

Public Utility

The existing utilities listed below and shown on these plans represent the best information available as obtained on our surveys. This information does not relieve the contractor of the responsibility to be satisfied as to its accuracy and the location of existing utilities.

Name of Owner

Kind of Utility

NIPSCO
801 East 86th Ave
Merrillville, Indiana 46410
Phone: (574) 284-2214
Cell: (574) 220-3804
pmgriffin@nisource.com
Phil Griffin

Gas

AT & T
307 S. Main St.
South Bend, Indiana 46601-2205
Phone: (574) 257-8380
db2741att.com
Dennis Bunch

Telephone

City of South Bend - Sanitary Sewer
1316 County-City Building
South Bend, Indiana 46601
Phone: (574) 255-9251
tmolnar@southbendin.gov
Tony Molnar

Sewer

South Bend Water Works
830 N. Michigan St.
South Bend, Indiana 46601
Phone: (574) 245-6108
eherman@southbendin.gov
Ed Herman

Water

St. Joseph Valley Metronet
130 S. Main St., Suite 275
South Bend, Indiana 46601
Phone: (574) 968-5342
bhudson@metronetzing.org
Ben Hudson

Fiber Optic Telecommunications

Comcast North
1920 McKinley Ave.
Mishawaka, Indiana 46545
Phone: (847) 789-1039 Ext. 71039
jay-castello@cable.comcast.com
Jay Castello

Telecommunications

AEP Distribution
2929 West Lathrop Street
South Bend, Indiana 46628
Phone: (574) 236-1653
rjstrasburg@aep.com
Bob Strasburg

Electric



General Notes:

- All elevations referenced to NAVAD 1988 using NGS benchmark stamped "F 20 1934" El.=737.37. NGS disk is located in the northeast corner of the bridge over Lafayette Ave. on the New York Central RR.
- All items shown are existing unless otherwise indicated as required.
- Locations and elevations shown for existing utilities are approximate. The contractor shall have all utilities located prior to beginning work, including the St. Joseph Valley Metronet. Contractor shall expose all existing utilities well in advance of crossing with new water main, sanitary sewer and storm sewer installation to allow for grade adjustment at no additional cost. If required after field verification, adjust alignment and grade of new pipeline as directed by engineer.
- Any damage to access roads, bridges, private or public property, and to existing structure not specified to be altered and caused by the contractor during construction shall be repaired at the expense of the contractor.
- If any errors become apparent, they shall be brought to the attention of the engineer prior to construction so that clarification or redesign may occur.
- The latest edition of the City of South Bend, Indiana specifications and standard details, and INDOT specifications and standard details are to be used with these plans.
- Driveways and street approaches in areas of cut or fill greater than 1' must be maintained with slopes not exceeding 15%.

REVISIONS

SHEET NO.	DATE	REVISION
2	1/12/2016	Added revision table
4, 5	1/12/2016	Revised typical section
30, 32, 39, 55, 57,	1/12/2016	Revised curb location
35	1/12/2016	Added note to salvage signal equipment
37	1/12/2016	Revised curb location & added Metronet relocation
43, 45	1/12/2016	Revised spot elevations & curb location
46	1/12/2016	Revised spot elevations
48	1/12/2016	Revised alignments
49	1/12/2016	Revised spot elevations
50	1/12/2016	Revised jointing layout
51-52	1/12/2016	Revised water main details
62	1/12/2016	Revised signal plan
63-64, 66, 68	1/12/2016	Revised lighting legend & wiring for bollards
65, 67	1/12/2016	Revised lighting legend & wiring for bollards & revised curb location
69	1/12/2016	Revised lighting tables
70	1/12/2016	Revised detail title
79	1/12/2016	Revised approach table
82-83	1/12/2016	Revised structure data table
92-93, 97-99, 102, 106	1/12/2016	Revised cross sections

INDEX

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12	Geometric Tie-In Details
13	Survey Control
14-27	Maintenance of Traffic
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48	Roundabout Geometric Details
49	Roundabout Grading Plan
50	Roundabout Jointing Plan
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74-76	Landscaping Details
77-78	Irrigation Details
79	Summary of Quantities and Approach Table
80	Miscellaneous Tables
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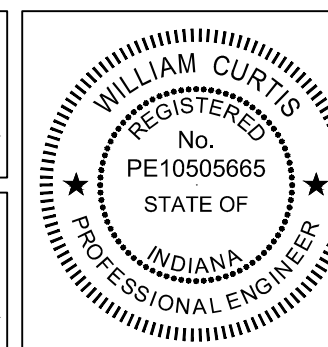
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Added revision table

W M R 1/13/16
SIGNATURE DATE

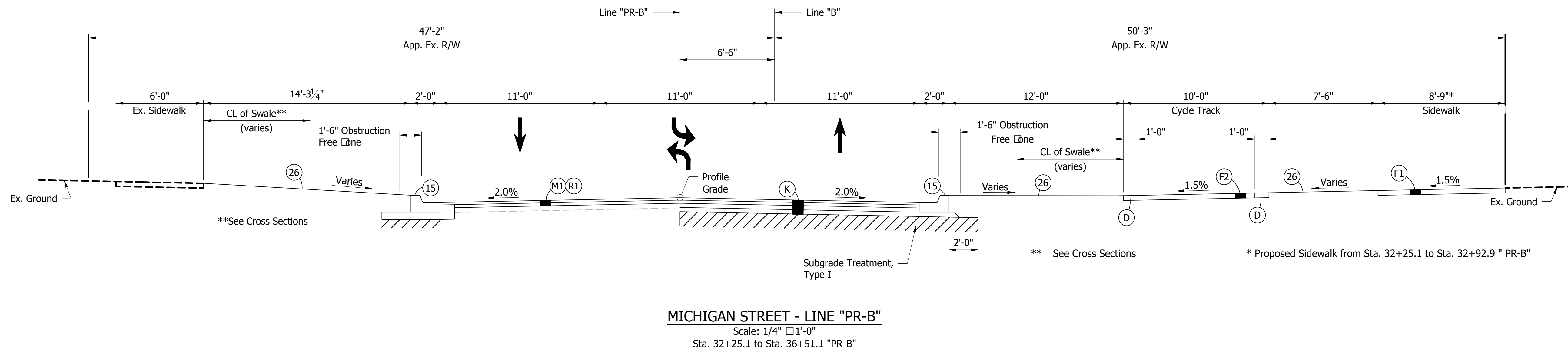
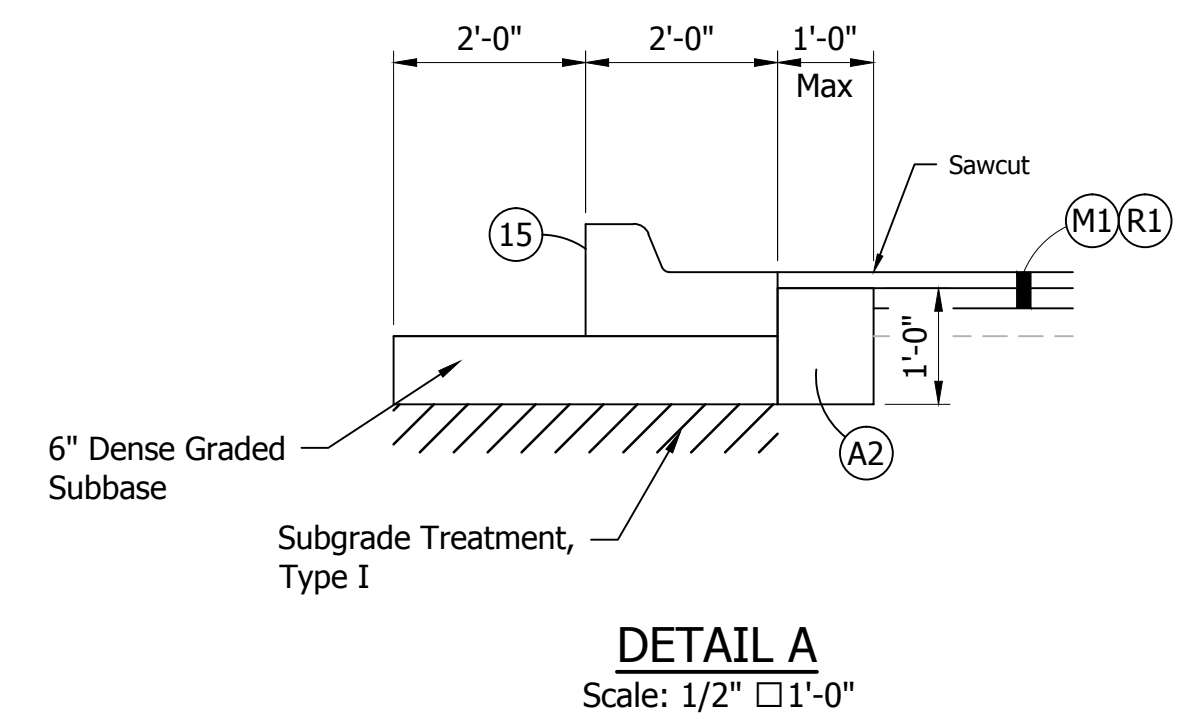
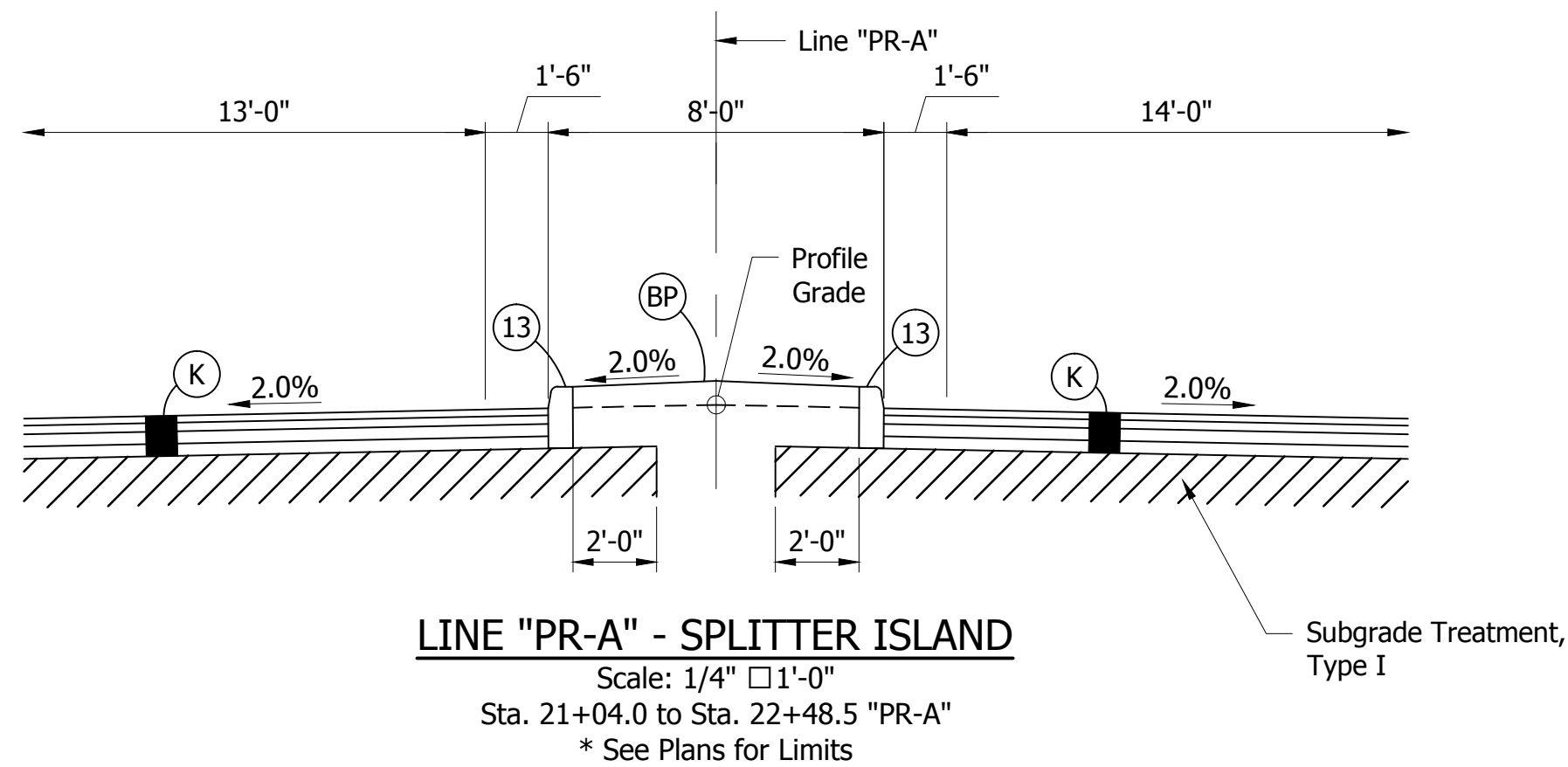
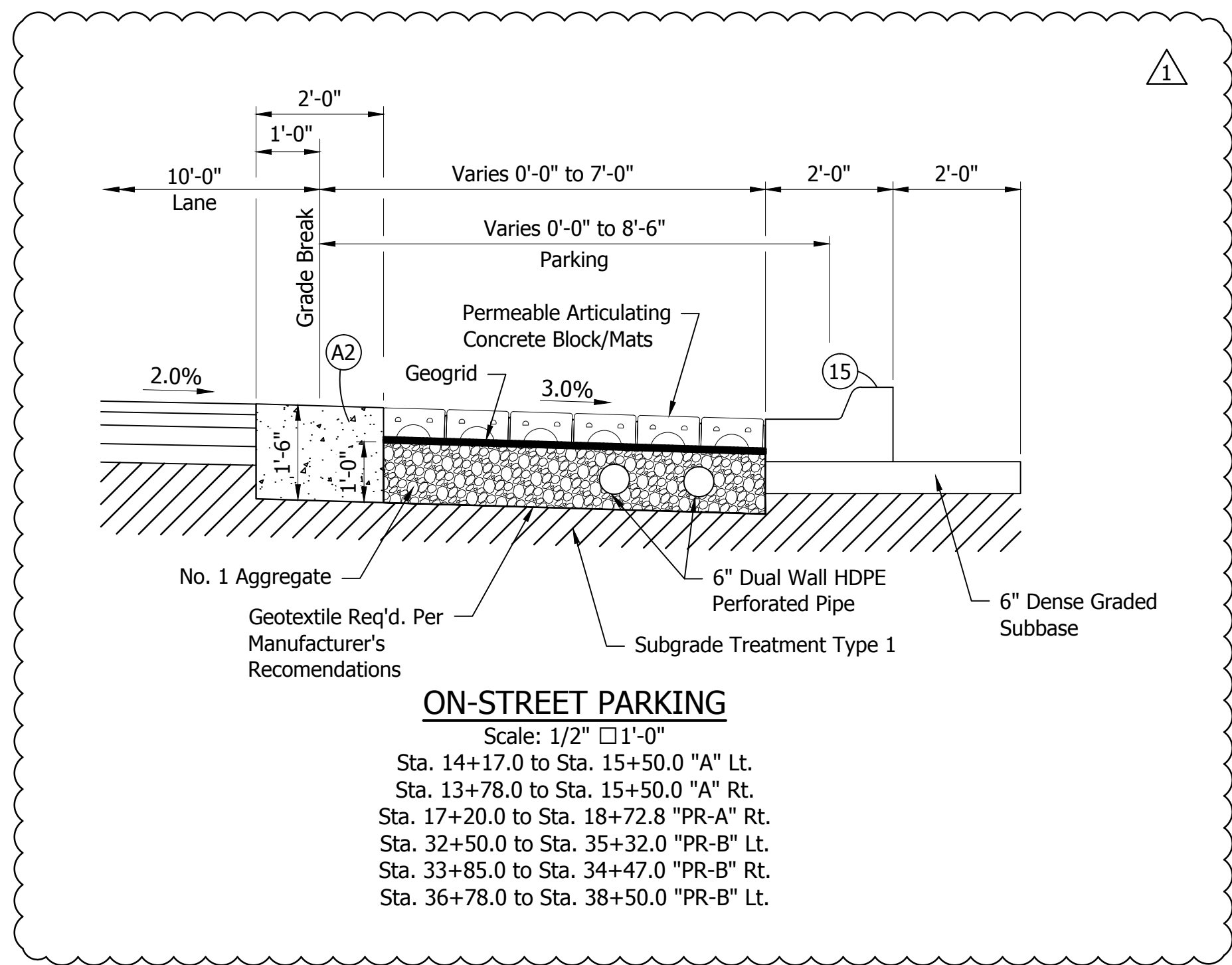


CITY OF SOUTH BEND, INDIANA
ROUNDABOUT INTERSECTION AT
MARION, MICHIGAN, & MAIN STREETS

INDEX AND GENERAL NOTES

REVISIONS	HORIZONTAL SCALE N/A	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: JNII	SURVEY BOOK -	SHEETS
CHECKED: WRC	DATE / /	2 OF 107

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LEGEND

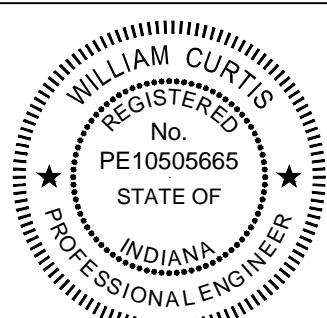
- (A) CC/CA-PCCP 10" with 15' D-1 Joint Spacing (1.25" Dowel Bars) 6" Dense Graded Subbase
- (A1) PCCP 10", Decorative with 15' D-1 Joint Spacing (1" Dowel Bars) 12" Dense Graded Subbase
- (A2) Concrete Header
- (BP) Brick Pavers, (See Detail)
- (D) Brick, Decorative, 12" x 12" (See Division B, Part 3 of 3 for Details)
- (F1) Concrete Sidewalk, 5"
- (F2) Concrete Sidewalk, 5", Decorative
- (K) 220 □/SYS CC/CA-HMA, 4, 76, Surface, 12.5 mm on 275 □/SYS CC/CA-HMA, 4, 76, Intermediate, 19.0mm on 385 □/SYS CC/CA-HMA, 4, 64, Base, 19.0 mm on 385 □/SYS CC/CA-HMA, 4, 64, Base, 19.0 mm
- (M1) Milling, Asphalt, 2"
- (R1) 220 □/SYS CC/CA-HMA, 4, 76, Surface, 12.5 mm on Variable □/SYS CC/CA-HMA, 4, 76, Intermediate, 19.0 mm (220 □/sys minimum)
- (11) Sawcut
- (13) Concrete Curb (Barrier)
- (14) Modified Integral Concrete Curb, Type B (Mountable)
- (15) Combination Curb and Gutter, Type B (City of South Bend)
- (18) Integral Concrete Curb (Barrier)
- (26) Nursery Sodding
- (27) See Landscaping Plan



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△ Revised typical section

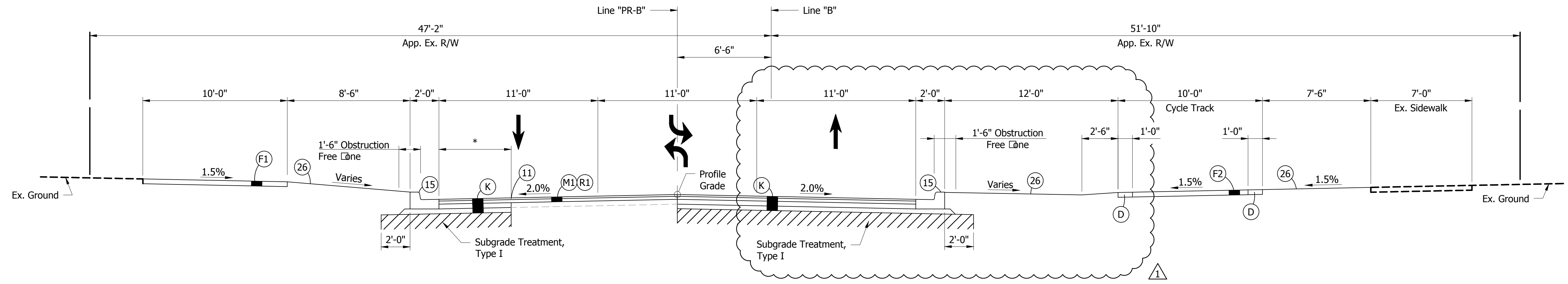
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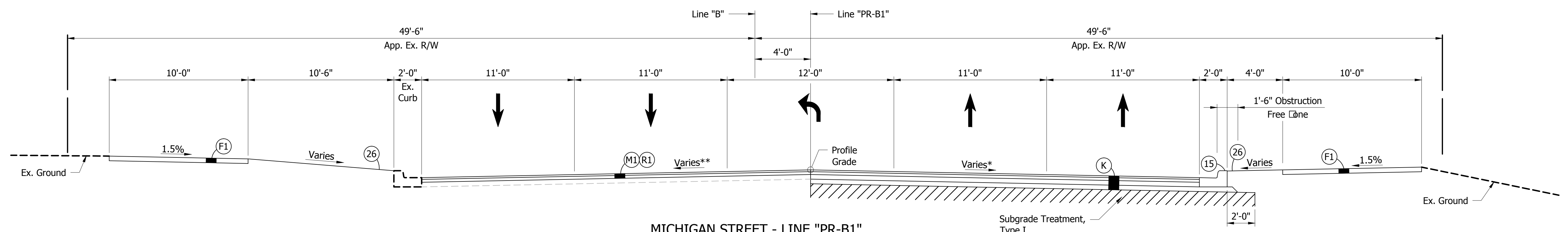
TYPICAL CROSS SECTIONS

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	VERTICAL SCALE AS SHOWN	
DRAWN: JNII	SURVEY BOOK	SHEETS
CHECKED: WRC	DATE	4 OF 107



* 4'-0" Next to On-Street Parking, else 5'-0"

MICHIGAN STREET - LINE "PR-B"
 Scale: 1/4" = 1'-0"
 Sta. 36+51.1 to Sta. 38+74.4 "PR-B"



* 2.0% from Sta. 44+01.0 to Sta. 44+50.0 "PR-B1"
 Transition from 2.0% to Existing from Sta. 44+50.0 to Sta 45+00.0 "PR-B1"

MICHIGAN STREET - LINE "PR-B1"
 Scale: 1/4" = 1'-0"
 Sta. 44+01.0 to Sta. 44+50.0 "PR-B1"

LEGEND

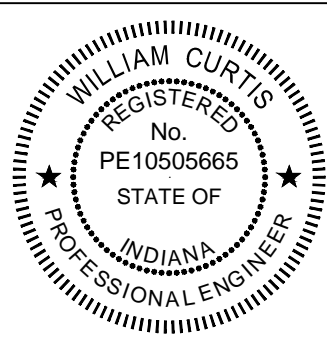
- | | | | | | |
|---|--|--|---|---|---------------------------------------|
| (A) CC/CA-PCCP 10" with 15' D-1 Joint Spacing (1.25" Dowel Bars) 6" Dense Graded Subbase | (BP) Brick Pavers, (See Detail) | (F2) Concrete Sidewalk, 5", Decorative | (R1) 220 □/SYS CC/CA-HMA, 4, 76, Surface, 12.5 mm on Variable □/SYS CC/CA-HMA, 4, 76, Intermediate, 19.0 mm (220 □/sys minimum) | (13) Concrete Curb (Barrier) | (18) Integral Concrete Curb (Barrier) |
| (A1) PCCP 10", Decorative with 15' D-1 Joint Spacing (1" Dowel Bars) 12" Dense Graded Subbase | (D) Brick, Decorative, 12" x 12" (See Division B, Part 3 of 3 for Details) | (K) 220 □/SYS CC/CA-HMA, 4, 76, Surface, 12.5 mm on 385 □/SYS CC/CA-HMA, 4, 64, Base, 19.0 mm on 385 □/SYS CC/CA-HMA, 4, 64, Base, 19.0 mm | (11) Sawcut | (14) Modified Integral Concrete Curb, Type B (Mountable) | (26) Nursery Sodding |
| (A2) Concrete Header | (F1) Concrete Sidewalk, 5" | (M1) Milling, Asphalt, 2" | | (15) Combination Curb and Gutter, Type B (City of South Bend) | (27) See Landscaping Plan |

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△ Revised typical section

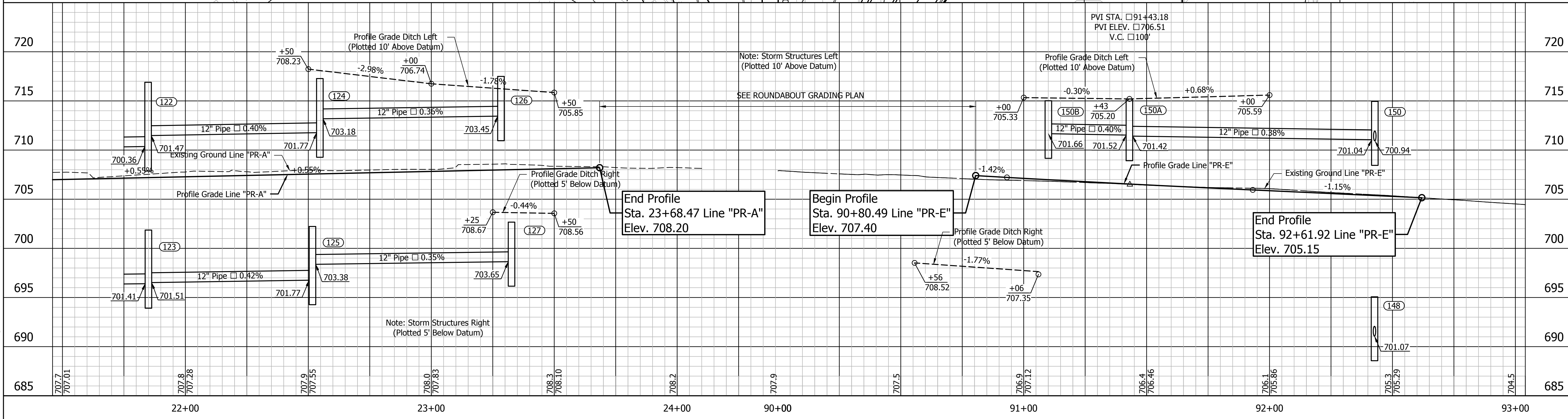
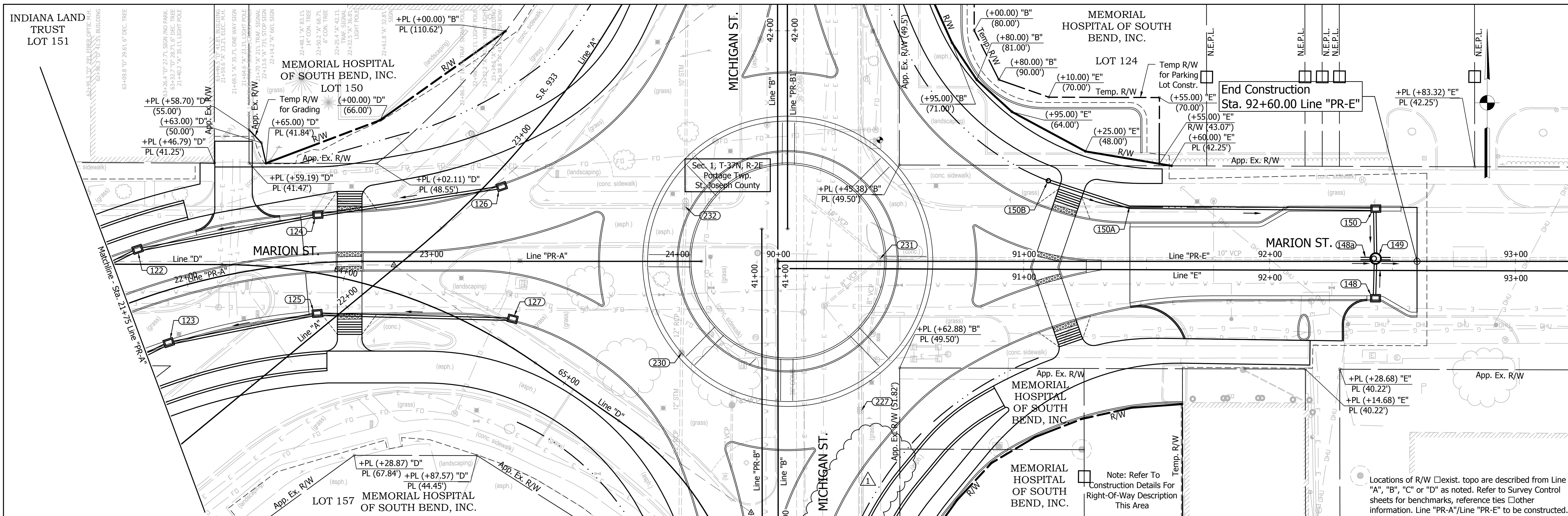
W.M. R. G. - 1/13/16
 SIGNATURE DATE



CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, □ MAIN STREETS

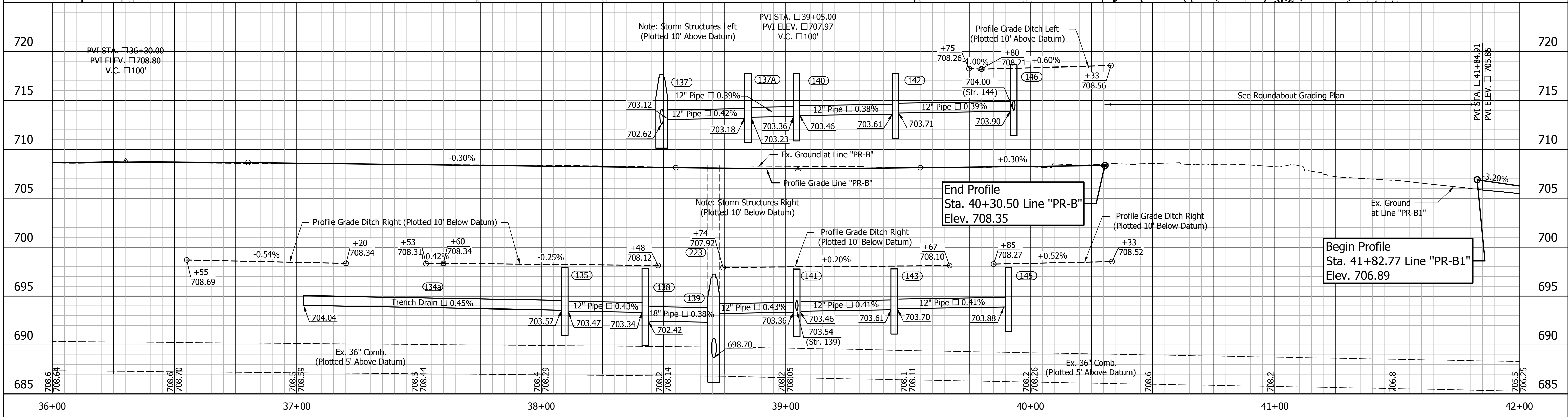
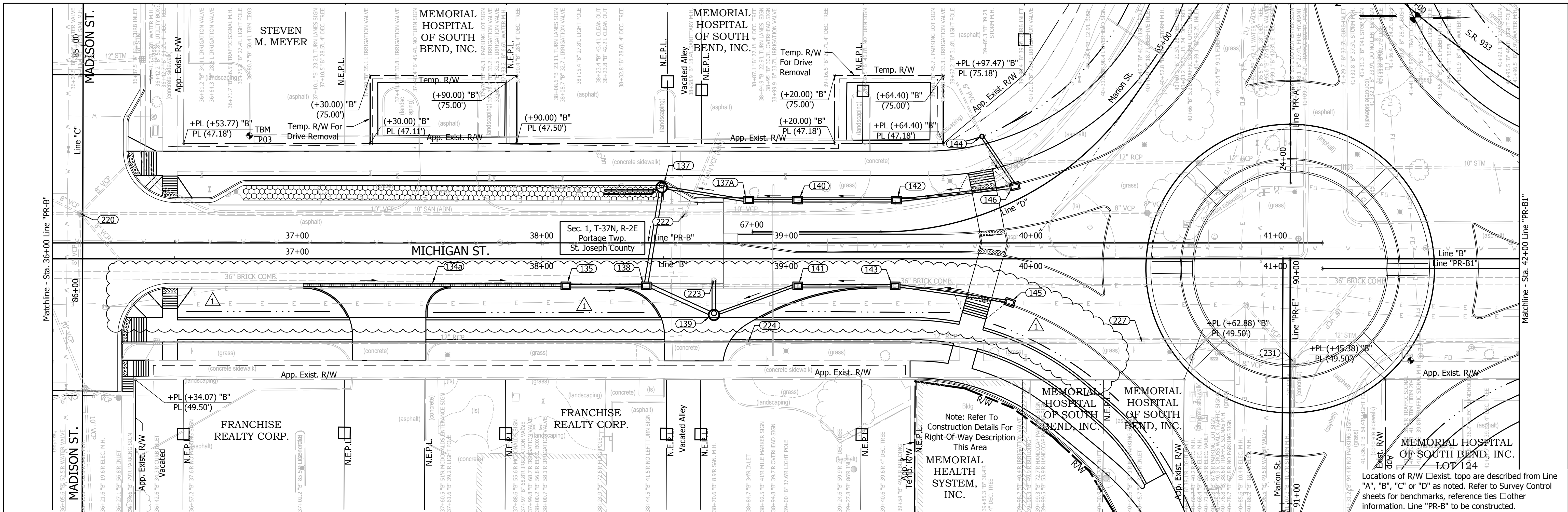
TYPICAL CROSS SECTIONS

REVISIONS	HORIZONTAL SCALE AS SHOWN	PROJECT NUMBER 114-035
	VERTICAL SCALE AS SHOWN	
DRAWN: JNII	SURVEY BOOK	SHEETS
CHECKED: WRC	DATE	5 OF 107
	///	



<p>1625 N. Post Road Indianapolis, IN 46219 Phone 317-895-2585 Fax 317-895-2596 www.ucindy.com</p>	Revised curb location	<p>W. M. Curtis - 1/13/16 SIGNATURE DATE</p>		<p>CITY OF SOUTH BEND, INDIANA ROUNDABOUT INTERSECTION AT MARION, MICHIGAN, MAIN STREETS</p>		<p>REVISIONS</p>	<p>HORIZONTAL SCALE 1"=20'</p> <p>VERTICAL SCALE 1"=5'</p>	<p>PROJECT NUMBER 114-035</p>
				<p>PLAN <input type="checkbox"/> PROFILE LINE "PR-A"/LINE "PR-E" - MARION ST.</p>		<p>DRAWN: JNII</p> <p>CHECKED: WRC</p>	<p>SURVEY BOOK DATE / /</p>	<p>SHEETS 30 OF 107</p>

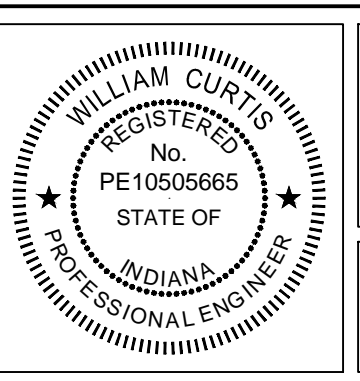
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Revised curb location

W.M.R. GTE - 1/13/16
SIGNATURE DATE



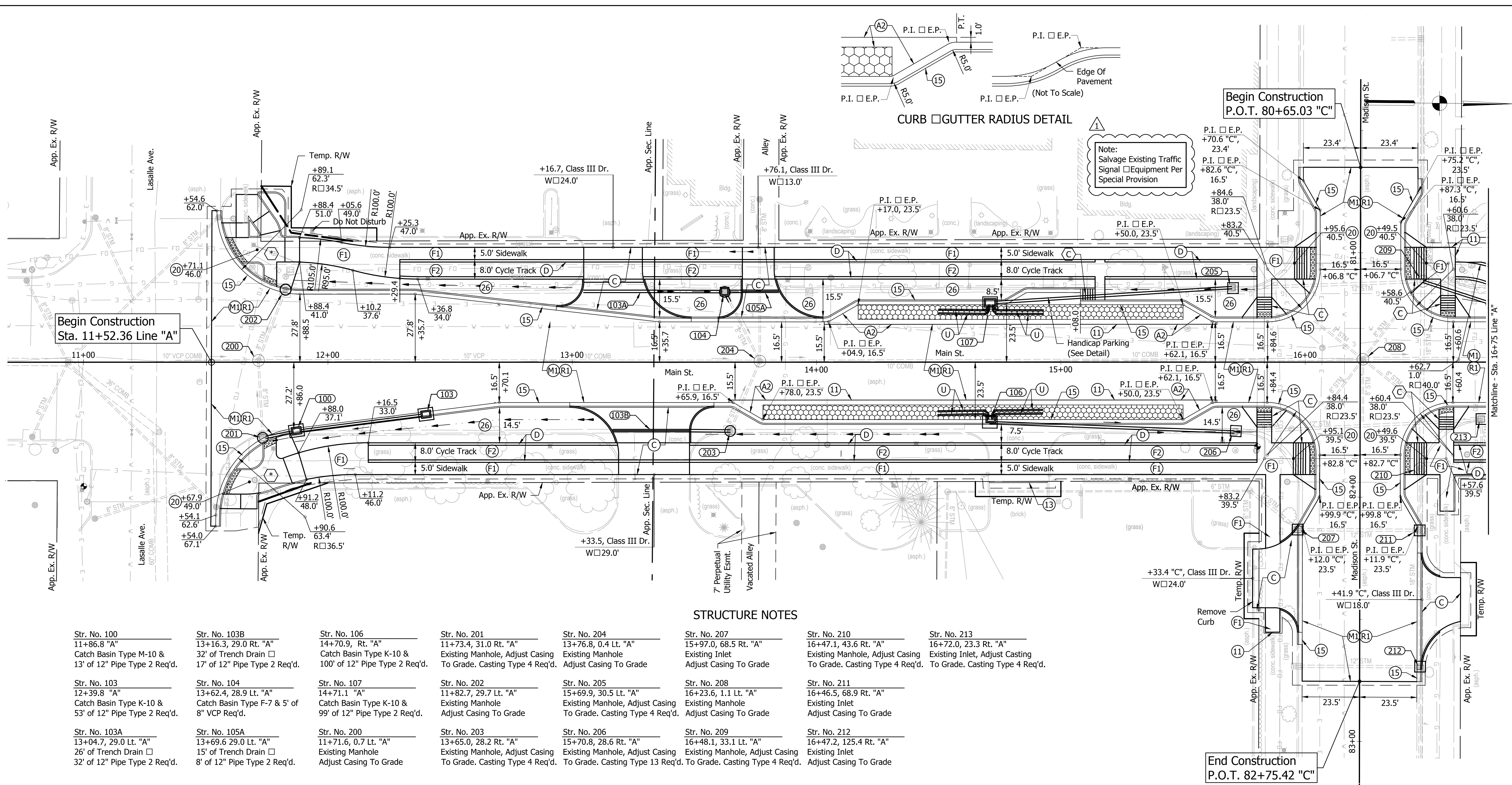
CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

PLAN PROFILE
LINE "PR-B"/LINE "PR-B1" - MICHIGAN ST.

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE 1"=5'	SHEETS 32 OF 107
DRAWN: JNII	SURVEY BOOK	
CHECKED: WRC	DATE	

File Name: p:\CDD\4-416\Road\Draw\Plans\Plan & Profile Line PR-B.dwg Plot Date: 1/13/2016 Plotted By: Nimz, John

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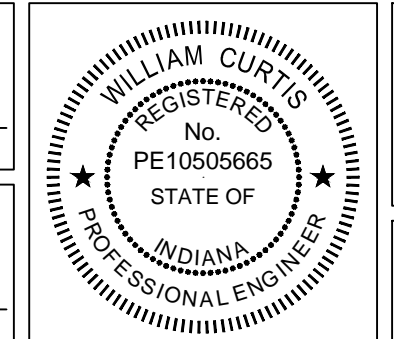
Str. No.	Description	Str. No.	Description	Str. No.	Description	Str. No.	Description	Str. No.	Description	Str. No.	Description
11+86.8 "A"	Catch Basin Type M-10 & 13' of 12" Pipe Type 2 Req'd.	13+16.3, 29.0 Rt. "A"	32' of Trench Drain □	14+70.9, Rt. "A"	Catch Basin Type K-10 & 100' of 12" Pipe Type 2 Req'd.	11+73.4, 31.0 Rt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 4 Req'd.	13+76.8, 0.4 Lt. "A"	Existing Manhole Adjust Casing To Grade	15+97.0, 68.5 Rt. "A"	Existing Inlet Adjust Casing To Grade
12+39.8 "A"	Catch Basin Type K-10 & 53' of 12" Pipe Type 2 Req'd.	13+62.4, 28.9 Lt. "A"	Catch Basin Type F-7 & 5' of 8" VCP Req'd.	14+71.1 "A"	Catch Basin Type K-10 & 99' of 12" Pipe Type 2 Req'd.	11+82.7, 29.7 Lt. "A"	Existing Manhole Adjust Casing To Grade	15+69.9, 30.5 Lt. "A"	Existing Manhole Adjust Casing To Grade. Casting Type 4 Req'd.	16+23.6, 1.1 Lt. "A"	Existing Manhole Adjust Casing To Grade
13+04.7, 29.0 Lt. "A"	26' of Trench Drain □	11+71.6, 0.7 Lt. "A"	Existing Manhole Adjust Casing To Grade	11+71.1 "A"	Existing Manhole Adjust Casing To Grade	13+65.0, 28.2 Rt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 4 Req'd.	15+70.8, 28.6 Rt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 13 Req'd.	16+48.1, 33.1 Lt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 4 Req'd.
11+86.8 "A"	Catch Basin Type M-10 & 13' of 12" Pipe Type 2 Req'd.	13+16.3, 29.0 Rt. "A"	32' of Trench Drain □	14+70.9, Rt. "A"	Catch Basin Type K-10 & 100' of 12" Pipe Type 2 Req'd.	11+73.4, 31.0 Rt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 4 Req'd.	13+76.8, 0.4 Lt. "A"	Existing Manhole Adjust Casing To Grade	15+97.0, 68.5 Rt. "A"	Existing Inlet Adjust Casing To Grade
12+39.8 "A"	Catch Basin Type K-10 & 53' of 12" Pipe Type 2 Req'd.	13+62.4, 28.9 Lt. "A"	Catch Basin Type F-7 & 5' of 8" VCP Req'd.	14+71.1 "A"	Catch Basin Type K-10 & 99' of 12" Pipe Type 2 Req'd.	11+82.7, 29.7 Lt. "A"	Existing Manhole Adjust Casing To Grade	15+69.9, 30.5 Lt. "A"	Existing Manhole Adjust Casing To Grade. Casting Type 4 Req'd.	16+23.6, 1.1 Lt. "A"	Existing Manhole Adjust Casing To Grade
13+04.7, 29.0 Lt. "A"	26' of Trench Drain □	11+71.6, 0.7 Lt. "A"	Existing Manhole Adjust Casing To Grade	11+71.1 "A"	Existing Manhole Adjust Casing To Grade	13+65.0, 28.2 Rt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 4 Req'd.	15+70.8, 28.6 Rt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 13 Req'd.	16+48.1, 33.1 Lt. "A"	Existing Manhole, Adjust Casing To Grade. Casting Type 4 Req'd.

- LEGEND**
- (A) □/□/□-PCCP 10" with 15' D-1 Joint Spacing (1.25" Dowel Bars) on 6" Dense Graded Subbase
 - (A1) PCCP, Colored, 10" with 15' D-1 Joint Spacing (1" Dowel Bars) on 10" Dense Graded Subbase
 - (A2) Concrete Header
 - (A3) PCCP, 5"
 - (BP) Brick Pavers, (See Detail)
 - (C) PCCP for Approaches, 9" on Subgrade Treatment, Type II
 - (D) Brick, Decorative, 12" x 12" (See Division B, Part 3 of 3 for Details)
 - (F1) Concrete Sidewalk, 5"
 - (F2) Concrete Sidewalk, 5", Decorative
 - (K) 220 □/SYS □/□/□-HMA, 4, 76, Surface, 12.5 mm on 275 □/SYS □/□/□-HMA, 4, 76, Intermediate, 19.0mm on 385 □/SYS □/□/□-HMA, 4, 64, Base, 19.0 mm on 385 □/SYS □/□/□-HMA, 4, 64, Base, 19.0 mm
 - (K1) HMA For Parking Lot 165 □/SYS HMA Surface Type B on 275 □/SYS HMA Intermediate Type B on 7" Compacted Aggregate, No. 53 Base on Subgrade Treatment, Type I
 - (M1) Milling, Asphalt, 2"
 - (R1) 220 □/SYS □/□/□-HMA, 4, 76, Surface, 12.5 mm on Variable □/SYS □/□/□-HMA, 4, 76, Intermediate, 19.0 mm (220 □/sys minimum)
 - (P) Porous Concrete, 8" on 12" No. 8 Stone
 - (U) 6" Underdrain
 - (11) Saw Cut
 - (13) Concrete Curb (Barrier)
 - (14) Modified Integral Concrete Curb, Type B (Mountable)
 - (15) Combination Curb and Gutter, Type B (City of South Bend)
 - (18) Integral Concrete Curb (Barrier)
 - (19) Center Curb
 - (20) Bollard, Decorative, Illuminated
 - (26) Nursery Sodding
 - (27) See Landscaping Plan
 - (90) Pipe Abandonment
 - (99) Remove
 - (-) Concrete Curb Ramp (INDOT Type as Indicated by Letter Inside Hexagon)
 - (*) Concrete Curb Ramp (Refer to Intersection Details)
 - Temporary Inlet Protection
 - PaveDrain, See Typical Sections

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Added note for traffic signal salvage

W.M. R. G. - 1/13/16
SIGNATURE DATE



CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, □ MAIN STREETS

CONSTRUCTION DETAILS
LINE "PR-A" - MAIN ST.

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
DRAWN: DJJ	VERTICAL SCALE 1"=3'	SHEETS 35 OF 107
CHECKED: WRC	SURVEY BOOK DATE	

STRUCTURE NOTES - LINE "PR-A"

- Str. No. 122
21+84.8, Lt. "PR-A"
Catch Basin Type M-10 &
85' of 12" Pipe Type 2 Req'd.
- Str. No. 123
21+85.0, Rt. "PR-A"
Catch Basin Type M-10 &
74' of 12" Pipe Type 2 Req'd.
- Str. No. 124
22+54.7, Lt. "PR-A"
Catch Basin Type M-10 &
75' of 12" Pipe Type 2 Req'd.
- Str. No. 125
22+51.7, Rt. "PR-A"
Catch Basin Type M-10 &
61' of 12" Pipe Type 2 Req'd.
- Str. No. 126
23+28.4, Lt. "PR-A"
Catch Basin Type K-10 &
76' of 12" Pipe Type 2 Req'd.
- Str. No. 127
23+32.6, Rt. "PR-A"
Catch Basin Type K-10 &
79' of 12" Pipe Type 2 Req'd.

STRUCTURE NOTES - LINE "PR-B1"

- Str. No. 151
42+50.0, 61.3 Lt. "PR-B1"
12" Pipe Catch Basin & 21'
Of 12" Pipe Type 2 Req'd.
- Str. No. 153
42+50.3, 40.5 Lt. "PR-B1"
Manhole Type C-4 & 6' of
10" Pipe VCP Req'd.

STRUCTURE NOTES - LINE "PR-E"

- Str. No. 148A
92+39.3, 1.1' Lt. "PR-E"
6' of 10" VCP Req'd.
- Str. No. 148
92+42.7, Rt. "PR-E"
Catch Basin Type K-10 & 17'
of 12" D.I. Pipe Type 2 Req'd.
- Str. No. 149
92+43.1, 1.1 Lt. "PR-E"
Manhole Type C-4 & 6' of
10" VCP Req'd.
- Str. No. 150
92+42.8, Lt. "PR-E"
Catch Basin Type K-10 &
21' of 12" Pipe Type 2 Req'd.
- Str. No. 150A
91+43.0, 22.0 Lt. "PR-E"
Catch Basin Type F-7 &
100' of 12" Pipe Type 2 Req'd.
- Str. No. 150B
91+10.0, 32.7 Lt. "PR-E"
12" Pipe Catch Basin & 35'
Of 12" Pipe Type 2 Req'd.

Note: Refer To Roundabout
Geometric Details Sheet For
Locations Of Curb Alignments
□ Pavement Edges

End Construction
Sta. 92+60.00 Line "PR-E"

**STRUCTURE NOTES
LINE "PR-B"**

- Str. No. 142
39+44.9, Lt. "PR-B"
Catch Basin Type M-10 &
41' of 12" Pipe Type 2 Req'd.
- Str. No. 143
39+44.3, Rt. "PR-B"
Catch Basin Type M-10 &
40' of 12" Pipe Type 2 Req'd.
- Str. No. 144
39+80.2, 43.5 Lt. "PR-B"
12" Pipe Catch Basin & 26'
Of 12" Pipe Type 2 Req'd.
- Str. No. 145
39+91.1, Rt. "PR-B"
Catch Basin Type K-10 &
47' of 12" Pipe Type 2 Req'd.
- Str. No. 146
39+93.2, Lt. "PR-B"
Catch Basin Type K-10 &
49' of 12" Pipe Type 2 Req'd.

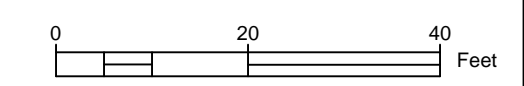
RELOCATED FIBER OPTIC LEGEND

- FO City Of South Bend Relocated Fiber Optic
- MFO St. Joseph Valley Metronet Relocated Fiber Optic
- New Handhole For Relocated Fiber Optic

STRUCTURE NOTES - EXIST. STR.

- Str. No. 227
40+45.7, 40.5 Rt. "PR-B"
Existing Manhole, Adjust Casing
To Grade. Casting Type 4 Req'd.
- Str. No. 231
41+07.3, 48.2 Rt. "PR-B"
Existing Manhole
Adjust Casing To Grade

Note: For Legend, See
Previous Or Next Sheet

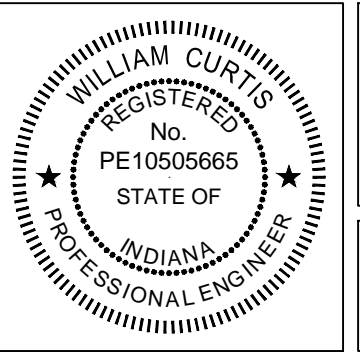


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△ Revised curb location □ Added Metronet relocation

W.M.R. GE - 1/13/16
SIGNATURE DATE

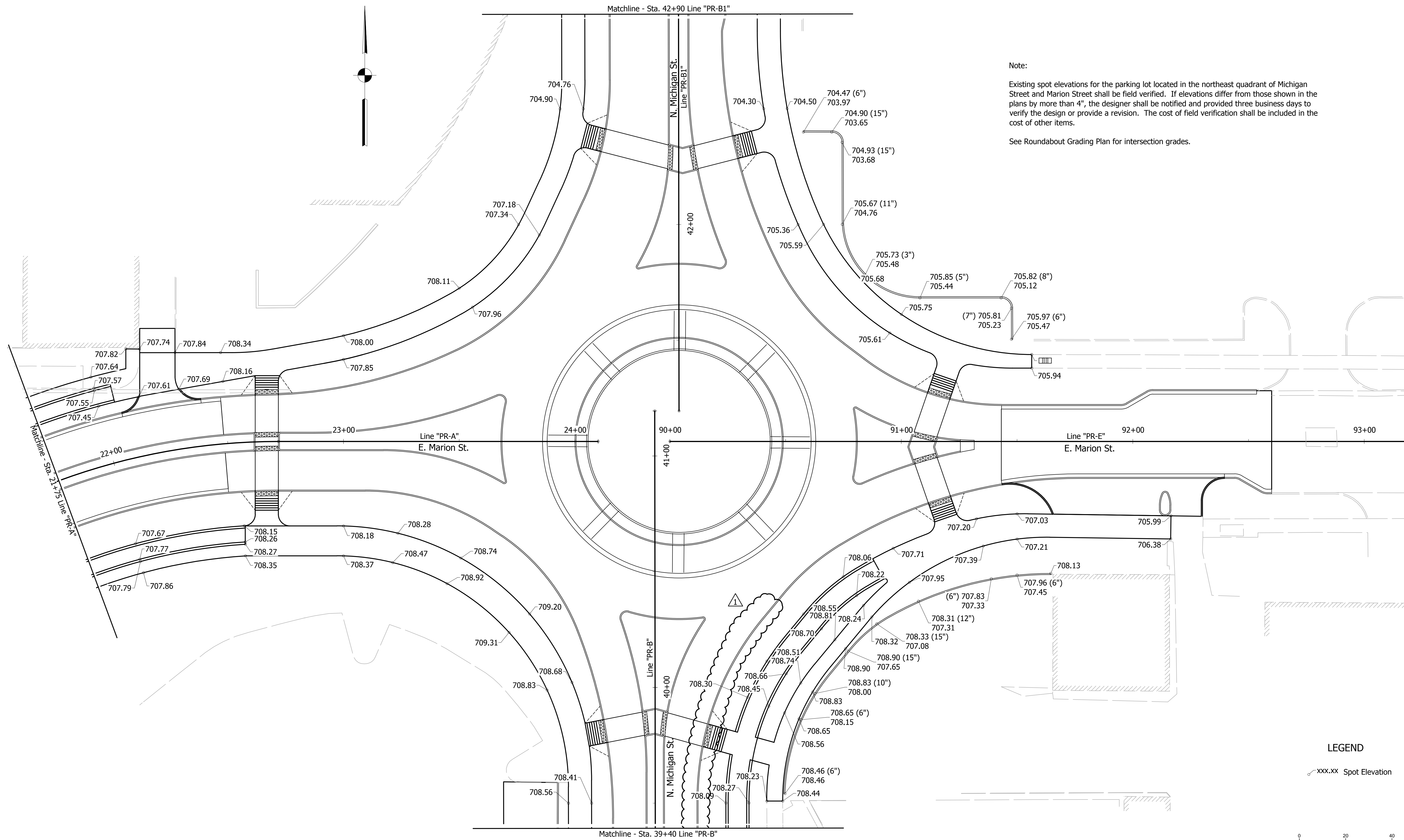


**CITY OF SOUTH BEND, INDIANA
ROUNDAUT INTERSECTION AT
MARION, MICHIGAN, □ MAIN STREETS**

**CONSTRUCTION DETAILS
LINE "PR-A" / LINE "PR-E"**

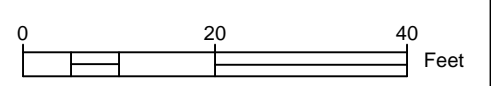
REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
DRAWN: DJJ	VERTICAL SCALE 1"=5'	SHEETS 37 OF 107
CHECKED: WRC	SURVEY BOOK DATE	

JOHN - 1/13/2016 2:58 PM - \\UCS04FS\Road\RoadTeam3\C3D\14-416\Road\Draw\Plans\Intersection Grading Details.dwg



Note:
 Existing spot elevations for the parking lot located in the northeast quadrant of Michigan Street and Marion Street shall be field verified. If elevations differ from those shown in the plans by more than 4", the designer shall be notified and provided three business days to verify the design or provide a revision. The cost of field verification shall be included in the cost of other items.
 See Roundabout Grading Plan for intersection grades.

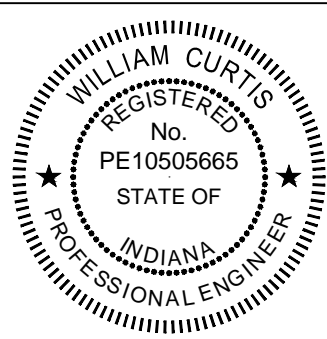
LEGEND
 xxx.xx Spot Elevation



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▲ Revised spot elevations □ curb location

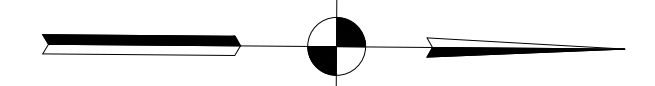
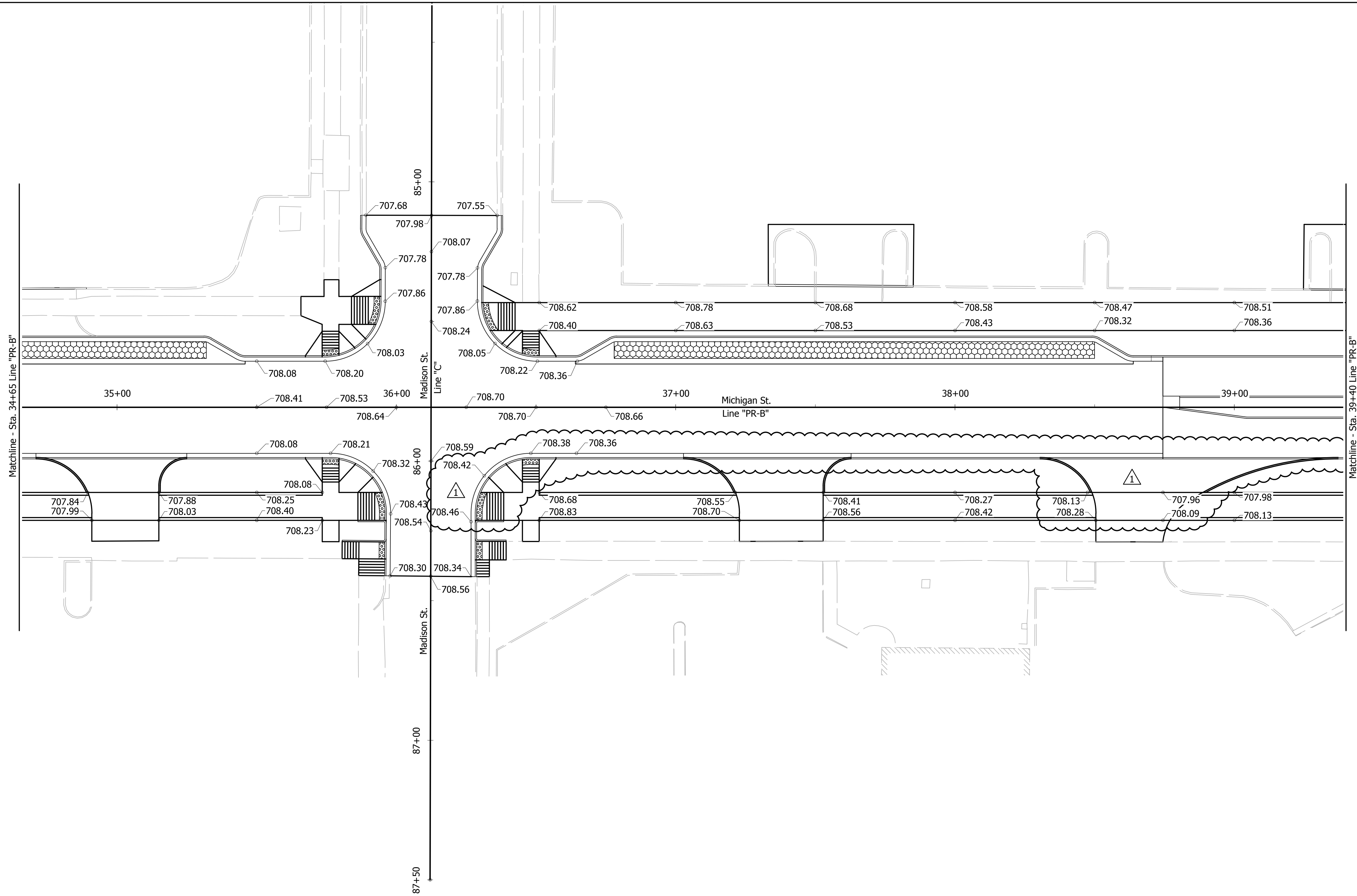
WRC 1/13/16
 SIGNATURE DATE



CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS
 GRADING DETAILS
 LINE "PR-A" / LINE "PR-E"

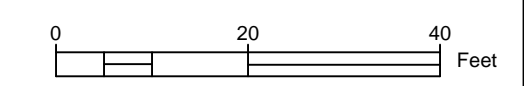
REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE 1"=1'	
DRAWN: DJC	SURVEY BOOK	SHEETS
CHECKED: WRC	DATE	43 OF 107

JOHN - 1/13/2016 2:58 PM - \\UCS04FS\Road\RoadTeam3\C3D\14-416\Road\Dwg\Plans\Intersection\Grading\Details.dwg



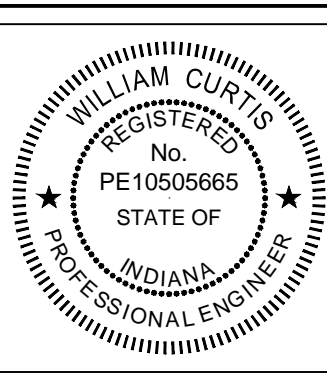
LEGEND

xxx.xx Spot Elevation



▲ Revised spot elevations □ curb location

W M R 1/13/16
 SIGNATURE DATE



CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, □ MAIN STREETS

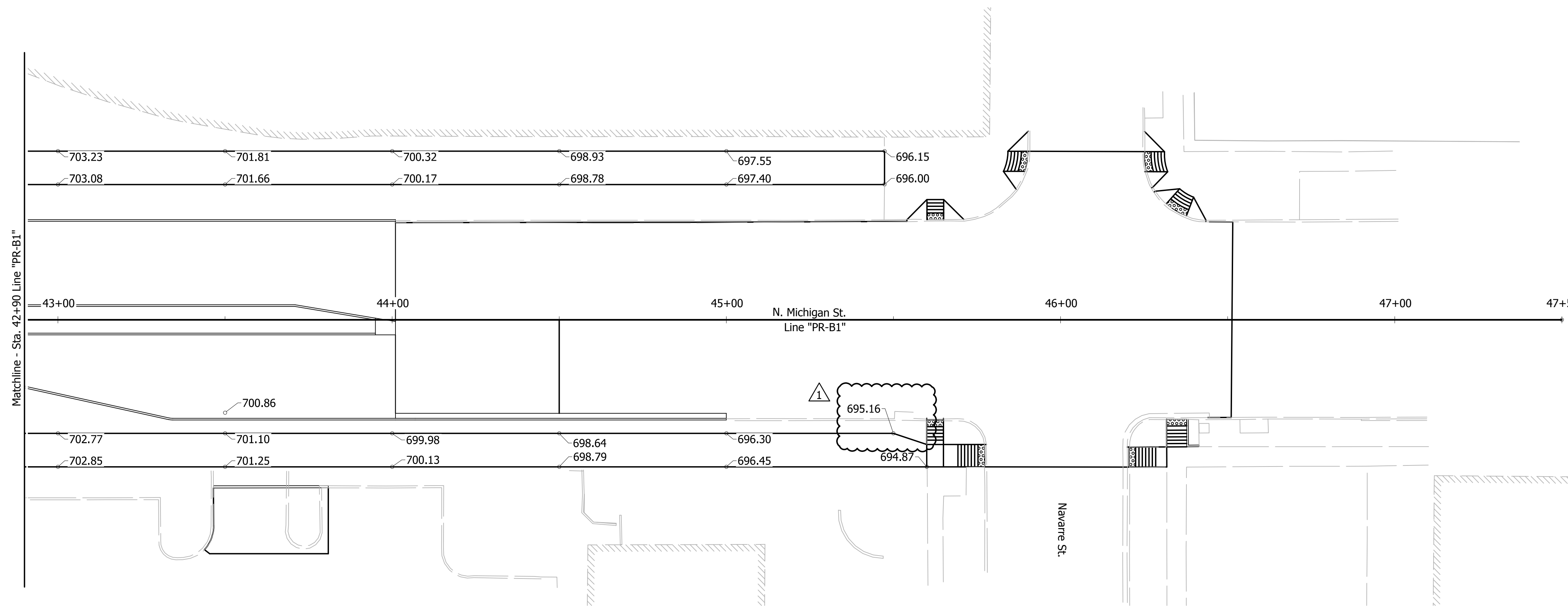
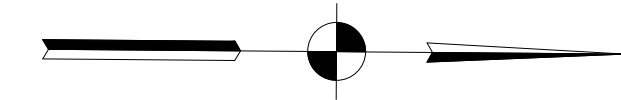
GRADING DETAILS
 LINE "PR-B"/"PR-B1" - MICHIGAN ST.

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE 1"=3'	
DRAWN: DJ□	SURVEY BOOK -	SHEETS
CHECKED: WRC	DATE //	45 OF 107



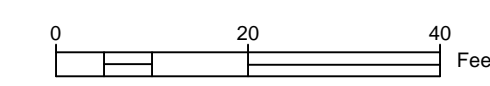
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JOHN - 1/13/2016 2:58 PM - \\UCS04FS\Road\RoadTeam3\C3D\14-416\Road\Dwg\Plans\Intersection\Grading\Details.dwg



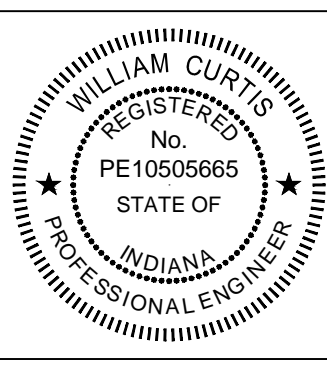
LEGEND

xxx.xx Spot Elevation



Revised spot elevations

W M R - 1/13/16
 SIGNATURE DATE



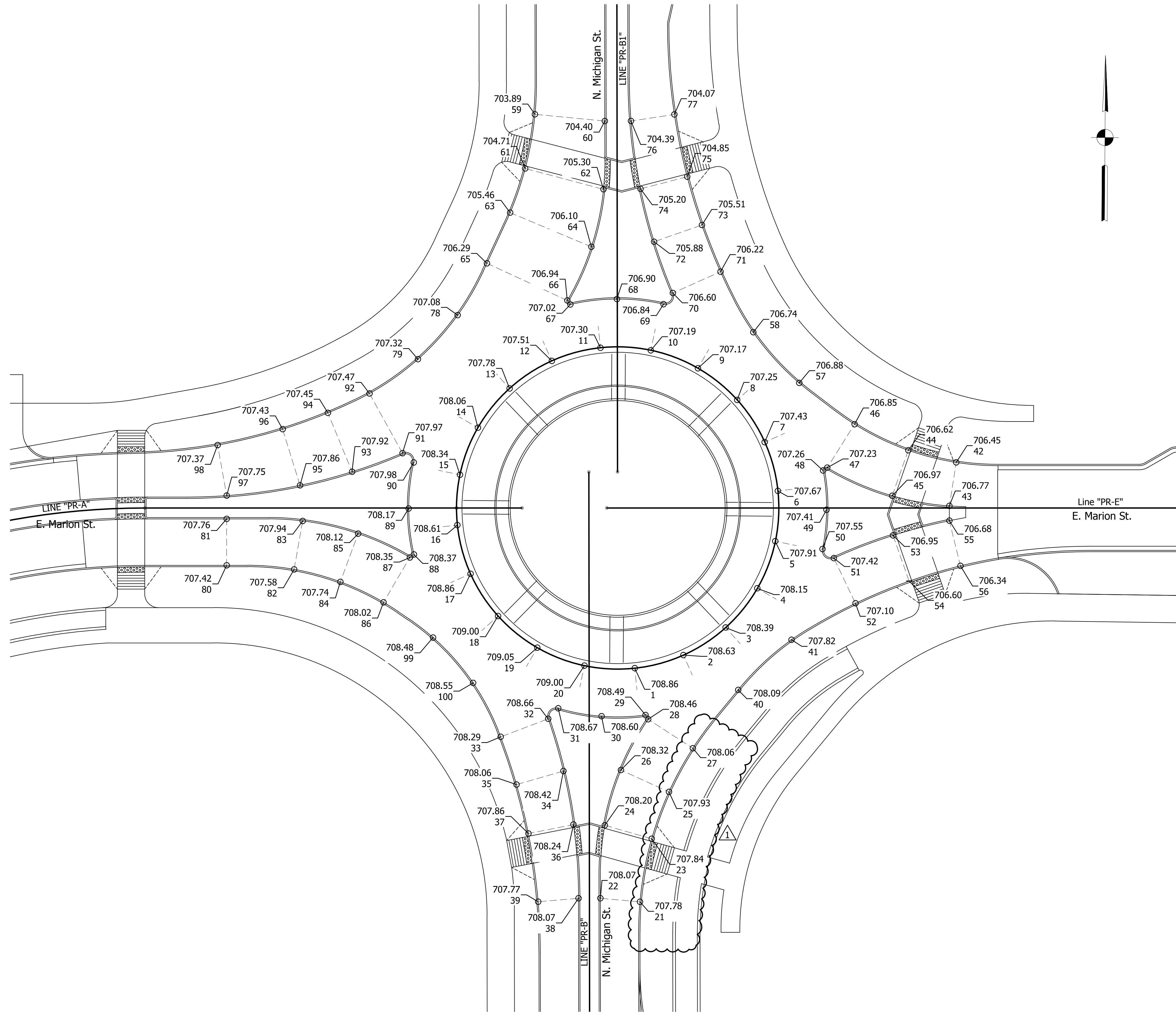
CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS

GRADING DETAILS
 LINE "PR-B1" - MICHIGAN ST.

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
DRAWN: DJ	VERTICAL SCALE 1"=1'	SHEETS 46 OF 107
CHECKED: WRC	SURVEY BOOK -	
	DATE //	

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JOHN - 1/13/2016 2:59 PM - P: \C3D\14-416\Road\Dwg\Plans\RAB Grading Plan.dwg



CONTROL POINTS			
POINT	ELEVATION	NORTHING	EASTING
1	708.86	2343902.6485	168622.2219
2	708.63	2343907.5821	168640.0096
3	708.39	2343917.7715	168655.4018
4	708.15	2343932.2187	168666.8919
5	707.91	2343949.5093	168673.3556
6	707.67	2343967.9510	168674.1596
7	707.43	2343985.7386	168669.2254
8	707.25	2344001.1311	168659.0363
9	707.17	2344012.6212	168644.5890
10	707.19	2344019.0846	168627.2983
11	707.30	2344019.8891	168608.8565
12	707.51	2344014.9549	168591.0687
13	707.78	2344004.7654	168575.6764
14	708.06	2343990.3182	168564.1862
15	708.34	2343973.0274	168557.7228
16	708.61	2343954.5856	168556.9189
17	708.86	2343936.7980	168561.8531
18	709.00	2343921.4059	168572.0426
19	709.05	2343909.9155	168586.4895
20	709.00	2343903.4525	168603.7803
21	707.78	2343817.1185	168624.7360
22	708.07	2343818.3036	168610.2277
23	707.84	2343840.2478	168628.8678
24	708.20	2343845.0462	168611.6664
25	707.93	2343857.4465	168635.0705
26	708.32	2343865.3285	168617.4307
27	708.06	2343873.4879	168643.7104
28	708.46	2343883.9822	168627.2613
29	708.49	2343885.5279	168626.2893
30	708.60	2343884.9565	168610.1831
31	708.67	2343887.7721	168594.3146
32	708.66	2343883.8875	168590.6547
33	708.29	2343877.1624	168573.3005
34	708.42	2343864.7983	168596.3762
35	708.06	2343859.7352	168579.2406
36	708.24	2343845.2373	168600.1841
37	707.86	2343841.8238	168583.7374
38	708.07	2343818.2371	168602.2280
39	707.77	2343816.8786	168587.4615
40	708.09	2343894.9688	168660.1639
41	707.82	2343913.4421	168679.5583
42	706.45	2343978.8368	168739.4154
43	706.77	2343962.8761	168737.0205
44	706.62	2343983.1615	168721.8219
45	706.97	2343966.4463	168716.0380
46	706.85	2343992.5492	168702.0987
47	707.23	2343976.5747	168692.1867
48	707.26	2343975.5254	168690.6991
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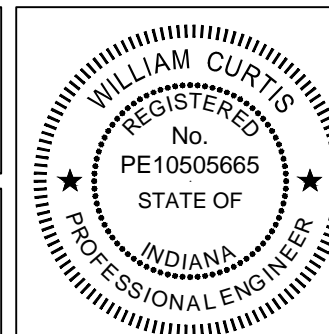
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52	707.10	2343926.9728	168702.8841
53	706.95	2343951.9451	168716.4623
54	706.60	2343935.2424	168722.4790
55	706.68	2343957.4887	168737.0584
56	706.34	2343940.9663	168741.2240
57	706.88	2344007.5239	168681.7229
58	706.74	2344025.9789	168664.7630
59	703.89	2344105.2178	168584.2557
60	704.40	2344102.9301	168609.8612
61	704.71	2344085.3516	168580.8288
62	705.30	2344077.9449	168609.5333
63	705.46	2344069.1380	168575.4239
64	706.10	2344056.8461	168605.2406
65	706.29	2344050.5328	168567.0620
66	706.94	2344037.1275	168596.5939
67	707.02	2344035.6586	168597.6953
68	706.90	2344037.7646	168614.7378
69	706.84	2344036.0161	168631.8208
70	706.60	2344040.1359	168635.2138
71	706.22	2344048.0477	168652.6098
72	705.88	2344058.8595	168628.2149
73	705.51	2344065.1230	168645.6785
74	705.20	2344078.1845	168623.1056
75	704.85	2344082.7538	168640.1660
76	704.39	2344103.0098	168619.4413
77	704.07	2344105.5310	168635.3214
78	707.08	2344031.4942	168556.4737
79	707.32	2344015.2497	168542.0341
80	707.42	2343939.2621	168472.5565
81	707.76	2343956.2616	168472.4368
82	707.58	2343937.9370	168497.2411
83	707.94	2343955.6989	168500.2468
84	707.74	2343933.4781	168514.2179
85	708.12	2343951.1857	168520.6029
86	708.02	2343926.1097	168530.0767
87	708.35	2343942.6083	168539.6073
88	708.37	2343943.7023	168541.0834
89	708.17	2343960.5373	168539.0427
90	707.98	2343977.4082	168540.7611
91	707.97	2343980.7934	168536.6349
92	707.47	2344002.5676	168524.3838
93	707.92	2343973.8532	168518.2180
94	707.45	2343995.3384	168509.2149
95	707.86	2343968.7428	168499.2118
96	707.43	2343989.2587	168492.6841
97	707.75	2343964.7843	168472.3768
98	707.37	2343983.2852	168468.9233
99	708.48	2343913.3323	168548.3047
100	708.55	2343896.8286	168563.0691

▲ Revised spot elevations



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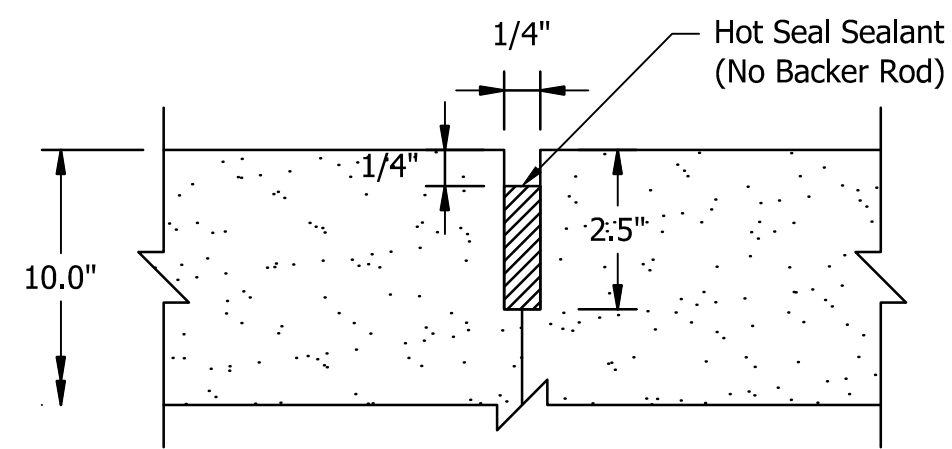
W.M.R. GTE - 1/13/16
SIGNATURE DATE



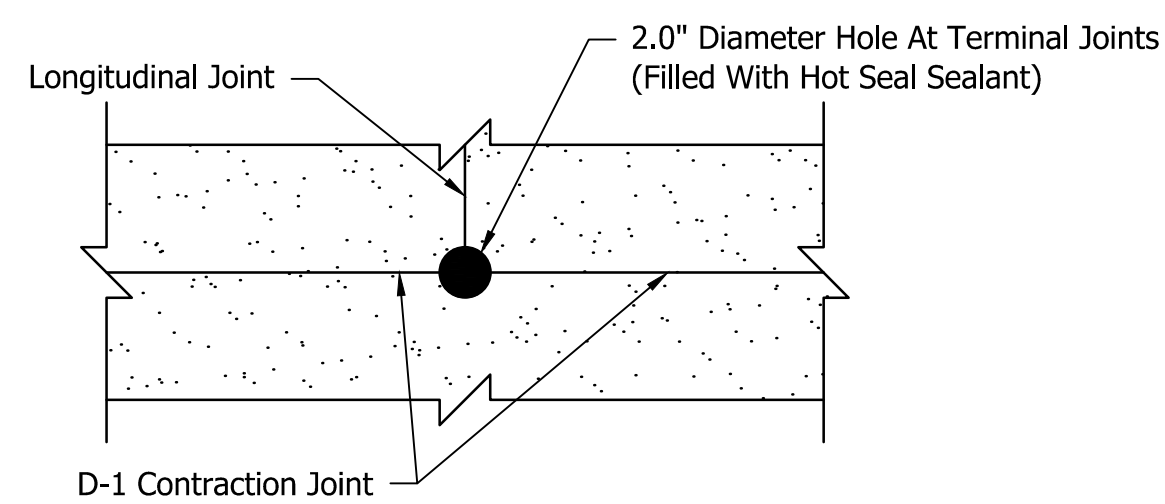
CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

ROUNDAABOUT GRADING PLAN

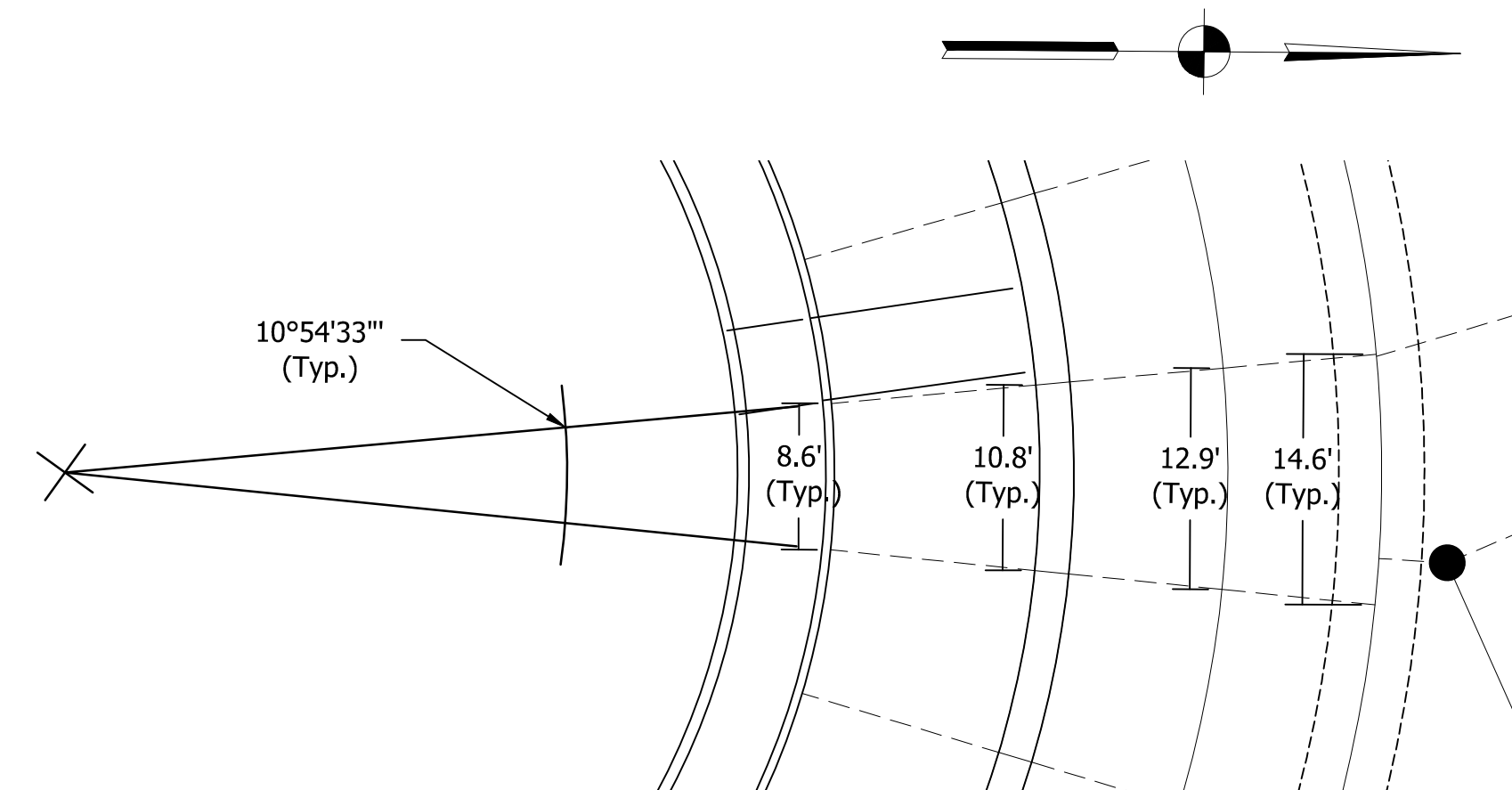
REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: JNII	SURVEY BOOK	SHEETS
CHECKED: WRC	DATE	49 OF 107
	///	



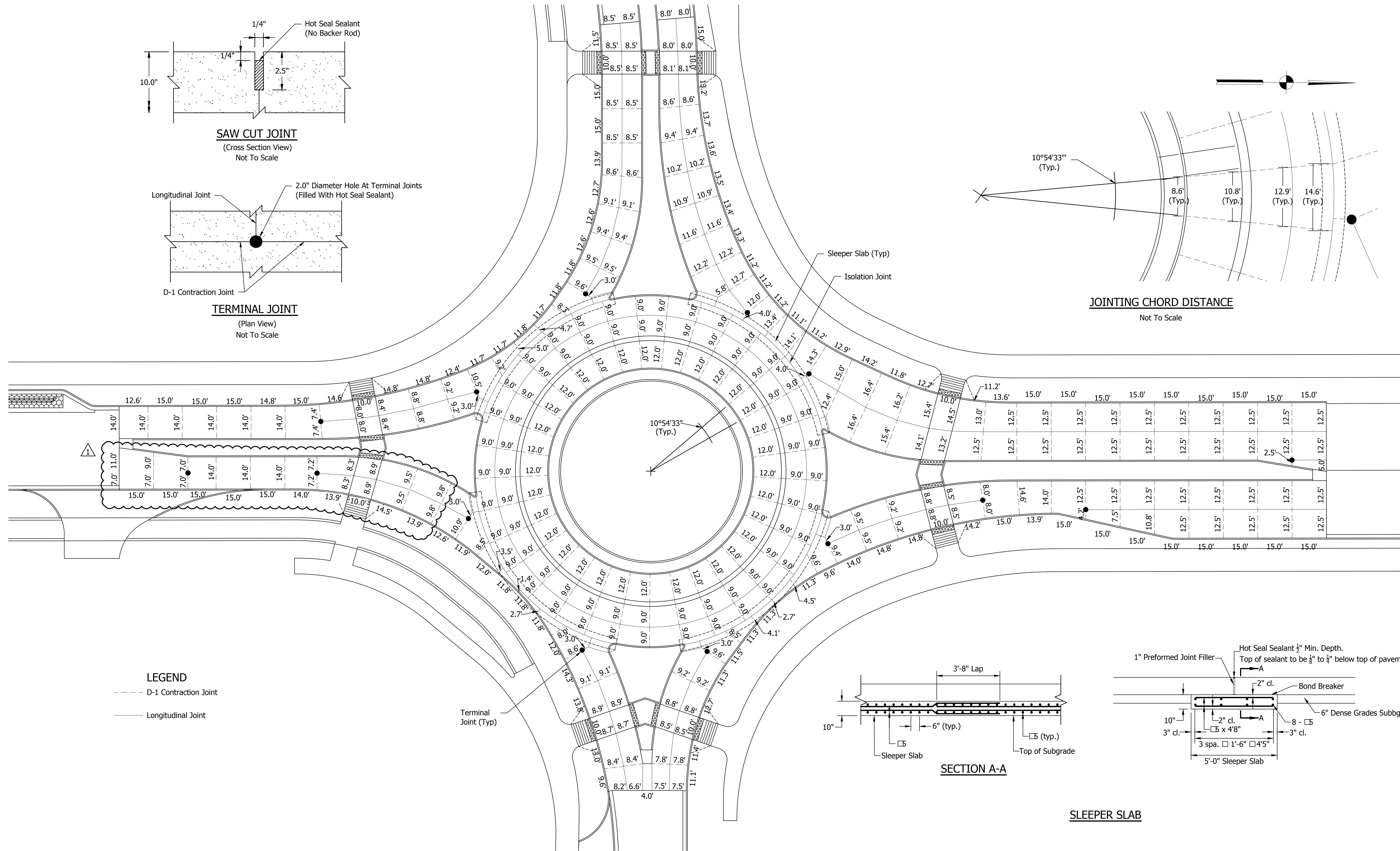
SAW CUT JOINT
(Cross Section View)
Not To Scale



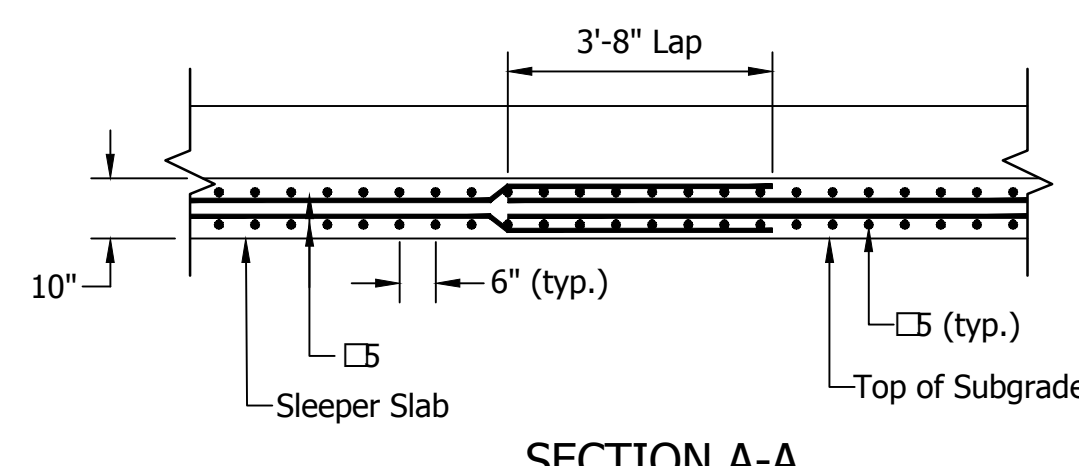
TERMINAL JOINT
(Plan View)
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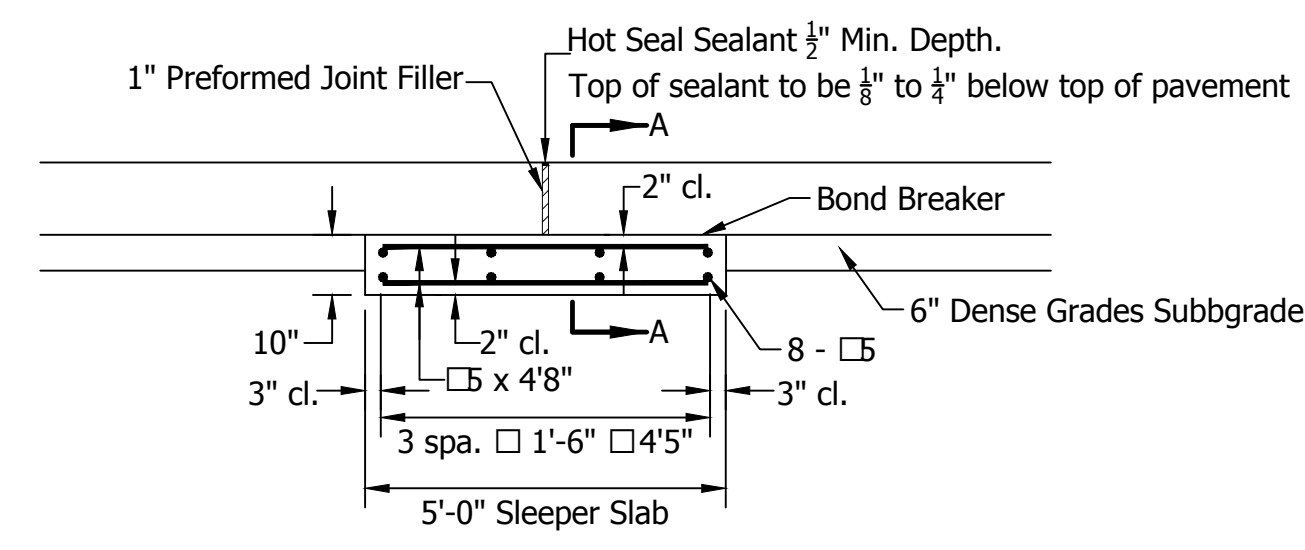
JOINTING CHORD DISTANCE
Not To Scale



- LEGEND**
- D-1 Contraction Joint
 - Longitudinal Joint



SECTION A-A



SLEEPER SLAB

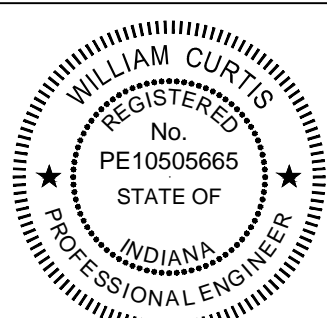
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Revised jointing layout

WRC - 1/13/16
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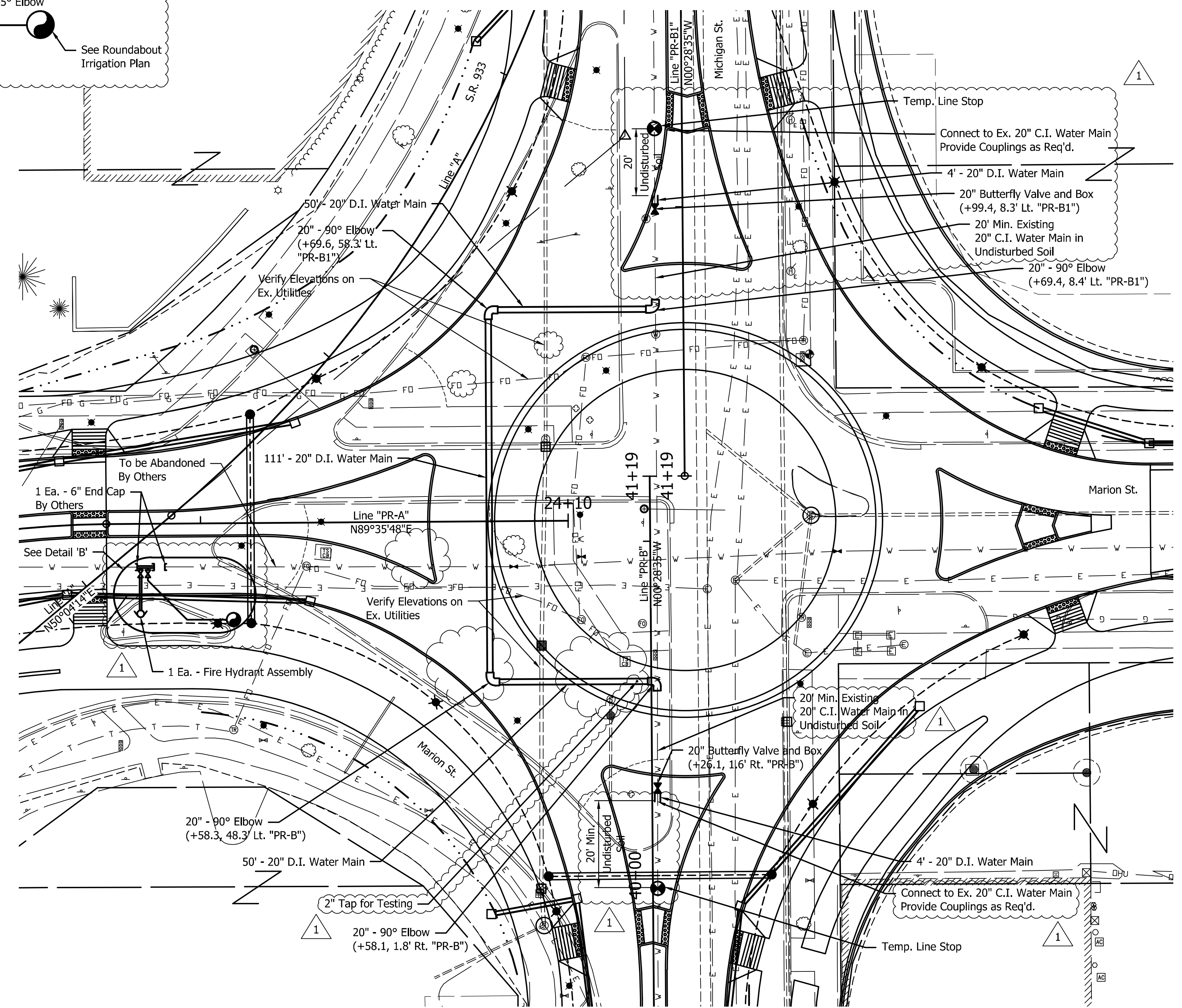
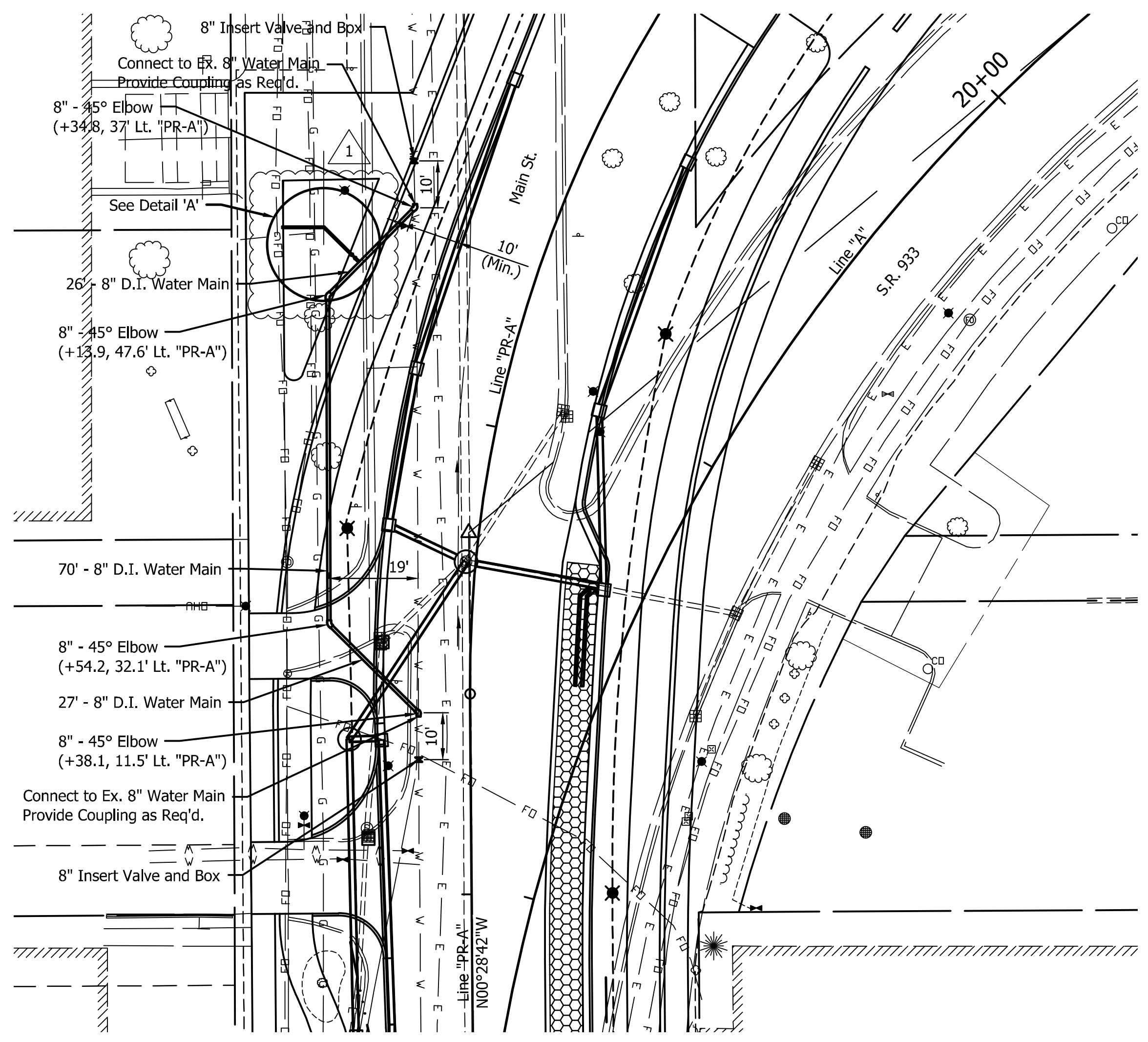
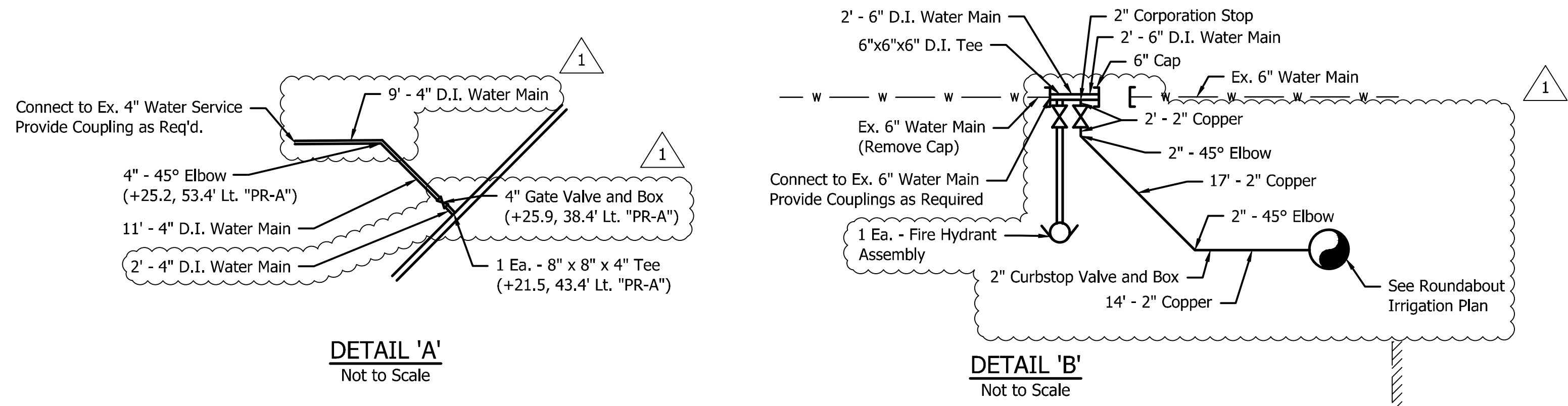


CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

ROUNDAABOUT JOINTING DETAIL

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: JNII	SURVEY BOOK	SHEETS
CHECKED: WRC	DATE	50 OF 107

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NOTE:
6" water main is live near the 20" x 6" cross.

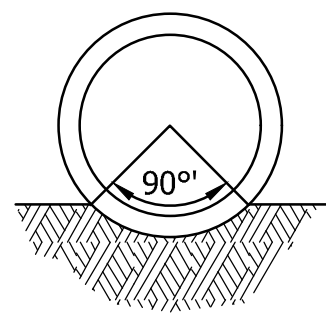
LFA
LAWSON-FISHER ASSOCIATES P.C.
525 W. WASHINGTON AVENUE
SOUTH BEND, INDIANA 46601
PH. (574) 234-3167

BENJAMIN P. HOBAN
No. 101002665
STATE OF INDIANA
PROFESSIONAL ENGINEER

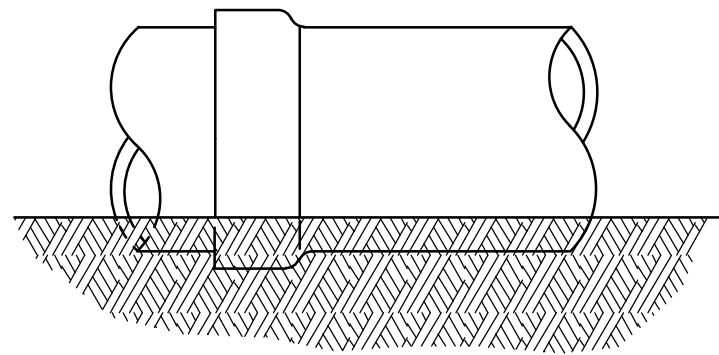
Benjamin P. Hoban 1/5/16
SIGNATURE DATE

CITY OF SOUTH BEND, INDIANA
ROUNDABOUT INTERSECTION AT
MARION, MICHIGAN, & MAIN STREETS
WATER MAIN RELOCATION

REVISIONS 1 Water Main Revision 1/14/16	HORIZONTAL SCALE AS NOTED VERTICAL SCALE -	PROJECT NUMBER 114-035
DRAWN: GDH CHECKED: BPH	SURVEY BOOK - DATE -	SHEETS 51 OF 107



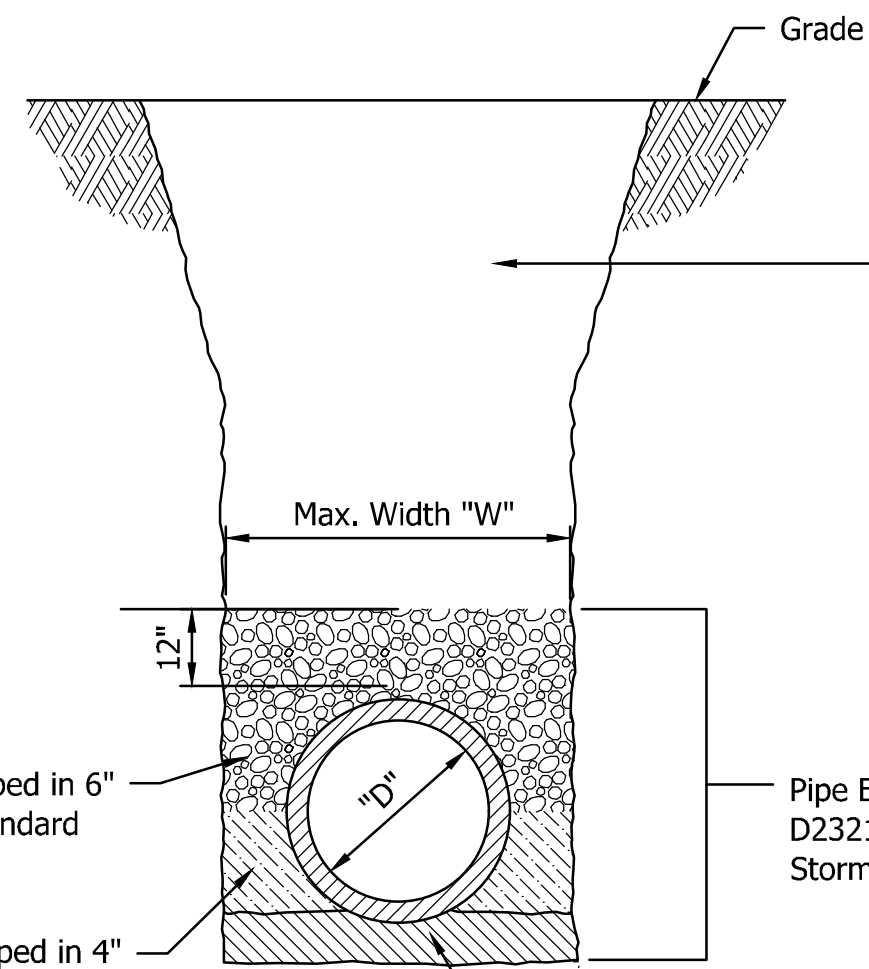
The lower 90° arc of the barrel of the pipe should be in firm contact with undisturbed earth.



Small excavations should be made for the bells, these should be no larger than necessary to clear the bell.

SPECIAL NOTE:

These trench and bedding details are for pipe structural requirements only. The contractor is solely responsible for safety of operations. The contractor shall slope trench walls, provide protective work boxes, and/or shore and brace all excavations as the contractor determines necessary for safety of operations, and in conformance to OSHA Regulation 29 C.F.R. 1926, Subpart P for trench safety systems.



Mechanically Tamped in 6" Layers to 95% Standard Proctor

Mechanically Tamped in 4" Layers to 95% Standard Proctor Density.

Pipe Embedment Class I, II, or III-ASTM D2321-05 Incidental to Sanitary Sewer, Storm Sewer and Water Main Items.

Pipe Shall be Bedded a Minimum of 4" Class I, II, or III Type Material Incidental to Sanitary Sewer, Storm Sewer and Water Main Items.

FLEXIBLE PIPE BEDDING DETAIL*

Not to Scale

* This detail shall also be applied to the bedding of ductile iron pipe.

BACKFILL - IN STREETS, ALLEYS, OR DRIVING AREAS:

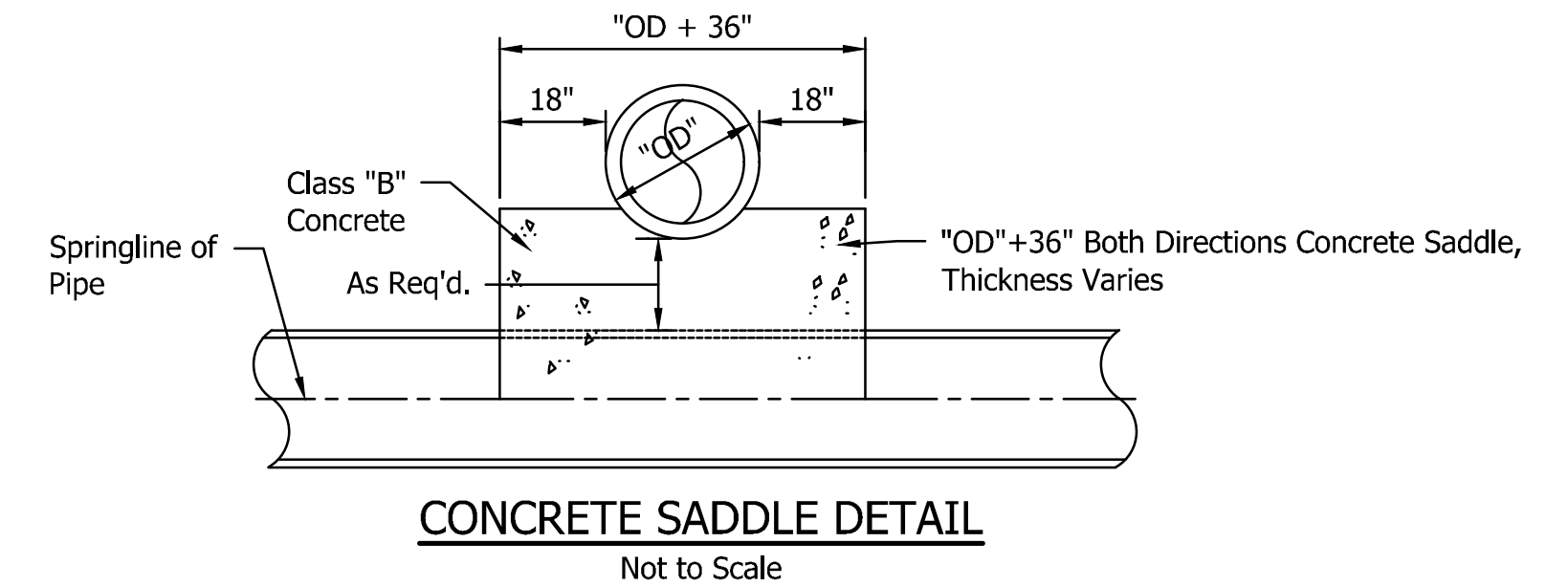
Backfill shall be of select native granular material or b-borrow material and placed in 6" layers, solidly tamped to sub-grade of street base. Backfill shall be compacted to 100% standard proctor density.

BACKFILL - IN EASEMENT OR OPEN AREAS:

Backfill material shall be of select native granular material, placed in 12" layers, free of debris, organic material, and large stones. Backfill shall be compacted to 95% standard proctor density.

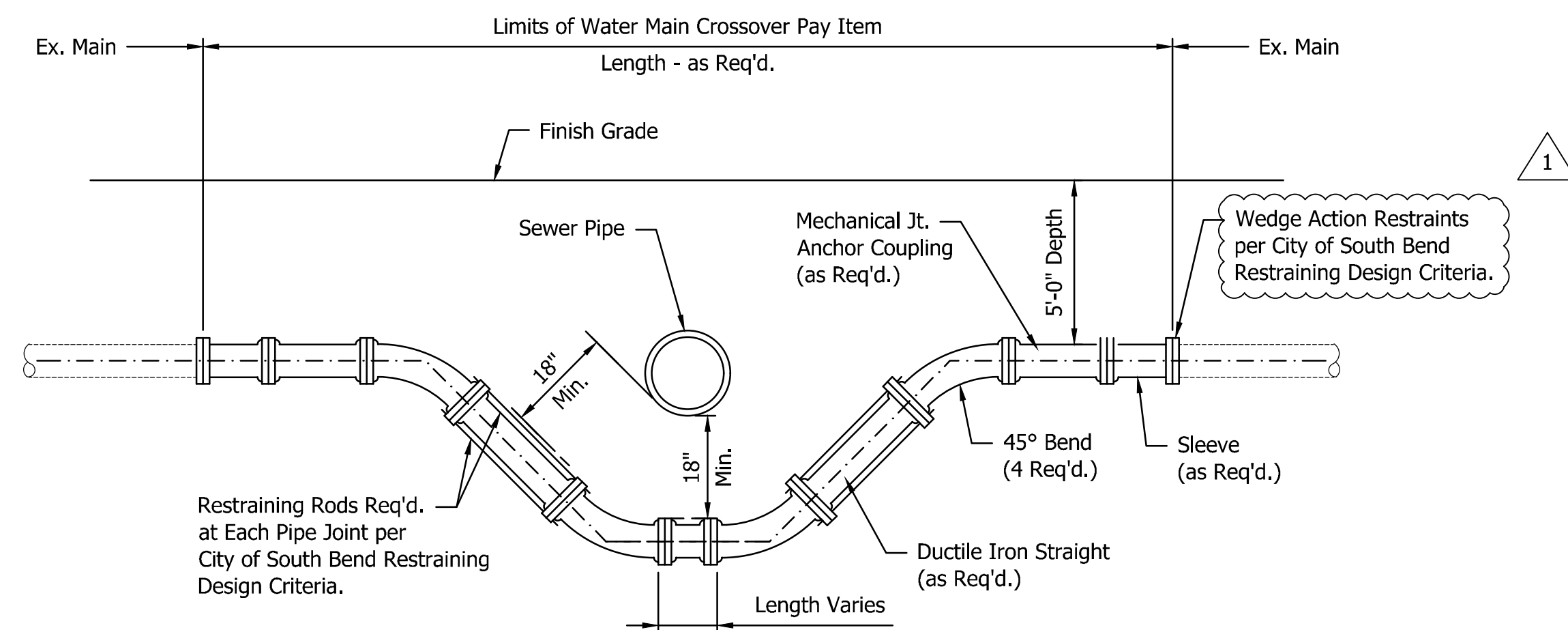
ALLOWABLE MAXIMUM WIDTH OF TRENCH AT TOP OF PIPE

PIPE DIA. "D"	"W"
6"	18"
8"	24"
10"	24"
12"	30"
15"	35"
18"	39"
21"	42"
24"	45"
27"	48"
30"	53"
36"	68"
42"	75"
48"	82"



CONCRETE SADDLE DETAIL

Not to Scale



NOTE:

All tie rods, couplings, bolts and other bare metal shall receive one coat of coal-tar epoxy, Tnemec Co. 413 Tnemec-Tar, or equal.

WATER MAIN CROSSOVER

Not to Scale

GENERAL WATER NOTES:

- Water main shall maintain existing depth for cover.
- Contractor shall coordinate final fire hydrant locations with City of South Bend Water Dept.
- Water main joints shall be deflected, as needed, to follow proposed alignment. Deflect joints per the pipe manufacturer.
- Provide wedge action restraints on water main pipe and fittings per City of South Bend design criteria (South Bend standard drawing W-8).
- Sanitary and storm sewers shall not be located within ten (10) feet horizontally or eighteen (18) inches vertically to any existing or proposed water main, measured from the outside edge of the sanitary and storm sewer to the outside edge of the water main. If this separation distance can not be maintained then water main grade pipe shall be installed and tested according to 327 IAC 3-6-9 (b).

GDH - 1/14/2016 9:46 AM - U:\2014\201458_00_SBN_Marion\Cad\Revision\RV_145800SW_DT01.dwg

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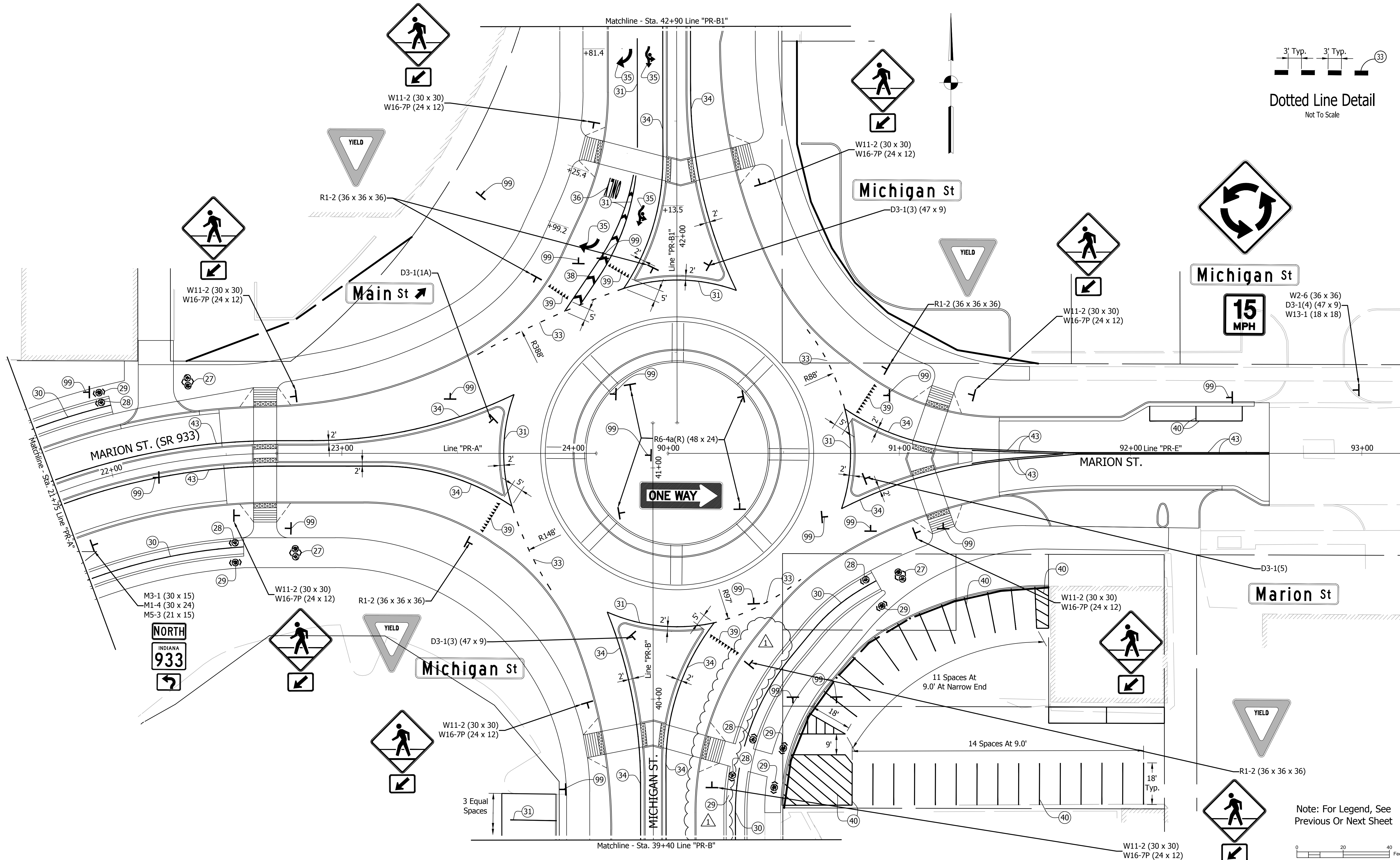
BENJAMIN P. HOOPER
REGISTERED PROFESSIONAL ENGINEER
No. 101002665
STATE OF INDIANA

Benjamin P. Hooper 1/5/16
SIGNATURE DATE

CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, & MAIN STREETS
WATER MAIN DETAILS

REVISIONS 1 Water Main Revision 1/14/16	HORIZONTAL SCALE 1" = 20' VERTICAL SCALE -	PROJECT NUMBER 114-035
DRAWN: GDH CHECKED: BPH	SURVEY BOOK - DATE -	SHEETS 52 OF 107

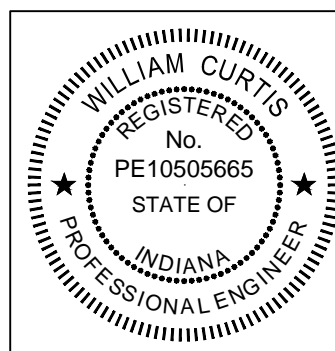
JOHN - 1/13/2016 3:00 PM - I:\CS04FS\Road\RoadTeam3\3D\4-416\Road\Draw\Blans\Sign \Mark Plans.dwg



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Revised curb location

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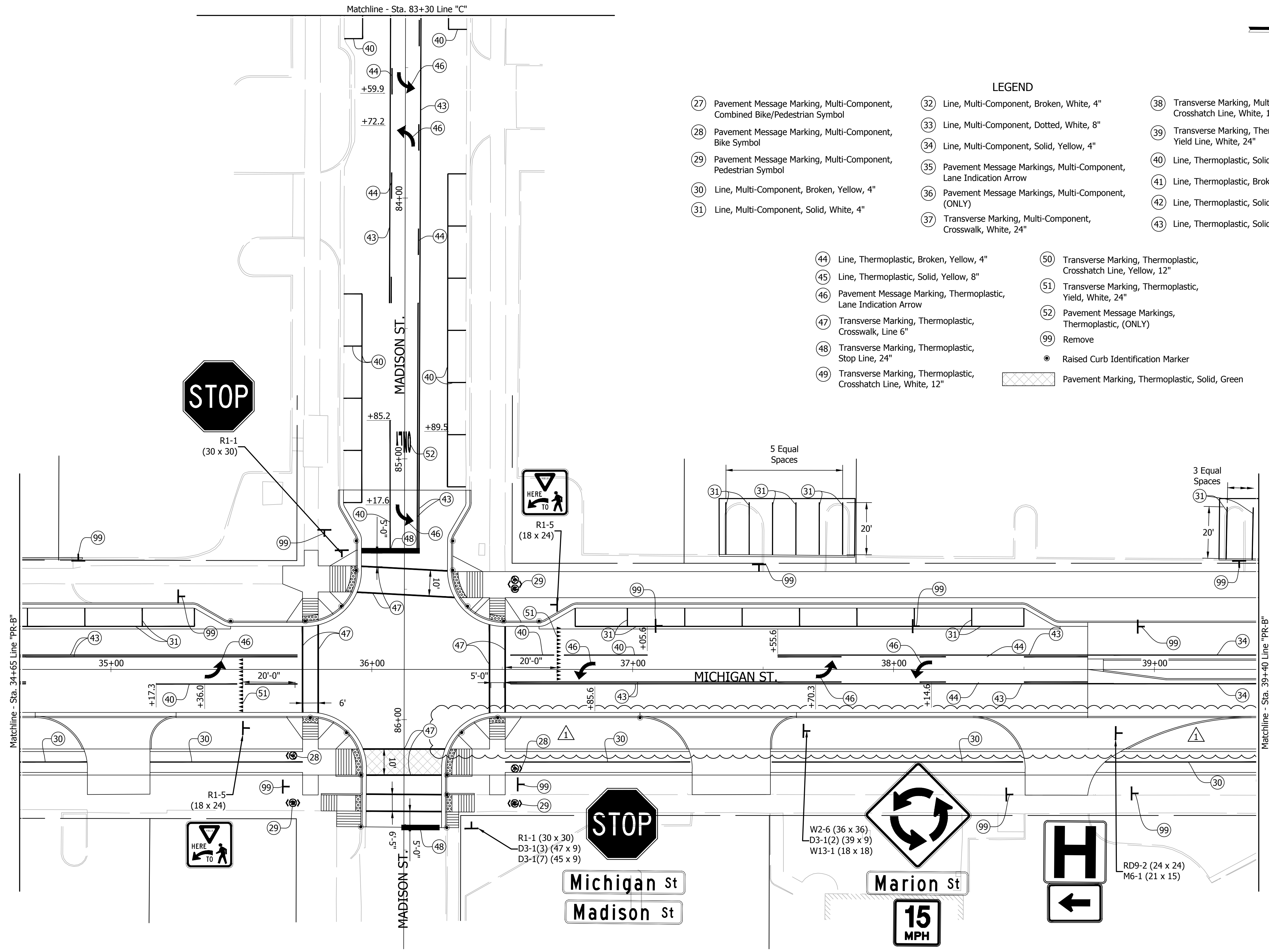


CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS
 SIGNING AND PAVEMENT MARKING PLAN
 LINE "PR-A" / "PR-E"

REVISIONS	HORIZONTAL SCALE 1"=30'	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	SHEETS 55 OF 107
DRAWN: JNII	SURVEY BOOK	
CHECKED: WRC	DATE	

Note: For Legend, See Previous Or Next Sheet

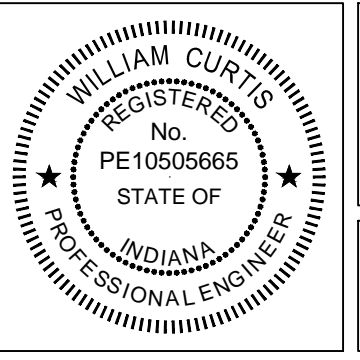
JOHN - 1/13/2016 3:00 PM - I:\CS04FS\Road\Road\Team3\3D\4-16\Road\Draw\Blans\Sign \Mark Plans.dwg



- LEGEND**
- 27 Pavement Message Marking, Multi-Component, Combined Bike/Pedestrian Symbol
 - 28 Pavement Message Marking, Multi-Component, Bike Symbol
 - 29 Pavement Message Marking, Multi-Component, Pedestrian Symbol
 - 30 Line, Multi-Component, Broken, Yellow, 4"
 - 31 Line, Multi-Component, Solid, White, 4"
 - 32 Line, Multi-Component, Broken, White, 4"
 - 33 Line, Multi-Component, Dotted, White, 8"
 - 34 Line, Multi-Component, Solid, Yellow, 4"
 - 35 Pavement Message Markings, Multi-Component, Lane Indication Arrow
 - 36 Pavement Message Markings, Multi-Component, (ONLY)
 - 37 Transverse Marking, Multi-Component, Crosswalk, White, 24"
 - 38 Transverse Marking, Multi-Component, Crosshatch Line, White, 12"
 - 39 Transverse Marking, Thermoplastic, Yield Line, White, 24"
 - 40 Line, Thermoplastic, Solid, White, 4"
 - 41 Line, Thermoplastic, Broken, White, 4"
 - 42 Line, Thermoplastic, Solid, White, 8"
 - 43 Line, Thermoplastic, Solid, Yellow, 4"
 - 44 Line, Thermoplastic, Broken, Yellow, 4"
 - 45 Line, Thermoplastic, Solid, Yellow, 8"
 - 46 Pavement Message Marking, Thermoplastic, Lane Indication Arrow
 - 47 Transverse Marking, Thermoplastic, Crosswalk, Line 6"
 - 48 Transverse Marking, Thermoplastic, Stop Line, 24"
 - 49 Transverse Marking, Thermoplastic, Crosshatch Line, White, 12"
 - 50 Transverse Marking, Thermoplastic, Crosshatch Line, Yellow, 12"
 - 51 Transverse Marking, Thermoplastic, Yield, White, 24"
 - 52 Pavement Message Markings, Thermoplastic, (ONLY)
 - 99 Remove
 - Raised Curb Identification Marker
 - ▨ Pavement Marking, Thermoplastic, Solid, Green

Revised curb location

WRC - 1/13/16
 SIGNATURE DATE



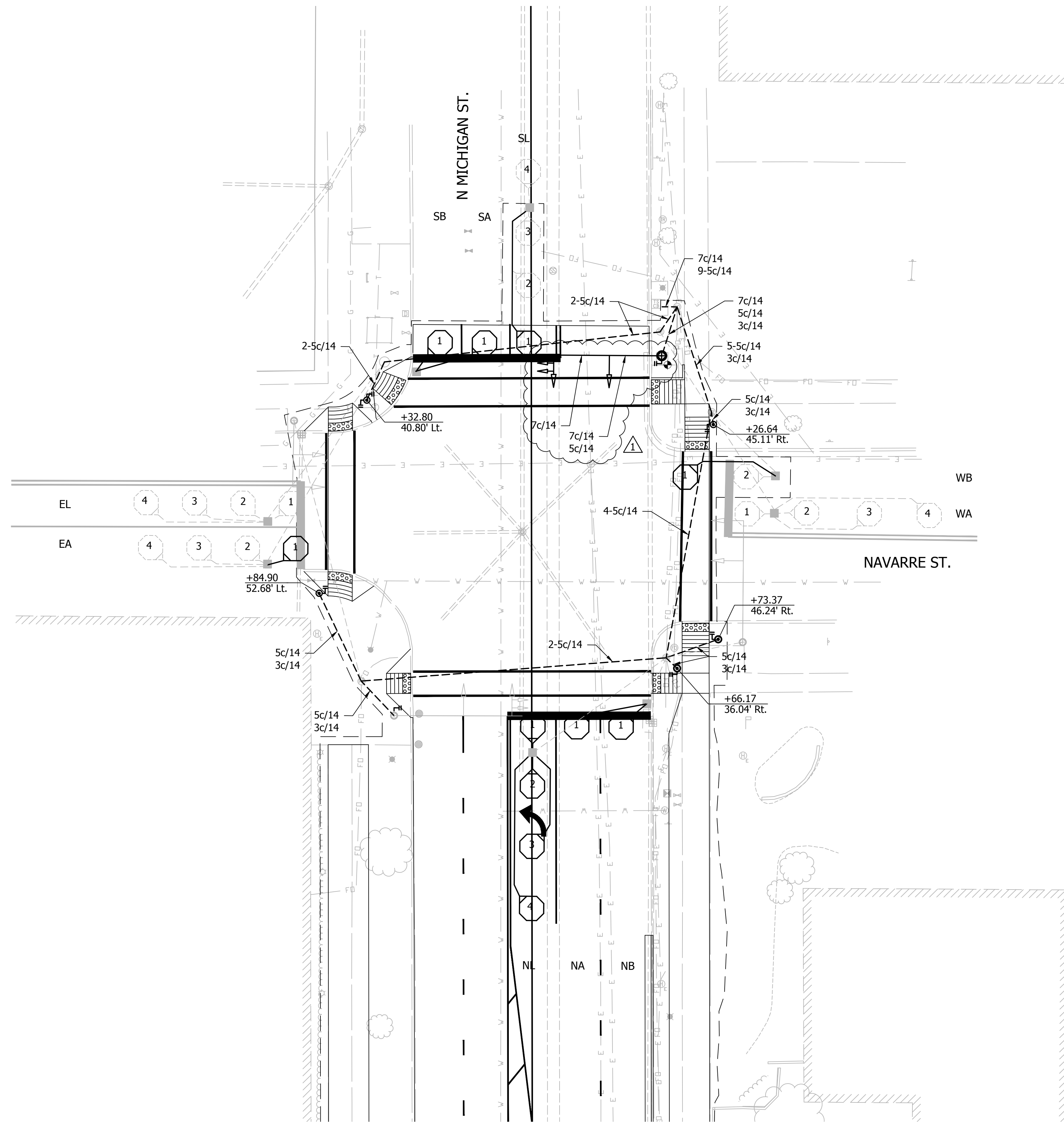
CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS

SIGNING AND PAVEMENT MARKING PLAN
 LINE "PR-B" - MICHIGAN ST.

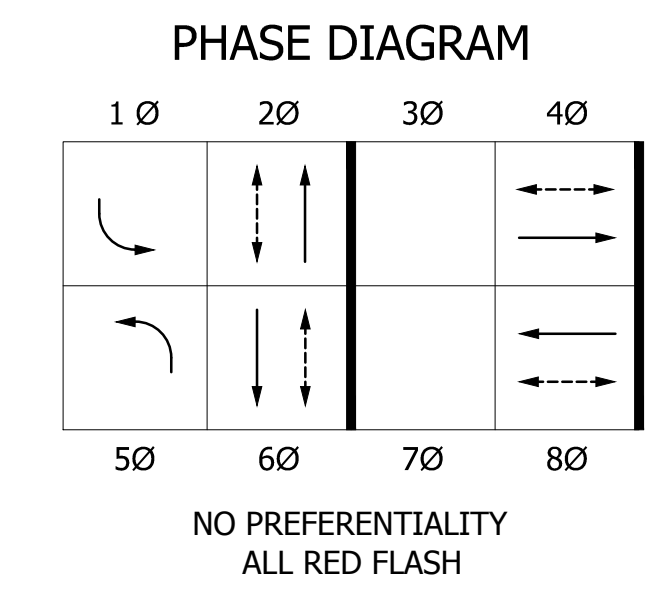
REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
DRAWN: DJ	VERTICAL SCALE N/A	SHEETS 57 OF 107
CHECKED: WRC	SURVEY BOOK -	DATE / /



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LOOP TAGGING TABLE							
Loop No or Channel	Direction	Lane	Phase	Loops	C	C□	Lead-in and Rack Labels
1	E	L	4	4	C	3	1-EL4-C-3
2	E	A	4	1,2,3,4	C	4	2-EA 4-1,2,3,4 C-4
5	S	L	1	4	C	7	5-SL 1-4 C-7
6	S	A	6	1	C	8	6-SA 6-1 C-11
9	S	B	6	1	C	11	9-SB 6-1 C-11
10	W	A	8	4	C	12	10-WA 8-4 C-12
13	W	B	8	1,2	C	15	13-WB 8-1,2 C-15
14	N	L	5	4	C	16	14-NL 5-4 C-16
17	N	A	2	1	C	19	17-NA 2-1 C-19
18	N	B	2	1	C	20	18-NB 2-1 C-20
21	E	L	4	1,2,3			21-EL 4-1,2,3
22	S	L	1	1,2,3			22-SL 1-1,2,3
23	W	A	8	1,2,3			23-WA 8-1,2,3
24	N	L	5	1,2,3			24-NL 5-1,2,3



- SIGNAL LEGEND**
- Existing Traffic Signal Head, 5 Face
 - Existing Traffic Signal Head, 3 Face
 - Existing Signal Cantilever Structure
 - Existing Octagonal Signal Loop
 - Proposed Octagonal Signal Loop
 - Existing Detector Housing
 - Existing Hand Hole
 - Signal Cable
 - Pedestal for Pedestrian Signal Head
 - Pedestrian Signal Head (Countdown) and Push Button (Non-APS)
 - Traffic Signal Head, 5 Face
 - Signal Cantilever Structure

File Name: \\UCS0455\Road\Road\Team3\CDD\14-118\Road\Draw\Plans\Signal_Plan.dwg Plot Date: 1/13/2016 Plotted By: Nlmz_john

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Revised Signal Plan

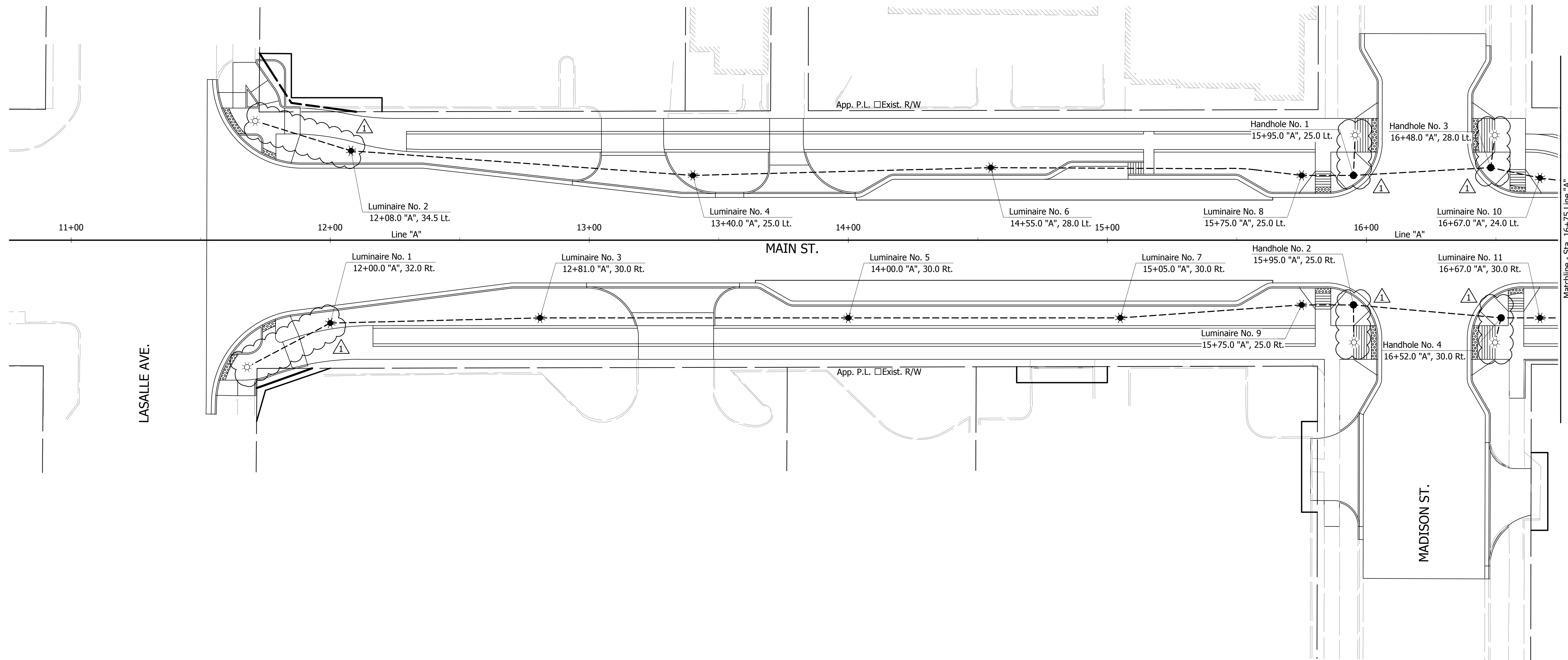
WRC 1/13/16
SIGNATURE DATE

CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, □ MAIN STREETS

SIGNAL PLAN
N. MICHIGAN ST. □ NAVARRE ST.

REVISIONS	HORIZONTAL SCALE 1"=5'	PROJECT NUMBER 114-035
	VERTICAL SCALE 1"=1'	
DRAWN: JNII	SURVEY BOOK	SHEETS
CHECKED: WRC	DATE	62 OF 107

JOHN - 1/13/2016 3:02 PM - \\UCS04FS\Road\RoadTeam3\C3D\14-416\Road\Dwg\Plans\Lighting Plans.dwg

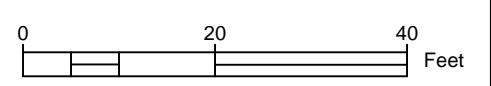


LEGEND

	Service Point, Type II, 120V/240V		Bollard, Decorative, Illuminated (See Construction Details For Locations)
	L.E.D. Luminaire on Decorative Post		Wire, No. 6 Copper, 1/C in Conduit, HDPE, 2", Schedule 80
	Twin Arm L.E.D. Luminaires on Decorative Post		TESCO Cabinet, on Concrete Foundation
	Lighting Handhole		Existing Light Pole

GENERAL NOTES

1. All work shall confirm to latest version of the National Electrical Code all local ordinances.
2. Refer To "Survey Control" Sheet For Alignment Information, Benchmarks Reference Ties.
3. Refer to "Lighting Plan Tables Miscellaneous Details" for more information.



Revised lighting legend added wiring for bollards

WRC - 1/13/16
SIGNATURE DATE



**CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS**

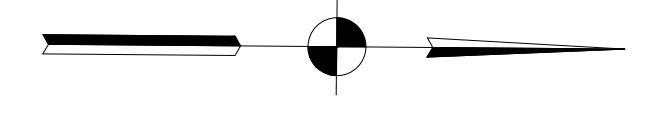
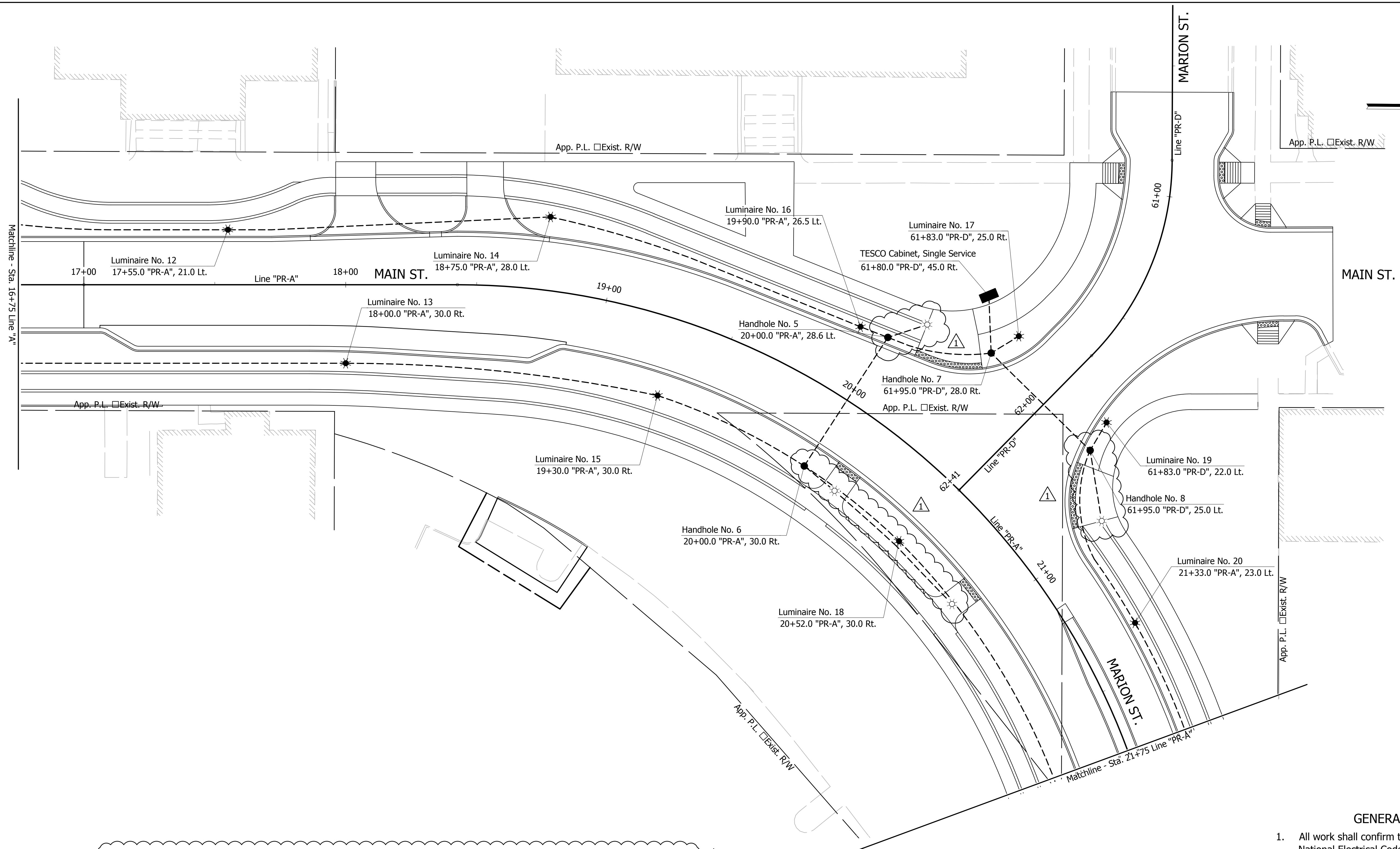
**LIGHTING PLAN
LINE "A" - MAIN ST.**

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: JNII	SURVEY BOOK -	SHEETS
CHECKED: WRC	DATE //	63 OF 107



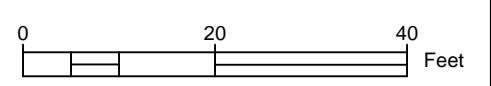
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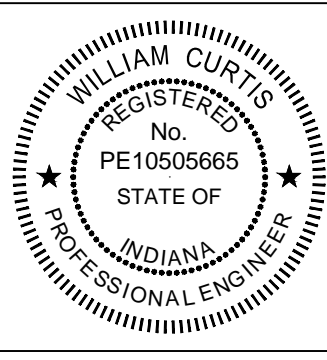
LEGEND	
	Service Point, Type II, 120V/240V
	L.E.D. Luminaire on Decorative Post
	Twin Arm L.E.D. Luminaires on Decorative Post
	Lighting Handhole
	Bollard, Decorative, Illuminated (See Construction Details For Locations)
	Wire, No. 6 Copper, 1/C in Conduit, HDPE, 2", Schedule 80
	TESCO Cabinet, on Concrete Foundation
	Existing Light Pole

- GENERAL NOTES**
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Revised lighting legend added wiring for bollards

WRC - 1/13/16
SIGNATURE DATE



CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

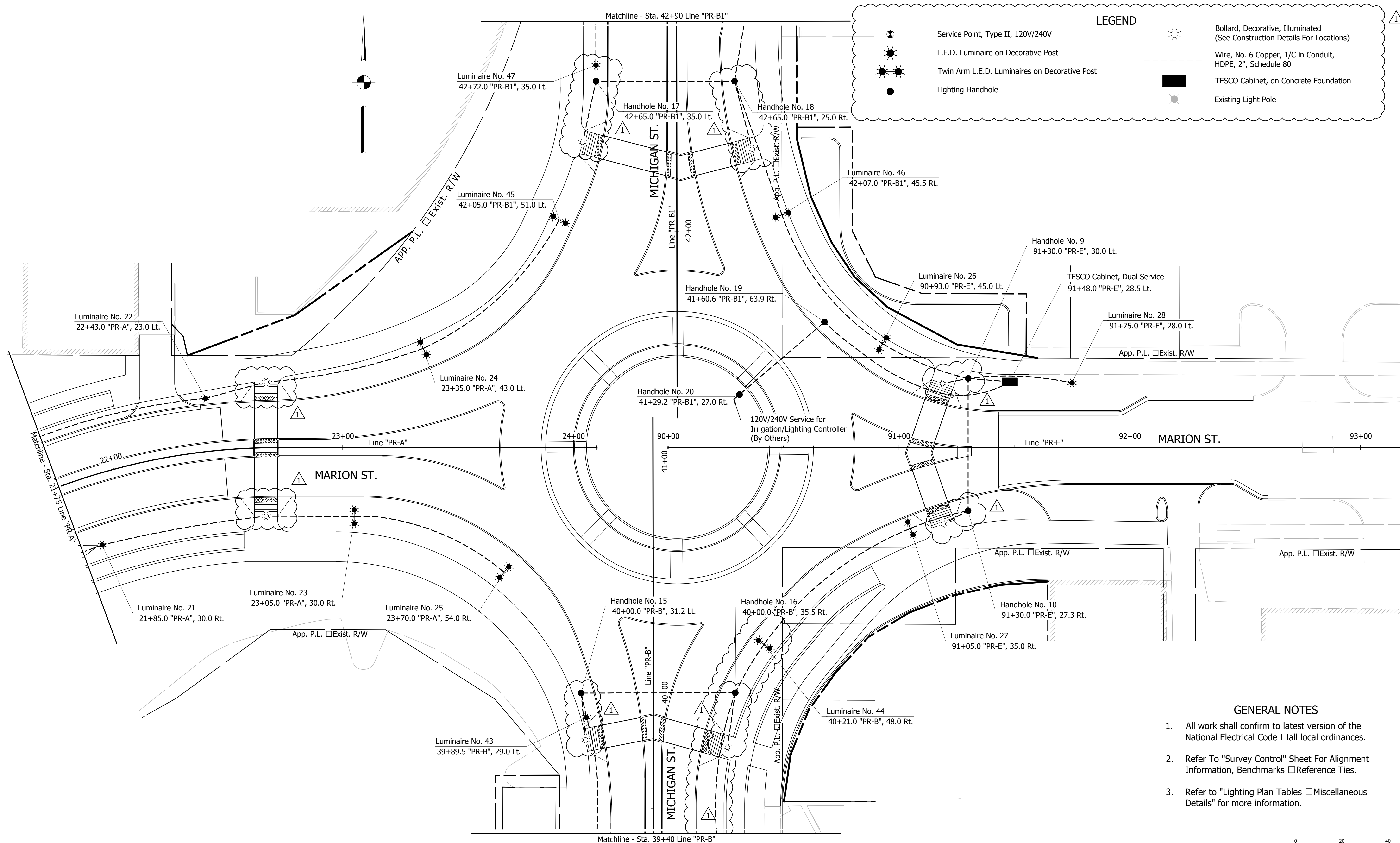
LIGHTING PLAN
LINE "A"/LINE "PR-A" - MAIN MARION ST.

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: JNII	SURVEY BOOK -	SHEETS
CHECKED: WRC	DATE //	64 OF 107



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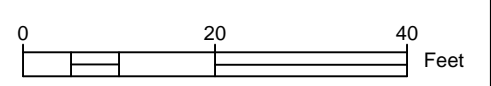
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LEGEND

- Service Point, Type II, 120V/240V
- L.E.D. Luminaire on Decorative Post
- Twin Arm L.E.D. Luminaires on Decorative Post
- Lighting Handhole
- Bollard, Decorative, Illuminated (See Construction Details For Locations)
- Wire, No. 6 Copper, 1/C in Conduit, HDPE, 2", Schedule 80
- TESCO Cabinet, on Concrete Foundation
- Existing Light Pole

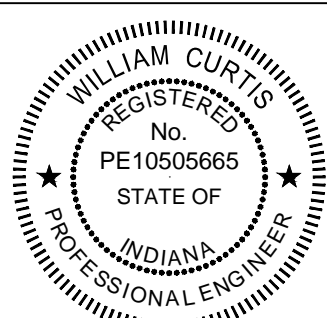
- GENERAL NOTES**
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Revised lighting legend added wiring for bollards revised curb location

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SIGNATURE DATE 1/13/16

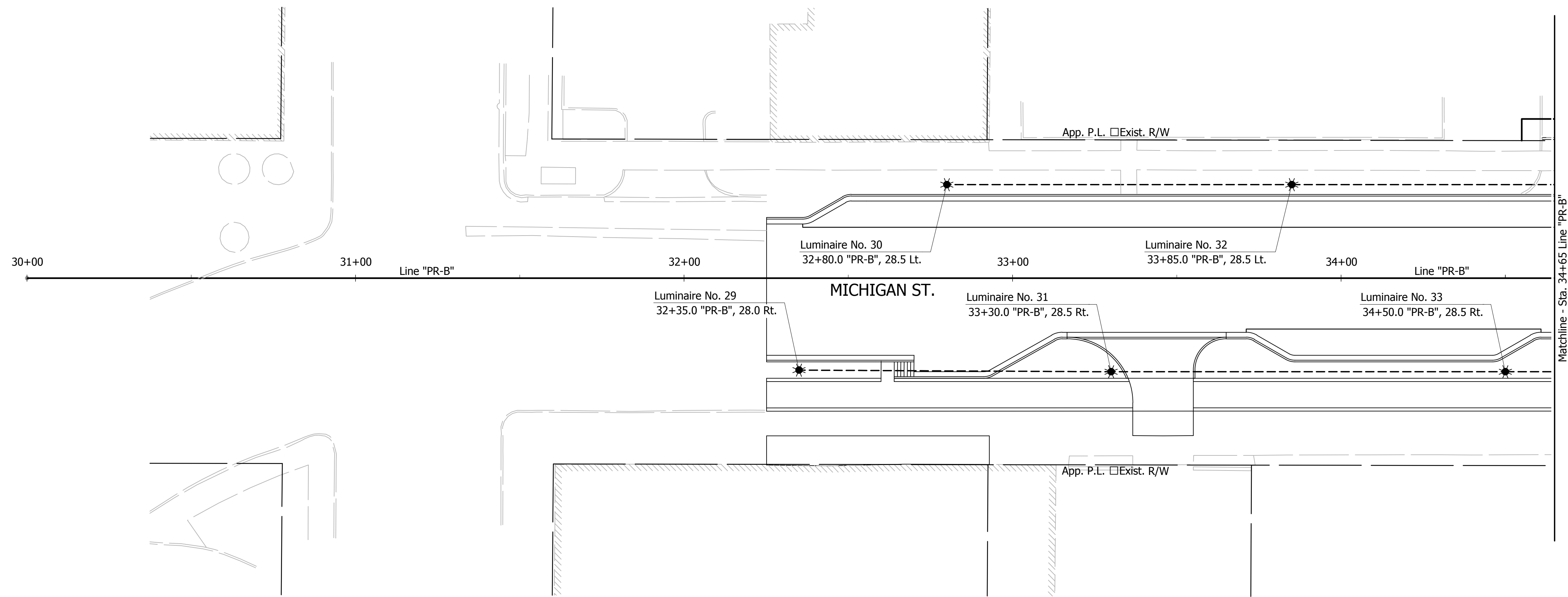
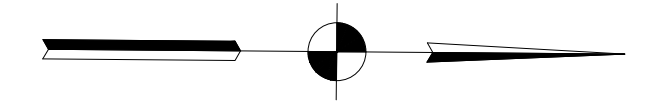


CITY OF SOUTH BEND, INDIANA
ROUNDBOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

LIGHTING PLAN
LINE "PR-A"/LINE "PR-E" - MARION ST.

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: JNII	SURVEY BOOK -	SHEETS
CHECKED: WRC	DATE //	65 OF 107

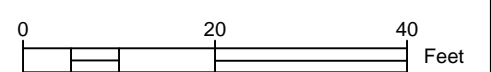
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LEGEND	
	Service Point, Type II, 120V/240V
	L.E.D. Luminaire on Decorative Post
	Twin Arm L.E.D. Luminaires on Decorative Post
	Lighting Handhole
	Bollard, Decorative, Illuminated (See Construction Details For Locations)
	Wire, No. 6 Copper, 1/C in Conduit, HDPE, 2", Schedule 80
	TESCO Cabinet, on Concrete Foundation
	Existing Light Pole

GENERAL NOTES

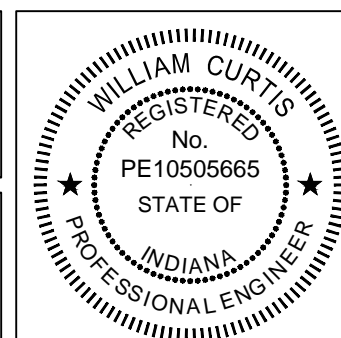
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- Refer To "Survey Control" Sheet For Alignment Information, Benchmarks Reference Ties.
- Refer to "Lighting Plan Tables Miscellaneous Details" for more information.



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Revised lighting legend

WRC - 1/13/16
SIGNATURE DATE

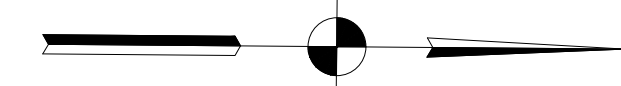
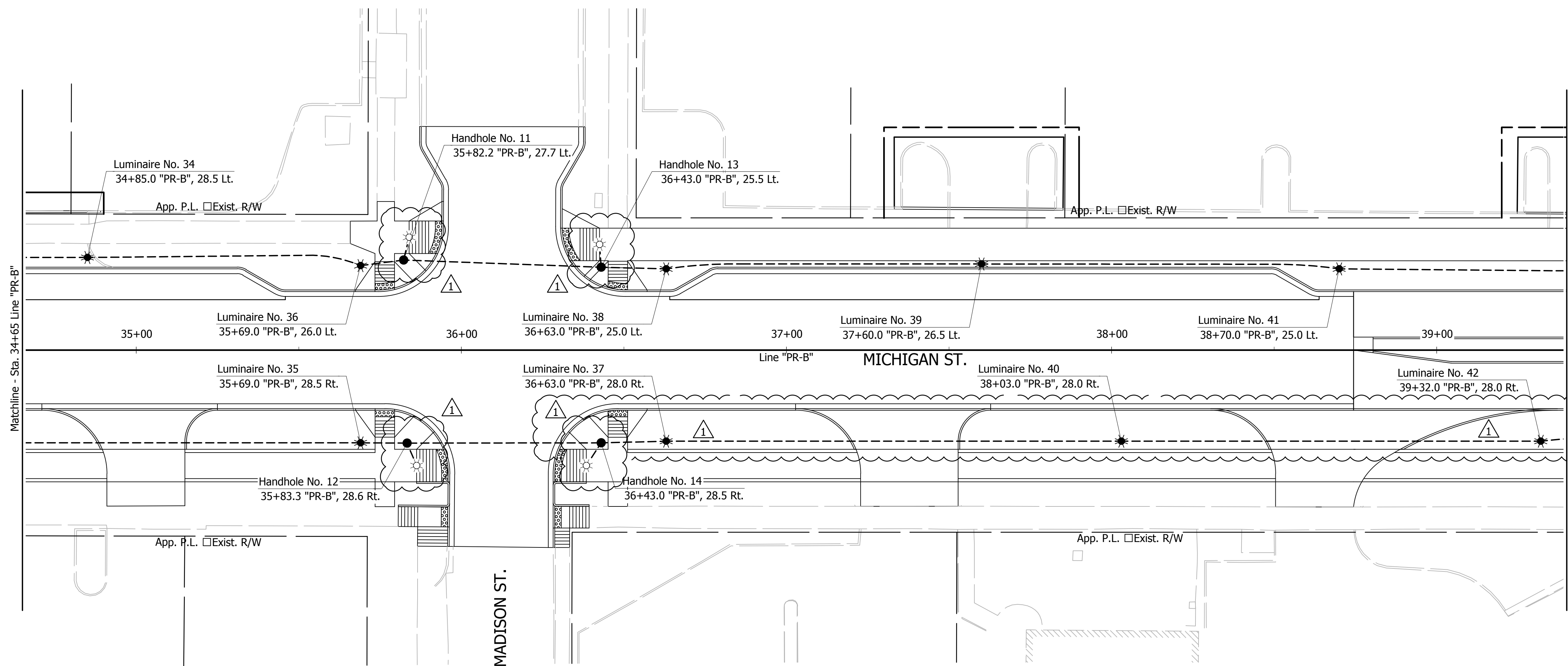


CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

LIGHTING PLAN
LINE "PR-B" - MICHIGAN ST.

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE N/A	SHEETS
CHECKED: WRC	SURVEY BOOK -	66 OF 107
	DATE //	

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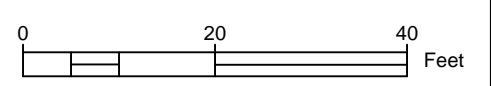


LEGEND

	Service Point, Type II, 120V/240V		Bollard, Decorative, Illuminated (See Construction Details For Locations)
	L.E.D. Luminaire on Decorative Post		Wire, No. 6 Copper, 1/C in Conduit, HDPE, 2", Schedule 80
	Twin Arm L.E.D. Luminaires on Decorative Post		TESCO Cabinet, on Concrete Foundation
	Lighting Handhole		Existing Light Pole

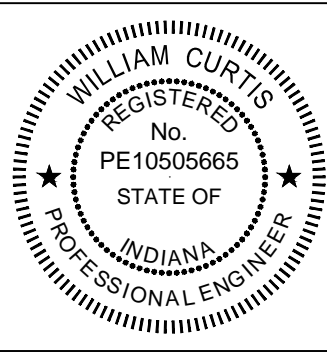
GENERAL NOTES

- All work shall confirm to latest version of the National Electrical Code all local ordinances.
- Refer To "Survey Control" Sheet For Alignment Information, Benchmarks Reference Ties.
- Refer to "Lighting Plan Tables Miscellaneous Details" for more information.



Revised lighting legend added wiring for bollards revised curb location

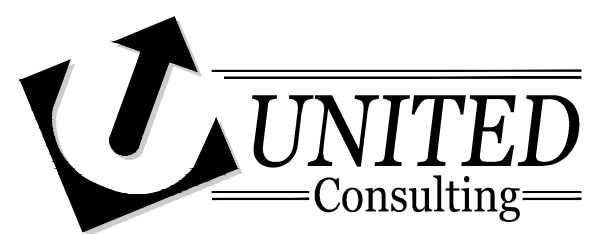
W.M.R. CE - 1/13/16
SIGNATURE DATE



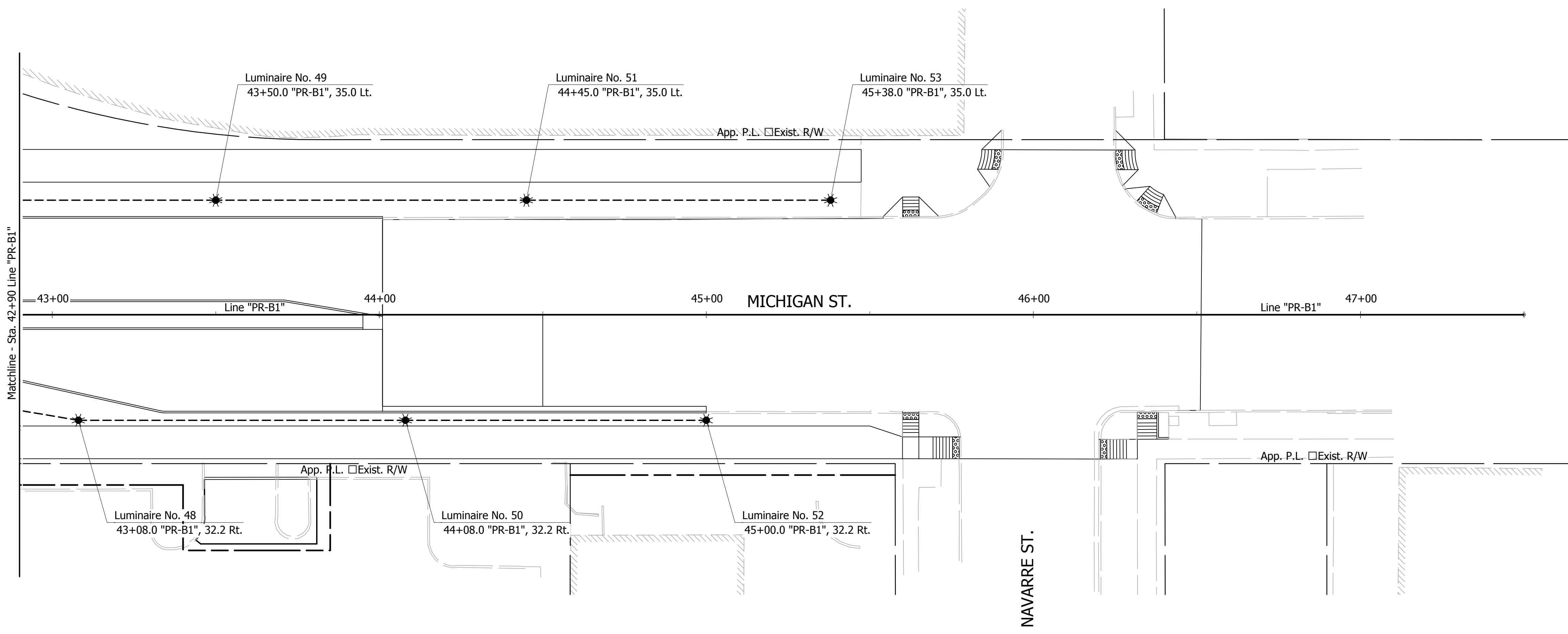
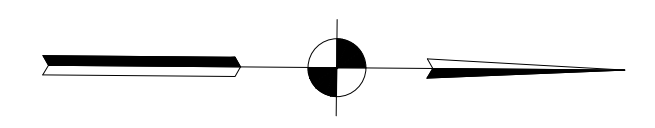
**CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS**

**LIGHTING PLAN
LINE "PR-B" - MICHIGAN ST.**

REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE N/A	SHEETS 67 OF 107
CHECKED: WRC	SURVEY BOOK - DATE //	



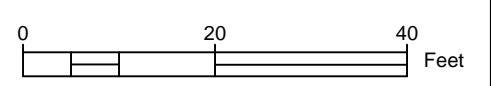
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LEGEND

	Service Point, Type II, 120V/240V		Bollard, Decorative, Illuminated (See Construction Details For Locations)
	L.E.D. Luminaire on Decorative Post		Wire, No. 6 Copper, 1/C in Conduit, HDPE, 2", Schedule 80
	Twin Arm L.E.D. Luminaires on Decorative Post		TESCO Cabinet, on Concrete Foundation
	Lighting Handhole		Existing Light Pole

- GENERAL NOTES**
- All work shall confirm to latest version of the National Electrical Code all local ordinances.
 - Refer To "Survey Control" Sheet For Alignment Information, Benchmarks Reference Ties.
 - Refer to "Lighting Plan Tables Miscellaneous Details" for more information.

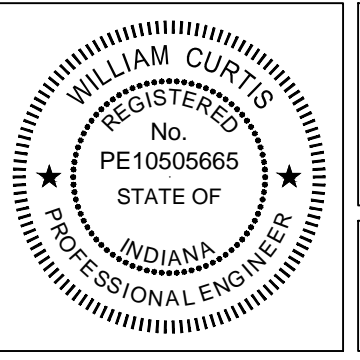


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**CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS**

**LIGHTING PLAN
LINE "PR-B1" - MICHIGAN ST.**

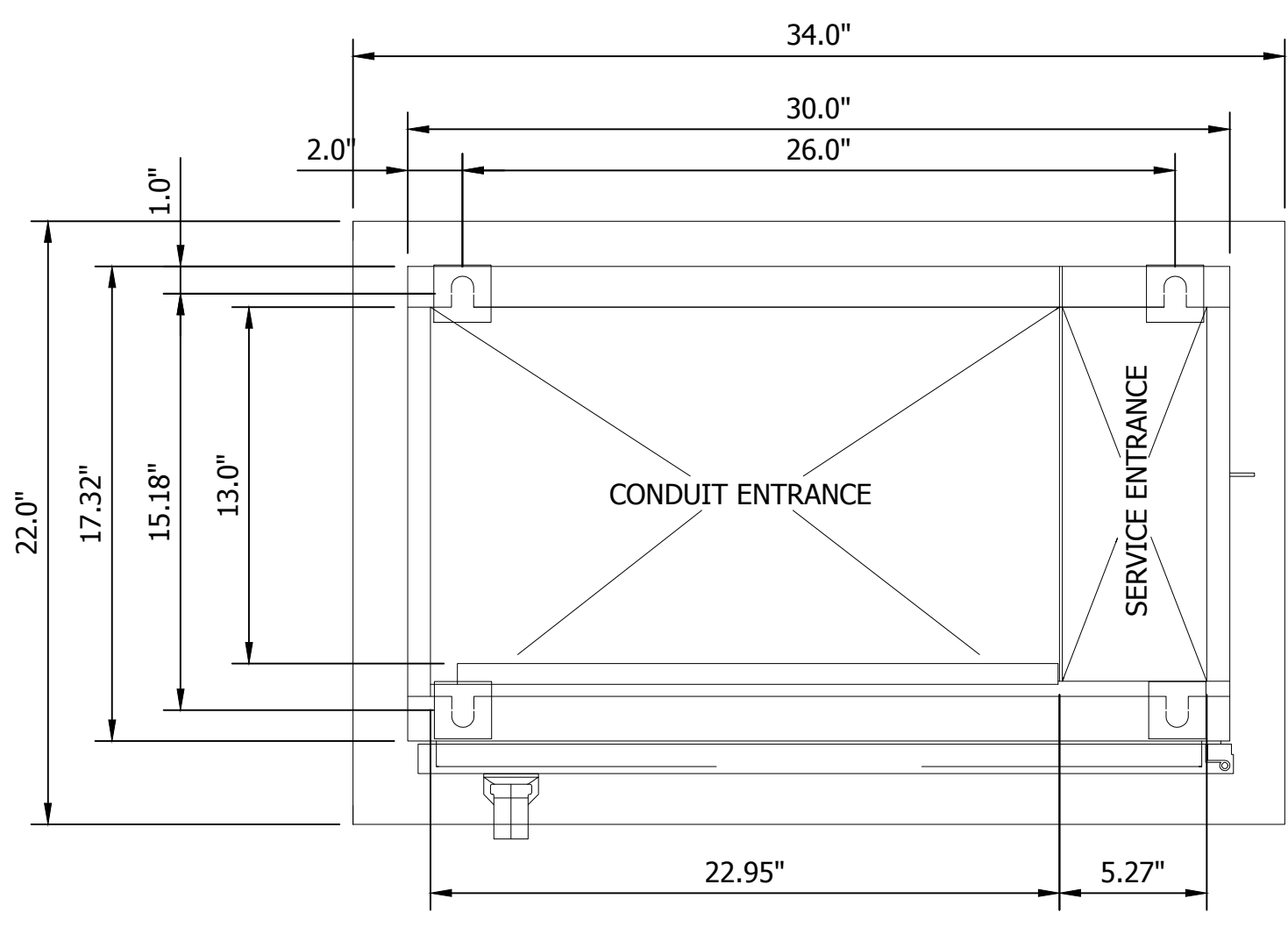
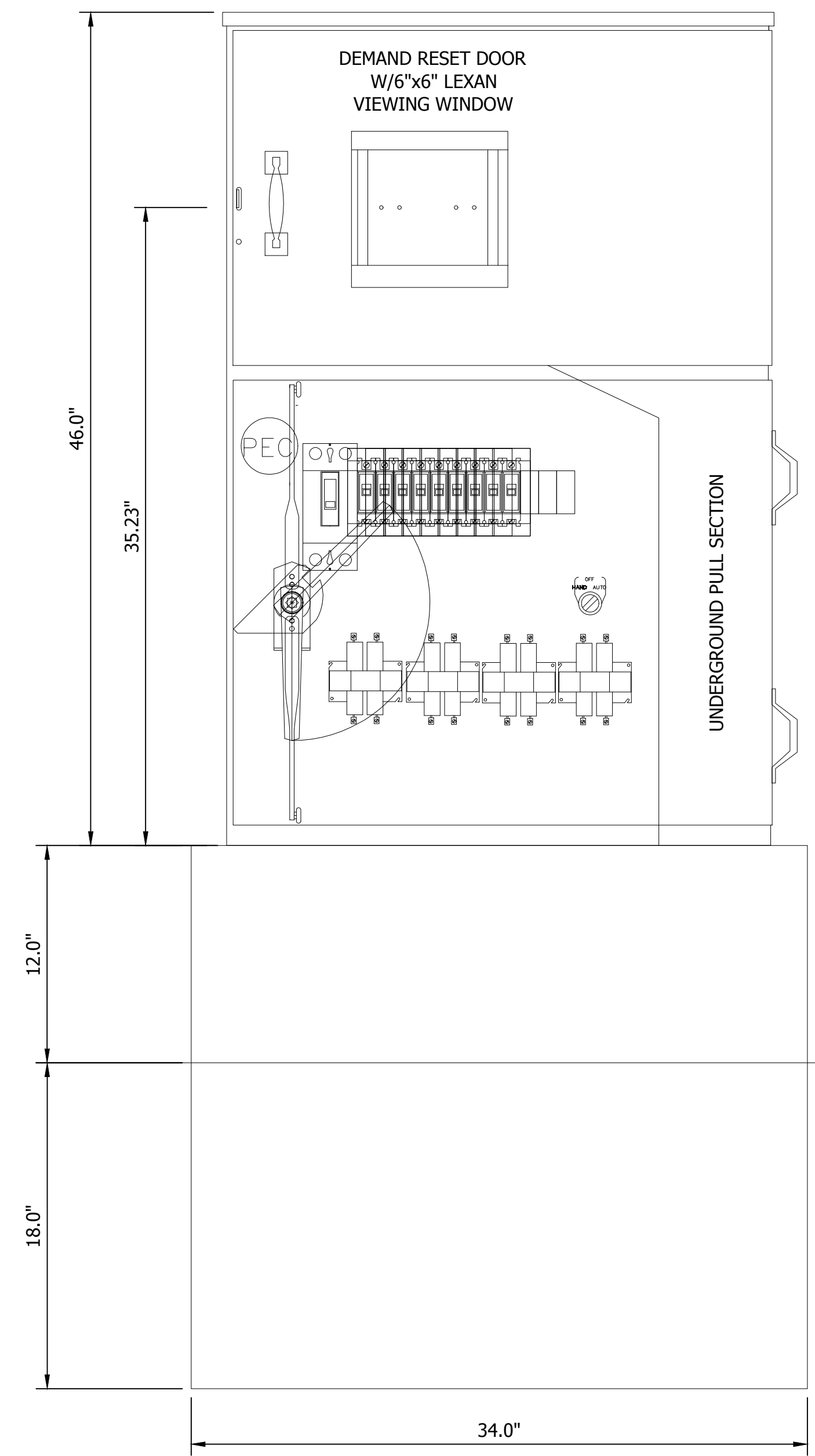
REVISIONS	HORIZONTAL SCALE 1"=20'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE N/A	SHEETS 68 OF 107
CHECKED: WRC	SURVEY BOOK - DATE //	

LUMINAIRE SCHEDULE																																																							
Luminaire ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53		
LED Luminaire Wattage	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Connection Type	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2	2	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Circuit Connection	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B	R	R	B	B
Pole Height (Ft)	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Twin Arm Light	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

HANDHOLE SCHEDULE																				
Handhole No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Connection Type	1	B	B	B	B	C	C	C	C	C	B	B	B	B	B	C	A	C	A	A

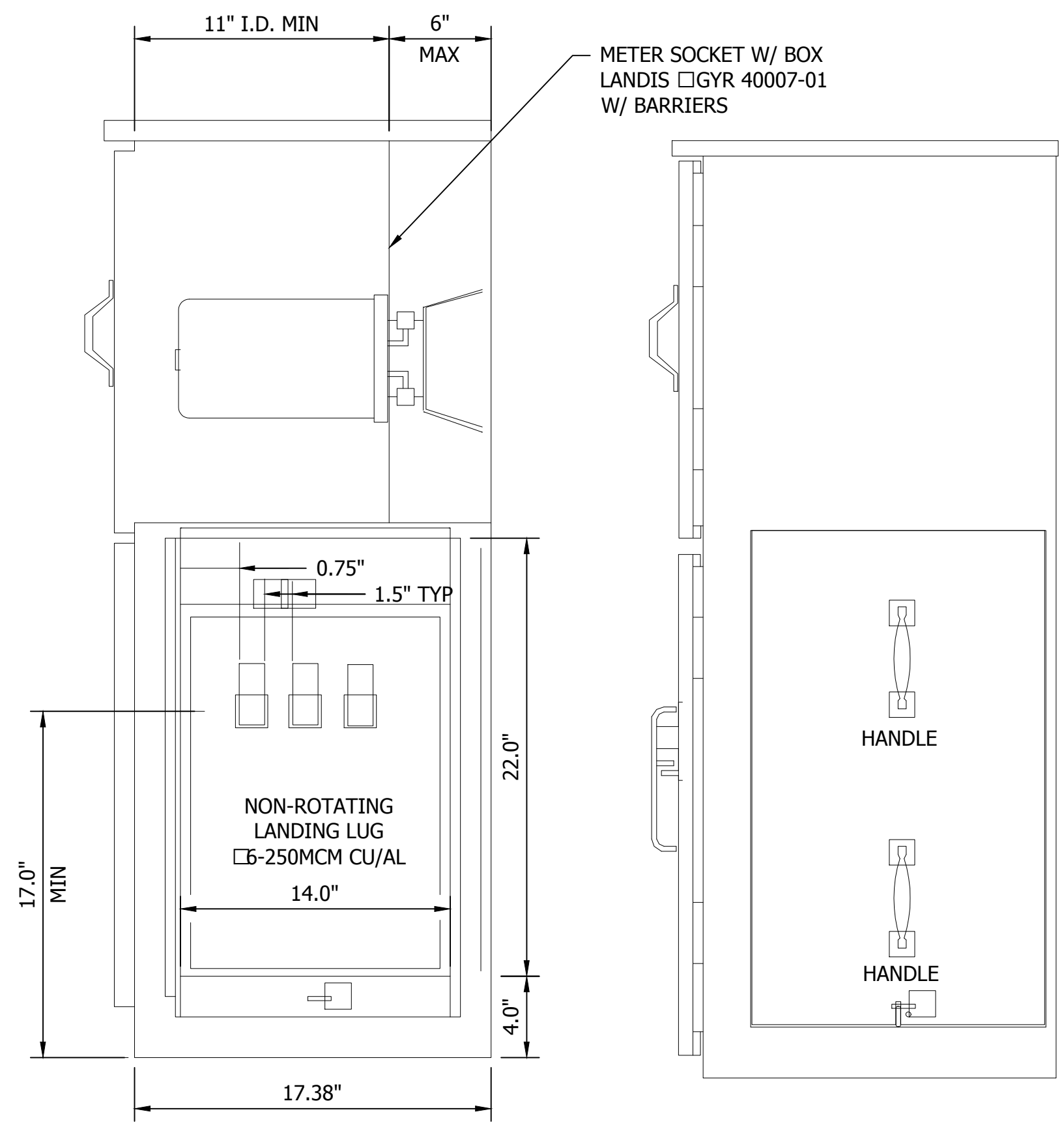
DESIGN DATA TABLE	
Initial Lamp Lumen (LL)	4861
Average Maintained Illumination (Eh)	0.8 Footcandles
Lamp Lumen Depreciation Factor (LLD)	0.93
Luminaire Dirt Depreciation Factor (LDD)	0.87
Maintenance Factor (LLD x LDD)	0.81
Uniformity Ratio	4:1
Luminaire Classification, Conventional	Type III

SERVICE POINT & CONTROLLER CABINET TABLE				
No.	Main Breaker	Branch Circuit	Computed Branch Circuit Average	Branch Circuit Breaker Rating
1	200 Amps	Red	11.25 Amps	20 Amps
		Black	11.25 Amps	20 Amps
2	200 Amps	Red	12.75 Amps	20 Amps
		Black	11.25 Amps	20 Amps



- CITY BASE DETAIL NOTES**
1. BASE MUST BE 34"W X 30"H X 22"D
 2. 12" (OF 30") MUST BE EXPOSED ABOVE GROUND
 3. 18" (OF 30") MUST BE BELOW GROUND

- TESCO ENCLOSURE CONSTRUCTION NOTES**
1. EXTERIOR 12 GA. H.D. GALV. STEEL AND INTERIOR 14 GA. COLD ROLLED STEEL ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
 2. CONSTRUCTION WILL BE NEMA 3R, RAIN TIGHT.
 3. ALL NUTS, BOLTS AND SCREWS WILL BE STAINLESS STEEL.
 4. NUTS, BOLTS & SCREWS WILL NOT BE VISIBLE FROM OUTSIDE OF ENCLOSURE.
 5. NAMEPLATES WILL BE PROVIDED AS REQUIRED.
 6. CONTROL WIRING WILL BE MARKED AT BOTH ENDS BY PERMANENT WIRE MARKERS.
 7. A PLASTIC COVERED WIRING DIAGRAM WILL BE ATTACHED TO THE INSIDE OF THE FRONT DOOR.
 8. ENCLOSURE WILL BE FACTORY WIRED AND CONFORM TO REQUIRED NEMA AND UL 508A STANDARDS.
 9. COLOR TO BE: CHAR BROWN
 10. FOR DUAL METER ENCLOSURES, DECORATIVE LANDSCAPING LIGHTING SHALL BE SEPARATED FROM THE STANDARD ROADWAY LIGHTING.



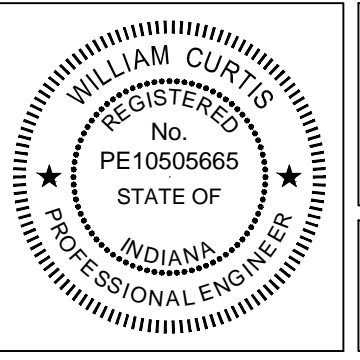
David Kline
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 Customer Service Engineer
 Office: (574) 296-5065
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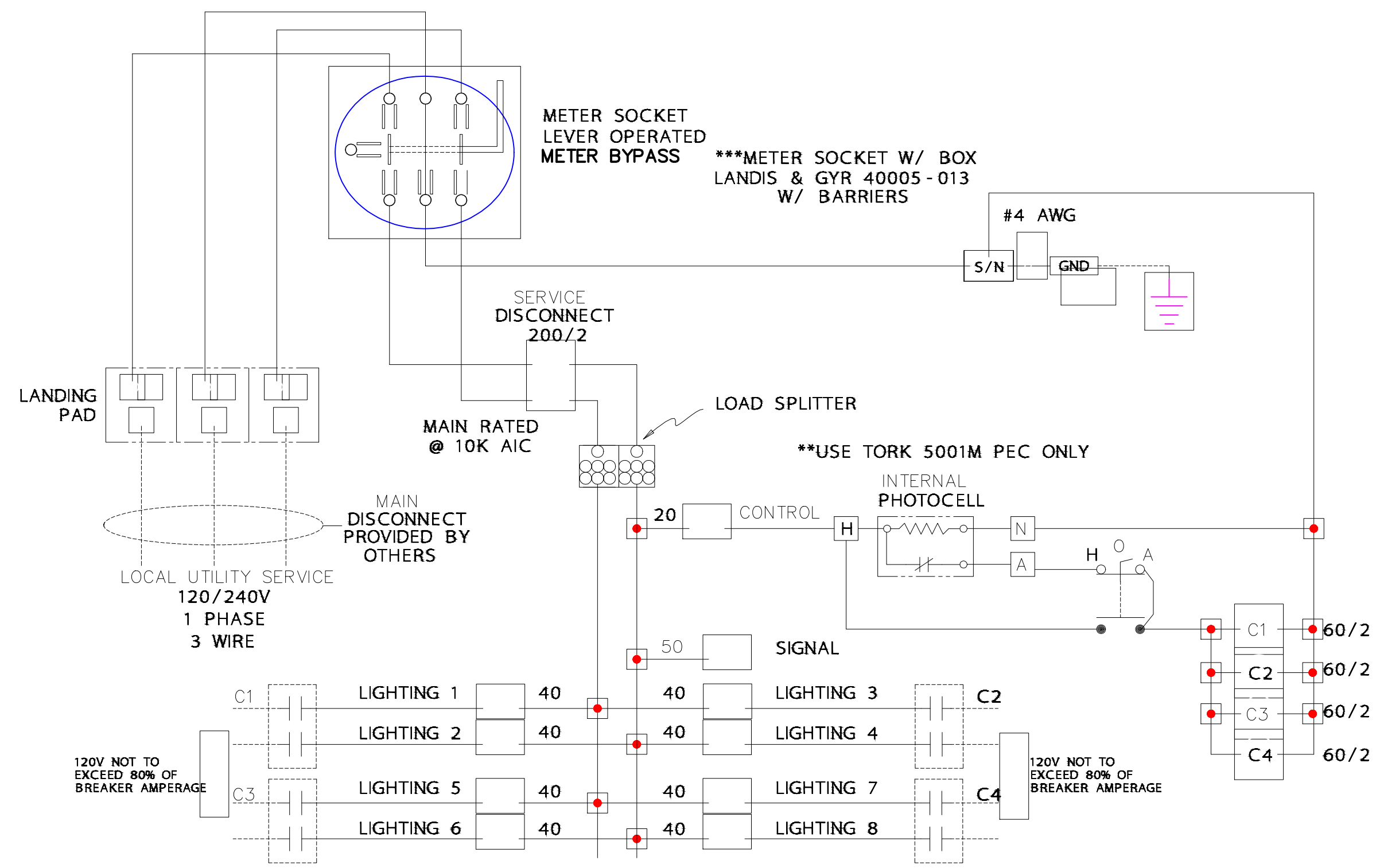


CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS

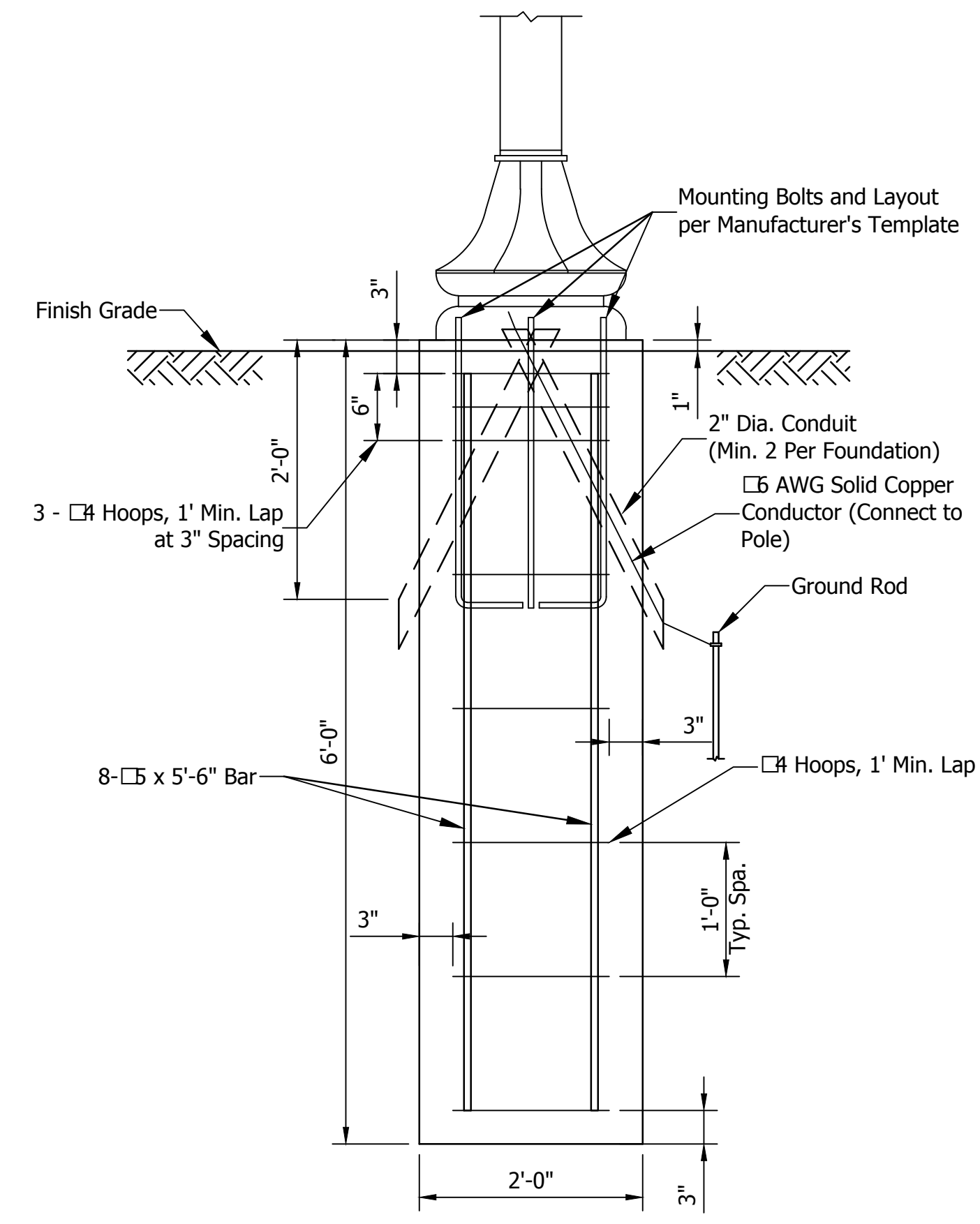
LIGHTING TABLES
 MISCELLANEOUS DETAILS

REVISIONS	HORIZONTAL SCALE AS SHOWN	PROJECT NUMBER 114-035
	VERTICAL SCALE AS SHOWN	
DRAWN: JNII	SURVEY BOOK	SHEETS
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TESCO CABINET WIRING SCHEMATIC

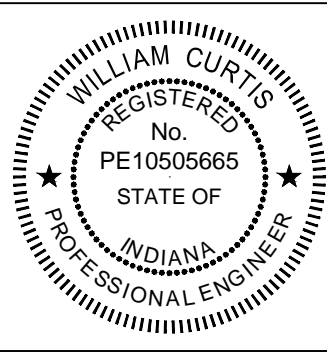


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LIGHTING
MISCELLANEOUS DETAILS

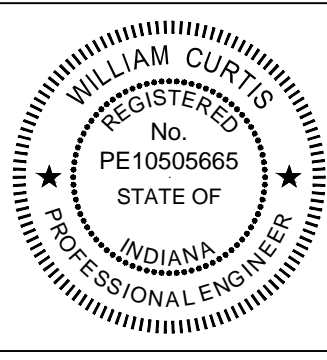
REVISIONS	HORIZONTAL SCALE AS SHOWN	PROJECT NUMBER 114-035
	VERTICAL SCALE AS SHOWN	
DRAWN: JNII	SURVEY BOOK	SHEETS
CHECKED: WRC	DATE	70 OF 107
	///	

SUMMARY OF QUANTITIES & APPROACH TABLE

LOCATION (STATION)	DESCRIPTION (APPROACH TYPE OR CLASS)	WIDTH FT	LENGTH FT	DISTANCE BEYOND R/W LINE FT	RADII FT	GRADE (LESS THAN 10% NOT SHOWN)		EXCAVATION		SUBGRADE TREATMENT, TYPE I	CC/LA - HMA, 4, 76, SURFACE 12.5mm	CC/LA - HMA, 4, 76, INTER. 19.0mm	CC/LA - HMA, 4, 64 BASE 19.0mm	CC/LA - PCPP	PCPP	PCPP, COLORED	PCPP, COLORED	PERMEABLE PAVEMENT	DENSE GRADED SUBBASE	ASPHALT FOR TACK COAT	COMPACTED AGGREGATE FOR BASE NO. 53			D-1 CONTRACTION JOINTS	CONCRETE SIDEWALK, 5"	CONCRETE SIDEWALK, 5" DECORATIVE	SUBGRADE TREATMENT, TYPE II	MILLING, ASPHALT, 2"	PCPP FOR APPROACHES, 9 IN.	PERMEABLE PAVEMENT (PAVE DRAIN)	CURB, CONCRETE (BARRIER)	MOD. INTEGRAL CONCRETE CURB, B	CURB AND GUTTER, B, CONCRETE	CURB, CONCRETE, INTEGRAL			REMARKS																			
						1 %	2 %	CUT	FILL												SYS	TON	TON															TON	10 in. SYS	5 in. SYS	9 in. SYS	10 in. SYS	11 in. TON	6 in. TON	3 in. TON	LFT	SYS	SYS	SYS	SYS	SYS	SYS	LFT	LFT	LFT	LFT
LINE "A"	Main Street							423	222	-	341	438	-	-					203	76	0.8					636	490		2,885		203	108		1,114	120																					
LINE "PR-A"	Main Street							2,746	187	3,612	232	291	879	787			37	102	73	1.6					399	588	706			102	39		1,091	286																						
LINE "PR-B"	Michigan Street							1,490	456	2,394	329	386	676	858		69	38	344	141	1.4					412	1539	600		1,259		344	114		1,398	343																					
LINE "PR-B1"	Michigan Street							651	419	1,728	253	239	198	1,462			51	-	208	0.6					867	623		1,147			35		99	471																						
LINE "PR-D"	Marion Street							340	24	872	80	101	295	-				-	-	0.6						139								317																						
LINE "PR-E"	Marion Street							109	34	309	46	57	-	516						40	-	42	0.1			225			416					130	156																					
	Roundabout									1810					53		428	-	341						990						584	371			1328																					
LINE "C"																																		256	63																					
LINE "A"																																																								
13+16.7, Lt	Class III Drive	24.0	28.5		10/20																																																			
13+33.5, Rt	Class III Drive	29.0	27.5		20/10																																																			
13+76.1, Lt	Class III Drive	13.0	28.5		10/20																																																			
LINE "PR-A"																																																								
18+03.8, Lt	Class III Drive	15.3	27.6		10/20																																																			
18+51.7, Lt	Class III Drive	14.0	26.7		10/20																																																			
22+18.1, Lt	Mod Class III Drive	15.5	32.8		10/10																																																			
LINE "PR-B"																																																								
33+45.8, Rt	Class III Drive	18.5	29.4		20/10																																																			
35+03.0, Rt	Class III Drive	24.0	29.4		20/10																																																			
37+37.8, Rt	Class III Drive	30.0	29.5		20/10																																																			
38+62.4, Rt	Mod Class III Drive	24.0	29.7		20/Mod																																																			
LINE "C"																																																								
82+33.4, Rt	Class III Drive	24.0	18.3		20/10																																																			
82+41.9, Lt	Class III Drive	18.0	15.8		10/20																																																			
LINE "PR-D"																																																								
61+30.2, Lt Rng.	Street Approach	32.0																																																						
LINE "PR-E"																																																								
91+97.6, Rt	Mod Class III Drive	64.0	17.9		20/10																																																			
TOTALS								5,759	1,342	10,725	1,281	1,494	2,048	3,623	53	69	594	650	881	5.0						2,893	3,525	1,796	1,063	5,707	1,063	650	880	371	4,405	2,767																				

△ Revised Approach table

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**CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, □ MAIN STREETS**

**APPROACH TABLE □
SUMMARY OF □ QUANTITIES**

REVISIONS	HORIZONTAL SCALE N/A	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: JNII	SURVEY BOOK -	SHEETS 79 OF 107
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STRUCTURE DATA TABLE

STRUCTURE NUMBER	LOCATION					PIPE TYPE	MANHOLE, INLET, CATCH BASIN, OR SPECIALTY STRUCTURE	LENGTH	SKEW	COVER	FLOWLINE		SERVICE LIFE	SITE DESIGNATION	pH	BACKFILL METHOD	STRUCTURE BACKFILL TYPE I	REVTMENT RIPRAP	CLASS 1 RIPRAP	CLASS 2 RIPRAP	GEOTEXTILES	VIDEO INSPECTION FOR PIPES	PIPE END SECTION PRECAST CONCRETE	HOOD	CONNECT TO EXISTING STRUCTURE		SAFETY METAL END SECTION		CONNECT TO STR. NO.	REMARKS		
	STATION	LEFT	RIGHT	CROSS	OFFSET						SIZE	ELEV.													ELEV.	YR.	CORE	BOOT			SLOPE	EACH
112	18+76.55	X				12	2	Catch Basin Type K-10	18	2.7	701.02	700.95	75	NA	7	1	6.7							1	1	1			217			
113	18+67.21		X			15	2	Catch Basin Type M-10	8	2.7	701.17	701.10	75	NA	7	1	12.6												Ex. Pipe	Connect To Existing 15 Inch Pipe, Field Verify Inverts		
114	19+08.25	X				12	2	Catch Basin Type M-10	34	2.5	701.25	701.12	75	NA	7	1	11.8												112			
115	19+08.50		X			12	2	Catch Basin Type M-10	38	2.4	701.28	701.17	75	NA	7	1	12.8												113			
116	19+69.12	X				12	2	Catch Basin Type K-10	66	2.2	701.60	701.35	75	NA	7	1	20.7												114			
117	19+69.45		X			12	2	Catch Basin Type K-10	57	2.2	701.60	701.38	75	NA	7	1	17.8												115			
118	20+39.14	X				12	2	Catch Basin Type K-10	39	2.2	701.65	701.50	75	NA	7	1	12.2												119			
119	20+71.51	X				18	2	Mod. Manhole Type J-10	65	2.8	699.33	699.18	75	NA	7	1	31.6							1	1	1			237			
120	21+05.42	X				18	2	Mod. Manhole Type J-10	51	2.6	699.54	699.43	75	NA	7	1	23.3												119			
121	21+05.17		X			18	2	Catch Basin Type M-10	41	2.4	700.63	700.54	75	NA	7	1	17.6												120			
122	21+84.81	X				12	2	Catch Basin Type M-10	85	2.3	700.36	700.04	75	NA	7	1	27.5												120			
123	21+84.97		X			12	2	Catch Basin Type M-10	74	2.1	701.41	701.13	75	NA	7	1	22.3												121			
124	22+54.70	X				12	2	Catch Basin Type M-10	75	2.3	701.77	701.47	75	NA	7	1	24.3												122			
125	22+51.74		X			12	2	Catch Basin Type M-10	61	2.1	701.77	701.51	75	NA	7	1	18.4												123			
126	23+28.36	X				12	2	Catch Basin Type K-10	76	2.2	703.45	703.18	75	NA	7	1	23.8												124			
127	23+32.64		X			12	2	Catch Basin Type K-10	79	2.2	703.65	703.38	75	NA	7	1	24.7												125			
217	18+70.71	X			2.1			Existing Manhole																						Adjust Casting To Grade		
Line "PR-B"																																
128	32+52.5		X			12	2	Catch Basin Type K-10	135	2.1	701.75	701.23	75	NA	7	1	40.6												129			
129	33+87.1		X		20.5	12	2	Manhole Type H-4	136	4.4	699.80	699.37	75	NA	7	1	79.2												131			
130	33+86.6	X				12	2	Catch Basin Type K-10	46	2.1	700.08	699.90	75	NA	7	1	13.8												129			
131	35+24.5		X		25.0	12	2	Manhole Type H-4	77	5.6	699.27	698.98	75	NA	7	1	57.1												219			
134A	37+55.4		X		21.0	12	2	107' of Trench Drain		2.5	704.04	703.57	75	NA	7	1	37.2												135			
135	38+09.9		X			12	2	Catch Basin Type M-10	33	2.6	703.47	703.34	75	NA	7	1	11.8												138			
137	38+49.3	X				18	2	Mod. Manhole Type H-10	38	3.8	702.62	702.46	75	NA	7	1	27.7												138			
137A	38+84.46	X				12	2	Catch Basin Type M-10	35	2.7	703.18	703.03	75	NA	7	1	13.0												137			
138	38+42.8		X			18	2	Inlet Type R-13	27	2.7	702.42	702.34	75	NA	7	1	17.0												139			

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ROUNDBOUT INTERSECTION AT
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STRUCTURE DATA TABLE

REVISIONS	HORIZONTAL SCALE N/A	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
DRAWN: DJJ	SURVEY BOOK -	SHEETS 82 OF 107
CHECKED: WRC	DATE / /	

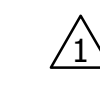
STRUCTURE DATA TABLE

STRUCTURE NUMBER	LOCATION					PIPE TYPE	MANHOLE, INLET, CATCH BASIN, OR SPECIALTY STRUCTURE	LENGTH	SKEW	COVER	FLOWLINE		SERVICE LIFE	SITE DESIGNATION	pH	BACKFILL METHOD	STRUCTURE BACKFILL TYPE I	REVTMENT RIPRAP	CLASS 1 RIPRAP	CLASS 2 RIPRAP	GEOTEXTILES	VIDEO INSPECTION FOR PIPES	PIPE END SECTION PRECAST CONCRETE	HOOD	CONNECT TO EXISTING STRUCTURE		SAFETY METAL END SECTION		CONNECT TO STR. NO.	REMARKS		
	STATION	LEFT	RIGHT	CROSS	OFFSET						UP STREAM	DOWN STREAM													YR.	CORE	BOOT	SLOPE			EACH	
					FT																											IN
139	38+70.6	X			29.5	24	2	Manhole Type H-4	10	2.3	698.70	698.65	75	NA	7	1	7.7													223		
140	39+04.42	X				12	2	Catch Basin Type M-10	20	2.6	703.36	703.28	75	NA	7	1	7.2													137A		
141	39+04.51		X			12	2	Catch Basin Type M-10	33	2.6	703.36	703.21	75	NA	7	1	10.1													139		
142	39+44.89	X				12	2	Catch Basin Type M-10	41	2.3	703.61	703.46	75	NA	7	1	13.3													140		
143	39+44.35		X			12	2	Catch Basin Type M-10	40	2.3	703.61	703.46	75	NA	7	1	13.0													141		
144	39+80.2	X			43.6	12	2	Catch Basin Type E-7	26	2.3	704.10	704.00	75	NA	7	1	8.4													146		
145	39+90.5		X			12	2	Catch Basin Type K-10	47	2.2	703.88	703.70	75	NA	7	1	14.7													143		
146	39+93.24	X				12	2	Catch Basin Type K-10	49	2.2	703.90	703.71	75	NA	7	1	15.3													143		
219	35+94.10		X		13.0			Existing Manhole															1	1	1					Adjust Casting To Grade		
220	36+11.41	X			12.0			Existing Manhole																						Adjust Casting To Grade		
222	38+58.86	X			11.9			Existing Manhole																						Adjust Casting To Grade, Casting Type 4 Required		
223	38+70.59		X		15.4			Existing Manhole															1	1	1					Adjust Casting To Grade		
224	38+84.67		X		40.5			Existing Inlet																						Adjust Casting To Grade, Casting Type 4 Required		
227	40+45.71		X		40.5			Existing Inlet																						Adjust Casting To Grade, Casting Type 4 Required		
231	41+07.33		X		48.2			Existing Manhole																						Adjust Casting To Grade		
Line "PR-E"																																
148A	92+39.3	X			1.1	10	VCP	Pipe	6		Field Verify	Field Verify	75	NA	7	1	1.7													149		
148	92+42.67		X			12	DI	Catch Basin Type K-10	17	2.2	701.07	701.00	75	NA	7	1	5.3													149		
149	92+43.12	X			1.1	10	VCP	Manhole Type C-4	6		Field Verify	Field Verify	75	NA	7	1	1.7													Ex Pipe		
150	92+42.80	X				12	2	Catch Basin Type K-10	21	2.2	700.94	700.85	75	NA	7	1	6.6													149		
150A	91+43.1	X			22.0	12	2	Catch Basin Type F-7	100	2.0	701.42	701.04	75	NA	7	1	29.0													150		
150B	91+09.9	X			36.0	12	2	Pipe Catch Basin 12"	35	2.0	701.66	701.52	75	NA	7	1	10.2													150		
Line "PR-B1"																																
151	42+50.00	X			61.3	12	2	Pipe Catch Basin 12"	21	3.5	700.10	700.02	75	NA	7	1	9.8													197		
152	43+39.77	X				12	2	Catch Basin Type M-10	8	2.2	Field Verify	Field Verify	75	NA	7	1	15.3															
152A	43+36.1	X				12	2	Catch Basin Type M-10	8	2.2	Field Verify	Field Verify	75	NA	7	1	15.3													152		
153	42+50.29	X			40.5	10	VCP	Manhole Type C-4	6	2.6	Field Verify	Field Verify	75	NA	7	1	2.2													Ex Pipe		

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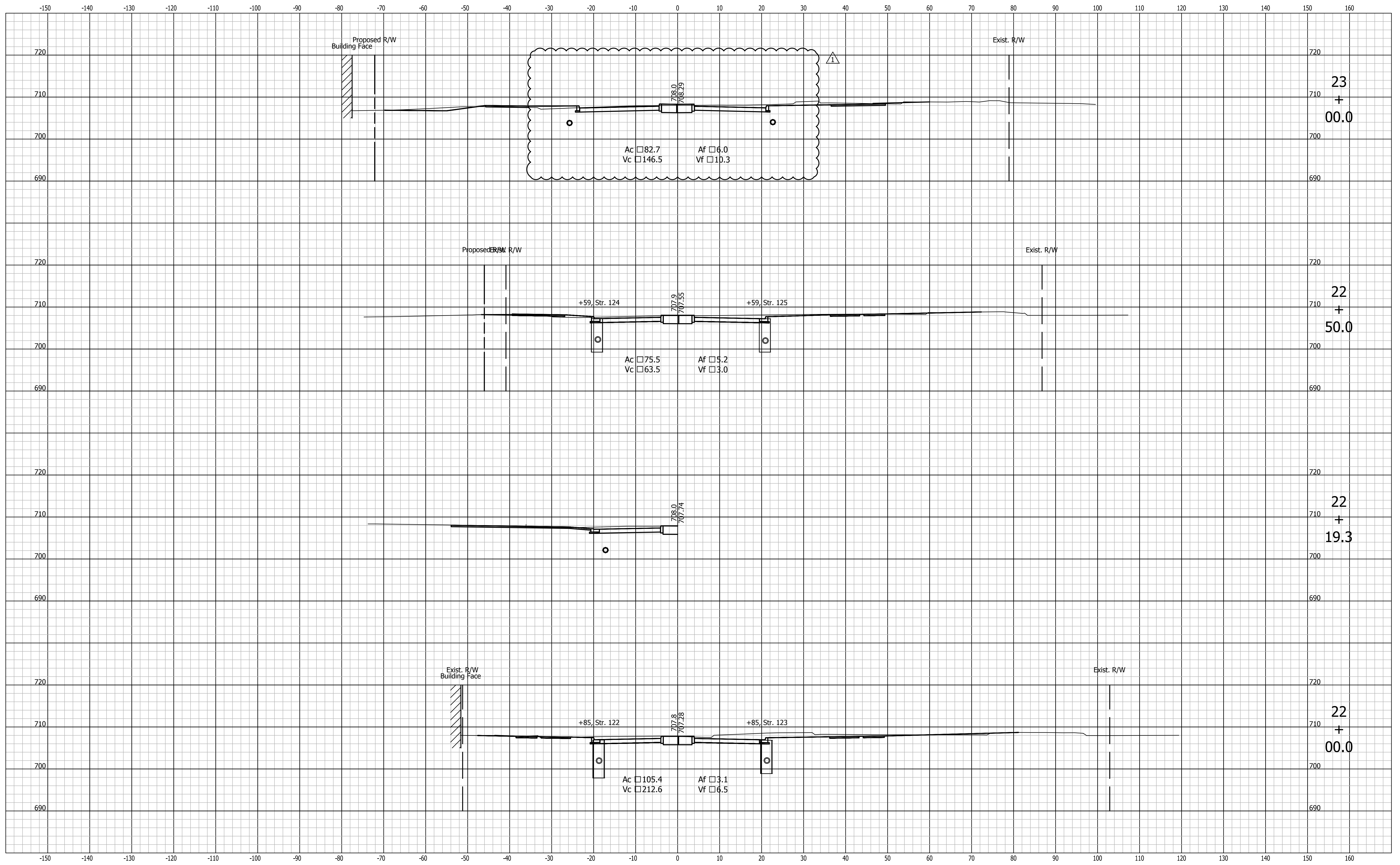


CITY OF SOUTH BEND, INDIANA
ROUNDAABOUT INTERSECTION AT
MARION, MICHIGAN, □ MAIN STREETS

STRUCTURE DATA TABLE

REVISIONS	HORIZONTAL SCALE N/A	PROJECT NUMBER 114-035
	VERTICAL SCALE N/A	
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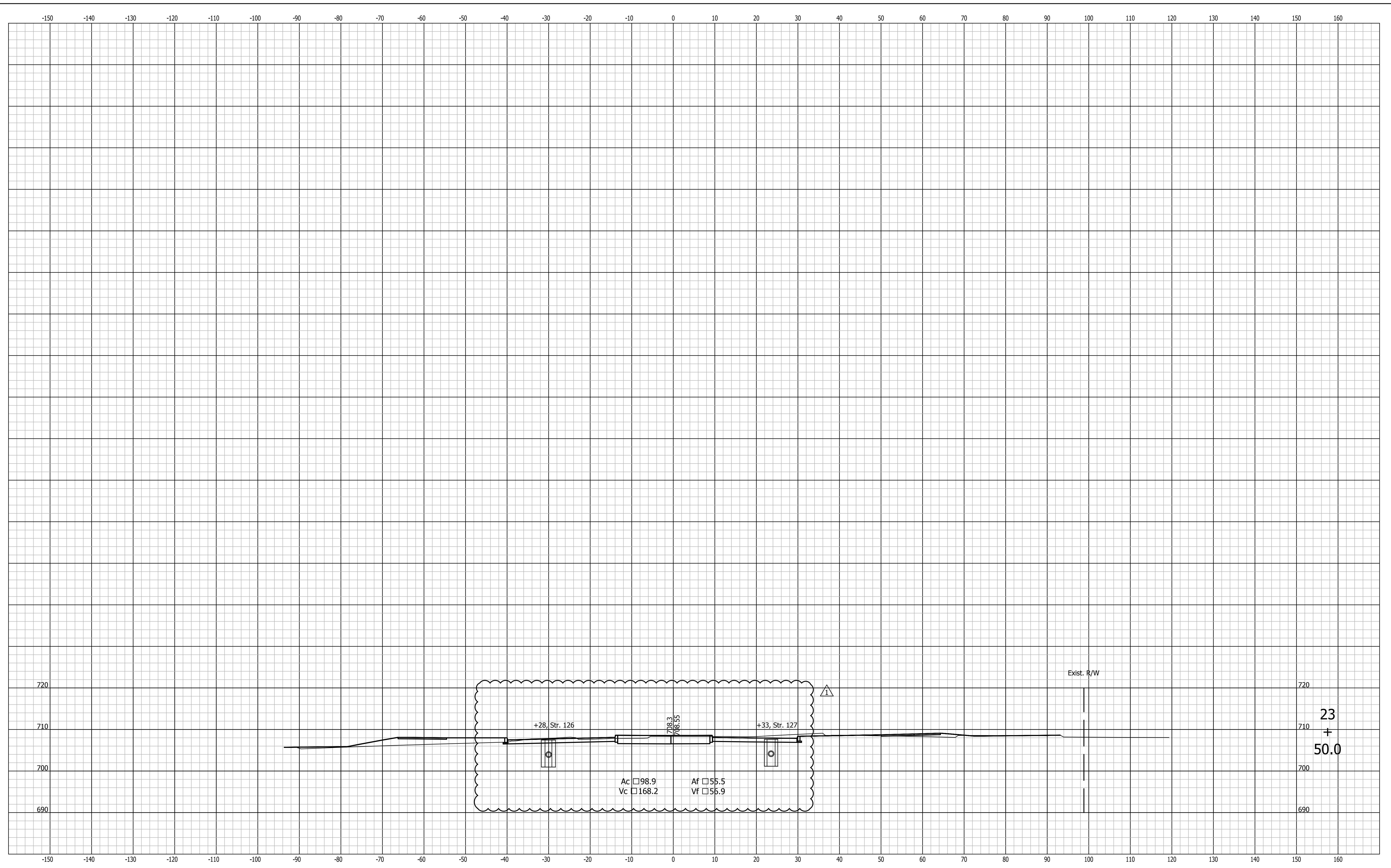
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CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS

CROSS SECTIONS
 LINE "PR-A"

REVISIONS	HORIZONTAL SCALE 1"=10'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE 1"=10'	SHEETS
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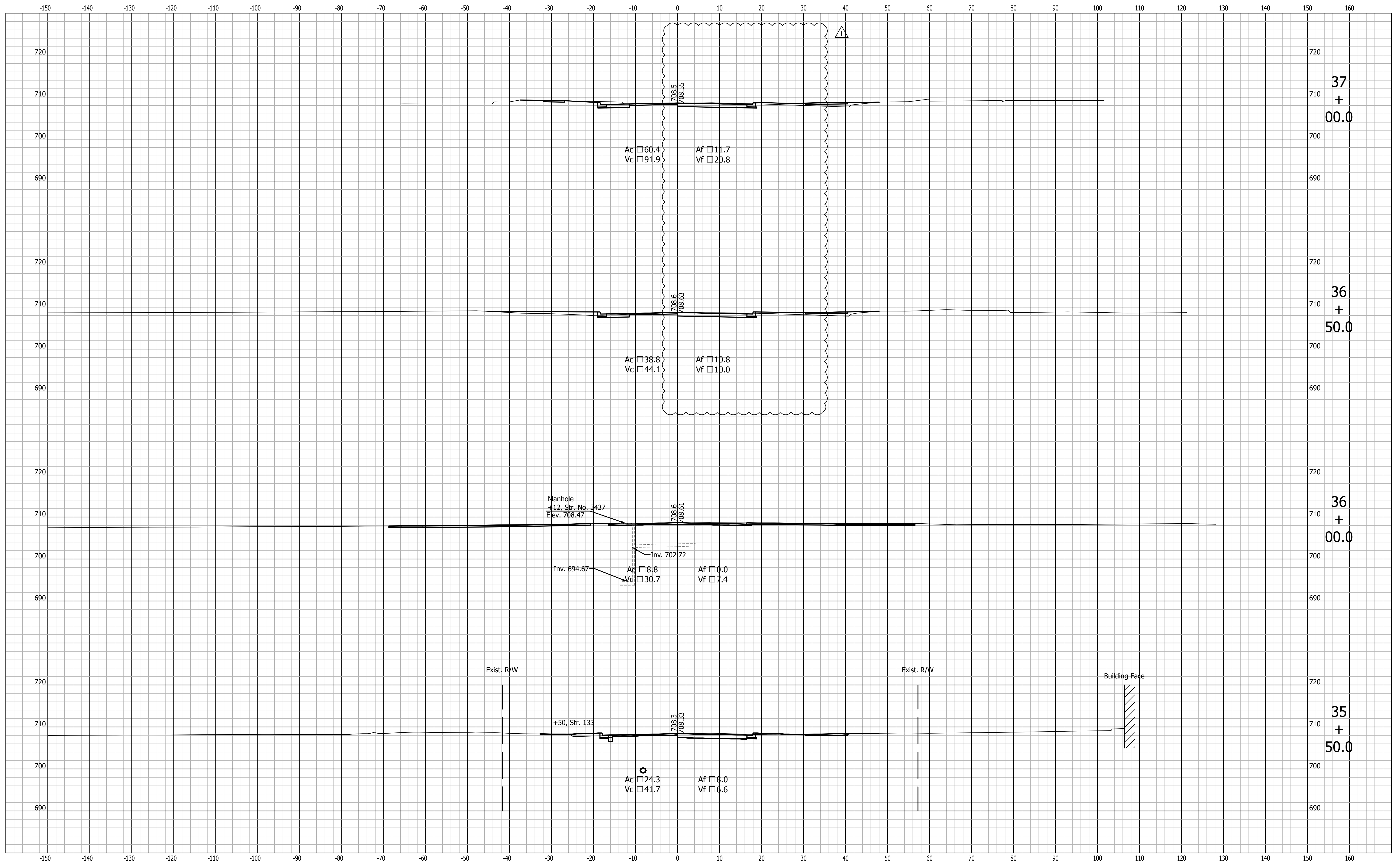
Revised cross sections

CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS
 CROSS SECTIONS
 LINE "PR-A"

REVISIONS	HORIZONTAL SCALE 1"=10'
DRAWN: JNII	VERTICAL SCALE 1"=10'
CHECKED: WRC	SURVEY BOOK
	DATE
	//

PROJECT NUMBER 114-035
SHEETS 93 OF 107

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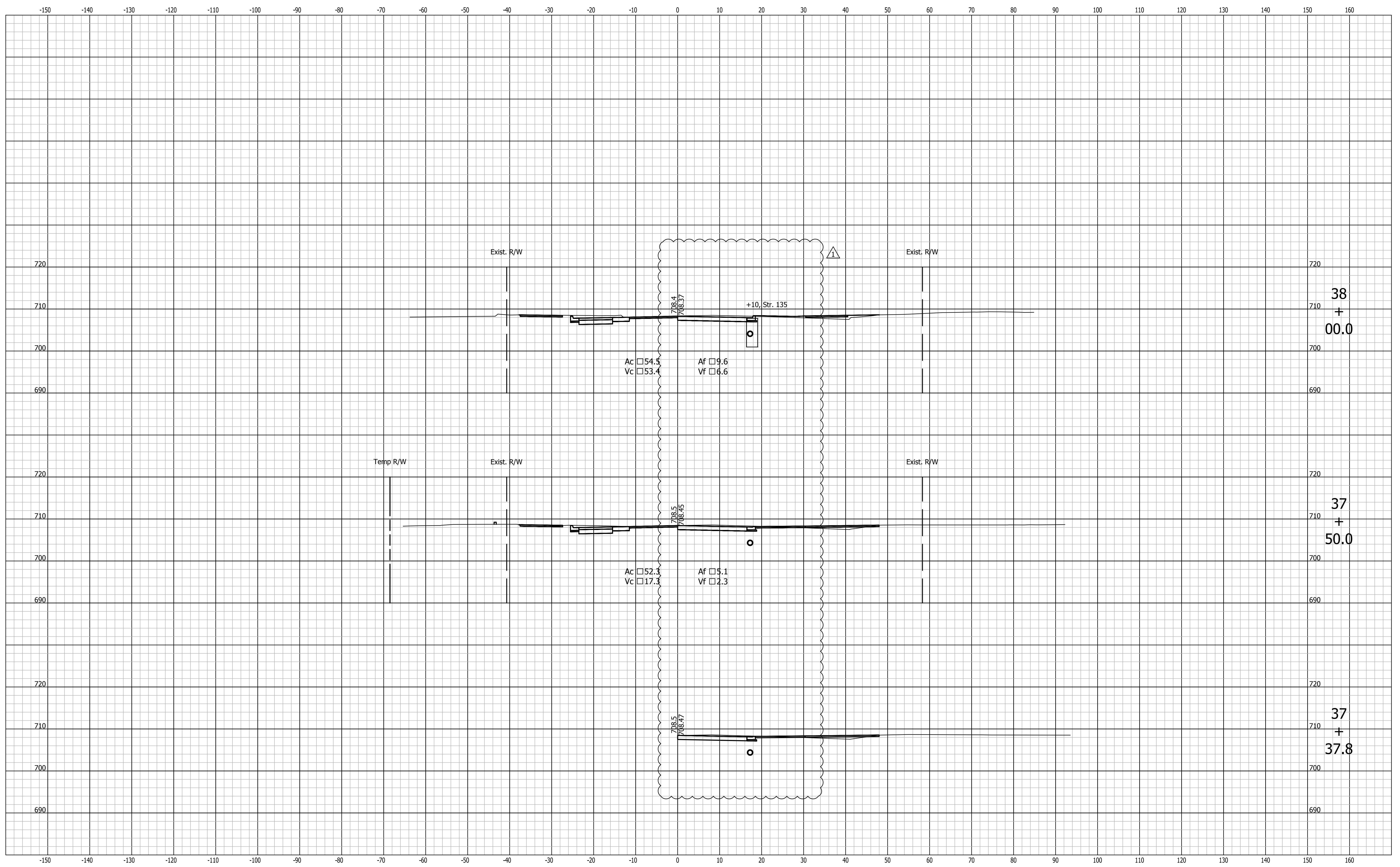
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CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS

CROSS SECTIONS
 LINE "PR-B"

REVISIONS	HORIZONTAL SCALE 1"=10'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE 1"=10'	SHEETS 97 OF 107
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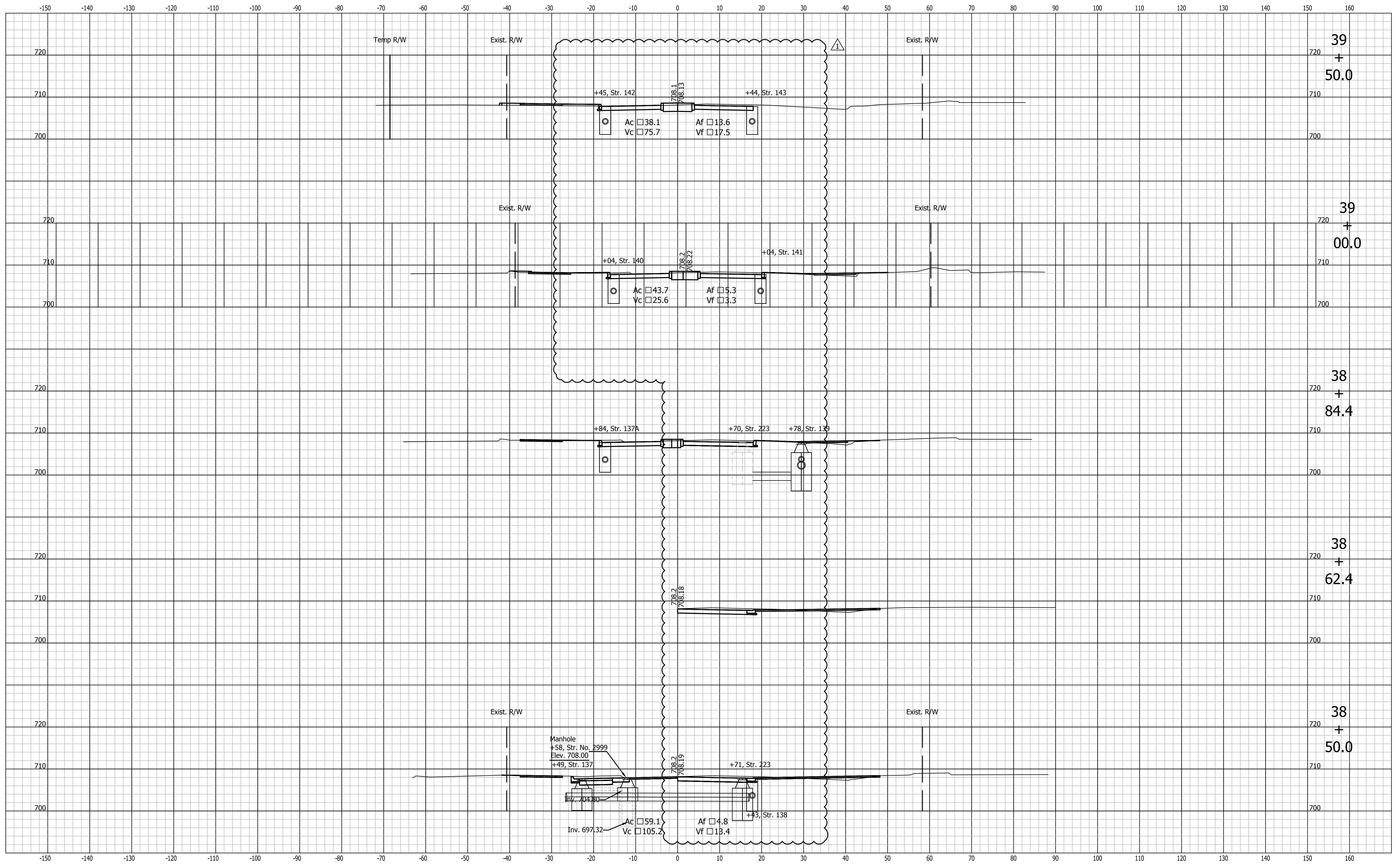
CROSS SECTIONS
 LINE "PR-B"

REVISIONS
DRAWN: JNII
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HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=10'
SURVEY BOOK
DATE

PROJECT NUMBER 114-035
SHEETS 98 OF 107

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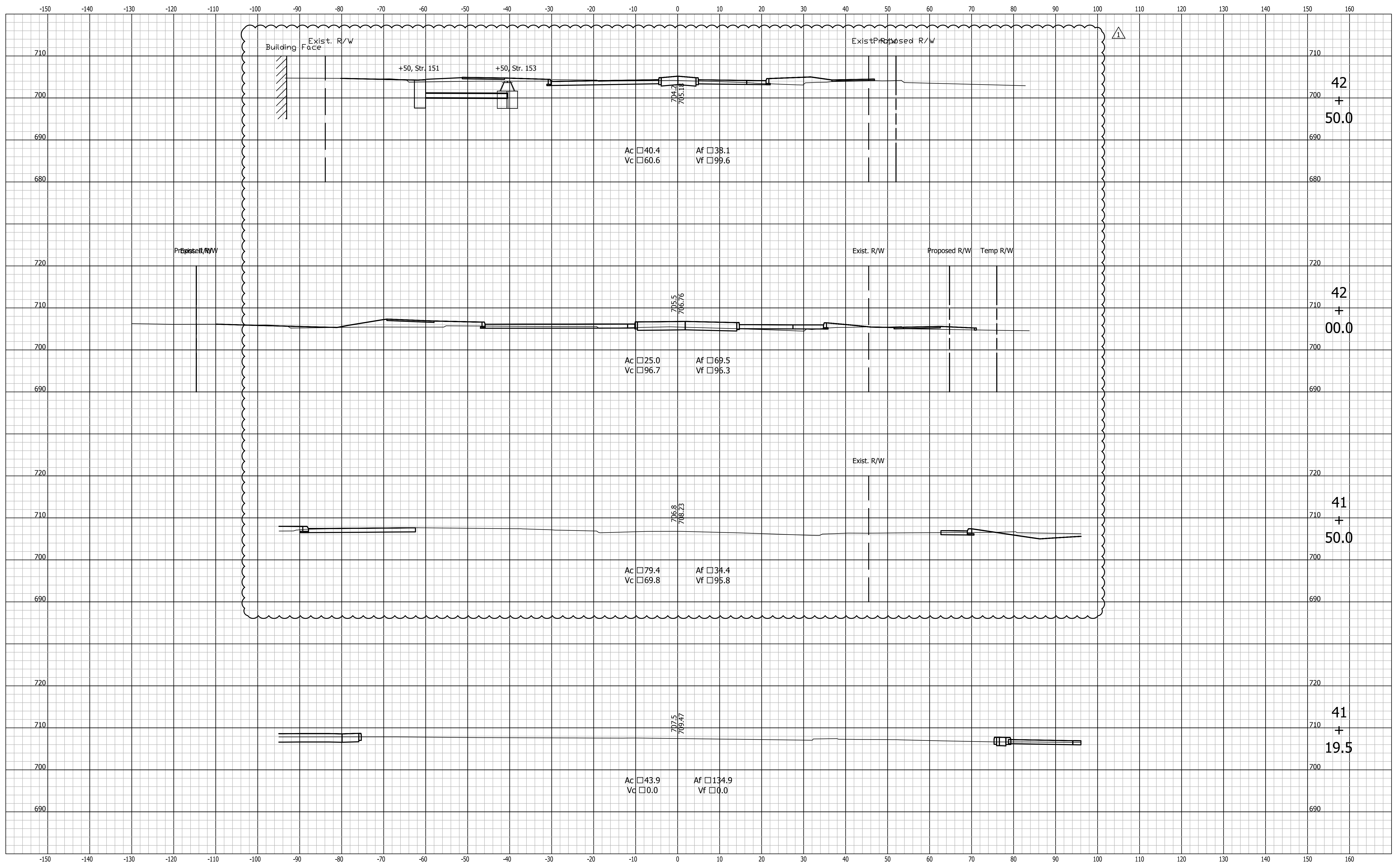
Revised cross sections

CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS

CROSS SECTIONS
 LINE "PR-B"

REVISIONS	HORIZONTAL SCALE 1"=10'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE 1"=10'	SHEETS 99 OF 107
CHECKED: WRC	SURVEY BOOK DATE / /	

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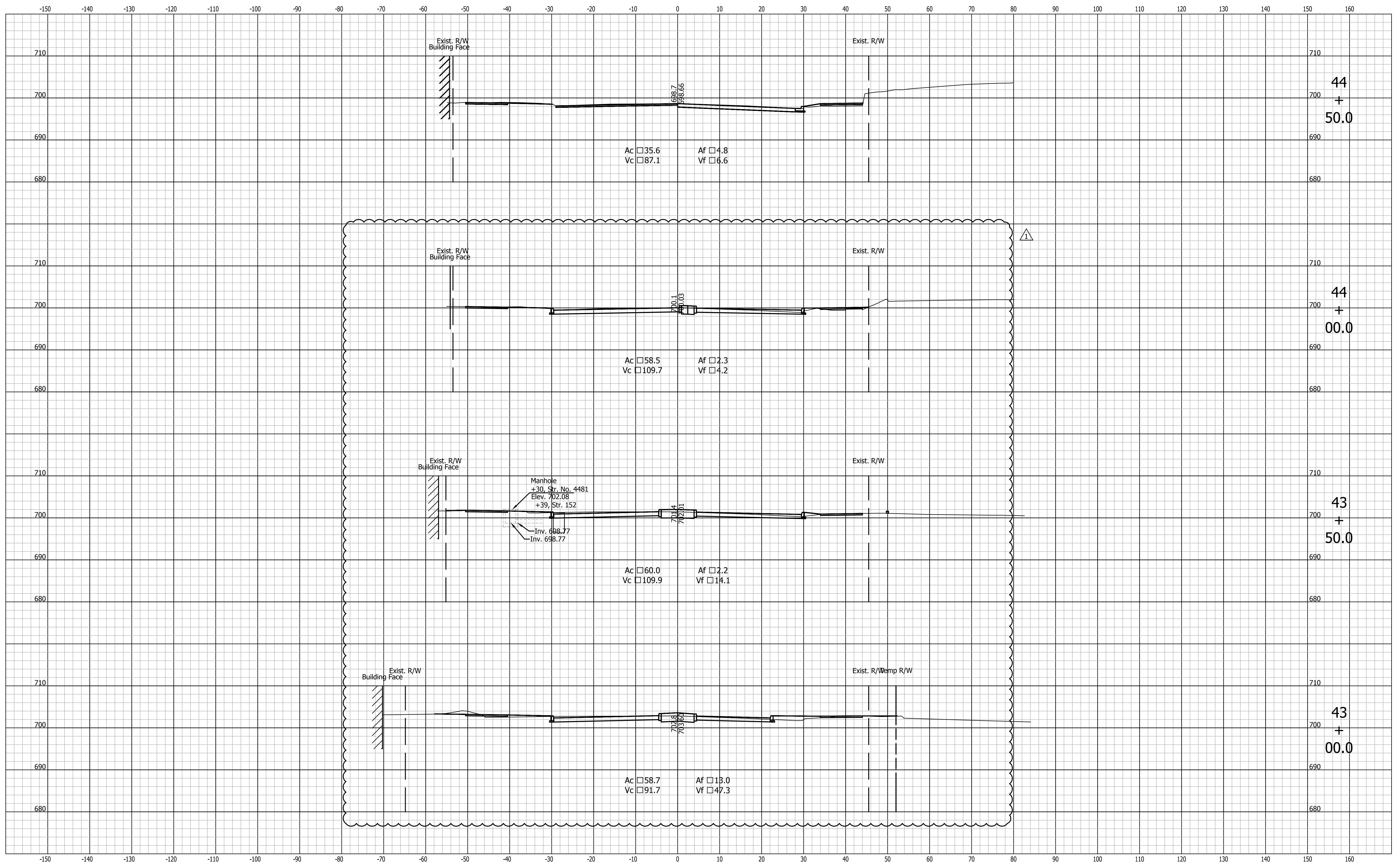
Revised cross sections

CITY OF SOUTH BEND, INDIANA
ROUNDBOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

CROSS SECTIONS
LINE "PR-B1"

REVISIONS	HORIZONTAL SCALE 1"=10'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE 1"=10'	SHEETS 101 OF 107
CHECKED: WRC	SURVEY BOOK DATE / /	

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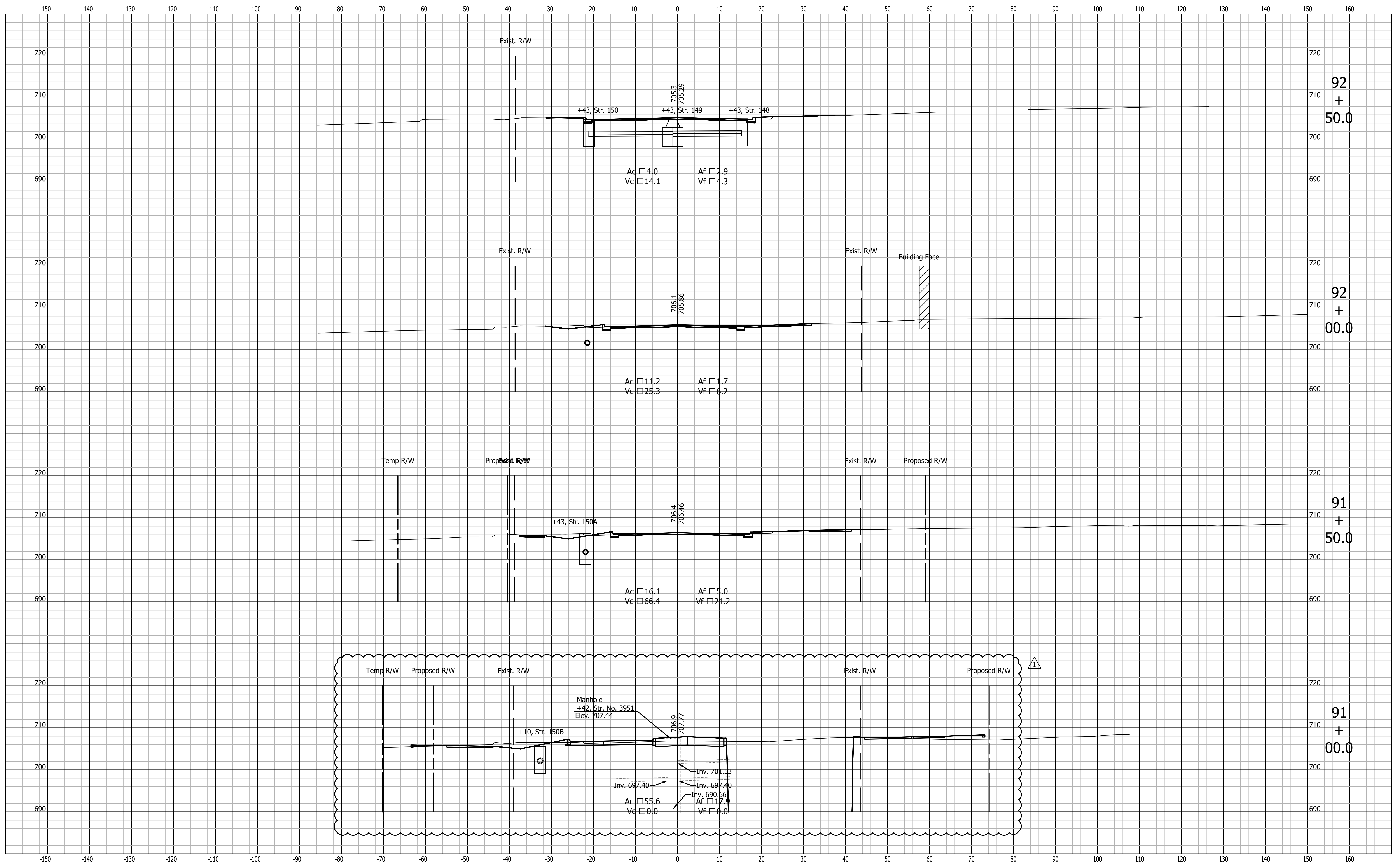
Revised cross sections

CITY OF SOUTH BEND, INDIANA
 ROUNDABOUT INTERSECTION AT
 MARION, MICHIGAN, MAIN STREETS

CROSS SECTIONS
 LINE "PR-B1"

REVISIONS	HORIZONTAL SCALE 1"=10'	PROJECT NUMBER 114-035
DRAWN: JNII	VERTICAL SCALE 1"=10'	SHEETS 102 OF 107
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CITY OF SOUTH BEND, INDIANA
ROUNDABOUT INTERSECTION AT
MARION, MICHIGAN, MAIN STREETS

CROSS SECTIONS
LINE "PR-E"

REVISIONS
DRAWN: JNII
CHECKED: WRC

HORIZONTAL SCALE 1"=10'
VERTICAL SCALE 1"=10'
SURVEY BOOK
DATE

PROJECT NUMBER 114-035
SHEETS 106 OF 107