

CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS

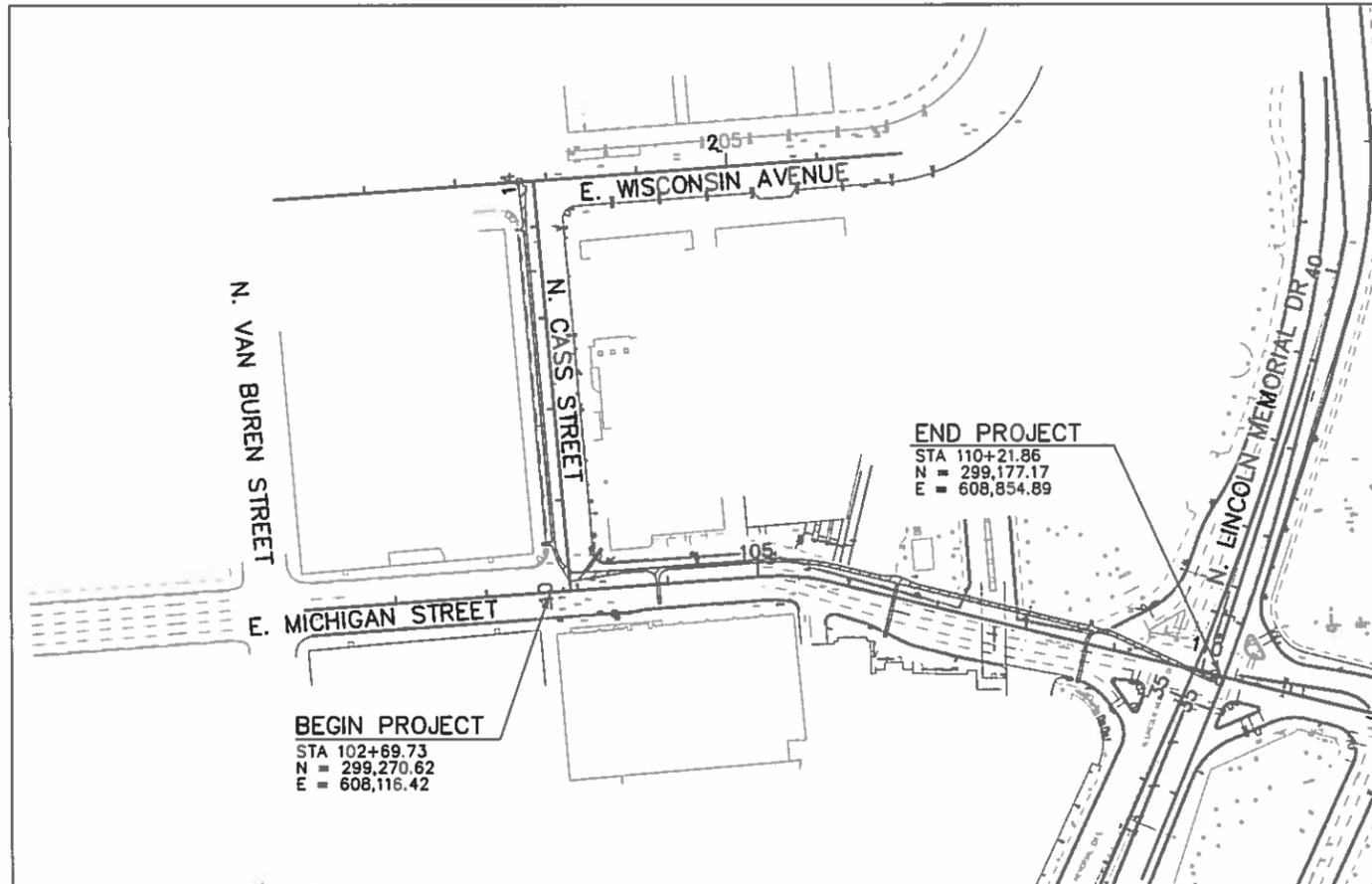
PLAN OF PROPOSED IMPROVEMENT

LAKEFRONT GATEWAY LOCAL ROADS

N. CASS ST & E. MICHIGAN STREET CITY COMMUNICATIONS
MILWAUKEE COUNTY

CONTRACT A1

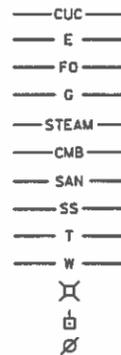
PROJECT ID:
WITH:



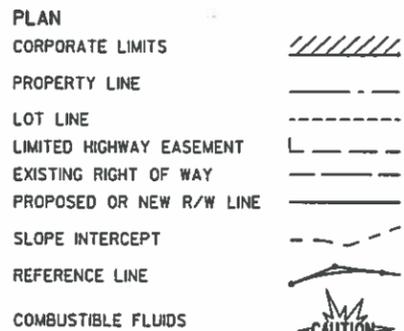
PROFILE
GRADE LINE
ORIGINAL GROUND
GRADE ELEVATION



UTILITIES
CITY COMMUNICATIONS
ELECTRIC
FIBER OPTIC
GAS
STEAM
GAS
COMBINED SEWER
STORM SEWER
TELEPHONE
WATER
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE



CONVENTIONAL SYMBOLS



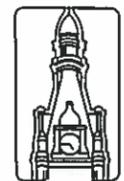
COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY, NAD 1983 (2007).

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (1991).

CH2MHILL
MILWAUKEE, WISCONSIN



10/1/15
(Date) (Signature)



CITY OF MILWAUKEE

Department of Public Works
Infrastructure Services Division

APPROVED BY:

(Signature of Jeffrey D. Polenske)
CITY ENGINEER

(Signature of Commissioner of Public Works)

COMMISSIONER OF PUBLIC WORKS

E

COUNTY: MILWAUKEE

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN SHALL BE IN ACCORDANCE WITH THE PERTINENT REQUIREMENTS OF THE STATE OF WISCONSIN, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2015 EDITION AND THE CITY OF MILWAUKEE STREET SPECIFICATIONS, DATED JULY 1, 1992.

STATIONING, DISTANCES, AND OFFSETS SHOWN IN PLANS ARE APPROXIMATE AND THE FINAL LOCATION OF SIGNS ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL FIELD VERIFY RELATED INFORMATION IN THE PLAN WITH THE ENGINEER.

DRAINAGE STRUCTURES SHOWN ON THE PLAN WILL BE PLACED BY CITY OF MILWAUKEE FORCES.

THE COST OF ANY AND ALL EROSION CONTROL MEASURES NEEDED FOR THIS CONSTRUCTION PROJECT SHALL BE INCLUDED IN THE ITEM 619.1000 MOBILIZATION. ALL EROSION CONTROL MEASURES AS REQUIRED BY FEDERAL OR STATE LAW SHALL BE PLACED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY. THE ENGINEER MAY MODIFY LOCATIONS AS NEEDED.

TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER. ALL TRAFFIC CONTROL SHALL CONFORM TO MUTCD AND CITY OF MILWAUKEE REQUIREMENTS.

EXISTING ELEVATIONS SHALL BE VERIFIED IN THE FIELD.

A SAWED JOINT IS REQUIRED WHERE NEW HMA OR CONCRETE PAVEMENT SURFACE MEETS EXISTING HMA OR CONCRETE PAVEMENT SURFACE.

REMOVING CONCRETE CURB, CONCRETE CURB AND GUTTER, CONCRETE SIDEWALK, AND CONCRETE DRIVEWAY REMOVED AS PART OF CITY COMMUNICATIONS CONDUIT WILL BE PAID FOR AS REMOVING PAVEMENT

CONCRETE CURB, CONCRETE CURB AND GUTTER, CONCRETE SIDEWALK, AND CONCRETE DRIVEWAY REMOVED AS PART OF CITY COMMUNICATIONS CONDUIT WILL BE PAID FOR AS CONCRETE PAVEMENT 8-INCH OR CONCRETE PAVEMENT 8-INCH COLORED RED.

ALL CITY COMMUNICATIONS CONDUIT TRENCH WIDTHS ARE ASSUMED TO BE 30-INCHES WIDE.

STANDARD ABBREVIATIONS

AGG	AGGREGATE
AH	AHEAD
ASP	ASPHALTIC
BK	BACK
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
BT	BEGIN TRANSITION
CC	CENTER OF CURVATURE
CE	COMMERCIAL ENTRANCE
C&G	CURB AND GUTTER
C/L OR ☉	C/L OR ☉ CENTER OR CURB OR ☉ CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CSD	CONCRETE SURFACE DRAIN
CY	CUBIC YARD
D	DEGREE OF CURVE
DISH	DISCHARGE
ET	END TRANSITION
FE	FIELD ENTRANCE
HMA	HOT MIX ASPHALT
HP	HIGH POINT
HT	HEIGHT
INV	INVERT
L	LENGTH OF CURVE
LHF	LEFT HAND FORWARD
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MIN	MINIMUM
M/L	MATCHLINE
NB	NORTHBOUND
NC	NORMAL CROWN
NORM	NORMAL
O/S	OFFSET
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTRANCE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PLE	PERMANENT LIMITED EASEMENT
POB	POINT OF BEGINNING
PT	POINT OF TANGENT
PUU	PIPE UNDERDRAIN UNPERFORATED
PVC	POLYVINYL CHLORIDE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RC	REVERSE CROWN
REQD	REQUIRED
RHF	RIGHT HAND FORWARD
RO	RUN OFF LENGTH
RT	RIGHT
SALV	SALVAGED
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
STA	STATION
SY	SQUARE YARD
SVD	SLOTTED VANE DRAIN
T	TANGENT LENGTH
TLE	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
VCL	VERTICAL CURVE LENGTH
VPC	POINT OF VERTICAL CURVE
VPI	POINT OF VERTICAL INTERSECTION
VPRC	POINT OF VERTICAL REVERSE CURVE
VPT	POINT OF VERTICAL TANGENT

UTILITIES

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PROJECT MANAGER-
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PROJECT CONTACTS

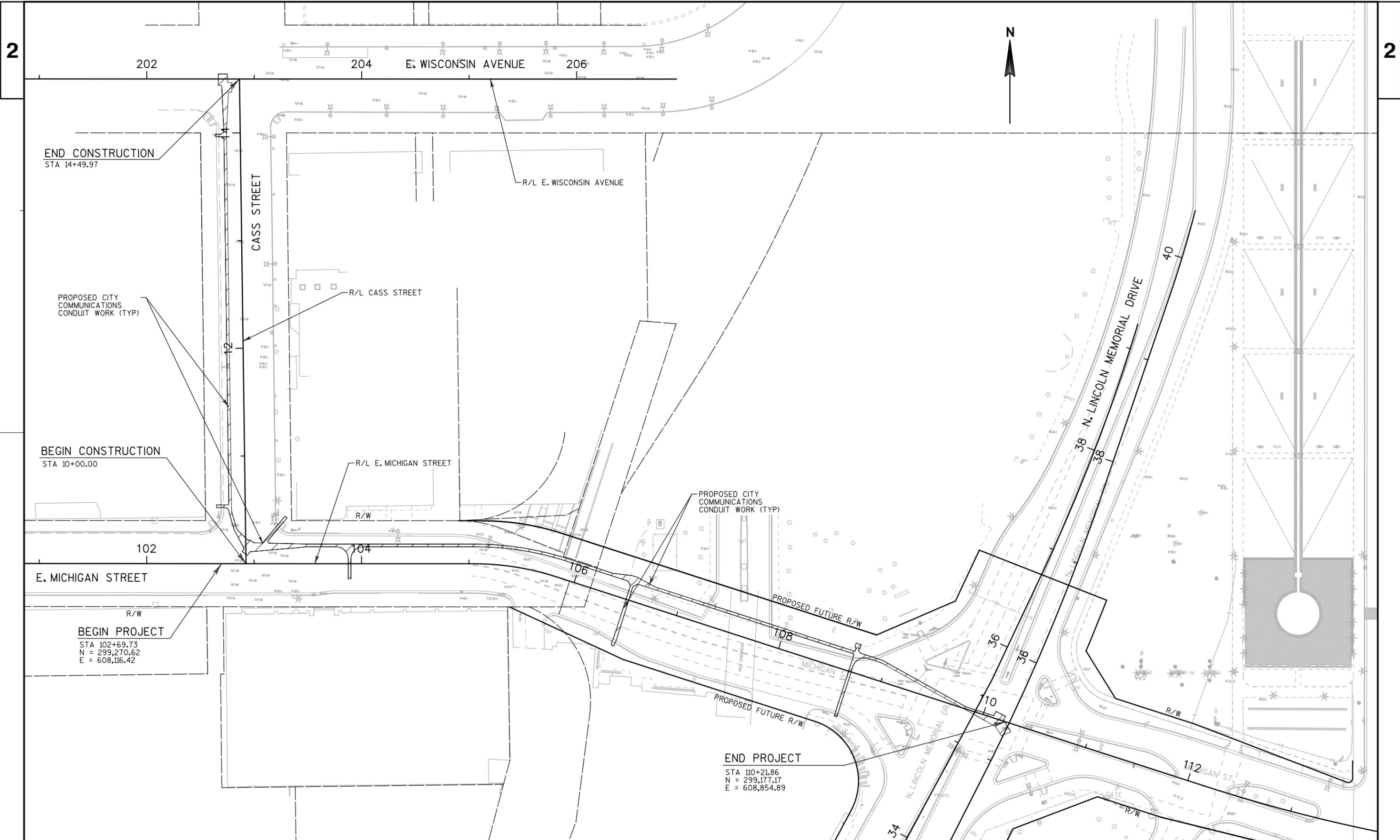
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ORDER OF SECTION 2 SHEETS

- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- STREET LIGHTING & TRAFFIC SIGNAL CONDUIT DETAILS AND PLAN
- CITY UNDERGROUND CONDUIT DETAILS AND PLANS
- ALIGNMENT PLAN
- TRAFFIC CONTROL



Dial 811 or (800) 242-8511
www.DiggersHotline.com



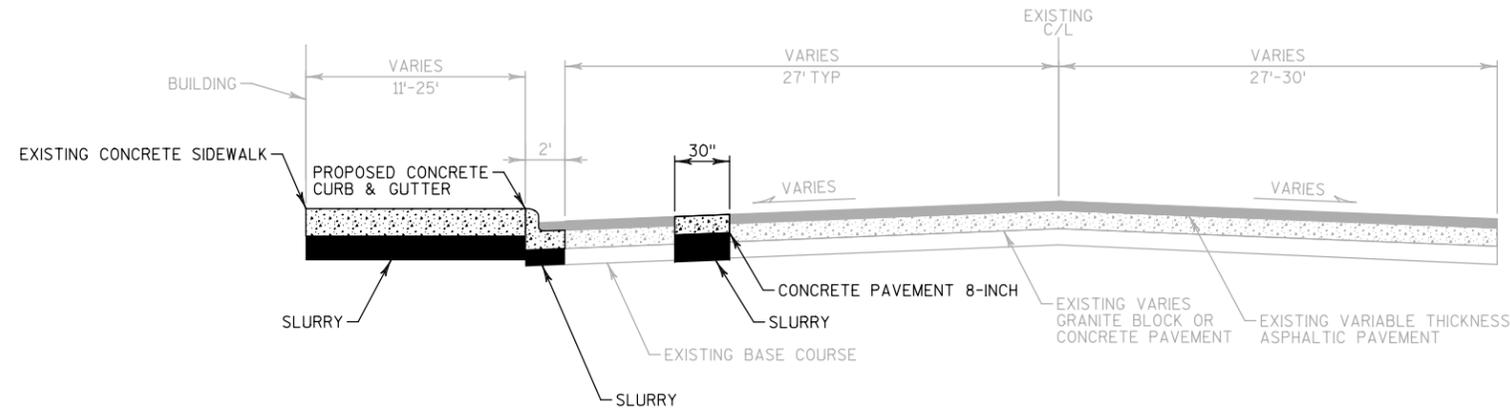
PROJECT NO: 1301-13-71

HWY: LOCAL ROADS

COUNTY: MILWAUKEE

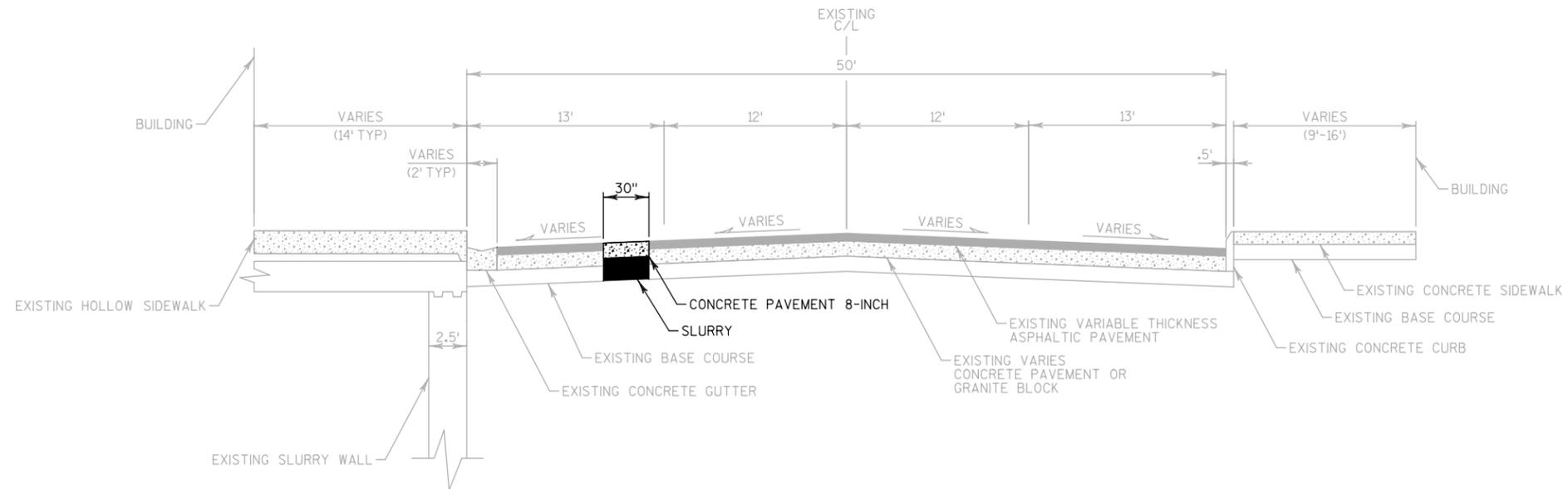
PROJECT OVERVIEW

SHEET 3 E



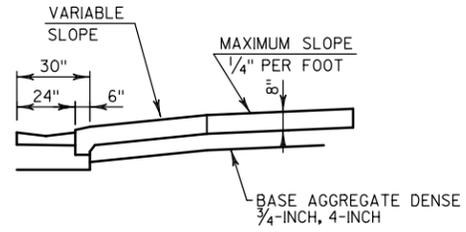
PROPOSED TYPICAL SECTION

E. MICHIGAN STREET
STA 102+70 TO STA 105+50

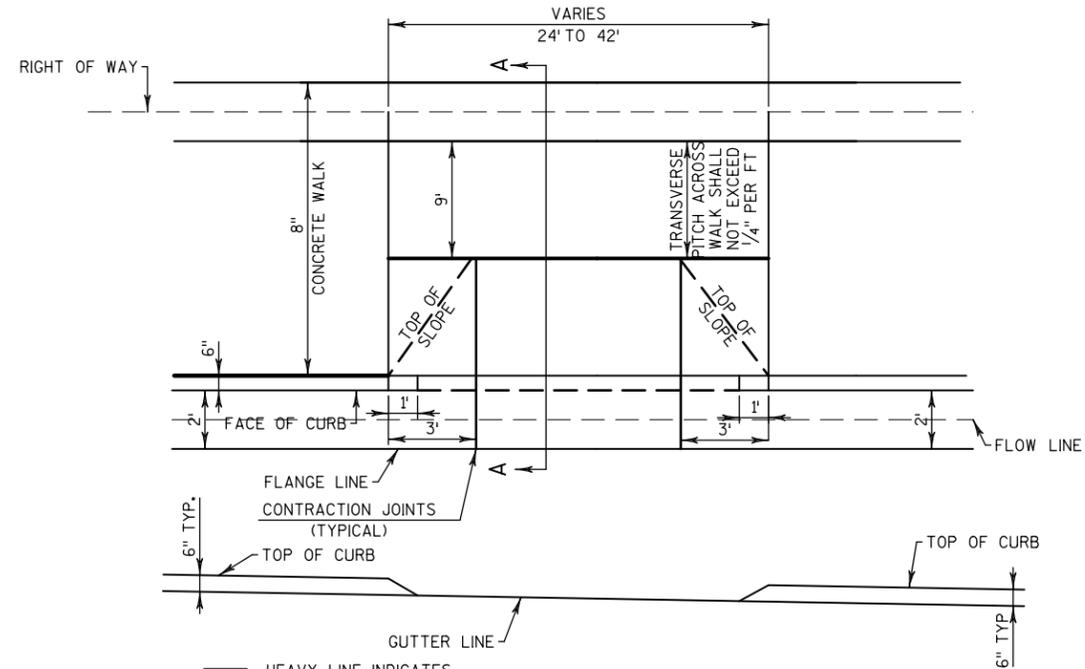


PROPOSED TYPICAL SECTION

N. CASS STREET
STA 10+25 TO STA 14+50



SECTION A-A



HEAVY LINE INDICATES 3/4" EXPANSION JOINT MATERIAL

DRIVEWAY CONSTRUCTION NOTES

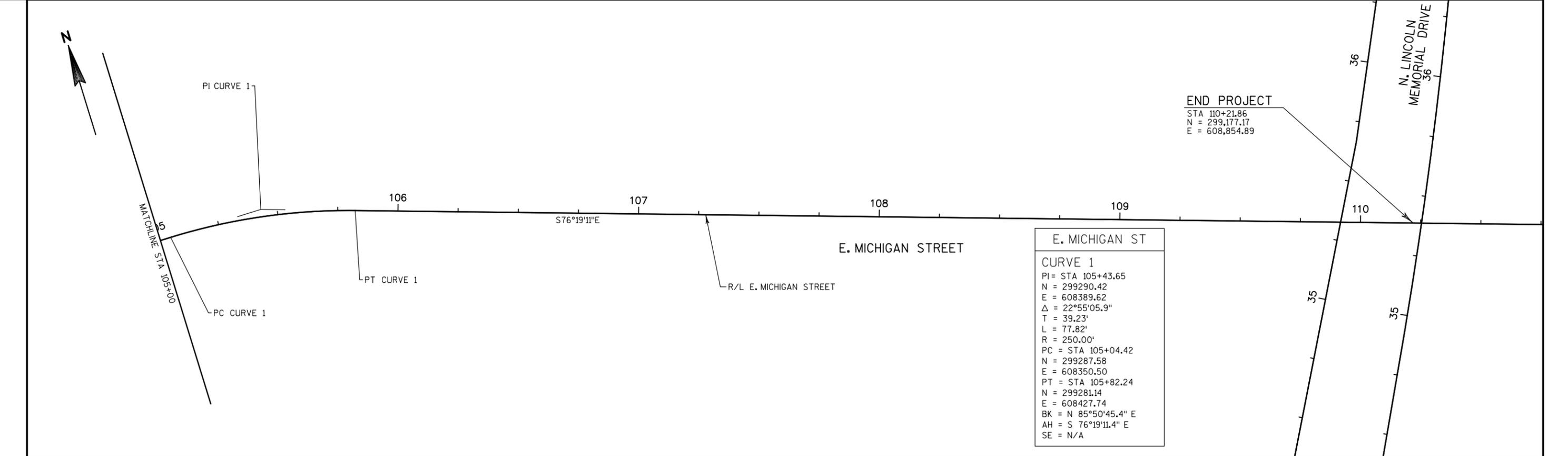
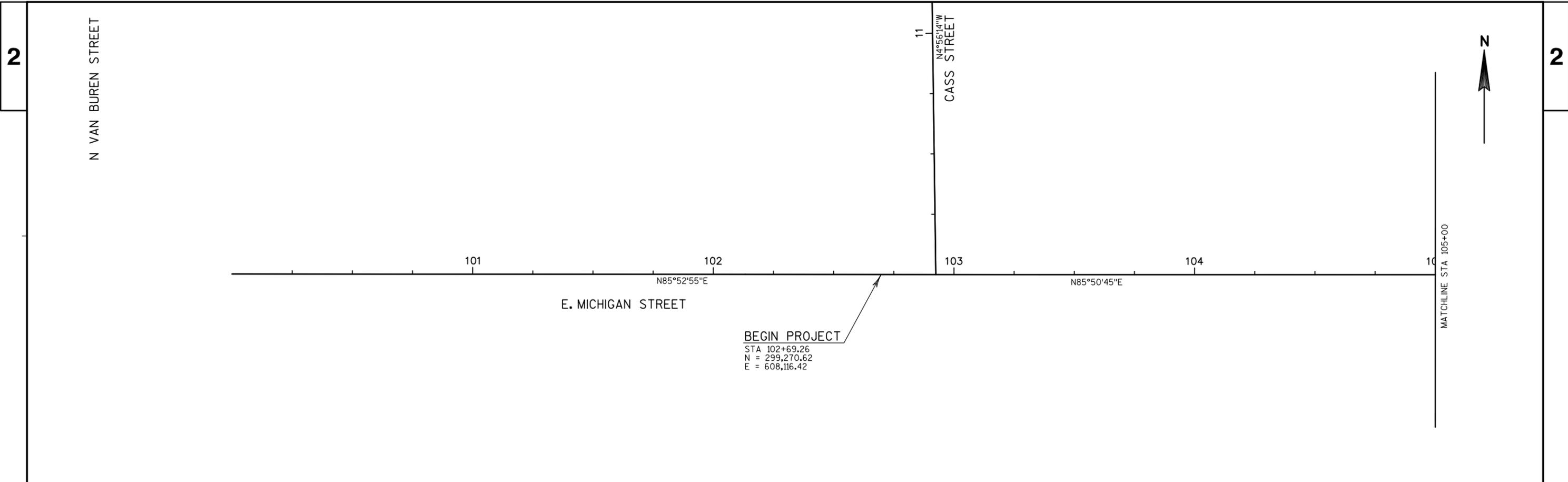
PLACE DUMMY JOINT AT CENTER LINE OF DRIVEWAY AND / OR AT ALL JOINTS IN THE GUTTER

DEPRESSED CONCRETE DRIVEWAY

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PLACE EXPANSION JOINTS AS DIRECTED BY THE ENGINEER IN THE FIELD.



E. MICHIGAN ST	
CURVE 1	
PI =	STA 105+43.65
N =	299290.42
E =	608389.62
Δ =	22°55'05.9"
T =	39.23'
L =	77.82'
R =	250.00'
PC =	STA 105+04.42
N =	299287.58
E =	608350.50
PT =	STA 105+82.24
N =	299281.14
E =	608427.74
BK =	N 85°50'45.4" E
AH =	S 76°19'11.4" E
SE =	N/A

2

E. MICHIGAN STREET

102

R/L E. MICHIGAN STREET

BEGIN CONSTRUCTION

STA 10+00.00
N = 299,272.25
E = 608,139.09

R/L CASS STREET

CASS STREET

N4°56'14"W

11

12

13

14

103



E. WISCONSIN STREET

202

END CONSTRUCTION

STA 14+49.97
N = 299,720.55
E = 608,100.37

203

2

TRAFFIC & STREET LIGHTING GENERAL NOTES:

PRIOR TO CONSTRUCTION, THE LOCATION OF UNDERGROUND UTILITIES SHALL BE DETERMINED IN THE FIELD BY CONTACTING "DIGGERS HOTLINE."

STREET LIGHTING & TRAFFIC SIGNALS SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 652 EXCEPT:

THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCLUDING REPAIRS, REPLACEMENT OR RELOCATION ETC. OF STREET LIGHTING OR TRAFFIC SIGNAL FACILITIES IF THE CONTRACTOR DOES ANY DEVIATION FROM THE STREET LIGHTING OR TRAFFIC SIGNAL DESIGN WITHOUT THE STREET LIGHTING ENGINEERS SIGNED PERMISSION.

- 1 DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- 2 LOCATIONS OF THE PVC CONDUITS WHERE THEY ARE REQUIRED ARE IDENTIFIED IN THE PRINTS. HOWEVER, INSTALLATION MAY REQUIRE INTEGRATION WITH EXISTING FIELD CONDITIONS. APPROPRIATE ADJUSTMENT ON CONDUIT LOCATIONS MAY BE MADE IF THE FIELD CONDITIONS ARE SUCH THAT THE CONDUIT CANNOT BE INSTALLED AT THE SPECIFIED LOCATIONS. ANY RELOCATIONS MUST BE APPROVED BY THE ENGINEER. FIELD MARK EACH CONDUIT LOCATION BY STAMPING AND PAINTING WITH RED PAINT ON TOP AND BACKSIDE OF CURB.
- 3 TYPICAL CONDUIT INSTALLED UP TO DIRECT BURIED STREET LIGHT POLES IS AS FOLLOWS 3-INCH OR 2.5-INCH (AS NOTED) SCHEDULE 40 RIGID PVC TO STREET LIGHTING METAL HOUSING (PEDESTAL), THE 1.5-INCH SCHEDULE 40 RIGID PVC TO STREET LIGHT POLE CABLE SLOT, AND THE 2-INCH SCHEDULE 40 RIGID PVC TO SIGNAL STANDARD BASE AND RISER FOR TRAFFIC SIGNAL ON STREET LIGHT POLE.
- 4 DEPTH OF CONDUIT INSTALLED BELOW THE STREETS, HIGHWAYS, ROADS, AND ALLEYS SHALL BE 24-INCHES MINIMUM AND 36-INCHES MAXIMUM. (MEASURED FROM FINISHED FLANGE LINE)
- 5 CONDUIT INSTALLED BEHIND CURB, AND UNDER DRIVEWAYS SHALL BE INSTALLED AT THE BASE OF THE BACKSIDE OF THE CURB/GUTTER SECTION.
- 6 WHEN THERE IS MORE THAN ONE CONDUIT TO BE LAID BEHIND THE CURB, PLACE ALL CONDUITS IN THE SAME TRENCH.
- 7 ANY EXCEPTION TO THE MINIMUM OR MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
- 8 THE TRENCH SHALL BE FREE OF DEBRIS AND OVERPOUR AND SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.
- 9 BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.
- 10 ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON ALL CONDUITS. (SEE NEC 352.28 2008 CODE)
- 11 PRIOR TO CONDUIT ACCEPTANCE, ALL CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND BE CAPPED IMMEDIATELY AFTER INSTALLATION WITH THE APPROPRIATE CAST PLASTIC CAP WHICH FITS SNUGLY ON THE CONDUIT, BUT EASILY REMOVED IN THE FUTURE. DUCT TAPE OR ANY OTHER CAPPING METHOD IS NOT ACCEPTABLE.
- 12 ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.
- 13 CONDUIT RUNS SHALL BE THE SAME SIZE PIPE FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX OR JUNCTION BOX OR BASE TO BASE, ETC.).
- 14 PULL ROPE (3/8-INCH NYLON) SHALL BE INSTALLED IN ALL NEW CONDUIT.
- 15 ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS UNLESS OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.
- 16 WHEN ENDS OF CONDUIT DO NOT CONNECT TO A VAULT AND WILL END UP UNDER CONCRETE WALK. THE CONTRACTOR IS REQUIRED TO LEAVE A 24" X 24" BOX FORM CENTERED OVER THE END OF CONDUIT AND FILL THE BOXFORM WITH CRUSHED GRAVEL. (PER WISDOT SPEC 209.2.1(1) GRANULAR BACKFILL)
- 17 ALL PIPE CROSSINGS AND VAULTS SHALL BE AT LEAST SIX (6) FEET AWAY FROM FIRE HYDRANTS, UNLESS NOTED OTHERWISE, OR APPROVED BY THE STREET LIGHTING ENGINEER.
- 18 ALL POLES AND TRAFFIC STANDARDS IN CONCRETE ARE REQUIRED TO HAVE A 30"X30" BOX SHAPED JOINT PLACED AROUND THEM USING AN EXPANSION JOINT FILLER. UNLESS NOTED OTHERWISE (SEE DETAIL 122)
- 19 TYPICAL RECTANGULAR VAULTS SHOULD BE INSTALLED AS SHOWN ON PLANS, BUT WHEN IT IS NOT POSSIBLE, A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS AND FIRE HYDRANTS SHOULD BE USED, OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.

TRAFFIC & STREET LIGHTING GENERAL NOTES:

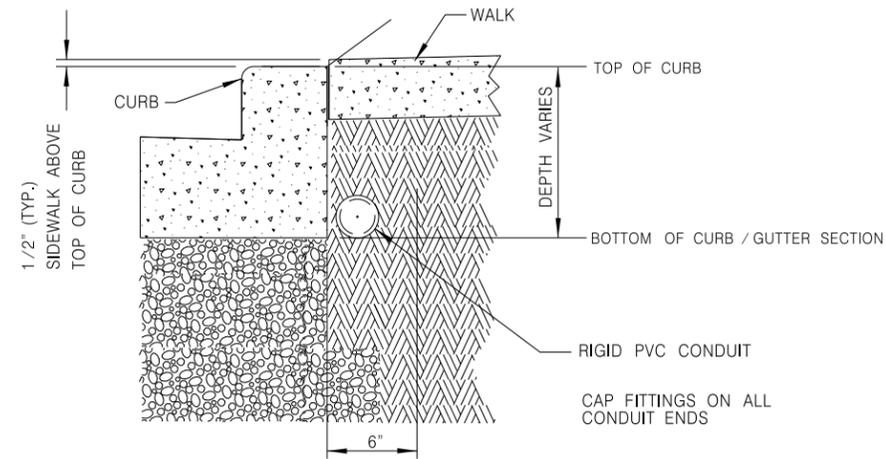
- 20 COORDINATE NEW CONDUIT CONNECTIONS WITH EXISTING CONDUIT, DUCT PACKAGES, AND VAULTS/ MANHOLES WITH CITY OF MILWAUKEE STREET LIGHTING. THE CITY REQUIRES THREE WORKING DAYS ADVANCED NOTICE. CONTACT ELECTRICAL SUPERVISOR STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251 OR DISPATCHER @ 414-286-5944 TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-3687 (CELL) 414-708-5148 OR DISPATCHER @ 414-286-3687
- 21 IMMEDIATELY AFTER THE CONTRACTOR HAS COMPLETED ALL THE ELECTRICAL VAULT, CONDUIT AND CONDUIT CONNECTIONS, AND JUST BEFORE ELECTRICAL WORK IS COVERED UP WITH CONCRETE, SOIL, OR ETC. THE CONTRACTOR IS REQUIRED TO CONTACT THE CITY OF MILWAUKEE ELECTRICAL SHOP SUPERVISORS FOR FINAL INSPECTION AND APPROVAL OF ALL WORK.
STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251
STREET LIGHTING - GEORGE BERDINE (OFFICE) 414-286-5943 (CELL) 414-708-4245
STREET LIGHTING - THOMAS HUGHES (OFFICE) 414-286-3457 (CELL) 414-708-3175
STREET LIGHTING - DISPATCHER @ 414-286-5944
TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-3687 (CELL) 414-708-5148
TRAFFIC SIGNALS - DISPATCHER @ 414-286-3687
- 22 CONDUIT WILL ONLY BE INSTALLED AFTER THE CURB IS POURED, UNLESS APPROVED BY BOTH THE ENGINEER & STREET LIGHTING SHOP SUPERVISOR.

UTILITY LINE CODE

——— SAN	——— SANITARY SEWER
——— STO	——— STORM SEWER
——— W	——— WATER
——— G	——— GAS
— — — 6 — —	— — — PROPOSED GAS
——— E	——— ELECTRIC
——— TE&ES	——— TRAFFIC & STREET LIGHTING
— — — — —	— — — OLD CITY UNDERGROUND CONDUIT
——— CUC	——— PROPOSED CITY UNDERGROUND CONDUIT
——— T	——— TELEPHONE
——— TV	——— CABLE

SHEET 1 OF 6

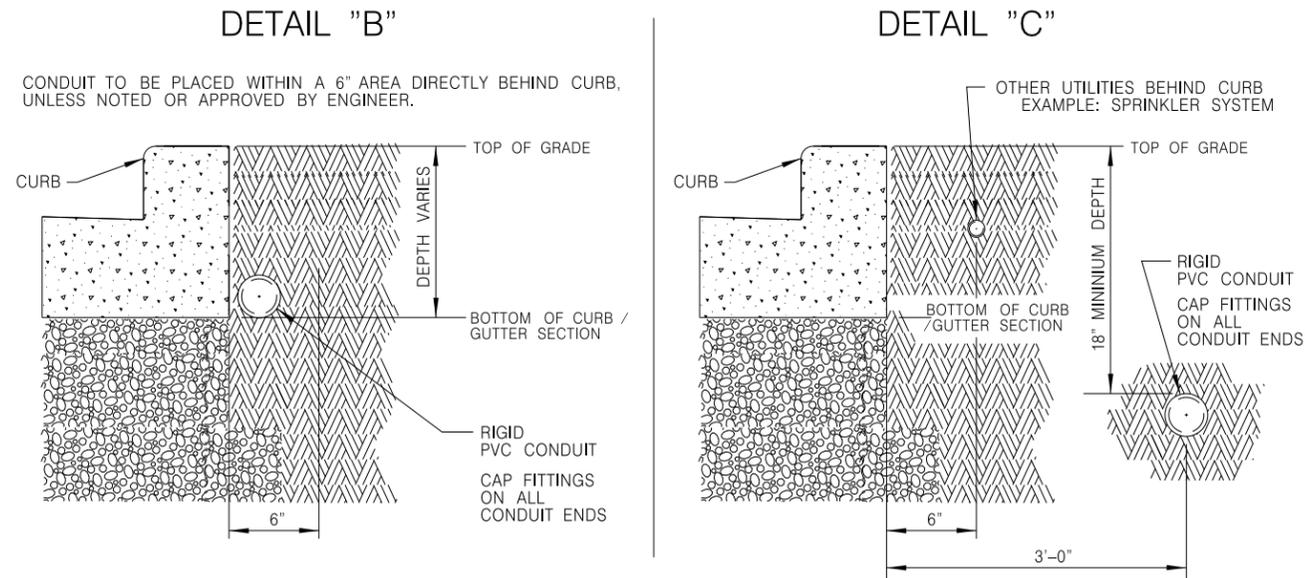
NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
 2.) CONDUIT TO BE PLACED WITHIN A 6" AREA DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



100 DETAIL "A"
 TYPICAL CONDUIT INSTALLATION BEHIND CURB NOT TO SCALE

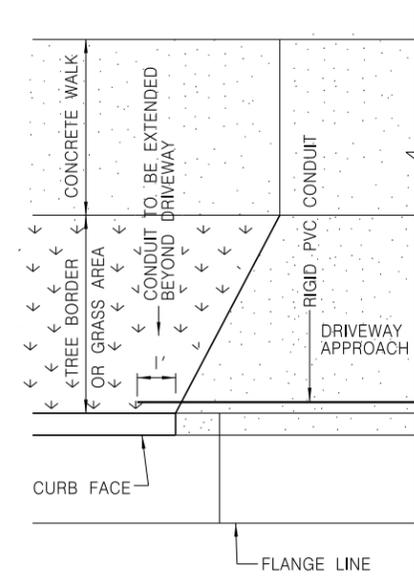
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
 CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.

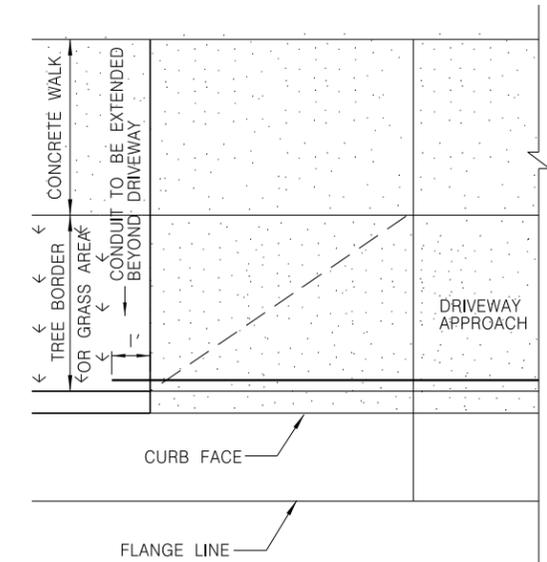


100 DETAIL "B" & "C"
 TYPICAL CONDUIT INSTALLATION BEHIND CURB NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
 CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

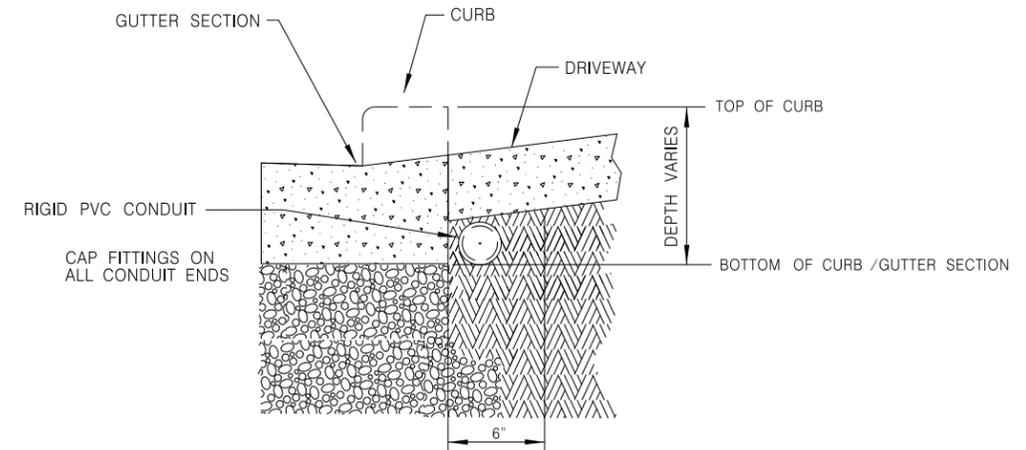


TYPICAL PLAN VIEW FOR FLARED DRIVEWAY



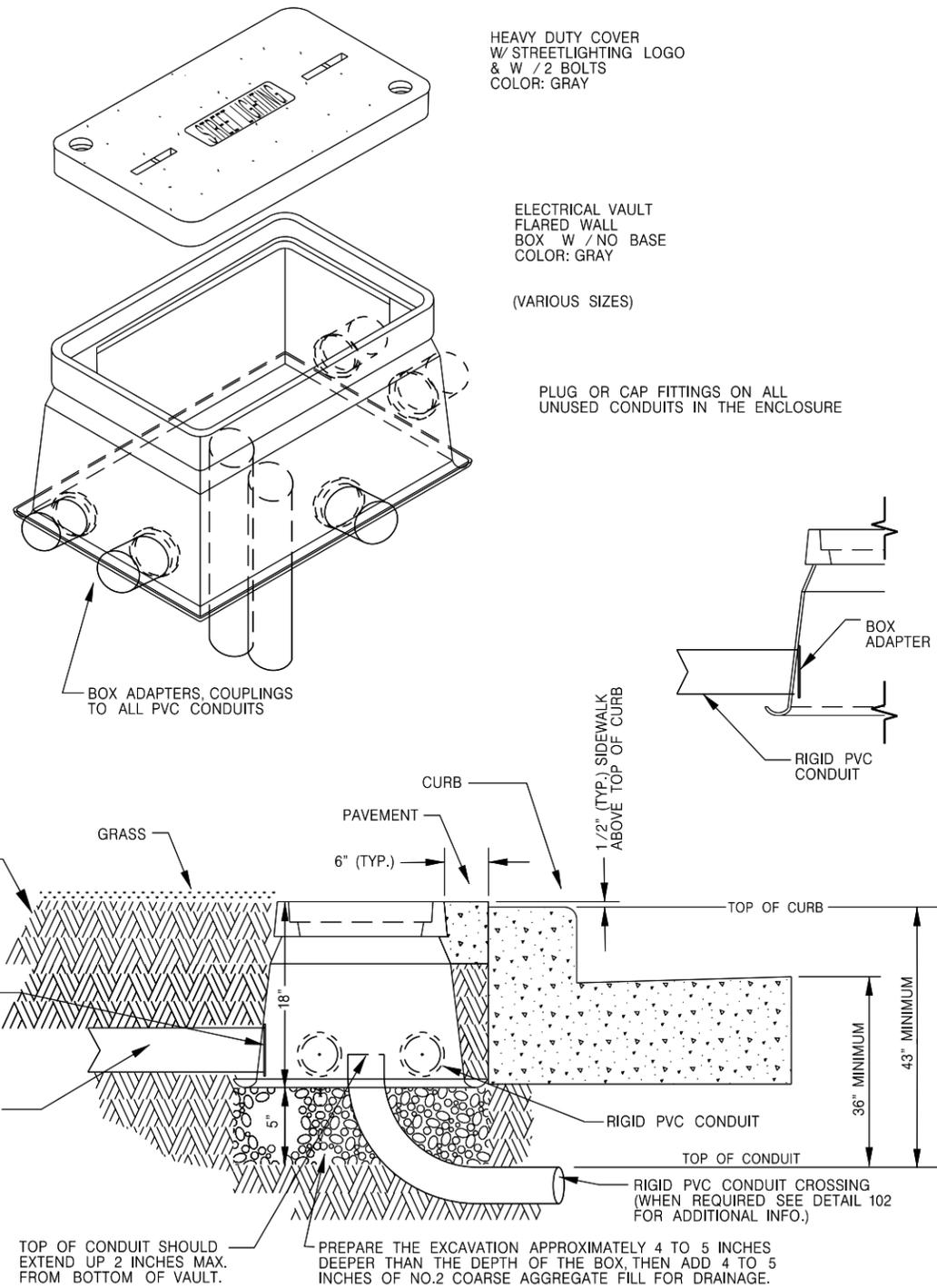
TYPICAL PLAN VIEW FOR DEPRESSED DRIVEWAY

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
 2.) CONDUIT TO BE PLACED WITHIN A 6" AREA DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



100 DETAIL
 TYPICAL CONDUIT INSTALLATION UNDER DRIVEWAYS OR PEDESTRIAN RAMPS NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
 CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

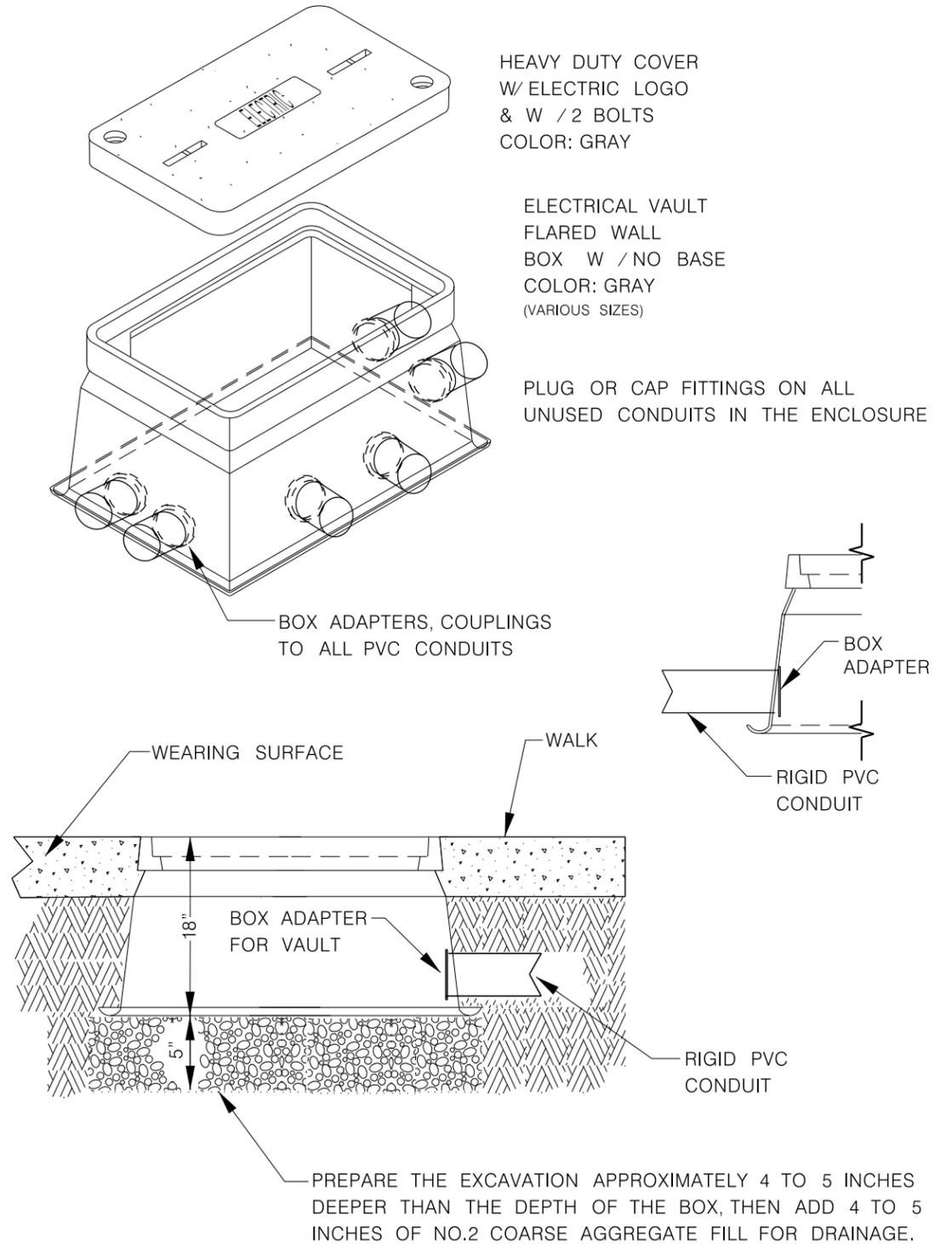


112

DETAIL VERSION #2(S)
TYPICAL VAULT INSTALLATION IN EITHER
PAVEMENT OR GRASS AREAS

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



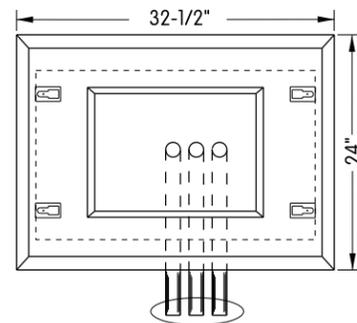
113

DETAIL
TYPICAL VAULT INSTALLATION
IN SIDEWALK

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

REFERENCE FOR CONTRACTOR ONLY

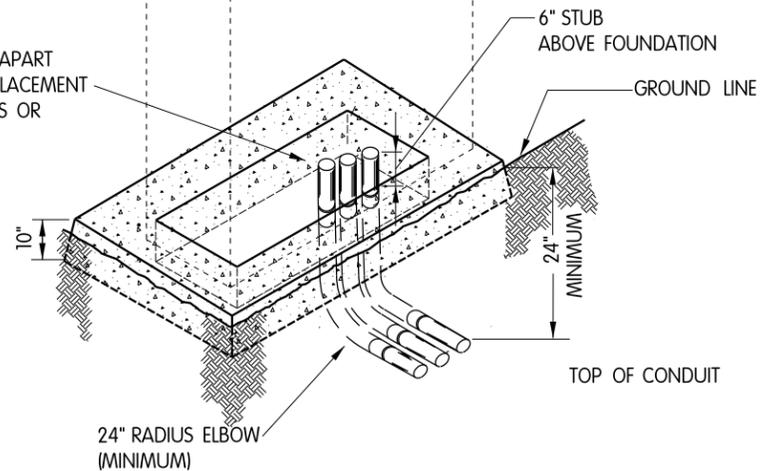


PLAN VIEW

NOTE:
REFER TO STREET LIGHTING AND TRAFFIC
SIGNAL CONDUIT PLAN FOR THE
QUANTITY & SIZE OF CONDUIT REQUIRED IN
THE CONCRETE CONTROL CABINET BASE

TRAFFIC SIGNAL CONTROL CABINET
(SHOWN FOR REFERENCE ONLY)

6" STUBS SPACED APART
TO ALLOW FOR PLACEMENT
OF CAPS, BUSHINGS OR
COUPLINGS.



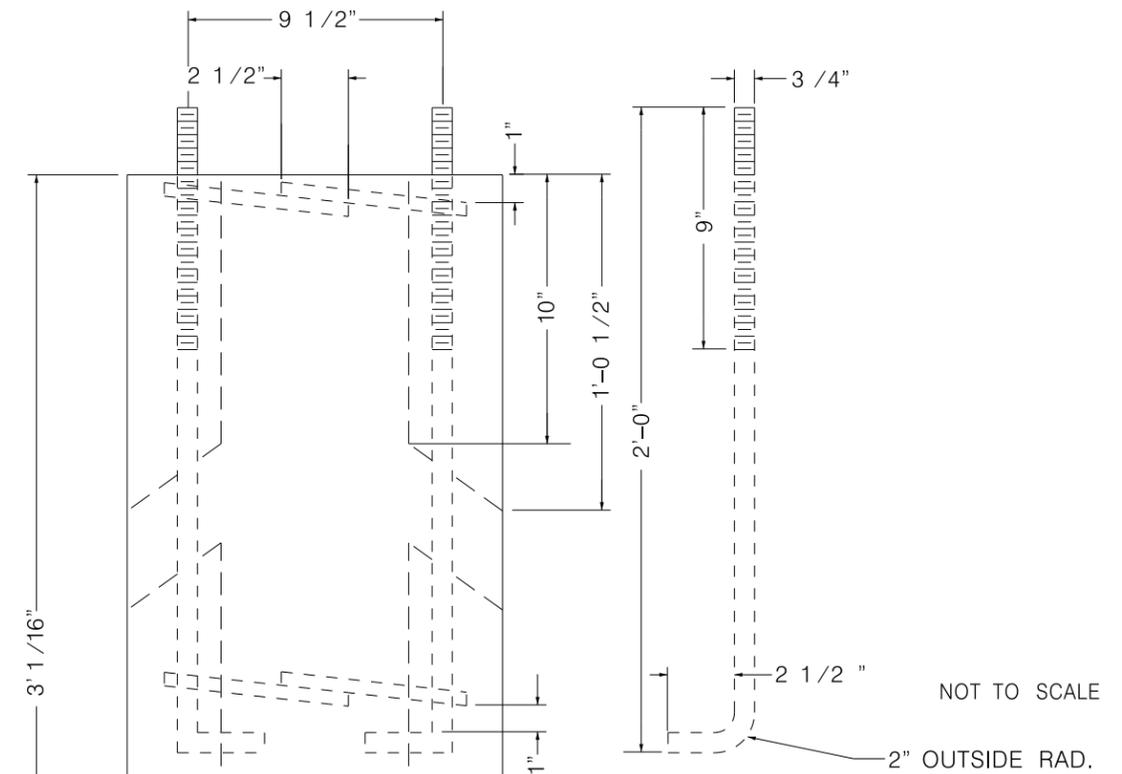
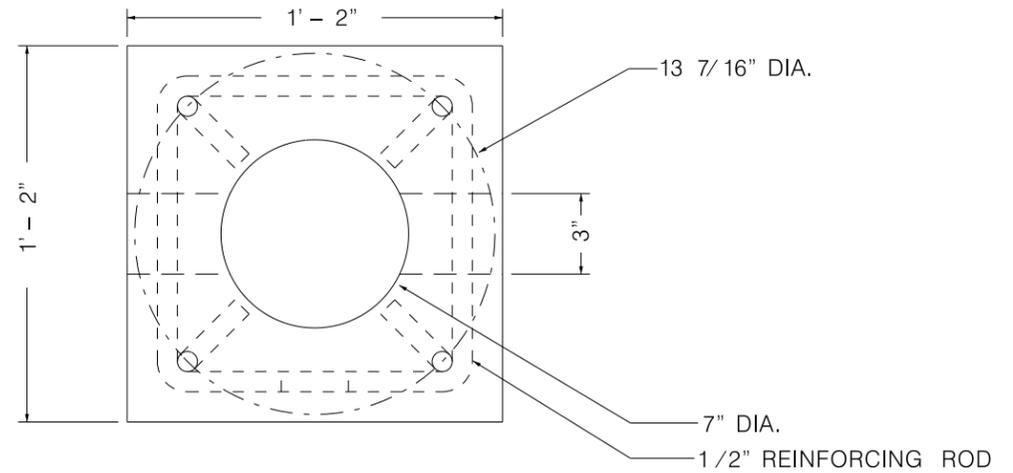
ISOMETRIC VIEW

125A

TYPICAL DETAIL
CONDUIT INSTALLATION TO TRAFFIC
CONTROL CABINET CONCRETE FOUNDATION
NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

REFERENCE FOR CONTRACTOR ONLY
(CITY FURNISHED)

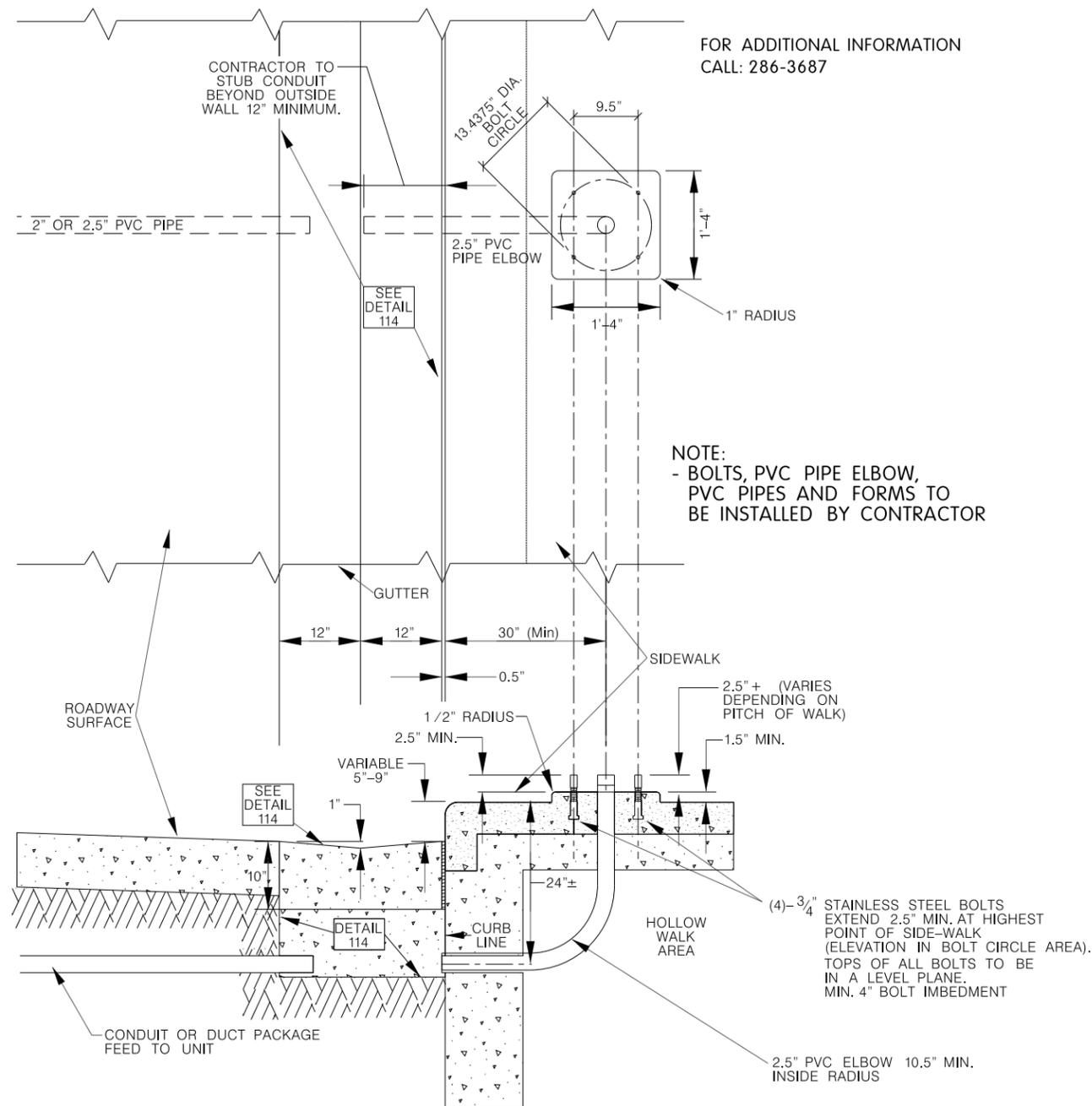


6 BAG MIX #1 STONE

COMM. CODE 1238-936				
CONCRETE FOUNDATION				
TRAFFIC SIGNAL STANDARD				
BUREAU OF TRAFFIC ENGINEERING				
AND				
ELECTRICAL SERVICES				
D.P.W. CITY OF MILWAUKEE				
TRAFFIC CONTROL MATERIAL				
DATE	SCALE	DRAWN	CHECKED	APPROVED
4-18-75	Not To Scale	J.H.S.	B.J.T.	R.J.B.
SUPERSEDES	REVISED DATE	DRG.	C-75-563-T	
SUPERSEDED BY	NEW DRG.	F-82-535-T		

SHEET 5 OF 6

REFERENCE FOR CONTRACTOR ONLY



FOR ADDITIONAL INFORMATION
CALL: 286-3687

NOTE:
- BOLTS, PVC PIPE ELBOW,
PVC PIPES AND FORMS TO
BE INSTALLED BY CONTRACTOR

REVISED 10-31-13 CONVERTED DETAIL TO CADD
REVISED 11-03-69 STAINLESS BOLTS WERE GALVANIZED
REVISED 01-070-69 GALVANIZED BOLTS ADDED

Typical Bolt Circle and Elbow Installation In Hollow Walks			
TRAFFIC SIGNAL STANDARD			
BUREAU OF TRAFFIC ENGINEERING			
AND ELECTRICAL SERVICES D.P.W. CITY OF MILWAUKEE			
TRAFFIC CONTROL MATERIAL			
DATE 12-3-59	SCALE Not To Scale	DRAWN R.W.G.	CHECKED B.J.T.
SUPERSEDES		APPROVED D.A.K.	
		DRG. C-59-549-T	

NOT TO SCALE

134 DETAIL
TYPICAL BOLT CIRCLE AND ELBOW
INSTALLATION ON HOLLOW WALK

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

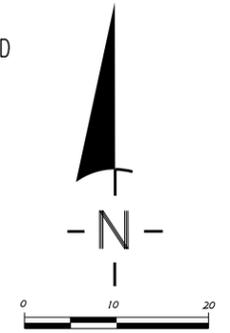
PLOTDATE

LEGEND

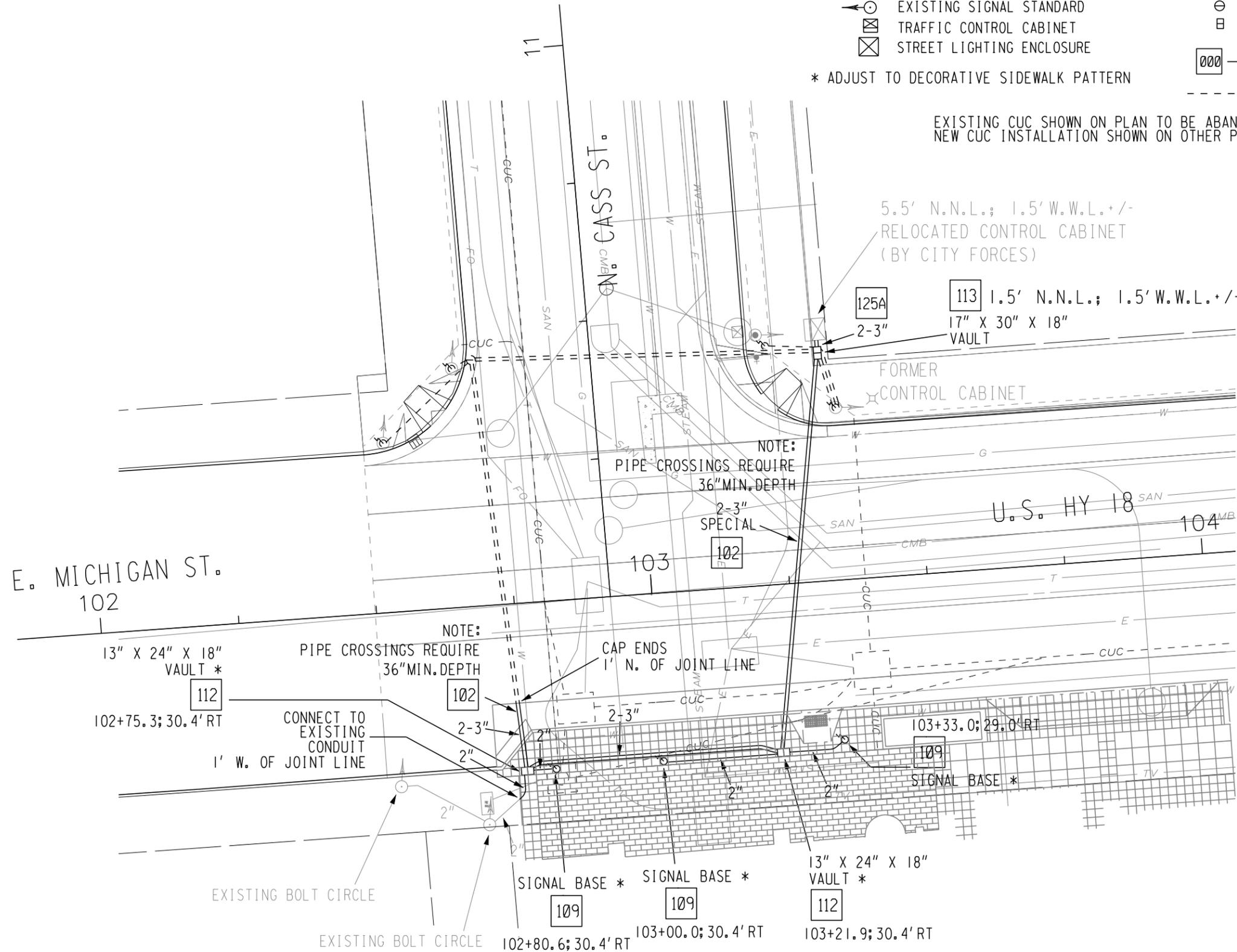
- STREET LIGHT POLE
- TRAFFIC SIGNAL MOUNTED ON LIGHT POLE
- EXISTING SIGNAL STANDARD
- TRAFFIC CONTROL CABINET
- STREET LIGHTING ENCLOSURE
- PVC CONDUIT TO BE INSTALLED
- TRAFFIC SIGNAL BASE TO BE INSTALLED
- GUTTER VAULT TO BE INSTALLED
- VAULT TO BE INSTALLED
- SEE DETAIL NUMBER FOR ADDITIONAL INFORMATION
- FUTURE MATERIAL (PHASE 2)

* ADJUST TO DECORATIVE SIDEWALK PATTERN

EXISTING CUC SHOWN ON PLAN TO BE ABANDONDED
NEW CUC INSTALLATION SHOWN ON OTHER PLAN SHEET



N. CASS STREET & E. MICHIGAN STREET (US 18)
PHASE 1



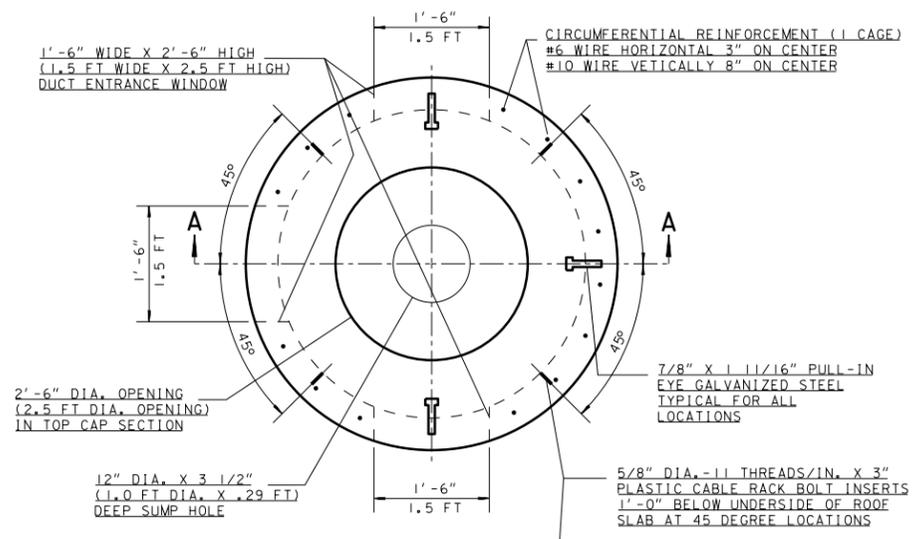
NOTE:

GENERAL NOTES MUST BE FOLLOWED WHEN INSTALLING MATERIALS FOR STREET LIGHTING AND TRAFFIC SIGNALS. CONDUIT END CAPS REQUIRED ON ALL EMPTY CONDUIT. PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUIT. SEE STREET LIGHTING & TRAFFIC SIGNAL CONDUIT DETAILS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. SEE UTILITY SPECIALS FOR ADDITIONAL INFORMATION AND ALL CONTACT NUMBERS.

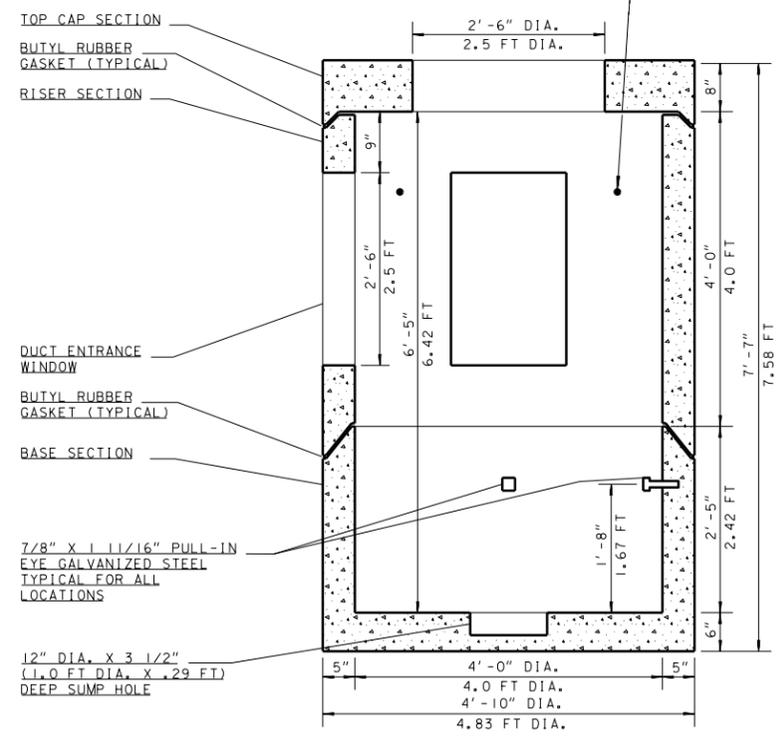
CONTRACTOR IS REQUIRED TO CONTACT THE CITY OF MILWAUKEE ELECTRICAL SERVICES FOR FINAL INSPECTION AND APPROVAL OF ALL ELECTRICAL WORK BEFORE ANY MATERIALS ARE COVERED UP OR BACKFILLED.

TYPICAL RECTANGULAR VAULT SHOULD BE INSTALLED AS SHOWN ON PLAN, BUT WHEN IT IS NOT POSSIBLE A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS SHOULD BE USED.

LOCATIONS THAT HAVE DETAIL NOTE "105" ARE AREAS THAT ARE BOXED OUT AND FILLED WITH A 4" THICK ASPHALTIC SURFACE TEMPORARY UNDER BID #465.0125



TOP VIEW



SECTION VIEW "A-A"

N.T.S.

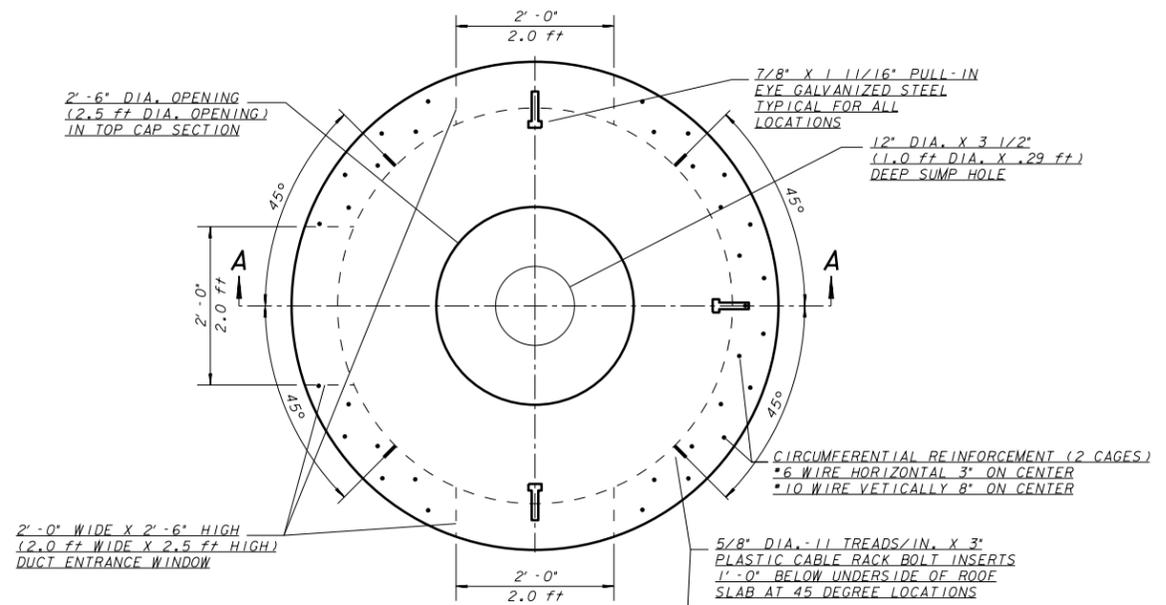
4' DIAMETER MANHOLE TYPE TES DETAIL

NOTES:
 THE JOINTS MAY BE EITHER "BELL UP" OR "SPIGOT UP".
 THE NUMBER OF PULL-IN IRONS AND CABLE RACK BOLT INSERTS MAY VARY BY ORDER.

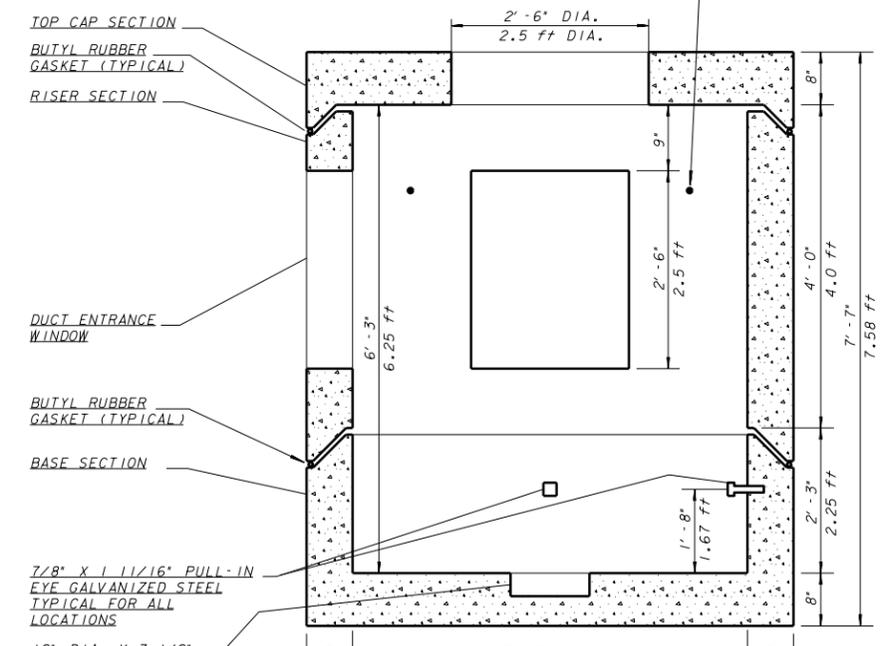
REINFORCING IN THE FLOOR & TOP CAP SECTION SHALL CONFORM TO ASTM SPECIFICATION C-478.

SIZE, LOCATION, SHAPE AND NUMBER OF KNOCK-OUT AREA AND THE SIZE, LOCATION, SHAPE AND NUMBER OF WINDOWS MAY VARY. (3 WINDOWS SHOWN). UNIT PRICE OF MANHOLE SHALL NOT VARY FOR NUMBER OF OPENINGS.

3 WINDOW OPENING
 4' DIA. X 6'-5" HEADROOM
 PRECAST CONCRETE MANHOLE



TOP VIEW



SECTION VIEW "A-A"

N.T.S.

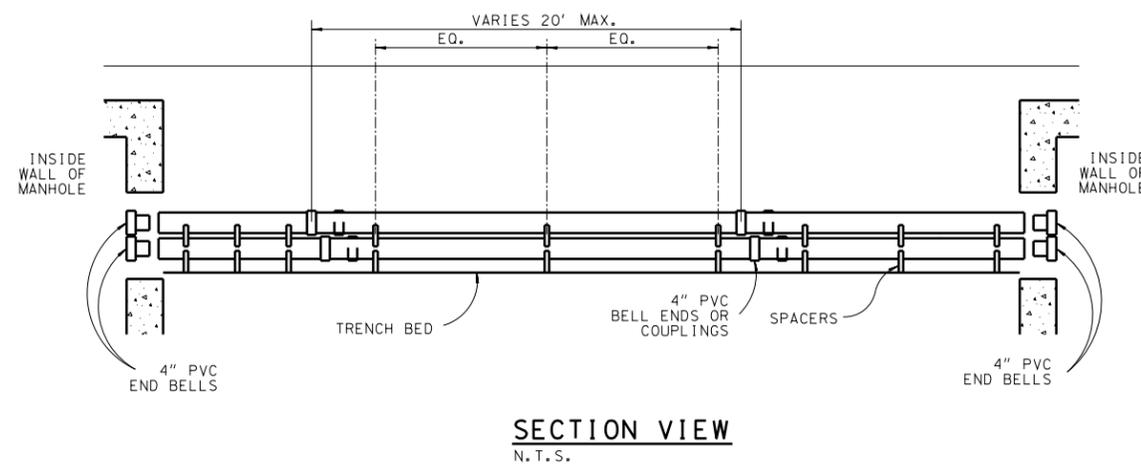
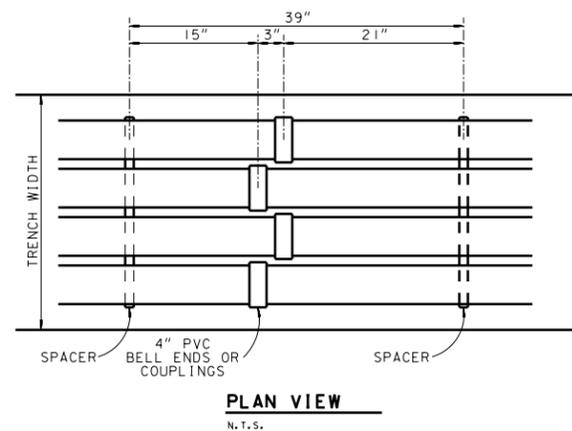
5' DIAMETER MANHOLE TYPE TES DETAIL

NOTES:
 THE JOINTS MAY BE EITHER "BELL UP" OR "SPIGOT UP".
 THE NUMBER OF PULL-IN IRONS AND CABLE RACK BOLT INSERTS MAY VARY BY ORDER.

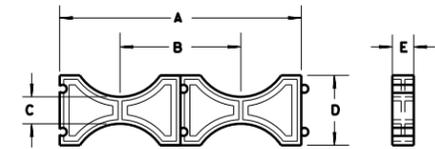
REINFORCING IN THE FLOOR & TOP CAP SECTION SHALL CONFORM TO ASTM SPECIFICATION C-478.

SIZE, LOCATION, SHAPE AND NUMBER OF KNOCK-OUT AREA AND THE SIZE, LOCATION, SHAPE AND NUMBER OF WINDOWS MAY VARY. (3 WINDOWS SHOWN). UNIT PRICE OF MANHOLE SHALL NOT VARY FOR NUMBER OF OPENINGS.

3 WINDOW OPENING
 5' OR 6' DIA. X 6'-3" HEADROOM
 PRECAST CONCRETE MANHOLE

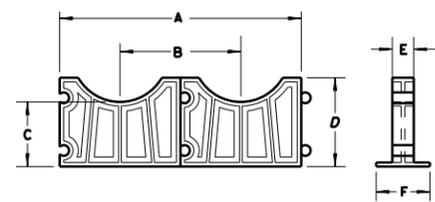


COND.	3"	4"
A	10"	11 1/2"
B	5"	5 3/4"
C	1 1/2"	1 1/2"
D	3 1/2"	3 1/2"
E	1"	1"



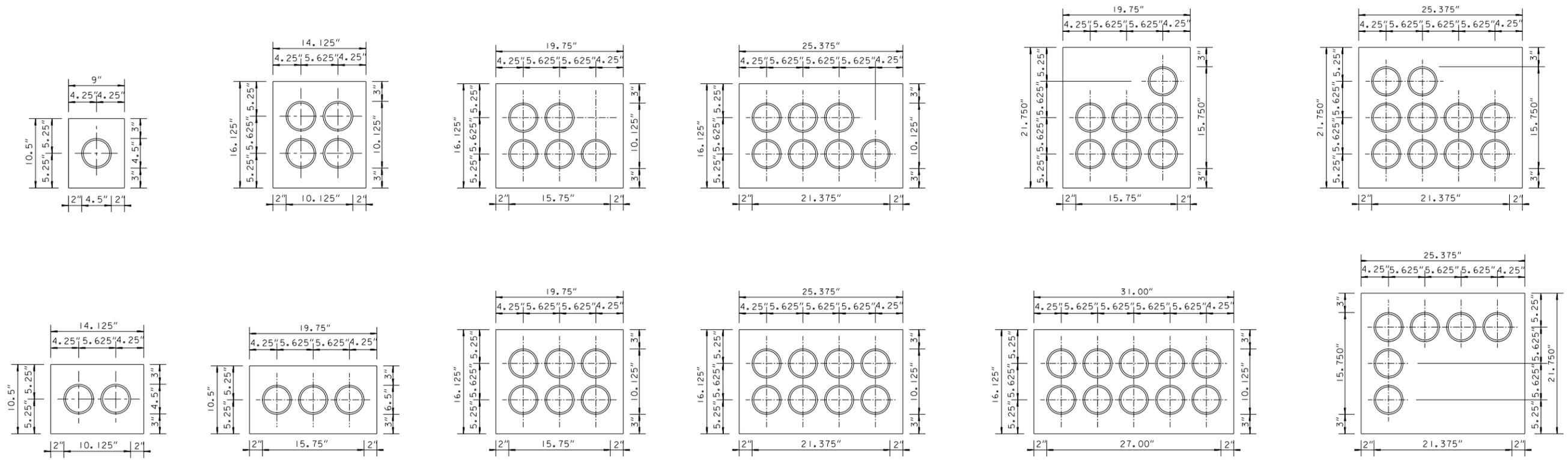
INTERMEDIATE SPACER

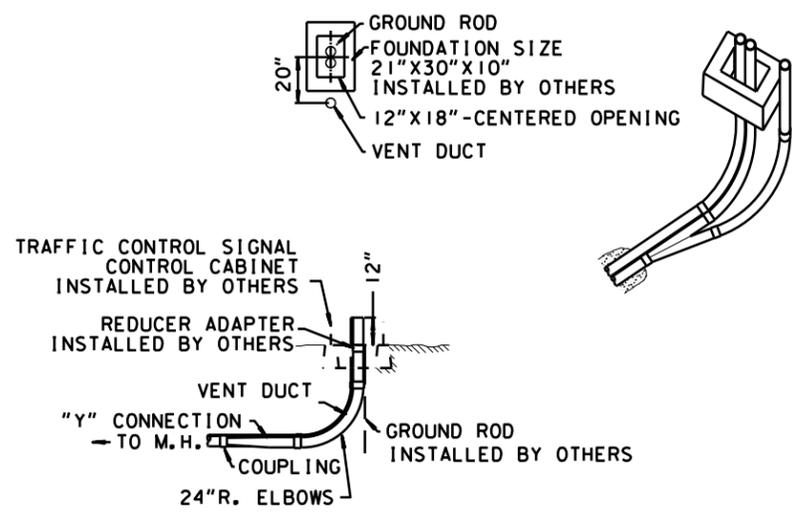
COND.	3"	4"
A	10"	11 1/2"
B	5"	5 3/4"
C	3"	3"
D	3 1/2"	4 1/4"
E	1"	1"
F	2 1/2"	2 1/2"



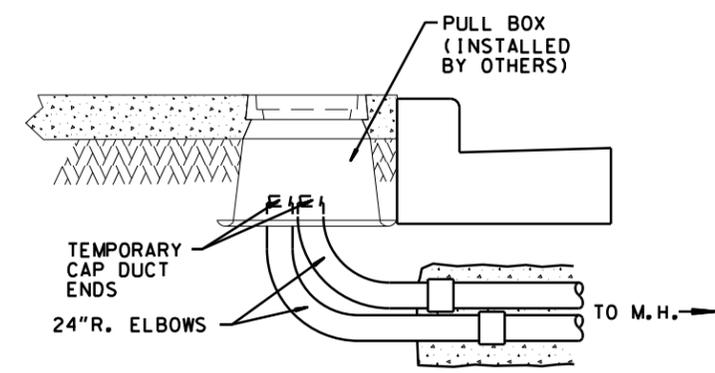
BASE SPACER

INTERMEDIATE AND BASE SPACER DETAIL

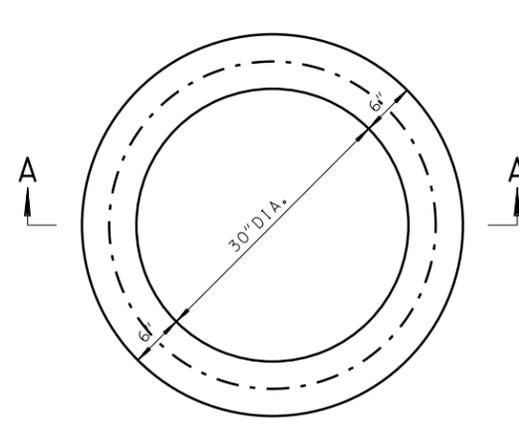




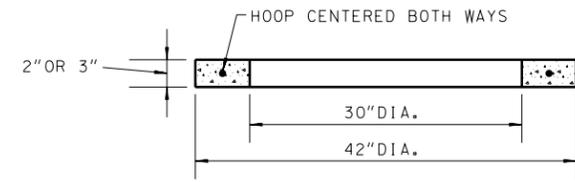
TRAFFIC CONTROL CABINET INSTALLATION DETAILS



STREET LIGHTING POLYMER CONC. VAULT



PLAN



SECTION A-A

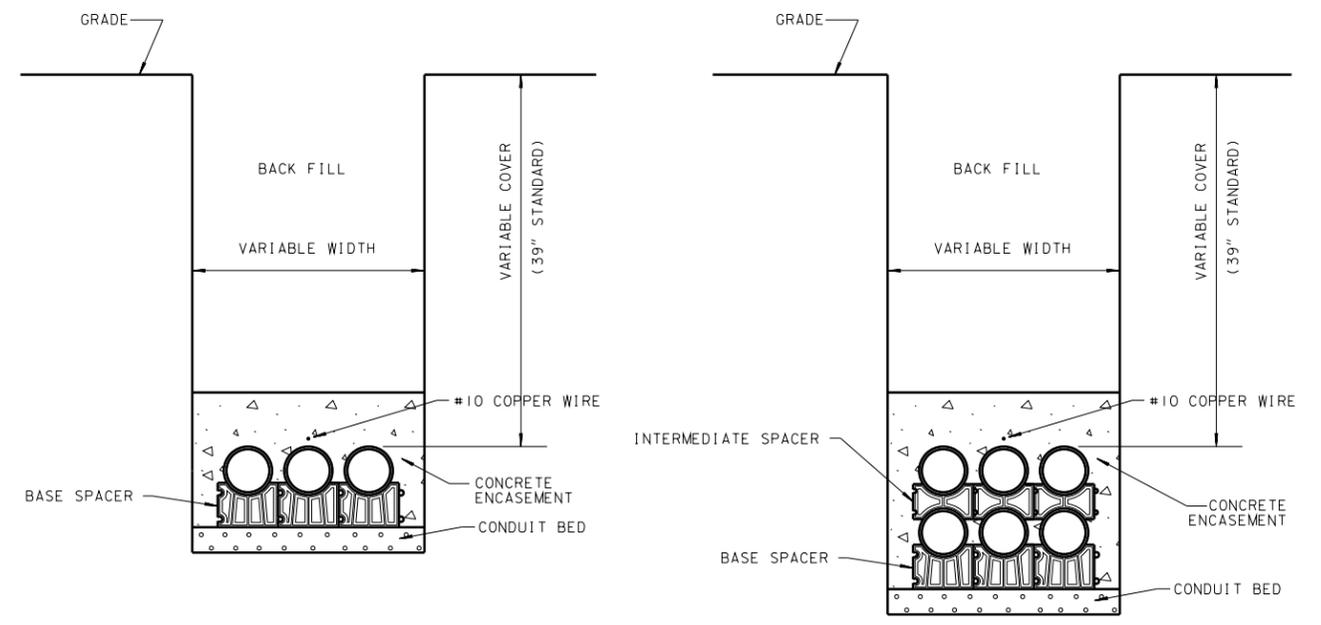
THE ADJUSTING RING SHALL BE 2" OR 3" IN HEIGHT.

THE CIRCUMFERENTIAL STEEL SHALL BE CENTERED WITHIN THE RING.

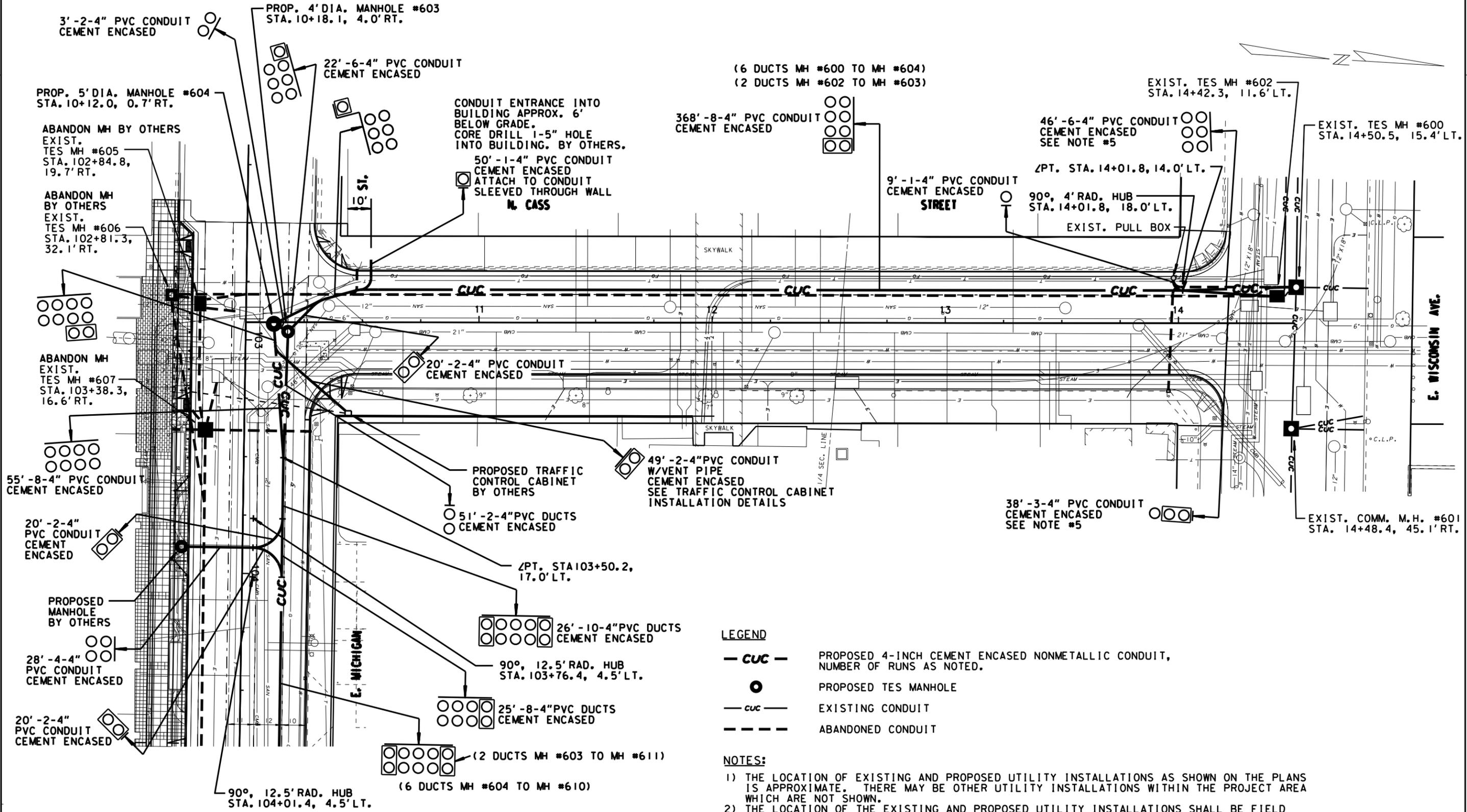
AREA OF CIRCUMFERENTIAL STEEL = 0.07 SQ. INCH PER VERTICAL FOOT WITH A MINIMUM OF .024 SQ. INCH IN ANY ONE RING.

THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE CORE SHALL BE 4000 P.S.I.

CONCRETE ADJUSTING RING



CROSS SECTION VIEW, TYP.
N.T.S.

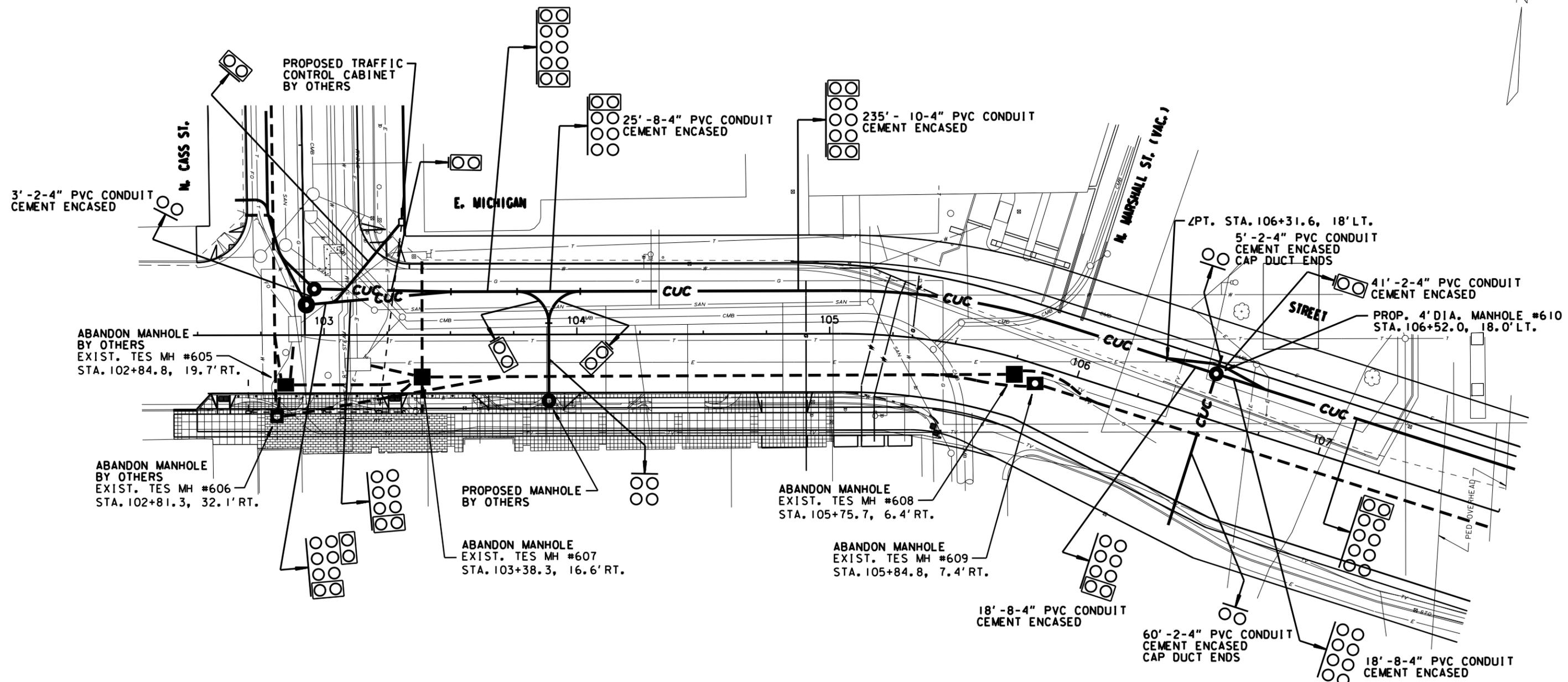


LEGEND

- **CUC** — PROPOSED 4-INCH CEMENT ENCASED NONMETALLIC CONDUIT, NUMBER OF RUNS AS NOTED.
- PROPOSED TES MANHOLE
- **cuc** — EXISTING CONDUIT
- - - ABANDONED CONDUIT

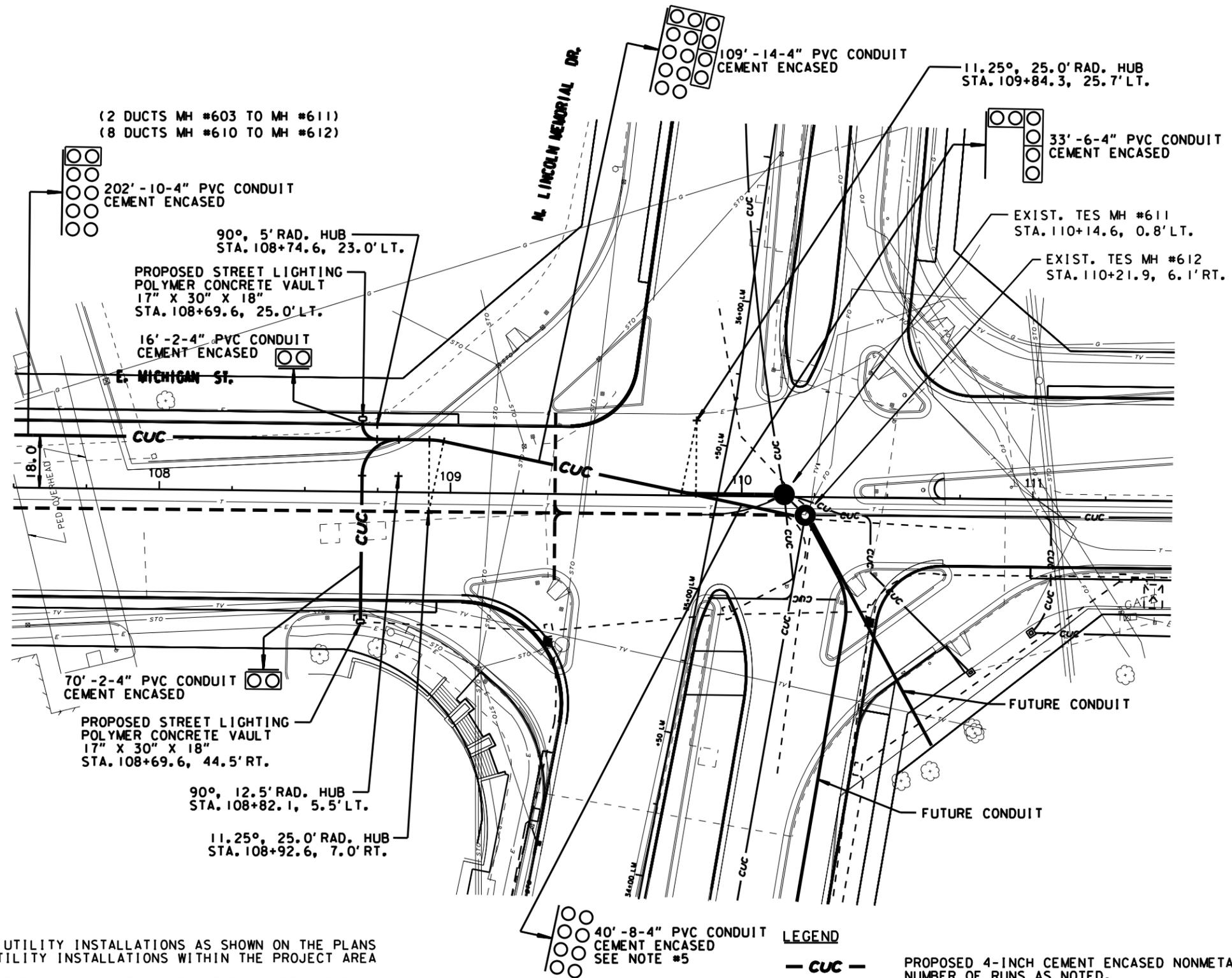
NOTES:

- 1) THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
- 2) THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
- 3) DIMENSIONS SHOWN ARE TO CENTER OF MANHOLE, DUCT PACKAGE OR UTILITY.
- 4) MAINTAIN A STANDARD DEPTH OF 39-INCHES BETWEEN FINISHED GRADE AND TOP OF CONDUIT.
- 5) REMOVE ABANDONED CONDUIT FROM THE MANHOLE WALL AND BEYOND AS NEEDED. INSTALL THE PROPOSED CONDUIT INTO THE MANHOLE AT THE SAME LOCATION OF THE ABANDONED CONDUIT.



- NOTES:**
- 1) THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
 - 2) THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
 - 3) DIMENSIONS SHOWN ARE TO CENTER OF MANHOLE, DUCT PACKAGE OR UTILITY.
 - 4) MAINTAIN A STANDARD DEPTH OF 39-INCHES BETWEEN FINISHED GRADE AND TOP OF CONDUIT.
 - 5) REMOVE ABANDONED CONDUIT FROM THE MANHOLE WALL AND BEYOND AS NEEDED. INSTALL THE PROPOSED CONDUIT INTO THE MANHOLE AT THE SAME LOCATION OF THE ABANDONED CONDUIT.

- LEGEND**
- **CUC** — PROPOSED 4-INCH CEMENT ENCASED NONMETALLIC CONDUIT, NUMBER OF RUNS AS NOTED.
 - PROPOSED TES MANHOLE
 - **cuc** — EXISTING CONDUIT
 - - - - - ABANDONED CONDUIT



NOTES:

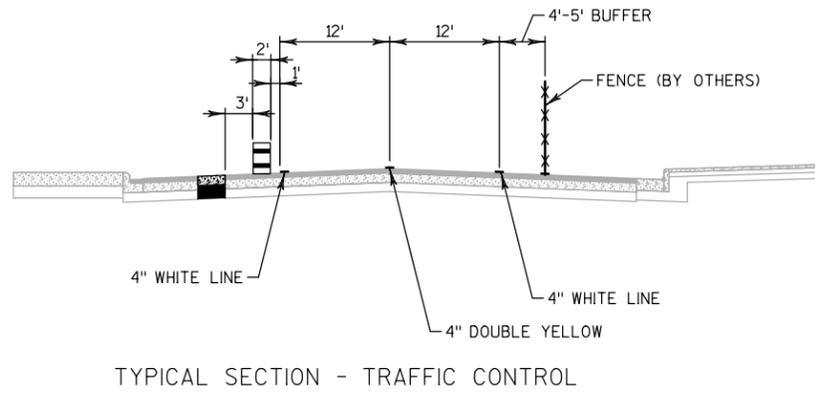
- 1) THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
- 2) THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
- 3) DIMENSIONS SHOWN ARE TO CENTER OF MANHOLE, DUCT PACKAGE OR UTILITY.
- 4) MAINTAIN A STANDARD DEPTH OF 39-INCHES BETWEEN FINISHED GRADE AND TOP OF CONDUIT.
- 5) REMOVE ABANDONED CONDUIT FROM THE MANHOLE WALL AND BEYOND AS NEEDED. INSTALL THE PROPOSED CONDUIT INTO THE MANHOLE AT THE SAME LOCATION OF THE ABANDONED CONDUIT.

LEGEND

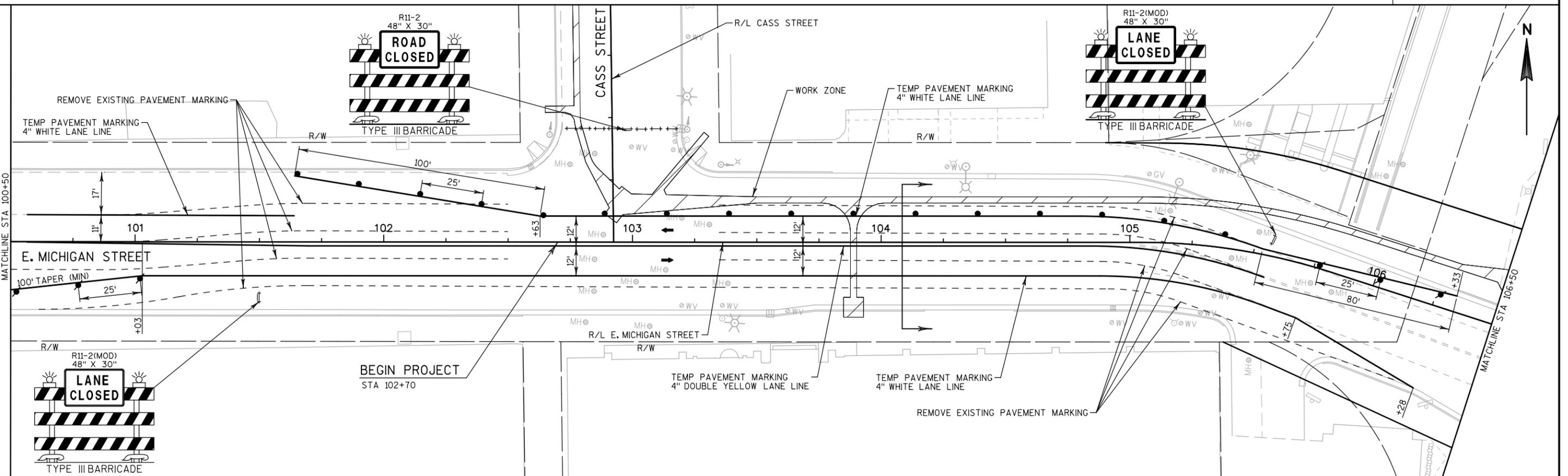
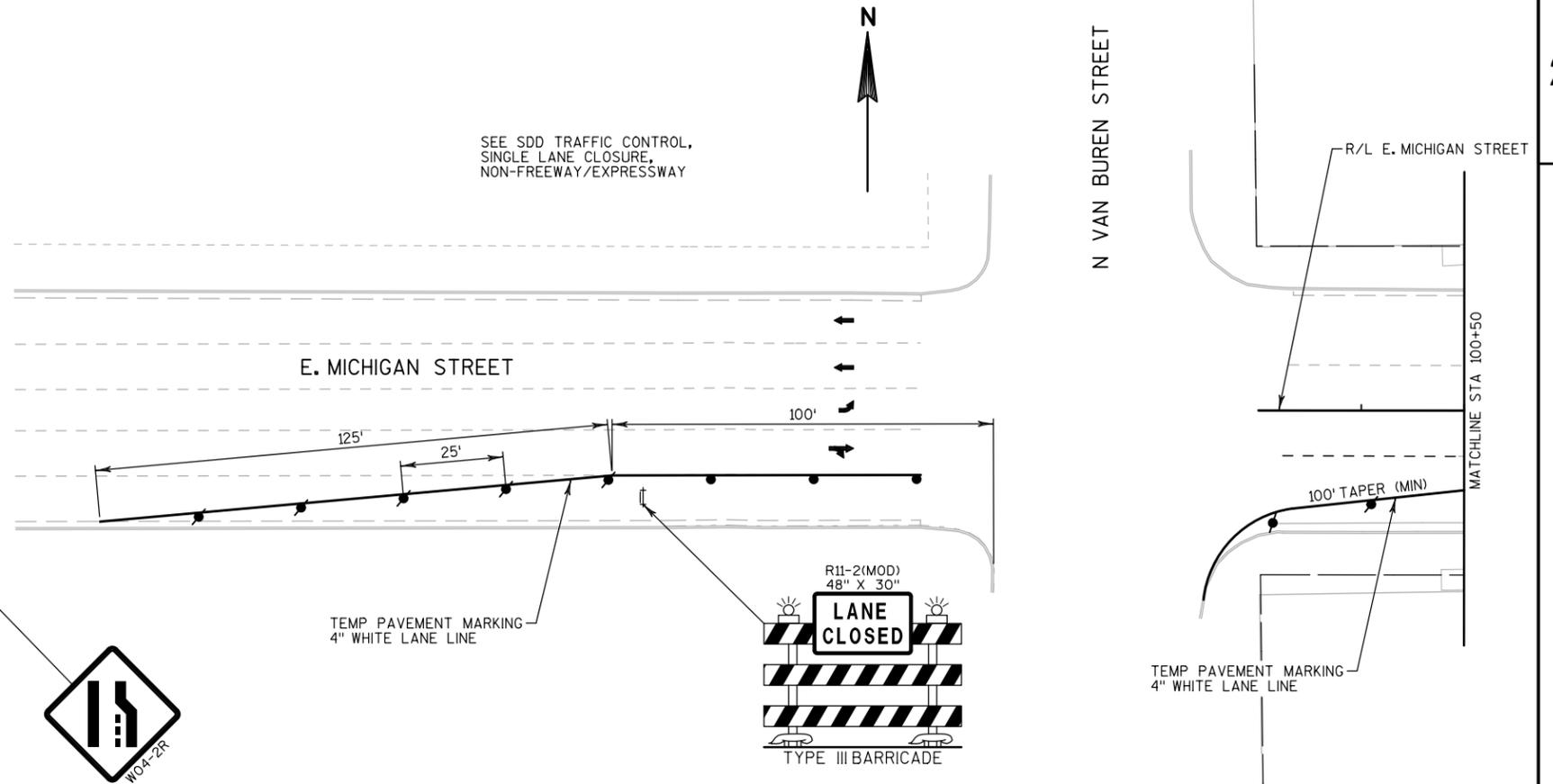
- CUC — PROPOSED 4-INCH CEMENT ENCASED NONMETALLIC CONDUIT, NUMBER OF RUNS AS NOTED.
- PROPOSED TES MANHOLE
- CUC — EXISTING CONDUIT
- - - - - ABANDONED CONDUIT

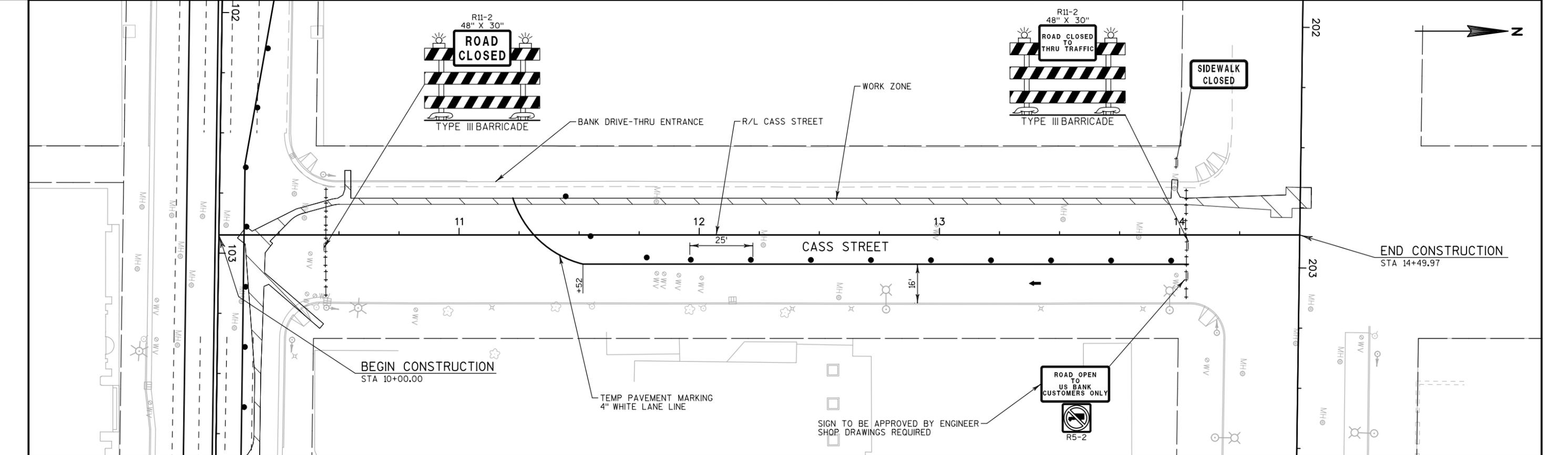
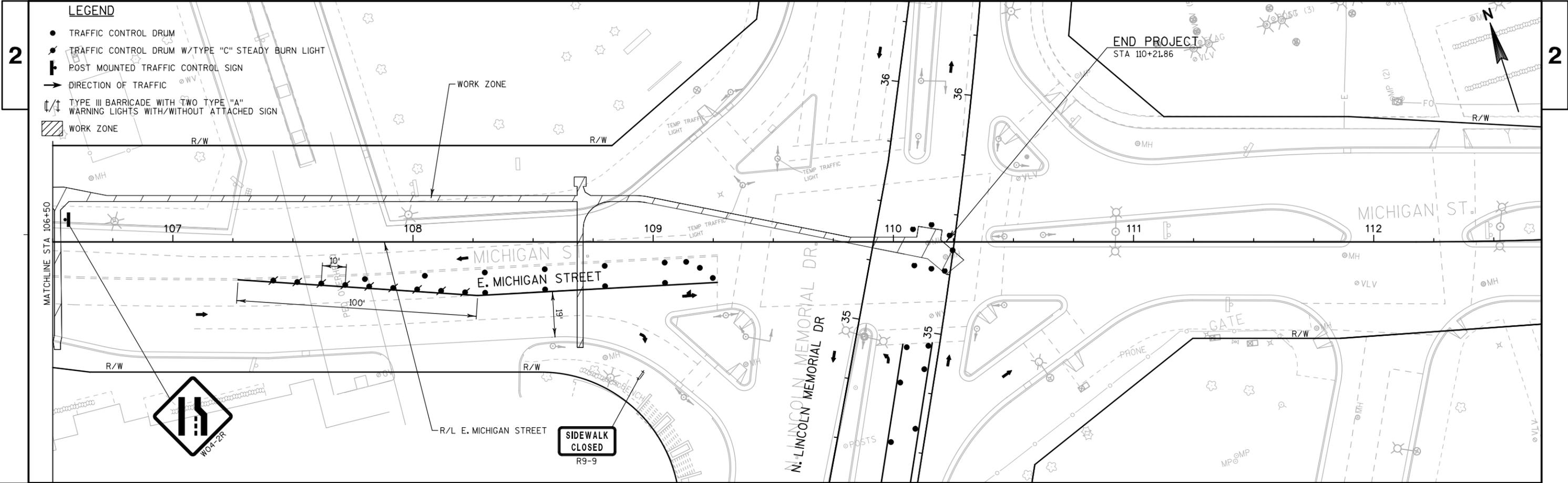
LEGEND

- TRAFFIC CONTROL DRUM
- ⚡ TRAFFIC CONTROL DRUM W/TYPE "C" STEADY BURN LIGHT
- ⊥ POST MOUNTED TRAFFIC CONTROL SIGN
- DIRECTION OF TRAFFIC
- ⊕/⊖ TYPE III BARRICADE WITH TWO TYPE "A" WARNING LIGHTS WITH/WITHOUT ATTACHED SIGN
- ▨ WORK ZONE



SEE SDD TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREWAY/EXPRESSWAY

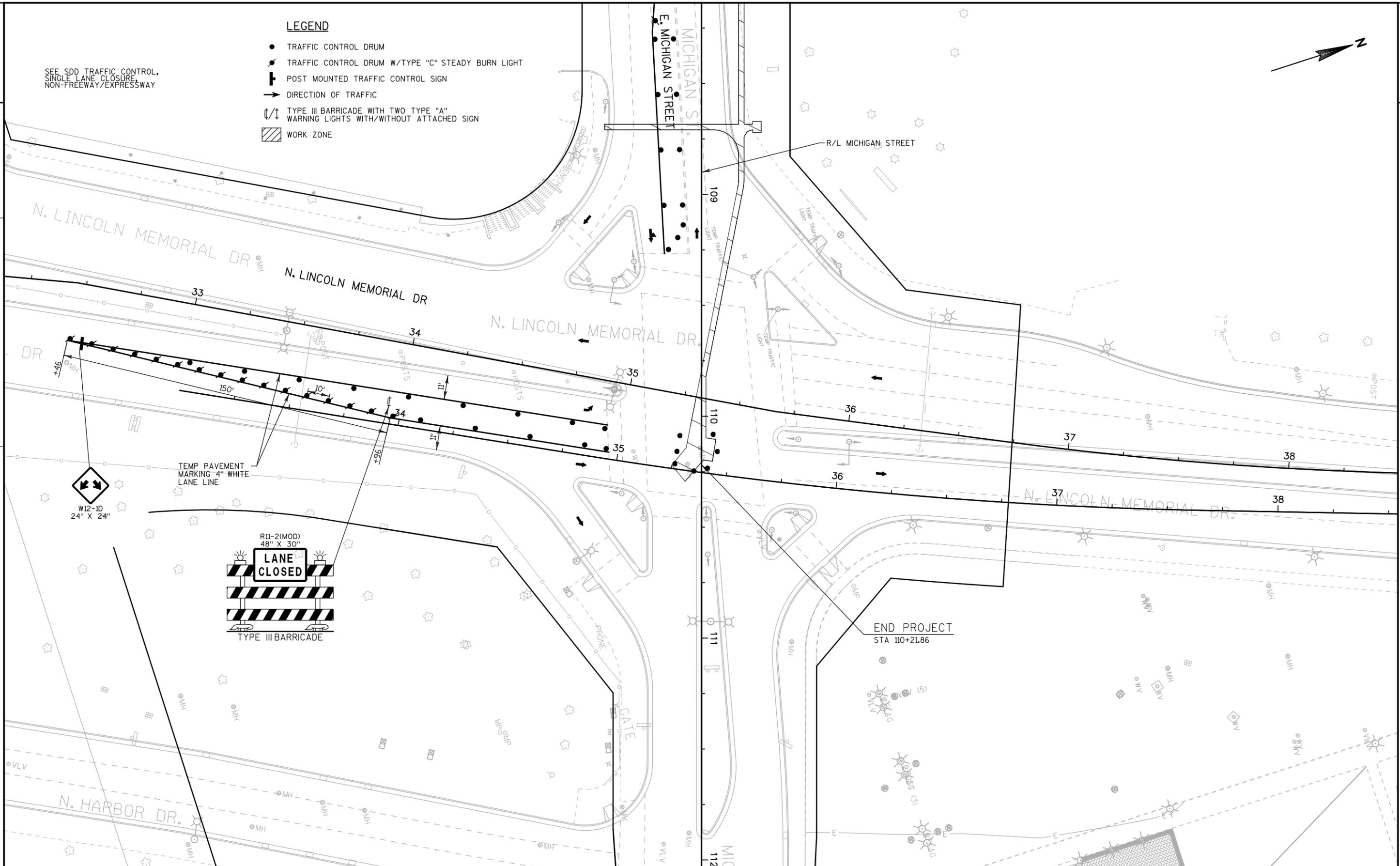




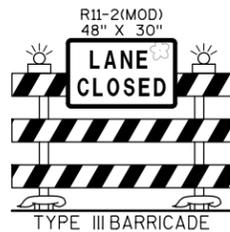
LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM W/TYPE "C" STEADY BURN LIGHT
- ⊥ POST MOUNTED TRAFFIC CONTROL SIGN
- DIRECTION OF TRAFFIC
- ⊥/⊥ TYPE III BARRICADE WITH TWO TYPE "A" WARNING LIGHTS WITH/WITHOUT ATTACHED SIGN
- ▨ WORK ZONE

SEE SDD TRAFFIC CONTROL,
SINGLE LANE CLOSURE,
NON-FREEWAY/EXPRESSWAY



TEMP PAVEMENT
MARKING 4" WHITE
LANE LINE



REMOVAL ITEMS

204.0100	REMOVING PAVEMENT	SY	460
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ROADWAY MISCELLANEOUS ITEMS

213.0100	FINISHING ROADWAY	EA	1
415.0080	CONCRETE PAVEMENT 8-INCH	SY	440
602.0515	CURB RAMP DETECTABLE WARNING FIELD NATURAL PATINA	SF	8
690.0250	SAWING CONCRETE	LF	4,240
SPV.0165.01	CONCRETE PAVEMENT 8-INCH COLORED RED	SF	250

MOBILIZATION

643.0100	MOBILIZATION	LS	1
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TRAFFIC CONTROL ITEMS

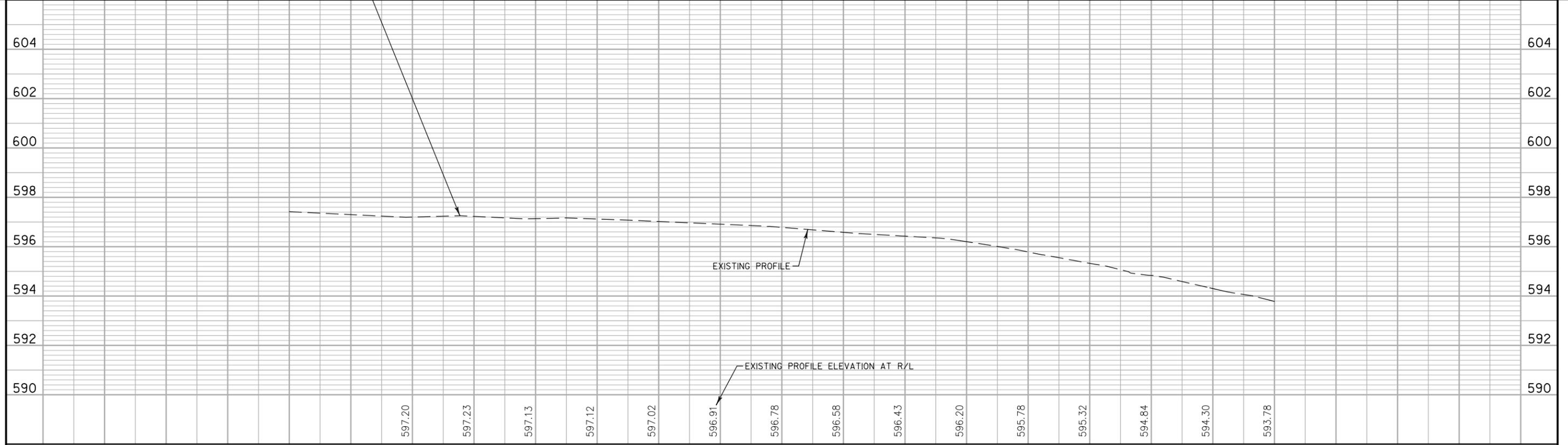
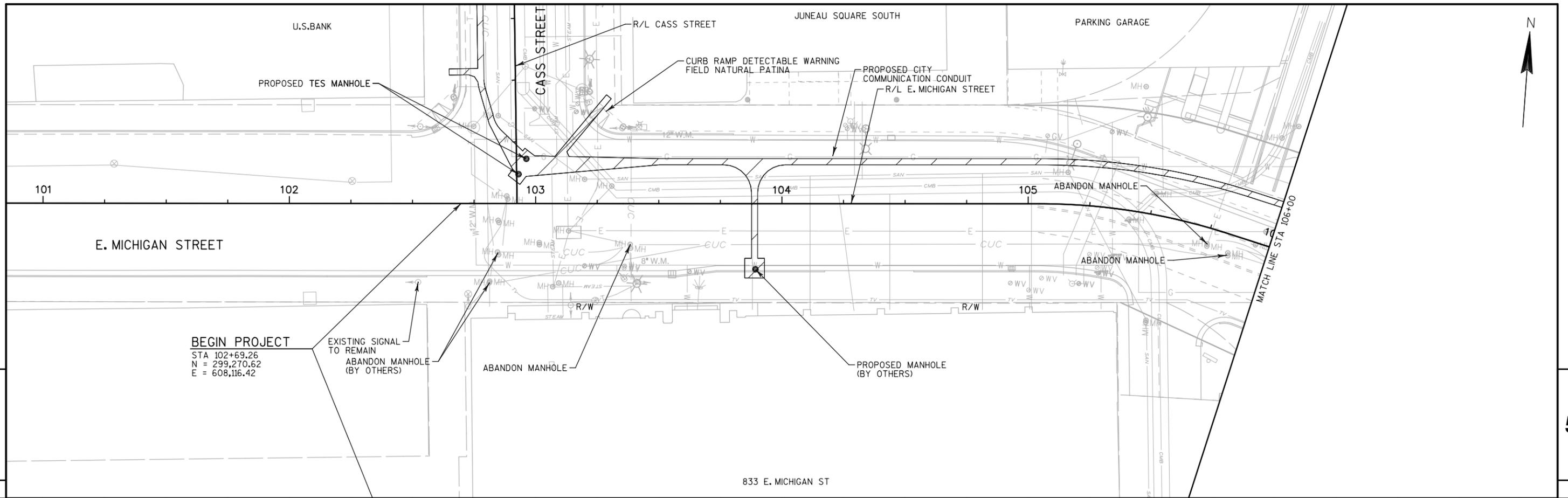
643.0100	TRAFFIC CONTROL	EACH	1
643.0300	TRAFFIC CONTROL DRUMS	DAY	1,550
643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	960
643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	420
643.0410	TRAFFIC CONTROL BARRICADES TYPE I	DAY	130
643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	480
643.0900	TRAFFIC CONTROL SIGNS	DAY	480
646.0159	REMOVING PAVEMENT MARKINGS	LF	1,870
649.0100	TEMPORARY PAVEMENT MARKING 4-INCH	LF	2,510

SURVEY

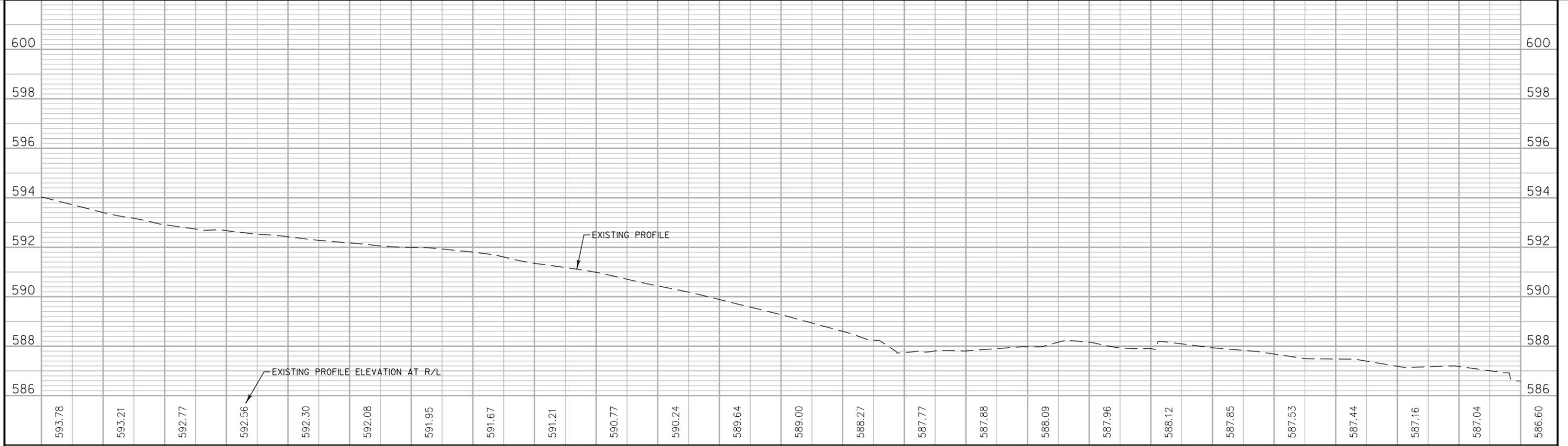
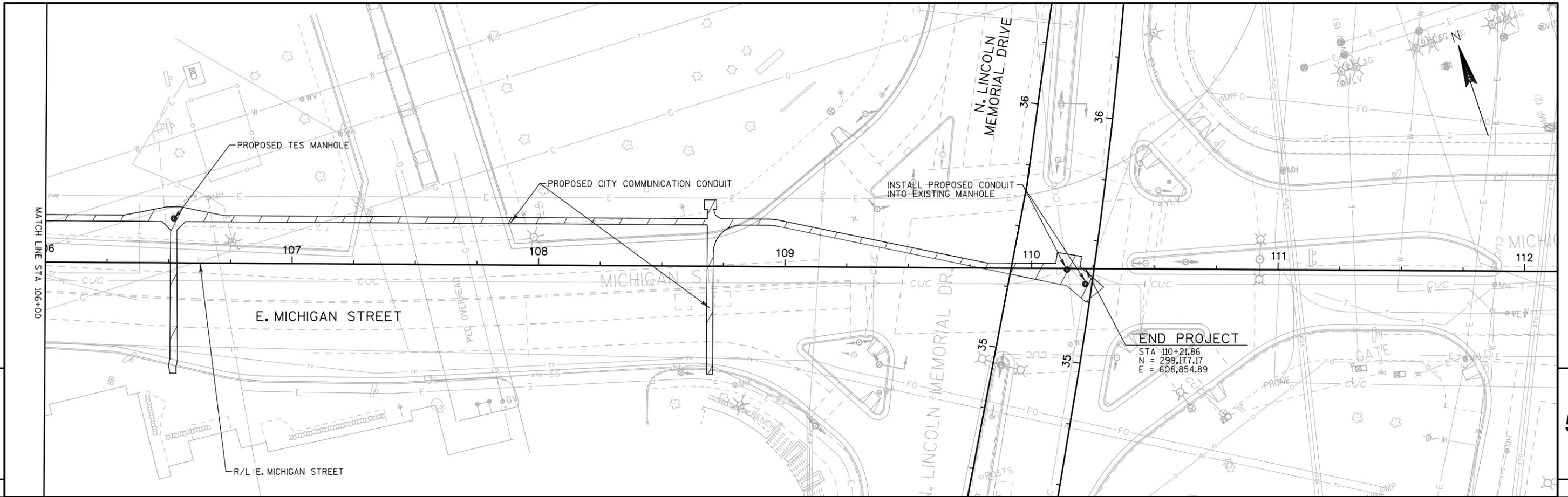
SPV.0105.01	SURVEY PROJECT	LS	1
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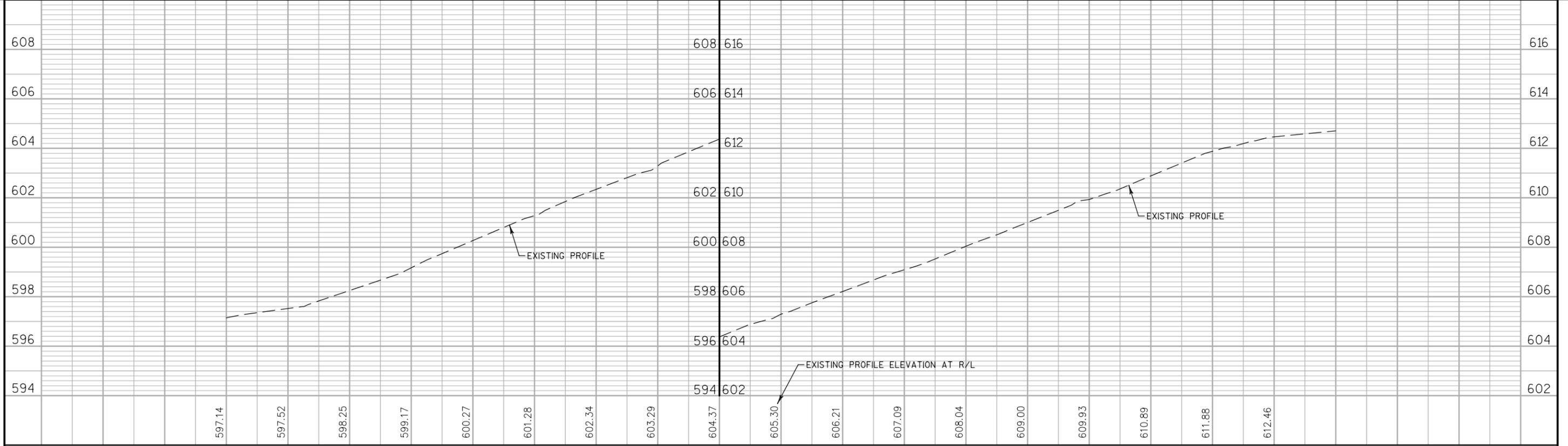
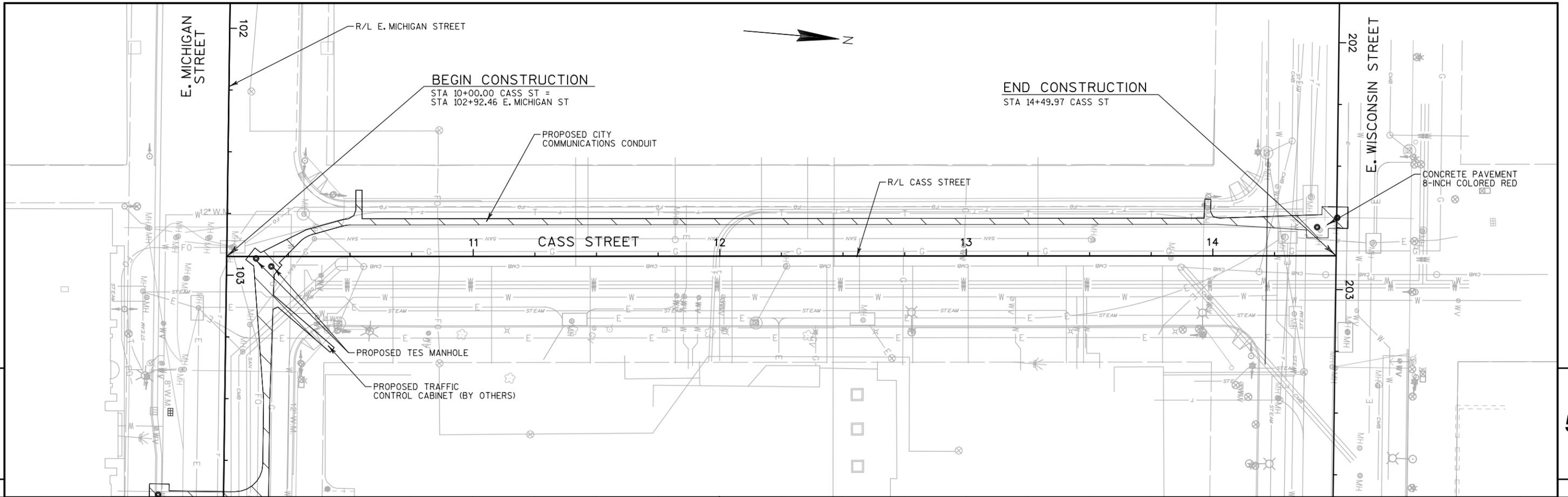
CITY UTILITIES

204.0250	ABANDON MANHOLES	EACH	4
652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	50
652.0235	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	LF	140
652.0615	CONDUIT SPECIAL 3-INCH	LF	150
SPV.0060.01	STREET LIGHTING POLYMER CONCRETE VAULT 13-INCH X 24-INCH X 18-INCH	EACH	2
SPV.0060.02	STREET LIGHTING POLYMER CONCRETE VAULT 17-INCH X 30-INCH X 18-INCH	EACH	3
SPV.0060.03	4' DIAMETER MANHOLE TYPE TES	EACH	2
SPV.0060.04	5' DIAMETER MANHOLE TYPE TES	EACH	1
SPV.0060.05	INSTALLING CONDUIT INTO EXISTING MANHOLE	EACH	5
SPV.0060.06	INSTALL TRAFFIC SIGNAL BASE	EACH	3
SPV.0090.01	14-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	109
SPV.0090.02	10-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	463
SPV.0090.03	8-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	524
SPV.0090.04	6-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	101
SPV.0090.05	4-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	28
SPV.0090.06	3-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	38
SPV.0090.07	2-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	355
SPV.0090.08	1-DUCT CONDUIT CEMENT ENCASED 4-INCH RIGID NONMETALLIC CONDUIT DB-60	LF	59



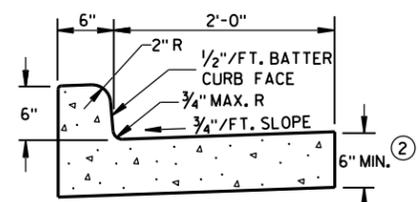
PROJECT NO: 1301-13-01	HWY: LOCAL ROADS	COUNTY: MILWAUKEE	PLAN & PROFILE: E. MICHIGAN STREET	SHEET 25	E
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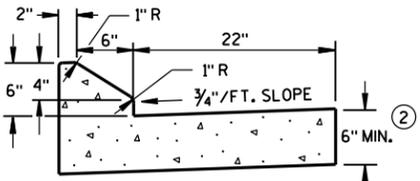


PROJECT NO: 1301-13-01	HWY: LOCAL ROADS	COUNTY: MILWAUKEE	PLAN & PROFILE: CASS STREET	SHEET 27 E
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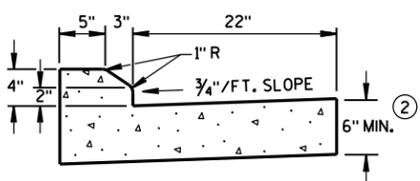
8D1: Concrete Curb, Concrete Curb & Gutter and Ties



TYPES A & D ①

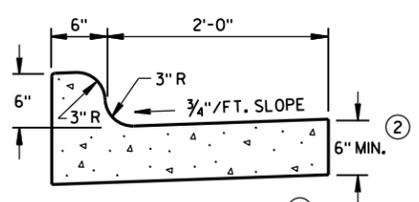


6" SLOPED CURB TYPES G & J ①



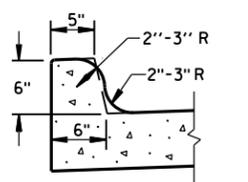
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

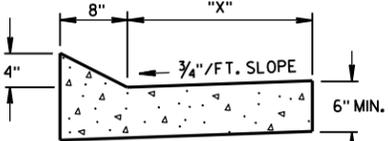


TYPES K & L ①

CONCRETE CURB & GUTTER 30"

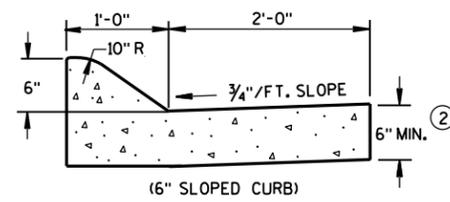


OPTIONAL CURB SHAPE FOR TYPES K & L ①

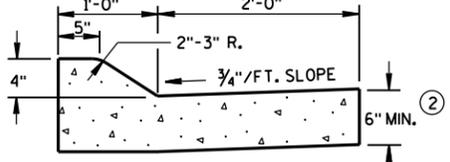


TYPES TBT & TBTT ①
CONCRETE CURB & GUTTER

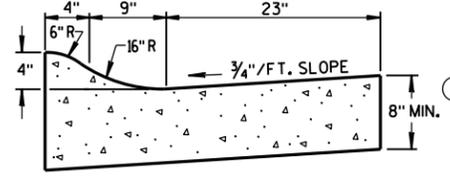
TBT & TBTT	"X"
30"	22"
36"	28"



(6" SLOPED CURB)



(4" SLOPED CURB)
TYPES A & D ①

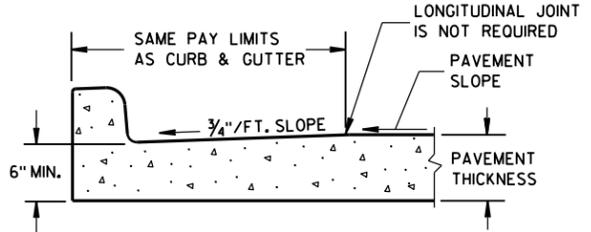


4" SLOPED CURB TYPES R & T ① ④
CONCRETE CURB & GUTTER 36"

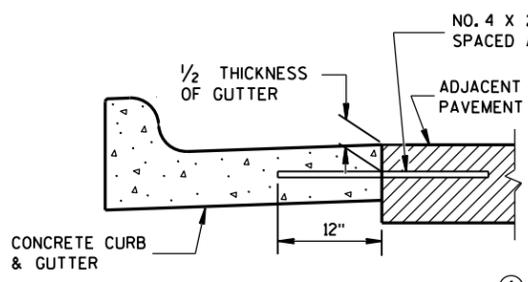
GENERAL NOTES

- DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.
- INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.
- WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.
- UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

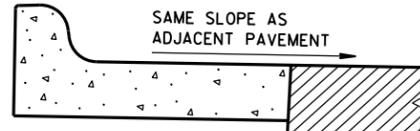
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



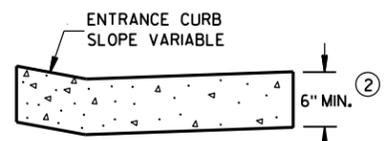
PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



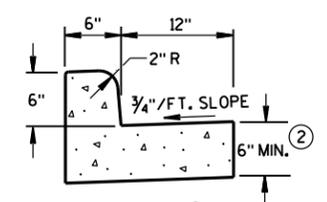
TYPICAL TIE BAR LOCATION ①



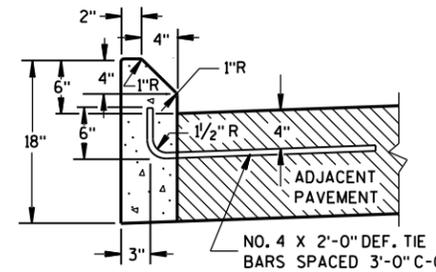
REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)



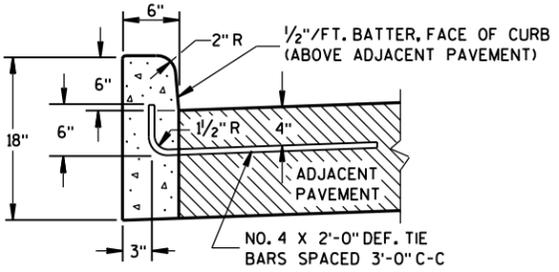
DRIVEWAY ENTRANCE CURB ②
(WHEN DIRECTED BY THE ENGINEER)



TYPES A & D ①
CONCRETE CURB & GUTTER 18"

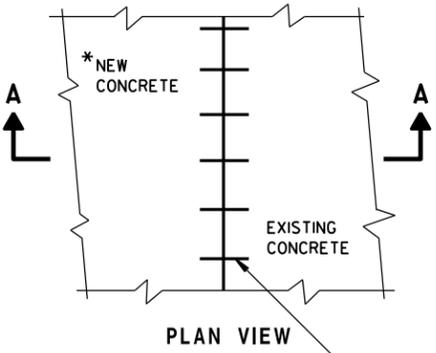


TYPES G & J ①



TYPES A & D ①

CONCRETE CURB

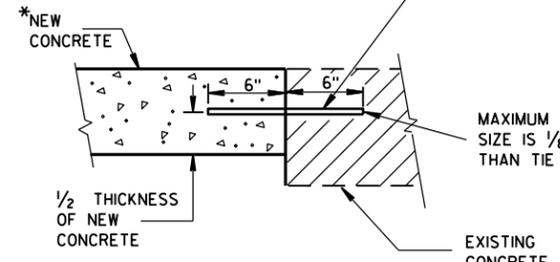


PLAN VIEW

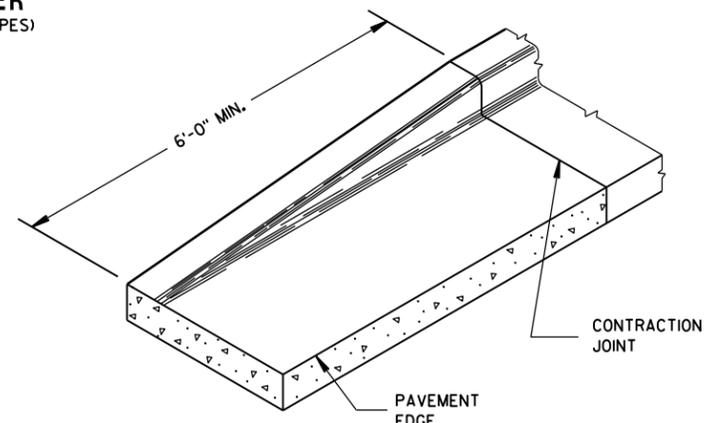
* NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

NO. 6 TIE BARS SPACED 2'-6" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE SIZE IS 1/8" GREATER THAN TIE BAR DIAMETER



SECTION A-A
TIE BARS DRILLED INTO EXISTING PAVEMENT

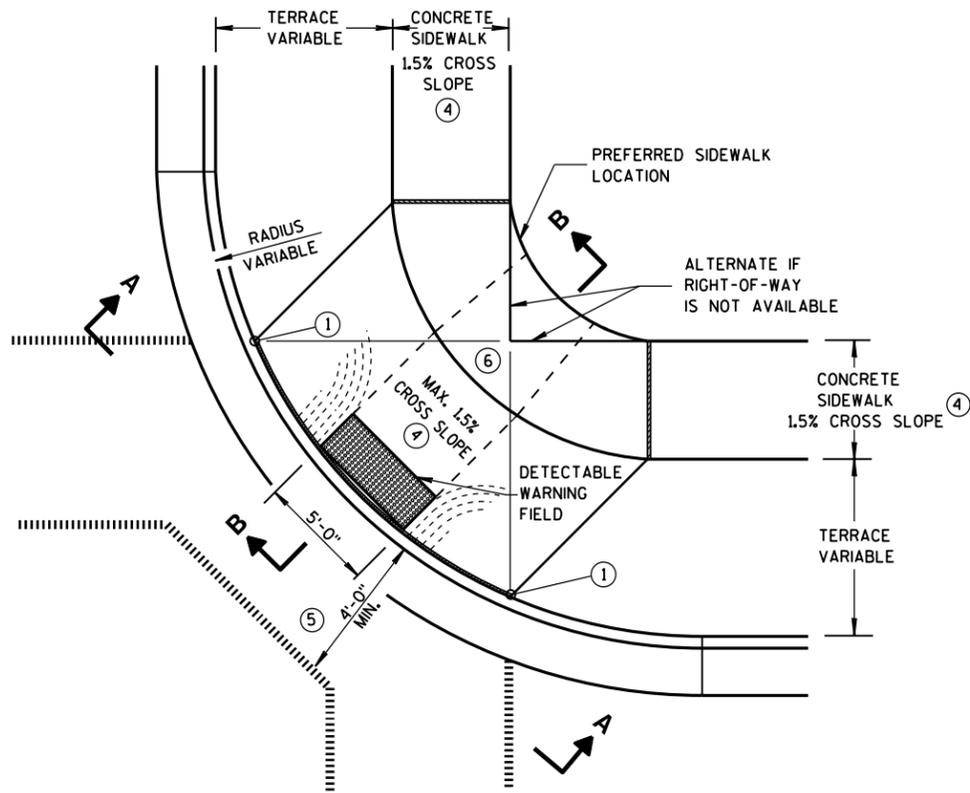


END SECTION CURB & GUTTER

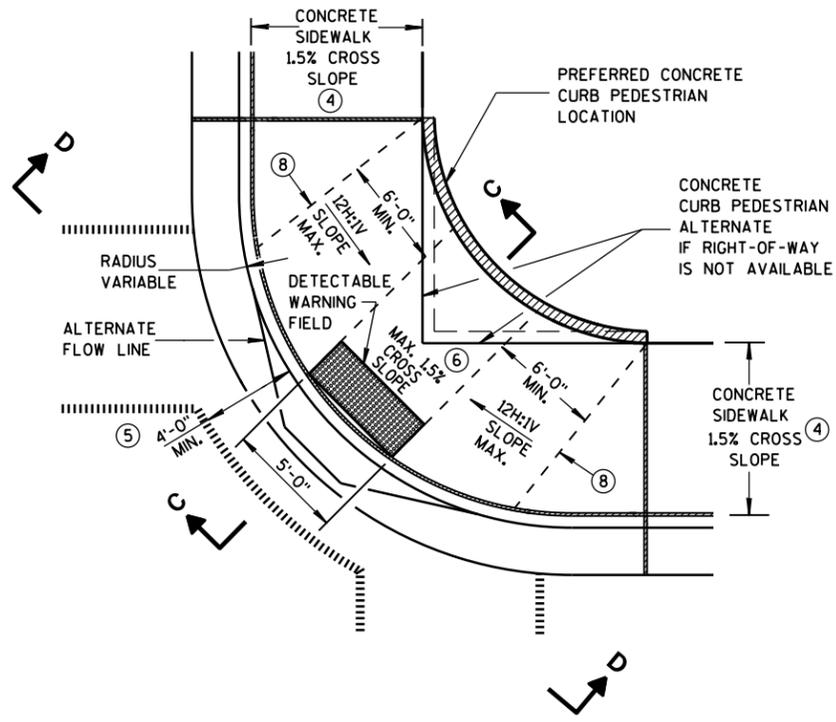
CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



**PLAN VIEW
TYPE 1 RAMP**
(CENTER OF CORNER RADIUS)



**PLAN VIEW
TYPE 1-A RAMP**
(NO TERRACE)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

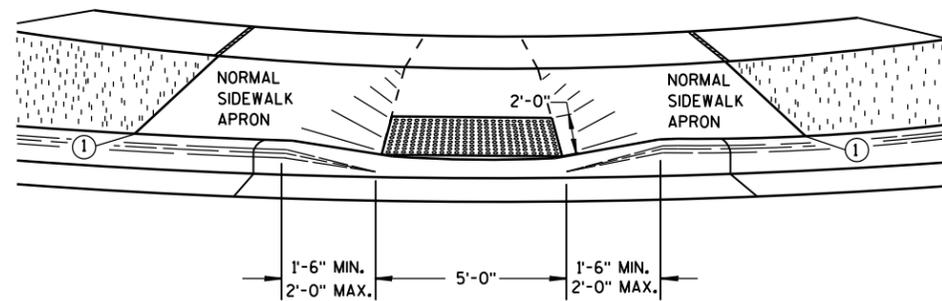
DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

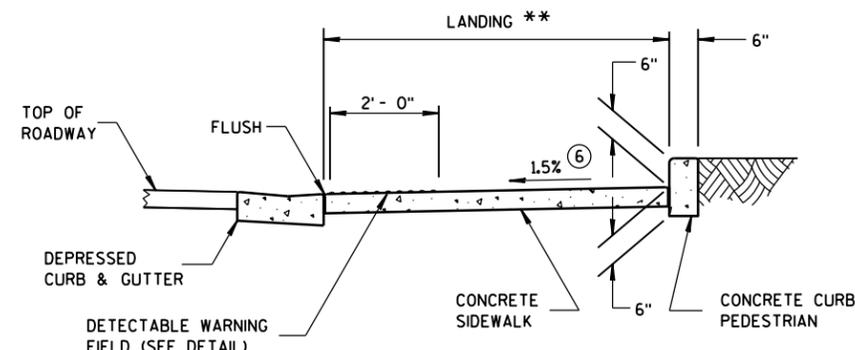
SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.



VIEW A-A

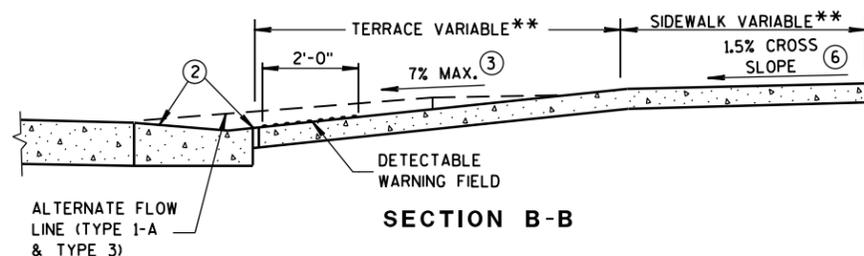
** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION C-C

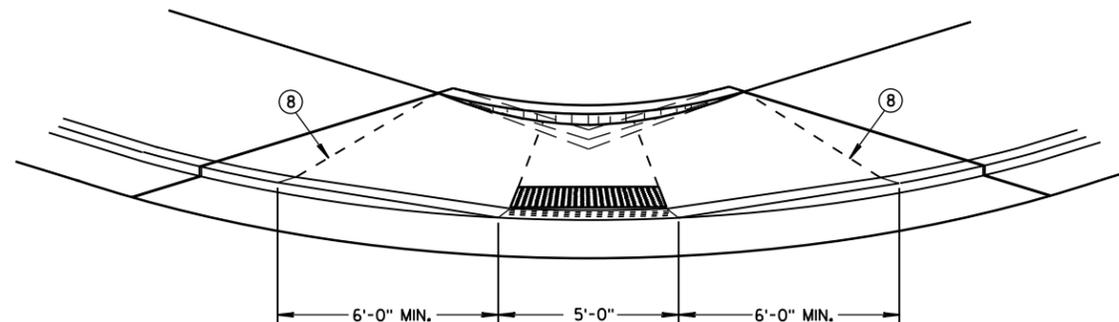
LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- - - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



SECTION B-B

ALTERNATE FLOW LINE (TYPE 1-A & TYPE 3)



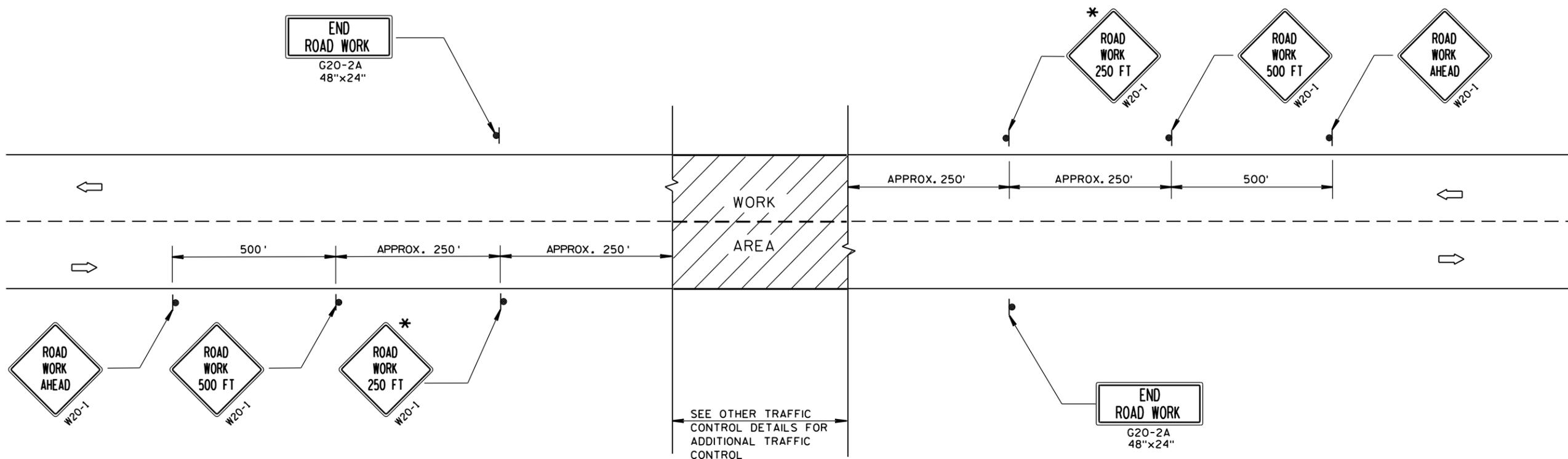
VIEW D-D

**CURB RAMPS
TYPES 1 AND 1-A**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



15C5: Traffic Control, Advance Warning Signs 40 M.P.H. or Less, Two Way Undivided Road Open to Traffic



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

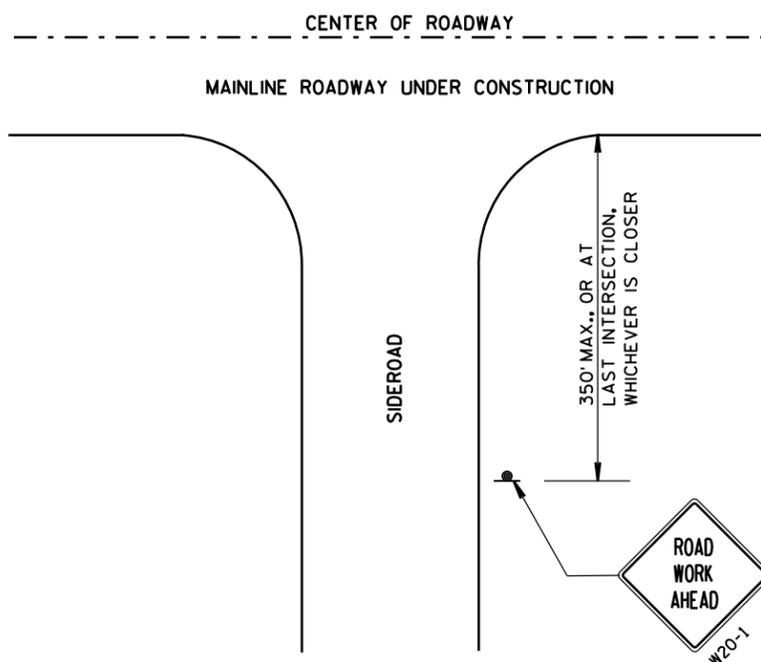
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS RE-ESTABLISHED.

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.

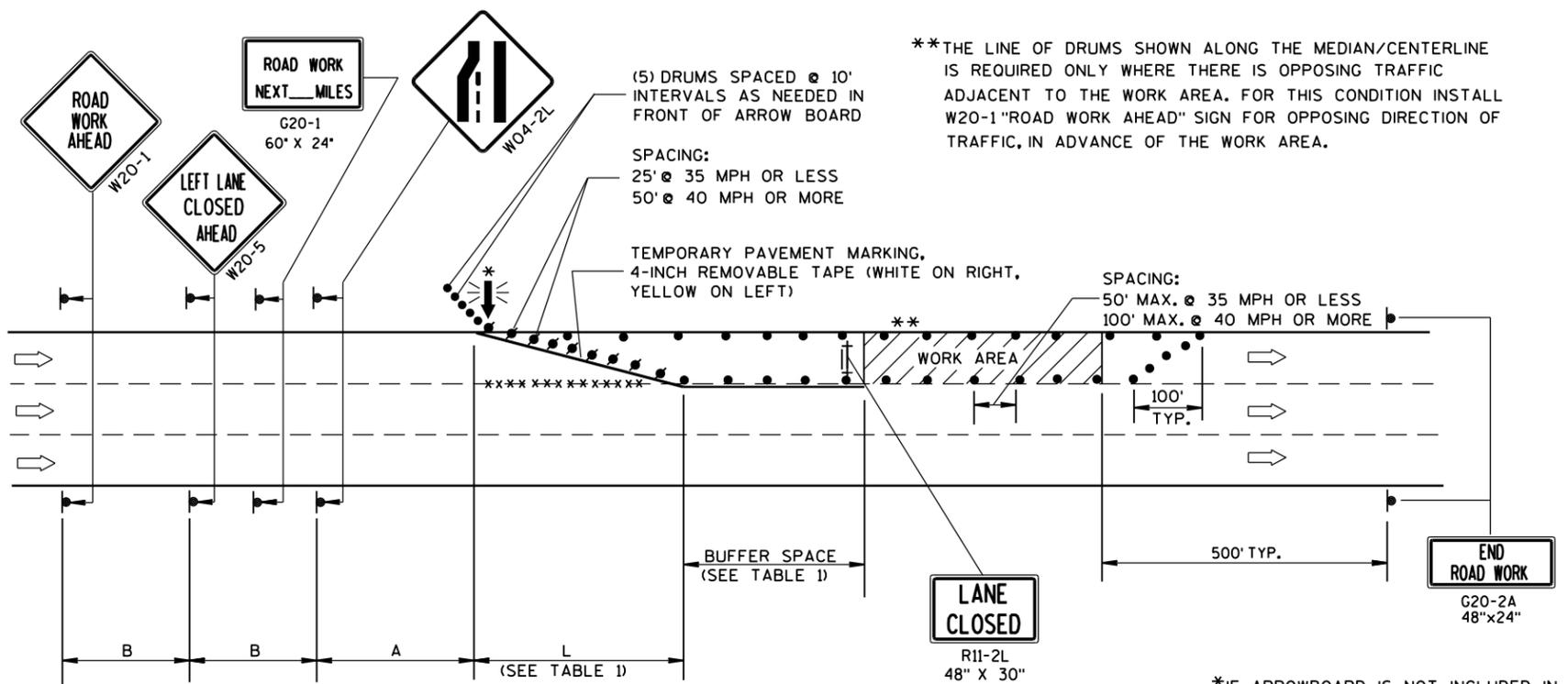


LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

15D20: Traffic Control, Single Lane Closure, Non Freeway/Expressway



GENERAL NOTES

- THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.
- THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.
- ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.
- W20-1, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.
- OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.
- PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.
- CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.
- BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.
- WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

6

6

B=400' AT 25-30 MPH	A=200' AT 25-30 MPH
700' AT 35-40 MPH	350' AT 35-40 MPH
1000' AT 45-55 MPH	500' AT 45-55 MPH

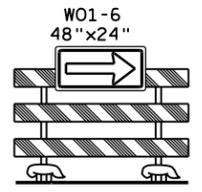
TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':
 $L = WS$ AT 45 MPH OR GREATER
 $L = \frac{WS^2}{60}$ AT 40 MPH OR LESS
 L = TAPER LENGTH IN FEET
 S = NON-CONSTRUCTION SPEED LIMIT (MPH)
 W = WIDTH OF LANE CLOSURE

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.



LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- WORK AREA

**TRAFFIC CONTROL,
SINGLE LANE CLOSURE,
NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

S.D.D. 15 D 20-3

S.D.D. 15 D 20-3