

PROJECT:

DETROIT UNIVERSITY DISTRICT HUT

LOCATION:

DETROIT MI

ORDER ID:

S11-62309DE0

DATE ISSUED:

5/19/22

DATE REV:

SCALE: 1:50

DESIGNER: J.A.P.

TRS: T1S R11E S3

LATITUDE: 42°26'0.95"N

LONGITUDE: 83° 8'28.04"W

PERMIT NOTES:

TOTAL UG LINEAR FT (NEW): 30'

PERMIT(S) REQUIRED:

- CITY OF DETROIT

LINETYPE KEY

CENTERLINE	---
ROAD (PAVED)	—
ROAD (DIRT)	- - -
SIDEWALK	- · - · -
ASPHALT	- · - · - · - · -
DRIVEWAY	—
BODY OF WATER	— · — · — · — · —
RIGHT OF WAY	- - -
PROPOSED UG	- · - · - · - · -
PROPOSED AERIAL	—
UG ROUTE - EX. CONDUIT	- · - · - · - · -
UG ROUTE - EX. ATT	- P - P - P - P -
EXISTING UG ROUTE	- · - · - · - · -
UG UTILITY (OIL)	- OIL - OIL - OIL -
UG UTILITY (CABLE)	- C - C - C - C -
UG UTILITY (POWER)	- E - E - E - E -
UG UTILITY (FIBER)	- FIB - FIB - FIB -
UG UTILITY (GAS)	- GAS - GAS - GAS -
UG UTILITY (PHONE)	- P - P - P - P -
UG UTILITY (SEWER)	- S - S - S - S -
UG UTILITY (STORM)	- ST - ST - ST - ST -
UG UTILITY (WATER)	- W - W - W - W -
RAILROAD TRACKS	

SYMBOLS KEY

□	BORE PIT	⊗	UTILITY POLE
⊗	FIBER SPLICE	⊗	RISER SYMBOL
∞	FIBER STORAGE		
HH	HH - PROPOSED	▲	TOWER
HH	HH - PROP. W/ GRND	⊙	TRAFFIC BARREL
HH	HH - EXISTING	⊙	TRAFFIC CONE
HH	HH - EX. W/ GRND		
AE	AE SPLICE - PROPOSED		
PHONE	PHONE - MANHOLE		
PHONE	PHONE - PED		
STORM	STORM - CATCH BASIN		
STORM	STORM - DRAIN		
STORM	STORM - MANHOLE		
WATER	WATER - GATE VALVE		
WATER	WATER - HYDRANT		
SEWER	SEWER MANHOLE		
UTILITY	UTILITY CROSSING/CORE TO LOCATE		

GENERAL NOTES:

ALL LABOR AND MATERIAL INCLUDING HOUSINGS, SPLICE CLOSURES, STUB POLES, TRENCHING, BACKFILLING, TAMPING, CABLE, STRAIGHT SPLICING, AND OTHER MATERIAL AND LABOR REQUIRED FOR THE PURPOSE OF JOINING CABLE OF THE SAME SIZE AND GAUGE IN CONTINUOUS LENGTHS (REEL ENDS). THE HOUSINGS OR CLOSURES AND ALL OTHER ASSOCIATED MATERIALS AND EQUIPMENT MUST BE OF THE SAME TYPE AS REQUIRED AT OTHER CABLE SPLICING POINTS SPECIFIED IN THE CONSTRUCTION OF THE PROJECT UNLESS OTHERWISE APPROVED BY THE ENGINEER.

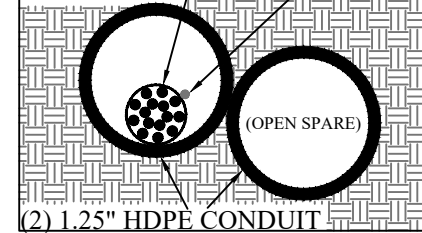
ALL LABOR AND MATERIAL REQUIRED IN THE REPAIR AND/OR REPLACEMENT OF STREETS, SIDEWALKS, ROADS, DRIVES, FENCES, LAWNS, SHRUBBERY, WATER MAINS, PIPES, PIPELINES AND CONTENTS, UNDERGROUND POWER AND TELECOMMUNICATIONS FACILITIES, BURIED SEWERAGE AND DRAINAGE FACILITIES, AND ANY OTHER PROPERTY DAMAGED DURING THE INSTALLATION OF THE BURIED CABLE, EXCEPT LOSS OR DAMAGE TO CROPS, GARDENS, ORNAMENTAL FLOWERS OR TREES IN THE CONSTRUCTION CORRIDOR NECESSARILY INCIDENT TO THE CONSTRUCTION OF THE PROJECT AND NOT CAUSED BY THE NEGLIGENCE OF THE CONTRACTOR.

THE CONSTRUCTION EQUIPMENT MUST BE SUBJECT TO THE APPROVAL OF THE OWNER AND THE PUBLIC AUTHORITIES HAVING JURISDICTION OVER HIGHWAY AND ROAD RIGHTS-OF-WAY.

WHERE CABLES OR WIRES ARE BURIED NEAR THE EDGE OF PAVEMENTS, THE CONTRACTOR MUST TAKE PARTICULAR CARE TO AVOID DAMAGING THE PAVEMENT. IF SUCH DAMAGE DOES OCCUR REPAIRS MUST BE MADE IMMEDIATELY TO MEET THE REQUIREMENTS OF STATE OR LOCAL AUTHORITIES HAVING JURISDICTION OVER THE PAVEMENT INVOLVED.

TRENCHES MUST BE PROMPTLY BACKFILLED WITH EARTH AND TAMPED AT 6" (15.24 CM) LIFTS SO THAT THE EARTH IS RESTORED TO ORIGINAL GRADE TO ASSURE NO HAZARD TO VEHICULAR, ANIMAL OR PEDESTRIAN TRAFFIC. NO TRENCHES MUST BE LEFT OPEN OVERNIGHT.

(1) 144 COUNT FIBER TRACER WIRE



(2) 1.25" HDPE CONDUIT (TYPICAL PIPE SECTION VIEW)

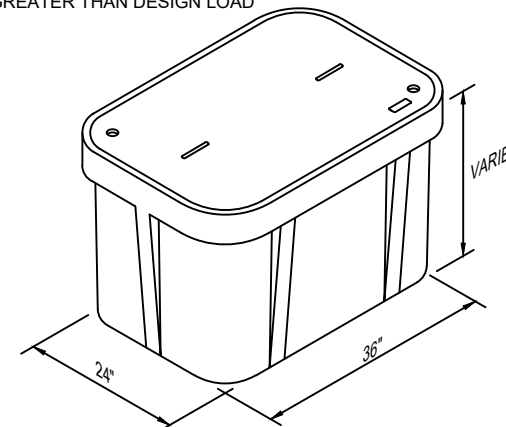


(800) 482-7171

MISS DIG WILL BE NOTIFIED 72 HOURS PRIOR TO ANY UNDERGROUND CONSTRUCTION

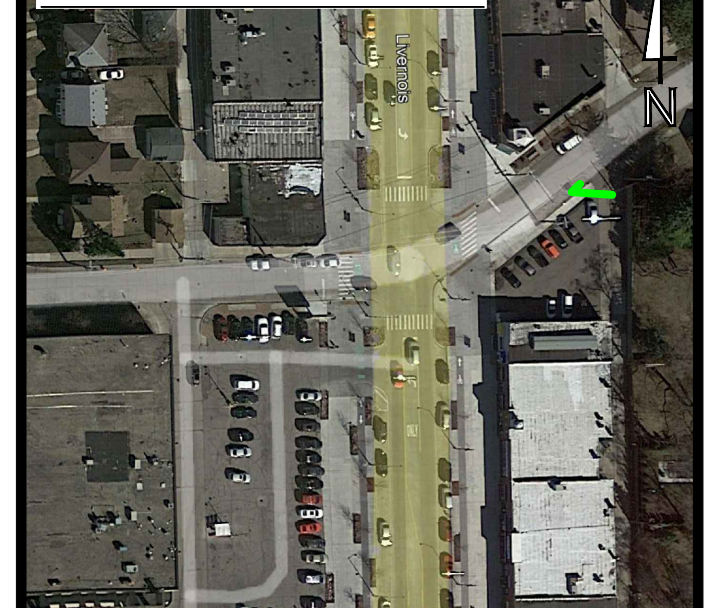
FIELD NOTES

- QUAZITE ENCLOSURE, A TIER 15; DRIVEWAY, PARKING LOT AND OFF-ROADWAY APPLICATIONS SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC. SUBJECT FOR DESIGN LOAD OF 15,000 LBS.
- ALL ANSI TIER LOADINGS WILL HAVE A CORRESPONDING TEST LOAD WHICH IS 50% GREATER THAN DESIGN LOAD



- TIER 8 = 8000# DESIGN, 12000# TEST
TIER 15 = 15000# DESIGN, 22500# TEST (STANDARD USE BY 123NET)
TIER 22 = 22500# DESIGN, 33750# TEST (SPECIAL CONDITION, USE AS NOTED)
- ALL WORK WITHIN THE ROAD RIGHT-OF-WAY (ROW) AND DRAIN EASEMENT SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL OF THE CITY, VILLAGE, TOWNSHIP AND MDOT 2012 SPECIFICATIONS FOR CONSTRUCTION.
- 123 NET/CONTRACTOR SHALL CONTACT MISS DIG AT 811 TO IDENTIFY AND FLAG / MARK THE LOCATIONS OF ALL UNDERGROUND UTILITIES AT THE PROPOSED CONSTRUCTION AREAS PRIOR TO START OF CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES, AND RESOLVE ANY CONFLICT BETWEEN THE PROPOSED WORK AND THE EXISTING UNDERGROUND OR ABOVE GROUND UTILITIES.
- 123 NET/CONTRACTOR IS RESPONSIBLE FOR RESTORING OR REPLACING ALL DISTURBED LANDSCAPED AREAS, SPRINKLER SYSTEMS, FENCES, SIGNS, MAIL BOXES, ETC. WITHIN THE ROAD ROW AND / OR AS DIRECTED BY THE CITY/COUNTY ENGINEER.
- 123 NET/CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES, OTHERWISE, DETOURING TRAFFIC. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF M.M.U.T.C.D.
- MAINTAIN A SAFE AND ADEQUATE TRAVEL ROUTE FOR PEDESTRIANS AT ALL TIMES THROUGHOUT THE PROJECT DURATION.
- TUNNELING, BORING AND JACKING OPERATIONS SHALL BE IN ACCORDANCE WITH THE MUNICIPALITY SPECIFICATIONS AND DETAILS. BORE PITS SHALL BE PLACED AT IN ACCORDANCE OF CITY, TOWNSHIP OR STATE SPECIFICATIONS.
- 123 NET/CONTRACTOR SHALL PROVIDE COLD WEATHER PROTECTION FOR ALL PROPOSED CONCRETE WORK (PAVEMENTS, SIDEWALKS, DRIVE APPROACHES, ETC.) AS DIRECTED BY PERMITTING OFFICIALS.
- 123 NET/CONTRACTOR SHALL NOTIFY PERMIT OFFICE OR PERSONS RESPONSIBLE FOR CONSTRUCTION START.

MAP LOCATION:



DRAWING REVISIONS:

NOTE: ALL UTILITIES SHOWN WERE FROM AS-BUILT MAPS. THESE ARE SCALED AND APPROXIMATE LOCATION OF EXISTING UTILITIES. BEFORE ANY CONSTRUCTION BEGINS, MISS DIG WILL BE NOTIFIED. SURVEY WILL COMMENCE AND ROUTE WILL BE ADJUSTED AS NEEDED.

SHEET
TITLE



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Google Earth

JURISDICTION
CITY OF DETROIT

SHEET 1

PERMIT #

CONTACT

CONTACT #

PROJECT: DETROIT UNIVERSITY DISTRICT HUT

LOCATION: DETROIT MI

SCALE: NTS



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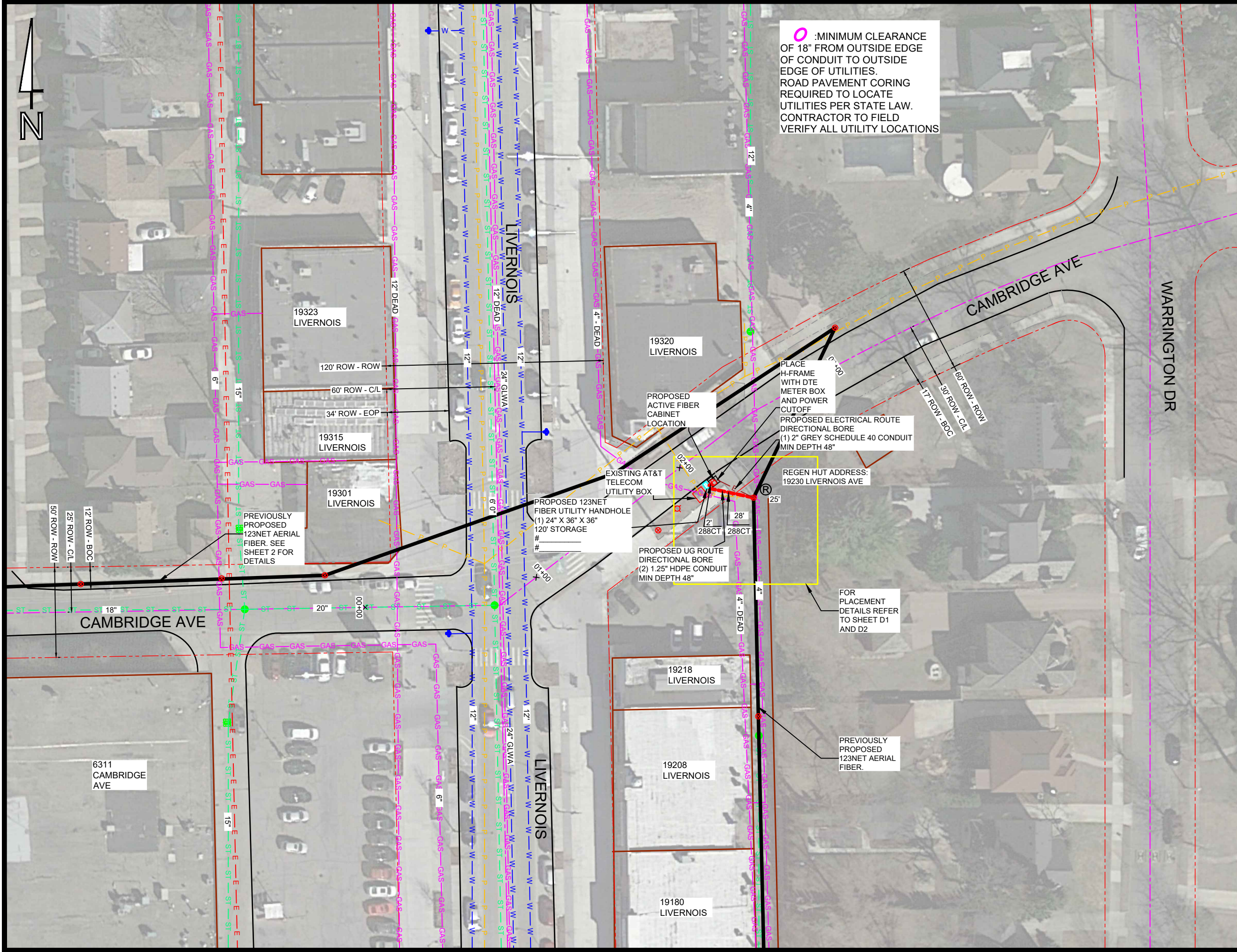
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SHEET

INDEX




○ :MINIMUM CLEARANCE OF 18" FROM OUTSIDE EDGE OF CONDUIT TO OUTSIDE EDGE OF UTILITIES. ROAD PAVEMENT CORING REQUIRED TO LOCATE UTILITIES PER STATE LAW. CONTRACTOR TO FIELD VERIFY ALL UTILITY LOCATIONS


SHEET
1

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DRAWING SCALE

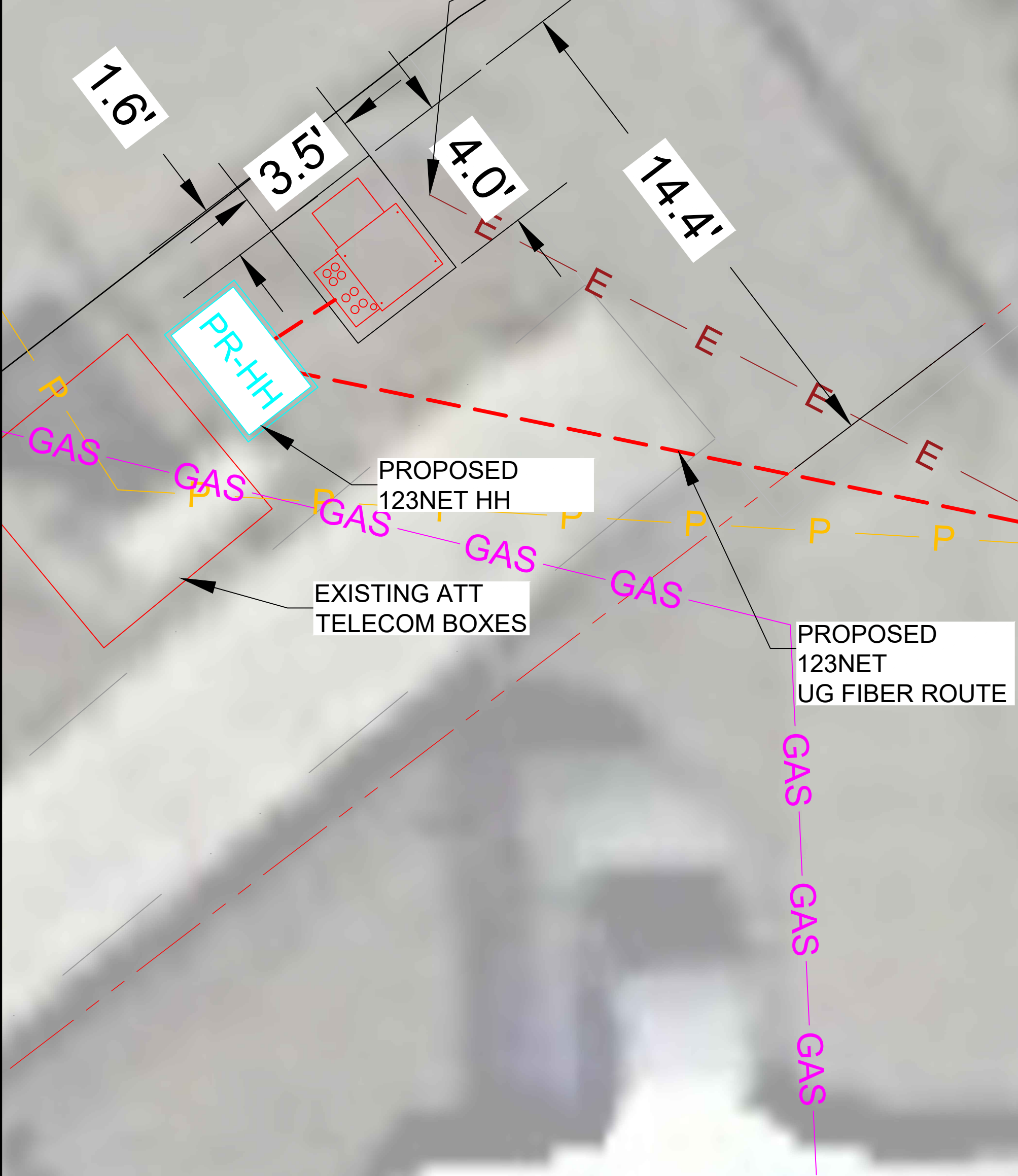


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NOTE:
CONCRETE PAD
APPROX 42" X 48"

PROPOSED H-FRAME
WITH DTE METER
BOX AND POWER
CUTOFF



PROJECT: DETROIT UNIVERSITY DISTRICT HUT

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OID: I11-5D30AB4B DATE: 5/19/22

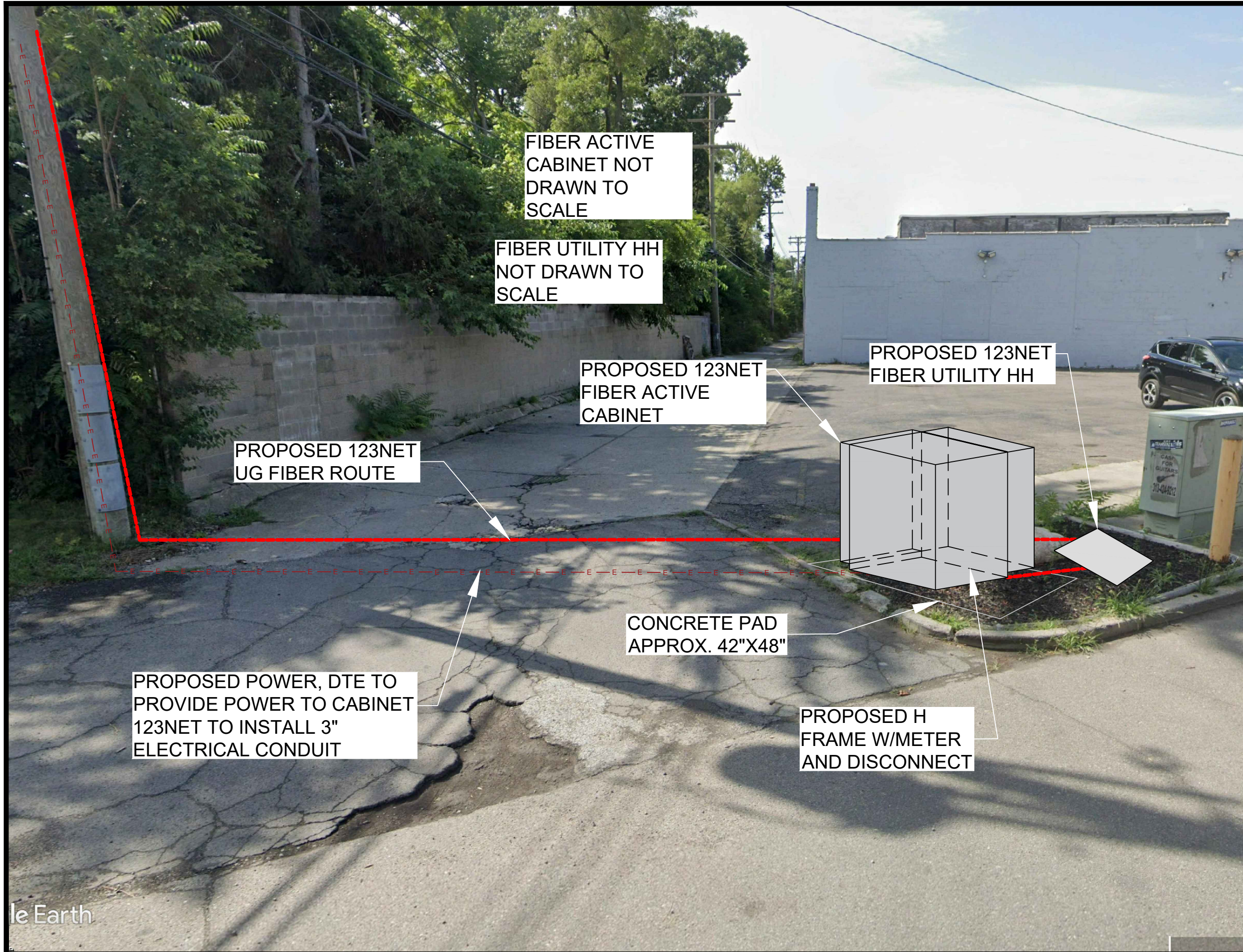
DESIGNER: J.A.P. REV: ---

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SHEET

D1



SHEET

D2

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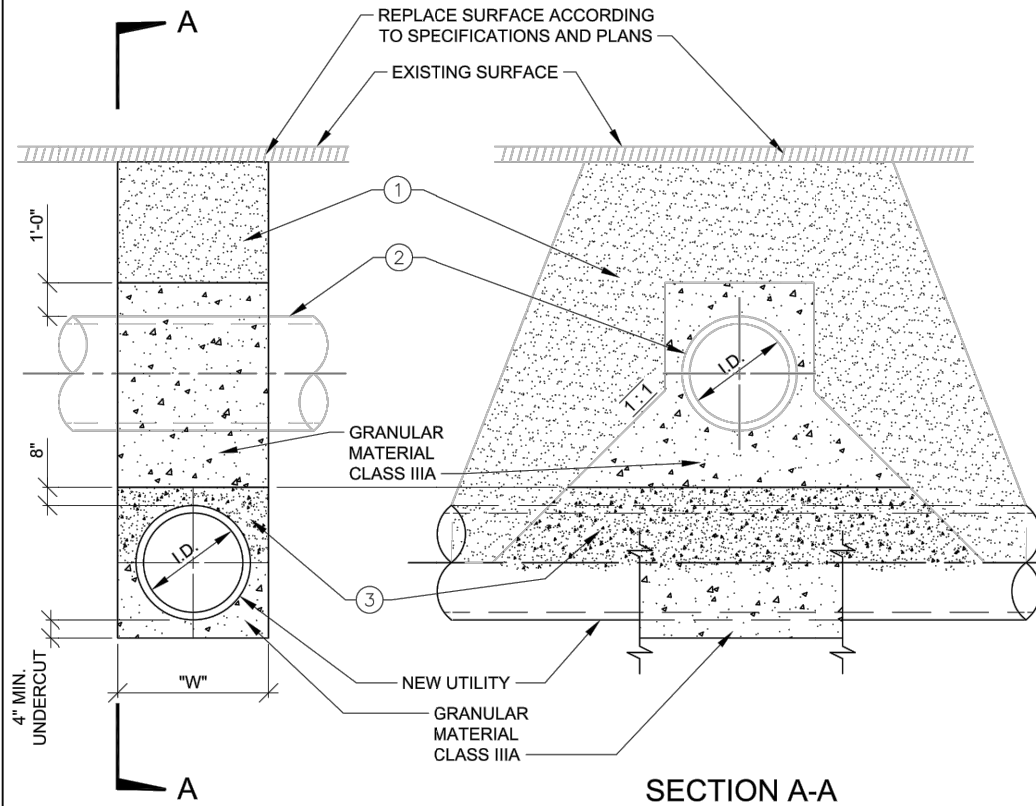
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CORE DETAILS:

1. CORING
 - a. EXCAVATION REQUIRES CORING A CIRCULAR HOLE (10 TO 18 INCHES IN DIAMETER WITH CENTER HOLE FOR REMOVAL/REPLACEMENT) THROUGH THE ENTIRE DEPTH OF THE PAVEMENT USING APPROPRIATE DRILLING/CORING EQUIPMENT AND REMOVAL OF THE INTACT PAVEMENT CORE. THE VERTICAL ALIGNMENT OF THE CORING OPERATION SHALL BE PERPENDICULAR TO THE HORIZON.
 - b. PRIOR TO CORE REMOVAL PLACE TEMPORARY MARKINGS (PAINT OR CHALK) ON THE PAVEMENT CORE AND ADJACENT PAVEMENT TO ENSURE THAT THE PAVEMENT CORE WHEN REPLACED WILL HAVE THE SAME ORIENTATION AS FOUND IN THE ORIGINAL PAVEMENT.
 - c. PROTECT AND SALVAGE THE REMOVED CORE FOR REUSE (UNLESS STRUCTURALLY UNSOUND) BY EITHER REMOVING THEM FROM THE WORK SITE OR STORING THEM IN A SAFE AND SECURE ON-SITE LOCATION. MAKE PAVEMENT CORES READILY AVAILABLE FOR REINSTATEMENT INTO THE PAVEMENT.
 - d. PLACE STEEL RING OR USE OTHER APPROVED METHOD TO PROTECT THE EDGE OF CORE OPENING FROM DAMAGE.
2. EXCAVATION
 - a. USE VACUUM EXTRACTION EQUIPMENT TO EXCAVATE SUBSOIL MATERIAL FROM THE BOTTOM OF PAVEMENT DOWNWARD TO EXPOSE UTILITY(S). THE ZONE OF SOIL REMOVAL SHALL REMAIN ESSENTIALLY WITHIN A VERTICAL PLANE EXTENDING BELOW THE EDGES OF THE CORE HOLE.
 - b. DISPOSE OF ALL EXTRACTED AND EXCESS MATERIALS.
 - c. PERFORM UTILITY WORK AS REQUIRED.
3. BACKFILLING
 - a. PLACE 2NS FINE AGGREGATE AROUND ALL SIDES AND SIX (6) INCHES ABOVE EXPOSED UTILITY(IES) AND COMPACT WITH TAMPING ROD TAKING CARE NOT TO DAMAGE UTILITY(IES).
 - b. CONTINUE PLACING 2NS FINE AGGREGATE COMPACTED IN SIX (6) INCHES LIFTS WITH TAMPING ROD OR USE NON-STRUCTURAL REMOVABLE FLOWABLE FILL FOR BACKFILL TO WITHIN ONE AND ONE HALF (1-1/2) TO TWO (2) INCHES FROM THE BOTTOM OF THE EXISTING PAVEMENT.
 - c. PLACE PEA GRAVEL AS THE FINAL ONE AND ONE HALF (1-1/2) TO TWO (2) INCHES OF BACKFILL UP TO THE CORE BOTTOM. IF FLOWABLE FILL IS USED FOR BACKFILL PLACE PEA GRAVEL AFTER IT HAS FULLY SET UP.
4. TEMPORARY COVER OF CORE HOLE
 - a. IN THE EVENT THAT THE CORED PAVEMENT CANNOT BE IMMEDIATELY REINSTATED AND WILL BE LEFT UNATTENDED, THE OPENING SHALL BE COVERED WITH AN APPROPRIATELY SIZED STEEL PLATE FITTED WITH A PILOT SHAFT THAT IS NO SMALLER IN DIAMETER THAN THE CORE HOLE DIAMETER MINUS 1 INCH AND THAT EXTENDS VERTICALLY DOWN INTO CORE HOLE NO LESS THAN 12 INCHES.
 - b. THE PLATE CONSTRUCTION SHALL PREVENT THE TEMPORARY PLATE FROM TIPPING, TILTING, BOUNCING OR SPINNING OUT OF THE HOLE UNDER TRAFFIC CONDITIONS AND SHALL BE CAPABLE OF SUPPORTING NORMAL TRAFFIC LOADS.
5. PAVEMENT RESTORATION
 - a. RESTORE THE PAVEMENT SURFACE TO ITS ORIGINAL CONDITION BY SETTING THE REINSTATED PAVEMENT CORE FLUSH WITH SURROUNDING PAVEMENT SURFACE AND IN ITS ORIGINAL ORIENTATION USING AN APPROVED BONDING MATERIAL THAT SECURELY BONDS THE PAVEMENT CORE TO THE SURROUNDING PARENT PAVEMENT AND TO FILL ALL VOIDS BETWEEN AND BELOW THE CORE TO INCLUDE PILOT HOLE IN THE CORE CENTER.
 - b. USE BONDING MATERIAL DESIGNED TO BE TRAFFIC-BEARING IN APPROXIMATELY 90 MINUTES.
 - c. PLACE ENOUGH BONDING MATERIAL IN CORE HOLE OPENING ABOVE THE CURED FLOWABLE FILL THAT WILL ALLOW IT TO BE FORCED TO THE SURFACE AND FILL THE ANNULAR SPACE AND EXTRACTION HOLE WHEN THE PAVEMENT CORE IS PLACED IN THE OPENING.
 - d. PLACE THE REMOVED CORE IN OPENING AT ORIGINAL ALIGNMENT AND ORIENTATION.
 - e. REMOVE EXCESS BONDING MATERIAL FROM THE RESTORED PAVEMENT SURFACE.
 - f. SEAL THE RESTORED OPENING.
6. BACKFILL AND BONDING MATERIALS
 - a. USE 2NS FINE AGGREGATE IN ACCORDANCE WITH SECTION 902 OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION.
 - b. USE FLOWABLE FILL IN ACCORDANCE WITH THE MATERIAL REQUIREMENTS SPECIFIED IN THE ATTACHED MICHIGAN MDOT SPECIAL PROVISION FOR NON-STRUCTURAL FLOWABLE FILL.
 - c. USE UTILIBONDTM OR OTHER APPROVED SINGLE COMPONENT CEMENTITIOUS BONDING MATERIAL THAT IS A RAPID HARDENING HIGH STRENGTH WATERPROOF BONDING AGENT FORMULATED SPECIFICALLY FOR PAVEMENT CORE REINSTATEMENT. IT SHALL BE NON-SHRINKABLE AND IMPERVIOUS TO WATER PENETRATION AT THE JOINT AFTER CURING.
 - d. THE BONDING MATERIAL SHALL, WITHIN 30 MINUTES AT MINIMUM AMBIENT TEMPERATURES OF 70 DEGREES F, ALLOW AN 18 INCH DIAMETER CORE TO SUPPORT A TRAFFIC LOAD EQUIVALENT TO AT LEAST TWO (2) TIMES THE AASHTO H-25 STANDARD WHEEL LOAD.

NOTES:

- ① BACKFILL ACCORDING TO SPECIFICATIONS AND TYPICAL TRENCH SECTION.
- ② EXISTING CATCH BASIN DRAIN, SEWER OR OTHER UNDERGROUND UTILITY CROSSING NEW OPEN CUT CONSTRUCTION.
- ③ BACKFILL WITH A DRY MIX OF ONE BAG CEMENT PER ONE BAG OF GRANULAR MATERIAL CLASS II.



NOTES:

1. ALL GRANULAR BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM UNIT WEIGHT.
2. WATERMANS CROSSING UNDER SEWERS - WHEN IT IS IMPOSSIBLE TO OBTAIN THE MINIMUM 18-INCH CLEARANCE. REPLACE THE SEWER PIPE (MINIMUM OF 10 FT. ON BOTH SIDES OF WATERMAIN) WITH WATER WORKS GRADE 150PSI PRESSURE TESTED TO ENSURE WATER TIGHTNESS.
3. "W" - SEE TRENCH DETAILS FOR TRENCH WIDTH.

TYPICAL DETAIL AT CROSSING UNDER EXISTING UTILITIES

				CITY OF DETROIT WATER AND SEWERAGE DEPARTMENT ENGINEERING DIVISION	
				SCALE	1 OF 1
			NONE	SHEET	
			DATE	312333-07	
			09/2018	DWG. No.	
			UTILITY CROSSING		
REV	DESCRIPTION	DATE			
REVISIONS					

PROJECT: DETROIT UNIVERSITY DISTRICT HUT

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MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
NON-STRUCTURAL FLOWABLE FILL

C&T:TES

1 of 1

C&T:APPR:DMG:JAB:08-17-11

a. Description. This work consists of furnishing and placing non-structural flowable fill for abandoning pipes and miscellaneous structures; constructing miscellaneous bulkheads or forms; and backfilling. This specification is not intended to address flowable fill used as structural backfill.

b. Materials. Supply non-structural flowable fill consisting of a mixture of Portland cement, fly ash, sand (2NS) and water. Use materials conforming to the standard specifications except as modified by this special provision. All non-structural flowable fill is intended to be removable using conventional mechanical excavation methods.

Use either Type I or IA Portland cement conforming to section 901 of the Standard Specifications for Construction and Class F or C fly ash as specified by ASTM C 618 except that there is no limit on loss on ignition.

Produce a mix of cement, fly ash, sand and water in the following proportions.

Portland Cement	50 lb/cyd
Fly Ash	500 lb/cyd
Sand	2850 lb/cyd
Water	approx. 376 lb/cyd (sufficient to produce desired flowability)

c. Construction. Produce and deliver the non-structural flowable fill at a minimum temperature of 50 degrees F. Transport mixture to the point of placement in a revolving drum mixer or agitator.

Secure all pipes and conduits within the backfill area to counteract the buoyant effect of non-structural flowable fill. Place the material evenly around manholes and in utility trenches to avoid dislocating pipes and conduits.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Flowable Fill, Non-Structural	Cubic Yard

Flowable Fill, Non-Structural includes all labor, equipment and materials required to supply and place flowable fill for the purpose of abandoning pipes and miscellaneous structures, and includes any necessary miscellaneous bulkheads for forms.

SHEET

N2

CITY OF DETROIT NOTES

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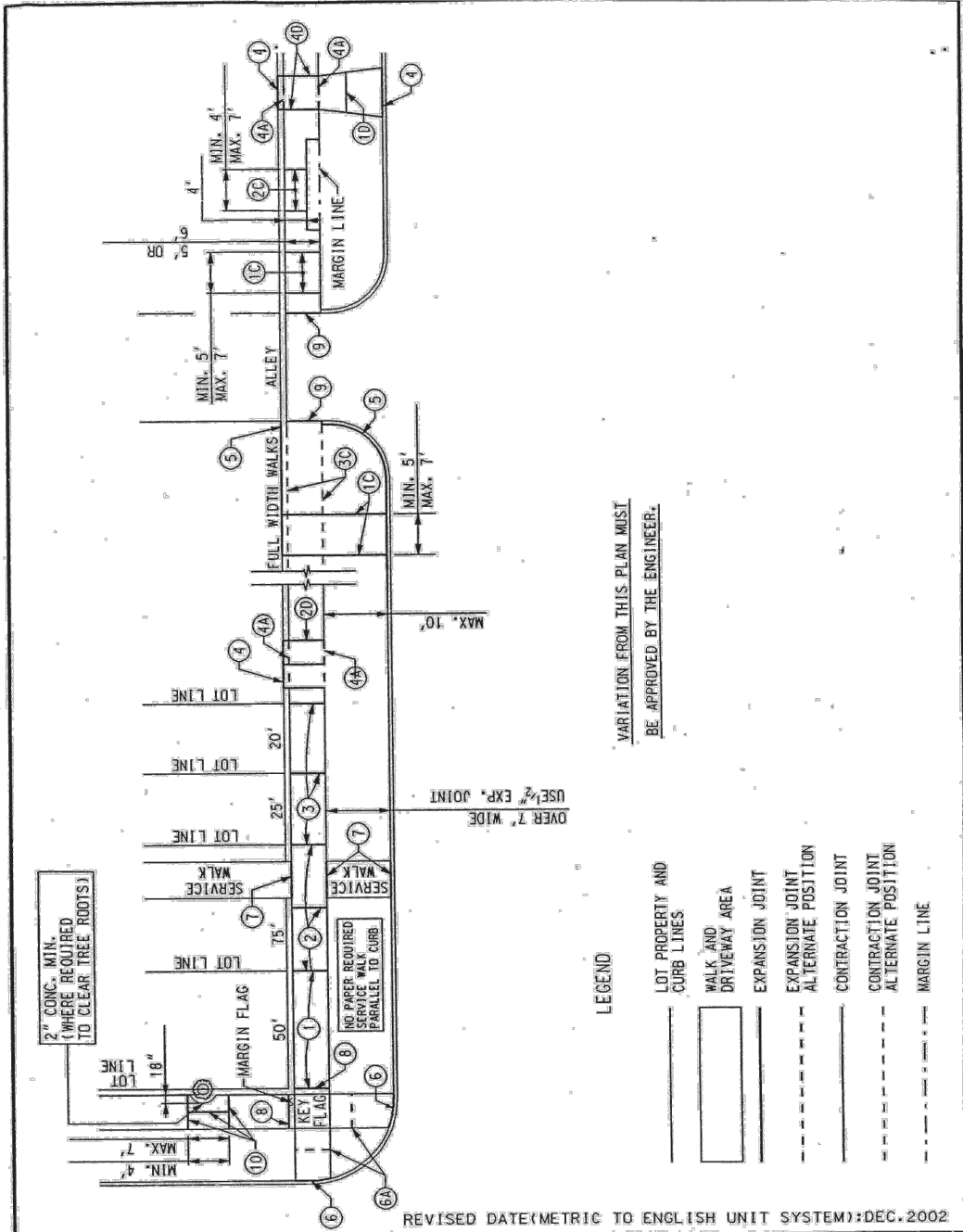
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PREPARED BY
BUREAU OF STREETS
AND HIGHWAYS

APPROVED
rev. K.S.M.
DRAWN BY:
M.F.S.
CHECKED BY:

Dadim Harda
ENGINEER OF STREETS
Way Valley
HEAD ENGINEER
[Signature]
CITY ENGINEER

CITY OF DETROIT
CITY ENGINEERING DIVISION, D.P.W.
STANDARD PLAN FOR
SIDEWALK JOINTING
STANDARD

03/07/98 PLAN DATE	DRAWING NO. 9	DETAIL STANDARD NO. C-4462	SHEET 1 OF 2
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REVISED DATE (METRIC TO ENGLISH UNIT SYSTEM): DEC. 2002

EXPANSION JOINTS

ALL EXPANSION JOINT PAPER SHALL EXTEND 1" BELOW THE BOTTOM OF THE THINNER OF ADJOINING PAVEMENT SECTIONS.

- ① PLACE 1/2" PAPER EXPANSION JOINTS AT LOT LINES WHEN LOT LINES ARE BETWEEN 25' AND 50' APART.
- ② PLACE ADDITIONAL 1/2" PAPER EXPANSION JOINTS SO THAT THE DISTANCE BETWEEN JOINTS DOES NOT EXCEED 15.2 m WHEN LOT LINES ARE OVER 15.240 m APART.
- ③ PLACE 1/2" PAPER EXPANSION JOINTS AT EVERY SECOND LOT LINE AND CONTRACTION JOINT AT INTERVENING LOT LINE WHEN LOT LINES ARE LESS THAN 25' APART.
- ④ PLACE 1" PAPER EXPANSION JOINTS AT CURB AND BUILDING OR PROPERTY LINE OR AT ALTERNATE POSITION ④A AS SHOWN FOR DRIVEWAY.
- ⑤ PLACE 1" PAPER EXPANSION JOINTS AT CURB AND BUILDING OR PROPERTY LINE FOR FULL WIDTH SIDEWALK EXCEEDING 7' IN WIDTH.
- ⑥ PLACE 1" PAPER EXPANSION JOINTS AT CURB CIRCLES OR AT ALTERNATE POSITION ⑥A AS SHOWN.
- ⑦ PLACE 1" PAPER EXPANSION JOINTS AT INTERSECTIONS OF SERVICE WALKS AND SIDEWALKS AND SERVICE WALKS AND CURBS.
- ⑧ PLACE 1" PAPER EXPANSION JOINTS AT MARGIN FLAGS AT CROSSWALKS.
- ⑨ PLACE 1" PAPER EXPANSION JOINTS AT ALLEY APRONS.
- ⑩ PLACE 1/2" PAPER EXPANSION JOINT BOTH SIDES OF SIDEWALK FLAG ABUTTING TREE AND ON CENTERLINE JOINT.

CONTRACTION JOINTS

- ⑩C PLACE CONTRACTION JOINTS AT INTERVALS OF NOT LESS THAN 5' NOR MORE THAN 7' ON WALKS 5' WIDE OR WIDER, INCLUDING FULL WIDTH WALKS.
- ⑩D PLACE CONTRACTION JOINTS AT INTERVALS OF NOT LESS THAN 4' NOR MORE THAN 7' ON WALKS 4' WIDE.
- ⑩E PLACE CONTRACTION JOINTS AT THE MARGIN LINE ON FULL WIDTH WALKS (OPTIONAL).

DRIVEWAYS

- ⑩D PLACE CONTRACTION JOINTS IN DRIVEWAYS SO THAT NO SLAB WILL EXCEED THE DIMENSIONS OF 15' BY 15'.
- ⑩D PLACE 1" PAPER EXPANSION JOINTS ON ALL SIDES OF COMMERCIAL DRIVES.
- ⑩D PLACE CONTRACTION OR CONTRACTION JOINT ON CENTERLINE WHEN WIDTH OF DRIVEWAY EXCEEDS 15'
- ⑩D PLACE 1/2" PAPER EXPANSION JOINTS ON BOTH SIDES OF RESIDENTIAL DRIVEWAYS. IF DRIVEWAY EDGE IS WITHIN 2' OF LOT LINE, PLACE THIS EXPANSION PAPER AT PROPERTY LINE.

CITY OF DETROIT
CITY ENGINEERING DIVISION, D.P.W.
STANDARD PLAN FOR
SIDEWALK JOINTING
STANDARD

03/07/98 PLAN DATE	DRAWING NO. 9	DETAIL STANDARD NO. C-4462	SHEET 2 OF 2
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REVISED DATE (METRIC TO ENGLISH UNIT SYSTEM): DEC. 2002

SHEET

N3

CITY OF DETROIT NOTES

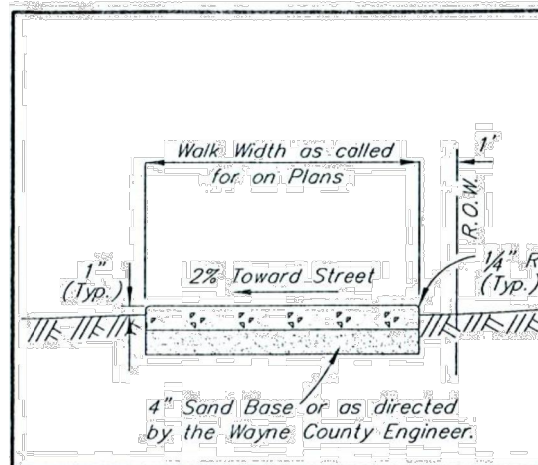
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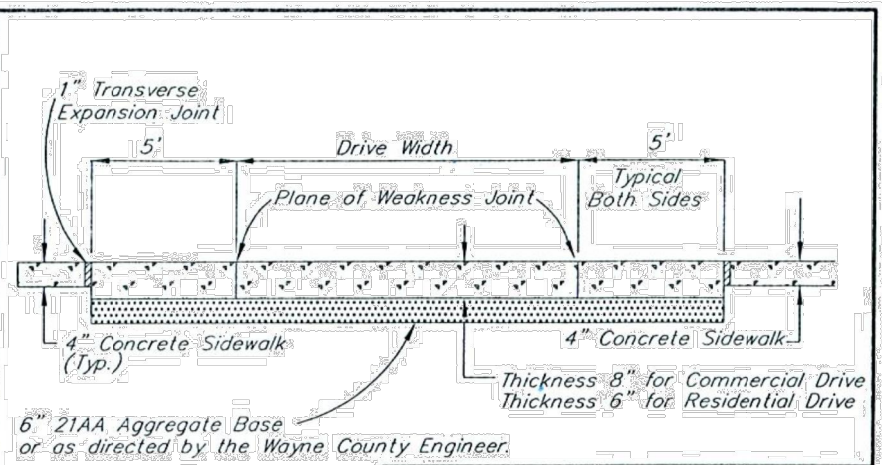
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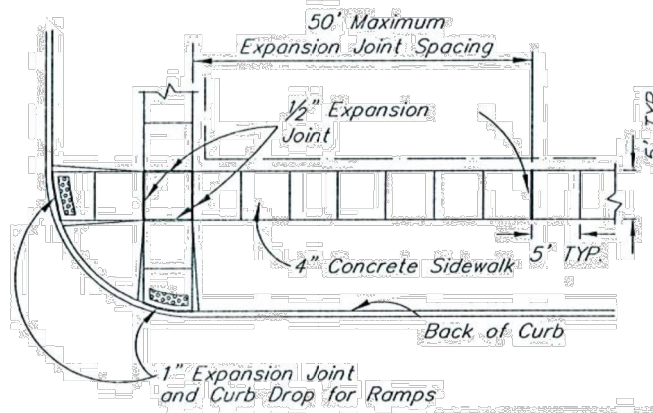


4 INCH CONCRETE SIDEWALK

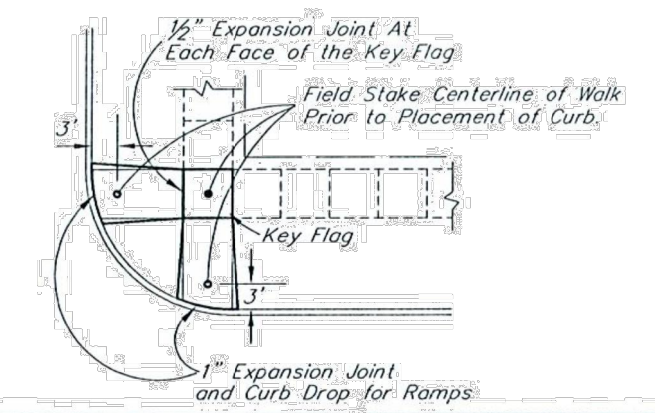


THICKENED CONCRETE SIDEWALK

The Approach Walks shall be constructed within the same Project after the road is paved.

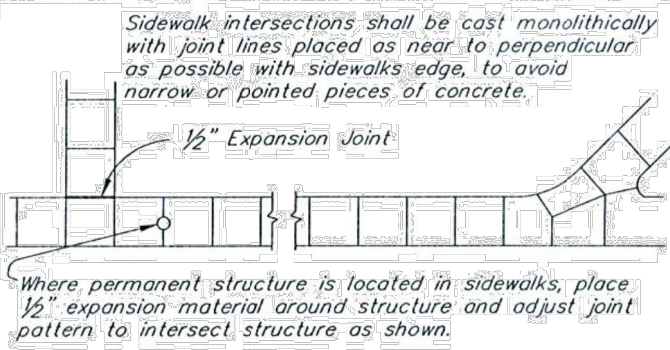


FRONTAGE SIDEWALKS-EXISTING R.O.W.



APPROACH SIDEWALKS-NEW SUBDIVISIONS

Notes:
 Sidewalk transverse slope may vary from 0% to 4% to meet site conditions. When transverse slope is less than 2%, longitudinal drainage must be provided.
 Sidewalk Ramps shall conform to the current ADA requirements. See MDOT R-28 series or as approved by the Wayne County Engineer.



Where permanent structure is located in sidewalks, place 1/2" expansion material around structure and adjust joint pattern to intersect structure as shown.

TYPICAL SIDEWALK JOINT LAYOUTS

Work this Sheet with the General Notes on RS-1

REVISION DATE: 08/01/07

DIRECTOR OF ENGINEERING

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES
 ENGINEERING DIVISION/PERMIT OFFICE
 PERMIT STANDARDS

SCALE
 NOT TO SCALE
 RS-5
 SHEET

SHEET

N4

CITY OF DETROIT NOTES

PROJECT: DETROIT UNIVERSITY DISTRICT HUT
 LOCATION: DETROIT MI

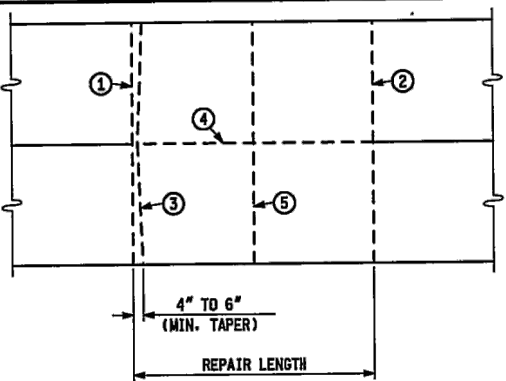
SCALE: NTS

OID: S11-62309DE0 DATE: 5/19/22

DESIGNER: J.A.P. REV: ---



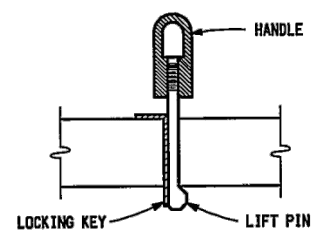
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 866-603-4774
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PLAN OF SAWING DIAGRAM

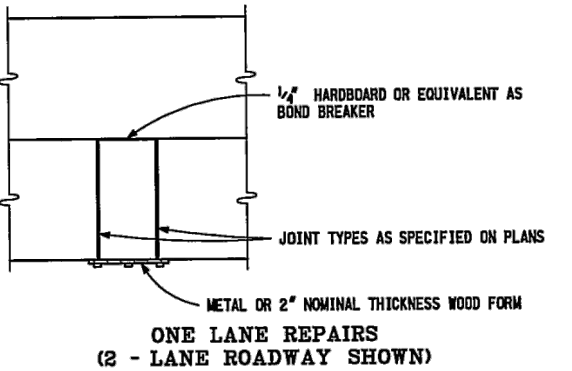
THIS METHOD OF REMOVING DISTRESSED CONCRETE SHALL BE USED IN CONJUNCTION WITH FULL DEPTH CAST-IN-PLACE REPAIRS LESS THAN 50'-0" LONG AND IS OPTIONAL FOR REPAIRS OVER 50'-0" IN LENGTH.

- ① & ② THESE SAW CUTS SHALL BE FULL DEPTH AND PERPENDICULAR TO THE EDGE OF THE ROADWAY, WITHIN A TOLERANCE OF 1". NO OVERCUTTING INTO ADJACENT LANES SHALL BE MADE UNLESS THE OVERCUT IS WITHIN THE LIMITS OF A SUBSEQUENT REPAIR TO THE ADJACENT LANE. SHOULDER OVERCUTS WILL BE ALLOWED.
 - ③ THIS FULL DEPTH SAW CUT IS MADE TO FACILITATE OPENING A TRENCH ACROSS THE SLAB TO RELIEVE COMPRESSION IN THE PAVEMENT PRIOR TO LIFTING OUT THE FAILED AREA. THIS SAW CUT MAY BE OMITTED PROVIDED NO SPALLING OF THE REMAINING CONCRETE OCCURS. IF SPALLING DOES OCCUR, THE CONTRACTOR WILL BE REQUIRED TO MAKE THIS SAW CUT ON SUBSEQUENT REPAIRS. WHEN THIS SAW CUT IS USED AND THE ADJACENT LANE IS NOT REPAIRED, NO OVERCUTTING INTO THAT LANE SHALL BE MADE.
 - ④ THIS LONGITUDINAL FULL DEPTH SAW CUT IS MADE BETWEEN LANES OR BETWEEN ANY COMBINATION OF THE FOLLOWING: LANE, RAMP, CURB, CONCRETE SHOULDER, OR PARTIAL LANE WIDTH REPAIR.
 - ⑤ IF REQUIRED, INTERMEDIATE SAW CUTS MAY BE MADE TO REMOVE A SECTION OF PAVEMENT LANE WHICH IS OVER 6'-0" IN LENGTH, TO PERMIT LOADING INTO THE HAULING UNITS.
- ADDITIONAL SAW CUTS, AT CONTRACTOR'S EXPENSE, MAY BE MADE INSIDE THE REPAIR LIMITS TO REDUCE 6'-0" BY 12'-0" OR LESS SLABS INTO SMALLER PIECES TO FACILITATE REMOVAL.

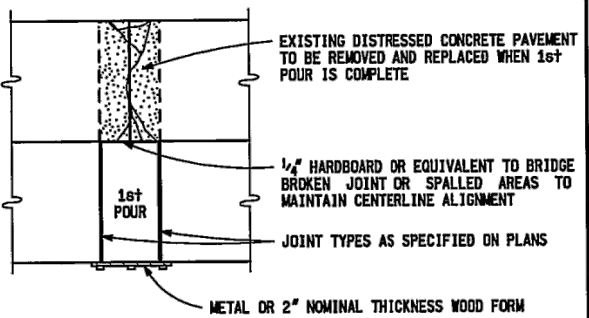


SCHEMATIC OF TYPICAL LIFT PIN ASSEMBLY

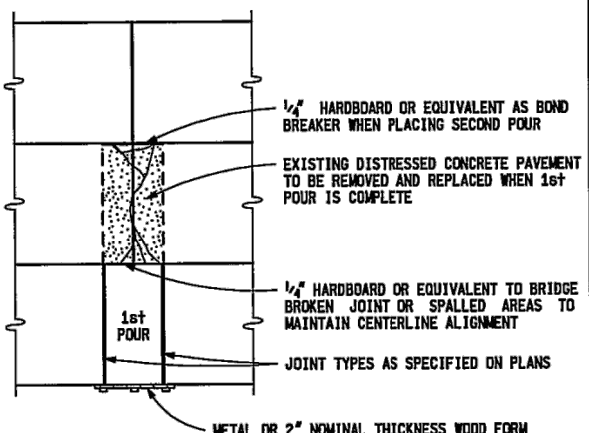
SAWING DIAGRAM & LIFT PIN FOR REMOVING OLD SLAB



ONE LANE REPAIRS (2 - LANE ROADWAY SHOWN)



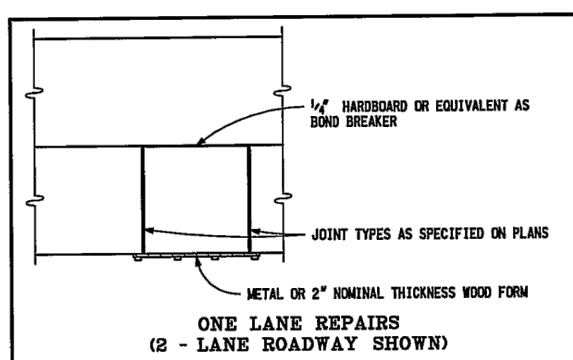
ALL LANES REPAIRED (2 - LANE ROADWAY SHOWN)



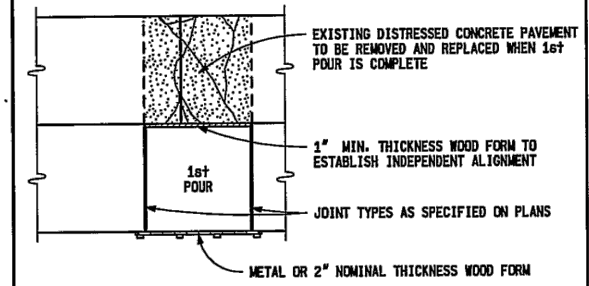
MORE THAN ONE LANE REPAIRED BUT REPAIR LESS THAN FULL WIDTH (3 - LANE ROADWAY SHOWN)

FORMING NOTES:
 STAKES USED TO HOLD HMA FILLER OR HARDBOARD IN PLACE DURING CONCRETE PLACEMENT SHALL BE REMOVED BEFORE SCREEDING THE CONCRETE.
 ADJACENT LANE REPAIRS MAY BE CAST INTEGRALLY, WHEN APPROVED BY THE ENGINEER.

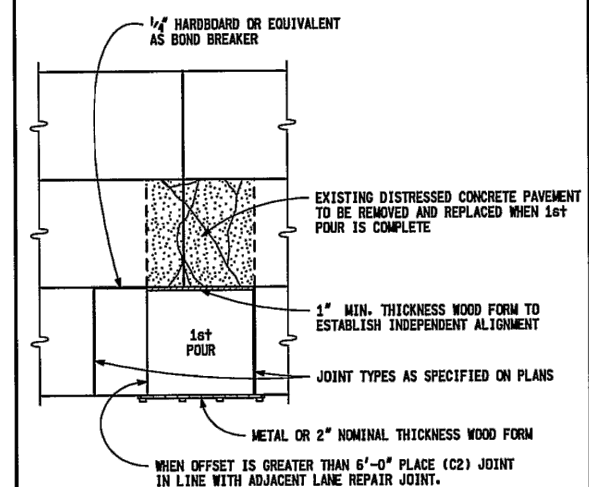
FORMING REQUIREMENTS FOR CAST-IN-PLACE REPAIRS 12'-0" OR LESS



ONE LANE REPAIRS (2 - LANE ROADWAY SHOWN)



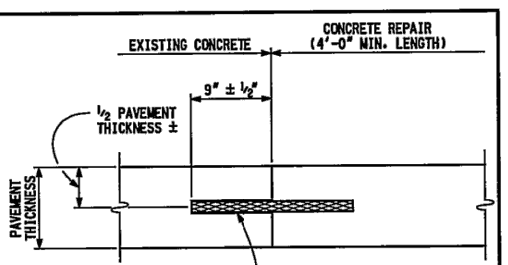
ALL LANES REPAIRED (2 - LANE ROADWAY SHOWN)



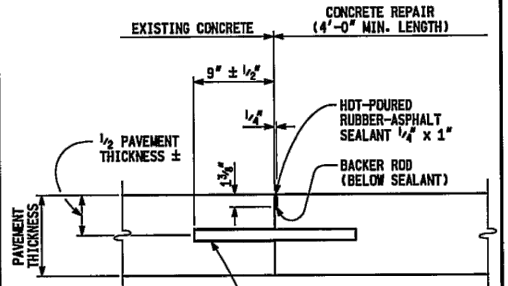
MORE THAN ONE LANE REPAIRED BUT REPAIRS ARE OFFSET (3 - LANE ROADWAY SHOWN)

FORMING NOTES:
 WHERE REPAIRS LONGER THAN 12'-0" ARE REQUIRED, A NEW GRADE MUST BE ESTABLISHED ALONG THE OLD PAVEMENT INNER JOINT LINE INDEPENDENT OF THE OLD PAVEMENT SURFACE, SO THAT SCREEDING MAY BE DONE PERPENDICULAR TO THE CENTERLINE AND INDEPENDENT OF THE OLD PAVEMENT GRADE.
 STAKES USED TO HOLD HMA FILLER OR HARDBOARD IN PLACE DURING CONCRETE PLACEMENT SHALL BE REMOVED BEFORE SCREEDING THE CONCRETE.
 ADJACENT LANE REPAIRS MAY BE CAST INTEGRALLY, WHEN APPROVED BY THE ENGINEER.

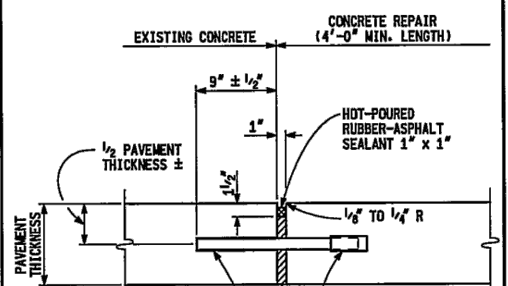
FORMING REQUIREMENTS FOR CAST-IN-PLACE REPAIRS GREATER THAN 12'-0"



TIED JOINT, Trg



CONTRACTION JOINT, Crg



EXPANSION JOINT, Erg

CAST-IN-PLACE REPAIR JOINTS USING GROUTED DOWEL OR DEFORMED BARS

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

CONCRETE PAVEMENT REPAIR

9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 2 OF 6
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<p>PREPARED BY DESIGN DIVISION DRAWN BY: B.L.T. CHECKED BY: W.K.P.</p>	DEPARTMENT DIRECTOR Kirk T. Staudle APPROVED BY: ENGINEER OF DELIVERY	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR CONCRETE PAVEMENT REPAIR		
	APPROVED BY: ENGINEER OF DEVELOPMENT	9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F

FROM CITY OF DETROIT
 RESTORATION STANDARD NOTES

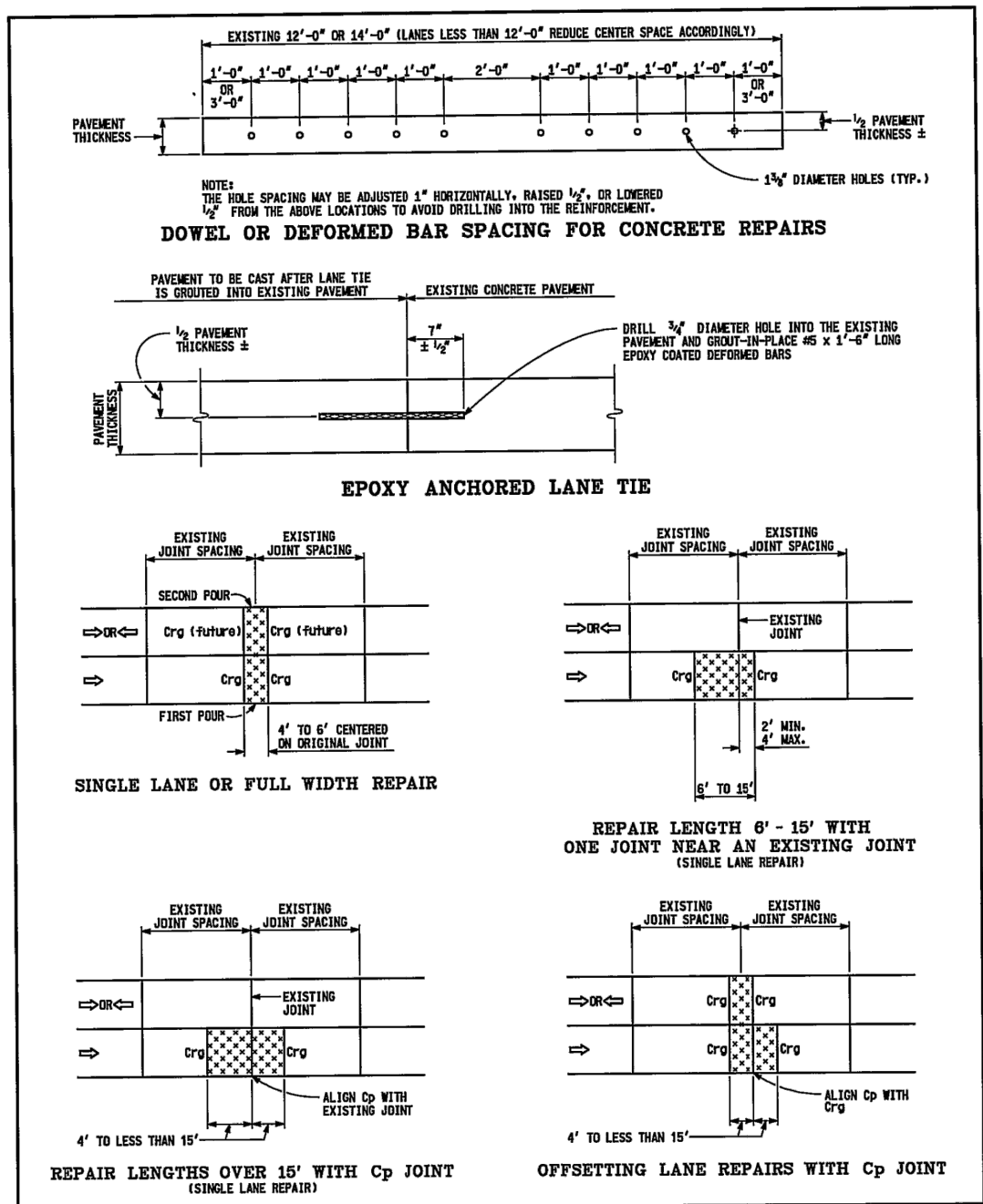
PROJECT: DETROIT UNIV. DISTRICT HUT
 LOCATION: DETROIT, MI

SCALE: NTS
 DATE: 5/19/22
 DESIGNER: J.A.P. REV: ---

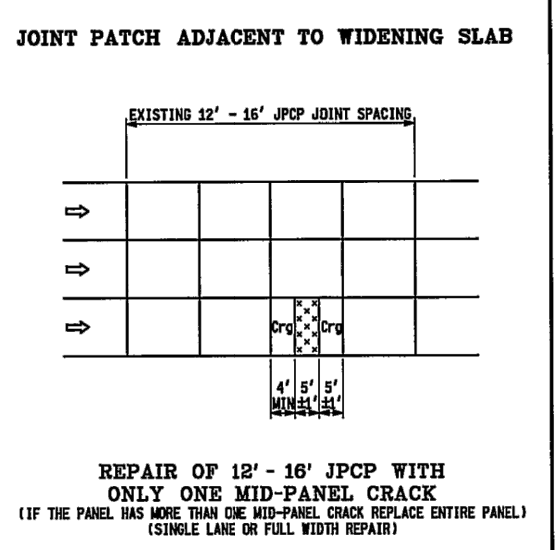
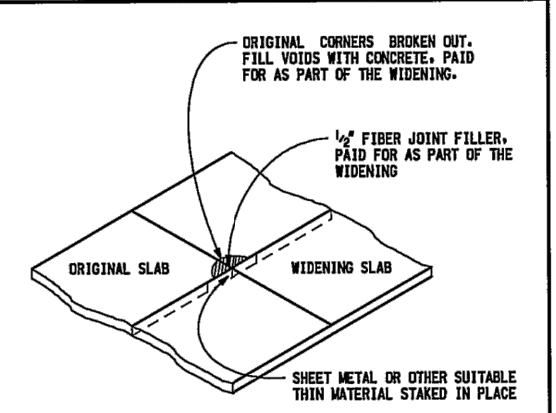
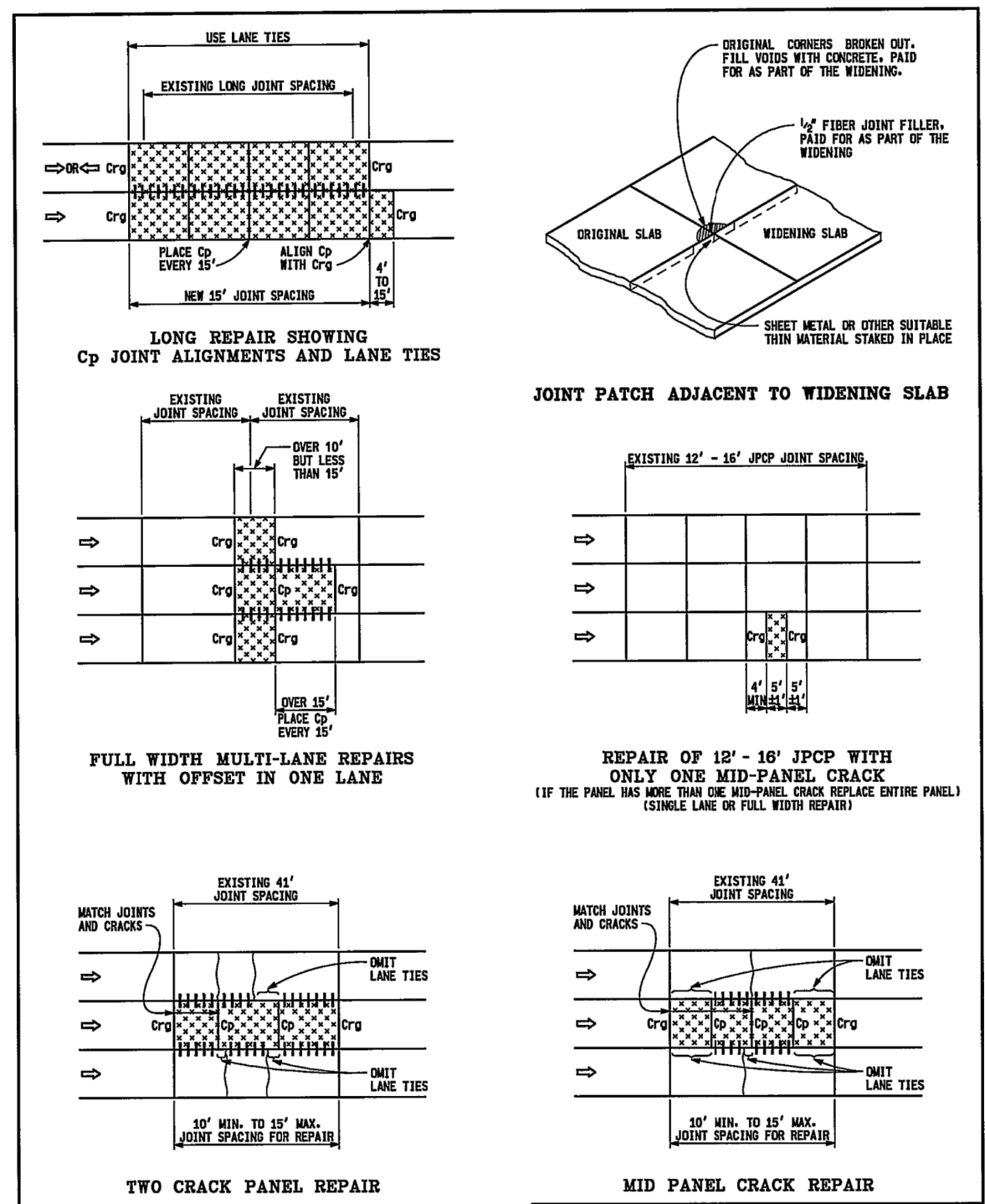
OID: S11-62309DE0

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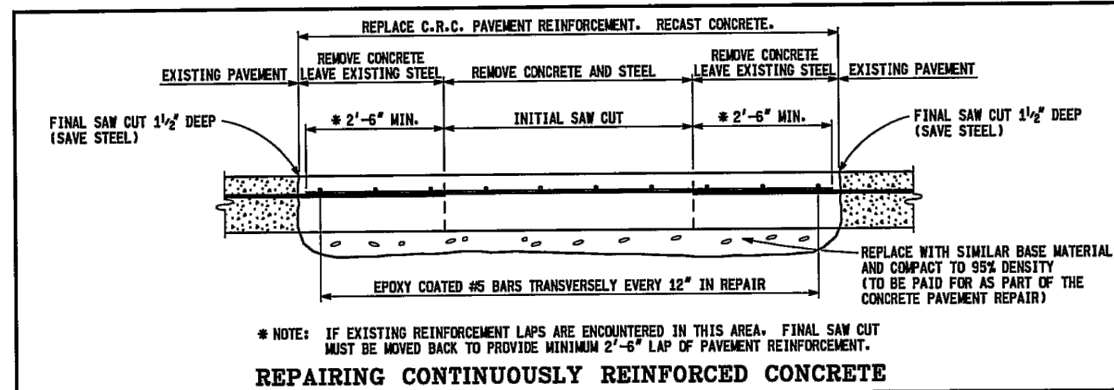
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MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR			
CONCRETE PAVEMENT REPAIR			
9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 3 OF 6

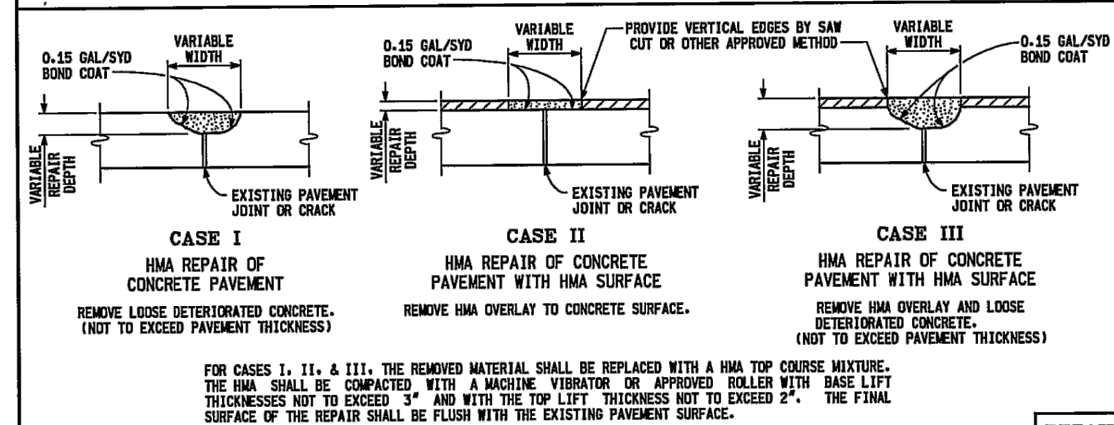


MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR			
CONCRETE PAVEMENT REPAIR			
9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 4 OF 6



* NOTE: IF EXISTING REINFORCEMENT LAPS ARE ENCOUNTERED IN THIS AREA, FINAL SAW CUT MUST BE MOVED BACK TO PROVIDE MINIMUM 2'-6" LAP OF PAVEMENT REINFORCEMENT.

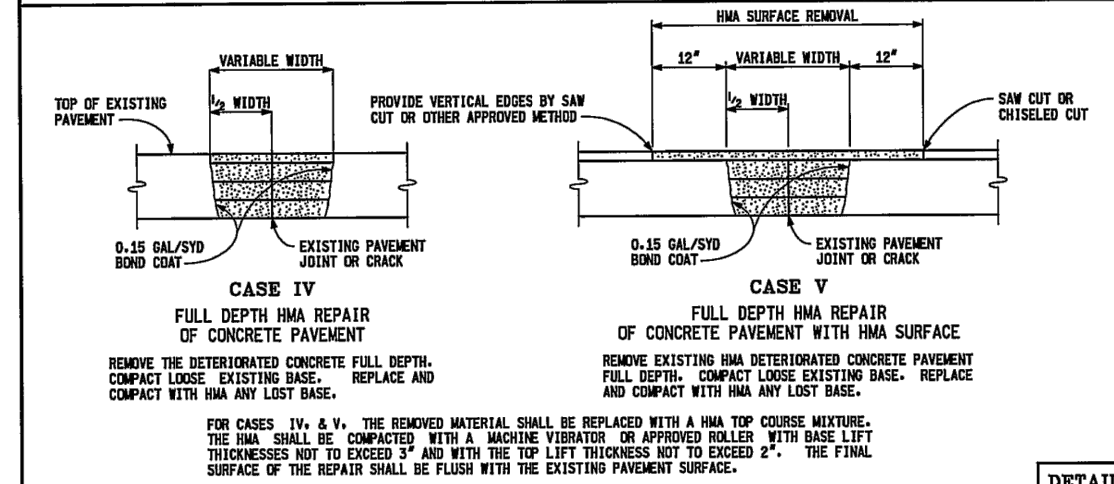
REPAIRING CONTINUOUSLY REINFORCED CONCRETE



FOR CASES I, II, & III, THE REMOVED MATERIAL SHALL BE REPLACED WITH A HMA TOP COURSE MIXTURE. THE HMA SHALL BE COMPACTED WITH A MACHINE VIBRATOR OR APPROVED ROLLER WITH BASE LIFT THICKNESSES NOT TO EXCEED 3" AND WITH THE TOP LIFT THICKNESS NOT TO EXCEED 2". THE FINAL SURFACE OF THE REPAIR SHALL BE FLUSH WITH THE EXISTING PAVEMENT SURFACE.

SURFACE REPAIR FOR JOINT OR CRACK (TRANSVERSE OR LONGITUDINAL)

DETAIL 7

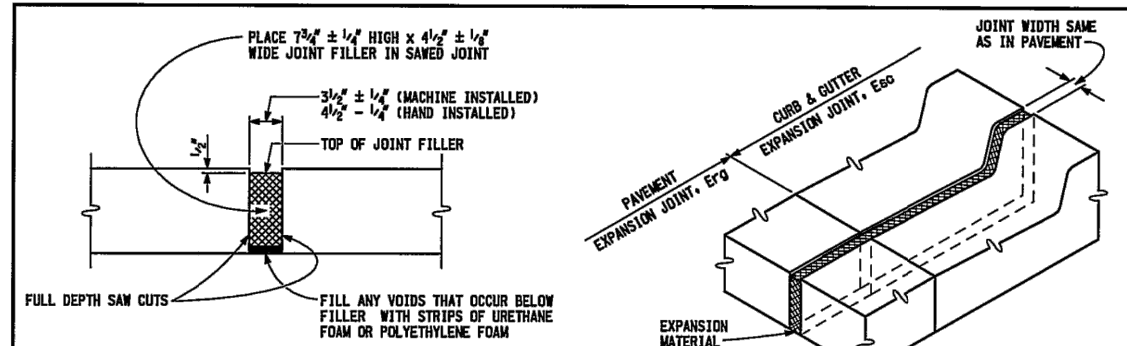


FOR CASES IV, & V, THE REMOVED MATERIAL SHALL BE REPLACED WITH A HMA TOP COURSE MIXTURE. THE HMA SHALL BE COMPACTED WITH A MACHINE VIBRATOR OR APPROVED ROLLER WITH BASE LIFT THICKNESSES NOT TO EXCEED 3" AND WITH THE TOP LIFT THICKNESS NOT TO EXCEED 2". THE FINAL SURFACE OF THE REPAIR SHALL BE FLUSH WITH THE EXISTING PAVEMENT SURFACE.

FULL DEPTH REPAIR FOR JOINT OR CRACK (TRANSVERSE OR LONGITUDINAL)

DETAIL 8

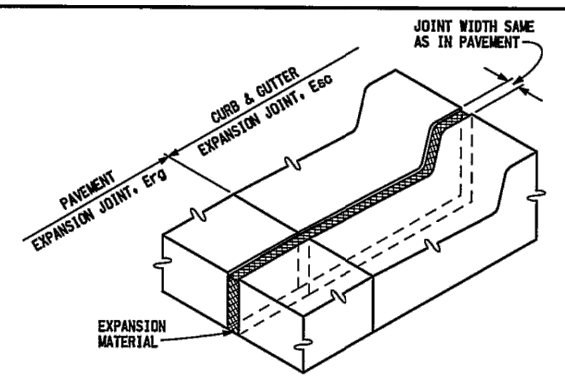
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR			
CONCRETE PAVEMENT REPAIR			
9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 5 OF 6



NOTES:
WHEN PRESSURE RELIEF JOINT IS TO BE CONSTRUCTED THROUGH CONCRETE SHOULDER, TRENCHING BELOW CONCRETE MAY BE NECESSARY TO ALLOW ROOM FOR 7 1/4" FILLER.

PRESSURE RELIEF JOINT

THIS DETAIL ALSO APPLIES TO HMA SURFACED CONCRETE PAVEMENT REQUIRING PRESSURE RELIEF JOINTS



CURB, GUTTER, AND CURB FACE SHALL BE SAWS AS DEEP AS THE EXISTING PAVEMENT THICKNESS. THE REMAINING CONCRETE SHALL BE CHIPPED OUT AND EXPANSION MATERIAL OF SUFFICIENT THICKNESS SHALL BE PLACED IN SAWS JOINT TO FILL THE GAP AS DIRECTED BY THE ENGINEER.

EXPANSION JOINT, Esc

NOTES:

CONCRETE PAVEMENT REPAIRS (INCLUDING JOINT TYPES) OR PRESSURE RELIEF DETAILS SHALL BE AS SPECIFIED ON THE PLANS OR IN THE LOG OF PROJECT.

IF THE EXISTING PAVEMENT HAS A HMA SURFACE, THE SAW CUTS SHALL EXTEND THROUGH THE UNDERLYING PORTLAND CEMENT CONCRETE.

SAW OVERCUTS IN ADJACENT LANE, SHOULDER, RAMP, AND GUTTERS THAT WILL REMAIN IN PLACE, SHALL BE CLEANED AND THEN SEALED WITH HOT-POURED RUBBER-ASPHALT.

WHEN THE CONCRETE PAVEMENT REPAIR IS CONSTRUCTED IN PREPARATION FOR AN OVERLAY, Crg JOINT RESERVOIRS AND SEALANTS SHALL BE OMITTED AND EXPANSION JOINTS (Erg) SHALL HAVE THE FIBER JOINT FILLER KEPT FLUSH TO THE PAVEMENT SURFACE.

EXPANSION CAPS SHALL BE ACCORDING TO STANDARD PLAN R-40-SERIES.

TRANSVERSE CONTRACTION Cp AND EXPANSION E2 JOINTS SHALL BE ACCORDING TO STANDARD PLAN R-39P-SERIES.

DOWEL AND DEFORMED BARS USED IN Trg, Crg, AND Erg JOINTS SHALL BE EPOXY COATED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS.

DOWEL BARS AND DEFORMED BARS FOR TIED JOINTS SHALL BE GROUTED INTO EXISTING PAVEMENT WITH A GROUT SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SOURCE GUIDE" UNDER ADHESIVE SYSTEMS FOR GROUTING DOWEL BARS AND TIE BARS FOR FULL-DEPTH CONCRETE PAVEMENT REPAIRS.

THE BACKER ROD SHALL MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THE SAME TYPE JOINT SHALL EXTEND ACROSS ADJACENT LANE REPAIRS.

AFTER GROUTING IN-PLACE, RC-250 OR AN APPROVED BOND BREAKER SHALL BE APPLIED TO THAT PORTION OF Crg AND Erg DOWEL BARS THAT EXTEND INTO THE CAST CONCRETE.

REPAIRED CONCRETE PAVEMENTS REQUIRE THAT 1" OF Erg EXPANSION JOINTS BE DISTRIBUTED THROUGHOUT A GIVEN 1000' SECTION.

WHERE THERE ARE NO REPAIR LOCATIONS WITHIN A 1000' LENGTH, NO EXPANSION SPACE WILL BE PROVIDED.

EXPANSION JOINT FILLER SHALL EXTEND THE FULL DEPTH OF THE REPAIR AND BE FLUSH WITH THE EXISTING PAVEMENT SURFACE. PRIOR TO SEALING, THE JOINT FIBER FILLER AT THE PAVEMENT SURFACE SHALL BE REMOVED BY CUTTING 1" WIDE AND 1 1/2" DEEP TO PERMIT THE PLACEMENT OF THE HOT-POURED RUBBER ASPHALT SEALANT. HOLES IN EXPANSION JOINT FILLER SHALL BE 1 1/2" MAXIMUM DIAMETER AND SHALL BE ALIGNED TO FIT DRILLED HOLES IN CONCRETE.

Erg JOINTS SHALL BE CONSTRUCTED ONLY WHEN THEY EXTEND ACROSS ALL LANES, RAMPS, OR SHOULDERS.

WHEN Erg JOINTS ARE PLACED ADJACENT TO CONCRETE CURB AND GUTTER THAT IS NOT REQUIRED TO BE REMOVED, AN Esc JOINT SHALL BE CONSTRUCTED IN THE CURB AND GUTTER.

JOINT RESERVOIRS FOR THE HOT-POURED RUBBER-ASPHALT SEALANT SHALL BE ABRASIVE BLAST CLEANED, FOLLOWED BY A FINAL CLEANING OF OIL-FREE COMPRESSED AIR PRIOR TO SEALING.

LANE TIES (TO ADJACENT PAVEMENT LANE, WHEN REQUIRED) SHALL BE SPACED ACCORDING TO STANDARD PLAN R-41-SERIES, EXCEPT THAT THE FIRST LANE TIE ADJACENT TO A TRANSVERSE JOINT SHALL BE INSTALLED AT A DISTANCE OF 1'-8" FROM THE JOINT. WHEN BOTH SIDES OF A LONGITUDINAL JOINT ARE POURED INTEGRALLY, LANE TIES SHALL BE STRAIGHT DEFORMED EPOXY COATED BARS CAST-IN-PLACE AS SPECIFIED ON STANDARD PLAN R-41-SERIES. WHEN ADJACENT LANES ARE CAST SEPARATELY, LANE TIES SHALL BE GROUTED-IN-PLACE AS SPECIFIED ON THIS PLAN. THE GROUT SHALL BE SELECTED FROM THE PREQUALIFIED MATERIALS LISTED IN THE DEPARTMENT'S "MATERIALS SOURCE GUIDE", UNDER LANE TIES.

THE MONTH AND YEAR OF CASTING AND STATION NUMBER (IF REMOVED) SHALL BE STENCILED ON EACH CONCRETE REPAIR.

ALL REPAIRS WILL BE JOINTED PLAIN CONCRETE PAVEMENT.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR			
CONCRETE PAVEMENT REPAIR			
9-10-2010 F.H.W.A. APPROVAL	8-9-2010 PLAN DATE	R-44-F	SHEET 6 OF 6

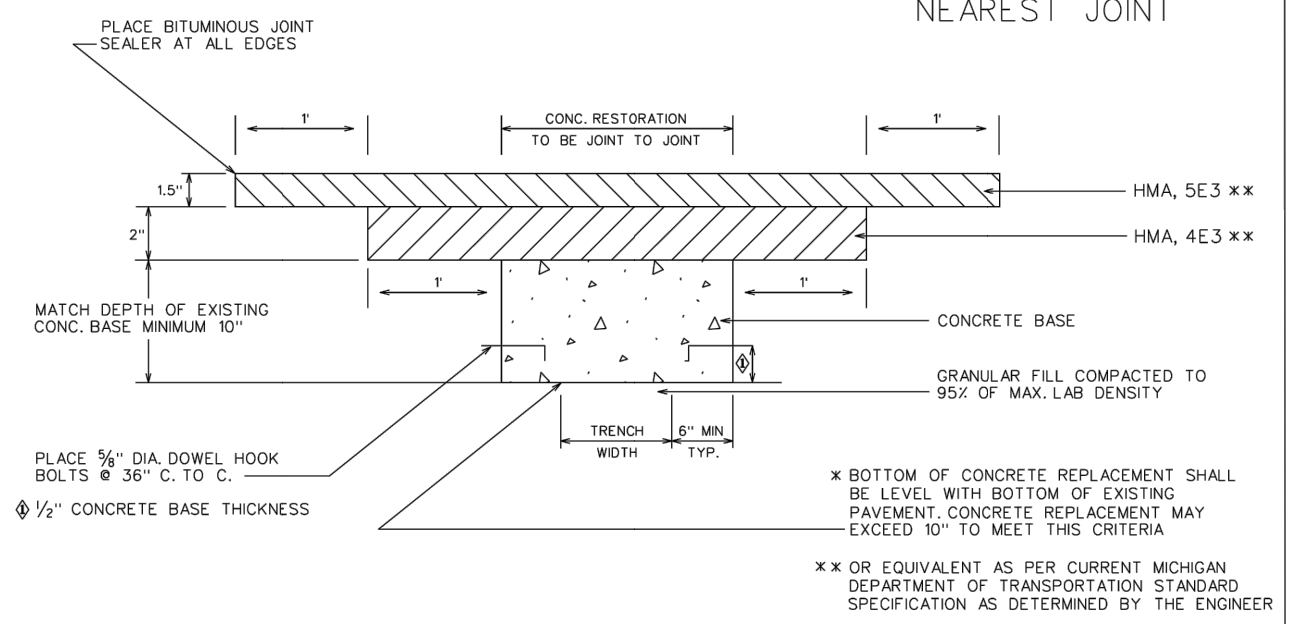
PROJECT: DETROIT UNIV. DISTRICT HUT
LOCATION: DETROIT, MI
SCALE: NTS
DATE: 5/19/22

OID: S11-62309DE0

DESIGNER: J.A.P. REV: ---

MAJOR STREETS:

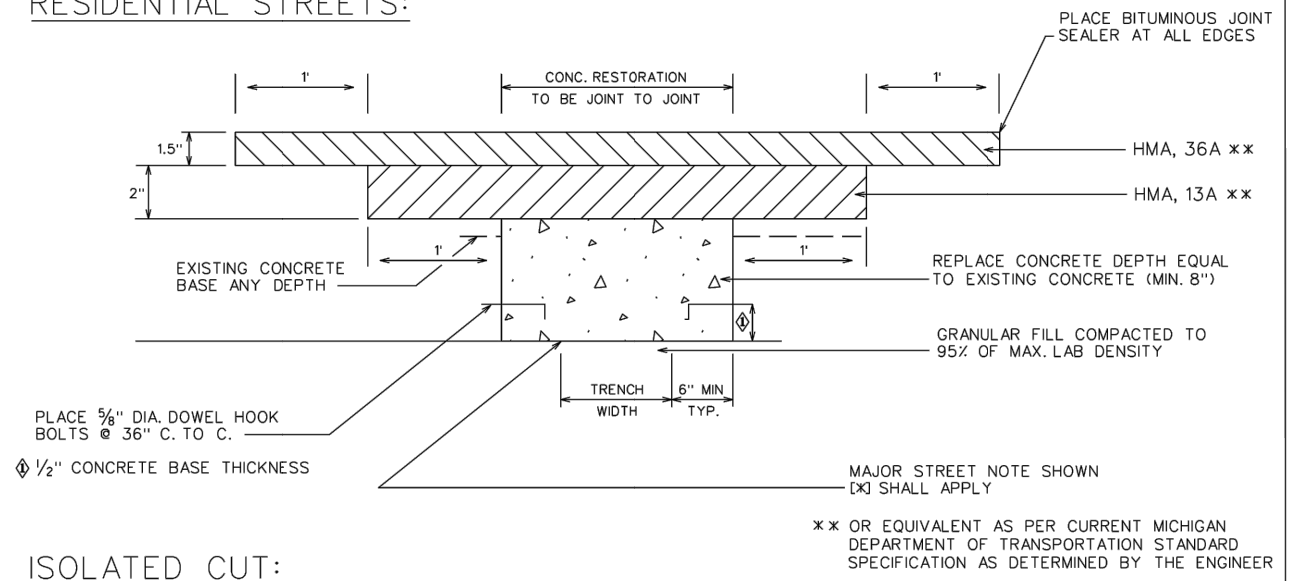
NOTE: PAVEMENT CUTS
MUST EXTEND TO
NEAREST JOINT



EXCEPTION:

TO ABOVE 3" HMA REPLACEMENT. WHEN PAVEMENT REPLACEMENT IS 100 FEET FROM EITHER SIDE OF UNDERPASS REPLACE 10" MIN CONCRETE BASE WITH TOP OF CONCRETE LEVEL WITH TOP OF EXISTING CONCRETE AND REPLACE HMA SECTION AS EXISTING

RESIDENTIAL STREETS:



ISOLATED CUT:

TRIM JOINT TO OBTAIN VERTICAL CUT

CITY OF DETROIT NOTES

1. MILL (REMOVE) HMA PAVEMENT WITHIN AND BEYOND THE AREA OF TRENCH PAVEMENT REMOVAL IN ORDER TO DETERMINE LOCATION OF UNDERLYING CONCRETE BASE PAVEMENT JOINTS. MILL MINIMUM TO 1' BEYOND NEAREST CONCRETE JOINTS.
2. EXTEND UTILITY TRENCH CONCRETE PAVEMENT REMOVAL TO ALL CONCRETE PAVEMENT JOINTS AND / OR CURBS ADJACENT TO THE TRENCH AREA. REMOVAL SHALL BE "JOINT TO JOINT".
3. CONCRETE PAVEMENT CUTS SHALL BE MINIMUM 3' WIDE.
4. ALL PAVEMENT CUTS SHALL BE MINIMUM 1' WIDER THAN TRENCH WIDTH.
5. ALL REMOVALS SHALL BE SAWCUT STRAIGHT AND SQUARE (90 DEGREES).
6. CONCRETE RESTORATION PAVEMENT SHALL BE MDOT P1 MIX (3,500 PSI).
7. RESTORED CONCRETE PAVEMENT SHALL MATCH THICKNESS OF EXISTING CONCRETE PAVEMENT IN CONFORMANCE WITH MDOT STANDARDS DETAIL R-44-F.
8. RESTORED CONCRETE SHALL BE ANCHORED TO EXISTING CONCRETE PAVEMENT IN CONFORMANCE WITH MDOT STANDARD DETAIL R-44-F
9. APPLY HMA TACK COAT PER MDOT STANDARD SPECIFICATIONS SECTION 904.
10. RESTORE HMA PAVEMENT 3/2" TO MATCH EXISTING, IN 2 LIFTS:
1ST LIFT - 2" MDOT HMA 4E3 (13A RESIDENTIAL), COMPACTED, EXTENDED 1' BEYOND BASE CONCRETE REPAIR.
2ND LIFT - 1/2" MDOT HMA 5E3 (36A RESIDENTIAL), COMPACTED, EXTENDED 1' BEYOND 1ST LIFT..
11. BITUMINOUS JOINT SEALER SHALL BE PLACED AT ALL FINISHED HMA JOINTS.
12. ALL DISTURBED PAVEMENT MARKINGS AND OTHER ASSETS, INCLUDING BIKE LANE DELINEATORS, WILL HAVE TO BE REPLACED AT THE COST OF THE PERMIT HOLDER, AND SHALL CONFORM TO THE LATEST CED / TED STANDARDS.
13. FOR OTHER RELATED SPECIFICATIONS (BACKFILL COMPACTION, MATERIALS, ETC...), REFER TO DIVISION 15 OF THE STANDARD SPECIFICATIONS FOR PAVING AND RELATED CONSTRUCTION.
14. NOTIFY THE CITY OF DETROIT ENGINEERING DEPARTMENT 24 HOURS PRIOR TO STARTING CONSTRUCTION.
15. ANY OPEN EXCAVATIONS ARE TO BE STEEL PLATED. IF EXCAVATIONS ARE IN THE PAVEMENT, THE PLATES ARE TO BE SPIKED AND RAMPED WITH COLD PATCH. CONTACT THE CITY WITH LOCATION OF THE STEEL PLATE.
16. THE CITY OF DETROIT REQUIRES ALL CONCRETE WORK TO BE STAMPED WITH A CONTRACTORS IDENTIFICATION STAMP.

B					
A					
DESCRIPTION	DRWN	CHKD	APPD	DATE	
REVISIONS					
DRAWN BY	WLW	CHECKED	KSM		
DATE	08/29/18	APPROVED	SRB		

**HMA SURFACE ON
CONCRETE BASE
UTILITY TRENCH
CONSTRUCTION
PAVEMENT RESTORATION**

**CITY OF DETROIT
CITY ENGINEERING DIVISION
SURVEY BUREAU**
JOB NO.
DRWG. NO. 1 OF 2

B					
A					
DESCRIPTION	DRWN	CHKD	APPD	DATE	
REVISIONS					
DRAWN BY	WLW	CHECKED	KSM		
DATE	08/29/18	APPROVED	SRB		

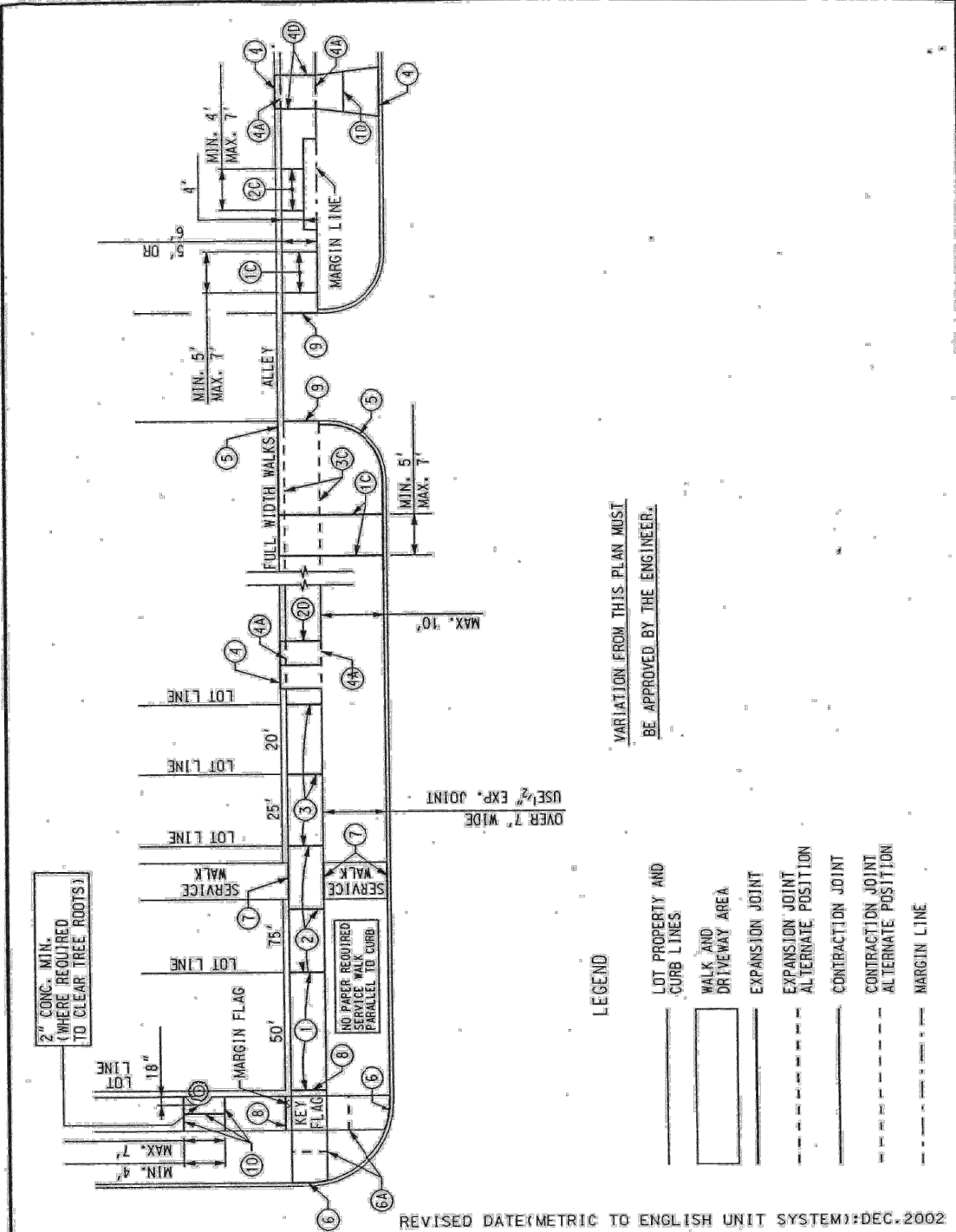
**HMA SURFACE ON
CONCRETE BASE
UTILITY TRENCH
CONSTRUCTION
PAVEMENT RESTORATION**

**CITY OF DETROIT
CITY ENGINEERING DIVISION
SURVEY BUREAU**
JOB NO.
DRWG. NO. 2 OF 2

PROJECT: DETROIT UNIV. DISTRICT HUT
LOCATION: DETROIT, MI

SCALE: NTS
OID: S11-62309DE0
DATE: 5/19/22
DESIGNER: J.A.P.
REV: ---

123
24700 NORTHWESTERN HWY., SUITE 700
SOUTHFIELD, MI 48075
866-603-4774
http://www.123.net

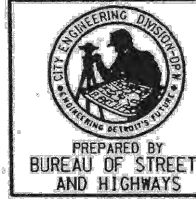


VARIATION FROM THIS PLAN MUST BE APPROVED BY THE ENGINEER.

LEGEND

- LOT PROPERTY AND CURB LINES
- WALK AND DRIVEWAY AREA
- EXPANSION JOINT
- EXPANSION JOINT ALTERNATE POSITION
- CONTRACTION JOINT
- CONTRACTION JOINT ALTERNATE POSITION
- MARGIN LINE

REVISED DATE (METRIC TO ENGLISH UNIT SYSTEM): DEC. 2002



APPROVED
 rev. K.S.M.
 DRAWN BY: *Dadim Houda*
 ENGINEER OF STREETS
 M.F.S.
 CHECKED BY: *Wing Talley*
 LEAD ENGINEER
[Signature]
 CITY ENGINEER

CITY OF DETROIT
 CITY ENGINEERING DIVISION, D.P.W.
 STANDARD PLAN FOR
 SIDEWALK JOINTING
 STANDARD
 03/07/98 DRAWING NO. 9 DETAIL STANDARD NO. C-4462 SHEET 1 OF 2
 PLAN DATE

EXPANSION JOINTS**

- ALL EXPANSION JOINT PAPER SHALL EXTEND 1" BELOW THE BOTTOM OF THE THINNER OF ADJOINING PAVEMENT SECTIONS.
- ① PLACE 1/2" PAPER EXPANSION JOINTS AT LOT LINES WHEN LOT LINES ARE BETWEEN 25' AND 50' APART.
 - ② PLACE ADDITIONAL 1/2" PAPER EXPANSION JOINTS SO THAT THE DISTANCE BETWEEN JOINTS DOES NOT EXCEED 15.2 m WHEN LOT LINES ARE OVER 15.240 m APART.
 - ③ PLACE 1/2" PAPER EXPANSION JOINTS AT EVERY SECOND LOT LINE AND CONTRACTION JOINT AT INTERVENING LOT LINE WHEN LOT LINES ARE LESS THAN 25' APART.
 - ④ PLACE 1" PAPER EXPANSION JOINTS AT CURB AND BUILDING OR PROPERTY LINE OR AT ALTERNATE POSITION ④A AS SHOWN FOR DRIVEWAY.
 - ⑤ PLACE 1" PAPER EXPANSION JOINTS AT CURB AND BUILDING OR PROPERTY LINE FOR FULL WIDTH SIDEWALK EXCEEDING 7' IN WIDTH.
 - ⑥ PLACE 1" PAPER EXPANSION JOINTS AT CURB CIRCLES OR AT ALTERNATE POSITION ⑥A AS SHOWN.
 - ⑦ PLACE 1" PAPER EXPANSION JOINTS AT INTERSECTIONS OF SERVICE WALKS AND SIDEWALKS AND SERVICE WALKS AND CURBS.
 - ⑧ PLACE 1" PAPER EXPANSION JOINTS AT MARGIN FLAGS AT CROSSWALKS.
 - ⑨ PLACE 1" PAPER EXPANSION JOINTS AT ALLEY APRONS.
 - ⑩ PLACE 1/2" PAPER EXPANSION JOINT BOTH SIDES OF SIDEWALK FLAG ABUTTING TREE AND ON CENTERLINE JOINT.

CONTRACTION JOINTS

- ①C PLACE CONTRACTION JOINTS AT INTERVALS OF NOT LESS THAN 5' NOR MORE THAN 7' ON WALKS 5' WIDE OR WIDER, INCLUDING FULL WIDTH WALKS.
- ②C PLACE CONTRACTION JOINTS AT INTERVALS OF NOT LESS THAN 4' NOR MORE THAN 7' ON WALKS 4' WIDE.
- ③C PLACE CONTRACTION JOINTS AT THE MARGIN LINE ON FULL WIDTH WALKS (OPTIONAL).

DRIVEWAYS

- ①D PLACE CONTRACTION JOINTS IN DRIVEWAYS SO THAT NO SLAB WILL EXCEED THE DIMENSIONS OF 15' BY 15'.
- ②D PLACE 1" PAPER EXPANSION JOINTS ON ALL SIDES OF COMMERCIAL DRIVES.
- ③D PLACE CONSTRUCTION OR CONTRACTION JOINT ON CENTERLINE WHEN WIDTH OF DRIVEWAY EXCEEDS 15'
- ④D PLACE 1/2" PAPER EXPANSION JOINTS ON BOTH SIDES OF RESIDENTIAL DRIVEWAYS. IF DRIVEWAY EDGE IS WITHIN 2' OF LOT LINE, PLACE THIS EXPANSION PAPER AT PROPERTY LINE.

CITY OF DETROIT
 CITY ENGINEERING DIVISION, D.P.W.
 STANDARD PLAN FOR
 SIDEWALK JOINTING
 STANDARD
 03/07/98 DRAWING NO. 9 DETAIL STANDARD NO. C-4462 SHEET 2 OF 2
 PLAN DATE

REVISED DATE (METRIC TO ENGLISH UNIT SYSTEM): DEC. 2002

SHEET
 N9

FROM CITY OF DETROIT
 RESTORATION STANDARD NOTES

PROJECT: DETROIT UNIV. DISTRICT HUT

SCALE: NTS

OID: S11-62309DE0 DATE: 5/19/22

DESIGNER: J.A.P. REV: ---



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CITY OF DETROIT
SUPPLEMENTAL SPECIFICATION
FOR
SIDEWALKS, SIDEWALK RAMPS AND DRIVEWAYS
 (Page 1 of 6)

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Rev. 01-14-08
 Rev. 02-16-09

DESCRIPTION: Construct Concrete Sidewalk Ramp(s) with Detectable Warning Tiles, at the specified locations(s). Furnish and install Vitrified Polymer Composite (VPC) Cast in Place Tiles where indicated and in accordance with the details shown on the plans and/or as directed by the Engineer. Complete the work in accordance with the Division 12 of the City of Detroit, City Engineering Division Standard Specifications for paving and related construction, October 1999 (here in after referred as "City Standard Specifications") and as detailed in Drawing No. 36, Detail Std no. R-28-F for "Sidewalk Ramp Details" of the City of Detroit, Department of Public Works, City Engineering Division Street and Alley Standard Plans, December, 2002 (here in after referred as "City Standard Plans") and as specified in this City of Detroit Supplemental Specification for "Sidewalks, Sidewalk Ramps and Driveways".

Prior to placing concrete for Ramps the contractor shall notify the Engineer to receive layout approval. The Composite Cast in Place Tiles specified in this special provision, approved by the Engineer, must be used to achieve the Detectable Warning Surface for the sidewalk ramp(s).

VPC Cast in Place Tiles for Detectable Warning Surface shall be Installed by an experienced Installer certified in writing by Cast In Place Detectable Warning Surface Tile manufacturer as qualified for installation, who has successfully completed installations similar in material, design, and extent to that indicated for Project.

The contractor will stamp all concrete with a legible stamp bearing the name of the company and the year constructed. No construction will commence without a contractor's stamp on site.

It is the responsibility of the contractor to be familiar with the City Standard Plans reflecting ADA accessibility requirements and the City standard specifications and the City of Detroit Supplemental Specifications for "Sidewalks, Sidewalk Ramps, and Driveways". It is also the contractor's responsibility to incorporate any changes made to the ADA accessibility requirements that may take effect prior to the start date of actual construction. If the contractor determines that any changes significantly alter the original bid cost, the contractor may submit a written request to the Engineer or his representative for approval and compensation. The request shall include a cost comparison between the original bid cost and the cost of the ADA required changes.

Any constructed concrete Sidewalk Ramps or Landings that do not meet the City Standard Plans and the City Standard Specifications and the City of Detroit Supplemental Specifications for "Sidewalks, Sidewalk Ramps and Driveways" and the latest ADA accessibility requirements shall be removed and replaced by the contractor, as directed by the Engineer or his representative at no additional cost to the City of Detroit.

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SUPPLEMENTAL SPECIFICATION
FOR
SIDEWALKS, SIDEWALK RAMPS AND DRIVEWAYS
 (Page 2 of 6)

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MATERIAL: The materials for Concrete Sidewalk Ramp Construction shall be as per Division 12 of the City Standard Specifications and the Detectable Warning Surface shall be VPC Cast in Place Tiles, an epoxy polymer composition with an ultra violet stabilized coating employing aluminum oxide particles in the truncated domes as specified in this Supplemental Specifications, Quality Assurance. However, if the abutting ramp surface is of a similar color, a contrasting different color shall be used as approved by the Engineer. Tile color shall be of Brick Red conforming to Federal Color No. 22144. The Color shall be homogeneous throughout the tile.

MANUFACTURERS:
 The VPC Cast In Place Detectable Warning Surface Tile shall be Armor-Tile (as manufactured by Engineered Plastics Inc.) or ADA Solutions Cast in Place Tile or an approved equivalent Cast in Place Detectable Warning Surface Tile.

- SUBMITTALS:**
- A. Product Data: Submit manufacturer's literature describing products, installation, procedures and routine maintenance.
 - B. Samples for Verification Purposes: Submit two (2) tile samples minimum 6"x6" of the kind proposed for use.
 - C. Shop drawings are required for products specified showing fabrication details, composite structural system, tile surface profile, sound on cane contact amplification feature, plans of tile placement including joints, and material to be used as well as outlining installation materials and procedure.
 - D. Material Test Reports: Submit complete test reports from qualified accredited independent testing laboratory's to qualify that materials proposed for use are in compliance with requirements and meet or exceed the properties indicated on the specifications. All tests shall be conducted on a Cast In Place Detectable Warning Surface Tile system as certified by a qualified independent testing laboratory and be current within a 24-month period.
 - E. Maintenance Instructions: Submit copies of manufacturer's specified installation and maintenance practices for each type of Detectable Warning Surface Tile and accessory as required.

QUALITY ASSURANCE:
 Provide Cast In Place Detectable Warning Surface Tiles and accessories as produced by a single manufacturer with a minimum of three (3) years experience in the manufacturing of Cast In Place Detectable Warning Surface Tiles.

SHEET		N10	
FROM CITY OF DETROIT RESTORATION STANDARD NOTES			
PROJECT: DETROIT UNIV. DISTRICT HUT	SCALE: NTS		
LOCATION: DETROIT, MI	OID: S11-62309DE0	DATE: 5/19/22	
	DESIGNER: J.A.P.	REV: ---	
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CITY OF DETROIT
 SUPPLEMENTAL SPECIFICATION
 FOR
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DELIVERY, STORAGE AND HANDLING:

- A. Cast In Place Detectable Warning Surface Tiles shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy plastic wrappings to protect tile from concrete residue during installation and tile type shall be identified by part number.
- B. Cast In Place Detectable Warning Surface Tiles shall be delivered to contractor for storage prior to installation.

SITE CONDITIONS:

- A. Environmental Conditions and Protection: Maintain minimum temperature of 40°F in storage areas to receive Cast In Place Detectable Warning Surface Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.
- B. The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public.

INSTALLATION:

- A. It is recommended that the first element of the most Curb Ramps to be installed will be the curb section, as the street and gutter elevations will dictate the elevations and the remaining ramp elements. After the gutter has set, the contractor shall then use the gutter elevations and ramp slopes, in combination, to confirm the new landing elevations and cross slopes. After landing forms are set, the ramp(s) running and cross slopes should be verified as compliant before the landing is poured. Finally the ramp and flare sections as well as and necessary transition sections necessary to merge retrofitted forms are set the running slope and cross slope for the ramp and any transitions (if any) should be checked before pouring.
- B. During Cast In Place Detectable Warning Surface Tile installation procedures ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- C. Prior to placement of the Cast In Place Detectable Warning Surface Tile system, review manufacturer and contract drawings with the Contractor prior to the construction and refer any and all discrepancies to the Engineer.
- D. The specifications of the structural embedment flange system and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers.
- E. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 3 - 5 to permit solid placement

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- F. The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, 25 lb. weights, and a large non-marring rubber mallet are specific to the installation of the Cast In Place Detectable/Tactile Warning Surface Tile system. A vibrating mechanism can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1-foot square.
- G. The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- H. If desired, individual tiles can be bolted together using ¼ inch or equivalent, non-rusting, hardware. This will help to ensure that adjacent tiles are flush to each other during the installation process. Tape or caulking can be placed on the underside of the bolted butt joint to ensure that concrete does not rise up between the tiles during installation. Any protective plastic wrap, which was peeled back to facilitate bolting or cutting, should be replaced and taped to ensure that the tile surface remains free of concrete during the installation process.
- I. Tiles can be cut to custom sizes, or to make a radius, using a continuous rim diamond blade in a circular saw or mini-grinder. Use of a straightedge to guide the cut is advisable where appropriate.
- J. Any sound-amplifying plates on the underside of the tile, which are dislodged during handling or cutting, should be replaced and secured with construction adhesive. The air gap created between these plates and the bottom of the tile is important in preserving the sound on cane audible properties of the Armor-Tile system as required in various jurisdictions.
- K. When preparing to set the tile, it is important that no concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment flange on the underside of the tile. This will lock the tile solidly into the cured concrete.
- L. The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. Immediately after finishing concrete, the electronic level should be used to check that the required slope is achieved. The tile shall be placed true and square to the curb edge or to the grade break in a directional ramp, in accordance with the contract drawings. The Cast In Place Detectable Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the field level of the tile is flush to the adjacent concrete surface. The embedment process should not be accomplished by

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LOCATION: DETROIT, MI

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OID: S11-62309DE0

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FROM CITY OF DETROIT
 RESTORATION STANDARD NOTES

N11

CITY OF DETROIT
SUPPLEMENTAL SPECIFICATION
FOR
SIDEWALKS, SIDEWALK RAMPS AND DRIVEWAYS
 (Page 5 of 6)

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stepping on the tile as this may cause uneven setting, which can result in air voids under the tile surface. The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

- M. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings or the standard plans to permit water drainage to curb as the design dictates. Ensure that the field surface of the tile is flush with the surrounding concrete and back of curb, where required so that no ponding is possible on the tile.
- N. While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, then a steel trowel shall be used to finish the concrete around the tile's perimeter, flush to the field level of the tile.
- O. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external forces placed on the tile that may rock the tile causing a void between the underside of tile and concrete.
- P. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets.
- Q. Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface.

CLEANING, PROTECTING AND MAINTENANCE:

- A. Protect tiles against damage during construction period to comply with Tactile Tile manufacturer's specification.
- B. Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.
- C. Comply with Manufacture's maintenance manual for cleaning and maintaining tile surface.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT:

Delete second paragraph of Division 12.III.15 of City Standard Specifications and replace with the following:

The completed work of Sidewalk for the specified thickness and for Sidewalk Ramp will be measured and paid for at the contract unit price for the following contract items:

<u>Pay Item</u>	<u>Pay Unit</u>
Sidewalk, ___ inch.....	Square Foot
Sidewalk Ramp, 6 inch, ADA.....	Square Foot
24 inch x 60 inch Detectable Warning Surface Tiles.....	Each

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Construction of concrete Sidewalk Ramp will be measured by the area in Square Foot of the Sidewalk Ramp in place, including landing, flared sides, and will be paid for as "Sidewalk Ramp, 6 inch, ADA". Payment includes all labor, materials and equipment required to construct the concrete sidewalk ramp pavement as shown on the plans and as detailed in drawing No.36, Detail Std. no. R-28-F of the City Standard Plan, monolithic rolled curbs along the longitudinal edges of the ramp, the curb opening or the curb integral with the pavement at the opening. Any additional earth excavation or Fill (Grade A) required to construct sidewalk ramps shall be included in the pay item "Sidewalk Ramp, 6 inch, ADA" and will not be paid for separately. The installation of the Detectable Warning Surface Tiles for the construction of concrete sidewalk ramps will be measured for the unit 'each' and will be paid for the contract pay item, "24 inch x 60 inch Detectable Warning Surface Tiles". Payment includes furnishing and placing of all materials of tiles, installing of tiles, tools, equipment, all labor and incidentals necessary to complete the work.

Replacement of all sidewalk, curb, curb and gutter, curb integral with the pavement, Integral Curb and Sidewalk, ___ feet, outside the area measured for "Sidewalk Ramp, 6 inch, ADA" will be paid for separately for the respective contract items involved. Any earth excavation or Fill (Grade A) 4 inches or less required outside the ramp area to construct the sidewalk ramps for ADA compliance shall be included in the contract item "Sidewalk, ___ inch" and will not be paid for separately.

Replacement of Hot Mix Asphalt (HMA) surface for the construction of the sidewalk ramp for ADA compliance will be paid for separately for the respective contract items involved.

Adjustments and/or reconstruction of Drainage Structures for the construction of the sidewalk ramp for ADA compliance will be paid for separately for the respective contract items involved.

Placement of pavement markings for aligning with the constructed sidewalk ramps for ADA compliance will be paid for separately for the respective contract items involved. Removal of the existing pavement markings will be included with the contract cost and will not be paid for separately.

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FROM CITY OF DETROIT
 RESTORATION STANDARD NOTES

PROJECT: DETROIT UNIV. DISTRICT HUT

LOCATION: DETROIT, MI

SCALE: NTS

OID: S11-62309DE0

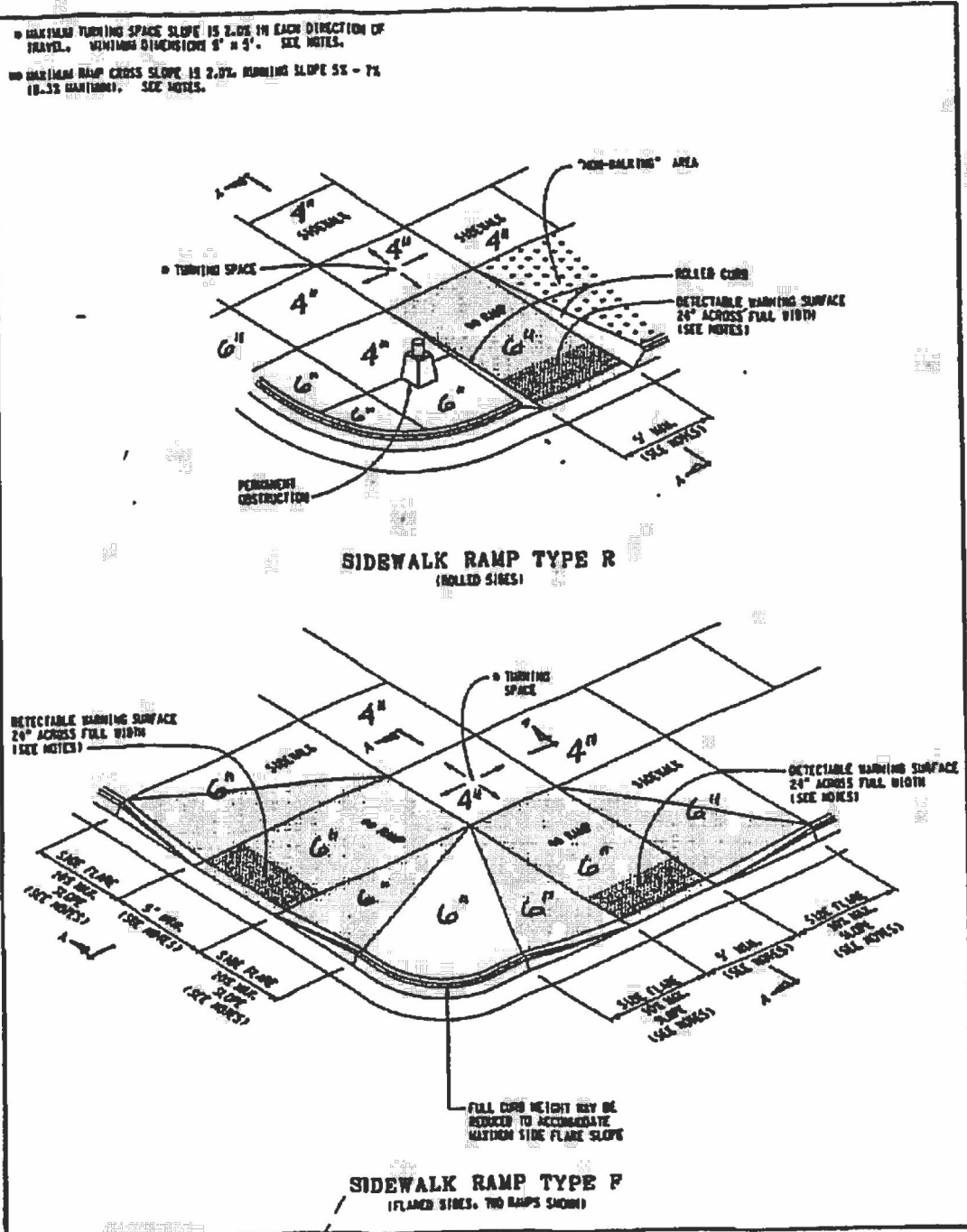
DATE: 5/19/22


DESIGNER: J.A.P.

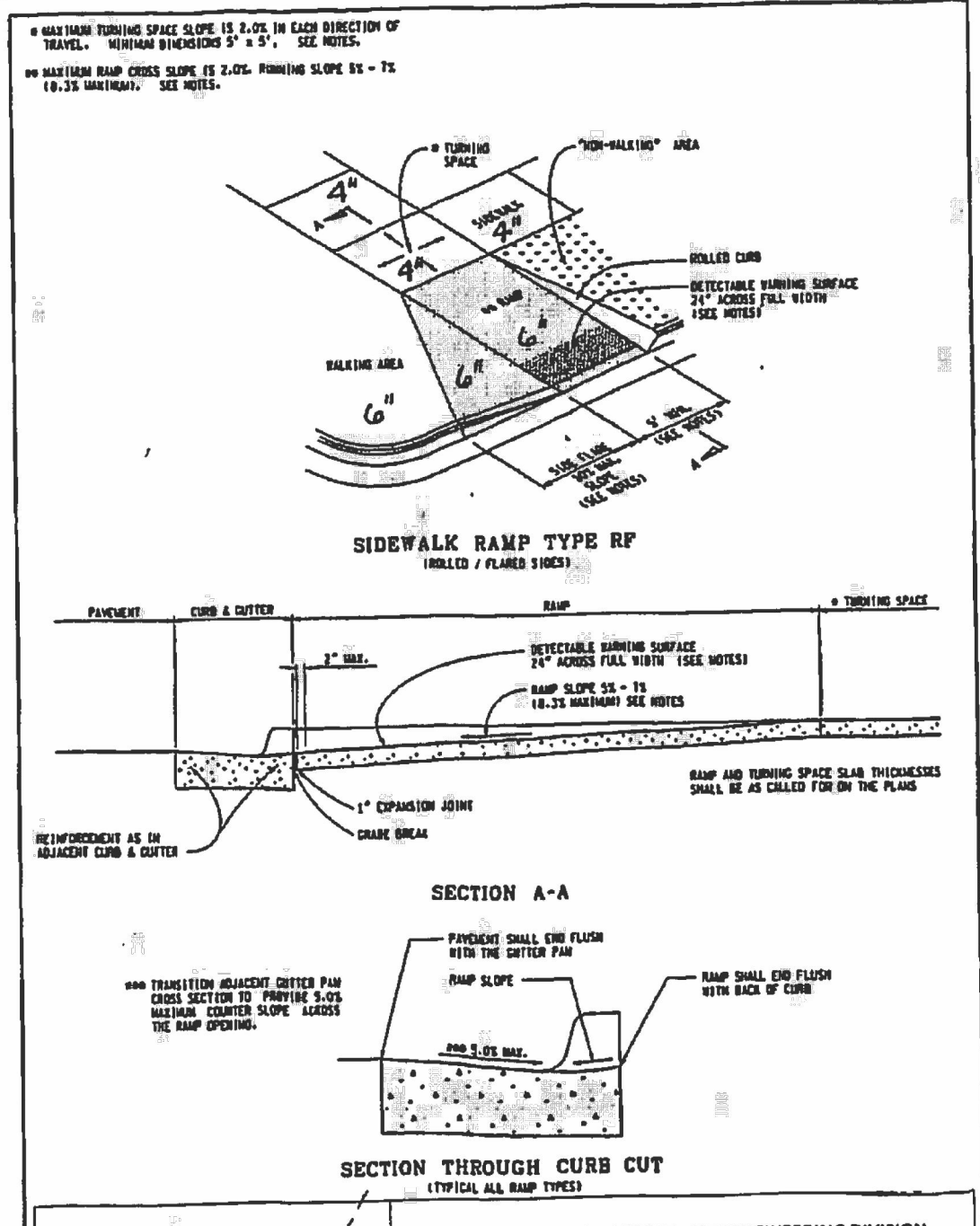
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CITY OF DETROIT
 DEPARTMENT OF PUBLIC WORKS, CITY ENGINEERING DIVISION
**SIDWALK RAMP AND
 DETECTABLE WARNING DETAILS
 R-28-1 WITH CITY OF DETROIT
 THICKNESS AMENDMENT**
 4/19/2017 SHEET 1 OF 7





CITY OF DETROIT
 DEPARTMENT OF PUBLIC WORKS, CITY ENGINEERING DIVISION
**SIDWALK RAMP AND
 DETECTABLE WARNING DETAILS
 R-28-1 WITH CITY OF DETROIT
 THICKNESS AMENDMENT**
 4/19/2017 SHEET 2 OF 7

SHEET
N13

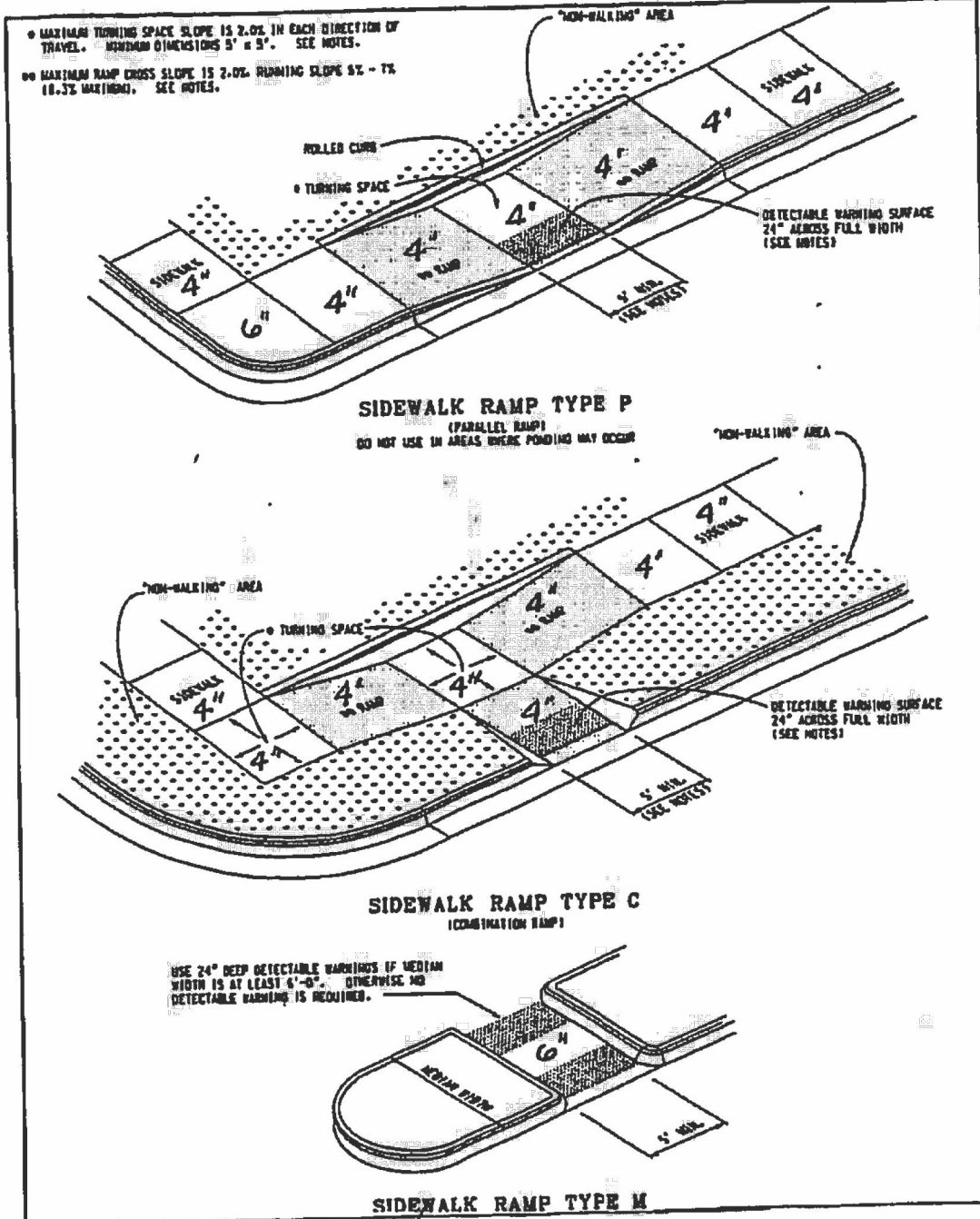
FROM CITY OF DETROIT
 RESTORATION STANDARD NOTES

PROJECT: DETROIT UNIV. DISTRICT HUT LOCATION: DETROIT, MI	SCALE: NTS DATE: 5/19/22 DESIGNER: J.A.P. REV: ---
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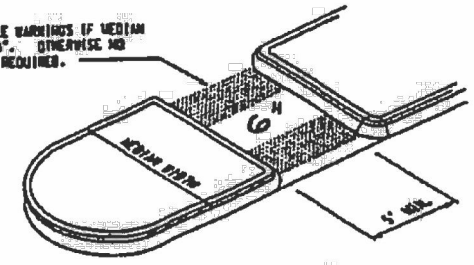
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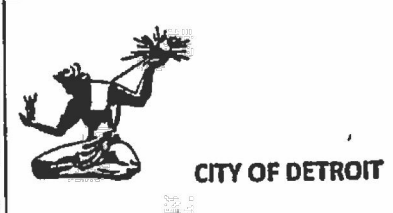
SIDEWALK RAMP TYPE P
(PARALLEL RAMP)
DO NOT USE IN AREAS WHERE PONDING MAY OCCUR

SIDEWALK RAMP TYPE C
(COMBINATION RAMP)

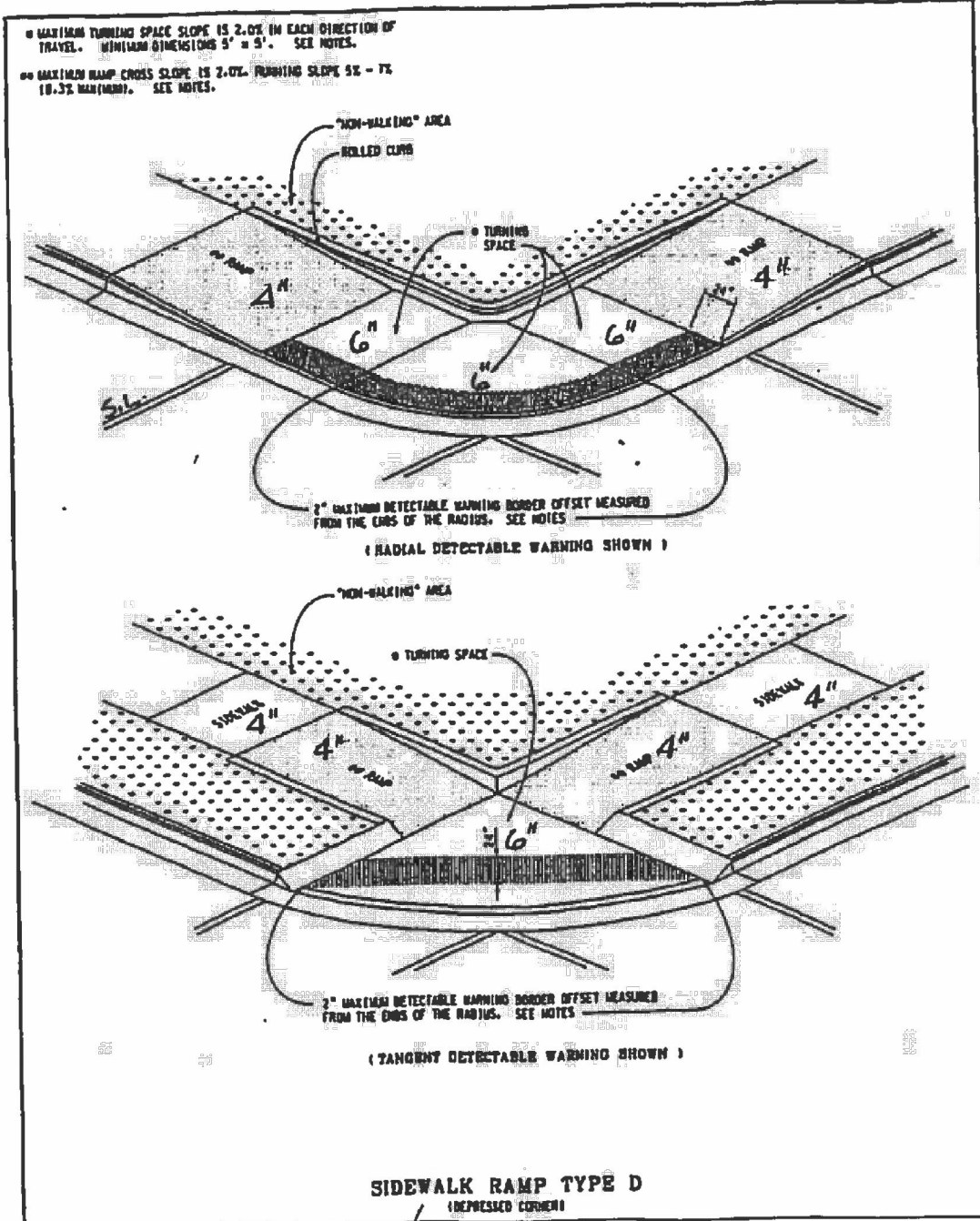
USE 24" DEEP DETECTABLE WARNINGS IF MEDIAN WIDTH IS AT LEAST 6'-0". OTHERWISE NO DETECTABLE WARNING IS REQUIRED.



SIDEWALK RAMP TYPE M



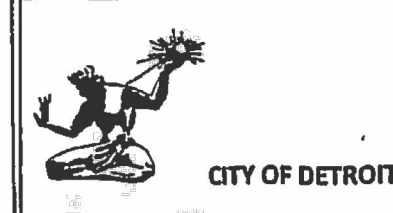
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**SIDEWALK RAMP AND
 DETECTABLE WARNING DETAILS**
 R-28-1 WITH CITY OF DETROIT
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 4/19/2017 SHEET 3 OF 7



(RADIAL DETECTABLE WARNING SHOWN)

(TANGENT DETECTABLE WARNING SHOWN)

SIDEWALK RAMP TYPE D
(DEPRESSED CORNER)



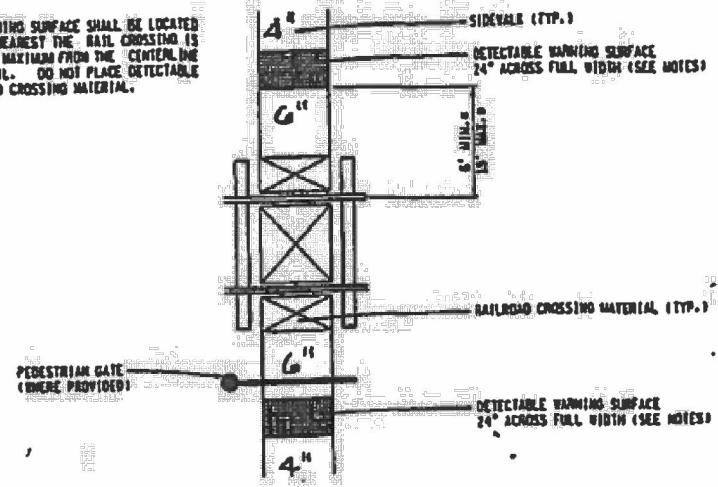
DEPARTMENT OF PUBLIC WORKS, CITY ENGINEERING DIVISION
**SIDEWALK RAMP AND
 DETECTABLE WARNING DETAILS**
 R-28-1 WITH CITY OF DETROIT
 THICKNESS AMENDMENT
 4/19/2017 SHEET 4 OF 7

FROM CITY OF DETROIT
 RESTORATION STANDARD NOTES

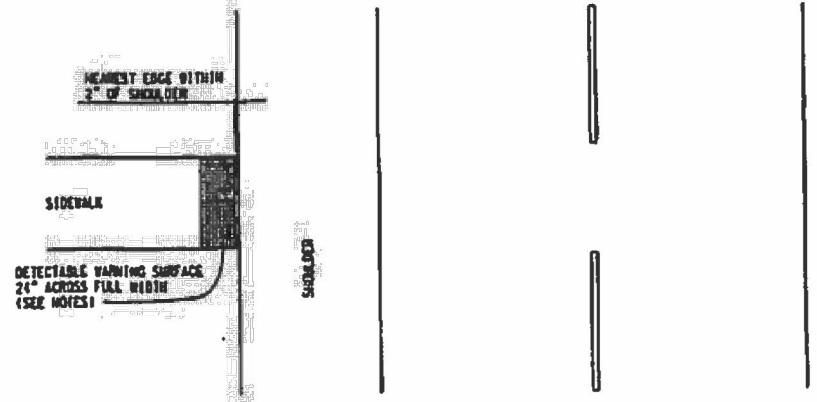
PROJECT: DETROIT UNIV. DISTRICT HUT	SCALE: NTS
LOCATION: DETROIT, MI	DATE: 5/19/22
	DESIGNER: J.A.P. REV: ---

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THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE RAIL CROSSING IS 6" MINIMUM AND 15" MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. DO NOT PLACE DETECTABLE WARNING ON RAILROAD CROSSING MATERIAL.



DETECTABLE WARNING AT RAILROAD CROSSING



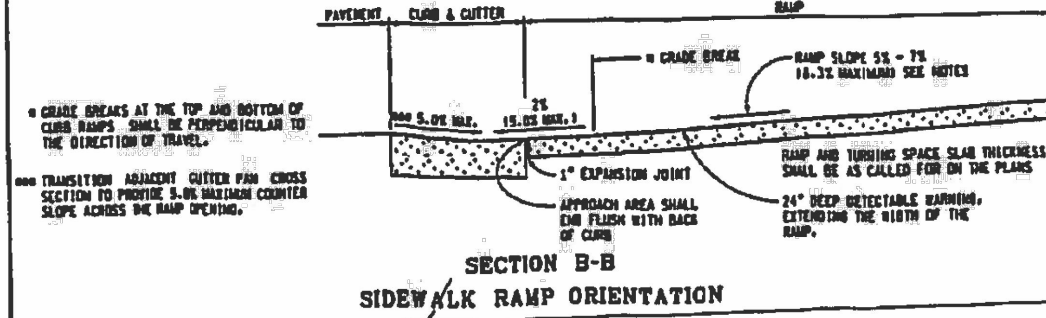
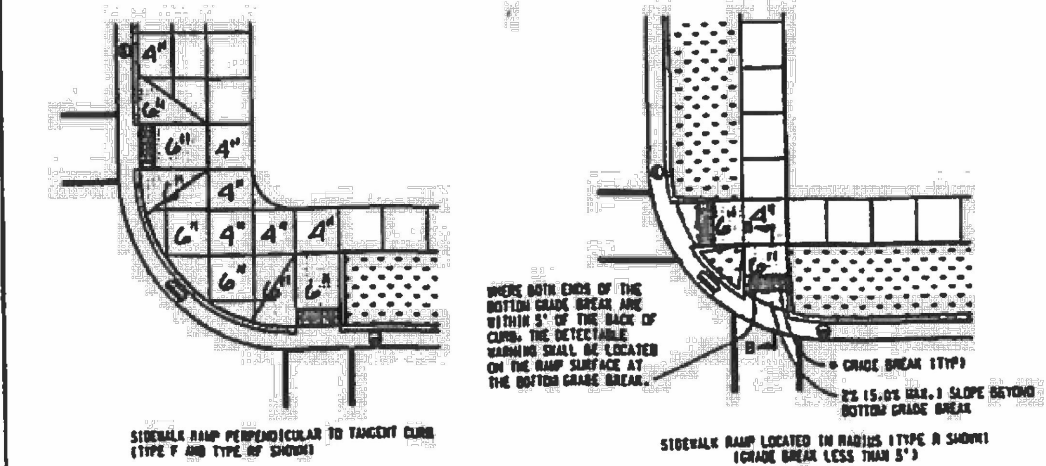
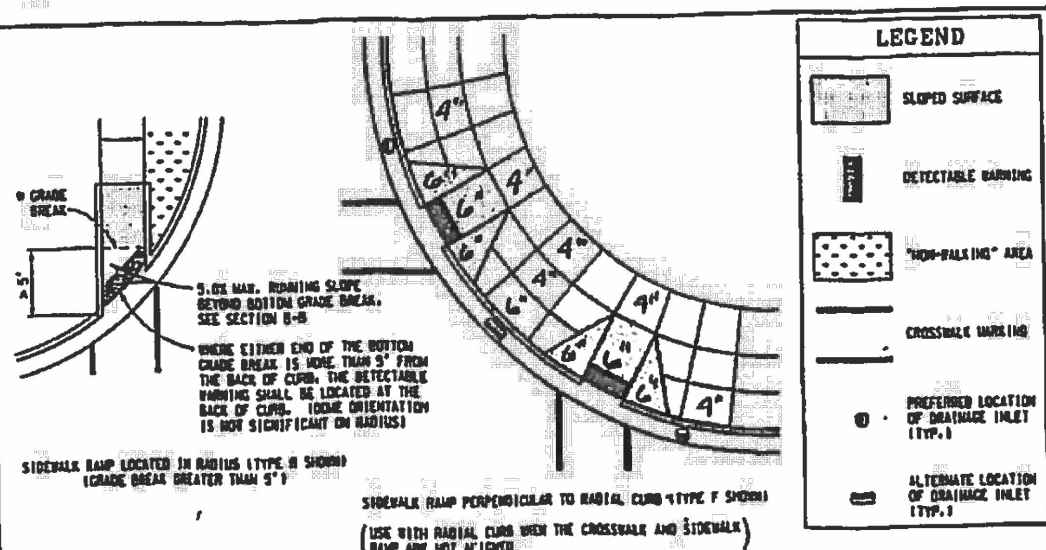

DETECTABLE WARNING AT FLUSH SHOULDER OR ROADWAY



CITY OF DETROIT

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**SIDEWALK RAMP AND
 DETECTABLE WARNING DETAILS**
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4/19/2017 SHEET 5 OF 7

CITY OF DETROIT

DEPARTMENT OF PUBLIC WORKS, CITY ENGINEERING DIVISION
**SIDEWALK RAMP AND
 DETECTABLE WARNING DETAILS**
 R-28-1 WITH CITY OF DETROIT
 THICKNESS AMENDMENT

4/19/2017 SHEET 6 OF 7

SHEET


N15

FROM CITY OF DETROIT
RESTORATION STANDARD NOTES

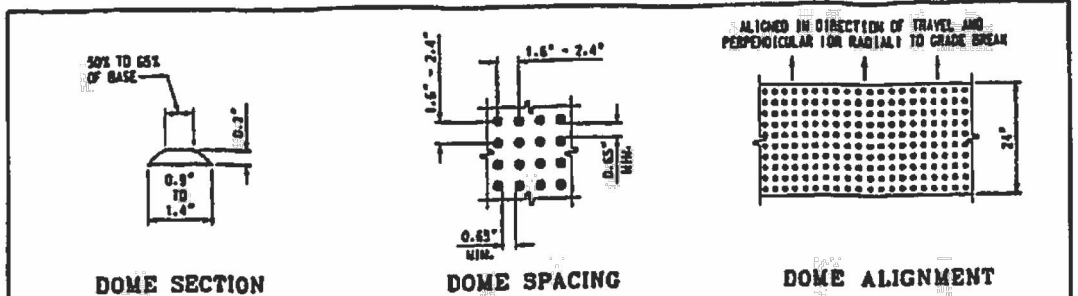
PROJECT: DETROIT UNIV. DISTRICT HUT
 LOCATION: DETROIT, MI

SCALE: NTS
 DATE: 5/19/22
 DESIGNER: J.A.P. REV: ---

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DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

SIDEWALK RAMP ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMP SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMP SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED WALK-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOKING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK CURB REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

PROVIDE TURNING SPACES WHERE PEDESTRIAN TURNING MOVEMENTS ARE REQUIRED.

WHEN 5' MINIMUM WIDTHS ARE NOT FEASIBLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND TURNING SPACES TO NOT LESS THAN 4' x 4'.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURBED OR FLARED CURB TRANSITION AREAS. A BURRER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.0%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8:1% IS RELATIVE TO A FLAT 100% REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMP TO EXCEED 15 FEET IN LENGTH.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMP. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN 1/4". ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

TRANSITION THE GUTTER PAN CROSS SECTION SUCH THAT THE COUNTER SLOPE IN THE DIRECTION OF RAMP TRAVEL IS NOT GREATER THAN 3:0%. MAINTAIN THE NORMAL GUTTER PAN CROSS SECTION ACROSS DRAINAGE STRUCTURES.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE SIDEWALK RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS BORDERED BY LANDSCAPING, UNPAVED SURFACE OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING ON HEAVING.



CITY OF DETROIT

DEPARTMENT OF PUBLIC WORKS, CITY ENGINEERING DIVISION
 SIDEWALK RAMP AND
 DETECTABLE WARNING DETAILS
 R-28-1 WITH CITY OF DTROIT
 THICKNESS AMENDMENT
 4/19/2017 SHEET 7 OF 7

PROJECT: DETROIT UNIV. DISTRICT HUT

LOCATION: DETROIT, MI

SCALE: NTS

OID: S11-62309DE0

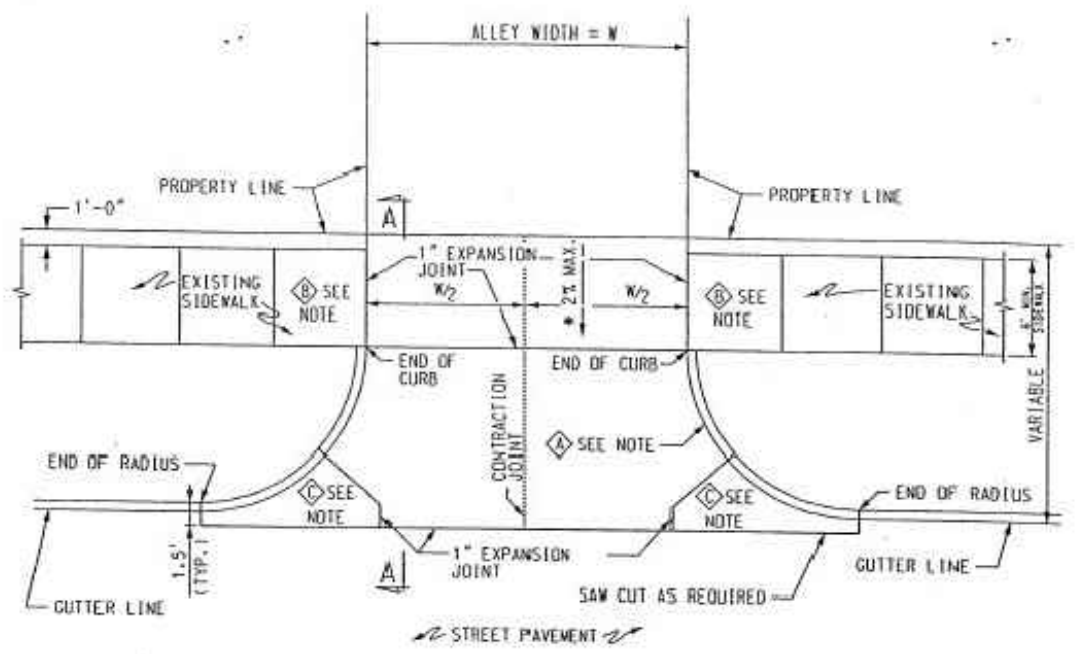
DATE: 5/19/22

DESIGNER: J.A.P.

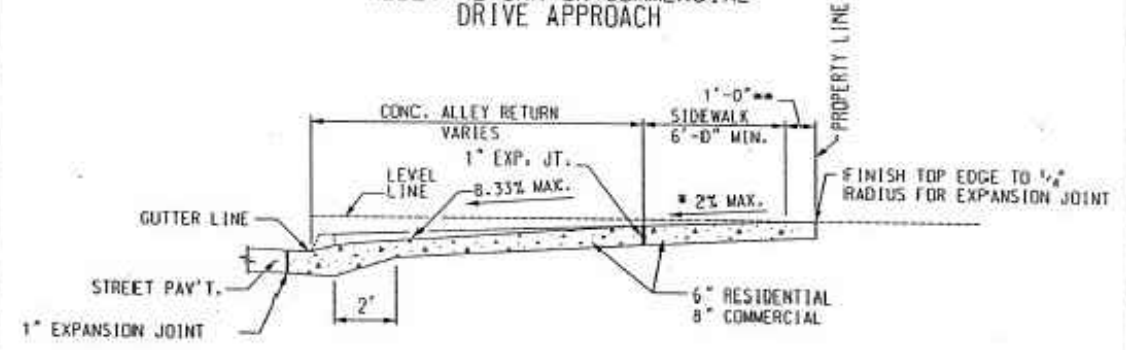
REV: ---



24700 NORTHWESTERN HWY., SUITE 700
 SOUTHFIELD, MI 48075
 866-603-4774
 http://www.123.net



ALLEY RETURN OR COMMERCIAL DRIVE APPROACH



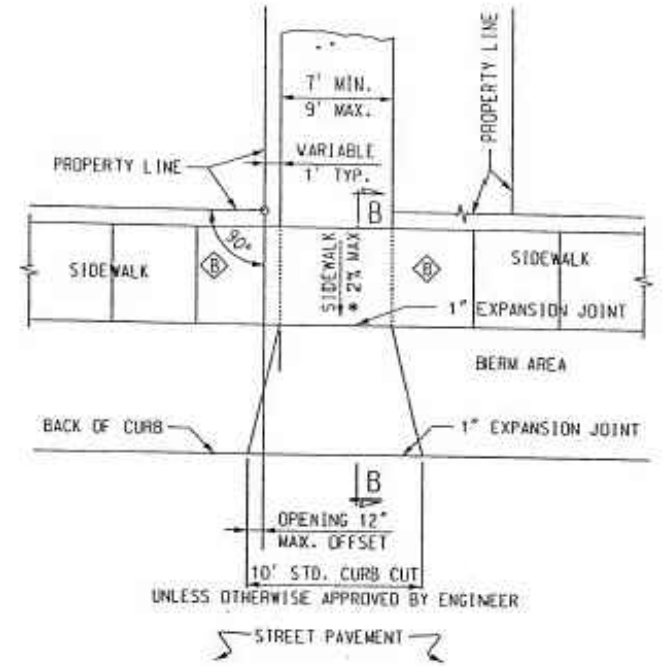
SECTION A-A

REVISIONS				
NO.	DESCRIPTION	DATE	BY	CHKD.
C				
B	* SIDEWALK CROSS SLOPE	KSM	J.J.	2/1/07
A	METRIC TO ENGLISH UNIT SYSTEM	KSM	M.S.	N.H. 12/02

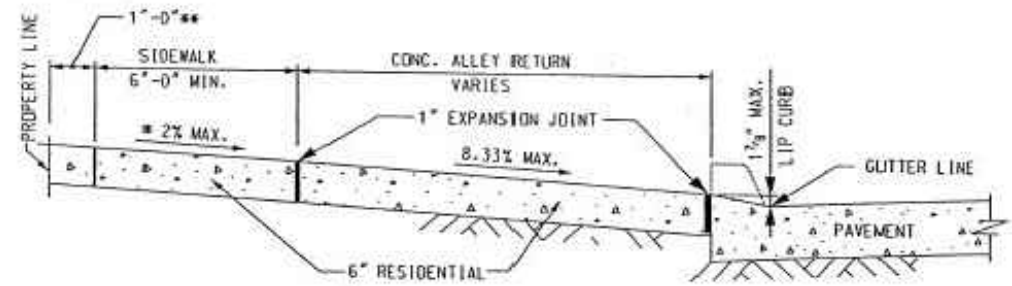


APPROVED
Sam Patel
 ENGINEER OF STREETS
 HEAD ENGINEER
Jerry Jacob
 CITY ENGINEER

CITY OF DETROIT
 CITY ENGINEERING DIVISION, D.P.W.
 STANDARD PLAN FOR
 DETAIL OF ALLEY RETURN
 AND DRIVE APPROACH
 03/07/98 PLAN DATE
 DRAWING NO. 7
 DETAIL STANDARD NO. C-4384
 SHEET 1 OF 2



DETAIL OF CURB CUT OPENINGS FOR RESIDENTIAL DRIVEWAY



SECTION B-B

NOTES:
 IF ALLEY IS PAVED, CONSTRUCT RETURN WITH 1" EXPANSION JOINT ON PROPERTY LINE.
 Ⓐ RADIUS TO BE 10' UNLESS OTHERWISE SHOWN ON PAVING PLAN.
 Ⓑ SIDEWALK FLAGS ABUTTING ALLEY SHALL BE 6" THICK. SIDEWALK SHALL BE REPLACED FOR A SMOOTH TRANSITION AND TO ATTAIN A CROSS SLOPE OF 2% MAX. OR AS DIRECTED BY THE ENGINEER.
 Ⓒ KEY JOINT OR "B" JOINT IF REINFORCED PAVEMENT.
 ALL DIMENSIONS ARE IN INCHES (") UNLESS OTHERWISE NOTED.
 * SIDEWALK CROSS SLOPE SHALL BE 2% MAX. OR AS DIRECTED BY THE ENGINEER.
 ** THE SLOPE OF THE DRIVEWAY IN THE 1 FT. SPACE ADJACENT TO THE PROPERTY LINE MAY BE ALTERED UP TO 10% TO MEET EXISTING CONDITIONS.
 REVISED DATE (METRIC TO ENGLISH UNIT SYSTEM): DEC. 2002

REVISIONS				
NO.	DESCRIPTION	DATE	BY	CHKD.
C				
B	* SIDEWALK CROSS SLOPE	KSM	J.J.	2/1/07
A	Chgd. THICKNESS NOTE	KSM	N.H.	W.T. 10/06

CITY OF DETROIT
 CITY ENGINEERING DIVISION, D.P.W.
 STANDARD PLAN FOR
 DETAIL OF ALLEY RETURN
 AND DRIVE APPROACH
 03/07/98 PLAN DATE
 DRAWING NO. 7
 DETAIL STANDARD NO. C-4384
 SHEET 2 OF 2

SHEET
N17

FROM CITY OF DETROIT
 RESTORATION STANDARD NOTES

PROJECT: DETROIT UNIV. DISTRICT HUT
 LOCATION: DETROIT, MI
 SCALE: NTS
 DATE: 5-19-22
 DESIGNER: J.A.P.
 REV: 7/14/22

