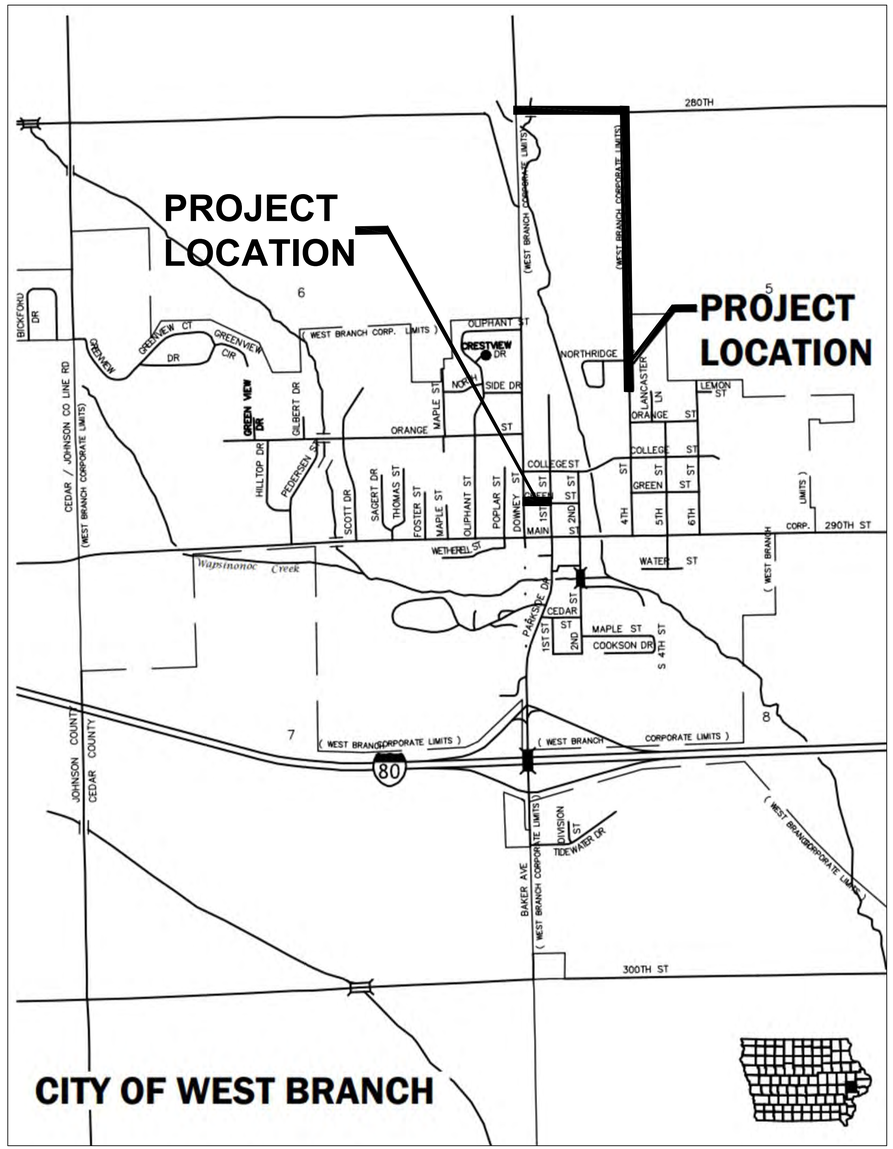
TRUCK REROUTING AND PAVEMENT REPLACEMENT PLAN

CITY OF WEST BRANCH IOWA



VICINITY MAP

NOT TO SCALE

DRAWING INDEX

No.	DRAWING TITLE
A.01	INDEX TITLE SHEET
B.01A	TYPICAL SECTION (GREEN)
B.02A	TYPICAL SECTION (GREEN)
B.01B	TYPICAL SECTION (4TH ST.)
B.02B	TYPICAL SECTION (4TH ST.)
B.03B	TYPICAL SECTION (4TH ST.)
B.04B	TYPICAL SECTION (4TH ST.)
B.05	SIDEWALK DETAILS
B.06	PAVING DETAILS
B.07	PAVING DETAILS
B.08	PAVING DETAILS
B.09	HYDRANT AND STORM SEWER DETAILS
B.10	STORM SEWER DETIALS
B.11	STORM SEWER DETIALS
B.12	DRAINAGE DETIALS
B.13	DRAINAGE DETIALS
B.14	RETAINING WALL DETIALS
C.01	QUANTITIES
C.02	GENERAL NOTES
C.03	GENERAL NOTES
D.01A	DEMOLITION PLAN (GREEN)
D.01B	DEMOLITION PLAN (4TH ST.)
D.02B	DEMOLITION PLAN (4TH ST.)
D.03B	DEMOLITION PLAN (4TH ST.)
D.04B	DEMOLITION PLAN (4TH ST.)
D.05B	DEMOLITION PLAN (4TH ST.)
D.06B	DEMOLITION PLAN (4TH ST.)
E.01A	PLAN AND PROFILE (GREEN)
E.02A	PLAN AND PROFILE (GREEN)
E.03A	PLAN AND PROFILE (GREEN)
E.01B	PLAN AND PROFILE (4TH ST.)
E.02B	PLAN AND PROFILE (4TH ST.)
E.03B	PLAN AND PROFILE (4TH ST.)
E.04B	PLAN AND PROFILE (4TH ST.)
E.05B	PLAN AND PROFILE (4TH ST.)
E.06B	PLAN AND PROFILE (4TH ST.)
E.07B	PLAN AND PROFILE (4TH ST.)
E.08B	PLAN AND PROFILE (4TH ST.)
E.09B	PLAN AND PROFILE (4TH ST.)
M.01A	STORM AND SEWER PLAN (GREEN)
M.01B	STORM AND SEWER PLAN (4TH ST.)
M.02B	STORM AND SEWER PLAN (4TH ST.)
M.03B	STORM AND SEWER PLAN (4TH ST.)
M.04B	STORM AND SEWER PLAN (4TH ST.)
M.05B	STORM AND SEWER PLAN (4TH ST.)
M.06B	STORM AND SEWER PLAN (4TH ST.)
M.07B	STORM AND SEWER PLAN (4TH ST.)
T.01A	EARTHWORK TABULATIONS (GREEN)
T.01B	EARTHWORK TABULATIONS (4TH ST.)
T.02B	EARTHWORK TABULATIONS (4TH ST.)
T.03B	EARTHWORK TABULATIONS (4TH ST.)
T.04B	EARTHWORK TABULATIONS (4TH ST.)
W.01A	TYPICAL CROSS SECTIONS (GREEN)
W.02A	TYPICAL CROSS SECTIONS (GREEN)
W.03A	TYPICAL CROSS SECTIONS (GREEN)
W.01B	TYPICAL CROSS SECTIONS (4TH ST.)
W.02B	TYPICAL CROSS SECTIONS (4TH ST.)
W.03B	TYPICAL CROSS SECTIONS (4TH ST.)
W.04B	TYPICAL CROSS SECTIONS (4TH ST.)
W.05B	TYPICAL CROSS SECTIONS (4TH ST.)
W.06B	TYPICAL CROSS SECTIONS (4TH ST.)
W.07B	TYPICAL CROSS SECTIONS (4TH ST.)
W.08B	TYPICAL CROSS SECTIONS (4TH ST.)

GENERAL NOTES

1. ALL ELEVATIONS ARE TO NAD 83 STATE PLANE SOUTH
2. REMOVE AND REPLACE ALL STREET SIGNS AS DIRECTED BY ENGINEER. SHAPE ALL DITCHES TO DRAIN AFTER CONSTRUCTION
3. CONFIRM LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND UTILITIES AS REQUIRED TO ELIMINATE CONFLICTS PRIOR TO CONSTRUCTION. ALLOW UTILITY PERSONNEL TO RELOCATE UTILITIES WHERE CONFLICTS OCCUR
4. DO NOT INTERRUPT EXISTING UTILITIES OR INDIVIDUAL SERVICES UNLESS DIRECTED BY ENGINEER
5. LOCATIONS OF CONSTRUCTION LIMIT LINES SHOWN ON PLANES ARE APPROXIMATE. ENGINEER WILL LOCATE CONSTRUCTION LIMITS IN FIELD. CONFINE ALL CONSTRUCTION OPERATIONS, INCLUDING ACCESS TO WORK, TO CONSTRUCTION LIMITS.
6. SET MANHOLE COVERS FLUSH WITH PROPOSED GRADES UNLESS OTHERWISE NOTES
7. STATIONING IS ALONG CENTER LINE OF PAVEMENT, UNLESS OTHERWISE NOTED.
8. PROTECT UTILITY POLES. LINES AND APPURTENANCES NOT SHOWN FOR RELOCATION.
9. RESET ALL PROPERTY PINS DISRUPTED BY CONSTRUCTION; PINS RESET BY REGISTERED LAND SURVEYOR; COST IS INCIDENTAL TO CONSTRUCTION.
10. PROTECT ALL SURFACING, NOT INDICATED BY SHADING FOR REMOVAL AND REPLACEMENT FROM DAMAGE DURING CONSTRUCTION.

PROTECTION OF VEGETATION

TREES AND OTHER VEGETATION WHICH MAY BE REMOVED ARE MARKED WITH AN "X" OVER THE APPROPRIATE SYMBOL. IF TREES AND OTHER VEGETATION NOT SCHEDULES FOR REMOVAL ARE DAMAGED DURING CONSTRUCTION, REPLACE IN KIND AND SIZE AT NO COST TO THE CITY OR PROPERTY OWNER.

PROJECT: CEE:4850

DATE : 05/08/2026

DRAWN BY: SJH

REVISION:

THE UNIVERSITY OF IOWA
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EDUCATIONAL - NOT FOR CONSTRUCTION

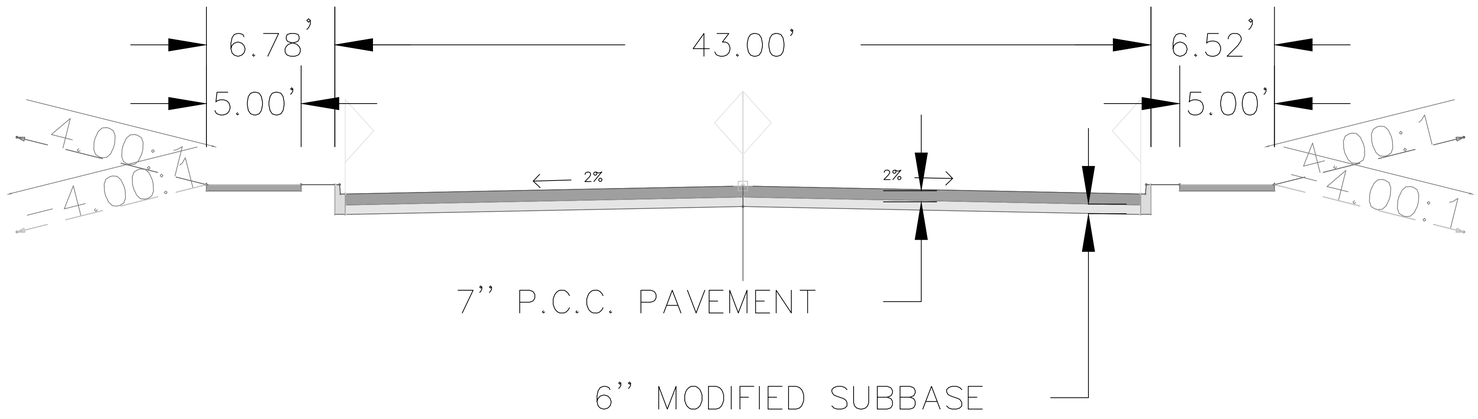
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME

INDEX AND TITLE SHEET

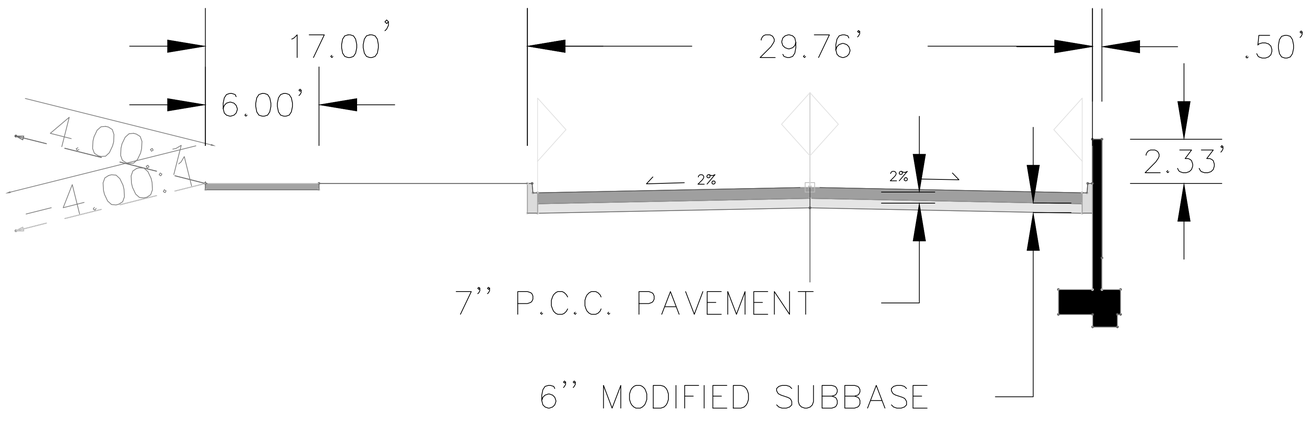
SHEET NO.

A.01



FIRST STREET

STA 0+52.41 TO 1+17.50



DOWNEY STREET

STA 0+00.00 TO 1+18.37

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: APH
REVISION:

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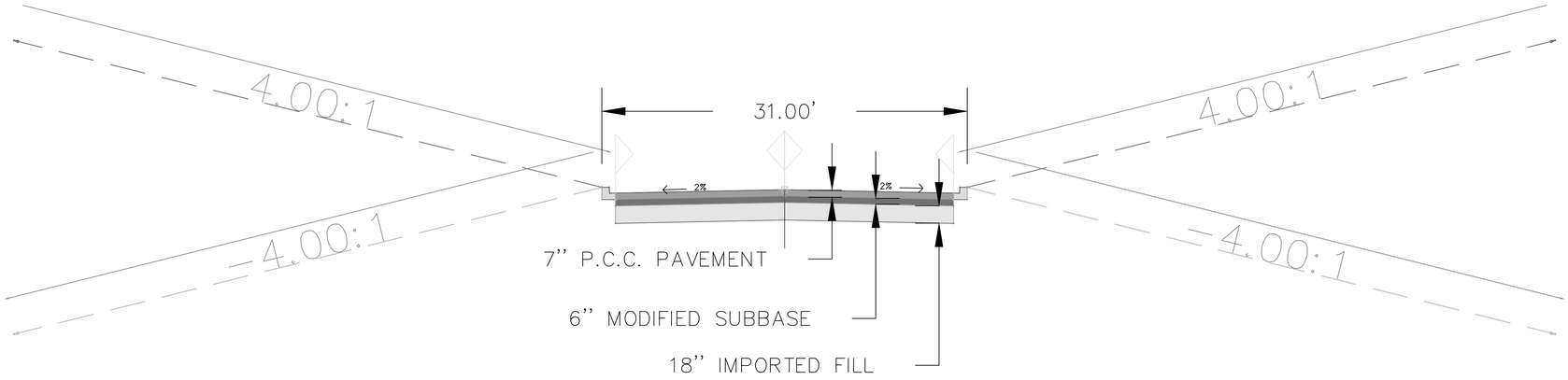
TRUCK REROUTING AND PAVEMENT REPLACEMENT

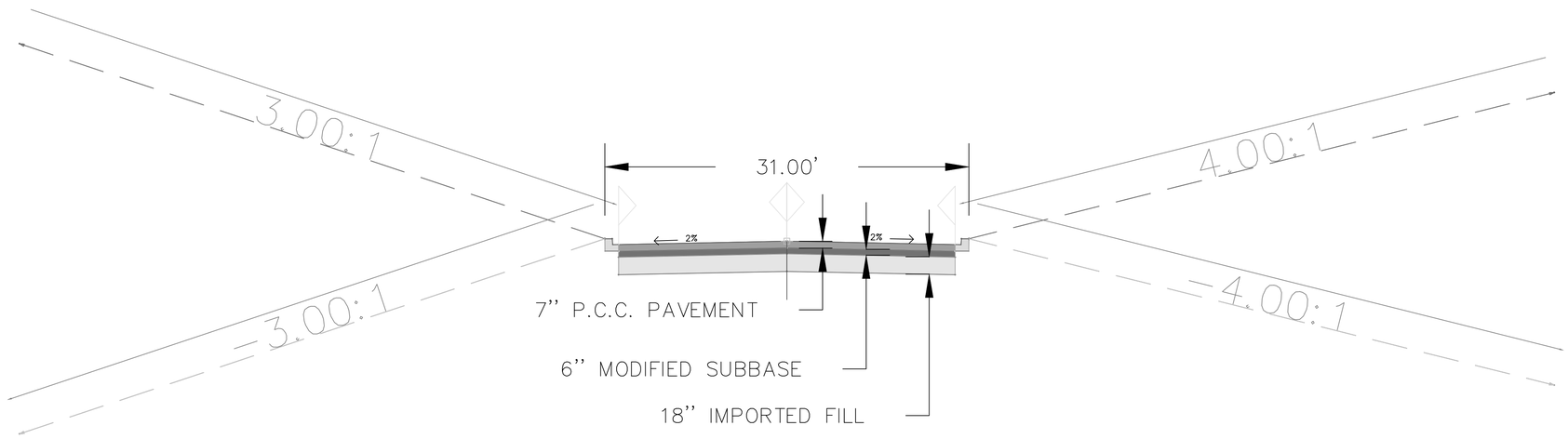
SHEET NAME
TYPICAL SECTIONS

SHEET NO.
B.01A



FOURTH STREET

STA 0+00.00 TO 6+54.02
STA 8+50.00 TO 20+74.91



FOURTH STREET

STA 20+74.91 TO 23+24.61

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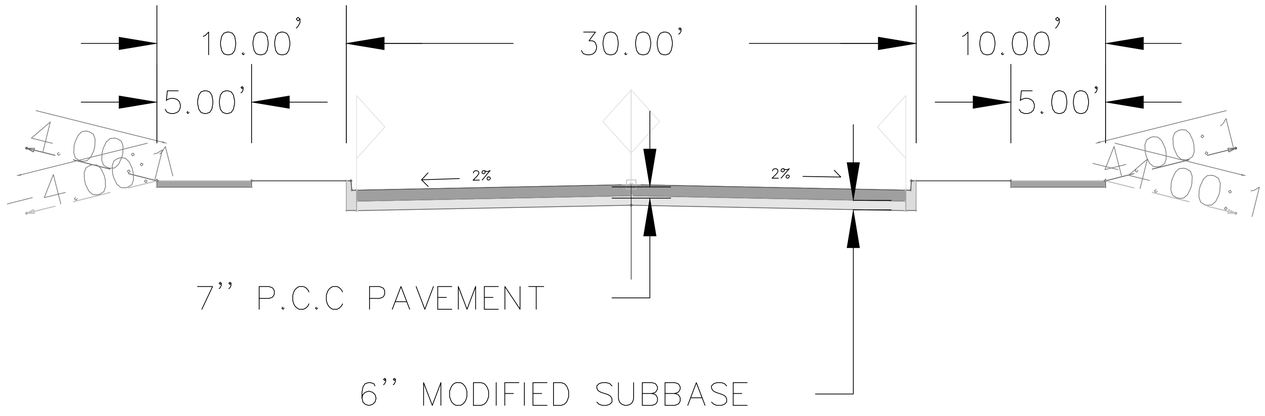
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
TYPICAL SECTION

SHEET NO.
B.01B



GREEN STREET

STA 0+00.00 TO 3+22.86

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PROJECT:	CEE: 4850
DATE :	05/08/2026
DRAWN BY:	APH
REVISION:	

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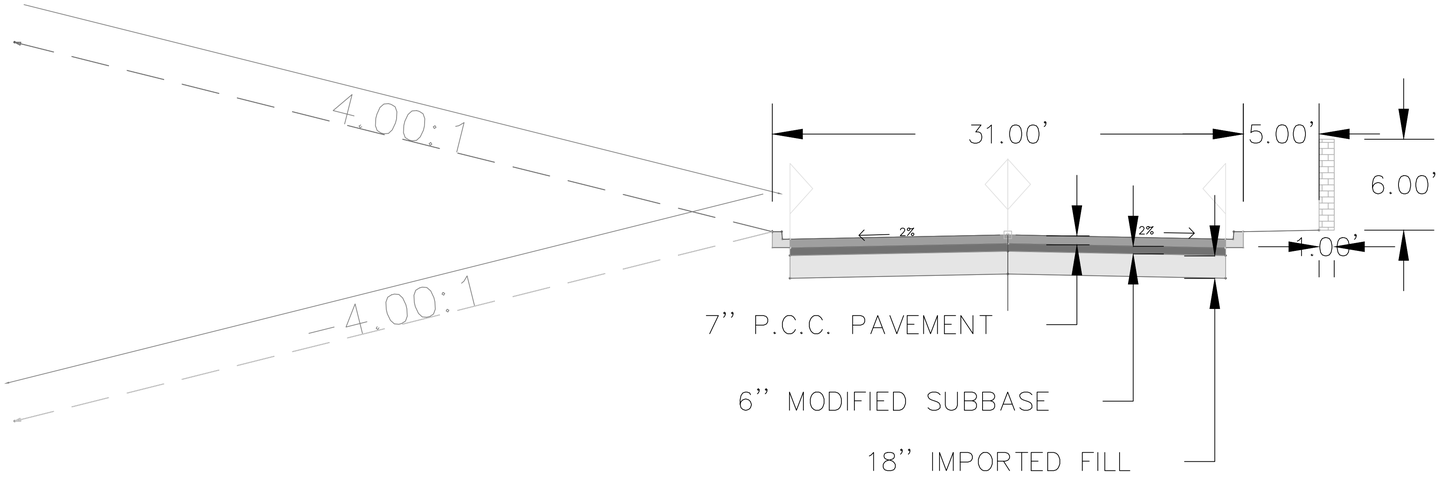
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME

TYPICAL SECTIONS

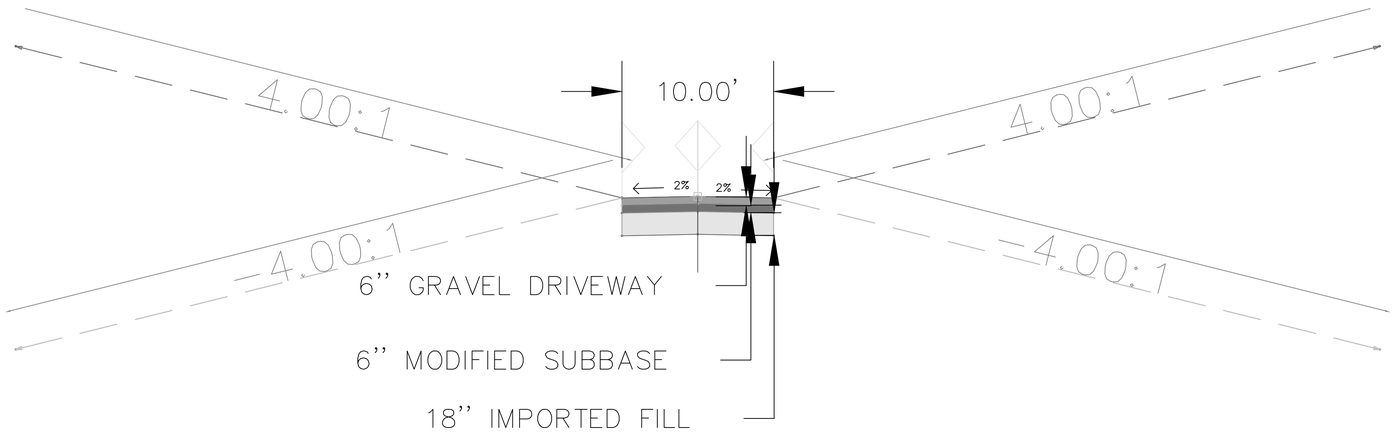
SHEET NO.

B.02A



FOURTH STREET

STA 6+54.02 TO 8+50.00



FARMHOUSE

STA 0+00.00 TO 3+25.61

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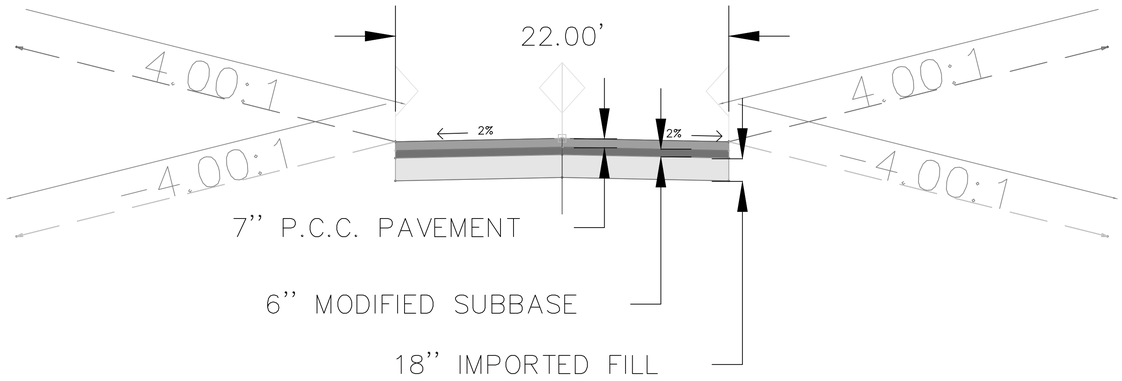
TRUCK REROUTING AND PAVEMENT REPLACEMENT

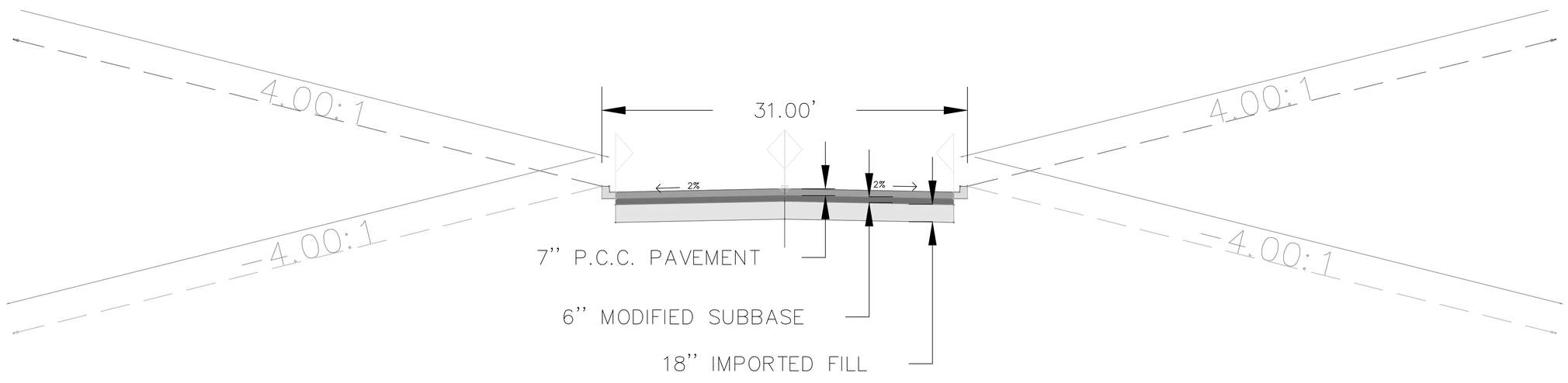
SHEET NAME
TYPICAL SECTIONS

SHEET NO.
B.02B



BAKER AVE

STA 0+00.00 TO 4+10.77



280TH STREET

STA 0+00.00 TO 14+60.47

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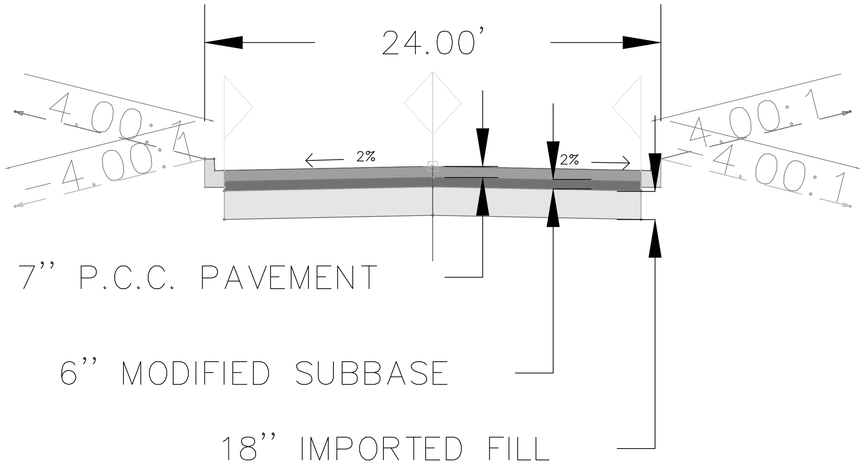
TRUCK REROUTING AND PAVEMENT REPLACEMENT

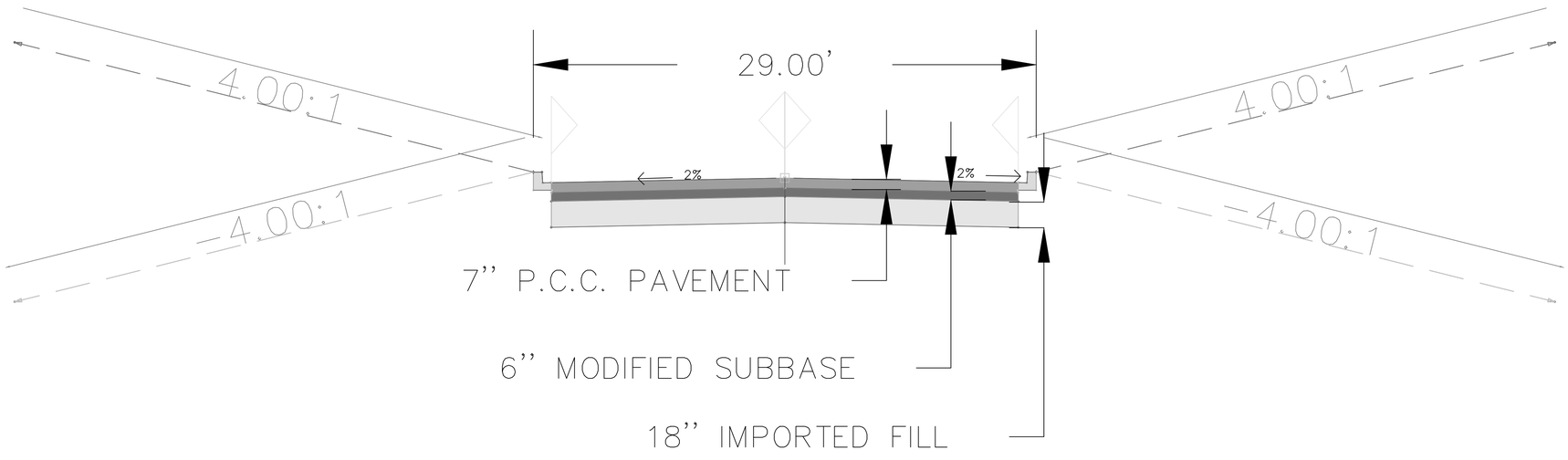
SHEET NAME
TYPICAL SECTIONS

SHEET NO.
B.03B



HOOVER AVE. AT 280TH STREET

STA 0+00.00 TO 1+22.21
STA 0+00.00 TO 1+13.99



HOOVER AVE. AT 4TH STREET

STA 0+00.00 TO 1+21.11

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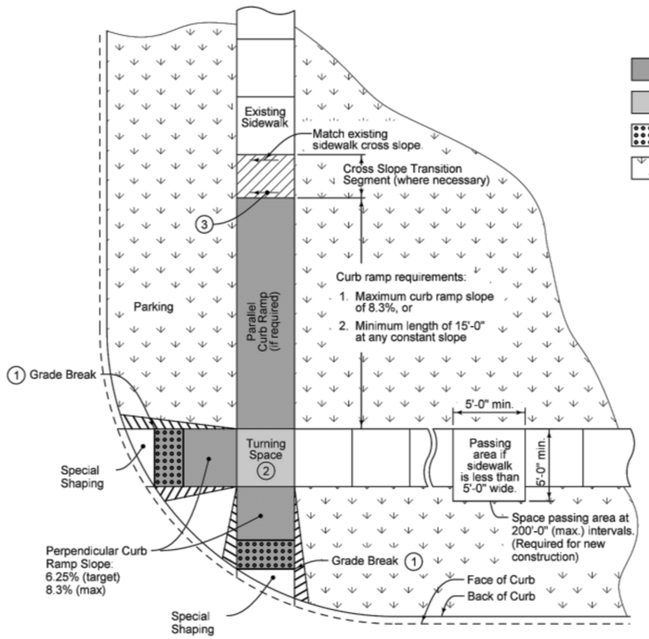
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
TYPICAL SECTIONS

SHEET NO.
B.04B



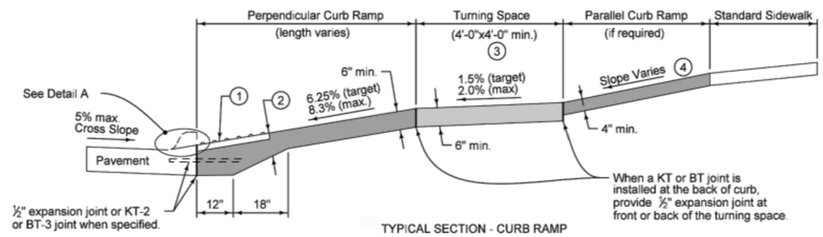
1. Match pedestrian street crossing slope, or flatter.
2. Minimum 4 feet by 4 feet. Target cross slope of 1.5% with a maximum cross slope of 2.0%.
3. Target cross slope of 1.5% with a maximum cross slope of 2.0%.

FIGURE 7030.204 SHEET 1 OF 1

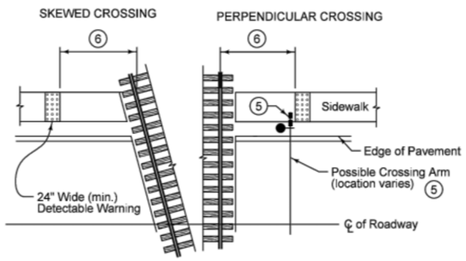
SUDAS | REVISION 3 10-20-15 | 7030.204 | SHEET 1 of 1

SUDAS Standard Specifications

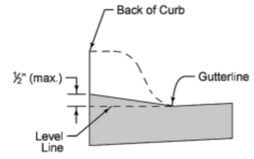
GENERAL FEATURES OF AN ACCESSIBLE SIDEWALK



TYPICAL SECTION - CURB RAMP



DETECTABLE WARNING LOCATION AT RAILROAD CROSSING



DETAIL A

1. Provide a minimum 2 foot width of detectable warning surfaces in the direction of pedestrian travel across the full width of the curb ramp or turning space, exclusive of curbs or flares.
2. Provide a minimum of 6 inches of concrete below the detectable warning panel.
3. Target slope of 1.5% with maximum slope perpendicular to the travel directions of 2.0%. Minimum 4 feet by 4 feet.
4. If normal sidewalk elevation cannot be achieved with the perpendicular ramp between the street and landing due to limited ramp length, provide a parallel ramp to make up the elevation difference between the landing and the standard sidewalk.

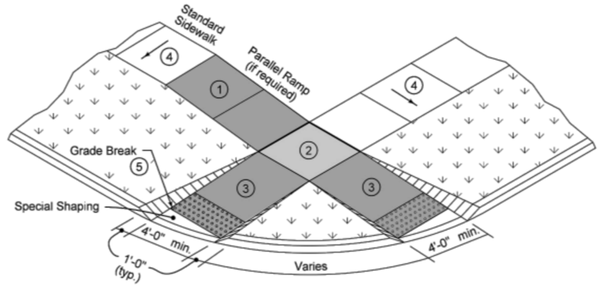
   The length of the parallel ramp is not required to exceed 15 feet, regardless of the resulting slope. Do not exceed 8.3% slope for parallel ramps shorter than 15 feet.
5. If crossing gate conflicts with location of detectable warning or if pedestrian crossing gate is provided, place detectable warning panel in advance of the crossing gate.
6. Locate front edge of detectable warning panel 12 to 15 feet from centerline of nearest rail. Orient truncated domes parallel to the direction of pedestrian travel.

FIGURE 7030.205 SHEET 1 OF 1

SUDAS | REVISION New 10-16-12 | 7030.205 | SHEET 1 of 1

SUDAS Standard Specifications

GENERAL SIDEWALK AND CURB RAMP DETAILS



1. Parallel Curb Ramp: If normal sidewalk elevation cannot be achieved with the perpendicular ramp between the street and landing due to limited ramp length, provide a parallel ramp to make up the elevation difference between the landing and the standard sidewalk.

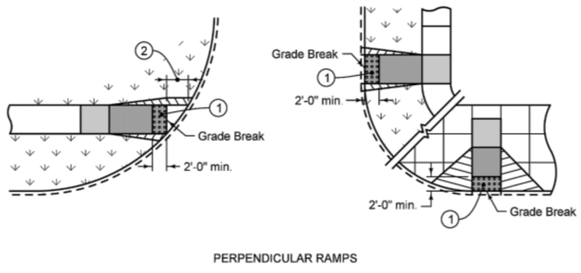
   The length of the parallel ramp is not required to exceed 15 feet, regardless of the resulting slope. Do not exceed 8.3% slope for parallel ramps shorter than 15 feet.
2. Turning Space: Target slope of 1.5% with maximum slope perpendicular to the travel directions of 2.0%. Minimum 4 feet by 4 feet.
3. Perpendicular Curb Ramp: Target running slope of 6.25% with maximum running slope of 8.3%.
4. Target cross slope of 1.5% with a maximum cross slope of 2.0%.
5. Match pedestrian street crossing cross slope or flatter.

FIGURE 7030.207 SHEET 1 OF 1

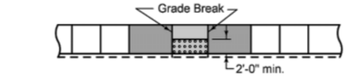
SUDAS | REVISION New 10-16-12 | 7030.207 | SHEET 1 of 1

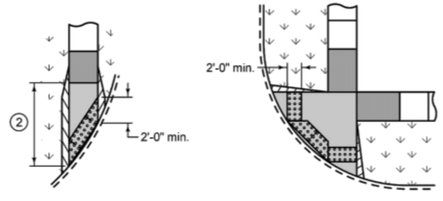
SUDAS Standard Specifications

CURB RAMP FOR CLASS B OR C SIDEWALK



PERPENDICULAR RAMPS





PARALLEL RAMPS

Provide a minimum 2 foot width of detectable warning surfaces in the direction of pedestrian travel across the full width of the curb ramp or turning space, exclusive of curbs or flares.

1. When detectable warning is located on curb ramp surface, orient domes in the direction of pedestrian travel.
2. When the distance between the grade break and the back of curb is less than 5 feet, place detectable warning surface at the bottom of the curb ramp.

   Where one corner of the curb ramp is more than 5 feet from the back of curb, construct curb ramp as a parallel curb ramp. Move grade break back as required to place detectable warning on turning space at the back of curb.

Key
Curb Ramp
Turning Space
Detectable Warning

FIGURE 7030.210 SHEET 1 OF 1

SUDAS | REVISION New 10-16-12 | 7030.210 | SHEET 1 of 1

SUDAS Standard Specifications

DETECTABLE WARNING PLACEMENT

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DATE : 05/08/2026
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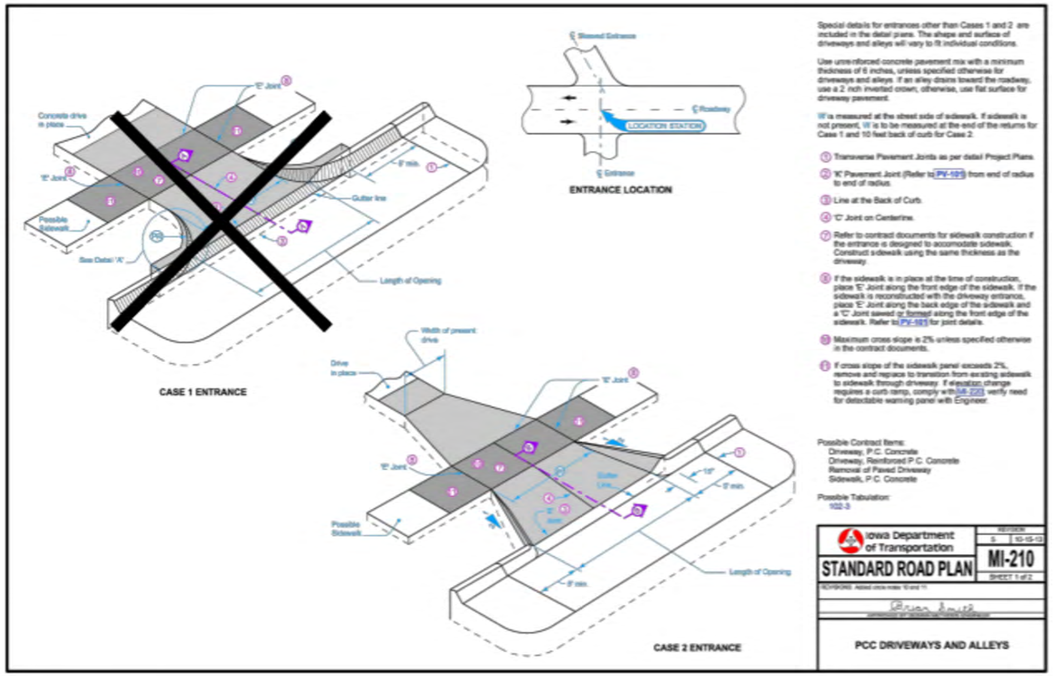
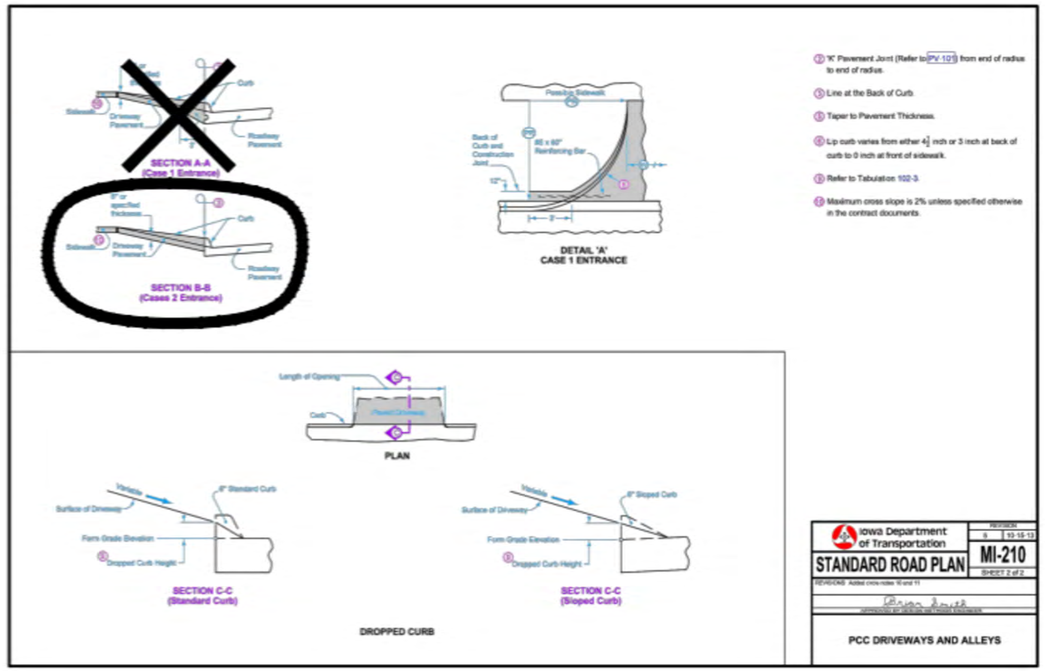
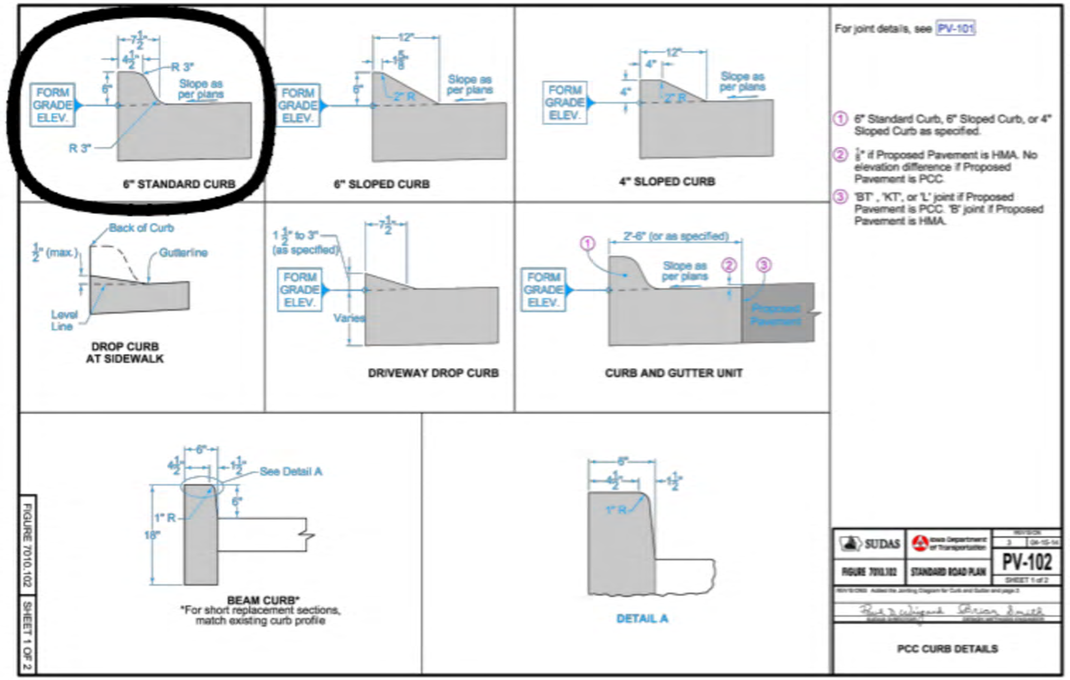
TRUCK REROUTING AND PAVEMENT REPLACEMENT

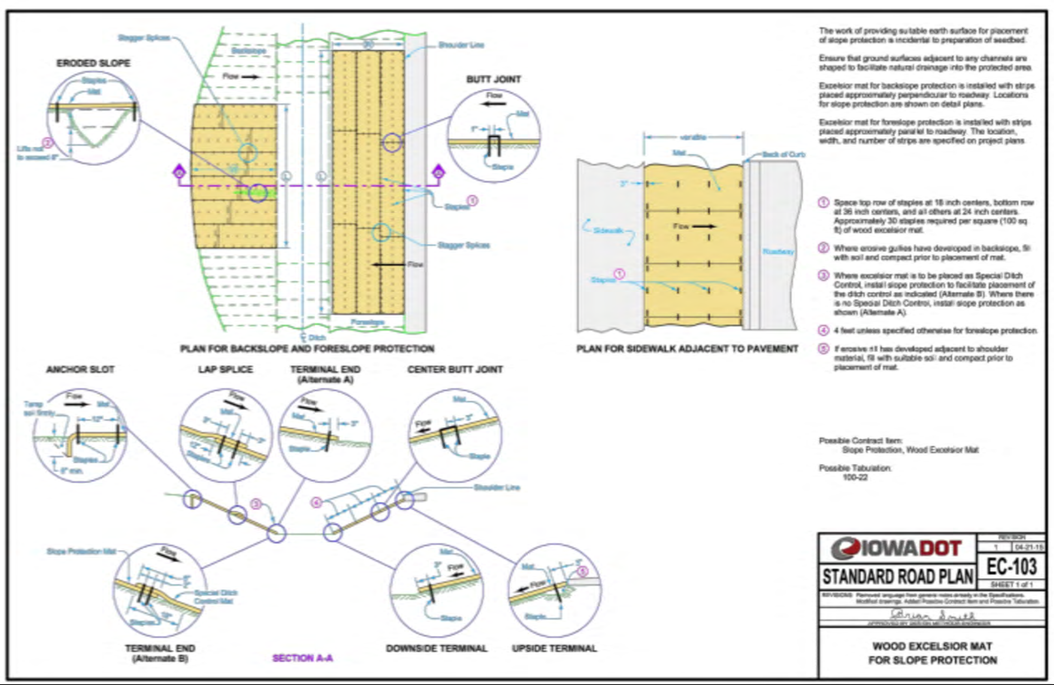
SHEET NAME
SIDEWALK DETIALS

SHEET NO.
B.05









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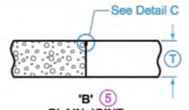
TRUCK REROUTING AND PAVEMENT REPLACEMENT

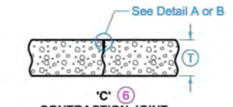
SHEET NAME
PAVING DETIALS

SHEET NO.
B.06

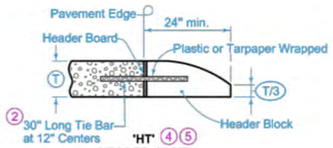


'B' (5)
PLAIN JOINT
(Abutting Pavement Slabs)

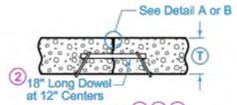
'DW' (3)(4)(7)
DAY'S WORK JOINT(Non-working)



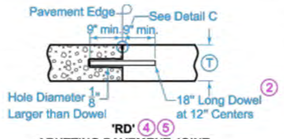
'C' (6)
CONTRACTION JOINT



'HT' (4)(5)
HEADER JOINT
(End Rigid Pavement)

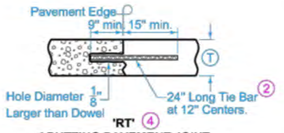


'CD' (1)(4)(6)
DOWELED CONTRACTION JOINT



'RD' (4)(5)
ABUTTING PAVEMENT JOINT

'CT' (4)
TIED CONTRACTION JOINT



'RT' (4)
ABUTTING PAVEMENT JOINT
RIGID TIE

(1) See dowel assemblies for fabrication details.

(2) See Bar Size Table.

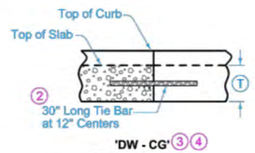
(3) Locate 'DW' joint at a mid-panel location between future 'C' or 'CD' joints. Place no closer than 5 feet to a 'C' or 'CD' joint.

(4) Place bars within the limits shown under dowel assemblies.

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

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

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



'DW - CG' (3)(4)
DAY'S WORK JOINT
CURB AND GUTTER UNIT

FIGURE 7010.101 | SHEET 1 OF 8

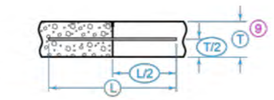
TRANSVERSE CONTRACTION

SUDAS	IOWA DOT	REVISION 5 04-21-15
FIGURE 7010.101	STANDARD ROAD PLAN	PV-101 SHEET 1 of 8

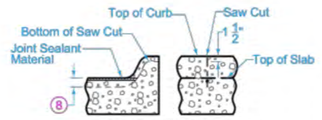
REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-3 as an option for "K" and "L" joints on page 3.

Paul D. Wigand — HIGHWAY DIRECTOR; Brian Smith — DESIGN METHODS ENGINEER

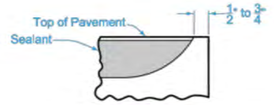
JOINTS



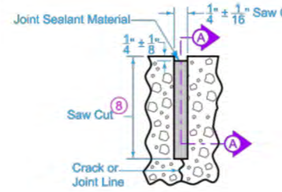
BAR PLACEMENT
(Applies to all joints unless otherwise detailed.)



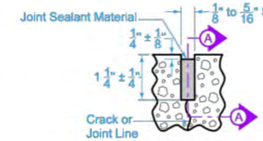
'C' JOINT IN CURB
(Match 'CT', 'CD', or 'C' joint in pavement.)



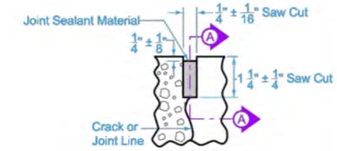
SECTION A-A
(Detail at Edge of Pavement)



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



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



DETAIL C

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

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

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

FIGURE 7010.101 | SHEET 2 OF 8

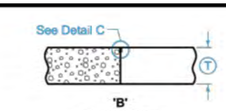
TRANSVERSE CONTRACTION

SUDAS	IOWA DOT	REVISION 5 04-21-15
FIGURE 7010.101	STANDARD ROAD PLAN	PV-101 SHEET 2 of 8

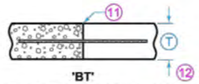
REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-3 as an option for "K" and "L" joints on page 3.

Paul D. Wigand — HIGHWAY DIRECTOR; Brian Smith — DESIGN METHODS ENGINEER

JOINTS

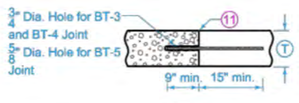


'B'
PLAIN JOINT
(Abutting Pavement Slabs)



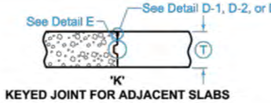
'BT'
ABUTTING PAVEMENT JOINT - RIGID TIE

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

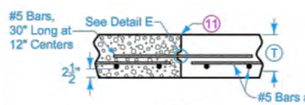


'BT'
ABUTTING PAVEMENT JOINT - RIGID TIE (Drilled)

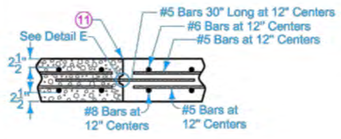
(T)	Joint	Bars	Bar Length and Spacing
< 8"	'BT-5'	#4	24" Long at 30" Centers
≥ 8"	'BT-3'	#5	24" Long at 30" Centers
	'BT-4'		24" Long at 15" Centers



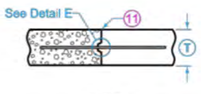
'K'
KEYED JOINT FOR ADJACENT SLABS
(Where T is 8" or more)



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



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



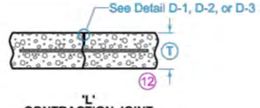
'KT' (10)(12)
ABUTTING PAVEMENT JOINT - KEYWAY TIE

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

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

(11) Sawing or sealing of joint not required.

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



'L'
CONTRACTION JOINT

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

FIGURE 7010.101 | SHEET 3 OF 8

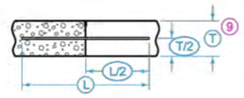
LONGITUDINAL CONTRACTION

SUDAS	IOWA DOT	REVISION 5 04-21-15
FIGURE 7010.101	STANDARD ROAD PLAN	PV-101 SHEET 3 of 8

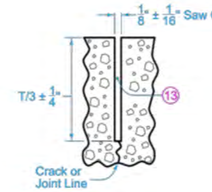
REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-3 as an option for "K" and "L" joints on page 3.

Paul D. Wigand — HIGHWAY DIRECTOR; Brian Smith — DESIGN METHODS ENGINEER

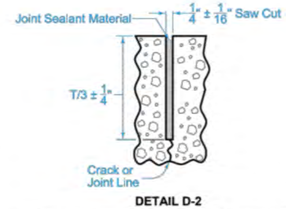
JOINTS



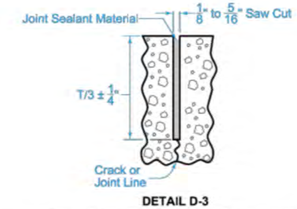
TIE BAR PLACEMENT
(Applies to all joints unless otherwise detailed.)



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



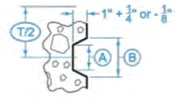
DETAIL D-2
(Required when the Department of Transportation is not the Contracting Authority, or when specified in the contract documents)



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

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

(13) Sealant or cleaning not required.



DETAIL E

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

FIGURE 7010.101 | SHEET 4 OF 8

LONGITUDINAL CONTRACTION

SUDAS	IOWA DOT	REVISION 5 04-21-15
FIGURE 7010.101	STANDARD ROAD PLAN	PV-101 SHEET 4 of 8

REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-3 as an option for "K" and "L" joints on page 3.

Paul D. Wigand — HIGHWAY DIRECTOR; Brian Smith — DESIGN METHODS ENGINEER

JOINTS

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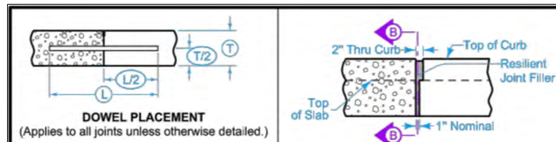
PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: SJH
REVISION:

TRUCK REROUTING AND PAVEMENT REPLACEMENT

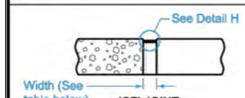
EDUCATIONAL - NOT FOR CONSTRUCTION

SHEET NAME
PAVING DETAILS

SHEET NO.
B.07



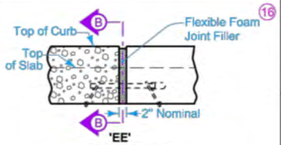
DOWEL PLACEMENT
(Applies to all joints unless otherwise detailed.)



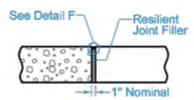
'CF' JOINT

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

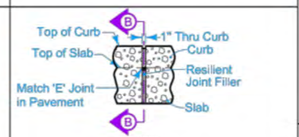
'E'
JOINT IN CURB
(View at Back of Curb)



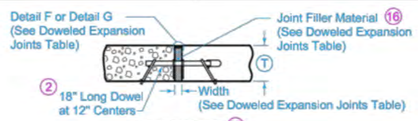
'EE'
JOINT IN CURB
(View at Back of Curb)



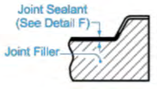
'E'
1" EXPANSION JOINT



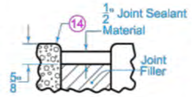
'ES'
JOINT IN CURB
(View at Back of Curb)



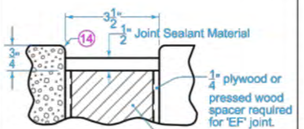
'ED', 'EE', 'EF' 15
DOWELED EXPANSION JOINT



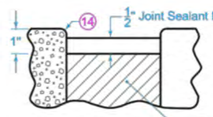
SECTION B-B



DETAIL F



DETAIL G



DETAIL H

EXPANSION

(2) See Bar Size Table.

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

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

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

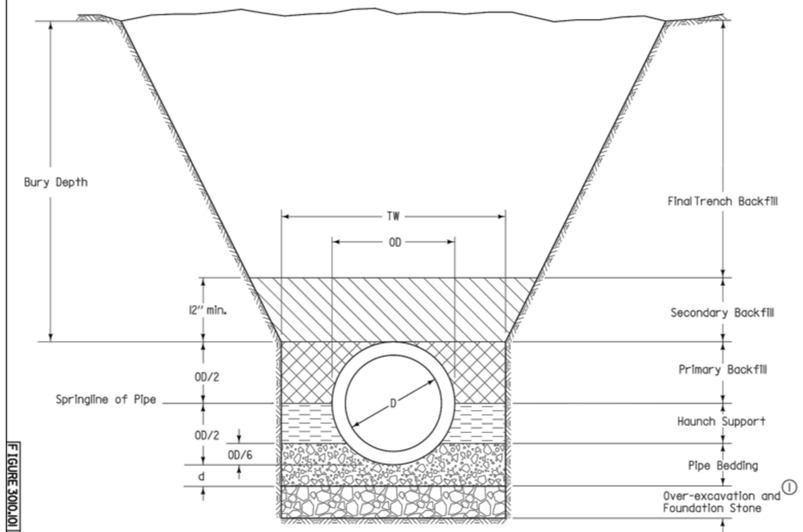
(17) Compact tire buffings by spading with a square-nose shovel.

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

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

SUDAS | IOWADOT | REVISION 5 04-21-15
FIGURE 7010.101 | STANDARD ROAD PLAN | PV-101
SHEET 5 of 8
REVISIONS: Added Detail D-3 and removed language on Detail D-1 on page 4. Added Detail D-3 as an option for 'K' and 'L' joints on page 3.
Paul D. Wigant, Bridge Engineer | Brian L. Smith, Highway Technician Supervisor
JOINTS

FIGURE 7010.101 | SHEET 5 OF 8



Refer to the contract documents for specific material and placement requirements.

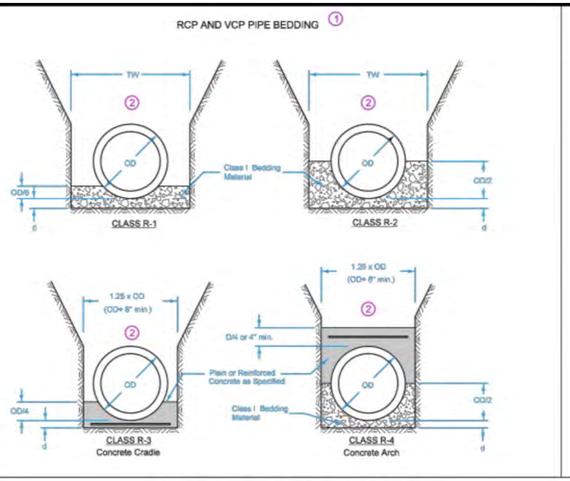
(1) Required only when specified in the contract documents or when directed by the Engineer.

Key

OD = Outside diameter of pipe
D = Inside diameter of pipe
TW = Trench width at top of pipe
d = Depth of bedding material below pipe

SUDAS | Iowa Department of Transportation | REVISION NEW 04-21-09
FIGURE 3010.101 | STANDARD ROAD PLAN | SW-101
SHEET 1 of 1
REVISIONS: New. Replaces SUDAS Figure 3010.1.
Duane Maifield, Design Methods Engineer
TRENCH BEDDING AND BACKFILL ZONES

F:\FIGURE 3010.101\ SHEET 1 OF 1



Refer to sheet 2 for bury depth restrictions.

(1) Use Bedding Class R-1 or R-2 unless specified otherwise.

(2) Place remainder of bedding and backfill materials as specified in the contract documents.

Key

OD = Outside diameter of pipe
OS = Outside span of pipe
TW = Trench width at top of pipe
Min. = OD+18 inches
Max.= 1.25xOD+12 inches OR 54 inches (whichever is greater)
d = Depth of bedding material below pipe:
OD/8 or OS/8, OR 4 inches
(whichever is greater)

SUDAS | IOWADOT | REVISION 1 10-20-15
FIGURE 3010.102 | STANDARD ROAD PLAN | SW-102
SHEET 1 of 2
REVISIONS: Added horizontal elliptical and vertical elliptical pipe.
Paul D. Wigant, Bridge Engineer | Brian L. Smith, Highway Technician Supervisor
RIGID GRAVITY PIPE TRENCH BEDDING

ALLOWABLE BURY DEPTH

CLASS III RCP

Pipe Diameter (in)	Class R-1 Bedding	Class R-2 Bedding	Class R-3 & R-4 Bedding		
			No Steel	As=0.4%	As=1.0%
12	7'	10'	15'	19'	27'
15	8'	10'	16'	19'	27'
18	8'	11'	16'	20'	40'
21	8'	11'	18'	28'	40'
24	8'	12'	23'	36'	40'
27	10'	15'	30'	40'	40'
30	11'	15'	29'	40'	40'
33	11'	15'	28'	40'	40'
36	11'	15'	27'	40'	40'
42	11'	15'	26'	38'	40'
48	11'	15'	26'	36'	40'
54	11'	15'	25'	34'	40'
60	11'	15'	25'	33'	40'
66	11'	15'	24'	32'	40'
72	11'	15'	24'	32'	40'

As = Area of Steel Reinforcing

CLASS IV RCP

Pipe Diameter (in)	Class R-1 Bedding	Class R-2 Bedding	Class R-3 & R-4 Bedding		
			No Steel	As=0.4%	As=1.0%
12	12'	15'	23'	28'	40'
15	12'	16'	23'	30'	40'
18	13'	16'	29'	40'	40'
21	13'	18'	40'	40'	40'
24	16'	23'	40'	40'	40'
27	19'	30'	40'	40'	40'
30	19'	29'	40'	40'	40'
33	19'	28'	40'	40'	40'
36	19'	28'	40'	40'	40'
42	18'	27'	40'	40'	40'
48	18'	26'	40'	40'	40'
54	18'	25'	40'	40'	40'
60	18'	25'	40'	40'	40'
66	18'	25'	40'	40'	40'
72	18'	24'	40'	40'	40'

As = Area of Steel Reinforcing

CLASS V RCP

Pipe Diameter (in)	Class R-1 Bedding	Class R-2 Bedding	Class R-3 & R-4 Bedding		
			No Steel	As=0.4%	As=1.0%
12	18'	23'	35'	40'	40'
15	18'	24'	40'	40'	40'
18	19'	30'	40'	40'	40'
21	25'	40'	40'	40'	40'
24	34'	40'	40'	40'	40'
27	40'	40'	40'	40'	40'
30	40'	40'	40'	40'	40'
33	40'	40'	40'	40'	40'
36	40'	40'	40'	40'	40'
42	37'	40'	40'	40'	40'
48	35'	40'	40'	40'	40'
54	33'	40'	40'	40'	40'
60	32'	40'	40'	40'	40'
66	31'	40'	40'	40'	40'
72	31'	40'	40'	40'	40'

As = Area of Steel Reinforcing

EXTRA STRENGTH VCP

Pipe Dia. (in)	Bedding Class				
	R-1	R-2	R-3 & R-4		
			No Steel	As=0.4%	As=1.0%
6	25'	30'	30'	30'	30'
8	20'	26'	30'	30'	30'
10	18'	23'	30'	30'	30'
12	16'	20'	30'	30'	30'
15	15'	19'	28'	30'	30'
18	14'	18'	30'	30'	30'
21	15'	22'	30'	30'	30'
24	18'	28'	30'	30'	30'
27	20'	30'	30'	30'	30'
30	19'	29'	30'	30'	30'
33	20'	30'	30'	30'	30'
36	20'	30'	30'	30'	30'
39	19'	29'	30'	30'	30'
42	18'	28'	30'	30'	30'

As = Area of Steel Reinforcing

CONCRETE ARCH PIPE

Pipe Size (inch by inch)	Equiv Dia (in)	Pipe Class	
		A-III	A-IV
18 x 11	15	6'	11'
22 x 13	18	6'	11'
26 x 15	21	6'	13'
29 x 18	24	7'	15'
36 x 22	30	8'	15'
44 x 27	36	8'	14'
51 x 31	42	8'	15'
58 x 36	48	8'	15'
65 x 40	54	8'	15'
73 x 45	60	8'	14'
88 x 54	72	9'	14'

Based on Class R-5 bedding

HORIZONTAL ELLIPTICAL RCP

Pipe Size (in x in)	Equiv Dia (in)	Pipe Class	
		HE-III	HE-IV
14 x 23	18	12'	22'
19 x 30	24	15'	29'
22 x 34	27	15'	28'
24 x 38	30	15'	27'
27 x 42	33	15'	27'
29 x 45	36	15'	26'
32 x 49	39	15'	26'
34 x 54	42	15'	25'
38 x 60	48	15'	25'
43 x 68	54	15'	24'
48 x 76	60	15'	24'
53 x 83	66	15'	24'
58 x 91	72	15'	24'
63 x 98	78	15'	23'
68 x 106	84	15'	23'

Based on Class R-5 bedding

VERTICAL ELLIPTICAL RCP

Pipe Size (in x in)	Equiv Dia (in)	Pipe Class			
		VE-III	VE-IV	VE-V	VE-VI
23 x 14	18	10'	15'	22'	33'
30 x 19	24	10'	16'	34'	40'
34 x 22	27	11'	20'	40'	40'
38 x 24	30	12'	23'	40'	40'
42 x 27	33	15'	30'	40'	40'
45 x 29	36	15'	29'	40'	40'
49 x 32	39	15'	29'	40'	40'
54 x 34	42	15'	28'	40'	40'
60 x 38	48	15'	27'	40'	40'
68 x 43	54	15'	27'	40'	40'
76 x 48	60	15'	26'	40'	40'
83 x 53	66	15'	25'	40'	40'
91 x 58	72	15'	25'	40'	40'
98 x 63	78	15'	25'	40'	40'
106 x 68	84	15'	24'	40'	40'

Based on Class R-5 bedding

SUDAS | IOWADOT | REVISION 1 10-20-15
FIGURE 3010.102 | STANDARD ROAD PLAN | SW-102
SHEET 2 of 2
REVISIONS: Added horizontal elliptical and vertical elliptical pipe.
Paul D. Wigant, Bridge Engineer | Brian L. Smith, Highway Technician Supervisor
RIGID GRAVITY PIPE TRENCH BEDDING

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: SJH
REVISION:

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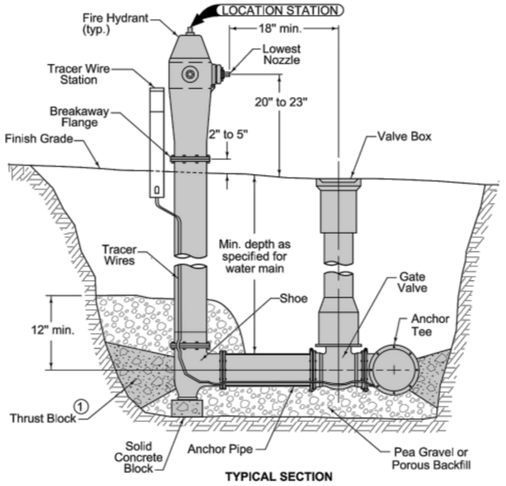
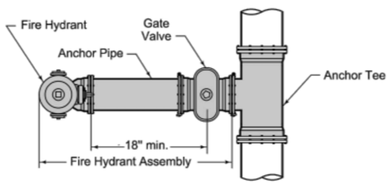
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PAVING DETAILS

SHEET NO.
B.08



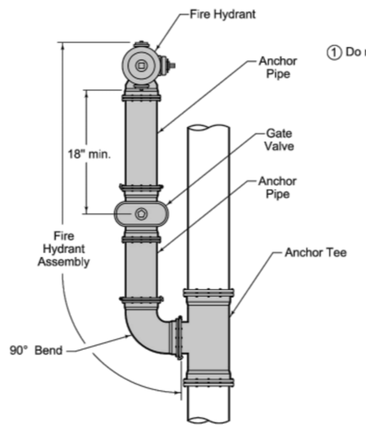
TYPICAL SECTION



TYPICAL PLAN

Use ductile iron pipe with restrained mechanical joints for fire hydrant assembly and anchor tee.

① Do not cover drain holes or tracer wire.



ALTERNATE PLAN

SUDAS	Iowa Department of Transportation	REVISION 1 04-19-11
FIGURE 5020.201	STANDARD ROAD PLAN	WM-201
REVISIONS: Deleted Note 1 and references, renumbered Note 2, and deleted "typ" after "Tracer Wire Station"		SHEET 1 of 1
Paul D. Wiegand BUREAU DIRECTOR	Deanna Maifeld DESIGN METHODS ENGINEER	

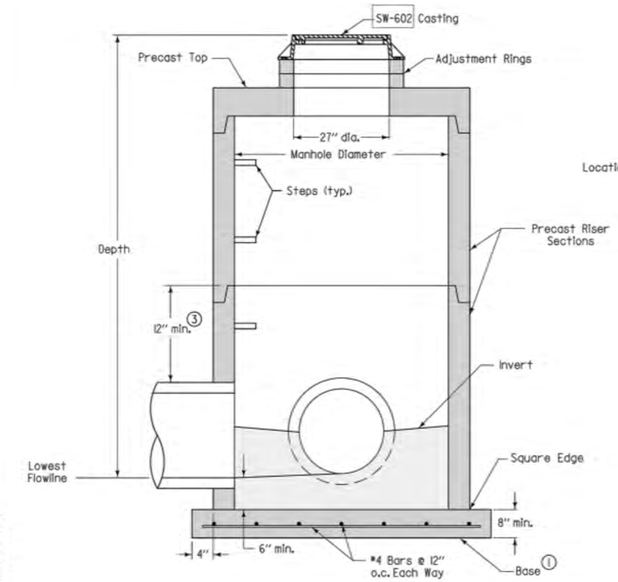
FIGURE 5020.201 SHEET 1 OF 1

FIRE HYDRANT ASSEMBLY

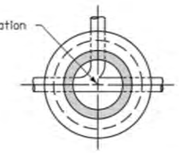
① Cast-in-place base shown. If base is precast integral with bottom riser, the footprint of the base is not required to extend beyond the outer edge of the riser.

② For additional configurations, maintain a minimum of 12 inches of concrete between vertical edges of pipe openings.

③ 12 inch minimum riser height above all pipe openings.



TYPICAL SECTION



PLAN

Manhole Diameter (Inches)	Maximum Pipe Diameter ② (Inches) for 2 Pipes	
	At 180° Separation	At 90° Separation
48	24	18
60	36	24
72	42	30
84	48	36
96	60	42

SUDAS	Iowa Department of Transportation	REVISION NEW 04-21-09
FIGURE 6010.401	STANDARD ROAD PLAN	SW-401
REVISIONS: New. Replaces SUDAS Type "M-A" Manhole. Will replace RA-50.		SHEET 1 of 1
Paul D. Wiegand BUREAU DIRECTOR	Deanna Maifeld DESIGN METHODS ENGINEER	

FIGURE 6010.401 SHEET 1 OF 1

CIRCULAR STORM SEWER MANHOLE

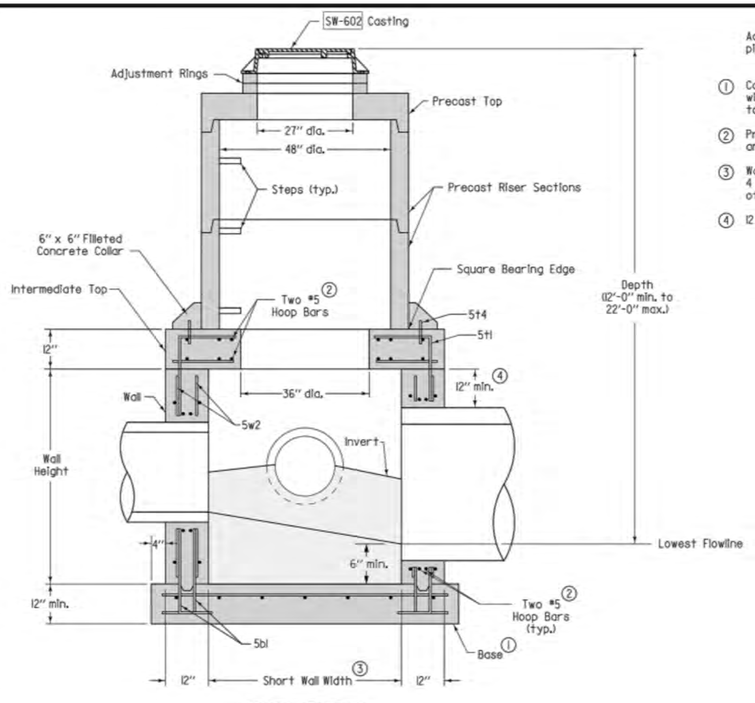
Adjacent walls may have different widths based upon pipe configuration, but structure must be rectangular.

① Cast-in-place base shown. If base is precast integral with walls, the footprint of the base is not required to extend beyond the outer edge of the walls.

② Provide two #5 hoop bars at intermediate top opening and at all pipe openings.

③ Wall widths vary with pipe diameter and range from 4 feet minimum to 12 feet maximum. Provide 12 inches of wall width (minimum) each side of pipe opening.

④ 12 inch minimum wall height above all pipes.



TYPICAL SECTION

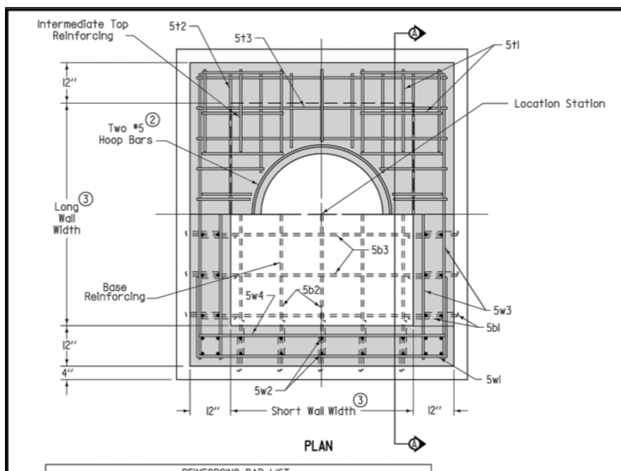
SUDAS	Iowa Department of Transportation	REVISION 1 04-17-12
FIGURE 6010.404	STANDARD ROAD PLAN	SW-404
REVISIONS: Modified note 3 on sheet 2.		SHEET 1 of 2
Paul D. Wiegand BUREAU DIRECTOR	Deanna Maifeld DESIGN METHODS ENGINEER	

FIGURE 6010.404 SHEET 1 OF 2

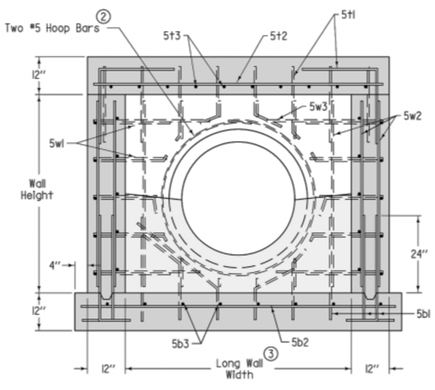
RECTANGULAR BASE/ CIRCULAR TOP STORM SEWER MANHOLE

② Provide two #5 hoop bars at intermediate top opening and at all pipe openings.

③ Wall widths vary with pipe diameter and range from 4 feet minimum to 12 feet maximum. Provide 12 inches of wall width (minimum) each side of pipe opening.

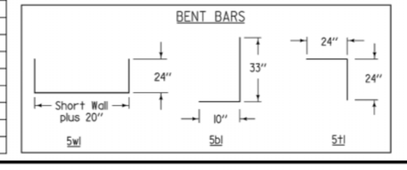


PLAN



SECTION A-A

REINFORCING BAR LIST					
Mark	Size	Location	Shape	Length	Spacing
5t1	5	Top	L	48"	12"
5t2	5	Top	—	Long Wall plus 20"	9"
5t3	5	Top	—	Short Wall plus 20"	9"
5t4	5	Top	—	8"	12"
5b1	5	Base	L	43"	12"
5b2	5	Base	—	Long Wall plus 26"	12"
5b3	5	Base	—	Short Wall plus 26"	12"
5w1	5	Wall	⌐	Short Wall plus 68"	12"
5w2	5	Wall	—	Wall Height minus 4"	12"
5w3	5	Wall	—	Long Wall plus 20"	12"
5w4	5	Wall	—	Short Wall plus 20"	12"



SUDAS	Iowa Department of Transportation	REVISION 1 04-17-12
FIGURE 6010.404	STANDARD ROAD PLAN	SW-404
REVISIONS: Modified note 3 on sheet 2.		SHEET 2 of 2
Paul D. Wiegand BUREAU DIRECTOR	Deanna Maifeld DESIGN METHODS ENGINEER	

FIGURE 6010.404 SHEET 2 OF 2

RECTANGULAR BASE/ CIRCULAR TOP STORM SEWER MANHOLE

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DRAWN BY: SJH

REVISION:

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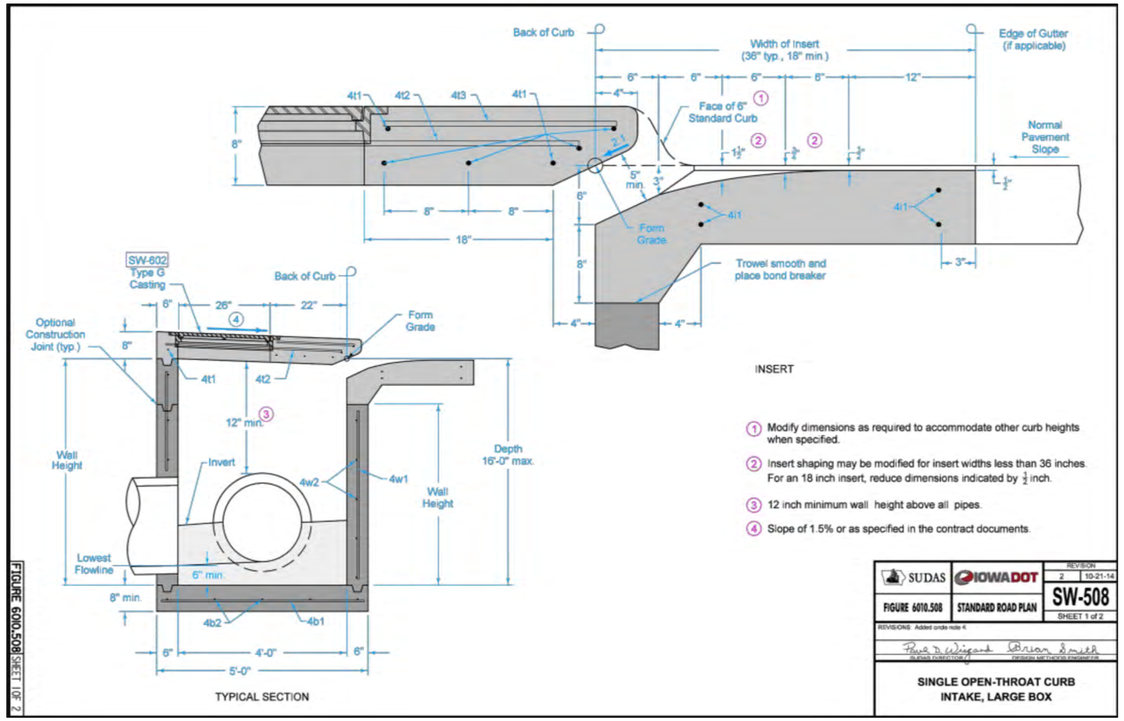
TRUCK REROUTING AND PAVEMENT REPLACEMENT

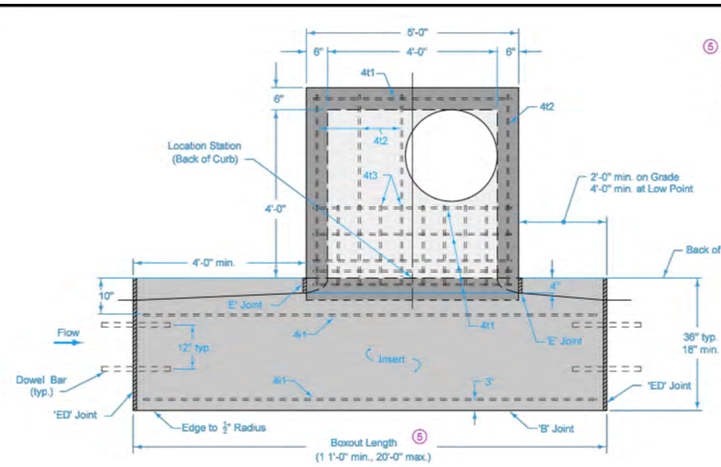
SHEET NAME

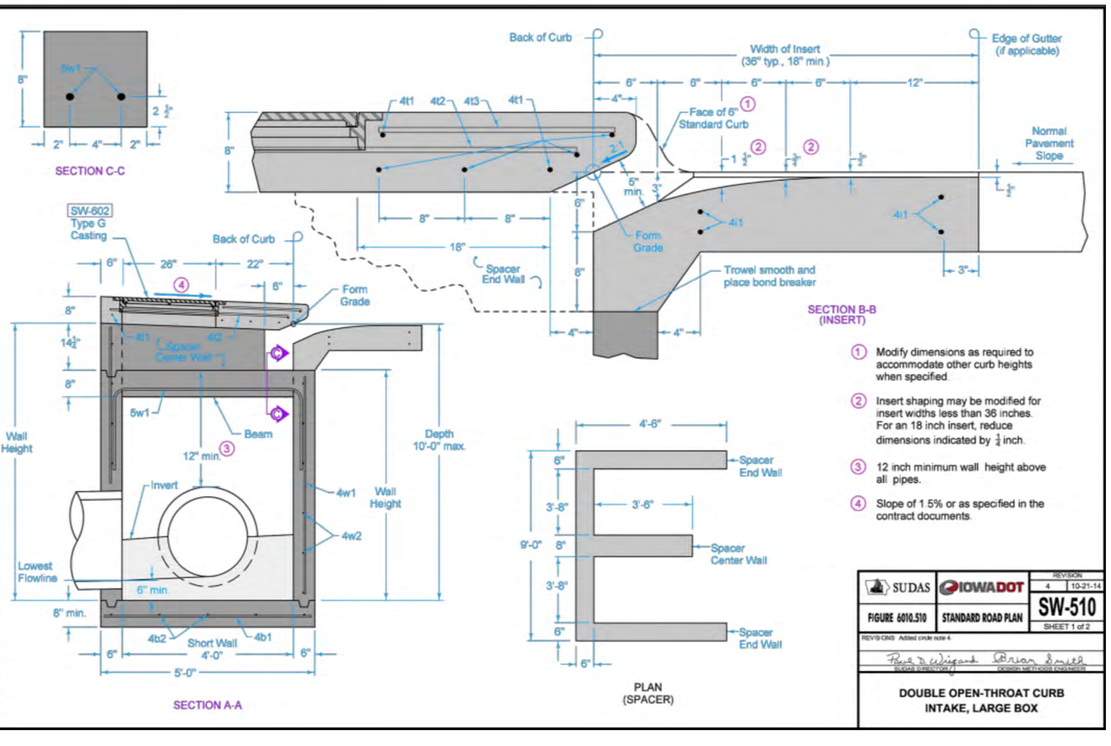
HYDRANT AND SEWER DETIAL

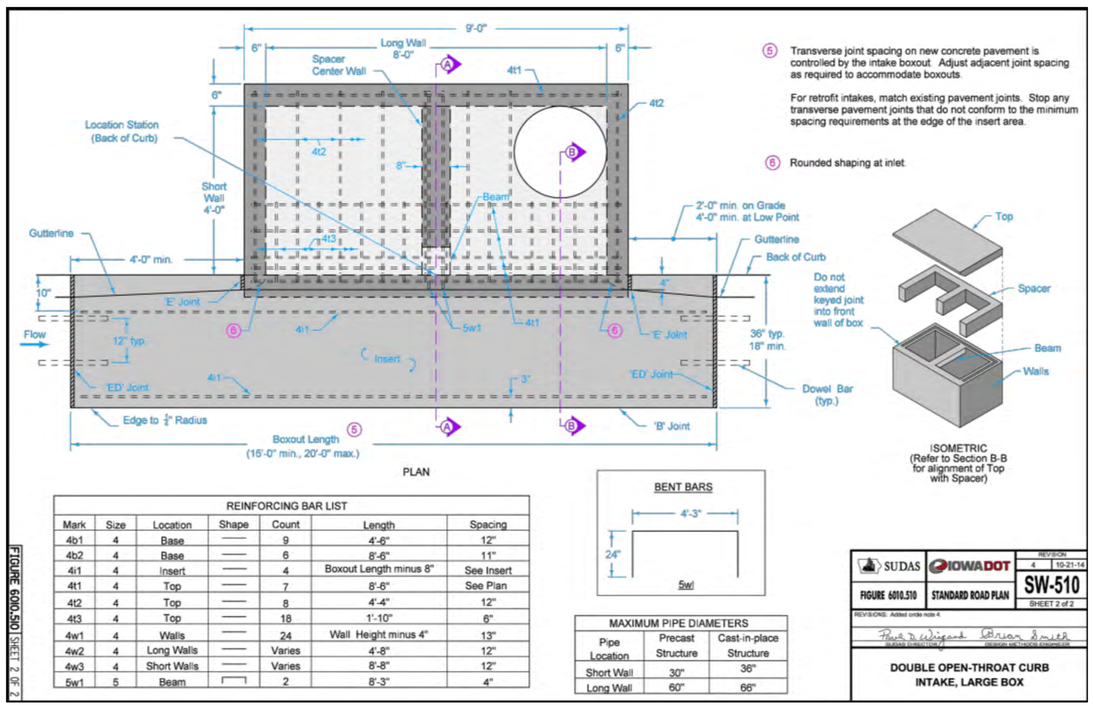
SHEET NO.

B.09









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TRUCK REROUTING AND PAVEMENT REPLACEMENT

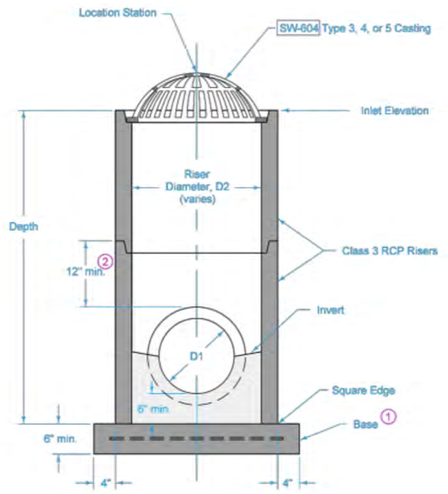
SHEET NAME
STORM SEWER DETIALS

SHEET NO.
B.10

(1) Precast (shown) or cast-in-place base:

- Precast: 6 inch thick concrete with #6 welded wire mesh on 4 inch centers (WWF 4" x 4"). Center mesh vertically within base.
- Cast-in-place: 8 inch thick non-reinforced concrete.

(2) 12 inch minimum riser height above all pipes.



TYPICAL SECTION

CASE 1

INTAKE SIZE - CASE 1	
Outlet Pipe Diameter, D1	Minimum Riser Diameter, D2
12"	18"
15"	24"
18"	24"
21"	30"
24"	30"
27"	36"

FIGURE 6090.502 SHEET 1 OF 2

SUDAS | IOWADOT | REVISION 2 10-21-14

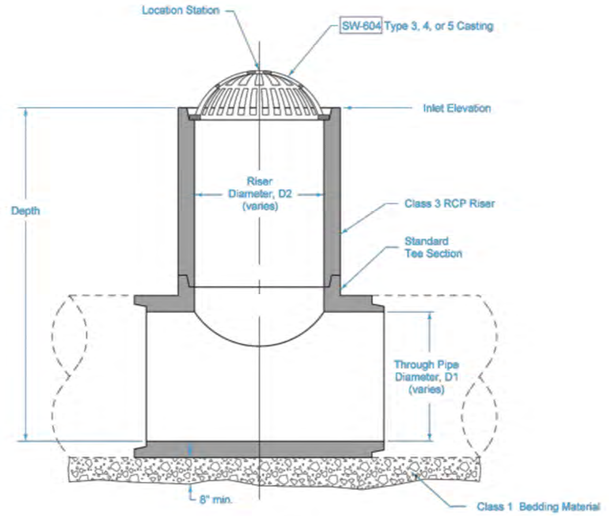
FIGURE 6010.512 | STANDARD ROAD PLAN | SW-512 | SHEET 1 of 2

REVISIONS: Deleted the flow arrow on sheet 2

Paul D. Wigand, Roadway Construction Engineer — Brian Smith, Design Methods Engineer

CIRCULAR AREA INTAKE

(3) Minimum riser diameter is 18 inches.



TYPICAL SECTION

CASE 2

INTAKE SIZE - CASE 2	
Through Pipe Diameter, D1	Maximum Riser Diameter, D2 (3)
18"	18"
21"	18"
24"	24"
27"	24"
30"	30"
36" or more	36"

FIGURE 6090.502 SHEET 2 OF 2

SUDAS | IOWADOT | REVISION 2 10-21-14

FIGURE 6010.512 | STANDARD ROAD PLAN | SW-512 | SHEET 2 of 2

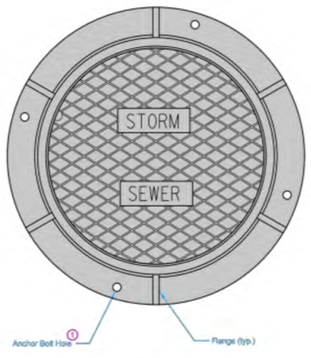
REVISIONS: Deleted the flow arrow on sheet 2

Paul D. Wigand, Roadway Construction Engineer — Brian Smith, Design Methods Engineer

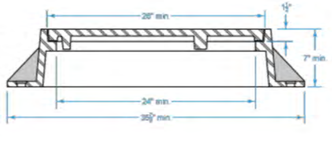
CIRCULAR AREA INTAKE

TYPE E

Two-piece fixed casting



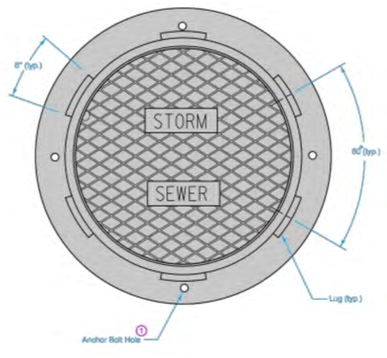
PLAN



TYPICAL SECTION

TYPE F

Three-piece floating casting



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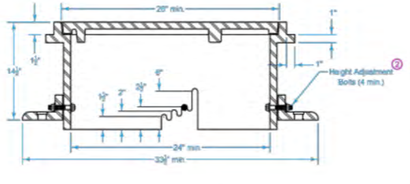


TYPICAL SECTION

Frame Notes:
Size and spacing of lugs and flanges may vary.

Cover Notes:
Roughness pattern and text styles may vary.
Minimum one concealed pickhole.

(1) When the contract documents require the frame to be attached to the structure, drill four ¾" diameter holes or slots, equally spaced around frame.

(2) Set casting at proper grade using one of the adjustment slots. Remove bolts upon completion of paving.

FIGURE 6090.602 SHEET 1 OF 2

SUDAS | IOWADOT | REVISION 3 04-21-15

FIGURE 6010.602 | STANDARD ROAD PLAN | SW-602 | SHEET 1 of 2

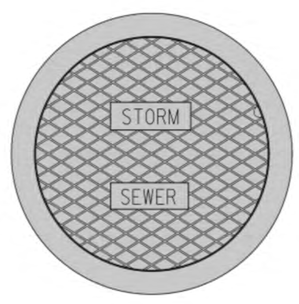
REVISIONS: Revised three-piece casting configuration. Modified detail note 2.

Paul D. Wigand, Roadway Construction Engineer — Brian Smith, Design Methods Engineer

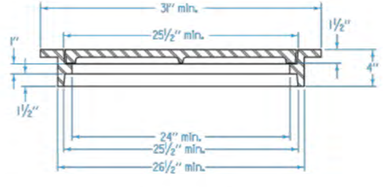
CASTINGS FOR STORM SEWER MANHOLES

TYPE G

Two-piece fixed casting



PLAN



TYPICAL SECTION

FIGURE 6090.602 SHEET 2 OF 2

SUDAS | IOWADOT | REVISION 3 04-21-15

FIGURE 6010.602 | STANDARD ROAD PLAN | SW-602 | SHEET 2 of 2

REVISIONS: Revised three-piece casting configuration. Modified detail note 2.

Paul D. Wigand, Roadway Construction Engineer — Brian Smith, Design Methods Engineer

CASTINGS FOR STORM SEWER MANHOLES

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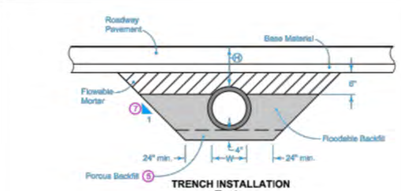
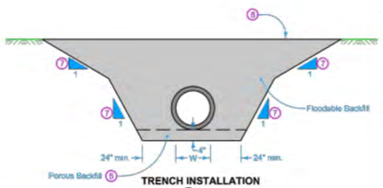
SHEET NAME

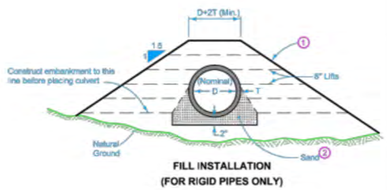
STORM SEWER DETIALS

SHEET NO.

B.11

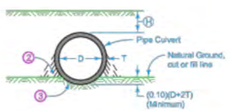




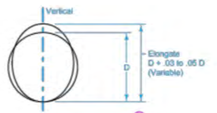


Denotes pay limits for fooded backfill

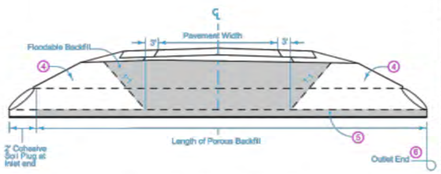
CLASS 'B' BEDDING & BACKFILL



CLASS 'C' BEDDING & BACKFILL



ELONGATED PIPE



TYPICAL SECTION - SOIL PLUG

Refer to DR-104 for minimum and maximum allowable cover (H) for the particular kind of pipe culvert.

1. The backfill adjacent to and above the pipe culvert may be placed in conjunction with normal embankment construction. Thoroughly tamp the embankment within the limits shown.
2. Take extra care to ensure complete and satisfactory tamping of backfill material in the area immediately adjacent to the lower portion of pipe.
3. Carefully shape excavation below groundline either using a template conforming to actual dimension and shape of the pipe or using other means. If using other means, check with a template conforming to the actual dimension and shape of the pipe.
4. For culverts backfilled by flooding, place a cohesive soil plug at the inlet, outlet, and, when necessary, sides, prior to flooding.
5. 4-inch Porous Backfill bedding. 2-inch Floodable Backfill bedding may be used under unsealed rigid pipe.
6. Extend Porous Backfill through the outlet end soil plug when used for bedding.
7. Quantity calculations are based upon a 1:1 slope and minimum trench dimension. Actual slope of trench may vary based upon Contractor's operations.
8. Ground Line at time of pipe installation. When existing ground exceeds 5 feet depth over pipe, backfill and compaction by flooding is not required more than 5 feet above the pipe.
9. Where a corrugated metal pipe culvert requiring elongation is to be installed (to counteract deformation caused by backfill), complete elongation using a means approved by the Engineer. Elongation may be developed either as part of shop fabrication or field installation. Install with elongated axis vertical.

Possible Contract Items:
Flowable Mortar
Flooded Backfill
Excavation, Class 20

Possible Tabulations:
104-3
104-4

IOWA DOT
STANDARD ROAD PLAN

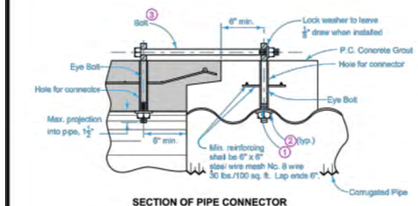
REVISION	
New	04-21-15

DR-101
SHEET 1 of 1

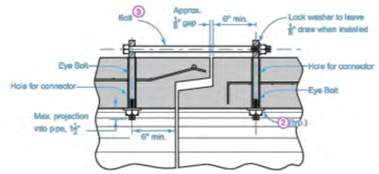
REVISIONS: New. Replaces RF 33A. Changed 18" from outside of pipe to trench to 24" min. from inside of pipe to trench. Modified circle note 8.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

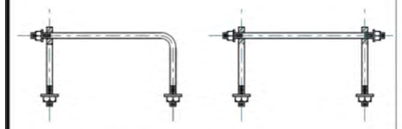
PIPE CULVERT
(BEDDING AND BACKFILL)



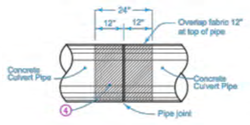
SECTION OF PIPE CONNECTOR
(Concrete Pipe to Corrugated Pipe)



SECTION OF PIPE CONNECTOR
(Concrete Pipe to Concrete Pipe)

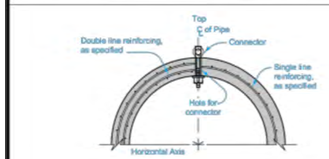


OPTIONAL BOLTS/CONNECTORS

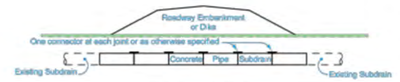


PIPE JOINT WRAPPING

PIPE SIZE (in)	CONNECTOR AND BOLT SIZE (in.)	HOLE FOR CONNECTOR (in.)
12 to 27	¾	⅞
30 to 60	1	1.0
66 to 132	1.0	1⅛



TYPICAL SECTION
(Non-Sealed Joint)



TYPICAL INSTALLATION

TYPE 1 CONNECTION

Wrap all joints on concrete roadway pipe culverts.

Use Type 3 Connections on all culvert pipes, unless specified otherwise. Refer to Materials I.M. 445.01 for Connector requirements.

Minimum 2 threads showing at all threaded ends.

Connections not required on pipe sections installed by trenchless methods.

For belled concrete pipe joints, connectors may be installed on the inside of the pipe.

TYPE 1

One connector at the top of the pipe section.

TYPE 2 (Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required. Refer to Materials I.M. 491.09 for seal requirements.

TYPE 3 (Non - Sealed Joint)

Two connectors near the top of the pipe section. For details of reinforcement, refer to AASHTO M 170 for the class of pipe required.

1. If holes are field drilled, place a ribbon of butyl sealant around bolts before placing 3 in. x 3 in. x ¼ in. plate on bolts through corrugated metal pipe and tightening nuts.
2. 1⅛ inch round x ⅝ inch thick washer or 3 in. x 3 in. x ¼ in. square plate (shaped to pipe radius).
3. Connectors with One Bend End and Bell End spacers allowed per Materials I.M. 451. Refer to Optional Bolts detail.
4. Engineering fabric for embankment erosion control.

Possible Tabulation:
104-3

IOWA DOT
STANDARD ROAD PLAN

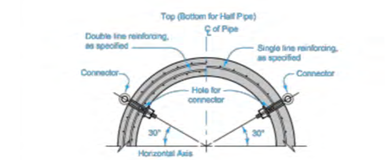
REVISION	
1	10-20-15

DR-121
SHEET 1 of 2

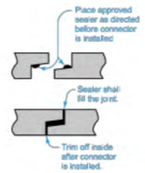
REVISIONS: Added the option to install connectors on the inside of the pipe for belled concrete pipe joints.

Brian Smith
APPROVED BY DESIGN METHODS ENGINEER

CONNECTED PIPE JOINTS



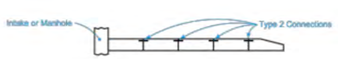
TYPICAL SECTION
TYPE 2 CONNECTION
TYPE 3 CONNECTION



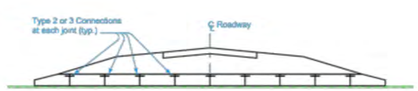
SEALED JOINT
TYPE 2 CONNECTION

⑤ On culvert extensions, connect all new joints including the joint between the old and new culvert pipe. Holes may need to be drilled into existing pipes.

TYPICAL INSTALLATION
TYPE 2 CONNECTION



TYPICAL INSTALLATION
STORM SEWER OUTLET - TYPE 2 CONNECTION



TYPICAL INSTALLATION
NEW CONSTRUCTION - TYPE 2 or 3 CONNECTION

TYPICAL INSTALLATION
PIPE EXTENSION - TYPE 3 CONNECTION

TYPE 2 AND TYPE 3 CONNECTIONS

IOWA DOT
STANDARD ROAD PLAN

REVISION	
1	10-20-15

DR-121
SHEET 2 of 2

REVISIONS: Added the option to install connectors on the inside of the pipe for belled concrete pipe joints.

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APPROVED BY DESIGN METHODS ENGINEER

CONNECTED PIPE JOINTS

PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: SJH
REVISION:

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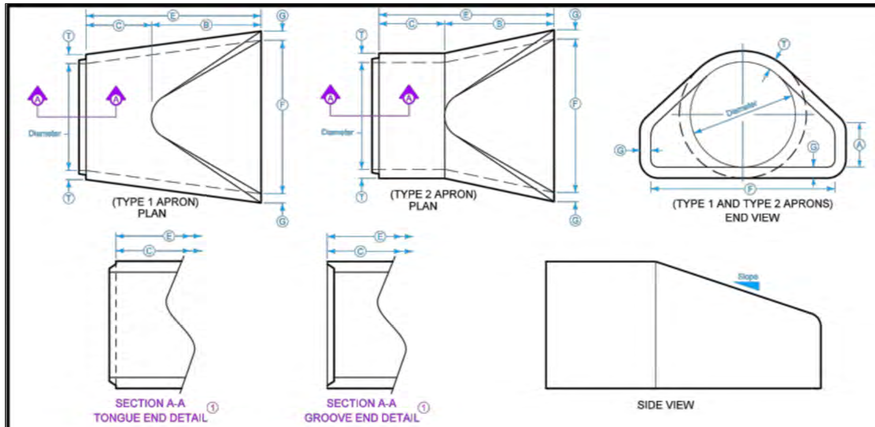
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
DRAINAGE DETIALS

SHEET NO.
B.12



Dimension 'E' shown is the minimum and is considered the design length. Adjust for any difference between the actual length of concrete apron installed and the length indicated hereon within the length of concrete culvert pipe furnished.

Install connected pipe joints as shown on DR-121.

When specified in the contract documents, install pipe apron guards as shown on DR-213. Pipe apron guards are incidental to "Concrete Aprons".

① Tongue end used on inlet end section. Groove end used on outlet end section. Comply with AASHTO M 170 for tongue and groove dimensions.

Contract Item:
Apron, Concrete

Tabulations:
104-3
104-5C

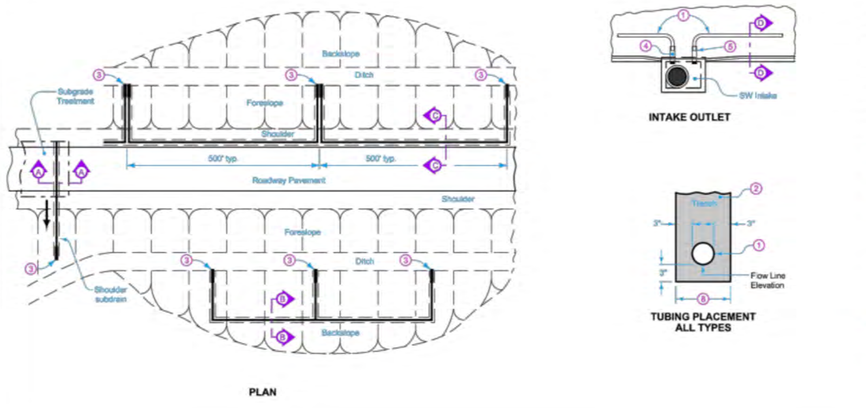
TYPE 1 APRONS

DIAM.	SLOPE	A	B	MINIMUM C	MINIMUM E	F	G	T
12"	2.4:1	4"	2'-0"	4'-2 3/8"	6'-2 3/8"	2'-0"	2"	2"
15"	2.4:1	6"	2'-3"	3'-10"	6'-1"	2'-6"	2 1/2"	2 1/2"
18"	2.3:1	9"	2'-3"	3'-10"	6'-1"	3'-0"	2 1/2"	2 1/2"
21"	2.4:1	9"	3'-0 "	3'-1 1/2"	6'-1 1/2"	3'-5"	3"	3"
24"	2.5:1	9"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3"	3"
27"	2.5:1	10 1/2"	4'-1 "	2'-0"	6'-1 1/2"	4'-4"	3 1/2"	3 1/2"
30"	2.5:1	12"	4'-6"	1'-7 7/8"	6'-1 1/2"	5'-0"	3 1/2"	3 1/2"
36"	2.5:1	15"	5'-3"	2'-9"	8'-0"	6'-0"	4"	4"
42"	2.5:1	21"	5'-3"	2'-9"	8'-0"	6'-6"	4 1/2"	4 1/2"
48"	2.5:1	24"	6'-0"	2'-0"	8'-0"	7'-0"	5"	5"
54"	1.8:1	27"	5'-0"	3'-0"	8'-0"	7'-6"	5 1/2"	5 1/2"
60"	1.6:1	29 1/2"	5'-0"	3'-0"	8'-0"	8'-0"	5 1/2"	6"
66"	1.7:1	30"	6'-0"	2'-3"	8'-3"	8'-0"	5 1/2"	6"
72"	1.6:1	30"	6'-6"	1'-9"	8'-3"	9'-0"	6"	7"
78"	1.8:1	36"	7'-6"	1'-9"	9'-3"	9'-6"	6 1/2"	7 1/2"
84"	1.3:1	29 1/2"	8'-9"	2'-6 1/2"	9'-3 1/2"	10'-0"	6 1/2"	8"

TYPE 2 APRONS

DIAM.	SLOPE	A	B	MINIMUM C	MINIMUM E	F	G	T
12"	2.4:1	4"	2'-0"	4'-2 3/8"	6'-2 3/8"	2'-0"	2"	2"
15"	2.4:1	6"	2'-3"	3'-10"	6'-1"	2'-6"	2 1/2"	2 1/2"
18"	2.3:1	9"	2'-3"	3'-10"	6'-1"	3'-0"	2 1/2"	2 1/2"
21"	2.4:1	9"	3'-0"	3'-1 1/2"	6'-1 1/2"	3'-5"	3"	3"
24"	2.5:1	9"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3"	3"
27"	2.5:1	10 1/2"	4'-1 "	2'-0"	6'-1 1/2"	4'-4"	3 1/2"	3 1/2"
30"	2.5:1	12"	4'-6"	1'-7 7/8"	6'-1 1/2"	5'-0"	3 1/2"	3 1/2"
36"	2.5:1	15"	5'-3"	2'-9"	8'-0"	6'-0"	4"	4"
42"	2.5:1	21"	5'-3"	2'-9"	8'-0"	6'-6"	4 1/2"	4 1/2"
48"	2.5:1	24"	6'-0"	2'-0"	8'-0"	7'-0"	5"	5"
54"	1.9:1	24 1/2"	5'-5"	2'-7"	8'-0"	7'-6"	5 1/2"	5 1/2"
60"	1.4:1	24 1/2"	5'-0"	3'-0"	8'-0"	8'-0"	5 1/2"	6"
66"	1.7:1	30"	6'-0"	2'-3"	8'-3"	8'-0"	5 1/2"	6"
72"	1.4:1	24"	6'-6"	1'-9"	8'-3"	9'-0"	6"	7"
78"	1.8:1	36"	7'-6"	1'-9"	9'-3"	9'-6"	6 1/2"	7 1/2"
84"	1.5:1	23 1/2"	7'-0 1/2"	1'-9"	9'-3 1/2"	10'-0"	6 1/2"	8"

IOWA DOT
STANDARD ROAD PLAN
DR-201
REVISION: New | 04-21-15
SHEET 1 of 1
REVISIONS: New. Replaces RF-3.
Brian Smith
APPROVED BY DESIGN METHODS ENGINEER
CONCRETE APRONS



When culverts which are less than 1 foot below the trench bottom are encountered within a tabulated subdrain, stop the trench 3 feet from the culvert and resume 3 feet beyond the culvert.

On new construction projects, place the subdrain after the special backfill, if required, and prior to granular or paved shoulder material.

Except for backslope installations, if the Contractor's operations result in a trench, place and compact granular shoulder material in the trench to be level with the adjacent surface prior to opening lanes to traffic.

① Perforated Subdrain (Corrugated Polyethylene Tubing).

② Porous Backfill for Subdrain (compacted).

③ Subdrain outlets. See DR-304.

④ 2 foot section of corrugated metal pipe of diameter 2" larger than subdrain or 2 foot section of double-walled PE or PVC pipe of the same diameter as subdrain. Pipe will be paid for as "Subdrain Outlet (DR-303)".

⑤ Connect PE or PVC outlet with an appropriate coupler. Connect CMP outlet one of two ways: (1) Inside-fit reducer coupler (1 foot minimum fit inside CMP); or (2) Insert 1 foot of the 4 inch subdrain into 6 inch CMP and fully seal entire opening with grout.

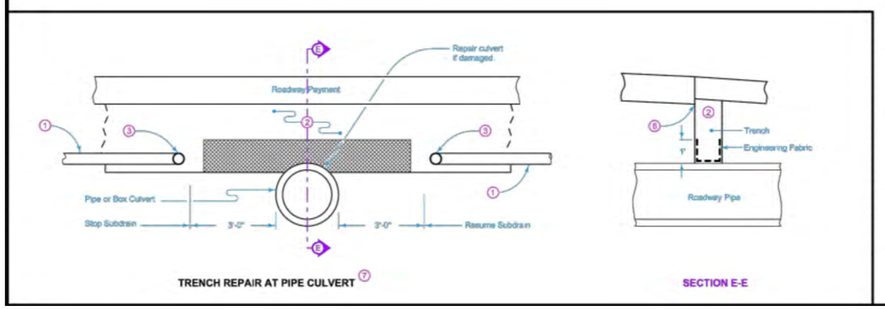
⑥ Place porous backfill in direct contact with a minimum of 2 inches of pavement and continuous to shoulder material as per note 10 or 11.

⑦ If the trench is inadvertently carried over the culvert, repair the trench as detailed on this sheet. If obstruction is 1 foot or more below trench bottom, carry subdrain line over in continuous alignment. No payment will be made for trench repair.

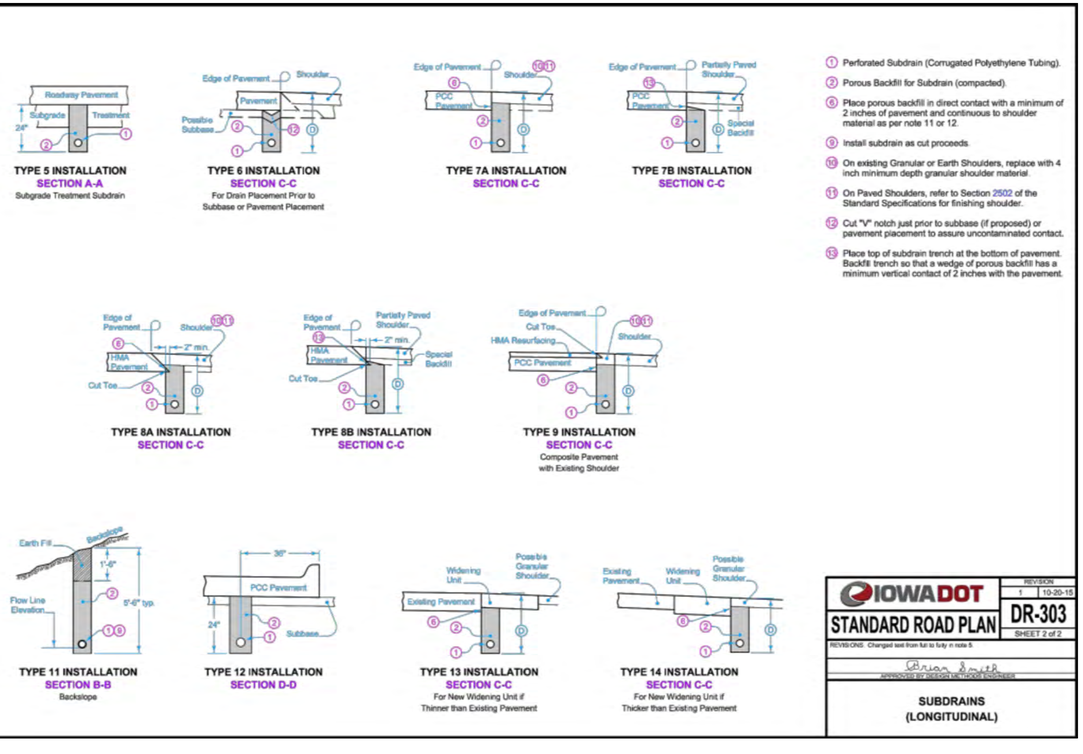
⑧ 10 inches for 4 inch subdrain. 12 inches for 6 inch subdrain.

Possible Contract Items:
Subdrain, Longitudinal, (Backslope)
Subdrain, Longitudinal, (Shoulder)
Subdrain Outlet (DR-303)
Subdrain Outlet (DR-304)

Possible Tabulation:
104-9



IOWA DOT
STANDARD ROAD PLAN
DR-303
REVISION: 1 | 10-20-15
SHEET 1 of 2
REVISIONS: Changed text from full to fully in note 5.
Brian Smith
APPROVED BY DESIGN METHODS ENGINEER
SUBDRAINS
(LONGITUDINAL)



① Perforated Subdrain (Corrugated Polyethylene Tubing).

② Porous Backfill for Subdrain (compacted).

⑥ Place porous backfill in direct contact with a minimum of 2 inches of pavement and continuous to shoulder material as per note 11 or 12.

⑨ Install subdrain as cut proceeds.

⑩ On existing Granular or Earth Shoulders, replace with 4 inch minimum depth granular shoulder material.

⑪ On Paved Shoulders, refer to Section 2502 of the Standard Specifications for finishing shoulder.

⑫ Cut "V" notch just prior to subbase (if proposed) or pavement placement to assure uncontaminated contact.

⑬ Place top of subdrain trench at the bottom of pavement. Backfill trench so that a wedge of porous backfill has a minimum vertical contact of 2 inches with the pavement.

IOWA DOT
STANDARD ROAD PLAN
DR-303
REVISION: 1 | 10-20-15
SHEET 2 of 2
REVISIONS: Changed text from full to fully in note 5.
Brian Smith
APPROVED BY DESIGN METHODS ENGINEER
SUBDRAINS
(LONGITUDINAL)

PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: SJH
REVISION:

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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
DRAINAGE DETIALS

SHEET NO.
B.13

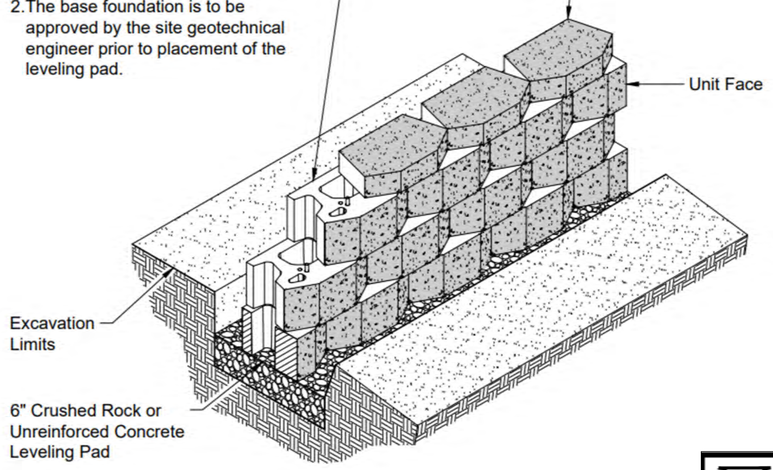
Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete

2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

Compac II Unit	
Width:	18"
*Depth:	12"
Height:	8"
*Weight:	82 lbs

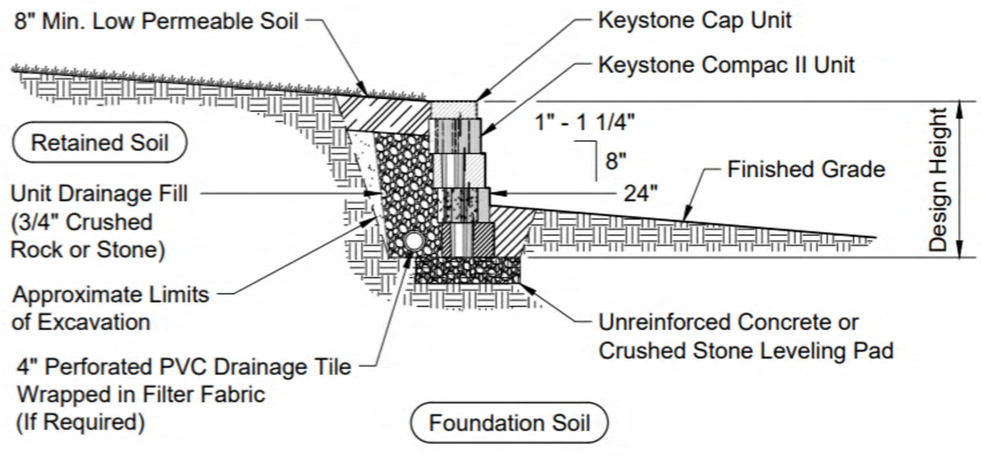
Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	45 lbs



Compac II Unit/Base Pad Isometric Section View

*Dimensions & Weight May Vary by Region

VEENSTRA & KIMM, INC.



VEENSTRA & KIMM, INC.

Typical Gravity Wall Section

Compac II Unit - 1" Setback

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PROJECT: CEE:4850

DATE : 05/08/2026

DRAWN BY: SJH

REVISION:

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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME

RETAINING WALL DETIALS

SHEET NO.

B.14

QUANTITIES – GREEN

ITEM	QUANTITY	UNIT
CLEARING AND GRUBBING	392	SF
REMOVAL OF SEAL COAT	1442	SY
REMOVAL OF HMA PAVEMENT	445	SY
REMOVAL OF PCC PAVEMENT	230	SY
REMOVAL OF CURB AND GUTTER	148	LF
REMOVAL OF SIDEWALK	373	SY
REMOVAL OF RETAINING WALL	123	SF
REMOVAL OF FIRE HYDRANTS	2	EA
REMOVAL OF TRAFFIC SIGNS	4	EA
REMOVAL OF TREES	2	EA
REMOVAL OF LIGHT POLES	1	EA
REMOVAL OF STORM INLETS	1	EA
CUT	92	CY
FILL	339	CY
6'' GRANULAR SUBBASE	260	CY
7'' PCC PAVEMENT	303	CY
4'' PCC SIDEWALK	375	SY
ADA SIDEWALK RAMP	5	EA
CURB AND GUTTER	797	LF
SEEDING RESTORATION	5586	SF
TRAFFIC SIGNS	4	EA
PAVEMENT MARKINGS	1	LS
LIGHT POLE INSTALLATION	1	EA
FIRE HYDRANT INSTALLATION	2	EA
RETAINING WALL	123	SF
STORM INLETS	5	EA
18'' STORM PIPE	504	LF
CONSTRUCTION ADMINISTRATION	1	LS
MOBILIZATION	1	LS
TRAFFIC CONTROL	1	LS

QUANTITIES – 4TH STREET

ITEM	QUANTITY	UNIT
CLEARING AND GRUBBING	37756	SF
REMOVAL OF SEAL COAT	10282	SY
REMOVAL OF HMA PAVEMENT	1876	SY
REMOVAL OF PCC PAVEMENT	360	SY
REMOVAL OF GRAVEL DRIVEWAY	161	SY
REMOVAL OF TRAFFIC SIGNS	8	EA
REMOVAL OF TREES	65	EA
REMOVAL OF MAILBOX	1	EA
REMOVAL OF CULVERT	112	LF
REMOVAL OF PIPE	185	LF
REMOVAL OF FLARED END SECTION	1	EA
REMOVAL OF STORM INLETS	4	EA
CUT	4607	CY
FILL	7505	CY
6'' GRANULAR SUBBASE	2345	CY
7'' PCC PAVEMENT	2748	CY
18" IMPORTED FILL	7034	CY
6'' GRAVEL DRIVEWAY	39	CY
CURB AND GUTTER	7583	LF
MILLED RUMBLE STRIP	268	LF
SEEDING RESTORATION	220190	SF
TREE REPLACEMENT	52	EA
TRAFFIC SIGNS	10	EA
PAVEMENT MARKINGS	1	LS
MAILBOX RELOCATION	1	EA
BOX CULVERT	112	LF
RETAINING WALL	293	SF
STORM INLETS	42	EA
18'' STORM PIPE	6406	LF
CONSTRUCTION ADMINISTRATION	1	LS
MOBILIZATION	1	LS
TRAFFIC CONTROL	1	LS

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: APH
REVISION:

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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
QUANTITIES

SHEET NO.
C.01

GENERAL NOTES

*The Contractor will confine all work to the right–of–way or the design construction easements
*The Contractor shall be responsible for any damage outside of the construction limits or easements resulting from his/her negligence.
*Caution will be taken when working over and around all tile lines. Breaks in the title lines due to the contractor's carelessness are to be replaced at the contractor's expence. Any tile lines broken or disturbed by plan cuts will be replaced as directed by the Engineer.

ACCESS

*It shall be the Contractor's responsibility to provide and maintain access to individual properties during construction.
*Relocating accesses shall be completed to individual properties to removal of existing access.
*If the permanent access cannot be completed prior to removal of existing access, the contractor shall provide and maintain a alternate access. Temporary access drives shall have a minimum 4" crushed rock surface. Rock surface quantities shall be included in Surfacing, Driveway, Class A Crushed Stone.

MAILBOXES

*Removal and relocation of mailboxes is a bid item. It shall be the contractor's responsibility to coordinate with the local postmaster and with the residents on establishing a procedure for either mail delivery or pick–up. Mailboxes will be temporarily constructed on the side of the road during construction phasing. Mailboxes shall be placed to specifications of the postal service with regard to the location and height before final acceptance of work.

SURFACE RESTORATION

A. Parkings, lawns, and street rights–of–way: replace 6" of topsoil removed during excavation.

B. Replace damaged flowers, shrubbery and trees with new plantings of equal type and quality at no cost to Owner; trees removed because of conflict with alignment of pipes shall not be replaced, except where shown on plans.

C. Grade to smooth, uniform lines without large lumps, clods, or debris.

D. Dispose of all brush and rubbish as directed by Engineer.

E. Sod all areas disturbed by construction unless otherwise shown on plans directed by Engineer.

F. Prepare site for sodding by discing, harrowing and hand raking or other means following site grading; work soil to depth of 3".

G. Precede sodding with uniform application of commercial grade fertilizer at rate per acre of 10lbs. of nitrogen, 40lbs. of phosphorous and 20 lbs. of potassium (400 lbs. of fertilizer grade 5–10–5 per acre, or approved equal); cultivate area 3" deep and work with harrow within 24 hours before seeding; smooth surface to eliminate clods and lumps before seeding.

H. Sod: Minimum 18 months old, nursery grown bluegrass; free of objectionable grasses and weeds and insects; mowed at height of 2" prior to cutting; source subject of approval of Owner based on visual observation of condition.
   1. Sod shall be harvested, delivered and placed within a time period of 24 hours.
   2. Sod showing signs of heating and dehydration will be rejected.

I. Seeding in street parkings, lawns, and developed areas, (Type 1):
   1. Seed at rate of 4lbs. per 1000 SF with following mixture proportioned by weight:

Seed	Percent
Kentucky Bluegrass	35
Annual Rye	25
Perennial Rye	20
Creeping Red Fescue	10
Chewing Fescue	10

J. Cover seed by rolling with cultipacker, or by dragging or hand raking.

K. Mulch all seeded areas; mulch: dry oat straw at rate of 4,000 lbs. per acre; stabilize mulch with tiller designed to anchor to soil.

L. water seeded area sufficiently to saturate seed bed; continue watering all areas until growth is established; City will furnish water at no cost to Contractor.

M. Contractor responsible for turning over to Owner full stand grass; replant or redevelop bare spots or areas not attaining full stand of grass during first growing season.

N. Provide topsoil backfill behind curbs unless specified otherwise. Water sodded area sufficiently to saturate sod bed; continue watering all areas until growth is established; City will furnish water at no cost to contractor.

TABULATION OF UTILITIES

CITY OF WEST BRANCH	
PUBLIC WORKS	
MATT GOODALE, DIRECTOR	319–325–8213
ADAM KOFOED, CITY ADMINISTRATOR	319–643–5888
110 NORTH POPLAR STREET	
CEDAR COUNTY SHERIFF	563–866–2121
EMERGENCY	911
WEST BRANCH FIRE DEPARTMENT	319–643–2110
EMERGENCY	911

GRADING

*Typical Cross–Sections shall be used for reference purposes only.
*It will be the contractors responsibility to provide waste areas or disposal sites for material(s) which do not impact wetlands or "Waters of the U.S."
*Construct Natural Subgrade in center of roadbed in accordance with the 2109 of the Standard Specifications. The top 12" shall be compacted to at least 98% of the Optimum Density as determined by D–698 (Standard Proctor Density) and within –2% to +3% of the Optimum Moisture range. All full material shall be place in lifts not exceeding 8" in loose thickness. Cost shall be incidental to Class 10, Roadway and Borrow. All fill material under roadbed, below 12" of special compacted, shall be compacted to 95% of the optimum density per 2109 of the Standard Specifications (incidental).
*In cut areas the Subgrade shall be compacted as per Article 2109.5 of the Standard Specifications, Cost shall be indicated to Class 10 Roadway and Borrow.
*The Contractor shall apply necessary moisture to the constructed area to prevent the spread of dust. Refer to Article 1107.7 of the Standard Specifications for additional details.

MATERIAL TESTING REQUIREMENT

*Contractor shall provide Quality Control testing for materials conforming to the Iowa DOT IM–204. The City will perform the verification testing. All material testing costs shall be incidental to the application bid item.
*Contractor shall use maturity testing for PCC paving.
*Pavement cores shall be in accordance with the Iowa DOT IM–346. 4 samples are required.
*Contractor shall submit a design mix for approval prior to construction.

Testing frequency shall be:

Gradation tests	1/1500CY
Gradation Moisture	1/1500CY
Plastic Air Content	1/350CY
Vibrator Frequency	2/Day
Beams	2 initial to confirm maturity curve then Maturity testing

FIRE HYDRANT

A. Hydrant shall be type that is instructed by Engineer.

B. Furnish and install hydrant using anchoring tee, standard tee and anchoring couplings with anchoring pipe and other appurtenances as required.

C. Install Hydrant as shown on on plans or as directed by Engineer.

D. Hydrant color: paint hydrant red to safety flange and black below flange; Tnemec alkyd system for exterior exposure, or equal; surface preparation SSPC–S_6 commercial blast.

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: SJH
REVISION:

EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
GENERAL NOTES

SHEET NO.
C.02

NPDES

A. This project is subject to Section 402 (b) of the Clean Water Act and Iowa Code Section 455B. 174 and 567IAC 64.4 (projects disturbing 1 or more total acres) and requires issuance of a National Pollution Discharge Elimination System (NPDES) General Permit No. 2, or an individual NPDES Permit for Stormwater Discharge Associated with Industrial Activity for Construction Activities.

B. Erosion Control and Permit Requirements
1. Contractor will be the responsible party for applying for, implementing and complying with general Permit No. 2 for stormwater discharge and construction activities associated with this project. Contractor shall be the permitted and solely responsible for compliance and costs associated therewith, including those specifically referenced herein.
2. Contractor will be responsible for preparation of a Stormwater Pollution Prevention Plan. Contractor responsible to retain or engage persons knowledgeable in the preparation of a Sormwater Pollution Prevention Plan shall be prepared in a manner that complies with all applicable requirements.
3. Contractor will be the responsible party for publishing notice in newspapers as required for General Permit No. 2. The Contractor will be the responsible party for preparing and submitting Notice of Intent to the Iowa Department of Natural Resources for General Permit No. 2. Contractor responsible to pay all fees and costs associated with preparation of the Stormwater Pollution Prevention Plan, publication of notice and filing of Notice of Intent for coverage under General Permit No. 2.

4. Contractor will be the responsible party for implementation and monitoring of compliance with Stormwater Pollution Prevention Plan requirements and General Permit No. 2.

5. Contractor responsible party for filing of Notice of Discontinuation of General Permit No. 2 after vegetative growth has been re–established to the required levels of the permit.

6. Contractor will be responsible party for all fees and fines associated with the permit and permit violations.

7. Contractor will be responsible for maintaining a copy of the Stormwater Pollution Prevention Plan on the project site and for all site inspections and monitoring required by the permit.

8. Contractor will become the permitted. Contractor must identify which contracting entity will be responsible for each portion of the Stormwater Pollution Prevention Plan and maintain the site in compliance with the Pollution Prevention Plan and NDES Permit.

9. All subcontractors must sign the NDES certification statement before conducting any work at the site. The certification must be signed in accordance with the signatory requirements found in the general permit and must be incorporated in the Stormwater Pollution Prevention Plan.

10. In the event the Iowa Department of Natural Resources considers the City of West Branch to be co–permitted, the Contractor agrees to indemnify and hold harmless the City of West Branch for all issues and activities relating to the Stormwater Pollution Prevention Plan and permit including, but not limited to, fines and penalties.

11. Contractor must submit Stormwater Pollution Prevention Plan and documentation relating to General Permit No. 2 to the City of West Branch. The City of West Branch may review and require modification of said plan and documentation, but is not required to do so by this contract or by law.

12. Contractor responsible to develop phasing and staging plans for implementation of Stormwater Pollution Prevention Plan.

13. City of West Branch will not be responsible for maintenance or inspection of erosion control facilities or other activities or devices identified under the Stormwater Pollution Prevention Plan.

14. Contractor responsible to complete all requirements for NPDES General Permit No. 2 in a timely manner to avoid any delays in start of construction; notice to proceed for construction will not be ssued until all General Permit No. 2 requirements have been met; no extension of times for completion of construction will be granted for failure to timely meet requirements of General Permit No. 2.

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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
GENERAL NOTES

SHEET NO.
C.03

203 N Downey Street

115 Green Street

205 N 1st Street

REMOVE HMA PAVEMENT (445 SY)

REMOVE HYDRANT

REMOVE ROAD SIGNS

REMOVE 4" PCC SIDEWALK (162 SY)

REMOVE 2" SEALCOAT PAVEMENT (1442 SY)

GRASS DISTURBANCE (29 SY)

REMOVE 7" PCC PAVEMENT (230 SY)

E GREEN STREET

REMOVE HYDRANT

REMOVE ROAD SIGN

REMOVE 4" PCC SIDEWALK (217 SY)

RELOCATE STREET POLE

REMOVE TREE

126 N 1st Street

REMOVE STOP SIGN

GRASS DISTURBANCE (7 SY)

REMOVE RETAINING WALL

N DOWNEY STREET

Downtown Condominiums

116 N 1st Street

N 1ST STREET

N

0 15 30 Feet

PROJECT: CEE: 4850

DATE : 05/08/2026

DRAWN BY: NAS

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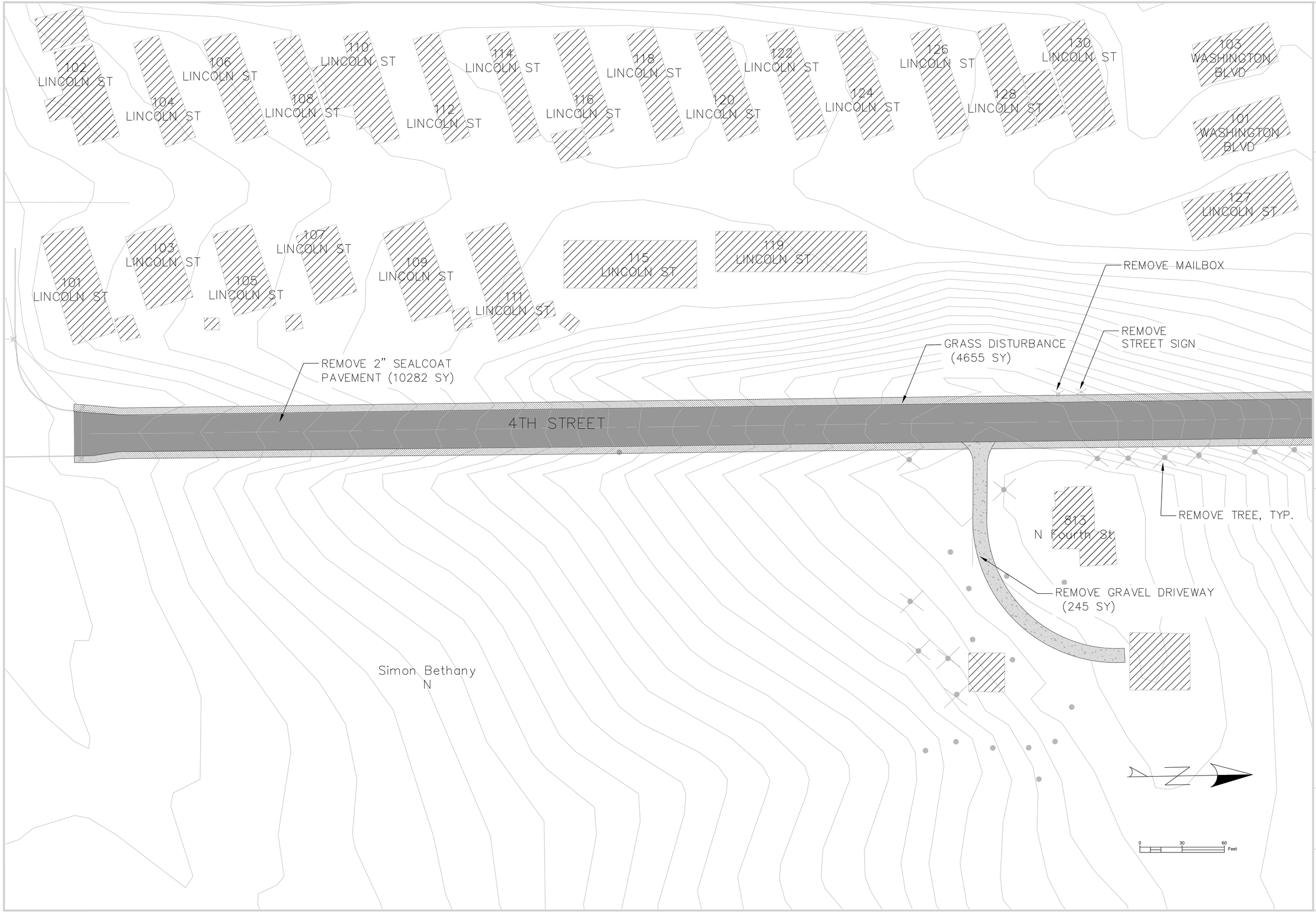
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME

DEMOLITION PLAN

SHEET NO.

D.01A



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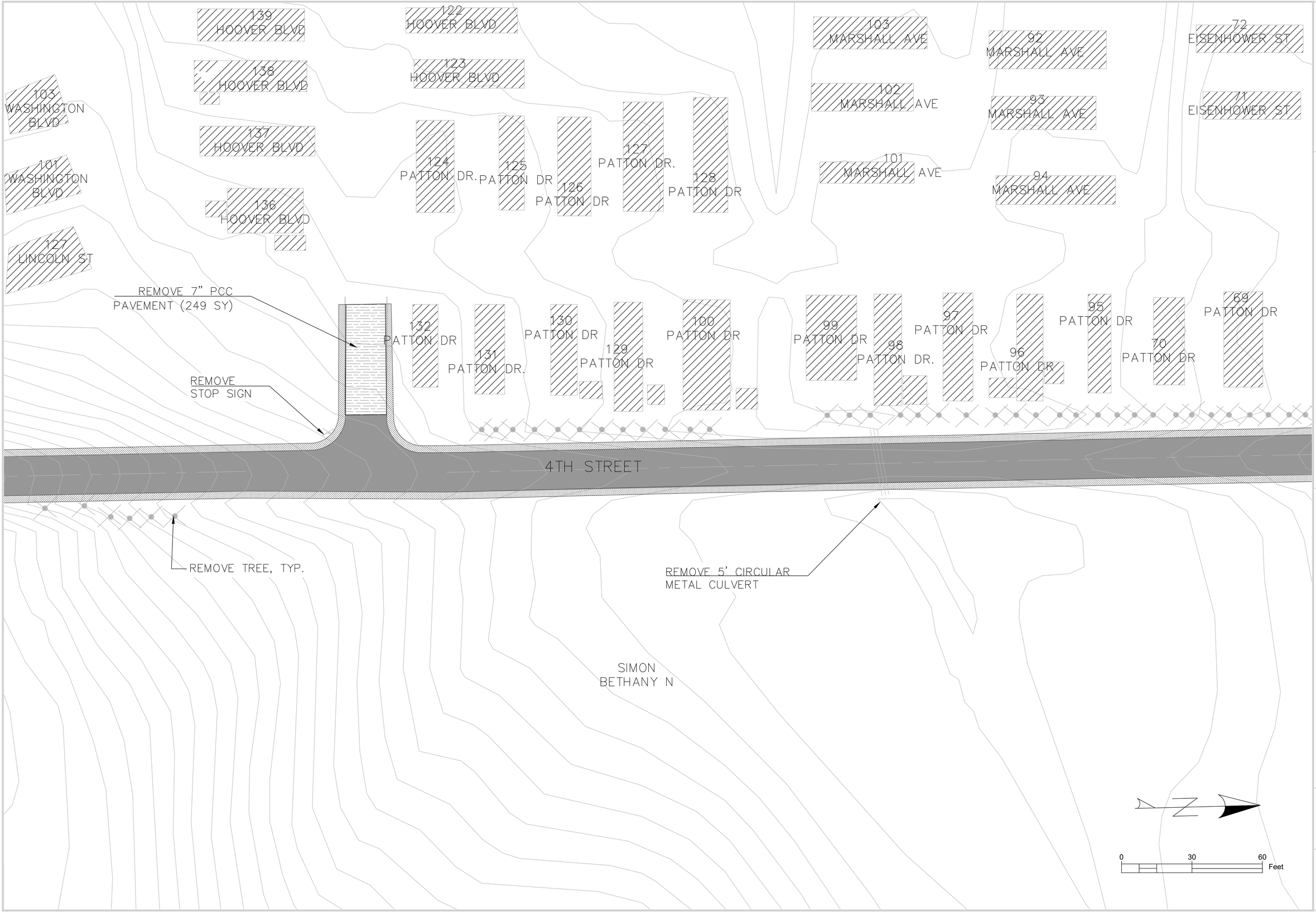
TRUCK REOUTING AND PAVEMENT REPLACEMENT

SHEET NAME

DEMOLITION PLAN

SHEET NO.

D.01B



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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME

DEMOLITION PLAN

SHEET NO.

D.02B

61 EISENHOWER ST
73 EISENHOWER ST
62 EISENHOWER ST
72 EISENHOWER ST
63 EISENHOWER ST
71 EISENHOWER ST
64 EISENHOWER ST
65 EISENHOWER ST
24 BRADLEY LN
11 BRADLEY LN
12 BRADLEY LN
23 BRADLEY LN
13 BRADLEY LN
22 BRADLEY LN
14 BRADLEY LN
21 BRADLEY LN
15 BRADLEY LN
REMOVE SIGN
280TH STREET
RAY SLACH FARMS
69 PATTON DR
68 PATTON DR
67 PATTON DR
66 PATTON DR
20 PATTON DR
19 PATTON DR
18 PATTON DR
17 PATTON DR
16 PATTON DR
REMOVE SIGN
4TH STREET
REMOVE TREE TYP.
REMOVE STOP SIGN
125 280TH ST.
SIMON BENTHANY N

0 30 60 Feet

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SHEET NAME
DEMOLITION PLAN

SHEET NO.
D.03B

25 BRADLEY LN
26 BRADLEY LN
27 BRADLEY LN
28 BRADLEY LN
29 BRADLEY LN
30 BRADLEY LN
31 BRADLEY LN
32 BRADLEY LN
33 BRADLEY LN
34 BRADLEY LN
11 BRADLEY LN
10 BRADLEY LN
9 BRADLEY LN
8 BRADLEY LN
7 BRADLEY LN
6 BRADLEY LN
5 BRADLEY LN
4 BRADLEY LN
3 BRADLEY LN
2 BRADLEY LN
1 BRADLEY LN
38 HOOVER BLVD
37 HOOVER BLVD
36 HOOVER BLVD

REMOVE 7" PCC PAVEMENT (684 SY)

REMOVE STOP SIGN

REMOVE 3" HMA PAVEMENT (2797 SY)

280TH STREET

REMOVE 5' CIRCULAR METAL CULVERT

RAY SLACH FARMS LLC

N

0 30 60 Feet

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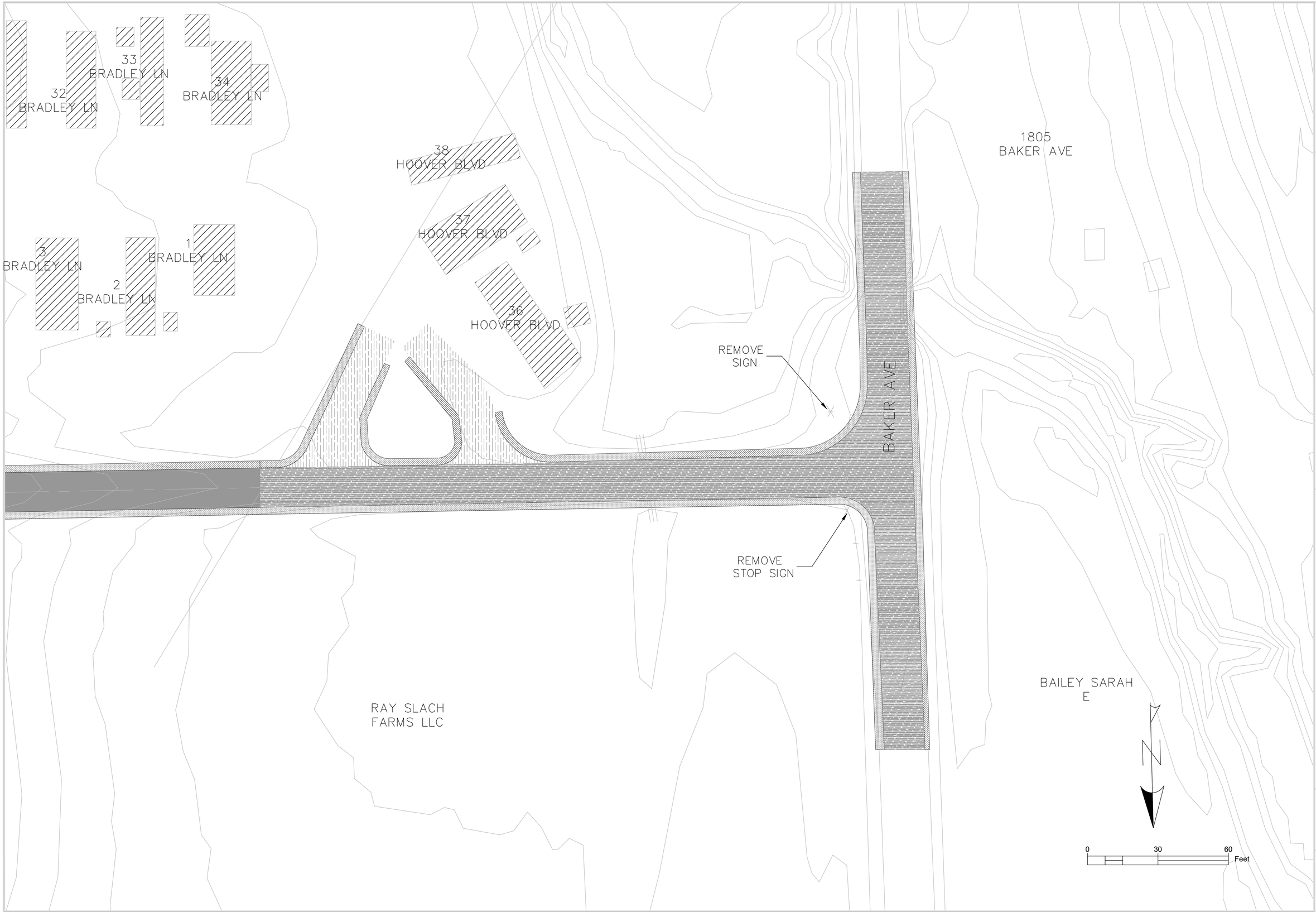
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
DEMOLITION PLAN

SHEET NO.
D.04B



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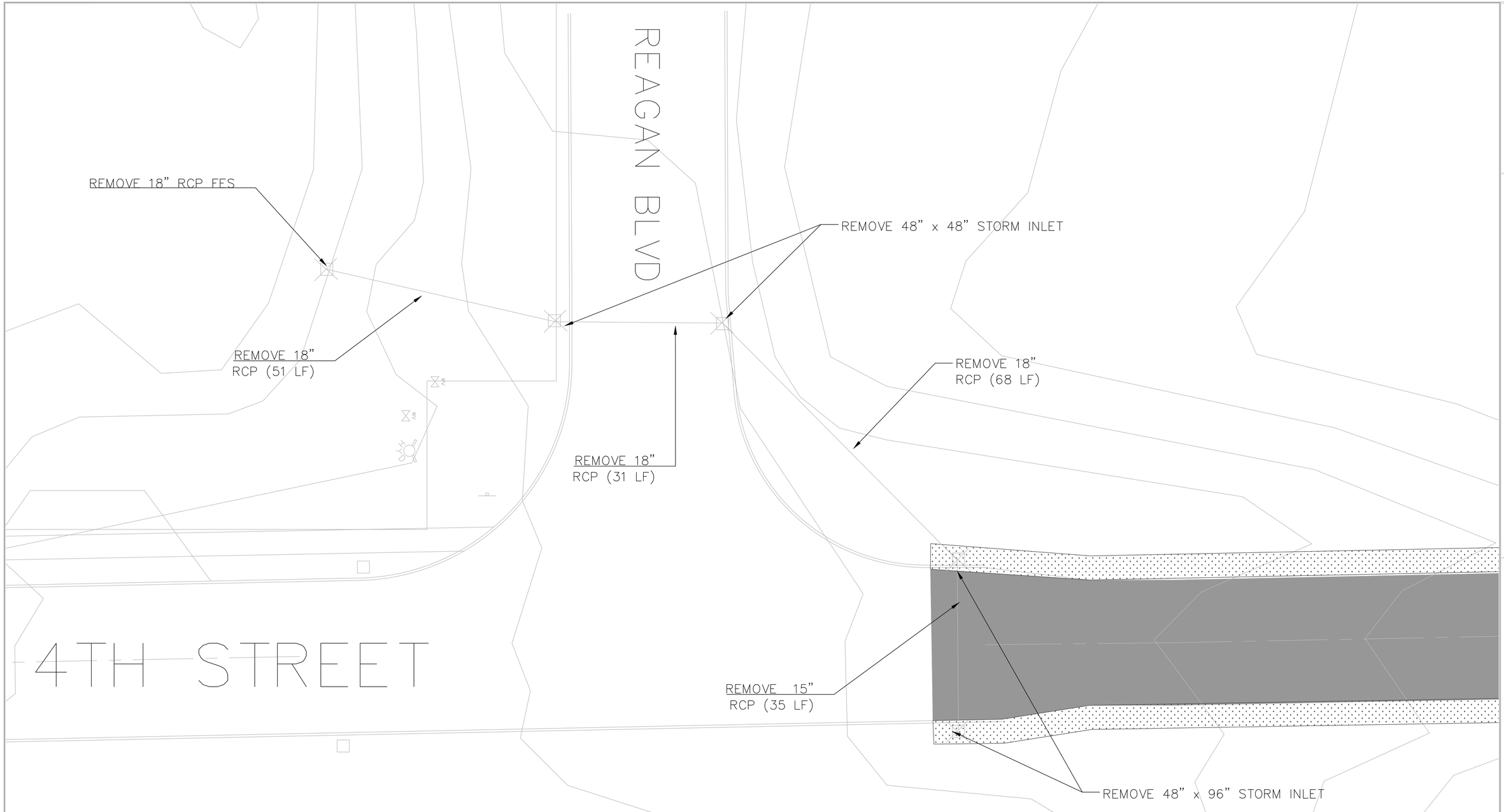
SHEET NAME

DEMOLITION PLAN

SHEET NO.

D.05B



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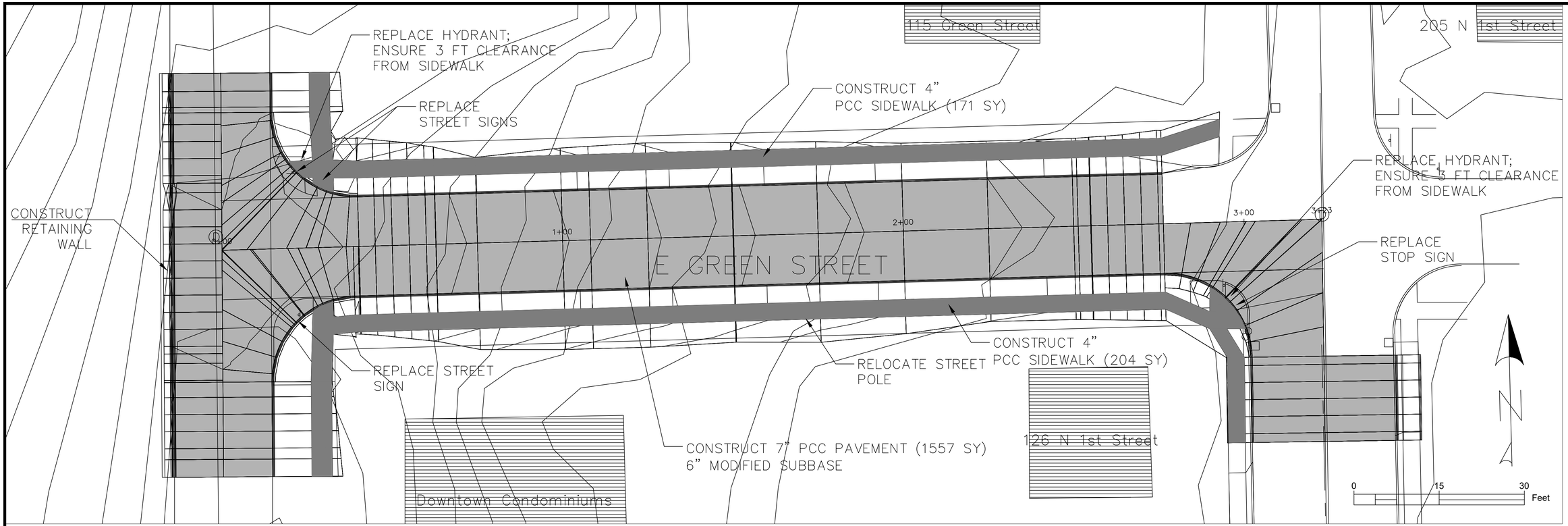
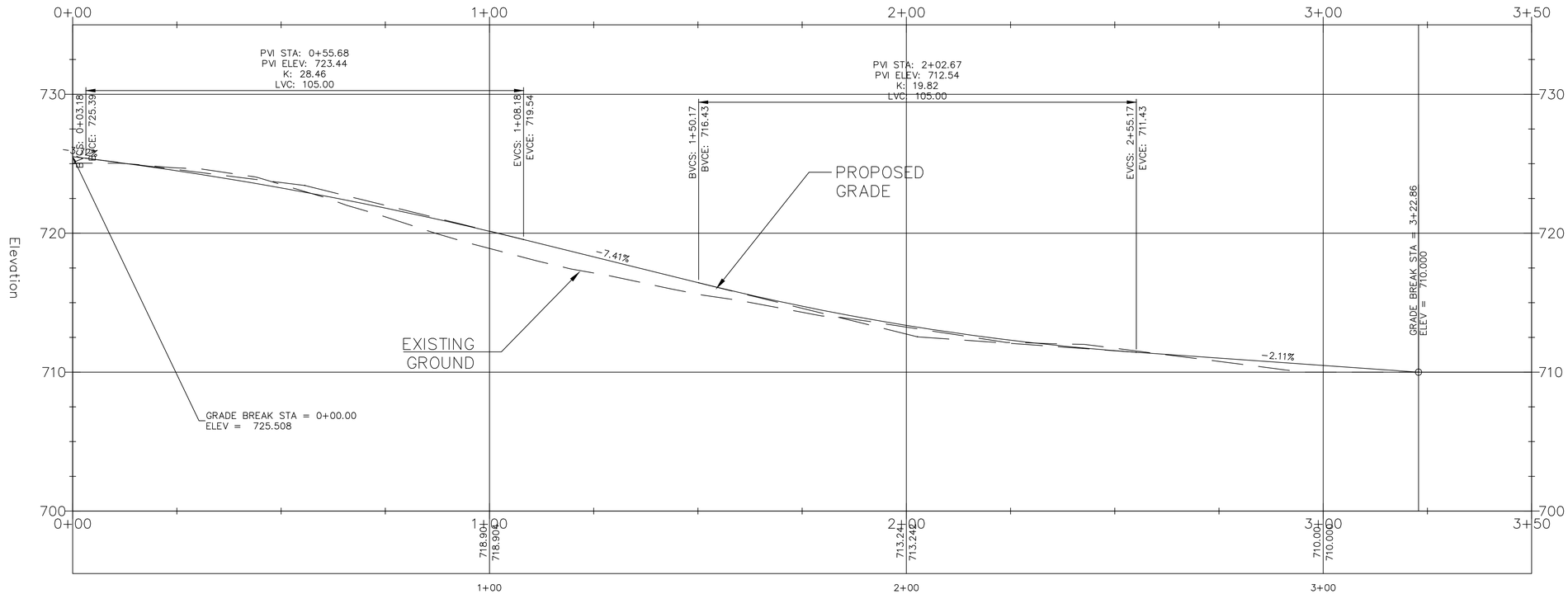
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
DEMOLITION PLAN

SHEET NO.
D.06B





GREEN STREET PROFILE

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PROJECT: CEE:4850
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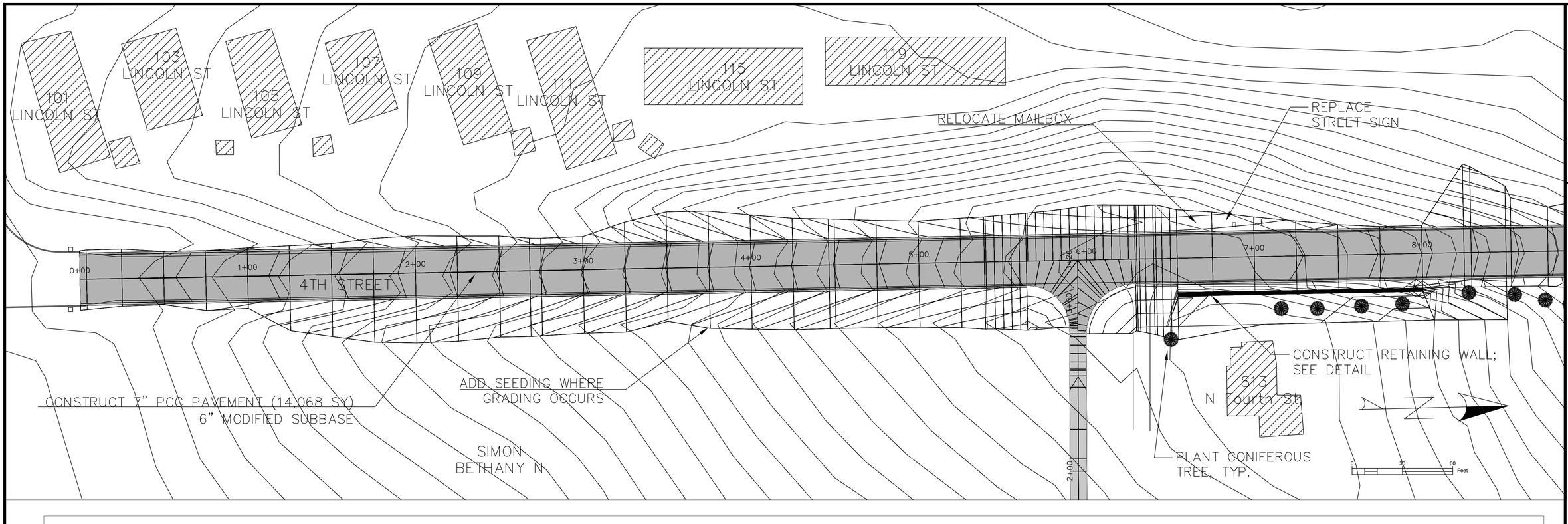
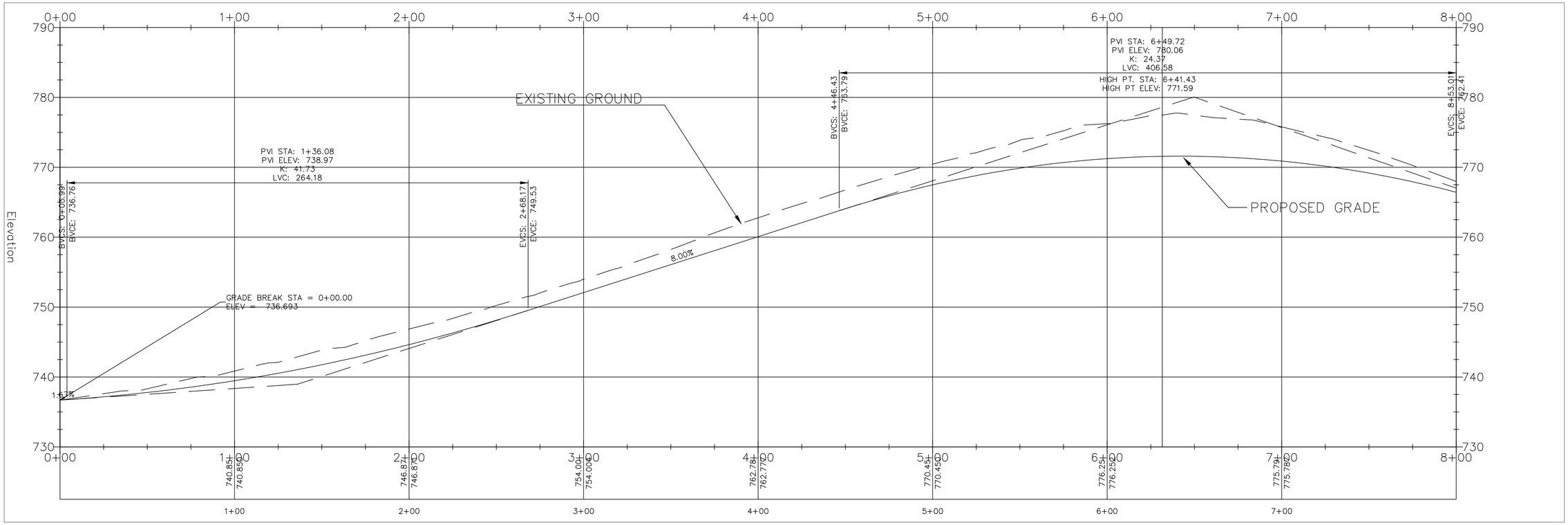
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
GREEN STREET

SHEET NO.
E.01A





4TH STREET PROFILE

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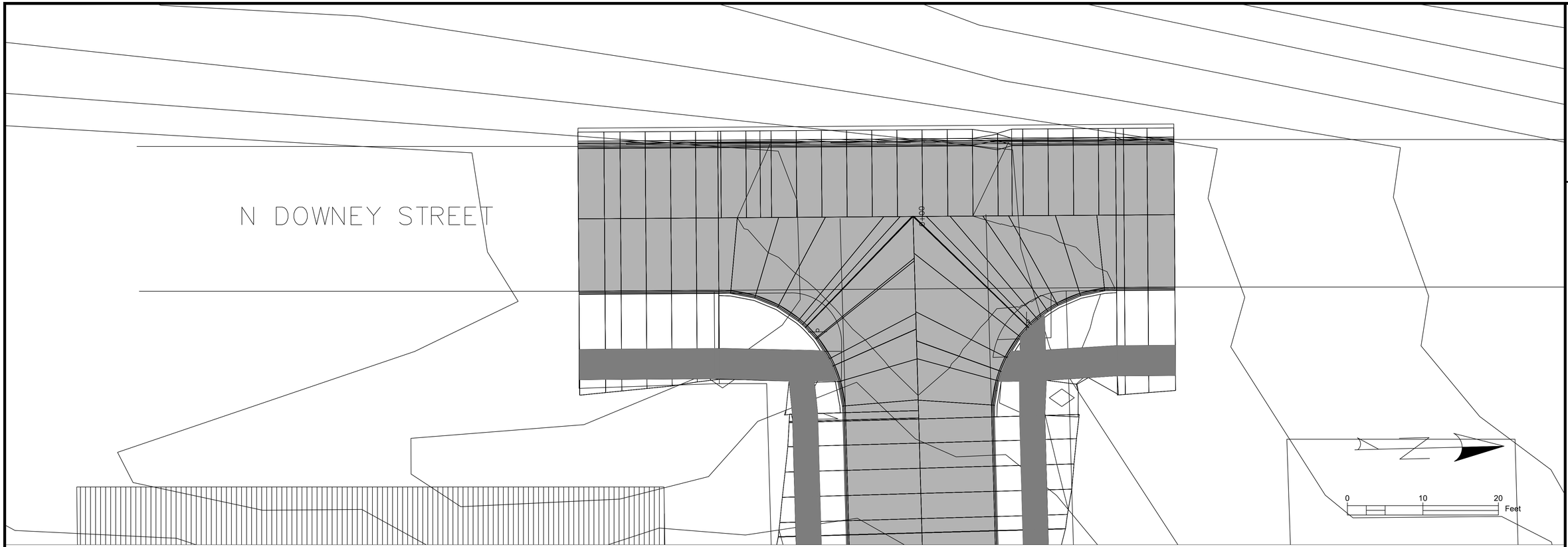
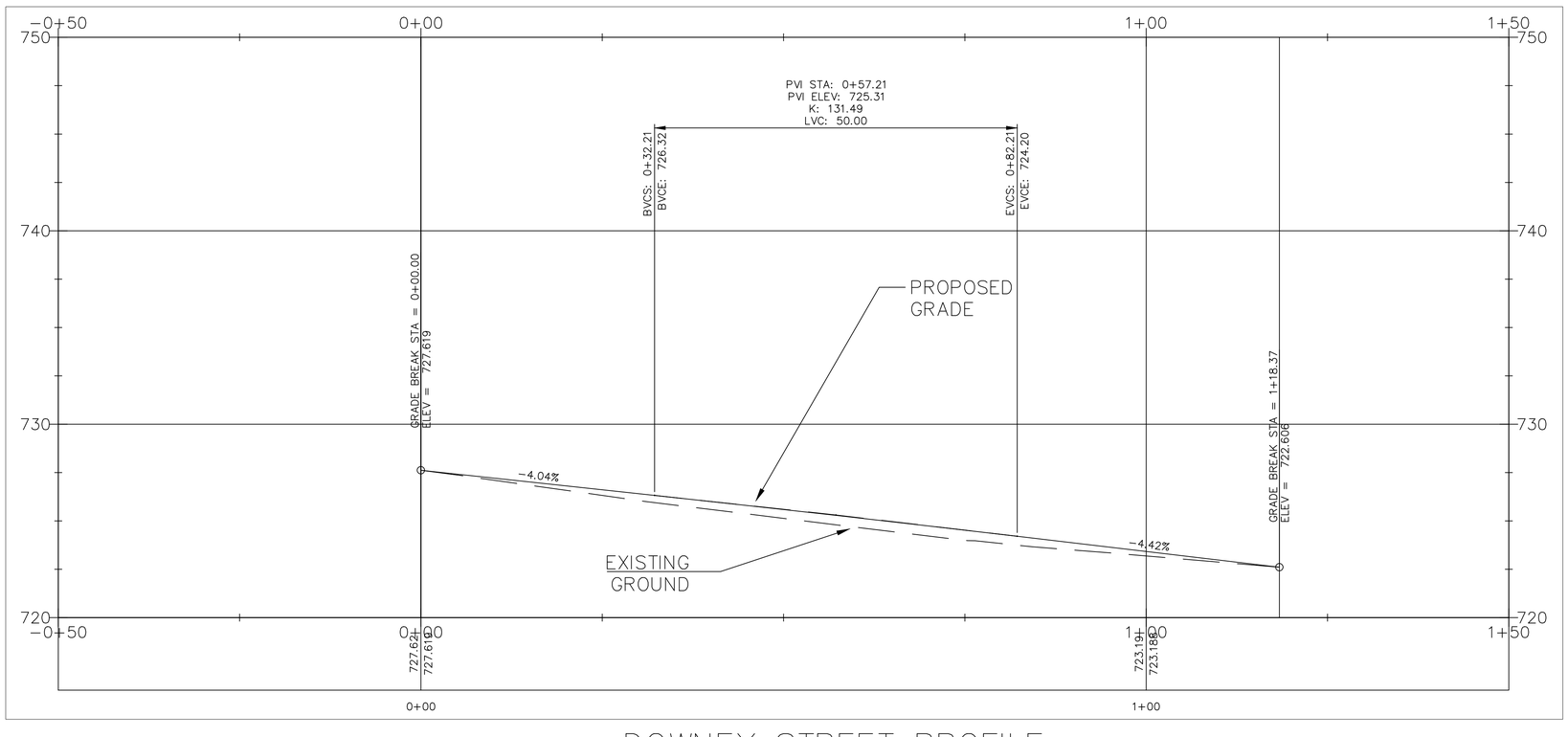
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE 4TH STREET

SHEET NO.
E.01B





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PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	NAS
REVISION:	

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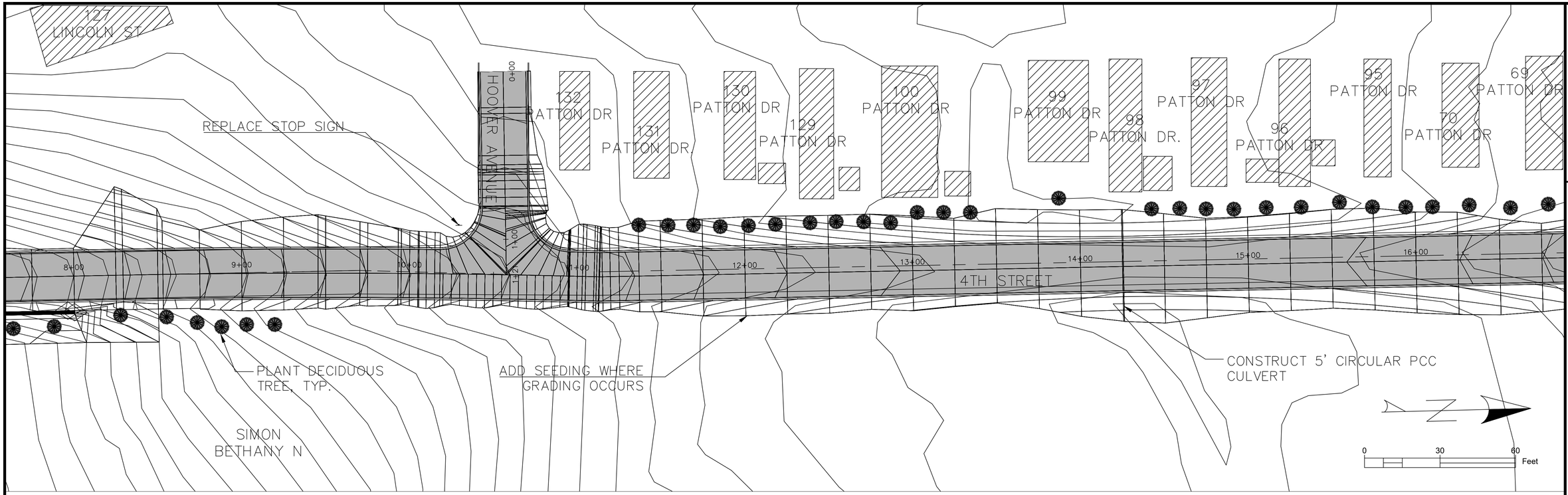
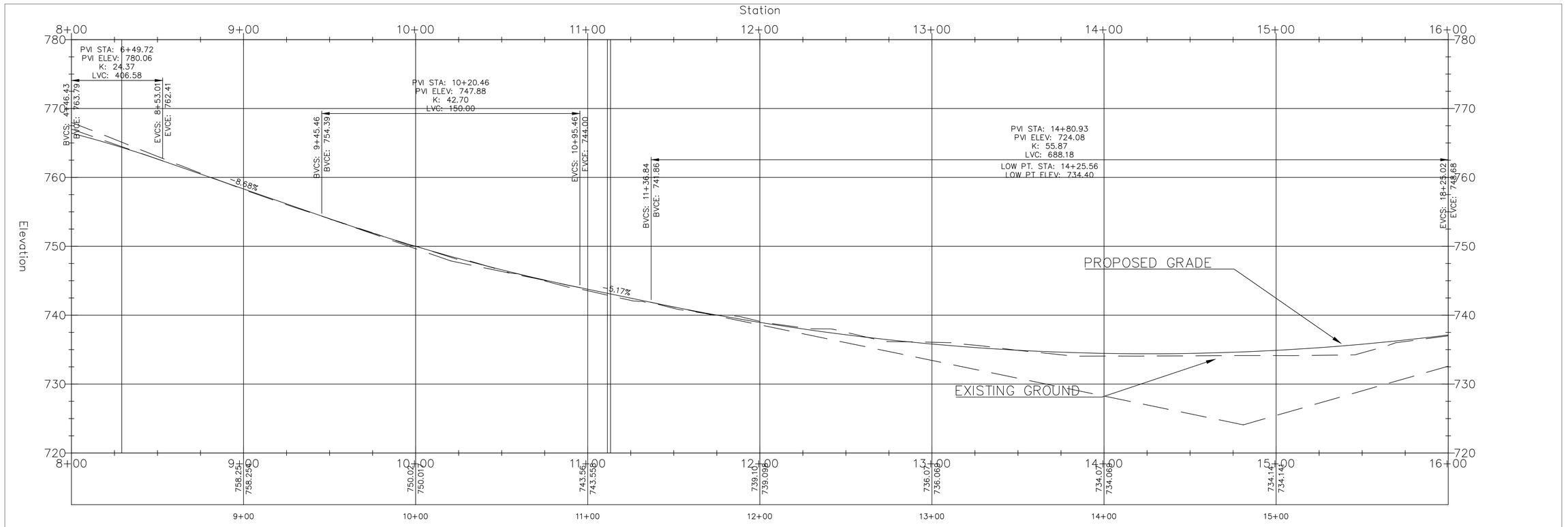
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
DOWNEY STREET

SHEET NO.
E.02A





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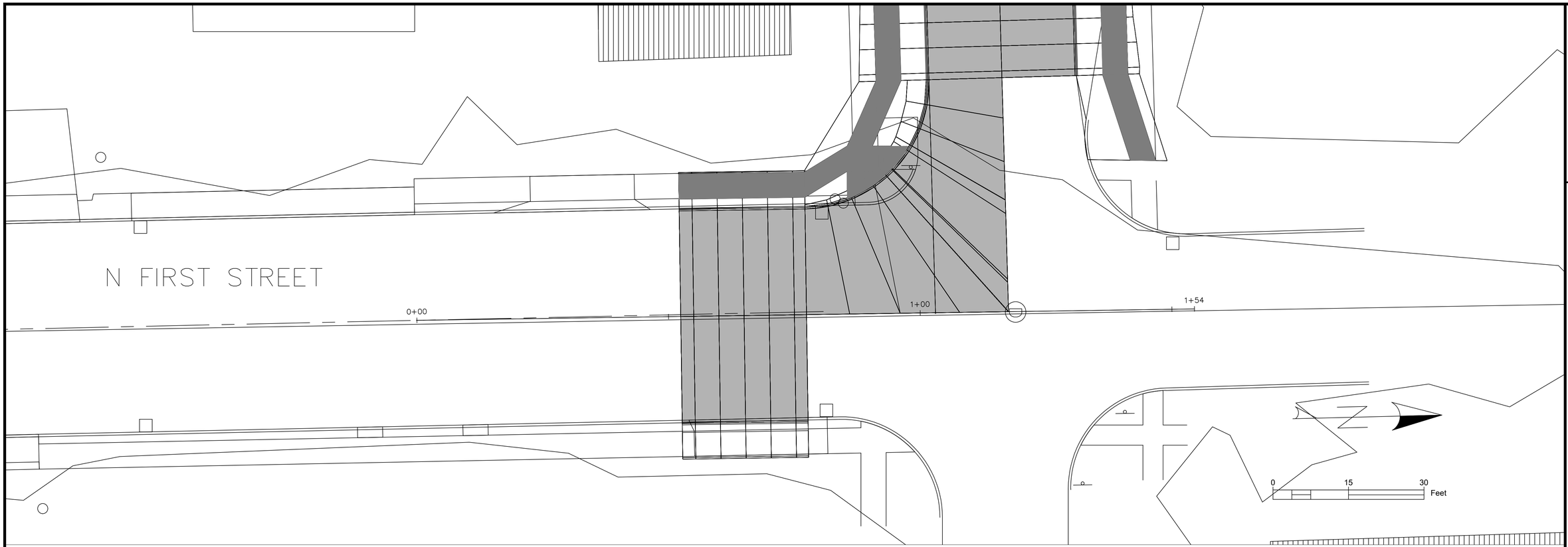
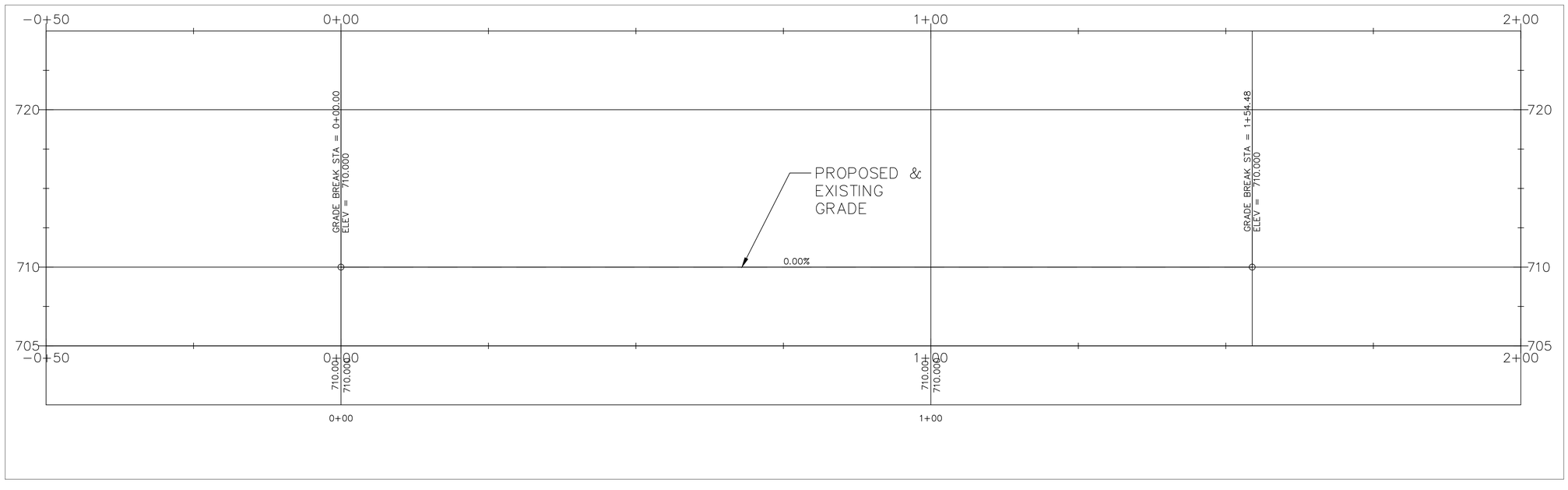
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
4TH STREET

SHEET NO.
E.02B





1ST STREET PROFILE

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PROJECT:	CEE:4850
DATE :	05/08/2026
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REVISION:	

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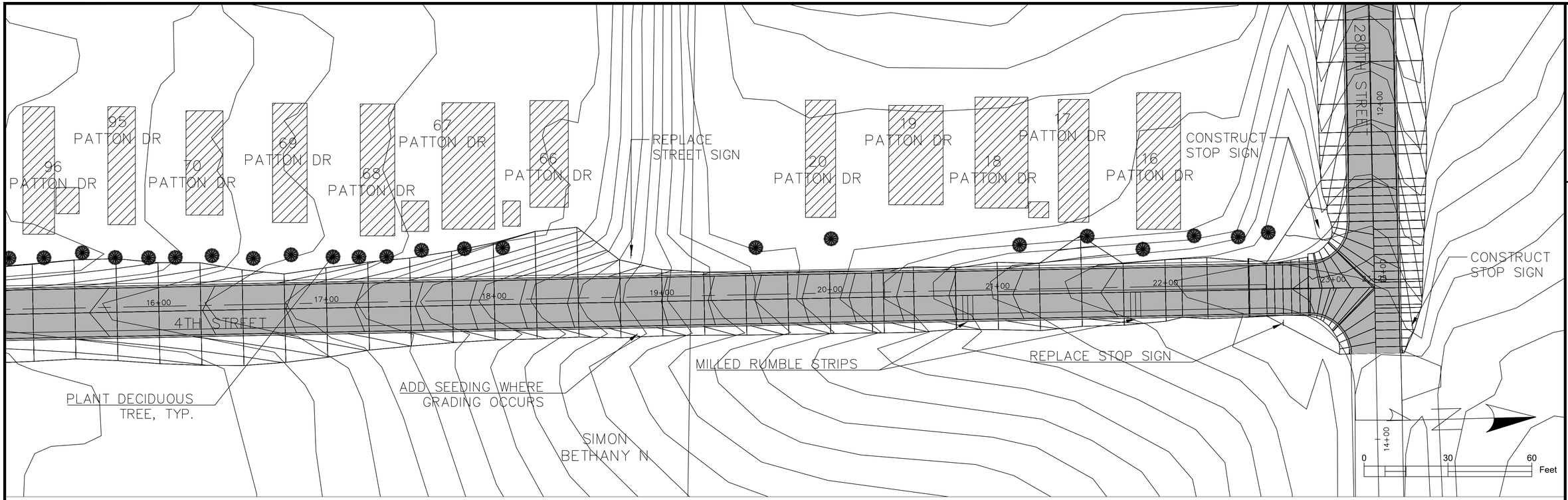
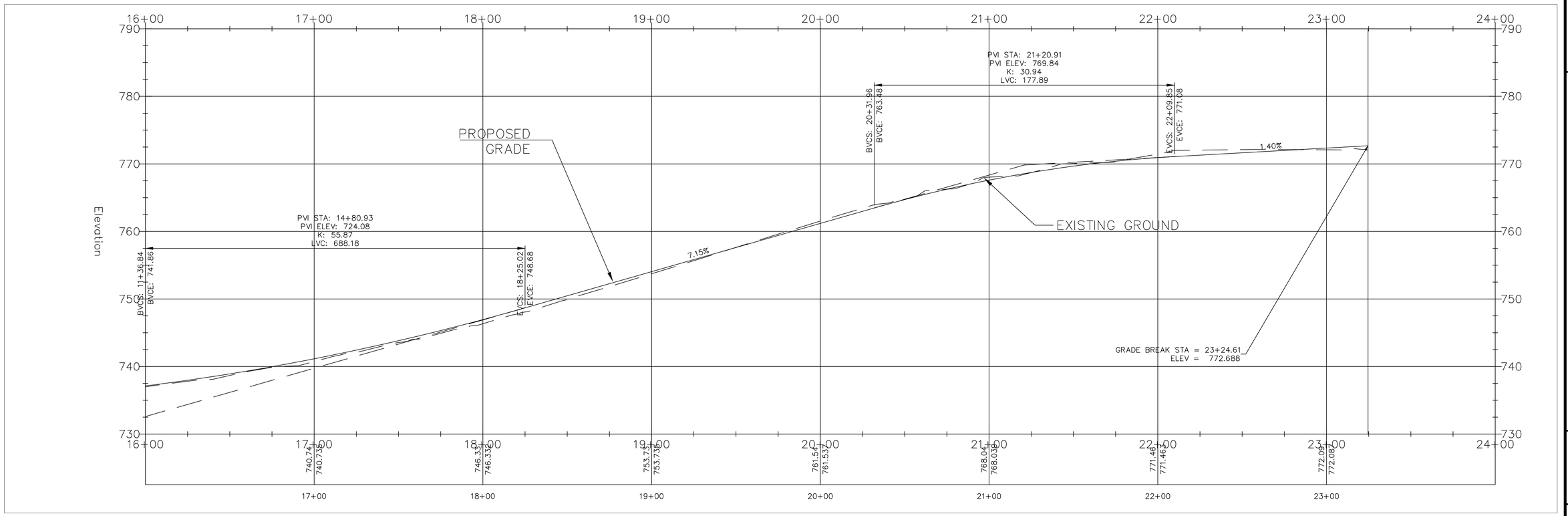
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
FIRST STREET

SHEET NO.
E.03A





4TH STREET PROFILE

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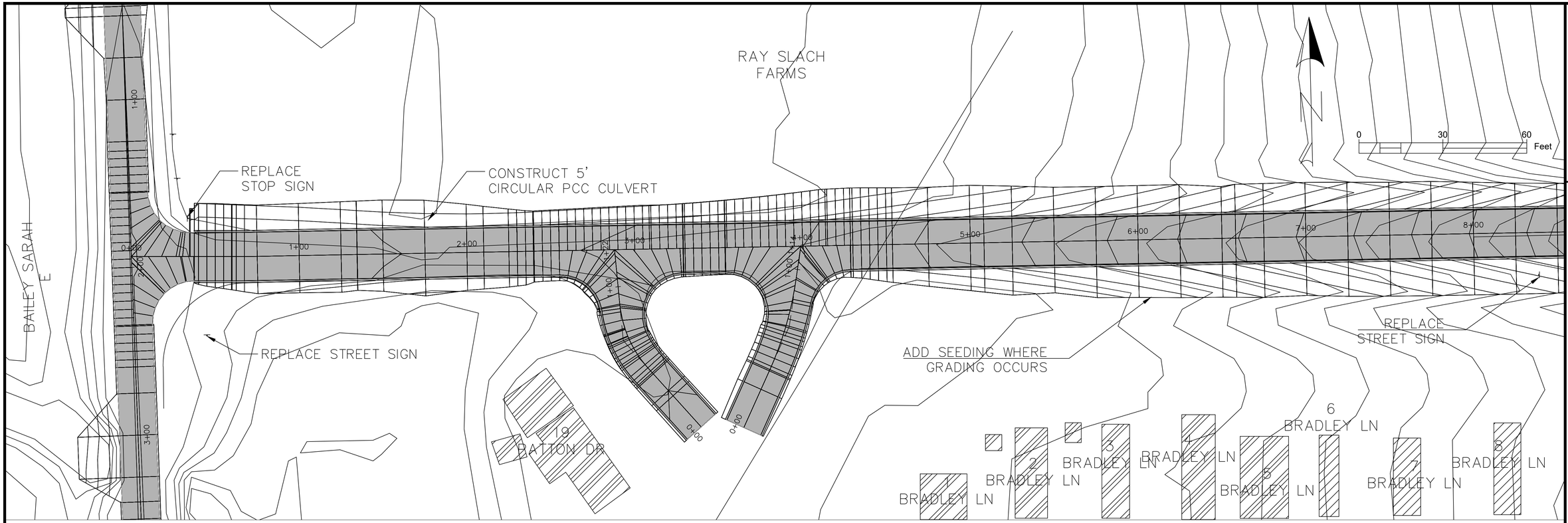
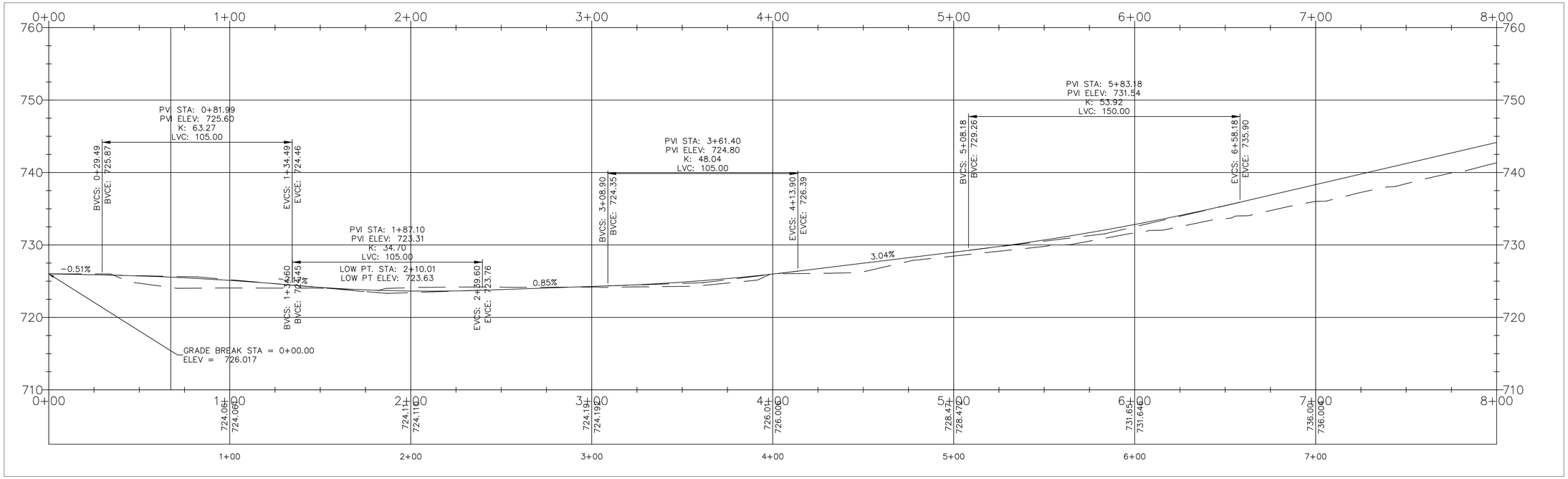
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
4TH STREET

SHEET NO.
E.03B





280TH STREET PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
4105 SEAMANS CENTER FOR THE
ENGINEERING ARTS AND SCIENCES
103 S CAPITOL ST
IOWA CITY, IOWA 52242
PHONE: 319.335.5647
FAX: 319.335.5660
EMAIL: civil-hawks@uiowa.edu

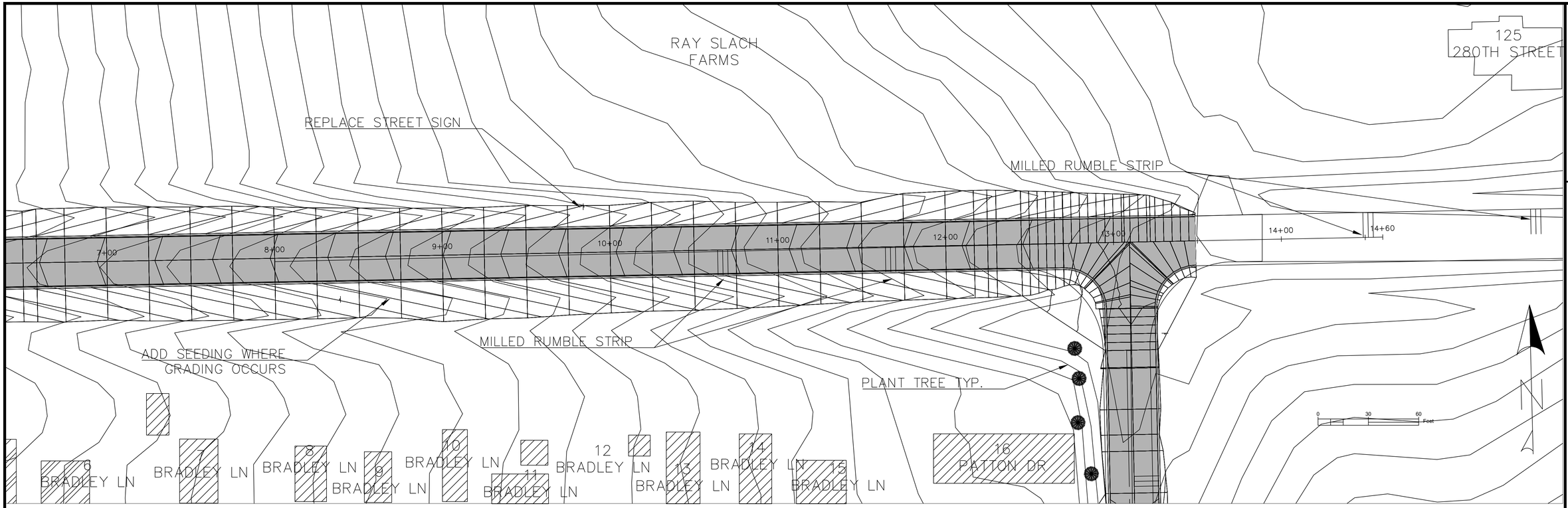
PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: NAS
REVISION:

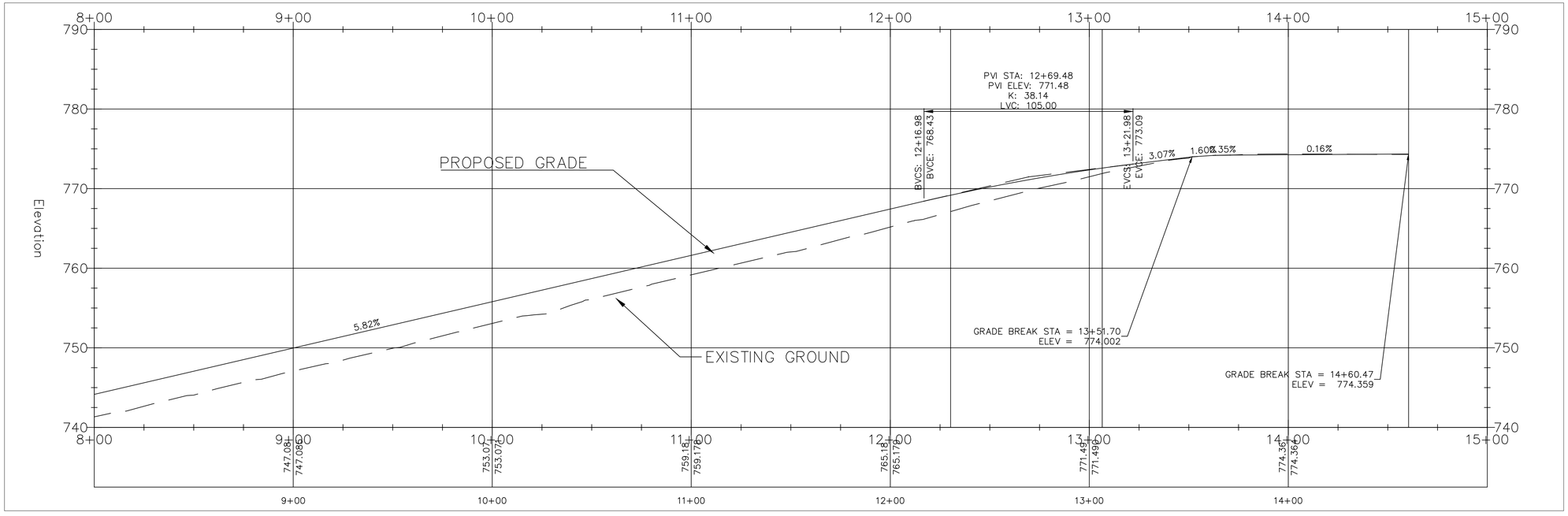
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
280TH STREET

SHEET NO.
E.04B





280TH STREET PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
4105 SEAMANS CENTER FOR THE
ENGINEERING ARTS AND SCIENCES
103 S CAPITOL ST
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EMAIL: civil-hawks@uiowa.edu

PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	NAS
REVISION:	

EDUCATIONAL - NOT FOR CONSTRUCTION

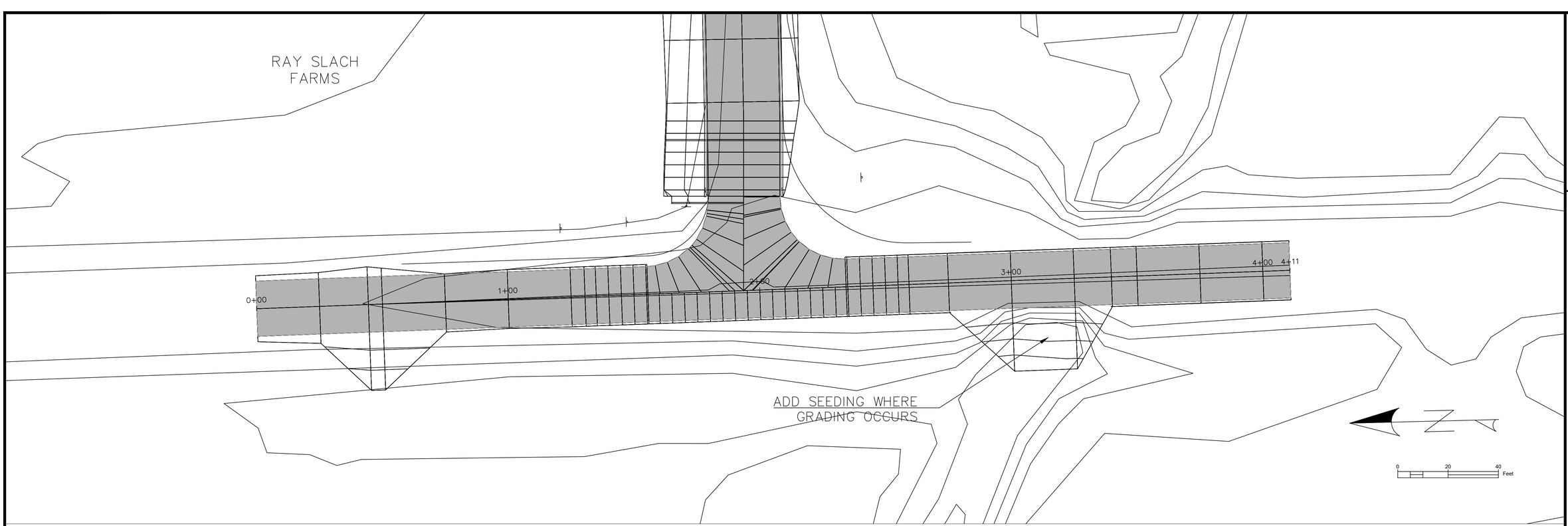
TRUCK REROUTING AND PAVEMENT REPLACEMENT

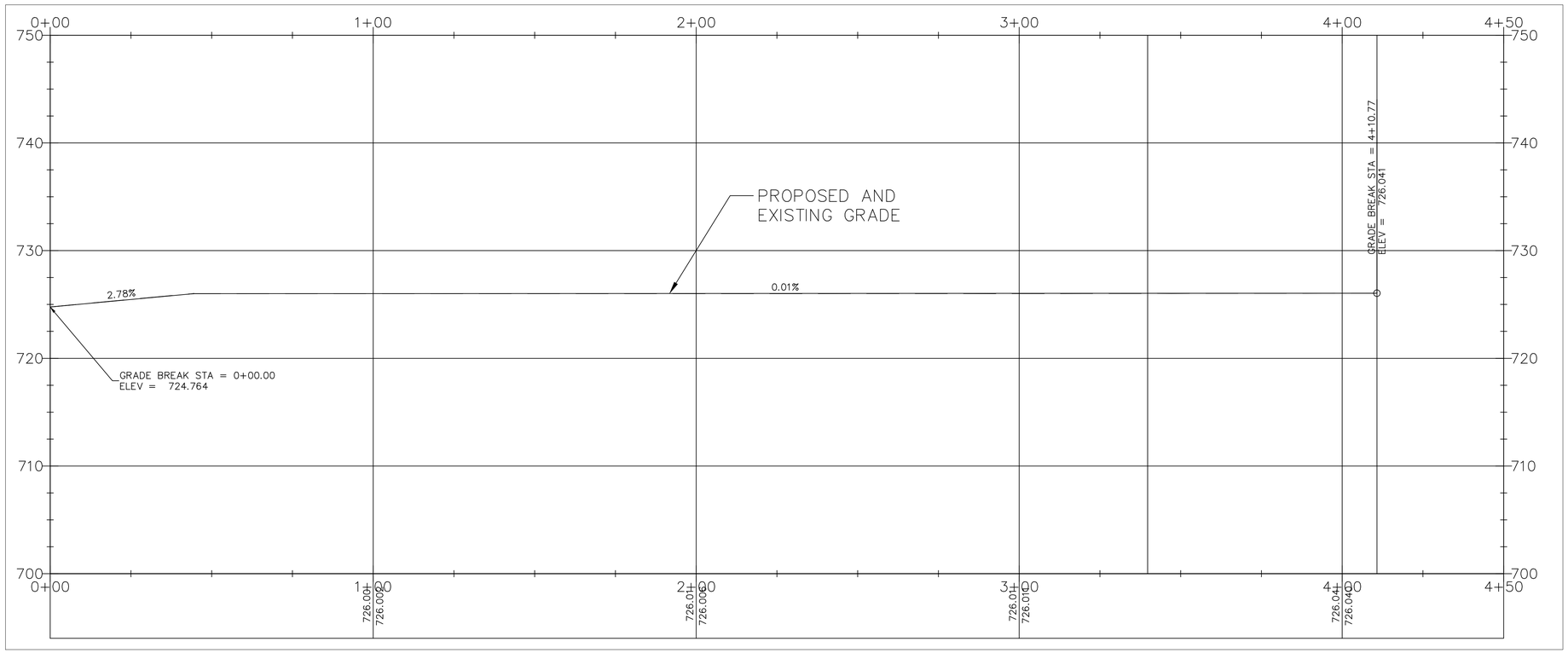
SHEET NAME

PLAN AND PROFILE
280TH STREET

SHEET NO.

E.05B





BAKER AVENUE PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
4105 SEAMANS CENTER FOR THE
ENGINEERING ARTS AND SCIENCES
103 S CAPITOL ST
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EMAIL: civil-hawks@uiowa.edu

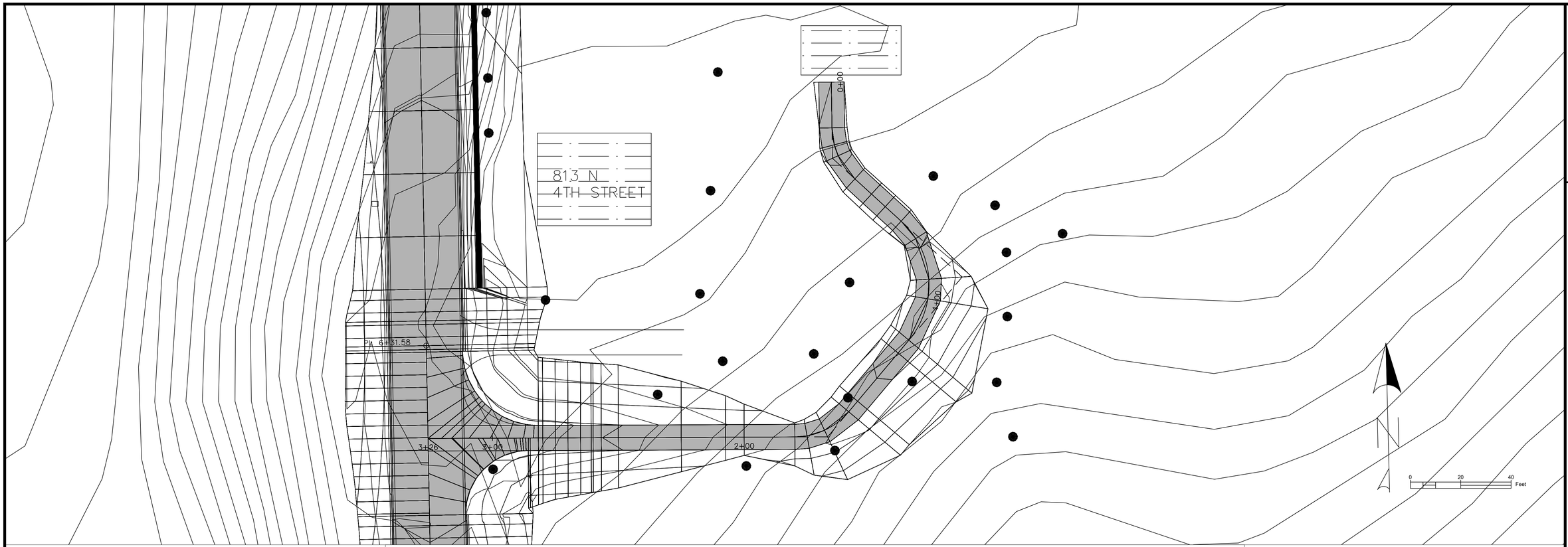
PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	NAS
REVISION:	

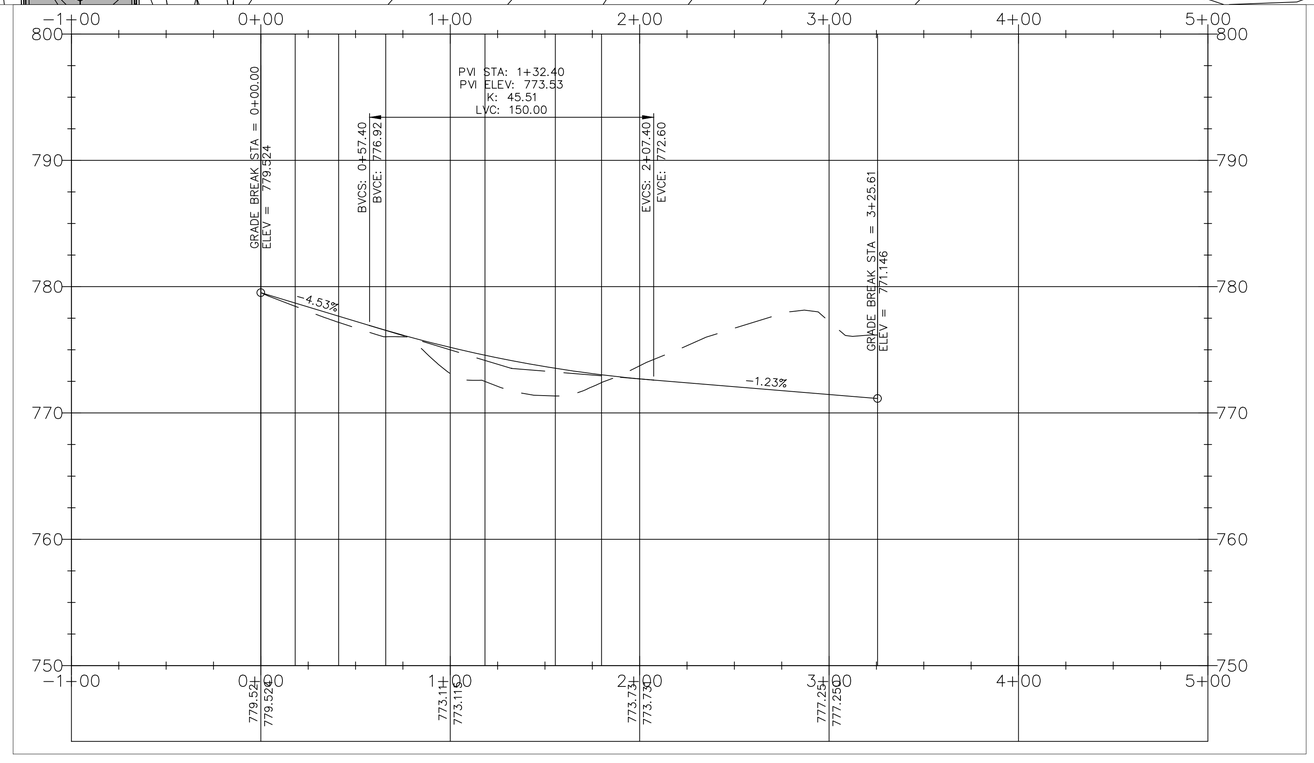
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
BAKER AVE

SHEET NO.
E.06B





813 N 4TH STREET PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING

4105 SEAMANS CENTER FOR THE
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103 S CAPITOL ST
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EMAIL: civil-hawks@uiowa.edu

PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	NAS
REVISION:	

EDUCATIONAL - NOT FOR CONSTRUCTION

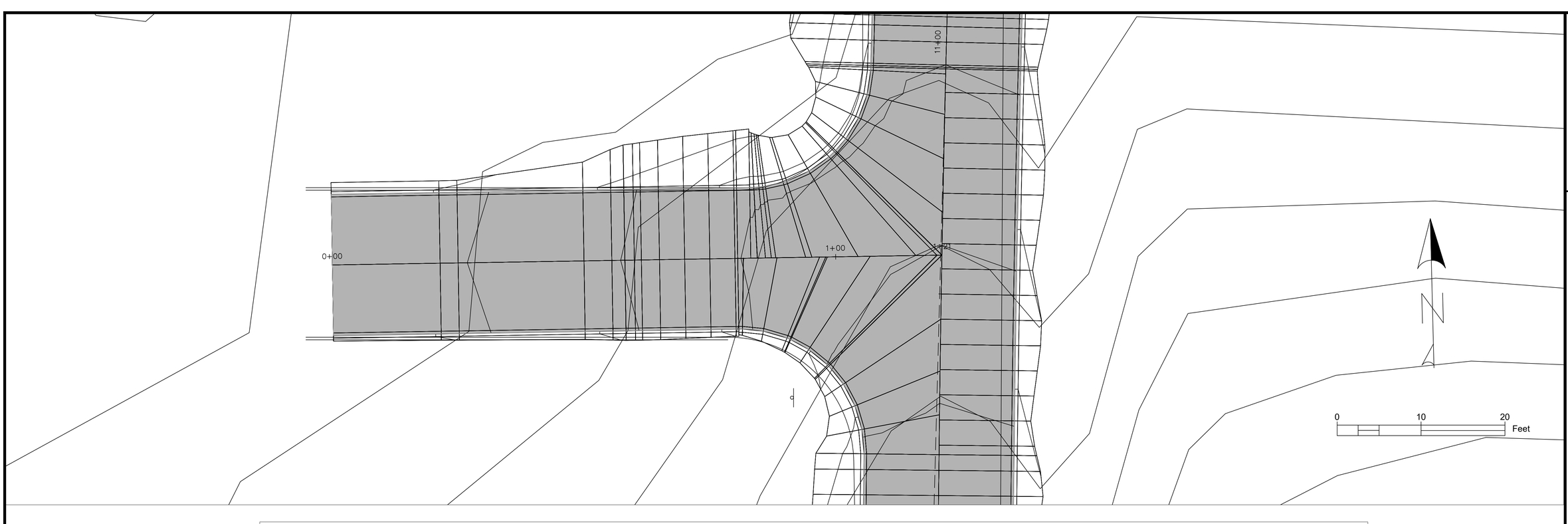
TRUCK REROUTING AND PAVEMENT REPLACEMENT

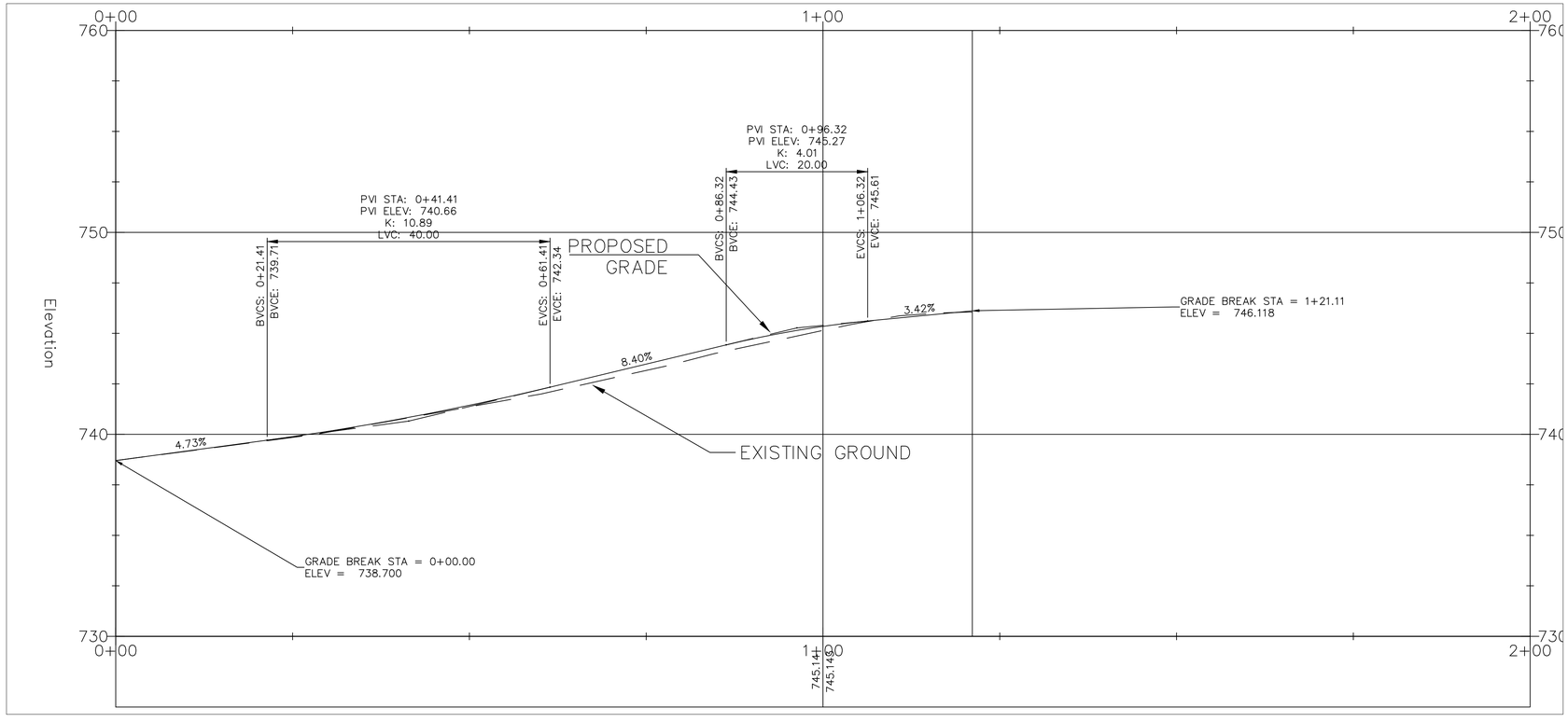
SHEET NAME

PLAN AND PROFILE
813 N 4TH ST

SHEET NO.

E.07B





HOOVER AVENUE PROFILE

THE UNIVERSITY OF IOWA
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4105 SEAMANS CENTER FOR THE
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EMAIL: civil-hawks@uiowa.edu

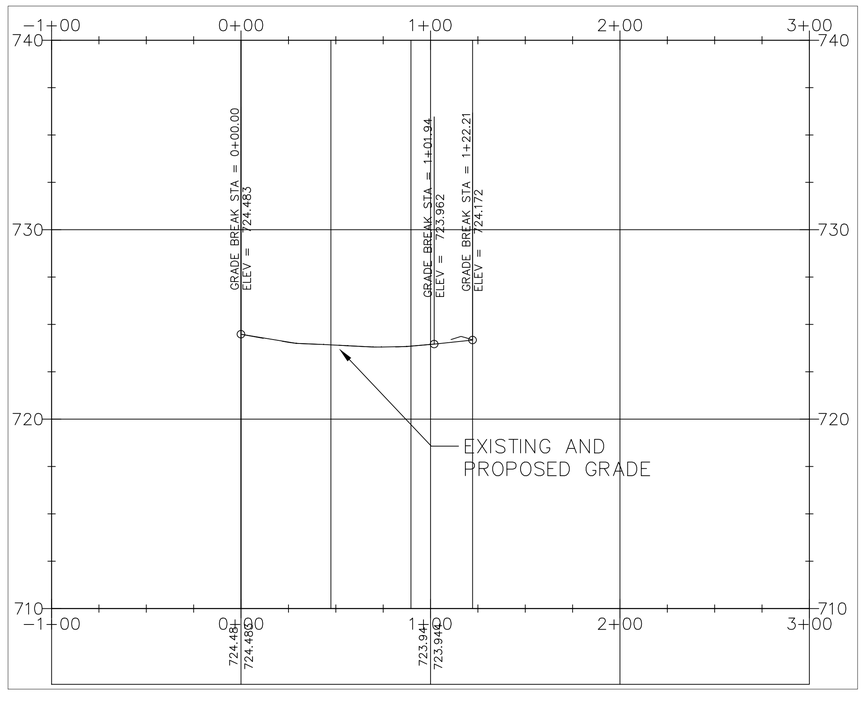
PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	NAS
REVISION:	

EDUCATIONAL - NOT FOR CONSTRUCTION

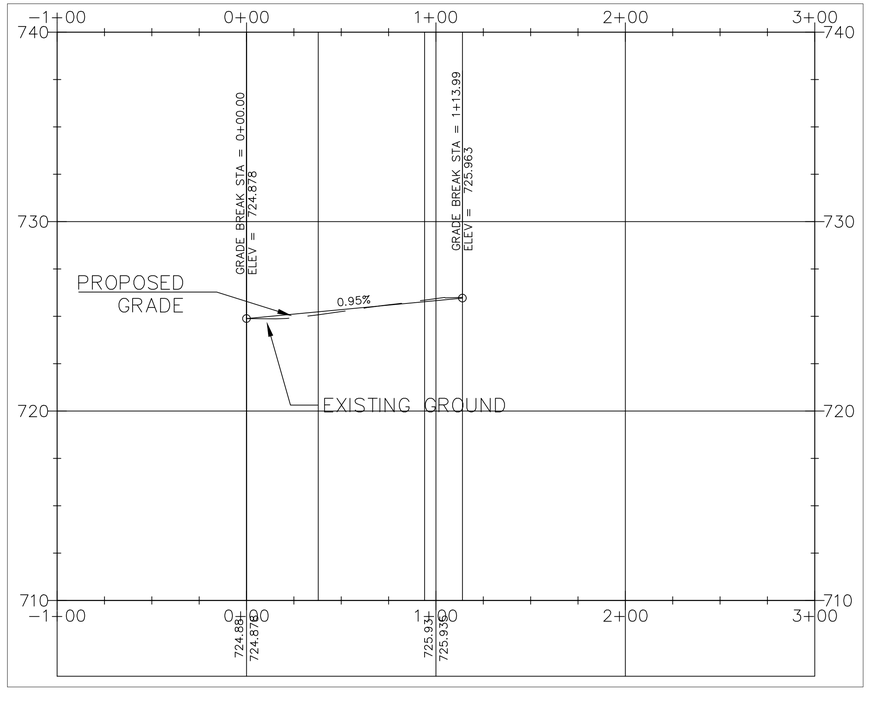
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
HOOVER AVE

SHEET NO.
E.08B



HOOVER AVENUE – WEST PROFILE



HOOVER AVENUE – EAST PROFILE

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4105 SEAMANS CENTER FOR THE
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EMAIL: civil-hawks@uiowa.edu

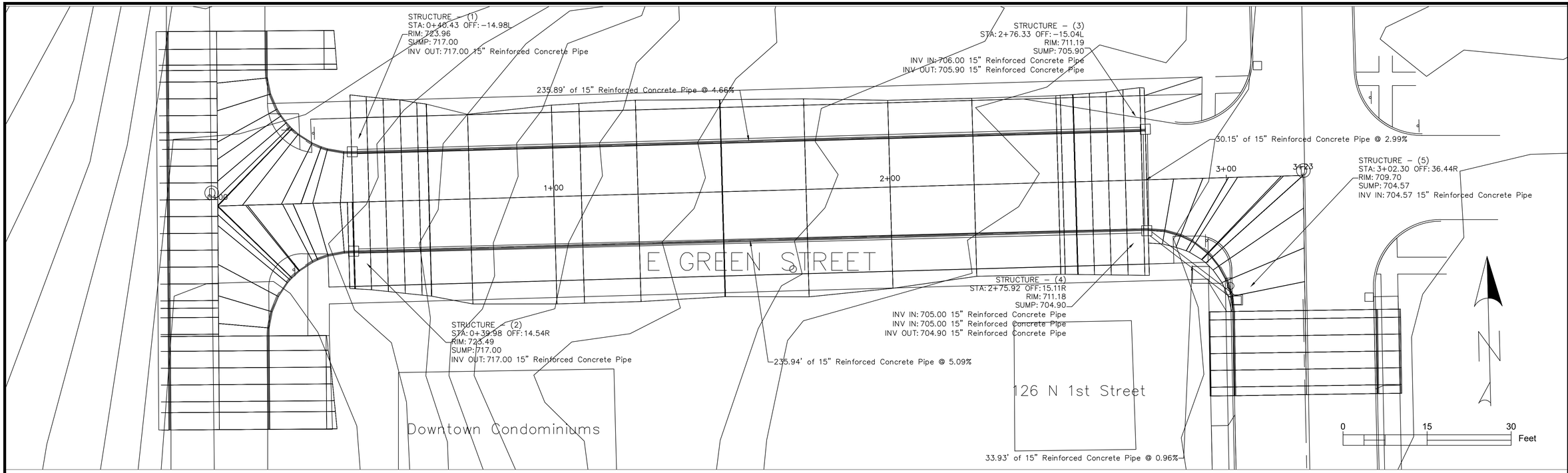
PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	NAS
REVISION:	

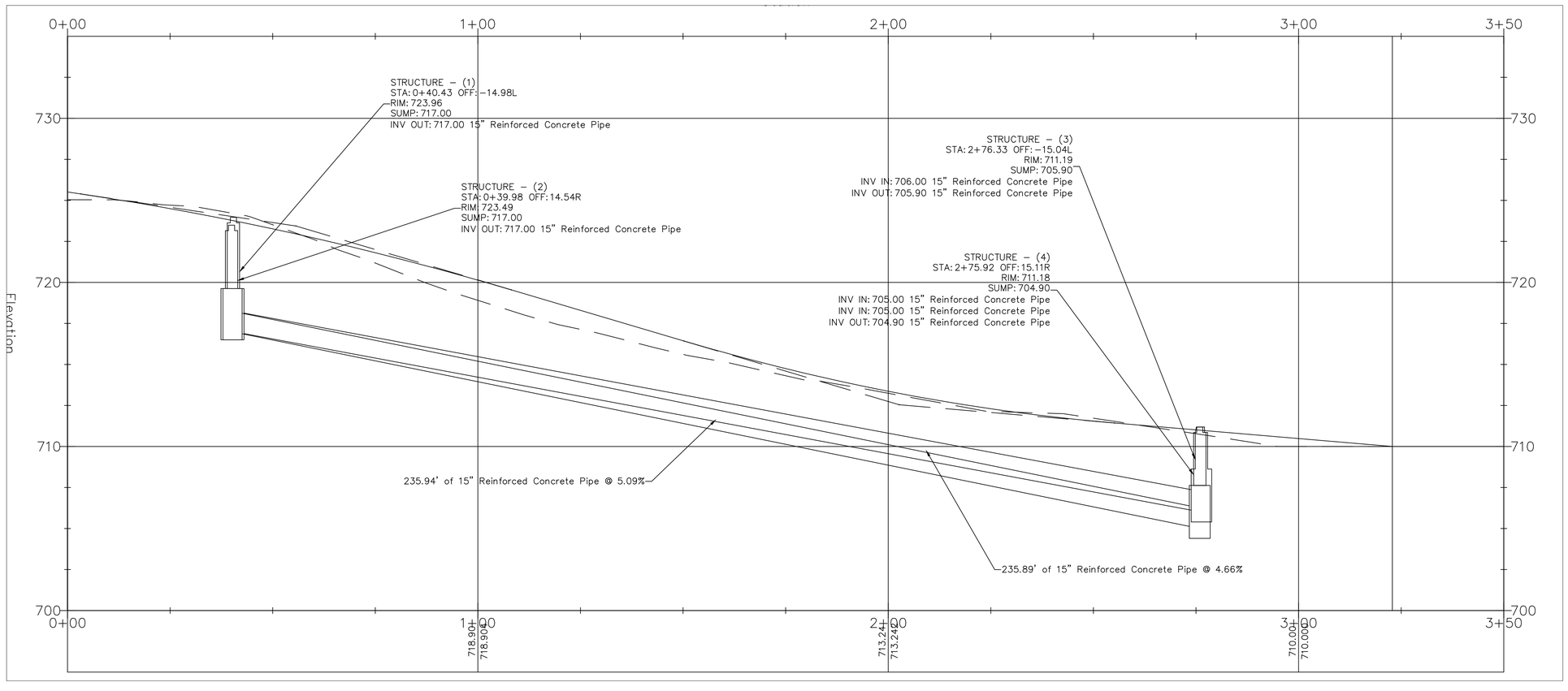
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
PLAN AND PROFILE
HOOVER AVE

SHEET NO.
E.09B





GREEN STREET STORM PROFILE

PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: NAS
REVISION:

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
4105 SEAMANS CENTER FOR THE
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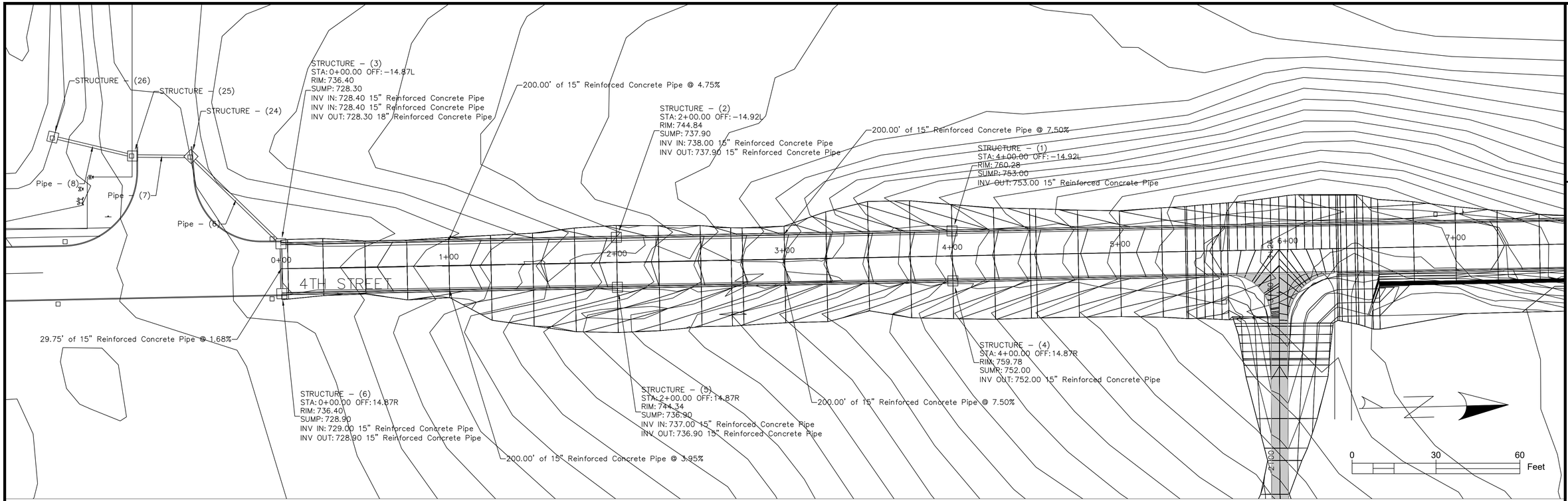
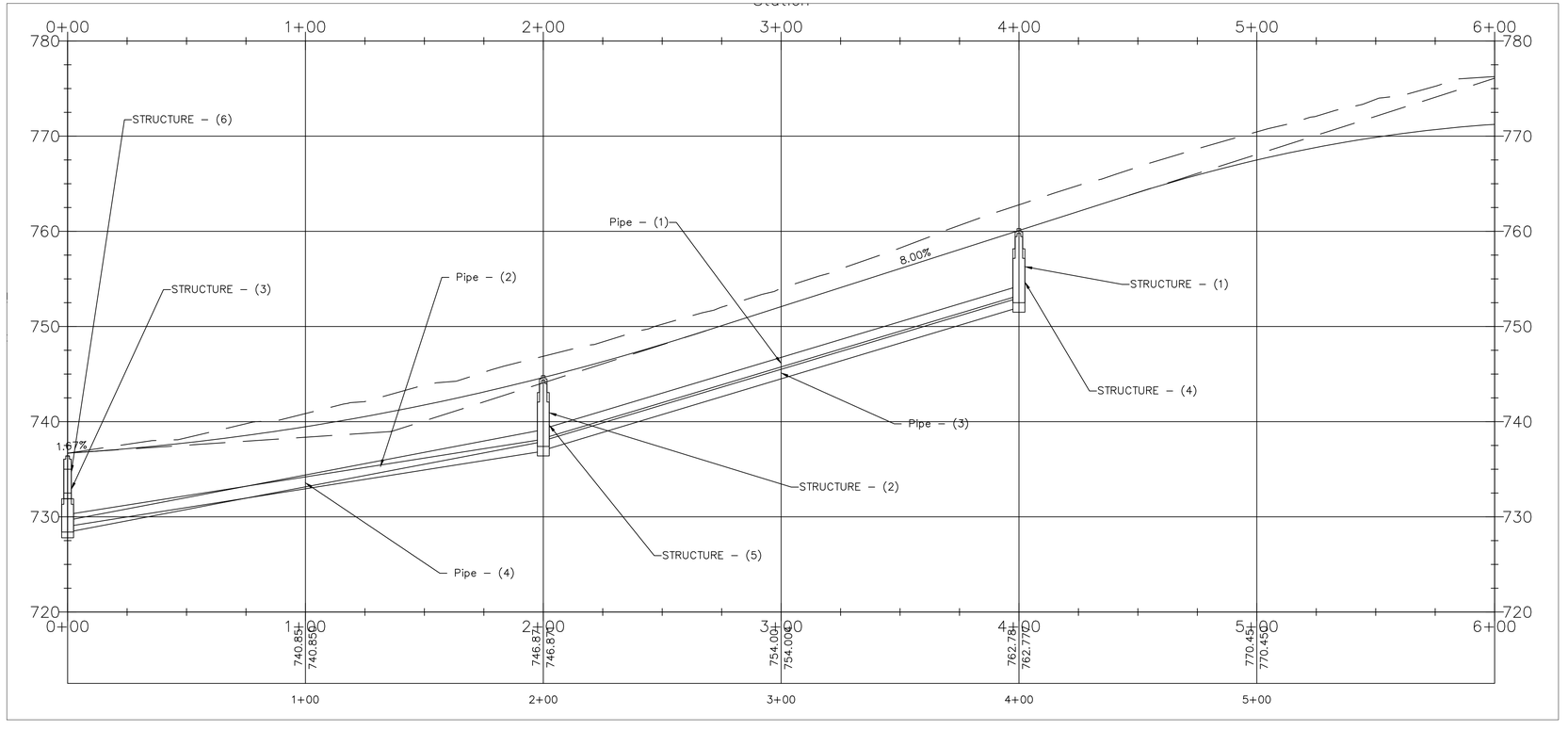
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
STORM P&P
GREEN STREET

SHEET NO.
M.01A





4TH STREET STORM PROFILE

PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: NAS
REVISION:

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
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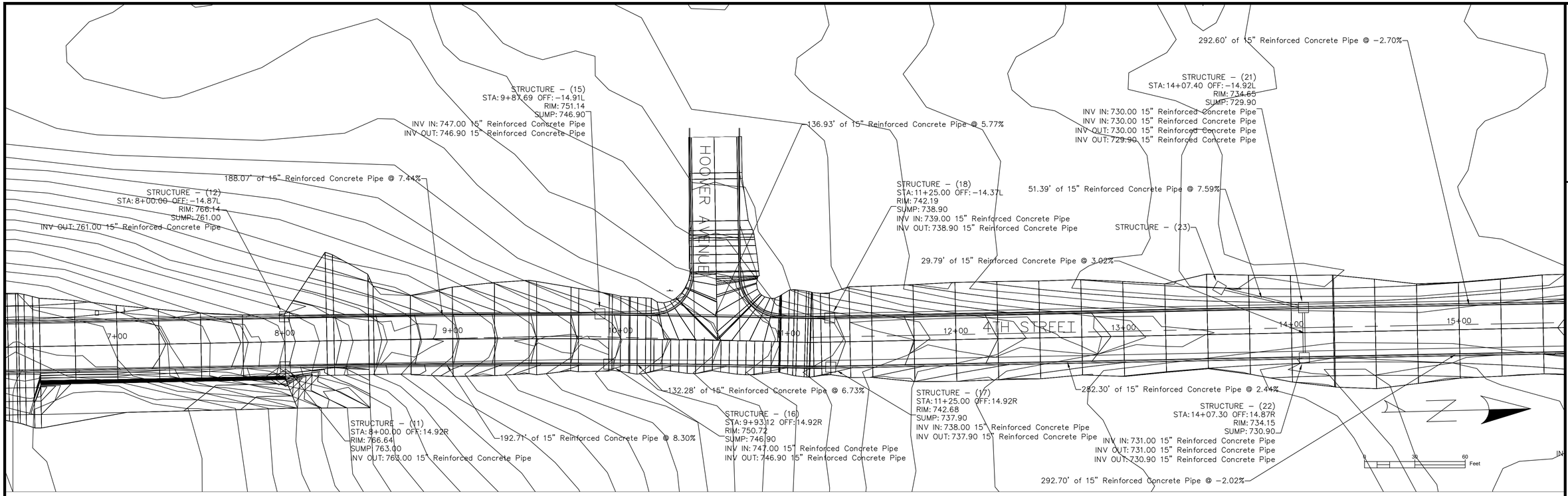
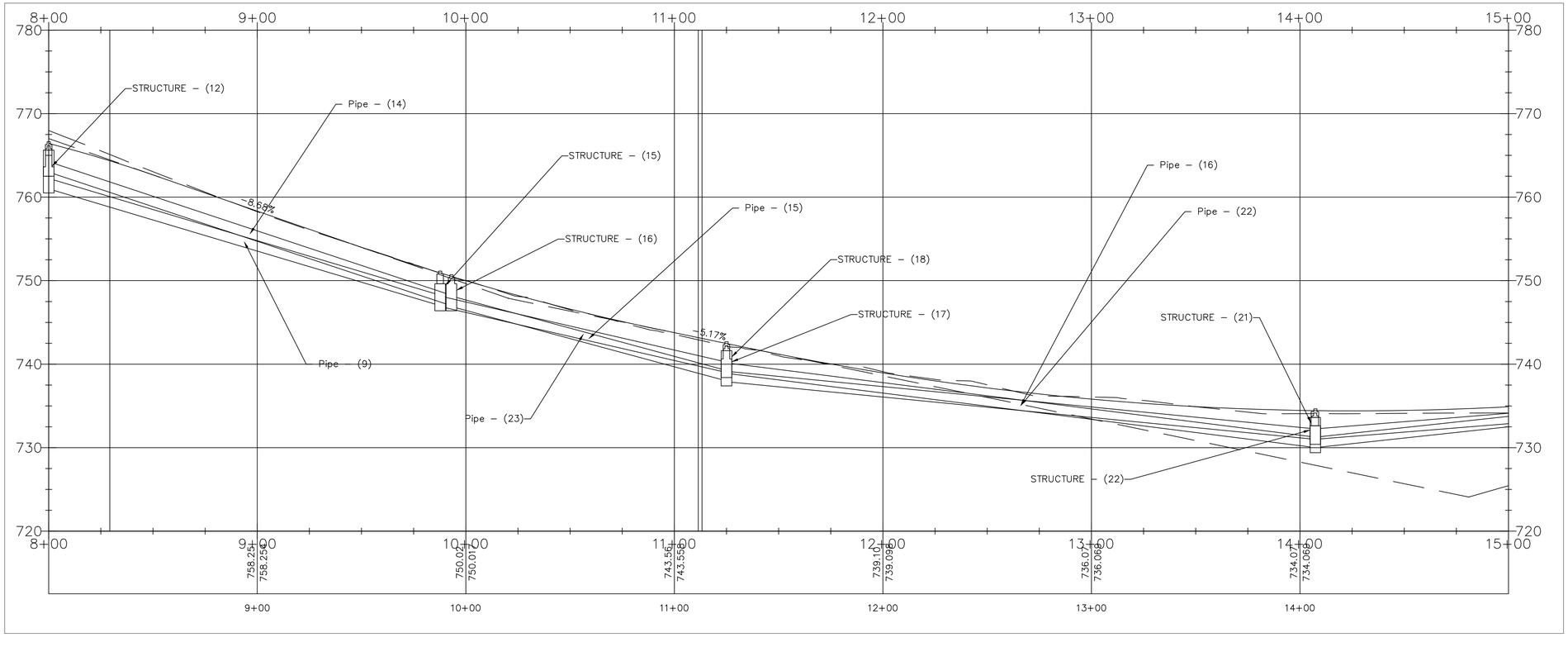
TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
STORM P&P
4TH STREET

SHEET NO.
M.01B





4TH STREET STORM PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
4105 SEAMANS CENTER FOR THE
ENGINEERING ARTS AND SCIENCES
103 S CAPITOL ST
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PHONE: 319.335.5647
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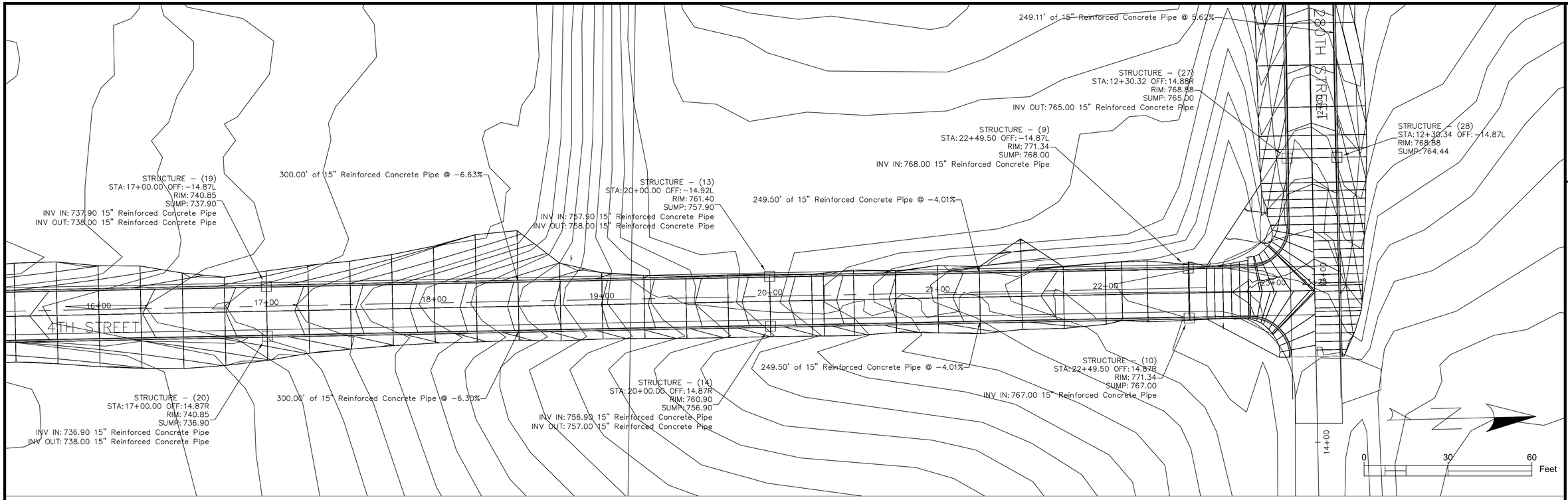
PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: NAS
REVISION:

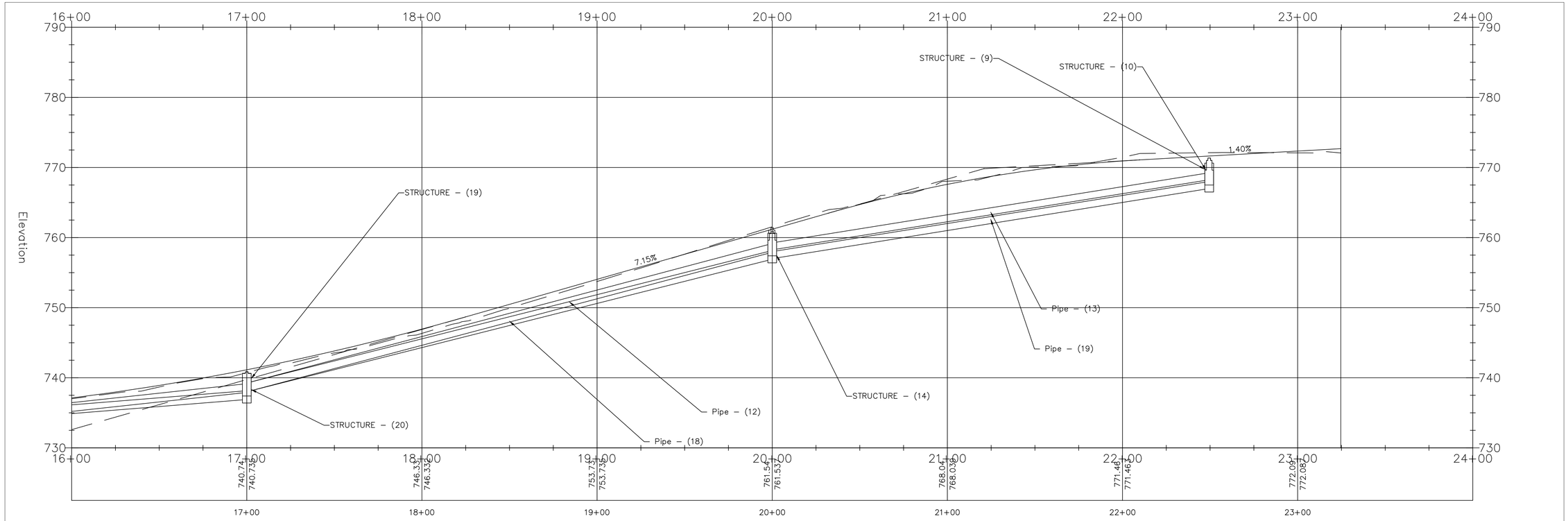
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
STORM P&P
4TH STREET

SHEET NO.
M.02B





4TH STREET STORM PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
4105 SEAMANS CENTER FOR THE
ENGINEERING ARTS AND SCIENCES
103 S CAPITOL ST
IOWA CITY, IOWA 52242
PHONE: 319.335.5647
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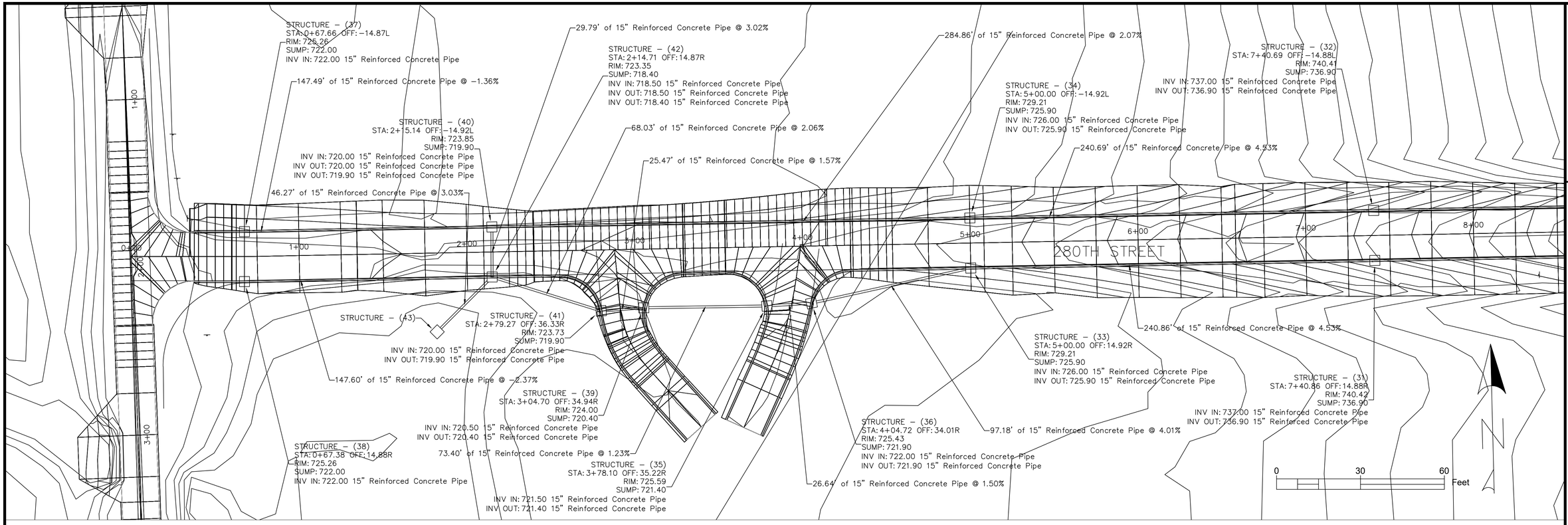
PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	NAS
REVISION:	

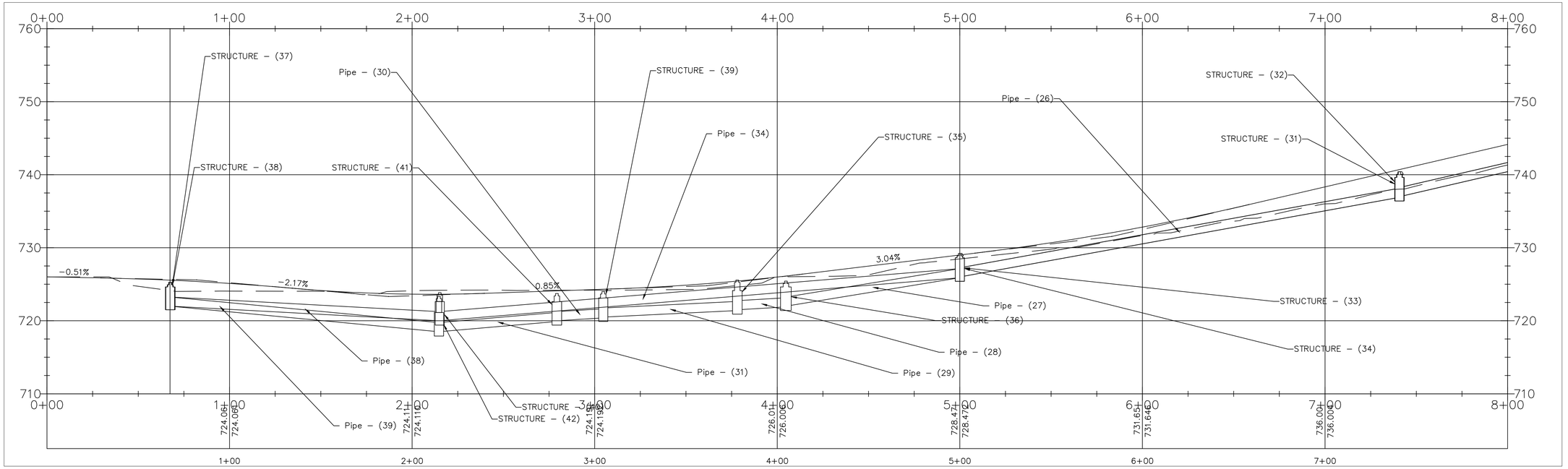
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
STORM P&P
4TH STREET

SHEET NO.
M.03B





280TH STREET STORM PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
4105 SEAMANS CENTER FOR THE
ENGINEERING ARTS AND SCIENCES
103 S CAPITOL ST
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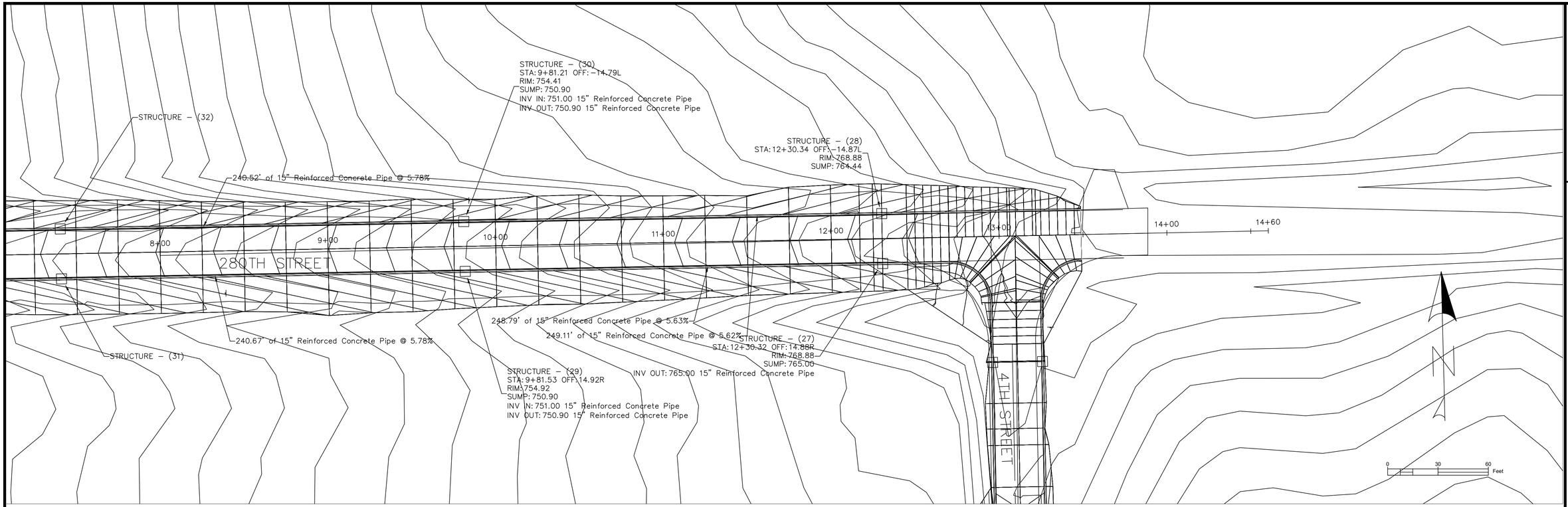
PROJECT: CEE: 4850
DATE : 05/08/2026
DRAWN BY: NAS
REVISION:

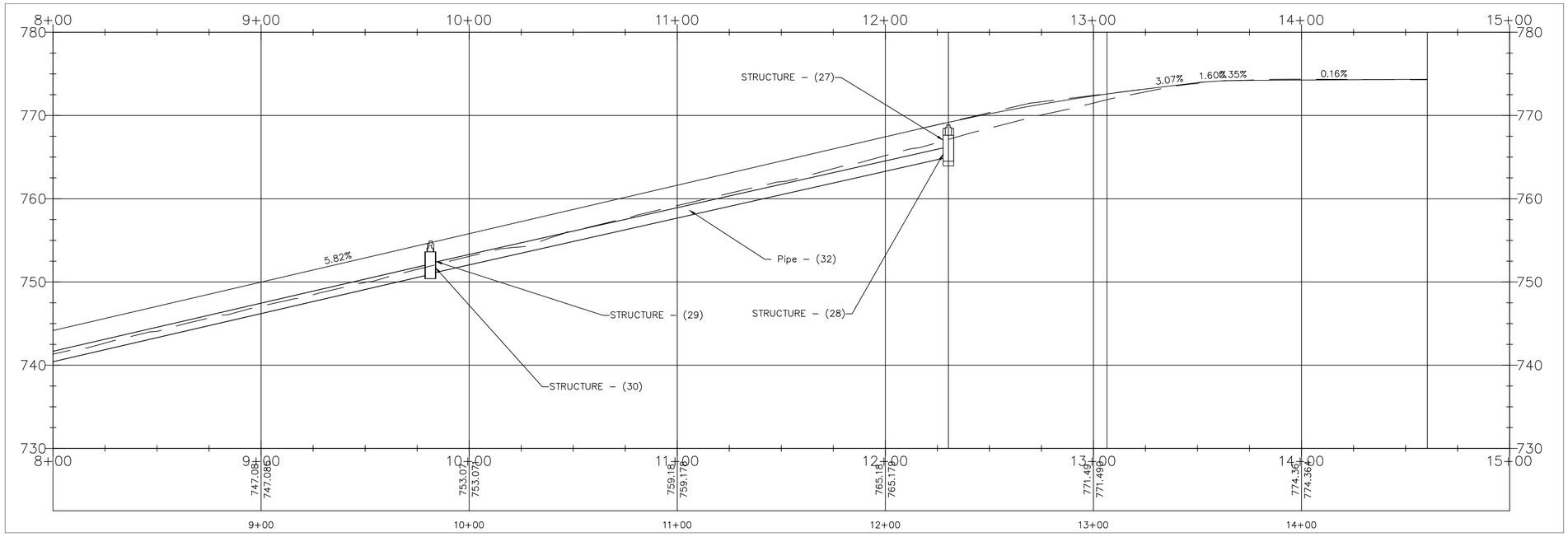
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND AND ROAD EXTENSION

SHEET NAME
STORM P&P
280TH STREET

SHEET NO.
M.04B





280TH STREET STORM PROFILE

THE UNIVERSITY OF IOWA
CIVIL AND ENVIRONMENTAL ENGINEERING
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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: NAS
REVISION:

EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND ROAD EXTENSION

SHEET NAME
STORM P&P
280TH STREET

SHEET NO.
M.05B

GREEN STREET

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	0.00	0.00	0.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00	0.00	0.00	0.00
1+00.00	73.19	0.00	67.77	0.00	67.77	0.00
1+50.00	51.30	0.00	115.26	0.00	183.03	0.00
2+00.00	13.68	0.88	60.16	0.82	243.19	0.82
2+50.00	6.40	9.01	18.59	9.16	261.78	9.97
3+00.00	0.00	0.00	5.93	8.34	267.71	18.31
3+22.86	0.00	0.00	0.00	0.00	267.71	18.31

DOWNEY STREET

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	10.64	2.97	0.00	0.00	0.00	0.00
0+50.00	0.00	0.00	9.85	2.75	9.85	2.75
1+00.00	0.00	0.00	0.00	0.00	9.85	2.75
1+18.37	2.44	7.47	0.83	2.54	10.68	5.29

7" PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	16.92	15.66	15.66
1+50.00	16.92	31.33	46.99
2+00.00	16.92	31.33	78.32
2+50.00	16.92	31.33	109.65
3+00.00	0.00	15.66	125.31
3+22.86	0.00	0.00	125.31

6" GRANULAR SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	14.50	13.43	13.43
1+50.00	14.50	26.85	40.28
2+00.00	14.50	26.85	67.13
2+50.00	14.50	26.85	93.98
3+00.00	0.00	13.43	107.41
3+22.86	0.00	0.00	107.41

7" PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	16.77	0.00	0.00
0+50.00	0.00	15.53	15.53
1+00.00	0.00	0.00	15.53
1+18.37	16.77	5.70	21.23

6" GRANULAR SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	14.38	0.00	0.00
0+50.00	0.00	13.31	13.31
1+00.00	0.00	0.00	13.31
1+18.37	14.38	4.89	18.20

FIRST STREET

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	0.00	0.00	0.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00	0.00	0.00	0.00
1+00.00	13.70	0.00	12.69	0.00	12.69	0.00
1+50.00	0.00	0.00	12.69	0.00	25.38	0.00
1+54.48	0.00	0.00	0.00	0.00	25.38	0.00

7" PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	20.67	19.14	19.14
1+50.00	0.00	19.14	38.28
1+54.48	0.00	0.00	38.28

6" GRANULAR SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	17.72	16.41	16.41
1+50.00	0.00	16.41	32.81
1+54.48	0.00	0.00	32.81

TOTAL CUT: 91.59 CY

TOTAL FILL: 339.19 CY

7" PAVEMENT: 303 CY

6" GRANULAR SUBBASE: 259.5 CY

PROJECT: CEE:4850

DATE : 05/08/2026

DRAWN BY: APH

REVISION:

THE UNIVERSITY OF IOWA
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EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME

EARTHWORK TABULATION

SHEET NO.

T.01A

4TH STREET

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	1.74	5.56	0.00	0.00	0.00	0.00
0+50.00	0.01	17.86	1.62	21.69	1.62	21.69
1+00.00	0.00	43.27	0.01	56.60	1.63	78.29
1+50.00	0.00	76.05	0.00	110.48	1.63	188.77
2+00.00	0.00	111.74	0.00	173.88	1.63	362.65
2+50.00	0.00	105.70	0.00	201.33	1.63	563.98
3+00.00	0.00	91.69	0.00	182.77	1.63	746.75
3+50.00	0.00	105.36	0.00	182.45	1.63	929.20
4+00.00	0.00	130.32	0.00	218.22	1.63	1147.41
4+50.00	0.00	127.71	0.00	238.92	1.63	1386.33
5+00.00	0.00	136.25	0.00	244.41	1.63	1630.74
5+50.00	0.00	0.00	0.00	126.16	1.63	1756.89
6+00.00	0.00	0.00	0.00	0.00	1.63	1756.89
6+50.00	0.00	0.00	0.00	0.00	1.63	1756.89
7+00.00	0.00	203.76	0.00	188.66	1.63	1945.56
7+50.00	0.00	114.99	0.00	295.13	1.63	2240.69
8+00.00	0.05	46.50	0.05	149.52	1.67	2390.21
8+50.00	11.20	7.85	10.42	50.32	12.09	2440.53
9+00.00	18.77	0.00	27.75	7.27	39.85	2447.80
9+50.00	24.06	0.17	39.66	0.15	79.50	2447.95

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
10+00.00	0.00	0.00	22.28	0.15	101.78	2448.11
10+50.00	0.00	0.00	0.00	0.00	101.78	2448.11
11+00.00	0.00	0.00	0.00	0.00	101.78	2448.11
11+50.00	26.94	0.38	24.78	0.35	126.56	2448.45
12+00.00	25.17	4.91	48.24	4.90	174.81	2453.35
12+50.00	29.27	3.33	50.40	7.63	225.21	2460.98
13+00.00	30.42	5.24	55.26	7.94	280.47	2468.92
13+50.00	39.78	0.07	64.99	4.91	345.46	2473.83
14+00.00	51.31	0.00	84.34	0.06	429.81	2473.89
14+50.00	70.20	0.00	112.51	0.00	542.32	2473.89
15+00.00	57.87	0.00	118.58	0.00	660.90	2473.89
15+50.00	68.94	0.00	117.42	0.00	778.32	2473.89
16+00.00	51.89	0.09	111.88	0.08	890.20	2473.98
16+50.00	42.24	0.00	87.15	0.08	977.36	2474.06
17+00.00	28.69	0.00	65.67	0.00	1043.03	2474.06
17+50.00	35.74	0.00	59.66	0.00	1102.68	2474.06
18+00.00	43.32	0.00	73.21	0.00	1175.89	2474.06
18+50.00	54.24	0.00	90.34	0.00	1266.23	2474.06
19+00.00	19.66	0.00	68.43	0.00	1334.66	2474.06
19+50.00	11.48	2.25	28.83	2.09	1363.49	2476.15

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
20+00.00	7.00	6.96	17.11	8.53	1380.59	2484.67
20+50.00	9.45	6.18	15.23	12.16	1395.82	2496.83
21+00.00	5.75	10.07	14.07	15.04	1409.90	2511.87
21+50.00	10.14	10.02	14.71	18.60	1424.60	2530.47
22+00.00	2.05	14.68	11.29	22.87	1435.89	2553.35
22+50.00	0.41	16.95	2.28	29.29	1438.18	2582.63
23+00.00	0.00	0.00	0.38	15.69	1438.56	2598.32
23+24.61	0.00	0.00	0.00	0.00	1438.56	2598.32

18" IMPORTED FILL

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	43.12	0.00	0.00
0+50.00	43.12	79.86	79.86
1+00.00	43.12	79.86	159.72
1+50.00	43.12	79.86	239.58
2+00.00	43.12	79.86	319.44
2+50.00	43.12	79.86	399.31
3+00.00	43.12	79.86	479.17
3+50.00	43.12	79.86	559.03
4+00.00	43.12	79.86	638.89
4+50.00	43.12	79.86	718.75
5+00.00	43.12	79.86	798.61
5+50.00	0.00	39.93	838.54
6+00.00	0.00	0.00	838.54
6+50.00	0.00	0.00	838.54
7+00.00	43.12	39.93	878.47
7+50.00	43.12	79.86	958.33
8+00.00	43.12	79.86	1038.19
8+50.00	43.12	79.86	1118.06
9+00.00	43.12	79.86	1197.92
9+50.00	43.12	79.86	1277.78

Material Table			
Station	Area	Volume	Cumulative Volume
10+00.00	0.00	39.93	1317.71
10+50.00	0.00	0.00	1317.71
11+00.00	0.00	0.00	1317.71
11+50.00	43.12	39.93	1357.64
12+00.00	43.12	79.86	1437.50
12+50.00	43.12	79.86	1517.36
13+00.00	43.12	79.86	1597.22
13+50.00	43.12	79.86	1677.08
14+00.00	43.12	79.86	1756.94
14+50.00	43.12	79.86	1836.81
15+00.00	43.12	79.86	1916.67
15+50.00	43.12	79.86	1996.53
16+00.00	43.12	79.86	2076.39
16+50.00	43.12	79.86	2156.25
17+00.00	43.12	79.86	2236.11
17+50.00	43.12	79.86	2315.97
18+00.00	43.12	79.86	2395.83
18+50.00	43.12	79.86	2475.69
19+00.00	43.12	79.86	2555.56
19+50.00	43.12	79.86	2635.42

Material Table			
Station	Area	Volume	Cumulative Volume
20+00.00	43.12	79.86	2715.28
20+50.00	43.12	79.86	2795.14
21+00.00	43.12	79.86	2875.00
21+50.00	43.12	79.86	2954.86
22+00.00	43.12	79.86	3034.72
22+50.00	43.12	79.86	3114.58
23+00.00	0.00	39.93	3154.51
23+24.61	0.00	0.00	3154.51

6" MODIFIED SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	14.38	0.00	0.00
0+50.00	14.38	26.62	26.62
1+00.00	14.38	26.62	53.24
1+50.00	14.38	26.62	79.86
2+00.00	14.38	26.62	106.48
2+50.00	14.38	26.62	133.10
3+00.00	14.38	26.62	159.72
3+50.00	14.38	26.62	186.34
4+00.00	14.38	26.62	212.96
4+50.00	14.38	26.62	239.58
5+00.00	14.38	26.62	266.20
5+50.00	0.00	13.31	279.51
6+00.00	0.00	0.00	279.51
6+50.00	0.00	0.00	279.51
7+00.00	14.38	13.31	292.82
7+50.00	14.38	26.62	319.44
8+00.00	14.38	26.62	346.06
8+50.00	14.38	26.62	372.69
9+00.00	14.38	26.62	399.31
9+50.00	14.38	26.62	425.93

Material Table			
Station	Area	Volume	Cumulative Volume
10+00.00	0.00	13.31	439.24
10+50.00	0.00	0.00	439.24
11+00.00	0.00	0.00	439.24
11+50.00	14.38	13.31	452.55
12+00.00	14.38	26.62	479.17
12+50.00	14.38	26.62	505.79
13+00.00	14.38	26.62	532.41
13+50.00	14.38	26.62	559.03
14+00.00	14.38	26.62	585.65
14+50.00	14.38	26.62	612.27
15+00.00	14.38	26.62	638.89
15+50.00	14.38	26.62	665.51
16+00.00	14.38	26.62	692.13
16+50.00	14.38	26.62	718.75
17+00.00	14.38	26.62	745.37
17+50.00	14.38	26.62	771.99
18+00.00	14.38	26.62	798.61
18+50.00	14.38	26.62	825.23
19+00.00	14.38	26.62	851.85
19+50.00	14.38	26.62	878.47

Material Table			
Station	Area	Volume	Cumulative Volume
20+00.00	14.38	26.62	905.09
20+50.00	14.38	26.62	931.71
21+00.00	14.38	26.62	958.33
21+50.00	14.38	26.62	984.95
22+00.00	14.38	26.62	1011.57
22+50.00	14.38	26.62	1038.19
23+00.00	0.00	13.31	1051.50
23+24.61	0.00	0.00	1051.50

7" PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	16.77	0.00	0.00
0+50.00	16.77	31.06	31.06
1+00.00	16.77	31.06	62.11
1+50.00	16.77	31.06	93.17
2+00.00	16.77	31.06	124.23
2+50.00	16.77	31.06	155.29
3+00.00	16.77	31.06	186.34
3+50.00	16.77	31.06	217.40
4+00.00	16.77	31.06	248.46
4+50.00	16.77	31.06	279.51
5+00.00	16.77	31.06	310.57
5+50.00	0.00	15.53	326.10
6+00.00	0.00	0.00	326.10
6+50.00	0.00	0.00	326.10
7+00.00	16.77	15.53	341.63
7+50.00	16.77	31.06	372.69
8+00.00	16.77	31.06	403.74
8+50.00	16.77	31.06	434.80
9+00.00	16.77	31.06	465.86
9+50.00	16.77	31.06	496.91

Material Table			
Station	Area	Volume	Cumulative Volume
10+00.00	0.00	15.53	512.44
10+50.00	0.00	0.00	512.44
11+00.00	0.00	0.00	512.44
11+50.00	16.77	15.53	527.97
12+00.00	16.77	31.06	559.03
12+50.00	16.77	31.06	590.08
13+00.00	16.77	31.06	621.14
13+50.00	16.77	31.06	652.20
14+00.00	16.77	31.06	683.26
14+50.00	16.77	31.06	714.31
15+00.00	16.77	31.06	745.37
15+50.00	16.77	31.06	776.43
16+00.00	16.77	31.06	807.48
16+50.00	16.77	31.06	838.54
17+00.00	16.77	31.06	869.60
17+50.00	16.77	31.06	900.66
18+00.00	16.77	31.06	931.71
18+50.00	16.77	31.06	962.77
19+00.00	16.77	31.06	993.83
19+50.00	16.77	31.06	1024.88

Material Table			
Station	Area	Volume	Cumulative Volume
20+00.00	16.77	31.06	1055.94
20+50.00	16.77	31.06	1087.00
21+00.00	16.77	31.06	1118.06
21+50.00	16.77	31.06	1149.11
22+00.00	16.77	31.06	1180.17
22+50.00	16.77	31.06	1211.23
23+00.00	0.00	15.53	1226.76
23+24.61	0.00	0.00	1226.76

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PROJECT: CEE:4850
DATE : .5/08/2026
DRAWN BY: APH
REVISION:

EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
EARTHWORK TABULATION

SHEET NO.
T.01B

280th STREET

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	1.74	5.56	0.00	0.00	0.00	0.00
0+50.00	0.01	17.86	1.62	21.69	1.62	21.69
1+00.00	0.00	43.27	0.01	56.60	1.63	78.29
1+50.00	0.00	76.05	0.00	110.48	1.63	188.77
2+00.00	0.00	111.74	0.00	173.88	1.63	362.65
2+50.00	0.00	105.70	0.00	201.33	1.63	563.98
3+00.00	0.00	91.69	0.00	182.77	1.63	746.75
3+50.00	0.00	105.36	0.00	182.45	1.63	929.20
4+00.00	0.00	130.32	0.00	218.22	1.63	1147.41
4+50.00	0.00	127.71	0.00	238.92	1.63	1386.33
5+00.00	0.00	136.25	0.00	244.41	1.63	1630.74
5+50.00	0.00	0.00	0.00	126.16	1.63	1756.89
6+00.00	0.00	0.00	0.00	0.00	1.63	1756.89
6+50.00	0.00	0.00	0.00	0.00	1.63	1756.89
7+00.00	0.00	203.76	0.00	188.66	1.63	1945.56
7+50.00	0.00	114.99	0.00	295.13	1.63	2240.69
8+00.00	0.05	46.50	0.05	149.52	1.67	2390.21
8+50.00	11.20	7.85	10.42	50.32	12.09	2440.53
9+00.00	18.77	0.00	27.75	7.27	39.85	2447.80
9+50.00	24.06	0.17	39.66	0.15	79.50	2447.95

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
10+00.00	0.00	0.00	22.28	0.15	101.78	2448.11
10+50.00	0.00	0.00	0.00	0.00	101.78	2448.11
11+00.00	0.00	0.00	0.00	0.00	101.78	2448.11
11+50.00	26.94	0.38	24.78	0.35	126.56	2448.45
12+00.00	25.17	4.91	48.24	4.90	174.81	2453.35
12+50.00	29.27	3.33	50.40	7.63	225.21	2460.98
13+00.00	30.42	5.24	55.26	7.94	280.47	2468.92
13+50.00	39.78	0.07	64.99	4.91	345.46	2473.83
14+00.00	51.31	0.00	84.34	0.06	429.81	2473.89
14+50.00	70.20	0.00	112.51	0.00	542.32	2473.89
15+00.00	57.87	0.00	118.58	0.00	660.90	2473.89
15+50.00	68.94	0.00	117.42	0.00	778.32	2473.89
16+00.00	51.89	0.09	111.88	0.08	890.20	2473.98
16+50.00	42.24	0.00	87.15	0.08	977.36	2474.06
17+00.00	28.69	0.00	65.67	0.00	1043.03	2474.06
17+50.00	35.74	0.00	59.66	0.00	1102.68	2474.06
18+00.00	43.32	0.00	73.21	0.00	1175.89	2474.06
18+50.00	54.24	0.00	90.34	0.00	1266.23	2474.06
19+00.00	19.66	0.00	68.43	0.00	1334.66	2474.06
19+50.00	11.48	2.25	28.83	2.09	1363.49	2476.15

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
20+00.00	7.00	6.96	17.11	8.53	1380.59	2484.67
20+50.00	9.45	6.18	15.23	12.16	1395.82	2496.83
21+00.00	5.75	10.07	14.07	15.04	1409.90	2511.87
21+50.00	10.14	10.02	14.71	18.60	1424.60	2530.47
22+00.00	2.05	14.68	11.29	22.87	1435.89	2553.35
22+50.00	0.41	16.95	2.28	29.29	1438.18	2582.63
23+00.00	0.00	0.00	0.38	15.69	1438.56	2598.32
23+24.61	0.00	0.00	0.00	0.00	1438.56	2598.32

7'' PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	16.77	15.53	15.53
1+50.00	16.77	31.06	46.59
2+00.00	16.77	31.06	77.64
2+50.00	0.00	15.53	93.17
3+00.00	0.00	0.00	93.17
3+50.00	0.00	0.00	93.17
4+00.00	0.00	0.00	93.17
4+50.00	0.00	0.00	93.17
5+00.00	16.77	15.53	108.70
5+50.00	16.77	31.06	139.76
6+00.00	16.77	31.06	170.81
6+50.00	16.77	31.06	201.87
7+00.00	16.77	31.06	232.93
7+50.00	16.77	31.06	263.99
8+00.00	16.77	31.06	295.04
8+50.00	16.77	31.06	326.10
9+00.00	16.77	31.06	357.16
9+50.00	16.77	31.06	388.21

Material Table			
Station	Area	Volume	Cumulative Volume
10+00.00	16.77	31.06	419.27
10+50.00	16.77	31.06	450.33
11+00.00	16.77	31.06	481.39
11+50.00	16.77	31.06	512.44
12+00.00	16.77	31.06	543.50
12+50.00	0.00	15.53	559.03
13+00.00	0.00	0.00	559.03
13+50.00	0.00	0.00	559.03
14+00.00	0.00	0.00	559.03
14+50.00	0.00	0.00	559.03
14+60.47	0.00	0.00	559.03

6'' MODIFIED SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	14.38	13.31	13.31
1+50.00	14.38	26.62	39.93
2+00.00	14.38	26.62	66.55
2+50.00	0.00	13.31	79.86
3+00.00	0.00	0.00	79.86
3+50.00	0.00	0.00	79.86
4+00.00	0.00	0.00	79.86
4+50.00	0.00	0.00	79.86
5+00.00	14.38	13.31	93.17
5+50.00	14.38	26.62	119.79
6+00.00	14.38	26.62	146.41
6+50.00	14.38	26.62	173.03
7+00.00	14.38	26.62	199.65
7+50.00	14.38	26.62	226.27
8+00.00	14.38	26.62	252.89
8+50.00	14.38	26.62	279.51
9+00.00	14.38	26.62	306.13
9+50.00	14.38	26.62	332.75

Material Table			
Station	Area	Volume	Cumulative Volume
10+00.00	14.38	26.62	359.38
10+50.00	14.38	26.62	386.00
11+00.00	14.38	26.62	412.62
11+50.00	14.38	26.62	439.24
12+00.00	14.38	26.62	465.86
12+50.00	0.00	13.31	479.17
13+00.00	0.00	0.00	479.17
13+50.00	0.00	0.00	479.17
14+00.00	0.00	0.00	479.17
14+50.00	0.00	0.00	479.17
14+60.47	0.00	0.00	479.17

18'' IMPORTED FILL

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	43.12	39.93	39.93
1+50.00	43.12	79.86	119.79
2+00.00	43.12	79.86	199.65
2+50.00	0.00	39.93	239.58
3+00.00	0.00	0.00	239.58
3+50.00	0.00	0.00	239.58
4+00.00	0.00	0.00	239.58
4+50.00	0.00	0.00	239.58
5+00.00	43.12	39.93	279.51
5+50.00	43.12	79.86	359.38
6+00.00	43.12	79.86	439.24
6+50.00	43.12	79.86	519.10
7+00.00	43.12	79.86	598.96
7+50.00	43.12	79.86	678.82
8+00.00	43.12	79.86	758.68
8+50.00	43.12	79.86	838.54
9+00.00	43.12	79.86	918.40
9+50.00	43.12	79.86	998.26

Material Table			
Station	Area	Volume	Cumulative Volume
10+00.00	43.12	79.86	1078.12
10+50.00	43.12	79.86	1157.99
11+00.00	43.12	79.86	1237.85
11+50.00	43.12	79.86	1317.71
12+00.00	43.12	79.86	1397.57
12+50.00	0.00	39.93	1437.50
13+00.00	0.00	0.00	1437.50
13+50.00	0.00	0.00	1437.50
14+00.00	0.00	0.00	1437.50
14+50.00	0.00	0.00	1437.50
14+60.47	0.00	0.00	1437.50

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: APH
REVISION:

EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
EARTHWORK TABULATION

SHEET NO.
T.02B

HOOVER BLVD (WEST)

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	7.46	3.31	0.00	0.00	0.00	0.00
0+50.00	0.67	3.06	7.37	5.89	7.37	5.89
1+00.00	5.29	2.12	5.90	4.43	13.27	10.32
1+22.21	11.02	15.13	6.71	7.09	19.98	17.41

7'' PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	12.83	0.00	0.00
0+50.00	0.00	11.88	11.88
1+00.00	0.00	0.00	11.88
1+22.21	0.00	0.00	11.88

6'' MODIFIED SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	11.00	0.00	0.00
0+50.00	0.00	10.19	10.19
1+00.00	0.00	0.00	10.19
1+22.21	0.00	0.00	10.19

18'' IMPORTED FILL

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	33.00	0.00	0.00
0+50.00	0.00	30.56	30.56
1+00.00	0.00	0.00	30.56
1+22.21	0.00	0.00	30.56

HOOVER BLVD – 4TH

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	0.00	0.00	0.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00	0.00	0.00	0.00
1+00.00	0.00	0.00	0.00	0.00	0.00	0.00
1+21.11	0.00	0.00	0.00	0.00	0.00	0.00

7'' PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	15.75	0.00	0.00
0+50.00	15.75	29.17	29.17
1+00.00	0.00	14.58	43.75
1+21.11	0.00	0.00	43.75

6'' MODIFIED SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	13.50	0.00	0.00
0+50.00	13.50	25.00	25.00
1+00.00	0.00	12.50	37.50
1+21.11	0.00	0.00	37.50

18'' IMPORTED FILL

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	40.50	0.00	0.00
0+50.00	40.50	75.00	75.00
1+00.00	0.00	37.50	112.50
1+21.11	0.00	0.00	112.50

HOOVER BLVD (EAST)

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	1.27	6.27	0.00	0.00	0.00	0.00
0+50.00	2.52	1.20	3.48	6.84	3.48	6.84
1+00.00	4.52	8.79	6.61	8.77	10.09	15.61
1+13.99	59.48	0.04	16.57	2.29	26.67	17.89

7'' PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	12.83	0.00	0.00
0+50.00	0.00	11.88	11.88
1+00.00	0.00	0.00	11.88
1+13.99	0.00	0.00	11.88

6'' MODIFIED SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	11.00	0.00	0.00
0+50.00	0.00	10.19	10.19
1+00.00	0.00	0.00	10.19
1+13.99	0.00	0.00	10.19

18'' IMPORTED FILL

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	33.00	0.00	0.00
0+50.00	0.00	30.56	30.56
1+00.00	0.00	0.00	30.56
1+13.99	0.00	0.00	30.56

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: APH
REVISION:

EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
EARTHWORK TABULATION

SHEET NO.
T.03B

BAKER AVE

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	6.81	0.01	0.00	0.00	0.00	0.00
0+50.00	9.32	0.16	14.93	0.16	14.93	0.16
1+00.00	0.00	2.48	8.63	2.44	23.55	2.61
1+50.00	0.00	2.40	0.00	4.51	23.56	7.12
2+00.00	4.57	6.57	4.24	8.30	27.79	15.43
2+50.00	0.01	2.29	4.24	8.20	32.03	23.63
3+00.00	66.83	1.80	61.88	3.79	93.92	27.42
3+50.00	0.00	2.30	61.88	3.79	155.80	31.21
4+00.00	0.00	2.34	0.00	4.30	155.80	35.51
4+10.77	0.00	2.34	0.00	0.93	155.80	36.44

7'' PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	12.83	0.00	0.00
0+50.00	12.83	23.77	23.77
1+00.00	12.83	23.77	47.53
1+50.00	0.00	11.88	59.41
2+00.00	0.00	0.00	59.41
2+50.00	0.00	0.00	59.41
3+00.00	12.83	11.88	71.30
3+50.00	12.83	23.77	95.06
4+00.00	12.83	23.77	118.83
4+10.77	12.83	5.12	123.95

6'' MODIFIED SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	11.00	0.00	0.00
0+50.00	11.00	20.37	20.37
1+00.00	11.00	20.37	40.74
1+50.00	0.00	10.19	50.93
2+00.00	0.00	0.00	50.93
2+50.00	0.00	0.00	50.93
3+00.00	11.00	10.19	61.11
3+50.00	11.00	20.37	81.48
4+00.00	11.00	20.37	101.85
4+10.77	11.00	4.39	106.24

18'' IMPORTED FILL

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	33.00	0.00	0.00
0+50.00	33.00	61.11	61.11
1+00.00	33.00	61.11	122.22
1+50.00	0.00	30.56	152.78
2+00.00	0.00	0.00	152.78
2+50.00	0.00	0.00	152.78
3+00.00	33.00	30.56	183.33
3+50.00	33.00	61.11	244.44
4+00.00	33.00	61.11	305.56
4+10.77	33.00	13.16	318.72

TOTAL EARTHWORK FOR 4TH STREET PLAN

TOTAL CUT: 4607 CY

TOTAL FILL: 7505 CY

7'' PAVEMENT: 2748 CY

6'' MODIFIED SUBBASE: 2345 CY

18'' IMPORTED FILL: 7034 CY

FARM DRIVEWAY

Total Volume Table						
Station	Fill Area	Cut Area	Fill Volume	Cut Volume	Cumulative Fill Vol	Cumulative Cut Vol
0+00.00	0.00	0.00	0.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00	0.00	0.00	0.00
1+00.00	0.00	0.00	0.00	0.00	0.00	0.00
1+50.00	0.00	0.00	0.00	0.00	0.00	0.00
2+00.00	0.00	0.00	0.00	0.00	0.00	0.00
2+50.00	0.00	0.00	0.00	0.00	0.00	0.00
3+00.00	0.00	442.64	0.00	409.85	0.00	409.85
3+25.61	0.00	502.26	0.00	448.19	0.00	858.04

7'' PAVEMENT

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	0.00	0.00	0.00
1+50.00	0.00	0.00	0.00
2+00.00	0.00	0.00	0.00
2+50.00	0.00	0.00	0.00
3+00.00	0.00	0.00	0.00
3+25.61	0.00	0.00	0.00

6'' MODIFIED SUBBASE

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	0.00	0.00	0.00
1+50.00	0.00	0.00	0.00
2+00.00	0.00	0.00	0.00
2+50.00	0.00	0.00	0.00
3+00.00	0.00	0.00	0.00
3+25.61	0.00	0.00	0.00

18'' IMPORTED FILL

Material Table			
Station	Area	Volume	Cumulative Volume
0+00.00	0.00	0.00	0.00
0+50.00	0.00	0.00	0.00
1+00.00	0.00	0.00	0.00
1+50.00	0.00	0.00	0.00
2+00.00	0.00	0.00	0.00
2+50.00	0.00	0.00	0.00
3+00.00	0.00	0.00	0.00
3+25.61	0.00	0.00	0.00

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PROJECT: CEE:4850

DATE : 05/08/2026

DRAWN BY: APH

REVISION:

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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME

EARTHWORK TABULATION

SHEET NO.

T.04B

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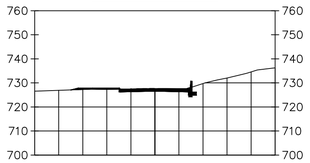

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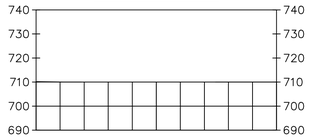

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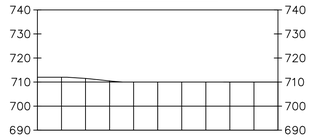

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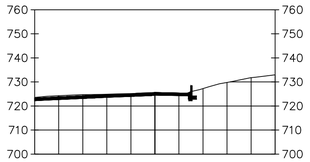

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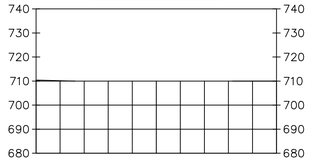

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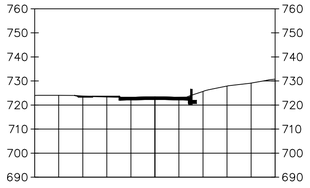

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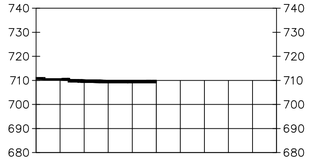

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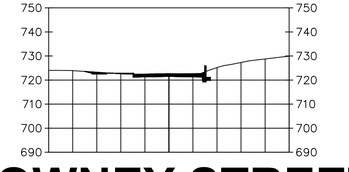

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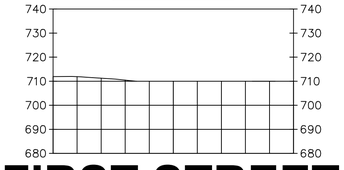

DOWNEY STREET

FIRST STREET

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PROJECT: CEE:4850

DATE : 05/08/2026

DRAWN BY: APH

REVISION:

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TRUCK REROUTING AND PAVEMENT REPLACEMENT

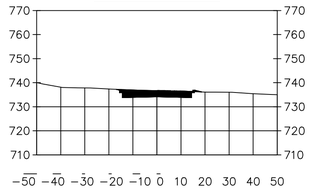
SHEET NAME

TYPICAL CROSS SECTIONS

SHEET NO.

W.01A

0+00.00



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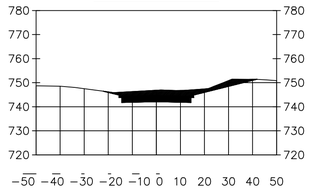

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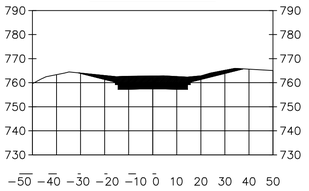

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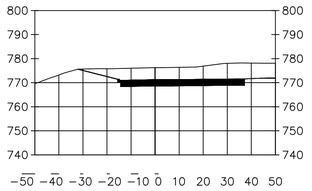

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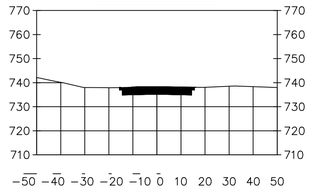

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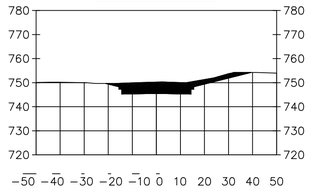

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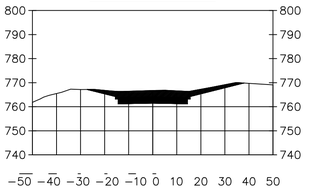

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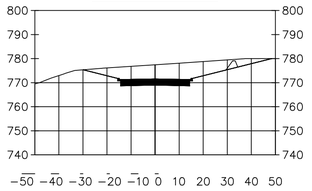

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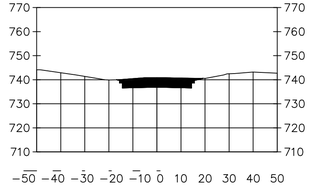

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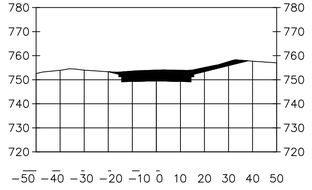

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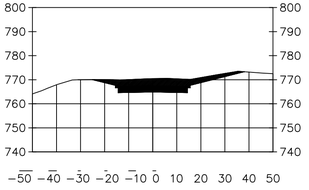

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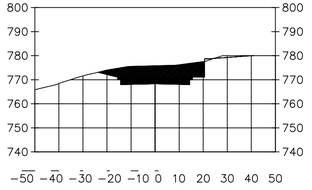

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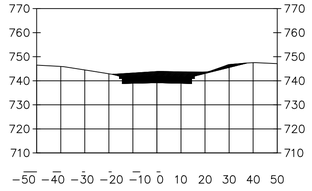

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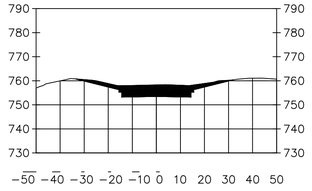

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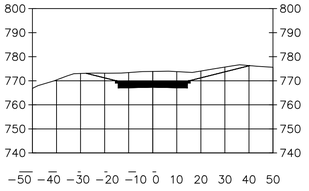

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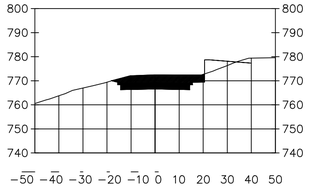

4TH STREET

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EMAIL: civil-hawks@uiowa.edu

PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: SJH
REVISION:

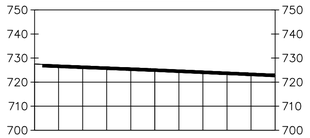
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
TYPICAL CROSS SECTIONS

SHEET NO.
W.01B

0+00.00



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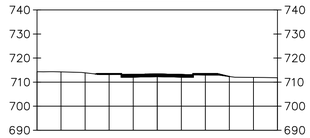

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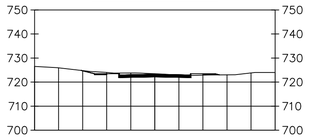

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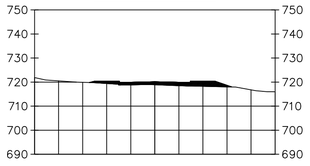

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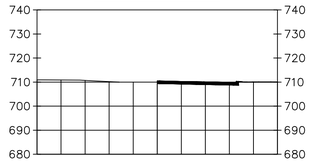

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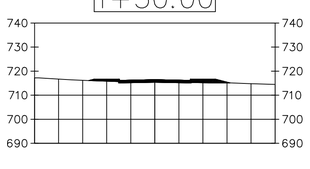

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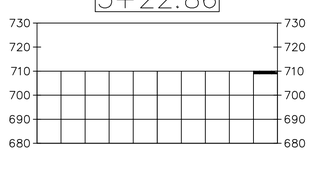

GREEN STREET

THE UNIVERSITY OF IOWA
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PROJECT:	CEE:4850
DATE :	05/08/2026
DRAWN BY:	APH
REVISION:	

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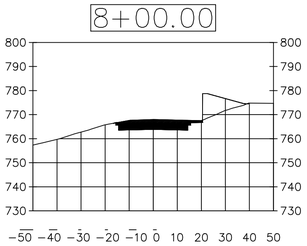
TRUCK REROUTING AND PAVEMENT REPLACEMENT

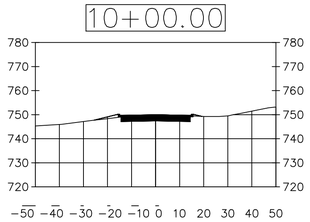
SHEET NAME

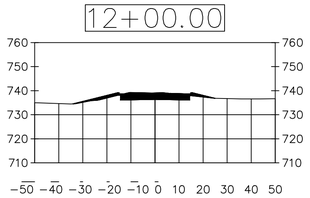
TYPICAL CROSS SECTIONS

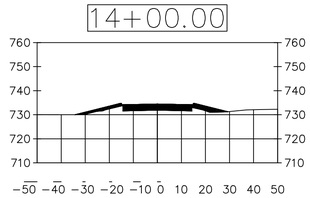
SHEET NO.

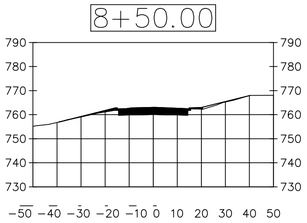
W.02A

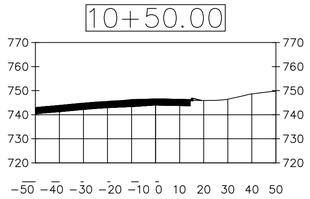


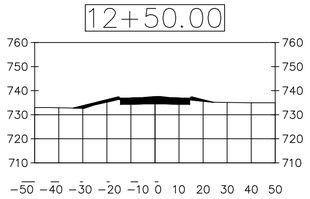


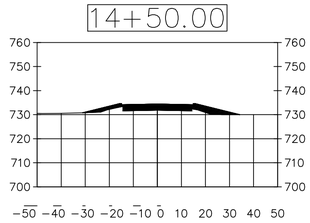


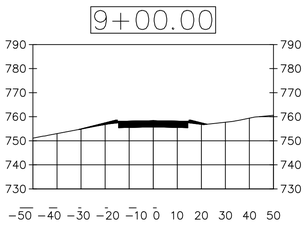


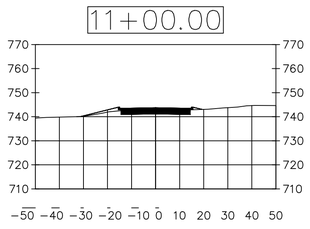


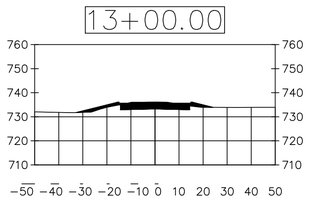


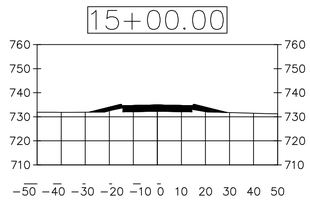


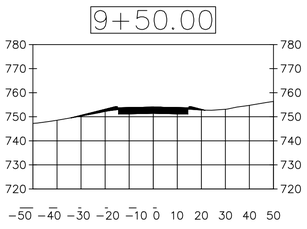


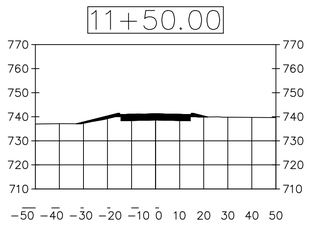


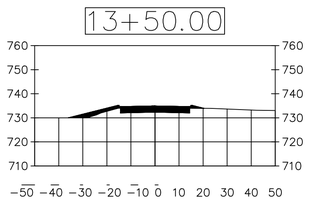


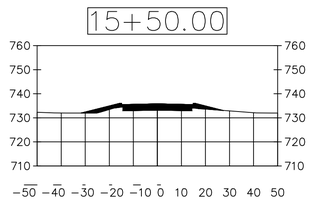












4TH STREET

PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: SJH
REVISION:

THE UNIVERSITY OF IOWA
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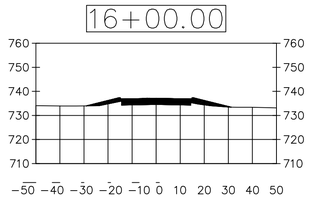
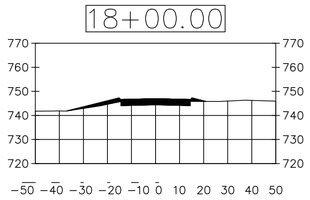
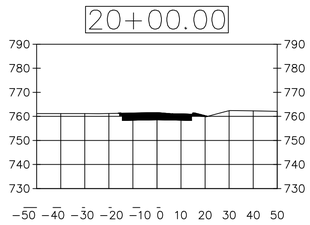
TRUCK REROUTING AND PAVEMENT REPLACEMENT

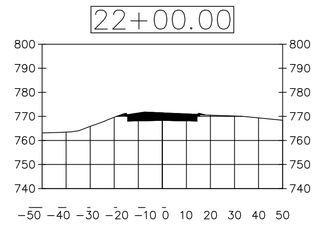
SHEET NAME
TYPICAL CROSS SECTIONS

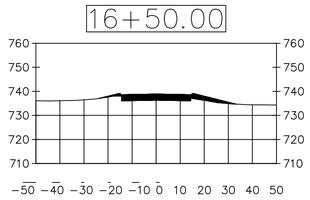
SHEET NO.
W.02B

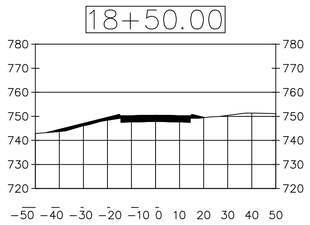


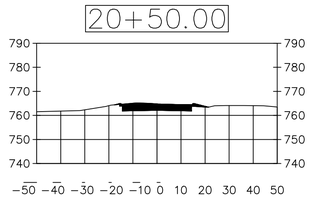


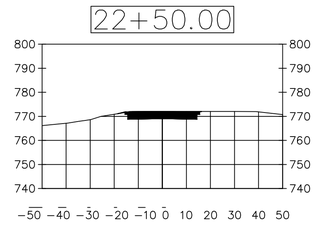


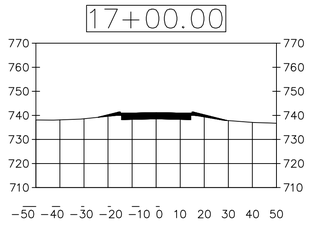


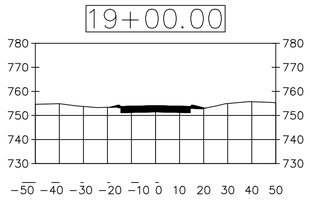


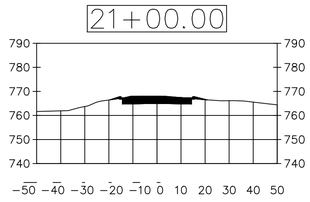


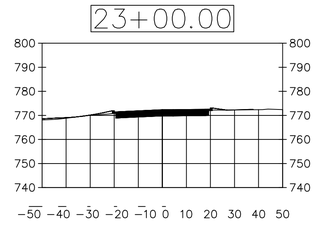


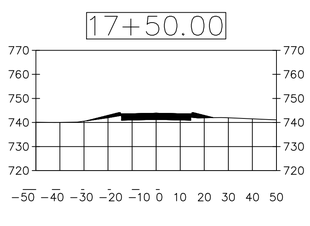


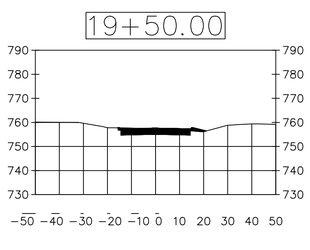


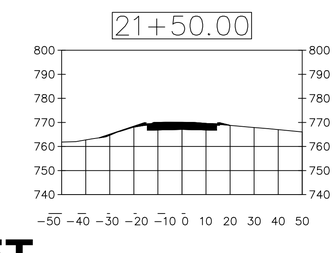


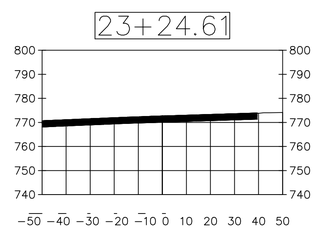












4TH STREET

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: APH
REVISION:

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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
TYPICAL CROSS SECTIONS

SHEET NO.
W.03B

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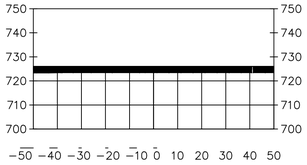

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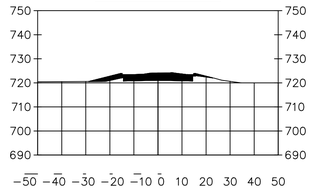

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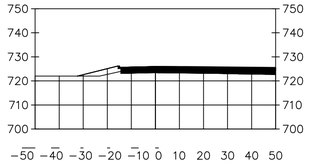

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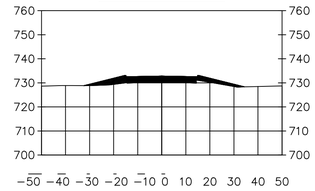

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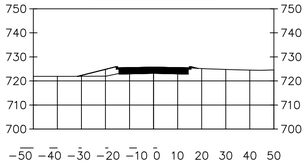

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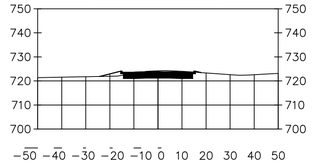

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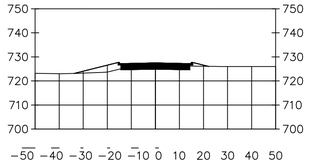

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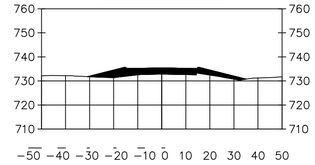

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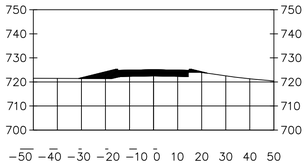

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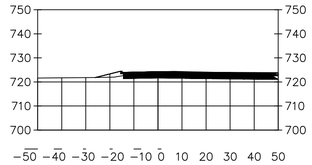

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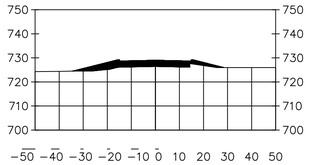

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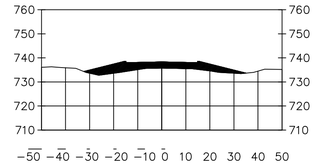

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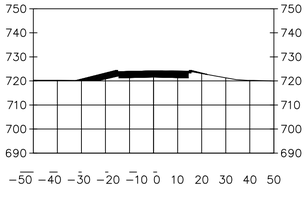

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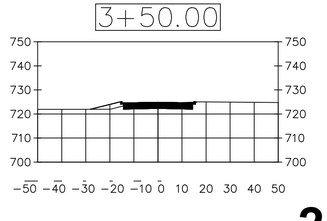

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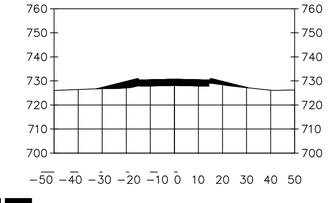

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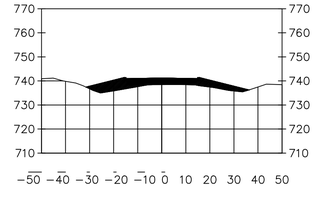

280TH STREET

THE UNIVERSITY OF IOWA
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TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
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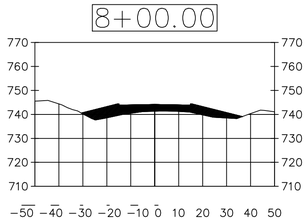
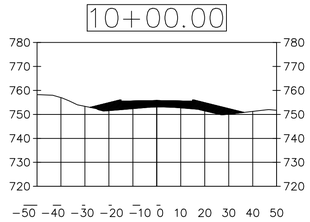
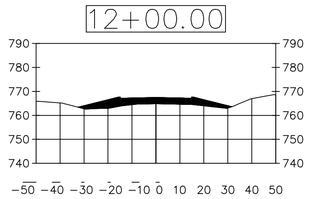
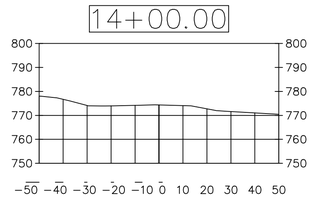
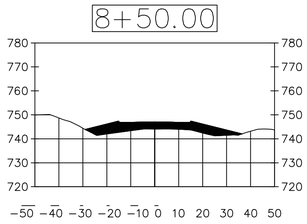
SHEET NO.
W.04B

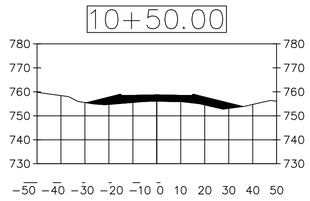


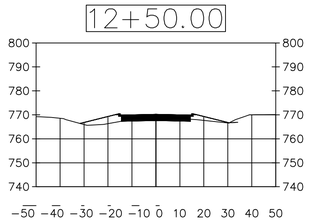


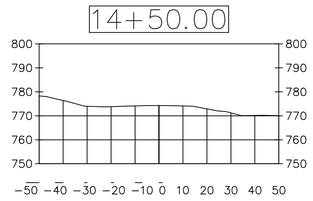


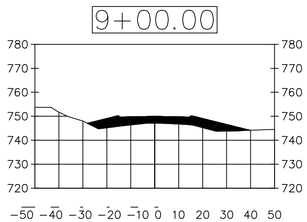


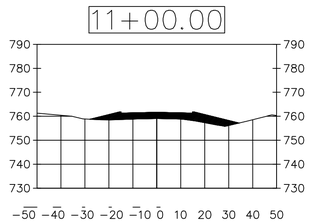


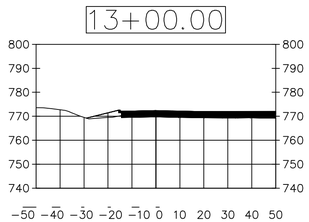


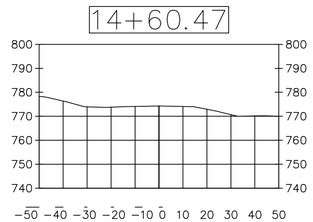


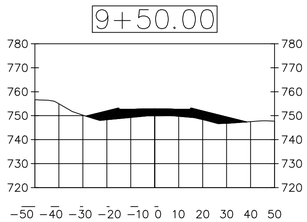


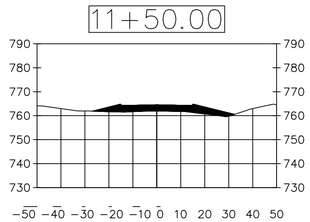


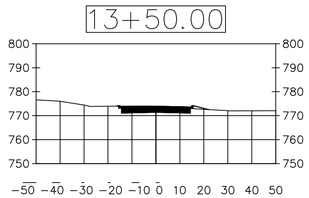












280TH STREET

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PROJECT: CEE:4850
DATE : 05/08/2026
DRAWN BY: APH
REVISION:

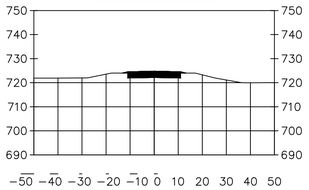
EDUCATIONAL - NOT FOR CONSTRUCTION

TRUCK REROUTING AND PAVEMENT REPLACEMENT

SHEET NAME
TYPICAL CROSS SECTIONS

SHEET NO.
W.05B

0+00.00



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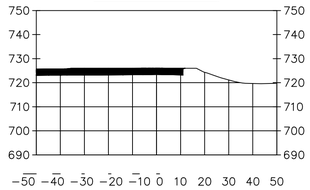

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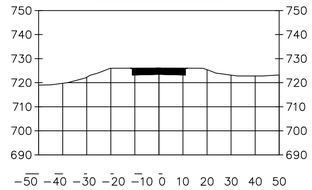

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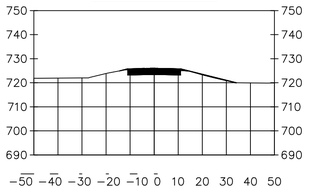

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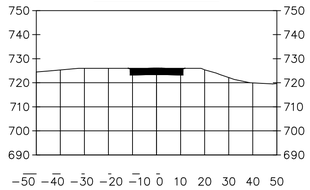

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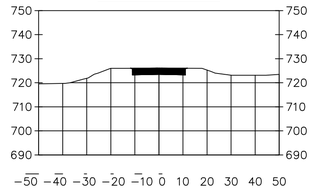

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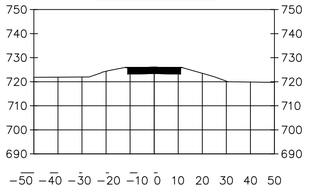

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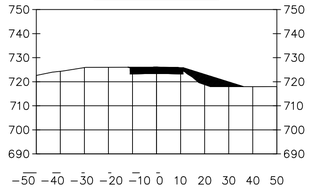

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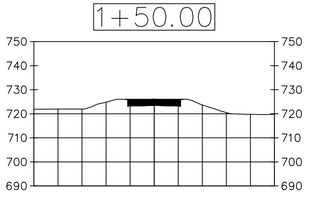

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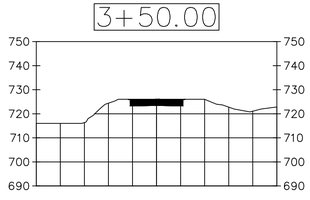

BAKER AVE

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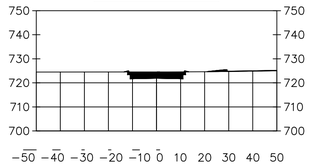
SHEET NAME
TYPICAL CROSS SECTIONS

SHEET NO.
W.06B

HOOVER BLVD. LEFT VIEW

0+00.00



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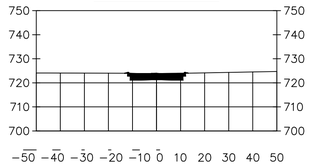

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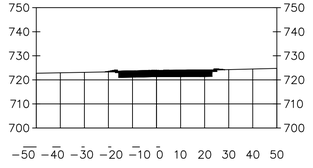

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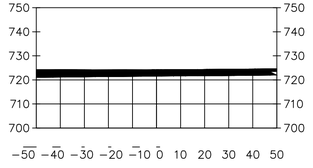

HOOVER BLVD. RIGHT VIEW

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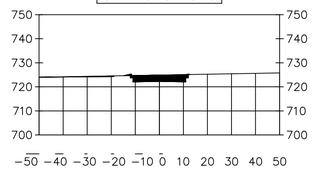

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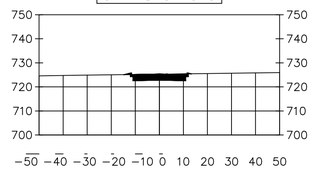

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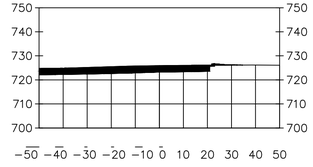

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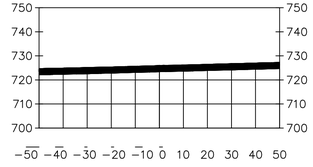

HOOVER BLVD. EAST VIEW

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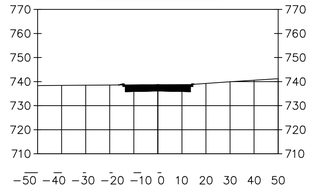

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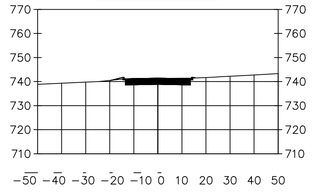

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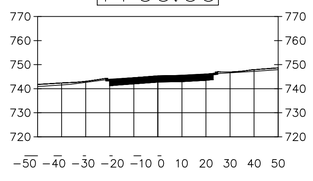

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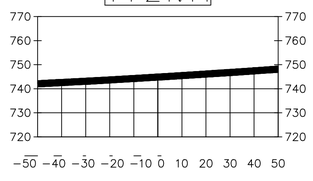

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SHEET NAME

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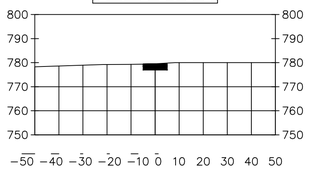
SHEET NO.

W.07B

0+00.00



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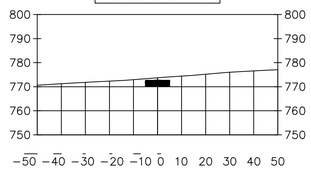

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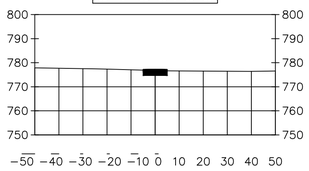

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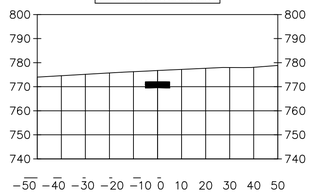

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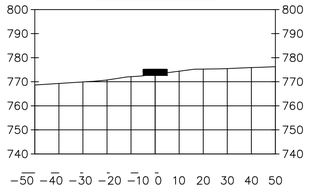

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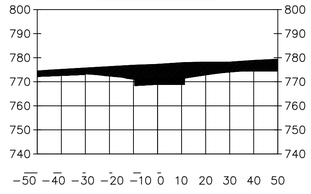

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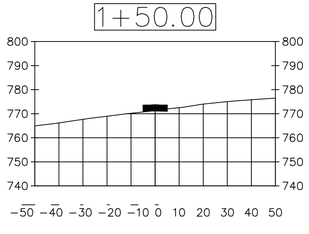

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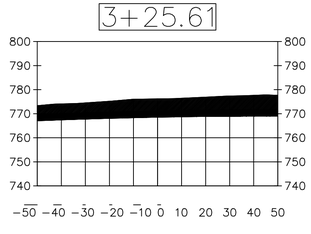

FARM HOUSE DRIVEWAY

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W.08B