LESSEE:
7-ELEVEN (AKA SPEEDWAY LLC)
3200 HACKBERRY RD
IRVING, TX 75063
CONTACT: JAMES HUGHES

CONSTRUCTION MANAGER:
7-ELEVEN (AKA SPEEDWAY LLC)
3200 HACKBERRY RD
IRVING, TX 75063
CONTACT: KENNETH LETZ
PHONE: (330) 690-2345

OWNER/DEVELOPER:
JOSH BRATTON
AGREE DEVELOPMENT, LLC
32301 WOODWARD AVE
ROYAL OAK, MI 48073

ENGINEER:
CESO, INC.
13060 S US HIGHWAY 27
DEWITT, MI 48820
PHONE: (517) 212-4185
CONTACT: MANDY GUASS, P.E.
EOR: ZACH FRESHNER, P.E.

GOVERNING/ O&M AGENCIES AND UTILITY COMPANIES:

SEWER:
OAKLAND COUNTY WATER RESOURCE COMMISSIONER
1 PUBLIC WORKS DRIVE, BLDG 95W
WATERFORD, MI 48328
PHONE: (248) 858-0958

GAS SERVICE:
CONSUMER ENERGY COMPANY
1 ENERGY PLAZA
JACKSON, MI 49201
PHONE: (800) 477-5050

WATER:
OAKLAND COUNTY WATER RESOURCE COMMISSIONER
1 PUBLIC WORKS DRIVE, BLDG 95W
WATERFORD, MI 48328
PHONE: (248) 858-0958

COMMUNICATIONS:
COMCAST:
800-391-3000
AT&T
800-321-2000

STORMWATER:
OAKLAND COUNTY WATER RESOURCE COMMISSIONER
1 PUBLIC WORKS DRIVE, BLDG 95W
WATERFORD, MI 48328
PHONE: (248) 858-0958

CITY OF WALLED LAKE
1499 E. WEST MAPLE
WALLED LAKE, MI 48390
PHONE: (248) 624-4847

ELECTRIC:
DTE ENERGY
15600 19 MILE RD
CLINTON TWP, MI 48038
PHONE: (800) 477-4747

ZONING:
CITY OF WALLED LAKE
1499 E. WEST MAPLE ROAD
WALLED LAKE, MI 48390
PHONE: (248) 624-4847

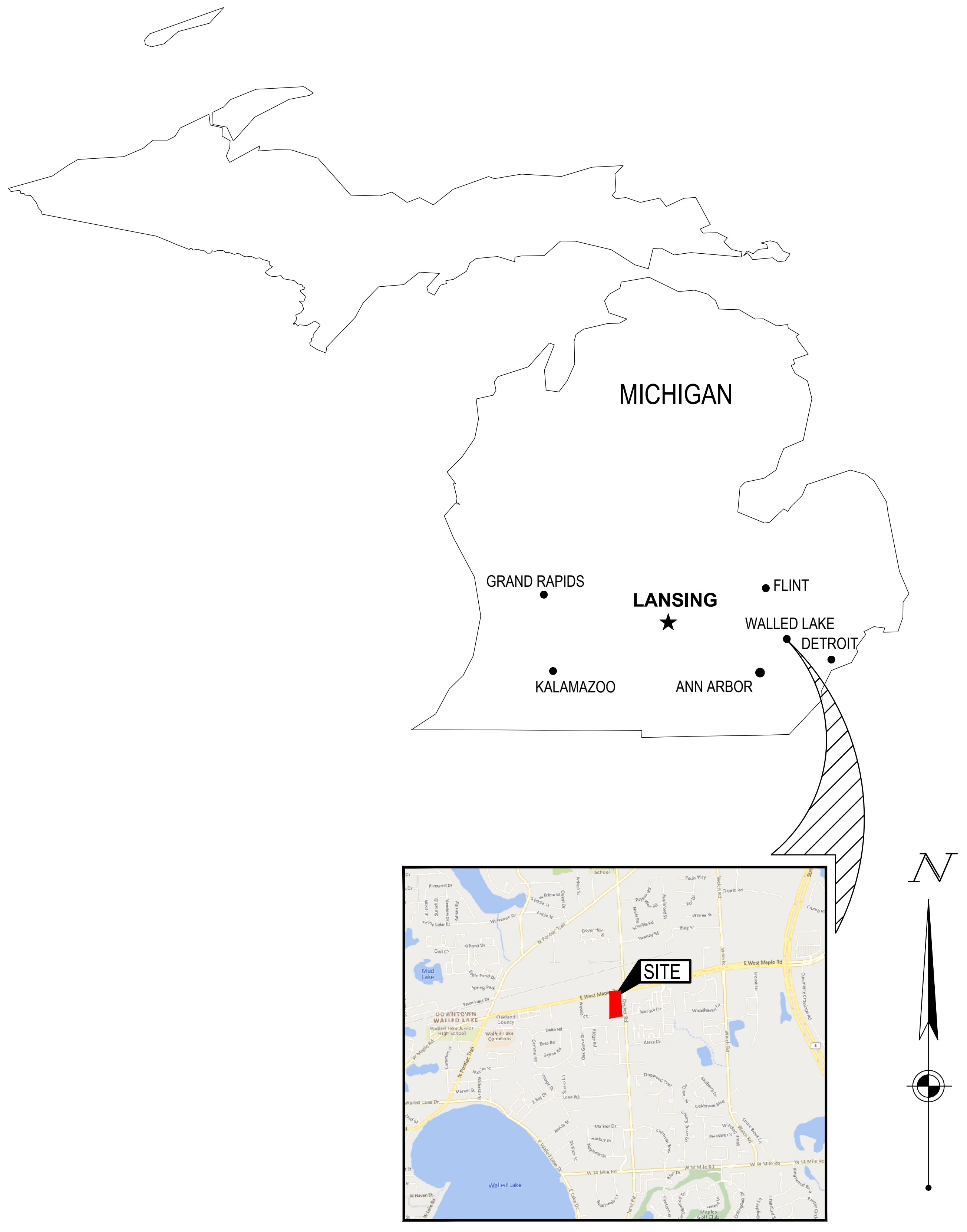
CITY OF WALLED LAKE, OAKLAND COUNTY, MICHIGAN

CONSTRUCTION PLANS

FOR

7-ELEVEN

1700 E. WEST MAPLE ROAD
WALLED LAKE, MI 48390



VICINITY MAP
1" = 3000'

PROPERTY DATA:

PARCEL OWNER: DECKER PROPERTIES, LLC

PARCEL ID: 17-35-176-003

ADDRESS: 1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

PROPERTY AREA: TOTAL: 5.33 AC
EXCLUDING ROW: 4.21

ZONING: C-2 GENERAL COMMERCIAL DISTRICT

PROPOSED USE: CONVENIENCE STORE / GAS STATION

	REQUIRED	PROPOSED
BUILDING SETBACKS		
FRONTAGE ALONG STREET:	35'	114'
SIDE:	10'	425'
REAR:	20'	93'
PARKING AREA SETBACKS		
FRONT:	20'	40'
SIDE:	7.5'	360'
REAR:	5'	25'
SIGN SETBACKS:	10'	25'
BUILDING AREA:	N/A	4,853 SF

FLOODPLAIN DESIGNATION: PARCEL IS LOCATED WITHIN "ZONE X" AS INDICATED BY THE FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NUMBER 26125C0487F, EFFECTIVE DATE: 09/29/2006; PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

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SEE ROADWAY PLAN SET FOR SHEETS

SURVEY PROVIDED BY:
CESO, INC.
3601 RIGBY RD
MIAMISBURG, OH 45342
PHONE: 937.435.8584
DATED: 2020.06.30

CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BID AND CONSTRUCTION.

⊕ BENCHMARK

DATUM: NAVD 88

BM "A":	RR SPIKE IN POWER TELEPHONE POLE LOCATED APPROXIMATELY 30' NORTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 40' WEST OF CENTERLINE OF DECKER RD. ELEVATION = 940.85'
BM "B":	"X" SET IN SOUTHEAST BOLT OF SIGNAL POLE LOCATED APPROXIMATELY 50' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 55' WEST OF CENTERLINE OF DECKER RD. ELEVATION = 939.57'
BM "C":	COTTON GIN FOUND IN TELEPHONE POLE LOCATED APPROXIMATELY 295' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 35' EAST OF CENTERLINE OF DECKER RD. ELEVATION = 935.70'

MISS DIG 811®

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

CESO
WWW.CESOINC.COM
3601 Rigby Rd., Suite 300
Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

MANDY J. GAUSS
ENGINEER
NO. 55618

Mandy J. Gauss

7-ELEVEN, INC.

WALLED LAKE
1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
COVER SHEET

CV

GENERAL NOTES

DEMOLITION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL. THE DEMOLITION, REMOVAL, AND DISPOSAL IS TO BE APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL FACILITIES SUCH AS: STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE, STRUCTURES, UTILITIES, WELLS, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL AS SPECIFIED BY A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER. IF UNDOCUMENTED FACILITIES ARE FOUND ON SITE, CONTRACTOR SHALL CONTACT THE OWNER AND UTILITY COMPANY PRIOR TO REMOVAL. ALL FACILITIES SHALL BE PLUGGED, ABANDONED, OR REMOVED PER STATE AND LOCAL REQUIREMENTS.
2. FEDERAL, STATE AND LOCAL CODE REQUIREMENTS SHALL GOVERN THE DISPOSAL OF DEBRIS INCLUDING ANY POTENTIALLY HAZARDOUS AND TOXIC MATERIALS. ALL MATERIALS AND STRUCTURES DESIGNATED AS "TO BE REMOVED" SHALL BE DISPOSED OF OFF SITE AND AT THE COST OF THE CONTRACTOR.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING JOB SITE SAFETY PER OSHA REQUIREMENTS AT ALL TIMES.
4. PRIOR TO DEMOLITION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALL THE STATE REQUIRED MISS DIG (811) SYSTEM FOR DETERMINING UTILITY LOCATIONS AND NOTIFY ALL UTILITY COMPANIES TO SCHEDULE UTILITY SERVICE REMOVAL AND/OR ABANDONMENT. ALL UTILITIES SHALL BE REMOVED/RELOCATED PER THE SPECIFICATIONS OF THE UTILITY COMPANIES. THE CONTRACTOR IS RESPONSIBLE TO PAY ALL FEES AND CHARGES ASSOCIATED WITH THIS WORK
5. CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICES TO INHABITED BUILDINGS ON SITE AND ADJACENT PROPERTIES AT ALL TIMES. INTERRUPTIONS SHALL BE APPROVED BY THE OWNERS OF THE BUILDINGS/PROPERTIES.
6. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES. IF THE LOCATION OR ELEVATION OF THE EXISTING UTILITIES ARE FOUND TO BE DIFFERENT FROM THE PLANS, CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
7. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES TO REMAIN INSIDE AND OUTSIDE CONSTRUCTION LIMITS. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGES AND NOTIFY THE TOWNSHIP/COUNTY PRIOR TO CONSTRUCTION START. ANY EXISTING SITE FEATURE TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, CURB, ETC. SHALL BE REPAIRED TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THE EXISTING CONDITIONS. PRIOR TO BEING DAMAGED, THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
8. CONTINUOUS ACCESS SHALL BE MAINTAINED TO THE SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.
9. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND LOCAL REGULATIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR PLACING AND MAINTAINING CONSTRUCTION FENCE, SIGNS, ETC. TO WARN AND KEEP UNAUTHORIZED PEOPLE OFF SITE FOR THE DURATION OF THE PROJECT.
11. PRIOR TO DEMOLITION, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED PER THE GOVERNING AGENCIES GUIDELINES AND STANDARDS. DUST CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. SAWCUT LINE PROVIDED IS FOR REFERENCE ONLY. CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXTENT OF THE SAWCUT THAT WILL BE REQUIRED AS WELL AS PAVEMENT REPAIRS TO INSTALL UTILITY TRENCHING. IF ANY DAMAGE OCCURS ON ANY OF THE SURROUNDING PAVEMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THAT WHICH IS NECESSARY TO COMPLETE THE INTENT OF THE PROPOSED IMPROVEMENTS. SAWCUT EXISTING PAVEMENT TO FULL DEPTH, USING CARE TO CUT NEAT, STRAIGHT LINES. CUT AT EXISTING JOINTS WHERE POSSIBLE.
13. THE CONTRACTOR SHALL MAINTAIN A WELL-DRAINED SITE, FREE OF STANDING WATER DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY DRAINAGE MEASURES DURING CONSTRUCTION.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO STUDY THE PLANS AND VISIT THE SITE TO DETERMINE THE ITEMS THAT MUST BE REMOVED TO COMPLY WITH THE SITE DEVELOPMENT PLANS. NO EXTRA FEE WILL BE PAID FOR THE REMOVAL OF ANY ITEM NOT LISTED THAT IS VISIBLE UPON A SITE VISIT. THE DEMOLITION PLAN IS INTENDED TO PRESENT THE SCOPE OF THE DEMOLITION, AND DOES NOT GUARANTEE THAT ALL ITEMS ARE ADDRESSED.
15. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR ALL SITE DEVELOPMENT WORK, PAY ALL FEES FOR PERMITS AND CHECK ALL GOVERNING AUTHORITIES' SPECIFICATIONS FOR BUT NOT LIMITED TO, GUTTERS, SIDEWALKS, POLES, AND OTHER STRUCTURES, INCLUDING THE REMOVAL OR RELOCATION OF EXISTING UTILITIES OR OTHER PHYSICAL OBJECTS SHOWN ON PLANS OR NOTED OTHERWISE.
16. THE CONTRACTOR SHALL CREATE AND IMPLEMENT AN EROSION AND SEDIMENTATION CONTROL PLAN FOR ALL SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROJECT. THE PLAN MUST CONFORM TO THE EROSION AND SEDIMENTATION REQUIREMENTS OF THE CONSTRUCTION GENERAL PERMIT OR LOCAL STANDARDS AND CODES, WHICHEVER IS MORE STRINGENT.
17. ALL COSTS FOR INSPECTIONS AND/OR TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.

SITE NOTES

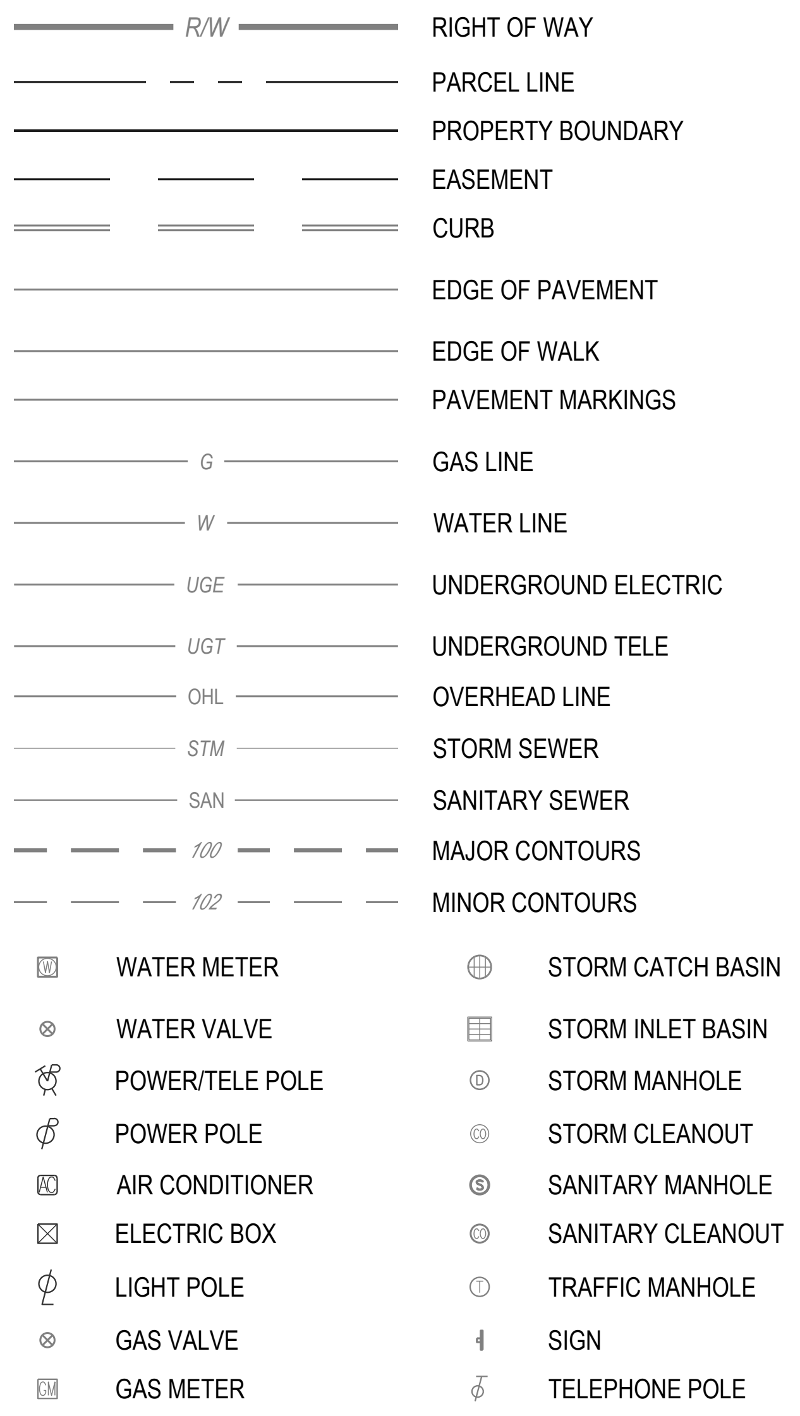
1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. ALL MATERIAL NOTED ON DRAWINGS WILL BE SUPPLIED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS TO COORDINATE ACCESS POINTS AND ELEVATIONS. REFER TO ARCHITECTURAL PLANS. FOR EXACT LOCATIONS AND DIMENSIONS OF DOORS, ENTRY RAMP, AND CANOPY.
4. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR ALL SITE DEVELOPMENT WORK, PAY ALL FEES FOR PERMITS AND CHECK ALL GOVERNING AUTHORITIES' SPECIFICATIONS FOR BUT NOT LIMITED TO, GUTTERS, SIDEWALKS, POLES, AND OTHER STRUCTURES, INCLUDING THE REMOVAL OR RELOCATION OF EXISTING UTILITIES OR OTHER PHYSICAL OBJECTS SHOWN ON PLANS OR NOTED OTHERWISE.
5. THE CONTRACTOR SHALL CREATE AND IMPLEMENT AN EROSION AND SEDIMENTATION CONTROL PLAN FOR ALL SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROJECT. THE PLAN MUST CONFORM TO THE EROSION AND SEDIMENTATION REQUIREMENTS OF THE CONSTRUCTION GENERAL PERMIT OR LOCAL STANDARDS AND CODES, WHICHEVER IS MORE STRINGENT.
6. ALL COSTS FOR INSPECTIONS AND/OR TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.
7. ACCESSIBILITY STANDARDS SHALL BE IN ACCORDANCE WITH FEDERAL AND LOCAL REQUIREMENTS FOR HANDICAP ACCESSIBILITY, INCLUDING BUT NOT LIMITED TO THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES. ADA PARKING STALLS SHALL MEET ADA GRADE GUIDELINES. CONTRACTOR SHALL FIELD VERIFY EXISTING GRADES AT ACCESS POINTS, ACCESSIBLE ROUTES, AND EXISTING PARKING TO REMAIN TO DETERMINE COMPLIANCE WITH STANDARDS.
8. ALL DISTURBED AREAS ARE TO RECEIVE 6" OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
9. ALL DIMENSIONS AND RADII ARE TO THE FACE OF THE CURB OR EDGE OF PAVEMENT, AS APPLICABLE, UNLESS OTHERWISE NOTED.
10. ALL CURB RADII ARE 5 FEET UNLESS OTHERWISE NOTED.
11. PROVIDE SIGNAGE AND STRIPING AS SHOWN. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL COMPLY WITH THE GOVERNING MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.). PAVEMENT MARKINGS ON ASPHALT SHALL BE WHITE. PAVEMENT MARKINGS ON CONCRETE SHALL BE YELLOW.
12. REFER TO ARCHITECTURAL PLANS FOR PROPOSED BUILDING SIGNAGE.
13. REFER TO MECHANICAL PLANS FOR EQUIPMENT LAYOUT.
14. REFER TO ELECTRICAL PLANS FOR ELECTRICAL WORK.
15. REFER TO GEOTECHNICAL ENGINEERING REPORT PROVIDED BY SME, DATED JULY 17, 2024, FOR SITE WORK PREPARATION/RECOMMENDATIONS AND PAVEMENT SECTIONS.
16. REFER TO ORIGINAL SURVEY PROVIDED BY CESO INC., DATED JANUARY 17, 2024, FOR EXISTING SITE CONDITIONS.
17. PROPOSED ONSITE LIGHT POLES TO BE LOCATED 3' FROM THE BACK OF CURB, AS MEASURED FROM THE FACE OF POLE FOUNDATION, UNLESS OTHERWISE DENOTED ON PLANS.

GRADING NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. THE TOPOGRAPHIC SURVEY WAS PERFORMED BY A REGISTERED LAND SURVEYOR. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
3. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
4. THE CONTRACTOR SHALL ADHERE TO ALL APPLICABLE TERMS & CONDITIONS AS OUTLINED IN THE EPA AND/OR STATE GENERAL N.P.D.E.S. PERMIT AND/OR COUNTY AND LOCAL REQUIREMENTS.
5. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS ARE SHOWN AT 1 FOOT INTERVALS.
6. ALL SPOT ELEVATIONS REFER TO FINISHED PAVEMENT ELEVATIONS UNLESS OTHERWISE NOTED.
7. ALL ADA ACCESSIBLE PARKING SPACES AND LOADING AREAS SHALL BE GRADED WITH A 2.0% MAXIMUM SLOPE IN ALL DIRECTIONS. ALL ADA ACCESSIBLE ROUTES SHALL BE GRADED WITH A 2.0% MAXIMUM CROSS SLOPE AND 5.0% MAXIMUM RUNNING SLOPE.
8. MAINTAIN EXISTING DRAINAGE PATTERN THROUGHOUT THE SITE, EXCEPT WITHIN THE LIMITS OF DISTURBANCE (LOD).
9. COORDINATE GRADES AT BUILDING ENTRIES WITH ARCHITECTURAL PLANS.
10. EXISTING DRAINAGE STRUCTURES SHALL BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES ARE TO BE CLEANED TO REMOVE ALL SILT AND DEBRIS AFTER CONSTRUCTION IS COMPLETE.
11. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO A CONDITION EQUAL TO OR BETTER THAN IT'S CONDITION PRIOR TO DAMAGE.
12. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDING AND WITHIN PAVED AREAS.
13. ALL TOPSOIL MUST BE REMOVED BEFORE FILL MATERIAL IS PLACED.
14. ALL WET, OR OTHERWISE UNSUITABLE SOILS MUST BE STABILIZED. THIS MAY BE ACCOMPLISHED BY DRYING, REMOVAL & REPLACEMENT, REMOVAL & DRYING & RECOMPACTION, OR SOIL TREATMENT (LIME/CEMENT) UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER.
15. ALL UNSURFACED AREAS, DISTURBED BY GRADING, OPERATION SHALL RECEIVE 6" OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER AND SEED WITH LOW MAINTENANCE GRASS SEED MIX. CONTRACTOR SHALL SEED DISTURBED AREAS IN ACCORDANCE WITH SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED. ALL EXPOSED SURFACE AREAS SHALL BE STABILIZED PER THE SWPPP AND LANDSCAPE REQUIREMENTS AS PART OF THIS PLAN SET.
16. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS SOIL TIGHT.
17. ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED MORTAR INVERT FROM INVERT IN TO INVERT OUT.
18. STORM PIPE SHALL BE IN ACCORDANCE OF STANDARD DETAILS GUIDELINES ON STD-CUD-1.
19. ALL STORM SEWER STRUCTURE GRATES AND FRAMES WITHIN PAVEMENT SHALL BE HEAVY DUTY.
20. ALL STORM DRAINAGE SHALL BE PERFORMED IN ACCORDANCE WITH ALL LOCAL COUNTY AND DOT STANDARDS.
21. ALL DOWNSPOUT DRAIN LINES OR ROOF LEADERS SHALL HAVE A 1.0% MINIMUM SLOPE, UNLESS OTHERWISE NOTED. CONNECT ALL DOWNSPOUTS AND ROOF LEADERS TO THE STORM SEWER SYSTEM. REFER TO ARCHITECTURAL PLANS FOR DOWNSPOUT AND ROOF LEADER LOCATIONS. PROVIDE POSITIVE DRAINAGE AND PAVEMENT REPAIR AS NEEDED.
22. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
23. THE STORM SEWER GRADE WILL BE SUCH THAT A MINIMUM COVER IS MAINTAINED TO WITHSTAND AASHTO HS-25 LOADING ON THE PIPE. PROVIDE MINIMUM 2.0 FEET OF COVER FOR ALL STORM SEWERS UNLESS OTHERWISE NOTED.
24. WHEN A SANITARY SEWER MAIN LIES ABOVE A STORM SEWER, OR WITHIN 18 INCHES BELOW, THE SANITARY SEWER WILL HAVE AN IMPERVIOUS ENCASEMENT OR BE CONSTRUCTED OF STRUCTURAL SEWER PIPE FOR A MINIMUM OF 10 FEET ON EACH SIDE OF WHERE THE STORM SEWER CROSSES.
25. IF EXISTING FIELD TILES ARE ENCOUNTERED DURING CONSTRUCTION THEY SHALL BE REPAIRED AND/OR TIED INTO A STORM SEWER SYSTEM AS NEEDED TO MAINTAIN POSITIVE DRAINAGE.

EXISTING FEATURES LEGEND

APPLIES TO ALL CIVIL SHEETS



UTILITY NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE.
2. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
3. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF O.S.H.A. DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION. THIS TO INCLUDE BUT NOT LIMITED FOR ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR O.S.H.A.
4. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITY DURING CONSTRUCTION AT NO COST TO THE OWNER.
5. ALL FILL MATERIAL IS TO BE IN PLACE AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
6. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL CONDUCT ALL REQUIRED TESTS TO THE SATISFACTION OF THE RESPECTIVE UTILITY REGULATIONS AND THE OWNER'S INSPECTION AUTHORITIES.
7. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITY'S INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
8. WATER AND SANITARY UTILITIES SHALL HAVE TEN (10') FEET OF HORIZONTAL CLEARANCE WHEN PARALLEL OR 18" VERTICAL CLEARANCE WHEN CROSSING. ALL CLEARANCE DISTANCES SHALL BE MEASURE FROM OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE. THE CROSSING SHALL BE ARRANGED SO THAT THE SANITARY SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER LINE JOINTS.
9. IF A WATER LINE PASSES UNDER THE SANITARY SEWER LINE, THE SEWER LINE SHOULD BE CONSTRUCTED OF A WATERTIGHT MATERIAL APPROVED BY THE REGULATORY AGENCY FOR USE IN WATER MAIN CONSTRUCTION AND SHALL EXTEND TEN (10') FEET ON BOTH SIDES OF THE CROSSING, AS MEASURED PERPENDICULAR TO THE WATER LINES. ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE.
10. UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
11. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL CONDUCT ALL REQUIRED TESTS TO THE SATISFACTION OF THE RESPECTIVE UTILITY REGULATIONS AND THE OWNER'S INSPECTION AUTHORITIES.
12. UTILITY TRENCHES WITHIN PAVED AREAS TO BE BACKFILLED PER UTILITY TRENCH DETAIL PROVIDED WITHIN THE CONSTRUCTION DETAILS SHEET.
13. ALL WATER LINE WORK SHALL BE PERFORMED IN ACCORDANCE WITH OAKLAND COUNTY CONSTRUCTION STANDARDS AND STATE REGULATIONS.
14. INSTALL ALL WATER LINES WITH A MINIMUM COVER OF 4'.
15. ON-SITE WATER LINE MATERIAL SHALL BE PER OAKLAND COUNTY WATER RESOURCES COMMISSIONER'S OFFICE (OCWRC) REQUIREMENTS AND PLANS. ONLY APPLICABLE MATERIALS PER OCWRC SHALL BE PERMITTED FROM THE TABLE BELOW, AS REQUIRED:

MATERIAL	PRESSURE RATING	PIPE SPEC	FITTINGS	INSTALLATION	ACCEPTABLE AREAS OF USE
HIGH-DENSITY POLY-ETHYLENE (HPDE TUBING)	SDR 9 P.C. = 250 PSI	ASTM D2239 AWWA C901 ASTM F714	ASTM D3350 ASTM D3261	ASTM D2774	ON SITE, < 3" DIA.
COPPER 1"-3"	TYPE "K"	ASTM B88	AWWA C800	AWWA C800	DOMESTIC WATERLINES 1"-3"
PE 4710 POLY-ETHYLENE PLASTIC (IPS)	SDR 11 P.C. = 200 PSI	ASTM D3035 AWWA C901	ASTM D3350 ASTM D3261	ASTM D2774	ON SITE, 2" TO 3" DIA.
P.V.C. POLY VINYL CHLORIDE 4"- 8" C900	C900	AWWA C901 (RATED DR 14)	ASTM F-477 ASTM D3139	AWWA C900 C651	ON SITE, 4"-8" WATER LINES & FIRE LINES INSTALL W/ TRACER & TAPE #12 COPPER
DUCTILE IRON PIPE 4"-12"	CLASS 54 P.C. = 350PSI	AWWA C104, C110, C151, C500	AWWA C111	AWWA C600, C651	6" FIRE HYDRANT LEADS
PE 4710 POLY-ETHYLENE PLASTIC (DIPS)	SDR 9 P.C. = 250 PSI	ASTM D2239 ASTM F714 AWWA C906	ASTM D3350 ASTM D3261	ASTM D2774	ON SITE, 4" DIA. AND LARGER

16. ON -SITE SANITARY SEWER LINE AND STORM SEWER LINE MATERIALS SHALL BE PER OCWRC REQUIREMENTS AND PLANS. ONLY APPLICABLE MATERIALS PER OCWRC SHALL BE PERMITTED, AS REQUIRED AND AS PROVIDED IN ACCORDANCE WITH STANDARD DETAILS GUIDELINES PER THE PIPE SPECIFICATIONS TABLE ON CONSTRUCTION DETAIL SHEET CUD-1.
17. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, SERVICE SIZES TO BE DETERMINED BY
18. CLEAN OUTS AND CURB BOXES WITH THE PAVED AREAS MUST HAVE TRAFFIC LOADING FRAMES AND COVERS
19. WATERMAIN, SANITARY SEWER AND STORM SEWER STANDARDS MUST COMPLY WITH COUNTY REQUIREMENTS & CITY REQUIREMENTS AND THE MOST RESTRICTIVE REQUIREMENTS SHALL APPLY.

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STATE OF MICHIGAN
MANDY J. GAUSS
ENGINEER
NO. 55618
LICENSED PROFESSIONAL ENGINEER

Mandy J. Gauss

ELEVEN

7-ELEVEN, INC.

WALLED LAKE

1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

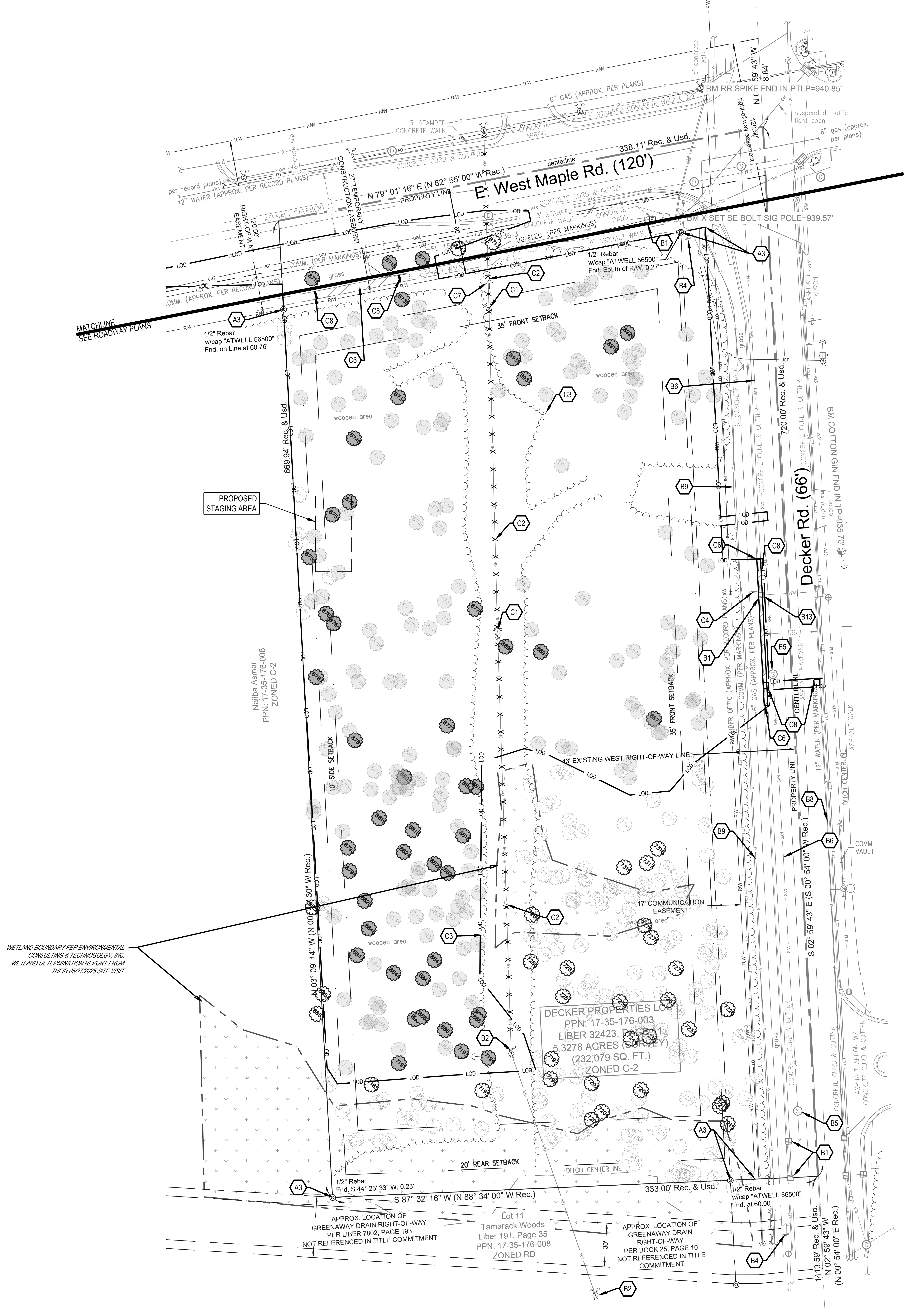
ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:

GENERAL NOTES

GN



LEGEND

═══	CURBING TO REMAIN
///═══///	CURBING TO BE REMOVED
▨	ASPHALT TO BE REMOVED
X X X X	POWER LINE TO BE REMOVED & RELOCATED
—x—x—x—	FENCE
— · — · —	SAWCUT EXISTING PAVEMENT
— STM —	STORM SEWER
— SAN —	SANITARY SEWER
— G —	GAS LINE
— W —	WATER LINE
— UGT —	TELEPHONE LINE
— UGE —	UNDERGROUND ELECTRIC LINE
— OHE —	OVERHEAD ELECTRIC LINE
	UTILITY POLE
	LIGHT POLE
	SIGN (AS NOTED)
HYD	HYDRANT
— LOD —	LIMITS OF DISTURBANCE

TREE REMOVAL 7343

PROTECTED/LANDMARK TREE REMOVAL 7318

TREE TO REMAIN 7313

PROTECTED/LANDMARK TREE TO REMAIN 7276

A. GENERAL NOTES
1. CLEAR ENTIRE SITE AND PROPERLY DISPOSE OF ALL MATERIALS UNLESS OTHERWISE SPECIFIED ON THE PLANS OR BY THE OWNER'S REPRESENTATIVE.
2. CONTRACTOR SHALL NOTIFY THE OWNER OF ANY UNFORSEEN CONDITIONS.
3. ALL PROPERTY CORNERS SHALL BE MARKED BY OWNER, PROTECTED, AND MAINTAINED BY CONTRACTOR.
4. IF DAMAGED AS A RESULT OF THIS CONTRACT, ANY ITEMS TO REMAIN SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL NOTIFY LOCAL UTILITIES 48 HRS. PRIOR TO DEMOLITION.
6. CONTRACTOR SHALL INSPECT OVERALL SITE PRIOR TO CONSTRUCTION START AND VERIFY THAT THE ALTA SURVEY INDICATES THE CORRECT TOPOGRAPHY. IF ANY INACCURACIES ARE NOTED, PLEASE CONTACT OWNER'S REPRESENTATIVE.
7. CONTRACTOR SHALL COORDINATE DEMOLITION WORK WITH ALL UTILITIES AND COMPLY WITH REGULATIONS AND STANDARDS FOR EACH UTILITY.
8. WHEN REMOVING EXISTING UTILITY, CAP UTILITY AT THE MAIN.
9. CONTRACTOR SHALL PROVIDE BARRIERS, PERIMETER FENCING, PARTITIONS, PLANKING, BRACING, SHORING, LIGHTS, AND SIGNS AS NECESSARY TO PROTECT THE PUBLIC AND ADJACENT PROPERTIES.
10. CONTRACTOR SHALL EXERCISE CARE TO PREVENT DUST, VIBRATION, SETTLEMENT, OR OTHER IMPACT TO ADJACENT PROPERTY.
11. FOR DEMOLITION NOTES WITHIN RIGHT OF WAY, REFER TO ROADWAY PLANS.

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1. EXISTING UTILITY STRUCTURE TO REMAIN.
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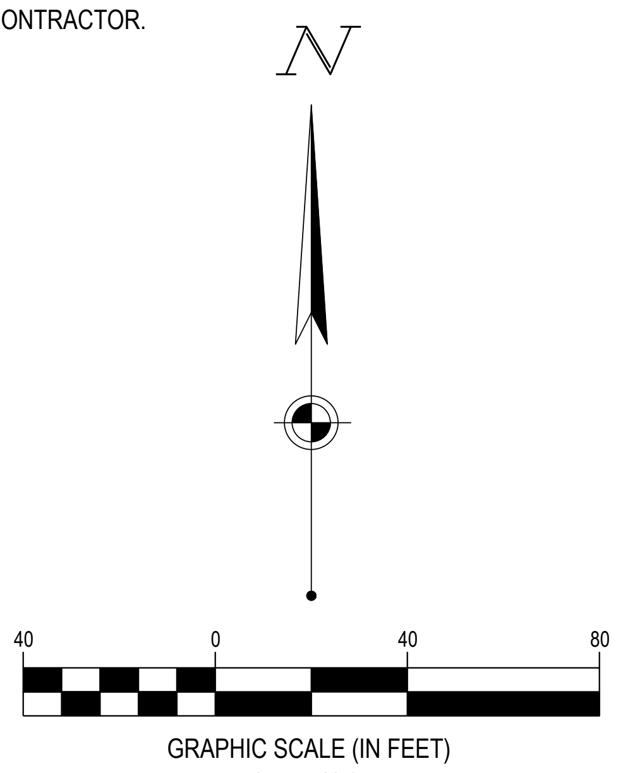
11. EXISTING HYDRANT TO REMAIN.
12. EXISTING WATER MANHOLE TO REMAIN.
13. CONTRACTOR TO REMOVE, REPLACE, AND ADJUST EXISTING RIM OF STRUCTURE PER GRADING PLAN.

C. KEY NOTES TO BE REMOVED
1. EXISTING POWER POLE TO BE REMOVED/RELOCATED AS REQUIRED.
2. EXISTING POWER LINE TO BE REMOVED/RELOCATED AS REQUIRED.
3. EXISTING VEGETATION TO BE REMOVED. REFER TO SHEET L3.0 FOR TREE REMOVAL.
4. EXISTING SPEED LIMIT SIGN TO BE RELOCATED. CONTRACTOR TO COORDINATE REMOVAL, TEMPORARY STORAGE, AND FINAL LOCATION WITH LOCAL AUTHORITY HAVING JURISDICTION.
5. EXISTING DIRECTIONAL SIGN TO BE RELOCATED. CONTRACTOR TO COORDINATE REMOVAL, TEMPORARY STORAGE, AND FINAL LOCATION WITH LOCAL AUTHORITY HAVING JURISDICTION.
6. EXISTING CONCRETE SIDEWALK/PATH PATH TO BE REMOVED WITHIN LIMITS OF DISTRUBANCE.
7. GUY WIRE FOR EXISTING POLE TO BE REMOVED & RELOCATED WITH POLE AS NECESSARY.
8. BORE FOR WATERLINE/ SANITARY SEWER INSTALLATION. SAWCUT AND REMOVE EXISTING PAVEMENT AT ENTRY AND CONNECTION LOCATION. POST INSTALLATION, RESTORE PAVEMENT TO CITY STANDARDS.

DEMOLITION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL. THE DEMOLITION, REMOVAL, AND DISPOSAL IS TO BE APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL FACILITIES SUCH AS: STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE, STRUCTURES, UTILITIES, WELLS, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL AS SPECIFIED BY A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER. IF UNDOCUMENTED FACILITIES ARE FOUND ON SITE, CONTRACTOR SHALL CONTACT THE OWNER AND UTILITY COMPANY PRIOR TO REMOVAL. ALL FACILITIES SHALL BE PLUGGED, ABANDONED, OR REMOVED PER STATE AND LOCAL REQUIREMENTS.
2. FEDERAL, STATE AND LOCAL CODE REQUIREMENTS SHALL GOVERN THE DISPOSAL OF DEBRIS INCLUDING ANY POTENTIALLY HAZARDOUS AND TOXIC MATERIALS. ALL MATERIALS AND STRUCTURES DESIGNATED AS "TO BE REMOVED" SHALL BE DISPOSED OF OFF SITE AND AT THE COST OF THE CONTRACTOR.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING JOB SITE SAFETY PER OSHA REQUIREMENTS AT ALL TIMES.
4. PRIOR TO DEMOLITION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALL THE STATE 811 AND NOTIFY ALL UTILITY COMPANIES TO SCHEDULE UTILITY SERVICE REMOVAL AND/OR ABANDONMENT. ALL UTILITIES SHALL BE REMOVED/RELOCATED PER THE SPECIFICATIONS OF THE UTILITY COMPANIES. THE CONTRACTOR IS RESPONSIBLE TO PAY ALL FEES AND CHARGES ASSOCIATED WITH THIS WORK
5. CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICES TO INHABITED BUILDINGS ON SITE AND ADJACENT PROPERTIES AT ALL TIMES. INTERRUPTIONS SHALL BE APPROVED BY THE OWNERS OF THE BUILDINGS/PROPERTIES.
6. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES. IF THE LOCATION OR ELEVATION OF THE EXISTING UTILITIES ARE FOUND TO BE DIFFERENT FROM THE PLANS, CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
7. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES TO REMAIN INSIDE AND OUTSIDE CONSTRUCTION LIMITS. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGES AND NOTIFY THE CITY/COUNTY PRIOR TO CONSTRUCTION START. ANY EXISTING SITE FEATURE TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, CURB, ETC. SHALL BE REPAIRED TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THE EXISTING CONDITIONS. PRIOR TO BEING DAMAGED, THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
8. CONTINUOUS ACCESS SHALL BE MAINTAINED TO THE SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.
9. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND LOCAL REGULATIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR PLACING AND MAINTAINING CONSTRUCTION FENCE, SIGNS, ETC. TO WARN AND KEEP UNAUTHORIZED PEOPLE OFF SITE FOR THE DURATION OF THE PROJECT.
11. PRIOR TO DEMOLITION, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED PER THE GOVERNING AGENCIES GUIDELINES AND STANDARDS. DUST CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. SAWCUT LINE PROVIDED IS FOR REFERENCE ONLY. CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXTENT OF THE SAWCUT THAT WILL BE REQUIRED AS WELL AS PAVEMENT REPAIRS TO INSTALL UTILITY TRENCHING. IF ANY DAMAGE OCCURS ON ANY OF THE SURROUNDING PAVEMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THAT WHICH IS NECESSARY TO COMPLETE THE INTENT OF THE PROPOSED IMPROVEMENTS. SAWCUT EXISTING PAVEMENT TO FULL DEPTH, USING CARE TO CUT NEAT, STRAIGHT LINES. CUT AT EXISTING JOINTS WHERE POSSIBLE.
13. THE CONTRACTOR SHALL MAINTAIN A WELL-DRAINED SITE, FREE OF STANDING WATER DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY DRAINAGE MEASURES DURING CONSTRUCTION.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO STUDY THE PLANS AND VISIT THE SITE TO DETERMINE THE ITEMS THAT MUST BE REMOVED TO COMPLY WITH THE SITE DEVELOPMENT PLANS. NO EXTRA FEE WILL BE PAID FOR THE REMOVAL OF ANY ITEM NOT LISTED THAT IS VISIBLE UPON A SITE VISIT. THE DEMOLITION PLAN IS INTENDED TO PRESENT THE SCOPE OF THE DEMOLITION, AND DOES NOT GUARANTEE THAT ALL ITEMS ARE ADDRESSED.
15. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR ALL SITE DEVELOPMENT WORK, PAY ALL FEES FOR PERMITS AND CHECK ALL GOVERNING AUTHORITIES' SPECIFICATIONS FOR BUT NOT LIMITED TO, GUTTERS, SIDEWALKS, POLES, AND OTHER STRUCTURES, INCLUDING THE REMOVAL OR RELOCATION OF EXISTING UTILITIES OR OTHER PHYSICAL OBJECTS SHOWN ON PLANS OR NOTED OTHERWISE.
16. THE CONTRACTOR SHALL CREATE AND IMPLEMENT AN EROSION AND SEDIMENTATION CONTROL PLAN FOR ALL SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROJECT. THE PLAN MUST CONFORM TO THE EROSION AND SEDIMENTATION REQUIREMENTS OF THE CONSTRUCTION GENERAL PERMIT OR LOCAL STANDARDS AND CODES, WHICHEVER IS MORE STRINGENT.
17. ALL COSTS FOR INSPECTIONS AND/OR TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE. COSTS RELATED TO CITY-PROVIDED SITE UTILITY AND GRADING INSPECTIONS WILL BE THE RESPONSIBILITY OF THE PROPERTY OWNER/DEVELOPER. THE CITY REQUIRES MATERIALS TESTING RESULTS BUT IS NOT RESPONSIBLE FOR PROVIDING ANY MATERIALS TESTING AND WILL NOT PROVIDE A MATERIALS TESTER FOR THE DEVELOPER OR CONTRACTOR.



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

MISS DIG 811

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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MANDY J. GAUSS ENGINEER NO. 55618
Mandy J. Gauss

7-ELEVEN

7-ELEVEN, INC.

WALLED LAKE
1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
DEMOLITION PLAN

CD

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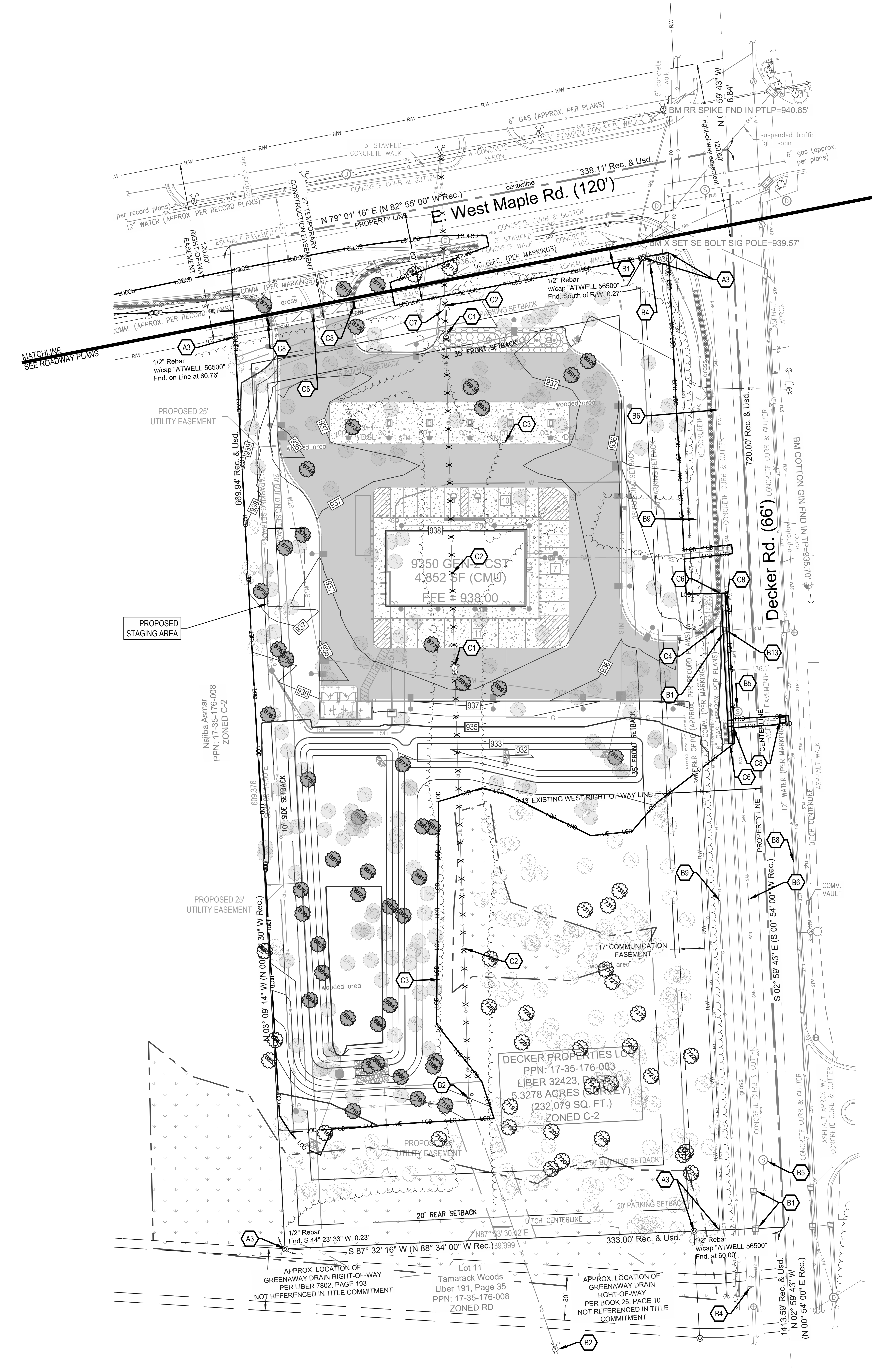

LEGEND

═══	CURBING TO REMAIN
⫽⫽⫽⫽	CURBING TO BE REMOVED
▨	ASPHALT TO BE REMOVED
—X—X—OHE—X—	POWER LINE TO BE REMOVED & RELOCATED
—x—x—x—	FENCE
━ · ━ · ━	SAWCUT EXISTING PAVEMENT
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	UTILITY POLE
	LIGHT POLE
	SIGN (AS NOTED)
HYD	HYDRANT
—— LOD ——	LIMITS OF DISTURBANCE

TREE REMOVAL 734

PROTECTED/LANDMARK TREE REMOVAL 7318

TREE TO REMAIN 7313

PROTECTED/LANDMARK TREE TO REMAIN 7276

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2. CONTRACTOR SHALL NOTIFY THE OWNER OF ANY UNFORSEEN CONDITIONS.
3. THE PROPERTY CORNERS SHALL BE MARKED BY OWNER AND PROTECTED AND MAINTAINED BY CONTRACTOR. HEXAGON HAS BEEN ADDED, BUT GENERAL NOTE A3 APPEARS TO STILL REQUIRE REVISION. REVISE.
4. IF DAMAGED AS A RESULT OF THIS CONTRACT, ANY ITEMS TO REMAIN SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
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13. THE CONTRACTOR SHALL MAINTAIN A WELL-DRAINED SITE, FREE OF STANDING WATER DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY DRAINAGE MEASURES DURING CONSTRUCTION.
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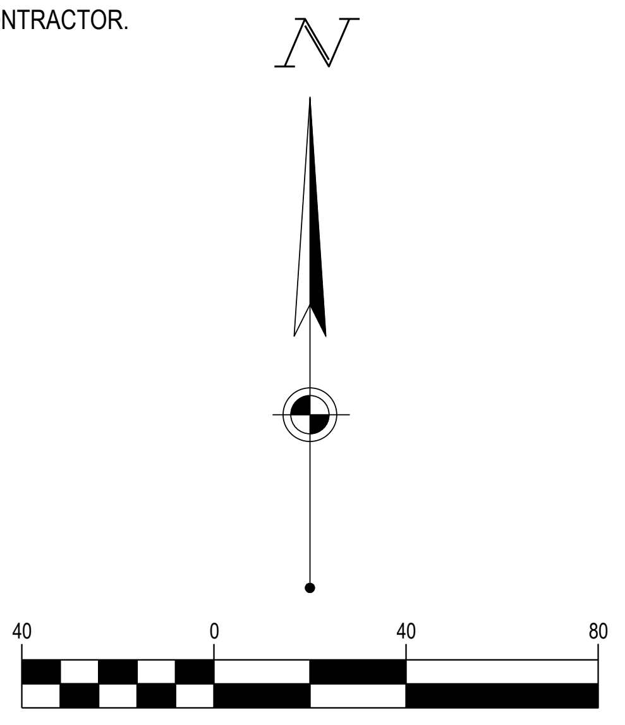

GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

CESO
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Phone: 937.435.8584 Fax: 888.208.4826

STATE OF MICHIGAN
MANDY J. GAUSS ENGINEER NO. 55618
LICENSED PROFESSIONAL ENGINEER
Mandy J. Gauss

7-ELEVEN, INC.

WALLED LAKE
1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
DEMOLITION OVERLAY PLAN

CD1

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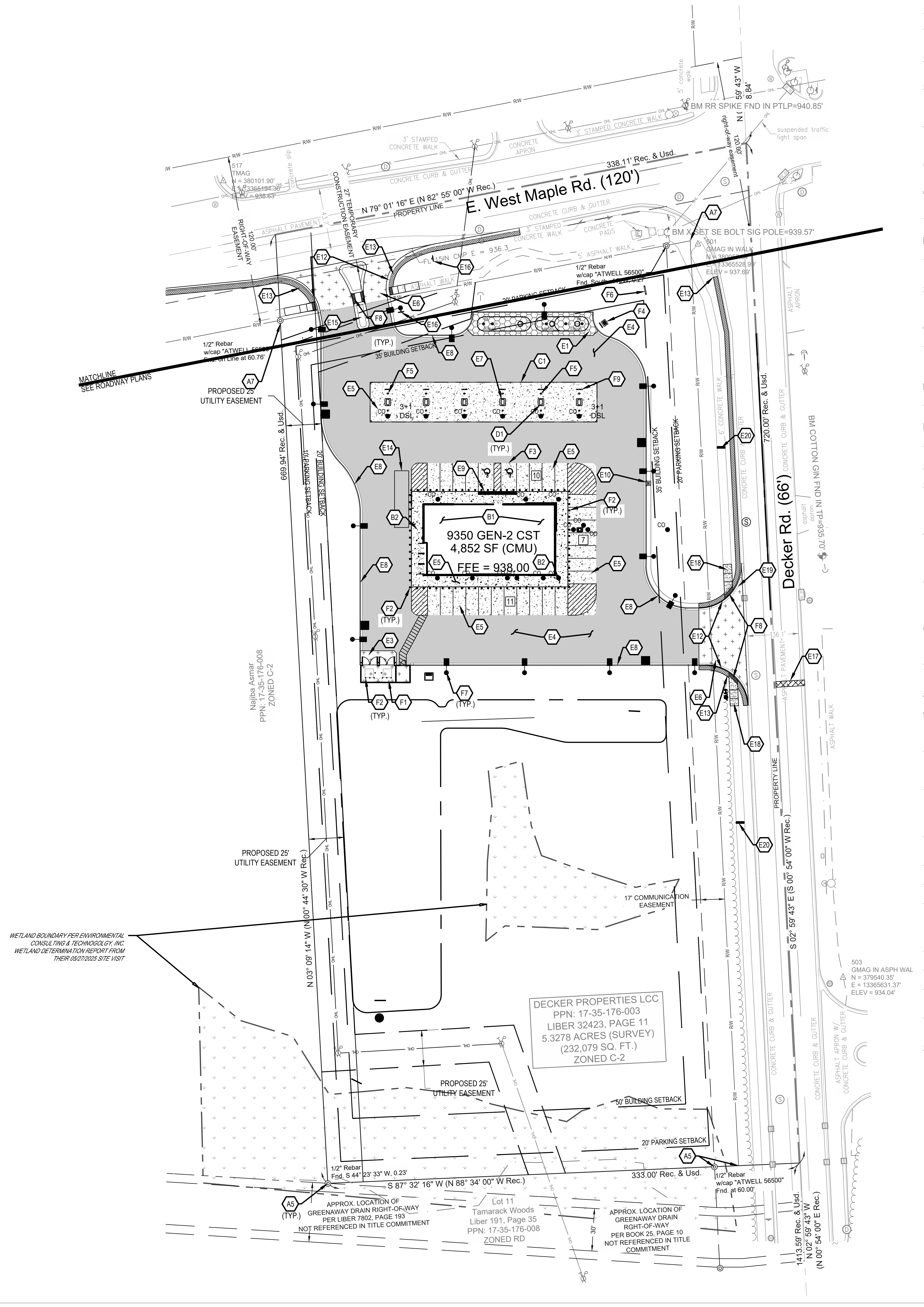
C:\DCACCDocs\CESO\7-Eleven - PMF - Walled Lake MI\Project Files_CESO\03-CIVIL\PLAN\PLOT\764078_SITEPLAN.dwg - 7/18/2025 - Mark Bulger



A. GENERAL NOTES

1. ALL MATERIAL NOTED ON DRAWINGS WILL BE SUPPLIED BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
2. RESTORE TO ORIGINAL OR BETTER CONDITION ALL AREAS DISTURBED BY CONSTRUCTION. UPON COMPLETION, POWER WASH ALL PAVING TO OWNER'S SATISFACTION.
3. SHOW ALL MODIFIED PIPING, CONDUIT RUNS, UTILITIES AND ANY MODIFICATIONS MADE TO THE ORIGINAL DRAWINGS ON "AS-BUILT" PRINT AND TURN OVER TO OWNER'S REPRESENTATIVE UPON COMPLETION.
4. TURNOVER MANUAL:
   ON THE DAY OF THE "TURNOVER" THE CONTRACTOR WILL PROVIDE ONE COPY OF THE COMPLETION MANUALS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT OF THE ENTIRE SITE. THE PROPERTY CORNERS SHALL BE MARKED BY OWNER AND PROTECTED AND MAINTAINED BY CONTRACTOR.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL WOODEN FORMS PRIOR TO CONSTRUCTION COMPLETION.
7. ALL STORM PIPE SECTION TO BE RODENT GRADED.

B. BUILDING DETAILS

1. CONSTRUCT C-STORE BUILDING #9350 BUILDING PER ARCHITECTURAL DRAWING. HVAC SYSTEM SHALL BE GAS AND BE ROOF MOUNTED.
2. CONSTRUCT BUILDING SIDEWALK AS SHOWN ON PLOT PLAN AND PER DETAIL 4/CPC-1. CONTRACTOR SHALL FOLLOW BUILDING PLAN DETAILS FOR SIDEWALK REINFORCEMENT IN FRONT OF BUILDING ACCESS POINTS.

C. CANOPY DETAILS

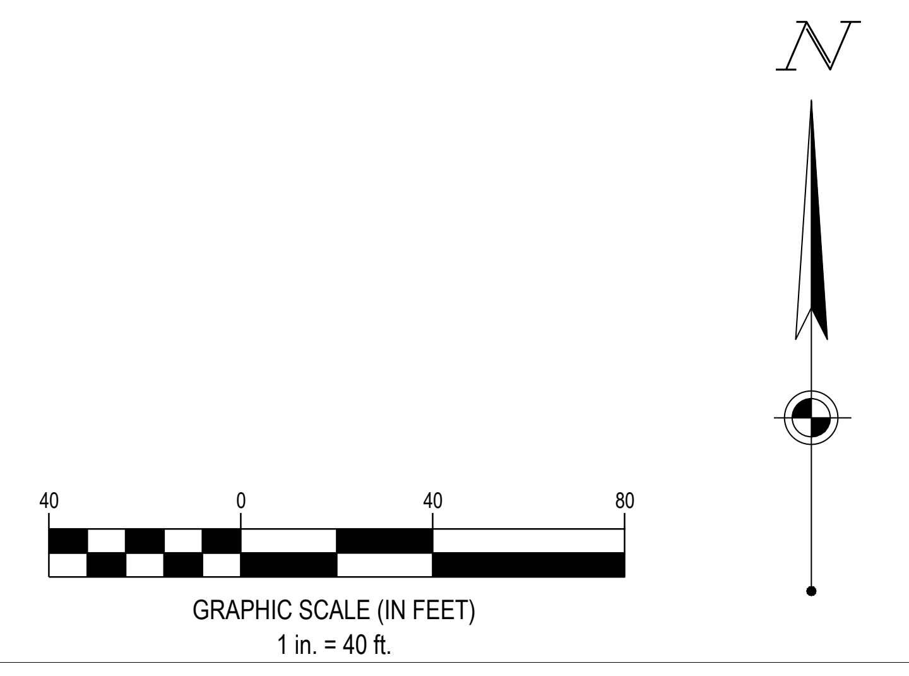
1. COORDINATE WITH VENDOR TO INSTALL NEW AUTO CANOPY PER CANOPY DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR FOOTERS AND INSTALLING VENDOR SUPPLIED ANCHOR BOLTS.

D. DISPENSER DETAILS

1. INSTALL DISPENSERS PER THE FUELING PLANS PROVIDED BY 7-ELEVEN

E. PAVING DETAILS

1. CONSTRUCT NEW CONCRETE TANK SLAB.
2. NOT IN USE.
3. INSTALL HEAVY-DUTY CONCRETE PAVEMENT WITH AN AGGREGATE BASE PER CITY OF WALLED LAKE DETAIL P-2/CPC-1 AND USE THE RECOMMENDATIONS OF GEOTECHNICAL CONSULTANT FOR ALL OTHER SUBSURFACE CONDITIONS ON THIS SITE. NOTIFY THE OWNER'S REPRESENTATIVE IF THERE ARE ANY CONFLICTS.
4. INSTALL STANDARD-DUTY ASPHALT PAVEMENT WITH AN AGGREGATE BASE DETAIL P-2/ CPC-1 AND USE THE RECOMMENDATIONS OF GEOTECHNICAL CONSULTANT FOR ALL OTHER SUBSURFACE CONDITIONS ON THIS SITE. NOTIFY THE OWNER'S REPRESENTATIVE IF THERE ARE ANY CONFLICTS.
5. INSTALL STANDARD-DUTY CONCRETE PAVEMENT WITH AN AGGREGATE BASE PER DETAIL 1/ CPC-1 AND USE THE RECOMMENDATIONS OF GEOTECHNICAL CONSULTANT FOR ALL OTHER SUBSURFACE CONDITIONS ON THIS SITE. NOTIFY THE OWNER'S REPRESENTATIVE IF THERE ARE ANY CONFLICTS.
6. CONSTRUCT (2) CONCRETE APPROACHES PER STATE AND/OR LOCAL SPECIFICATIONS. REFER TO ROADWAY IMPROVEMENT PLANS FOR E. WEST MAPLE ROAD TAPER LANE AND APPROACH IMPROVEMENTS. REFERENCE CITY OF WALLED LAKE DETAIL P-2/CPC-1.
7. INSTALL (6) NEW CONCRETE DISPENSER ISLANDS WITH 3' X 5' X 13' ISLAND FORM FOR AUTO DISPENSERS.
8. CONSTRUCT F-4 CONCRETE CURB & GUTTER INSIDE PROPERTY LINES PER P-4/CPC-2.
9. INSTALL 2'-0" WIDE DETECTABLE WARNING SURFACE ALIGNED ON ACCESSIBLE AISLE PER APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS. DETECTABLE WARNING PLATE MATERIALS SHALL BE PROVIDED FOR CITY REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
10. INSTALL CONCRETE SLAB FOR AIR MACHINE PER DRAWING CYE-A. INSTALL (1) 3/4" CONDUIT AND WIRE PER MANUFACTURER'S RECOMMENDATIONS. VERIFY INSTALLATION DETAILS WITH VENDOR.
11. BID AS ALTERNATE: PROVIDE A PRICE TO SUBSTITUTE CONCRETE PAVEMENT FOR ASPHALT PAVEMENT AND PROTECT FOR COLD WEATHER INSTALLATION. IF CONTRACTOR MOVES FORWARD WITH ALTERNATE, APPROVAL FROM CITY OF WALLED LAKE IS REQUIRED PRIOR TO START OF CONSTRUCTION.
12. CONSTRUCT CAST IN PLACE CONCRETE CURB AND GUTTER ALONG APPROACH TO MATCH EXISTING CURB & GUTTER AND MUST MEET GOVERNING CITY AND/OR COUNTY STANDARDS.
13. INSTALL 3' PAVER SPLASH SURFACE AREA TO MATCH EXISTING PAVERS.
14. 10' X 40' LOADING ZONE
15. CONSTRUCT RIGHT-IN/RIGHT-OUT DRIVEWAY IN ACCORDANCE WITH ROAD COMMISSION OF OAKLAND COUNTY (RCOC) OR MDOT GEO-680-B AS APPROVED BY RCOC. MEDIAN CURB TO BE IN ACCORDANCE WITH ROAD COMMISSION OF OAKLAND COUNTY (RCOC) OR MDOT TYPE D PER MDOT DETAIL R-30-G AS APPROVED BY RCOC.
16. NO LEFT TURN SIGN.
17. CONTRACTOR TO REPAIR ANY DAMAGE WITHIN ROW CAUSED BY WATERLINE INSTALLATION.
18. INSTALL PROPOSED SIDEWALK IN RIGHT-OF-WAY PER CITY OF WALLED LAKE DETAIL P-3 ON SHEET CPC-1. SIDEWALK APPROACH RAMPS SHALL HAVE A MINIMUM 6" THICK CONCRETE.
19. CONTRACTOR TO HAVE PROPER SIGNAGE AND TRAFFIC CONTROL IN PLACE TO MAINTAIN TRAFFIC WHILE PERFORMING WORK WITHIN DECKER ROAD RIGHT-OF-WAY.
20. SIDEWALK TO BE CLOSED DURING CONSTRUCTION OF ACCESS DRIVE ON DECKER ROAD. CONTRACTOR TO INSTALL R9-9 SIGNAGE WHEN WORK IS OCCURRING (REFERENCE E. WEST MAPLE ROAD PLANS FOR PROPOSED SIGN).



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

F. YARD AREA DETAILS

1. CONSTRUCT DUMPSTER ENCLOSURE AND COLLECTION PAD WITH ATTACHED STORAGE SHED AND RELATED WIRING AND CONDUITS. REFER TO ARCHITECTURAL DRAWING A1.3 FOR DETAILS. GATE SHALL BE CEDAR FENCE BOARDS. ENCLOSURE SHALL BE CMU WALL. MATCH BUILDING FINISH IF MASONRY WALL IS REQUIRED.
2. SUPPLY AND INSTALL 6" BOLLARDS PER STORE FRONT GUARD BOLLARD DETAIL 1/ CYE-A AND SS SERIES DRAWING. HDPE BOLLARD COVER TO BE BLACK COLOR.
3. PAINT INDICATED ACCESSIBLE PARKING STALLS AND INSTALL SIGNAGE PER APPLICABLE CODES. PAINT ALL OTHER PARKING STRIPES PRO PARK WATERBORNE YELLOW (B97YD2467). REFER TO DET-1 FOR ACCESSIBLE SPACE STRIPING AND SIGNAGE.
4. INSTALL VENT PIPES PER FUEL DRAWINGS.
5. PROVIDE AND INSTALL CODE APPROVED FIRE EXTINGUISHERS (1 MINIMUM) WITH PLASTIC BOX HOLDER IN APPROVED LOCATIONS AS REQUIRED BY LOCAL FIRE OFFICIALS. FIRE EXTINGUISHERS ARE OWNER SUPPLIED AND VENDOR INSTALLED, AND SHALL BE LOCATED SUCH THAT AN EXTINGUISHER IS NOT MORE THAN 75 FEET FROM PUMPS, DISPENSERS, OR STORAGE TANK FILL OPENINGS. FIRE EXTINGUISHER MINIMUM RATING SHALL BE 2-A:20-B:C.
6. PROPOSED 50 SQ. FT, 20' TALL PYLON SIGN. REFER TO ARCHITECTURAL/SIGNAGE PLANS.
7. PROPOSED LIGHT POST. REFER TO PHOTOMETRIC PLAN FOR DETAILS.
8. CONSTRUCT RAMP WITH DETECTABLE WARNING SURFACE IN CONCRETE WALK PER APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
9. PROPOSED U-SHAPED ISLAND GUARD POST PER DETAIL 2/CYE-A, TYP.

PROPOSED AREAS:

UNITS	ACRES	SQ. FT
EXISTING SITE:	4.87	212,137
PROPOSED SITE:	4.87	212,137
BUILDING:	0.11	4,853
ASPHALT PAVEMENT:	0.76	33,157
CONCRETE PAVEMENT:	0.36	15,793
TOTAL IMPERVIOUS	**1.23**	**53,803**

SITE LEGEND

EXISTING

REFER TO GN FOR EXISTING FEATURES LEGEND

PROPOSED

▨	PROPOSED ASPHALT PAVEMENT. REFERENCE DETAIL P-2/CPC-1
▨	PROPOSED STANDARD-DUTY CONCRETE PAVEMENT. REFERENCE DETAIL 1/CPC-1
▨	PROPOSED CONCRETE SIDEWALK. REFERENCE DETAIL P-3/CPC-1
▨	PROPOSED TANK SLAB CONCRETE PAVEMENT. REFERENCE DETAIL 3/CPC-1
▨	BRICK PAVERS FOR REQUIRED 3' WIDE SPLASH AREA
▨	REPLACE PAVEMENT TO MATCH EXISTING CONDITION AFTER UTILITY INSTALLATION
▨	PROPOSED HEAVY-DUTY CONCRETE PAVEMENT. REFERENCE DETAIL P-2/CPC-1
—— R/W ——	RIGHT-OF-WAY
—— — — ——	PROPERTY LINE
—— ——	SETBACK
—— —— ——	EASEMENT
—— — ——	CENTERLINE
═══	CONCRETE CURB
——	PAVEMENT/WALK
7	PARKING SPACE COUNT
⊥	SIGN
■	CATCH BASIN
Ⓢ	SANITARY MANHOLE
CO ●	CLEANOUT
DS ●	DOWN SPOUT
●	FIRE HYDRANT
●■	LIGHT POLE

CONTRACTOR SHALL REVIEW THE COMPLETE DRAWING SET AND NOTIFY THE DESIGN PROFESSIONAL IN WRITING PRIOR TO CONSTRUCTION, IF ANY DISCREPANCIES ARE FOUND WITHIN THE DRAWINGS OR WITH ACTUAL FIELD CONDITIONS.

MISS DIG 811®

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Revisions / Submissions

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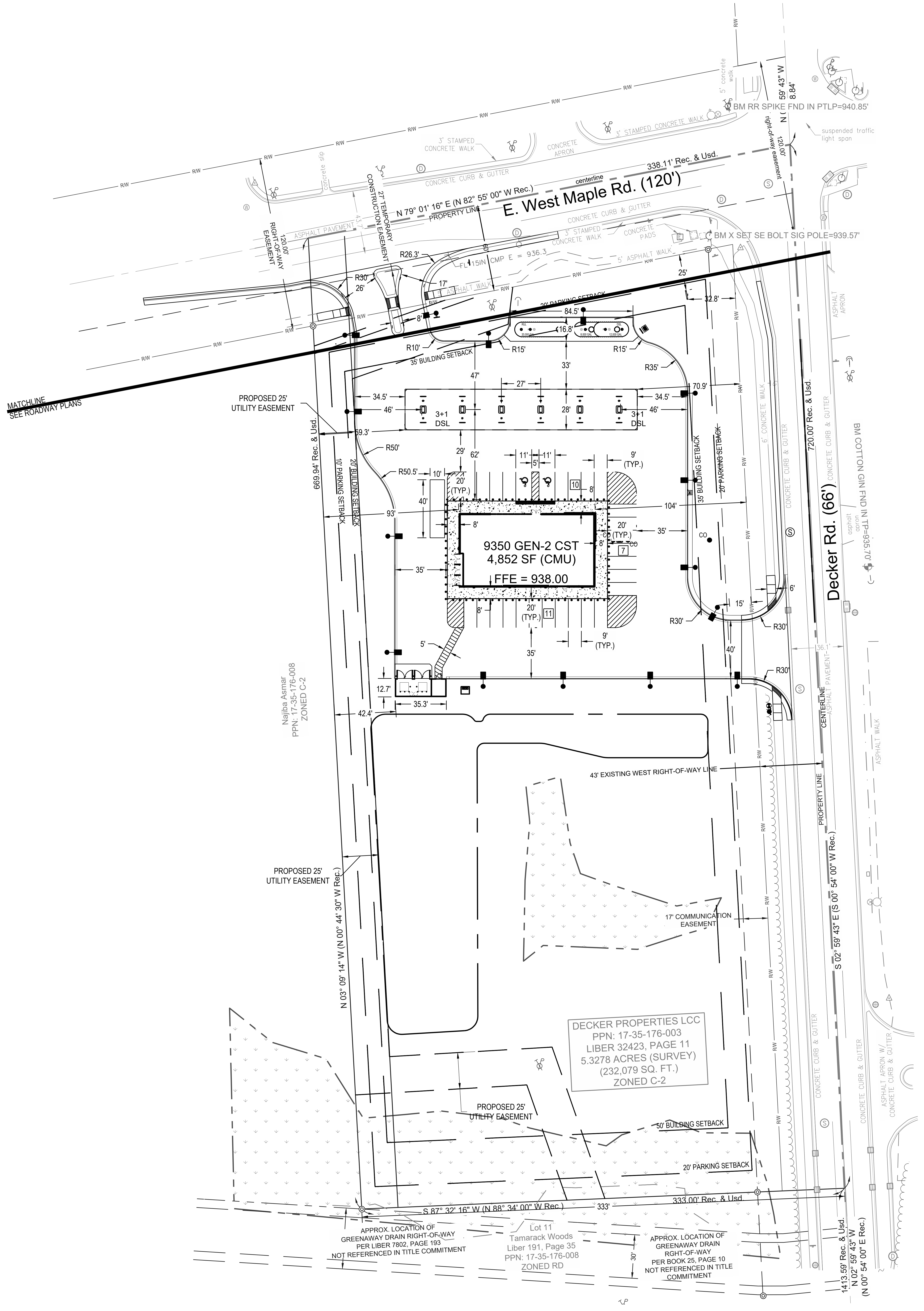
Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
SITE PLAN

CS



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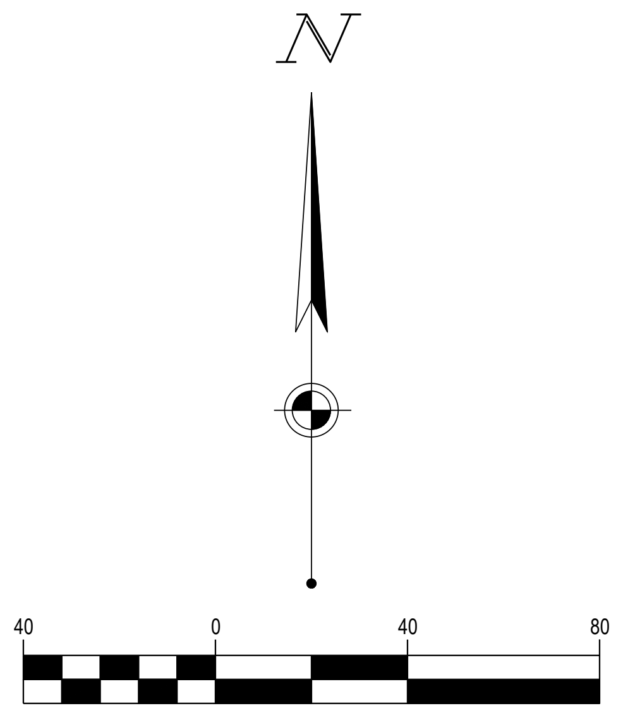

GRAPHIC SCALE (IN FEET)
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Drawing Title:

DIMENSION PLAN

CS1

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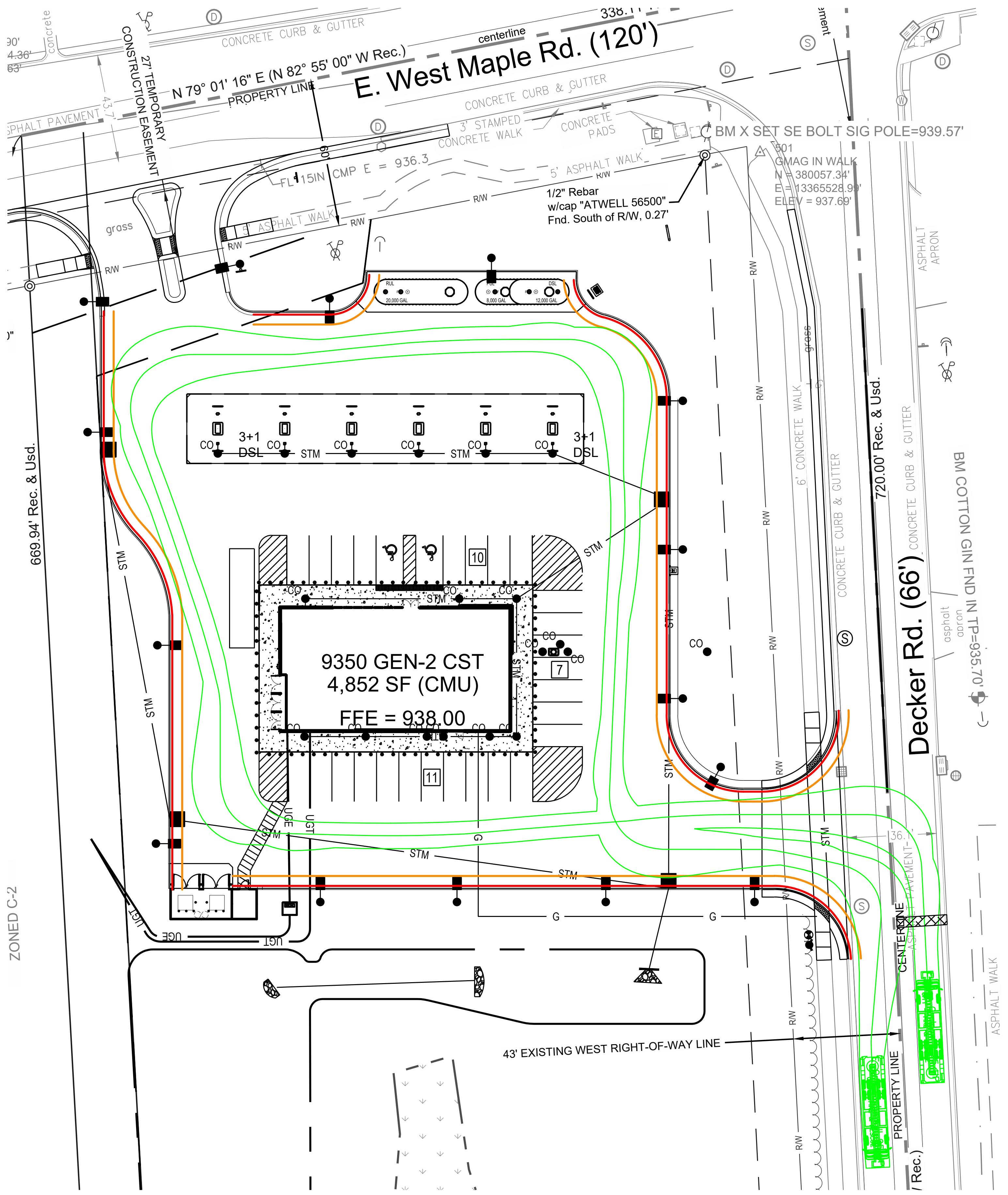
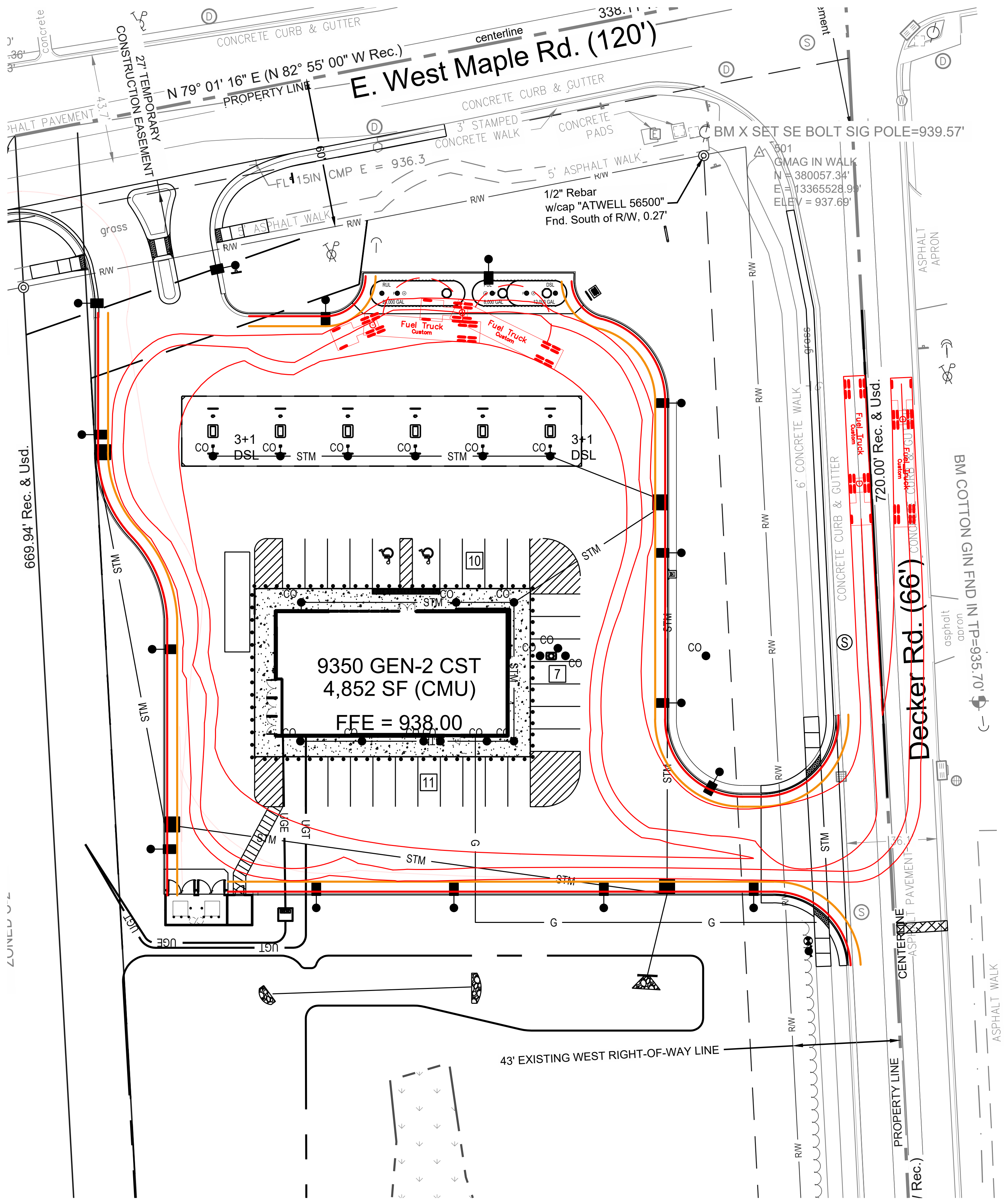
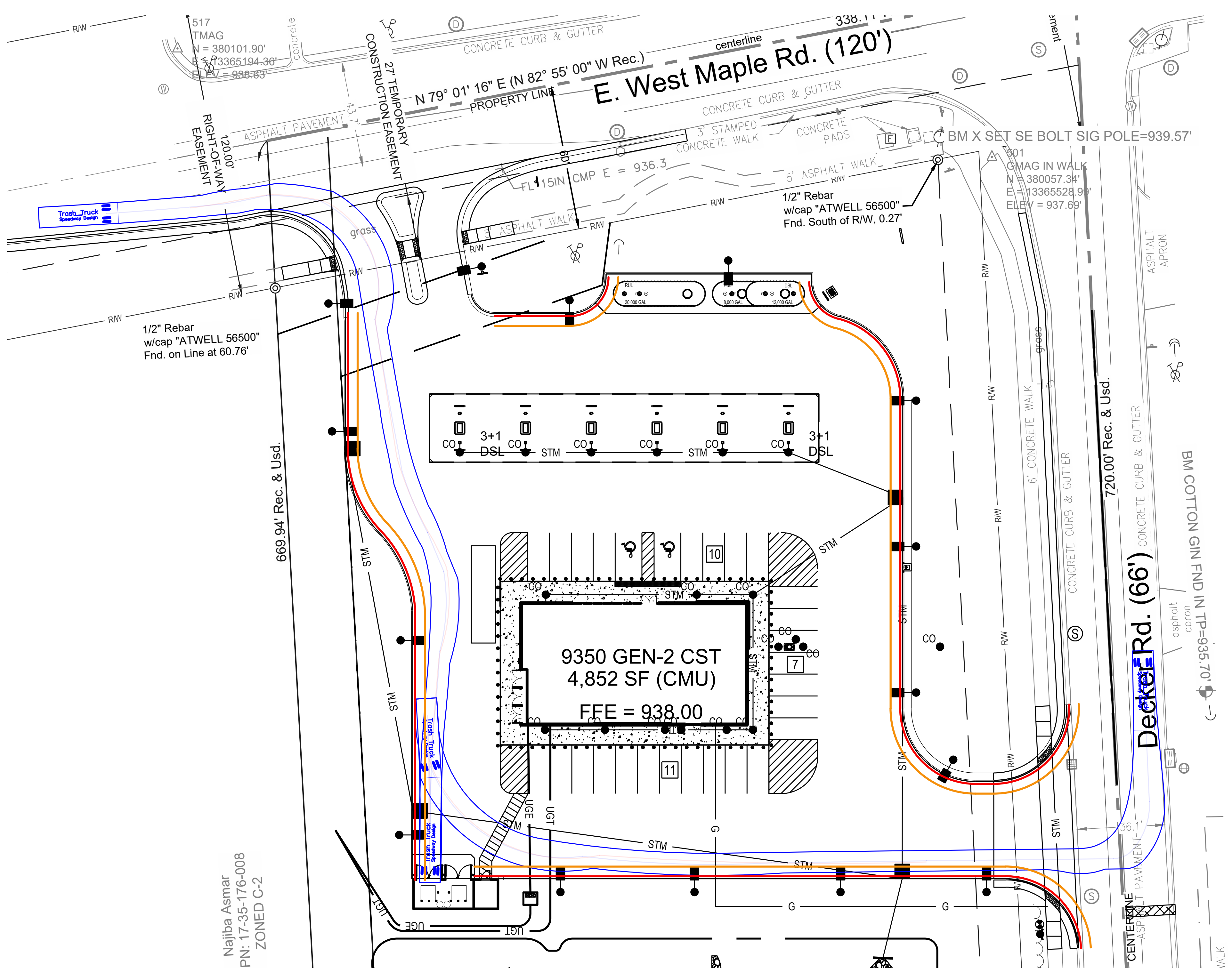


E-ONE CYCLONE II 95 HP CIRCULATION
1"=40'



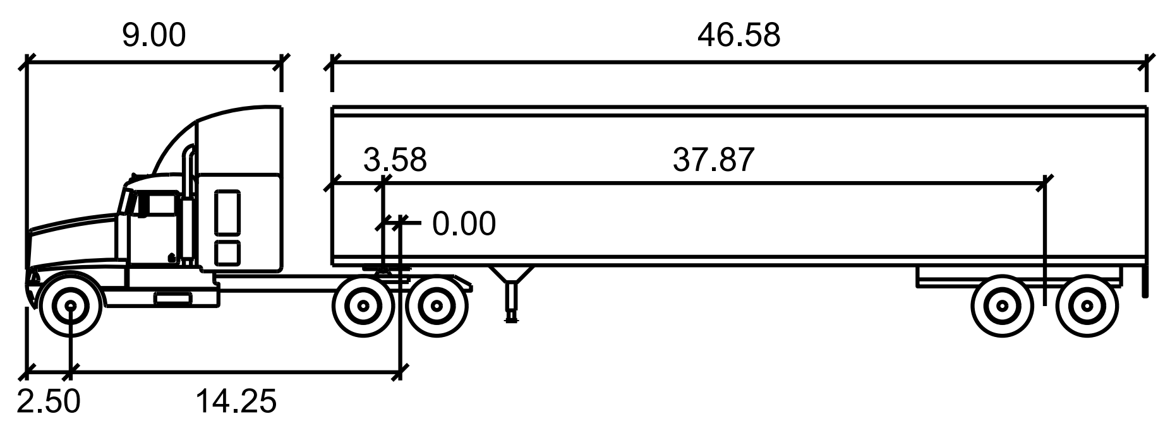
FUEL TRUCK CIRCULATION
1"=40'



TRASH TRUCK CIRCULATION
1"=40'

LEGEND

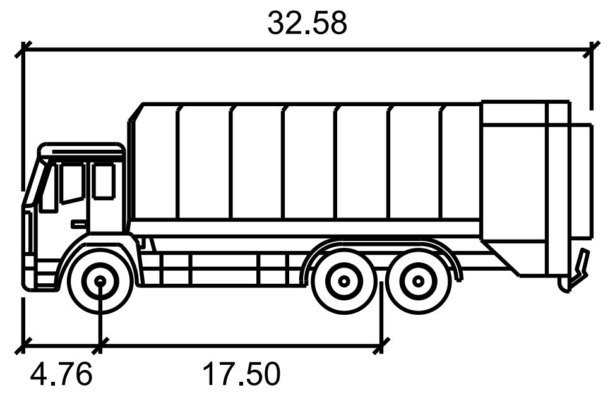
🟥 1 FT OFFSET FROM FACE OF CURB
🟧 5 FT OFFSET FROM FACE OF CURB



Fuel Truck

feet

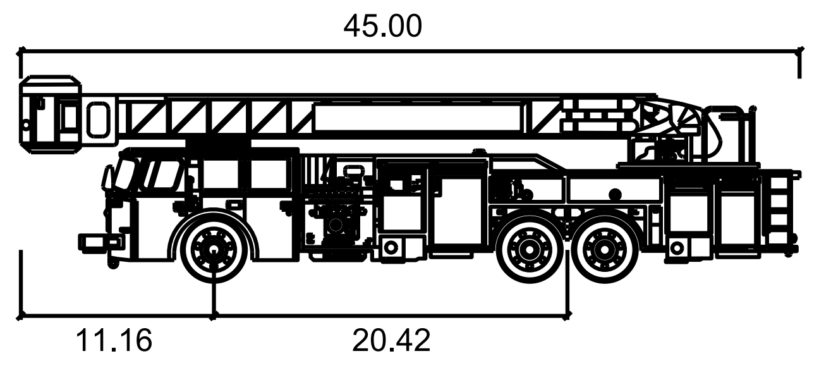
Tractor Width : 8.00
Trailer Width : 8.00
Tractor Track : 8.00
Trailer Track : 8.00
Lock to Lock Time : 6.0
Steering Angle : 26.0
Articulating Angle : 60.0



Trash Truck

feet

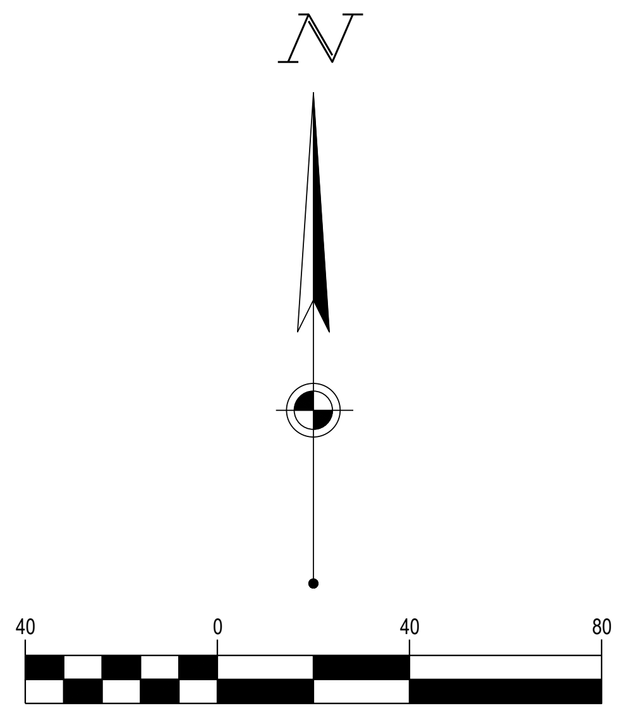
Width : 8.50
Track : 7.33
Lock to Lock Time : 6.0
Steering Angle : 38.2



E-One Cyclone II 95 HP

feet

Width : 9.50
Track : 9.35
Lock to Lock Time : 6.0
Steering Angle : 43.4



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

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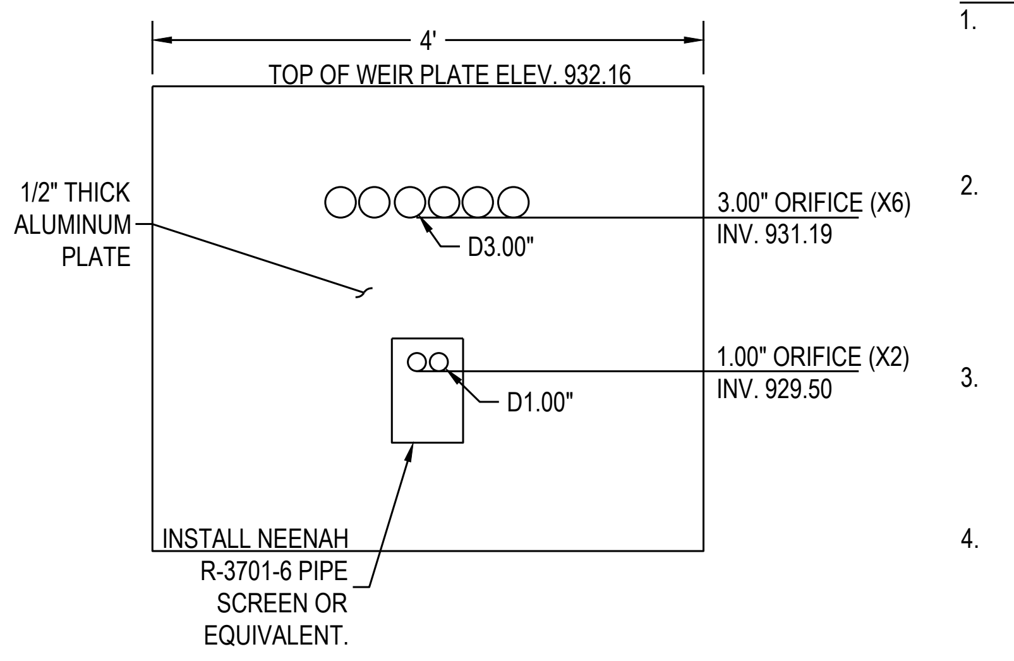
Drawing Title:

CIRCULATION PLAN

CR

GRADING NOTES:

1. CONTRACTOR TO USE EXTREME CAUTION WHEN GRADING IN AND AROUND EXISTING UTILITIES. CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH PRIOR TO START OF CONSTRUCTION.
2. EXCAVATE SOILS AS NECESSARY TO COMPLETE PROPOSED CONSTRUCTION. UNLESS OTHERWISE DIRECTED (REFER TO GEOTECHNICAL REPORT), USE ALL EXCAVATED SOILS AS FILL ON SITE. ANY SOILS THAT CANNOT BE UTILIZED ON SITE SHALL BE LOADED DIRECTLY ONTO TRANSPORT TRUCKS AND HAULED TO OWNER'S APPROVED LOCATION. ANY IMPACTED SOILS ENCOUNTERED SHALL BE LOADED SEPARATELY AND SHALL NOT BE COMMINGLED WITH CLEAN SOILS. ANY EXCAVATED SOIL OR MATERIALS THAT LEAVE THE SITE MUST GO TO AN APPROVED LANDFILL LOCATION OR BE ACCOMPANIED BY AN APPROVED BILL OF SALE.
3. BID AS ALTERNATE A: IMPACTED SOILS SHALL BE PLACED ON MINIMUM 6 MIL. VISQUEEN AND COVERED WITH 40' X 100' SHEETS OF 4 MIL. VISQUEEN. A SAND BERM SHALL BE CONSTRUCTED AROUND ENTIRE PILE OF SOIL TO HOLD THE VISQUEEN DOWN. ALL SEAMS OR OVERLAP (6" MINIMUM) IN THE VISQUEEN COVERING SHALL BE SECURED WITH WEIGHTED MATERIAL.
4. BID AS ALTERNATE B: PROVIDE DEWATERING NECESSARY FOR ANY EXCAVATIONS AND TO PREVENT TANKS FROM FLOATING WHILE THE TANKS ARE NOT COVERED BY PROPER OVERBURDEN. DEWATERING SHALL CONSIST OF SUPPLYING EQUIPMENT AND LABOR TO MAINTAIN PUMPING ACTIVITIES AS NECESSARY. COORDINATE WITH OWNER'S REPRESENTATIVE TO DETERMINE WHERE WATER CAN BE PUMPED. IDENTIFY THIS COST AS A SPECIFIC LINE ITEM IN THE BID. DISPOSAL OF CONTAMINATED WATER SHALL BE THE OWNER'S RESPONSIBILITY.
5. THE ENVIRONMENTAL CONSULTANT AND THE CONTRACTOR SHALL USE THE "SOILS WORKSHEET" TO ACCOUNT FOR ALL EXCAVATED SOILS.
6. A REPORT OF THE SUBSURFACE INVESTIGATION IS MADE AVAILABLE TO THE CONTRACTOR AT TIME OF BIDDING. THE BASE BID SHALL INCLUDE LAND BALANCING ACTIVITIES BASED ON THE ASSUMPTION THAT EXCAVATED SOIL CAN BE REUSED AS NECESSARY FOR CONSTRUCTION. UPON REVIEWING THE SUBSURFACE INVESTIGATION, CONTRACTOR SHALL INCLUDE THE FOLLOWING AS ALTERNATE:
   - 6.A. OVER-EXCAVATE AREAS OF UNSUITABLE SOILS AND STABILIZE AREAS PER THE SUBSURFACE INVESTIGATION. ESTIMATE QUANTITY OF OVER-EXCAVATED AREAS AND REPLACEMENT BACKFILL IN EACH AREA, ALONG WITH THE TYPE OF BACKFILL. ACTUAL QUANTITIES WILL BE VERIFIED DURING CONSTRUCTION PER THE DIRECTION OF THE GEOTECH CONSULTANT AND OWNER'S REPRESENTATIVE, WITH DETAILED CHANGE ORDERS SUBMITTED TO OWNER.
7. ANY DISCREPANCIES BETWEEN ELEVATIONS SHOULD BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND THE DESIGN ENGINEER.

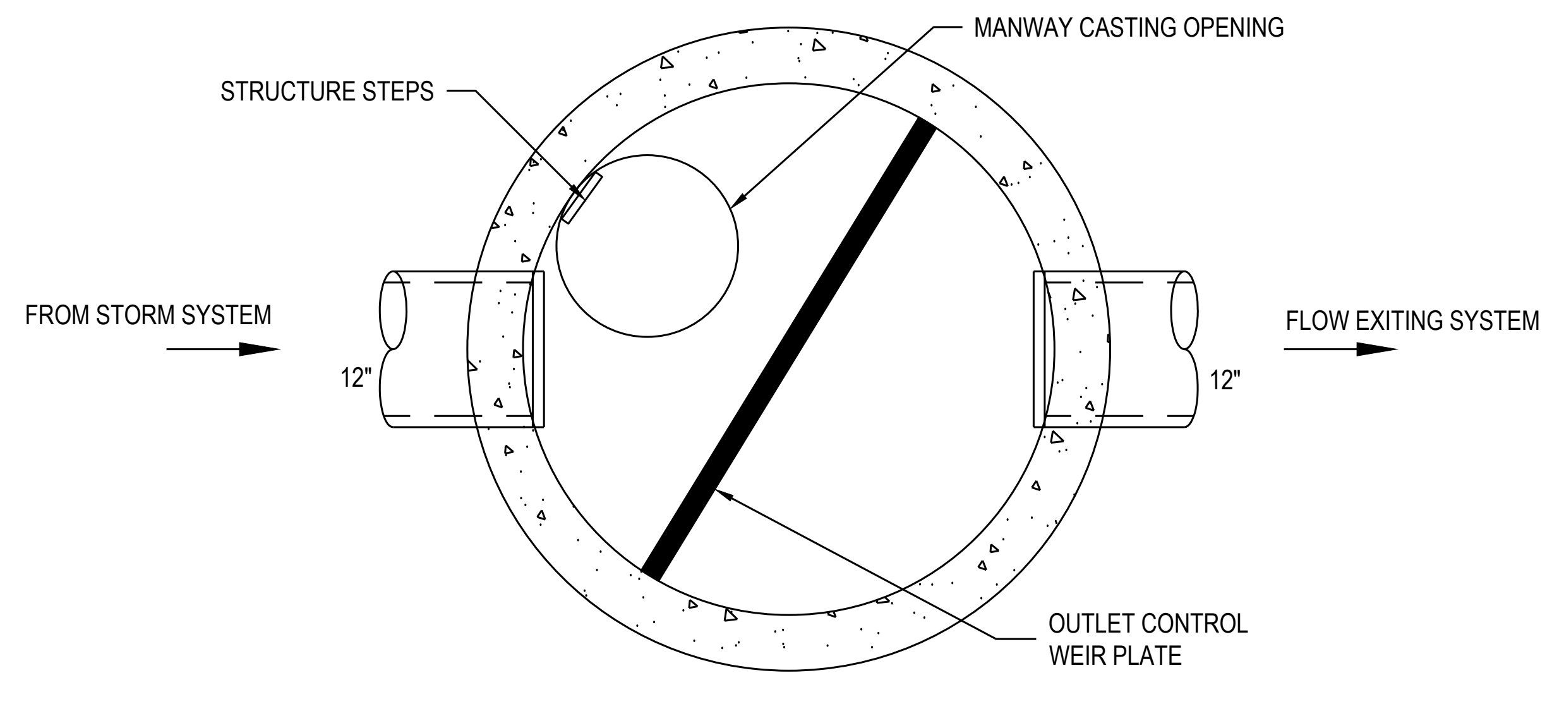


X ORIFICE PLATE DETAIL

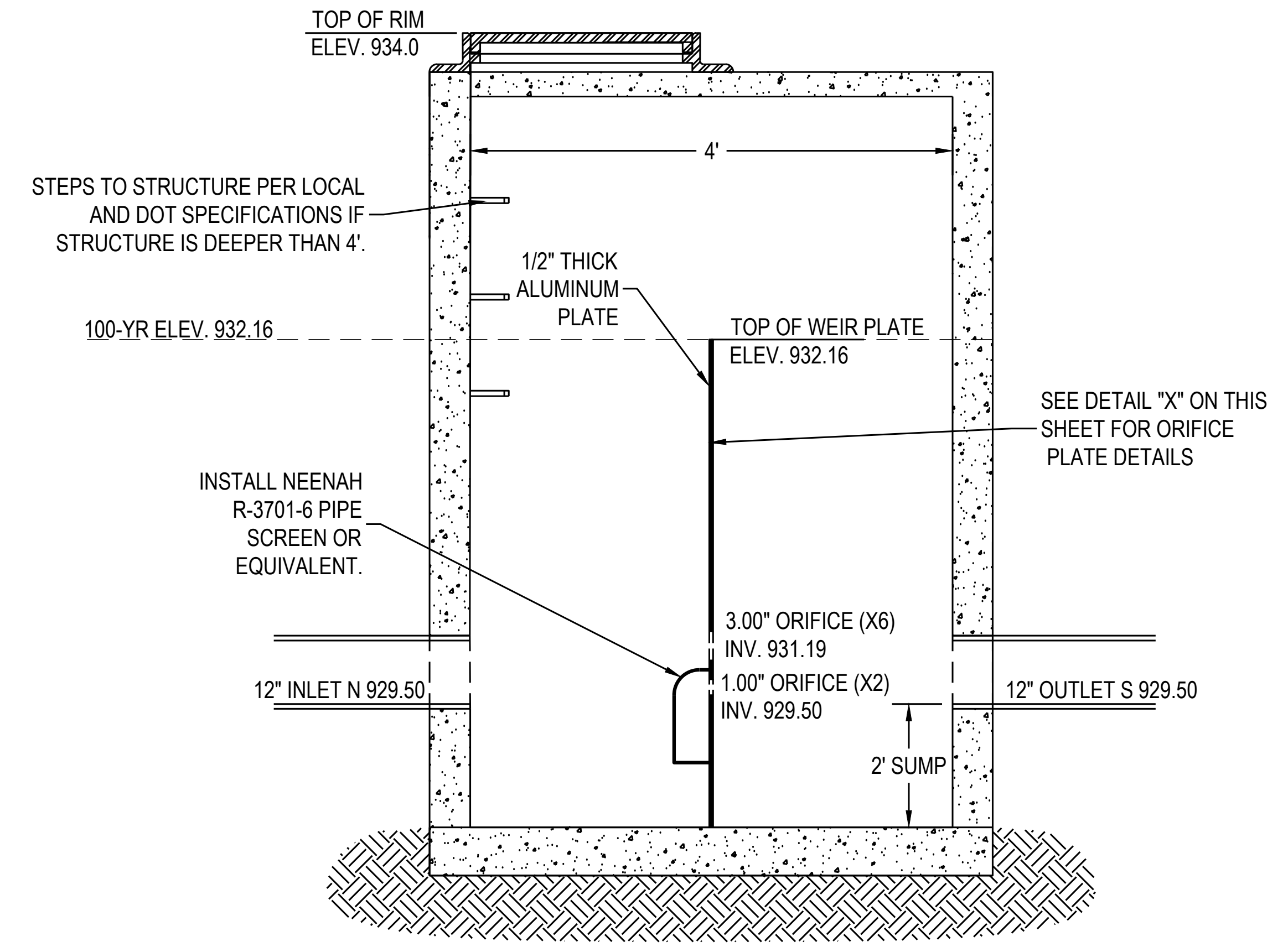
N.T.S.

NOTES:

1. ALUMINUM PLATE SHALL BE SECURELY ANCHORED TO STRUCTURE WALLS. PROVIDE WATERTIGHT SEAL AT ALL JOINTS BETWEEN PLATE AND STRUCTURE WALL OR FLOOR SLAB.
2. USE 2" x ½" STAINLESS STEEL BOLT SET IN EXPANDABLE GROUT TO BOLT ALUMINUM PLATE TO STRUCTURE FLOOR AND WALL WITH ALUMINUM ANGLE IRON. USE 1" x ½" STAINLESS STEEL BOLT TO CONNECT ALUMINUM ANGLE IRON TO ALUMINUM PLATE.
3. PROVIDE WATERTIGHT CONNECTION AT ALL PIPES. PROVIDE RUBBER BOOT TYPE CONNECTIONS WITH A MINIM OF TWO (2) STAINLESS STEEL CLAMP ASSEMBLIES. KOR-N-SEAL, A-LOK, OR APPROVED EQUAL.
4. SEE STD-CUD-1 DETAIL SHEET FOR STANDARD SQUARE CATCH BASIN SPECIFICATIONS. MODIFY PER THIS DETAIL TO INCLUDE WEIR PLATE.



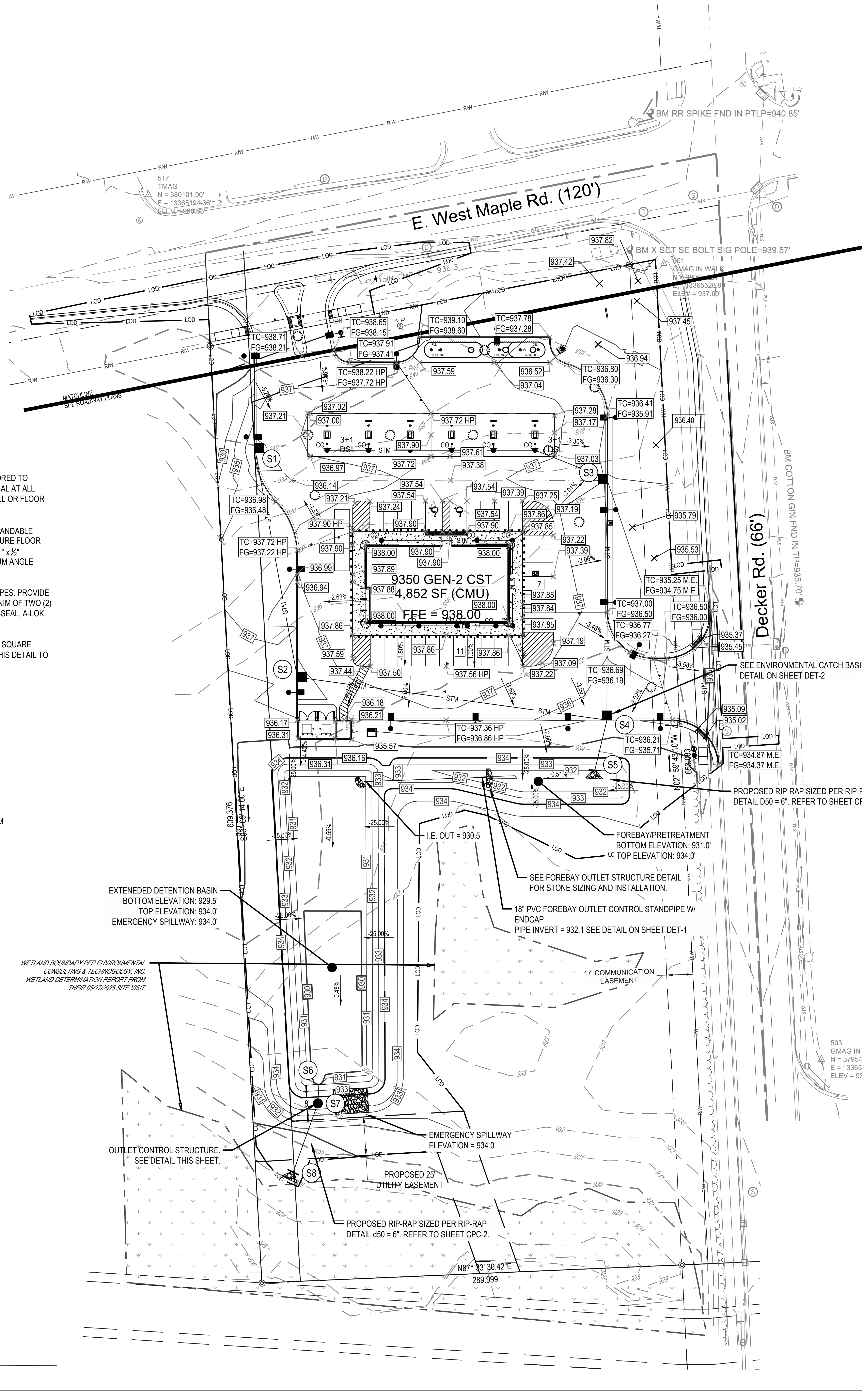
PLAN VIEW (N.T.S.)



PROFILE VIEW (N.T.S.)

V OUTLET CONTROL STRUCTURE DETAIL

N.T.S.



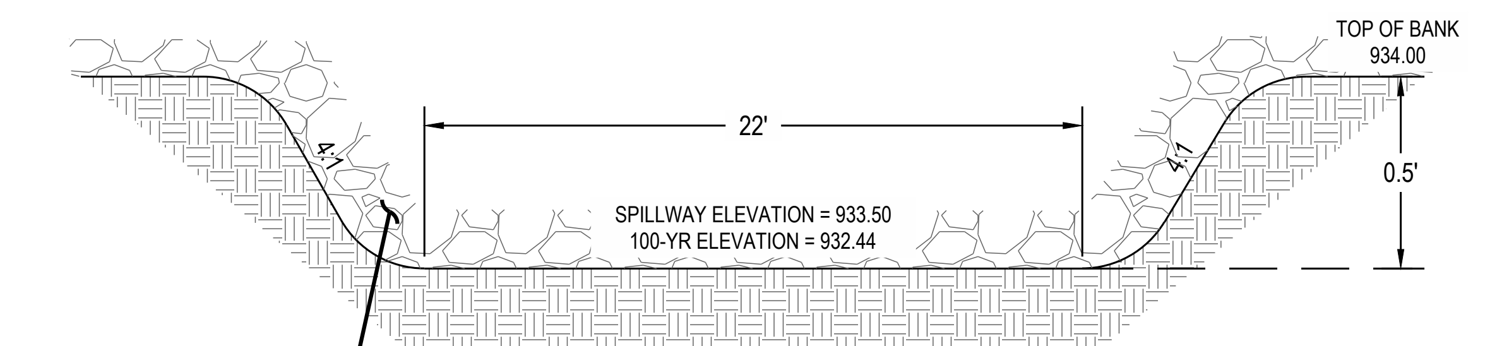
GRADING LEGEND

EXISTING

REFER TO GN FOR EXISTING FEATURES LEGEND

PROPOSED

—— R/W ——	RIGHT-OF-WAY
—— — — ——	PROPERTY LINE
—— ——	SETBACK
—— —— ——	EASEMENT
—— 960 ——	MAJOR CONTOUR
—— 962 ——	MINOR CONTOUR
▲ ▼	GRADE BREAK
← ~	FLOW LINE
■	CATCH BASIN
▬	CURB INLET
CO ●	CLEANOUT
YD ■	YARD DRAIN
DS ●	DOWNSPOUT
XXX.XX	FINISHED GRADE ELEVATION
XXX.XX HP	HIGH POINT
RIM=XXX.XX	RIM ELEVATION
BC=XXX.XX	BACK OF CURB ELEVATION
TC=XXX.XX FG=XXX.XX	TOP OF CURB ELEVATION FINISHED GRADE ELEVATION
TP=XXX.XX FTG=XXX.XX	TOP OF PAVEMENT ELEVATION TOP OF FOOTING ELEVATION
M.E.	MATCH EXISTING ELEVATION
X.XX% →	SLOPE ARROW
➤➤	FLOOD ROUTE
— · · · —	SWALE
○	APPROX. BORING LOCATION. REFER TO GEOTECH REPORT.
—— LOD ——	LIMITS OF DISTURBANCE



PROPOSED RIP-RAP SIZED PER RIP-RAP DETAIL d50 = 6". REFER TO SHEET CPC-2.

EMERGENCY SPILLWAY SECTION

N.T.S.

STORM SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	RIM	INVERT
S1	CATCH BASIN	935.70	933.09 (12") S
S2	CATCH BASIN	935.68	932.34 (12") N 932.34 (12") E
S3	CATCH BASIN	935.47	932.50 (6") SW 932.50 (6") W 932.50 (12") S
S4	ENVIRONMENTAL CATCH BASIN	935.29	931.72 (12") N 931.52 (12") W 931.52 (15") S
S5	MDOT R-86-F, END SECTION		931.28 (15") N
S6	MDOT R-86-F, END SECTION		929.50 (12") S
S7	OUTLET CONTROL STRUCTURE	934.00	929.40 (12") N 929.40 (12") S
S8	MDOT R-86-F, END SECTION		929.00 (12") N

STORM SEWER PIPE TABLE

PIPE NAME	DIAMETER	LENGTH	SLOPE
BLDG-S3	6"	73'	0.68%
CNPY-S3	6"	51'	0.79%
FOREBAY PIPE	12"	81'	0.25%
S1-S2	12"	152'	0.50%
S2-S4	12"	203'	0.40%
S3-S4	12"	156'	0.50%
S4-S5	15"	34'	0.72%
S6-S7	12"	12'	0.81%
S7-S8	12"	47'	0.84%

BENCHMARK

DATUM:
NAVD 88

BM "A":	RR SPIKE IN POWER TELEPHONE POLE LOCATED APPROXIMATELY 30' NORTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 40' WEST OF CENTERLINE OF DECKER RD. ELEVATION = 940.85'
BM "B":	"X" SET IN SOUTHEAST BOLT OF SIGNAL POLE LOCATED APPROXIMATELY 50' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 55' WEST OF CENTERLINE OF DECKER RD. ELEVATION = 939.57'
BM "C":	COTTON GIN FOUND IN TELEPHONE POLE LOCATED APPROXIMATELY 295' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 35' EAST OF CENTERLINE OF DECKER RD. ELEVATION = 935.70'

MISS DIG 811

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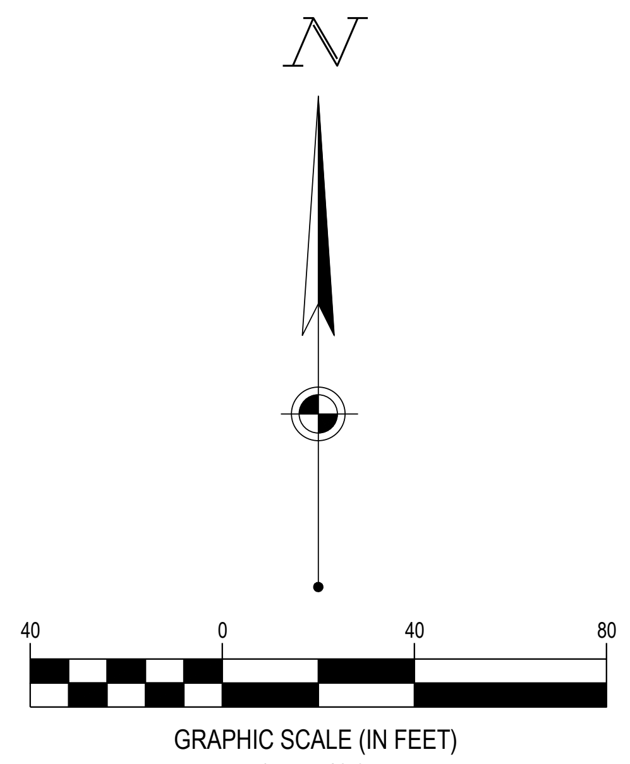

GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

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MANDY J. GAUSS ENGINEER NO. 55618

Mandy J. Gauss

7-ELEVEN

7-ELEVEN, INC.

WALLED LAKE
1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

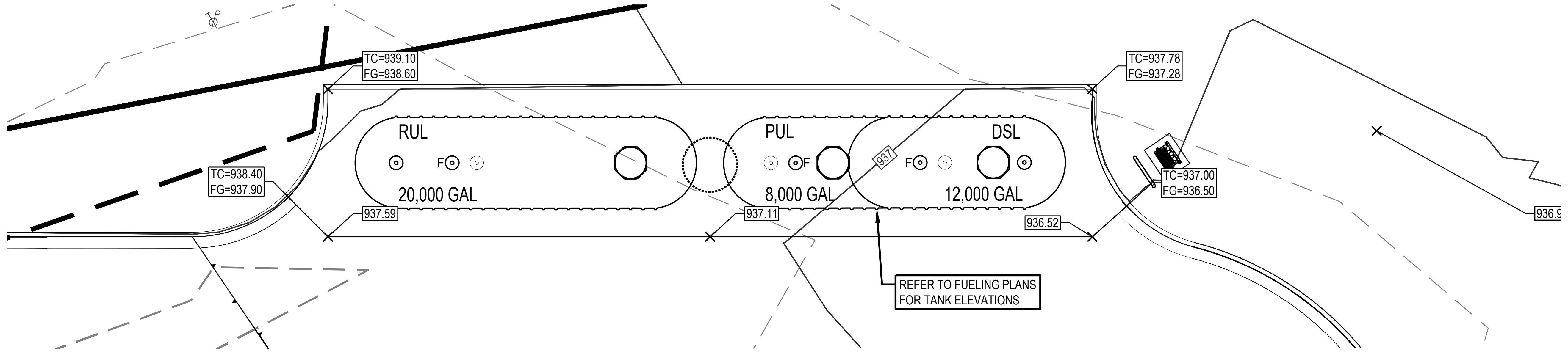
Revisions / Submissions

ID	Description	Date

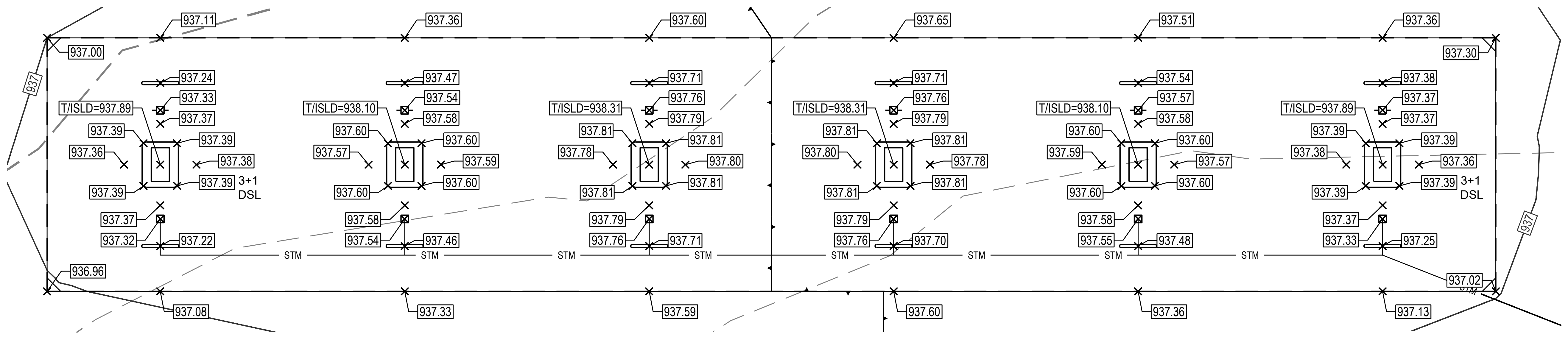
Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
GRADING PLAN

CG



TANK GRADING DETAIL
1=10'



CANOPY GRADING DETAIL
1=10'

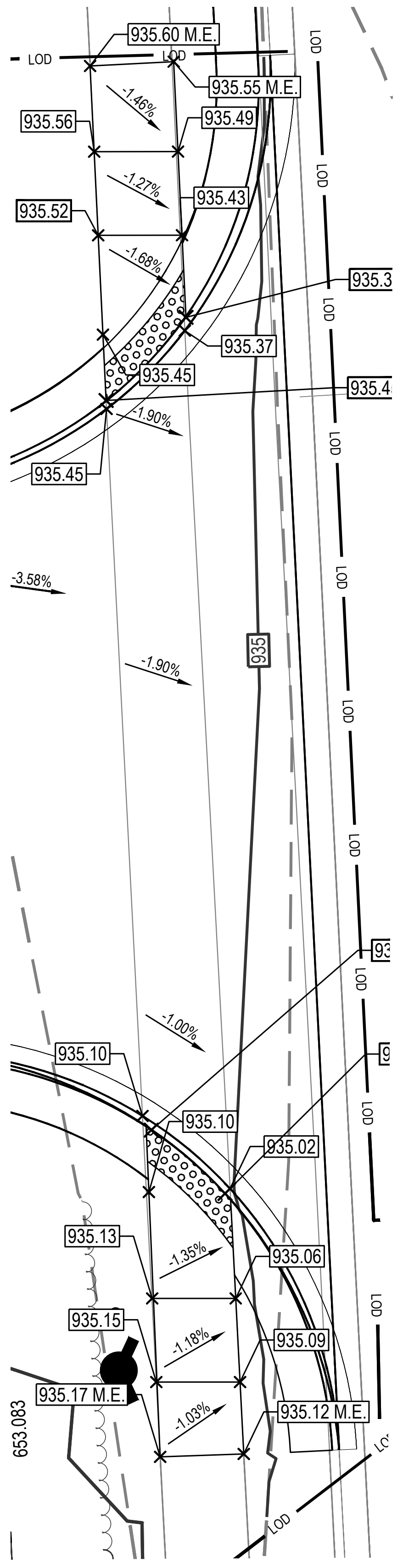
GRADING LEGEND

EXISTING

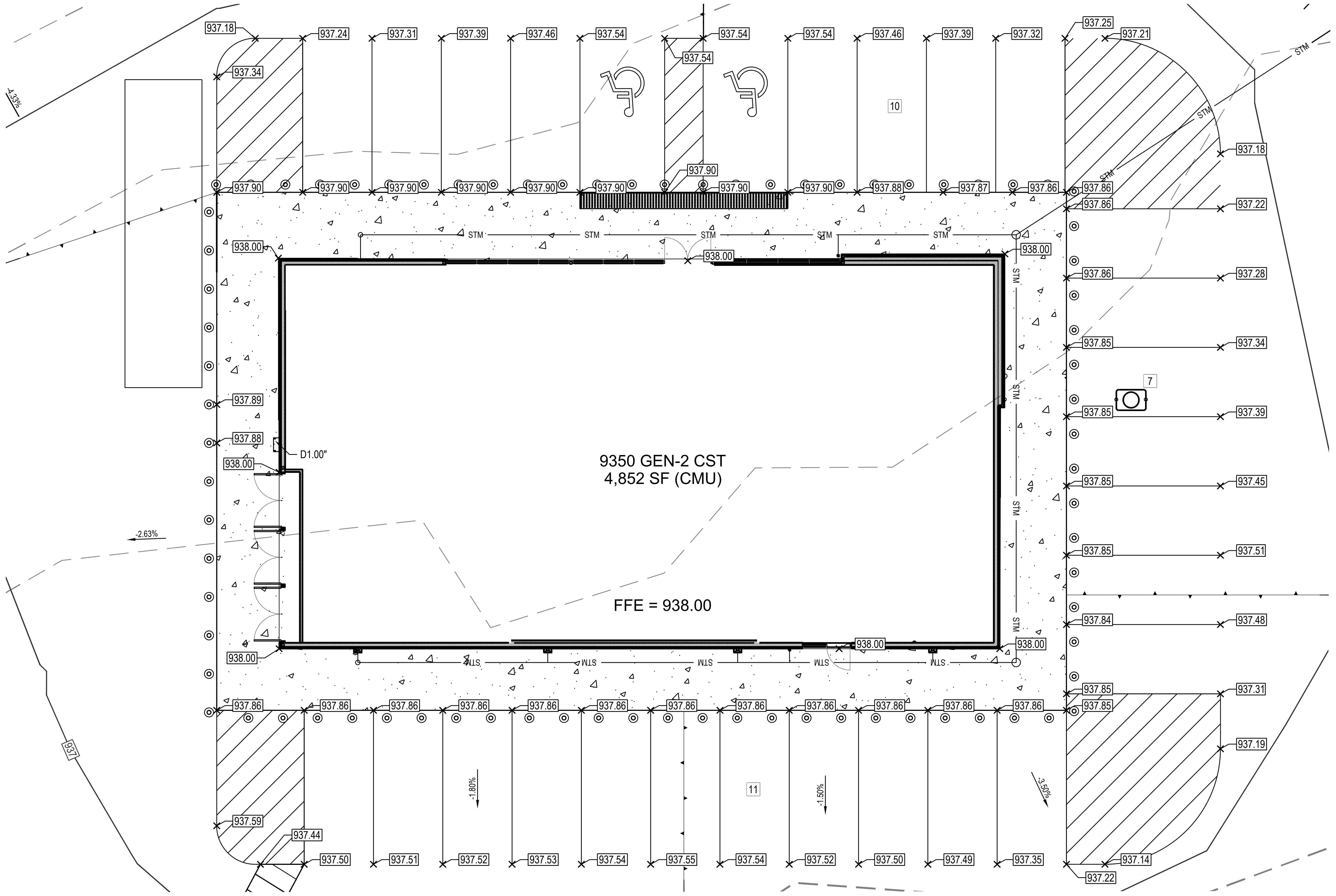
REFER TO CD FOR EXISTING FEATURES LEGEND

PROPOSED

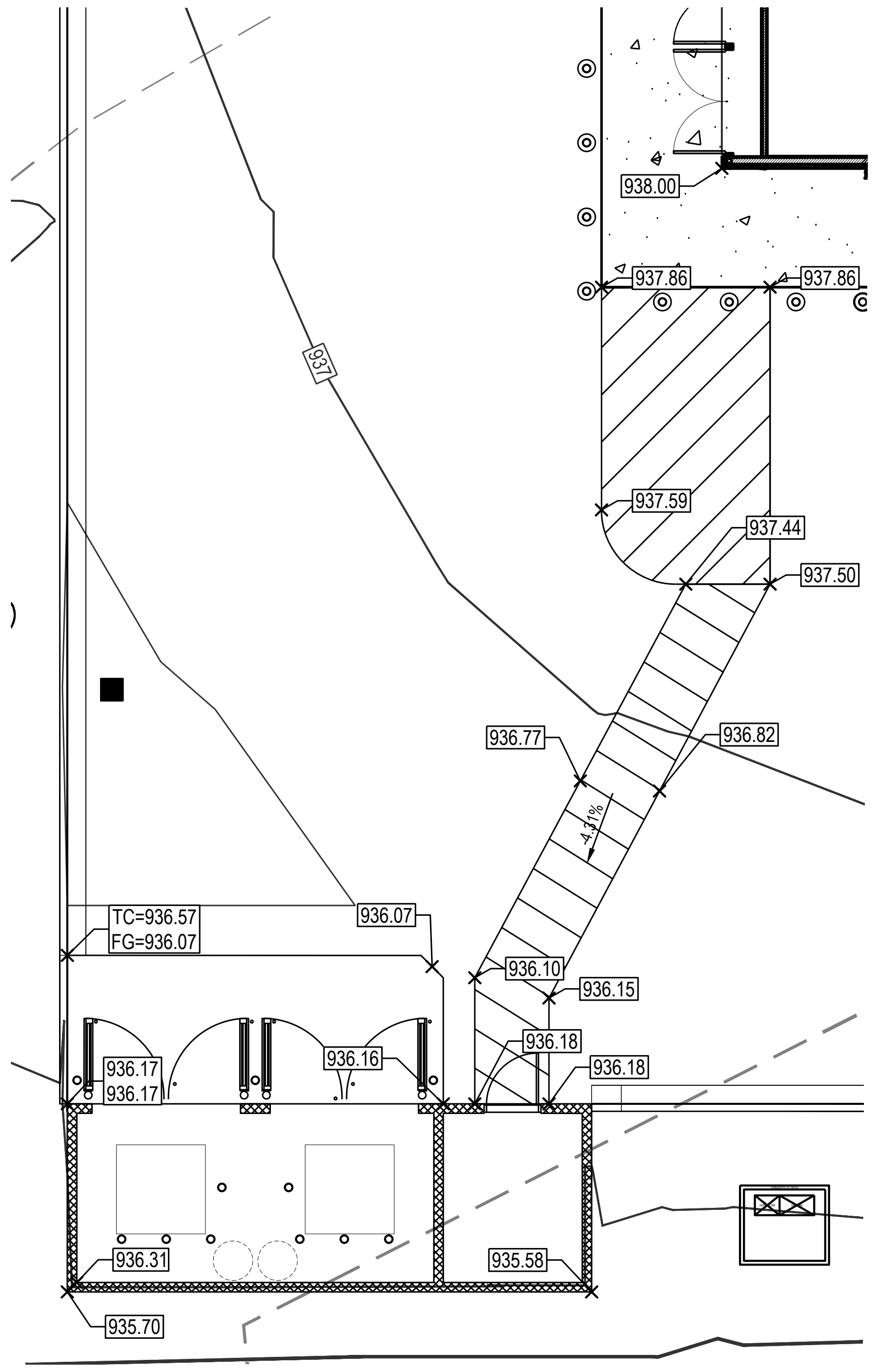
R/W	RIGHT-OF-WAY
— — —	PROPERTY LINE
— —	SETBACK
— — —	EASEMENT
▨	BUILDING
960	MAJOR CONTOUR
962	MINOR CONTOUR
▲ ▼	GRADE BREAK
←	FLOW LINE
■	CATCH BASIN
Ⓓ	STORM MANHOLE
▬	CURB INLET
CO ●	CLEANOUT
YD ■	YARD DRAIN
DS ●	DOWNSPOUT
XXX.XX	FINISHED GRADE ELEVATION
RIM=XXX.XX	RIM ELEVATION
BC=XXX.XX	BACK OF CURB ELEVATION
TC=XXX.XX FG=XXX.XX	TOP OF CURB ELEVATION FINISHED GRADE ELEVATION
TP=XXX.XX FTG=XXX.XX	TOP OF PAVEMENT ELEVATION TOP OF FOOTING ELEVATION
M.E.	MATCH EXISTING ELEVATION
X.XX% →	SLOPE ARROW
➡	FLOOD ROUTE
▲ ▼	GRADE BREAK LINE
— ··· —	SWALE



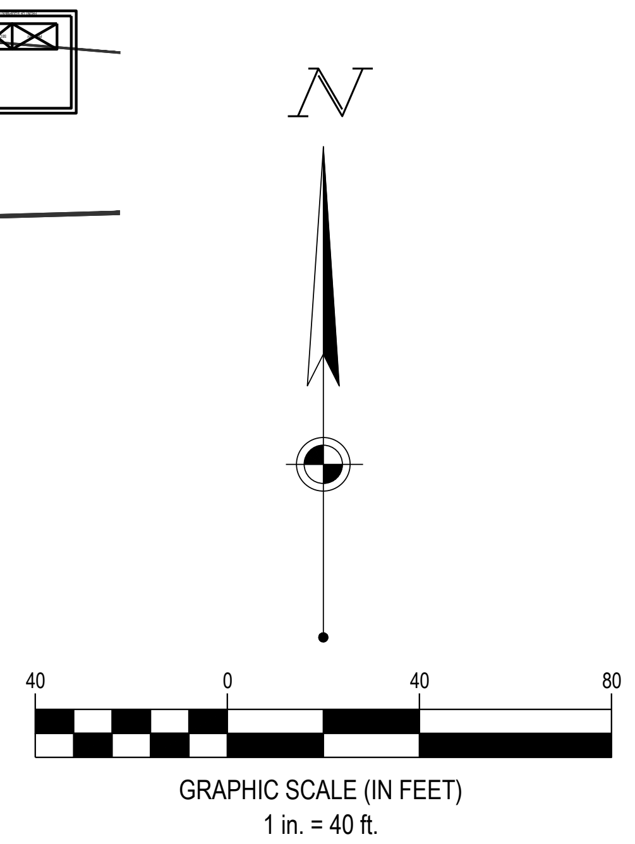
SIDEWALK GRADING DETAIL
1=10'



BUILDING GRADING DETAIL
1=10'



DUMPSTER GRADING DETAIL
1=10'



GRAPHIC SCALE (IN FEET)
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STATE OF MICHIGAN
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ENGINEER
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LICENSED PROFESSIONAL ENGINEER
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WALLED LAKE, MICHIGAN 48390

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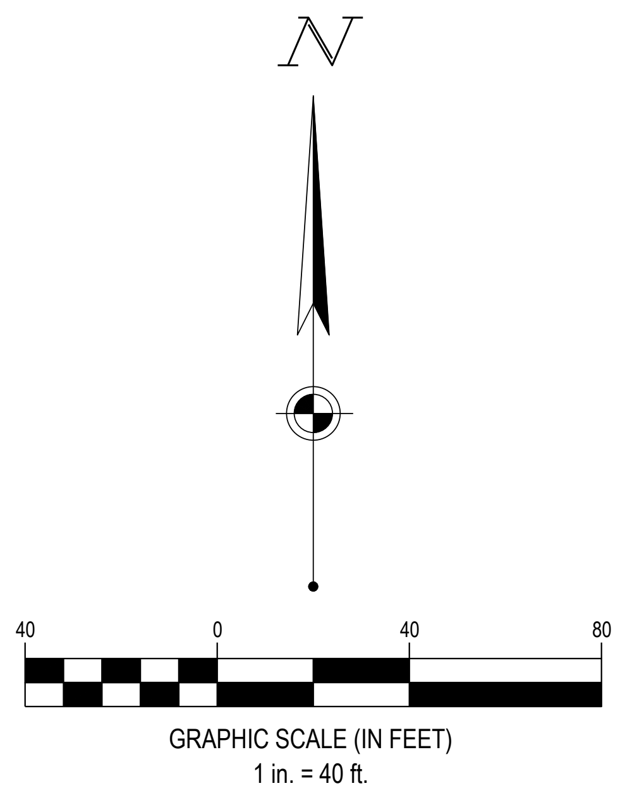
DETAILED GRADING PLAN

CG1

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	-4.000	-3.000	🟧
2	-3.000	-2.000	🟧
3	-2.000	-1.000	🟨
4	-1.000	0.000	🟨
5	0.000	1.000	🟩
6	1.000	2.000	🟩
7	2.000	3.000	🟩
8	3.000	4.000	🟩
9	4.000	5.000	🟩
10	5.000	6.000	🟩

EARTHWORKS	
CUT (CY)	2,876.49
FILL (CY)	2,722.45
NET (CY)	154.03 (FILL)



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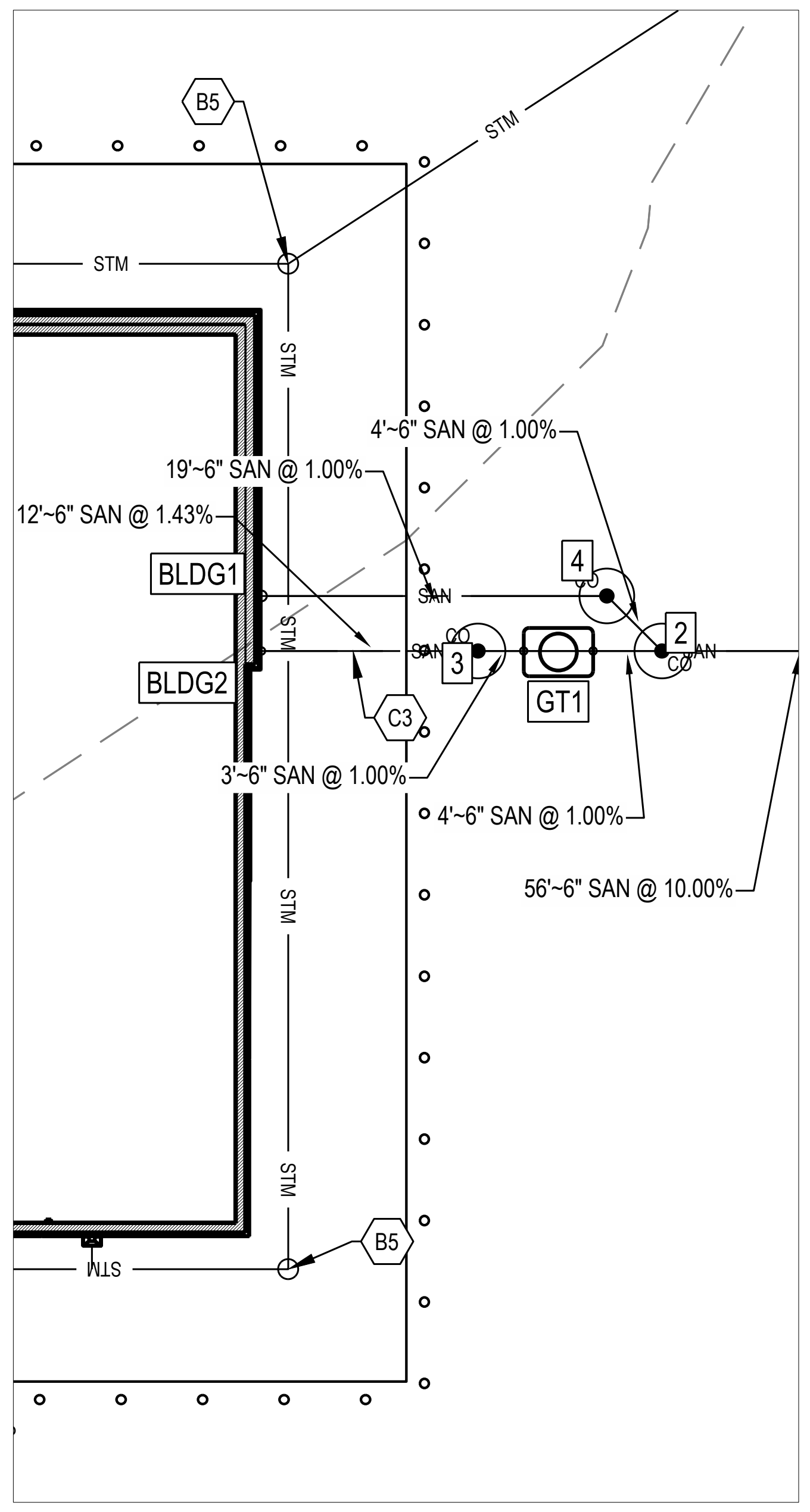
Drawing Title:

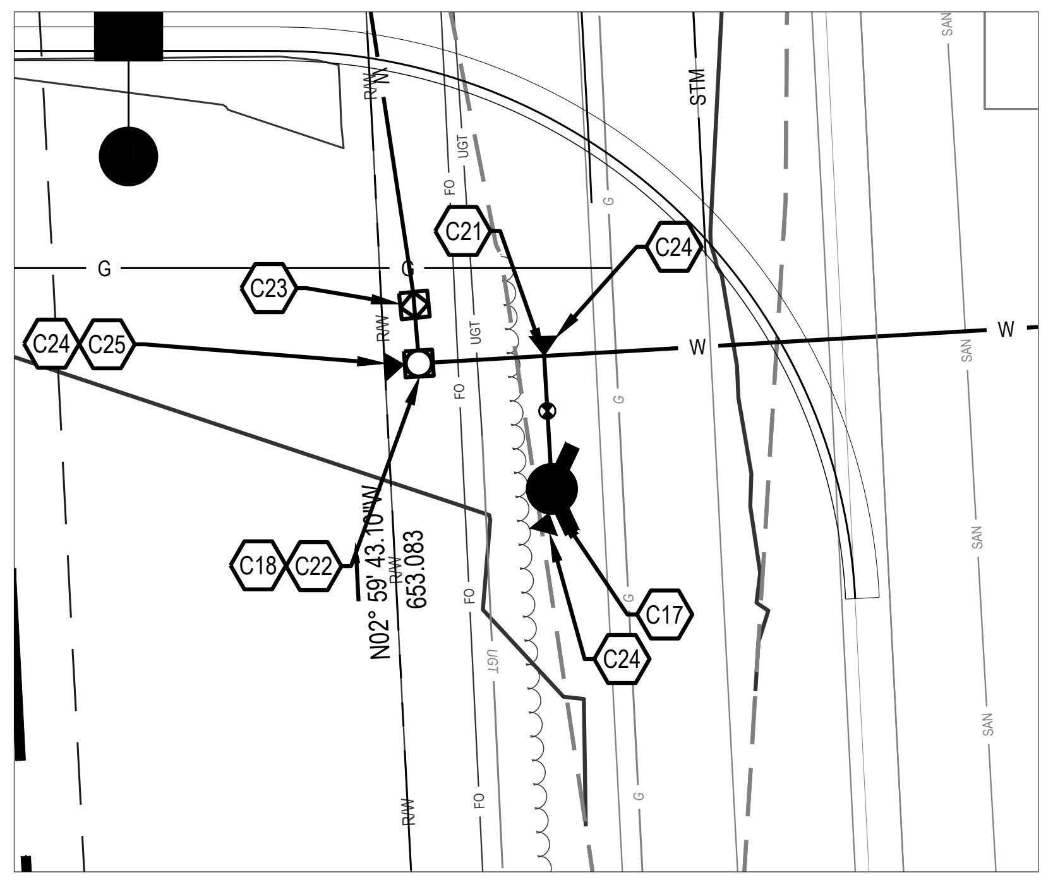
CUT & FILL PLAN

CF



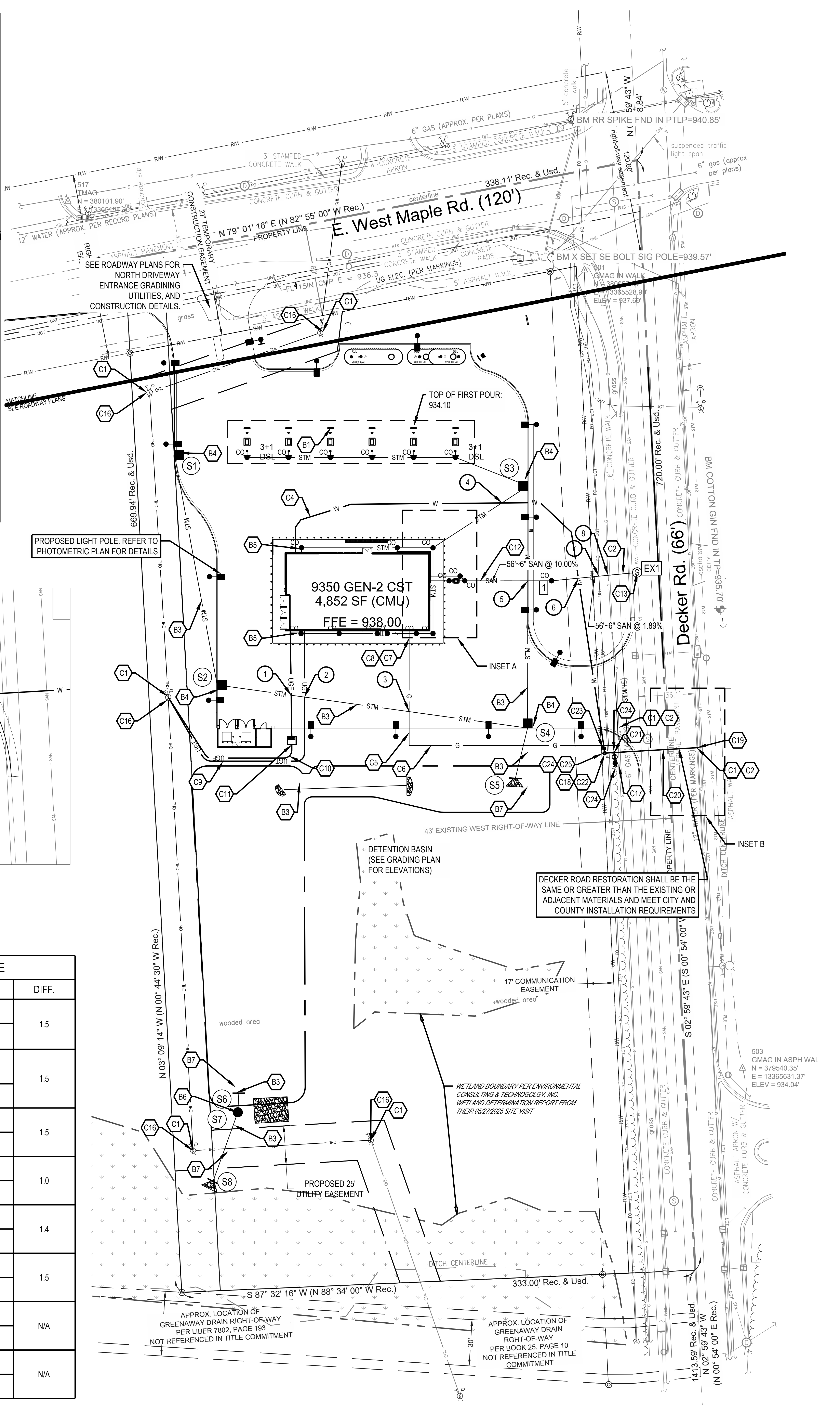
INSET A

1" = 10'



INSET B

1" = 10'



NO.	UTILITY	ELEVATIONS	DIFF.
1	BOTTOM OF PROPOSED UNDERGROUND ELECTRIC	934.72	1.5
	TOP OF PROPOSED 12" STORM	933.22	
2	BOTTOM OF PROPOSED UNDERGROUND TELECOMMUNICATIONS	934.76	1.5
	TOP OF PROPOSED 12" STORM	933.26	
3	BOTTOM OF PROPOSED UNDERGROUND GAS LINE	934.45	1.5
	TOP OF PROPOSED 12" STORM	932.95	
4	BOTTOM OF PROPOSED 2" WATERLINE	934.23	1.0
	TOP OF PROPOSED 6" STORM	933.23	
5	BOTTOM OF PROPOSED 12" STORM	932.20	1.4
	TOP OF PROPOSED 6" SANITARY	930.80	
6	BOTTOM OF PROPOSED 2" WATERLINE	930.34	1.5
	TOP OF PROPOSED 6" SANITARY	928.84	
7	EXISTING TELECOMMUNICATIONS LINE	N/A	N/A
	TOP OF PROPOSED 6" SANITARY	928.58	
8	EXISTING GAS LINE	N/A	N/A
	TOP OF PROPOSED 6" SANITARY	928.45	

UTILITY CROSSING SCHEDULE

UTILITY CROSSING NOTES

1. WATER AND SANITARY UTILITIES SHALL HAVE 18" VERTICAL CLEARANCE WHEN CROSSING. ALL CLEARANCE DISTANCES SHALL BE MEASURE FROM OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE. THE CROSSING SHALL BE ARRANGED SO THAT THE SANITARY SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER LINE JOINTS.

2. IF A WATER LINE PASSES UNDER THE SANITARY SEWER LINE, THE SEWER LINE SHOULD BE CONSTRUCTED OF A WATERTIGHT MATERIAL APPROVED BY THE REGULATORY AGENCY FOR USE IN WATER MAIN CONSTRUCTION AND SHALL EXTEND TEN (10') FEET ON BOTH SIDES OF THE CROSSING, AS MEASURED PERPENDICULAR TO THE WATER LINES. ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE.

3. MINIMUM REQUIREMENTS FOR UTILITY LINES CROSSING OVER PRODUCT LINES OR WITHIN 10 FT OF UST'S:
3.1. WATER (POTABLE): NO CROSSINGS ALLOWED
3.2. STORM, SANITARY & WATER (FIRE OR IRRIGATION):
3.2.1. SEALED JOINT (IF UNDER PRODUCT LINES) OR
3.2.2. THE MIDDLE POINT OF UTILITY PIPE EQUALS THE CENTERLINE OF THE PRODUCT LINES, PUTTING THE JOINTS OF THE UTILITY PIPE OUTSIDE OF THE PRODUCT LINES.
3.3. GAS, ELECTRIC & DATA (PHONE, CABLE, FIBER): PROTECT UTILITY WITH A CONCRETE ENCASEMENT FOR AT LEAST 10' BEYOND BOTH OF THE OUTSIDE EDGES OF PRODUCT LINES.
3.4. THE MINIMUM VERTICAL CLEARANCE BETWEEN CROSSING UTILITY LINES SHALL BE THE MORE RESTRICTIVE OF EITHER 1 FEET OR THE UTILITY LINE/PIPE MANUFACTURER RECOMMENDATIONS.
3.5. A SOLID SECTION OF WATER MAIN (WATERMAIN JOINTS) SHALL BE A MINIMUM OF 10' AWAY FROM SANITARY UTILITY CROSSINGS.

UTILITY LEGEND

EXISTING

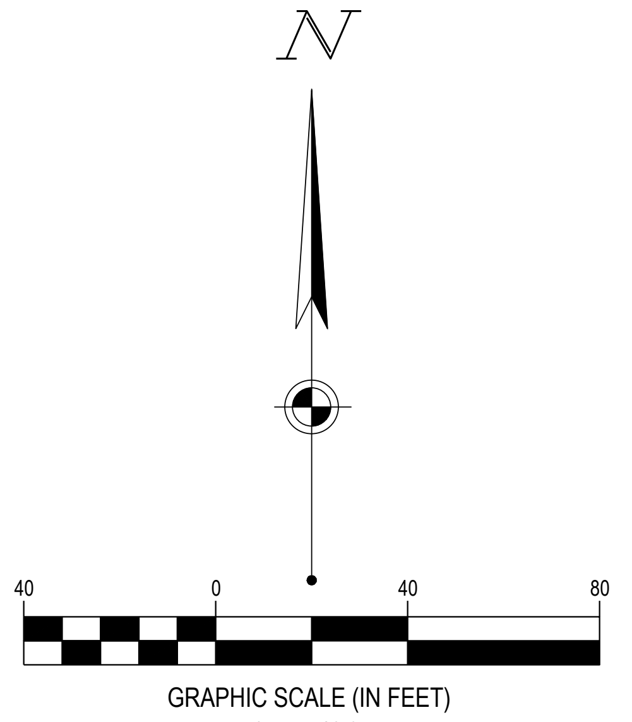
REFER TO GN FOR EXISTING FEATURES LEGEND

PROPOSED

▨	BUILDING
	CONCRETE CURB
	PAVEMENT/WALK
	STORM SEWER LINE
SAN	SANITARY SEWER LINE
W	DOMESTIC WATER SERVICE LINE
G	GAS SERVICE LINE
OHE	OVERHEAD ELECTRIC LINE
UGE	UNDERGROUND ELECTRIC LINE
FM	FORCEMAIN
UGT	UNDERGROUND TELEPHONE LINE
OHT	OVERHEAD TELEPHONE LINE
■	CATCH BASIN
Ⓢ	SANITARY SEWER
▬	CURB INLET
CO	CLEANOUT
YD	YARD DRAIN
DS	DOWNSPOUT
▢	ELECTRICAL TRANSFORMER PAD
	FIRE HYDRANT
	WATER VALVE
▨	HEADWALL WITH RIP-RAP
●─■	LIGHT POLE

SANITARY SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	RIM	INVERT
1	6" CLEANOUT	936.17	928.65 (6") W 928.65 (6") E
2	6" CLEANOUT	937.56	934.27 (6") W 934.27 (6") E 934.31 (6") NW
3	6" CLEANOUT	937.79	934.33 (6") E 934.50 (6") W
4	6" CLEANOUT	937.63	934.31 (6") W 934.27 (6") SE
BLDG1	6" BLDG CONNECTION	934.19	934.50 (6") E
BLDG2	6" BLDG CONNECTION	934.69	934.33 (6") E
EX1	EXISTING MANHOLE	935.19	927.59 (6") W
GT1	GREASE TRAP	934.83	934.30 (6") W 934.30 (6") E



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

A. TANKS AND PRODUCT PIPING DETAILS

1. CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIAL AS INDICATED ON FUEL DRAWINGS.
2. ALL NEW INSTALLATIONS AND MODIFICATIONS TO THE UNDERGROUND STORAGE TANK SYSTEM SHALL COMPLY WITH PEI RP100-05, PEI RP300-09, API RP1615 AND ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
3. TANKS SHALL BE ANCHORED PER FUEL DRAWINGS.
4. BALLAST TANKS TO 90% FULL WITH CLEAN WATER. AFTER THE TANKS HAVE BEEN PROPERLY COVERED BY OVERBURDEN AND BEFORE PRODUCT IS DELIVERED, THE CONTRACTOR SHALL REMOVE ALL WATER. COORDINATE WITH OWNER'S REPRESENTATIVE FOR DELIVERY OF PRODUCT. ANY WATER REMAINING IN TANKS AFTER PRODUCT DELIVERY SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
5. PRIME AND PAINT FILL, VAPOR RECOVERY, AND OBSERVATION WELL MANHOLE COVERS AND RIMS PER COLOR CODE IN SPECIFICATIONS. ANY MANHOLES OR STREET BOXES NOT COLOR SPECIFIED SHALL BE PRIMED AND PAINTED DARK GREY #430C PER SPECIFICATIONS.
6. INSTALL TANK CONDUIT FROM TANK TO DISPENSER ELECTRICAL EQUIPMENT INSIDE BUILDING PER FUEL DRAWINGS AND MANUFACTURER'S INSTRUCTIONS.
7. INSTALL EVO LINE LEAK DETECTION AND ATG SYSTEM, RELATED MANHOLES, CONDUITS, AND JUNCTION BOXES PER FUEL DRAWINGS AND MANUFACTURER'S INSTRUCTIONS. INSTALL TANK INTERSTITIAL SENSORS FURNISHED BY OWNER. CONTRACTOR TO BE CERTIFIED BY FRANKLIN FUELING.
8. INSTALL TANK SUMP SENSORS FURNISHED BY OWNER.
9. PRODUCT PIPING LINE-UP AND FRONT SIDE "A" (F.S. "A") OF DISPENSERS SHALL BE AS SHOWN. PIPING AND CONDUIT LOCATION AND SPACING UNDER DISPENSERS SHALL BE PER FUEL DRAWINGS.
10. INSTALL 2" COAXIAL FLEXIBLE PRODUCT PIPING (OPW FLEX LOOP SYSTEM) WITHIN 4" ACCESS/CONTAINMENT PIPE PER MANUFACTURER'S RECOMMENDATIONS AND FUEL DRAWINGS. THE PIPE, APPURTENANCES (INCLUDING BULKHEAD ENTRY FITTINGS), AND MISC. MATERIALS NECESSARY TO ASSEMBLE SYSTEM SHALL BE OWNER SUPPLIED.
11. INSTALL A SECOND FILL PIPE ON TANKS PER DETAILS ON THE FUEL DRAWINGS.
12. SUPPLY AND INSTALL 2" SINGLEWALL FIBERGLASS VENT LINES AND RELATED EQUIPMENT. CONTRACTOR TO LOCATE VENT STACKS A MINIMUM OF 10' AWAY FROM ELECTRICAL EQUIPMENT AND EXISTING BUILDING STRUCTURES.
13. FUTURE FUEL LINE TO BE RUN TO EACH DISPENSER. LINE IS TO BE CAPPED AT EACH DISPENSER WHERE THE LINE IS NOT BEING USED (AND IN FUTURE FUEL SUMP).
14. CONTRACTOR TO PROTECT THE PROPOSED STORM AND SANITARY SEWERS CROSSING THE PRODUCT PIPING WITH A CONCRETE ENCASEMENT A MINIMUM OF 10' BEYOND BOTH OUTSIDE EDGES OF THE PRODUCT LINES.

B. STORM PIPING

1. A CLEANOUT SHALL BE INCLUDED AT EVERY CANOPY COLUMN WITH A DOWNSPOUT THAT IS CONNECTED TO THE STORM DRAINAGE SYSTEM AS INDICATED PER DRAWING SCB-1.
2. BUILDING DOWNSPOUTS SHALL BE CONNECTED TO STORM DRAINAGE SYSTEM AS INDICATED.
3. SUPPLY AND INSTALL C-76, CLASS IV, RCP STORM DRAINAGE PIPING AS SHOWN PER STANDARD DRAWING SERIES CUD.
4. SUPPLY AND INSTALL (4) CATCH BASINS, WITH SPIDER DRAINS, INCLUDING CONCRETE COLLAR IF IN ASPHALT PAVEMENT.
5. SUPPLY AND INSTALL CLEAN OUTS AT LOCATIONS SHOWN PER DRAWING SCB-1.
6. SUPPLY AND INSTALL (1) OUTLET CONTROL STRUCTURE PER DETAIL ON CG..
7. SUPPLY AND INSTALL (3) END SECTIONS PER DETAIL ON DET-1 AND RIPRAP PER DETAIL ON SHEET CPC-2.
8. CONTRACTOR TO INSTALL AT STORM PIPE END SECTIONS SHALL BE RODENT GRATED PER MDOT DETAIL R-92-C ON SHEET DET-1

C. UTILITIES

1. VERIFY ALL SERVICE UTILITY ROUTINGS WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. VERIFY ALL UTILITY CLEARANCES ARE MAINTAINED PER LOCAL CODE.
2. ALL WORK WITHIN RIGHT-OF-WAY SHALL CONFORM TO GOVERNING STATE AND/OR LOCAL SPECIFICATIONS.
3. SITE CONTRACTOR TO BRING UTILITIES WITHIN 5' OF BUILDING AT LOCATIONS SHOWN. STORM AND SANITARY LEADS TO EXTEND INTO BUILDING. COORDINATE ALL BUILDING UTILITY CONNECTIONS WITH BUILDING DRAWINGS.
4. CONTRACTOR SHALL COORDINATE WITH THE CITY AND OCWRC THE FURNISHING AND INSTALLATION OF THE 2" COPPER WATER LINE FROM METER TO PROPOSED 8-INCH WATERMAIN. CONTRACTOR SHALL COORDINATE INSTALLATION WITH WATER COMPANY.
5. CONTRACTOR SHALL FURNISH AND INSTALL 1.25" GAS LINE FROM METER TO NEW TAP. THE CONTRACTOR SHALL INSTALL THE GAS LINE FROM THE METER TO THE BUILDING SERVICE PER THE BUILDING DRAWINGS AND AT LEAST 36 INCHES BELOW FINISH GRADE. IF NATURAL-GAS PIPING IS INSTALLED LESS THAN 36 INCHES BELOW FINISH GRADE, INSTALL IT IN CONTAINMENT CONDUIT. CONTRACTOR SHALL COORDINATE INSTALLATION WITH GAS COMPANY.
6. INSTALL UNDERGROUND, PE, NATURAL-GAS PIPING ACCORDING TO ASTM D2774.
7. INSTALL SHUTOFF VALVE DOWN STREAM FROM GAS METER AND OUTSIDE OF BUILDING AT GAS SERVICE ENTRANCE.
8. INSTALL SERVICE METERS TO COMPLY WITH GAS COMPANY REQUIREMENTS.
9. UNDERGROUND, NATURAL-GAS PIPING SHALL BE PE PIPE AND FITTINGS JOINED BY HEAT FUSION OR MECHANICAL COUPLINGS; SERVICE-LINE RISERS WITH TRACER WIRE TERMINATED IN AN ACCESSIBLE LOCATION.
10. CONTRACTOR SHALL FURNISH AND INSTALL (1) 2" PVC CONDUIT WITH PULL STRING FROM TELEPHONE SERVICE CONNECTION TO BUILDING.
11. NEW UNDERGROUND 120/208V THREE PHASE ELECTRIC SERVICE SHALL BE INSTALLED PER BUILDING DRAWINGS. CONTRACTOR SHALL INSTALL CONDUITS AND CONDUCTORS FROM PAD MOUNTED TRANSFORMER TO BUILDING.
12. INSTALL 6" PVC SANITARY SEWER LINE FROM BUILDING TO APPROPRIATE SERVICE LATERAL PER FIELD CONDITIONS. MINIMUM SLOPE SHALL BE 1.0%. INSTALL CLEAN OUTS EVERY 100' ALONG SEWER LINE.
13. OCWRC STANDARDS FOR SANITARY SEWER LEAD INSTALLATION AND CONNECTIONS ARE REQUIRED. VERIFY WITH THE OCWRC THAT CONNECTION MAY OCCUR AT AN EXISTING SANITARY MANHOLE OR WHETHER CONEECTION SHALL BE MADE TO EXISTING SEWER TAP OR WHETHER A NEW IN-LINE TAP IS REQUIRED.
14. INSTALL EXTERIOR GREASE TRAP PER DRAWING CUD-1 AND/OR LOCAL REGULATIONS.
15. CONTRACTOR TO VERIFY EXISTING SANITARY LATERAL IS CLEANED PRIOR TO CONNECTION. CONTRACTOR TO WYE INTO EXISTING SANITARY LATERAL WITH NEW CONNECTION.
16. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR RELOCATION OF UTILITY POLES AND UTILITY LINES.
17. PROPOSED FIRE HYDRANT. TO BE LOCATED WITHIN RIGHT-OF-WAY. SEE SHEET DET-1 FOR DETAIL.
18. TIE IN PROPOSED WATER SERVICE TO PROPOSED WATER MAIN WITH A CORPORATION TAP FOLLOWED BY A SERVICE LINE TO CURB STOP AND BOX AT THE EDGE OF THE PROPERTY OR CITY ROAD RIGHT-OF-WAY.
19. TAP AND VALVE LOCATION TO TIE IN PROPOSED 8" DI WATER MAIN TO EXISTING 12" WATER MAIN. PROVIDE A GATE WELL AT THIS LOCATION PER WRC GATE WELL DETAIL ON SHEET DET-2 FOR DETAIL
20. CONTRACTOR TO BORE PROPOSED 8" DI WATER MAIN TO EXISTING 12" WATER MAIN IN DECKER ROAD. PROPOSED 8" WATER MAIN TO BE INSTALLED PER CITY OF WALLED LAKE SPECIFICATIONS AND SHALL BE PERMITTED BY THE COUNTY (WRC) AND STATE (EGLE).
21. 8"X8X"6" TEE
22. 2" CORPORATION STOP
23. 2" CURB STOP
24. THRUST BLOCKING PER DETAIL ON SHEET DET-1.
25. 8" CAP

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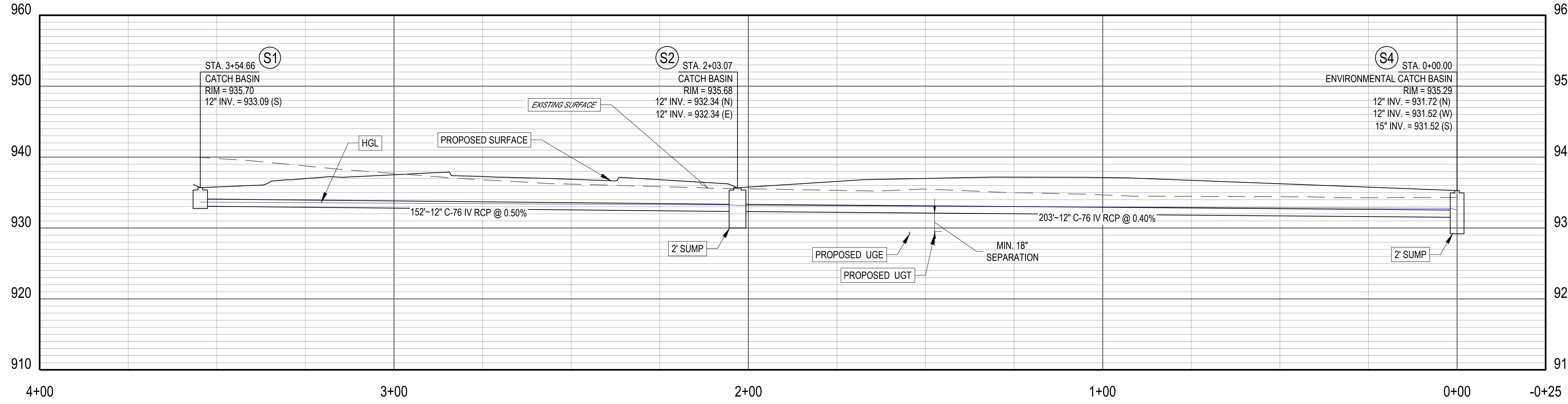
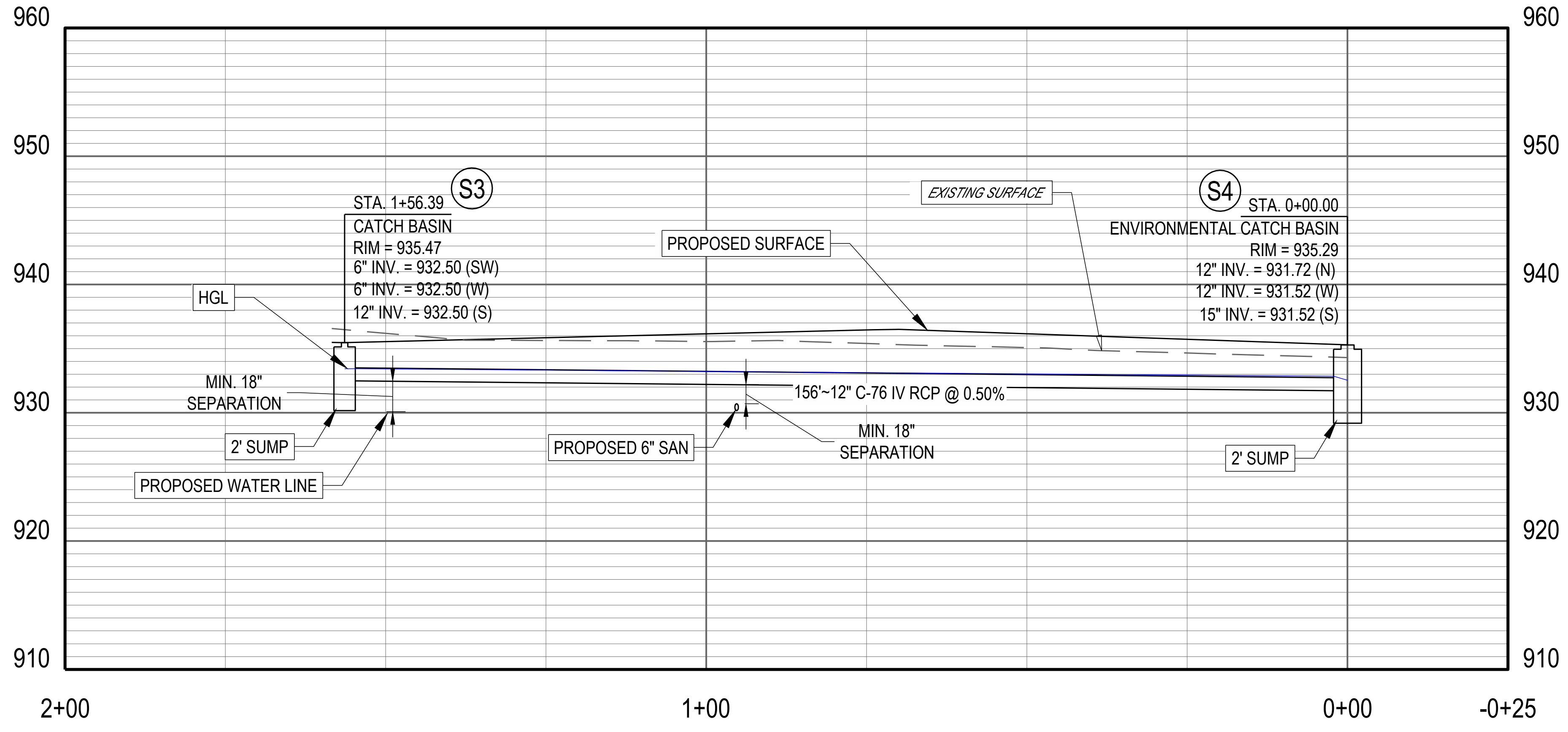
UTILITY PLAN

CU



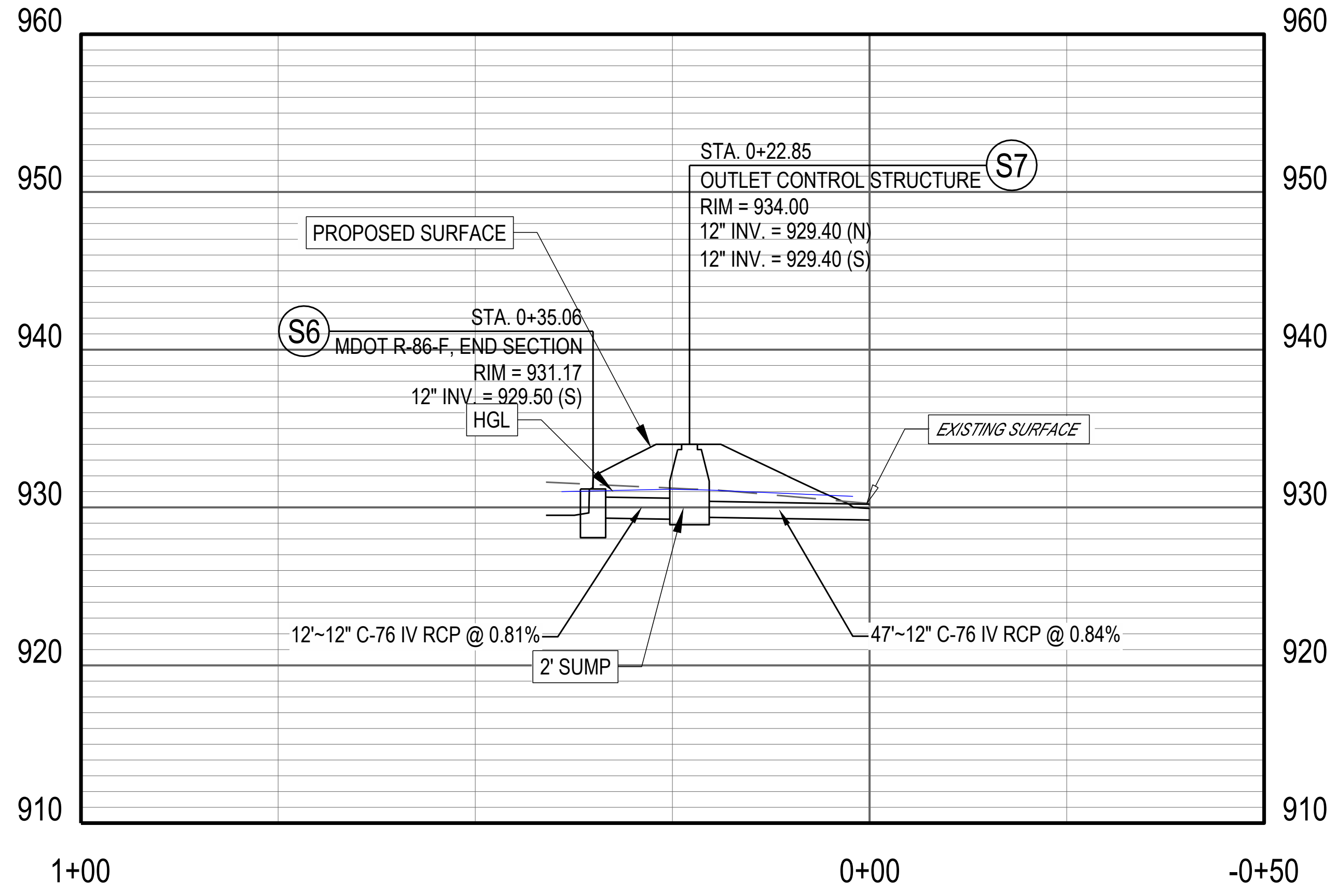
S1-S4 PROFILE

SCALE: 1" = 20' HORIZ.; 1" = 10' VERT.



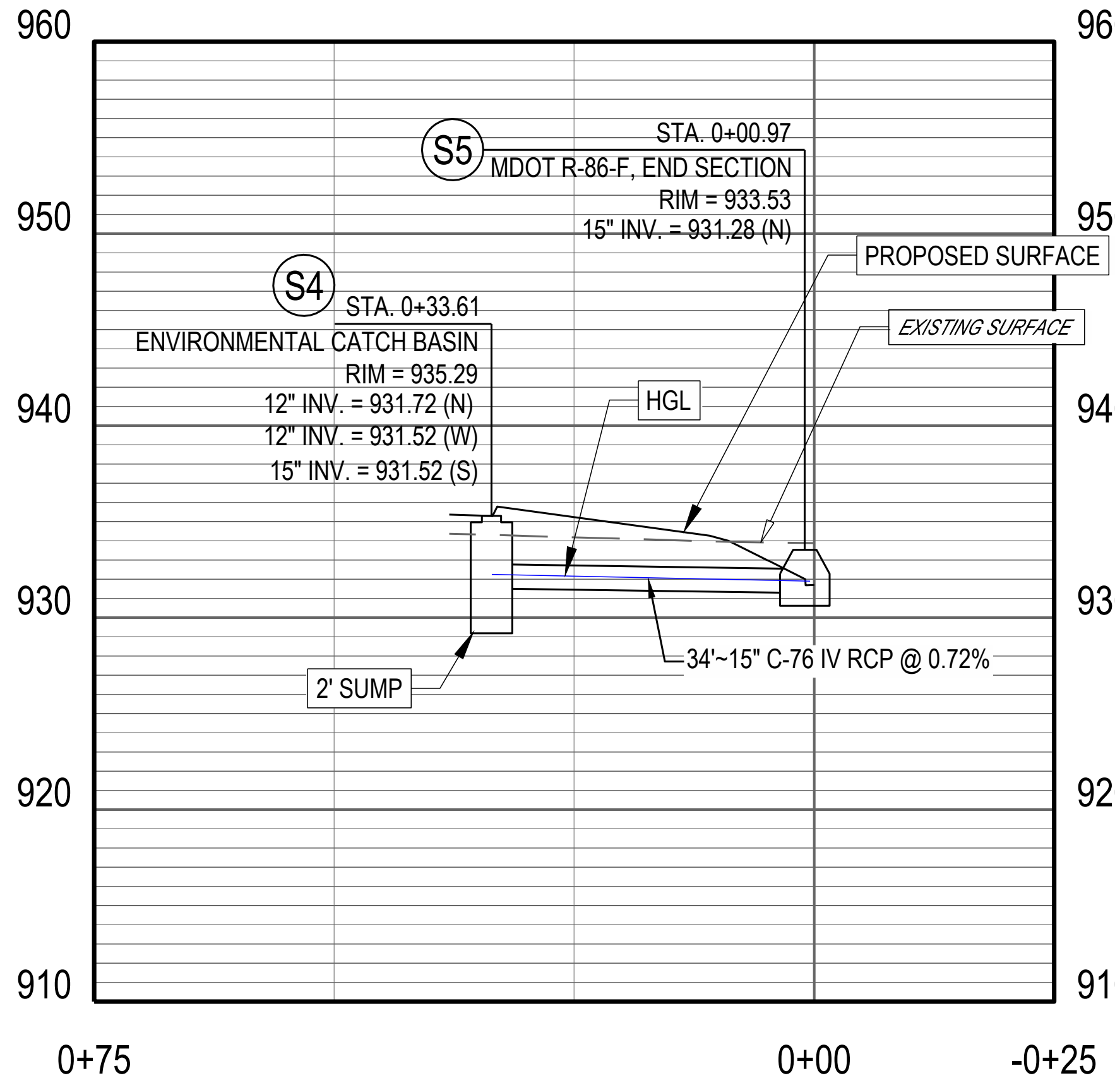
S3-S4 PROFILE

SCALE: 1" = 20' HORIZ.; 1" = 10' VERT.



S6-S8 PROFILE

SCALE: 1" = 20' HORIZ.; 1" = 10' VERT.

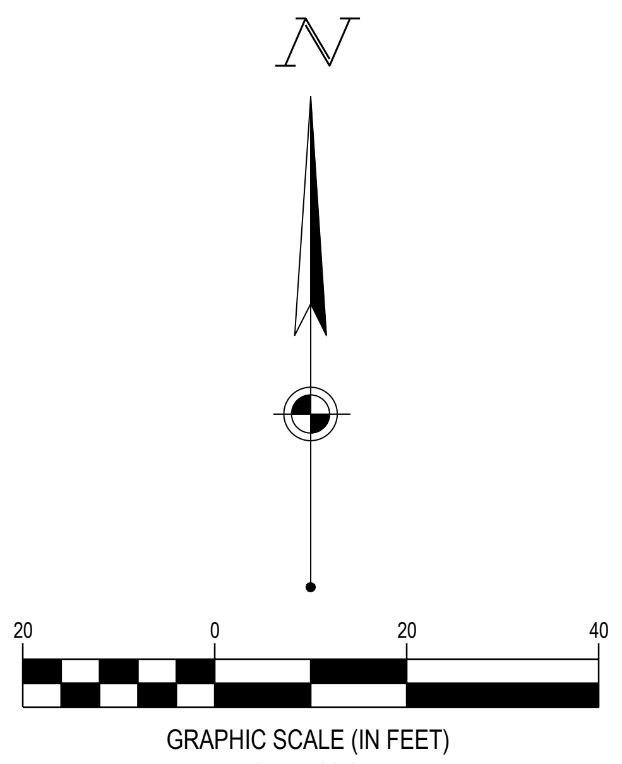


S4-S5 PROFILE

SCALE: 1" = 20' HORIZ.; 1" = 10' VERT.

MISS DIG 811

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE



GRAPHIC SCALE (IN FEET)
1 in. = 20 ft.

CESO
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3601 Rigby Rd., Suite 300
Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

STATE OF MICHIGAN
MANDY J. GAUSS
ENGINEER
NO. 55618

Mandy J. Gauss

ELEVEN

7-ELEVEN, INC.

WALLED LAKE

1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

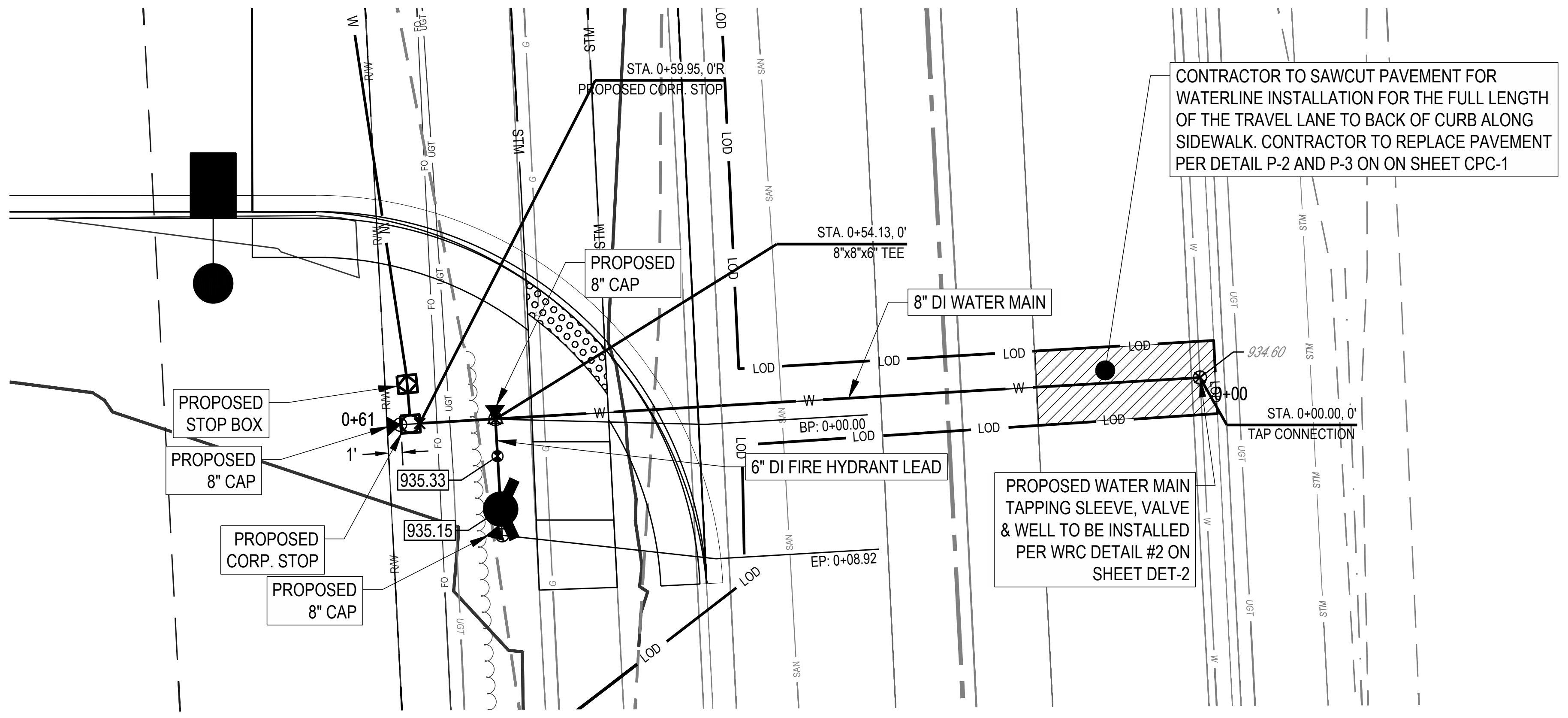
Project Number:	764078
Scale:	1"=20'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:

UTILITY PROFILES (STORM)

CU1

C:\DC\ACCDocs\CESO\7-Eleven - PMF - Walled Lake MI\Project Files_CESO\03-CIVIL\PLAN\PLOT\764078_UTILITY PROFILES.dwg - 7/18/2025 - Mark Bulger



WATER MAIN EXTENSION NOTES

1. REFER TO DET-2 FOR OAKLAND COUNTY WATER RESOURCE COMMISSION WATER MAIN EXTENSION NOTES & DETAILS.
2. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION.

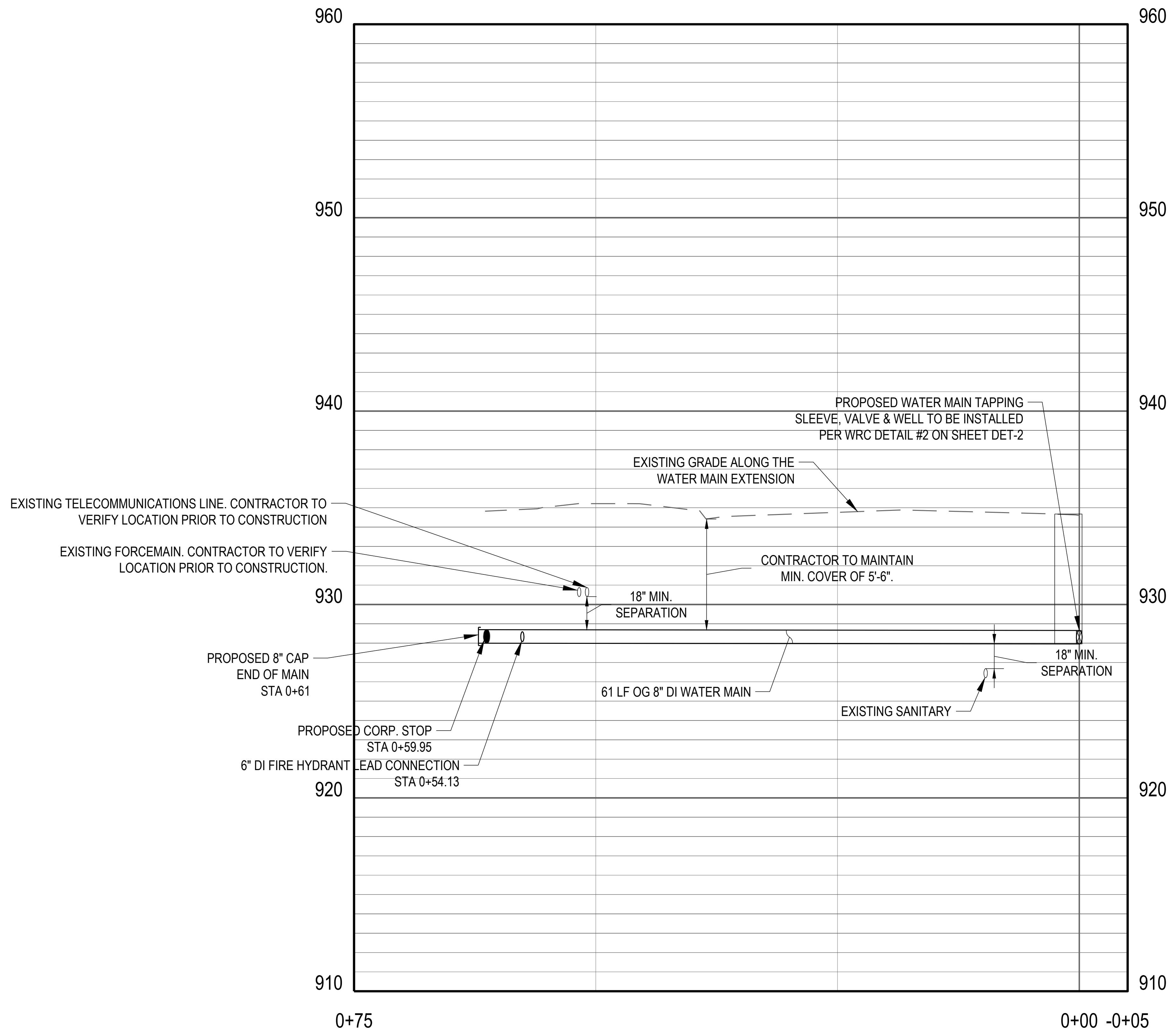
NOTES:

1. WATER LINES SHALL BE INSTALLED WITH A MINIMUM OF 5' 6" OF COVER.

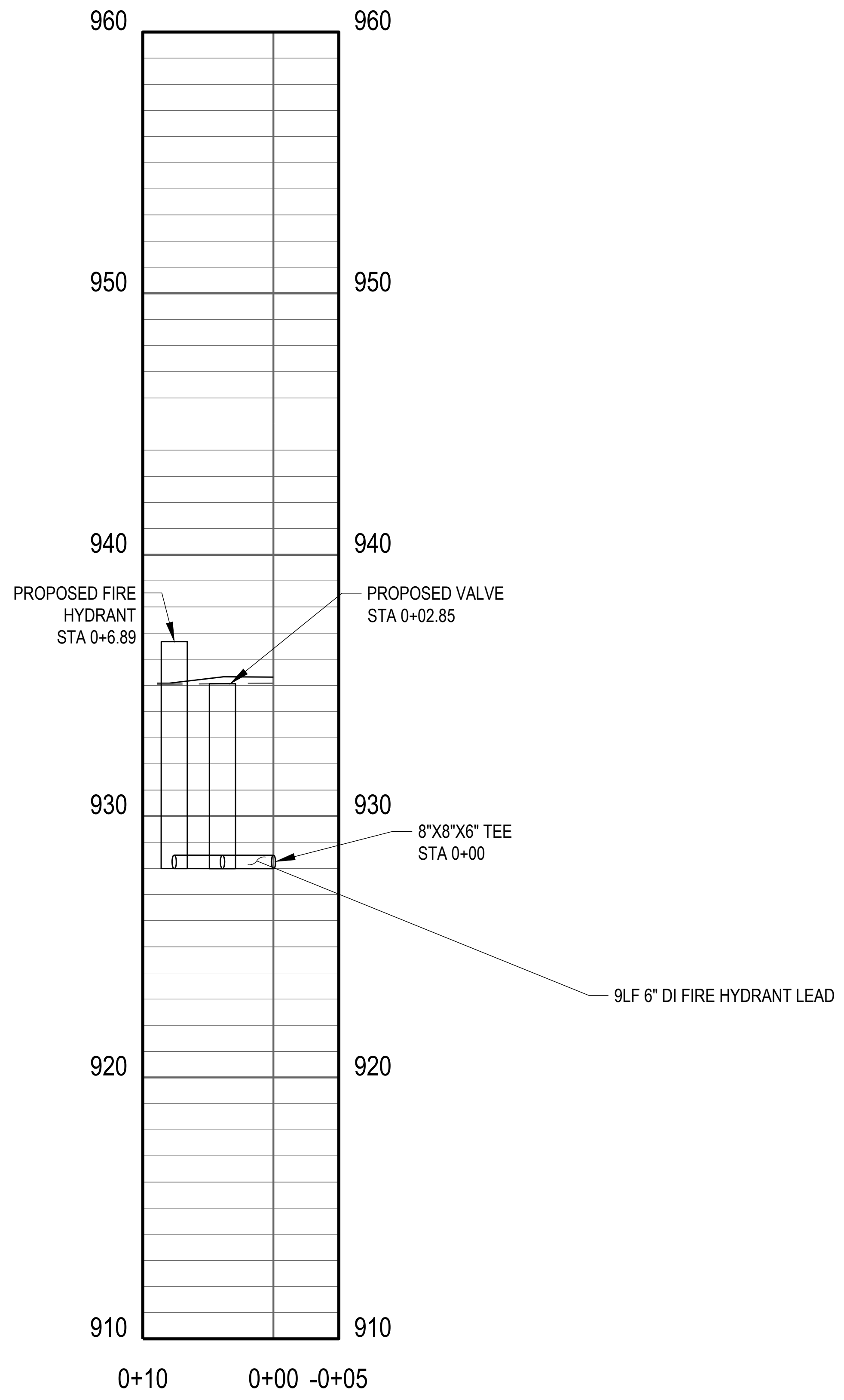
UTILITY CROSSING NOTES

1. WATER AND SANITARY UTILITIES SHALL HAVE 18" VERTICAL CLEARANCE WHEN CROSSING. ALL CLEARANCE DISTANCES SHALL BE MEASURE FROM OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE. THE CROSSING SHALL BE ARRANGED SO THAT THE SANITARY SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER LINE JOINTS.
2. IF A WATER LINE PASSES UNDER THE SANITARY SEWER LINE, THE SEWER LINE SHOULD BE CONSTRUCTED OF A WATERTIGHT MATERIAL APPROVED BY THE REGULATORY AGENCY FOR USE IN WATER MAIN CONSTRUCTION AND SHALL EXTEND TEN (10') FEET ON BOTH SIDES OF THE CROSSING, AS MEASURED PERPENDICULAR TO THE WATER LINES. ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE.
3. MINIMUM REQUIREMENTS FOR UTILITY LINES CROSSING OVER PRODUCT LINES OR WITHIN 10 FT OF UST'S:

3.1. WATER (POTABLE): NO CROSSINGS ALLOWED
3.2. STORM, SANITARY & WATER (FIRE OR IRRIGATION):
  3.2.1. SEALED JOINT (IF UNDER PRODUCT LINES) OR
  3.2.2. THE MIDDLE POINT OF UTILITY PIPE EQUALS THE CENTERLINE OF THE PRODUCT LINES, PUTTING THE JOINTS OF THE UTILITY PIPE OUTSIDE OF THE PRODUCT LINES.
3.3. GAS, ELECTRIC & DATA (PHONE, CABLE, FIBER): PROTECT UTILITY WITH A CONCRETE ENCASEMENT FOR AT LEAST 10' BEYOND BOTH OF THE OUTSIDE EDGES OF PRODUCT LINES.
3.4. THE MINIMUM VERTICAL CLEARANCE BETWEEN CROSSING UTILITY LINES SHALL BE THE MORE RESTRICTIVE OF EITHER 1 FEET OR THE UTILITY LINE/PIPE MANUFACTURER RECOMMENDATIONS.
3.5. A SOLID SECTION OF WATER MAIN (WATERMAIN JOINTS) SHALL BE A MINIMUM OF 10' AWAY FROM SANITARY UTILITY CROSSINGS.

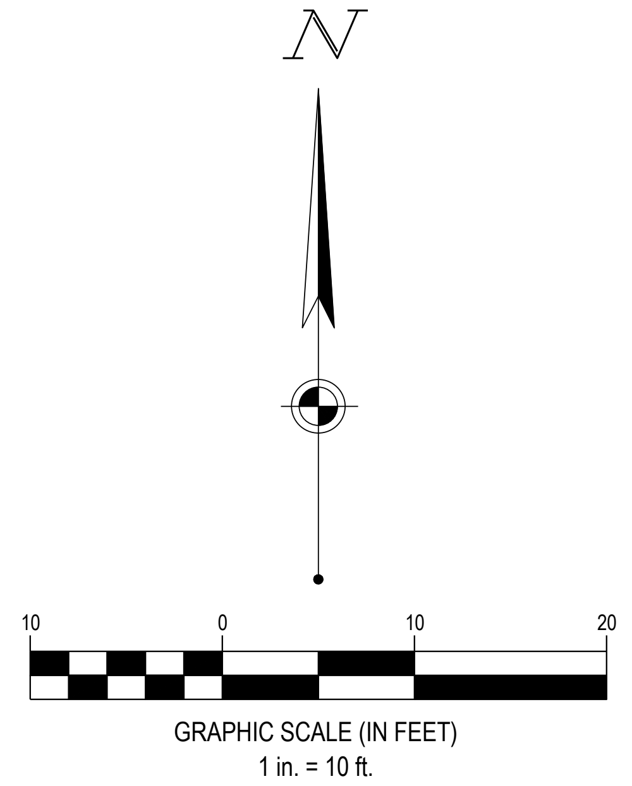


WATER MAIN EXT PROFILE
SCALE: 1" = 20' HORIZ.; 1" = 10' VERT.



FIRE HYDRANT LEAD PROFILE
SCALE: 1" = 20' HORIZ.; 1" = 10' VERT.

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE



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1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

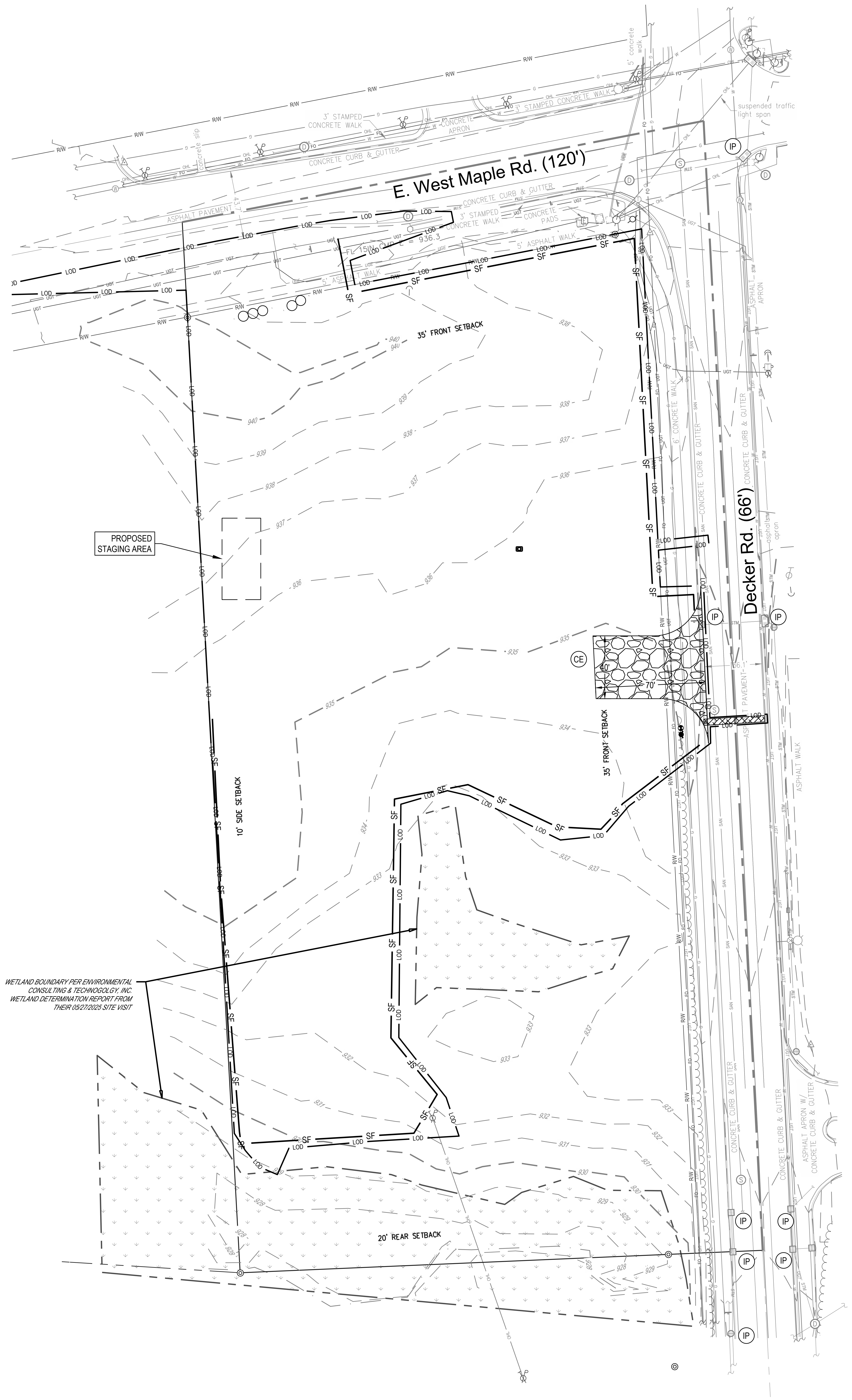
ID	Description	Date

Project Number:	764078
Scale:	1"=10'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
WATER MAIN EXTENSION PLAN

CU2

C:\DARoot\Jobs\ddb5cf47e04a440bbe46b230078abc8e\adskfiles\b.82d42c4a-ecc8-45d7-a180-96f436486496_CESO\03-CIVIL\PLAN\PLOT\764078_WATERMAIN_EXT.dwg - 7/18/2025 - acesuser



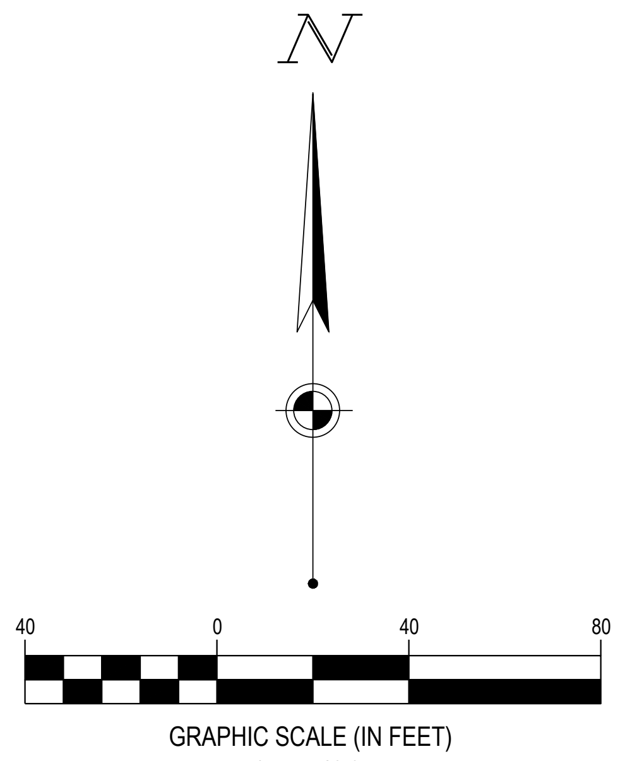
SWPPP LEGEND

EXISTING

REFER TO GN FOR EXISTING FEATURES LEGEND

PROPOSED

960	MAJOR CONTOUR
962	MINOR CONTOUR
	PAVEMENT/WALK
	STORM SEWER
SF	SILT FENCE (TEMPORARY)
○○○○○○○○○○○○	COMPOST SOCK (TEMPORARY)
	GRADING/SEEDING LIMITS
LOD	LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE (TEMPORARY)
☒	BASIN SEDIMENT FILTER (TEMPORARY)
■	CATCH BASIN
CE	STABILIZED CONSTRUCTION ENTRANCE (TEMPORARY)
TS	TEMPORARY SEEDING
PS	PERMANENT SOD
HW	HAZARDOUS WASTE STORAGE AREA (TEMPORARY)
FS	FUEL STORAGE AREA (TEMPORARY)
CW	CONCRETE WASHOUT AREA (TEMPORARY)
IP	INLET PROTECTION (TEMPORARY)



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

SEQUENCE OF CONSTRUCTION

UNLESS NOTED OTHERWISE, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES IN STRICT ACCORDANCE WITH THE SWPPP THROUGHOUT THE DURATION OF THE PROJECT.

1. ENSURE NOTICE OF INTENT (N.O.I.) IS FILED. INSTALL EROSION CONTROL MEASURES INCLUDING DANDY BAGS AND SILT FENCE AS SHOWN ON THE SOIL EROSION PLAN.
2. INSPECTION OF EROSION CONTROL MEASURES AS OUTLINED IN NOTES. REPAIRS AND/OR REPLACEMENTS SHALL BE MADE AS NECESSARY.
3. STRIP AND STOCKPILE TOPSOIL.
4. MASS GRADE AS REQUIRED.
5. BEGIN BUILDING CONSTRUCTION.
6. INSTALL SANITARY SEWER AND WATER SERVICE.
7. INSTALL STORM SEWER SYSTEM AFTER THE CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.
8. INSTALL ALL PUBLIC UTILITIES (GAS, ELECTRIC, AND TELEPHONE).
9. INSTALL ALL PAVEMENT.
10. REDISTRIBUTE TOPSOIL PER LANDSCAPE PLAN. ALL AREAS DISTURBED BY CONSTRUCTION THAT WILL NOT BE PAVED SHALL BE GRADED AND HAVE VEGETATION ESTABLISHED PER LANDSCAPE PLAN.
11. REMOVE SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED. ENSURE NOTICE OF TERMINATION (N.O.T.) IS FILED.

NOTE: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED.
NOTE: NORTH ENTRANCE WILL BE CLOSED TO THE MOTORING PUBLIC AND ALL CONSTRUCTION ACTIVITY, INCLUDING DELIVERIES AND TRUCK MOVEMENTS DURING CONSTRUCTION.

EROSION AND SEDIMENT CONTROL NARRATIVE

PLAN DESIGNER

CESO, INC.
13060 S. US HIGHWAY 27, SUITE D
DEWITT, MI 48820

DESIGNER CONTACT:
MANDY GAUSS, P.E.
SENIOR PROJECT MANAGER
P: 586.855.8130
E: GAUSS@CESOINC.COM

EXISTING SITE CONDITIONS: THE SITE ENTIRELY CONSISTS OF GRASSY/WOODED VEGETATION.

PROJECT DESCRIPTION: THE PROJECT IS A DEVELOPMENT OF A PROPOSED 5.33 ACRE PARCEL, INTO A PROPOSED 7/11 GAS STATION. IMPROVEMENTS WILL INCLUDE NEW BUILDING, PARKING, AND UTILITY CONSTRUCTION.

DISTURBED AREA: 2.76 ACRES

SITE DRAINS TO: THE SITE WILL SHEET FLOW TO A SERIES OF STORM INLETS, WHICH WILL CONNECT AND OUTLET TO A PROPOSED DETENTION BASIN. THE DETENTION BASIN WILL OUTLET TO A GREENWAY DRAIN WHICH THEN FLOWS TO THE GREENWAY DRAIN WITH A FINAL OUTFALL TO WOLVERINE LAKE.

RECEIVING STREAM: GREENWAY DRAIN WHICH DRAINS INTO WOLVERINE LAKE
SITE BMP'S: FINAL LOCATIONS OF ALL SITE BMP'S INCLUDE DUMPSTER, VEHICLE FUELING AREAS, CONCRETE TRUCK WASH, MATERIAL STORAGE, AND TOPSOIL STOCKPILES SHALL BE DETERMINED BY CONTRACTOR. IF FINAL LOCATION OF BMP'S DIFFER FROM THE LOCATIONS SHOWN, CONTRACTOR SHALL MODIFY SWPPP AND INFORM EGLE OF NEW LOCATION OF BMP'S.

SOILS ON SITE CONSIST OF:

-13B - OSHTEMO-BOYER LOAMY SANDS, 0-6% SLOPES
-19 - SEBEWA LOAM, DESINTEGRATION MORAINE, 0-2% SLOPES
- 45B - ARKPORT LOAMY FINE SAND, 2-6% SLOPES
- 48 - GILFORD SANDY LOAM, TILL PLAIN, 0-2% SLOPES
- 54A - MATHERTON SANDY LOAM, 0-3% SLOPES
- 59 - URBAN LAND

EROSION AND SEDIMENT CONTROL MEASURES: PROVIDE INLET PROTECTION OF ALL NEW AND EXISTING DRAINAGE STRUCTURES INDICATED ON THIS PLAN.

ANY OFF-SITE BORROW OR SPOIL AREAS SHALL BE SUBJECT TO THE REQUIREMENTS SET FORTH BY THE MICHIGAN EPA (EGLE). ALL EROSION AND SEDIMENT CONTROL MEASURES FOR OFF-SITE AREAS NOT COVERED BY A SEPARATE NOI OR SWP3 SHALL BE COORDINATED WITH THE EGLE.

ALL TRENCH OR EXCAVATION GROUNDWATER CONTAINING SEDIMENT MUST BE EFFECTIVELY TREATED PRIOR TO DISCHARGE INTO THE STORM SEWER SYSTEM.

USE ALL MEANS NECESSARY TO CONTROL DUST ON THE SITE AND PREVENT TRACKING SOIL OFF SITE.

CRITICAL AREAS: REFER TO THE SWPPP NARRATIVE.

JURISDICTION: ALL EROSION AND SEDIMENT CONTROL PRACTICES ARE SUBJECT TO FIELD MODIFICATION AT THE DISCRETION OF THE CITY OF WALLED LAKE.

RUNOFF: THE PRE-CONSTRUCTION RUNOFF CURVE NUMBER IS 55.
THE POST-CONTRUCTION RUNOFF CURVE NUMBER IS 69.

CONSTRUCTION:
ESTIMATED START DATE: 05/2025
ESTIMATED COMPLETION DATE: 05/2026

NOTES:

- PRE-CONSTRUCTION IMPERVIOUS ACREAGE = 0.00 AC
  POST-CONSTRUCTION IMPERVIOUS ACREAGE = 1.28 AC
  CHANGE IN IMPERVIOUS ACREAGE = 1.28 AC
- SITE EROSION CONTROLS SHALL BE CHECKED AND IF NECESSARY, REPAIR WEEKLY AND WITHIN 24 HOURS AFTER EACH RAINFALL GREATER THAN $\frac{1}{2}$". IN THE EVENT OF CONTINUOUS RAINFALL, EROSION CONTROLS SHALL BE CHECKED DAILY.
- ALL AREAS TO REMAIN BARE > 15 DAYS MUST BE TEMPORARILY STABILIZED.

PROJECT IS LOCATED WITHIN ZONE X AS IT APPEARS ON FEMA FLOOD MAP PANEL #26125C0487F DATED SEPT 29, 2006.

-REFER TO CG FOR ALL PROPOSED GRADES
-REFER TO CE2 FOR FURTHER EROSION CONTROL NOTES AND DETAILS

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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MANDY J. GAUSS ENGINEER NO. 55618
Mandy J. Gauss

7-ELEVEN, INC.

WALLED LAKE

1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

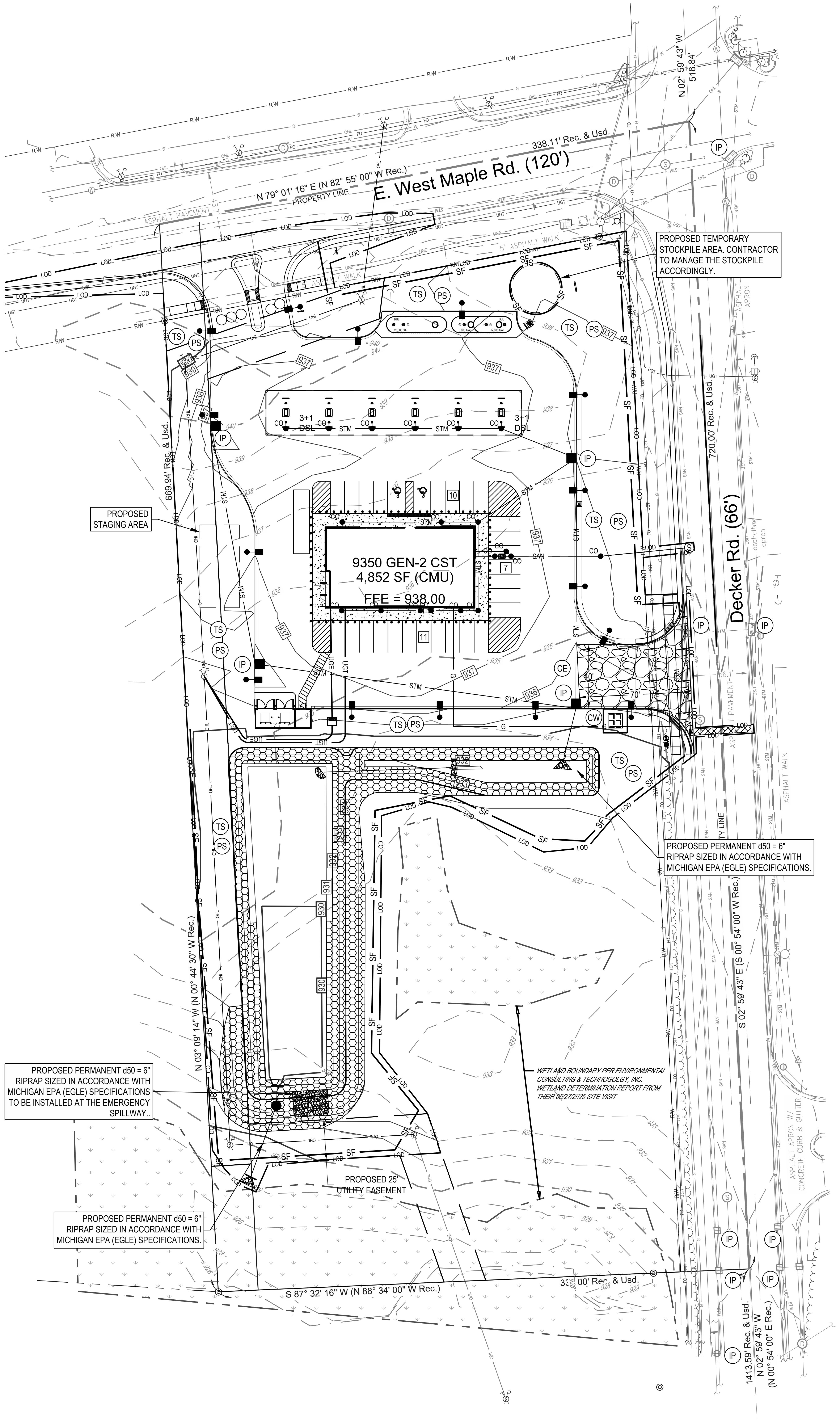
Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
SWPPP (SESC)
PHASE I

CE



PROPOSED TEMPORARY STOCKPILE AREA. CONTRACTOR TO MANAGE THE STOCKPILE ACCORDINGLY.

PROPOSED STAGING AREA

PROPOSED PERMANENT d50 = 6" RIPRAP SIZED IN ACCORDANCE WITH MICHIGAN EPA (EGLE) SPECIFICATIONS.

PROPOSED PERMANENT d50 = 6" RIPRAP SIZED IN ACCORDANCE WITH MICHIGAN EPA (EGLE) SPECIFICATIONS TO BE INSTALLED AT THE EMERGENCY SPILLWAY.

PROPOSED PERMANENT d50 = 6" RIPRAP SIZED IN ACCORDANCE WITH MICHIGAN EPA (EGLE) SPECIFICATIONS.

WETLAND BOUNDARY PER ENVIRONMENTAL CONSULTING & TECHNOGOLGY, INC. WETLAND DETERMINATION REPORT FROM THEIR 05/27/2025 SITE VISIT

PROPOSED 25' UTILITY EASEMENT

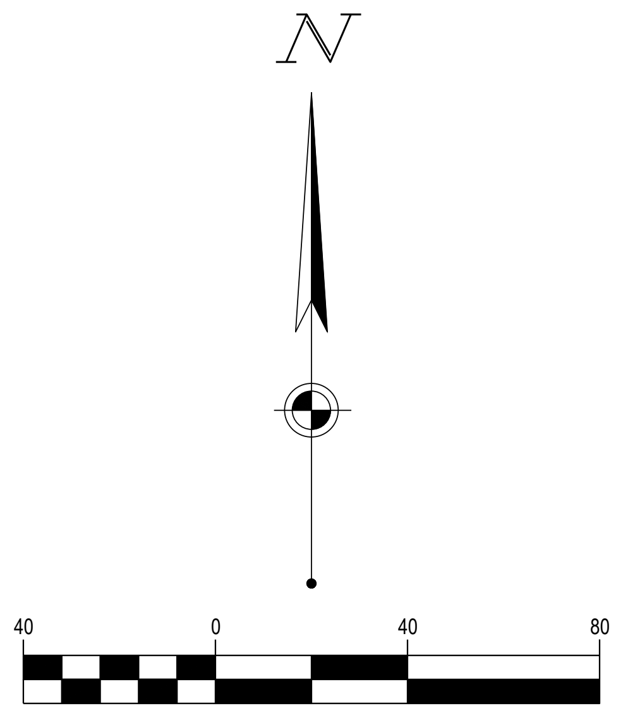
SWPPP LEGEND

EXISTING

REFER TO GN FOR EXISTING FEATURES LEGEND

PROPOSED

─── 960 ───	MAJOR CONTOUR
─── 962 ───	MINOR CONTOUR
────────	PAVEMENT/WALK
──── ─ ────	STORM SEWER
─── SF ───	SILT FENCE (TEMPORARY)
○○○○○○○○○○○○	COMPOST SOCK (TEMPORARY)
── ── · ── ── · ──	GRADING/SEEDING LIMITS
─── LOD ───	LIMIT OF DISTURBANCE
▨	PERMANENT EROSION CONTROL BLANKET ON ALL 4:1 SLOPES OR STEEPER
▨	STABILIZED CONSTRUCTION ENTRANCE (TEMPORARY)
☒ ☒	BASIN SEDIMENT FILTER (TEMPORARY)
■	CATCH BASIN
(CE)	STABILIZED CONSTRUCTION ENTRANCE (TEMPORARY)
(TS)	TEMPORARY SEEDING
(PS)	PERMANENT SOD
(HW)	HAZARDOUS WASTE STORAGE AREA (TEMPORARY)
(FS)	FUEL STORAGE AREA (TEMPORARY)
(CW)	CONCRETE WASHOUT AREA (TEMPORARY)
(IP)	INLET PROTECTION (TEMPORARY)



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

MISS DIG 811

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STATE OF MICHIGAN
MANDY J. GAUSS ENGINEER NO. 55618
LICENSED PROFESSIONAL ENGINEER
Mandy J. Gauss

7-ELEVEN

7-ELEVEN, INC.

WALLED LAKE

1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

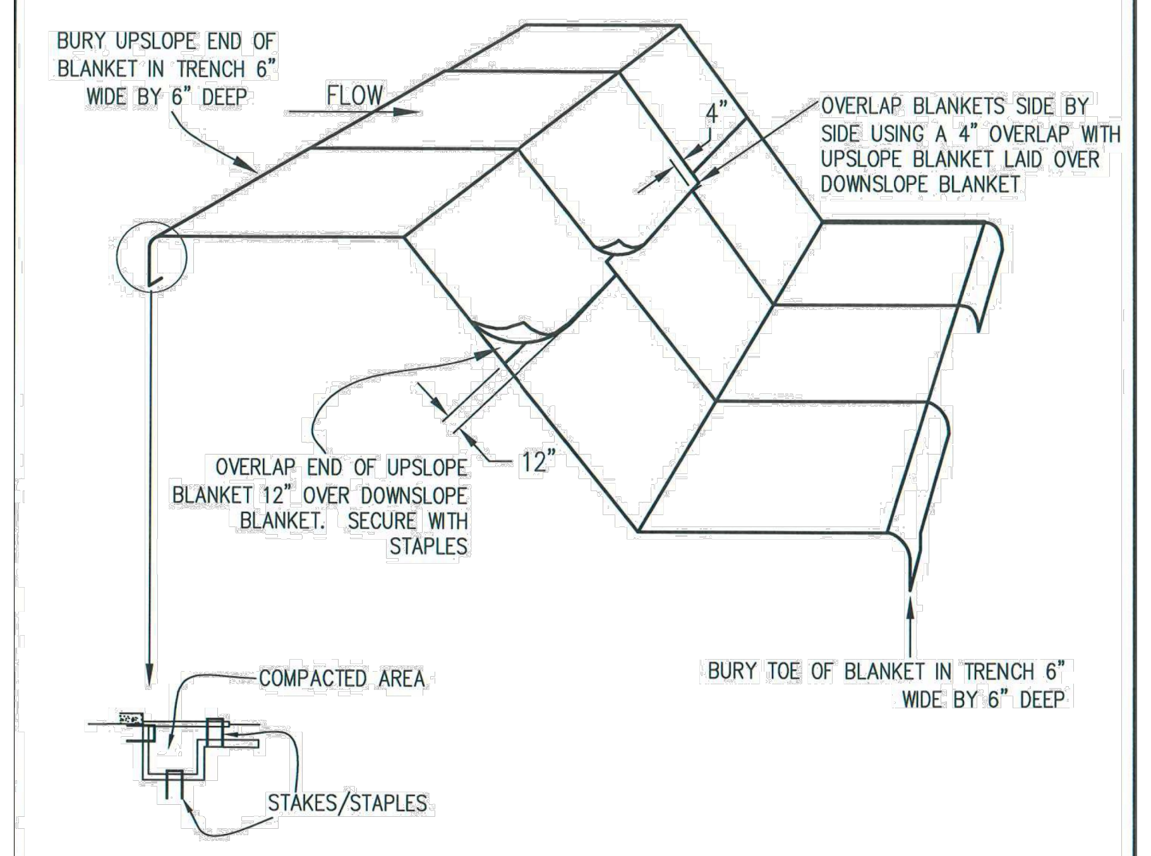
Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	11/26/2024
Issue:	NOT FOR CONSTRUCTION

Drawing Title:

SWPPP (SESC)
PHASE II

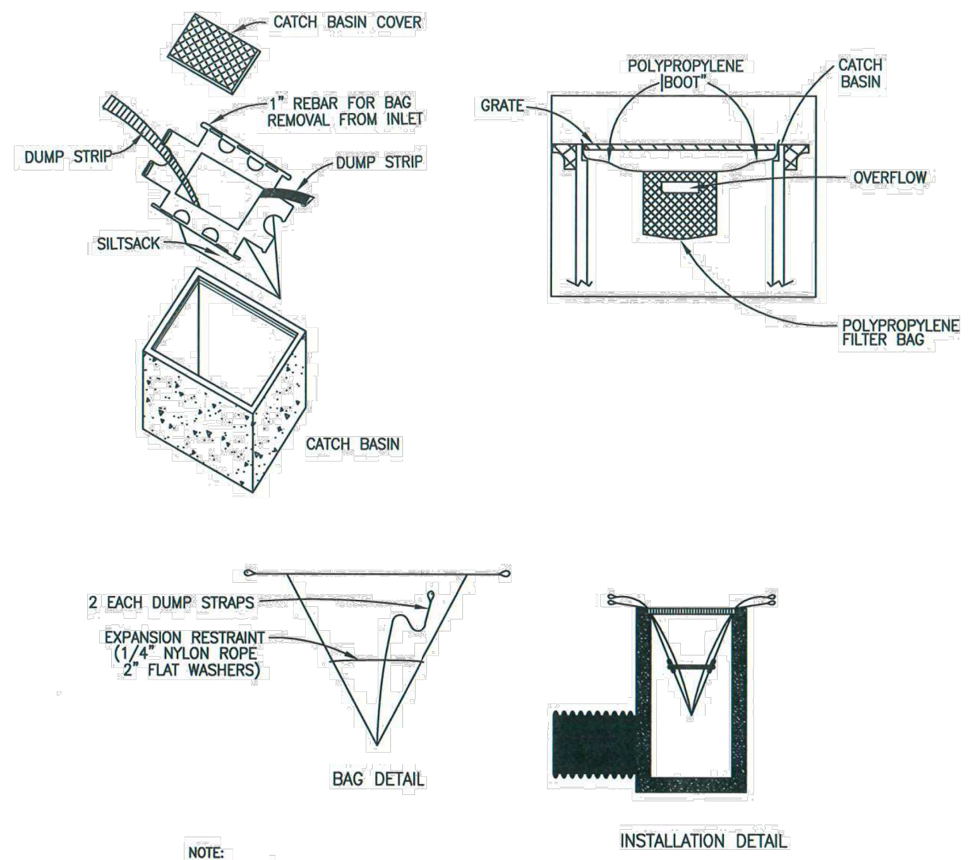
CE1

C:\DARoot\Jobs\ddb5cf47e04a440bbe46b230078abc8e\adskfiles\b.82d42c4a-ecc8-45d7-a180-96f43648f496_CESO\03-CIVIL\PLAN\PLOT\764078_EROSION.dwg - 7/18/2025 - acesuser



NOTES:
① PLACE MULCH BLANKET PARALLEL TO FLOW AND ANCHOR SECURELY.
② WHEN BLANKETS ARE USED IN FLOWING DITCH, BLANKETS SHOULD NOT OVERLAP IN DITCH CENTER PARALLEL TO FLOW.
③ STAPLES INSTALLED/SECURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
④ WHERE POSSIBLE, CONSTRUCT WITH BIODEGRADABLE MATERIAL.

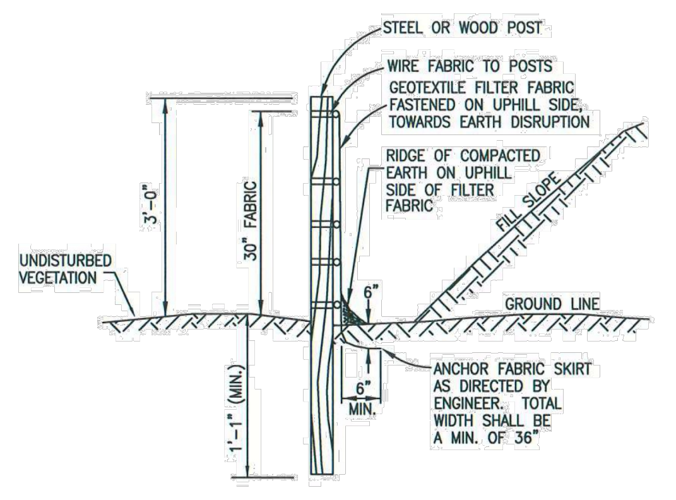
CITY OF WALLED LAKE
TITLE EROSION BLANKETS
DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO. SE–5



NOTE:
TEMPORARY INLET SEDIMENT FILTER TO BE INSTALLED ON ALL PAVEMENT CATCH BASINS INLET FILTER TO BE SIMILAR TO "SILTSACK" AS MANUFACTURED BY BMP STORE (800-644-9223) OR "SILTSACK" AS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS IN (800-448-3636). CLEAN FILTER AS NEEDED.

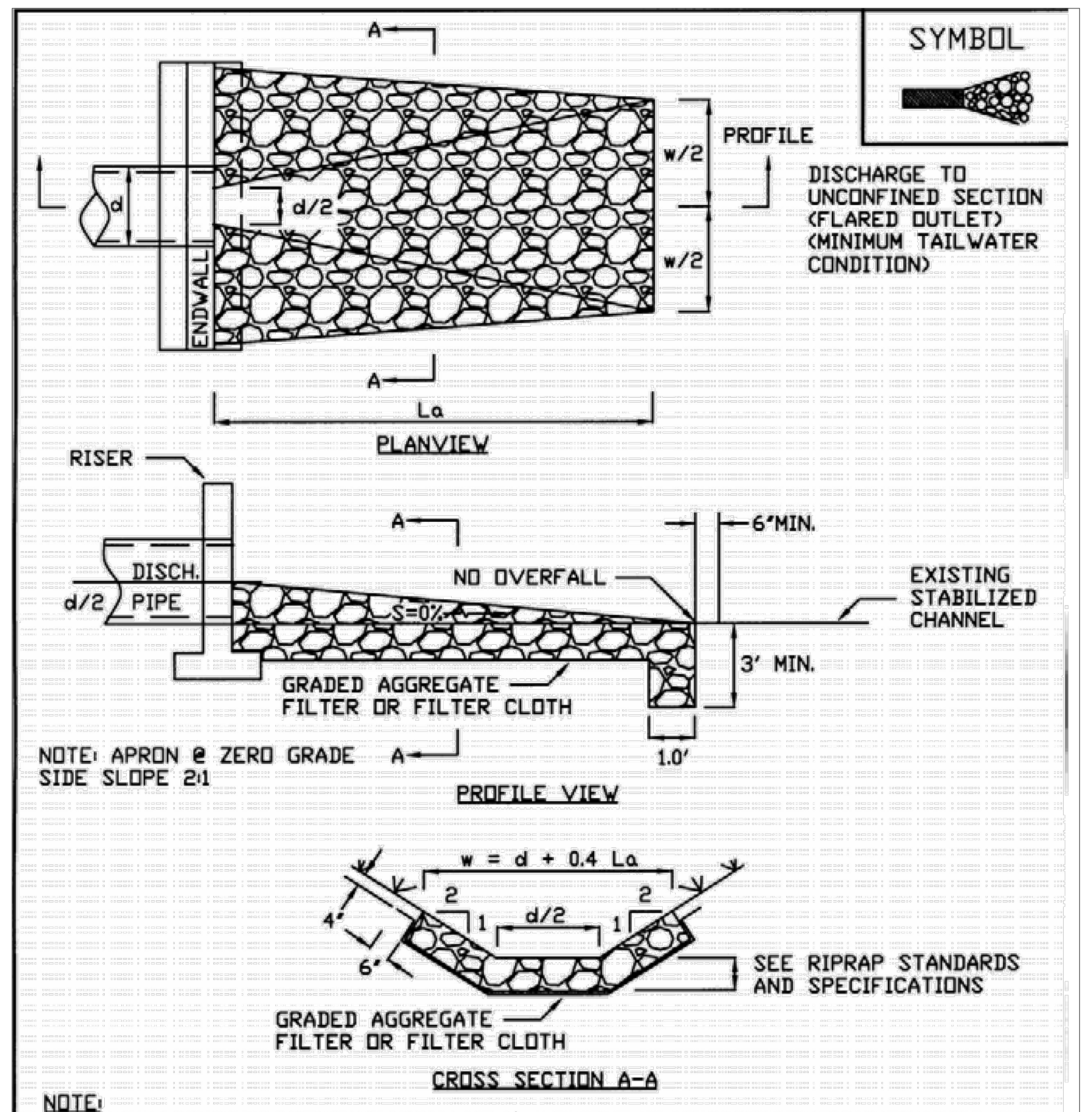
INLET SEDIMENT FILTER TEMPORARY
NO SCALE

CITY OF WALLED LAKE
TITLE SILT SACK
DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO. SE–2



SILT FENCE DETAIL
NO SCALE

CITY OF WALLED LAKE
TITLE SILT FENCE
DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO. SE–1



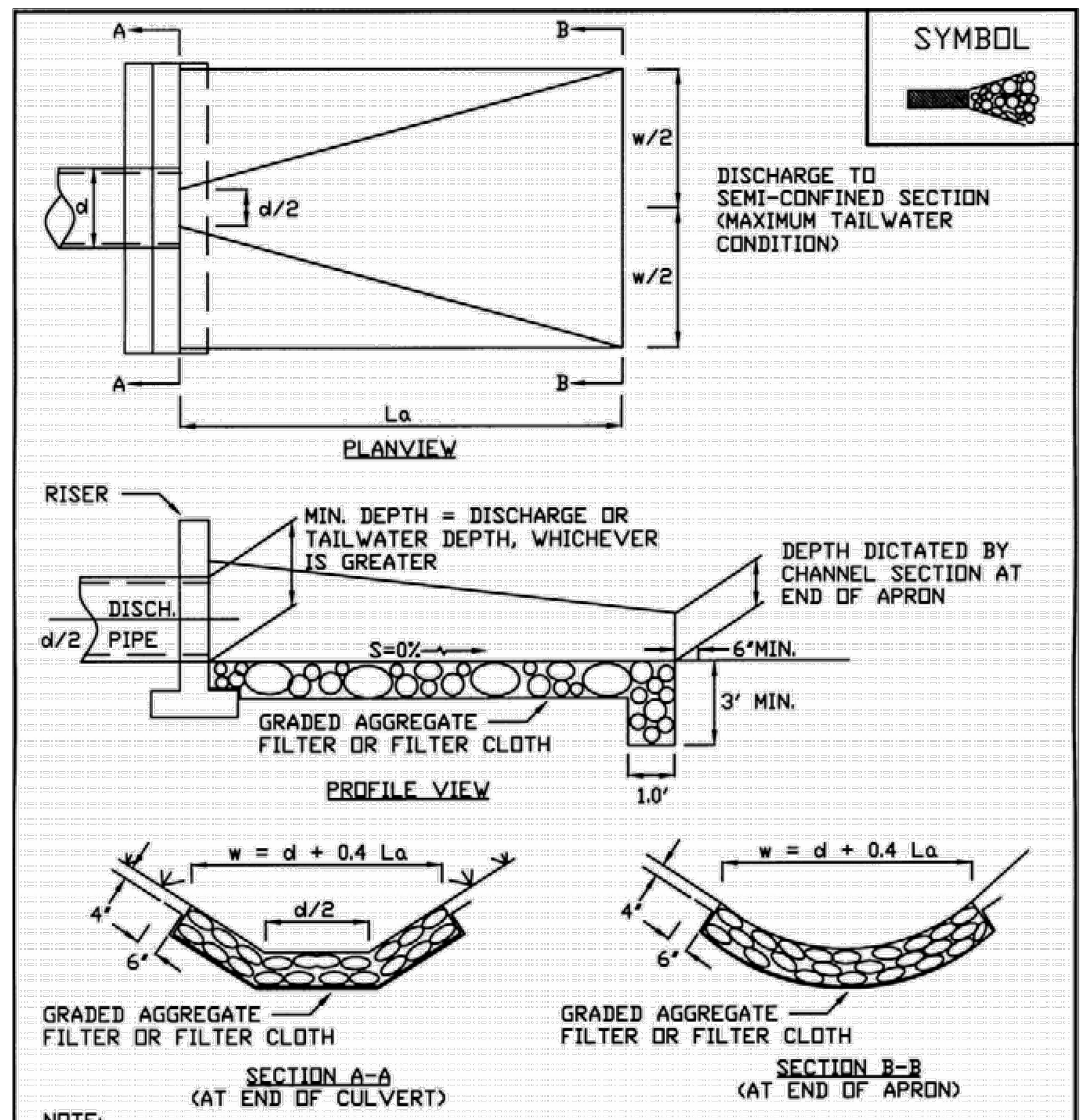
DISCHARGE TO UNCONFINED SECTION (FLARED OUTLET) (MINIMUM TAILWATER CONDITION)

NOTE: APRON @ ZERO GRADE
SIDE SLOPE 2:1

NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MINIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE

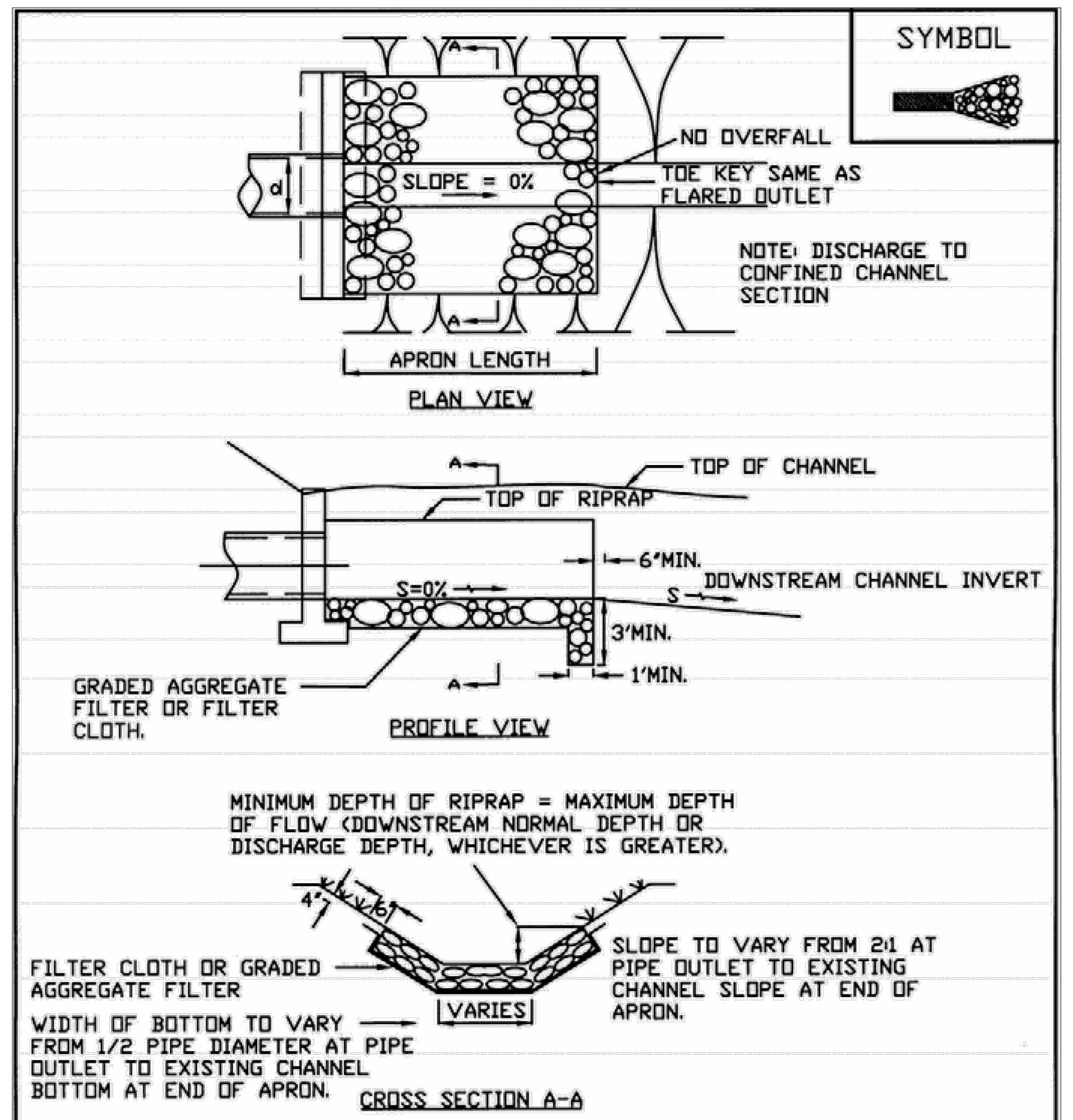


DISCHARGE TO SEMI-CONFINED SECTION (MAXIMUM TAILWATER CONDITION)

NOTE:
SEE RIPRAP STANDARDS AND SPECIFICATIONS
MAXIMUM TAILWATER CONDITIONS

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE



NOTE: DISCHARGE TO CONFINED CHANNEL SECTION

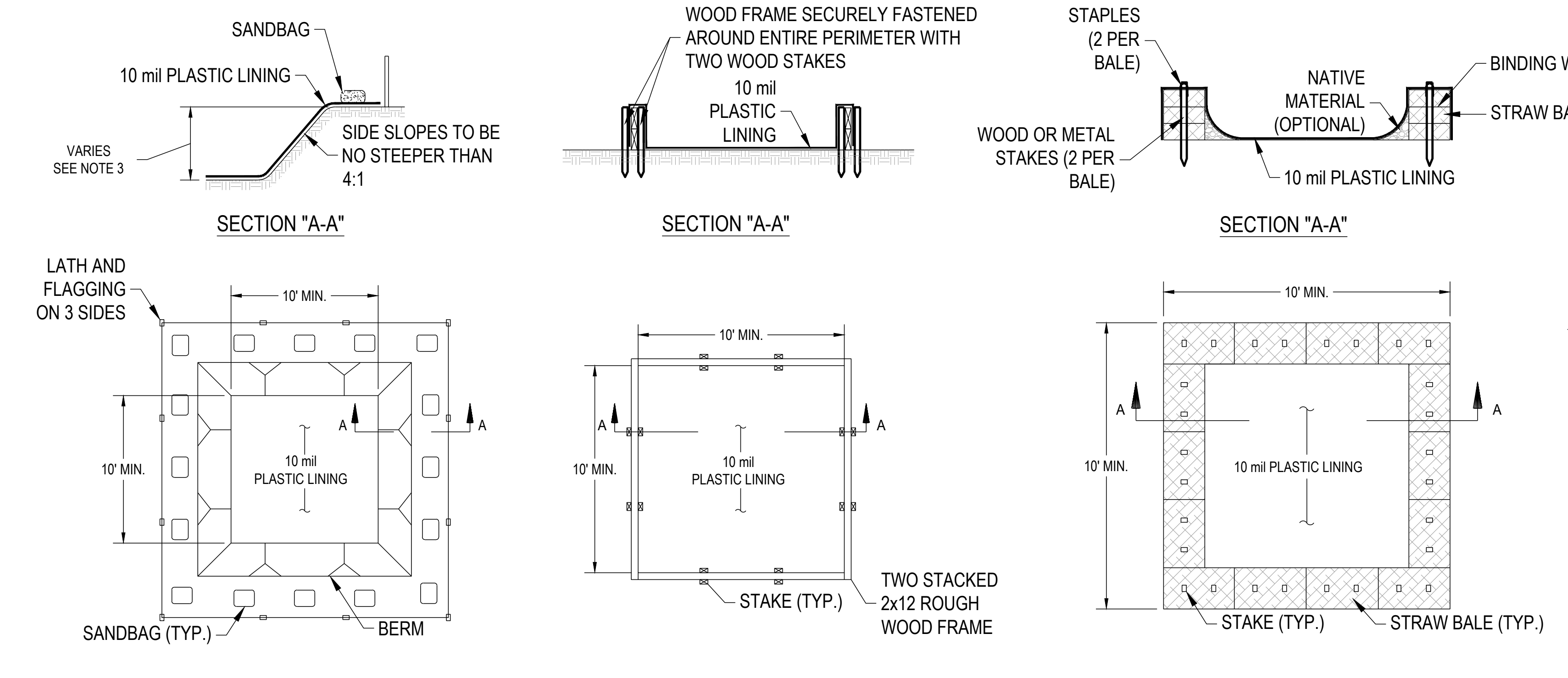
MINIMUM DEPTH OF RIPRAP = MAXIMUM DEPTH OF FLOW (DOWNSTREAM NORMAL DEPTH OR DISCHARGE DEPTH, WHICHEVER IS GREATER).

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE

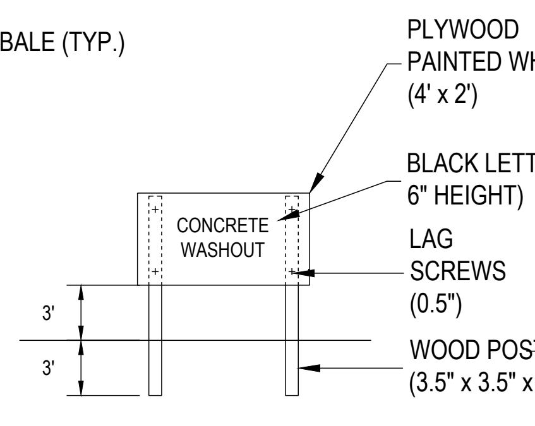
EGLE RIPRAP OUTLET PROTECTION DETAILS

NTS

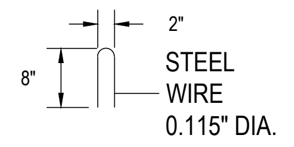


SECTION "A-A"
SECTION "A-A"
SECTION "A-A"

BELOW GRADE
ABOVE GRADE WITH WOOD PLANKS
ABOVE GRADE W/ HAYBALES



CONCRETE WASHOUT SIGN DETAIL



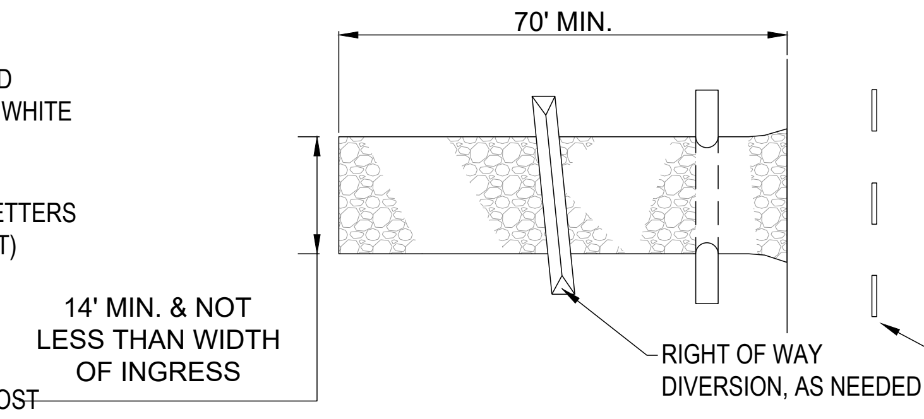
STAPLE DETAIL

NOTES:

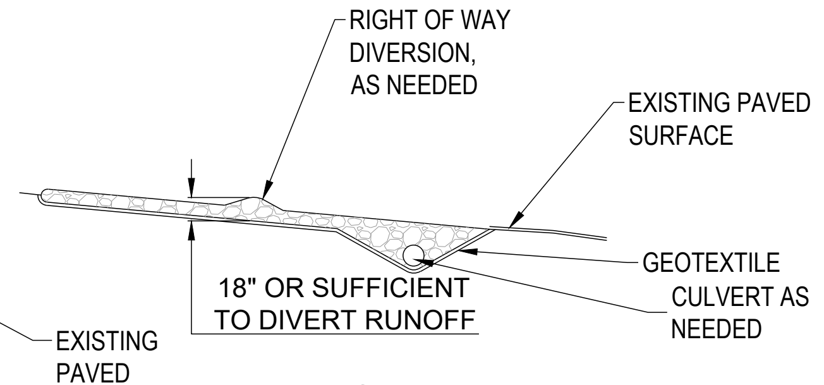
1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. THE WASHOUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS INCLUDING BUT NOT LIMITED TO OPERATIONS ASSOCIATED WITH GROUT AND MORTAR.

CONCRETE WASHOUT

NTS



PLAN VIEW



PROFILE

GEOTEXTILE SPECIFICATION FOR CONSTRUCTION ENTRANCE	
MINIMUM TENSILE STRENGTH	200 lbs.
MINIMUM PUNCTURE STRENGTH	80 psi.
MINIMUM TEAR STRENGTH	50 lbs.
MINIMUM BURST STRENGTH	320 psi.
MINIMUM ELONGATION	20%
EQUIVALENT OPENING SIZE	EOS < 0.6 mm.
PERMITTIVITY	1x10-3 cm/sec.

NOTES:

1. STONE SIZE - (2-3 INCH) STONE SHALL BE USED, OR CRUSHED STONE.
2. LENGTH - THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 70 FT. (EXCEPTION: APPLY 30 FT. MINIMUM TO SINGLE RESIDENCE LOTS.
3. THICKNESS - THE STONE LAYER SHALL BE AT LEAST 6 INCHES THICK FOR LIGHT DUTY ENTRANCES OR AT LEAST 10 INCHES FOR HEAVY DUTY USE.
4. WIDTH - THE ENTRANCE SHALL BE PER PLAN AND AT LEAST 14 FEET WIDE, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. GEOTEXTILE - A GEOTEXTILE SHALL BE LAID OVER THE ENTIRE AREA PRIOR TO PLACING STONE, IT SHALL BE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS AND MEET THE FOLLOWING SPECIFICATIONS:
6. TIMING - THE CONSTRUCTION ENTRANCE SHALL BE INSTALLED AS SOON AS IS PRACTICAL BEFORE MAJOR GRADING ACTIVITIES.
7. CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FROM FLOWING ACROSS THE ENTRANCE OR TO PREVENT RUNOFF FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
8. WATER BAR - A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.
9. MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY, REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
10. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION-SITE SHALL BE RESTRICTED FROM MUDDY AREAS.
11. REMOVAL - THE ENTRANCE SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY OR ENTRANCE.

STABILIZED CONSTRUCTION ENTRANCE

NTS

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WALLED LAKE
1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number: 764078
Scale: NTS
Drawn By: KI
Checked By: MG
Date: 07/18/2025
Issue: PERMIT SET

Drawing Title:
SWPPP (SESC) PHASE III

CE2

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MAINTAINING TRAFFIC

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN SIGNS (IN PROPER POSITION, CLEAN AND LEGIBLE, AND IN GOOD WORKING CONDITION) AND PROVIDE ALL LIGHTS, SIGNS, CONES, DRUMS, AND ANY OTHER TRAFFIC CONTROL DEVICES NECESSARY FOR THE MAINTENANCE OF TRAFFIC ACCORDING TO THESE PLAN NOTES AND DETAILS.

THE DATES AND TIMES FOR OPERATION INCLUDING CONSIDERATIONS FOR HOLIDAYS AND EVENTS SHALL BE APPROVED BY CITY OF WALLED LAKE ADMINISTRATION.

NO CHANGES IN TRAFFIC CONTROL PATTERNS SHALL BE MADE BETWEEN THE HOURS OF 6:00 AM TO 9:00 AM AND 4:00 PM TO 7:00 PM, MONDAY THROUGH FRIDAY.

NO WORK SHALL BE PERFORMED ON DECKER RD AND THE SAME NUMBER OF LANES AS EXISTED BEFORE CONSTRUCTION SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS AND SPECIAL EVENTS:

HOLIDAYS

NEW YEAR'S (OBSERVED)
LABOR DAY
GENERAL/REGULAR ELECTION DAY (NOV)
THANKSGIVING
MEMORIAL DAY
CHRISTMAS (OBSERVED)
FOURTH OF JULY (OBSERVED)

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR SPECIAL EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT:	TIME ALL LANES MUST BE OPEN TO TRAFFIC:
SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
TUESDAY (GEN./REG. ELECTION)	5:00 AM TUESDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
(THANKSGIVING ONLY)	6:00 AM WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

BEFORE THE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF PERSONS WHO CAN BE CONTACTED TWENTY-FOUR (24) HOURS PER DAY BY THE CITY AND ALL INTERESTED POLICE AGENCIES. THIS PERSON OR PERSONS SHALL BE RESPONSIBLE FOR PLACING OR REPLACING NECESSARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE MIICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN TRAFFIC AT ALL TIMES. IT IS THE INTENTION TO PERFORM THE REQUIRED WORK WITH THE LEAST INCONVENIENCE TO AND THE MAXIMUM SAFETY OF THE WORKERS AND THE TRAVELING PUBLIC OCCASIONALLY, MODIFICATIONS IN TRAFFIC CONTROLS OR WORKING CONDITIONS MAY BE REQUIRED IN ORDER TO EXPEDITE SAFE TRAFFIC MOVEMENT AND TO PROMOTE WORKER SAFETY.

ALL VEHICLES, EQUIPMENT AND WORKERS AND THEIR ACTIVITIES ARE RESTRICTED TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE APPROVED BY THE ENGINEER, CONSTRUCTION VEHICLES SHALL ALWAYS MOVE WITH AND NOT AGAINST THE FLOW OF TRAFFIC. CONSTRUCTION VEHICLES AND EQUIPMENT SHALL ENTER AND LEAVE WORK AREAS IN A MANNER WHICH WILL NOT BE HAZARDOUS TO, OR INTERFERE WITH THE NORMAL FLOW OF TRAFFIC. PERSONAL VEHICLES ARE NOT PERMITTED IN THE RIGHT-OF-WAY EXCEPT IN SPECIFIC AREAS DESIGNATED BY THE ENGINEER.

MAINTAINING TRAFFIC (SIGNS AND BARRICADES)

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE III BARRICADES AT THE LOCATIONS SPECIFIED IN PLANS.

TEMPORARY PAVEMENT WEDGE

TEMPORARY PAVEMENT WEDGES SHALL BE PROVIDED AT ALL TIMES WHERE TRAFFIC IS REQUIRED TO TRAVEL FROM OR ONTO A PAVEMENT SURFACE OF A DIFFERENT ELEVATION. THE MINIMUM SLOPE OF THE TEMPORARY PAVEMENT WEDGE SHALL BE 3:1 ALONG LONGITUDINAL JOINTS AND 120:1 AT TRANSVERSE JOINTS. THESE WEDGES SHALL BE REMOVED PRIOR TO PLACING THE SPECIFIED PAVEMENT COURSE.

DROP-OFFS IN WORK ZONE

THE DROP-OFF ADJACENT TO THE TRAVELED LANE MUST MEET THE CRITERIA OUTLINED IN MDOT STANDARD SPECIFICATIONS. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR MATERIALS, LABOR, OR EQUIPMENT NECESSARY TO MEET THESE REQUIREMENTS.

TRENCH FOR WIDENING

TRENCH FOR EXCAVATION FOR BASE WIDENING SHALL BE FOR ONLY ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL BY THE ENGINEER.

THE CONTRACTOR SHALL ENSURE THAT THE TRENCH FOR WIDENING HAS A VERTICAL DROP OF NO MORE THAN 5 INCHES. THE TRENCH CAN BE BACKFILLED BY AN AGGREGATE WEDGE. THE MAXIMUM SLOPE OF THE TEMPORARY AGGREGATE WEDGE SHALL BE 3:1 ALONG THE EXISTING PAVEMENT AND PROTECTED WITH DRUMS AT ALL TIMES.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 5 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

CONSTRUCTION SEQUENCE

PHASE ONE:

1. COMPLETE DRIVEWAY APRON CONSTRUCTION WORK ON WEST SIDE OF DECKER RD. COMPLETE SANITARY SEWER CONNECTION TO MANHOLE AND COMPLETE PAVEMENT/ CURB AND GUTTER REPAIRS ON WEST SIDE OF DECKER RD. SHIFT TRAFFIC AND PROVIDE SIGNAGE AS SHOWN ON THE PLANS. PROVIDE 10' MINIMUM TRAVEL LANES.

PHASE TWO:

1. CLOSE NORTHBOUND LANE OF DECKER ROAD. CLOSE CENTER TWO-WAY-LEFT TURN LANE ALONG DECKER ROAD AND RESTRIPE FOR NORTHBOUND THROUGH TRAFFIC USAGE. COMPLETE WATERLINE WORK AND PAVEMENT REPAIRS. PROVIDE SIGNAGE AS SHOWN ON THE PLANS. PROVIDE 10' MINIMUM TRAVEL LANES.

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1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
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Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
MAINTANENCE OF TRAFFIC NOTES

MT-1

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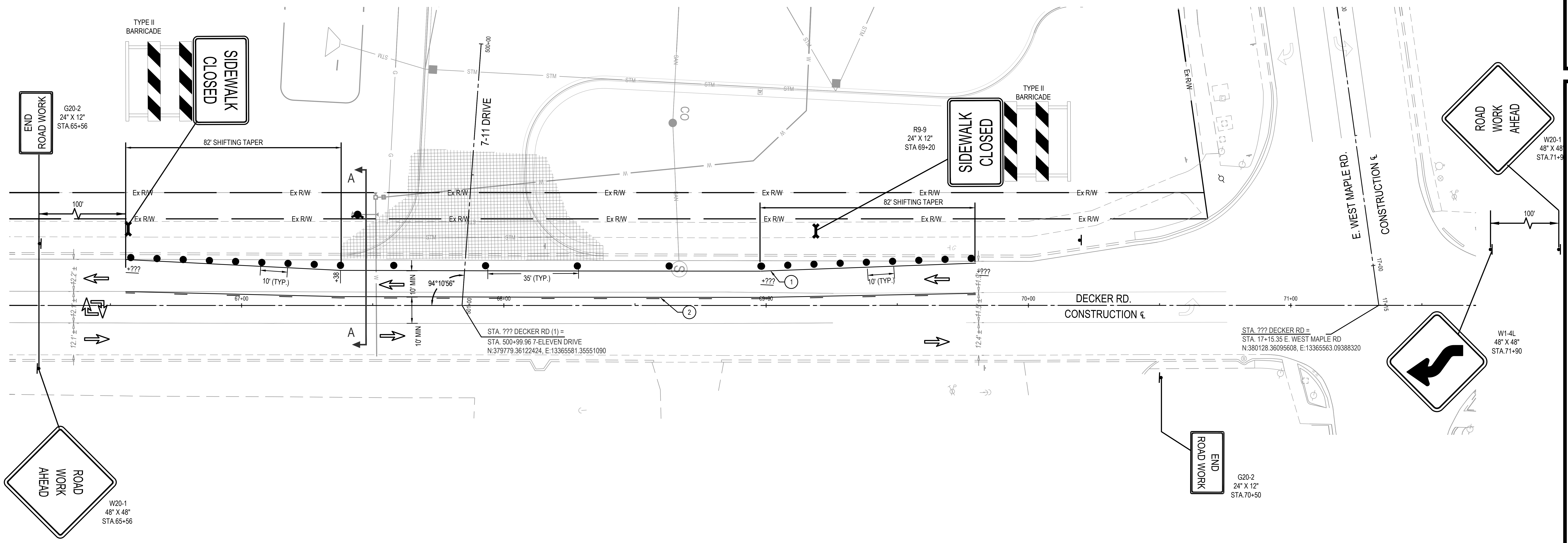
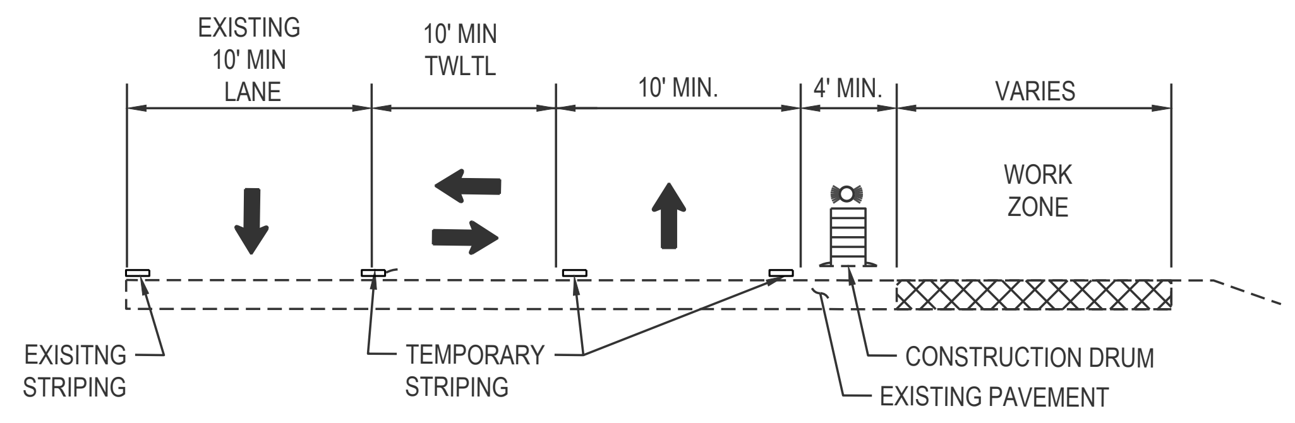


LEGEND

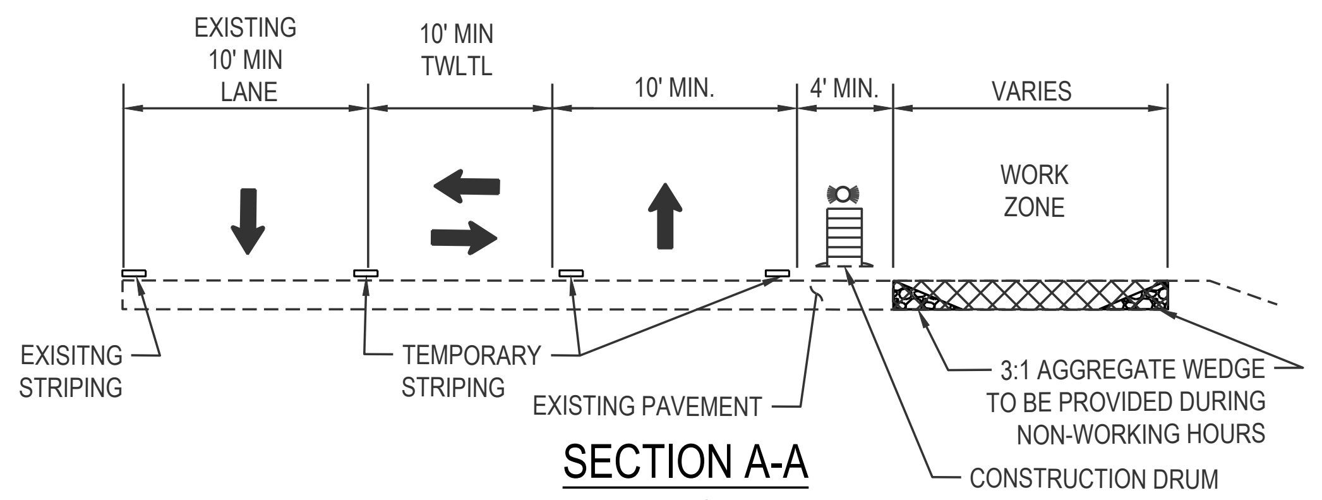
●	CONSTRUCTION DRUM
┳	TEMPORARY CONSTRUCTION SIGN
✕	TYPE II BARRICADE
①	TEMPORARY EDGE LINE (4" WHITE)
②	TEMPORARY TWLTL MARKING (4" SOLID/ SKIP DASH-YELLOW)
③	TEMPORARY CENTERLINE (4" SOLID DOUBLE YELLOW)
―	TEMPORARY PAVEMENT MARKING
▦	WORK ZONE
⇆	DIRECTION OF TRAVEL

NOTES:

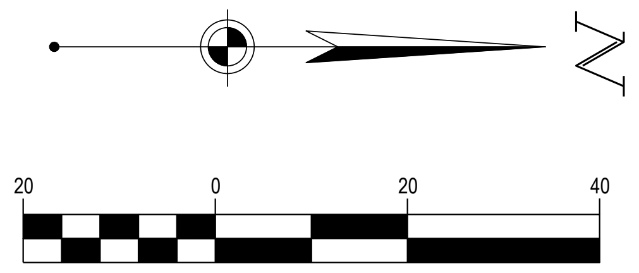
1. CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVES WITHIN MAINTENANCE OF TRAFFIC LIMITS THROUGH THE DURATION OF CONSTRUCTION. CONTRACTOR TO COORDINATE ACCESS AND CLOSURES WITH PROPERTY OWNERS WITH DRIVEWAYS IMPACTED IN THE CONSTRUCTION ZONE.
2. ALL TEMPORARY TRAFFIC CONTROL MARKINGS SHALL BE REMOVABLE TAPE.
3. EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH TEMPORARY TRAFFIC CONTROL MARKINGS OR ARE LABELED TO BE REMOVED SHALL BE COVERED WITH REMOVABLE BLACKOUT TAPE.
4. TEMPORARILY BAG/COVER EXISTING SIGNS IN WORK ZONE WHEN THEY CONFLICT WITH INTENDED MAINTENANCE OF TRAFFIC PLAN.
5. STEADY BURNING TYPE A WARNING LIGHTS SHOWN ON THE ADVANCE WARNING SIGNS ARE ONLY REQUIRED WHENEVER A NIGHT LANE CLOSURE/LANE SHIFT IS NECESSARY.
6. ALL MATERIAL AND EQUIPMENT SHALL BE REMOVED FROM THE CLOSURE AND THE WORK AREA WHEN NO WORK IS BEING DONE.
7. ALL TAPERS AND WORK ZONE TRAFFIC CONTROL SHALL COMPLY WITH REQUIREMENTS OUTLINED IN THE MMUTCD MANUAL.
8. ALL TEMPORARY TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT MARKINGS SHALL COMPLY WITH MMUTCD MANUAL.



SECTION A-A
N.T.S
WORKING HOURS SECTION



SECTION A-A
N.T.S
NON-WORKING HOURS SECTION



GRAPHIC SCALE (IN FEET)
1 in. = 20 ft.

MISS DIG 811

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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Revisions / Submissions

ID	Description	Date

Project Number:	764078
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Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
MAINTANENCE OF TRAFFIC

MT-2

NOTES:

1. CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVES WITHIN MAINTENANCE OF TRAFFIC LIMITS THROUGH THE DURATION OF CONSTRUCTION. CONTRACTOR TO COORDINATE ACCESS AND CLOSURES WITH PROPERTY OWNERS WITH DRIVEWAYS IMPACTED IN THE CONSTRUCTION ZONE.
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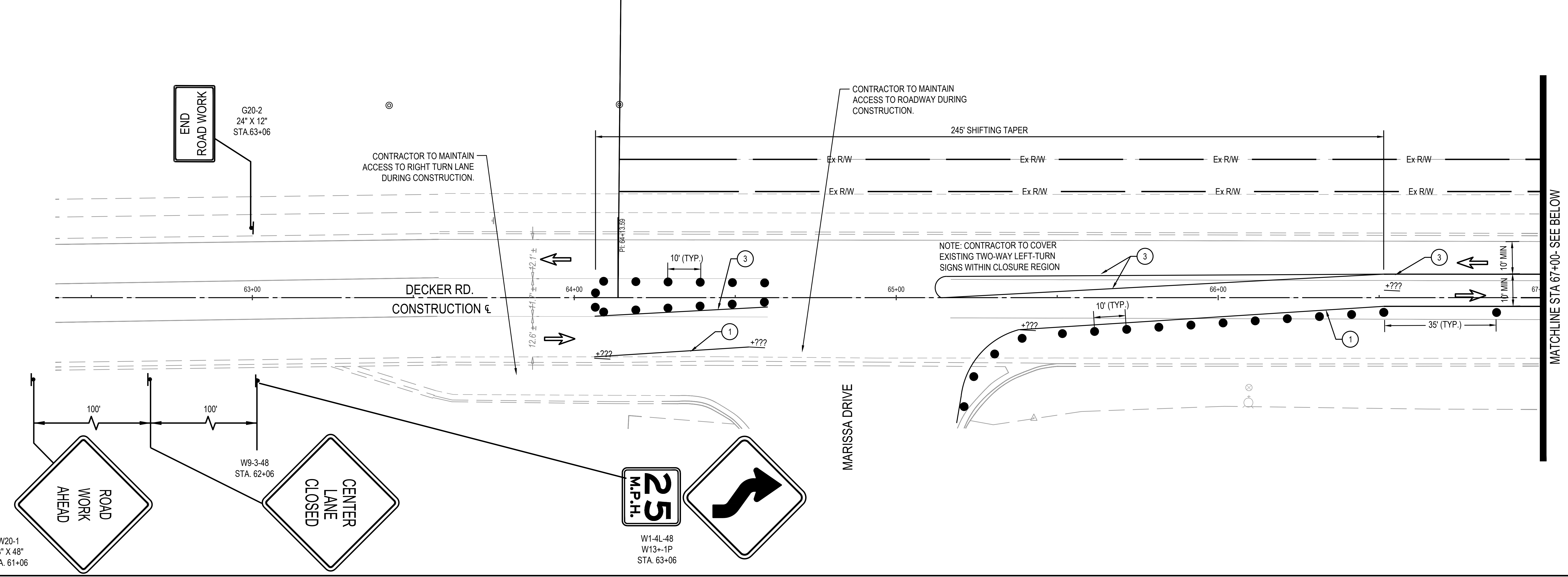
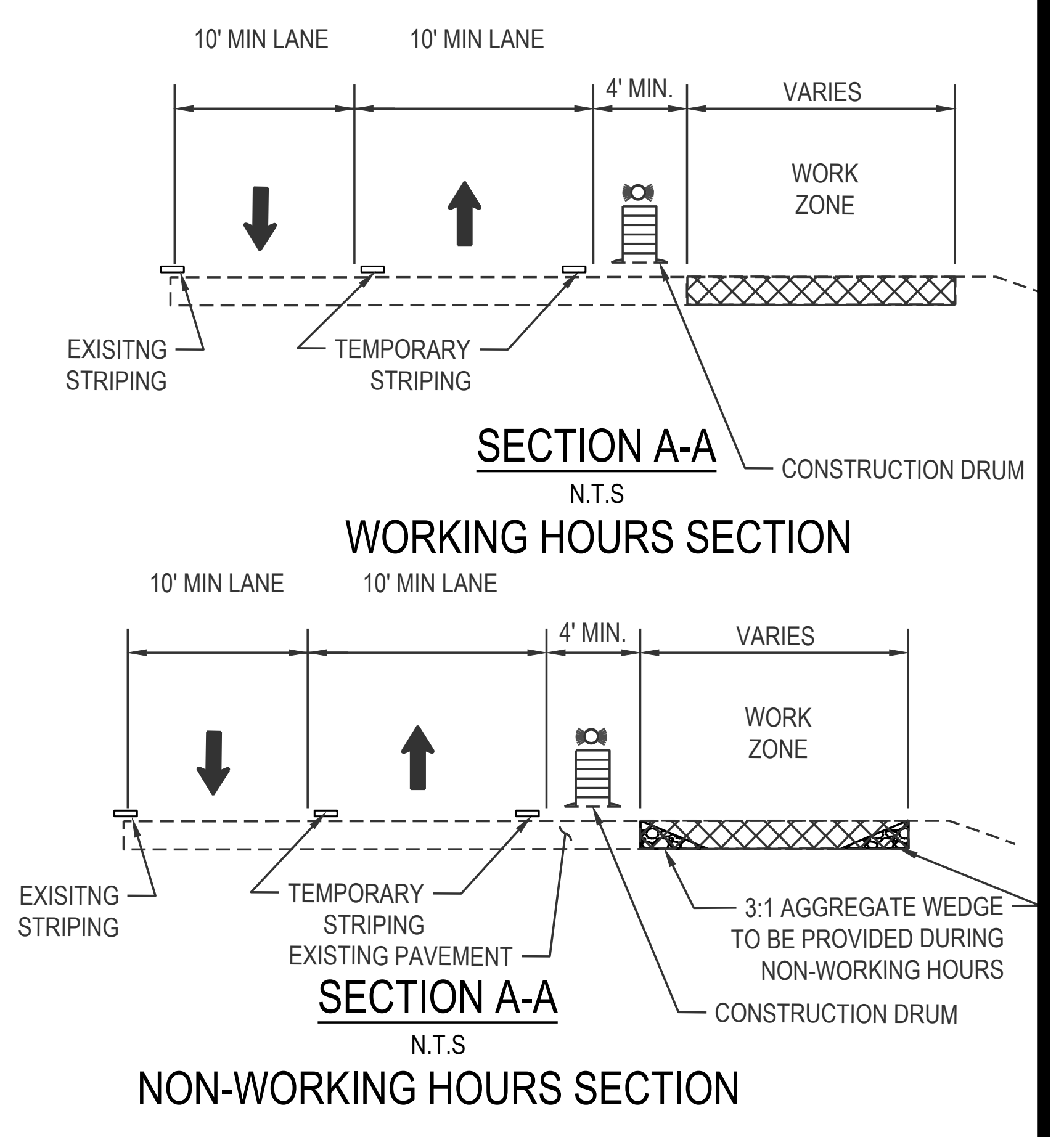
LEGEND

●	CONSTRUCTION DRUM
┬	TEMPORARY CONSTRUCTION SIGN
✖	TYPE II BARRICADE
①	TEMPORARY EDGE LINE (4" WHITE)
②	TEMPORARY TWLTL MARKING (4" SOLID/ SKIP DASH-YELLOW)
③	TEMPORARY CENTERLINE (4" SOLID DOUBLE YELLOW)
—	TEMPORARY PAVEMENT MARKING
▦	WORK ZONE
⇐ ⇒	DIRECTION OF TRAVEL





SECTION A-A

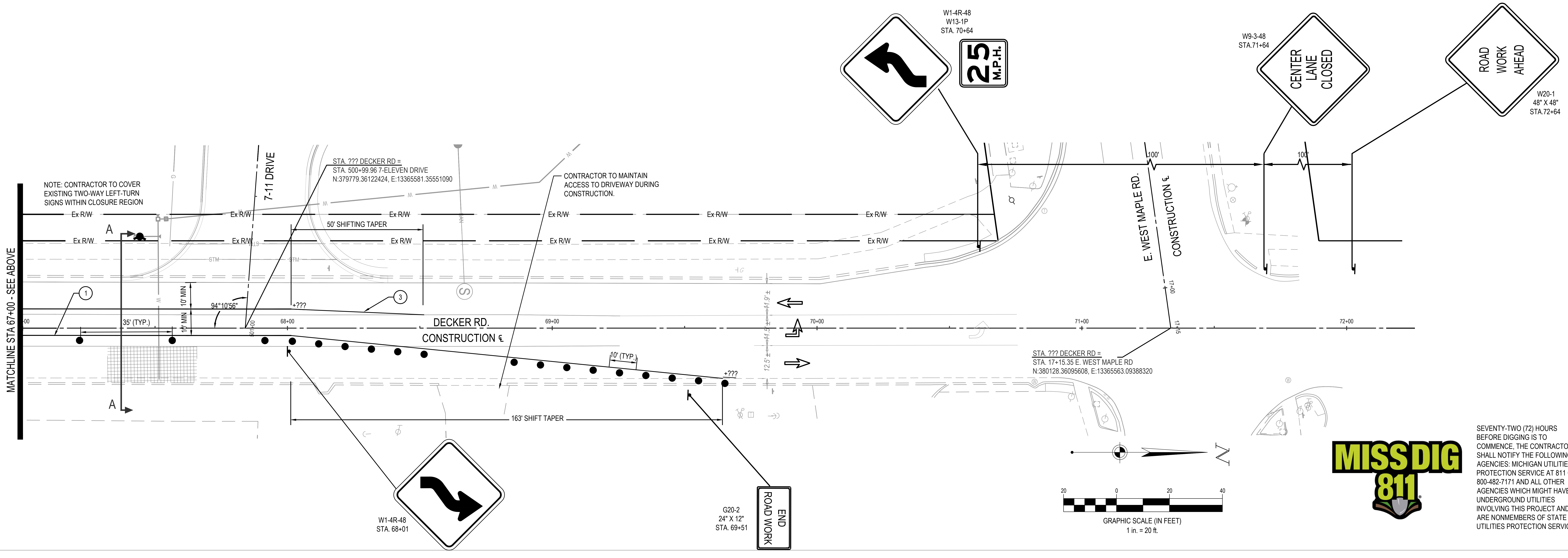
N.T.S

WORKING HOURS SECTION

SECTION A-A

N.T.S

NON-WORKING HOURS SECTION



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Revisions / Submissions

ID	Description	Date

Project Number:	764078
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Drawn By:	KI
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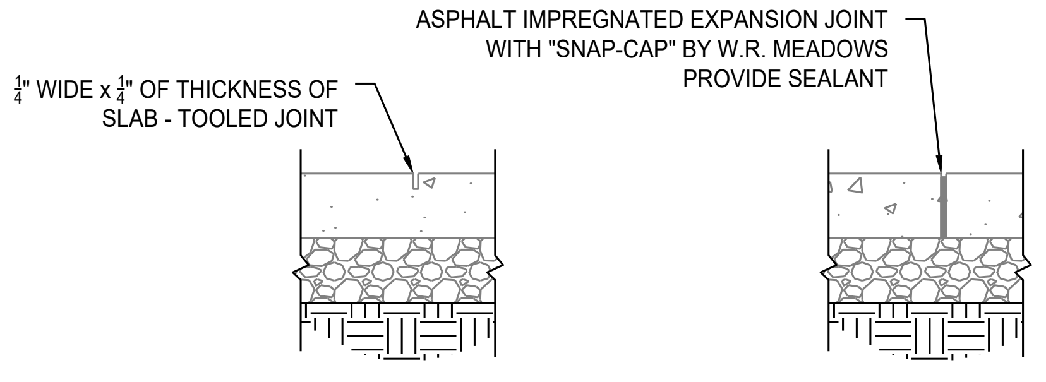
MAINTANENCE OF TRAFFIC

MT-3



SLAB CONTROL JOINT (C.J.)

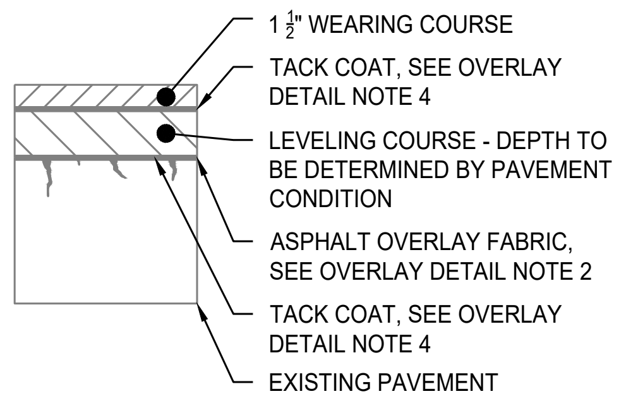
EXTERIOR SLAB EXPANSION JOINT (E.J.)

FOR 5' OR 8' WALKS, INSTALL A CONTROL JOINT EVERY 5' AND ONE IN THE CENTER (5' FROM THE BACK OF THE BUILDING FOR EXAMPLE)

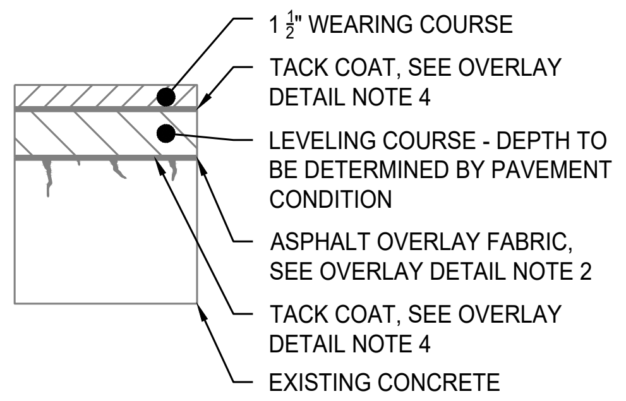
DETAILS ONLY APPLY TO BUILDING SIDEWALK. THEY DO NOT APPLY TO INTERIOR SLAB OR SITE CONCRETE.

10 CONCRETE WALK JOINTING SECTIONS

NOT TO SCALE



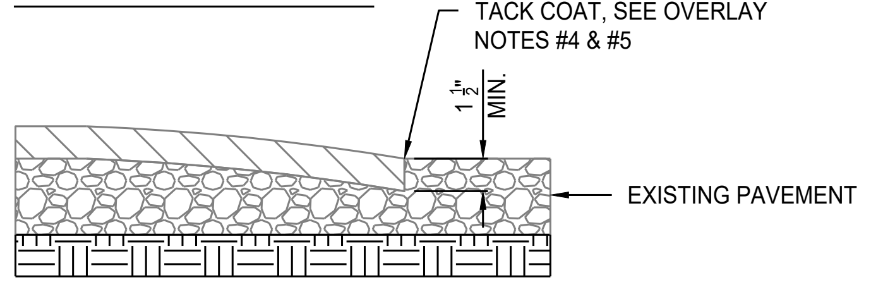
ASPHALT SUBBASE



CONCRETE SUBBASE

OVERLAY DETAIL NOTES:

1. THE OVERLAY SHALL BE PLACED IN ACCORDANCE WITH OWNER'S SPECIFICATIONS.
2. ALL FAILED AREAS SHALL BE REPAIRED WITH PROPER PATCHES BEFORE OVERLAY IS PLACED.
3. IF THE SURFACE IS DISTURBED, THE CONTRACTOR SHALL CONSTRUCT LEVELING COURSES TO RESTORE PROPER LINE AND CROSS SECTION.
4. THE PAVEMENT SHALL BE THOROUGHLY CLEANED AND A TACK COAT OF ASPHALT SHALL BE APPLIED BEFORE THE OVERLAY IS PLACED.
5. ALL VERTICAL SURFACES COMING IN CONTACT WITH THE OVERLAY SHALL BE SPRAYED OR PAINTED WITH A UNIFORM COATING OF EMULSIFIED ASPHALT IMMEDIATELY PRIOR TO PAVEMENT CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR ENSURING PROPER SURFACE DRAINAGE. PONDING OR PUDDLING OF WATER ON THE FINAL SURFACE WILL BE UNACCEPTABLE.
7. REPLACE IN KIND ANY EXISTING TRAFFIC LOOPS AND/OR RELATED SENSOR EQUIPMENT THAT IS REMOVED OR DAMAGED DUE TO PAVEMENT MILLING ACTIVITY.



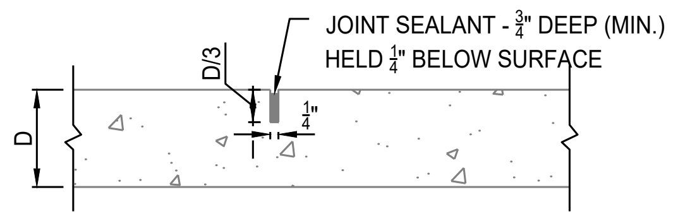
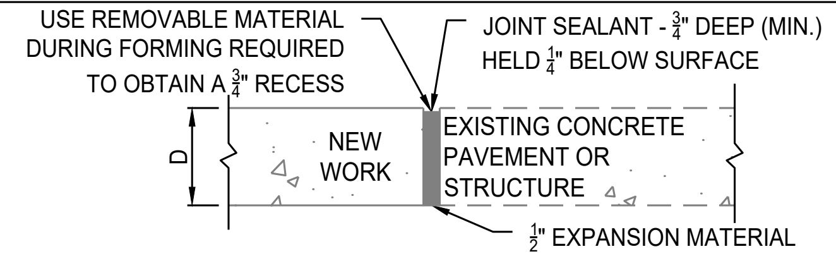
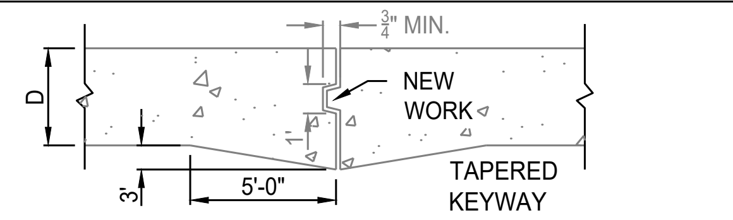
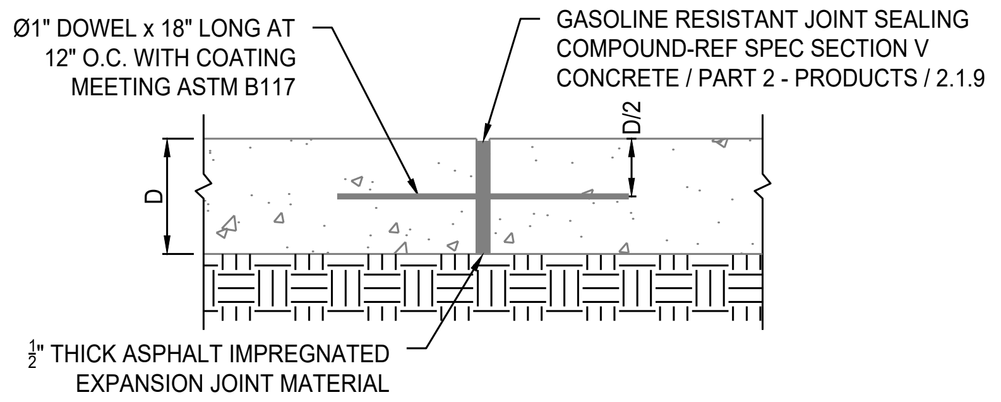
WHERE OVERLAY IS NOT SPECIFIED FOR ENTIRE EXISTING SURFACE, THE INTERFACE BETWEEN THE NEW OVERLAY AND THE OLD PAVEMENT SURFACE SHALL BE PER THE ABOVE DETAIL. FEATHERING OF THE ASPHALT TO MEET THE EXISTING PAVEMENT WILL NOT BE ACCEPTABLE.

EDGE DETAIL

8 ASPHALT OVERLAY PAVEMENT SECTIONS

NOT TO SCALE

CONCRETE PAVEMENT JOINT DETAILS

TYPE OF JOINT	USE DESCRIPTION	DETAIL
A. CONTROL JOINT ("SJ" ON FUEL PROTOTYPES) 1. SAWN 2. PREMOLD STRIP 3. HAND FORMED AND SAWN AT CRITICAL JOINTS	USE SPECIFICATION ACI 360R-06 TO PLACE CONTROL JOINTS SO AS TO UNIFORMLY DIVIDE SLABS INTO NOMINAL 12' x 12' (STANDARD-DUTY) OR 16' x 16' (HEAVY-DUTY) SECTIONS. (SEAL CONTROL JOINTS ONLY IF SPECIFIED ON DRAWINGS OR BY OWNER'S REPRESENTATIVE.	
B. EXPANSION JOINT (ISOLATION JOINT)	PLACE AGAINST CONCRETE TANK SLAB, ABUTTING ROADWAY PAVEMENTS AND STRUCTURES (BUILDINGS, CANOPY COLUMNS, CATCH BASINS, ETC.)	
C. CONSTRUCTION JOINT ("CJ" ON FUEL PROTOTYPES)	CONSTRUCTION JOINTS MUST BE APPROVED BY OWNER'S REPRESENTATIVE. PLACE WHEN CONTINUOUS POUR OPERATIONS ARE SUSPENDED FOR MORE THAN 30 MINUTES.	 OR 

9 CONCRETE PAVEMENT JOINTING SECTIONS

NO SCALE

ASPHALT SEALING

1. SURFACE CLEANING
   THE SURFACE TO BE SEALED SHALL BE FREE FROM DIRT AND OTHER FOREIGN MATTER. ANY ACCUMULATIONS OF OIL PR GREASE SHALL BE CLEANED OFF THE PAVEMENT WITH DETERGENT SOLUTION. THE RESIDUE OF WHICH SHALL BE THOROUGHLY WASHED AWAY WITH CLEAN WATER BEFORE SEALANT IS APPLIED.
2. SEALING:
   THE SEAL COATING MATERIAL SHALL BE COMPRISED OF A RUBBERIZED COAL-TAR PITCH EMULSION AND SHALL MEET OR EXCEED FEDERAL SPECIFICATION R-P-355e. SUPPLIED IN CONCENTRATED FORM, IT SHALL BE DILUTED A MINIMUM OF 15% AND A MAXIMUM OF 25% WITH FRESH, CLEAN WATER. THE SEALANT MATERIAL SHALL CONTAIN 5-6 LBS. PER GALLON OF FINE , CLEAN, DRY SILICAS AND MEETING THE FOLLOWING GRADATION:

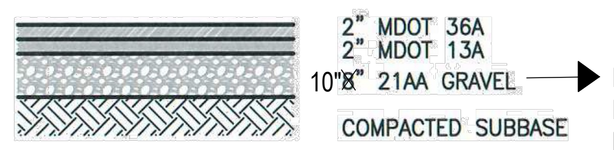
SIEVE SIZE	% PASSING
#16	100
#30	80-100
#50	10-60
#100	0-5

THE SEALANT SHALL BE APPLIED TO THE PAVEMENT IN TWO COATS AT THE RATE OF 0.08 TO 0.12 GALLONS PER SQUARE YARD. A LATEX ADDITIVE MAY ALSO BE ADDED TO THE SEALANT TO ALLOW FOR QUICKER DRYING TIME IN THOSE AREAS SPECIFIED BY OWNER'S REPRESENTATIVE.

7 ASPHALT SEALING NOTES

NO SCALE

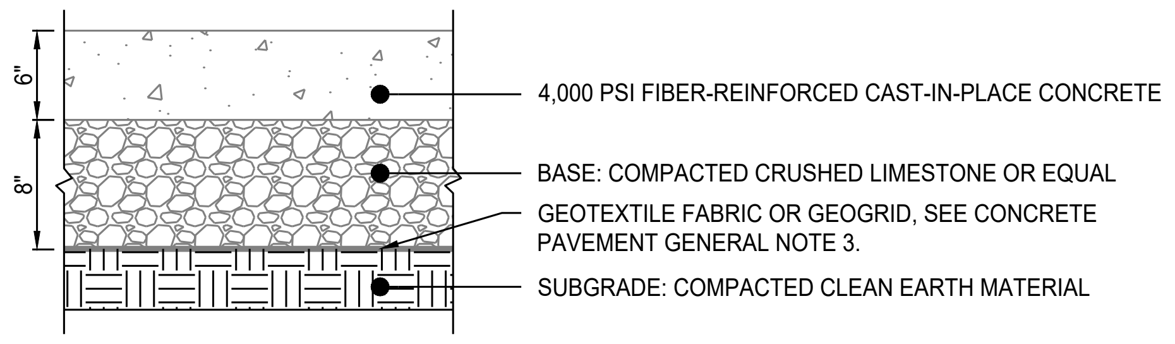
CONCRETE SECTION
(NO SCALE)



PER GEOTECHNICAL REPORT RECOMMENDATION, THE AGGREGATE BASE FOR THE ASPHALT SECTION NEEDS TO BE 10" MINIMUM.

PARKING – ASPHALT SECTION
(NO SCALE)

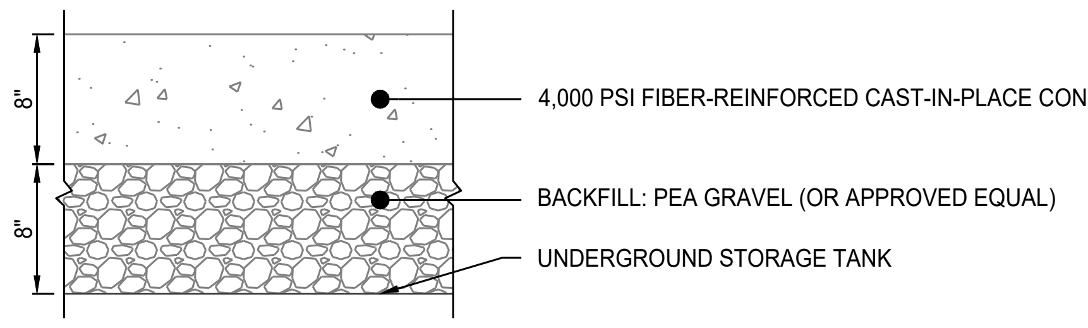
CITY OF WALLED LAKE
TITLE ASPHALT & CONCRETE CROSS SECTIONS
DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO. P–2



AUTO PARKING AREAS, AUTO CANOPY SLAB, AND OTHER LIMITED SERVICE TRAFFIC AREAS

1 STANDARD-DUTY CONCRETE PAVEMENT SECTION

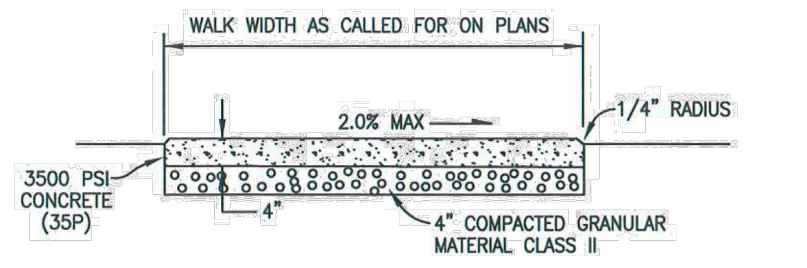
1 1/2" = 1'-0"



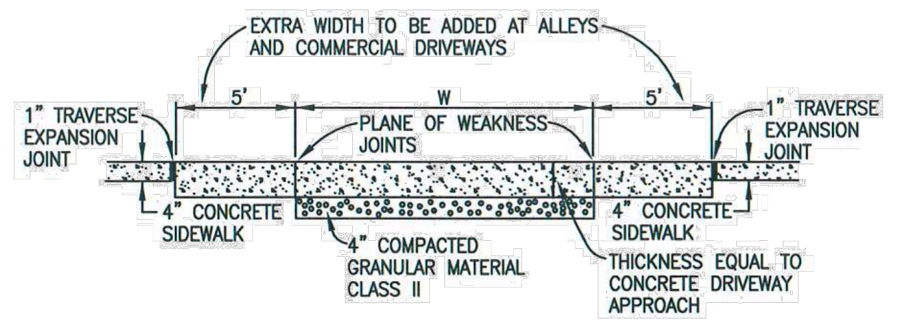
AUTO TANKS, CFL TANKS, AND COMBINED TANK PITS

3 TANK SLAB CONCRETE PAVEMENT SECTION

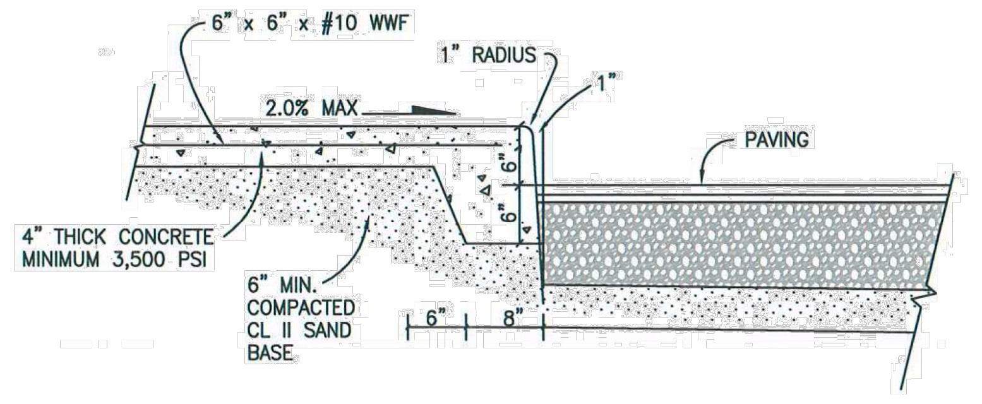
1 1/2" = 1'-0"



4" CONCRETE SIDEWALK
(NO SCALE)



THICKENED CONCRETE SIDEWALK
(NO SCALE)



INTEGRAL CONCRETE WALK / CURB DETAIL
(NO SCALE)

CITY OF WALLED LAKE
TITLE SIDEWALK & INTEGRAL CURB AND WALK
DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO. P–3

PAVING EXECUTION NOTES:

1. LOCATE AND INSTALL CONSTRUCTION, ISOLATION, AND EXPANSION JOINTS AS INDICATED OR REQUIRED.
2. PLACE CONCRETE IN A CONTINUOUS OPERATION WITHIN PLANNED JOINTS OR SECTIONS. DO NOT ADD WATER TO ADJUST SUMP.
3. FLOAT SURFACES TO TRUE PLANES WITHIN A TOLERANCE OF $\frac{1}{4}$ INCH IN 10 FEET.
4. TOOL EDGES AND JOINTS TO A RADIUS OF $\frac{1}{4}$ INCH FOR SIDEWALKS.
5. ALLOW CONCRETE PAVING TO CURE FOR A MINIMUM OF 28 DAYS AND DRY BEFORE STARTING PAVEMENT MARKING.
6. APPLY TRAFFIC PAINT WITH MECHANICAL EQUIPMENT TO A MINIMUM WET FILM THICKNESS OF 15 MILS.
7. PROTECT CONCRETE PAVING FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVING FOR AT LEAST 14 DAYS.

CONCRETE PAVEMENT GENERAL NOTES:

1. SEE FUEL PROTOTYPE FOR ADDITIONAL REQUIREMENTS FOR TANK SLABS.
2. SEE FUEL PROTOTYPE FOR ADDITIONAL REQUIREMENTS FOR DISPENSER ISLAND SLABS.
3. A GEOTEXTILE OR GEOGRID IS ONLY NEEDED WHEN THE GEOTECHNICAL REPORT AND/OR A GEOTECH EXPERT REQUIRES IT FOR THE SPECIFIC SITE'S SOIL CONDITIONS. IF GEOTEXTILE IS REQUIRED, IT WILL BE IN ADDITION TO MEETING CITY MINIMUM STANDARDS.
4. UNDISTURBED SOIL OR COMPACTED BACK FILL NOT LESS THAN 95% OF MODIFIED PROCTOR DENSITY (AASHTO-T-180).
5. REFER TO CIVIL DESIGN GUIDELINES (CDG) FOR PAVEMENT LOCATION GUIDANCE.
6. CONTRACTOR REFER TO THE GEOTECH REPORT FOR PAVEMENT SUBGRADE PREPARATION AND FOUNDATION DESIGN AND CONSTRUCTION RECOMMENDATIONS IF MORE STRINGENT THAN PROTOTYPE DETAILS.
7. COMPACTION IS NOT REQUIRED OVER THE TANK PIT(S).

ASPHALT PAVEMENT GENERAL NOTES:

1. ALL WORK SHALL BE IN CONFORMANCE WITH CITY'S OF WALLED LAKE AND OWNER'S SPECIFICATIONS FOR ASPHALTIC CONCRETE PAVING.
2. GEOGRID IS ONLY NEEDED WHEN THE GEOTECHNICAL REPORT AND/OR A GEOTECH EXPERT REQUIRES IT FOR THE SPECIFIC SITE'S SOIL CONDITION. IF GEOTEXTILE IS REQUIRED, IT WILL BE IN ADDITION TO MEETING CITY MINIMUM STANDARDS.
3. FOR SUBSURFACE DRAINAGE OR STABILITY ISSUES DURING CONSTRUCTION (UNDER DIRECTION BY GEOTECH EXPERT):
   - A. SUBSURFACE DRAINAGE ISSUE - REFER TO GUIDELINES FOR DEWATERING ISSUES TO DERIVE ACCEPTABLE OPTIONS.
   - B. SUBSURFACE STABILITY ISSUE - INSTALL GEOGRID PER GEOTECH EXPERT RECOMMENDATION.
4. THE PAVEMENT SHALL BE THOROUGHLY CLEANED AND A TACK COAT OF ASPHALT SHALL BE APPLIED BEFORE THE OVERLAY IS PLACED.
5. REFER TO CIVIL DESIGN GUIDELINES (CDG) FOR PAVEMENT LOCATION GUIDANCE.

CONTRACTOR MUST REFER TO THE GEOTECH REPORT FOR PAVEMENT SUBGRADE PREPARATION AND FOUNDATION DESIGN AND CONSTRUCTION RECOMMENDATIONS

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WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	N/A
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
CONSTRUCTION DETAILS

CPC-1

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PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

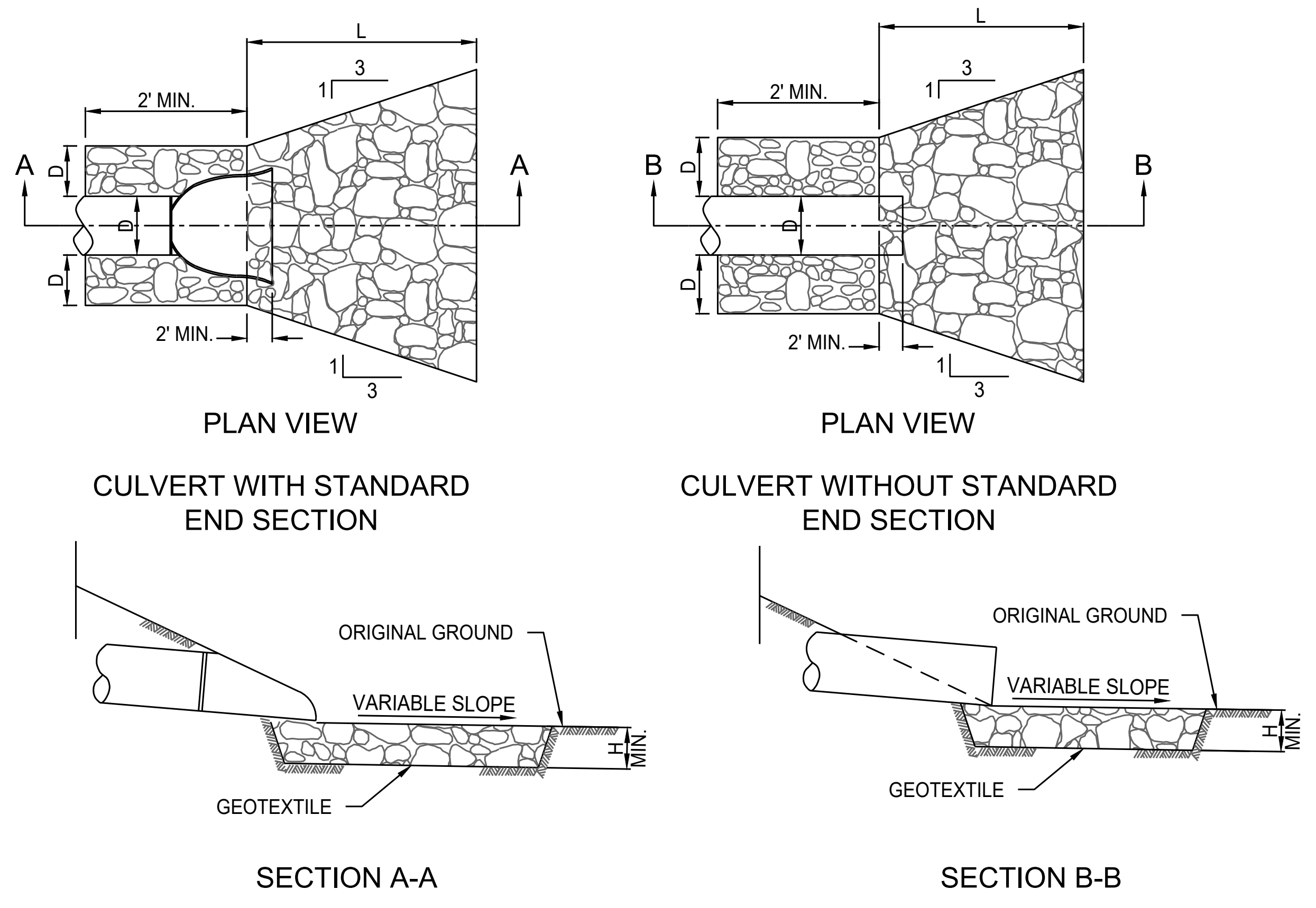
	CULVERT SIZE D (in)	RIP-RAP CLASS	LENGTH OF APRON L (ft)	DEPTH OF APRON H (ft)	EST. RIP-RAP QTY. (CY)	EST. GEOTEXTILE QTY. (SY)
WITH END SECTION	12	2	4	1.5	1	5
	18	2	6	1.5	2.2	9
	24	2	8	1.5	3.9	14
	30	3	12.5	2	10.9	28
	36	3	16	2	15.6	37
	42	4	21	2.5	34.1	63
	48	4	24	2.5	44.5	79
WITHOUT END SECTON	12	2	6	1.5	1.7	8
	18	2	9	1.5	3.2	12
	24	2	12	1.5	5.2	17
	30	3	15	2	13.3	33
	36	3	18	2	18.5	43
	42	4	21	2.5	38.7	70
	48	4	24	2.5	49.8	87

NOTE:
RIP-RAP CLASSIFICATION SPECIFICATIONS

CLASS 2 RIP-RAP
NO MORE THAN 10% OF THE STONE WILL HAVE A DIAMETER GREATER THAN 16";
NO MORE THAN 50% OF THE STONE WILL HAVE A DIAMETER LESS THAN 12";
NO MORE THAN 10% OF THE STONE WILL HAVE A DIAMETER LESS THAN 6";
THICKNESS OF THE RIP-RAP LINER WILL BE NO LESS THAN 16"

CLASS 3 RIP-RAP
NO MORE THAN 10% OF THE STONE WILL HAVE A DIAMETER GREATER THAN 22";
NO MORE THAN 50% OF THE STONE WILL HAVE A DIAMETER LESS THAN 16";
NO MORE THAN 10% OF THE STONE WILL HAVE A DIAMETER LESS THAN 8";
THICKNESS OF THE RIP-RAP LINER WILL BE NO LESS THAN 22"

CLASS 4 RIP-RAP
NO MORE THAN 10% OF THE STONE WILL HAVE A DIAMETER GREATER THAN 27";
NO MORE THAN 50% OF THE STONE WILL HAVE A DIAMETER LESS THAN 22";
NO MORE THAN 10% OF THE STONE WILL HAVE A DIAMETER LESS THAN 10";
THICKNESS OF THE RIP-RAP LINER WILL BE NO LESS THAN 27"



PLAN VIEW

CULVERT WITH STANDARD
END SECTION

PLAN VIEW

CULVERT WITHOUT STANDARD
END SECTION

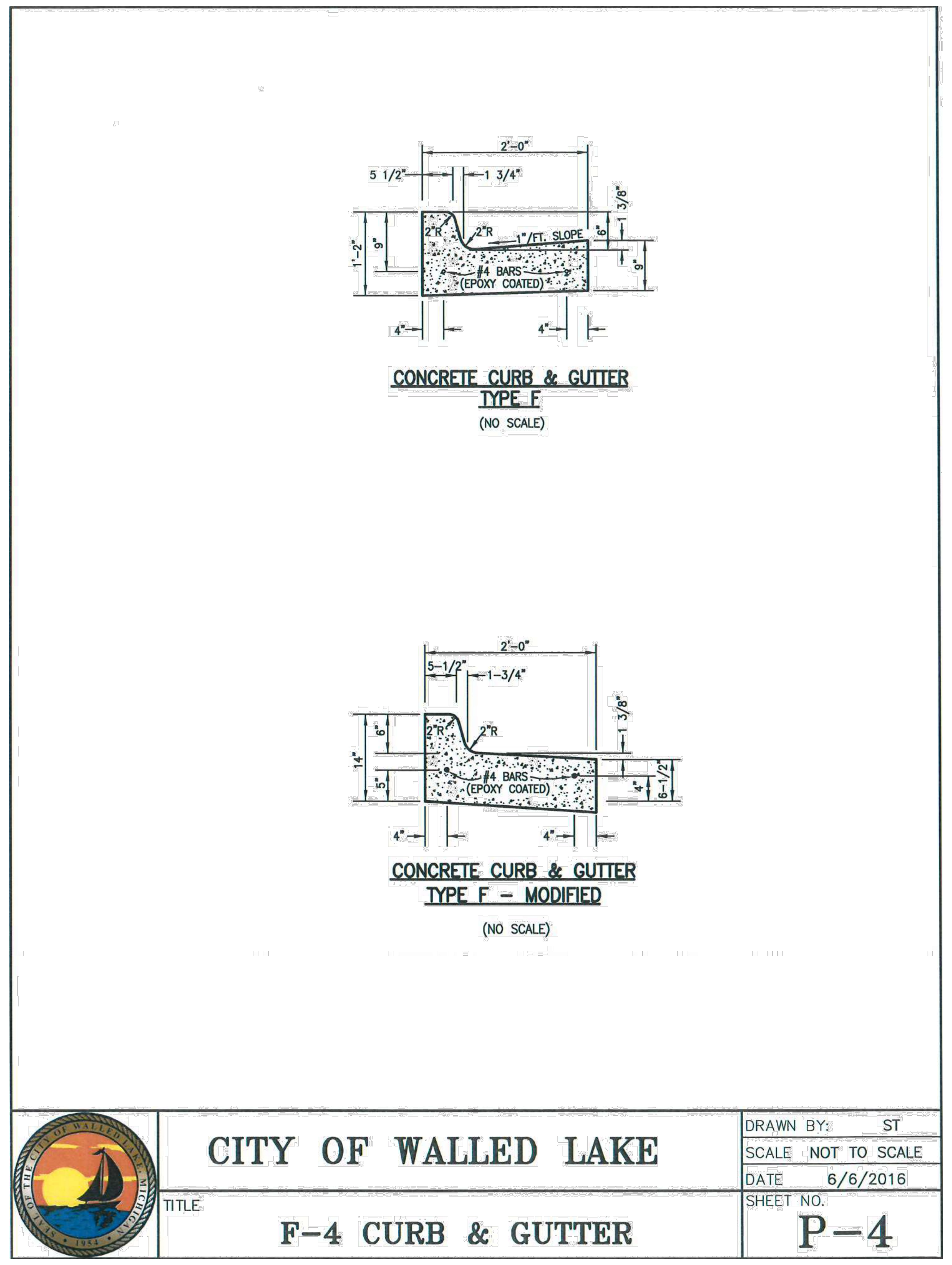
SECTION A-A

SECTION B-B

NOTE:
DESIGN ENGINEER TO VERIFY DIMENSIONS AND
TYPE OF RIP-RAP WITH LOCAL/STATE REGULATIONS

2 PROTECTIVE APRON AT CULVERT OUTLET WITHOUT DITCH

NOT TO SCALE



#4 BARS (EPOXY COATED)

CONCRETE CURB & GUTTER
TYPE F
(NO SCALE)

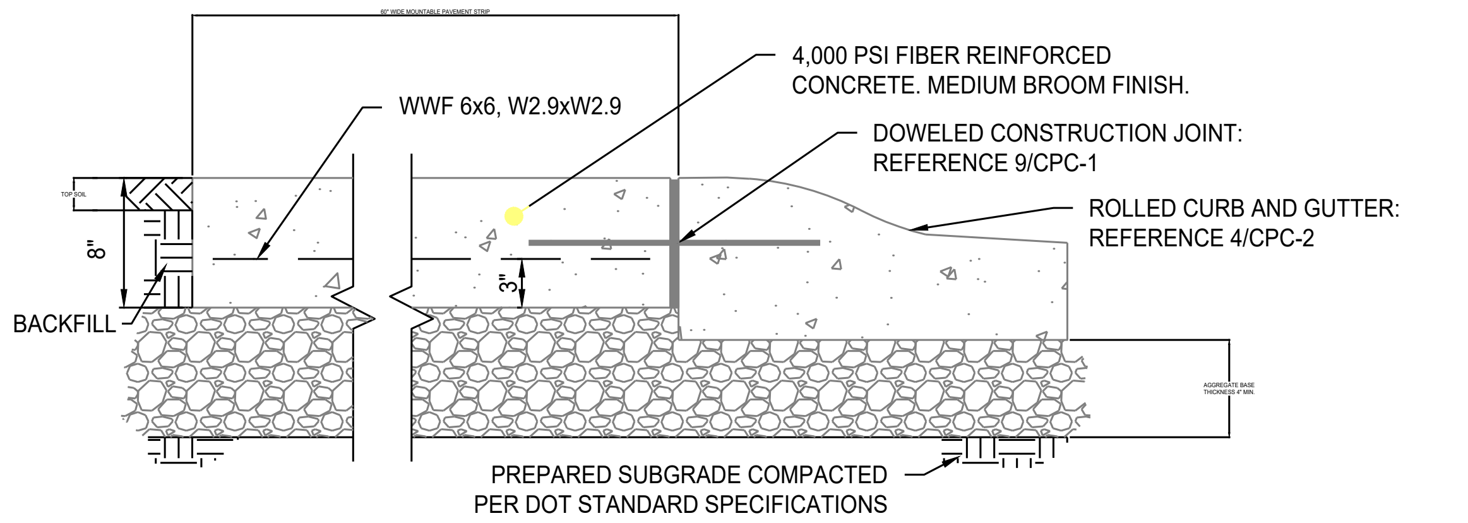
#4 BARS (EPOXY COATED)

CONCRETE CURB & GUTTER
TYPE F – MODIFIED
(NO SCALE)

CITY OF WALLED LAKE

TITLE
F–4 CURB & GUTTER

DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO.
P–4



WWF 6x6, W2.9xW2.9

4,000 PSI FIBER REINFORCED CONCRETE. MEDIUM BROOM FINISH.

DOWELED CONSTRUCTION JOINT: REFERENCE 9/CPC-1

ROLLED CURB AND GUTTER: REFERENCE 4/CPC-2

BACKFILL

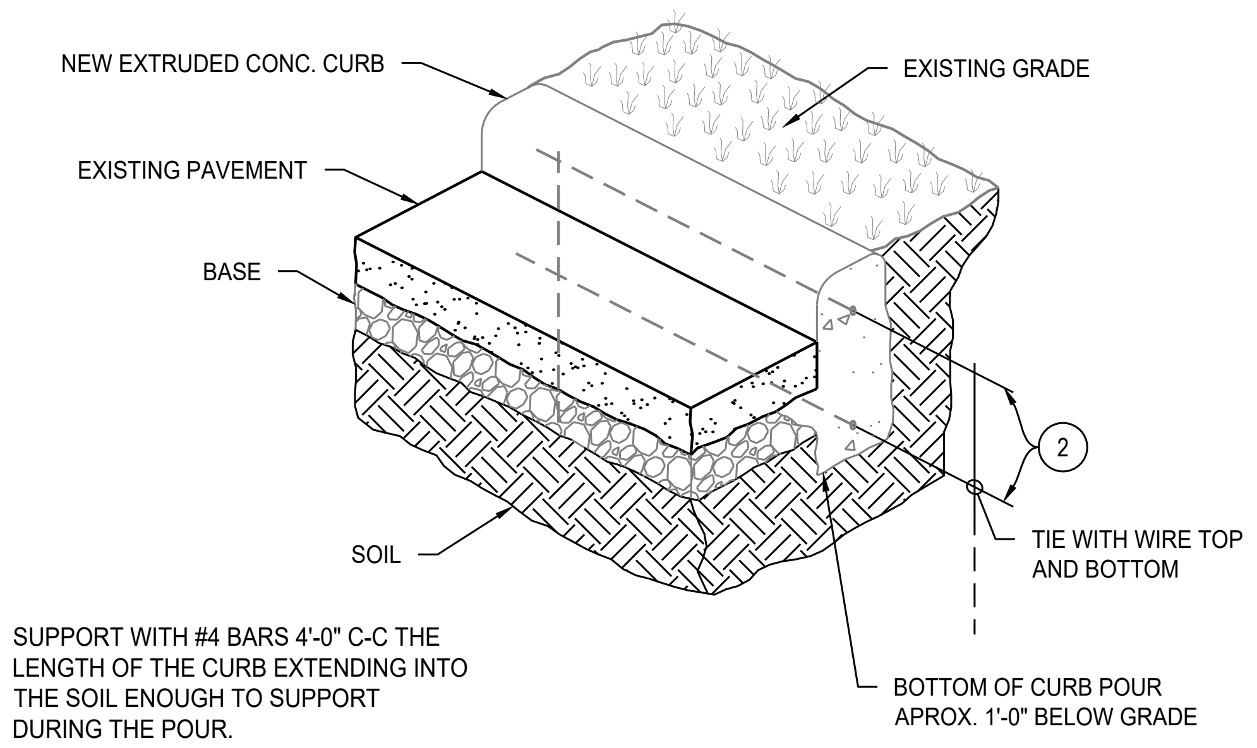
PREPARED SUBGRADE COMPACTED PER DOT STANDARD SPECIFICATIONS

CONCRETE MOUNTABLE CURB IS TO BE USED AT APPROACHES THAT DO NOT MEET STANDARD WIDTH

5 CONCRETE MOUNTABLE CURB SECTION

1" = 1'-0"

PREFERRED METHOD



NEW EXTRUDED CONC. CURB

EXISTING PAVEMENT

BASE

SOIL

EXISTING GRADE

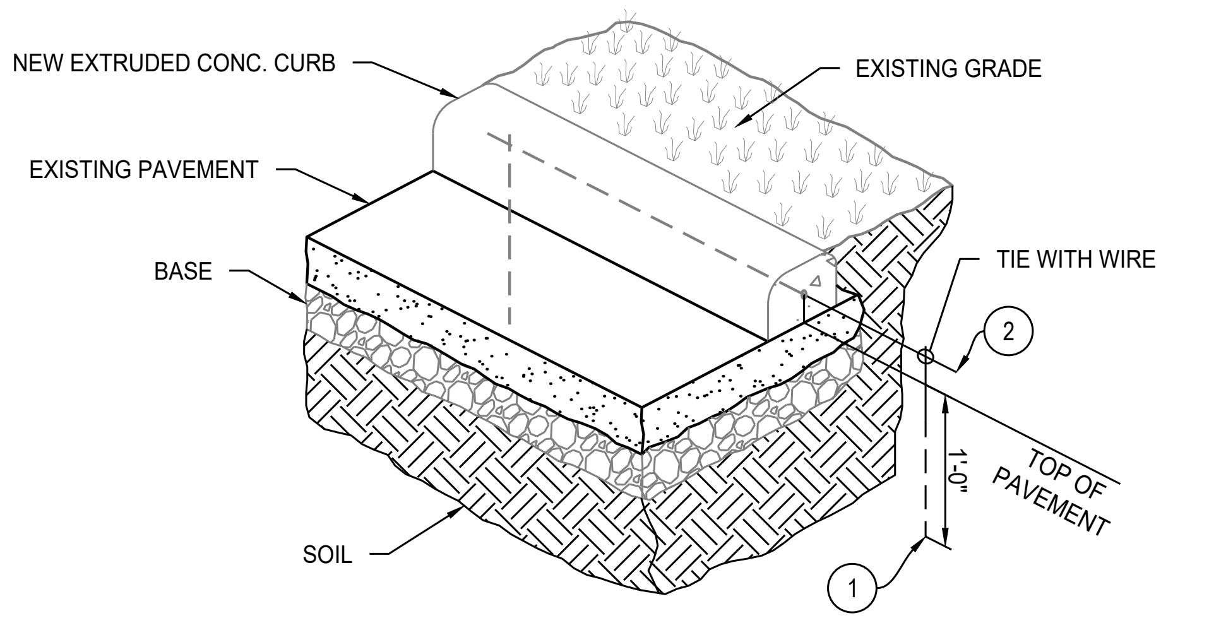
TIE WITH WIRE TOP AND BOTTOM

BOTTOM OF CURB POUR APROX. 1'-0" BELOW GRADE

① SUPPORT WITH #4 BARS 4'-0" C-C THE LENGTH OF THE CURB EXTENDING INTO THE SOIL ENOUGH TO SUPPORT DURING THE POUR.

② USE (2) #4 BARS WITH 3" OF COVER ON SIDES, TOP AND BOTTOM AND 2" COVER ON ENDS OF CURB.

ALTERNATE METHOD



NEW EXTRUDED CONC. CURB

EXISTING PAVEMENT

BASE

SOIL

EXISTING GRADE

TIE WITH WIRE

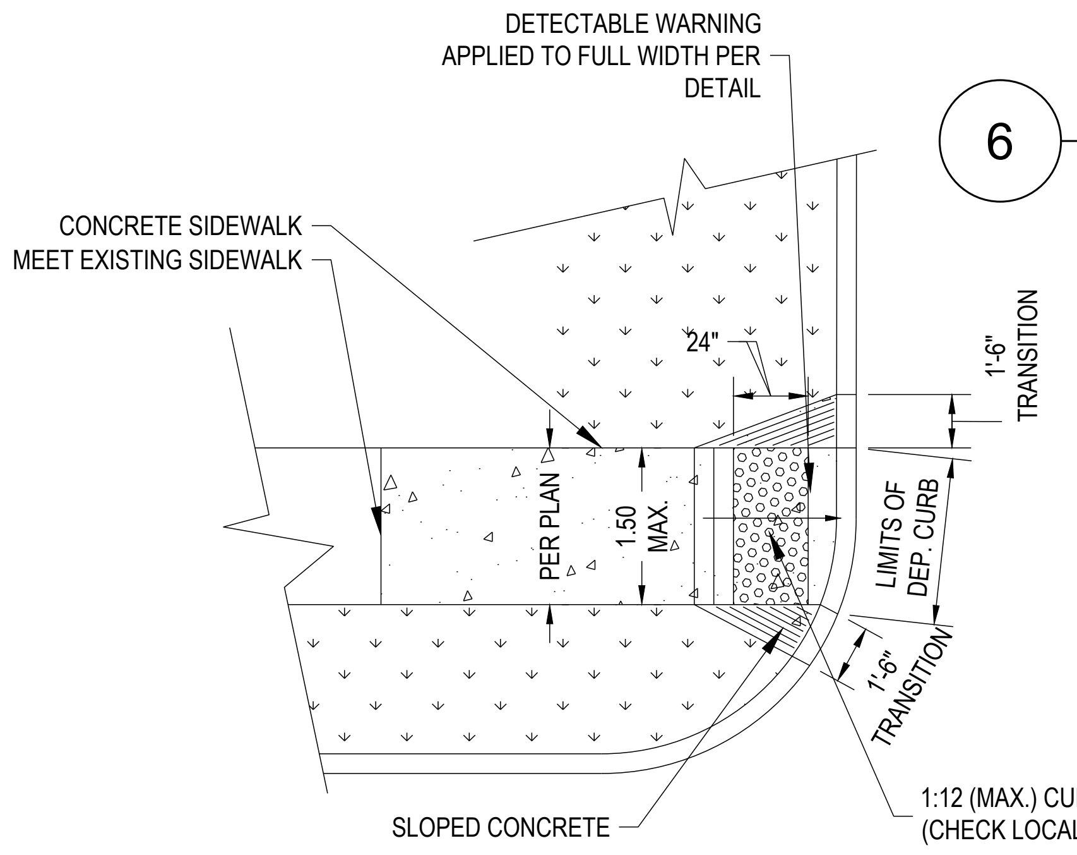
① SUPPORT WITH #4 BARS 4'-0" C-C THE LENGTH OF THE CURB EXTENDING 1'-0" INTO THE PAVEMENT AND BASE.

② USE (1) #4 BAR CENTERED LONGITUDINALLY IN THE CURB WITH 2" OF COVER ON ENDS OF CURB.

FOR USE WHEN COLD WEATHER CONDITIONS CAUSE ASPHALT PAVEMENT TO BE PLACED BEFORE THE CONCRETE CURB.

6 COLD WEATHER CURB INSTALLATION

NOT TO SCALE



DETECTABLE WARNING APPLIED TO FULL WIDTH PER DETAIL

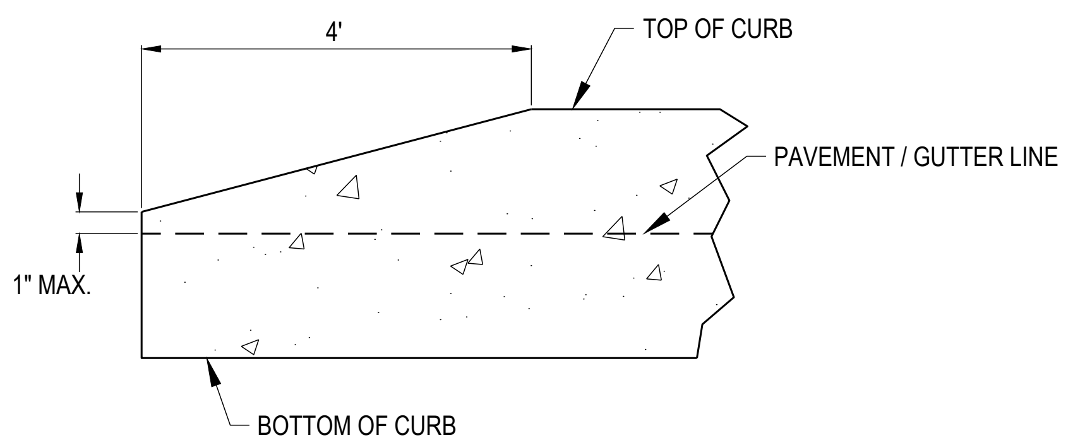
CONCRETE SIDEWALK
MEET EXISTING SIDEWALK

SLOPED CONCRETE

1:12 (MAX.) CURB RAMP
(CHECK LOCAL CODES)

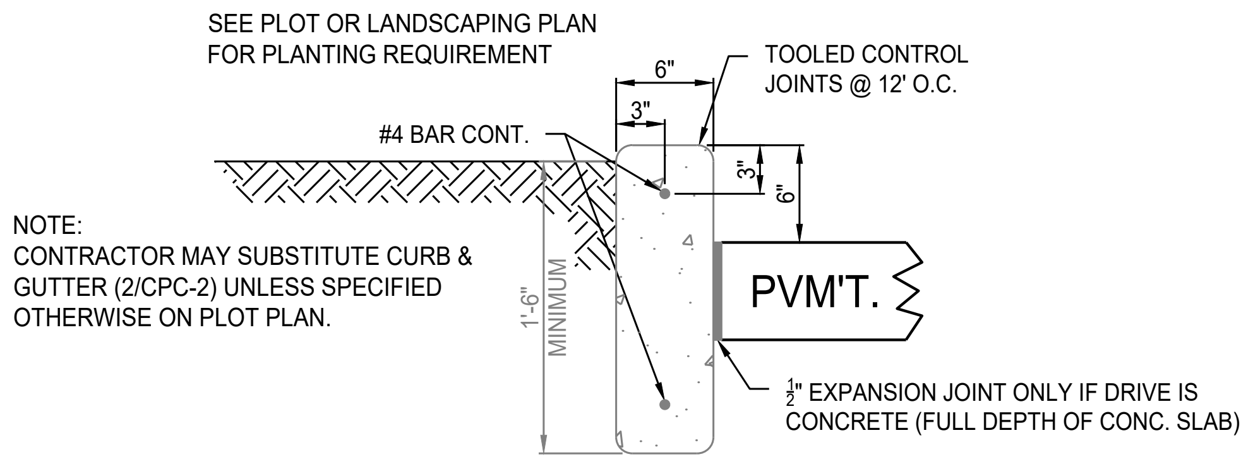
ACCESSIBLE CURB RAMP (TYPE II)

NTS



CURB TAPER

NTS



SEE PLOT OR LANDSCAPING PLAN FOR PLANTING REQUIREMENT

TOOLED CONTROL JOINTS @ 12' O.C.

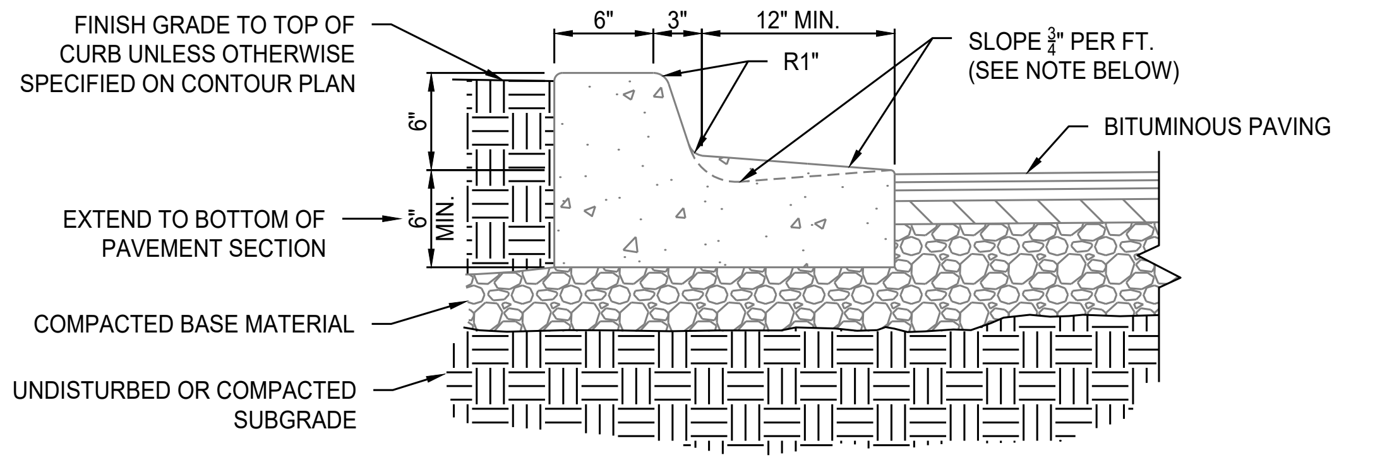
#4 BAR CONT.

NOTE:
CONTRACTOR MAY SUBSTITUTE CURB & GUTTER (2/CPC-2) UNLESS SPECIFIED OTHERWISE ON PLOT PLAN.

$\frac{1}{2}$" EXPANSION JOINT ONLY IF DRIVE IS CONCRETE (FULL DEPTH OF CONC. SLAB)

1 CONCRETE STANDING CURB SECTION

1" = 1'-0"



FINISH GRADE TO TOP OF CURB UNLESS OTHERWISE SPECIFIED ON CONTOUR PLAN

SLOPE $\frac{3}{4}$" PER FT. (SEE NOTE BELOW)

BITUMINOUS PAVING

EXTEND TO BOTTOM OF PAVEMENT SECTION

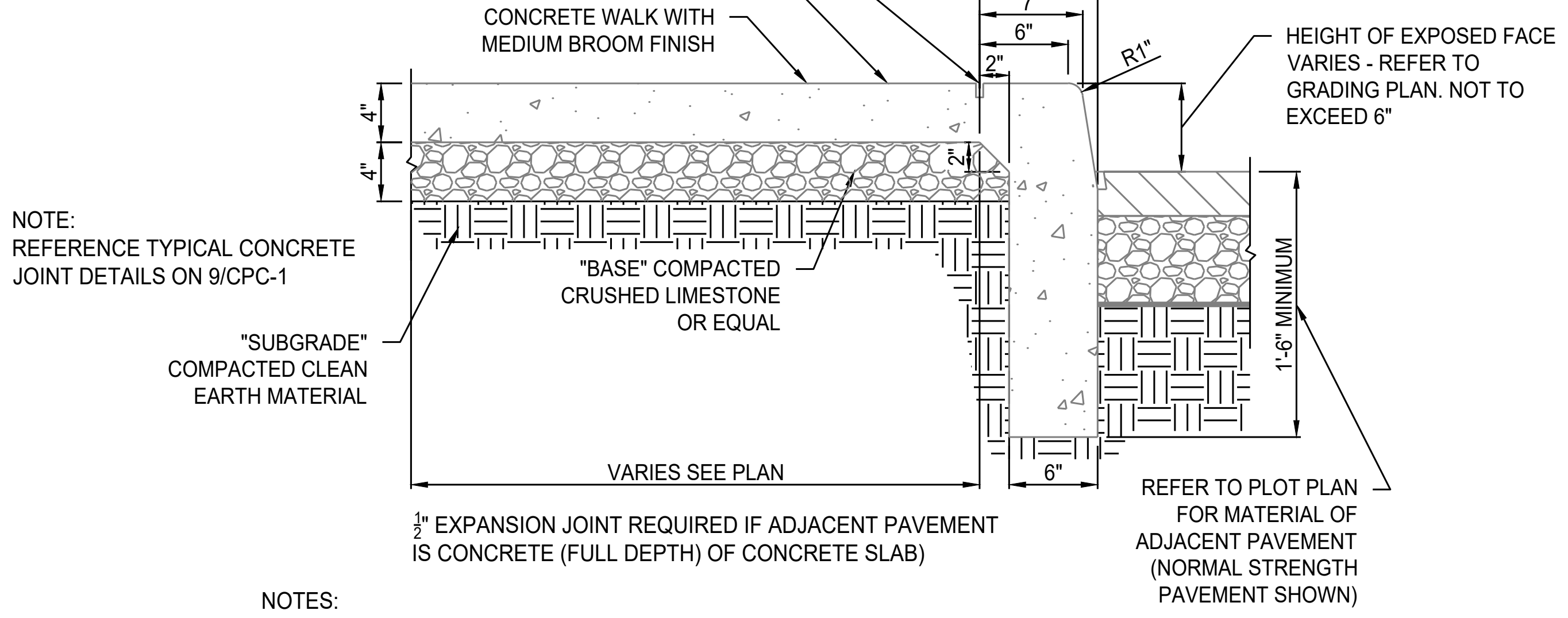
COMPACTED BASE MATERIAL

UNDISTURBED OR COMPACTED SUBGRADE

NOTE:
GUTTER TO BE SLOPED DOWN GRADIENT TOWARDS CURB WHEN SITE GRADE IS TOWARDS CURB. GUTTER TO BE SLOPED DOWN GRADIENT AWAY FROM CURB WHEN SITE GRADE IS AWAY FROM CURB. MAY BE MACHINE FORMED.

2 CONCRETE STANDING CURB AND GUTTER SECTION

1" = 1'-0"



TOOLED SCORE

4,000 PSI C.I.P. CONCRETE WITH FIBER REINFORCING

CONCRETE WALK WITH MEDIUM BROOM FINISH

HEIGHT OF EXPOSED FACE VARIES - REFER TO GRADING PLAN. NOT TO EXCEED 6"

NOTE:
REFERENCE TYPICAL CONCRETE JOINT DETAILS ON 9/CPC-1

"BASE" COMPACTED CRUSHED LIMESTONE OR EQUAL

"SUBGRADE" COMPACTED CLEAN EARTH MATERIAL

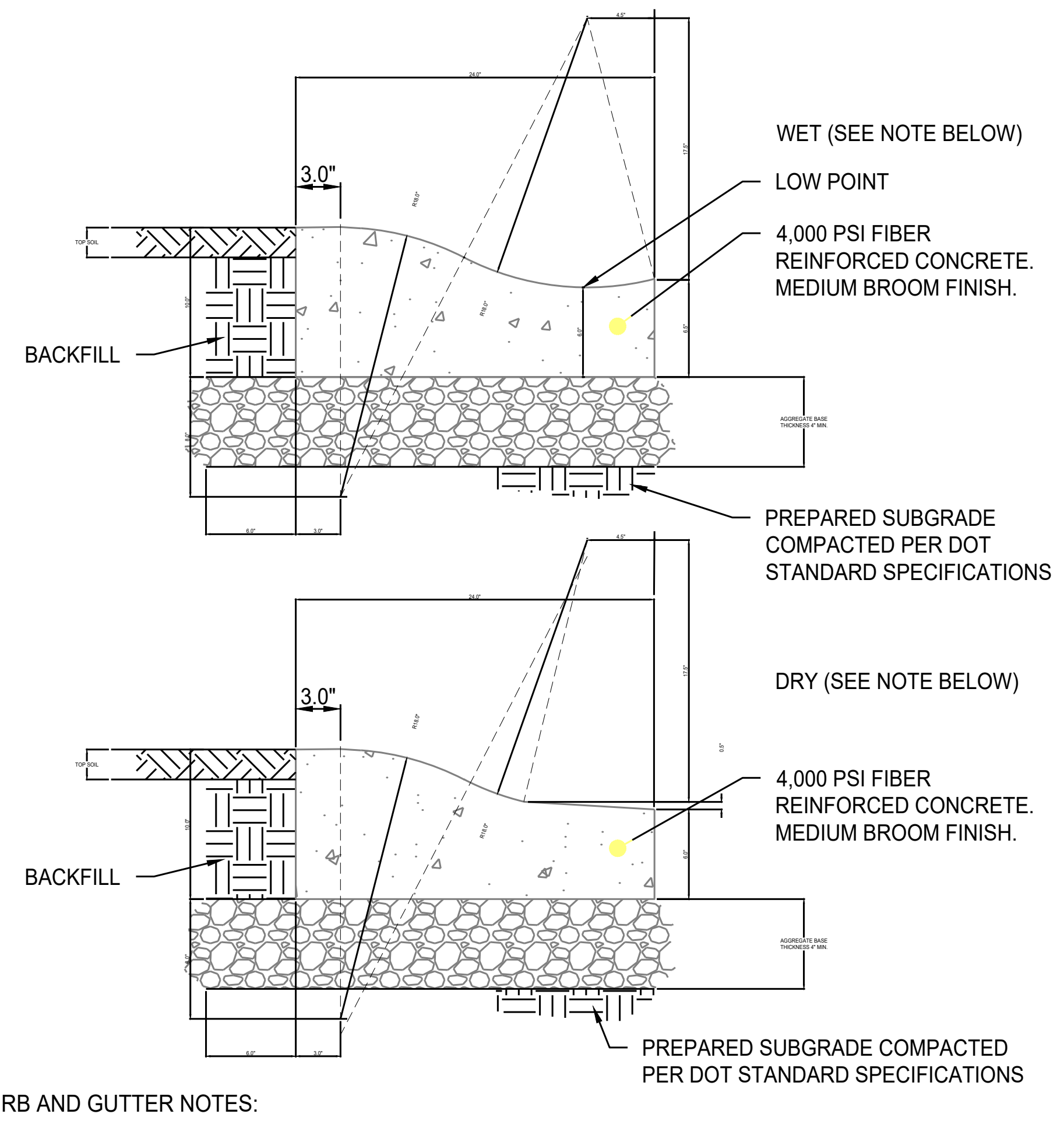
$\frac{1}{2}$" EXPANSION JOINT REQUIRED IF ADJACENT PAVEMENT IS CONCRETE (FULL DEPTH) OF CONCRETE SLAB)

REFER TO PLOT PLAN FOR MATERIAL OF ADJACENT PAVEMENT (NORMAL STRENGTH PAVEMENT SHOWN)

NOTES:
1. TYPICALLY THERE IS 0" CURBING AROUND THE BUILDING
2. EXCEPTION: CA REQUIRES SIDEWALK CURBING AROUND THE BUILDING

3 CONCRETE MONOLITHIC CURB AND WALK SECTION

1" = 1'-0"



WET (SEE NOTE BELOW)

LOW POINT

4,000 PSI FIBER REINFORCED CONCRETE. MEDIUM BROOM FINISH.

BACKFILL

PREPARED SUBGRADE COMPACTED PER DOT STANDARD SPECIFICATIONS

DRY (SEE NOTE BELOW)

4,000 PSI FIBER REINFORCED CONCRETE. MEDIUM BROOM FINISH.

BACKFILL

PREPARED SUBGRADE COMPACTED PER DOT STANDARD SPECIFICATIONS

ROLLED CURB AND GUTTER NOTES:

1. WET: GUTTER TO BE SLOPED DOWN GRADIENT TOWARDS CURB WHEN SITE GRADE IS TOWARD CURB.
   DRY: GUTTER TO BE SLOPED DOWN GRADIENT AWAY FROM CURB WHEN SITE GRADE IS AWAY FROM CURB.
2. REFERENCE THE CONCRETE PAVEMENT JOINT DETAILS THIS SHEET
3. EXPANSION JOINTS ARE REQUIRED AT STORM INLETS AND 100' MAXIMUM SPACING.
4. CONTRACTION JOINTS SHOULD BE INSTALLED AT 10' SPACINGS. SPACING SHALL BE 5' ON CURVE RADII.
5. CONTRACTION JOINTS SHALL BE TOOLED OR SAWN IN CONTINUOUSLY POURED CURBS TO A DEPTH OF $\frac{1}{2}$" MIN.

ROLLED CURB AND GUTTER IS TO BE USED AT APPROACHES

4 CONCRETE ROLLED CURB AND GUTTER SECTION

1" = 1'-0"

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WALLED LAKE
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WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	N/A
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
CONSTRUCTION DETAILS

CPC-2

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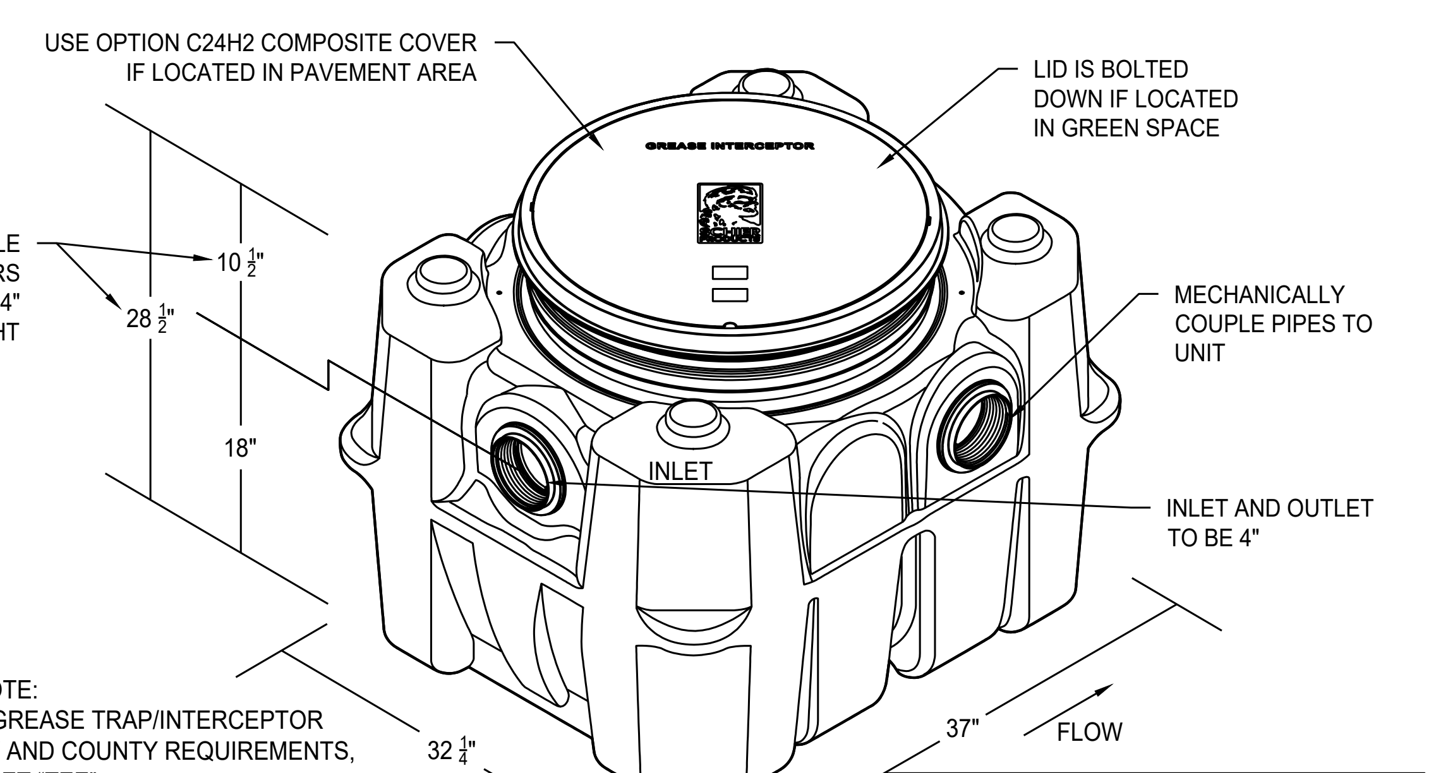
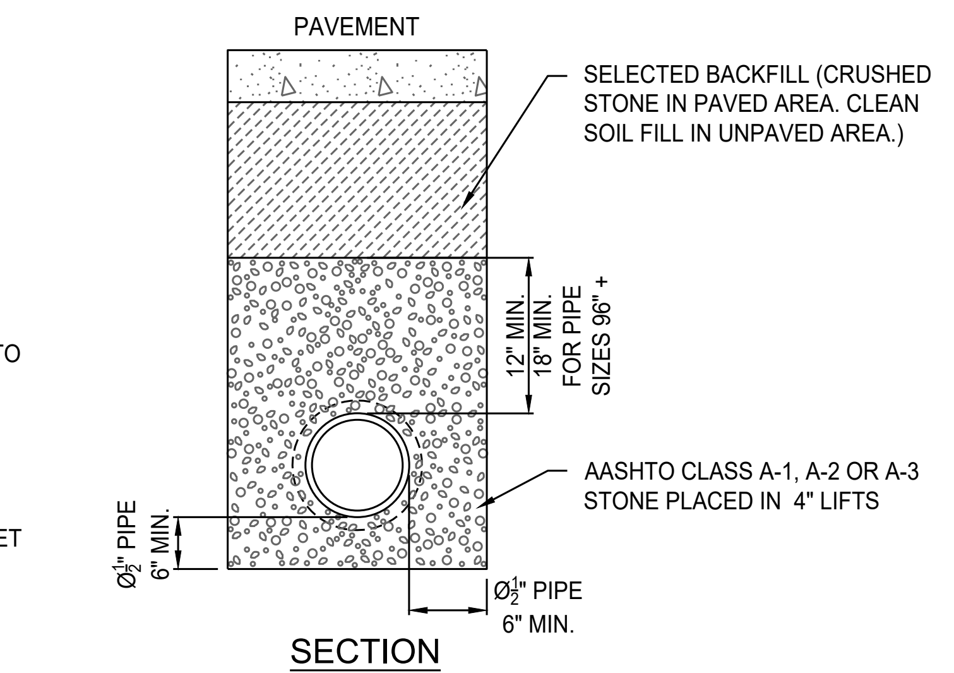


SITE SPECIFIC NOTE:
ANY PROPOSED GREASE TRAP/INTERCEPTOR SHALL MEET CITY AND COUNTY REQUIREMENTS, SUCH AS PIPE INLET "TEE"
WITH CLEAN-OUT PLUG, BAFFLE OPENING, MEETING HS-20 LIVE LOAD RATING, AND CALCULATIONS SUPPORTING
MINIMUM 23-MINUTE STORAGE, ETC. VARIATIONS WILL REQUIRE BOTH CITY AND COUNTY APPROVAL.

NOTE:
1. PROVIDE GREAT BASIN GB-50 (BY SHIER PRODUCTS COMPANY) OR APPROVED EQUAL:
FLOW = 50 GPM
WATER CAPACITY = 65 GAL
CAPACITY = 439.5 LBS

8 EXTERIOR GREASE INTERCEPTOR
NOT TO SCALE



SECTION
NOT TO SCALE

6 PIPE BEDDING
NOT TO SCALE

GEOTEXTILE FABRIC SPECIFICATIONS

8 OZ. NONWOVEN NEEDLE PUNCHED FABRIC; AMOCO 4553, PHILLIPS SUPAC 8NP, OR EQUAL

GENERAL NOTES:

1. ALL STORM AND SANITARY PIPING SHALL BE THE SIZE AND TYPE SHOWN ON THE GRADING OR PIPING PLAN, AND SHALL CONFORM TO THE ASTM AND AASHTO STANDARD SPECIFICATIONS LISTED HERE, UNLESS OTHERWISE REQUIRED BY GOVERNING AUTHORITIES.
2. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF 7-ELEVEN'S SPECIFICATIONS.
3. CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES PRIOR TO STARTING ANY BELOW GRADE WORK TO LOCATE UNDERGROUND FACILITIES.
4. ALL SANITARY SEWERS SHALL HAVE "PREMIUM" SEALED JOINTS. STORM SEWERS WITHIN 20' OF HYDROCARBON PRODUCT PIPING OR UNDERGROUND TANKS SHALL HAVE "PREMIUM SEALED JOINTS.
5. THE PIPE INVERT SHALL BE STRAIGHT LINE GRADED BETWEEN ELEVATIONS SHOWN ON THE PLAN.
6. PIPE SHALL BE LAID FROM THE LOWER ELEVATION TO THE HIGHER ELEVATION.
7. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS PRIOR TO BEGINNING WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
8. PIPING TO BE MIN. 12" BELOW TOP OF RIGID PAVEMENT, BOTTOM OF FLEXIBLE PAVEMENT, OR FINISHED GRADE IN NON-TRAFFIC AREAS. APPLICABLE AASHTO OR AISI GUIDELINES SHALL OVERRIDE AND GOVERN MINIMUM COVER HEIGHTS WHEN GREATER THAN STATED ABOVE.
9. SEE DRAWING # SCB-1 FOR CANOPY DOWNSPOUT DRAIN DETAILS.

MINIMUM DEPTH OF BURY:
(SEE NOTE #8)

PVC - - - - - - - - - - - - 18"
RCP - - - - - - - - - - - - 12"
HDPE - - - - - - - - - - - - 18"

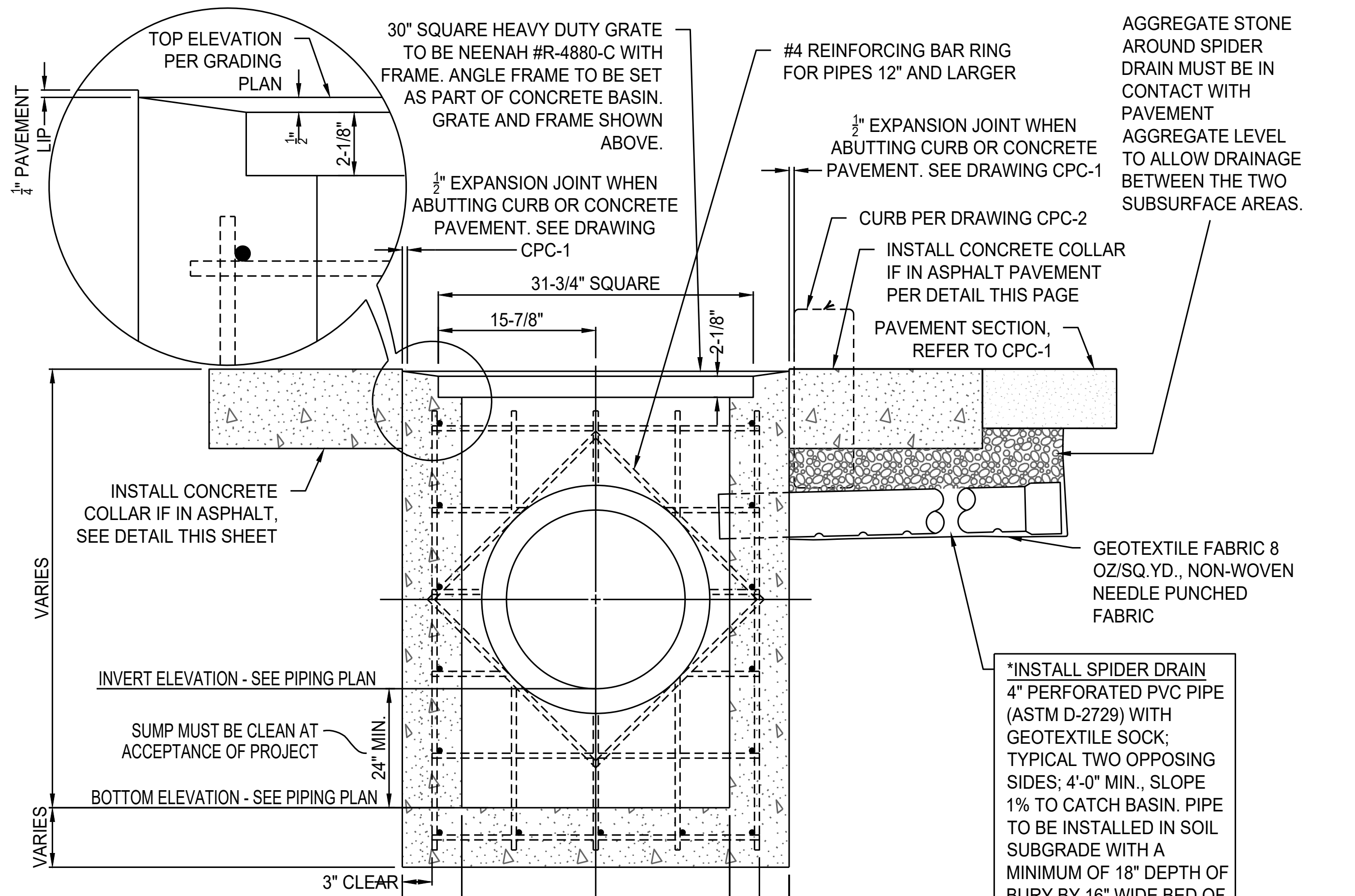
7 GEOTEXTILE FABRIC
NOT TO SCALE

NOTE:
ONLY APPLICABLE MATERIALS PER OCWRC SHALL BE PERMITTED, AS REQUIRED AND AS PROVIDED IN THIS PIPE SPECIFICATIONS TABLE.

PIPE SPECIFICATIONS

TYPE OF PIPE	"n" VALUES	SIZES PERMITTED	SERVICE AND USE	PIPE SPECIFICATION	INSTALLATION SPECIFICATION	JOINT SPECIFICATION	PREMIUM JOINTS
POLY-VINYL CHLORIDE (PVC)	0.01	6"	SANITARY SEWER	ASTM D-3034 SDR 35 STANDARD SPECIFICATION FOR TYPE PSM PVC SEWER PIPE AND FITTINGS	ASTM D-2321 STANDARD PRACTICE FOR INSTALLATION OF FLEXIBLE THERMOPLASTIC SEWER PIPE PIPE BEDDING PER DETAIL	ASTM D-3212 STANDARD SPECIFICATION FOR JOINTS FOR DRAIN AND SEWER PLASTIC PIPES USING FLEXIBLE ELASTOMERIC SEALS	ASTM F-477 ELASTOMERIC SEALS FOR JOINING PLASTIC PIPE (OIL RESISTANT) HIGH NITRILE (NBR), EPICHLOROHYDRIN (ECO), NEOPRENE (CR), POLYSULFIDE (T), OR FLUORO ELASTOMER (FPM)
		8" - 12"	STORM DRAINAGE				
REINFORCED CONCRETE (RCP)	0.013	Ø12" AND LARGER	STORM DRAINAGE	ASTM C-76, ASTM C1479 CLASS 4, WALL B-TONGUE AND GROOVE STANDARD SPECIFICATION FOR REINFORCED CONCRETE CULVERT, STORM DRAIN, AND SEWER PIPE	PIPE BEDDING PER DETAIL WHEN OUTLETTING TO SURFACE GRADE FLARED END SECTION MUST BE USED	BITUMINOUS MASTIC	ASTM C-443 STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE, USING RUBBER GASKETS (OIL RESISTANT)
SMOOTH LINED CORRUGATED HDPE N-12 BY ADVANCED DRAINAGE SYSTEMS (800) 733-9554	0.012	8" AND LARGER	STORM DRAINAGE	AASHTO M294-S	ASTM D-2321 PIPE BEDDING PER DETAIL	STANDARD COUPLERS (PRO LINK) USE GASKET IN FINE SOILS	PVC DOUBLE BELL COUPLER WITH GASKET (PRO LINK 10.8) AVAILABLE THROUGH 24"
SURE-LOK BY HANCOR (800) 537-9520	0.012	12" AND LARGER	STORM DRAINAGE	AASHTO M294-S	ASTM D-2321 PIPE BEDDING PER DETAIL	BELL & SPIGOT WITH GASKET (SURE-LOK)	BELL & SPIGOT WITH POLYISOPRENE GASKET (SURE-LOK 10.8) AVAILABLE THROUGH 30"
DUCTILE IRON (DI)	0.012	4" - 12"	SPECIAL	ASTM A-746 CLASS 50 STANDARD SPECIFICATION FOR DUCTILE IRON GRAVITY SEWER PIPE	PIPE BEDDING PER DETAIL	RUBBER GASKET COMPRESSION TYPE JOINT	GASKET TO BE OIL RESISTANT NITRILE-BUTADIENE (NBR)
POLYETHYLENE (PE)	0.010	4" - 6"	UNDERDRAINS AND SEPTIC DISPOSAL FIELDS ONLY	ASTM F-405 STANDARD SPECIFICATION FOR CORRUGATED POLYETHYLENE TUBING AND FITTINGS	SEE UNDERDRAIN DETAIL	STANDARD COUPLINGS	N/A
CORRUGATED METAL PIPE (CMP)	0.022	Ø12" AND LARGER	STORM DRAINAGE	ASTM A-760 STANDARD SPECIFICATION FOR CORRUGATED METAL PIPE, METALLIC-COATED FOR SEWERS AND DRAINS	ASTM A-807 STANDARD SPECIFICATION FOR INSTALLING CORRUGATED METAL STRUCTURAL PLATE PIPE FOR SEWERS	STANDARD COUPLINGS	N/A
HIGH PERFORMANCE (HP) PIPING	0.012	12" - 60"	STORM DRAINAGE	AASHTO M330 ASTM F2881	ASTM D2321	WATER TIGHT ASTM D-3212	EXTENDED REINFORCED INTEGRAL BELL AND GASKETED SPIGOT

9 PIPE SPECIFICATIONS
NOT TO SCALE



*INSTALL SPIDER DRAIN
4" PERFORATED PVC PIPE (ASTM D-2729) WITH GEOTEXTILE SOCK; TYPICAL TWO OPPOSING SIDES; 4'-0" MIN., SLOPE 1% TO CATCH BASIN. PIPE TO BE INSTALLED IN SOIL SUBGRADE WITH A MINIMUM OF 18" DEPTH OF BURY BY 16" WIDE BED OF AGGREGATE STONE.

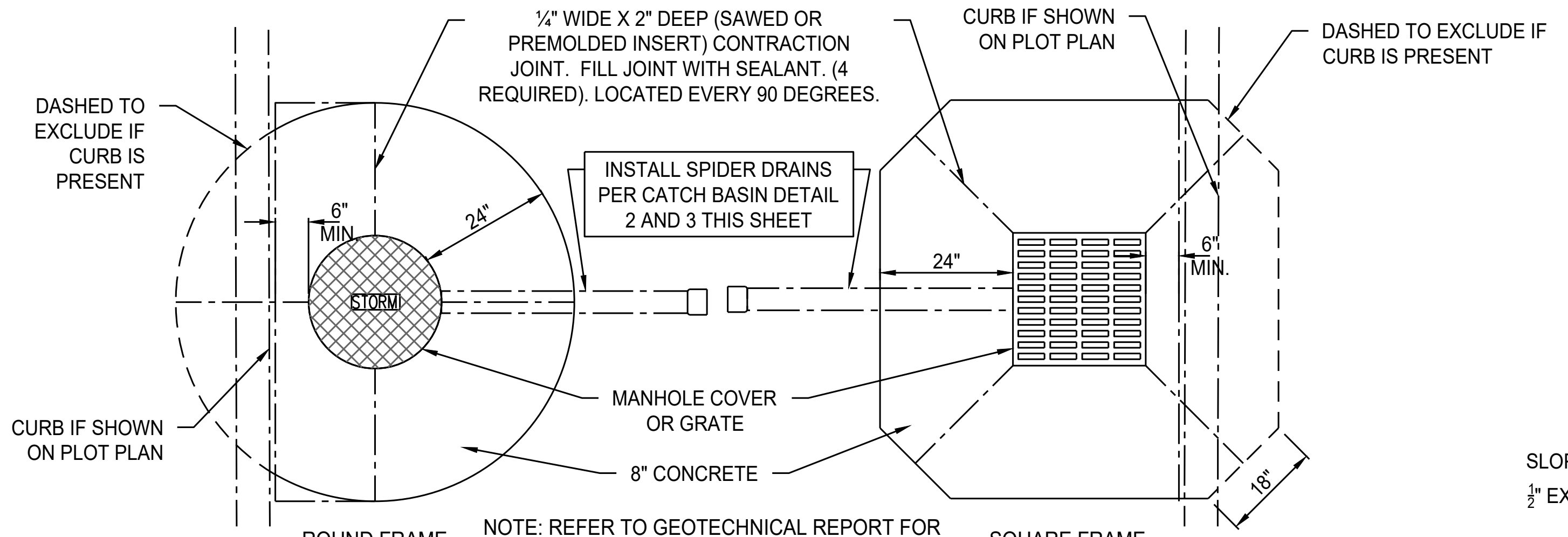
1. SEE GRADING AND/OR PIPING PLAN FOR TOP, INVERT, AND BOTTOM ELEVATIONS, SIZE, AND ARRANGEMENT OF INLET/OUTLET PIPING.
2. MORTAR ALL INLET, OUTLET PIPE OPENINGS WITH HYDRAULIC CEMENT GROUT.
3. REINFORCEMENT: PLACE #4 REBARS AT 8" ~ CENTER TO CENTER BOTH WAYS IN WALLS AND FLOOR. INCLUDE #4 REBAR RING AROUND ALL OPENINGS 12" AND LARGER.
4. ADDITIONAL MASONRY BRICK OR BLOCK WORK IS NOT PERMITTED TO MEET SURFACE ELEVATION.

SECTION
NOT TO SCALE

NOTE: PREFAB UNIT, MEETING STRENGTH EQUIVALENCE, MAY BE SUBSTITUTED IF APPROVED BY OWNER'S REP.

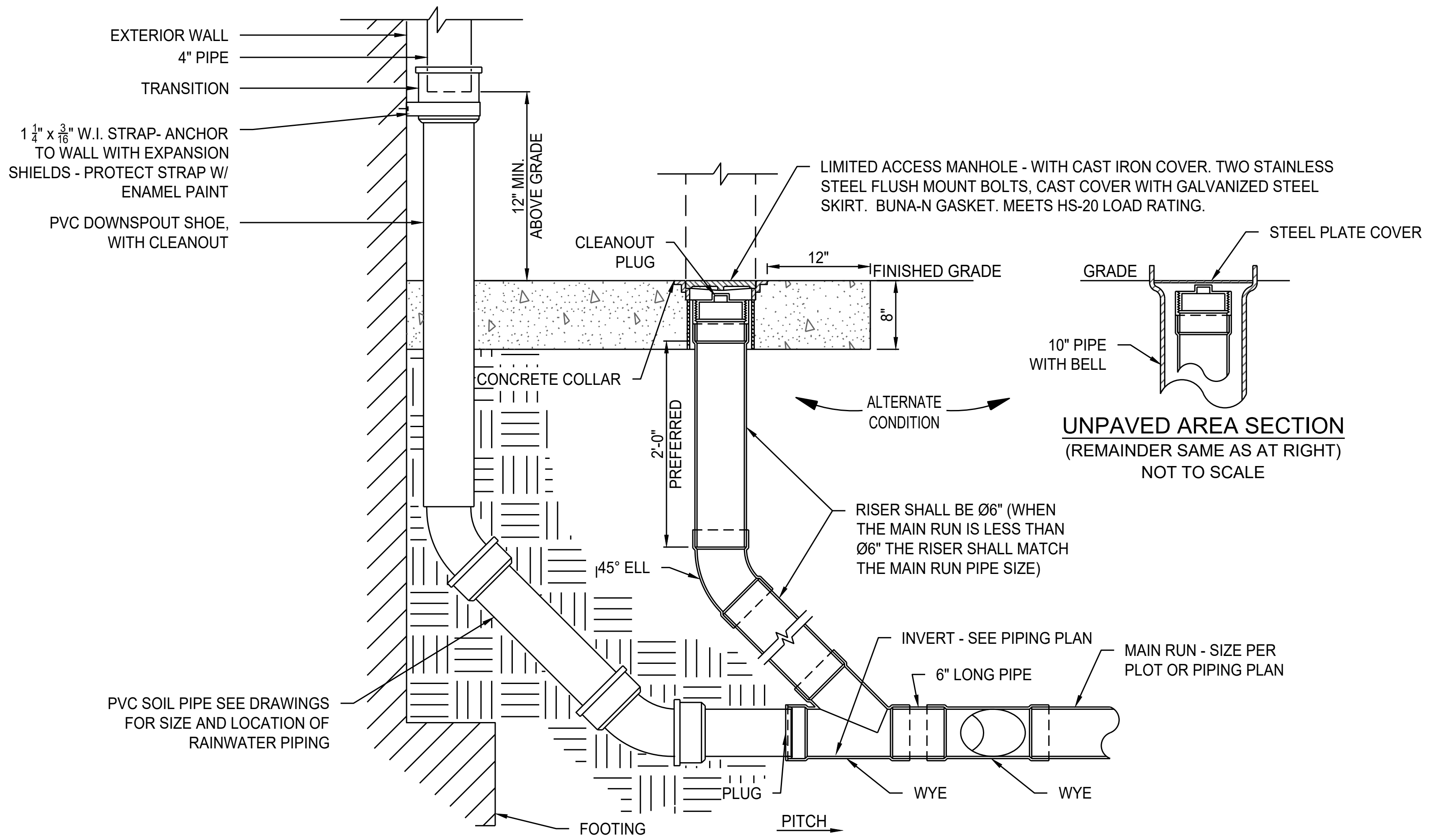
FOR OUTLETS UP TO 18" R.C.P. TO BE USED IN HEAVY-DUTY PAVEMENT AREAS.

3 HEAVY-DUTY CATCH BASIN
NOT TO SCALE

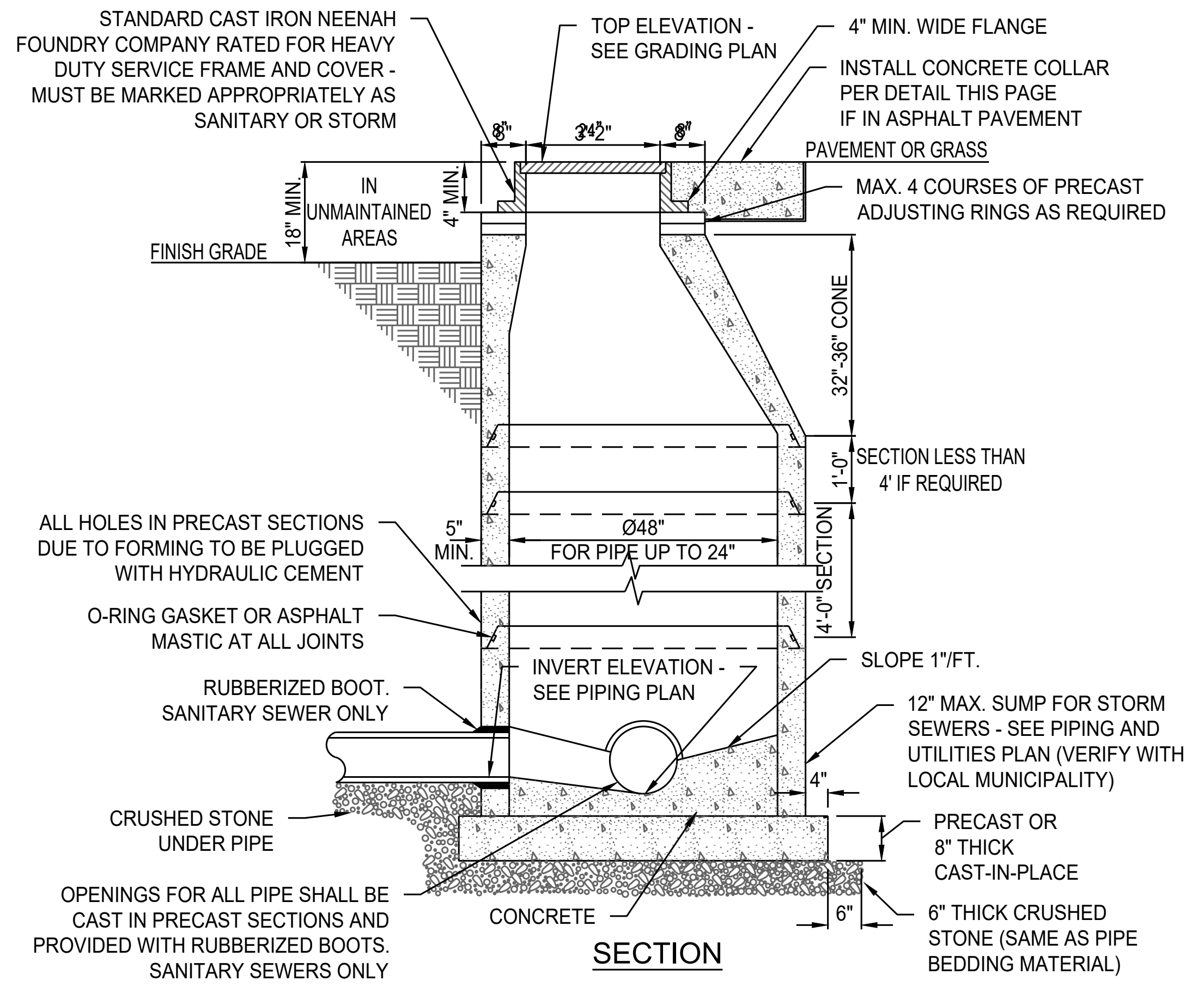


NOTE: REFER TO GEOTECHNICAL REPORT FOR PLACEMENT RECOMMENDATION. INSTALL WHEN MANHOLE OR CATCH BASIN CASTING OCCURS AT LOW POINTS AND CLAYEY SUBGRADES. SEE DETAIL 2 AND 3 THIS SHEET.

4 STORM STRUCTURE CONCRETE COLLARS
NOT TO SCALE



5 DOWNSPOUT BOOT AND UTILITIES PIPE CLEAN-OUT
NOT TO SCALE



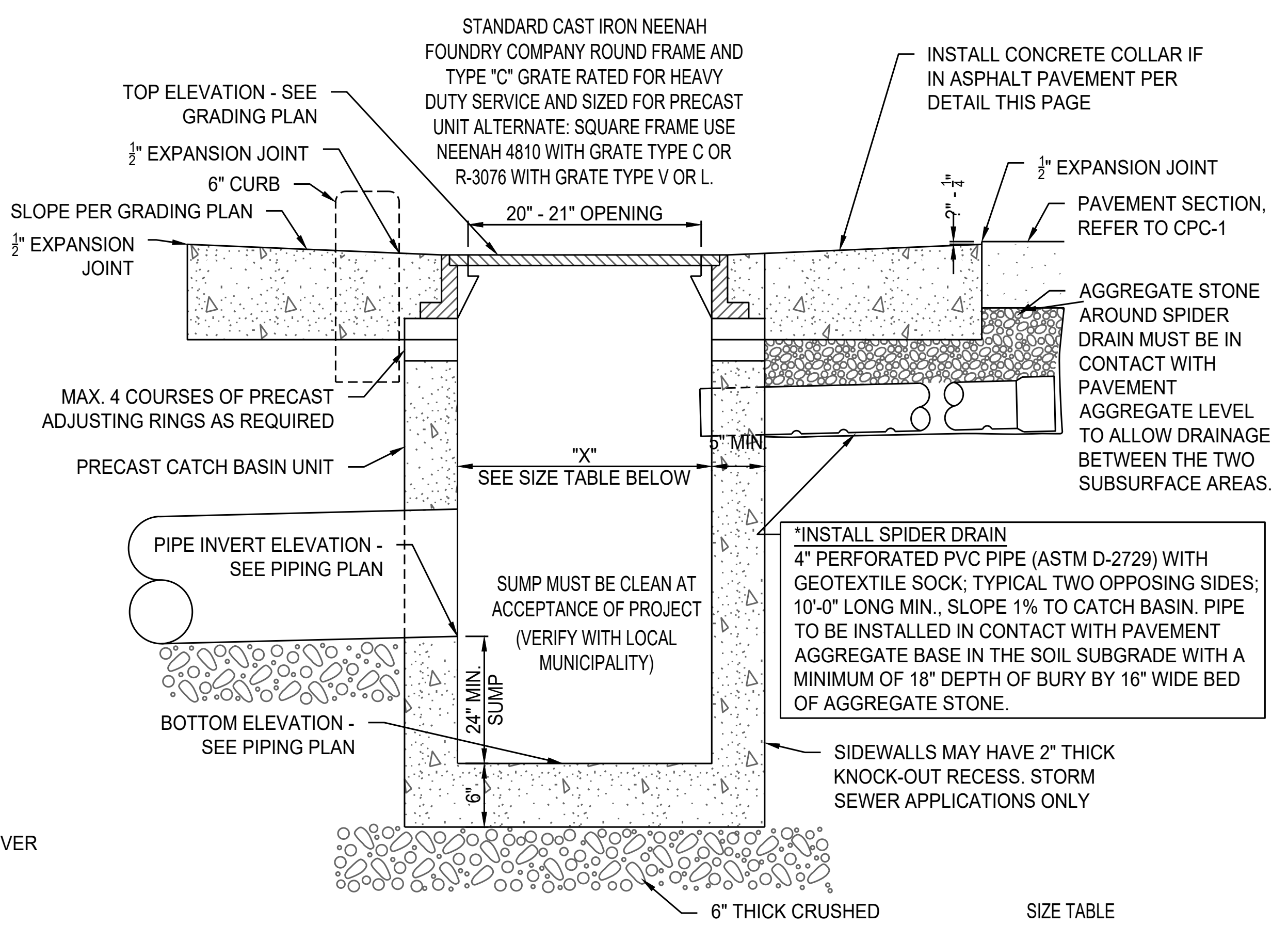
SECTION

1. MANHOLES SHOWN ON THE PLOT OR PIPING PLAN SHALL BE PRECAST CONCRETE AND CONSTRUCTED OF MATERIALS AND IN A MANNER MEETING THE SPECIFICATIONS OF ASTM C-478 AND THE PUBLIC AUTHORITY HAVING JURISDICTION.
2. SEE GRADING AND/OR PIPING PLAN FOR TOP AND INVERT ELEVATIONS, SIZE AND ARRANGEMENT OF INLET/OUTLET PIPING.
3. ADDITIONAL MASONRY BRICK OR BLOCK WORK IS NOT PERMITTED TO MEET SURFACE ELEVATION.
4. OBTAIN APPROVAL OF MANUFACTURER'S STRUCTURAL ENGINEER FOR DEPTHS EXCEEDING 10'.

FOR SANITARY SEWERS ONLY

5. THE BOTTOM OF THE MANHOLE SHALL BE CONTOURED WITH CONCRETE TO CHANNEL THE FLOW THROUGH THE MANHOLE.
6. WHEN SPECIFIED ON THE PLANS, AN EXTERIOR "DROP" MANHOLE SHALL BE CONSTRUCTED PER LOCAL SPECIFICATIONS.

1 STANDARD MANHOLE
NOT TO SCALE



*INSTALL SPIDER DRAIN
4" PERFORATED PVC PIPE (ASTM D-2729) WITH GEOTEXTILE SOCK; TYPICAL TWO OPPOSING SIDES; 10'-0" LONG MIN., SLOPE 1% TO CATCH BASIN. PIPE TO BE INSTALLED IN CONTACT WITH PAVEMENT AGGREGATE BASE IN THE SOIL SUBGRADE WITH A MINIMUM OF 18" DEPTH OF BURY BY 16" WIDE BED OF AGGREGATE STONE.

SECTION
NOT TO SCALE

SIZE TABLE

LARGEST PIPE DIA.	"X" SQUARE C.B.	LARGEST PIPE DIA.	"X" ROUND C.B.
21"	24"	15"	30"
33"	36"	24"	42"
42"	48"	30"	48"
54"	60"	36"	60"
60"	72"	48"	72"

NOTE: TRAFFIC RATED REINFORCED PRE-CAST CONCRETE TOP TO BE USED WITH LARGER CATCH BASINS.

VERIFY STRUCTURE SIZE IS ADEQUATE FOR MULTIPLE PIPES AND PIPE ANGLES.

- THE PRECAST CATCH BASIN UNIT SHALL CONFORM TO THE APPLICABLE STANDARD STATE D.O.T. SPECIFICATIONS AND ASTM C913. THE UNIT SHALL BE PROPERLY REINFORCED TO PREVENT DAMAGE DURING TRANSPORT AND INSTALLATION.
- SEE GRADING AND/OR PIPING PLAN FOR TOP, INVERT, AND BOTTOM ELEVATIONS, SIZE, AND ARRANGEMENT OF INLET/OUTLET PIPING.
- MORTAR ALL INLET, OUTLET PIPE OPENINGS WITH HYDRAULIC CEMENT GROUT.
- ADDITIONAL MASONRY BRICK OR BLOCK WORK IS NOT PERMITTED TO MEET SURFACE ELEVATION.

TO BE USED IN STANDARD-DUTY PAVEMENT AREAS ONLY.

2 STANDARD-DUTY CATCH BASIN
NOT TO SCALE

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Revisions / Submissions

ID	Description	Date

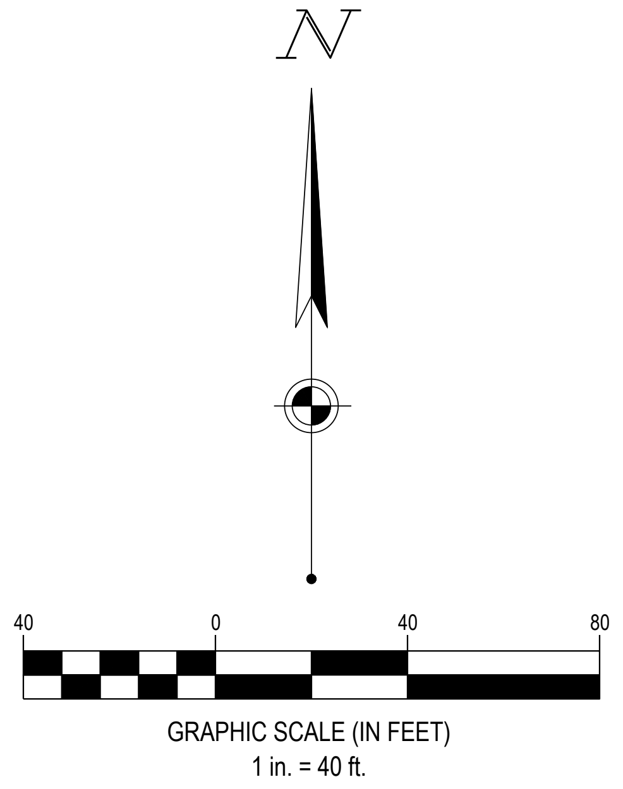
Project Number:	764078
Scale:	N/A
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
CONSTRUCTION DETAILS

CUD-1

PRE-DRAINAGE LEGEND

🟩	PERVIOUS AREA
— · — · —	SOIL BOUNDARY
→ → →	TIME OF CONCENTRATION PATH
Xx	SOIL IDENTIFIER



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

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Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
EXISTING HYDROLOGY

CUD-2

POST-DRAINAGE LEGEND

🟦	IMPERVIOUS AREA TO DETENTION: 1.25AC
🟥	PERVIOUS AREA TO BYPASS: 1.94AC
🟩	PERVIOUS AREA TO DETENTION POND: 1.02AC
— — · — — · —	SOIL BOUNDARY
→ ··· → ··· →	TIME OF CONCENTRATION PATH
Xx	SOIL IDENTIFIER

100-Year Storm Detention and SWQ Calculations

Oakland County Storm Ordinances

Composite Runoff Cooefficient

	Area (acre)	C	A x C
Grass/Lawn (Soil type A)	0.50	0.15	0.08
Grass/Lawn (Soil type B)	0.32	0.20	0.06
Impervious	1.25	0.95	1.19
Water	0.00	0.00	0.00
Total =	2.07		1.33

Composite C = 0.65

T_c = 10.0 minutes

C Values		
Green Space	HSG A	0.15
	HSG B	0.20
	HSG C	0.25
	HSG D	0.30
Impervious Areas		0.95
Water		1.00

Required Forebay Storage Volume

V_{WQ} = 733 ft^3 — $V_{WQ} = 545 \times C \times A$

Forebay Sizing

h= 2.1 ft

A_1= 0 ft^2 — A1 Elev = 930.9

A_2= 2643 ft^2 — A2 Elev = 933

V_{ProvF} = 1,850 ft^3 — $V_{ProvF} > V_{WQ}$

Provided Storage Volume

ABOVE GROUND DETENTION BASIN

	ELEVATION feet	AREA Sq Ft	ELEV. VOLUME cu. ft.	SUB-VOLUME cu. ft.
Bottom elevation =	929.50	0.00	0.00	0.00
	930.00	3575.00	595.83	595.83
	931.00	4045.00	3807.58	4403.42
	932.00	10533.00	7035.11	11438.52
	933.00	12612.00	11556.91	22995.43
Top elevation =	934.00	14791.00	13687.04	36682.47

Elevation where required Channel Protection storage is achieved **931.19** $=Z_{ED}$

Elevation where required 100-YEAR storage is achieved **932.16** $=Z_{100}$

Calculate Channel Protection Volume

Channel Protection Volume, V_{CPVC} = **6,349** ft^3 — $V_{CPVC} = 4{,}719 \times C \times A$

Calculate Channel Protection Rate Control: Extended Detention

V_{ED} = **9,280** ft^3 — $V_{ED} = 6{,}897 \times C \times A$

Calculate Extended Detention Release Rate

Q_{ED} = **0.05** cfs — $Q_{ED} = V_{ED} / 172{,}800$

Channel Protection Orifice Sizing:

h_{static} = 0.84 ft — h_{static}, static head = $0.5 \times (Z_{ED} - Z_0)$; water level at 50% V_{ED}

h_{ED} = 1.69 ft — $h_{ED} = Z_{ED} - Z_0$; total head on the ED orifices

H_{ED} = 1.5 — $H_{ED} = V_{ED} / (4{,}666 \times (h_{ED})^{0.5})$ <---formula used for 1" circular holes onl

Orifice Dia = 1.0 in

Orifice Area, A= 0.00545 ft^2

Use **2** ***1.0*** **" hole(s)**

A_{actual} = 0.01091 ft^2

Using said holes, Q_{actual} = **0.050** **cfs** — $Q_{actual} = 0.62 \times A_{actual} \times (2 \times 32.2 \times h)^{0.5}$

T = **51.7** **Hours, >48 hrs---OK** — $T = V_{ED}/(Q_{actual} \times 3600)$

Calculate 100-year Peak Intensity

I_{100} = 7.62 in / hr — $I_{100} = 83.3 / (T_c + 9.17)^{0.81}$

Calculate 100-year Peak Inflow

Q_{100IN} = 10.25 cfs — $Q_{100IN} = C \times I_{100} \times A$

Peak Allowable 100-year Discharge

Q_{VRR} = 0.956 cfs/acre — $Q_{VRR} = 1.1055 - 0.206 \times \ln(A)$

Q_{100P} = **1.98** cfs — $Q_{100P} = Q_{VRR} \times A$

Calculate Storage Curve Factor

R = 0.453 — $R = 0.206 - 0.15 \times \ln(Q_{100P} / Q_{100IN})$

Calculate 100-year Runoff

V_{100R} = 25,544 ft^3 — $V_{100R} = 18{,}985 \times C \times A$

Calculate 100-year Storage Volume

V_{100D} = **11,565** ft^3 — $V_{100D} = V_{100R} \times R$

Channel Protection Orifice Contribution

h_{max} = 2.66 ft — $h_{max} = Z_{100} - Z_0$; Z_0 = Bottom basin elev.

$Q_{max ED}$ = 0.089 cfs — $Q_{max ED} = 0.62 \times A_{actual} \times (2 \times 32.2 \times h_{max})^{0.5}$

Extra Orifice(s) Required

$Q_{adjusted}$ = 1.890 cfs — $Q_{adjusted} = Q_{100P} - Q_{max ED}$

h_{max} = 0.975 ft — $h_{max} = Z_{100} - Z_{ED}$

A = 0.38455 ft^2 — $A = Q_{adjusted} / 0.62 \times (32.2 \times 2 \times h_{max})^{0.5}$

Orifice Dia = 3.0 in

Orifice Area, A = 0.04909 ft^2

Use 6 ***3.0*** **" hole(s)**

A_{actual} = 0.29452 ft^2

Using said hole(s), Q_{actual} = **1.446**

Q TOTAL = **1.535** cfs

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Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
PROPOSED HYDROLOGY

CUD-3

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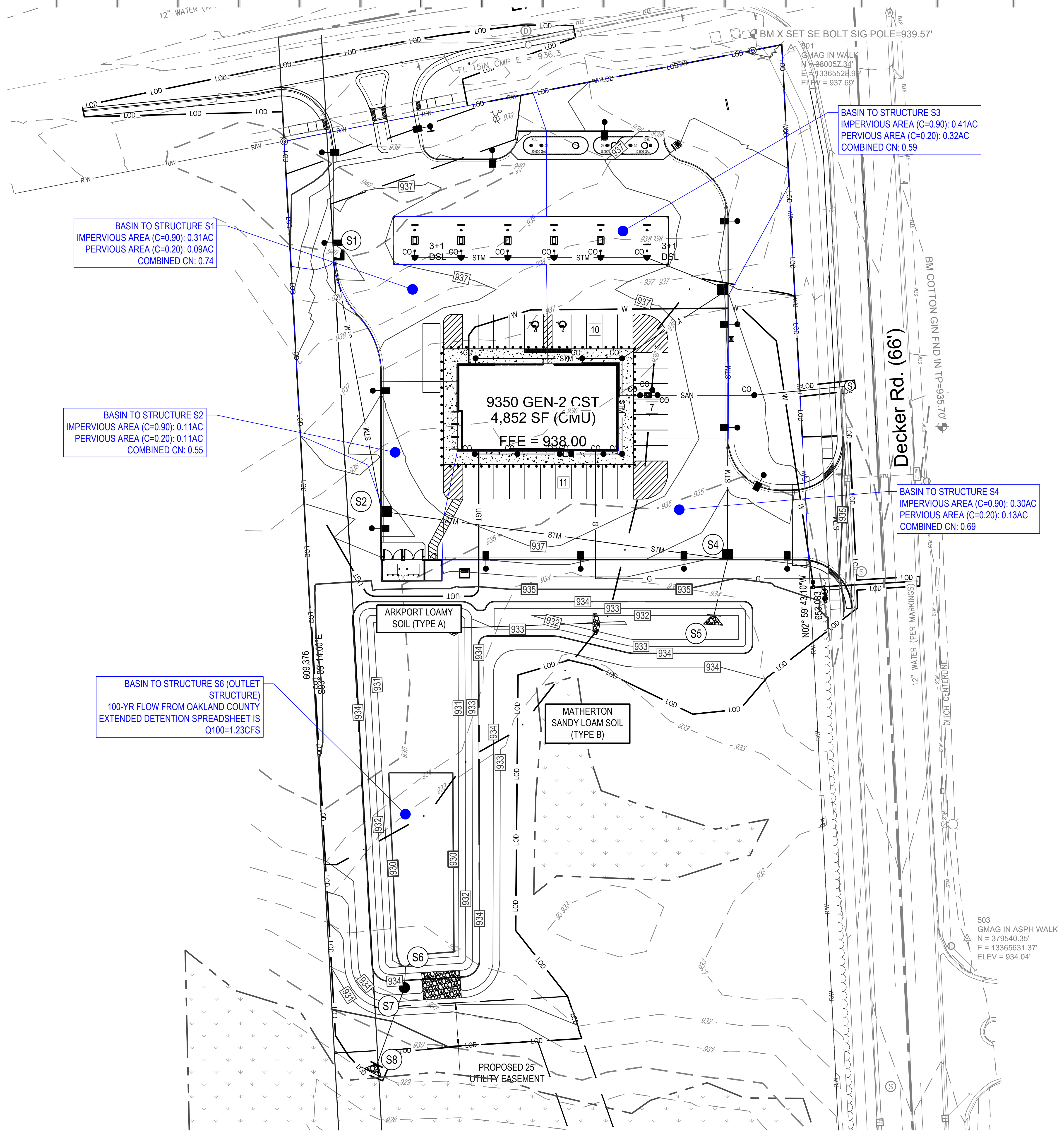
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line I
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	33.629	0.43	1.78	0.69	0.30	1.14	10.0	12.8	4.3	4.91	5.46	4.04	15	0.71	931.28	931.52	932.53	932.70	933.53	935.29	S4-S5
2	1	156.000	0.73	0.73	0.59	0.43	0.43	10.0	10.0	4.8	2.08	2.52	2.65	12	0.50	931.72	932.50	933.09	933.62	935.29	935.47	S3-S4
3	1	203.000	0.22	0.62	0.55	0.12	0.42	10.0	11.4	4.5	1.89	2.26	2.41	12	0.40	931.52	932.34	933.09	933.66	935.29	935.68	S2-S4
4	3	152.000	0.40	0.40	0.74	0.30	0.30	10.0	10.0	4.8	1.43	2.50	1.85	12	0.49	932.34	933.09	933.79	934.01	935.68	935.70	S1-S2
5	End	47.397	0.00	0.00	0.00	0.00	0.00	10.0	10.1	0.0	1.98	3.27	2.52	12	0.84	929.00	929.40	930.46	930.61	932.00	934.00	S7-S8
6	5	12.309	0.00	0.00	0.00	0.00	0.00	10.0	10.0	0.0	1.98	3.21	2.52	12	0.81	929.40	929.50	930.62	930.66	934.00	933.50	S6-S7



POST-DRAINAGE LEGEND

— — · — — · —	SOIL BOUNDARY
———	TRIBUTARY AREA BOUNDARY
Xx	SOIL IDENTIFIER

STORM SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	RIM	INVERT
S1	CATCH BASIN	935.70	933.09 (12") S
S2	CATCH BASIN	935.68	932.34 (12") N 932.34 (12") E
S4	ENVIRONMENTAL CATCH BASIN	935.29	931.72 (12") N 931.52 (12") W 931.52 (15") S
S5	MDOT R-86-F, END SECTION		931.28 (15") N
S6	MDOT R-86-F, END SECTION		929.50 (12") S
S7	OUTLET CONTROL STRUCTURE	934.00	929.40 (12") N 929.40 (12") S
S8	MDOT R-86-F, END SECTION		929.00 (12") N

N

40 0 40 80

GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

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Revisions / Submissions

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Project Number:	764078
Scale:	1"=40'
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
SITE TRIBUTARY MAP

CUD-4

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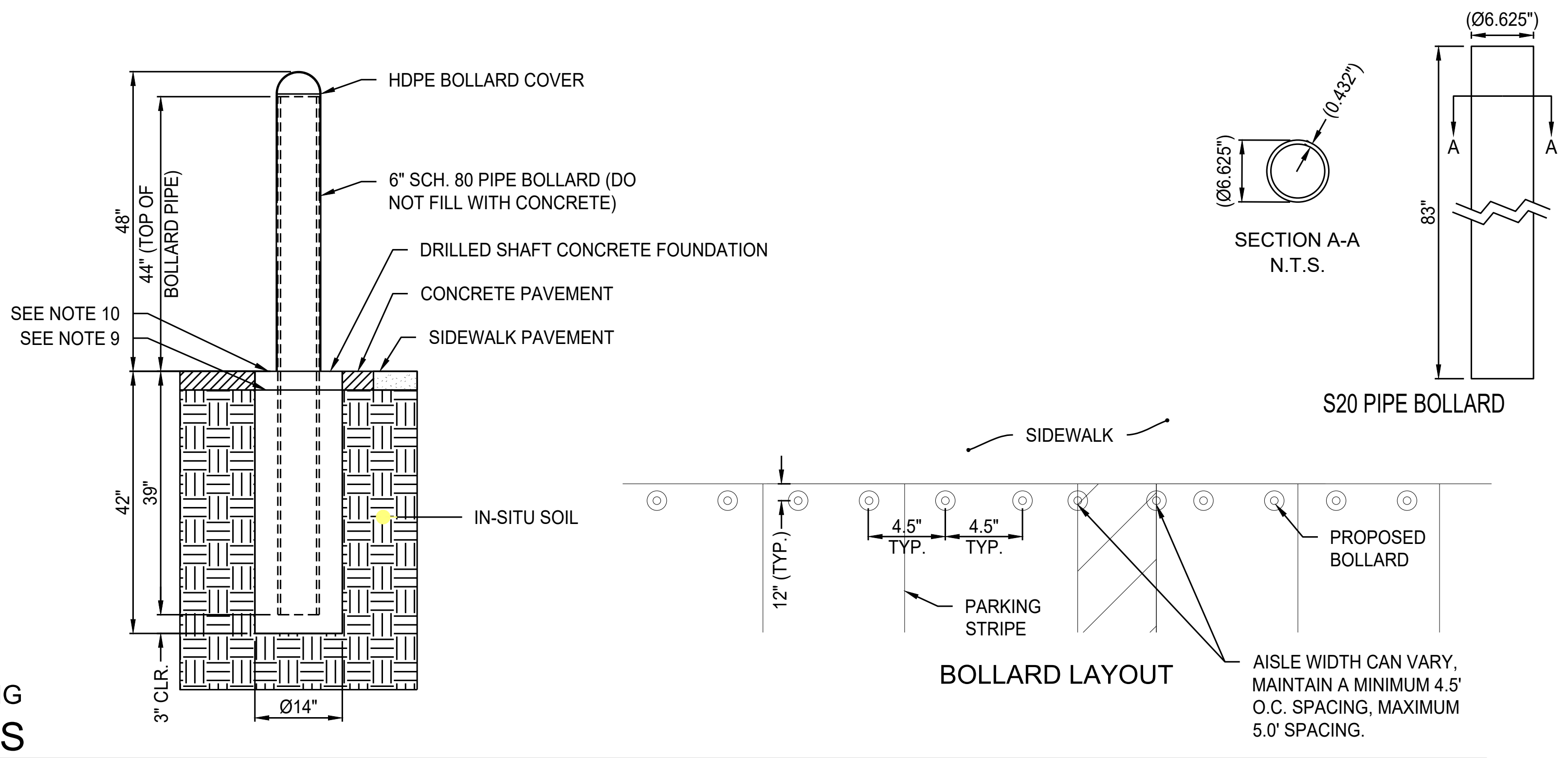
GENERAL NOTES:

1. MAXIMUM BOLLARD SPACING IS 5' ON CENTER
2. CONCRETE TO BE 4,000 PSI MIN. UNCONFINED COMPRESSIVE STRENGTH.
3. REINFORCING STEEL CONFORMS TO ASTM A615 GRADE 60.
4. BOLLARD PIPE IS ASTM A53, TYPE E, GRADE B OR A500 GRADE B/C.
5. PROVIDE HIGH-DENSITY POLYETHYLENE (HDPE) BOLLARD COVER. COVER TO BE IDEALSHIELD (OR APPROVED EQUAL) 1/8" THICK, BLACK, 6" PIPE FIT, DOME TOP, 48" TALL.
6. DO NOT FILL BOLLARD PIPE WITH CONCRETE. TEMPORARILY SEAL BOTTOM AS NECESSARY TO PREVENT CONCRETE INTRUSION WHILE POURING.
7. USE SONOTUBE IN SANDY OR OTHER SOILS THAT MIGHT CAVE IN.
8. DIMENSIONS IN PARENTHESIS ARE NOMINAL.
9. COLD JOINT ACCEPTABLE THIS LINE FOR NEW INSTALLATIONS IN MONOLITHIC POUR CONCRETE PAVEMENT.
10. SLOPE TOP OF CONCRETE AWAY FROM BOLLARD 1/4" FROM PIPE TO EDGE OF DRILLED SHAFT OR CAP.
11. INCREASE DEPTH OF CAISSON AND BOLLARD PIPE TO MEET LOCAL JURISDICTION MIN. FROST DEPTH REQUIREMENT.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY NO UTILITY CONFLICTS EXIST WHERE BOLLARDS ARE TO BE INSTALLED, PRIOR TO INSTALLATION.

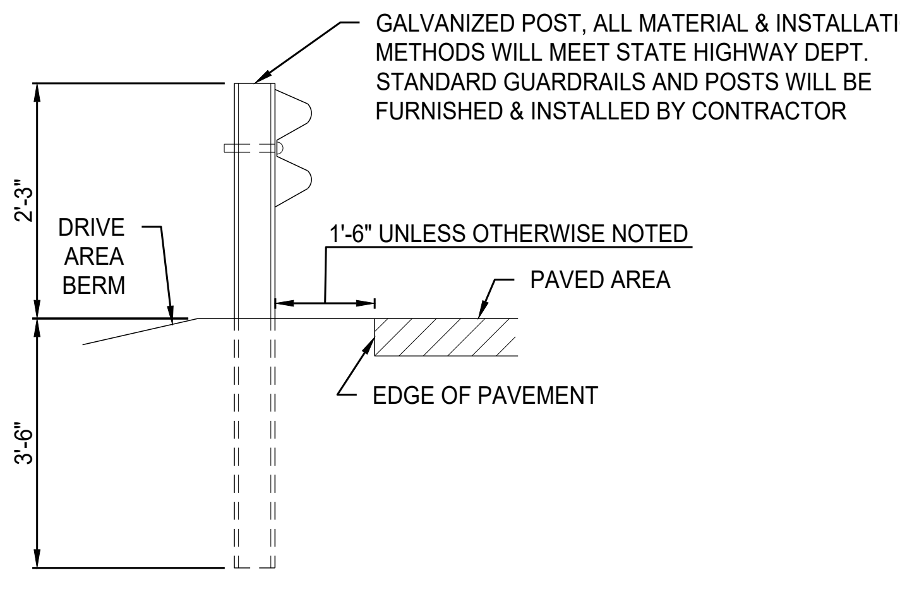
DESIGN SPECIFICATIONS: ASTM F3016-19 CONDITION DESIGNATION S20



DEEP MOUNT S20 BOLLARD IN CONCRETE PAVING

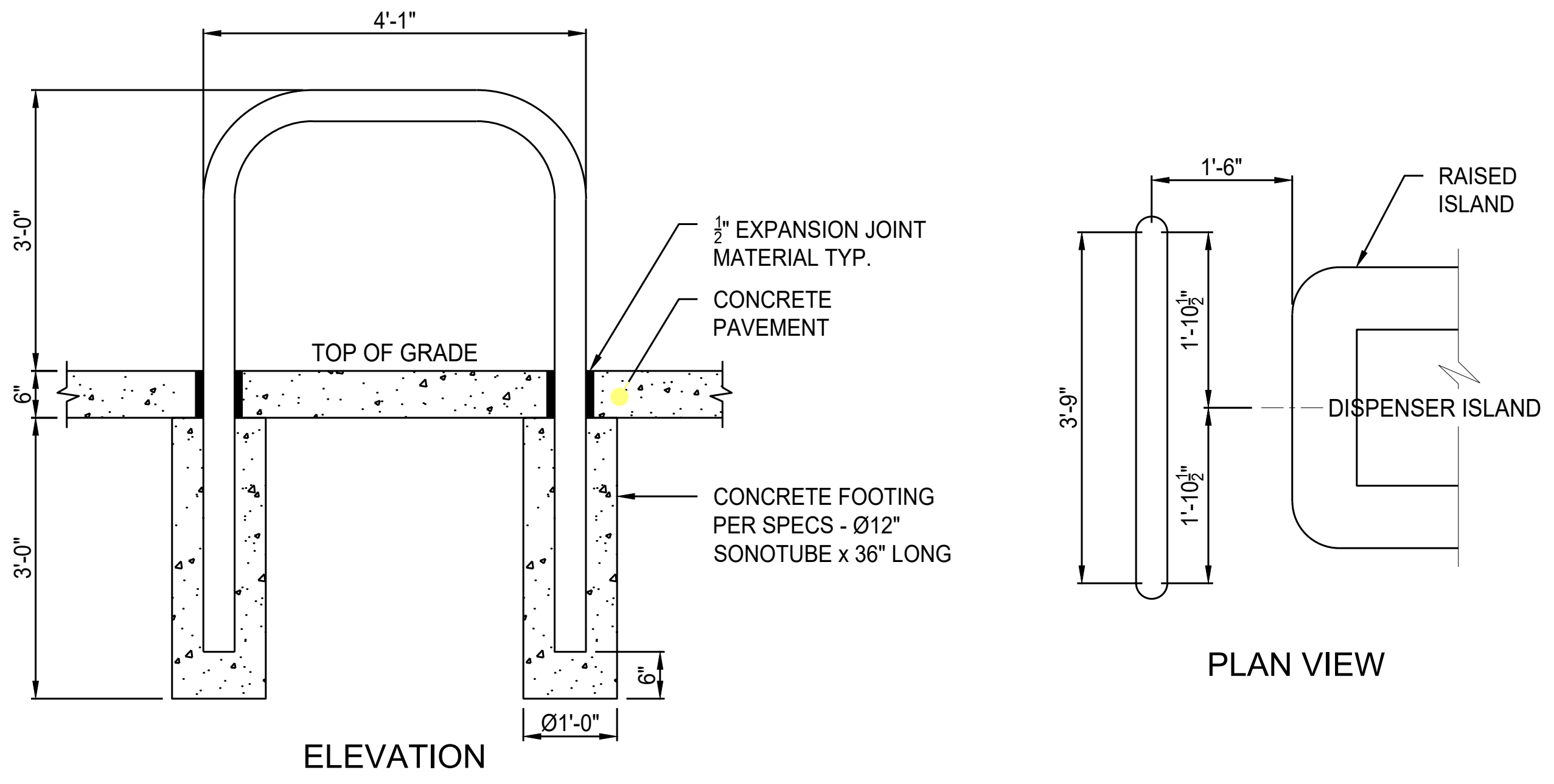
1 STORE FRONT GUARD BOLLARDS

NOT TO SCALE



4 GUARDRAIL SECTION

NOT TO SCALE

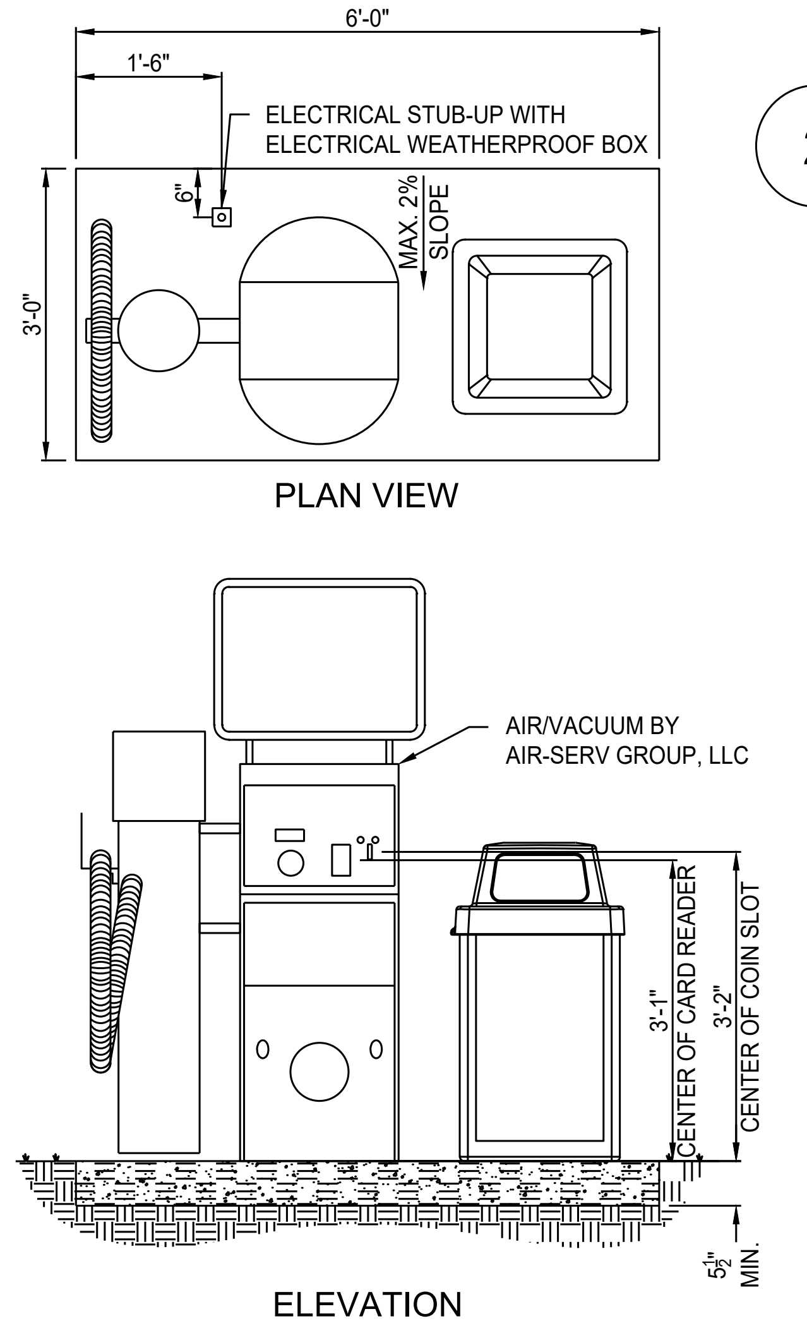


U-SHAPED BOLLARD LOCATED AT ALL AUTO CANOPY LAYOUTS. SEE FUEL PROTOTYPE FOR LOCATIONS.

2 ISLAND GUARD POST

NOT TO SCALE

1. ELECTRICAL NEEDS ARE #10 WIRE (30 AMP) WITH GROUND



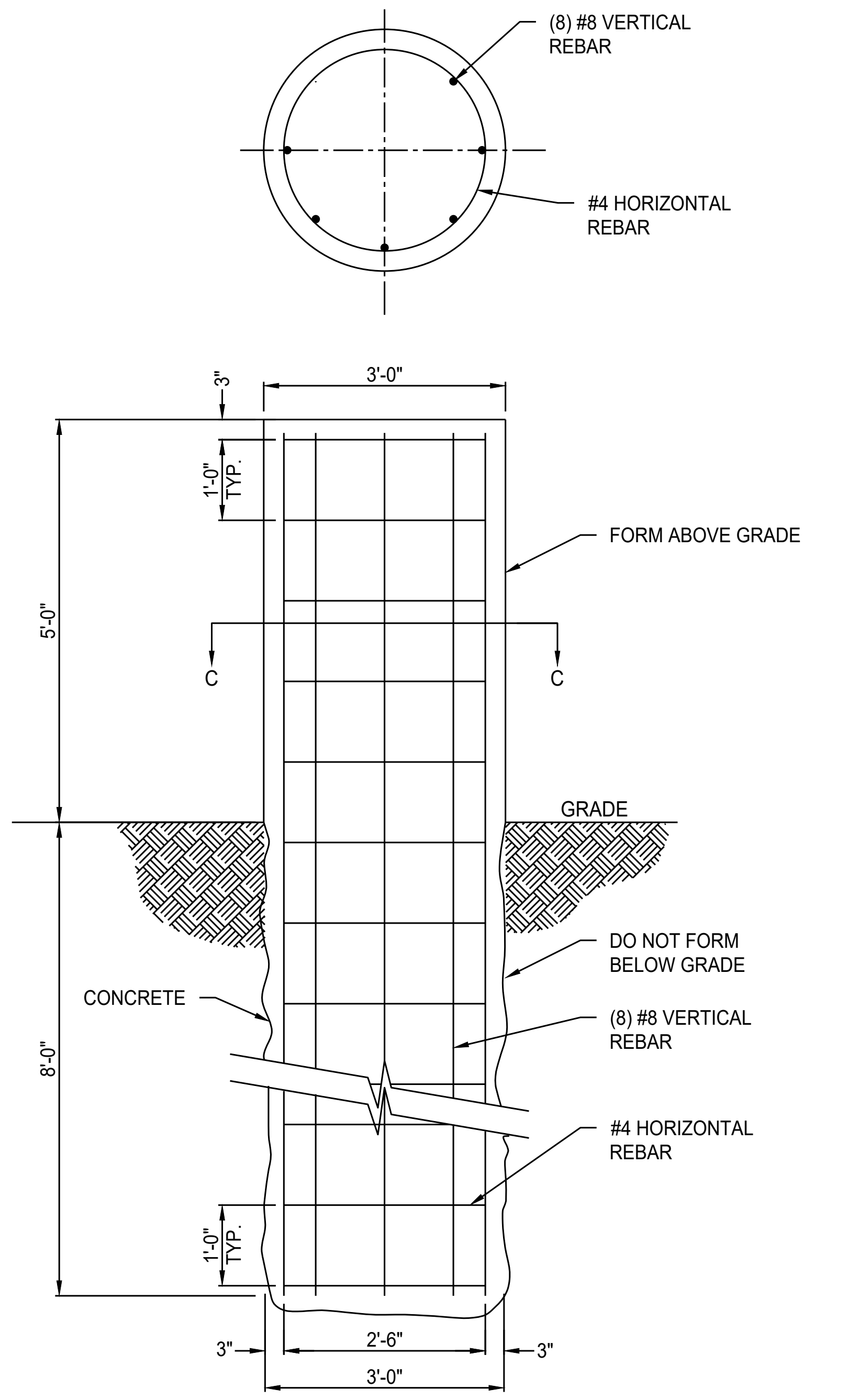
DESIGNER NOTES:
1. CALIFORNIA SITES REQUIRE AIR/WATER AND THAT THERE BE A FREE OPTION THROUGH THE REMOTE SYSTEM.
2. DESIGNER TO SEPARATE THE VACUUM SERVICE AT CAR WASH LOCATIONS IF TWO PLACEMENTS ARE AVAILABLE. OPTION TO PROVIDE AIR/WATER/VACUUM THOUGH THE SAME MACHINE IF NECESSARY.

NOTE:
MAXIMUM 2 PERCENT GRADE SLOPE EACH WAY REQUIRED FOR AMERICANS WITH DISABILITIES ACT.

G.C. TO PROVIDE CONCRETE SLAB AND UTILITIES. AIR-SERV TO PROVIDE EQUIPMENT AND MAKE FINAL CONNECTIONS.

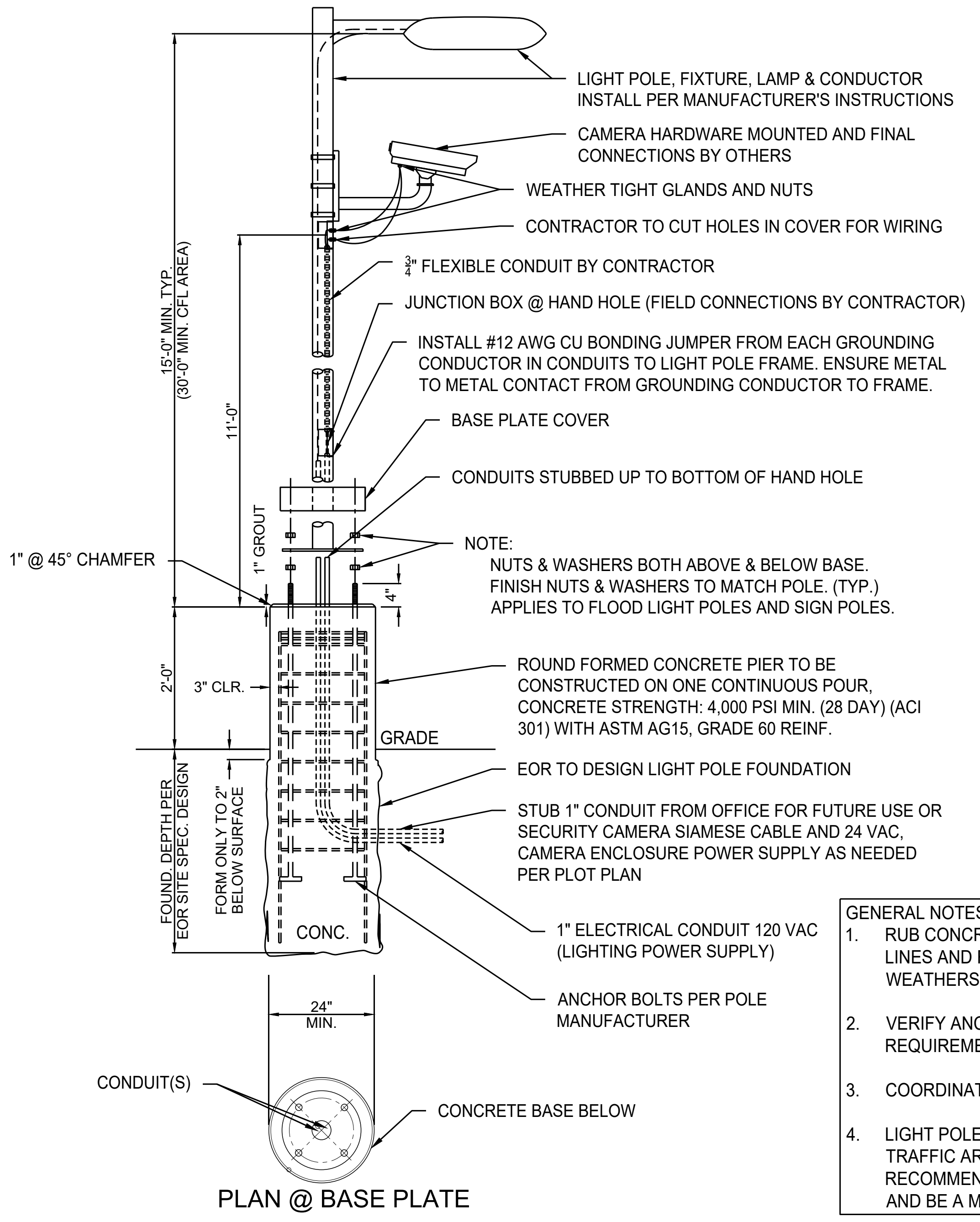
5 AIR-VAC MACHINE

NOT TO SCALE



3 HEAVY-DUTY GUARD POST

NOT TO SCALE



GENERAL NOTES:
1. RUB CONCRETE TO REMOVE SONOTUBE FORM LINES AND FILL ALL HOLES FOR SMOOTH FINISH. WEATHERSEAL ALL EXPOSED CONCRETE.
2. VERIFY ANCHOR ROD LAYOUT AND EMBEDMENT REQUIREMENTS WITH POLE SUPPLIER.
3. COORDINATE LOCATIONS WITH CIVIL.
4. LIGHT POLE FOUNDATIONS LOCATED IN CFL TRAFFIC AREAS OR PARKING AREAS ARE RECOMMENDED TO EXTEND 5'-0" ABOVE GRADE AND BE A MIN. Ø3'-0".

8 AREA LIGHT POLE FOUNDATION

NOT TO SCALE

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WALLED LAKE

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Revisions / Submissions

ID	Description	Date

Project Number: 764078
Scale: N/A
Drawn By: KI
Checked By: MG
Date: 07/18/2025
Issue: PERMIT SET

Drawing Title:
CONSTRUCTION DETAILS

CYE-A

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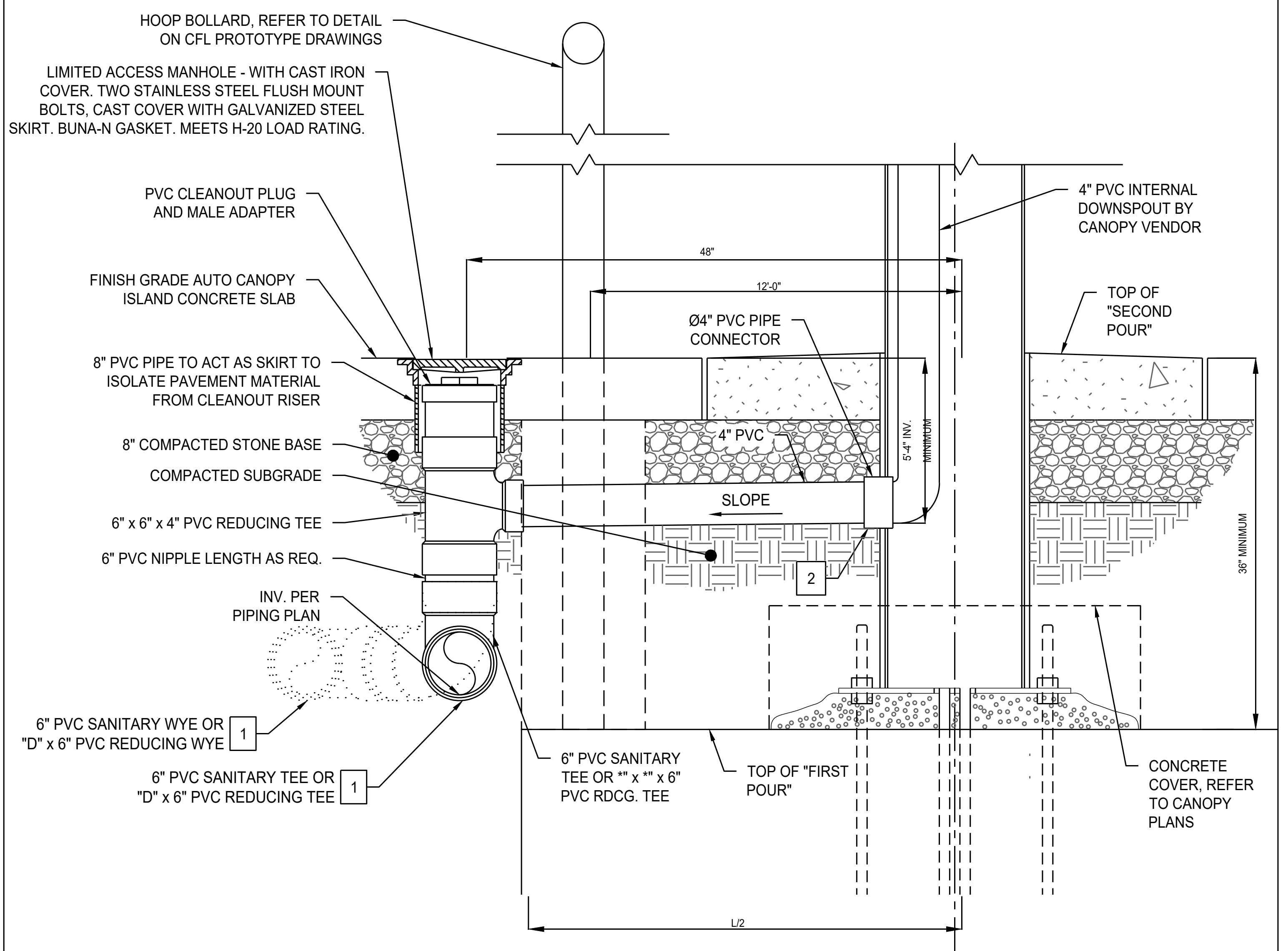
C:\DARoot\Jobs\ddb5cf47e04a440bbe46b230078abc8e\adskfiles\b.82d42c4a-ecc8-45d7-a180-96f43648f496_CESO\03-CIVIL\PLAN\PLOT\764078_DETAILS.dwg - 7/18/2025 - acesuser

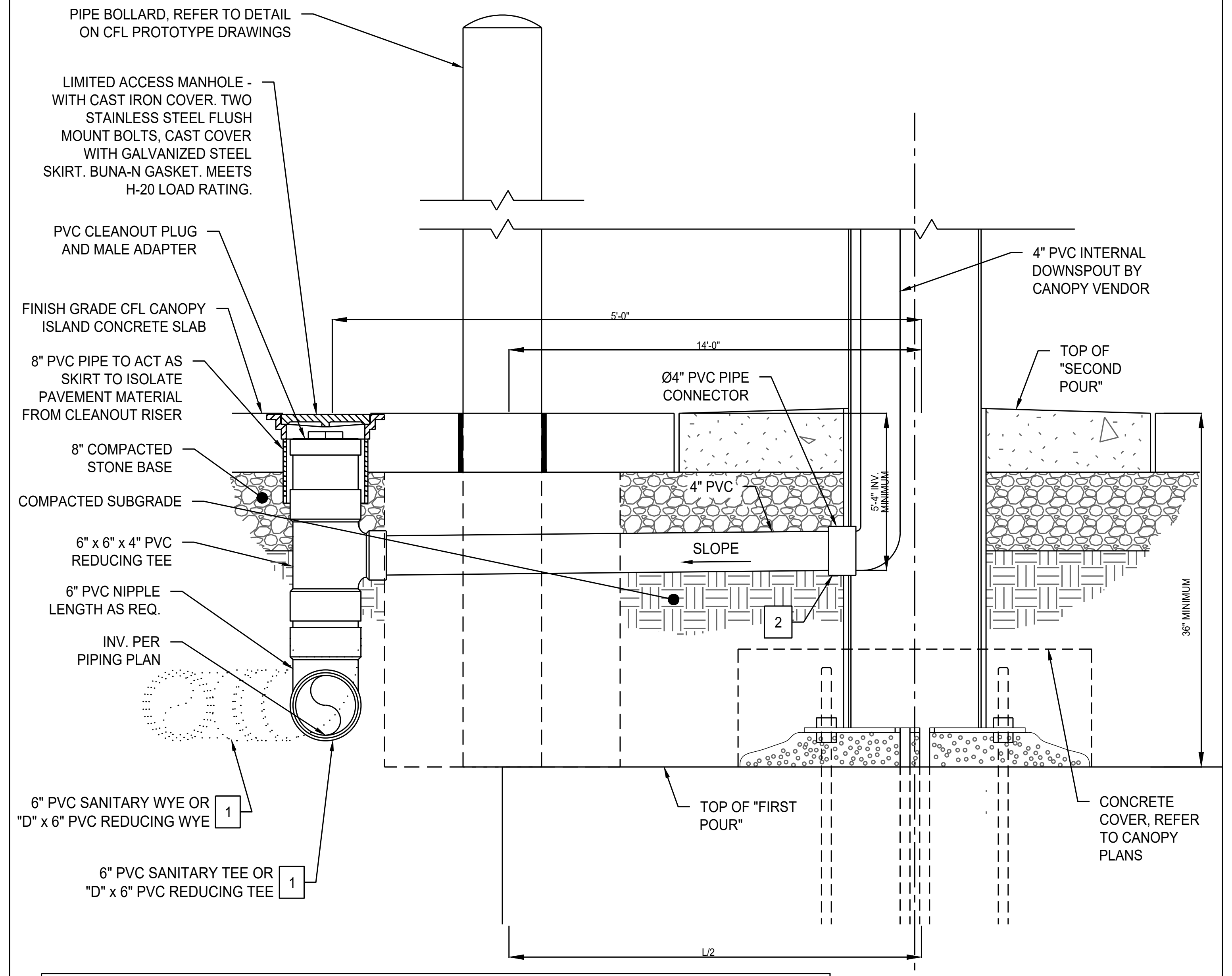


GENERAL NOTES
1. CANOPY CLEANOUT LOCATIONS PREFERENCES
AUTO STARTING GATE - STORE SIDE ROW OF COLUMNS HAVE DRAINS
AUTO STACKED - BOTH ROWS OF COLUMNS HAVE DRAINS
2. REFER TO FUEL PROTOTYPE DRAWINGS FOR AUTO DISPENSER ISLAND (NOT SHOWN HEREON) DETAILS.
3. REFER TO CIVIL PROTOTYPE DRAWINGS SHEET CPC-1 FOR AUTO CANOPY PAVEMENT DETAIL.

SECTION "A-A" KEY NOTES
1. "D" = SIZE OF ROOF DRAIN COLLECTOR PIPE. REFER TO PIPING PLAN TO VERIFY SIZE OF COLLECTOR PIPE.
2. REFER TO DIVISION OF WORK FOR G.C. CONNECTION TO ROOF DRAIN AT COLUMN.

3 SECTION "A-A" - INTERNAL DOWNSPOUT (AUTO CANOPY COLUMNS)

1"=1'-0"

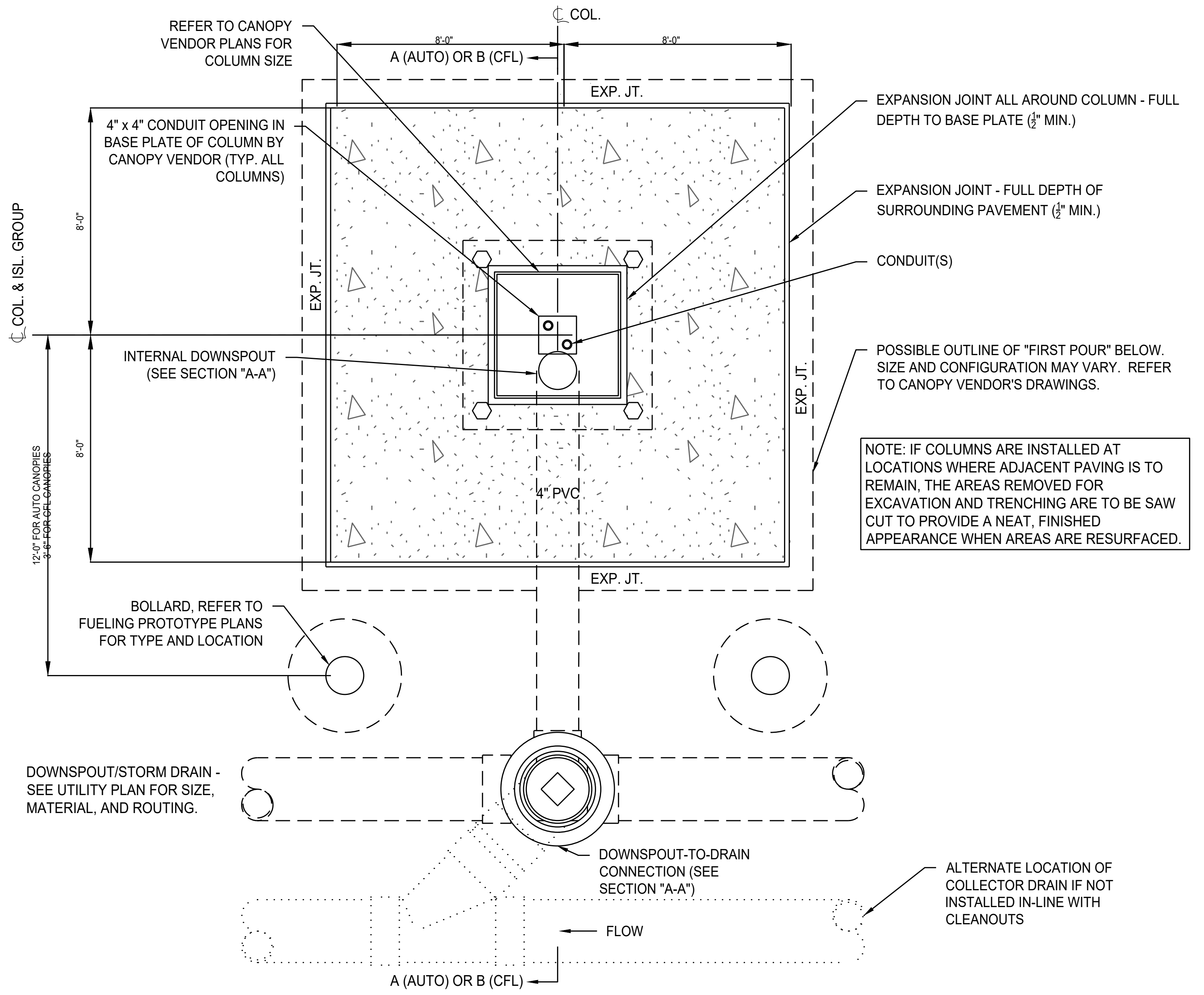


GENERAL NOTES
1. CANOPY CLEANOUT LOCATION PREFERENCES
CFL - AWAY FROM PRODUCT PIPING OPPOSITE OF ENTRY SIDE COLUMNS
2. REFER TO CFL PROTOTYPE DRAWINGS FOR CFL DISPENSER ISLAND (NOT SHOWN HEREON) DETAILS.
3. REFER TO CIVIL PROTOTYPE DRAWINGS SHEET CPC-1 FOR CFL CANOPY PAVEMENT DETAIL.

SECTION "B-B" KEY NOTES
1. "D" = SIZE OF ROOF DRAIN COLLECTOR PIPE. REFER TO PIPING PLAN TO VERIFY SIZE OF COLLECTOR PIPE.
2. REFER TO DIVISION OF WORK FOR G.C. CONNECTION TO ROOF DRAIN AT COLUMN.

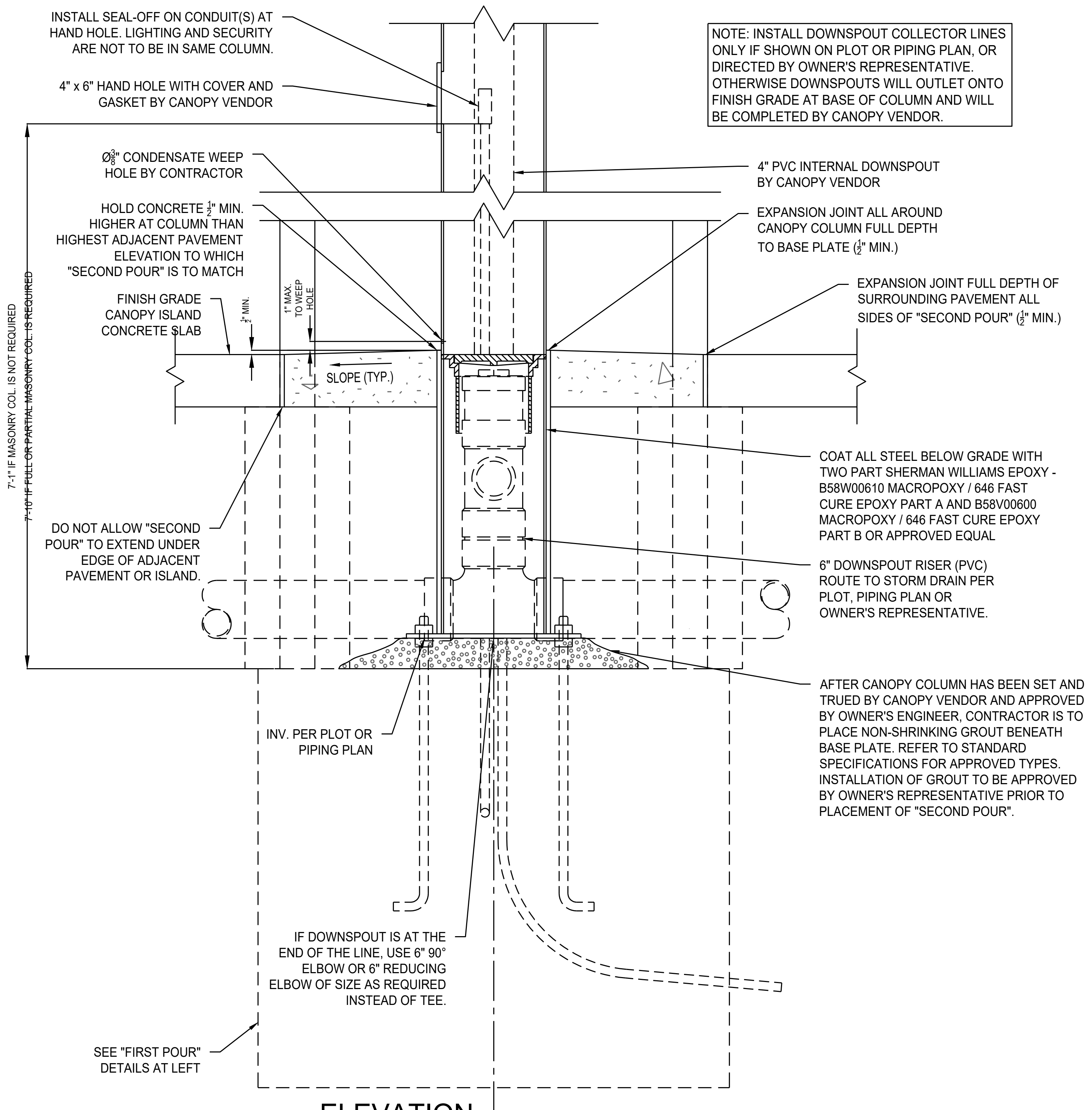
4 SECTION "B-B" - INTERNAL DOWNSPOUT (CFL CANOPY COLUMNS)

1"=1'-0"



NOTE: IF COLUMNS ARE INSTALLED AT LOCATIONS WHERE ADJACENT PAVING IS TO REMAIN, THE AREAS REMOVED FOR EXCAVATION AND TRENCHING ARE TO BE SAW CUT TO PROVIDE A NEAT, FINISHED APPEARANCE WHEN AREAS ARE RESURFACED.

PLAN VIEW

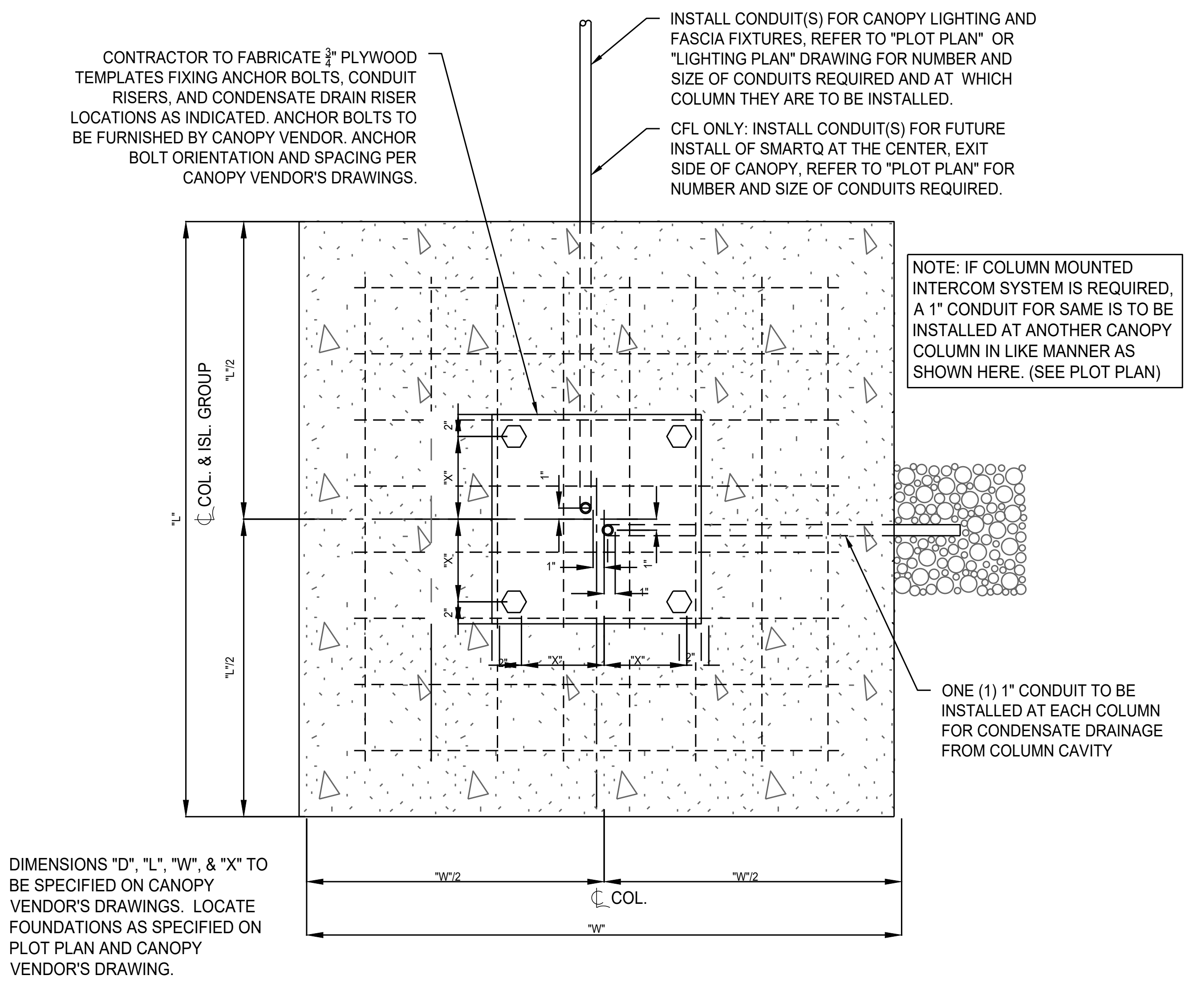


NOTE: INSTALL DOWNSPOUT COLLECTOR LINES ONLY IF SHOWN ON PLOT OR PIPING PLAN, OR DIRECTED BY OWNER'S REPRESENTATIVE. OTHERWISE DOWNSPOUTS WILL OUTLET ONTO FINISH GRADE AT BASE OF COLUMN AND WILL BE COMPLETED BY CANOPY VENDOR.

ELEVATION

2 CANOPY BASE - SECOND POUR PLAN AND ELEVATION

1"=1'-0"

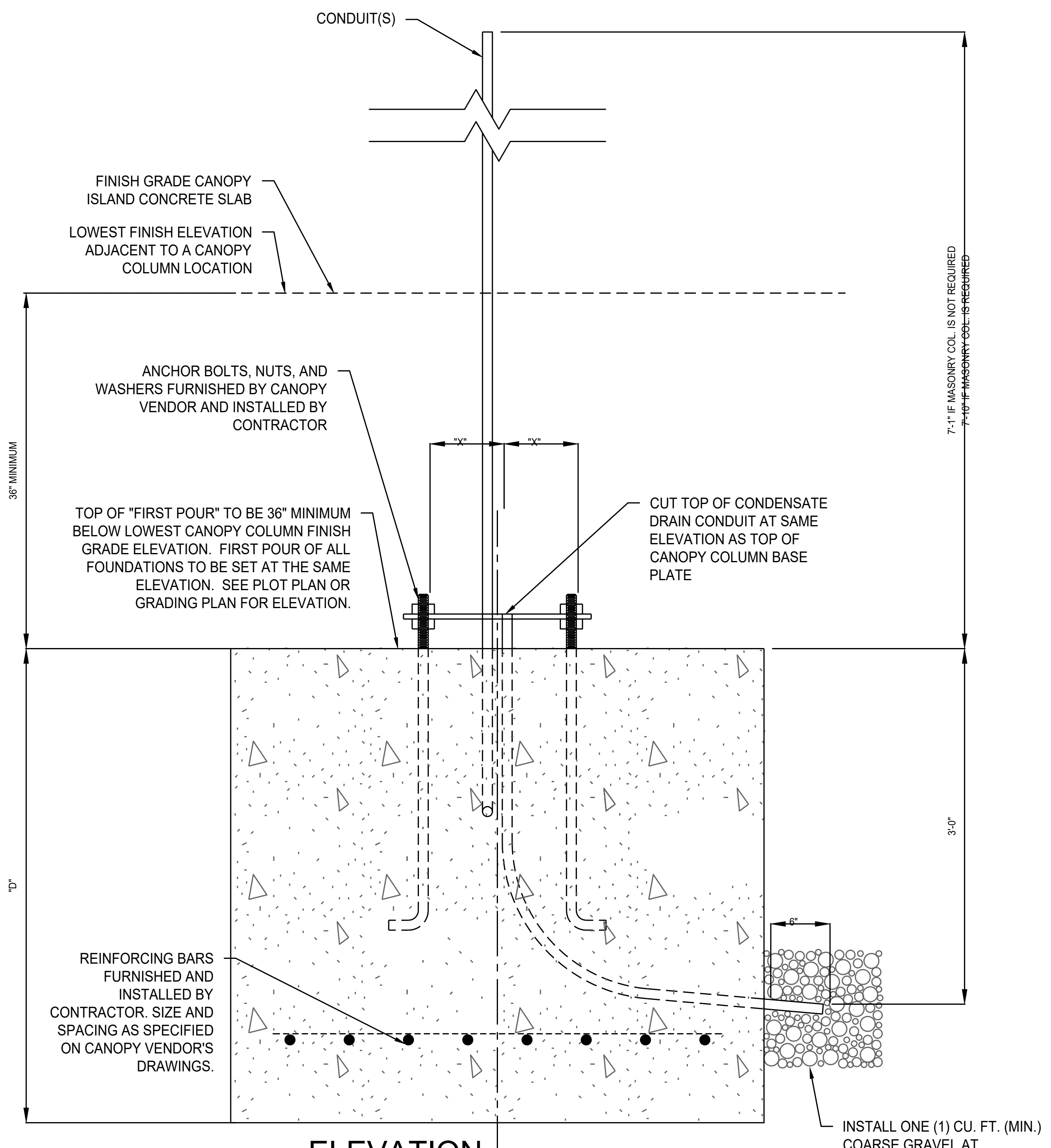


NOTE: IF COLUMN MOUNTED INTERCOM SYSTEM IS REQUIRED, A 1" CONDUIT FOR SAME IS TO BE INSTALLED AT ANOTHER CANOPY COLUMN IN LIKE MANNER AS SHOWN HERE. (SEE PLOT PLAN)

DIMENSIONS "D", "L", "W", & "X" TO BE SPECIFIED ON CANOPY VENDOR'S DRAWINGS. LOCATE FOUNDATIONS AS SPECIFIED ON PLOT PLAN AND CANOPY VENDOR'S DRAWING.

NOTE: COLUMN FOUNDATION MAY BE SQUARE (4 BOLTS) OR RECTANGULAR (6 BOLTS). REFER TO VENDOR'S DRAWINGS TO VERIFY ORIENTATION OF RECTANGULAR BASES RELATIVE TO ISLAND GROUP CENTERLINE.

PLAN VIEW



ELEVATION

1 CANOPY BASE - FIRST POUR PLAN AND ELEVATION

1"=1'-0"

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Revisions / Submissions

ID	Description	Date

Project Number:	764078
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Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:

STANDARD CANOPY BASE DETAILS

SCB-1

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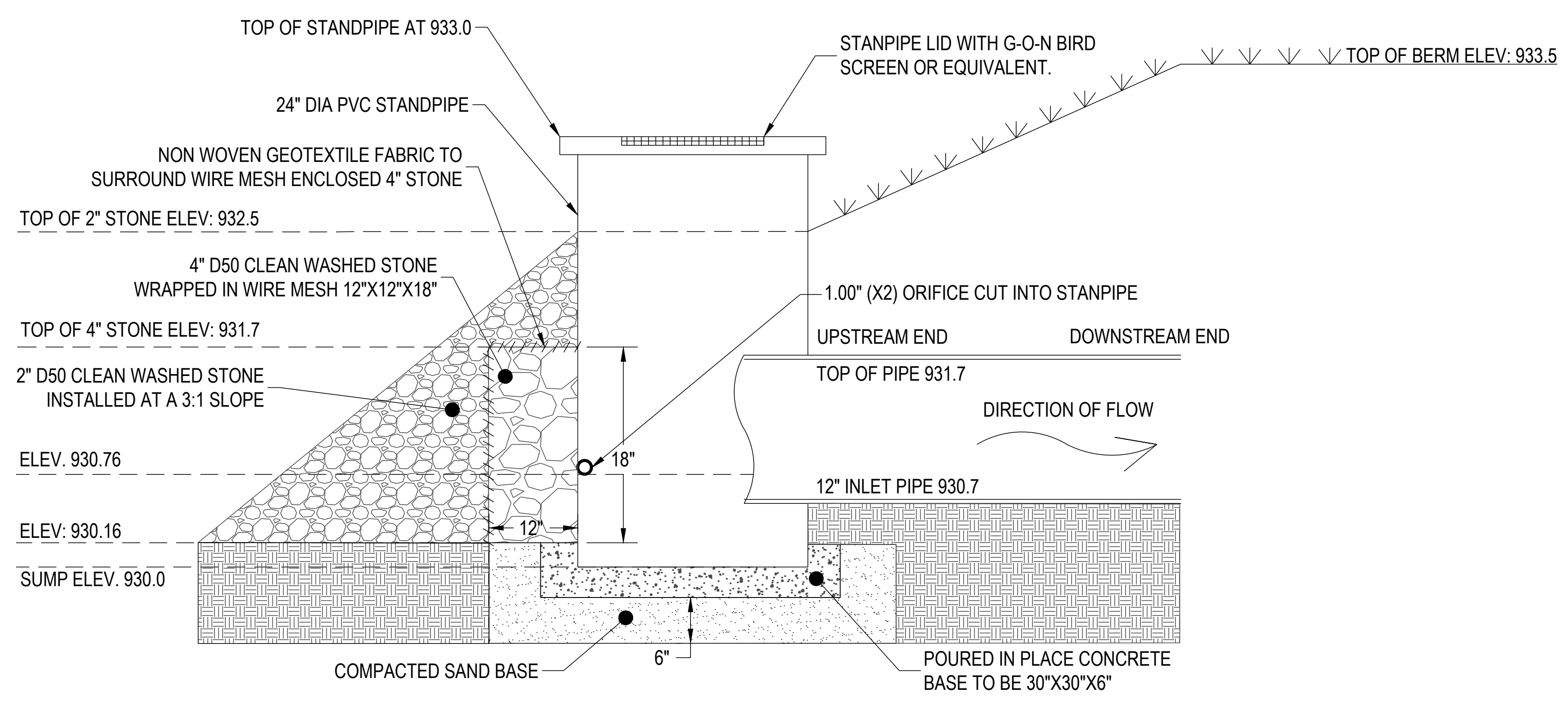
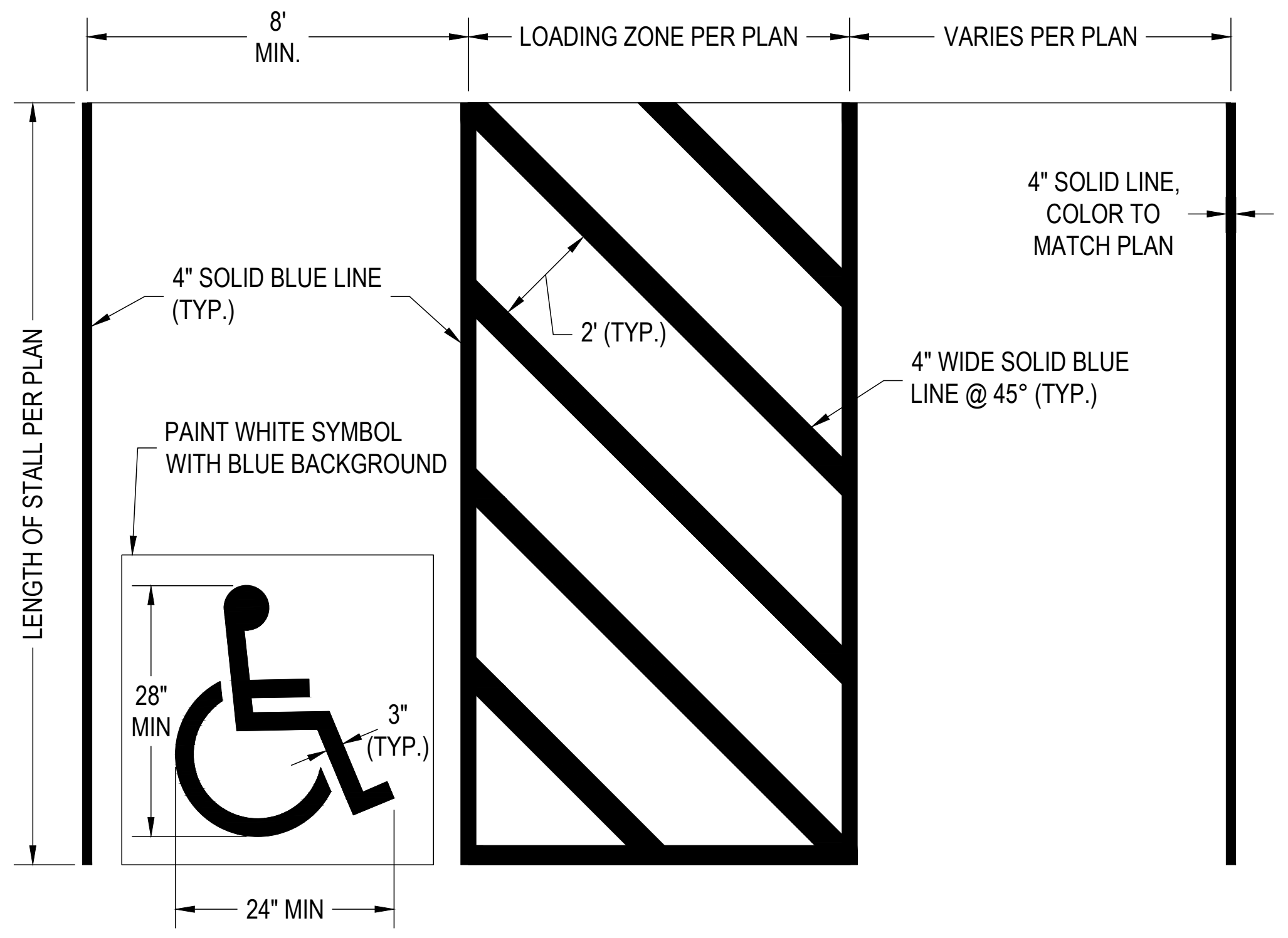


V FOREBAY OUTLET CONTROL STAND PIPE DETAIL

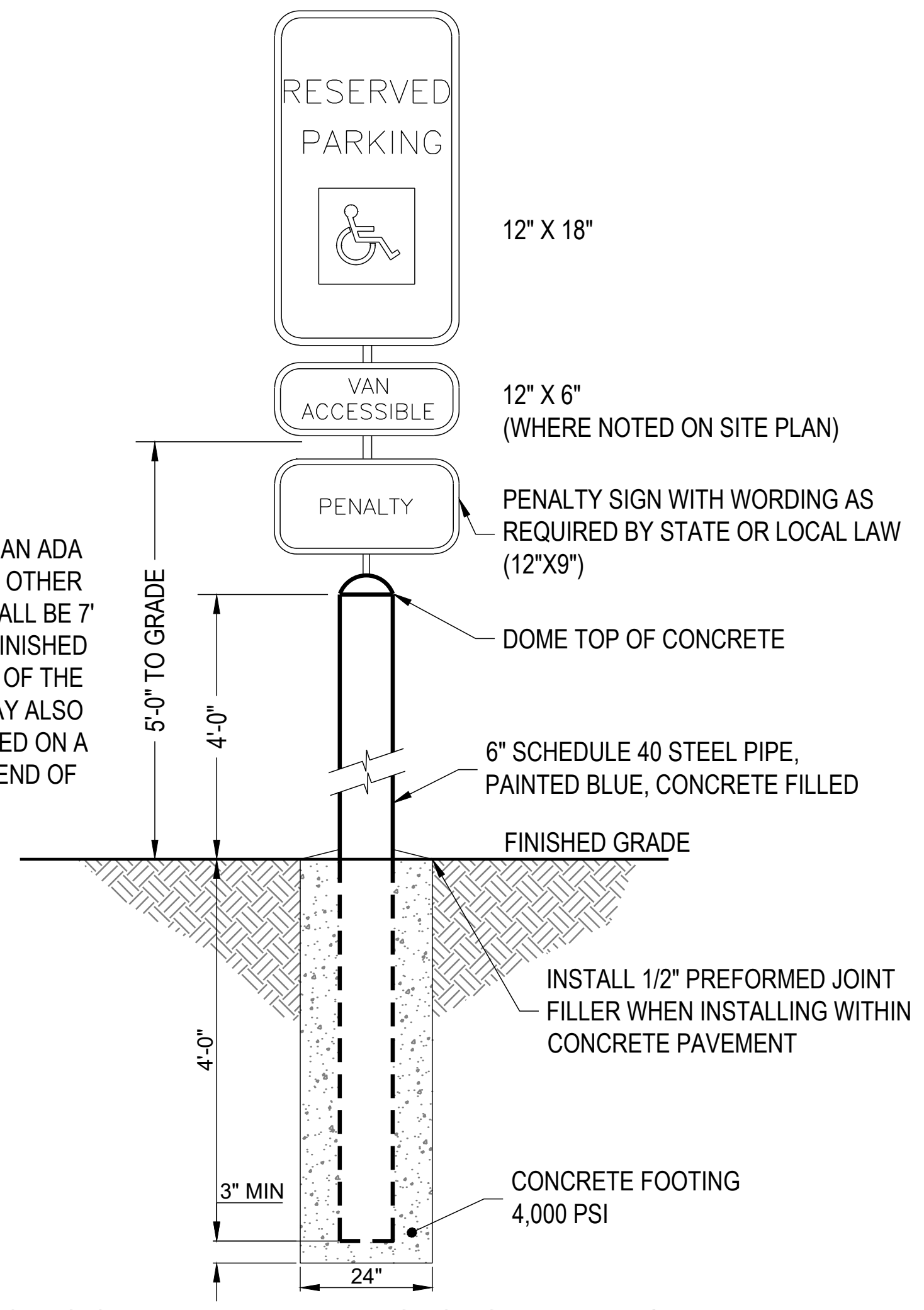
N.T.S.



ACCESSIBLE PARKING SPACE STRIPING

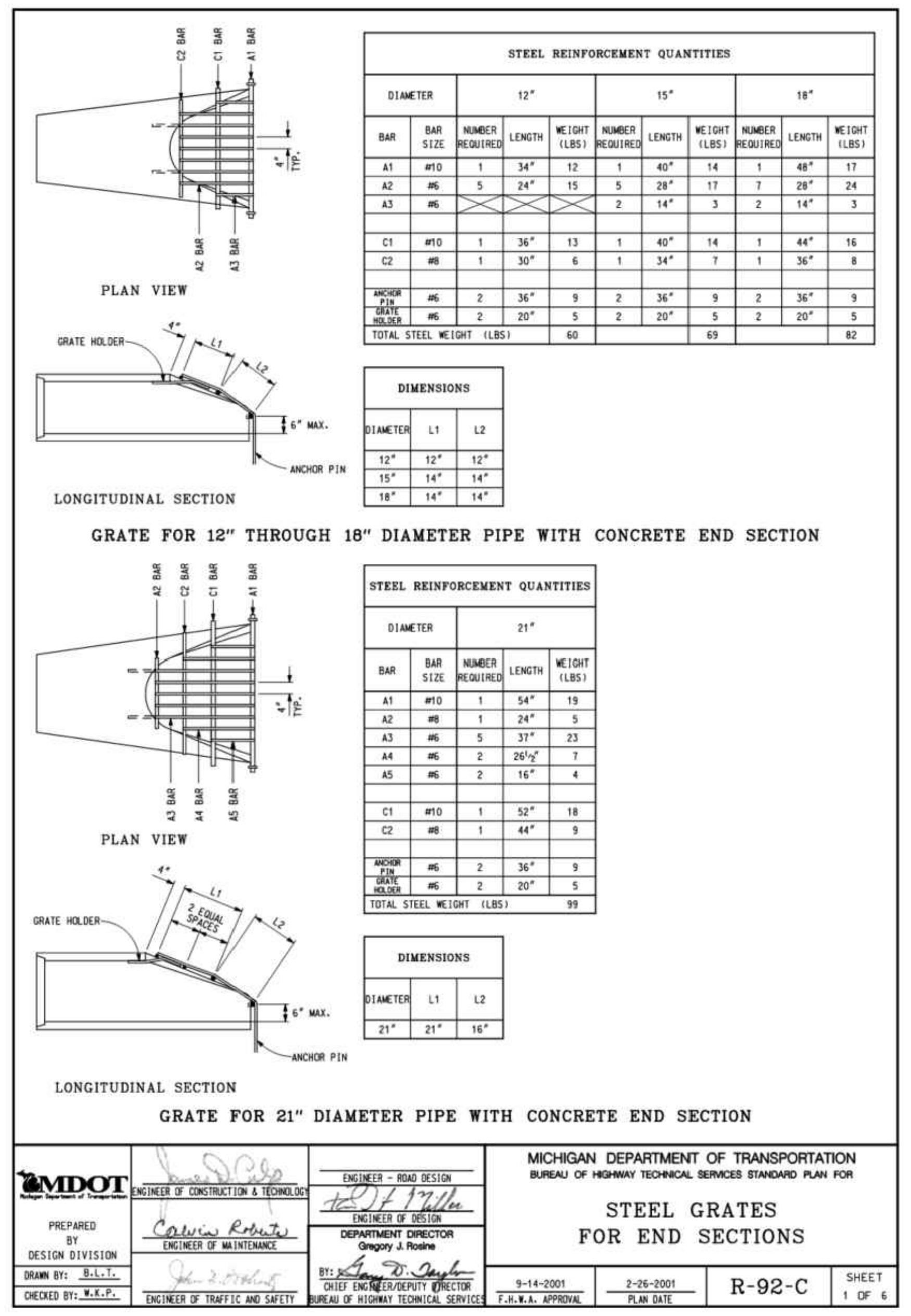
NTS

NOTE:
SIGNS LOCATED WITHIN AN ADA ACCESSIBLE ROUTE, OR OTHER PEDESTRIAN ROUTE, SHALL BE 7' MIN. MEASURED FROM FINISHED GRADE TO THE BOTTOM OF THE LOWEST SIGN. SIGNS MAY ALSO BE PERMANENTLY POSTED ON A WALL AT THE INTERIOR END OF THE PARKING SPACE.



ACCESSIBLE PARKING SIGN IN BOLLARD

NTS



GRATE FOR 12" THROUGH 18" DIAMETER PIPE WITH CONCRETE END SECTION

STEEL REINFORCEMENT QUANTITIES

DIAMETER		12"			15"			18"		
BAR	BAR SIZE	NUMBER REQUIRED	LENGTH	WEIGHT (LBS)	NUMBER REQUIRED	LENGTH	WEIGHT (LBS)	NUMBER REQUIRED	LENGTH	WEIGHT (LBS)
A1	#10	1	34"	12	1	40"	14	1	48"	17
A2	#6	5	24"	15	5	28"	17	7	28"	24
A3	#6				2	14"	3	2	14"	3
C1	#10	1	36"	13	1	40"	14	1	44"	16
C2	#8	1	30"	6	1	34"	7	1	36"	8
ANCHOR PIN	#6	2	36"	9	2	36"	9	2	36"	9
GRATE HOLDER	#6	2	20"	5	2	20"	5	2	20"	5
TOTAL STEEL WEIGHT (LBS)				60			69			82

DIMENSIONS

DIAMETER	L1	L2
12"	12"	12"
15"	14"	14"
18"	14"	14"

GRATE FOR 21" DIAMETER PIPE WITH CONCRETE END SECTION

STEEL REINFORCEMENT QUANTITIES

DIAMETER		21"		
BAR	BAR SIZE	NUMBER REQUIRED	LENGTH	WEIGHT (LBS)
A1	#10	1	54"	19
A2	#8	1	24"	5
A3	#6	5	37"	23
A4	#6	2	26½"	7
A5	#6	2	16"	4
C1	#10	1	52"	18
C2	#8	1	44"	9
ANCHOR PIN	#6	2	36"	9
GRATE HOLDER	#6	2	20"	5
TOTAL STEEL WEIGHT (LBS)				99

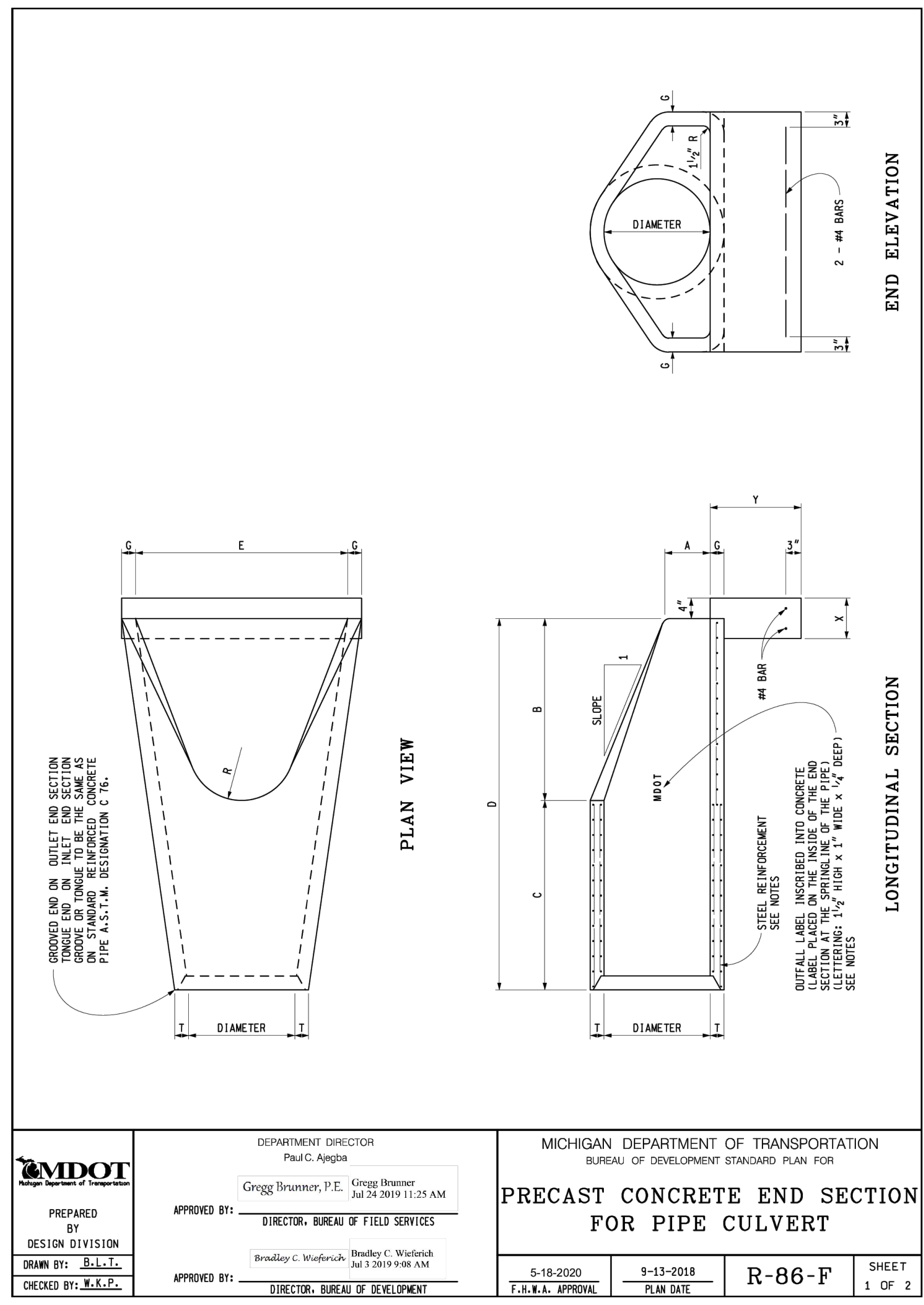
DIMENSIONS

DIAMETER	L1	L2
21"	21"	16"

MDOT Michigan Department of Transportation
PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: W.K.P.
ENGINEER OF CONSTRUCTION & TECHNOLOGY
Calvin Roberts
ENGINEER OF MAINTENANCE
ENGINEER OF TRAFFIC AND SAFETY
ENGINEER - ROAD DESIGN
ENGINEER OF DESIGN
DEPARTMENT DIRECTOR
Gregory J. Rosine
BY: Gary D. Taylor
CHIEF ENGINEER/DEPUTY DIRECTOR BUREAU OF HIGHWAY TECHNICAL SERVICES

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR
STEEL GRATES FOR END SECTIONS

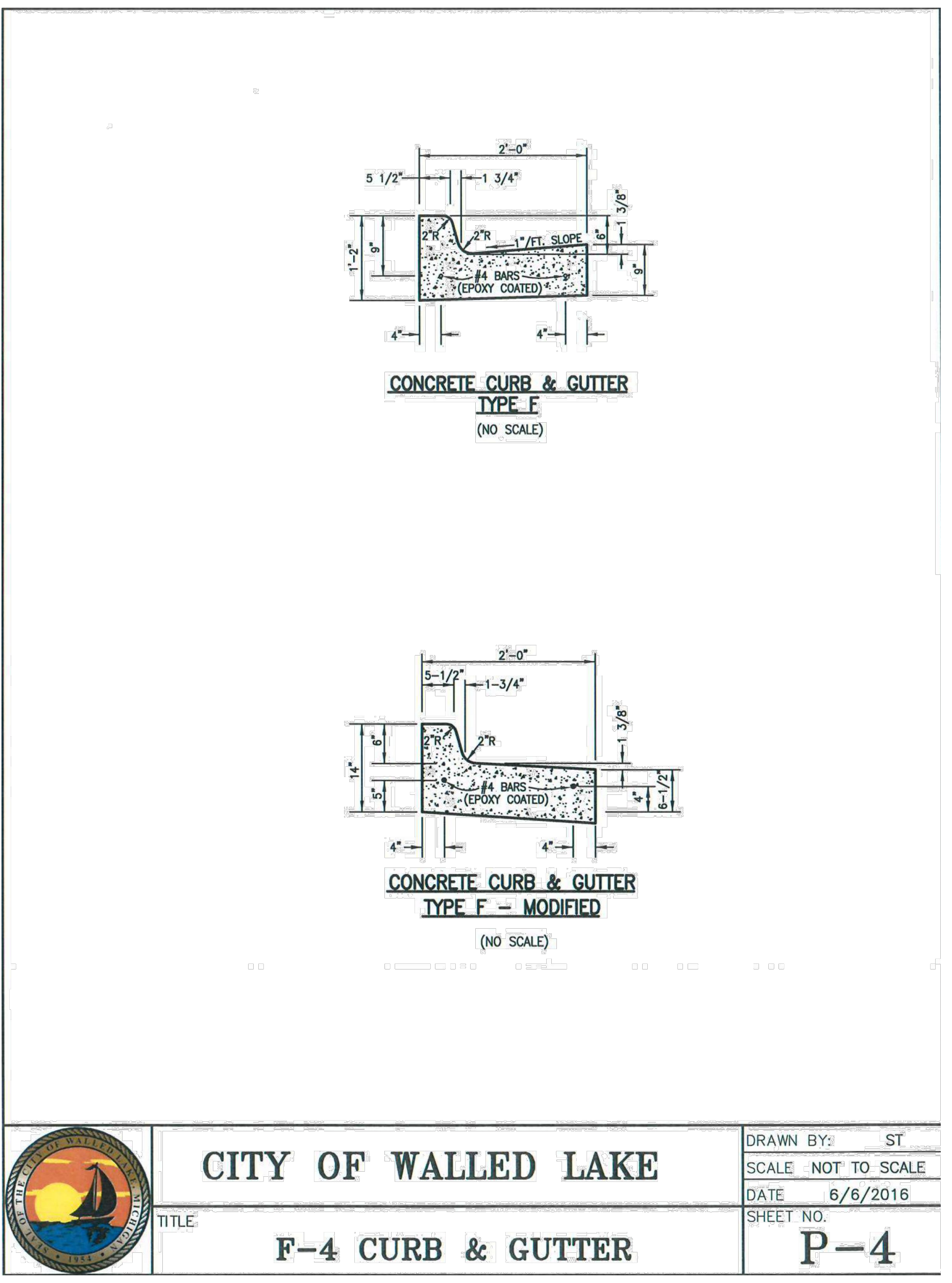
9-14-2001 F.H.W.A. APPROVAL
2-26-2001 PLAN DATE
R-92-C
SHEET 1 OF 6



MDOT Michigan Department of Transportation
PREPARED BY DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: W.K.P.
DEPARTMENT DIRECTOR
Paul C. Ajegba
APPROVED BY: Gregg Brunner, P.E. Gregg Brunner Jul 24 2019 11:25 AM
DIRECTOR, BUREAU OF FIELD SERVICES
APPROVED BY: Bradley C. Wieferich Bradley C. Wieferich Jul 3 2019 9:08 AM
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
PRECAST CONCRETE END SECTION FOR PIPE CULVERT

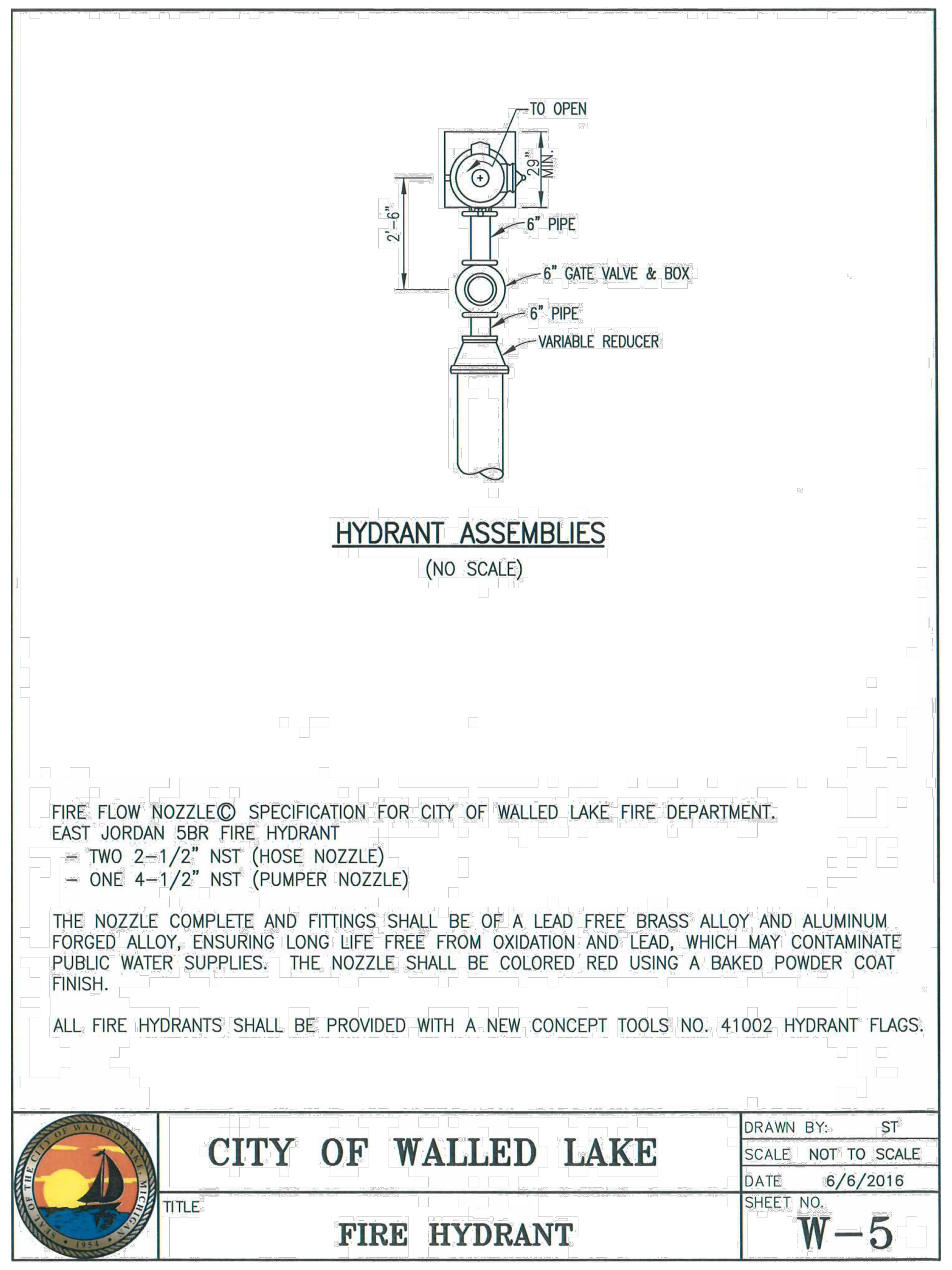
5-18-2020 F.H.W.A. APPROVAL
9-13-2018 PLAN DATE
R-86-F
SHEET 1 OF 2



CONCRETE CURB & GUTTER TYPE F
(NO SCALE)

CONCRETE CURB & GUTTER TYPE F – MODIFIED
(NO SCALE)

CITY OF WALLED LAKE
TITLE F-4 CURB & GUTTER
DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO. P-4



HYDRANT ASSEMBLIES
(NO SCALE)

FIRE FLOW NOZZLE© SPECIFICATION FOR CITY OF WALLED LAKE FIRE DEPARTMENT.
EAST JORDAN 5BR FIRE HYDRANT
- TWO 2-1/2" NST (HOSE NOZZLE)
- ONE 4-1/2" NST (PUMPER NOZZLE)

THE NOZZLE COMPLETE AND FITTINGS SHALL BE OF A LEAD FREE BRASS ALLOY AND ALUMINUM FORGED ALLOY, ENSURING LONG LIFE FREE FROM OXIDATION AND LEAD, WHICH MAY CONTAMINATE PUBLIC WATER SUPPLIES. THE NOZZLE SHALL BE COLORED RED USING A BAKED POWDER COAT FINISH.

ALL FIRE HYDRANTS SHALL BE PROVIDED WITH A NEW CONCEPT TOOLS NO. 41002 HYDRANT FLAGS.

CITY OF WALLED LAKE
TITLE FIRE HYDRANT
DRAWN BY: ST
SCALE NOT TO SCALE
DATE 6/6/2016
SHEET NO. W-5

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Revisions / Submissions

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Project Number:	764078
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Drawn By:	KI
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Issue:	PERMIT SET

Drawing Title:
CONSTRUCTION DETAILS

DET-1

GENERAL NOTES

1. ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WATER RESOURCES COMMISSIONER'S OFFICE AND/OR THE LOCAL MUNICIPALITY.
2. THE CONTRACTOR SHALL OBTAIN AN WATER RESOURCES COMMISSIONER'S OFFICE WATER INSPECTION PERMIT PRIOR TO THE START OF CONSTRUCTION. SEE CORRESPONDING WATER MAIN CONSTRUCTION PERMIT REQUEST LETTER FOR COST OF THE PERMIT.
3. A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION AND SHALL BE SCHEDULED BY THE LOCAL MUNICIPAL ENGINEER. THOSE IN ATTENDANCE SHALL INCLUDE 1) LOCAL MUNICIPAL ENGINEER, 2) DESIGN ENGINEER, 3) OWNER/DEVELOPER, 4) ROAD COMMISSION FOR OAKLAND COUNTY, 5) OAKLAND COUNTY WATER RESOURCES COMMISSIONER'S OFFICE (WATER, SEWER AND STORM DIVISIONS) AND 6) ALL UTILITY COMPANIES. CONTRACTOR SHALL PROVIDE MATERIALS LISTING FOR APPROVAL BY MUNICIPAL ENGINEER AND OCWRC.
4. CONTRACTOR MUST CONTACT MISS DIG (1-800-482-7171) THREE WORKING DAYS BEFORE THE START OF CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHALL BE STAKED BEFORE CONSTRUCTION STARTS.
5. ALL NECESSARY EASEMENTS FOR WATER MAINS SHALL BE PROVIDED IN THE NAME OF THE OWNER OF THE WATER MAIN PRIOR TO CONSTRUCTION AND ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM FOR OPERATION.
6. ALL WATER MAINS SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF FIVE AND ONE-HALF (5-1/2) FEET BELOW FINISHED GRADES INCLUDING OPEN DRAINAGE COURSES.
7. ALL TRENCHES UNDER OR WITHIN A 1:1 RATIO OF EXISTING OR PROPOSED PAVEMENT OR DRIVEWAYS SHALL BE BACKFILLED WITH THOROUGHLY COMPACTED CLASS II SAND TO GRADE AT NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT
8. WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN TWELVE (12) INCH COMPACTED LAYERS TO THE UNDERSIDE OF THE HIGHER UTILITY.
9. WHERE WATER MAINS MUST DIP TO PASS UNDER OTHER UTILITIES, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH AND SHALL BE CONSTRUCTED WITH ELEVEN AND ONE-QUARTER (11-1/4) DEGREE VERTICAL BENDS, PROPERLY ANCHORED. BENDS GREATER THAN 11-1/4' MUST HAVE ROD RESTRAINTS.
10. ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE MANUFACTURED TO CONFORM WITH A.S.T.M. C478, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, EXCEPT WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
11. CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN STRICT COMPLIANCE WITH MEASUREMENTS PROVIDED ON SHEET 2 (i.e. 2'-0" BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATEWELL OPENING. FAILURE TO DO SO WILL REQUIRE CONTRACTOR TO CORRECT AT HIS EXPENSE.
12. ALL CROSS-CONNECTION CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY THE LOCAL PLUMBING INSPECTOR AND IN ACCORDANCE WITH THE STANDARDS OF THE WATER RESOURCES COMMISSIONER'S OFFICE OPERATION AND MAINTENANCE DIVISION AND THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY, DIVISION OF DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION
13. ALL WATER SERVICE CONNECTIONS TWO (2) INCHES AND SMALLER SHALL BE MADE BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION AFTER WATER MAIN ACCEPTANCE AND APPLICABLE TAP PERMITS ARE OBTAINED.
14. ALL FITTINGS AND BENDS SHOULD BE BLOCKED IN ACCORDANCE WITH THRUST BLOCK DETAILS, UNLESS ALTERNATE THRUST RESTRAINT SYSTEM, AS INDICATED IN PLANS AND SPECIFICATIONS, IS APPROVED BY WATER RESOURCES COMMISSIONER'S OFFICE AND THE LOCAL MUNICIPALITY.
15. ALL STEEL AND IRON MATERIAL AND PRODUCTS FOR PERMANENT INCORPORATION INTO THE WORK SHELL MEET BUY AMERICA REQUIREMENT, FEDERAL CODE OF REGULATIONS SECTION 635.410

WATER MAIN MATERIALS NOTES

1. WATER SUPPLY SYSTEM PIPING (3-INCH & LARGER) SHALL BE DUCTILE IRON OR HIGH DENSITY POLYETHYLENE (HDPE) UNLESS OTHERWISE APPROVED BY THE LOCAL COMMUNITY.
2. DUCTILE IRON PIPE SHALL BE CLASS 54 FOR SIZES THREE (3) INCH THROUGH EIGHTEEN (18) INCH, CLASS 55 FOR TWENTY (20) INCH, AND CLASS 56 FOR TWENTY-FOUR (24) INCH AND LARGER. (ABBREVIATED "D.I." IN DETAILS AND ON THIS SHEET).
3. PIPES OF SIZES LARGER THAN TWENTY-FOUR (24) INCHES IN NOMINAL DIAMETER SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C100 FOR DUCTILE IRON WATER PIPE.
4. THE DUCTILE IRON PIPE TO BE FURNISHED AND DELIVERED UNDER THIS SPECIFICATION SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C151 (ANSI A21.5), EXCEPT AS OTHERWISE SPECIFIED HEREIN. PIPE SHALL BE DOUBLE CEMENT-LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
5. REFER TO SHEET 5 FOR HDPE MATERIAL REQUIREMENTS.
6. MECHANICAL AND SLIP-ON JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
7. FLANGE JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C110 (ANSI A21.10).
8. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON OR CAST IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). DUCTILE IRON FITTINGS SHALL BE RATED FOR 350 PSI, PIPE SIZES TWENTY-FOUR (24) INCH DIAMETER AND LESS AND 250 PSI FOR PIPE SIZES OVER TWENTY-FOUR (24) INCH DIAMETER. DUCTILE IRON FLANGE FITTINGS SHALL BE RATED FOR 250 PSI FOR ALL PIPE DIAMETERS.
9. INSTALL BRASS WEDGES AT ALL PUSH ON JOINTS IN DUCTILE IRON PIPE INSTALLATIONS. TWO (2) WEDGES PER JOINT FOR PIPES 12 INCH IN DIAMETER AND LESS, FOUR WEDGES PER JOINT FOR PIPES GREATER THAN 12 INCHES IN DIAMETER.
10. ALL WATER MAINS SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE.
11. ALL BURIED BOLTS, NUTS, AND WASHERS SHALL BE AWWA C111 LOW ALLOY STEEL COATED WITH A MINIMUM OF TWO (2) COATS OF FLUOROPOLYMER EPOXY COATING AND HEAT CURED (COR-BLUE OR APPROVED EQUAL) AND POLY-WRAPPED WHEN SPECIFIED.
12. ALL BURIED BOLTS, NUTS, AND WASHERS FOR ALL FLANGED CONNECTIONS SHALL BE STAINLESS STEEL (ASTM A320, GRADE B8M) AND HAVE A NEVER SEIZE TYPE COMPOUND APPLIED TO THE THREADS PRIOR TO INSTALLATION.
13. CORPORATION STOPS USED FOR INSERTION INTO MAINS SHALL BE MUELLER TYPE H-15000, FORD METER BOX FB-1000-X-Q-NL OR FORD METER BOX FB1000-4-Q-NL. ALL STOPS SHALL HAVE BRONZE CAST BODIES, KEYS, STEM WASHERS AND NUTS. INLET THREADS SHALL CONFORM TO THE LATEST VERSION OF AWWA C800.
14. TEMPORARY CONNECTIONS, WHICH MAY BE MADE FOR CHLORINATING AND FLUSHING PURPOSES, SHALL INCLUDE A TESTABLE REDUCE PRESSURE ZONE (RPZ) VALVE WITH CURRENT CERTIFICATION.

VALVE AND SLEEVE NOTES

1. GATE VALVES, SIZES THREE (3) INCH THROUGH SIXTEEN (16) INCH AND TAPPING VALVES SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED WITH NON-RISING STEM.
2. ALL IN LINE GATE VALVES THREE (3) INCH AND LARGER SHALL BE IN WELLS AS DETAILED. SPECIFICATIONS SHALL INCLUDE THE DIRECTION OF OPERATION OF ALL VALVES.
3. ALL GATE WELL COVERS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED.
4. ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN FIVE (5) FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH A STAINLESS STEEL EXTENSION STEM. THE LENGTH OF THE EXTENSION STEM SHALL REACH WITHIN FIVE (5) FEET FROM THE GROUND SURFACE. WHEN AN EXTENSION STEM IS USED, IT SHALL BE HELD IN PLACE BY A STAINLESS STEEL EXTENSION STEM GUIDE SUITABLY FASTENED TO THE WALL OF THE GATE WELL. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND THE METHOD OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
5. TAPPING VALVES SHALL BE AWWA C515 FL X MJ AS MANUFACTURED BY EJ WITH RESILIENT SEATED GATE VALVES AS APPROVED BY LOCAL MUNICIPALITY.
6. TAPPING SLEEVES SHALL BE ALL STAINLESS STEEL (BODY, FLANGE AND HARDWARE), MANUFACTURED BY ROMAC INDUSTRIES SST; JCM 432; SMITH-BLAIR 663/665 OR APPROVED EQUAL BY THE WATER RESOURCES COMMISSIONER'S OFFICE.

HYDRANT REQUIREMENTS

1. ALL HYDRANTS SHALL BE CONSTRUCTED WITH A SIX (6) INCH COMPANION GATE VALVE IN A THREE (3) PIECE, ADJUSTABLE DUCTILE IRON VALVE BOX, WHICH SHALL INCLUDE A FIVE AND ONE-QUARTER (5-1/4) INCH SCREW SHAFT. VALVE BOXES SHALL BE SERIES 6860 AS MANUFACTURED BY TYLER PIPE, EJ VALVE BOX NO. 8560 OR APPROVED EQUAL.
2. ALL HYDRANTS SHALL BE EJ 5BR250 TRAFFIC MODEL, OR APPROVED EQUAL WITH A MINIMUM OF 6'-0" DEPTH OF BURY UNLESS OTHERWISE INDICATED. SELF-DRAINING HYDRANTS SHALL NOT BE USED. ALL HYDRANTS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED. HYDRANTS SHALL HAVE BREAKAWAY FLANGE.
3. ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND AND BLACK BELOW GROUND WITH A FINISH COAT OF GLAMORTEX 501 ENAMEL, COLOR 314 VERMILLION OR APPROVED EQUAL. HYDRANT CAP SHALL BE PAINTED SAME COLOR AS THE HYDRANT. FOR PONTIAC: YELLOW RUST-OLEUM #7543 SAFETY YELLOW.

ACCEPTANCE OF NEW WATER MAINS

1. PRIOR TO WATER MAIN ACCEPTANCE THE FOLLOWING CONDITIONS MUST BE MET:
   - 1.1. PRESSURE TESTING AND BACTERIA TESTING MUST BE COMPLETED IN ACCORDANCE WITH THE WATER RESOURCES COMMISSIONER'S OFFICE REQUIREMENTS
   - 1.2. ALL EASEMENT AND RIGHT-OF-WAY ACQUISITION MUST BE ACCEPTED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, RIGHT-OF-WAY DIVISION
   - 1.3. THE LOCAL MUNICIPALITY MUST BE PROVIDED WITH THE BILL OF SALE
   - 1.4. ALL "RECORD DRAWINGS" MUST BE ACCEPTED AND APPROVED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION. THE WATER RESOURCES COMMISSIONER'S OFFICE AND LOCAL ENGINEER MUST WITNESS THE CONNECTION OF THE WATER MAIN TO THE EXISTING WATER MAIN, AFTER WHICH RESIDENTIAL AND COMMERCIAL TAPS WILL BE ALLOWED.
2. THE CONTRACTOR SHALL NOTIFY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION THROUGH THE LOCAL ENGINEER FOR NEW CONSTRUCTION TAP, PRESSURE TESTING, BACTERIOLOGICAL SAMPLING, CONNECTIONS TO EXISTING WATER MAIN AND FINAL FIELD REVIEW. A SEVENTY-TWO (72) HOUR ADVANCE NOTICE IS REQUIRED.
3. THE CONTRACTOR SHALL DISINFECT AND PRESSURE TEST ALL NEW WATER MAIN CONSTRUCTION PURSUANT TO THE CURRENT STANDARDS SPECIFIED BY THE WATER RESOURCES COMMISSIONER'S OFFICE.
4. HYDROSTATIC TESTING FOR DUCTILE IRON WATER MAIN SHALL BE COMPLETED IN ACCORDANCE WITH ANSI/AWWA C600, SEC 5.2. THE SPECIFIED TEST PRESSURE IS 150 PSI OR 1.5 TIMES THE MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) OF THE TEST SECTION, WHICHEVER IS GREATER. THE TEST METHOD IS GENERALLY SUMMARIZED AS FOLLOWS:
   - 4.1. SLOWLY FILL PIPELINE WITH WATER, VENTING ENTRAPPED AIR AS NECESSARY.
   - 4.2. REPAIR ANY VISIBLE LEAKS THAT OCCUR DURING FILLING OR AT ANY POINT DURING THE TEST.
   - 4.3. GRADUALLY APPLY PRESSURE UP TO THE SPECIFIED WORKING PRESSURE USING A SUITABLE PUMP CONNECTED TO THE PIPELINE, BLEEDING TRAPPED AIR, AND ADDING WATER AS NECESSARY UNTIL A STABLE PRESSURE IS HELD.
   - 4.4. HYDROSTATIC TEST BEGINS AFTER THE PIPELINE IS STABILIZED AT THE WORKING PRESSURE BY INCREASING THE PRESSURE UP TO THE SPECIFIED TEST PRESSURE AND HOLD IT WITHIN PLUS/MINUS 5 PSI FOR THE DURATION OF THE TEST, OR A MINIMUM OF TWO HOURS.
   - 4.5. CAREFULLY RECORD THE AMOUNT OF MAKEUP WATER ADDED DURING THE TEST. THE HYDROSTATIC TEST PASSES IF THE AMOUNT OF MAKEUP WATER DOES NOT EXCEED THE TESTING ALLOWANCE.
   - 4.6. IF THE TESTING ALLOWANCE IS EXCEEDED, LOCATE AND REPAIR ANY LEAKS AND REPEAT TEST.
5. REFER TO SHEET 5 FOR HYDROSTATIC TESTING REQUIREMENTS FOR HDPE PIPE.
6. PRESSURE TESTING AGAINST VALVES PHYSICALLY CONNECTED TO AN EXISTING WATER SUPPLY SYSTEM IS STRICTLY PROHIBITED.
7. WHERE CONTRACTOR SUPPLIED GAUGES ARE REQUIRED, MINIMUM SIZE SHALL BE 3½" DIAMETER OR LARGER GRADUATED IN ONE (1) OR TWO (2) POUND INCREMENTS FROM 1 TO 160 P.S.I. OR HIGHER.
8. PRESSURE TESTING AND BACTERIA TESTING MUST BE SUCCESSFULLY COMPLETED PRIOR TO CONNECTING TO THE EXISTING WATER SUPPLY SYSTEM.

WATER RESOURCES COMMISSIONER
WATER SYSTEM STANDARDS –
GATE VALVES

COMMUNITY	DIRECTION TO OPEN	VALVE TYPE STD. GATE VALVE	VALVE TYPE TAPPING VALVE
BINGHAM FARMS	RIGHT	C515	C515
BLOOMFIELD HILLS	RIGHT	C515	C515
COMMERCE TOWNSHIP	LEFT	C515	C515
FARMINGTON HILLS	RIGHT	C515	C515
HIGHLAND TOWNSHIP	LEFT	C515	C515
KEEGO HARBOR	RIGHT	C515	C515
OAKLAND TOWNSHIP	LEFT	C515	C515
ORCHARD LAKE VILLAGE	LEFT	C515	C515
OXFORD TOWNSHIP	LEFT	C515	C515
PLEASANT RIDGE	RIGHT	C515	C515
PONTIAC	LEFT	C515	C515
ROYAL OAK TOWNSHIP	RIGHT	C515	C515
SPRINGFIELD TOWNSHIP	LEFT	C515	C515
SYLVAN LAKE	RIGHT	C515	C515
WALLED LAKE	LEFT	C515	C515

1.) C515 RESILIENT SEATED GATE VALVE – MANUFACTURED BY U.S. PIPE, MUELLER, EAST JORDAN IRON WORKS, AMERICAN FLOW CONTROL OR APPROVED EQUAL.

FIRE HYDRANT NOZZLE SIZE AND THREAD SPECIFICATIONS

CVT	PUMPER NOZZLE	HOSE NOZZLE	OPERATING NUT	DEPTH OF BURY	STYLE	MODEL #
BINGHAM FARMS	(1) – 4"–STORZ	(2) – 2-1/2"–DFD	1-1/2"	5'-6"	5BR250	54831D
BLOOMFIELD HILLS	(1) – 3-3/4"–DFD	(2) – 2-1/2"–DFD	1-1/8"	6'-0"	5BR250	55825D
COMMERCE TWP/ WOLVERINE LAKE	(1) – 5"–STORZ	(2) – 2-1/2"–NST	1-1/2"	5'-6"	5BR250	54913D
FARMINGTON HILLS	(1) – 3-3/4"–DFD	(2) – 2-1/2"–NST	1-1/8"	5'-6"	5BR250	54329D
HIGHLAND TWP	(1) – 5"–STORZ	(2) – 2-1/2"–NST	1-1/2"	5'-6"	5BR250	54913D
KEEGO HARBOR	(1) – 3-3/4"–DFD	(2) – 2-1/2"–DFD	1-1/8"	5'-6"	5BR250	54826D
OAKLAND TWP	(1) – 4"–STORZ	(2) – 2-1/2"–DFD	1-1/2"	5'-6"	5BR250	54831D
ORCHARD LAKE	(1) – 3-3/4"–DFD	(2) – 2-1/2"–DFD	1-1/8"	6'-0"	5BR250	55825D
OXFORD TWP	(1) – 5"–STORZ (1) – 4-1/2"–NST		1-1/2"	6'-0"	5BR250	55601D
PLEASANT RIDGE	(1) – 3-3/4"–DFD (1) – 5"–STORZ		1-1/8"	5'-6"	5BR250	54949D
PONTIAC	(1) – 3-3/4"–DFD	(2) – 2-1/2"–DFD	1-1/2"	6'-0"	5BR250	55822D
ROYAL OAK TWP	(1) – 3-3/4"–DFD	(2) – 2-1/2"–DFD	1-1/8"	5'-6"	5BR250	54826D
SPRINGFIELD TWP	(1) – 5"–STORZ	(2) – 2-1/2"–NST	1-1/2"	5'-6"	5BR250	54913D
SYLVAN LAKE	(1) – 3-3/4–DFD	(2) – 2-1/2"–NST	1-1/2"	6'-0"	5BR250	55827D
WALLED LAKE	(1) – 4-1/2–NST	(2) – 2-1/2"–NST	1-1/8"	5'-6"	5BR250	54534D

1. D.F.D. – DETROIT FIRE DEPARTMENT THREAD
2. N.S.T. – NATIONAL STANDARD THREAD
3. STORZ NOZZLES SHALL BE COMPATIBLE WITH STORZ COUPLED LARGE DIAMETER FIRE HOSE. NOZZLES SHOULD BE MADE OF "LEAD FREE" BRASS OR ALUMINUM, AS APPROVED BY LOCAL CITY, VILLAGE OR TOWNSHIP. THE NOZZLE SHALL BE AN INTEGRAL PART OF THE HYDRANT, RESISTANT TO TAMPER AND REMOVAL. ENGAGEMENT LUGS SHALL BE ON THE NOZZLE AND CAP TO PREVENT FAILURE UNDER HIGH PRESSURE. NOZZLE AND CAP SHALL MEET AWWA C502 SPECIFICATIONS. NOZZLE SHALL BE COMPATIBLE WITH HOSE LOCK TO PREVENT HOSE FROM DISCONNECTING WHILE IN USE.

WATER RESOURCES COMMISSIONER'S OFFICE
WATER SYSTEMS OPERATIONS AND MAINTENANCE DIVISION
RECORD DRAWING SPECIFICATIONS

IN AREAS WHERE WATER SYSTEMS ARE OPERATED AND MAINTAINED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION, FINAL ACCEPTANCE OF THE WATER SYSTEM MUST BE RENDERED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION, BEFORE THE SYSTEM CAN BE USED FOR THE SERVICE INTENDED.

ONE ITEM REQUIRED FOR FINAL ACCEPTANCE SHALL BE THE SUBMISSION OF RECORD DRAWINGS TO THE WATER RESOURCES COMMISSIONER, OPERATIONS AND MAINTENANCE DIVISION, BY THE DESIGN ENGINEER. RECORD DRAWINGS SHALL BE DEFINED AS AND CONTAIN THE FOLLOWING INFORMATION:

1. THE DESIGN ENGINEER SHALL FURNISH "RECORD DRAWINGS" WATER MAIN PLANS UPON JOB COMPLETION. "RECORD DRAWINGS" SHALL BE FORWARDED TO THE WATER RESOURCES COMMISSIONER BY THE LOCAL MUNICIPAL ENGINEER AFTER THEIR REVIEW AND APPROVAL.
2. THE COVER SHEET SHALL BE SIGNED AND SEALED BY THE PROJECT DESIGN ENGINEER AND INCLUDE THE FOLLOWING CERTIFICATION STATEMENT:

> I HEREBY CERTIFY THAT OUR FIRM HAS PREPARED THESE RECORD DRAWINGS OF THE IMPROVEMENTS AS CONSTRUCTED, AND THAT TO THE BEST OF MY KNOWLEDGE THOSE IMPROVEMENTS NOTED AS "RECORD DRAWINGS" WERE CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS; AND ALSO THAT THE WATER MAIN AND STRUCTURES, AS CONSTRUCTED, LIE WITHIN THE EASEMENT DESCRIPTIONS REQUIRED BY THE WATER RESOURCES COMMISSIONER'S OFFICE.
>
> ______________________________
> (COMPANY NAME)
>
> ______________________________
> (ENGINEER'S SIGNATURE)
>
> PROFESSIONAL ENGINEER NO. ______________
>
> ENGINEER SEAL

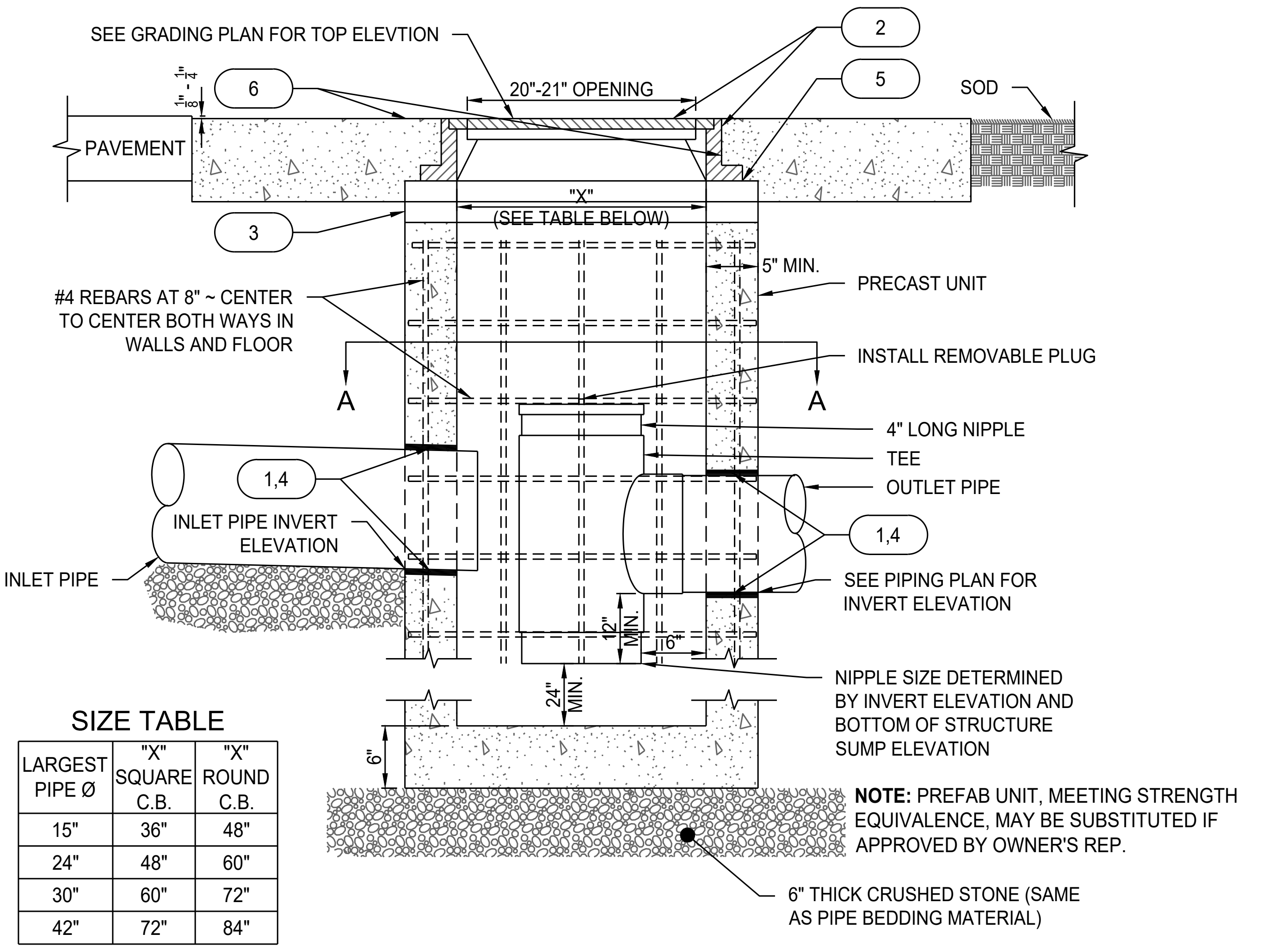
3. THE MINIMUM SCALE SHALL BE ONE (1) INCH EQUALS FIFTY (50) FEET.
4. THE SIZE, LENGTH, CLASS AND MANUFACTURER OF PIPE INSTALLED SHALL BE INDICATED.
5. THE SIZE, BRAND AND MODEL NUMBERS OF ALL VALVES AND HYDRANTS INSTALLED SHALL BE INDICATED.
6. A TOTAL RECORD DRAWING QUANTITY LIST SHALL BE INCLUDED, AS WELL AS A RECORD DRAWING QUANTITY LIST ON EACH INDIVIDUAL SHEET.
7. THE LOCATIONS SHALL BE SHOWN ON THE PLANS WITH AN ACCURACY OF ONE (1) FOOT.
8. THE OFFSET OF THE WATER MAIN FROM PROPERTY LINES SHALL BE INDICATED.
9. ALL GATE VALVE WELLS, HYDRANTS AND ALL WATER SYSTEM APPURTENANCES SHALL BE LOCATED FROM THE NEAREST PROPERTY CORNER.
10. ALL UNDERGROUND APPURTENANCES, SUCH AS GATE VALVE WELLS, METER PITS, PRESSURE REDUCING VALVE PITS, ETC. SHALL BE LOCATED FROM THE NEAREST HYDRANT THAT IS CONNECTED TO THE SAME WATER MAIN AS THE APPURTENANCE.
11. THE LOCATION, SIZE, BRAND AND MODEL NUMBER OF EVERY RESTRAINED JOINT SHALL BE NOTED.
12. THE ACCURATE LOCATION OF ALL UTILITY CROSSINGS WHERE THE RECOMMENDED SEPARATION, VERTICALLY OR HORIZONTALLY, IS LESS THAN THE TEN STATE STANDARDS SHALL BE NOTED.
13. WATER MAINS 12" AND LARGER IN DIAMETER SHALL BE DRAWN IN PROFILE VIEW IN ADDITION TO PLAN VIEW ON THE CONSTRUCTION PLANS.

WATER MAIN
STANDARD DETAILS

REVISION BLOCK
Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	HRC	08/31/20	GENERAL UPDATE
2	KB	03/20/23	ADD PRC AND SLC INFO TO TABLES
3	KB	05/09/23	UPDATE BFV HYDRANT SPECS
4	KB	07/11/24	UPDATE ROT HYDRANT SPECS

ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: WRC Mapping
WRC WATER RESOURCES COMMISSIONER Jim Nash
ONE PUBLIC WORKS DRIVE, BLDG 95 WEST
WATERFORD, MICHIGAN
48328-1907
SHEET NO.: 1 of 7



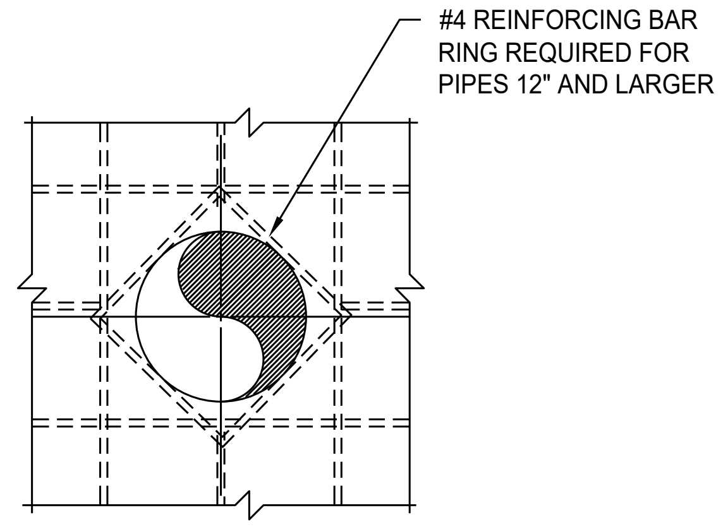
NOTE: PREFAB UNIT, MEETING STRENGTH EQUIVALENCE, MAY BE SUBSTITUTED IF APPROVED BY OWNER'S REP.

SIZE TABLE

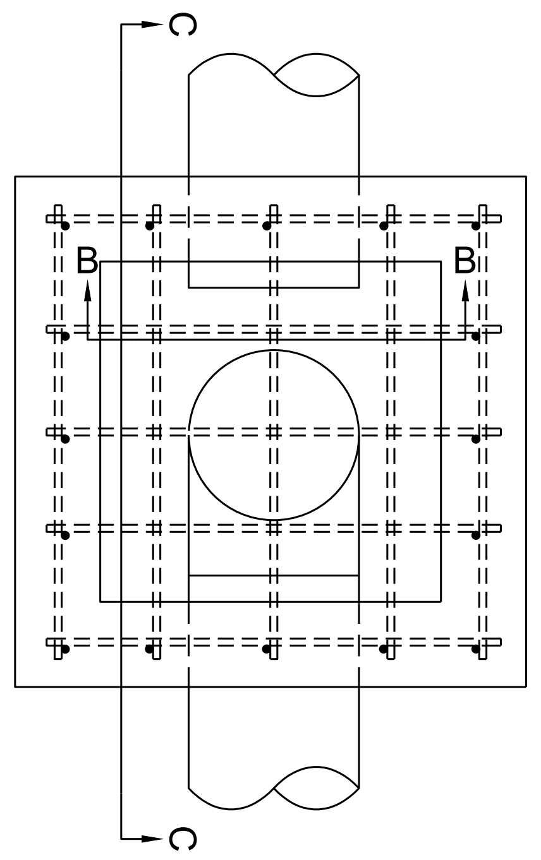
LARGEST PIPE Ø	"X" SQUARE C.B.	"X" ROUND C.B.
15"	36"	48"
24"	48"	60"
30"	60"	72"
42"	72"	84"

NOTE: SEE CIVIL DESIGN GUIDELINES FOR ENVIRONMENTAL CATCH BASIN USE AND LOCATION GUIDANCE.

SECTION "C"



SECTION "B"

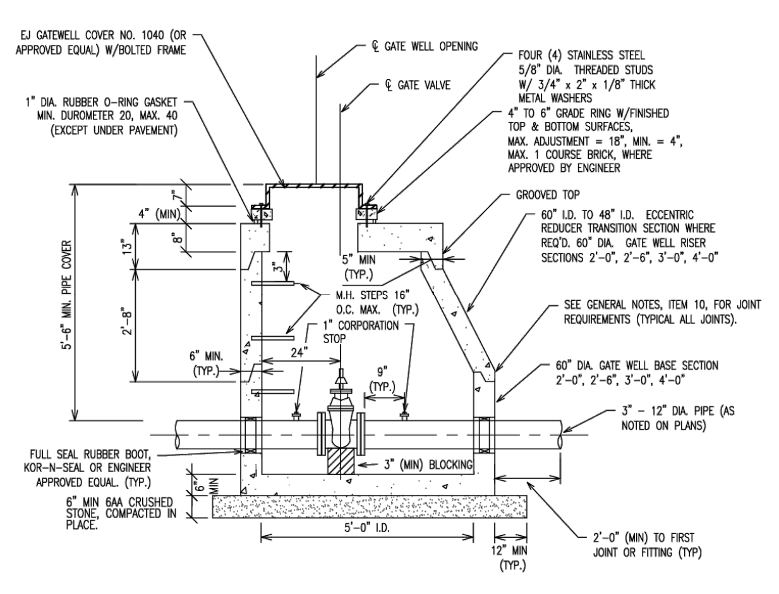


SECTION "A"

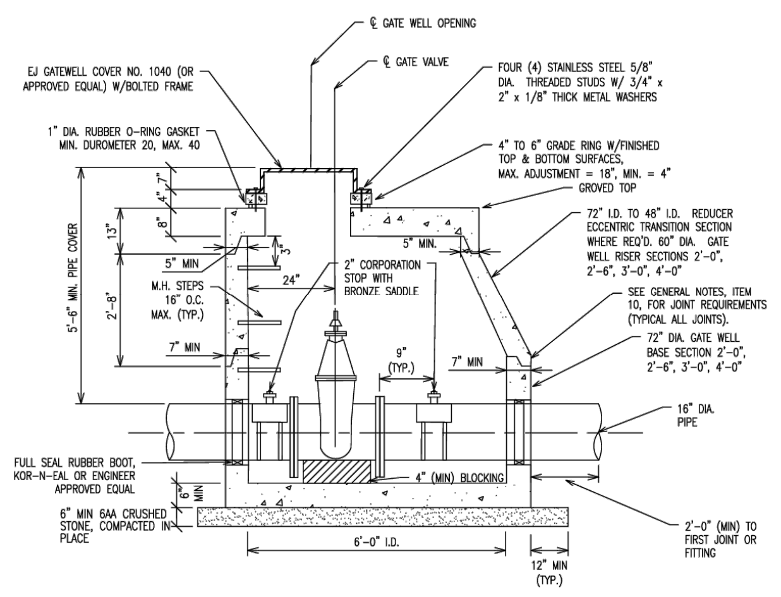
5 HEAVY-DUTY ENVIRONMENTAL CONTROL STRUCTURE/CATCH BASIN

NOT TO SCALE

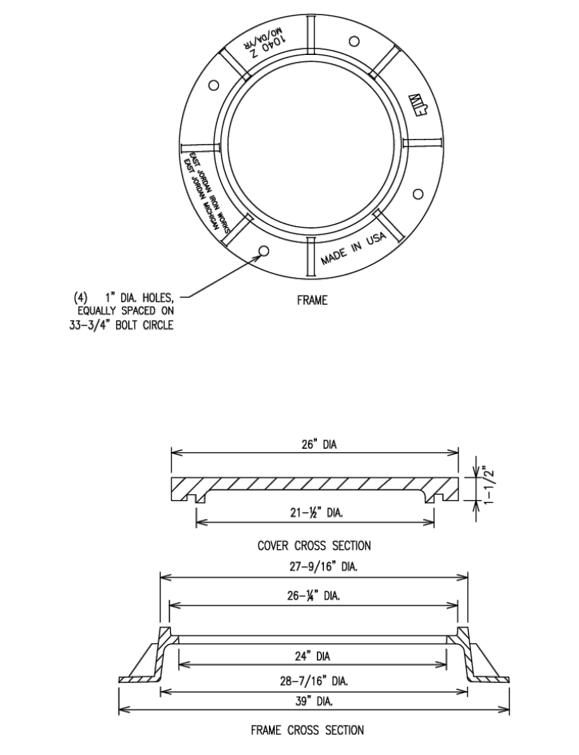
GATE VALVE & WELL DETAILS



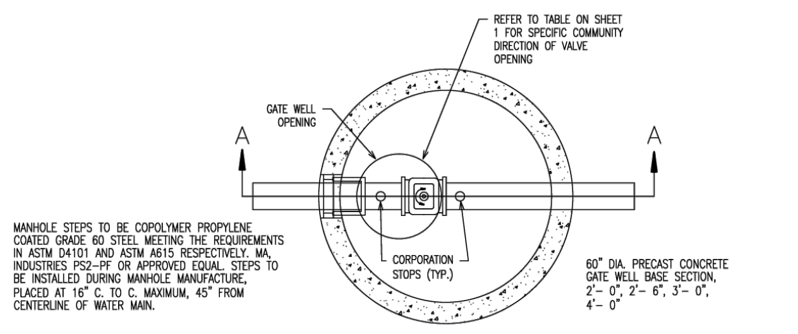
3" THRU 12" GATE WELL



16" GATE WELL

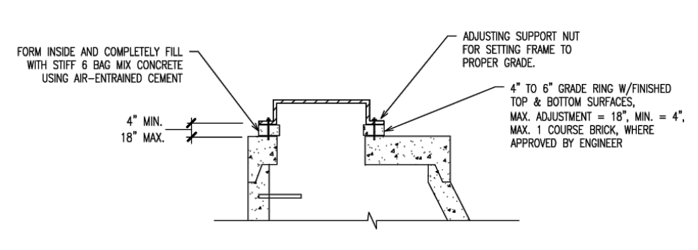


FRAME



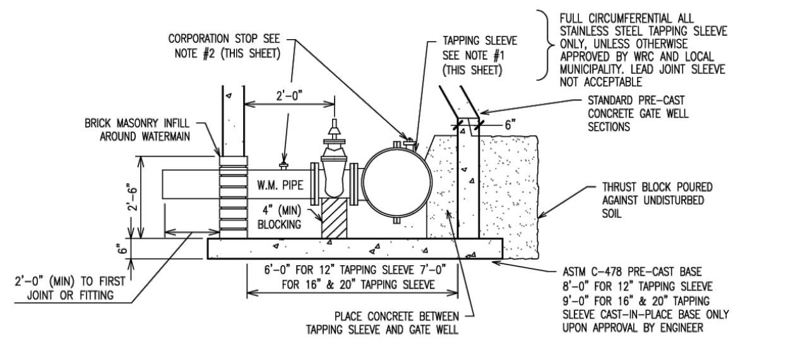
MANHOLE STEPS TO BE COPOLYMER PROPYLENE COATED GRADE 60 STEEL MEETING THE REQUIREMENTS IN ASTM D4101 AND ASTM A615 RESPECTIVELY. MA, INDUSTRIES PS2-PF OR APPROVED EQUAL. STEPS TO BE INSTALLED DURING MANHOLE MANUFACTURE, PLACED AT 16" C. TO C. MAXIMUM, 45° FROM CENTERLINE OF WATER MAIN.

PLAN GATE WELL TYPICAL



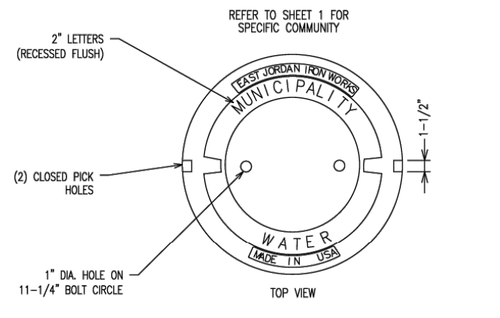
GATE WELL TOPS WITHIN PAVEMENT AREAS

RUBBER O'RINGS SHALL NOT BE USED IN PAVEMENT

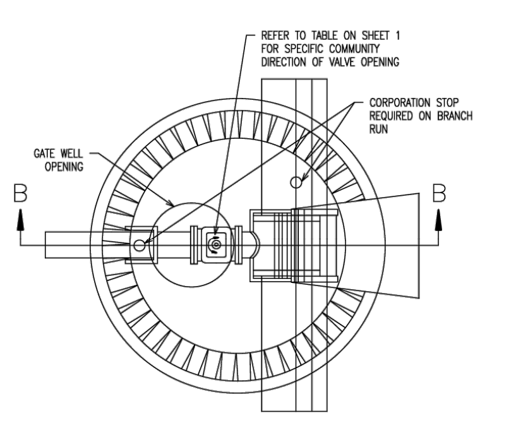


20" x 12", 20" x 8", 16" x 12", 16" x 8", 12" x 8"
TAPPING SLEEVE, VALVE & WELL

NOTES:
1. REFER TO NOTE 7 OF "VALVE AND SLEEVE NOTES" ON SHEET 1.
2. FOR PIPE SMALLER THAN 16" USE 1" CORPORATION STOP, FOR 16" PIPE OR LARGER USE 2" CORPORATION STOP WITH BRONZE SADDLE.
3. WRC DOES NOT RECOMMEND SIZE ON SIZE TAPPING.



LETTERING LAYOUT FOR GATEWELL COVERS



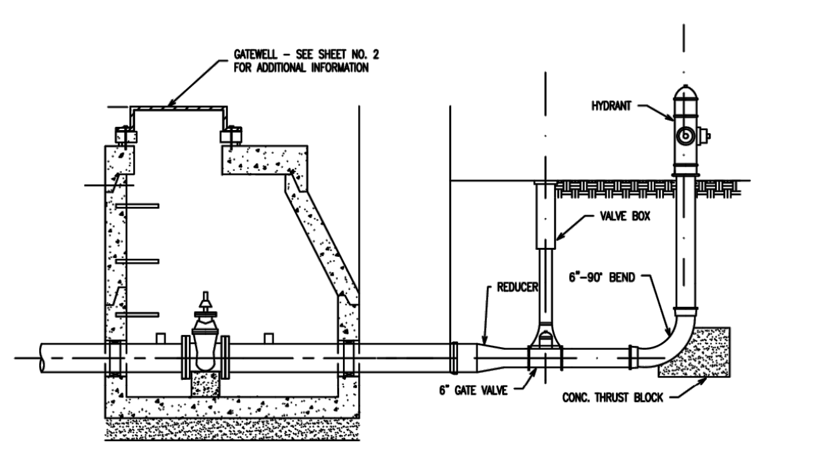
PLAN TAPPING SLEEVE
VALVE & WELL (TYPICAL)

WATER MAIN
STANDARD DETAILS

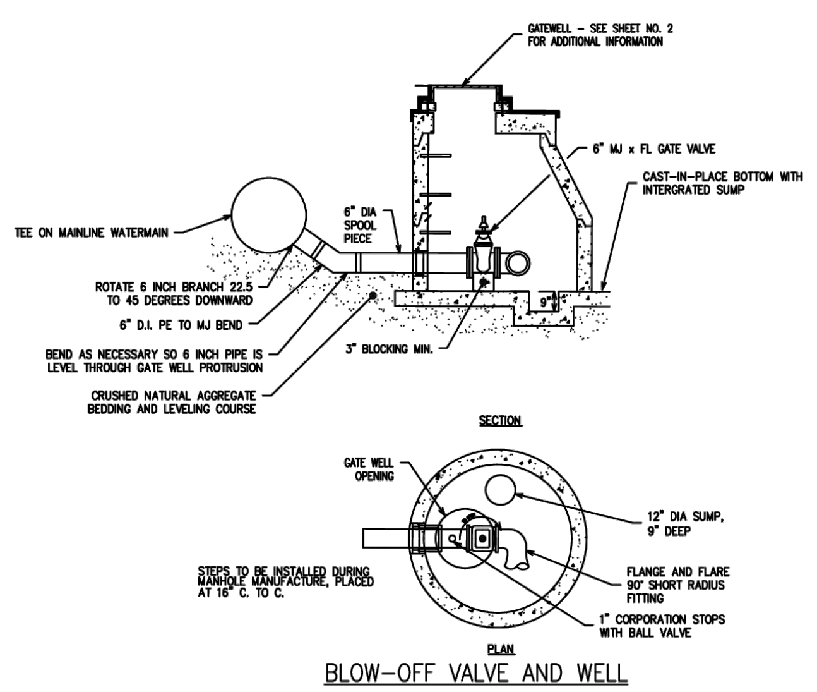
REVISION BLOCK
Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	DL	03/23/15	FINAL CHANGES TO GATE VALVE STANDARDS, HYDRANT SPECIFICATIONS AND PIPE CLASS UPDATES
2	DL	01/03/17	UPDATE "DIRECTION TO OPEN" COMMERCE TOWNSHIP FROM RIGHT TO LEFT
3	KB	02/14/18	MARKUPS PER G. APPEL
4	HRC	08/31/20	GENERAL UPDATE

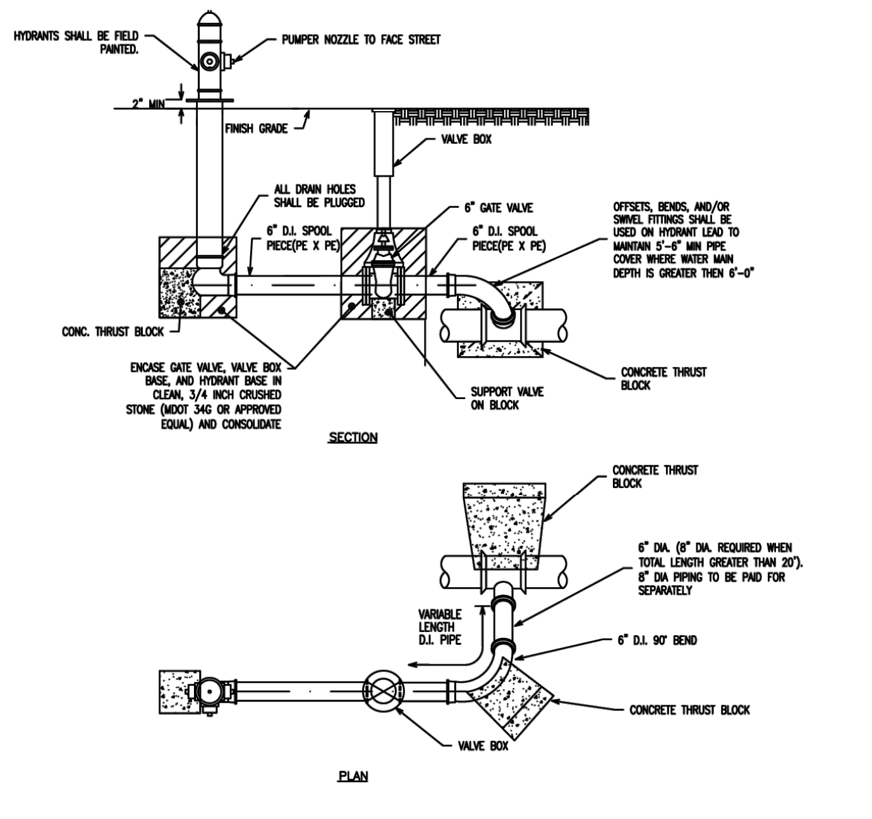
ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: WRC Mapping
WRC WATER RESOURCES COMMISSIONER Jim Nash
ONE PUBLIC WORKS DRIVE, BLDG 95 WEST
WATERFORD, MICHIGAN
48328-1907
SHEET NO.: 2 of 7



DEAD END BLOWOFF CONNECTION

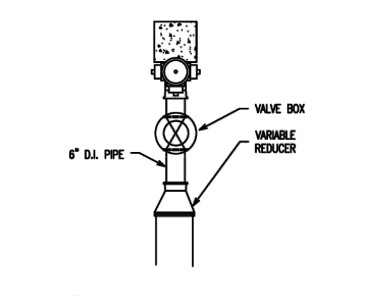


BLOW-OFF VALVE AND WELL

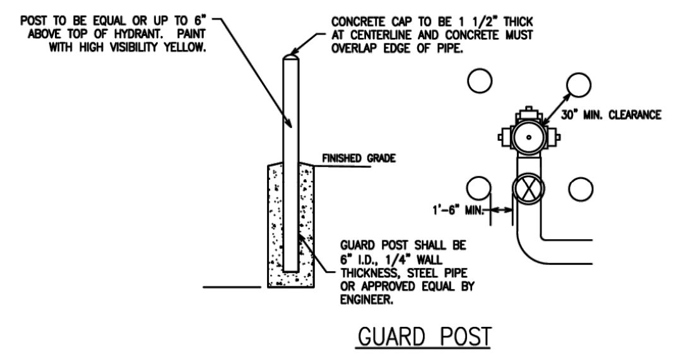


6" HYDRANT SIDE OUTLET

NOTES:
1. HYDRANT EXTENSIONS BETWEEN THE STANDPIPE LOWER SECTION & STANDPIPE UPPER ARE LIMITED TO 18 INCHES
2. ALL HYDRANTS COMPANION VALVES, BENDS, AND TEES TO BE FULLY RESTRAINED BY MECHANICAL JOINT RESTRAINT SYSTEM FITTINGS (MEGA-LUG OR APPROVED EQUAL).
3. THRUST BLOCKS ARE REQUIRED AT ALL TEES, BENDS AND ENDS.
4. ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) FOR HYDRANT ASSEMBLIES SHALL BE COR-BLUE OR APPROVED EQUAL.

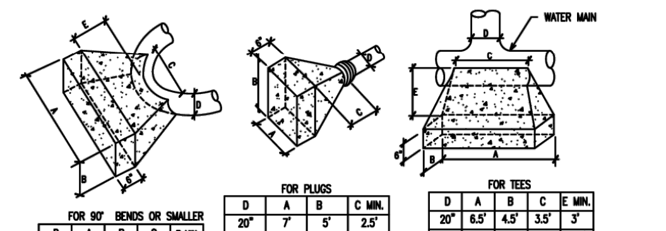


PLAN 6" HYDRANT WATER MAIN END



GUARD POST

NOTES:
1. GUARD POST SHALL NOT INTERFERE WITH HYDRANT OPERATION
2. TO BE INSTALLED IN ALL PAVED AREAS PARKING LOTS, PARKS, PLAZAS, ETC. (NOT RIGHT-OF-WAYS)SPACE WHERE VEHICLE EQUIPMENT DAMAGE TO HYDRANT IS POSSIBLE.



FOR 90° BENDS OR SMALLER

D	A	B	C	E MIN.
20"	8'	6.5'	3.5'	2.5'
16"	6'	4'	2.5'	2'
12"	4'	3'	2'	1.75'
10"	3'	3'	2'	1.75'
8"	3'	2'	2'	1.5'
6"	2'	1.5'	2'	1.25'

FOR PLUGS

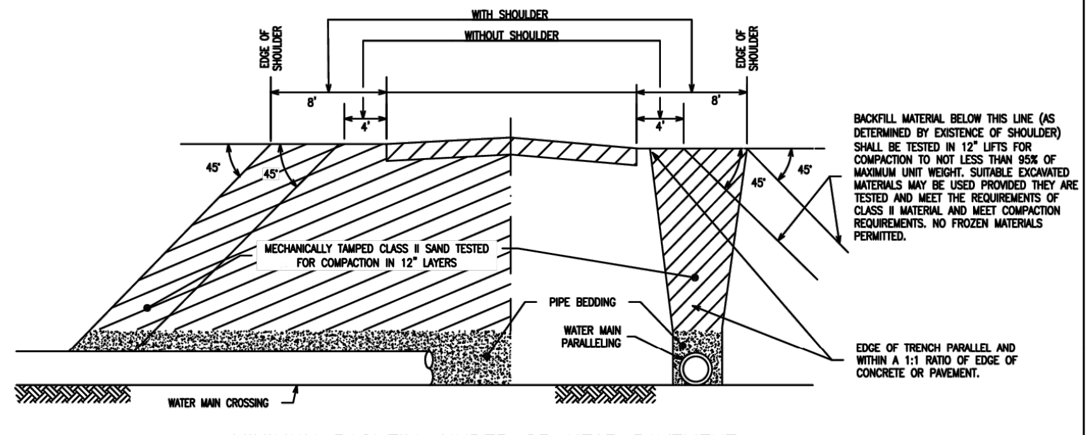
D	A	B	C MIN.
20"	7'	5'	2.5'
16"	4'-10"	4'-10"	2'
12"	4'-4"	3'	1'-9"
10"	3'	2'	1'-6"
8"	2'-10"	2'-6"	1'-6"
6"	1'-6"	1'-6"	3'

FOR TEES

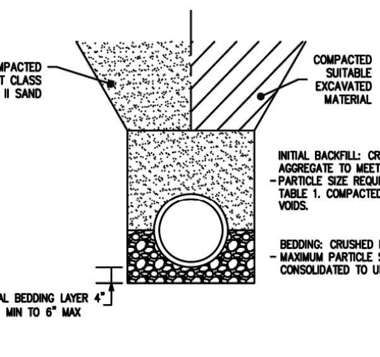
D	A	B	C	E MIN.
20"	6.5'	4.5'	3.5'	3'
16"	4'-8"	4'-8"	2.5'	2.75'
12"	4'	3'	2.5'	2.5'
10"	3'	2'	2'	2.25'
8"	2'-6"	2'	2'	2.25'
6"	2'	2'	2'	2.25'

THRUST BLOCK DETAILS

NOTE:
1. 3000 PSI CONCRETE TO BE USED. THRUST BLOCK TO ABUT & REST AGAINST UNDISTURBED SOIL OR EARTH COMPACTED TO 95% MODIFIED PROCTER.



MINIMUM BACKFILL UNDER OR NEAR PAVEMENT



MAXIMUM PARTICLE SIZE VS. PIPE SIZE

NOMINAL PIPE SIZE (IN)	MAXIMUM PARTICLE (IN)
6 +	1½

MINIMUM TRENCH WIDTH TABLE (IN.)

NOMINAL PIPE SIZE (IN)	TRENCH WIDTH, W
6 +	$D_0 + 24$

DUCTILE IRON PIPE TRENCH DETAIL

NOTES:
1. DUCTILE IRON PIPE IS CONSIDERED A FLEXIBLE PIPE THAT WHEN INSTALLED UNDERGROUND IS DESIGNED TO DEFLECT UNDER LOAD.
2. DO NOT COMPACT INNER BEDDING OF INITIAL BEDDING LAYER.
3. CAREFULLY EXCAVATE BELL OR COUPLING HOLES FROM THE INITIAL BEDDING LAYER.
4. SHOVEL SLICE BEDDING MATERIAL IN THE HAUNCH AREA ALONG THE BOTTOM CIRCUMFERENCE OF THE PIPE TO CONSOLIDATE BEDDING AND UNIFORMLY SUPPORT THE PIPE BARREL.
5. COMPACT INITIAL BACKFILL MATERIALS IN LIFTS NOT EXCEEDING 6 INCHES BY HAND TAMPING AROUND AND DIRECTLY ABOVE PIPE TO MINIMIZE VOIDS.
6. DO NOT USE MECHANICAL COMPACTION EQUIPMENT DURING INITIAL BACKFILL OPERATIONS UNTIL MATERIAL HAS BEEN BROUGHT TO 12 INCHES ABOVE THE TOP OF PIPE BARREL.
7. COMPACT SAND BACKFILL AND STANDARD TRENCHES OUTSIDE OF PIPE ZONE TO NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT IN LIFTS NOT EXCEEDING 12 INCHES.
8. FOR MINIMUM TRENCH WIDTHS, REFER TO TABLE 2, MAXIMUM TRENCH WIDTH = $D_0 + 2D_0$ UNLESS MINIMUM TRENCH WIDTH IS GREATER.
9. IF THE PIPE IS LOCATED BENEATH THE GROUND WATER TABLE, THE PIPE ZONE SHALL BE WRAPPED IN A GEOTEXTILE SEPARATOR TO MINIMIZE MIGRATION OF SOIL INTO THE PIPE ZONE.

WATER MAIN
STANDARD DETAILS

REVISION BLOCK
Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	DS	11/21/14	PROPOSED CHANGE TO DELETE REFERENCE TO BOTTLE SLEEVE MANUFACTURER
2	DL	03/23/14	FINAL CHANGE TO DELETE REFERENCE TO BOTTLE SLEEVE MANUFACTURER
3	KB	02/14/18	MARKUPS PER G. APPEL
4	HRC	08/31/20	GENERAL UPDATE

ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: WRC Mapping
WRC WATER RESOURCES COMMISSIONER Jim Nash
ONE PUBLIC WORKS DRIVE, BLDG 95 WEST
WATERFORD, MICHIGAN
48328-1907
SHEET NO.: 3 of 7

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Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	N/A
Drawn By:	KI
Checked By:	MG
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
CONSTRUCITON DETAILS

DET-2

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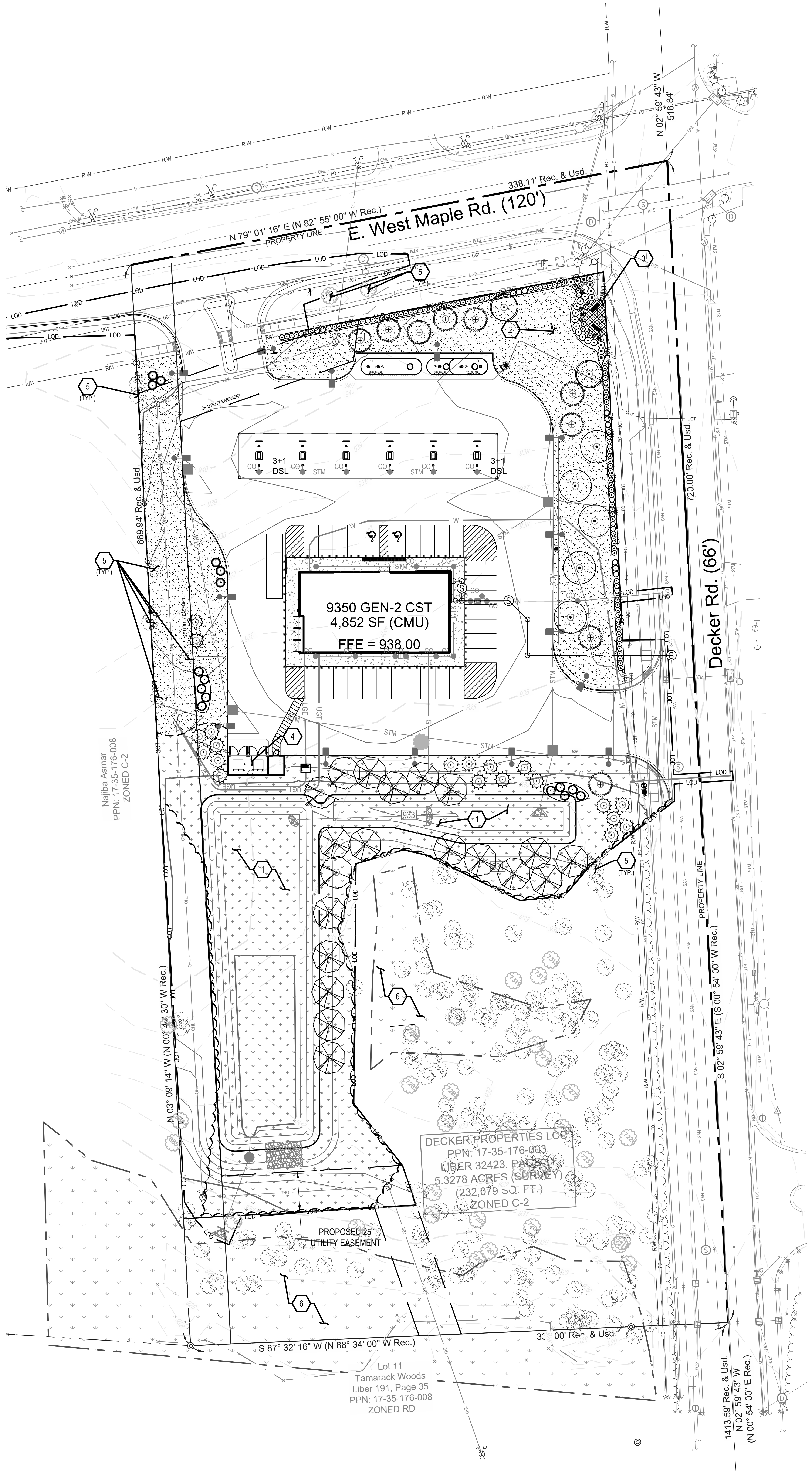
LEGEND

━━━━	RIGHT-OF-WAY
── ─ ─ ──	PROPERTY LINE
────	SETBACK
── ──	EASEMENT
▨	BUILDING
═══	CONCRETE CURB
────	PAVEMENT/WALK
⊥	SIGN
■	CATCH BASIN
Ⓓ	STORM MANHOLE
Ⓢ	SANITARY MANHOLE
▲	FIRE HYDRANT
●■	LIGHT POLE
⌒⌒⌒	EXISTING TREE LINE TO REMAIN
─ ─ ─	SOD LIMIT
── P-OH ──	EXISTING/PROPOSED OVERHEAD WIRE LINE



PLANT SCHEDULE

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	MIN HT / SPR	SPACING
TREES					
⊙	5	ACER RUBRUM RED MAPLE	2.5" CAL	8-10` HT	AS SHOWN
⊗	4	GLEDITSIA TRIACANTHOS INERMIS HONEY LOCUST	2.5" CAL	10`-12` HT	AS SHOWN
⊙	16	JUNIPERUS CHINENSIS 'KETELEERI' KETELEERI CHINESE JUNIPER	---	6` HT	6` OC
⊙	2	OSTRYA VIRGINIANA AMERICAN HOPHORNBEAM	2.5" CAL	8-12` HT	AS SHOWN
⊕	9	PRUNUS CERASIFERA 'ATROPURPUREA' PURPLE-LEAF PLUM	2" CAL	8` HT	AS SHOWN
⊗	17	TAXODIUM DISTICHUM BALD CYPRESS	2.5" CAL	10-12` HT	AS SHOWN
✹	20	THUJA X 'GREEN GIANT' GREEN GIANT ARBORVITAE	---	8` HT	10`-0" OC
SHRUBS					
⊙	107	ILEX GLABRA INKBERRY HOLLY	3 GAL	24" HT	3`-0" OC
◉	10	JUNIPERUS X PFITZERIANA PFITZER JUNIPER	3 GAL	24" HT	4`-0" OC
⊙	10	RHODODENDRON X 'P.J.M.' PJM RHODODENDRON	3 GAL	24" HT	4`-0" OC
⊛	16	SPIRAEA X BUMALDA 'LITTLE PRINCESS' LITTLE PRINCESS SPIREA	3 GAL	18" HT	3`-0" OC
○	12	THUJA OCCIDENTALIS 'YELLOW RIBBON' YELLOW RIBBON ARBORVITAE	---	6` HT	3`-0" OC
GROUND COVERS					
▨	30,996 SF	POA PRATENSIS KENTUCKY BLUEGRASS (NOT IRRIGATED)	SEED		
▨	21,534 SF	POA PRATENSIS KENTUCKY BLUEGRASS	SOD		

MULCH

ALL PLANT BEDS SHALL CONTAIN A 3" LAYER OF BRICK CHIP MULCH. PROVIDE A SAMPLE FOR REVIEW PRIOR TO INSTALLATION CONTRACTOR TO PLACE A 4' DIAMETER MULCH RING AROUND ALL TREES IN LAWN.

IRRIGATION

THE CONTRACTOR SHALL DESIGN, SUPPLY, AND INSTALL IRRIGATION SYSTEM FOR ALL SODDED AND PLANTING AREAS AS SHOWN ON THIS SHEET. DESIGN SHALL BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. A SEPARATE METER IS PREFERRED UNLESS NOT ALLOWED BY AHJ. METER AND IRRIGATION TO BE COORDINATED WITH ARCHITECTURAL PLANS AS NEEDED. MOUNT RAIN SENSOR ON BACK OF RAILING OF ROOF.

LANDSCAPE REQUIREMENTS

GREENBELT LANDSCAPE
DECKER ROAD (272 LF) 1 TREE / 30 LF
REQUIRED: 10 TREES
PROPOSED: 10 TREES

E WEST MAPLE ROAD (264 LF) 1 TREE / 30 LF
REQUIRED: 9 TREES
PROPOSED: 9 TREES

SITE TREES - 1 TREE / 3,000 SF NON PAVED AREA
4.87 A SITE MINUS 1.3 A PAVED AREA = 3.57 A
REQUIRED: 54 TREES
PROPOSED: 208 EXISTING TREES TO REMAIN ON UNDISTURBED SITE

PARKING LOT LANDSCAPE (25 SF PER SPACE IN EXCESS OF 20 SPACES)
28 SPACES
REQUIRED: 200 SF
PROPOSED: 200 SF APPLIED TO PERIMETER OF PARKING

SEPARATION OF TREES FROM WATER AND SANITARY SEWER SERVICE LINES SHOULD BE 10 FT AND 5 FT FROM SHRUBS

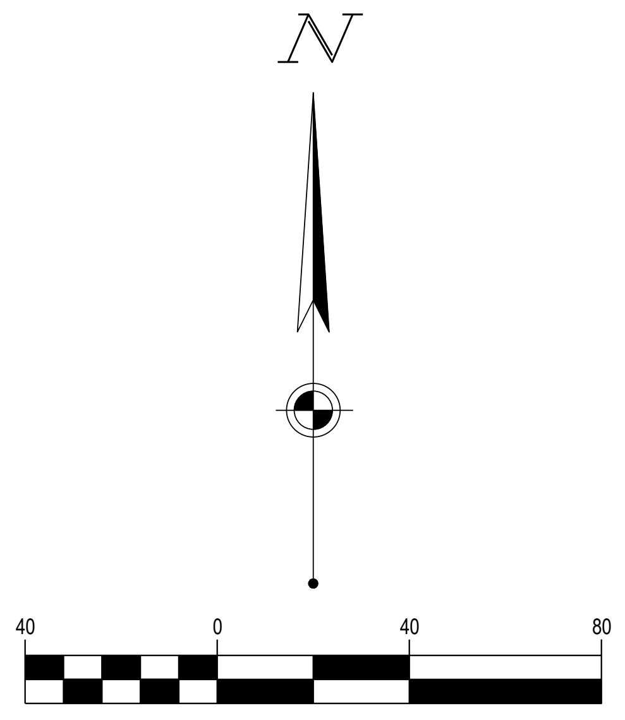
CODED NOTES:

1. STORM WATER POND
2. MONUMENT SIGN
3. CORNER PEDESTRIAN PLAZA W/ BRICK PAVERS & 2 BENCHES
4. PROPOSED DUMPSTER ENCLOSURE AND PAD
5. EXISTING TREES TO REMAIN - SEE TREE PROTECTION DETAIL ON SHEET L2.0
6. EXISTING WETLANDS

CONTRACTOR SHALL REVIEW THE COMPLETE DRAWING SET AND NOTIFY THE DESIGN PROFESSIONAL IN WRITING PRIOR TO CONSTRUCTION, IF ANY DISCREPANCIES ARE FOUND WITHIN THE DRAWINGS OR WITH ACTUAL FIELD CONDITIONS.

MISS DIG 811®

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

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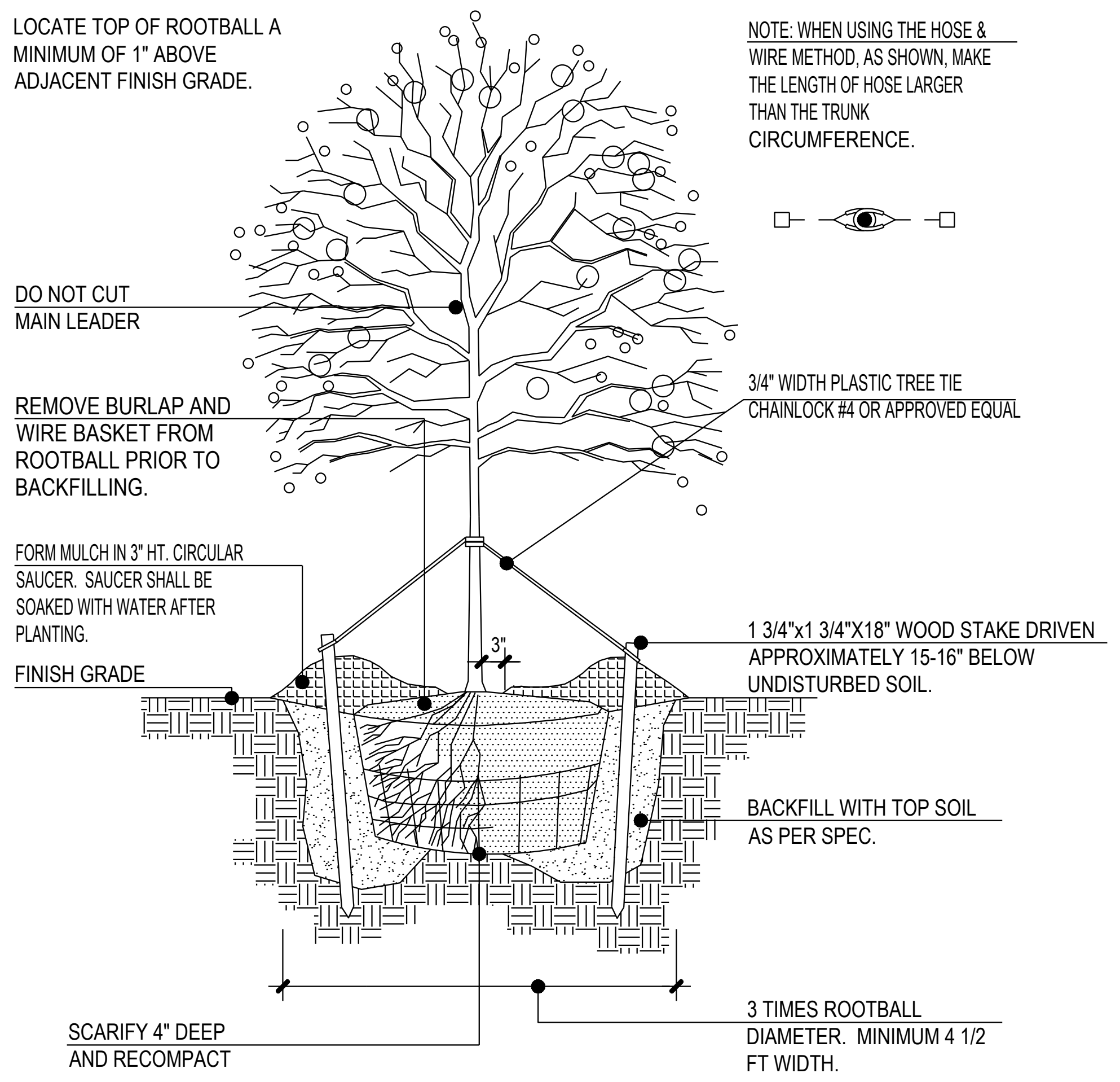
Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	EAB/JC
Checked By:	EAB
Date:	07/18/2025
Issue:	PERMIT SET

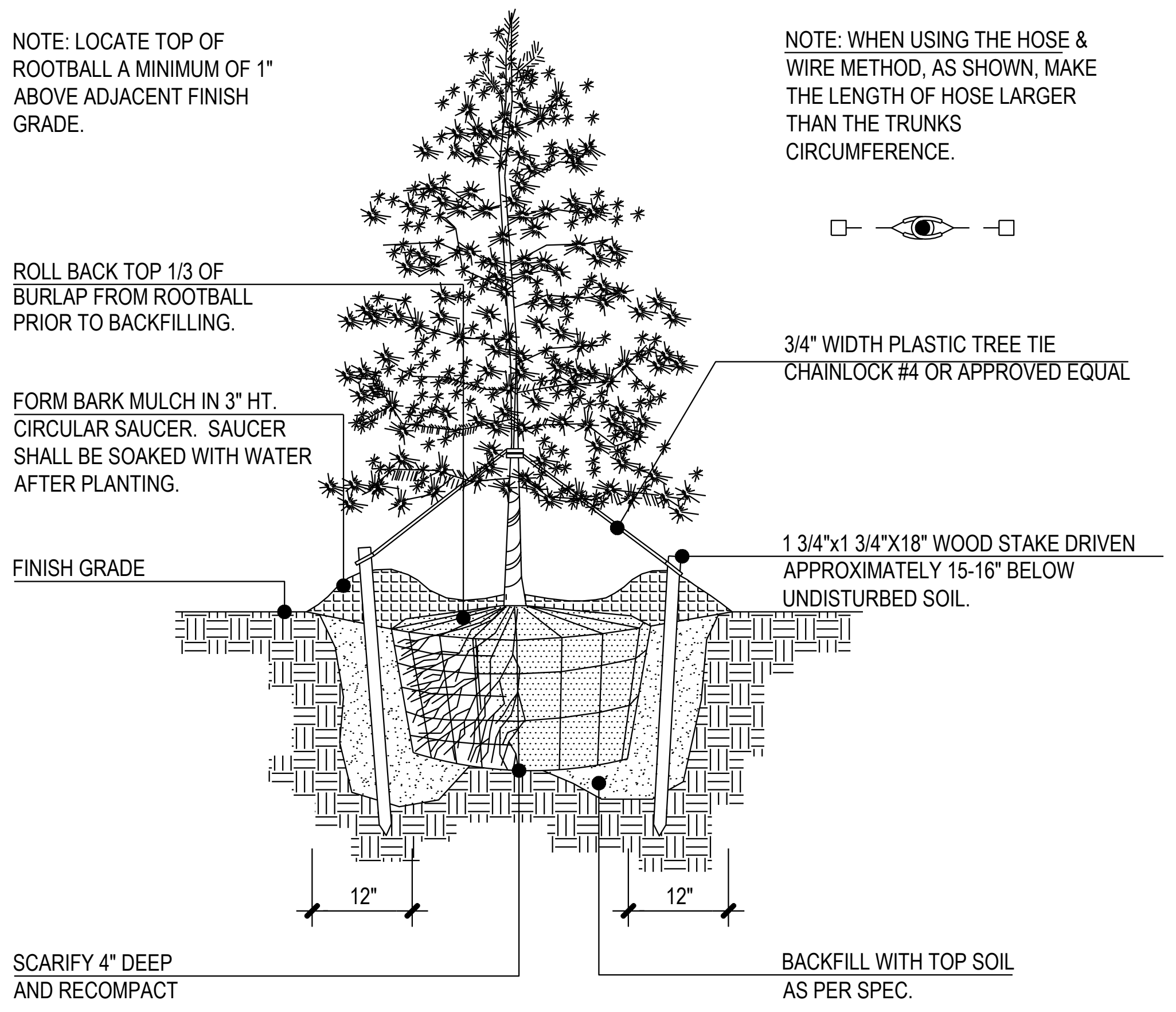
Drawing Title:
PLANTING PLAN

L1.0



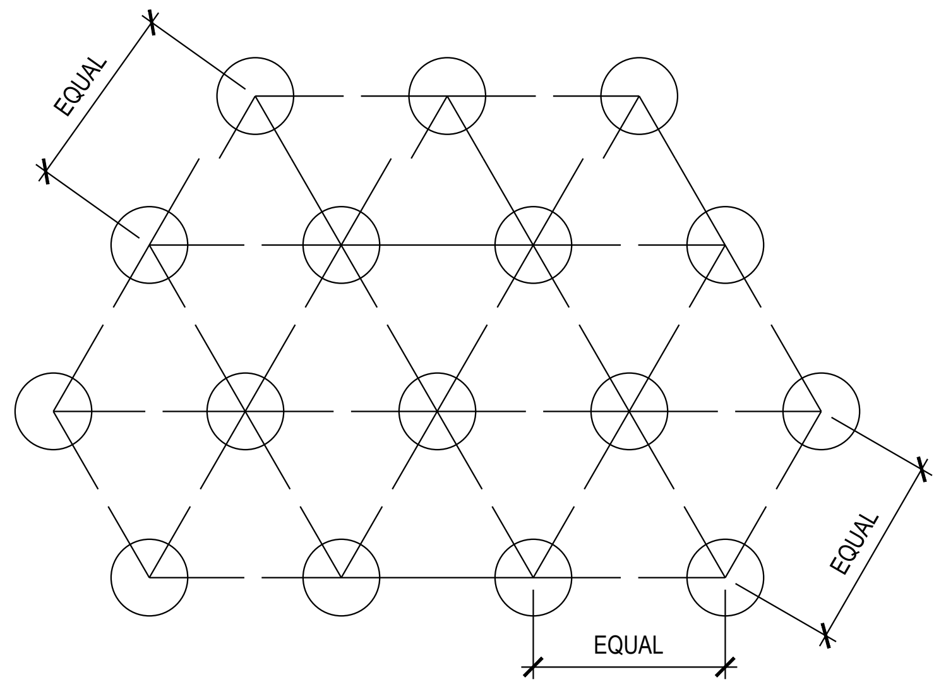
1 DECIDUOUS TREE STAKING

N.T.S.



2 EVERGREEN TREE STAKING

N.T.S.

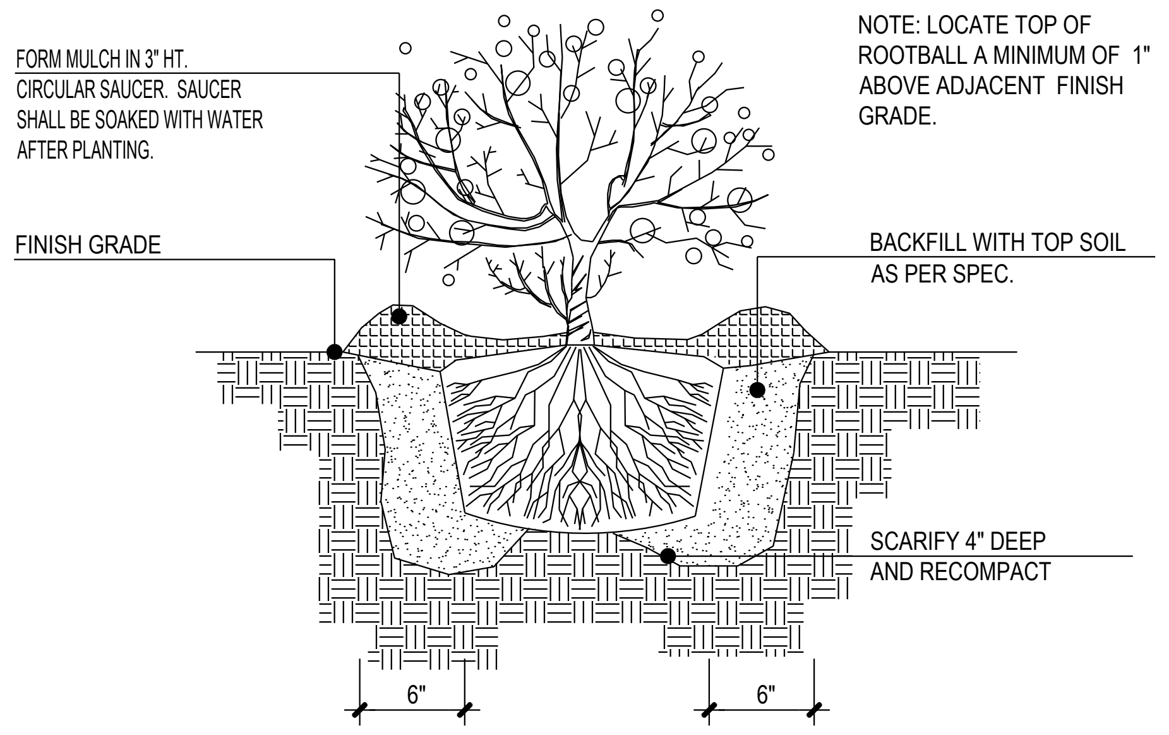


ALL GROUND COVER SHALL BE PLANTED AT EQUAL TRIANGULAR SPACING PER ON CENTER SPACING AS SPECIFIED ON PLANTING PLAN.

LOCATE GROUND COVER ONE HALF OF SPECIFIED SPACING DISTANCE FROM ANY CURB, SIDEWALK, OR OTHER HARD SURFACE, UNLESS OTHERWISE NOTED.

3 GROUND COVER SPACING

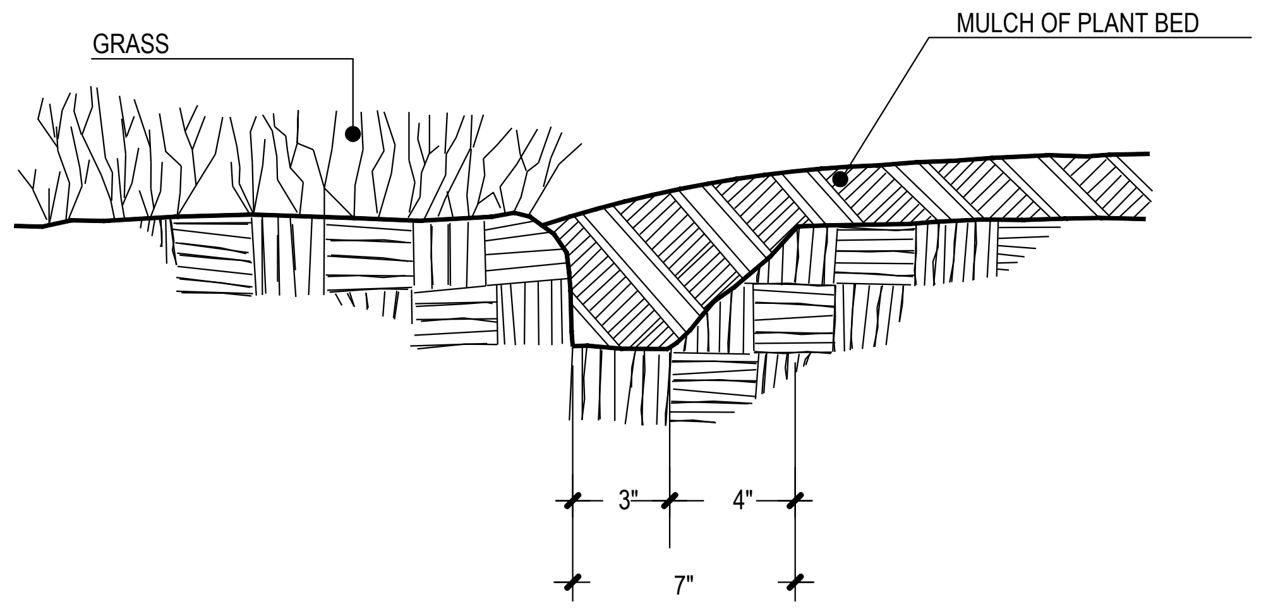
N.T.S.



4 EVERGREEN / DECIDUOUS SHRUB

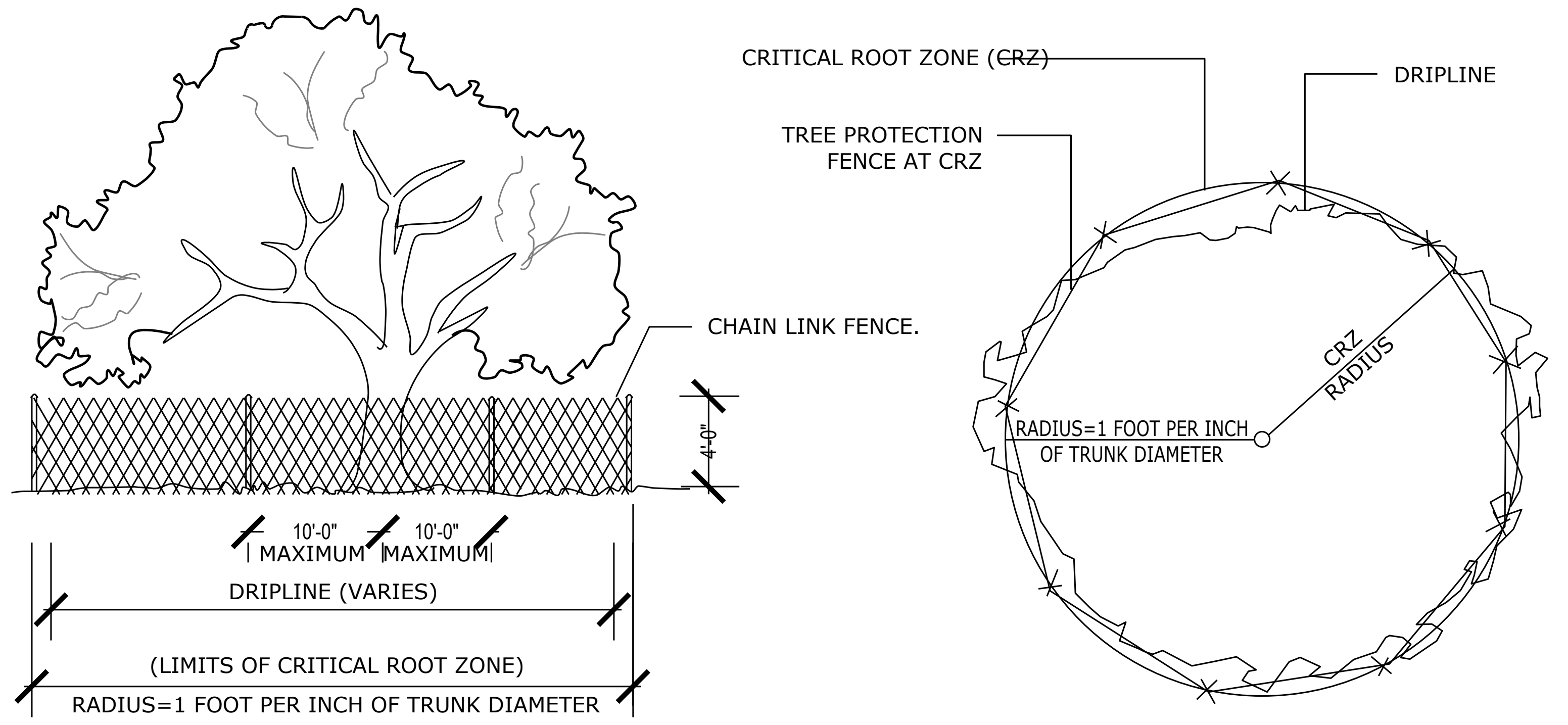
N.T.S.

NOTE: USE TRENCH DETAIL ON ALL PLANTING BEDS TRANSITIONING TO TURF AREAS



5 TRENCH EDGING

N.T.S.



NOTES:

1. NO TRUCKS OR HEAVY EQUIPMENT ALLOWED WITHIN BARRIERS, ONLY HAND LABOR ALLOWED.
2. NO CONSTRUCTION MATERIALS, SOILS DEPOSITS, OR SOLVENTS SHALL BE ALLOWED WITHIN BARRIERS.
3. BARRIERS ARE TO IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES WITH-IN TREE AREA.
4. BARRIERS ARE TO STAY IN PLACE UNTIL ALL PAVING, CONSTRUCTION, AND HEAVY EQUIPMENT IS REMOVED FROM THE AREA.
5. CRITICAL ROOT ZONE: 1 INCH OF TREE AT DIAMETER BREAST HEIGHT (DBH) IS EQUAL TO 1 FOOT OF CRITICAL ROOT ZONE (CRZ).
   IE. 30 INCH DBH = 30 FOOT CRZ

6 TYP. TREE PROTECTION

N.T.S.

TREE PROTECTION NOTES

1. DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, DO NOT PLACE SOIL DEPOSITS, DEBRIS SOLVENTS, MACHINERY CONSTRUCTION MATERIAL OF ANY KIND WITHIN THE DRIP LINE OF A TREE TO REMAIN.

2. BEFORE CONSTRUCTION STARTS ALL PROTECTED TREES SHALL BE PRUNED AS FOLLOWS UNLESS OTHERWISE DIRECTED BY THE OWNER OR HIS REPRESENTATIVE: REMOVE ANY DEAD OR DISEASED TRUNKS OR BRANCHES, AND REMOVE WEAK OR CROSSED BRANCHES. ALL CUTS SHALL BE MADE SUFFICIENTLY CLOSE TO THE TRUNK OR PARENT LIMB, WITHOUT CUTTING INTO THE BRANCH COLLAR OR LEAVING A PROTRUDING STUB, SO THAT CLOSURE CAN READILY START. ALL TRIMMING SHALL BE DONE BY A QUALIFIED TREE SURGEON. PRUNING SHALL BE IN ACCORDANCE WITH ANSI A-300 PRUNING STANDARDS.

3. ALL ROOTS TO BE REMOVED DURING THE SITE CLEARING SHALL BE SEVERED CLEAN AT THE PERIMETER OF THE DESIGNATED PROTECTED RADIUS. A 3" LAYER OF MULCH SHALL BE IMMEDIATELY APPLIED OVER THE SURFACE OF EXPOSED ROOTS OF PROTECTED TREES. A SOIL AUGER WILL BE USED TO BORE UNDER ROOT SYSTEMS UTILITIES ARE TO BE INSTALLED WITHIN 10' OF A PROTECTED TREE.

4. ERECT BARRIERS OF 4-FOOT HIGH WOODEN FENCING OR SIMILAR STURDY STOCK MATERIAL STAKED WITH METAL STAKES 10-FEET ON CENTER WHICH WILL SHIELD AND PROTECT TREES, NO CLOSER THAN 6-FEET FROM THE TRUNK, OR AT THE DRIP LINE, WHICHEVER IS GREATER, OF ALL SUCH TREES OR GROUPS OF TREES.

5. ALL TREES TO BE REMOVED SHALL BE IDENTIFIED ON SITE BY FLUORESCENT ORANGE SPRAY PAINT (CHALK BASE) OR BY RED FLAGGING TAPE PRIOR TO FIELD INSPECTION BY THE DEPARTMENT.

ROOT PRUNING NOTE:

WHEN THE CRITICAL ROOT ZONE WILL BE DISTURBED, AFFECTED ROOTS MUST BE SEVERED BY CLEAN PRUNING CUTS AT THE POINT WHERE CONSTRUCTION IMPACTS THE ROOTS. ROOTS CAN BE PRUNED BY UTILIZING TRENCHING EQUIPMENT DESIGNED FOR THIS PURPOSE OR BY HAND DIGGING A TRENCH AND PRUNING ROOTS WITH A PRUNING SAW, CHAIN SAW OR OTHER EQUIPMENT DESIGNED FOR TREE PRUNING. ROOTS LOCATED WITHIN A CRITICAL ROOT ZONE THAT WILL BE IMPACTED BY CONSTRUCTION MUST BE PRUNED TO A DEPTH OF 18 INCHES BELOW THE EXISTING GRADE OR TO THE DEPTH OF DISTURBANCE IF LESS THAN 18 INCHES FROM THE EXISTING GRADE. WHEN UNDERGROUND UTILITY LINES ARE TO BE INSTALLED WITHIN THE CRITICAL ROOT ZONE, THE ROOT PRUNING REQUIREMENTS MAY BE WAIVED IF THE LINES ARE INSTALLED VIA TUNNELING OR DIRECTIONAL BORING AS OPPOSED TO OPEN TRENCHING. A LICENSED CERTIFIED ARBORIST SHALL PROVIDE PRUNING.

GENERAL NOTES: LANDSCAPE PLAN

1. CONTRACTOR TO VERIFY WITH OWNER AND UTILITY COMPANIES THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION, TO DETERMINE IN THE FIELD THE ACTUAL LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL CALL UTILITY LOCATE SERVICE 72 HOURS PRIOR TO CONSTRUCTION.
2. SITE CONDITIONS BASED UPON SURVEY PROVIDED BY OWNER. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS BY DETAILED INSPECTION PRIOR TO SUBMITTING BID AND BEGINNING CONSTRUCTION.
3. REFER TO SITE CIVIL DRAWINGS FOR ADDITIONAL REQUIREMENTS AND COORDINATE WORK WITH OTHER SITE RELATED DEVELOPMENT DRAWING AS NEEDED.
4. REESTABLISH EXISTING TURF IN AREAS DISTURBED BY GRADING OR UTILITY TRENCHING, INCLUDING AREAS IN RIGHT-OF-WAY, TO MATCH EXISTING SPECIES.
5. CONTRACTOR SHALL EXAMINE FINISH SURFACE, GRADES, TOPSOIL QUALITY AND DEPTH. DO NOT START ANY WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. VERIFY LIMITS OF WORK BEFORE STARTING.
6. CONTRACTOR TO REPORT ALL DAMAGES TO EXISTING CONDITIONS AND INCONSISTENCIES WITH PLANS TO LANDSCAPE ARCHITECT.
7. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE IN ALL LANDSCAPE BEDS AND ALL LAWN AREAS.
8. CONTRACTOR TO FINE GRADE AND ROCK-HOUND ALL TURF AREAS PRIOR TO SEEDING, TO PROVIDE A SMOOTH AND CONTINUAL SURFACE, FREE OF IRREGULARITIES (BUMPS OR DEPRESSIONS) & EXTRANEOUS MATERIAL OR DEBRIS.
9. REMOVE EXISTING WEEDS FROM PROJECT SITE PRIOR TO THE ADDITION OF ORGANIC AMENDMENTS AND FERTILIZER. APPLY AMENDMENTS AND FERTILIZER AS NEEDED.
10. QUANTITIES SHOWN ARE INTENDED TO ASSIST CONTRACTOR IN EVALUATING THEIR OWN TAKE OFFS AND ARE NOT GUARANTEED AS ACCURATE REPRESENTATIONS OF REQUIRED MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS BID QUANTITIES AS REQUIRED BY THE PLANS AND SPECIFICATIONS. IF THERE IS A DISCREPANCY BETWEEN THE NUMBER LABELED ON THE PLANT LEGEND AND THE QUANTITY OF GRAPHIC SYMBOLS SHOWN, THE GREATER QUANTITY SHALL GOVERN.
11. COORDINATE LANDSCAPE INSTALLATION WITH INSTALLATION OF UNDERGROUND SPRINKLER AND DRAINAGE SYSTEMS.
12. ALL SIZES AND QUALITY OF PLANT MATERIAL SHALL MEET THE MINIMUM SPECIFICATIONS OF THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014). THE LANDSCAPE CONTRACTOR SHALL INSTALL ALL PLANT MATERIAL IN SIZE AS INDICATED IN THE PLANT SCHEDULE UNLESS OTHERWISE SPECIFIED ON THE PLAN SET. ALL PLANTS THAT DO NOT MEET THE SIZE AND SPECIFICATIONS SET FORTH BY THE AMERICAN STANDARD FOR NURSERY STOCK WILL BE REJECTED BY LANDSCAPE ARCHITECT AT NO COST TO OWNER.
13. ONCE PROJECT IS AWARDED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO SECURE ALL PLANT MATERIAL IN THE SIZE SPECIFIED ON PLAN PRIOR TO INSTALLATION. IN THE EVENT THE PLANT MATERIAL IS NOT AVAILABLE IN THE SIZE SPECIFIED, THE CONTRACTOR SHALL INSTALL LARGER AT NO COST TO OWNER.
14. THE LANDSCAPE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ALL PLANT MATERIAL SUBSTITUTIONS FROM THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. PLANT SUBSTITUTIONS WITHOUT PRIOR WRITTEN APPROVAL THAT DO NOT COMPLY WITH THE DRAWINGS AND SPECIFICATIONS MAY BE REJECTED BY THE LANDSCAPE ARCHITECT AND REPLACED BY CONTRACTOR AT NO COST TO THE OWNER.
15. PRIOR TO MOBILIZATION THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT, IN WRITING, IF HE/SHE BELIEVES ANY OF THE PLANT MATERIAL IDENTIFIED ON THE PLAN MAY NOT BE SUITABLE FOR THE SITE OR MAY DIE. SUBSTITUTION REQUESTS WILL BE GRANTED BY THE LANDSCAPE ARCHITECT PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. IF NOTIFICATION IS NOT GIVEN TO THE LANDSCAPE ARCHITECT ALL PLANTING WHICH FAILS TO GROW (EXCEPT FOR DEFECTS RESULTING FROM LACK OF ADEQUATE MAINTENANCE AS DETERMINED BY THE OWNER, NEGLECT, OR VANDALISM) SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
16. WHERE PROPOSED TREE LOCATIONS OCCUR UNDER EXISTING OVERHEAD UTILITIES OR CROWD EXISTING TREES, NOTIFY LANDSCAPE ARCHITECT TO ADJUST TREE LOCATIONS.
17. ALL PLANT MASSES TO BE TOP DRESSED WITH MULCH AS SPECIFIED IN PLANT SCHEDULE, SPREAD UNIFORMLY IN DEPTH OVER THE PLANTING BEDS AS DELINEATED ON THE PLANS UNLESS OTHERWISE NOTED.
18. BED EDGE TO BE NO LESS THAN 12" AND NO MORE THAN 18" FROM OUTER EDGE OF PLANT MATERIAL BRANCHING. WHERE GROUND-COVER OCCURS, PLANT TO LIMITS OF AREA AS SHOWN.
19. INITIAL LANDSCAPE MAINTENANCE IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY UNTIL FINAL ACCEPTANCE BY THE OWNER. MAINTAIN TREES, SHRUBS, LAWNS, AND OTHER PLANTS AS PER THE PROJECT MANUAL AND/OR WRITTEN SPECIFICATIONS, IF APPLICABLE. EXTENDED LANDSCAPE MAINTENANCE PERIOD BEGINS IMMEDIATELY AFTER THE COMPLETION OF ALL PLANTING OPERATIONS AND WRITTEN ACCEPTANCE FROM THE OWNER AND/0R LANDSCAPE ARCHITECT.
20. ALL LANDSCAPE MAINTENANCE SHALL BE IN ACCORDANCE WITH LOCAL GOVERNING STANDARDS, IN ADDITION TO OWNER REQUIREMENTS.
21. ALL PLANTS SHALL COME WITH A 1 YEAR WARRANTY. WARRANTY BEGINS AFTER SUBSTANTIAL COMPLETION OCCURS AND FINAL ACCEPTANCE BY OWNER. WARRANTY ASSUMES PLANTINGS ARE MAINTAINED AND IRRIGATED (VIA SYSTEM OR HAND) EITHER BY INSTALLING CONTRACTOR OR MAINTENANCE CONTRACTOR.
22. REFER TO PROJECT MANUAL OR WRITTEN SPECIFICATIONS, IF AVAILABLE, FOR ADDITIONAL REQUIREMENTS.

SOIL PLANTING MIXTURE (MIX ONSITE)

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH FROM THEIR SOURCE A GOOD CLEAN, NATIVE SOIL WHICH SHALL MEET THE APPROVAL OF THE OWNER'S REPRESENTATIVE. THIS SOIL SHALL BE USED FOR THE PLANTING MIXTURE AS FOLLOWS:
   - 1.A. ONE PART COMPOST/MANURE PLANTING MIX, TOPSOIL OR APPROVED EQUAL
   - 1.B. ONE PART NATIVE SOIL
2. SOILS WITHIN PLANTING AREAS MUST BE SUITABLE FOR PROPOSED PLANTED MATERIAL & SOD WITH REGARD TO: pH, SOIL TEXTURE, SOIL STRUCTURE, AND SEASONAL HIGH WATER TABLE. THE CONTRACTOR SHALL ANALYZE EXISTING SOILS LOCATED IN PROXIMITY TO PROPOSED PLANT MATERIAL AND BE RESPONSIBLE TO AMEND THE SOIL TO OBTAIN ESSENTIAL REQUIREMENTS NECESSARY FOR THE ESTABLISHMENT AND GROWTH OF PLANT LIFE. LANDSCAPE CONTRACTOR TO PROVIDE SOILS REPORT AND APPROPRIATE RECOMMENDATIONS PRIOR TO INSTALLATION TO OWNER'S REPRESENTATIVE FOR REVIEW. FAILURE TO PROVIDE REPORT MAY RESULT IN PLANT MATERIAL BEING REJECTED BY OWNER'S REPRESENTATIVE AND REPLACED AT NO COST TO OWNER.
3. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING PRIOR TO PLANTING, WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, POOR PLANTING SOIL, ADVERSE DRAINAGE CONDITIONS, OR OBSTRUCTIONS.

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MANDY J. GAUSS ENGINEER NO. 55618

Mandy J. Gauss

7-ELEVEN, INC.

WALLED LAKE

1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number: 764078
Scale: 1"=40'
Drawn By: EAB/JC
Checked By: EAB
Date: 07/18/2025
Issue: PERMIT SET

Drawing Title:

PLANTING DETAILS & NOTES

L2.0

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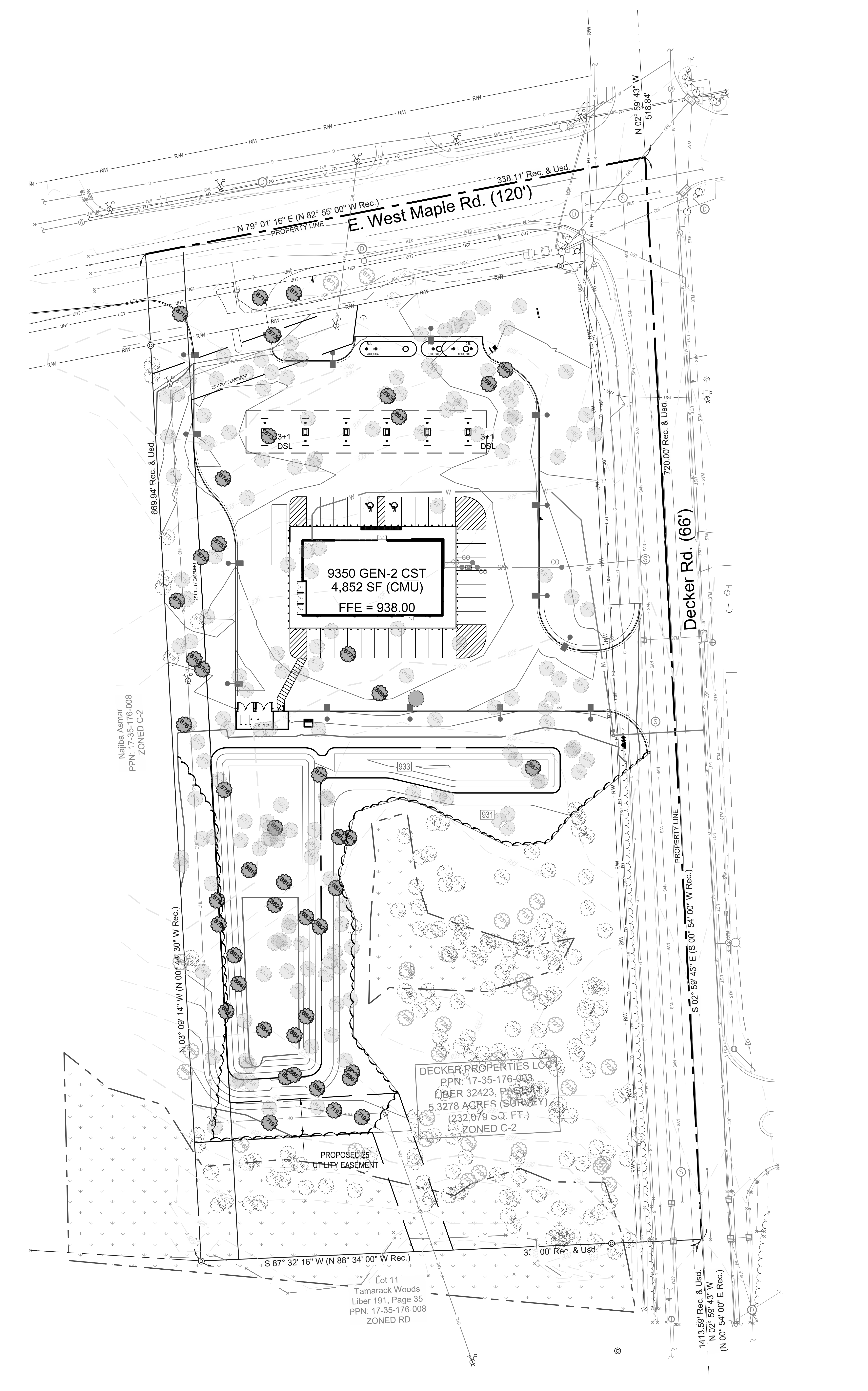


Tree Tag #	Data Code	Common Name	Scientific Name	DBH	Diameter at 12"	Condition	Bat Trees	Comments	Trunk Condition	Growth Rate	Tree Structure	Insects/ Disease	Crown Development	Life Expectancy	Total Score	Protected	Landmark	Tree Removal (QTY)	Protected Removed (QTY)	Landmark Removed (DBH)
7148	ACNE	*Acer negundo*	Boxelder	5.0	6.5	Good	No		5	4	5	4	3	3	24	No	No			
7149	ACNE	*Acer negundo*	Boxelder	5.5	5.5	Fair	No		3	4	5	1	2	2	17	No	No			
7150	ACSAN	*Acer saccarinum*	Silver Maple	6.0	7.0	Good	No		5	4	5	5	3	3	25	No	No			
7151	ACSAN	*Acer saccarinum*	Silver Maple	8.0	9.0	Good	No		5	4	5	5	3	3	25	No	No			
7152	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.5	5.0	Good	No		5	4	5	5	3	3	25	No	No			
7153	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.5	6.0	Good	No		5	4	5	5	3	3	25	No	No			
7154	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.0	5.0	Fair	No		2	4	4	3	3	2	18	No	No			
7155	ACSAN	*Acer saccarinum*	Silver Maple	4.5	5.5	Good	No		5	4	5	5	3	3	25	No	No			
7156	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.0	6.0	Poor	No	Nearly Dead	3	4	1	3	1	1	13	No	No			
7157	ACSAN	*Acer saccarinum*	Silver Maple	8.0	9.5	Good	No		5	4	5	5	3	3	25	No	No			
7158	ACSAN	*Acer saccarinum*	Silver Maple	13, 10, 8.5,	18, 14, 7.5, 5.5	Good	No		4	4	5	5	3	4	25	No	No			
7159	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.0	5.5	Fair	No		5	4	3	3	2	2	19	No	No			
7160	FRPE	*Fraxinus pennsylvanica*	Green Ash	10.0	11.5	Poor	No	Vines	5	4	1	1	1	1	13	No	No			
7161	ACSAN	*Acer saccarinum*	Silver Maple	12.5	13.5	Good	No		5	4	5	3	3	3	23	No	No			
7162	ACSAN	*Acer saccarinum*	Silver Maple	8.0	9.0	Good	No		5	4	5	3	3	3	23	No	No			
7163	ACSAN	*Acer saccarinum*	Silver Maple	5.5	6.0	Good	No		5	4	5	5	2	3	24	No	No			
7164	ACSAN	*Acer saccarinum*	Silver Maple	8.0	9.5	Good	No		5	4	5	5	3	3	25	No	No			
7165	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.5	5.0	Poor	No	Top Cut Off	4	4	1	3	1	2	15	No	No			
7166	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.5	6.5	Fair	No	Top Cut Off	5	4	3	5	1	3	21	No	No			
7167	FRPE	*Fraxinus pennsylvanica*	Green Ash	3.5, 3	6.5	Fair	No	Top Cut Off	5	4	3	5	1	3	21	No	No			
7168	ACSAN	*Acer saccarinum*	Silver Maple	20.5	22.5	Good	No		5	4	5	5	3	4	26	No	No			
7169	ACSAN	*Acer saccarinum*	Silver Maple	5.5	6.5	Fair	No		5	4	1	3	1	3	17	No	No			
7170	ACSAN	*Acer saccarinum*	Silver Maple	12.5	13.0	Good	No		5	4	5	5	3	4	26	No	No			
7171	Other	*Cephalanthus*	Buttonbush	6.5, 6, 5.5,	6.5, 5, 5.5	Poor	No		3	3	1	5	1	1	14	No	No			
7171	FRPE	*Fraxinus pennsylvanica*	Green Ash	6.0	6.5	Poor	No	Nearly Dead	2	4	1	4	1	1	13	No	No			
7172	CRSPP	*Crataegus species*	Hawthorn	5.5	6.0	Poor	No	Vines	5	4	1	3	1	1	15	No	No			
7173	ACSAN	*Acer saccarinum*	Silver Maple	10.0	11.0	Good	No		5	4	5	5	3	4	26	No	No			
7174	ACSAN	*Acer saccarinum*	Silver Maple	13.0	15.5	Good	No		5	4	5	5	3	4	26	No	No			
7175	ACSAN	*Acer saccarinum*	Silver Maple	6.0	7.0	Good	No		5	4	5	5	2	4	25	No	No			
7176	ACSAN	*Acer saccarinum*	Silver Maple	15, 12, 8.5,	26.0	Good	No		5	4	5	5	4	4	27	No	No			
7178	ULAM	*Ulmus americana*	American Elm	9.0	10.5	Good	No		5	4	5	5	3	4	26	No	No			
7179	ULAM	*Ulmus americana*	American Elm	7.0	9.0	Good	No		5	4	5	5	4	4	27	No	No			
7180	QUBI	*Quercus bicolor*	Swamp White	6.0	8.5	Good	No		5	4	5	5	3	4	26	No	No			
7181	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.0	6.5	Good	No		3	4	5	3	3	4	22	No	No			
7182	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.0	5.0	Good	No		3	4	5	3	3	4	22	No	No			
7183	FRPE	*Fraxinus pennsylvanica*	Green Ash	6.0	8.5	Good	No		4	4	5	3	3	4	23	No	No			
7184	FRPE	*Fraxinus pennsylvanica*	Green Ash	7.0	8.0	Fair	No		3	4	3	3	2	4	19	No	No	1		
7185	PRSE	*Prunus serotina*	Black Cherry	13, 11.5	22.5	Good	No		3	4	4	3	2	4	20	Yes	No			
7186	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.0	6.5	Good	No		3	4	5	3	3	3	21	No	No			
7187	FRPE	*Fraxinus pennsylvanica*	Green Ash	6.0	8.0	Good	No		3	4	5	3	3	3	21	No	No			
7188	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.5	8.0	Good	No		3	4	3	3	3	3	19	No	No			
7189	ACSAN	*Acer saccarinum*	Silver Maple	16.5	18.5	Good	No		5	4	5	5	3	4	26	No	No			
7190	ACSAN	*Acer saccarinum*	Silver Maple	10.0	11.5	Good	No		5	4	5	5	3	4	26	No	No			
7191	CRSPP	*Crataegus species*	Hawthorn	10, 4.5	7.5, 6	Good	No		5	4	5	5	2	4	25	Yes	No	1	1	
7192	CRSPP	*Crataegus species*	Hawthorn	5, 5, 3	8.5	Good	No		5	4	4	5	3	4	25	No	No	1		
7193	PRSE	*Prunus serotina*	Black Cherry	16, 12.5,	26.5	Good	No		2	4	3	3	3	3	18	Yes	No	1	1	
7194	PRSE	*Prunus serotina*	Black Cherry	10.5	11.0	Fair	No		5	4	2	3	1	2	17	Yes	No	1	1	
7195	ACRU	*Acer rubrum*	Red Maple	18.5	21.0	Good	No		5	4	5	5	4	4	27	Yes	Yes			
7196	ACRU	*Acer rubrum*	Red Maple	6.0	7.0	Fair	No	Top Cut Off	5	4	1	5	1	2	18	No	No			
7197	ACRU	*Acer rubrum*	Red Maple	17.0	18.5	Good	No		5	4	5	3	3	3	23	Yes	No			
7198	FRPE	*Fraxinus pennsylvanica*	Green Ash	6.0	6.5	Good	No		5	4	5	5	2	4	25	No	No			
7199	PRSE	*Prunus serotina*	Black Cherry	15.0	16.0	Good	No		5	4	4	5	5	4	27	Yes	No			
7200	PRSE	*Prunus serotina*	Black Cherry	5.0	6.0	Fair	No		5	4	3	5	1	2	20	No	No			
7201	FRPE	*Fraxinus pennsylvanica*	Green Ash	4.0	5.0	Good	No		3	4	5	3	3	4	22	No	No			
7202	PRSE	*Prunus serotina*	Black Cherry	13.0	13.5	Good	No		5	4	5	5	3	3	25	Yes	No			
7203	PRSE	*Prunus serotina*	Black Cherry	4.0	5.0	Good	No		5	4	5	5	3	4	26	No	No			
7204	PRSE	*Prunus serotina*	Black Cherry	11.5	13.0	Good	No		5	4	3	3	3	4	22	Yes	No			
7205	ACRU	*Acer rubrum*	Red Maple	8.5	11.0	Good	No		5	4	5	5	3	4	26	Yes	No			
7206	CAOV	*Carya ovata*	Shagbark	10.5	14.5	Good	No		5	4	5	5	4	4	27	Yes	No			
7207	ACNE	*Acer negundo*	Boxelder	5.5	6.5	Good	No		3	4	3	3	1	3	17	No	No			
7208	FRPE	*Fraxinus pennsylvanica*	Green Ash	8.5	9.0	Poor	No	Nearly Dead	1	4	1	1	1	1	9	No	No			
7209	ACNE	*Acer negundo*	Boxelder	8.5	10.0	Poor	No	Nearly Dead	1	4	1	1	1	1	9	No	No			
7210	MASPP	*Malus species*	Apple/ Crabappl	6.5	7.0	Good	No		5	4	4	3	4	3	23	No	No			
7211	ACNE	*Acer negundo*	Boxelder	4.0	5.0	Poor	No	Vines	3	4	1	3	2	1	14	No	No			
7212	RHCA	*Rhamnus cathartica*	Common	4, 3	5.5	Good	No		5	4	5	5	2	3	24	No	No			
7213	RHCA	*Rhamnus cathartica*	Common	5.0	7.0	Good	No		5	4	5	5	3	3	25	No	No			
7214	MASPP	*Malus species*	Apple/ Crabappl	7, 6.5	10.0	Good	No		5	4	5	3	3	3	23	No	No			
7215	TIAM	*Tilia americana*	Basswood	12, 8.5, 4	23.0	Good	No		5	4	5	5	3	4	26	Yes	No			
7216	QUPA	*Quercus palustris*	Pin Oak	11.0	14.0	Good	No		5	4	5	5	3	4	26	Yes	No			
7217	PRSE	*Prunus serotina*	Black Cherry	16.5, 15.5	18.5, 17.5	Fair	No		2	4	3	2	2	2	15	Yes	No			
7218	QURU	*Quercus rubra*	Red Oak	6.0	7.0	Good	No		5	4	5	4	3	3	24	No	No			
7219	ULAM	*Ulmus americana*	American Elm	8.5	10.0	Good	No		5	4	4	5	3	4	25	No	No			
7220	ULAM	*Ulmus americana*	American Elm	5.0	7.0	Good	No		5	4	5	3	3	4	24	No	No			
7221	PODE	*Populus deltoides*	Cottonwood	7.0	8.0	Dead	No		1	1	1	1	1	1	6	No	No			
7222	PODE	*Populus deltoides*	Cottonwood	4.5	5.0	Dead	No		1	1	1	1	1	1	6	No	No			
7223	CAGL	*Carya glabra*	Pignut Hickory	5.0	7.0	Good	No		5	4	5	5	3	4	26	No	No			
7224	PODE	*Populus deltoides*	Cottonwood	5.5	6.5	Good	No		5	4	5	5	3	4	26	No	No			
7225	CAGL	*Carya glabra*	Pignut Hickory	5.0	6.5	Good	No		5	4	5	5	3	4	26	No	No			
7226	CAGL	*Carya glabra*	Pignut Hickory	20.0	23.0	Good	No		5	4	5	5	4	4	27	Yes	Yes			
7227	QURU	*Quercus rubra*	Red Oak	4.5	9.0	Good	No		5	4	5	5	3	4	26	No	No			
7228	RHCA	*Rhamnus cathartica*	Common	4, 4	6.5	Good	No		5	4	5	5	3	3	25	No	No			
7229	RHCA	*Rhamnus cathartica*	Common	3.5, 3, 3,	6.0	Good	No		5	4	5	5	3	3	25	No	No			
7230	QURU	*Quercus rubra*	Red Oak	4.5	5.5	Good	No		5	4	5	5	3	4	26	No	No			
7231	ULAM	*Ulmus americana*	American Elm	9.0	10.5	Good	No		5	4	4	5	3	4	25	No	No			
7232	PRSE	*Prunus serotina*	Black Cherry	12.0	12.5	Good	No		5	4	5	5	4	4	27	Yes	No			
7233	ULAM	*Ulmus americana*	American Elm	8.0	9.5	Dead	No		1	1	1	1	1	1	6	No	No			
7234	ULAM	*Ulmus americana*	American Elm	4.0	5.5	Dead	No		1	1	1	1	1	1	6	No	No			
7235	ULAM	*Ulmus americana*	American Elm	7.5	7.5	Poor	No	Vines	3	3	3	1	2	1	13	No	No			
7236	ULAM	*Ulmus americana*	American Elm	5.0	6.0	Dead	No		1	3	1	1	1	1	8	No	No			
7237	ULAM	*Ulmus americana*	American Elm	4.0	5.0	Good	No		5	4	5	5	3	4	26	No	No			
7238	PRSE	*Prunus serotina*	Black Cherry	9.5	9.5	Good	No		5	4	5	5	3	4	26	Yes	No			
7239	JUVI	*Juniperus virginiana*	Eastern	5.5	6.5	Good	No		5	4	5	5	4	4	27	No	No			
7240	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.5	6.5	Dead	No		1	4	1	1	1	1	9	No	No			
7241	ULAM	*Ulmus americana*	American Elm	6.5	8.0	Fair	No		4	4	5	3	2	3	21	No	No			
7242	ULAM	*Ulmus americana*	American Elm	9.5	11.5	Good	No		4	4	5	3	3	4	23	No	No			
7243	ULAM	*Ulmus americana*	American Elm	5.0	6.5	Poor	No	Vines	2	3	3	3	2	2	15	No	No			
7244	PRSE	*Prunus serotina*	Black Cherry	14.5, 11	20.0	Good	No		4	4	4	5	3	3	23	Yes	No			
7245	ULAM	*Ulmus americana*	American Elm	6.0	7.0	Good	No		5	4	5	5	3	4	26	No	No			
7246	ULAM	*Ulmus americana*	American Elm	8.0	9.5	Good	No		5	4	5	5	3	4	26	No	No			
7247	ULAM	*Ulmus americana*	American Elm	15.5	15.5	Good	No		5	4	5	5	3	4	26	No	No			
7248	RHCA	*Rhamnus cathartica*	Common Buckthorn	3.5	5, 2.5	Good	No		5	4	4	5	3	4	25	No	No			
7249	FRPE	*Fraxinus pennsylvanica*	Green Ash	7.0	8.0	Dead	No		1	1	1	1	1	1	6	No	No			
7250	ULAM	*Ulmus americana*	American Elm	7.5	7.5	Good	No		5	1	5	3	3	4	21	No	No			
7251	PRSE	*Prunus serotina*	Black Cherry	11.0	12.0	Good	No		5	4	5	3	3	4	24	Yes	No			
7252	ACNE	*Acer negundo*	Boxelder	5.0	6.0	Good	No		5	4	5	4	2	4	24	No	No			
7253	PRSE	*Prunus serotina*	Black Cherry	4.0	5.0	Good	No		5	4	5	5	3	4	26	No	No			
7254	PRSE	*Prunus serotina*	Black Cherry	5.0	6.5	Good	No		5	4	5	5	2	4	25	No	No			
7255	QURU	*Quercus rubra*	Red Oak	5.5	7.0	Good	No		5	4	5	5	3	4	26	No	No			
7256	ULAM	*Ulmus americana*	American Elm	5.5	6.0	Good	No		5	4	5	5	3	4	26	No	No			
7257	JUVI	*Juniperus virginiana*	Eastern Redcedar	7, 4.5	8.5, 5	Good	No		5	4	5	3	2	4	23	No	No			
7258	ULAM	*Ulmus americana*	American Elm	5.5	7.0	Good	No		5	4	5	3	3	4	24	No	No			
7259	PRSE	*Prunus serotina*	Black Cherry	11.5	13.0	Good	No		5	4	4	4	3	4	24	Yes	No			
7260	ULAM	*Ulmus americana*	American Elm	6.0	7.5	Good	No		5	4	4	3	3	4	23	No	No			
7261	FRPE	*Fraxinus pennsylvanica*	Green Ash	6.0	7.0	Dead	No		1	1	2	1	1	1	7	No	No			
7262	PRSE	*Prunus serotina*	Black Cherry	16.5	17.5	Good	No		5	4	4	4	4	3	24	Yes	No			
7263	FRPE	*Fraxinus pennsylvanica*	Green Ash	8.0	8.5	Dead	No		1	4	1	1	1	1	9	No	No			
7264	RHCA	*Rhamnus cathartica*	Common Buckthorn	4.5, 3.5	5, 4	Good	No		5	4	5	5	3	4	26	No	No			
7265	ULAM	*Ulmus americana*	American Elm	6.0	7.5	Poor	No	Nearly Dead	2	2	2	2	1	1	10	No	No			
7266	ULAM	*Ulmus americana*	American Elm	8.5	10.5	Dead	No		1	1	1	1	1	1	6	No	No			
7267	ULAM	*Ulmus americana*	American Elm	10.6	12.5	Dead	No		1	1	1	1	1	1	6	No	No			
7268	MASPP	*Malus species*	Apple/ Crabapple	3, 3	5.0	Good	No		5	4	4	4	3	3	23	No	No			
7269	RHCA	*Rhamnus cathartica*	Common Buckthorn	6, 4	7.5	Good	No		5	4	4	4	3	3	23	No	No			
7270	CAGL	*Carya glabra*	Pignut Hickory	6.5	8.0	Good	No		5	4	5	5	3	4	26	No	No			
7271	ULAM	*Ulmus americana*	American Elm	6.0	7.5	Fair	No		5	4	5	3	2	4	23	No	No			
7272	PRSE	*Prunus serotina*	Black Cherry	11.5	11.5	Good	No		5	4	4	5	3	4	25	Yes	No			
7273	ULAM	*Ulmus americana*	American Elm	7, 4.5	8.5, 6	Good	No		5	4	4	3	3	4	23	No	No			
7274	ULAM	*Ulmus americana*	American Elm	4.0	5.0	Good	No		5	4	4	5	3	4	25	No	No			
7275	ULAM	*Ulmus americana*	American Elm	4.5	5.0	Good	No		5	4	4	5	3	4	25	No	No			
7276	ACRU	*Acer rubrum*	Red Maple	10.5	12.0	Good	No		5	4	5	5	3	4	26	Yes	No			
7277	ULAM	*Ulmus americana*	American Elm	6.5	8.0	Good	No		5	4	4	5	3	4	25	No	No			
7278	ACRU	*Acer rubrum*	Red Maple	17.0	19.0	Good	No		5	4	5	5	3	4	26	Yes	No			
7279	ULAM	*Ulmus americana*	American Elm	4.5	5.0	Good	No		5	4	4	5	3	4	25	No	No			
7280	ULAM	*Ulmus americana*	American Elm	5.0	6.0	Good	No		5	4	4	5	3	4	25	No	No			
7281	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.0	6.0	Dead	No		1	1	1	1	1	1	6	No	No			
7282	PRSE	*Prunus serotina*	Black Cherry	9.5, 9.5, 9.5, 7.5, 6.5	11, 10, 10, 9.5, 8.5	Fair	No		3	4	3	3	3	3	19	Yes	No			
7283	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.5	6.0	Good	No		4	4	5	5	3	4	25	No	No			
7284	PRSE	*Prunus serotina*	Black Cherry	4.5	5.0	Good	No		5	4	3	3	3	3	21	No	No			
7285	PRSE	*Prunus serotina*	Black Cherry	8.5	9.0	Good	No		5	4	5	5	3	4	26	Yes	No			
7286	ULAM	*Ulmus americana*	American Elm	13.5	15.5	Good	No		5	4	5	2	3	3	22	No	No			
7287	FRPE	*Fraxinus pennsylvanica*	Green Ash	8.5	9.5	Dead	No		1	2	1	1	1	1	7	No	No			
7288	ULAM	*Ulmus americana*	American Elm	5.5	7.0	Fair	No		5	3	3	3	2	2	18	No	No			
7289	FRPE	*Fraxinus pennsylvanica*	Green Ash	8.5	9.5	Good	No		5	4	5	5	3	3	25	Yes	No			
7290	FRPE	*Fraxinus pennsylvanica*	Green Ash	5.5	6.5	Good	No		5	4	5	5	3	3	25	No	No			

NOTE: ALL TREES TO BE REMOVED SHALL BE IDENTIFIED ON SITE BY FLUORESCENT ORANGE SPRAY PAINT (CHALK BASE) OR BY RED FLAGGING TAPE PRIOR TO FIELD INSPECTION BY THE CITY. SEE DETAIL 6 / SHEET L2.0

CONTRACTOR SHALL REVIEW THE COMPLETE DRAWING SET AND NOTIFY THE DESIGN PROFESSIONAL IN WRITING PRIOR TO CONSTRUCTION, IF ANY DISCREPANCIES ARE FOUND WITHIN THE DRAWINGS OR WITH ACTUAL FIELD CONDITIONS.

LEGEND

RIGHT-OF-WAY
PROPERTY LINE
SETBACK
EASEMENT
BUILDING
CONCRETE CURB
PAVEMENT/WALK
SIGN
CATCH BASIN
STORM MANHOLE
SANITARY MANHOLE
FIRE HYDRANT
LIGHT POLE
EXISTING TREE LINE TO REMAIN
SOD LIMIT
P-OH EXISTING/PROPOSED OVERHEAD WIRE LINE

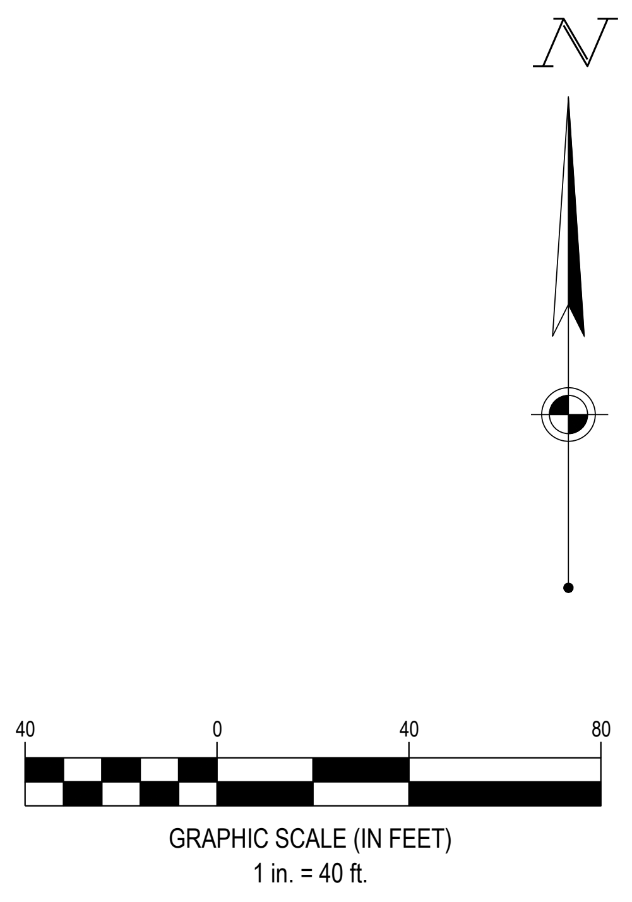
TREE MITIGATION

LANDMARK TREE REPLACEMENT (25% OF DBH REMOVED)
159 DBH REMOVED
REQUIRED: 39.8"
PROVIDED: 16 - 2.5" CALIPER TREES

PROTECTED TREE REPLACEMENT (1:1 REPLACEMENT)
38 TREES REMOVED
REQUIRED: 38 TREES
PROVIDED: 38 TREES

TREE TO REMAIN

PROTECTED/LANDMARK TREE TO REMAIN



GRAPHIC SCALE (IN FEET)
1 in. = 40 ft.

MISS DIG 811

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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MANDY J. GAUSS ENGINEER NO. 55618
Mandy J. Gauss

7-ELEVEN, INC.

WALLED LAKE
1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	EAB/JC
Checked By:	EAB
Date:	07/18/2025
Issue:	PERMIT SET

Drawing Title:
TREE REMOVAL PLAN

L3.0

Tree Tag #	Data Code	Common Name	Scientific Name	DBH	Diameter at 12"	Condition	Bat Trees	Comments	Trunk Condition	Growth Rate	Tree Structure	Insects/ Disease	Crown Development	Life Expectancy	Total Score	Protected	Landmark	Tree Removal (QTY)	Protected Removed (QTY)	Landmark Removed (DBH)
7291	RHCA	Rhamnuscathartica	Common Buckthorn	6.5	7.0	Good	No		5	4	5	5	3	3	25	No	No			
7292	ULAM	Ulmusamericana	AmericanElm	5.0	6.0	Good	No		5	4	5	5	3	4	26	No	No			
7293	ULAM	Ulmusamericana	AmericanElm	6.0	7.0	Good	No		5	4	5	5	3	4	26	No	No			
7294	FRPE	Fraxinuspennsylvanica	GreenAsh	5.5	6.5	Good	No		5	4	5	5	3	4	26	No	No			
7295	FRPE	Fraxinuspennsylvanica	GreenAsh	7.5	9.0	Fair	No		3	4	3	3	3	3	19	No	No			
7296	ULAM	Ulmusamericana	AmericanElm	9.5	12.5	Good	No		5	4	5	3	3	4	24	No	No			
7297	FRPE	Fraxinuspennsylvanica	GreenAsh	7.5	8.5	Good	No		4	4	5	3	3	3	22	No	No			
7298	ULAM	Ulmusamericana	AmericanElm	4.5	6.0	Good	No		5	4	5	5	3	4	26	No	No			
7299	ULAM	Ulmusamericana	AmericanElm	6.5	8.0	Good	No		5	4	5	5	3	4	26	No	No			
7300	ULAM	Ulmusamericana	AmericanElm	7.5	9.0	Good	No		5	4	5	5	3	4	26	No	No			
7301	ULAM	Ulmusamericana	AmericanElm	4.5	6.0	Good	No		5	4	4	5	3	4	25	No	No			
7302	ULAM	Ulmusamericana	AmericanElm	6.5	8.0	Good	No		5	4	4	5	3	4	25	No	No			
7303	FRPE	Fraxinuspennsylvanica	GreenAsh	5.5	6.0	Good	No		5	4	5	5	3	4	26	No	No			
7304	ULAM	Ulmusamericana	AmericanElm	6.5	7.5	Good	No		5	4	5	5	3	4	26	No	No			
7305	FRPE	Fraxinuspennsylvanica	GreenAsh	6.0	6.5	Good	No		5	4	5	5	3	4	26	No	No			
7306	ULAM	Ulmusamericana	AmericanElm	4.5	5.5	Dead	No		1	1	1	1	1	1	6	No	No			
7307	ULAM	Ulmusamericana	AmericanElm	5.0	6.0	Good	No		5	4	5	3	3	3	23	No	No			
7308	ULAM	Ulmusamericana	AmericanElm	5.0	6.0	Good	No		5	4	5	3	3	3	23	No	No			
7309	ULAM	Ulmusamericana	AmericanElm	5.0	6.0	Fair	No		5	4	3	3	3	3	21	No	No			
7310	ULAM	Ulmusamericana	AmericanElm	8.0	9.5	Fair	No		5	4	3	3	3	3	21	No	No			
7311	ULAM	Ulmusamericana	AmericanElm	9.5	10.5	Good	No		5	4	5	5	3	4	26	No	No			
7312	FRPE	Fraxinuspennsylvanica	GreenAsh	6.5	7.0	Dead	No		1	1	1	1	1	1	6	No	No			
7313	ACNE	Acernegundo	Boxelder	7.5	8.0	Dead	No		1	1	1	1	1	1	6	No	No			
7314	ULAM	Ulmusamericana	AmericanElm	11.5	14.0	Good	No		5	4	5	5	3	4	26	No	No			
7315	ULAM	Ulmusamericana	AmericanElm	6.0	7.0	Good	No		5	4	5	5	3	4	26	No	No			
7316	ULAM	Ulmusamericana	AmericanElm	4.5	5.5	Good	No		5	4	5	5	3	4	26	No	No			
7317	ACRU	Acerrubrum	RedMaple	9.0	10.5	Good	No		5	4	5	5	4	4	27	Yes	No			
7318	QURU	Quercusrubra	RedOak	16.5	16.5	Good	No		5	4	5	3	4	4	25	Yes	Yes			
7319	QURU	Quercusrubra	RedOak	16.0	19.0	Good	No		5	4	5	3	4	4	25	Yes	Yes			
7320	FRPE	Fraxinuspennsylvanica	GreenAsh	5.5	6.5	Poor	No	Vines	2	2	3	1	2	2	12	No	No			
7321	ULAM	Ulmusamericana	AmericanElm	8.5	11.0	Fair	No		5	4	4	3	3	3	22	No	No			
7322	ACRU	Acerrubrum	RedMaple	6.0	6.5	Good	No		5	4	5	3	3	4	24	No	No			
7323	FRPE	Fraxinuspennsylvanica	GreenAsh	5.5	6.0	Good	No		4	4	5	3	3	4	23	No	No			
7324	ULAM	Ulmusamericana	AmericanElm	5.0	6.0	Good	No		5	4	5	5	2	4	25	No	No			
7325	FRPE	Fraxinuspennsylvanica	GreenAsh	8.5	10.0	Poor	No	NearlyDead	1	4	3	1	2	1	12	No	No			
7326	FRPE	Fraxinuspennsylvanica	GreenAsh	6.0	7.0	Good	No		4	4	5	5	3	3	24	No	No			
7327	FRPE	Fraxinuspennsylvanica	GreenAsh	5.0	5.5	Good	No		4	4	5	5	3	3	24	No	No			
7328	FRPE	Fraxinuspennsylvanica	GreenAsh	7.5	8.5	Good	No		5	3	4	2	3	2	19	No	No			
7329	ULAM	Ulmusamericana	AmericanElm	8.0	10.0	Fair	No	Vines	5	3	3	3	2	2	18	No	No			
7330	RHCA	Rhamnuscathartica	Common Buckthorn	4.0	8.5, 3.5	Fair	No	Vines	5	3	3	3	2	2	18	No	No			
7331	ULAM	Ulmusamericana	AmericanElm	5.5	5.5	Fair	No	Vines	5	3	3	3	2	2	18	No	No			
7332	RHCA	Rhamnuscathartica	Common Buckthorn	4.5,4	5,4.5	Good	No		5	3	5	5	4	3	25	No	No			
7333	ULAM	Ulmusamericana	AmericanElm	7.5	8.5	Good	No	Vines	5	3	5	3	3	3	22	No	No			
7334	FRPE	Fraxinuspennsylvanica	GreenAsh	7.5	8.0	Good	No		5	4	4	5	3	3	24	No	No			
7335	JUVI	Juniperusvirginiana	Eastern Redcedar	6.0	7.0	Fair	No	TopBrokenOff	5	4	4	5	2	4	24	No	No			
7336	ULAM	Ulmusamericana	AmericanElm	6.0	7.0	Good	No		5	4	5	5	3	4	26	No	No	1		
7337	ULAM	Ulmusamericana	AmericanElm	14.5	15.5	Fair	No	Vines	5	4	5	3	4	3	24	No	No	1		
7338	ULAM	Ulmusamericana	AmericanElm	4.5	5.5	Good	No		5	4	5	5	2	4	25	No	No	1		
7339	ULAM	Ulmusamericana	AmericanElm	6.5	7.5	Good	No		5	4	5	5	3	4	26	No	No			
7340	FRPE	Fraxinuspennsylvanica	GreenAsh	7.0	8.0	Good	No		5	4	5	5	3	4	26	No	No			
7341	ULAM	Ulmusamericana	AmericanElm	4.5	5.5	Fair	No	Vines	5	4	5	3	3	4	24	No	No			
7342	ULAM	Ulmusamericana	AmericanElm	6, 4.5	9.5	Fair	No	Vines	5	4	5	3	3	4	24	No	No			
8712	TIAM	Tiliaamericana	Basswood	14.0	17.0	Good	No		5	3	5	5	4	5	27	Yes	No			
8713	TIAM	Tiliaamericana	Basswood	14.0	15.0	Good	No		5	3	5	5	5	5	28	Yes	No			
8714	TIAM	Tiliaamericana	Basswood	14.0	16.0	Good	No		5	3	5	5	5	5	28	Yes	No	1	1	
8715	TIAM	Tiliaamericana	Basswood	16.5	18.0	Good	No		5	3	5	5	5	5	28	Yes	No	1	1	
8716	TIAM	Tiliaamericana	Basswood	16.0	18.0	Good	No		5	3	5	5	5	5	28	Yes	No	1	1	
8717	ELUM	Elaeagnusumbellata	Autumn-olive	6.0	6.0	Fair	No	Leaning	5	5	4	3	2	4	23	No	No			
8718	ELUM	Elaeagnusumbellata	Autumn-olive	4.0	5.0	Good	No		5	5	4	3	2	5	24	No	No			
8719	ELUM	Elaeagnusumbellata	Autumn-olive	4.0	5.0	Good	No		5	5	4	3	2	5	24	No	No	1		
8720	ELUM	Elaeagnusumbellata	Autumn-olive	7, 5.5, 5, 4.5, 3.5, 3.5, 3, 3	7, 7, 7, 6.5, 6, 4.5, 4, 3	Good	No		3	5	3	3	3	4	21	No	No	1		
8721	ELUM	Elaeagnusumbellata	Autumn-olive	4.5	5.0	Fair	No	Leaning	4	5	4	3	1	3	20	No	No	1		
8722	ACNE	Acernegundo	Boxelder	9.5	10.0	Good	No		5	3	4	3	3	5	23	No	No	1		
8723	ELUM	Elaeagnusumbellata	Autumn-olive	4.5, 4.5, 4, 4, 3.5, 3, 3	12, 5.5, 5, 3.5, 3	Good	No		4	3	3	3	2	4	19	No	No	1		
8724	ULAM	Ulmusamericana	AmericanElm	15.0	16.0	Poor	No	NealyDead, Vines	2	2	3	1	3	3	14	No	No	1		
8725	ELUM	Elaeagnusumbellata	Autumn-olive	5, 4, 4, 3, 3	8, 5, 5.5, 3.5, 3	Poor	No	Vines	3	4	1	1	1	2	12	No	No	1		
8726	ELUM	Elaeagnusumbellata	Autumn-olive	6, 5, 4.5, 4, 2	6, 6, 5, 4.5, 3.5	Poor	No	Vines, Dead Branches	3	3	1	1	1	3	12	No	No	1		
8727	ELUM	Elaeagnusumbellata	Autumn-olive	5, 5, 4, 4, 3.5, 3.5, 3	6, 5.5, 4.5, 4, 4, 3.5	Good	No		5	3	3	3	3	4	21	No	No	1		
8728	ACNE	Acernegundo	Boxelder	8.5	9.0	Good	No		5	3	4	3	4	5	24	No	No	1		
8729	ELUM	Elaeagnusumbellata	Autumn-olive	4, 3.5, 3, 3, 2.5	8, 5.5	Fair	No	DeadBranches	4	3	3	1	1	3	15	No	No	1		
8730	MOAL	Morusalba	WhiteMulberry	10.5	11.0	Good	No		5	3	4	3	3	5	23	Yes	No	1	1	
8731	ELUM	Elaeagnusumbellata	Autumn-olive	5.0	5.0	Fair	No	Vines	5	3	3	1	1	3	16	No	No	1		
8732	ELUM	Elaeagnusumbellata	Autumn-olive	4, 4, 3, 3	8, 4, 3.5, 3	Fair	No	Leaning	4	3	2	1	1	3	14	No	No	1		
8733	ELUM	Elaeagnusumbellata	Autumn-olive	5, 4, 3	5, 4.5, 4	Fair	No	DeadBranches	4	3	2	1	1	3	14	No	No	1		
8734	MOAL	Morusalba	WhiteMulberry	12.0	14.0	Fair	No	Vines	4	3	3	1	2	5	18	Yes	No	1	1	
8735	ACNE	Acernegundo	Boxelder	6.0	7.0	Fair	No	Vines	5	3	3	3	2	3	19	No	No	1		
8736	ACNE	Acernegundo	Boxelder	4.5, 4	6.5, 5	Fair	No	Vines	4	3	3	1	2	3	16	No	No	1		
8737	ACNE	Acernegundo	Boxelder	12	15	Fair	No	Vines	5	3	4	3	3	5	23	No	No	1		
8738	ELUM	Elaeagnusumbellata	Autumn-olive	4, 4, 3, 3, 2.5, 2.5	7, 5, 2.5	Fair	No	Vines	3	3	3	1	2	3	15	No	No	1		
8739	ACNE	Acernegundo	Boxelder	5	6	Fair	No	Vines	5	3	5	3	3	5	24	No	No	1		
8740	PRSE	Prunusserotina	Black Cherry	9	9	Fair	No	Vines	5	2	5	3	3	5	23	Yes	No	1	1	
8741	ACNE	Acernegundo	Boxelder	13.5, 12, 10, 8, 8, 7.5, 7, 3.5	14.5, 13, 10, 10, 9, 9, 9, 8.5	Fair	No	IBR	5	3	4	3	4	5	24	No	No	1		
8742	PRSE	Prunusserotina	Black Cherry	6	6	Good	No		5	3	5	3	3	5	24	No	No	1		
8743	ULAM	Ulmusamericana	AmericanElm	5	6	Fair	No	Vines	5	2	3	2	2	3	17	No	No	1		
8744	ACNE	Acernegundo	Boxelder	9, 9	12.5, 9.5	Poor	No	Leaning, Uprooted	2	3	3	1	1	2	12	No	No	1		
8745	PODE	Populusdeltoides	Cottonwood	33	39	Fair	No	Vines, IBR	5	3	2	1	5	4	20	No	No	1		
8746	ACNE	Acernegundo	Boxelder	6	7	Fair	No	Vines	3	2	3	1	3	3	15	No	No	1		
8747	ULAM	Ulmusamericana	AmericanElm	15	17	Fair	No	Vines	5	3	5	3	3	5	24	No	No	1		
8748	ULAM	Ulmusamericana	AmericanElm	14.5, 6	19, 6.5	Fair	No	Vines	4	3	4	3	4	5	23	No	No	1		
8749	ULAM	Ulmusamericana	AmericanElm	10	12	Fair	No	Vines	5	3	4	3	3	5	23	No	No	1		
8750	ACNE	Acernegundo	Boxelder	6	6	Fair	No	Vines	5	3	4	3	2	4	21	No	No	1		
8751	PRSE	Prunusserotina	Black Cherry	10	11	Good	No		5	3	3	3	4	5	23	Yes	No	1	1	
8752	PRSE	Prunusserotina	Black Cherry	14, 13, 10	17, 15.5	Good	No		5	3	3	3	4	5	23	Yes	No	1	1	
8753	ACNE	Acernegundo	Boxelder	5, 2.5	6, 3	Fair	No	IBR, Vines	3	2	3	1	3	3	15	No	No			
8754	ACNE	Acernegundo	Boxelder	6	7	Fair	No		4	2	5	3	4	4	22	No	No			
8755	PRSE	Prunusserotina	Black Cherry	7	6	Fair	No	Vines	4	3	4	3	3	4	21	No	No			
8756	PRSE	Prunusserotina	Black Cherry	12.5, 12, 11	14.5, 13, 12.5	Fair	No		4	3	4	3	3	4	21	Yes	No	1	1	
8757	ACNE	Acernegundo	Boxelder	6	6	Fair	No	Vines	4	3	4	3	2	3	19	No	No	1		
8758	PRSE	Prunusserotina	Black Cherry	6	7	Dead	No		1	1	1	1	1	1	6	No	No	1		
8759	ACSAN	Acersaccarinum	Silver Maple	5	6	Good	No		5	3	4	3	5	5	25	No	No	1		
8760	ULAM	Ulmusamericana	AmericanElm	9	10	Good	No		5	2	4	3	3	5	22	No	No			
8761	ULAM	Ulmusamericana	AmericanElm	10	12	Fair	No	Vines	5	3	4	3	3	5	23	No	No	1		
8762	ELUM	Elaeagnusumbellata	Autumn-olive	7, 4.5, 4, 4, 4, 3, 3	13.5, 10.5, 7	Fair	No	Vines, Split Trunk	3	2	3	3	1	3	15	No	No	1		
8763	ULAM	Ulmusamericana	AmericanElm	7	8	Fair	No	Vines	4	3	4	3	4	5	23	No	No			
8764	PRSE	Prunusserotina	Black Cherry	9	9	Fair	No	DeadBranches, Vines	4	3	3	3	2	4	19	Yes	No	1	1	
8765	PRSE	Prunusserotina	Black Cherry	11	10	Fair	No	Vines	5	3	5	3	4	5	25	Yes	No	1	1	
8766	ACNE	Acernegundo	Boxelder	4	5	Fair	No	Vines, IBR	4	3	4	1	5	4	21	No	No	1		
8767	MASPP	Malusspecies	Apple/ Crabapple	7, 5, 5	12	Good	No		5	2	5	1	4	5	22	No	No	1		
8768	ACNE	Acernegundo	Boxelder	6	8	Fair	No	DeadBranches	5	3	3	3	3	4	21	No	No	1		
8769	PRSE	Prunusserotina	Black Cherry	12, 7	14.5, 8.5	Dead	No		1	1	1	1	1	1	6	No	No	1		
8770	PRSE	Prunusserotina	Black Cherry	15	17	Dead	No		1	1	1	1	1	1	6	No	No	1		
8771	JUVI	Juniperusvirginiana	Eastern Redcedar	8	9	Fair	No	DeadNeedles	5	3	4	3	4	5	24	No	No	1		
8772	ACNE	Acernegundo	Boxelder	5	6	Good	No		5	3	4	3	4	5	24	No	No	1		
8773	ACNE	Acernegundo	Boxelder	6	7	Good	No		5	3	4	3	4	5	24	No	No	1		
8774	ACNE	Acernegundo	Boxelder	4.5, 3.5	5	Fair	No	Vines	5	3	4	3	2	4	21	No	No	1		
8775	PRSE	Prunusserotina	Black Cherry	20	21	Poor	No	ibr deadmain branches	3	3	2	1	1	3	13	Yes	No	1	1	

Tree Tag #	Data Code	Common Name	Scientific Name	DBH	Diameter at 12"	Condition	Bat Trees	Comments	Trunk Condition	Growth Rate	Tree Structure	Insects/ Disease	Crown Development	Life Expectancy	Total Score	Protected	Landmark	Tree Removal (QTY)	Protected Removed (QTY)	Landmark Removed (DBH)
8776	PRSE	Prunusserotina	Black Cherry	8	11	Dead	No		1	1	1	1	1	1	6	No	No	1		
8777	PRSE	Prunusserotina	Black Cherry	19	17	Fair	No	Vines	5	3	4	3	4	5	24	Yes	Yes	1		19
8778	ACNE	Acer negundo	Boxelder	8	10	Poor	No	Vines	3	2	2	3	2	3	15	No	No	1		
8779	ULAM	Ulmusamericana	AmericanElm	16	18	Fair	No	Vines	5	3	4	3	3	5	23	No	No	1		
8780	ULAM	Ulmusamericana	AmericanElm	8	9	Good	No		5	3	4	3	3	5	23	No	No	1		
8781	PRSE	Prunusserotina	Black Cherry	21	21	Fair	No	DeadBranches, Vines	5	3	2	3	4	5	22	Yes	Yes	1		21
8782	ACSAN	Acer saccarinum	Silver Maple	4	5	Good	No		5	3	4	3	4	5	24	No	No	1		
8783	Other	Acer ginnala	Amur Maple	5, 4, 3, 2.5	6, 4.5, 4, 3	Good	No		5	3	4	3	4	5	24	No	No	1		
8784	Other	Rhustyphina	Staghorn Sumac	4	5	Good	No		5	3	4	3	4	5	24	No	No	1		
8785	ACNE	Acer negundo	Boxelder	5	5	Good	No		5	3	4	3	4	5	24	No	No	1		
8786	ULAM	Ulmusamericana	AmericanElm	11	14, 5.5	Fair	No	Vines	5	3	3	3	3	5	22	No	No	1		
8787	PRSE	Prunusserotina	Black Cherry	11, 10.5, 9	12, 11, 9	Fair	No	Vines	5	3	3	3	3	5	22	Yes	No	1	1	
8788	ACNE	Acer negundo	Boxelder	3.5, 3	7	Fair	No	Vines, IBR	3	3	3	3	3	3	18	No	No	1		
8789	POTR	Populustremuloides	Quaking Aspen	10, 5	14	Poor	No	Nearly Dead	2	2	1	3	1	2	11	No	No	1		
8790	ACNE	Acer negundo	Boxelder	12	12	Fair	No	DeadBranches, Vines	4	3	2	3	2	4	18	No	No	1		
8791	ACNE	Acer negundo	Boxelder	7	9	Poor	No	Broken Top	2	3	1	3	2	2	13	No	No	1		
8792	MASPP	Malusspecies	Apple/ Crabapple	6, 4.5	9	Good	No		5	2	4	3	4	5	23	No	No	1		
8793	PRSE	Prunusserotina	Black Cherry	22	18	Good	No		5	3	3	3	3	5	22	Yes	Yes	1		22
8794	QURU	Quercusrubra	Red Oak	17	19	Fair	No	DeadBranches	5	3	3	3	3	5	22	Yes	Yes	1		17
8795	POTR	Populustremuloides	Quaking Aspen	5	5	Dead	No		1	1	1	1	1	1	6	No	No	1		
8796	POTR	Populustremuloides	Quaking Aspen	7, 7	13	Dead	No		1	1	1	1	1	1	6	No	No	1		
8797	POTR	Populustremuloides	Quaking Aspen	7	8	Dead	No		1	1	1	1	1	1	6	No	No	1		
8798	POTR	Populustremuloides	Quaking Aspen	8	9	Dead	Yes	ExfoliatingBark	1	1	1	1	1	1	6	No	No	1		
8799	POTR	Populustremuloides	Quaking Aspen	7	8	Poor	No	Nearly Dead	2	2	2	3	2	2	13	No	No	1		
8800	POTR	Populustremuloides	Quaking Aspen	9	10	Dead	No		1	1	1	1	1	1	6	No	No	1		
8801	POTR	Populustremuloides	Quaking Aspen	5	10	Dead	No		1	1	1	1	1	1	6	No	No	1		
8802	PODE	Populusdeltoides	Cottonwood	6	7	Good	No		5	3	4	3	4	5	24	No	No	1		
8803	PRSE	Prunusserotina	Black Cherry	9	11	Good	No		5	3	4	3	3	5	23	Yes	No			
8804	POTR	Populustremuloides	Quaking Aspen	5	6	Fair	No	Vines	4	3	4	3	2	5	21	No	No	1		
8805	POTR	Populustremuloides	Quaking Aspen	9	10	Dead	No		1	1	1	1	1	1	6	No	No	1		
8806	POTR	Populustremuloides	Quaking Aspen	8	10	Dead	Yes	ExfoliatingBark	1	1	1	1	1	1	6	No	No	1		
8807	PRSE	Prunusserotina	Black Cherry	5	6	Fair	No	Vines	4	3	4	3	3	5	22	No	No	1		
8808	ACSAN	Acer saccarinum	Silver Maple	15	16	Good	No		5	3	3	3	5	5	24	No	No	1		
8809	ACSAN	Acer saccarinum	Silver Maple	4	5	Good	No		5	3	4	3	3	5	23	No	No	1		
8810	FRPE	Fraxinuspennsylvanica	Green Ash	6	8	Good	No		5	3	4	3	5	5	25	No	No	1		
8811	ACNE	Acer negundo	Boxelder	7	8	Good	No		5	3	4	3	5	5	25	No	No	1		
8812	POTR	Populustremuloides	Quaking Aspen	7	7	Good	No		5	3	4	3	5	5	25	No	No	1		
8813	PRSE	Prunusserotina	Black Cherry	14	15	Good	No		5	3	4	3	3	5	23	Yes	No	1	1	
8814	PRSE	Prunusserotina	Black Cherry	17	17	Fair	No	Vines	5	3	4	3	3	4	22	Yes	No	1	1	
8815	ACNE	Acer negundo	Boxelder	7	8	Fair	No	Vines	5	3	4	3	4	4	23	No	No	1		
8816	PRSE	Prunusserotina	Black Cherry	9	10	Fair	No	Vines	5	3	4	3	4	4	23	Yes	No	1	1	
8817	ACNE	Acer negundo	Boxelder	5	6	Fair	No	Vines	5	3	4	3	4	4	23	No	No	1		
8818	PRSE	Prunusserotina	Black Cherry	10.5, 10.5	18	Good	No		5	3	3	3	4	4	22	Yes	No	1	1	
8819	PRSE	Prunusserotina	Black Cherry	18	14	Good	No		5	3	4	3	4	4	23	Yes	Yes	1		18
8820	PRSE	Prunusserotina	Black Cherry	11, 10	17	Good	No		5	3	3	3	4	4	22	Yes	No	1	1	
8821	ACNE	Acer negundo	Boxelder	6	8	Fair	No	Vines, IBR	3	3	3	3	1	3	16	No	No	1		
8822	ACNE	Acer negundo	Boxelder	7	8	Fair	No	Vines, IBR	3	3	3	3	1	3	16	No	No	1		
8823	ACNE	Acer negundo	Boxelder	5	6	Dead	No		1	1	1	1	1	1	6	No	No	1		
8824	PRSE	Prunusserotina	Black Cherry	17	17	Fair	No	DeadBranches	4	3	3	3	3	5	21	Yes	No	1	1	
8825	ACNE	Acer negundo	Boxelder	11	12	Good	No		5	3	4	3	4	5	24	No	No	1		
8826	ACSAN	Acer saccarinum	Silver Maple	8	10	Good	No		5	3	4	3	4	5	24	No	No	1		
8827	CRSPP	Crataegusspecies	Hawthorn	5	5	Dead	No		1	1	1	1	1	1	6	No	No	1		
8828	PRSE	Prunusserotina	Black Cherry	9	10	Fair	No	Vines	5	3	3	3	2	4	20	Yes	No	1	1	
8829	ACNE	Acer negundo	Boxelder	9	10	Fair	No	Vines	5	3	3	3	3	5	22	No	No	1		
8830	ACNE	Acer negundo	Boxelder	6	6	Fair	No	Vines	4	2	3	3	2	3	17	No	No	1		
8831	ACNE	Acer negundo	Boxelder	17	19	Fair	No	Vines	5	3	4	3	5	5	25	No	No			
8832	ACNE	Acer negundo	Boxelder	4	5	Good	No		5	3	4	3	3	5	23	No	No	1		
8833	PRSE	Prunusserotina	Black Cherry	6	6	Dead	No		1	1	1	1	1	1	6	No	No	1		
8834	MASPP	Malusspecies	Apple/ Crabapple	7	8	Fair	No	Vines	3	2	3	3	2	3	16	No	No	1		
8835	ACNE	Acer negundo	Boxelder	12	13	Fair	No	Vines	5	3	4	3	4	5	24	No	No	1		
8836	ACNE	Acer negundo	Boxelder	8	9	Poor	No	Nearly Dead	1	1	1	1	1	1	6	No	No	1		
8837	CRSPP	Crataegusspecies	Hawthorn	4, 4	6	Dead	No		1	1	1	1	1	1	6	No	No	1		
8838	CRSPP	Crataegusspecies	Hawthorn	11	14	Dead	No		1	1	1	1	1	1	6	No	No	1		
8839	ACNE	Acer negundo	Boxelder	8	9	Fair	No	Vines	5	3	4	3	4	5	24	No	No	1		
8840	PRSE	Prunusserotina	Black Cherry	4	5	Fair	No	Vines	5	3	3	3	4	5	23	No	No	1		
8841	PRSE	Prunusserotina	Black Cherry	10	10	Poor	No	Nearly Dead	3	1	1	2	1	2	10	No	No	1		
8842	QURU	Quercusrubra	Red Oak	11	15	Good	No		5	3	4	4	5	5	26	Yes	No	1	1	
8843	PRSE	Prunusserotina	Black Cherry	15, 11, 11, 8.5, 6	30, 11	Fair	No	Vines	4	2	3	1	3	3	16	Yes	No	1	1	
8844	PRSE	Prunusserotina	Black Cherry	17	21	Fair	No	Vines	4	3	3	1	1	3	15	Yes	No	1	1	
8845	ACNE	Acer negundo	Boxelder	4	5	Good	No	Vines	5	3	5	4	3	5	25	No	No	1		
8846	QURU	Quercusrubra	Red Oak	14	17	Good	No	Vines	5	3	5	2	5	5	25	Yes	No	1	1	
8847	QURU	Quercusrubra	Red Oak	20	22	Fair	No	Vines	5	3	3	2	3	4	20	Yes	Yes	1		20
8848	JUVI	Juniperusvirginiana	Eastern Redcedar	4	5	Fair	No	MissingCrown	3	3	3	3	2	4	18	No	No	1		
8849	PRSE	Prunusserotina	Black Cherry	7	8	Good	No		5	3	4	4	3	5	24	No	No			
8850	JUVI	Juniperusvirginiana	Eastern Redcedar	5	6	Fair	No		4	2	3	3	3	3	18	No	No	1		
8851	PRSE	Prunusserotina	Black Cherry	4	6, 5.5	Good	No		4	3	3	4	3	4	21	No	No			
8852	PRSE	Prunusserotina	Black Cherry	8	9	Fair	No		4	3	3	2	2	3	17	Yes	No			
8853	FRPE	Fraxinuspennsylvanica	Green Ash	9	10	Good	No		5	4	5	4	4	5	27	Yes	No			
8854	PRSE	Prunusserotina	Black Cherry	10	12	Fair	No	Vines	3	2	2	2	2	5	16	Yes	No			
8855	ACNE	Acer negundo	Boxelder	4	5	Good	No		4	3	3	3	3	4	20	No	No	1		
8856	ACNE	Acer negundo	Boxelder	4	5	Poor	No	Nearly Dead	2	2	2	2	1	1	10	No	No	1		
8857	ACNE	Acer negundo	Boxelder	4	5	Fair	No		4	3	3	3	3	3	19	No	No	1		
8858	FRPE	Fraxinuspennsylvanica	Green Ash	10	11	Poor	No	Nearly Dead	2	2	2	1	1	1	9	No	No	1		
8859	FRPE	Fraxinuspennsylvanica	Green Ash	6	6	Dead	No		1	1	1	1	1	1	6	No	No	1		
8860	ACNE	Acer negundo	Boxelder	8	9	Good	No		5	3	4	4	3	5	24	No	No	1		
8861	QURU	Quercusrubra	Red Oak	11	13	Good	No		5	3	3	4	3	5	23	Yes	No	1	1	
8862	QURU	Quercusrubra	Red Oak	8	10	Good	No		5	3	3	4	3	5	23	Yes	No	1	1	
8863	PRSE	Prunusserotina	Black Cherry	14, 13, 11	25	Good	No		5	3	3	2	3	4	20	Yes	No	1	1	
8864	ACNE	Acer negundo	Boxelder	4	5	Dead	No		2	1	1	1	1	1	7	No	No	1		
8865	FRPE	Fraxinuspennsylvanica	Green Ash	9	11	Good	No	IBR	5	3	3	3	3	4	21	Yes	No	1	1	
8866	FRPE	Fraxinuspennsylvanica	Green Ash	7	8	Good	No		5	3	3	3	3	4	21	No	No	1		
8867	PRSE	Prunusserotina	Black Cherry	17	18	Good	No	Vines	4	3	3	3	3	3	19	Yes	No	1	1	
8868	PRSE	Prunusserotina	Black Cherry	5	6	Good	No	Vines	4	3	3	3	3	3	19	No	No	1		
8869	JUNI	Juglansnigra	Black Walnut	5	6	Fair	No	DeadBranches	3	3	3	3	3	3	18	No	No	1		
8870	ACNE	Acer negundo	Boxelder	6	8	Dead	No		1	1	1	1	1	1	6	No	No			
8871	ACNE	Acer negundo	Boxelder	7	9	Dead	No		1	1	1	1	1	1	6	No	No	1		
8872	ACSAN	Acer saccarinum	Silver Maple	12	13	Good	No		5	3	5	4	5	5	27	No	No	1		
8873	ULAM	Ulmusamericana	AmericanElm	5	6	Good	No		5	3	4	3	3	4	22	No	No	1		
8874	ULAM	Ulmusamericana	AmericanElm	5	7	Fair	No	Vines	5	3	3	3	3	3	20	No	No	1		
8875	ULAM	Ulmusamericana	AmericanElm	6	7	Fair	No	Vines	5	3	3	3	3	3	20	No	No	1		
8876	ULAM	Ulmusamericana	AmericanElm	6	8	Fair	No	Vines	5	3	3	3	3	3	20	No	No	1		
8877	PRSE	Prunusserotina	Black Cherry	17, 13	14, 14	Fair	No		5	3	3	3	4	4	22	Yes	No	1	1	
8878	ULAM	Ulmusamericana	AmericanElm	7	10	Fair	No		5	3	3	3	3	3	20	No	No	1		
8879	ULAM	Ulmusamericana	AmericanElm	6	8	Fair	No		5	3	3	3	3	3	20	No	No	1		
8880	ULAM	Ulmusamericana	AmericanElm	5	6	Good	No		5	3	4	4	3	4	23	No	No			
8881	MASPP	Malusspecies	Apple/ Crabapple	4, 4, 4, 4	7, 4, 4.5	Good	No		5	3	4	4	5	5	26	No	No			
8882	ULAM	Ulmusamericana	AmericanElm	5	6	Poor	No	NearlyDead, Vines	3	3	3	2	2	2	15	No	No			
8883	ULAM	Ulmusamericana	AmericanElm	9	12	Fair	No	Vines	5	3	3	2	3	2	18	No	No			
8884	ULAM	Ulmusamericana	AmericanElm	10	11	Dead	Yes	ExfoliatingBark	1	1	1	1	1	1	6	No	No	1		
8885	ULAM	Ulmusamericana	AmericanElm	7	8	Fair	No	Vines	4	3	3	2	2	2	16	No	No	1		
8886	ACNE	Acer negundo	Boxelder	4	5	Fair	No	Vines	5	3	3	3	3	4	21	No	No	1		
8887	ULAM	Ulmusamericana	AmericanElm	15	16	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8888	ULAM	Ulmusamericana	AmericanElm	6	7	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8889	ULAM	Ulmusamericana	AmericanElm	8	8	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8890	ULAM	Ulmusamericana	AmericanElm	5	6	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8891	ULAM	Ulmusamericana	AmericanElm	6	8	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8892	ULAM	Ulmusamericana	AmericanElm	3	5	Fair	No	Vines	5	3	3	2	2	3	18	No	No	1		

Tree Tag #	Data Code	Common Name	Scientific Name	DBH	Diameter at 12"	Condition	Bat Trees	Comments	Trunk Condition	Growth Rate	Tree Structure	Insects/ Disease	Crown Development	Life Expectancy	Total Score	Protected	Landmark	Tree Removal (QTY)	Protected Removed (QTY)	Landmark Removed (DBH)
8893	ULAM	Ulmusamericana	AmericanElm	12	13	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8894	ULAM	Ulmusamericana	AmericanElm	10	11	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8895	ACNE	Acernegundo	Boxelder	8	9	Dead	No	Vines	1	1	1	1	1	1	6	No	No	1		
8896	ACNE	Acernegundo	Boxelder	16	19	Good	No	Vines	5	3	3	3	3	4	21	No	No	1		
8897	QURU	Quercusrubra	RedOak	8	9	Good	No		5	3	3	3	3	4	21	Yes	No	1	1	
8898	QURU	Quercusrubra	RedOak	20	22	Good	No	Vines	5	3	3	3	3	5	22	Yes	Yes	1		20
8899	RHCA	Rhamnuscathartica	Common Buckthorn	4.5, 3.5	7	Fair	No	Vines	5	3	3	3	3	3	20	No	No	1		
8900	ACNE	Acernegundo	Boxelder	9	12	Poor	No	Vinesand Horizontal Orientation	3	3	2	2	1	1	12	No	No	1		
8901	PRSE	Prunusserotina	Black Cherry	7.5, 4, 4	8, 5, 4	Fair	No		4	3	3	2	2	3	17	No	No	1		
8902	ELUM	Elaeagnusumbellata	Autumn-olive	5, 4.5, 4	5.5, 5, 4	Good	No		4	3	4	4	3	3	21	No	No	1		
8903	ACNE	Acernegundo	Boxelder	14.5, 13, 12, 4.5	18, 12, 11, 6	Poor	No		2	2	2	2	1	1	10	No	No	1		
8904	ULAM	Ulmusamericana	AmericanElm	12	20	Good	No	Fused Trunk	5	3	3	3	3	4	21	No	No	1		
8905	ACNE	Acernegundo	Boxelder	5	6	Good	No		5	3	5	4	3	5	25	No	No	1		
8906	MOAL	Morusalba	White Mulberry	5	6	Good	No		5	3	5	4	3	4	24	No	No	1		
8907	ACNE	Acernegundo	Boxelder	4	5	Good	No		5	3	5	4	3	4	24	No	No	1		
8908	ULAM	Ulmusamericana	AmericanElm	4	5	Fair	No	Vines	5	3	5	3	3	3	22	No	No	1		
8909	ACNE	Acernegundo	Boxelder	5	6	Poor	No	Nearly Dead	5	3	2	2	2	1	15	No	No	1		
8910	ULAM	Ulmusamericana	AmericanElm	12	14	Poor	No	Nearly Dead	5	3	1	2	1	1	13	No	No	1		
8911	QUAL	Quercusalba	White Oak	14	17	Poor	No	Nearly Dead	5	3	2	2	2	1	15	No	No	1		
8912	ULAM	Ulmusamericana	AmericanElm	11	13	Fair	No	Vines	3	3	2	2	2	1	13	No	No	1		
8913	ULAM	Ulmusamericana	AmericanElm	10	12	Fair	No	Vines	5	3	3	2	3	2	18	No	No	1		
8914	ULAM	Ulmusamericana	AmericanElm	30	29	Fair	No	Vines	3	3	3	2	3	3	17	No	No	1		
8915	ULAM	Ulmusamericana	AmericanElm	12	13	Fair	No	Vines	4	3	3	2	3	3	18	No	No	1		
8916	ELUM	Elaeagnusumbellata	Autumn-olive	4, 4, 4, 3.5, 3, 3	5.5, 5, 4, 4, 3	Good	No		5	3	4	2	4	4	22	No	No	1		
8917	ULAM	Ulmusamericana	AmericanElm	7	8	Fair	No	Vines	5	3	4	2	3	3	20	No	No	1		
8918	ULAM	Ulmusamericana	AmericanElm	8	10	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8919	QUAL	Quercusalba	White Oak	22	25	Good	No		5	3	3	3	3	4	21	Yes	Yes	1		22
8920	ELUM	Elaeagnusumbellata	Autumn-olive	8.5, 3, 3	8, 7, 6	Fair	No		2	3	1	2	2	2	12	Yes	No	1	1	
8921	ULAM	Ulmusamericana	AmericanElm	9	10	Fair	No	Vines	4	3	3	2	3	3	18	No	No	1		
8922	ULAM	Ulmusamericana	AmericanElm	6.5, 6, 3	24	Fair	No	Vines	5	3	3	3	3	4	21	No	No	1		
8923	ULAM	Ulmusamericana	AmericanElm	5	6	Fair	No	Vines	5	3	3	2	3	3	19	No	No	1		
8924	ULAM	Ulmusamericana	AmericanElm	13, 12, 12.5	31	Fair	No	Vines	5	3	3	2	3	4	20	No	No	1		
8925	ULAM	Ulmusamericana	AmericanElm	5	6	Fair	No	Vines	5	3	3	2	2	3	18	No	No	1		
8926	ULAM	Ulmusamericana	AmericanElm	5	6	Fair	No	Vines	5	3	3	2	2	3	18	No	No	1		
8927	ELUM	Elaeagnusumbellata	Autumn-olive	7, 4.5, 3.5, 4	7, 6, 4, 3.5	Fair	No		3	3	4	3	3	3	19	No	No	1		
8928	ELUM	Elaeagnusumbellata	Autumn-olive	6, 6, 4	7, 6, 4	Fair	No		3	3	4	3	3	3	19	No	No	1		
8929	PRSE	Prunusserotina	Black Cherry	9	9	Fair	No	Vines	3	3	3	2	3	4	18	Yes	No	1	1	
8930	ULAM	Ulmusamericana	AmericanElm	12	15	Fair	No	Vines	4	3	3	2	3	4	19	No	No	1		
8931	ULAM	Ulmusamericana	AmericanElm	4	6	Good	No		5	3	4	4	3	5	24	No	No	1		
8932	ULAM	Ulmusamericana	AmericanElm	4	6	Good	No		5	3	4	4	3	5	24	No	No	1		
8933	ULAM	Ulmusamericana	AmericanElm	9	10	Fair	No	Vines	5	3	4	3	3	3	21	No	No	1		
8934	ACNE	Acernegundo	Boxelder	5	6	Fair	No	Vines	5	3	3	3	3	3	20	No	No	1		
8935	ELUM	Elaeagnusumbellata	Autumn-olive	4.5, 4, 4, 4, 4, 3.5, 3, 3, 2.5, 2	5, 5, 4.5, 4.5, 4, 4, 3.5, 3.5, 3, 2	Good	No		5	3	5	5	5	3	26	No	No	1		
8936	ULAM	Ulmusamericana	AmericanElm	11	12	Poor	No	Nearly Dead	3	3	2	3	1	1	13	No	No	1		
8937	PRSE	Prunusserotina	Black Cherry	13	20	Fair	No	Vines	4	3	3	3	4	3	20	Yes	No	1	1	
8938	ULAM	Ulmusamericana	AmericanElm	5	6	Good	No		5	3	4	4	4	5	25	No	No	1		
8939	PRSE	Prunusserotina	Black Cherry	12	13	Fair	No	Vines	4	3	3	3	2	4	19	Yes	No	1	1	
8940	ULAM	Ulmusamericana	AmericanElm	6	8	Fair	No	Vines	4	3	2	3	1	2	15	No	No	1		
8941	ULAM	Ulmusamericana	AmericanElm	8	10	Fair	No	Vines	4	3	3	3	3	3	19	No	No	1		
8942	RHCA	Rhamnuscathartica	Common Buckthorn		14	Fair	No	Fused Trunk, Vines	5	3	3	3	3	3	20	No	No	1		
8943	RHCA	Populusdeltoides	Cottonwood	42	46	Fair	No	Vines	5	3	4	3	3	4	22	No	No	1		
																	TOTALS	219	38	159

CESO

WWW.CESOINC.COM

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Phone: 937.435.8584 Fax: 888.208.4826

MANDY J. GAUSS ENGINEER NO. 55618

Mandy J. Gauss

7-ELEVEN, INC.

WALLED LAKE

1700 E. WEST MAPLE ROAD
WALLED LAKE, MICHIGAN 48390

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1"=40'
Drawn By:	EAB/JC
Checked By:	EAB
Date:	07/18/2025
Issue:	PERMIT SET

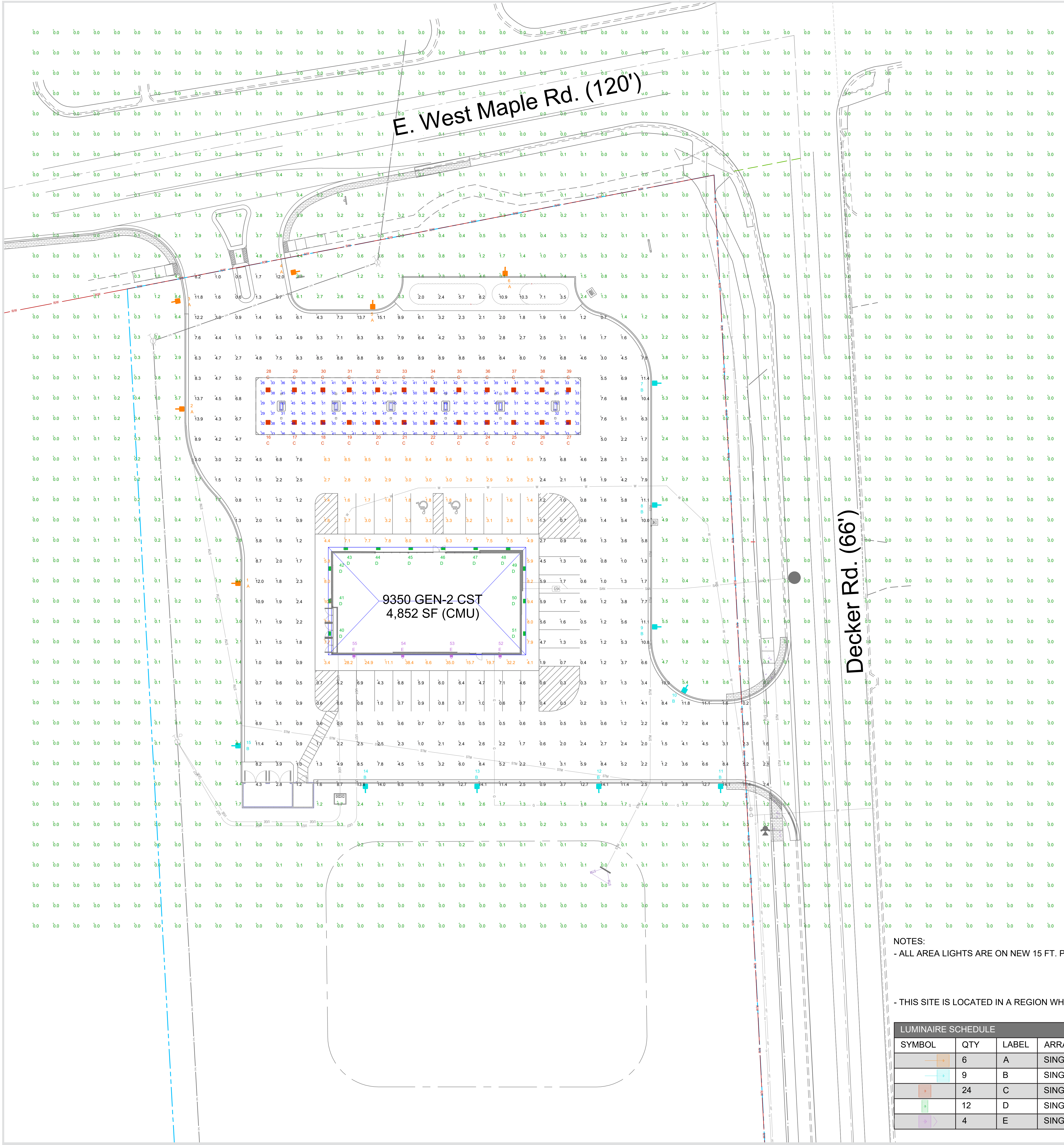
Drawing Title:

TREE REMOVAL PLAN

L3.1

MISS DIG 811

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF THE STATE UTILITIES PROTECTION SERVICE



LUMINAIRE LOCATION SUMMARY

LUM NO.	LABEL	MTG. HT.
1	A	17
2	A	17
3	A	17
4	A	17
5	A	17
6	A	17
7	B	17
8	B	17
9	B	17
10	B	17
11	B	17
12	B	17
13	B	17
14	B	17
15	B	17
16	C	16
17	C	16
18	C	16
19	C	16
20	C	16
21	C	16
22	C	16
23	C	16
24	C	16
25	C	16
26	C	16
27	C	16
28	C	16
29	C	16
30	C	16
31	C	16
32	C	16
33	C	16
34	C	16
35	C	16
36	C	16
37	C	16
38	C	16
39	C	16
40	D	12
41	D	12
42	D	12
43	D	12
44	D	12
45	D	12
46	D	12
47	D	12
48	D	12
49	D	12
50	D	12
51	D	12
52	E	10.5
53	E	10.5
54	E	10.5
55	E	10.5

NOTES:
- ALL AREA LIGHTS ARE ON NEW 15 FT. POLES MOUNTED ON 2 FT. CONCRETE BASES.

- THIS SITE IS LOCATED IN A REGION WHERE LIGHTING IS REGULATED BY LOCAL ORDINANCES.

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES

LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
01_UNDER CANOPY	43.27	51	26	1.66	1.96
02_PAVED AREA @ 5 FT	4.13	15.1	0.2	20.65	75.50
03_PEDESTRIAN AREA @ 5 FT	7.25	38.4	1.4	5.18	27.43
04_UNDEFINED	0.29	9.3	0.0	N.A.	N.A.

LUMINAIRE SCHEDULE

SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
▨	6	A	SINGLE	10450	1.020	B2-U0-G2	97	582	CREE, INC.	OSQ-ML-C-DA-XX + OSQM-C-16L-57K7-3B-UL-NM-XX-Q9
▨	9	B	SINGLE	9575	1.020	B2-U0-G2	97	873	CREE, INC.	OSQ-ML-C-DA-XX + OSQM-C-16L-57K7-4B-UL-NM-XX-Q9
▨	24	C	SINGLE	13518	1.020	B3-U3-G2	81	1944	CREE, INC.	CP5-13L-57K7-DF-UL-DM-XX-Q9 + CP5-BZ-SP-XX
▨	12	D	SINGLE	2960	1.030	B2-U0-G1	37	444	CREE, INC.	SFT-228-5M-RM-03-E-UL-XX-350-IC
▨	4	E	SINGLE	6075	1.020	B1-U0-G1	40	160	CREE, INC.	OSQW-C-6L-57K7-4M-UL-WM-XX

REDLEONARD
ASSOCIATES
1340 Kemper Meadow Dr, Forest Park, OH 45240
513-574-9500 | redleonard.com

REV.	BY	DATE	DESCRIPTION
R1	RCF	05/14/2025	REVISED PER UPDATED SITE PLAN.
.	.	.	.
.	.	.	.
.	.	.	.

DISCLAIMER

ANY SITE PLAN(S), FLOOR PLAN(S), RENDERING(S), LIGHTING LAYOUT(S) AND PHOTOMETRIC PLAN(S) INCLUDING BUT NOT LIMITED TO ANY PROJECT(S) CREATED/PRODUCED BY RED LEONARD ASSOCIATES INC., ARE ONLY INTENDED FOR ILLUSTRATION AND QUOTING PURPOSES ONLY. RED LEONARD ASSOCIATES HAS THE RIGHT TO USE THIRD PARTY LASERS, SCANNERS, AND CAMERAS BUT ACTUAL PROJECT CONDITIONS, DIMENSIONS, AND ACCURACY OF MEASUREMENTS MAY DIFFER FROM THESE OR ANY PARAMETERS. RED LEONARD ASSOCIATES INC. ASSUMES NO LIABILITY FOR WHAT IS CREATED/PRODUCED IN THESE RECREATIONS. THIS INCLUDES BUT IS NOT LIMITED TO THE USE OF, INSTALLATION OF AND/OR INTEGRITY OF EXISTING BUILDING(S), SURROUNDING AREA FOR PRODUCT(S) SUCH AS EXISTING POLE(S), ANCHOR BOLT(S), BASE(S), ARCHITECTURAL AND SIGNAGE STRUCTURE(S), LANDSCAPING PLAN(S), LIGHTING PLAN(S), FIXTURE SELECTION(S) AND PLACEMENT, MATERIAL(S), COLOR ACCURACY, TEXTURE(S), AND ANYTHING ATTRIBUTED TO PHOTO REALISM THAT IS CREATED. FURTHERMORE, RED LEONARD ASSOCIATES INC., DOES NOT ASSUME LIABILITY WHATSOEVER FOR ANY PURCHASES MADE BY CLIENT BEFORE, DURING, OR AT THE CONCLUSION OF THE PUBLISHED WORK. THE CUSTOMER, ITS RELATIVE AFFILIATES, AS WELL AS ANY OTHER PERSON(S) IN VIEWING OF THIS PRODUCT IS RESPONSIBLE FOR VERIFYING COMPLIANCE WITH ANY BUT NOT LIMITED TO ALL CODES, PERMITS, RESTRICTIONS, INSTRUCTIONS, PURCHASES, AND INSTALLATIONS OF OBJECTS VIEWED WITHIN THIS DOCUMENT(S) OR PROJECT(S). SYMBOLS ARE NOT DRAWN TO SCALE. SIZE IS FOR CLARITY PURPOSES ONLY. SIZES AND DIMENSIONS ARE APPROXIMATE, ACTUAL MEASUREMENTS MAY VARY. DRAWINGS ARE NOT INTENDED FOR ENGINEERING OR CONSTRUCTION USE. THIS DOCUMENT, ANY RED LEONARD DRAWING(S), OR PROJECT(S) IS NOT TO BE USED AND/OR INTENDED FOR ENGINEERING OR CONSTRUCTION PURPOSES, BUT FOR ILLUSTRATIVE PURPOSES ONLY. ANY LOCATIONS OF EMERGENCY LIGHTING SHOWN WERE PROVIDED BY OTHERS. RED LEONARD ASSOCIATES IS NOT RESPONSIBLE FOR INSUFFICIENT LIGHTING DURING AN EMERGENCY EVENT. ANY USE OF THIS DOCUMENTATION AND/OR OTHER ARTICLES PRODUCED BY RED LEONARD WITHOUT WRITTEN AUTHORIZATION FROM JAYME J. LEONARD IS STRICTLY PROHIBITED.

SCALE:
1" = 30'

LAYOUT BY:
RCF

DWG SIZE:
D

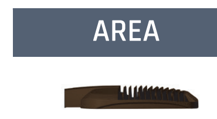
DATE:
09/09/2024

PROJECT NAME:
SPEEDWAY #1056400
WALLED LAKE, MI

DRAWING NUMBER:
RL-9841-S1-R1

Speedway

AREA



	QTY	LABEL	DESCRIPTION
🟧	6	A	OSQ-ML-C-DA-XX + OSQM-C-16L-57K7-3B-UL-NM-XX-Q9
🟦	9	B	OSQ-ML-C-DA-XX + OSQM-C-16L-57K7-4B-UL-NM-XX-Q9

CANOPY

	QTY	LABEL	DESCRIPTION
🟥	24	C	CP5-13L-57K7-DF-UL-DM-XX-Q9 + CP5-BZ-SP-XX

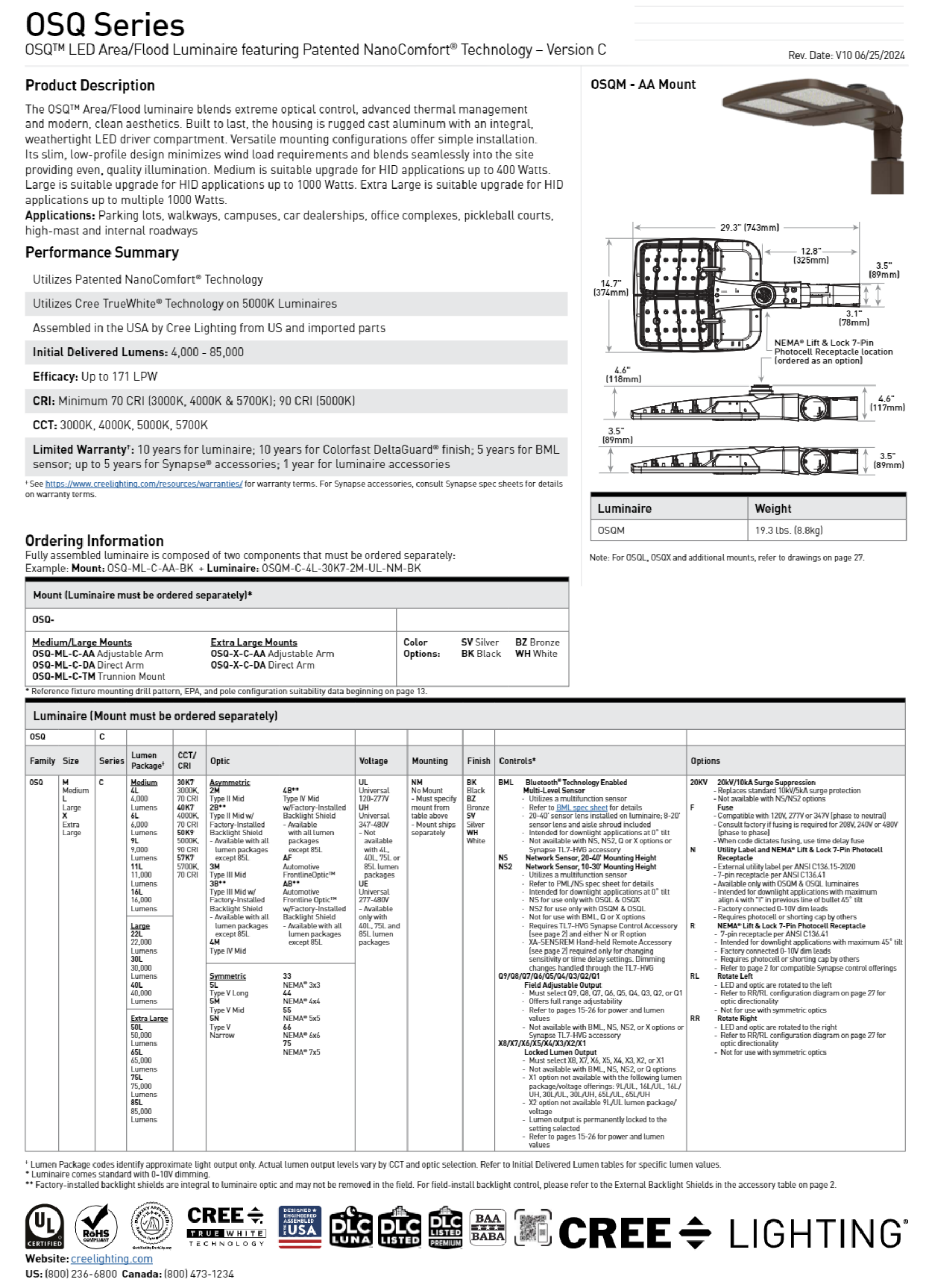
SOFFIT

	QTY	LABEL	DESCRIPTION
🟩	12	D	SFT-228-5M-RM-03-E-UL-XX-350-IC

WALL MOUNTED

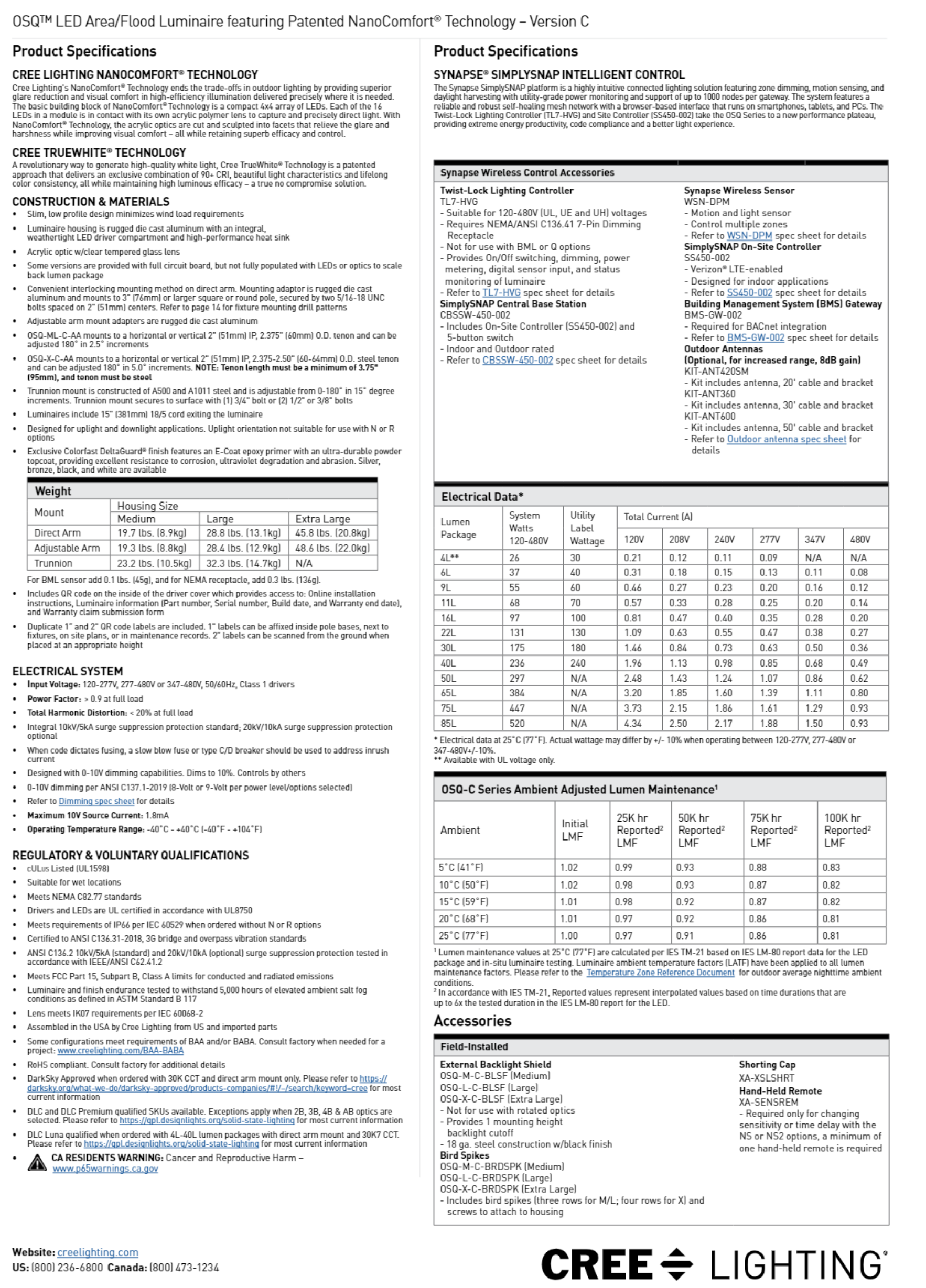
	QTY	LABEL	DESCRIPTION
🟪	4	E	OSQW-C-6L-57K7-4M-UL-WM-XX

ADDITIONAL FIXTURE INFO



OSQ Series

OSQ™ LED Area/Flood Luminaire featuring Patented NanoComfort® Technology – Version C

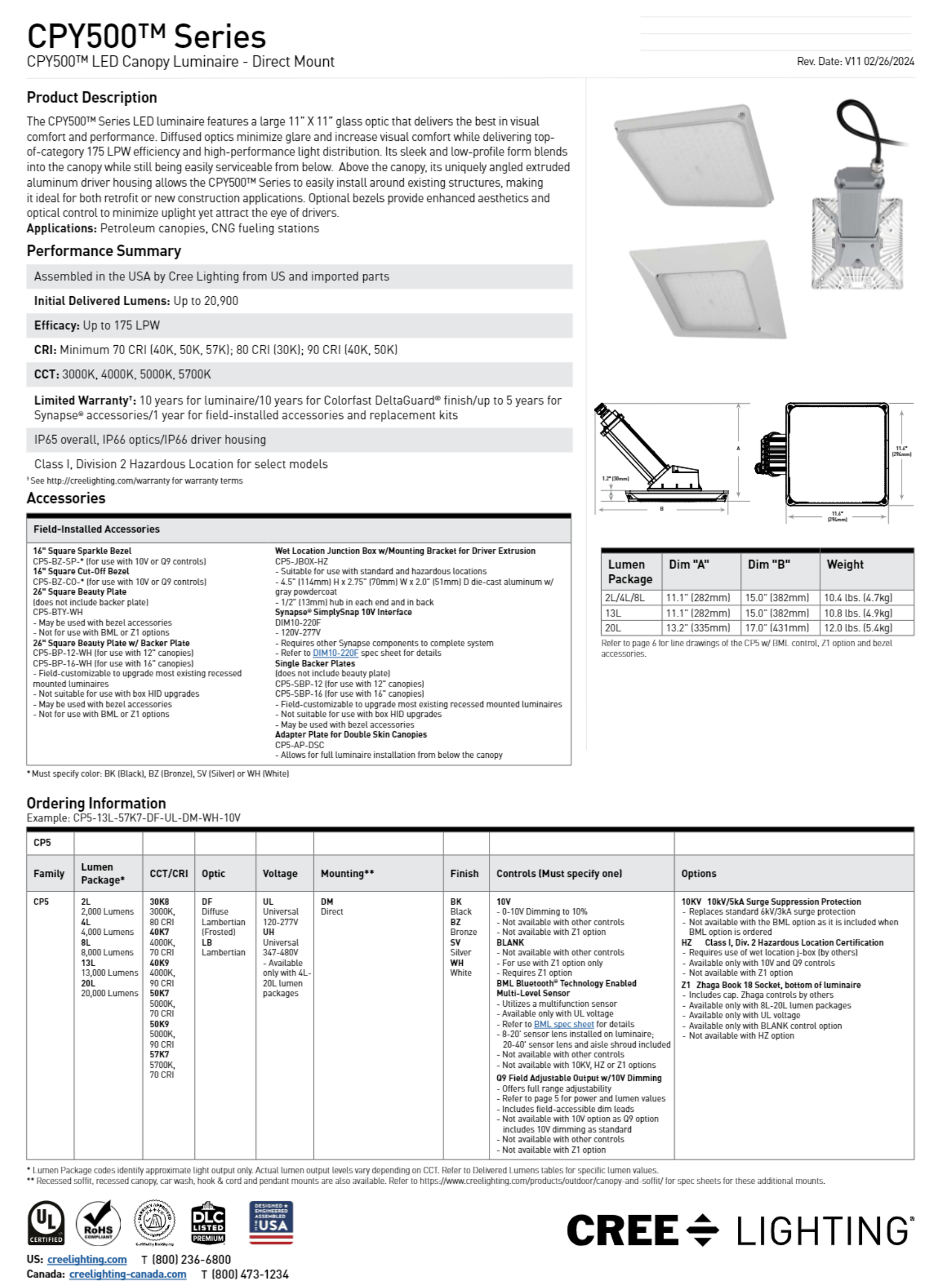


Website: creelighting.com

US: (800) 236-6800 Canada: (800) 473-1234

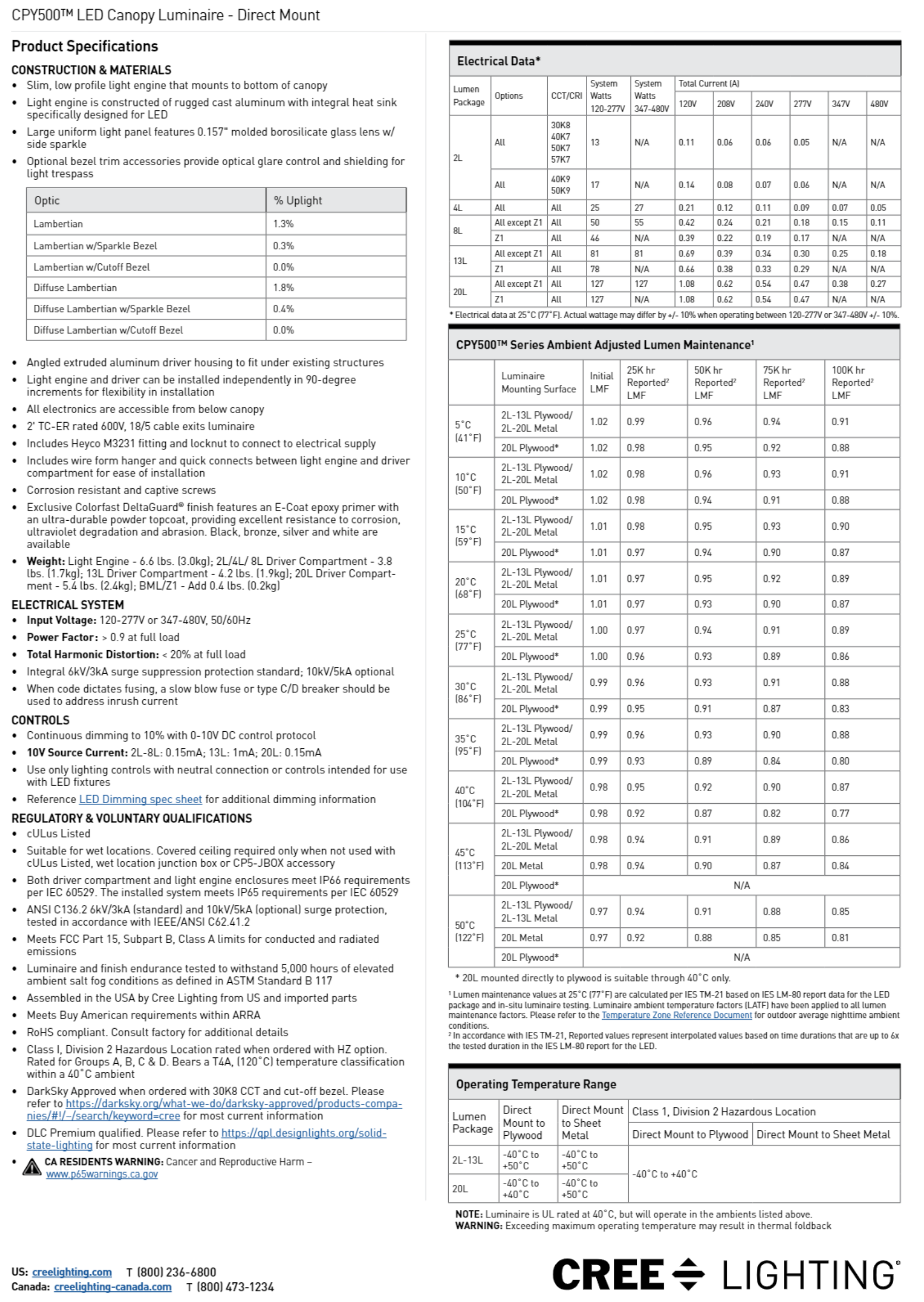
CREE LIGHTING

ADDITIONAL FIXTURE INFO



CPY500™ Series

CPY500™ LED Canopy Luminaire – Direct Mount



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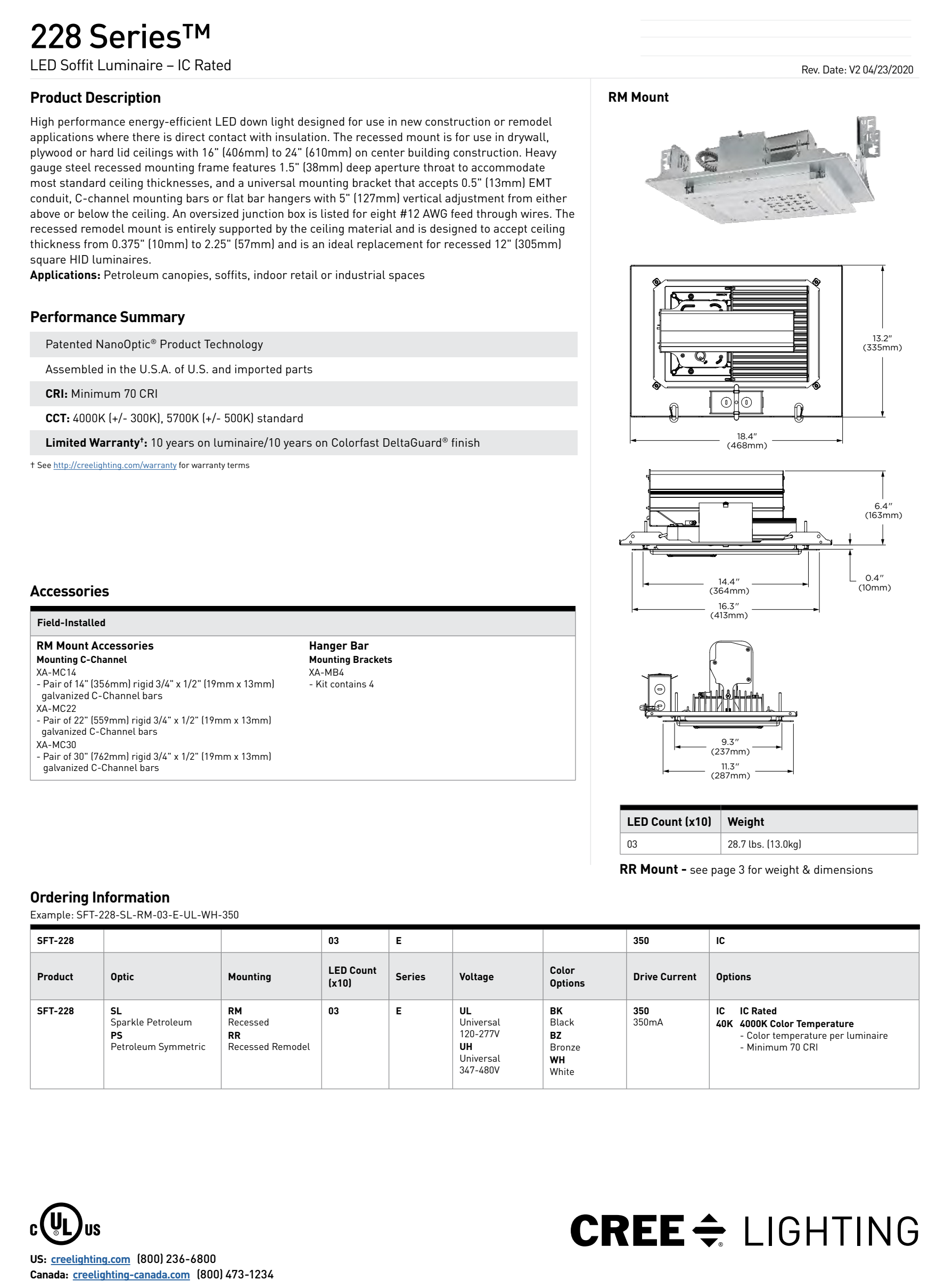
Canada: creelighting-canada.com T (800) 473-1234

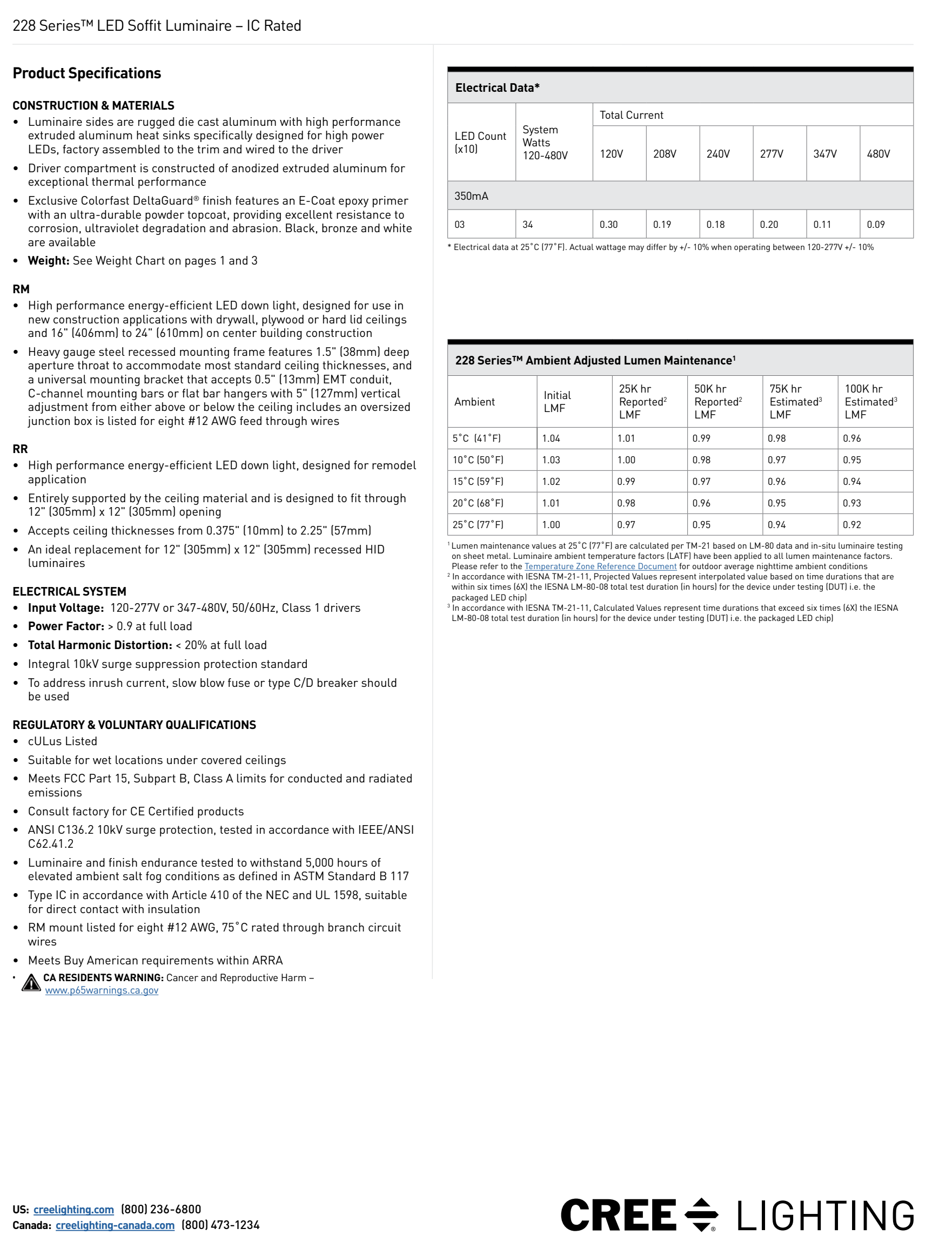
CREE LIGHTING

ADDITIONAL FIXTURE INFO



228 Series™

LED Soffit Luminaire – IC Rated



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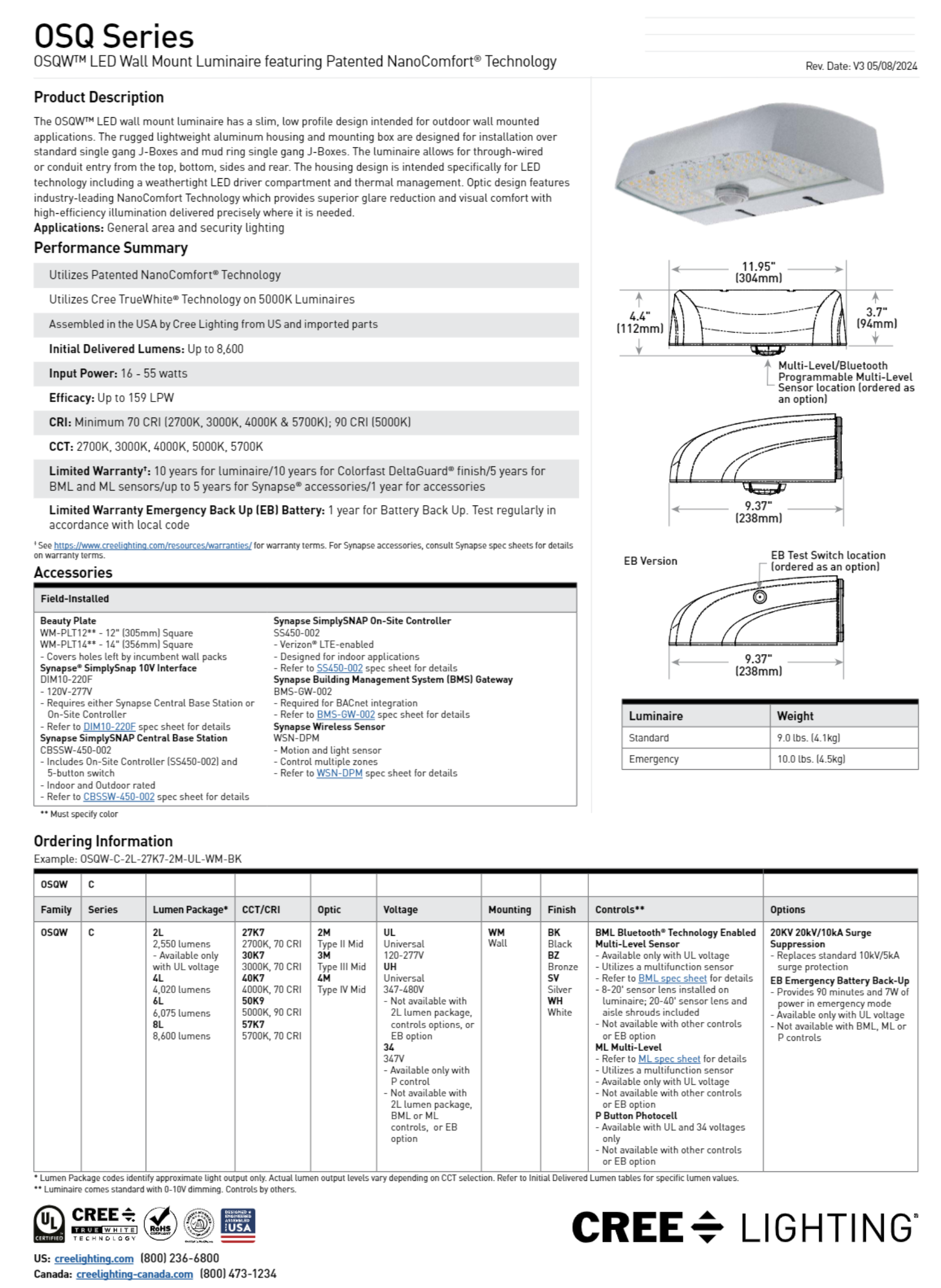
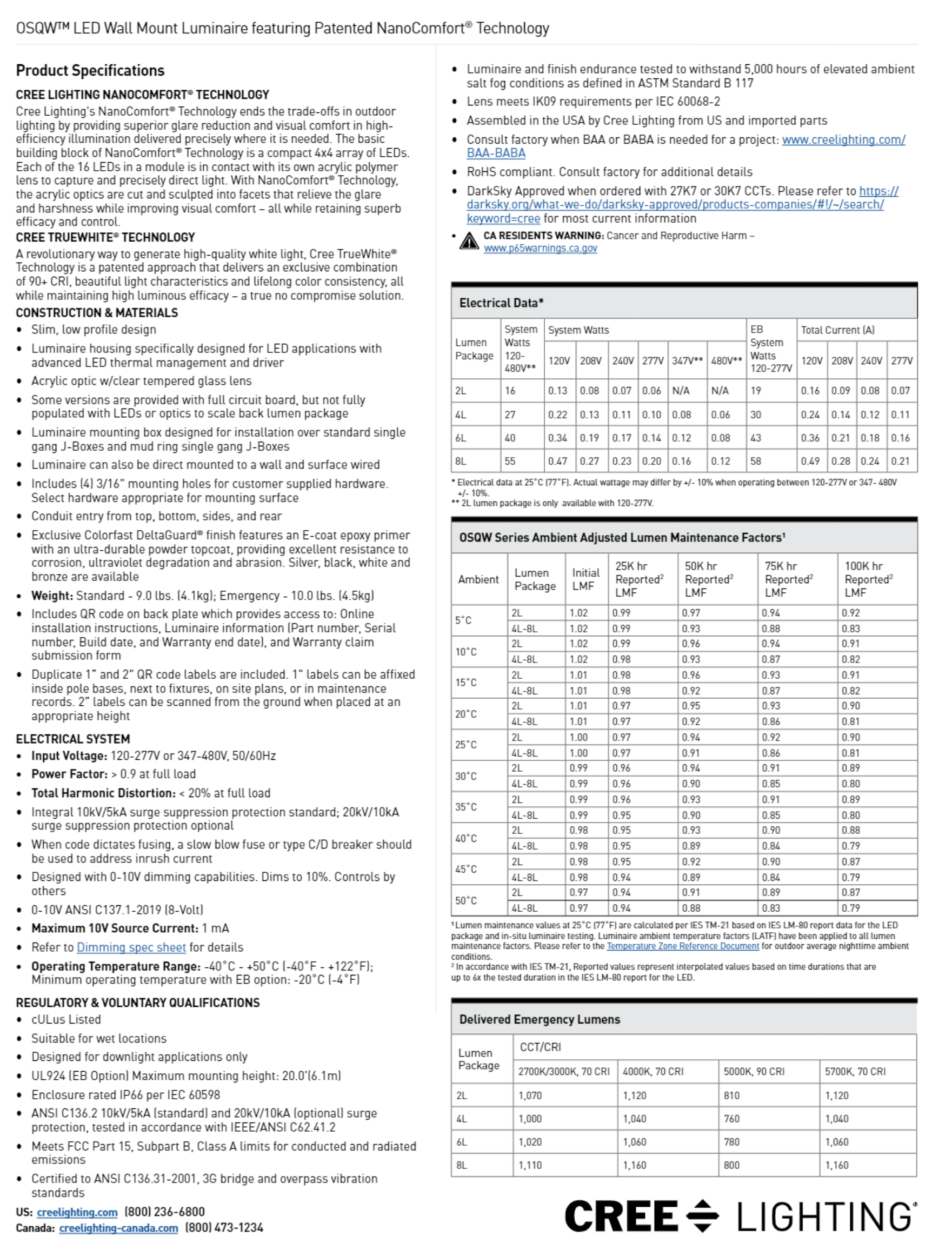
CREE LIGHTING

ADDITIONAL FIXTURE INFO



OSQ Series

OSQW™ LED Wall Mount Luminaire featuring Patented NanoComfort® Technology



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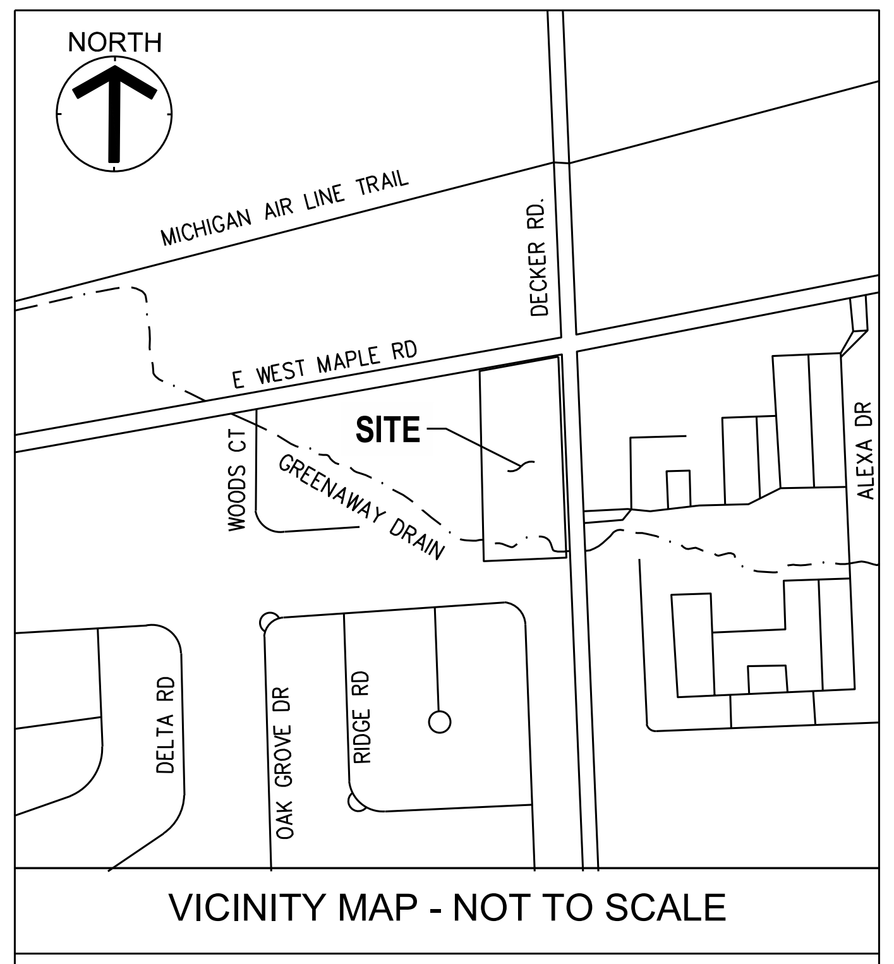
PROJECT NAME:
SPEEDWAY #1056400
WALLED LAKE, MI

DRAWING NUMBER:
RL-9841-S1-R1

Speedway



VICINITY MAP - NOT TO SCALE

LAT / LONG: 42.538303° / -83.468502°

STORM STRUCTURES

9003 – CATCH BASIN ROUND
RIM = 933.71
FL 24" CMP N & S = 928.0'
FL 12" CMP S = 928.1'
FL 12" CMP N = 928.3'

9021 – STORM MANHOLE
RIM = 933.08
FL 12" RCP S = 929.4'
FL 18" RCP NW = 928.6'
FL 36" CMP NE & SW = 928.5'

9028 – CATCH BASIN
RIM = 932.40
FL 12" RCP W = 929.5'

9032 – CATCH BASIN
RIM = 932.54
FL 18" RCP N = 928.6'
FL 18" RCP SE = 928.6'
FL 12" RCP E = 929.5'

9039 – CATCH BASIN
RIM = 932.70
FL 12" RCP N & S = 928.4'

9048 – CATCH BASIN
RIM = 932.40
FL 12" RCP S (DEBRIS) = 928.0'

9050 – CATCH BASIN
RIM = 932.42
FL 18" RCP S & NE = 927.6'

9133 – CATCH BASIN ROUND (BEEHIVE)
RIM = 933.49
FL 18" RCP SE = 929.3'
FL 18" RCP N = 929.8'

9225 – CATCH BASIN
RIM = 934.61
FL 12" RCP E = 930.6'

9238 – CURB INLET WITH GRATE
RIM = 934.51
FL 12" RCP SE = 930.1'
FL 12" RCP W = 930.1'

9239 – CATCH BASIN ROUND (BEEHIVE)
RIM = 933.38
FL 18" RCP N & S = 930.1'
No other visible flow line

9360 – STORM MANHOLE
RIM = 938.86
FL 15" RCP SWW = 935.8'
FL 15" RCP NEE = 935.7'

9439 – STORM MANHOLE
RIM = 938.56
FL 12" RCP NW(PER FINDINGS) = 938.6'

9463 – CURB INLET WITH GRATE
RIM = 938.02
FL 15" RCP SWW = 934.8'
FL 12" RCP SE = 932.3'
FL 18" RCP NEE & S = 932.1'

9503 – CURB INLET WITH GRATE
RIM = 938.59
FL 12" RCP E = 932.9'
FL 18" RCP N & SWE = 932.0'

9666 – STORM MANHOLE
RIM = 939.43
FL 15" CMP SWW = 936.8'
(FULL OF WATER) = 939.4'

9735 – STORM MANHOLE
RIM = 938.53
FL 15" RCP SWW & NEE = 934.9'

SANITARY STRUCTURES

9049 – SANITARY MANHOLE
RIM = 932.87
FL 8" (UNKNOWN MATR'L) N & S = 927.9'

9209 – SANITARY MANHOLE
RIM = 934.65
FL 8" (UNKNOWN MATR'L) N & S = 926.9'

9788 – SANITARY MANHOLE
RIM = 938.62
FL 8" (UNKNOWN MATR'L) N = 925.2'
FL 8" (UNKNOWN MATR'L) S = 925.0'
FL 12" (UNKNOWN MATR'L) NEE = 925.0'
FL 24" (UNKNOWN MATR'L) SWW = 924.6'

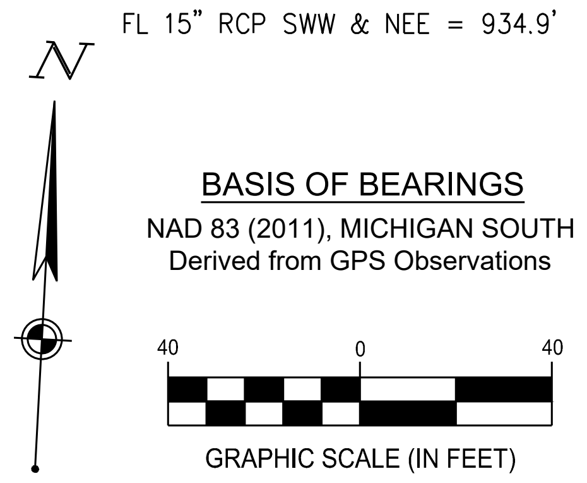
TOPOGRAPHIC LEGEND

Guy Wire	Power Telephone Pole
Catch Basin	Telephone Pole
Catch Basin Round	Sanitary Manhole
Curb Inlet	Sign
Electric Meter	Storm Manhole
Traffic Box	Telephone Box
Fire Hydrant	Water Valve
Signal Pole	Water Manhole
Reflector	

G	Gas Line
W	Water Line
UGE	Underground Electric
UGT	Underground Communications
OHL	Overhead Utility Line
STM	Storm Sewer
SAN	Sanitary Sewer
·	Centerline Ditch
	Treeline
R/W	Right-of-Way
—	Centerline

SURVEY LEGEND

◎ - Iron Pin Found as Described	Fnd. (F) - Found
▣ - Monument Found as Described	Usd. (U) - Used
- PK Nail/Mag Nail Found	Rec. (R) - Deed



GRAPHIC SCALE (IN FEET)

BASIS OF BEARINGS
NAD 83 (2011), MICHIGAN SOUTH
Derived from GPS Observations

BENCHMARK

DATUM:
NAVD 88

BM "A": RR SPIKE IN POWER TELEPHONE POLE LOCATED APPROXIMATELY 30' NORTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 40' WEST OF CENTERLINE OF DECKER RD.
ELEVATION = 940.85'

BM "B": "X" SET IN SOUTHEAST BOLT OF SIGNAL POLE LOCATED APPROXIMATELY 50' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 55' WEST OF CENTERLINE OF DECKER RD.
ELEVATION = 939.57'

BM "C": COTTON GIN FOUND IN TELEPHONE POLE LOCATED APPROXIMATELY 295' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 35' EAST OF CENTERLINE OF DECKER RD.
ELEVATION = 935.70'

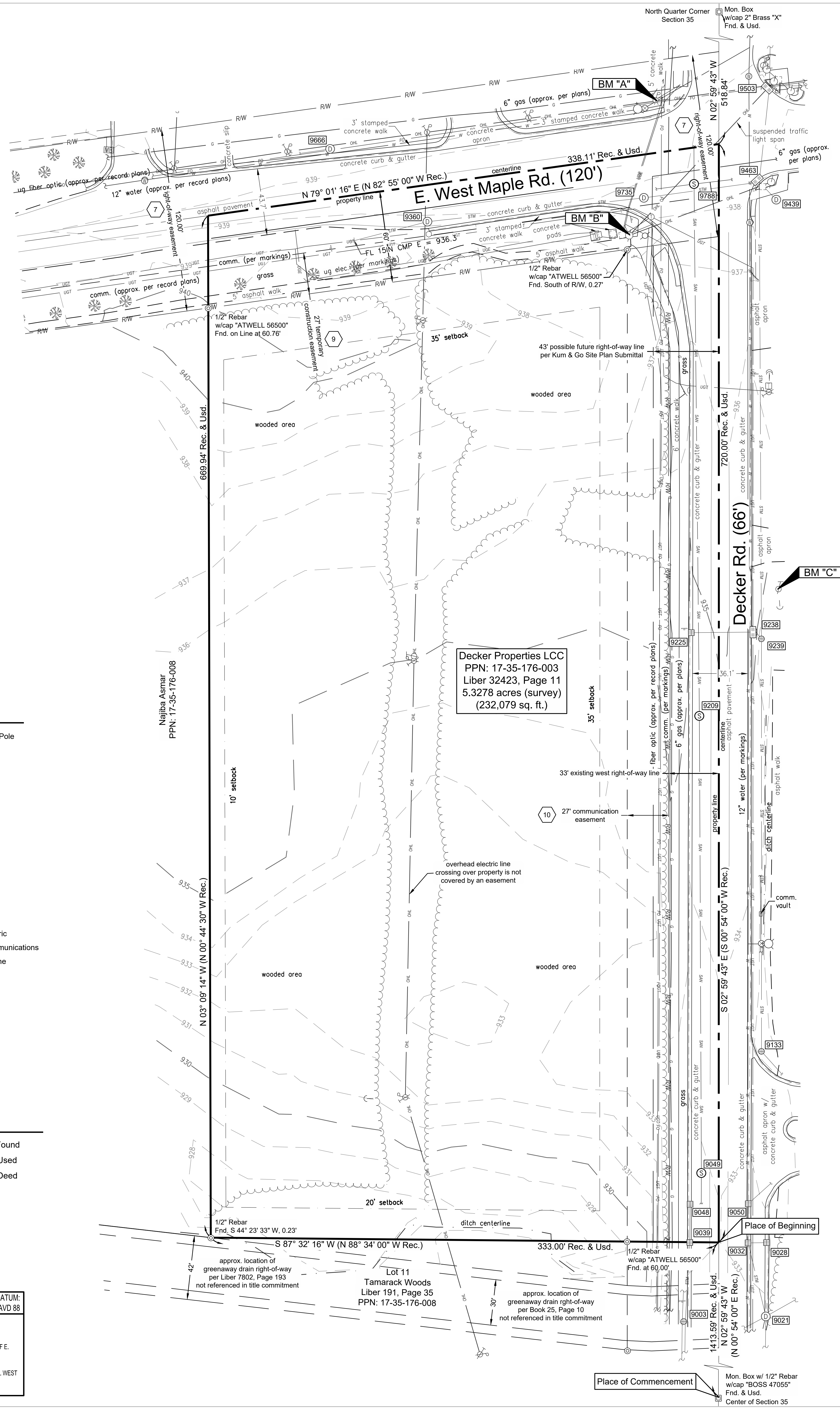


EXHIBIT "A" LEGAL DESCRIPTION

Part of the Northwest 1/4 of Section 35, Town 2 North, Range 8 East, City of Walled Lake, Oakland County, Michigan, described as follows: Beginning at a point located North 00 degrees 54 minutes 00 seconds East along the North and South 1/4 line of said Section, 1413.59 feet from the center of Section 35; thence North 88 degrees 34 minutes 00 seconds West 333.00 feet; thence North 00 degrees 44 minutes 30 seconds East 669.94 feet to the centerline of Maple Road; thence North 82 degrees 55 minutes 00 seconds East along said centerline 338.11 feet to the North and South 1/4 line of said section; thence South 00 degrees 54 minutes 00 seconds West along said 1/4 line, 720.00 feet to the point of beginning.

SCHEDULE B - SECTION II

Items 1 - 6 & 11 - 16
- NOT A MATTER OF SURVEY

7. Release of Right of Way in favor of the County of Oakland and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 27 of Miscellaneous records, page 366.
   - PLOTTED AND SHOWN ON SURVEYED PROPERTY

8. Easement in favor of the County of Oakland and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 5224, page 433 and Liber 5224, page 434.
   - NOT LOCATED ON SURVEYED PROPERTY

   Quit Claim Conveyance of Fee Simple Property, Easements and Right-of-Way for Water Supply System and Sanitary Sewer System Facilities Improvements recorded in Liber 52822, page 131.
   - NOT LOCATED ON SURVEYED PROPERTY

9. Temporary Construction Right-of-Way in favor of the County of Oakland and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 5240, page 635, Liber 5257, page 702 and Liber 5257, page 708.
   - PLOTTED AND SHOWN ON SURVEYED PROPERTY. TERMINATED BY LIBER 5257, PAGE 708

10. Right of Way in favor of the Michigan Bell Telephone Company and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 7856, page 45.
    - PLOTTED AND SHOWN ON SURVEYED PROPERTY

SURVEYOR NOTES:

1. This survey does not constitute a title search by the surveyor. All information regarding record easements, and other documents that might affect the quality of title to the parcel shown hereon we obtained through a certified title commitment conducted by First American Title Insurance Company, Commitment Number 1008349 and bearing an effective date of March 26, 2024 at 8:00 a.m.
2. No direct access to the subject parcel at time of survey. Surveyed property has frontage on E. West Maple Road and Decker Road, public right-of-ways.
3. No roadway improvement plans were disclosed to CESO during the survey.
4. The utilities shown are located from field survey information MISSDIG 811 Ticket #20240502023412, and/or existing drawings supplied by client. The surveyor makes no guarantee that the utilities located comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the utilities located are in the exact location indicated although the surveyor does certify that they are located as accurately as possible from information available. For utility lines or service locations on private property CESO recommends contracting a private underground utility location service.
5. Parcel is located within Zone "X" (Area of Minimal Flood Hazard) as indicated by the Flood Insurance Rate Map (FIRM) Map Number 26125C0486F & 26125C0487F, effective date: 9/29/2006 published by the Federal Emergency Management Agency.
6. A zoning report was not provided to the surveyor at the time of survey.
9. There are 0 regular sparking spaces & and 0 handicap spaces on the subject parcel.
13. The closest intersection is Decker Rd and E. West Maple Rd. located at northeast corner of the site.
16. There was no observed evidence of current earth moving work, building construction or building additions at the time of this survey.
17. No proposed changes in street right of way lines were provided to the surveyor. No evidence of street or sidewalk construction or repairs observed at time of survey.
18. A field delineation of wetlands survey was not conducted at the time of survey.
19. The accompanying Survey was made on the ground and correctly shows the location of buildings, structures and other improvements situated on the above premises.
20. The area of the subject property and the size, location and type of buildings and improvements and any other matters situated on the subject property are as shown and all buildings and improvements are within the boundary lines and applicable set-back lines of the property except as shown on the Survey.
21. The Survey was prepared in accordance with the laws of the State of Michigan.
22. The title lines and lines of actual possession are the same.

SURVEYOR'S CERTIFICATION:

TO: First American Title Insurance Company; Decker Properties, LCC, a Michigan limited liability company; Agree Convenience No. 1, LLC, a Delaware limited liability company

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1 - 5, 6(a), 7(a), 8, 9, 11(a), 13, 14, 16, 17, 18 & 19 of Table A thereof. The fieldwork was completed on May 1, 2024.

Date of Plat or Map May 22, 2024

04-29-2025
Robert E. Matko PS No. 54055 Date
matko@cesoinc.com
13060 South US Highway 27
Suite D
Dewitt, MI 48820
(517)622-3000

ROBERT E. MATKO
PROFESSIONAL SURVEYOR
NO. 54055

CESO
WWW.CESOINC.COM
175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

DECKER PROPERTIES, LCC

ALTA / NSPS LAND TITLE SURVEY
DECKER RD WALLED LAKE, MI 48390
COUNTY OF OAKLAND

Revisions / Submissions

ID	Description	Date

Project Number:	764078
Scale:	1" = 40'
Drawn By:	MSD
Checked By:	SWC
Date:	April 29, 2025
Issue:	

Drawing Title:

RCOC UNDERGROUND NOTES

1-CALL INSPECTOR OR PERMIT SUPERVISOR BEFORE BEGINNING ANY WORK IN R.O.W.

2-"PROPER SIGNING" IS REQUIRED BEFORE ANY WORK IN R.O.W. IS STARTED.

3-LANE CLOSURES RESTRICTED TO 9AM-3 PM MON - FRI.

4-FLAG PERSON REQUIRED FOR TEMPORARY ONE LANE ROADS.

5-MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES.

6-HAND DIG AROUND ALL UTILITIES.

7-KEEP ROADS CLEAN OF DIRT AND DEBRIS.

8-WITHIN THE INFLUENCE OF THE ROADBED MDOT CLASS II, SAND, COMPACTED TO 95% MAX. UNIT DENSITY IS REQUIRED.

9-ALL ROADS AND DRIVE CROSSING TO BE DIRECTIONAL BORE OR JACK CASE AND BORING.

10-ALL BORING PITS ARE TO BE SITUATED AT LEAST TEN FEET FROM EDGE OF PAVEMENT.

11-MIN. DEPTH FOUR FEET UNDER ROADBED OR EX. GRADE WHICHEVER IS LOWER.

12-UNDERGROUND UTILITIES TO BE 1 FOOT OFF R.O.W.

13-MUST CORE PAVEMENT AND BACKFILL WITH FLOWABLE FILL TO VERIFY ALL UTILITY LOCATIONS.

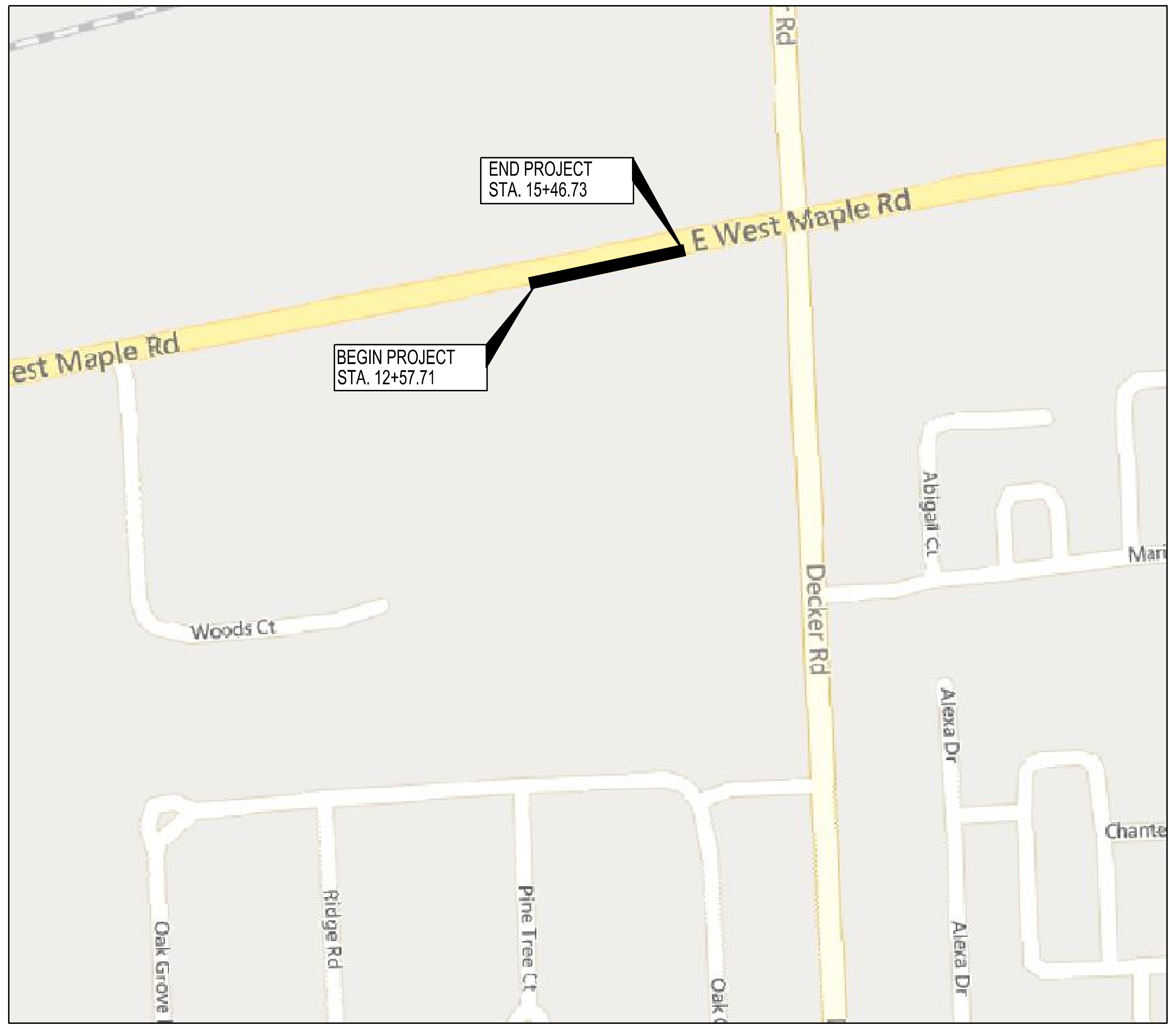
17-SUITABLE BASE TO BE DETERMINED BY RCOC DIRECTOR IN THE FIELD.

18-RAMPS & SIDEWALKS MUST MEET ADA SPECIFICATIONS.

△2

ROADWAY IMPROVEMENTS
7-ELEVEN DEVELOPMENT
E. WEST MAPLE RD
CITY OF WALLED LAKE
OAKLAND COUNTY, MICHIGAN

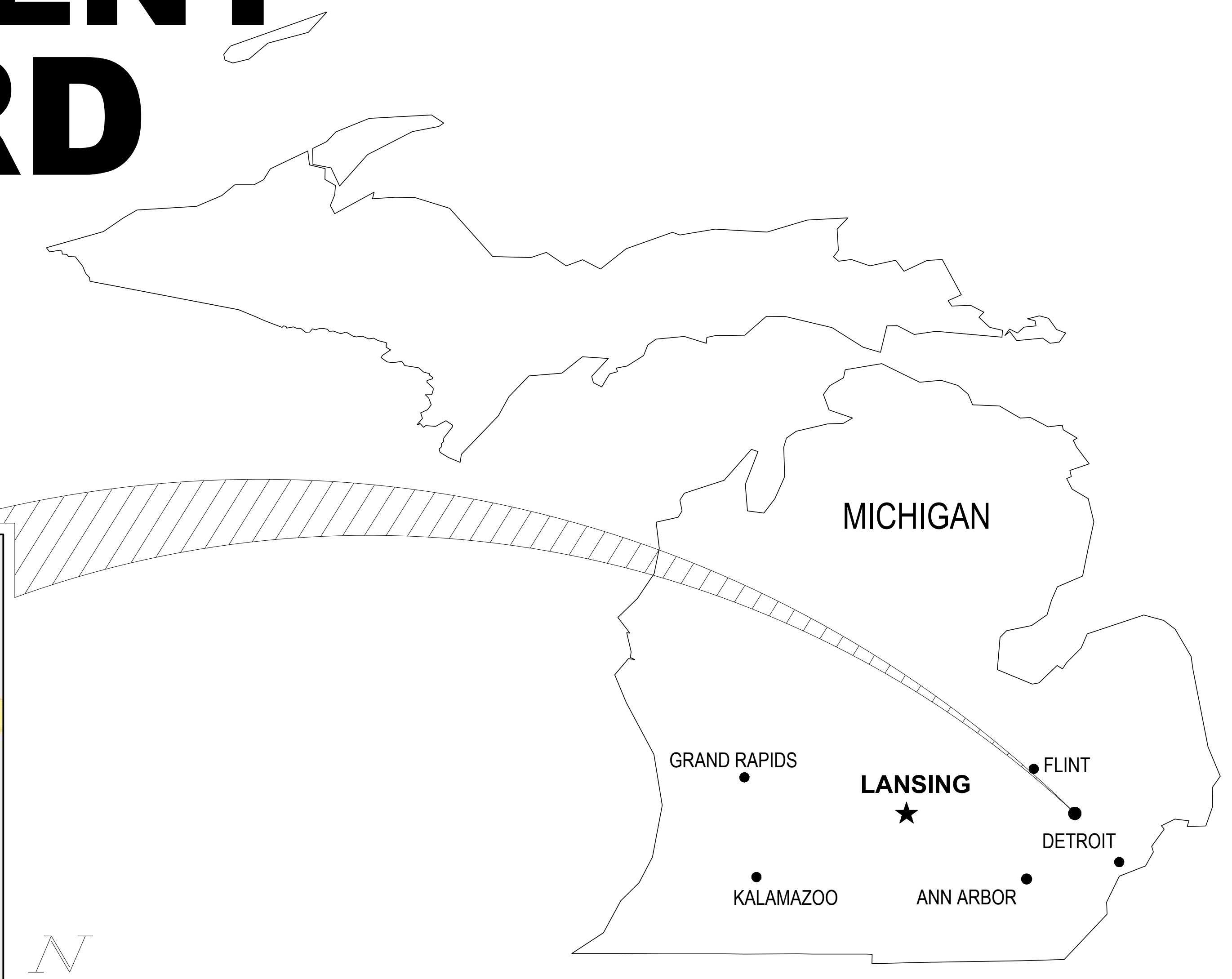
INDEX OF SHEETS



LOCATION MAP

NOT TO SCALE

PROJECT LOCATED IN THE SOUTHWEST QUADRANT OF THE E. WEST MAPLE RD AND DECKER ROAD INTERSECTION, APPROX. 0.75 MILES EAST OF WALLED LAKE, MICHIGAN



STATE LOCATION MAP

NOT TO SCALE

SITE LOCATION

LAT = N 42° 32' 21.7"
LONG = W 83° 28' 08.6"

2020 STANDARD SPECIFICATIONS

THE 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION OF THE STATE OF MICHIGAN DEPARTMENT OF TRANSPORTATION INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

ROAD COMMISSION FOR OAKLAND COUNTY STANDARDS

THE MOST RECENT STANDARDS OF THE ROAD COMMISSION FOR OAKLAND COUNTY SHALL BE USED FOR THIS PROJECT. WHENEVER A COUNTY STANDARD DIFFERS FROM THE STANDARDS OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION, THE COUNTY STANDARD SHALL APPLY.

SCALES

PLAN — 20 0 20

PROFILE — HORIZONTAL 20 0 20 — VERTICAL 5 0 5

CROSS SECTION — HORIZONTAL 5 0 5 — VERTICAL 5 0 5

SURVEY PROVIDED BY:
CESO, INC.
175 MONTROSE WEST AVE. SUITE 400, AKRON OH, 44321
PHONE: 330.665.0660
DATED: 07/01/2024

CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BID AND CONSTRUCTION.

PLAN PREPARED BY:

CESO
WWW.CESOINC.COM
3601 RIGBY ROAD, SUITE 300
MIAMISBURG, OHIO 45342
PH (937) 435-8584 | FAX (937) 435-3307

ENGINEER'S STAMP

MANDY J. GAUSS
ENGINEER
NO. 55618

SIGNED: Mandy J. Gauss
DATE: 06/24/2025

MDOT STANDARD CONSTRUCTION DRAWINGS					SUPPLEMENTAL SPECIFICATIONS
R-28-K 11/08/23	R-1-G 05/18/20				
R-29-J 11/08/23	R-2-D 09/14/01				
R-30-G 09/30/14	R-7-F 09/30/14				
R-96-E 06/03/10	R-15-G 09/30/14				

REVISIONS		
BY	DATE	DESCRIPTION
PD	4/22/2025	REVISION 2

△2

MISS DIG 811

SEVENTY-TWO (72) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: MICHIGAN UTILITIES PROTECTION SERVICE AT 811 OR 800-482-7171 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

△2 DATE 4/22/2025

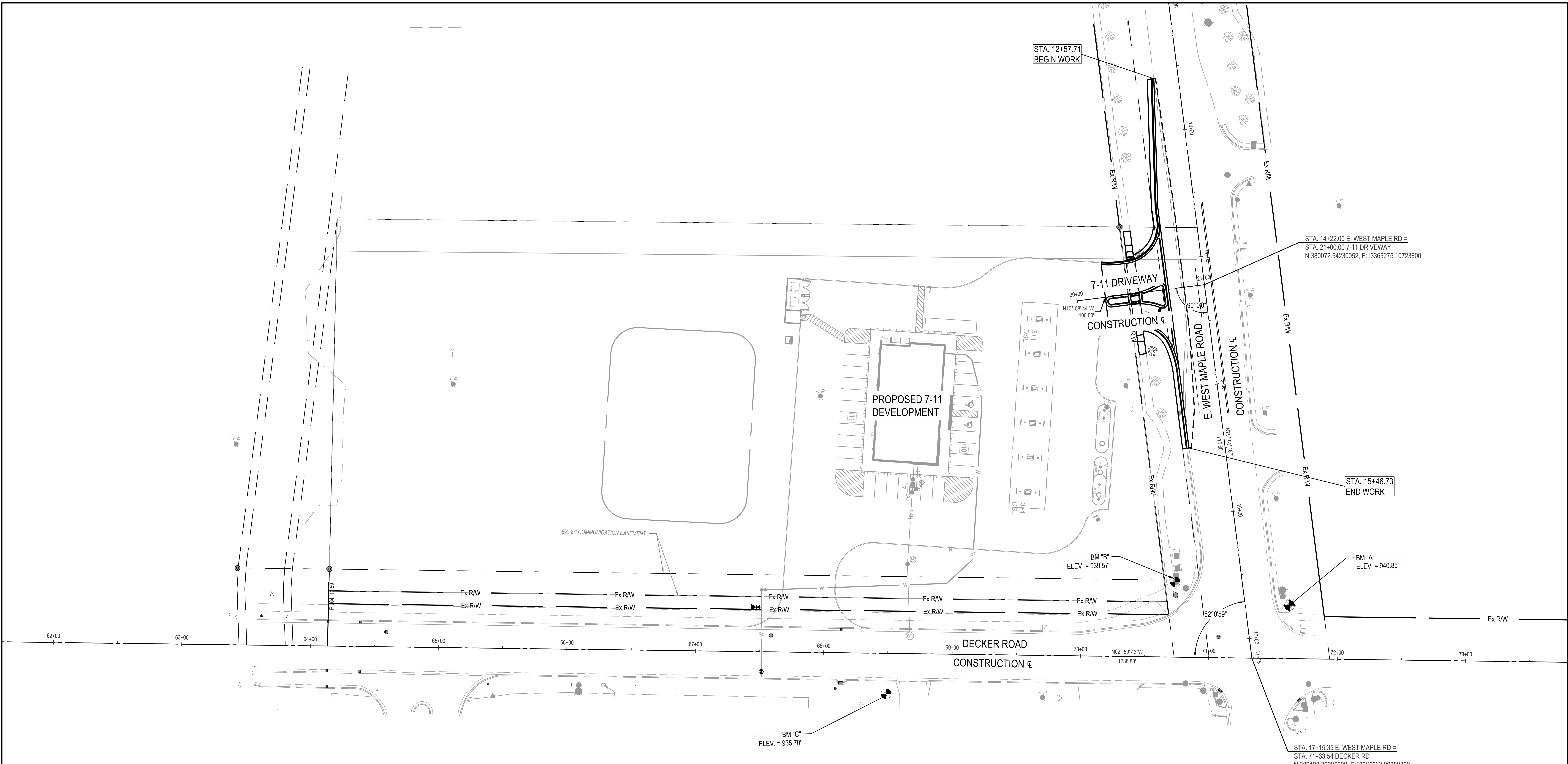
△2 ISSUE FOR CONSTRUCTION

CALCULATED BAG
CHECKED PJD

TITLE SHEET
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

R1
R12



⊕	BENCHMARKS
BM "A"	RR SPIKE IN POWER TELEPHONE POLE LOCATED APPROXIMATELY 30' NORTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 40' WEST OF CENTERLINE OF DECKER RD.
	ELEVATION = 940.85'
BM "B"	"X" SET IN SOUTHEAST BOLT OF SIGNAL POLE LOCATED APPROXIMATELY 50' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 55' WEST OF CENTERLINE OF DECKER RD.
	ELEVATION = 939.57'
BM "C"	COTTON GIN FOUND IN TELEPHONE POLE LOCATED APPROXIMATELY 295' SOUTH OF CENTERLINE OF E. WEST MAPLE RD. AND APPROXIMATELY 35' EAST OF CENTERLINE OF DECKER RD.
	ELEVATION = 935.70'

BENCHMARK NOTES:

REFER TO ORIGINAL SURVEY CONDUCTED BY CESO, INC DATED JULY 1, 2024 FOR ALL BENCHMARK LOCATIONS AND ADDITIONAL DATUM NOTES.

HORIZONTAL DATUM: NAD83(2011)
VERTICAL DATUM: NAVD88 - ESTABLISHED FROM UTILIZING THE O.D.O.T. V.R.S NETWORK

BASIS OF BEARINGS:

NAD 83 (2011), MICHIGAN SOUTH DERIVED FROM GPS OBSERVATIONS

GRAPHIC SCALE (IN FEET)
40 0 20 40 80

CALCULATED BAG
CHECKED PJD

SCHEMATIC PLAN
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

R2
R12

SPECIFICATIONS AND STANDARD CONSTRUCTION DRAWINGS

THE STATE OF MICHIGAN DEPARTMENT OF TRANSPORTATION, 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND THE NOTED STANDARD CONSTRUCTION DRAWINGS SHALL GOVERN THIS IMPROVEMENT. WHEREVER THE WORD "STATE" OCCURS, IT IS TO MEAN THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT).

WHENEVER THE WORD "ENGINEER" OR "DEPARTMENT" IS USED HEREIN, IT SHALL BE HELD TO MEAN THE MDOT PROJECT ENGINEER, OR DULY AUTHORIZED AUTHORITY.

EXISTING SURVEY MONUMENTS

EXISTING SURVEY MONUMENTS, INCLUDING BUT NOT LIMITED TO PROPERTY CORNERS, CENTERLINE MONUMENTS, RIGHT-OF-WAY MONUMENTS, ETC., MAY POTENTIALLY BE DISTURBED OR DESTROYED BY CONSTRUCTION OF THESE ROADWAY IMPROVEMENTS. THE CONTRACTOR SHALL RETAIN A PROFESSIONAL SURVEYOR, LICENSED IN THE STATE OF MICHIGAN, TO IDENTIFY MONUMENTS THAT MAY BE DISTURBED AND TO PROPERLY REPLACE DISTURBED MONUMENTS IN-KIND AFTER CONSTRUCTION IS COMPLETE.

PERMITS FEES AND NOTICES

THE CONTRACTOR SHALL OBTAIN, AT HIS EXPENSE, ANY AND ALL PERMITS AND INSPECTIONS REQUIRED FOR THE PROSECUTION OF THE WORK BY LOCAL LAWS, ORDINANCES, RULES AND REGULATIONS.

MATERIALS AND WORKMANSHIP

UNLESS OTHERWISE SPECIFIED, ALL MATERIALS SHALL BE NEW AND BOTH WORKMANSHIP AND MATERIALS SHALL BE OF THE FIRST QUALITY, PROPER AND SUFFICIENT FOR THE PURPOSE CONTEMPLATED. THE CONTRACTOR SHALL FURNISH, IF SO REQUIRED, SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND WORKMANSHIP. ALL ITEMS OF EQUIPMENT AND/OR MATERIALS PROPOSED FOR SUBSTITUTION MUST BE APPROVED BY THE ENGINEER IN WRITING AND SHALL BE EQUAL OR BE SUPERIOR TO THE ITEMS SPECIFIED IN THE CONTRACT DOCUMENTS. IF SAID SUBSTITUTION PROPOSED BY THE CONTRACTOR FOR A SPECIFIED ITEM REQUIRED ENGINEERING REVISIONS, THE EXPENSE OF SUCH REVISIONS SHALL BE PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

EXISTING FACILITIES

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM HIS WORK IN SUCH A MANNER AS NOT TO DAMAGE OR DESTROY ANY EXISTING FACILITY. IF ANY SUCH DAMAGE DOES OCCUR DUE TO THE CONTRACTOR'S OPERATIONS, HE SHALL REPLACE THE DAMAGED PORTION AT HIS EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.

EXAMINATION OF THE SITE

THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE OF THE PROPOSED WORK, THE PLANS AND SPECIFICATIONS. THE SUBMISSION OF A BID SHALL BE CONSIDERED EVIDENCE THAT THE CONTRACTOR HAS MADE SUCH EXAMINATION AND IS SATISFIED AS TO THE CONDITIONS TO BE ENCOUNTERED IN PERFORMING THE WORK IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

RELOCATION OF UTILITIES

ALL UTILITIES WHICH ARE SHOWN OR LOCATED DURING THE COURSE OF CONSTRUCTION THAT ARE FOUND TO BE IN CONFLICT WITH THESE PLANS ARE TO BE RELOCATED OR ADJUSTED BY THE OWNER OF THE UTILITY. CONTRACTOR MUST COORDINATE WITH UTILITY OWNER FOR RELOCATION/ADJUSTMENT.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLAN AREAS OBTAINED FROM THE OWNERS OF THE UTILITIES. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES LOCATED HEREON COMPROMISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES LOCATED ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE/SHE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

SEEDING AND MULCHING

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES. AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT -OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT.

WEATHER CONDITIONS

NO CONSTRUCTION SHALL BE DONE DURING STORMY, FREEZING OR INCLEMENT WEATHER UNLESS PERMISSION IS GIVEN BY THE ENGINEER WHENEVER WORK PROCEEDS DURING SUCH WEATHER, THE CONTRACTOR SHALL PROVIDE APPROVED FACILITIES, INCLUDING HEAT (IF REQUIRED), FOR THE PROTECTION OF ALL MATERIALS AND FINISHED WORK.

AGENCY NOTIFICATIONS

CONTRACTOR TO NOTIFY LOCAL EMERGENCY SERVICE PROVIDERS, UNITED STATES POSTAL SERVICE, LOCAL SCHOOL DISTRICTS PRIOR TO START OF CONSTRUCTION.

COOPERATION WITH UTILITY COMPANIES

WHILE THE WORK OF THIS CONTRACT IS BEING PERFORMED, THE UTILITY COMPANIES MAY BE WORKING IN THE AREA ADJUSTING AND RESETTING EXISTING FACILITIES. THE CONTRACTOR SHALL FULLY COOPERATE WITH UTILITY COMPANIES SO THAT THE ENTIRE WORK IS COMPLETED IN A MANNER CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. THE CONTRACTOR, UTILITIES, AND ENGINEER SHALL DISCUSS THE NECESSARY CONSTRUCTION SCHEDULES TO COMPLETE THE PROJECT.

CROSSINGS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING THE PROPOSED CONDUIT.

UTILITY COORDINATION

THE FOLLOWING IS A LIST OF THE KNOWN EXISTING UTILITIES IN THE PROJECT AREA ALONG WITH THE RESPECTIVE OWNERS. THE LIST IS INCLUDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY OWNERS IN THE PROJECT AREA PRIOR TO START OF CONSTRUCTION WHETHER LISTED ON THIS PAGE OR NOT.

SEWER:
OAKLAND COUNTY WATER RESOURCE COMMISSIONER
1 PUBLIC WORKS DRIVE, BLDG 95W
WATERFORD, MI 48328
PHONE: (248) 858-0958

WATER:
OAKLAND COUNTY WATER RESOURCE COMMISSIONER
1 PUBLIC WORKS DRIVE, BLDG 95W
WATERFORD, MI 48328
PHONE: (248) 858-0958

STORMWATER:
OAKLAND COUNTY WATER RESOURCE COMMISSIONER
1 PUBLIC WORKS DRIVE, BLDG 95W
WATERFORD, MI 48328
PHONE: (248) 858-0958

ZONING:
CITY OF WALLED LAKE
1499 E. WEST MAPLE ROAD
WALLED LAKE, MI 48390
PHONE: (248) 624-4847

GAS SERVICE:
CONSUMER ENERGY COMPANY
1 ENERGY PLAZA
JACKSON, MI 49201
PHONE: (800) 477-5050

COMMUNICATIONS:
COMCAST, AT&T, VERIZON, CROWN CASTLE

ELECTRIC:
DTE ENERGY
15600 19 MILE RD
CLINTON TWP, MI 48038
PHONE: (800) 477-4747

UTILITIES NOTIFICATION

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA WHICH MAY INVOLVE UNDERGROUND UTILITY FACILITIES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY SHOWN ON THE PLAN.

THE OWNER OF THE UNDERGROUND FACILITY SHALL, WITHIN 48 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS), MARK THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE AND THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION.

TEMPORARY TRAFFIC CONTROL

IT IS ESSENTIAL THAT THE ENGINEER HAVE THE AUTHORITY TO CONTROL THE PROGRESS OF THE WORK ON THE PROJECT IN ITS RELATION TO OBTAINING SAFE CONDITIONS. THIS INCLUDES THE AUTHORITY TO MODIFY CONDITIONS OR HALT WORK UNTIL APPLICABLE OR REMEDIAL SAFETY MEASURES ARE TAKEN. THE CONTRACTOR IS TO SUPPLY ALL TRAFFIC CONTROL, AS THE ENGINEER DEEMS NECESSARY. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

RESTORATION

THE CONTRACTOR SHALL PROVIDE FOR PROTECTION OF THE FOLLOWING:

EXISTING STREETS, DRIVEWAYS, SIDEWALKS, CURBS, GUTTERS, RE-SEEDING/RE-SODDING, REMOVAL OF TREES, RESTORATION OF AGRICULTURAL LAND, THE MAINTENANCE OF THE CONSTRUCTION AREA DURING PROGRESS OF THE WORK AND THE COMPLETE RESTORATION OF THE CONSTRUCTION AREA TO ITS ORIGINAL CONDITION AT THE COMPLETION OF THE WORK. THE CONTRACTOR SHALL CONTINUOUSLY CARRY ON WITH THE FINAL RESTORATION OF THE CONSTRUCTION AREA AFTER THE BACKFILLING IS COMPLETED, AND HE SHALL PROCEED TO RESTORE TO ITS ORIGINAL CONDITION ALL STREETS, DRIVEWAYS, SIDEWALKS, CURBS, GUTTERS, STRUCTURES, AND ALL AREAS THAT WERE DAMAGED, DISTURBED, OR OCCUPIED BY THE CONTRACTOR IN CONNECTION WITH ANY PHASE OF THE WORK.

PAVEMENTS, PAVEMENT MARKINGS, TREES, SHRUBS, FENCES, POLES. OR OTHER PROPERTY AND SURFACE STRUCTURES WHICH HAVE BEEN DAMAGED, REMOVED, OR DISTURBED BY THE CONTRACTOR, WHETHER DELIBERATELY OR THROUGH FAILURE TO CARRY OUT THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, STATE LAWS, MUNICIPAL ORDINANCES, THE SPECIFIC DIRECTION OF THE ENGINEER, OR THROUGH FAILURE TO EMPLOY USUAL AND REASONABLE SAFEGUARDS SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.

ALL TEMPORARY SIGNS, SPRINKLER SYSTEMS, LANDSCAPING, ORNAMENTAL FENCING, ETC., LOCATED WITHIN THE PROJECT LIMITS MUST BE REPLACED OR RELOCATED UPON COMPLETION OF THE CONSTRUCTION

ACCESS TO PRIVATE PROPERTY

ACCESS TO DRIVES SHALL BE MAINTAINED VIA EXISTING PAVEMENT, TEMPORARY PAVEMENT IN THE EVENT THAT A DRIVE CANNOT BE MAINTAINED AND A CLOSURE IS NEEDED THE CONTRACTOR WILL COORDINATE WITH PROPERTY OWNER TO MINIMIZE THE IMPACT TO THE OWNER.

COMMERCIAL PROPERTY WITH MULTIPLE DRIVES MAY HAVE ONE DRIVE CLOSED WHEN WORKING IN THE AREA OF THE DRIVE, COMMERCIAL PROPERTY WITH ONLY ONE DRIVEWAY OR DRIVEWAY WITH ONE DIRECTION TRAFFIC USE WILL BE CONSTRUCTED PART WIDTH. THE CONTRACTOR WILL COORDINATE WITH THE PROPERTY OWNER TO MINIMIZE THE IMPACT TO THE OWNER.

MAINTAIN ACCESS TO RESIDENTIAL PROPERTIES AT ALL TIMES. WHEN A RESIDENTIAL DRIVE IS CLOSED FOR CONSTRUCTION, MAINTAIN ALTERNATE ACCESS TO THE PROPERTY. IT MAY BE REQUIRED FOR THE CONTRACTOR TO MAINTAIN ONE PASSABLE LANE WITHIN A CLOSURE IN ORDER FOR VEHICLES TO ACCESS RESIDENCE WITH A VEHICLE.

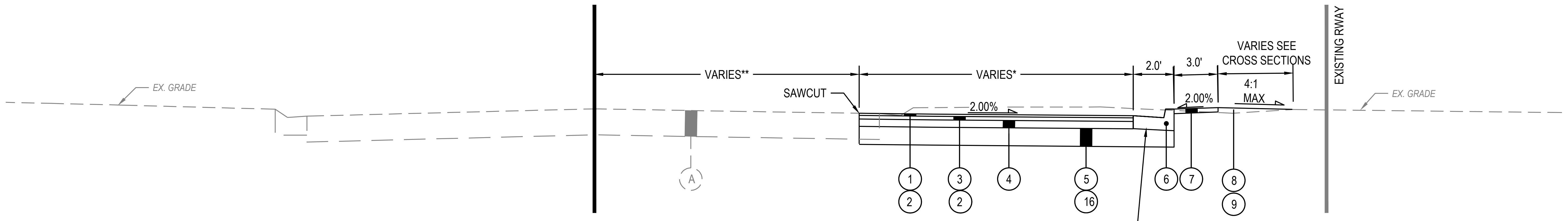
UNLESS CALLED OUT IN THE PLANS THE CONTRACTOR WILL COORDINATED ANY CLOSURES WITH PROPERTY OWNERS AND BE RESPONSIBLE FOR ANY AND ALL PROPERTY USE AGREEMENTS FOR ALTERNATIVE ACCESS.

SUCCESSFULLY NOTIFY THE OCCUPANTS/OWNERS OF COMMERCIAL OR RESIDENTIAL DRIVES TO BE CLOSED AND COORDINATE THE CLOSURES AT LEAST 48 HOURS BEFORE THE CLOSURE BEGINS (SIMPLY LEAVING A WRITTEN NOTICE OR PHONE MESSAGE IS NOT SUFFICIENT). COORDINATE ALTERNATE ACCESS TO RESIDENTIAL PROPERTIES WITH THE OWNER/OCCUPANT.

CALCULATED BAG
CHECKED PJD

GENERAL NOTES
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN



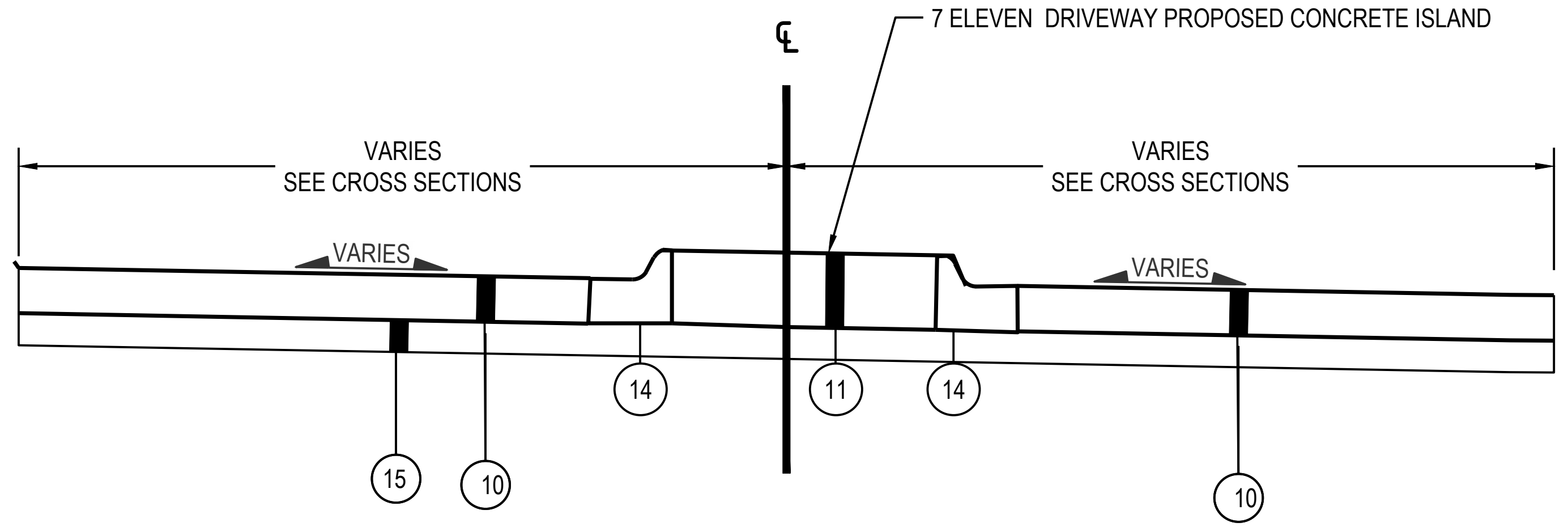
TYPICAL SECTION - E. WEST MAPLE ROAD.
STA. 12+57.71 TO STA.15+46.70
---NTS---

CURB TO BE DROPPED ACROSS PROPOSED DRIVEWAY OPENING PER MDOT R-29-J CONCRETE DRIVEWAY OPENING, DETAIL M BETWEEN STA.13+67.86 TO STA. 14+86.96. REFER TO INTERSECTION DETAIL ON SHEET R11 FOR ADDITIONAL INFORMATION. REFER TO 7-ELEVEN DRIVEWAY CONCRETE PAVEMENT AND RAISED ISLAND DETAIL ON THIS SHEET FOR TYPICAL PAVEMENT SECTION TO BE USED FOR THE DRIVEWAY APRON.

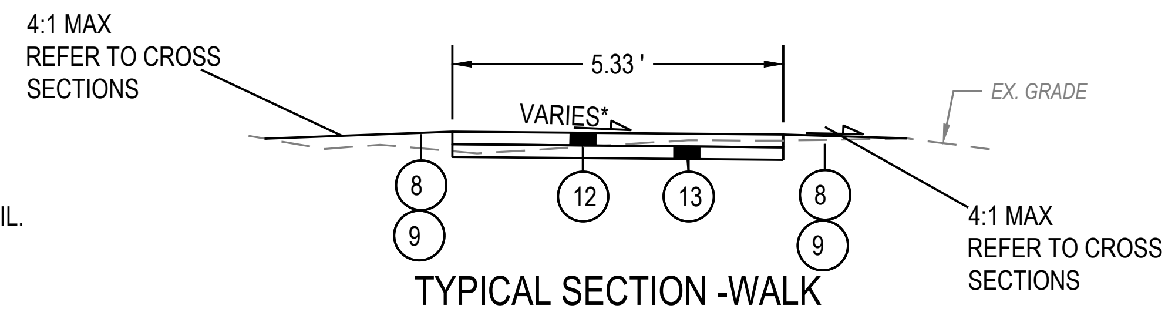
* VARIES FROM 17.59' TO 16.0', STA. 12+57.71 TO STA. 13+56.41.
16.00' TO 16.00', STA. 13+56.41 TO STA. 14+54.12.
16.00' TO 20.00' 'STA. 14+54.12 TO STA. 15+17.33.
20.00' TO 26.04', STA. 15+17.33.24 TO STA. 15+46.70.

** VARIES FROM 1.34' TO 12.50', STA. 12+57.71 TO STA. 13+57.86.
12.50' TO 12.06', STA. 13+57.86 TO STA. 14+54.12.
12.06' TO 8.21' , STA. 14+54.12 TO STA. 15+17.33.
8.21' TO 2.00', STA. 15+17.33 TO STA. 15+4670.

3' WIDE BRICK PAVER SPLASH SURFACE NOTES:
CONTRACTOR TO INSTALL 3' WIDE BRICK PAVER SPLASH SURFACE IN COMPLIANCE WITH THE CITY OF WALLED LAKE CITY ORDINANCE SECTION 51-21.25.4.A.5. MATERIAL AND COLOR SHALL COMPLY WITH THE AFOREMENTIONED ORDINANCE AND CLOSELY MATCH EXISTING 3' WIDE BRICK PAVER SPLASH SURFACE ALONG E. WEST MAPLE ROAD.



7-ELEVEN DRIVEWAY AND RAISED ISLAND DETAIL
---NTS---



*- VARIES SEE INTERSECTION DETAIL FOR DETAIL.

TYPICAL SECTION -WALK
STA. 13+73.09 TO STA. 13+95.85
STA. 14+46.17 TO STA. 14+69.65
---NTS---

TYPICAL SECTION LEGEND

①	MDOT ITEM 501 - 1.5" HMA - MDOT 5E3 MIX (PG64-22)
②	MDOT ITEM 501 - TACK COAT
③	MDOT ITEM 501 - 2" HMA - MDOT 4E3 MIX (PG64-22)
④	MDOT ITEM 501 - 6.5" HMA - MDOT 3E3 MIX (PG64-22)
⑤	MDOT ITEM 302 - 18" AGGREGATE BASE, 18" 21AA AGGREGATE BASE, COMPACTED, MIN. 95% DENSITY PER MODIFIED PROCTOR.
⑥	MDOT ITEM 802 - CURB AND GUTTER, CONC, TYPE F3, DETAIL R-30-G
⑦	MDOT ITEM SPECIAL - 3' WIDE BRICK PAVER SPLASH SURFACE (SEE NOTES ON THIS PAGE FOR ADDITIONAL DETAILS.
⑧	MDOT ITEM 816 - SEEDING AND MULCHING
⑨	MDOT ITEM 816 - TOPSOIL SURFACE, 6"
⑩	MDOT ITEM 602 - 9" CONCRETE PAVEMENT, MDOT GRADE P1
⑪	MDOT ITEM 602 - 13" CONCRETE PAVEMENT, MDOT GRADE P1
⑫	MDOT ITEM 803 - 4" SIDEWALK
⑬	MDOT ITEM 803 - 4" MDOT CLASS II SAND
⑭	MDOT ITEM 802 - CURB AND GUTTER, CONC. TYPE D1, DETAIL R-30-G. MODIFIED. ROLLED CURB WIDTH 14", GUTTER WIDTH 10", 2' TOTAL WIDTH. GUTTER SLOPE TO MATCH DRIVEWAY GRADE. ENSURE NO LOW POINT IN GUTTER.
⑮	MDOT ITEM 302 - 6" AGGREGATE BASE, 6" 21AA AGGREGATE BASE, COMPACTED, MIN. 95% DENSITY PER MODIFIED PROCTOR.
⑯	MDOT ITEM 308 GEOTEXTILE BASE REINFORCEMENT
Ⓐ	EXISTING ASPHALT/CONCRETE PAVEMENT SECTION

CALCULATED BAG
CHECKED PJD

TYPICAL SECTIONS
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

R4
R12

MAINTAINING TRAFFIC

THE CONTRACTOR SHALL PROVIDE, ERECT, AND MAINTAIN SIGNS (IN PROPER POSITION, CLEAN AND LEGIBLE, AND IN GOOD WORKING CONDITION) AND PROVIDE ALL LIGHTS, SIGNS, CONES, DRUMS, AND ANY OTHER TRAFFIC CONTROL DEVICES NECESSARY FOR THE MAINTENANCE OF TRAFFIC ACCORDING TO THESE PLAN NOTES AND DETAILS.

NO CHANGES IN TRAFFIC CONTROL PATTERNS SHALL BE MADE BETWEEN THE HOURS OF 6:00 AM TO 9:00 AM AND 4:00 PM TO 7:00 PM, MONDAY THROUGH FRIDAY.

NO WORK SHALL BE PERFORMED ON E.WEST MAPLE RD AND THE SAME NUMBER OF LANES AS EXISTED BEFORE CONSTRUCTION SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS AND SPECIAL EVENTS:

HOLIDAYS

NEW YEAR'S (OBSERVED)
LABOR DAY
GENERAL/REGULAR ELECTION DAY (NOV)
THANKSGIVING
MEMORIAL DAY
CHRISTMAS (OBSERVED)
FOURTH OF JULY (OBSERVED)

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR SPECIAL EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT:	TIME ALL LANES MUST BE OPEN TO TRAFFIC:
SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
TUESDAY (GEN./REG. ELECTION)	5:00 AM TUESDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
(THANKSGIVING ONLY)	6:00 AM WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

BEFORE THE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF PERSONS WHO CAN BE CONTACTED TWENTY-FOUR (24) HOURS PER DAY BY THE CITY AND ALL INTERESTED POLICE AGENCIES. THIS PERSON OR PERSONS SHALL BE RESPONSIBLE FOR PLACING OR REPLACING NECESSARY TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE MIICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN TRAFFIC AT ALL TIMES. IT IS THE INTENTION TO PERFORM THE REQUIRED WORK WITH THE LEAST INCONVENIENCE TO AND THE MAXIMUM SAFETY OF THE WORKERS AND THE TRAVELING PUBLIC OCCASIONALLY, MODIFICATIONS IN TRAFFIC CONTROLS OR WORKING CONDITIONS MAY BE REQUIRED IN ORDER TO EXPEDITE SAFE TRAFFIC MOVEMENT AND TO PROMOTE WORKER SAFETY.

ALL VEHICLES, EQUIPMENT AND WORKERS AND THEIR ACTIVITIES ARE RESTRICTED TO ONE SIDE OF THE PAVEMENT UNLESS OTHERWISE APPROVED BY THE ENGINEER, CONSTRUCTION VEHICLES SHALL ALWAYS MOVE WITH AND NOT AGAINST THE FLOW OF TRAFFIC. CONSTRUCTION VEHICLES AND EQUIPMENT SHALL ENTER AND LEAVE WORK AREAS IN A MANNER WHICH WILL NOT BE HAZARDOUS TO, OR INTERFERE WITH THE NORMAL FLOW OF TRAFFIC. PERSONAL VEHICLES ARE NOT PERMITTED IN THE RIGHT-OF-WAY EXCEPT IN SPECIFIC AREAS DESIGNATED BY THE ENGINEER.

MAINTAINING TRAFFIC (SIGNS AND BARRICADES)

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND TYPE III BARRICADES AT THE LOCATIONS SPECIFIED IN PLANS.

TEMPORARY PAVEMENT WEDGE

TEMPORARY PAVEMENT WEDGES SHALL BE PROVIDED AT ALL TIMES WHERE TRAFFIC IS REQUIRED TO TRAVEL FROM OR ONTO A PAVEMENT SURFACE OF A DIFFERENT ELEVATION. THE MINIMUM SLOPE OF THE TEMPORARY PAVEMENT WEDGE SHALL BE 3:1 ALONG LONGITUDINAL JOINTS AND 120:1 AT TRANSVERSE JOINTS. THESE WEDGES SHALL BE REMOVED PRIOR TO PLACING THE SPECIFIED PAVEMENT COURSE.

DROP-OFFS IN WORK ZONE

THE DROP-OFF ADJACENT TO THE TRAVELED LANE MUST MEET THE CRITERIA OUTLINED IN MDOT STANDARD SPECIFICATIONS. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR MATERIALS, LABOR, OR EQUIPMENT NECESSARY TO MEET THESE REQUIREMENTS.

TRENCH FOR WIDENING

TRENCH FOR EXCAVATION FOR BASE WIDENING SHALL BE FOR ONLY ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL BY THE ENGINEER.

THE CONTRACTOR SHALL ENSURE THAT THE TRENCH FOR WIDENING HAS A VERTICAL DROP OF NO MORE THAN 5 INCHES. THE TRENCH CAN BE BACKFILLED BY AN AGGREGATE WEDGE. THE MAXIMUM SLOPE OF THE TEMPORARY AGGREGATE WEDGE SHALL BE 3:1 ALONG THE EXISTING PAVEMENT AND PROTECTED WITH DRUMS AT ALL TIMES.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 5 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

CONSTRUCTION SEQUENCE

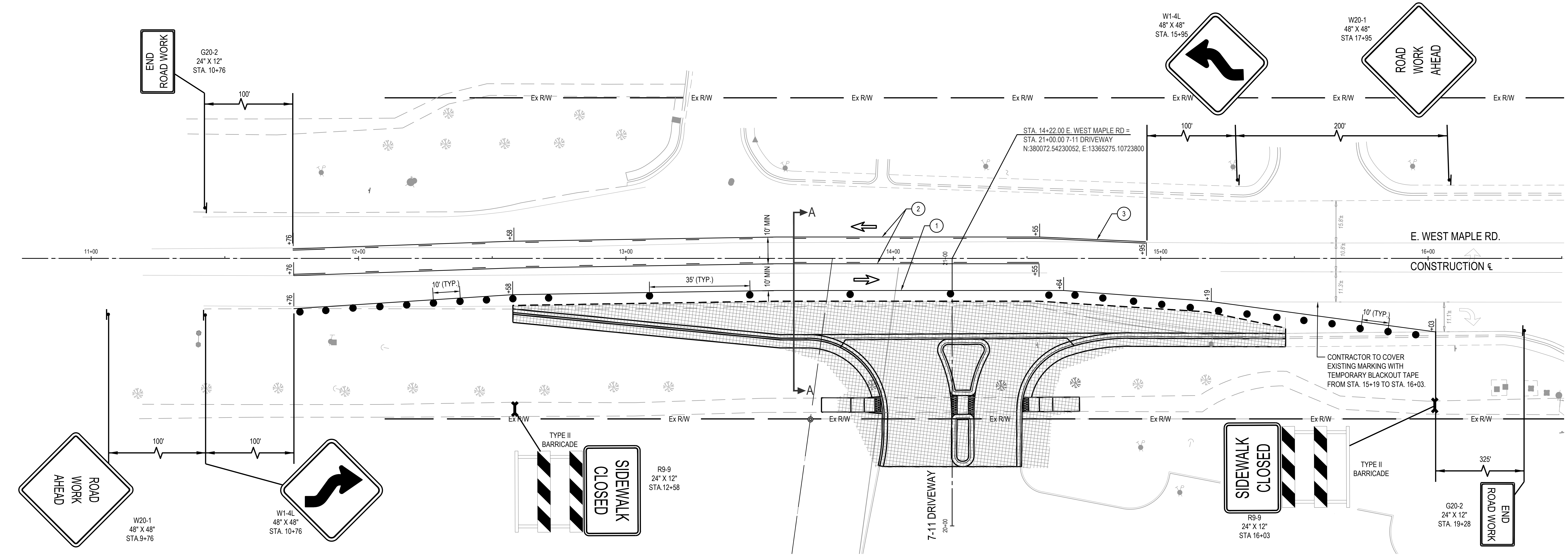
PHASE ONE:

1. COMPLETE WIDENING ON SOUTH SIDE OF E. WEST MAPLE RD. SHIFT TRAFFIC AND PROVIDE SIGNAGE AS SHOWN ON THE PLANS. PROVIDE 10' MINIMUM TRAVEL LANES.

CALCULATED	BAG
CHECKED	PJD

MAINTENANCE OF TRAFFIC NOTES
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

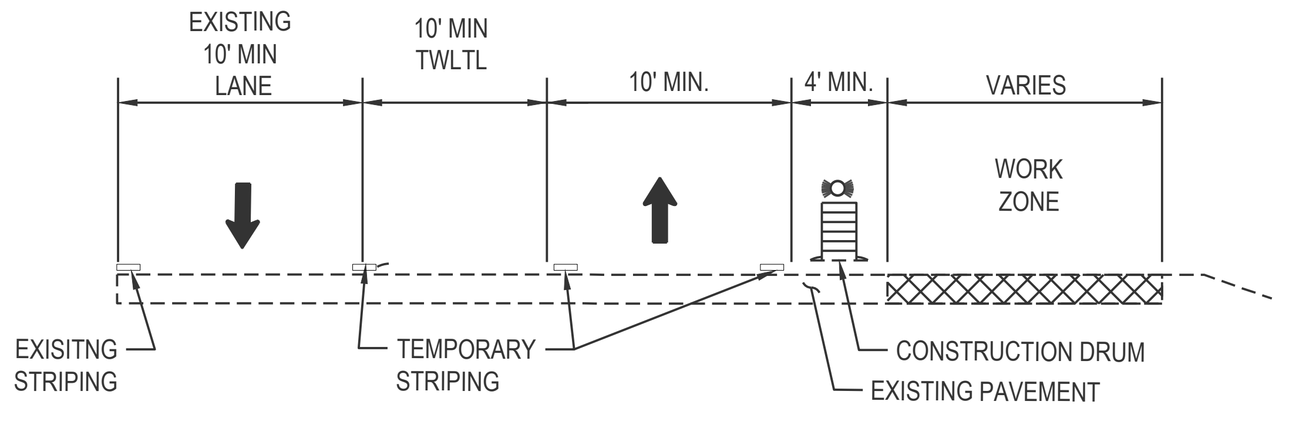


LEGEND

- ● CONSTRUCTION DRUM
- TEMPORARY CONSTRUCTION SIGN
- TYPE II BARRICADE
- ① TEMPORARY EDGE LINE (4" WHITE)
- ② TEMPORARY TWLTL MARKING (4" SOLID/ SKIP DASH-YELLOW)
- ③ TEMPORARY CENTERLINE (4" SOLID DOUBLE YELLOW)
- TEMPORARY PAVEMENT MARKING
- ▨ WORK ZONE
- ⇆ DIRECTION OF TRAVEL

NOTES:

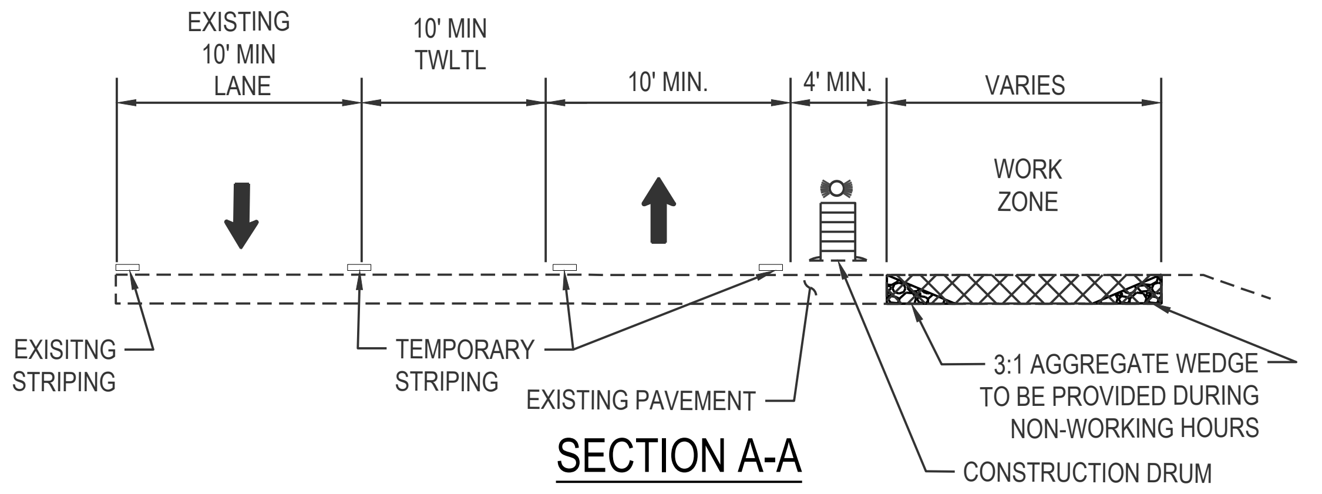
1. CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVES WITHIN MAINTENANCE OF TRAFFIC LIMITS THROUGH THE DURATION OF CONSTRUCTION. CONTRACTOR TO COORDINATE ACCESS AND CLOSURES WITH PROPERTY OWNERS WITH DRIVEWAYS IMPACTED IN THE CONSTRUCTION ZONE.
2. ALL TEMPORARY TRAFFIC CONTROL MARKINGS SHALL BE REMOVABLE TAPE.
3. EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH TEMPORARY TRAFFIC CONTROL MARKINGS OR ARE LABELED TO BE REMOVED SHALL BE COVERED WITH REMOVABLE BLACKOUT TAPE.
4. TEMPORARILY BAG/COVER EXISTING SIGNS IN WORK ZONE WHEN THEY CONFLICT WITH INTENDED MAINTENANCE OF TRAFFIC PLAN.
5. STEADY BURNING TYPE A WARNING LIGHTS SHOWN ON THE ADVANCE WARNING SIGNS ARE ONLY REQUIRED WHENEVER A NIGHT LANE CLOSURE/LANE SHIFT IS NECESSARY.
6. ALL MATERIAL AND EQUIPMENT SHALL BE REMOVED FROM THE CLOSURE AND THE WORK AREA WHEN NO WORK IS BEING DONE.
7. ALL TAPERS AND WORK ZONE TRAFFIC CONTROL SHALL COMPLY WITH REQUIREMENTS OUTLINED IN THE MMUTCD MANUAL.
8. ALL TEMPORARY TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT MARKINGS SHALL COMPLY WITH MMUTCD MANUAL.



SECTION A-A

N.T.S

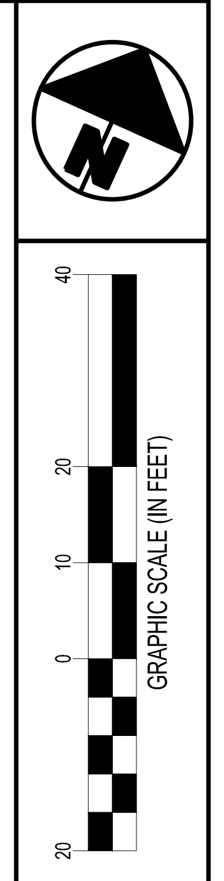
WORKING HOURS SECTION



SECTION A-A

N.T.S

NON-WORKING HOURS SECTION



CALCULATED BAG
CHECKED PJD

MAINTAINENCE OF TRAFFIC PLAN
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

R6
R12

LEGEND

- 1207 -	EXISTING CONTOURS
1207	PROPOSED CONTOURS
SF SF	SILT FENCE
LOD	LIMITS OF DISTURBANCE
☒ (IP)	INLET PROTECTION

SWPPP NOTES:

1. CONTRACTOR IS RESPONSIBLE TO MAINTAIN POST-CONSTRUCTION PERMANENT EROSION CONTROL MEASURES UNTIL ADEQUATE RE-VEGETATION AND STABILIZATION ARE ACHIEVED.
2. CONTRACTOR TO PLACE ADDITIONAL SILT FENCE AS NEEDED IN THE FIELD TO RETAIN ALL SOILS ON THE DISTURBED LAND AND PREVENT RUNOFF INTO THE SURROUNDING STORM WATER SYSTEM.
3. CONTRACTOR TO PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH THE LATEST VERSION OF THE MDOT STANDARDS AND SPECIFICATIONS.
4. SILT FENCE IS SHOWN OFF LIMIT OF DISTURBANCE FOR CLARITY, SILT FENCE TO BE PLACE AT LIMITS OF DISTURBANCE WHEN SHOWN ON THE PLAN.

EXISTING STORM SEWER STRUCTURE SCHEDULE

NO.	*STRUCTURE*	*GRATE*	*INVERT*	*STATION/OFFSET*
EX. 1	*EX MANHOLE ADJUSTED TO GRADE*	*939.89*	*935.80 (15") W* *935.70 (15") E*	*STA. 15+19.15, 23.88'RT.*
EX. 2	*EX. MANHOLE TO REMIAN*	*939.17*	*934.90 (15") W* *934.90 (15") E*	*STA. 16+61.83, 28.10'RT.*

STORM SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	GRATE	INVERT	STATION/OFFSET
PR1	MDOT CURB INLET PER DETAIL R-1-G, WITH MDOT COVER K PER DETAIL R-15-G	938.43	936.39 (18") SE	STA. 13+64.96, 29.40'RT.
2 PR2	MDOT CB PER DETAIL R-1-G, WITH MDOT COVER BEEHIVE	939.50	936.32 (18") NW 936.32 (18") E	STA. 13+74.16, 47.16'RT.
PR3	MDOT MANHOLE PER DETAIL R-1-G, WITH MDOT COVER B PER DETAIL R-7-F	939.13	936.03 (18") W 936.03 (18") NE	STA. 14+57.32, 47.57'RT.

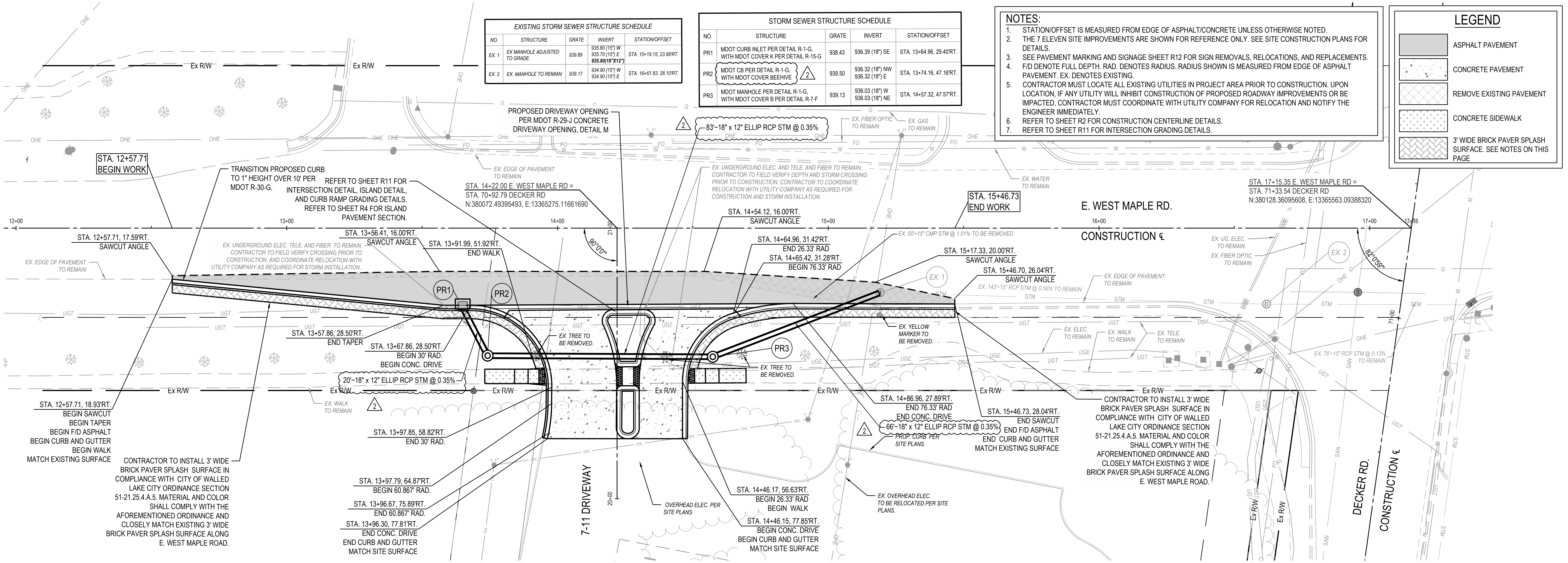
GRAPHIC SCALE (IN FEET)
0 10 20 40

CALCULATED BAG
CHECKED PJD

STORMWATER POLLUTION PREVENTION PLAN
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

R7
R12



EXISTING STORM SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	GRATE	INVERT	STATION/OFFSET
EX. 1	EX MANHOLE ADJUSTED TO GRADE	939.89	935.80 (15") W 935.70 (15") E **935.80(18"X12")**	STA. 15+19.15, 23.88'RT.
EX. 2	EX. MANHOLE TO REMIAN	939.17	934.90 (15") W 934.90 (15") E	STA. 16+61.83, 28.10'RT.

STORM SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	GRATE	INVERT	STATION/OFFSET
PR1	MDOT CURB INLET PER DETAIL R-1-G, WITH MDOT COVER K PER DETAIL R-15-G	938.43	936.39 (18") SE	STA. 13+64.96, 29.40'RT.
PR2	MDOT CB PER DETAIL R-1-G, WITH MDOT COVER BEEHIVE 2	939.50	936.32 (18") NW 936.32 (18") E	STA. 13+74.16, 47.16'RT.
PR3	MDOT MANHOLE PER DETAIL R-1-G, WITH MDOT COVER B PER DETAIL R-7-F	939.13	936.03 (18") W 936.03 (18") NE	STA. 14+57.32, 47.57'RT.

NOTES:

1. STATION/OFFSET IS MEASURED FROM EDGE OF ASPHALT/CONCRETE UNLESS OTHERWISE NOTED.
2. THE 7 ELEVEN SITE IMPROVEMENTS ARE SHOWN FOR REFERENCE ONLY. SEE SITE CONSTRUCTION PLANS FOR DETAILS.
3. SEE PAVEMENT MARKING AND SIGNAGE SHEET R12 FOR SIGN REMOVALS, RELOCATIONS, AND REPLACEMENTS.
4. F/D DENOTE FULL DEPTH. RAD. DENOTES RADIUS. RADIUS SHOWN IS MEASURED FROM EDGE OF ASPHALT PAVEMENT. EX. DENOTES EXISTING.
5. CONTRACTOR MUST LOCATE ALL EXISTING UTILITIES IN PROJECT AREA PRIOR TO CONSTRUCTION. UPON LOCATION, IF ANY UTILITY WILL INHIBIT CONSTRUCTION OF PROPOSED ROADWAY IMPROVEMENTS OR BE IMPACTED, CONTRACTOR MUST COORDINATE WITH UTILITY COMPANY FOR RELOCATION AND NOTIFY THE ENGINEER IMMEDIATELY.
6. REFER TO SHEET R2 FOR CONSTRUCTION CENTERLINE DETAILS.
7. REFER TO SHEET R11 FOR INTERSECTION GRADING DETAILS.

LEGEND

▒	ASPHALT PAVEMENT
⁖	CONCRETE PAVEMENT
▨	REMOVE EXISTING PAVEMENT
⁘	CONCRETE SIDEWALK
▩	3' WIDE BRICK PAVER SPLASH SURFACE. SEE NOTES ON THIS PAGE

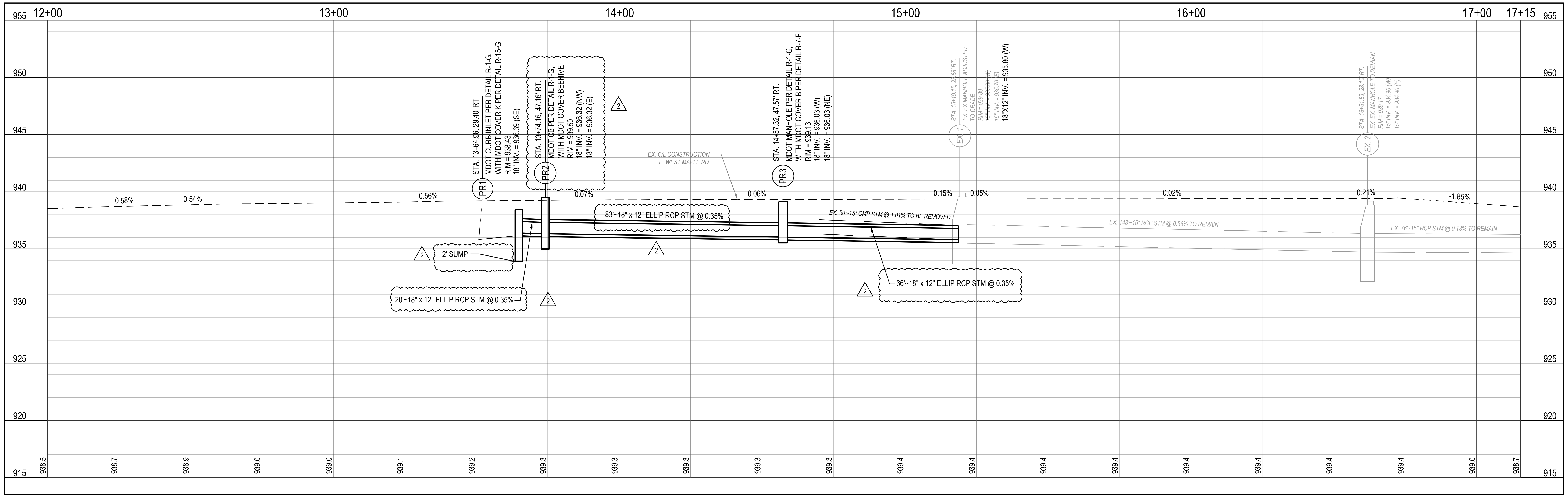
GRAPHIC SCALE (IN FEET)
20 0 10 20 40

CALCULATED	CHECKED
BAG	PJD

PLAN AND PROFILE
E. WEST MAPLE RD

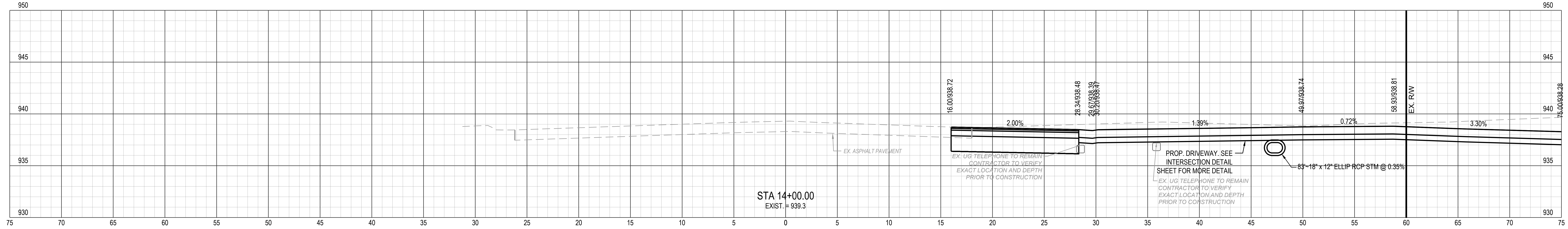
7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

R8
R12

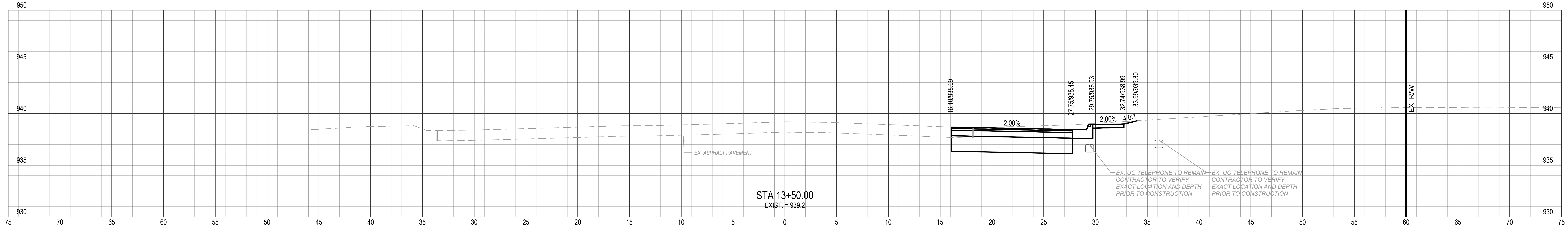


E. WEST MAPLE RD PROFILE

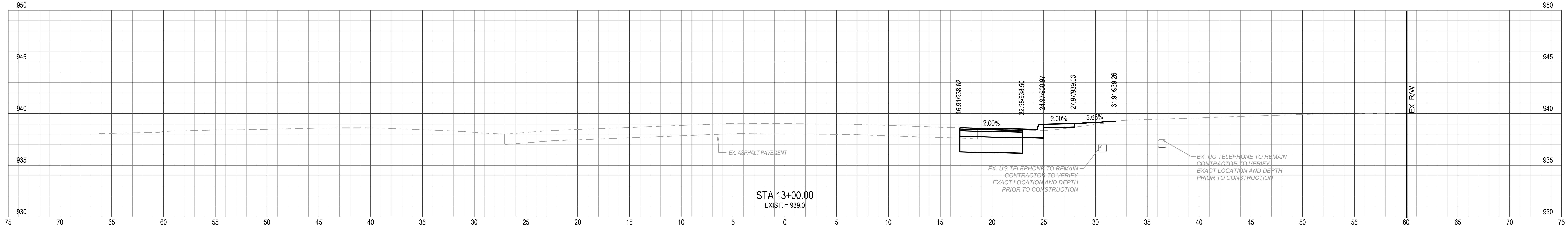
Scale: 1" = 20' Horiz.; 1" = 5' Vert.



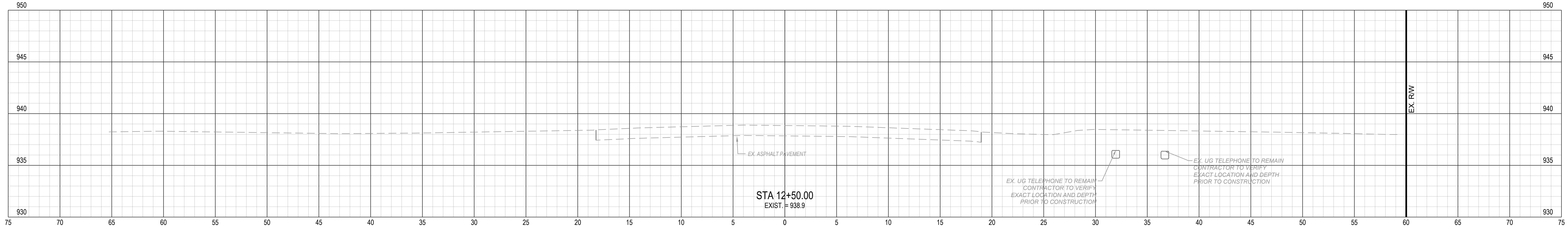
STA 14+00.00
EXIST. = 939.3



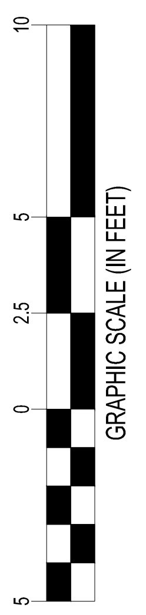
STA 13+50.00
EXIST. = 939.2



STA 13+00.00
EXIST. = 939.0



STA 12+50.00
EXIST. = 938.9

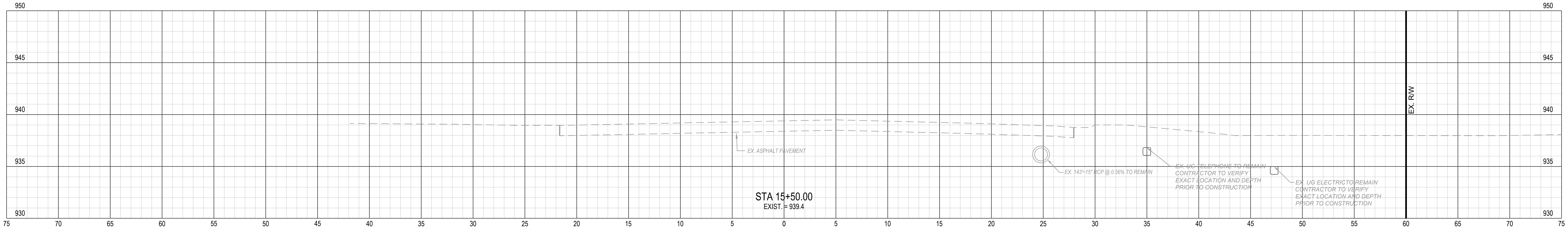


CALCULATED BAG
CHECKED PJD

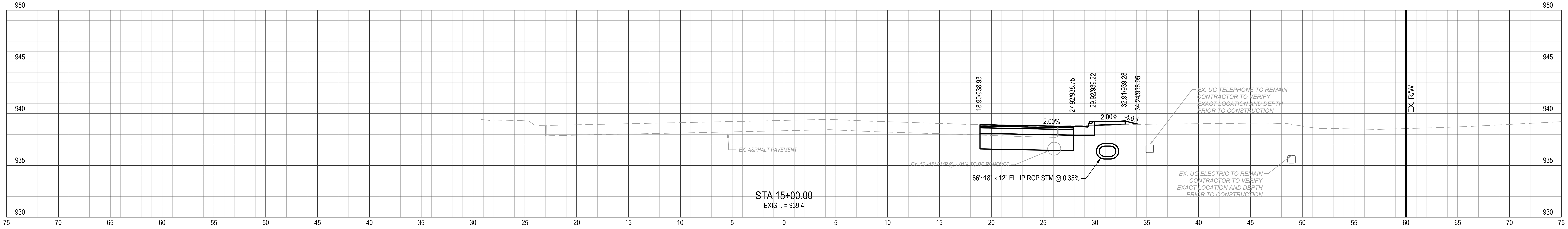
CROSS SECTIONS STA. 12+50 TO 14+00
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

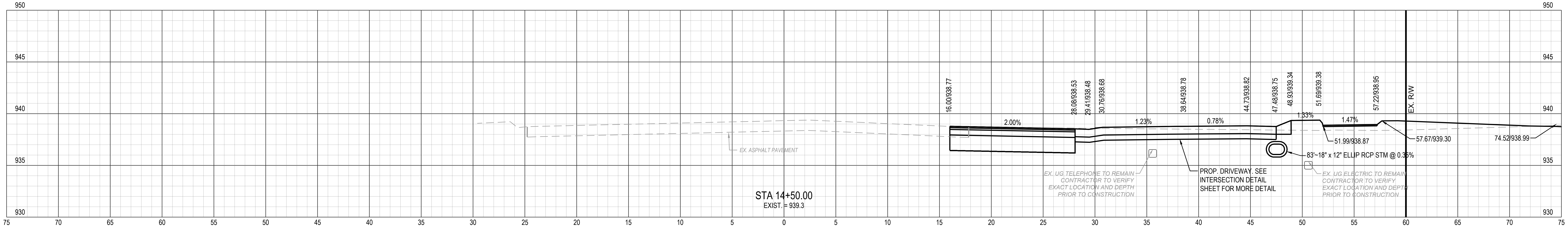
R9
R12



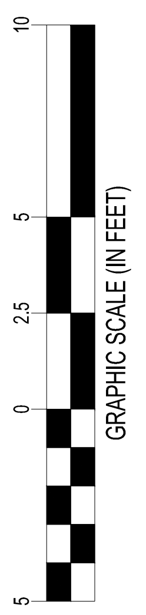
STA 15+50.00
EXIST. = 939.4



STA 15+00.00
EXIST. = 939.4



STA 14+50.00
EXIST. = 939.3

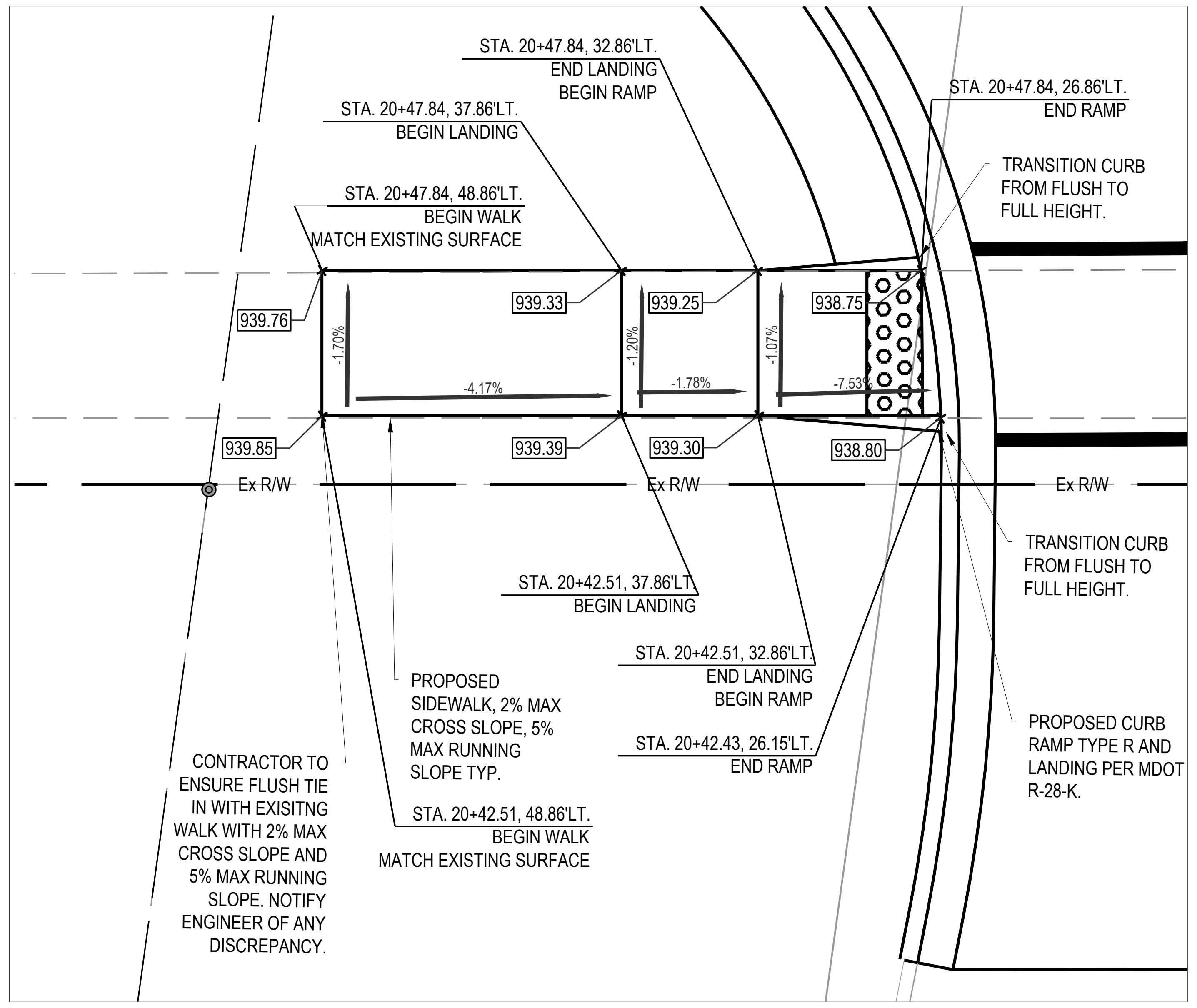


CALCULATED
BAG
CHECKED
PJD

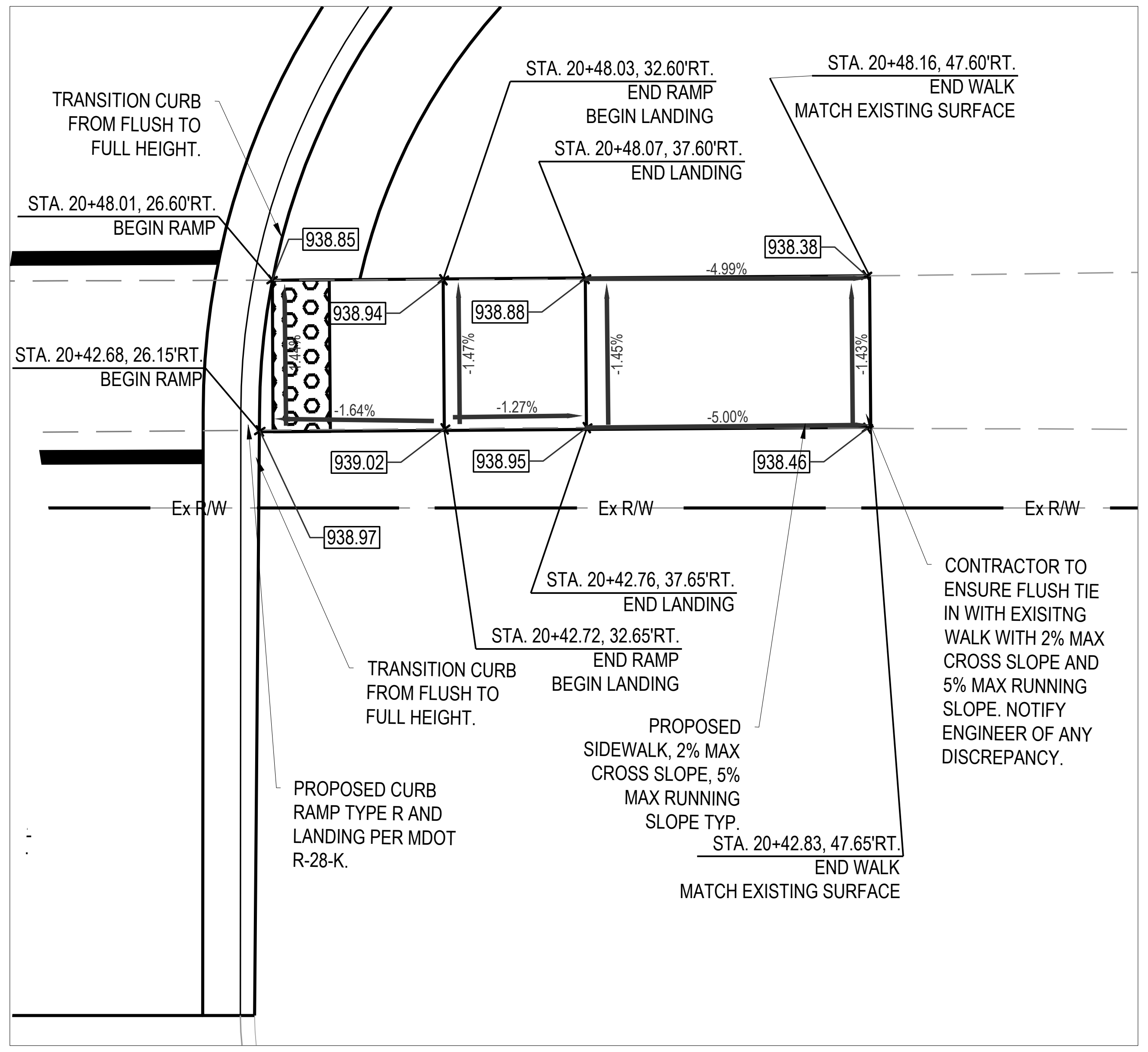
CROSS SECTIONS STA. 14+50 TO 15+50
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

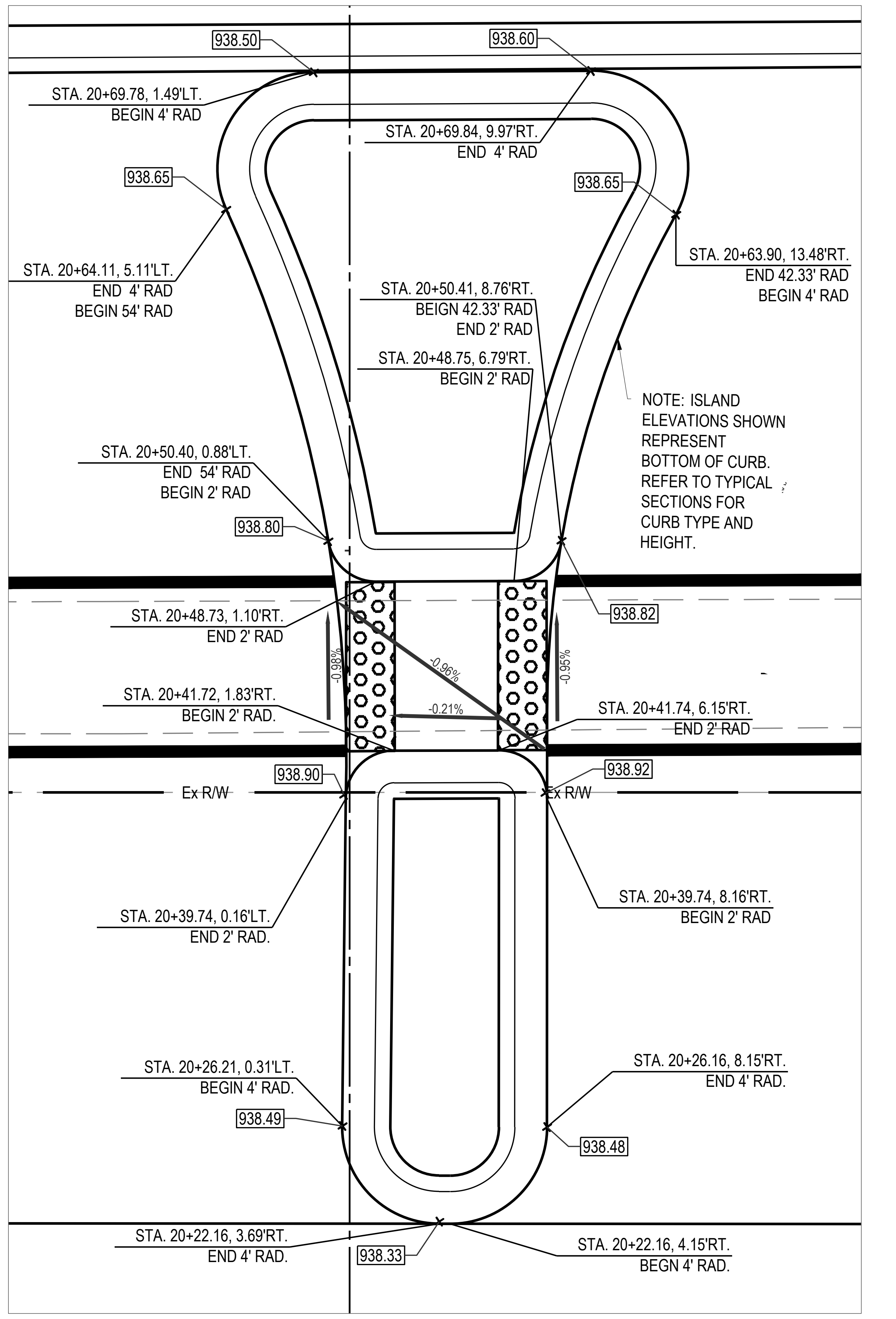
R10
R12



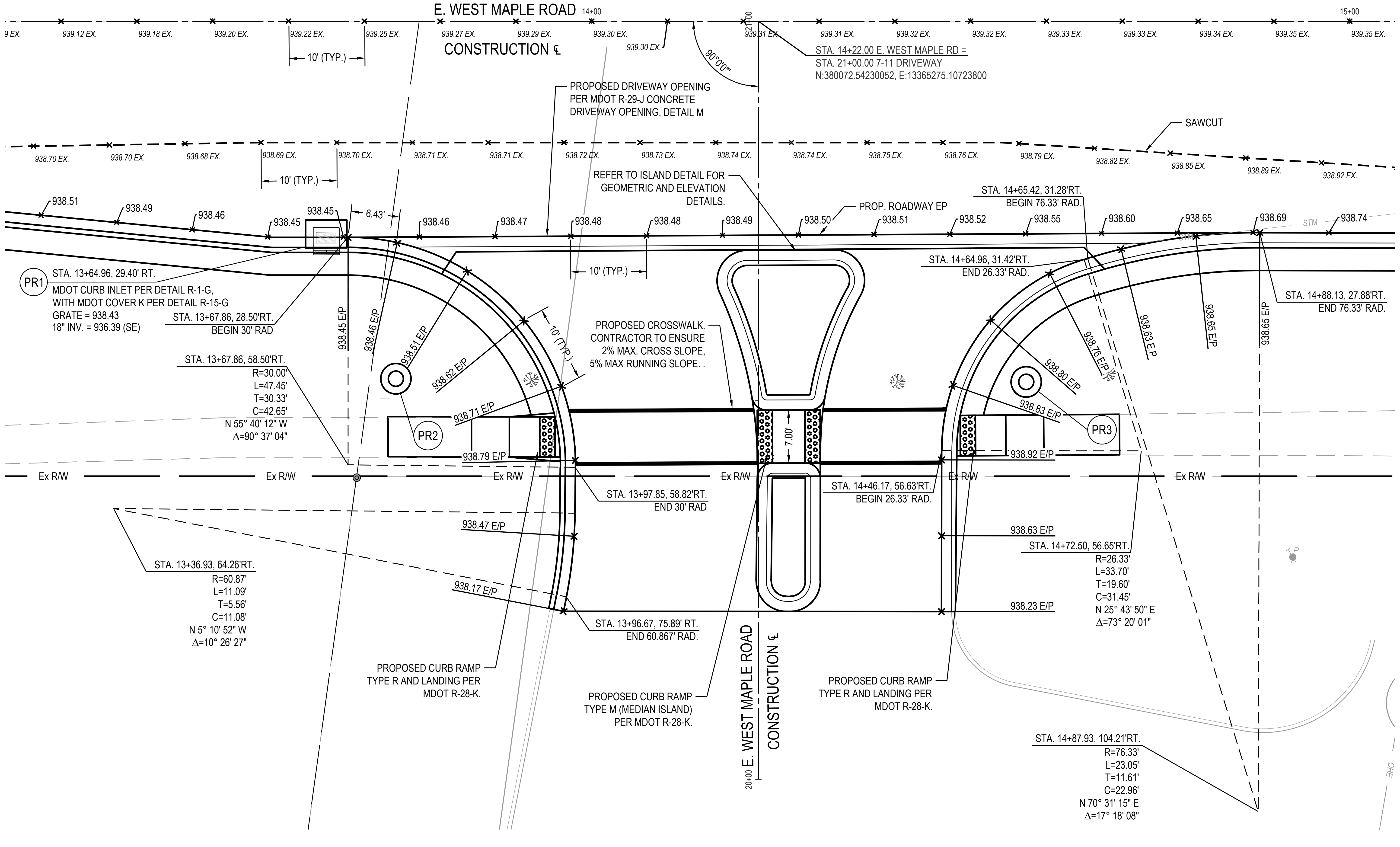
CURB RAMP DETAIL WEST
SCALE: 1" = 5'



CURB RAMP DETAIL EAST
SCALE: 1" = 5'



CONCRETE ISLAND DETAIL 7 ELEVEN DRIVEWAY
SCALE: 1" = 5'



NOTES:
1. STATION/OFFSET IS MEASURED FROM EDGE OF ASPHALT/CONCRETE UNLESS OTHERWISE NOTED.
2. THE 7 ELEVEN SITE IMPROVEMENTS ARE SHOWN FOR REFERENCE ONLY. SEE SITE CONSTRUCTION PLANS FOR DETAILS.
3. SEE PAVEMENT MARKING AND SIGNAGE SHEET R12 FOR SIGN REMOVALS, RELOCATIONS, AND REPLACEMENTS.
4. F/D DENOTE FULL DEPTH. RAD. DENOTES RADIUS. RADIUS SHOWN IS MEASURED FROM EDGE OF ASPHALT PAVEMENT. EX. DENOTES EXISTING.
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6. REFER TO SHEET R2 FOR CONSTRUCTION CENTERLINE DETAILS.
7. CONTRACTOR TO PROVIDE DETECTABLE WARNINGS PER MDOT R-28-K AT CURB RAMPS AND MEDIAN CROSSING.

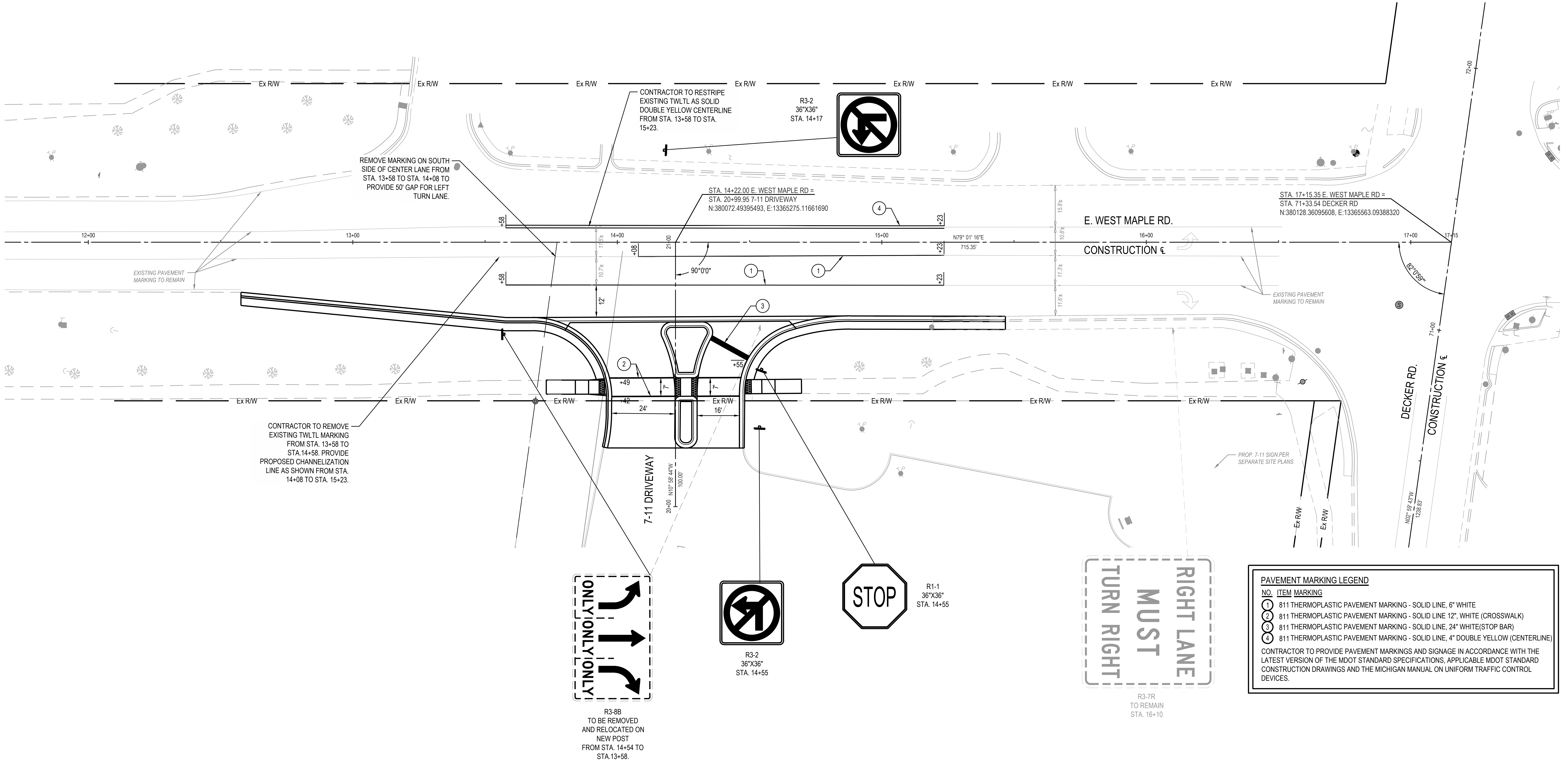
GRAPHIC SCALE (IN FEET)
10 0 5 10 20

CALCULATED BAG
CHECKED PJD

INTERSECTION DETAIL
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

R11
R12



CONTRACTOR TO RESTRIPE EXISTING TWLTL AS SOLID DOUBLE YELLOW CENTERLINE FROM STA. 13+58 TO STA. 15+23.

REMOVE MARKING ON SOUTH SIDE OF CENTER LANE FROM STA. 13+58 TO STA. 14+08 TO PROVIDE 50' GAP FOR LEFT TURN LANE.

R3-2
36"X36"
STA. 14+17

STA. 14+22.00 E. WEST MAPLE RD =
STA. 20+99.95 7-11 DRIVEWAY
N:380072.49395493, E:13365275.11661690

STA. 17+15.35 E. WEST MAPLE RD =
STA. 71+33.54 DECKER RD
N:380128.36095608, E:13365563.09388320

CONTRACTOR TO REMOVE EXISTING TWLTL MARKING FROM STA. 13+58 TO STA.14+58. PROVIDE PROPOSED CHANNELIZATION LINE AS SHOWN FROM STA. 14+08 TO STA. 15+23.

R3-8B
TO BE REMOVED
AND RELOCATED ON
NEW POST
FROM STA. 14+54 TO
STA.13+58.

R3-2
36"X36"
STA. 14+55

R1-1
36"X36"
STA. 14+55

R3-7R
TO REMAIN
STA. 16+10

PAVEMENT MARKING LEGEND

NO.	ITEM	MARKING
①	811	THERMOPLASTIC PAVEMENT MARKING - SOLID LINE, 6" WHITE
②	811	THERMOPLASTIC PAVEMENT MARKING - SOLID LINE 12", WHITE (CROSSWALK)
③	811	THERMOPLASTIC PAVEMENT MARKING - SOLID LINE, 24" WHITE(STOP BAR)
④	811	THERMOPLASTIC PAVEMENT MARKING - SOLID LINE, 4" DOUBLE YELLOW (CENTERLINE)

CONTRACTOR TO PROVIDE PAVEMENT MARKINGS AND SIGNAGE IN ACCORDANCE WITH THE LATEST VERSION OF THE MDOT STANDARD SPECIFICATIONS, APPLICABLE MDOT STANDARD CONSTRUCTION DRAWINGS AND THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

GRAPHIC SCALE (IN FEET)
20 0 10 20 40

CALCULATED BAG
CHECKED PJD

PAVEMENT MARKING AND SIGNAGE
E. WEST MAPLE RD

7-ELEVEN DEVELOPMENT
WALLED LAKE, MICHIGAN

GENERAL NOTES

1. ALL CONSTRUCTION PROCEDURES AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE WATER RESOURCES COMMISSIONER'S OFFICE AND/OR THE LOCAL MUNICIPALITY.
2. THE CONTRACTOR SHALL OBTAIN AN WATER RESOURCES COMMISSIONER'S OFFICE WATER INSPECTION PERMIT PRIOR TO THE START OF CONSTRUCTION. SEE CORRESPONDING WATER MAIN CONSTRUCTION PERMIT REQUEST LETTER FOR COST OF THE PERMIT.
3. A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION AND SHALL BE SCHEDULED BY THE LOCAL MUNICIPAL ENGINEER. THOSE IN ATTENDANCE SHALL INCLUDE 1) LOCAL MUNICIPAL ENGINEER, 2) DESIGN ENGINEER, 3) OWNER/DEVELOPER, 4) ROAD COMMISSION FOR OAKLAND COUNTY, 5) OAKLAND COUNTY WATER RESOURCES COMMISSIONER'S OFFICE (WATER, SEWER AND STORM DIVISIONS) AND 6) ALL UTILITY COMPANIES. CONTRACTOR SHALL PROVIDE MATERIALS LISTING FOR APPROVAL BY MUNICIPAL ENGINEER AND OCWRC.
4. CONTRACTOR MUST CONTACT MISS DIG (1-800-482-7171) THREE WORKING DAYS BEFORE THE START OF CONSTRUCTION FOR UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHALL BE STAKED BEFORE CONSTRUCTION STARTS.
5. ALL NECESSARY EASEMENTS FOR WATER MAINS SHALL BE PROVIDED IN THE NAME OF THE OWNER OF THE WATER MAIN PRIOR TO CONSTRUCTION AND ACCEPTANCE OF THE WATER DISTRIBUTION SYSTEM FOR OPERATION.
6. ALL WATER MAINS SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF FIVE AND ONE-HALF (5-1/2) FEET BELOW FINISHED GRADES INCLUDING OPEN DRAINAGE COURSES.
7. ALL TRENCHES UNDER OR WITHIN A 1:1 RATIO OF EXISTING OR PROPOSED PAVEMENT OR DRIVEWAYS SHALL BE BACKFILLED WITH THOROUGHLY COMPACTED CLASS II SAND TO GRADE AT NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT
8. WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN TWELVE (12) INCH COMPACTED LAYERS TO THE UNDERSIDE OF THE HIGHER UTILITY.
9. WHERE WATER MAINS MUST DIP TO PASS UNDER OTHER UTILITIES, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH AND SHALL BE CONSTRUCTED WITH ELEVEN AND ONE-QUARTER (11-1/4) DEGREE VERTICAL BENDS, PROPERLY ANCHORED. BENDS GREATER THAN 11-1/4° MUST HAVE ROD RESTRAINTS.
10. ALL PRECAST CONCRETE GATE WELL SECTIONS SHALL BE MANUFACTURED TO CONFORM WITH A.S.T.M. C478, STANDARD SPECIFICATIONS FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS, EXCEPT WALL THICKNESS SHALL BE AS SHOWN ON THESE DETAILS. ALL JOINTS FOR PRECAST CONCRETE GATE WELL SECTIONS SHALL BE "MODIFIED GROOVE TONGUE" WITH GASKET MANUFACTURED TO CONFORM WITH A.S.T.M. C 443, STANDARD SPECIFICATION FOR JOINTS FOR CIRCULAR CONCRETE SEWER AND CULVERT PIPE USING RUBBER GASKETS.
11. CONTRACTOR SHALL INSTALL VALVES, TAPPING SLEEVES AND GATE WELL STRUCTURES IN STRICT COMPLIANCE WITH MEASUREMENTS PROVIDED ON SHEET 2 (i.e. 2'-0" BETWEEN GATE WELL WALL & CENTERLINE OF OPERATING NUT) TO ALLOW PROPER OPERATION OF VALVE THROUGH GATEWELL OPENING. FAILURE TO DO SO WILL REQUIRE CONTRACTOR TO CORRECT AT HIS EXPENSE.
12. ALL CROSS-CONNECTION CONTROL DEVICES SHALL BE INSTALLED AS REQUIRED BY THE LOCAL PLUMBING INSPECTOR AND IN ACCORDANCE WITH THE STANDARDS OF THE WATER RESOURCES COMMISSIONER'S OFFICE OPERATION AND MAINTENANCE DIVISION AND THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES AND ENERGY, DIVISION OF DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION
13. ALL WATER SERVICE CONNECTIONS TWO (2) INCHES AND SMALLER SHALL BE MADE BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION AFTER WATER MAIN ACCEPTANCE AND APPLICABLE TAP PERMITS ARE OBTAINED.
14. ALL FITTINGS AND BENDS SHOULD BE BLOCKED IN ACCORDANCE WITH THRUST BLOCK DETAILS, UNLESS ALTERNATE THRUST RESTRAINT SYSTEM, AS INDICATED IN PLANS AND SPECIFICATIONS, IS APPROVED BY WATER RESOURCES COMMISSIONER'S OFFICE AND THE LOCAL MUNICIPALITY.
15. ALL STEEL AND IRON MATERIAL AND PRODUCTS FOR PERMANENT INCORPORATION INTO THE WORK SHELL MEET BUY AMERICA REQUIREMENT, FEDERAL CODE OF REGULATIONS SECTION 635.410

WATER MAIN MATERIALS NOTES

1. WATER SUPPLY SYSTEM PIPING (3-INCH & LARGER) SHALL BE DUCTILE IRON OR HIGH DENSITY POLYETHYLENE (HDPE) UNLESS OTHERWISE APPROVED BY THE LOCAL COMMUNITY.
2. DUCTILE IRON PIPE SHALL BE CLASS 54 FOR SIZES THREE (3) INCH THROUGH EIGHTEEN (18) INCH, CLASS 55 FOR TWENTY (20) INCH, AND CLASS 56 FOR TWENTY-FOUR (24) INCH AND LARGER. (ABBREVIATED "D.I." IN DETAILS AND ON THIS SHEET).
3. PIPES OF SIZES LARGER THAN TWENTY-FOUR (24) INCHES IN NOMINAL DIAMETER SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C100 FOR DUCTILE IRON WATER PIPE.
4. THE DUCTILE IRON PIPE TO BE FURNISHED AND DELIVERED UNDER THIS SPECIFICATION SHALL MEET ALL THE REQUIREMENTS OF THE CURRENT AWWA C151 (ANSI A21.5), EXCEPT AS OTHERWISE SPECIFIED HEREIN. PIPE SHALL BE DOUBLE CEMENT-LINED AND SEAL COATED WITH AN APPROVED BITUMINOUS SEAL COAT IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
5. REFER TO SHEET 5 FOR HDPE MATERIAL REQUIREMENTS.
6. MECHANICAL AND SLIP-ON JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C111 (ANSI A21.11).
7. FLANGE JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE IN ACCORDANCE WITH AWWA C110 (ANSI A21.10).
8. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON OR CAST IRON AND SHALL MEET REQUIREMENTS OF AWWA C110 (ANSI A21.10) OR AWWA C153 (ANSI A21.53). DUCTILE IRON FITTINGS SHALL BE RATED FOR 350 PSI, PIPE SIZES TWENTY-FOUR (24) INCH DIAMETER AND LESS AND 250 PSI FOR PIPE SIZES OVER TWENTY-FOUR (24) INCH DIAMETER. DUCTILE IRON FLANGE FITTINGS SHALL BE RATED FOR 250 PSI FOR ALL PIPE DIAMETERS.
9. INSTALL BRASS WEDGES AT ALL PUSH ON JOINTS IN DUCTILE IRON PIPE INSTALLATIONS. TWO (2) WEDGES PER JOINT FOR PIPES 12 INCH IN DIAMETER AND LESS, FOUR WEDGES PER JOINT FOR PIPES GREATER THAN 12 INCHES IN DIAMETER.
10. ALL WATER MAINS SHALL BE DESIGNED FOR 150 PSI MINIMUM WORKING PRESSURE.
11. ALL BURIED BOLTS, NUTS, AND WASHERS SHALL BE AWWA C111 LOW ALLOY STEEL COATED WITH A MINIMUM OF TWO (2) COATS OF FLUOROPOLYMER EPOXY COATING AND HEAT CURED (COR-BLUE OR APPROVED EQUAL) AND POLY-WRAPPED WHEN SPECIFIED.
12. ALL BURIED BOLTS, NUTS, AND WASHERS FOR ALL FLANGED CONNECTIONS SHALL BE STAINLESS STEEL (ASTM A320, GRADE B8M) AND HAVE A NEVER SEIZE TYPE COMPOUND APPLIED TO THE THREADS PRIOR TO INSTALLATION.
13. CORPORATION STOPS USED FOR INSERTION INTO MAINS SHALL BE MUELLER TYPE H-15000, FORD METER BOX FB-1000-X-Q-NL OR FORD METER BOX FB1000-4-Q-NL. ALL STOPS SHALL HAVE BRONZE CAST BODIES, KEYS, STEM WASHERS AND NUTS. INLET THREADS SHALL CONFORM TO THE LATEST VERSION OF AWWA C800.
14. TEMPORARY CONNECTIONS, WHICH MAY BE MADE FOR CHLORINATING AND FLUSHING PURPOSES, SHALL INCLUDE A TESTABLE REDUCE PRESSURE ZONE (RPZ) VALVE WITH CURRENT CERTIFICATION.

VALVE AND SLEEVE NOTES

1. GATE VALVES, SIZES THREE (3) INCH THROUGH SIXTEEN (16) INCH AND TAPPING VALVES SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED WITH NON-RISING STEM.
2. ALL IN LINE GATE VALVES THREE (3) INCH AND LARGER SHALL BE IN WELLS AS DETAILED. SPECIFICATIONS SHALL INCLUDE THE DIRECTION OF OPERATION OF ALL VALVES.
3. ALL GATE WELL COVERS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED.
4. ALL GATE VALVES WITH OPERATING NUTS AT A DISTANCE GREATER THAN FIVE (5) FEET BELOW GROUND SURFACE SHALL BE PROVIDED WITH A STAINLESS STEEL EXTENSION STEM. THE LENGTH OF THE EXTENSION STEM SHALL REACH WITHIN FIVE (5) FEET FROM THE GROUND SURFACE. WHEN AN EXTENSION STEM IS USED, IT SHALL BE HELD IN PLACE BY A STAINLESS STEEL EXTENSION STEM GUIDE SUITABLY FASTENED TO THE WALL OF THE GATE WELL. THE EXTENSION STEM SHALL BE MECHANICALLY ATTACHED TO THE OPERATING NUT. DETAILS OF THE EXTENSION SYSTEM AND THE METHOD OF INSTALLATION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
5. TAPPING VALVES SHALL BE AWWA C515 FL X MJ AS MANUFACTURED BY EJ WITH RESILIENT SEATED GATE VALVES AS APPROVED BY LOCAL MUNICIPALITY.
6. TAPPING SLEEVES SHALL BE ALL STAINLESS STEEL (BODY, FLANGE AND HARDWARE), MANUFACTURED BY ROMAC INDUSTRIES SST; JCM 432; SMITH-BLAIR 663/665 OR APPROVED EQUAL BY THE WATER RESOURCES COMMISSIONER'S OFFICE.

HYDRANT REQUIREMENTS

1. ALL HYDRANTS SHALL BE CONSTRUCTED WITH A SIX (6) INCH COMPANION GATE VALVE IN A THREE (3) PIECE, ADJUSTABLE DUCTILE IRON VALVE BOX, WHICH SHALL INCLUDE A FIVE AND ONE-QUARTER (5-1/4) INCH SCREW SHAFT. VALVE BOXES SHALL BE SERIES 6860 AS MANUFACTURED BY TYLER PIPE, EJ VALVE BOX NO. 8560 OR APPROVED EQUAL.
2. ALL HYDRANTS SHALL BE EJ 5BR250 TRAFFIC MODEL, OR APPROVED EQUAL WITH A MINIMUM OF 6'-0" DEPTH OF BURY UNLESS OTHERWISE INDICATED. SELF-DRAINING HYDRANTS SHALL NOT BE USED. ALL HYDRANTS SHALL BE LOCAL MUNICIPAL STANDARD AS DETAILED. HYDRANTS SHALL HAVE BREAKAWAY FLANGE.
3. ALL HYDRANTS SHALL BE PAINTED RED ABOVE GROUND AND BLACK BELOW GROUND WITH A FINISH COAT OF GLAMORTEX 501 ENAMEL, COLOR 314 VERMILLION OR APPROVED EQUAL. HYDRANT CAP SHALL BE PAINTED SAME COLOR AS THE HYDRANT. FOR PONTIAC: YELLOW RUST-OLEUM #7543 SAFETY YELLOW.

ACCEPTANCE OF NEW WATER MAINS

1. PRIOR TO WATER MAIN ACCEPTANCE THE FOLLOWING CONDITIONS MUST BE MET:
    - 1.1. PRESSURE TESTING AND BACTERIA TESTING MUST BE COMPLETED IN ACCORDANCE WITH THE WATER RESOURCES COMMISSIONER'S OFFICE REQUIREMENTS
    - 1.2. ALL EASEMENT AND RIGHT-OF-WAY ACQUISITION MUST BE ACCEPTED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, RIGHT-OF-WAY DIVISION
    - 1.3. THE LOCAL MUNICIPALITY MUST BE PROVIDED WITH THE BILL OF SALE
    - 1.4. ALL "RECORD DRAWINGS" MUST BE ACCEPTED AND APPROVED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION. THE WATER RESOURCES COMMISSIONER'S OFFICE AND LOCAL ENGINEER MUST WITNESS THE CONNECTION OF THE WATER MAIN TO THE EXISTING WATER MAIN, AFTER WHICH RESIDENTIAL AND COMMERCIAL TAPS WILL BE ALLOWED.
2. THE CONTRACTOR SHALL NOTIFY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION THROUGH THE LOCAL ENGINEER FOR NEW CONSTRUCTION TAP, PRESSURE TESTING, BACTERIOLOGICAL SAMPLING, CONNECTIONS TO EXISTING WATER MAIN AND FINAL FIELD REVIEW. A SEVENTY-TWO (72) HOUR ADVANCE NOTICE IS REQUIRED.
3. THE CONTRACTOR SHALL DISINFECT AND PRESSURE TEST ALL NEW WATER MAIN CONSTRUCTION PURSUANT TO THE CURRENT STANDARDS SPECIFIED BY THE WATER RESOURCES COMMISSIONER'S OFFICE.
4. HYDROSTATIC TESTING FOR DUCTILE IRON WATER MAIN SHALL BE COMPLETED IN ACCORDANCE WITH ANSI/AWWA C600, SEC 5.2. THE SPECIFIED TEST PRESSURE IS 150 PSI OR 1.5 TIMES THE MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) OF THE TEST SECTION, WHICHEVER IS GREATER. THE TEST METHOD IS GENERALLY SUMMARIZED AS FOLLOWS:
    - 4.1. SLOWLY FILL PIPELINE WITH WATER, VENTING ENTRAPPED AIR AS NECESSARY.
    - 4.2. REPAIR ANY VISIBLE LEAKS THAT OCCUR DURING FILLING OR AT ANY POINT DURING THE TEST.
    - 4.3. GRADUALLY APPLY PRESSURE UP TO THE SPECIFIED WORKING PRESSURE USING A SUITABLE PUMP CONNECTED TO THE PIPELINE, BLEEDING TRAPPED AIR, AND ADDING WATER AS NECESSARY UNTIL A STABLE PRESSURE IS HELD.
    - 4.4. HYDROSTATIC TEST BEGINS AFTER THE PIPELINE IS STABILIZED AT THE WORKING PRESSURE BY INCREASING THE PRESSURE UP TO THE SPECIFIED TEST PRESSURE AND HOLD IT WITHIN PLUS/MINUS 5 PSI FOR THE DURATION OF THE TEST, OR A MINIMUM OF TWO HOURS.
    - 4.5. CAREFULLY RECORD THE AMOUNT OF MAKEUP WATER ADDED DURING THE TEST. THE HYDROSTATIC TEST PASSES IF THE AMOUNT OF MAKEUP WATER DOES NOT EXCEED THE TESTING ALLOWANCE.
    - 4.6. IF THE TESTING ALLOWANCE IS EXCEEDED, LOCATE AND REPAIR ANY LEAKS AND REPEAT TEST.
5. REFER TO SHEET 5 FOR HYDROSTATIC TESTING REQUIREMENTS FOR HDPE PIPE.
6. PRESSURE TESTING AGAINST VALVES PHYSICALLY CONNECTED TO AN EXISTING WATER SUPPLY SYSTEM IS STRICTLY PROHIBITED.
7. WHERE CONTRACTOR SUPPLIED GAUGES ARE REQUIRED, MINIMUM SIZE SHALL BE 3½" DIAMETER OR LARGER GRADUATED IN ONE (1) OR TWO (2) POUND INCREMENTS FROM 1 TO 160 P.S.I. OR HIGHER.
8. PRESSURE TESTING AND BACTERIA TESTING MUST BE SUCCESSFULLY COMPLETED PRIOR TO CONNECTING TO THE EXISTING WATER SUPPLY SYSTEM.

WATER RESOURCES COMMISSIONER
WATER SYSTEM STANDARDS –
GATE VALVES

COMMUNITY	DIRECTION TO OPEN	VALVE TYPE STD. GATE VALVE	 TAPPING VALVE
BINGHAM FARMS	RIGHT	C515	C515
BLOOMFIELD HILLS	RIGHT	C515	C515
COMMERCE TOWNSHIP	LEFT	C515	C515
FARMINGTON HILLS	RIGHT	C515	C515
HIGHLAND TOWNSHIP	LEFT	C515	C515
KEEGO HARBOR	RIGHT	C515	C515
OAKLAND TOWNSHIP	LEFT	C515	C515
ORCHARD LAKE VILLAGE	LEFT	C515	C515
OXFORD TOWNSHIP	LEFT	C515	C515
PLEASANT RIDGE	RIGHT	C515	C515
PONTIAC	LEFT	C515	C515
ROYAL OAK TOWNSHIP	RIGHT	C515	C515
SPRINGFIELD TOWNSHIP	LEFT	C515	C515
SYLVAN LAKE	RIGHT	C515	C515
WALLED LAKE	LEFT	C515	C515

1.) C515 RESILIENT SEATED GATE VALVE – MANUFACTURED BY U.S. PIPE, MUELLER, EAST JORDAN IRON WORKS, AMERICAN FLOW CONTROL OR APPROVED EQUAL.

FIRE HYDRANT NOZZLE SIZE AND
THREAD SPECIFICATIONS

CVT	PUMPER NOZZLE	HOSE NOZZLE	OPERATING NUT	DEPTH OF BURY	STYLE	MODEL #
BINGHAM FARMS	(1) – 4"-STORZ	(2) – 2-1/2"-DFD	1-1/2"	5'-6"	5BR250	54831D
BLOOMFIELD HILLS	(1) – 3-3/4"-DFD	(2) – 2-1/2"-DFD	1-1/8"	6'-0"	5BR250	55825D
COMMERCE TWP/ WOLVERINE LAKE	(1) – 5"-STORZ	(2) – 2-1/2"-NST	1-1/2"	5'-6"	5BR250	54913D
FARMINGTON HILLS	(1) – 3-3/4"-DFD	(2) – 2-1/2"-NST	1-1/8"	5'-6"	5BR250	54329D
HIGHLAND TWP	(1) – 5"-STORZ	(2) – 2-1/2"-NST	1-1/2"	5'-6"	5BR250	54913D
KEEGO HARBOR	(1) – 3-3/4"-DFD	(2) – 2-1/2"-DFD	1-1/8"	5'-6"	5BR250	54826D
OAKLAND TWP	(1) – 4"-STORZ	(2) – 2-1/2"-DFD	1-1/2"	5'-6"	5BR250	54831D
ORCHARD LAKE	(1) – 3-3/4"-DFD	(2) – 2-1/2"-DFD	1-1/8"	6'-0"	5BR250	55825D
OXFORD TWP	(1) – 5"-STORZ (1) – 4-1/2"-NST		1-1/2"	6'-0"	5BR250	55601D
PLEASANT RIDGE	(1) – 3-3/4"-DFD (1) – 5"-STORZ		1-1/8"	5'-6"	5BR250	54949D
PONTIAC	(1) – 3-3/4"-DFD	(2) – 2-1/2"-DFD	1-1/2"	6'-0"	5BR250	55822D
ROYAL OAK TWP	(1) – 3-3/4"-DFD	(2) – 2-1/2"-DFD	1-1/8"	5'-6"	5BR250	54826D
SPRINGFIELD TWP	(1) – 5"-STORZ	(2) – 2-1/2"-NST	1-1/2"	5'-6"	5BR250	54913D
SYLVAN LAKE	(1) – 3-3/4-DFD	(2) – 2-1/2"-NST	1-1/2"	6'-0"	5BR250	55827D
WALLED LAKE	(1) – 4-1/2-NST	(2) – 2-1/2"-NST	1-1/8"	5'-6"	5BR250	54534D

1. D.F.D. – DETROIT FIRE DEPARTMENT THREAD
2. N.S.T. – NATIONAL STANDARD THREAD
3. STORZ NOZZLES SHALL BE COMPATIBLE WITH STORZ COUPLED LARGE DIAMETER FIRE HOSE. NOZZLES SHOULD BE MADE OF "LEAD FREE" BRASS OR ALUMINUM, AS APPROVED BY LOCAL CITY, VILLAGE OR TOWNSHIP. THE NOZZLE SHALL BE AN INTEGRAL PART OF THE HYDRANT, RESISTANT TO TAMPER AND REMOVAL. ENGAGEMENT LUGS SHALL BE ON THE NOZZLE AND CAP TO PREVENT FAILURE UNDER HIGH PRESSURE. NOZZLE AND CAP SHALL MEET AWWA C502 SPECIFICATIONS. NOZZLE SHALL BE COMPATIBLE WITH HOSE LOCK TO PREVENT HOSE FROM DISCONNECTING WHILE IN USE.

WATER RESOURCES COMMISSIONER'S OFFICE
WATER SYSTEMS OPERATIONS AND MAINTENANCE DIVISION
RECORD DRAWING SPECIFICATIONS

IN AREAS WHERE WATER SYSTEMS ARE OPERATED AND MAINTAINED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION, FINAL ACCEPTANCE OF THE WATER SYSTEM MUST BE RENDERED BY THE WATER RESOURCES COMMISSIONER'S OFFICE, OPERATIONS AND MAINTENANCE DIVISION, BEFORE THE SYSTEM CAN BE USED FOR THE SERVICE INTENDED.

ONE ITEM REQUIRED FOR FINAL ACCEPTANCE SHALL BE THE SUBMISSION OF RECORD DRAWINGS TO THE WATER RESOURCES COMMISSIONER, OPERATIONS AND MAINTENANCE DIVISION, BY THE DESIGN ENGINEER. RECORD DRAWINGS SHALL BE DEFINED AS AND CONTAIN THE FOLLOWING INFORMATION:

1. THE DESIGN ENGINEER SHALL FURNISH "RECORD DRAWINGS" WATER MAIN PLANS UPON JOB COMPLETION. "RECORD DRAWINGS" SHALL BE FORWARDED TO THE WATER RESOURCES COMMISSIONER BY THE LOCAL MUNICIPAL ENGINEER AFTER THEIR REVIEW AND APPROVAL.
2. THE COVER SHEET SHALL BE SIGNED AND SEALED BY THE PROJECT DESIGN ENGINEER AND INCLUDE THE FOLLOWING CERTIFICATION STATEMENT:

> I HEREBY CERTIFY THAT OUR FIRM HAS PREPARED THESE RECORD DRAWINGS OF THE IMPROVEMENTS AS CONSTRUCTED, AND THAT TO THE BEST OF MY KNOWLEDGE THOSE IMPROVEMENTS NOTED AS "RECORD DRAWINGS" WERE CONSTRUCTED IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED CONSTRUCTION PLANS; AND ALSO THAT THE WATER MAIN AND STRUCTURES, AS CONSTRUCTED, LIE WITHIN THE EASEMENT DESCRIPTIONS REQUIRED BY THE WATER RESOURCES COMMISSIONER'S OFFICE.
>
> ______________________________
> (COMPANY NAME)
>
> ______________________________
> (ENGINEER'S SIGNATURE)
>
> PROFESSIONAL ENGINEER NO. ______________
>
> ENGINEER SEAL

3. THE MINIMUM SCALE SHALL BE ONE (1) INCH EQUALS FIFTY (50) FEET.
4. THE SIZE, LENGTH, CLASS AND MANUFACTURER OF PIPE INSTALLED SHALL BE INDICATED.
5. THE SIZE, BRAND AND MODEL NUMBERS OF ALL VALVES AND HYDRANTS INSTALLED SHALL BE INDICATED.
6. A TOTAL RECORD DRAWING QUANTITY LIST SHALL BE INCLUDED, AS WELL AS A RECORD DRAWING QUANTITY LIST ON EACH INDIVIDUAL SHEET.
7. THE LOCATIONS SHALL BE SHOWN ON THE PLANS WITH AN ACCURACY OF ONE (1) FOOT.
8. THE OFFSET OF THE WATER MAIN FROM PROPERTY LINES SHALL BE INDICATED.
9. ALL GATE VALVE WELLS, HYDRANTS AND ALL WATER SYSTEM APPURTENANCES SHALL BE LOCATED FROM THE NEAREST PROPERTY CORNER.
10. ALL UNDERGROUND APPURTENANCES, SUCH AS GATE VALVE WELLS, METER PITS, PRESSURE REDUCING VALVE PITS, ETC. SHALL BE LOCATED FROM THE NEAREST HYDRANT THAT IS CONNECTED TO THE SAME WATER MAIN AS THE APPURTENANCE.
11. THE LOCATION, SIZE, BRAND AND MODEL NUMBER OF EVERY RESTRAINED JOINT SHALL BE NOTED.
12. THE ACCURATE LOCATION OF ALL UTILITY CROSSINGS WHERE THE RECOMMENDED SEPARATION, VERTICALLY OR HORIZONTALLY, IS LESS THAN THE TEN STATE STANDARDS SHALL BE NOTED.
13. WATER MAINS 12" AND LARGER IN DIAMETER SHALL BE DRAWN IN PROFILE VIEW IN ADDITION TO PLAN VIEW ON THE CONSTRUCTION PLANS.

Plotfile Name: GISQtrs.ctb
File Location: J:\Drain\MappingUnit\STANDARD\DETAILS\AppProductionStandard\Water\CAD files\STD-Wtr1of7.dwg

WATER MAIN
STANDARD DETAILS

REVISION BLOCK

Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	HRC	08/31/20	GENERAL UPDATE
2	KB	03/20/23	ADD PRC AND SLC INFO TO TABLES
3	KB	05/09/23	UPDATE BFV HYDRANT SPECS
4	KB	07/11/24	UPDATE ROT HYDRANT SPECS

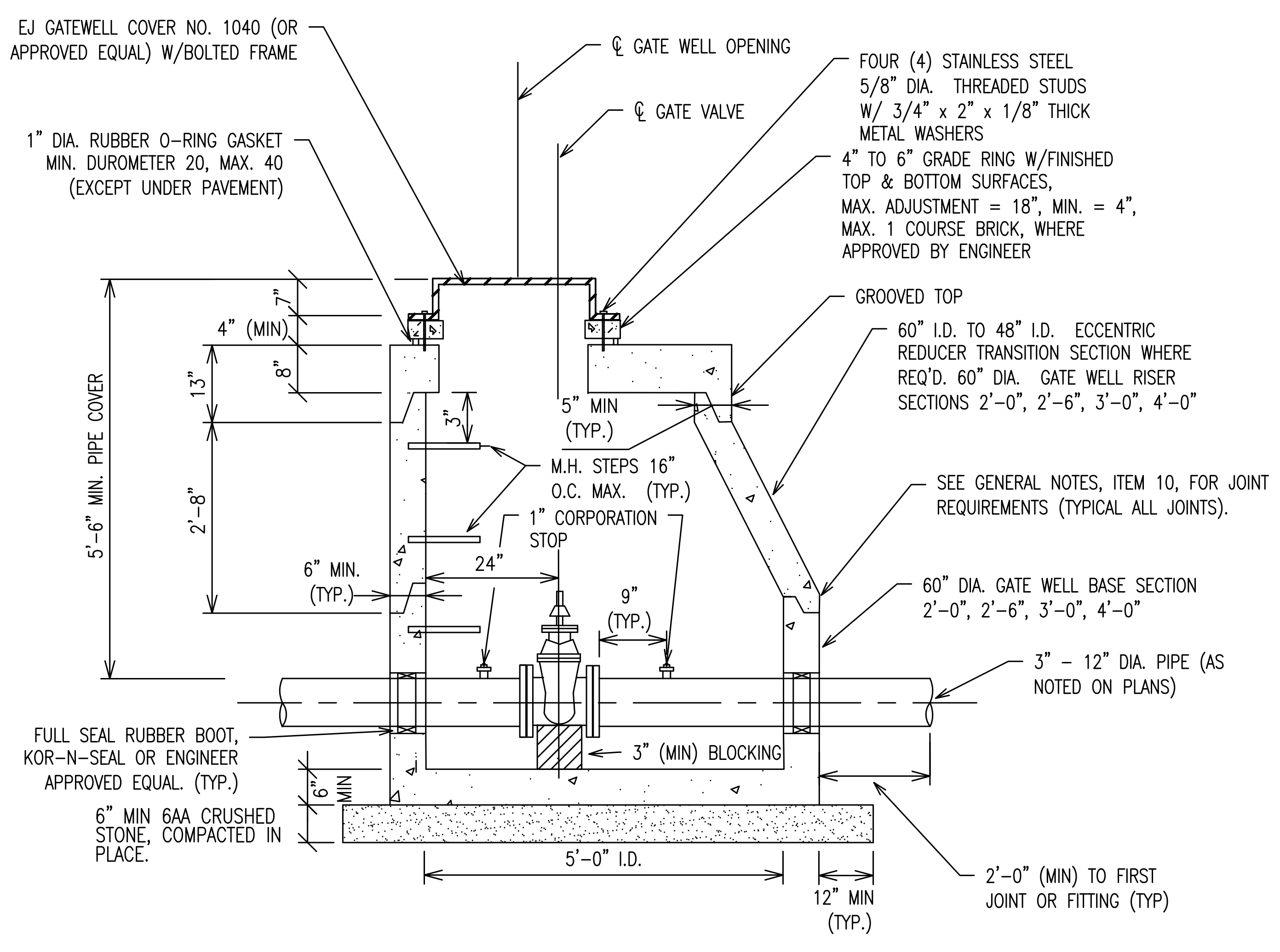
ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: WRC Mapping

WRC
WATER RESOURCES COMMISSIONER
Jim Nash

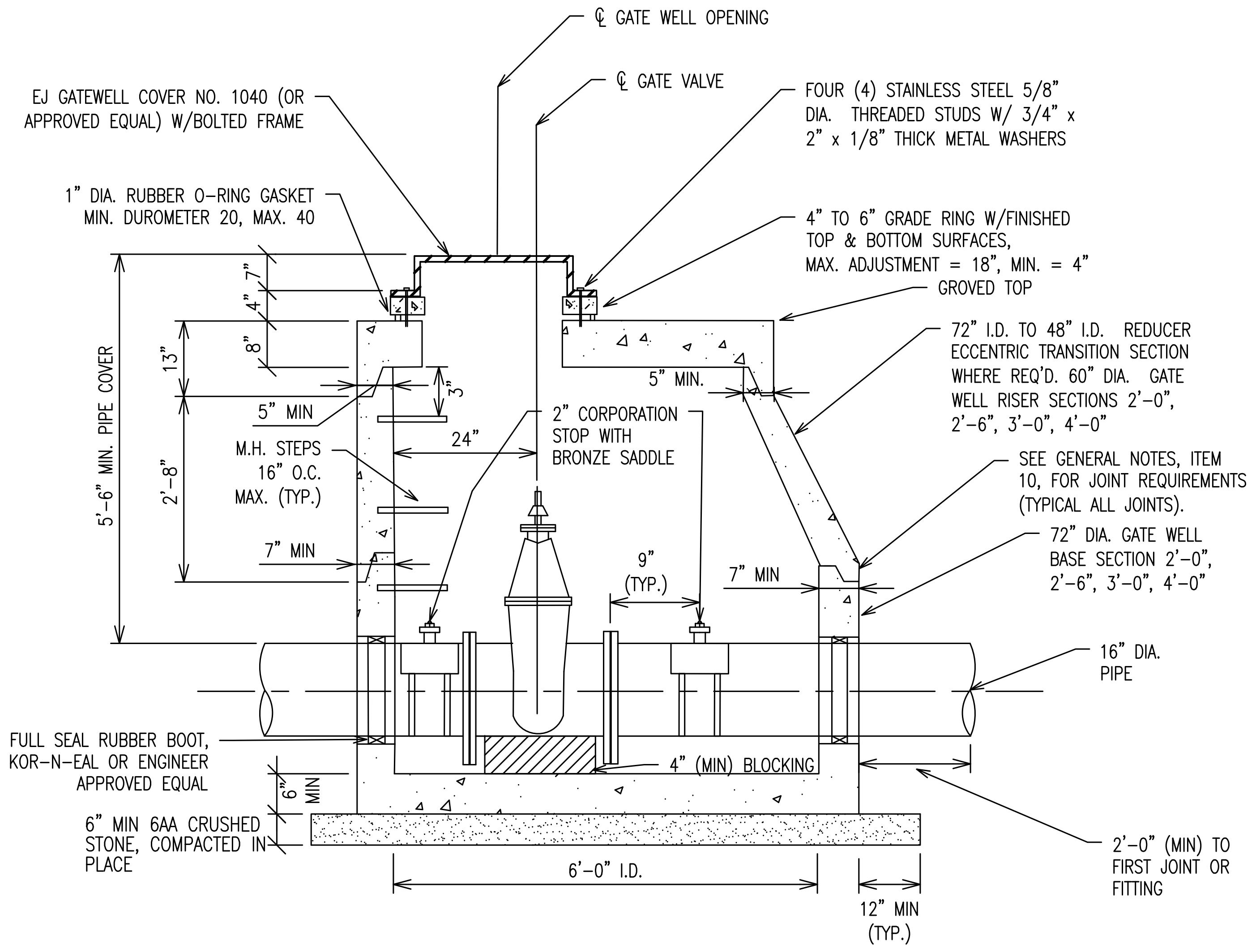
ONE PUBLIC WORKS DRIVE, BLDG 95 WEST
WATERFORD, MICHIGAN
48328-1907

SHEET NO.: 1 of 7

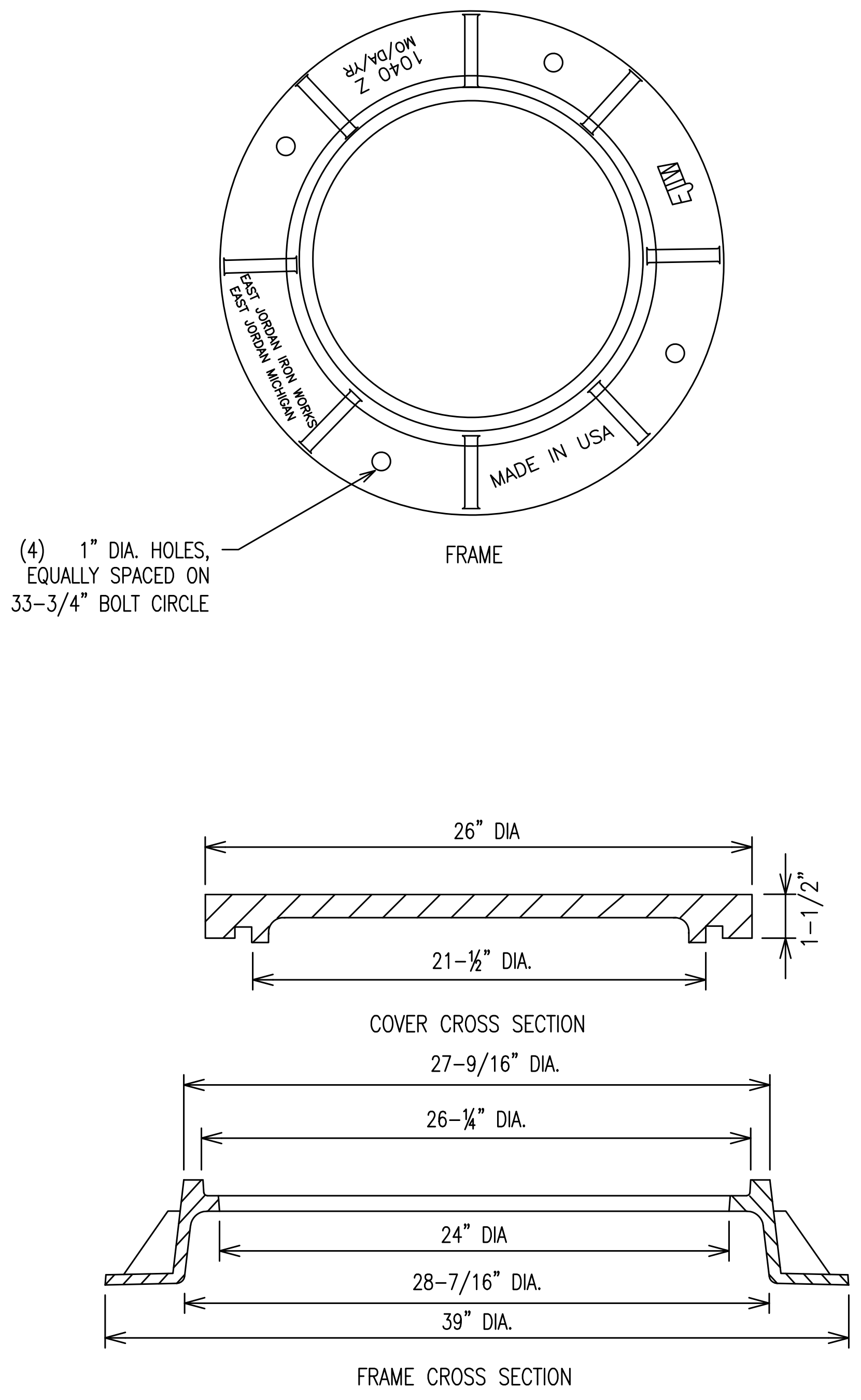
GATE VALVE & WELL DETAILS



3" THRU 12" GATE WELL



16" GATE WELL



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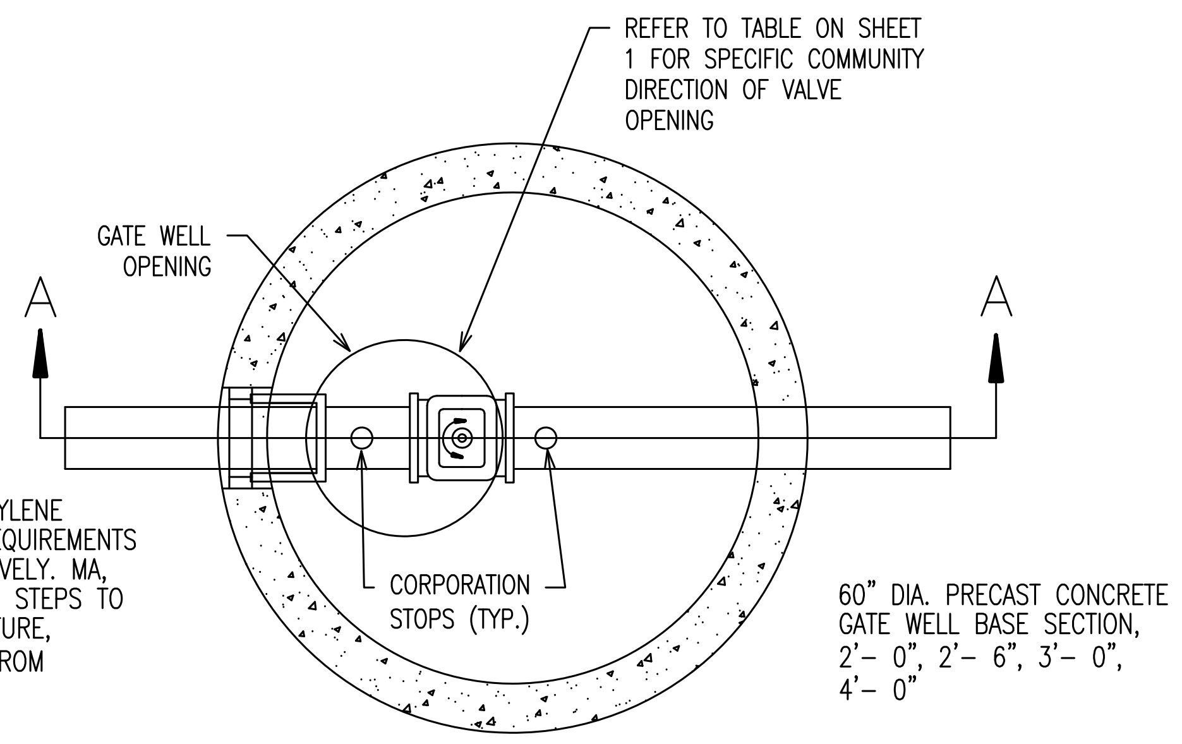
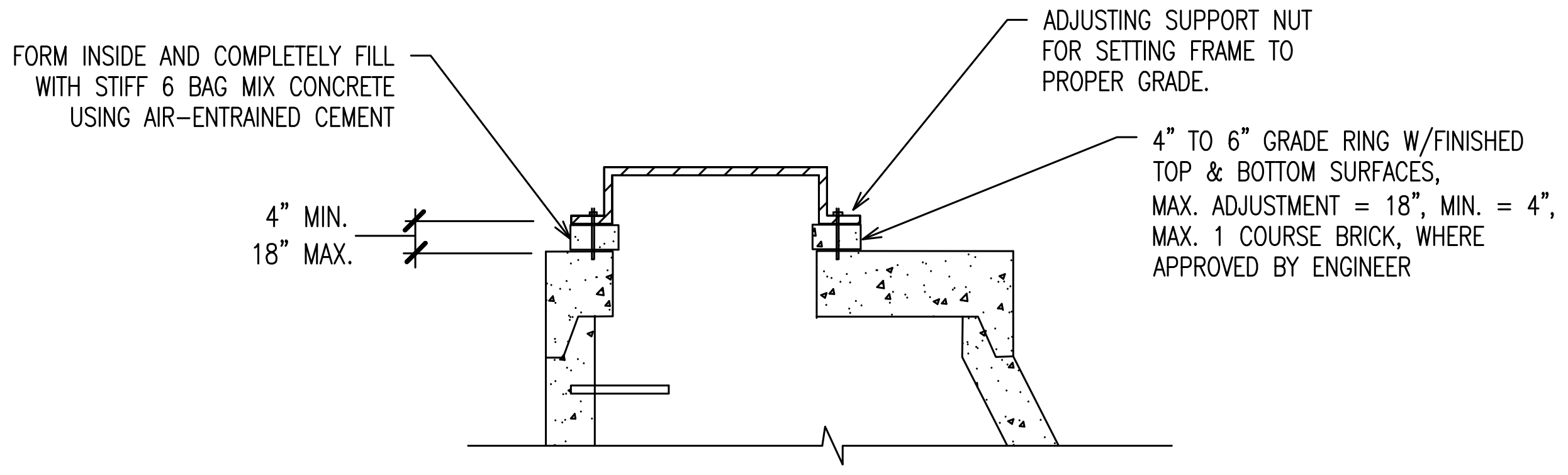


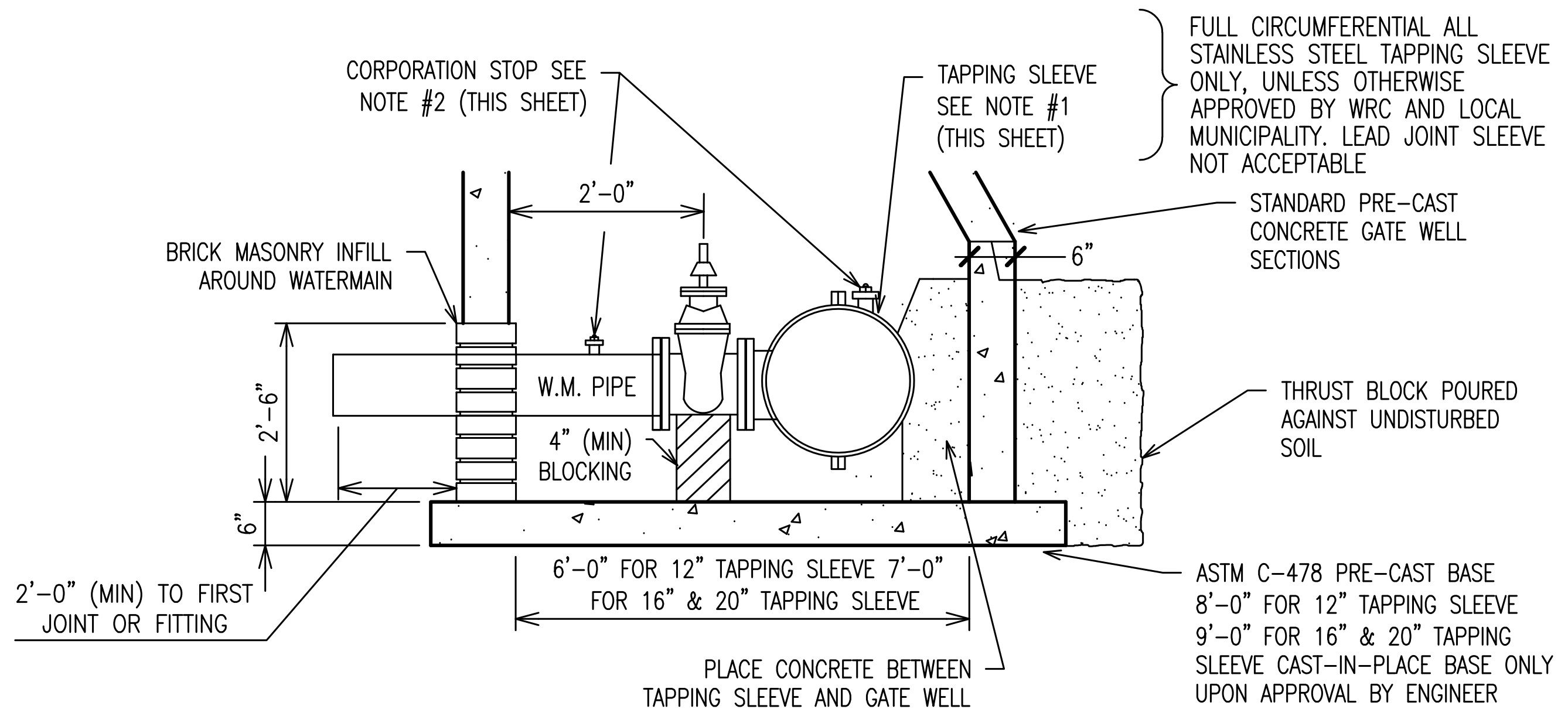
MANHOLE STEPS TO BE COPOLYMER PROPYLENE COATED GRADE 60 STEEL MEETING THE REQUIREMENTS IN ASTM D4101 AND ASTM A615 RESPECTIVELY. MA, INDUSTRIES PS2-PF OR APPROVED EQUAL. STEPS TO BE INSTALLED DURING MANHOLE MANUFACTURE, PLACED AT 16" C. TO C. MAXIMUM, 45" FROM CENTERLINE OF WATER MAIN.

PLAN GATE WELL TYPICAL



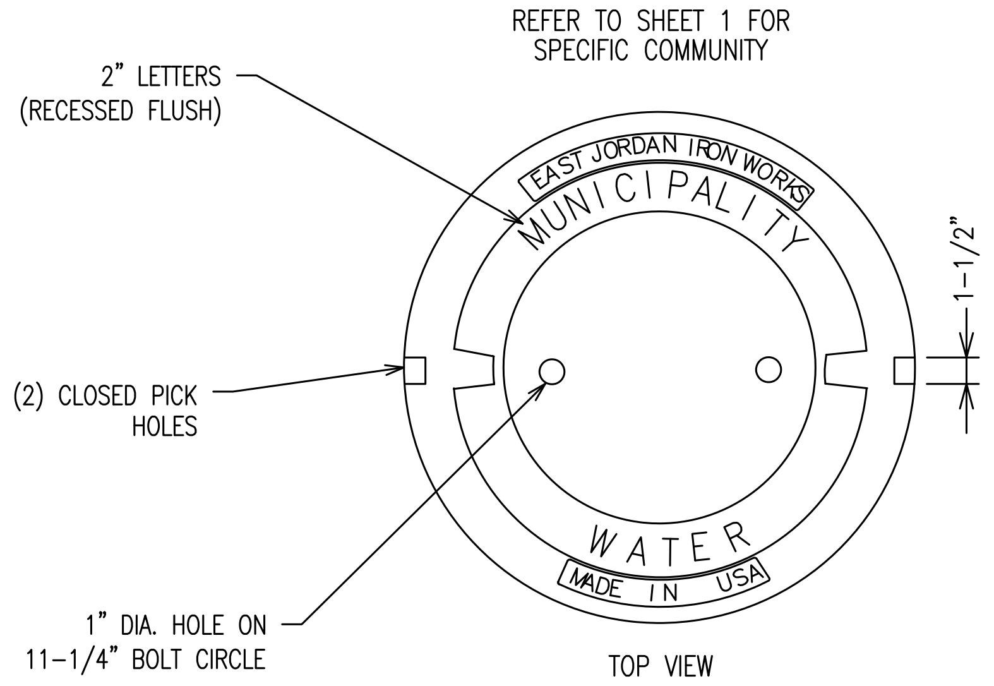
GATE WELL TOPS WITHIN PAVEMENT AREAS

RUBBER O'RINGS SHALL
NOT BE USED IN PAVEMENT

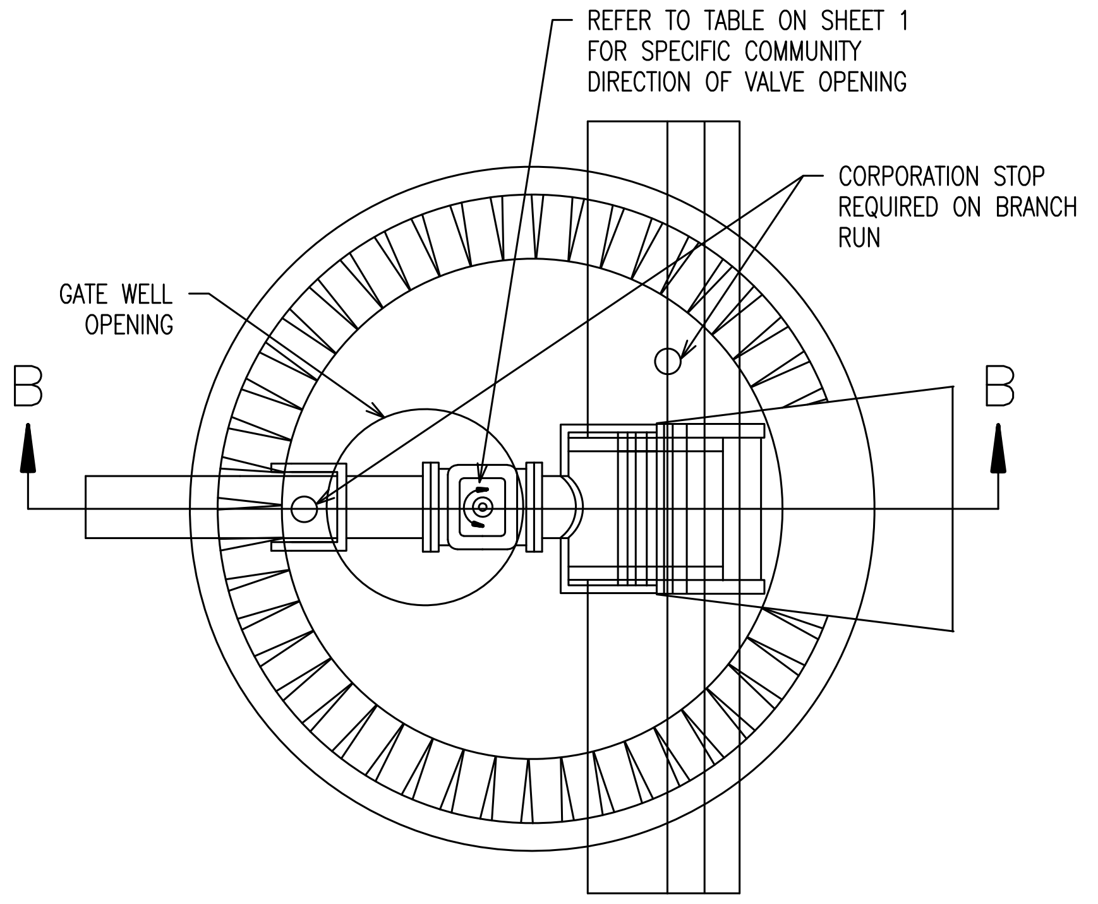


20" x 12", 20" x 8", 16" x 12", 16" x 8", 12" x 8"
TAPPING SLEEVE, VALVE & WELL

NOTES:
1. REFER TO NOTE 7 OF "VALVE AND SLEEVE NOTES" ON SHEET 1.
2. FOR PIPE SMALLER THAN 16" USE 1" CORPORATION STOP, FOR 16" PIPE OR LARGER USE 2" CORPORATION STOP WITH BRONZE SADDLE.
3. WRC DOES NOT RECOMMEND SIZE ON SIZE TAPPING.



LETTERING LAYOUT FOR GATEWELL COVERS



PLAN TAPPING SLEEVE
VALVE & WELL (TYPICAL)

WATER MAIN
STANDARD DETAILS

REVISION BLOCK

Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	DL	03/23/15	FINAL CHANGES TO GATE VALVE STANDARDS, HYDRANT SPECIFICATIONS AND PIPE CLASS UPDATES
2	DL	01/03/17	UPDATE "DIRECTION TO OPEN" COMMERCE TOWNSHIP FROM RIGHT TO LEFT
3	KB	02/14/18	MARKUPS PER G. APPEL
4	HRC	08/31/20	GENERAL UPDATE

ORIG. DATE:	01/01/01
SCALE:	NONE
DESIGNED BY:	WRC
DRAWN BY:	WRC Mapping

WRC
WATER RESOURCES COMMISSIONER
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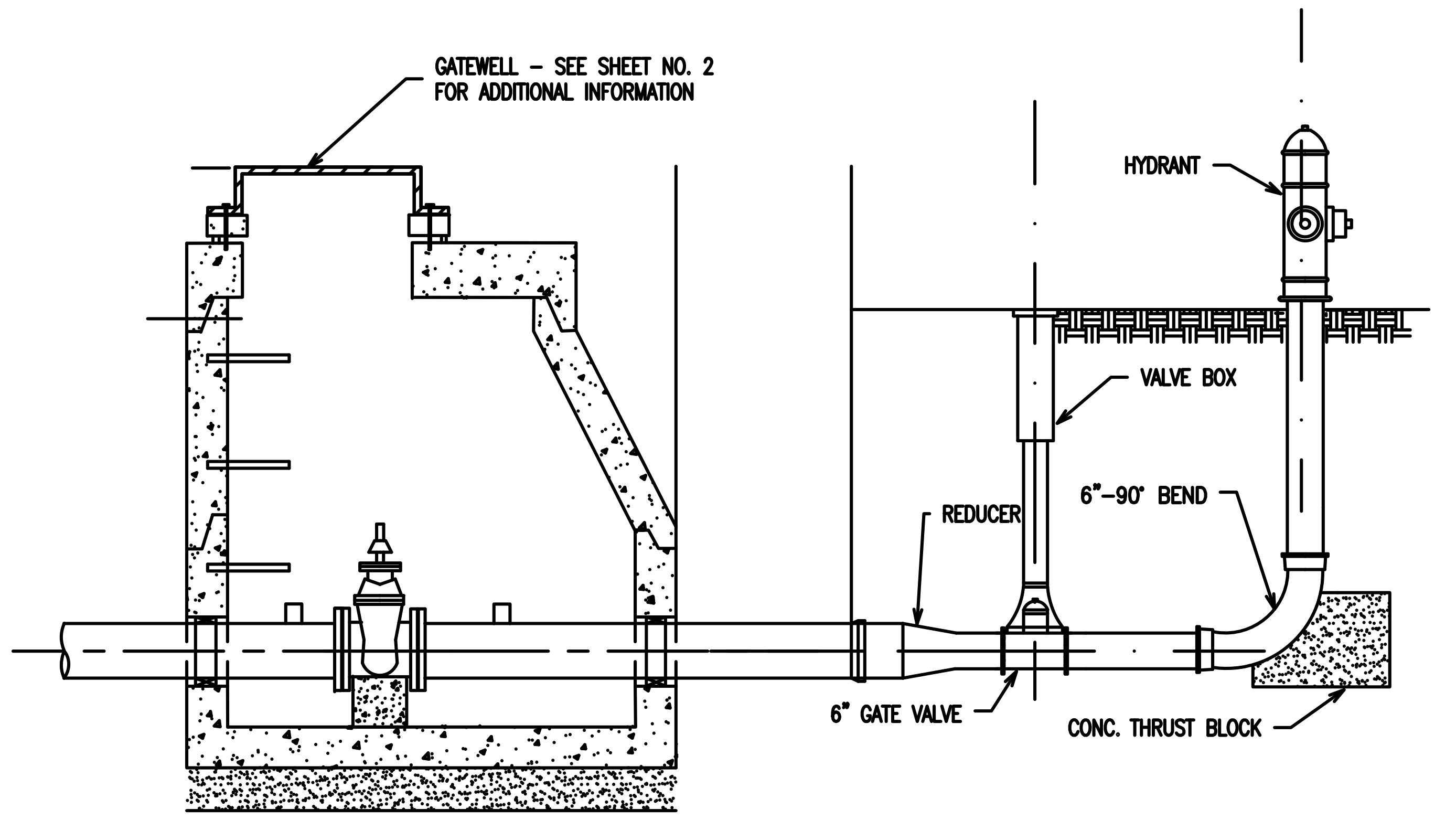
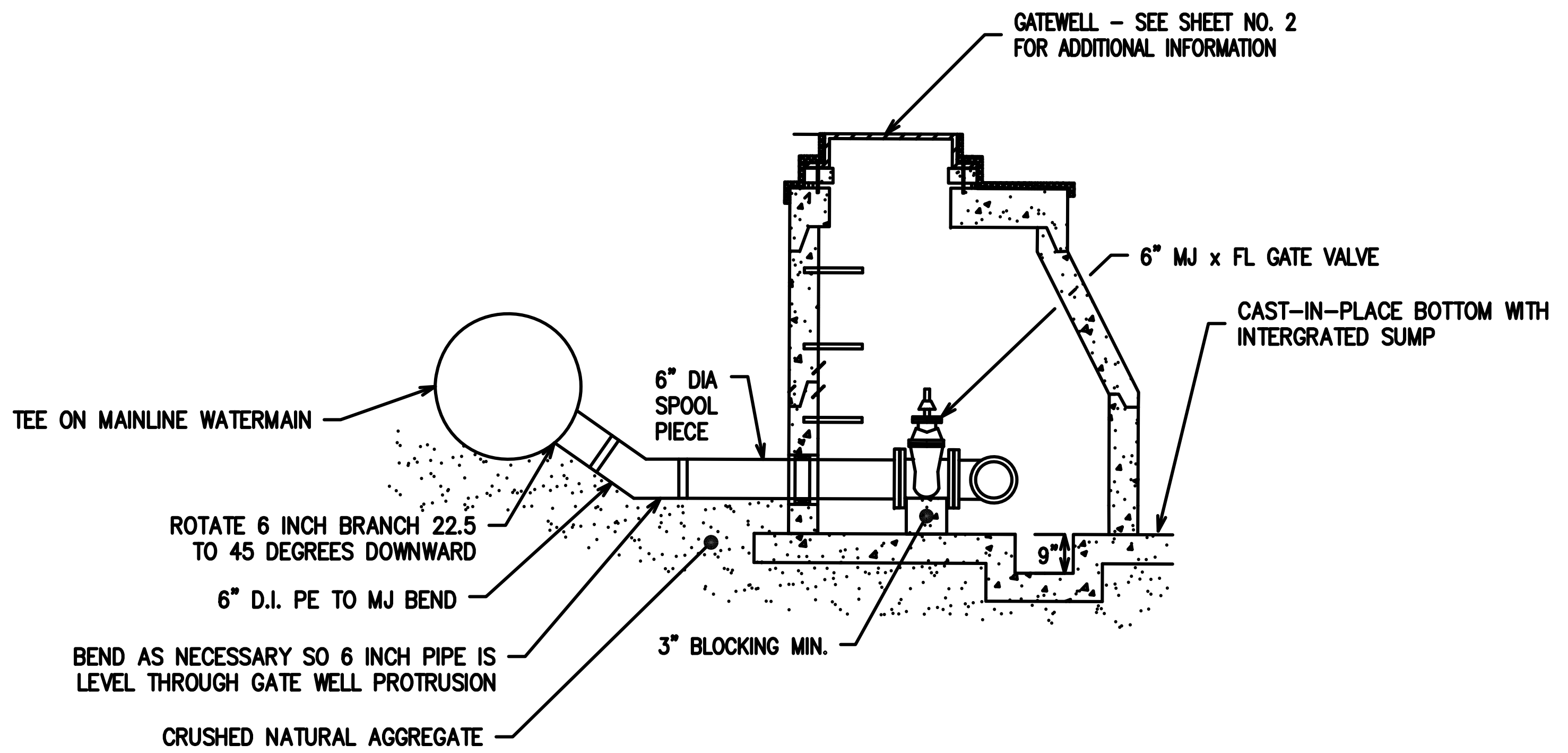
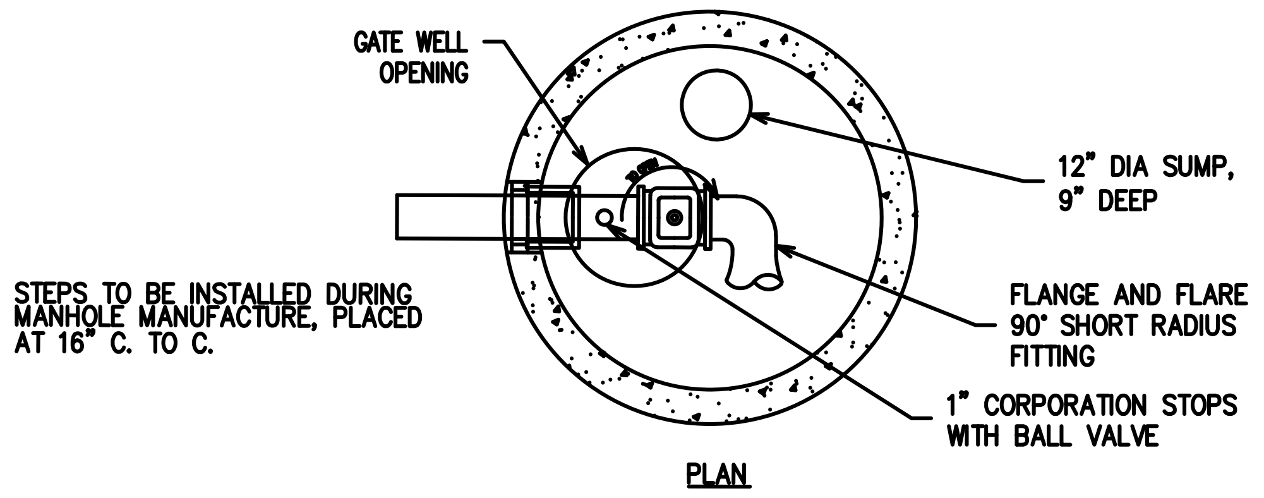
SHEET NO.: 2 of 7



DEAD END BLOWOFF CONNECTION

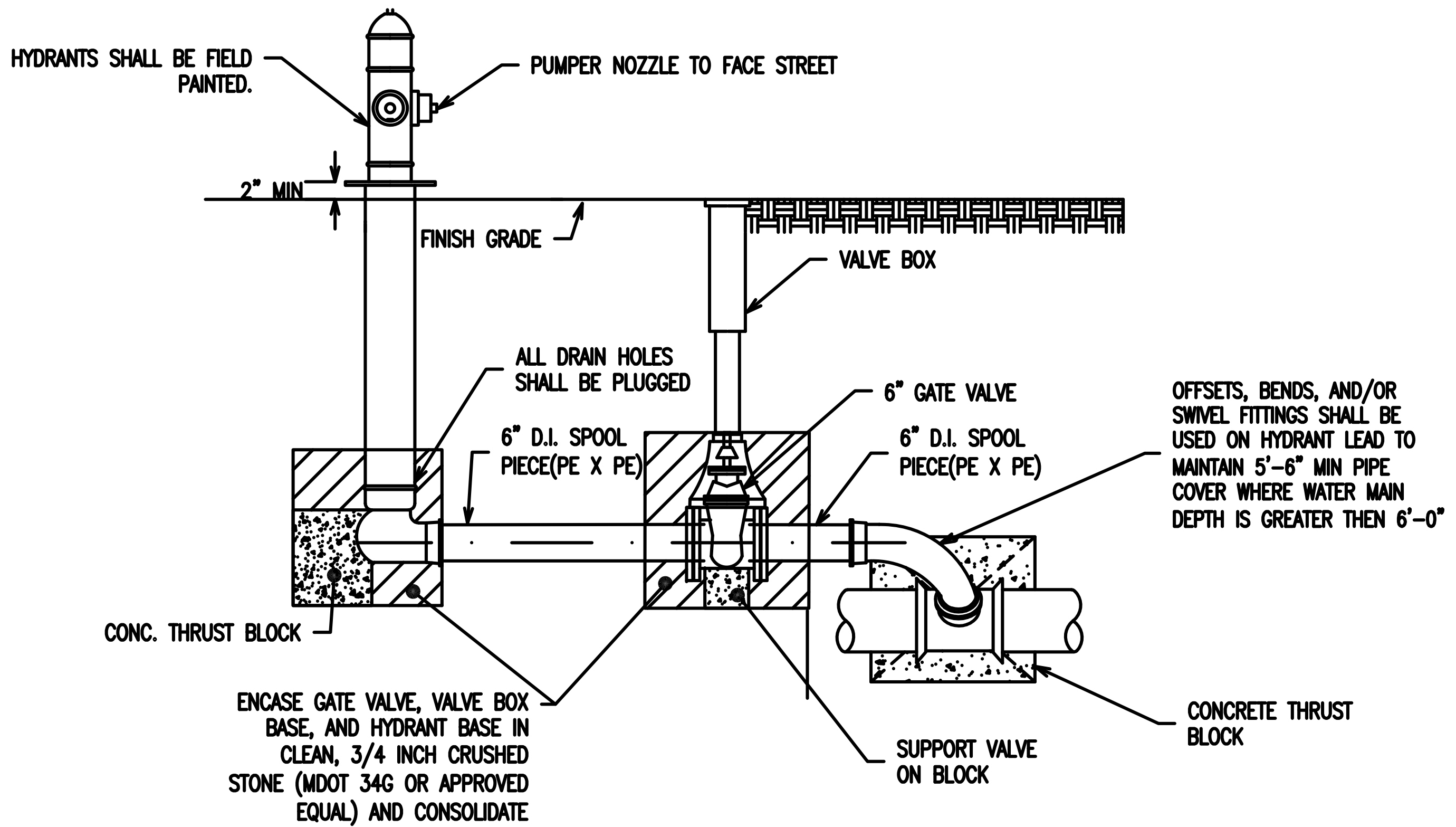


SECTION



PLAN

BLOW–OFF VALVE AND WELL



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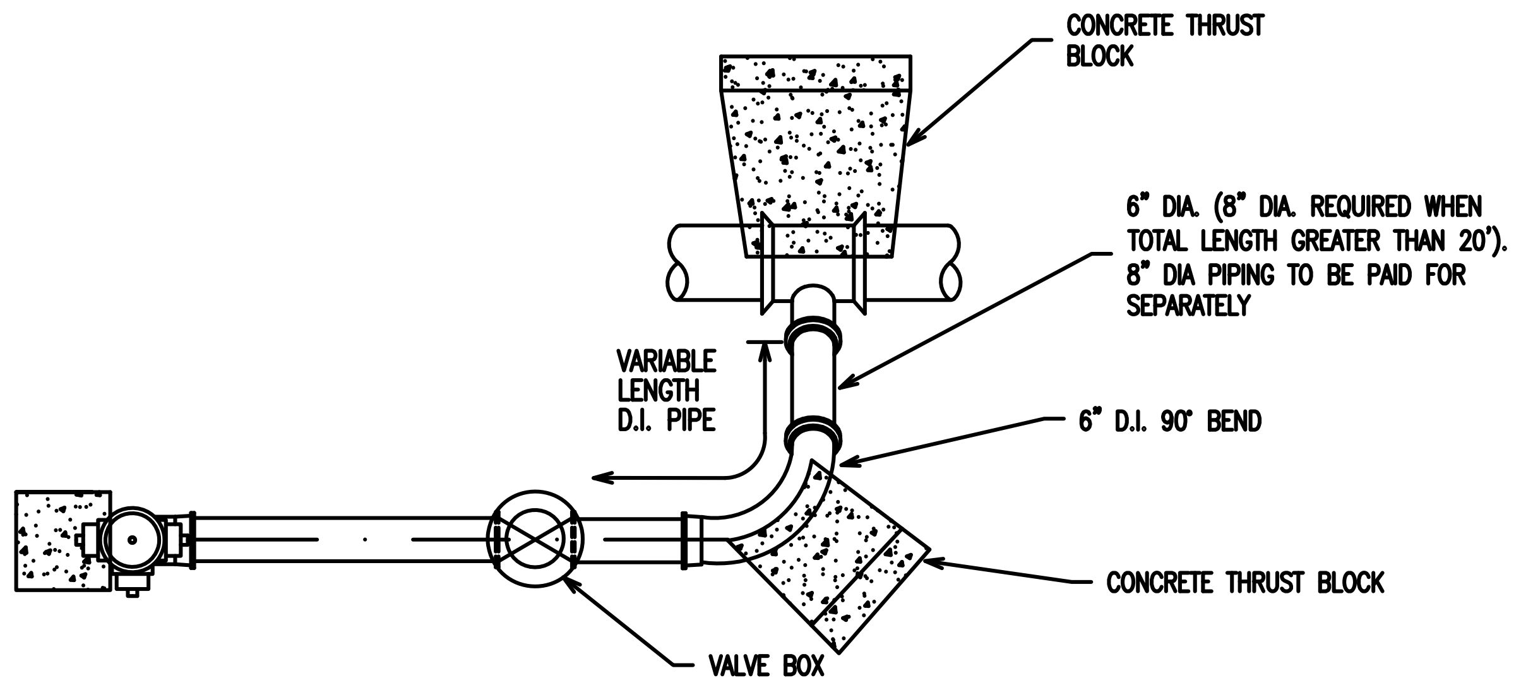
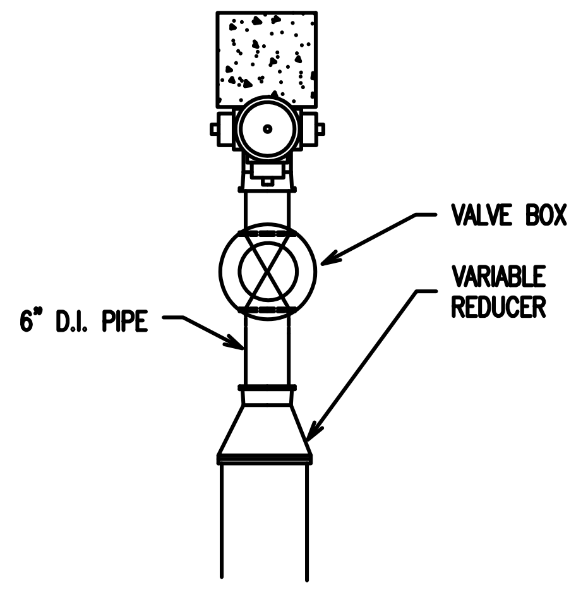


PLAN

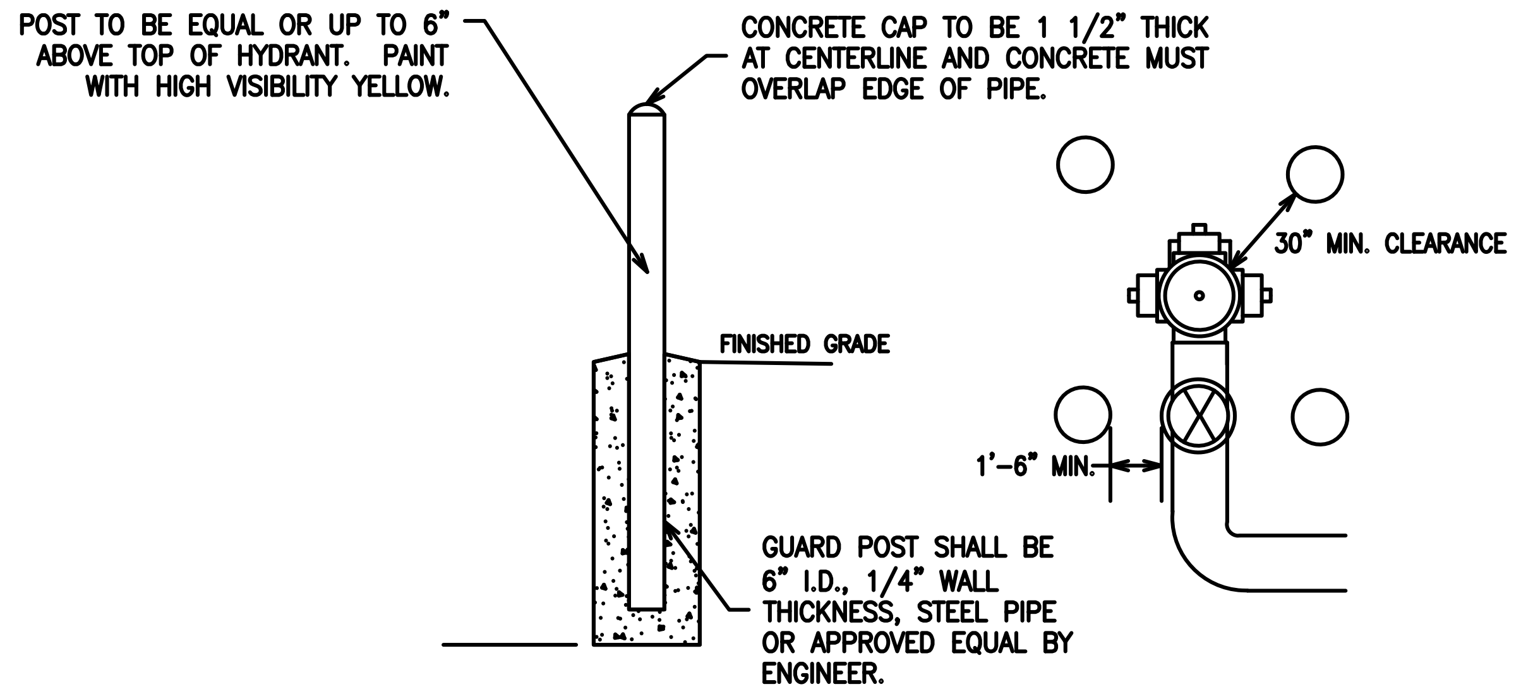
6" HYDRANT SIDE OUTLET

NOTES:

1. HYDRANT EXTENSIONS BETWEEN THE STANDPIPE LOWER SECTION & STANDPIPE UPPER ARE LIMITED TO 18 INCHES
2. ALL HYDRANTS COMPANION VALVES, BENDS, AND TEES TO BE FULLY RESTRAINED BY MECHANICAL JOINT RESTRAINT SYSTEM FITTINGS (MEGA–LUG OR APPROVED EQUAL).
3. THRUST BLOCKS ARE REQUIRED AT ALL TEES, BENDS AND ENDS.
4. ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) FOR HYDRANT ASSEMBLIES SHALL BE COR–BLUE OR APPROVED EQUAL.



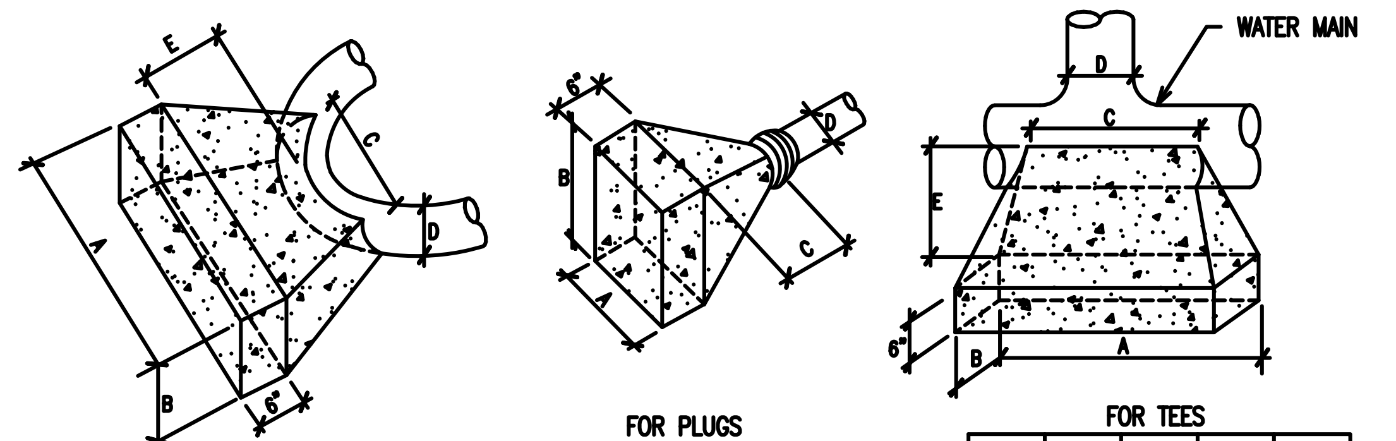
PLAN 6" HYDRANT WATER MAIN END



GUARD POST

NOTES:

1. GUARD POST SHALL NOT INTERFERE WITH HYDRANT OPERATION
2. TO BE INSTALLED IN ALL PAVED AREAS PARKING LOTS, PARKS, PLAZAS, ETC. (NOT RIGHT–OF–WAYS)SPACE WHERE VEHICLE EQUIPMENT DAMAGE TO HYDRANT IS POSSIBLE.



FOR 90° BENDS OR SMALLER

D	A	B	C	E MIN.
20"	8'	6.5'	3.5'	2.5'
16"	6'	4'	2.5'	2'
12"	4'	3'	2'	1.75'
10"	3'	3'	2'	1.75'
8"	3'	2'	2'	1.5'
6"	2'	1.5'	2'	1.25'

FOR PLUGS

D	A	B	C MIN.
20"	7'	5'	2.5'
16"	4'–10"	4'–10"	2'
12"	4'–4"	3'	1'–9"
10"	3'	2'	1'–6"
8"	2'–10"	2'–6"	1'–6"
6"	1'–6"	1'–6"	3'

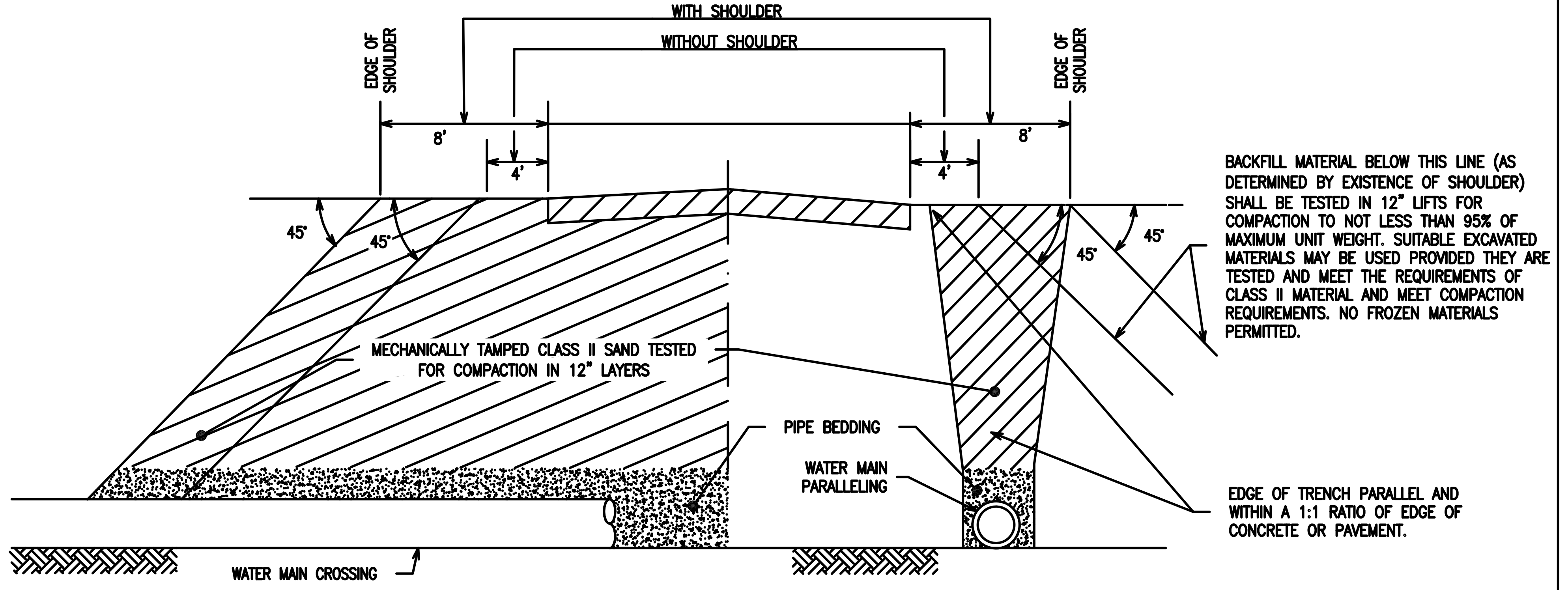
FOR TEES

D	A	B	C	E MIN.
20"	6.5'	4.5'	3.5'	3'
16"	4'–8"	4'–8"	2.5'	2.75'
12"	4'	3'	2.5'	2.5'
10"	3'	2'	2'	2.25'
8"	2'–6"	2'	2'	2.25'
6"	2'	2'	2'	2.25'

THRUST BLOCK DETAILS

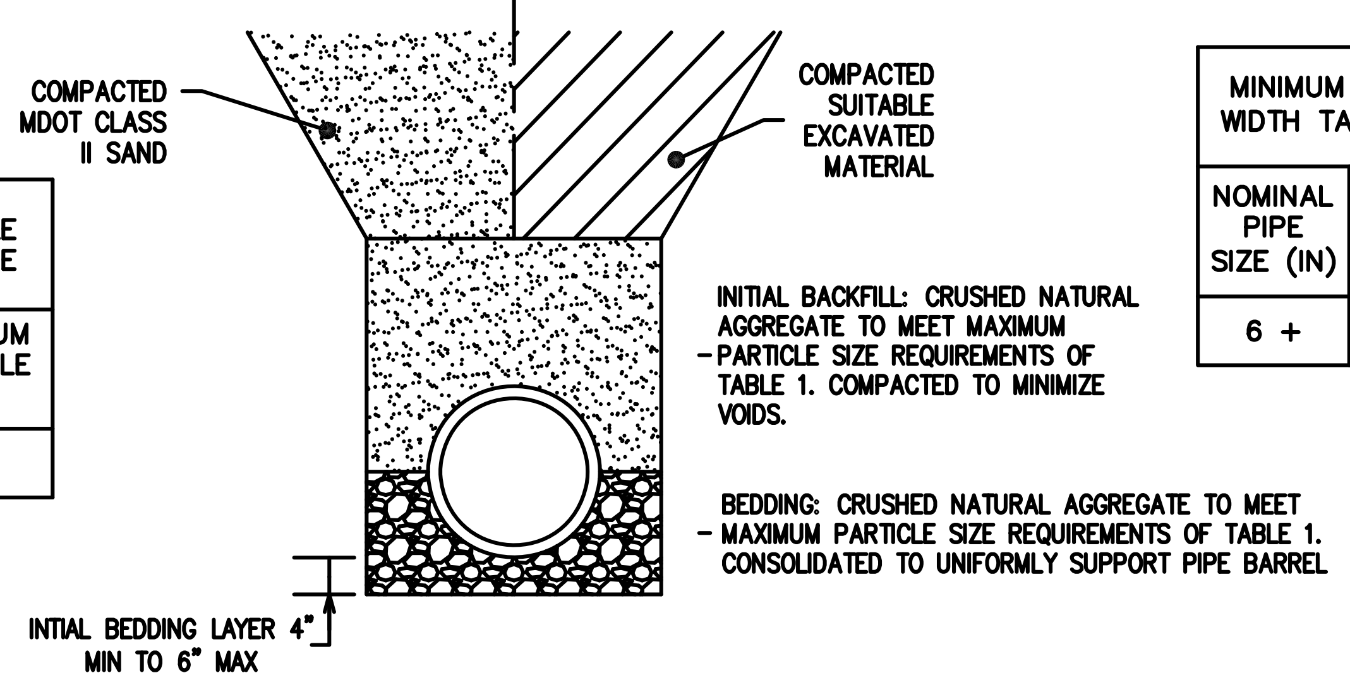
NOTE:

1. 3000 PSI CONCRETE TO BE USED. THRUST BLOCK TO ABUT & REST AGAINST UNDISTURBED SOIL OR EARTH COMPACTED TO 95% MODIFIED PROCTER.



MINIMUM BACKFILL UNDER OR NEAR PAVEMENT

MAXIMUM PARTICLE SIZE VS. PIPE SIZE	
NOMINAL PIPE SIZE (IN)	MAXIMUM PARTICLE (IN)
6 +	1½



MINIMUM TRENCH WIDTH TABLE (IN.)	
NOMINAL PIPE SIZE (IN)	TRENCH WIDTH, W
6 +	$D_0 + 24$

DUCTILE IRON PIPE TRENCH DETAIL

NOTES:

1. DUCTILE IRON PIPE IS CONSIDERED A FLEXIBLE PIPE THAT WHEN INSTALLED UNDERGROUND IS DESIGNED TO DEFLECT UNDER LOAD.
2. DO NOT COMPACT INNER BEDDING OF INITIAL BEDDING LAYER.
3. CAREFULLY EXCAVATE BELL OR COUPLING HOLES FROM THE INITIAL BEDDING LAYER.
4. SHOVEL SLICE BEDDING MATERIAL IN THE HAUNCH AREA ALONG THE BOTTOM CIRCUMFERENCE OF THE PIPE TO CONSOLIDATE BEDDING AND UNIFORMLY SUPPORT THE PIPE BARREL.
5. COMPACT INITIAL BACKFILL MATERIALS IN LIFTS NOT EXCEEDING 6 INCHES BY HAND TAMPING AROUND AND DIRECTLY ABOVE PIPE TO MINIMIZE VOIDS.
6. DO NOT USE MECHANICAL COMPACTION EQUIPMENT DURING INITIAL BACKFILL OPERATIONS UNTIL MATERIAL HAS BEEN BROUGHT TO 12 INCHES ABOVE THE TOP OF PIPE BARREL.
7. COMPACT SAND BACKFILL AND STANDARD TRENCHES OUTSIDE OF PIPE ZONE TO NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT IN LIFTS NOT EXCEEDING 12 INCHES.
8. FOR MINIMUM TRENCH WIDTHS, REFER TO TABLE 2, MAXIMUM TRENCH WIDTH = $D_0 + 2D_0$ UNLESS MINIMUM TRENCH WIDTH IS GREATER.
9. IF THE PIPE IS LOCATED BENEATH THE GROUND WATER TABLE, THE PIPE ZONE SHALL BE WRAPPED IN A GEOTEXTILE SEPARATOR TO MINIMIZE MIGRATION OF SOIL INTO THE PIPE ZONE.

WATER MAIN
STANDARD DETAILS

REVISION BLOCK

Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	DS	11/21/14	PROPOSED CHANGE TO DELETE REFERENCE TO BOTTLE SLEEVE MANUFACTURER
2	DL	03/23/14	FINAL CHANGE TO DELETE REFERENCE TO BOTTLE SLEEVE MANUFACTURER
3	KB	02/14/18	MARKUPS PER G. APPEL
4	HRC	08/31/20	GENERAL UPDATE

ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: WRC Mapping

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Jim Nash

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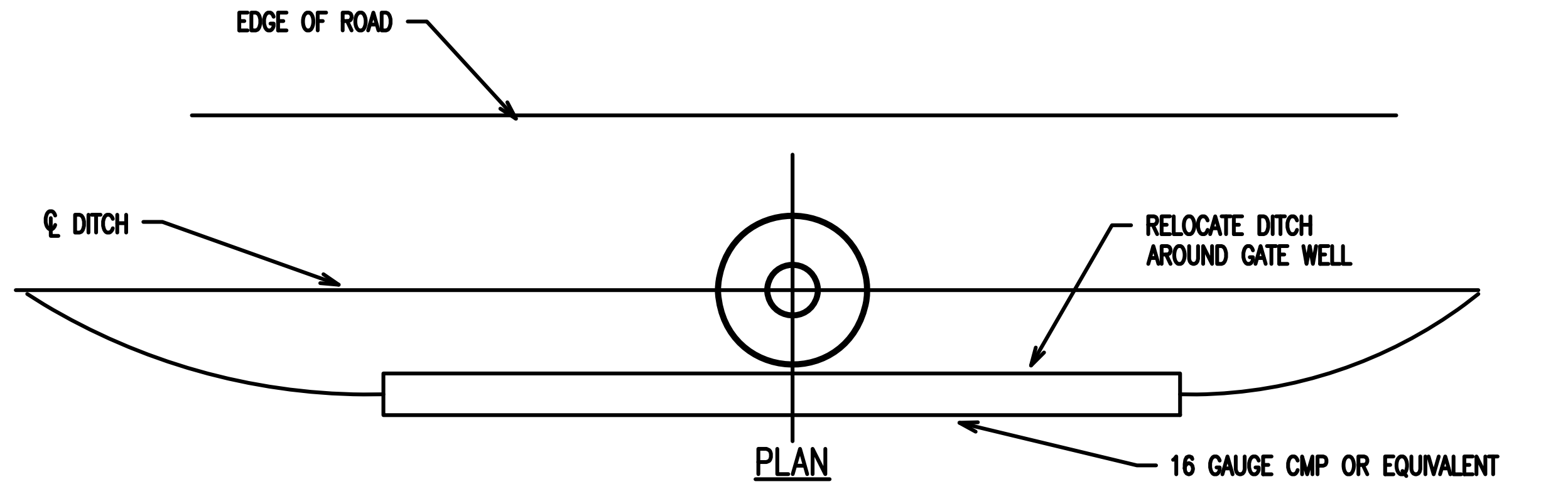
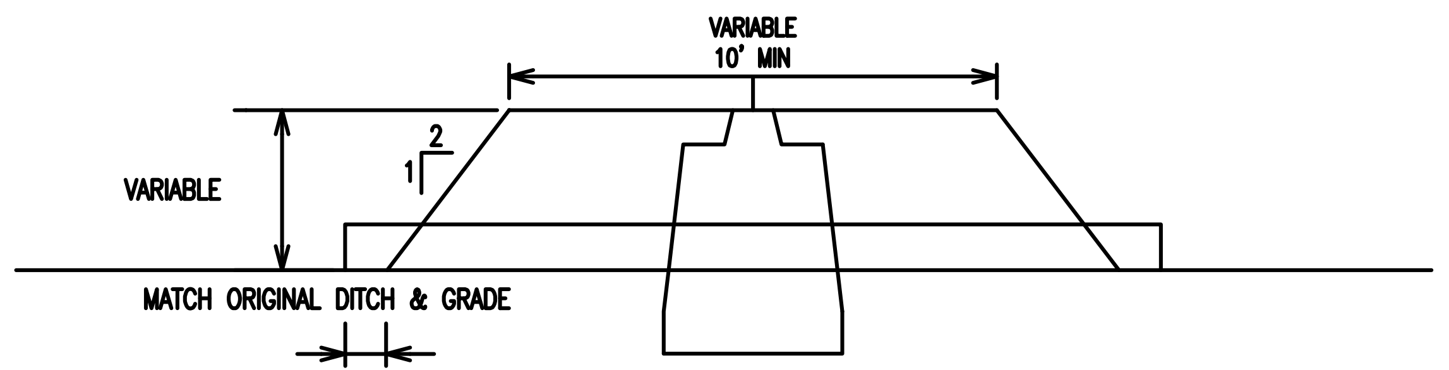
WATERFORD, MICHIGAN
48328-1907

SHEET NO.: 3 of 7

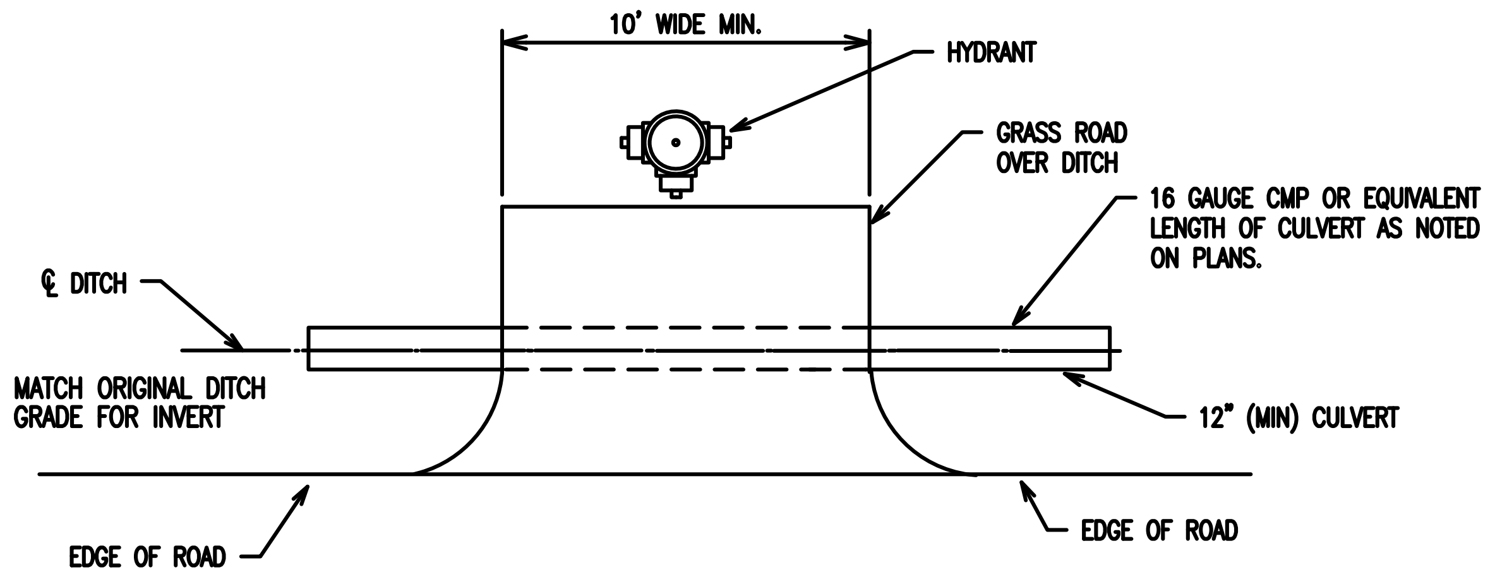


PLAN



PROFILE

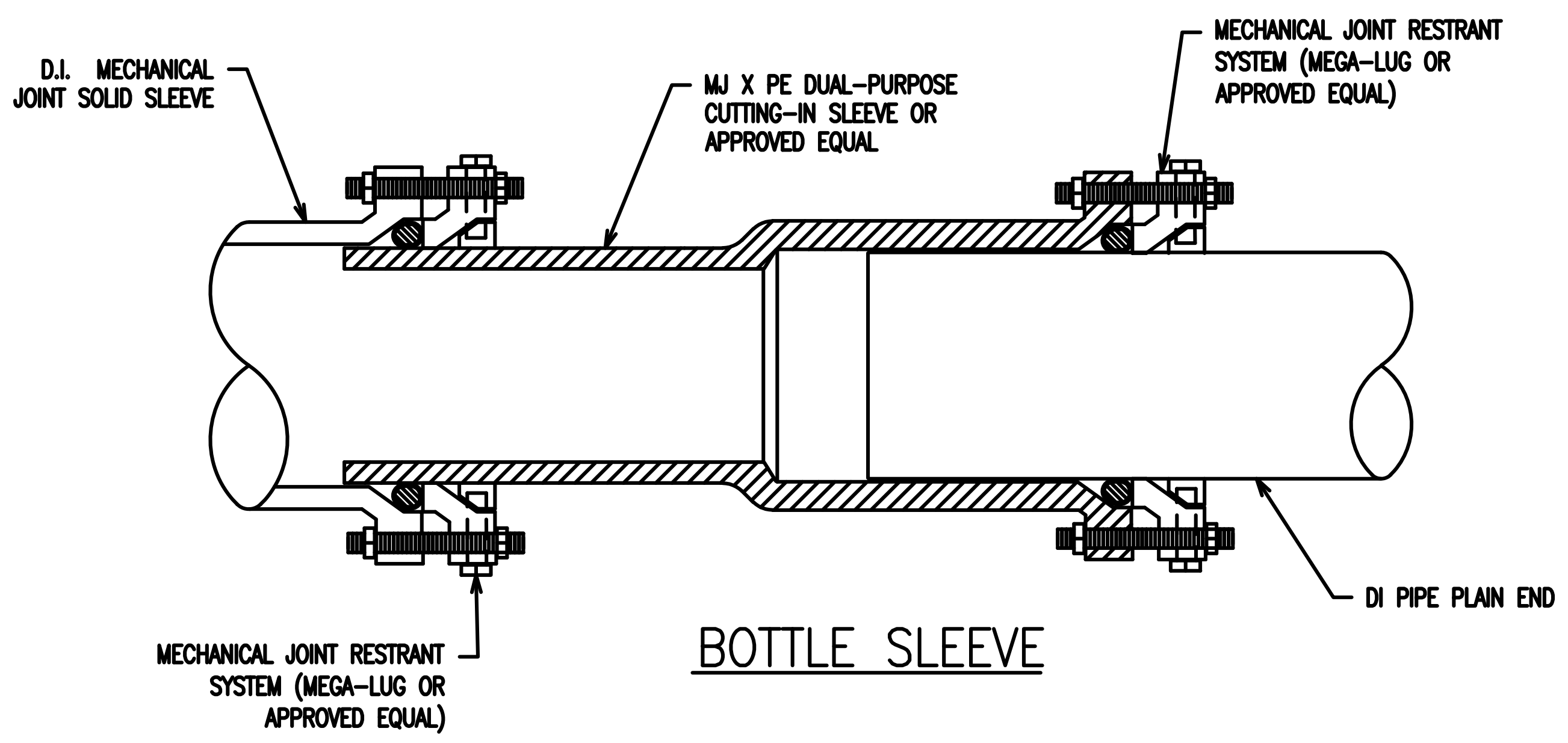
DITCH ENCLOSURE AT GATE WELL



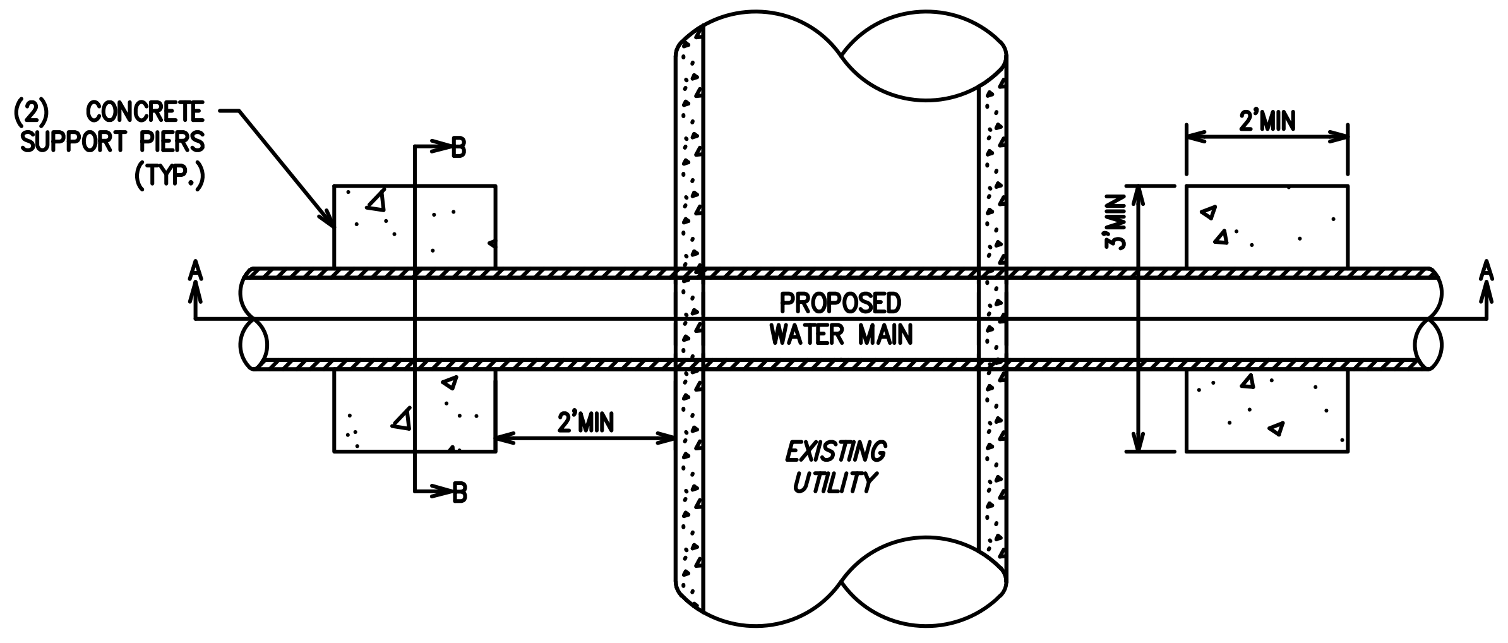
DITCH ENCLOSURE AT HYDRANT

NOTES:

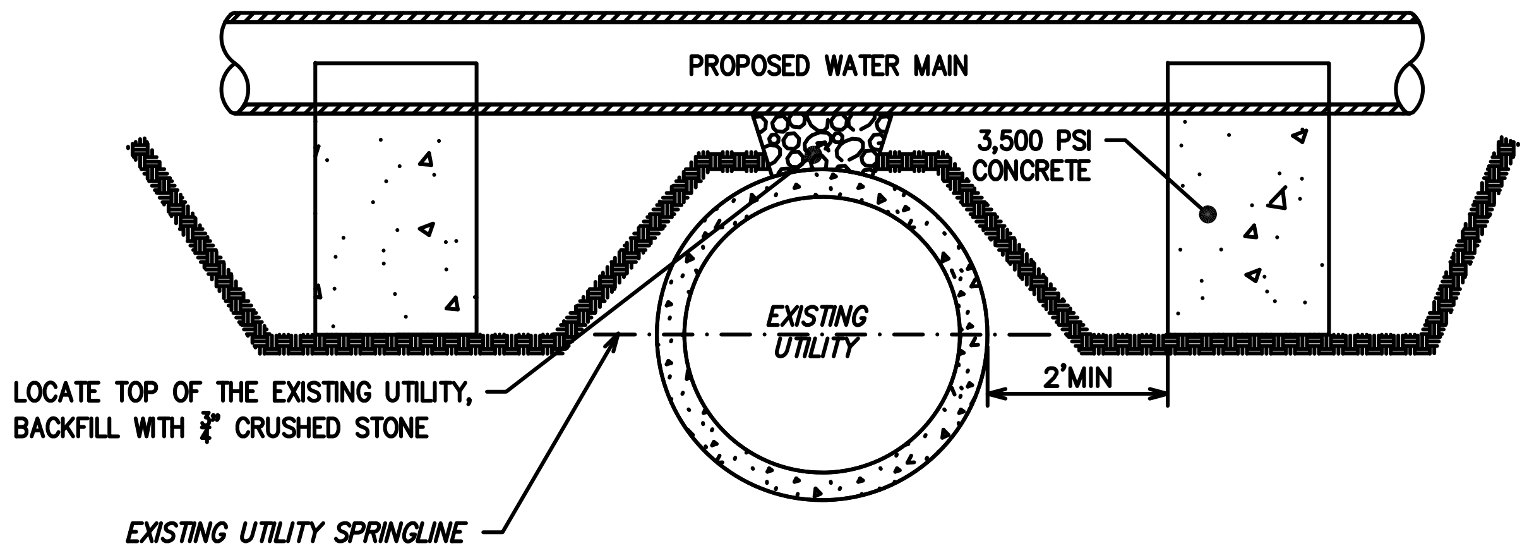
1) REQUIRED FOR DITCHES GREATER THAN 18 INCHES IN DEPTH.
2) CULVERT SHALL BE SIZED BASED ON THE EXISTING CARRY CAPACITY OF THE DITCH OR AS REQUIRED BY THE PERMITTING AUTHORITY FOR THE LOCAL ROAD AGENCY. STAMPED ENGINEERING CALCULATIONS ARE REQUIRED FOR ALL CULVERT INSTALLATION.
3) MINIMUM DEPTH OF COVER FOR CULVERT PIPE IS 12 INCHES UNLESS OTHERWISE AUTHORIZED BY CULVERT MANUFACTURER.
4) END SECTIONS ON CULVERTS GREATER THAN 12 INCHES IN DIAMETER.



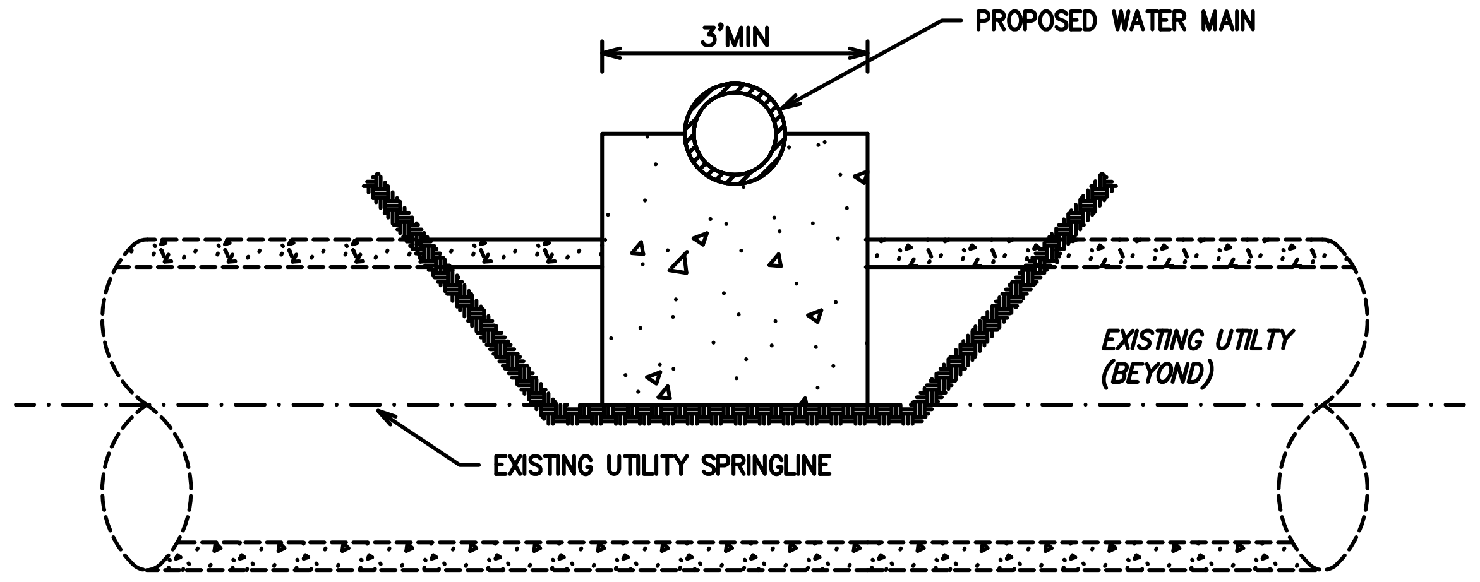
BOTTLE SLEEVE



PLAN



SECTION A–A

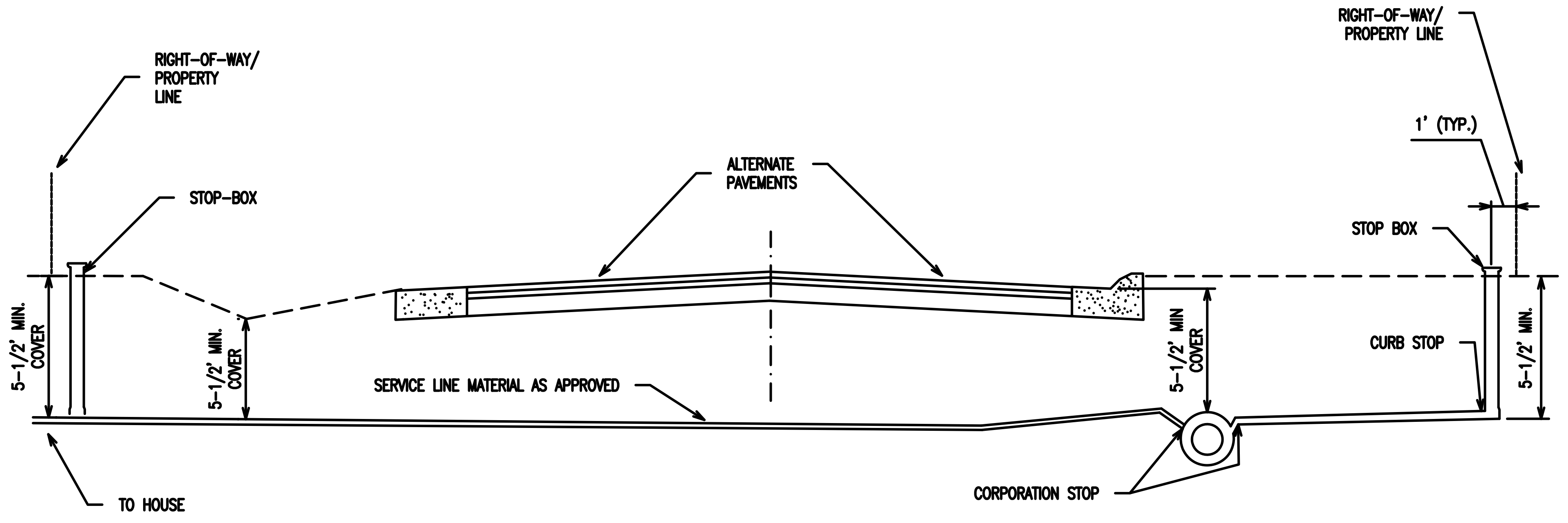


SECTION B–B

WATER MAIN CROSSING BRIDGE

NOTES:

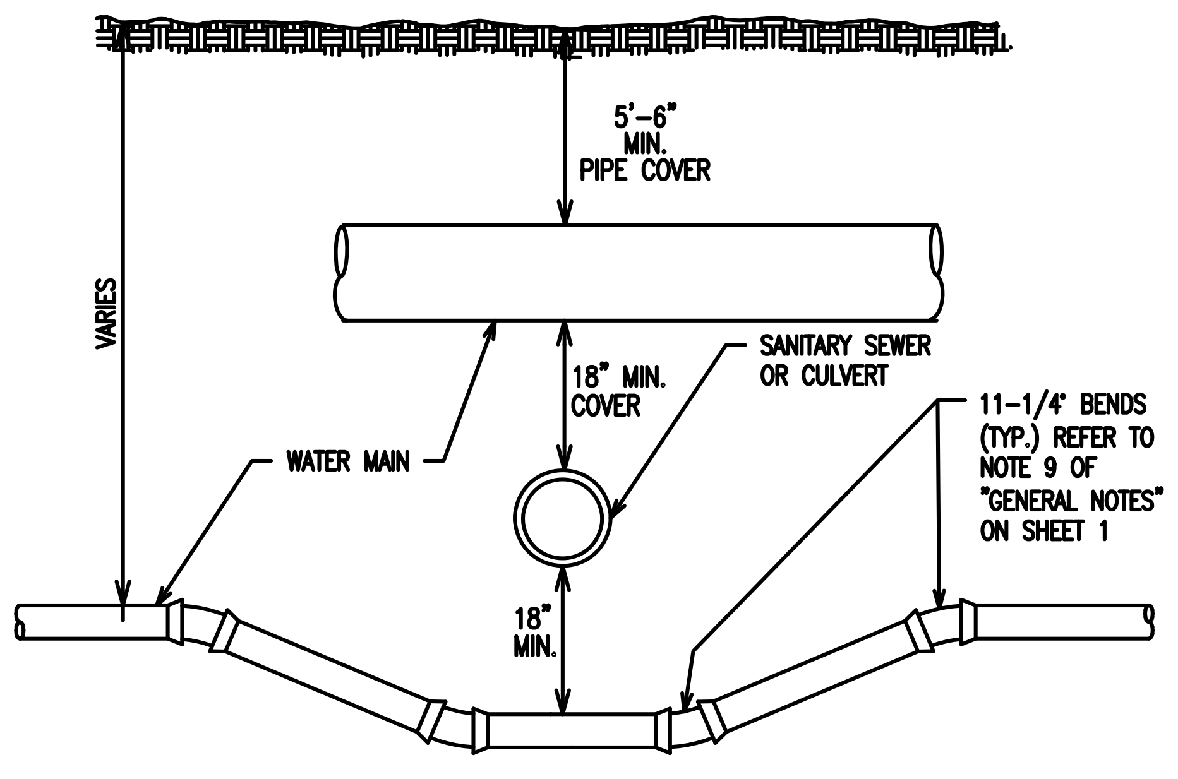
1. CROSSING BRIDGE IS REQUIRED WHEN 18 INCHES OF CLEARANCE OR GREATER ABOVE (WITHIN A 1:1 INFLUENCE OF THE SPRING LINE) AN EXISTING UTILITY CANNOT BE MAINTAINED.
2. WATER MAIN PIPE SPANNING THE EXISTING UTILITY MUST BE CENTERED BETWEEN JOINTS OVER THE EXISTING UTILITY.
3. ALL WORK NECESSARY TO INSTALL THE WATER MAIN CROSSING BRIDGE AS SHOWN SHALL BE CONSIDERED INCLUDED IN THE COST OF THE PROJECT UNLESS OTHERWISE NOTED.
4. CROSSING FOR PROPOSED WATER MAIN 16-INCH AND LARGER SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER.



TYPICAL PUBLIC ROAD WATER SERVICE CONNECTION

NOTES:

1. WATER SERVICE CURB STOP TO BE PLACED ONE (1) FOOT OFF THE PROPERTY LINE.
2. LATERAL LOCATION SHALL BE AS REQUESTED BY THE ABUTTING PROPERTY OWNER.
3. SERVICE TAP LOCATION TO BE AT CLOCK POSITION 10:30 OR 1:30 UNLESS OTHERWISE INDICATED.



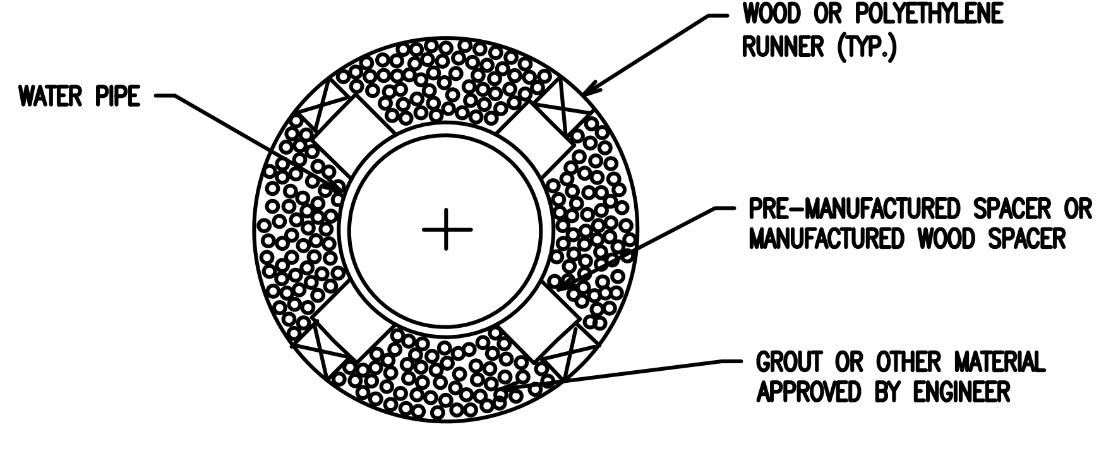
SEWER OR CULVERT CROSSING

UNLESS OTHERWISE SPECIFIED, MINIMUM CASING PIPE SHALL BE ASTM A-139 GRADE B, WALL THICKNESS AS FOLLOWS:

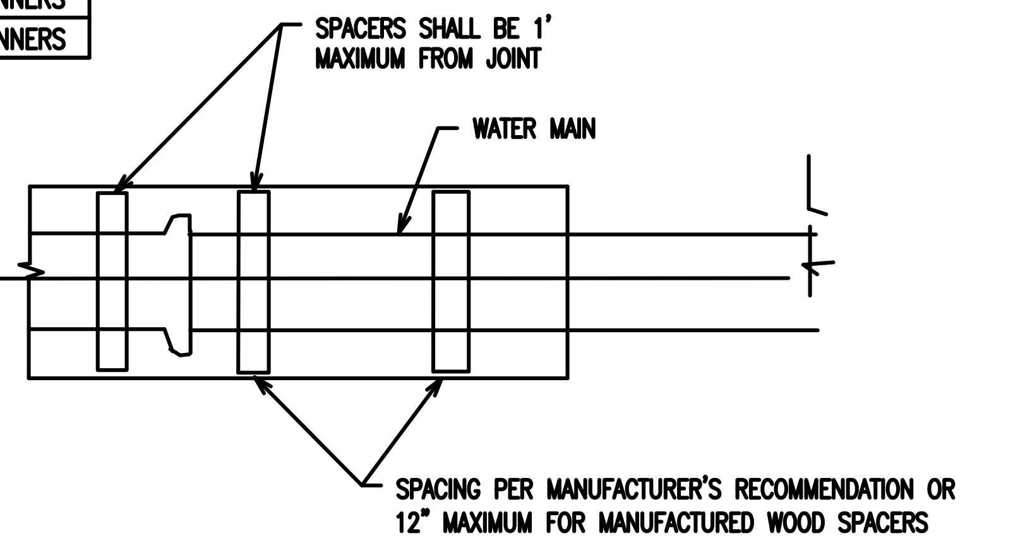
NOMINAL SIZE	MINIMUM WALL THICKNESS
8"– 42"	0.375
48"– 60"	0.500

REQUIRED QUANTITY OF RUNNERS IN ACCORDANCE WITH SIZE

TO 14" DIA.	4 RUNNERS
16" TO 36" DIA	6 RUNNERS
38" TO 48" DIA.	8 RUNNERS



SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING PIPE



WATER MAIN IN CASING SECTION

WATER MAIN IN CASING DETAILS

WATER MAIN
SPECIAL DETAILS

REVISION BLOCK

Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	KB	03/19/18	MARKUPS PER G. APPEL
2	HRC	08/31/20	GENERAL UPDATE
3			
4			

ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: OCDC
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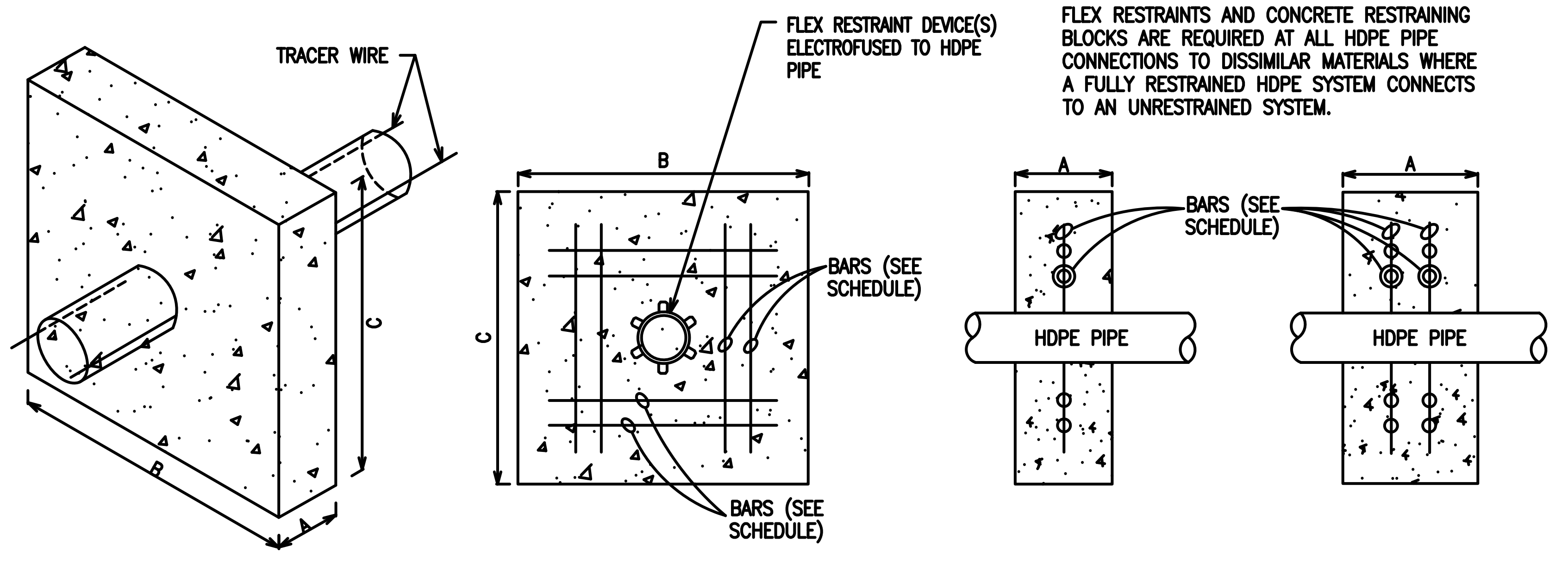
48328-1907

SHEET NO.: 4 OF 7

NOTE:
FLEX RESTRAINTS AND CONCRETE RESTRAINING BLOCKS ARE REQUIRED AT ALL HDPE PIPE CONNECTIONS TO DISSIMILAR MATERIALS WHERE A FULLY RESTRAINED HDPE SYSTEM CONNECTS TO AN UNRESTRAINED SYSTEM.

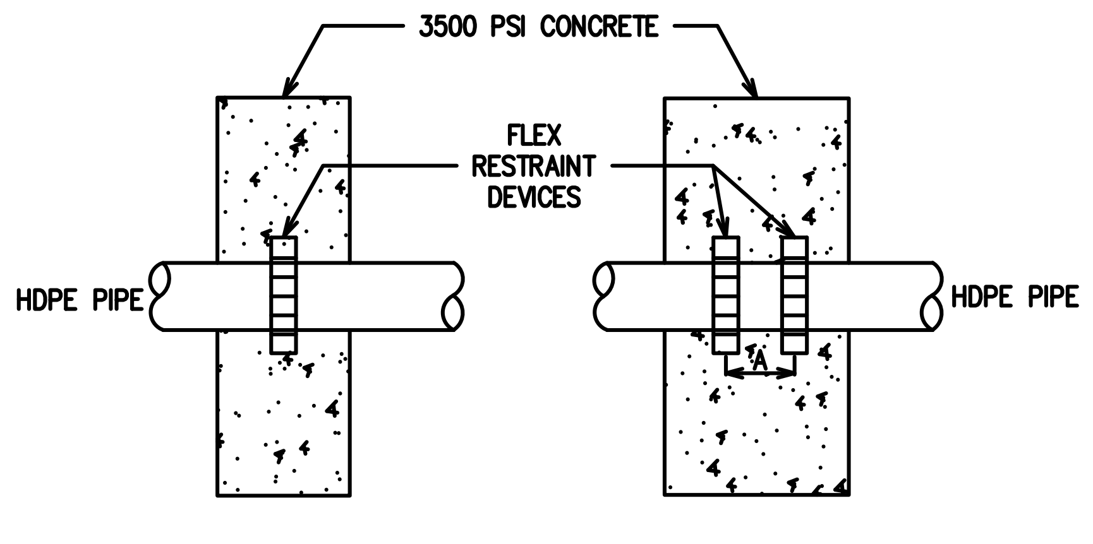


RESTRAINING BLOCK DIMENSIONS

SINGLE FACE RESTEEL Ⓢ

DOUBLE FACE RESTEEL Ⓓ

RESTRAINING BLOCK RESTEEL



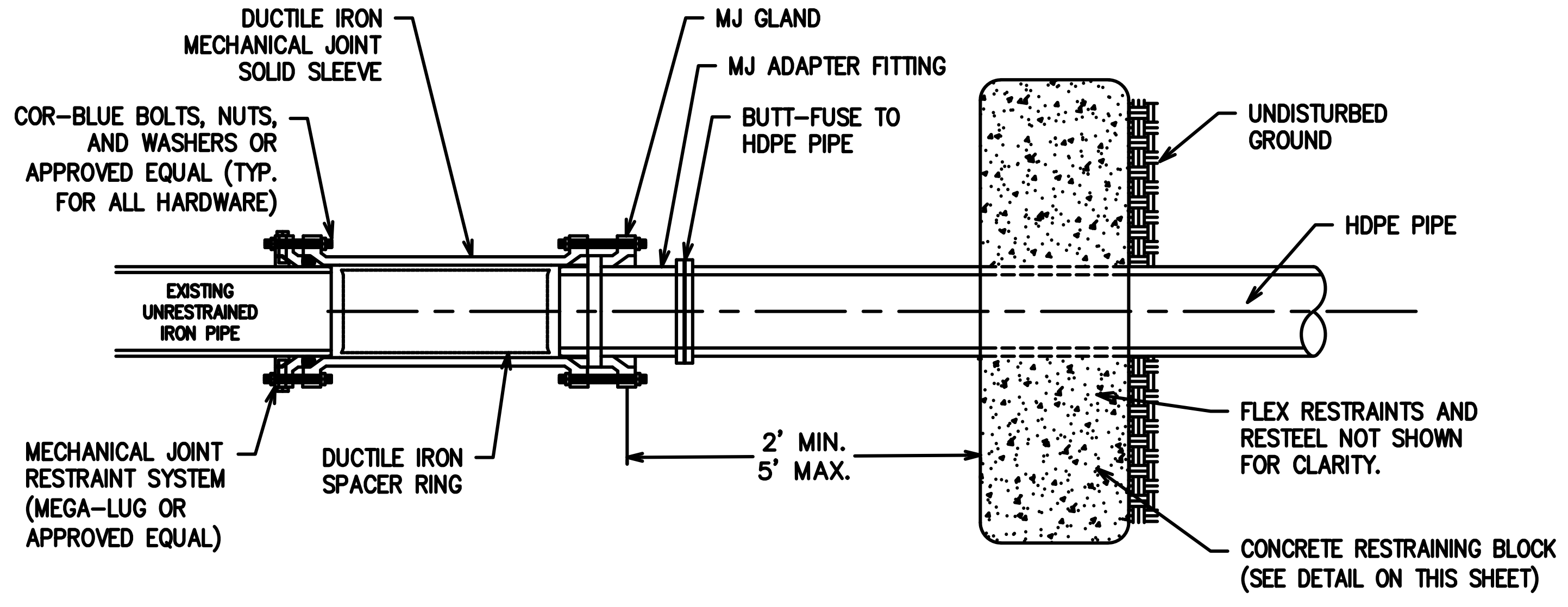
SINGLE Ⓢ

DOUBLE Ⓓ

RESTRAINING BLOCK RESTRAINTS

HDPE SDR11 DIPS RESTRAINING BLOCK SCHEDULE						
HDPE SDR11 DIPS SIZE	A	B	C	EFFECTIVE AREA	# RESTRAINTS	REINFORCING
4"	1 FT	2 FT	2 FT	3.5 S.F.	1	4 #6 Ⓢ
6"	1 FT	2.75 FT	2.75 FT	7.5 S.F.	2	4 #6 Ⓢ
8"	1 FT	3.75 FT	3.75 FT	12.5 S.F.	2	4 #6 Ⓢ
10"	1 FT	4.5 FT	4.5 FT	19 S.F.	3	8 #4 Ⓢ
12"	1.5 FT	5.25 FT	5.25 FT	27 S.F.	4	8 #6 Ⓢ
14"	1.5 FT	6 FT	6 FT	36 S.F.	6	8 #6 Ⓢ
16"	2 FT	7 FT	7 FT	46.5 S.F.	7	16 #6 Ⓓ
18"	2 FT	7.75 FT	7.75 FT	58 S.F.	9	16 #6 Ⓓ
20"	2 FT	8.5 FT	8.5 FT	71.5 S.F.	11	16 #6 Ⓓ
24"	2 FT	10.25 FT	10.25 FT	102 S.F.	15 Ⓓ	16 #6 Ⓓ
30"	2.5 FT	12.75 FT	12.75 FT	157 S.F.	23 Ⓓ	16 #6 Ⓓ
36"	2.5 FT	15 FT	15 FT	224 S.F.	31 Ⓓ	16 #6 Ⓓ

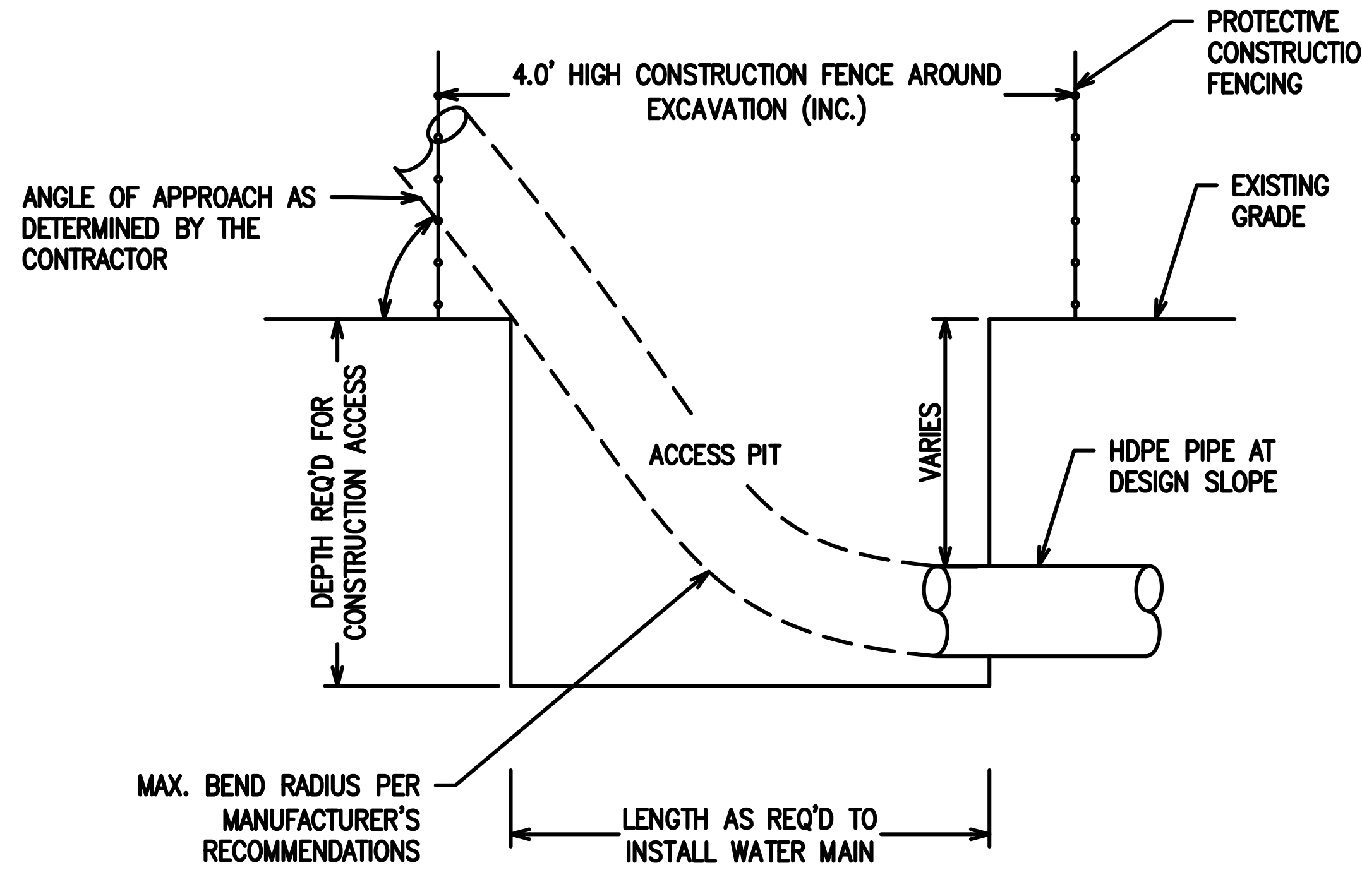
1. RESTRAINING BLOCKS SHALL HAVE A MINIMUM OF 3.0' OF COVER.
2. RESTRAINING BLOCK DIMENSIONS "B" AND "C" MAY BE CHANGED DUE TO DEPTH OF COVER LIMITATIONS PROVIDED THE EFFECTIVE AREA IS MAINTAINED.
3. THE EFFECTIVE AREA OF ALL THE RESTRAINING BLOCKS ARE BASED ON A RECURRING SURGE PRESSURE OF 250 PSI AND 1,000 PSF BEARING SOIL. SHOULD SOILS THAT ABUT THE RESTRAINING BLOCK BE LESS THAN 1,000 PSF, PROVIDE STAMPED ENGINEERING CALCULATIONS TO DETERMINE THE APPROPRIATE EFFECTIVE AREA FOR THE RESTRAINING BLOCK.
4. THE NUMBER OF FLEX RESTRAINTS INDICATED IS BASED ON PROVIDING 7,000 LBS OF SHEAR FORCE EACH. SHOULD THE FLEX RESTRAINTS INTENDED FOR USE PROVIDE LESS THAN 7,000 LBS OF SHEAR FORCE EACH, INCLUDE STAMPED ENGINEERING CALCULATIONS FOR THE NUMBER OF RESTRAINTS REQUIRED.



HDPE TO DUCTILE IRON TRANSITIION

HDPE WATERMAIN NOTES

1. HDPE WATERMAIN SHALL BE D.I.P.S. SDR 11 MANUFACTURED FROM A PE 4710 RESIN. HDPE PIPE SHALL BE MARKED WITH A PERMANENTLY CO-EXTRUDED BLUE STRIPE.
2. HDPE FITTINGS SHALL BE MANUFACTURED FROM A PE 4710 RESIN AND SHALL HAVE A PRESSURE RATING GREATER THAN OR EQUAL TO THE PRODUCT PIPE.
3. ALL FITTINGS TO COME FROM SAME MANUFACTURER UNLESS OTHERWISE APPROVED BY ENGINEER
4. HDPE WATER SERVICES SHALL BE SDR 9. HDPE WATER SERVICE SHALL NOT BE USED UNLESS IT IS CONFIRMED THAT THE BUILDING OR PREMISES THAT IS TO BE SERVICED HAS AN UPDATED ELECTRICAL SYSTEM THAT IS NOT GROUNDED TO THE INTERNAL PLUMBING.
5. ALL HDPE PIPING SHALL BE INSTALLED WITH TWO (2) TRACER/LOCATOR WIRES INSULATED WITH HIGH MOLECULAR WEIGHT POLYETHYLENE (HMWPE) SPECIFICALLY FOR USE IN DIRECT BURIAL APPLICATIONS.
6. TRACER WIRES SHALL BE ATTACHED TO THE WATERMAIN PIPE AT FIVE FOOT INTERVALS OR AS APPROVED BY THE ENGINEER. ATTACHMENT TO PIPE SHALL BE MADE WITH PLASTIC CABLE TIES OR EQUIVALENT. THE USE OF TAPE IS NOT APPROVED. TRACER WIRES SHALL BE CHECKED FOR CONTINUITY PRIOR TO PLACING THE WATERMAIN INTO SERVICE.
7. HDPE JOINING SHALL BE COMPLETED USING BUTT FUSION.
    - FUSION TECHNICIAN MUST BE CERTIFIED IN ACCORDANCE WITH ASTM F3190 FOR THE USE OF HEAT FUSION EQUIPMENT AND THE STANDARD PRACTICE FOR HEAT FUSION JOINING OF HDPE PIPE AND FITTING IN ACCORDANCE WITH ASTM F2620.
7. THE USE OF ELECTRO FUSION IS ALLOWABLE ONLY UPON APPROVAL BY THE LOCAL MUNICIPALITY.
    - FUSION TECHNICIANS MUST BE CERTIFIED IN ELECTRO FUSION JOINING BY THE PRODUCT MANUFACTURER.
    - FUSION TECHNICIANS ARE REQUIRED TO FOLLOW GENERIC ELECTROFUSION PROCEDURE FOR FIELD JOINING OF POLYETHYLENE PIPE AS PUBLISHED BY THE PLASTIC PIPE INSTITUTE MUNICIPAL ADVISORY BOARD AND ASTM F1055.
    - ELECTROFUSION EQUIPMENT SHALL BE CALIBRATED AND CERTIFIED PER THE PIPE MANUFACTURER'S REQUIREMENTS.
8. HDPE PIPE TRANSITIONS TO DUCTILE IRON PIPE SHALL BE PERFORMED USING BUTT FUSED MECHANICAL JOINT ADAPTERS.
9. THE USE OF MECHANICAL JOINT RESTRAINT SYSTEMS ON HDPE PIPE IS PROHIBITED UNLESS APPROVED BY THE LOCAL MUNICIPALITY.
10. HYDROSTATIC TESTING FOR HDPE PIPE SHALL BE COMPLETED IN ACCORDANCE WITH AWWA STANDARDS AND ASTM F2164. TESTING SHALL BE PERFORMED AFTER THE INITIAL EXPANSION PHASE AND AFTER THE SYSTEM HAS STABILIZED. THE SPECIFIC TARGET TEST PRESSURE IS 150 PSI OR 1.5 TIMES THE MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) OF THE TEST SECTION, WHICH EACH IS GREATER. THE TEST METHOD IS GENERALLY SUMMARIZED AS FOLLOWS:
    - 10.1. ZERO LEAKAGE ALLOWED.
    - 10.2. THE AMBIENT AIR TEMPERATURE AND SURFACE TEMPERATURE OF THE PIPE MUST BE CONSIDERED AND ADJUSTMENT TO TEST PRESSURE MAY BE APPROPRIATE.
    - 10.3. SLOWLY FILL THE TEST SECTION WITH WATER AND CAREFULLY AND COMPLETELY EXHAUST ALL OF THE AIR FROM THE TEST SECTION.
    - 10.4. ALLOW TIME FOR TEST FLUID AND PIPE TEMPERATURE TO EQUALIZE.
    - 10.5. ALLOW FOR INITIAL EXPANSION AS FULL TEST PRESSURE IS APPLIED. THE INITIAL EXPANSION PHASE IS FOUR HOURS.
    - 10.6. REDUCE PRESSURE BY 10 PSI, OBSERVE TARGET TEST PRESSURE FOR ONE HOUR, AND IF THE PRESSURE REMAINS WITHIN 5% OF THE TARGET TEST PRESSURE, THEN A PASSING TEST IS INDICATED.
11. IF LEAKS ARE DETECTED, DEPRESSURIZE MAIN AND REPAIR AS NEEDED. ALLOW THE TEST SECTION TO REMAIN DEPRESSURIZED FOR 8 HOURS BEFORE RETESTING.
12. TESTING PER ASTM F2164 WILL BE REQUIRED WHEN GREATER THAN 25% OF THE TEST SECTION IS HDPE PIPE.



ACCESS PIT DETAIL

ACCESS PIT NOTES:

1. ACCESS PIT WIDTH SHALL BE KEPT TO THE MINIMUM NECESSARY TO ALLOW CONSTRUCTION ACCESS.
2. ACCESS PITS WITHIN PAVED AREAS SHALL INCLUDE BARRIER WALLS (TEMP. WATER FILLED OR CONCRETE) IN ADDITION TO THE CONSTRUCTION FENCING.
3. BRACE AND/OR SUPPORT EXCAVATION AS NECESSARY TO CONTAIN EXCAVATION TO PLANNED DIMENSIONS.
4. PROVIDE ANY NECESSARY DEWATERING TO MAINTAIN A DRY WORKING SPACE (INC).
5. BACKFILL ACCESS PIT WITH COMPACTED CLASS II SAND BACKFILL OR SUITABLE EXCAVATED MATERIAL IN ACCORDANCE WITH THE DETAIL ON SHEET 3 AND THE PROJECT SPECIFICATIONS.

TABLE 1

MAXIMUM PARTICLE SIZE VS. PIPE SIZE	
NOMINAL PIPE SIZE (IN)	MAXIMUM PARTICLE (IN)
6 TO 8	¾
10 TO 15	1
16+	1½

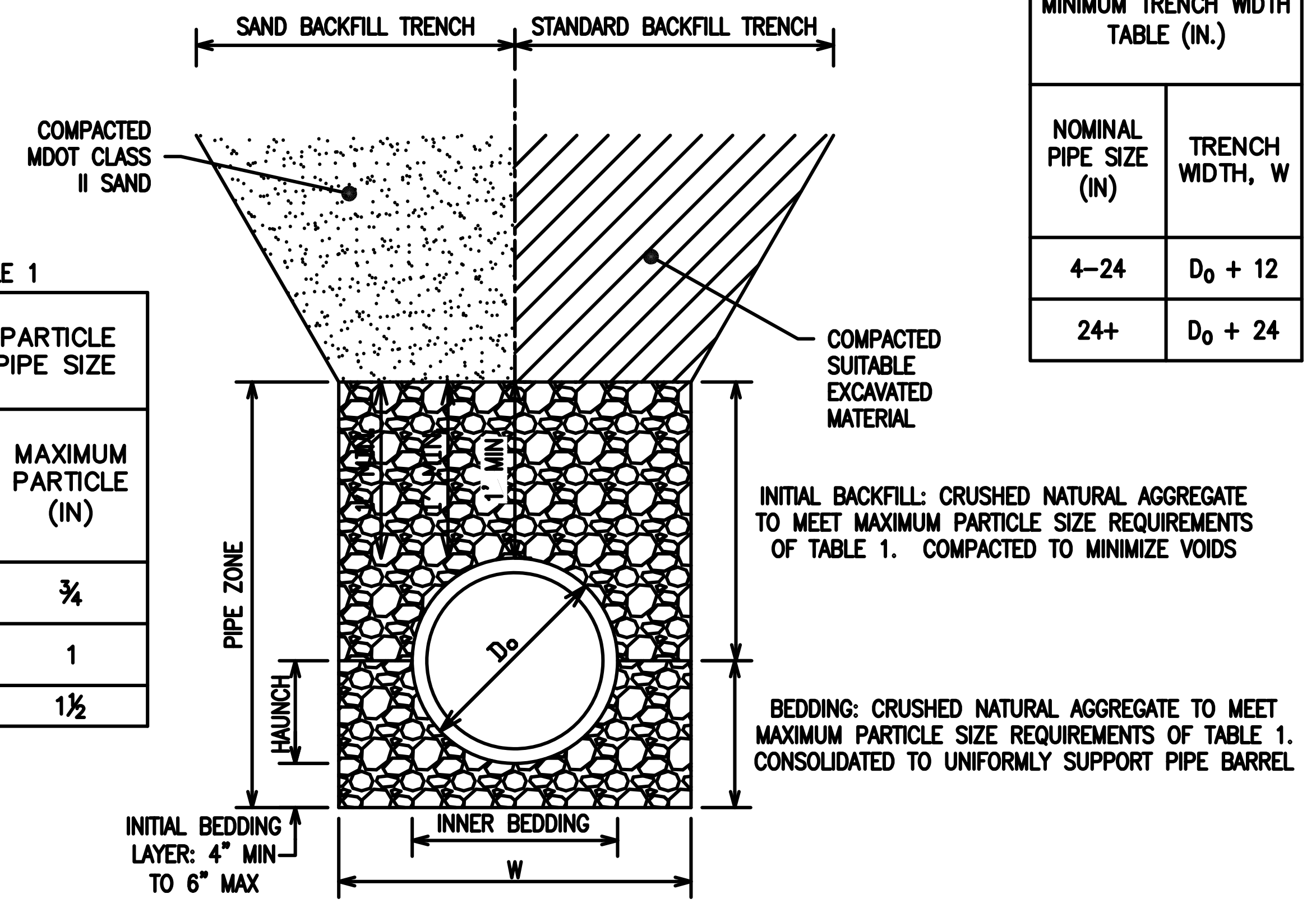


TABLE 2

MINIMUM TRENCH WIDTH TABLE (IN.)	
NOMINAL PIPE SIZE (IN)	TRENCH WIDTH, W
4–24	$D_0 + 12$
24+	$D_0 + 24$

PLASTIC PIPE TRENCH DETAIL

NOTES:

1. FLEXIBLE PIPES ARE CONSIDERED PIPES THAT WHEN INSTALLED UNDERGROUND ARE DESIGNED TO DEFLECT UNDER LOAD AND INCLUDE:POLYINYL CHLORIDE (PVC), AND HIGH DENSITY POLYETHYLENE (HDPE) PIPES.
2. DO NOT COMPACT INNER BEDDING OF INITIAL BEDDING LAYER.
3. CAREFULLY EXCAVATE BELL OR COUPLING HOLES FROM THE INITIAL BEDDING LAYER.
4. SHOVEL SLICE BEDDING MATERIAL IN THE HAUNCH AREA ALONG THE BOTTOM CIRCUMFERENCE OF THE PIPE TO CONSOLIDATE BEDDING AND UNIFORMLY SUPPORT THE PIPE BARREL.
5. COMPACT INITIAL BACKFILL MATERIALS IN LIFTS NOT EXCEEDING 6 INCHES BY HAND TAMPING AROUND AND DIRECTLY ABOVE PIPE TO MINIMIZE VOIDS.
6. DO NOT USE MECHANICAL COMPACTION EQUIPMENT DURING INITIAL BACKFILL OPERATIONS UNTIL MATERIAL HAS BEEN BROUGHT TO 12 INCHES ABOVE THE TOP OF PIPE BARREL.
7. COMPACT SAND BACKFILL AND STANDARD BACKFILL TRENCHES OUTSIDE OF PIPE ZONE TO NOT LESS THAN 95% OF THE MAXIMUM UNIT WEIGHT IN LIFTS NOT EXCEEDING 12 INCHES.
8. FOR MINIMUM TRENCH WIDTHS, REFER TO TABLE 2, MAXIMUM TRENCH WIDTH SHOULD NOT EXCEED THE MINIMUM TRENCH WIDTH BY MORE THAN 18 INCHES.
9. IF THE PIPE IS LOCATED BENEATH THE GROUND WATER TABLE, THE PIPE ZONE SHALL BE WRAPPED IN A GEOTEXTILE SEPARATOR TO MINIMIZE MIGRATION OF SOIL INTO THE PIPE ZONE.

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File Location: J:\Drain\MappingUnit\STAN

HDPE WATER MAIN
STANDARD DETAILS

REVISION BLOCK
Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	KB	02/14/18	MARKUPS PER G. APPEL
2	HRC	08/31/20	GENERAL UPDATE
3			
4			

ORIG. DATE: 01/01/01
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DESIGNED BY: OCDC
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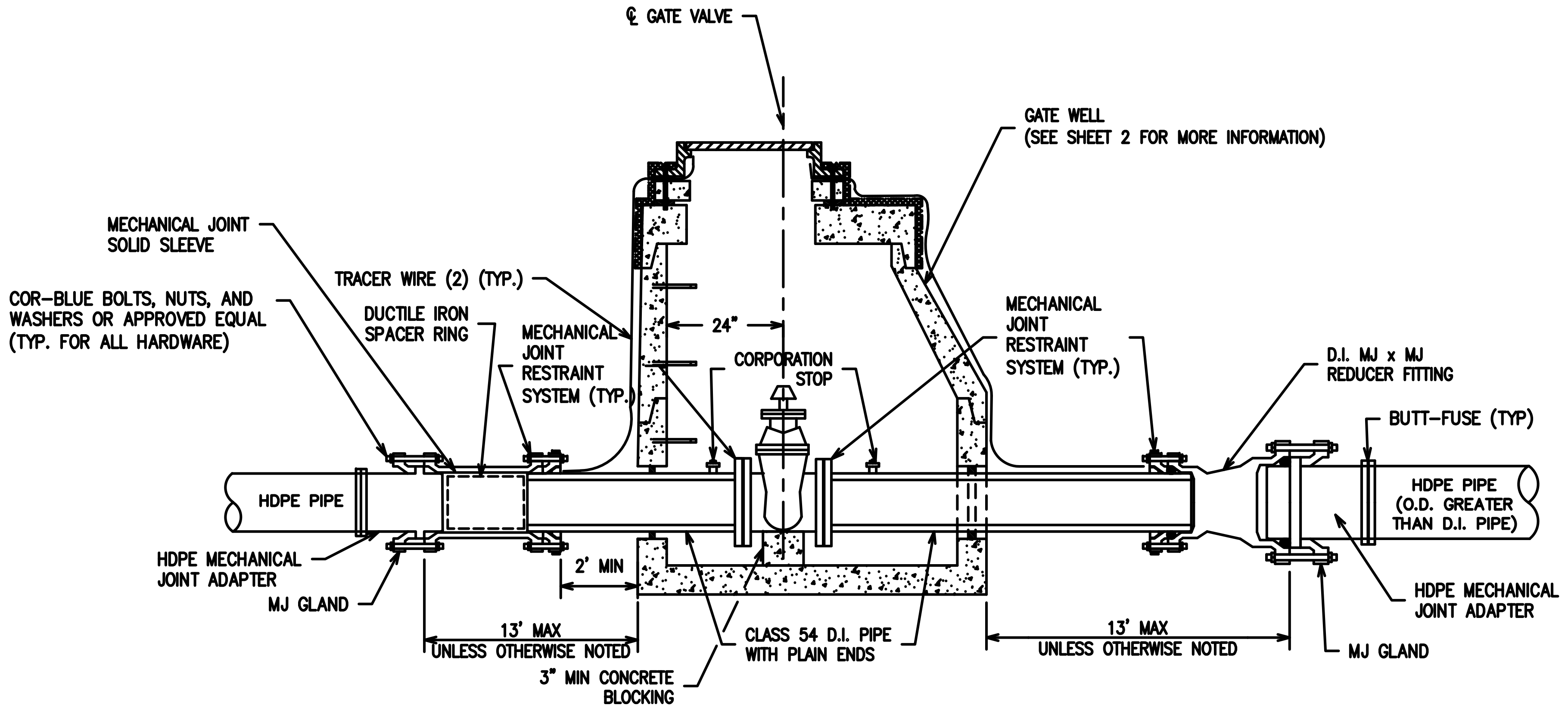
48328-1907

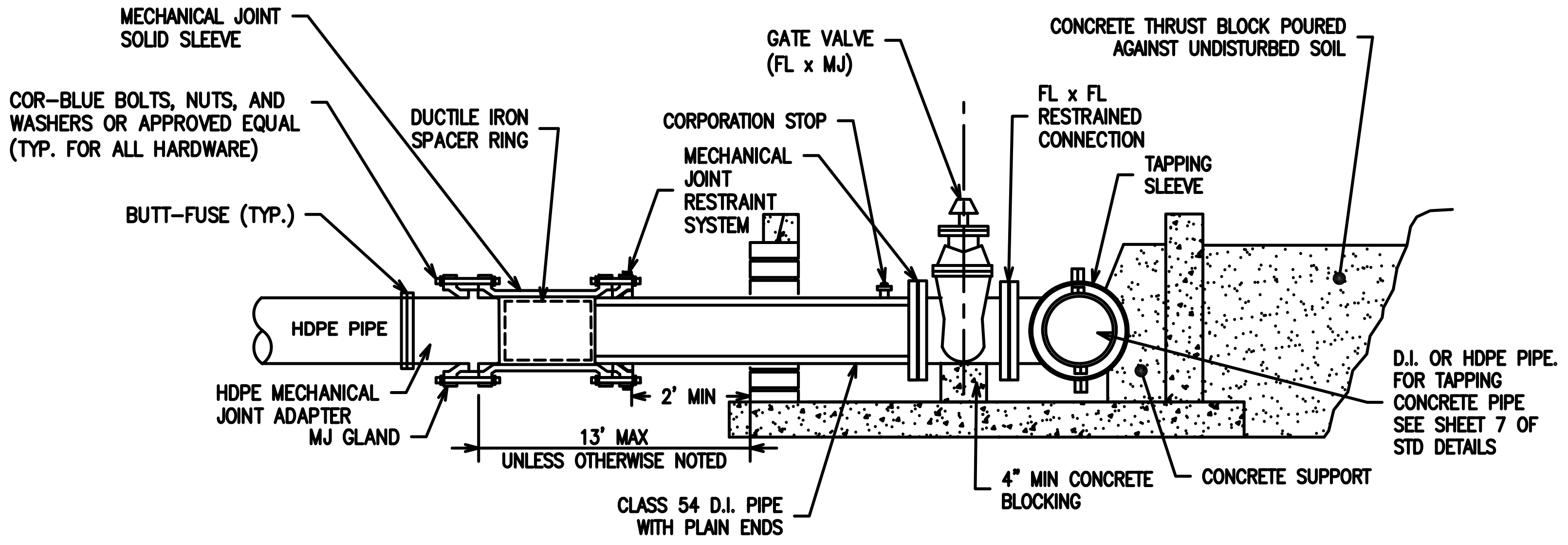
SHEET NO.: 5 of 7



TYPICAL HDPE CONNECTION TO GATE VALVE

NOTES:

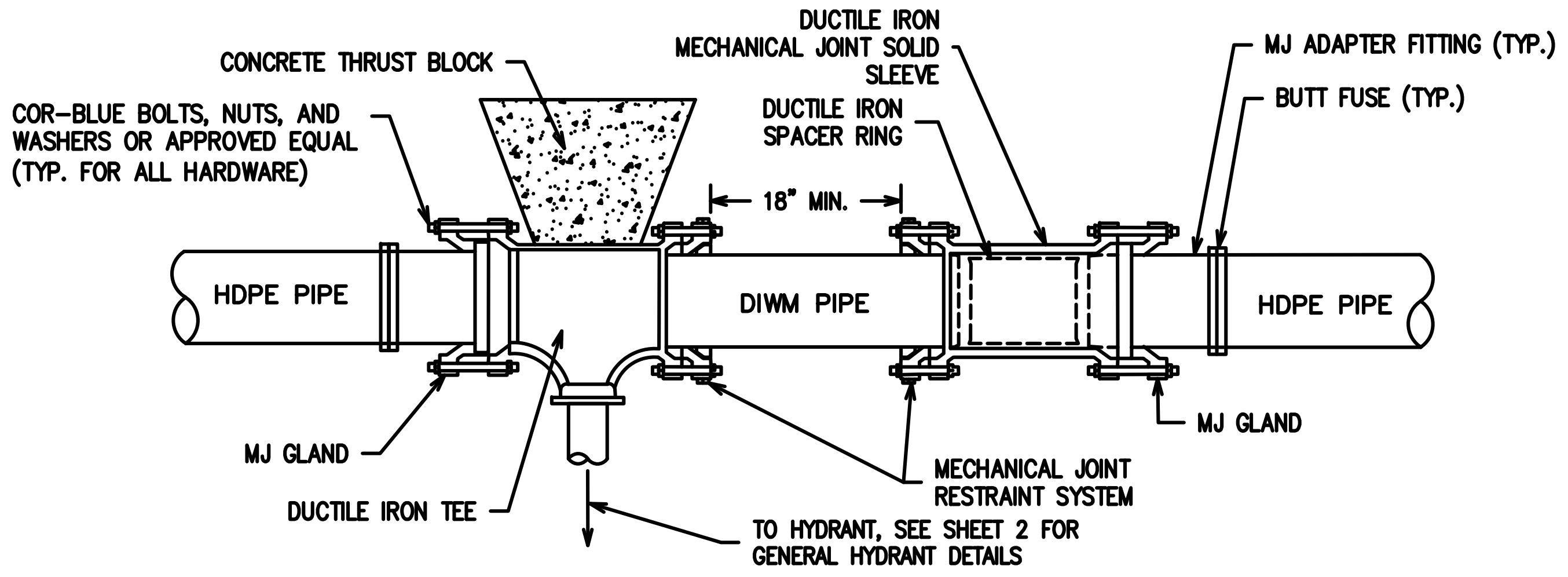
1. WHERE GATE VALVE IS IN LINE WITH THE HDPE WATER MAIN, INSTALL D.I. PIPE THROUGH GATE WELL MAKING CONNECTION TO HDPE PIPE OUTSIDE OF GATE WELL AS SHOWN.
2. TRACER WIRES SHALL BE INSTALLED ALONG THE OUTSIDE OF THE GATE WELL AND BENEATH THE FRAME AND COVER.



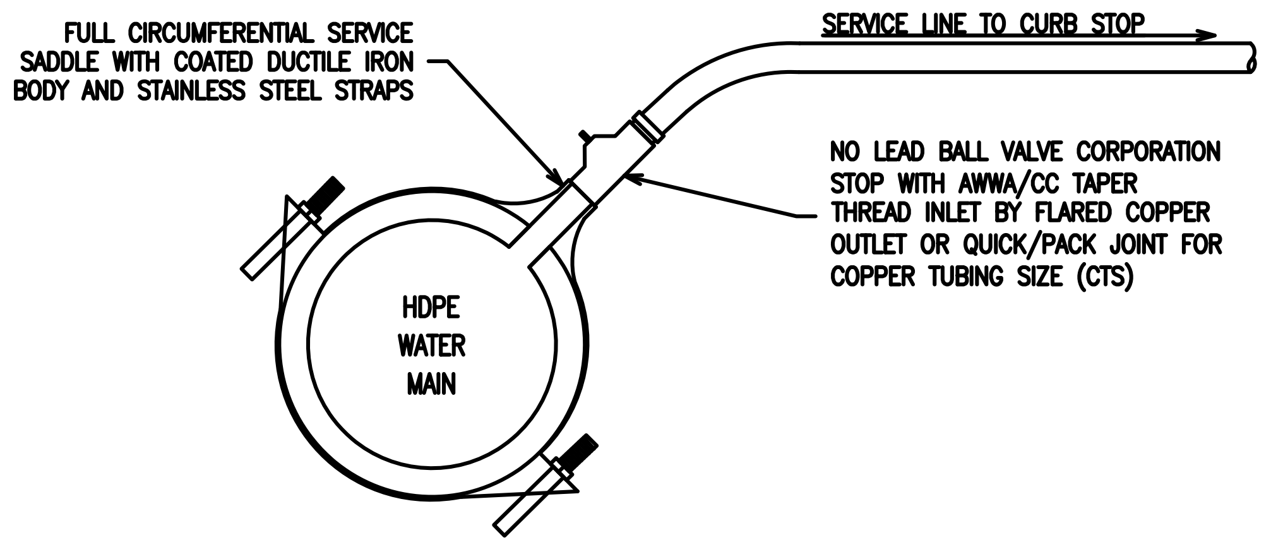
HDPE TAPPING SLEEVE, VALVE & WELL

NOTES:

1. SEE SHEET 2 OF THE WATER MAIN STANDARD DETAIL SHEETS FOR GENERAL TAPPING SLEEVE VALVE AND WELL DETAILS.
2. TAPPING SLEEVES FOR HDPE PIPE REQUIRE AN OUTLET SEAL GASKET AND SPRING WASHERS IN ADDITION TO THE REQUIREMENTS DETAILED IN SHEET 2 (JCM 452, ROMAC SSTH OR APPROVE EQUAL).



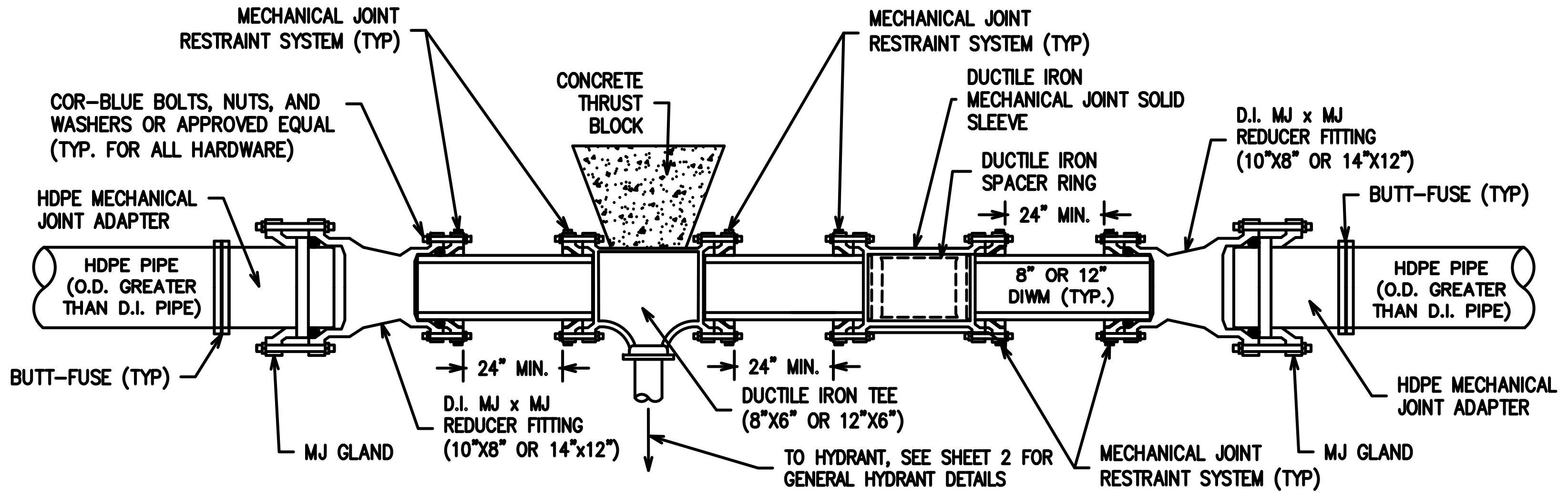
CUT–IN HYDRANT TEE DETAIL



SERVICE LINE CONNECTION TO HDPE PIPE

NOTES:

1. FLARED HDPE SERVICE LINES ARE PROHIBITED.



CUT–IN HYDRANT TEE DETAIL WITH 14" OR 10" HDPE

WATER MAIN
HIGH DENSITY POLYETHYLENE PIPE (HDPE) DETAILS

REVISION BLOCK

Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	KB	03/19/18	MARKUPS PER G. APPEL
2	HRC	08/31/20	GENERAL UPDATE
3			
4			

ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: OCDC
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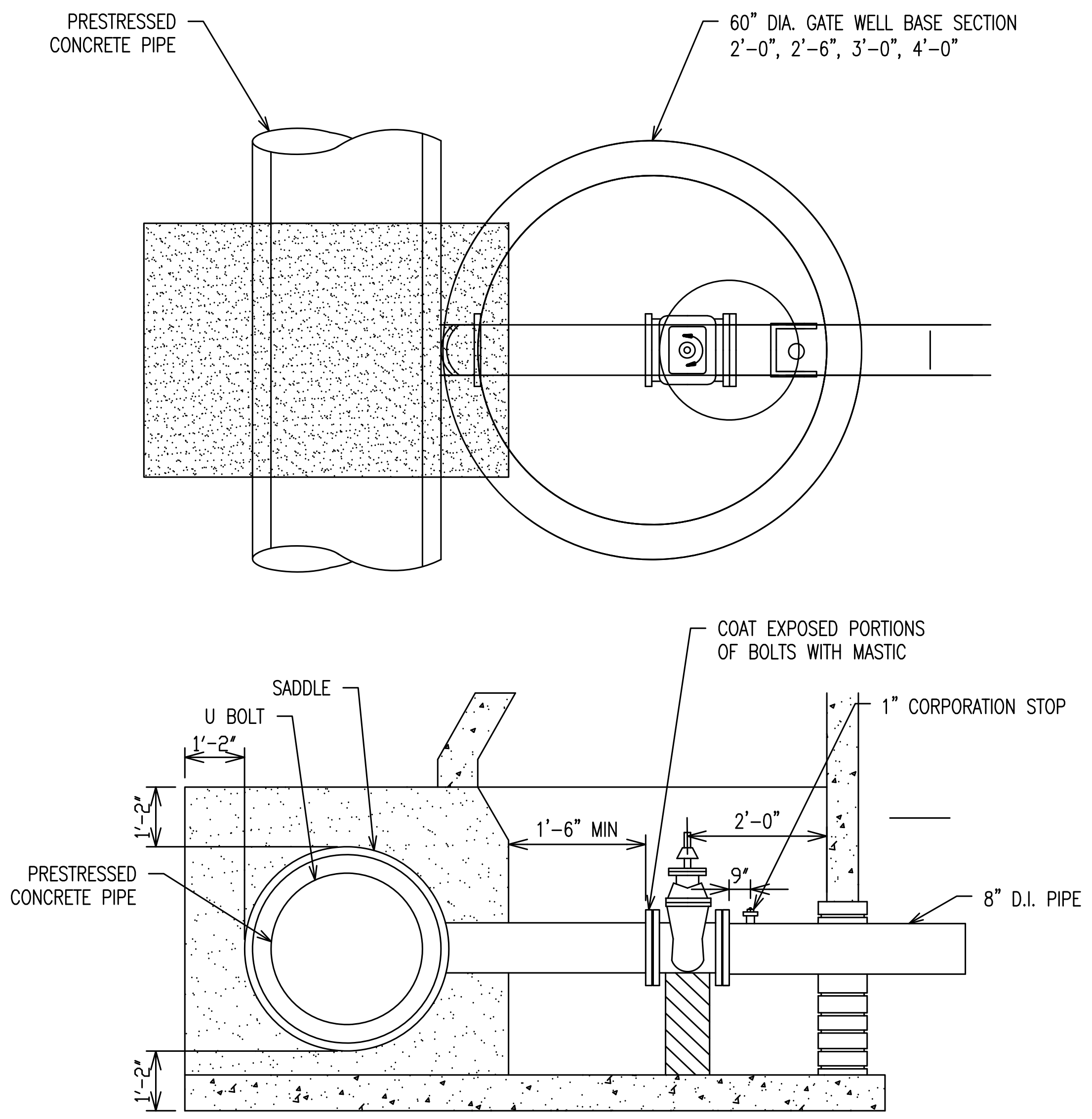
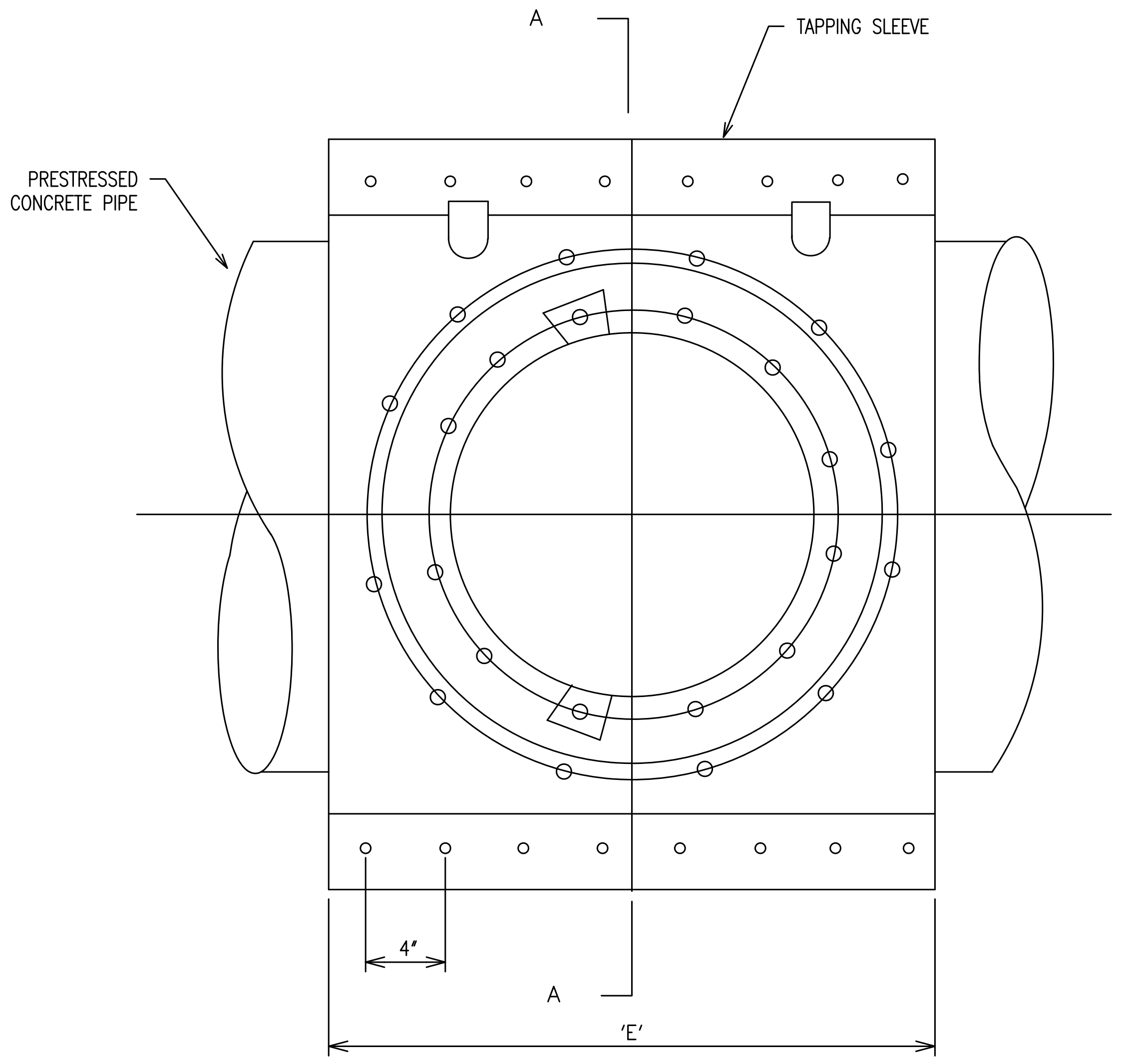


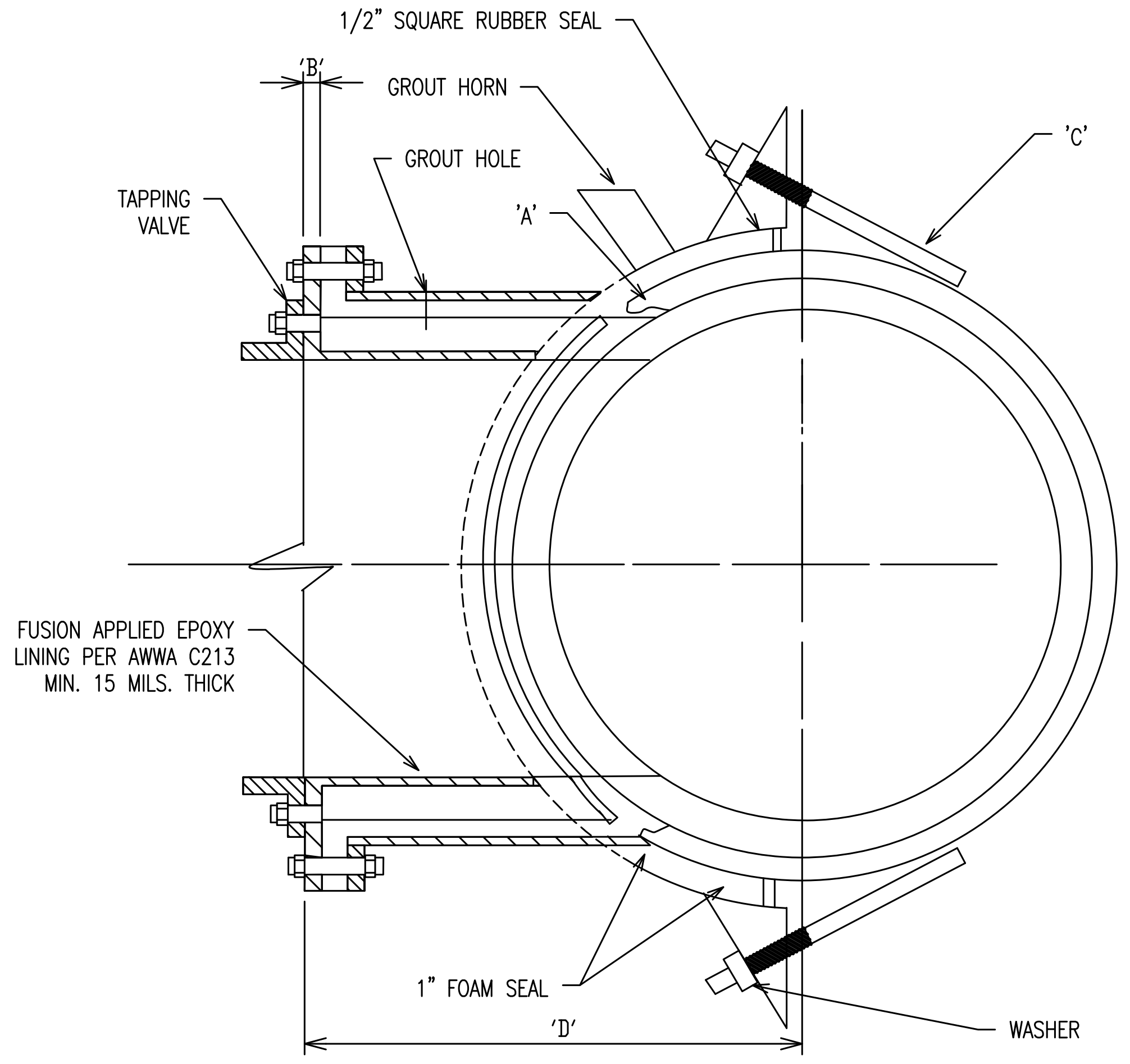
20"x 8" CONCRETE PRESURE TAP VALVE & WELL ASSEMBLY W/ CONCRETE ENCASEMENT

NOTES:

1) THESE DIMENSIONS ARE FOR REFERENCE ONLY.
2) ENTIRE SADDLE, INCLUDING STRAPS, TO BE ENCASED IN PORTLAND CEMENT MORTAR OR CONCRETE TO PROVIDE AT LEAST ONE (1) INCH OF THICKNESS OVER EXTERNAL STEEL SURFACES PRIOR TO BACKFILLING.
3) TAP SADDLES ARE DESIGNED FOR 150 PSI OPERATING PRESSURE.
4) FLANGE DRILLED AND TAPPED IN ACCORDANCE WITH AWWA C207 CLASS D, CENTERING RING CONFORMS TO MSS- SP 60.
5) GROUT SHALL SET A MINIMUM OF TWENTY-FOUR (24) HOURS PRIOR TO PRESSURE TESTING.



PLAN VIEW



SECTION A–A

PIPE SIZE X TAP SIZE	A	B	C	D	E
16" X 4"	1/4"	7/8"	6	14–1/16 "	24"
16" X 6"	1/4"	1–1/8"	6	14–5/16 "	24"
16" X 8"	1/4"	1–1/8"	6	14–5/16 "	24"
16" X 10"	1/4"	1–3/8"	7	14–9/16 "	28"
16" X 12"	1/4"	1–3/8"	8	14–9/16 "	32"
18" X 4"	1/4"	7/8"	6	15–3/8 "	24"
18" X 6"	1/4"	1–1/8"	6	15–5/8 "	24"
18" X 8"	1/4"	1–1/8"	6	15–5/8 "	24"
18" X 10"	1/4"	1–3/8"	7	15–7/8 "	28"
18" X 12"	1/4"	1–3/8"	8	15–7/8 "	32"
20" X 4"	1/4"	7/8"	6	16–1/2 "	24"
20" X 6"	1/4"	1–1/8"	6	16–1/2 "	24"
20" X 8"	1/4"	1–1/8"	6	16–1/2 "	24"
20" X 10"	1/4"	1–3/8"	7	17"	28"
20" X 12"	1/4"	1–3/8"	8	17"	32"
24" X 4"	1/4"	7/8"	6	18–3/4"	24"
24" X 6"	1/4"	1–1/8"	6	19"	24"
24" X 8"	1/4"	1–1/8"	6	19"	24"
24" X 10"	1/4"	1–3/8"	7	19–1/4"	28"
24" X 12"	1/4"	1–3/8"	8	19–1/4"	32"
30" X 4"	1/4"	7/8"	6	22–1/8"	24"
30" X 6"	1/4"	1–1/8"	6	22–3/8"	24"
30" X 8"	1/4"	1–1/8"	6	22–3/8"	24"
30" X 10"	1/4"	1–3/8"	7	22–5/8"	28"
30" X 12"	1/4"	1–3/8"	8	22–5/8"	32"
36" X 4"	1/4"	7/8"	6	25–1/2 "	24"
36" X 6"	1/4"	1–1/8"	6	25–3/4 "	24"
36" X 8"	1/4"	1–1/8"	7	25–3/4 "	28"
36" X 10"	1/4"	1–3/8"	8	26"	32"
36" X 12"	1/4"	1–3/8"	9	26"	36"
42" X 4"	1/4"	7/8"	6	28–7/8"	24"
42" X 6"	1/4"	1–1/8"	7	29–1/8"	28"
42" X 8"	1/4"	1–1/8"	8	29–1/8"	32"
42" X 10"	3/8"	1–3/8"	9	29–3/8"	36"
42" X 12"	3/8"	1–3/8"	10	29–3/8"	40"
48" X 4"	3/8"	7/8"	7	32–1/4"	28"
48" X 6"	3/8"	1–1/8"	7	32–1/2"	28"
48" X 8"	3/8"	1–1/8"	7	32–1/2"	28"
48" X 10"	3/8"	1–3/8"	7	32–3/4"	28"
48" X 12"	3/8"	1–3/8"	9	32–3/4"	36"

CONCRETE TAPPING SLEEVE DETAILS

WATER MAIN
CONCRETE WATER MAIN DETAILS

REVISION BLOCK

Data Source / Source Date: N/A

Rev. No.:	Rev. By:	Rev. Date:	Description:
1	KB	03/19/18	MARKUPS PER G. APPEL
2	HRC	08/31/20	GENERAL UPDATE
3			
4			

ORIG. DATE: 01/01/01
SCALE: NONE
DESIGNED BY: OCDC
DRAWN BY: OCDC Mapping

WRC
WATER RESOURCES COMMISSIONER
Jim Nash

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WATERFORD, MICHIGAN
48328-1907

SHEET NO.: 7 OF 7