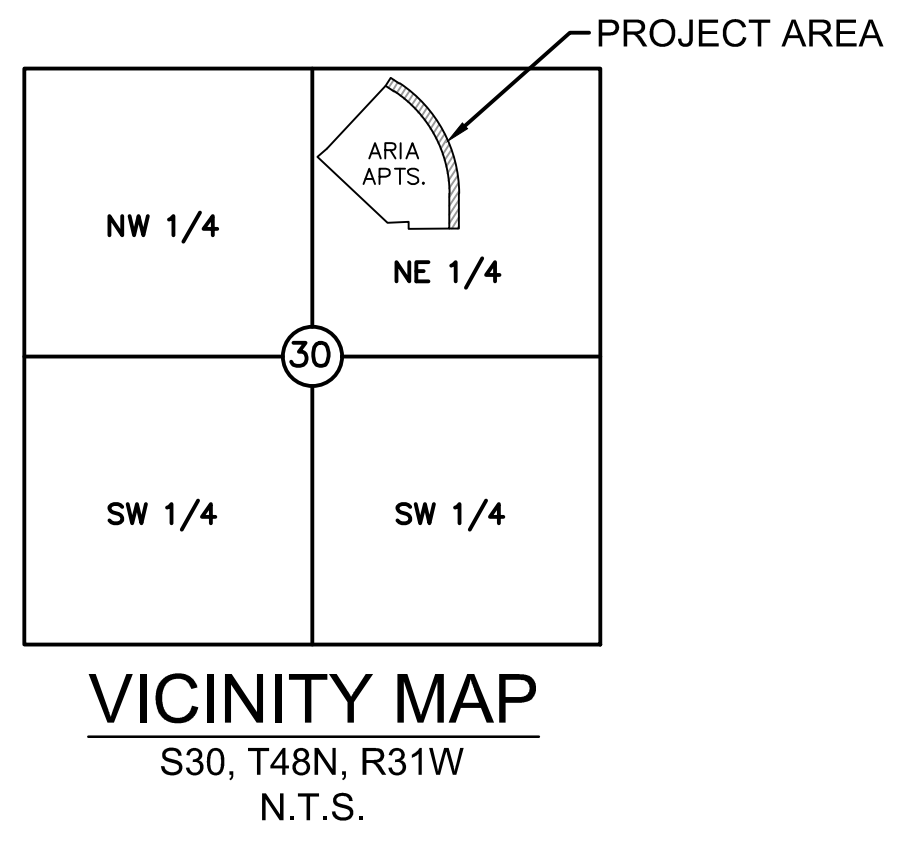


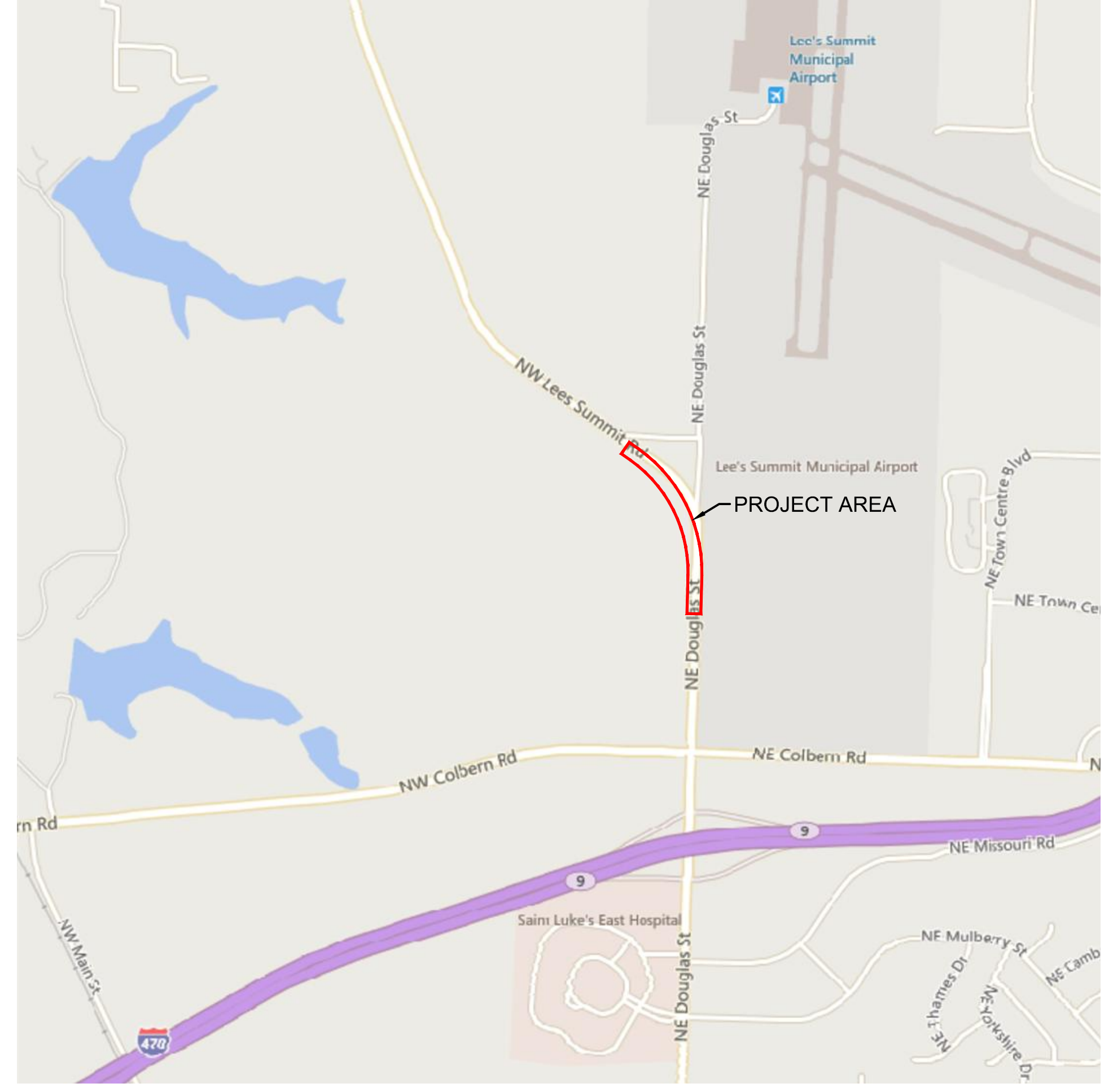
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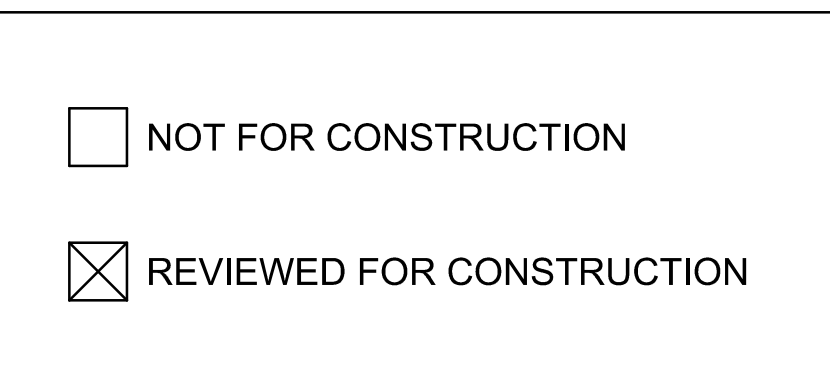
# NW LEE'S SUMMIT ROAD & NE DOUGLAS STREET PUBLIC STREET IMPROVEMENT PLANS FOR ARIA APARTMENTS-PHASE 1

SECTION 30, TOWNSHIP 48N, RANGE 31W  
IN LEE'S SUMMIT, JACKSON COUNTY, MO

PROJECT TEAM & UTILITY CONTACT LIST	
<b>OWNER</b> UNITY SCHOOL OF CHRISTIANITY 1901 NW BLUE PARKWAY UNITY VILLAGE, MO 64065 CONTACT: GUY SWANSON PHONE: 816.607.0602 EMAIL: SWANSONS@UNITYONLINE.ORG	<b>UTILITY SERVICE NUMBERS</b> NAME: LEE'S SUMMIT PUBLIC WORKS PHONE: 816-969-1800  NAME: LEE'S SUMMIT WATER & SERVICES DEPARTMENT PHONE: 816-969-1940  NAME: SPIRE (MGE) PHONE: 314-342-0500  NAME: AT&T PHONE: 800-286-8313  NAME: EVERGY PHONE: 816-471-5275  NAME: SPECTRUM (TWC) PHONE: 877-772-2253  NAME: GOOGLE FIBER PHONE: 877-454-6959
<b>DEVELOPER</b> CENTRAL STATES CONSTRUCTION 4215 PHILIPS FARM RD. SUITE 109 COLUMBIA, MO 65201 CONTACT: BRIAN MAENNER PHONE: 573-449-9902 EMAIL: BMAENEER@CENTRALSTATECONST.COM	
<b>ENGINEER</b> OLSOON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: NICHOLAS HEISER PHONE: 816.361.1177 EMAIL: NHEISER@OLSSON.COM	
<b>SURVEYOR</b> OLSOON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUDEBUSH PHONE: 816.361.1177 EMAIL: JROUDEBUSH@OLSSON.COM	



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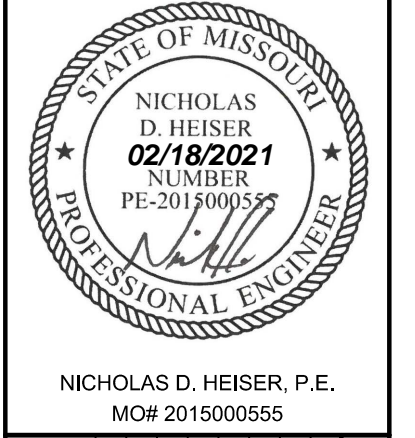
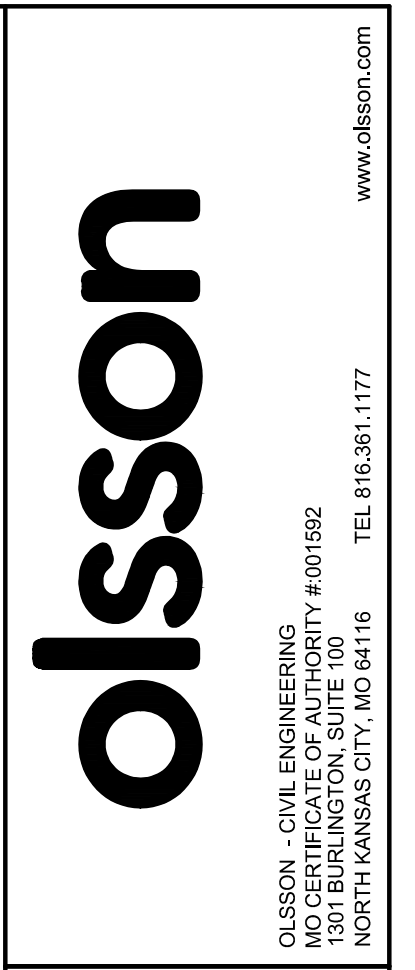


**PROPERTY DESCRIPTION:**

AS PROVIDED BY STEWART TITLE GUARANTY COMPANY:  
 TRACT OF LAND IN THE NORTHEAST QUARTER OF SECTION 30 TOWNSHIP 48 NORTH, RANGE 31 WEST OF THE 5TH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI BEING BOUNDED AND DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NORTHEAST QUARTER SECTION; THENCE SOUTH 01 DEGREES 37 MINUTES 50 SECONDS WEST, ON THE WEST LINE OF SAID QUARTER SECTION, 853.75 FEET TO A POINT ON THE SOUTHEAST LOT LINE OF LOT 1, LEE'S SUMMIT ROAD PUMP STATION, A SUBDIVISION RECORDED IN BOOK 1 51 AT PAGE 90 IN THE JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE NORTH 50 DEGREES 41 MINUTES 15 SECONDS EAST, ON SAID SOUTHEAST LOT LINE, 59.22 FEET; TO THE POINT OF BEGINNING OF THE TRACT OF LAND TO BE HEREIN DESCRIBED; THENCE CONTINUING NORTH 50 DEGREES 41 MINUTES 15 SECONDS EAST ALONG SAID LINE, 116.89 FEET; THENCE NORTH 44 DEGREES 49 MINUTES 51 SECONDS EAST, 792.38 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF NW LEE'S SUMMIT ROAD AS ESTABLISHED BY DOCUMENT NUMBER 2015E0017982 IN THE JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE ON SAID WESTERLY RIGHT-OF-WAY LINE, SOUTH 54 DEGREES 34 MINUTES 12 SECONDS EAST, 95.69 FEET; THENCE SOUTHEASTERLY ALONG A CURVE TO THE RIGHT BEING TANGENT TO THE LAST DESCRIBED COURSE WITH A RADIUS OF 1,142.00 FEET, A CENTRAL ANGLE OF 56 DEGREES 01 MINUTES 43 SECONDS AND AN ARC DISTANCE OF 1,116.74 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 31 SECONDS WEST, 322.27 FEET; THENCE LEAVING SAID RIGHT-OF-WAY LINE, NORTH 88 DEGREES 32 MINUTES 29 SECONDS WEST, 375.74 FEET; THENCE NORTH 01 DEGREES 27 MINUTES 27 SECONDS EAST, 62.94 FEET; THENCE SOUTH 90 DEGREES 00 MINUTES 00 SECONDS WEST, 195.68 FEET; THENCE NORTH 45 DEGREES 00 MINUTES 00 SECONDS WEST, 889.18 FEET TO THE POINT OF BEGINNING, SUBJECT TO THAT PART, IF ANY, IN STREETS, ROADWAYS, HIGHWAYS OR OTHER PUBLIC RIGHT-OF-WAYS.

**BENCHMARK**

- BMK 1**  
 LOCATED NEAR SE CORNER OF COLBERN RD. & DOUGLAS ST. INTERSECTION.  
 N: 1012195.53  
 E: 282382.89  
 EL: 982.46
- BMK 2**  
 LOCATED ON LIGHTPOLE BASE AT NE CORNER OF LEE'S SUMMIT RD. & DOUGLAS ST INTERSECTION.  
 N: 1014699.72  
 E: 2823025.86  
 EL: 932.31
- BMK 5**  
 N: 1014159.31  
 E: 2822030.75  
 EL: 908.88



NO. REV.	DATE	REVISIONS DESCRIPTION
1	2020.07.22	REVISED PER CITY COMMENTS
2	2021.02.04	REVISED SWALE AND ENTRANCE GRADING

TITLE SHEET		PUBLIC STREET IMPROVEMENT PLANS NW LEE'S SUMMIT ROAD & NE DOUGLAS STREET	LEE'S SUMMIT, MO
2020			
drawn by:	M.J.D.	checked by:	N.D.H.
designed by:	M.J.D.	QA/QC by:	N.D.H.
project no.:	019-0012-B	date:	2020.06.12



**GENERAL NOTES**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE PLANS IN THEIR POSSESSION ARE THE MOST CURRENT VERSION ISSUED, ARE FULLY COORDINATED WITH ALL SUBCONTRACTORS, AND PRESENT ON SITE AT ALL TIMES. CURRENT PLANS PREPARED BY OLSSON MAY BE OBTAINED AT THE DIRECTION OF OLSSON'S CLIENT. DIRECT REQUESTS TO OLSSON MAY REQUIRE ADDITIONAL AUTHORIZATIONS, AGREEMENTS, AND/OR FEES. PLEASE CONTACT THE ENGINEER FOR INFORMATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THESE PLANS UNLESS WRITTEN APPROVAL FROM ENGINEER, OWNER, AND DEVELOPER.
- ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
- ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES AND ITEMS OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED TO COMPLETE THE WORK SHOWN IN THE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS, PAYING ALL FEES, AND FOR OTHERWISE COMPLYING WITH ALL APPLICABLE REGULATIONS GOVERNING THE WORK.
- THE CONTRACTOR SHALL NOT ENGAGE IN ACTIVITIES THAT MAY ENCRONCH ON WATERS OF THE U.S., INCLUDING WETLANDS, UNTIL ANY NECESSARY PERMITS MAY BE OBTAINED. THE CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL CONDITIONS DESCRIBED IN THE PERMIT.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, THE SAFETY OF ALL PERSONS INCLUDING VISITORS AND THE GENERAL PUBLIC, AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY THROUGHOUT THE PROJECT AND NOT BE LIMITED BY WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
- PRIOR TO COMMENCEMENT OF WORK THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL UTILITY COMPANIES AND OBTAIN ANY RELEVANT INFORMATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL BOUNDARY CORNERS AND SECTION CORNERS. ANY BOUNDARY CORNER AND/OR SECTION CORNER DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ADJACENT PROPERTIES AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE DURING CONSTRUCTION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITIES.
- PRIOR TO MOVING OFF THE JOB THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER TO PERFORM A FINAL WALK-THROUGH OF THE CONSTRUCTION SITE.

**REFERENCES**

- ARCHITECTURAL AND STRUCTURAL ELEMENTS SHOWN IN THESE PLANS ARE FOR REFERENCE ONLY. CONTRACTORS AND SURVEYORS SHALL REFERENCE THEIR RESPECTIVE PLANS FOR DESIGN INFORMATION.
- THE CONTRACTOR SHALL ADHERE TO THE SITE PREPARATION AND STRUCTURAL FILL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AS PROVIDED BY THE GEOTECHNICAL ENGINEER INCLUDING ALL CURRENT ADDENDUMS. THE STANDARDS AND SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI SHALL ALSO APPLY AND TAKE PRECEDENCE WHEN STRICTER THAN THE GEOTECHNICAL REPORT OR WHEN NO GEOTECHNICAL REPORT IS GIVEN.
- UNLESS EXPLICITLY DESCRIBED OTHERWISE WITHIN THESE PLANS THE FOLLOWING SHALL APPLY:
  - ALL CONSTRUCTION, INCLUDING THOSE LISTED BELOW, SHALL CONFORM TO THE LATEST CODES AND ORDINANCES OF LEE'S SUMMIT, MISSOURI.
  - ALL CONSTRUCTION IN MODOT RIGHT-OF-WAY SHALL CONFORM TO THE LATEST SPECIFICATIONS ADOPTED BY U.S. DEPARTMENT OF TRANSPORTATION AND MODOT.
  - ALL TRAFFIC CONTROL SIGNAGE SHALL CONFORM WITH THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
  - ALL UTILITY EXTENSIONS AND CONSTRUCTION SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE UTILITY COMPANIES.
  - ALL EXTERIOR PAVEMENT (PCC, ASPHALT, ETC.) SHALL BE IN CONFORMANCE WITH THE SPECIFICATIONS OF LEE'S SUMMIT, MISSOURI AND THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE DELIVERY MANAGER AND COORDINATING ANY MAILBOXES THAT MAY BE DISTURBED. FAILURE TO DO SO MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.

**EXISTING CONDITIONS**

- THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS OF THE PROJECT AREA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THEIR OWN INVESTIGATIONS AND MAKING THEIR OWN ASSUMPTIONS REGARDING SITE SURFACE AND SUBSURFACE CONDITIONS. THIS INCLUDES THE LOCATION AND CONSISTENCY OF ANY EXISTING ROCK LAYERS UNDERLYING THE PROJECT SITE. CONTACT THE ENGINEER REGARDING ANY DISCREPANCIES THAT MAY AFFECT THE ABILITY TO CONSTRUCT FROM THESE PLANS AS DESIGNED.
- EXISTING CONDITIONS WERE DETERMINED THROUGH A VARIETY OF METHODS THAT MAY INCLUDE SURVEY, AERIAL IMAGERY, AVAILABLE RECORDS, GIS DATA, ETC. SUBSURFACE CONDITIONS ARE APPROXIMATE AND MAY NOT INCLUDE ALL UTILITIES AND OTHER SITE IMPROVEMENTS PRESENT ON SITE. THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS WHEN CONFLICTS AND DISCREPANCIES ARE FOUND.

**CONSTRUCTION**

- THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL WHILE WORKING IN THE PUBLIC RIGHT-OF-WAY AS SHOWN IN THESE PLANS. IF PLANS ARE NOT PROVIDED, CONTRACTOR SHALL COORDINATE AND PROVIDE CONTROLS TO THE SATISFACTION OF THE RIGHT-OF-WAY OWNER.
- THE CONTRACTOR SHALL PROTECT ALL TREES OVER 3" CALIPER FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE ON THESE PLANS.
- IN ADDITION TO THE CONDITIONS OF THE GEOTECHNICAL REPORT AND AS A MINIMUM THE CONTRACTOR SHALL PERFORM THE GRADING AS FOLLOWS:
  - THE CONSTRUCTION AREA SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL AND ORGANIC MATTER FROM ALL AREAS TO BE OCCUPIED BY BUILDING AND PAVING. STRIPPING EXISTING TOPSOIL AND ORGANIC MATTER SHALL BE TO A MINIMUM DEPTH OF 6 INCHES. TOPSOIL FOR REPLACEMENT ON SLOPES MAY BE STOCKPILED ON SITE IN AREAS DESIGNATED BY THE OWNER. CONTRACTOR SHALL REMOVE EXCESS STRIPPINGS AND EXCESS EXCAVATION WITHIN 30 DAYS OF COMPLETION OF GRADING OPERATIONS.
  - AREAS TO RECEIVE FILL AND AREAS CUT TO SUBGRADE LEVEL SHALL BE SCARIFIED AND THE TOP 8-INCH DEPTH COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE SUBGRADE SHALL BE PROOF ROLLED WITH A MODERATELY HEAVY LOADED DUMP TRUCK OR SIMILAR APPROVED CONSTRUCTION EQUIPMENT TO DETECT UNSUITABLE SOIL CONDITIONS. ANY UNSUITABLE AREAS SHALL BE UNDERCUT AND REPLACED WITH SUITABLE MATERIAL BEFORE ANY FILL MATERIAL CAN BE APPLIED.
  - FILL SHALL BE PLACED IN MAXIMUM OF 8 INCH LIFTS.
  - TOPSOIL SHALL BE PLACED TO A MINIMUM DEPTH OF 6 INCHES OVER ALL AREAS DISTURBED BY THE WORK. LARGE STONES, STICKS AND LUMPS SHALL BE REMOVED OR BROKEN UP, AND THE TOPSOIL SHALL BE LEVELED AND RAKED. ALL DISTURBED AREAS SHALL BE LANDSCAPED PER LANDSCAPE PLANS OR SHALL BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED.
  - CONTRACTOR SHALL PROVIDE COMPACTION TEST RESULTS AS REQUIRED.
- THE CONTRACTOR SHALL DISPOSE ALL WASTE MATERIAL RESULTING FROM THE PROJECT OFF-SITE AND IN STRICT CONFORMANCE WITH ALL LOCAL CODES AND ORDINANCES.
- ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED. NOT ALL ADJUSTMENTS ARE INDICATED IN THE PLANS.
- THE CONTRACTOR SHALL STREET SWEEP OR OTHERWISE CLEAN ALL ACCESS ROUTES TO THE SITE AT CONCLUSION OF THE PROJECT.

**SHOP DRAWINGS**

- THE CONTRACTOR SHALL SUBMIT SHOP DRAWING A MINIMUM OF 7 DAYS PRIOR TO THE REQUESTED DATE OF APPROVAL. ENGINEER SHALL REVIEW SHOP DRAWINGS OR SAMPLES CONFORMANCE WITH THE DESIGN FOR THIS PROJECT AS DESCRIBED IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS. THE ENGINEER'S REVIEW SHALL NOT EXTEND TO MEANS OR METHODS OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS UNLESS CONTRACTOR HAS NOTIFIED ENGINEER OF EACH SUCH VARIATION AT THE TIME OF SUBMISSION, AND OBTAINED ENGINEER'S WRITTEN APPROVAL OF EACH SUCH VARIATION. PRIOR TO SUBMITTING EACH SHOP DRAWING OR SAMPLE, CONTRACTOR SHALL HAVE REVIEWED AND VERIFIED:
  - ALL FIELD MEASUREMENTS, QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR INFORMATION WITH RESPECT THERETO;
  - ALL MATERIALS WITH RESPECT TO INTENDED USE, FABRICATION, SHIPPING, HANDLING, STORAGE, ASSEMBLY AND INSTALLATION PERTAINING TO THE PERFORMANCE OF THE WORK;
  - ALL INFORMATION RELATIVE TO MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENT THERETO;
  - CONTRACTOR SHALL ALSO HAVE REVIEWED AND COORDINATED EACH SHOP DRAWING OR SAMPLE WITH OTHER SHOP DRAWINGS AND SAMPLES, AND WITH THE REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS.
  - ALL SUBMITTED SHOP DRAWINGS SHALL BEAR A STAMP OR SPECIFIC WRITTEN INDICATION AND SIGNATURE THAT CONTRACTOR HAS FULLY COMPLETED THE ABOVE TASKS.
- SHOP DRAWINGS AS DESCRIBED ABOVE ARE REQUIRED FOR, BUT NOT LIMITED TO, THE FOLLOWING:
  - ALL STORM SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.
  - ALL SANITARY SEWER STRUCTURES TO BE INSTALLED WITH THIS PROJECT.
  - ALL SITE FENCING AND RAILING INCLUDING ANY GATES.
  - ALL LANDSCAPE AND RETAINING WALLS.
  - ANY ITEMS IN THESE PLANS THAT ALLOW FOR AN APPROVED EQUAL ALTERNATIVE.

ESTIMATE OF QUANTITIES				
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	AS-BUILT
GRADING				
1	EXCAVATION	C.Y.	853	
2	EMBANKMENT	C.Y.	4803	
3	SUBGRADE STABILIZATION (9" FLYASH TREATMENT)	S.Y.	1544	
PAVEMENT				
4	7.5" ASPHALT	S.Y.	159	
5	4" MODOT TYPE 5 AGGREGATE BASE	S.Y.	431	
6	6" MODOT TYPE 5 AGGREGATE BASE	S.Y.	1113	
PAVEMENT MARKING AND SIGNAGE				
7	4" SOLID WHITE STRIPING	L.F.	3330	
8	4" SOLID YELLOW STRIPING	L.F.	2826	
9	4" DOTTED WHITE/YELLOW STRIPING	L.F.	322	
10	TURN ARROWS	EA.	15	
11	STREET SIGNS	EA.	2	
CURBS, SIDEWALKS & DRIVES				
12	CURB & GUTTER (TYPE CG-1)	L.F.	3353	
13	CONCRETE SIDEWALK (5' WIDE)	L.F.	1441	
14	CONCRETE DRIVE APPROACH (8" UNREINFORCED)	S.F.	3876	
15	CURB RAMPS	EA.	4	
STORM SEWER				
16	15" HDPE	L.F.	78.5	
17	18" HDPE	L.F.	62.0	
18	15" END SECTION	EA.	1	
19	18" END SECTION	EA.	1	
20	STD. 4'X4' FIELD INLET	EA.	1	
21	RIPRAP	S.Y.	26.3	

SUMMARY OF QUANTITIES AS INDICATED ABOVE AND ANY QUANTITIES AS SHOWN WITHIN THE PLANS HAVE BEEN PROVIDED FOR PERMITTING PURPOSES ONLY AND ARE NOT INTENDED FOR USE IN PREPARATION OF CONTRACT DOCUMENTS, QUANTITIES INTENDED FOR, BUT NOT LIMITED TO, THE PREPARATION OF PROPOSALS AND BID DOCUMENTS SHALL BE INDEPENDENTLY EVALUATED BY THE ESTIMATING PARTY BASED UPON THE CONTENTS OF THESE PLANS.

GENERAL		SURVEY MARKERS	
ACU	AIR CONDITIONING UNIT	BMK	BENCHMARK
AST	ARROW STRAIGHT	CPT	CONTROL POINT
ATL	ARROW TURN LEFT	FND	FOUND MONUMENT
ATR	ARROW TURN RIGHT	ROW	ROW MARKER
BLB	BILLBOARD	SCR	SECTION CORNER
BOV	BLOW OFF VALVE	SET	SET MONUMENT
BSH	BUSH	BOUNDARIES	
COL	COLUMN	---	SECTION LINE
CTR	CONIFEROUS TREE	EP	EXISTING PROPERTY BOUNDARY
DRN	DRAIN GRATE	EP	PROPOSED PROPERTY BOUNDARY
DTR	DECIDUOUS TREE	EL	EXISTING LOT LINE
FLP	FLAG POLE	EP	PROPOSED LOT LINE
GDP	GUARD POST	ER/W	EXISTING RIGHT-OF-WAY
GPL	GUY POLE	R/W	PROPOSED RIGHT-OF-WAY
GTP	GREASE TRAP	UTILITIES	
GUY	GUY WIRE	CAB	CABLE BOX
HCP	ACCESSABLE PARKING MARKER	CAV	CABLE VAULT
LST	LIFT STATION	TVP	TELEVISION PEDESTAL
MLB	MAILBOX	TVR	TELEVISION RISER
MP	MILE POST MARKER	ECTVH	EXISTING CABLE TV, OVERHEAD
MWL	MONITORING WELL	ECTV	EXISTING CABLE TV, UNDERGROUND
PIV	POST INDICATOR VALVE	CTVH	PROPOSED CABLE TV, OVERHEAD
PPT	PROPANE TANK	CTV	PROPOSED CABLE TV, UNDERGROUND
RAT	RADIO TOWER	FOB	FIBER OPTIC BOX
SAD	SATELLITE	FOM	FIBER OPTIC MANHOLE
SGV	SPRINKLER CONTROL VALVE	FOP	FIBER OPTIC PEDESTAL
SGN	SIGN	FOV	FIBER OPTIC VAULT
SLB	STREET LIGHT BOX	EF0H	EXISTING FIBER OPTIC, OVERHEAD
SLC	STREET LIGHT CABINET	EF0	EXISTING FIBER OPTIC, UNDERGROUND
SPB	SPRINKLER BOX	FOH	PROPOSED FIBER OPTIC, OVERHEAD
SPH	SPRINKLER HEAD	FO	PROPOSED FIBER OPTIC, UNDERGROUND
STP	STUMP	FDC	FIRE DEPT. CONNECTION
SVL	SEWER VALVE	EFF	EXISTING FIRE PROTECTION SYSTEM LINE
TCB	TRAFFIC CONTROL BOX	FP	PROPOSED FIRE PROTECTION SYSTEM LINE
TSA	TRAFFIC SIGNAL WITH MAST ARM	EFL	EXISTING FUEL LINE
TSC	TRAFFIC SIGNAL CABINET	FPL	PROPOSED FUEL LINE
TSMH	TRAFFIC SIGNAL MANHOLE	GAR	GAS RISER
TSP	TRAFFIC SIGNAL POLE	GMH	GAS MANHOLE
	EXISTING TREELINE	GMK	GAS MARKER
	PROPOSED TREELINE	GMT	GAS METER
	EXISTING SIDEWALK	GRG	GAS REGULATOR
	PROPOSED SIDEWALK	GVL	GAS VALVE
	FUTURE SIDEWALK	EG	EXISTING NATURAL GAS LINE
	EXISTING BUILDINGS	EN	PROPOSED NATURAL GAS LINE
	PROPOSED BUILDINGS	TEC	TELEPHONE CABINET
	FUTURE BUILDINGS	TEP	TELEPHONE PEDESTAL
	EXISTING EDGE OF PAVEMENT	TER	TELEPHONE RISER
	PROPOSED EDGE OF PAVEMENT	TEV	TELEPHONE VAULT
	FUTURE EDGE OF PAVEMENT	TMH	TELEPHONE MANHOLE
---	EXISTING ROADWAY CENTER LINE	ETELH	EXISTING TELEPHONE LINE, OVERHEAD
---	PROPOSED ROADWAY CENTER LINE	ETEL	EXISTING TELEPHONE LINE, UNDERGROUND
---	FUTURE ROADWAY CENTER LINE	TELOH	PROPOSED TELEPHONE LINE, OVERHEAD
---	EXISTING CURB & GUTTER	TEL	PROPOSED TELEPHONE LINE, UNDERGROUND
---	PROPOSED CURB & GUTTER	GLT	GROUND LIGHT
---	FUTURE CURB & GUTTER	LTP	LIGHT POLE
R	RADIUS	PWP	POWER POLE
L	ARC DISTANCE	TRF	ELECTRIC TRANSFORMER
D	DELTA / CENTRAL ANGLE	EBX	ELECTRIC BOX
EASEMENTS & SETBACKS		ELC	ELECTRIC CABINET
A.E.	ACCESS EASEMENT	EMT	ELECTRIC RISER
B.M.P.	BEST MANAGEMENT PRACTICE EASEMENT	EMH	ELECTRIC MANHOLE
B.L.	BUILDING SETBACK	EMT	ELECTRIC METER
C.T.V.E.	CABLE TV EASEMENT	ESC	ELECTRIC SECTIONALIZER
C.E.	CONSERVATION EASEMENT	EVT	ELECTRIC VAULT
C.G.E.	CONSTRUCTION GRADING EASEMENT	YDL	YARD LIGHT
F.P.E.	FLOOD PLAIN EASEMENT	EE0H	EXISTING POWER/ELECTRIC LINE, OVERHEAD
F.O.E.	FIBER OPTIC EASEMENT	EE	EXISTING POWER/ELECTRIC LINE, UNDERGROUND
F.P.S.E.	FIRE PROTECTION SYSTEM EASEMENT	SCO	SEWER CLEANOUT
F.L.E.	FUEL LINE EASEMENT	SSMH	SANITARY MANHOLE
L.S.E.	LANDSCAPE EASEMENT	ESS	EXISTING SANITARY SEWER
G.E.	NATURAL GAS EASEMENT	SS	PROPOSED SANITARY SEWER
T.E.	TELEPHONE EASEMENT	SSS	FUTURE SANITARY SEWER
E.E.	POWER/ELECTRIC EASEMENT	ESL	EXISTING STEAM LINE
P.S.	PARKING SETBACK	SL	PROPOSED STEAM LINE
S.B.	STREAM BUFFER	SDMH	STORM SEWER MANHOLE
S.D.E.	SURFACE DRAINAGE EASEMENT	FES	FLARED END SECTION
SIGHT DIST. ESMT	SIGHT DISTANCE EASEMENT	RDN	ROOF DRAIN
S.E.	SANITARY SEWER EASEMENT	EST	EXISTING STORM SEWER
S.L.E.	STEAM LINE EASEMENT	ST	PROPOSED STORM SEWER
D.E.	STORM DRAINAGE EASEMENT	FH	FIRE HYDRANT
S.W.M.E.	STORM WATER MANAGEMENT EASEMENT	WMH	WATER MANHOLE
T.C.D.S.E.	TEMPORARY CUL-DE-SAC EASEMENT	WMK	WATER MARKER
TEMP. ESMT.	TEMPORARY EASEMENT	WMT	WATER METER
TRAIL ESMT.	TRAIL\PATH EASEMENT	WVL	WATER VALVE
U.E.	UTILITY EASEMENT	EW	EXISTING WATER LINE
W.E.	WATER EASEMENT	W	PROPOSED WATER LINE
F.Y.S	FRONT YARD SETBACK		
R.Y.S.	REAR YARD SETBACK		
S.Y.S.	SIDE YARD SETBACK		
CONTOURS			
-100-	EXISTING INDEX CONTOURS		
-100-	EXISTING INTERMEDIATE CONTOURS		
-100-	PROPOSED INDEX CONTOURS		
-100-	PROPOSED INTERMEDIATE CONTOURS		

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NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION
1	2020.07.22	REVISIONS PER CITY COMMENTS

GENERAL NOTES  
PUBLIC STREET IMPROVEMENT PLANS

NW LEE'S SUMMIT ROAD & NE DOUGLAS STREET

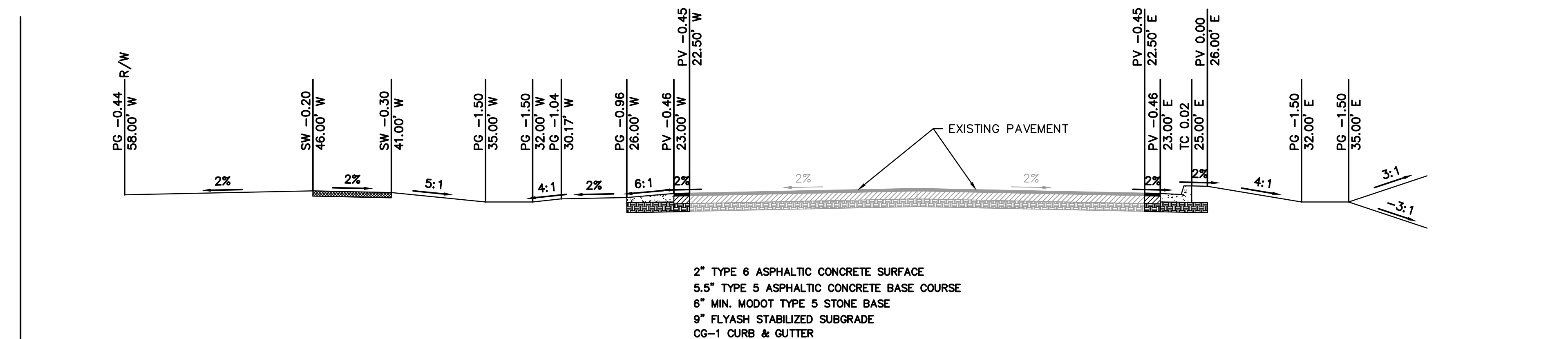
LEE'S SUMMIT, MO

drawn by: M.J.D.  
 checked by: N.D.H.  
 designed by: M.J.D.  
 QA/QC by: N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12

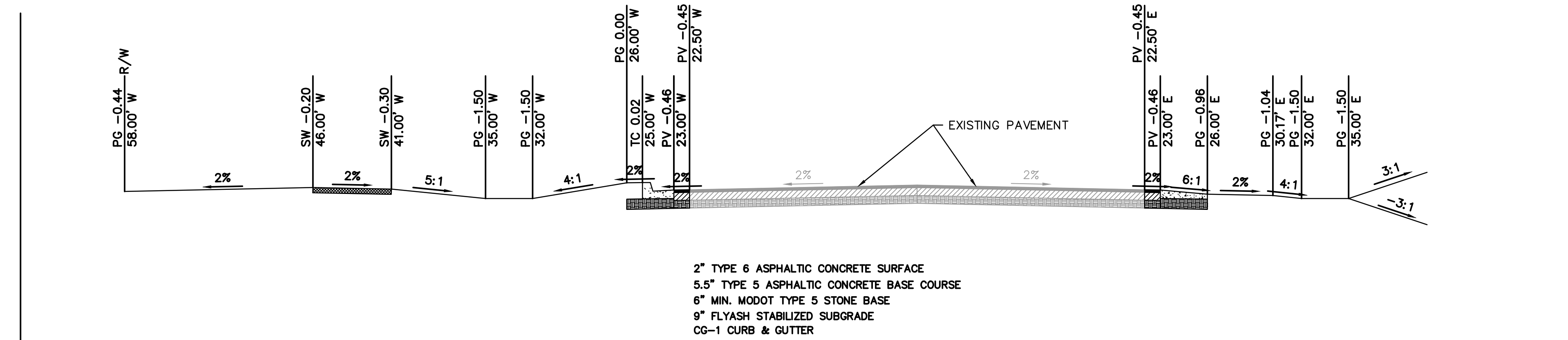
**SHEET**  
C2



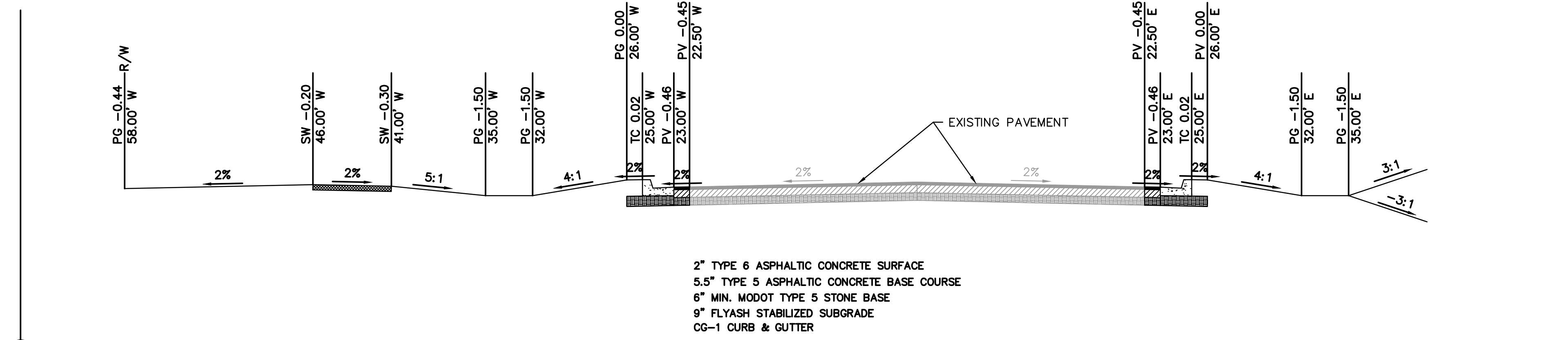
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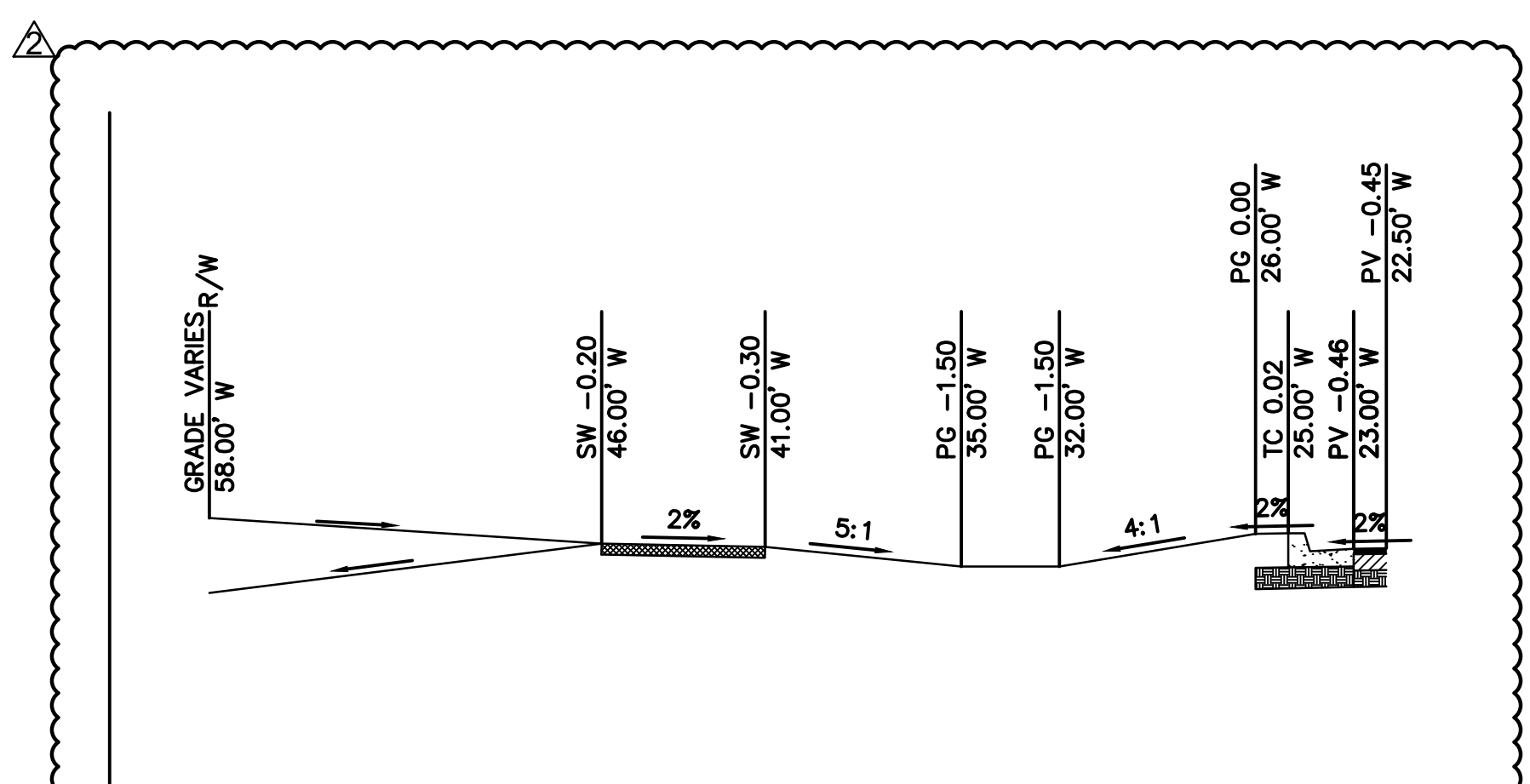
SCALE: N.T.S.  
1 NW LEE'S SUMMIT RD AND NE DOUGLAS ST  
WITH CURB CUTS ON WEST SIDE



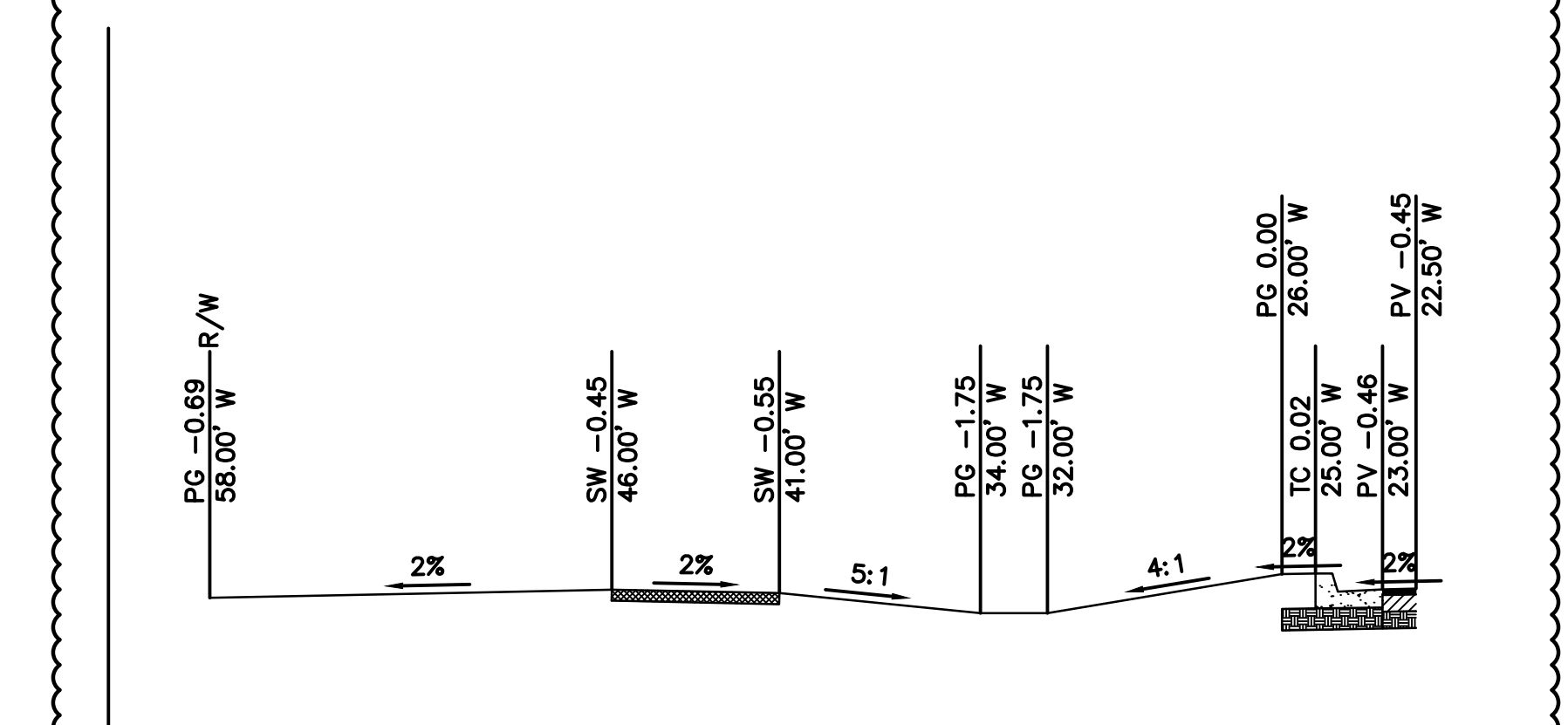
SCALE: N.T.S.  
2 NW LEE'S SUMMIT RD AND NE DOUGLAS ST  
WITH CURB CUTS ON EAST SIDE



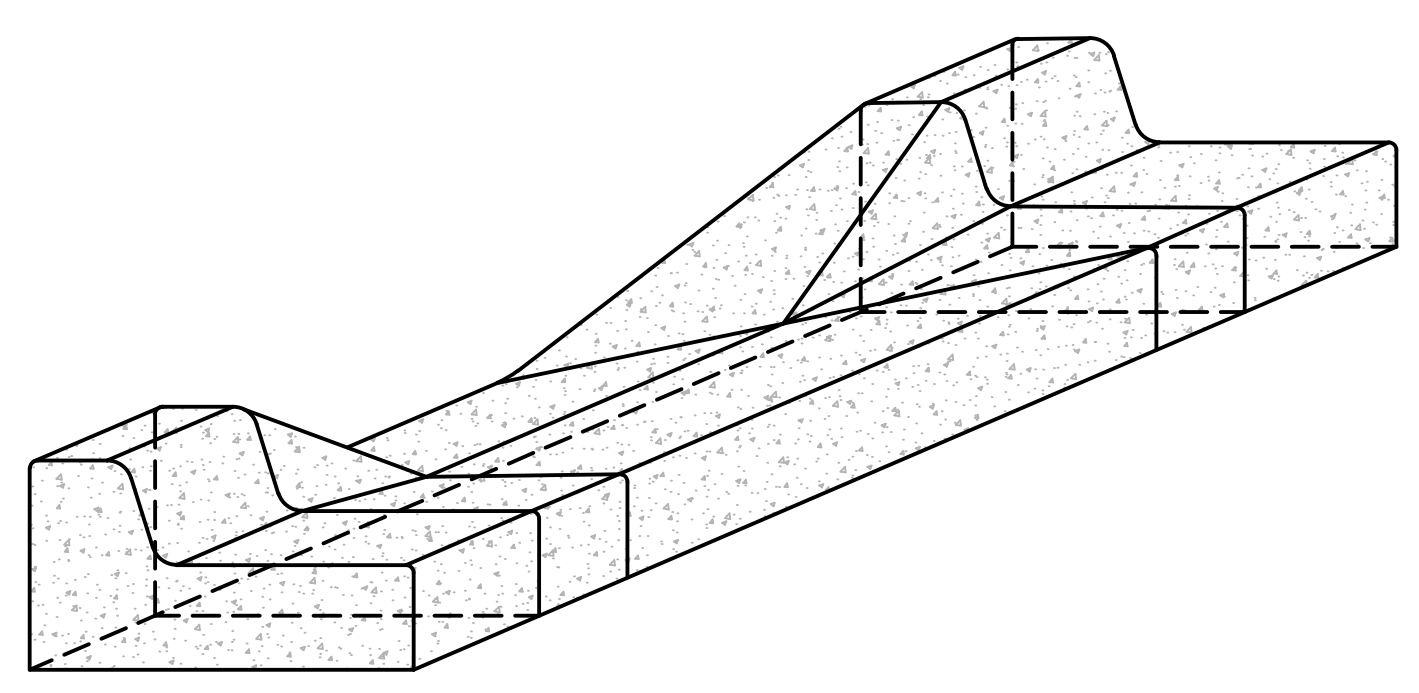
SCALE: N.T.S.  
3 NW LEE'S SUMMIT RD AND NE DOUGLAS ST  
WITHOUT CURB CUTS



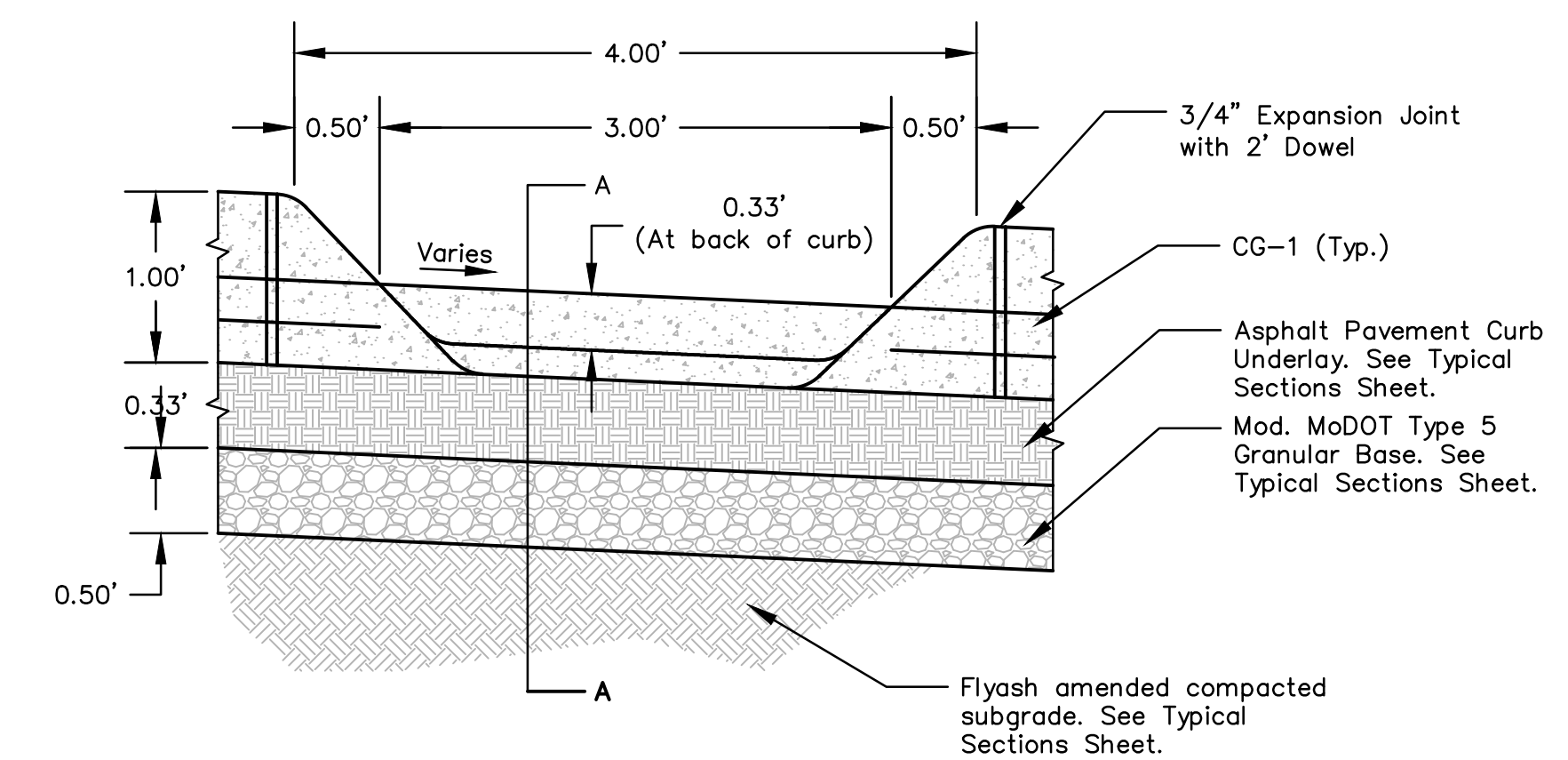
SCALE: N.T.S.  
4 NW LEE'S SUMMIT RD AND NE DOUGLAS ST  
WEST SIDE STA: 10+00 TO 16+40



SCALE: N.T.S.  
5 NW LEE'S SUMMIT RD AND NE DOUGLAS ST  
WEST SIDE STA: 18+75 TO 21+20

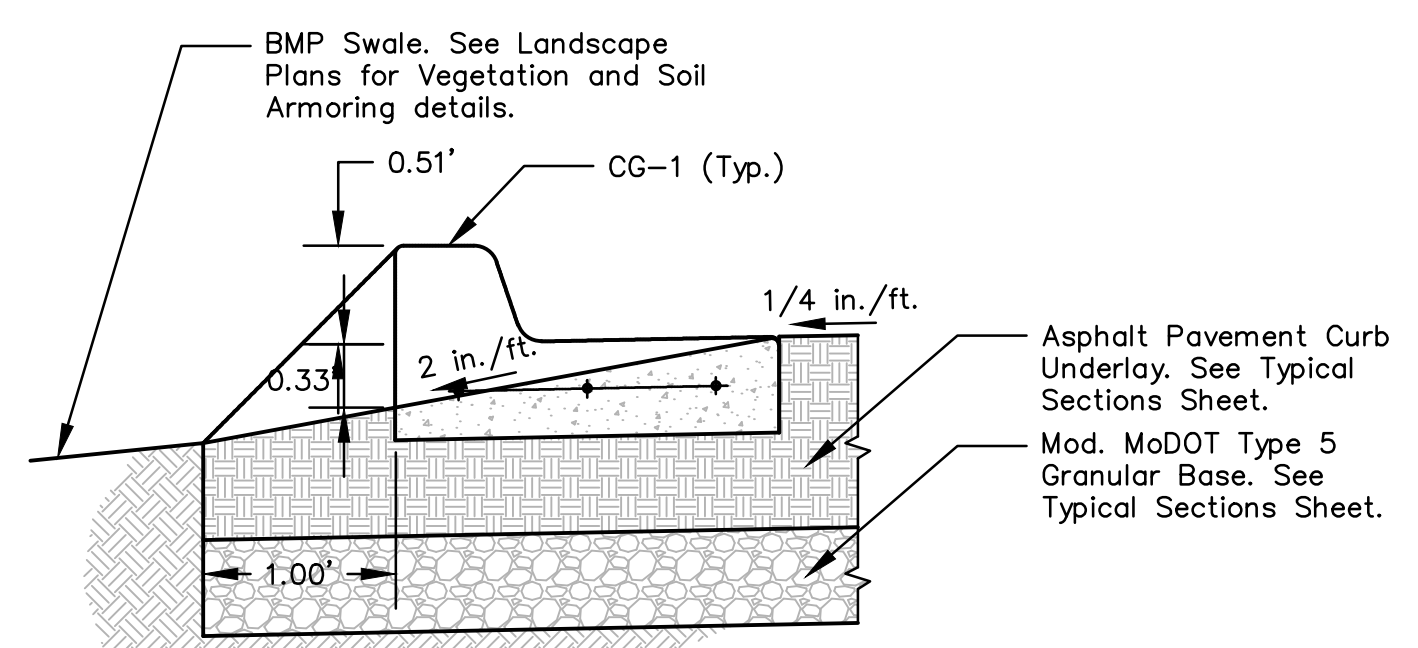


Isometric View

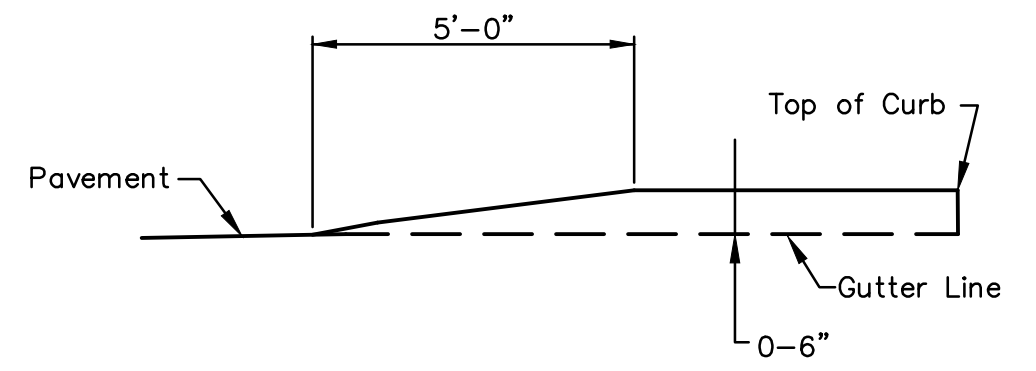


- CURB CUT NOTES:**
- 3/4" EXPANSION JOINTS WITH 2' EPOXY-COATED DOWELS SHALL BE PLACED AT EITHER SIDE OF CURB CUT. THESE DOWELS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
  - FIX DOWELS WITH BAR CHAIRS OR EQUAL.
  - CONCRETE SHALL CONFORM TO KCMMB 4K UNLESS OTHERWISE SPECIFIED IN PLANS AND PROJECT MANUAL. SEE SECTION 2300 OF STANDARD SPECIFICATIONS AND DESIGN CRITERIA.

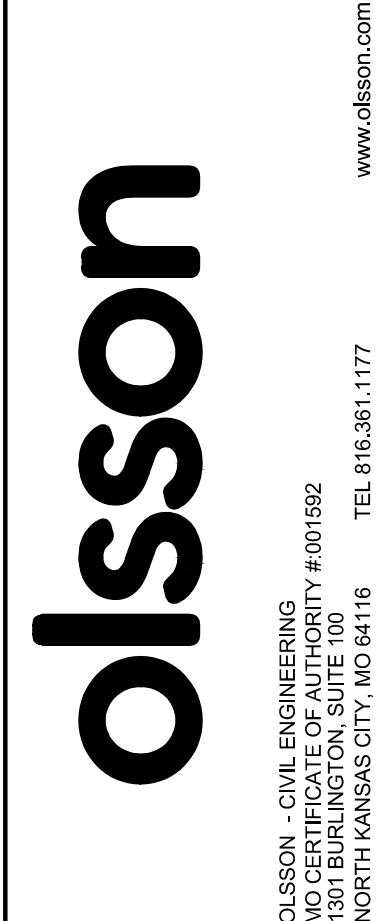
CURB CUT DETAIL  
N.T.S.



Section A-A



CURB TERMINUS DETAIL  
N.T.S.



NICHOLAS D. HEISER, P.E.  
MO# 2015000555

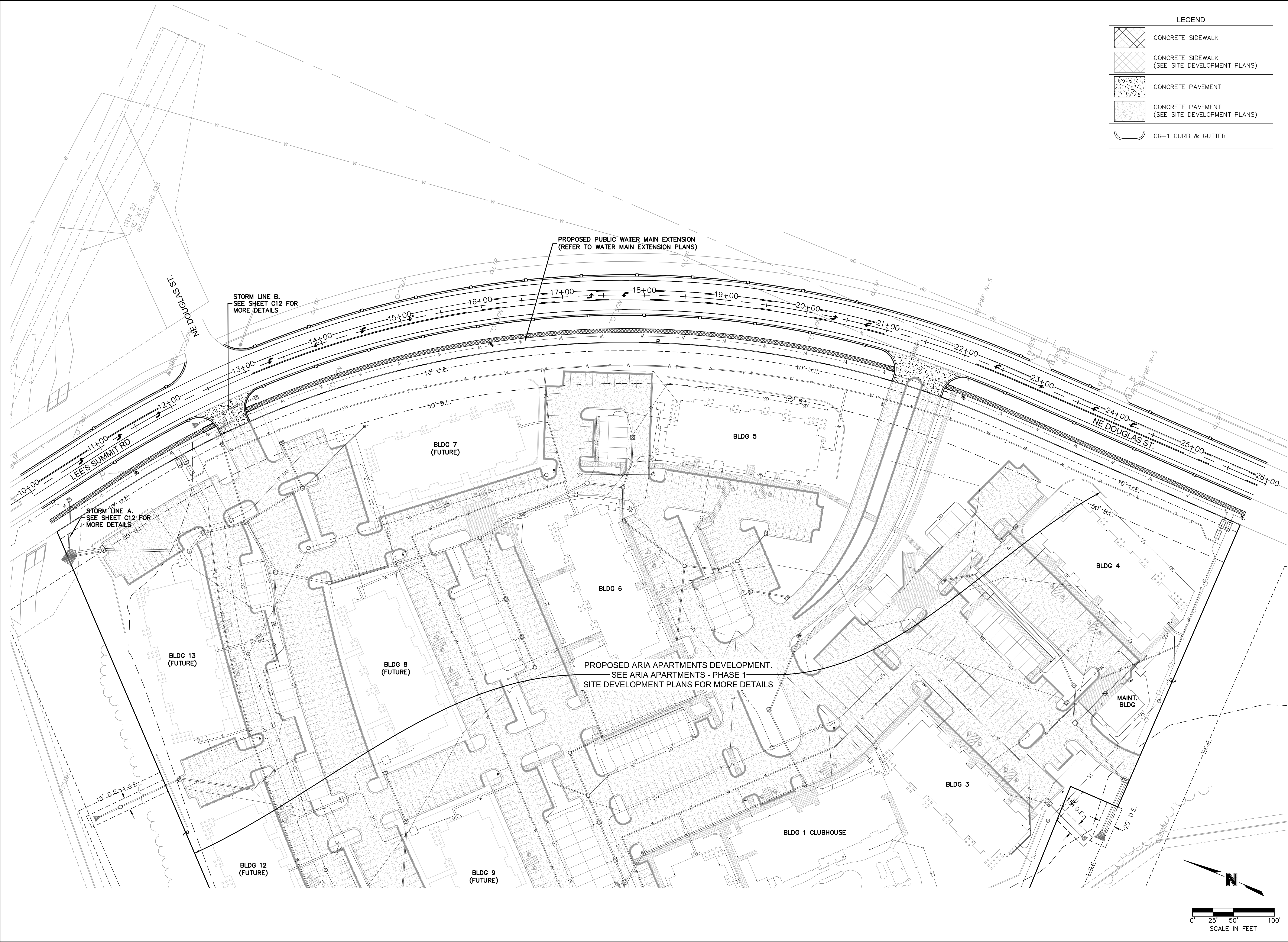
NO. REV.	DATE	REVISIONS DESCRIPTION
1	2020.07.22	CURB TERMINUS DETAIL ADDED
2	2021.02.04	ADDITIONAL TYPICAL SECTIONS ADDED

TYPICAL SECTIONS  
PUBLIC STREET IMPROVEMENT PLANS  
NW LEE'S SUMMIT ROAD &  
NE DOUGLAS STREET  
LEE'S SUMMIT, MO  
2020

SHEET  
C3



File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\Public\_Street\_Improvements\C\_GEN02\_B190012.dwg ~ Layout: GENERAL LAYOUT ~ Last Saved By: mdebolt ~ Plot Date: 2019.10.01 03:03 PM



LEGEND	
	CONCRETE SIDEWALK
	CONCRETE SIDEWALK (SEE SITE DEVELOPMENT PLANS)
	CONCRETE PAVEMENT
	CONCRETE PAVEMENT (SEE SITE DEVELOPMENT PLANS)
	CG-1 CURB & GUTTER

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NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO.	REV.	DATE	REVISIONS DESCRIPTION
1		2020.07.22	REVISED PER CITY COMMENTS

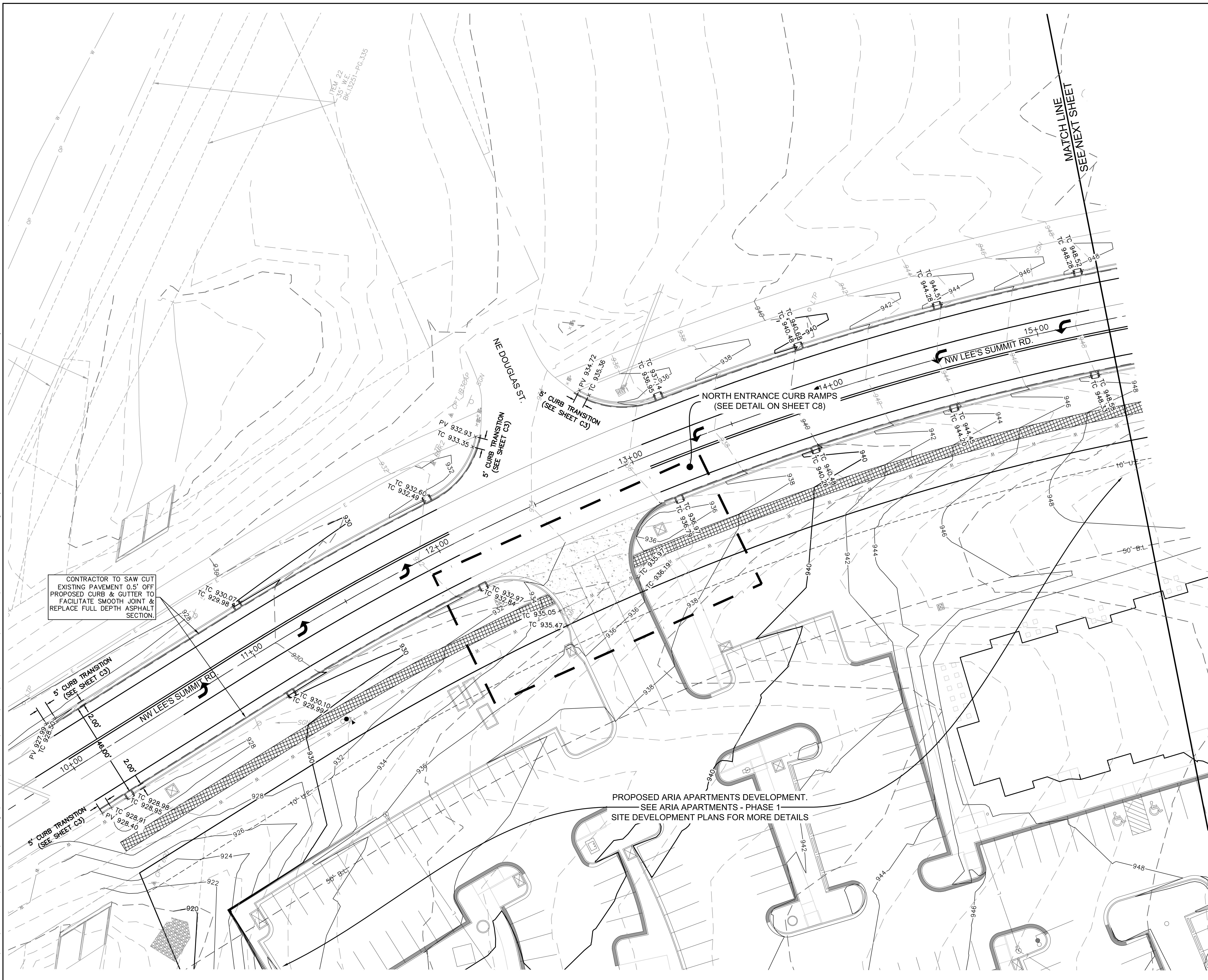
GENERAL LAYOUT  
 PUBLIC STREET IMPROVEMENT PLANS  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET  
 LEE'S SUMMIT, MO  
 2020

SHEET  
 C4

drawn by: M.J.D.  
 checked by: N.D.H.  
 designed by: M.J.D.  
 QA/QC by: N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12



File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Streets\_Improvements\C\_SPT01\_B190012.dwg ~ Layout: SITE AND GRADING PLAN ~ Last Saved By: mdeibolt ~ Plot Date: 2019.10.01 03:03 PM



CONTRACTOR TO SAW CUT EXISTING PAVEMENT 0.5' OFF PROPOSED CURB & GUTTER TO FACILITATE SMOOTH JOINT & REPLACE FULL DEPTH ASPHALT SECTION

PROPOSED ARIA APARTMENTS DEVELOPMENT. SEE ARIA APARTMENTS - PHASE 1 SITE DEVELOPMENT PLANS FOR MORE DETAILS

MATCH LINE SEE NEXT SHEET



NICHOLAS D. HEISER, P.E.  
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION
1	2020.07.22	CURB TRANSITIONS ADDED

BY: \_\_\_\_\_  
 REVISIONS  
 SITE AND GRADING PLAN  
 PUBLIC STREET IMPROVEMENT PLANS  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET  
 LEE'S SUMMIT, MO  
 2020

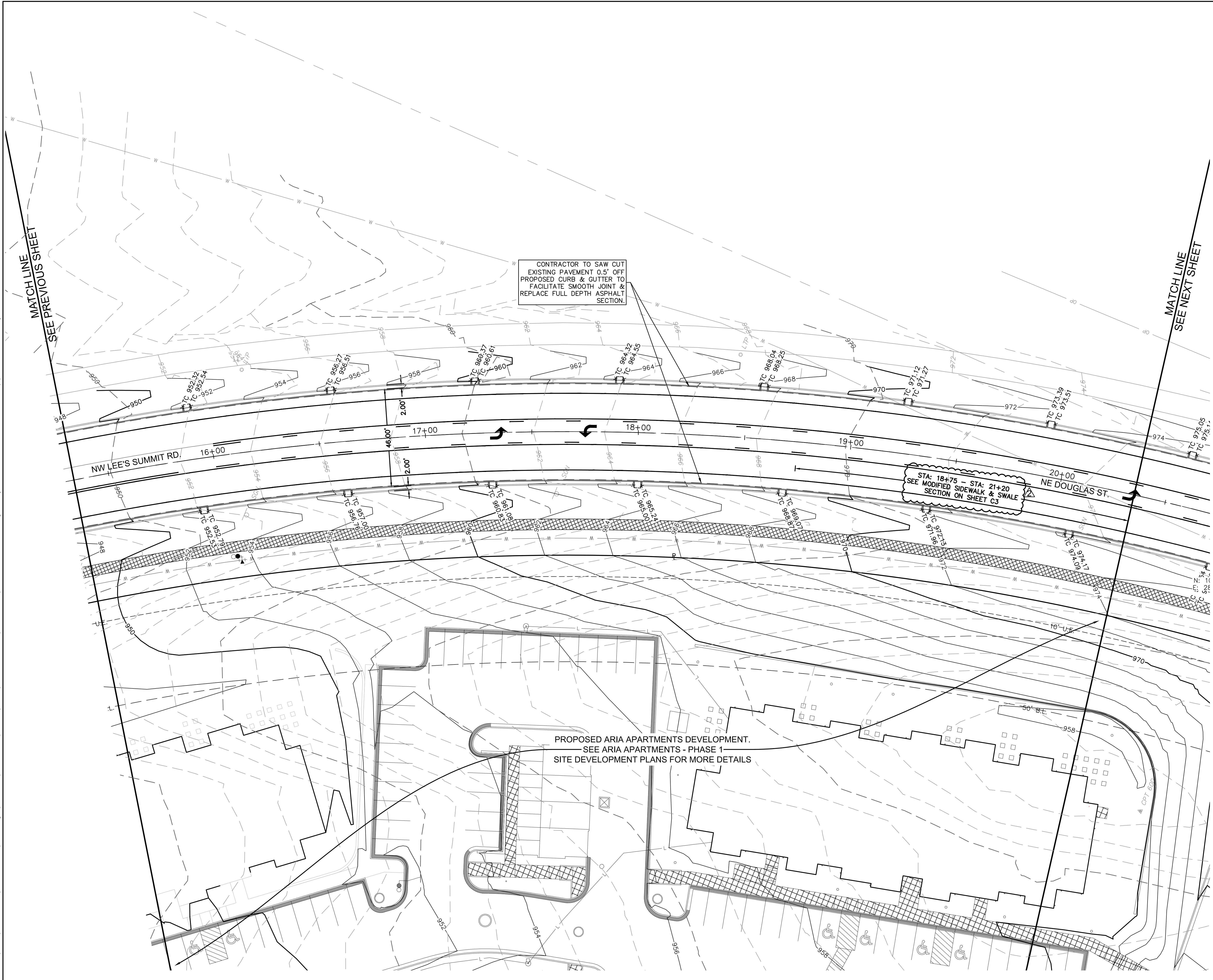
drawn by: \_\_\_\_\_ M.J.D.  
 checked by: \_\_\_\_\_ N.D.H.  
 designed by: \_\_\_\_\_ M.J.D.  
 QA/QC by: \_\_\_\_\_ N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12

SHEET C5

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File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCA\Public\_Street\_Improvements\C\_SPT01\_B190012.dwg ~ Layout: SITE AND GRADING PLAN (2) ~ Last Saved By: mdielbol ~ Plot Date: 2019.10.01 03:03 PM



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NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION
1	2020.07.22	REVISED PER CITY COMMENTS
2	2021.02.04	MODIFIED SWALE AND SIDEWALK SECTION STA. 18+75 TO 21+20

**SITE AND GRADING PLAN**  
**PUBLIC STREET IMPROVEMENT PLANS**  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET

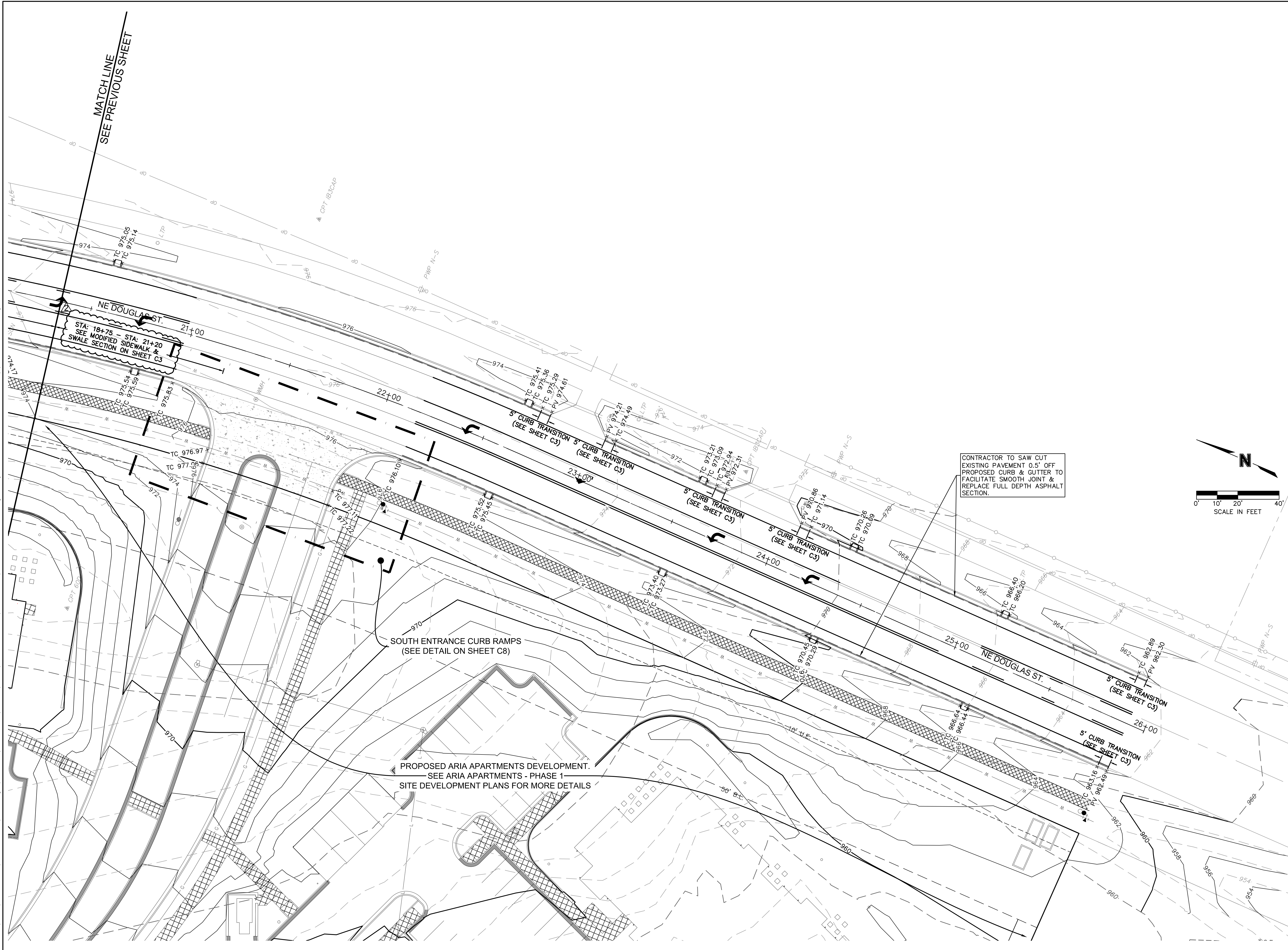
2020

drawn by: \_\_\_\_\_ M.J.D.  
 checked by: \_\_\_\_\_ N.D.H.  
 designed by: \_\_\_\_\_ M.J.D.  
 QA/QC by: \_\_\_\_\_ N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12

**SHEET**  
**C6**



File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Improvements\C\_SPT01\_B190012.dwg ~ Layout: SITE AND GRADING PLAN (3) ~ Last Saved By: mdiebol ~ Plot Date: 2019.10.01 03:03 PM



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NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO.	REV.	DATE	REVISIONS DESCRIPTION
1		2020.07.22	CURB TRANSITIONS ADDED
2		2021.02.04	MODIFIED SWALE AND SIDEWALK SECTION STA. 18+75 TO 21+20

**SITE AND GRADING PLAN**  
**PUBLIC STREET IMPROVEMENT PLANS**  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET

2020

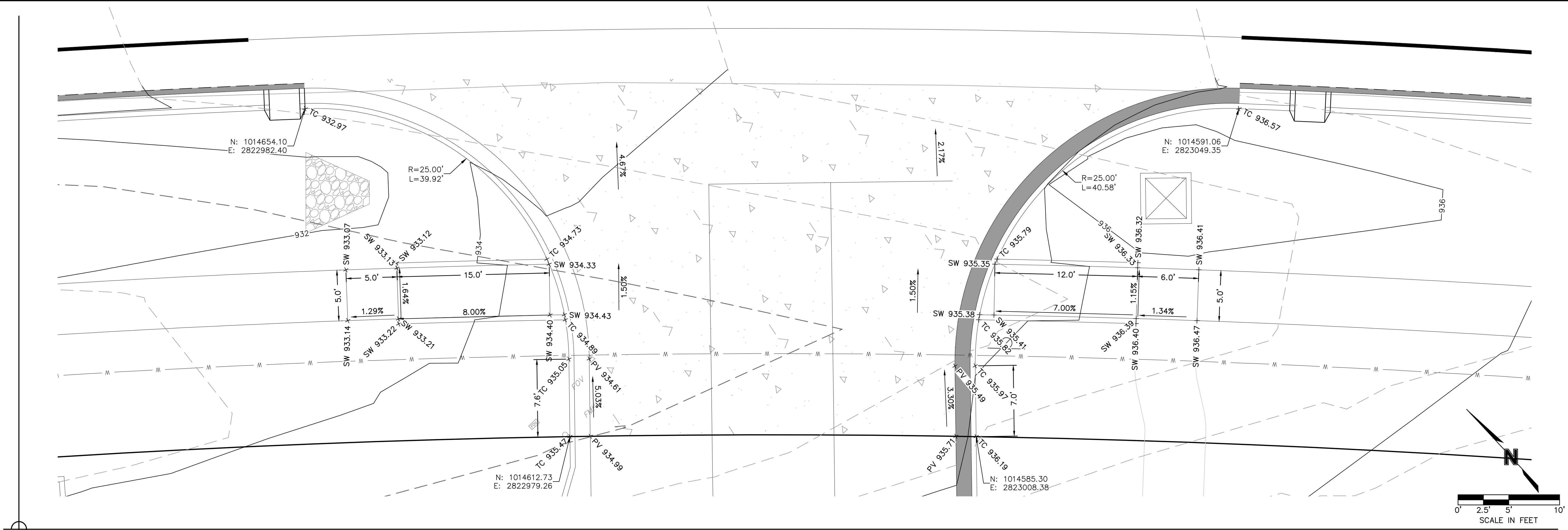
LEE'S SUMMIT, MO

drawn by:	M.J.D.	checked by:	N.D.H.
designed by:	M.J.D.	QA/QC by:	N.D.H.
project no.:	019-0012-B	date:	2020.06.12

**SHEET C7**

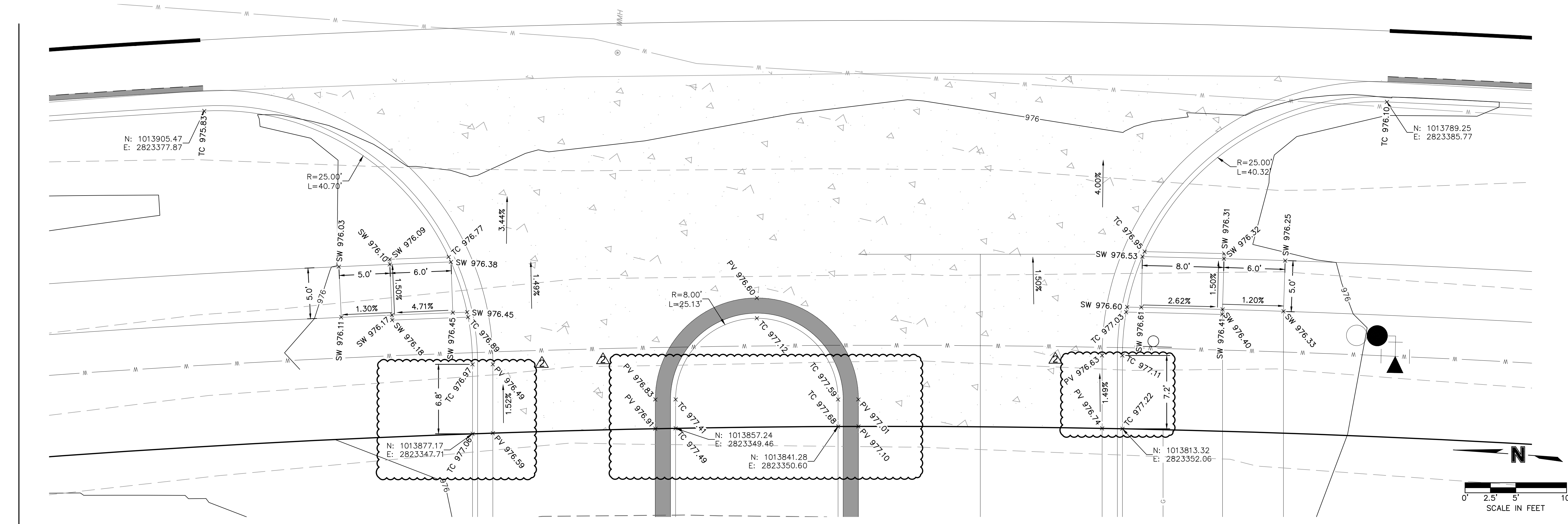


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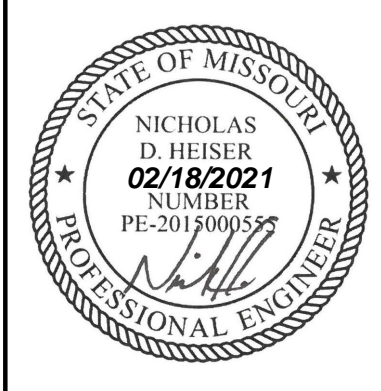
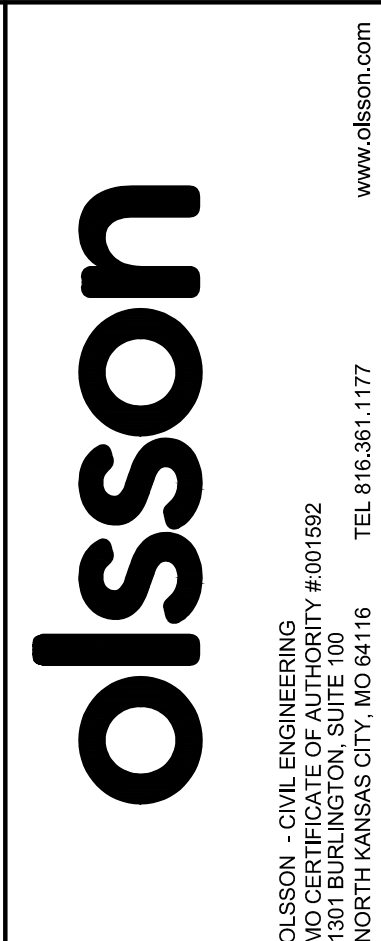


1 NORTH ENTRANCE CURB RAMP DETAILS

CONSTRUCTION LEGEND	
	CC-1 CURB & GUTTER (See Detail Sheet)
	CC-1 DRY CURB & GUTTER (See Detail Sheet)



2 SOUTH ENTRANCE CURB RAMP DETAILS



NICHOLAS D. HEISER, P.E.  
MO# 2015000555

NO.	REV.	DATE	REVISIONS DESCRIPTION
1		2020.07.22	DETECTABLE WARNINGS REMOVED FROM CURB RAMPS
2		2021.02.04	REVISED SOUTH ENTRANCE GRADING

SPOT ELEVATION DETAILS		2020
PUBLIC STREET IMPROVEMENT PLANS		
NW LEE'S SUMMIT ROAD & NE DOUGLAS STREET		
LEE'S SUMMIT, MO		

SHEET C8

drawn by: M.J.D.  
checked by: N.D.H.  
designed by: M.J.D.  
QA/QC by: N.D.H.  
project no.: 019-0012-B  
date: 2020.06.12



File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Public\_Street\_Improvements\C\_SW01\_B190012.dwg ~ Layout: SWALE\_PLAN ~ Last Saved By: mdebolt ~ Plot Date: 2019.10.01 03:03 PM

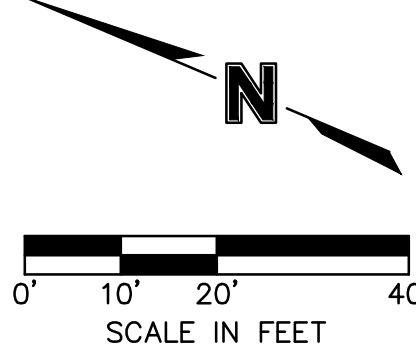
Swale Design Table (100 Year Return Frequency)														
Section Data							Flow Data							
SECTION	Mannings Coefficient	Channel Slope (%)	Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft <sup>2</sup> )	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft <sup>2</sup> )
A-A	0.03	2.00%	1.50	3:1	3:1	3.00	3.12	0.30	1.17	2.67	4.90	4.80	0.41	0.30
B-B	0.03	5.50%	1.50	3:1	3:1	3.00	12.22	0.48	2.13	5.73	6.04	5.88	0.99	1.21
F-F	0.03	2.00%	1.50	3:1	3:1	3.00	13.84	0.67	3.36	4.12	7.24	7.02	0.93	0.58
G-G	0.03	6.00%	1.50	3:1	3:1	3.00	8.92	0.40	1.68	5.31	5.53	5.40	0.84	1.14

Swale Drainage Area Table (100 year Return Frequency)						
Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
A-A	0.33	0.74	5.00	10.32	1.25	3.12
B-B	1.78	0.53	5.00	10.32	1.25	12.22
F-F	1.77	0.61	5.00	10.32	1.25	13.84
G-G	1.12	0.62	5.00	10.32	1.25	8.92

**LEGEND**  
 --- DRAINAGE BOUNDARY



PROPOSED ARIA APARTMENTS DEVELOPMENT.  
 SEE ARIA APARTMENTS - PHASE 1  
 SITE DEVELOPMENT PLANS FOR MORE DETAILS



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NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	2020.07.22	REVISED PER CITY COMMENTS	

SWALE PLAN  
 PUBLIC STREET IMPROVEMENT PLANS  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET  
 LEE'S SUMMIT, MO 2020

SHEET  
 C9

drawn by: M.J.D.  
 checked by: N.D.H.  
 designed by: M.J.D.  
 QA/QC by: N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12



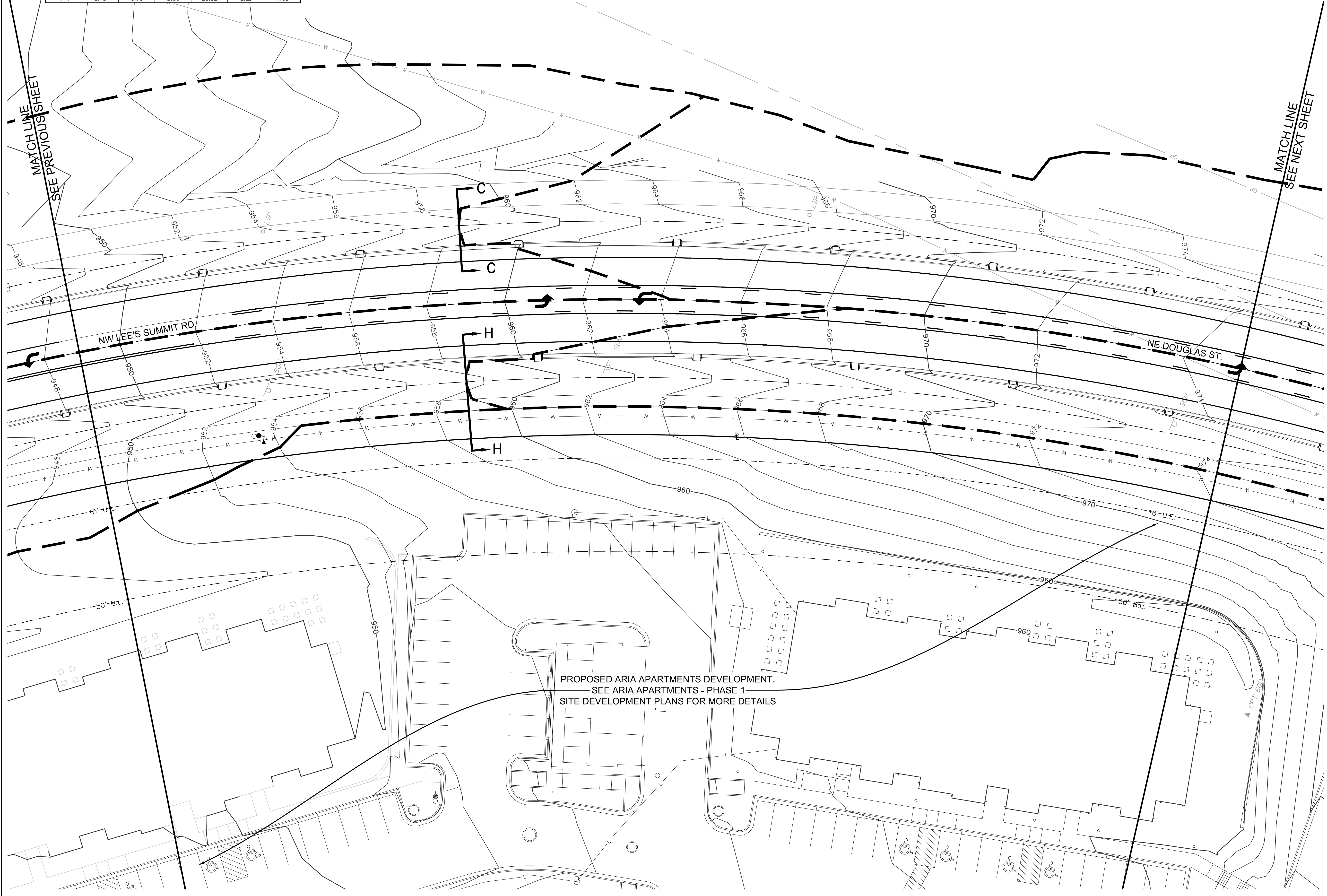
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Swale Design Table (100 Year Return Frequency)														
SECTION	Section Data						Flow Data							
	Mannings Coefficient	Channel Slope (%)	Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft <sup>2</sup> )	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft <sup>2</sup> )
C-C	0.03	6.00%	1.50	3:1	3:1	3.00	5.68	0.31	1.22	4.66	4.96	4.86	0.65	0.92
H-H	0.03	6.00%	1.50	3:1	3:1	3.00	4.03	0.26	0.98	4.10	4.64	4.56	0.52	0.79

Swale Drainage Area Table (100 Year Return Frequency)						
Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
C-C	0.77	0.57	5.00	10.32	1.25	5.68
H-H	0.45	0.70	5.00	10.32	1.25	4.03

**LEGEND**

--- DRAINAGE BOUNDARY



PROPOSED ARIA APARTMENTS DEVELOPMENT.  
SEE ARIA APARTMENTS - PHASE 1  
SITE DEVELOPMENT PLANS FOR MORE DETAILS

MATCHLINE SEE PREVIOUS SHEET

MATCHLINE SEE NEXT SHEET

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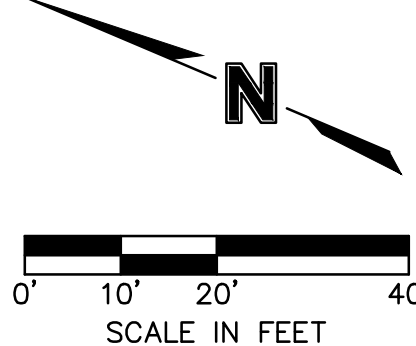


NICHOLAS D. HEISER, P.E.  
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION
1	2020.07.22	REVISED PER CITY COMMENTS

SWALE PLAN  
PUBLIC STREET IMPROVEMENT PLANS  
NW LEE'S SUMMIT ROAD &  
NE DOUGLAS STREET  
LEE'S SUMMIT, MO

SHEET C10



drawn by: M.J.D.  
checked by: N.D.H.  
designed by: M.J.D.  
QA/QC by: N.D.H.  
project no.: 019-0012-B  
date: 2020.06.12

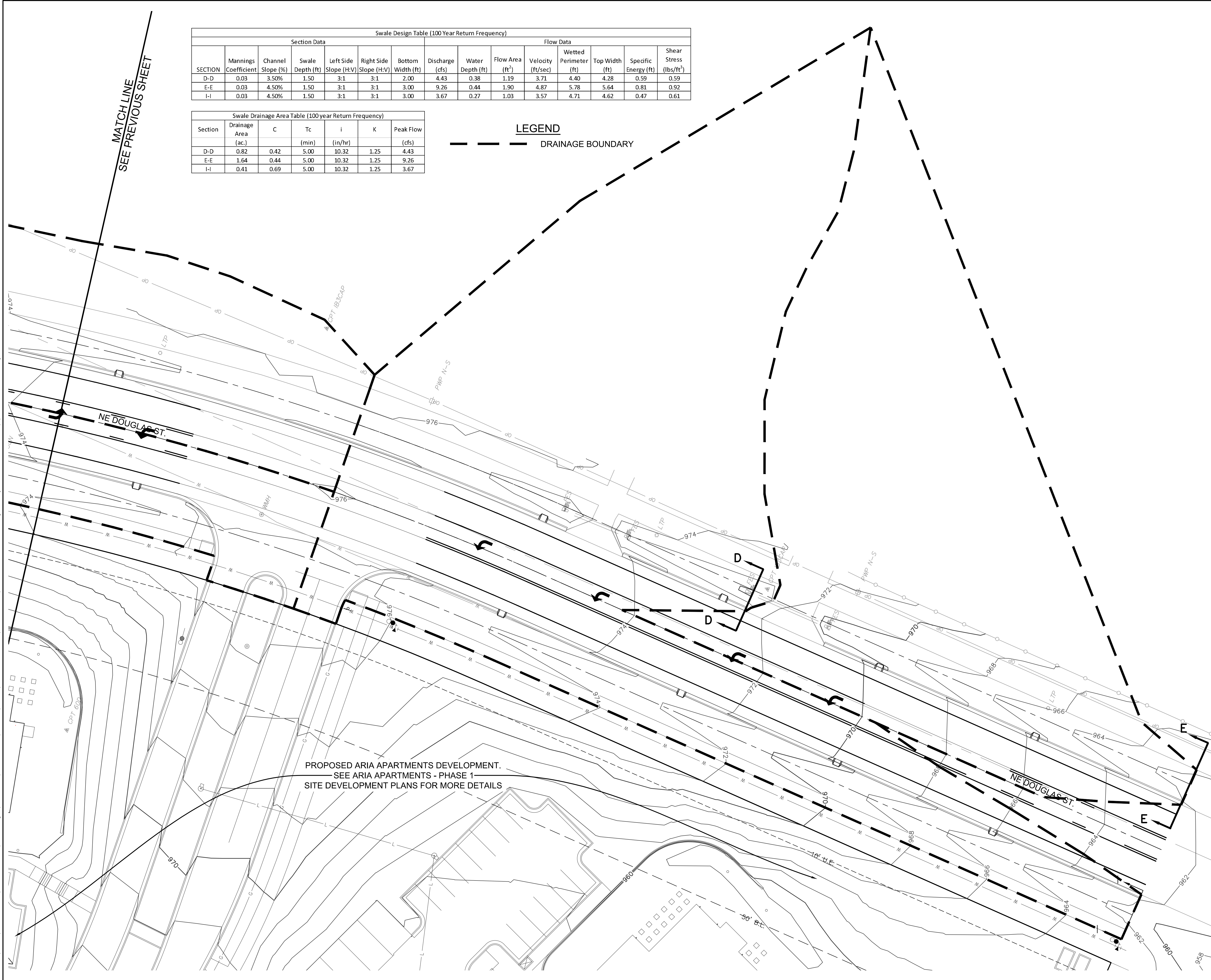


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Section Data							Flow Data							
SECTION	Manning's Coefficient	Channel Slope (%)	Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft <sup>2</sup> )	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft <sup>2</sup> )
D-D	0.03	3.50%	1.50	3:1	3:1	2.00	4.43	0.38	1.19	3.71	4.40	4.28	0.59	0.59
E-E	0.03	4.50%	1.50	3:1	3:1	3.00	9.26	0.44	1.90	4.87	5.78	5.64	0.81	0.92
I-I	0.03	4.50%	1.50	3:1	3:1	3.00	3.67	0.27	1.03	3.57	4.71	4.62	0.47	0.61

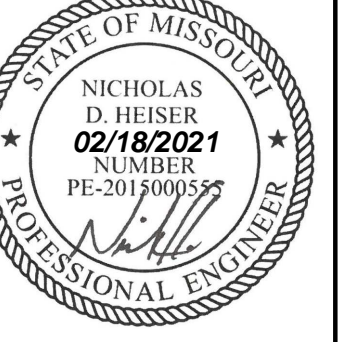
Swale Drainage Area Table (100 year Return Frequency)						
Section	Drainage Area (ac.)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
D-D	0.82	0.42	5.00	10.32	1.25	4.43
E-E	1.64	0.44	5.00	10.32	1.25	9.26
I-I	0.41	0.69	5.00	10.32	1.25	3.67

**LEGEND**  
 - - - - - DRAINAGE BOUNDARY



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NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION
1	2020.07.22	REVISED PER CITY COMMENTS

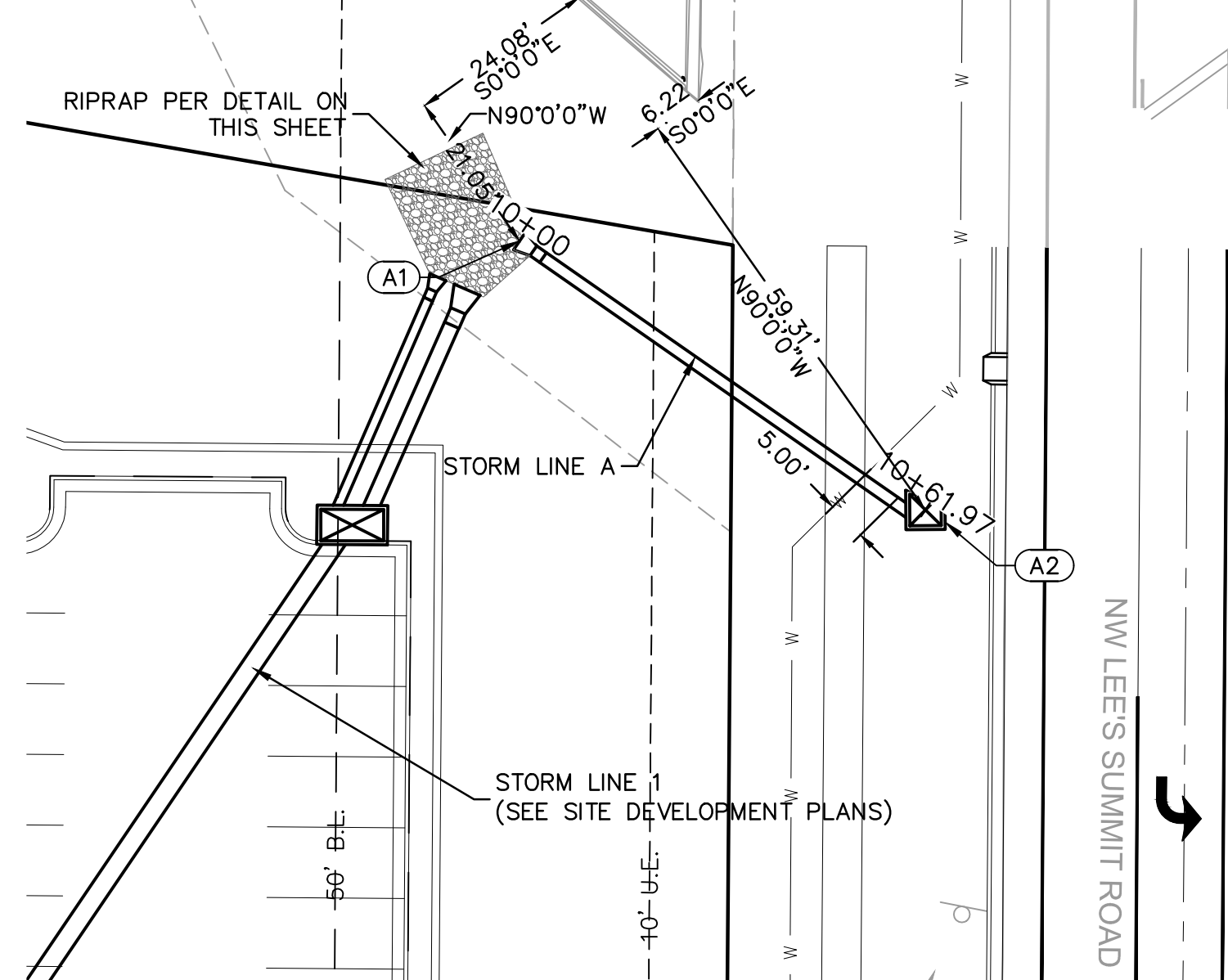
SWALE PLAN  
 PUBLIC STREET IMPROVEMENT PLANS  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET  
 LEE'S SUMMIT, MO  
 2020

SHEET  
 C11

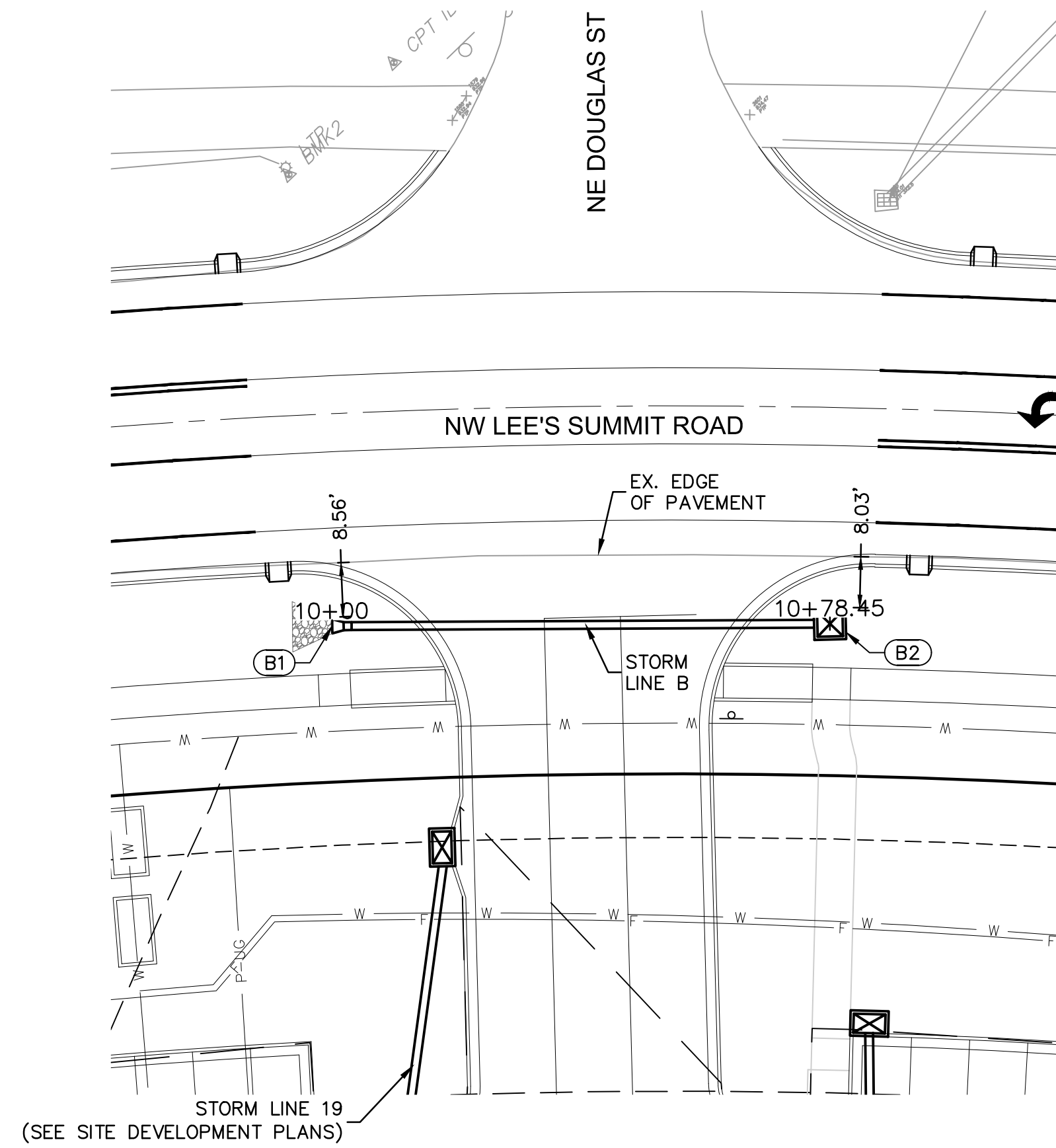
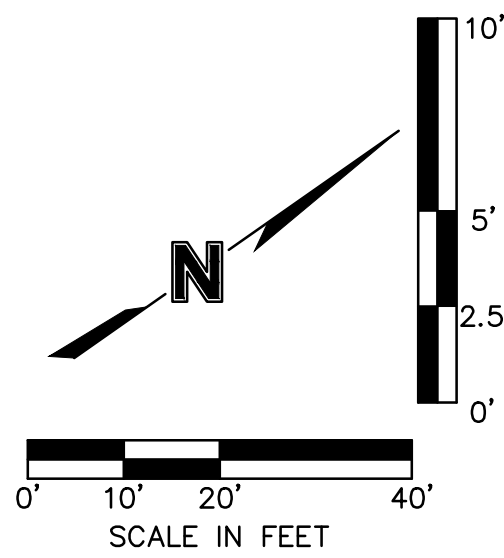
drawn by: M.J.D.  
 checked by: N.D.H.  
 designed by: M.J.D.  
 QA/QC by: N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12



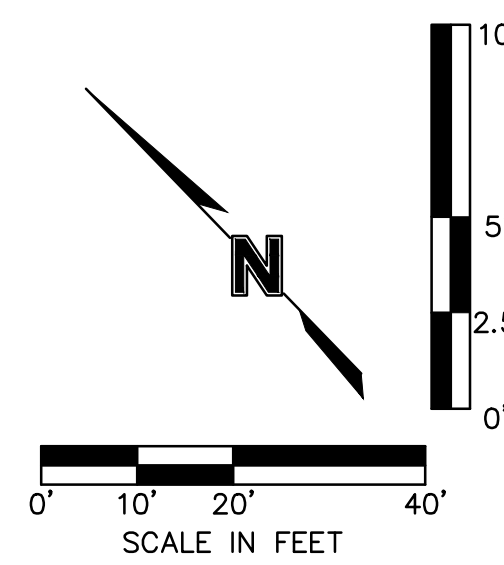
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STRUCTURES	
ID	DESCRIPTION
A1	10+00 STORM LINE A 15" FES N: 1014731.851; E: 2822779.030
A2	10+61.97 STORM LINE A 4' X 4' FIELD INLET N: 1014754.543; E: 2822836.700



STRUCTURES	
ID	DESCRIPTION
B1	10+00 STORM LINE B 15" FES N: 1014643.754; E: 2822981.341
B2	10+78.45 STORM LINE B 4' X 4' FIELD INLET N: 1014589.555; E: 2823038.061



Drainage Area Design Table						
100 Year Return Frequency						
Inlet ID	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
A2	1.77	0.61	5.00	10.32	1.25	13.93
B2	1.12	0.61	5.00	10.32	1.25	8.82

Inlet Design Table													
100 Year Return Frequency													
Inlet ID	Inlet Location	Peak Flow (cfs)	Upstream Bypass (cfs)	Total Flow (cfs)	Clogging Factor	Inlet Capacity (cfs)	Sag Inlet Capacity (Note 1) (cfs)	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
A2	SAG	13.93	0.00	13.93	0.80	39.60	31.68	13.93	0.00	100.00%	...	...	0.50
B2	SAG	8.82	0.00	8.82	0.80	39.60	31.68	8.82	0.00	100.00%	...	...	0.37

Notes:  
 1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600. Both theoretical capacity and reduced capacity are shown.  
 2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity.

Storm Sewer Design Calculation Table													
100 Year Return Frequency													
Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
A2	A1	61.97	919.93	919.00	1.50	18	0.012	13.93	8.98	13.94	1.38	921.31	928.38
B2	B1	78.45	932.40	931.50	1.15	15	0.012	8.96	7.22	7.32	1.25	934.01	934.71

Drainage Area Design Table						
50 Year Return Frequency						
Inlet ID	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
A2	1.77	0.61	5.00	9.40	1.20	12.17
B2	1.12	0.61	5.00	9.40	1.20	7.70

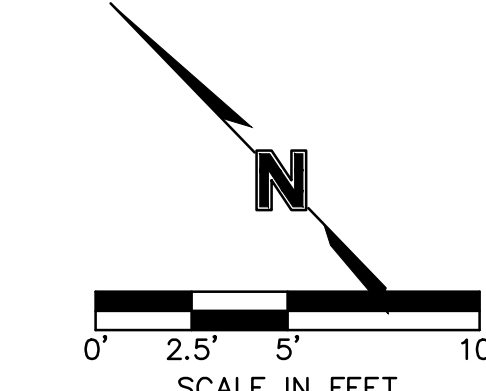
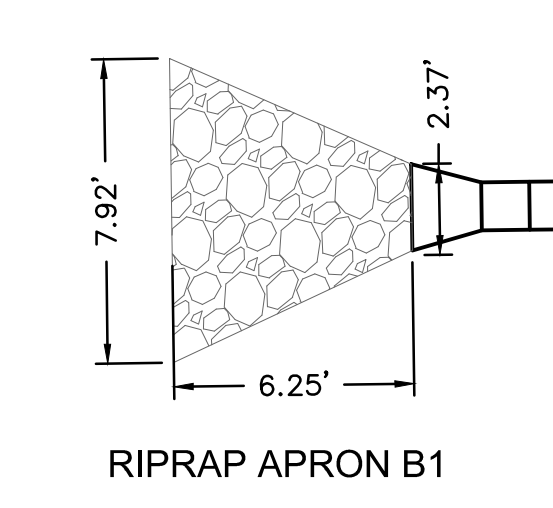
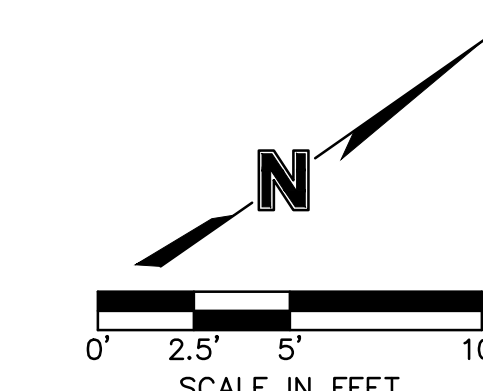
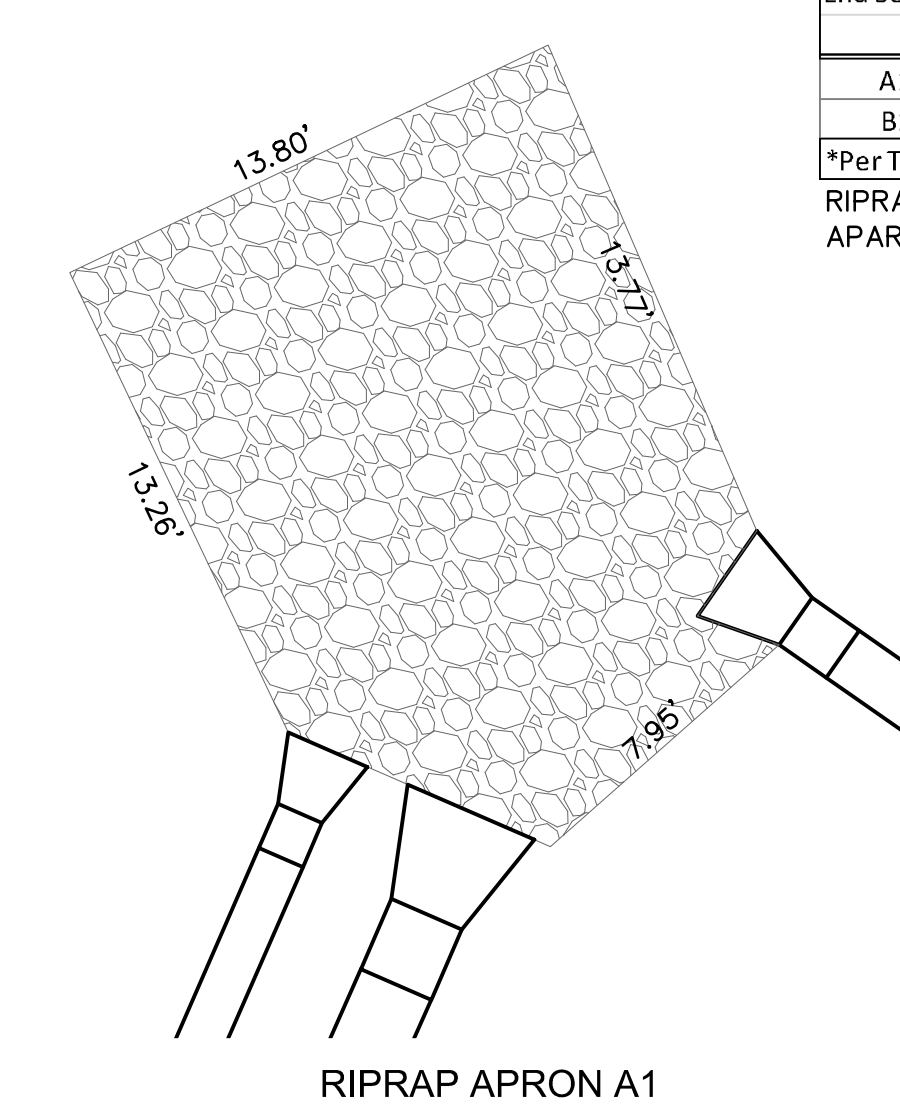
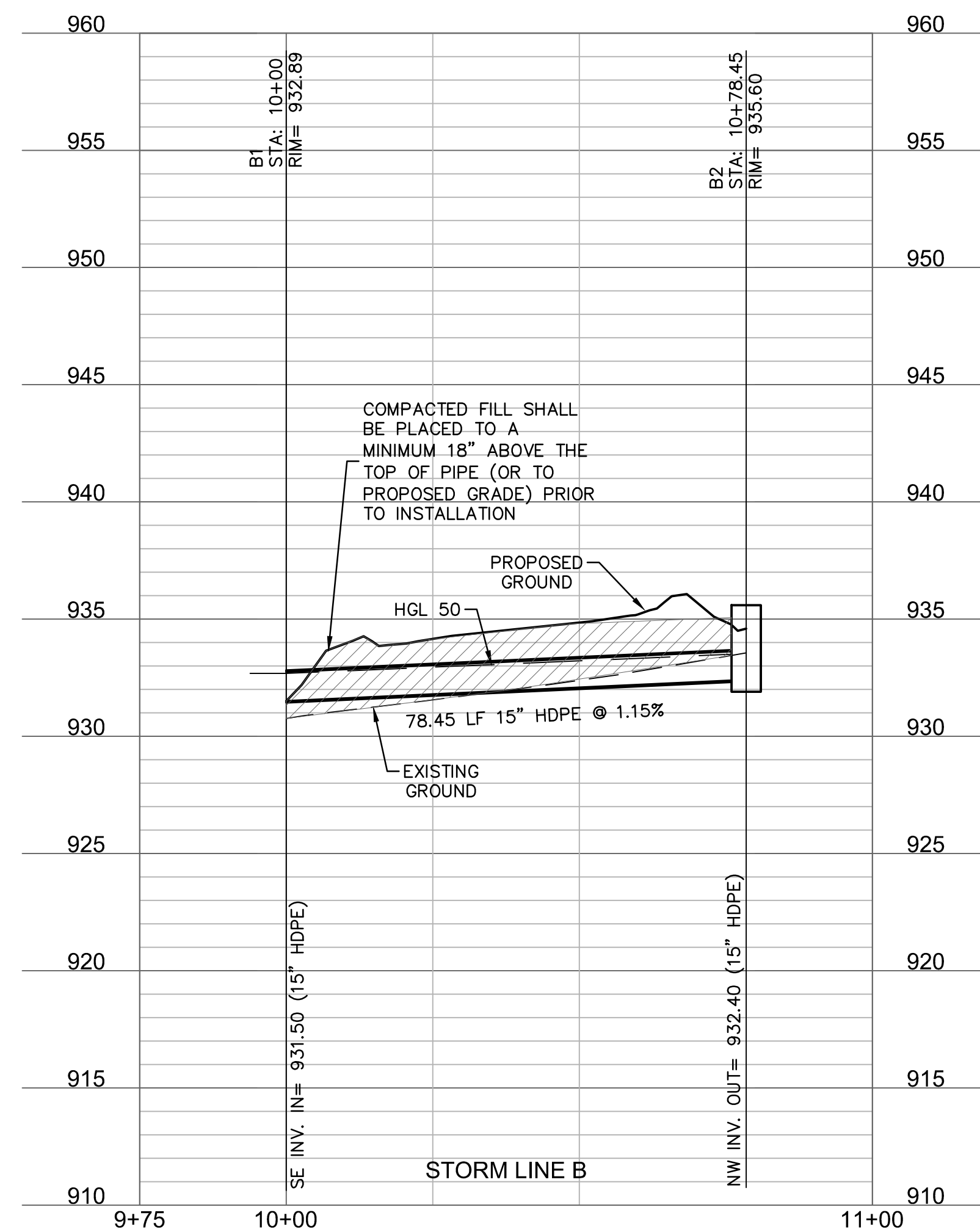
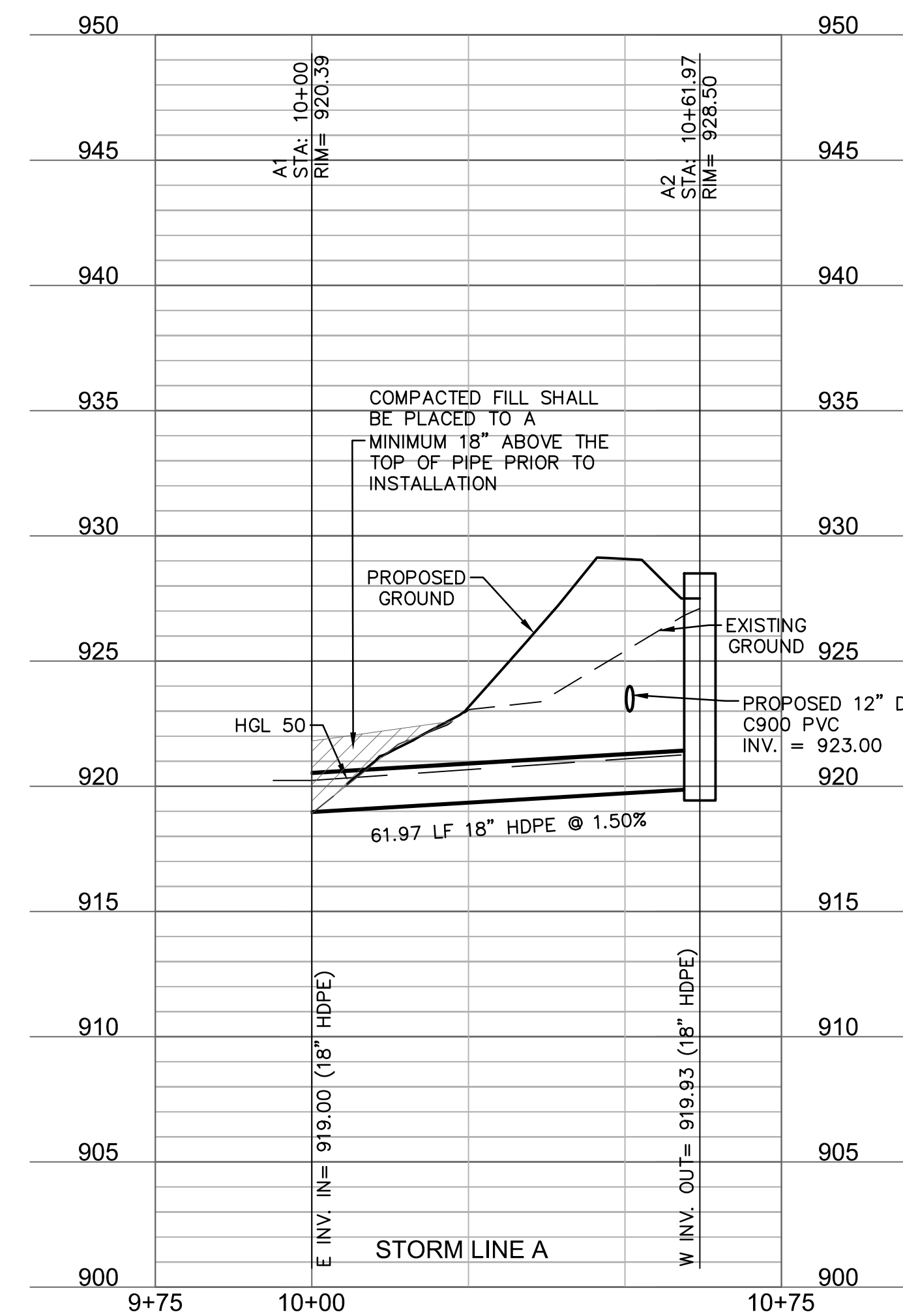
Inlet Design Table													
50 Year Return Frequency													
Inlet ID	Inlet Location	Peak Flow (cfs)	Upstream Bypass (cfs)	Total Flow (cfs)	Clogging Factor	Inlet Capacity (cfs)	Sag Inlet Capacity (Note 1) (cfs)	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
A2	SAG	12.17	0.00	12.17	0.80	39.60	31.68	12.17	0.00	100.00%	...	...	0.46
B2	SAG	7.70	0.00	7.70	0.80	39.60	31.68	7.70	0.00	100.00%	...	...	0.34

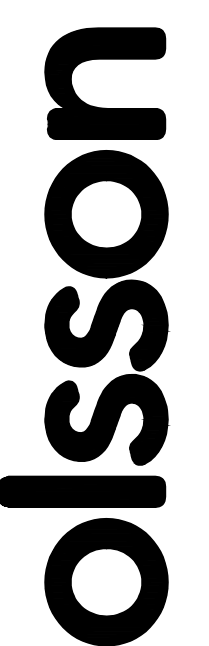
Notes:  
 1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600. Both theoretical capacity and reduced capacity are shown.  
 2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity.

Storm Sewer Design Calculation Table													
50 Year Return Frequency													
Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
A2	A1	61.97	919.93	919.00	1.50	18	0.012	12.17	7.85	13.94	1.32	921.25	928.38
B2	B1	78.45	932.40	931.50	1.15	15	0.012	7.70	6.42	7.49	1.22	933.50	934.71


End Section	Q <sub>100</sub> (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
A1	13.93	1.5	4	14	18.9	2.57	22.2
B1	8.82	1.25	3	10	6.25	2.00	4.1

\*Per Table 10.1 HEC-14-FHWA-Energy Dissipators Pg. 10-18  
 RIPRAP APRON A1 IS THE COMBINATION OF ES A1 AND 1-1 (FROM ARIA APARTMENTS PRIVATE SITE PLANS)





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NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO.	REV.	DATE	DESCRIPTION
1		2020.07.22	REVISED PER CITY COMMENTS

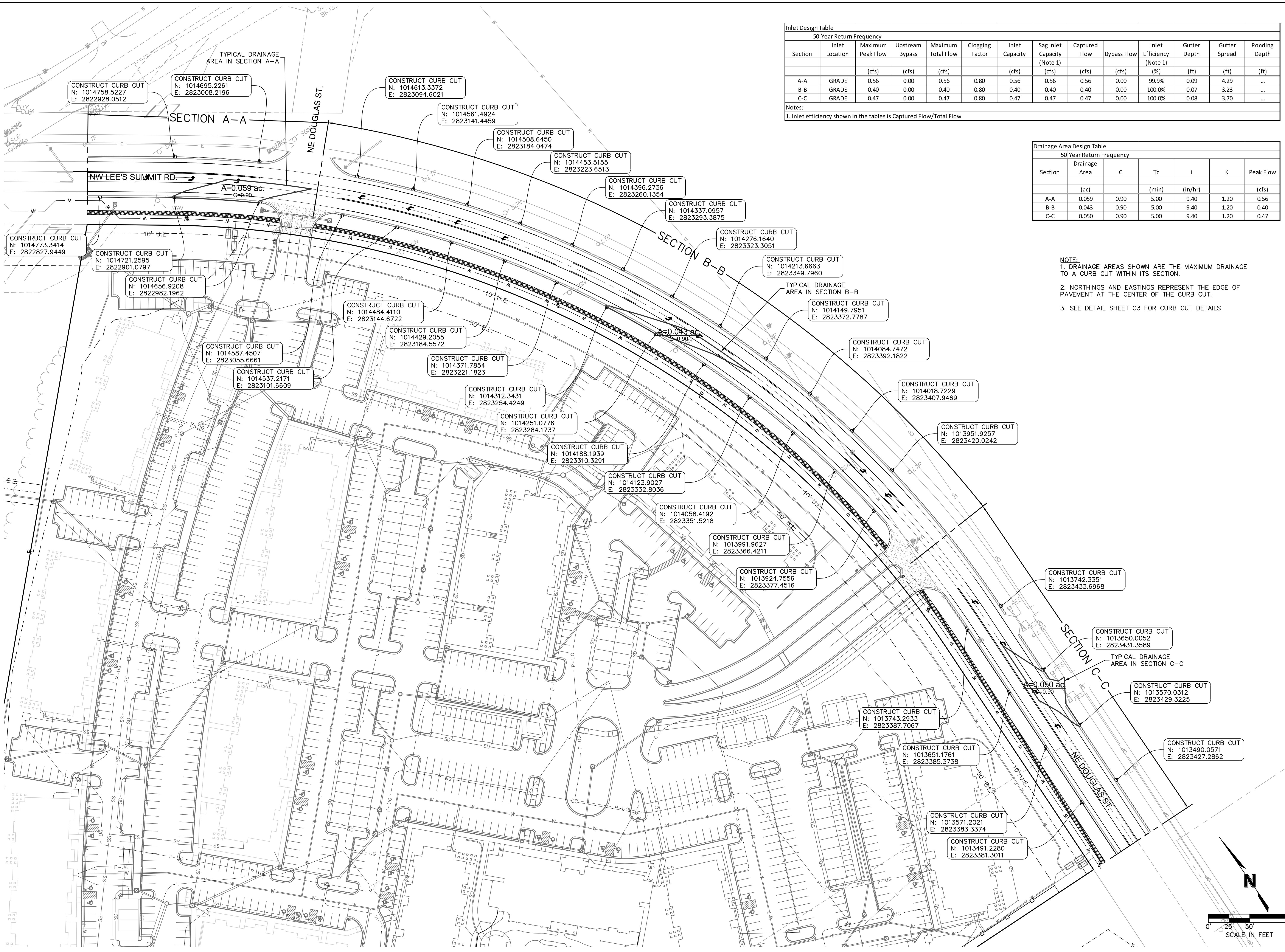
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 PUBLIC STREET IMPROVEMENT PLANS  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET  
 LEE'S SUMMIT, MO

2020

SHEET  
C12



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**Inlet Design Table**  
50 Year Return Frequency

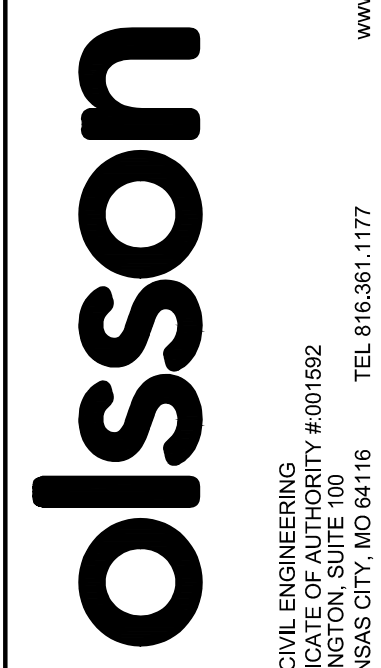
Section	Inlet Location	Maximum Peak Flow (cfs)	Upstream Bypass (cfs)	Maximum Total Flow (cfs)	Clogging Factor	Inlet Capacity (cfs)	Sag Inlet Capacity (Note 1) (cfs)	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 1) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
A-A	GRADE	0.56	0.00	0.56	0.80	0.56	0.56	0.56	0.00	99.9%	0.09	4.29	...
B-B	GRADE	0.40	0.00	0.40	0.80	0.40	0.40	0.40	0.00	100.0%	0.07	3.23	...
C-C	GRADE	0.47	0.00	0.47	0.80	0.47	0.47	0.47	0.00	100.0%	0.08	3.70	...

Notes:  
1. Inlet efficiency shown in the tables is Captured Flow/Total Flow

**Drainage Area Design Table**  
50 Year Return Frequency

Section	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
A-A	0.059	0.90	5.00	9.40	1.20	0.56
B-B	0.043	0.90	5.00	9.40	1.20	0.40
C-C	0.050	0.90	5.00	9.40	1.20	0.47

NOTE:  
1. DRAINAGE AREAS SHOWN ARE THE MAXIMUM DRAINAGE TO A CURB CUT WITHIN ITS SECTION.  
2. NORTHINGS AND EASTINGS REPRESENT THE EDGE OF PAVEMENT AT THE CENTER OF THE CURB CUT.  
3. SEE DETAIL SHEET C3 FOR CURB CUT DETAILS



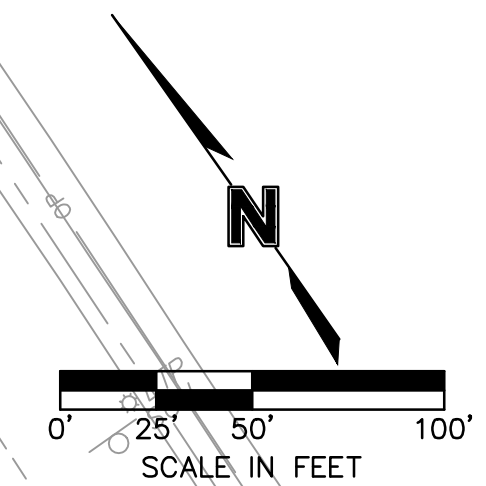
NICHOLAS D. HEISER, P.E.  
MO# 2015000555

NO.	REV.	DATE	REVISION DESCRIPTION
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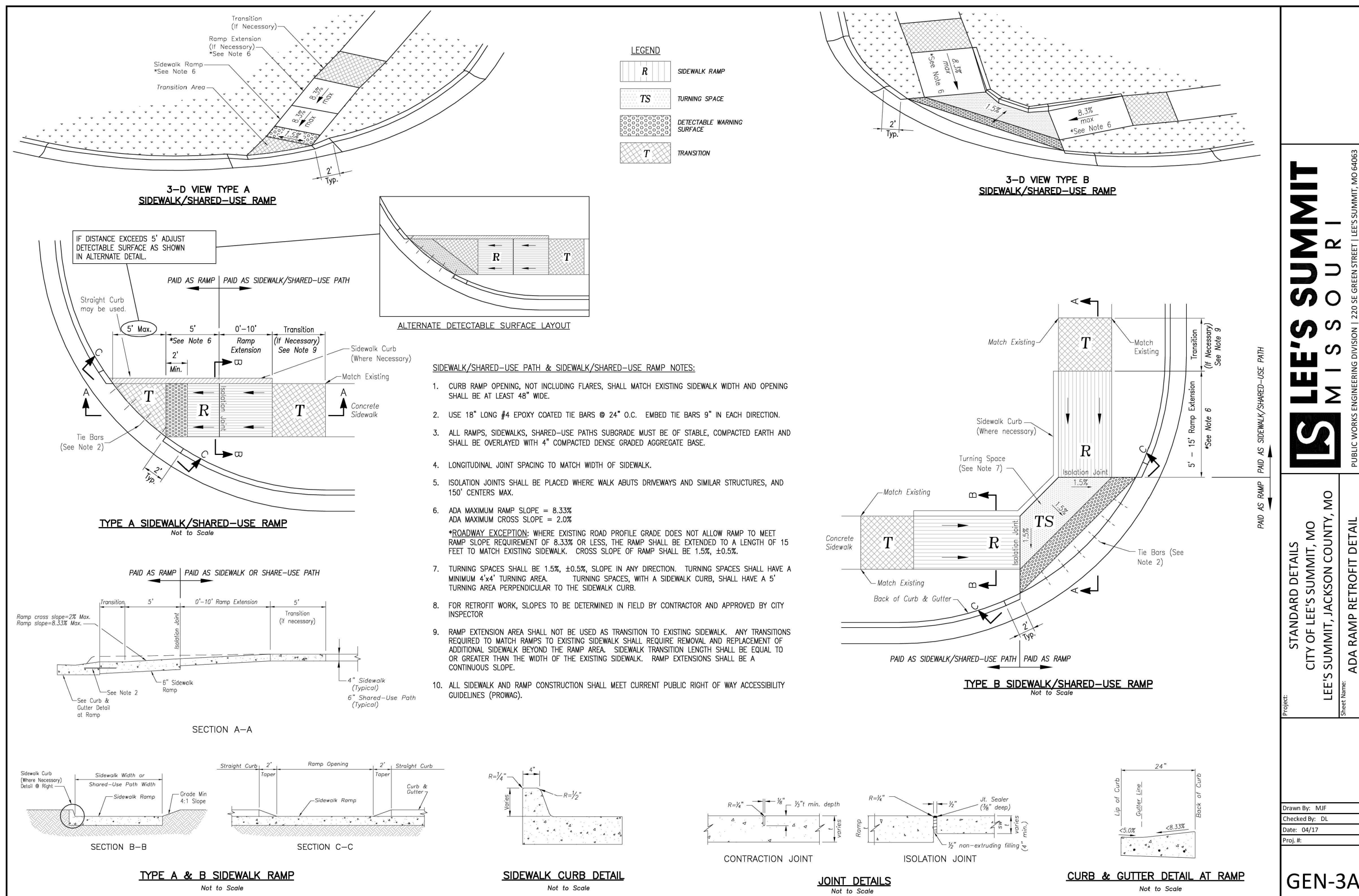
CURB CUT PLAN  
PUBLIC STREET IMPROVEMENT PLANS  
NW LEE'S SUMMIT ROAD &  
NE DOUGLAS STREET  
LEE'S SUMMIT, MO  
2020

SHEET C13

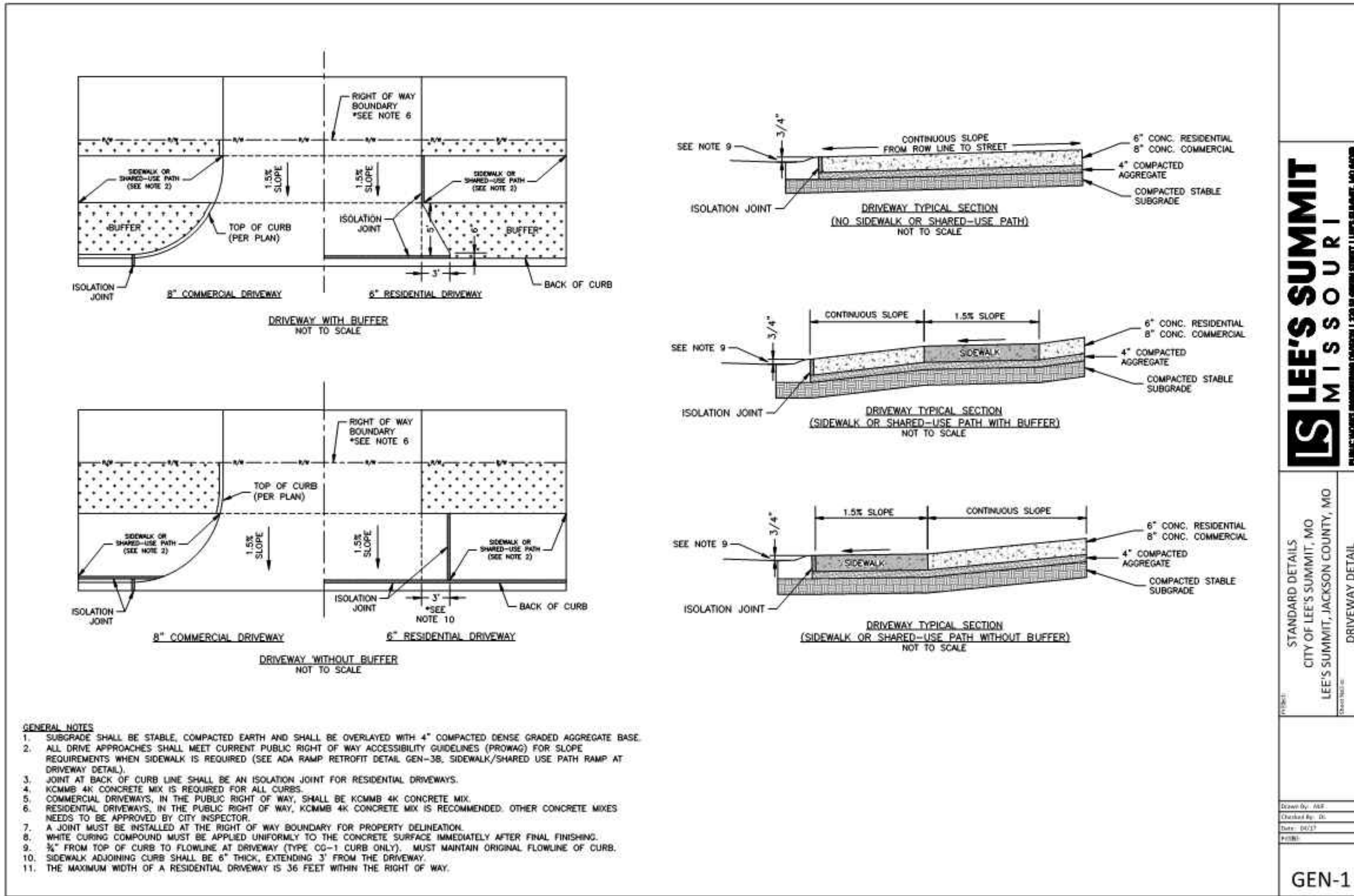
drawn by: M.J.D.  
checked by: N.D.H.  
designed by: M.J.D.  
QA/QC by: N.D.H.  
project no.: 019-0012-B  
date: 2020.06.12



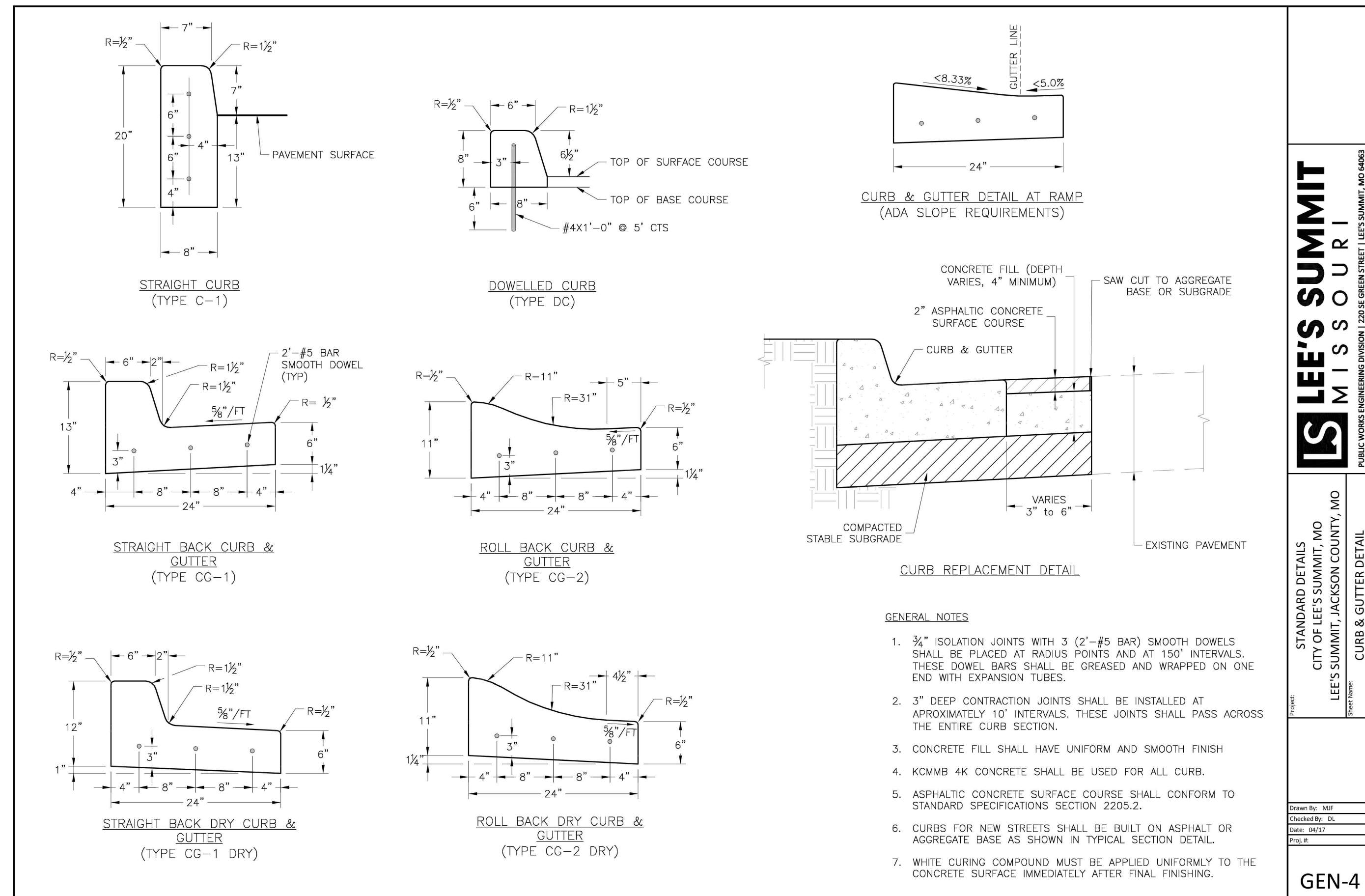




**LEE'S SUMMIT MISSOURI**  
 STANDARD DETAILS  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO  
 ADA RAMP RETROFIT DETAIL  
 GEN-3A



**LEE'S SUMMIT MISSOURI**  
 STANDARD DETAILS  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO  
 DRIVEWAY DETAIL  
 GEN-1



**LEE'S SUMMIT MISSOURI**  
 STANDARD DETAILS  
 CITY OF LEE'S SUMMIT, MO  
 LEE'S SUMMIT, JACKSON COUNTY, MO  
 CURB & GUTTER DETAIL  
 GEN-4

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STATE OF MISSOURI  
 NICHOLAS D. HEISER  
 NUMBER: 02/18/2021  
 PE-2015000555  
 PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

NO.	REV.	DATE	REVISIONS DESCRIPTION
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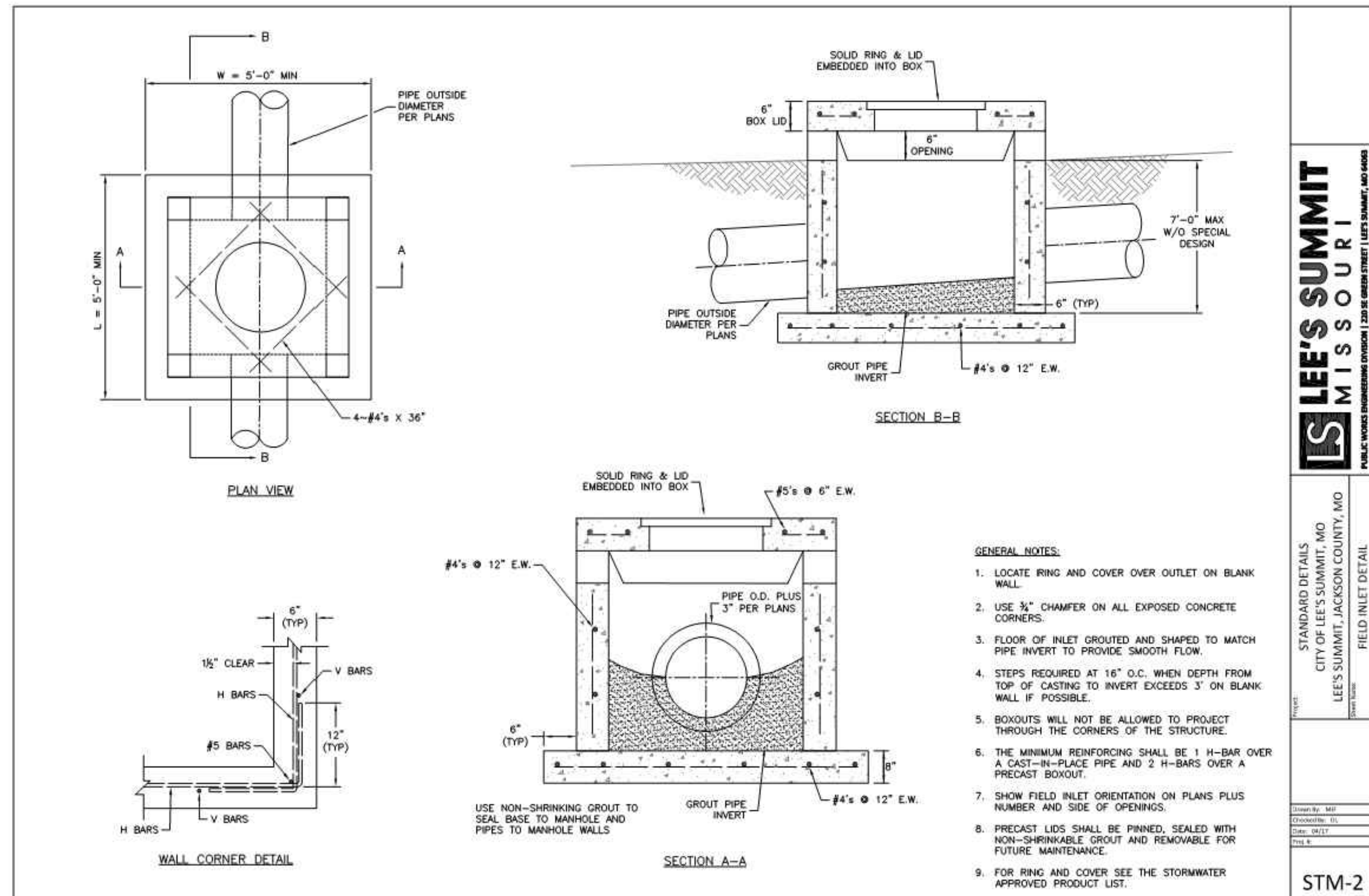
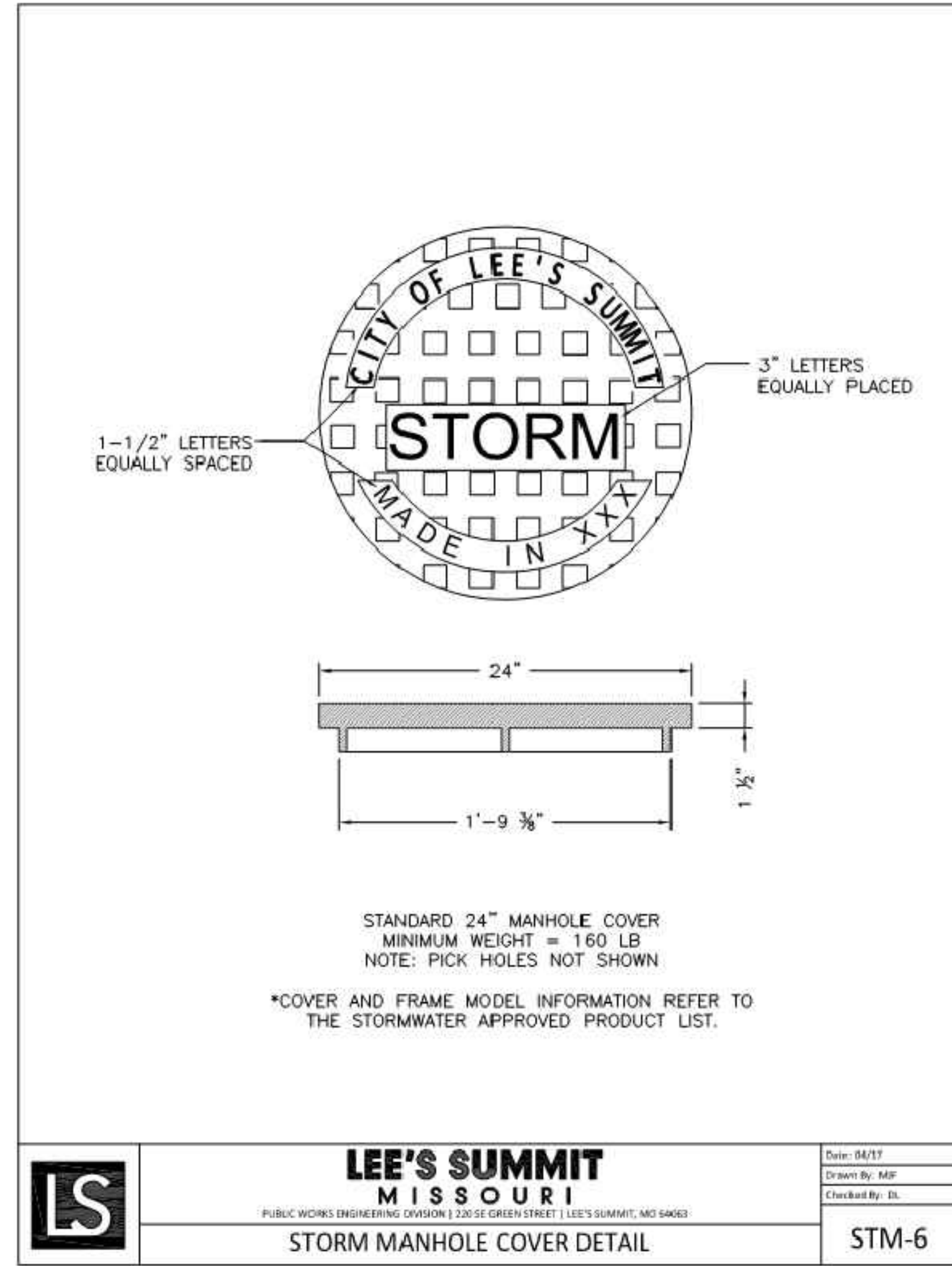
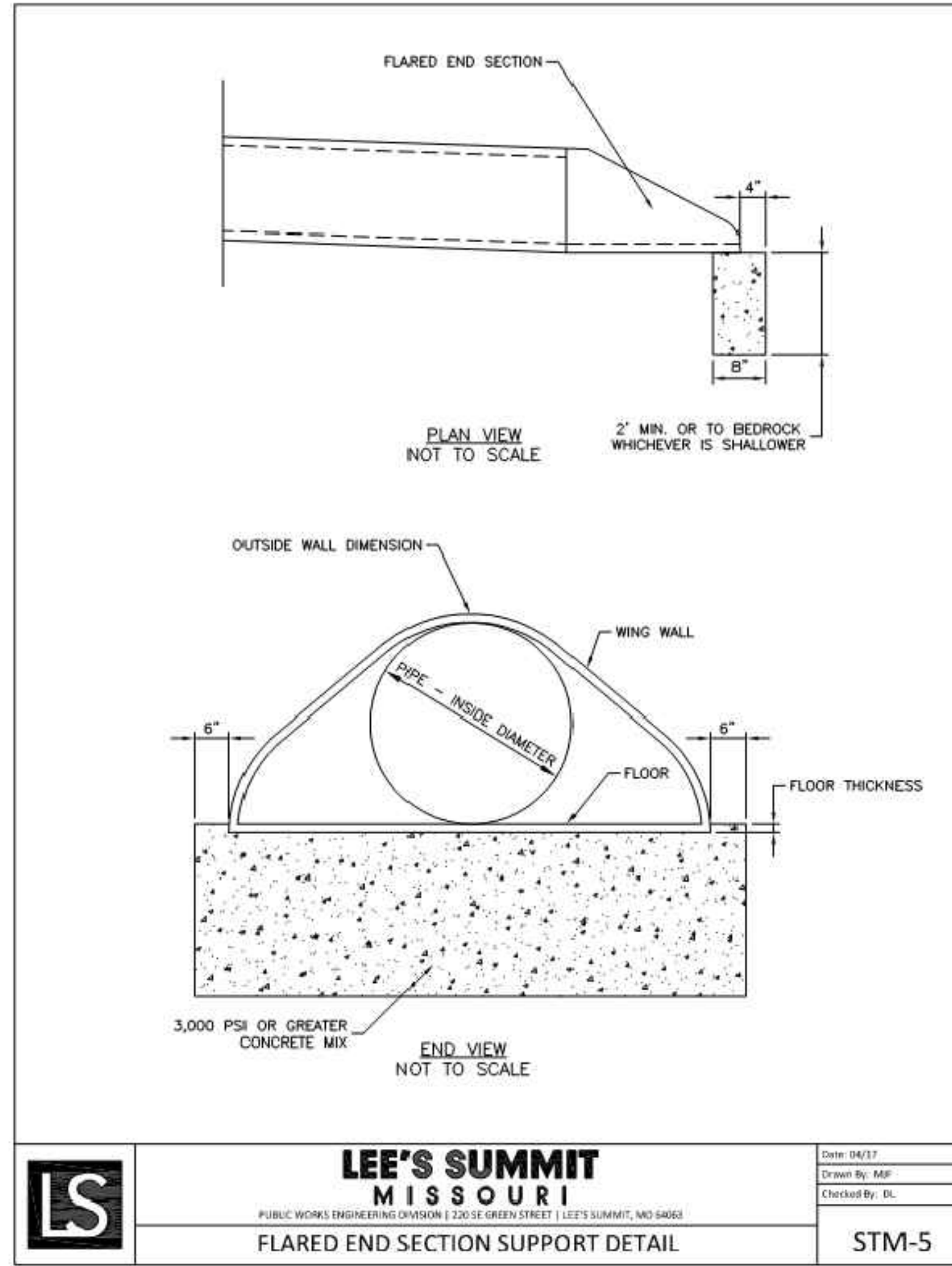
DETAIL SHEET  
 PUBLIC STREET IMPROVEMENT PLANS  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET  
 LEE'S SUMMIT, MO

2020

drawn by: M.J.D.  
 checked by: N.D.H.  
 designed by: M.J.D.  
 QA/QC by: N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12

SHEET  
 C14





NICHOLAS D. HEISER, P.E.  
 MO# 2015000555

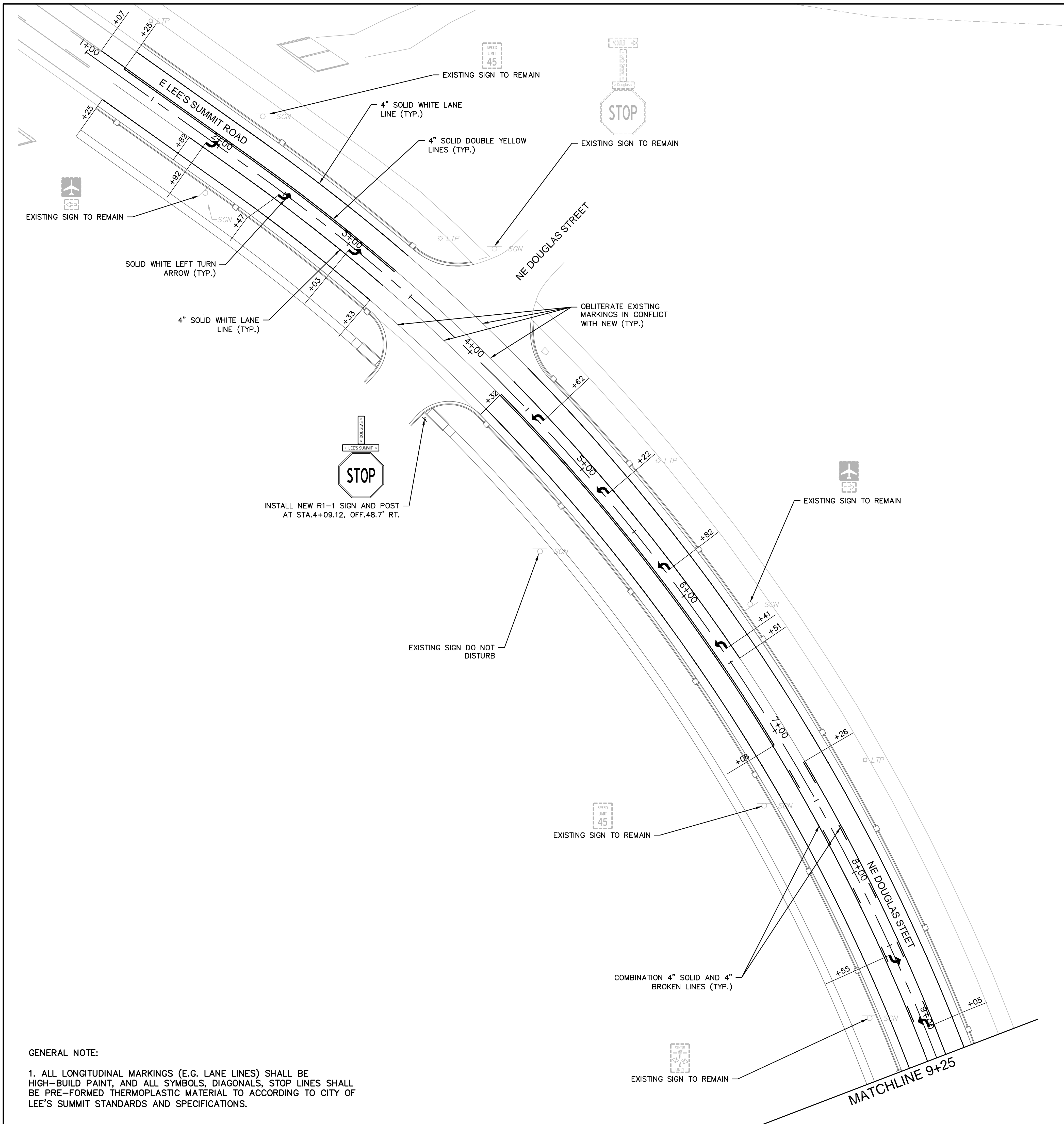
NO.	REV.	DATE	REVISIONS DESCRIPTION
1		2020.07.22	REVISED PER CITY COMMENTS

DETAIL SHEET  
 PUBLIC STREET IMPROVEMENT PLANS  
 NW LEE'S SUMMIT ROAD &  
 NE DOUGLAS STREET  
 LEE'S SUMMIT, MO

drawn by: \_\_\_\_\_ M.J.D.  
 checked by: \_\_\_\_\_ N.D.H.  
 designed by: \_\_\_\_\_ M.J.D.  
 QA/QC by: \_\_\_\_\_ N.D.H.  
 project no.: 019-0012-B  
 date: 2020.06.12

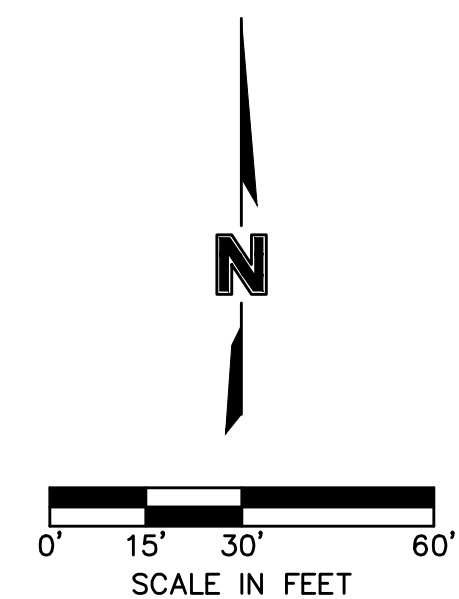


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**GENERAL NOTE:**

1. ALL LONGITUDINAL MARKINGS (E.G. LANE LINES) SHALL BE HIGH-BUILD PAINT, AND ALL SYMBOLS, DIAGONALS, STOP LINES SHALL BE PRE-FORMED THERMOPLASTIC MATERIAL TO ACCORDING TO CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS.



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JEREMY S. STRETZ MO# 2017023856	
BY: _____	REVISIONS DESCRIPTION
NO. REV.	DATE
PAVEMENT MARKING & SIGNING PLAN	
ARIA APARTMENTS PHASE 1	
LEE'S SUMMIT, MO	
2020	
drawn by: _____ JRC checked by: _____ JSS designed by: _____ JSS QA/QC by: _____ JSS project no.: 019-0012-B date: 2020.06.12	
<b>SHEET F1</b>	







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PERMANENT SIGNING SUMMARY						
STATION	STREET REFERENCE	OFFSET FROM C/L	MUTCD DESIGNATION	SIGN SIZE	AREA (SF) MEP SIGNS	POST TYPE
4+09.12	E LEES SUMMIT ROAD	48.7' RIGHT	R1-1	30"x30"	5.18	SQUARE
			D3-1 (Lee's Summit Rd)	9"x48"	6.00	SHARED
			D3-1 (NE Douglas St)	9"x48"	6.00	SHARED
13+18.74	E LEES SUMMIT ROAD	49.3' RIGHT	R1-1	30"x30"	5.18	SQUARE
			D3-1 (NE Douglas St)	9"x48"	6.00	SHARED
TOTALS					28.36	2

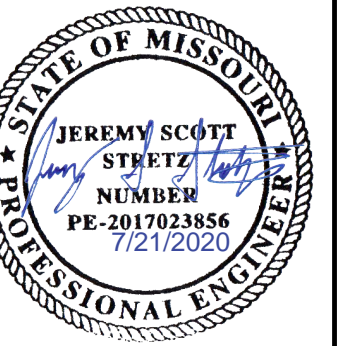
PAVEMENT MARKING SUMMARY						
STATION TO STATION		LOCATION	HIGH-BUILD PAINT 4" SOLID WHITE LANE LINES (LF)	HIGH-BUILD PAINT 4" SOLID YELLOW LANE LINE (LF)	HIGH-BUILD PAINT 4" BROKEN YELLOW LANE LINES (LF)	PRE-FORMED THERMOPLASTIC WHITE TURN ARROWS (EA)
						RT    LT
1+07	3+33	E LEES SUMMIT ROAD	565	435		
4+32	7+08	E LEES SUMMIT ROAD	770	550		
7+08	9+25	E LEES SUMMIT ROAD	432	417	104	
9+25	12+23	E LEES SUMMIT ROAD	595	595	149	
13+42	16+18	E LEES SUMMIT ROAD	772	553		
16+18	17+16	E LEES SUMMIT ROAD	196	276	69	
TOTALS			3330	2826	322	0    15

**GENERAL NOTE:**

1. ALL LONGITUDINAL MARKINGS (E.G. LANE LINES) SHALL BE HIGH-BUILD PAINT, AND ALL SYMBOLS, DIAGONALS, STOP LINES SHALL BE PRE-FORMED THERMOPLASTIC MATERIAL TO ACCORDING TO CITY OF LEE'S SUMMIT STANDARDS AND SPECIFICATIONS.

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JEREMY S. STRETZ  
MO# 2017023856

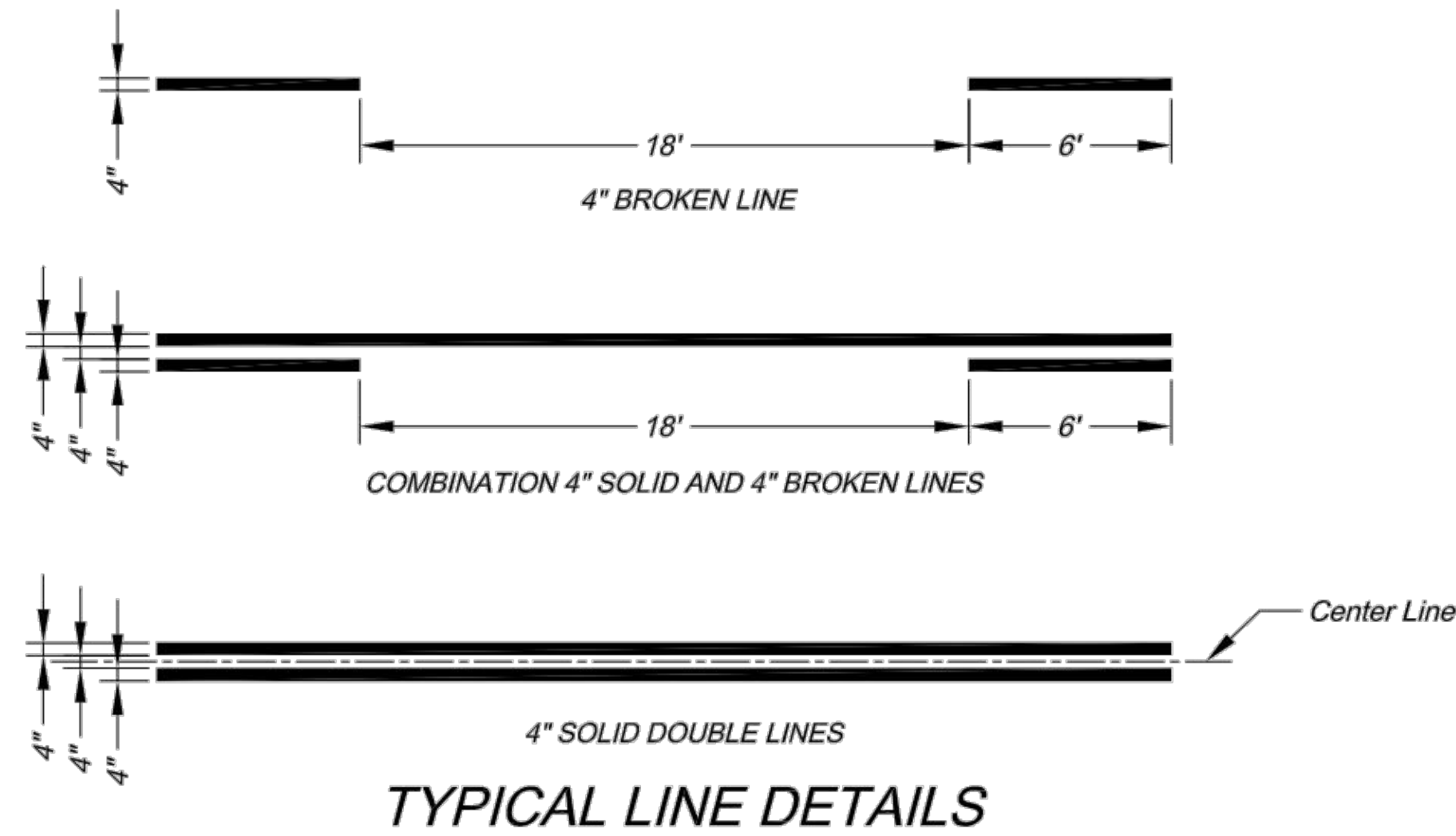
NO. REV.	DATE	REVISIONS DESCRIPTION	BY

PAVEMENT MARKING & SIGNING QUANTITIES	2020
ARIA APARTMENTS PHASE 1	
LEE'S SUMMIT, MO	

drawn by: \_\_\_\_\_ JRC  
checked by: \_\_\_\_\_ JSS  
designed by: \_\_\_\_\_ JSS  
QA/QC by: \_\_\_\_\_ JSS  
project no.: 019-0012-B  
date: 2020.06.12

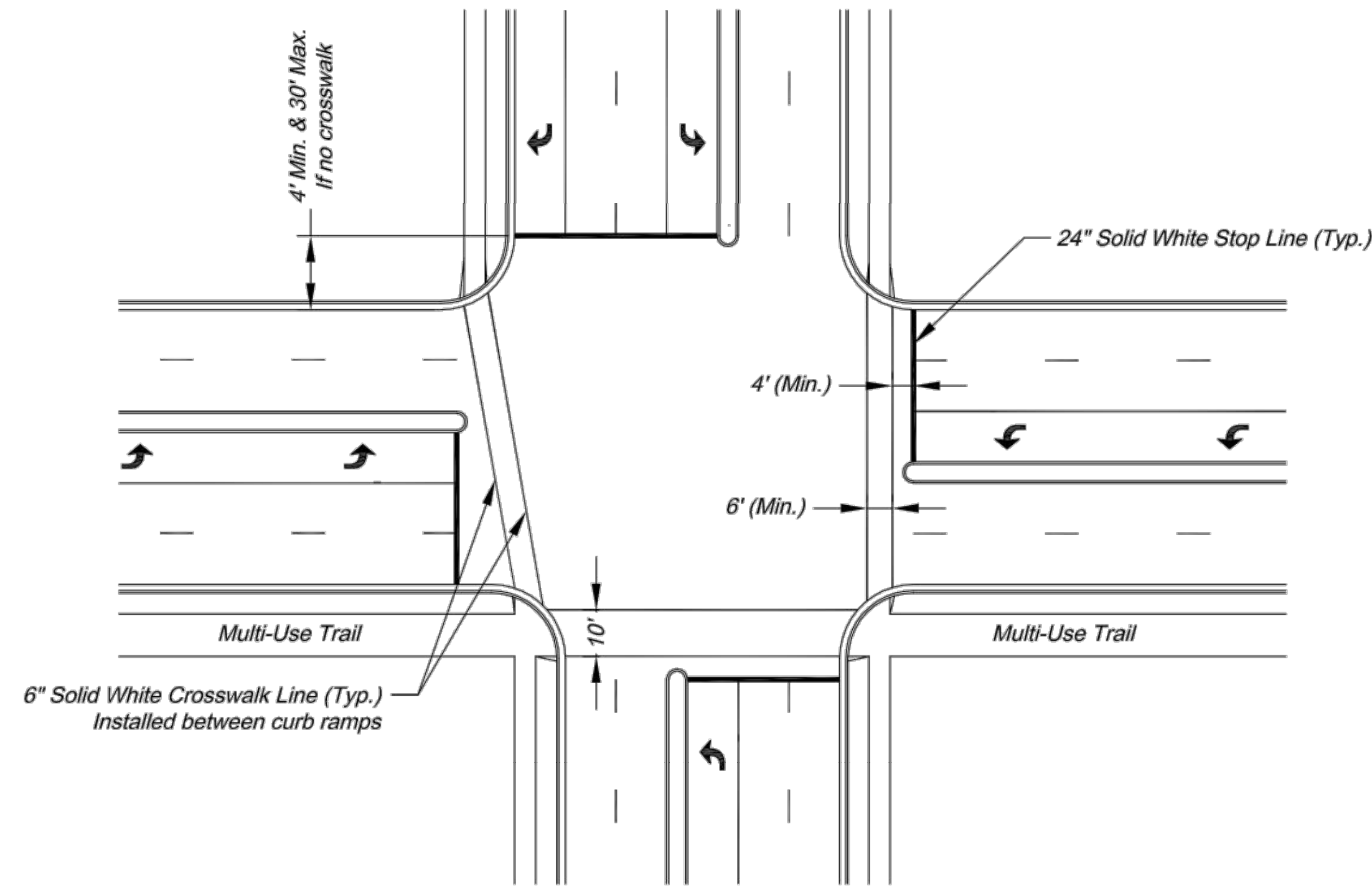
**SHEET  
F3**





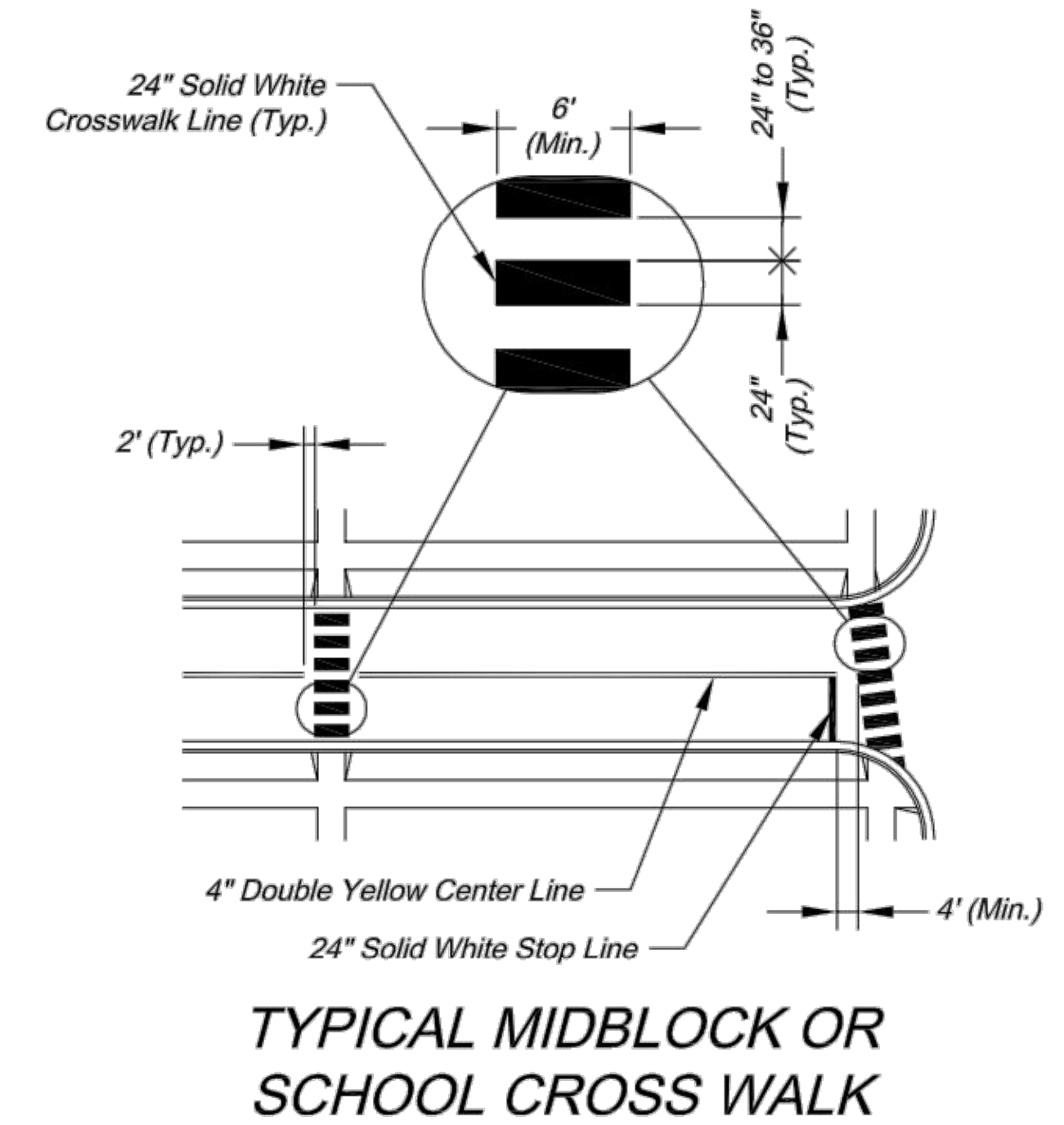
**TYPICAL LINE DETAILS**

- NOTES:**
1. All edge line, center line, and lane line pavement markings shall be 4" wide unless otherwise noted.
  2. Edge lines shall be continuous solid white or yellow lines. Right side edge lines shall be solid white. Median or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.

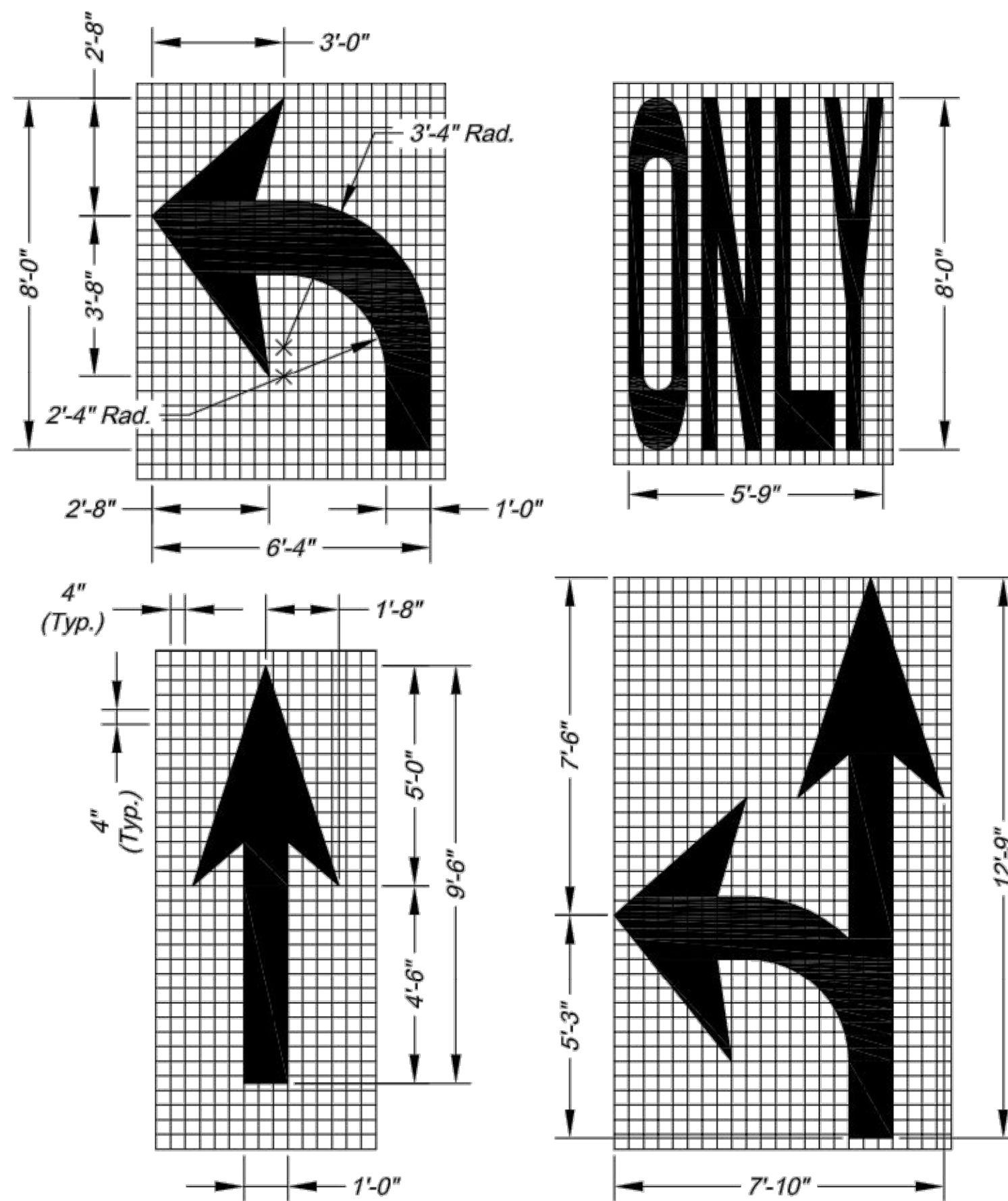


**TYPICAL INTERSECTION MARKINGS**

- NOTES:**
1. Transverse crosswalk lines shall be installed such that the distance between lines is at least 6 or 10 feet.
  2. Stop lines are required at signalized intersections, on multi-lane stop controlled approaches, or in front of crosswalks at controlled intersections.

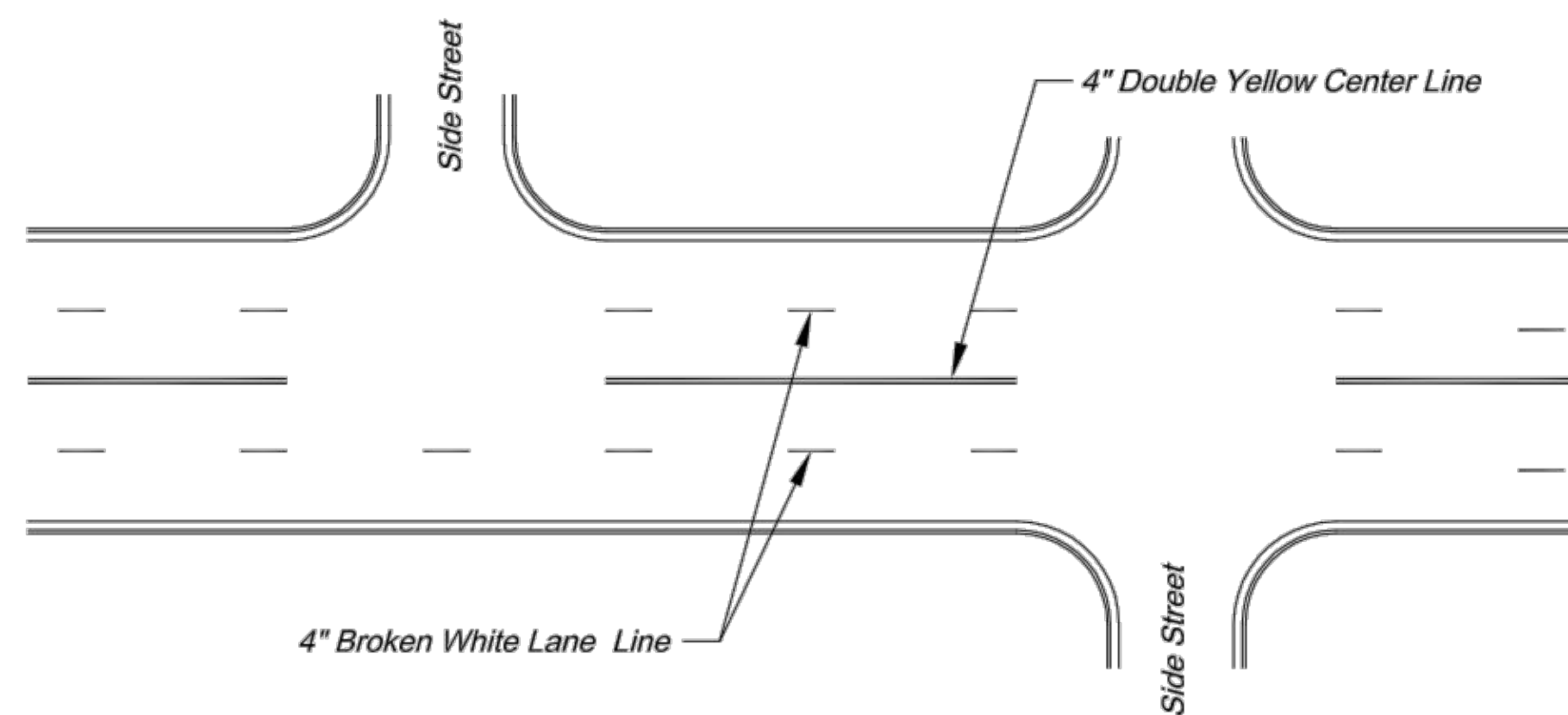


**TYPICAL MIDBLOCK OR SCHOOL CROSS WALK**

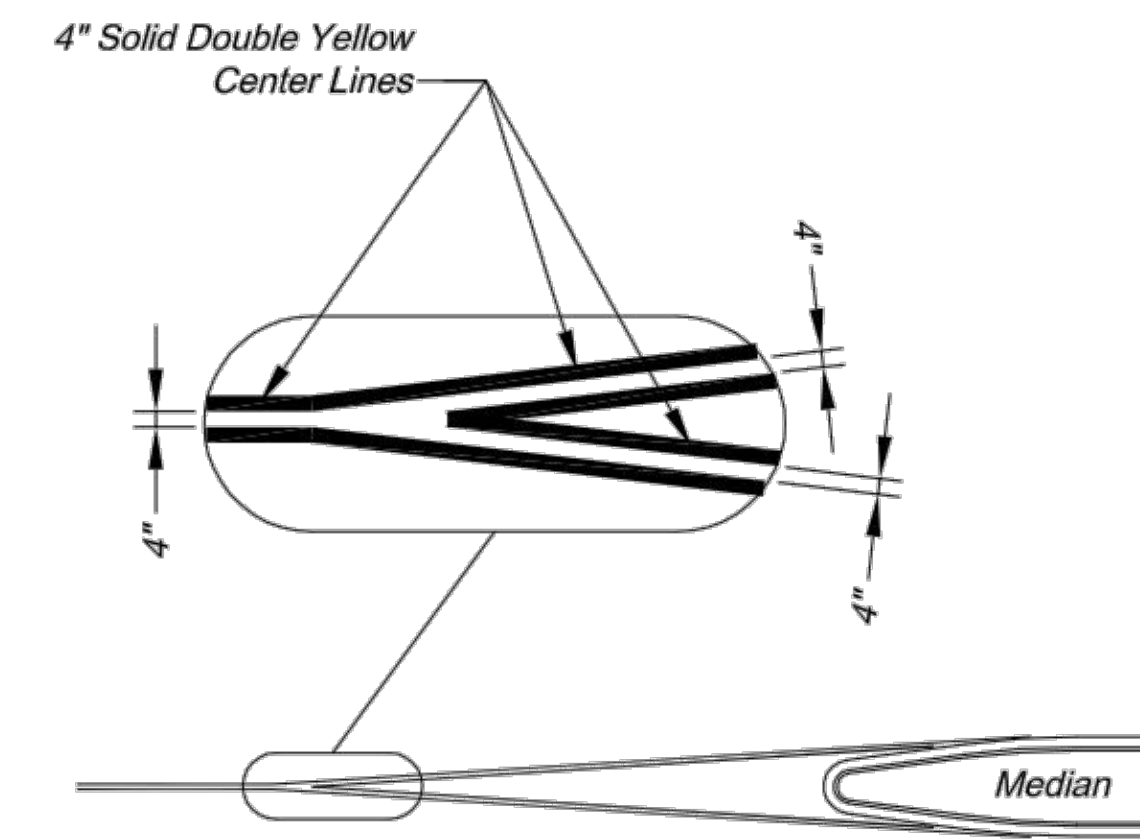


**ARROW AND SYMBOL DETAILS**

- NOTES:**
1. All arrow and symbol markings shall be white, and shall be centered in their respective traffic lanes.
  2. Right-turn and combination right-turn/straight arrows are reverse of arrows shown.



**TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY**



**TYPICAL MEDIAN NOSE CENTER LINE DETAIL**

- PAVEMENT MARKING GENERAL NOTES:**
1. All pavement markings shall be in accordance with the latest edition of the *Manual on Uniform Traffic Control Devices (MUTCD)*.
  2. All words and symbols shall conform to the latest edition of *Standard Alphabets for Highway Signs and Pavement Markings* printed by the U.S. Department of Transportation, Federal Highway Administration.
  3. Pavement markings, either temporary or permanent are required at all times if the roadway is open to traffic.
  4. All pavement markings that conflict with the desired markings shall be completely removed. Removals shall not leave the road surface scarred with an image that misleads traffic. Any excess damage or scarring of pavement shall be repaired at the Contractor's expense.
  5. The proposed permanent markings shall be laid out by the Contractor in advance of the marking installation. Markings shall not be applied until the layout has been approved by the City Traffic Engineer.
  6. Center lines shall be marked on all undivided arterial streets, and any other undivided street with more than two lanes and/or a speed limit of 30 mph or more.
  7. Edge lines shall be marked on all non-curbed streets.

CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64063  
PHONE: (816) 969-1800 FAX: (816) 969-1809

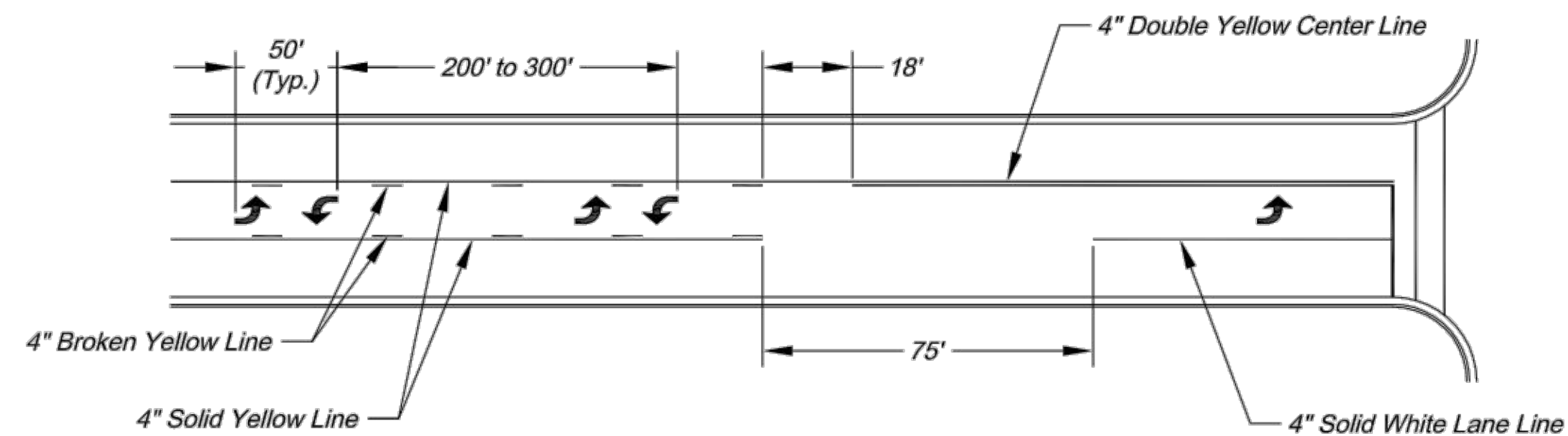


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Sheet Name: STANDARD DRAWING PM-1

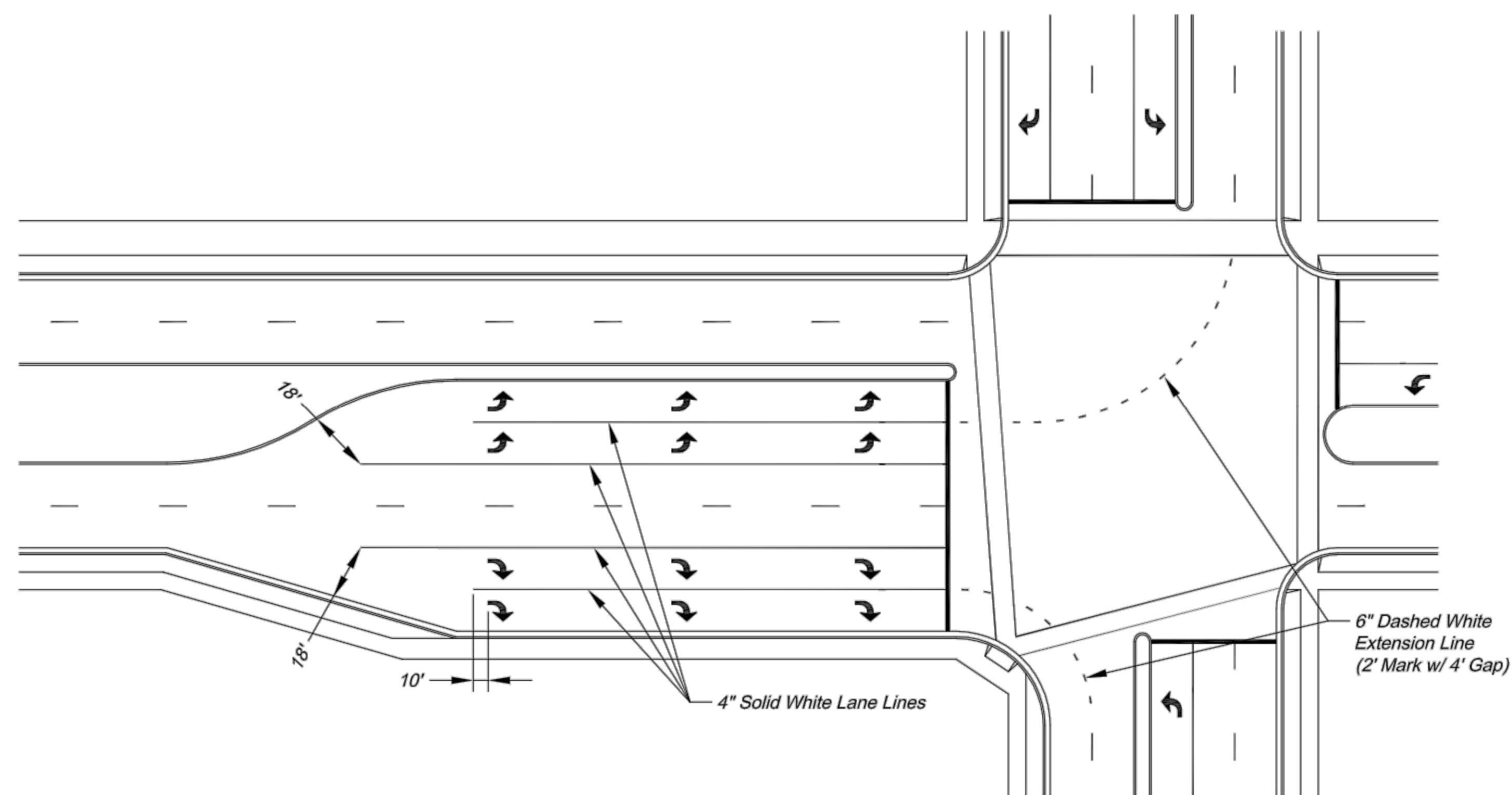
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Checked By: JW  
Date: 09/09/2009  
Project#

SHEET  
F4



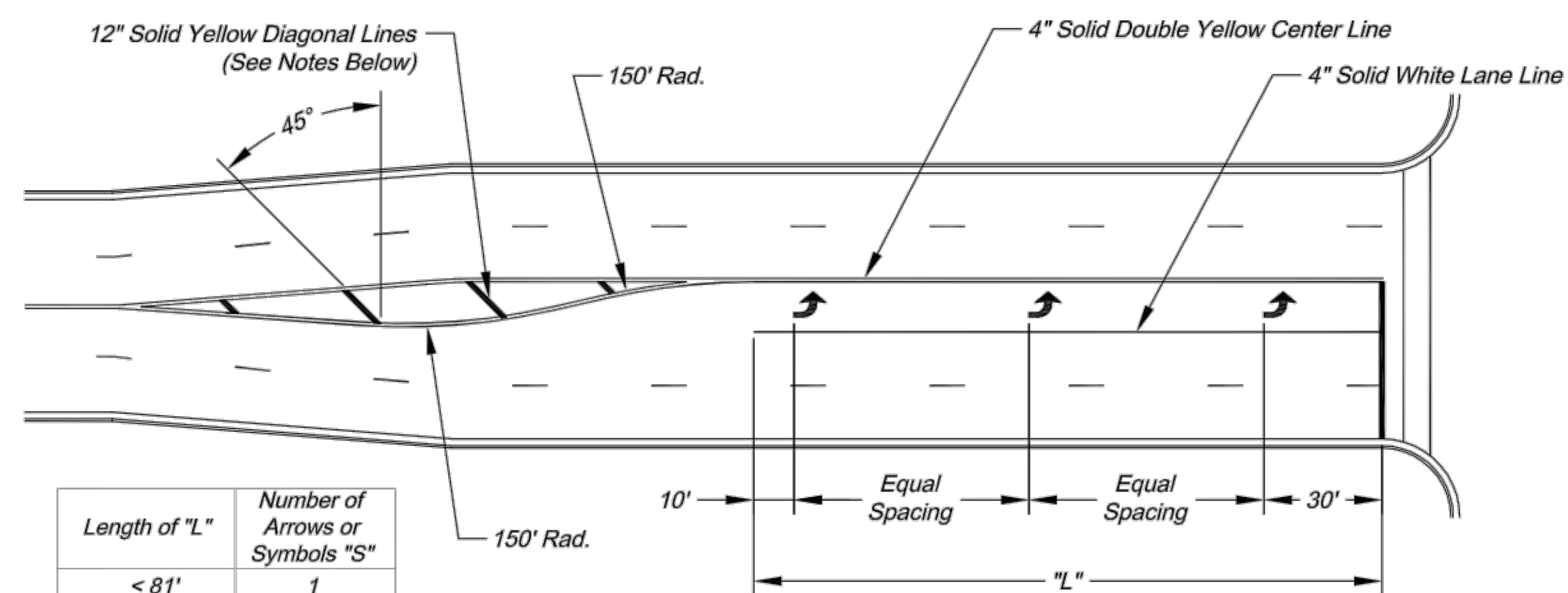


TYPICAL MARKINGS FOR TWO-WAY LEFT-TURN LANE



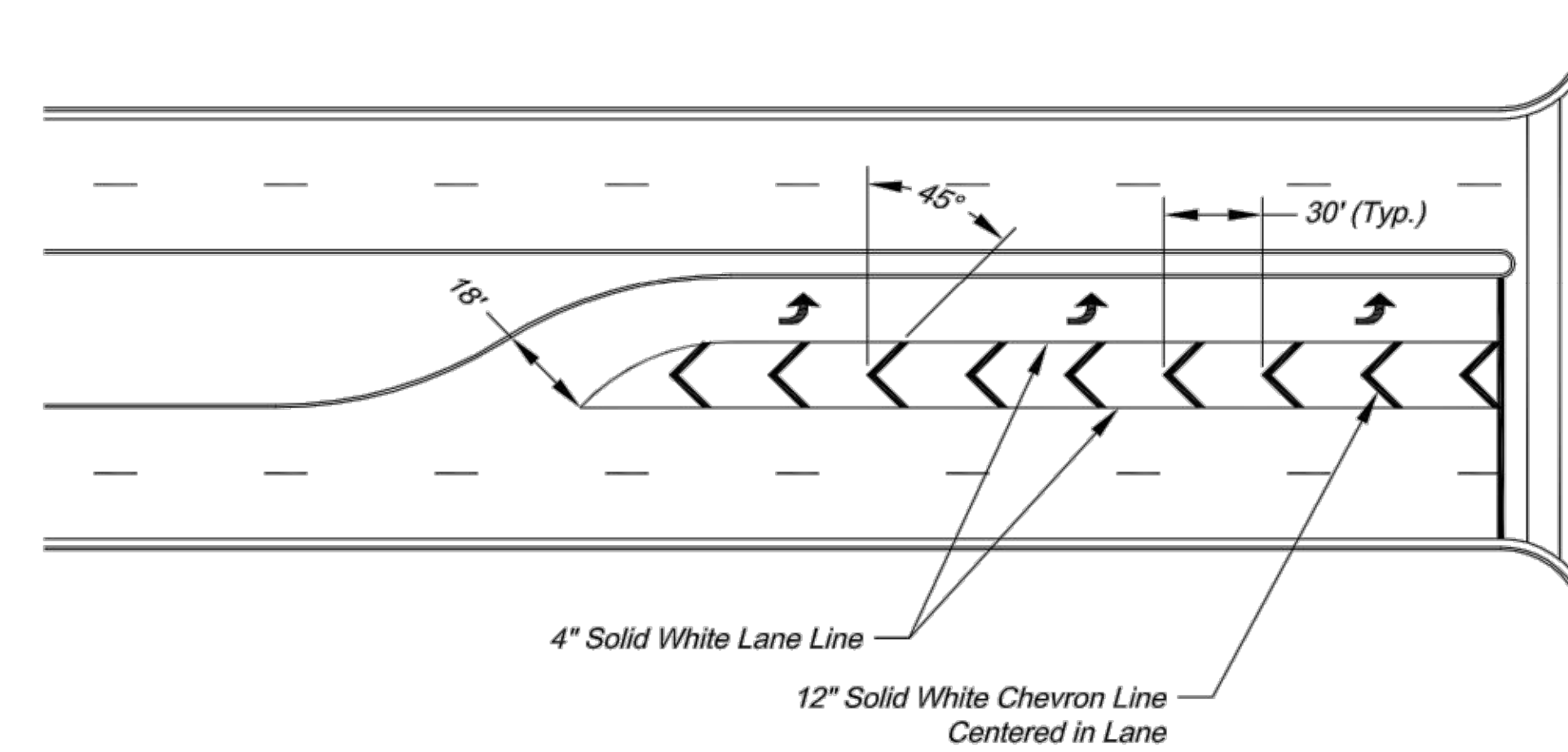
TYPICAL DUAL TURN LANE MARKINGS

NOTE:  
1. Dashed extension lines shall not extend through crosswalks.



TYPICAL TURN LANE MARKINGS

NOTES:  
1. Diagonal lines are required between centerlines if the width of the area between the center lines is greater than 12' and/or the length of the area between center lines is greater than 250'.  
2. Diagonal lines should be spaced at 5' increments, equal to the posted speed limit.  
3. Equal Spacing is calculated as  $(L - 40) / (S - 1)$ .  
4. When a through lane of traffic terminates as a mandatory turn lane, Arrow and "ONLY" symbols should be marked in the turn lane, in alternating order. The first and last symbols should be Arrows.



TYPICAL STRIPED OUT TURN LANE MARKINGS

CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64063  
PHONE: (816) 969-1800 FAX: (816) 969-1809



INTERSECTION MARKING DETAILS

STANDARD DRAWING PM-2

Project:

Sheet Name:

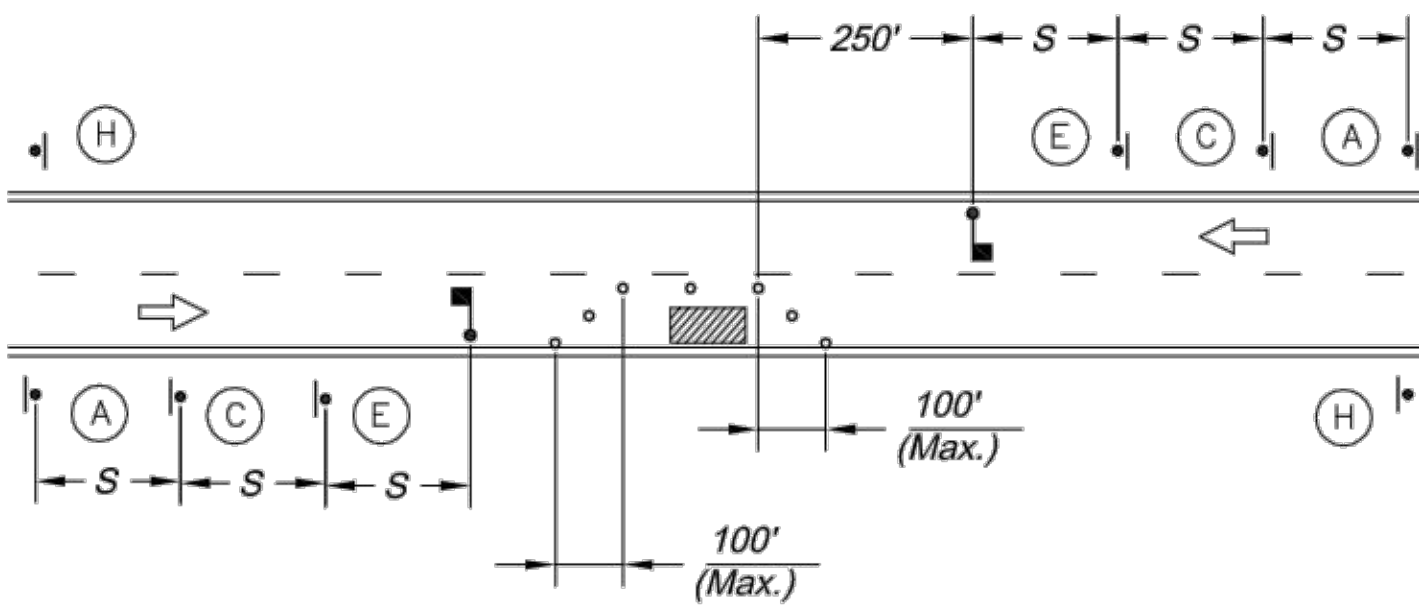
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Checked By: JW  
Date: 09/09/2009  
Project#

SHEET  
F5

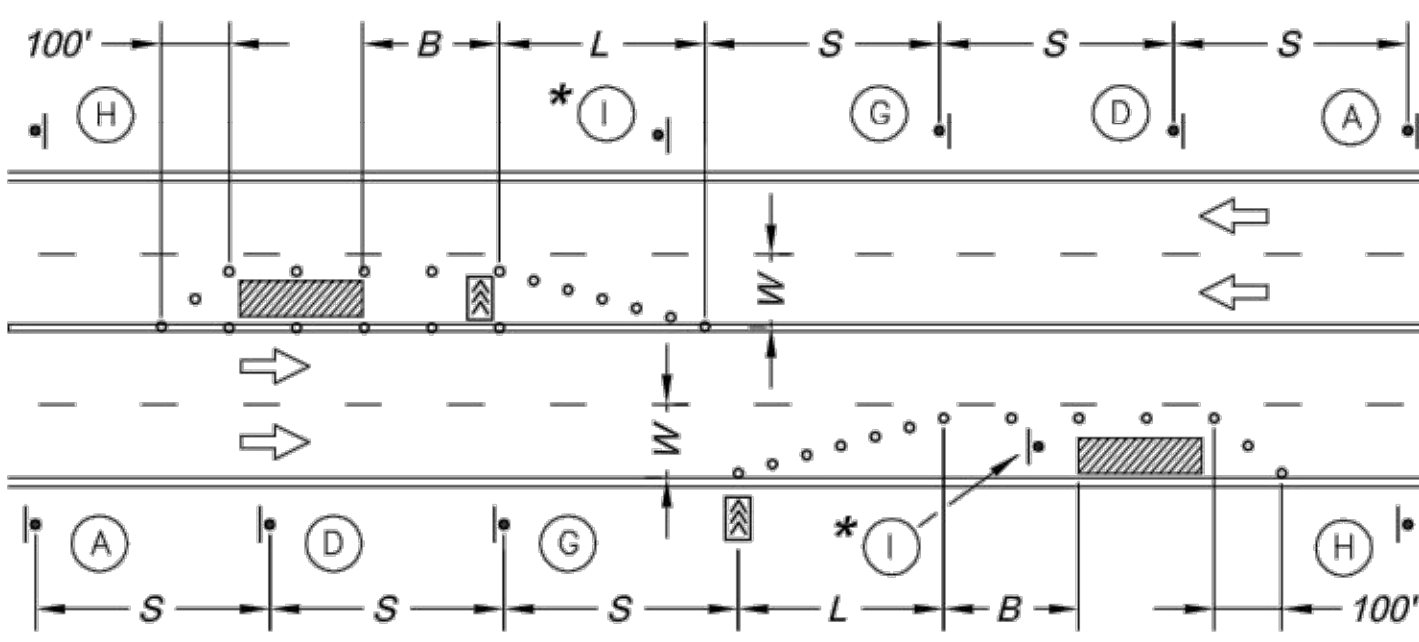


**SYMBOL LEGEND**

- Work Area
- Channelizer
- Sign
- Arrow Panel
- Barricade
- Flagger
- Direction of Travel

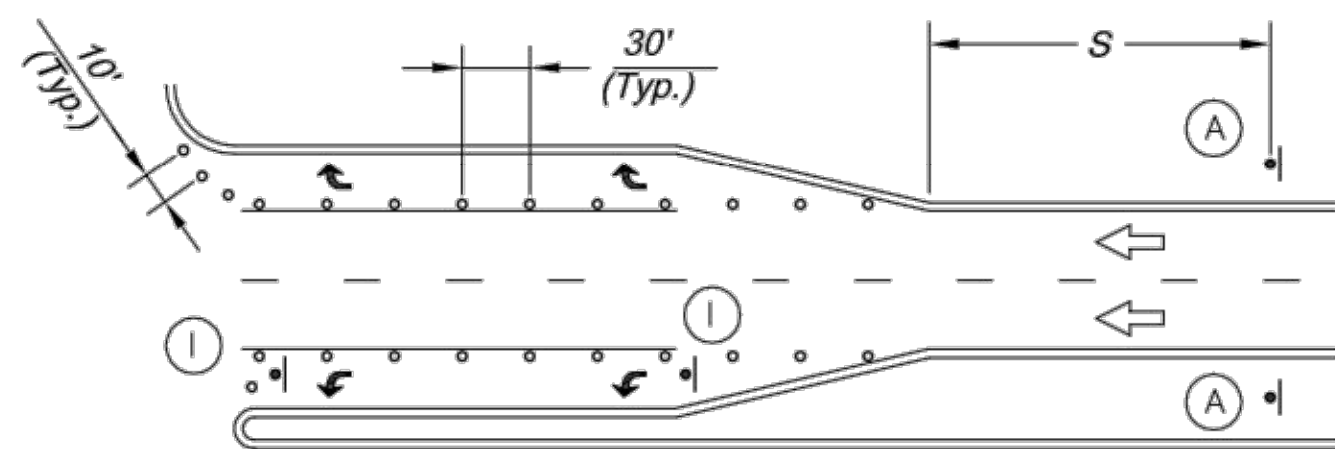


**LANE CLOSURE - TWO LANE STREET**



**LANE CLOSURE - FOUR LANE STREET**

\* Install Signs Every 200 Feet Throughout the Closed Lane or As Needed



**TURN LANE CLOSURE**

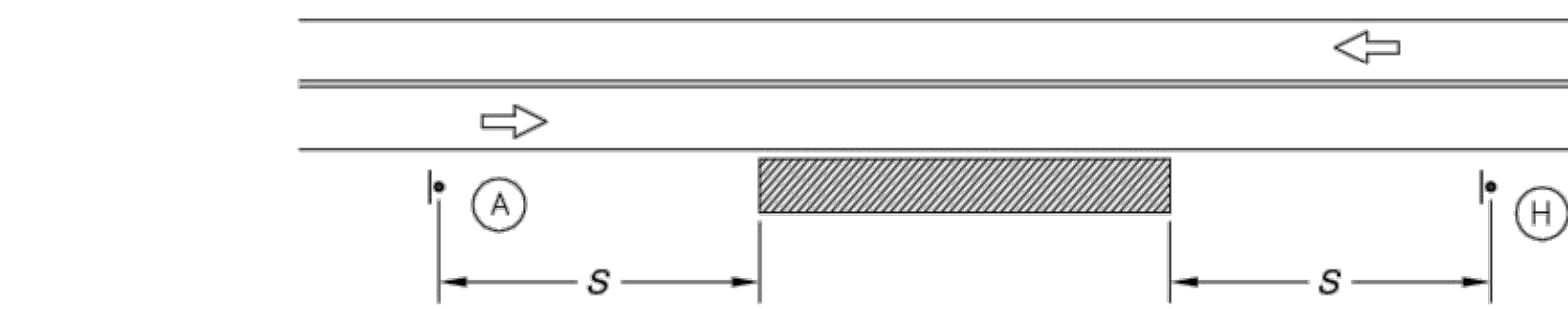
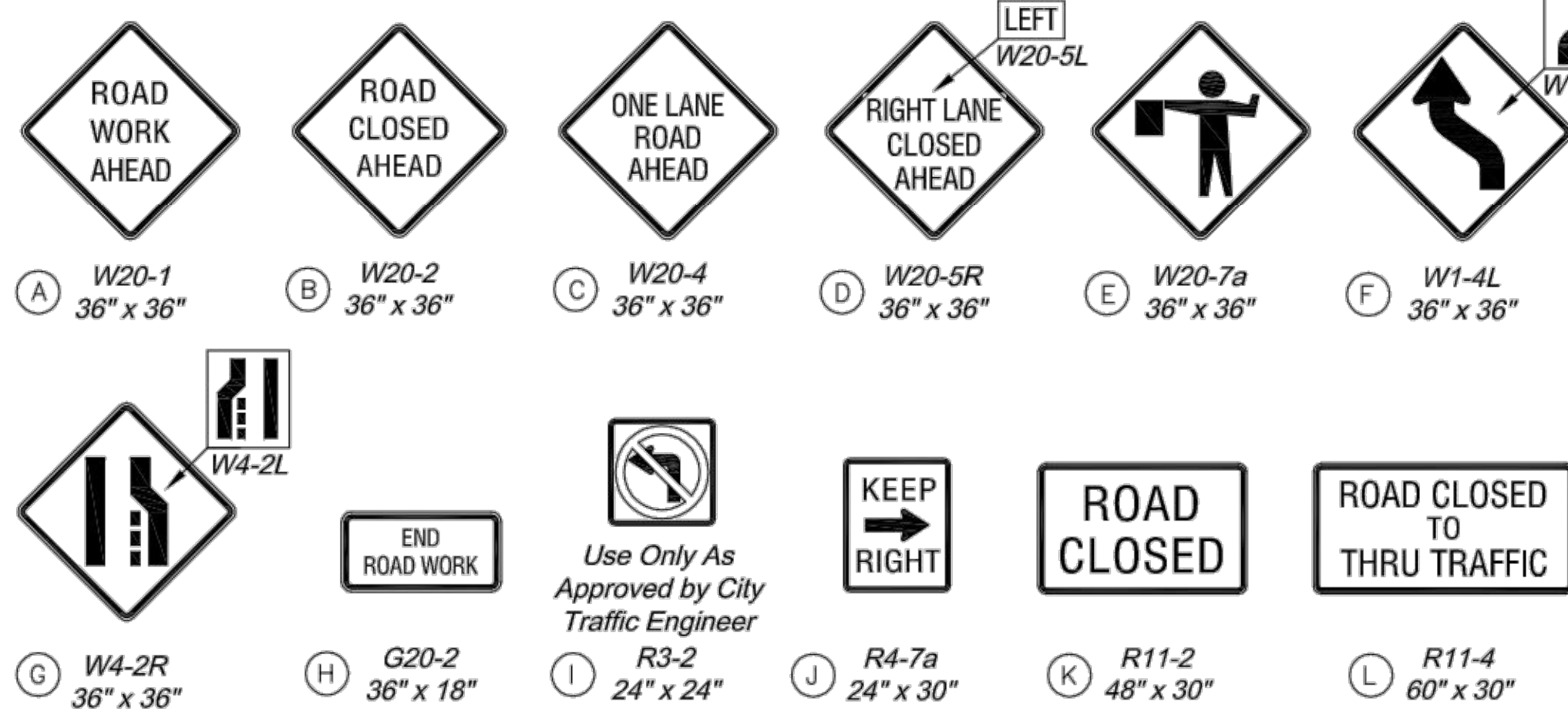
Sign Spacing "S"	
Speed Limit (mph)	Spacing (Feet)
25	100
30 - 35	250
≥ 40	350

Speed Limit (mph)	Taper Dimensions (Feet)			Minimum Number of Channelizers
	Minimum Taper Length "L", per Lane Width "W"	10	11	
25	105	115	125	6
30	150	165	180	7
35	205	225	245	8
40	270	295	320	9
45	450	495	540	13

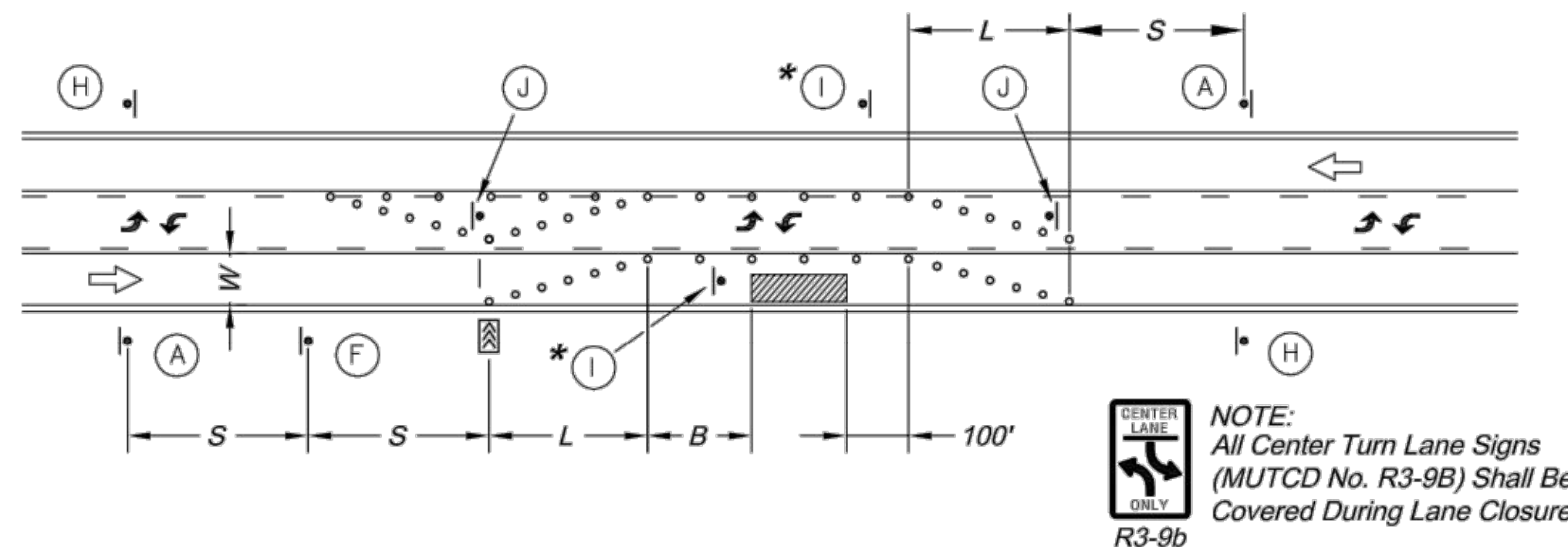
Guidelines for Length of Longitudinal Buffer Space "B"	
Speed Limit (mph)	Length (Feet)
25	35
30	55
35	85
40	120
45	170

Speed Limit (mph)	Maximum Channelizer Spacing	
	Within Taper (Feet)	Outside Taper (Feet)
25	25	50
30	30	60
35	35	70
40	40	80
45	45	90

**SIGN LEGEND**

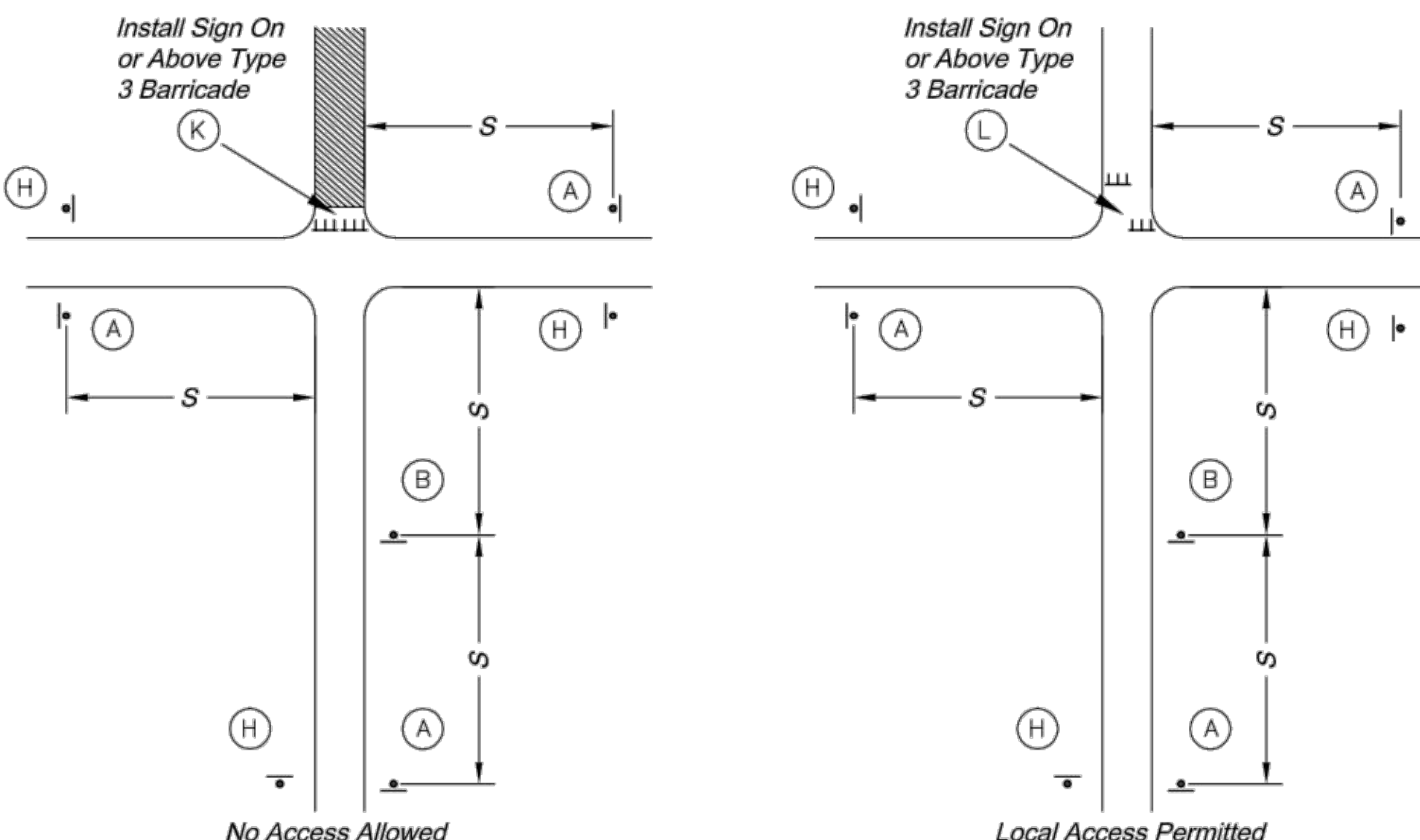


**TYPICAL SIGNING FOR WORK ADJACENT TO THE STREET**



**LANE CLOSURE - THREE LANE STREET**

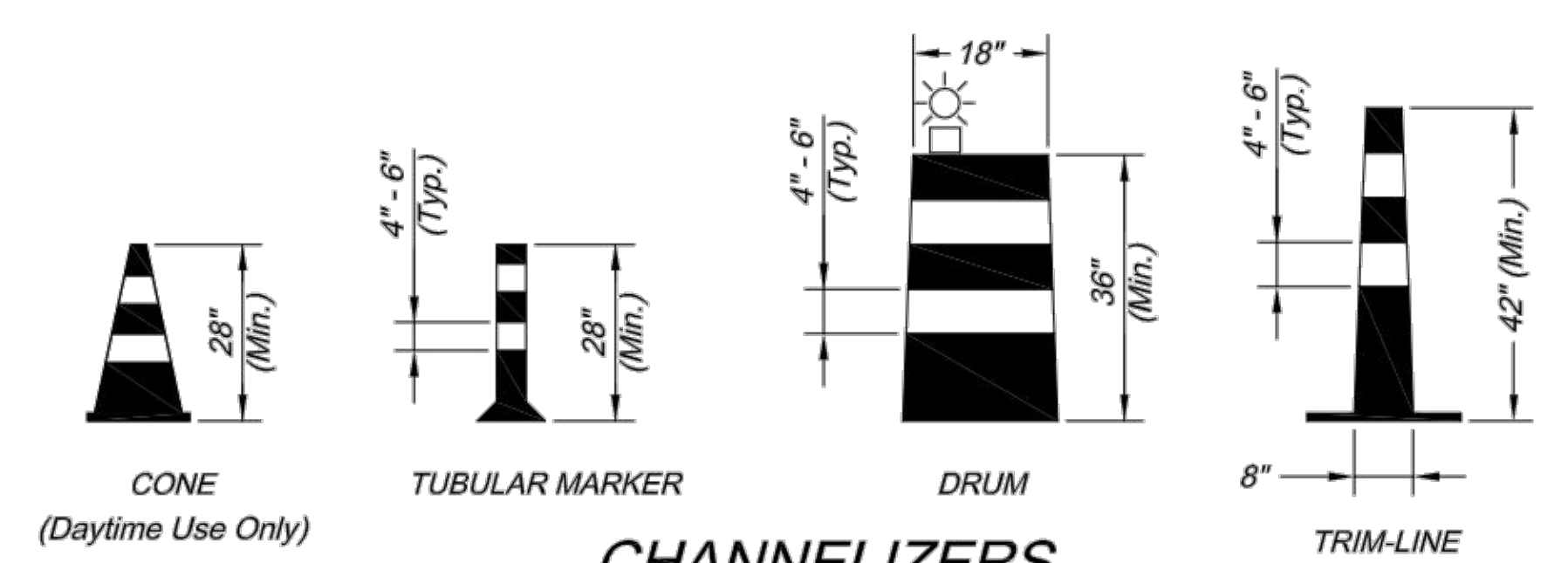
\* Install Signs Every 200 Feet Throughout the Closed Lane or As Needed



**TYPICAL STREET CLOSURE**

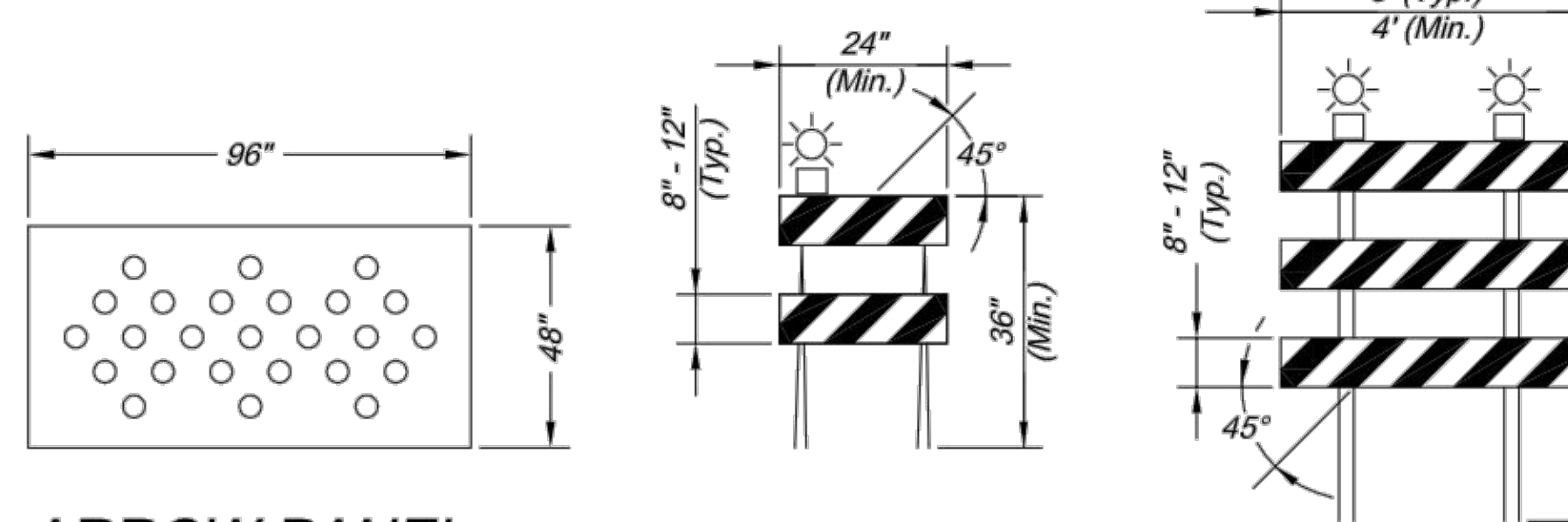
**GENERAL NOTES:**

- All signs, barricades, channelizers, markings and other traffic control devices shall conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- All traffic control devices shall be standard in size, shape, color, and message, in good condition, and retro-reflectORIZED. All signs shall be securely mounted with height and lateral location as described in the MUTCD.
- Warning lights shall be used on barricades in place at night and on warning signs which alert drivers about a change in alignment, traffic control, lane closure, or road closure.
- Flaggers shall be used where indicated on the plans, where construction vehicles interact with normal traffic, or where construction activities impose a restriction on traffic, as directed by the City Traffic Engineer. Where flaggers are used, advance signing shall be erected as shown in the details or as specified in the MUTCD. Flaggers shall meet the requirements in the MUTCD in regard to character, training, attire, and behavior.
- Trim-lines are the City's preferred channelizing device. Cones may not be used at nighttime.
- Traffic control devices not in use or not applicable shall be either covered or removed from the work area.
- The Contractor shall use barricades, street plates, or fencing as needed to effectively shield pedestrian and vehicular traffic from exposed objects, excavations, and construction activities.
- Access shall be maintained to all driveways and side streets unless noted otherwise on the plans.
- No street shall be closed without the approval of the City Traffic Engineer. The Contractor shall notify the City Traffic Engineer at least 7 days in advance of any street closure. If a detour route around the closure is to be provided, all detour signing shall be as shown on a plan approved by the City Traffic Engineer.
- Construction vehicles parked along streets shall be located within the work area (traffic control) or where otherwise normally permitted. Construction materials, including traffic control and vehicles shall not restrict sight distance for vehicles exiting at streets or drives.
- Construction materials shall be kept off of sidewalks, consolidated in one location within City right-of-way, and removed daily unless otherwise approved by the Inspector. Dirt, mud, and other construction debris on streets and sidewalks shall be removed immediately.
- The Contractor shall not perform any work that will restrict vehicular traffic in any way between the hours of 7:00 a.m. and 9:00 a.m. or 4:00 p.m. and 6:00 p.m. Monday through Friday unless otherwise indicated in the specifications.
- All travel lanes should be at least 11 feet wide unless otherwise authorized by the City Traffic Engineer. A "Narrow Lanes" sign shall be installed in advance of a lane width reduction to less than 11 feet.
- All edge drop-offs of more than 2 inches and less than 4 inches should be protected by a wedge or barrier and all edge drop-offs greater than 4 inches shall have edge protection (see Traffic Control Specifications for edge treatment requirements).
- The "Workers" symbolic sign (MUTCD No. W21-1a) may be used instead of the "Road Work Ahead" sign for work with a duration of 12 hours or less. The "End Road Work" sign is not required to be installed after the "Workers" sign.
- No traffic signal shall be altered or modified in any way without a plan approved by the City Traffic Engineer.
- The Contractor shall be responsible for maintaining all traffic control devices on an around-the-clock basis, whether or not work is actively being pursued and any deficiencies noted shall be corrected immediately.
- The traffic control requirements shown on these plans are minimum requirements only and do not attempt to address in depth the variety of situations that may occur once construction has started. In no way do the requirements shown on these plans relieve the Contractor of his responsibility for selecting the proper traffic control devices and implementation procedures that will assure the safety of drivers, pedestrians, and workers at all times.
- Should the contractor fail to enforce the traffic control plan or fail to clean, replace or otherwise maintain the traffic control devices when directed to do so by the City Traffic Engineer or representative, the City may take one or more of the following actions:
  - Employ another agency to correct deficiencies in traffic control devices and deduct the cost from the Contractor's pay estimate,
  - Stop the work until deficiencies are corrected,
  - Suspend all pay estimates until deficiencies are corrected, or
  - Place the Contractor in default.



**CHANNELIZERS**

NOTE: White Bands On Barricades and Channelizers Shall Be Made From High Intensity Sheeting Material.



**ARROW PANEL**

**BARRICADES**

CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64063  
PHONE: (816) 969-1800 FAX: (816) 969-1809

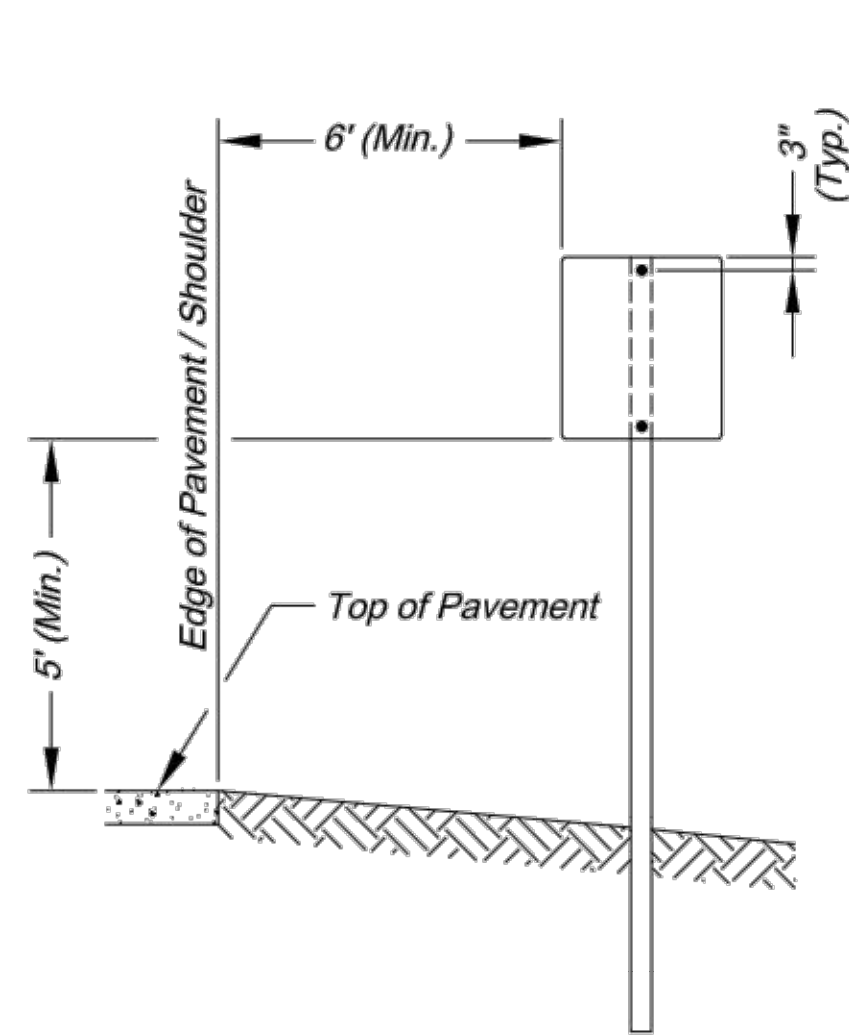


TRAFFIC CONTROL DETAILS  
STANDARD DRAWING TC-1

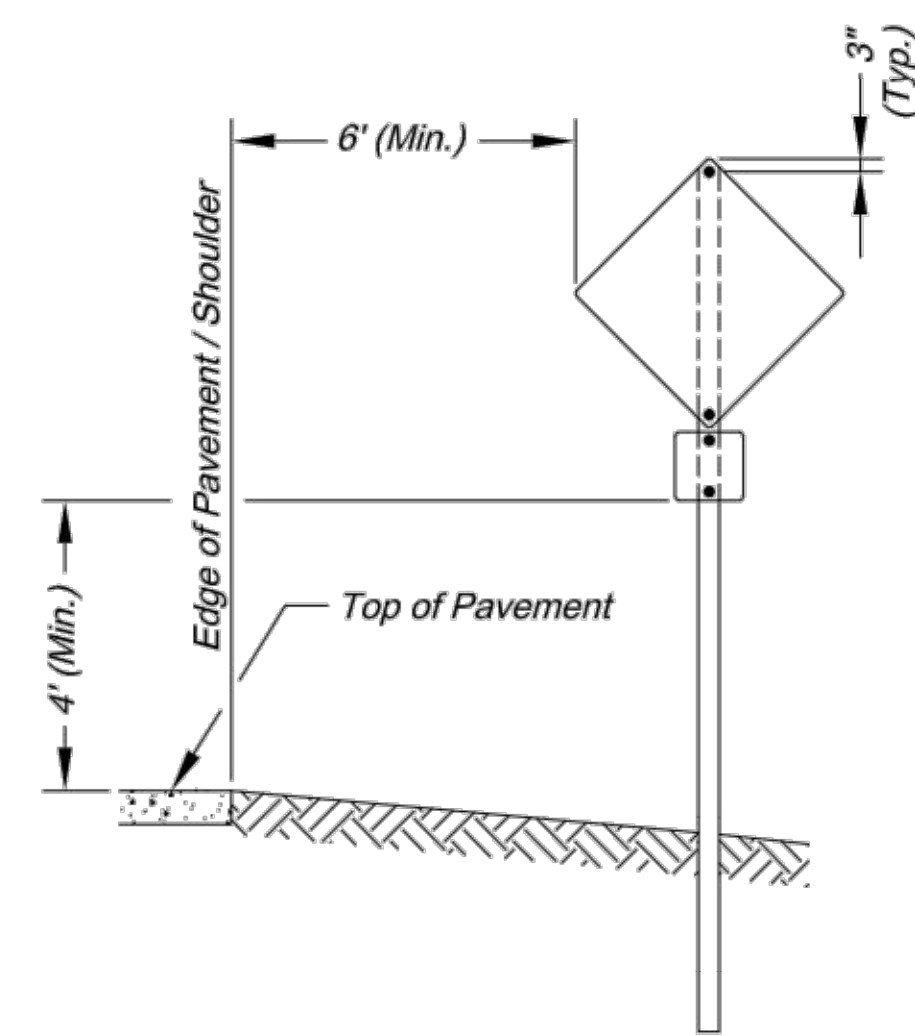
Project: \_\_\_\_\_  
Sheet Name: \_\_\_\_\_  
Drawn By: JJW  
Checked By: MP  
Date: 12-10-2008  
Project No.: X

SHEET  
F6

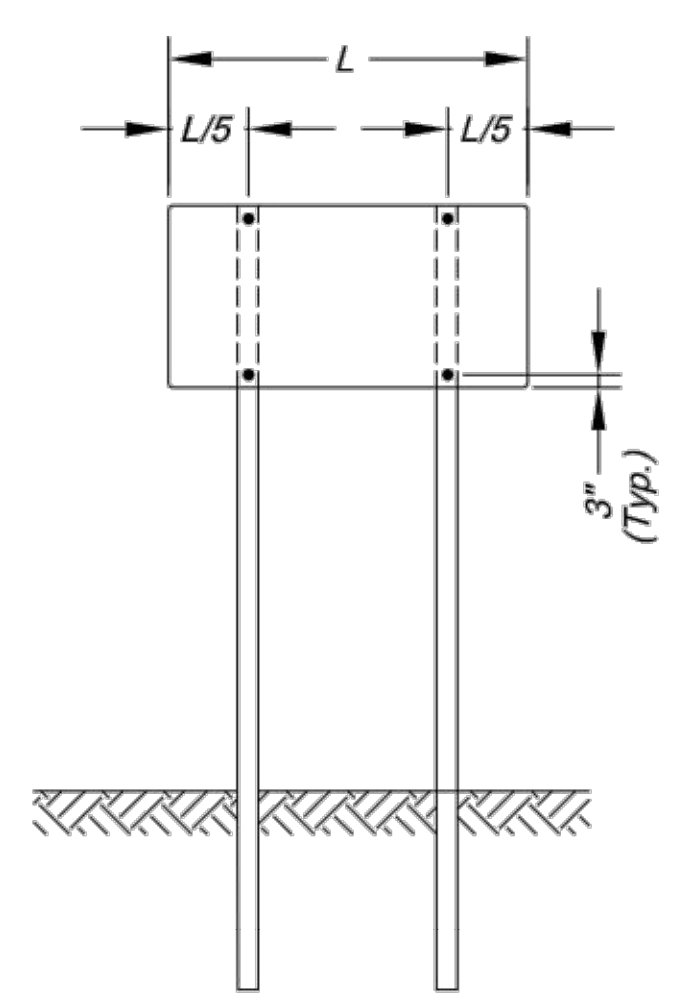




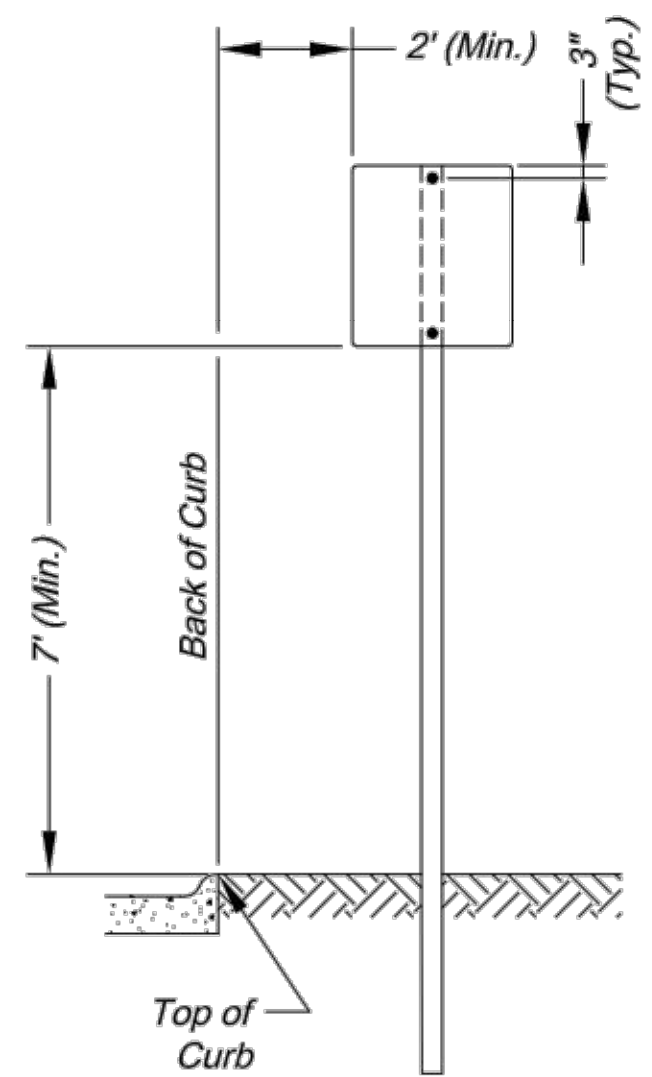
SIGN INSTALLATION FOR NON-CURBED STREET



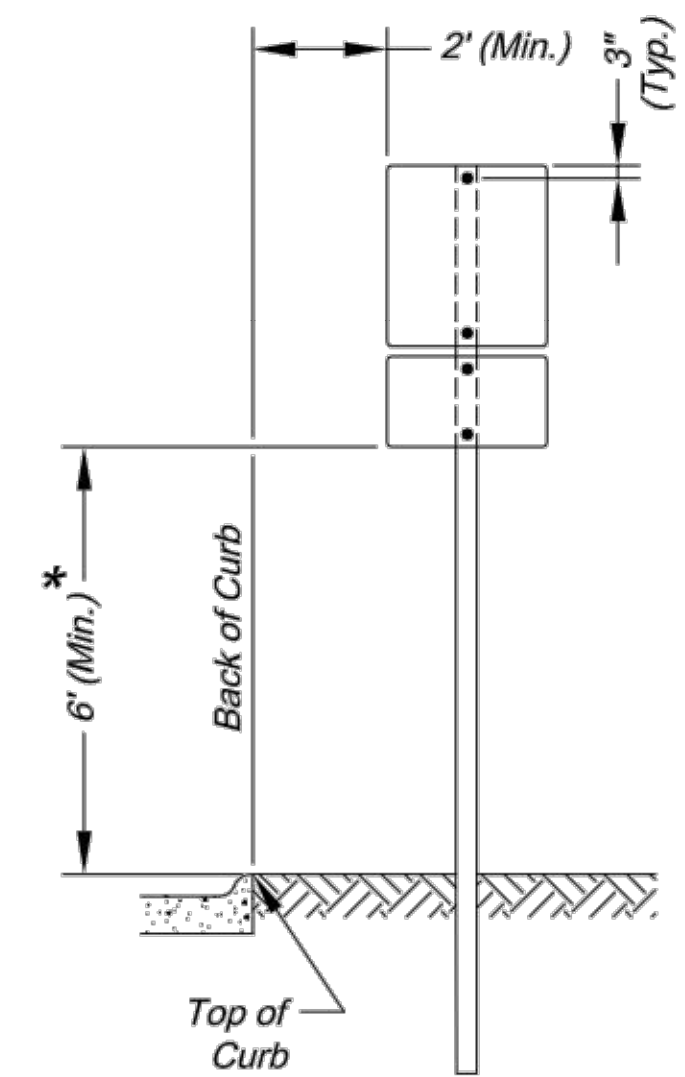
SIGN INSTALLATION WITH AUXILIARY SIGN FOR NON-CURBED STREET



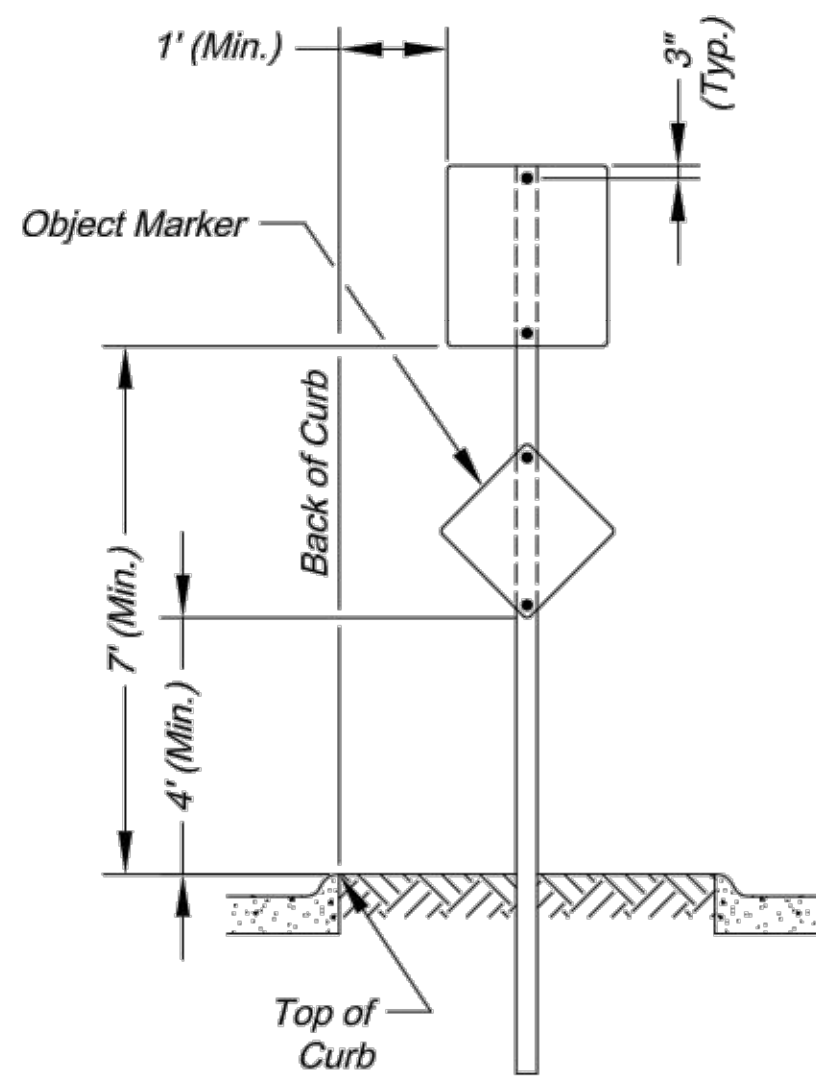
SIGN INSTALLATION WITH TWO SIGN POSTS



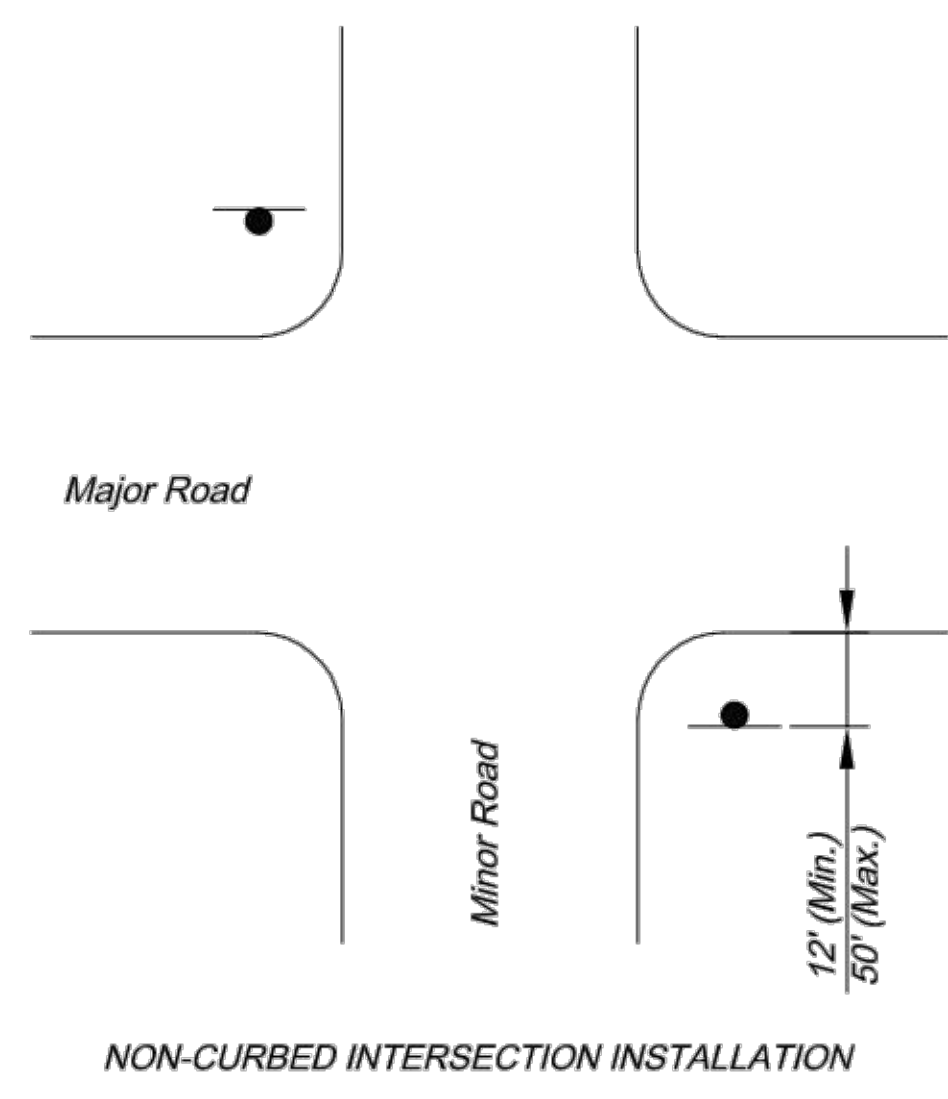
SIGN INSTALLATION FOR CURBED STREET



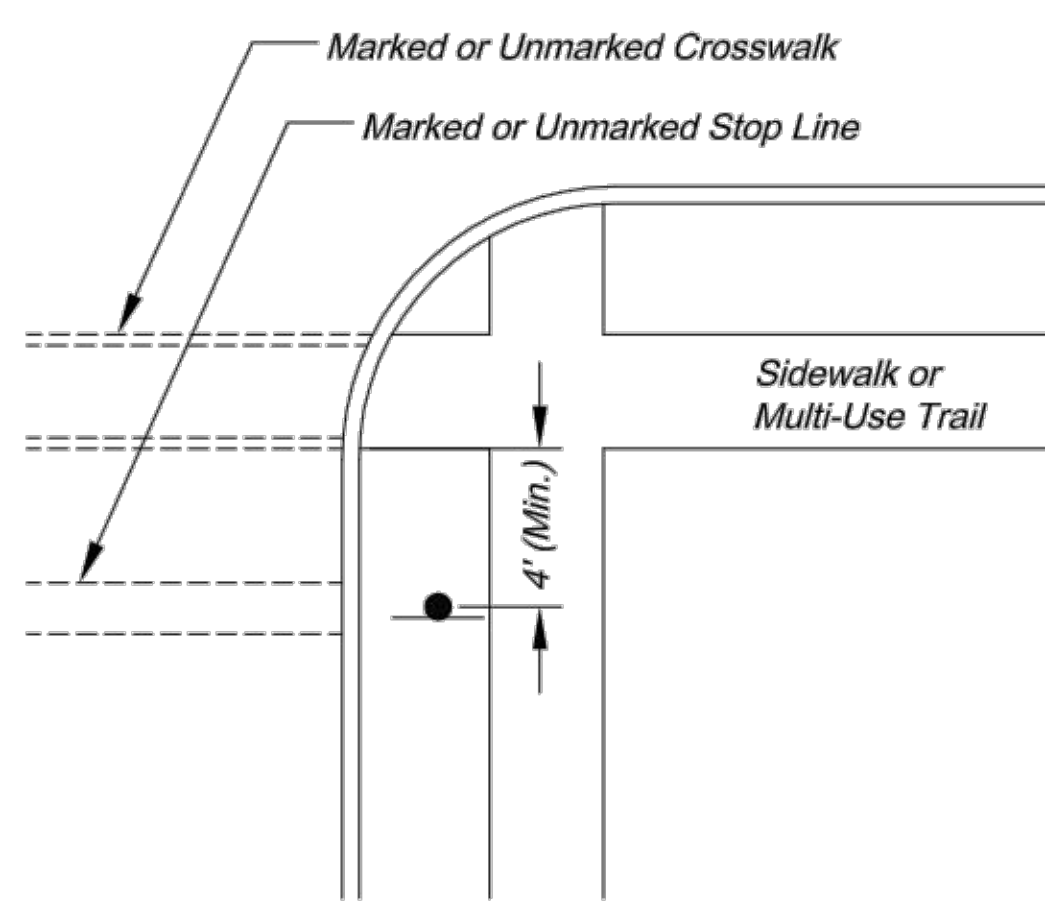
SIGN INSTALLATION WITH AUXILIARY SIGN FOR CURBED STREET



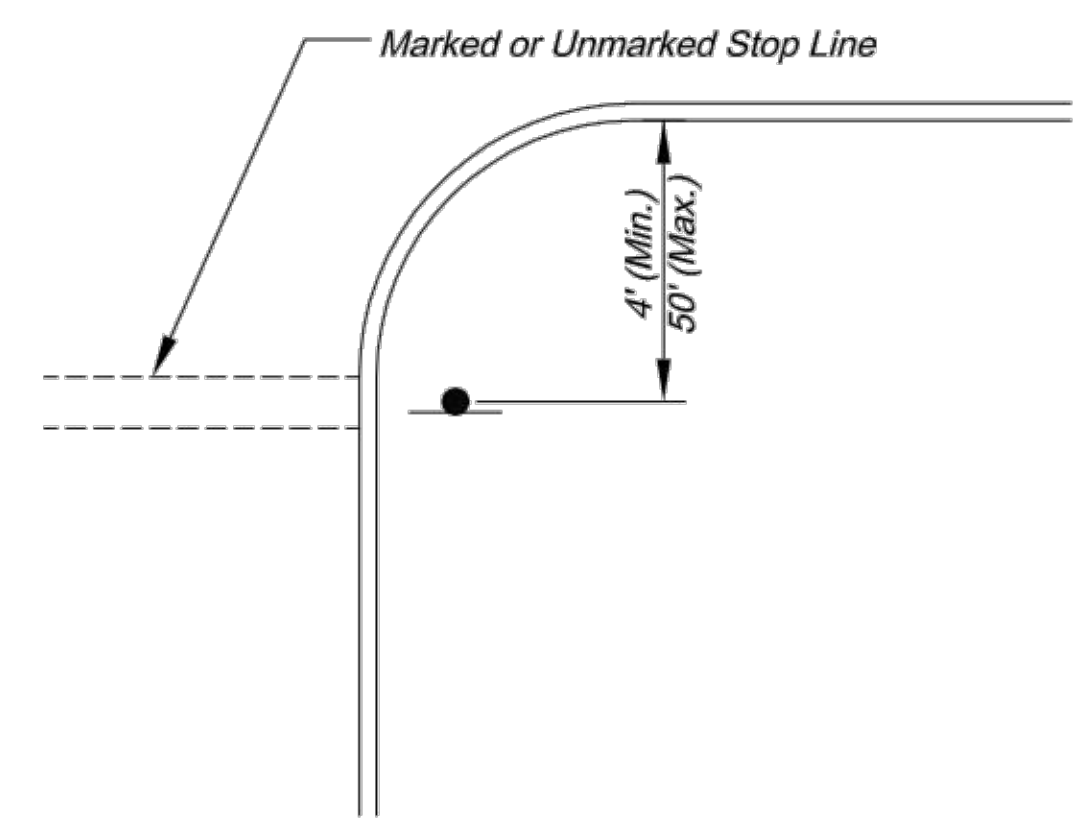
SIGN INSTALLATION FOR RAISED MEDIANS



NON-CURBED INTERSECTION INSTALLATION

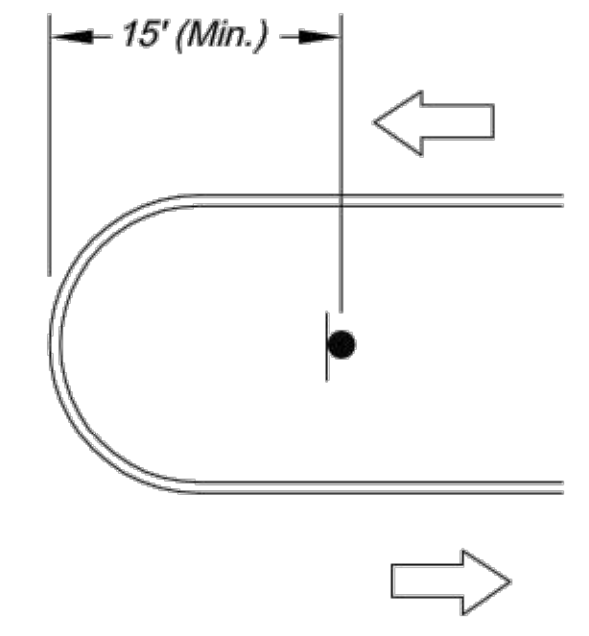


INTERSECTION WITH SIDEWALK / MULTI-USE TRAIL INSTALLATION



CURBED INTERSECTION INSTALLATION

CONTROL SIGN LOCATION



TYPICAL MEDIAN SIGN LOCATION

MEDIAN SIGN LOCATION

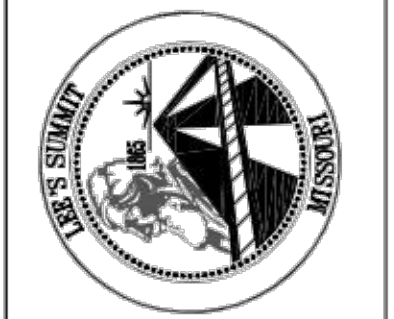
SIGN MOUNTING DETAILS

\* The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 80 inches above the walkway.

- NOTE:
- Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.

- NOTES:
- A 4" P.V.C. sleeve shall be installed in new concrete medians at each location where a sign is to be installed.
  - For existing concrete medians, a 4" hole shall be cored into the concrete.

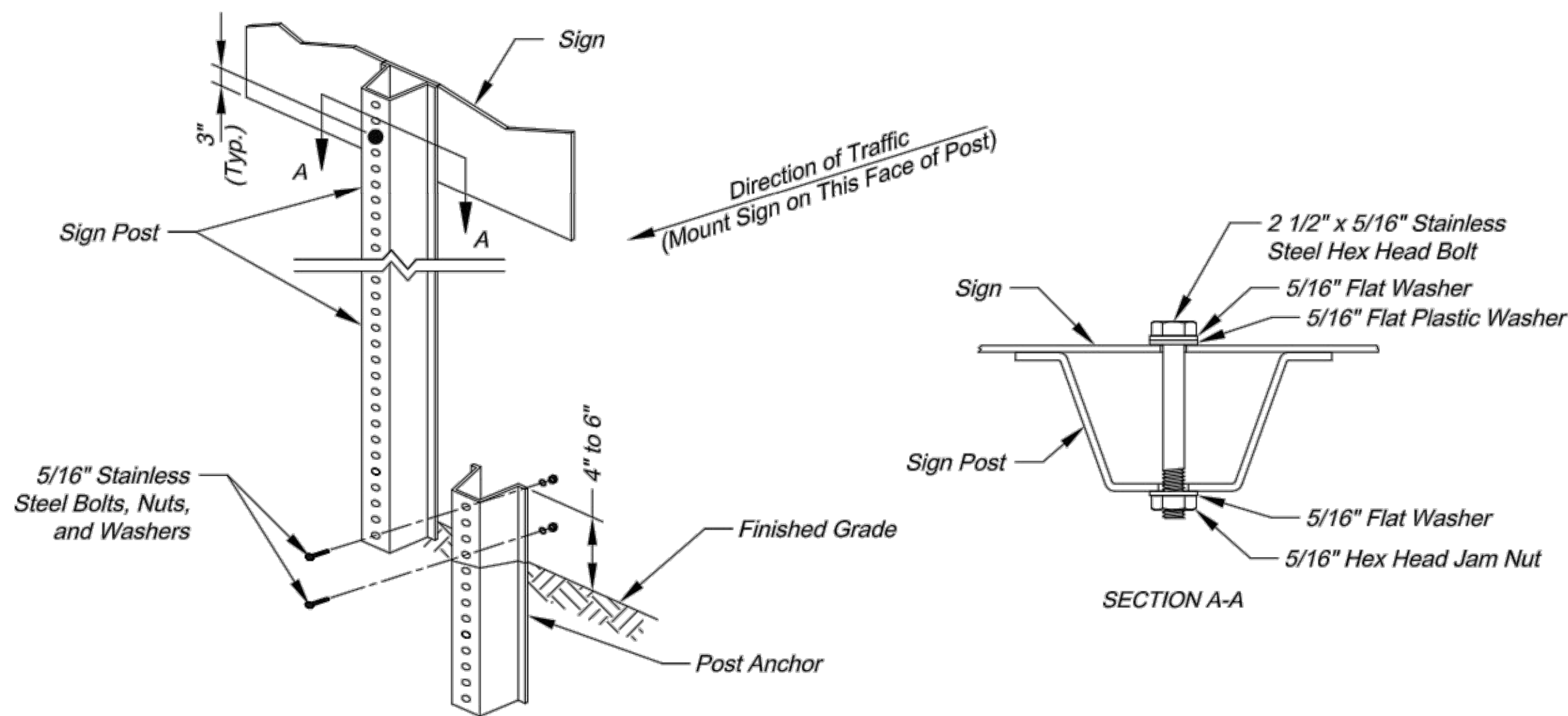
CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64063  
PHONE: (816) 969-1800 FAX: (816) 969-1809



Project:  
SIGN MOUNTING DETAILS  
Sheet Name: STANDARD DRAWING SN-1

Drawn By: AS  
Checked By: JW  
Date: 08/26/2009  
Project#

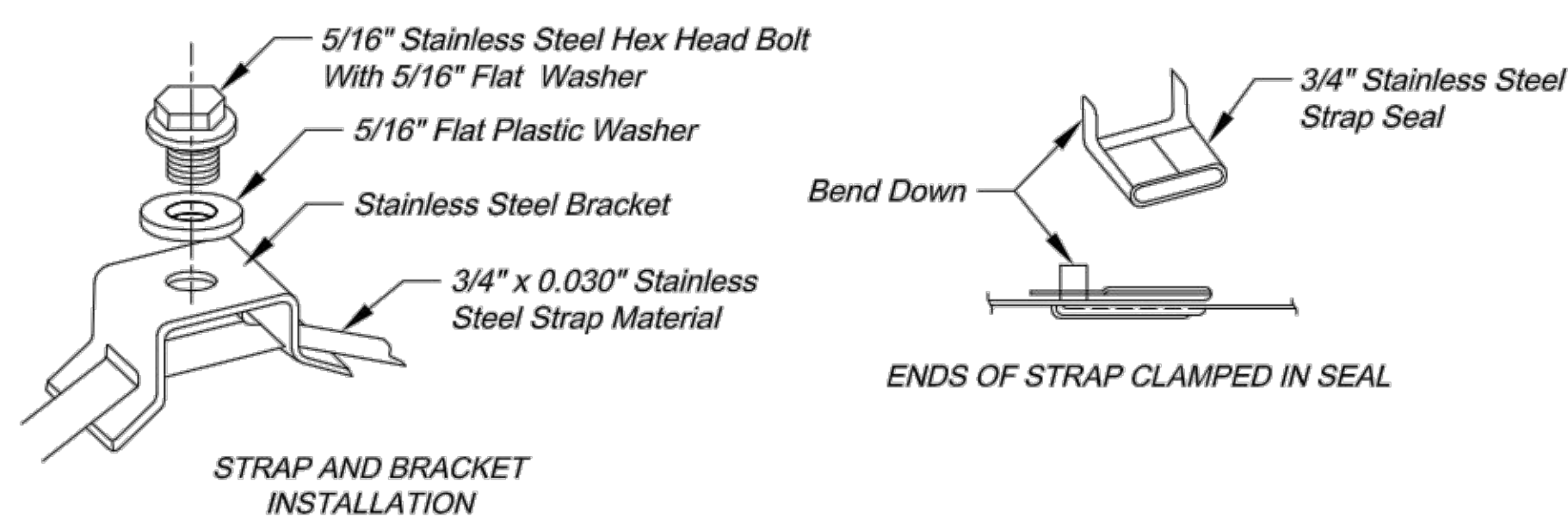




### U-STEEL POST DETAILS

#### U-STEEL POST NOTES:

1. Splice shall be positioned entirely between finished grade line and 18" above finished grade line. Only one splice will be allowed per post.
2. U-Steel post shall be 3 lb./ft., galvanized according to ASTM A123.
3. U-Steel post can be used for installation of signs with an area of less than 2.5 square feet.
4. All posts shall be embedded a minimum of 3 feet.



### STRAP TYPE SIGN SUPPORT DETAILS

#### METAL POLE SIGN MOUNTING NOTES:

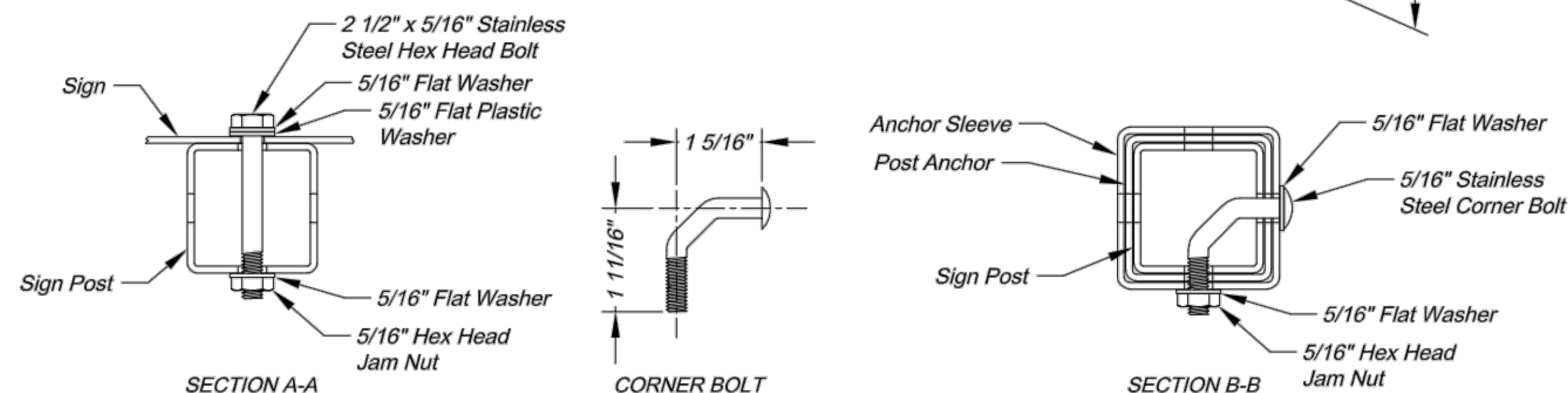
1. Signs on metal poles shall be attached with two brackets and stainless steel bands.
2. Holes in sign for attachment to the mounting brackets shall be offset a minimum of 2 inches from the edge of the sign.
3. Holes in sign shall be located such that the sign is level.
4. All strap, bracket, and seal materials should be Type 201 stainless steel.

#### PERMANENT SIGNING GENERAL NOTES:

1. All signing shall be in accordance with the latest edition of the *Manual on Uniform Traffic Control Devices (MUTCD)*.
2. The Contractor is responsible for avoiding any and all utilities when installing sign posts, whether the utility is indicated on the plans or not.
3. All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit.
4. The Contractor shall stake the location of all sign posts to be installed. The City Inspector shall inspect the staking prior to installation. Minor relocation to avoid conflicts may be allowed with the approval of the City Traffic Engineer or designee.
5. Signs shown to be installed on the side of metal poles shall be mounted with stainless steel straps or wing brackets as detailed. No signs are to be installed on wood poles. See *Traffic Signal Standard Drawings* for the installation of signs on mast arms.
6. All post mounted signs shall be installed with breakaway anchors according to the Standard Drawings.
7. All existing signs will be used in place during construction and protected from damage unless otherwise indicated in the plans. If the Contractor damages any existing sign or posts during construction, the Contractor will be required to replace the damaged materials with new signs or posts of the same type and size at the Contractor's expense. The Contractor shall be responsible for removing and storing any signs that are to be reinstalled on the project. All equipment shall be reinstalled in good condition.
8. Existing permanent signs and posts removed by the Contractor for construction purposes which are not to be reinstalled shall be delivered to the City's Public Works Maintenance Facility (1971 SE Hamblen Road). The Contractor shall be responsible for removing and storing equipment in good condition and is fully responsible for the equipment until it is delivered.
9. All Stop, Yield, or street name signs shall be maintained in a conspicuous location for the driving public. All Stop and Yield signs removed for construction purposes can be temporarily erected in reflectorized drums (no less than 7 feet above the pavement surface) until they can be reinstalled. Any temporary Stop or Yield sign installation to be left in place overnight will require prior approval from the City Inspector.

#### SQUARE STEEL POST INSTALLATION SEQUENCE:

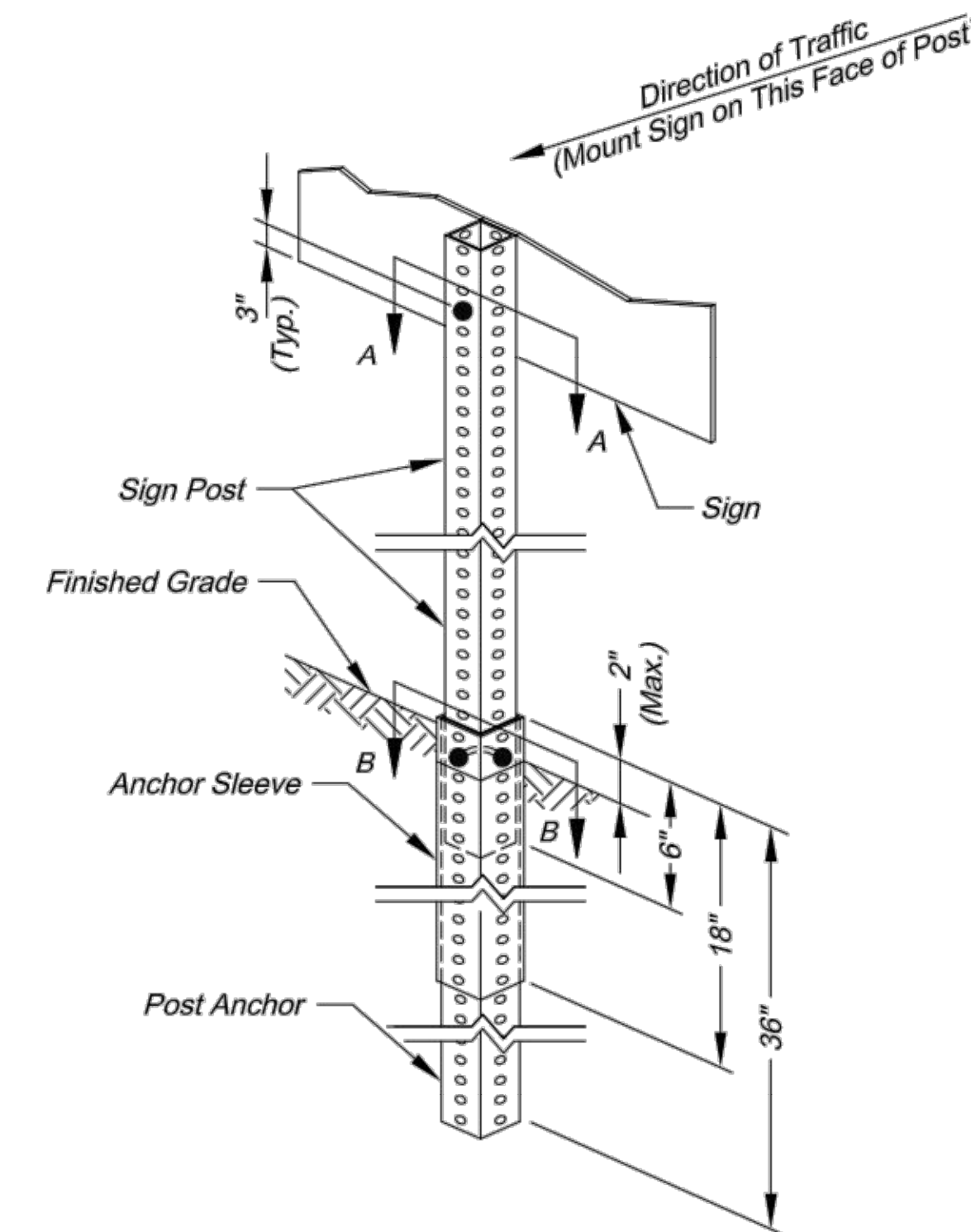
1. Sign post anchor driven partially into the ground using a drive cap with a sledge or power equipment.
2. Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.
3. Insert sign post into the post anchor and bolt in place.



### SQUARE STEEL POST DETAILS

#### SQUARE STEEL POST NOTES:

1. Square steel sign posts and break-away anchor shall consist of the following materials:  
 Sign Post - 14 Ga. 2" x 2" Square Steel Post  
 Post Anchor - 12 Ga. 2 1/4" x 2 1/4" x 36" Square Steel Post  
 Anchor Sleeve - 12 Ga. 2 1/2" x 2 1/2" x 18" Square Steel Post
2. 14 Gauge posts must meet a certified minimum yield strength of 60,000 psi.
3. In all installations the first hole above the finished grade line on the sign post, anchor, and anchor sleeve must be in line for the insertion of the corner bolt.
4. The maximum area for one sign post is 9.0 square feet. A sign or combination of signs with an area greater than 9.0 square feet will require two posts. Also, signs with a width greater than 36" (not including 36" x 36" diamond shaped signs) will require two posts.



CITY OF LEE'S SUMMIT  
 PUBLIC WORKS DEPARTMENT  
 ENGINEERING DIVISION  
 220 SE GREEN STREET  
 LEE'S SUMMIT, MISSOURI 64063  
 PHONE: (816) 969-1800 FAX: (816) 969-1809



SIGN POST DETAILS  
 STANDARD DRAWING SN-2

Project:  
 Sheet Name:  
 Drawn By: AS  
 Checked By: JW  
 Date: 08/26/2009  
 Project#



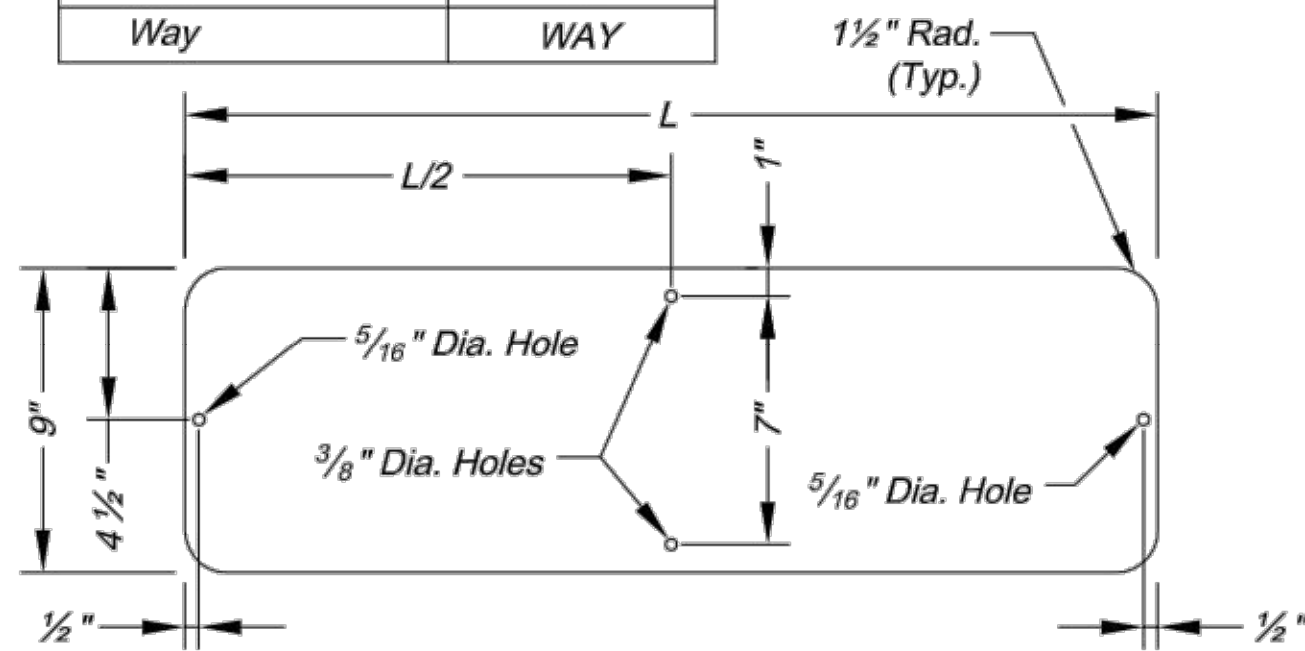
### STANDARD ABBREVIATION LISTS

Named Streets	
Avenue	AVE
Boulevard	BLVD
Circle	CIR
Creek	CR
Court	CT
Crossing	XING
Drive	DR
Highway	HWY
Lane	LN
Parkway	PKWY
Place	PL
Road	RD
Street	ST
Terrace	TER
Trail	TRL
Way	WAY

Numbered Streets	
First	ST
Second	ND
Third	RD
Fourth to Tenth	TH

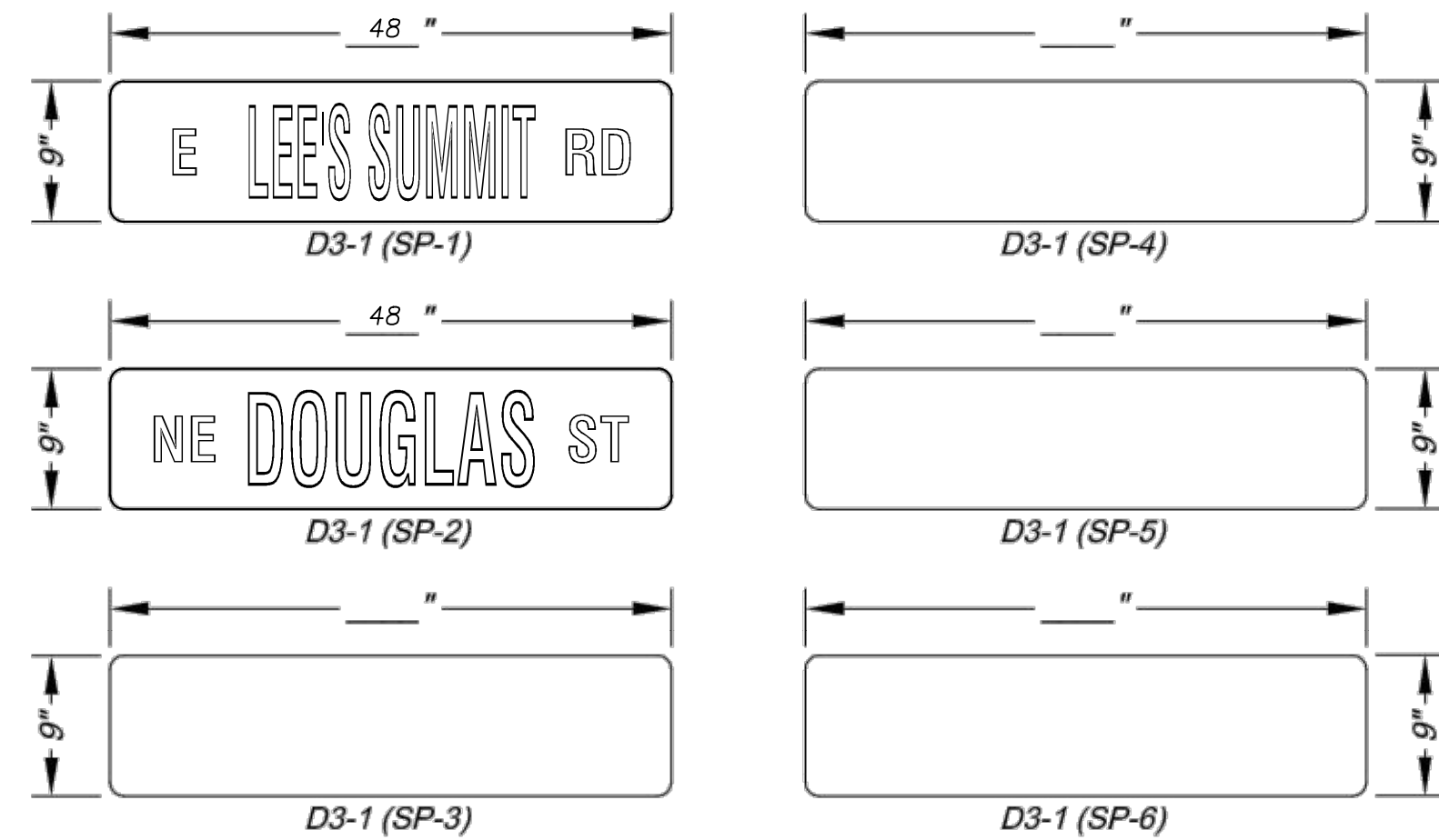
### STREET NAME SIGN QUANTITIES

Sign Designation	Sign Size	Sign Area (Sq. Ft.)	Number	Quantity (Sq. Ft.)
D3-1 (SP-1) E LEES SUMMIT RD	9" x 48"	3.00	2	6.00
D3-1 (SP-2) NE DOUGLAS ST	9" x 48"	3.00	4	12.00

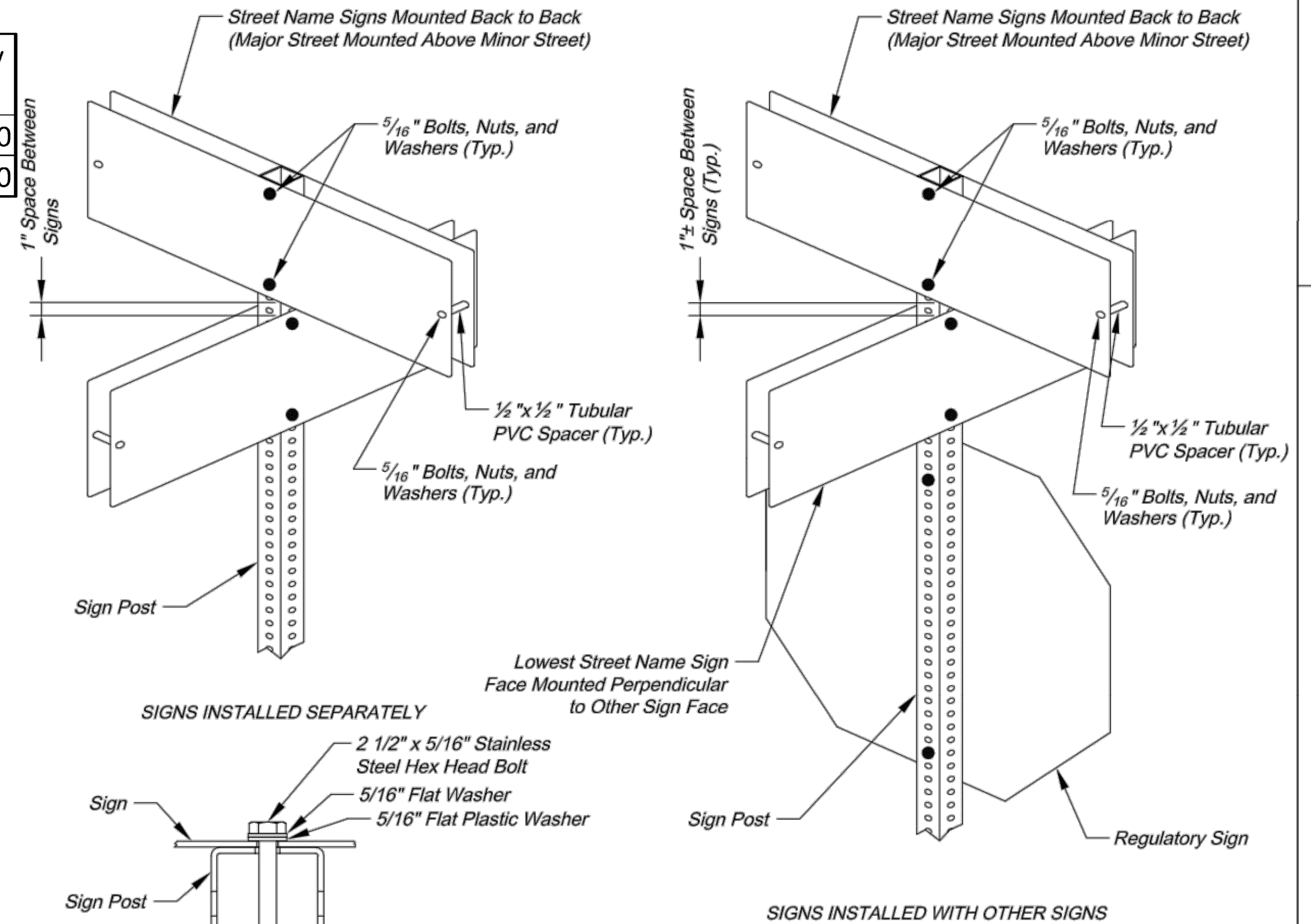


### STREET NAME SIGN BLANK DETAILS

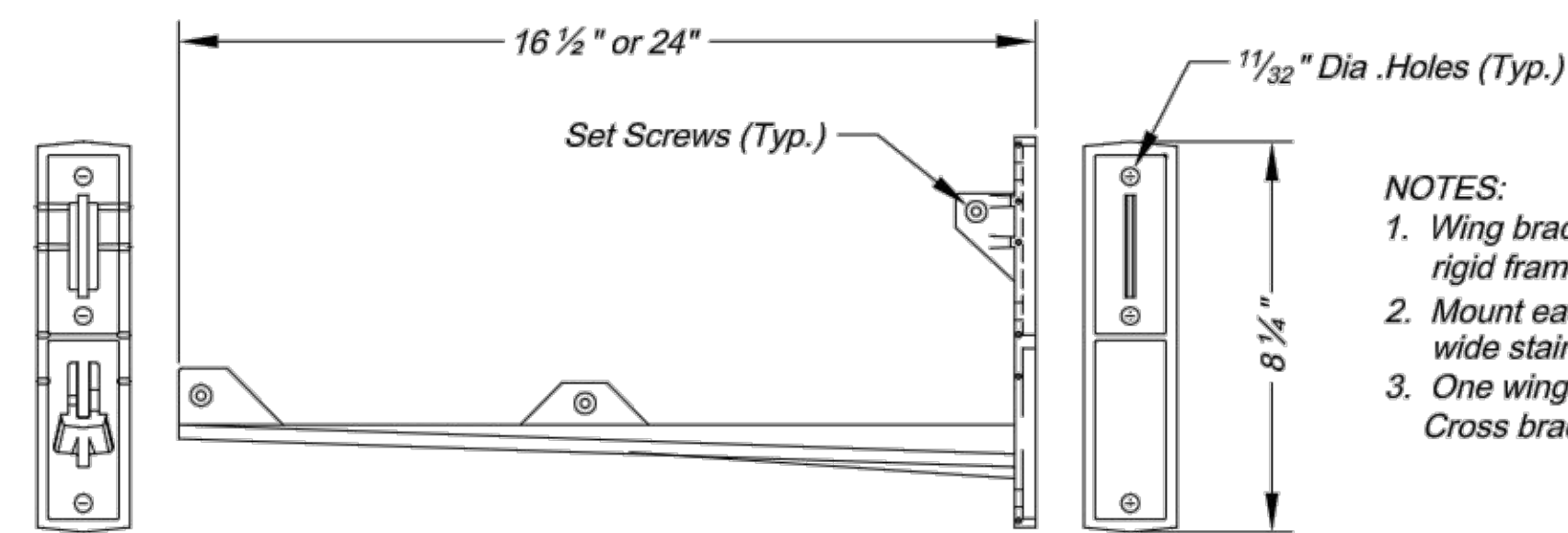
For Mounting on Square Steel Posts



### PROJECT SIGN DETAILS

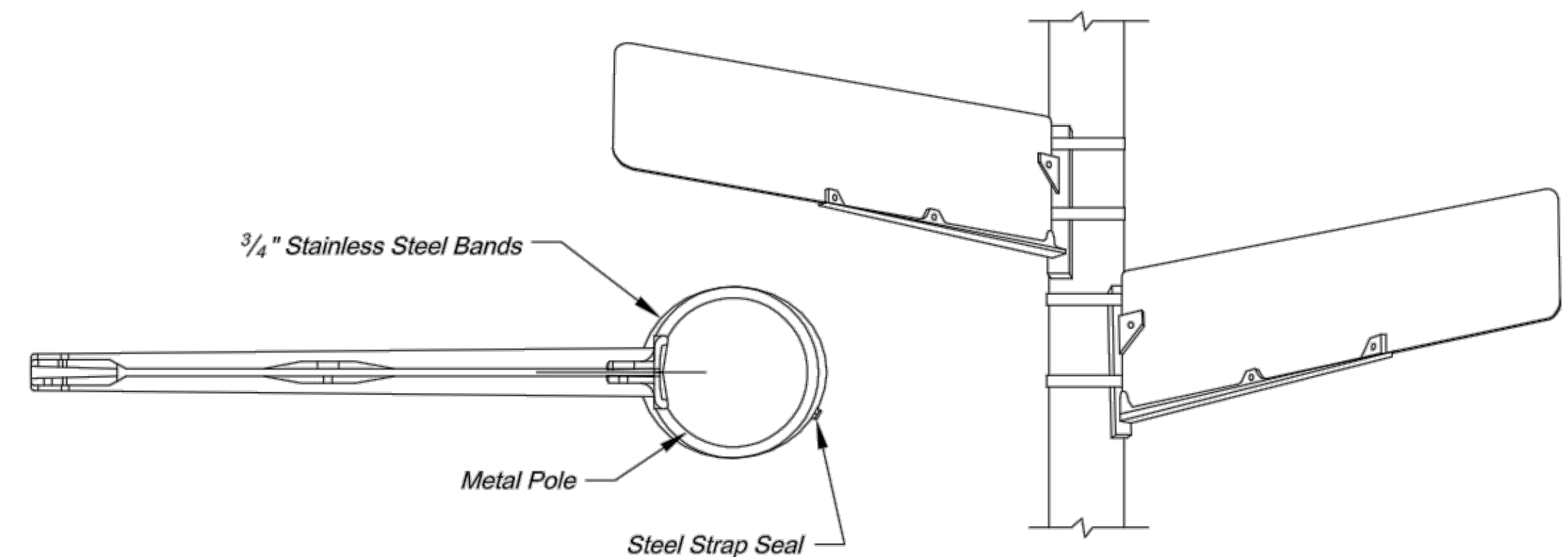


### SQUARE STEEL POST MOUNTING DETAILS

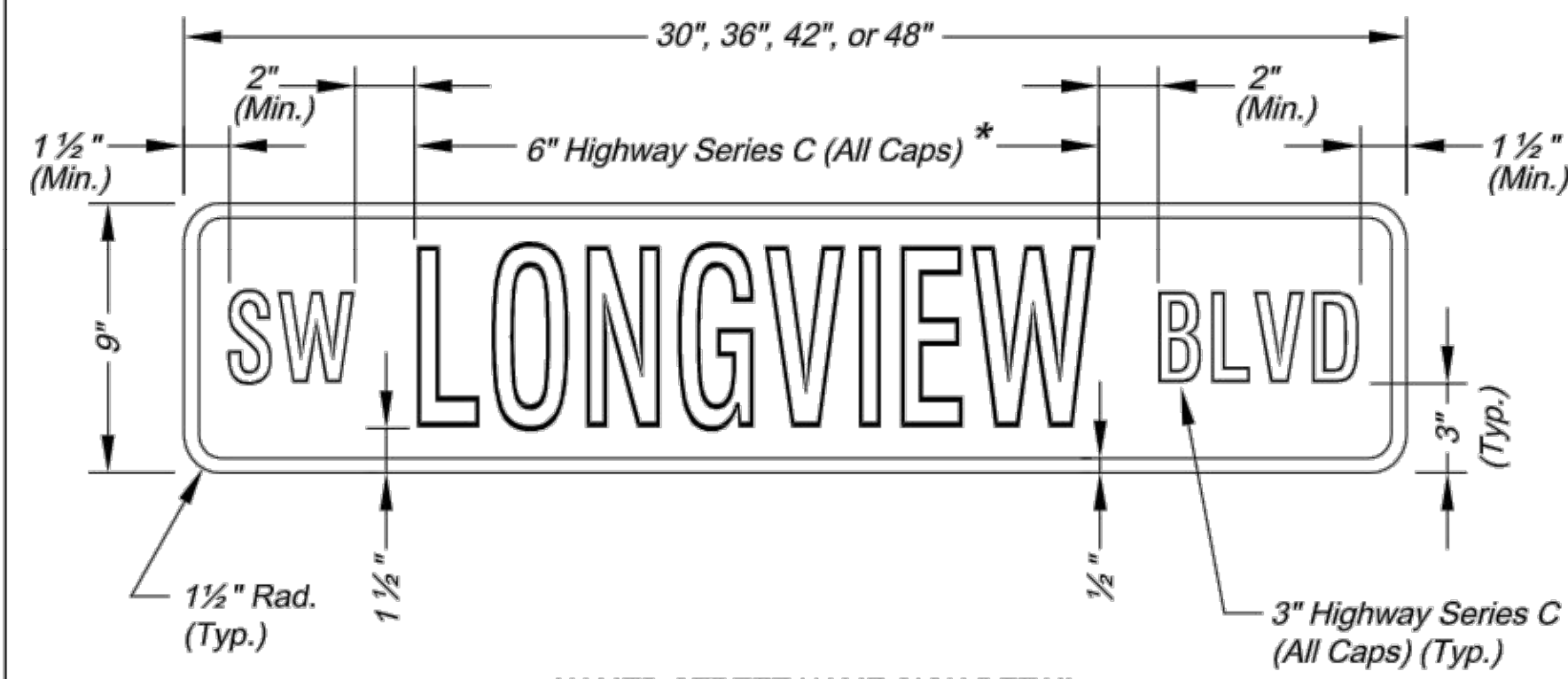


#### NOTES:

1. Wing bracket shall be an L-shaped cantilever of T-beam rigid frame 380-3 aluminum alloy construction.
2. Mount each wing bracket to metal pole using two 3/4" wide stainless steel straps.
3. One wing bracket shall be installed per each sign. Cross brackets are not allowed.

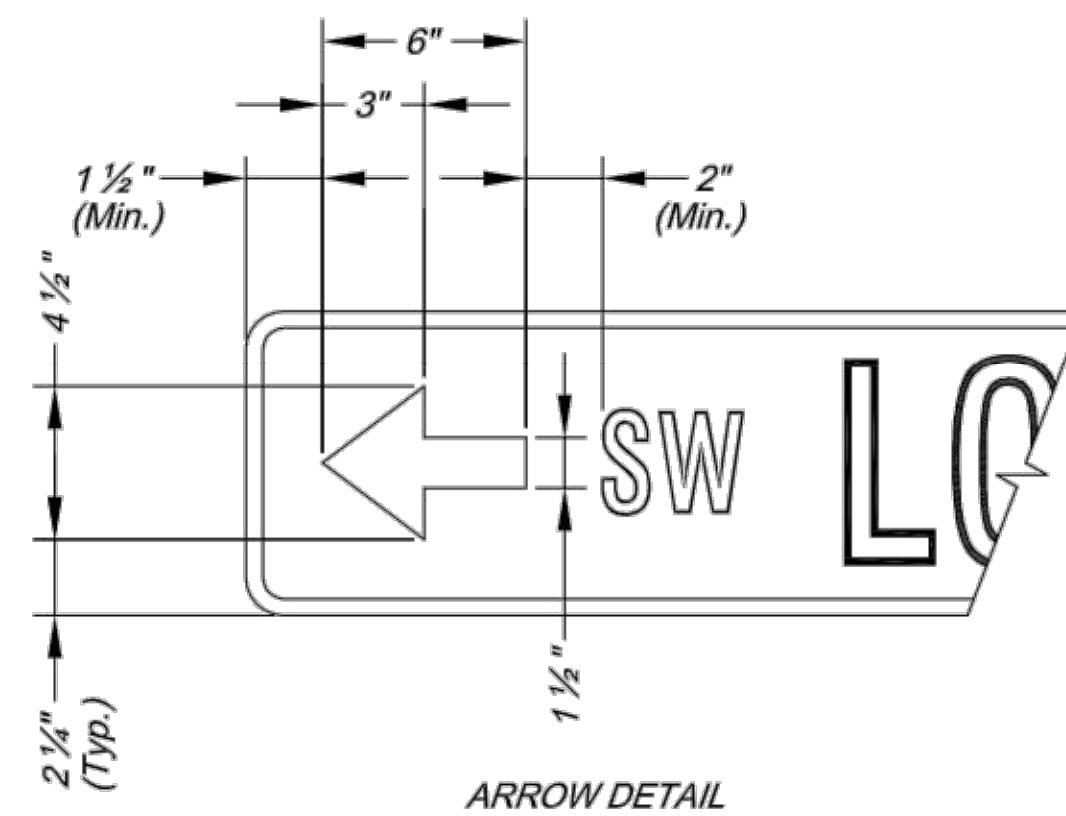


### WING BRACKET MOUNTING DETAILS

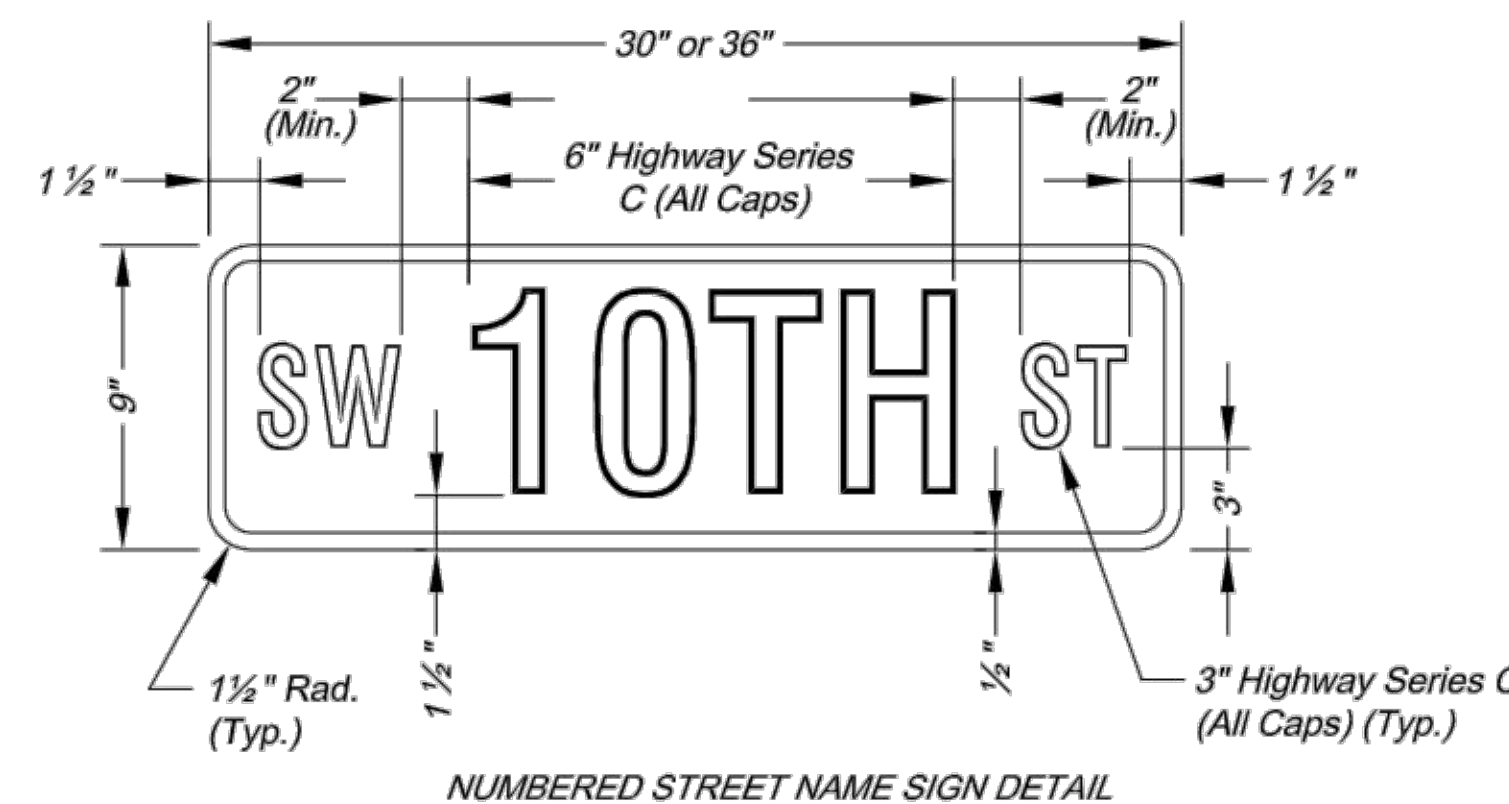


#### NAMED STREET NAME SIGN DETAIL

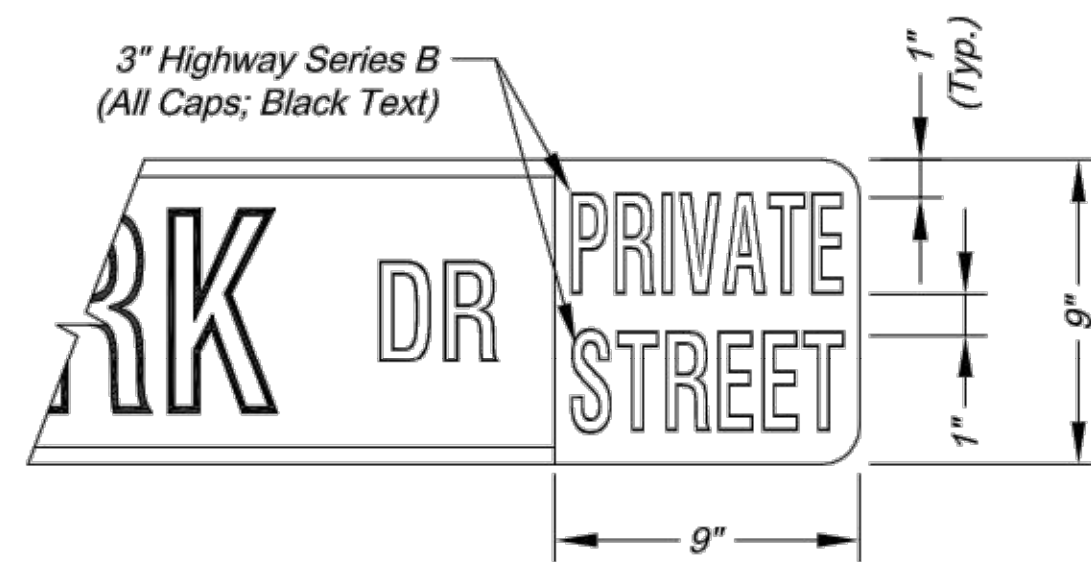
\* Use Highway Series B (All Caps) in lieu of series C if necessary to fit text on a 36" sign blank.



#### ARROW DETAIL



#### NUMBERED STREET NAME SIGN DETAIL



#### PRIVATE STREET TAG DETAIL

#### NOTES:

1. For all street name signs, the legend shall be white and the background shall be green.
2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.
3. The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.

### STREET NAME SIGN FACE DETAILS

CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64063  
PHONE: (816) 969-1800 FAX: (816) 969-1809



Project: STREET NAME SIGN DETAILS  
Sheet Name: STANDARD DRAWING SN-3

Drawn By: AS  
Checked By: JW  
Date: 08/26/2009  
Project#