 | 759.59 18.00 | 759.53 21.00 | 759.41 34.00 | Pr ROW | 758.80 36.47 | TS

CL 10 CL 10 CL 10

1848+56.14

770 760 750

Ex ROW | 759.44 30.74 | 759.80 20.39 | 759.74 0.00 | 759.34 20.39 | 759.18 33.39 | S1 | TS | 756.58 43.36 | Ex Tel | 759.79 18.00 | TS | 759.38 18.00 | 758.65 35.52 | Ex Tel | CL 10

CL 10 CL 10

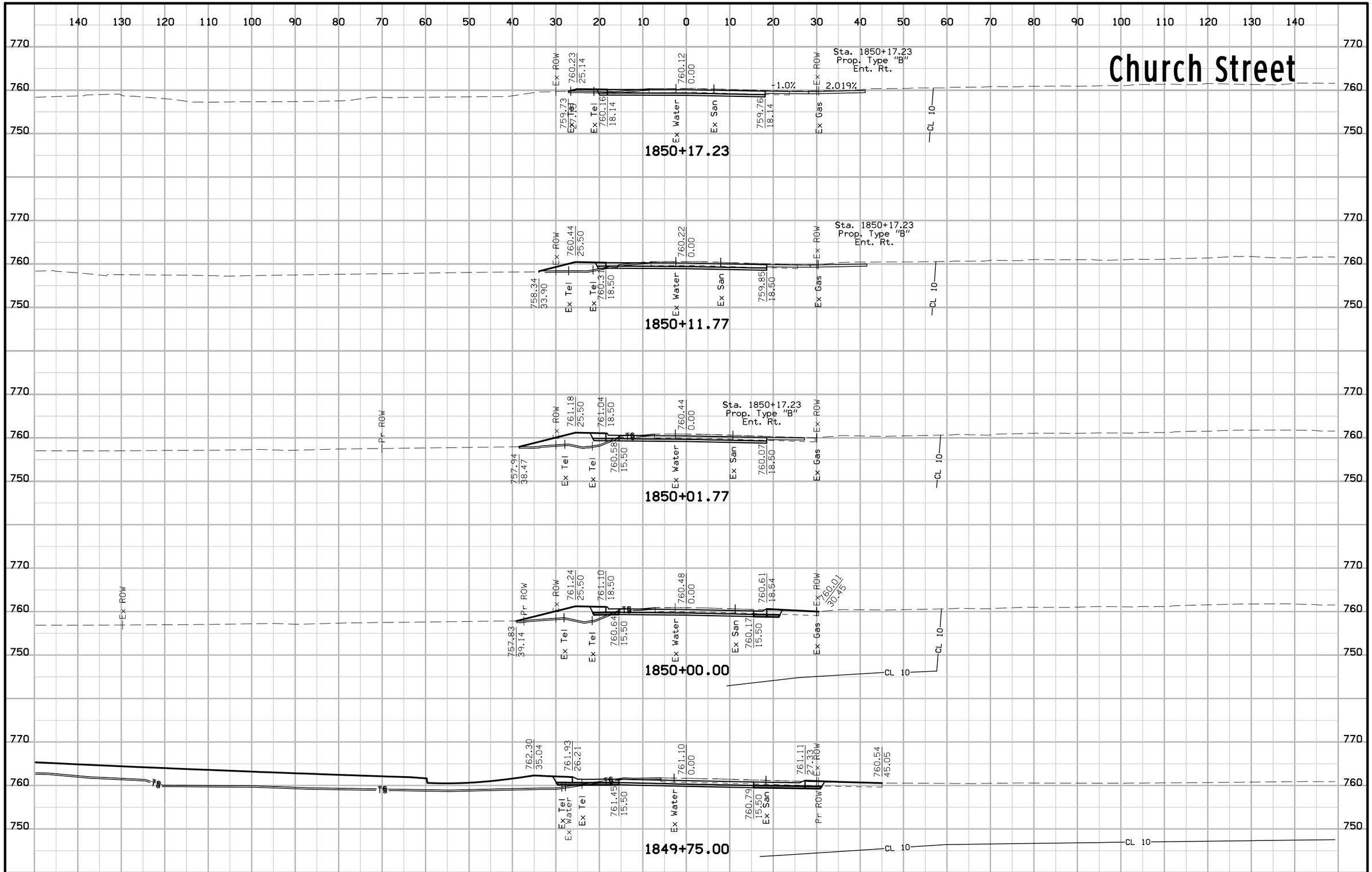
1848+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.2

11:00:33 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

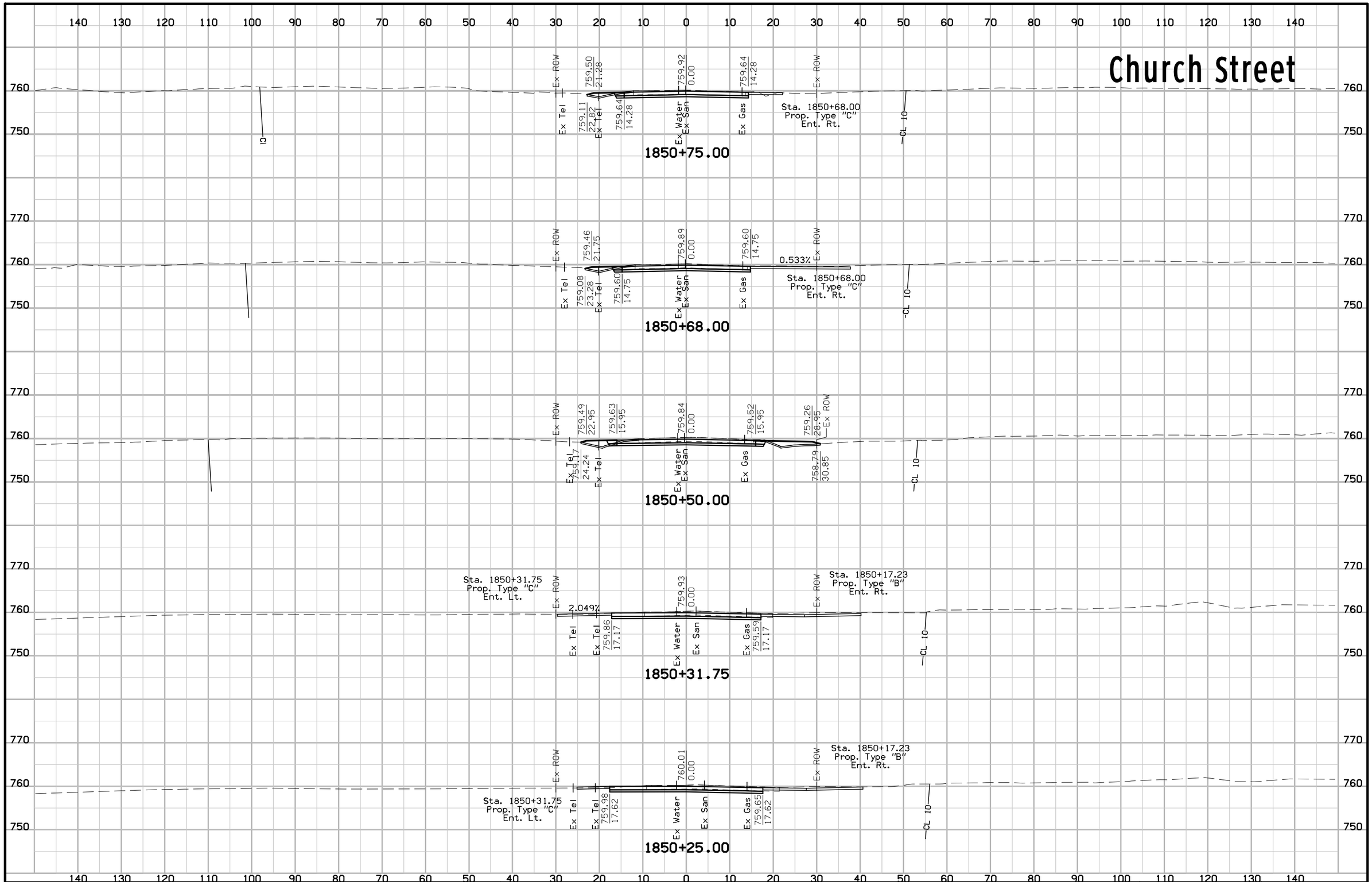
Church Street



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.3

11:00:34 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

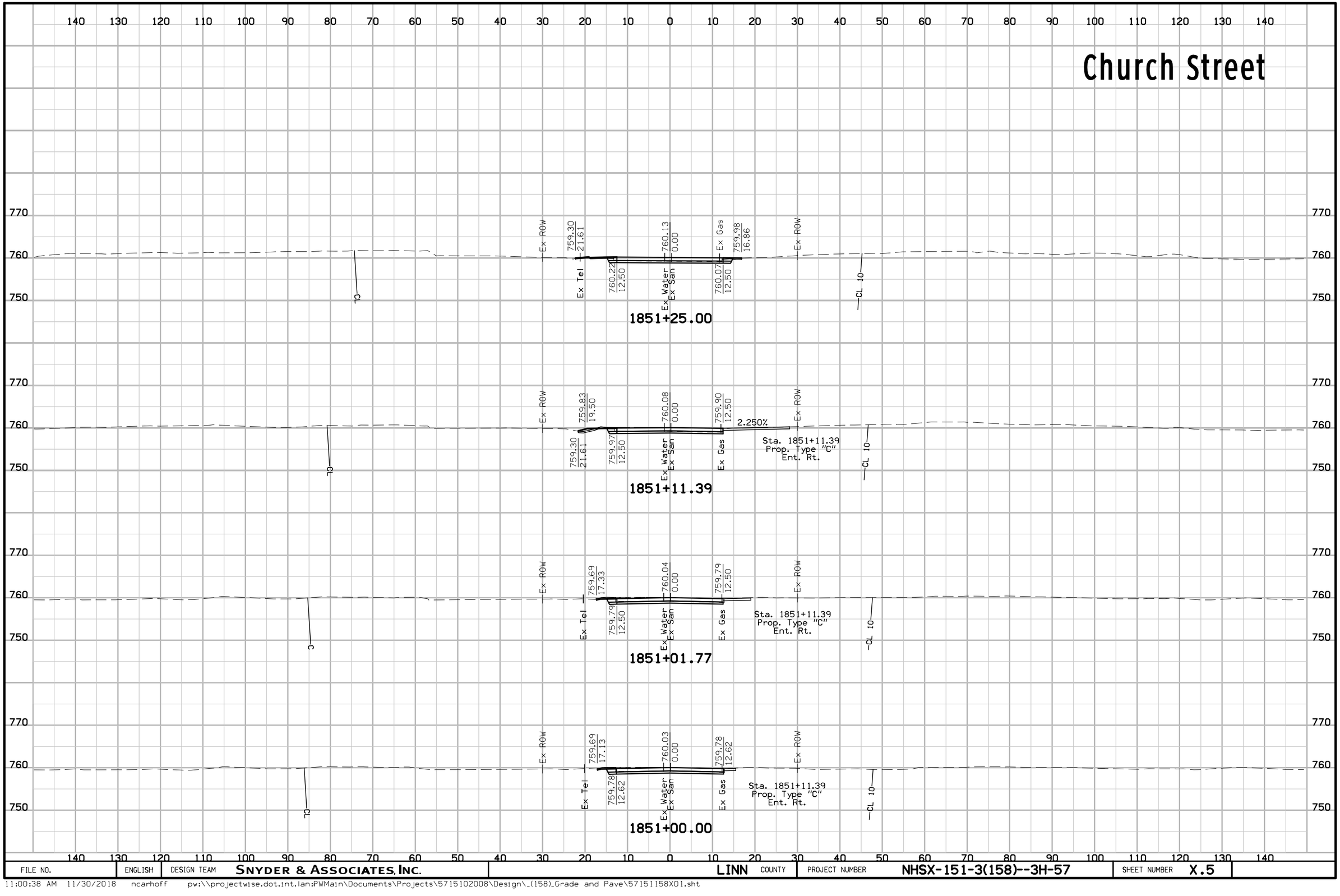
Church Street



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.4

11:00:36 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Church Street



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.5

Prairie Avenue

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770 760 750

Pr ROW | Ex ROW | Ex FO | Ex Water | Ex Gas | Ex Gas | Ex Water | Ex FO

765.04 / 21.00 | 764.90 / 14.00 | 764.68 / 0.00

758.59 / 46.79 | 764.46 / 11.00 | 764.62 / 14.00

TS TS TS TS

CL 10 CL 10 CL 10 CL 10 CL 10

2864+94.81

770 760 750 740

765.53 / 21.00 | 765.39 / 14.00 | 765.17 / 0.00 | 764.98 / 32.52

758.19 / 53.99 | 764.95 / 11.00 | 765.27 / 14.00 | 764.91 / 35.28

Ex FO | Ex Gas | Ex FO

CL 10 CL 10 CL 10 CL 10 CL 10

2864+82.50

780 770 760 750 740

765.76 / 21.86 | 765.58 / 14.71 | 765.47 / 0.00 | 765.53 / 25.34 | 765.42 / 30.59 | 765.02 / 37.32

759.06 / 54.09 | 765.21 / 11.00 | 765.67 / 14.00

TS TS TS TS TS TS

Ex FO | Ex Gas | Ex FO

CL 10 CL 10 CL 10 CL 10 CL 10

2864+75.00

780 770 760 750 740

765.67 / 48.30 | 765.85 / 30.69 | 766.43 / 0.00

766.04 / 11.00 | 766.95 / 14.00

TS TS TS TS TS

Ex Gas

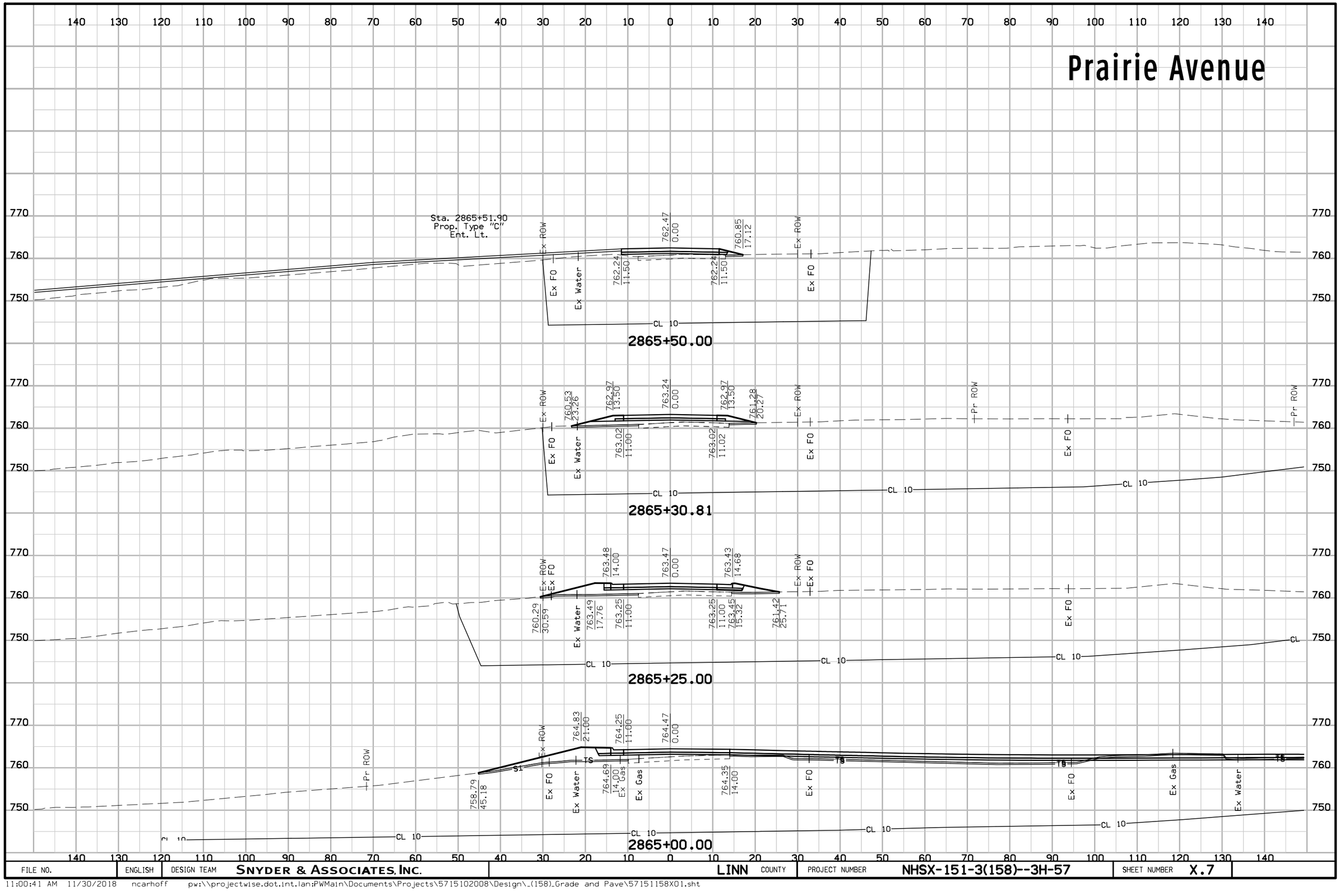
2864+50.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.6

11:00:39 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

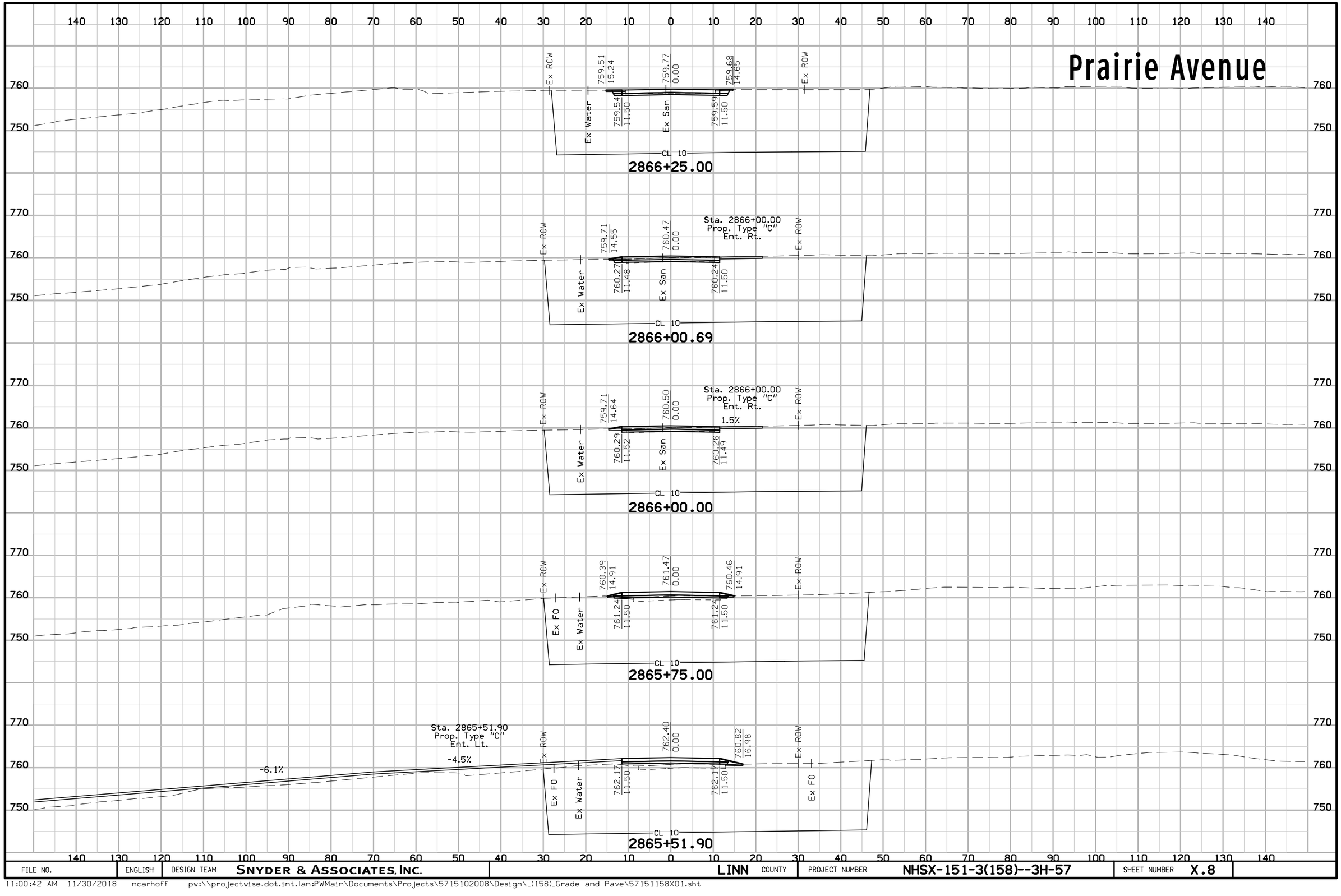
Prairie Avenue



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.7

11:00:41 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

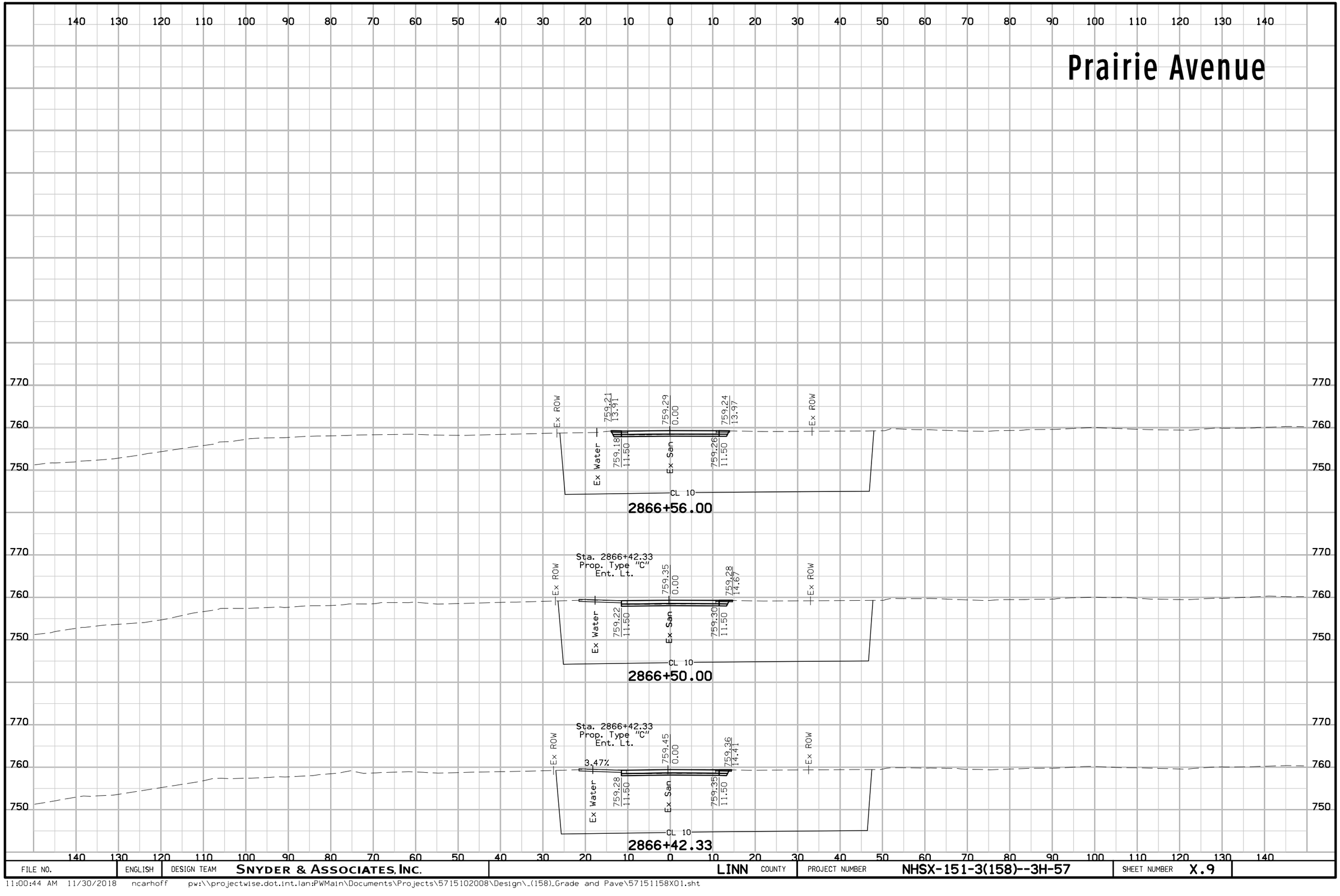
Prairie Avenue



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.8

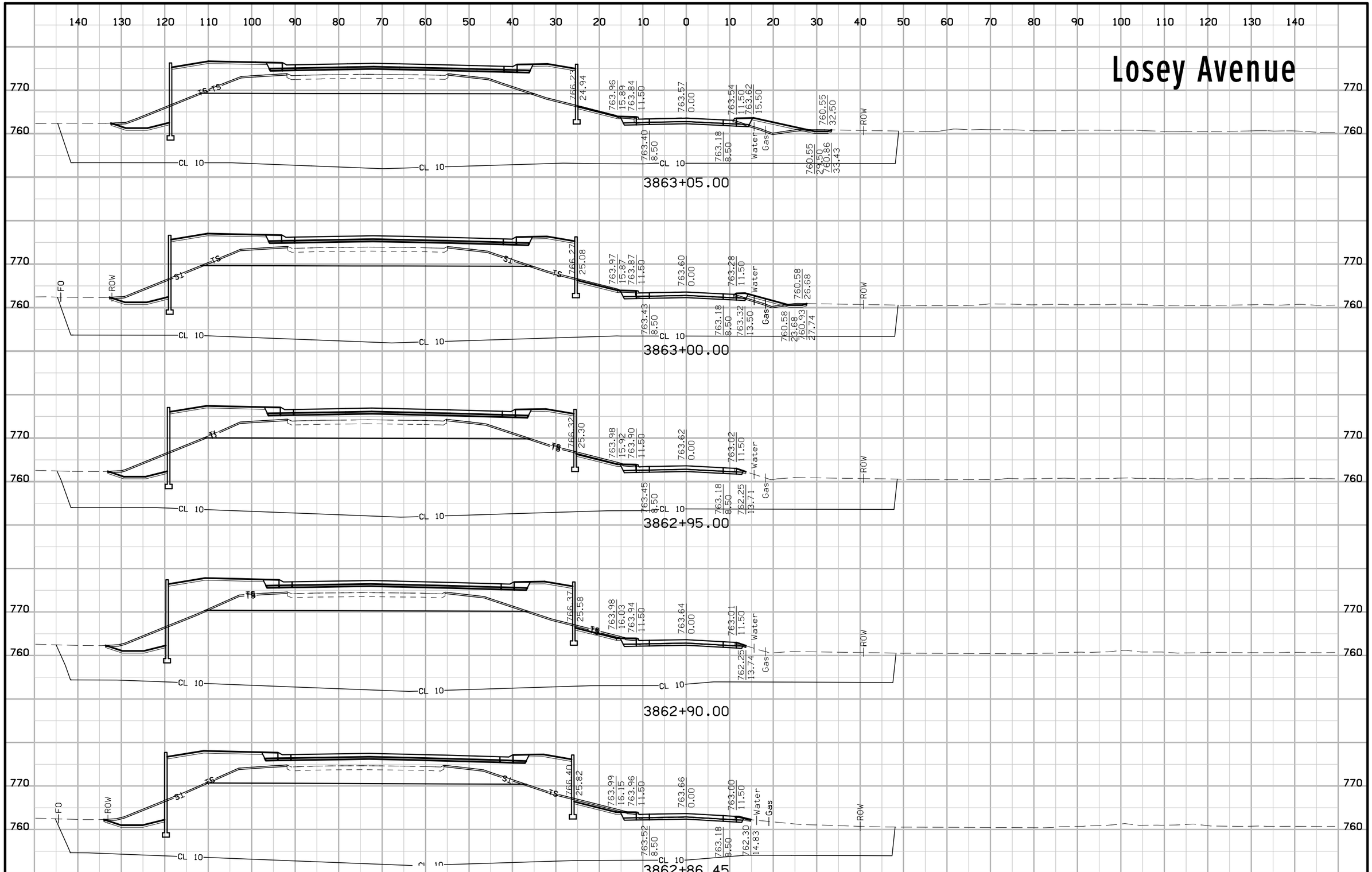
11:00:42 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Prairie Avenue



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.9

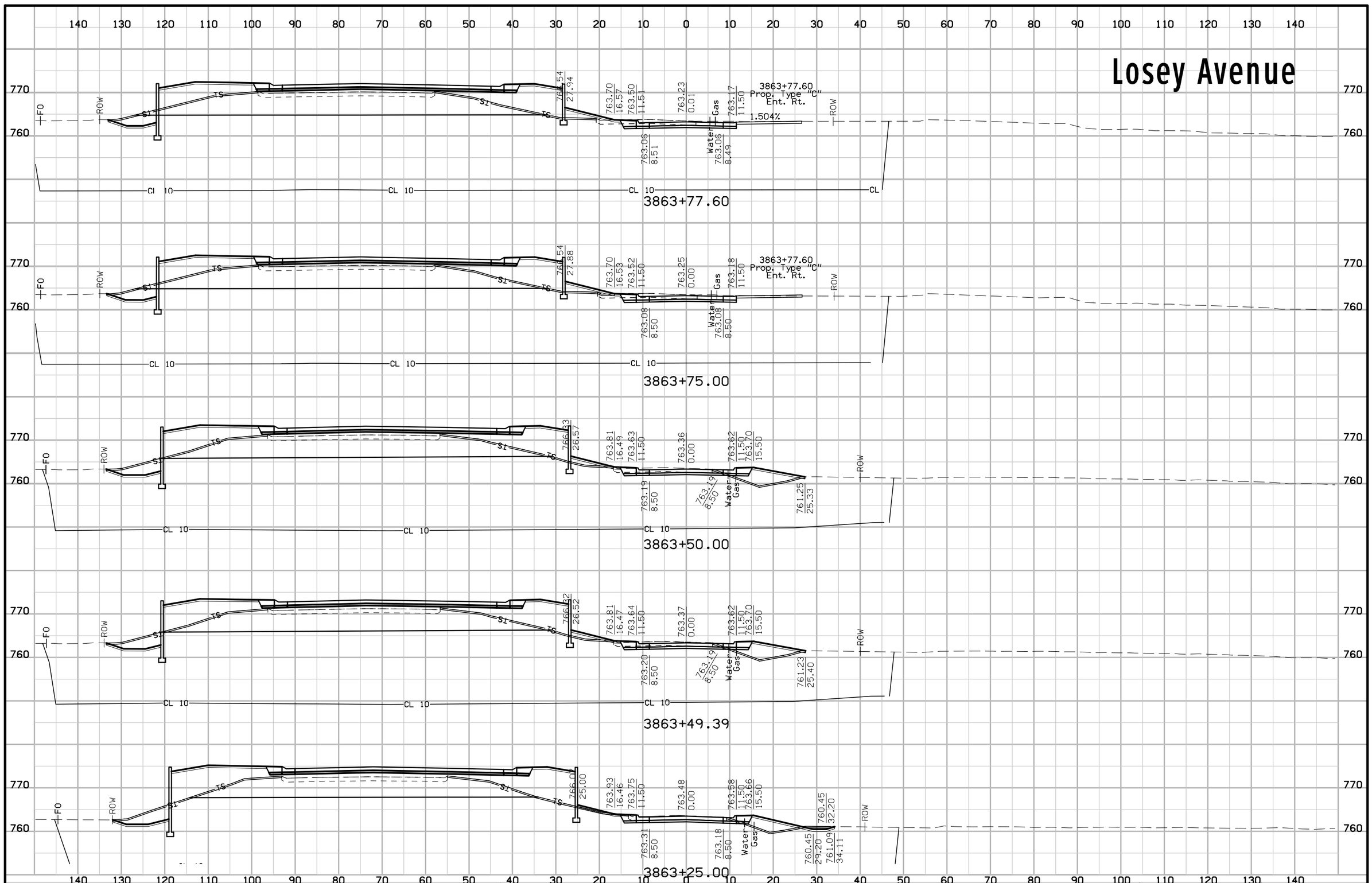
Losey Avenue



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.10

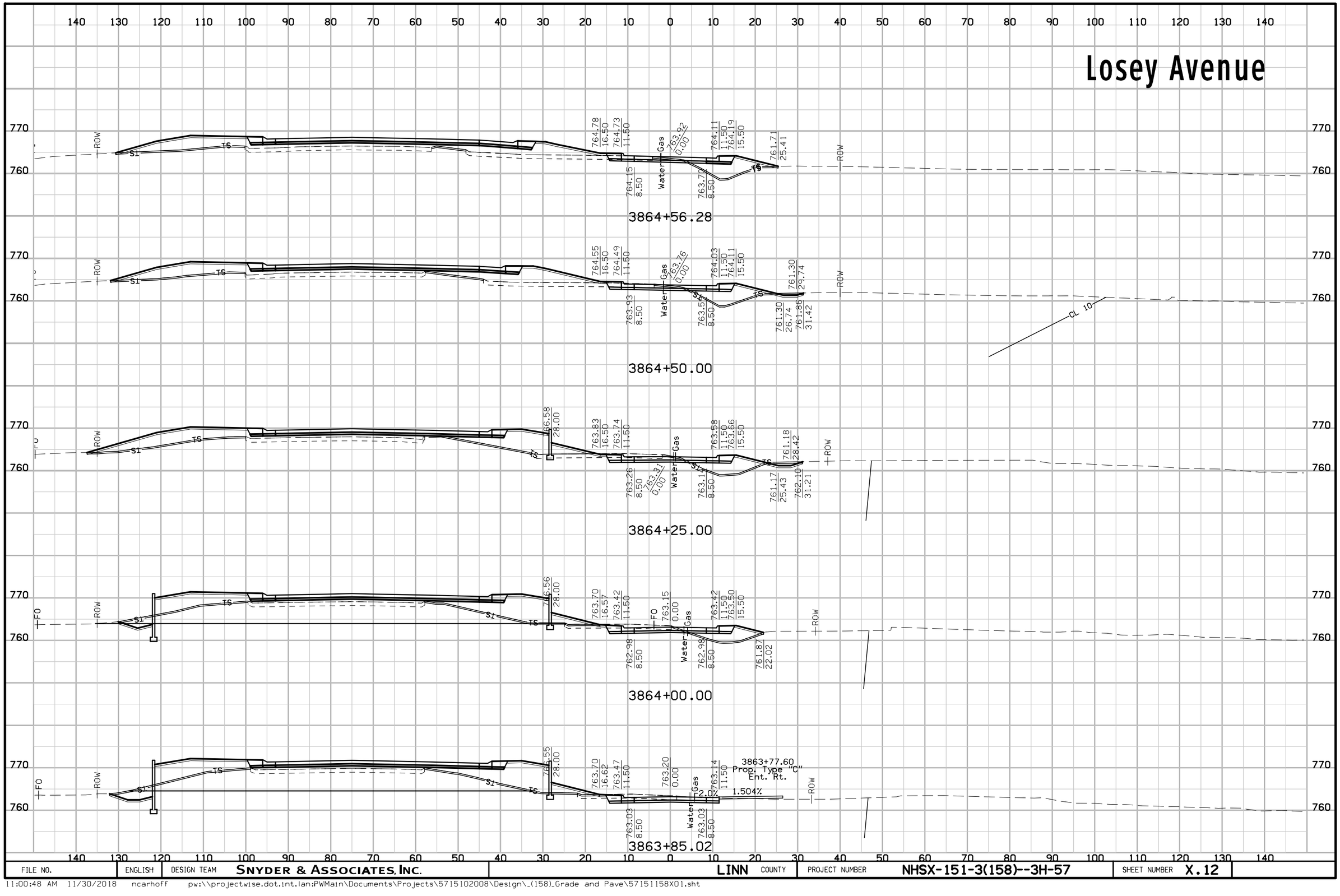
11:00:45 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Losey Avenue



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.11

Losey Avenue



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.12

Losey Avenue

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760

764.63
0.00
Water
Gas
765.07
8.50
764.18
8.50
763.32
31.71
TS

3864+80.81

770
760

ROW
764.46
0.00
Water
Gas
764.85
8.50
764.07
8.50
763.88
19.94
763.88
22.53
761.28
36.28
TS

3864+75.00

770
760

ROW
S1
TS
764.94
16.50
764.85
11.50
764.88
19.51
764.26
8.50
764.01
0.00
Water
Gas
763.76
8.50
764.11
11.70
764.19
15.36
761.67
25.30
TS
ROW

3864+59.42

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.13

11:00:50 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Stallman Drive

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

760 / 750

Pr ROW — 758.78 / 12.53 — 759.03 / 0.03 — 758.78 / 12.46 — Ex ROW — Ex FO — Ex Gas

757.62 / 18.04 — 758.39 / 17.00

4875+07.57

760 / 750

Pr ROW — 758.79 / 12.50 — 759.04 / 0.00 — 758.79 / 12.50 — Ex ROW — Ex FO — Ex Gas

757.65 / 18.06 — 758.49 / 16.91

4875+00.00

760 / 750

TS — Ex R0W — 758.89 / 12.50 — 759.14 / 0.00 — 758.89 / 12.50 — Ex ROW — Ex FO — Ex Gas

757.61 / 19.02 — 758.77 / 15.46

4874+79.34

760 / 750 / 770

TS — Ex ROW — Ex ROW — 758.92 / 12.50 — 759.17 / 0.00 — 758.92 / 12.50 — Ex ROW — Ex FO — Ex Gas

757.67 / 18.93 — 758.73 / 17.06

4874+75.00

760 / 750

SS — Ex ROW — Ex ROW — 759.17 / 12.50 — 759.42 / 0.00 — 759.17 / 12.50 — Ex ROW — Ex FO — Ex Gas

758.44 / 16.57 — 759.49 / 22.12

4874+50.00

760 / 750

TS1 — Ex ROW — Ex ROW — 759.54 / 12.50 — 759.79 / 0.00 — 759.54 / 12.50 — Ex ROW — Ex FO — Ex Gas

758.05 / 21.44 — 759.04 / 14.67

4874+25.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.14

11:00:51 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Stallman Drive

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770
760
750

758.95 / 12.50
758.91 / 0.00
758.79 / 12.50
759.14 / 30.75
758.66 / 34.81

4875+75.00

758.51 / 22.68
758.98 / 12.50
759.14 / 0.00
758.89 / 12.50
758.36 / 81.91
759.00 / 17.47
758.81 / 16.17
758.25 / 22.71

4875+55.65

758.48 / 21.62
758.94 / 12.50
759.15 / 0.00
758.90 / 12.50
758.22 / 42.77
758.97 / 16.46
758.85 / 13.42
757.57 / 21.63

4875+50.00

758.45 / 20.59
758.89 / 12.50
759.14 / 0.00
758.89 / 12.50
756.74 / 31.59
758.40 / 23.86
758.95 / 15.46
757.45 / 20.42
Ex ROW

4875+43.95

757.44 / 21.51
758.81 / 12.50
759.05 / 0.00
758.81 / 12.50
758.36 / 18.24
758.86 / 13.21
758.19 / 17.54
Ex ROW
Ex FO
Ex Gas

4875+25.00

Pr ROW
757.56 / 20.13
758.78 / 12.50
759.03 / 0.00
758.78 / 12.50
758.30 / 17.54
758.42 / 16.38
Ex ROW
Ex FO
Ex Gas

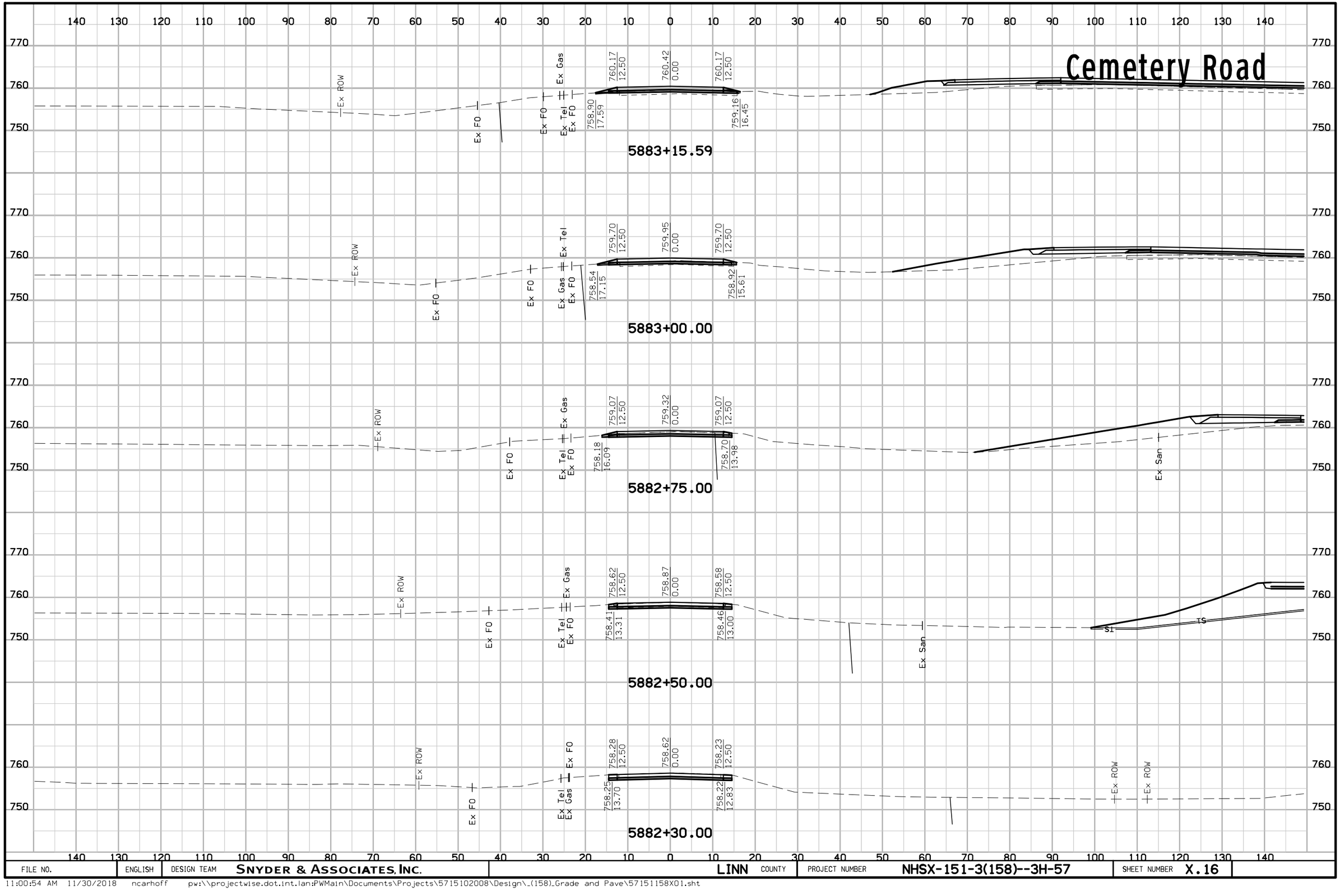
4875+11.36

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.15

11:00:53 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Cemetery Road



FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.16

11:00:54 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Cemetery Road

5884+00.00

Ex ROW
754.49 95.20
754.47 81.87
Ex Tel
Ex FO
760.60 46.81
761.03 40.72
761.31 31.61
Ex Gas
Ex FO
761.63 13.30
Ex Gas
759.89 64.78
759.68 74.35
Ex TV
759.31 80.76
758.36 90.42
752.57 124.39
Ex Water
752.42 142.28
752.67 143.70
CL 10

5883+75.00

Ex ROW
755.63 74.39
754.42 69.99
754.40 58.30
Ex Tel
Ex FO
Ex Gas
Ex FO
761.40 12.50
761.25 16.10
761.62 0.00
761.79 12.50

5883+60.60

Ex ROW
Ex Tel
Ex FO
Ex Gas
Ex FO
760.01 17.68
761.23 12.50
761.47 0.00
761.53 12.50

5883+50.00

Ex ROW
Ex Gas
Ex Tel
Ex FO
Ex FO
Ex FO
Ex FO
759.74 17.98
761.11 12.50
761.36 0.00
761.34 12.50

5883+25.00

Ex ROW
Ex FO
Ex FO
Ex Gas
Ex Tel
Ex FO
759.06 18.23
760.49 12.50
760.74 0.00
760.56 12.50
759.42 18.63

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.17

11:00:55 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Cemetery Road

5884+92.07

5884+86.04

5884+75.00

5884+50.00

5884+25.00

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER	X.18

11:00:57 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht

Cemetery Road

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

770 760 750

CL 10

Ex Water

Ex FO

Ex Gas

Ex Water

Ex Storm

Ex ROW

5885+42.00

756.60	756.90	756.71	757.26	756.41	757.09	757.68	
12.00	0.00	11.00	17.00	21.35			

5885+31.91

756.94	757.18	756.96	757.50	756.71	757.30	757.78	
12.00	0.00	11.00	17.00	23.16			

5885+27.53

757.06	757.30	757.08	757.62	756.78	757.36	758.02	
12.00	0.00	11.00	17.00	25.81			

5885+25.00

756.92	757.13	757.37	757.15	757.69	757.12	757.39	758.17	
26.84	12.00	0.00	11.00	17.00	14.62			

5885+00.00

760.63	759.32	758.95	758.18	758.12	757.82	758.06	757.84	758.12	
146.00	85.40	68.95	30.62	21.46	12.00	0.00	11.00	17.00	

FILE NO.	ENGLISH	DESIGN TEAM	SNYDER & ASSOCIATES, INC.	LINN COUNTY	PROJECT NUMBER	NHSX-151-3(158)--3H-57	SHEET NUMBER X.19

11:00:58 AM 11/30/2018 ncarhoff pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5715102008\Design_(158)_Grade and Pave\57151158X01.sht