CORRESPONDENCE/MEMORANDUM **State of Wisconsin**

Date: 2/4/2019

To: James Pavelski, PE, Grade Crossing Safety Engineer
Rails and Harbors Section (RHS) - Room 701
HFSTB

From: Paul Derksen
SE Region Railroad Coordinator

Subject: **Railroad Project Submittal Package**
Canadian Pacific Railroad
WisDOT Railroad Crossing # 390520H

Per FDM 17-20-10, (see Chapter 17-20-10 & 17-25-5), the following material is being submitted in order to proceed with railroad negotiations: *(submit one RPSP per railroad crossing)*

1. **Design ID** *2783-05-00* **Construction ID** *2783-05-70*

2. **Railroad Surface Project ID** *2783-05-50* **Railroad Signal Project ID** *2783-05-51*

3. **Project Title:** Calhoun Road
   Project Subtitle: CTH M to STH 190
   Roadway: Local Street
   Municipality: City of Brookfield
   County: Waukesha County

4. **LET Date** December 8, 2020
   PS&E Date August 1, 2020
   Advanceable PS&E Date *NA*

5. **Name & Phone Number of Project Manager**
   WisDOT SE Region Project Manager: *Kathleen Kramer (262)548-8772*

   City of Brookfield, Department of Public Works: *Jeff Chase (262) 787-3524*
   City Engineer

   WisDOT SE Region Railroad Coordinator (RRC): *Paul Derksen (262) 548-8770*
   Consultant (raSmith) Project Manager: *Brad Severson (920) 843-5738*

6. **Detailed project overview narrative:** *(include a brief project scope overview and a more detailed narrative about the area near the RR crossing) The Wisconsin Department of Transportation (WisDOT), in conjunction with the City of Brookfield, proposes to reconstruct Calhoun Road from the existing 2-lane rural section to an urban 4-lane divided section. The existing at-grade crossing of Calhoun Road, north of Pheasant Drive, with the Canadian Pacific Railroad (CPRR) would be reconstructed to accommodate the widened roadway. The roadway will be widened to a typical section consisting of a 24-ft wide raised median (measured from inside edge of southbound lanes to the inside edge of northbound lanes) with curb and gutter (20-ft between face of curbs), an 11-ft travel lane, a 14-ft' outside lane, and curb and gutter on the outside. A 9-ft wide terrace and 6-ft wide sidewalk will be constructed along both sides of the roadway. The proposed project will re-align Pheasant Drive to improve the intersection angle at Calhoun Road. Existing railroad crossing gates will be replaced as part of this project and additional railroad safety features will be installed for the proposed wider section. The proposed drainage throughout the project will be curb and gutter with storm sewer.*

7. **The *anticipated* construction project schedule is as follows:**
    - *Construction Start Date: March 2021*
    - *Detour Start Date: (if applicable) N/A (See Construction staging narrative for details).*
    - *Construction Completion Date: Fall 2021*
    - *Railroad Project Completion Dates: (needed for OCR petition/hearing)*
        - *RR Signals: Between June 24, 2021 and September 2, 2021*
        - *RR Surface: Between June 24, 2021 and September 2, 2021*

8. **Construction staging narrative:** *(area near the RR crossing and information about any at-grade RR crossings on the detour)*
   Calhoun Road will be opened to local traffic throughout construction, however, the railroad construction activities will require short-term full closures to occur outside of the calendar school year (with both start and completion of railroad construction activities falling between June 14, 2021 and Thursday September 2, 2021). Additionally, there is a second CPRR crossing (WisDOT Crossing No. 390517A) located approximately 390' south of this crossing (WisDOT Crossing No. 390520H). The proposed activities at the south crossing will be similar to the work done for this crossing. Between the two crossings lies Pheasant Drive that dead ends at a cul-de-sac and only has access via Calhoun Road. In order to maintain access to Pheasant Drive throughout construction, each crossing will need to be constructed under two separate full closures of Calhoun Road. The anticipated railroad construction activities are expected to take one week per crossing.

9. **Work performed by Railroad narrative:** *(include existing and proposed crossing length - to be verified with the RRC)*

The existing railroad crossing to be replaced is approximately 44-ft wide. New railroad crossing panels will be required to accommodate the expanded 4-lane divided roadway. It is anticipated that the panels would need to be approximately 113.75-ft long to span the entire roadway width to beyond the proposed concrete sidewalk. New railroad gates and signals will be installed at the crossing. A new signal control cabinet will be located and installed with the railroad construction.

10. **Railroad crossing work included in WisDOT construction project:** *(such as paving through crossing, provide detour, road closure traffic control, etc.) Roadway work will pave asphalt up to the railroad crossing panels. Railroad ditches will be regraded 45 - 145 feet from the proposed ROW to accommodate the proposed storm sewer system with the inlets in the southbound lanes draining to the west and the inlets in the northbound lanes draining to the east. Advanced warning signs will be placed along the sidewalks to notify pedestrians of the railroad crossing.*

11. **Is the crossing signed EXEMPT? ☐Yes ☒No**
    Should the crossing be signed EXEMPT? ☐Yes ☒No
    Click here to enter text.

12. **Drainage impacts to railroad statement:** *(if none, please state so) The existing overland flow from the north starts at a roadway high point located approximately 260' north of the crossing and drains south to just north of the crossing then connects to the east-west railroad ditches north of the tracks. The existing overland flow from the south starts at WisDOT Railroad Crossing No. 390517A, 390' south of this crossing, and drains north to the tracks and then connects to the east-west railroad ditches south of the tracks. The proposed drainage pattern follows the existing drainage patterns with minor alterations to the locations of the low and high points and ditches being replaced by curb and gutter with storm sewer. The addition of curb and gutter will include inlets installed in both the inside and outside lanes and north and south of the tracks resulting in 4 inlets per side. They will capture the majority of the water draining toward the roadway low point at the tracks. The inlets will outlet to the east-west railroad ditches and minor railroad ditch grading will be required. At this railroad crossing, the 10-year peak flow to the railroad right-of-way will increase from 13 cfs to 14 cfs. See Attachment #4 for the Railroad Crossing Drainage Exhibit. In addition, the current railroad ditches are in poor condition and holding water. While some minor railroad ditch grading improvements will be included with this project to ensure positive drainage from the proposed storm sewer outlets to the existing railroad ditch, the re-grading/cleaning out of the railroad ditches beyond the scope of this project would help to improve capacity and flow for the contributing drainage basins. There are no floodplain implications per Waukesha County, Wisconsin Flood Insurance Rate Maps (FIRM) 55133C0209G (West) and 55133C0228G (East) (Attachment #5).*

13. **Are there any overhead/underground highway appurtenances or utilities being installed within *railroad right-of way as part of this project?*** *(Review FDM 17-60-45)*

☒Yes ☐No

Existing overhead utilities possibly in conflict are WE Energies electrical along the east side of Calhoun Road. Existing underground utilities possibly in conflict are AT&T telephone, WE Energies electrical and WE Energies 4" gas in an 8" casing on the west side of Calhoun Road and Charter Communications fiber optic, WE Energies 4" gas in an 8" casing along the east side. Rogers Telecom has an existing facility running across Calhoun Road about 5' north of the northern track. An existing 12" watermain in a 24" steel casing is not anticipated to be disturbed along the east side. Underground highway appurtenances will be installed within the railroad ROW consisting of proposed highway storm sewer. The purpose of this storm sewer is to collect as much water as possible prior to the railroad crossing and then divert the water to the railroad ditch. This will avoid installing storm sewer under the railroad tracks. Utility coordination is still in the early stages so the exact extent of utility work needed is yet to be determined. Utility work plans are expected to be received by Fall 2019.

14. **Is railroad real estate needed?** (*If yes, a Railroad Real Estate Package (RRESP) will be required, in addition to this packet)*

☒Yes ☐No

The Book of Roads – Brookfield Township established a 66' right-of-way for Calhoun Road in 1844. The Railroad Track Maps provided by the Canadian Pacific Railroad, dated 1918, show that the railroad acquired ownership of the Calhoun Road right-of-way at the crossing. A 66'highway easement was retained at the crossing for roadway purposes. Additional highway easement will be needed to complete the roadway widening (from a two-lane rural section to a four-lane urban section). Permanent limited easements will be required on both sides of the crossing to accommodate the storm sewer described in item #13. Temporary limited easements will also be required to complete grading operations. A separate RRESP has been submitted concurrent with this submittal.

15. **Additional Comments:** *(exception to standards, unique design issues, environmental commitments, etc.) Vertical design features outside of FDM thresholds will be necessary to maintain the existing slopes on the existing railroad tracks. In order to maintain these slopes, the proposed vertical curves will be substandard, along with vertical grade breaks without vertical curves. Refer to Attachment #6 for further detail. If the Railroad would allow a reduction in the superelevation of the tracks at this crossing, the substandard vertical features could be improved. Would the Railroad consider any reduction in superelevation for the benefit of improved safety and a better ride at this crossing? The City of Brookfield intends for the improvements at this crossing to be incorporated in to a future Quiet Zone for approval by the Federal Railroad Administration (FRA). A*

raised median measuring 24-ft wide (measured from inside edge of southbound lanes to the inside edge of northbound lanes) and extending 100+ft both north and south from the tracks will contribute to Quiet Zone approval. An 8" curb head is also being considered in the vicinity of the crossing to gain Quiet Zone points.

16. **Railroad Crossing Report (DT-1589) and Photos** *(see http://dotnet/railharb/docs/rcis-photo.pdf for photo standards. Disregard the batch conversion steps. Convert photos to PDF two per page 8 ½ x 11)* *(Attachment # 1)*

17. **Plan** *(Attachment # 2a through i)*

- ☒ *a* **Project Title sheet**
- ☒ *b* **Project Overview sheet showing railroad** *(if available)*
- ☒ *c* **Typical Section sheet(s) near crossing** *(existing and proposed)*
- ☒ *d* **Railroad Crossing Detail**
- ☒ *e* **Roadway Plan & Profile sheet(s)**
- ☐ **Railroad Plan & Profile sheet(s)**
- ☐ **Detour Plan sheet(s)** *(required if RR crossing surface replacement is part of the project)*
- ☒ *f* **Traffic Control Plan and/or Staging Plan sheet(s) near the railroad** *(if applicable)*
- ☒ *g* **Plans for highway appurtenances** *(Storm sewer, culverts, lighting, traffic signals, ITS, etc.)*
- ☒ *h* **Cross Sections**
- ☐ **Plan view w/existing & proposed corner and quadrant vision triangles** *(if applicable)*
- ☒ *i* **Right-of-Way Plat** *(draft or final) (if railroad property needed)*
- ☒ *j* **Book of Roads – Brookfield Township**
- ☒ *k* **Railroad Track Map**

18. **Crash History and Reports** *(Attachment # 3)*
19. **Additional Attachments**
    - *4 - Railroad Crossing Drainage Exhibit*
    - *5 - Waukesha County, Wisconsin Flood Insurance Rate Maps (FIRM) 55133C0209G (West) and 55133C0228G (East)*
    - *6 - Calhoun Road DSR Section 4.3 at Railroad Crossings, Vertical Curve Features Beyond FDM Thresholds*
    - *7 - Crossing Inventory*

Attachment 1

Railroad Crossing Report, Form DT1589

RAILROAD CROSSING REPORT

Wisconsin Department of Transportation

DT1589 4/2011 (Replaces ED705)

1. Railroad Project ID 2783-05-50 / 2783-05-51	2, Operating Railroad Canadian Pacific (SOO Line)
3. Companion Construction Project ID 2783-05-70	4. Companion Hwy Constr. Letting Date December 2020 / 5. Engineering ID 2783-05-00
6. Road Name Calhoun Road	7. Official DOT/AAR Crossing Number 390520H (North X-ing)
8. Highway Number/Town Road/Street Name Calhoun Road	9. Railroad Subdivision and Milepost Watertown Sub/ MP 0098.380
10. County Waukesha	11. Town/City/Village of City of Brookfield

Attach sketch of crossing including track centers, approach grades and obstructions to view of approaching trains.

EXISTING DEVICES AT CROSSING

Provide information for both approaches	Northbound/Eastbound		Southbound/Westbound		Comments
	YES	NO	YES	NO	
12. Stop Signs	☐	☒	☐	☒	
13. Cross Bucks	☒	☐	☒	☐	Reflective
14. Wig Wag Signals	☐	☒	☐	☒	
15. Flashing Light Signals	☒	☐	☒	☐	☐ 8" ☒ 12" ☐ INC ☒LED
16. Cantilever Signals	☐	☒	☐	☒	☐ 8" ☐ 12" ☐ INC ☐LED
17. Gates	☒	☐	☒	☐	
18. Crossing Illuminated	☐	☒	☐	☒	
19. Flagging	☐	☒	☐	☒	
20. Bell	☐	☐	☒	☐	☐ M ☒ E
21. Sidelights	☐	☒	☐	☒	
22. Stop Bar	☒	☐	☒	☒	Distance From Crossing 18'/17'
23. Public Road Intersection	☐	☒	☐	☒	
24. Humped Crossing Sign	☐	☒	☐	☒	
25. Railroad Advance Warning Signs	☒	☐	☒	☐	218' NB / 307' SB
26. RXR Pavement Markings	☐	☒	☒	☐	268' NB / NA SB
27. Advisory Speed Signs	☐	☒	☐	☒	

OTHER CROSSING INFORMATION

28. Total No. of Tracks	29. No. of Main Line Tracks	30. No. of Other Tracks	31. Angle of Crossing	
1	1	0	(84) LHF	( ) RHF

32. Total No. of Lanes	33. No. of Through Lanes	34. No. of Parking Lanes	35. No. Exclusive Use Lanes	36. No. Sidewalks	37. Sidewalk Width	38. Pavement Width	39. Curb	40. Roadway Width
2	2	0	2	0	NA	34'	☐ Y ☒ N	34'

41. Crossing Surface Type	42. Length of Existing Crossing	43. Crossing Surface Condition
Concrete Panels	44'	Poor condition / panels are worn and chipped. Flange panel on south side in north bound drive lane broken into two pieces with multiple pieces missing.

Average Daily	6 a.m.-6p.m. Number	6p.m.-6a.m. Number	Timetable Speed	Maximum Typical Train Speed		ADT	50. Year
44. Passenger Trains	1	1	65 MPH	10-65 MPH	47. Highway ADT (present)	16,400	(2017)
45. Freight Trains	10	10	65 MPH	10-65 MPH	48. Highway ADT (design)	18,900	(2041)
46. Switching Moves	0	0	NA MPH	NA MPH	49. Posted Speed Limit	35	

SIGHT DISTANCES

Stopping Sight Distances

Distances at which crossing warning devices first visible (WDV) [1] and vehicle stopping distances (VSD) from crossing based on speed [2]

51. Approach	52. WDV	53. VSD
North (4)	>1,000'	292
South (5)	>1,000'	287

Quadrant Sight Distances

View of trains from stopping distance

54. Quadrant	Sight Distance [3]	
	55. Actual	56. Req'd
Northeast (1)	<75'	672
Northwest (1)	<35'	672
Southwest (1)	<75'	680
Southeast (1)	<50'	680

Clearing Sight Distances

View of trains at 25 ft from nearest rail

57. Quadrant	Sight Distance [4]	
	58. Actual	59. Req'd
Northeast (2)	500'	
Northwest	1,000'	
Southwest (3)	400'	
Southeast	1,000'	

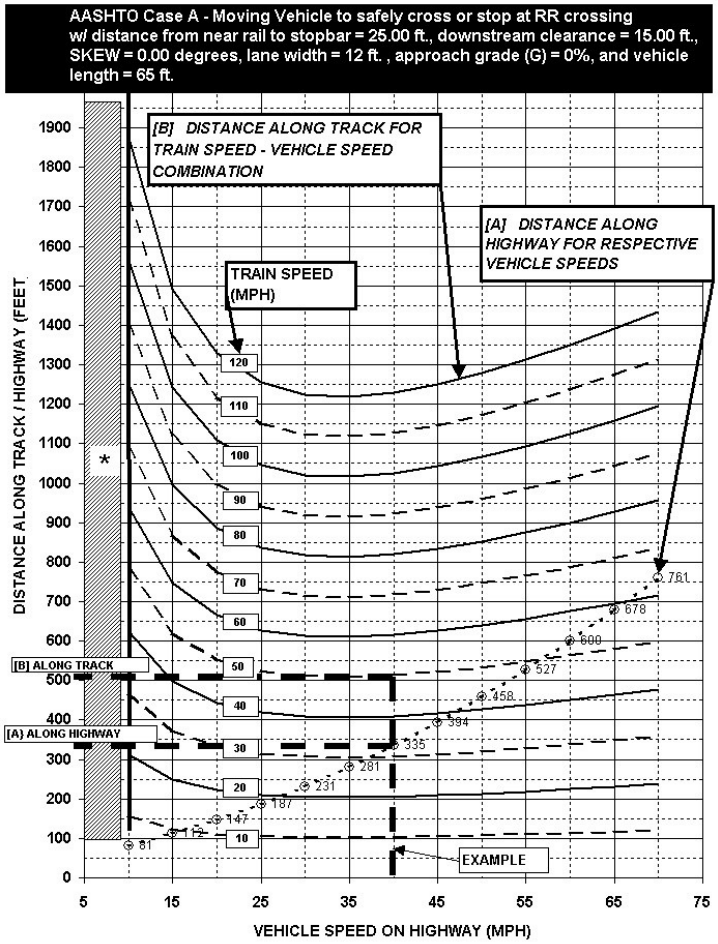
60. Obstructions, Comments

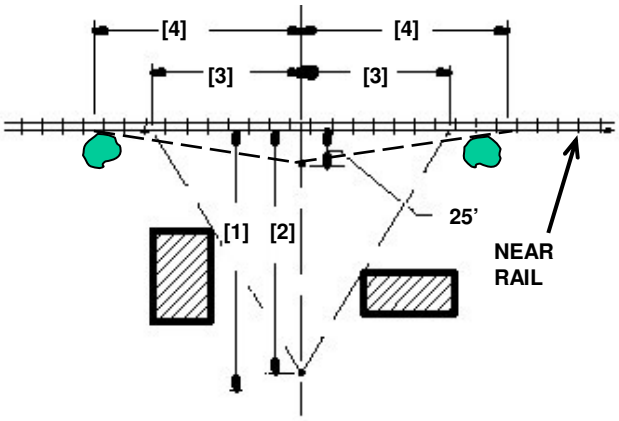
(1) Heavy thick vegetation, ground surface, and building structures obstruct views
(2) Signal house obstructs view
(3) Vegetation/Trees obstruct view
(4) Approaching grade approximately -3.00%
(5) Approaching grade approximately -1.50%

61. Diagram (Label Quadrants)

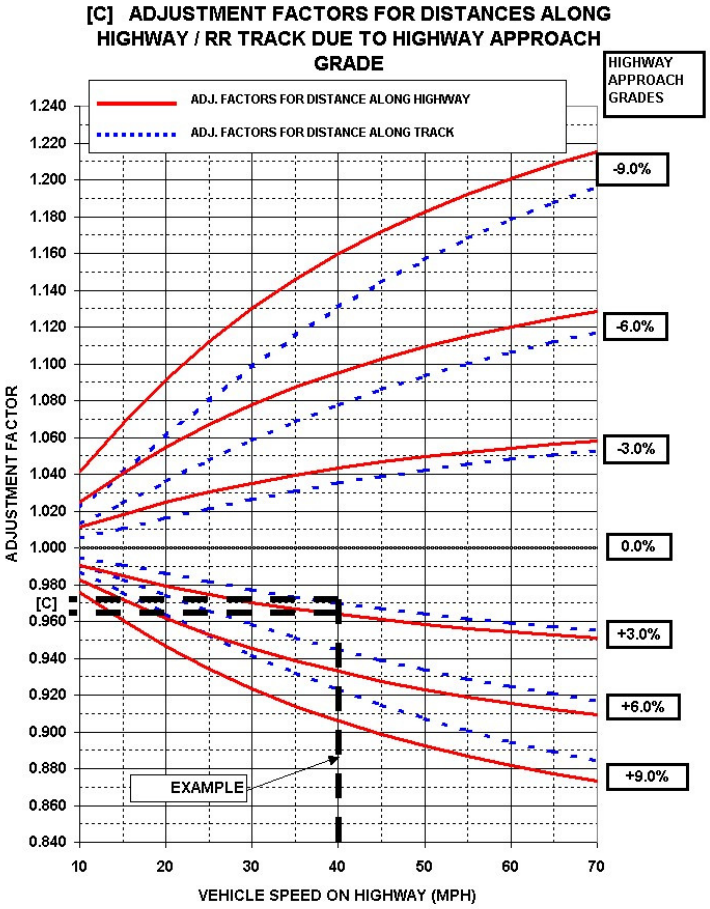
++++++++++++++++++ ▪ ++++++++++++++++++

62. By	63. Title	64. Date
Jeffrey P. Francis	Principal, TerraTec Engineering	3/24/2017





[1] see item 52
[2] see item 53
[3] see items 55 and 56
[4] see items 58 and 59
ILLUSTRATION FOR ONE APPROACH



Applies to right-angle single track crossings with vehicle speeds between 10 and 70 mph and train speeds between 10 and 120 mph. **Crossings that do not meet these criteria require special consideration.**

See:

•AASHTO (2001). A Policy On Geometric Design Of Highways And Streets. 4th edition. Pages 735-743. Washington, DC.

•FHWA publication "Guidance on Traffic Control Devices at Highway-Rail Grade Crossings" for guidance on calculating clearing sight distance.

**** Crossings with a stop condition or where vehicle speeds are less than 10 mph are to be reviewed with the Grade Crossing Safety Engineer.***

EXAMPLE

To evaluate an existing condition to determine if visual contact with a train is adequate to safely decide whether to STOP or PROCEED.

Given a 40 mph Posted Highway Speed on a 3% upgrade with an approaching 50 mph Train requires:

[A] 335' Distance Along The Highway

[B] 513' Distance Along The Track

[C] Apply Grade Adjustment Factors to both distances:

•Adjusted Distance Along The Highway = 335 x 0.965 = 323' (required [2] – see item 53)

•Adjusted Distance Along The Track = 513 x 0.97 = 498' (required [3] – see item 56)

Figure 1

INSTRUCTIONS

5. Enter the ID number the government agencies (DOT, local) are using for surveys, plans, etc. (preliminary engineering).

12. – 20. Under each of the two approaches, indicate if the item exists. Under the "Comment" column, enter any pertinent information such as "too low," "poor condition," etc.

13. Also include reflectorization information.

15. – 16. Also check off the lamp size and whether the lamps are incandescent (INC) or light emitting diodes (LED).

18. Also, under the "Comment" column, enter the distance from the crossing. NOTE: Crossing Illumination should be within 150 feet of the crossing before being included.

19. Also record "yes" in the approach where the flagger is normally located. Flaggers may select a favored approach due to geometrics or obstructions.

20. Also record whether bell is mechanical (M) or electronic (E).

21. – 27. Under each of the approaches, indicate if the item exists and at what distance it is located from the crossing. Measure the distance along the roadway from the near side of the near rail to the closest point of the item to the crossing.

22. NOTE: Record intersection(s) entering within the vehicle safe stopping distance (as shown on Figure 1 of the nomograph), and describe the intersection traffic control under 63.

27. Also enter the posted advisory speed.

28. Enter the total number of tracks located between the Railroad Crossing Warning Devices.

31. Enter the most severe track angle in the crossing and check the appropriate box for left-hand-forward (LHF) or right-hand-forward (RHF). "Angle" is measured between the roadway centerline and the track centerline in the quadrant common to both. Boxes would be blank for a 90-degree crossing angle.

32. Enter the total number of paved lanes (driving, parking, bypass, etc.) through the crossing.

33. Enter the number of "through" driving lanes.

34. Enter the number of lanes available for parking (either marked or unmarked) through the crossing.

35. Enter the number of "exclusive use" lanes pullout (bypass, stopping, etc.) through the crossing.

36. Enter the number of sidewalks.

37. Enter the width and location of sidewalk(s) - distance from edge of pavement or face of curb to the inside edge of each sidewalk.

38. Enter the total pavement width between edges of pavement or between faces of curbs. Measure perpendicular to the roadway centerline.

39. Indicate if curb and gutter are constructed on the crossing approaches by checking the (Y) box "yes" or the (N) box "no."

40. Enter the total roadway width, between outside shoulder points, backs of curbs, or outside edges of sidewalks. Measure perpendicular to the roadway centerline.

41. Enter <u>crossing</u> surface type (rubber, concrete, flange and guard timber, etc.).

42. Enter the total length of crossing (width of roadway as defined in 38 as measured along the <u>track</u> centerline).

43. Record the assessment of the crossing surface condition (material not covering total roadway, timbers failing, etc.).

44. – 46. Record the number of scheduled trains between the indicated hours, and record the timetable speed for each type or train. Obtain the information from the operating railroad.

51. Enter the crossing approach.

52. Enter the actual distance from the crossing at which the crossing warning devices are first visible.

53. Enter the required vehicle safe stopping distance, refer to discussion in Figure 1.

54. Enter the quadrant.

55. Enter the actual sight distance available at the vehicle safe stopping distance. Record obstructions in 60.

56. Enter the required sight distance, refer to discussion in Figure 1.

57. Enter the quadrant at a distance 25 feet from the crossing.

58. Enter the actual sight distance at a distance of 25 feet from the crossing.

59. To be calculated after review with Grade Crossing Safety Engineer, only if necessary to evaluate required clearing sight distance [4].

60. Indicate obstructions and any comments for each quadrant.

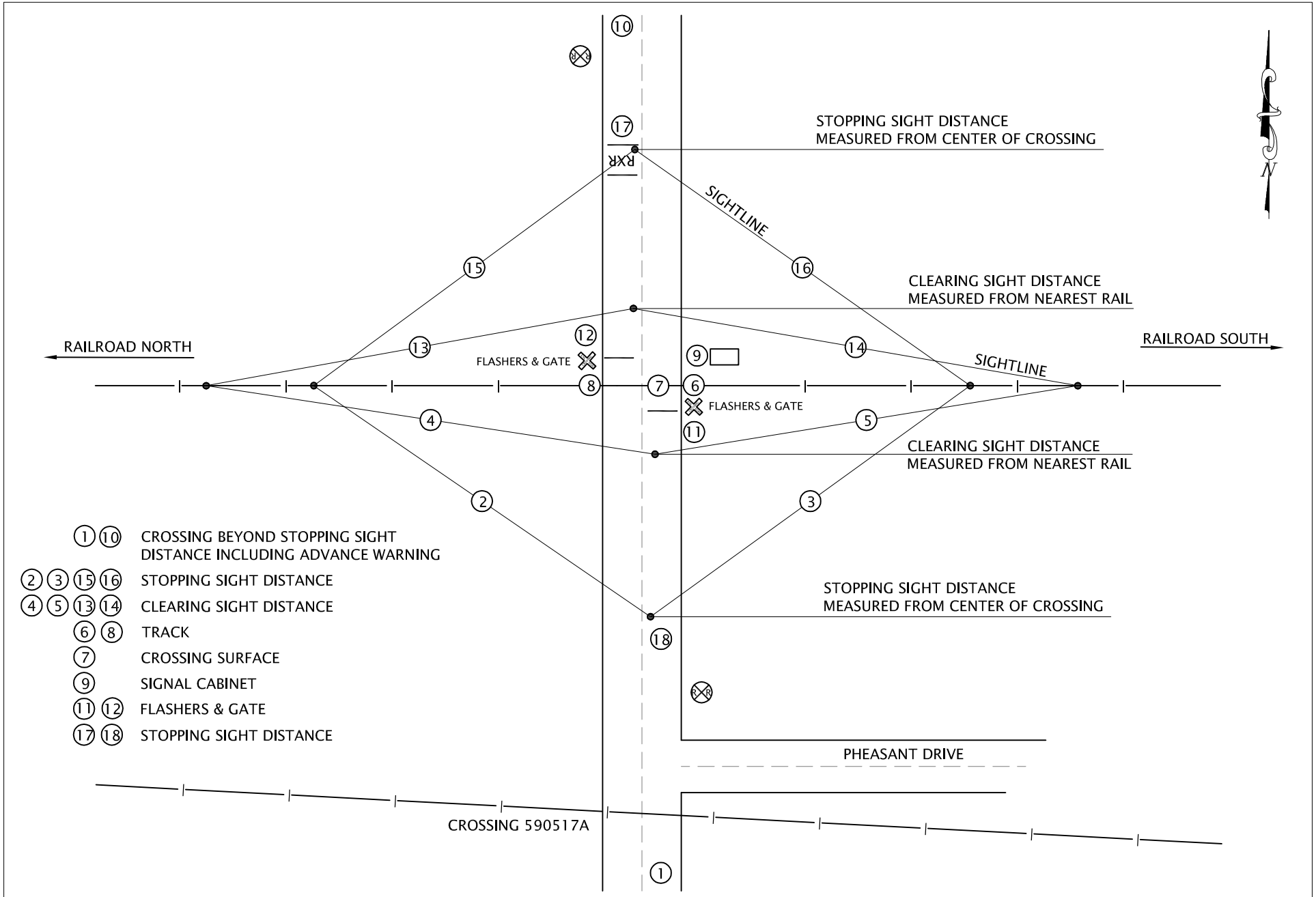
61. Show the roadway centerline, and label the crossing angle, the quadrants, and the north arrow.

62. Identify the person to be contacted for additional information or clarification.

63. Record the contact person's title.

64. Enter the date the information was obtained.

NOTE: Train information must be secured from the operating railroad.



DESIGNED BY LKJ	DATE 3/31/2017
DRAWN BY LKJ	PROJECT 1703002
APPROVED BY JPF	SHEET NO. 1
CADFILE 17-03 CALHOUN 01 XREF LMAN	

RAIL CROSSING INFORMATION SUMMARY

CROSSING 390520H

CALHOUN ROAD & CANADIAN PACIFIC (SOO LINE)
BROOKFIELD, WISCONSIN

TERRATEC ENGINEERING, LLC.
W67 N222 EVERGREEN BLVD., STE. 205
CEDARBURG, WI 53012
Tel.: 262.377.9905 - Fax: 262.375.1958

Photograph 1 Crossing beyond Stopping Sight Distance at 1,000 feet from crossing (Facing North)
Date: March 24, 2017

Photograph 2 Southwest Quadrant Crossing at Stopping Sight Distance (Facing Northwest)
Date: March 24, 2017

Photograph 3 Southeast Quadrant Crossing at Stopping Sight Distance (Facing Northeast)
Date: March 24, 2017

Photograph 4 Southwest Quadrant Crossing at Clearing Sight Distance (Facing West)
Date: March 24, 2017

Photograph 5 Southeast Quadrant Crossing at Clearing Sight Distance (Facing East)
Date: March 24, 2017

Photograph 6 Track (Facing East)
Date: March 24, 2017

Photograph 7 Crossing Surface (Facing North)
Date: March 24, 2017

Photograph 8 Track (Facing West)
Date: March 24, 2017

Photograph 9 Signal Cabinet (Facing East)
Date: March 24, 2017

Photograph 10 Crossing beyond Stopping Sight Distance at 700 feet from crossing (Facing South)
Date: March 24, 2017

Photograph 11 Flashers & Gate (Facing North)
Date: March 24, 2017

Photograph 12 Flashers & Gate (Facing South)
Date: March 24, 2017

Photograph 13 Northwest Quadrant Crossing at Clearing Sight Distance (Facing West)
Date: March 24, 2017

Photograph 14 Northeast Quadrant Crossing at Clearing Sight Distance (Facing East)
Date: March 24, 2017

Photograph 15 Northwest Quadrant Crossing at Stopping Sight Distance (Facing Southwest)
Date: March 24, 2017

Photograph 16 Northeast Quadrant Crossing at Stopping Sight Distance (Facing Southeast)
Date: March 24, 2017

Photograph 17 Crossing at Stopping Sight Distance at 281 feet from crossing (Facing South)
Date: March 24, 2017

Photograph 18 Crossing at Stopping Sight Distance at 281 feet from crossing (Facing North)
Date: March 24, 2017

Attachment 2a through i

Roadway Plans

2a

PROJECT ID: 2783-05-70
WITH: N/A

COUNTY: WAUKESHA

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2783-05-70		

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CALHOUN ROAD

CTH M TO STH 190

LOCAL STREET
WAUKESHA COUNTY

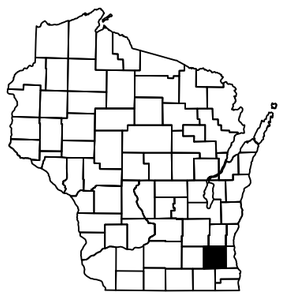
STATE PROJECT NUMBER
2783-05-70

60% PLAN SUBMITTAL
NOVEMBER 15, 2018

PRELIMINARY STRUCTURE PLANS NOT INCLUDED

ORDER OF SHEETS

TOTAL SHEETS =



N

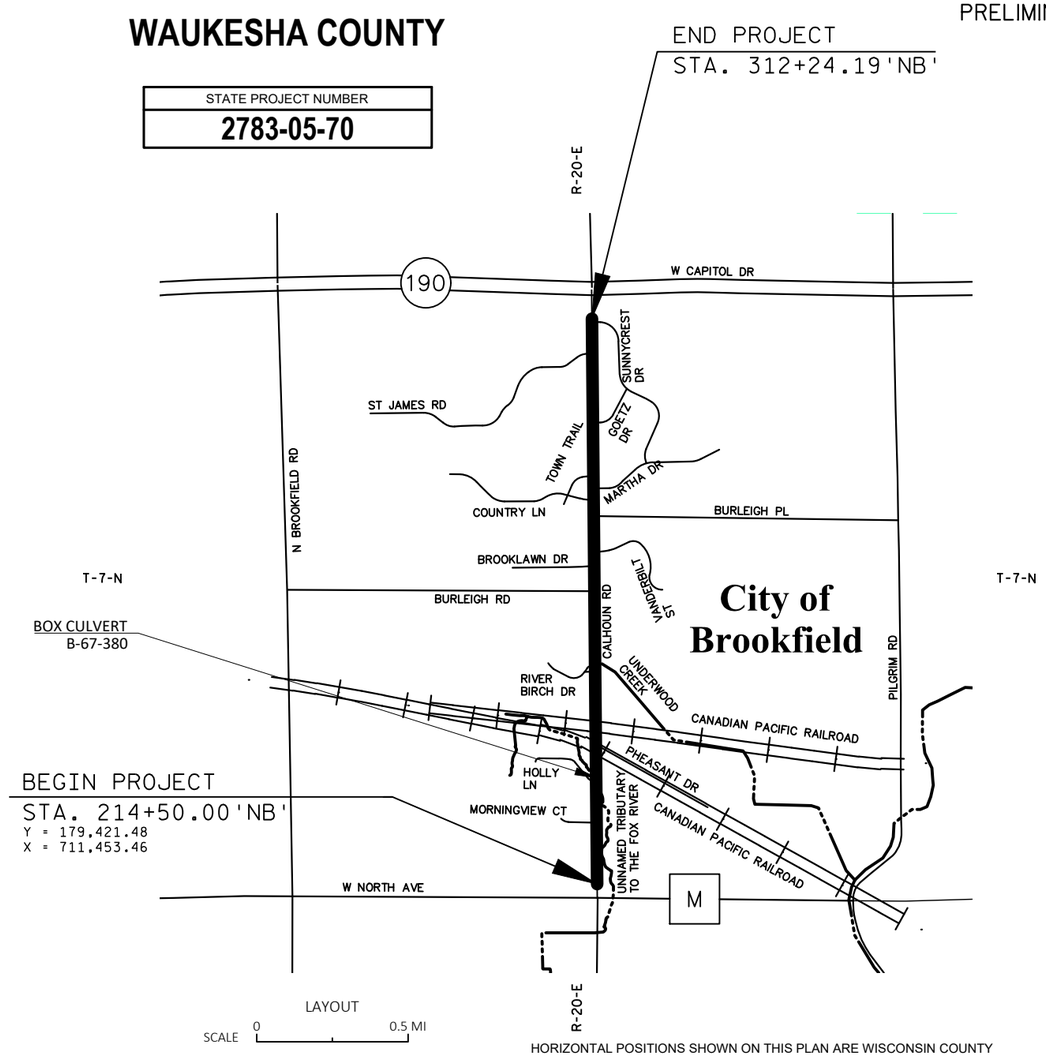
DESIGN DESIGNATION

A.A.D.T.	2021	=	16,900
A.A.D.T.	2041	=	18,900
D.H.V.	2041	=	1,750
D.D.		=	59/41
T.		=	3.8
DESIGN SPEED		=	40 MPH
ESALS		=	1,100,000

CONVENTIONAL SYMBOLS

COUNTY LINE
CORPORATE LIMITS
PROPERTY LINE
LIMITED EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE
FENCE
GUARD RAIL
SLOPE INTERCEPT
ORIGINAL GROUND
MARSH OR ROCK PROFILE (To be noted as such) — ROCK
MARSH AREA
WOODED OR SHRUB AREA
STREAM OR WATER EDGE
BUSH
PINE TREE (SIZE)
TREE (SIZE)
TRAFFIC SIGNAL CONTROL CABINET
TRAFFIC SIGNAL
TRAFFIC SIGNAL MAST–ARM
TRAFFIC SIGNAL WITH LIGHT
EXISTING PULL BOX
BOLLARD

COMBUSTIBLE FLUIDS — CAUTION
UNDERGROUND UTILITIES
GAS — (SIZE) G
SANITARY SEWER — (SIZE) SAN
STORM SEWER — (SIZE) SS
WATER — (SIZE) W
ELECTRIC — E
TELEPHONE — T
FIBER OPTIC — FO
CABLE TELEVISION — TV
FORCE MAIN — FM
MANHOLE — MH
UTILITY PEDESTAL
FIBER OPTIC HAND HOLE — HH
POWER POLE
TELEPHONE POLE
RAILROAD
HYDRANT
LIGHT POLE
RAILROAD SIGNAL
SIGN
TRANSMISSION TOWER
VALVE — (TYPE)
CURB STOP — CS
EXISTING CULVERT — (SIZE, TYPE)
PROPOSED CULVERT (Box or Pipe)



LAYOUT

SCALE 0 0.5 MI

TOTAL NET LENGTH OF CENTERLINE = 1.851 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL ELEVATIONS ON THIS PLAN ARE REFERENCE TO NAVD 88 (2012) IN US SURVEY FEET.

ACCEPTED FOR

CITY of BROOKFIELD

(Printed Name) (Signature)

(Date) (Title of Official)

ORIGINAL PLANS PREPARED BY

raSmith
CREATIVITY BEYOND ENGINEERING
rasmith.com

(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

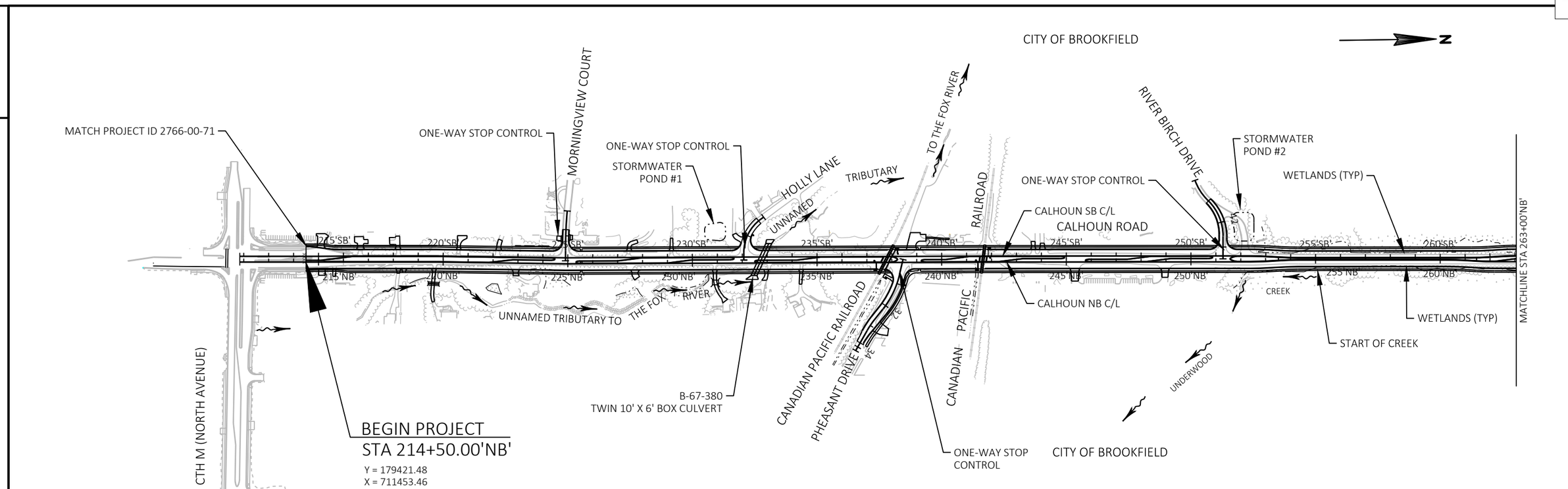
Surveyor	raSmith (NAV)
Designer	raSmith (BES/DGW)
Project Manager	KATHLEEN KRAMER

APPROVED FOR THE DEPARTMENT

DATE: (Signature)

1 E

2



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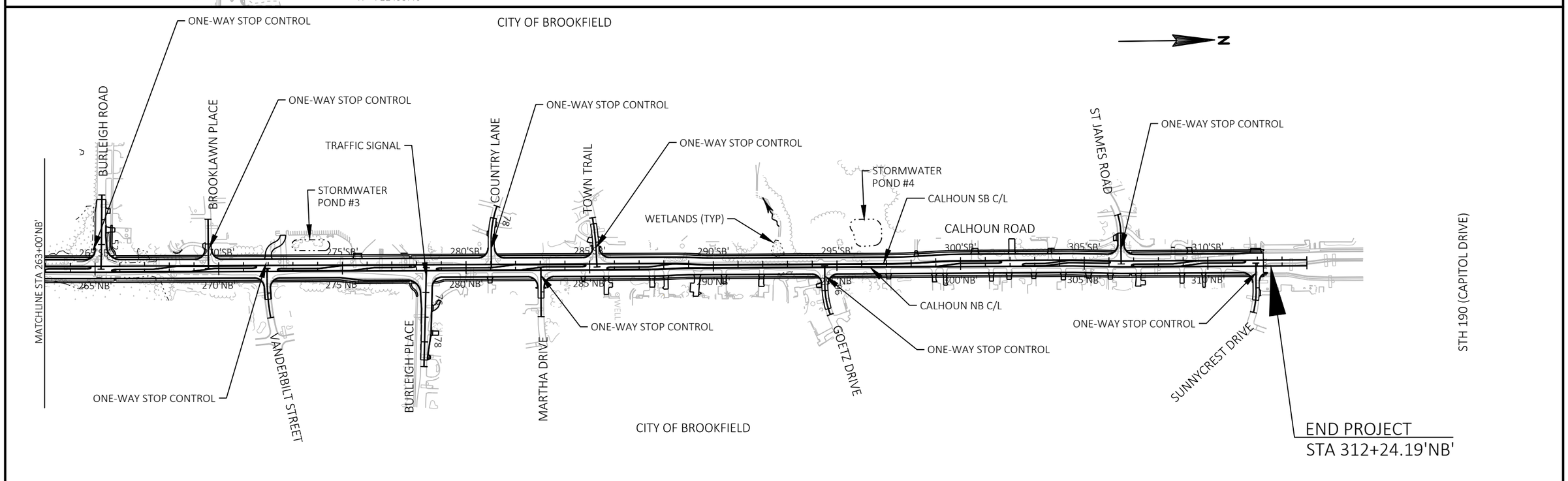
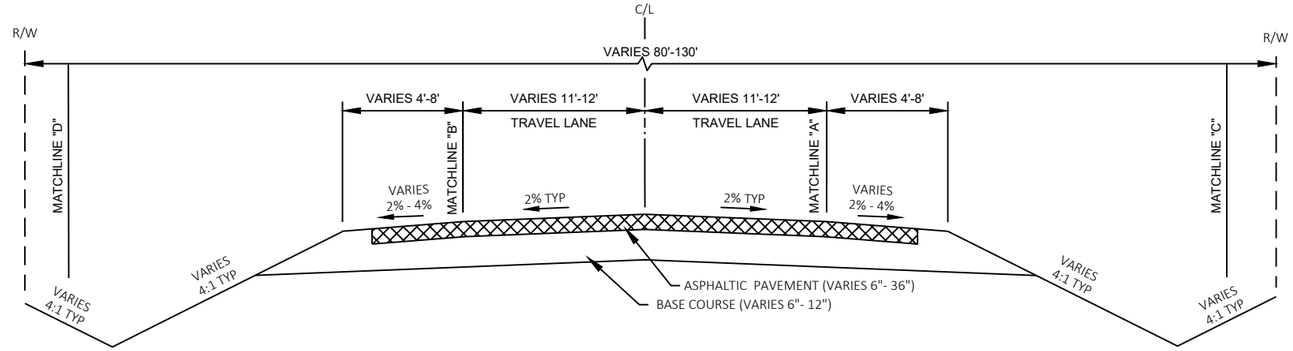
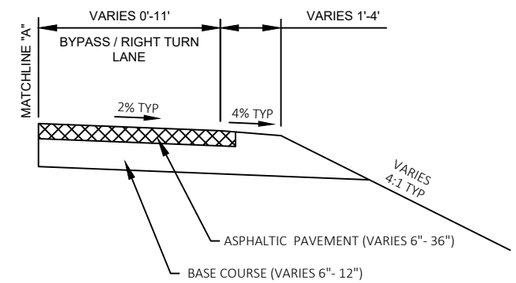


PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	PROJECT OVERVIEW	SCALE, FEET 0 200 400	SHEET 4	E

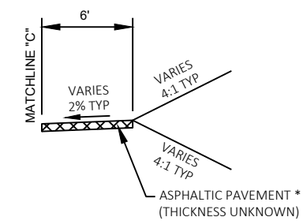


TYPICAL EXISTING SECTION
CALHOUN ROAD
STA 214+50 - STA 312+24



BYPASS / RIGHT TURN LANE DETAIL

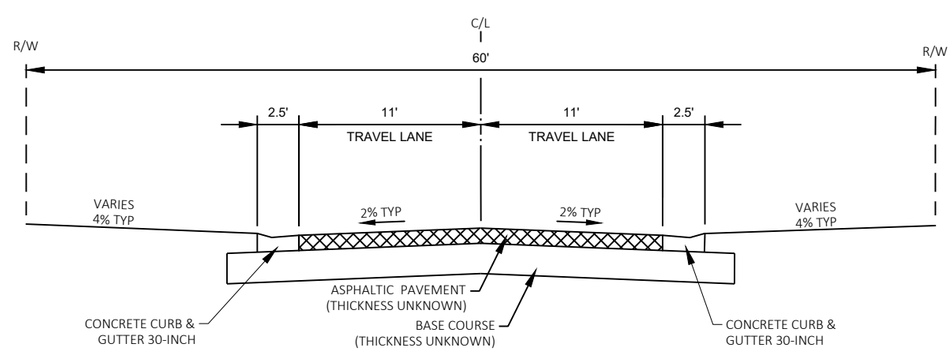
MATCH LINE "B" IS A MIRROR IMAGE
STA 243+54 - STA 250+05 LT
STA 243+76 - STA 244+92 RT
STA 247+58 - STA 248+60 RT
STA 250+27 - STA 253+76 RT
STA 263+28 - STA 267+30 RT
STA 275+37 - STA 277+95 RT
STA 277+52 - STA 277+99 LT



SIDEWALK DETAIL

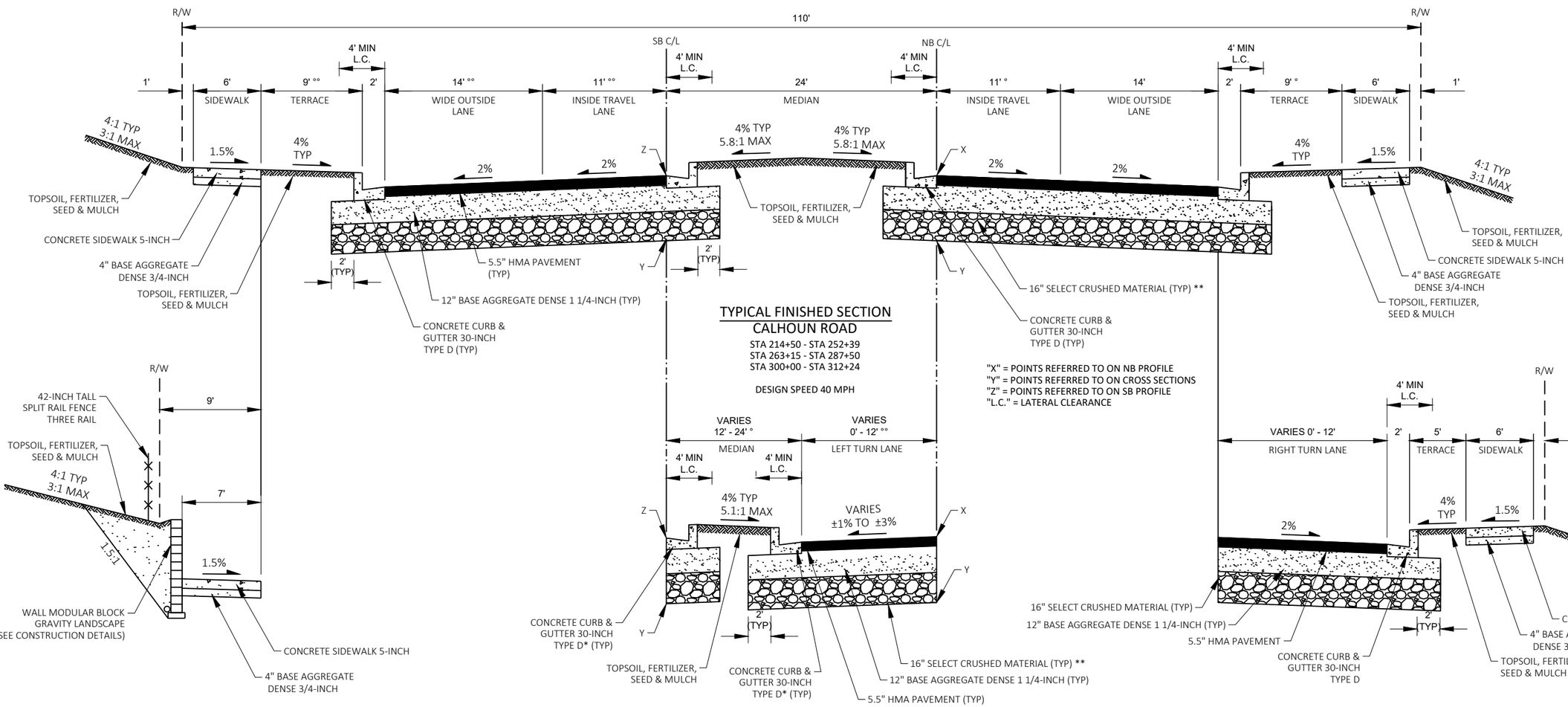
MATCH LINE "D" IS A MIRROR IMAGE
STA 242+38 - STA 250+97 RT
STA 267+96 - STA 278+01 RT
STA 306+68 - STA 311+10 LT
STA 311+10 - STA 312+54 LT

*CONCRETE SIDEWALK FROM
STA 311+10 - STA 312+54 LT



TYPICAL EXISTING SECTION
SIDE ROADS
MORNINGVIEW COURT
VANDERBILT STREET
ST JAMES ROAD

PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	TYPICAL EXISTING SECTIONS	SHEET 5	E



TYPICAL FINISHED SECTION
CALHOUN ROAD

STA 214+50 - STA 252+39
STA 263+15 - STA 287+50
STA 300+00 - STA 312+24

DESIGN SPEED 40 MPH

"X" = POINTS REFERRED TO ON NB PROFILE
"Y" = POINTS REFERRED TO ON CROSS SECTIONS
"Z" = POINTS REFERRED TO ON SB PROFILE
"L.C." = LATERAL CLEARANCE

RETAINING WALL DETAIL

STA 222+87.5'SB' - STA 224+25'SB'

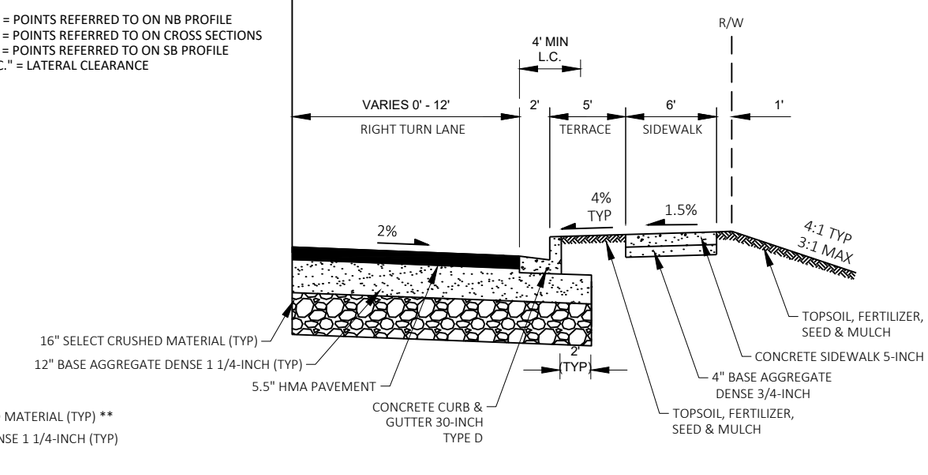
LEFT TURN LANE DETAIL

SOUTHBOUND LEFT TURN LANES
ARE A MIRROR IMAGE

STA 214+50'SB' - STA 216+36'SB'
STA 224+30'SB' - STA 227+97'SB'
STA 231+48'SB' - STA 235+14'SB'
STA 238+00'SB' - STA 241+11'SB'
Δ STA 244+75'SB' - STA 248+47'SB'
STA 250+69'SB' - STA 251+89'SB'
STA 264+65'SB' - STA 268+31'SB'
STA 271+35'SB' - STA 275+01'SB'
STA 277+78'SB' - STA 281+98'SB'
STA 284+66'SB' - STA 288+33'SB'
STA 301+48'SB' - STA 304+37'SB'
STA 305+88'SB' - STA 309+55'SB'
STA 311+34'SB' - STA 312+24'SB'

STA 221+84'NB' - STA 225+51'NB'
STA 229+02'NB' - STA 232+68'NB'
Δ STA 237+97'NB' - STA 239+36'NB'
STA 242+29'NB' - STA 245+95'NB'
STA 248+23'NB' - STA 251+89'NB'
STA 262+19'NB' - STA 265+86'NB'
STA 268+89'NB' - STA 272+55'NB'
STA 275+32'NB' - STA 278+98'NB'
STA 282+21'NB' - STA 285+87'NB'
STA 299+02'NB' - STA 302+68'NB'
STA 303+42'NB' - STA 307+09'NB'
STA 308+88'NB' - STA 312+24'NB'

Δ MEDIAN OPENING ONLY. NO LEFT TURN LANE.



RIGHT TURN LANE DETAIL

SOUTHBOUND RIGHT TURN LANES
ARE A MIRROR IMAGE

STA 214+50'SB' - STA 215+62'SB'
STA 274+90'NB' - STA 277+61'NB'

° NB WIDTHS VARY AS FOLLOWS:

INSIDE TRAVEL LANE
STA 214+50'NB' - 215+00'NB', VARIES 12' TO 11'
STA 311+75'NB' - 312+24'NB', VARIES 11' TO 12'

MEDIAN
STA 214+50'NB' - STA 215+41'NB', VARIES 8' TO 12'

TERRACE
STA 215+69'NB' - STA 216+18'NB', VARIES 4' TO 9'

° ° SB WIDTHS VARY AS FOLLOWS:

INSIDE TRAVEL LANE
STA 215+08'SB' - STA 216+36'SB', VARIES 12' TO 11'
STA 311+06'SB' - STA 311+56'SB', VARIES 11' TO 12'
STA 311+56'SB' - STA 312+24'SB', 12'

WIDE OUTSIDE LANE
STA 311+06'SB' - STA 311+56'SB', VARIES 14' TO 16'
STA 311+56'SB' - STA 312+24'SB', 16'

TERRACE
STA 214+63'SB' - STA 215+63'SB', VARIES 3.5' TO 9'
STA 311+06'SB' - STA 311+56'SB', VARIES 9' TO 6'
STA 311+56'SB' - STA 312+24'SB', 6'

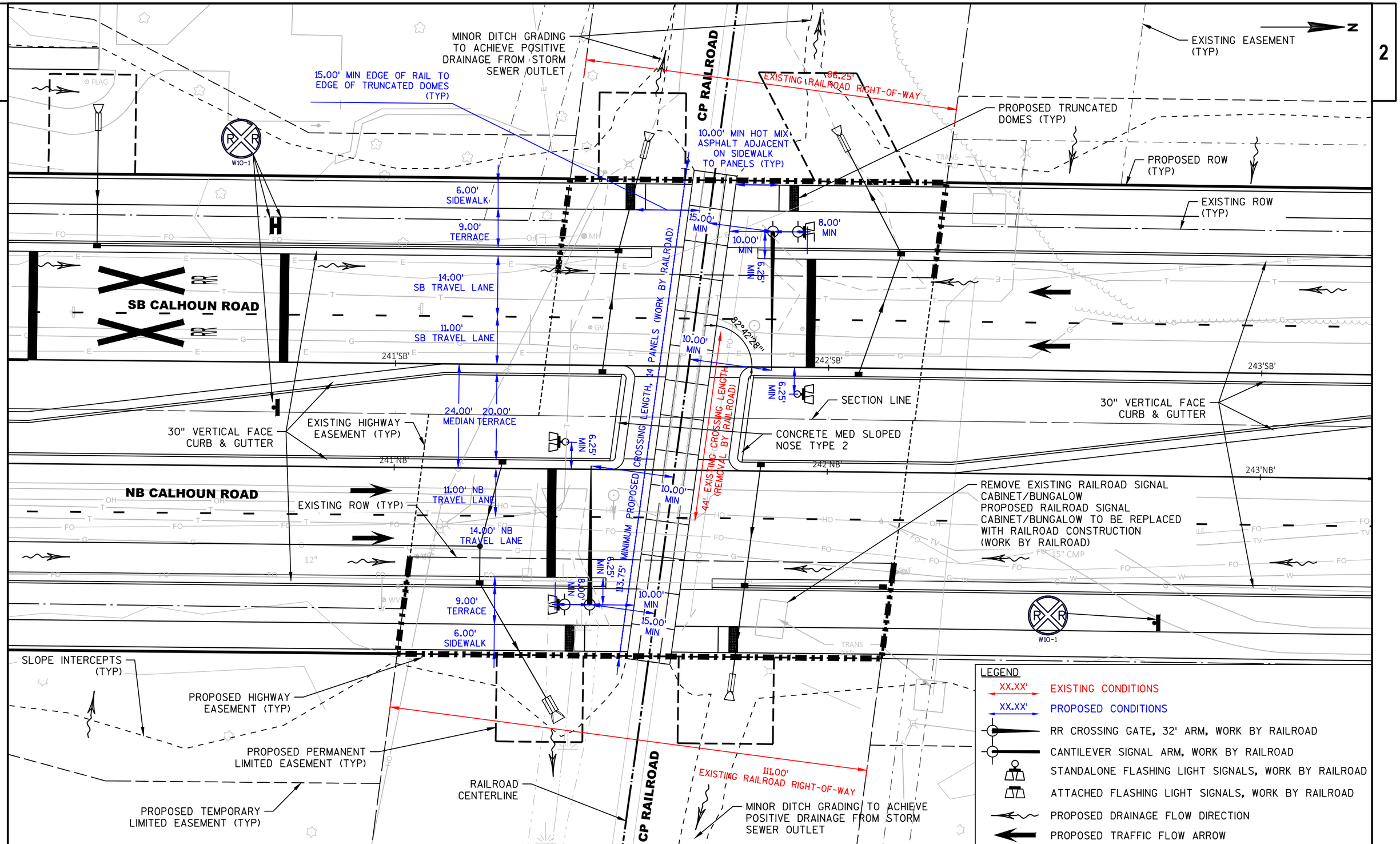
LEFT TURN LANE
STA 214+50'SB' - STA 216+36'SB', VARIES 0' TO 15'

* CONCRETE CURB & GUTTER 18-INCH TYPE D FROM
STA 214+50'NB' - 215+17'NB' AND
STA 214+50'SB' - 215+08'SB'

** NO SELECT CRUSHED MATERIAL LAYER FROM
STA 252+00 - STA 252+39 AND
STA 263+15 - STA 268+50
12" SELECT CRUSHED MATERIAL FROM
STA 300+00 - STA 312+24

HMA PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND MIXES:

THICKNESS	LAYERS	MIX SPECIFICATIONS
5.5-INCH	ONE 2.0" UPPER LAYER ONE 3.5" LOWER LAYER	4 LT 58-28 S 3 LT 58-28 S



PROJECT NO: 2783-05-00	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	RAILROAD CROSSING DETAIL - NORTH CROSSING - WISDOT CROSSING NO. 390520H	SHEET	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSOTHER\RR XING DETAIL - CPRR.DWG
LAYOUT NAME - North-390520H
PLOT DATE : 2/11/2019 8:11 AM
PLOT BY : SIEBERT, LUKE
PLOT NAME :
PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 42

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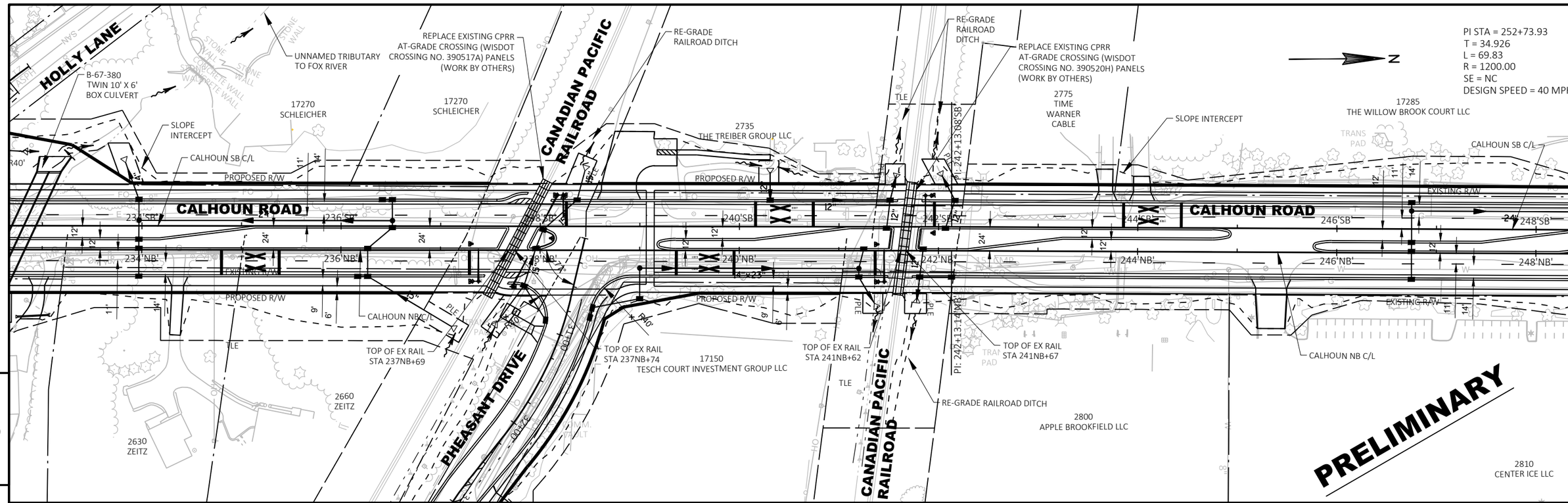
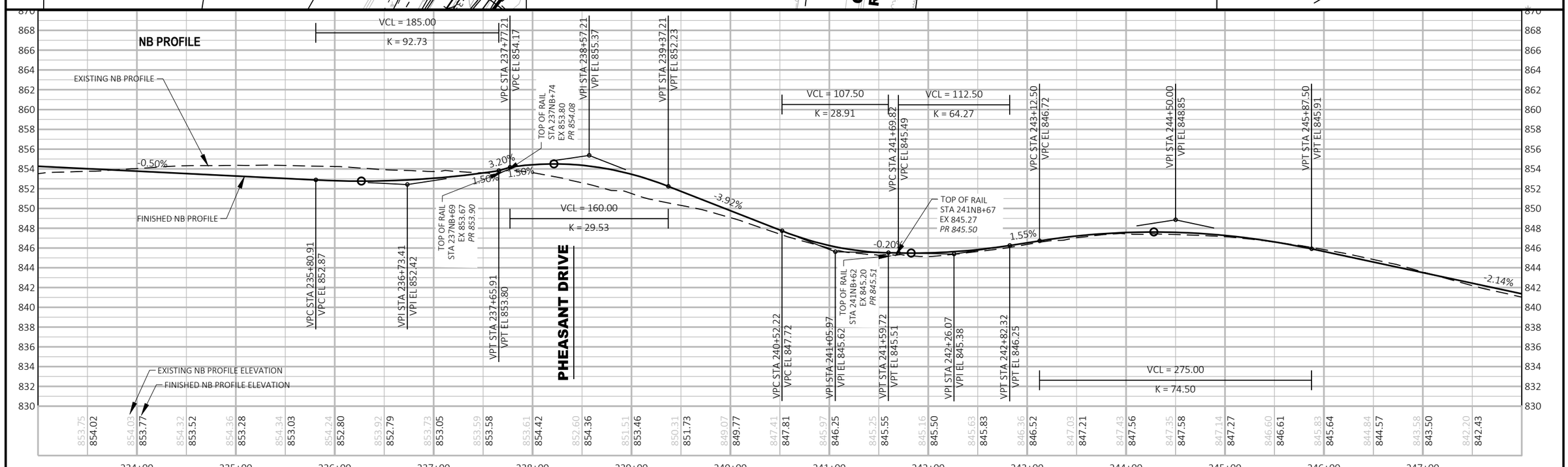




PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	PLAN AND PROFILE: CALHOUN ROAD - NORTHBOUND	SHEET	E

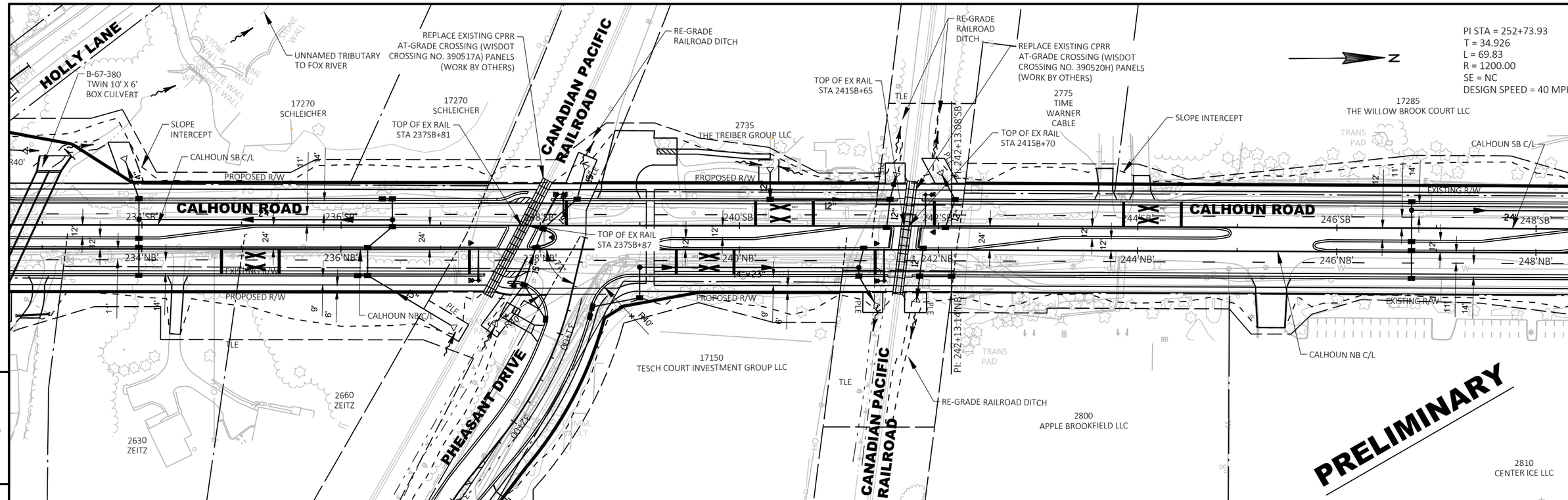
FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSOTHER\RR XING PLANPROF - CPRR.DWG
LAYOUT NAME - NB
PLOT DATE : 2/4/2019 1:23 PM
PLOT BY : SIEBERT, LUKE
PLOT NAME :
PLOT SCALE : ##########

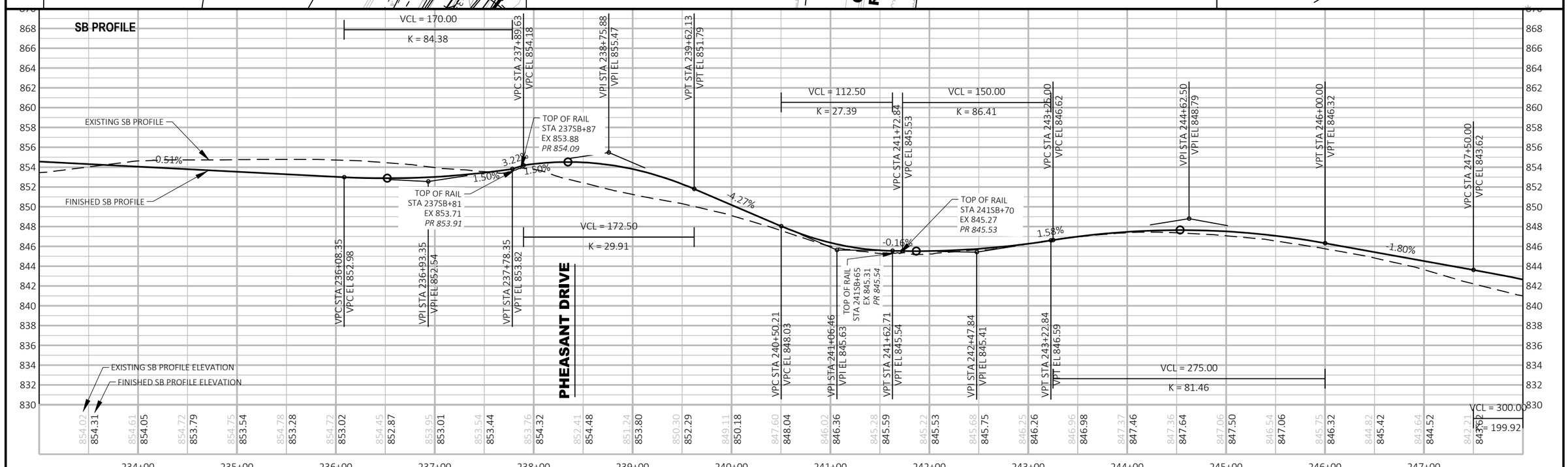
WISDOT/CADDS SHEET 44

5

5

K:\1172700\Civil3D\27830500\SheetsOther\RR Xing PlanProf - CPRR.dwg, NB, 2/4/2019 1:23:50 PM, Iss





PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	PLAN AND PROFILE: CALHOUN ROAD - SOUTHBOUND	SHEET	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSOTHER\RR XING PLANPROF - CPRR.DWG
LAYOUT NAME - SB
PLOT DATE : 2/4/2019 1:22 PM
PLOT BY : SIEBERT, LUKE
PLOT NAME :
PLOT SCALE : ##########
WISDOT/CADDS SHEET 44

5

5

K:\1172700\Civil3D\27830500\SheetsOther\RR Xing PlanProf - CPRR.dwg, SB, 2/4/2019 1:22:52 PM, Iss

2

CONSTRUCTION STAGING AND TRAFFIC CONTROL SUMMARY

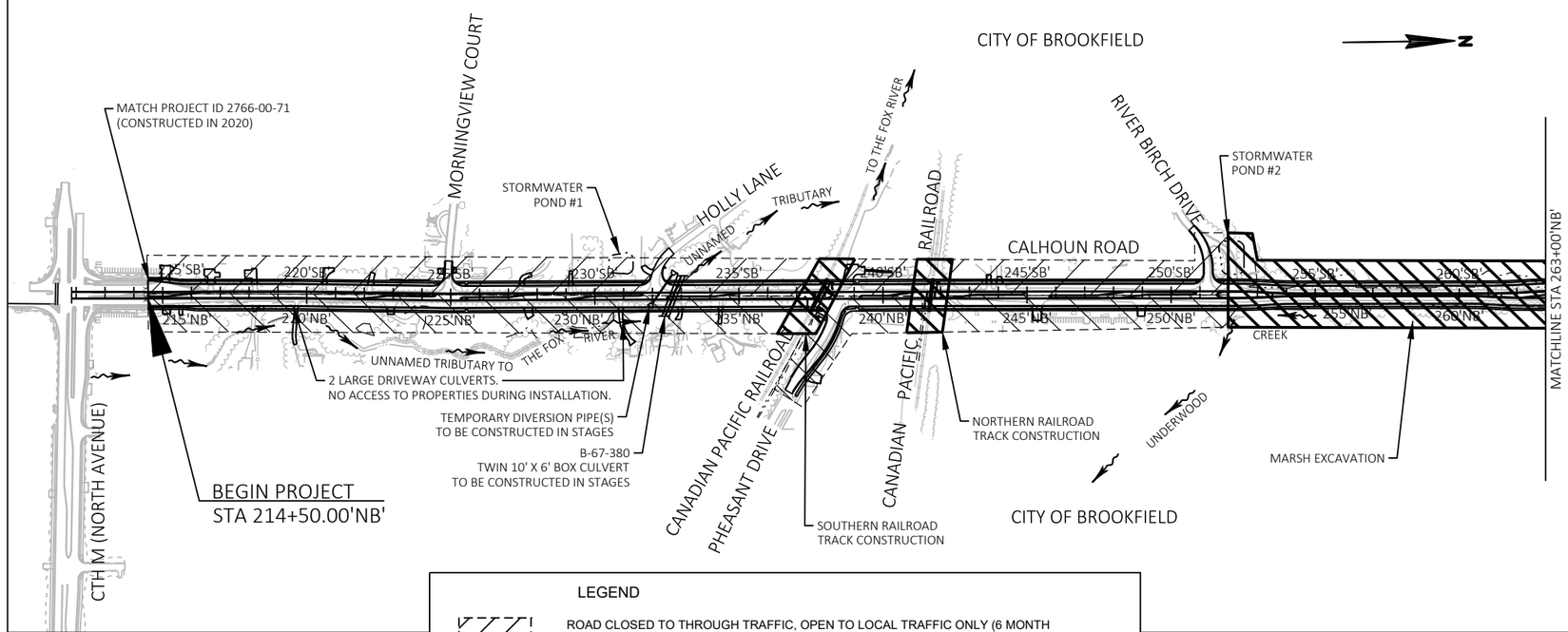
STAGE 1 (APRIL 2021 THROUGH MAY 2021)
- CLOSE CALHOUN ROAD TO THROUGH TRAFFIC FROM NORTH AVENUE TO CAPITOL DRIVE.
- CALHOUN ROAD SHALL REMAIN OPEN TO LOCAL ACCESS AND EMERGENCY SERVICES ONLY. AN ACCESS ROAD SHALL BE PROVIDED THROUGH THE ENTIRE PROJECT LIMITS. THE ACCESS ROAD SHALL HAVE A MINIMUM WIDTH OF 16' AND SHALL BE ON EXISTING PAVEMENT, COMPACTED BASE AGGREGATE/GRAVEL, FINAL PAVEMENT, OR ANY COMBINATION OF THOSE ITEMS.

STAGE 2 (JUNE 2021 THROUGH AUGUST 2021)
- CALHOUN ROAD REMAINS CLOSED TO THROUGH TRAFFIC FROM NORTH AVENUE TO CAPITOL DRIVE.
- THREE SEPARATE FULL ROADWAY CLOSURES REQUIRED TO COMPLETE THE FOLLOWING WORK ITEMS:
  - SOUTHERN RAILROAD TRACK CONSTRUCTION
  - NORTHERN RAILROAD TRACK CONSTRUCTION
  - MARSH EXCAVATION
- NO TWO FULL ROADWAY CLOSURES SHALL OCCUR AT THE SAME TIME.
- SB CALHOUN ROAD BETWEEN BURLEIGH ROAD AND BURLEIGH PLACE, INCLUDING SIDEROAD CONSTRUCTION MUST BE COMPLETED PRIOR TO THE START OF THE 2021/2022 SCHOOL YEAR.
- LOCAL AND EMERGENCY SERVICES ACCESS SHALL STILL BE PROVIDED AT ALL TIMES OUTSIDE OF THE LIMITS OF THE FULL ROADWAY CLOSURES, VIA A TEMPORARY ACCESS ROAD AS DEPICTED IN STAGE 1.

STAGE 3 (SEPTEMBER 2021)
- NEWLY CONSTRUCTED SOUTHBOUND LANES SHALL BE OPENED TO BI-DIRECTIONAL TRAFFIC (1 LANE IN EACH DIRECTION) BETWEEN BURLEIGH ROAD AND BURLEIGH PLACE. THE REMAINDER OF CALHOUN ROAD REMAINS CLOSED TO THROUGH TRAFFIC FROM NORTH AVENUE TO CAPITOL DRIVE.
- CALHOUN ROAD SHALL REMAIN OPEN TO LOCAL ACCESS AND EMERGENCY SERVICES ONLY. AN ACCESS ROAD SHALL BE PROVIDED THROUGH THE ENTIRE PROJECT LIMITS AS DEPICTED IN STAGE 1.

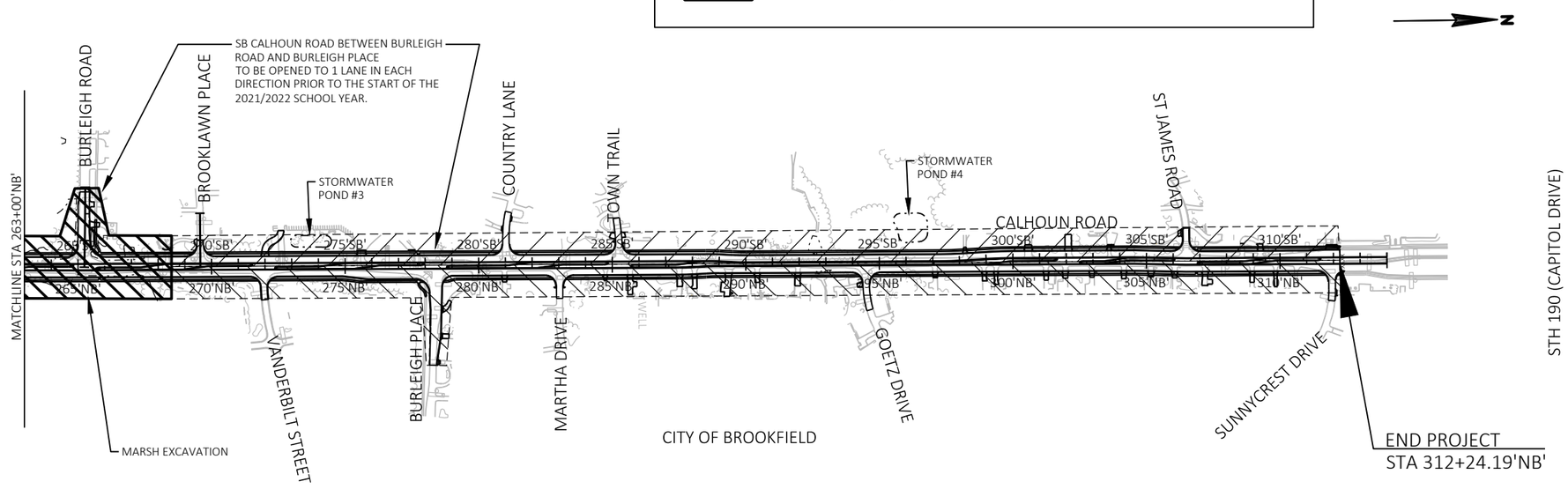
STAGE 4 (OCTOBER 2021 THROUGH NOVEMBER 2021)
- NEWLY CONSTRUCTED SOUTHBOUND LANES SHALL BE OPENED TO BI-DIRECTIONAL TRAFFIC (1 LANE IN EACH DIRECTION)FROM NORTH AVENUE TO CAPITOL DRIVE.
- COMPLETE REMAINDER OF NB CALHOUN ROAD AND SIDE ROADS.

GENERAL NOTES
- ACCESS TO PHEASANT DRIVE AND MORNINGVIEW DRIVE FROM CALHOUN ROAD SHALL BE MAINTAINED AT ALL TIMES DURING THE PROJECT.
- THERE ARE NO DNR FISH SPAWNING TIMEFRAME RESTRICTIONS ON THE WORK INVOLVING THE UNNAMED TRIBUTARY TO THE FOX RIVER OR UNDERWOOD CREEK.
- BOX CULVERT CONSTRUCTION AND INSTALLATION OF TEMPORARY DIVERSION PIPE(S) SHALL BE STAGED AS DEPICTED IN THE STRUCTURE PLANS TO ALLOW TRAFFIC TO OVER THE WATERWAY CROSSING AT ALL TIMES.



LEGEND

- ROAD CLOSED TO THROUGH TRAFFIC, OPEN TO LOCAL TRAFFIC ONLY (6 MONTH MAXIMUM DURATION), THEN OPEN TO BI-DIRECTIONAL TRAFFIC (1 LANE IN EACH DIRECTION) ON NEWLY CONSTRUCTED SB LANES
- ROAD CLOSED TO THROUGH TRAFFIC, OPEN TO LOCAL TRAFFIC ONLY (ENTIRE PROJECT DURATION)
- SEPARATE FULL ROADWAY CLOSURES (NO TWO CLOSURES SHALL OCCUR AT THE SAME TIME)



PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	CONCEPTUAL TRAFFIC CONTROL/STAGING	SHEET 42	E

150A STA 236+42, 50.5' LT CATCH BASINS 2x3-H

150B STA 236+52, 50.5' LT CATCH BASINS 2x3-H

150 STA 236+52, 29.5' LT MANHOLES 4-J-S

150F STA 236+52, 22.5' LT CATCH BASINS 4-H

150E STA 236+27, 1.5' LT CATCH BASINS 4-H

150D STA 236+27, 26.5' RT INLETS 4-H

150C STA 236+17, 26.5' RT CATCH BASINS 2x3-H

STA 237+57, 71.9' RT APRON ENDWALLS FOR CPRC 15-INCH 152BAEW

STA 237+10, 76.3' RT APRON ENDWALLS FOR CPRC 15-INCH 150AEW

152CAEW STA 238+45, 79.6' LT APRON ENDWALLS FOR CPRC 15-INCH

152E STA 238+37, 50.5' LT CATCH BASINS 4-H

152D STA 238+03, 20.6' LT CATCH BASINS 4-H

152C STA 237+96, 1.8' LT CATCH BASINS 4-H

152B STA 237+84, 35.6' RT CATCH BASINS 5-H

152A STA 238+05, 70.2' RT CATCH BASINS 4-H

PHEASANT DRIVE

CALHOUN ROAD

154AEW STA 240+31, 77.0' LT APRON ENDWALLS FOR CPRC 12-INCH

STA 241+57, 71.9' LT APRON ENDWALLS FOR CPRC 12-INCH 156AEW

STA 240+31, 50.5' LT CATCH BASINS 2x3-H 154A

STA 241+51, 50.5' LT CATCH BASINS 4-H 156B

STA 241+48, 22.5' LT CATCH BASINS 4-H 156A

STA 241+85, 1.5' LT CATCH BASINS 4-H 158A

STA 241+25, 1.5' LT CATCH BASINS 4-H 155A

STA 241+20, 18.0' RT MANHOLES 5-J-S 155

153 STA 239+00, 18.0' RT MANHOLES 4-J-S

14"X23"

STA 241+20, 26.5' RT CATCH BASINS 4-H 155B

STA 241+36, 52.8' RT APRON ENDWALLS FOR CPRCHE 14x23-INCH 155AEW

STA 241+81, 26.5' RT CATCH BASINS 4-H 158B

STA 241+79, 46.9' RT APRON ENDWALLS FOR CPRC 12-INCH 158AEW

153C STA 239+00, 48.5' RT INLETS MEDIAN 1G-MS

153B STA 238+53, 57.7' RT CATCH BASINS 4-H

153A STA 238+50, 67.4' RT CATCH BASINS 4-H

MATCHLINE STA 236+00

MATCHLINE STA 242+00

237+00'SB' 238+00'SB' 239+00'SB' 240+00'SB' 241+00'SB'

237+00 238+00 239+00 240+00 241+00

LEGEND

- XX DRAINAGE STRUCTURE
- RS REMOVING EXISTING DRAINAGE STRUCTURE
- RP REMOVING EXISTING DRAINAGE PIPE
- PIPES SHOWN IN PROFILE
- SLOPE INTERCEPT
- SURFACE WATER FLOW

150 852.98

848.16

254.6' SSPRC CLASS IV 24-INCH @ 0.30%

153A 853.69

153B 853.68

153C 852.90

153 853.10

PROPOSED PROFILE ABOVE PIPES (TYP)

EXISTING PROFILE ABOVE PIPES (TYP)

850.06

850.01

849.76

849.03

849.03

848.31

848.31

30.5' SSPRC CLASS IV 15-INCH @ 2.36%

48.3' SSPRC CLASS IV 15-INCH @ 1.50%

10.0' SSPRC CLASS IV 12-INCH @ 0.50%

220.0' SSPRCHE CLASS HE-IV 14X23-INCH @ 2.95%

155 845.69

155B 845.63

155AEW

841.82

841.64

841.82

8.5' SSPRCHE CLASS HE-IV 14X23-INCH @ 0.49%

841.78

841.78

30.6' SSPRCHE CLASS HE-IV 14X23-INCH @ 0.44%

856 854 852 850 848 846 844 842 840

PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	STORM SEWER	SHEET	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSPLAN\022501-SS.DWG
LAYOUT NAME - 5
PLOT DATE : 2/4/2019 10:35 AM PLOT BY : WHITEFOOT, DANIEL PLOT NAME : PLOT SCALE : 1 IN:40 FT

2

157AEW STA 242+04, 74.0' LT
APRON ENDWALLS FOR CPRC 12-INCH

157B STA 242+16, 50.5' LT
CATCH BASINS 4-H

157A STA 242+07, 22.5' LT
CATCH BASINS 4-H

158C STA 242+13, 26.5' RT
CATCH BASINS 2x3-H

200A STA 246+75, 50.5' LT
CATCH BASINS 2x3-H

200 STA 246+75, 42.0' LT
MANHOLES 4-J-S

200D STA 246+75, 10.5' LT
CATCH BASINS 2x3-H

200C STA 246+75, 1.5' LT
CATCH BASINS 2x3-H

200B STA 246+75, 26.5' RT
CATCH BASINS 2x3-H

CALHOUN ROAD

MATCHLINE STA 242+00

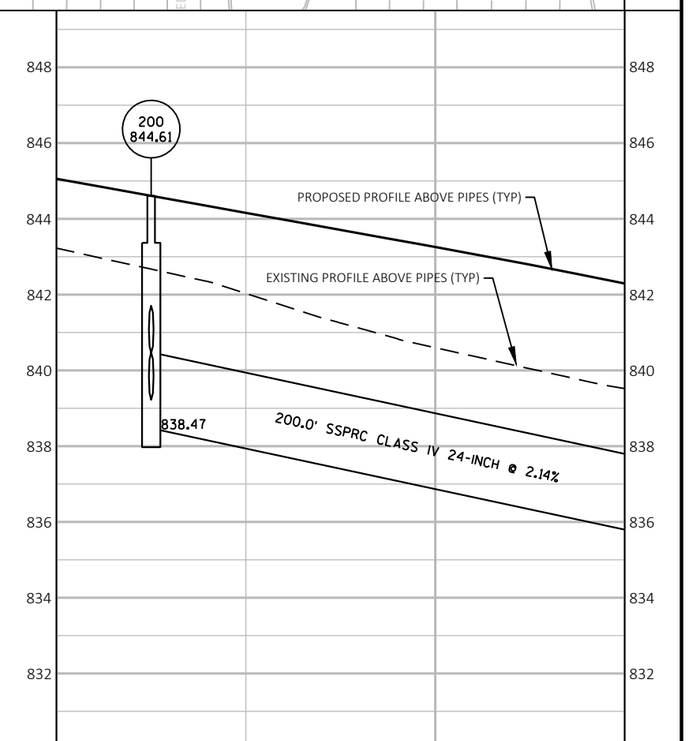
MATCHLINE STA 248+00

243+00'SB' 244+00'SB' 245+00'SB' 246+00'SB' 247+00'SB'

243+00 244+00 245+00 246+00 247+00

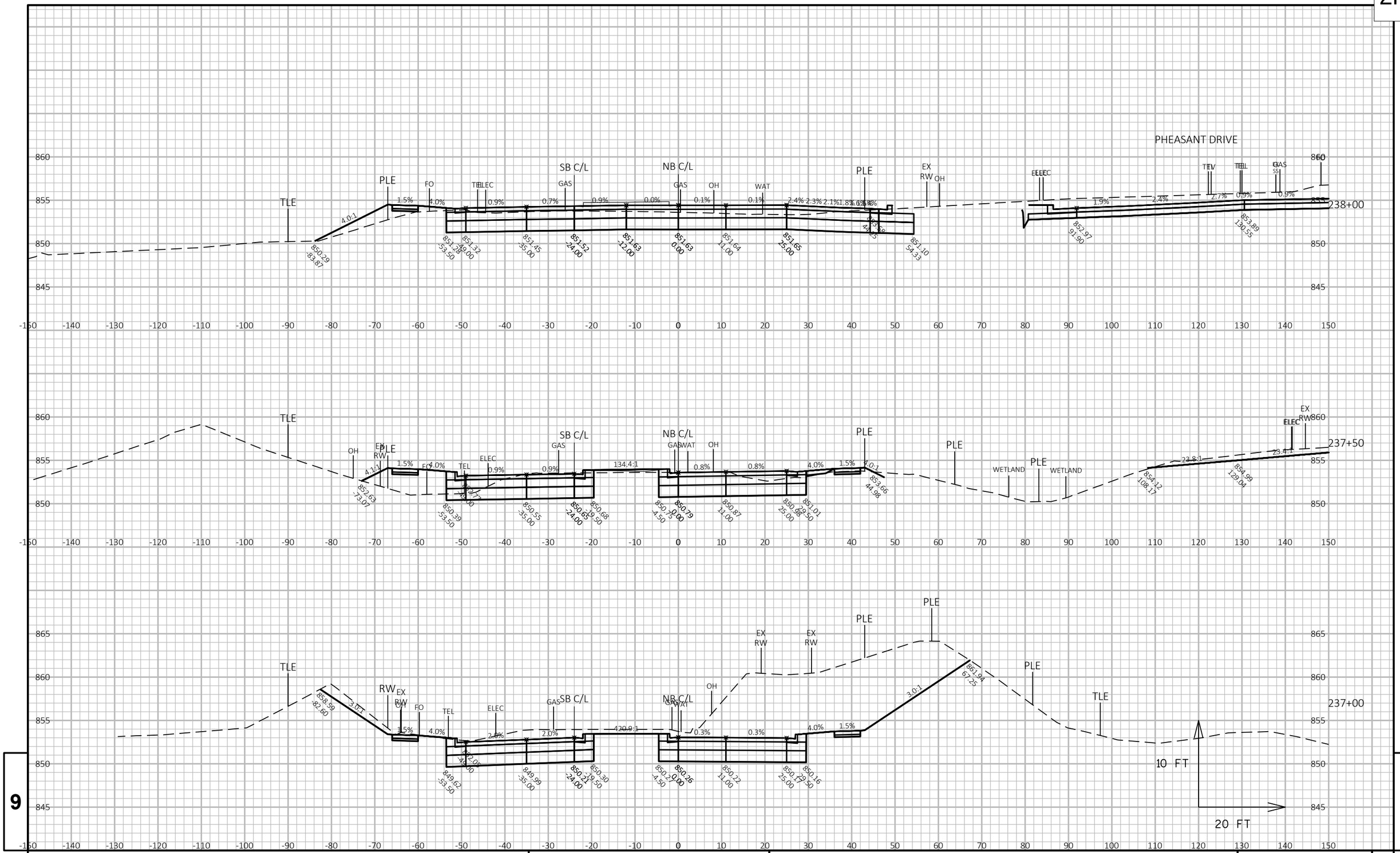
LEGEND

- XX DRAINAGE STRUCTURE
- RS REMOVING EXISTING DRAINAGE STRUCTURE
- RP REMOVING EXISTING DRAINAGE PIPE
- PIPES SHOWN IN PROFILE
- SLOPE INTERCEPT
- SURFACE WATER FLOW



PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	STORM SEWER	SHEET	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSPLAN\022501-SS.DWG
LAYOUT NAME - 6
PLOT DATE : 2/4/2019 10:35 AM
PLOT BY : WHITEFOOT, DANIEL
PLOT NAME :
PLOT SCALE : 1 IN:40 FT



9

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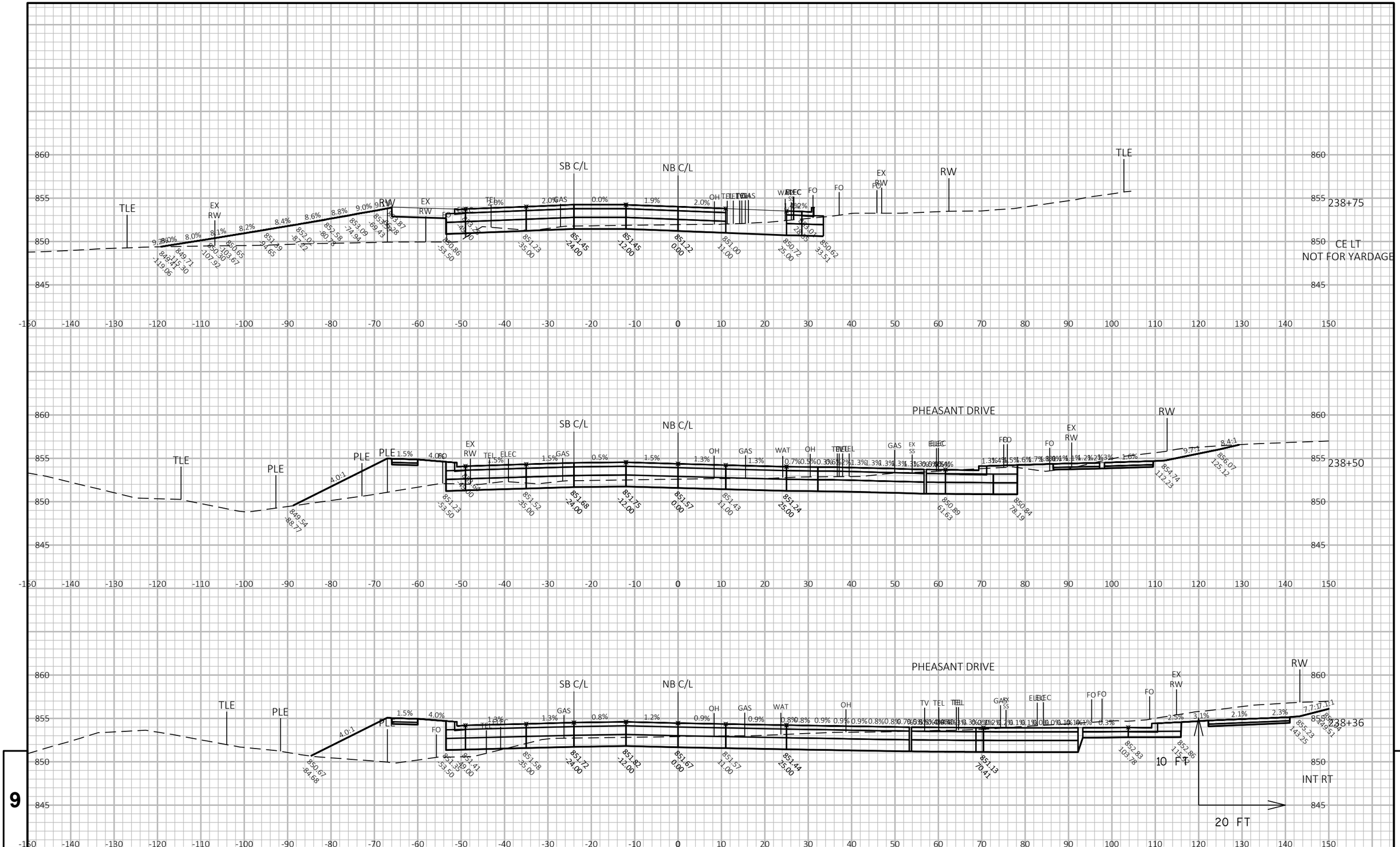
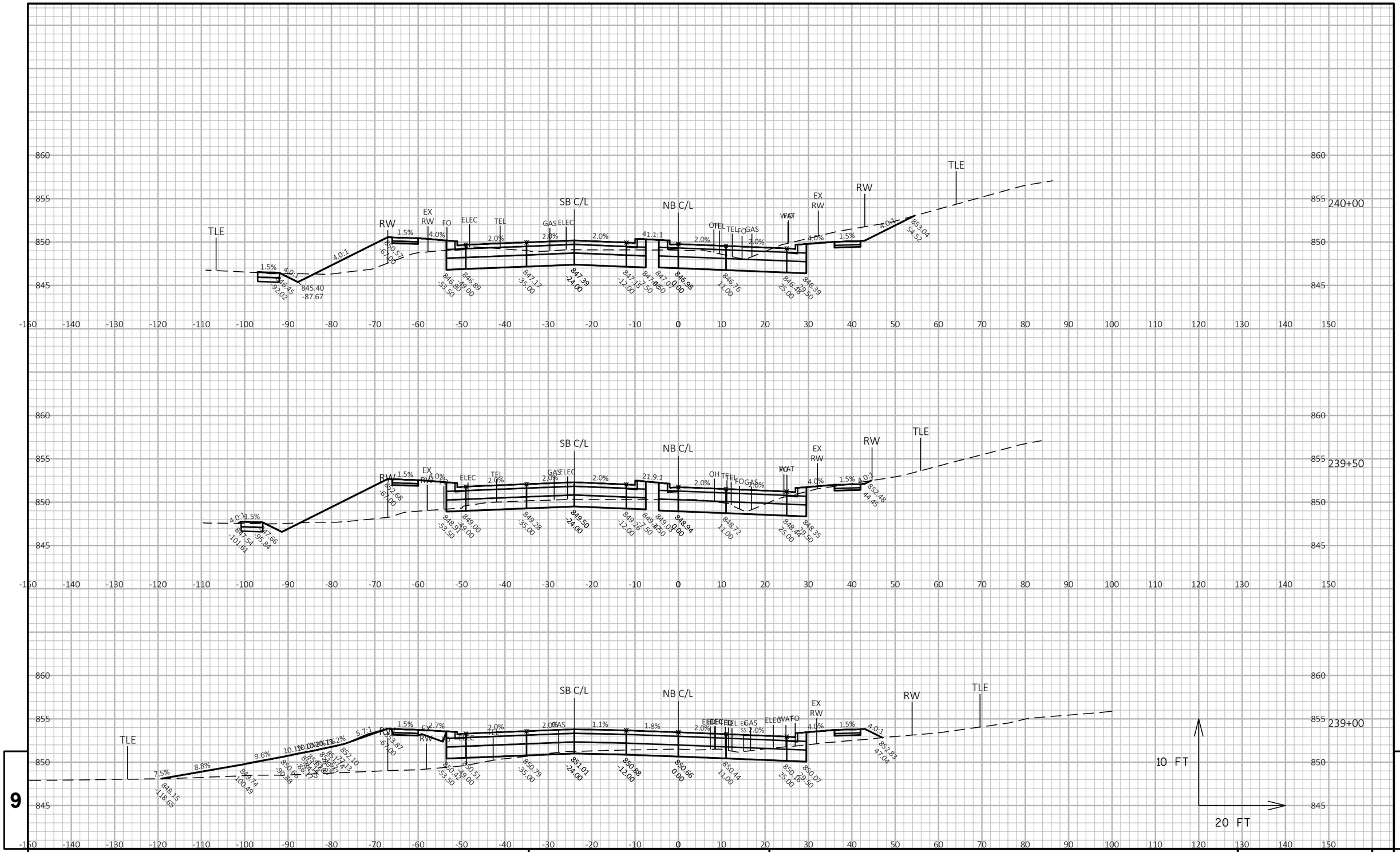
PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 111	E



PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 112	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSPLAN\090201A-XS.DWG PLOT DATE : 11/8/2018 2:24 PM PLOT BY : WHITEFOOT, DANIEL PLOT NAME :



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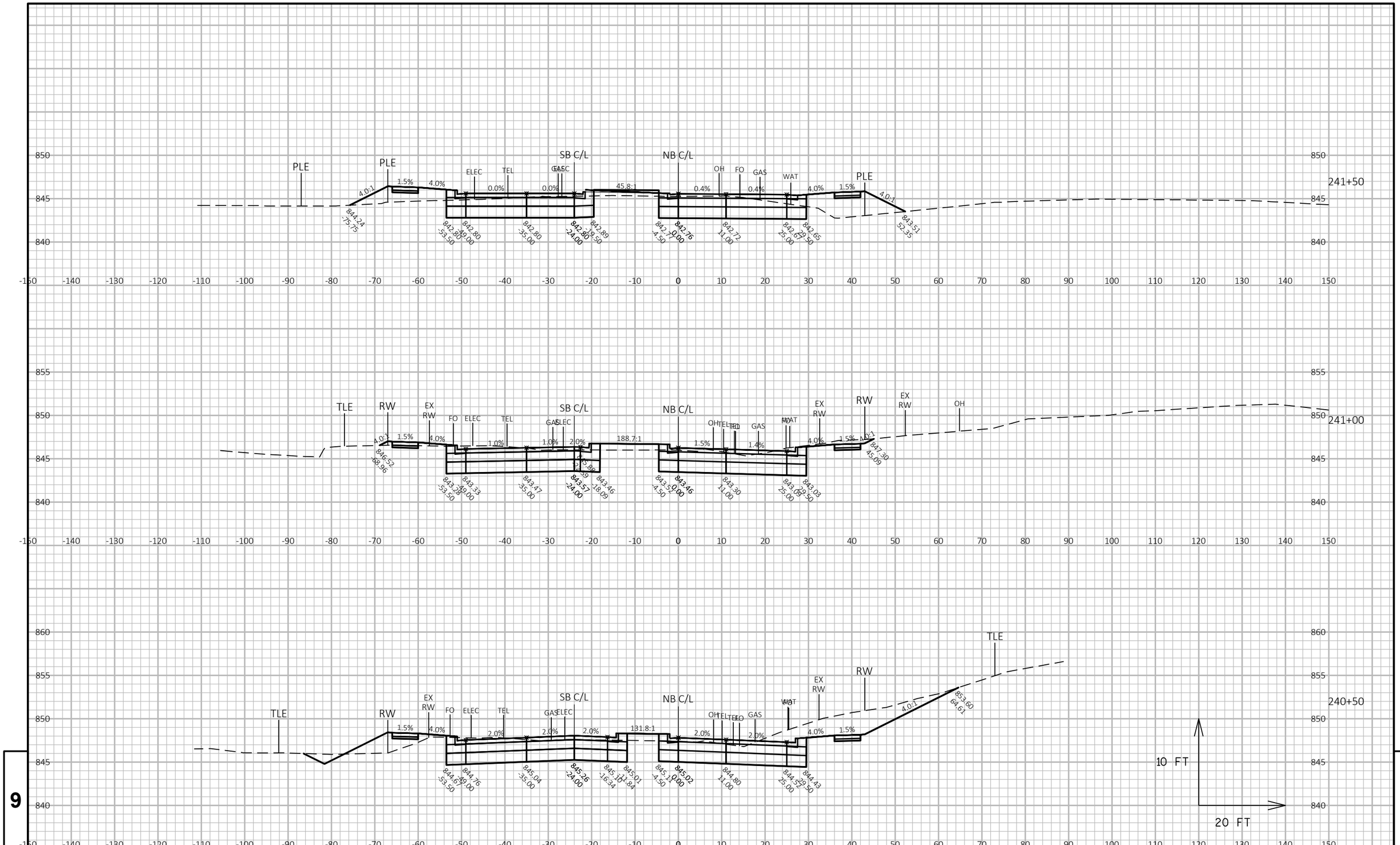
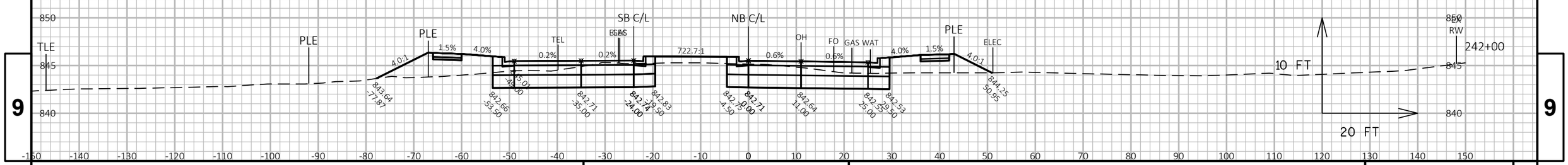
PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 113	E



PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 114	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSPLAN\090201A-XS.DWG PLOT DATE : 11/8/2018 2:24 PM PLOT BY : WHITEFOOT, DANIEL PLOT NAME :

WISDOT/CADDS SHEET 49



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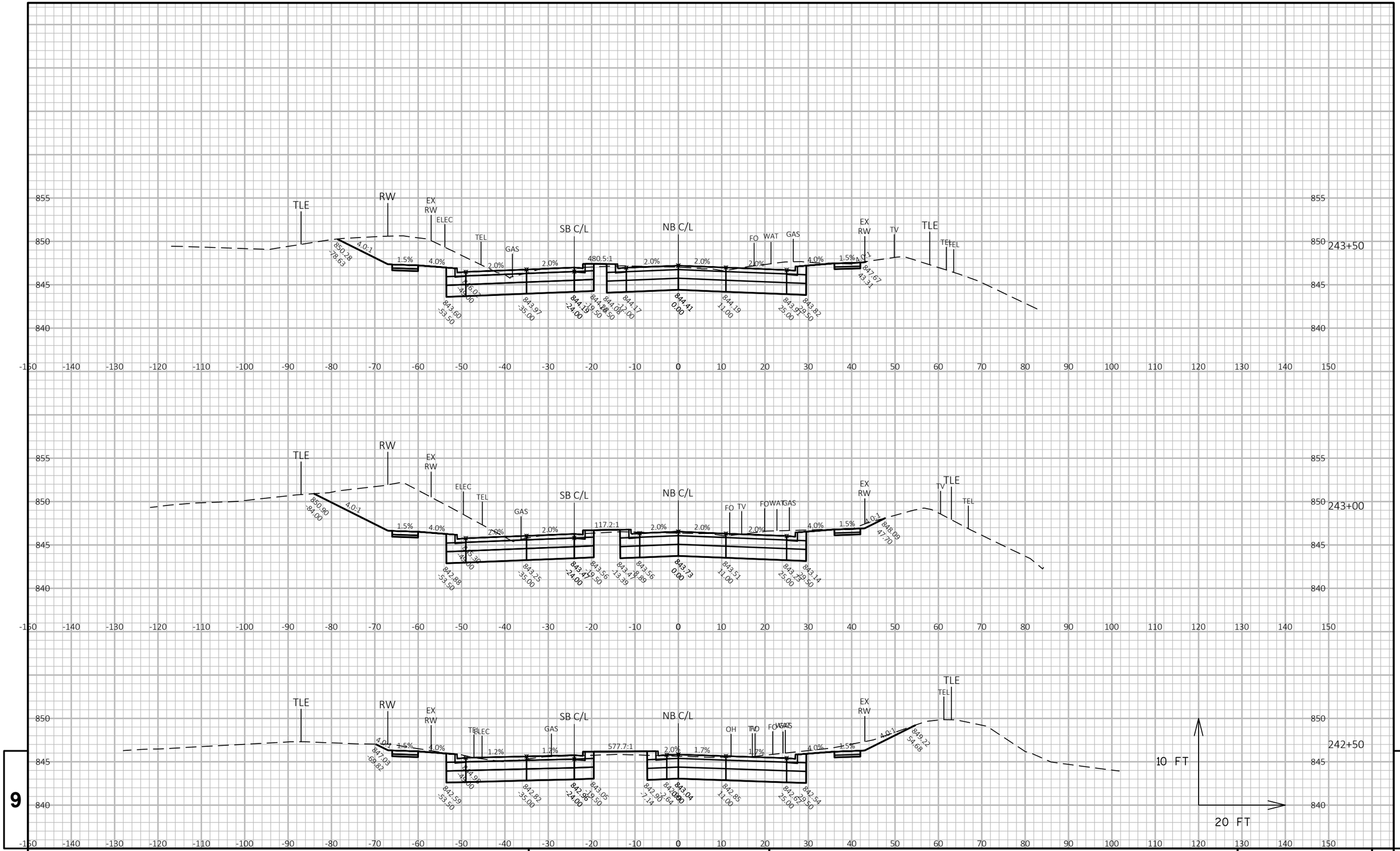
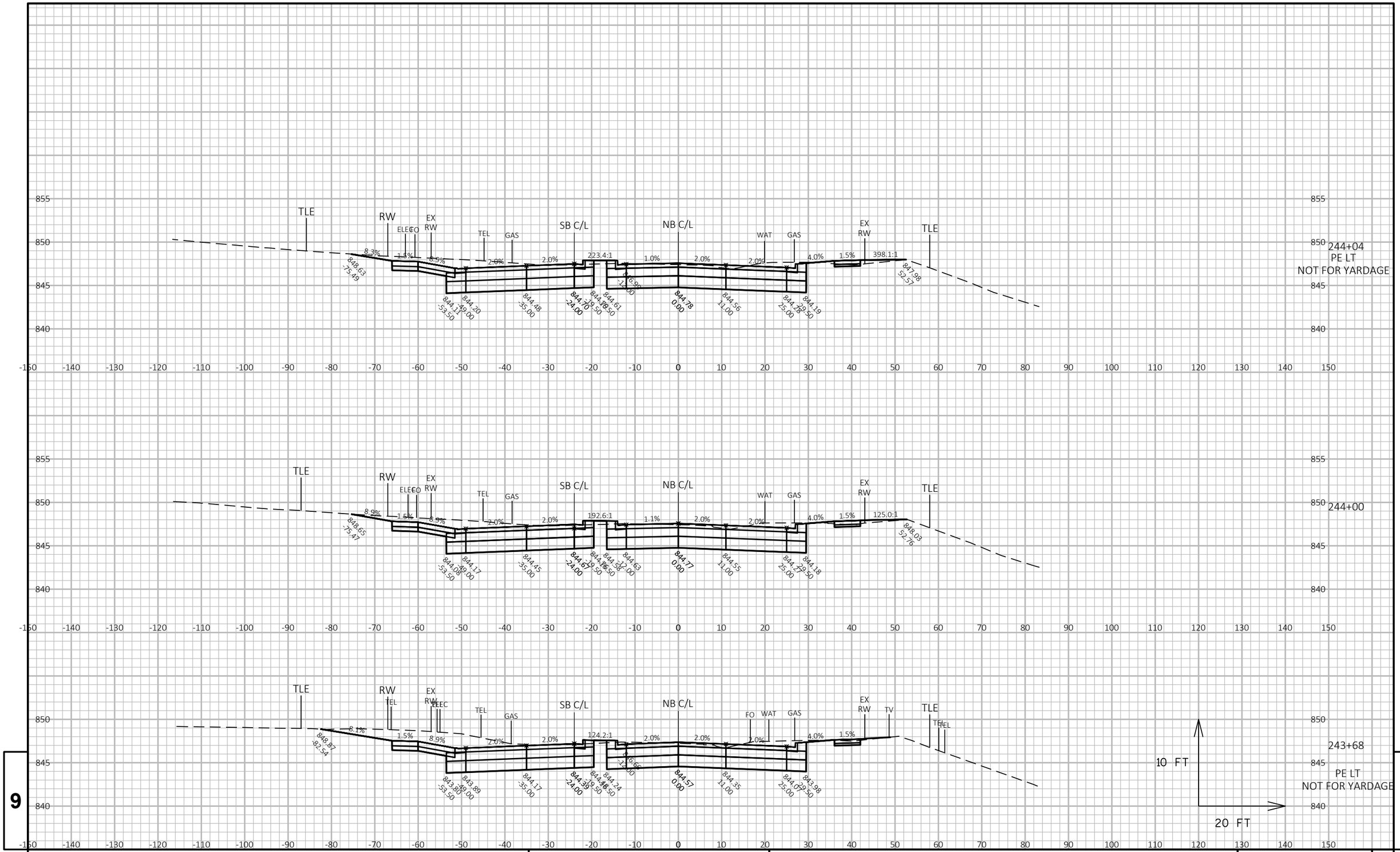
PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 115	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSPLAN\090201A-XS.DWG PLOT DATE : 11/8/2018 2:24 PM PLOT BY : WHITEFOOT, DANIEL PLOT NAME :



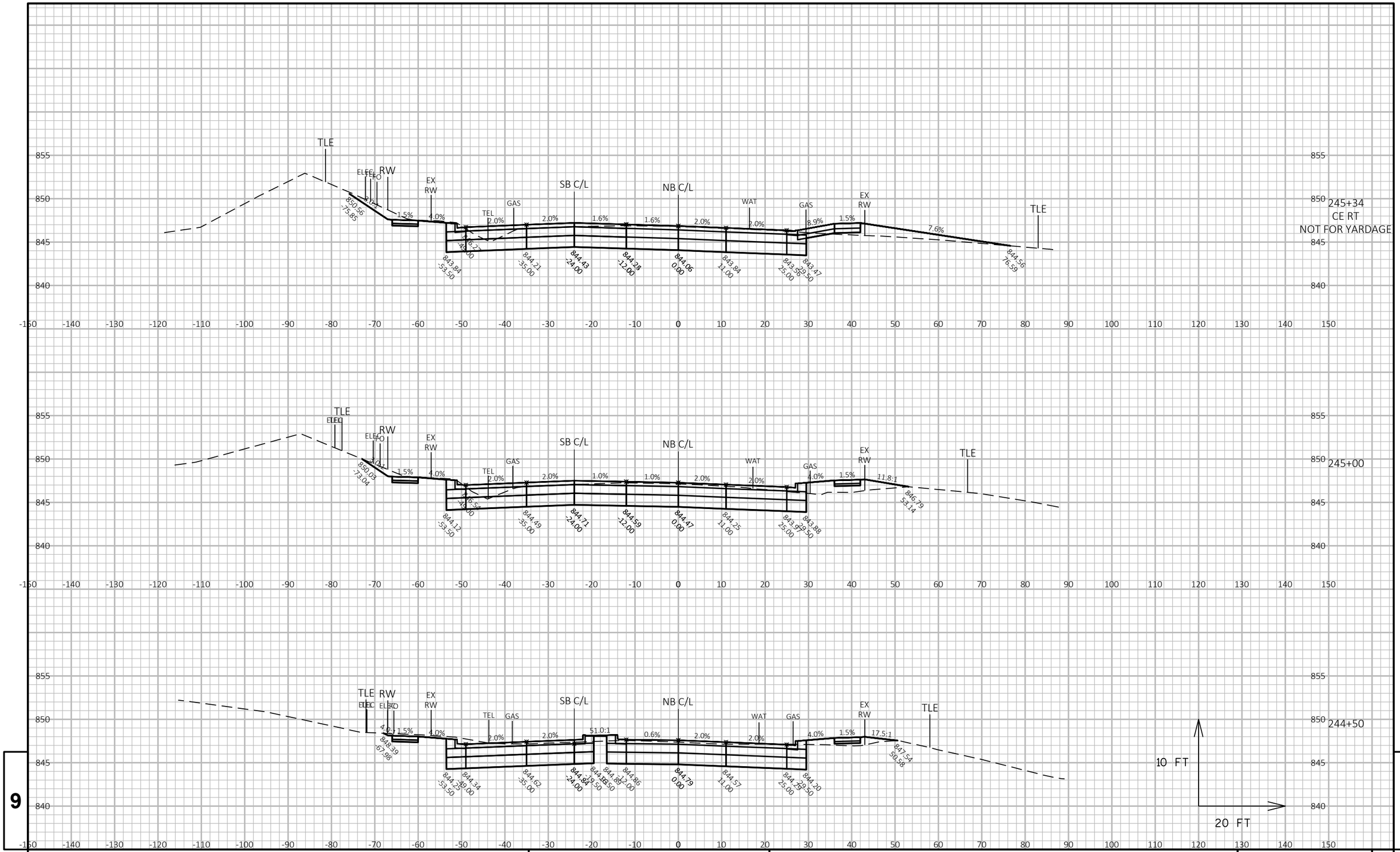
PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 116	E



PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 117	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSPLAN\090201B-XS.DWG PLOT DATE : 11/8/2018 2:32 PM PLOT BY : WHITEFOOT, DANIEL PLOT NAME :

WISDOT/CADDS SHEET 49



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PROJECT NO: 2783-05-70	COUNTY: WAUKESHA	CROSS SECTIONS: CALHOUN ROAD	SHEET 118	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSPLAN\090201B-XS.DWG PLOT DATE : 11/8/2018 2:32 PM PLOT BY : WHITEFOOT, DANIEL PLOT NAME :

R/W PROJECT NUMBER 2783-05-00	SHEET NUMBER	TOTAL SHEETS
FEDERAL PROJECT NUMBER	4.1	12

PLAT OF RIGHT OF WAY REQUIRED FOR

CALHOUN ROAD

NORTH AVENUE TO CAPITOL DRIVE

CALHOUN ROAD — WAUKESHA CO.

CONSTRUCTION NO. 2783-05-70

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF INTERSECTION	PI
ACRES	AC	PROPERTY LINE	PL
AHEAD	AH	RECORDED AS	(100')
ALUMINUM	ALUM	REEL / IMAGE	R/I
AND OTHERS	ET AL	REFERENCE LINE	R/L
BACK	BK	REMAINING	REM
BLOCK	BLK	RESTICTIVE DEVELOPMENT EASEMENT	RDE
CENTERLINE	C/L	RIGHT	RT
CERTIFIED SURVEY MAP	CSM	RIGHT OF WAY	R/W
CONCRETE	CONC	SECTION	SEC
COUNTY	CO	SEPTIC VENT	SEPV
COUNTY TRUNK HIGHWAY	CTH	SQUARE FEET	SF
DISTANCE	DIST	STATE TRUNK HIGHWAY	STH
CORNER	COR	STATION	STA
DOCUMENT NUMBER	DOC	TELEPHONE PEDESTAL	TP
EASEMENT	EASE	TEMPORARY LIMITED EASEMENT	TLE
EXISTING	EX	TRANSPORTATION PROJECT PLAT	TPP
GAS VALVE	GV	UNITED STATES HIGHWAY	USH
GRID NORTH	GN	VOLUME	V
HIGHWAY EASEMENT	HE		
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		
POINT OF COMPOUND CURVE	PCC		

CURVE DATA

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

CONVENTIONAL UTILITY SYMBOLS

	NON COMPENSABLE	COMPENSABLE
POWER POLE		
TELEPHONE POLE		
TELEPHONE PEDESTAL		
GUY ANCHOR		
ELECTRIC TOWER		
GAS VALVE	GV	

W	WATER
G	GAS
T	TELEPHONE
OH	OVERHEAD TRANSMISSION LINES
E	ELECTRIC
TV	CABLE TELEVISION
FO	FIBER OPTIC
SAN	SANITARY SEWER
SS	STORM SEWER

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W OR HE LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
SLOPE INTERCEPT
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING — TO BE REMOVED
BRIDGE

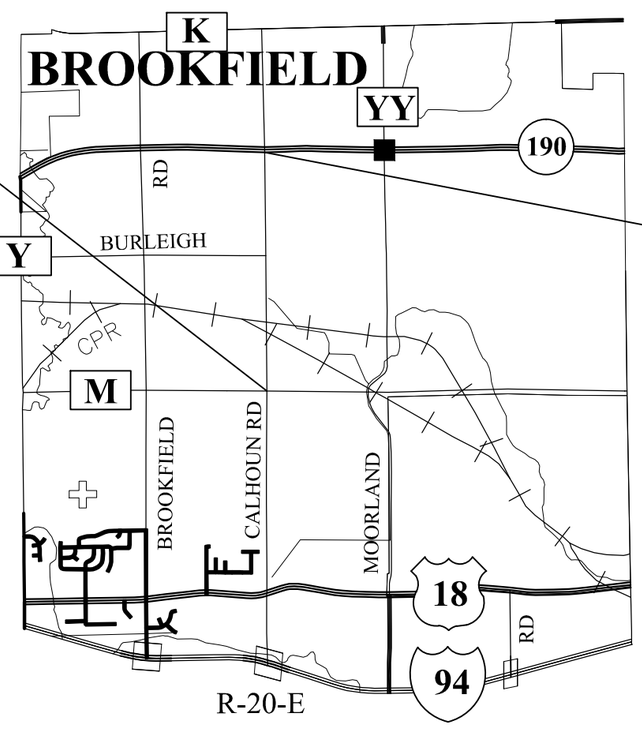
SECTION CORNER SYMBOL
SECTION CORNER MONUMENT
FOUND R/W POST
GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT
SIGN — OFF-PREMISE SIGN

R/W MONUMENT (TO BE SET)
NON-MONUMENTED R/W POINT
FOUND IRON PIN (1-INCH UNLESS NOTED)

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE		
TELEPHONE POLE		
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)		

ACCESS RESTRICTED BY ACQUISITION
NO ACCESS (BY STATUTORY AUTHORITY)
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)
NO ACCESS (NEW HIGHWAY)

PARCEL NUMBER 25
UTILITY NUMBER 40
PARALLEL OFFSETS



BEGIN PLAT
STA 211+84.21
Y = 179,155.89
X = 711,437.71

END PLAT
STA 318+35.22
Y = 189806.19
X = 711557.13

LAYOUT
NO SCALE

TOTAL NET LENGTH OF CENTERLINE = 2.0 MI.

DRAFT
11/6/18

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, WAUKESHA COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

FOR THE LATEST ACCESS/DRIVEWAY INFORMATION CONTACT THE PLANNING DEPARTMENT OF THE CITY OF BROOKFIELD.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

FOR THE LATEST ACCESS/DRIVEWAY INFORMATION CONTACT THE PLANNING DEPARTMENT OF THE CITY OF BROOKFIELD.

ORIGINAL PLAT PREPARED BY

raSmith
CREATIVITY BEYOND ENGINEERING
16745 W. Bluemound Road, Brookfield WI 53005
262-781-1000 Fax 262-781-8466
www.rasmithnational.com

DATE: _____ _____ LAND SURVEYOR

REVISION DATE

CITY OF BROOKFIELD

APPROVED FOR CITY OF BROOKFIELD:

DATE: _____ _____ (Signature)

E

SCHEDULE OF LANDS & INTERESTS REQUIRED

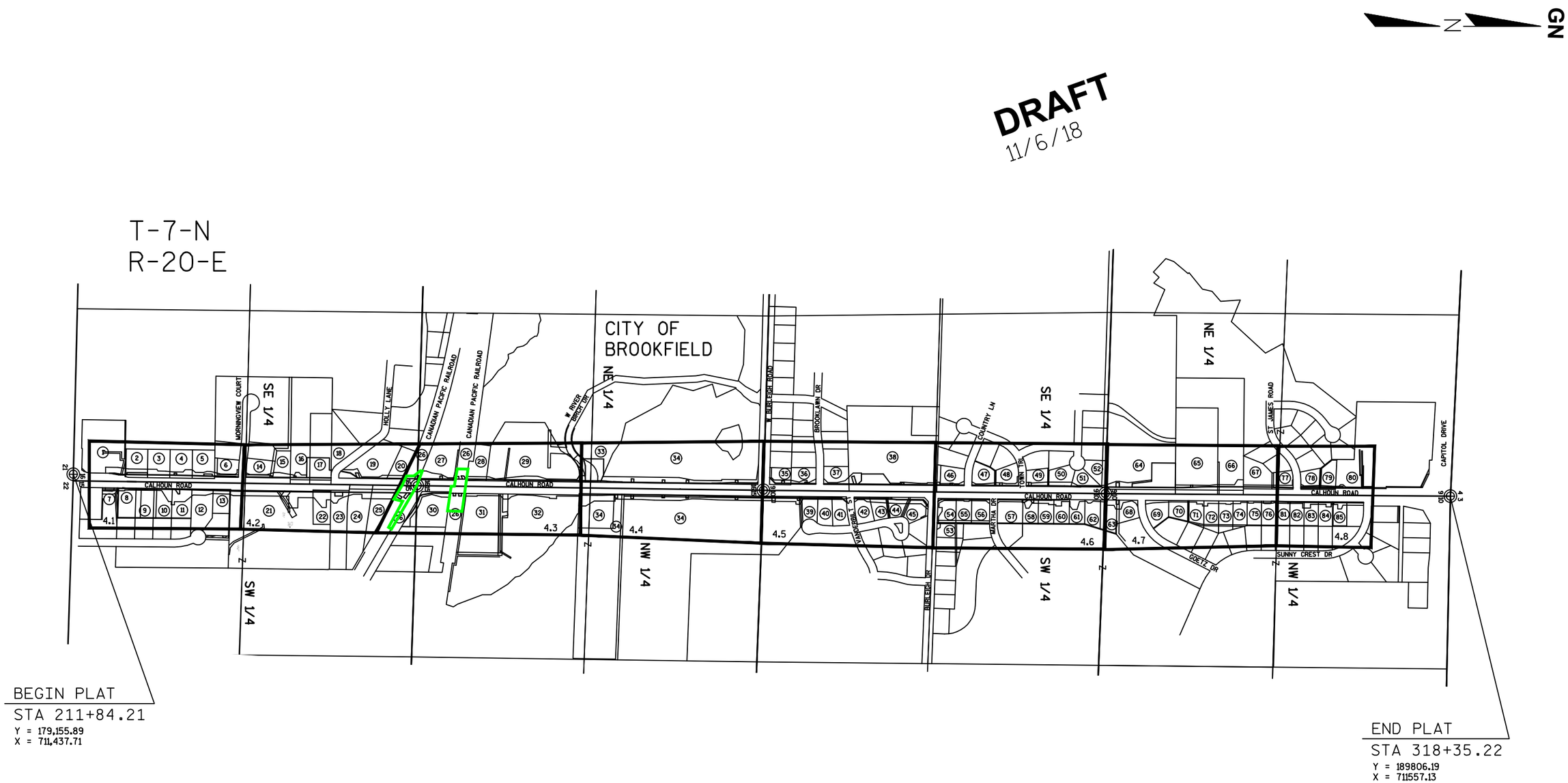
AREAS SHOWN IN THE TOTAL ACRES COLUMN MAY BE APPROXIMATE AND ARE DERIVED FROM TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED.

DRAFT
2/01/19

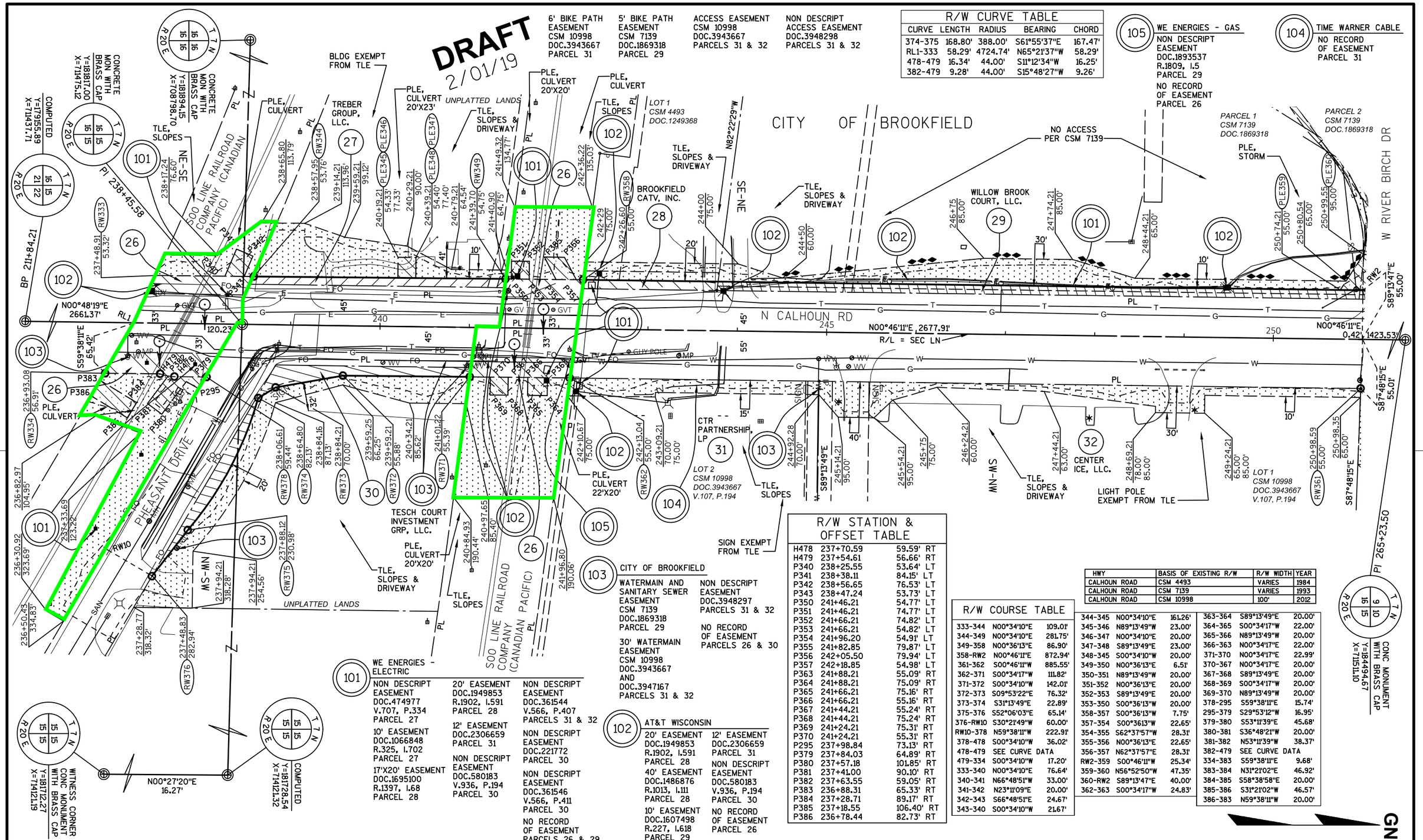
PARCEL NUMBER	SHEET NUMBER	OWNER(S)	INTEREST REQUIRED	TOTAL ACRES	R/W REQUIRED ACRES			TOTAL REMAINING ACRES	T.L.E. TEMP. ACRES	P.L.E. PERM. ACRES	PARCEL NUMBER
					NEW	EXISTING	TOTAL				
1	4.5	NORCAL 17280, LLC.	FEE, TLE	3.268	0.016	-	0.016	3.252	0.162	-	1
2	4.5	DOROTHY TRUMP	FEE, TLE, PLE	0.866	0.086	-	0.086	0.780	0.117	0.054	2
3	4.5	STEGGEMAN INVESTMENTS, LLC.	FEE, TLE	0.869	0.087	-	0.087	0.782	0.141	-	3
4	4.5	JOHN G. HAROLD	FEE, TLE, PLE	0.869	0.085	-	0.085	0.784	0.123	0.007	4
5	4.5	HONGFENG WANG & LU LI	FEE, TLE, PLE	0.869	0.076	-	0.076	0.793	0.101	0.022	5
6	4.5	NEERAJA & ARVIND RAMACHANDRAN	FEE, TLE	0.599	0.028	-	0.028	0.571	0.089	-	6
7	4.5	BEACON 17100, LLC.	TLE	1.125	-	-	-	1.125	0.049	-	7
8	4.5	PAUL TREICHEL	FEE, TLE	0.960	0.014	-	0.014	0.946	0.057	-	8
9	4.5	KIRK K. WEGNER	FEE, TLE	0.638	0.014	-	0.014	0.624	0.028	-	9
10	4.5	LEONARD G. & KARINA THOMPSON	FEE, TLE	0.636	0.014	-	0.014	0.622	0.136	-	10
11	4.5	NORMAN A. & LUANN CUMMINGS	FEE, TLE, PLE	0.801	0.020	-	0.020	0.781	0.295	0.019	11
12	4.5	NANCY KUTSCHENREUTER	FEE, TLE	1.134	0.030	-	0.030	1.104	0.141	-	12
13	4.5	JEROME J. SCHELLINGER AND JANE M. KALATA	FEE, TLE	1.305	0.030	-	0.030	1.275	0.078	-	13
14	4.6	WILLIAM PRUDLOW LIVING TRUST	FEE, TLE, PLE	0.680	0.017	-	0.017	0.663	0.103	0.004	14
15	4.6	HELMUT & BARBARA TOLDT	FEE, TLE	0.586	0.014	-	0.014	0.572	0.100	-	15
16	4.6	ELMER G. & MARION L. SCHLEIF	FEE, TLE, PLE	3.888	0.058	0.114	0.172	3.716	0.072	0.089	16
17	4.6	PETERSON JOINT REVOCABLE TRUST	FEE, PLE	2.074	0.067	0.125	0.192	1.882	-	0.555	17
18	4.6	HOME PATH FINANCIAL, LP.	PLE	1.240	-	-	-	1.240	-	0.002	18
19	4.6	WILLIAM T. JR. & TRACY L. SCHLEICHER	FEE, TLE, PLE	1.934	0.136	-	0.136	1.798	0.157	0.019	19
20	4.6	WILLIAM T. JR. & TRACY L. SCHLEICHER	FEE, TLE	0.726	0.010	-	0.010	0.716	0.074	-	20
21	4.6	BPN PROPERTIES, LLC.	FEE, TLE	10.046	0.085	-	0.085	9.961	0.685	-	21
22	4.6	WAYNE D. & CAROLE J. WEGNER	FEE, TLE	0.821	0.029	0.016	0.045	0.776	0.262	-	22
23	4.6	TROY BECKER	FEE, TLE, PLE	1.831	0.044	-	0.044	1.787	0.139	0.041	23
24	4.6	MARILYN E. ZEITZ	FEE, TLE	2.166	0.102	0.135	0.237	1.929	0.120	-	24
25	4.6	MARILYN E. ZEITZ	FEE, TLE	1.318	0.113	0.163	0.276	1.042	0.206	-	25
26	4.7	SOO LINE RAILROAD COMPANY (CANADIAN PACIFIC)	TLE, PLE, HE	VAST	0.217(HE)	0.324	0.541(HE)	VAST	0.791	0.101	26
27	4.7	THE TREIBER GROUP, LLC.	FEE, TLE, PLE	4.595	0.060	-	0.060	4.535	0.209	0.011	27
28	4.7	BROOKFIELD CATV, INC.	FEE, TLE	0.863	0.035	-	0.035	0.828	0.069	-	28
29	4.7 & 4.8	WILLOW BROOK COURT, LLC.	FEE, TLE, PLE	6.000	0.176	-	0.176	5.824	0.348	0.052	29
30	4.7	TESCH COURT INVESTMENT GRP, LLC.	FEE, TLE	1.754	0.122	-	0.122	1.632	0.264	-	30
31	4.7	CTR PARTNERSHIP, LP	TLE	3.216	-	-	-	3.216	0.108	-	31
32	4.7	CENTER ICE, LLC.	TLE	9.664	-	-	-	9.664	0.219	-	32
33	4.8	WILLOW BROOK GREENS, LLC.	FEE, TLE, PLE	1.642	0.027	-	0.027	1.615	0.120	0.551	33
34	4.8 & 4.9	CITY OF BROOKFIELD	FEE, TLE, PLE	32.560	0.404	-	0.404	32.156	2.223	0.119	34
35	4.9	WAUKESHA COUNTY	FEE, TLE, PLE	0.489	0.060	-	0.060	0.429	0.095	0.009	35
36	4.9	RICHARD & KAREN SCHMIDT	FEE, TLE, PLE	0.565	0.022	-	0.022	0.543	0.084	0.004	36
37	4.9	ROBERT L. SR & EVELYN A. JUDE	FEE, TLE	0.619	0.022	-	0.022	0.597	0.084	-	37
38	4.9	MILWAUKEE GOSPEL TABERNACLE	FEE, TLE, PLE	9.475	0.078	0.780	0.858	8.617	0.245	0.413	38
39	4.9	MATTHEW & HILA SCHUPPENER	FEE, TLE	0.546	0.031	-	0.031	0.515	0.037	-	39
40	4.9	THOMAS & MARY MAGNOR	FEE, TLE	0.582	0.025	-	0.025	0.557	0.025	-	40
41	4.9	WEIGUO CUI & HONGMEI LI	FEE, TLE	0.603	0.038	-	0.038	0.565	0.019	-	41
42	4.9	YUCONG LI REVOCABLE TRUST	FEE, TLE	0.602	0.027	-	0.027	0.575	0.048	-	42
43	4.9	ARTHUR & TERRY GARDNER	FEE, TLE	0.493	0.031	-	0.031	0.462	0.091	-	43
44	4.9	SUNIL K. & DIPTI G. KRISHNAN	FEE, TLE	0.495	0.066	-	0.066	0.429	0.118	-	44
45	4.9	SHEKHAR A. DAGAM	FEE, TLE	0.655	0.074	-	0.074	0.581	0.104	-	45
46	4.10	JEFFRY A. & MARY KAY MERKT	FEE, TLE, PLE	0.697	0.024	-	0.024	0.673	0.061	0.005	46
47	4.10	RICHARD S. & GENIENE DREFAHL	FEE, TLE	0.667	0.021	-	0.021	0.646	0.057	-	47
48	4.10	DENNIS A. STROM REVOCABLE TRUST	FEE, TLE, PLE	0.626	0.021	-	0.021	0.605	0.074	0.009	48
49	4.10	DANNY J. & LISA A. O MALLEY	FEE, TLE, PLE	0.519	0.020	-	0.020	0.499	0.086	0.011	49
50	4.10	FREDRIC L. III & TAMMY EHRETT	FEE, TLE	0.667	0.020	-	0.020	0.647	0.124	-	50
51	4.10	ELLEN M. ROHR	FEE, TLE	0.468	0.003	-	0.003	0.465	0.064	-	51
52	4.10	SCOTT L. & MICHELLE MUTCHELKNAUS	TLE	0.588	-	-	-	0.588	0.010	-	52
53	4.10	CRAIG T. DEDO	TLE	0.532	-	-	-	0.532	0.023	-	53
54	4.10	DAVID J. & ANNE K. CIEPLUCH	FEE, TLE	0.621	0.022	-	0.022	0.599	0.103	-	54
55	4.10	ANTON J. & JOANN M. CIZEL	FEE, TLE	0.523	0.014	-	0.014	0.509	0.032	-	55

REVISION DATE:	DATE:	SCALE, FEET 0 N/A N/A	HWY: CALHOUN ROAD	STATE R/W PROJECT NUMBER: 2783-05-00	PLAT SHEET: 4.2
	GRID FACTOR: N/A		COUNTY: WAUKESHA	CONSTRUCTION PROJECT NUMBER: 2783-05-70	PS&E SHEET: E

DRAFT
11/6/18



REVISION DATE:	DATE:	SCALE, FEET 0 N/A N/A	HWY: CALHOUN ROAD	STATE R/W PROJECT NUMBER: 2783-05-00	PLAT SHEET: 4.4	
	GRID FACTOR: N/A		COUNTY: WAUKESHA	CONSTRUCTION PROJECT NUMBER: 2783-05-70	PS&E SHEET:	E



R/W CURVE TABLE				
CURVE	LENGTH	RADIUS	BEARING	CHORD
374-375	168.80'	388.00'	S61°55'37"E	167.47'
RL1-333	58.29'	4724.74'	N65°21'37"W	58.29'
478-479	16.34'	44.00'	S11°12'34"W	16.25'
382-479	9.28'	44.00'	S15°48'27"W	9.26'

R/W STATION & OFFSET TABLE		
H478	237+70.59	59.59' RT
H479	237+54.61	56.66' RT
P340	238+25.55	53.64' LT
P341	238+38.11	84.15' LT
P342	238+56.65	76.53' LT
P343	238+47.24	53.73' LT
P350	241+46.21	54.77' LT
P351	241+46.21	74.77' LT
P352	241+66.21	74.82' LT
P353	241+66.21	54.82' LT
P354	241+96.20	54.91' LT
P355	241+82.85	79.87' LT
P356	242+05.50	79.94' LT
P357	242+18.85	54.98' LT
P363	241+88.21	55.09' RT
P364	241+88.21	75.09' RT
P365	241+66.21	75.16' RT
P366	241+66.21	55.16' RT
P367	241+44.21	55.24' RT
P368	241+44.21	75.24' RT
P369	241+24.21	75.31' RT
P370	241+24.21	55.31' RT
P295	237+98.84	73.13' RT
P379	237+84.03	64.89' RT
P380	237+57.18	101.85' RT
P381	237+41.00	90.10' RT
P382	237+63.55	59.05' RT
P383	236+88.31	65.33' RT
P384	237+28.71	89.17' RT
P385	237+18.55	106.40' RT
P386	236+78.44	82.73' RT

R/W COURSE TABLE		
333-344	N00°34'10"E	109.01'
344-349	N00°34'10"E	281.75'
349-358	N00°36'13"E	86.90'
358-RW2	N00°46'11"E	872.94'
361-362	S00°46'11"W	885.55'
362-371	S00°34'17"W	111.82'
371-372	S00°34'10"W	142.01'
372-373	S09°53'22"E	76.32'
373-374	S31°13'49"E	22.89'
375-376	S52°06'03"E	65.14'
376-RW10	S30°21'49"W	60.00'
RW10-378	N59°38'11"W	222.91'
378-478	S00°34'10"W	36.02'
478-479	SEE CURVE DATA	
479-334	S00°34'10"W	17.20'
333-340	N00°34'10"E	76.64'
340-341	N66°48'51"W	33.00'
341-342	N23°11'09"E	20.00'
342-343	S66°48'51"E	24.67'
343-340	S00°34'10"W	21.67'
344-345	N00°34'10"E	161.26'
345-346	N89°13'49"W	23.00'
346-347	N00°34'10"E	20.00'
347-348	S89°13'49"E	23.00'
348-345	S00°34'10"W	20.00'
349-350	N00°36'13"E	6.51'
350-351	N89°13'49"W	20.00'
351-352	N00°36'13"E	20.00'
352-353	S89°13'49"E	20.00'
353-350	S00°36'13"W	20.00'
358-357	S00°36'13"W	7.75'
357-354	S00°36'13"W	22.65'
354-355	S62°37'57"W	28.31'
355-356	N00°36'13"E	22.65'
356-357	N62°37'57"E	28.31'
RW2-359	S00°46'11"W	25.34'
359-360	N56°52'50"W	47.35'
360-RW2	S89°13'47"E	40.00'
362-363	S00°34'17"W	24.83'
363-364	S89°13'49"E	20.00'
364-365	S00°34'17"W	22.00'
365-366	N89°13'49"W	20.00'
366-363	N00°34'17"E	22.00'
371-370	N00°34'17"E	22.99'
370-367	N00°34'17"E	20.00'
367-368	S89°13'49"E	20.00'
368-369	S00°34'17"W	20.00'
369-370	N89°13'49"W	20.00'
378-295	S59°38'11"E	15.74'
295-379	S29°53'12"W	16.95'
379-380	S53°11'39"E	45.68'
380-381	S36°48'21"W	20.00'
381-382	N53°11'39"W	38.37'
382-479	SEE CURVE DATA	
334-383	S59°38'11"E	9.68'
383-384	N31°21'02"E	46.92'
384-385	S58°38'58"E	20.00'
385-386	S31°21'02"W	46.57'
386-383	N59°38'11"W	20.00'

HWY	BASIS OF EXISTING R/W	R/W WIDTH	YEAR
CALHOUN ROAD	CSM 4493	VARIES	1984
CALHOUN ROAD	CSM 7139	VARIES	1993
CALHOUN ROAD	CSM 10998	100'	2012

REVISION DATE:	DATE:	SCALE, FEET 0 50 100	HWY: CALHOUN ROAD	STATE R/W PROJECT NUMBER: 2783-05-00	PLAT SHEET: 4.7	
	GRID FACTOR: N/A		COUNTY: WAUKESHA	CONSTRUCTION PROJECT NUMBER: 2783-05-70	PS&E SHEET:	E

FILE NAME:S/5166925/DWG/27830500/PLAT/TPP100.DWG

BOOK OF ROADS

ROADS CREATED IN THE BROOKFIELD TOWNSHIP

(BY THE ELECTED OFFICIALS OF WAUKESHA COUNTY AND THE TOWN OF BROOKFIELD)

PAGE NO.	ROAD NAME	DESCRIPTION / NOTES	YEAR ESTAB.	ESTAB. WIDTH
17	BURLEIGH ROAD	N .124th ST. TO PILGRIM RD (PAGE 6, VOLUME 1, TOWN RECORDS)	1842	4 RODS 66.0'
18	BURLEIGH ROAD	CALHOUN RD TO BROOKFIELD RD (PAGE 76, VOLUME 1, TOWN RECORDS)	1851	4 RODS 66.0'
19	BURLEIGH ROAD	BURLEIGH RD TO WEST (PAGE 22, VOLUME 1, TOWN RECORDS)	1845	4 RODS 66.0'
20	BURLEIGH ROAD	BURLEIGH RD TO WEST (PAGE 58, VOLUME 1, TOWN RECORDS)	1849	DISCON TINUED
21	CALHOUN ROAD	GREENFIELD AVE TO BLUE MOUND RD (PAGE 13, VOLUME 1, TOWN RECORDS)	1844	4 RODS 66.0'
22	CALHOUN ROAD	BLUE MOUND RD TO LISBON RD (PAGE 13, VOLUME 1, TOWN RECORDS)	1844	4 RODS 66.0'
23	CALHOUN ROAD	SECTION CORNER 21 & 22 & 27 & 28 TO BLUE MOUND RD (PAGE 26 VOLUME 1, TOWN RECORDS)	1845	4 RODS 66.0'
24	CALHOUN ROAD	SECTION CORNER 21 & 22 & 27 & 28 TO BLUE MOUND RD (PAGE 26 VOLUME 1, TOWN RECORDS)	1845	DISCON TINUED
25	CAPITOL DRIVE	N. 124th ST TO SPRINGDALE RD (PAGE 7, VOLUME 1, TOWN RECORDS) (AKA: PEWAUKEE & MILWAUKEE RD & MADISON RD)	1843	4 RODS 66.0'
26	CAPITOL DRIVE (NO DOCUMENT)	N. 124th ST TO SPRINGDALE RD - S.T.H. "190" (CURRENT ALIGNMENT STATE PROJECT F06-1(39))	1963	WIDTH VARIES
27	DAVIDSON ROAD	CALHOUN RD TO MARTIN DR (PAGE 10 VOLUME 2, TOWN RECORDS)	1866	DISCON TINUED
28	DAVIDSON ROAD	EGAN RD TO GREENFIELD AVE (PAGE 75 VOLUME 2, TOWN RECORDS)	1877	3 RODS 49.50'
29	DAVIDSON ROAD	EGAN RD TO GREENFIELD AVE (PAGE 78 VOLUME 2, TOWN RECORDS) (AWARD OF DAMAGES)	1877	AWARD
30	DECHANT ROAD (DECK ANT ROAD)	BLUE MOUND RD TO GREENFIELD AVE (PAGE 36 VOLUME 1, TOWN RECORDS)	1847	3 RODS 49.50'
31	ELM GROVE ROAD	BLUE MOUND RD TO GREENFIELD AVE (PAGE 18, VOLUME 1, TOWN RECORDS)	1844	3 RODS 49.50'
32	ELM GROVE ROAD	BLUE MOUND RD TO WATERTOWN PLANK RD (PAGE 72, VOLUME 1, TOWN RECORDS)	1850	4 RODS 66.0'

* INDICATES PUBLIC STREET WIDTH 66.0 FEET PER STATE STATUTE CHAPTER 82.31 (1)

CALHOUN RD FROM BLUEMOUND RD TO LISBON RD. (22)

TOWN OF BROOKFIELD

Copied from page 13, Vol. I, Town Records

Description of a highway in the town of Brookfield baounded as follows:

Commencing athe United States Road between D. Raymonds and J. W. Brackets and running due North on ssid line to the North side of Gerry Putneys land then in a North East direction through the Tamarack Swamp to the Section stake of twenty one and twenty two, twenty seven and Twenty eight, thence North on the Section line between twenty one and twenty two. Fifteen & Sixteen Nine and ten, three and four and intersec the North Madison Road on the North Town line.

We the undersigned Commissioners of highways for the town of Brookfield after carefully viewing said route consider the same to be of public benefit do establish the same four rods in width.

Brookfield March 9th, 1844

A. B. VanVleck
Robert Curran
Commissioners of Highways

PARCEL NUMBER	GRANTOR	GRANTEE	INSTRUMENT	DATE	RECORD	CUSTODIANS NO.	REMARKS
49	Lumbke Automatic Screw Machine Products	C.M.St.P.&P.R.R.Co.	W.D.	10-3-60	Vol.425 Oct.3.1960	616642	

PARCEL NUMBER	GRANTOR	GRANTEE	INSTRUMENT	DATE	RECORD	CUSTODIANS NO.	REMARKS
1	I. Fellows & Wife	MANRRCo.	W.D.	9-23-51	10,232,Feb. 1[illegible]		
2	G.E. Saley & Wife	MANRRCo.	Q.C.D.	9-4-59	26, 24,Feb. 17,1852	61751	
3	J. Baldwin	MANRRCo.	W.D.	9-21-50	9, 13,July 2,1851	61602	
4	D. Brewster	MANRRCo.	W.D.	3-24-52	10,299,Feb. 26,1852	61601	
5	J. Dixon & Wife	MANRRCo.	W.D.	3-27-52	10,301,Apr. 1,1852	61614	
6	C. Hart & Wife	MANRRCo.	W.D.	3-1-59	29,130,May 21,1859	61613	
7	G.L. Greene & Wife	MANRRCo.	R.W.D.	9-19-49	10,376,Apr. 6,1852	61618	
8	J. Whatley & Wife	MANRRCo.	W.D.	1-21-53	12, 36,Feb. 25,1853	61616	
9	A. Judd & Wife	Milwaukee & Watertown Railroad Co.	R.W.D.	9-19-49	10,286,Feb. 19,1852	61617	
10	E.T. Brown & Wife	MANRRCo.	W.D.	4-6-52	10,333,Apr. 17,1852	61635	
11	J. Brown & Wife	MARRRPRyCo.	W.D.	12-25-67	37,511,Dec. 26,1867	61797	
12	E. Hasslenbergh	MARRRPRyCo.	W.D.	5-8-64	30,285,Oct. 26,1864	61758	
13	J. Keephart & Wife	MARRRPRyCo.	W.D.	5-31-64	32, 61,Oct. 26,1864	61760	Land condemned but subsequently settled by W.D.
14	J. Dixon & Wife	MARRRPRyCo.	W.D.	2-20-64	32, 59,Oct. 26,1864	61615	
15	O. Harwood & Wife	MARRRPRyCo.	W.D.	3-23-64	32, 56,Oct. 26,1864	61639	
16	J. Dalpher & Wife	MARRRPRyCo.	W.D.	3-15-64	32, 65,Oct. 26,1864	61680	
17	R. Rolf & Wife	MARRRPRyCo.	W.D.	1-25-64	40,116,July 6,1868	61671	
18	W.D. Bacon & Wife	MARRRPRyCo.	R.W.D.	3-2-64	32, 67,Oct. 26,1864	61636	
19	J. Wirth & Wife	CMARRPRyCo.	W.D.	10-15-77	67,688,Feb. 12,1878	61674	
20	E.D. Holton, et al	MANRRCo.	W.D.	6-30-53	18, 37,July21,1854	61673	
21	J.D. Rogers & Wife	MANRRCo.	W.D.	6-30-53	12,368,July 16,1853	61675	
22	W.S. Burker & Wife	MANRRCo.	W.D.	6-27-53	12,368,July 16,1853	61677	
23	W.S. Burker & Wife	MANRRCo.	W.D.	6-27-53	12,368,July 16,1853	61676	
24	H. Whalen & Wife	MANRRCo.	W.D.	6-27-53	12,368,July 16,1853	61701	
25	Samuel Dennison & wife	C.MANRRPRyCo.	W.D.	9-21-68	21,636,June 4,1868	61681	
26	Samuel Dennison & wife	C.MANRRPRyCo.	W.D.	9-21-68	21,636,June 4,1868	61682	APF 53362 APF 53362

100-723-07
AP 98-723-23
98-676-65
97-623-60

Sheet No. 3 of 49 sheets of '
from survey station 594+93

RIGHT OF WAY AND TRACK MAP

CHICAGO, MILWAUKEE & ST. PAUL RY. CO.

OPERATED BY THE

CHICAGO, MILWAUKEE & ST. PAUL RY. CO.

LA CROSSE DIVISION — MAIN LINE

STATION 594+93 TO STATION 749+27

SCALE: 1 IN. = 400 FT. JUNE 30, 1918.

OFFICE OF VALUATION ENGINEER

CHICAGO, ILLINOIS.

V.Wis.3

Attachment 3

Crash History & Reports

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

Name Of		Alphabetic Code	RR Accident/Incident No.
1. Reporting Railroad	Chicago, Milwaukee, St. Paul & Pacific Railroad	1a. MILW	1b. 423681
2. Other Railroad Involved in Train Accident/Incident		2a.	2b.
3. Railroad Responsible for Track Maintenance	Chicago, Milwaukee, St. Paul & Pacific Railroad	3a. MILW	3b. 423681

4. U.S. DOT-AAR Grade Crossing ID No. **390520H** | 5. Date of Accident/Incident **09/17/82** | 6. Time of Accident/Incident **02:25 PM**

7. Nearest Railroad Station: **BROOKFIELD** | 8. Division: | 9. County: **WAUKESHA** | 10. State Abbr. **55** Code **WI**

11. City *(if in a city)* **BROOKFIELD** | 12. Highway Name or No. **CALHOUN ROAD** | ☑ Public ☐ Private

Highway User Involved

13. Type — A. Auto, B. Truck, C. Truck-trailer, D. Pick-up truck, E. Van, F. Bus, G. School Bus, H. Motorcycle, J. Other Motor Vehicle, K. Pedestrian, M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)* **0**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West — Code: **1**

16. Position 1. Stalled on crossing 2. Stopped on Crossing 3. Moving over crossing 4. Trapped — Code: **2**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)* 2. Train *(units pushing)* 3. Train *(standing)* 4. Car(s) *(moving)* 5. Car(s) *(standing)* 6. Light loco(s) *(moving)* 7. Light loco(s) *(standing)* 8. Other *(specify)* A. Train pulling- RCL B. Train pushing- RCL C. Train standing- RCL — Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code:

20c. State the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)* **60** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **3**

24. Type of Equipment Consist *(single entry)* 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/Switching 8. Light loco(s) 9. Main./inspect. car A. Spec. MoW Equip. — Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **DOUBLE MAIN TRACK**

27. FRA Track Class **4**

28. Number of Locomotive Units **4**

29. Number of Cars **106**

30. Consist Speed *(Recorded if available)* R. Recorded E. Estimated **40** mph — Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West — Code: **2**

32. Type of Crossing Warning 1. Gates 2. Cantilever FLS 3. Standard FLS 4. Wig wags 5. Hwy. traffic signals 6. Audible 7. Crossbucks 8. Stop signs 9. Watchman 10. Flagged by crew 11. Other *(specify)* 12. None

Code(s): **03**

33. Signaled Crossing Warning: **20 sec warn min (1);**

34. Whistle Ban 1. Yes 2. No 3. Unknown — Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown — Code: **2**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown — Code: **2**

38. Driver's Age

39. Driver's Gender 1. Male 2. Female — Code:

40. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown — Code: **2**

41. Driver 1. Drove around or thru the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* — Code: **4**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown — Code: **2**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other *(specify)* 8. Not Obstructed — Code: **5**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	0
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was 1. Killed 2. Injured 3. Uninjured — Code: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)* **$2,300**

48. Total Number of Highway-Rail Crossing Users *(include driver)* **1**

50. Total Number of People on Train *(include passengers and crew)*

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No — Code: **2**

53a. Special Study Block | 53b. Special Study Block

54. Narrative Description

55. Typed Name and Title | 56. Signature | 57. Date

FORM FRA F 6180.57 * NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION (FRA)

HIGHWAY-RAIL GRADE CROSSING ACCIDENT/INCIDENT REPORT

OMB Approval No. 2130-0500

Name Of		Alphabetic Code	RR Accident/Incident No.
1. Reporting Railroad	Chicago, Milwaukee, St. Paul & Pacific Railroad	1a. MILW	1b. 407381
2. Other Railroad Involved in Train Accident/Incident		2a.	2b.
3. Railroad Responsible for Track Maintenance	Chicago, Milwaukee, St. Paul & Pacific Railroad	3a. MILW	3b. 407381

4. U.S. DOT-AAR Grade Crossing ID No. **390520H** | 5. Date of Accident/Incident **11/18/81** | 6. Time of Accident/Incident **07:50 AM**

7. Nearest Railroad Station: **BROOKFIELD** | 8. Division: | 9. County: **WAUKESHA** | 10. State Abbr. **55** Code **WI**

11. City *(if in a city)* **BROOKFIELD** | 12. Highway Name or No. **CALHOUN RD** | ☑ Public ☐ Private

Highway User Involved

13. Type — A. Auto, B. Truck, C. Truck-trailer, D. Pick-up truck, E. Van, F. Bus, G. School Bus, H. Motorcycle, J. Other Motor Vehicle, K. Pedestrian, M. Other *(specify)* — Code: **A**

14. Vehicle Speed *(est. mph at impact)*: **5**

15. Direction *(geographical)* 1. North 2. South 3. East 4. West — Code: **1**

16. Position 1. Stalled on crossing 2. Stopped on Crossing 3. Moving over crossing 4. Trapped — Code: **3**

20a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code: **4**

Rail Equipment Involved

17. Equipment — 1. Train *(units pulling)* 2. Train *(units pushing)* 3. Train *(standing)* 4. Car(s) *(moving)* 5. Car(s) *(standing)* 6. Light loco(s) *(moving)* 7. Light loco(s) *(standing)* 8. Other *(specify)* A. Train pulling- RCL B. Train pushing- RCL C. Train standing- RCL — Code: **1**

18. Position of Car Unit in Train: **1**

19. Circumstance 1. Rail equipment struck highway user 2. Rail equipment struck by highway user — Code: **1**

20b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither — Code:

20c. State the name and quantity of the hazardous material released, if any

21. Temperature *(specify if minus)* **35** °F

22. Visibility *(single entry)* 1. Dawn 2. Day 3. Dusk 4. Dark — Code: **2**

23. Weather *(single entry)* 1. Clear 2. Cloudy 3. Rain 4. Fog 5. Sleet 6. Snow — Code: **1**

24. Type of Equipment Consist *(single entry)* 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/Switching 8. Light loco(s) 9. Main./inspect. car A. Spec. MoW Equip. — Code: **1**

25. Track Type Used by Rail Equipment Involved 1. Main 2. Yard 3. Siding 4. Industry — Code: **1**

26. Track Number or Name: **MAIN**

27. FRA Track Class: **4**

28. Number of Locomotive Units: **1**

29. Number of Cars: **22**

30. Consist Speed *(Recorded if available)* R. Recorded E. Estimated **55** mph — Code: **E**

31. Time Table Direction 1. North 2. South 3. East 4. West — Code: **3**

32. Type of Crossing Warning 1. Gates 2. Cantilever FLS 3. Standard FLS 4. Wig wags 5. Hwy. traffic signals 6. Audible 7. Crossbucks 8. Stop signs 9. Watchman 10. Flagged by crew 11. Other *(specify)* 12. None

Code(s): **03**

33. Signaled Crossing Warning: **20 sec warn min (1);**

34. Whistle Ban 1. Yes 2. No 3. Unknown — Code:

35. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach — Code: **1**

36. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown — Code: **3**

37. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown — Code: **3**

38. Driver's Age

39. Driver's Gender 1. Male 2. Female — Code:

40. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown — Code: **3**

41. Driver 1. Drove around or thru the gate 2. Stopped and then proceeded 3. Did not stop 4. Stopped on crossing 5. Other *(specify)* — Code: **3**

42. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown — Code: **3**

43. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 2. Standing railroad equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicles 7. Other *(specify)* 8. Not Obstructed — Code: **5**

Casualties to:	Killed	Injured
46. Highway-Rail Crossing Users	0	0
49. Railroad Employees	0	0
52. Passengers on Train	0	0

44. Driver was 1. Killed 2. Injured 3. Uninjured — Code: **3**

45. Was Driver in the Vehicle? 1. Yes 2. No — Code: **1**

47. Highway Vehicle Property Damage *(est. dollar damage)*: **$500**

48. Total Number of Highway-Rail Crossing Users *(include driver)*: **1**

50. Total Number of People on Train *(include passengers and crew)*:

51. Is a Rail Equipment Accident / Incident Report Being Filed 1. Yes 2. No — Code: **2**

53a. Special Study Block | 53b. Special Study Block

54. Narrative Description

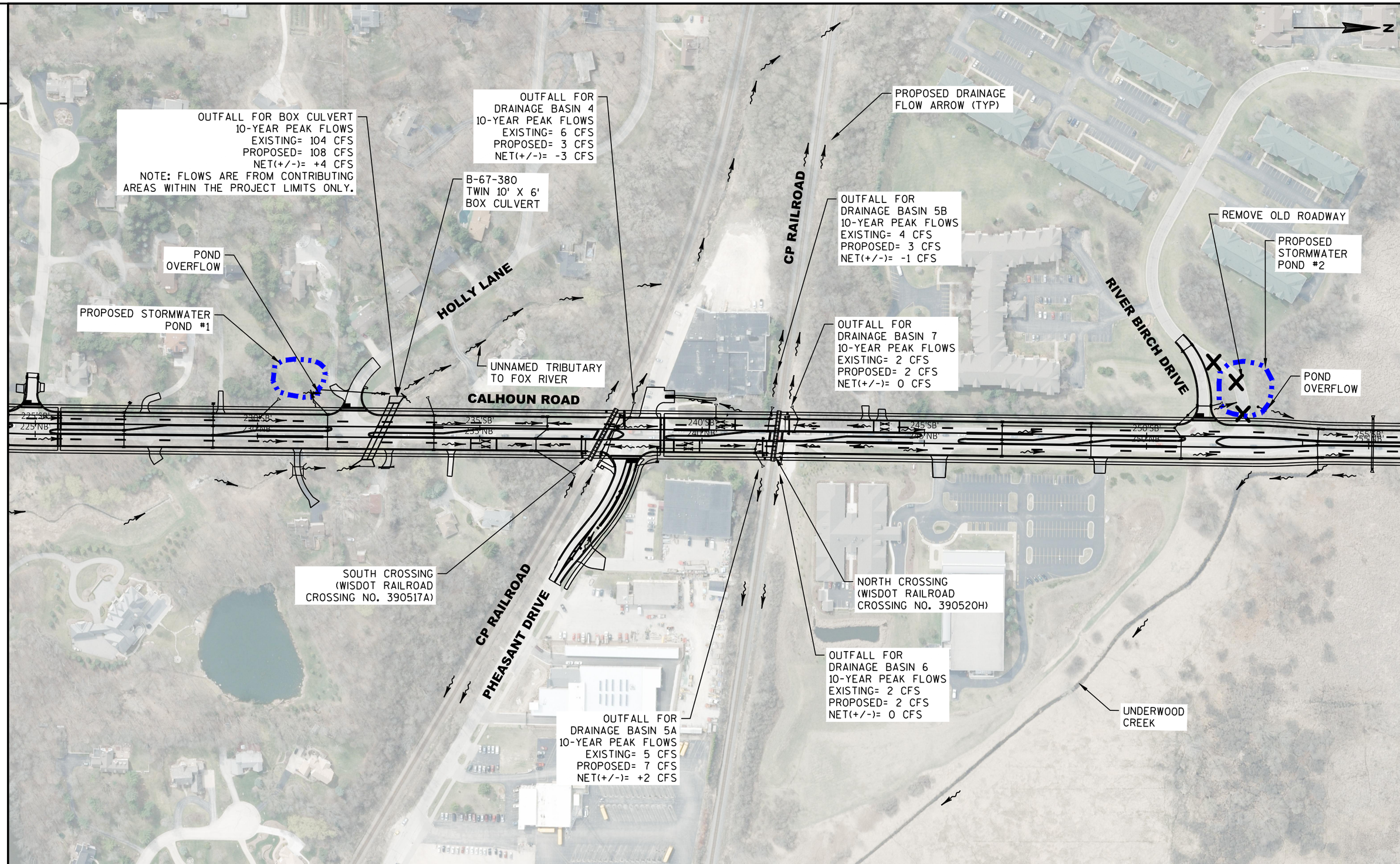
55. Typed Name and Title | 56. Signature | 57. Date

FORM FRA F 6180.57 * NOTE THAT ALL CASUALTIES MUST BE REPORTED ON FORM FRA F 6180.55A

Attachment 4

Railroad Crossing Drainage Exhibit

2



2

PROJECT NO: 2783-05-00	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	RAILROAD CROSSING DRAINAGE EXHIBIT	SHEET	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSOTHER\RR XING DRAINAGE EXHIBIT - CPRR.DWG
LAYOUT NAME - RR Xing Drainage
PLOT DATE : 11/19/2018 1:33 PM
PLOT BY : SIEBERT, LUKE
PLOT NAME :
PLOT SCALE : 1 IN:200 FT
WISDOT/CADDS SHEET 42

Attachment 5

FIRM Maps

395000 FT

MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0209G

FIRM

FLOOD INSURANCE RATE MAP

WAUKESHA COUNTY, WISCONSIN

AND INCORPORATED AREAS

PANEL 209 OF 500

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BROOKFIELD, CITY OF	550478	0209	G

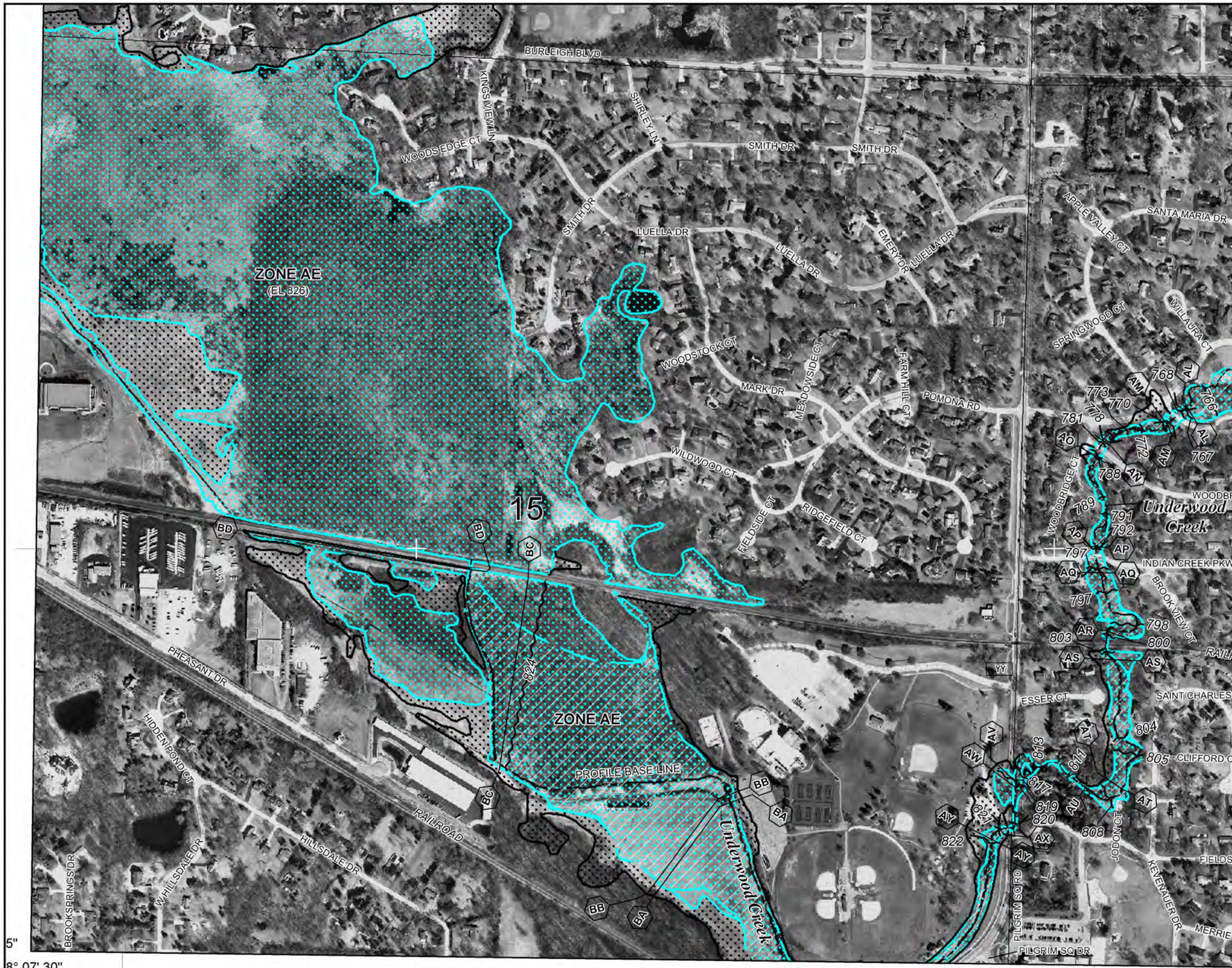
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
55133C0209G

MAP REVISED
NOVEMBER 5, 2014

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0228G

FIRM

FLOOD INSURANCE RATE MAP

WAUKESHA COUNTY, WISCONSIN

AND INCORPORATED AREAS

PANEL 228 OF 500

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BROOKFIELD, CITY OF	550478	0228	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
55133C0228G

MAP REVISED
NOVEMBER 5, 2014

Federal Emergency Management Agency

5"

8° 07' 30"

JOINS PANEL 0236

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Attachment 6

Calhoun Road DSR Section 4.3 at Railroad Crossings, Vertical Curve Features Beyond FDM Thresholds

raSmith

CREATIVITY BEYOND ENGINEERING

MEMORANDUM

DATE: August 9, 2018

TO: Kathy Kramer, P.E., WisDOT SE Region

FR: Brad Severson, P.E., raSmith

CC: Jeff Chase, P.E., City of Brookfield

RE: Calhoun Road (County M to WIS 190) Local Street
Project ID 2783-05-00
Section 4.3 of the Design Study Report – CPRR crossings

Introduction
The preferred alternative for the Calhoun Road design will require substandard profile design elements near the two Canadian Pacific Railroad at-grade crossings. The City of Brookfield and raSmith would like to receive approval from WisDOT regarding the proposed design criteria. Vertical curve k-values are proposed that are below the minimum values for a 40 mph design speed, and profile grade breaks without vertical curves are also proposed that are above the maximum for a 40 mph design speed. This memorandum provides Section 4.3 (Design Criteria Outside of Desirable Standards) of the Design Study Report (DSR) for that segment of the project. There may be additional design elements that will also be documented in Section 4.3 of the DSR, but at this time, review of the criteria near the two railroad crossings is sought, as these are the only criteria expected to be beyond minimum (or maximum) limits.

The following is Section 4.3 of the DSR, discussing the design near the two railroad crossings, and the issues associated with providing a design that meets all Facilities Development Manual (FDM) criteria:

Design Criteria Outside of Standards Requested for Approval

On Calhoun Road from approximately STA 237+50 to STA 242+00 there are proposed vertical design criteria outside of FDM standards for the design speed of 40 mph. This is due to the close proximity (approximately 385') and existing elevation difference (approximately 8.5') between two existing Canadian Pacific Railroad at-grade crossings. This is further complicated by an existing superelevation on the southern-most crossing of approximately 3.2% in the opposite direction of the existing profile. There is inadequate space between the two at-grade crossings to provide a profile design that meets FDM standards without changes to the railroads.

The proposed roadway design contains the following design criteria that are outside of FDM standards (**See Exhibit 4-1**. Note, southbound profile is not shown as it has approximately the same profile deficiencies. **See Attachment 1** – Plan and Profile Sheets for additional details.):

Northbound Direction of Travel

- Profile grade breaks of 1.7% are proposed at STA 237+66'NB' and STA 237+77'NB'. These grade breaks are located at the proposed edge of concrete panels of the southern superelevated crossing. These grade breaks exceed the maximum change in grade without a vertical curve of 0.8% for a design speed of 40 mph. This is an improvement over the existing condition, as the existing grade breaks at this railroad crossing are 4.3% and 4.7%.

- A crest vertical curve with a K value of 29.5 is proposed from STA 237+77'NB' to STA 239+37'NB'. This does not meet the minimum K value of 44 for a design speed of 40 mph. This curve does meet the minimum K value for a design speed of 35 mph (K_{crest} = 29).
- A sag vertical curve with a K value of 28.9 is proposed from STA 240+52'NB' to 241+60'NB'. This curve does not meet the minimum K value of 64 for a design speed of 40 mph. This curve does meet the minimum K value for a design speed of 25 mph (K_{sag} = 26).
- Stopping Sight Distance (SSD) does not meet the minimum 305' using a 24-inch object height for a design speed of 40 mph from approximately STA 236+60'NB' to STA 237+50'NB'. SSD does meet the minimum 250' using a 24-inch object height for a design speed of 35 mph at all locations.
- At a distance of 30' beyond the rails of the southern crossing, the profile will deviate 6.5 inches and 7.3 inches from the plane of the rail, which is greater than the 3-inch desirable deviation recommended in FDM 17-60-5.3. These profile deviations are an improvement over the existing condition, which are 12.7 inches and 17.7 inches from the plane of the rail.

<u>Southbound Direction of Travel</u>

- Profile grade breaks of 1.7% are proposed at STA 237+79'SB' and STA 237+90'SB'. These grade breaks are located at the proposed edge of concrete panels of the southern superelevated crossing. These grade breaks exceed the maximum change in grade without a vertical curve of 0.8% for a design speed of 40 mph. This is an improvement over the existing condition, as the existing grade breaks at this railroad crossing are 4.3% and 4.7%.
- A crest vertical curve with a K value of 29.9 is proposed from STA 237+90'SB' to 239+62'SB'. This does not meet the minimum K value of 44 for a design speed of 40 mph. This curve does meet the minimum K value for a design speed of 35 mph (K_{crest} = 29).
- A sag vertical curve with a K value of 27.4 is proposed from STA 240+50'SB' to 241+63'SB'. This curve does not meet the minimum K value of 64 for a design speed of 40 mph. This curve does meet the minimum K value for a design speed of 25 mph (K_{sag} = 26).
- Stopping Sight Distance (SSD) does not meet the minimum 305' using a 24-inch object height for a design speed of 40 mph from approximately STA 239+95'SB' to STA 240+85'SB'. SSD does meet the minimum 250' using a 24-inch object height for a design speed of 35 mph at all locations.
- At a distance of 30' beyond the rails of the southern crossing, the profile will deviate 5.6 inches and 6.5 inches from the plane of the rail, which is greater than the 3-inch desirable deviation recommended in FDM 17-60-5.3. These profile deviations are an improvement over the existing condition, which are 12.7 inches and 17.7 inches from the plane of the rail.

Mitigation of Design Criteria Outside of Standards

The following design elements are expected to mitigate the substandard profile design on Calhoun Road from STA 237+50 to STA 242+00:

- Intersection Sight Distance (ISD) will be improved for the Pheasant Drive intersection by raising the profile of Calhoun Road and grading the hill in the SE corner of the intersection. Desirable Intersection Sight Distance (ISD) is provided for all movements. This is an improvement over the existing condition, which provides minimum ISD but not desirable ISD for Movement B2 – Right Turn from Minor Road.
- Both at-grade railroad crossings are anticipated to have lights and gates. Overhead cantilever signal arms with lights are also proposed to increase sight distance to the signals.
- Advance warning signs will be placed to alert approaching drivers to the presence of the railroad crossings.
- Stopping sight distance to the railroad signals and warning signs will be 875 feet or greater for all railroad crossing approaches. This exceeds the minimum SSD of 305 feet for a 40 mph design speed.
- At the southern railroad crossing, the proposed grade breaks of 1.7% in the northbound and southbound directions, respectively, will provide a significant improvement in ride quality and driver comfort compared to the existing grade breaks of 4.3% and 4.7%.
- From 2011 to 2015, the majority of crashes near the railroad crossings were rear end crashes related to queued vehicles waiting for trains to cross. The reconstruction of Calhoun Road to a 4-lane divided roadway

is expected to reduce queues at the railroad crossings by nearly half. This will place queue ends in an area where the crossing is more visible to approaching drivers, and the shorter queues will release faster, reducing the likelihood of rear end crashes.

Alternatives Considered to Meet Minimum Criteria
Design of a profile that meets all FDM vertical design standards would require modifications to the design of one or both railroads. A Railroad Crossing Alternatives Technical Memorandum was completed for these at-grade crossings to evaluate four potential railroad or roadway reconstruction alternatives that may help improve existing roadway deficiencies (**see Attachment 2**). These alternatives are summarized below:

Railroad Crossing Alternatives

- Alternative #1 – Raise Northern Crossing
- Alternative #2 – Remove Super-elevation within the Southern Crossing
- Alternative #3 – Remove the Southern Crossing by Double Tracking the Northern Crossing
- Alternative #4 – Relocate Pheasant Drive's Western Access North of Northern Crossing

Of these alternatives, only Alternative #1 was considered feasible after considering potential construction costs, real estate impacts, environmental impacts, construction schedule, and probability of railroad approval. Therefore, only Alternative #1 was evaluated for potential improvement to existing roadway deficiencies.

A roadway profile was designed for the northbound direction of travel that would meet all FDM minimum standards by incorporating the Railroad Crossing Alternative #1 to raise the northern crossing (**See Exhibit 4-2**. Note, a southbound profile was not evaluated because it was assumed to be very similar to the northbound profile.). To meet the FDM minimum standards, the northern track would need to be raised approximately 7.7 feet. This would have numerous large impacts to two commercial properties, extensive railroad reconstruction, and increased wetland impacts. Retaining walls would be needed along the two commercial properties to avoid the need to relocate those businesses.

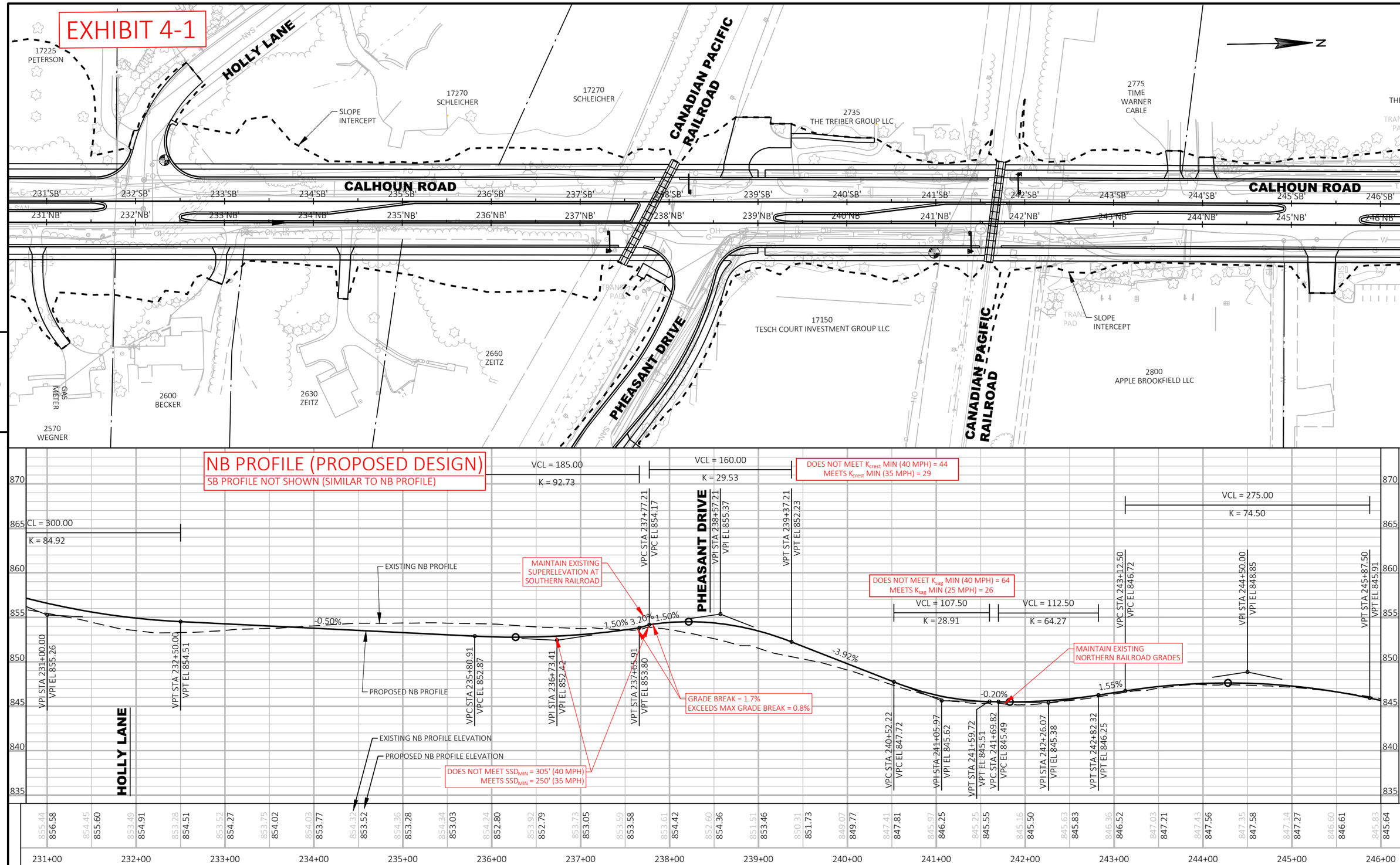
Alternative #1 of the Railroad Crossing Alternative Memo also only estimated approximately a 12-inch raise in the northern crossing to be considered probable/feasible. Raising the track only 12-inches does not result in design criteria that meets desirable standards, and therefore, has not been incorporated into the proposed roadway design. A 12-inch raise in the northern crossing was estimated to require approximately 1,200 feet of track reconstruction on each side of Calhoun Road. The over 7 feet of track raising needed to meet FDM vertical design standards could require as much as 9,000 feet of track reconstruction on each side of Calhoun Road. That extent of railroad work would also affect the at-grade railroad crossings at Brookfield Road and Pilgrim Road. Wetlands that are present along the northern tracks would also be affected by the railroad reconstruction. Wetlands were not delineated beyond the Calhoun Road construction limits, so exact wetland impacts could not be calculated.

Alternative #1 was estimated to cost approximately $200,000 for a 12-inch track raise. Therefore, it is estimated that the over 7 foot raise needed to meet vertical design standards would cost $1.4 million or more, with additional costs beyond that for the reconstruction of the at-grade railroad crossings at Brookfield Road and Pilgrim Road.

Providing profiles that meet FDM minimum standards from STA 237+50 to STA 242+00 would result in significant increases in construction costs, real estate impacts, and environmental impacts.

Acceptance of Design Criteria
See **Exhibit 4-3** for the City of Brookfield's acceptance of the proposed design criteria.

EXHIBIT 4-1

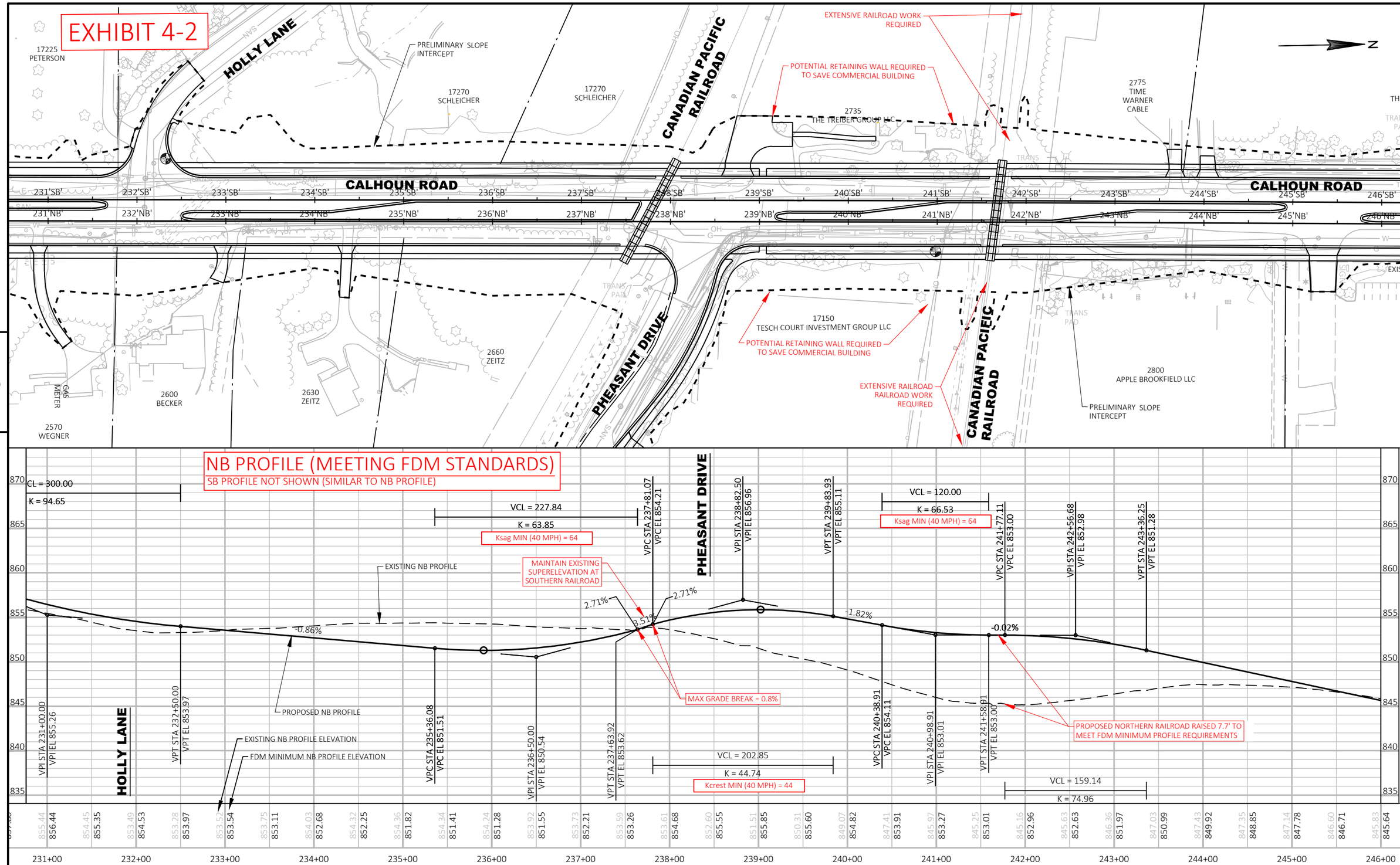


PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	PLAN AND PROFILE: CALHOUN ROAD - PROPOSED NORTHBOUND	SHEET	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSOTHER\DSR-EXHIBIT-SECTION4.3-PROP.DWG PLOT DATE : 7/13/2018 2:55 PM PLOT BY : WHITEFOOT, DANIEL PLOT NAME :

WISDOT/CADDS SHEET 44

EXHIBIT 4-2



PROJECT NO: 2783-05-70	HWY: CALHOUN ROAD	COUNTY: WAUKESHA	PLAN AND PROFILE: CALHOUN ROAD - NORTHBOUND	SHEET	E

FILE NAME : K:\1172700\CIVIL3D\27830500\SHEETSOTHER\DSR-EXHIBIT-SECTION4.3-FDM-MIN.DWG PLOT DATE : 4/6/2018 12:49 PM PLOT BY : WHITEFOOT, DANIEL PLOT NAME :

WISDOT/CADDS SHEET 44

EXHIBIT 4-3

Severson, Brad

From: Jeff Chase <chase@ci.brookfield.wi.us>
Sent: Thursday, August 9, 2018 11:16 AM
To: Severson, Brad
Cc: Tom Grisa; Senso, Doug
Subject: Calhoun Road Reconstruction I.D 2783-05-00 DSR Sec. 4.3

Brad,

This e-mail is in follow up to our recent conversations regarding the above referenced matter. The City of Brookfield is in agreement with the content of your memo dated February 16, 2018 regarding the proposed roadway profiles near the CPRR crossings. While these profiles do not meet all FDM minimum design standards we believe it will be a significant improvement to the existing condition and represents the practical limits of geometric design give the many existing constraints. Please proceed as proposed.

Jeffrey M.Chase P.E.
City Engineer
2000 N. Calhoun Road
(262) 787-3524

Attachment 7

US DOT Crossing Inventory Form

U. S. DOT CROSSING INVENTORY FORM

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

OMB No. 2130-0017

Instructions for the initial reporting of the following types of new or previously unreported crossings: For public highway-rail grade crossings, complete the entire inventory Form. For private highway-rail grade crossings, complete the Header, Parts I and II, and the Submission Information section. For public pathway grade crossings (including pedestrian station grade crossings), complete the Header, Parts I and II, and the Submission Information section. For Private pathway grade crossings, complete the Header, Parts I and II, and the Submission Information section. For grade-separated highway-rail or pathway crossings (including pedestrian station crossings), complete the Header, Part I, and the Submission Information section. For changes to existing data, complete the Header, Part I Items 1-3, and the Submission Information section, in addition to the updated data fields. Note: For private crossings only, Part I Item 20 and Part III Item 2.K. are required unless otherwise noted. An asterisk * denotes an optional field.

A. Revision Date *(MM/DD/YYYY)* 01 / 09 / 2017

B. Reporting Agency ☒ Railroad ☐ Transit ☐ State ☐ Other

C. Reason for Update *(Select only one)* ☒ Change in Data ☐ New Crossing ☐ Closed ☐ No Train Traffic ☐ Quiet Zone Update ☐ Re-Open ☐ Date Change Only ☐ Change in Primary Operating RR ☐ Admin. Correction

D. DOT Crossing Inventory Number 390520H

Part I: Location and Classification Information

1. Primary Operating Railroad SOO Line Railroad Company [SOO]

2. State WISCONSIN

3. County WAUKESHA

4. City / Municipality ☒ In ☐ Near BROOKFIELD

5. Street/Road Name & Block Number CALHOUN RD *(Street/Road Name)* | * *(Block Number)*

6. Highway Type & No. CITY ST

7. Do Other Railroads Operate a Separate Track at Crossing? ☐ Yes ☒ No
If Yes, Specify RR

8. Do Other Railroads Operate Over Your Track at Crossing? ☒ Yes ☐ No
If Yes, Specify RR ATK

9. Railroad Division or Region ☐ None EAST

10. Railroad Subdivision or District ☐ None WATERTOWN

11. Branch or Line Name ☐ None CHICAGO-ST PAUL

12. RR Milepost *(prefix)* | 0098.380 *(nnnn.nnn)* | *(suffix)*

13. Line Segment * 98381MT

14. Nearest RR Timetable Station * BROOKFIELD

15. Parent RR *(if applicable)* ☐ N/A CP

16. Crossing Owner *(if applicable)* ☐ N/A CP

17. Crossing Type ☒ Public ☐ Private

18. Crossing Purpose ☒ Highway ☐ Pathway, Ped. ☐ Station, Ped.

19. Crossing Position ☒ At Grade ☐ RR Under ☐ RR Over

20. Public Access *(if Private Crossing)* ☐ Yes ☐ No

21. Type of Train ☒ Freight ☐ Transit ☒ Intercity Passenger ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other

22. Average Passenger Train Count Per Day ☐ Less Than One Per Day ☒ Number Per Day 2

23. Type of Land Use ☐ Open Space ☐ Farm ☒ Residential ☐ Commercial ☐ Industrial ☐ Institutional ☐ Recreational ☐ RR Yard

24. Is there an Adjacent Crossing with a Separate Number? ☐ Yes ☒ No If Yes, Provide Crossing Number

25. Quiet Zone *(FRA provided)* ☒ No ☐ 24 Hr ☐ Partial ☐ Chicago Excused Date Established

26. HSR Corridor ID ☒ N/A

27. Latitude in decimal degrees *(WGS84 std: nn.nnnnnnn)* 43.069124

28. Longitude in decimal degrees *(WGS84 std: -nnn.nnnnnnn)* -88.125915

29. Lat/Long Source ☒ Actual ☐ Estimated

30.A. Railroad Use *

31.A. State Use *

30.B. Railroad Use *

31.B. State Use *

30.C. Railroad Use *

31.C. State Use *

30.D. Railroad Use *

31.D. State Use *

32.A. Narrative *(Railroad Use)* *

32.B. Narrative *(State Use)* *

33. Emergency Notification Telephone No. *(posted)* 800-716-9132

34. Railroad Contact *(Telephone No.)* 800-716-9132

35. State Contact *(Telephone No.)* 608-266-1168

Part II: Railroad Information

1. Estimated Number of Daily Train Movements

1.A. Total Day Thru Trains *(6 AM to 6 PM)* 10

1.B. Total Night Thru Trains *(6 PM to 6 AM)* 10

1.C. Total Switching Trains 0

1.D. Total Transit Trains 0

1.E. Check if Less Than One Movement Per Day ☐
How many trains per week? 0

2. Year of Train Count Data *(YYYY)* 2016

3. Speed of Train at Crossing
3.A. Maximum Timetable Speed *(mph)* 65
3.B. Typical Speed Range Over Crossing *(mph)* From 10 to 65

4. Type and Count of Tracks
Main 2 Siding 0 Yard 0 Transit 0 Industry 0

5. Train Detection *(Main Track only)*
☒ Constant Warning Time ☐ Motion Detection ☐AFO ☐ PTC ☐ DC ☐ Other ☐ None

6. Is Track Signaled? ☒ Yes ☐ No

7.A. Event Recorder ☐ Yes ☒ No

7.B. Remote Health Monitoring ☐ Yes ☒ No

U. S. DOT CROSSING INVENTORY FORM

A. Revision Date *(MM/DD/YYYY)* 01/09/2017	PAGE 2	D. Crossing Inventory Number *(7 char.)* 390520H

Part III: Highway or Pathway Traffic Control Device Information

1. Are there Signs or Signals? ☒ Yes ☐ No

2. Types of Passive Traffic Control Devices associated with the Crossing

2.A. Crossbuck Assemblies *(count)* 2

2.B. STOP Signs *(R1-1) (count)* 2

2.C. YIELD Signs *(R1-2) (count)* 0

2.D. Advance Warning Signs *(Check all that apply; include count)* ☒ None
☐ W10-1 _____ ☐ W10-3 _____ ☐ W10-11 _____
☐ W10-2 _____ ☐ W10-4 _____ ☐ W10-12 _____

2.E. Low Ground Clearance Sign *(W10-5)*
☒ Yes *(count_____)*
☐ No

2.F. Pavement Markings
☐ Stop Lines ☐ Dynamic Envelope
☐ RR Xing Symbols ☒ None

2.G. Channelization Devices/Medians
☐ All Approaches ☐ Median
☐ One Approach ☒ None

2.H. EXEMPT Sign *(R15-3)*
☐ Yes
☒ No

2.I. ENS Sign *(I-13)* Displayed
☒ Yes
☐ No

2.J. Other MUTCD Signs ☐ Yes ☒ No
Specify Type _____ Count _____
Specify Type _____ Count _____
Specify Type _____ Count _____

2.K. Private Crossing Signs *(if private)*
☐ Yes ☐ No

2.L. LED Enhanced Signs *(List types)*

3. Types of Train Activated Warning Devices at the Grade Crossing *(specify count of each device for all that apply)*

3.A. Gate Arms *(count)*
Roadway 2
Pedestrian 0

3.B. Gate Configuration
☒ 2 Quad ☐ Full *(Barrier)* Resistance
☐ 3 Quad
☐ 4 Quad ☐ Median Gates

3.C. Cantilevered *(or Bridged)* Flashing Light Structures *(count)*
Over Traffic Lane 0 ☐ Incandescent
Not Over Traffic Lane 0 ☐ LED

3.D. Mast Mounted Flashing Lights *(count of masts)* 2
☐ Incandescent ☒ LED
☐ Back Lights Included ☐ Side Lights Included

3.E. Total Count of Flashing Light Pairs
4

3.F. Installation Date of Current Active Warning Devices: *(MM/YYYY)*
_____/_____ ☐ Not Required

3.G. Wayside Horn
☐ Yes Installed on *(MM/YYYY)* _____/_____
☒ No

3.H. Highway Traffic Signals Controlling Crossing
☐ Yes ☒ No

3.I. Bells *(count)*
1

3.J. Non-Train Active Warning
☐ Flagging/Flagman ☐ Manually Operated Signals ☐ Watchman ☐ Floodlighting ☒ None

3.K. Other Flashing Lights or Warning Devices
Count 0 Specify type _____

4.A. Does nearby Hwy Intersection have Traffic Signals?
☐ Yes ☒ No

4.B. Hwy Traffic Signal Interconnection
☒ Not Interconnected
☐ For Traffic Signals
☐ For Warning Signs

4.C. Hwy Traffic Signal Preemption
☐ Simultaneous
☐ Advance

5. Highway Traffic Pre-Signals
☐ Yes ☒ No
Storage Distance * _____
Stop Line Distance * _____

6. Highway Monitoring Devices *(Check all that apply)*
☐ Yes - Photo/Video Recording
☐ Yes – Vehicle Presence Detection
☒ None

Part IV: Physical Characteristics

1. Traffic Lanes Crossing Railroad ☐ One-way Traffic ☒ Two-way Traffic ☐ Divided Traffic
Number of Lanes 2

2. Is Roadway/Pathway Paved? ☒ Yes ☐ No

3. Does Track Run Down a Street? ☐ Yes ☒ No

4. Is Crossing Illuminated? *(Street lights within approx. 50 feet from nearest rail)* ☐ Yes ☒ No

5. Crossing Surface *(on Main Track, multiple types allowed)* Installation Date * *(MM/YYYY)* _____/_____ Width * _____ Length * _____
☒ 1 Timber ☐ 2 Asphalt ☐ 3 Asphalt and Timber ☐ 4 Concrete ☐ 5 Concrete and Rubber ☐ 6 Rubber ☐ 7 Metal
☐ 8 Unconsolidated ☐ 9 Composite ☐ 10 Other *(specify)* _____

6. Intersecting Roadway within 500 feet?
☐ Yes ☒ No If Yes, Approximate Distance *(feet)* _____

7. Smallest Crossing Angle
☐ 0° – 29° ☐ 30° – 59° ☒ 60° - 90°

8. Is Commercial Power Available? *
☒ Yes ☐ No

Part V: Public Highway Information

1. Highway System
☐ (01) Interstate Highway System
☐ (02) Other Nat Hwy System (NHS)
☒ (03) Federal AID, Not NHS
☐ (08) Non-Federal Aid

2. Functional Classification of Road at Crossing
☐ (0) Rural ☒ (1) Urban
☐ (1) Interstate ☐ (5) Major Collector
☐ (2) Other Freeways and Expressways
☐ (3) Other Principal Arterial ☐ (6) Minor Collector
☒ (4) Minor Arterial ☐ (7) Local

3. Is Crossing on State Highway System?
☐ Yes ☒ No

4. Highway Speed Limit
1 MPH
☐ Posted ☒ Statutory

5. Linear Referencing System *(LRS Route ID)* *

6. LRS Milepost *

7. Annual Average Daily Traffic *(AADT)*
Year 2006 AADT 15200

8. Estimated Percent Trucks
4 %

9. Regularly Used by School Buses?
☐ Yes ☒ No Average Number per Day _____

10. Emergency Services Route
☐ Yes ☒ No

Submission Information - *This information is used for administrative purposes and is not available on the public website.*

Submitted by _____ Organization _____ Phone _____ Date _____