BM=851.06	TNH 113+46.60 W75TH ST / LYNDALE AVE
BM=850.50	TNH 119+39.56 W74TH ST/ LYNDALE AVE
BM=852.05	TNH 146+38.92 W70TH ST/ LYNDALE AVE
BM=851.22	TNH 172.02+65 W66TH ST / LYNDALE AVE

CITY OF RICHFIELD

CONSTRUCTION PLANS FOR

LYNDALE AVENUE RECONSTRUCTION

CONSTRUCTION PLAN FOR: GRADING, AGGREGATE BASE, PLANT-MIXED BITUMINOUS SURFACE, CONCRETE CURB & GUTTER, RETAINING WALL, SANITARY SEWER, WATERMAIN, STORM SEWER, TRAFFIC SIGNALS, AND TURF RESTORATION

FEBRUARY, 2019

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

S.A.P. 157-363-032

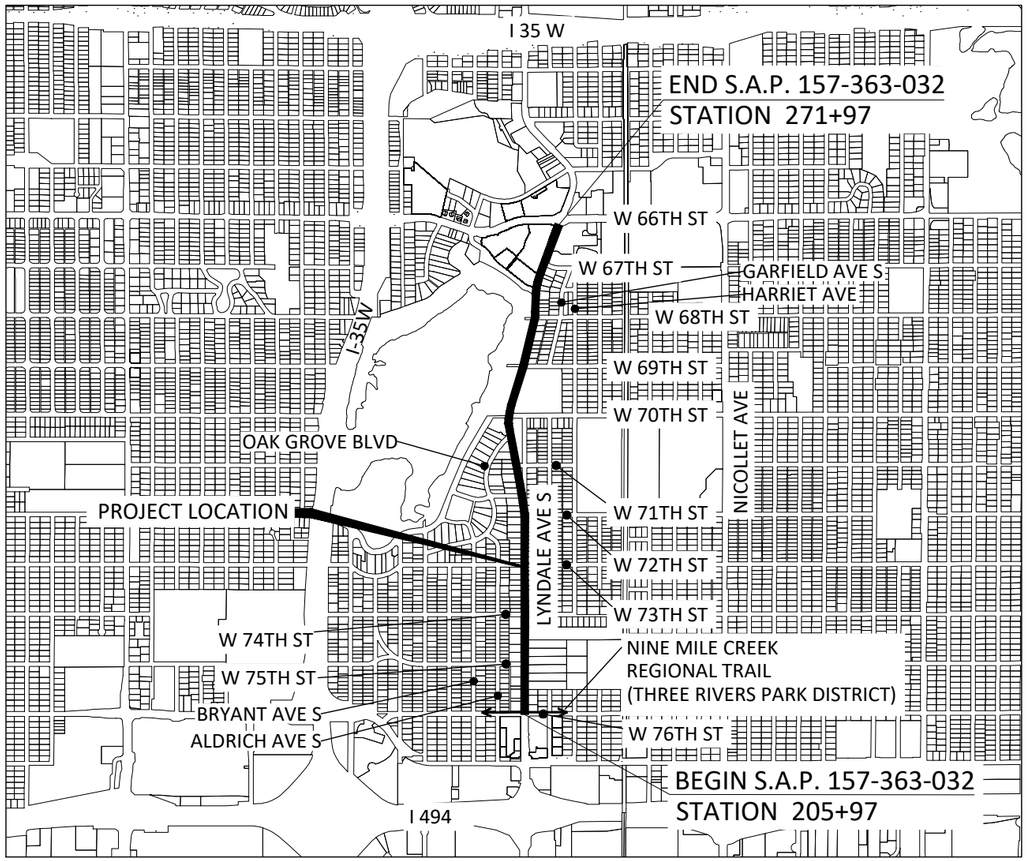
FROM 76TH STREET TO 66TH STREET

LYNDALE AVENUE DESIGN DESIGNATION

GROSS LENGTH 6,697 FEET 1.27 MILES
R Value 30
Pres. ADT 10,200-12,400 (2019)
Proj. ADT 12,240-14,880 (2039)
Proj. HCADT 1,062-1,230
9 Ton Design
Shoulder Width
Roadway Classification MINOR RELIEVER
No. Of Traffic Lanes 2
No. Of Parking Lanes 0-2
Design Speed 30 MPH
Based On Stopping Sight Distance
Height Of Eye 3.5' Height Of Object 0.5'
Design Speed Not Achieved At
STA. 246+00 MPH. 15
STA. 259+70 MPH. 15
STA. 267+00 MPH. 15

DESIGN DESIGNATION - TRAIL

Design Speed: 20 MPH
Based On: Stopping Sight Distance
Height Of Eye 4.5' Height Of Object 0.0'
Design Speed Not Achieved At
STA. TO STA. MPH.
STA. TO STA. MPH.
STA. TO STA. MPH.



MAP OF THE
CITY OF RICHFIELD
HENNEPIN COUNTY, MN

MAP LEGEND

PROJECT LIMITS

0 1000 2000
SCALE FEET

SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01 - G0.03	TITLE SHEET, LEGEND, GENERAL NOTES
G1.01 - G1.04	STATEMENT OF ESTIMATED QUANTITIES
G2.01	GENERAL LAYOUT
CIVIL	
C0.01 - C0.06	EXISTING CONDITIONS, REMOVALS PLAN
C1.01 - C1.33	TYPICAL SECTIONS, TABLES, DETAILS, PHASING PLAN
C2.01 - C2.08	EROSION CONTROL PLAN, SWPPP
C4.01 - G4.09	SANITARY SEWER & WATER PLAN & PROFILE
C5.01 - C5.10	STORM SEWER PLAN & PROFILE
C6.01 - C6.29	STREET PLAN & PROFILE, INTERSECTION DETAILS
C7.01 - C7.61	SIGNING & STRIPING, SIGNALS, LIGHTING
C8.01 - C8.20	STANDARD DETAIL PLATES, STANDARD PLANS
C9.01 - C9.07	RETAINING WALLS
C9.08 - C9.27	CROSS SECTIONS
LANDSCAPE	
L1.01 - L2.07	LANDSCAPING PLAN

THIS PLAN SET CONTAINS 232 SHEETS.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

ENGR. _____ DATE 02/19/2019
TIM LAMKIN JR LIC. NO. 47099

APPROVED _____ DATE _____
RICHFIELD CITY ENGINEER

APPROVED _____ DATE _____
DISTRICT STATE AID ENGINEER
REVIEWED FOR COMPLIANCE WITH STATE AID RULES

RECORD DRAWING INFORMATION
OBSERVER:
CONTRACTOR:
DATE:

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

Richfield The Urban Hometown

DESIGNED	ZP/TL/SL
DRAWN	ZP/JW
CHECKED	TL/SL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
TITLE SHEET

SHEET G0.01

EXISTING TOPOGRAPHIC SYMBOLS

- ACCESS GRATE
- AIR CONDITION UNIT
- ANTENNA
- AUTO SPRINKLER CONNECTION
- BARRICADE PERMANENT
- BASKETBALL POST
- BENCH
- BIRD FEEDER
- BUSH-DECIDUOUS
- CATCH BASIN RECTANGULAR CASTING
- CATCH BASIN CIRCULAR CASTING
- CURB STOP
- CLEAN OUT
- CULVERT END
- DRINKING FOUNTAIN
- DOWN SPOUT
- FILL PIPE
- FIRE HYDRANT
- FLAG POLE
- FLARED END / APRON
- FUEL PUMP
- GRILL
- GUY WIRE ANCHOR
- HANDHOLE
- HANDICAP SPACE
- IRRIGATION SPRINKLER HEAD
- IRRIGATION VALVE BOX
- LIFT STATION CONTROL PANEL
- LIFT STATION
- MAILBOX
- MANHOLE-COMMUNICATION
- MANHOLE-ELECTRIC
- MANHOLE-GAS
- MANHOLE-HEAT
- MANHOLE-SANITARY SEWER
- MANHOLE-STORM SEWER
- MANHOLE-UTILITY
- MANHOLE-WATER
- METER
- ORDER MICROPHONE
- PARKING METER
- PAVEMENT MARKING
- PEDESTAL-COMMUNICATION
- PEDESTAL-ELECTRIC
- PEDESTRIAN PUSH BUTTON
- PICNIC TABLE
- POLE-LIGHT
- POLE-UTILITY
- POST
- RAILROAD SIGNAL POLE
- REGULATION STATION GAS
- SATELLITE DISH
- SIGN TRAFFIC
- SIGNAL CONTROL CABINET
- SOIL BORING
- SIREN
- TELEPHONE BOOTH
- TILE INLET
- TILE OUTLET
- TILE RISER
- TRANSFORMER-ELECTRIC
- TREE-CONIFEROUS
- TREE-DEAD
- TREE-DECIDUOUS
- TREE STUMP
- TRAFFIC ARM BARRIER
- TRAFFIC SIGNAL
- TRASH CAN
- UTILITY MARKER
- VALVE
- VALVE POST INDICATOR
- VALVE VAULT
- VENT PIPE
- WATER SPIGOT
- WELL
- WETLAND DELINEATED MARKER
- WETLAND
- YARD LIGHT
- WET WELL
- YARD HYDRANT

PROPOSED TOPOGRAPHIC SYMBOLS

- CLEANOUT
- MANHOLE
- LIFT STATION
- STORM SEWER CIRCULAR CASTING
- STORM SEWER RECTANGULAR CASTING
- STORM SEWER FLARED END / APRON
- STORM SEWER OUTLET STRUCTURE
- STORM SEWER OVERFLOW STRUCTURE
- CURB BOX
- FIRE HYDRANT
- WATER VALVE
- WATER REDUCER
- WATER BEND
- WATER TEE
- WATER CROSS
- WATER SLEEVE
- WATER CAP / PLUG
- RIP RAP
- DRAINAGE FLOW

SURVEY SYMBOLS

- BENCH MARK LOCATION
- CONTROL POINT
- MONUMENT IRON FOUND
- CAST IRON MONUMENT

EXISTING TOPOGRAPHIC LINES

- RETAINING WALL
- FENCE
- FENCE-DECORATIVE
- GUARD RAIL
- TREE LINE
- BUSH LINE

SURVEY LINES

- CONTROLLED ACCESS
- BOUNDARY
- CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- SETBACK LINE
- SECTION LINE

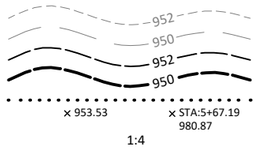
EXISTING UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE

PROPOSED UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE
- PIPE CASING

GRADING INFORMATION



- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED GRADING LIMITS / SLOPE LIMITS
- PROPOSED SPOT ELEVATION
- RISE:RUN (SLOPE)

HATCH PATTERNS

- BITUMINOUS
- CONCRETE
- GRAVEL

EXISTING PRIVATE UTILITY LINES

NOTE:
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- F F F F — UNDERGROUND FIBER OPTIC
- E E E E — UNDERGROUND ELECTRIC
- G G G G — UNDERGROUND GAS
- C C C C — UNDERGROUND COMMUNICATION
- OE OE OE — OVERHEAD ELECTRIC
- OC OC OC — OVERHEAD COMMUNICATION
- OU OU OU — OVERHEAD UTILITY

UTILITIES IDENTIFIED WITH A QUALITY LEVEL OTHER THAN D:

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL
EXAMPLE: G-A G-A — UNDERGROUND GAS, QUALITY LEVEL A
UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-02.

UTILITY QUALITY LEVELS:

LEVEL D - INFORMATION COMES SOLELY FROM EXISTING UTILITY RECORDS.

LEVEL C - SURVEYING ABOVE GROUND UTILITY FACILITIES, SUCH AS MANHOLES, VALVE BOXES, ETC; AND CORRELATING THIS INFORMATION WITH EXISTING UTILITY RECORDS.

LEVEL B - THE USE OF SURFACE GEOPHYSICAL TECHNIQUES TO DETERMINE THE EXISTENCE AND HORIZONTAL POSITION OF UNDERGROUND UTILITIES.

LEVEL A - THE USE OF NONDESTRUCTIVE DIGGING EQUIPMENT AT HORIZONTAL AND VERTICAL POSITION OF UNDERGROUND UTILITIES, AS WELL AS THE TYPE, SIZE, CONDITION, MATERIAL, AND OTHER CHARACTERISTICS.

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	SAN	SANITARY SEWER
ADJ	ADJUST	GU	GUTTER	SCH	SCHEDULE
ALT	ALTERNATE	GV	GATE VALVE	SERV	SERVICE
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SHLD	SHOULDER
BIT	BITUMINOUS	HH	HANDHOLE	STA	STATION
BLDG	BUILDING	HP	HIGH POINT	STD	STANDARD
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STM	STORM SEWER
BR	BEGIN RADIUS	HYD	HYDRANT	TC	TOP OF CURB
BV	BUTTERFLY VALVE	I	INVERT	TCE	TEMPORARY CONSTRUCTION EASE
CB	CATCH BASIN	K	CURVE COEFFICIENT	TEMP	TEMPORARY
C&G	CURB AND GUTTER	L	LENGTH	TNH	TOP NUT HYDRANT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TYP	TYPICAL
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	VCP	VITRIFIED CLAY PIPE
CL	CENTER LINE	LT	LEFT	VERT	VERTICAL
CL.	CLASS	MH	MANHOLE	VPC	VERTICAL POINT OF CURVE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VPI	VERTICAL POINT OF INTERSECTION
C.O.	CHANGE ORDER	MR	MID RADIUS	VPT	VERTICAL POINT OF TANGENT
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	WM	WATERMAIN
CON	CONCRETE	NMC	NON-METALLIC CONDUIT		
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE		
CULV	CULVERT	NWL	NORMAL WATER LEVEL	AC	ACRES
DIA	DIAMETER	OHW	ORDINARY HIGH WATER LEVEL	CF	CUBIC FEET
DIP	DUCTILE IRON PIPE	PC	POINT OF CURVE	CV	COMPACTED VOLUME
DWY	DRIVEWAY	PCC	POINT OF COMPOUND CURVE	CY	CUBIC YARD
E	EXTERNAL CURVE DISTANCE	PED	PEDESTRIAN, PEDESTAL	EA	EACH
EASE	EASEMENT	PERF	PERFORATED PIPE	EV	EXCAVATED VOLUME
ELEC	ELECTRIC	PERM	PERMANENT	LB	POUND
ELEV	ELEVATION	PI	POINT OF INTERSECTION	LF	LINEAR FEET
EOF	EMERGENCY OVERFLOW	PL	PROPERTY LINE	LS	LUMP SUM
ER	END RADIUS	PRC	POINT OF REVERSE CURVE	LV	LOOSE VOLUME
EX	EXISTING	PT	POINT OF TANGENT	SF	SQUARE FEET
FES	FLARED END SECTION	PVC	POLYVINYL CHLORIDE PIPE	SV	STOCKPILE VOLUME
F-F	FACE TO FACE	PVMT	PAVEMENT	SY	SQUARE YARD
FF	FINISHED FLOOR	R	RADIUS		
F&I	FURNISH AND INSTALL	RCP	REINFORCED CONCRETE PIPE		
FM	FORCEMAIN	RET	RETAINING		
FO	FIBER OPTIC	ROW	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RSC	RIGID STEEL CONDUIT		
GRAN	GRANULAR	RT	RIGHT		

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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Richfield — The Urban Hometown

DESIGNED	NO.	REVISION	DATE
ZP/TL/SL			
DRAWN ZP/JW			
CHECKED TL/SL			
CLIENT PROJ. NO. T16114541			

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
LEGEND

SHEET G0.02

GENERAL STAGING NOTES

1. PROPOSED STAGING SHOWN IN THE PLANS IS INTENDED AS CONSTRAINTS WITHIN WHICH THE CONTRACTOR SHALL SCHEDULE AND COMPLETE WORK. THE CONTRACTOR MAY IMPLEMENT ADDITIONAL INTERIM STAGES. SUCH INTERIM STAGES SHALL BE DETERMINED AND IMPLEMENTED BY THE CONTRACTOR BASED ON THE CONTRACTOR'S RESOURCES, SCHEDULE, SPECIFIED WORK, AND INTERIM CONTRACT DEADLINES.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROGRESSION OF WORK AND SHALL SUBMIT A DETAILED SCHEDULE TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMMENCING WORK ON ANY PHASE.

GENERAL TRAFFIC CONTROL NOTES

1. ACCESS TO PROPERTIES SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL ALSO SUPPLY ACCESS TO AND FROM THE SITE FOR PRIVATE UTILITY IMPROVEMENTS/RELOCATIONS, AND AS OTHERWISE PROVIDED FOR IN THE SPECIAL PROVISIONS.
2. THE CONTRACTOR SHALL MAINTAIN GARBAGE AND RECYCLING SERVICE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ACCESS FOR GARBAGE TRUCKS. WHEN INFEASIBLE TO MAINTAIN SUCH ACCESS, THE CONTRACTOR SHALL COLLECT CONTAINERS, RELOCATE THEM TO A LOCATION WHERE SUITABLE ACCESS CAN BE PROVIDED, AND RETURN CONTAINERS IN GOOD WORKING CONDITION TO THE SAME PROPERTY FROM WHICH THEY WERE TAKEN. ALL CONTAINERS MUST BE LABELED WITH THE HOUSE ADDRESS PRIOR TO MOVING. COSTS FOR PROVIDING ACCESS OR HAULING CONTAINERS TO AN ACCESSIBLE LOCATION SHALL BE INCIDENTAL TO THE CONTRACT.
3. THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MN MUTCD) AND INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. TRAFFIC CONTROL NOT IN COMPLIANCE WITH MN MUTCD WILL BE SUBJECT TO VIOLATION IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
4. THE ITEM "TRAFFIC CONTROL" BID AS "LUMP SUM" SHALL INCLUDE ALL COSTS FOR PROVIDING TEMPORARY CONTROLS SPECIFIED IN THE PLAN AND OTHER TRAFFIC CONTROL REQUIRED PER THE MN MUTCD DUE TO THE CONTRACTORS OPERATIONS FOR COMPLETION OF THE PROJECT INCLUDING BUT NOT LIMITED TO, RECLAIMING & PAVING UNDER TRAFFIC, TEMPORARY ROAD CLOSURES IN FULL OR TO THRU TRAFFIC, TEMPORARY LANE CLOSURES, ADJUSTMENTS TO THE TRAFFIC CONTROL PLAN FOR LARGE AND SMALL SCALE STAGING OPERATIONS, AND NECESSARY DETOURS FOR MOTORISTS, BICYCLISTS, AND/OR PEDESTRIANS.THE AMOUNT BID SHALL ALSO INCLUDE SUFFICIENT TRAFFIC CONTROL FOR WARNING OF POTENTIAL HAZARDS DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO FLASHING BARRICADES AROUND EQUIPMENT AND OBSTRUCTIONS.

REMOVAL NOTES

1. PRIOR TO REMOVALS, REQUIRED EROSION CONTROL DEVICES ARE TO BE INSTALLED.
2. SOIL BORINGS INDICATE BITUMINOUS ROADWAY OVER CONCRETE ROADWAY IN A NUMBER OF BORINGS. CONTRACTOR SHALL INCLUDE FOR COST FOR FULL-DEPTH REMOVAL OF PAVEMENT (BITUMINOUS & CONCRETE)IN UNIT PRICE BID FOR REMOVE PAVEMENT.
3. COORDINATE WITH UTILITY OWNER TO RELOCATE POWER AND LIGHT POLES, AND OTHER PRIVATE UTILITIES AS NECESSARY.
4. ALL ADJACENT BITUMINOUS AND CONCRETE SURFACES SHALL BE CLEANLY SAWCUT PRIOR TO REMOVAL.
5. REMOVALS SHALL BE LIMITED TO AREAS WITHIN THE DEFINED PROJECT LIMITS. RESTORATION OF AREAS OUTSIDE OF PROJECT LIMITS SHALL BE COMPLETED AT THE CONTRACTOR'S COST UNLESS OTHERWISE APPROVED.
6. WATER AND SANITARY SERVICE REMOVALS ARE NOT SHOWN. SERVICES WILL BE REMOVED AND REPLACED TO THE RIGHT OF WAY UNLESS DIRECTED BY ENGINEER. CONTRACTOR IS RESPONSIBLE TO LOCATE THE EXISTING SEWER AND WATER SERVICES. SERVICE PIPE REMOVAL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OF NEW SERVICE.
7. CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE, AND FEDERAL REGULATIONS IN DISPOSING OF MATERIALS REMOVED FROM THIS SITE.
8. DRIVEWAY REMOVAL LIMITS SHOWN ON THE PLAN ARE APPROXIMATE. REMOVAL LIMITS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
9. ANY TREES, SHRUBS, AND PLANTINGS TO BE REMOVED SHALL BE DESIGNATED IN ADVANCE BY THE ENGINEER.
10. CONTRACTOR SHALL PROTECT ALL ITEMS DESIGNATED FOR SALVAGE AND PROVIDE APPROPRIATE STORAGE UNTIL RE-INSTALLATION. ANY ITEMS DESIGNATED TO BE SALVAGED WHICH ARE DAMAGED SHALL BE REPLACED WITH NEW AT NO COST TO THE OWNER. REPAIR OF DAMAGED ITEMS SHALL NOT BE ALLOWED UNLESS APPROVED BY THE ENGINEER.
11. ANY LANDSCAPING MATERIALS WITHIN R.O.W. TO BE REMOVED SHALL BE DESIGNATED IN ADVANCE BY THE ENGINEER AND REMOVAL SHALL BE CONSIDERED INCIDENTAL.
12. ALL ITEMS NOT IDENTIFIED FOR REMOVAL SHALL BE PROTECTED DURING CONSTRUCTION.
13. SEE PROJECT MANUAL FOR CONTRACTOR'S REQUIREMENTS TO PROVIDE TEMPORARY WATER SERVICE WITH AFFECTED USERS.
14. TREES/SHRUBS/LANDSCAPING TO BE RELOCATED.
15. SANITARY SEWER PIPE SHALL BE REMOVED FOLLOWING INSTALLATION OF NEW MAIN AND CONNECTION OF SERVICE LATERAL TO NEW MAIN. CONSTRUCTION WILL NEED TO BE STAGED SUCH THAT SERVICE TO ALL PROPERTIES REMAIN THROUGHOUT.

UTILITY CONSTRUCTION NOTES

1. WATER AND SANITARY SERVICE LOCATIONS SHOWN ARE APPROXIMATE AND NOT ALL SERVICES MAY BE SHOWN.
2. NEW SERVICES SHALL MATCH EXISTING SERVICE SIZE BUT MINIMUM SERVICE SIZE SHALL BE 1-INCH FOR WATER AND 6-INCH FOR SANITARY. PROVIDE FITTINGS AND COUPLERS AS REQUIRED TO CONNECT TO EXISTING SERVICES.
3. PLACE NEW CURB STOP AND BOX ON R.O.W. LINE OR AS DIRECTED BY ENGINEER.
4. ROUTING OF NEW SERVICE LINES AROUND TREES AND DRIVEWAYS AS DIRECTED BY ENGINEER SHALL BE CONSIDERED INCIDENTAL.
5. SANITARY SEWER MAIN PIPE SHALL BE SDR-35 UNLESS OTHERWISE NOTED. SANITARY SEWER SERVICE PIPE SHALL BE SDR-26 AND WATER SERVICES SHALL BE COPPER TYPE "K".
6. SANITARY SEWER SERVICE SHALL NOT BE DISRUPTED TO PROPERTIES. EXISTING SYSTEM, WITH A MAIN ON THE EAST AND WEST SIDE OF THE ROADWAY BEING REPLACED WITH A SIGNAL MAIN NEAR CENTERLINE. CONTRACTOR SHALL COORDINATE AND STAGE WORK FOR REMOVAL ON EXISTING LINES AND INSTALL OF NEW SERVICES TO ACCOMMODATE CONTINUED SERVICE.
7. CONTRACTOR SHALL LOCATE ALL EXISTING SANITARY AND WATER SERVICE CONNECTIONS AND CONSTRUCT NEW SERVICES TO THE R.O.W. LINE UNLESS DIRECTED BY THE ENGINEER.
8. CONTRACTOR SHALL FIELD VERIFY THE SIZE, LOCATION, AND ELEVATION OF ALL SANITARY SEWER AND WATER SERVICES THAT ARE BEING REPLACED. (INCIDENTAL)
9. MAINTAIN 10' MINIMUM HORIZONTAL SEPARATION OF WATERMAIN WITH SANITARY AND STORM SEWER MAINS, UNLESS OTHERWISE NOTED ON PLANS. WHERE INFEASIBLE , MAINTAIN 18" VERTICAL CLEARANCE.
10. ALL CONNECTIONS TO EXISTING UTILITIES (WMN, SAN, STM, ETC.) SHALL BE FIELD VERIFIED FOR LOCATION AND ELEVATION. (INCIDENTAL)
11. WATER AND SANITARY SERVICE PIPE SHALL BE REMOVED TO SERVICE INSTALLATION LIMITS. REMOVAL OF EXISTING SERVICE PIPES AND CURB STOPS SHALL BE CONSIDERED INCIDENTAL TO NEW SERVICE INSTALLATION. ABANDONED SERVICES WHERE NO NEW SERVICES ARE TO BE INSTALLED (DESIGNATED ON THE PLANS OR FIELD DETERMINED); SHALL HAVE THE EXISTING CURB STOP REMOVED AND BE CONSIDERED INCIDENTAL.
12. EXISTING WATERMAIN DEPTHS AS SHOWN ARE APPROXIMATE. (FIELD VERIFY AS REQUIRED).
13. REPLACE ALL WATER SERVICES BETWEEN NEW MAIN AND CURB BOX WITH NEW 1" TYPE K COPPER WATER SERVICE, UNLESS EXISTING IS GREATER THAN 1", THEN MATCH EXISTING SIZE.
14. A TEMPORARY WATER SERVICE PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL 48 HOURS PRIOR TO PROPOSED TEMPORARY WATER SYSTEM INSTALLATION.
15. THE CONTRACTOR SHALL COORDINATE WATERMAIN WORK WITH THE FIRE DEPARTMENT AND THE CITY. THE CONTRACTOR WILL BE RESPONSIBLE FOR ARRANGING AND PROVIDING ANY REQUIRED WATERMAIN SHUT OFFS WITH THE CITY DURING CONSTRUCTION. ANY COSTS ASSOCIATED WITH WATERMAIN SHUTOFF WILL BE INCIDENTAL.
16. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH UTILITY OWNERS TO RELOCATE AND PROTECT PRIVATE UTILITIES AS NECESSARY TO CONSTRUCT STREET AND UTILITIES.
17. REFER TO PROJECT SPECIFICATIONS FOR STRUCTURE CASTING FRAME & COVER REQUIREMENTS. ALL FRAME & COVER DEVIATIONS SHALL BE INDICATED ON THE PLAN SHEETS.
18. A MINIMUM OF 24 HOURS AND MAXIMUM OF 48 HOURS NOTICE SHALL BE GIVEN TO ALL RESIDENTS AFFECTED BY THE TEMPORARY WATER OUTAGES. A MINIMUM OF 1 WEEK NOTICE OF ANY SERVICE INTERRUPTIONS (OF ANY TYPE) SHALL BE GIVEN TO ANY DAYCARE ON SITE.
19. ADDITIONAL COMPENSATION WILL NOT BE GIVEN FOR WATERMAIN CONSTRUCTED AT EXTRA-DEPTH AS SHOWN ON THE PLANS.
20. MAINTAIN A MINIMUM 7.5FT BURY FOR ALL WATERMAIN.
21. COMMON EXCAVATION WILL BE CONSIDERED INCIDENTAL TO THE PIPE CONSTRUCTION IN ALL UTILITY TRENCH AREAS.
22. PIPE BEDDING MATERIAL SHALL MEET MnDOT & CITY ENGINEERS ASSOCIATION OF MINNESOTA (CEAM) STANDARD SPECIFICATIONS AND ARE CONSIDERED INCIDENTAL TO THE PIPE INSTALLATION.
23. BULKHEADS SHALL BE INCIDENTAL UNLESS OTHERWISE NOTED ON PLANS.

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NOTIFY GOPHER STATE ONE-CALL 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL C. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

CONSTRUCTION NOTES

1. SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL, MUCK AND OTHER MATERIALS AS DETERMINED TO BE UNSUITABLE BY THE ENGINEER.
2. EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF MN/DOT SPEC 2105.
3. THE AMOUNT BID FOR COMMON EXCAVATION SHALL INCLUDE ALL COSTS FOR REMOVAL AND DISPOSAL OF EXCESS EXCAVATED MATERIAL, UNSUITABLE MATERIAL, AND SALVAGING (AND TEMPORARILY STOCKPILING IF NECESSARY) SUITABLE RECLAIMED AGGREGATE BASE MATERIAL FOR REUSE AS AGGREGATE BASE ON THIS PROJECT.
4. SUBGRADE PREPARATION IN ACCORDANCE WITH MN/DOT SPEC 2112 SHALL BE CONSIDERED INCIDENTAL. IN AREAS OF FULL RECONSTRUCTION, SUBGRADE SHALL BE DEFINED AS THE EXISTING GROUND SURFACE LOCATED IMMEDIATELY BENEATH THE PROPOSED AGGREGATE BASE OR SAND SECTION AS SPECIFIED IN THE PLAN.
5. SUBGRADE EXCAVATION AND CORRECTION SHALL BE APPLIED IF NECESSARY TO ACHIEVE SATISFACTORY SURFACES STABILITY AS DETERMINED BY THE ENGINEER. AREAS TO RECEIVE SUBGRADE EXCAVATION SHALL BE SPECIFIED BY THE ENGINEER IN THE FIELD FOLLOWING SUBGRADE PREPARATION AND A ROLL TEST. REPLACEMENT MATERIAL IN AREAS OF SUBGRADE PREPARATION SHALL SATISFY THE REQUIREMENTS OF STABILIZING AGGREGATE AS SPECIFIED IN THE SPECIAL PROVISIONS.
6. WHERE A PROPOSED ROADWAY BEGINS OR TERMINATES AT AN EXISTING ROADWAY, PROVIDE A VERTICAL NOTCH TO THE BOTTOM OF THE AGGREGATE OR BITUMINOUS BASE AND A 20h:1V TAPER.
7. PROVIDE 20h:1V TAPERS BETWEEN LONGITUDINAL CHANGES IN SUB-CUT DEPTHS, UNLESS OTHERWISE SPECIFIED IN THE FIELD BY THE ENGINEER.
8. PROVIDE FOR A SAW-CUT WHERE PLACING NEW PAVEMENT IS INSTALLED ADJACENT TO EXISTING PAVEMENT.
9. ALL MATERIALS TESTING SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
10. ALL USES OF THE WORD "INCIDENTAL" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSTRUED TO MEAN INCIDENTAL WORK FOR WHICH NO DIRECT COMPENSATION SHALL BE MADE.
11. ALL USES OF ABBREVIATION "TYP" IN THESE CONSTRUCTION DOCUMENTS SHALL BE CONSTRUED TO MEAN SIMILAR SYMBOLS/FEATURES SHALL BE TREATED WITH THE SAME NOTE.
12. ALL CASTINGS AND ADJUSTMENTS FOR NEW MANHOLES, CATCH BASINS, AND GATE VALVES SHALL BE INCLUDED IN THE PRICE BID FOR THAT RESPECTIVE ITEM.
13. COORDINATE WITH THE ENGINEER IN THE FIELD FOR LOCATION OF REPLACEMENT BOULEVARD TREES. PUBLIC WORKS STAFF WILL MEET WITH THE CONTRACTOR ON-SITE PRIOR TO ANY TREE PLANTING.
14. ALL ADJUSTMENTS FOR NEW MANHOLES (SPECIAL) SHALL BE INCLUDED IN THE PRICE BID FOR THAT RESPECTIVE ITEM.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
GENERAL CONSTRUCTION NOTES

SHEET G0.03

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	NOTES	UNIT	TOTAL ESTIMATED QUANTITY	ROADWAY	STORM SEWER	SANITARY SEWER	WATERMAIN	LANDSCAPE
2011.601	VIBRATION MONITORING		LUMP SUM	1	0.2	0.2	0.2	0.2	0.2
2021.501	MOBILIZATION		LUMP SUM	1	0.2	0.2	0.2	0.2	0.2
2031.502	FIELD OFFICE TYPE D		EACH	1	1.0				
				⚠1					
2101.524	CLEARING		TREE	89	89				
2101.524	GRUBBING		TREE	89	89				
2102.503	PAVEMENT MARKING REMOVAL		LIN FT	1700	1700				
2104.502	REMOVE MISCELLANEOUS STRUCTURES		EACH	3	3				
2104.502	REMOVE LIGHTING UNIT		EACH	42	42				
2104.502	REMOVE CONCRETE STRUCTURE		EACH	11	11				
2104.502	REMOVE MASONRY WALL		EACH	5	5				
2104.502	REMOVE PLANTER		EACH	1	1				
2104.502	REMOVE MANHOLE		EACH	37			37		
2104.502	REMOVE GATE VALVE & BOX		EACH	47				47	
2104.502	REMOVE DRAINAGE STRUCTURE		EACH	85	85				
2104.502	REMOVE SIGN		EACH	70	70				
⚠2 2104.502	REMOVE SIGNAL SYSTEM	(7)	EACH	2	2				
2104.502	REMOVE LIGHT FOUNDATION		EACH	42	42				
2104.502	SALVAGE HYDRANT		EACH	18				18	
2104.502	SALVAGE SIGN TYPE SPECIAL		EACH	12	12				
2104.502	SALVAGE BICYCLE RACK		EACH	4	4				
2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LIN FT	935	935				
2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN FT	2890	2890				
2104.503	REMOVE WATERMAIN		LIN FT	8635				8635	
2104.503	REMOVE SEWER PIPE (STORM)		LIN FT	4460	4460				
2104.503	REMOVE SEWER PIPE (SANITARY)		LIN FT	10500			10500		
2104.503	REMOVE CURB AND GUTTER		LIN FT	17257	17257				
2104.503	REMOVE RETAINING WALL		LIN FT	183	183				
2104.503	REMOVE FENCE		LIN FT	2020	2020				
2104.503	REMOVE CABLES		LIN FT	37677	37677				
2104.503	REMOVE NON-METALLIC CONDUIT		LIN FT	12559	12559				
2104.503	SALVAGE FENCE		LIN FT	125	125				
2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT		SQ YD	2552	2552				
2104.504	REMOVE PAVEMENT (STREET)		SQ YD	41000	41000				
2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT		SQ YD	4718	4718				
2104.518	REMOVE CONCRETE SIDEWALK		SQ FT	⚠1 71650	71650				
2104.518	REMOVE CONCRETE MEDIAN		SQ FT	994	994				
2104.601	SALVAGE IRRIGATION EQUIPMENT		LUMP SUM	1	1				
2104.603	ABANDON PIPE SEWER		LIN FT	520			520		
2105.507	STRUCTURAL SOIL BORROW (CV)		CU YD	80					80
		⚠1			⚠1				
2106.507	EXCAVATION - COMMON (P)	(P)	CU YD	12500	12500				
2106.507	COMMON EMBANKMENT (CV) (P)	(P)	CU YD	1200	1200				
⚠3 2123.610	1.5 CU YD BACKHOE		HOUR	40		10	20	10	
2123.610	STREET SWEEPER (WITH PICKUP BROOM)		HOUR	500	500				
2130.523	WATER		MGAL	150	150				
		⚠1							
2211.507	AGGREGATE BASE CLASS 5 (CV) (P)	(P)	CU YD	12200	12200				
2301.504	CONCRETE PAVEMENT 7.0"		SQ YD	960	960				
2301.602	DRILL AND GROUT DOWEL BAR (EPOXY COATED)		EACH	1217	1217				
2301.604	CONCRETE PAVEMENT 8.0" SPECIAL 1	(5)	SQ YD	286	286				
2301.604	CONCRETE PAVEMENT 8.0" SPECIAL 2	(6)	SQ YD	562	562				
2360.504	TYPE SP 12.5 WEAR COURSE MIX (3,C) 3.0" THICK (TRAIL)		SQ YD	3707	3707				
2360.504	TYPE SP 12.5 WEAR COURSE MIX (3,C) 3.0" THICK (DRIVEWAY)		SQ YD	2189	2189				
2360.509	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)		TON	3188	3188				
2360.509	TYPE SP 12.5 WEARING COURSE MIX (3,C)		TON	6376	6376				
2411.507	STRUCTURE EXCAVATION CLASS U		CU YD	2667	2667				
2411.607	CONCRETE STEPS		CU YD	5	5				
2411.618	PREFABRICATED MODULAR BLOCK WALL		SQ FT	7372	7372				

NOTES:

⚠1 (P) PLAN QUANTITY

(5) CONCRETE SHALL BE DARK GREY IN COLOR. SEE SPECIAL PROVISIONS.

(6) CONCRETE SHALL BE RED IN COLOR. SEE SPECIAL PROVISIONS.

⚠2 (7) FOR REMOVAL OF SIGNAL SYSTEMS AT LYNDALE AVE/70TH ST AND LYNDALE AVE/67TH ST.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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DESIGNED	NO.	REVISION	DATE
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DRAWN ZP/JW	2	⚠2	03/25/19
CHECKED TL/SL	4	⚠3	03/28/19
CLIENT PROJ. NO. T16114541			

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STATEMENT OF ESTIMATED QUANTITIES

SHEET G1.01R

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	NOTES	UNIT	TOTAL ESTIMATED QUANTITY	ROADWAY	STORM SEWER	SANITARY SEWER	WATERMAIN	LANDSCAPE
2451.607	STRUCTURAL BACKFILL (CV)		CU YD	2389	2389				
2502.602	4" TP PIPE DRAIN CLEANOUT		EACH	4		4			
2503.503	12" RC PIPE SEWER CLASS V		LIN FT	2148		2148			
2503.503	15" RC PIPE SEWER CLASS V		LIN FT	1920		1920			
2503.503	18" RC PIPE SEWER CLASS V		LIN FT	291		291			
2503.503	21" RC PIPE SEWER CLASS III		LIN FT	483		483			
2503.503	24" RC PIPE SEWER CLASS III		LIN FT	604		604			
2503.503	27" RC PIPE SEWER CLASS III		LIN FT	33		33			
2503.503	30" RC PIPE SEWER CLASS III		LIN FT	174		174			
2503.503	48" RC PIPE SEWER CLASS III		LIN FT	108		108			
2503.503	12" PVC PIPE SEWER (C900)		LIN FT	20		20			
2503.503	16" PVC PIPE SEWER (C900)		LIN FT	25		25			
2503.503	24" PVC PIPE SEWER (C900)		LIN FT	20		20			
2503.602	CONNECT TO EXISTING STORM SEWER		EACH	18		18			
2503.602	CONNECT TO EXISTING DRAINAGE STRUCTURE		EACH	6		6			
2503.602	CONNECT TO EXISTING SANITARY SEWER		EACH	10			10		
2504.602	CONNECT TO EXISTING SANITARY SEWER (CORE DRILL)		EACH	1			1		
2503.602	CONNECT TO EXISTING SANITARY SEWER SERVICE		EACH	117			117		
2503.602	8"X6" PVC WYE (SDR 26)		EACH	5			5		
2503.602	10"X6" PVC WYE (SDR 26)		EACH	4			4		
2503.602	12"X6" PVC WYE (SDR 26)		EACH	89			89		
2503.603	4" PVC PIPE SEWER (SDR 26)		LIN FT	40			40		
2503.603	6" PVC PIPE SEWER (SDR 26)		LIN FT	5200			5200		
2503.603	8" PVC PIPE SEWER (SDR 35)		LIN FT	704			704		
2503.603	10" PVC PIPE SEWER (SDR 35)		LIN FT	720			720		
2503.603	12" PVC PIPE SEWER (SDR 35)		LIN FT	5285			5285		
2503.603	16" STEEL CASING PIPE		LIN FT	16		16			
2503.603	24" STEEL CASING PIPE		LIN FT	20		20			
2503.603	30" STEEL CASING PIPE		LIN FT	16		16			
2504.601	TEMPORARY WATER SERVICE		LUMP SUM	1				1	
2504.601	INSTALL IRRIGATION EQUIPMENT		LUMP SUM	1				1	
2504.602	CONNECT TO EXISTING WATERMAIN		EACH	9				9	
2504.602	CONNECT TO EXISTING WATER SERVICE (1")		EACH	87				87	
2504.602	CONNECT TO EXISTING WATER SERVICE (1 1/2")		EACH	1				1	
2504.602	CONNECT TO EXISTING WATER SERVICE (2")		EACH	7				7	
2504.602	CONNECT TO EXISTING WATER SERVICE (4")		EACH	5				5	
2504.602	CONNECT TO EXISTING WATER SERVICE (6")		EACH	4				4	
2504.602	INSTALL HYDRANT		EACH	16				16	
2504.602	1" CORPORATION STOP		EACH	87				87	
2504.602	1 1/2" CORPORATION STOP		EACH	1				1	
2504.602	2" CORPORATION STOP		EACH	7				7	
2504.602	4" GATE VALVE & BOX		EACH	5				5	
2504.602	6" GATE VALVE & BOX		EACH	21				21	
2504.602	8" GATE VALVE & BOX		EACH	6				6	
2504.602	12" GATE VALVE & BOX		EACH	17				17	
2504.602	16" GATE VALVE & BOX		EACH	1				1	
2504.602	1" CURB STOP & BOX		EACH	87				87	
2504.602	1 1/2" CURB STOP & BOX		EACH	1				1	
2504.602	2" CURB STOP & BOX		EACH	7				7	
2504.603	1" TYPE K COPPER WATER SERVICE		LIN FT	3700				3700	
2504.603	1 1/2" TYPE K COPPER WATER SERVICE		LIN FT	30				30	
2504.603	2" TYPE K COPPER WATER SERVICE		LIN FT	150				150	
2504.603	4" WATERMAIN DUCTILE IRON CL 52		LIN FT	225				225	
2504.603	6" WATERMAIN DUCTILE IRON CL 52		LIN FT	816				816	
2504.603	8" WATERMAIN DUCTILE IRON CL 52		LIN FT	362				362	
2504.603	12" WATERMAIN DUCTILE IRON CL 52		LIN FT	6576				6576	
2504.604	4" INSULATION		SQ YD	200				200	
2504.608	DUCTILE IRON FITTINGS		POUND	4700				4700	

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TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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DRAWN ZP/JW	2	2	03/25/19
CHECKED TL/SL			
CLIENT PROJ. NO. T16114541			

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STATEMENT OF ESTIMATED QUANTITIES

SHEET G1.02R

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	NOTES	UNIT	TOTAL ESTIMATED QUANTITY	ROADWAY	STORM SEWER	SANITARY SEWER	WATERMAIN	LANDSCAPE
2506.502	CASTING ASSEMBLY (SANITARY)		EACH	29			29		
2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL (2'X3')		EACH	47		47			
2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN H		EACH	2		2			
2506.502	CASTING ASSEMBLY (STORM MH)		EACH	28		28			
2506.502	CASTING ASSEMBLY (STORM CB)		EACH	71		71			
2506.502	ADJUST FRAME & RING CASTING		EACH	12		12			
2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020		LIN FT	217.3		217.3			
2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020		LIN FT	24.3		24.3			
2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 72-4020		LIN FT	88.7		88.7			
2506.603	CONSTRUCT SANITARY SEWER MANHOLE (48" DIA)		LIN FT	320.9			320.9		
2521.518	4" CONCRETE WALK		SQ FT	52492	52492				
2521.518	4" CONCRETE WALK SPECIAL 1	(5)	SQ FT	12308	12308				
2521.518	4" CONCRETE WALK SPECIAL 2	(6)	SQ FT	8163	8163				
2521.518	6" CONCRETE WALK		SQ FT	10744	10744				
2521.518	6" CONCRETE WALK SPECIAL 1	(5)	SQ FT	61	61				
2531.503	CONCRETE CURB & GUTTER DESIGN B612		LIN FT	3500	3500				
2531.503	CONCRETE CURB & GUTTER DESIGN B618		LIN FT	4130	4130				
2531.503	CONCRETE CURB & GUTTER DESIGN B660		LIN FT	11710	11710				
2531.503	CONCRETE CURB & GUTTER DESIGN D412		LIN FT	2270	2270				
2531.503	CONCRETE CURB & GUTTER DESIGN R424		LIN FT	275	275				
2531.503	CONCRETE CURB & GUTTER DESIGN V1012		LIN FT	56	56				
2531.503	CONCRETE CURB DESIGN V6		LIN FT	25	25				
2531.503	CONCRETE CURB DESIGN V10		LIN FT	25	25				
2531.503	CONCRETE CURB DESIGN V10 (MODIFIED)		LIN FT	55	55				
2531.503	CONCRETE CURB DESIGN B6		LIN FT	79	79				
2531.504	6" CONCRETE DRIVEWAY PAVEMENT		SQ YD	1500	1500				
2531.504	6" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1	(5)	SQ YD	15	15				
2531.504	8" CONCRETE DRIVEWAY PAVEMENT		SQ YD	714	714				
2531.504	8" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1	(5)	SQ YD	233	233				
2531.603	CONCRETE SILL		LIN FT	971	971				
2531.604	7" CONCRETE VALLEY GUTTER		SQ YD	123	123				
2531.618	TRUNCATED DOMES		SQ FT	1736	1736				
2540.602	ENTRANCE MONUMENT 1		EACH	1					1
2540.602	ENTRANCE MONUMENT 2		EACH	1					1
2540.602	BICYCLE RACK	(4)	EACH	4	4				
2545.502	LIGHTING UNIT TYPE SPECIAL 1		EACH	28	28				
2545.502	LIGHTING UNIT TYPE SPECIAL 2		EACH	36	36				
2545.502	LIGHT FOUNDATION DESIGN E MODIFIED		EACH	64	64				
2545.503	2" NON-METALLIC CONDUIT		LIN FT	12670	12670				
2545.503	UNDERGROUND WIRE 1/C 6 AWG		LIN FT	26030	26030				
2545.503	UNDERGROUND WIRE 1/C 8 AWG		LIN FT	13015	13015				
2550.602	FIBER OPTIC SPLICE/PATCH PANEL		EACH	2	2				
2550.602	FIBER OPTIC PIGTAIL TERMINATION		EACH	2	2				
2550.602	PULL VAULT		EACH	1	1				
2550.603	PRE-TERMINATED/ARMORED FIBER OPTIC CABLE		LIN FT	800	800				
2533.503	PORTABLE PRECAST CONC BARRIER DES 8337		LIN FT	2000	2000				
2533.503	RELOCATE PORT PRECAST CONC BAR DES 8337		LIN FT	4000	4000				
2557.603	WOODEN FENCE		LIN FT	260	260				
2557.603	CHAIN LINK SAFETY FENCE		LIN FT	1350	1350				

NOTES:

(4) FOR INSTALLATION OF SALVAGED BICYCLE RACKS.

(5) CONCRETE SHALL BE DARK GREY IN COLOR. SEE SPECIAL PROVISIONS.

(6) CONCRETE SHALL BE RED IN COLOR. SEE SPECIAL PROVISIONS.

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STATEMENT OF ESTIMATED QUANTITIES

SHEET
G1.03R

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	NOTES	UNIT	TOTAL ESTIMATED QUANTITY	ROADWAY	STORM SEWER	SANITARY SEWER	WATERMAIN	LANDSCAPE
2563.601	TRAFFIC CONTROL		LUMP SUM	1	0.2	0.2	0.2	0.2	0.2
2563.601	ALTERNATE PEDESTRIAN ROUTE		LUMP SUM	1	0.2	0.2	0.2	0.2	0.2
2563.602	RAISED PAVEMENT MARKER		EACH	70	70				
2563.613	PORTABLE CHANGEABLE MESSAGE SIGN		UDAY	400	400.0				
2563.618	CONSTRUCTION SIGN-SPECIAL		SQ FT	1000	1000.0				
2564.502	OBJECT MARKER TYPE X4-2		EACH	25	25				
2564.502	OBJECT MARKER TYPE X4-4		EACH	24	24				
2564.518	SIGN PANELS TYPE C		SQ FT	765	765				
2564.518	SIGN PANELS TYPE SPECIAL		SQ FT	217	217				
2564.602	INSTALL SIGN TYPE SPECIAL		EACH	12	12				
2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM A		LUMP SUM	1	1				
2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM B		LUMP SUM	1	1				
2565.516	TRAFFIC CONTROL SIGNAL SYSTEM A	(8)	SYSTEM	1	1				
2565.516	TRAFFIC CONTROL SIGNAL SYSTEM B	(8)	SYSTEM	1	1				
2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM A		SYSTEM	1	1				
2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM B		SYSTEM	1	1				
2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM C		SYSTEM	1	1				
2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM D		SYSTEM	1	1				
2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM E		SYSTEM	1	1				
2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM F		SYSTEM	1	1				
2565.616	PEDESTRIAN CROSSWALK FLASHER SYSTEM G		SYSTEM	1	1				
2571.524	TRANSPLANT TREE		TREE	6					6
2571.524	CONIFEROUS TREE 6' HT. B&B		TREE	5					5
2571.524	DECIDUOUS TREE 2.5" CAL B&B		TREE	178					178
2571.524	ORNAMENTAL TREE 2" CAL B&B		TREE	2					2
2571.525	CONIFEROUS SHRUB 3' HT. B&B		SHRB	14					14
2571.525	DECIDUOUS SHRUB NO 5 CONTAINER		SHRB	187					187
2571.527	PERENNIAL 1 GAL CONTAINER		PLT	3179					3179
2571.602	TREE GRATE & FRAMES		EACH	6					6
2573.502	STORM DRAIN INLET PROTECTION		EACH	129	129				
2573.503	SILT FENCE, TYPE MS		LIN FT	1950	1950				
2574.507	COMMON TOPSOIL BORROW		CU YD	675					675
2574.507	BOULEVARD TOPSOIL BORROW		CU YD	680					680
2575.504	SODDING TYPE LAWN		SQ YD	13050	13050				
2575.504	HYDROMULCH (SEED MIX 36-711)		SQ YD	1279	1279				
2575.507	MULCH MATERIAL TYPE 6		CU YD	120	120				
2575.607	LANDSCAPE ROCK		CU YD	130					130
2582.503	4" SOLID LINE PAINT		LIN FT	566	566				
2582.503	4" SOLID LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	13100	13100				
2582.503	8" SOLID LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	10520	10520				
2582.503	24" SOLID LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	160	160				
2582.503	4" BROKEN LINE MULTI-COMPONENT GROUND IN (WR)	(1)	LIN FT	620	620				
2582.503	4" DOTTED LINE MULTI-COMPONENT GROUND IN (WR)	(2)	LIN FT	24	24				
2582.503	8" DOTTED LINE MULTI-COMPONENT GROUND IN (WR)	(2)	LIN FT	24	24				
2582.503	12" DOTTED LINE MULTI-COMPONENT GROUND IN (WR)	(3)	LIN FT	104	104				
2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT GROUND IN (WR)		LIN FT	2475	2475				
2582.503	4" SOLID LINE PREFORM TAPE GROUND IN (WR) CONTRAST		LIN FT	881	881				
2582.503	8" SOLID LINE PREFORM TAPE GROUND IN (WR) CONTRAST		LIN FT	1382	1382				
2582.503	4" DOTTED LINE PREFORM TAPE GROUND IN (WR) CONTRAST	(2)	LIN FT	52	52				
2582.503	8" DOTTED LINE PREFORM TAPE GROUND IN (WR) CONTRAST	(2)	LIN FT	52	52				
2582.503	12" SOLID LINE PREFORM THERMO GROUND IN		LIN FT	3070	3070				
2582.503	24" SOLID LINE PREFORM THERMO GROUND IN		LIN FT	146	146				
2582.518	PAVEMENT MESSAGE PREFORM THEREMOPLASTIC GROUND IN		SQ FT	1099	1099				
2582.518	CROSSWALK PREFORM THERMOPLASTIC GROUND IN		SQ FT	756	756				

NOTES:

(1) LENGTH DOES NOT INCLUDE GAPS. BROKEN LINE STRIPE IS 10' STRIPE WITH A 40' GAP.

(2) LENGTH DOES NOT INCLUDE GAPS. DOTTED LINE STRIPE IS 2' STRIPE WITH A 6' GAP.

(3) LENGTH DOES NOT INCLUDE GAPS. DOTTED ROUNDABOUT LINE STRIPE IS 3' STRIPE WITH A 3' GAP.

(8) ITEM INCLUDES REMOVAL OF EXISTING SIGNAL SYSTEM.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR.

LIC. NO. 47099 DATE 2/19/19

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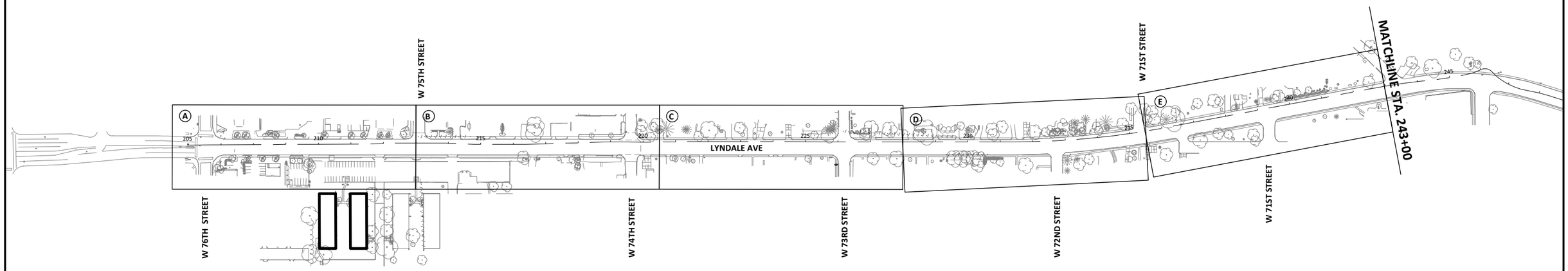
DRAWN: ZP/JW	2	2	03/25/19
CHECKED: TL/SL			
CLIENT PROJ. NO.: T16114541			

CITY OF RICHFIELD, MINNESOTA

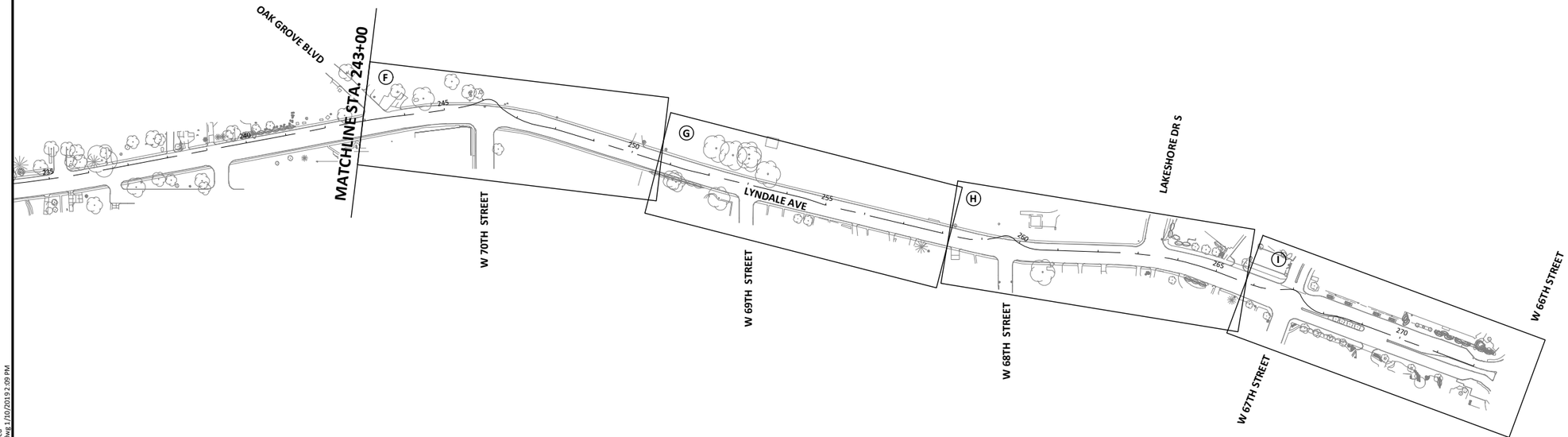
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

STATEMENT OF ESTIMATED QUANTITIES

SHEET G1.04R



PLAN SHEET LAYOUT									
GENERAL SHEET LAYOUT IDENTIFIER	A	B	C	D	E	F	G	H	I
EXISTING CONDITIONS AND REMOVAL PLAN	C0.01	C0.01	C0.02	C0.02	C0.03R	C0.03R	C0.04	C0.04	C0.05R
EROSION CONTROL	C2.01	C2.01	C2.02	C2.02	C2.03	C2.03	C2.04	C2.04	C2.05
SANITARY SEWER AND WATER PLAN	C4.01R	C4.02R	C4.03R	C4.04	C4.05	C4.06	C4.07	C4.08R	C4.09
STORM SEWER PLAN	C5.01R	C5.02R	C5.03R	C5.04R	C5.05R	C5.06	C5.07	C5.08	C5.09R
STREET PLAN	C6.04R	C6.05	C6.06	C6.07	C6.08	C6.09	C6.10R	C6.11R	C6.12R
SIGNING AND STRIPING PLAN	C7.48	C7.49	C7.49	C7.50	C7.50	C7.51R	C7.51R	C7.52R	C7.53R
LIGHTING PLAN	C7.56R	C7.56R	C7.57R	C7.57R	C7.58R	C7.58R	C7.59R	C7.59R	C7.60R



0 150 300
SCALE FEET

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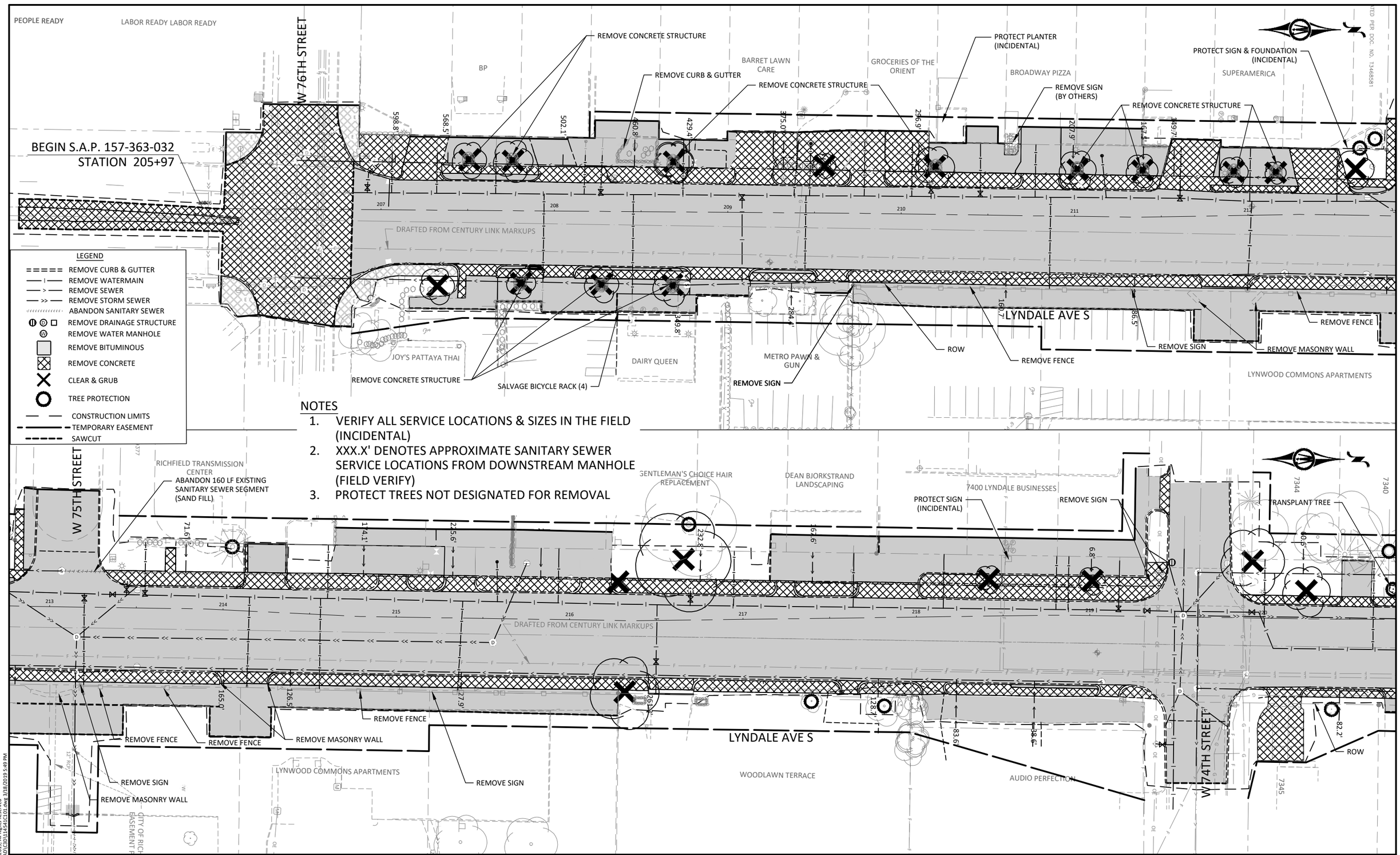
NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
GENERAL LAYOUT

SHEET
G2.01



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Sarah E. Lloyd

SARAH E. LLOYD
LIC. NO. 46636 DATE 2/19/19

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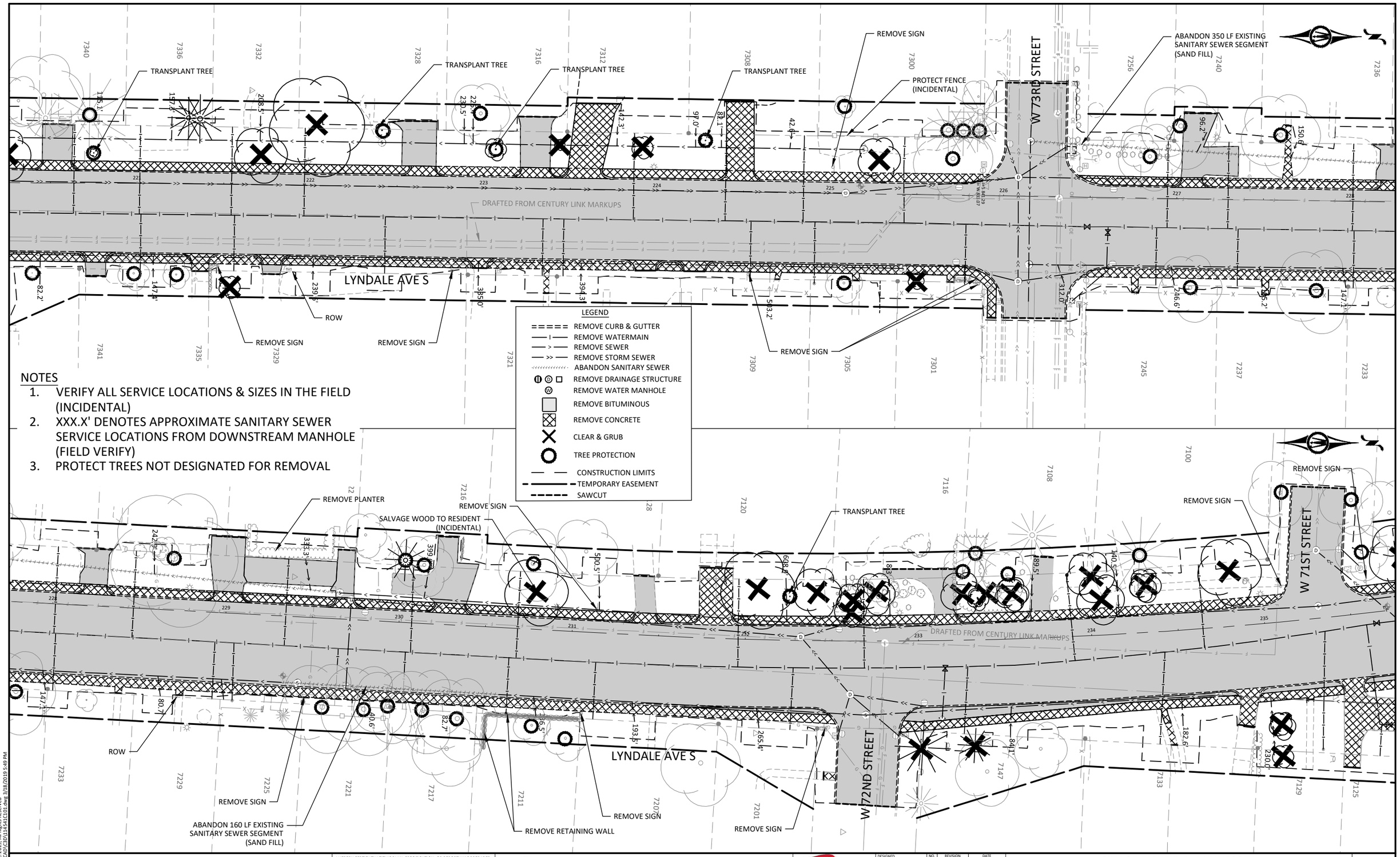
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
REMOVAL

SHEET C0.01



NOTES

1. VERIFY ALL SERVICE LOCATIONS & SIZES IN THE FIELD (INCIDENTAL)
2. XXX.X' DENOTES APPROXIMATE SANITARY SEWER SERVICE LOCATIONS FROM DOWNSTREAM MANHOLE (FIELD VERIFY)
3. PROTECT TREES NOT DESIGNATED FOR REMOVAL

HORZ. SCALE 0 25 50 FEET

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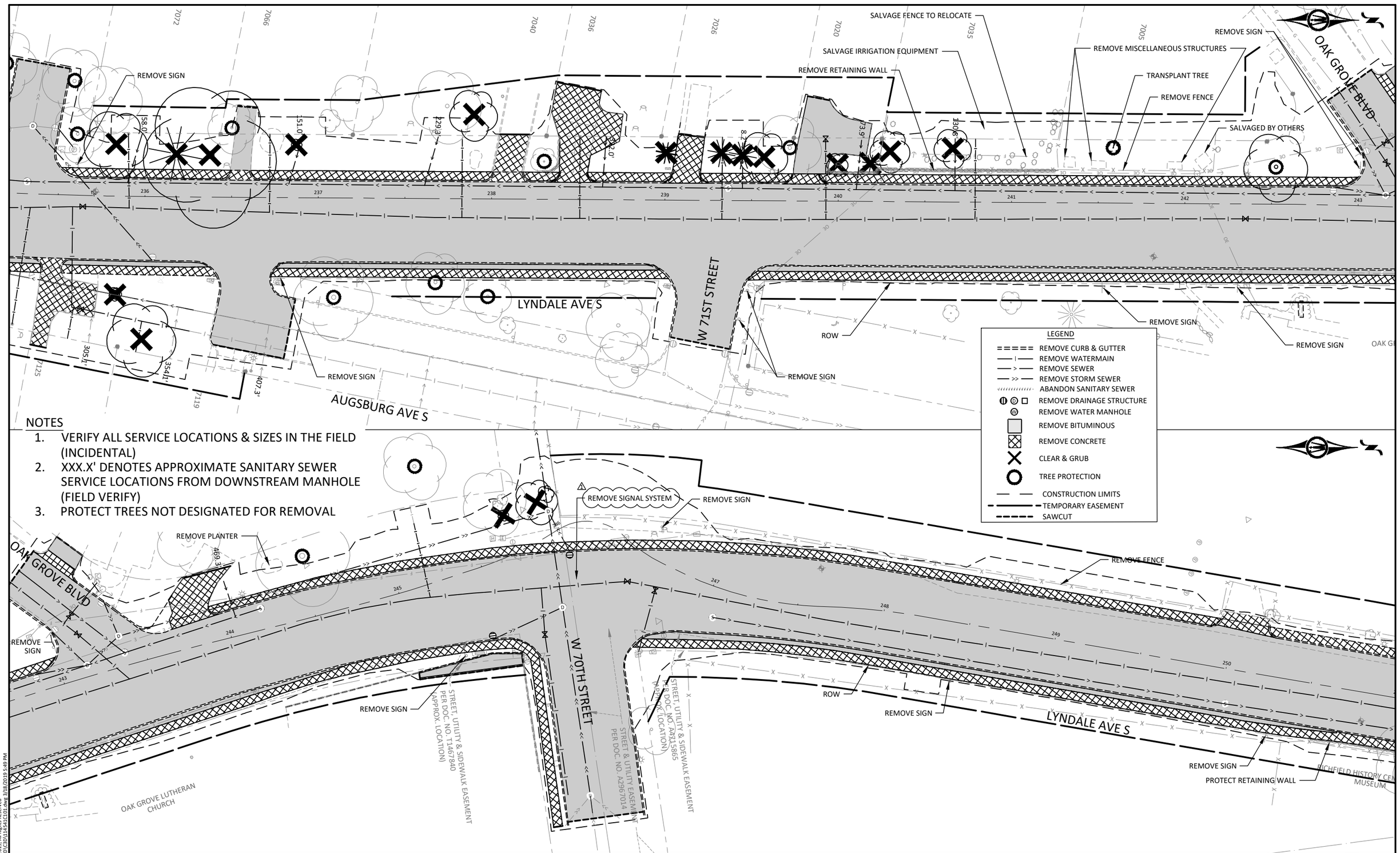
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
REMOVAL

SHEET C0.02



NOTES

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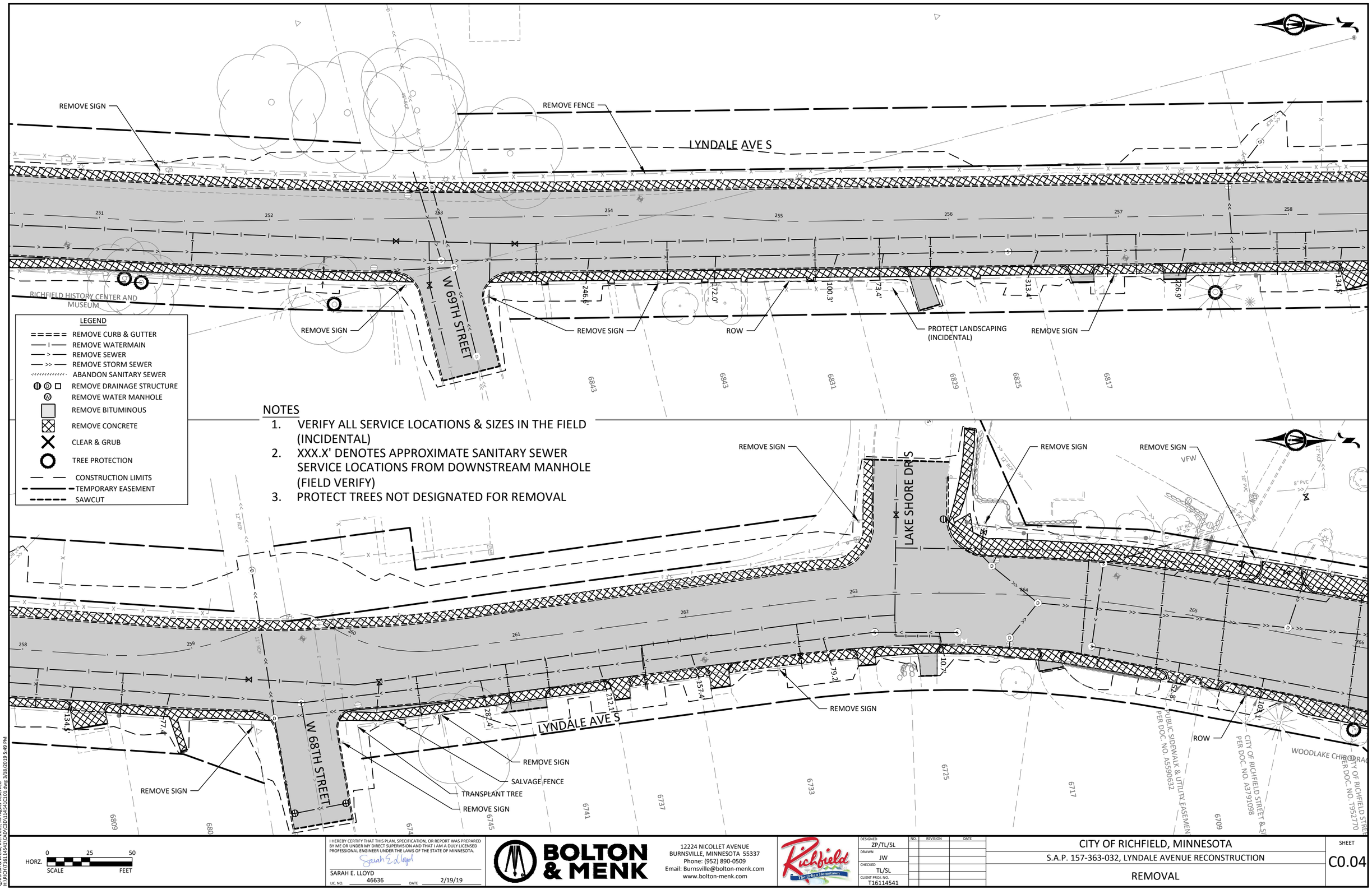
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
REMOVAL

SHEET C0.03R



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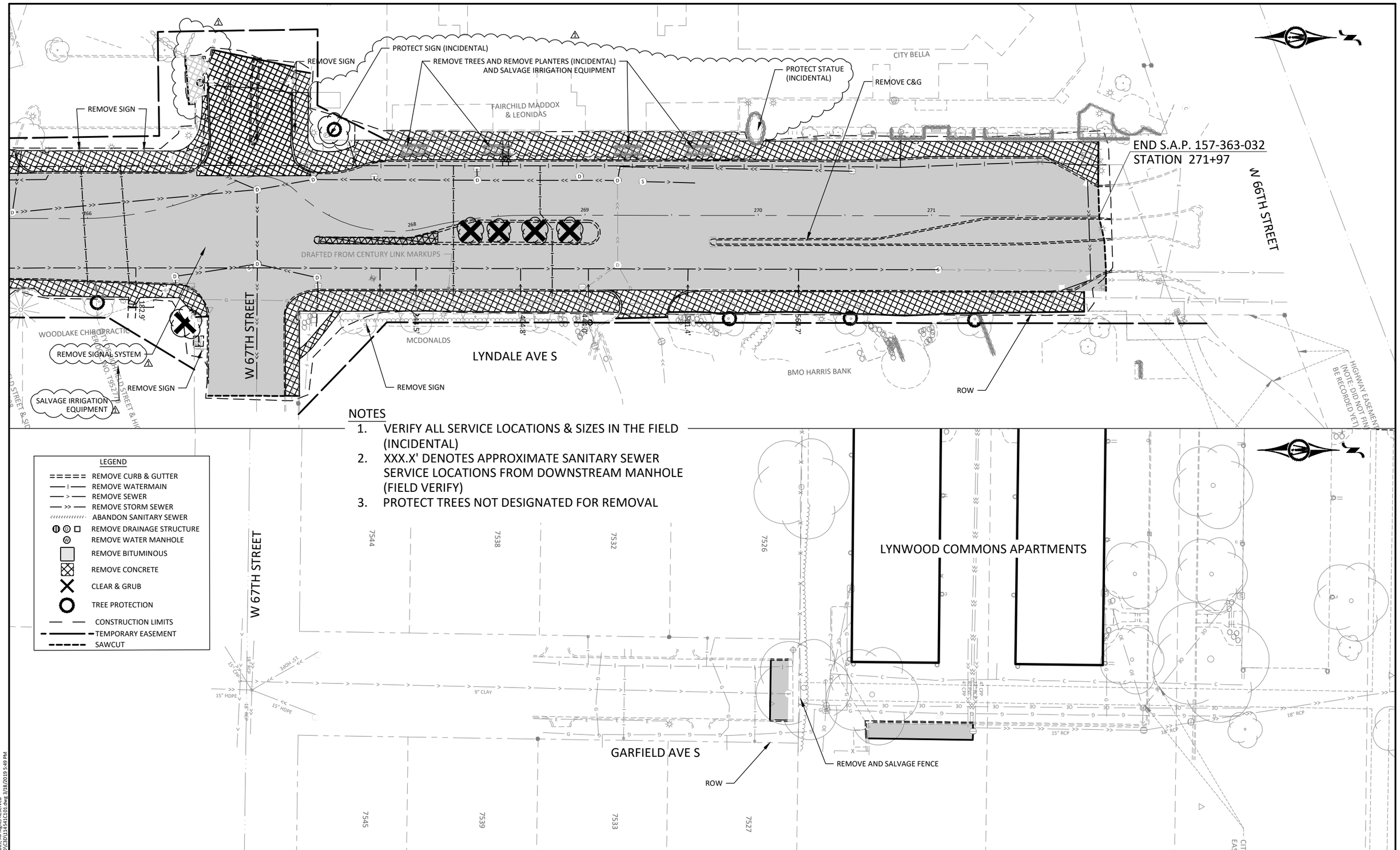
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
REMOVAL

SHEET C0.04



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REMOVAL

SHEET C0.05R

JOY'S PATTAYA THAI

DAIRY QUEEN

METRO PAWN & GUN

LYNWOOD COMMONS APARTMENTS

ABANDON 205 LF EXISTING SANITARY SEWER SEGMENT (SAND FILL)

CITY OF RICHFIELD STORM SEWER EASEMENT PER DOC. NO. A2980595

LYNWOOD COMMONS APARTMENTS

LYNWOOD COMMONS APARTMENTS

W 67TH STREET

GARFIELD AVE S

ROW

REMOVE AND SALVAGE FENCE

CITY OF RICHFIELD STORM SEWER EASEMENT PER DOC. NO. A2980595

HORZ. SCALE 0 25 50 FEET

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CITY OF RICHFIELD, MINNESOTA

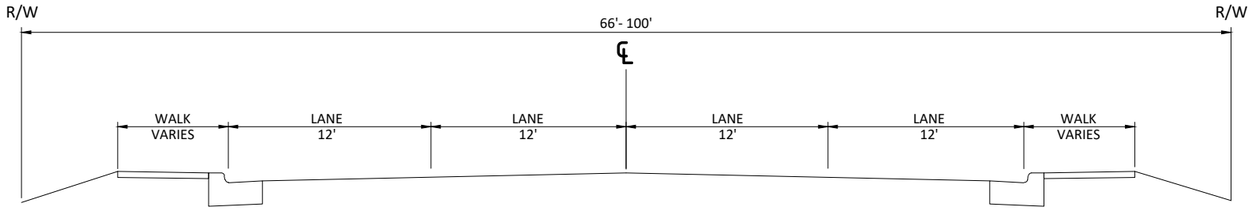
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

REMOVAL

SHEET C0.06

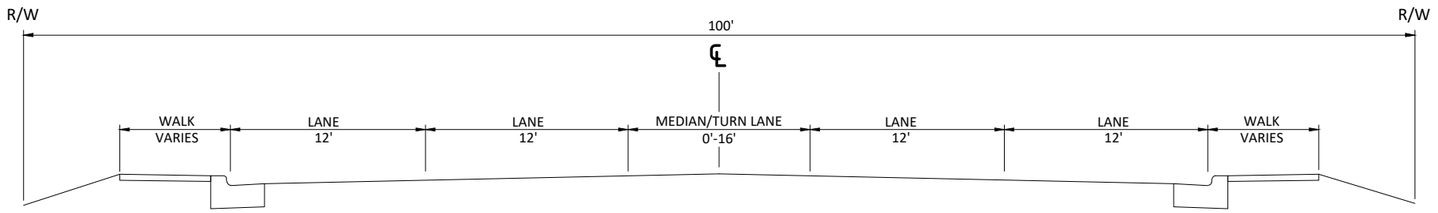
EXISTING TYPICAL SECTION - LYNDALE AVE

76TH - LAKESHORE DR



EXISTING TYPICAL SECTION - LYNDALE AVE

LAKESHORE DR - 66TH



BORING STA.	BITUMINOUS DEPTH (INCHES)	CONCRETE DEPTH (INCHES)
267+00	2.75	7.00
264+00	2.75	8.75
262+00	13.50	
259+50	13.00	
256+50	12.50	
254+00	12.50	
251+75	14.00	
247+50	12.00	
241+50	11.50	
235+50	12.00	
229+25	12.50	
225+50	12.00	
219+00		8.00
211+50		7.00
209+00		7.75

NOTES:
SEE SOIL BORING REPORT FOR EXISTING PAVEMENT DEPTHS. DEPTHS ARE APPROXIMATE. VARIANCE IN PAVEMENT THICKNESS WILL NOT BE COMPENSATED AND IS INCIDENTAL.

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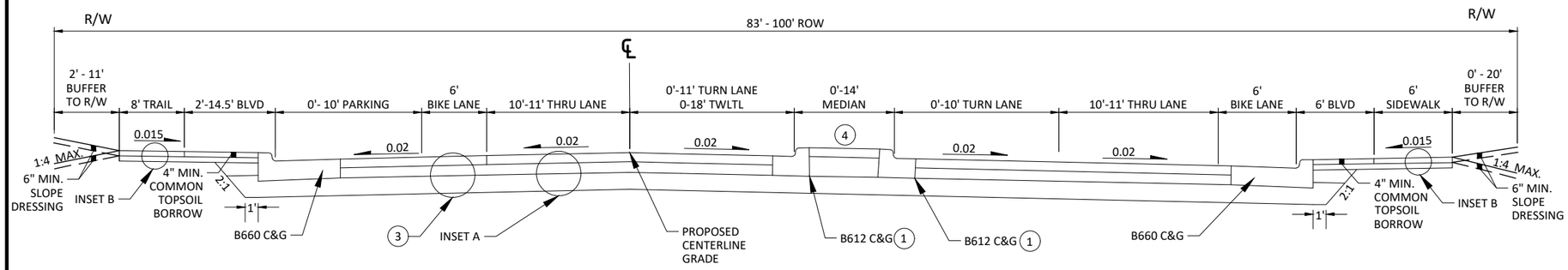
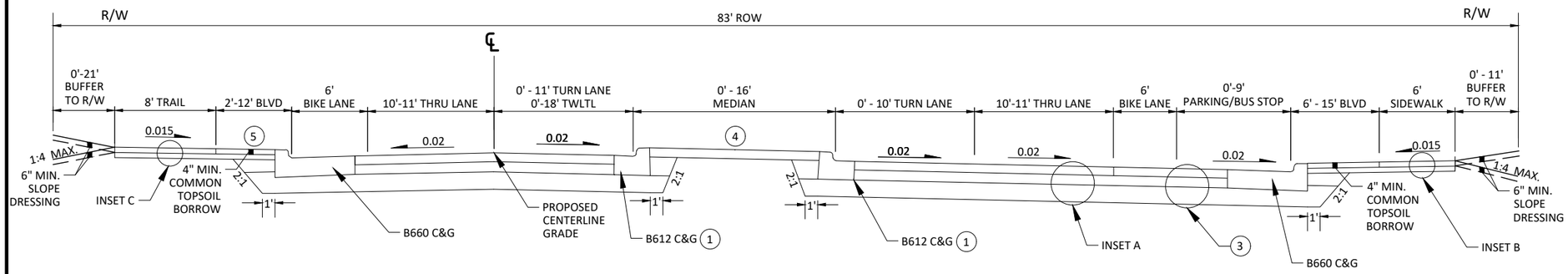
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
TYPICAL SECTION

SHEET
C1.01

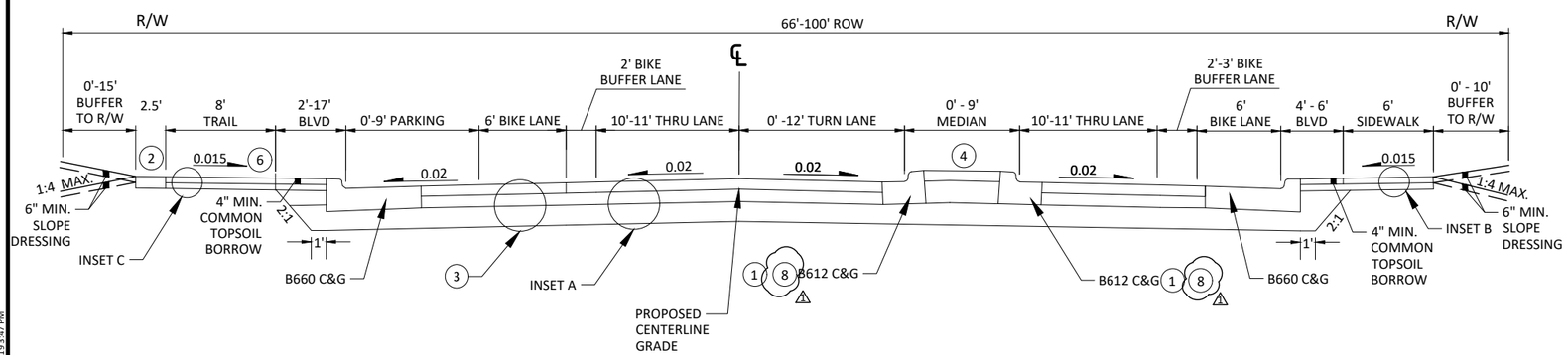
PROPOSED TYPICAL SECTION - 76TH - 74TH



PROPOSED TYPICAL SECTION - 74TH - 70TH

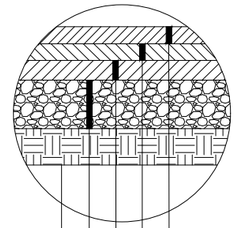


PROPOSED TYPICAL SECTION - 70TH - 67TH



INSET A

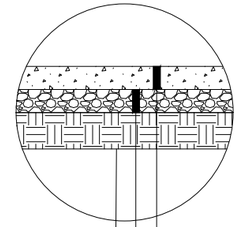
BITUMINOUS ROADWAY



- 2" TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) SPWEB340C
- 2" TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) SPWEB340C
- 3" TYPE SP 12.5 NON-WEARING COURSE MIXTURE (3,B) SPNWB330B
- 8" AGGREGATE BASE (CV), CLASS 5
- 6" SUBGRADE PREPARATION (INCIDENTAL)

INSET B

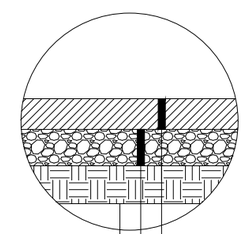
CONCRETE WALK



- 4" CONCRETE WALK (TYPE 3Y32) (7)
- 4" AGGREGATE BASE (CV), CLASS 5
- 6" SUBGRADE PREPARATION (INCIDENTAL)

INSET C

BITUMINOUS WALK



- 3" TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) SPWEB340C
- 6" AGGREGATE BASE (CV), CLASS 5
- 6" SUBGRADE PREPARATION (INCIDENTAL)

NOTES:

1. ANY VARIATIONS FROM THE TYPICAL SECTION DIMENSIONS ARE SHOWN ON THE PLAN DRAWINGS.
2. PAVEMENT SLOPES AT INTERSECTION LOCATIONS MAY VARY FROM THOSE SHOWN ON THE TYPICAL SECTION.
3. GRADE ALL TOPSOIL MATERIAL TO 1" DEPTH BELOW CONCRETE SURFACES PRIOR TO PLACING SOD.
4. ELEVATIONS SHOWN ARE RELATIVE TO C/L AND DO NOT RELATE TO ACTUAL CONSTRUCTION GRADES.

SHEET NOTES:

(1) C&G CONSTRUCTED ONLY WHEN MEDIAN IS PRESENT

(2) CLEARZONE

(3) 7" CONCRETE PAVEMENT
8" AGGREGATE BASE (CV), CLASS 5
SEE MISCELLANEOUS DETAILS FOR TRANSITION INFORMATION

(4) SEE MISCELLANEOUS DETAILS AND LANDSCAPING PLANS FOR MEDIAN DETAILS. 9" BOULEVARD TOPSOIL BORROW WHEN LANDSCAPING IS PRESENT

(5) 1:5 SLOPE FROM STA. 240+51 TO 242+08

(6) TRAIL TIPPED OUT FROM
STA. 247+92 - STA. 248+54
STA. 250+63 - STA. 252+02
STA. 256+05 - STA. 257+06

(7) SEE CONSTRUCTION PLANS FOR CONCRETE TYPE

(8) D412 C&G FROM 69TH STREET TO 67TH STREET

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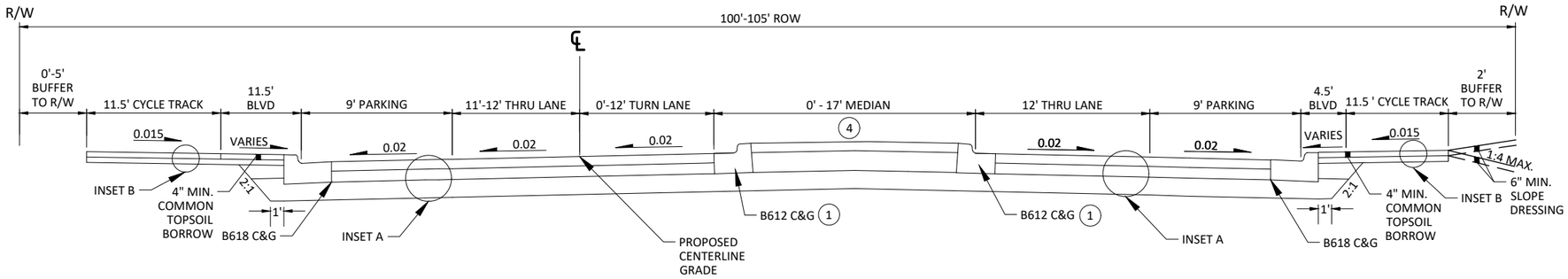
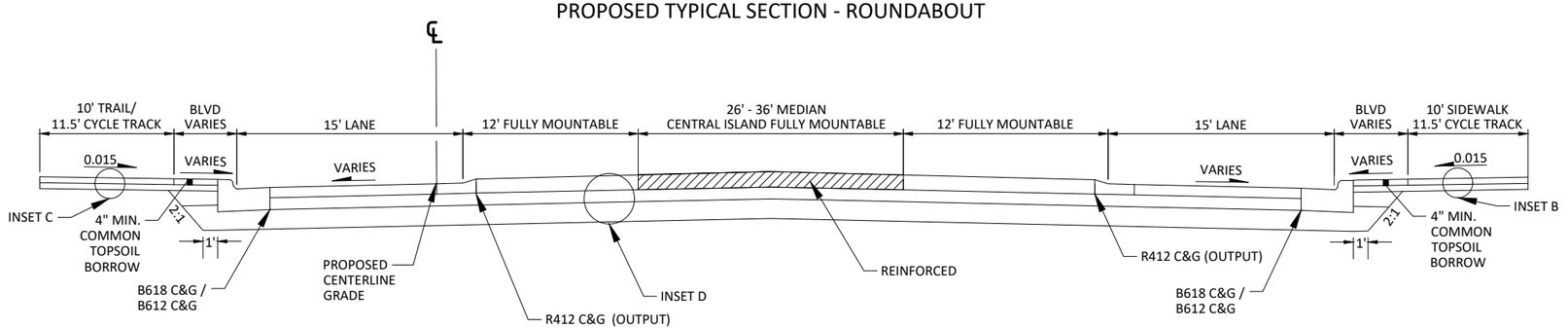
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
TYPICAL SECTION

SHEET C1.02R

PROPOSED TYPICAL SECTION -67TH - 66TH



PROPOSED TYPICAL SECTION - ROUNDABOUT



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3. GRADE ALL TOPSOIL MATERIAL TO 1" DEPTH BELOW CONCRETE SURFACES PRIOR TO PLACING SOD.
4. ELEVATIONS SHOWN ARE RELATIVE TO C/L AND DO NOT RELATE TO ACTUAL CONSTRUCTION GRADES.

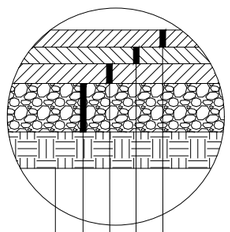
SHEET NOTES:

(1) C&G CONSTRUCTED ONLY WHEN MEDIAN IS PRESENT

(4) SEE MISCELLANEOUS DETAILS AND LANDSCAPING PLANS FOR MEDIAN DETAILS. 9" BOULEVARD TOPSOIL BORROW WHEN LANDSCAPING IS PRESENT

INSET A

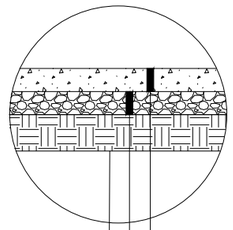
BITUMINOUS ROADWAY



- 2" TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) SPWEB340C
- 2" TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) SPWEB340C
- 3" TYPE SP 12.5 NON-WEARING COURSE MIXTURE (3,B) SPNWB330B
- 8" AGGREGATE BASE (CV), CLASS 5
- 6" SUBGRADE PREPARATION (INCIDENTAL)

INSET B

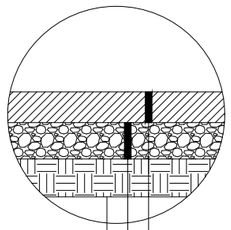
CONCRETE WALK



- 4" CONCRETE WALK (TYPE 3Y32)
- 4" AGGREGATE BASE (CV), CLASS 5
- 6" SUBGRADE PREPARATION (INCIDENTAL)

INSET C

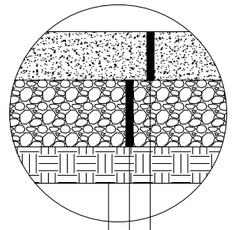
BITUMINOUS WALK



- 3" TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) SPWEB340C
- 6" AGGREGATE BASE (CV), CLASS 5
- 6" SUBGRADE PREPARATION (INCIDENTAL)

INSET D

ROUNDABOUT CENTER ISLAND



- 8" CONCRETE PAVEMENT
- 11" AGGREGATE BASE (CV), CLASS 5
- 6" SUBGRADE PREPARATION (INCIDENTAL)

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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Richfield — The Urban Hometown

DESIGNED ZPZ/TJSL
DRAWN ZPZ/TJSL
CHECKED TJSL
CLIENT PROJ. NO. T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
TYPICAL SECTION

SHEET C1.03

STORM SEWER TABLE

								STRUCTURES						CASTINGS					PIPE									CONNECT		DRAINS TO			
STRUCT. ID	ROADWAY	STA	OFFSET	LT/RT	PROPOSED RIM	EFFLUENT INVERT ELEV.	STRUCT. BUILD	SPECIAL 2' X 3' CB	DESIGN H	48" 4020	48" 4022	60" 4020	72" 4020	F&I R-3067-V CASTING	F&I R-4340-B CASTING	F&I R-3067-C CASTING	F&I R-1733 CASTING	F&I R-2534 CASTING	12" STM PIPE	12" C900 PIPE	15" STM PIPE	18" STM PIPE	21" STM PIPE	24" STM PIPE	27" STM PIPE	30" STM PIPE	48" STM PIPE	TO EX STORM STRUCT.	TO EX STORM PIPE	STRUCT. NO	PIPE GRADE	INVERT ELEV	NOTES
			(FT)		(ELEV)	(FT)	(LF)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(EA)	(EA)		(%)		
EXCB1	LYNDALE	106+31.64'	64.21	LT	844.78	841.11	3.66																										
EXMH2A	LYNDALE	106+33.52'	37.94	RT	845.67	841.67	4.00																										
EXMH 2	LYNDALE	106+56.57'	40.16	RT	846.59	841.09	5.50																										
EXMH 1	LYNDALE	106+56.89'	38.74	LT	846.67	841.77	4.90																										
EXCB2	LYNDALE	106+75.30'	52.98	LT	844.76	841.09	3.66																										
CB 2B	LYNDALE	106+96+99	3.05	RT	847.00	841.81	5.19	1						1					23											CBMH 2A	0.50%	841.70	
CB 2A	LYNDALE	107+01.45	25.26	RT	847.08	841.60	5.48				1			1					47									1		EXMH2	1.06%	843.58	
CB 1A	LYNDALE	107+03.25	32.34	LT	846.71	842.00	4.71	1						1					47									1		EXMH1	0.50%	842.02	
CB 2C	LYNDALE	108+18.10	23.30	RT	847.06	842.23	4.83				1			1					117											CBMH 2A	0.54%	841.60	
CB 2D	LYNDALE	108+42.11	33.40	LT	847.26	843.26	4.00	1						1					62											CBMH 2C	0.70%	843.26	
CBMH 30	GARFIELD	109+62.30'	344.91	RT	849.27	845.62	3.64	1						1					112									1		EXMH 30	5.23%	839.74	
CB 30A	GARFIELD	109+62.33	312.55	RT	849.11	846.04	3.07	1						1					32											CBMH 30	1.00%	847.72	
EXMH 30	GARFIELD	110+74.51'	350.72	RT	844.53	839.54	4.99																										
CB 3B	LYNDALE	112+54.41	27.67	LT	846.69	843.30	3.39	1						1							49									CBMH3A	0.45%	842.98	
CB 3A	LYNDALE	112+54.41	21.67	RT	846.77	842.98	3.79	1						1							61									MH3	0.50%	842.67	
CB 3C	LYNDALE	112+95.46	59.48	RT	846.25	842.25	4.00	1						1			1		20											MH3H	1.99%	841.85	
MH 3H	LYNDALE	113+15.61'	50.14	RT	846.03	841.50	4.53					1					1												1				
MH 3	LYNDALE	113+15.69'	25.74	RT	846.42	841.72	4.70			1												24								MH 3H	0.50%	841.60	
CB 3I	LYNDALE	113+25.46	50.19	RT	846.11	841.94	4.17	1						1																MH 3H	2.13%	841.90	
CBMH 3C	LYNDALE	113+69.62	21.92	RT	846.72	843.23	3.49				1			1					10											MH 3H	2.16%	841.85	
CB 3D	LYNDALE	113+69.67	27.67	LT	847.09	843.58	3.51	1						1			1				50									CBMH 3C	0.50%	843.33	
STMH 3E	LYNDALE	115+74.94'	21.33	RT	847.83	844.09	3.74			1											205									CBMH 3C	0.37%	843.33	
CB 3F	LYNDALE	115+78.02	59.99	LT	847.00	844.41	2.59		1					1							81									STMH 3E	0.39%	844.09	
CB 4K	LYNDALE	119+04.79	31.67	LT	846.06	842.06	4.00				1			1							34									CBMH 4J	0.74%	841.81	
CB 4F	LYNDALE	119+04.98	7.02	LT	847.05	842.66	4.39	1						1					25											CB 4K	2.01%	842.16	
CBMH 4J	LYNDALE	119+30.89	53.80	LT	847.05	841.71	5.34				1			1							15									CBMH 4I	0.98%	841.81	
CBMH 4D	LYNDALE	119+45.33	45.41	RT	845.50	841.10	4.40	1						1							35									CBMH 4C	0.51%	840.92	
CBMH 4I	LYNDALE	119+45.36	54.97	LT	845.79	841.47	4.32	1						1							9									STMH 4H	1.03%	841.57	
STMH 4H	LYNDALE	119+53.96'	55.19	LT	845.84	840.71	5.13					1					1						26						1	CBMH 4G	0.87%	840.48	
CBMH 4C	LYNDALE	119+80.36	45.28	RT	845.76	840.82	4.94				1			1							29									CBMH 4B	0.51%	840.67	
CBMH 4G	LYNDALE	119+80.42	56.40	LT	845.76	840.38	5.38				1			1										37						CBMH 4	0.54%	840.18	
CBMH 4	LYNDALE	120.08.67	31.92	LT	846.52	840.08	6.44						1	1										101						CBMH 5I	0.70%	839.37	
CBMH 4B	LYNDALE	120+07.49	17.67	RT	846.16	840.57	5.59			1							1				32									CBMH 4A	0.50%	840.41	
CBMH 4A	LYNDALE	120+08.03	7.01	LT	846.65	840.31	6.34				1			1							25									CBMH 4	0.50%	840.18	
CBMH 5I	LYNDALE	121+09.84'	32.10	LT	847.15	839.27	7.88				1			1										315						CBMH 5H	0.59%	837.40	
CBMH 5H	LYNDALE	124+25.02'	32.25	LT	847.04	837.90	9.74					1		1										154						CBMH 5G	0.70%	836.25	
CB 5B	LYNDALE	125+73.76	18.67	RT	845.90	840.00	5.90	1						1					38											MH 5A	0.50%	839.81	
CBMH 5G	LYNDALE	125+76.05	32.95	LT	846.90	836.15	10.75				1			1											32					STMH 5	0.46%	836.00	
CBMH 5E	LYNDALE	126+02.13'	61.13	LT	846.69	842.34	4.35	1						1					34											STMA 5	0.50%	842.17	
STMH 5	LYNDALE	126+08.47	27.91	LT	846.23	833.00	13.23						1				1																
MH 5A	LYNDALE	126+09.10'	32.17	RT	846.07	833.10	12.97						1				1										60		1	STMH 5	0.50%	833.10	
CB 5F	LYNDALE	126+34.46	61.05	LT	846.61	842.60	4.01	1						1					33										1	CBMH 5E	0.50%	842.44	
CBMH 5C	LYNDALE	126+67.66'	33.42	LT	846.49	837.00	9.49				1			1									59							STMA 5	1.00%	836.41	
CB 5D	LYNDALE	126+67.72	9.67	RT	845.77	841.27	4.50	1						1					43											CBMH 5C	0.49%	841.06	
CBMH 6A	LYNDALE	128+39.02'	32.92	LT	846.61	839.16	7.45				1			1																CBMH 5C	0.50%	838.30	
CBMH 6D	LYNDALE	132+30.72'	13.73	RT	846.10	841.77	4.33				1			1					25											CBMH 6C	0.94%	841.53	
CBMH 6C	LYNDALE	132+34.49	11.48	LT	846.60	841.43	5.17				1			1							19									CBMH 6B	0.89%	841.32	
CBMH 6B	LYNDALE	132+32.08'	30.75	LT	846.35	841.22	5.13					1		1									391							CBMH 6A	0.50%	839.26	
CBMH 6E	LYNDALE	132+54.57'	38.70	RT	847.06	842.05	5.01	1						1					35											CBMH 6D	0.52%	841.77	
CBMH 6F	LYNDALE	132+88.14'	40.37	RT	846.92	842.30	4.62	1						1					36											CBMH 6G	0.50%	842.12	
CB 6H	LYNDALE	133+15.95	4.81	LT	847.05	843.05	4.00				1			1								32								CBMH 6I	0.50%	841.64	
CBMH 6G	LYNDALE	133+17.19'	19.40	RT	846.58	842.79	3.79				1			1								24								CB H	0.50%	841.90	
CBMH 6I	LYNDALE	132+95.86	29.94	LT	846.63	841.64	4.99				1			1								63								CBMH 6B	0.50%	841.32	
CB 7	LYNDALE	135+21.78	58.95	LT	848.00	844.00	4.01	1						1					15											MH 7	2.00%	844.90	
MH 7	LYNDALE	135+36.61'	56.71	LT	848.67	843.58	5.09			1							1												1				
CBMH7A	LYNDALE	135+50.57'	54.59	LT	848.98	843.66	5.32	1						1					14											MH 7	0.50%	843.58	
CBMH 7C	LYNDALE	135+61.94'	21.12	RT	849.50	844.00	5.50	1						1					77											CBMH 7A	0.50%	843.66	
MH 7A	LYNDALE	135+53.96	76.31	RT	849.00	844.28	4.72		1						1				56										1	CBMH 7C	0.50%	844.00	
CBMH 8E	LYNDALE	140+19.38	29.40	LT	849.91	845.18	4.73	1						1					247											CBMH 8D	0.50%	843.05	
CBMH 8F	LYNDALE	140+19.48	4.51	LT	850.05	846.05	4.00	1						1					25											CBMH 8E	3.12%	845.28	
CB 8D	LYNDALE	142+65.95	20.17	RT	848.40	844.40	4.00	1						1					26											CBMH 8C	0.50%	844.27	
CBMH 8B	LYNDALE	142+65.95'	29.42	LT	848.75	843.85	4.90			1				1					89											CBMH 8A	0.50%	843.41	
CBMH 8C	LYNDALE	142+65.95'	5.42	LT	848.91	844.17	4.74	1						1					24											CBMH 8B	0.93%	843.95	
CBMH 8G	LYNDALE	142+92.05'	65.18	LT	848.97	844.93	4.04	1						1					36											CBMH 8F	0.58%	844.72	
CBMH 8F	LYNDALE	143+28.32'	65.47	LT	848.75	844.62	4.13	1						1					45											CB 8A	2.68%	843.41	
CB 8A	LYNDALE	143+54.46	28.62	LT	848.75	843.31	5.44						1	1							168									CBMH 9A	0.65%	842.22	

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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Richfield — The Urban Hometown

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DRAWN	ZP/JW
CHECKED	TL/SL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE
5	7	05/10/2019
7	7	05/16/2019

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STORM TABLE TABULATION

SHEET C1.04R

STORM SEWER TABLE

STRUCT. ID	ROADWAY	STA	OFFSET	LT/RT	PROPOSED RIM	EFFLUENT INVERT ELEV.	STRUCT. BUILD	STRUCTURES						CASTINGS					PIPE									CONNECT		DRAINS TO			NOTES
								SPECIAL 2' X 3' CB	DESIGN H	48" 4020	48" 4022	60" 4020	72" 4020	F&I R-3067-V CASTING	F&I R-4340-B CASTING	F&I R-3067-C CASTING	F&I R-1733 CASTING	F&I R-2534 CASTING	12" STM PIPE	12" C900 PIPE	15" STM PIPE	18" STM PIPE	21" STM PIPE	24" STM PIPE	27" STM PIPE	30" STM PIPE	48" STM PIPE	TO EX STORM STRUCT.	TO EX STORM PIPE	STRUCT. NO	PIPE GRADE	INVERT ELEV	
			(FT)		(ELEV)	(FT)	(LF)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(EA)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(LF)	(EA)	(EA)		(%)		
CBMH 9A	LYNDALE	145+18.38'	25.85	LT	847.75	842.12	5.63	1									1				79								1	STMH 9	0.50%	841.72	
CB 9D	LYNDALE	145+18.92	10.88	RT	847.49	843.49	4.00	1						1					15											CBMH 9C	0.50%	843.42	
CBMH 9C	LYNDALE	145+20.21'	3.53	LT	847.71	843.32	4.39	1						1					8											CBMH 9B	0.50%	843.28	
CBMH 9B	LYNDALE	145+20.59'	12.19	LT	848.01	843.18	4.83	1						1					14											CBMH 9A	0.50%	843.11	
STMH 9	LYNDALE	145+88.53'	55.38	LT	848.52	837.96	10.56						1				1																
EXSTMH 9	LYNDALE	146+05.22'	118.06	RT	847.00	840.04	6.96																		174		1		STMH 9	0.48%	839.20	
CB 10B	LYNDALE	149+64.18	17.70	RT	846.03	842.52	3.51	1						1							35									CB 10A	0.60%	842.30	
CBMH 10A	LYNDALE	149+64.26	17.64	LT	846.04	842.20	3.84			1				1							311									MH 10	0.60%	840.33	
CB 10F	LYNDALE	152+41.68	22.92	RT	845.54	841.54	4.00	1						1					48											MH 10E	2.42%	840.39	
MH 10	LYNDALE	152+76.85'	23.75	LT	846.13	825.94	20.19						1	1												48		1	MH 10E	0.10%	826.00	
MH 10E	LYNDALE	152+89.29'	23.62	RT	845.86	825.99	19.87						1																EXMH 10-1	0.13%	826.07	
EXMH 10-1	LYNDALE	153+01.97'	76.10	RT	844.35	825.99	18.36										1										1						
CB 10C	LYNDALE	153+47.23	23.42	LT	845.38	840.79	4.59	1						1							70									MH 10	0.60%	840.37	
CBMH 10D	LYNDALE	153+47.28'	23.92	RT	845.14	841.13	4.01	1						1							48									CB 10C	0.50%	840.89	
CB 11C	LYNDALE	157.64.52	4.11	RT	845.16	840.88	4.28	1						1							23									CB 11A	1.00%	840.65	
CB 11D	LYNDALE	157.64.54	23.45	RT	844.76	841.27	3.49	1						1							19									CB 11C	1.00%	841.08	
MH 11	LYNDALE	157+64.46'	44.19	LT	842.90	828.60	14.30			1				1			1												1				
CB 11A	LYNDALE	157+64.49	18.89	LT	844.65	840.55	4.10	1						1						25										MH 11	8.85%	838.31	
MH 12C	LYNDALE	159+14.39'	56.12	LT	842.07	830.00	12.07							1															1				
MH 12B	LYNDALE	159+16.83	43.32	LT	846.67	830.63	16.04							1						20										MH 12C	4.59%	829.71	
STMH 12A	LYNDALE	159+29.58'	30.52	RT	845.67	839.74	5.93			1							1					75							1	MH 12B	1.00%	838.86	
CB 12B	LYNDALE	159+39.65	86.17	RT	844.79	840.39	4.40	1						1							57									STMH 12A	0.97%	839.84	
CB 12C	LYNDALE	159+70.19	80.67	RT	844.83	840.83	4.00	1						1							34									CB 12B	0.71%	840.59	
CB 12E	LYNDALE	160+47.13	18.69	LT	845.83	841.83	4.00	1						1					35											CBMH 12D	1.00%	841.48	
CBMH 12D	LYNDALE	160+48.09'	16.07	RT	846.19	841.38	4.81				1			1					122											STMH 12A	1.26%	839.84	
CB 13C	LYNDALE	163+29.87	25.15	LT	848.48	844.77	3.71	1						1					235											CBMH13A	0.50%	843.59	
CB 13B	LYNDALE	165+61.15	16.09	RT	849.38	845.38	4.00	1						1					34											CBMH 13A	0.50%	845.21	
CBMH 13A	LYNDALE	165+61.19'	17.50	LT	849.43	843.49	5.93				1			1							108									STMH 13	0.50%	842.95	
CB 13H	LYNDALE	166+36.21	82.98	LT	848.70	844.96	3.74			1								1	49											CBMH 13G	0.50%	844.71	
STMH 13D1	LYNDALE	166+69.17'	87.79	RT	850.29	842.13	8.15			1							1												1				
STMH 13	LYNDALE	166+69.37'	21.43	LT	850.51	842.82	7.69			1							1				40												
STMH 13D	LYNDALE	166+69.45'	21.46	RT	850.60	842.61	7.99			1							1				66									STMH13D1	0.72%	842.13	
CBMH 13G	LYNDALE	166+89.27'	83.29	LT	848.89	844.46	4.43	1						1					55											CBMH 13F	0.50%	844.35	
CBMH 13F	LYNDALE	167+03.50'	29.67	LT	849.80	843.00	6.80				1			1							35								1	STMH 13	0.50%	842.82	
CB 13E	LYNDALE	167+04.10	35.58	RT	850.03	846.00	4.03				1								37										1	STMH 13D	2.00%	845.26	
CBMH 13I	LYNDALE	167+96.34'	27.54	LT	849.37	843.41	5.96			1							1		93										1	CBMH 13F	0.44%	843.00	
CB 13K	LYNDALE	168.31.60	31.75	RT	848.64	844.64	4.00	1													59									CBMH 13J	0.85%	844.14	
CBMH 13J	LYNDALE	168+31.65'	26.84	LT	848.48	843.64	4.84			1				1							15									CBMH 13F	0.66%	843.69	
CBMH 13L	LYNDALE	168+77.33	26.56	LT	848.62	843.87	4.75			1				1					46										1	CBMH 13J	0.50%	843.70	
STMH 13M	LYNDALE	168+77.40'	21.77	RT	848.96	844.11	4.85			1							1												2	CN 13L	0.50%	843.87	
CBMH 14A	LYNDALE	170+26.02'	31.46	RT	847.68	843.76	3.92	1						1								123								EXCB 14	0.62%	843.00	
CB 14B	LYNDALE	170+26.06	26.46	LT	847.72	844.20	3.52	1						1							57							1		CBMH 14A	0.60%	843.86	
EXCB 14	LYNDALE	171+50.24'	29.55	RT	847.68	843.00	4.68																										
TOTALS								48	2	16	21	4	7	79	1		18	1	2184	45	1868	341	476	604	33	174	108	6	18				

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TIM LAMKIN JR.
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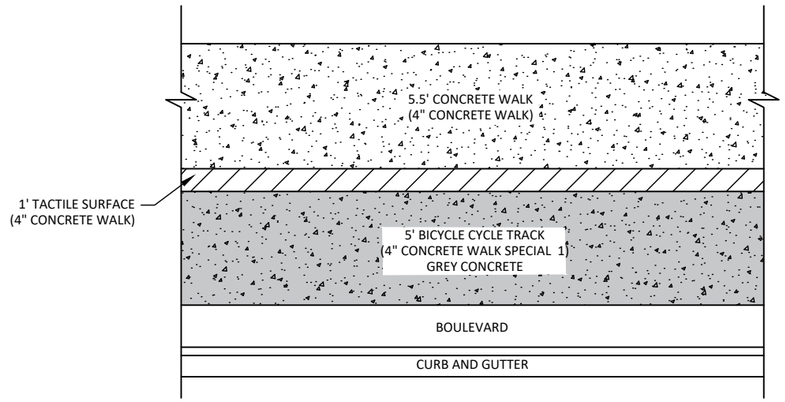
1	1	03/15/19
5	5	05/10/2019

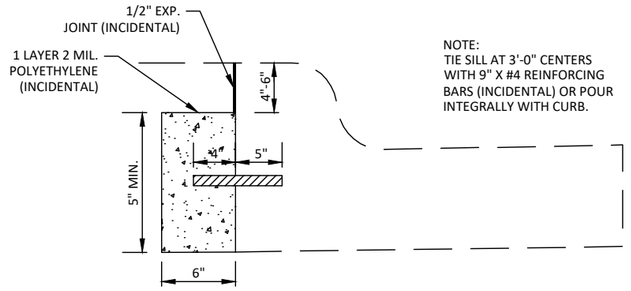
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STORM TABLE TABULATION

SHEET C1.05R

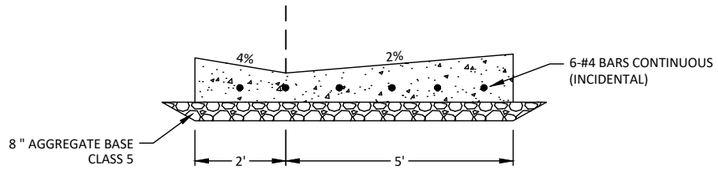


CYCLE TRACK DETAIL

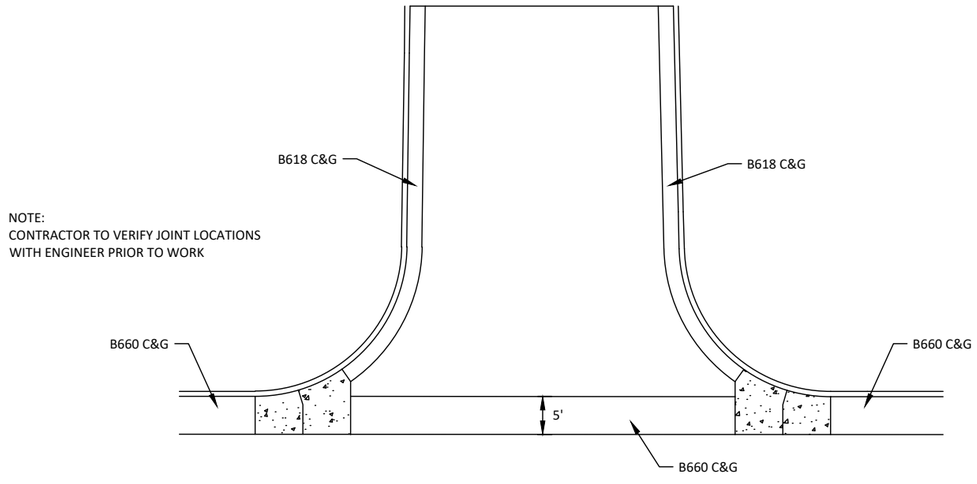
NOT TO SCALE



CONCRETE SILL DETAIL

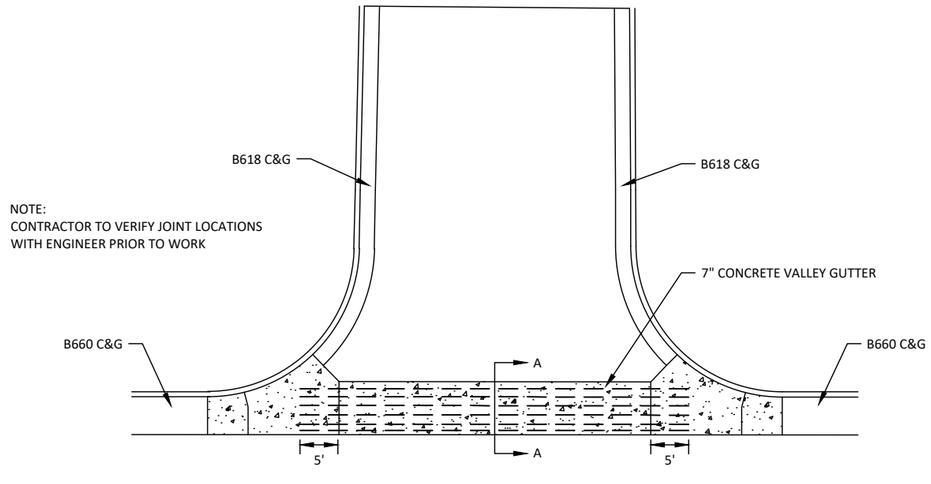


SECTION A



SIDE STREET DETAIL

NOT TO SCALE



VALLEY GUTTER DETAIL

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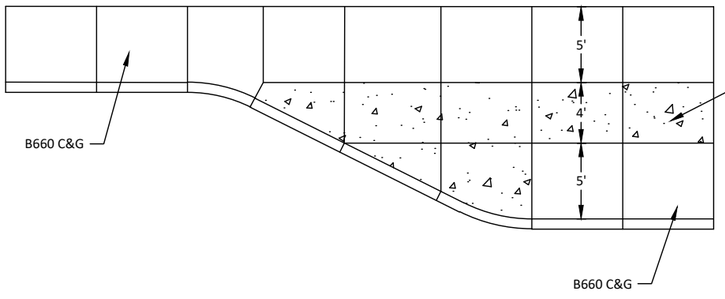
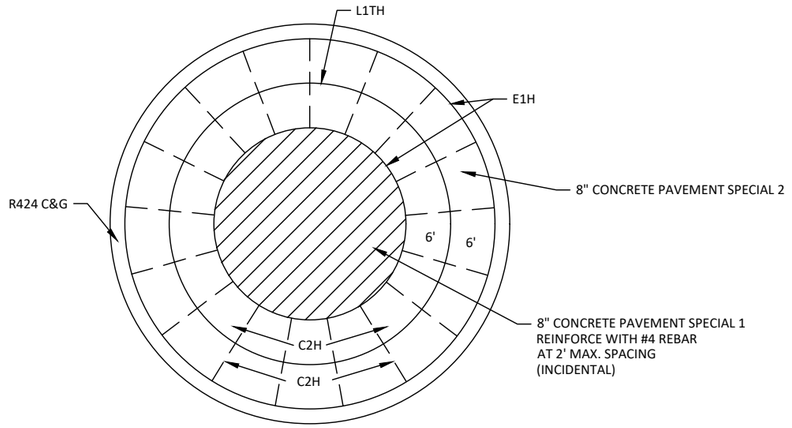
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
MISCELLANEOUS DETAILS

SHEET C1.06



PARKING DETAIL

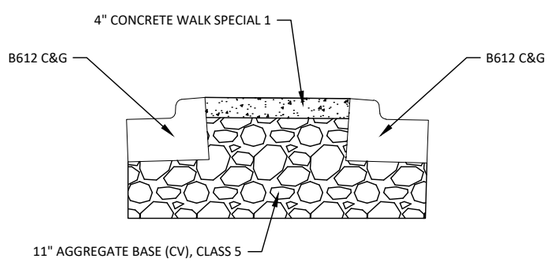
NOT TO SCALE



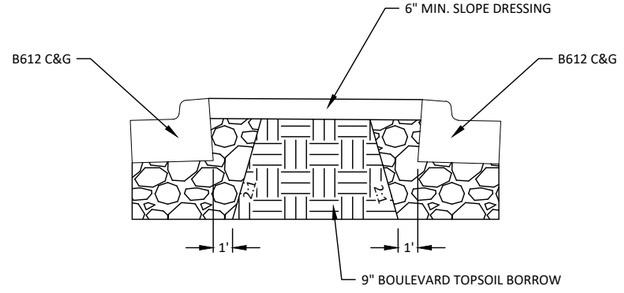
ROUNDABOUT ISLAND JOINTING DETAIL

8" NON-REINFORCED CONCRETE PAVEMENT

NOT TO SCALE



MEDIANS 4' OR SMALLER



MEDIANS LARGER THAN 4'
(SEE LANDSCAPING PLANS
FOR ADDITIONAL DETAILS)

MEDIAN DETAIL

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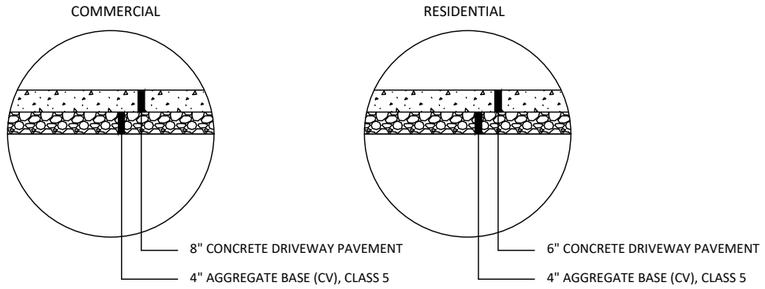
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

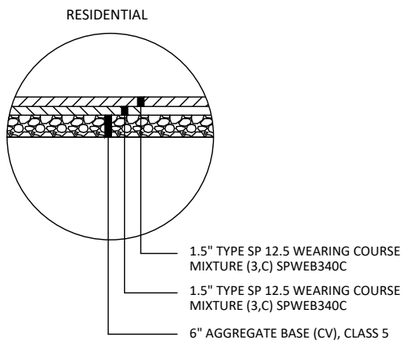
MISCELLANEOUS DETAILS

SHEET C1.07

CONCRETE DRIVEWAY INSET



BITUMINOUS DRIVEWAY INSET



DRIVEWAY TABULATION (2)

STATION (1)	SIDE	CURB TYPE	E1	E2	L1	S1	E3	L2	S2	E4	L3	S3	E5	EXISTING
					FT	%		FT	%		FT	%		%
LYNDALE AVE S.B.														
207+25	LEFT	DW CURB TYPE 2	846.80	846.97	3.33	12.1	847.37	8.0	1.5	847.49	4.5	11.3	848.00	3.9
207+56	RIGHT	DW CURB STANDARD	846.79	846.87	5.33	9.7	847.39	6.0	1.5	847.48	13	9.4	848.70	9.5
208+03	RIGHT	DW CURB STANDARD	847.00	847.08	5.33	9.7	847.60	6.0	1.5	847.69	13.5	9.9	849.02	7.8
208+11	LEFT	DW CURB TYPE 2	847.15	847.32	3.33	12.1	847.72	8.0	1.5	847.84	4.5	9.1	848.25	4.7
208+98	RIGHT	DW CURB STANDARD	847.47	847.55	5.33	9.7	848.07	6.0	1.5	848.16	8	6.2	848.66	8.6
209+15	LEFT	DW CURB TYPE 2	847.55	847.72	4.33	9.8	848.14	8.0	1.5	848.26	7.5	13.7	849.29	5.3
209+60	RIGHT	DW CURB STANDARD	847.71	847.79	5.33	9.7	848.31	6.0	1.5	848.4	7	2.6	848.58	6.5
209+80	LEFT	DW CURB TYPE 2	847.80	847.97	4.33	9.8	848.39	8.0	1.5	848.51	8	2.1	848.68	1.8
210+80	LEFT	DW CURB STANDARD	847.57	847.65	5.33	9.7	848.17	8.0	1.5	848.29	12	4.1	848.78	4.6
211+69	LEFT	DW CURB TYPE 2	847.08	847.25	13.33	4.5	847.85	8.0	1.5	847.97	6	7.5	848.42	3.2
214+24	LEFT	DW CURB STANDARD	847.31	847.39	5.33	9.7	847.91	8.0	1.5	848.03	9	4.2	848.41	5.3
215+36	LEFT	DW CURB STANDARD	847.54	847.62	5.33	9.7	848.14	8.0	1.5	848.26	21	-2.7	847.70	-2.0
216+15	LEFT	DW CURB STANDARD	847.37	847.45	5.33	9.7	847.97	8.0	1.5	848.09	21	-1.4	847.79	-0.5
216+58	RIGHT	DW CURB STANDARD	846.93	847.01	5.33	9.7	847.53	8.0	1.5	847.65	3	6.0	847.83	2.0
217+84	LEFT	DW CURB STANDARD	846.54	846.62	5.33	9.7	847.14	8.0	1.5	847.26	17	6.2	848.32	5.7
219+81	RIGHT	DW CURB STANDARD	845.77	845.85	25	9.0	848.11	-	-	-	-	-	-	-
220+17	RIGHT	DW CURB STANDARD	846.21	846.29	5.33	9.7	846.81	6.0	1.5	846.9	17	6.9	848.07	5.5
220+76	RIGHT	DW CURB STANDARD	846.59	846.67	6.33	8.5	847.21	6.0	1.5	847.3	7	8.4	847.89	7.3
221+37	RIGHT	DW CURB STANDARD	846.98	847.06	8.1	7.1	847.64	6.0	1.5	847.73	3	5.0	847.88	6.2
221+78	RIGHT	DW CURB STANDARD	847.25	847.33	7.25	7.8	847.90	6.0	1.5	847.99	6.5	5.5	848.35	12.2
222+62	LEFT	DW CURB STANDARD	847.77	847.85	5.33	9.7	848.37	8.0	1.5	848.49	8	0.7	848.55	1.9
223+30	LEFT	DW CURB STANDARD	847.49	847.57	5.33	9.7	848.09	8.0	1.5	848.21	11	3.0	848.54	3.2
223+63	LEFT	DW CURB STANDARD	847.33	847.41	5.33	9.7	847.93	8.0	1.5	848.05	19	5.1	849.02	3.2
224+48	LEFT	DW CURB STANDARD	846.91	846.99	5.33	9.7	847.51	8.0	1.5	847.63	21	4.8	848.64	3.5
227+10	LEFT	DW CURB STANDARD	846.03	846.11	8.33	5.5	846.57	8.0	1.5	846.69	16	7.1	847.82	5.4
228+24	LEFT	DW CURB TYPE 2	846.54	846.71	3.33	12.1	847.11	6.0	1.5	847.2	7	3.0	847.41	1.8
229+01	LEFT	DW CURB TYPE 2	846.91	847.08	3.33	12.1	847.48	6.0	1.5	847.57	18	1.4	847.83	2.2
229+68	LEFT	DW CURB STANDARD	847.11	847.19	5.33	9.7	847.71	8.0	1.5	847.83	10	1.4	847.97	2.5
230+31	LEFT	DW CURB STANDARD	847.12	847.20	5.33	9.7	847.72	8.0	1.5	847.84	20.5	0.0	847.85	0.5
231+33	LEFT	DW CURB STANDARD	846.74	846.82	5.33	9.7	847.34	8.0	1.5	847.46	4	-1.0	847.42	-2.0
231+82	LEFT	DW CURB STANDARD	846.50	846.58	5.33	9.7	847.10	8.0	1.5	847.22	10.5	7.3	847.99	-0.5
233+14	LEFT	DW CURB STANDARD	846.91	846.99	5.33	9.7	847.51	8.0	1.5	847.63	11	5.3	848.21	-1.5
233+72	LEFT	DW CURB STANDARD	847.52	847.60	5.33	9.7	848.12	8.0	1.5	848.24	16.7	4.4	848.97	1.2
234+86	RIGHT	DW CURB STANDARD	848.30	848.38	5.33	9.7	848.90	6.0	1.5	848.99	9	5.9	849.52	2.3
235+47	RIGHT	DW CURB STANDARD	848.99	849.07	5.33	9.7	849.59	6.0	1.5	849.68	25	-2.4	849.09	0.4
235+47	RIGHT	CREATE LOW POINT IN DRIVEWAY AT 849.09, CONNECT INTO EXISTING AT 849.26								849.02	7	3.4	849.26	
236+57	LEFT	DW CURB STANDARD	850.35	850.43	5.33	9.7	850.95	8.0	1.5	851.07	6.5	10.9	851.78	2.0
238+12	LEFT	DW CURB STANDARD	850.75	850.83	5.33	9.7	851.35	8.0	1.5	851.47	6.5	1.7	851.58	4.5
238+49	LEFT	DW CURB STANDARD	850.67	850.75	5.33	9.7	851.27	8.0	1.5	851.39	-	-	-	
239+15	LEFT	DW CURB STANDARD	850.38	850.46	5.33	9.7	850.98	8.0	1.5	851.1	7	2.0	851.24	3.0
239+86	LEFT	DW CURB STANDARD	850.05	850.13	5.33	9.7	850.65	8.0	1.5	850.77	29	2.4	851.47	3.1
243+84	LEFT	DW CURB STANDARD	848.18	848.26	7.33	7.6	848.82	8.0	1.5	848.94	8	7.4	849.53	3.2
255+83	RIGHT	DW CURB TYPE 2	845.67	845.84	3.33	12.1	846.24	6.0	1.5	846.33	17.5	1.4	846.58	4.4
256+78	RIGHT	DW CURB TYPE 2	845.20	845.37	3.33	12.1	845.77	6.0	1.5	845.86	3	3.0	845.95	12.5
257+33	RIGHT	DW CURB TYPE 2	844.94	845.11	3.33	12.1	845.51	6.0	1.5	845.6	1.5	4.0	845.66	15.5
258+41	RIGHT	DW CURB TYPE 2	844.89	845.06	3.33	12.1	845.46	6.0	1.5	845.55	5	9.6	846.03	9.2
261+01	RIGHT	DW CURB TYPE 2	846.02	846.19	3.33	12.1	846.59	6.0	1.5	846.68	4	-4.8	846.49	-1.3
261+57	RIGHT	DW CURB TYPE 2	846.65	846.82	3.33	12.1	847.22	6.0	1.5	847.31	6	-5.0	847.01	1.3
262+15	RIGHT	DW CURB TYPE 2	847.31	847.48	3.33	12.1	847.88	6.0	1.5	847.97	6	1.7	848.07	-0.5
263+05	RIGHT	DW CURB TYPE 2	848.30	848.47	3.33	12.1	848.87	6.0	1.5	848.96	3	2.0	849.02	3.2
263+43	RIGHT	DW CURB TYPE 2	848.72	848.89	3.33	12.1	849.29	6.0	1.5	849.38	11.5	10.1	850.54	10.2
264+18	RIGHT	DW CURB TYPE 2	849.54	849.71	3.33	12.1	850.11	6.0	1.5	850.2	5	2.2	850.31	7.5
264+98	RIGHT	DW CURB TYPE 2	849.84	850.01	3.33	12.1	850.41	6.0	1.5	850.5	5	1.6	850.58	4.6
265+18	RIGHT	DW CURB TYPE 2	849.72	849.89	3.33	12.1	850.29	6.0	1.5	850.38	5	4.6	850.61	7.2
265+47	LEFT	DW CURB STANDARD	849.61	849.69	7.33	7.6	850.25	10.0	1.5	850.4	5	-6.0	850.10	0.5
269+34	RIGHT	DW CURB TYPE 2	848.42	848.59	3.83	12.1	849.05	11.5	1.5	849.2225	2	5.4	849.33	2.2

NOTES
(1) STATION VALUE AT CENTERLINE OF DRIVEWAY
(2) SEE MISCELLANEOUS DETAILS

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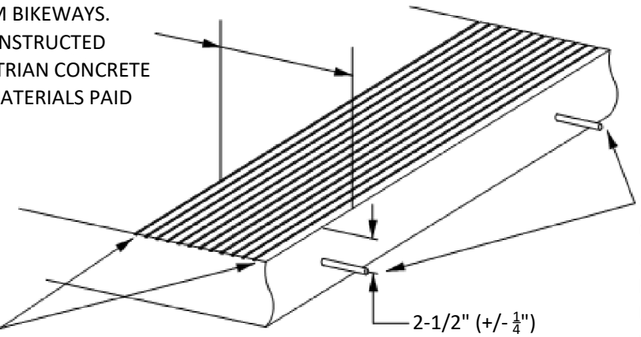
MISCELLANEOUS DETAILS

SHEET C1.08

TACTILE SURFACE DETAILS
(NOT TO SCALE)

PERSPECTIVE VIEW

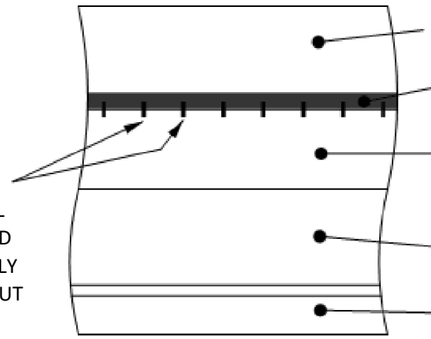
GROOVE ONE FOOT WIDE WIDTH TO SEPARATE PEDESTRIAN WALK AREAS FROM BIKEWAYS. AREA IS ANTICIPATED TO BE CONSTRUCTED IN CONJUNCTION WITH PEDESTRIAN CONCRETE WALKWAYS. ALL WORK AND MATERIALS PAID FOR AS 4" CONCRETE WALK.



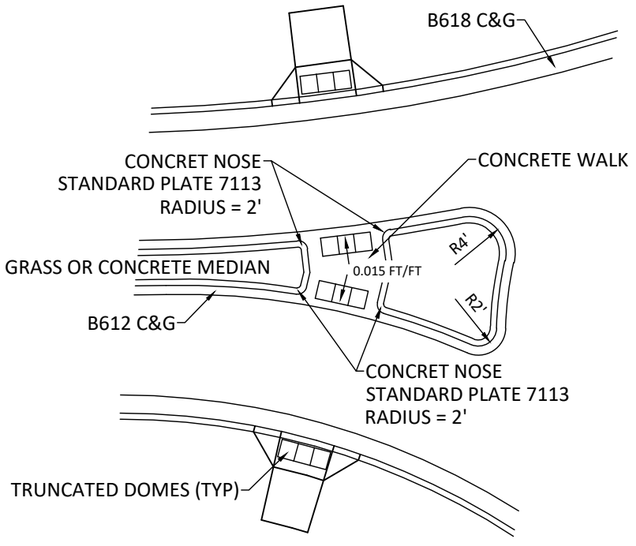
TOOL OR SAW $\frac{1}{4}$" DEEP X $\frac{1}{4}$" WIDE GROOVES ON 1" CENTERS.

12" NO. 3 REBARS (EPOXY COATED) ON 30" CENTERS TO TIE LONGITUDINAL JOINT BETWEEN CONCRETE WALKS AND BIKEWAYS. REBAR PAID FOR SEPARATELY UNDER ITEM 2301.602 DRILL AND GROUT DOWEL BAR (EPOXY COATED).

PLAN VIEW



MEDIAN DETAIL
(NOT TO SCALE)



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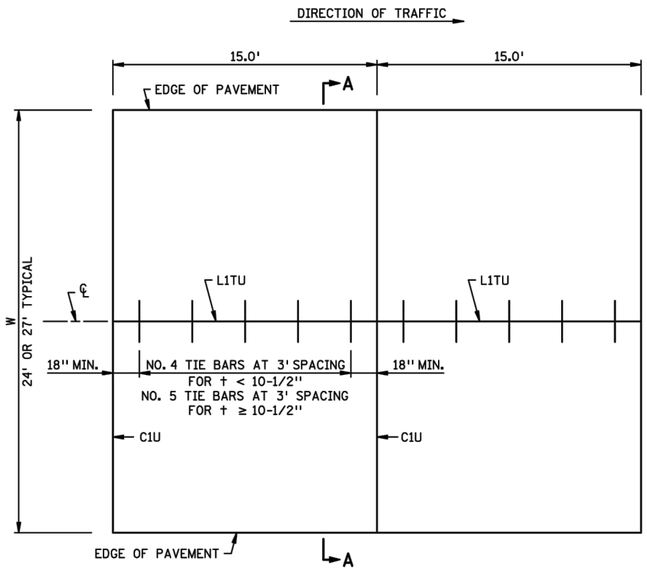
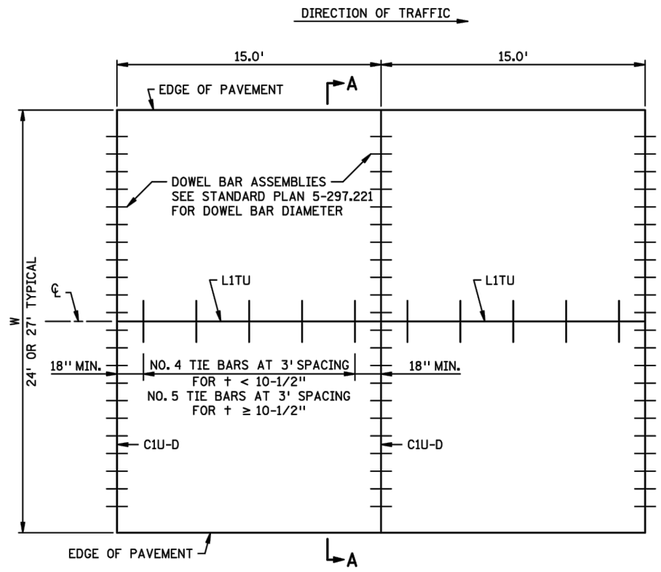
MISCELLANEOUS DETAILS

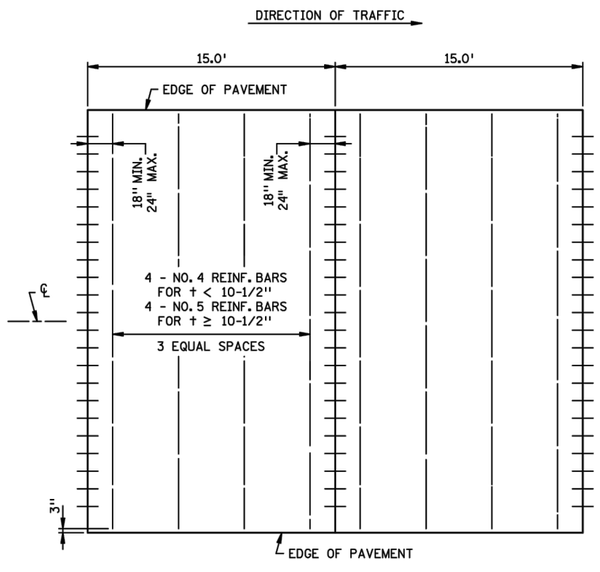
SHEET C1.09



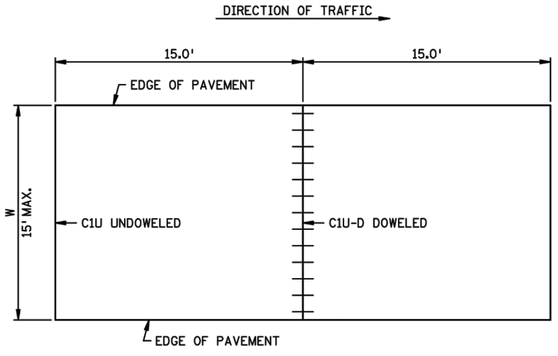
MAINLINE PAVEMENT
UNDOWELED



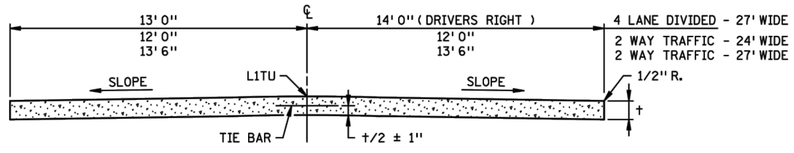
MAINLINE PAVEMENT
DOWELED



PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH
UNDOWELED OR DOWELED



SECTION A-A

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, t.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT, PLACEMENT DEPTH SHALL BE PLANNED t/2 ± 1''. IT IS PREFERRED TO ADD A LONGITUDIDNAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

REVISION:
APPROVED: FEBRUARY 16, 2016
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.217 | 1 OF 2

APPROVED: 2-16-2016
REVISED:

STATE DESIGN ENGINEER

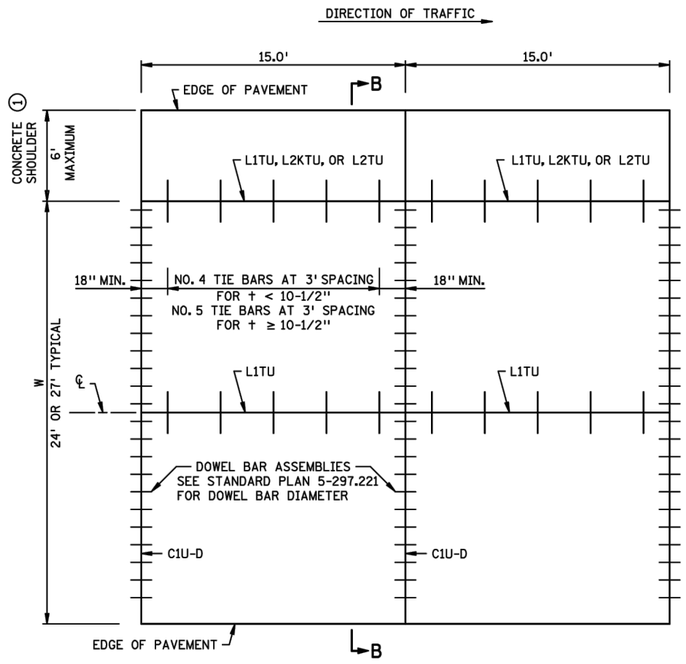
CONCRETE MAINLINE PAVEMENT
15.0 FT. PANEL LENGTH
RURAL

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS
DETAILS

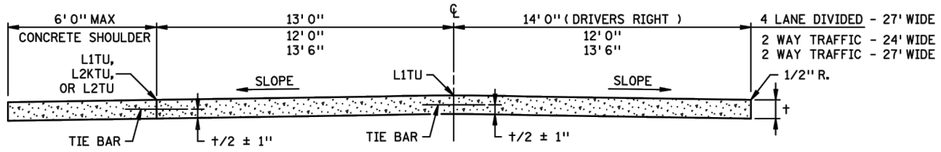
SHEET C1.10

PLOTTED/REVISED: 4-APR-2018
PLOT NAME: s217_1_spn
PATH & FILENAME: OTS\DesignStandards\Development\New Border\200_Series\s217_1_spn.dgn

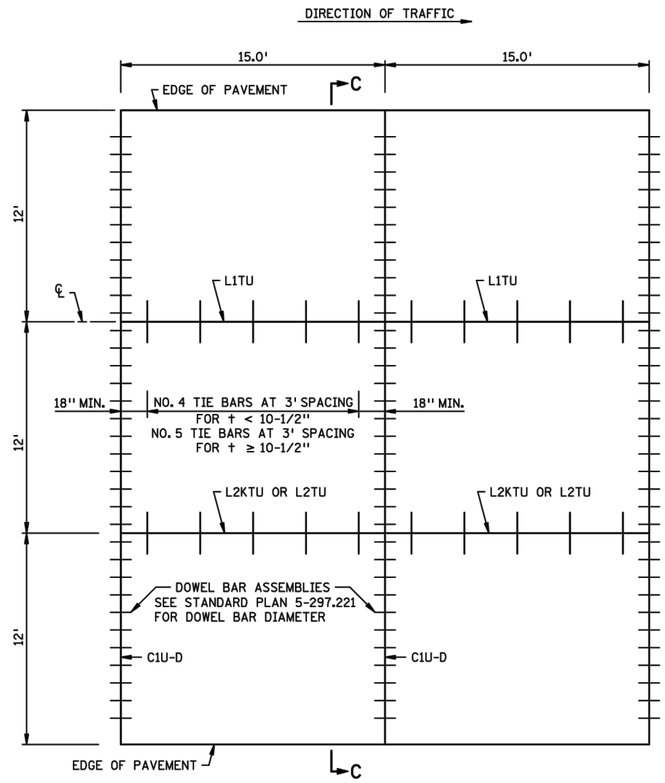


MAINLINE PAVEMENT WITH INSIDE CONCRETE SHOULDER

DOWELED

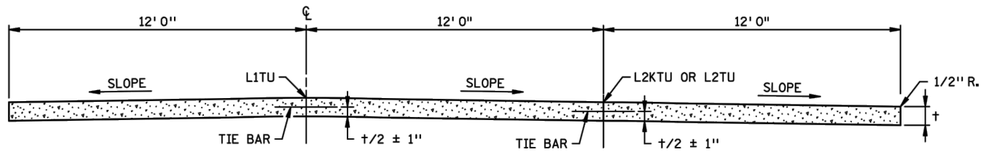


SECTION B-B



MAINLINE PAVEMENT URBAN

DOWELED



SECTION C-C

GENERAL NOTES:

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, †.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

① CONTACT THE CONCRETE ENGINEER TO DISCUSS WHETHER TIE BARS AND SAWED JOINTS ARE NEEDED BASED ON CONCRETE SHOULDER WIDTH AND DEPTH.

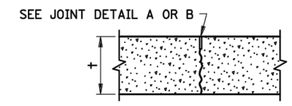
REVISION:
APPROVED: FEBRUARY 16, 2016
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION	STANDARD PLAN 5-297.217	2 OF 2	CONCRETE MAINLINE PAVEMENT 15.0 FT. PANEL LENGTH URBAN OR CONCRETE SHOULDERS
STATE DESIGN ENGINEER	APPROVED: 2-16-2016 REVISED:		
	STATE PROJ. NO.	(T.H.)	SHEET NO. OF SHEETS

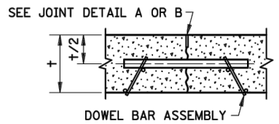
LYNDALE AVENUE RECONSTRUCTION	SHEET
S.A.P. 142-152-009	C1.11
MISCELLANEOUS DETAILS	

PLOTTED/REVISED: 4-APR-2018

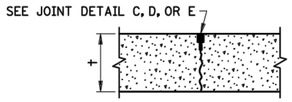
PLOT NAME: s217_2_spn
PATH & FILENAME: 01"S\DesignStandards\Development\New Border\200_Series\s217_2_spn.dgn



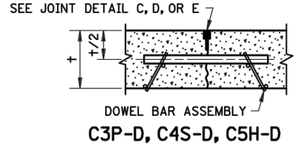
C1U & C2H



C1U-D & C2H-D



C3P, C4S, C5H



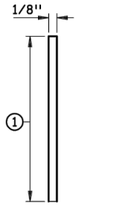
C3P-D, C4S-D, C5H-D

CONTRACTION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

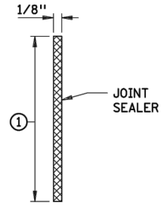
JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
C1U	C1U-D	A	UNSEALED	1/8"
C2H	C2H-D	B	3725	1/8"
C3P	C3P-D	C	3721	3/8"
C4S	C4S-D	D	3722	3/8"
C5H	C5H-D	E	3725	3/8"

LEGEND
C = CONTRACTION JOINT
NO. = JOINT REFERENCE
U = UNSEALED
H = HOT POURED
P = PREFORMED
S = SILICONE
-D = DOWEL BARS

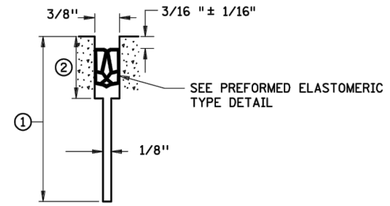
EXAMPLE: C2H-D



JOINT DETAIL A
SAWED & UNSEALED



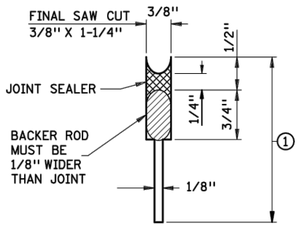
JOINT DETAIL B ③
SAWED & SEALED



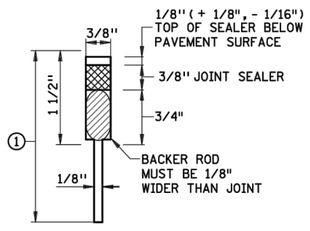
JOINT DETAIL C ③
SAWED AND SEALED

DOWEL BAR DIAMETER TABLE

PAVEMENT THICKNESS †	DOWEL BAR DIAMETER
LESS THAN 6"	NONE
6" - 6 1/2"	1" OR NONE
7" - 7 1/2"	1"
8" - 10"	1 1/4"
10 1/2" AND GREATER	1 1/2"



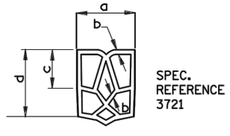
JOINT DETAIL D ③④
SAWED AND SEALED



JOINT DETAIL E ③⑤
SAWED AND SEALED

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16" USE IN ALL 3/8" JOINTS
a	0.69" + 0.13" - 0.05"
b	0.08" ± 0.02"
c	0.25" MIN.
d	0.63" MIN.



TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

NOTES:

SEE STANDARD PLATE 1103 FOR DOWEL BAR ASSEMBLY.

SEE STANDARD PLATE 1150 FOR CONSTRUCTION OF HEADER JOINTS.

JOINT WIDTH TOLERANCE IS + 1/16" TO - 1/32"

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEE STANDARD PLANS 5-297.217 AND 5-297.219, FOR CONCRETE MAINLINE/RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

① JOINT DEPTH SHALL BE:
FOR CONCRETE OVERLAYS - 1/3 THE PAVEMENT THICKNESS
FOR CONCRETE PAVEMENT - 1/4 THE PAVEMENT THICKNESS

② SEE CONTRACTION JOINT SEALER DETAIL. WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH. "a" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "c" DEPTH. SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET.

③ WHEN SEALING, THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

④ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEAL AND BEAD THICKNESS OF 1/4".

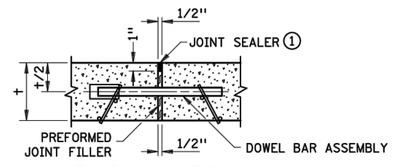
⑤ PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF PAVEMENT.

EXPANSION JOINT REFERENCE, DETAIL & SEALER SPEC. TABLE

JOINT REFERENCE		JOINT DETAIL	JOINT SEALER SPEC.	JOINT WIDTH
WITHOUT DOWELS	WITH DOWELS			
E1H	E1H-D	A	3725	1/2"
E2H	E2H-D	B	3725	1"
E4H		C	3725	2"
	E4H-D	D	3725	2"
E8H		STANDARD PLAN 5-297.229	3725	4"

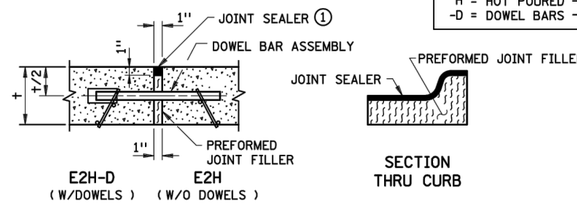
LEGEND
E = EXPANSION JOINT
NO. = JOINT REFERENCE
H = HOT POURED
-D = DOWEL BARS

EXAMPLE: E4H-D



E1H-D (W/DOWELS) E1H (W/O DOWELS)

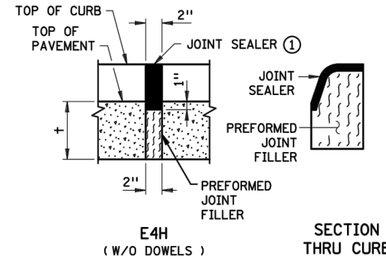
JOINT DETAIL A



E2H-D (W/DOWELS) E2H (W/O DOWELS)

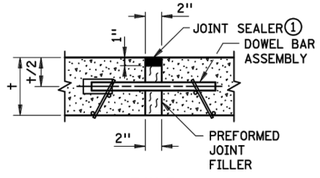
SECTION THRU CURB

JOINT DETAIL B



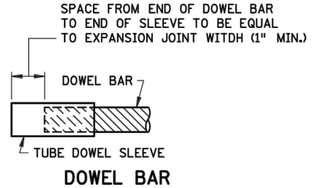
E4H (W/O DOWELS) SECTION THRU CURB

JOINT DETAIL C



E4H-D (W/DOWELS)

JOINT DETAIL D



DOWEL BAR SLEEVE DETAIL

NOTES:

PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

FOR DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

① JOINT SEALER SPEC. 3725. THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION D JOINTS FLUSH WITH SURFACE ±1/8".

PREFORMED ELASTOMERIC TYPE DETAIL

CONTRACTION JOINTS
DESIGN C

REVISION:

APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 | 1 OF 2

APPROVED: 8-6-2014
REVISED:

STATE DESIGN ENGINEER

PAVEMENT JOINTS

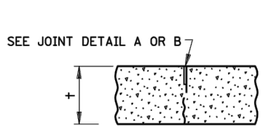
CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

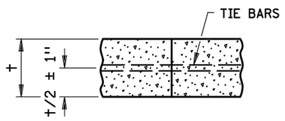
LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS DETAILS

SHEET C1.12

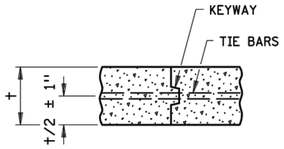
PLOTTED/REVISED: 4-APR-2018
IPLOT NAME: s221J_spn
PATH & FILENAME: OTS\DesignStandards\Development\New Border\200_Series\s221J_spndgn



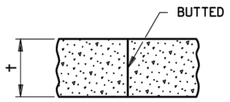
L1U & L1H ①



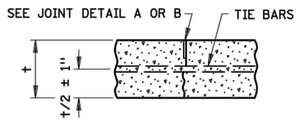
L2TU ②



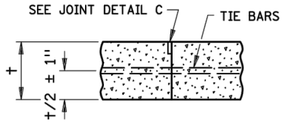
L2KTU ③



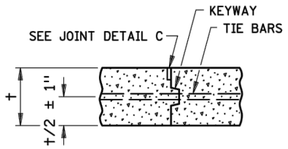
L3U



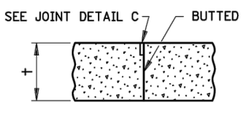
L1TU & L1TH ①



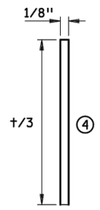
L2TH ②



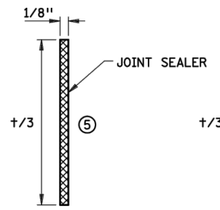
L2KTH ③



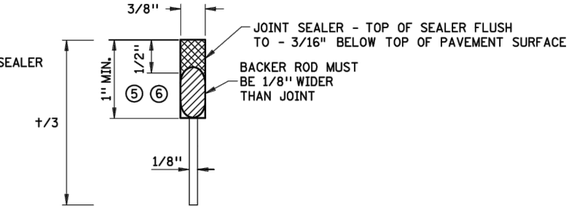
L3H



JOINT DETAIL A
SAWED & UNSEALED



JOINT DETAIL B
SAWED & SEALED



JOINT DETAIL C
SAWED & SEALED

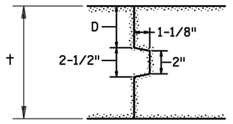
TIEBAR TABLE

PAVEMENT THICKNESS	TIEBAR SIZE	LENGTH
< 10-1/2"	NO. 4	30"
≥ 10-1/2"	NO. 5	36"
ALL THICKNESS WHEN TYING TO CURB AND GUTTER	NO. 4	30"

THE TIE BAR SPACING FOR ALL L2T AND L2KT JOINTS SHALL BE 3'-0" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2T AND L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 4 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.



PAVEMENT KEYWAY DETAIL

KEYWAY DIMENSION TABLE

† PAVEMENT THICKNESS	D (TOLERANCE ± 1/4")
< 7"	NO KEYWAY
7" TO 7-1/2"	3"
8" TO 10"	4"
≥ 10-1/2"	5"

KEYWAY (1-1/8" x 2" x 2-1/2") MAY BE FORMED WITH MOLD OR METAL FORM. OTHER APPROVED KEYWAY SHAPES GIVING EQUIVALENT CONSTRUCTION FEATURES MAY BE USED WITH APPROVAL OF THE ENGINEER.

LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE

JOINT REFERENCE			JOINT DETAIL	JOINT SEALER SPEC	JOINT WIDTH
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS			
L1U	L1TU		A	UNSEALED	1/8"
L1H	L1TH		B	3725	1/8"
	L2TU	L2KTU	NONE	UNSEALED	
	L2TH	L2KTH	C	3725	3/8"
L3U			NONE	UNSEALED	
L3H			C	3725	3/8"

LEGEND — EXAMPLE: L2KTH

- L = LONGITUDINAL JOINT
- NO. = JOINT REFERENCE
  - 1 = PAVED CONSTRUCTION JOINT
  - 2 = TIED/KEYED CONSTRUCTION JOINT
  - 3 = BUTTED CONSTRUCTION JOINT
- K = KEYWAY
- T = TIE BARS
- U = UNSEALED
- H = HOT POURED

NOTES:

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

FURNISH AND INSTALL ALL JOINT SEALER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

TIED/KEYED AND BUTTED CONSTRUCTION JOINTS SHALL BE UNSEALED EXCEPT AS OTHERWISE NOTED IN THE PLAN OR REQUIRED BY THE ENGINEER.

SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

WHEN CURB AND GUTTER IS PLACED ADJACENT TO CONCRETE MAINLINE, THE TIEBARS SHALL BE PLACED A MINIMUM OF 2" ABOVE THE CURB AND GUTTER GRADE.

① SEE THE LONGITUDINAL JOINT REFERENCE, DETAIL & SEALER SPECIFICATION TABLE TO DETERMINE JOINT DETAIL.

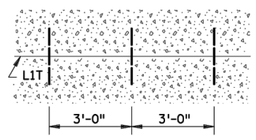
② CONCRETE PAVEMENTS LESS THAN 7" SHALL USE L2TU AND L2TH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

③ CONCRETE PAVEMENTS GREATER THAN OR EQUAL TO 7" SHALL USE L2KTU AND L2KTH JOINTS UNLESS OTHERWISE ALLOWED BY THE ENGINEER.

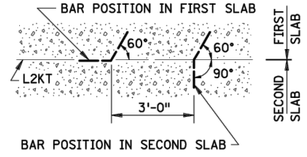
④ THE JOINT FACES SHALL BE CLEANED WITH WATER DURING THE SAW CUTTING OPERATION OR BY WATER BLASTING AFTER SAWING.

⑤ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING.

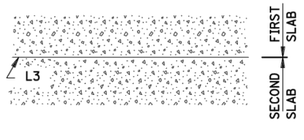
⑥ PRIOR TO SEALING THE JOINT, A 1/2" DIAMETER CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F. SHALL BE PLACED 1/2" BELOW THE TOP OF THE PAVEMENT.



L1T PAVING DETAIL



L2T & L2KT TIE BAR BENDING AND PAVING DETAIL



L3 PAVING DETAIL

REVISION:
APPROVED: 8-6-2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.221 | 2 OF 2

APPROVED: 8-6-2014
REVISED:

STATE DESIGN ENGINEER

PAVEMENT JOINTS

LONGITUDINAL (DESIGN L)

STATE PROJ. NO. (T.H.) SHEET NO. OF SHEETS

LYNDALE AVENUE RECONSTRUCTION	SHEET
S.A.P. 142-152-009	C1.13
MISCELLANEOUS DETAILS	

PLOTTED/REVISED: 4-APR-2018

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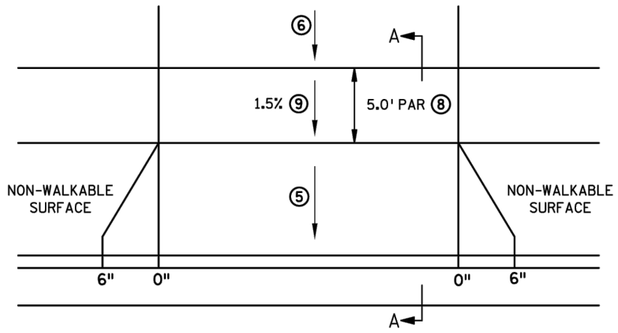
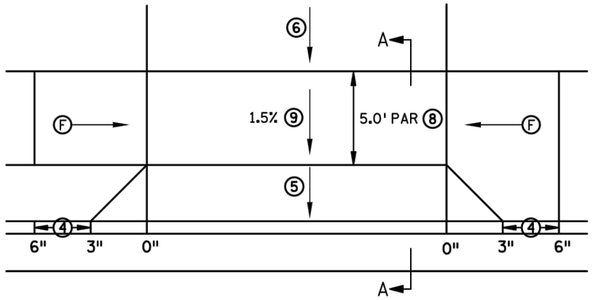
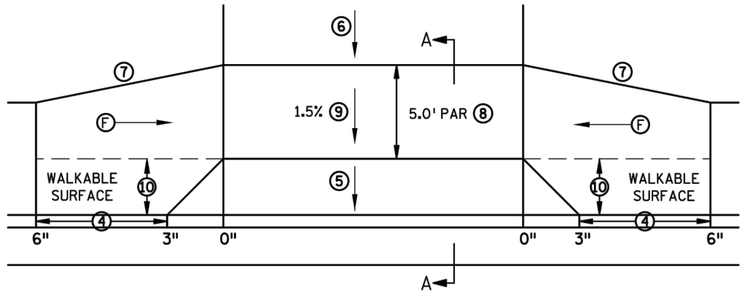


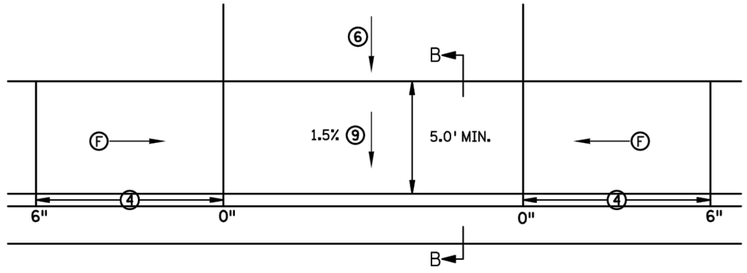
PERPENDICULAR DRIVEWAY ①



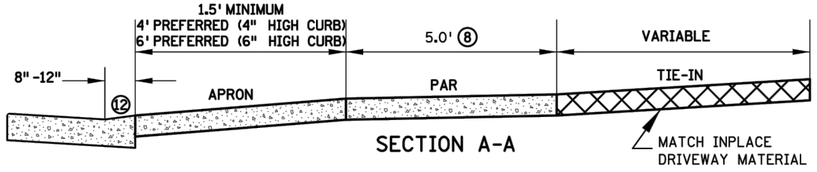
TIERED PERPENDICULAR DRIVEWAY ②



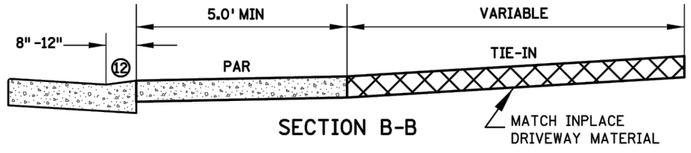
TIERED PERPENDICULAR OFFSET DRIVEWAY



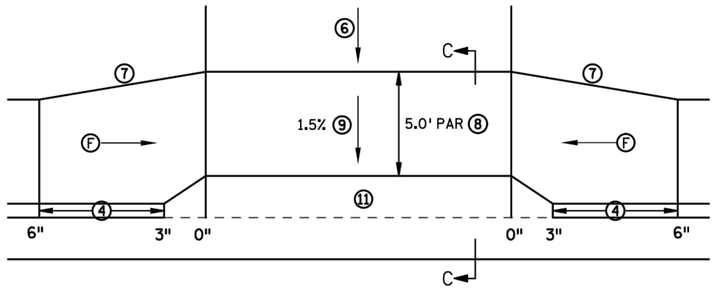
PARALLEL DRIVEWAY ③



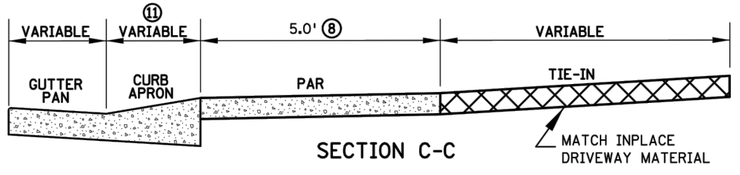
SECTION A-A



SECTION B-B



VALLEY GUTTER DRIVEWAY



SECTION C-C

NOTES:

IN NO CASE SHALL SIDEWALK PROFILES EXCEED 5.0%, EXCEPT SIDEWALK PROFILES CAN MATCH ROADWAY GRADE IF ROADWAY GRADE IS GREATER THAN 5.0%. RAMPS FOR DRIVEWAYS ARE REQUIRED TO FOLLOW THE ABOVE SIDEWALK CRITERIA.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PEDESTRIAN ACCESS ROUTE (PAR). 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

DRIVEWAY TYPES FROM MOST PREFERRED TO LEAST PREFERRED ARE AS FOLLOWS: PERPENDICULAR, TIERED PERPENDICULAR, TIERED PERPENDICULAR OFFSET & PARALLEL.

① TO BE USED WHEN THE DRIVEWAY PAR IS LEVEL WITH OR ABOVE THE TOP OF CURB, RESULTING IN A CONTINUOUS PAR PROFILE.

② TO BE USED WHEN THE DRIVEWAY PAR IS BELOW THE ROADWAY CURB HEIGHT. THIS DRIVEWAY TYPE CAN BE USED FOR BOTH PAVED (AS SHOWN) AND GRASS BOULEVARDS.

③ SHOULD BE USED FOR NEGATIVE SLOPED DRIVEWAYS. DW CURB TYPE 2 CURB SHOULD BE USED TO RAISE PAR ABOVE GUTTER AND REDUCE "ROLLER COASTER" EFFECT. 4" HIGH ROADWAY CURB SHOULD BE USED TO REDUCE "ROLLER COASTER" EFFECT ESPECIALLY WHEN MULTIPLE DRIVEWAYS ARE PRESENT.

④ TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

⑤ 8% MAX. PREFERRED, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.

⑥ 8% MAX. PREFERRED, SEE SHEET 2 FOR MORE INFORMATION.

⑦ 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.

⑧ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.

⑨ THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

⑩ SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.

⑪ VALLEY GUTTER APRON TO BE POURED INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.

⑫ SEE SHEET 2 FOR CURB TYPE INFORMATION.

LEGEND	
Ⓕ	INDICATES DRIVEWAY RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
X"	CURB HEIGHT (INCHES)

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

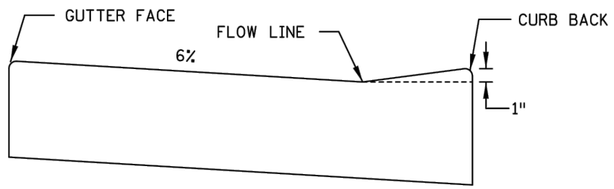
REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 1 OF 4

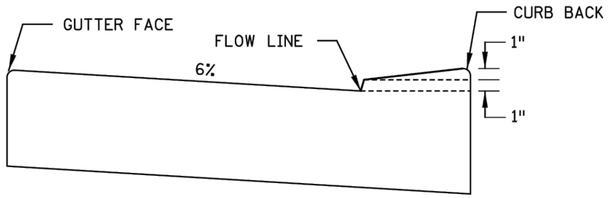
LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS DETAILS

SHEET C1.14



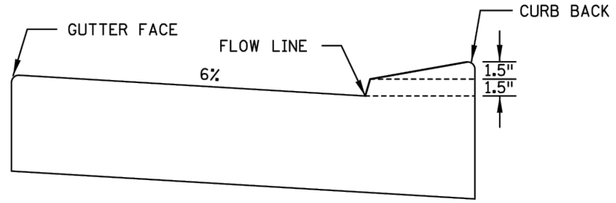
DW CURB STANDARD

STANDARD CURB AT DRIVEWAY



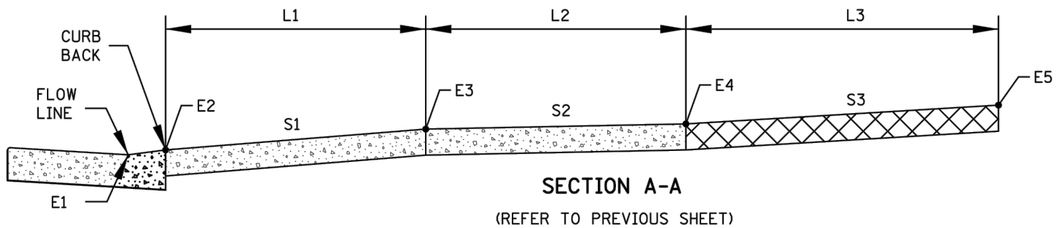
DW CURB TYPE 2

VERTICALLY CONSTRAINED



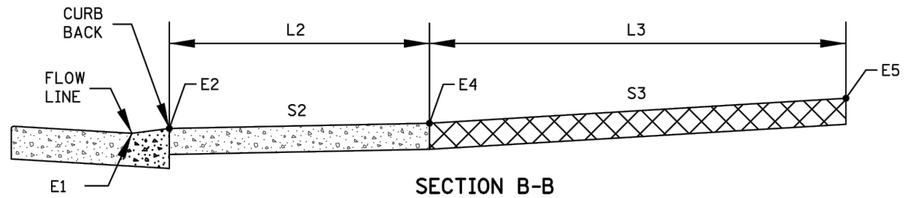
DW CURB TYPE 3

VERTICALLY CONSTRAINED



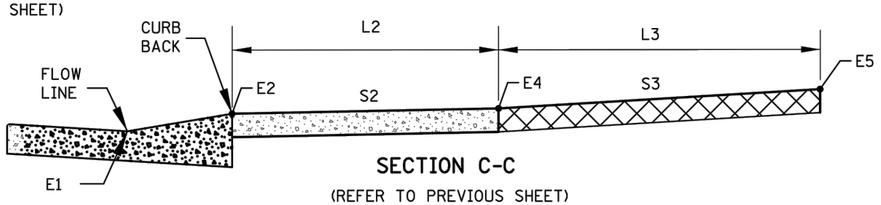
SECTION A-A

(REFER TO PREVIOUS SHEET)



SECTION B-B

(REFER TO PREVIOUS SHEET)

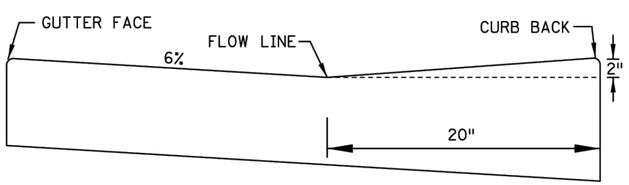


SECTION C-C

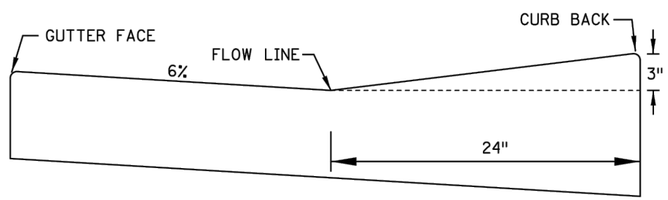
(REFER TO PREVIOUS SHEET)

DRIVEWAY TABULATION ①

STATION	SIDE	DRIVEWAY TYPE	CURB TYPE ③	E1	E2	L1 FT	S1 %	E3	L2 FT	S2 ② %	E4	L3 FT	S3 %	EXISTING %	E5	COMMENTS



VG 220



VG 324

VALLEY GUTTER CURB

OTHER CURB HEIGHTS & CURB APRON LENGTHS CAN BE USED

NOTES:

DW CURB STANDARD SHALL BE USED WHEN THE DRIVEWAY ACTS AS A PEDESTRIAN RAMP. THE MAX. APRON SLOPE MUST ADHERE TO ADA CRITERIA AS WELL. DW CURB STANDARD SHOULD BE USED IF THERE IS ON STREET PARKING.

WHERE ROADWAY DRAINAGE IS A CONCERN (NEGATIVE SLOPED APRON) DW CURB TYPE 2 CAN BE USED TO HELP KEEP THE WATER ON PUBLIC RIGHT OF WAY.

S1 8% MAX PREFERRED, 10% MAX. COMMERCIAL AND 12% MAX. RESIDENTIAL. IF EXISTING GRADES ARE STEEPER DO NOT MAKE GRADES APPRECIABLY WORSE BY USING BEST PRACTICES SUCH AS DRIVEWAY CURB HEIGHTS, EXTENDING L3 AND/ OR STEEPEN S3.

DW CURB TYPE 3 SHALL ONLY BE USED IN EXTREME TIE-IN CASES.

S3 8% MAX PREFERRED, IF THIS SLOPE IS EXCEEDED OR IS CONTINUED FOR MORE THAN 5' ANALYZE THE NEED FOR VERTICAL CURVE(S). SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGNS OF DRIVEWAYS.

① EXAMPLE SHOWN TO BE INCLUDED IN PLAN FOR EACH DRIVEWAY.

② SHOULD BE DESIGNED AT 1.5%.

③ DW CURB STANDARD SHALL BE THE STARTING POINT FOR ALL PERPENDICULAR AND TIERED DRIVEWAYS. DW CURB TYPES 2 AND 3 SHALL ONLY BE USED AFTER UTILIZING BEST PRACTICES SUCH AS MAXIMIZING S1, S3, AND L3.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 2 OF 4

LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS DETAILS

SHEET C1.15

PLOTTED/REVISED: 5/24/2019 10:45:03 AM
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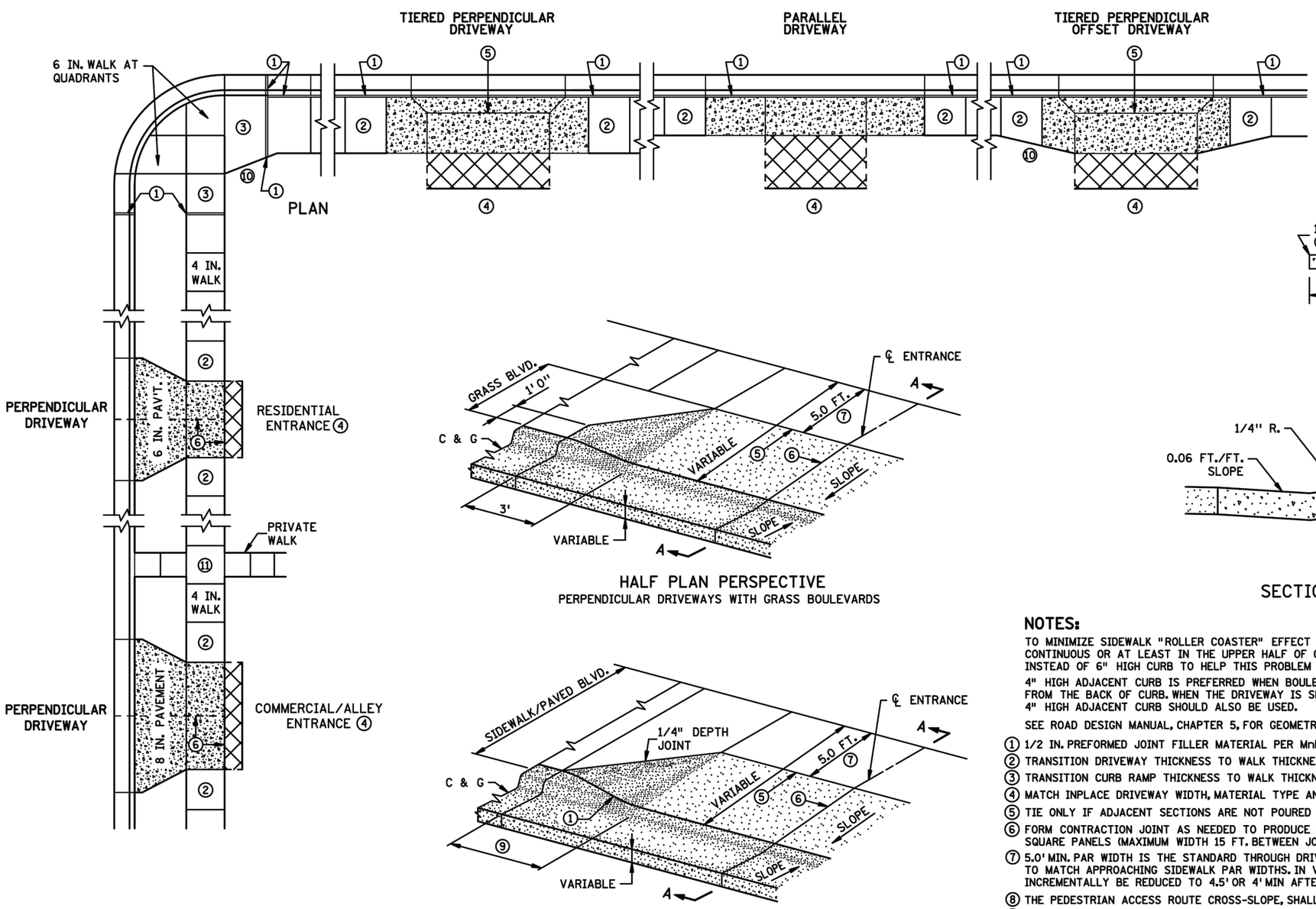
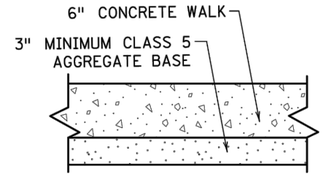
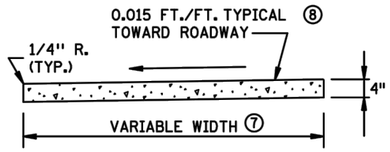


HALF PLAN PERSPECTIVE
PERPENDICULAR DRIVEWAYS WITH GRASS BOULEVARDS

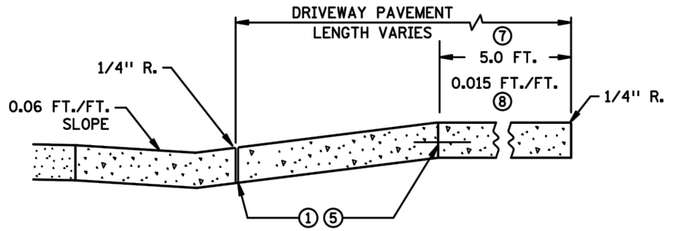
HALF PLAN PERSPECTIVE
PERPENDICULAR DRIVEWAYS WITH CONCRETE BOULEVARDS AND ALL TIERED DRIVEWAYS



SECTION THRU CURB RAMP



SECTION THRU WALK



SECTION A-A
SECTION THRU DRIVEWAY

NOTES:

TO MINIMIZE SIDEWALK "ROLLER COASTER" EFFECT IT IS DESIRABLE TO KEEP THE PAR ELEVATION CONTINUOUS OR AT LEAST IN THE UPPER HALF OF CURB HEIGHT. 4" HIGH CURB SHOULD BE USED INSTEAD OF 6" HIGH CURB TO HELP THIS PROBLEM WHEN APPLICABLE.

4" HIGH ADJACENT CURB IS PREFERRED WHEN BOULEVARDS 4' OR LESS ARE PRESENT MEASURED FROM THE BACK OF CURB. WHEN THE DRIVEWAY IS SLOPING DOWN FROM THE ROADWAY (NEGATIVE) 4" HIGH ADJACENT CURB SHOULD ALSO BE USED.

SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGN OF DRIVEWAYS.

① 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MnDOT SPEC. 3702, EXCEPT AT GRASS BOULEVARDS.
② TRANSITION DRIVEWAY THICKNESS TO WALK THICKNESS.
③ TRANSITION CURB RAMP THICKNESS TO WALK THICKNESS.
④ MATCH INPLACE DRIVEWAY WIDTH, MATERIAL TYPE AND THICKNESS.
⑤ TIE ONLY IF ADJACENT SECTIONS ARE NOT POURED MONOLITHICALLY. SEE SECTION A-A.
⑥ FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS (MAXIMUM WIDTH 15 FT. BETWEEN JOINTS).
⑦ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.
⑧ THE PEDESTRIAN ACCESS ROUTE CROSS-SLOPE, SHALL NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.
⑨ 8% TO 10% FLARES SHALL BE USED WHEN ADJACENT TO WALKABLE SURFACES AND FOR ALL TIERED DRIVEWAYS WITH GRASS BOULEVARDS.
⑩ 1:10 MIN. SIDEWALK OFFSET TAPER REQUIRED FOR SIDEWALK REPLACEMENT PROJECTS. 1:3 MIN. AND 1:5 MIN. PREFERRED SIDEWALK OFFSET TAPER FOR DRIVEWAY REPLACEMENT.
⑪ LANDING REQUIRED, SEE NEXT SHEET FOR MORE INFORMATION.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 3 OF 4

LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS DETAILS

SHEET C1.16

PLOTTED/REVISED:
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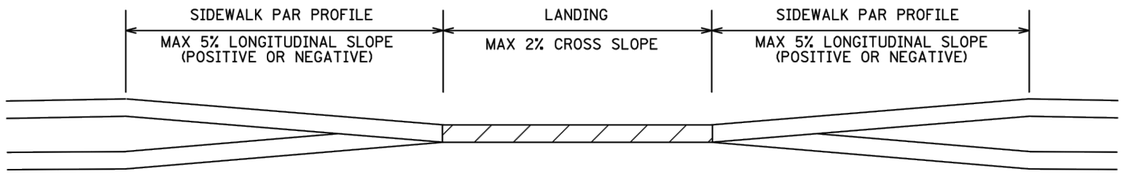
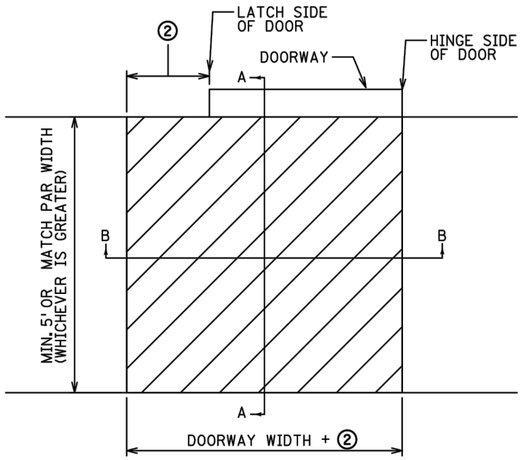
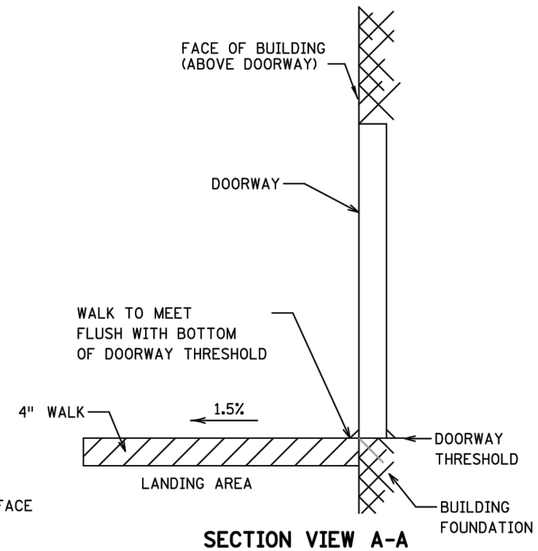


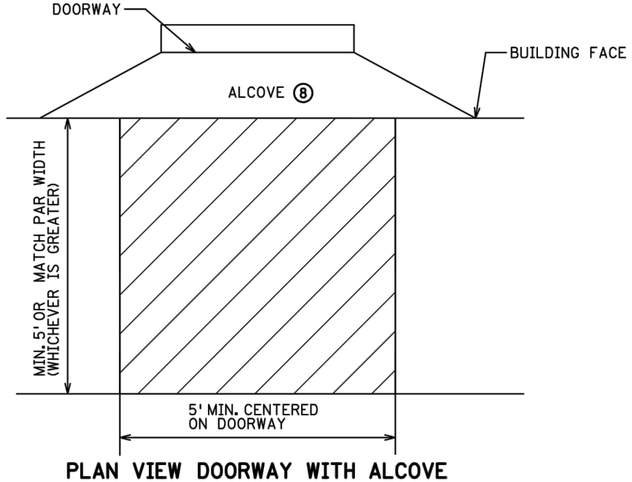
SECTION VIEW B-B



PLAN VIEW DOORWAY

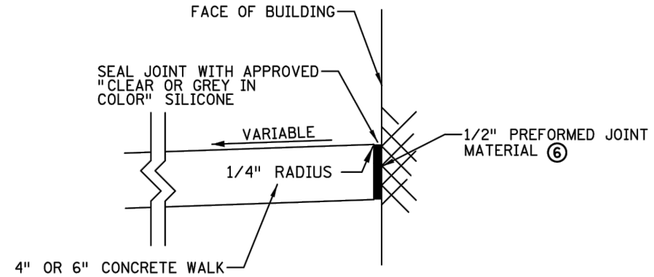


SECTION VIEW A-A

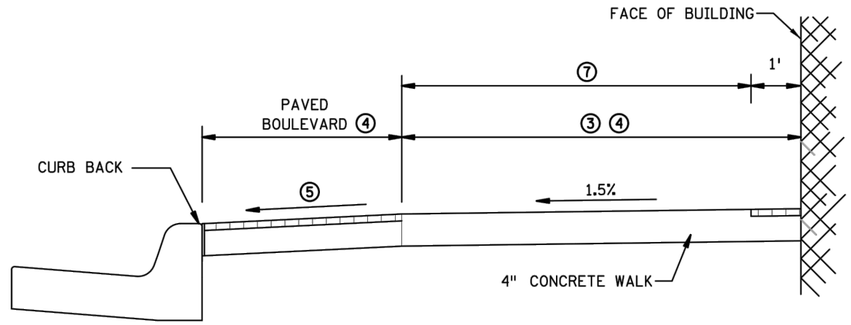


PLAN VIEW DOORWAY WITH ALCOVE

SIDEWALK LANDING REQUIREMENTS ①



BUILDING JOINT SEAL (INCIDENTAL)



DOWNTOWN SIDEWALK TYPICAL SECTION

NOTES:

FIELD ADJUST SIDEWALK PROFILES TO MEET ALL DOORWAY THRESHOLDS.

SIDEWALK MUST MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING TO THE ROADWAY.

SEE SPECIAL PROVISIONS FOR SILICONE SPECIFICATIONS.

① LANDING CRITERIA IS REQUIRED FOR ALL DOORS, PRIVATE WALKS AND STEPS.

② 18" MIN. WHEN DOOR SWINGS OUTWARD FROM BUILDING.
12" MIN WHEN DOOR SWINGS INWARD FROM BUILDING.

③ 6' MIN. PAR REQUIRED WHEN ADJACENT TO BUILDINGS.

④ 2/3 PAR TO 1/3 BOULEVARD SHOULD BE USED WHEN FEASIBLE.

⑤ 1%-5% FOR THE MAJORITY OF THE BLOCK, WITH EXCEPTIONS UP TO 8% IN CONSTRAINED AREAS. 10% MAX. FOR SHORT SECTIONS ALLOWED TO ACCOUNT FOR FIELD TOLERANCES.

⑥ FURNISH AND INSTALL BACKER ROD OF APPROPRIATE DIAMETER.

⑦ TO MINIMIZE VIBRATION AND ROLLING RESISTANCE, AREA SHOULD BE FREE OF PAVERS, STAMPED CONCRETE, AND/OR EXCESSIVE JOINTING.

⑧ 2% MAX. PER BUILDING CODE. IF GREATER THAN 2%, FLATTEN AS FEASIBLE.

LEGEND

LANDING - ALL SLOPES TO BE LESS THAN 2%

OPTIONAL AESTHETIC TREATMENT

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

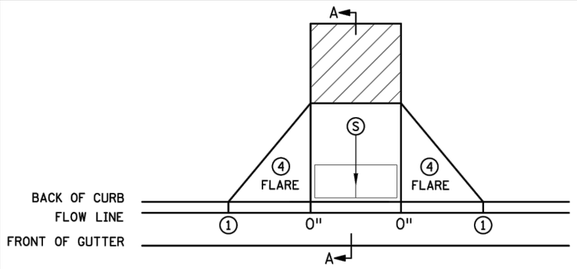
STANDARD PLAN 5-297.254 | 4 OF 4

LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS DETAILS

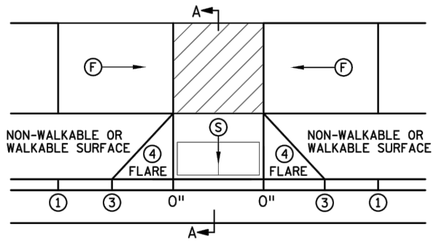
SHEET C1.17

PLOTTED/REVISED: 5/24/2019 10:45:13 AM
DISTRICT #: DISTRICT #
USER NAME: $$@USER$NAME@$$$
PATH & FILENAME: Documents/Operations/ADA_Review/ADA_DesignGuidelines/ADA&space;Standard&space;Details&space;&&space;Plates/2016&space;ADA&space;Curb&space;Ramp&space;Std.dwg
FILE NAME: @FILENAME@

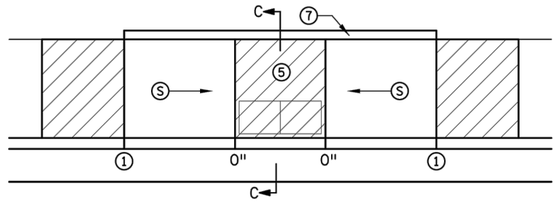
H:\DRIGHT\161145411\CAD\C3D\114-941C803.dwg 5/24/2019 10:45:13 AM



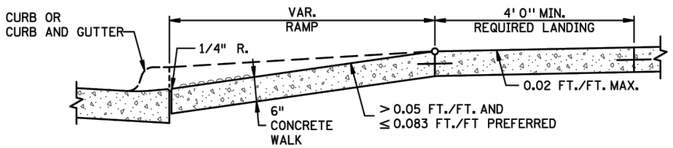
PERPENDICULAR



TIERED PERPENDICULAR

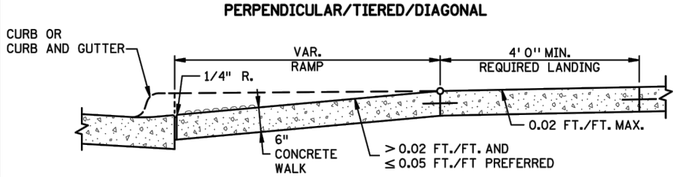


PARALLEL



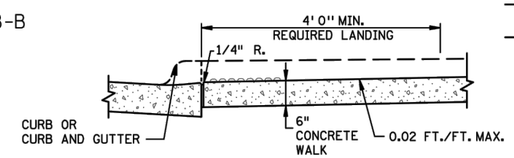
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



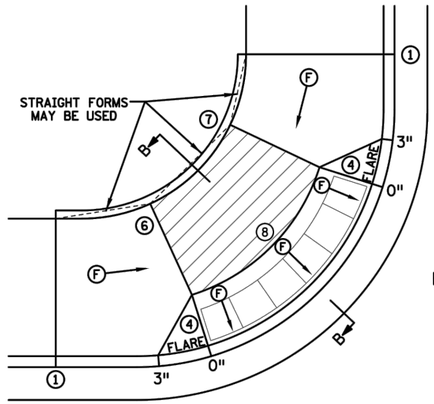
SECTION B-B

FAN

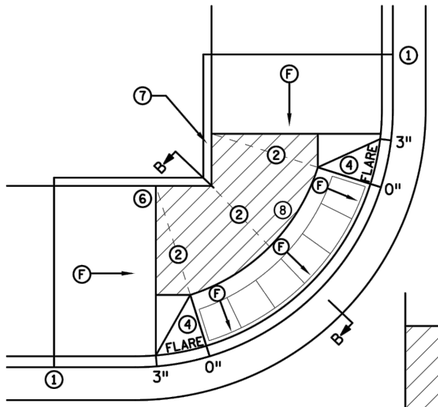


SECTION C-C

PARALLEL/DEPRESSED CORNER

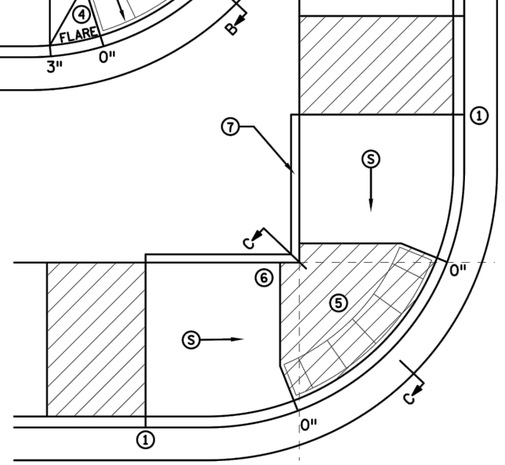


FAN⑩

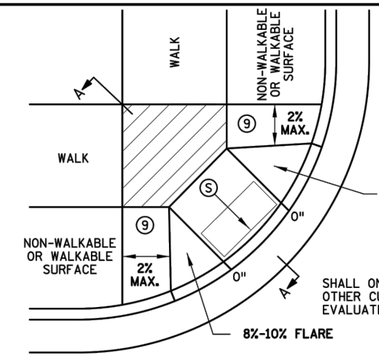


MODIFIED FAN ⑩

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

① MATCH FULL HEIGHT CURB.
② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
⑧ A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
⑨ PAVE FULL WALK WIDTH.
⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

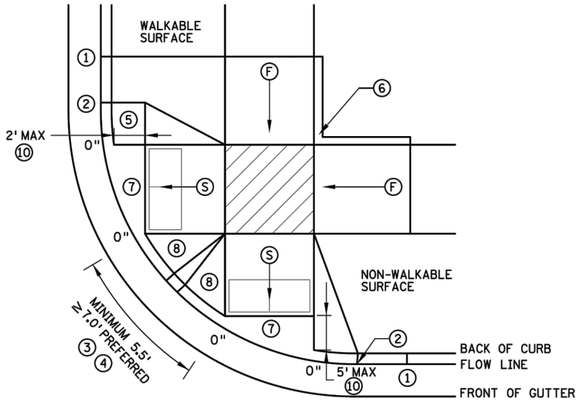
APPROVED: 1-23-2017

STATE DESIGN ENGINEER

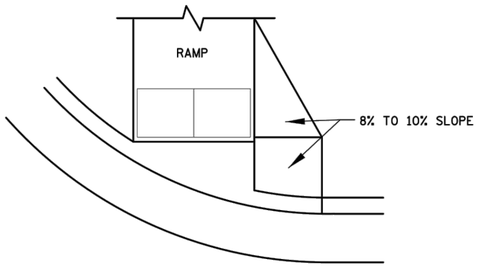
PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 1 OF 6

LYNDALE AVENUE RECONSTRUCTION	SHEET
S.A.P. 142-152-009	C1.18
MISCELLANEOUS DETAILS	



COMBINED DIRECTIONAL ⑨



DIRECTIONAL RAMP WALKABLE FLARE

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

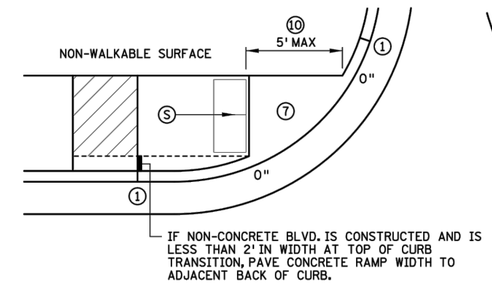
⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

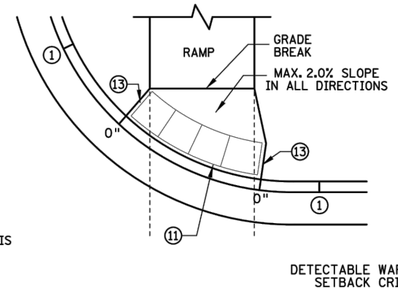
⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

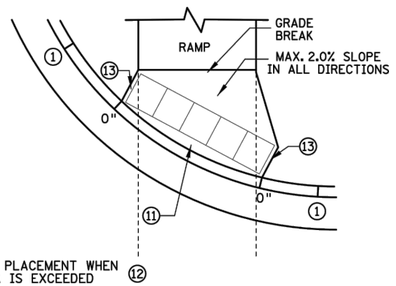
⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

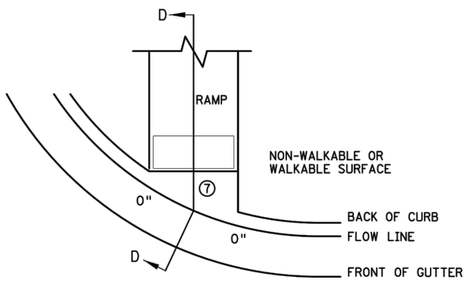


STANDARD ONE-WAY DIRECTIONAL ⑨

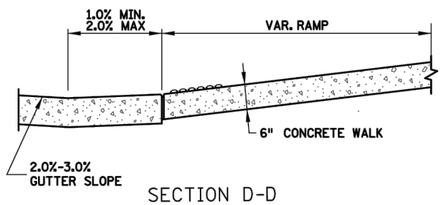


ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

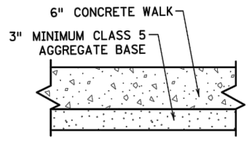




CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

LEGEND
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
X" CURB HEIGHT

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:

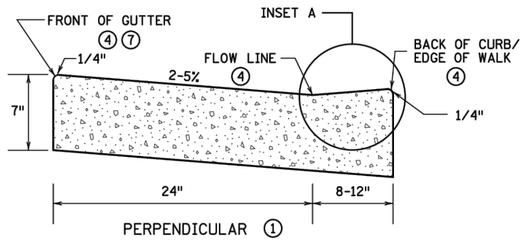
APPROVED: 1-23-2017

STATE DESIGN ENGINEER

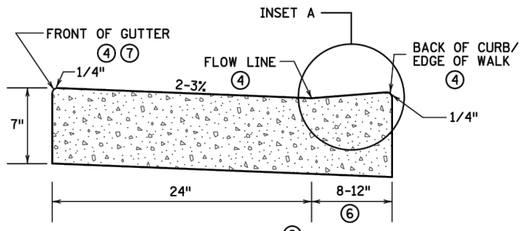
PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 6

LYNDALE AVENUE RECONSTRUCTION	SHEET
S.A.P. 142-152-009	C1.19
MISCELLANEOUS DETAILS	

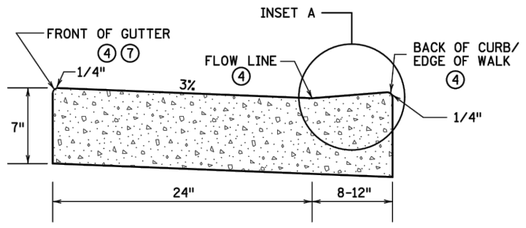


PERPENDICULAR ①

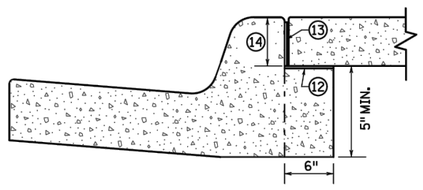


NON PERPENDICULAR ②

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

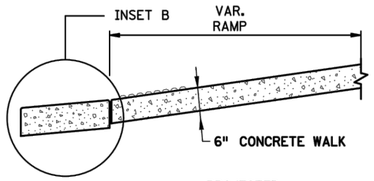


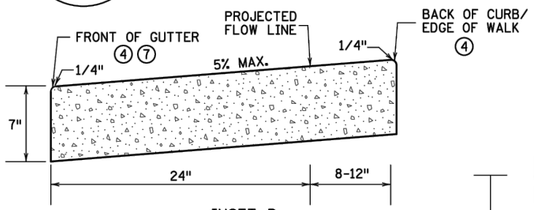
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)



OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

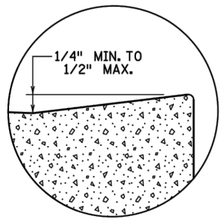
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



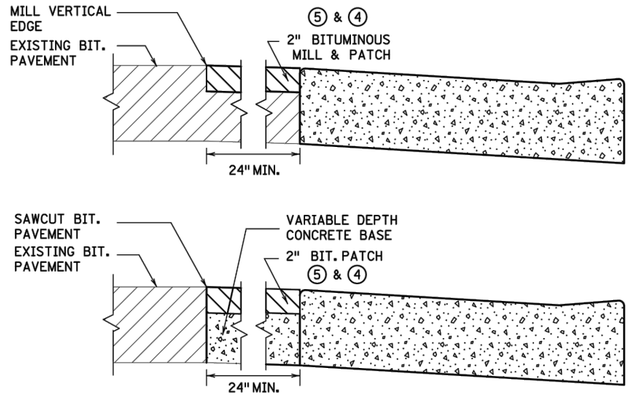


INSET B

OUTFLOW GUTTER ⑧



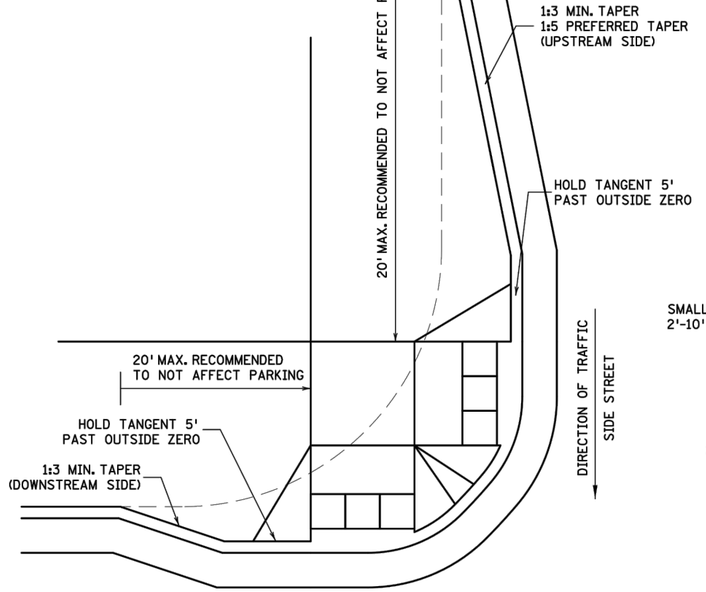
INSET A



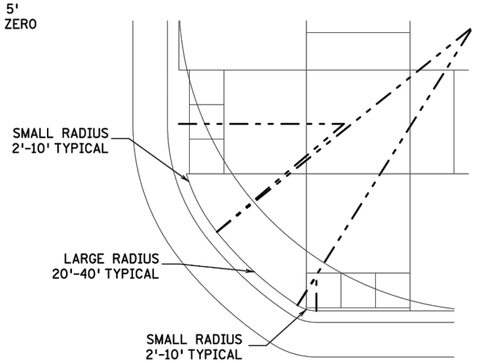
ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪



COMBINED DIRECTIONAL ⑩ (COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.

③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.

④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.

⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.

⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.

⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.

⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

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STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

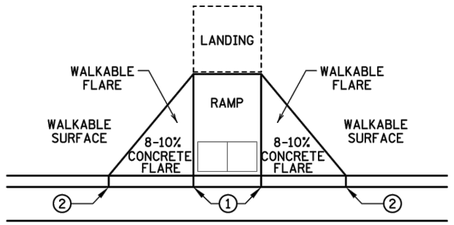
STANDARD PLAN 5-297.250 | 3 OF 6

LYNDALE AVENUE RECONSTRUCTION

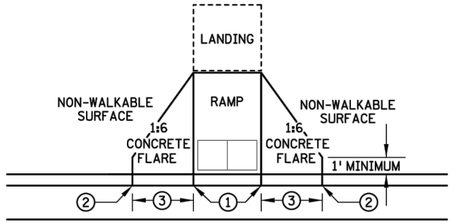
S.A.P. 142-152-009

MISCELLANEOUS DETAILS

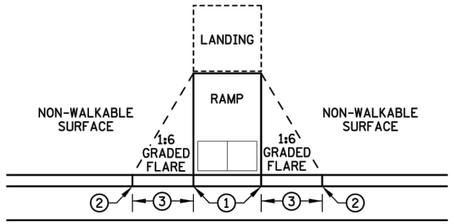
SHEET C1.20



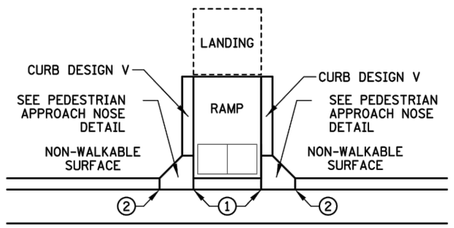
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

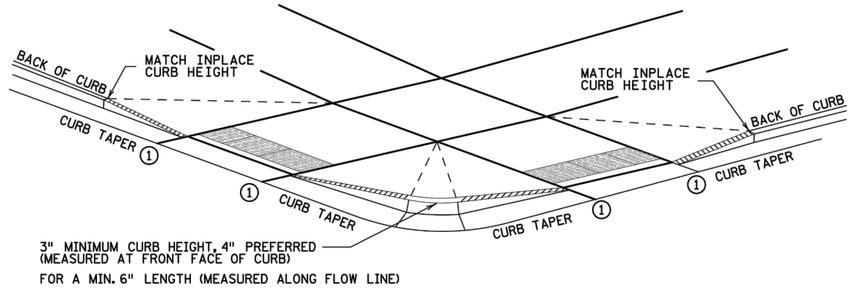


GRADED FLARES

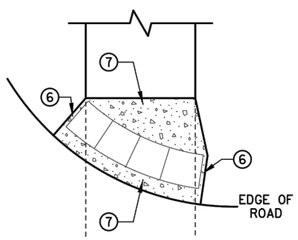


RETURNED CURB ⑤

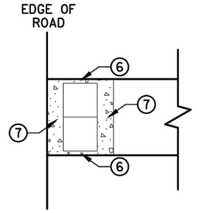
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧ CURB AND GUTTER

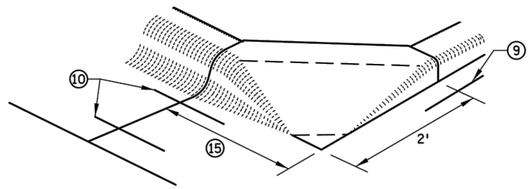


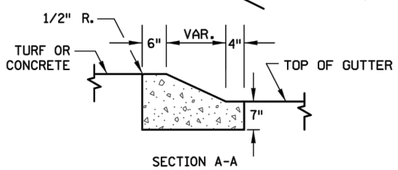
RADIAL DETECTABLE WARNING



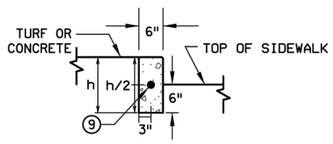
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER



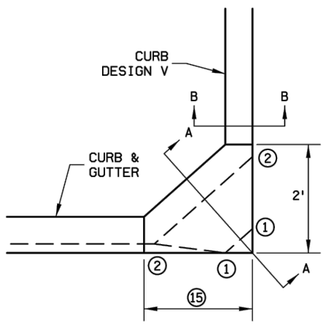


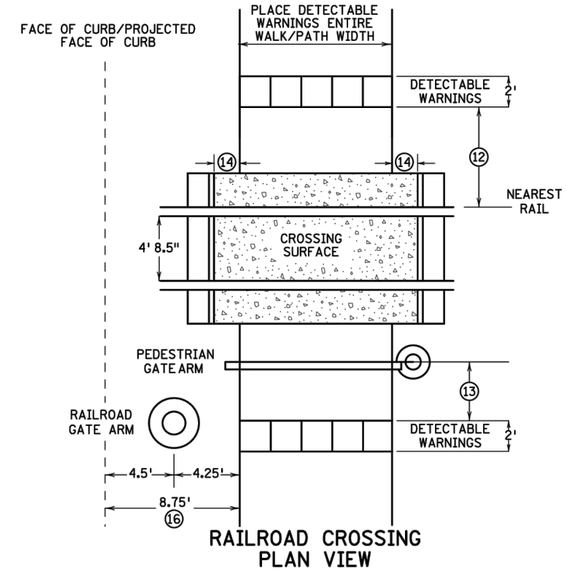
SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH NOSE DETAIL
(FOR RETURNED CURB SIDE TREATMENT)





RAILROAD CROSSING PLAN VIEW

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.

④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.

⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.

⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

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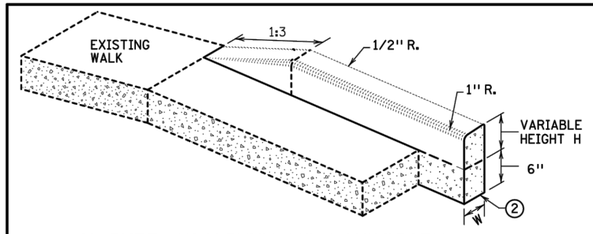
1-23-2017
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 4 OF 6

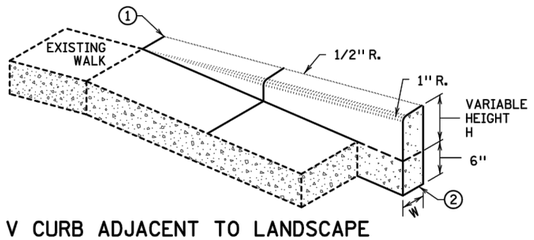
LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS
DETAILS

SHEET
C1.21



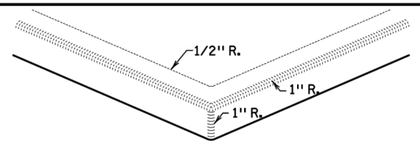
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

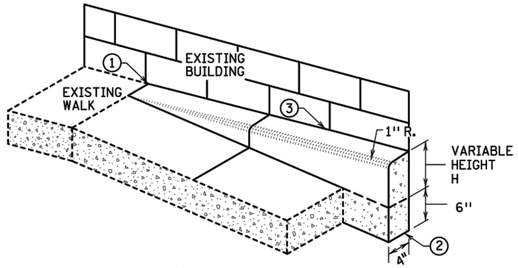


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

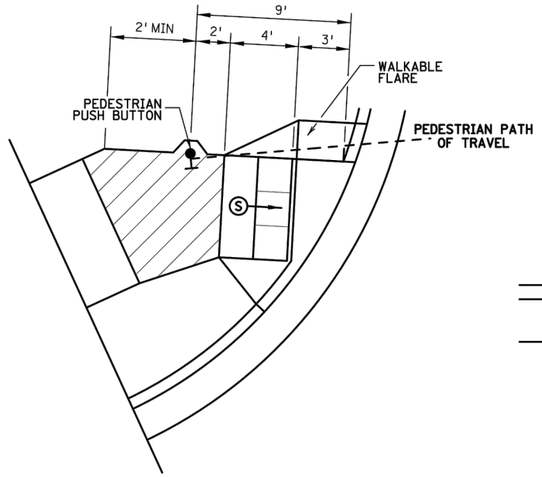


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

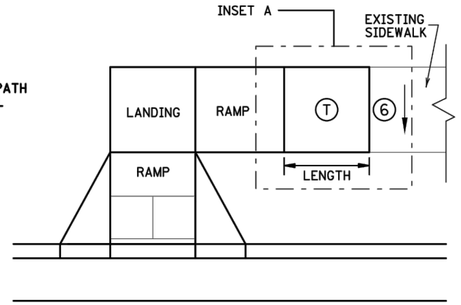
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"

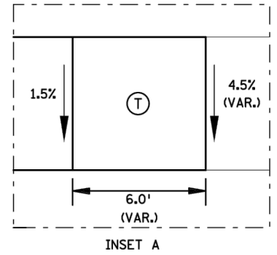


SEMI-DIRECTIONAL RAMP (3,4,9)

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)





TRANSITION PANEL ④⑤

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

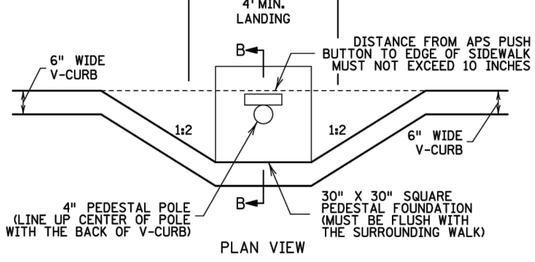
V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

1. END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
2. ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
3. EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
4. THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
5. TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
6. EXISTING CROSS SLOPE GREATER THAN 2.0%.

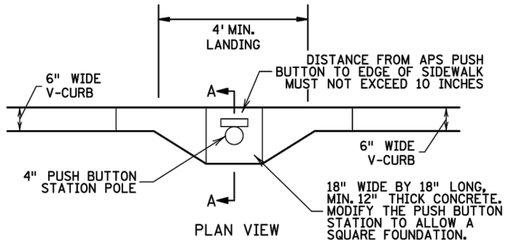
LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

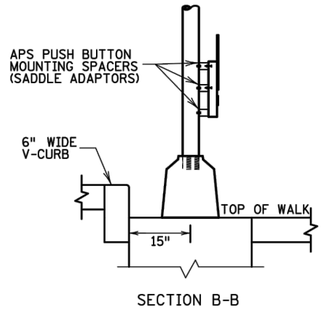
- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- (T) TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.



PLAN VIEW

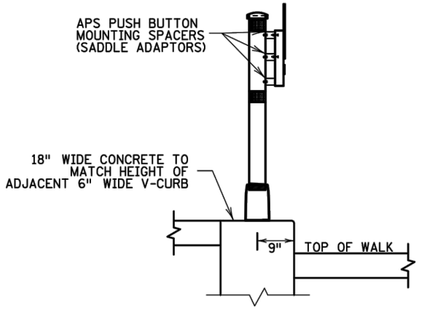


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:

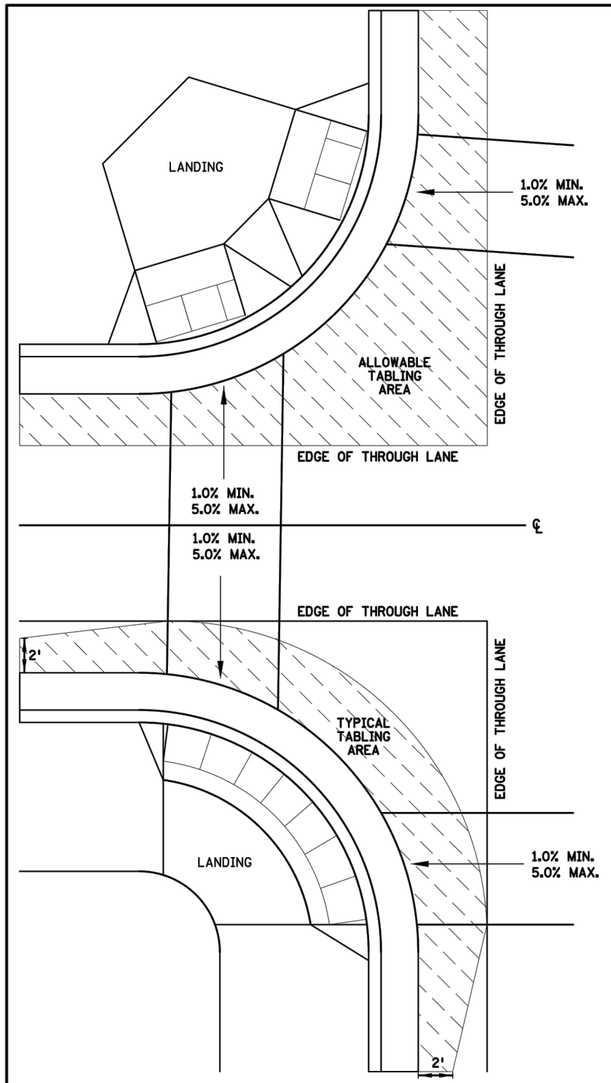
APPROVED: 1-23-2017

STATE DESIGN ENGINEER

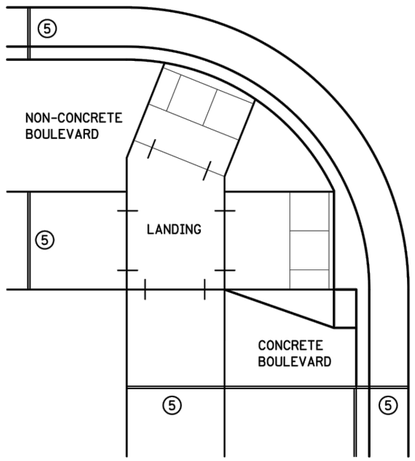
PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 5 OF 6

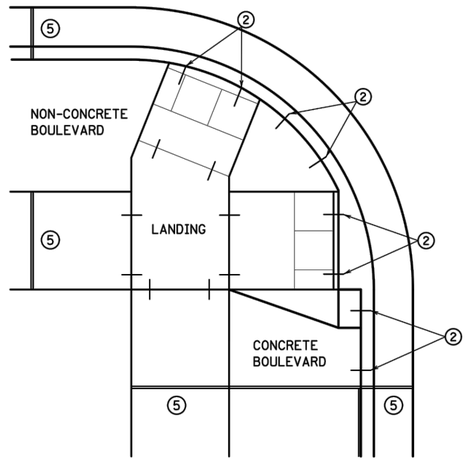
LYNDALE AVENUE RECONSTRUCTION	SHEET
S.A.P. 142-152-009	C1.22
MISCELLANEOUS DETAILS	



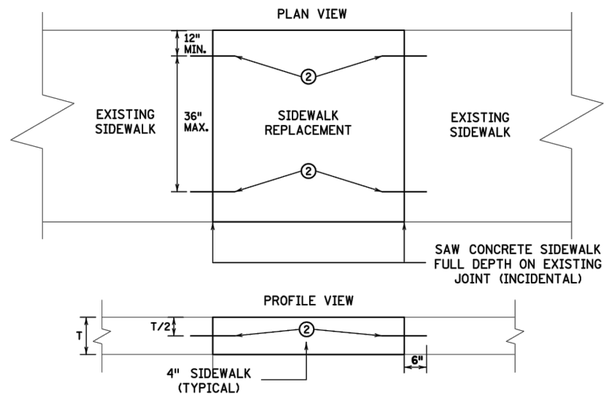
CURB LINE AND ROAD CROSSING ADJUSTMENTS



EXPANSION MATERIAL PLACEMENT FOR
CONCRETE AND BITUMINOUS ROADWAYS

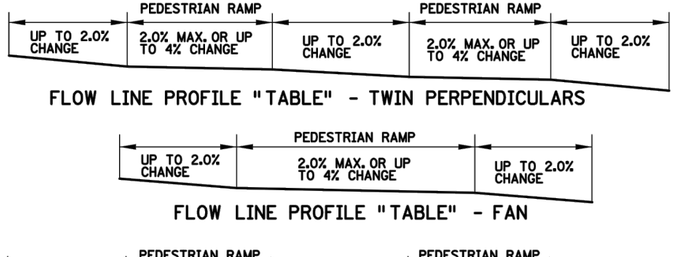


OPTIONAL CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS



OPTIONAL SIDEWALK REINFORCEMENT

SIDEWALK REINFORCEMENT TO BE USED
ONLY WHEN SPECIFIED IN THE PLAN.

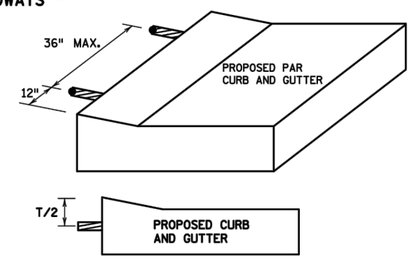


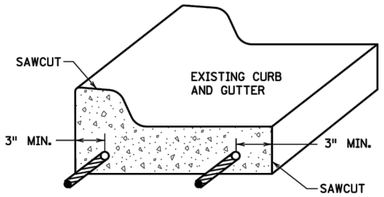
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS

FLOW LINE PROFILE "TABLE" - FAN

FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

FLOW LINE PROFILE RAISE - FAN

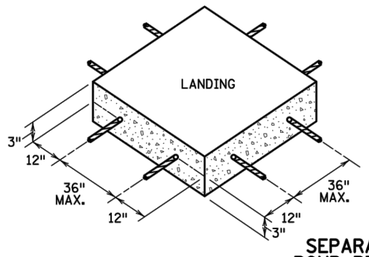


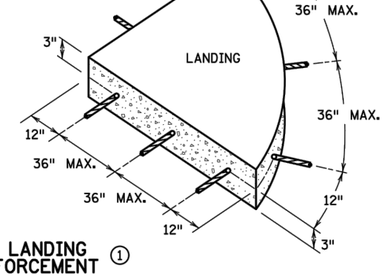


FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER
REINFORCEMENT ③

OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④





SEPARATE LANDING
POUR REINFORCEMENT ①

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
3) 5.0% RECOMMENDED MAX. FLOW LINE
4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.

② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.

③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.

④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.

⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:

APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:

APPROVED:
STATE DESIGN ENGINEER
1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 6 OF 6

LYNDALE AVENUE RECONSTRUCTION
S.A.P. 142-152-009
MISCELLANEOUS
DETAILS

SHEET
C1.23

GENERAL STAGING NOTES

1. CONSTRUCT ROADWAY PAVEMENT TO WITHIN 2" OF FINISHED GRADE, SIDEWALKS, TEMPORARY PAVEMENT MARKINGS, PERMANENT SIGNAGE, AND TURF ESTABLISHMENT IN EACH STAGE SEQUENTIALLY AS SHOWN IN THE STAGING PLANS.
2. ROADWAY REMOVALS MAY BEGIN IN SUBSEQUENT STAGES ONCE UTILITY WORK IS COMPLETED IN THE CURRENT STAGE.
3. UTILITY WORK MAY BEGIN IN SUBSEQUENT STAGES ONCE THE COMPACTED AGGREGATE BASE IS INSTALLED IN THE CURRENT STAGE.
4. IT IS ANTICIPATED THAT WORK WILL OCCUR ON MULTIPLE STAGES AT THE SAME TIME. SPECIAL ATTENTION MUST BE PAID TO OVERALL CORRIDOR ACCESS AND INTERSECTION CLOSURES.
5. COMPLETE FINAL WEARING COURSE AND PERMANENT PAVEMENT MARKING INSTALLATION WITHIN THE PROJECT LIMITS ONCE ALL STAGES HAVE BEEN COMPLETED AS DESCRIBED IN NOTE 1 OF THE GENERAL STAGING NOTES.
6. ALL CONSTRUCTION STAGING SHOWN ARE CONCEPTUAL STAGES FOR POTENTIAL STAGING OPTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROGRESSION OF WORK AND SHALL SUBMIT A DETAILED STAGING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL A MINIMUM OF 14 CALENDAR DAYS PRIOR TO BEGINNING THE WORK.
7. THE CONTRACTOR WILL BE REQUIRED TO MAKE SURE ANY ALTERNATE STAGING PLAN MEETS THE GENERAL TRAFFIC CONDITIONS LISTED IN THESE STAGING PLANS AND THE SPECIAL PROVISIONS.
8. TEMPORARY ENTRANCES OR TEMPORARY TRAFFIC LANES SHALL BE CONSTRUCTED OUT OF EXISTING PAVEMENT OR COMPACTED GRAVEL SURFACING. NEW TEMPORARY BITUMINOUS PAVEMENT MAY BE USED WITH APPROVAL FROM THE ENGINEER, OR MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER. ANY APPROVED OR DIRECTED TEMPORARY BITUMINOUS PAVEMENT INSTALLATIONS WILL BE PAID FOR BY THE TON FOR THE MIX TYPE(S) USED. ANY MAINTENANCE ACTIVITIES OF TEMPORARY GRAVEL ENTRANCES AND TRAFFIC LANES WILL BE CONSIDERED INCIDENTAL, WITH EXCEPTION TO THE APPLICATION OF WATER FOR DUST CONTROL.
9. IN CONSTRAINED AREAS WHERE CONSTRUCTION IS REQUIRED TO BE DONE UNDER TRAFFIC, THE CONTRACTOR MAY UTILIZE A ONE WAY FLAGGING OPERATION DURING DAYTIME WORKING HOURS WITH APPROVAL FROM THE ENGINEER. ALL TRAFFIC SHALL RETURN TO A 2-LANE CONFIGURATION AT THE END OF EACH DAY.
10. THE CONTRACTOR SHALL ENSURE THAT AT LEAST ONE TPAR (TEMPORARY PEDESTRIAN ACCESS ROUTE) MEETING MN MUTCD REQUIREMENTS IS PROVIDED AT ALL TIMES. ONE PEDESTRIAN ACCESS POINT SHALL BE MAINTAINED TO EACH BUSINESS AT ALL TIMES. THE CONTRACTOR SHALL SUBMIT A TPAR PLAN TO THE ENGINEER FOR REVIEW A MINIMUM OF 7 CALENDAR DAYS PRIOR TO INSTALLING TPARS. ALL TPARS MUST BE APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH ESTABLISHING AND MAINTAINING A TPAR SHALL BE INCLUDED IN THE 2563.601 - ALTERNATE PEDESTRIAN ROUTE ITEM.
11. SANITARY SEWER, WATERMAIN, STORM SEWER, AND RETAINING WALLS ARE ANTICIPATED TO BE THE DRIVING FACTORS IN THE STAGING AND SCHEDULE. THE CONTRACTOR SHALL PROVIDE A DETAILED SCHEDULE A MINIMUM OF 14 DAYS PRIOR TO BEGINNING THE WORK IDENTIFYING HOW THESE FACILITIES WILL BE CONSTRUCTED WHILE MAINTAINING SERVICE, INCLUDING PLACEMENT, TESTING, AND REMOVAL OF TEMPORARY WATER SYSTEMS. IT IS ANTICIPATED THAT THE CONTRACTOR WILL NEED TO HAVE MULTIPLE CREWS FOR EACH ACTIVITY ONSITE TO MEET THE PROJECT MILESTONES DESIGNATED IN THE SPECIAL PROVISIONS.
12. ANY WORK THAT IS WITHIN A PERMANENT OF TEMPORARY EASEMENT THAT HAS NOT BEEN SECURED AT THE TIME OF CONSTRUCTION SHALL BE EXCLUDED FROM THE CONTRACT TIME REQUIREMENTS LISTED IN THE PLANS AND SPECIFICATIONS. THE CONTRACTOR WILL RECEIVE NO ADDITIONAL COMPENSATION FOR REMOBILIZING TO AN AREA TO COMPLETE WORK AFTER THE EASEMENT HAS BEEN OBTAINED.
13. ANY CONFLICTS BETWEEN THESE STAGING NOTES, OTHER PORTIONS OF THE PLAN, AND THE PROPOSAL WILL BE RESOLVED AT THE DISCRETION OF THE ENGINEER.
14. THE CONTRACTOR IS RESPONSIBLE FOR COODINATING WITH PRIVATE UTILITY COMPANIES ON RELOCATION NEEDS SHOWN IN THE PLAN. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR COORDINATING WORK SCHEDULES WITH PRIVATE UTILITY COMPANIES

GENERAL TRAFFIC CONTROL NOTES

1. ACCESS TO RESIDENCES & BUSINESSES SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL ALSO SUPPLY ACCESS TO AND FROM THE SITE FOR CONCURRENT CONSTRUCTION PROJECTS, PRIVATE UTILITY RELOCATIONS, MAIL DELIVERY,GARBAGE PICK-UP, AND AS OTHERWISE PROVIDED FOR IN THE SPECIAL PROVISIONS (SEE SECTIONS 1404, 1505, 1507, 1707, AND 1803 OF THE SPECIAL PROVISIONS). LEAVE OPENINGS IN CONCRETE BARRIERS AND UTILIZE ACCESS ROADS WITHIN CONSTRUCTION AREAS TO MAINTAIN ACCESS AS NEEDED.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE TRAFFIC CONTROL CONFIGURATIONS WITH PROPERTY OWNERS TO ENSURE TURNING MOVEMENTS AND ACCESS POINTS PROVIDE SUFFICIENT CLEARANCE AND ARE AVAILABLE FOR TRUCK TRAFFIC AND DELIVERIES. IF A BUSINESS HAS MORE THAN ONE ENTRANCE, THE CONTRACTOR WILL BE ALLOWED TO CLOSE ONE ENTRANCE AT A TIME IF THE CONTRACTOR RECEIVES WRITTEN CONSENT FROM ALL BUSINESSES OPERATIONS OUT OF THE ENTRANCE AND THE ENGINEER. IF APPROVAL IS NOT GRANTED, THE CONTRACTOR SHALL COMPLETE WORK AT THE ENTRANCES IN STAGES.
3. IN-PLACE SIGNING MUST BE MAINTAINED OR TEMPORARILY RELOCATED FOR CONSTRUCTION ACTIVITIES.
4. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
5. CONTRACTOR SHALL PLACE ALL SIGNS TO ALLOW ACCESS TO PROPERTIES IN AND NEAR PROJECT AREA.
6. THE STAGING PLANS DO NOT SHOW ALL TRAFFIC CONTROL DEVICES NEEDED TO PERFORM THE WORK. QUANTITIES FOR TRAFFIC CONTROL DEVICES ARE APPROXIMATE AND ARE SHOWN FOR INFORMATION ONLY. THE ITEM "TRAFFIC CONTROL" BID AS "LUMP SUM" COVERS ALL DEVICES SHOWN ON THE PLAN SHEETS AND OTHER SETUPS REQUIRED BY THE CONTRACTORS OPERATIONS SUCH AS, BUT NOT LIMITED TO, MILLING & PAVING UNDER TRAFFIC, TEMPORARY ROAD CLOSURES, TEMPORARY LANE CLOSURES, CONSTRUCTION UNDER TRAFFIC, ADJUSTMENTS TO THE TRAFFIC CONTROL PLAN FOR CONSTRUCTION OPERATIONS, STAGED UTILITY INSTALLATION, STAGED ROADWAY CONSTRUCTION, TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER, AND PAVEMENT MARKING INSTALLATION.
7. THE CURRENT EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MN MUTCD) AND INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. TRAFFIC CONTROL NOT IN COMPLIANCE WITH MN MUTCD WILL BE SUBJECT TO VIOLATION IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
8. SIX (6) ADDITIONAL "ROAD CLOSED TO THRU TRAFFIC" BARRICADE ASSEMBLIES WITH FLASHERS, TEN (10) ADDITIONAL TYPE III BARRICADES, AND TWENTY (20) ADDITIONAL BARRELS SHALL BE AVAILABLE FOR USE BY THE PROJECT ENGINEER AT HIS DISCRETION AND SHALL BE INCLUDED IN THE PRICE BID FOR TRAFFIC CONTROL.
9. PLACE G20-X2 7 DAYS IN ADVANCE OF CLOSURE, PLACE "FOLLOW DETOUR" PANELS ON G20-X2 ONCE CLOSURE BEGINS.
10. LONGITUDINAL DROP OFFS SHALL BE SIGNED AS SHOWN IN THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL UNLESS OTHERWISE REQUIRED BY THE MN MUTCD.
11. CONTRACTOR SHALL COVER ALL CONFLICTING EXISTING SIGNS AND OBLITERATE ANY CONFLICTING PAVEMENT MARKINGS.
12. ALL PERMANENT SIGNING SHALL BE PLACED BEFORE SECTIONS OF ROADWAYS ARE OPEN TO TRAFFIC, OR PROVIDE TEMPORARY SIGNING AT THE CONTRACTOR'S EXPENSE UNTIL THE FINAL SIGNING IS PLACED.
13. MAINTAIN EAST-WEST ACCESS THROUGH SIDE STREET INTERSECTIONS FOLLOWING INSTALLATION OF AGGREGATE BASE WHENEVER POSSIBLE.

STAGING NARRATIVE

STAGE 1

LOCATION: LYNDALE AVENUE FROM 76TH STREET (SOUTH PROJECT LIMIT) TO SOUTH OF 73RD STREET

WORK COMPLETED UNDER THIS STAGE: ALL WORK IN THE STAGE 1 AREA

SPECIFIC REQUIREMENTS
- STAGE 1 HAS BEEN DIVIDED INTO FOUR SUB STAGES. STAGING AND TRAFFIC CONTROL INFORMATION CAN BE FOUND ON SHEETS C1.28-C1.30
- IT IS ANTICIPATED THAT STAGE 1 AND STAGE 2 CONSTRUCTION WILL OCCUR AT THE SAME TIME
- IF THE CONTRACTOR ELECTS TO RECLAIM THE EXISTING PAVEMENT, THE CONTRACTOR WILL BE ALLOWED TO RECLAIM STAGE 1 AND 2 CONCURRENTLY.
- THE WEARING COURSE PAVEMENT FOR STAGE 1 AND STAGE 2 CAN BE PLACED CONCURRENTLY.
- MAINTAIN ACCESS TO BUSINESSES AND RESIDENCES AT ALL TIMES
- THE 76TH STREET INTERSECTION MUST REMAIN OPEN WITH AT LEAST ONE LANE IN ALL DIRECTIONS AT ALL TIMES. ANY REQUIRED SIGNAL HEAD ADJUSTMENTS SHALL BE AN INCIDENTAL EXPENSE, AND THE CONTRACTOR SHALL BE RESPONSIBLE WITH COORDINATING SIGNAL ADJUSTMENTS WITH THE SIGNAL OWNERS
- THE CONTRACTOR SHALL SUBMIT A STAGING LAYOUT FOR CONSTRUCTING STAGE 1D UNDER TRAFFIC A MINIMUM OF 14 CALENDAR DAYS PRIOR TO INSTALLING TRAFFIC CONTROL
- THE 74TH STREET INTERSECTION MUST BE OPEN TO TRAFFIC FOR USE IN MAINTAINING THE DETOUR ROUTES PROVIDED IN THE DETOUR PLAN PRIOR TO CLOSING THE PORTION OF STAGE 1 FROM 73RD STREET TO 74TH STREET
- SPECIAL CARE SHALL BE GIVEN TO ENSURING BUSINESS ACCESS IS MAINTAINED WITHIN COMMERCIAL AREAS IN STAGE 1 AND STAGE 4. THIS MAY REQUIRE INSTALLATION OF 4" THICK TEMPORARY BITUMINOUS PAVEMENT ENTRANCES AS NEEDED AT THE DISCRETION OF THE ENGINEER. TEMPORARY BITUMINOUS PAVEMENT ENTRANCES WILL BE PAID BY THE TON FOR THE MIX TYPE(S) USED
- CONSTRUCT MEDIAN ON SOUTH END OF SUB STAGE 1A IN CONJUNCTION WITH SUB STAGES 1B & 1C TO ACCOMMODATE TRAFFIC LANE TAPERS REQUIRED DURING SUB STAGE 1B & 1C CONSTRUCTION

STAGE 2

LOCATION: LYNDALE AVENUE FROM SOUTH OF 73RD STREET TO SOUTH OF 70TH STREET

WORK COMPLETED UNDER THIS STAGE: ALL WORK IN THE STAGE 2 AREA

SPECIFIC REQUIREMENTS
- IF THE CONTRACTOR ELECTS TO RECLAIM THE EXISTING PAVEMENT, THE CONTRACTOR WILL BE ALLOWED TO RECLAIM STAGE 1 AND 2 CONCURRENTLY.
- THE WEARING COURSE PAVEMENT FOR STAGE 1 AND STAGE 2 CAN BE PLACED CONCURRENTLY.
- STAGE 2 CONSTRUCTION IS ASSUMED TO OCCUR UNDER A FULL CLOSURE OF LYNDALE AVENUE WITHIN THE STAGE 2 LIMITS
- THE CONTRACTOR SHALL RESTORE TWO-WAY TRAFFIC TO ONE BLOCK PORTIONS OF LYNDALE AVENUE AS THEY BECOME AVAILABLE FOLLOWING INSTALLATION OF BASE COURSE PAVEMENT. TRAFFIC CONTROL MODIFICATIONS REQUIRED TO OPEN PORTIONS OF LYNDALE AVENUE ARE TO BE INCLUDED IN THE TRAFFIC CONTROL LUMP SUM.
- THE ENGINEER RESERVES THE RIGHT TO REQUIRE THE INSTALLATION OF LOCAL DETOUR SIGNAGE AND PAVEMENT MARKINGS AS NEEDED DURING STAGE 2 CONSTRUCTION. SIGNAGE AND PAVEMENT MARKINGS REQUIRED UNDER THIS PROVISION WILL BE PAID USING THE CONSTRUCTION SIGNING ITEM AND THE PAVEMENT MARKING ITEMS CORRESPONDING TO THE TYPE OF MARKING INSTALLED
- A 4-WAY STOP TRAFFIC CONTROL SETUP SHALL BE INSTALLED AT 73RD AVENUE AT ALL TIMES WHILE THE SIGNAL SYSTEM IS NON-OPERATIONAL AND THE INTERSECTION IS OPEN TO TRAFFIC
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH RICHFIELD SCHOOL DISTRICT AND THE ACADEMY OF HOLY ANGELS TO ENSURE ACCESS IS MAINTAINED FOR SCHOOL BUS TRAFFIC AT ALL TIMES.

STAGE 3

LOCATION: LYNDALE AVENUE FROM SOUTH OF 70TH STREET TO NORTH OF LAKESHORE DRIVE

WORK COMPLETED UNDER THIS STAGE: ALL WORK IN THE STAGE 3 AREA, ROUNDABOUTS AT 70TH AND 68TH STREETS.

SPECIFIC REQUIREMENTS
- STAGE 3 HAS BEEN DIVIDED INTO TWO SUB STAGES. STAGING AND TRAFFIC CONTROL INFORMATION CAN BE FOUND ON SHEET C1.25.
- COMPLETE CONSTRUCTION OF STAGE 1 AND STAGE 2 ROADWAY PAVEMENT TO WITHIN 2" OF FINISHED GRADE, AND REOPEN STAGE 1 AND STAGE 2 TO TRAFFIC BEFORE BEGINNING CONSTRUCTION ON STAGE 3 AND STAGE 4
- BEGIN CONSTRUCTION WITH SUB STAGE 3A AND END WITH SUB STAGE 3B
- IT IS ANTICIPATED THAT STAGE 3 AND STAGE 4 CONSTRUCTION WILL OCCUR AT THE SAME TIME.
- STAGE 3 INCLUDES THE INSTALLATION OF LARGE RETAINING WALL ALONG THE WEST SIDE OF LYNDALE AVENUE. THE CONTRACTOR SHALL DUE IT'S DUE DILIGENCE IN COORDINATING MATERIAL PROCUREMENT TIMELINES TO MEET THE STAGING PROVISIONS AND CONTRACT MILESTONES.
- THE WEARING COURSE PAVEMENT FOR STAGE 3 AND STAGE 4 CAN BE COMPLETED CONCURRENTLY.
- RESTORE SUB STAGE 3A TO A GRAVEL SURFACE AND MAINTAIN TWO WAY TRAFFIC AND ACCESS AT LAKESHORE DRIVE AND 68TH STREET PRIOR TO RESTRICTING TRAFFIC ON SUB STAGE 3B.
- THE LAKESHORE DRIVE AND LYNDALE AVENUE INTERSECTION MUST REMAIN OPEN TO TRAFFIC AT ALL TIMES WITH EXCEPTION TO A ONE TIME ONE WEEK CLOSURE. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL LAYOUT OF A PROPOSED DETOUR ROUTE TO THE ENGINEER FOR REVIEW AND APPROVAL A MINIMUM OF 14 DAYS PRIOR TO STARTING THE CLOSURE.
- THE CONTRACTOR SHALL RESTORE TWO-WAY TRAFFIC TO ONE BLOCK PORTIONS OF LYNDALE AVENUE AS THEY BECOME AVAILABLE FOLLOWING INSTALLATION OF BASE COURSE PAVEMENT. TRAFFIC CONTROL MODIFICATIONS REQUIRED TO OPEN PORTIONS OF LYNDALE AVENUE ARE TO BE INCLUDED IN THE TRAFFIC CONTROL LUMP SUM.

STAGE 4

LOCATION: LYNDALE AVENUE FROM NORTH OF LAKESHORE DRIVE TO 66TH STREET (NORTH PROJECT LIMIT)

WORK COMPLETED UNDER THIS STAGE: ALL WORK IN THE STAGE 4 AREA, ROUNDABOUT AT 67TH STREET

SPECIFIC REQUIREMENTS
- IT IS ANTICIPATED THAT STAGE 3 AND STAGE 4 CONSTRUCTION WILL OCCUR AT THE SAME TIME.
- STAGE 4 HAS BEEN DIVIDED INTO THREE SUB STAGES. STAGING AND TRAFFIC CONTROL INFORMATION CAN BE FOUND ON SHEETS C1.31-C1.33
- THE WEARING COURSE PAVEMENT FOR STAGE 3 AND STAGE 4 CAN BE COMPLETED CONCURRENTLY.
- MAINTAIN ACCESS TO BUSINESSES AND RESIDENCES AT ALL TIMES
- SPECIAL CARE SHALL BE GIVEN TO ENSURING BUSINESS ACCESS IS MAINTAINED WITHIN COMMERCIAL AREAS IN STAGE 1 AND STAGE 4. THIS MAY REQUIRE INSTALLATION OF 4" THICK TEMPORARY BITUMINOUS PAVEMENT ENTRANCES AS NEEDED AT THE DISCRETION OF THE ENGINEER. TEMPORARY BITUMINOUS PAVEMENT ENTRANCES WILL BE PAID BY THE TON FOR THE MIX TYPE(S) USED
- PEDESTRIAN ACCESS SHALL BE MAINTAINED TO BUSINESS ENTRANCES AT ALL TIMES
- THE LAKESHORE DRIVE AND LYNDALE AVENUE INTERSECTION MUST REMAIN OPEN TO TRAFFIC AT ALL TIMES WITH EXCEPTION TO A ONE TIME ONE WEEK CLOSURE. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL LAYOUT OF A PROPOSED DETOUR ROUTE TO THE ENGINEER FOR REVIEW AND APPROVAL A MINIMUM OF 14 DAYS PRIOR TO STARTING THE CLOSURE.
- TWO-WAY ACCESS TO 67TH STREET WITH ONE 11' WIDE MINIMUM LANE IN EACH DIRECTION MUST BE MAINTAINED ON LYNDALE AVENUE AT ALL TIMES. CONSTRUCT TRAFFIC LANES IN ACCORDANCE WITH THE GENERAL STAGING NOTES
- ONE TWO-DAY WEEKEND CLOSURE OF THE 67TH STREET AND LYNDALE AVENUE INTERSECTION WILL BE ALLOWED. THE CONTRACTOR SHALL PROVIDE NOTICE TO THE ENGINEER A MINIMUM OF 14 DAYS PRIOR TO THE CLOSURE
- STAGE 4 SHALL BE LIMITED TO 30 CALENDAR DAYS AS DESCRIBED IN THE SPECIAL PROVISIONS
- IT IS ANTICIPATED THAT WORK WILL BE OCCURRING ON A SEPARATE PROJECT ON 66TH STREET DURING THE LYNDALE RECONSTRUCTION PROJECT. THE CONTRACTOR MUST COORDINATE TRAFFIC CONTROL AND ACCESS IMPACTS WITH THE 66TH STREET PROJECT CONTRACTOR. NO ADDITIONAL COMPENSATION WILL BE MADE FOR THESE COORDINATION EFFORTS OR ANY REQUIRED TRAFFIC CONTROL MODIFICATIONS REQUIRED.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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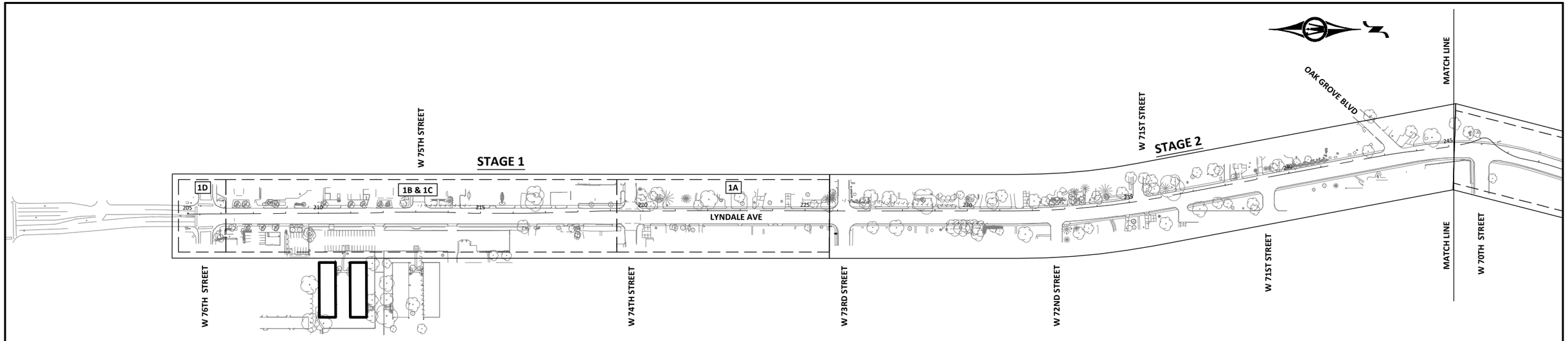
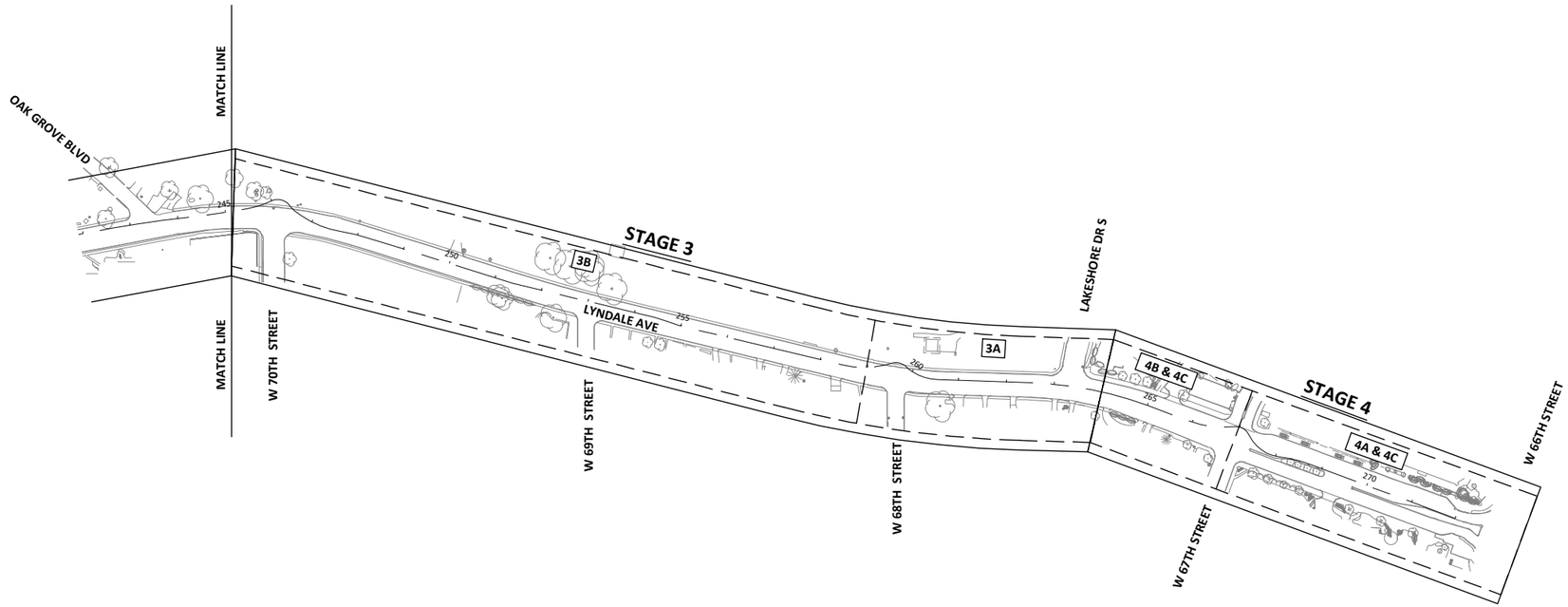
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STAGING NOTES

SHEET C1.24





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SCALE FEET

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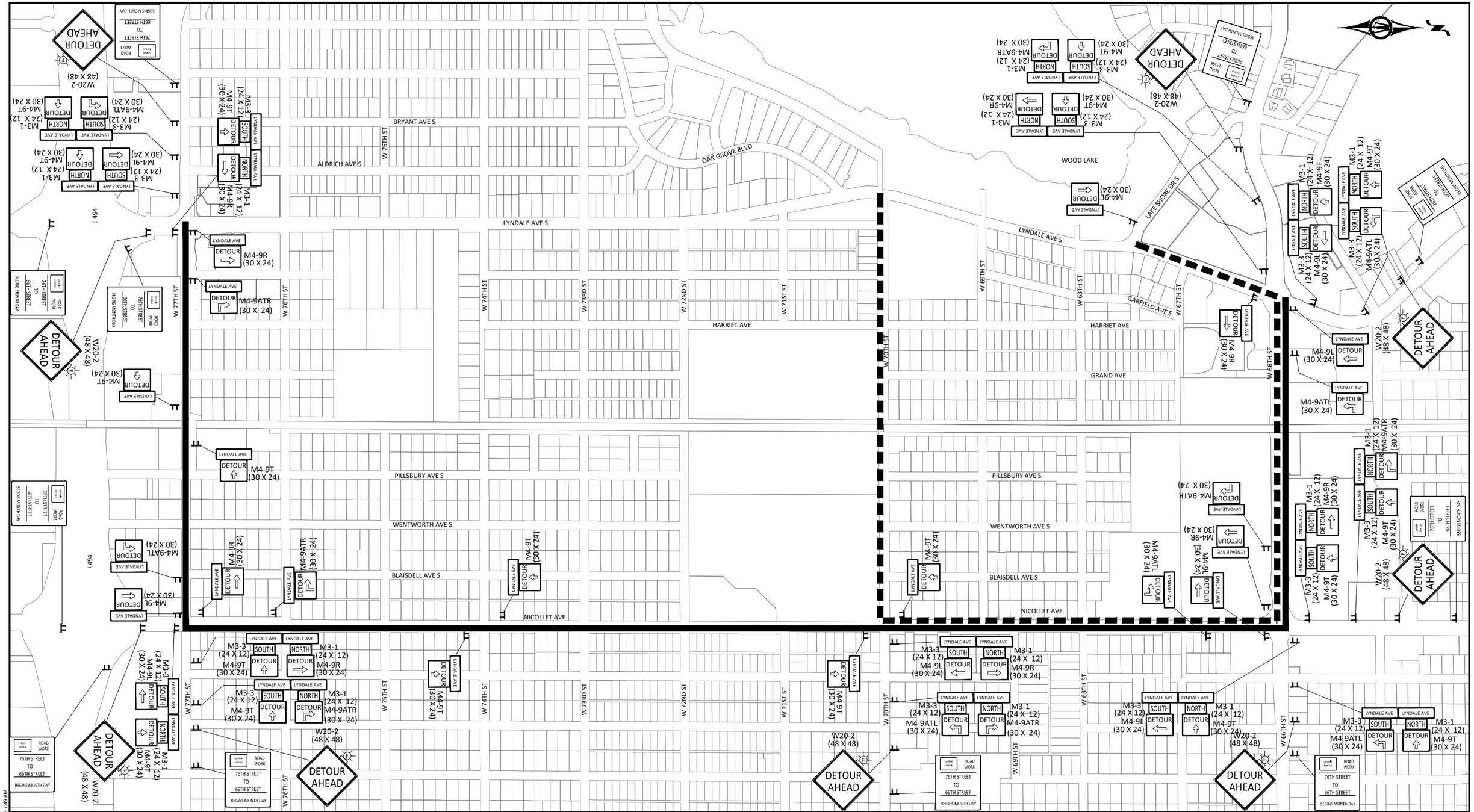
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STAGING LAYOUT

SHEET
C1.25



LEGEND

- REGIONAL DETOUR ROUTE
- DETOUR ROUTE STAGE 3A

GENERAL DETOUR NOTES

- CONTRACTOR SHALL SUBMIT A LAYOUT FOR THE STAGE 3A DETOUR DETAILING SIGNAGE, TEMPORARY PAVEMENT MARKINGS AND OTHER REQUIRED TRAFFIC CONTROL DEVICES TO THE ENGINEER FOR REVIEW A MINIMUM OF 14 CALENDAR DAYS PRIOR TO INSTALLATION OF DETOUR TRAFFIC CONTROL

HORZ. SCALE 0 300 600 FEET

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
REGIONAL DETOUR PLAN

SHEET C1.26

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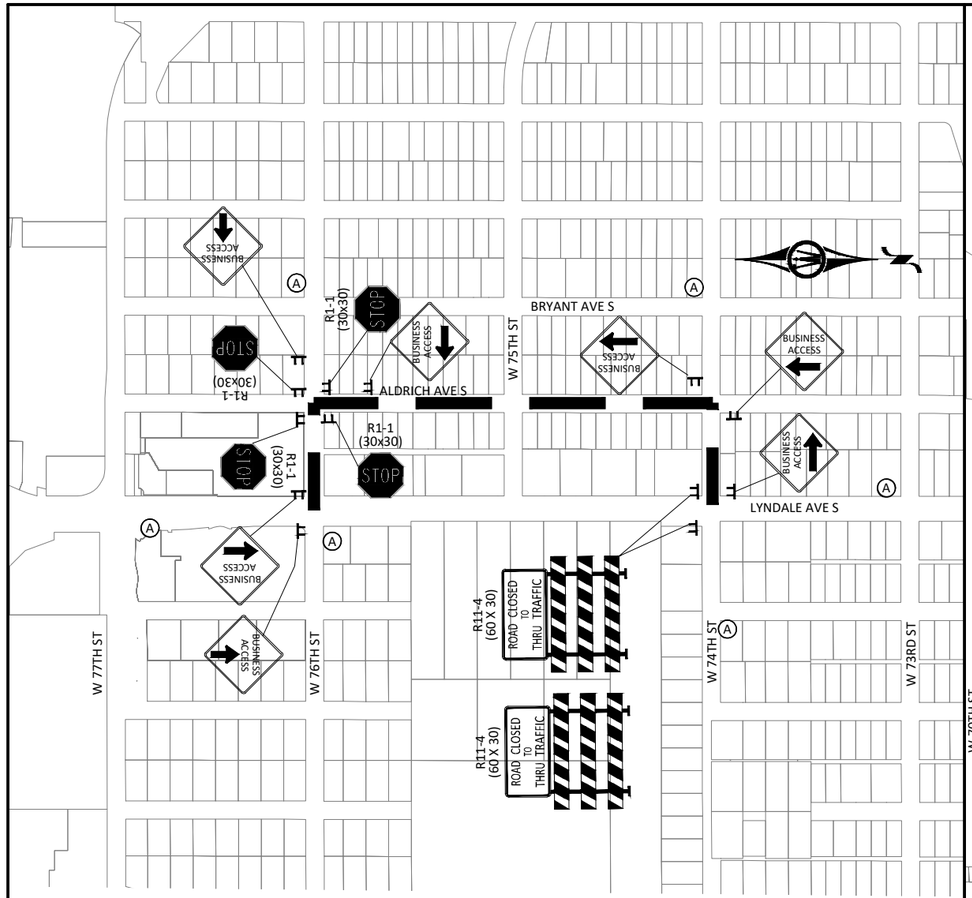
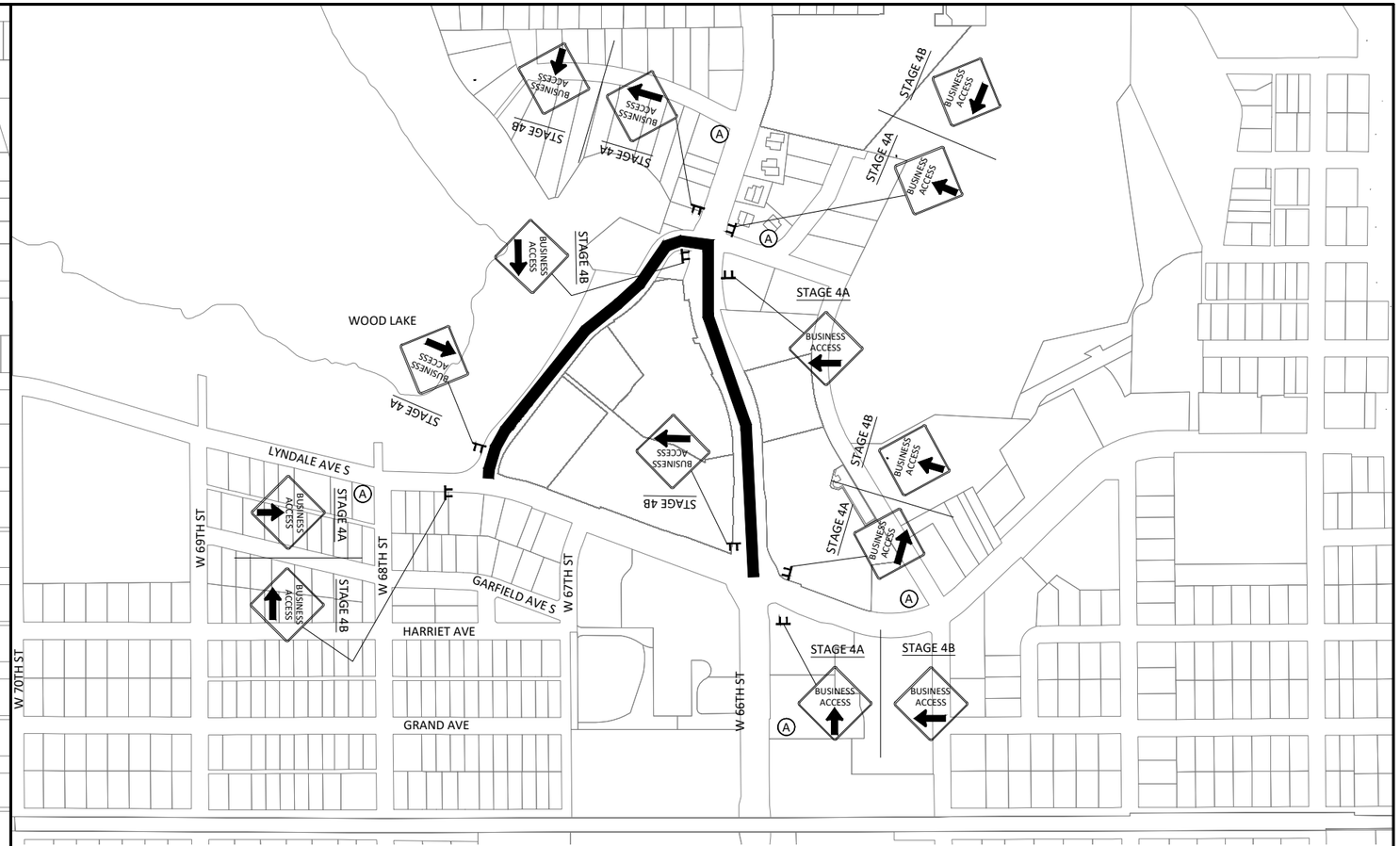


STAGE 1B DETOUR ROUTE (ONE WAY ACCESS ROUTE)



STAGE 4A & 4B DETOUR ROUTE

LEGEND

- DETOUR ROUTE STAGE 4A & 4B
- DETOUR ROUTE STAGE 1B (ONE WAY STAGE)

Ⓐ PORTABLE CHANGEABLE MESSAGE SIGN

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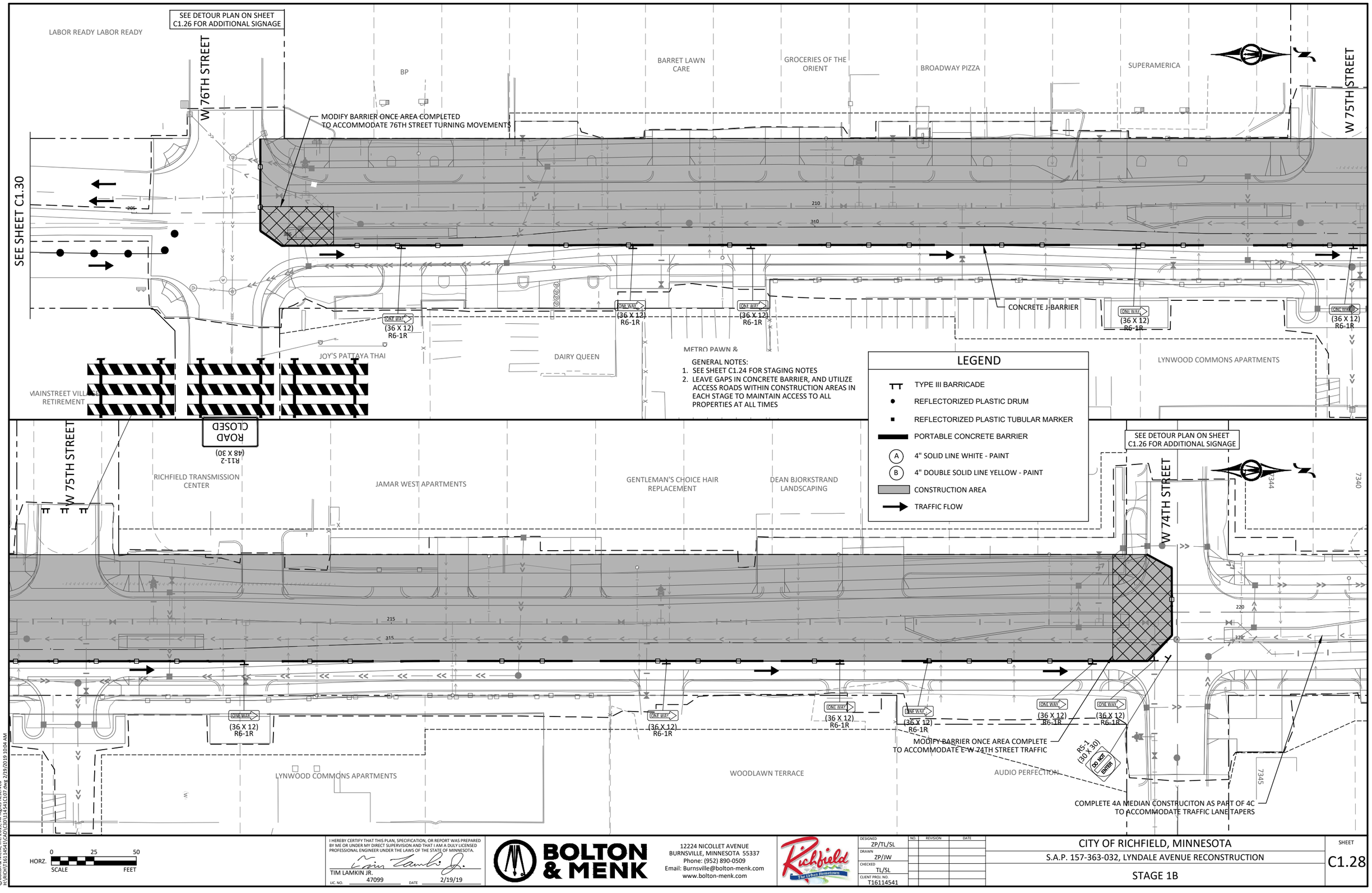
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
LOCAL DETOUR PLAN

SHEET C1.27



GENERAL NOTES:
1. SEE SHEET C1.24 FOR STAGING NOTES
2. LEAVE GAPS IN CONCRETE BARRIER, AND UTILIZE ACCESS ROADS WITHIN CONSTRUCTION AREAS IN EACH STAGE TO MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES

LEGEND

- TT — TYPE III BARRICADE
- ● — REFLECTORIZED PLASTIC DRUM
- ■ — REFLECTORIZED PLASTIC TUBULAR MARKER
- PORTABLE CONCRETE BARRIER
- (A) — 4" SOLID LINE WHITE - PAINT
- (B) — 4" DOUBLE SOLID LINE YELLOW - PAINT
- CONSTRUCTION AREA
- TRAFFIC FLOW

HORZ. SCALE 0 25 50 FEET

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STAGE 1B

SHEET C1.28

LABOR READY LABOR READY

W 76TH STREET

BP

BARRET LAWN CARE

GROCERIES OF THE ORIENT

BROADWAY PIZZA

SUPERAMERICA

W 75TH STREET

W6-4 (12 X 18)

CONCRETE J-BARRIER

CONCRETE J-BARRIER

SEE SHEET C1.30

JOY'S PATTAYA THAI

DAIRY QUEEN

METRO PAWN &

LYNWOOD COMMONS APARTMENTS

MAINSTREET VILLAGE RETIREMENT

GENERAL NOTES:
1. SEE SHEET C1.24 FOR STAGING NOTES
2. LEAVE GAPS IN CONCRETE BARRIER, AND UTILIZE ACCESS ROADS WITHIN CONSTRUCTION AREAS IN EACH STAGE TO MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES

LEGEND

- TYPE III BARRICADE
- REFLECTORIZED PLASTIC DRUM
- REFLECTORIZED PLASTIC TUBULAR MARKER
- PORTABLE CONCRETE BARRIER
- (A) 4" SOLID LINE WHITE - PAINT
- (B) 4" DOUBLE SOLID LINE YELLOW - PAINT
- CONSTRUCTION AREA
- TRAFFIC FLOW

W 75TH STREET

RICHFIELD TRANSMISSION CENTER

JAMAR WEST APARTMENTS

GENTLEMAN'S CHOICE HAIR REPLACEMENT

DEAN BJORKSTRAND LANDSCAPING

CONCRETE J-BARRIER

W 74TH STREET

W6-4 (12 X 18)

LYNWOOD COMMONS APARTMENTS

WOODLAWN TERRACE

AUDIO PERFECTION

MODIFY BARRIER ONCE AREA COMPLETE TO ACCOMMODATE E-W 74TH STREET TRAFFIC

COMPLETE 4A MEDIAN CONSTRUCITON AS PART OF 4C TO ACCOMMODATE TRAFFIC LANE TAPERS

HORZ. SCALE 0 25 50 FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

Richfield The Urban Hometown

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DRAWN	ZP/JW
CHECKED	TL/SL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

STAGE 1C

SHEET C1.29

GENERAL NOTES:
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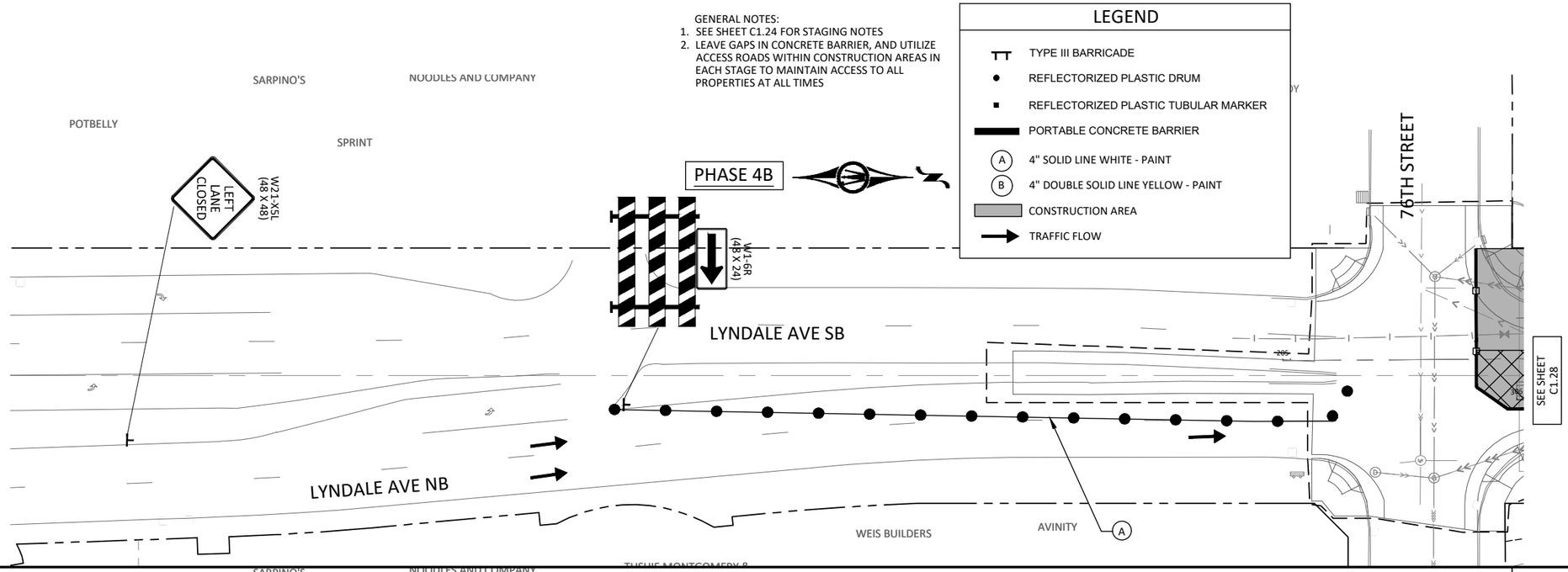
- TRAFFIC FLOW



0 25 50
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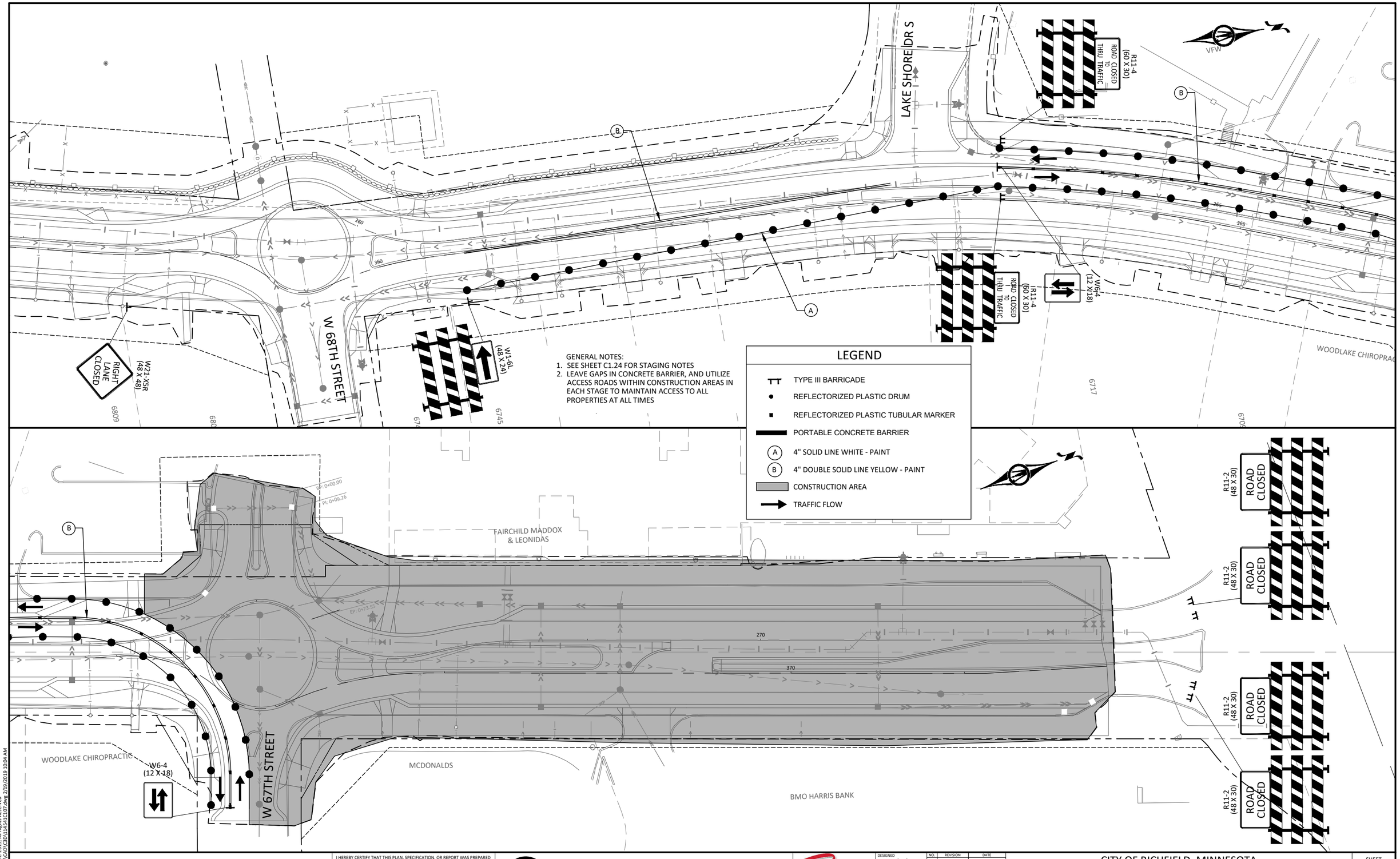
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STAGE 1B & 1C

SHEET C1.30



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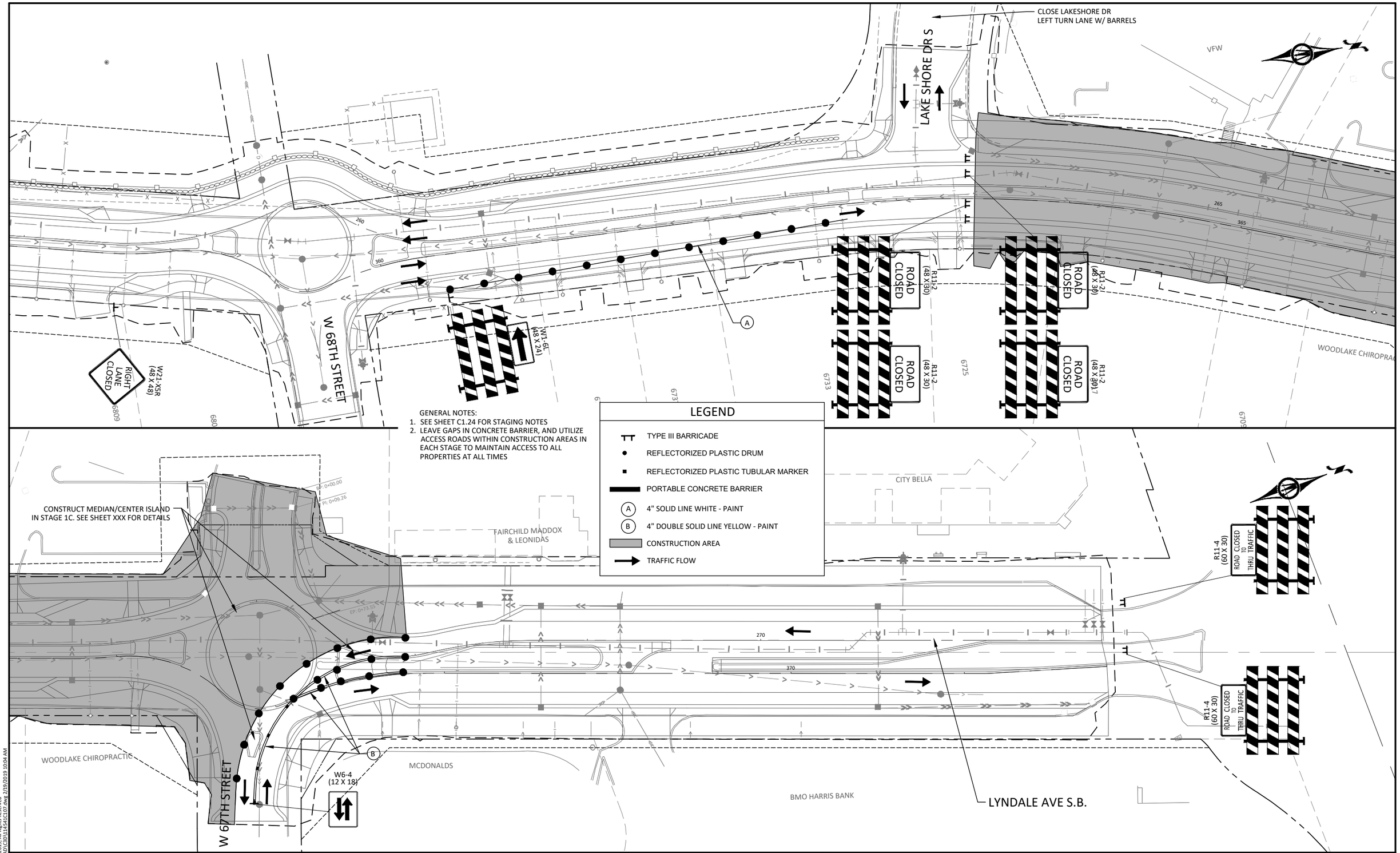
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STAGE 4A

SHEET C1.31



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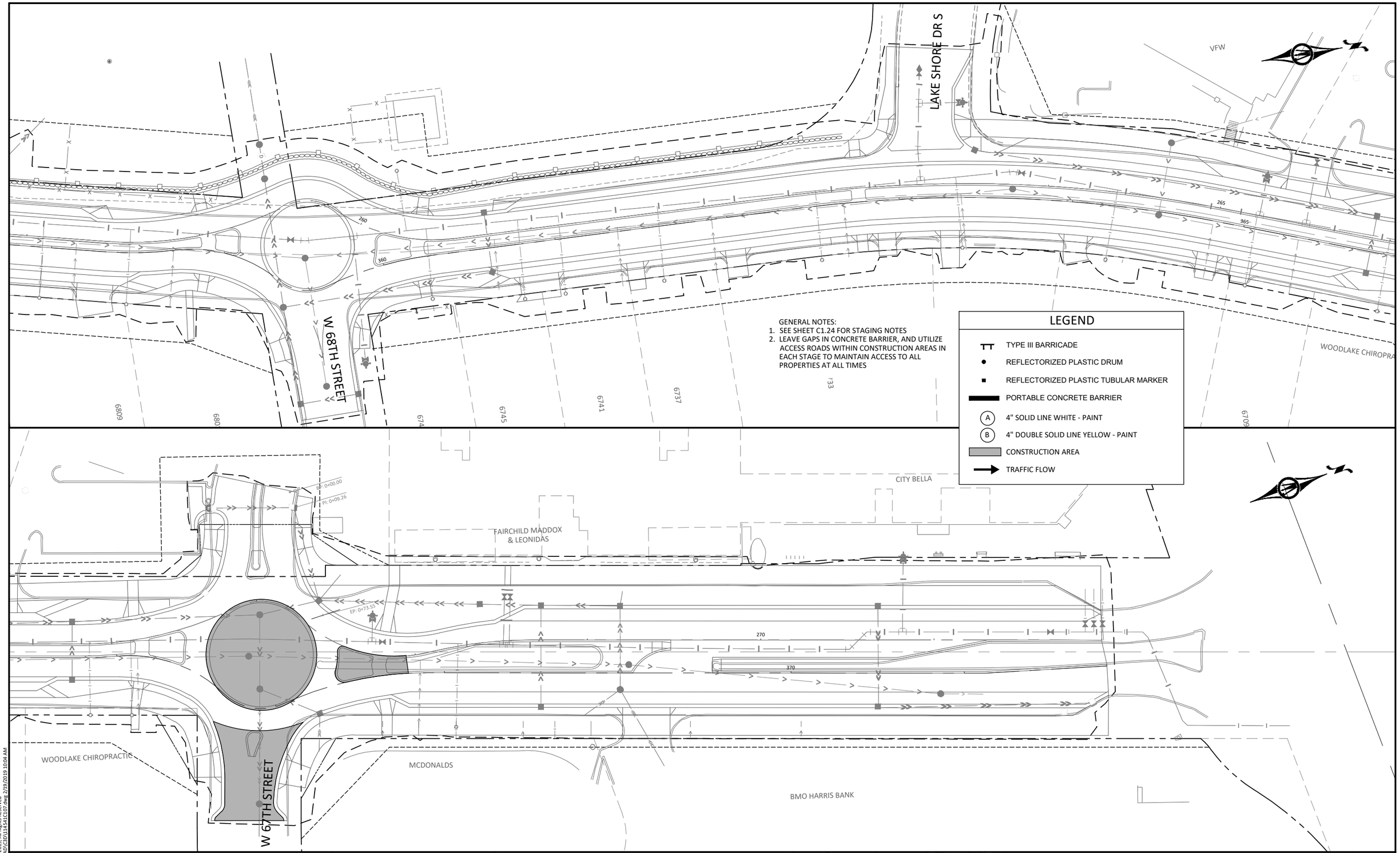
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STAGE 4B

SHEET C1.32



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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STAGE 4C

SHEET C1.33

OR READY

W 76TH STREET

BP

BARRET LAWN CARE

GROCERIES OF THE ORIENT

BROADWAY PIZZA

SUPERAMERICA

W 75TH STREET

RICHFIELD T CE

DRAFTED FROM CENTURY LINK MARKUPS

LYNDALE AVE S

ROW

LYNDALE AVE S

JOY'S PATTAYA THAI

DAIRY QUEEN

METRO PAWN & GUN

LYNWOOD COMMONS APARTMENTS

RICHFIELD TRANSMISSION CENTER

JAMAR WEST APARTMENTS

GENTLEMAN'S CHOICE HAIR REPLACEMENT

DEAN BJORKSTRAND LANDSCAPING

7400 LYNDALE BUSINESSES

7344

7340

7336

DRAFTED FROM CENTURY LINK MARKUPS

LYNDALE AVE S

ROW

W 74TH STREET

LYNWOOD COMMONS APARTMENTS

WOODLAWN TERRACE

AUDIO PERFECTION

7345

7341

7335

EROSION CONTROL LEGEND

- MS — MACHINE SLICED SILT FENCE
- CONSTRUCTION LIMITS
- HYDROMULCH (SEED MIX 36-711)
- SOD
- INLET PROTECTION

HORZ. SCALE 0 25 50 FEET

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LANI LEICHTY

LIC. NO. 20846 DATE 2/19/19

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DRAWN	JW
CHECKED	LLL/SEL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA

S.A.P. XXX-XX-XXX, LYNDALE AVENUE RECONSTRUCTION

EROSION CONTROL

SHEET C2.01

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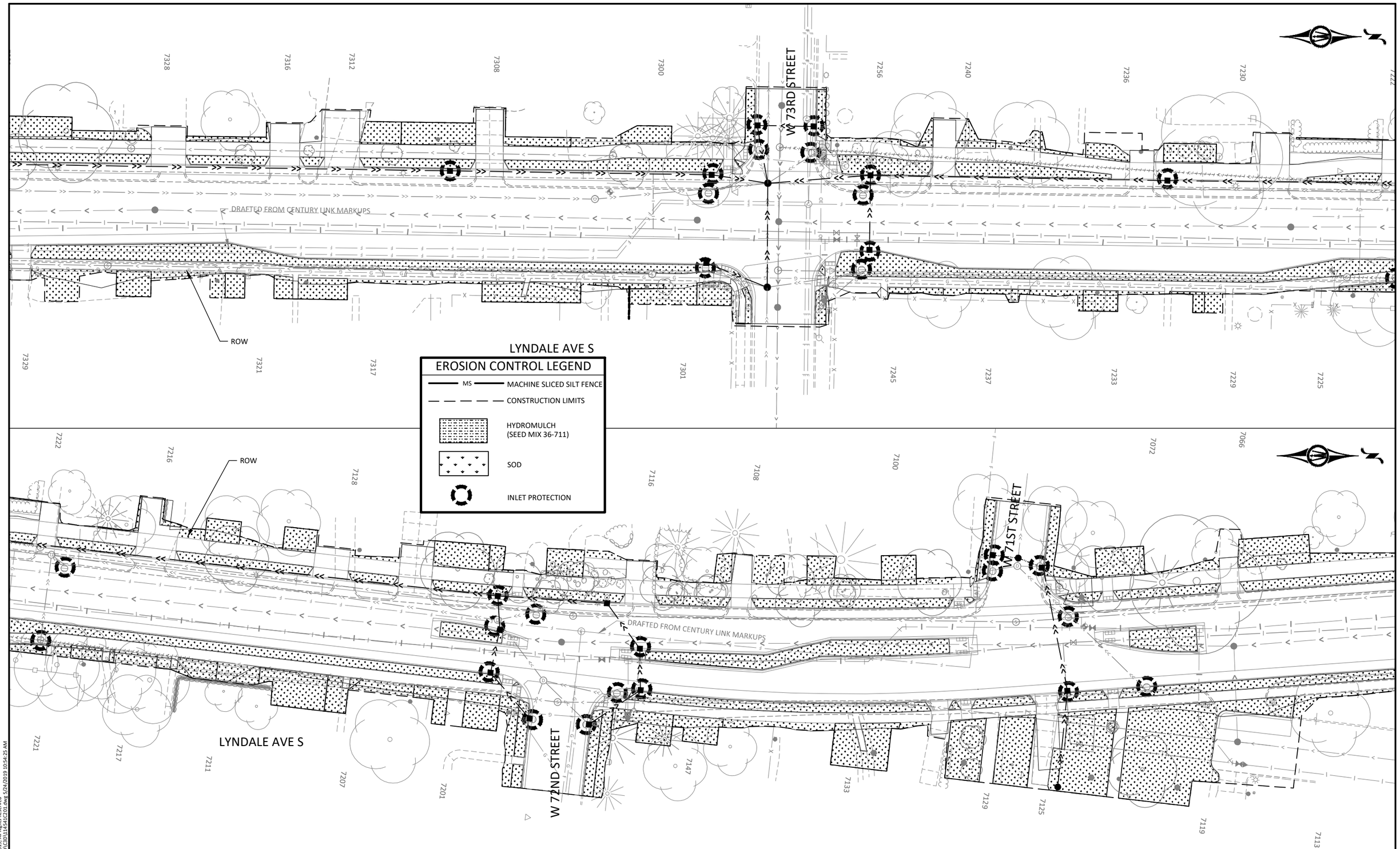

EROSION CONTROL LEGEND

- MS — MACHINE SLICED SILT FENCE
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JW			
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LLL/SEL			
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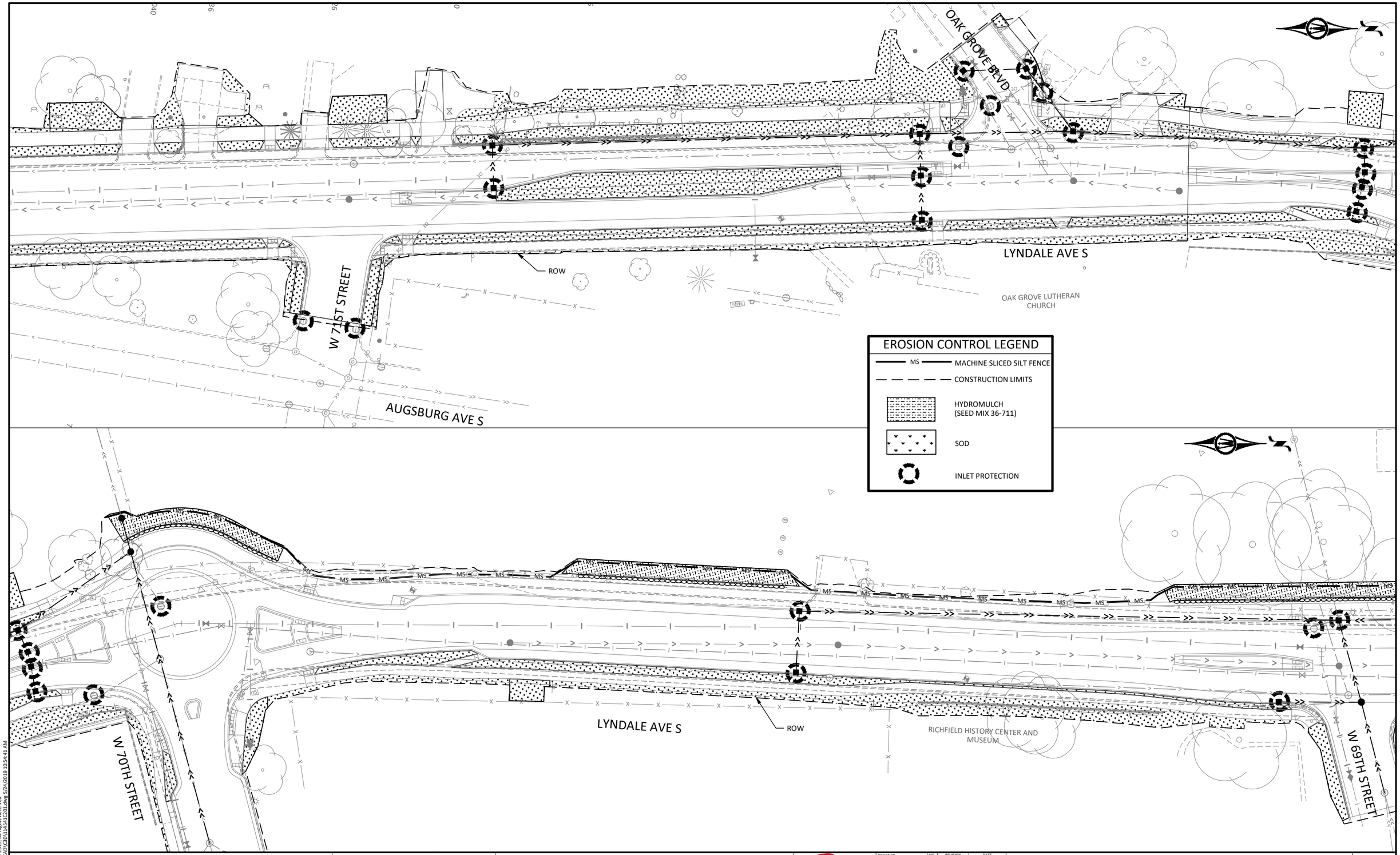
CITY OF RICHFIELD, MINNESOTA
S.A.P. XXX-XX-XXX, LYNDALE AVENUE RECONSTRUCTION
EROSION CONTROL

SHEET C2.02



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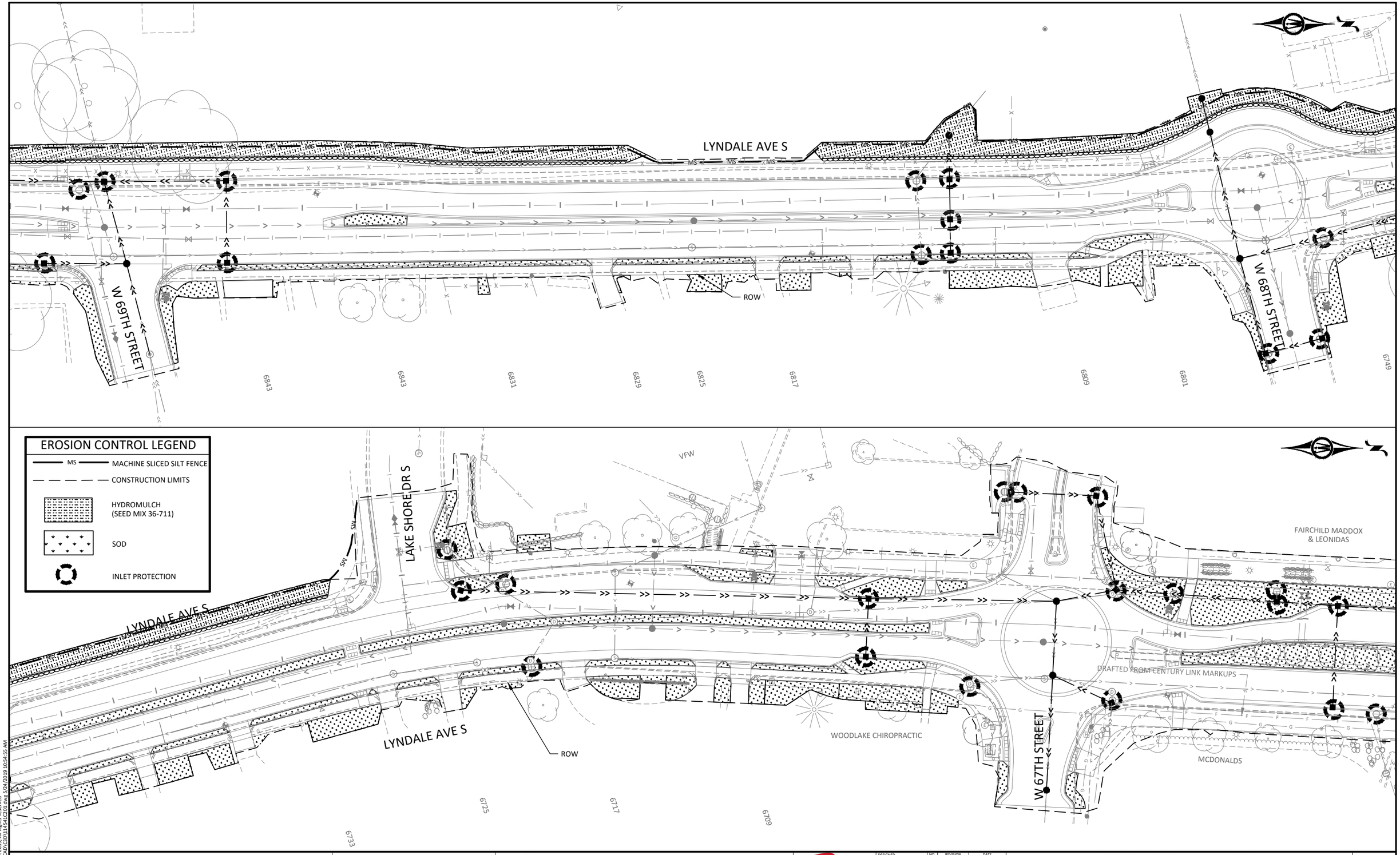
CITY OF RICHFIELD, MINNESOTA
S.A.P. XXX-XX-XXX, LYNDALE AVENUE RECONSTRUCTION
EROSION CONTROL

SHEET C2.03



EROSION CONTROL LEGEND

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- CONSTRUCTION LIMITS
- HYDROMULCH (SEED MIX 36-711)
- SOD
- INLET PROTECTION

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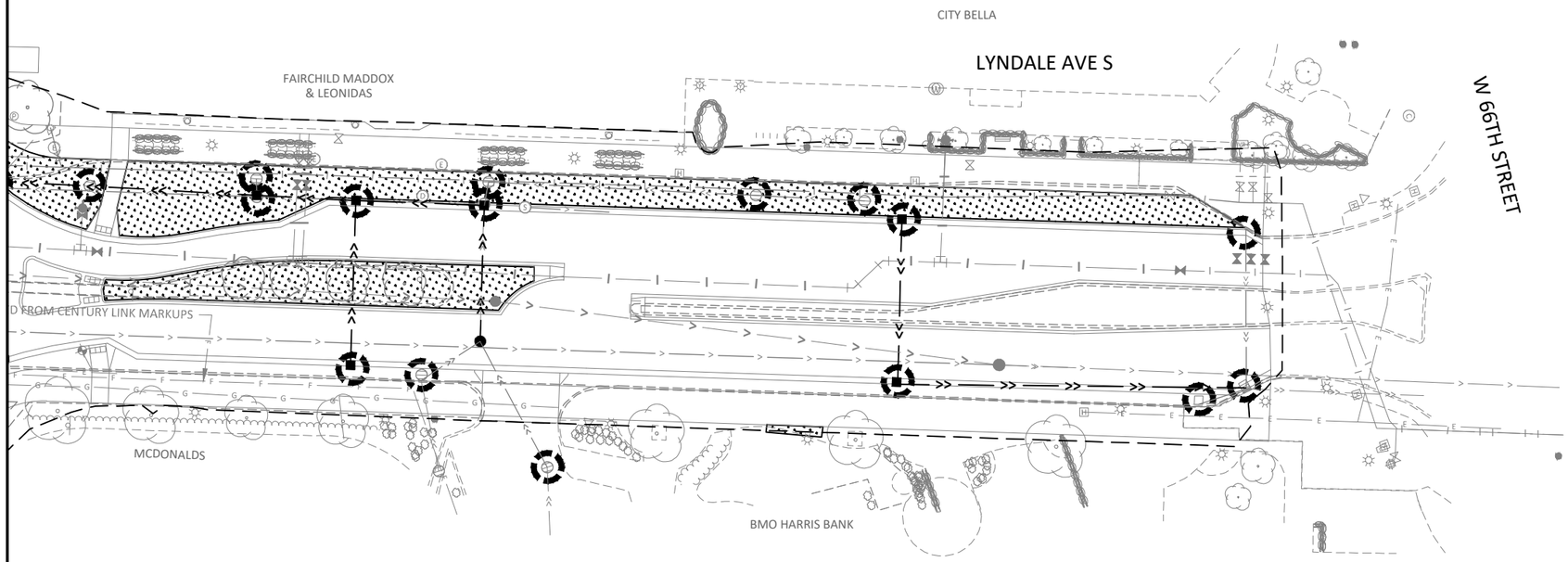
CITY OF RICHFIELD, MINNESOTA

S.A.P. XXX-XX-XXX, LYNDALE AVENUE RECONSTRUCTION

EROSION CONTROL

SHEET C2.04



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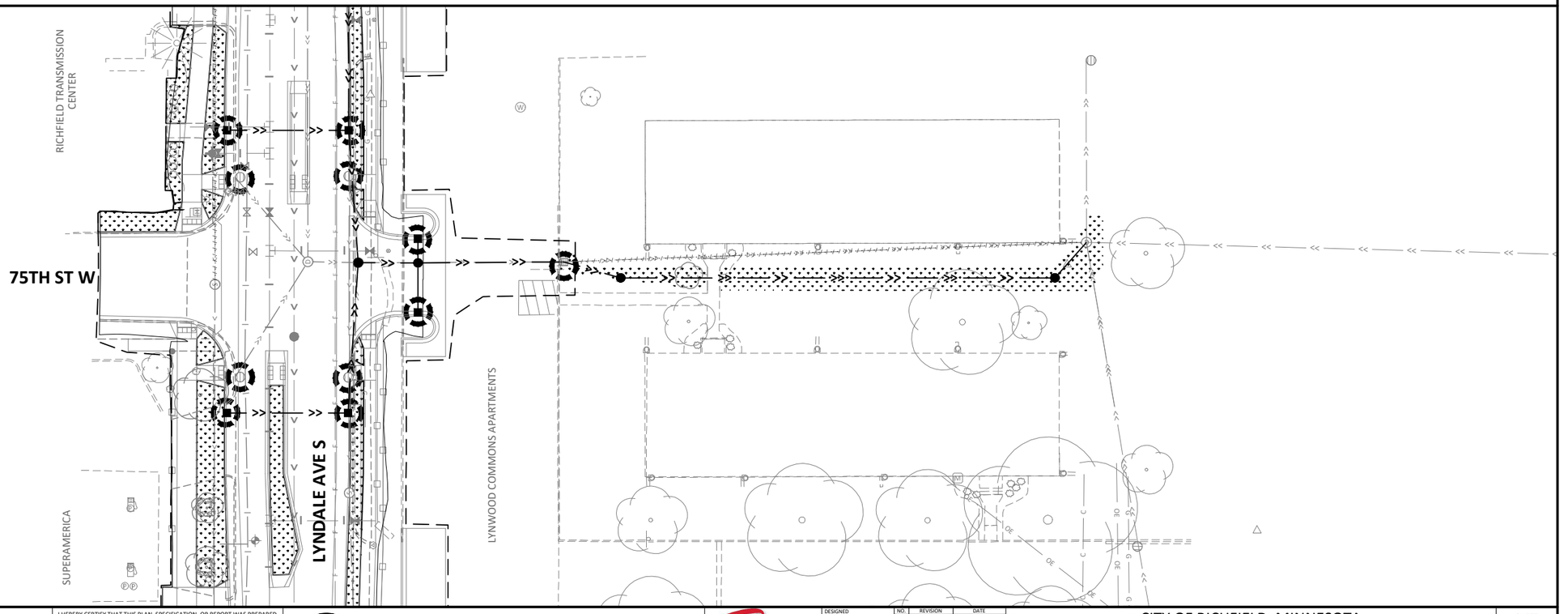

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S.A.P. XXX-XX-XXX, LYNDALE AVENUE RECONSTRUCTION
EROSION CONTROL

SHEET C2.05

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

LYNDALE AVENUE RECONSTRUCTION 2019

CITY OF RICHFIELD

HENNEPIN COUNTY, MINNESOTA

SWPPP DESIGNER

UNIVERSITY OF MINNESOTA

Lanol Leichty

Design of Construction SWPPP (May 31 2020)

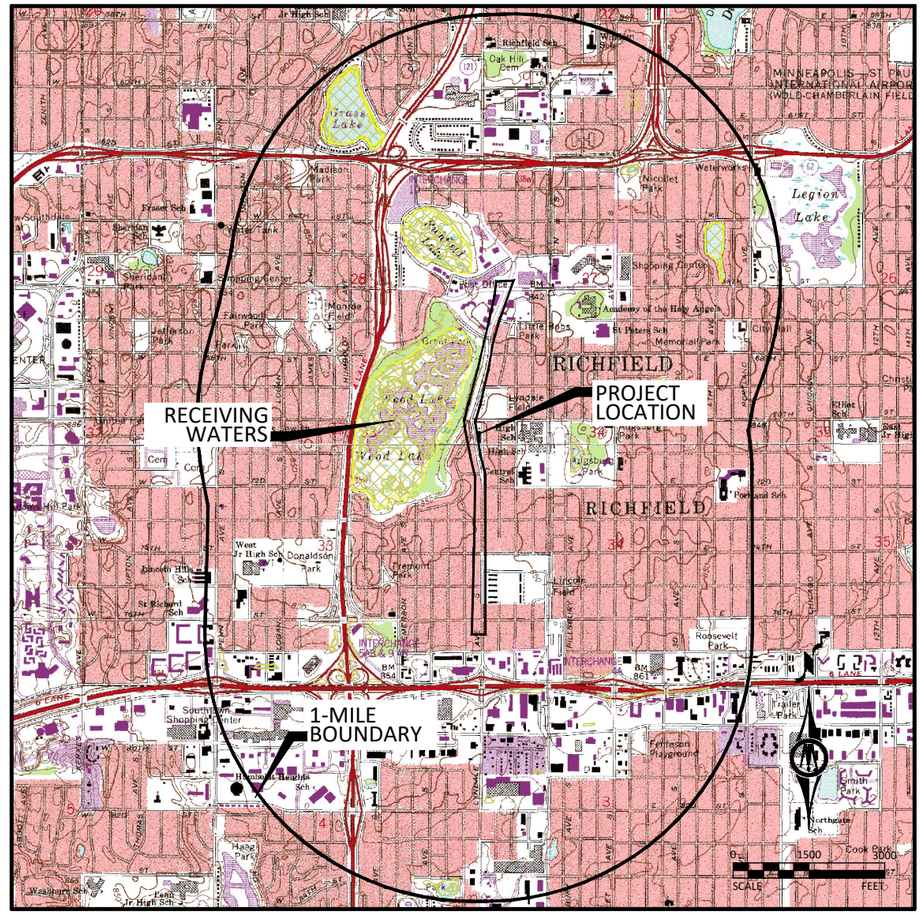
LEGEND

- 1-MILE BOUNDARY
- PROJECT BOUNDARY
- OR — IMPAIRED, SPECIAL OR PROTECTED WATERS
- NATIONAL WETLANDS INVENTORY
- CALCAREOUS FEN
- RECEIVING WATERS

PROJECT AREAS:

Total Project Size (disturbed area) =	12.3	ACRES
Existing area of impervious surface =	10.6	ACRES
Post construction area of impervious surface =	10.8	ACRES
Total new impervious surface area created =	0.2	ACRES

Planned Construction Start Date:	XX/XX/XXXX
Estimated Construction Completion Date:	XX/XX/XXXX



RESPONSIBLE PARTIES:

The Contractor and Owner must apply for coverage under the MPCA's General Stormwater Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program. Coverage under the permit will begin automatically 7 calendar days after the electronic submittal date or after the postmarked date of a complete application. [Longer time frames apply to sites that disturb areas greater than 50 acres.]

The Contractor shall provide one or more trained Construction SWPPP Manager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPs. A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	City of Richfield	XXXXX	XXX-XXX-XXX
SWPPP DESIGNER:	Bolton & Menk, Inc.	Lanol Leichty	952-890-0509
CONTRACTOR:	TBD		
CONSTRUCTION SWPPP MANAGER:	TBD		
PARTY RESPONSIBLE FOR LONG TERM O&M:	City of Richfield	XXXXX	XXX-XXX-XXXX

The SWPPP Designer and Construction SWPPP Manager must have appropriate training. Documentation showing training commensurate with the job duties and responsibilities is required to be included in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on this sheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager prior to the start of construction. This information shall be kept up to date until the project NOT is filed.

ADDITIONAL COMPENSATION

Payment for all work associated with Erosion and Sediment Control shall be as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any work required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001) including but not limited to inspection, maintenance, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

SPECIAL ENVIRONMENTAL CONSIDERATIONS:

1)	Was an environmental review required for this project or any part of a common plan of development or sale that includes all or any portion of this project?	NO
2)	Does any portion of the site have the potential to affect threatened or endangered species or their critical habitat?	NO
3)	Does any portion of this site discharge to a Calcareous fen.	NO
4)	Will any portion of the site potentially affect properties listed on the National Register of Historic Places or a known or discovered archeological site?	NO
5)	Have any Karst features have been identified in the project vicinity?	NO
6)	Is compliance with temporary or permanent stormwater management design requirements infeasible for this project?	NO
7)	Has the MN DNR promulgated "work in water restrictions" for any Public Water this site disharges to during fish spawning?	NO

GENERAL STORMWATER DISCHARGE REQUIREMENTS

All requirements listed in Part III of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to::

1. The expected amount, frequency, intensity, and duration of precipitation.
2. The nature of stormwater runoff and run-on at the site
3. Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion.
4. The range of soil particle sizes expected to be present on the site.

PERMANENT STORMWATER MANAGEMENT SYSTEM:

Type of storm water management used if more than 1 acre of new impervious surface is created:

	Wet Sedimentation Basin
	Infiltration/Filtration
	Regional Pond
X	Permanent Stormwater Management Not Required

PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
Hennepin	28	24	27, 28, 33. 34	44.877667	-93.289039

BMP SUMMARY	QUANTITY	UNIT
SILT FENCE	1750	LF
INLET PROTECTION	58	EACH
SODDING, TYPE LAWN	11,500	SQ YD

DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:

Construction activities include: Removals, site grading, replacement of sanitary sewer, water main and storm sewer, temporary erosion and sediment control, and permanent stabilization.

This project involves reconstructing Lyndale Avenue from 76th Avenue West to 66th Street West. Road safety improvements will be made, which include left and right hand turn lanes, roundabouts and center medians. Additional storm sewer will be added to improve capture of surface runoff. The drainage patterns and discharge locations will remain as they currently exist.

DOCUMENT RETENTION

The following documentation will be retained for a period of not less than 3-years from the date of submittal of the NOT in compliance with Part III.E of the Permit.

1. The final SWPPP
2. Copies of all stormwater related permits required for the project
3. Records of all inspection and maintenance conducted during construction
4. Copies of all permanent operation and maintenance agreements; including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance, and
5. All required calculations for design of the temporary and permanent BMPs.

RECEIVING WATERS:

Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, are identified on the USGS 7.5 min quad map within one mile of the project boundary. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in this permit for special and impaired waters have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for construction related waste load allocations have also been incorporated.

NAME OF WATER BODY	TYPE (ditch, pond, wetland, lake, etc.)	Appendix A Special Water?	Flows to Impaired Water Within 1 Mile?	USEPA Approved TMDL?
Wood Lake	Lake	No	No	No
Impairments: None				

IMPLEMENTATION SCHEDULE AND PHASING: The Contractor is required to provide an updated schedule and site management plan meeting the minimum requirements of Section 1717.2.C and 1717.2.D of the Minnesota 2016 Standard Specifications.

1) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceptance of the SWPPP as designed with no changes.
2) Install perimeter sediment control, inlet protection, and construction exit.
3) Remove bituminous and concrete pavement.
4) Install sanitary sewer and watermain.
5) Install storm sewer.
6) Add additional temporary BMPs as necessary during construction based on inspection reports.
7) Install curb and gutter.
8) Install bituminous pavement.
9) Ensure final stabilization measures are complete.
10) Remove inlet protection.
11) Provide digital copy of all Field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner.
12) Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is considered complete.

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LANI LEICHTY

LIC. NO. 20846 DATE 2/19/19

BOLTON & MENK

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CLIENT PROJ. NO.			
T16.114541			

CITY OF RICHFIELD, MINNESOTA

LYNDALE AVENUE RECONSTRUCTION

SWPPP - PROJECT INFORMATION

SHEET C2.06

Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN RI0000I as they apply to this project. All provisions of the permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the permit is available at: http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/construction-stormwater/mpca-to-re-issue-construction-stormwater-general-permit.html

SWPPP AMENDMENTS

Permittee must amend SWPPP as necessary to include additional requirements to correct problems identified or address the following situations.

1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions.
2. Inspections or investigations by site owner or operators, USEPA or MPCA officials determine the SWPPP is not minimizing discharge of pollutants to surface waters or underground waters or discharges are causing water quality standard exceedances.
3. The SWPPP is not achieving the objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of the permit.
4. The MPCA determines that the project's stormwater discharges may cause, have reasonable potential to cause, or contribute to non-attainment of any applicable water quality standard, or the SWPPP does not incorporate the applicable requirements of the permit.

EROSION PREVENTION PRACTICES

The location of areas not to be disturbed must be delineated on the project before site work begins.

Disturbance on steep slopes (>33.3%) shall be minimized. Where required, techniques such as phasing and stabilizing practices designed for steep slopes shall be used.

All exposed soils must be stabilized as soon as possible, but in no case later than 14 days after the construction activity has temporarily or permanently ceased.

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period.

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Stabilization of the remaining portions of any temporary or permanent ditches or swales within 14 calendar days after connecting to a surface water or property edge and construction in that portion of the ditch has temporary or permanently ceased.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of a temporary or permanent drainage ditch. Refer to erosion and sediment control plan for temporary and permanent stabilization measures for ditches and swales.

Stormwater discharges shall be directed to vegetated areas where feasible. Velocity dissipation devices shall be used at discharge point.

Phased construction will be used to extent practical or as indicated in the plans to minimize exposed soils.

Rapid stabilization shall be of type and quantity indicated in the project specifications. Additional rapid stabilization may be necessary to minimize erosion throughout the duration of the project. Type and quantity shall be determined by the engineer or inspector prior to installation. In extreme cases, the contractor shall use any available rapid stabilization to immediately mitigate erosion, then further remedy the situation with approval by owner or engineer.

SEDIMENT CONTROL PRACTICES

Practices must be established on all down gradient perimeters and be located up gradient of any buffer zones. Perimeter controls must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All sediment controls practices shall be re-installed if they have been adjusted or removed to accommodate short-term activities and replaced immediately after the short term activity has ceased. Short term activities shall be performed as quickly as possible. Sediment control practices shall be re-installed even before the next precipitation event if the activity is not complete.

All storm drains must be protected by appropriate BMPs during construction until all sources to the inlet have been stabilized. Inlet protection may be removed for specific safety concerns identified by the Permittee or jurisdictional authority. The removal shall be documented in the SWPPP and retained on site. Temporary stockpiles must have silt fence or other effective sediment controls and shall not be placed in surface waters or natural buffers.

Vehicle tracking BMPs shall be installed to minimize track out of sediment from the construction site. Method shall be approved by engineer prior to commencement of construction activities. Street sweeping shall be used if vehicle tracking BMPs are not adequate to prevent sediment from being tracked onto the street.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

A 50 foot natural buffer, or redundant BMPs (where a buffer is infeasible) must be maintained when a surface water is located within 50 feet of disturbance activities and site runoff flows to the surface water.

If polymers, flocculants, or other sedimentation treatment chemicals are used on site, 1) conventional erosion and sediment controls shall be sowed prior to chemical placement, 2) chemicals shall be chosen based on soil types, and expected turbidity, pH, and flow rate of stormwater flowing into the treatment system, and 3) chemicals shall be used with accepted engineering practices and dosing specifications.

TEMPORARY SEDIMENTATION BASINS

The temporary sedimentation basin shall be constructed and made operational prior to disturbance of 10 or more acres draining to a common location.

Temporary sedimentation basins are required prior to runoff leaving the construction site or entering surface waters when 10 or more acres of disturbed soils drain to a common location. The basin must provide 3,600 cubic feet of "storage below the outlet per acre drained. If hydraulic calculations are available, the temporary sedimentation basin must provide a storage volume equivalent to the 2-year, 24-hour storm, but in no case less than 1800 cubic feet per acre drained. The temporary sedimentation basin must be constructed and made operational concurrent with the start of soil disturbance up gradient of the pond. The temporary sedimentation basin shall be designed to prevent short circuiting. The outfall shall be designed to remove floatable debris, allow for complete drawdown of the pond for maintenance activities, and have energy dissipation. The emergency spillway shall be stabilized.

Temporary sedimentation basins shall be situated outside of surface waters and any required buffer zone, and must be designed to avoid draining wetlands, unless the impact is in compliance with the requirements of this permit.

Excessive sediment-laden water that is not properly filtered will not be permitted to discharge from site.

DEWATERING AND BASIN DRAINING

Turbid or sediment-laden waters related to dewatering or basin draining shall be discharged to a temporary or permanent sedimentation basin on the project site unless infeasible. The temporary or permanent basin may discharge to surface waters if the basin water has been visually checked to ensure adequate treatment has been obtained in the basin and that the nuisance conditions will not result from the discharge. Discharge points shall be adequately protected from erosion and proper velocity dissipation provided.

All water from dewatering or basin-draining activities must be discharged in a manner that does not cause nuisance conditions, erosion in the receiving channels or on down slope properties, or inundation in wetlands causing significant adverse impacts to the wetland.

If filters with backwash waters are used, the backwash water shall be hauled away for disposal, returned to the beginning of the treatment process, or incorporated into site in a manner that does not cause erosion. Backwash water may be discharged to sanitary sewer if permission is granted by the sanitary sewer authority.

POLLUTION PREVENTION

Building products that have the potential to leach pollutants must be under cover to prevent discharge or protected by an effective means designed to minimize contact with stormwater.

Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover.

Hazardous materials and toxic waste must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism.

Solid waste must be stored, collected and disposed of in compliance with Minn. R. CH 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded shall be prevented using drip pans or absorbents. Supplies shall be available at all times to clean up discharged materials and that an appropriate disposal method must be available for recovered spilled materials.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. Runoff from the washing area shall be contained in a sediment basin or other similarly effective controls and waste from the washing activity must be properly disposed of. No engine degreasing is allowed on site. Effective containment for all liquid and solid wastes generated by concrete and other washout operations related to construction activity shall be effectively contained. Liquid and solid washout waste shall not contact the ground, and containment must be designed so that it does not result in runoff from the washout operations or areas. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

INFESTED WATERS:

MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by an Infested Waters Permit or written notification has been obtained from MN DNR stating that such permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until until such time as an Infested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

INSPECTION & MAINTENANCE

A trained person shall routinely inspect the entire construction site at least once every 7 days during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted within 7 days.

All inspections and maintenance conducted during construction must be recorded within 24 hours in writing and records must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

Where parts of the project site have permanent cover, but work remains on other parts of the site, inspections may be reduced on these areas to once per month.

Where the site has permanent cover on all exposed areas and no construction activity is occurring anywhere on site, the site must be inspected during non-frozen conditions at least once per month for 12 months. Following the 12th month of permanent cover and no construction activity, inspections shall be terminated until construction activity resumes or notification from MPCA has been issued that erosion has been detected at the site.

During frozen ground conditions, inspections may be suspended and shall resume within 24 hours after runoff occurs or 24 hours prior to resuming construction activity, whichever is first.

Inspection and maintenance shall resume until another Permittee has obtained coverage under this Permit or the project has undergone Final Stabilization, and an NOT has been submitted.

All erosion prevention and sediment control BMPs shall be inspected to ensure integrity and effectiveness during all routine and post-rainfall inspections. All non-functioning BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow access.

All perimeter control devices must be repaired, replaced, or supplemented when they become non-functional or the sediment reaches one-half (1/2) of the height of the device. These repairs must be made by the end of the next business day after discovery, or as soon as field conditions allow.

Temporary and permanent sediment basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches one-half (1/2) the storage volume. Drainage and sediment removal must be completed within 72 hours of discovery, or as soon as field conditions allow.

Surface waters, including drainage ditches and conveyance systems, must be inspected for erosion and sediment deposition during each inspection. All deltas and sediment deposited in drainage ways, catch basins, and other drainage systems shall be removed. The removal and stabilization must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints. The Permittee is responsible for obtaining all applicable permits prior to conducting any work in surface waters.

Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all paved surfaces both on and off site within 24-hours of discovery, or if applicable, within a shorter time to comply with the permit.

Streets and other areas adjacent to the project must be inspected for evidence of off-site accumulations of sediment. If sediment is present, it must be removed in a manner and at a sufficient frequency to minimize off-site impacts.

All infiltration areas must be inspected to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

FINAL STABILIZATION

Final Stabilization is not complete until all of the following requirements have been met:

1. All soil disturbing activities at the site have been completed and all soils are stabilized by a uniform perennial vegetative cover with a density of 70% of its expected final growth density over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.
2. Permanent stormwater management system is constructed, meets all requirements of the Permit, and is operating as designed. Temporary or permanent sedimentation basins that are to be used as permanent water quality management basins have been cleaned of any accumulated sediment. All sediment has been removed from conveyance systems, and ditches are stabilized with permanent cover.
3. All temporary synthetic and structural erosion prevention and sediment control BMPs have been removed. BMPs designed to decompose on site may be left in place.
4. For residential construction only, individual lots are considered finally stabilized if the structure(s) are finished, temporary erosion protection and down gradient perimeter control has been completed and the residence has been sold to the homeowner. Also, the "Homeowner Fact Sheet" has been provided to the homeowner

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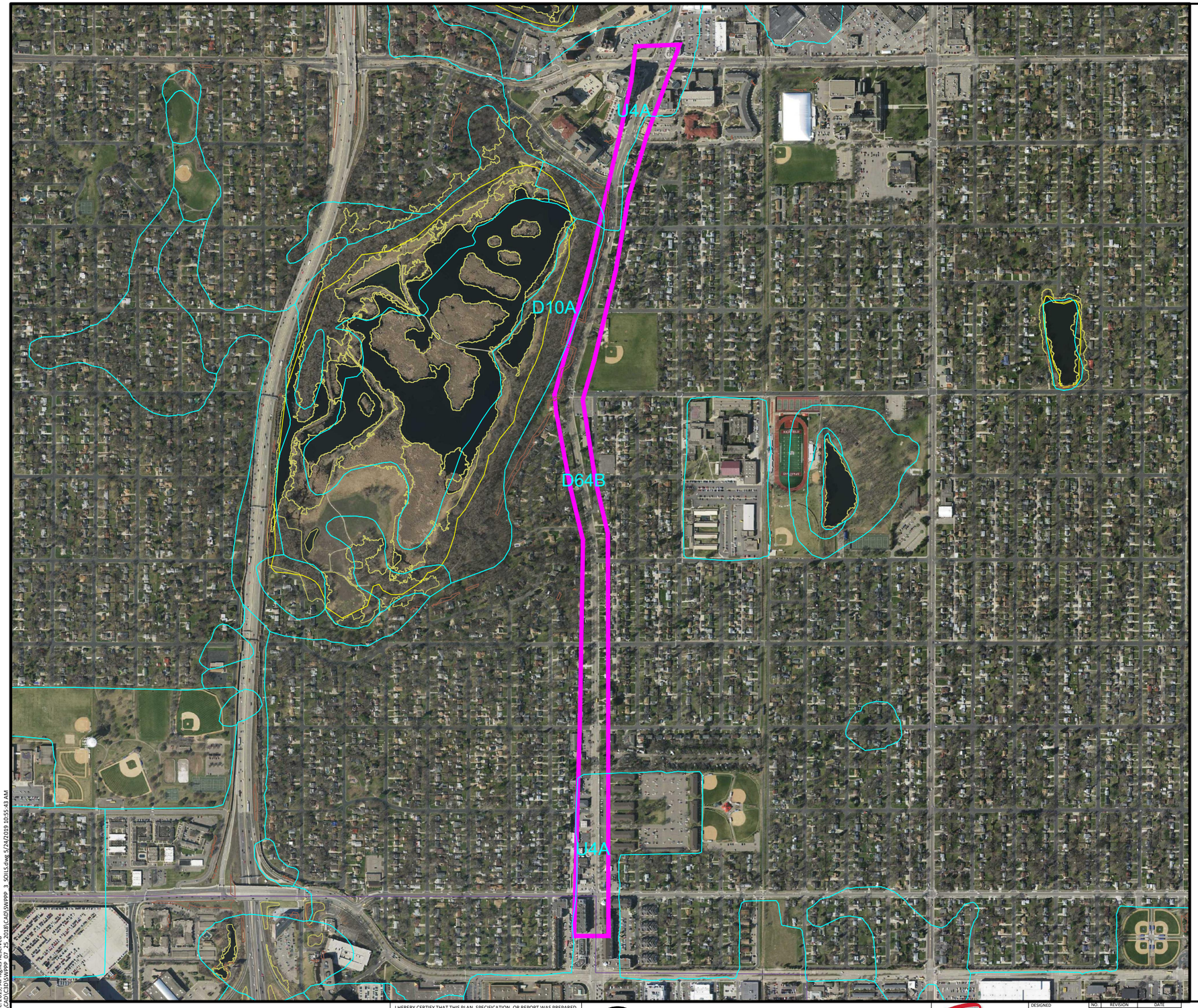
CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
SWPPP - NARRATIVE

SHEET
C2.07



LEGEND

- PROJECT BOUNDARY
- SOIL TYPE
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- NATIONAL WETLANDS INVENTORY
- DWSMA, LOW VULNERABILITY
- STEEP SLOPES (>33.3%)
- RECEIVING WATERS

N

0 100 200
SCALE FEET

SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
MUSYM	MUNAME	HYDGRP	MUHELCL
D10A	Forada sandy loam, 0-2% slopes	B/D	NHEL
D64B	Urban land-Hubbard complex, Mississippi River Valley, 0 - 8 % slopes	A	NHEL
U4A	Urban Land-Udipsamments complex, 0-2% slopes		NHEL

NHEL - Not Highly Erodible Land
PHEL - Potentially Highly Erodible Land
HEL - Highly Erodible Land

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	SHEET NO.
SITE MAP	C2.01
DIRECTION OF FLOW	C2.XX
FINAL STABILIZATION	C2.XX
SOILS	C2.03
DRAINAGE STRUCTURES	C1.XX
DRAINAGE TABULATION	C1.XX
STORM SEWER PLAN & PROFILE SHEETS	C5.01 - C5.10
EROSION & SEDIMENT CONTROL DETAILS	C2.04
EROSION CONTROL TABULATION	C2.XX
TURF ESTABLISHMENT TABULATION	C2.XX
NARRATIVE & NOTES	C2.06 - C2.07

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CITY OF RICHFIELD, MINNESOTA
S.A.P. XXX-XX-XXX, LYNDALE AVENUE RECONSTRUCTION
SWPPP SOILS INFORMATION

SHEET C2.08

LABOR READY LABOR READY

STA 106+84.13, 16.28'LT
1 EA 12"GATE VALVE & BOX
1 EA CONNECT TO EX. 12" WMN

STA 106+99.49, 40.00'LT
G=847.49'
1 EA HYDRANT
1 EA 12" X 6" TEE
24 LF 6" DIP
1 EA 6" GATE VALVE & BOX

BP

STA 108+27.69, 9.82'LT
1 EA 12" X 6" TEE
41 LF 6" DIP
1 EA 6" GATE VALVE & BOX
1 EA CONNECT TO EX. 6" WMN

BARRET LAWN CARE

GROCERIES OF THE ORIENT

STA 110+45.41, 10.18'LT
1 EA 12" X 6" TEE
40 LF 6" DIP
1 EA 6" GATE VALVE & BOX
1 EA CONNECT TO EX. 6" WMN

STA 110+25.55, 38.00'LT
G=848.41'
1 EA HYDRANT
1 EA 12" X 6" TEE
29 LF 6" DIP
1 EA 6" GATE VALVE & BOX
1 EA 12" GATE VALVE & BOX

BROADWAY PIZZA

STA 111+67.11, 43.81'LT
1 EA 12" X 6" TEE
34 LF 6" DIP
1 EA 6" GATE VALVE & BOX
1 EA CONNECT TO EX. 6" WMN

SUPERAMERICA

75TH ST W

76TH ST W

LYNDALE AVE S

EXMH 2

SSMH-B

SSMH-C

SSMH-D

2" SERVICE

502.1'

460.8'

429.4'

375.0'

295.9'

307.9'

2" SERVICE

167.5'

149.2'

10'

344 LF 12" WMN

335 LF 12" WMN

DIGITIZED FROM CENTURY LINK MARKUPS

160.7'

86.5'

4" SERVICE
STA 110+86.32, 20.97'LT
1 EA 12" X 4" TEE
43 LF 4" DIP
1 EA 4" GATE VALVE & BOX
1 EA CONNECT TO EX. 4" WMN

4" SERVICE
STA 112+10.55, 24.56'LT
1 EA 12" X 4" TEE
43 LF 4" DIP
1 EA 4" GATE VALVE & BOX
1 EA CONNECT TO EX. 4" WMN

LYNWOOD COMMONS APARTMENTS

349.8'

284.4'

STA 109+09.00, 10.05'LT
1 EA 12" X 4" TEE
46 LF 4" DIP
1 EA 4" GATE VALVE & BOX
1 EA CONNECT TO EX. 4" WMN

METRO PAWN & GUN

DAIRY QUEEN

JOY'S PATTAYA THAI

MAINSTREET VILLAGE RETIREMENT

NOTES
1. VERIFY ALL SERVICE LOCATIONS & SIZES IN THE FIELD (INCIDENTAL)
2. XXX.X' DENOTES APPROXIMATE SANITARY SEWER SERVICE LOCATIONS FROM DOWNSTREAM MANHOLE (FIELD VERIFY)
3. PROTECT TREES NOT DESIGNATED FOR REMOVAL

STRUCTURES UP TO 73RD INVERTS RAISED 8", REMOVE 1' BARREL SECTIONS AND ADD 1-2 ADJUSTING RINGS AS NEEDED

EXMH 2
STA 106+51
R=846.98
I=829.36 36" W
I=831.89 12" NE
I=833.35 9" N
I=829.36 36" E

SSMH-B
STA 107+32
R=847.20
I=832.30 12" N
I=832.20 12" SW

EXISTING ℄ PROFILE

SSMH-C
STA 109+26
R=847.94
I=833.02 12" N
I=832.92 12" S

PROPOSED ℄ PROFILE

SSMH-D
STA 112+86
R=846.82
I=833.92 12" N
I=833.82 12" S

7.5' MIN. COVER (TYP.)

12" WMN

88' - 12" PVC @ 0.35%

194' - 12" PVC @ 0.32%

360' - 12" PVC @ 0.22%

I = 829.36.36"W
I = 831.89 12"N
(CONNECT TO EX MH)

865 860 855 850 845 840 835 830 825

105+50 106+00 106+50 107+00 107+50 108+00 108+50 109+00 109+50 110+00 110+50 111+00 111+50 112+00 112+50 113+00

HORZ. 0 25 50 SCALE FEET
VERT. 0 5 10 SCALE FEET

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SARAH E. LLOYD
LIC. NO. 46636 DATE 2/19/19

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Richfield The Urban Hometown

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DRAWN JW
CHECKED SL
CLIENT PROJ. NO. T16114541

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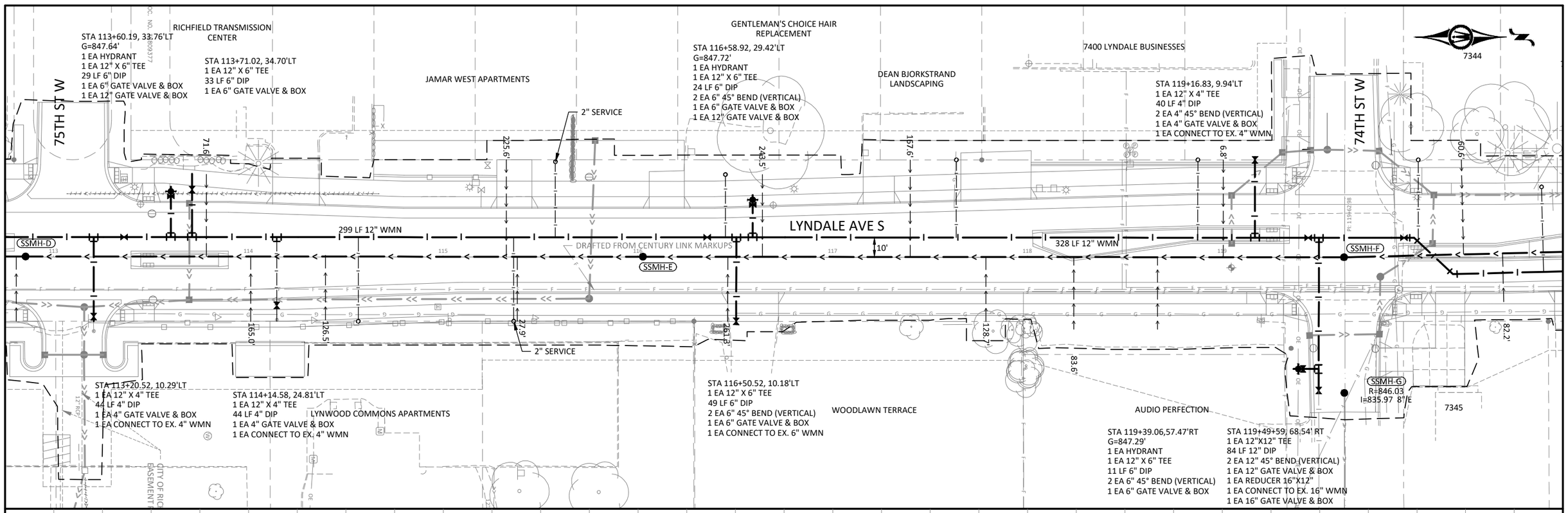
2	1	03/25/2019
4	2	05/06/2019
6	3	05/13/2019
7	4	05/16/2019

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.01R



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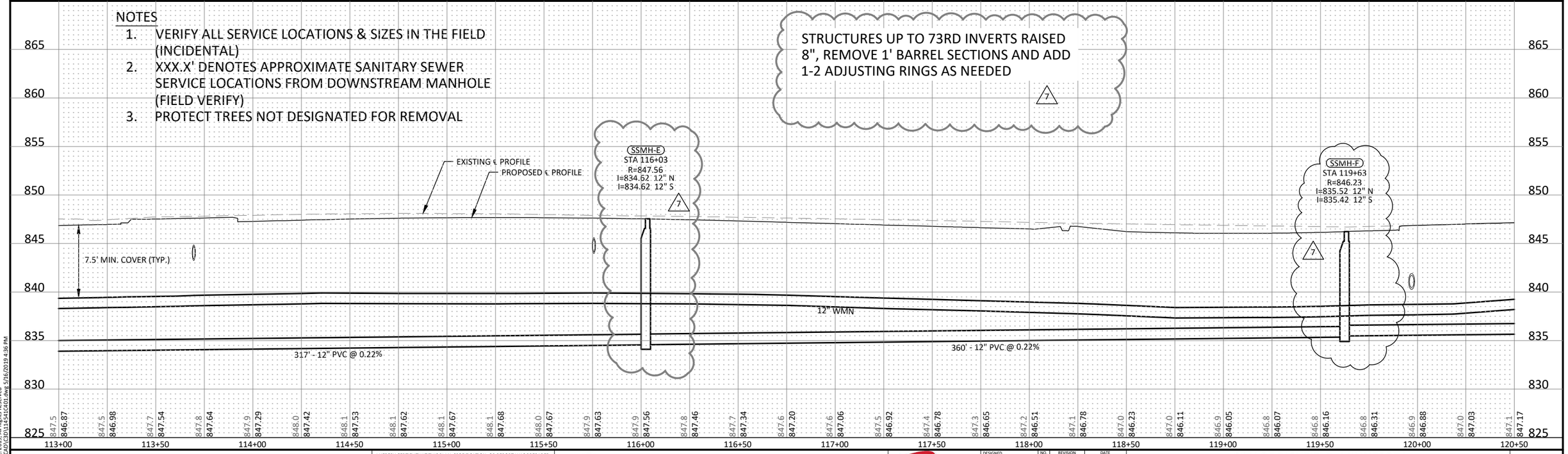
STRUCTURES UP TO 73RD INVERTS RAISED 8", REMOVE 1' BARREL SECTIONS AND ADD 1-2 ADJUSTING RINGS AS NEEDED

7



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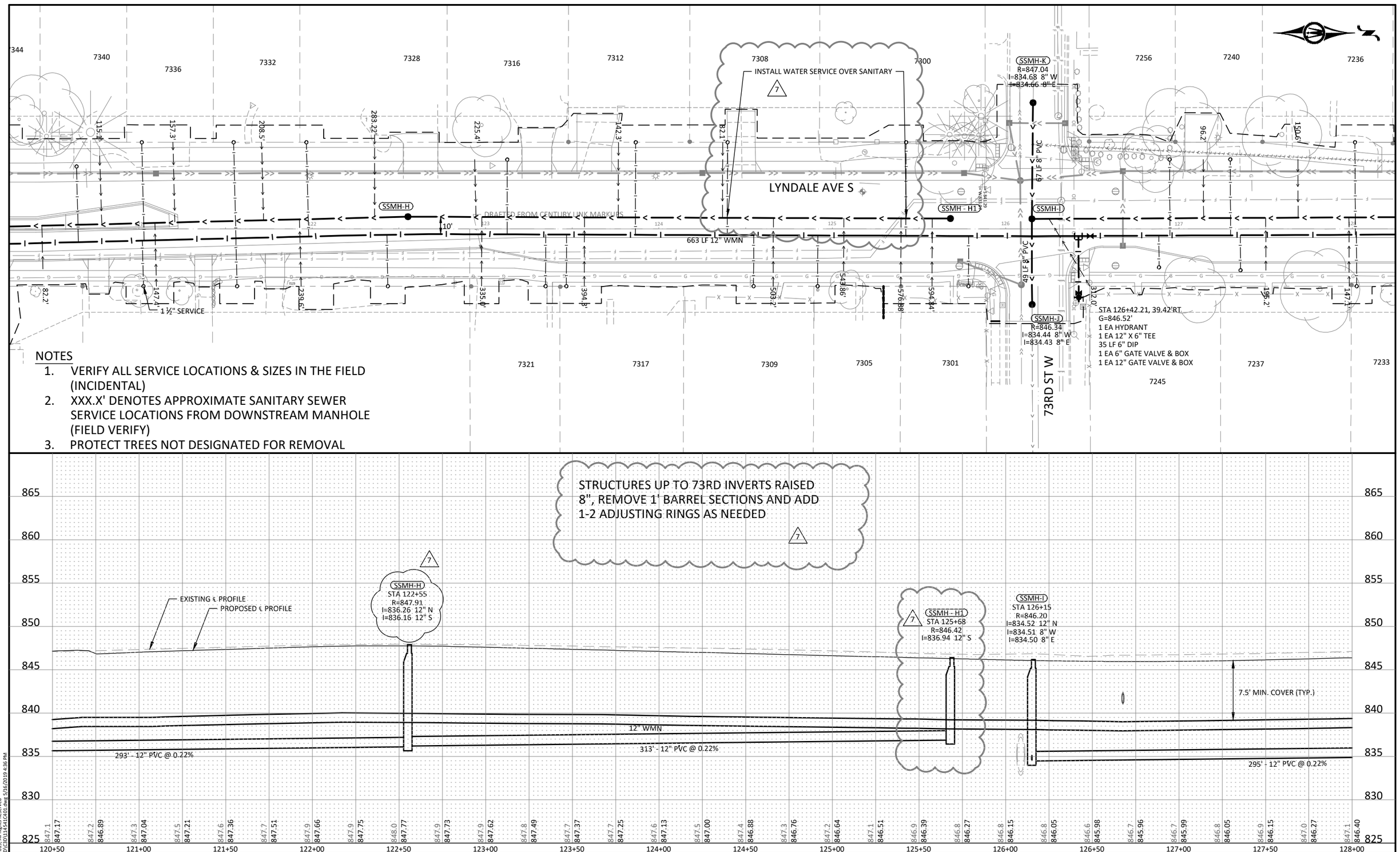
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.02R



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Sarah E. Lloyd

SARAH E. LLOYD

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CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.03R

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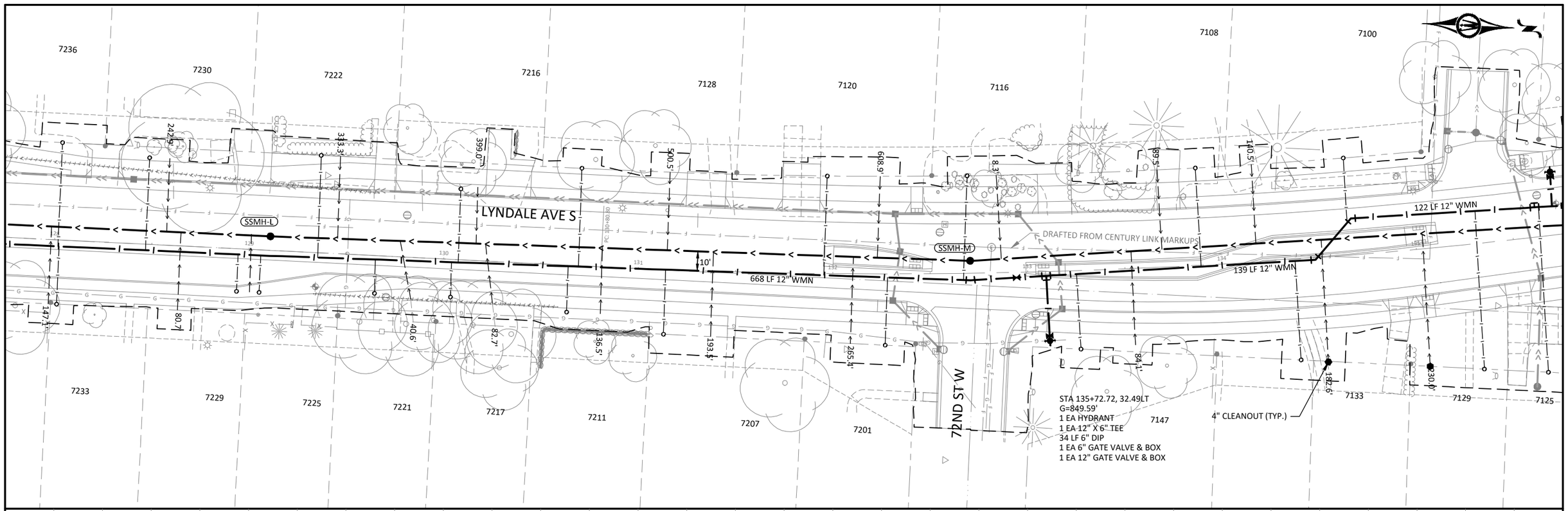

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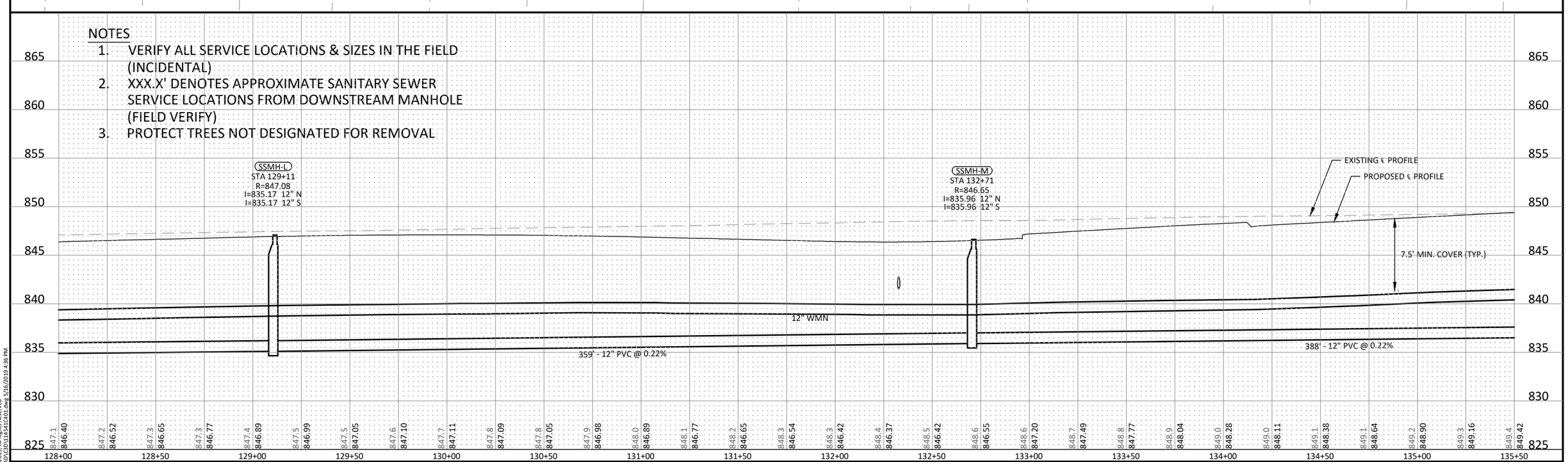

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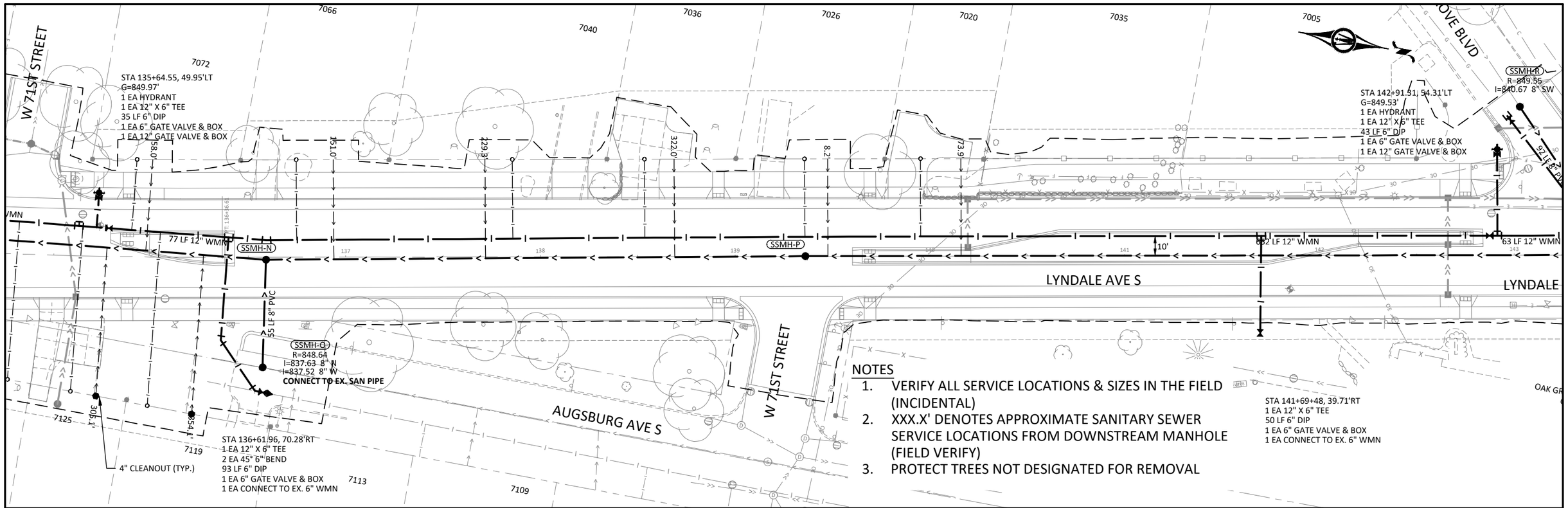
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.04



HORZ. SCALE 0 25 50 FEET
VERT. SCALE 0 5 10 FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SARAH E. LLOYD
LIC. NO. 46636 DATE 2/19/19

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BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

Richfield — The Urban Hometown

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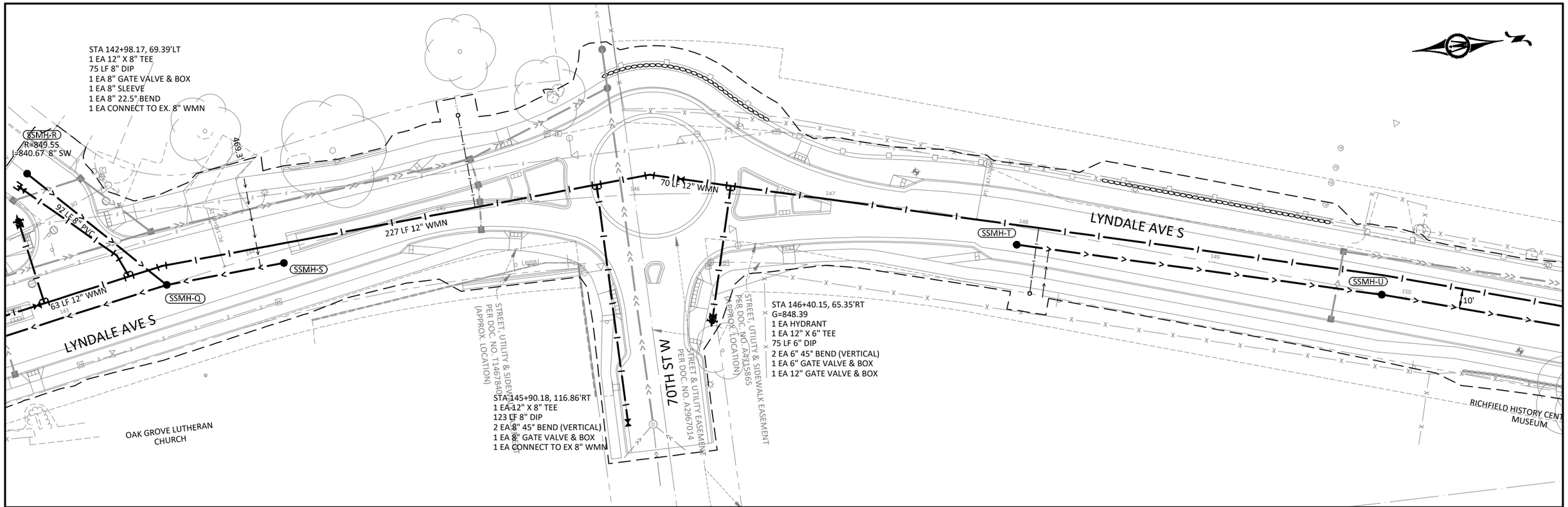
CHECKED SL			
CLIENT PROJ. NO. T16114541			

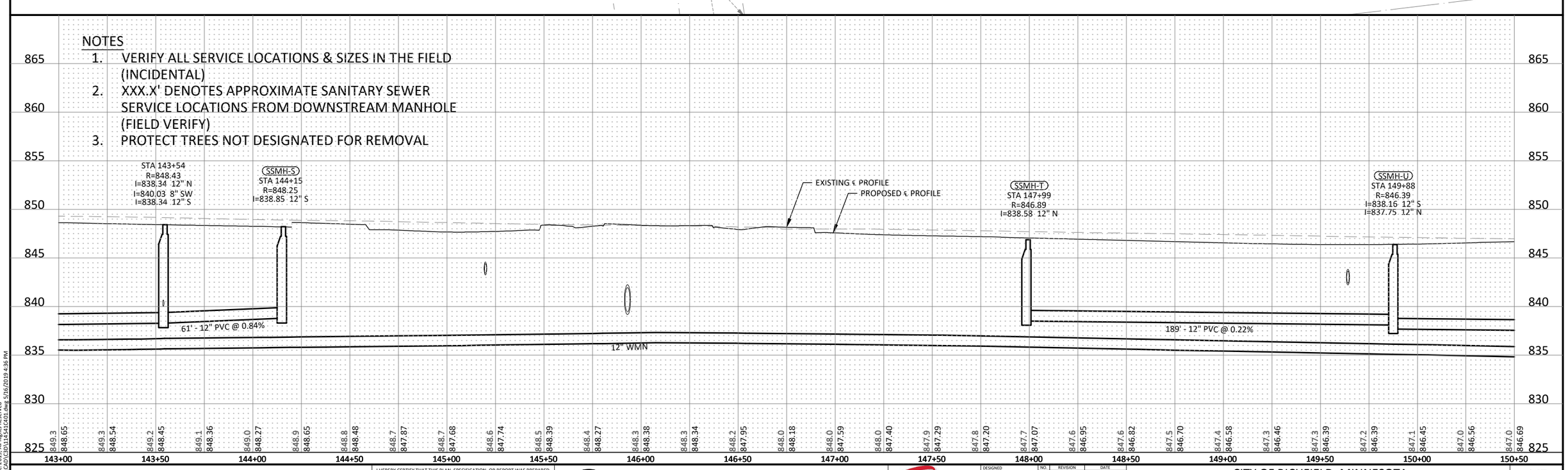
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.05



NOTES

1. VERIFY ALL SERVICE LOCATIONS & SIZES IN THE FIELD (INCIDENTAL)
2. XXX.X' DENOTES APPROXIMATE SANITARY SEWER SERVICE LOCATIONS FROM DOWNSTREAM MANHOLE (FIELD VERIFY)
3. PROTECT TREES NOT DESIGNATED FOR REMOVAL



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VERT. 0 5 10 SCALE FEET

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Sarah E. Lloyd

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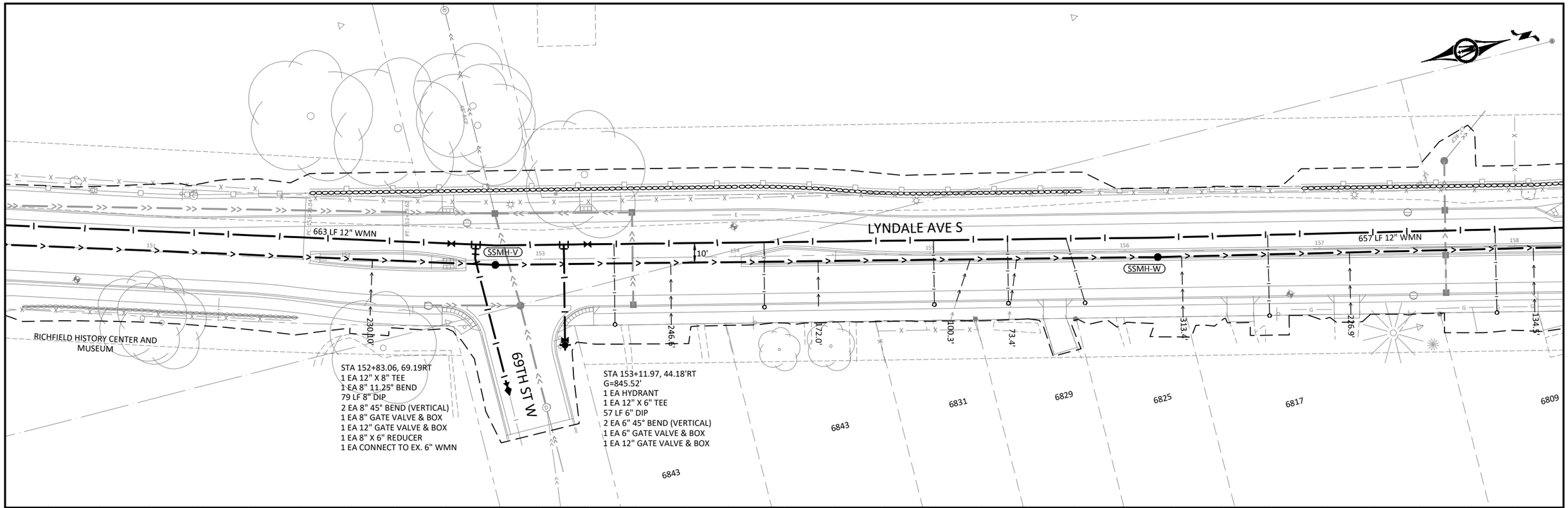
CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.06



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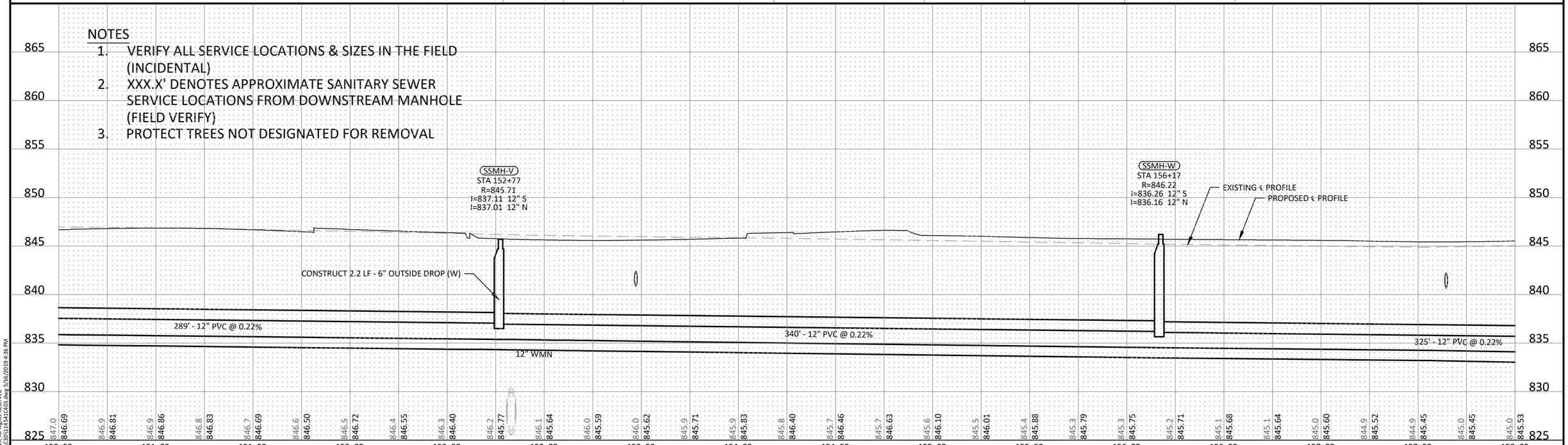

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CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.07

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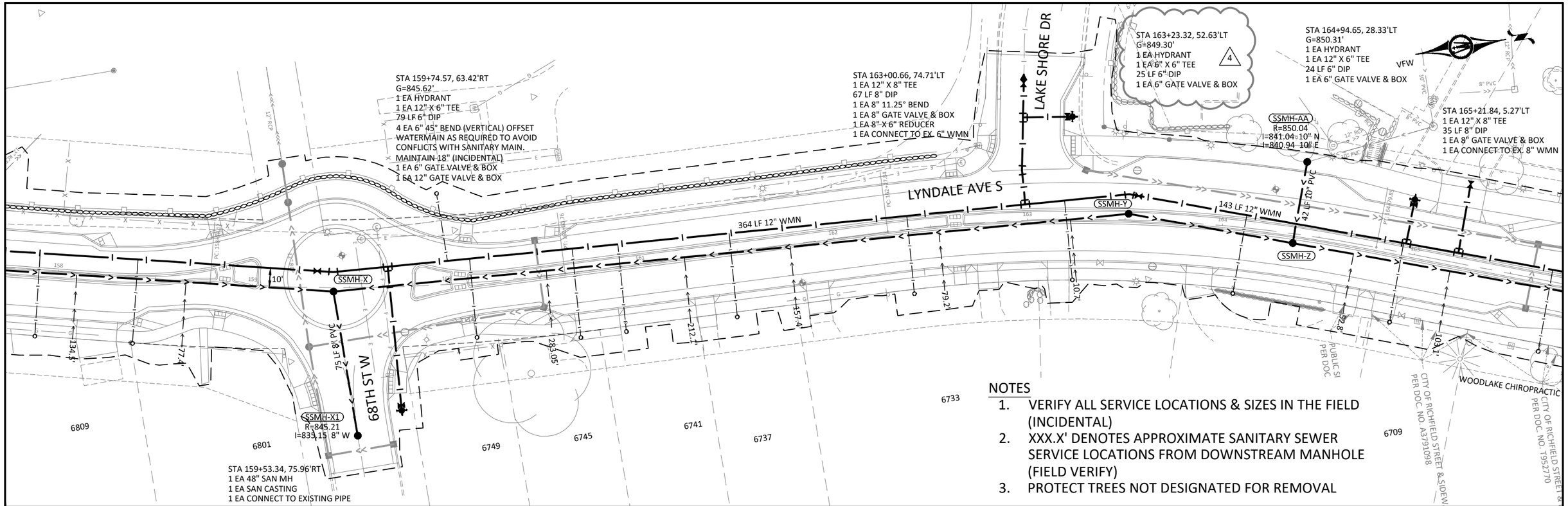

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VERT. 0 5 10 SCALE FEET

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.08R

STA 167+34.52, 20.98'LT
G=850.23'
1 EA HYDRANT
1 EA 12" X 6" TEE
15 LF 6" DIP
1 EA 6" GATE VALVE & BOX
1 EA 12" GATE VALVE & BOX

STA 168+13.25, 4.13'LT
1 EA 12" X 4" TEE
46 LF 4" DIP
1 EA REDUCER 4" X 3"
1 EA 4" GATE VALVE & BOX
1 EA CONNECT TO EX. 3" WMN

STA 168+09.97, 4.20'LT
1 EA 12" X 6" TEE
46 LF 6" DIP
1 EA 6" GATE VALVE & BOX
1 EA CONNECT TO EX. 6" WMN

STA 170+40.69, 55.07'LT
G=849.58'
1 EA HYDRANT
1 EA 12" X 6" TEE
44 LF 6" DIP
1 EA 6" GATE VALVE & BOX

STA 171+25.67,11.47'LT
1 EA CONNECT TO EX. 12" WMN
(12" GATE VALVE INSTALLED IN 2018. TEST AGAINST VALVE.)

CITY BELLA

FAIRCHILD MADDOX & LEONIDAS

LYNDALE AVE S

196 LF 12" WMN

10'

SSMH-BB

DRAFTED FROM CENTURY LINK MARKUPS

310 LF 12" WMN

SSMH-CC

85 LF 12" WMN

SSMH-DD

66TH ST W

182.9'

WOODLAKE CHIROPRACTIC

CITY OF RICHFIELD STREET & HIGHWAY PER DOC. NO. T952770

67TH ST W

244.5'

MCDONALDS

560.4'

564.7'

BMO HARRIS BANK

HIGHWAY EASEMENT PER DOC (NOTE, DID NOT FIND FINAL BE RECORDED YET)

NOTES

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3. PROTECT TREES NOT DESIGNATED FOR REMOVAL

SSMH-BB
STA 166+63
R=850.53
I=838.62 10" S
I=838.52 10" N

SSMH-CC
STA 168+82
R=849.62
I=837.80 10" S
I=837.80 10" NE

SSMH-DD
STA 170+62
R=847.92
I=837.26 10" SW
I=837.26 8" N - CONNECT TO EXISTING PIPE

EXISTING ℄ PROFILE

PROPOSED ℄ PROFILE

7.5' MIN. COVER (TYP.)

12" WMN

226' - 10" PVC @ 0.33%

219' - 10" PVC @ 0.33%

181' - 10" PVC @ 0.30%

2 EA 12" 45° BEND (VERTICAL)

2 EA 12" 45° BEND (VERTICAL)

LOWER WATERMAIN AS REQUIRED TO AVOID CONFLICTS WITH SANITARY MAIN. MAINTAIN MINIMUM OF 18" OF SEPARATION (INCIDENTAL)

865 860 855 850 845 840 835 830 825

850.2 850.15 | 850.2 850.18 | 850.4 850.42 | 850.5 850.47 | 850.7 850.66 | 850.5 850.45 | 850.2 850.24 | 849.7 849.71 | 849.4 849.41 | 849.6 849.61 | 848.9 848.90 | 848.8 848.78 | 848.6 848.56 | 848.3 848.31 | 848.1 848.10 | 848.0 847.98 | 847.9 847.93 | 848.5 848.49 | 848.6 848.59 | 848.7 848.65

165+50 166+00 166+50 167+00 167+50 168+00 168+50 169+00 169+50 170+00 170+50 171+00 171+50 172+00 172+50 173+00

HORZ. 0 25 50 SCALE FEET

VERT. 0 5 10 SCALE FEET

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SANITARY SEWER AND WATER PLAN AND PROFILE

SHEET C4.09

1 EA CONNECT TO EXISTING DRAINAGE STRUCTURE

EXMH 1

12" RCP

CB 1A

CB 2D

CB 2B

12" RCP

DRAFTED FROM CENTURY LINK MARKUPS

CBMH 2A

12" RCP

CBMH 2C

EXMH 2

12" RCP

CB 3B

15" RCP

CBMH 3A

15" RCP

MH 3

MH 3H

CB 3G

12" RCP

18" RCP

76TH ST W

7

CBMH 2A
STA 107+01
R=847.08
I=841.70 12" W
I=841.60 12" N
I=841.60 12" S

CB 2B
STA 106+97
R=847.00
I=841.81 12" E

23'
12" RCP
@ 0.50%

EXMH 1
STA 106+57
R=846.67
I=841.76 12" N
I=843.02 12" NW
I=843.03 12" SW
I=841.77 12" E

CB 1A
STA 107+03
R=846.71
I=842.00 12" S

47'
12" RCP
@ 0.50%

CB 3B
STA 112+54
R=846.69
I=843.30 15" E

CBMH 3A
STA 112+54
R=846.77
I=842.93 15" W
I=842.83 15" N

49'
15" RCP
@ 0.75%

12" DIP WM

MH 3H
STA 113+16
R=846.03
I=841.60 18" W
I=841.90 12" N
I=841.85 12" S
I=841.50 18" E

CB 3G
STA 112+95
R=846.25
I=842.25 12" N

CB 3I
STA 113+25
R=846.11
I=842.11 12" S

20'
12" RCP
@ 1.99%

10'
12" RCP
@ 2.13%

*SEE C5.02 FOR PLAN VIEW

MH 3
STA 113+16
R=846.42
I=842.96 15" N
I=842.50 15" S
I=841.72 18" E

MH 3H
STA 113+16
R=846.03
I=841.60 18" W
I=841.90 12" N
I=841.85 12" S
I=841.50 18" E

24'
18" RCP
@ 0.50%

*SEE C5.02 FOR PLAN VIEW

EXMH 2
STA 106+57
R=846.58
I=841.10 12" N
I=841.11 12" W
I=843.58 15" S
I=841.09 18" E

CBMH 2A
STA 107+01
R=847.08
I=841.70 12" W
I=841.60 12" N
I=841.60 12" S

47'
12" RCP
@ 1.06%

CBMH 2C
STA 108+18
R=847.06
I=842.83 12" NW
I=842.23 12" S

117' - 12" RCP @ 0.54%

CB 2D
STA 108+42
R=847.26
I=843.26 12" SE

62' - 12" RCP @ 0.70%

EXISTING GRADE

PROPOSED GRADE

CBMH 3A
STA 112+54
R=846.77
I=842.93 15" W
I=842.83 15" N

61' - 15" RCP @ 0.54%

HORZ. SCALE 0 25 50 FEET

VERT. SCALE 0 5 10 FEET

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TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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Richfield The Urban Hometown

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CHECKED TL/SL			
CLIENT PROJ. NO. T16114541			

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STORM SEWER PLAN AND PROFILE

SHEET C5.01R

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DOC. NO. T2809377

75TH ST W

CB 3F

CB 3D

15" RCP

DRAFTED FROM CENTURY LINK MARKUPS

113 114 115 116 117 118

15" RCP MH 3 15" RCP CBMH 3C 15" RCP STMH 3E

MH 3H

CB 3G 12" RCP 12" RCP CB 3I

2 EA CONNECT TO EXISTING DRAINAGE STRUCTURE

18" RCP

EXCB 3

18" RCP

CITY OF RICHFIELD EASEMENT

1 EA CONNECT TO EXISTING STORM PIPE

CBMH 4G

CBMH 4I 15" RCP 15" RCP 21" RCP

CBMH 4J

STMH 4H

15" RCP 21" RCP

CB 4K

12" RCP

24" RCP

CBMH 4

Pit 119402.99

15" RCP

CBMH 4A

CB 4F

5

15" RCP

CBMH 4B

15" RCP

CBMH 4D 15" RCP CBMH 4C

LYNDALE AVE S

74TH ST W

CB 3D
STA 113+70
R=847.09
I=843.58 15" E

CBMH 3C
STA 113+70
R=846.72
I=843.33 15" W
I=843.33 15" N
I=843.23 15" S

50'
15" RCP
@ 0.50%

12" DIP WM

CB 3F
STA 115+78
R=847.00
I=844.41 15" E

STMH 3E
STA 115+75
R=847.81
I=844.09 15" W
I=844.09 15" S

81' - 15" RCP @ 0.39%

12" DIP WM

CB 4F
STA 119+05
R=847.05
I=842.66 12" W

CB 4K
STA 119+05
R=846.06
I=842.16 12" E
I=842.06 15" NW

CBMH 4J
STA 119+31
R=847.05
I=841.81 15" SE
I=841.71 15" N

CBMH 4I
STA 119+45
R=845.79
I=841.57 15" S
I=841.47 15" N

STMH 4H
STA 119+54
R=845.84
I=840.71 18" W
I=841.38 15" S
I=840.71 21" N

CBMH 4G
STA 119+81
R=845.75
I=840.48 21" S
I=840.38 24" NE

CBMH 4
STA 120+09
R=846.52
I=840.18 15" E
I=840.18 24" SW
I=840.08 24" N

5

25'
12" RCP
@ 2.01%

34'
15" RCP
@ 0.74%

15'
15" RCP
@ 0.98%

9'
15" RCP
@ 1.03%

27'
21" RCP
@ 0.86%

36'
24" RCP
@ 0.55%

CBMH 4C
STA 119+81
R=845.72
I=840.92 15" S
I=840.82 15" W

CBMH 4D
STA 119+45
R=845.43
I=841.10 15" N

CBMH 4B
STA 119+81
R=846.15
I=840.67 15" E
I=840.57 15" NW

CBMH 4A
STA 120+08
R=846.65
I=840.41 15" SE
I=840.31 15" W

CBMH 4
STA 120+09
R=846.52
I=840.18 15" E
I=840.18 24" SW
I=840.08 24" N

5

36'
15" RCP
@ 0.50%

25'
15" RCP
@ 0.51%

32'
15" RCP
@ 0.50%

25'
15" RCP
@ 0.50%

MH 3
STA 113+16
R=846.42
I=842.96 15" N
I=842.50 15" S
I=841.72 18" E

CBMH 3C
STA 113+70
R=846.72
I=843.33 15" W
I=843.33 15" N
I=843.23 15" S

54'
15" RCP
@ 0.50%

STMH 3E
STA 115+75
R=847.81
I=844.09 15" W
I=844.09 15" S

205' - 15" RCP @ 0.37%

EXISTING GRADE

PROPOSED GRADE

CBMH 4
STA 120+09
R=846.52
I=840.18 15" E
I=840.18 24" SW
I=840.08 24" N

875 870 865 860 855 850 845 840 835

847.5 847.53 847.5 847.45 847.7 847.74 847.8 847.83 847.9 847.92 848.0 848.02 848.1 848.07 848.1 848.11 848.1 848.10 848.1 848.08 848.0 848.00 847.9 847.92 847.9 847.86 847.8 847.80 847.7 847.72 847.6 847.64 847.6 847.56 847.5 847.47 847.4 847.38 847.3 847.29 847.2 847.19 847.1 847.10 847.0 847.03 847.0 846.95 846.9 846.89 846.8 846.82 846.8 846.75 846.8 846.77 846.9 846.89 847.0 847.00 847.1 847.12

113+00 113+50 114+00 114+50 115+00 115+50 116+00 116+50 117+00 117+50 118+00 118+50 119+00 119+50 120+00 120+50

HORZ. 0 25 50 SCALE FEET

VERT. 0 5 10 SCALE FEET

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CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

STORM SEWER PLAN AND PROFILE

SHEET C5.02R

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TO EXISTING

24" RCP

CBMH 5I

24" RCP

CBMH 5H

24" RCP

CBMH 5G

27" RCP

STMH 5

CBMH 5E

1 EA CONNECT TO EXISTING STORM PIPE

12" RCP

CB 5F

12" RCP

21" RCP

CBMH 5C

21" RCP

12" RCP

CB 5D

48" RCP

12" RCP

CB 5B

MH 5A

LYNDALE AVE S

73RD ST W

1 EA CONNECT TO EXISTING STORM PIPE

DRAFTED FROM CENTURY LINK MARKUPS

121 122 123 124 125 126 127 128

CB 5F
STA 126+34
R=846.61
I=842.60 12" S

CBMH 5E
STA 126+02
R=846.69
I=842.44 12" N
I=842.34 12" E

STMH 5
STA 126+08
R=846.23
I=833.10 48" E
I=836.41 21" N
I=842.17 12" W
I=836.00 27" S
I=833.00 48" W

33'
12" RCP
@ 0.50%

34'
12" RCP
@ 0.50%

7

CB 5B
STA 125+74
R=845.90
I=840.00 12" N

MH 5A
STA 126+09
R=846.07
I=833.10 48" E
I=839.81 12" S
I=833.40 48" W

STMH 5
STA 126+08
R=846.23
I=833.10 48" E
I=836.41 21" N
I=842.17 12" W
I=836.00 27" S
I=833.00 48" W

38'
12" RCP
@ 0.50%

12" DIP WM

60' - EX 48" RCP @ 0.50%

CBMH 5C
STA 126+68
R=846.49
I=838.30 21" N
I=841.06 12" E
I=837.00 21" S

CB 5D
STA 126+68
R=845.77
I=841.27 12" W

43'
12" RCP
@ 0.49%

12" DIP WM

CBMH 5I
STA 121+10
R=847.15
I=839.37 24" S
I=839.27 24" N

101' - 24" RCP @ 0.70%

315' - 24" RCP @ 0.59%

CBMH 5H
STA 124+25
R=847.04
I=837.40 24" S
I=837.30 24" N

151' - 24" RCP @ 0.70%

CBMH 5G
STA 125+76
R=846.30
I=836.25 24" S
I=836.15 27" N

33'
27" RCP
@ 0.46%

STMH 5
STA 126+08
R=846.23
I=833.10 48" E
I=836.41 21" N
I=842.17 12" W
I=836.00 27" S
I=833.00 48" W

59'
21" RCP
@ 1.00%

CBMH 5C
STA 126+68
R=846.49
I=838.30 21" N
I=841.06 12" E
I=837.00 21" S

EXISTING GRADE

PROPOSED GRADE

171' - 21" RCP @ 0.50%

870 865 860 855 850 845 840 835 830

847.1 847.12 | 847.2 847.22 | 847.3 847.34 | 847.5 847.48 | 847.6 847.61 | 847.7 847.74 | 847.9 847.85 | 847.9 847.90 | 848.0 847.96 | 847.9 847.93 | 847.9 847.89 | 847.8 847.82 | 847.7 847.74 | 847.7 847.66 | 847.6 847.58 | 847.5 847.50 | 847.4 847.41 | 847.3 847.31 | 847.2 847.19 | 847.1 847.06 | 846.9 846.91 | 846.8 846.79 | 846.8 846.82 | 846.8 846.78 | 846.6 846.57 | 846.7 846.70 | 846.7 846.75 | 846.8 846.83 | 846.9 846.90 | 847.0 847.01 | 847.1 847.11

120+50 121+00 121+50 122+00 122+50 123+00 123+50 124+00 124+50 125+00 125+50 126+00 126+50 127+00 127+50 128+00

HORZ. 0 25 50 SCALE FEET

VERT. 0 5 10 SCALE FEET

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TIM LAMKIN JR.

LIC. NO. 47099 DATE 2/19/19

BOLTON & MENK

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BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

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TL/SL			
CLIENT PROJ. NO.			
T16114541			

CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

STORM SEWER PLAN AND PLOT

SHEET C5.03R

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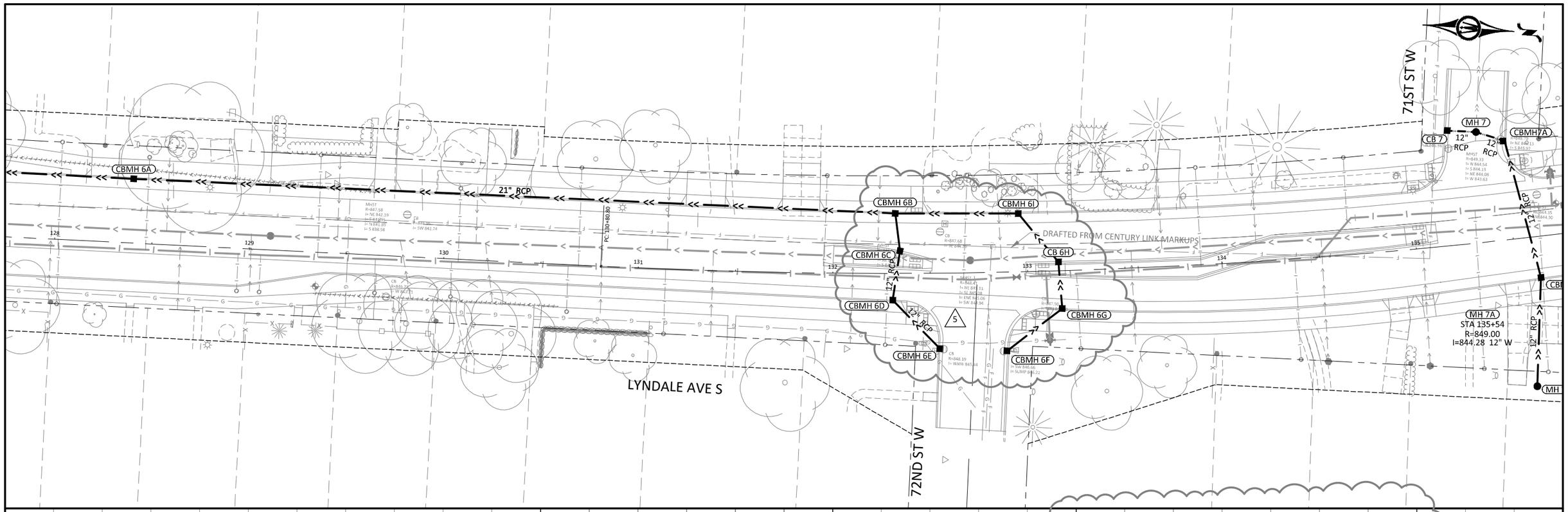

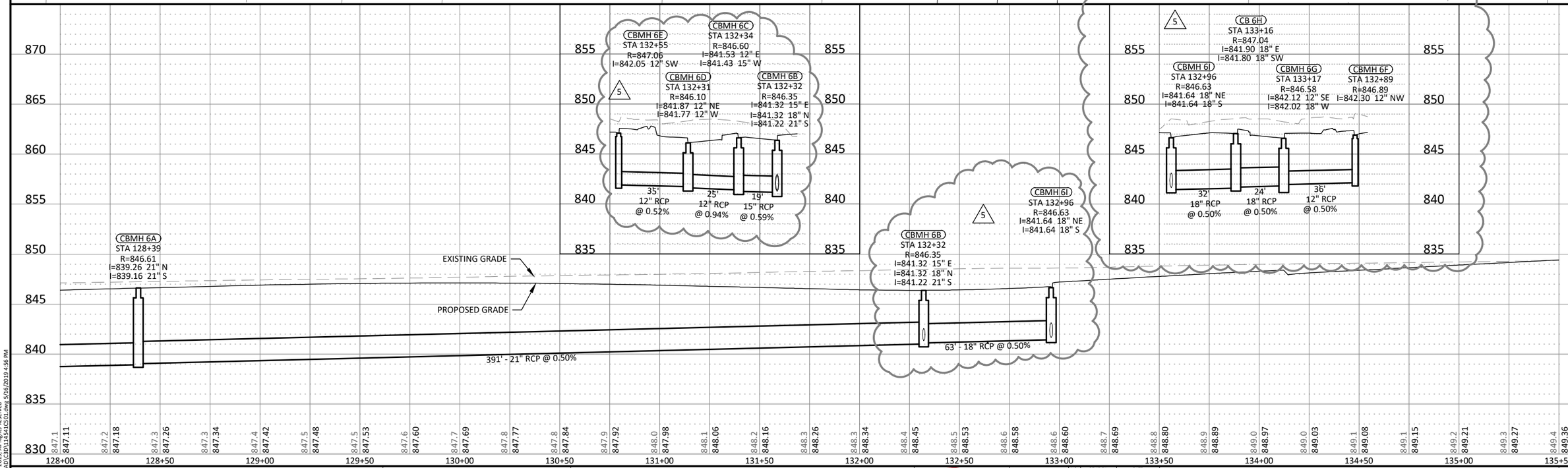

HORZ. SCALE 0 25 50 FEET

VERT. SCALE 0 5 10 FEET

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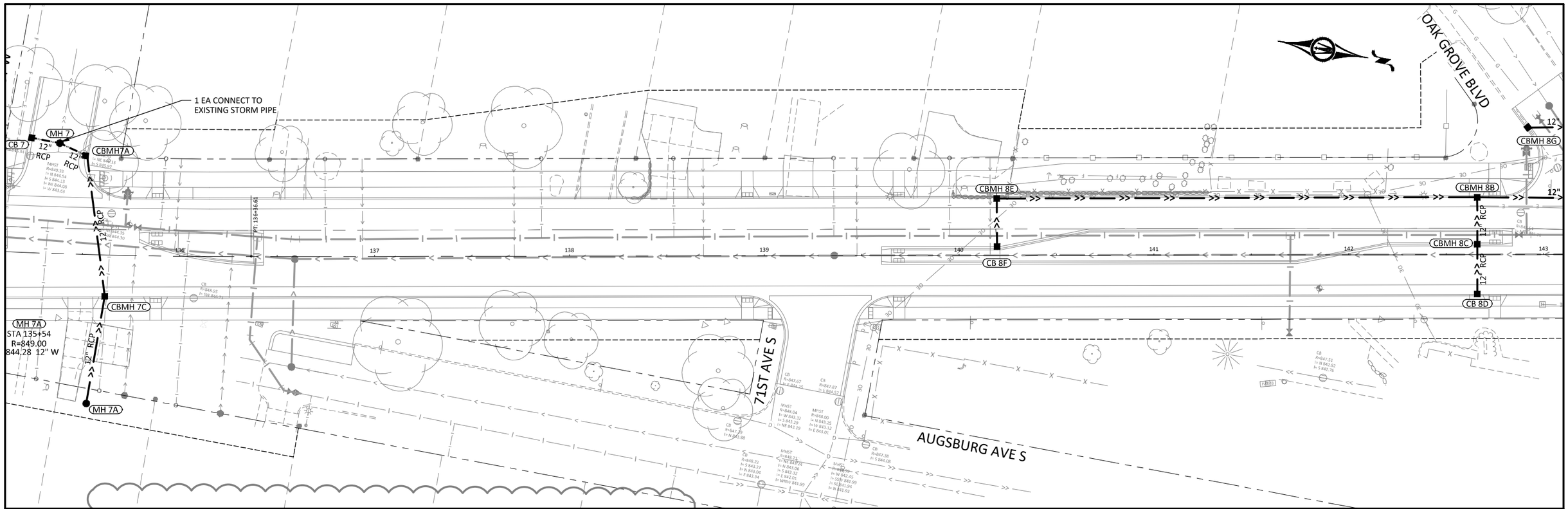
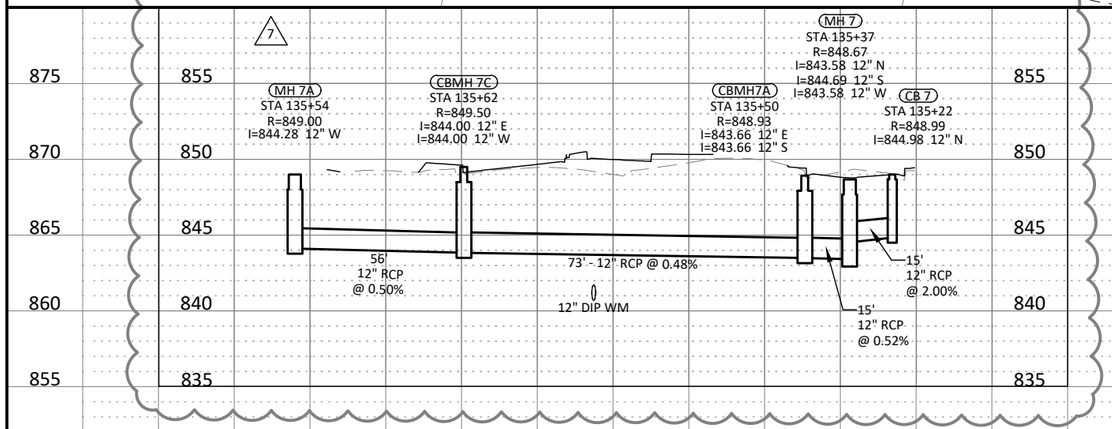
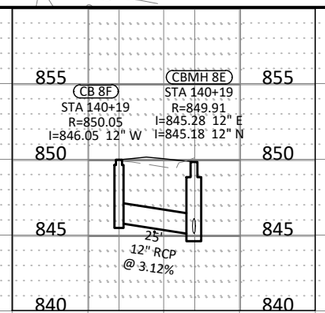
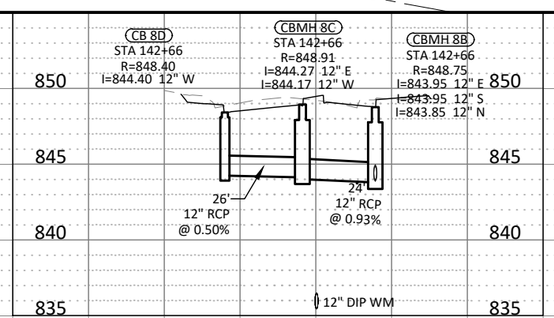
STORM SEWER PLAN AND PROFILE

SHEET C5.04R









135+50 136+00 136+50 137+00 137+50 138+00 138+50 139+00 139+50 140+00 140+50 141+00 141+50 142+00 142+50 143+00

HORZ. 0 25 50 SCALE FEET

VERT. 0 5 10 SCALE FEET

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STORM SEWER PLAN AND PLOT

SHEET C5.05R

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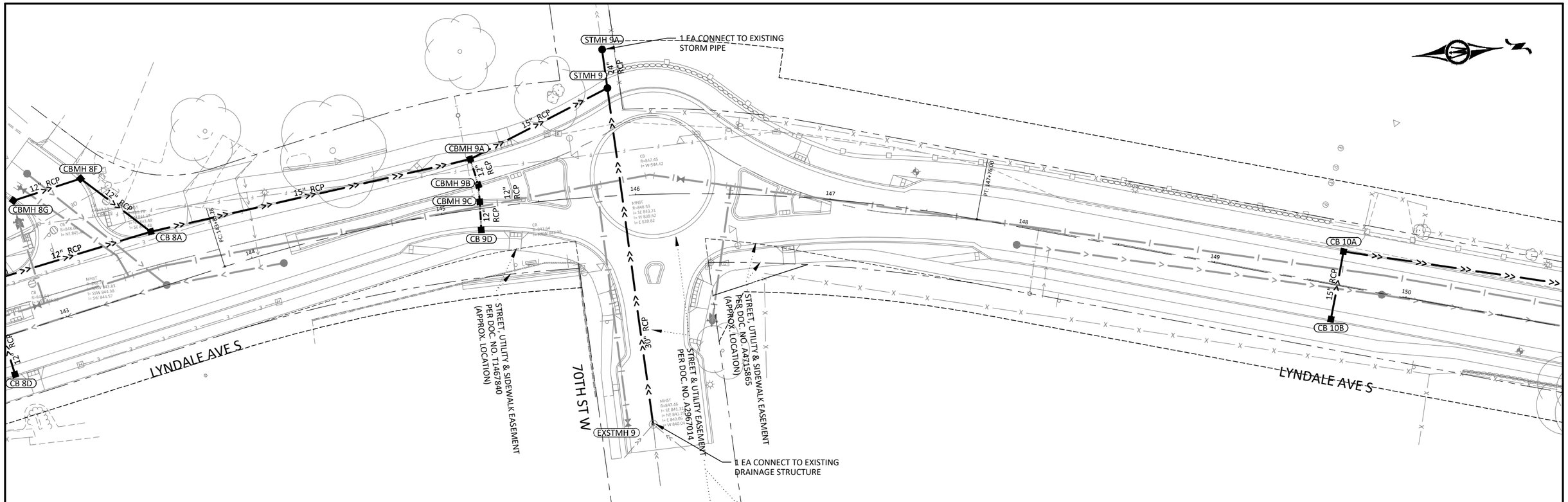

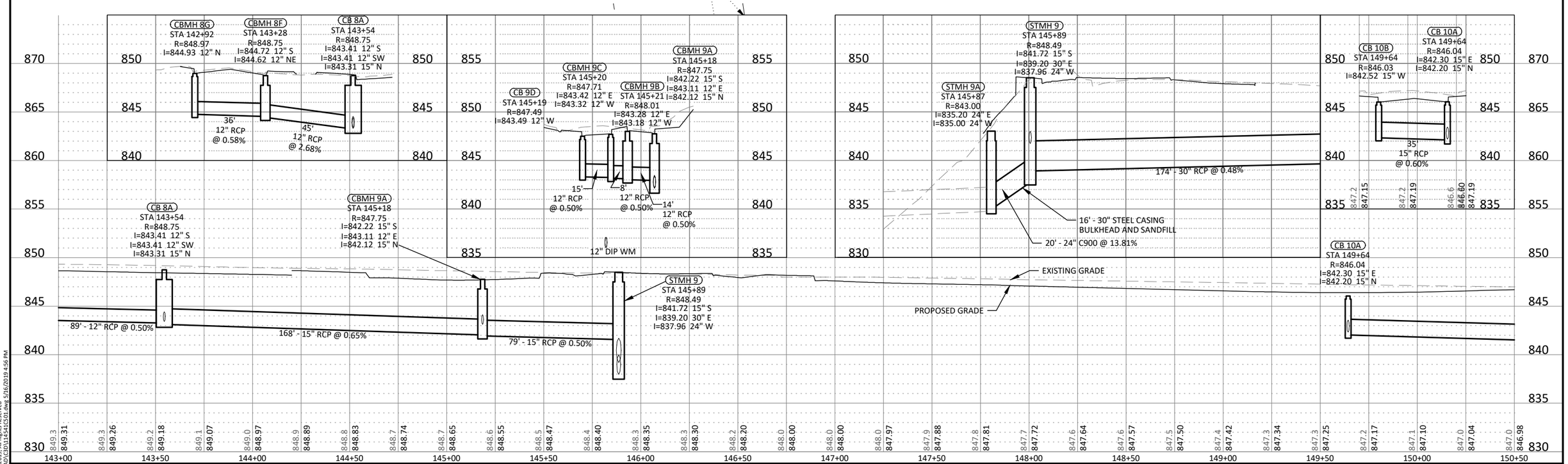

HORZ. SCALE 0 25 50 FEET
VERT. SCALE 0 5 10 FEET

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STORM SEWER PLAN AND PROFILE

SHEET C5.06

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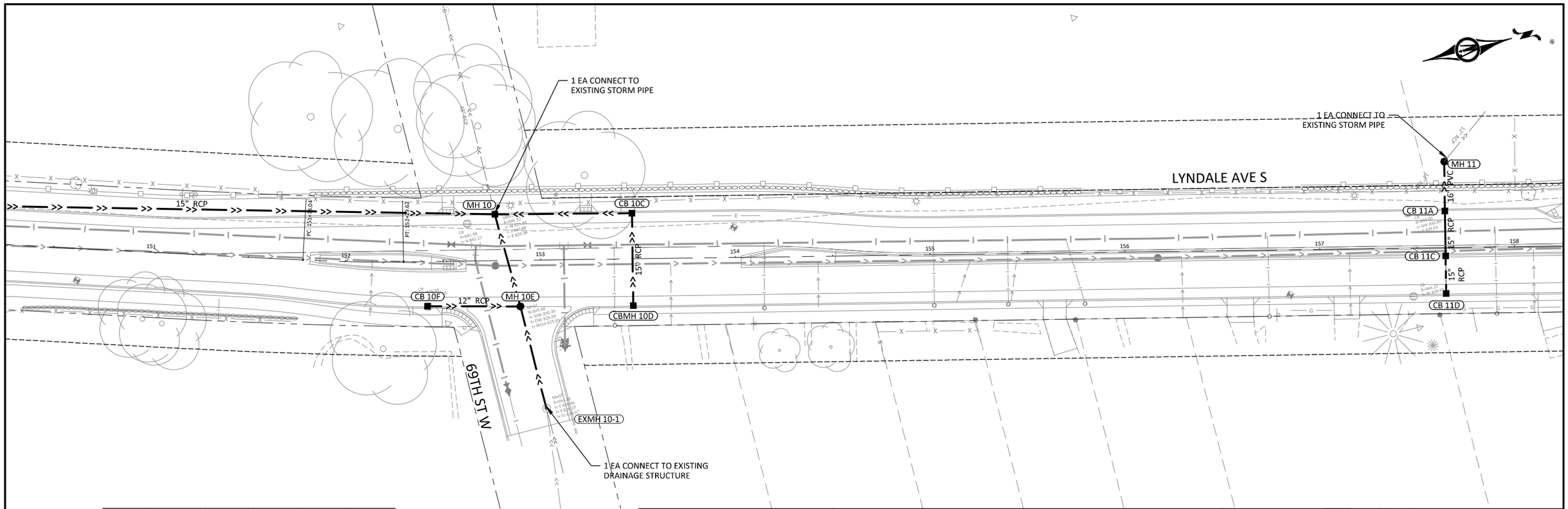

HORZ. SCALE 0 25 50 FEET

VERT. SCALE 0 5 10 FEET

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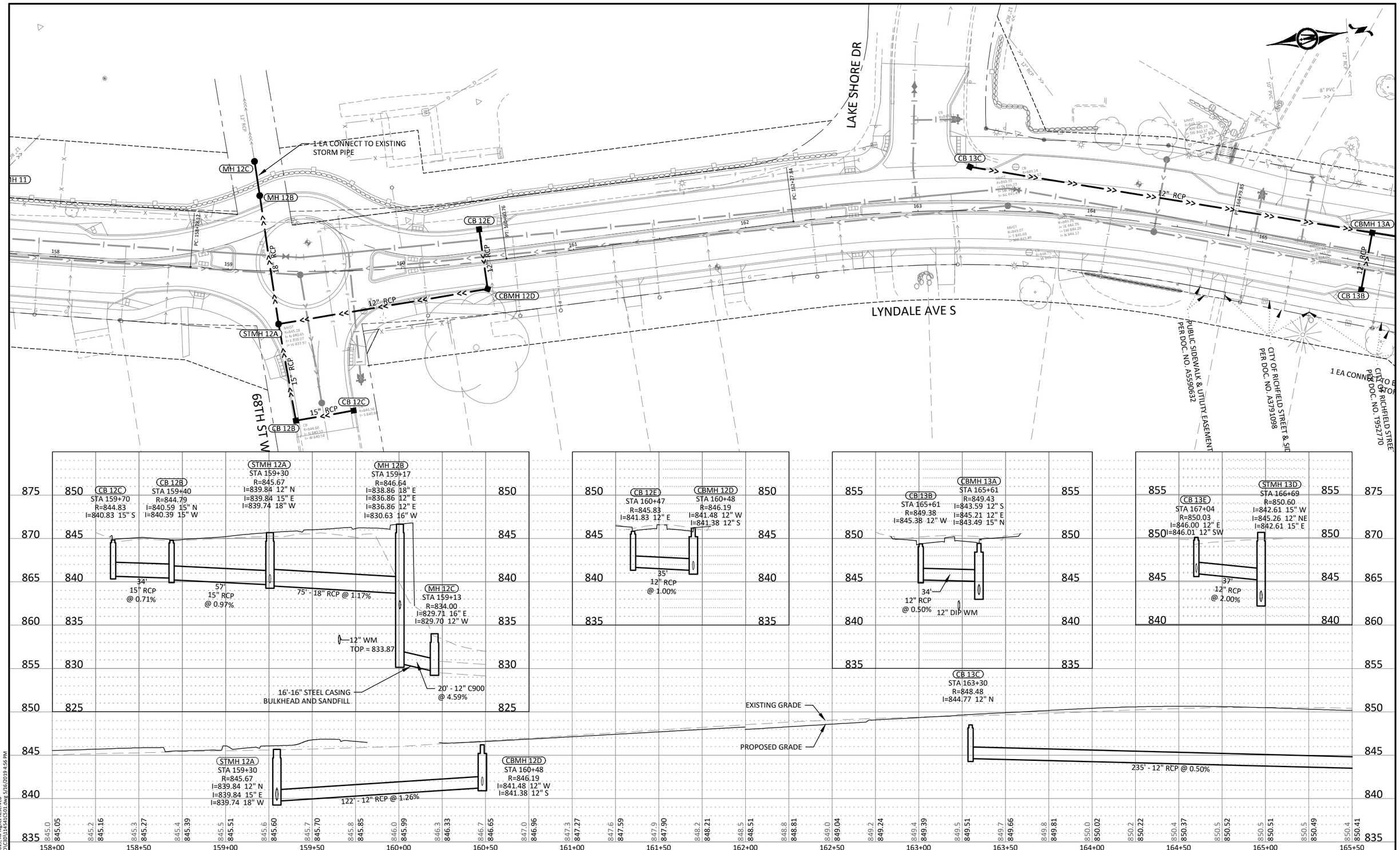
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

STORM SEWER PLAN AND PROFILE

SHEET C5.07



HORZ. SCALE 0 25 50 FEET
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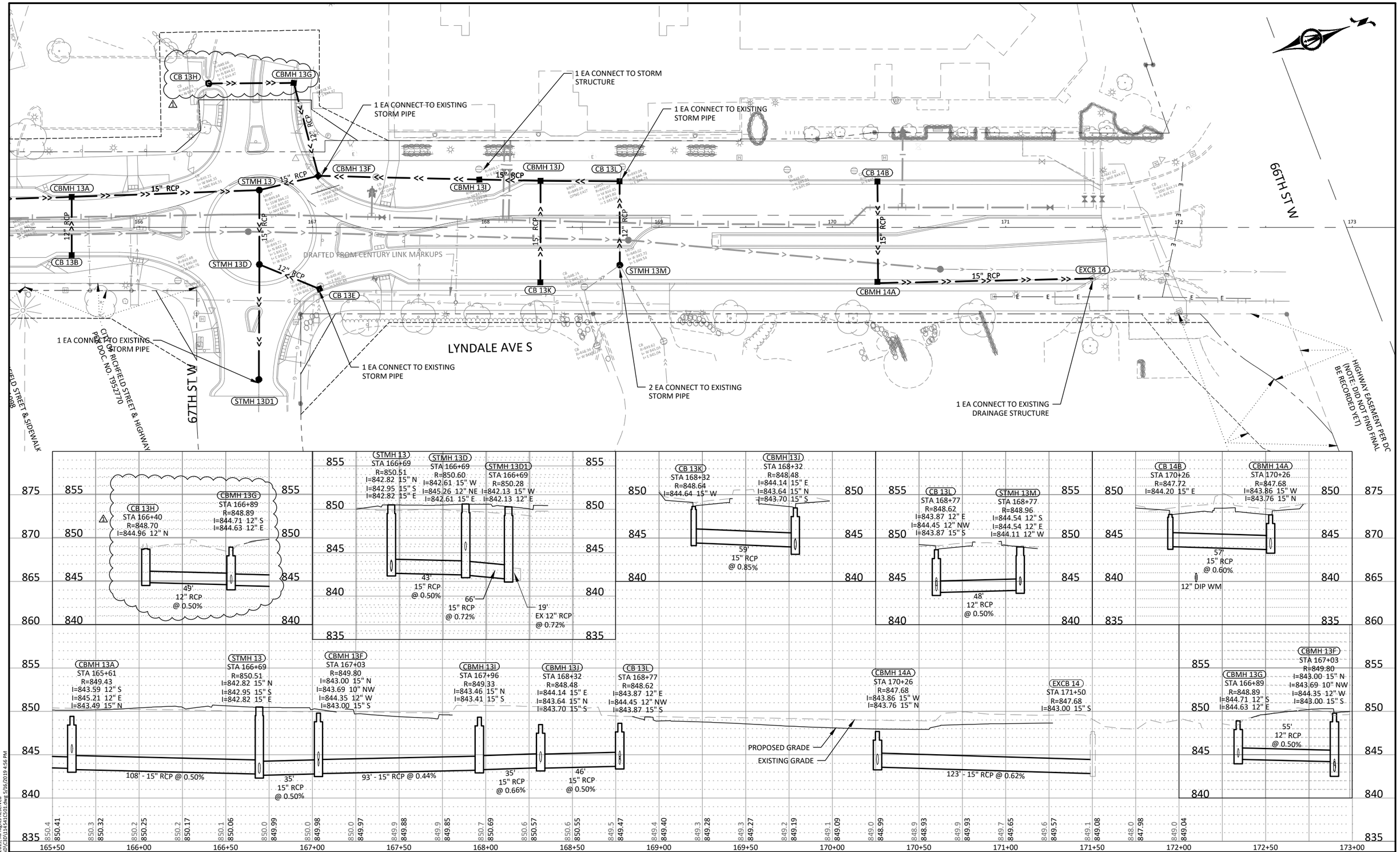
STORM SEWER PLAN AND PROFILE

SHEET C5.08



HORZ. SCALE 0 25 50 FEET

VERT. SCALE 0 5 10 FEET

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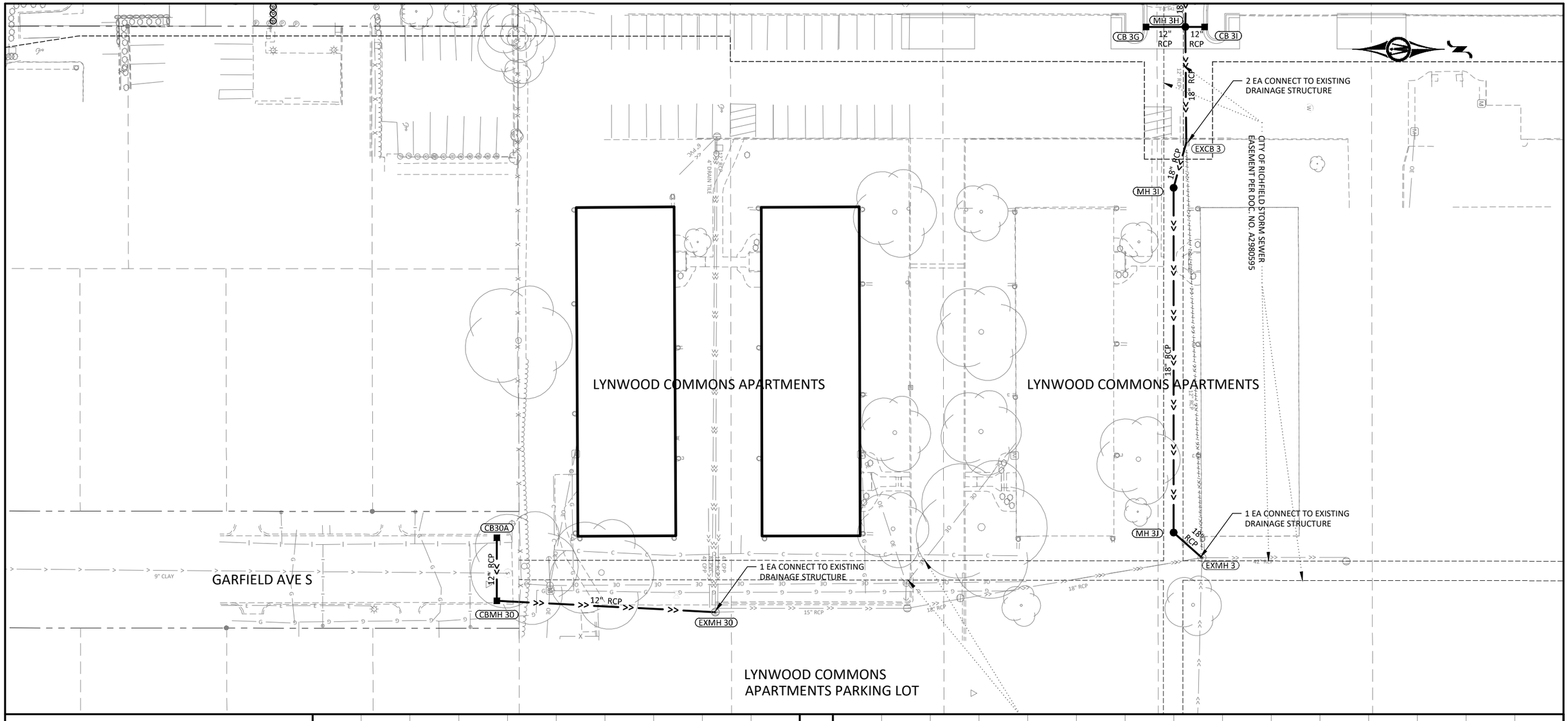
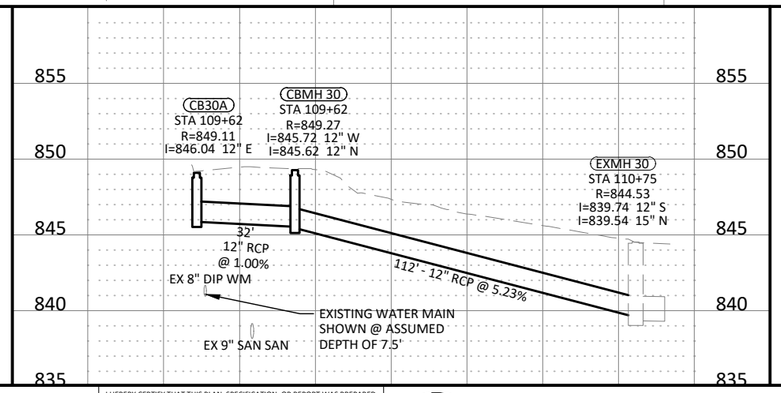
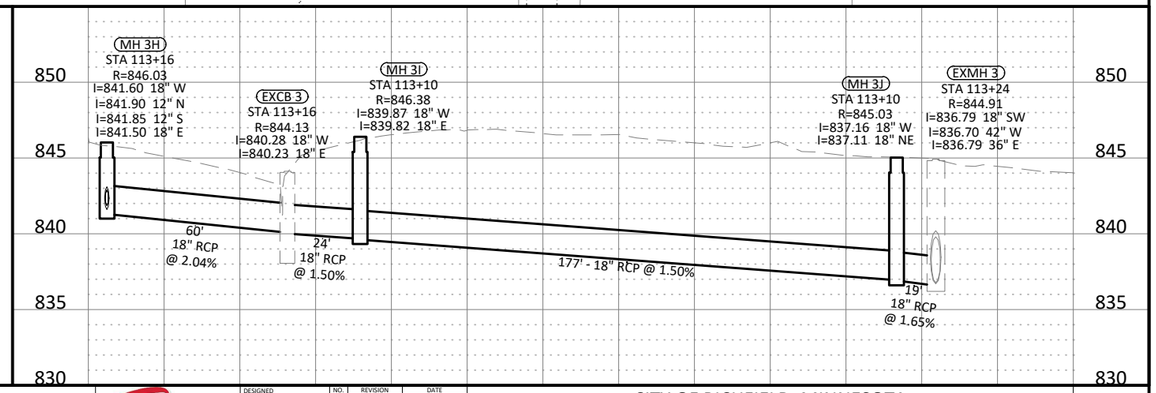
STORM SEWER PLAN AND PROFILE

SHEET C5.09R







HORZ. 0 25 50 SCALE FEET
VERT 0 5 10 SCALE FEET

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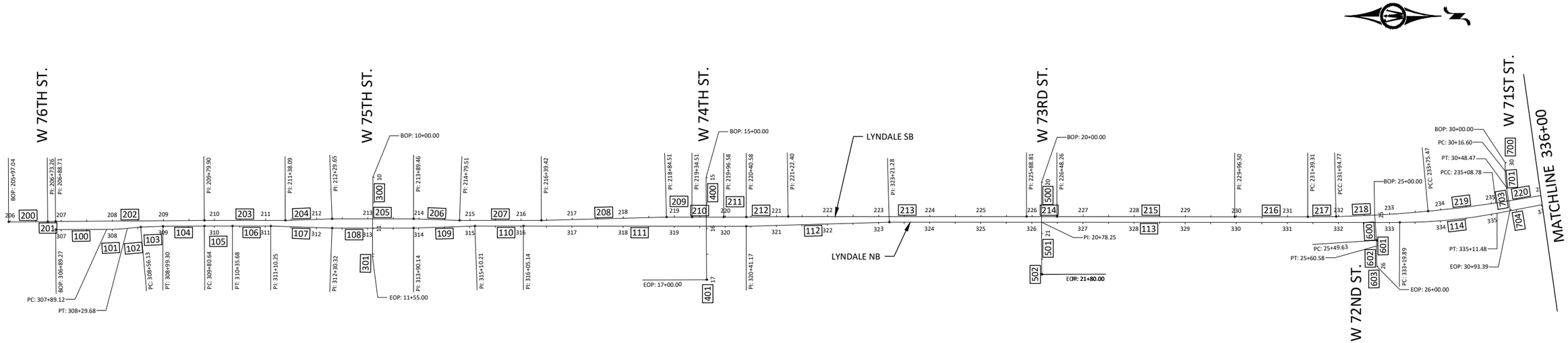
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STORM SEWER PLAN AND PROFILE

SHEET C5.10



LYNDALE NB												
POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
100	BOP	306+89.27	307+89.12	99.85				127173.27	524625.17	127273.12	524624.46	359° 35' 15.87"
101	PC	307+89.12	308+29.68	40.56	4° 38' 52.02"	500.00	40.55	127273.12	524624.46	127313.62	524622.52	357° 15' 49.86"
102	PT	308+29.68	308+56.13	26.45				127313.62	524622.52	127339.97	524620.19	354° 56' 23.85"
103	PC	308+56.13	308+99.30	43.17	4° 56' 49.98"	500.00	43.16	127339.97	524620.19	127383.09	524618.24	357° 24' 48.85"
104	PT	308+99.30	309+80.64	81.34				127383.09	524618.24	127464.42	524618.08	359° 53' 13.84"
105	PC	309+80.64	310+35.68	55.03	0° 26' 16.63"	7200.00	55.03	127464.42	524618.08	127519.46	524617.89	359° 48' 24.19"
106	PT	310+35.68	311+10.25	74.58				127519.46	524617.89	127594.03	524617.93	0° 01' 32.51"
107	PI	311+10.25	312+30.32	120.07				127594.03	524617.93	127714.03	524621.98	1° 56' 05.78"
108	PI	312+30.32	313+90.14	159.82				127714.03	524621.98	127873.85	524622.05	0° 01' 32.83"
109	PI	313+90.14	315+10.21	120.06				127873.85	524622.05	127993.85	524618.11	358° 06' 59.92"
110	PI	315+10.21	316+05.14	94.93				127993.85	524618.11	128088.78	524618.15	0° 01' 32.57"
111	PI	316+05.14	320+41.17	436.04				128088.78	524618.15	128524.82	524618.34	0° 01' 32.35"
112	PI	320+41.17	323+21.28	280.11				128524.82	524618.34	128804.82	524610.47	358° 23' 17.59"
113	PI	323+21.28	333+19.89	998.61				128804.82	524610.47	129803.43	524610.90	0° 01' 30.55"

LYNDALE SB												
POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
200	BOP	205+97.04	206+73.26	76.23				127081.48	524609.83	127157.71	524609.29	359° 35' 15.87"
201	PI	206+73.26	206+88.71	15.45				127157.71	524609.29	127173.16	524609.17	359° 35' 15.87"
202	PI	206+88.71	209+79.90	291.19				127173.16	524609.17	127464.34	524607.08	359° 35' 15.87"
203	PI	209+79.90	211+38.09	158.19				127464.34	524607.08	127622.53	524606.99	359° 58' 03.52"
204	PI	211+38.09	212+29.65	91.56				127622.53	524606.99	127714.04	524603.98	358° 06' 59.88"
205	PI	212+29.65	213+89.46	159.81				127714.04	524603.98	127873.85	524604.05	0° 01' 32.83"
206	PI	213+89.46	214+79.51	90.05				127873.85	524604.05	127963.85	524607.09	1° 56' 05.82"
207	PI	214+79.51	216+39.42	159.91				127963.85	524607.09	128123.76	524607.17	0° 01' 32.66"
208	PI	216+39.42	218+84.51	245.08				128123.76	524607.17	128368.75	524600.28	358° 23' 20.55"
209	PI	218+84.51	219+34.51	50.00				128368.75	524600.28	128418.75	524600.30	0° 01' 32.54"
210	PI	219+34.51	219+96.58	62.07				128418.75	524600.30	128480.83	524600.33	0° 01' 32.42"
211	PI	219+96.58	220+40.58	43.99				128480.83	524600.33	128524.82	524600.34	0° 01' 30.49"
212	PI	220+40.58	221+22.40	81.83				128524.82	524600.34	128606.64	524599.38	359° 19' 25.27"
213	PI	221+22.40	225+88.81	466.41				128606.64	524599.38	129073.05	524599.58	0° 01' 30.68"
214	PI	225+88.81	226+48.26	59.44				129073.05	524599.58	129132.49	524599.61	0° 01' 30.68"
215	PI	226+48.26	229+96.50	348.24				129132.49	524599.61	129480.74	524599.76	0° 01' 30.30"
216	PI	229+96.50	231+39.31	142.81				129480.74	524599.76	129623.55	524599.83	0° 01' 30.64"
217	PC	231+39.31	231+94.77	55.46	1° 15' 30.84"	2525.00	55.46	129623.55	524599.83	129679.01	524599.24	359° 23' 45.22"
218	PCC	231+94.77	233+75.47	180.69	4° 06' 00.61"	2525.00	180.65	129679.01	524599.24	129859.36	524588.89	356° 42' 59.49"
219	PCC	233+75.47	235+08.78	133.32	3° 01' 30.52"	2525.00	133.30	129859.36	524588.89	129991.72	524573.00	353° 09' 13.92"

75TH ST												
POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
300	BOP	10+00	11+55	155.00				127794.41	524522.48	127793.00	524677.47	90° 31' 25.84"
301	EOP	11+55	11+55	0.00				127793.00	524677.47	127793.00	524677.47	90° 31' 25.84"

74TH ST												
POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
400	BOP	15+00	17+00	200.00				128446.42	524522.92	128447.36	524722.92	89° 43' 57.08"
401	EOP	17+00	17+00	0.00				128447.36	524722.92	128447.36	524722.92	89° 43' 57.08"

73RD ST												
POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
500	BOP	20+00	20+78.25	78.25				129102.52	524532.35	129102.58	524610.60	89° 57' 21.03"
501	PI	20+78.25	21+80	101.75				129102.58	524610.60	129103.02	524712.34	89° 45' 00.35"
502	EOP	21+80	21+80	0.00				129103.02	524712.34	129103.02	524712.35	89° 45' 00.35"

72ND ST												
POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
600	BOP	25+00	25+49.63	49.63				129754.78	524596.47	129757.96	524646.00	86° 19' 32.64"
601	PC	25+49.63	25+60.58	10.95	3° 08' 13.01"	200.00	10.95	129757.96	524646.00	129758.36	524656.94	87° 53' 39.15"
602	PT	25+60.58	26+00	39.41				129758.36	524656.94	129758.73	524696.36	89° 27' 45.66"
603	EOP	26+00	26+00	0.00				129758.73	524696.36	129758.73	524696.36	89° 27' 45.66"

71ST ST WEST												
POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
700	BOP	30+00	30+16.60	16.60				130009.92	524494.01	130009.94	524510.60	89° 55' 59.80"
701	PC	30+16.60	30+48.47	31.87	9° 07' 52.10"	200.00	31.84	130009.94	524510.60	130012.51	524542.34	85° 22' 03.75"
703	PT	30+48.47	30+93.39	44.91				130012.51	524542.34	130019.69	524586.68	80° 48' 07.70"
704	EOP	30+93.39	30+93.39	0.00				130019.69	524586.68	130019.69	524586.68	80° 48' 07.70"

HORZ. SCALE 0 100 200 FEET

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Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

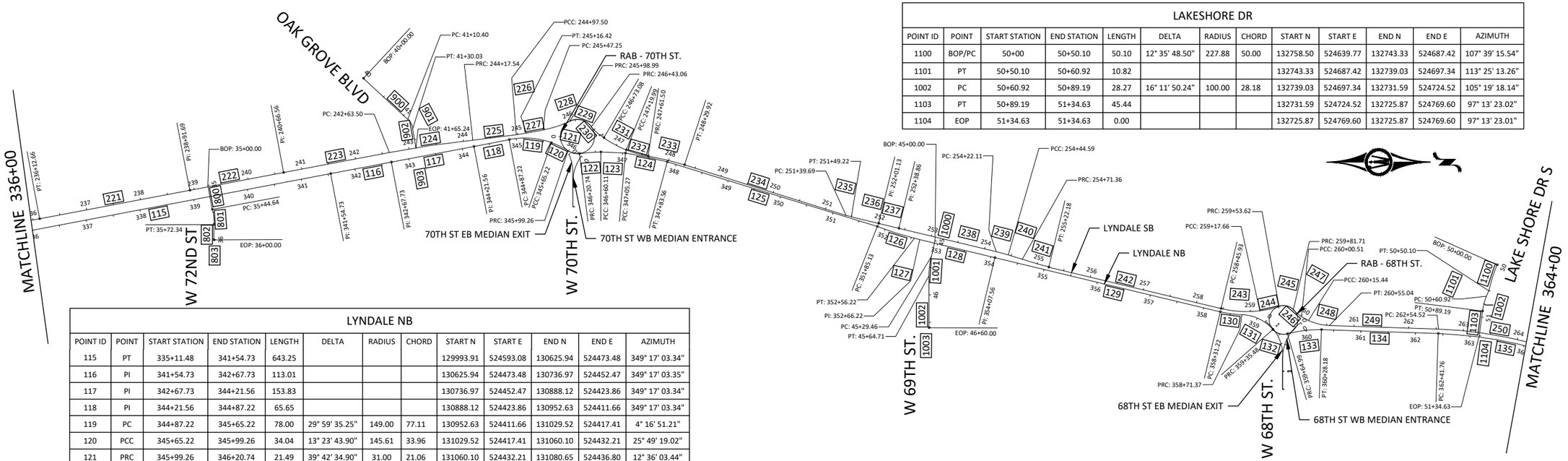
Richfield — The Urban Hometown

DESIGNED ZP/TL/SL
DRAWN ZP/JW
CHECKED TL/SL
CLIENT PROJ. NO. T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
ALIGNMENT PLAN & TABULATION

SHEET C6.01



LAKESHORE DR

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
1100	BOP/PC	50+00	50+50.10	50.10	12° 35' 48.50"	227.88	50.00	132758.50	524639.77	132743.33	524687.42	107° 39' 15.54"
1101	PT	50+50.10	50+60.92	10.82				132743.33	524687.42	132739.03	524697.34	113° 25' 13.26"
1002	PC	50+60.92	50+89.19	28.27	16° 11' 50.24"	100.00	28.18	132739.03	524697.34	132731.59	524724.52	105° 19' 18.14"
1103	PT	50+89.19	51+34.63	45.44				132731.59	524724.52	132725.87	524769.60	97° 13' 23.02"
1104	EOP	51+34.63	51+34.63	0.00				132725.87	524769.60	132725.87	524769.60	97° 13' 23.01"

LYNDALE NB

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
115	PT	335+11.48	341+54.73	643.25				129993.91	524593.08	130625.94	524473.48	349° 17' 03.34"
116	PI	341+54.73	342+67.73	113.01				130625.94	524473.48	130736.97	524452.47	349° 17' 03.35"
117	PI	342+67.73	344+21.56	153.83				130736.97	524452.47	130888.12	524423.86	349° 17' 03.34"
118	PI	344+21.56	344+87.22	65.65				130888.12	524423.86	130952.63	524411.66	349° 17' 03.34"
119	PC	344+87.22	345+65.22	78.00	29° 59' 35.25"	149.00	77.11	130952.63	524411.66	131029.52	524417.41	4° 16' 51.21"
120	PCC	345+65.22	345+99.26	34.04	13° 23' 43.90"	145.61	33.96	131029.52	524417.41	131060.10	524432.21	25° 49' 19.02"
121	PRC	345+99.26	346+20.74	21.49	39° 42' 34.90"	31.00	21.06	131060.10	524432.21	131080.65	524436.80	12° 36' 03.44"
122	PRC	346+20.74	346+60.11	39.36	7° 26' 12.93"	303.28	39.34	131080.65	524436.80	131119.90	524434.24	356° 16' 19.76"
123	PCC	346+60.11	347+05.27	45.16	5° 10' 30.47"	500.00	45.15	131119.90	524434.24	131165.00	524436.23	2° 31' 29.17"
124	PCC	347+05.27	347+83.56	78.29	7° 13' 46.36"	620.45	78.24	131165.00	524436.23	131241.60	524452.17	11° 45' 18.60"
125	PI	347+83.56	351+85.13	401.57				131241.60	524452.17	131625.50	524569.97	17° 03' 29.96"
126	PC	351+85.13	352+56.22	71.09	8° 08' 48.15"	500.00	71.03	131625.50	524569.97	131693.22	524591.43	17° 34' 54.24"
127	PT	352+56.22	352+66.22	10.00				131693.22	524591.43	131702.94	524593.76	13° 30' 30.17"
128	PI	352+66.22	354+07.56	141.33				131702.94	524593.76	131840.36	524626.78	13° 30' 30.17"
129	PI	354+07.56	358+31.22	423.67				131840.36	524626.78	132252.31	524725.74	13° 30' 30.17"
130	PC	358+31.22	358+71.37	40.15	11° 13' 18.29"	205.00	40.09	132252.31	524725.74	132292.02	524731.25	7° 53' 51.02"
131	PRC	358+71.37	359+35.48	64.11	46° 29' 47.92"	79.00	62.37	132292.02	524731.25	132348.29	524758.13	25° 32' 05.84"
132	PRC	359+35.48	359+64.99	29.50	65° 01' 03.90"	26.00	27.95	132348.29	524758.13	132375.12	524765.96	16° 16' 27.85"
133	PRC	359+64.99	360+28.18	63.20	18° 11' 43.43"	199.00	62.93	132375.12	524765.96	132437.56	524758.14	352° 51' 47.62"
134	PT	360+28.18	362+41.76	213.58				132437.56	524758.14	132651.01	524765.45	1° 57' 39.33"
135	PC	362+41.76	364+93.73	251.97	18° 58' 35.01"	760.78	250.82	132651.01	524765.45	132896.83	524815.28	11° 27' 33.75"

LYNDALE SB

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
220	PCC	235+08.78	236+12.66	103.87	2° 21' 25.32"	2525.00	103.87	129991.72	524573.00	130094.15	524555.79	350° 27' 46.00"
221	PT	236+12.66	238+91.69	279.03				130094.15	524555.79	130368.31	524503.91	349° 17' 03.34"
222	PI	238+91.69	240+66.56	174.87				130368.31	524503.91	130540.13	524471.40	349° 17' 03.34"
223	PI	240+66.56	242+63.50	196.94				130540.13	524471.40	130733.63	524434.78	349° 17' 03.34"
224	PC	242+63.50	244+17.54	154.05	4° 31' 31.85"	1950.31	154.01	130733.63	524434.78	130886.05	524412.71	351° 45' 32.95"
225	PRC	244+17.54	244+97.50	79.96	2° 20' 57.42"	1950.00	79.95	130886.05	524412.71	130965.37	524402.67	352° 47' 34.40"
226	PCC	244+97.50	245+16.42	18.93	2° 07' 19.37"	511.00	18.92	130965.37	524402.67	130984.04	524399.57	350° 33' 26.00"
227	PT	245+16.42	245+47.25	30.83				130984.04	524399.57	131014.35	524393.95	349° 29' 46.32"
228	PC	245+47.25	245+98.99	51.74	14° 53' 48.91"	199.00	51.59	131014.35	524393.95	131063.43	524378.05	342° 02' 51.87"
229	PRC	245+98.99	246+43.06	44.07	81° 26' 45.68"	31.00	40.45	131063.43	524378.05	131102.45	524388.74	15° 19' 20.25"
230	PRC	246+43.06	246+73.08	30.02	19° 21' 43.81"	88.83	29.88	131102.45	524388.74	131125.25	524408.03	40° 14' 19.54"
231	PCC	246+73.08	247+19.99	46.91	13° 26' 15.36"	200.00	46.80	131125.25	524408.03	131166.38	524430.36	28° 29' 31.75"
232	PCC	247+19.99	247+61.50	41.51	11° 53' 32.54"	200.00	41.44	131166.38	524430.36	131206.25	524441.66	15° 49' 37.80"
233	PRC	247+61.50	248+29.92	68.42	9° 34' 27.16"	409.44	68.34	131206.25	524441.66	131272.68	524457.68	13° 33' 29.59"
234	PT	248+29.92	251+39.69	309.78				131272.68	524457.68	131568.35	524550.10	17° 21' 30.84"
235	PC	251+39.69	251+49.22	9.53	6° 06' 31.08"	89.36	9.52	131568.35	524550.10	131577.61	524552.34	13° 35' 25.33"
236	PT	251+49.22	252+01.13	51.91				131577.61	524552.34	131628.08	524564.47	13° 30' 30.17"
237	PI	252+01.13	252+38.86	37.73				131628.08	524564.47	131664.76	524573.28	13° 30' 30.17"
238	PI	252+38.86	254+22.11	183.25				131664.76	524573.28	131842.95	524616.08	13° 30' 30.17"
239	PC	254+22.11	254+44.59	22.49	2° 34' 17.58"	501.00	22.48	131842.95	524616.08	131864.68	524621.85	14° 51' 32.45"
240	PCC	254+44.59	254+71.36	26.77	3° 03' 41.87"	501.00	26.77	131864.68	524621.85	131890.18	524629.98	17° 40' 32.17"
241	PRC	254+71.36	255+22.18	50.82	5° 41' 52.93"	511.00	50.80	131890.18	524629.98	131938.92	524644.28	16° 21' 26.64"
242	PI	255+22.18	258+45.93	323.74				131938.92	524644.28	132253.71	524719.91	13° 30' 30.17"
243	PC	258+45.93	259+17.66	71.73	20° 39' 07.66"	199.00	71.34	132253.71	524719.91	132324.94	524723.87	3° 10' 56.34"
244	PCC	259+17.66	259+53.62	35.96	10° 21' 16.11"	199.00	35.91	132324.94	524723.87	132360.03	524716.20	347° 40' 44.45"
245	PRC	259+53.62	259+81.71	28.09	61° 53' 50.60"	26.00	26.74	132360.03	524716.20	132386.04	524722.42	13° 27' 01.70"
246	PRC	259+81.71	260+00.51	18.80	10° 52' 52.16"	99.00	18.77	132386.04	524722.42	132400.64	524734.23	38° 57' 30.91"
247	PCC	260+00.51	260+15.44	14.93	8° 38' 35.21"	99.00	14.92	132400.64	524734.23	132413.66	524741.51	29° 11' 47.22"
248	PCC	260+15.44	260+55.04	39.59	22° 54' 50.29"	99.00	39.33	132413.66	524741.51	132451.92	524750.63	13° 25' 04.47"
249	PT	260+55.04	262+54.52	199.49				132451.92	524750.63	132651.29	524757.46	1° 57' 39.33"
250	PC	262+54.52	265+00.97	246.45	18° 24' 20.41"	767.18	245.39	132651.29	524757.46	132892.03	524804.97	11° 09' 49.54"

71ST ST EAST

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
800	BOP	35+00	35+44.64	44.64				130401.26	524495.13	130409.56	524539.00	79° 17' 03.34"
801	PC	35+44.64	35+72.34	27.69	10° 34' 43.29"	150.00	27.66	130409.56	524539.00	130412.18	524566.53	84° 34' 24.99"
802	PT	35+72.34	36+00	27.66				130412.18	524566.53	130412.25	524594.19	89° 51' 46.63"
803	EOP	36+00	36+00	0.00				130412.25	524594.19	130412.25	524594.19	89° 51' 46.63"

OAK GROVE BLVD

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
900	BOP	40+00	41+10.40	110.40				130685.83	524299.60	130766.65	524374.80	42° 56' 13.60"
901	PC	41+10.40	41+30.03	19.64	37° 30' 00.81"	30.00	19.29	130766.65	524374.80	130775.80	524391.78	61° 41' 14.01"
902	PT	41+30.03	41+65.24	35.20				130775.80	524391.78	130781.65	524426.50	80° 26' 14.41"
903	EOP	41+65.24	41+65.24	0.00				130781.65	524426.50	130781.65	524426.50	80° 26' 14.25"

69TH ST

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
1000	BOP	45+00	45+29.46	29.46				131731.02	524596.07	131724.10	524624.71	103° 34' 23.66"
1001	PC	45+29.46	45+64.71	35.25	13° 27' 50.68"	150.00	35.17	131724.10	524624.71	131719.91	524659.63	96° 50' 28.32"
1002	PT	45+64.71	46+60	95.30				131719.91	524659.63	131719.73	524754.92	270° 06' 32.98"
1003	EOP	46+60	46+60	0.00				131719.73	524754.92	131719.73	524754.92	90° 06' 32.98"

HORZ. SCALE 0 100 200 FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

TIM LAMKIN JR. LIC. NO. 47099 DATE 2/19/19

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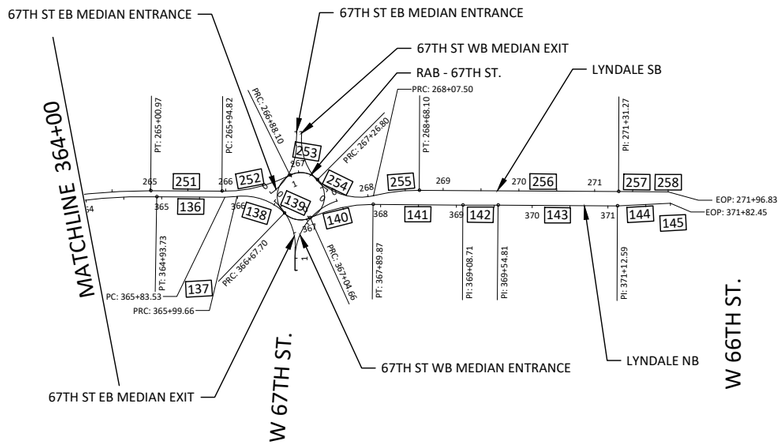
CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

ALIGNMENT PLAN & TABULATION

SHEET C6.02



LYNDALE NB

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
136	PT	364+93.73	365+83.53	89.80				132896.83	524815.28	132981.02	524846.54	20° 21' 59.75"
137	PC	365+83.53	365+99.66	16.13	3° 54' 37.27"	236.38	16.13	132981.02	524846.54	132996.46	524851.22	16° 52' 24.25"
138	PRC	365+99.66	366+67.70	68.03	49° 20' 27.11"	79.00	65.95	132996.46	524851.22	133047.38	524893.13	39° 27' 06.04"
139	PRC	366+67.70	367+04.66	36.96	68° 18' 41.23"	31.00	34.81	133047.38	524893.13	133077.54	524910.51	29° 57' 58.98"
140	PRC	367+04.66	367+89.87	85.21	24° 32' 00.80"	199.00	84.56	133077.54	524910.51	133161.26	524922.39	8° 04' 38.77"
141	PT	367+89.87	369+08.71	118.85				133161.26	524922.39	133272.69	524963.71	20° 20' 39.17"
142	PI	369+08.71	369+54.81	46.10				133272.69	524963.71	133315.91	524979.74	20° 20' 39.17"
143	PI	369+54.81	371+12.59	157.78				133315.91	524979.74	133463.85	525034.59	20° 20' 39.17"
144	PI	371+12.59	371+82.44	69.86				133463.85	525034.59	133530.67	525054.96	16° 57' 14.96"
145	EOP	371+82.44	371+82.45	0.00				133530.67	525054.96	133530.67	525054.96	16° 57' 14.95"

LYNDALE SB

POINT ID	POINT	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	AZIMUTH
251	PT	265+00.97	265+94.82	93.84				132892.03	524804.97	132980.01	524837.63	20° 21' 59.75"
252	PC	265+94.82	266+88.10	93.28	26° 51' 29.22"	199.00	92.43	132980.01	524837.63	133071.77	524848.79	6° 56' 15.14"
253	PRC	266+88.10	267+26.80	38.70	71° 31' 54.28"	31.00	36.24	133071.77	524848.79	133103.38	524866.51	29° 16' 27.67"
254	PRC	267+26.80	268+07.50	80.70	58° 31' 45.48"	79.00	77.24	133103.38	524866.51	133166.04	524911.67	35° 46' 32.07"
255	PRC	268+07.50	268+68.10	60.60	13° 49' 59.84"	251.00	60.45	133166.04	524911.67	133224.84	524925.71	13° 25' 39.25"
256	PT	268+68.10	271+31.27	263.16				133224.84	524925.71	133471.63	525017.08	20° 19' 02.57"
257	PT	271+31.27	271+96.83	65.56				133471.63	525017.08	133533.10	525039.90	20° 21' 48.21"
258	PT	271+96.83	271+96.83	0.00				133533.10	525039.90	133533.10	525039.90	20° 21' 48.20"

HORZ. SCALE 0 100 200 FEET

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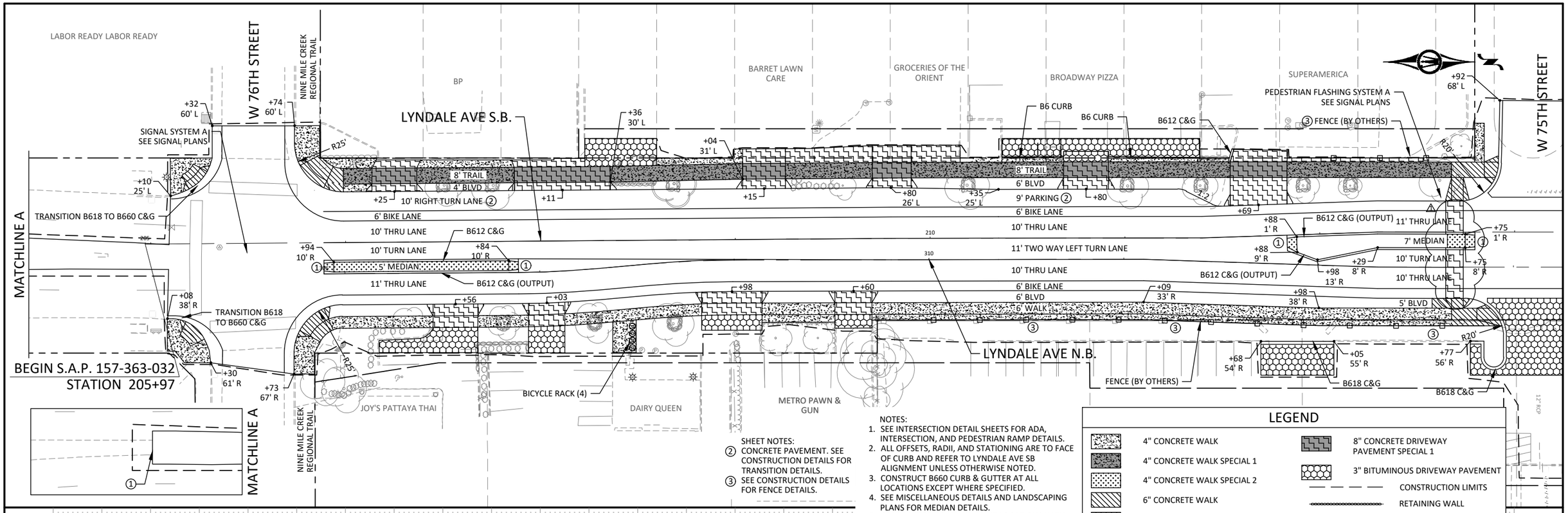
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
ALIGNMENT PLAN & TABULATION

SHEET C6.03

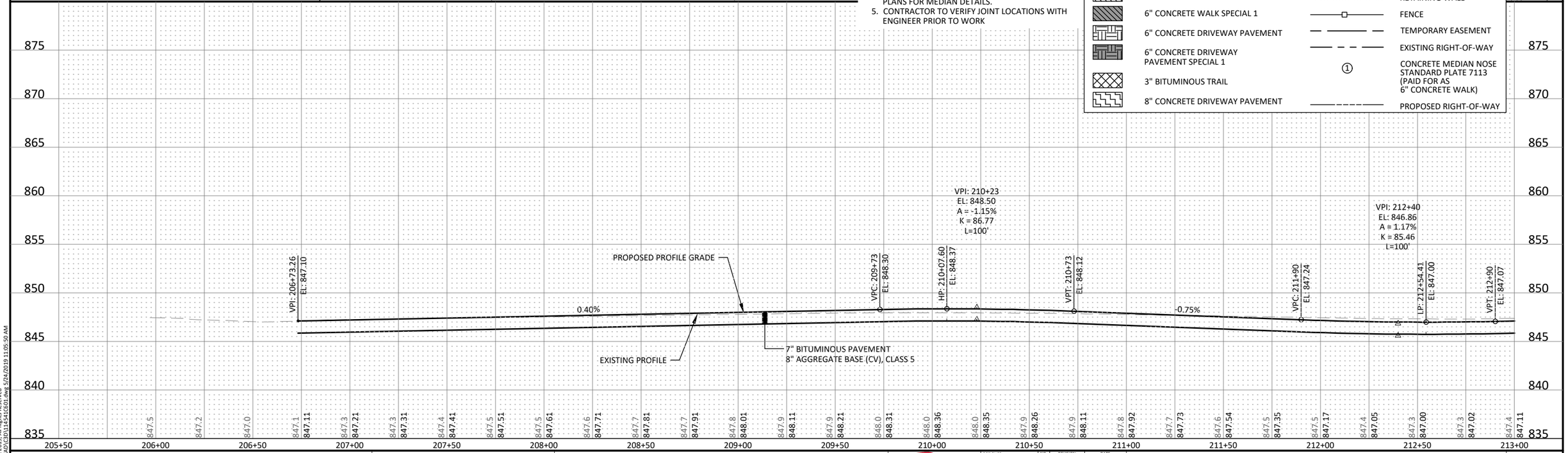


SHEET NOTES:
② CONCRETE PAVEMENT. SEE CONSTRUCTION DETAILS FOR TRANSITION DETAILS.
③ SEE CONSTRUCTION DETAILS FOR FENCE DETAILS.

NOTES:
1. SEE INTERSECTION DETAIL SHEETS FOR ADA, INTERSECTION, AND PEDESTRIAN RAMP DETAILS.
2. ALL OFFSETS, RADII, AND STATIONING ARE TO FACE OF CURB AND REFER TO LYNDALE AVE SB ALIGNMENT UNLESS OTHERWISE NOTED.
3. CONSTRUCT B660 CURB & GUTTER AT ALL LOCATIONS EXCEPT WHERE SPECIFIED.
4. SEE MISCELLANEOUS DETAILS AND LANDSCAPING PLANS FOR MEDIAN DETAILS.
5. CONTRACTOR TO VERIFY JOINT LOCATIONS WITH ENGINEER PRIOR TO WORK

LEGEND

- 4" CONCRETE WALK
- 4" CONCRETE WALK SPECIAL 1
- 4" CONCRETE WALK SPECIAL 2
- 6" CONCRETE WALK
- 6" CONCRETE WALK SPECIAL 1
- 6" CONCRETE DRIVEWAY PAVEMENT
- 6" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1
- 3" BITUMINOUS TRAIL
- 8" CONCRETE DRIVEWAY PAVEMENT
- 8" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1
- 3" BITUMINOUS DRIVEWAY PAVEMENT
- CONSTRUCTION LIMITS
- RETAINING WALL
- FENCE
- TEMPORARY EASEMENT
- EXISTING RIGHT-OF-WAY
- ① CONCRETE MEDIAN NOSE STANDARD PLATE 7113 (PAID FOR AS 6" CONCRETE WALK)
- PROPOSED RIGHT-OF-WAY



HORZ. SCALE 0 25 50 FEET
VERT. SCALE 0 5 10 FEET

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DRAWN	KME
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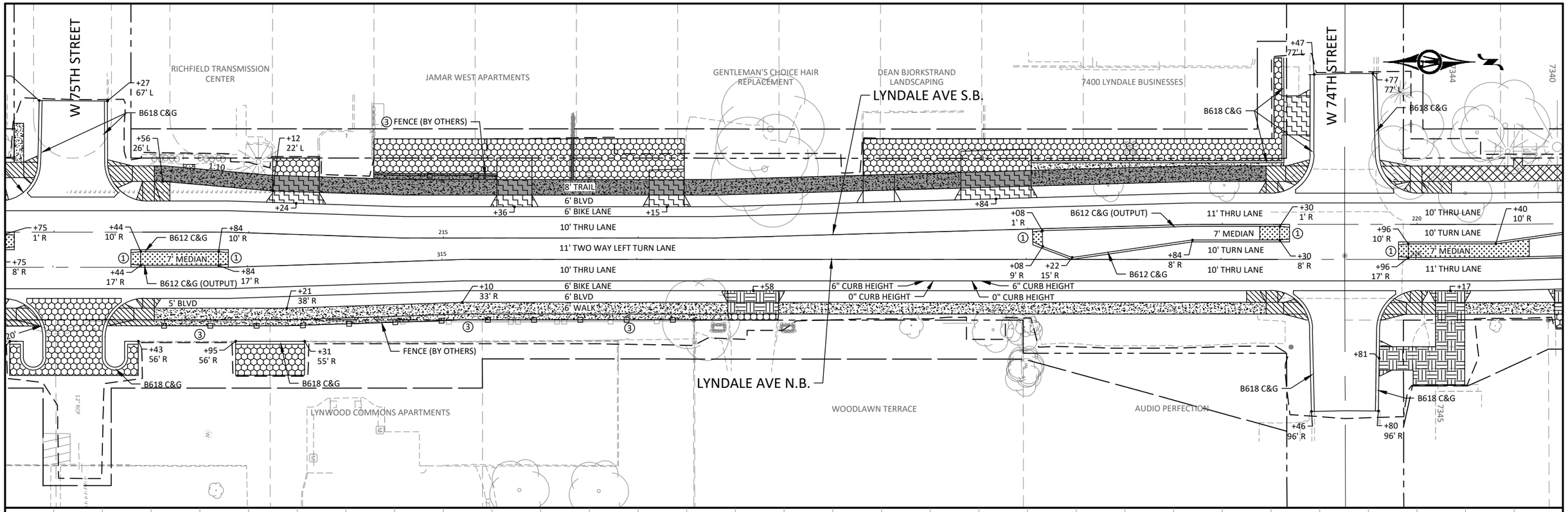
1	⚠	03/15/19

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STREET PLAN AND PROFILE

SHEET C6.04R



NOTES:
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2. ALL OFFSETS, RADII, AND STATIONING ARE TO FACE OF CURB AND REFER TO LYNDALE AVE SB ALIGNMENT UNLESS OTHERWISE NOTED.
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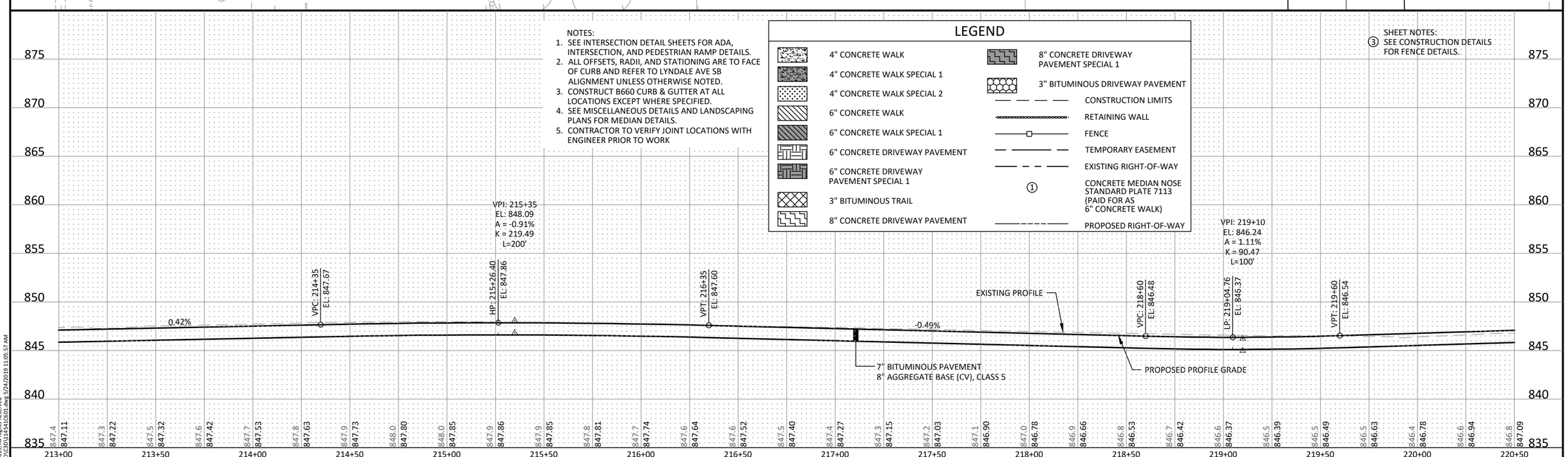
5. CONTRACTOR TO VERIFY JOINT LOCATIONS WITH ENGINEER PRIOR TO WORK

LEGEND

- 4" CONCRETE WALK
- 4" CONCRETE WALK SPECIAL 1
- 4" CONCRETE WALK SPECIAL 2
- 6" CONCRETE WALK
- 6" CONCRETE WALK SPECIAL 1
- 6" CONCRETE DRIVEWAY PAVEMENT
- 6" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1
- 3" BITUMINOUS TRAIL
- 8" CONCRETE DRIVEWAY PAVEMENT
- 8" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1
- 3" BITUMINOUS DRIVEWAY PAVEMENT
- CONSTRUCTION LIMITS
- RETAINING WALL
- FENCE
- TEMPORARY EASEMENT
- EXISTING RIGHT-OF-WAY
- ① CONCRETE MEDIAN NOSE STANDARD PLATE 7113 (PAID FOR AS 6" CONCRETE WALK)
- PROPOSED RIGHT-OF-WAY

SHEET NOTES:
③ SEE CONSTRUCTION DETAILS FOR FENCE DETAILS.



HORZ. 0 25 50 SCALE FEET
VERT. 0 5 10 SCALE FEET

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TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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www.bolton-menk.com

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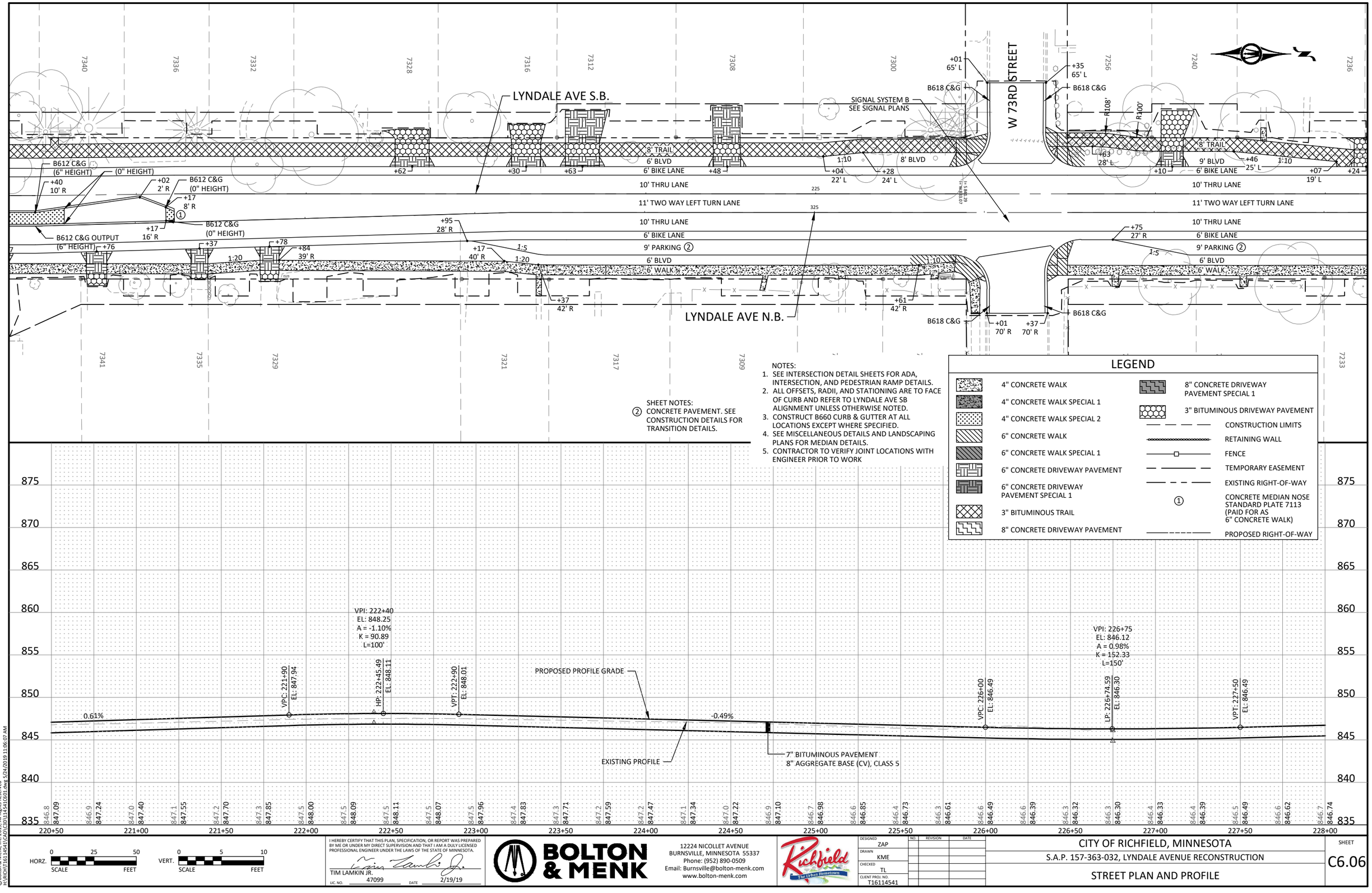
CHECKED	TL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STREET PLAN AND PROFILE

SHEET C6.05



② SHEET NOTES:
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NOTES:
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4. SEE MISCELLANEOUS DETAILS AND LANDSCAPING PLANS FOR MEDIAN DETAILS.
5. CONTRACTOR TO VERIFY JOINT LOCATIONS WITH ENGINEER PRIOR TO WORK

LEGEND

- 4" CONCRETE WALK
- 4" CONCRETE WALK SPECIAL 1
- 4" CONCRETE WALK SPECIAL 2
- 6" CONCRETE WALK
- 6" CONCRETE WALK SPECIAL 1
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- 6" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1
- 3" BITUMINOUS TRAIL
- 8" CONCRETE DRIVEWAY PAVEMENT
- 8" CONCRETE DRIVEWAY PAVEMENT SPECIAL 1
- 3" BITUMINOUS DRIVEWAY PAVEMENT
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- RETAINING WALL
- FENCE
- TEMPORARY EASEMENT
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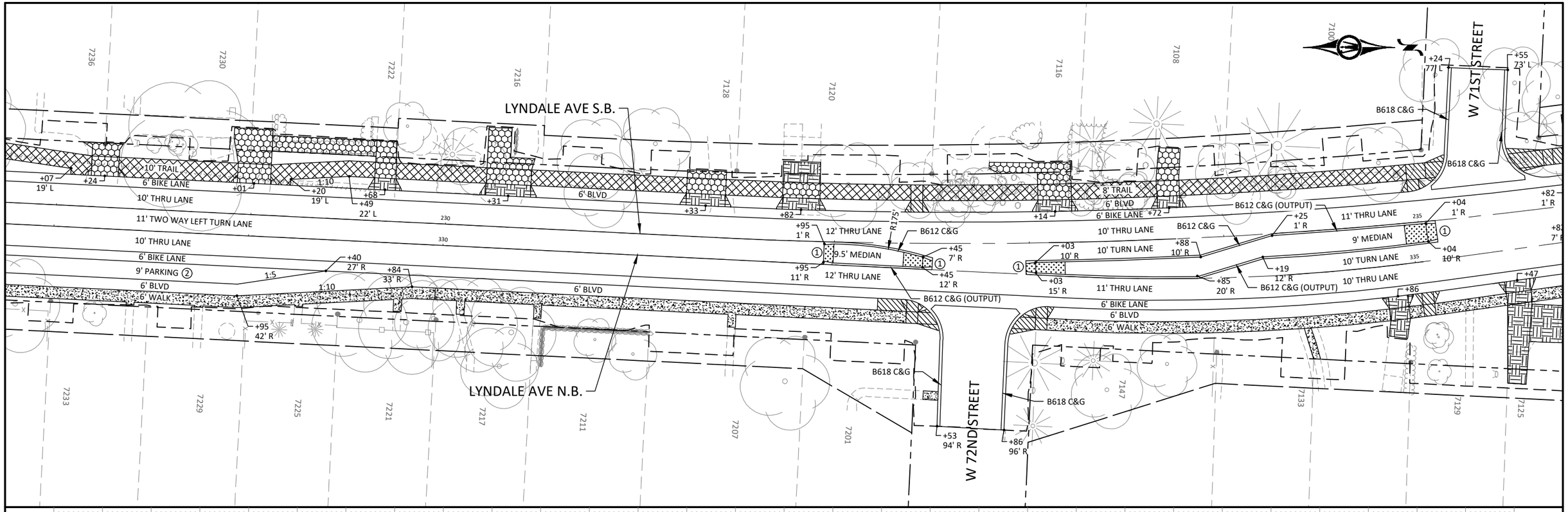
STREET PLAN AND PROFILE

SHEET C6.06



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- 6" CONCRETE WALK
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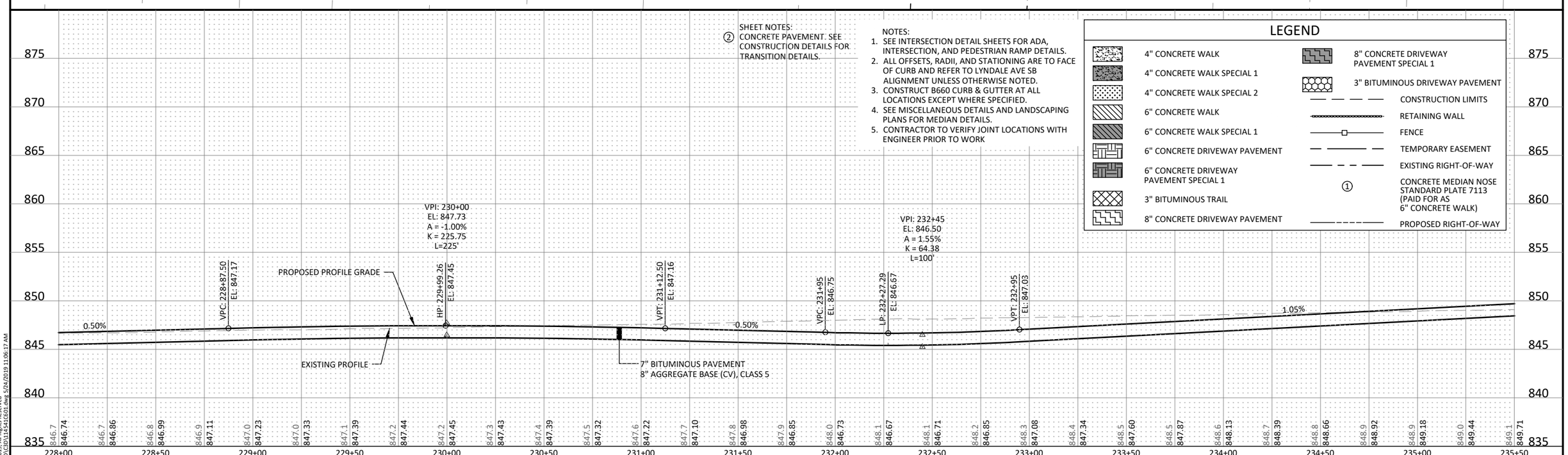

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CITY OF RICHFIELD, MINNESOTA
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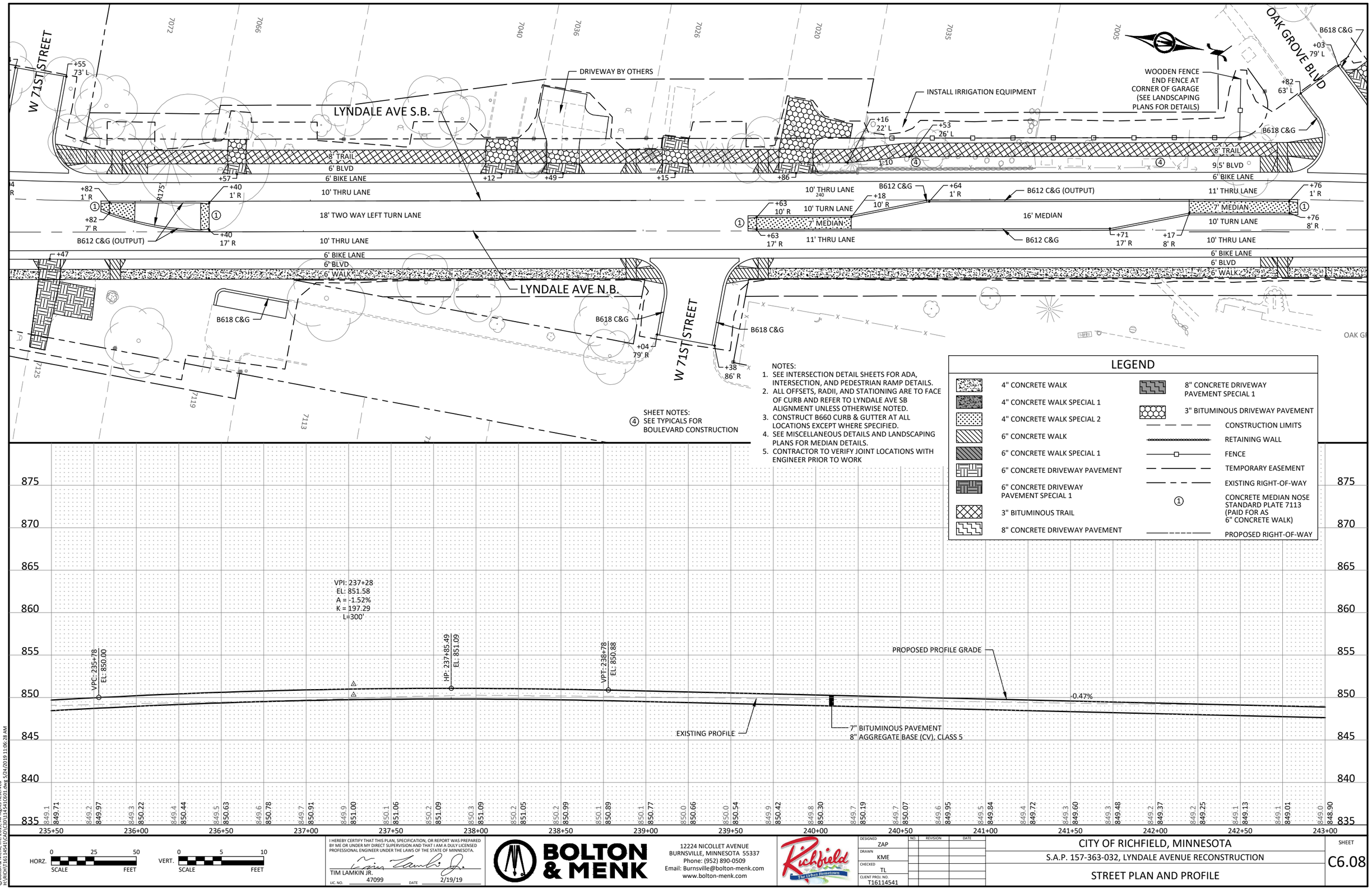
STREET PLAN AND PROFILE

SHEET C6.07



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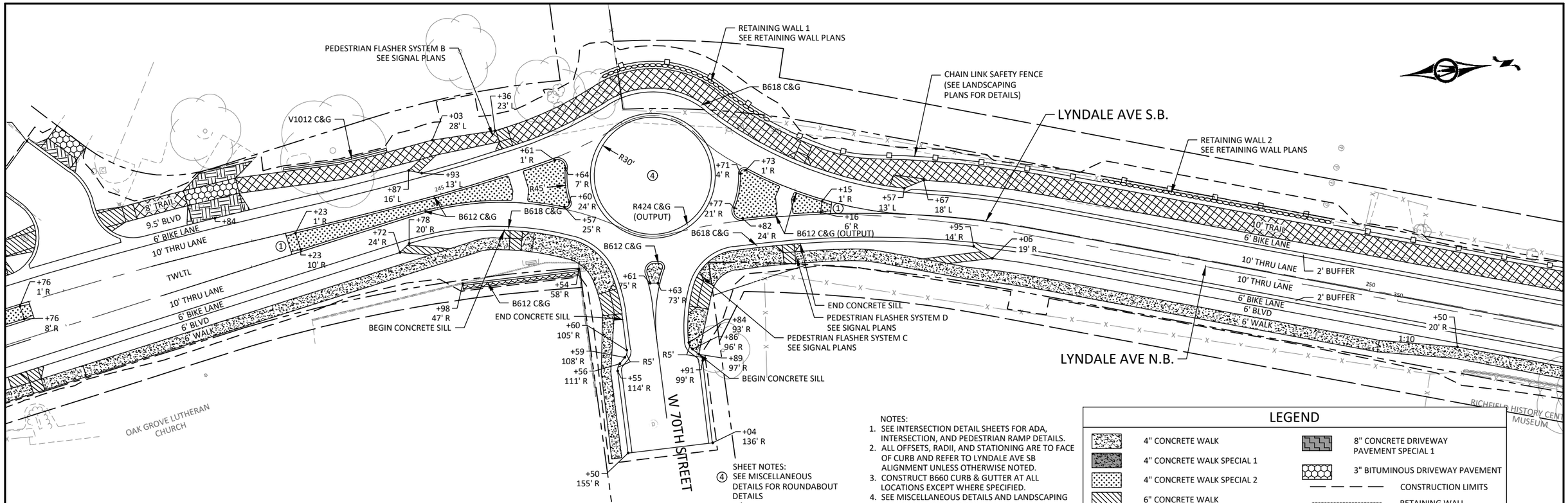
STREET PLAN AND PROFILE

SHEET C6.08



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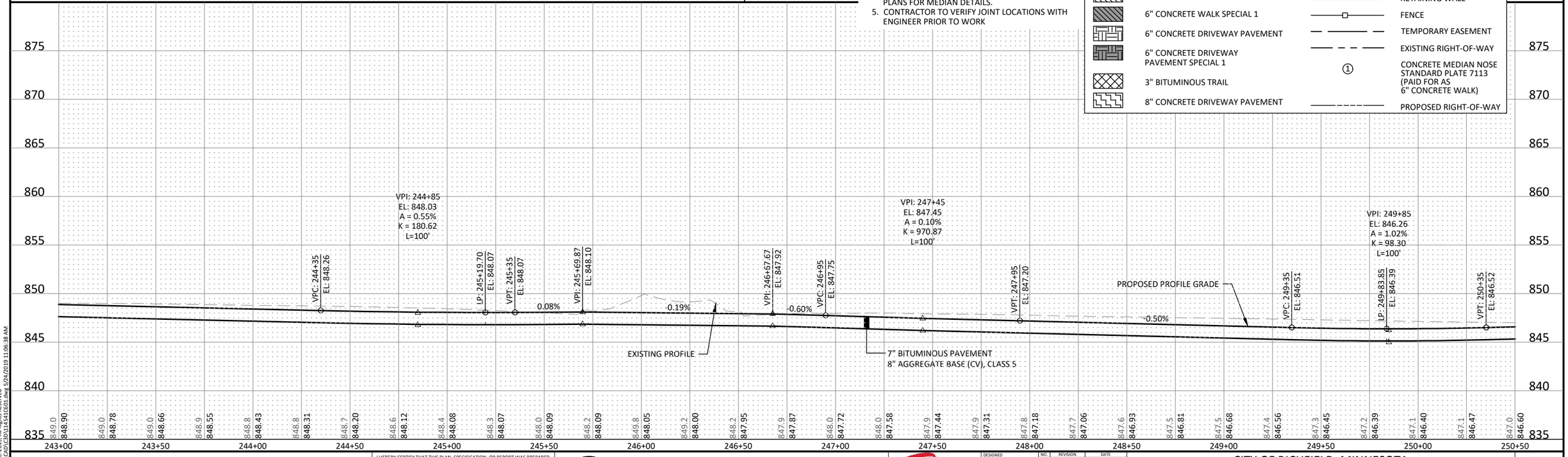

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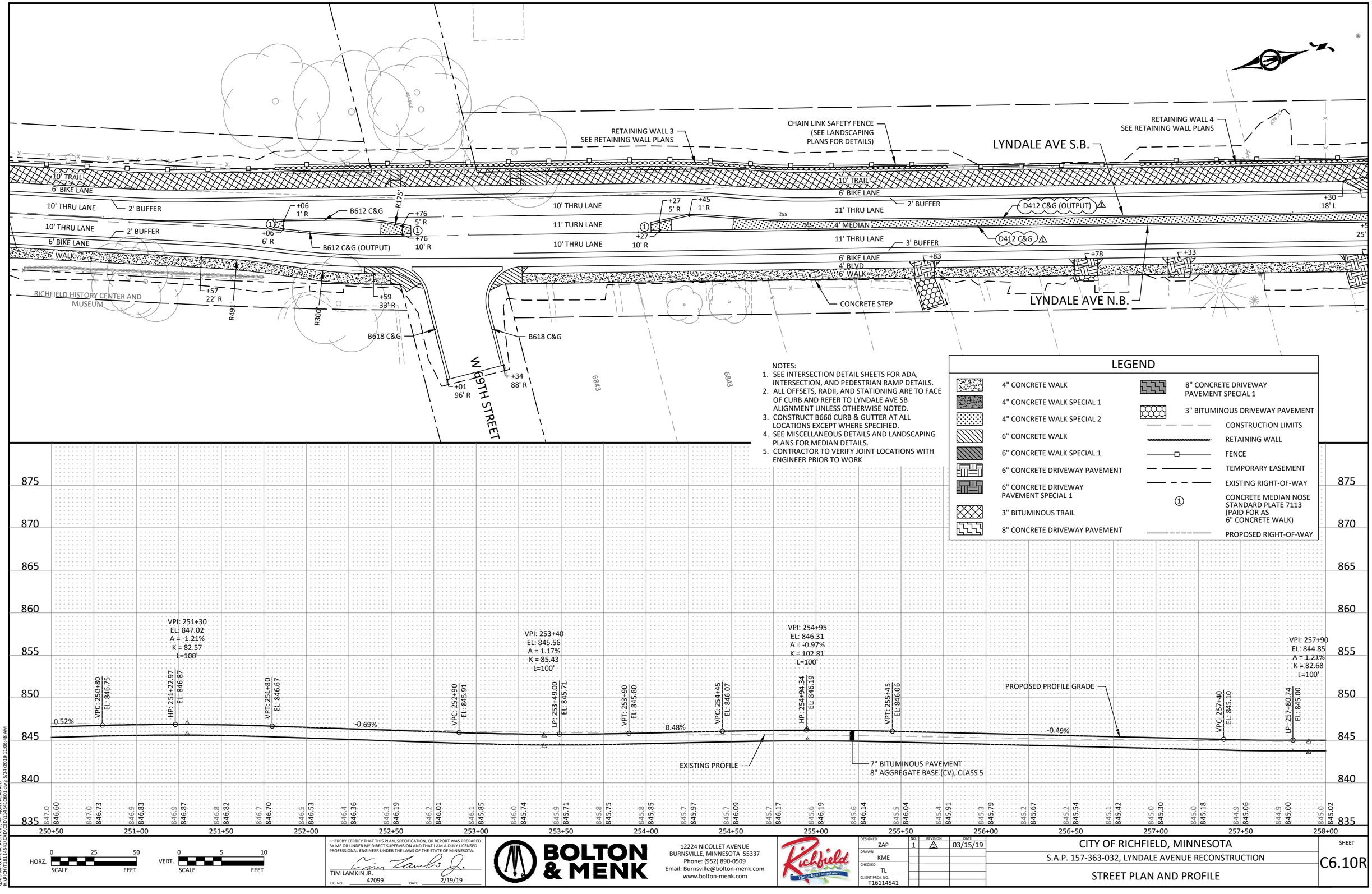
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STREET PLAN AND PROFILE

SHEET C6.09



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CITY OF RICHFIELD, MINNESOTA
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STREET PLAN AND PROFILE

SHEET C6.10R

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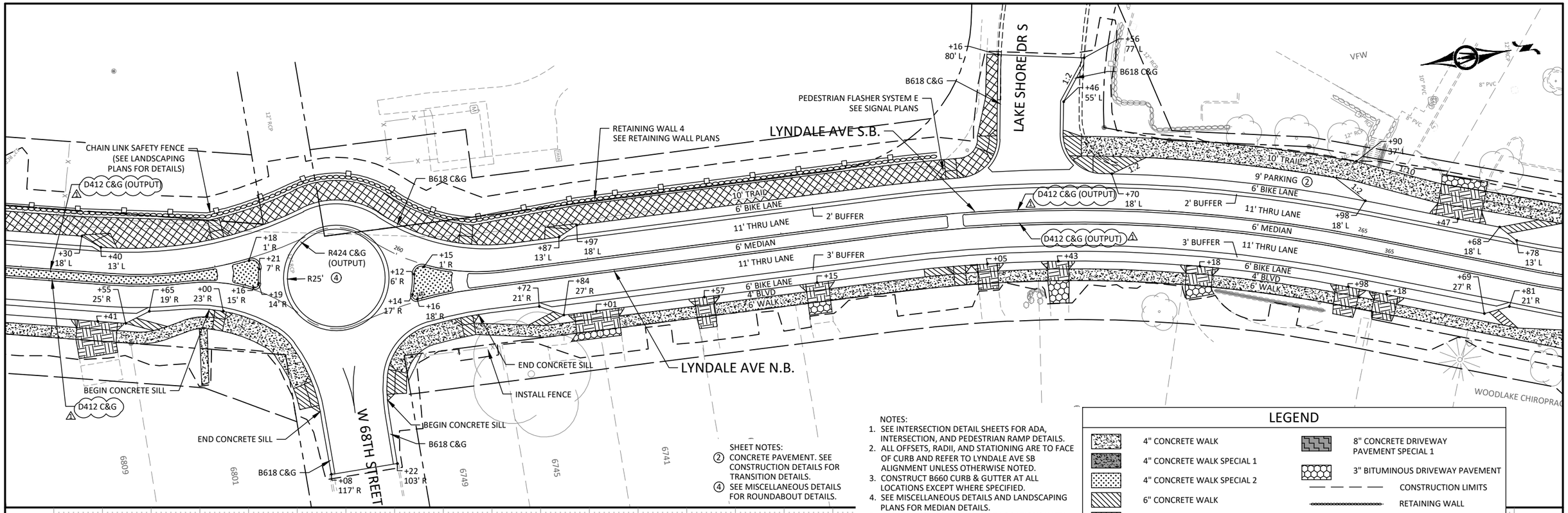

SHEET NOTES:
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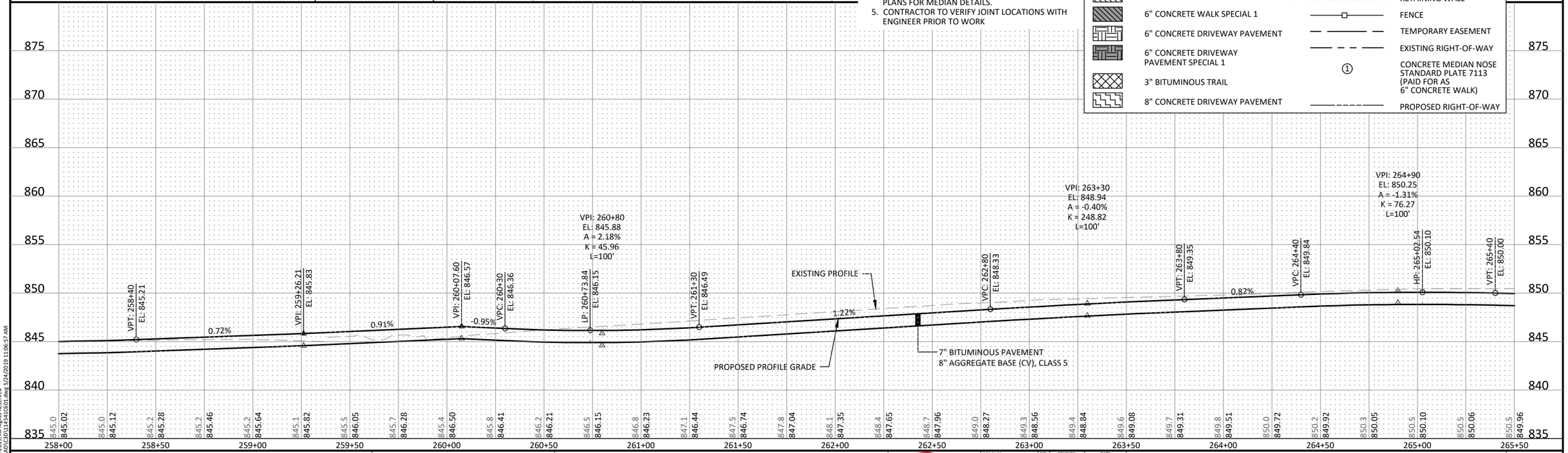

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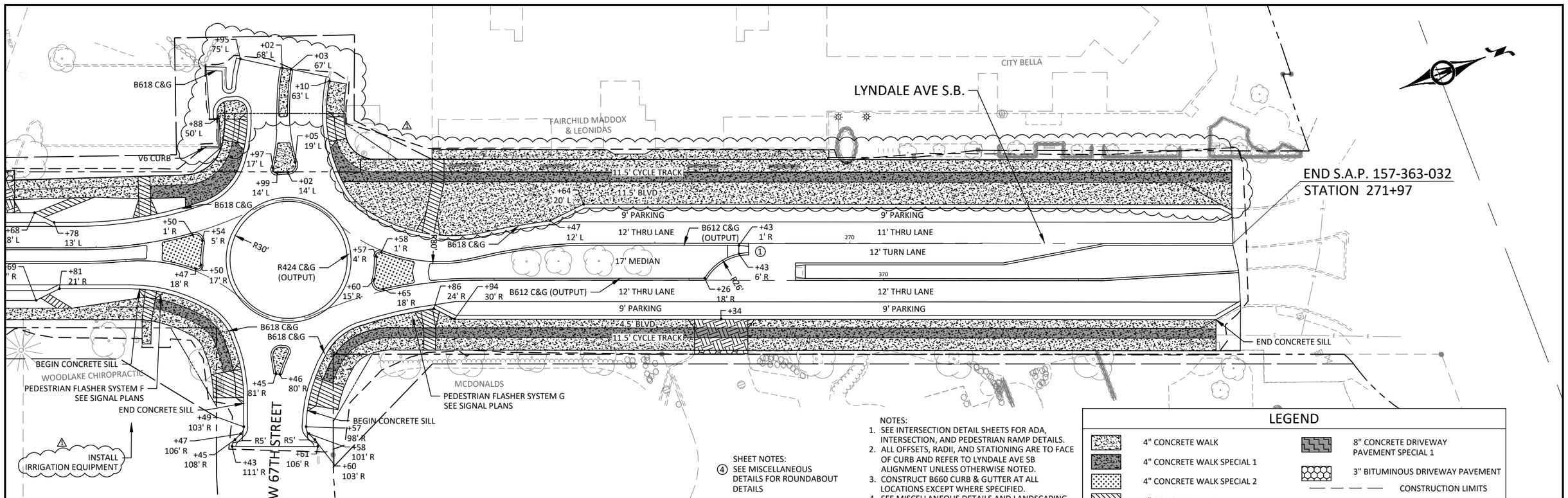
STREET PLAN AND PROFILE

SHEET C6.11R



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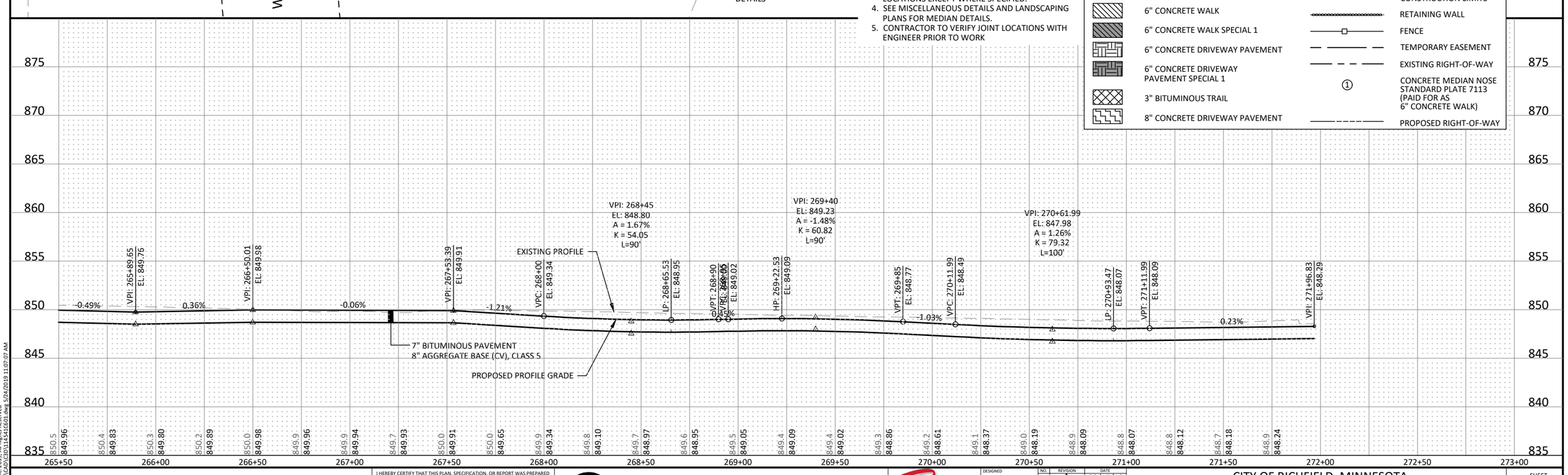

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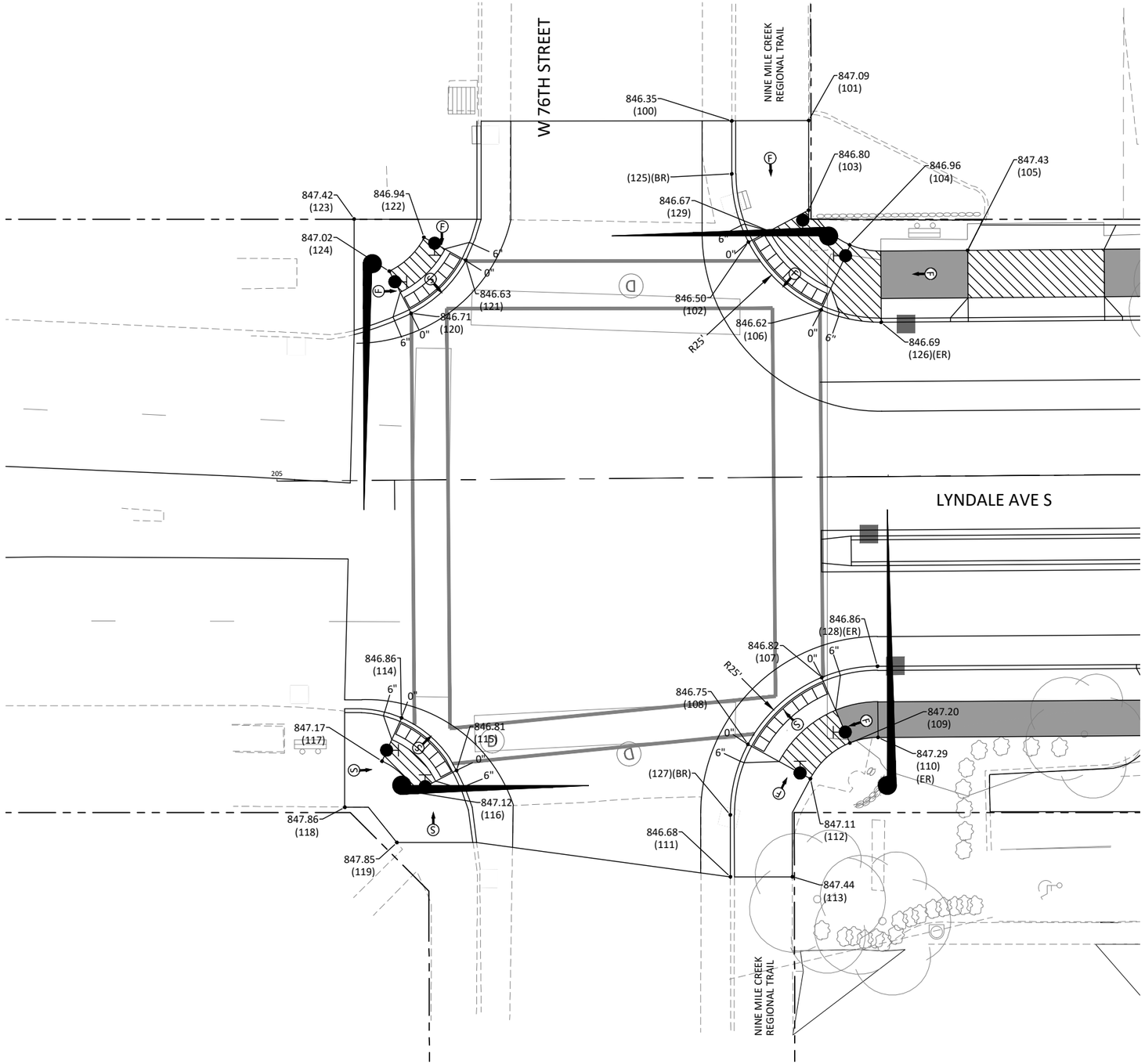
STREET PLAN AND PROFILE

SHEET C6.12R



Control Points		
Point No.	X	Y
100	127158.14	524549.16
101	127171.09	524549.08
102	127160.92	524569.59
103	127171.08	524564.20
104	127178.07	524570.05
105	127197.88	524571.00
106	127173.20	524581.04
107	127173.29	524643.00
108	127160.82	524654.25
109	127177.97	524654.02
110	127182.73	524653.08
111	127157.85	524676.59
112	127171.33	527660.05
113	127168.31	524676.59
114	127102.43	524649.74
115	127111.71	524658.61
116	127104.62	524662.25
117	127099.14	524675.03
118	127092.86	524664.78
119	127101.64	524670.74
120	127104.07	524581.58
121	127113.28	524581.61
122	127106.24	524868.77
123	127094.47	524565.71
124	127100.42	524574.46
125	127158.13	524558.08
126	127183.31	524583.10
127	127157.83	524666.16
128	127182.65	524641.11
129	127164.46	524567.72

NOTES:
1. BR = BEGIN RADIUS
   ER = END RADIUS
   HP = HIGH POINT
   LP = LOW POINT

LEGEND

- XXX — CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- PEDESTRIAN ACCESS ROUTE
- X" — CURB HEIGHT
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW

HORZ. SCALE 0 10 20 FEET

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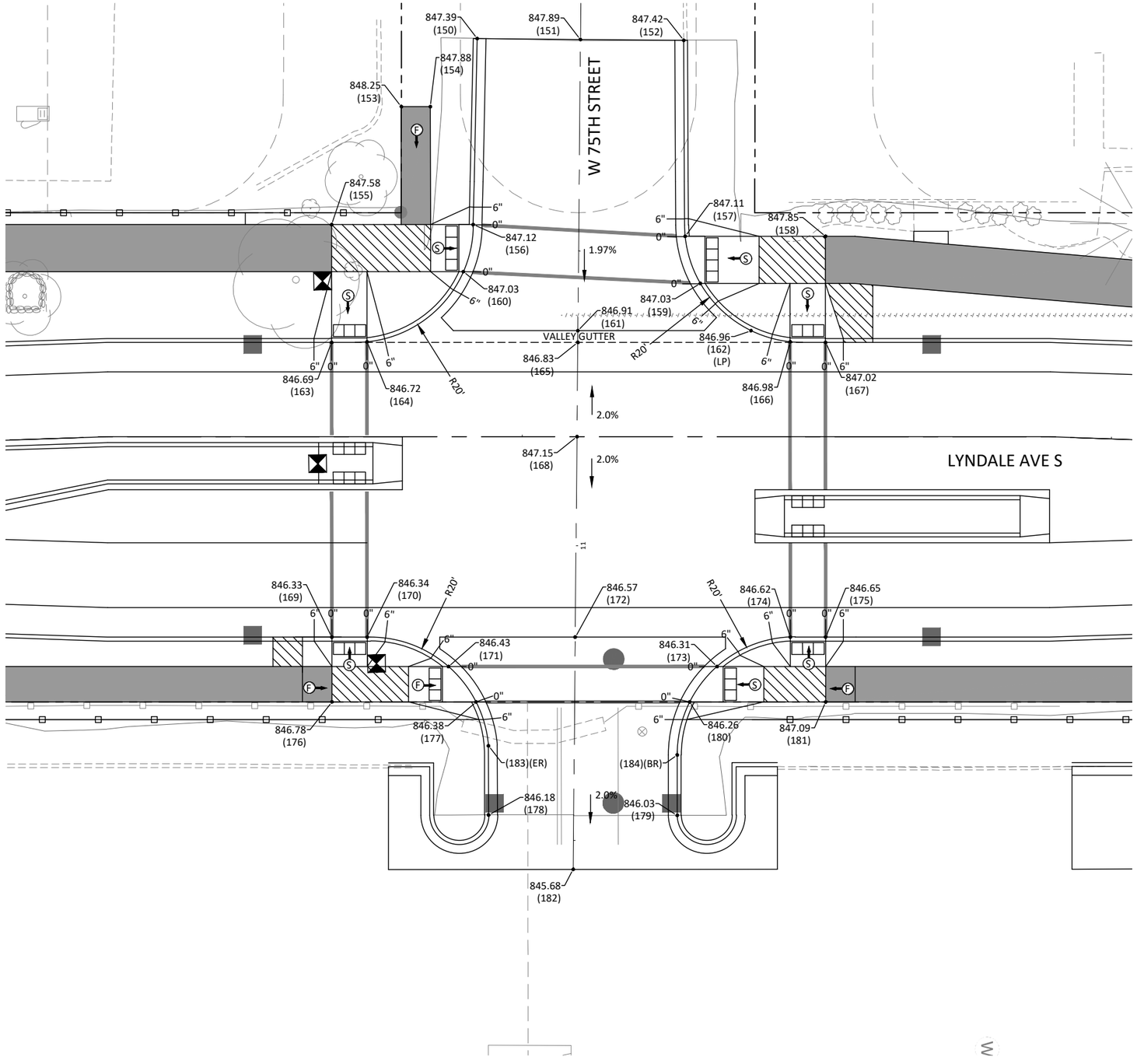
INTERSECTION DETAILS

SHEET C6.13



Control Points		
Point No.	X	Y
150	127776.78	524536.45
151	127794.28	524536.60
152	127811.79	524536.76
153	127763.88	524548.01
154	127768.81	524548.01
155	127752.05	524568.00
156	127776.07	524568.01
157	127812.03	524570.03
158	127835.86	524570.04
159	127814.61	524578.03
160	127774.39	524576.00
161	127793.83	524586.02
162	127823.20	524586.03
163	127752.03	524588.00
164	127758.04	524587.90
165	127793.81	524588.02
166	127829.86	524587.93
167	127835.86	524588.04
168	127793.67	524604.02
169	127752.05	524638.00
170	127758.05	524638.00
171	127771.86	524643.01
172	127793.36	524638.02
173	127817.41	524643.03
174	127829.85	524638.04
175	127835.85	524638.03
176	127752.05	524649.00
177	127776.51	524649.01
178	127778.64	524668.18
179	127810.64	524668.27
180	127812.78	524649.03
181	127835.85	524649.04
182	127793.00	524677.41
183	127778.63	524656.44
184	127810.64	524658.00

LEGEND

- XXX — CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- PEDESTRIAN ACCESS ROUTE
- X" — CURB HEIGHT
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- RRFB (RECTANGULAR RAPID FLASHING BEACON)

NOTES:
1. BR = BEGIN RADIUS
   ER = END RADIUS
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HORZ. SCALE 0 10 20 FEET

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TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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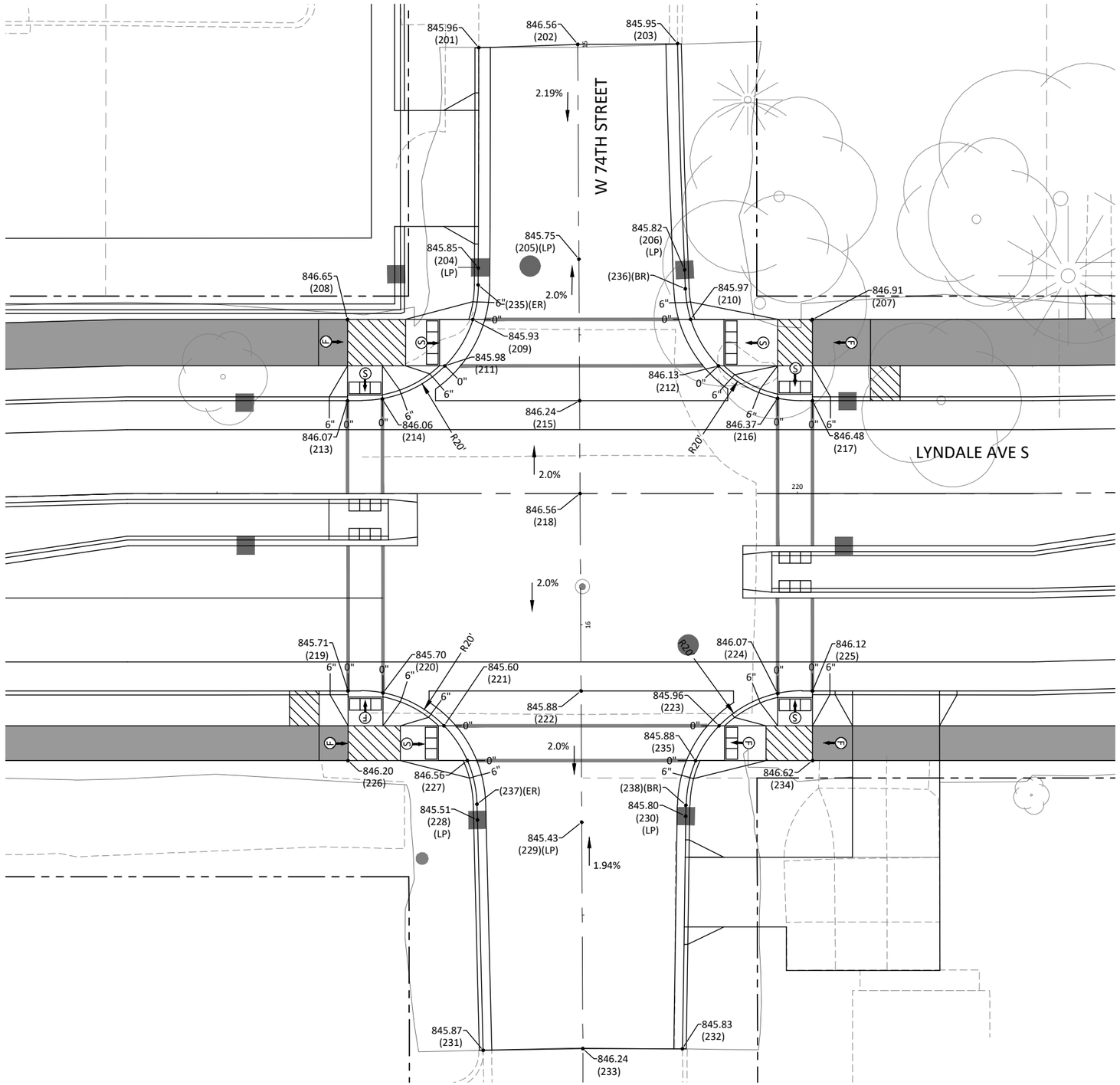
CHECKED	TL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.14



Control Points		
Point No.	X	Y
201	128429.36	524523.49
202	128446.42	524522.92
203	128463.60	524522.84
204	128429.26	524561.42
205	128446.59	524559.92
206	128464.83	524561.76
207	128486.83	524570.33
208	128406.74	524570.29
209	128428.32	524570.30
210	128465.83	524570.32
211	128423.53	524578.30
212	128470.63	524578.32
213	128406.73	524584.29
214	128412.73	524583.99
215	128446.71	524584.31
216	128480.83	524583.91
217	128486.83	524584.33
218	128446.78	524600.31
219	128406.80	524634.29
220	128412.80	524634.65
221	128423.31	524640.30
222	128446.94	524634.31
223	128470.70	524640.32
224	128480.81	524634.77
225	128486.81	524634.33
226	128406.80	524646.29
227	128427.35	524646.30
228	128429.08	524656.53
229	128447.03	524656.91
230	128464.96	524655.90
231	128430.03	524696.20
232	128464.39	524695.95
233	128447.23	524695.92
234	128486.81	524646.33
235	128429.25	524564.39
236	128464.93	524565.07
237	128464.98	524654.04
238	128429.01	524653.80

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LEGEND

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- DRAINAGE FLOW ARROW

HORZ. 0 10 20 SCALE FEET

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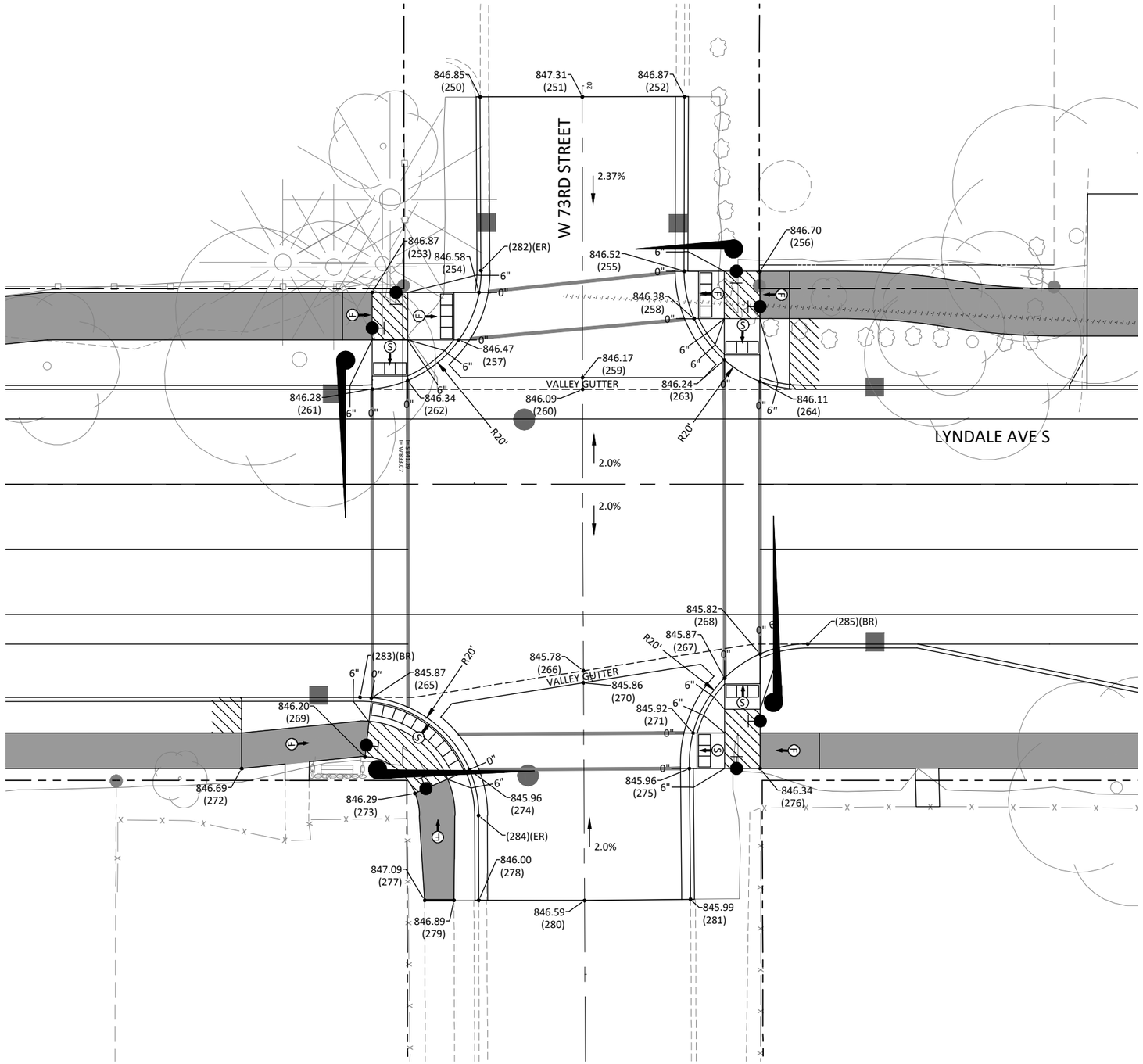
SHEET C6.15



Control Points		
Point No.	X	Y
250	129085.27	524534.22
251	129102.52	524534.21
252	129119.76	524534.18
253	129067.04	524567.22
254	129085.06	524567.22
255	129119.69	524563.66
256	129132.50	524563.67
257	129081.65	524575.22
258	129121.38	524571.66
259	129102.55	524581.60
260	129102.56	524583.60
261	129067.03	524583.51
262	129073.03	524582.06
263	129126.49	524578.64
264	129132.49	524582.27
265	129066.89	524635.67
266	129102.67	524631.10
267	129126.49	524632.37
268	129132.49	524628.30
269	129065.80	524645.62
270	129102.67	524633.13
271	129121.17	524641.61
272	129044.97	524647.57
273	129074.21	512651.79
274	129083.37	524647.77
275	129120.54	524647.62
276	129132.48	524647.61
277	129075.86	524669.83
278	129084.98	524669.84
279	129080.80	524669.83
280	129102.84	524669.87
281	129120.73	524669.68
282	129085.39	524563.50
283	129064.97	524635.58
283	129084.96	524655.55
285	129140.54	524626.61

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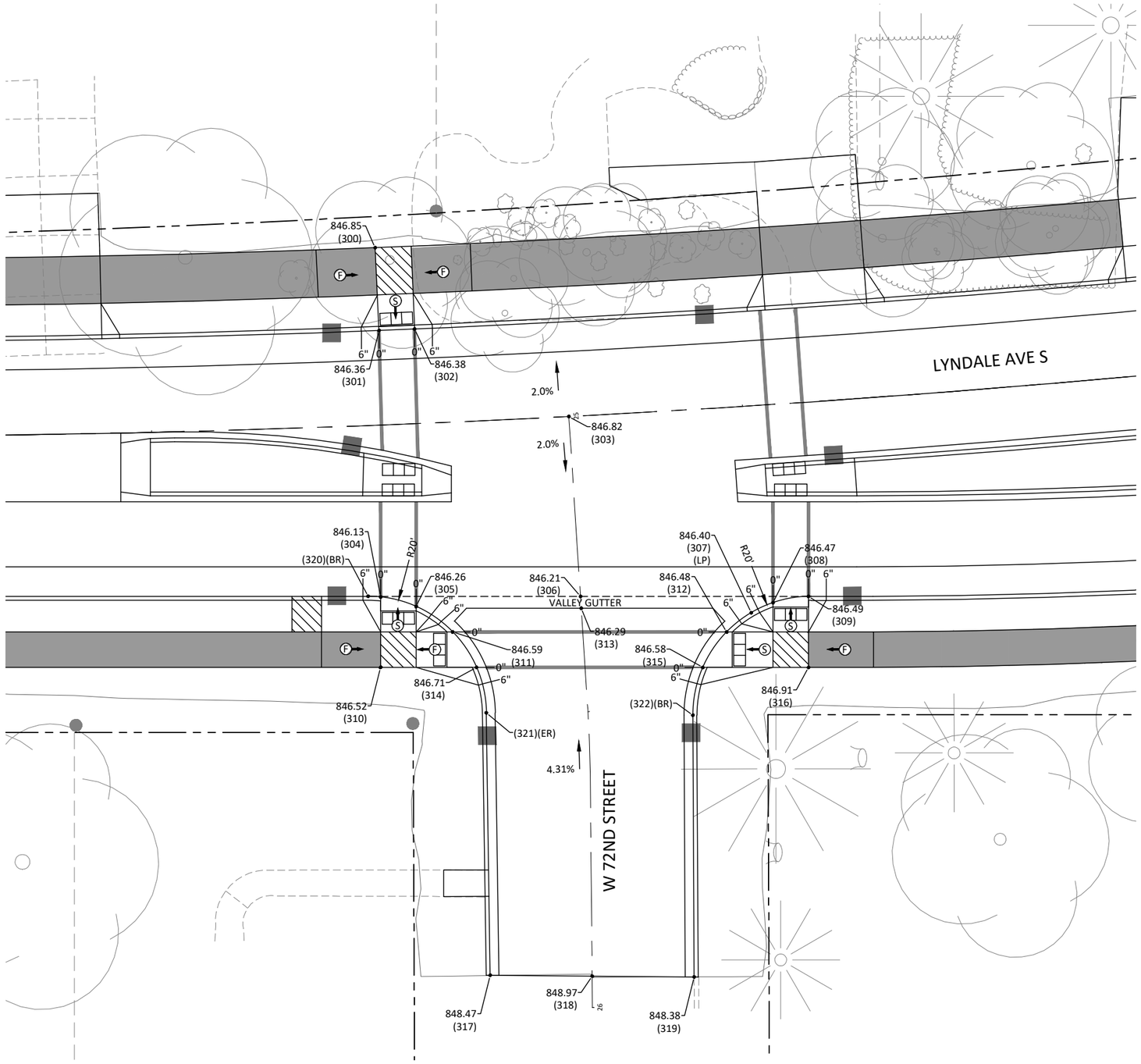
SHEET C6.16



Control Points		
Point No.	X	Y
300	129722.04	524567.92
301	129722.68	524581.91
302	129728.69	524581.67
303	129754.78	524596.47
304	129722.92	524626.98
305	129728.92	524628.59
306	129756.73	524626.88
307	129785.60	524629.66
308	129789.29	524627.97
309	129795.27	524626.91
310	129722.92	524638.87
311	129735.09	524632.87
312	129781.44	524632.91
313	129756.86	524628.88
314	129739.13	524638.88
315	129777.39	524638.91
316	129795.28	524638.90
317	129741.43	524690.91
318	129758.68	524691.08
319	129775.92	524691.22
320	129720.81	524626.87
321	129740.80	524646.58
322	129775.72	524646.99

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LEGEND

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HORZ. SCALE 0 10 20 FEET

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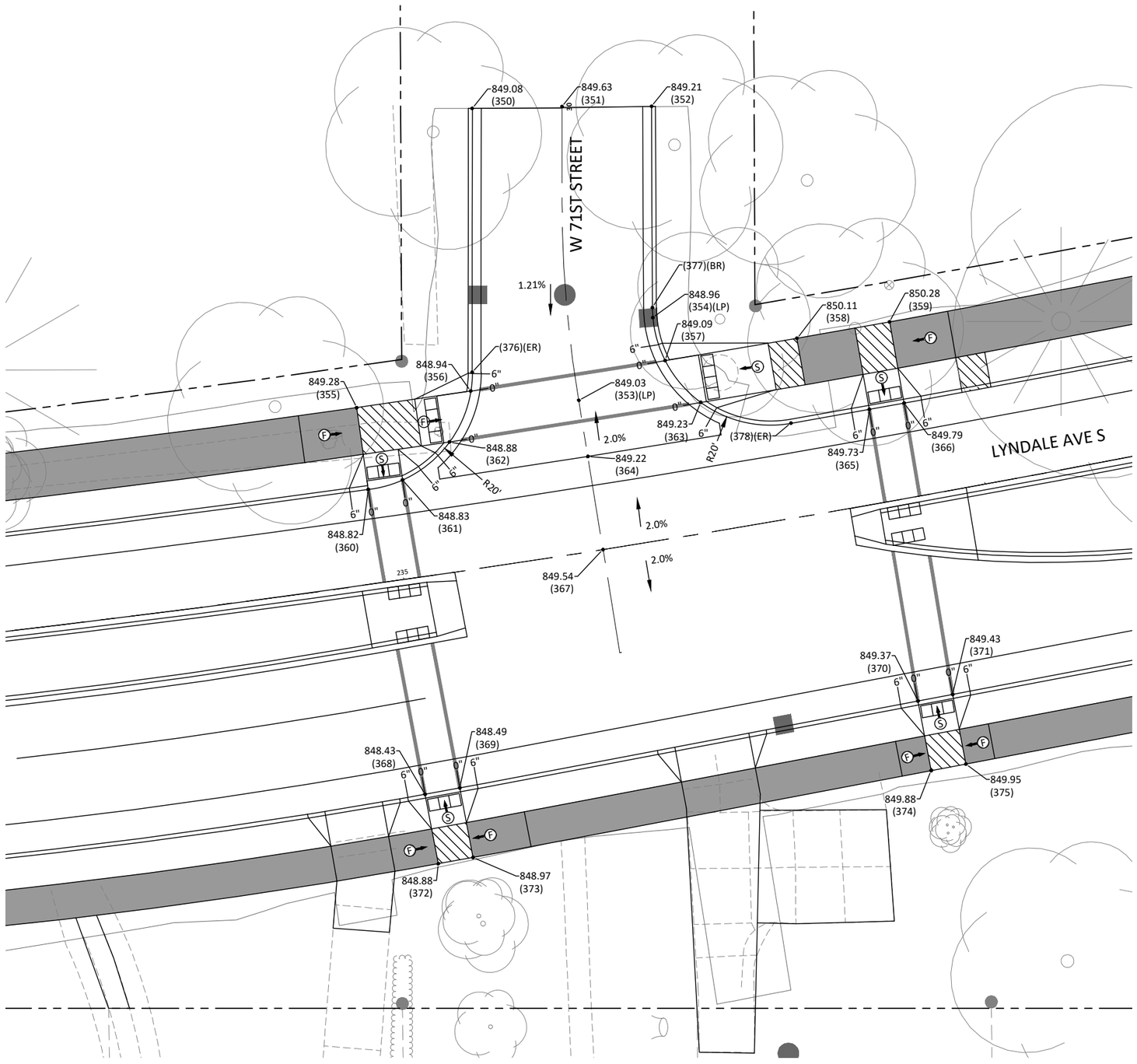
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.17



Control Points		
Point No.	X	Y
350	129994.33	524494.70
351	130009.92	524494.01
352	130025.13	524494.00
353	130012.75	524543.85
354	130025.33	524529.84
355	129975.06	524545.10
356	129994.39	524542.28
357	130027.40	524537.10
358	130049.78	524533.36
359	130065.49	524530.57
360	129977.02	524558.95
361	129982.83	524557.34
362	129990.79	524550.90
363	130033.44	524544.22
364	130014.30	524553.39
365	130062.07	524545.40
366	130067.96	524544.36
367	130016.85	524569.18
368	129986.63	524610.69
369	129992.54	524609.62
370	130070.28	524594.91
371	130076.18	524593.80
372	129988.87	524622.48
373	129994.77	524621.41
374	130072.52	524606.70
375	130078.41	524605.59
376	129994.65	524539.11
377	130025.25	524528.15
378	130048.75	524547.77

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LEGEND

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HORZ. SCALE 0 10 20 FEET

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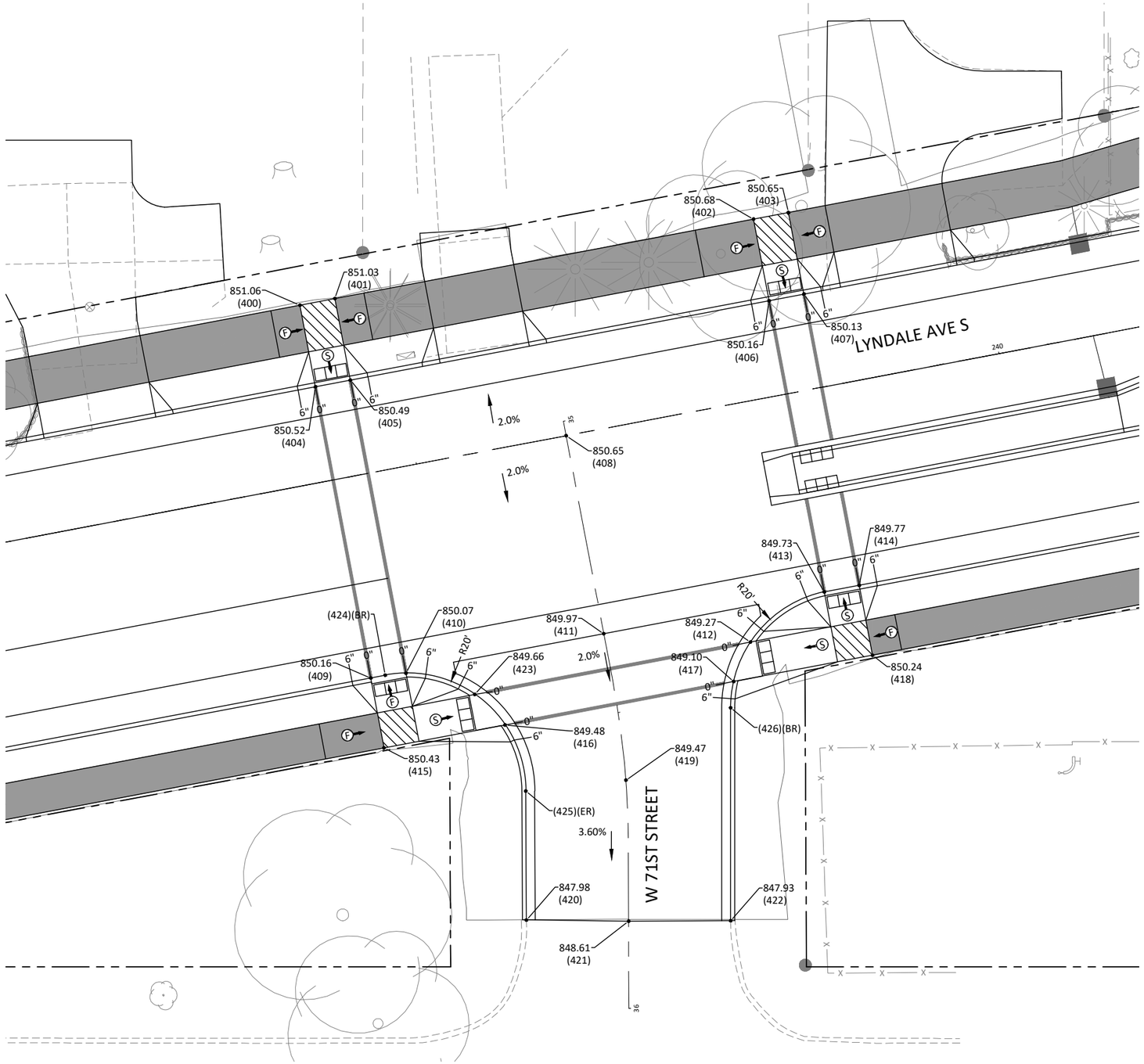
SHEET C6.18



Control Points		
Point No.	X	Y
400	130356.84	524475.55
401	130362.73	524474.44
402	130433.34	524461.07
403	130439.24	524459.96
404	130359.44	524489.31
405	130365.33	524488.19
406	130435.94	524474.83
407	130441.84	524473.71
408	130401.73	524497.59
409	130368.74	524538.44
410	130374.69	524537.64
411	130408.05	524531.00
412	130432.81	524532.42
413	130445.24	524523.96
414	130451.14	524522.84
415	130370.97	524550.23
416	130391.39	524546.36
417	130429.94	524539.06
418	130453.37	524534.63
419	130411.76	524555.70
420	130394.98	524579.28
421	130412.21	524579.50
422	130429.44	524579.42
423	130386.30	524541.22
424	130371.17	524537.98
425	130394.87	524557.54
426	130429.44	524543.52

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HORZ. SCALE 0 10 20 FEET

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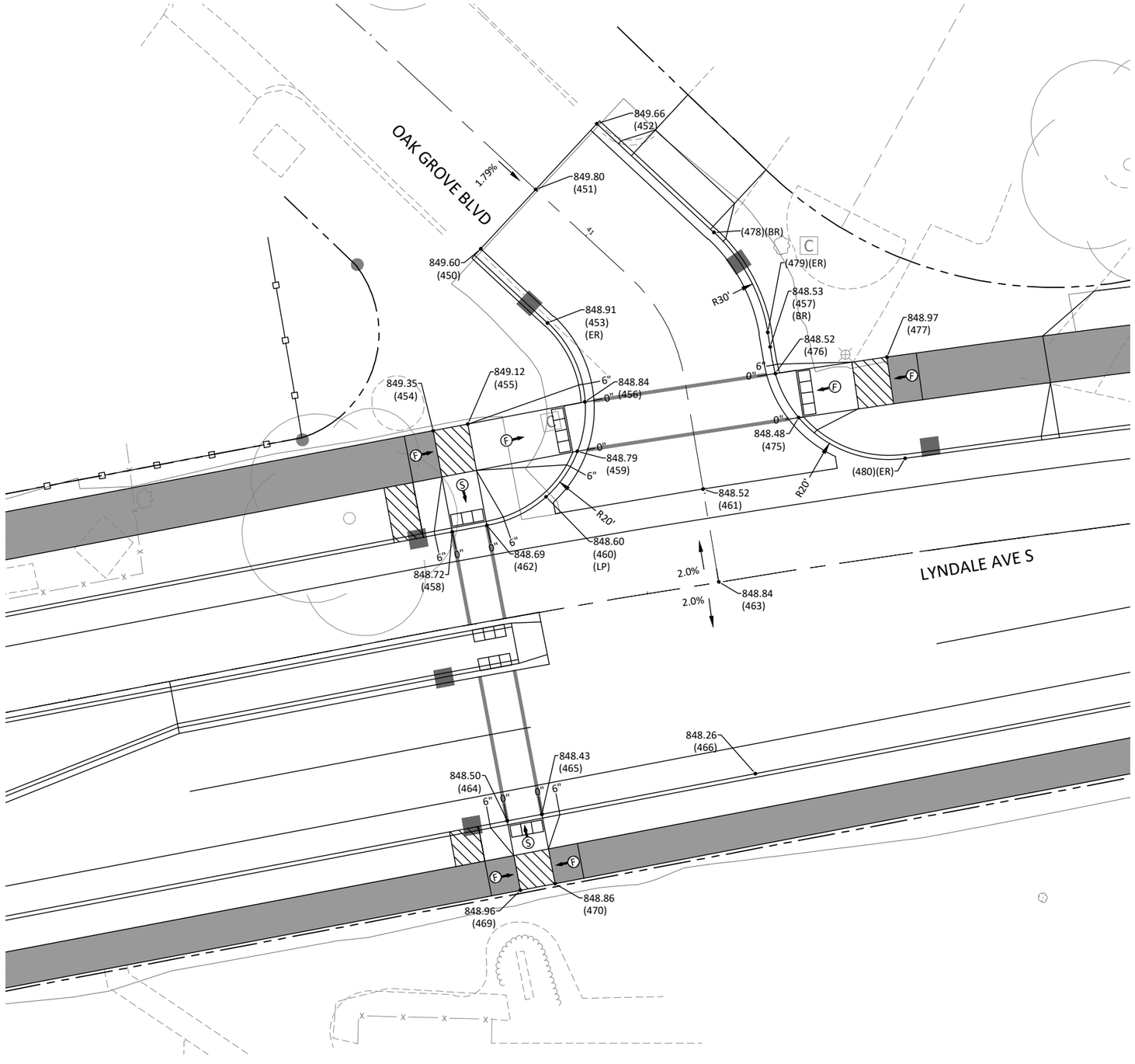

Control Points		
Point No.	X	Y
450	130741.20	524369.90
451	130750.56	524359.83
452	130760.95	524348.64
453	130752.55	524382.48
454	130733.10	524400.79
455	130738.98	524399.67
456	130758.90	524395.90
457	130790.41	524386.59
458	130736.35	524417.98
459	130757.61	524404.29
460	130752.30	524412.02
461	130778.99	524410.72
462	130742.24	524416.87
463	130781.65	524426.50
464	130745.67	524467.10
465	130751.57	524465.98
466	130787.85	524459.08
469	130747.89	524478.89
470	130753.80	524477.76
475	130795.23	524392.59
476	130791.28	524391.09
477	130810.26	524388.31
478	130780.84	524367.14
479	130789.99	524384.13
480	130813.34	524405.53

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HORZ. SCALE 0 10 20 FEET

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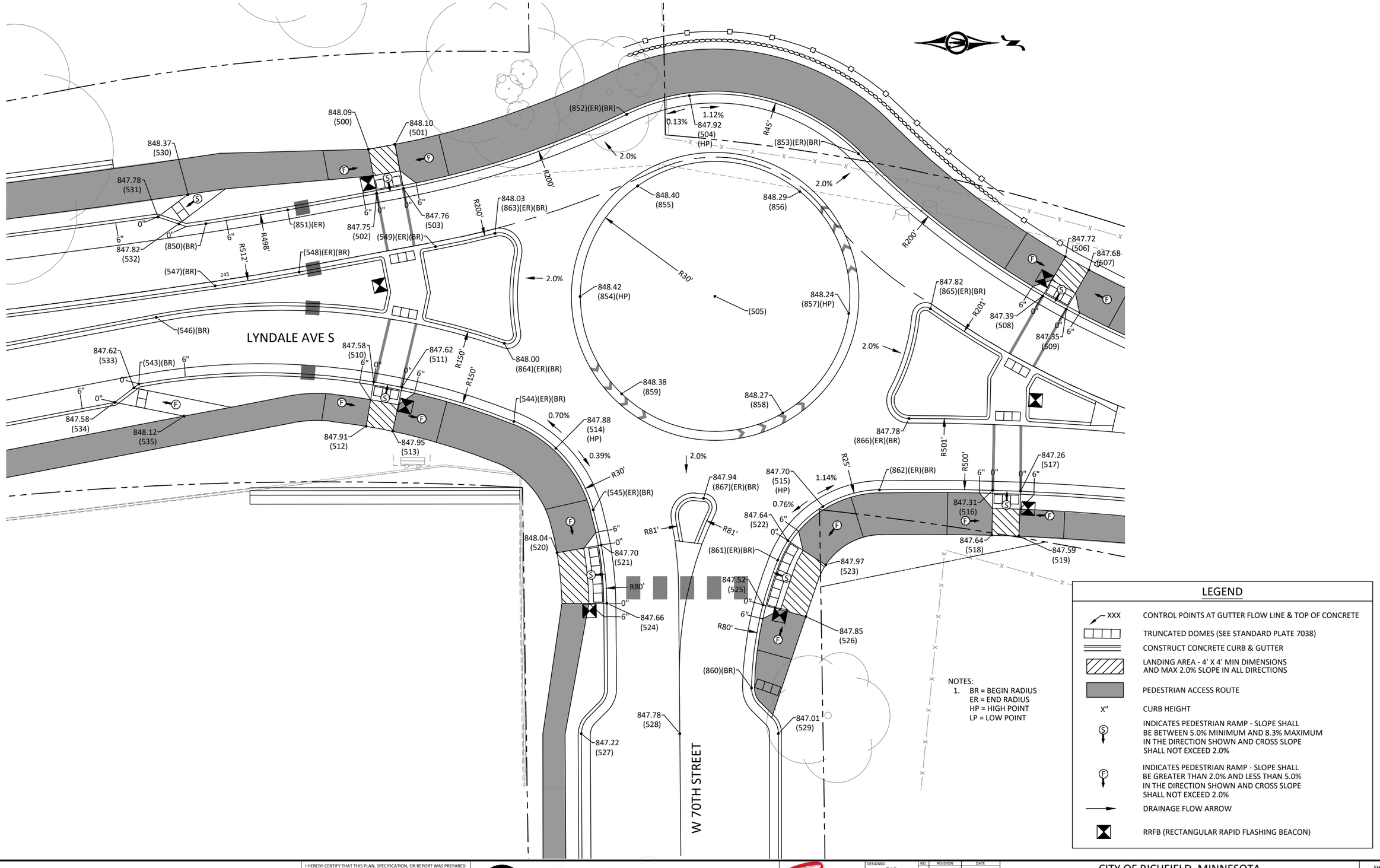
SHEET C6.20



LEGEND

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- PEDESTRIAN ACCESS ROUTE
- X" — CURB HEIGHT
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- RRFB (RECTANGULAR RAPID FLASHING BEACON)

NOTES:
1. BR = BEGIN RADIUS
   ER = END RADIUS
   HP = HIGH POINT
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HORZ. SCALE 0 10 20 FEET

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TIM LAMKIN JR. LIC. NO. 47099 DATE 2/19/19

BOLTON & MENK
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BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

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CHECKED	TL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.21

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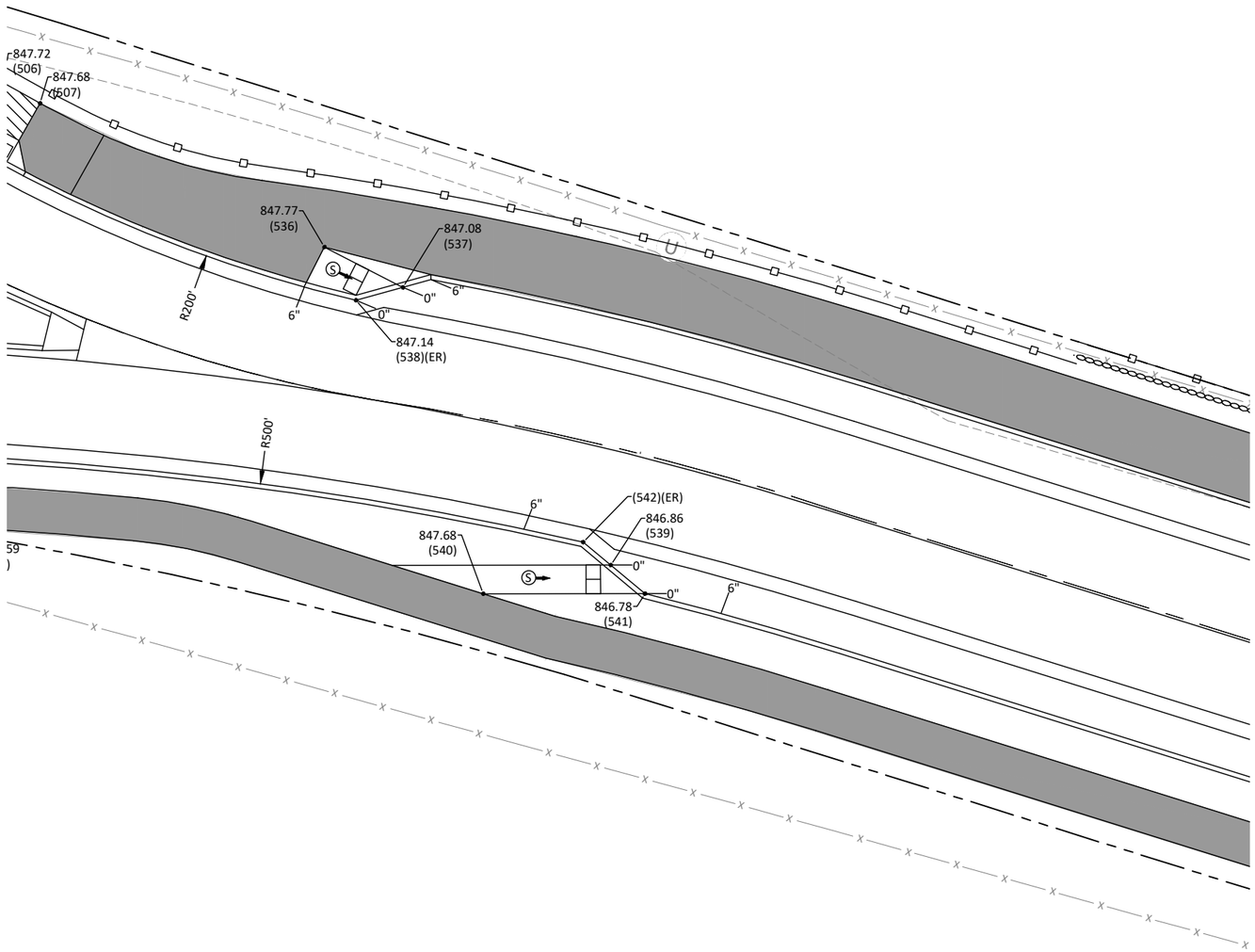

Control Points		
Point No.	X	Y
500	130999.65	524373.28
501	131005.55	524372.19
502	131001.47	524383.11
503	131007.42	524381.99
504	131071.07	524361.41
505	131076.73	524406.03
506	131154.67	524397.23
507	131159.90	524400.16
508	131149.65	524405.98
509	131154.88	524408.93
510	131000.77	524425.02
511	131007.09	524426.22
512	130999.12	524434.90
513	131005.01	524436.00
514	131041.31	524439.81
515	131100.72	524452.81
516	131138.51	524449.18
517	131144.70	524449.42
518	131138.29	524459.18
519	131144.28	524459.39
520	131041.58	524463.08
521	131051.43	524461.38
522	131092.92	524460.39
523	131101.33	524465.80
524	131052.64	524474.32
525	131087.35	524474.67
526	131096.92	524477.29
527	131046.93	524503.37
528	131068.86	524503.34
529	131090.79	524503.29
530	130959.50	524383.32
531	130952.80	524388.33
532	130957.42	524389.86
533	130947.43	524426.32
534	130943.18	524429.55
535	130958.57	524432.64
536	131199.74	524420.33
537	131210.74	524425.96
538	131204.16	524427.77
539	131239.85	524464.91
540	131221.98	524468.91
541	131244.65	524468.91
542	131235.97	524461.68
543	130948.56	524425.47
544	131031.97	524433.83
545	131049.62	524453.49
546	130952.44	524410.68
547	130965.51	524403.66
548	130984.22	524400.55
549	131014.53	524394.93

Control Points		
Point No.	X	Y
850	130963.47	524389.81
851	130981.67	524386.79
852	131057.11	524365.55
853	131108.62	524374.30
854	131046.73	524406.05
855	131059.54	524381.46
856	131095.60	524382.73
857	131106.49	524409.84
858	131091.79	524431.99
859	131055.97	524427.70
860	131084.81	524493.18
861	131090.65	524464.71
862	131113.28	524449.11
863	131027.80	524392.00
864	131029.85	524416.47
865	131124.68	524408.85
866	131119.90	524433.24
867	131074.19	524450.98

NOTES:
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LEGEND

- XXX — CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- PEDESTRIAN ACCESS ROUTE
- X" — CURB HEIGHT
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- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW

HORZ. SCALE 0 10 20 FEET

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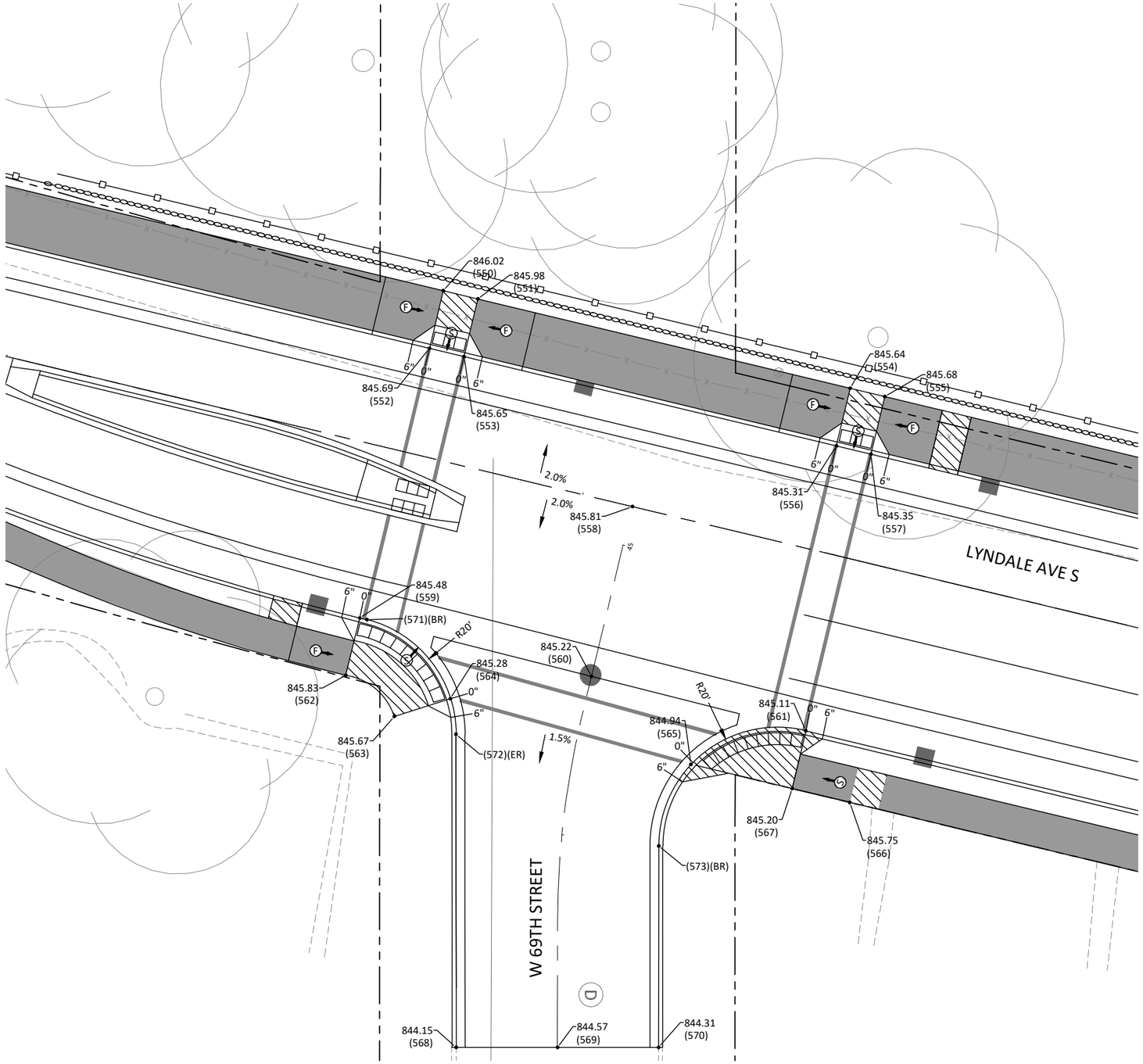
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.22



Control Points		
Point No.	X	Y
550	131700.68	524553.11
551	131706.51	524554.51
552	131698.34	524562.84
553	131704.18	524564.24
554	131769.36	524569.61
555	131775.20	524571.61
556	131767.03	524579.33
557	131772.86	524580.74
558	131732.59	524589.57
559	131686.55	524608.37
560	131735.67	524618.21
561	131761.83	524627.42
562	131684.17	524618.04
563	131692.37	524624.98
564	131701.84	524621.98
565	131742.45	524633.11
566	131769.27	524639.48
567	131759.55	524637.19
568	131702.80	524680.86
569	131719.89	524680.85
570	131736.99	524680.84

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LEGEND

- XXX — CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- PEDESTRIAN ACCESS ROUTE
- X" — CURB HEIGHT
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- DRAINAGE FLOW ARROW

HORZ. SCALE 0 10 20 FEET

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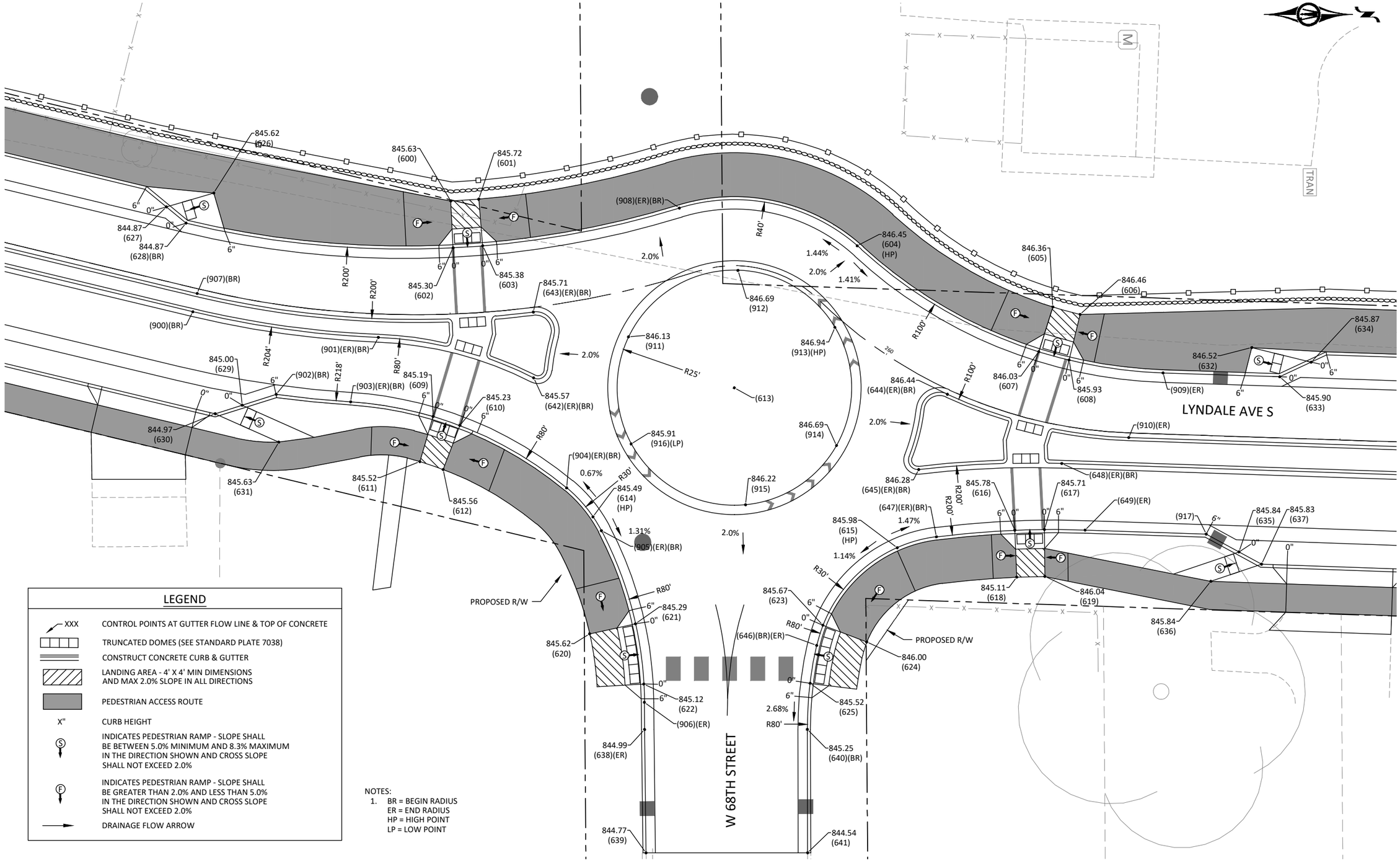
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.23



LEGEND

XXX	CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
	TRUNCATED DOMES (SEE STANDARD PLATE 7038)
	CONSTRUCT CONCRETE CURB & GUTTER
	LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
	PEDESTRIAN ACCESS ROUTE
X"	CURB HEIGHT
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
	DRAINAGE FLOW ARROW

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.24

Control Points		
Point No.	X	Y
600	132307.49	524701.20
601	132313.46	524700.78
602	132307.99	524711.18
603	132314.29	524710.75
604	132394.04	524710.77
605	132435.71	524723.82
606	132441.50	524725.42
607	132432.71	524733.36
608	132439.15	524735.15
609	132303.72	524747.09
610	132309.41	524748.99
611	132300.88	524756.68
612	132305.86	524758.35
613	132367.85	524741.00
614	132337.76	524768.46
615	132402.53	524775.07
616	132427.58	524771.37
617	132433.89	524771.21
618	132433.98	524781.36
619	132433.98	524781.20
620	132337.01	524793.37
621	132346.78	524791.25
622	132348.55	524804.07
623	132386.70	524791.56
624	132396.03	524795.12
625	132383.97	524803.94
626	132257.02	524699.49
627	132246.92	524702.41
628	132251.09	524705.90
629	132263.03	524722.66
630	132257.30	524746.47
631	132270.82	524752.52
632	132478.05	524732.49
633	132484.03	524738.72
634	132490.71	524735.61
635	132475.33	524776.00
636	132469.32	524782.24
637	132480.12	524778.61
638	132348.72	524813.74
639	132349.02	524840.01
640	132383.38	524813.75
641	132383.42	524840.01
642	132325.12	524738.87
643	132325.07	524724.86
644	132413.24	524742.41
645	132407.14	524758.43
646	132385.38	524795.86
647	132410.91	524772.75
648	132437.59	524757.15
649	132442.55	524771.32

Control Points		
Point No.	X	Y
900	132252.54	524724.77
901	132292.06	524730.25
902	132270.31	524742.35
903	132286.14	524743.96
904	132332.16	524762.30
905	132339.54	524771.43
906	132348.68	524807.97
907	132253.48	524720.88
908	132356.18	524702.74
909	132459.17	524737.87
910	132451.88	524751.63
911	132345.33	524730.14
912	132368.66	524716.01
913	132389.29	524728.14
914	132389.62	524753.29
915	132370.23	524765.89
916	132345.88	524752.93
917	132468.33	524772.21

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.25

Control Points		
Point No.	X	Y
650	132728.88	524745.91
651	132726.61	524763.76
652	132725.61	524771.70
653	132681.55	524786.17
654	132687.62	524786.66
655	132723.22	524790.55
656	132680.79	524796.14
657	132686.77	524796.61
658	132757.19	524747.91
659	132761.46	524741.79
660	132749.48	524739.82
661	132747.91	524729.45
662	132764.95	524691.46
663	132729.11	524743.92
664	132743.40	524687.10
665	132721.72	524682.71
666	132714.36	524723.66
667	132704.45	524722.22
668	132702.57	524727.65
669	132711.26	524732.65
670	132691.71	524731.78
671	132685.73	524731.33
672	132690.97	524741.72
673	132684.98	524741.28

LEGEND

- XXX — CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
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HORZ. SCALE 0 10 20 FEET

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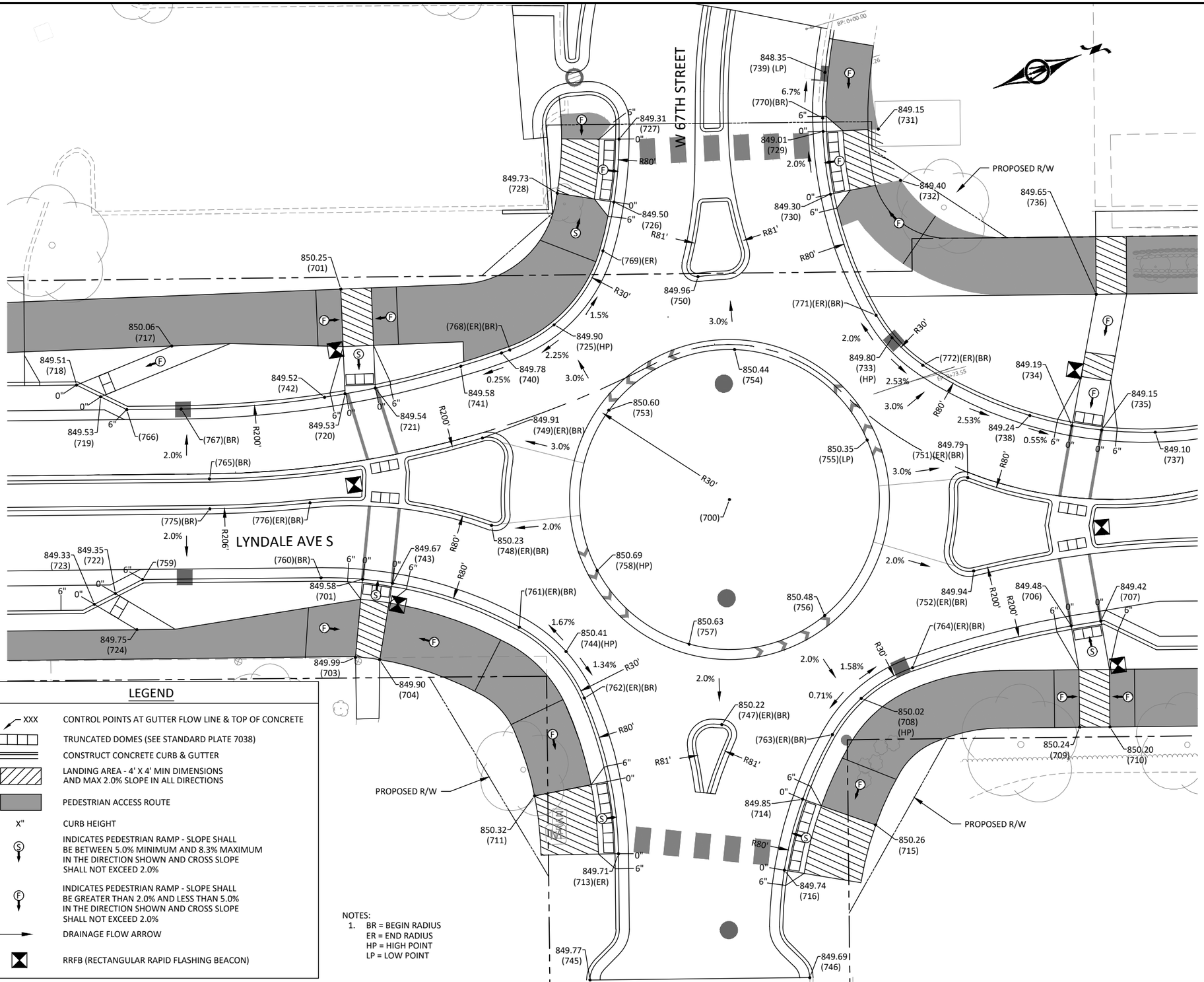
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.26



LEGEND

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Control Points		
Point No.	X	Y
700	133075.20	524879.69
701	133001.07	524868.27
702	133006.36	524871.11
703	132994.13	524882.34
704	132998.52	524884.48
705	133031.65	524896.06
706	133130.08	524927.60
707	133135.96	524928.82
708	133085.70	524926.14
709	133124.40	524947.12
710	133130.11	524949.24
711	133017.71	524921.01
712	133032.99	524923.64
713	133029.24	524937.79
714	133067.53	524940.77
715	133079.33	524950.81
716	133059.06	524952.72
717	132993.17	524814.80
718	132961.51	524811.56
719	132965.17	524815.47
720	133247.22	524772.48
721	133253.29	524773.55
722	132653.87	524853.24
723	132949.18	524853.75
724	132955.20	524861.49
725	133055.00	524834.45
726	133311.14	524755.87
727	133316.58	524744.48
728	133301.17	524750.15
729	133355.23	524757.61
730	133352.15	524769.85
731	133365.72	524761.11
732	133366.22	524772.27
733	133117.19	524861.03
734	133380.72	524830.32
735	133385.96	524833.25
736	133394.64	524807.51
737	133159.60	524897.47
738	133137.37	524885.38
739	133123.63	524806.66
740	133043.19	524835.93
741	133034.61	524835.50
742	133006.96	524831.56
743	133006.38	524871.16
744	133033.91	524896.30
745	133014.89	524959.34
746	133056.13	524974.59
747	133057.79	524921.06
748	133028.99	524867.41
749	133033.54	524850.45
750	133085.32	524835.73
751	133121.35	524892.52
752	133115.80	524910.39

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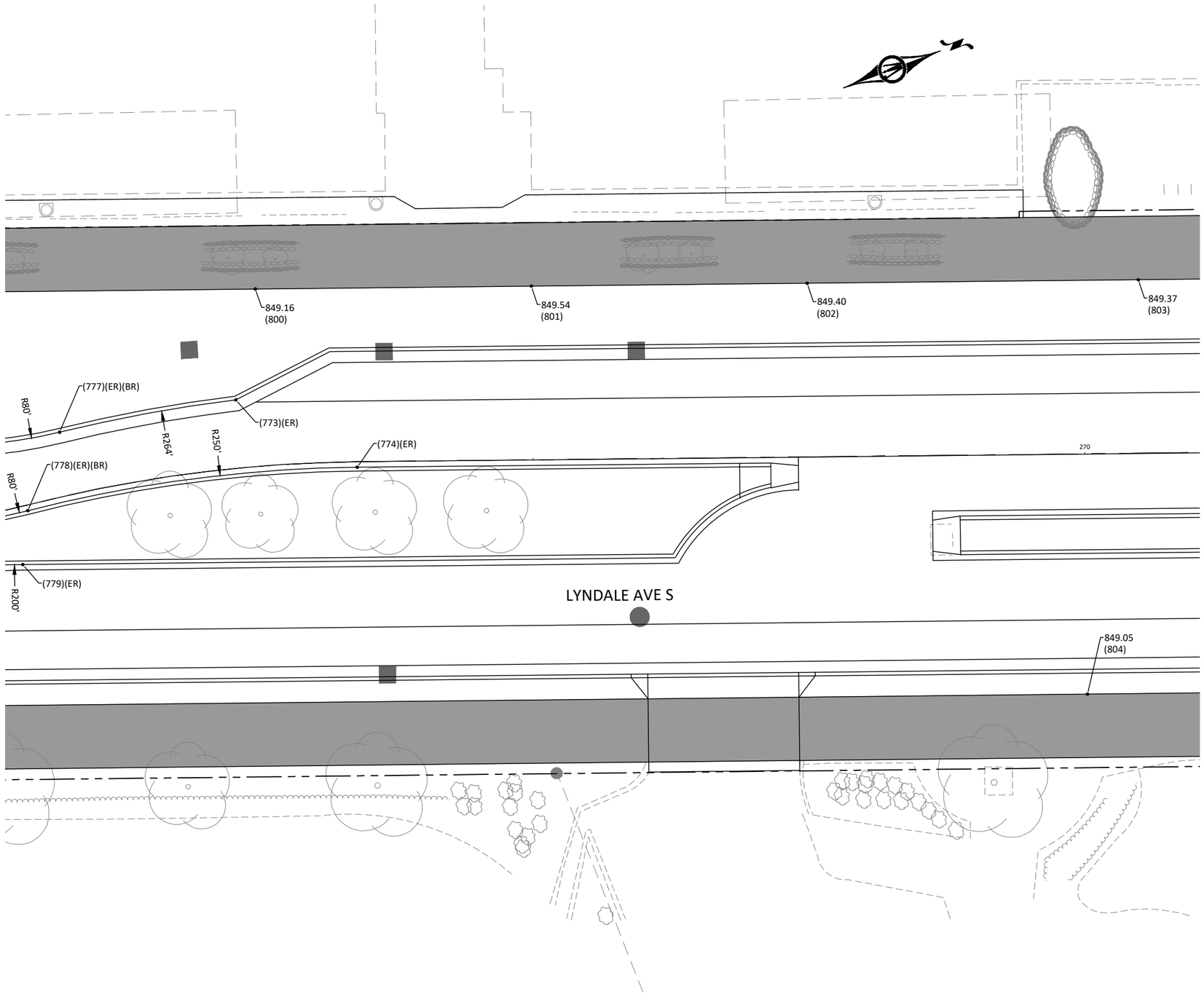

Control Points		
Point No.	X	Y
753	133059.13	524854.31
754	133086.94	524851.96
755	133105.24	524878.33
756	133084.78	524908.05
757	133057.40	524903.69
758	133045.51	524883.37
759	132959.95	524852.58
760	132993.41	524865.00
761	133026.92	524888.39
762	133034.00	524906.28
763	133077.71	524930.82
764	133097.45	524924.07
765	132979.66	524838.57
766	132969.15	524819.73
767	132979.33	524823.51
768	133044.94	524835.97
769	133069.42	524824.14
770	133119.95	524815.03
771	133115.83	524855.67
772	133121.00	524868.34
773	133208.31	524907.38
774	133224.49	524926.64
775	132977.57	524844.19
776	132996.71	524850.25
777	133176.41	524901.43
778	133165.93	524912.66
779	133161.61	524921.46

LEGEND

- XXX — CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- PEDESTRIAN ACCESS ROUTE
- X" — CURB HEIGHT
- Ⓢ — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- Ⓕ — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW

NOTES:
1. BR = BEGIN RADIUS
   ER = END RADIUS
   HP = HIGH POINT
   LP = LOW POINT

HORZ. 0 10 20
SCALE FEET

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LIC. NO. 47099 DATE 2/19/19

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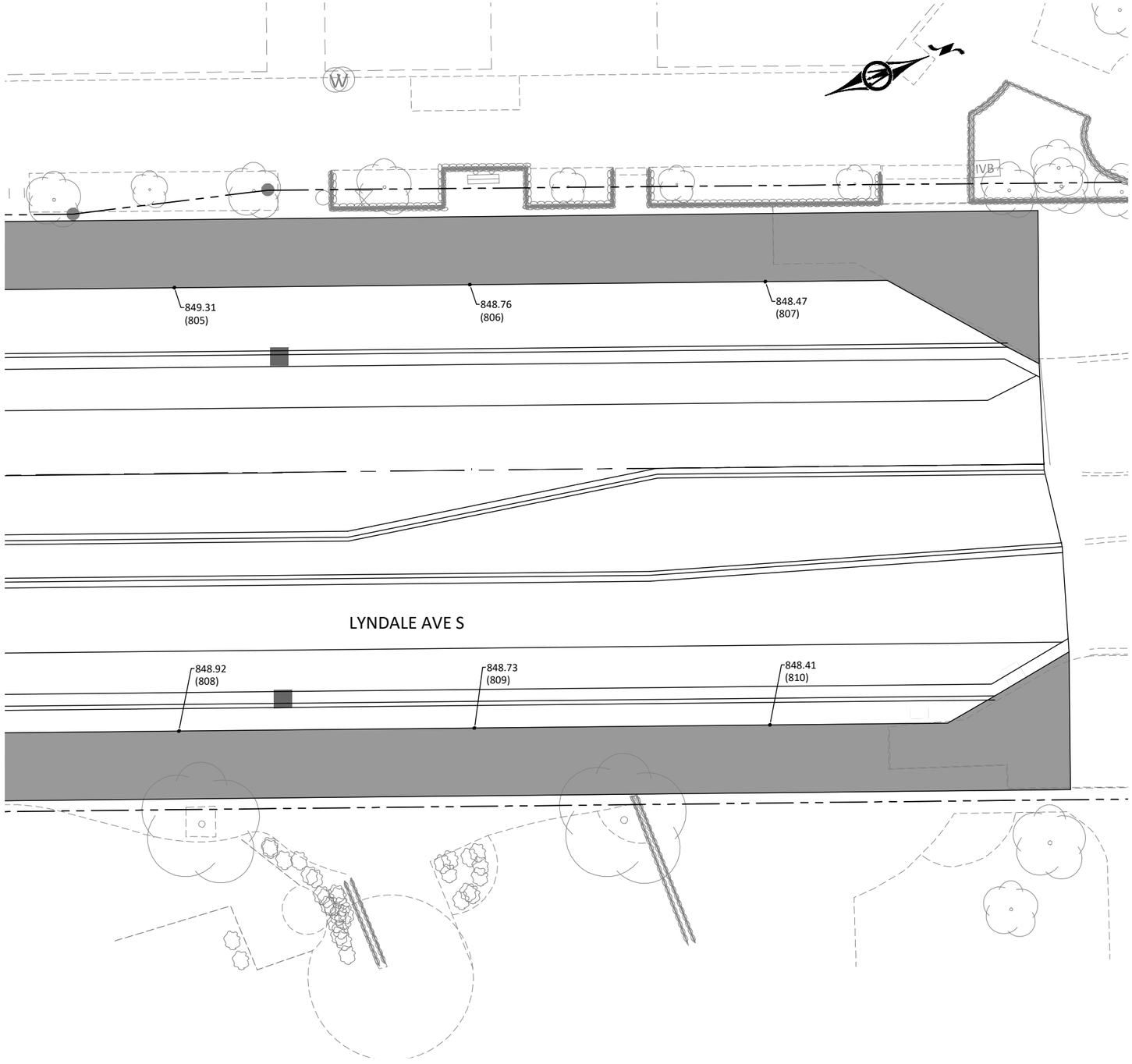
DRAWN	KME
CHECKED	TL
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
INTERSECTION DETAILS

SHEET C6.28



Control Points		
Point No.	X	Y
800	133218.82	524889.88
801	133265.70	524907.26
802	133312.58	524924.64
803	133368.84	524945.50
804	133333.39	525012.35
805	133406.34	524959.41
806	133453.22	524976.79
807	133500.10	524994.17
808	133380.27	525029.73
809	133427.15	525047.11
810	133474.03	525064.50

LEGEND

- XXX — CONTROL POINTS AT GUTTER FLOW LINE & TOP OF CONCRETE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- PEDESTRIAN ACCESS ROUTE
- X" — CURB HEIGHT
- (S) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) — INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW

NOTES:
1. BR = BEGIN RADIUS
   ER = END RADIUS
   HP = HIGH POINT
   LP = LOW POINT

HORZ. SCALE 0 10 20 FEET

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INTERSECTION DETAILS

SHEET C6.29

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

STANDARD PLATES		
	PLATE NO.	PLATE DESCRIPTION
	8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
	8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED), (3 SHEETS)
(1)	8122F	PEDESTAL & PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT), (2 SHEETS)
(2)	8123G	POLE AND MAST ARM, (2 SHEETS)

(1) SEE SPECIAL PROVISIONS.
(2) SIGNAL MOUNTING PLATE (END OF MAST ARM) APPLIES.

TABULATION OF ESTIMATED QUANTITIES			
NOTES	ITEM DESCRIPTION	UNIT	TOTAL
(3)	REMOVE SIGNAL SYSTEM "A"	EACH	1
(3)	REMOVE SIGNAL SYSTEM "B"	EACH	1
	TRAFFIC CONTROL SIGNAL SYSTEM "A"	SIG SYS	1
	TRAFFIC CONTROL SIGNAL SYSTEM "B"	SIG SYS	1

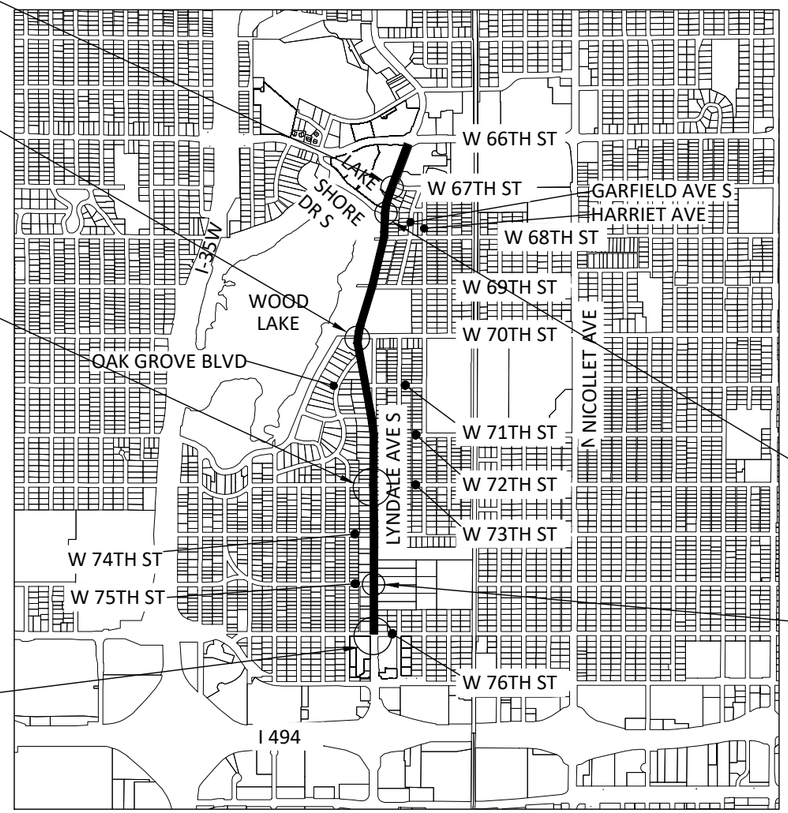
(3) SEE SPECIAL PROVISIONS.

PEDESTRIAN CROSSWALK FLASHER F & G
LYNDALE AVE. AT W. 67TH ST.

PEDESTRIAN CROSSWALK FLASHER B, C & D
LYNDALE AVE. AT W. 70TH ST.

TRAFFIC SIGNAL SYSTEM B
EMERGENCY VEHICLE PREEMPTION SYSTEM
LYNDALE AVE. AT W. 73RD ST.

TRAFFIC SIGNAL SYSTEM A
EMERGENCY VEHICLE PREEMPTION SYSTEM
LYNDALE AVE. AT W. 76TH ST.



PEDESTRIAN CROSSWALK FLASHER E
LYNDALE AVE. AT LAKE SHORE DR.

PEDESTRIAN CROSSWALK FLASHER A
LYNDALE AVE. AT W. 75TH ST.

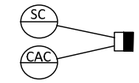
COLOR CODING OF CONDUCTORS

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
BLK/R	BLACK WITH RED TRACER
WH/R	WHITE WITH RED TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN
Y	YELLOW

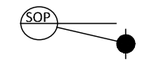
ABBREVIATIONS
WIRING DIAGRAM LEGEND

●	DENOTES TAP OF CABLED CONDUCTOR OR PARALLELING OF CABLED CONDUCTORS WITH TAPS AS INDICATED BY THE WIRING DIAGRAM
ø	PHASE
2-1	SIGNAL PHASE AND FACE NUMBER
RED	RED
YEL	YELLOW
GRN	GREEN
RLTA	RED LEFT TURN ARROW
YLTA	YELLOW LEFT TURN ARROW
FYLTA	FLASHING YELLOW LEFT TURN ARROW
GLTA	GREEN LEFT TURN ARROW
RRTA	RED RIGHT TURN ARROW
YRTA	YELLOW RIGHT TURN ARROW
FYRTA	FLASHING YELLOW RIGHT TURN ARROW
GRTA	GREEN RIGHT TURN ARROW
DW	DON'T WALK
W	WALK
NEU	NEUTRAL
SPARE	SPARE CONDUCTOR
EQG	EQUIPMENT GROUND
○	EQUIPMENT GROUND CONNECTION
PB	PUSH BUTTON
IND	INDICATOR
EVP	EMERGENCY VEHICLE PREEMPTION
PED OR P	PEDESTRIAN INDICATION
APS	ACCESSIBLE PEDESTRIAN SIGNAL
LUM	LUMINAIRE
CAC	CONTROLLER AND CABINET
SC	SERVICE CABINET
SOP	SOURCE OF POWER
HH	HANDHOLE
MA	MAST ARM
SA	SIGNAL ASSEMBLY PEDESTAL MOUNT
PFA	PEDESTRIAN FLASHER ASSEMBLY PEDESTAL MOUNT
FYEL	FLASHING YELLOW
RRFB	RECTANGULAR RAPID FLASHING BEACON
D_	DETECTOR ZONE (_ DENOTES PHASE)
TMC	TRAFFIC MANAGEMENT CAMERA
———	NEUTRAL CONDUCTOR
– – –	INPLACE STRUCTURE
———	INPLACE CONDUCTOR OR CONDUIT
APS	ACCESSIBLE PEDESTRIAN SIGNAL
SM	SINGLE MODE FIBER OPTIC CABLE
MM	MULTI MODE FIBER OPTIC CABLE

SIGNAL PLAN LAYOUT LEGEND



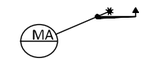
CONTROLLER CABINET AND BATTERY BACK-UP READY SERVICE CABINET WITH METER AND DISCONNECT ON ONE CONCRETE PAD



SOURCE OF POWER
PAD MOUNTED
POLE MOUNTED

■ PVC HANDHOLE WITH METAL COVER

PULL VAULT

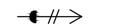


MAST ARM SIGNAL POLE WITH OPTIONAL LUMINAIRE SHAFT EXTENSION AS NOTED

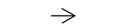
APS PUSH BUTTON STATION

VIDEO DETECTION CAMERA AND TRAFFIC MANAGEMENT CAMERA

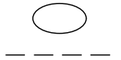

LUMINAIRE


EMERGENCY VEHICLE PREEMPTION (EVP) ONE-WAY

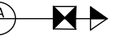

SIGNAL FACE WITH BACKGROUND SHIELD


PEDESTRIAN INDICATION

SIGNAL PHASE AND FACE NUMBER

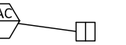

VIDEO DETECTION ZONE

RIGID STEEL CONDUIT (RSC)



RECTANGULAR RAPID FLASH BEACON

INPLACE HANDHOLE


INPLACE CONDUIT

INPLACE CONTROLLER AND CABINET

INPLACE SOURCE OF POWER
PAD MOUNTED
POLE MOUNTED

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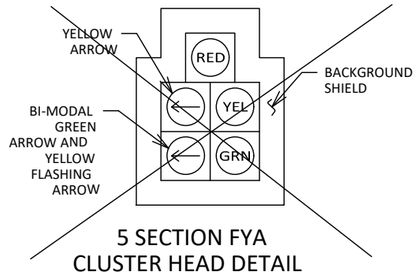
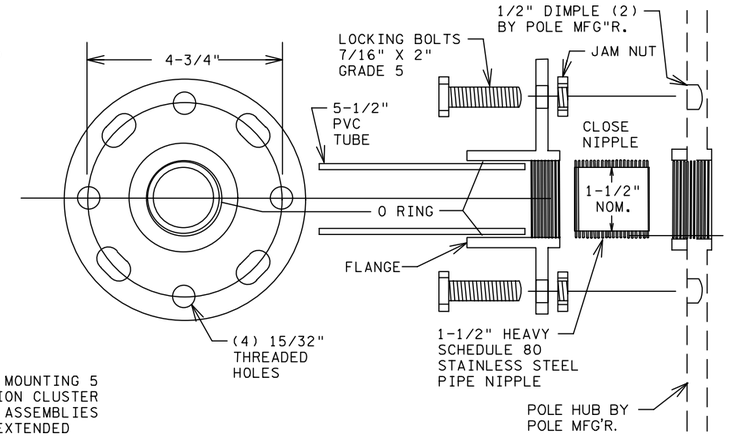
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

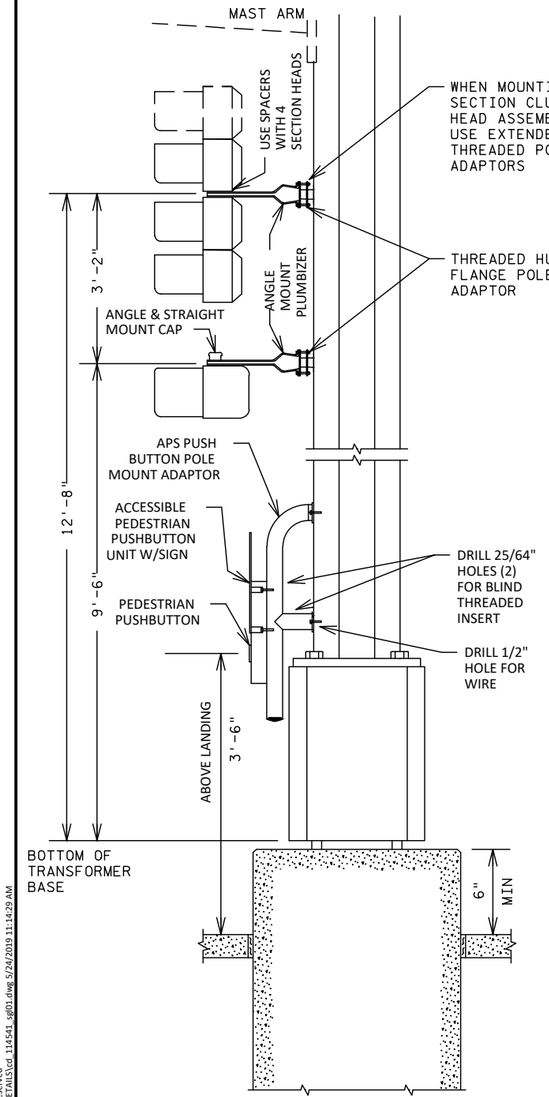
SHEET C7.01



5 SECTION FYA CLUSTER HEAD DETAIL

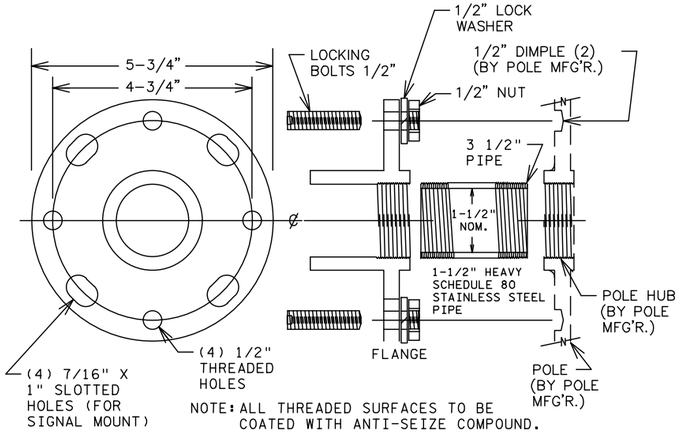


THREADED HUB AND FLANGE POLE ADAPTOR



TYPICAL SIGNAL POLE MOUNTING

NOT TO SCALE

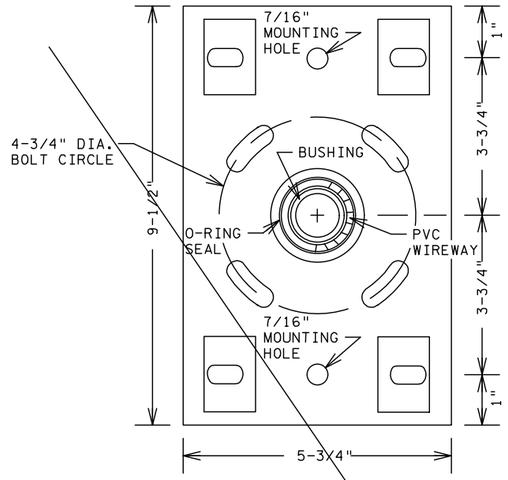


NOTE: ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.

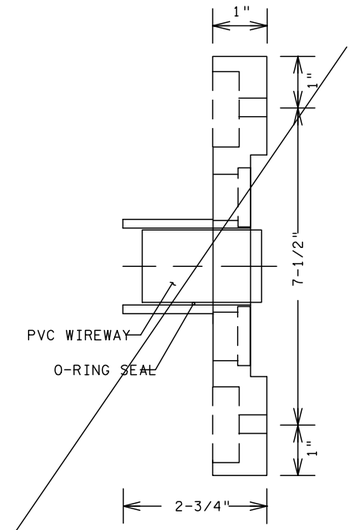
EXTENDED THREADED POLE ADAPTER

NOTES:

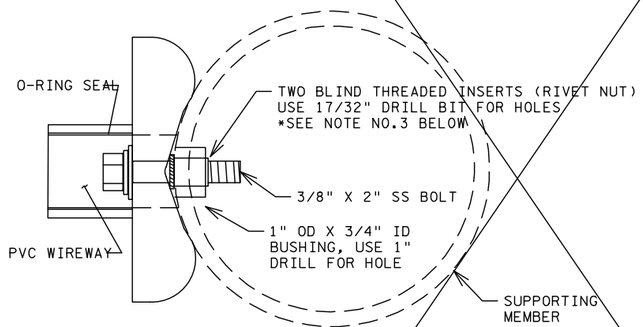
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



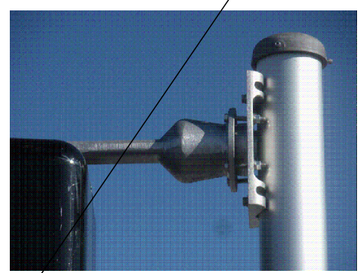
BOLT ON HUB & FLANGE



SIDE VIEW

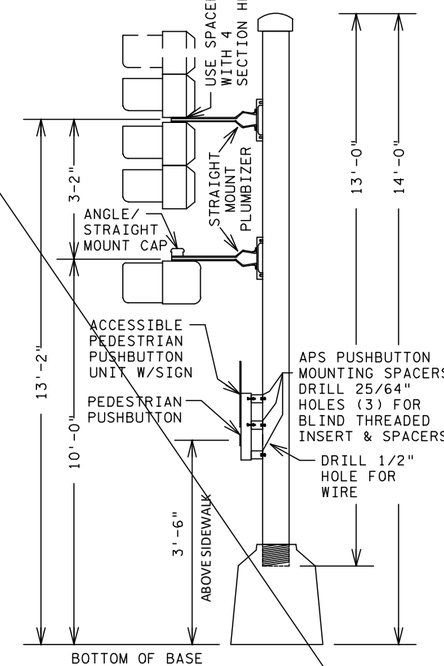


TOP VIEW



NOTES:

1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



TYPICAL PEDESTAL MOUNTING

NOT TO SCALE

10-14-15

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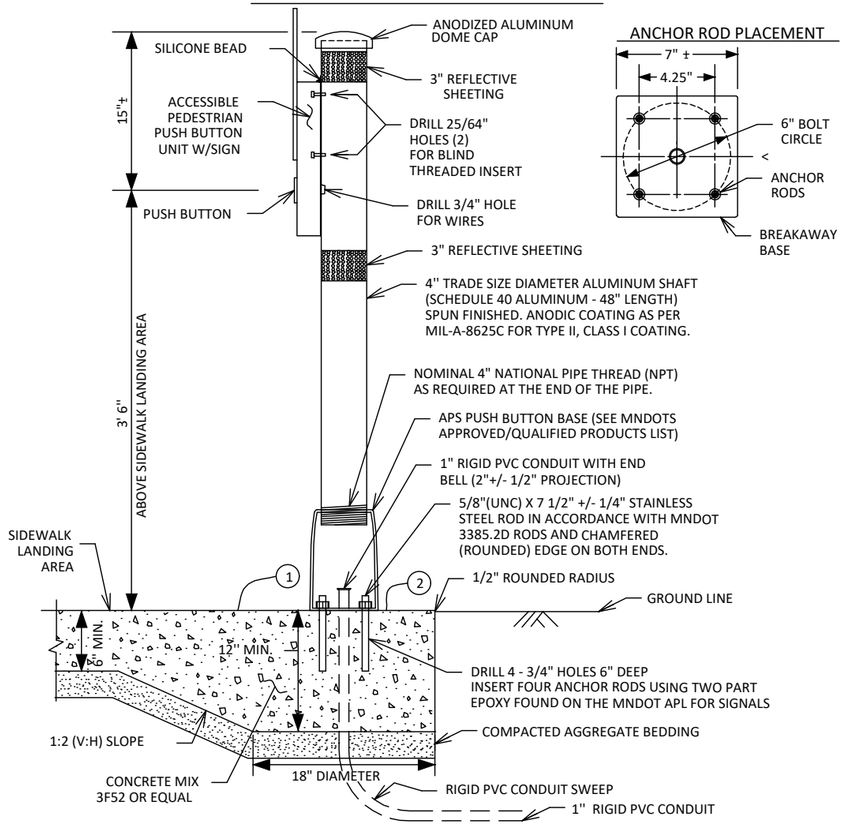
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.02

APS PUSH BUTTON STATION



NOTES:

PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHAFT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE SHAFT.

ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.

PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.

INSTALL BLIND THREADED INSERTS USING MANUFACTURER'S SPECIFIC INSERTION TOOL.

USE ZINC PLATED STEEL 1/4 - 20 UNC BLIND THREADED INSERTS SUITABLE FOR MOUNTING ON SURFACE WALL THICKNESS OF .337. APPROVED BLIND INSERTS ARE LISTED ON MNDOT'S APPROVED/QUALITY PRODUCTS LIST WEBSITE FOR TRAFFIC SIGNALS.

USE APS 1/4 - 20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.

APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" SHAFT.

USE WHITE REFLECTIVE SHEETING AT INTERSECTION CORNERS AND YELLOW REFLECTIVE SHEETING IN CENTER MEDIANS. APPROVED TUBE DELINEATOR SHEETING IS LISTED ON MNDOT'S APPROVED/QUALIFIED PRODUCTS LIST WEBSITE FOR SIGNING.

AN 18" X 6" FIBER FORMING TUBE MAY BE USED FOR THE LOWER HALF OF THE FOUNDATION WHEN CONDITIONS DO NOT ALLOW FOR THE 18" X 6" HOLE TO STAND OPEN.

(1) THE PUSH BUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1:2 (V:H) SLOPE GRADE WHERE THE 6" MIN SIDEWALK DEPTH TRANSITIONS TO THE 12" MIN FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1:2 (V:H) SLOPE GRADING 360 DEGREES FOR THE TRANSITION FROM THE SIDEWALK TO THE FOUNDATION WHEN THE FOUNDATION IS NOT LOCATED NEAR EDGE OF SIDEWALK AND IS SURROUNDED BY CONCRETE WALK.

(2) ENSURE CONCRETE CONTROL JOINTS AND EDGE OF CONCRETE WALK ARE A MINIMUM 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:

(1) THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE OUTSIDE EDGE OF CROSSWALK.

(2) A MINIMUM 4 FT X 4 FT LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON, WITH A 2 PERCENT MAXIMUM SLOPE IN ALL DIRECTIONS.

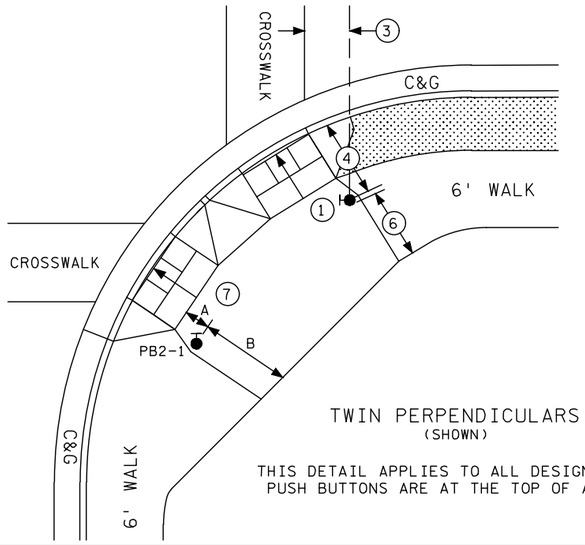
(3) BUTTONS SHALL BE WITHIN 5 FT OF THE OUTSIDE EDGE OF THE CROSSWALK.

(4) BUTTONS SHALL BE BETWEEN 1.5 FT AND 10 FT FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSH BUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.

(5) BUTTONS SHALL BE AT LEAST 10 FT APART.

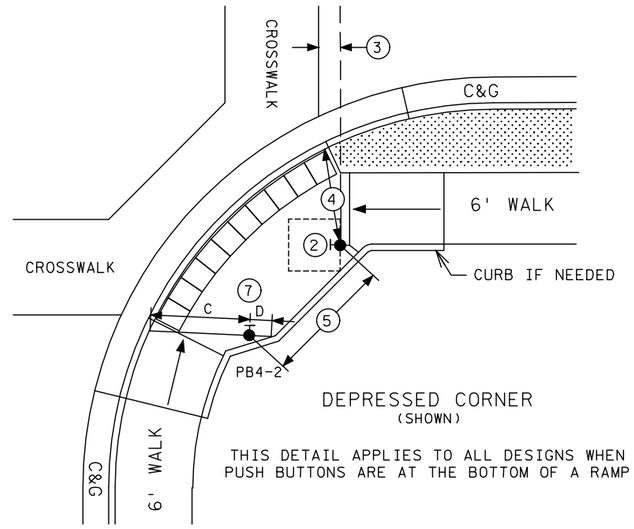
(6) PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6 FT MINIMUM CLEAR DISTANCE BETWEEN A PUSH BUTTON AND ANY OBSTRUCTIONS,INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSH BUTTON.

(7) BUTTON SHOULD BE 2 FT MINIMUM FROM RAMP GRADE BREAK AND BACK OF WALK.



TWIN PERPENDICULARS
(SHOWN)

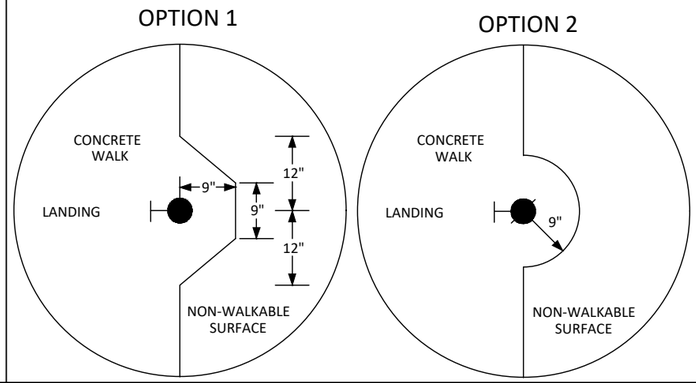
THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE TOP OF A RAMP



DEPRESSED CORNER
(SHOWN)

THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE BOTTOM OF A RAMP

CONTRACTOR MUST USE OPTION 1 OR 2 WHEN THE APS PUSH BUTTON IS SHOWN AT THE EDGE OF WALK. OPTION USED (OR SELECTED) MUST BE THE SAME THROUGHOUT THE ENTIRE PROJECT.



SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB2-1	–	–	A	B
PB4-2	–	–	C	D

A – DISTANCE MEASURED FROM THE PUSH BUTTON TO THE FRONT OF LANDING/TOP OF RAMP

B – CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE BACK OF LANDING/EDGE OF WALK

C – CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE OUTSIDE EDGE OF DOMES IN THE DIRECTION OF TRAVEL

D – CLEAR DISTANCE FROM THE PUSH BUTTON TO THE BACK OF LANDING MEASURED IN THE OPPOSITE DIRECTION OF TRAVEL

04-15-16

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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CHECKED	BTN
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

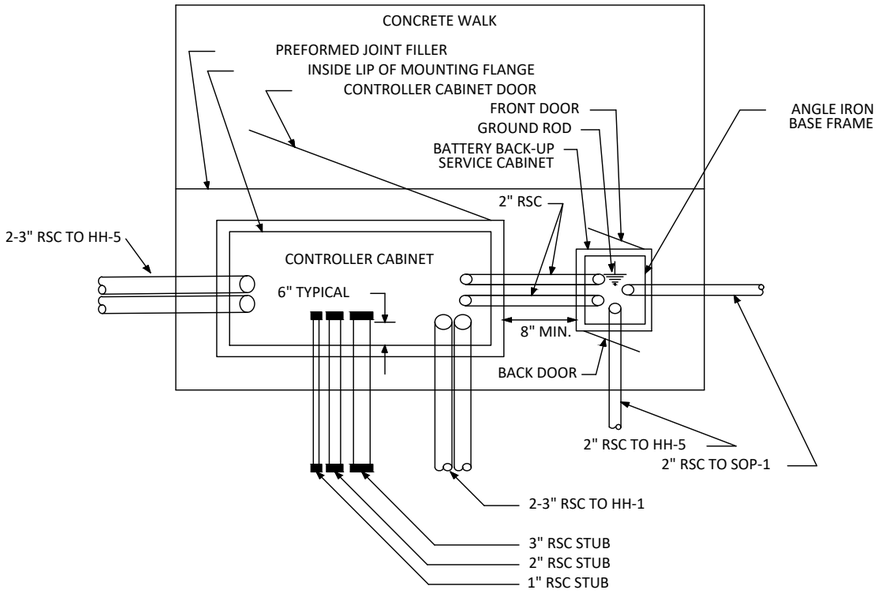
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.03

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

NOT TO SCALE FOR ILLUSTRATION ONLY
SEE SIGNAL PLAN LAYOUT FOR ADDITIONAL INFORMATION

PLAN VIEW



NOTES:

1. THE UPPER PART OF THE CONCRETE PAD SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER, AS DIRECTED BY THE ENGINEER.

2. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).

3. THE LOCATION OF CONDUITS WITHIN THE CONCRETE PAD SHALL BE 6" TO THE CENTER OF THE CONDUIT FROM THE INSIDE LIP OF THE MOUNTING FLANGE ON THE DOOR SIDE OF THE CABINET. THE CONDUITS SHALL PROJECT 2" TO 3" ABOVE THE CONCRETE. THE CONDUITS SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (CONTROL EQUIPMENT, SUPPORTING MEMBERS, ETC.). FINAL CONDUIT LOCATIONS, AS DIRECTED BY THE ENGINEER.

4. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL BE INSTALLED WITHIN THE CONCRETE PAD.

5. A CONCRETE SIDEWALK SHALL BE ON THE DOOR SIDE OF THE CONTROLLER CABINET, AS DIRECTED BY THE ENGINEER.

6. THE CONCRETE PAD AND THE CONCRETE WALK SHALL BE CONCRETE MIX 3G52 OR EQUAL, AS DIRECTED BY THE ENGINEER.

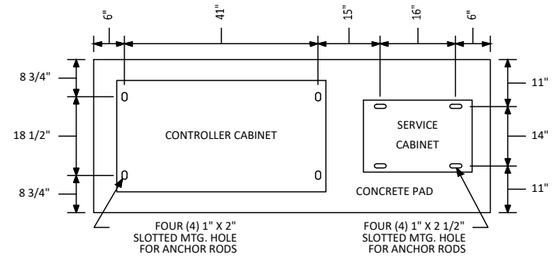
7. THE CONCRETE PAD ELEVATION SHALL BE ADJUSTED TO MAINTAIN THE 12" CLEARANCE ABOVE THE EXISTING OR PROPOSED GROUND LINE, AS DIRECTED BY THE ENGINEER.

8. THE SERVICE CABINET DOORS SHALL FACE AWAY FROM THE CONTROLLER CABINET TO AVOID CONFLICT WITH THE CONTROLLER CABINET OR THE CONTROLLER CABINET DOOR OPEN AS SHOWN.

9. THREAD AND CAP BOTH ENDS OF ALL RSC STUBS. THE CAPS LOCATED WITHIN THE CONTROLLER CABINET SHALL BE PERMANENTLY MARKED WITH AN ARROW TO INDICATE THE DIRECTION OF THE RSC STUBS. NO RSC STUB SHALL BE TERMINATED UNDER ANY FORM OF PAVEMENT OR HARD SURFACE, AS DIRECTED BY THE ENGINEER.

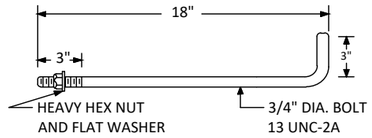
TYPICAL ANCHOR ROD LOCATION
CONTROLLER CABINET AND SERVICE CABINET

(NO SCALE)

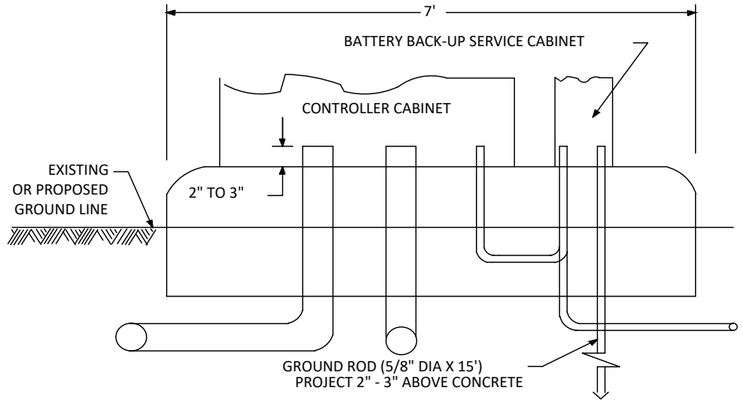


TYPICAL ANCHOR ROD
CONTROLLER CABINET AND SERVICE CABINET

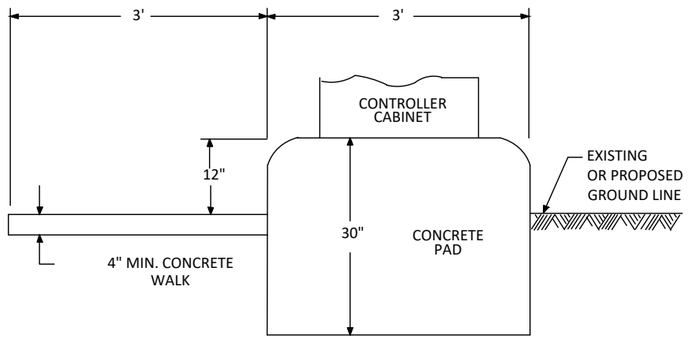
(NO SCALE)



FRONT VIEW



SIDE VIEW



NOTES:

1. MATERIAL STEEL SHALL BE ASTM, A-36. 3/4" DIA. X 21" LONG BEFORE BENDING.

2. HOT DIP GALVANIZE FULL LENGTH. NUTS SHALL RUN FREE AFTER PLATING.

3. RODS TO BE SUPPLIED WITH GALVANIZED HEAVY HEX NUT AND FLAT WASHER, ASTM, A-563 ASSEMBLED AFTER ROD PLATING.

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CLIENT PROJ. NO.			
T16114541			

SIGNAL SYSTEM A

02-09-16

CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

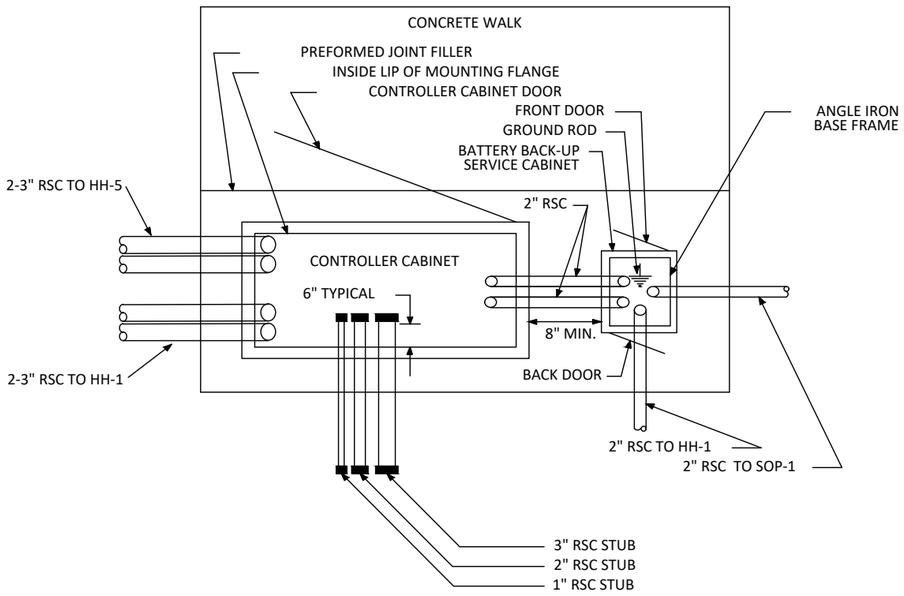
SIGNAL PLANS

SHEET C7.04

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

NOT TO SCALE FOR ILLUSTRATION ONLY
SEE SIGNAL PLAN LAYOUT FOR ADDITIONAL INFORMATION

PLAN VIEW



NOTES:

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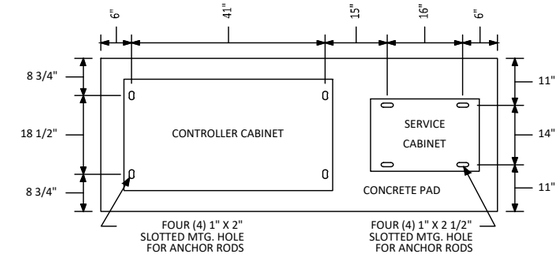
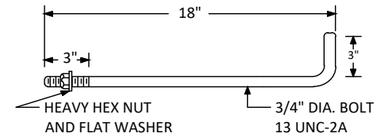
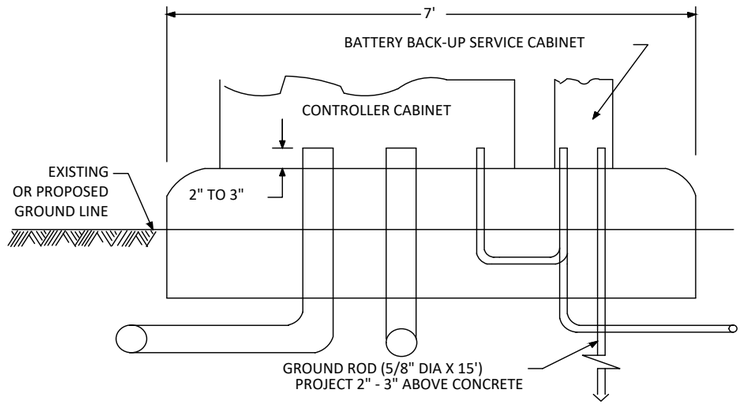
TYPICAL ANCHOR ROD LOCATION
CONTROLLER CABINET
AND
SERVICE CABINET
(NO SCALE)



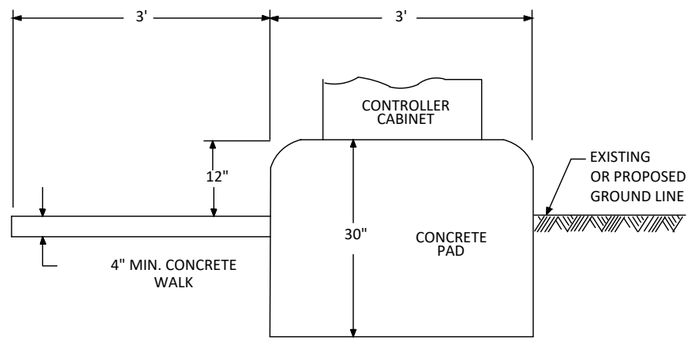
TYPICAL ANCHOR ROD
CONTROLLER CABINET
AND
SERVICE CABINET
(NO SCALE)



FRONT VIEW



SIDE VIEW



NOTES:

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NO.	REVISION	DATE

SIGNAL SYSTEM B

02-09-16

CITY OF RICHFIELD, MINNESOTA

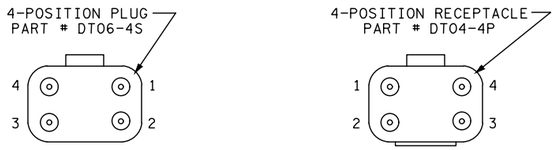
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

SIGNAL PLANS

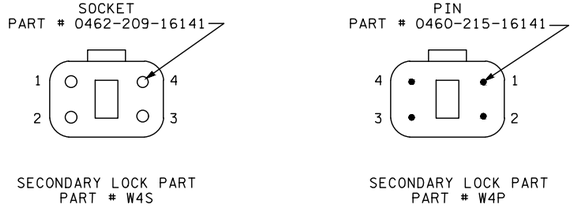
SHEET C7.05

4-POSITION CONNECTOR

(BACK VIEW)

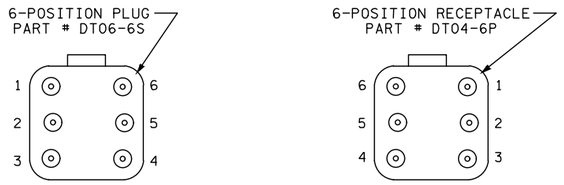


(FRONT VIEW)

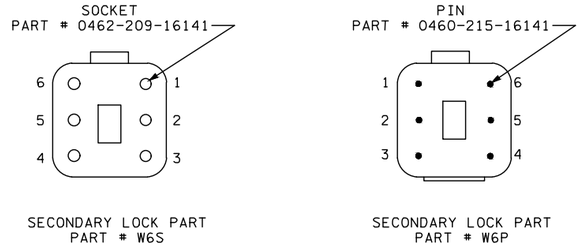


6-POSITION CONNECTOR

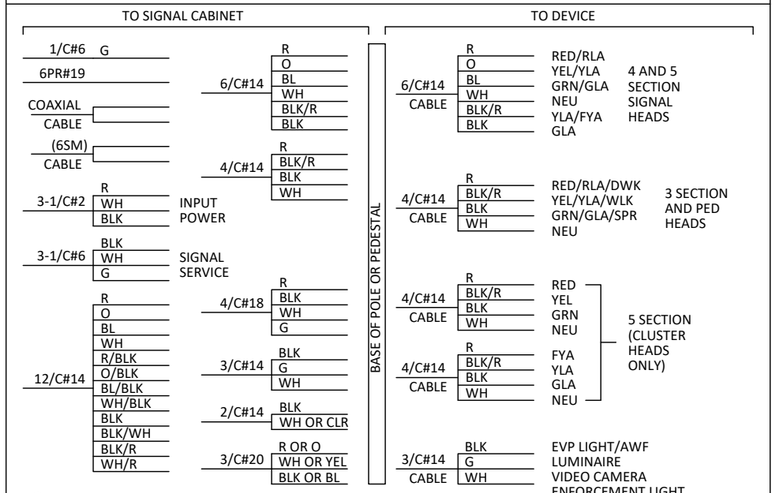
(BACK VIEW)



(FRONT VIEW)



CONDUCTOR COLOR CODE (14 GAUGE)



NOTE:
ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

4 Position DT Connector (3 Section Head/DWK/WLK)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R or R/BLK or BLK	1	R	RED or DWK
O or O/BLK or BLK/WH or BLK	2	BLK/R	YEL or WLK
BL or BL/BLK or BLK/R or BLK	3	BLK	GRN or SPR
WH or WH/BLK or WH/R	4	WH	NEU

6 Position DT Connector (4 and 5 Section Heads)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
R	1	R	RED
O	2	O	YEL
BL	3	BL	GRN
WH	4	WH	NEU
O/BLK or BLK/R (6/C)	5	BLK/R	YLA or FYLA
BL/BLK or BLK (6/C)	6	BLK	GLA

4 Position DT Connector (Used with 3 Conductor Cable Only) (EVP LHT/LUM/AWF/ VID CAM/ENF LHT)

Wire to Control Cabinet	Connector pin #	Wire to Signal Indication	Signal Indication
BLK	1	BLK	EVP LHT or LUM or RED or YEL or VID CAM or ENF LHT or AWF
(Not Used)	2	(Not Used)	(Not Used) (See Note #8)
G	3	G	EQ.G
WH	4	WH	NEU

4 Position DT Connectors (Use Two Connectors for 5 Section FYA Cluster Heads)

12 Conductor Wire to Control Cabinet	Connector pin #	4 Conductor to Signal Indication	Signal Indication
R	1	R	RED
O	2	BLK/R	YEL
BL	3	BLK	GRN
WH	4	WH	NEU
R/BLK	1	R	FYA
O/BLK	2	BLK/R	YLA
BL/BLK	3	BLK	GLA
WH/BLK	4	WH	NEU

WIRE COLOR CODE KEY

R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

NOTES:

1. DT04-P RECEPTACLE SHALL BE TERMINATED TO THE WIRING HARNESS RUNNING FROM THE BASE/JUNCTION BOX OF THE POLE TO SIGNAL INDICATIONS.
2. DT06-_S PLUG SHALL BE TERMINATED TO THE CABLES RUNNING FROM THE TRAFFIC SIGNAL CABINET TO THE BASE/JUNCTION BOX OF THE POLE.
3. THERE SHALL BE A MINIMUM OF 24 INCHES OF SLACK ON EACH CABLE IN EVERY POLE BASE /JUNCTION BOX.
4. STRIP A MAXIMUM OF 6 INCHES OF THE OUTER JACKET OF EACH SIGNAL CABLE.
5. STRIP .250 INCHES OF INSULATION FROM EACH INDIVIDUAL CONDUCTOR.
6. CRIMP PINS OR SOCKETS USING RATCHETING TYPE CRIMPING TOOL HDT-48-00. NO OTHER CRIMPING TOOL WILL BE ALLOWED.
7. WIRES MUST BE TERMINATED AS DETAILED IN TABLES DEPENDING ON WIRE COUNT.
8. ANY UNUSED PIN MUST HAVE A SEALING PLUG PLACED IN BOTH THE PLUG & RECEPTACLE (PART # 114017).
9. LABEL EACH HALF OF THE CONNECTOR (PLUG AND RECEPTACLE) WITH THE DEVICE DESIGNATION (AS INDICATED IN THE WIRING DIAGRAM) USING A PERMANENT BLACK MARKER.

12-29-15

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CITY OF RICHFIELD, MINNESOTA
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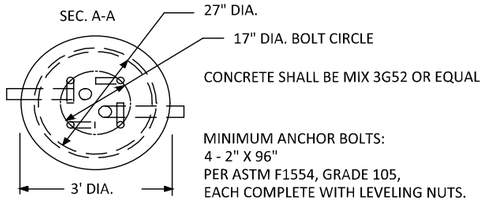
SIGNAL PLANS

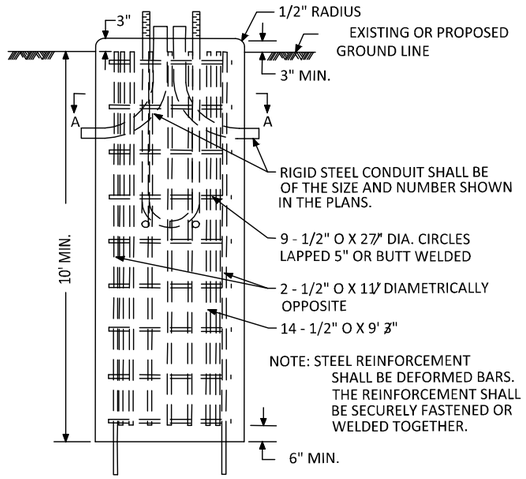
SHEET C7.06

MAST ARM SIGNAL POLE FOUNDATION
(NO SCALE)



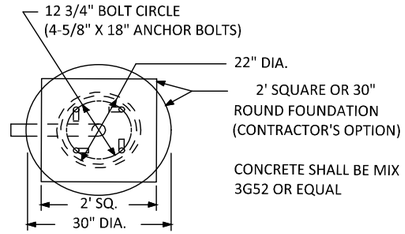
CONCRETE SHALL BE MIX 3G52 OR EQUAL

MINIMUM ANCHOR BOLTS:
4 - 2" X 96"
PER ASTM F1554, GRADE 105,
EACH COMPLETE WITH LEVELING NUTS.

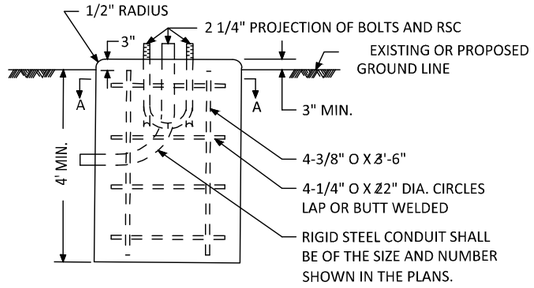


SIGNAL ASSEMBLY PEDESTAL MOUNT FOUNDATION
(NO SCALE)

SEC. A-A

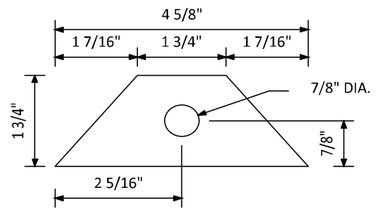


CONCRETE SHALL BE MIX 3G52 OR EQUAL



NOTE:
STEEL REINFORCEMENT SHALL BE DEFORMED BARS.
THE REINFORCEMENT SHALL BE SECURELY
FASTENED OR WELDED TOGETHER.

SIGNAL ASSEMBLY PEDESTAL MOUNT FLAT WASHER TYPICAL
(NO SCALE)



NOTE:
FLAT WASHERS SHALL BE 1/4" THICK A36
GALVANIZED STEEL.

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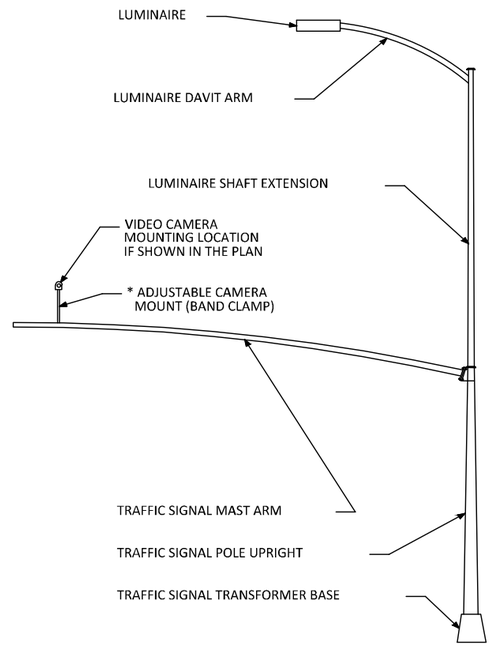
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.07

VIDEO CAMERA LOCATIONS DETAIL
(NO SCALE)



* HEIGHT OF MOUNTING BRACKET SHALL FACILITATE A CLEAR LINE OF SIGHT TO THE INTENDED FIELD OF VIEW AND ALLOW FOR FREE MOVEMENT OF THE VIDEO CAMERA. IF REQUIRED ALL COSTS TO PROVIDE AND INSTALL ADJUSTABLE CAMERA MOUNT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR TRAFFIC CONROL SIGNAL SYSTEM (SYS).

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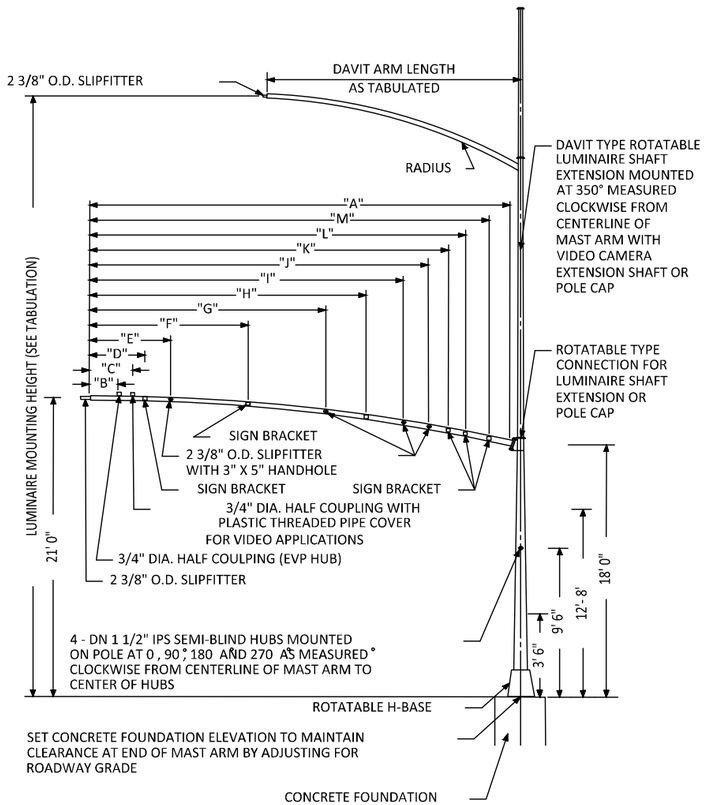
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.08

CLASSIC HEAVY MAST ARM SIGNAL POLE AND ROTATABLE LUMINAIRE SHAFT EXTENSION (NO SCALE, SEE SPECIAL PROVISIONS)



MAST ARM POLE MOUNTING DETAILS															
POLE	MAST ARM DIMENSIONS													LUMINAIRE MOUNTING HEIGHT	DAVIT ARM LENGTH
	"A" MAST ARM	"B" EVP HUB	"C" VIDEO HUB(1)	"D" FYA SIGN	"E" SIG. HEAD	"F" SIGN	"G" SIG. HEAD	"H" SIGN	"I" SIG. HEAD	"J" SIG. HEAD	"K" SIGN	"L" SIGN	"M" SIGN		
MA-1A	35.0'	3.0'	4.0'	6.0'	10.0'	-----	-----	-----	-----	-----	13.0'	15.0'	17.0'	40.0'	8.0'
MA-2A	45.0'	3.0'	4.0'	6.0'	11.0'	-----	-----	-----	-----	-----	14.0'	16.5'	19.0'	40.0'	8.0'
MA-3A	30.0'	3.0'	4.0'	6.0'	10.0'	-----	-----	-----	-----	-----	13.0'	15.0'	17.0'	40.0'	8.0'
MA-4A	40.0'	3.0'	4.0'	6.0'	11.0'	-----	-----	-----	-----	-----	14.0'	16.5'	19.0'	40.0'	8.0'
MA-1B	15.0'	3.0'	4.0'	6.0'	-----	-----	-----	-----	-----	-----	8.0'	10.0'	12.0'	40.0'	8.0'
MA-2B	30.0'	3.0'	4.0'	6.0'	11.0'	-----	-----	-----	-----	-----	14.0'	16.5'	19.0'	40.0'	8.0'
MA-3B	25.0'	3.0'	4.0'	6.0'	-----	-----	-----	-----	-----	-----	9.0'	11.0'	13.0'	40.0'	8.0'
MA-4B	25.0'	3.0'	4.0'	6.0'	11.0'	-----	-----	-----	-----	-----	14.0'	16.5'	19.0'	40.0'	8.0'

SPECIFIC NOTES:

(1) MOUNT WITH ADJUSTABLE CAMERA MOUNT (74")

NOTES:

1.) POLE SHAFT SHALL BE BACK RAKED TO SET PLUMB UNDER NORMAL LOAD.

2.) SEE SPECIAL PROVISIONS FOR PAINTING AND GALVANIZING REQUIREMENTS OF MAST ARM SIGNAL POLES.

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DRAWN	KME
CHECKED	BTN
CLIENT PROJ. NO.	T16114541

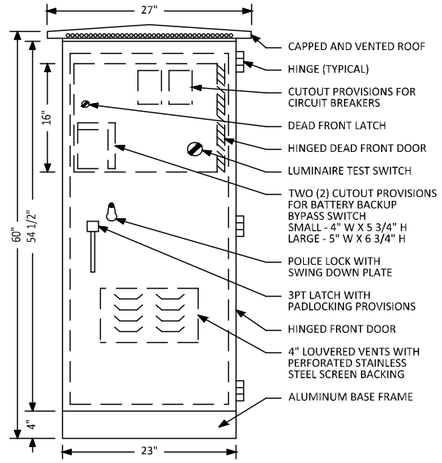
NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

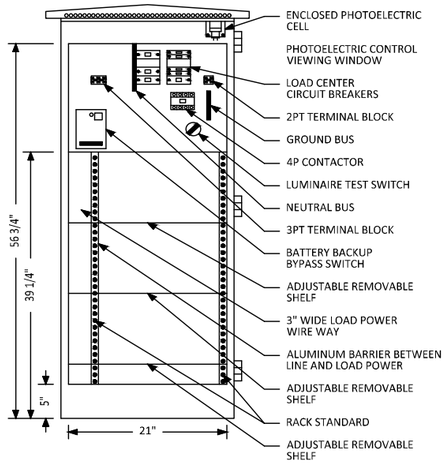
SHEET C7.09

TYPICAL SERVICE CABINET DETAILS

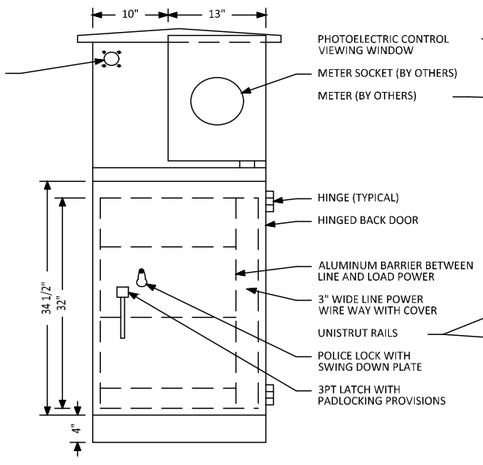
FRONT ELEVATION



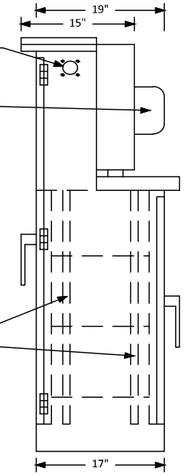
FRONT ELEVATION (DOOR REMOVED)



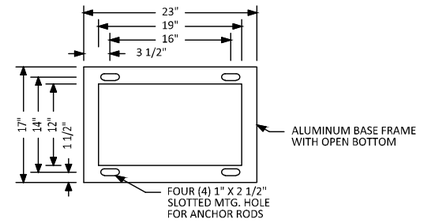
BACK ELEVATION



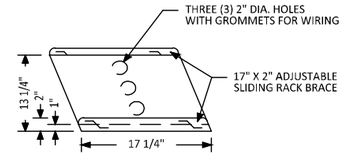
RIGHT SIDE ELEVATION



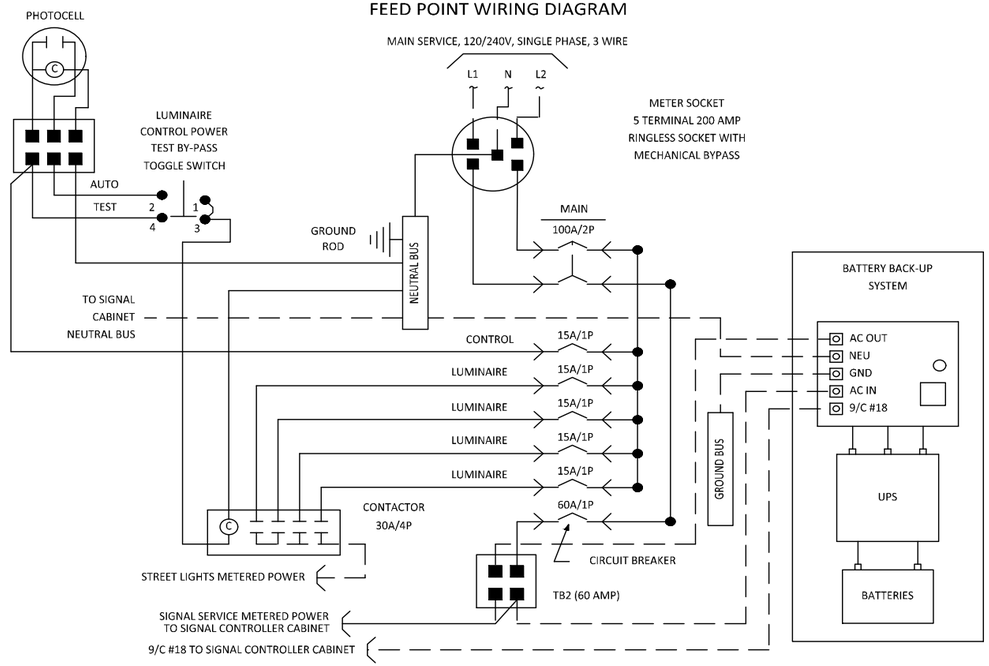
SERVICE CABINET BASE DETAILS



SERVICE CABINET SHELF DETAILS



FEED POINT WIRING DIAGRAM



CONSTRUCTION NOTES

1. EACH SERVICE CABINET SHALL BE FABRICATED FROM 1/8" ALUMINUM FOR OUTDOOR WEATHERPROOF SERVICE. AFTER FABRICATION, THE SERVICE CABINET, BOTH INSIDE AND OUTSIDE, SHALL BE PROTECTED WITH AN EXTERNAL THIRTY (30) MINUTE CLEAR ANODIZED FINISH.

2. ALL HINGES, HINGE PINS AND LOCKS SHALL BE OF NON-CORRODING CONSTRUCTION.

3. THE SERVICE CABINET DOORS SHALL BE ATTACHED TO THE ENCLOSURE WITH NON-CORRODING TAMPERPROOF CARRIAGE BOLTS AND SECURED WITH A STANDARD POLICE LOCK COMPLETE WITH A NUMBER 2 KEY AND SWING DOWN PLATE. PROVIDE ONE (1) KEY.

4. BOTH DOOR OPENINGS SHALL BE PROVIDED WITH A NEOPRENE GASKET TO FORM A COMPLETE SEAL WITH THE ENCLOSURE.

5. PROVIDE A 2" DIA. WEATHERPROOF AND VANDAL RESISTANT CLEAR PLASTIC PHOTOELECTRIC CONTROL VIEWING WINDOW. LOCATED IN THE TOP SECTION OF THE CABINET AND ON THE LEFT OR RIGHT SIDE OF THE CABINET, ORIENTED TO ELIMINATE INTERFERENCE BY MANMADE LIGHT SOURCES AND SHALL NORMALLY FACE NORTH OR EAST.

6. THE CIRCUIT BREAKERS SHALL BE 120/240 VOLT AC, 60 HZ, AND SHALL BE CLEARLY MARKED WITH THE "ON" AND "OFF" POSITIONS AND IDENTIFIED WITH THE LOAD WHICH IT IS CARRYING (E.G. "SIGNALS", "LUMINAIRE WITH NUMBER" OR "FUTURE"). ALL CIRCUIT BREAKERS SHALL BE CLEARLY MARKED IN A MANNER THAT WILL NOT DETERIORATE WITH MOISTURE OR AGE.

7. SHORT CIRCUIT RATING - 10,000 AIC SYMMETRICAL.

8. PROVIDE A PHOTOELECTRIC CONTROL CELL AND LUMINAIRE TEST SWITCH WITHIN THE CABINET.

9. PROVIDE CLEARANCE TO INSTALL OR REMOVE THE PHOTOELECTRIC CONTROL CELL.

10. ALL CONDUIT ENTERING THE FOUNDATION SHALL BE SEALED WITH AN APPROVED DUCT SEAL.

11. EACH SERVICE CABINET SHALL BE U.L. LISTED AND LABELED AS "SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT" AND APPROVED FOR OUTDOOR USE.

12. EACH SERVICE CABINET SHALL BE WELDED TO THE BASE IN ACCORDANCE WITH U.L. STANDARDS.

13. SEE THE INTERSECTION LAYOUT FOR THE REQUIRED NUMBER OF LUMINAIRES AT EACH INTERSECTION.

14. A 1/2" THICK SOLID BUTYL RUBBER GASKET SHALL BE PROVIDED BETWEEN THE CONCRETE FOUNDATION AND THE SERVICE CABINET. THE GASKET SHALL CONSIST OF FOUR (4) STRIPS, SIZED TO FIT THE BASE INCLUDING CORNER HOLE/SLOTS TO ACCOMMODATE THE ANCHOR RODS. PROVIDE A 1/2" GAP FOR DRAINAGE.

15. UNISTRUT RAILS (#A400EA OR EQUIVALENT) USED FOR SHELF SUPPORTS FOR THREE (3) ADJUSTABLE AND REMOVABLE SHELVES SHALL BE MOUNTED TO THE SIDES OF THE SERVICE CABINET.

16. THE 19" RACK IN THE BASE OF THE CABINET SHALL BE CONSTRUCTED TO TIA/EIA 3100 STANDARDS.

17. THE SERVICE CABINET SHALL BE SUPPLIED AND INSTALLED WITH BATTERY BACK-UP EQUIPMENT.

18. ONE (1) SERVICE CABINET SHALL BE INSTALLED ON EACH EQUIPMENT PAD, SEE THE EQUIPMENT PAD DETAIL SHEETS FOR ADDITIONAL DETAILS.

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.10

DETECTOR CHART

NUMBER	CAMERA	FUNCTION	LOCATION
D1-1	V-4	(1)	20 & 50
D1-2	V-4	(1)	5 & 35
D2-1	V-2	(1)	180
D3-1	V-1	(1)	20 & 50
D3-2	V-1	(1)	5 & 35
D4-1	V-3	(3)	120
D4-2	V-3	(1)	5 & 20
D5-1	V-2	(1)	20 & 50
D5-2	V-2	(1)	5 & 35
D6-1	V-4	(1)	180
D7-1	V-3	(1)	20 & 50
D7-2	V-3	(1)	5 & 35
D8-1	V-1	(3)	120
D8-2	V-1	(1)	5 & 20

-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

FUNCTION NOTES:
(1) CALL & EXTEND
(3) EXTEND CALL

SOP-1A TO HH-EX7
2" CONDUIT RISER WITH WEATHERHEAD AND RISER INPLACE CONDUIT
3-1/C#3

MATCHLINE A

MATCHLINE A

MATCHLINE B

CAC-1A TO PV-1A
TO HH-EX8
2" RSC
**1-PRE-TERMINATED/ ARMORED FO CABLE
(COIL 120' IN PULL VAULT)
**1-FO PIGTAIL TERMINATION
**1-FO SPLICE/PATCH PANEL

MA-4A TO HH-4
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

HH-5 TO HH-4
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
2-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

HH-EX8 TO HH-EX9
TO HH-EX10
INPLACE CONDUIT
**1-PRE-TERMINATED/ ARMORED FO CABLE

PBS-7 TO HH 4:
1" RSC
1-2/C #14 (SHLD.)

PBS-6 TO HH 4:
1" RSC
1-2/C #14 (SHLD.)

HH-EX6 TO HH-EX7
TO SC-1A
INPLACE CONDUIT
3-1/C#3

CAC-1A TO HH-5
3" RSC
3-12/C #14
*1-3/C #14
1-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)
3" RSC
3-12/C #14
*1-3/C #14
2-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

MA-1A TO HH-5
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

PBS-8 TO HH 5:
1" RSC
1-2/C #14 (SHLD.)

CAC-1A TO HH-1
3" RSC
3-12/C #14
*1-3/C #14
3-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)
3" RSC
3-12/C #14
*1-3/C #14
2-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CAMERA)
*1-3/C #20 (SHLD.)

PBS-1 TO HH 1:
1" RSC
1-2/C #14 (SHLD.)

HH-1 TO HH-2
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
2-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM)
2-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

CAC-1
3" RSC STUB
2" RSC STUB
1" RSC STUB
(THREAD & CAP BOTH ENDS)

CAC-1 TO SC-1
2" RSC
3-1/C #6

SC-1 TO HH-5
2" RSC
4 - 3/C #14 (LUM.)

HH-5 TO HH-1
2" RSC
2 - 3/C #14 (LUM.)

W. 76TH STREET
30 M.P.H.

SB LYNDALE AVE. S
35 M.P.H.

NB LYNDALE AVE. S.
35 M.P.H.

R/W

EX10 EX9 EX8 EX6

D1-1 D1-2 D2-1 D3-1 D3-2 D4-1 D4-2 D5-1 D5-2 D6-1 D7-1 D7-2 D8-1 D8-2

3+8 EVP 2+5 EVP 4+7 EVP 1+6 EVP

PBS-5 TO HH 3:
1" RSC
1-2/C #14 (SHLD.)

PBS-4 TO HH 3:
1" RSC
1-2/C #14 (SHLD.)

MA-3A TO HH-3
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

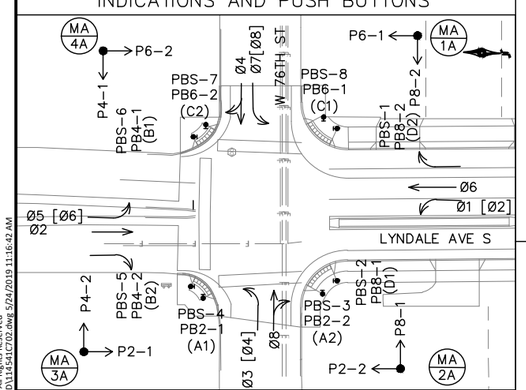
HH-2 TO HH-3
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
2-2/C #14 (SHLD.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

MA-2A TO HH-2
3" RSC
3-12/C #14
*1-3/C #14
1-3/C #14 (LUM.)
1-3/C #18 (VIDEO CABLE)
*1-3/C #20 (SHLD.)

PBS-2 TO HH 2:
1" RSC
1-2/C #14 (SHLD.)

PBS-3 TO HH 2:
1" RSC
1-2/C #14 (SHLD.)

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5 AND 7 BEING FLASHING YELLOW ARROW BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

SCALE 0 20 40 FEET

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SIGNAL SYSTEM A
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

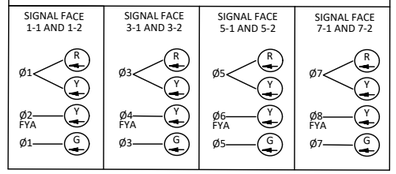
SHEET C7.11

SIGNAL INDICATIONS AND BRACKETING

SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS 12" INDICATIONS RED	YEL	FYEL	GRN	PED	PLUMBIZER MOUNTING ANGLE
MA-1A	3-1	MAST ARM (END)	3	◄	◄		◄		STRAIGHT MOUNT PLUMBIZER
			4			◄			
	8-2	MAST ARM (MID)	8	●	●		●		STRAIGHT MOUNT PLUMBIZER
	8-1	POLE MOUNT	8	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P8-2	POLE MOUNT	8					***	180° ANGLE MOUNT PLUMBIZER
	5-2	POLE MOUNT	5	◄	◄		◄		90° ANGLE MOUNT PLUMBIZER
			6			◄			
	P6-1	POLE MOUNT	6					***	90° ANGLE MOUNT PLUMBIZER
MA-2A	5-1	MAST ARM (END)	5	◄	◄		◄		STRAIGHT MOUNT PLUMBIZER
			6			◄			
	2-2	MAST ARM (MID)	2	●	●		●		STRAIGHT MOUNT PLUMBIZER
	2-1	POLE MOUNT	2	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P2-2	POLE MOUNT	2					***	180° ANGLE MOUNT PLUMBIZER
	7-2	POLE MOUNT	7	◄	◄		◄		90° ANGLE MOUNT PLUMBIZER
			8			◄			
	P8-1	POLE MOUNT	8					***	90° ANGLE MOUNT PLUMBIZER
MA-3A	7-1	MAST ARM (END)	7	◄	◄		◄		STRAIGHT MOUNT PLUMBIZER
			8			◄			
	4-2	MAST ARM (MID)	4	●	●		●		STRAIGHT MOUNT PLUMBIZER
	4-1	POLE MOUNT	4	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P4-2	POLE MOUNT	4					***	180° ANGLE MOUNT PLUMBIZER
	1-2	POLE MOUNT	1	◄	◄		◄		90° ANGLE MOUNT PLUMBIZER
			2			◄			
	P2-1	POLE MOUNT	2					***	90° ANGLE MOUNT PLUMBIZER
MA-4A	1-1	MAST ARM (END)	1	◄	◄		◄		STRAIGHT MOUNT PLUMBIZER
			2			◄			
	6-2	MAST ARM (MID)	6	●	●		●		STRAIGHT MOUNT PLUMBIZER
	6-1	POLE MOUNT	6	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P6-2	POLE MOUNT	6					***	180° ANGLE MOUNT PLUMBIZER
	3-2	POLE MOUNT	3	◄	◄		◄		90° ANGLE MOUNT PLUMBIZER
			4			◄			
	P4-1	POLE MOUNT	4					***	90° ANGLE MOUNT PLUMBIZER

*** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

TYPICAL 4-SECTION SIGNAL HEAD PHASING WITH FLASHING YELLOW ARROW



SIGNAL STRUCTURE LOCATIONS

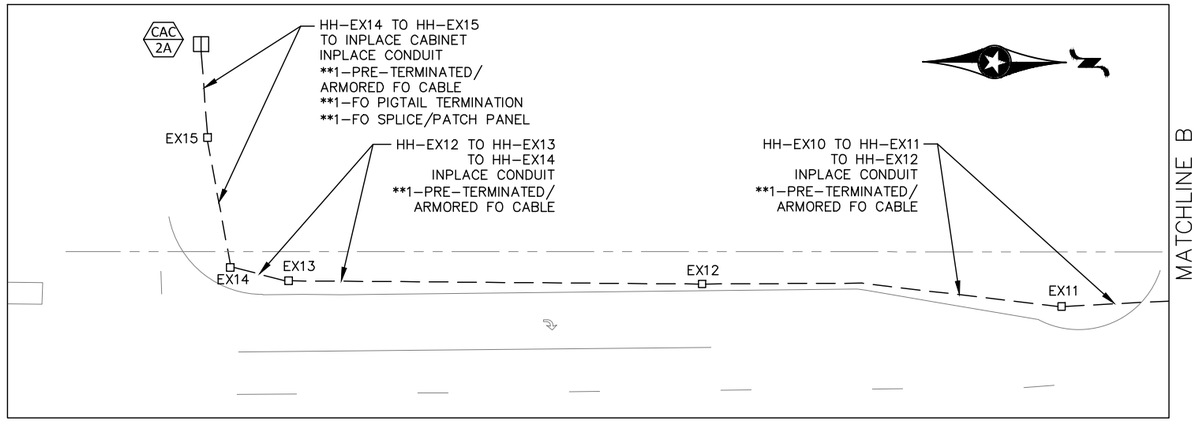
NO.	LOCATION	NO.	LOCATION
HH-1	206+96.55 - 32.33 (LT)	CAC-1A	206+98.01 - 40.21 (LT)
HH-2	206+95.31 - 46.94 (RT)	SC-1A	207+00.19 - 40.19 (LT)
HH-3	206+25.10 - 53.82 (RT)		
HH-4	206+18.06 - 40.46 (LT)	SOP-1A	INPLACE
HH-5	206+79.46 - 43.67 (LT)		
PBS-1	206+93.77 - 37.24 (LT)	PBS-5	206+15.14 - 45.49 (RT)
PBS-2	206+92.43 - 43.06 (RT)	PBS-6	206+17.12 - 33.45 (LT)
PBS-3	206+84.77 - 49.88 (RT)	PBS-7	206+23.87 - 39.87 (LT)
PBS-4	206+21.58 - 51.68 (RT)	PBS-8	206+85.93 - 43.31 (LT)

NO.	LOCATION FOUNDATION (1)	LOCATION AIM ARM TO	MAST ARM
MA-1A	206+90.25 - 40.59 (LT)	206+53.79 - 40.90 (LT)	35'
MA-2A	206+99.46 - 52.07 (RT)	206+99.84 - 5.58 (RT)	45'
MA-3A	206+17.63 - 51.44 (RT)	206+49.13 - 51.71 (RT)	30'
MA-4A	206+13.34 - 36.53 (LT)	206+11.62 - 4.93 (RT)	40'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION.
ALL STATIONS AND OFFSETS ARE REFERENCED FROM LYNDALE SB ALIGNMENT.

NOTES:

1) LED LUMINAIRES SHALL BE INSTALLED ON LUMINAIRE SHAFT EXTENSIONS ON MAST ARMS 1, 2, 3 AND 4.
2) ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
3) THE CONTRACTOR SHALL INSTALL AND PROGRAM ALL APS EQUIPMENT.
   ALL PEDESTRIAN PUSHBUTTONS SHALL BE APS PUSHBUTTONS WITH SIGNS (SEE SPECIAL PROVISIONS).
   ONE APS PUSHBUTTON AND SIGN (LT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-2, 4, 6 AND 8.
   ONE APS PUSHBUTTON AND SIGN (RT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-1, 3, 5 AND 7.
   INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON).
   ALL PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
4) ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
5) THE ENGINEER SHALL LOCATE ALL POLES AND HANDHOLES PRIOR TO ANY CONSTRUCTION.
6) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
7) THE CONTRACTOR SHALL FURNISH AND INSTALL VIDEO CAMERAS. VIDEO CAMERAS 1, 2, 3, AND 4 SHALL BE MOUNTED ON LUMINAIRES (SEE SPECIAL PROVISIONS).
8) THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
9) SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM, VIDEO DETECTION SYSTEM, BATTERY BACK-UP SIGNAL SERVICE CABINET, ACCESSIBLE PEDESTRIAN SIGNAL (APS), AND COUNTY FURNISHED ITEMS.
10) COMMON BACKFILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER INCLUDED AS INCIDENTAL TO THE SIGNAL SYSTEM PAY ITEM.
11) OVERHEAD MAST ARM MOUNTED TYPE "D" SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEM (SEE SPECIAL PROVISIONS).
12) ALL ITEMS SHOWN ARE FURNISH AND INSTALL UNLESS NOTED OTHERWISE.
13) THE CONTRACTOR SHALL FURNISH AND INSTALL 4 - R10-X12 (36" X 42") SIGN ADJACENT TO SIGNAL INDICATIONS 1-1, 3-1, 5-1 AND 7-1.
14) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
15) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
16) THE REMOVAL AND DISPOSAL OF THE EXISTING SIGNAL SHALL BE INCLUDED IN THE REMOVE SIGNAL SYSTEM "A" PAY ITEM.
17) SALVAGE BUS STOP SIGNS (2) FROM EXISTING LIGHT POLE IN NW CORNER AND FROM EXISTING POLE MA-3A.
18) THE CONTRACTOR SHALL INSTALL SALVAGED BUS STOP SIGNS (2), ON POLE MA-1A FACING NORTH (STOPID 3423) AND ON POLE MA-3A FACING SOUTH (STOPID 3360).



SCALE 0 20 40 FEET

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BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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Email: Burnsville@bolton-menk.com
www.bolton-menk.com

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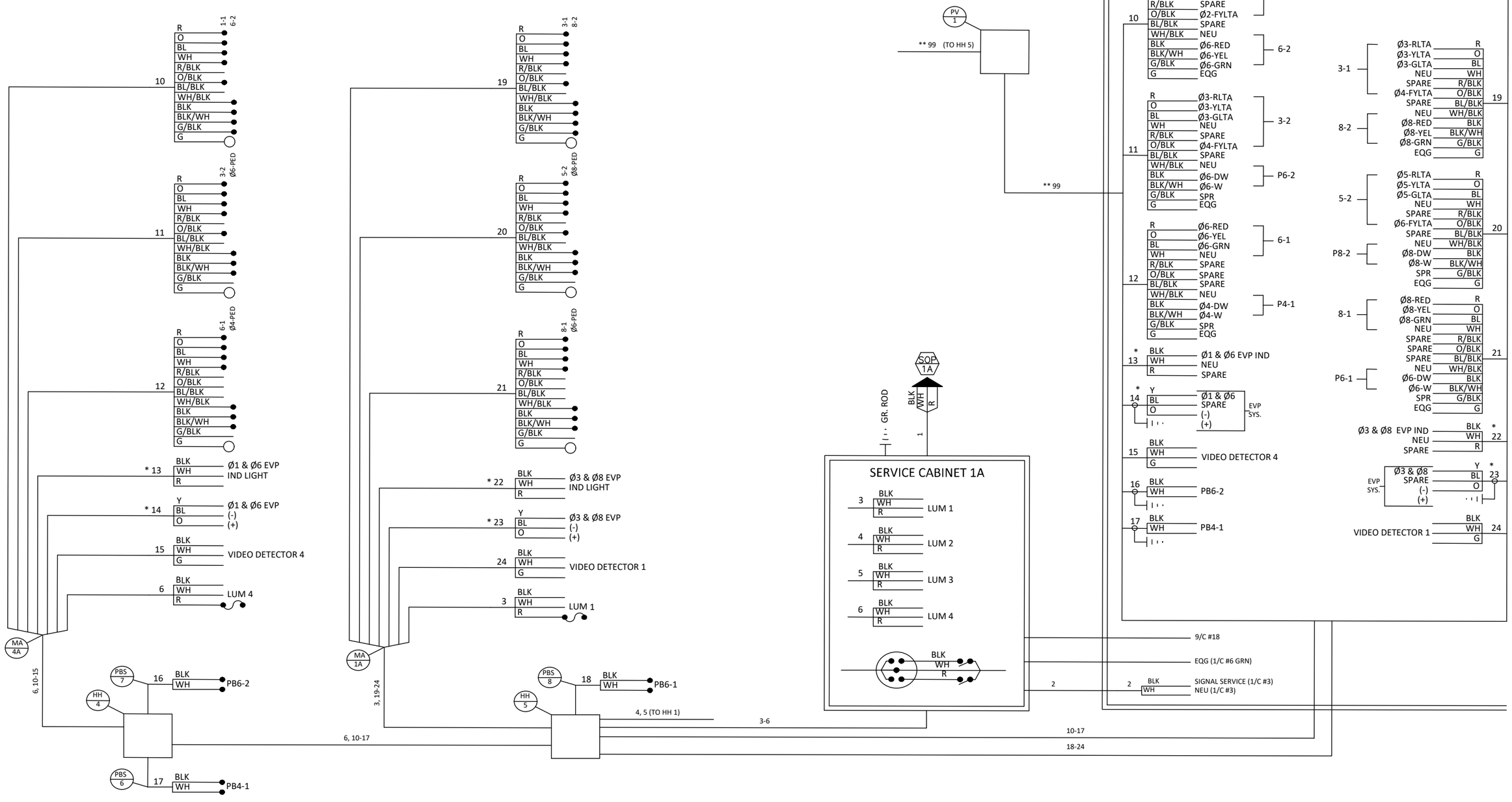
CLIENT PROJ. NO. T16114541			

POLE NOTES
SIGNAL SYSTEM A
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.12

NOTES:
1. SIGNAL SYSTEM INCLUDES SERVICE CABINET WITH BATTERY BACKUP.
2. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM.
3. ITEMS DENOTED WITH AN ** ARE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.



WIRING DIAGRAM
SIGNAL SYSTEM A

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.13

NOTES:
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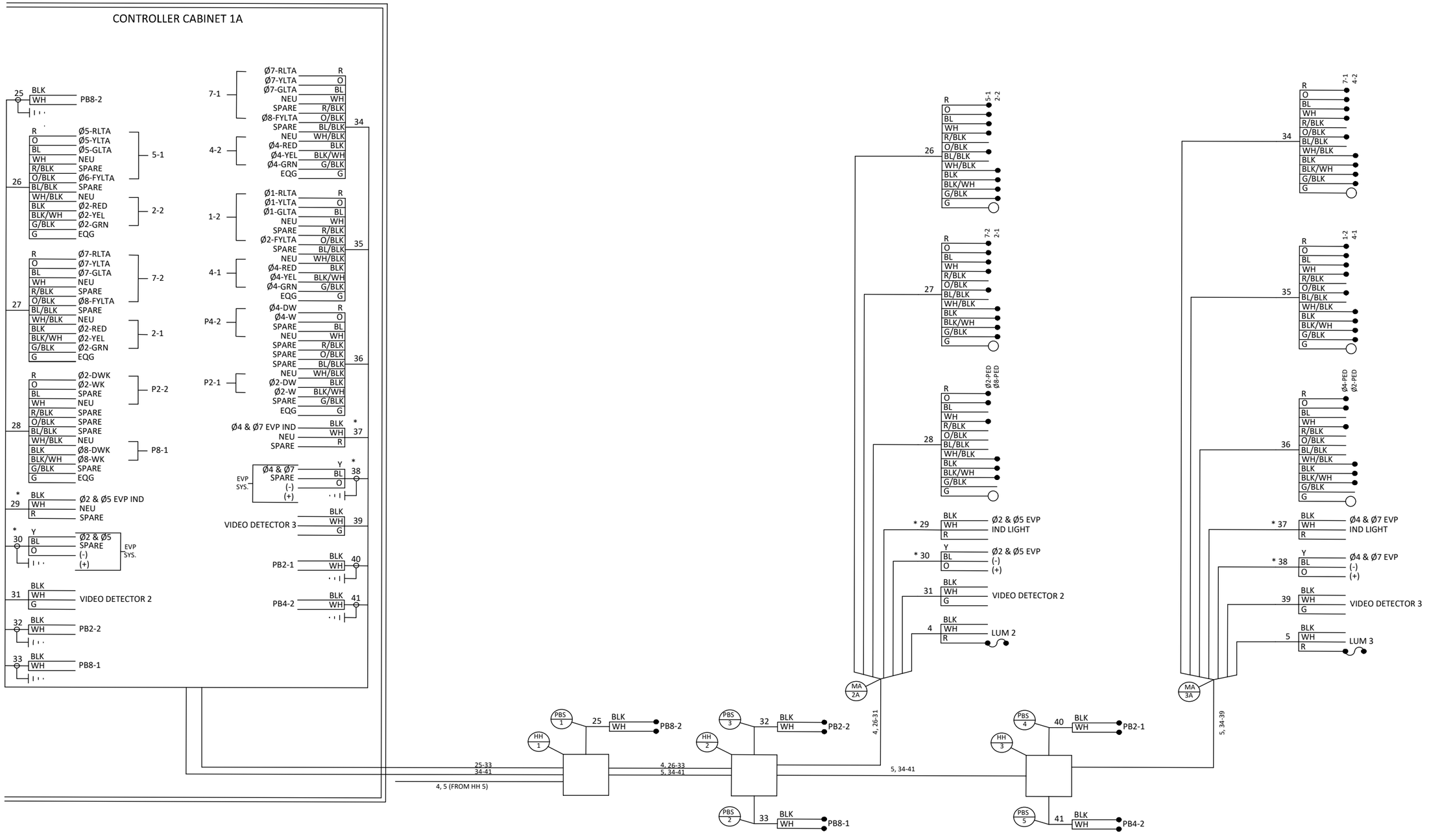
2. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM.



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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.14

DETECTOR CHART

NUMBER	CAMERA	FUNCTION	LOCATION
D1–1	V–4	(1)	20 & 50
D1–2	V–4	(1)	5 & 35
D2–1	V–2	(1)	180
D4–1	V–3	(3)	120
D4–2	V–3	(1)	5 & 20
D6–1	V–4	(1)	180
D5–1	V–2	(1)	20 & 50
D5–2	V–2	(1)	5 & 35
D8–1	V–1	(3)	120
D8–2	V–1	(1)	5 & 20

–LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

FUNCTION NOTES:
(1) CALL & EXTEND
(3) EXTEND CALL

W. 73RD STREET
30 M.P.H.

NB LYNDALE AVE. S.
35 M.P.H.

SB LYNDALE AVE. S.
35 M.P.H.

R/W

SOP–1B TO HH–6
TO SC–1B
2" CONDUIT RISER WITH
WEATHERHEAD AND RISER
INPLACE CONDUIT
3–1/C#3

CAC–1B TO HH–5
3" RSC
3–12/C #14
*1–3/C #14
3–2/C #14 (SHLD.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)
3" RSC
3–12/C #14
*1–3/C #14
2–2/C #14 (SHLD.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

CAC–1B TO HH–1
3" RSC
3–12/C #14
*1–3/C #14
1–2/C #14 (SHLD.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)
3" RSC
3–12/C #14
*1–3/C #14
2–2/C #14 (SHLD.)
1–3/C #18 (VIDEO CAMERA)
*1–3/C #20 (SHLD.)

CAC–1
3" RSC STUB
2" RSC STUB
1" RSC STUB
(THREAD & CAP BOTH ENDS)

CAC–1 TO SC–1
2" RSC
3–1/C #6

SC–1 TO HH–5
2" RSC
4 – 3/C #14 (LUM.)

HH–5 TO HH–1
2" RSC
2 – 3/C #14 (LUM.)

PBS–8 TO HH 5:
1" RSC
1–2/C #14 (SHLD.)

PBS–1 TO HH 1:
1" RSC
1–2/C #14 (SHLD.)

MA–1B TO HH–1
3" RSC
3–12/C #14
*1–3/C #14
1–3/C #14 (LUM.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

HH–1 TO HH–2
3" RSC
3–12/C #14
*1–3/C #14
1–3/C #14 (LUM.)
2–2/C #14 (SHLD.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

HH–4 TO HH–5
3" RSC
3–12/C #14
*1–3/C #14
1–3/C #14 (LUM.)
2–2/C #14 (SHLD.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

PBS–7 TO HH 4:
1" RSC
1–2/C #14 (SHLD.)

PBS–6 TO HH 4:
1" RSC
1–2/C #14 (SHLD.)

MA–4B TO HH–4
3" RSC
3–12/C #14
*1–3/C #14
1–3/C #14 (LUM.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

HH–3 TO HH–4
3" RSC
3–12/C #14
*1–3/C #14
1–3/C #14 (LUM.)
2–2/C #14(SHLD.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

MA–2B TO HH–2
3" RSC
3–12/C #14
*1–3/C #14
1–3/C #14 (LUM.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

PBS–2 TO HH 2:
1" RSC
1–2/C #14 (SHLD.)

PBS–3 TO HH 2:
1" RSC
1–2/C #14 (SHLD.)

PBS–5 TO HH 3:
1" RSC
1–2/C #14 (SHLD.)

MA–3B TO HH–3
3" RSC
3–12/C #14
*1–3/C #14
1–3/C #14 (LUM.)
1–3/C #18 (VIDEO CABLE)
*1–3/C #20 (SHLD.)

PBS–4 TO HH 3:
1" RSC
1–2/C #14 (SHLD.)

15'

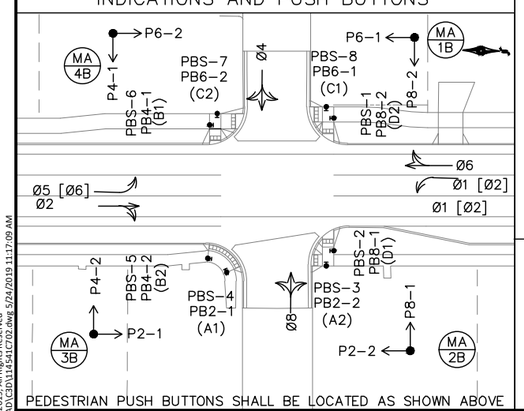
11'

D4–1 D4–2 D5–1 D5–2 D1–1 D1–2 D2–1 D6–1 D8–1 D8–2

MA 4B MA 1B MA 2B MA 3B SOP 1B SC 1B CAC 1B

8 EVP 1+6 EVP 2+5 EVP 4 EVP

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL SYSTEM OPERATION

– THE SIGNAL SYSTEM FLASH MODE IS ALL RED.

– NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING FLASHING YELLOW ARROW BY TIME OF DAY.

– PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

Reference system definition - LatLong

0 20 40
SCALE FEET

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SIGNAL SYSTEM B
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.15

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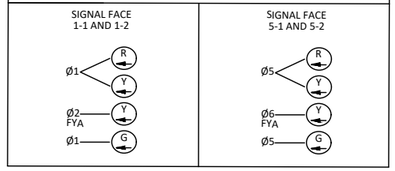
SIGNAL INDICATIONS AND BRACKETING

SIG. POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIG. Ø	LED INDICATIONS 12" INDICATIONS RED	YEL	FYEL	GRN	PED	PLUMBIZER MOUNTING ANGLE
MA-1B	8-2	MAST ARM (MID)	8	●	●		●		STRAIGHT MOUNT PLUMBIZER
	8-1	POLE MOUNT	8	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P8-2	POLE MOUNT	8					***	180° ANGLE MOUNT PLUMBIZER
	5-2	POLE MOUNT	5	←	←		←		90° ANGLE MOUNT PLUMBIZER
			6			←			
	P6-1	POLE MOUNT	6					***	90° ANGLE MOUNT PLUMBIZER
MA-2B	5-1	MAST ARM (END)	5	←	←		←		STRAIGHT MOUNT PLUMBIZER
			6			←			
	2-2	MAST ARM (MID)	2	●	●		●		STRAIGHT MOUNT PLUMBIZER
	2-1	POLE MOUNT	2	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P2-2	POLE MOUNT	2					***	180° ANGLE MOUNT PLUMBIZER
	4-3	POLE MOUNT	4	●	●		●		90° ANGLE MOUNT PLUMBIZER
	P8-1	POLE MOUNT	8					***	90° ANGLE MOUNT PLUMBIZER
MA-3B	4-2	MAST ARM (MID)	4	●	●		●		STRAIGHT MOUNT PLUMBIZER
	4-1	POLE MOUNT	4	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P4-2	POLE MOUNT	4					***	180° ANGLE MOUNT PLUMBIZER
	1-2	POLE MOUNT	1	←	←		←		90° ANGLE MOUNT PLUMBIZER
			2			←			
	P2-1	POLE MOUNT	2					***	90° ANGLE MOUNT PLUMBIZER
MA-4B	1-1	MAST ARM (END)	1	←	←		←		STRAIGHT MOUNT PLUMBIZER
			2			←			
	6-2	MAST ARM (MID)	6	●	●		●		STRAIGHT MOUNT PLUMBIZER
	6-1	POLE MOUNT	6	●	●		●		180° ANGLE MOUNT PLUMBIZER
	P6-2	POLE MOUNT	6					***	180° ANGLE MOUNT PLUMBIZER
	8-3	POLE MOUNT	8	●	●		●		90° ANGLE MOUNT PLUMBIZER
	P4-1	POLE MOUNT	4					***	90° ANGLE MOUNT PLUMBIZER

*** INTERNATIONAL SYMBOLS IN A DUAL FACE SINGLE HOUSING WITH PEDESTRIAN COUNTDOWN TIMER.

TYPICAL 4-SECTION SIGNAL HEAD PHASING WITH FLASHING YELLOW ARROW



SIGNAL STRUCTURE LOCATIONS

NO.	LOCATION	NO.	LOCATION
HH-1	226+55.31 - 26.77 (LT)	HH-6	226+39.85 - 54.76 (LT)
HH-2	226+57.36 - 32.60 (RT)	CAC-1C	226+43.00 - 45.46 (LT)
HH-3	225+78.62 - 38.57 (RT)	SC-1C	226+42.81- 50.27 (LT)
HH-4	225+95.78 - 36.65 (LT)		
HH-5	226+38.10 - 41.02 (LT)	SOP-1C	INPLACE
PBS-1	226+48.25 - 29.95 (LT)	PBS-5	225+81.80 - 44.05 (RT)
PBS-2	226+48.27 - 40.00 (RT)	PBS-6	225+82.79 - 26.37 (LT)
PBS-3	226+44.27 - 48.00 (RT)	PBS-7	225+86.79 - 32.37 (LT)
PBS-4	225+91.83 - 51.40 (RT)	PBS-8	226+44.25 - 35.94 (LT)

NO.	LOCATION		MAST ARM
	FOUNDATION (1)	AIM ARM TO	
MA-1B	226+43.79 - 39.68 (LT)	226+27.29 - 39.71 (LT)	15'
MA-2B	226+50.50 - 36.88 (RT)	226+50.49 - 5.38 (RT)	30'
MA-3B	225+83.67 - 48.21 (RT)	226+10.17 - 48.39 (RT)	25'
MA-4B	225+78.28 - 20.93 (LT)	225+78.28 - 5.60 (RT)	25'

(1) TO THE CENTER OF THE HANDHOLE OR CONCRETE FOUNDATION.
ALL STATIONS AND OFFSETS ARE REFERENCED FROM LYNDALE SB ALIGNMENT

NOTES:

1) LED LUMINAIRES SHALL BE INSTALLED ON LUMINAIRE SHAFT EXTENSIONS ON MAST ARMS 1, 2, 3 AND 4.
2) ALL HANDHOLES SHALL BE PVC TYPE WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
3) THE CONTRACTOR SHALL INSTALL AND PROGRAM ALL APS EQUIPMENT.
ALL PEDESTRIAN PUSHBUTTONS SHALL BE APS PUSHBUTTONS WITH SIGNS (SEE SPECIAL PROVISIONS).
ONE APS PUSHBUTTON AND SIGN (LT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-2, 4, 6 AND 8.
ONE APS PUSHBUTTON AND SIGN (RT ARROW) SHALL BE FURNISHED AND INSTALLED ON PBS-1, 3, 5 AND 7.
INTERNATIONAL SYMBOLS SHALL BE USED FOR ALL PEDESTRIAN INDICATIONS (HAND AND WALKING PERSON).
ALL PEDESTRIAN INDICATIONS SHALL HAVE COUNTDOWN TIMERS (SEE SPECIAL PROVISIONS).
4) ALL VEHICULAR AND PEDESTRIAN INDICATIONS SHALL USE LED TECHNOLOGY (SEE SPECIAL PROVISIONS).
5) THE ENGINEER SHALL LOCATE ALL POLES AND HANDHOLES PRIOR TO ANY CONSTRUCTION.
6) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
7) THE CONTRACTOR SHALL FURNISH AND INSTALL VIDEO CAMERAS. VIDEO CAMERAS 1, 2, 3, AND 4 SHALL BE MOUNTED ON LUMINAIRES (SEE SPECIAL PROVISIONS).
8) THE CONTRACTOR SHALL RESTORE ALL DISTURBED TURF, CONCRETE OR BITUMINOUS WALK, ETC. TO ITS ORIGINAL CONDITION OR BETTER (SEE SPECIAL PROVISIONS).
9) SEE SPECIAL PROVISIONS FOR EMERGENCY VEHICLE PRE-EMPTION (EVP) SYSTEM, VIDEO DETECTION SYSTEM, BATTERY BACK-UP SIGNAL SERVICE CABINET, ACCESSIBLE PEDESTRIAN SIGNAL (APS), AND COUNTY FURNISHED ITEMS.
10) COMMON BACKFILL AT SIGNAL STRUCTURES AS DIRECTED BY THE ENGINEER INCLUDED AS INCIDENTAL TO THE SIGNAL SYSTEM PAY ITEM.
11) OVERHEAD MAST ARM MOUNTED TYPE "D" SIGN PANELS SHALL BE INCLUDED IN THE SIGNAL SYSTEM PAY ITEM (SEE SPECIAL PROVISIONS).
12) ALL ITEMS SHOWN ARE FURNISH AND INSTALL UNLESS NOTED OTHERWISE.
13) THE CONTRACTOR SHALL FURNISH AND INSTALL 2 - R10-X12 (36" X 42") SIGN ADJACENT TO SIGNAL INDICATIONS 1-1, AND 5-1.
14) * INDICATES ITEMS TO BE INCLUDED IN THE EVP SYSTEM PAY ITEM.
15) ** INDICATES ITEMS TO BE INCLUDED IN THE INTERCONNECT SYSTEM PAY ITEM.
16) THE REMOVAL AND DISPOSAL OF THE EXISTING SIGNAL SHALL BE INCLUDED IN THE REMOVE SIGNAL SYSTEM "A" PAY ITEM.
17) SALVAGE BUS STOP SIGNS (2) FROM EXISTING POLE MA-1A AND FROM EXISTING SIGN POST IN SE CORNER.
18) THE CONTRACTOR SHALL INSTALL SALVAGED BUS STOP SIGNS (2), ON POLE MA-1B FACING NORTH (STOPID 3420) AND ON POLE MA-3B FACING SOUTH (STOPID 3363).

NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM

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POLE NOTES
SIGNAL SYSTEM B

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.16

NOTES:
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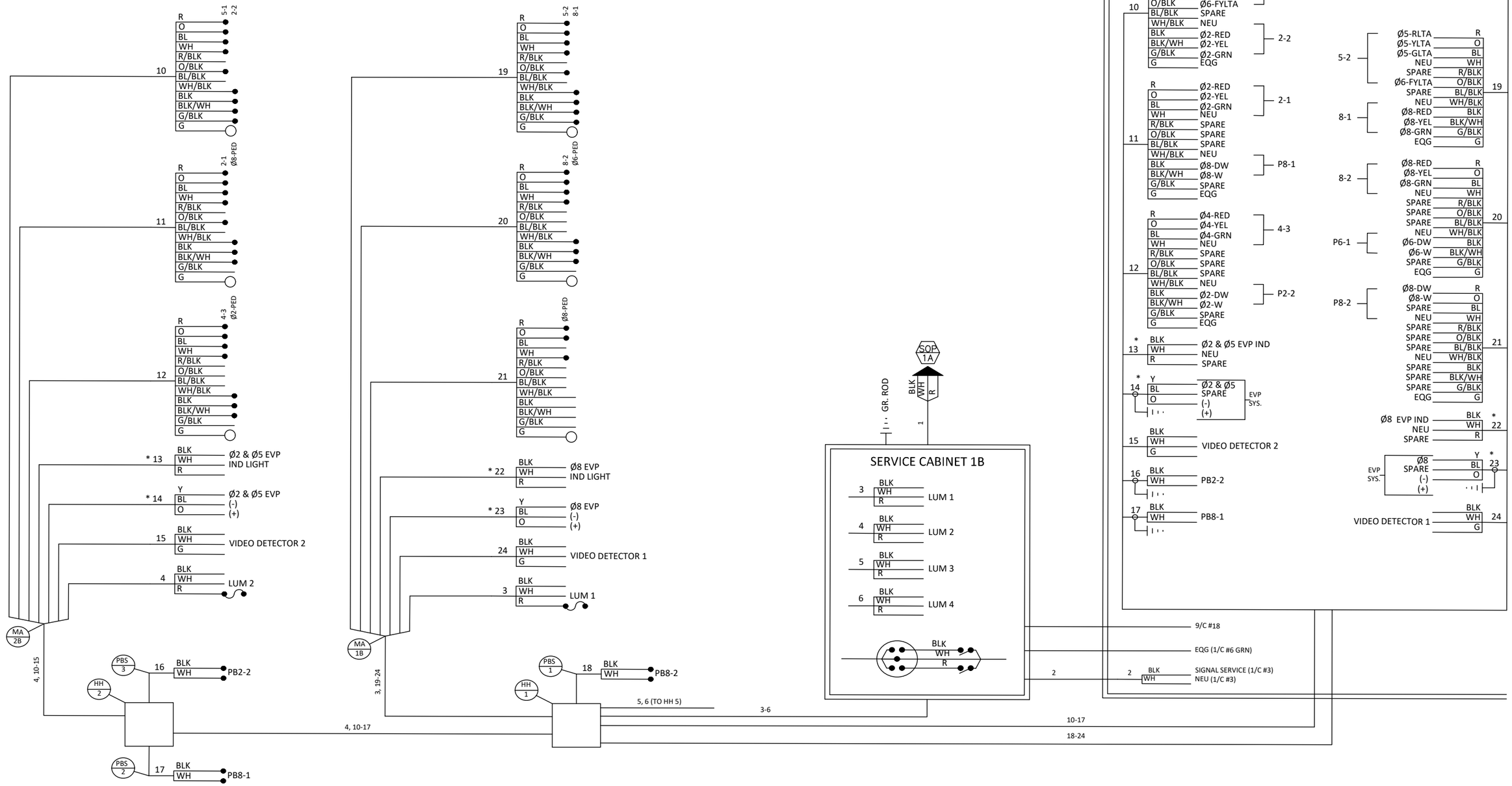

WIRING DIAGRAM
SIGNAL SYSTEM B

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.17

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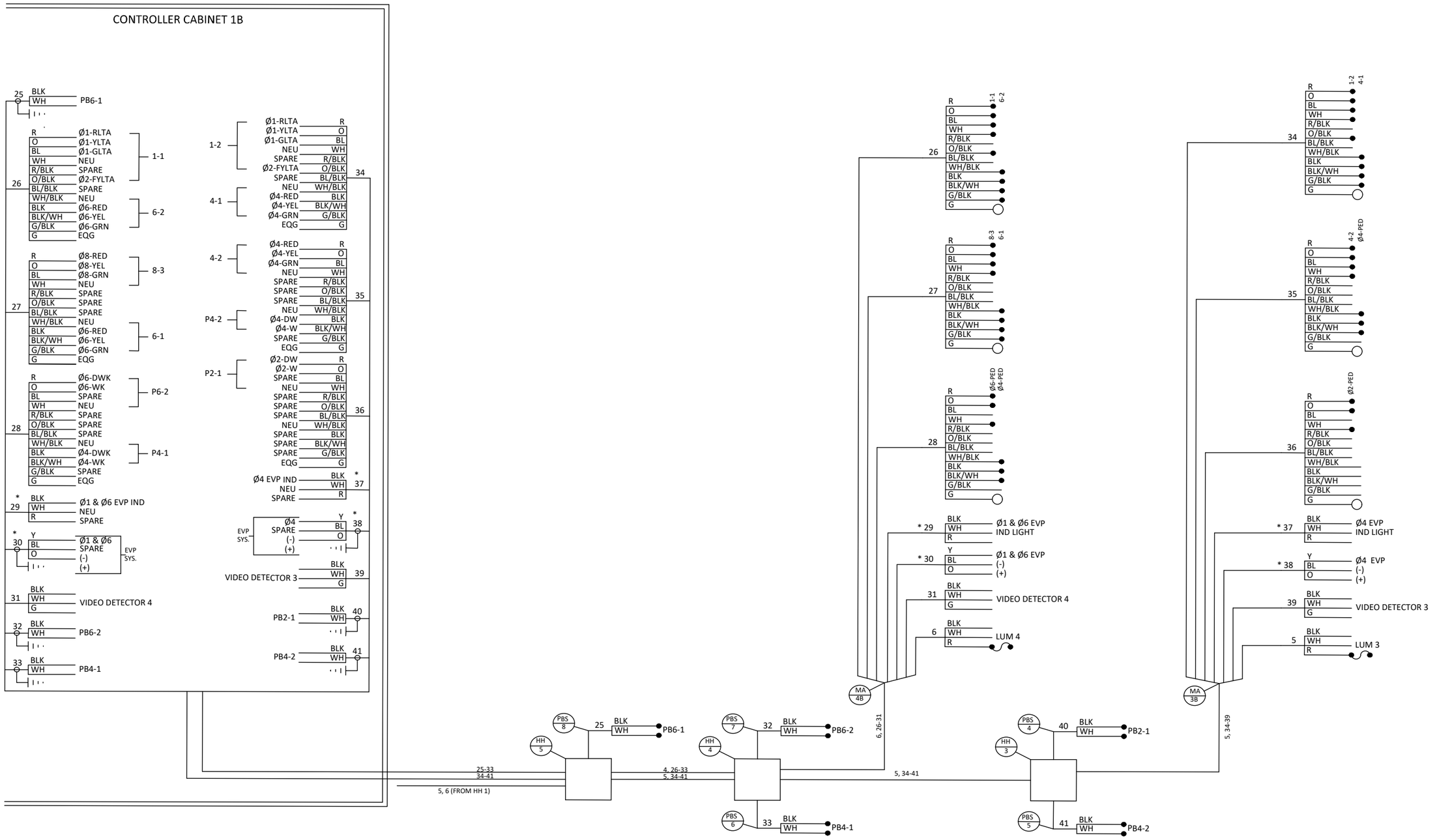

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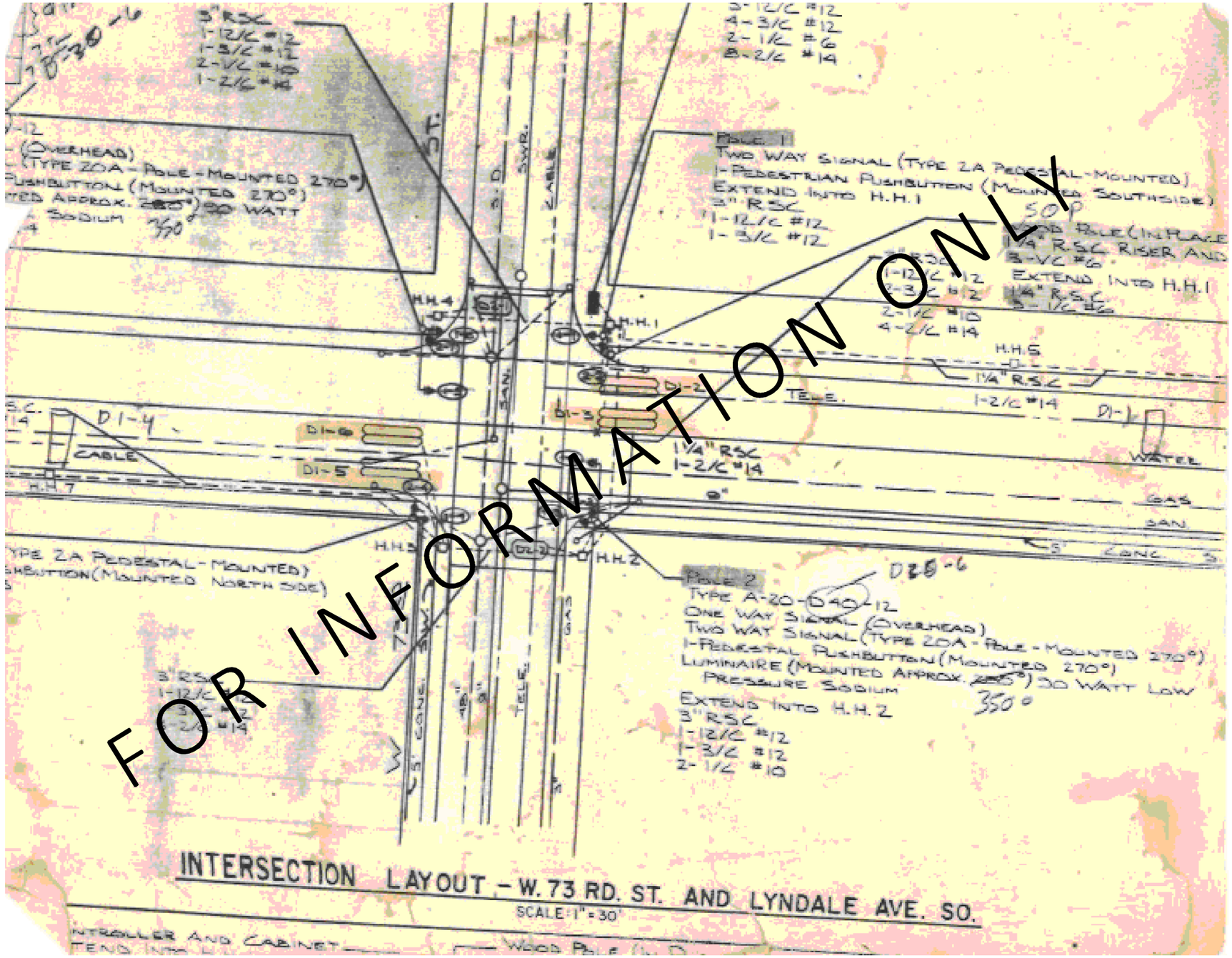
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.18



FOR INFORMATION ONLY
SIGNAL SYSTEM B

SCALE: 0 20 40 FEET

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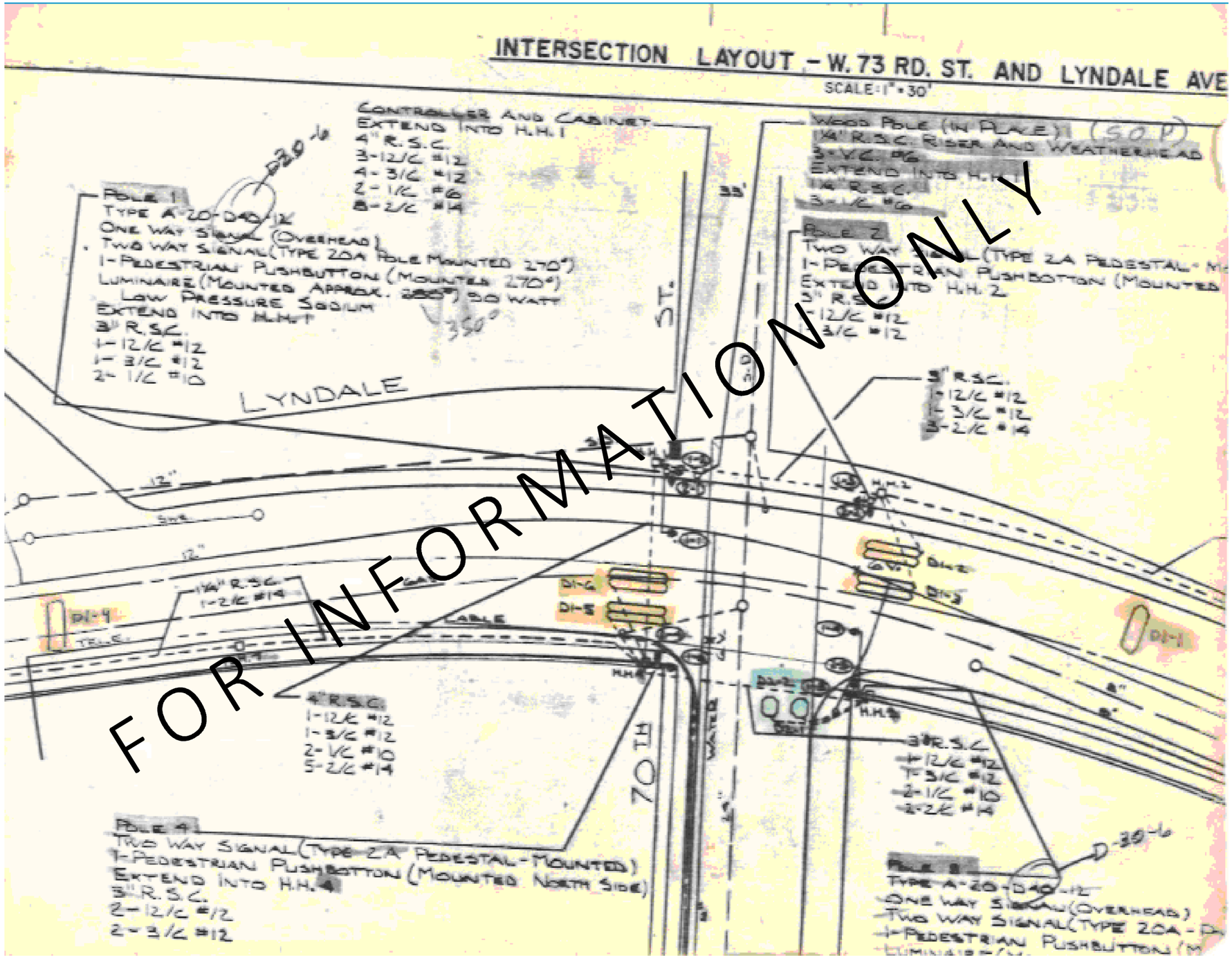
SIGNAL PLANS

SHEET C7.19

INTERSECTION LAYOUT - W. 73 RD. ST. AND LYNDALE AVE

SCALE: 1" = 30'



FOR INFORMATION ONLY
SIGNAL SYSTEM AT 70TH ST

0 20 40
SCALE FEET

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BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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Richfield — The Urban Hometown

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.20

SIGNAL STRUCTURE AND COMPONENT STATUS

NO.	STATUS OF COMPONENT
HH-1	INPLACE CONCRETE HANDHOLE AND COVER-REUSE INPLACE
HH-2	INPLACE QUAZITE HANDHOLE AND COVER-REUSE INPLACE
HH-3	F & I PVC HANDHOLE (WITH METAL FRAME AND COVER) IN NEW SIDEWALK AREA
HH-5	INPLACE CONCRETE HANDHOLE AND COVER-REUSE INPLACE
HH-6	F & I PVC HANDHOLE (WITH METAL FRAME AND COVER) WITH CONCRETE COLLAR
HH-7	F & I PVC HANDHOLE (WITH METAL FRAME AND COVER) IN EXISTING SIDEWALK AREA
HH-8	F & I PVC HANDHOLE (WITH METAL FRAME AND COVER) IN NEW SIDEWALK AREA
HH-9	F & I PVC HANDHOLE (WITH METAL FRAME AND COVER) IN NEW SIDEWALK AREA
HH-11	F & I PVC HANDHOLE (WITH METAL FRAME AND COVER) WITH CONCRETE COLLAR
CAC-1A	INSTALL SALVAGED CONTROLLER AND CABINET, ON NEW EQUIPMENT PAD FOUNDATION
SP-1A	F & I NEW SIGNAL SERVICE CABINET, ON NEW EQUIPMENT PAD FOUNDATION
SOP-1	INPLACE WOOD POLE-REUSE INPLACE

NO.	STATUS OF COMPONENT
MA-1	INSTALL NEW CITY FURNISHED MAST ARM POLE STANDARD (WITH 20' MAST ARM). F & I NEW CONCRETE FOUNDATION.
MA-2A	INSTALL SALVAGED MAST ARM POLE STANDARD (WITH 35' MAST ARM). F & I NEW CONCRETE FOUNDATION.
MA-3A	INSTALL SALVAGED MAST ARM POLE STANDARD (WITH 30' MAST ARM). F & I NEW CONCRETE FOUNDATION.
MA-4	INPLACE MAST ARM POLE STANDARD AND CONCRETE FOUNDATION-REUSE INPLACE. SALVAGE INPLACE 35' MAST ARM. INSTALL NEW CITY FURNISHED 45' MAST ARM.

NO.	F & I LOOP DETECTORS (LOCATION)	LOOP SIZE (FT)	NO.OF TURNS*	DETECTOR FUNCTION
D1-1,2,3,4	SOUTH EDGE 0', 15', 30', 45' FROM CROSSWALK (CENTERED IN LEFT TURN LANE)	6 x 6	4	(1)
D2-1,2	NORTH EDGE 120' FROM CROSSWALK (CENTERED IN LANE)	6 x 6	4	(1)
D4-1,2	EAST EDGE 5', 20' FROM CROSSWALK (CENTERED IN LANE)	6 x 6 (**)	4	(2)
D4-3,4	EAST EDGE 5', 20' FROM CROSSWALK (CENTERED IN LANE)	6 x 6 (**)	4	(2)
D5-1,2	NORTH EDGE 5', 20' FROM CROSSWALK (CENTERED IN LEFT TURN LANE)	6 x 6	4	(1)
D6-1,2	SOUTH EDGE 120' FROM CROSSWALK (CENTERED IN LANE)	6 x 6	4	(1)
D8-1	INPLACE, REUSE INPLACE AND MAKE OPERATIONAL	6 x 6	4	(2)
D8-2	INPLACE, REUSE INPLACE AND MAKE OPERATIONAL	6 x 6	4	(2)

* = NUMBER OF TURNS IN THE LOOP UNLESS SPECIFIED BY THE MANUFACTURER.

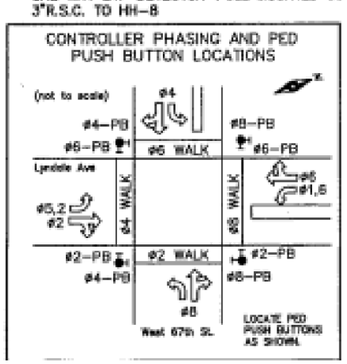
(**)= NMC LOOP DETECTORS (ALL OTHER LOOPS ARE SAWCUT LOOPS).

(1)= CALL AND EXTEND
(2)= DELAYED CALL AND IMMEDIATE EXTEND

MA-1 MAST ARM POLE FOUNDATION
TYPE A-20-X40-4 (SEE DETAILS)
LUMINAIRE-250 W HPS "SHOEBOX"
ONE WAY SIGNAL-OVERHEAD (AT 0')
2-TYPE 10B-POLE MOUNTED 90° & 180°
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
TYPE D SIGN PANEL-OVERHEAD (D-1)
ONE WAY EVP DETECTOR AND LIGHT (#4)
3"R.S.C. TO HH-6

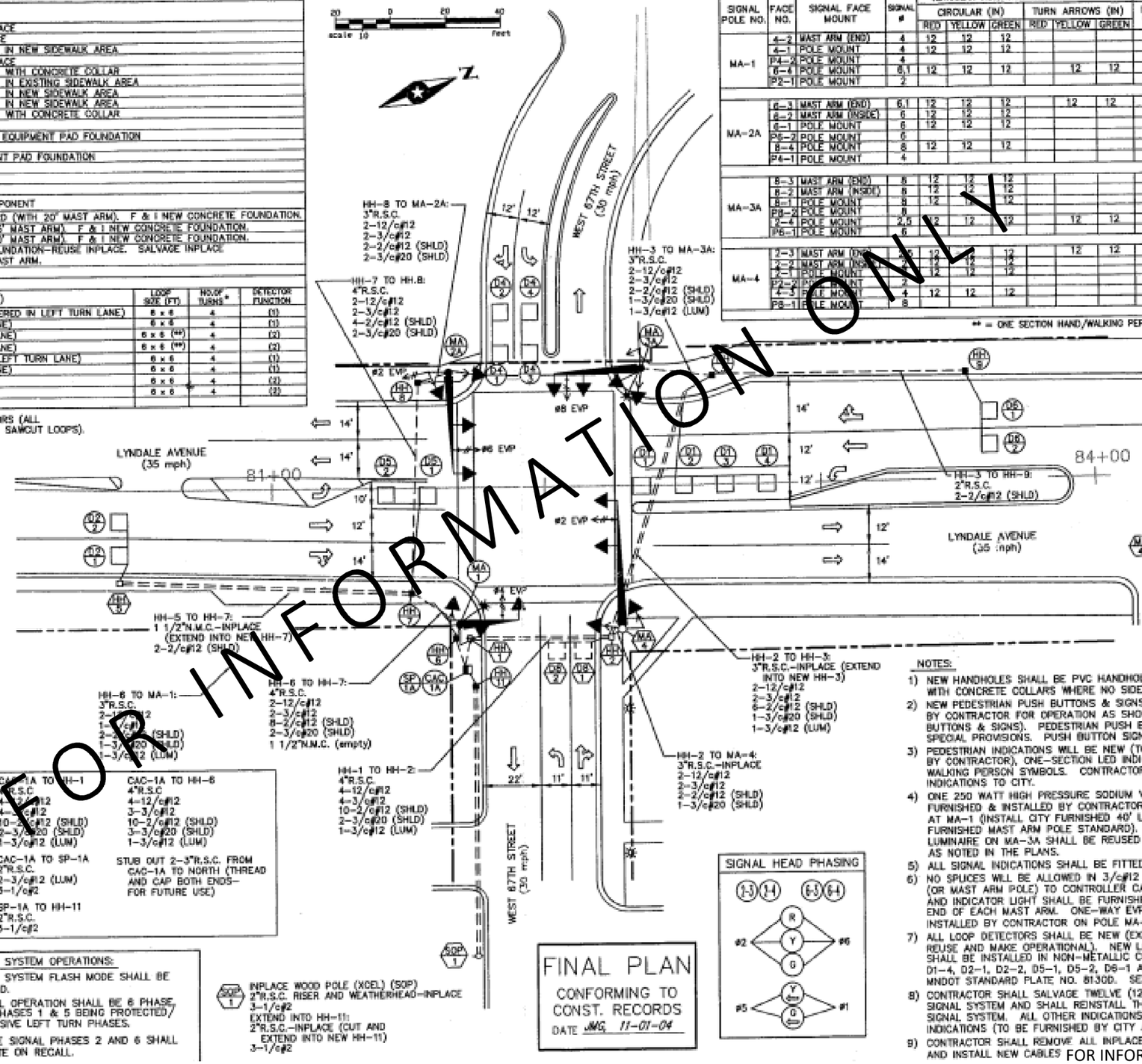
MA-2A MAST ARM POLE FOUNDATION
TYPE A-35
2-ONE WAY SIGNALS-OVERHEAD (0' & 18' FROM END OF MAST ARM)
MID-MAST ARM MOUNT AT 18' (WELDED MOUNT)
CAP INPLACE MID-MOUNTS AT 8' & 20' (USE STANDARD PIPE CAPS)
2-TYPE 10B-POLE MOUNTED 90° & 270°
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
TYPE D SIGN PANEL-OVERHEAD (D-2)
R10-12 SIGN PANEL-ADJACENT TO 6-3
ONE WAY EVP DETECTOR AND LIGHT (#6)
ONE WAY EVP DETECTOR-POLE MOUNTED 90° (#2)
3"R.S.C. TO HH-8

CONTROLLER PHASING AND PED PUSH BUTTON LOCATIONS



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING PROTECTED/ PERMISSIVE LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.



LYNDALE AVENUE/WEST 67TH STREET SIGNAL INDICATIONS AND BRACKETING

SIGNAL POLE NO.	FACE NO.	SIGNAL FACE MOUNT	SIGNAL #	VEHICULAR INDICATION SIZE AND TYPE: CIRCULAR (IN) RED	CIRCULAR (IN) YELLOW	CIRCULAR (IN) GREEN	TURN ARROWS (IN) RED	TURN ARROWS (IN) YELLOW	TURN ARROWS (IN) GREEN	PEDESTRIAN (IN): DON'T WALK	PEDESTRIAN (IN): WALK	BRACKET MOUNTING ANGLE, TYPE AND STANDARD PLATE NO.
MA-1	4-2	MAST ARM (END)	4	12	12	12						ONE WAY MOUNT/PLATE 8124E
	4-1	POLE MOUNT	4	12	12	12						180°, TYPE 10B/PLATE 8110D
	P4-2	POLE MOUNT	4							**	**	
	6-4	POLE MOUNT	6,1	12	12	12		12	12			90°, TYPE 10B/PLATE 8110D
	P2-1	POLE MOUNT	2							**	**	
MA-2A	6-3	MAST ARM (END)	6,1	12	12	12		12	12			ONE WAY MOUNT/PLATE 8124E
	6-2	MAST ARM (INSIDE)	6	12	12	12						ONE WAY MOUNT/PLATE 8124E
	6-1	POLE MOUNT	6	12	12	12						270°, TYPE 10B/PLATE 8110D
	P6-2	POLE MOUNT	6							**	**	
	8-4	POLE MOUNT	8	12	12	12						90°, TYPE 10B/PLATE 8110D
	P4-1	POLE MOUNT	4							**	**	
MA-3A	8-3	MAST ARM (END)	8	12	12	12						ONE WAY MOUNT/PLATE 8124E
	8-2	MAST ARM (INSIDE)	8	12	12	12						ONE WAY MOUNT/PLATE 8124E
	8-1	POLE MOUNT	8	12	12	12						270°, TYPE 10B/PLATE 8110D
	P8-2	POLE MOUNT	8							**	**	
	2-4	POLE MOUNT	2,5	12	12	12		12	12			0°, TYPE 10A/PLATE 8110D
	P5-1	POLE MOUNT	5							**	**	90°, TYPE 30A/PLATE 8110D
MA-4	2-3	MAST ARM (END)	2	12	12	12		12	12			ONE WAY MOUNT/PLATE 8124E
	2-2	MAST ARM (INSIDE)	2	12	12	12						ONE WAY MOUNT/PLATE 8124E
	2-1	POLE MOUNT	2	12	12	12						270°, TYPE 10B/PLATE 8110D
	P2-2	POLE MOUNT	2							**	**	
	4-3	POLE MOUNT	4	12	12	12						90°, TYPE 10B/PLATE 8110D
	P8-1	POLE MOUNT	8							**	**	

** = ONE SECTION HAND/WALKING PERSON INDICATION (SEE SPECIAL PROVISIONS).

MA-3A MAST ARM POLE FOUNDATION
TYPE A-30-X40-4
LUMINAIRE (SHOEBOX)
2-ONE WAY SIGNALS-OVERHEAD (0' & 11' FROM END OF MAST ARM)
MID-MAST ARM MOUNT AT 11' (WELDED MOUNT)
TYPE 10A-POLE MOUNTED 0°
TYPE 30A-POLE MOUNTED 90°
TYPE 10B-POLE MOUNTED 270°
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
TYPE D SIGN PANEL-OVERHEAD (D-3)
ONE WAY EVP DETECTOR AND LIGHT (#6)
3"R.S.C. TO HH-3

MA-4 MAST ARM POLE FOUNDATION
TYPE A-45
2-ONE WAY SIGNALS-OVERHEAD (0' & 15' FROM END OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° & 270°
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
TYPE D SIGN PANEL-OVERHEAD (D-4)
R10-12 SIGN PANEL-ADJACENT TO 2-3
ONE WAY EVP DETECTOR AND LIGHT (#2)
3"R.S.C. TO HH-2

SIGNAL HEAD PHASING

NOTES:

1) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS, WITH CONCRETE COLLARS WHERE NO SIDEWALK EXISTS (SEE SPECIAL PROVISIONS).
2) NEW PEDESTRIAN PUSH BUTTONS & SIGNS SHALL BE FURNISHED BY CITY & INSTALLED BY CONTRACTOR FOR OPERATION AS SHOWN IN PHASING LAYOUT (REMOVE OLD PUSH BUTTONS & SIGNS). PEDESTRIAN PUSH BUTTONS WILL BE IN ACCORDANCE WITH SPECIAL PROVISIONS. PUSH BUTTON SIGNS WILL BE R10-4b STICKER SIGNS.
3) PEDESTRIAN INDICATIONS WILL BE NEW (TO BE FURNISHED BY CITY AND INSTALLED BY CONTRACTOR), ONE-SECTION LED INDICATIONS WITH THE INTERNATIONAL HAND AND WALKING PERSON SYMBOLS. CONTRACTOR SHALL SALVAGE INPLACE PEDESTRIAN INDICATIONS TO CITY.
4) ONE 250 WATT HIGH PRESSURE SODIUM VAPOR "SHOEBOX" LUMINAIRE SHALL BE FURNISHED & INSTALLED BY CONTRACTOR ON THE NEW LUMINAIRE SHAFT EXTENSION AT MA-1 (INSTALL CITY FURNISHED 40' LUMINAIRE SHAFT EXTENSION ON NEW CITY FURNISHED MAST ARM POLE STANDARD). INPLACE LUMINAIRE EXTENSION AND LUMINAIRE ON MA-3A SHALL BE REUSED AND MADE OPERATIONAL BY CONTRACTOR AS NOTED IN THE PLANS.
5) ALL SIGNAL INDICATIONS SHALL BE FITTED WITH BACKGROUND SHIELDS.
6) NO SPLICES WILL BE ALLOWED IN 3/c#12 & 3/c#20 CABLES (FOR EVP) FROM MAST ARM (OR MAST ARM POLE) TO CONTROLLER CABINET. COMBINATION ONE-WAY EVP DETECTOR AND INDICATOR LIGHT SHALL BE FURNISHED & INSTALLED BY CONTRACTOR 6 FEET FROM END OF EACH MAST ARM. ONE-WAY EVP DETECTOR ONLY SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR ON POLE MA-2A (90° SIDE OF POLE, ATOP SIGNAL HEAD).
7) ALL LOOP DETECTORS SHALL BE NEW (EXCEPT FOR D8-1 AND D8-2, WHICH ARE INPLACE-REUSE AND MAKE OPERATIONAL). NEW LOOP DETECTORS D4-1, D4-2, D4-3, AND D4-4 SHALL BE INSTALLED IN NON-METALLIC CONDUIT. NEW LOOP DETECTORS D1-1, D1-2, D1-3, D1-4, D2-1, D2-2, D5-1, D5-2, D6-1 AND D6-2 SHALL BE SAWCUT LOOP DETECTORS PER MNDOT STANDARD PLATE NO. 8130D. SEE SPECIAL PROVISIONS AND DETAILS.
8) CONTRACTOR SHALL SALVAGE TWELVE (12) INPLACE "RED" LED INDICATIONS FROM INPLACE SIGNAL SYSTEM AND SHALL REINSTALL THESE "RED" LED INDICATIONS AS PART OF REVISE SIGNAL SYSTEM. ALL OTHER INDICATIONS (VEHICULAR AND PEDESTRIAN) WILL BE NEW LED INDICATIONS (TO BE FURNISHED BY CITY AND INSTALLED BY CONTRACTOR).
9) CONTRACTOR SHALL REMOVE ALL INPLACE CABLES AND CONDUCTORS, AND SHALL FURNISH AND INSTALL NEW CABLES

FINAL PLAN
CONFORMING TO CONST. RECORDS
DATE MG 11-01-04

FOR INFORMATION ONLY
SIGNAL SYSTEM AT 67TH ST

SCALE 0 20 40 FEET

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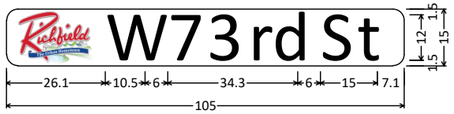
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.21

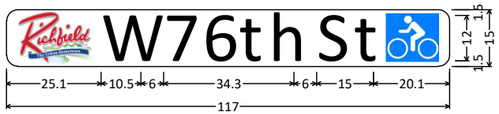
D–1



3.0" Radius, No border, White on Green;
[W 73rd St] D;
Table of letter and object lefts.

W	7	3	r	d	S	t
26.1	42.6	52.9	63.9	70.2	82.9	92.7

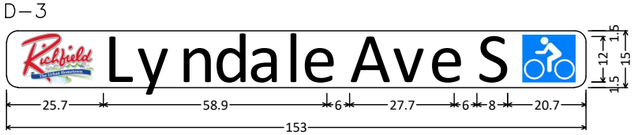
D–2



3.0" Radius, No border, White on Green;
[W 76th St] D;
Table of letter and object lefts.

W	7	6	t	h	S	t
25.1	41.6	51.9	61.5	69.2	81.9	91.7

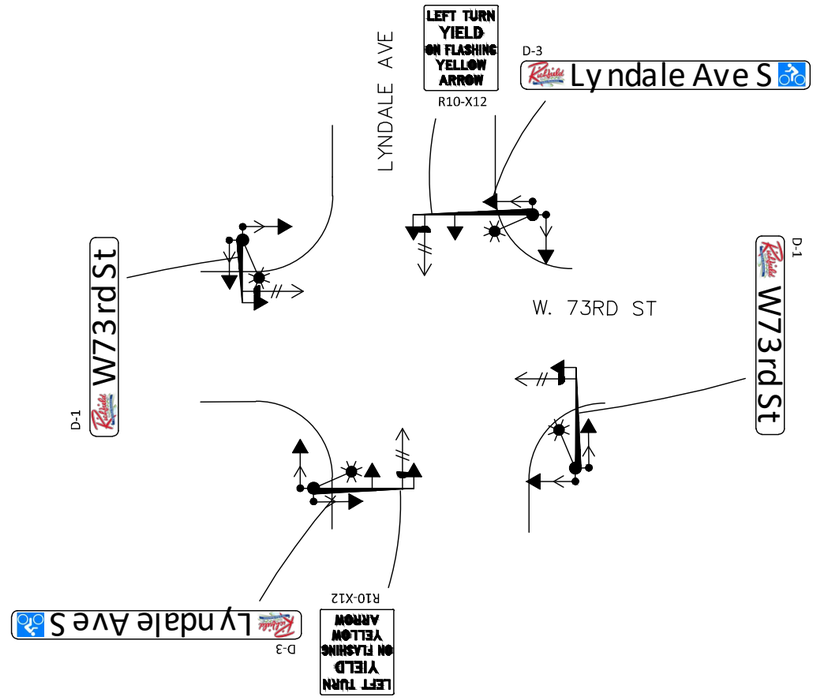
D–3



3.0" Radius, No border, White on Green;
[Lyndale Ave S] D;
Table of letter and object lefts.

L	y	n	d	a	l	e	A	v	e	S
25.7	34.4	45.4	54.6	63.8	73.6	78.0	90.6	102.0	111.6	124.3

LYNDALE AVE AT 76TH ST. (SYSTEM A)
SIGN LAYOUT



LYNDALE AVE AT 73RD ST. (SYSTEM B)
SIGN LAYOUT

NOTES:
1. SEE SIGNAL PLAN DETAIL SHEET FOR SIGN MOUNTING PLATE LOCATIONS.
2. CONTRACTOR TO COORDINATE WITH CITY OF RICHFIELD FOR CREATION OF SIGNS.

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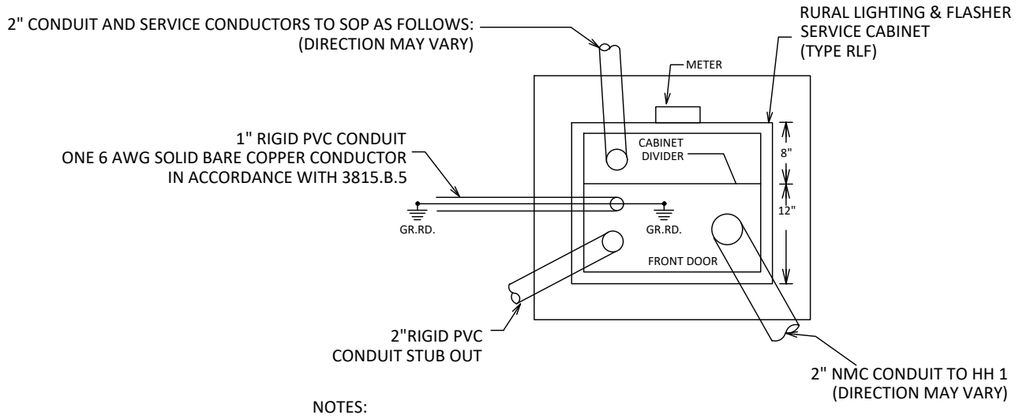
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.22

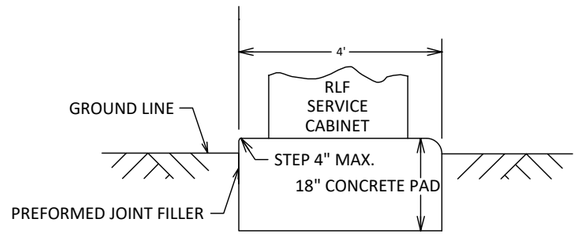
TYPICAL PAD WITH RURAL LIGHTING AND FLASHER CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

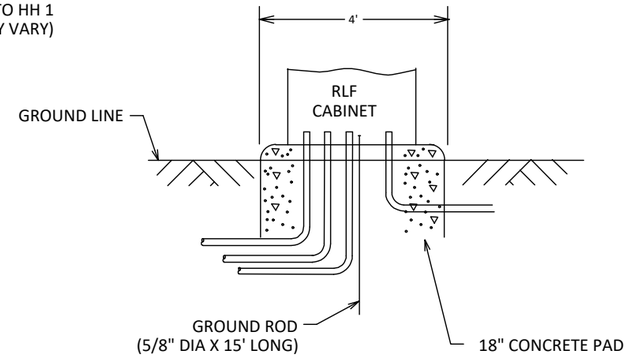
PLAN VIEW



SIDE VIEW



FRONT VIEW



NOTES:

1. BRUSH ON ANTI-SEIZE LUBRICANT MUST BE APPLIED TO ALL ANCHOR ROD THREADS PROTRUDING ABOVE THE CONCRETE PAD BEFORE THE CABINET IS PLACED.

2. THE OUTER EDGE OF THE ENTIRE EQUIPMENT PAD AND CONCRETE WALK SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.

3. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER PLACEMENT (UNTIL CABLES ARE PLACED).

4. CONDUIT SHALL PROJECT A MINIMUM OF 2" WITH END BELLS ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).

5. AFTER CONDUCTORS ARE PLACED, SEAL CONDUITS IN ACCORDANCE WITH 2565.3D.2b

6. SUPPLY TWO 15 FOOT LONG GROUND ROD ELECTRODES IN ACCORDANCE WITH 2545.3.R. PLACE ONE OF THE GROUND RODS IN THE EQUIPMENT PAD IN ACCORDANCE WITH 2545.3 F.3 AND THE OTHER OUTSIDE OF THE PAD WITH A MINIMUM OF 6 FEET OF SEPARATION BETWEEN ELECTRODES. BOND THE TWO GROUND RODS TOGETHER WITH ONE CONTINUOUS LENGTH UN-SPLICED CONDUCTOR FROM THE OUTER MOST GROUND ROD TO THE GROUND BUS BAR IN THE CABINET. USE NRTL LISTED CLAMPS SUITABLE FOR DIRECT BURIAL OR EXOTHERMICALLY WELD THE 6 AWG SOLID CONDUCTOR TO THE GROUND RODS. PLACE THE BONDING CONNECTION TO THE EQUIPMENT PAD GROUND ROD ABOVE THE CONCRETE. APPLY DE-OX COMPOUND TO THE GROUNDING CONNECTIONS AFTER FINAL ASSEMBLY.

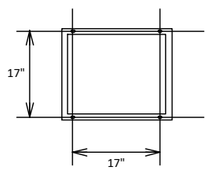
7. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD.

8. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

9. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).

10. CABINET TO BE CENTERED ON THE PAD.

R.L.F. SERVICE CABINET
BOLT PATTERN



DIMENSION SHOWN ARE
CENTER ROD TO CENTER ROD

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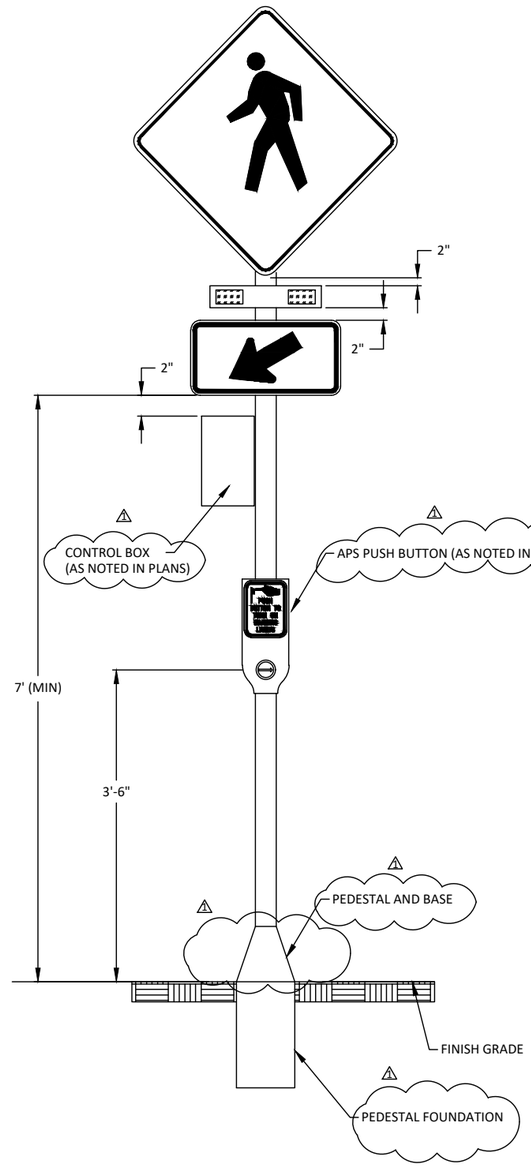
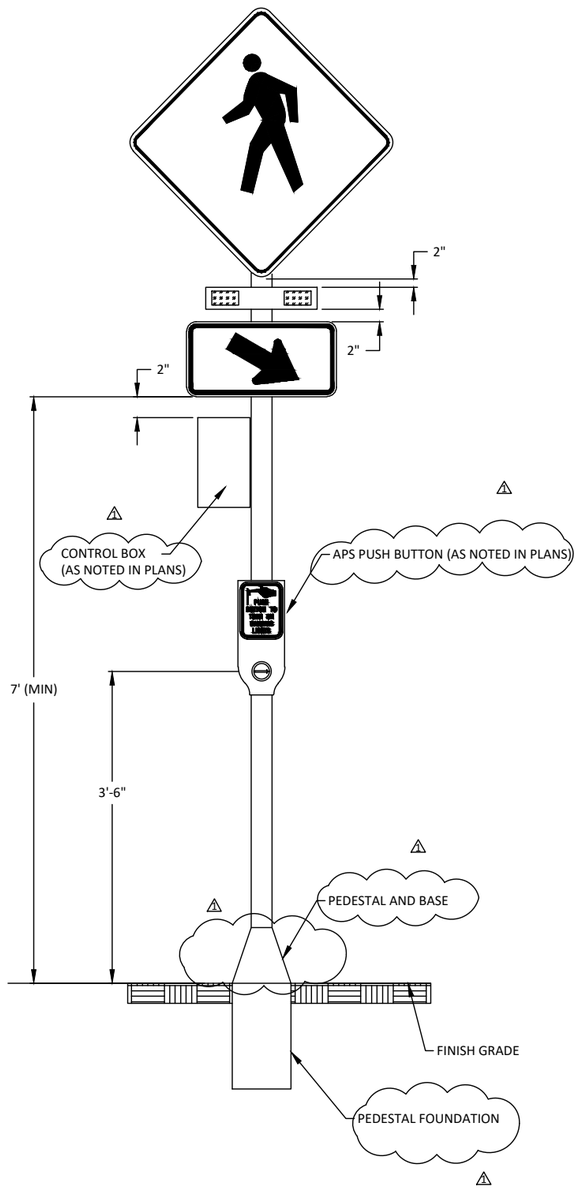
SIGNAL PLANS

SHEET C7.23



RRFB DETAIL 1

1 OR 2 SIDED
(AS SPECIFIED IN PLANS)



RRFB DETAIL 2

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET
C7.24R

NOTES:
1. CONCRETE PANELS SHALL BE ADA COMPLIANT AND 2.0% SLOPE OR LESS IN ALL DIRECTIONS ADJACENT TO PUSHBUTTON.
2. LOCATIONS OF RRFB POLES AND FOUNDATIONS SHALL BE FIELD VERIFIED BY PROJECT ENGINEER PRIOR TO INSTALLATION.
3. COORDINATE WITH XCEL ENERGY FOR CONNECTION TO SOURCE OF POWER.

SOP-1A TO HH-4
TO SC-1A
2" CONDUIT RISER WITH
WEATHERHEAD AND RISER
2" RSC
3-1/C#4

SOP 1A

4

W 75TH STREET

SC-1A TO HH-1
1 1/2" RSC
3-1/C #6

SA-1A TO HH-1
1 1/2" RSC
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
1 1/2" RSC
3-1/C #6

SC 1A

1

SA 1A

HH 1 TO HH 2
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.

2

SA 2A

SA-2A TO HH-2
1 1/2" RSC
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

LYNDALE AVE

3

SA 3A

HH-3 TO HH-2
1 1/2" RSC
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA-3A TO HH 3
1 1/2" RSC
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA 1A
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
POLE MOUNTED FLASHER CONTROL CABINET
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-1) AND SIGN(LEFT ARROW)
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-1:
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
1 1/2" RSC TO HH-1:
3-1/C #6

SA 2A
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
2-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-2) AND SIGN (DOUBLE ARROW)
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-2:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA 3A
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-3) AND SIGN(LEFT ARROW)
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-3:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SC 1A
SERVICE CABINET
TYPE RLF
SERVICE CABINET FOUNDATION

SCALE 0 20 40 FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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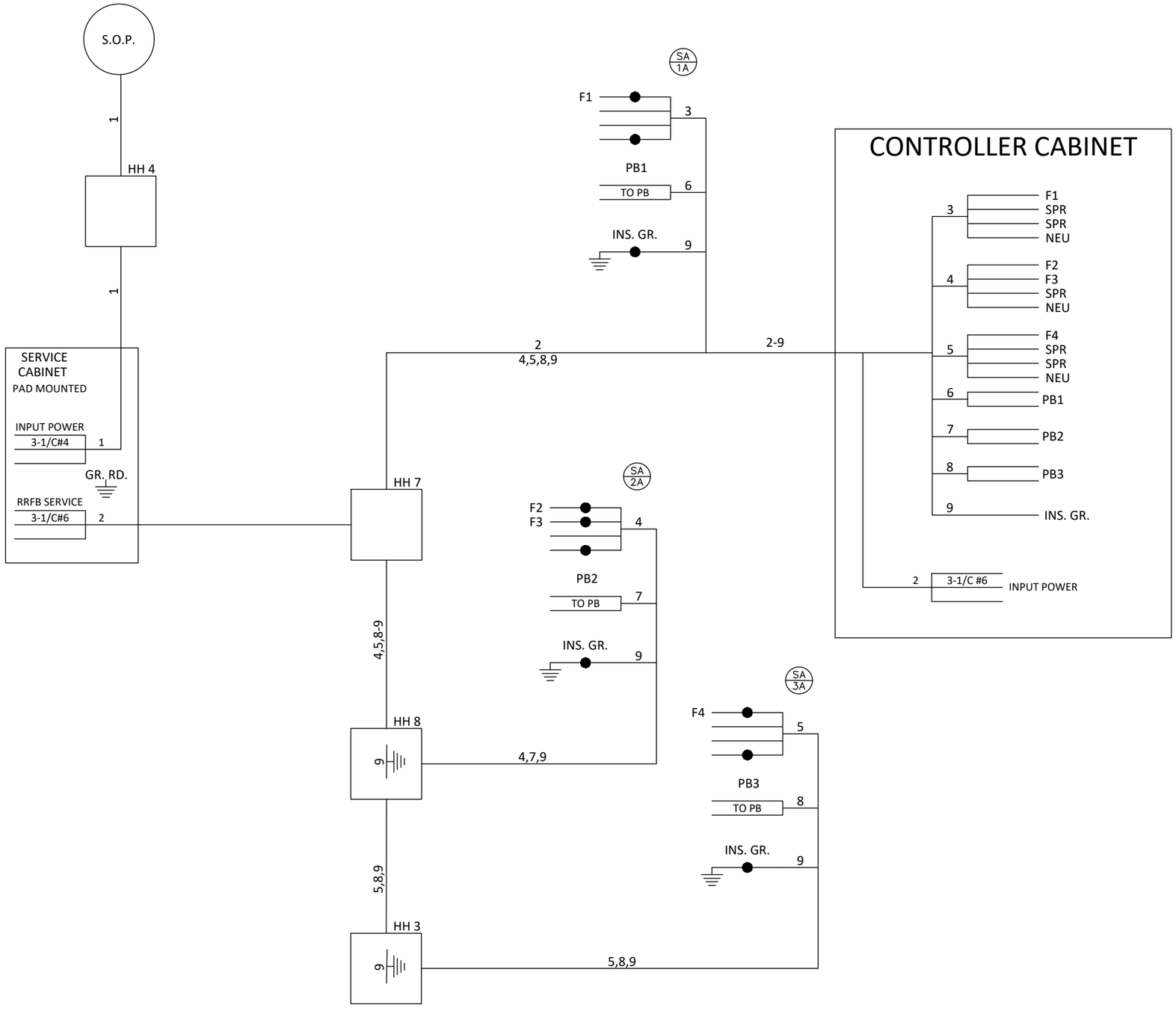
PEDESTRIAN CROSSWALK FLASHER SYSTEM A
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.25R



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PEDESTRIAN CROSSWALK FLASHER SYSTEM A
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.26

SA 1B
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
POLE MOUNTED FLASHER CONTROL CABINET
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-1) AND SIGN (LEFT ARROW)
MOUNTED ON SOUTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-6:
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
3-1/C #6

SA 1C
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
POLE MOUNTED FLASHER CONTROL CABINET
2-RRFB LED ARRAY
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-1) AND SIGN (LEFT ARROW)
MOUNTED ON WEST SIDE OF PEDESTAL
1 1/2" RSC TO HH-5:
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
3-1/C #6

SA 2B
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
2-RRFB LED ARRAY
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
2-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-2) AND SIGN (DOUBLE ARROW)
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-7:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA 2C
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
2-RRFB LED ARRAY (EAST ARRAY FACING THE CIRCULATING TRAFFIC)
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-2) AND SIGN (LEFT ARROW)
MOUNTED ON WEST SIDE OF PEDESTAL
1 1/2" RSC TO HH-4:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA 3B
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-3) AND SIGN (LEFT ARROW)
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-8:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SC 1B
BATTERY BACKUP SYSTEM SIGNAL SERVICE CABINET
SERVICE CABINET FOUNDATION
(SEE DETAILS IN SIGNAL PLANS)

NOTES:
1. CONCRETE PANELS SHALL BE ADA COMPLIANT AND 2.0% SLOPE OR LESS IN ALL DIRECTIONS ADJACENT TO PUSHBUTTON.
2. LOCATIONS OF RRFB POLES AND FOUNDATIONS SHALL BE FIELD VERIFIED BY PROJECT ENGINEER PRIOR TO INSTALLATION.
3. COORDINATE WITH XCEL ENERGY FOR CONNECTION TO SOURCE OF POWER.

OAK GROVE BLVD

SA-3B TO HH-6
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

HH-7 TO HH-8
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-2B TO HH-7
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

HH-7 TO HH-6
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.

SA-1B TO HH-6
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.
3-1/C #6

HH-6 TO HH-3
1 1/2" RSC
3-1/C #6

HH-1 TO HH-2
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-3D TO HH-1
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-2D TO HH-2
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

HH-2 TO HH-3
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.

LYNDALE AVE

HH-9 TO HH-6
2" RSC
9-1/C #4

SA-1D TO HH-3
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.
3-1/C #6

SC-1B TO HH-6
2" RSC
9-1/C #6

SA-1C TO HH-4
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.
3-1/C #6

HH-6 TO HH-5
1 1/2" RSC
3-1/C #6

HH-5 TO HH-4
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-3C TO HH-4
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

W. 70TH ST

SOP-1B TO HH-10
TO SC-1B
2" CONDUIT RISER WITH
WEATHERHEAD AND RISER
2" RSC
9-1/C#4

SA 1D
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
POLE MOUNTED FLASHER CONTROL CABINET
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-1) AND SIGN (LEFT ARROW)
MOUNTED ON SOUTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-3:
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
3-1/C #6

SA 2D
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
2-RRFB LED ARRAY
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
2-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-2) AND SIGN (DOUBLE ARROW)
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-2:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA 3D
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-3) AND SIGN (LEFT ARROW)
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-1:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SCALE 0 20 40 FEET

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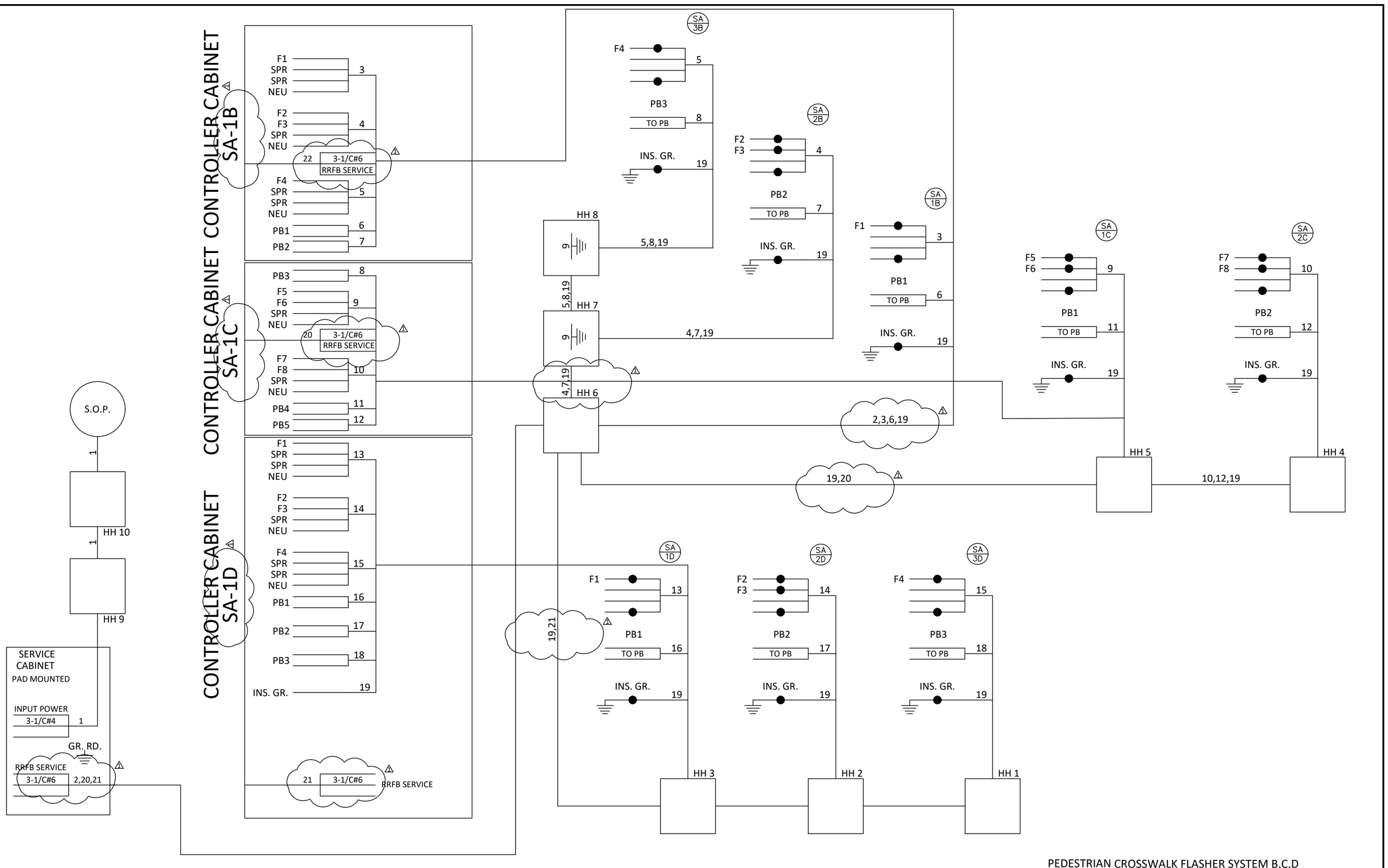
PEDESTRIAN CROSSWALK FLASHER SYSTEM B,C,D
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.27R



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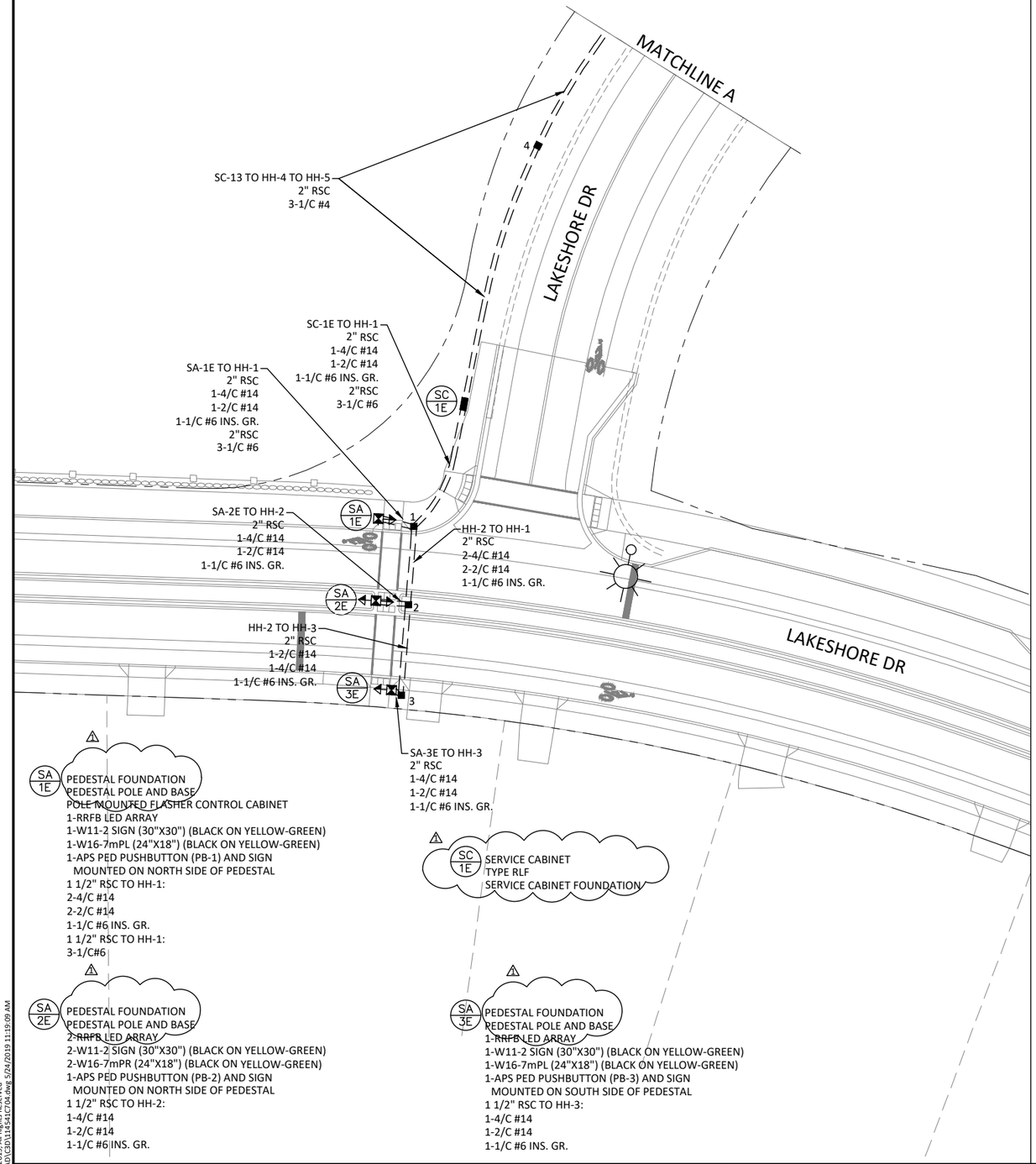
PEDESTRIAN CROSSWALK FLASHER SYSTEM B,C,D
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.28R



⚠1

SA 1E — PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
POLE MOUNTED FLASHER CONTROL CABINET
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-1) AND SIGN
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-1:
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
1 1/2" RSC TO HH-1:
3-1/C#6

⚠1

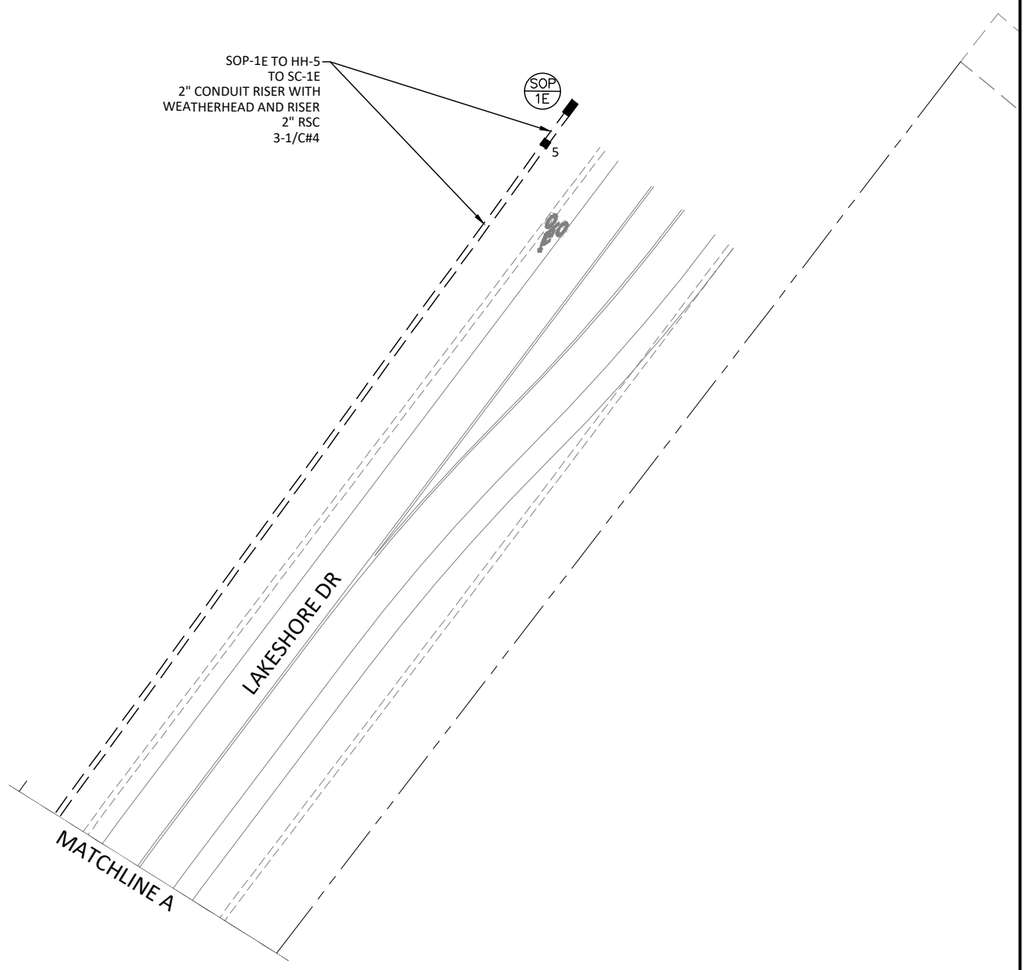
SA 2E — PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
2-RRFB LED ARRAY
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
2-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-2) AND SIGN
MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-2:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

⚠1

SC 1E — SERVICE CABINET
TYPE RLF
SERVICE CABINET FOUNDATION

⚠1

SA 3E — PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-3) AND SIGN
MOUNTED ON SOUTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-3:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.



NOTES:
1. CONCRETE PANELS SHALL BE ADA COMPLIANT AND 2.0% SLOPE OR LESS IN ALL DIRECTIONS ADJACENT TO PUSHBUTTON.
2. LOCATIONS OF RRFB POLES AND FOUNDATIONS SHALL BE FIELD VERIFIED BY PROJECT ENGINEER PRIOR TO INSTALLATION.
3. COORDINATE WITH XCEL ENERGY FOR CONNECTION TO SOURCE OF POWER.

0 20 40
SCALE FEET

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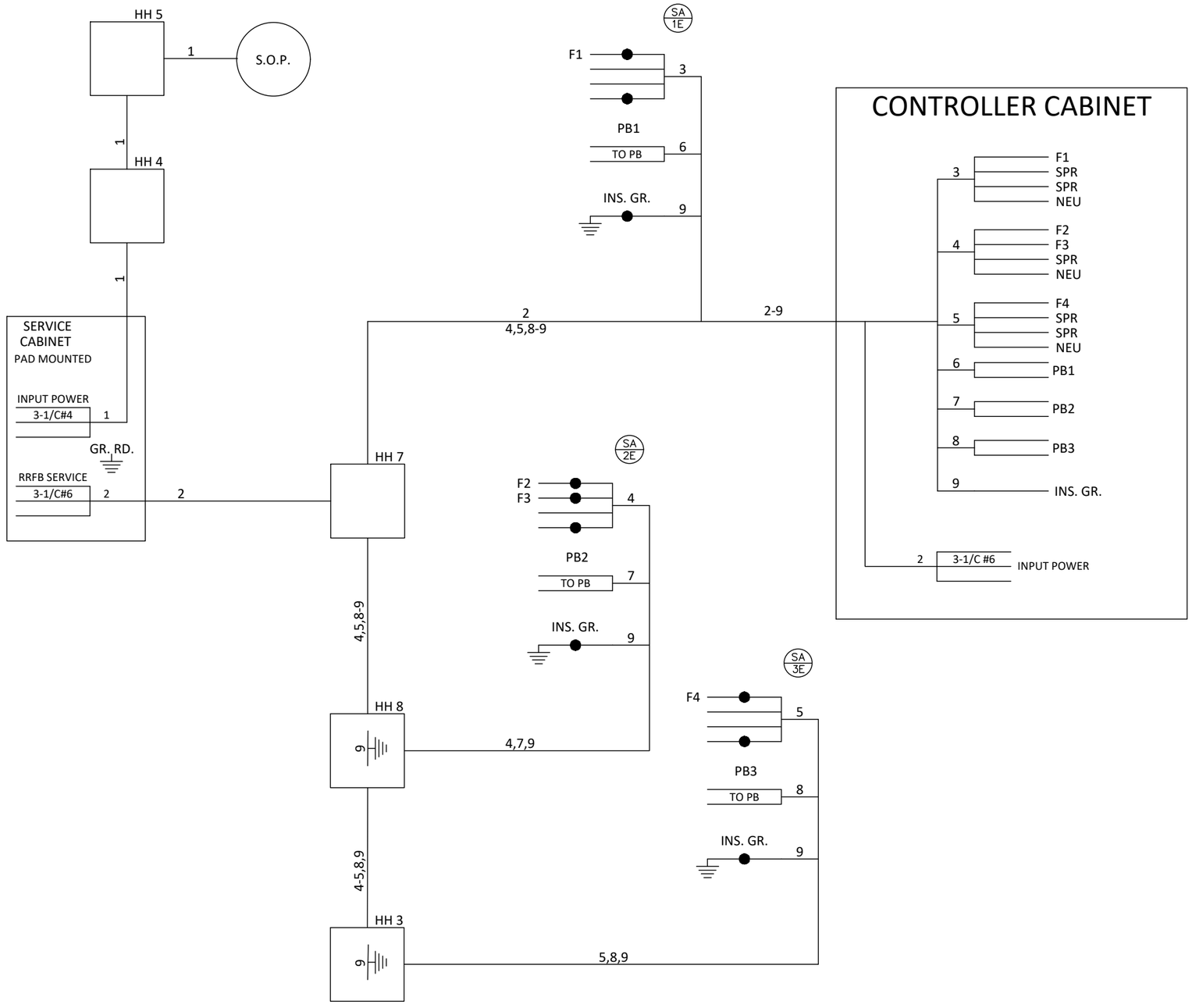
PEDESTRIAN CROSSWALK FLASHER SYSTEM E
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.29R



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PEDESTRIAN CROSSWALK FLASHER SYSTEM E
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.30

SA 1F
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
POLE MOUNTED FLASHER CONTROL CABINET
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-1) AND SIGN (LEFT ARROW) MOUNTED ON SOUTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-3:
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
3-1/C #6

SA 2F
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
2-RRFB LED ARRAY
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
2-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-2) AND SIGN (DOUBLE ARROW) MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-2:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA 3F
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-3) AND SIGN (LEFT ARROW) MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-1:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

NOTES:
1. CONCRETE PANELS SHALL BE ADA COMPLIANT AND 2.0% SLOPE OR LESS IN ALL DIRECTIONS ADJACENT TO PUSHBUTTON.
2. LOCATIONS OF RRFB POLES AND FOUNDATIONS SHALL BE FIELD VERIFIED BY PROJECT ENGINEER PRIOR TO INSTALLATION.
3. COORDINATE WITH XCEL ENERGY FOR CONNECTION TO SOURCE OF POWER.

HH-1 TO HH-2
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-3F TO HH-1
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-2F TO HH-2
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

HH-7 TO HH-8
2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-1F TO HH-3
2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.
3-1/C #6

SA-3G TO HH-8
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

SA-2G TO HH-7
1 1/2" RSC
1-2/C #14
1-4/C #14
1-1/C #6 INS. GR.

HH-7 TO HH-6
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.

HH-3 TO HH-2
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.

HH-4 TO HH-3
1 1/2" RSC
3-1/C #6

HH-6 TO HH-5
1 1/2" RSC
3-1/C #6

SA-1G TO HH-6
1 1/2" RSC
2-2/C #14
2-4/C #14
1-1/C #6 INS. GR.
3-1/C #6

HH-4 TO HH-5
1 1/2" RSC
3-1/C #6

SC-1F TO HH-4
2" RSC
6-1/C #6

W. 67TH ST

SOP-1F TO HH-10
TO SC-1B
2" CONDUIT RISER WITH WEATHERHEAD AND RISER
2" RSC
6-1/C#4

SA 1G
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
POLE MOUNTED FLASHER CONTROL CABINET
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-1) AND SIGN MOUNTED ON SOUTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-6:
2-4/C #14
2-2/C #14
1-1/C #6 INS. GR.
3-1/C #6

SA 2G
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
2-RRFB LED ARRAY
2-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
2-W16-7mPR (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-2) AND SIGN (DOUBLE ARROW) MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-7:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SA 3G
PEDESTAL FOUNDATION
PEDESTAL POLE AND BASE
1-RRFB LED ARRAY
1-W11-2 SIGN (30"X30") (BLACK ON YELLOW-GREEN)
1-W16-7mPL (24"X18") (BLACK ON YELLOW-GREEN)
1-APS PED PUSHBUTTON (PB-3) AND SIGN (LEFT ARROW) MOUNTED ON NORTH SIDE OF PEDESTAL
1 1/2" RSC TO HH-8:
1-4/C #14
1-2/C #14
1-1/C #6 INS. GR.

SC 1F
BATTERY BACKUP SYSTEM SIGNAL CABINET SERVICE CABINET FOUNDATION
(SEE DETAILS IN SIGNAL PLANS)

SOP 1F

1 2 3 4 5 6 7 8 9

0 20 40
SCALE FEET

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BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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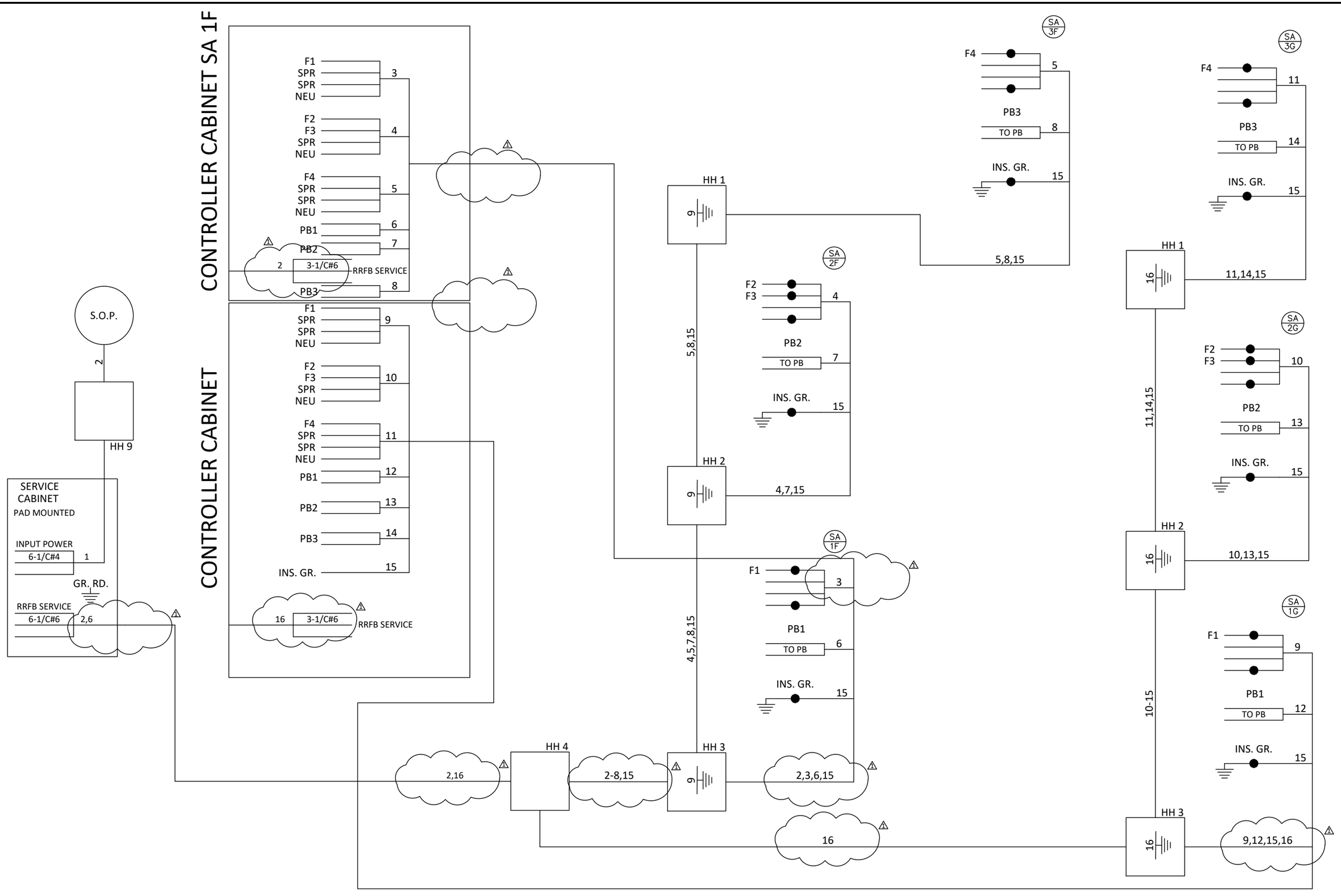
NO.	REVISION	DATE
1	⚠	03/15/19

PEDESTRIAN CROSSWALK FLASHER SYSTEM F, G
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET
C7.31R



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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNAL PLANS

SHEET C7.32R

PERMANENT SIGNING AND PAVEMENT MARKING PLAN

NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A AGENCY PLACED YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 3 INCHES FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.
JUST PRIOR TO THE PLACEMENT OF PAVEMENT MARKINGS THE ROAD SURFACE SHALL BE CLEANED AND FREE OF CONTAMINATION AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

REFER TO SPECIAL PROVISIONS OR SPEC BOOK FOR GROUND IN/RECESSED PAVEMENT MARKING APPLICATION REQUIREMENTS.

MULTI-COMPONENT LIQUID:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

THE MULTI-COMPONENT MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI-COMPONENT LIQUID PAVEMENT MARKING.

APPLY MULTI-COMPONENT LIQUID MARKINGS WITH A MINIMUM THICKNESS OF 20 MILS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40° F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

PAINT:

GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 8 LBS/GAL. IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES IS 50°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

PERMANENT SIGNING AND PAVEMENT MARKING PLAN INDEX

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK WHITE
PREFORM THERMOPLASTIC (GROUND IN)

G CROSSWALK BLOCK GREEN
PREFORM THERMOPLASTIC (GROUND IN)

PAVEMENT MESSAGE (LT ARROW) WHITE
PREFORM THERMOPLASTIC (GROUND IN)

PAVEMENT MESSAGE (RT ARROW) WHITE
PREFORM THERMOPLASTIC (GROUND IN)

PAVEMENT MESSAGE (TRHU/LT ARROW) WHITE
PREFORM THERMOPLASTIC (GROUND IN)

PAVEMENT MESSAGE WHITE CENTERED
ON A BLACK RECTANGULAR BACKGROUND
PREFORM THERMOPLASTIC (GROUND IN)

STRIPING KEY

CIRCLE-MULTI-COMPONENT

SQUARE-PREF TAPE

TRIANGLE-PAINT

OCTAGON-PREF THERMO

1ST DIGIT
WIDTH
4", 8", ETC.

2ND DIGIT
PATTERN
S - SOLID
B - BROKEN
T - DOTTED
D - DOUBLE
K - DOUBLE BROKEN
H - DOUBLE DOTTED

3RD DIGIT
COLOR
W - WHITE
Y - YELLOW
B - BLACK

G=GROUND IN W=WET REFLECTIVE
C=CONTRAST E=ENHANCED SKID RESISTANCE

EXAMPLE: 4SW / GCW = 4" SOLID LINE WHITE PREF THERMO GROUND IN, CONTRAST, WET REFLECTIVE

I HEREBY CERTIFY THAT SHEETS C7.33 THROUGH C7.55 OF THIS PLAN WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: BRYAN T. NEMETH LICENSE # 43354

DATE: 01/11/2019 SIGNATURE:

DESIGNER: ZAP

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S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

SHEET C7.33

SALVAGE & INSTALL SIGN TYPE SPECIAL

SIGN NUMBER	QUANTITY EACH	DESCRIPTION
S-201	12	METRO BUS STOP
S-202	1	NEIGHBORHOOD CRIME WATCH
TOTALS	13	

OBJECT MARKER

CODE NUMBER	SIZE INCH	COLOR	QUANTITY EACH
X4-4R	12 X 36	BLACK ON YELLOW	24
X4-2	18 X 18	YELLOW ON BLACK	25

SIGN PANELS TYPE SPECIAL

SIGN NUMBER	QUANTITY (2) EACH	POST NO. AND TYPE	POST LENGTH (FT)	MTG. HT. (3)(4) (FT)	SIGN PANELS SIZE (IN)			AREA (SQ FT)	TOTAL AREA (SQ FT)	PANEL LEGEND	
S-1	22	1S	19	9	9	X	69	4.31	94.88	LYNDALE AVE S W/ BIKE	
S-2	2	1S	16	9	12	X	40	3.33	6.67	W 75TH ST	
S-3	2	1S	16	9	12	X	40	3.33	6.67	W 74TH ST	
S-4	2			9	12	X	40	3.33	6.67	W 72ND ST	(5)
S-5	4	1S	16	9	12	X	40	3.33	13.33	W 71ST ST	
S-6	2	1S	17	9	12	X	48	4.00	8.00	OAK GROVE BLVD	
S-7	4	1S	16	9	12	X	40	3.33	13.33	W 70TH ST W/ BIKE	
S-8	2	1S	16	9	12	X	40	3.33	6.67	W 69TH ST	
S-9	4	1S	16	9	12	X	40	3.33	13.33	W 68TH ST	
S-10	2	1S	17	9	12	X	48	4.00	8.00	LAKESHORE DR W/ BIKE	
S-11	4	1S	16	9	12	X	40	3.33	13.33	W 67TH ST	
S-12	2	1S	17	9	24	X	50	8.33	16.67	VFW DELIVERY	
S-13	2	1S	19	9	9	X	69	4.31	8.63	LYNDALE AVE S W/ BIKE	(5)
								TOTALS	216.17		

NOTES:

(2) QUANTITIES ARE DOUBLED FOR BACK TO BACK SIGNS.

(3) SEE SIGN SHEET C7.37 -C7.38 FOR MOUNTING DETAILS.

(4) MOUNTING HEIGHT IS MINIMUM.

(5) MOUNT ON LIGHT POLE

GENERAL NOTES:

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NO INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SIGNING DETAIL SHEETS FOR STRUCTURAL DETAILS.
3. SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.
4. FOR MOUNTING DETAILS, SEE SIGNING DETAIL SHEETS.

SIGN PANELS TYPE C

SIGN NUMBER	QUANTITY EACH	POST NO. AND TYPE	POST KNEE BRACES EACH	POST LENGTH (FT)	MTG. HT. (1) (FT)	SIGN PANELS SIZE (IN)			AREA (SQ FT)	TOTAL AREA (SQ FT)	PANEL CODE NUMBER	DESCRIPTION	A
C-1	24	2S	1	16	7	30	X	30	5.00	120.00	X4-4R	OBJECT MARKER	(2)(3)
											R4-7	KEEP RIGHT	(3)
											X4-2	OBJECT MARKER	(2)
C-2	1	2S	1	13	7	36	X	12	3.00	3.00	R6-1R	ONE WAY RIGHT	(3)
						36	X	12	3.00	3.00	R6-1R	ONE WAY RIGHT	(3)
C-3	11	1S	1	14	7	12	X	18	1.50	16.50	R7-9a	NO PARKING BIKE LANE	
C-4	2				7	24	X	30	5.00	10.00	R2-1	SPEED LIMIT 35	(4)
C-5	3	2U	1	14	7	24	X	36	6.00	18.00	R3-9b	CENTER LEFT TURN LANE	
C-6	2	1U	1	12	7	24	X	18	3.00	6.00	R3-17	BIKE LANE	
C-7	7	2U-1A	1	14	7	36	X	36	9.00	63.00	R1-5bL	STOP HERE FOR PEDESTRIANS	
C-8	9	2S	1	13	7	30	X	30	6.25	56.25	R1-1	STOP	
C-9	2	2S	1	13	7	30	X	30	6.25	12.50	R5-1	DO NOT ENTER	
C-10	5	1S	1	13	7	24	X	18	3.00	15.00	R3-17	BIKE LANE	
						24	X	8	1.33	6.67	R3-17bP	ENDS	
C-11	1	2S	1	13	7	24	X	30	5.00	5.00	R2-1	SPEED LIMIT 35	
C-12	9	2S	1	17	7	36	X	12	3.00	27.00	W16-17P	ROUNDABOUT PLAQUE	
						30	X	30	6.25	56.25	W2-6a	ROUNDABOUT	
						18	X	18	2.25	20.25	W13-1P	15 MPH	
C-13	7				7	24	X	36	6.00	42.00	R3-9b	CENTER LEFT TURN LANE	(4)
C-14	2				7	36	X	36	9.00	18.00	R1-5bL	STOP HERE FOR PEDESTRIANS	(4)
C-15	19	2S	1	11	7	36 X 36 X 36			4.50	85.50	R1-2	YIELD	
						30	X	30	6.25	118.75	W2-6a	ROUNDABOUT	
C-16	10	2S	1	14	7	12	X	36	3.00	30.00	R1-6a	STATE LAW STOP FOR PED	
C-17	1				7	12	X	18	1.50	1.50	R7-9a	NO PARKING BIKE LANE	(4)
C-18	3	2S	1	12	7	36	X	12	3.00	9.00	R6-1R	ONE WAY RIGHT	
C-19	1	1S	1	13	7	24	X	18	3.00	3.00	R3-17	BIKE LANE	
						24	X	8	1.33	1.33	R3-17aP	AHEAD	(2)
C-20	1	2S	1	13	7	24	X	30	5.00	5.00	R4-7	KEEP RIGHT	
											X4-2	OBJECT MARKER	
C-21	1	1S	1	14	7	24	X	12	2.00	2.00	R3-9dP	END	
						24	X	24	4.00	4.00	R8-3	NO PARKING	
C-22	1	1S	1	14	7	24	X	12	2.00	2.00	R3-9cP	BEGIN	
						24	X	24	4.00	4.00	R8-3	NO PARKING	
C-23									11.25	11.25	W4-2R	MERGE LEFT	
C-24	1	2S	1	12	7	36	X	12	3.00	3.00	R3-8ACA	LEFT THRU RIGHT ARROW	

NOTES:

(1) MOUNTING HEIGHT IS MINIMUM. SEE SIGNING DETAIL SHEEET FOR TYPICAL MOUNTING.

(2) SEE OBJECT MARKER TABULATION.

(3) MOUNT BACK TO BACK

(4) MOUNT ON LIGHT POLE

GENERAL NOTES:

1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NO INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SIGNING DETAIL SHEETS FOR STRUCTURAL DETAILS.
3. SEE STANDARD SIGNS MANUAL FOR PUNCHING CODE AND

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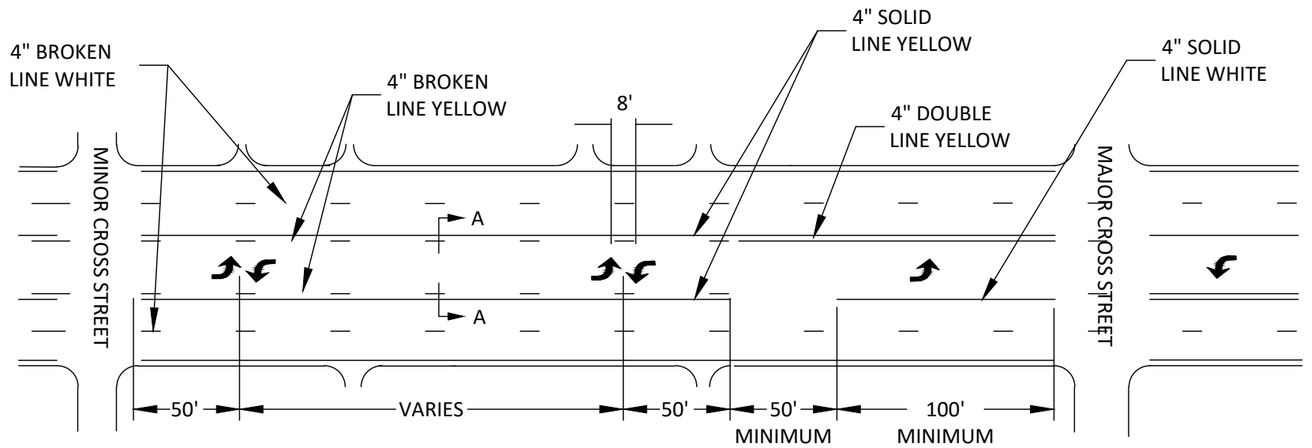
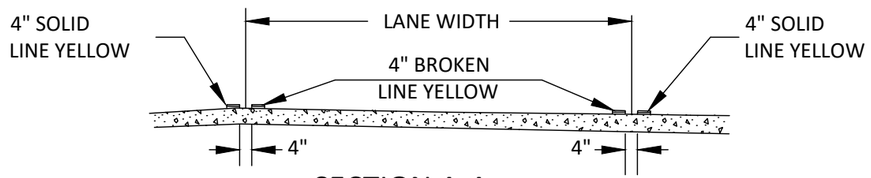
SIGNING AND STRIPING PLANS

SHEET C7.34

TWO-WAY LEFT-TURN LANE





SECTION A-A

TWO WAY LEFT TURN LANE

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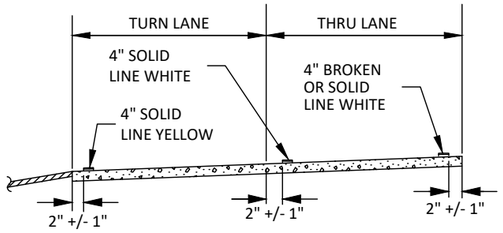
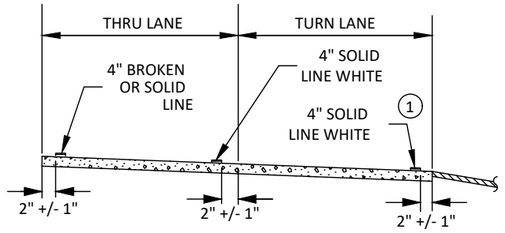
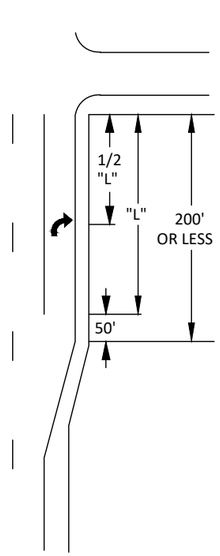
TURN LANE WITH ARROW MESSAGE

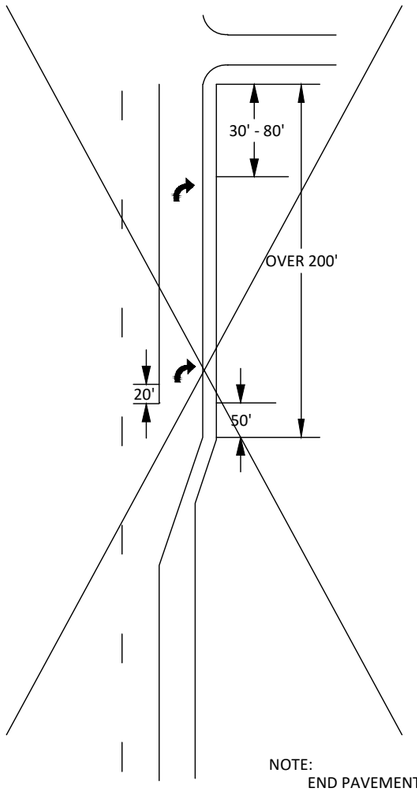
LEFT TURN LANE

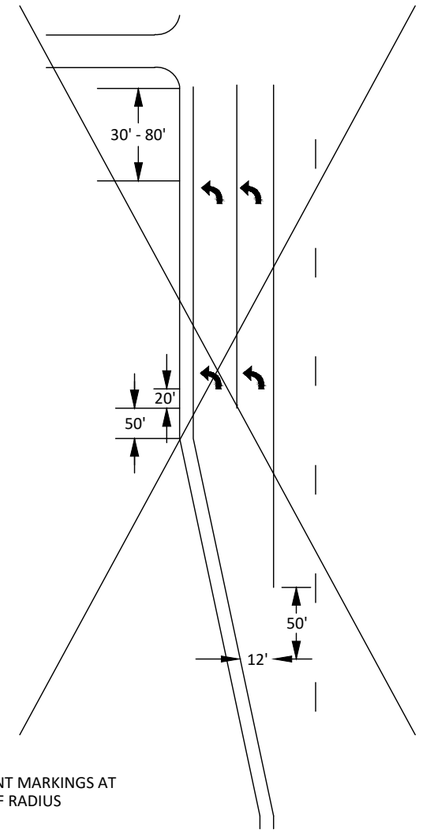


RIGHT TURN LANE









NOTE:
END PAVEMENT MARKINGS AT
BEGINNING OF RADIUS

14 OCT 2016 (MOD 6 NOV 2017)

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SIGNING AND
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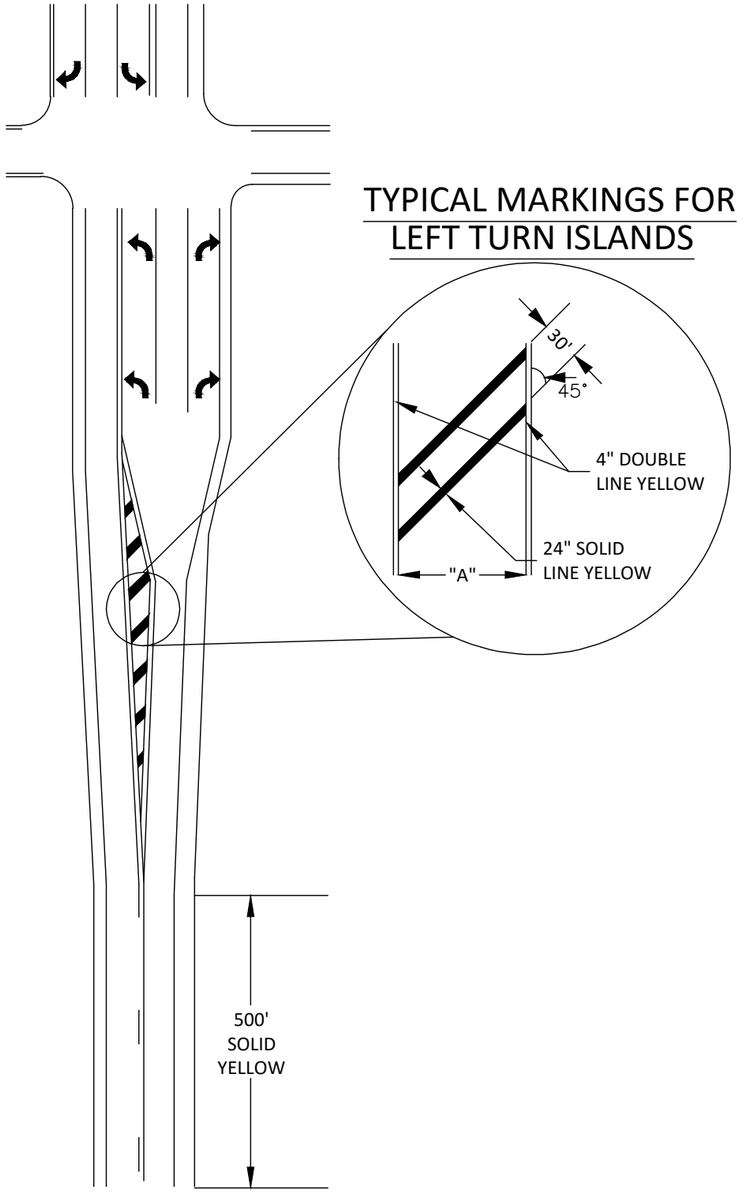
SHEET
C7.36

LEFT TURN LANE ISLAND

NOTE:
END PAVEMENT MARKINGS AT BEGINNING OF RADIUS



14 OCT 2016

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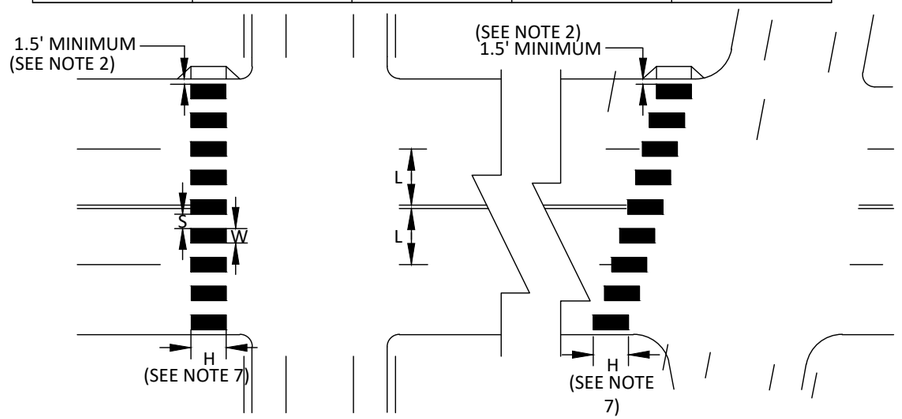
PEDESTRIAN CROSSWALK MARKINGS

(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREA	(S) WIDTH OF SPACE	ALTERNATE (W) WIDTH OF PAINTED AREA	ALTERNATE (S) WIDTH OF SPACE
9'	2.0'	2.5'	—	—
10'	2.5'	2.5'	2.0'	3.0'
11'	2.5'	3.0'	2.0'	3.5'
12'	3.0'	3.0'	2.5'	3.5'
13'	3.0'	3.5'	—	—



NOTES:

1. PAINTED AREAS TO BE CENTERED ON CENTERLINE AND LANE LINES.
2. A MINIMUM OF 1.5 FT. CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF LAST PAINTED AREA FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
3. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11 FT. INSIDE LANE.
4. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
5. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES AS SHOWN.
6. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
7. THE BLOCKS SHALL BE A MINIMUM OF 6' LONG AND AT LEAST AS LONG AS THE TRUNCATED DOMES, FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED USE PATH.
8. THE ALTERNATE (W) AND (S) MAY BE USED WHEN BLOCKS LONGER THAN 6' (H) ARE USED.

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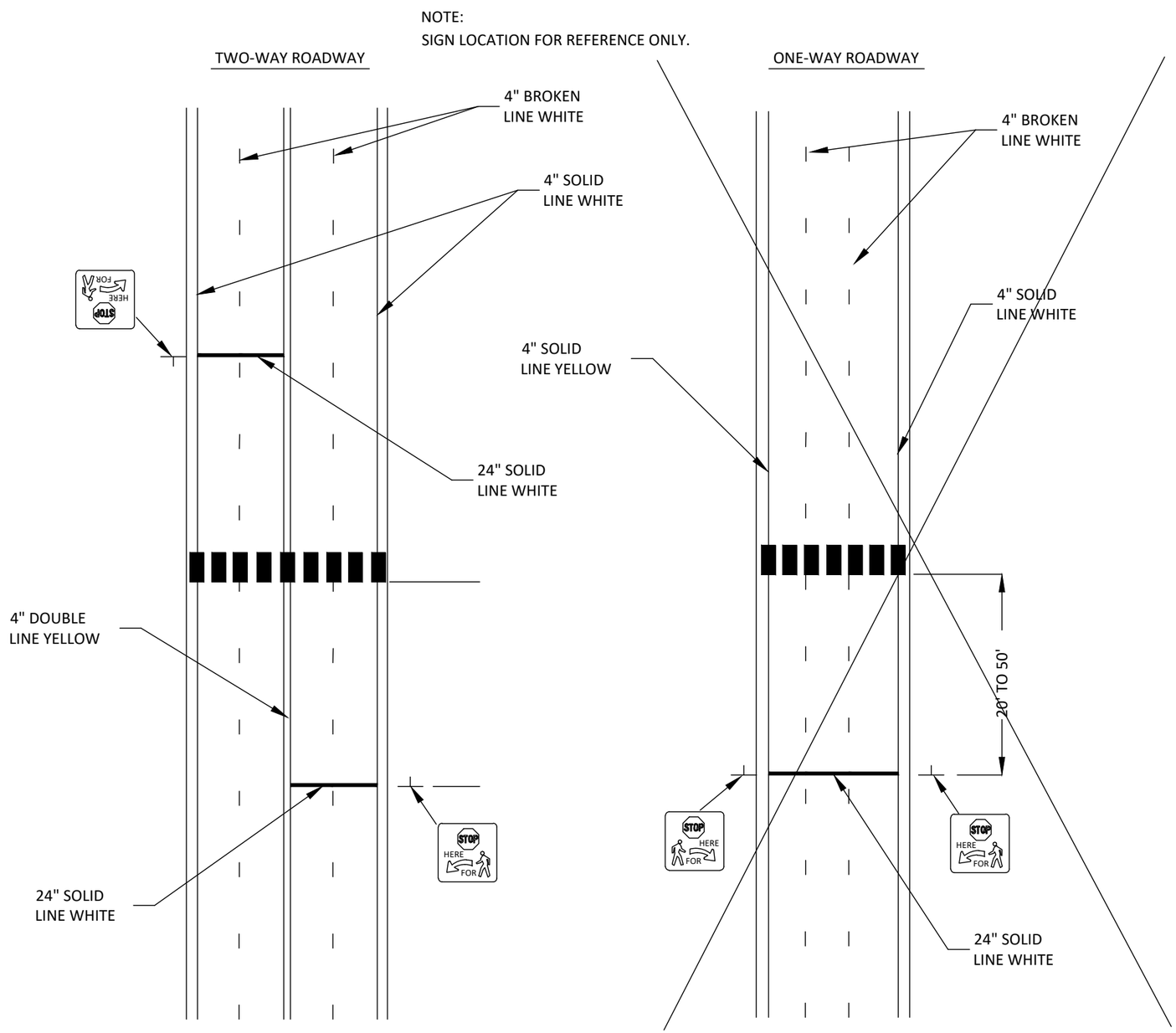
SHEET C7.38

STOP LINE AT UNSIGNALIZED MID BLOCK CROSSWALKS

NOTE:
SIGN LOCATION FOR REFERENCE ONLY.



PUBLISHED BY OTST: 20 NOV 2015

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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Richfield — The Urban Hometown

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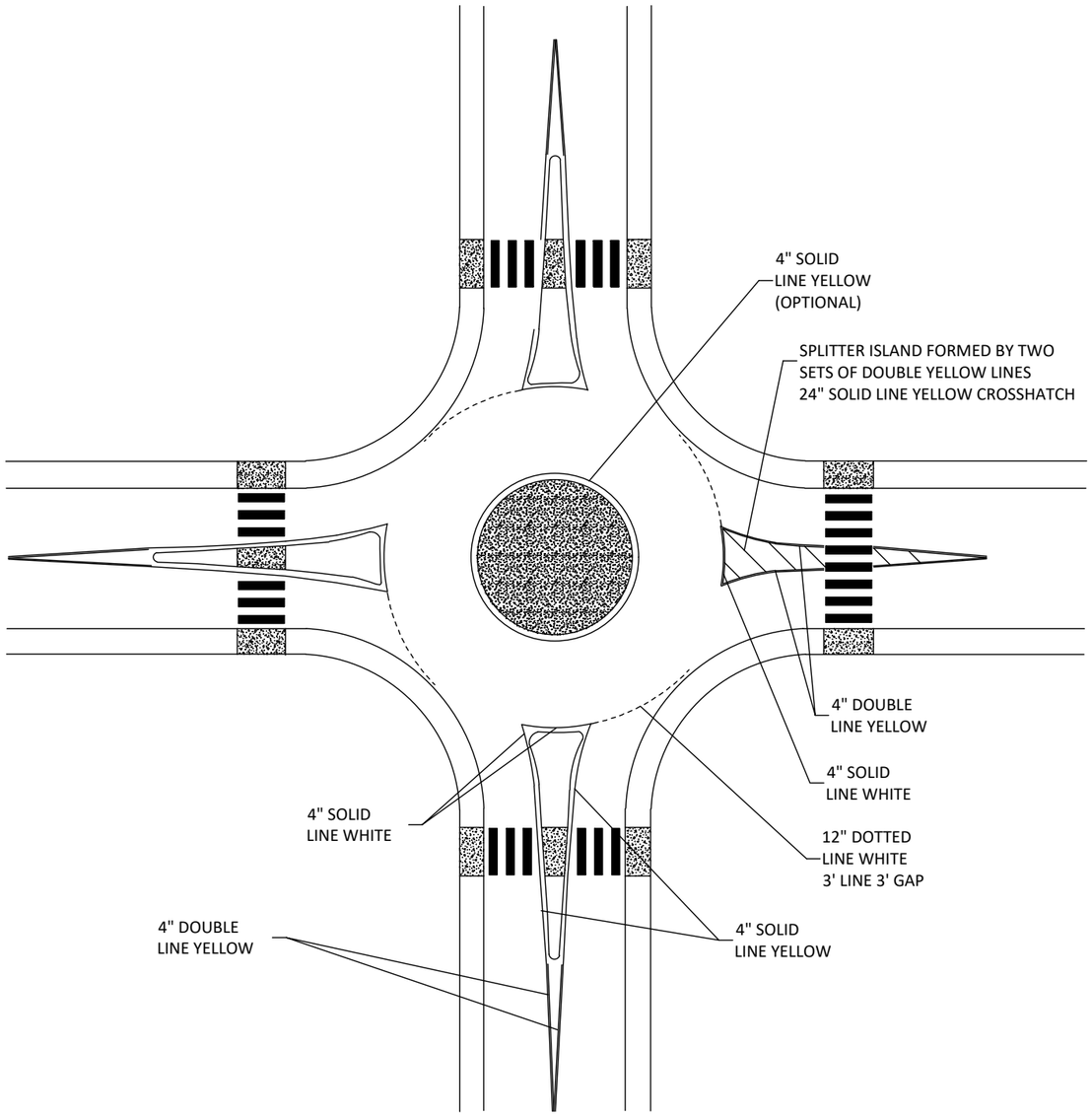
CHECKED	BTN
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

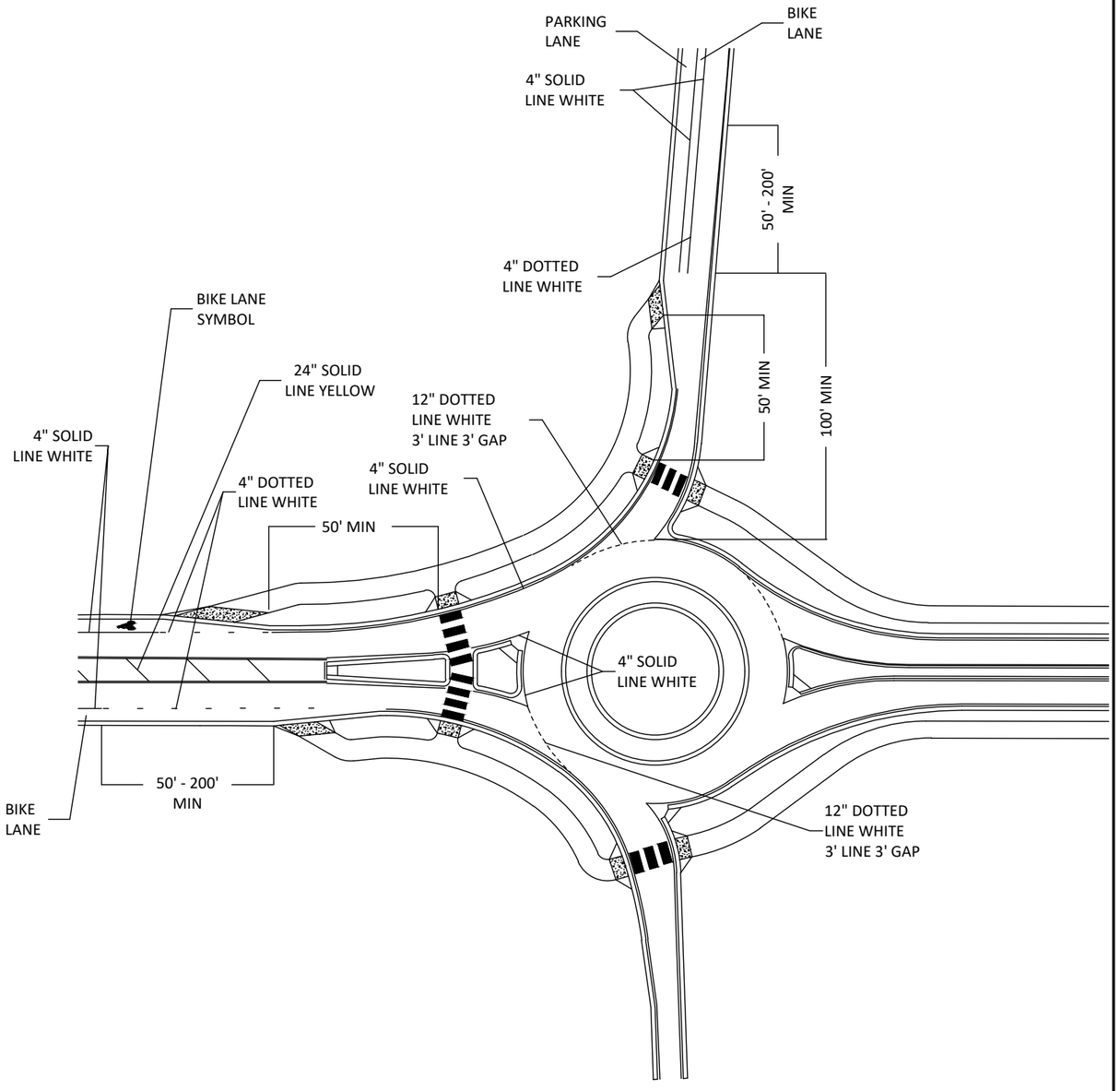
SHEET C7.39

MINI ROUNDABOUT



PUBLISHED BY OTST: 30 MAR 2018

ROUNDABOUT WITH BIKE SLIP RAMPS



PUBLISHED BY OTST: 30 MAR 2018

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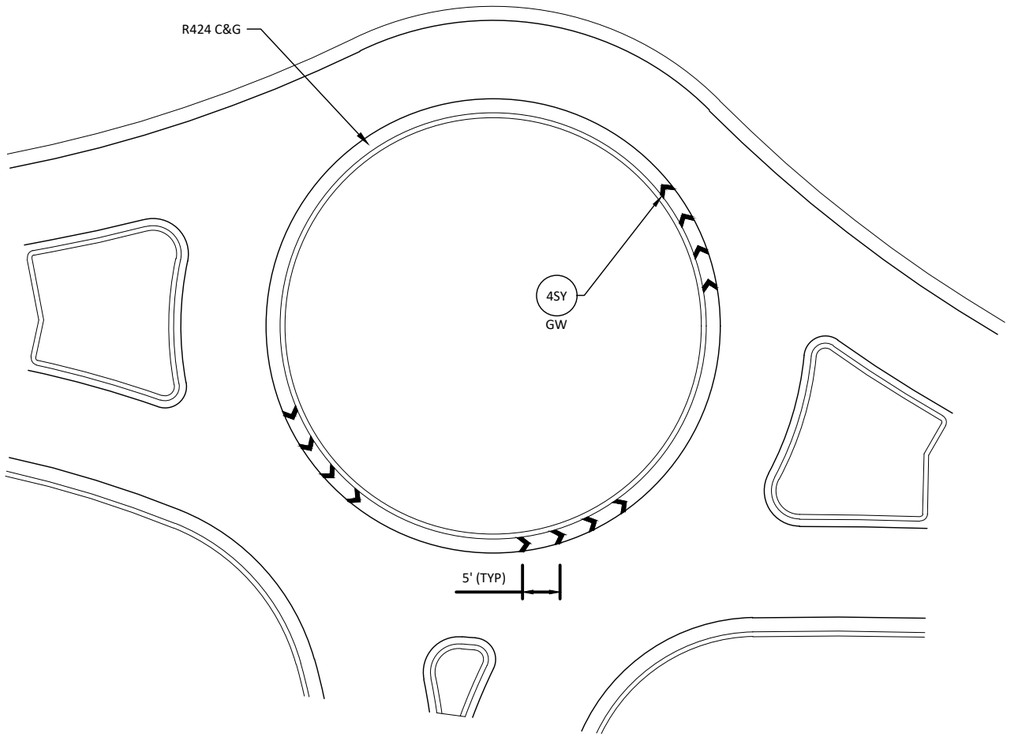
STRIPING PLANS

SHEET
C7.40



ROUNDABOUT ISLAND STRIPING DETAIL

NOT TO SCALE

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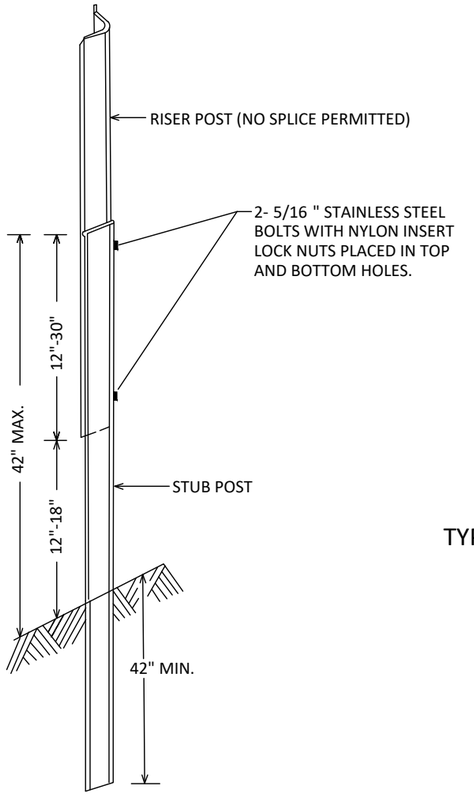
CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

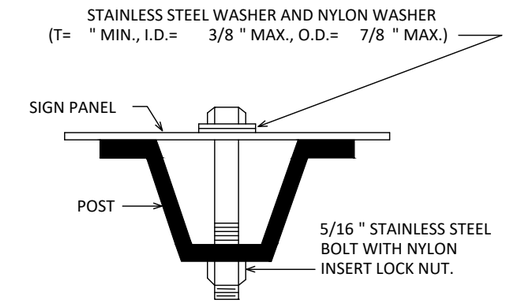
SIGNING AND STRIPING PLANS

SHEET C7.41

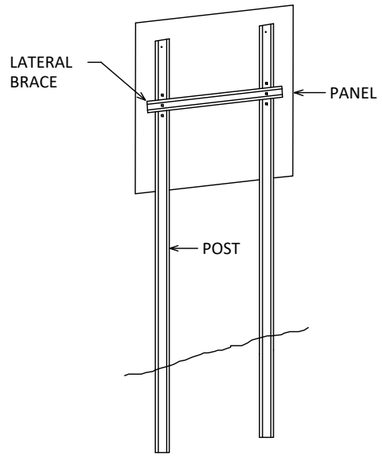
TYPE C & D POST



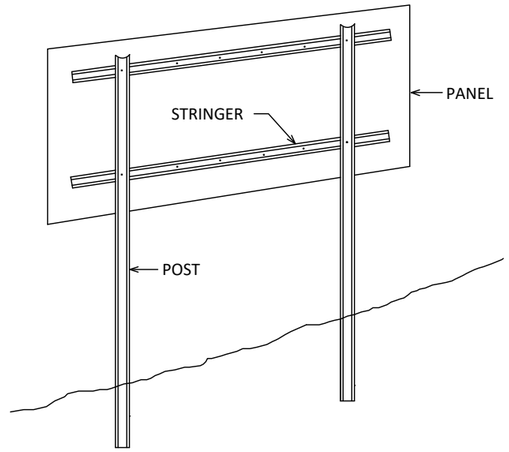
U POST BREAKAWAY SPLICE



U POST MOUNTING
TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION

MODIFIED TYPE C INSTALLATION

NOTES:

1. USE 3 LB/FT STUB POSTS. SHALL CONFORM TO MNDOT 3401.
2. USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
3. SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
4. IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
5. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL UNLESS OTHERWISE SPECIFIED.
7. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
8. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
9. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
10. BRACING STUBS SHALL BE NO MORE THAN 4" ABOVE GROUND AND EMBEDDED AT LEAST 42".
11. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
12. COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
13. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
14. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
15. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED LATERALLY BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 1 of 2

05 MAY 2017

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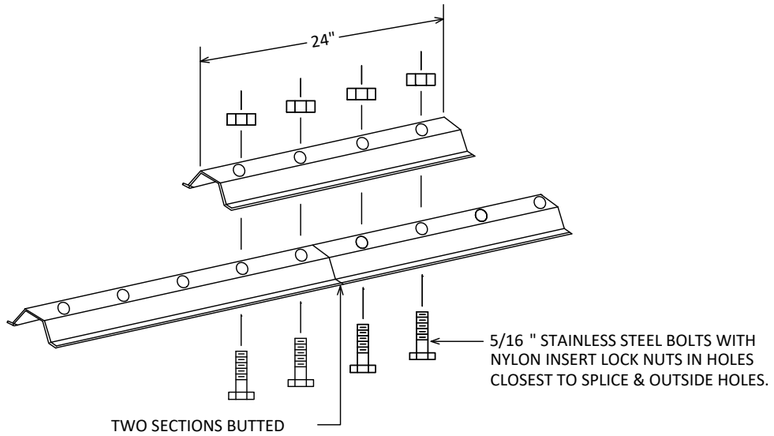
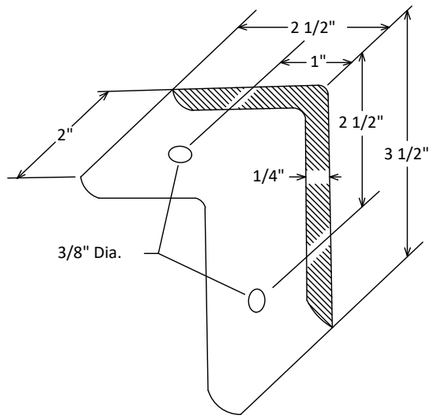
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

SHEET C7.42

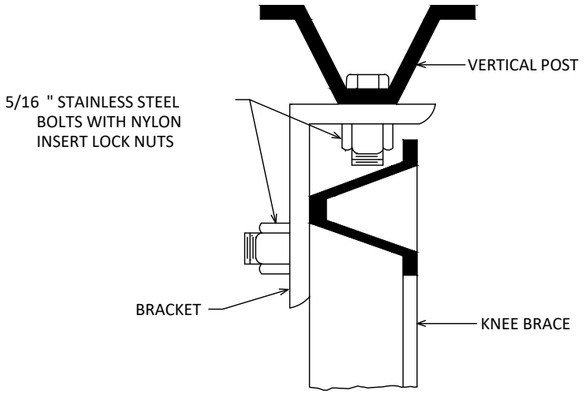


LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)

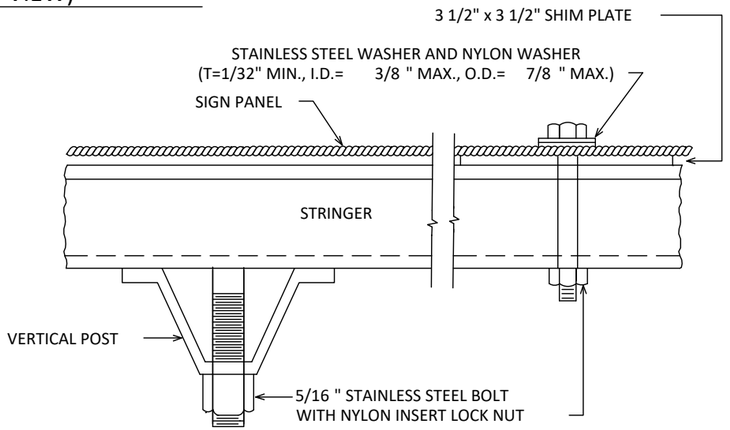


A-FRAME BRACKET

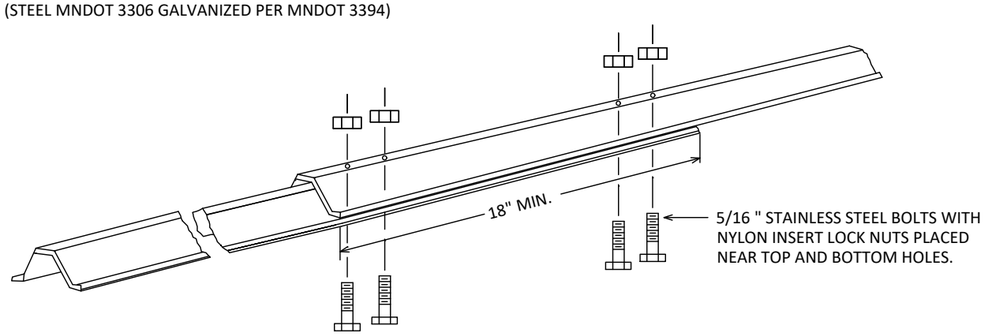
(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



SECTION A-A

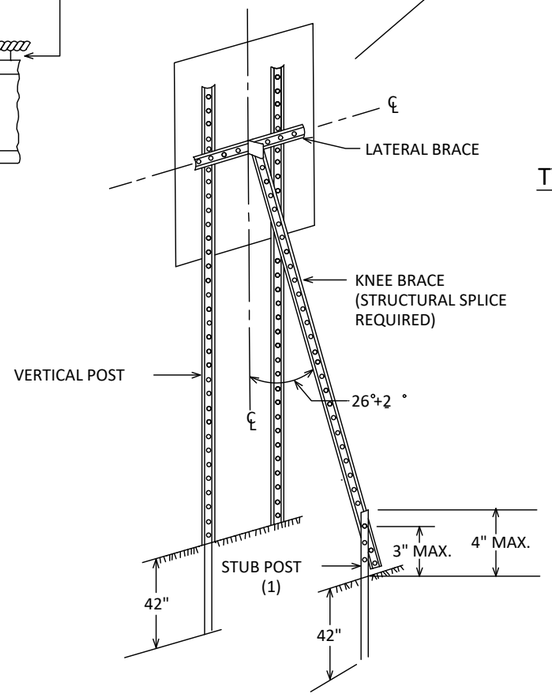


SECTION B-B

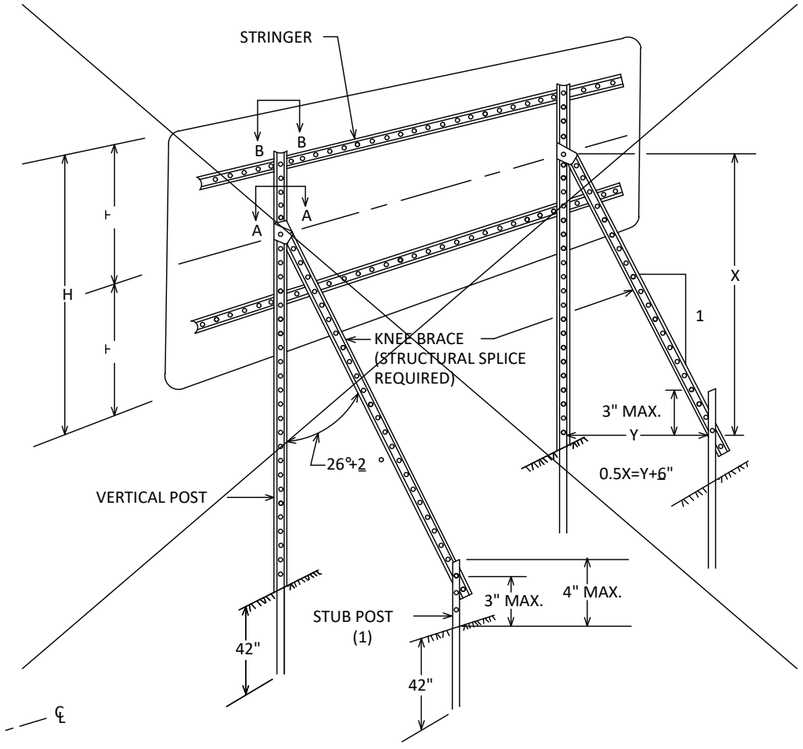


STRUCTURAL SPLICE

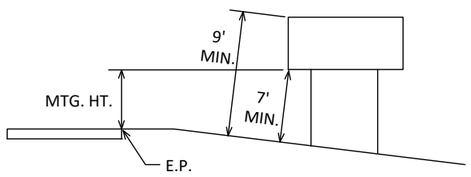
(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)



TYPICAL "A-FRAME" INSTALLATION
TYPE "C" SIGNS



TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 2 of 2

05 MAY 2017 (MOD 6 NOV 2017)

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BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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DESIGNED	NO.	REVISION	DATE
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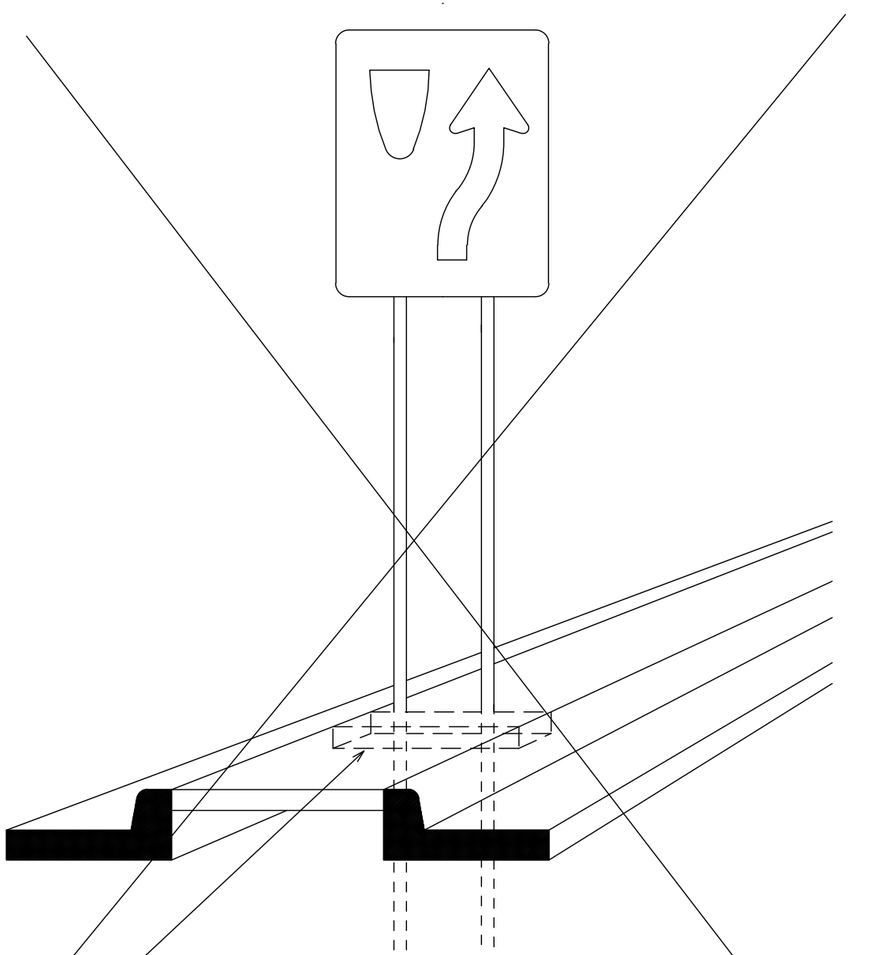
CHECKED BTN			
CLIENT PROJ NO. T16114541			

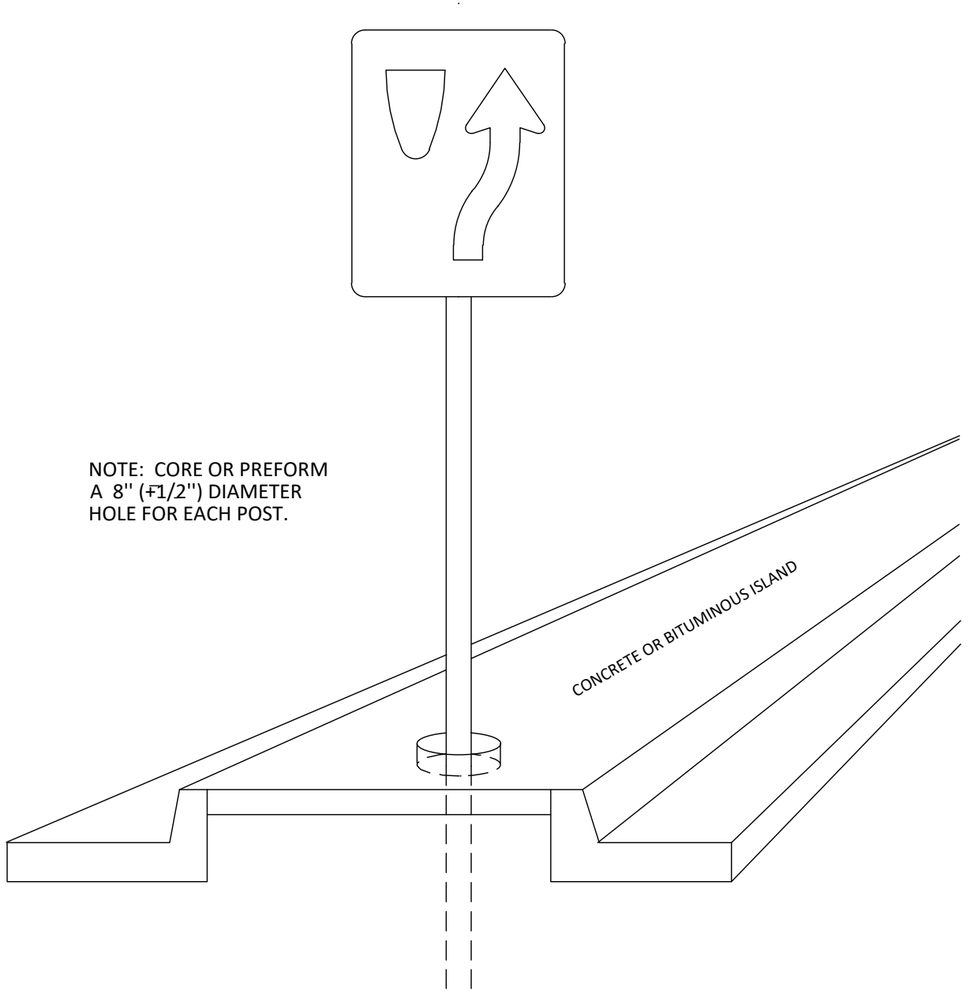
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

SHEET C7.43



NOTE:
-ALL MATERIALS AND WORK ASSOCIATED WITH FURNISHING AND INSTALLING
HIGH DENSITY RIGID FOAM BLOCKS FOR SIGN POST INSERTS ARE CONSIDERED INCIDENTAL.
-FOAM BLOCK DIMENSIONS; THICKNESS = CONCRETE DEPTH, WIDTH = 12 INCHES,
LENGTH = SIGN LENGTH PLUS 12 INCHES.
-POSITION AND STAKE THE FOAM BLOCK TO PROPER SIGN ALIGNMENT,
FINISH AND JOINT THE CONRETE AS NEEDED TO PROVIDE A SURFACE
PROFILE THAT HAS THE FOAM BLOCK FLUSH TO THE FINAL CONCRETE.
-LEAVE THE HIGH DENSITY RIGID FOAM BLOCK INPLACE.
-CONTACT THE DISTRICT SIGNSHOP FOR SIGN LOCATION ASSISTANCE.

NOTE: CORE OR PREFORM A 8'' (∓1/2'') DIAMETER HOLE FOR EACH POST.



FLANGED U-CHANNEL POST MOUNTED THROUGH CONCRETE MEDIAN OR SIDEWALK

REVISED: 5-28-2015

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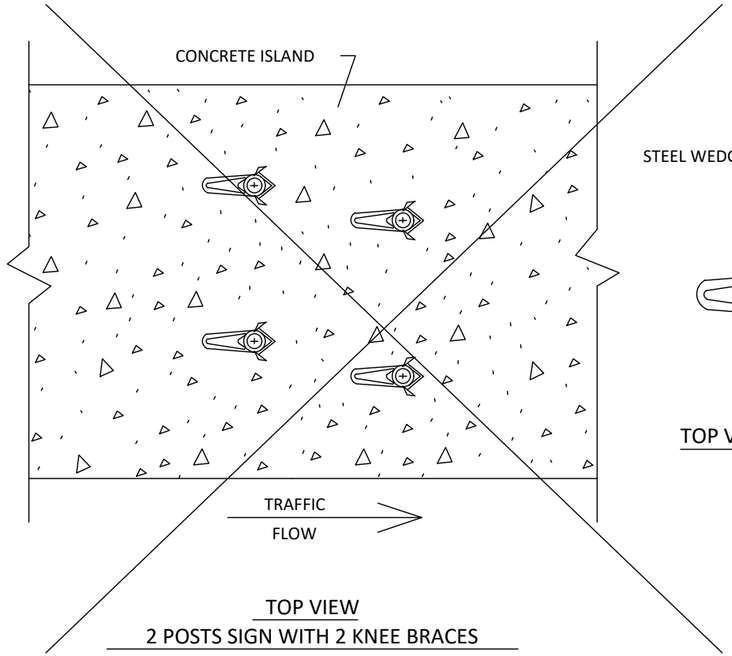
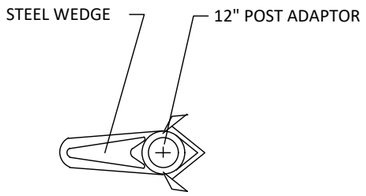
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

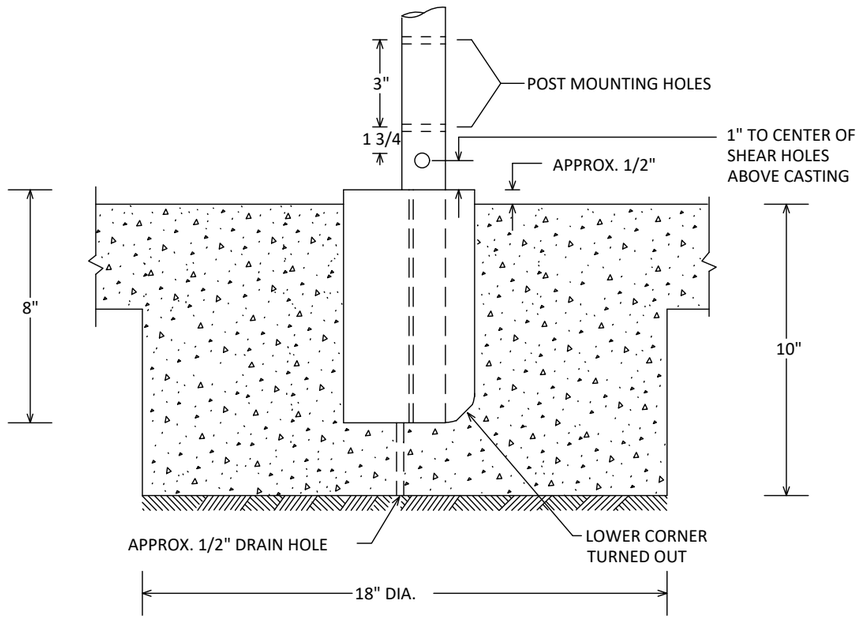
SHEET C7.44



TOP VIEW
2 POSTS SIGN WITH 2 KNEE BRACES



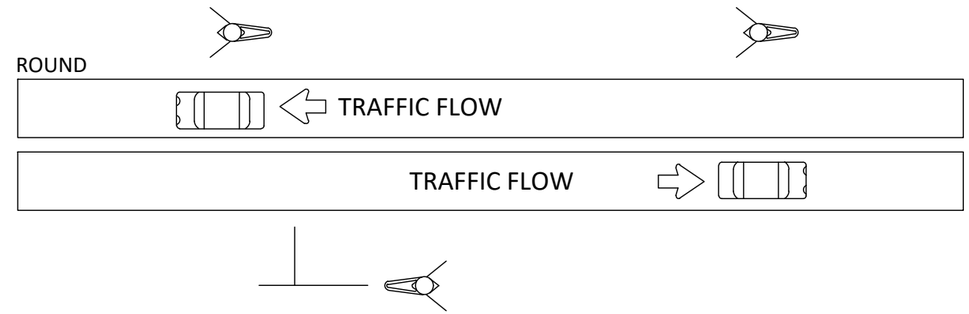
TOP VIEW - LOCKING DEVICE



ELEVATION VIEW

ROADSIDE OR MEDIAN PLACEMENT
FOR ROUND AND U CHANNEL SOCKETS

THE AXIS OF THE SIGNPOST SUPPORT WEDGE SHOULD ALIGN PARALLEL TO THE ROAD
FOR MAXIMUM RESISTANCE TO IMPACT AS SHOWN BELOW:



GENERAL NOTES:

1. SEAL BOTTOM OF SIGNPOST SUPPORT WITH DUCT TAPE BEFORE INSTALLATION IN NEW CONCRETE.
2. SIGNPOST SUPPORTS SHALL BE INSTALLED PLUMB AND APPROXIMATELY 1/2" ABOVE THE TOP OF THE CONCRETE SURFACE.

SIGNPOST SUPPORT IN CONCRETE

REVISED: 10-2-2013

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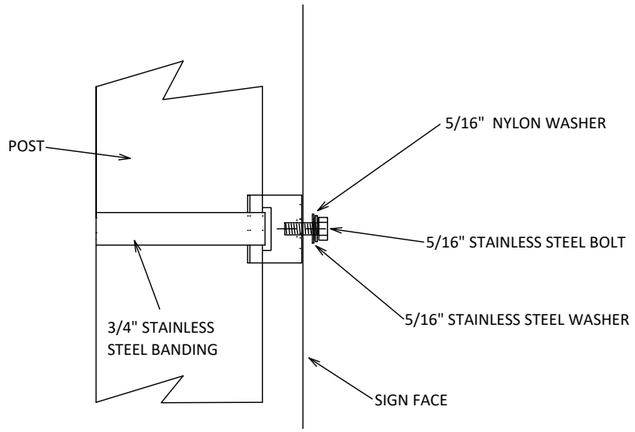
SIGNING AND
STRIPING PLANS

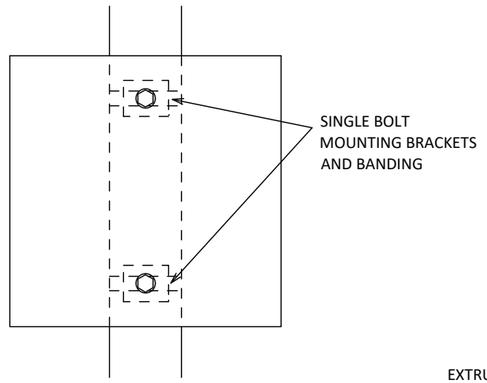
SHEET
C7.45

SINGLE BOLT MOUNTING BRACKET
AND BANDING DETAILS

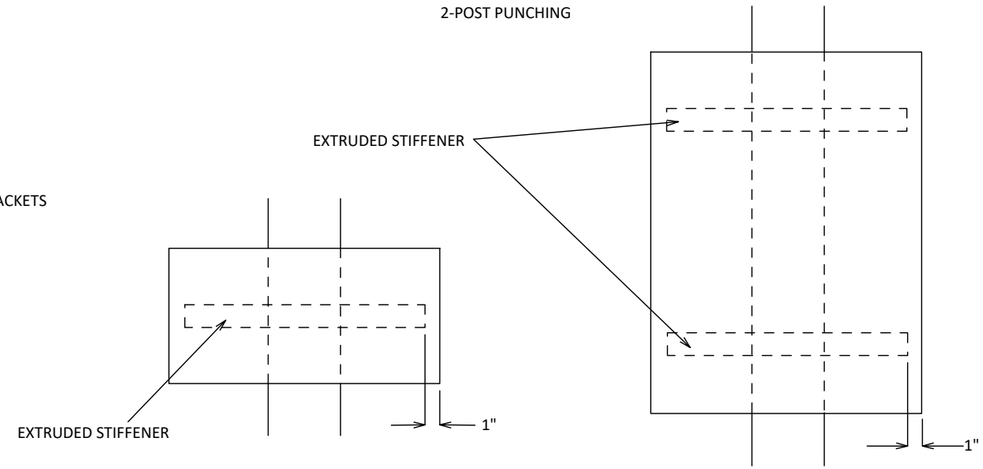


STIFFENER MOUNTING DETAILS

SINGLE POST PUNCHING

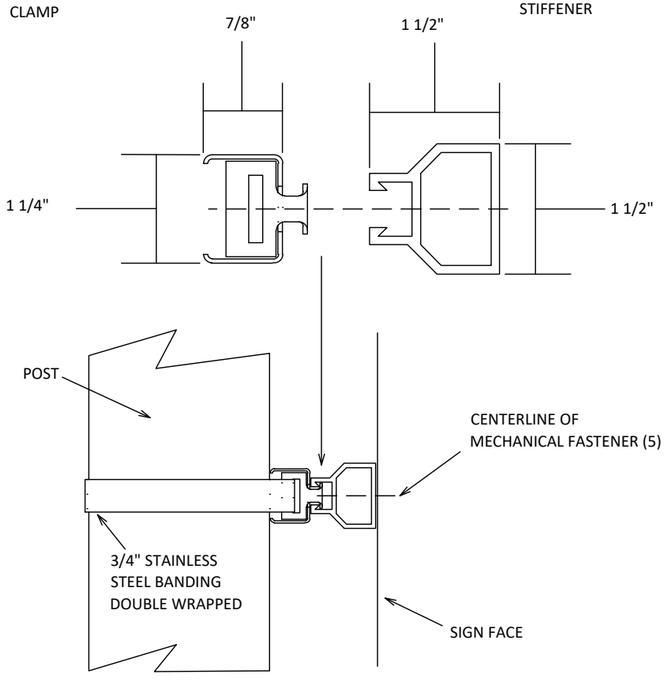


2-POST PUNCHING

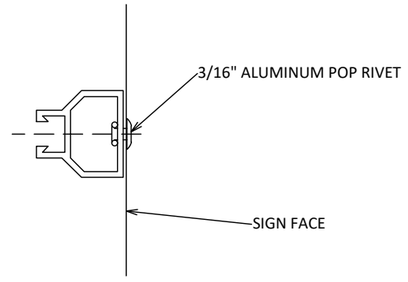


UNIVERSAL CHANNEL
CLAMP

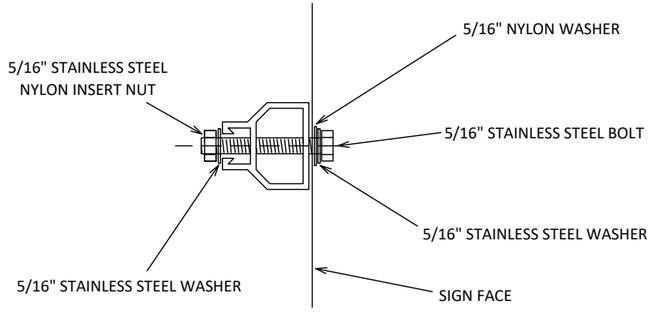
LARGE EXTRUSION
STIFFENER



SUPPLEMENTAL POP RIVET ATTACHMENT



SUPPLEMENTAL BOLT ATTACHMENT



NOTES:

1. FOR DETAILS AND NOTES NOT SHOWN, SEE TYPE "C" AND "D" SIGN DETAILS.
2. FOR BACK TO BACK INSTALLATION, ROTATE STIFFENERS FOR ONE PANEL 180 DEGREES SUCH THAT PANELS CAN BE MOUNTED AT THE SAME ELEVATION.
3. HORIZONTAL SPACING OF STIFFENERS SHALL BE ACCORDING TO THE PUNCH CODES AS SHOWN IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL.
4. MOUNTING HOLES ARE NOT REQUIRED ON SIGNS SMALLER THAN 6.3 SQUARE FEET, EXCEPT ON SINGLE POST PUNCHED SIGNS.
5. STIFFENERS SHALL BE ATTACHED TO SIGNS USING EITHER 3/16" DIAMETER POP-RIVETS OR 5/16" DIAMETER BOLTS.
6. USE .75" X .030" BANDING STRAPS OF TYPE 201 "1/4 HARD" STAINLESS STEEL, DOUBLE-WRAPPED AROUND THE POLE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
7. BAND PRETENSION SHALL NOT EXCEED 1300 POUNDS.
8. ALL HARDWARE SHALL BE COMPATIBLE WITH STIFFENER AND MOUNTING SYSTEMS.

SIGN TYPE C AND D EXTRUDED ALUMINUM MOUNTING SYSTEM FOR ROUND SUPPORTS

REVISED: 1-25-2016

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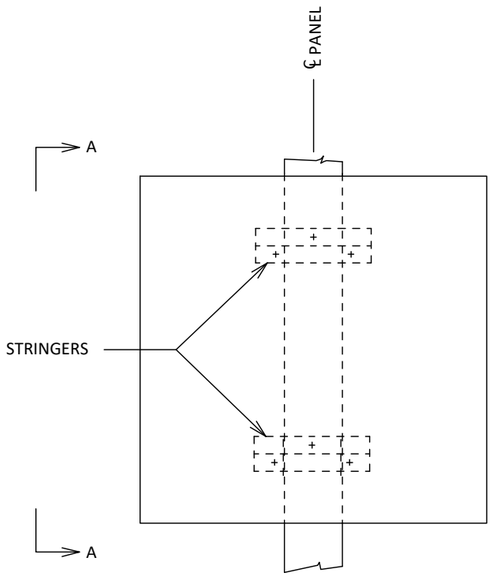
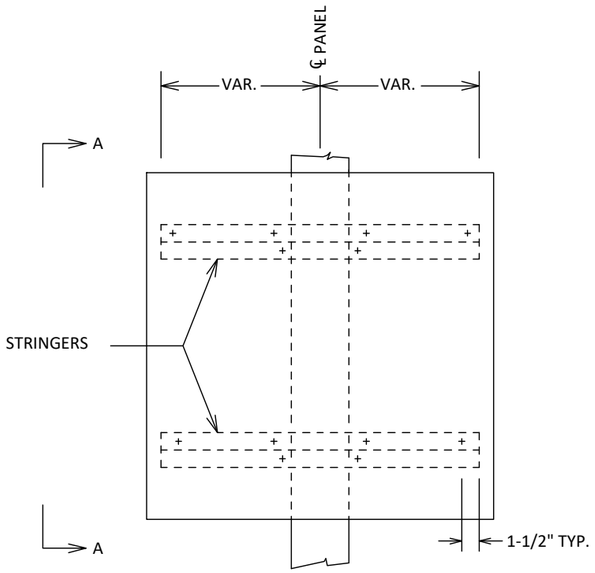
SHEET
C7.46



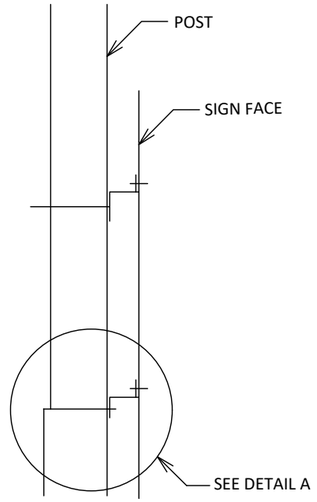
SINGLE POST PUNCHING

ELEVATION

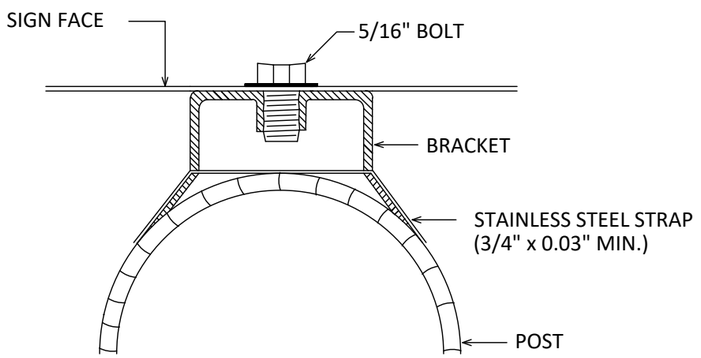


2-POST PUNCHING

ELEVATION

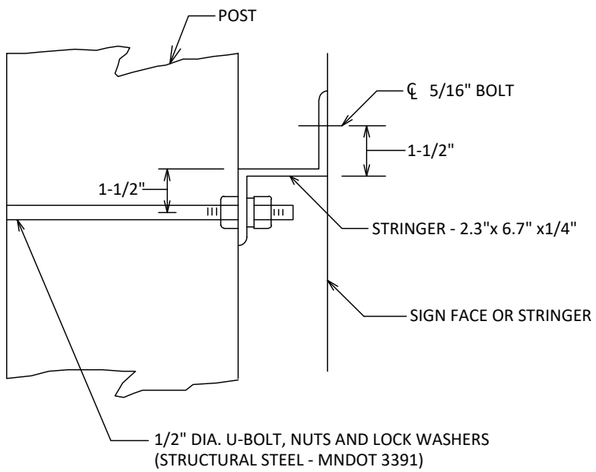


VIEW A-A

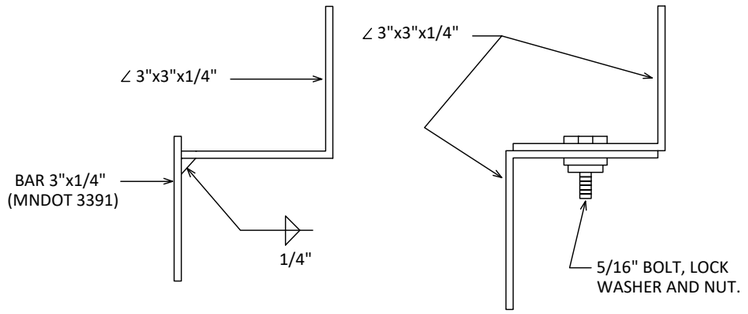


GALVANIZED OR STAINLESS STEEL BRACKET, BOLT AND WASHER.

STRAP MOUNTING DETAIL FOR OVERHEAD IDENTIFICATION AND LIGHTING SYSTEM IDENTIFICATION PLATES



DETAIL A



DETAIL A STRINGER ALTERNATES

NOTES:
1. FOR DETAILS AND NOTES NOT SHOWN SEE "C" & "D" SIGN DETAILS.
2. FOR BACK TO BACK MOUNTINGS, ROTATE STRINGERS FOR ONE PANEL 180° FROM WHAT IS SHOWN SUCH THAT PANELS CAN BE MOUNTED AT SAME ELEVATION.
3. DETAIL A STRINGER MAY BE ONE OF THE THREE DESIGNS DETAILED OR AN APPROVED EQUAL. STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394. FASTENERS SHALL BE IN ACCORDANCE WITH MNDOT 3391.2B AND SHALL BE GALVANIZED EITHER BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153, OR BY THE MECHANICAL PROCESS IN ACCORDANCE WITH ASTM B695, CLASS 50 OR GREATER.

SIGN TYPE C AND D STRUCTURAL STEEL MOUNTING SYSTEM FOR ROUND SUPPORTS

REVISED: 1-21-2016

BOLTON & MENK
12224 NICOLLET AVENUE
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Phone: (952) 890-0509
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www.bolton-menk.com

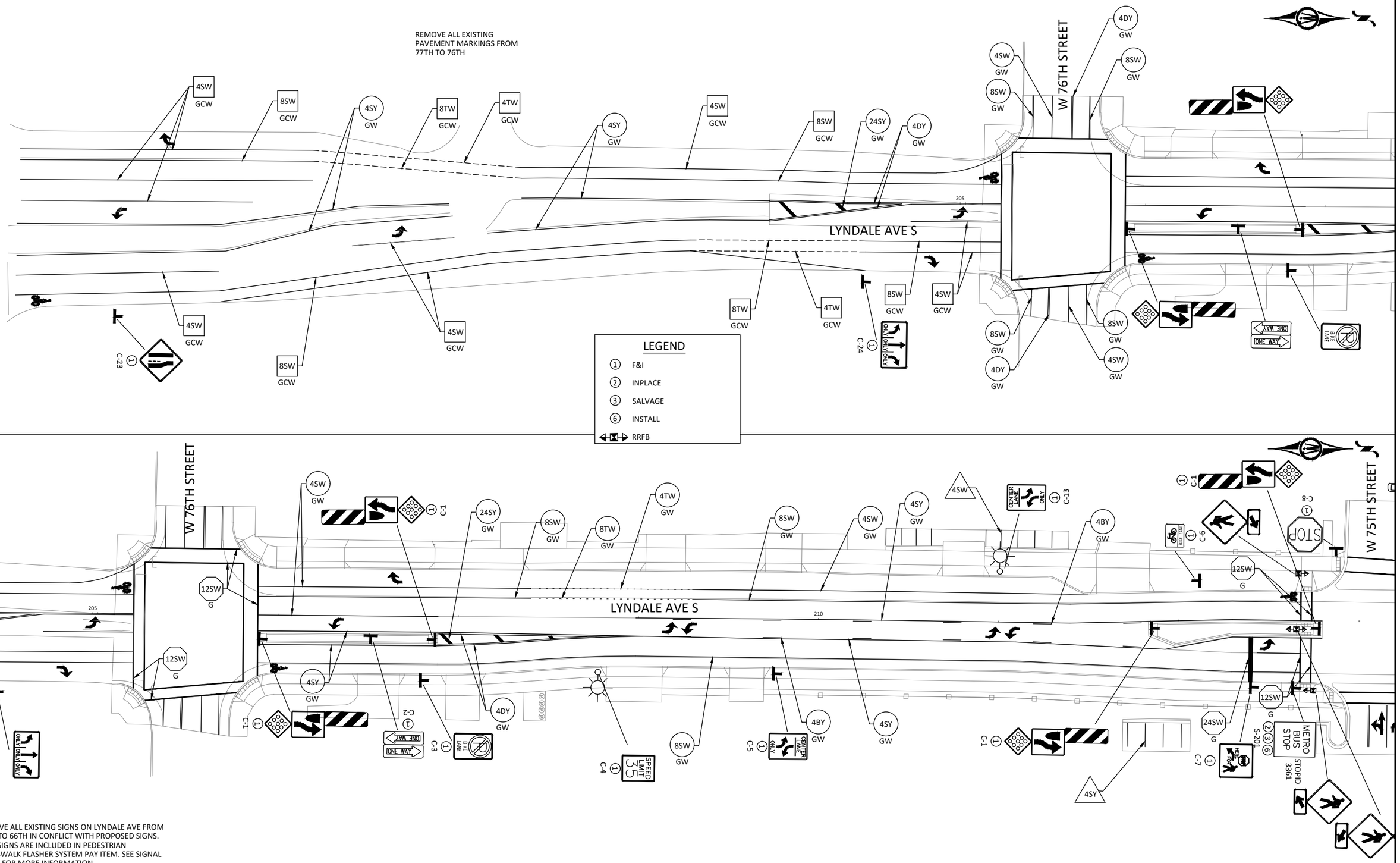
Richfield — The Urban Hometown

DESIGNED	ZAP
DRAWN	KME
CHECKED	BTN
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

SHEET C7.47



NOTE:
1. REMOVE ALL EXISTING SIGNS ON LYNDALE AVE FROM 76TH TO 66TH IN CONFLICT WITH PROPOSED SIGNS.
2. RRFB SIGNS ARE INCLUDED IN PEDESTRIAN CROSSWALK FLASHER SYSTEM PAY ITEM. SEE SIGNAL PLANS FOR MORE INFORMATION.

HORZ. SCALE 0 25 50 FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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CITY OF RICHFIELD, MINNESOTA
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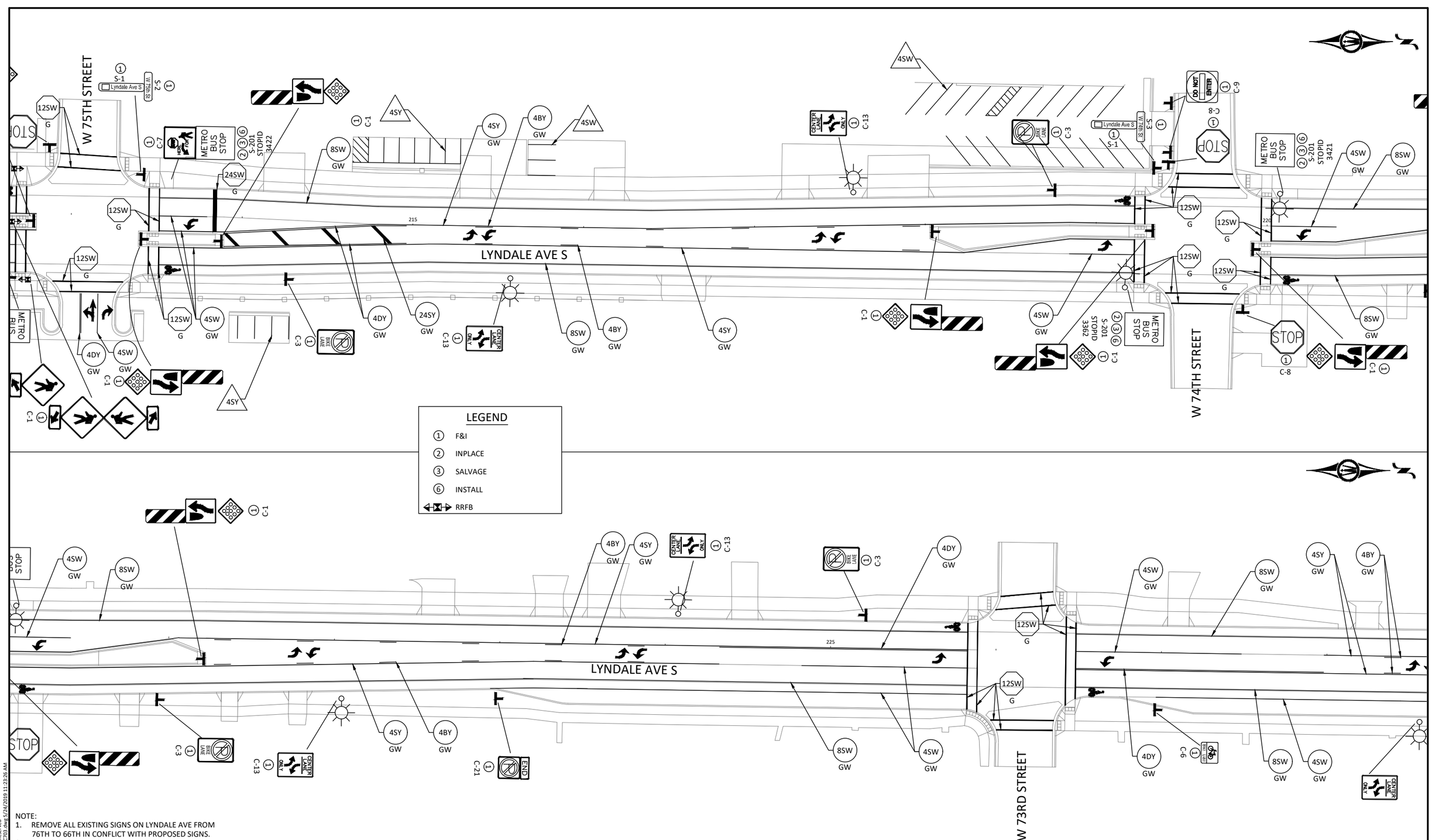
SIGNING AND STRIPING PLANS

SHEET C7.48



LEGEND

- ① F&I
- ② INPLACE
- ③ SALVAGE
- ⑥ INSTALL
- RRFB

NOTE:
1. REMOVE ALL EXISTING SIGNS ON LYNDALE AVE FROM 76TH TO 66TH IN CONFLICT WITH PROPOSED SIGNS.
2. RRFB SIGNS ARE INCLUDED IN PEDESTRIAN CROSSWALK FLASHER SYSTEM PAY ITEM. SEE SIGNAL PLANS FOR MORE INFORMATION.

HORZ. 0 25 50
SCALE FEET

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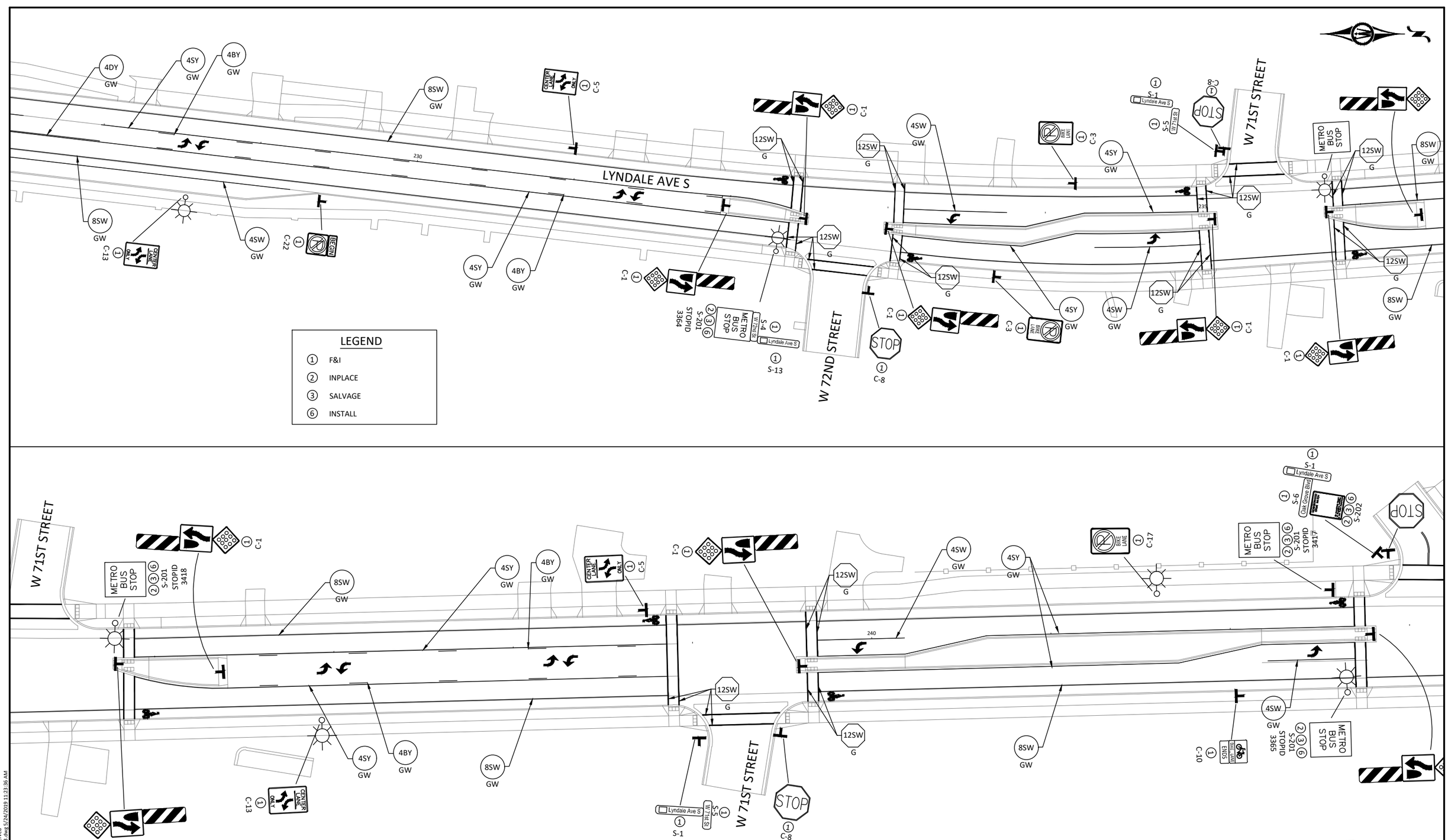
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

SHEET C7.49



NOTE:
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HORZ. SCALE 0 25 50 FEET

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CITY OF RICHFIELD, MINNESOTA
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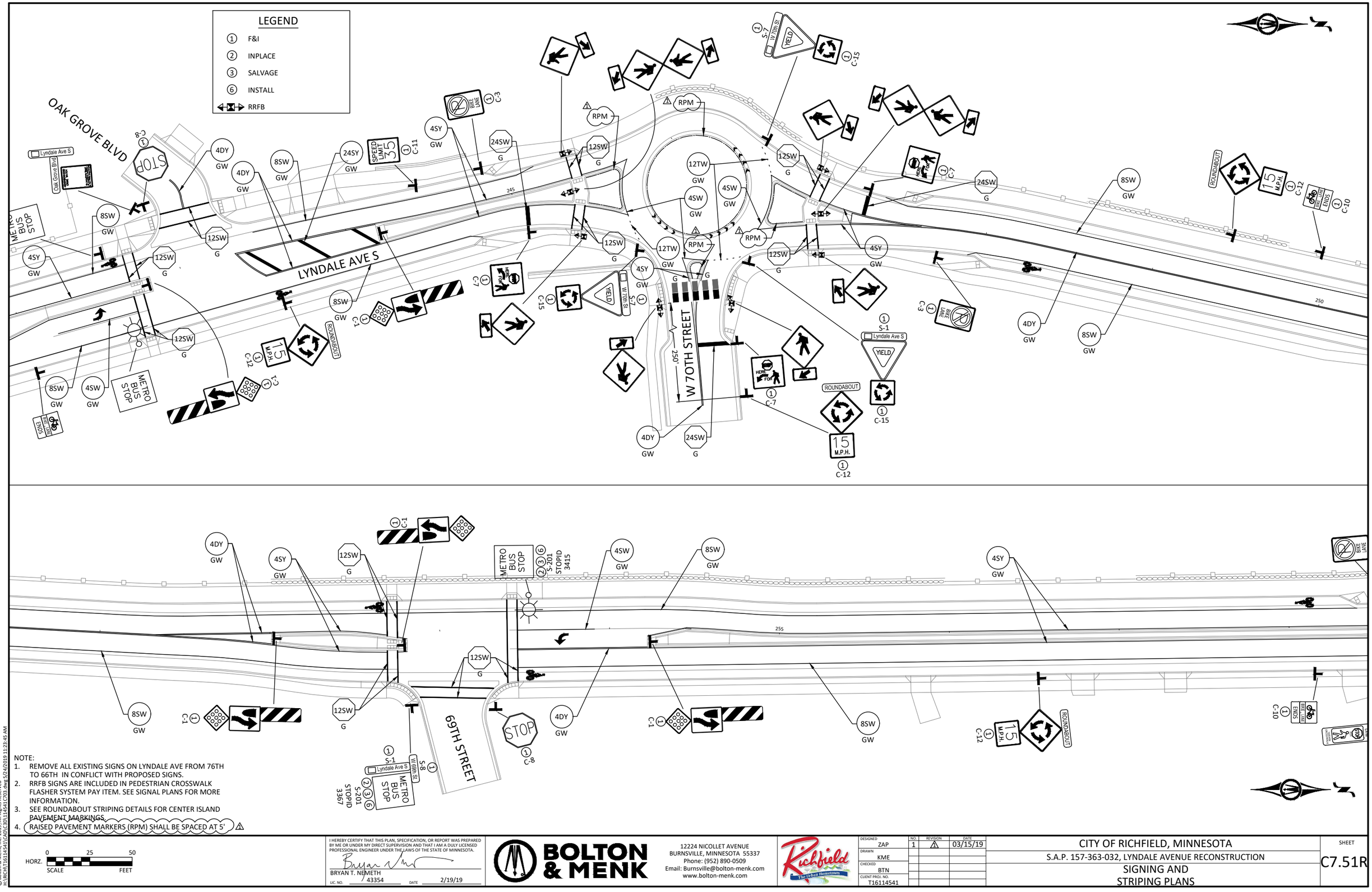
SIGNING AND STRIPING PLANS

SHEET C7.50



NOTE:
1. REMOVE ALL EXISTING SIGNS ON LYNDALE AVE FROM 76TH TO 66TH IN CONFLICT WITH PROPOSED SIGNS.
2. RRFB SIGNS ARE INCLUDED IN PEDESTRIAN CROSSWALK FLASHER SYSTEM PAY ITEM. SEE SIGNAL PLANS FOR MORE INFORMATION.
3. SEE ROUNDABOUT STRIPING DETAILS FOR CENTER ISLAND PAVEMENT MARKINGS.
4. RAISED PAVEMENT MARKERS (RPM) SHALL BE SPACED AT 5' ⚠

HORZ. 0 25 50 SCALE FEET

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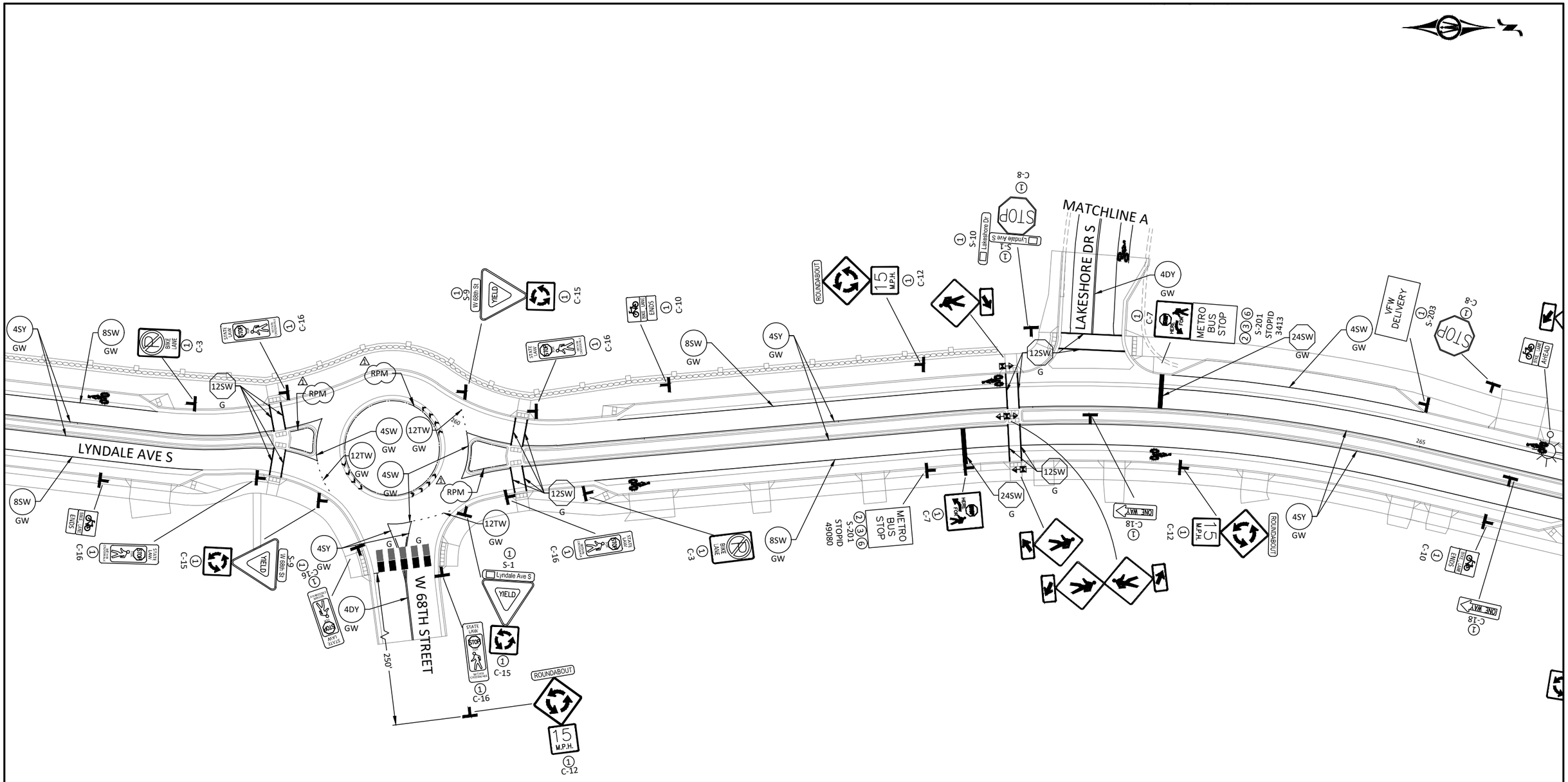
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

SHEET C7.51R



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3. SEE ROUNDABOUT STRIPING DETAILS FOR CENTER ISLAND PAVEMENT MARKINGS.
4. RAISED PAVEMENT MARKERS (RPM) SHALL BE SPACED AT 5' ⚠

LEGEND

①	F&I
②	INPLACE
③	SALVAGE
⑥	INSTALL
◀■▶	RRFB

HORZ. 0 25 50
SCALE FEET

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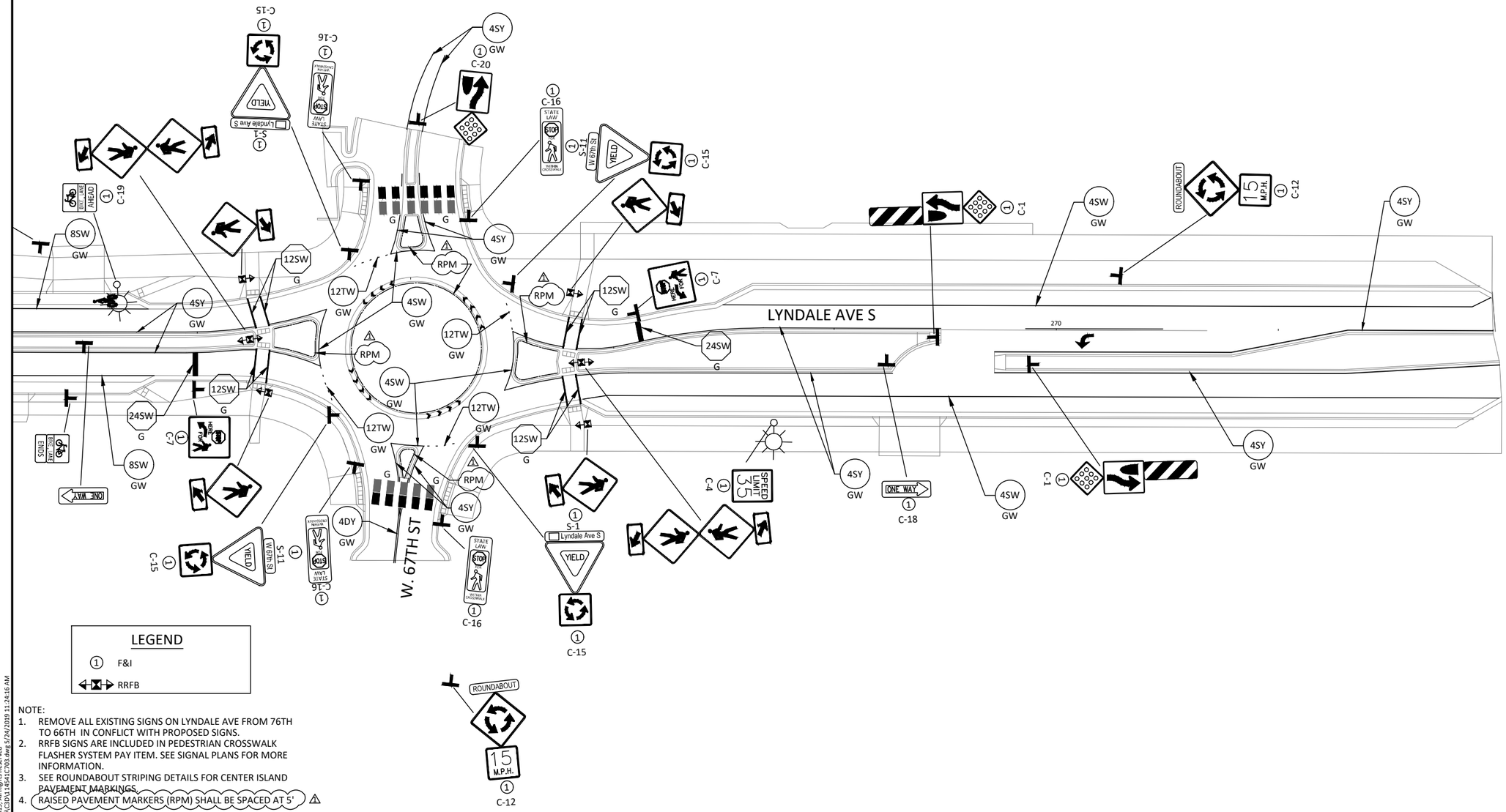
SIGNING AND STRIPING PLANS

SHEET C7.52R

H:\RICH\T16114541\CAD\C3D\114541C703.dwg 3/24/2019 11:23:55 AM



LEGEND

① F&I

RRFB

NOTE:

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2. RRFB SIGNS ARE INCLUDED IN PEDESTRIAN CROSSWALK FLASHER SYSTEM PAY ITEM. SEE SIGNAL PLANS FOR MORE INFORMATION.
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HORZ. SCALE 0 25 50 FEET

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CITY OF RICHFIELD, MINNESOTA
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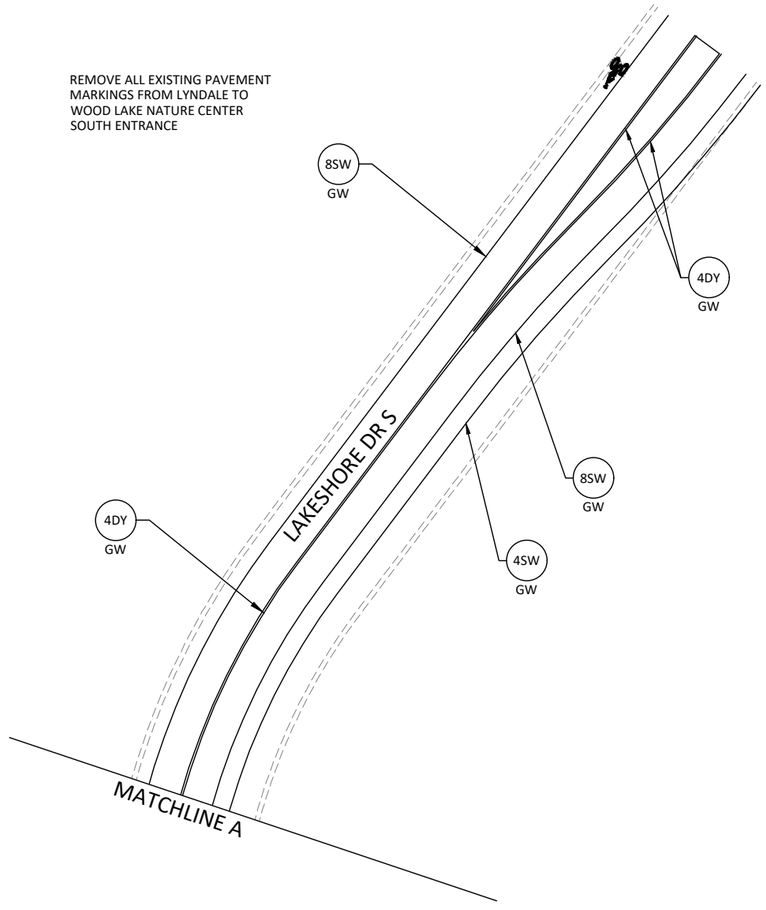
SIGNING AND STRIPING PLANS

SHEET C7.53R

M:\RICH\T16114541\CAD\C3D\T16114541C703.dwg 5/24/2019 11:24:16 AM

REMOVE ALL EXISTING PAVEMENT MARKINGS FROM LYNDALE TO WOOD LAKE NATURE CENTER SOUTH ENTRANCE



HORZ. 0 25 50
SCALE FEET

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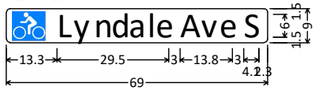
SIGNING AND STRIPING PLANS

SHEET C7.54

S-1 & S-13

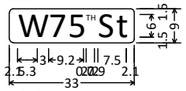


1.0" Radius, No border, White on Green;
[Lyndale Ave S] D;
Table of letter and object lefts.

L 13.3	y 17.7	n 23.2	d 27.8	a 32.4	l 37.3	e 39.5

A 45.8	v 51.5	e 56.3	S 62.6

S-2

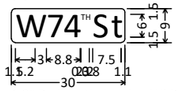


1.0" Radius, No border, White on Green;
[W 75THSt] D;
Table of letter and object lefts.

W 2.1

7 10.4	5 15.5	T 20.3	H 21.5	S 23.4	t 28.3

S-3

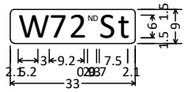


1.0" Radius, No border, White on Green;
[W 74THSt] D;
Table of letter and object lefts.

W 1.1

7 9.3	4 13.7	T 18.4	H 19.6	S 21.4	t 26.3

S-4

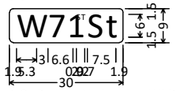


1.0" Radius, No border, White on Green;
[W 72NDSt] D;
Table of letter and object lefts.

W 2.1

7 10.3	2 15.5	N 20.4	D 21.7	S 23.4	t 28.3

S-5

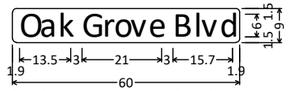


1.0" Radius, No border, White on Green;
[W 71STSt] D;
Table of letter and object lefts.

W 1.9

7 10.2	1 15.3	S 17.7	T 19.0	S 20.6	t 25.5	

S-6



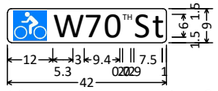
1.0" Radius, No border, White on Green;
[Oak Grove Blvd] D;
Table of letter and object lefts.

O 1.9	a 7.2	k 12.1

G 18.4	r 23.8	o 26.9	v 31.2	e 36.0

B 42.4	l 47.9	v 50.0	d 54.8

S-7

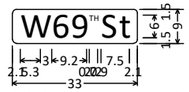


1.0" Radius, No border, White on Green;
[W 70THSt] D;
Table of letter and object lefts.

W 12.0

7 20.3	0 25.5	T 30.4	H 31.6	S 33.5	t 38.3	

S-8

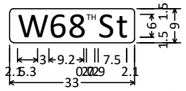


1.0" Radius, No border, White on Green;
[W 69THSt] D;
Table of letter and object lefts.

W 2.1

6 10.4	9 15.5	T 20.3	H 21.5	S 23.4	t 28.3

S-9

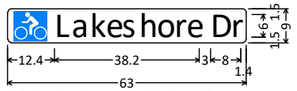


1.0" Radius, No border, White on Green;
[W 68THSt] D;
Table of letter and object lefts.

W 2.1

6 10.4	8 15.5	T 20.3	H 21.5	S 23.4	t 28.3	

S-10

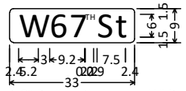


1.0" Radius, No border, White on Green;
[Lakeshore Dr] D;
Table of letter and object lefts.

L 12.4	a 16.9	k 21.8	e 26.0	s 30.2	h 34.8	o 39.4	r 44.1	e 47.3	

D 53.6	r 59.0

S-11



1.0" Radius, No border, White on Green;
[W 67THSt] D;
Table of letter and object lefts.

W 2.4

6 10.6	7 15.8	T 20.0	H 21.2	S 23.1	t 28.0	

NOTE:
1. CONTRACTOR TO COORDINATE WITH CITY OF RICHFIELD FOR CREATION OF SIGNS.

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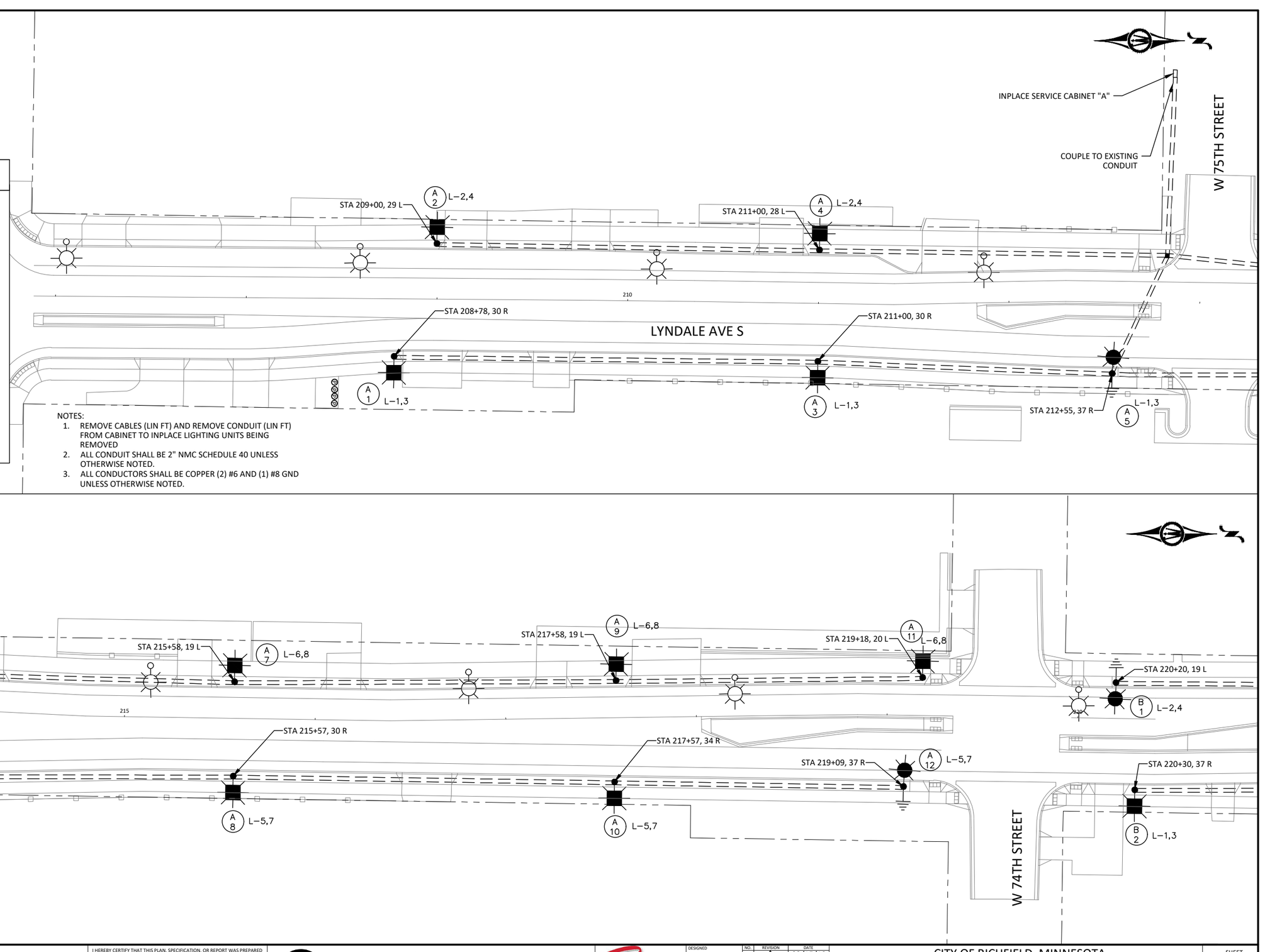
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
SIGNING AND STRIPING PLANS

SHEET C7.55

LEGEND

- LIGHTING UNIT TYPE SPECIAL 1 — LIGHT FOUNDATION DESIGN E MODIFIED
- LIGHTING UNIT TYPE SPECIAL 2 — LIGHT FOUNDATION DESIGN E MODIFIED
- REMOVE LIGHTING UNIT — REMOVE LIGHT FOUNDATION ⚠
- PERMANENT GROUND ROD (25 OHMS OR LESS)
- CONDUIT (SEE NOTES 2 & 3
- EXISTING CONDUIT
- HANDHOLE
- INPLACE HANDHOLE
- INPLACE SERVICE CABINET
- (A 1) LIGHTING UNIT NUMBER
- L−1,3 LIGHTING CIRCUIT NUMBERS



NOTES:
1. REMOVE CABLES (LIN FT) AND REMOVE CONDUIT (LIN FT) FROM CABINET TO INPLACE LIGHTING UNITS BEING REMOVED
2. ALL CONDUIT SHALL BE 2" NMC SCHEDULE 40 UNLESS OTHERWISE NOTED.
3. ALL CONDUCTORS SHALL BE COPPER (2) #6 AND (1) #8 GND UNLESS OTHERWISE NOTED.

TYPE 0 SCALE SCALEx2 SCALE FEET

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CITY OF RICHFIELD, MINNESOTA
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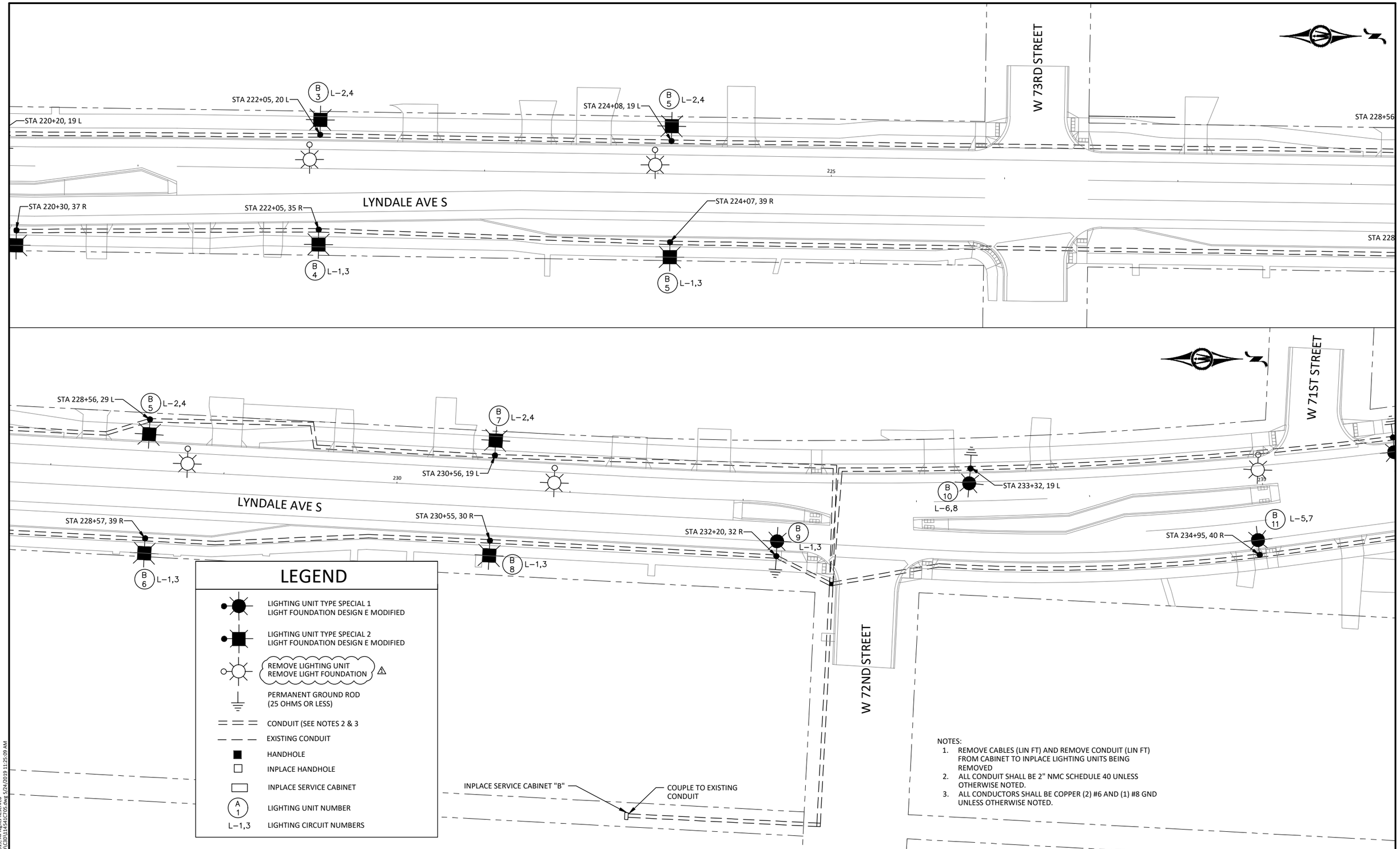
LIGHTING PLANS

SHEET C7.56R



LEGEND

- LIGHTING UNIT TYPE SPECIAL 1 — LIGHT FOUNDATION DESIGN E MODIFIED
- LIGHTING UNIT TYPE SPECIAL 2 — LIGHT FOUNDATION DESIGN E MODIFIED
- REMOVE LIGHTING UNIT, REMOVE LIGHT FOUNDATION ⚠
- PERMANENT GROUND ROD (25 OHMS OR LESS)
- CONDUIT (SEE NOTES 2 & 3)
- EXISTING CONDUIT
- HANDHOLE
- INPLACE HANDHOLE
- INPLACE SERVICE CABINET
- A 1 — LIGHTING UNIT NUMBER
- L–1,3 — LIGHTING CIRCUIT NUMBERS

NOTES:
1. REMOVE CABLES (LIN FT) AND REMOVE CONDUIT (LIN FT) FROM CABINET TO INPLACE LIGHTING UNITS BEING REMOVED
2. ALL CONDUIT SHALL BE 2" NMC SCHEDULE 40 UNLESS OTHERWISE NOTED.
3. ALL CONDUCTORS SHALL BE COPPER (2) #6 AND (1) #8 GND UNLESS OTHERWISE NOTED.

HORZ. 0 25 50 SCALE FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
BRYAN T. NEMETH
LIC. NO. 43354 DATE 2/19/19

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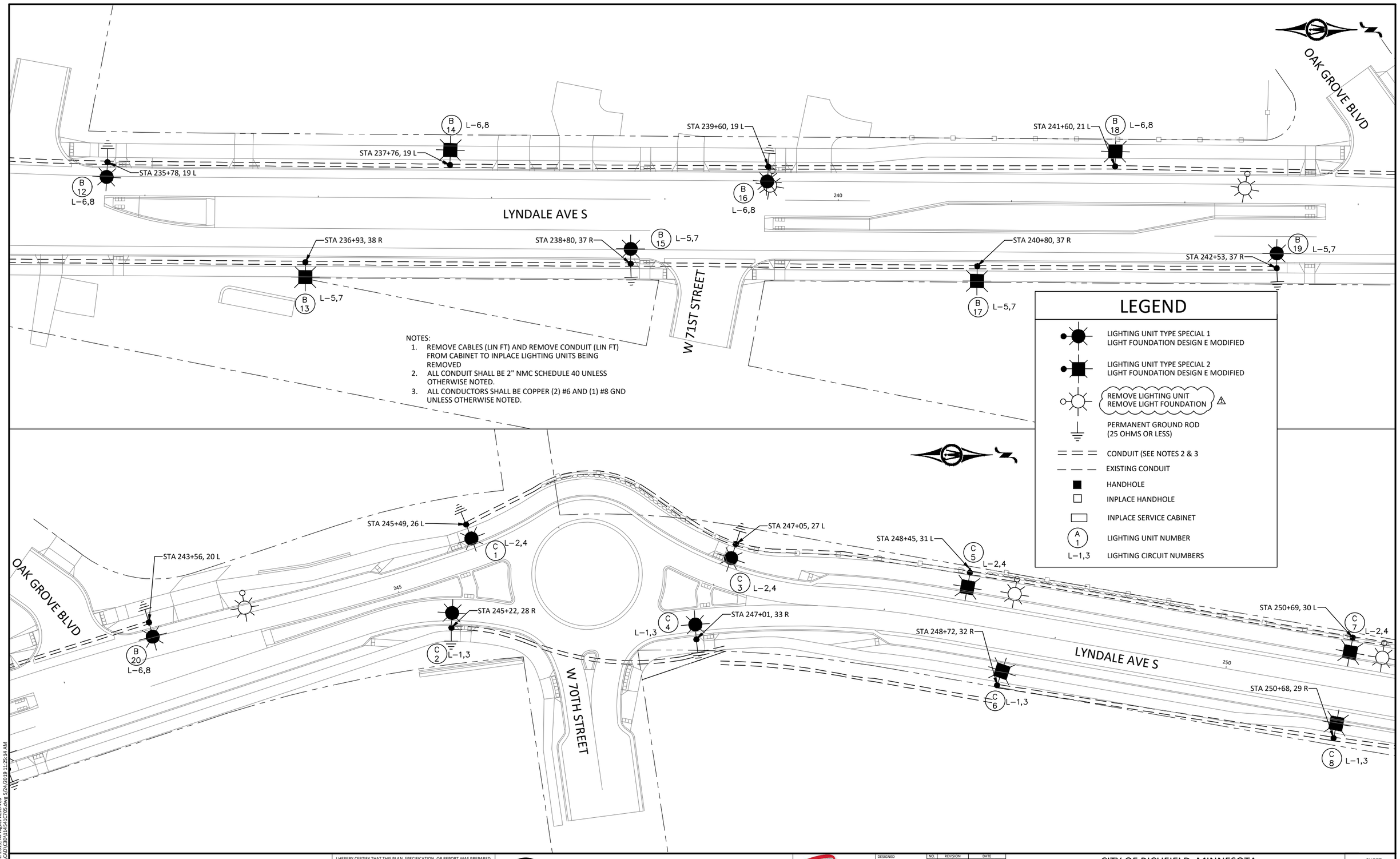
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
LIGHTING PLANS

SHEET C7.57R



NOTES:
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3. ALL CONDUCTORS SHALL BE COPPER (2) #6 AND (1) #8 GND UNLESS OTHERWISE NOTED.

LEGEND

- LIGHTING UNIT TYPE SPECIAL 1 LIGHT FOUNDATION DESIGN E MODIFIED
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- REMOVE LIGHTING UNIT REMOVE LIGHT FOUNDATION ⚠
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- A 1 LIGHTING UNIT NUMBER
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HORZ. SCALE 0 25 50 FEET

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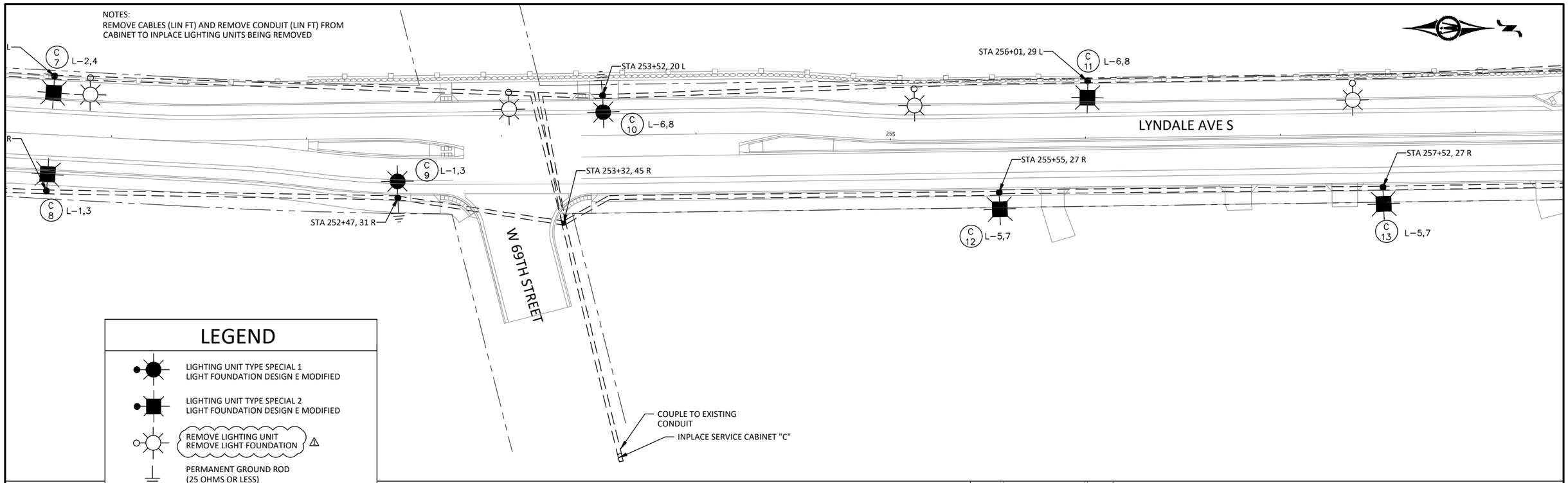
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
LIGHTING PLANS

SHEET C7.58R

NOTES:
REMOVE CABLES (LIN FT) AND REMOVE CONDUIT (LIN FT) FROM CABINET TO INPLACE LIGHTING UNITS BEING REMOVED



LEGEND

- LIGHTING UNIT TYPE SPECIAL 1 LIGHT FOUNDATION DESIGN E MODIFIED
- LIGHTING UNIT TYPE SPECIAL 2 LIGHT FOUNDATION DESIGN E MODIFIED
- REMOVE LIGHTING UNIT REMOVE LIGHT FOUNDATION ⚠
- PERMANENT GROUND ROD (25 OHMS OR LESS)
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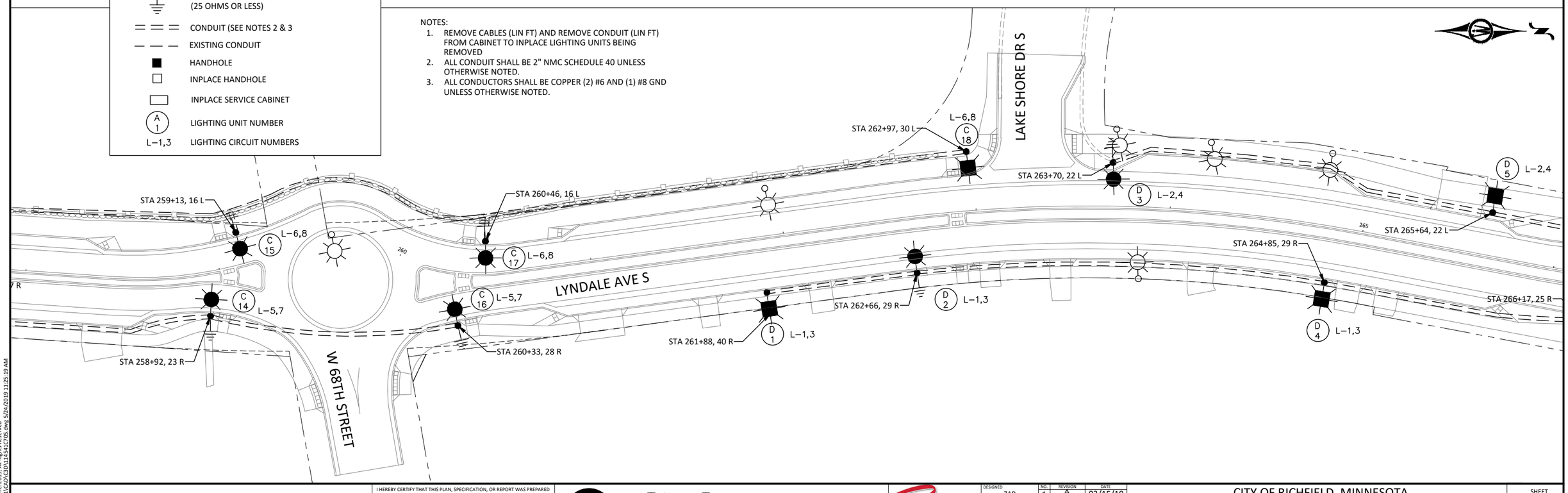

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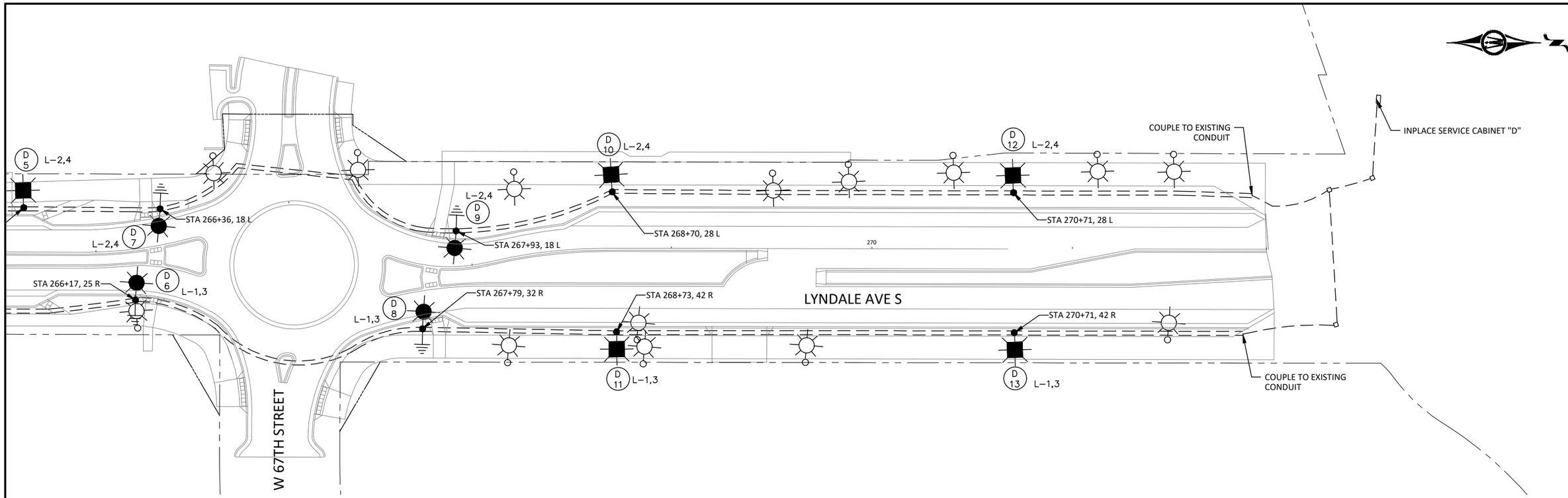
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
LIGHTING PLANS

SHEET C7.59R



LEGEND

- LIGHTING UNIT TYPE SPECIAL 1 — LIGHT FOUNDATION DESIGN E MODIFIED
- LIGHTING UNIT TYPE SPECIAL 2 — LIGHT FOUNDATION DESIGN E MODIFIED
- REMOVE LIGHTING UNIT, REMOVE LIGHT FOUNDATION ⚠
- PERMANENT GROUND ROD (25 OHMS OR LESS)
- CONDUIT (SEE NOTES 2 & 3
- EXISTING CONDUIT
- HANDHOLE
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- INPLACE SERVICE CABINET
- (A 1) LIGHTING UNIT NUMBER
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CITY OF RICHFIELD, MINNESOTA
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LIGHTING PLANS

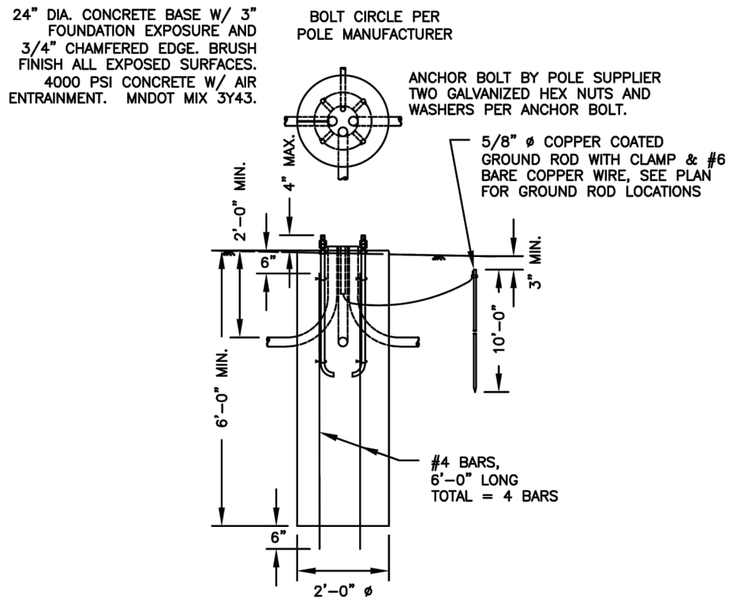
SHEET C7.60R

LIGHTING UNIT TYPE SPECIAL 1

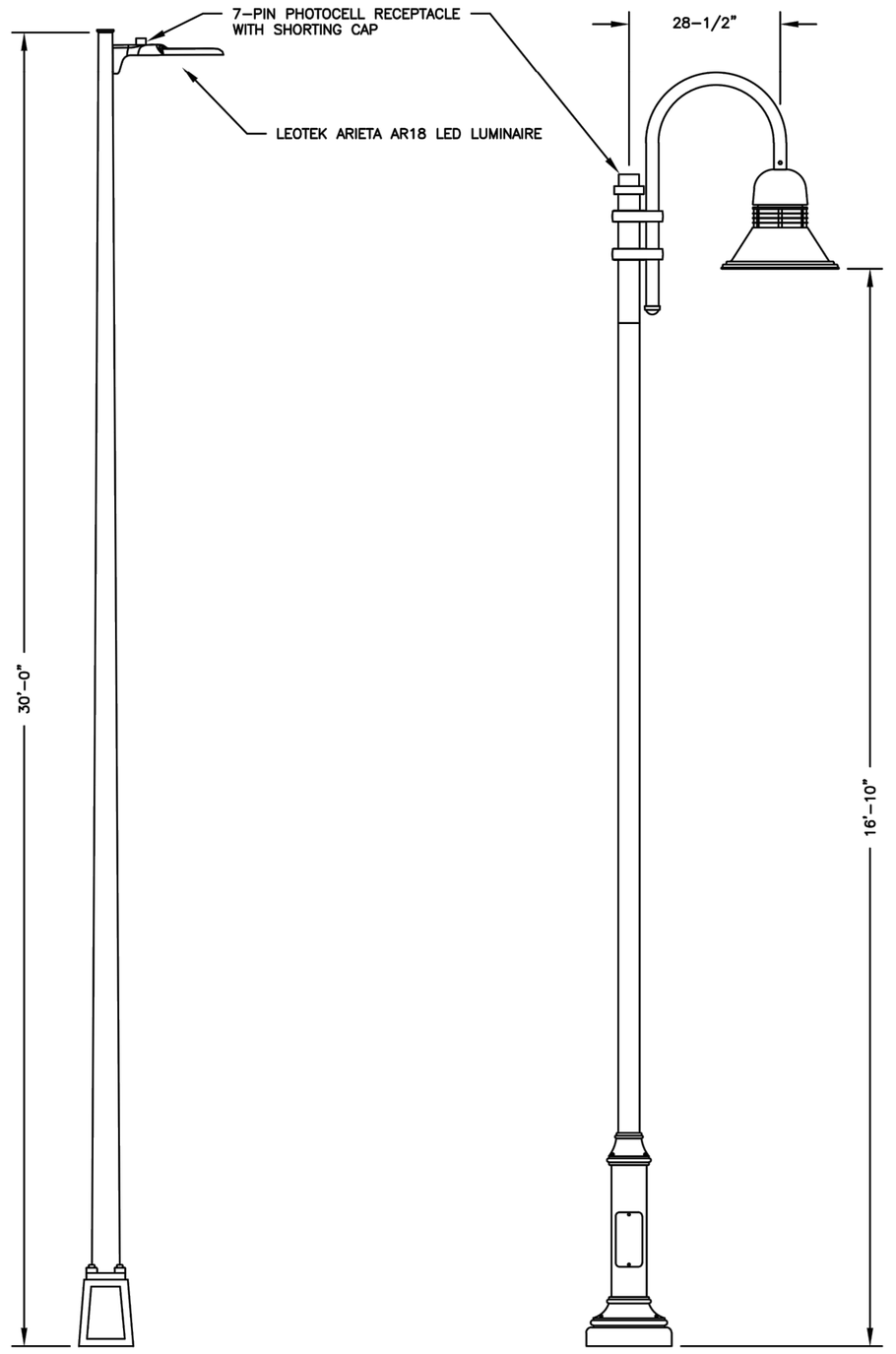
LEOTEK LUMINAIRE: AR18-30M-MV-NW-3-BK-530-PCR7-SC-RPA
HAPCO POLE: RTA30C7BF-BA

LIGHTING UNIT TYPE SPECIAL 2

CYCLONE LUMINAIRE:
CNM56P1-GAL-3-100W-4K-120-GCN15-DIM-CP4052-RAL9005TX
CYCLONE POLE:
PM43-16-SA-BM11-T40-CP4341-RAL9005TX
CYCLONE BRACKET:
M230-C1-S40-CP3731-RAL9005TX-7 PIN PC RECEPTACLE-SHORTING CAP



LIGHT FOUNDATION DESIGN E MODIFIED DETAIL



LIGHTING UNIT TYPE SPECIAL 1

LIGHTING UNIT TYPE SPECIAL 2

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CITY OF RICHFIELD, MINNESOTA
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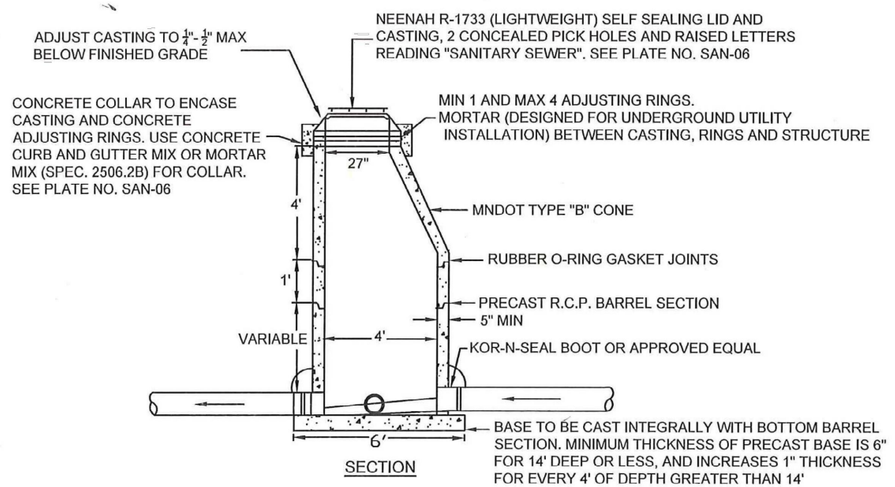
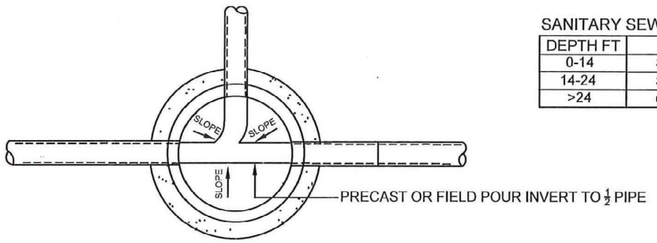
LIGHTING PLANS

SHEET C7.61



SECTION



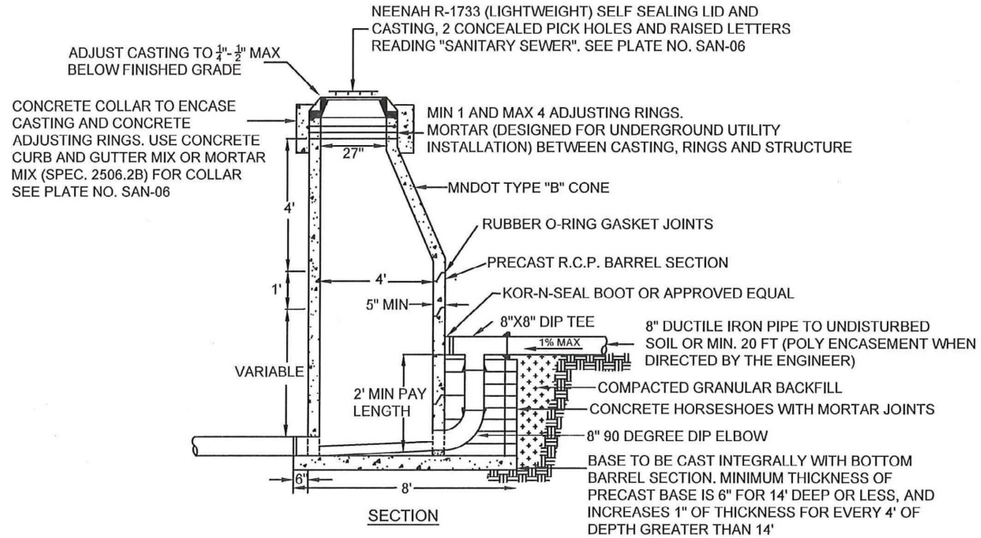
PLAN

SANITARY SEWER PIPE

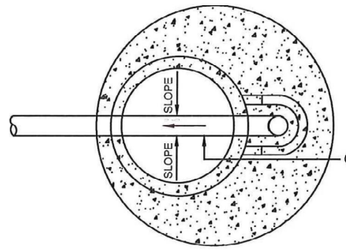
DEPTH FT	TYPE
0-14	SDR 35
14-24	SDR 26
>24	C-900

NOTES:
1. A MINIMUM FALL OF .10' ON MANHOLES THROUGH STRUCTURES AND A MINIMUM FALL OF .20' ON MANHOLES WITH 90 DEGREE BENDS IS REQUIRED.
2. MANHOLES SHALL BE INSTALLED AT DISTANCES NO GREATER THAN 400' APART.
3. GROUT ALL INTERIOR DOGHOUSES AND LIFT HOLES TO INSPECTORS APPROVAL.
4. MARKING POSTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AT ALL MANHOLES LOCATED OUTSIDE OF THE STREET SECTION.
5. SERVICES SHALL NOT ENTER MANHOLES UNLESS APPROVED BY THE CITY ENGINEER.
6. NO MANHOLE STEPS ALLOWED.
7. 2", 4" AND 6" ADJUSTING RINGS ARE ACCEPTABLE.

STANDARD DETAIL NO. SAN-01	SANITARY STANDARD MANHOLE	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



SECTION



PLAN

SANITARY SEWER PIPE

DEPTH FT	TYPE
0-14	SDR 35
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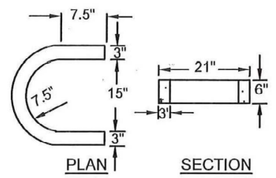

PLAN SECTION

HORSESHOE DETAIL

NOTES:
1. A MINIMUM FALL OF .10' ON MANHOLES THROUGH STRUCTURES AND A MINIMUM FALL OF .20' ON MANHOLES WITH 90 DEGREE BENDS IS REQUIRED.
2. MANHOLES SHALL BE INSTALLED AT DISTANCES NO GREATER THAN 400' APART.
3. GROUT ALL INTERIOR DOGHOUSES AND LIFT HOLES TO INSPECTOR'S APPROVAL.
4. MARKING POSTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AT ALL MANHOLES LOCATED OUTSIDE OF STREET SECTION.
5. SERVICES SHALL NOT ENTER MANHOLES UNLESS APPROVED BY THE CITY ENGINEER.
6. NO INSIDE DROPS ALLOWED.
7. HORSESHOES SHALL BE FILLED WITH CONCRETE MORTAR ON ALL SIDES.
8. NO MANHOLE STEPS ALLOWED.
9. 2", 4" AND 6" ADJUSTING RING ARE ACCEPTABLE.

STANDARD DETAIL NO. SAN-02	SANITARY DROP MANHOLE	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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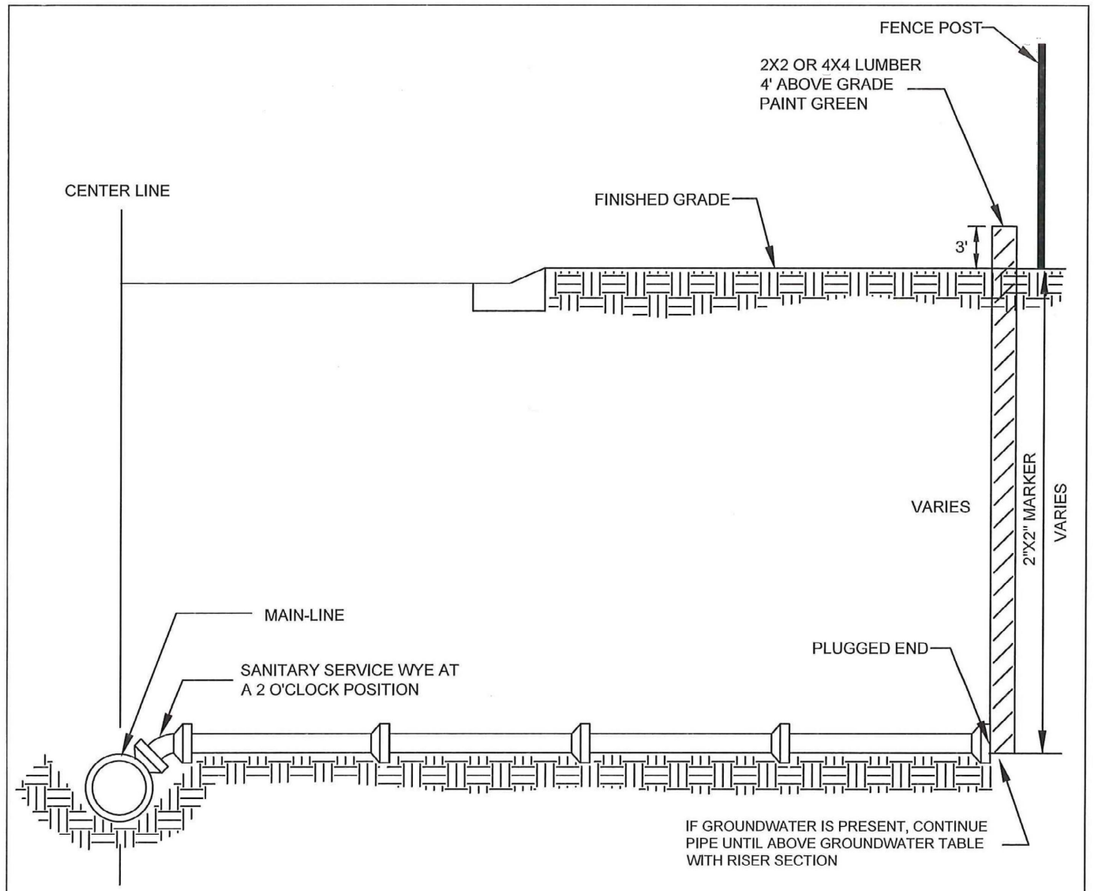
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

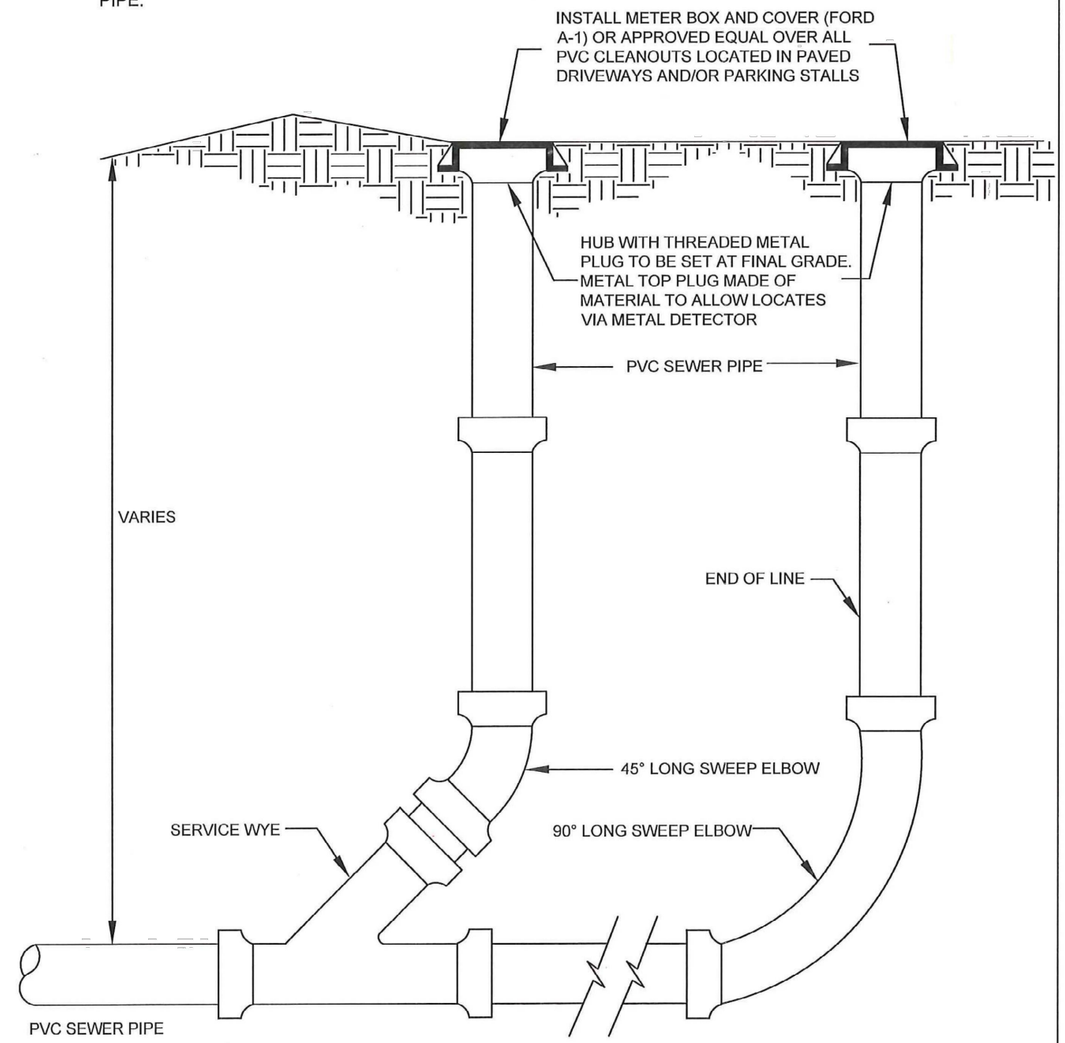
SHEET C8.01



NOTES:
1. IF MAIN-LINE IS SDR 26 OR SCHEDULE 40 THEN WYE, PIPE AND ALL BEND SHALL BE SDR 26 OR SCHEDULE 40 TO PROPERTY LINE.
2. WYE,PIPE AND ALL BENDS SHALL BE A MINIMUM OF 4" FOR RESIDENTIAL AND 6" FOR COMMERCIAL.
3. MINIMUM SLOPE FOR 4" AND 6" SERVICE IS 2%
4. CLEANOUTS REQUIRED FOR EVERY 100' OF SERVICE.
5. EXCESSIVE SANITARY SEWER MAIN-LINE DEPTH MUST BE RECEIVED AND APPROVED BY THE CITY ENGINEER.
6. CONNECT TO EXISTING SERVICE PIPE WITH APPROVED COMMERCIAL ADAPTOR AND ENCASE IN CONCRETE MINIMUM OF 6" AROUND.

STANDARD DETAIL NO. SAN-03	TYPICAL SANITARY SEWER CONNECTION	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

NOTES:
1. INSTALL CLEANOUTS EVERY 100 FEET INTERVALS.
2. CLEAN OUT SERVICE TIES SHALL BE RECORDED WITH CITY PROPERTY RECORD AND UTILITY AS-BUILT RECORDS.
3. BENDS AND RISER TO BE SAME SIZE AS SERVICE PIPE.



STANDARD DETAIL NO. SAN-04	SEWER SERVICE CLEANOUT	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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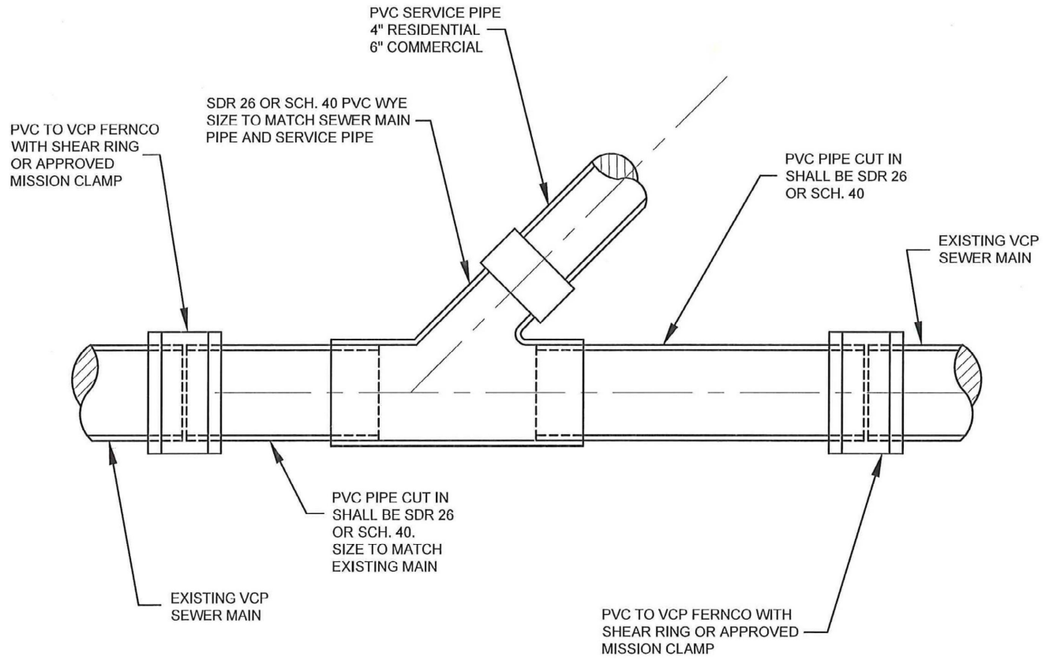
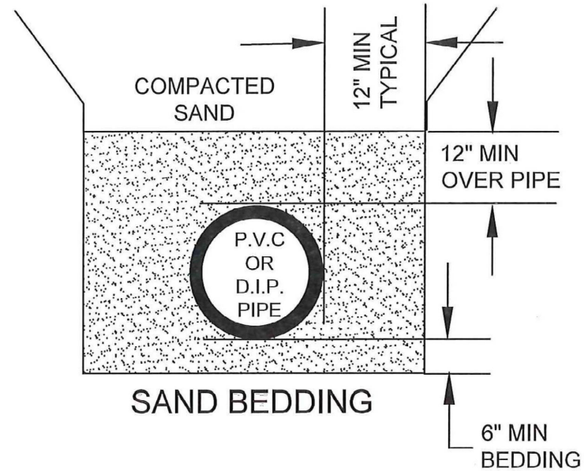
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.02



NOTES: 1. SEE STANDARD DETAIL NO SAN-03 FOR TYPICAL SANITARY SEWER SERVICE CONNECTION DETAIL.
2. CLEAN CUT ALL PIPE ENDS.

STANDARD DETAIL NO. SAN-05	SANITARY SEWER SERVICE PVC WYE CUT INTO VCP SEWER MAIN	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



NOTES: 1. BEDDING SHALL BE CONSIDERED INCIDENTAL TO THE PIPE UNLESS MODIFIED IN THE CONTRACT DOCUMENTS.
2. BEDDING REQUIRED FOR ALL MAINS AND SERVICES.

STANDARD DETAIL NO. SAN-07	SANITARY SEWER BEDDING	APPROVAL 12/7 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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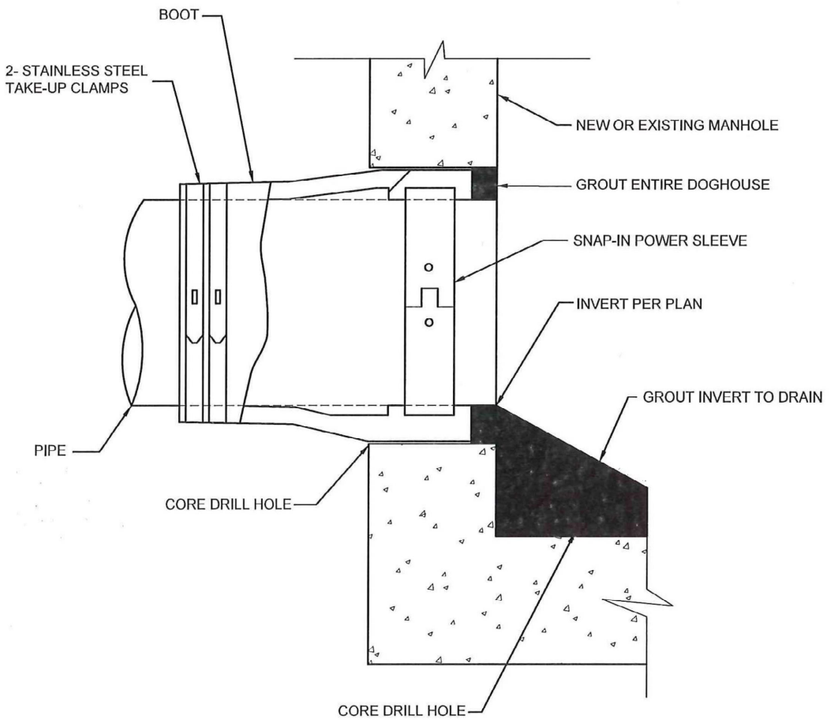
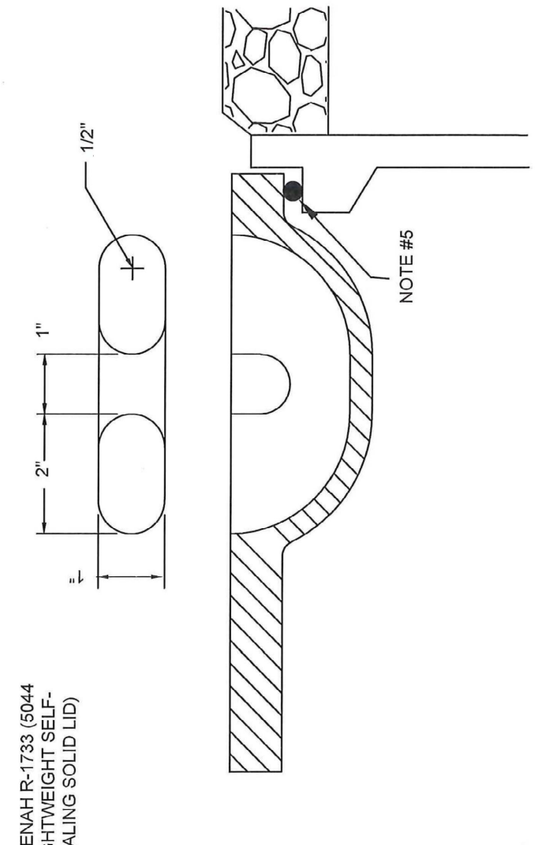
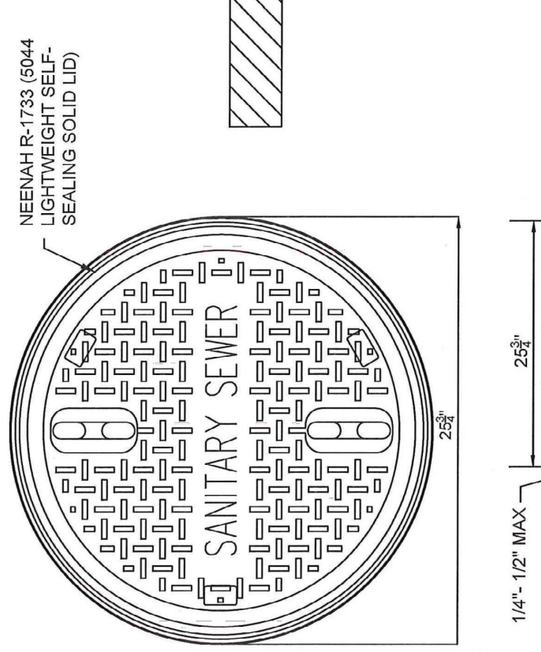
SHEET C8.03



NOTE: 1. CONNECTION TO EXISTING SANITARY SEWER MANHOLE SHALL BE CORE DRILLED WITH A SNAP IN BOOT.

STANDARD DETAIL NO. SAN-09	WATER TIGHT SNAP-IN-SLEEVE	APPROVAL 12/7 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

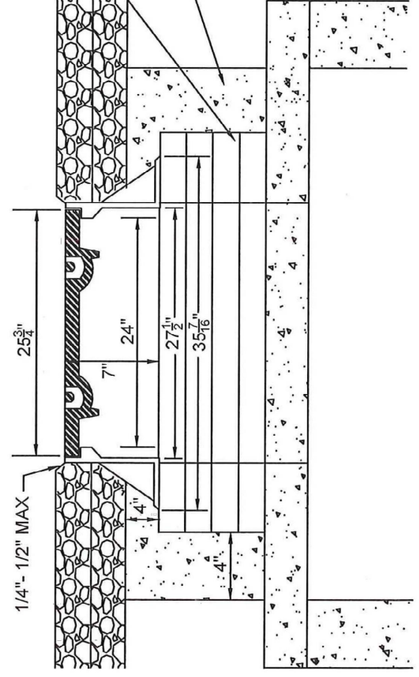




MIN 1 AND MAX 4 ADJUSTING RINGS. MORTAR (DESIGNED FOR UNDERGROUND UTILITY INSTALLATION) BETWEEN CASTING, RINGS AND STRUCTURE

CONCRETE COLLAR TO ENCASE CASTING AND CONCRETE ADJUSTING RINGS. USE CONCRETE CURB AND GUTTER MIX OR MORTAR MIX (SPEC.2506.2B) FOR COLLAR

NOTES:
1. WEIGHT- 122 LBS
2. MACHINE BEARING SURFACE.
3. LETTERED SANITARY SEWER W/2 CONCEALED PICKHOLES
4. H-20 LOAD OR GREATER.
5. $\frac{1}{4}$" NEOPRENE O-RING GASKET SET IN $\frac{1}{8}$" x $\frac{1}{4}$" MACHINE GROOVE AND CHEMICALLY FASTENED IN PLACE.
6. NO DROP IN PAVING RINGS ALLOWED.



CITY OF RICHFIELD ENGINEERING DIVISION

APPROVAL 12/7 20 17 CITY ENGINEER

R-1733 SERIES MANHOLE WITH SELF SEALING LID (TOP SLAB)

STANDARD DETAIL NO. SAN-06B

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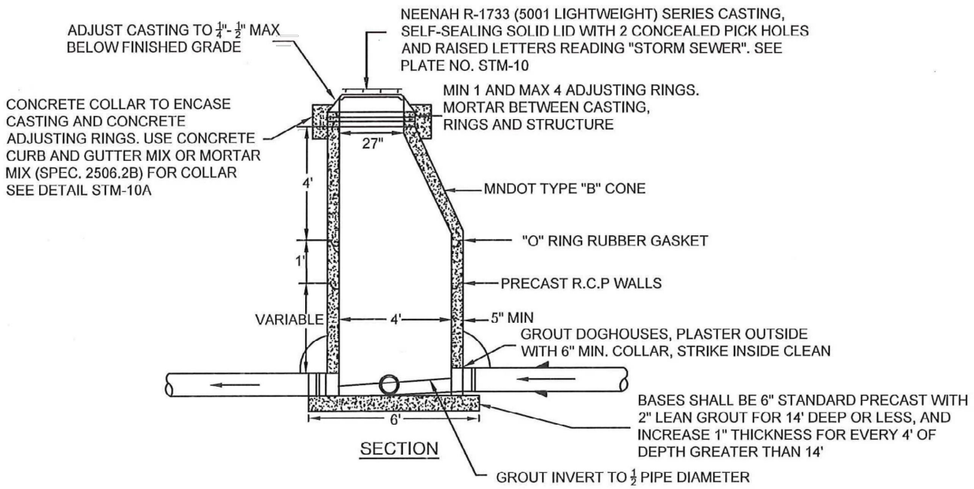
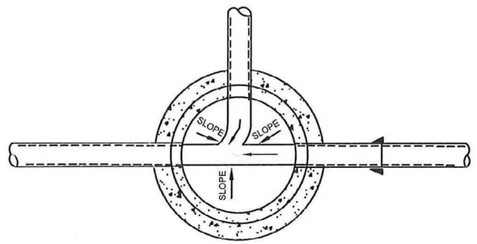
STANDARD PLAN

SHEET C8.04



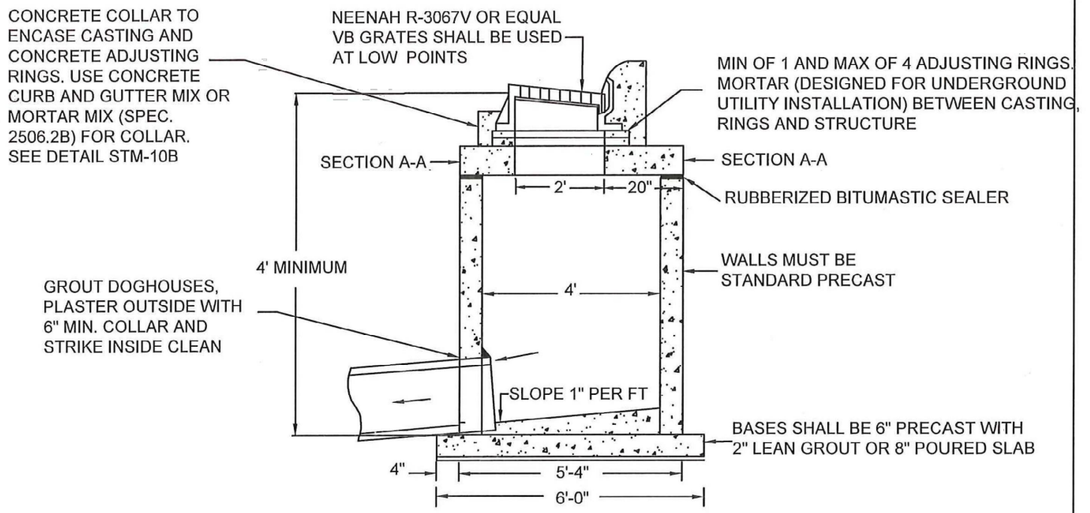
SECTION



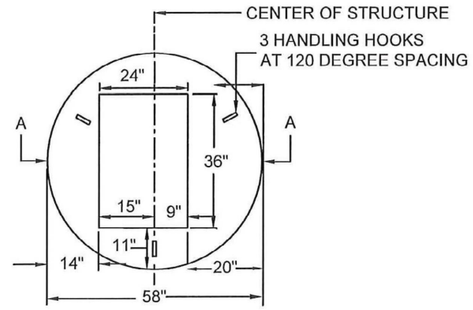
PLAN

NOTES:
1. ALL MANHOLES MUST BE A MINIMUM OF 4' IN DEPTH.
2. PROVIDE POURED CONCRETE INVERTS AND DOGHOUSES.
3. MARKING POSTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AT ALL MANHOLES LOCATED OUTSIDE OF STREET SECTION.
4. VARY RING THICKNESS TO USE MINIMUM NUMBER OF RINGS.
5. GROUT ALL DOGHOUSES INSIDE AND OUT AND LIFT HOLES TO INSPECTORS APPROVAL.
6. DOGHOUSE OPENING SHALL NOT BE MORE THAN 4" LARGER THAN THE PIPE.
7. RUBBERIZED BITUMASTIC SEALER USED AT ALL JOINTS.
8. NO MANHOLE STEPS ALLOWED.
9. 2", 4" AND 6"ADJUSTING RINGS ARE ACCEPTABLE.
10. BLOCK MANHOLES SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM CITY ENGINEER.

STANDARD DETAIL NO. STM-01	STORM STANDARD MANHOLE	APPROVAL 12/7 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



SECTION



PLAN

NOTES:
1. ALL CATCH BASIN/MANHOLES MUST BE A MINIMUM OF 4' IN DEPTH.
2. PROVIDE POURED CONCRETE INVERTS AND DOGHOUSES.
3. GROUT ALL DOGHOUSES AND LIFT HOLES TO INSPECTORS APPROVAL.
4. DOGHOUSE OPENING SHALL NOT BE MORE THAN 4" LARGER THAN PIPE.
5. NO MANHOLE STEPS ALLOWED.
6. 2", 4" OR 6" ADJUSTING RINGS ARE ACCEPTABLE.
7. CATCH BASIN/MANHOLES WITH FLAT TOP SLABS SHALL HAVE TERMINATING MANHOLE SECTIONS.
8. SPECIFICATIONS FOR CATCH BASIN, MANHOLE SECTIONS, COVER AND SLABS SHALL CONFORM TO MANHOLE DETAIL.
9. BLOCK MANHOLES SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM CITY ENGINEER.

STANDARD DETAIL NO. STM-02A	CATCH BASIN/MANHOLE WITH RECTANGULAR LID (4' DIAMETER)	APPROVAL 12/7 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
TIM LAMKIN JR. LIC. NO. 47099 DATE 2/19/19

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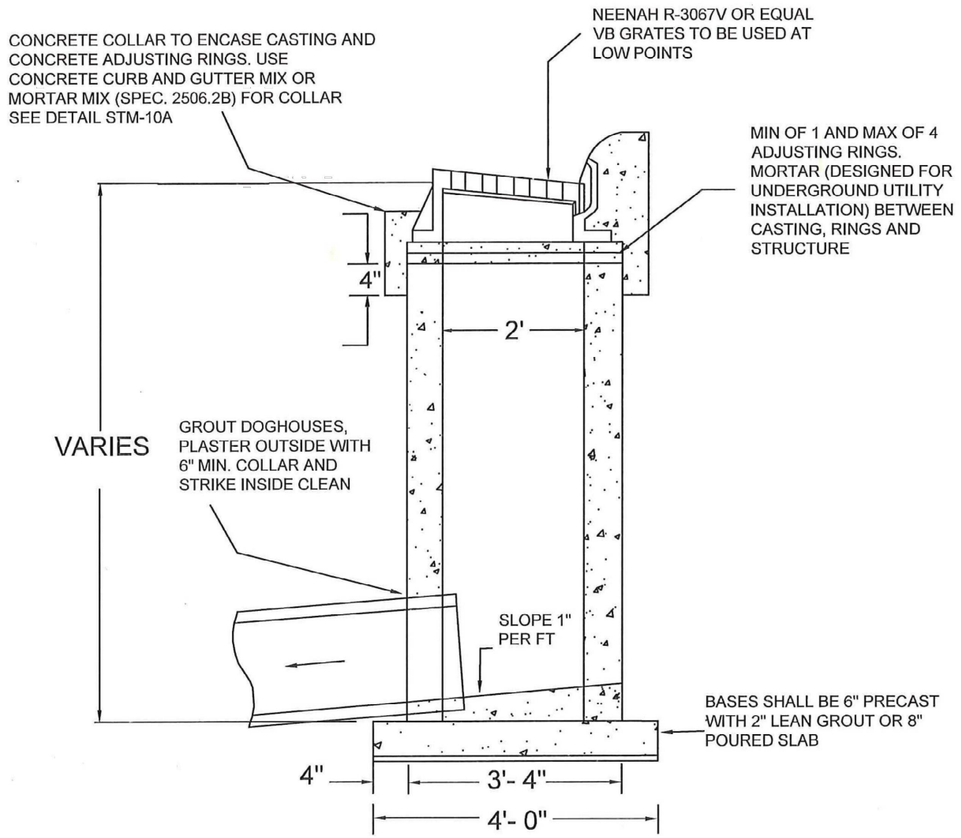
NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

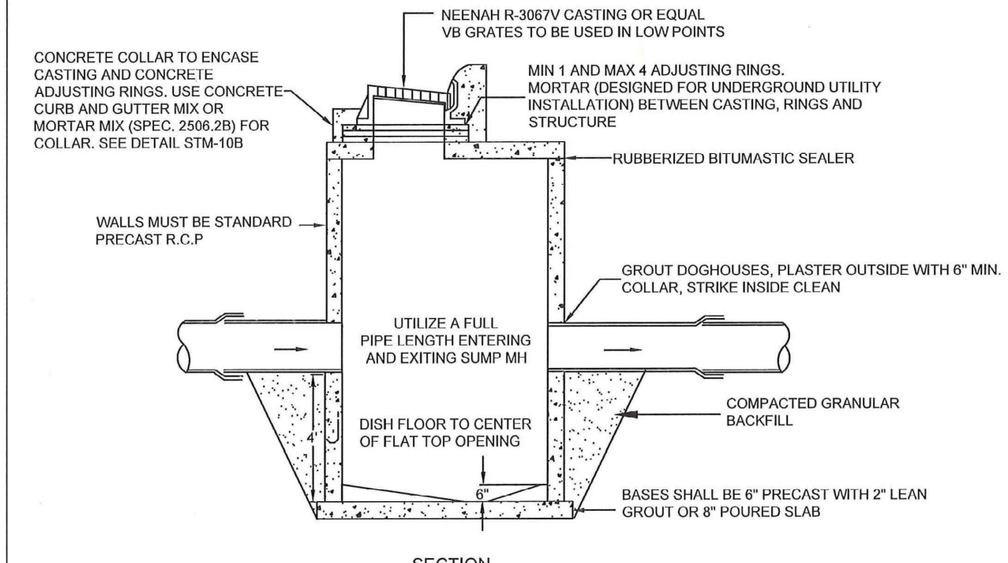
SHEET C8.05



SECTION

NOTES:
1. ALL CATCH BASIN/MANHOLES MUST BE A MINIMUM OF 4' IN DEPTH.
2. PROVIDE POURED CONCRETE INVERTS AND DOGHOUSES.
3. GROUT ALL DOGHOUSES AND LIFT HOLES TO INSPECTORS APPROVAL.
4. DOGHOUSE OPENING SHALL NOT BE MORE THAN 4" LARGER THAN PIPE.
5. NO MANHOLE STEPS ALLOWED.
6. 2", 4" OR 6" ADJUSTING RINGS ARE ACCEPTABLE.
7. CATCH BASIN/MANHOLES WITH FLAT TOP SLABS SHALL HAVE TERMINATING MANHOLE SECTIONS.
8. SPECIFICATIONS FOR CATCH BASIN, MANHOLE SECTIONS, COVER AND SLABS SHALL CONFORM TO MANHOLE DETAIL.
9. BLOCK MANHOLES SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.

STANDARD DETAIL NO. STM-02B	CATCH BASIN/MANHOLE WITH RECTANGULAR LID (2' DIAMETER)	APPROVAL 12/7 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



SECTION

NOTES:
1. CATCH BASIN/MANHOLES MUST BE A MINIMUM OF 4' IN DEPTH.
2. CATCH BASIN/MANHOLES WITH FLAT TOP SLABS SHALL HAVE TERMINATING MANHOLE SECTIONS.
3. SPECIFICATIONS FOR CATCH BASIN, COVER AND SLAB AND MANHOLE SECTIONS SHALL CONFORM TO MANHOLE DETAIL.
4. PROVIDE POURED CONCRETE INVERTS AND DOGHOUSES.
5. GROUT ALL DOGHOUSES INSIDE AND OUT AND MANHOLES TO INSPECTORS APPROVAL.
6. DOGHOUSE OPENING SHALL NOT BE MORE THAN 4" LARGER THAN PIPE.
7. NO MANHOLE STEPS ALLOWED.
8. 2", 4" AND 6" ADJUSTING RINGS ARE ACCEPTABLE.
9. BLOCK MANHOLES SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE CITY ENGINEER.

STANDARD DETAIL NO. STM-03	SUMP MANHOLE OR CATCH BASIN	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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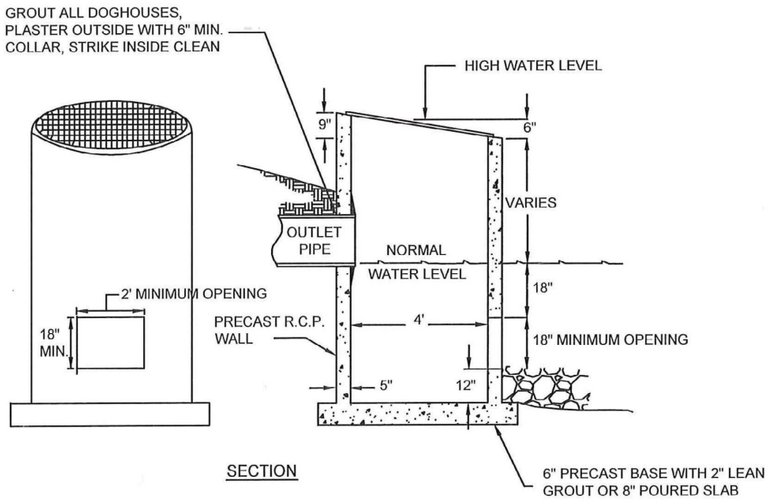
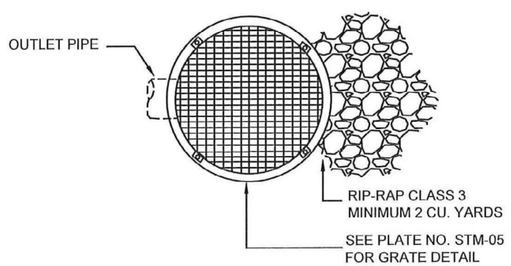
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.06



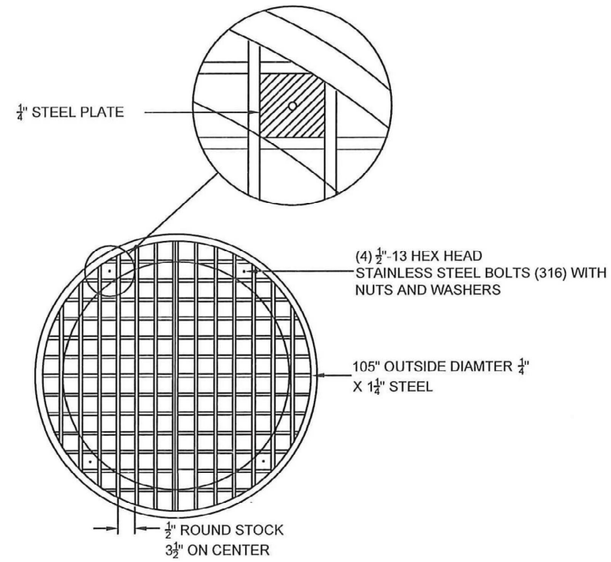
SECTION



PLAN

NOTES: 1. PROVIDE POURED CONCRETE INVERTS.
2. GROUT LIFT HOLES.
3. BLOCK MANHOLES NOT ALLOWED.

STANDARD DETAIL NO. STM-04	POND SKIMMER OUTLET (SUBMERGED INLET TYPE)	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



NOTES: 1. GRATE TO BE TWO PIECES.
2. ALL METAL TO BE HOT-DIPPED GALVANIZED.

STANDARD DETAIL NO. STM-05	POND SKIMMER GRATE	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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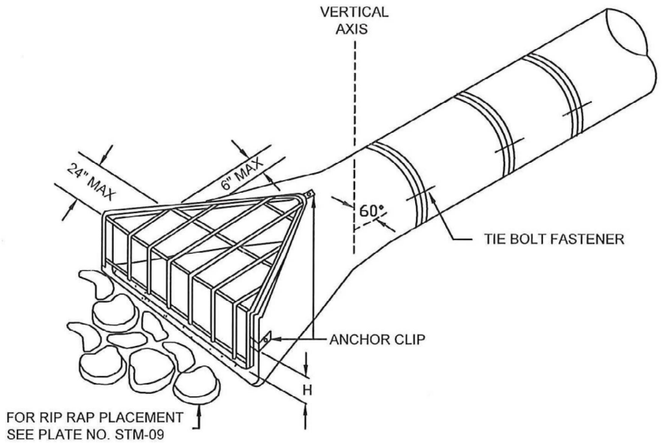
TL/SL			
CLIENT PROJ. NO.			
T16114541			

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.07



ISOMETRIC

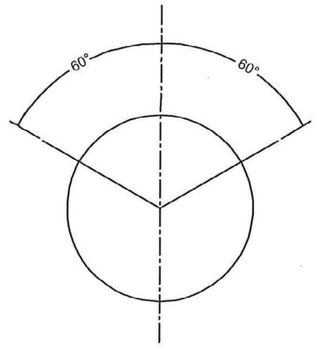
TRASH GUARD SIZING

PIPE SIZE (IN.)	BOLT DIAMETER (IN.)	BARS (IN.)	H (IN.)
15	5/8	3/4	4
18	5/8	3/4	4
21	3/4	1	6
24	3/4	1	6
27	3/4	1	6
30	3/4	1	6
36	3/4	1	6
42	3/4	1	6
48	1	1 1/4	12

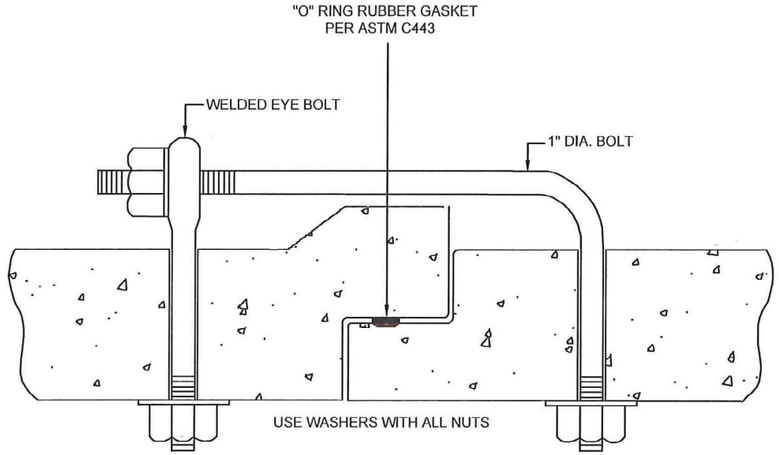
TIE BOLT & FASTENER ASSEMBLY
SEE PLATE NO. STM-08

NOTES:
1. USE TWO TIE BOLT FASTENERS PER JOINT INSTALLED AT 60 DEGREES FROM TOP OF PIPE.
2. LAST THREE JOINTS SHALL BE TIED.
3. TYING AND TRASH GUARD SHALL BE INCLUDED IN THE UNIT PRICE BID FOR APRON SECTION.
4. BARS AND PLATES ARE HOT-ROLLED STEEL.
5. BARS, PLATES, PIPE AND BOLTS ARE GALVANIZED.
6. MARKING POSTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.

STANDARD DETAIL NO. STM-07	STANDARD FLARED END SECTION AND TRASH GUARD	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



TIE PLACEMENT



STANDARD DETAIL NO. STM-08	PIPE TIE DETAIL	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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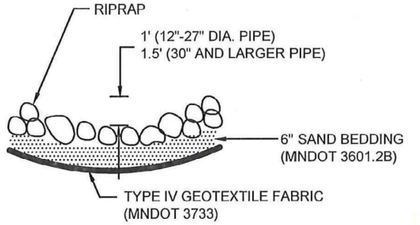
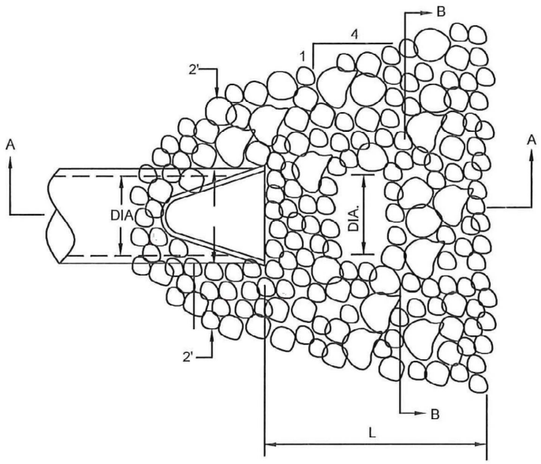
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.08



SECTION B-B

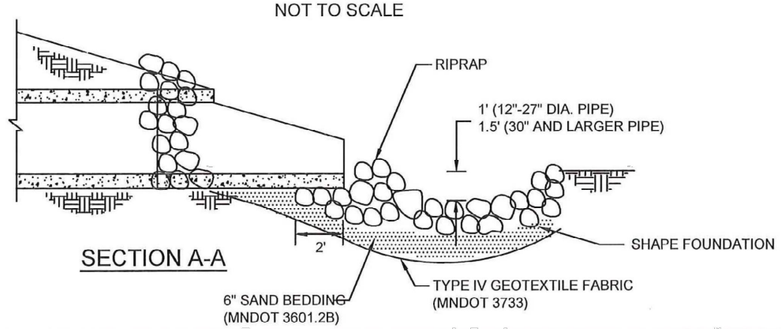
MINIMUM RIPRAP REQUIRED			
DIA. OF PIPE (IN.)	L (FT.)	QUANTITY (C.Y.)	CLASS
12	8	5	III
15	8	5	III
18	10	6	III
24	12	8	III
30	14	12	III
36	16	14	III
42	18	22	IV
48	20	26	IV
>48	22-28	30-40	IV



PLAN
NOT TO SCALE

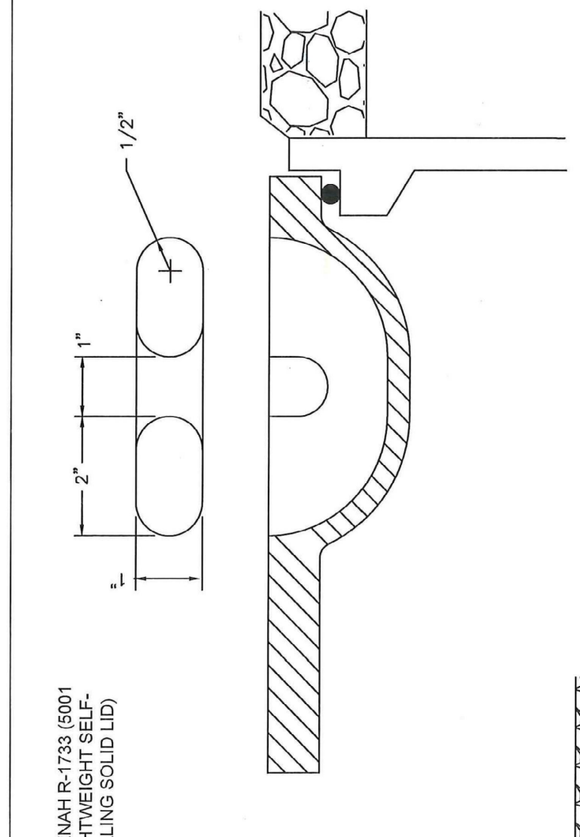
TIE THE LAST 3 JOINTS ON INLET AND OUTLET PIPES AND BED IN GRANULAR MATERIAL. ANY COVER LESS THAN 2' OVER TOP OF PIPE SHALL BE GRANULAR MATERIAL.

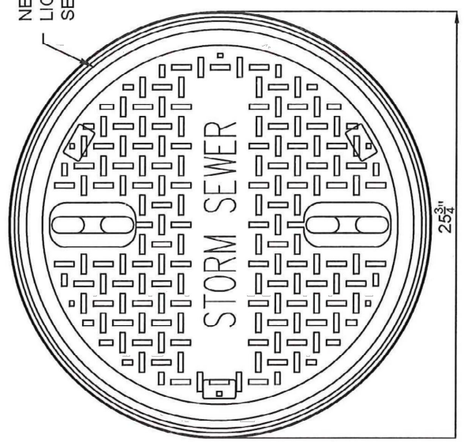
FLARED END SECTION SHALL BE INSTALLED ON RIP RAP FOR THE LAST 2'.



SECTION A-A

STANDARD DETAIL NO. STM-09	RIPRAP DETAIL FOR FLARED END SECTIONS	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

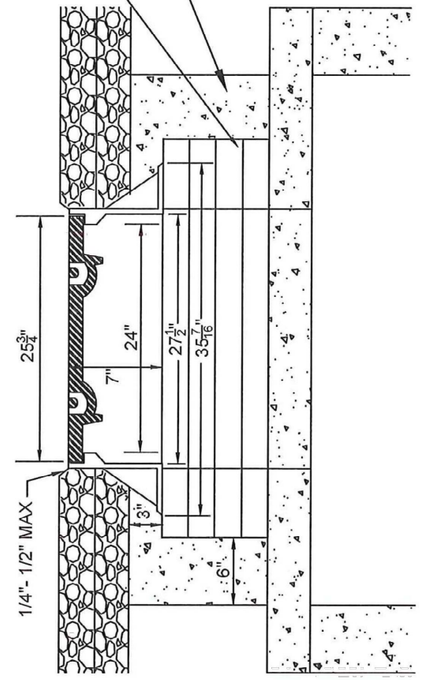




MIN 1 AND MAX 4 ADJUSTING RINGS.
MORTAR (DESIGNED FOR UNDERGROUND UTILITY INSTALLATION) BETWEEN CASTING, RINGS AND STRUCTURE

CONCRETE COLLAR TO ENCASE CASTING AND CONCRETE ADJUSTING RINGS. USE CONCRETE CURB AND GUTTER MIX OR MORTAR MIX (SPEC. 2506.2B) FOR COLLAR

NOTES: 1. MACHINED BEARING SURFACE.
2. LETTERED 2" STORM SEWER W/ 2 CONCEALED PICKHOES.
3. H-20 LOAD OR GREATER.
4. WEIGHT- 122 LBS.



CITY OF RICHFIELD ENGINEERING DIVISION	APPROVAL 12/6 20 17 CITY ENGINEER	R-1733 SERIES MANHOLE WITH CONCEALED LID (TOP SLAB)	STANDARD DETAIL NO. STM-10B

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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LIC. NO. 47099 DATE 2/19/19

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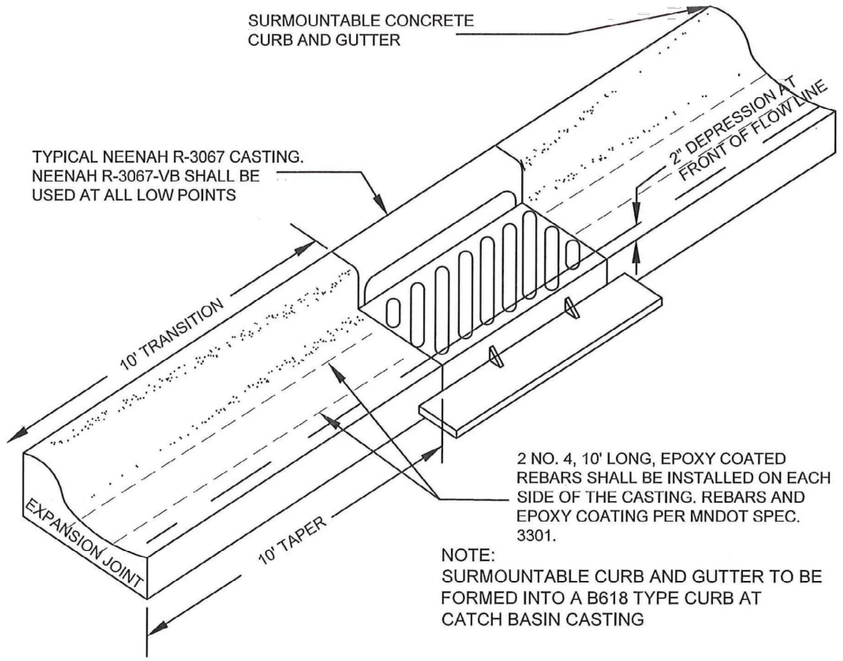
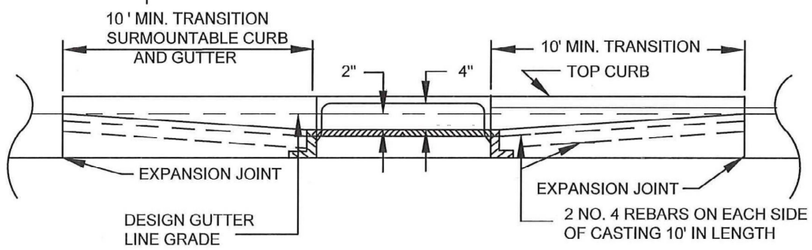
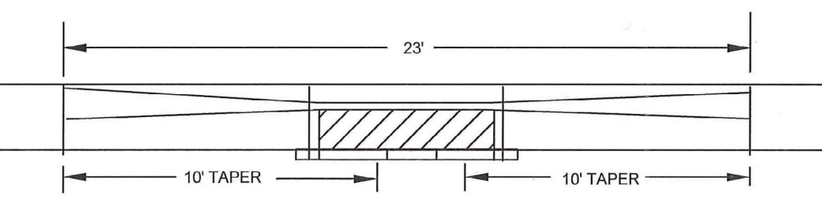
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.09

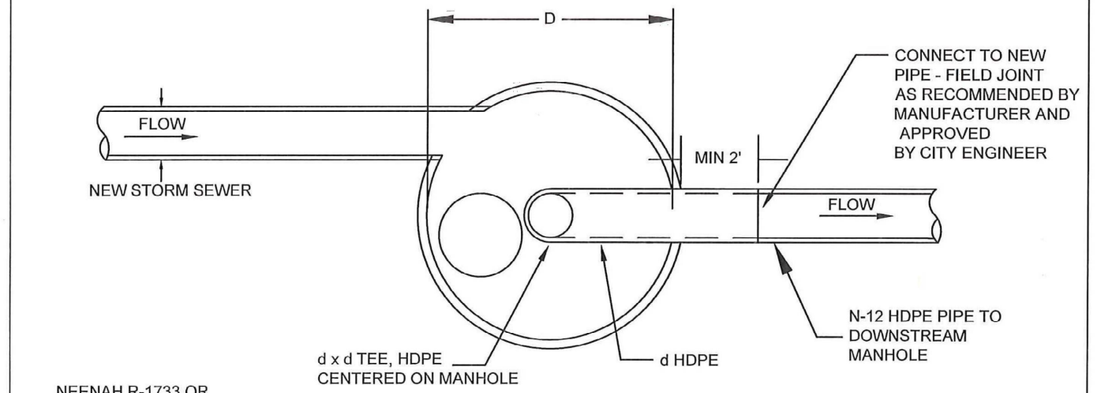


NOTE:
SURMOUNTABLE CURB AND GUTTER TO BE FORMED INTO A B618 TYPE CURB AT CATCH BASIN CASTING

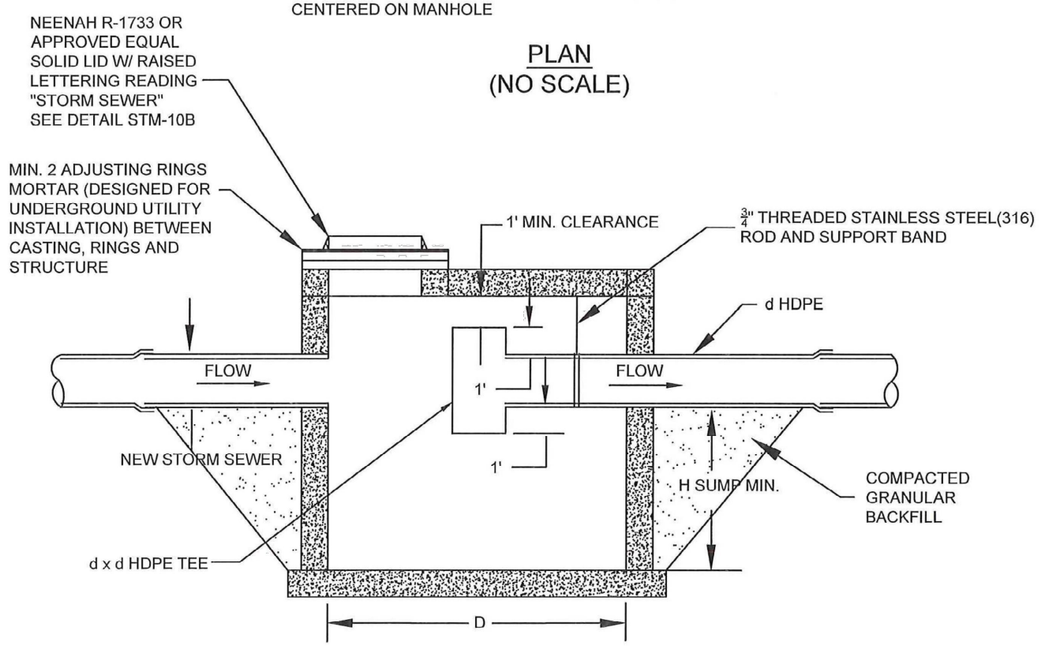




STANDARD DETAIL NO. STM-11	CATCH BASIN CASTING INSTALLATION	APPROVAL 12/7 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



PLAN
(NO SCALE)



SECTION
(NO SCALE)

NOTES:
1. MANHOLE SHALL BE CONSTRUCTED CONSISTENT WITH STANDARD DETAIL STM-03.
2. MARKING POSTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AT ALL MANHOLES LOCATED OUTSIDE OF STREET SECTION.

D= TREATMENT MH DIA.	6'	8'	*8'+
d= INTERNAL PIPE DIA.	18"	24"	24"+
H= SUMP DEPTH	5'	6'	6'+
MAX IMPERVIOUS AREA	5 AC	10 AC	>10AC*
MAX STORM SEWER SIZE	18"	24"	>24"AC

* NOTE: OFFLINE CUSTOM DESIGN REQUIRED

STANDARD DETAIL NO. STM-12	ENVIRONMENTAL MANHOLE (NEW STORM SEWER	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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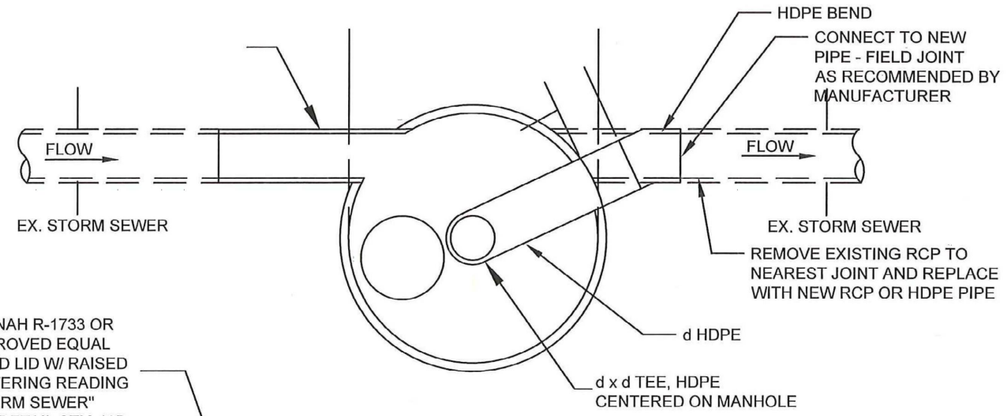
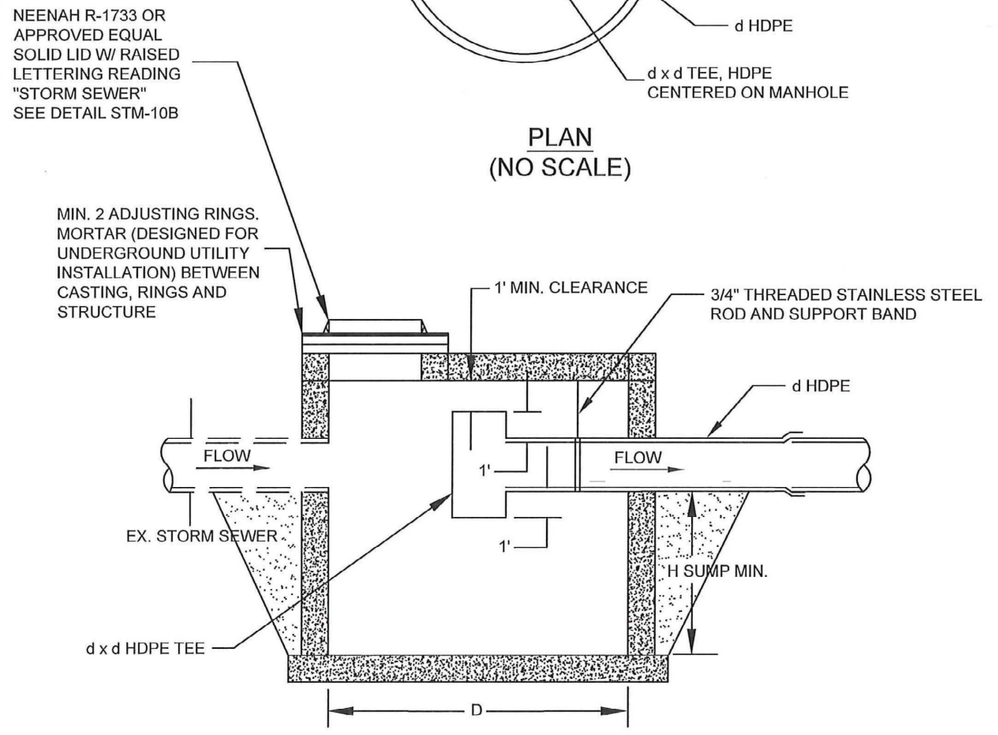
STANDARD PLAN

SHEET C8.10



PLAN
(NO SCALE)



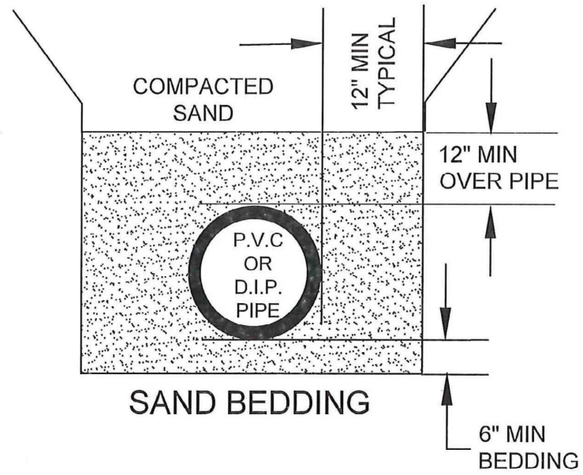
SECTION
(NO SCALE)

NOTES: 1. MANHOLE SHALL BE CONSTRUCTED CONSISTENT WITH STANDARD DETAIL STM-03.
2. MARKING POSTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AT ALL MANHOLES LOCATED OUTSIDE OF STREET SECTION.

D= TREATMENT MH DIA.	6'	8'	*8'+
d= INTERNAL PIPE DIA.	18"	24"	24"+
H= SUMP DEPTH	5'	6'	6'+
MAX IMPERVIOUS AREA	5AC	10AC	>10AC*
MAX STORM SEWER SIZE	18"	24"	>24"*

*NOTE: OFFLINE CUSTOM DESIGN REQUIRED

STANDARD DETAIL NO. STM-13	ENVIRONMENTAL MANHOLE (EXISTING STORM SEWER)	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



SAND BEDDING

NOTES: 1. BEDDING SHALL BE CONSIDERED INCIDENTAL TO THE PIPE UNLESS MODIFIED IN THE CONTRACT DOCUMENTS.
2. BEDDING REQUIRED FOR ALL MAINS AND SERVICES.

STANDARD DETAIL NO. STM-14	STORM SEWER BEDDING	APPROVAL 12/7 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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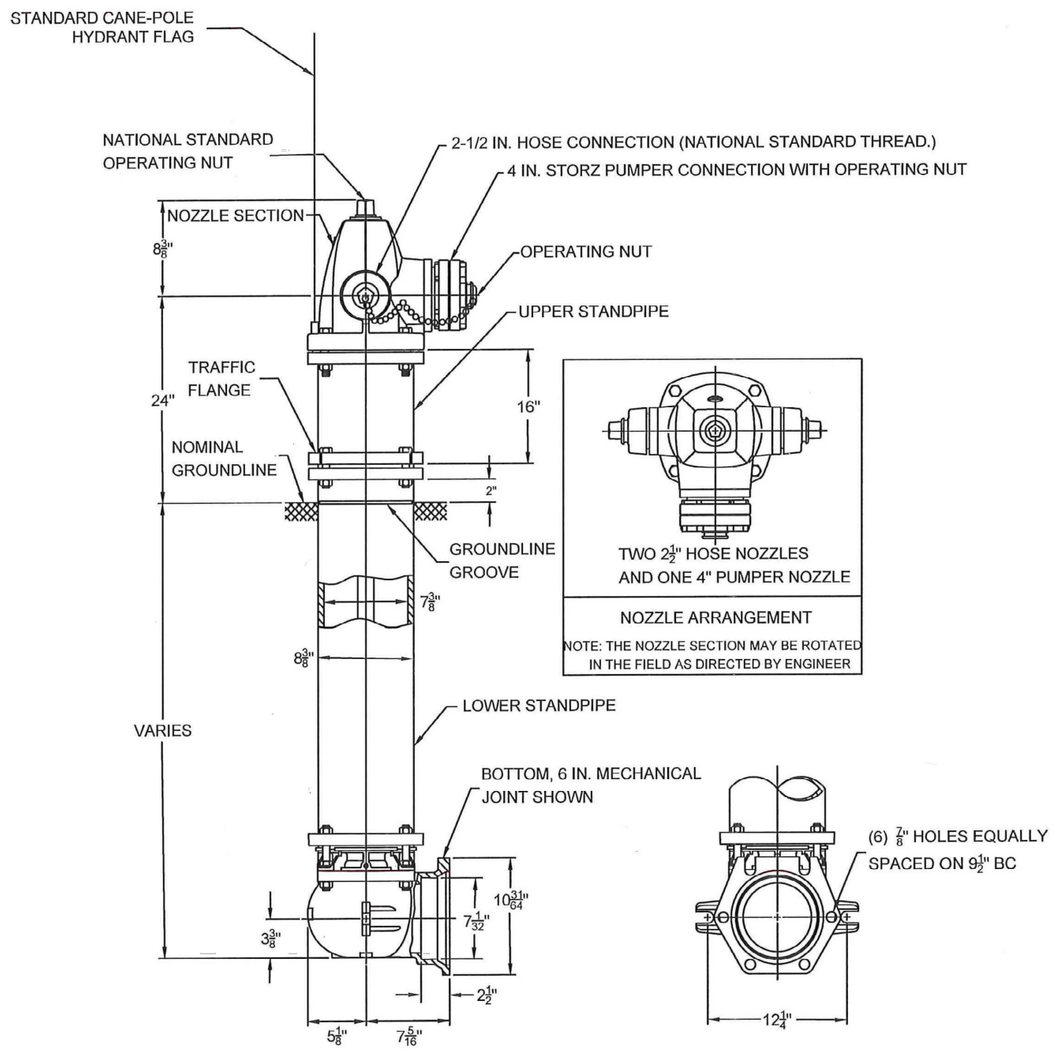
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

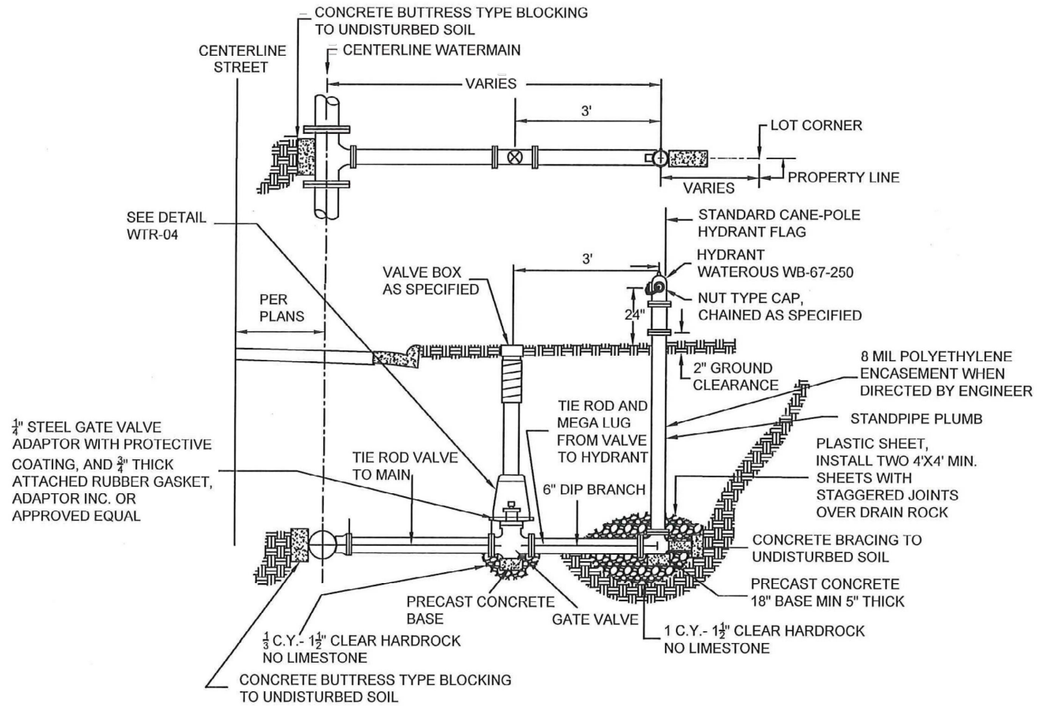
SHEET C8.11

HYDRANT: WATEROUS WB-67-250



NOTES:
1. FACTORY PAINTED RED TO GROUND LINE
2. 16 INCH TRAFFIC FLANGE
3. 8'-6" COVER UNLESS OTHERWISE SPECIFIED
4. PROVIDE STORZ HYDRANT WRENCH.
5. AFTER INSTALLATION, 2ND COAT OF PAINT SHALL BE APPLIED

STANDARD DETAIL NO. WTR-01	HYDRANT	APPROVAL 12/7 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



NOTES:
1. ALL HYDRANTS MUST BE 8.5' BURY UNLESS SHOWN OTHERWISE.
2. ALL HYDRANT VALVES TO BE LOCATED IN THE BOULEVARD WHEN POSSIBLE.
3. AMERICAN FLOW CONTROL 2500 SERIES RESILIENT WEDGE TYPE GATE OR APPROVED EQUAL.
4. TIE RODS TO BE 3/4" DIAMETER THREADED (316) STAINLESS STEEL. SEE DETAIL WTR-11.
5. ALL WATERMAIN BOLTS SHALL BE COR-BLUE OR APPROVED EQUAL.
6. POURED CONCRETE OR PRECAST BLOCKS TO BE USED FOR BRACING (NO WOOD, CURBING, SIDEWALK, ETC.) PER INSPECTORS APPROVAL.
7. ALL JOINTS MUST BE RESTRAINED.
8. ALL HYDRANT BARRELS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT AS DIRECTED BY THE ENGINEER.
9. WHERE HYDRANT BASE IS IN OR NEAR WATER TABLE, THE WEEPHOLE SHALL BE PLUGGED, AFFIX "PUMP AFTER USE" TAG TO HYDRANT.
10. ALL EXPOSED WATERMAIN SHALL BE WRAPPED IN POLYETHYLENE IN ACCORDANCE WITH AWWA C105 AS DIRECTED BY THE ENGINEER.
11. HYDRANT TO BE SECURELY COVERED WITH PLASTIC WRAP OR TAGGED TO INDICATE IT IS OUT OF SERVICE.
12. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT.

STANDARD DETAIL NO. WTR-02	HYDRANT INSTALLATION	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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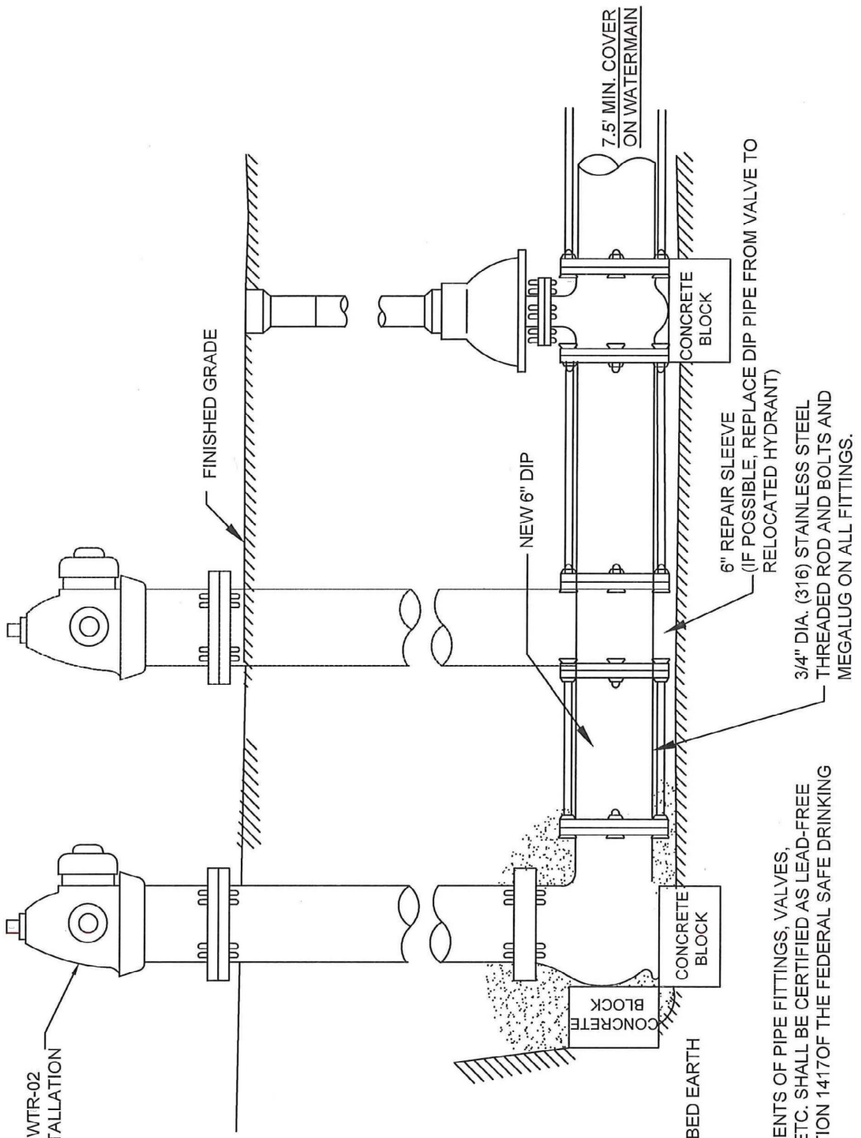
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.12



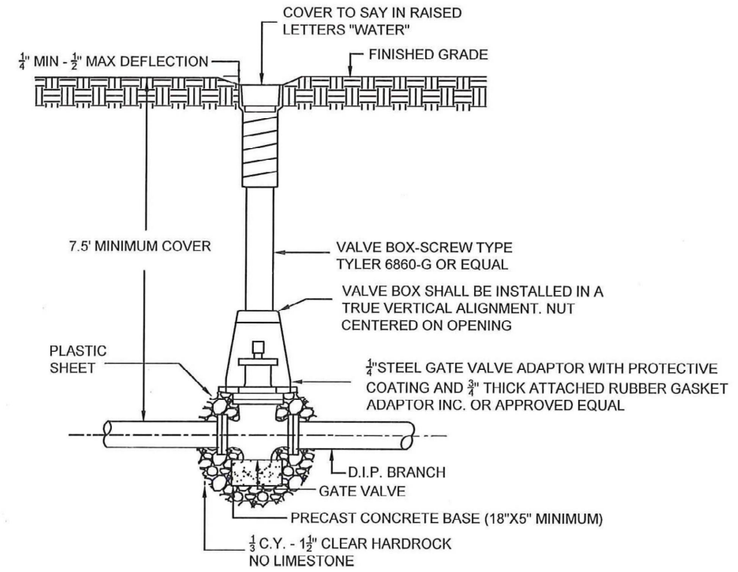
NOTES: 1. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417OF THE FEDERAL SAFE DRINKING WATER ACT.

CITY OF RICHFIELD
ENGINEERING
DIVISION

APPROVAL 12/6 2017
CITY ENGINEER

HYDRANT RELOCATION

STANDARD DETAIL NO. WTR-03



NOTES:
1. HYDRANT, STUB & SERVICE VALVES SHALL BE RODDED TO THE MAIN AND MEGALUG ON ALL FITTINGS.
2. AMERICAN FLOW CONTROL 2500 SERIES RESILIENT WEDGE TYPE OR APPROVED EQUAL.
3. TIE RODS AND MEGALUG FROM VALVE TO HYDRANT.
4. TIE RODS TO BE ¾" DIAMETER THREADED (316) STAINLESS STEEL SEE DETAIL WTR-11..
5. ALL WATERMAIN BOLTS SHALL BE COR-BLUE OR APPROVED EQUAL.
6. NO INSIDE ADJUSTMENT SECTIONS ALLOWED (I.E. NO INSERTS).
7. CONTRACTOR TO PROVIDE A FENCE T-POST AND SHALL BE INSTALLED BY THE CONTRACTOR AT ALL GATE VALVES LOCATED OUTSIDE OF STREET SECTIONS. PAINT BLUE.
8. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT.

STANDARD DETAIL NO. WTR-04

VALVE BOX INSTALLATION

APPROVAL 12/6 2017
CITY ENGINEER

CITY OF RICHFIELD
ENGINEERING
DIVISION

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LIC. NO. 47099 DATE 2/19/19

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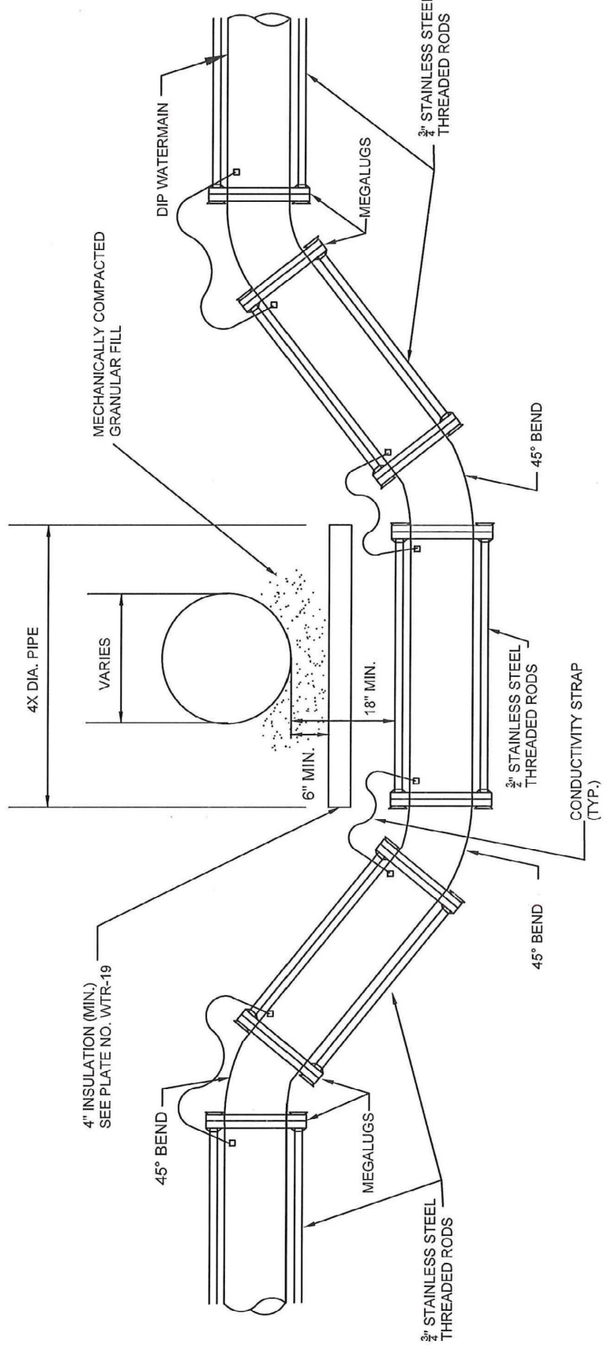
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.13



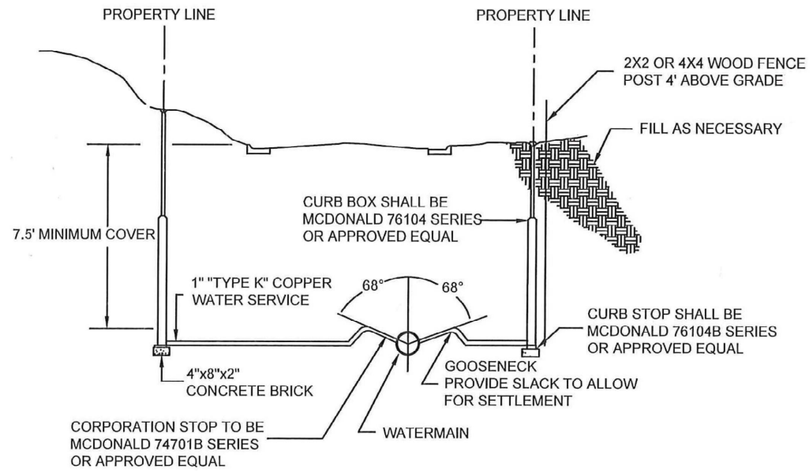
NOTES:
1. ALL JOINTS SHALL BE RESTRAINED WITH MEGALUGS AND TIE RODS.
2. INSULATION AND FOUNDATION MATERIAL SHALL EXTEND IN BOTH DIRECTIONS A MINIMUM OF 3'.
3. INSTALL INSULATION WITH OVERLAPPING JOINTS.
4. CONDUCTIVITY IS REQUIRED ACROSS ALL JOINTS.
5. ALL WATERMAIN BOLTS SHALL BE CORE-BLUE OR APPROVED EQUAL..
6. TIE RODS TO BE ¾" THREADED (316) STAINLESS STEEL..
7. ALL EXPOSED WATERMAIN SHALL BE WRAPPED WITH POLYETHYLENE IN ACCORDANCE WITH AWWA C-105 AS DIRECTED BY THE ENGINEER.
8. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT.

CITY OF RICHFIELD ENGINEERING DIVISION

APPROVAL 12/7 20 17
CITY ENGINEER

STANDARD DETAIL NO. WTR-05

WATERMAIN OFFSET



NOTES:
1. ALL IRRIGATION SERVICES TO BE 4" DIP UNLESS DIRECTED BY THE ENGINEER.
2. NO COPPER TO COPPER CONNECTIONS SHALL BE MADE IN THE PUBLIC RIGHT-OF-WAY.
3. MCDONALD TYPE A STYLE RECESSED COVER FRAME, 674M SERIES (4" BURY DEPTH) OR APPROVED EQUAL FOR CURB BOXES IN DRIVEWAYS, SIDEWALKS, OR PARKING AREAS.
4. ADJUST CURB STOP TOP 1" BELOW FINISHED GRADE.
5. CAP OR PIGTAIL HOUSE SIDE OF THE CURB STOP TO KEEP CLEAN.
6. STATIONARY RODS (CURB STOP) ARE NOT ALLOWED.
7. CURB STOP BOX SHALL BE TURNED TO BE READ FROM THE STREET.
8. SADDLES ON 6" DIP OR SMALLER MAINS.
9. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT

STANDARD DETAIL NO. WTR-06

TYPICAL RESIDENTIAL WATER SERVICE

APPROVAL 12/6 20 17
CITY ENGINEER

CITY OF RICHFIELD ENGINEERING DIVISION

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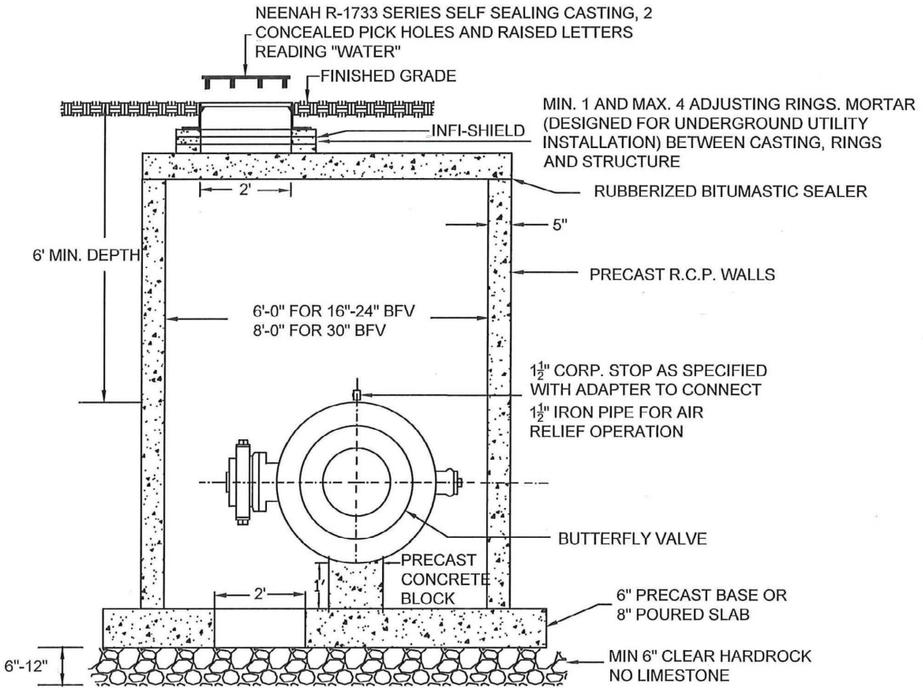
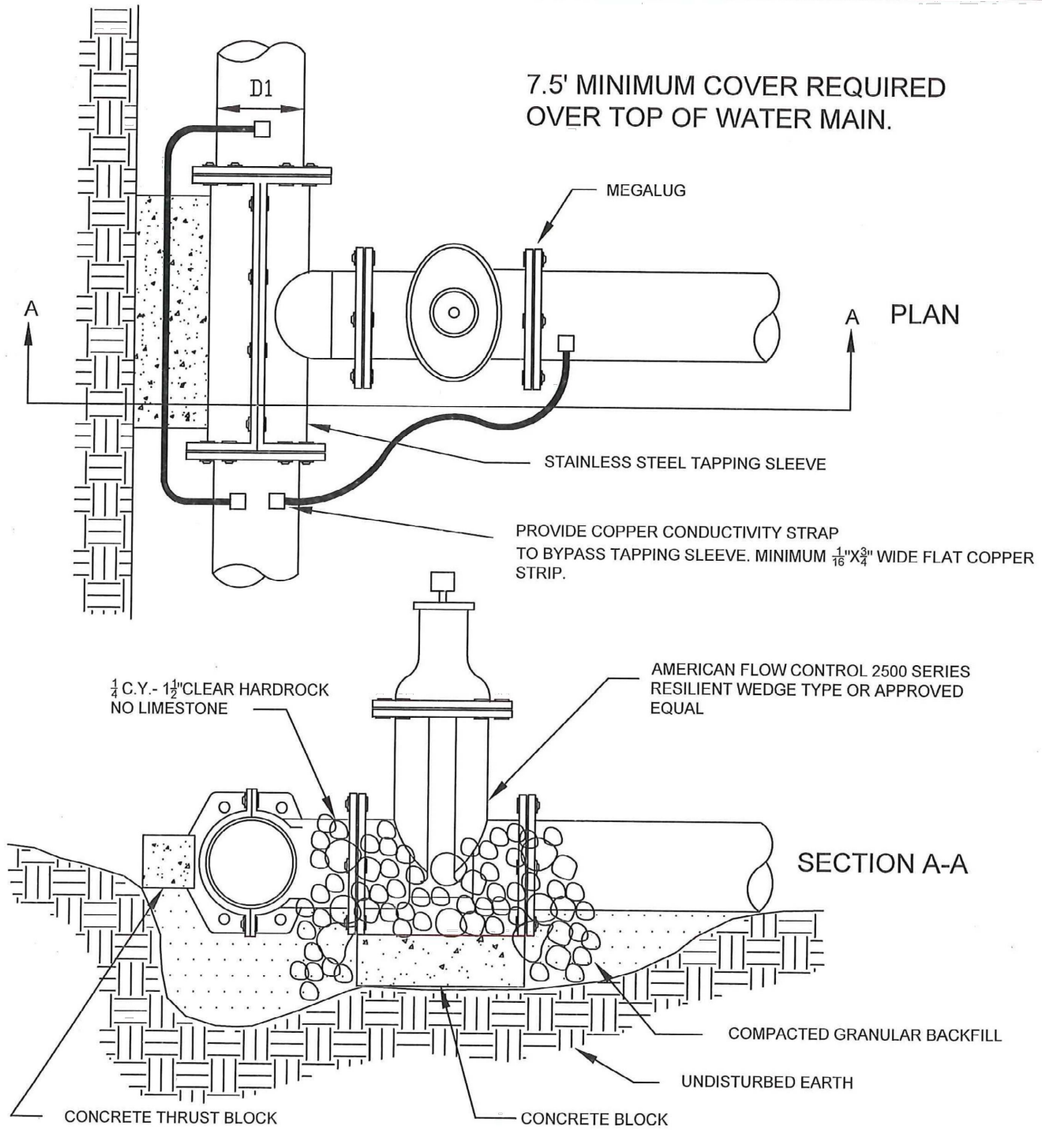
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.14



NOTES:
1. OPERATING NUT MUST BE CENTERED UNDER MANHOLE OPENING.
2. GEARBOX MUST POSITIONED SO IT IS REMOVABLE AND MAINTAINABLE.
3. MARKING POSTS SHALL BE SUPPLIED BY THE CITY AND INSTALLED BY THE CONTRACTOR AT ALL MANHOLES LOCATED OUTSIDE OF THE STREET RIGHT-OF-WAYS.
4. NO MANHOLE STEPS ALLOWED.
5. CENTER SUMP UNDER MANHOLE OPENING.
6. KOR-N-SEAL BOOTS SHALL BE USED AT PIPE PENETRATIONS.
7. MARKING POSTS SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AT ALL MANHOLES LOCATED OUTSIDE OF THE STREET SECTION.
8. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT.

STANDARD DETAIL NO. WTR-07	BUTTERFLY VALVE MANHOLE	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



NOTES: ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT.

STANDARD DETAIL NO. WTR-08	WATER MAIN WET TAP	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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TIM LAMKIN JR. LIC. NO. 47099 DATE 2/19/19

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

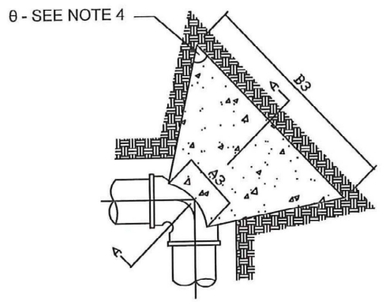
SHEET C8.15

NOTES:

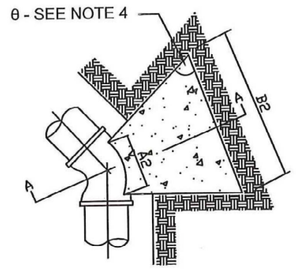
1. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POURED AGAINST FIRM UNDISTURBED EARTH.
2. DIMENSION C1, C2, C3 SHOULD BE LARGE ENOUGH TO MAKE ANGLE θ EQUAL TO OR LARGER THAN 45°.
3. DIMENSION A1, A2, A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH MJ BOLTS.
4. θ = 45° MINIMUM.
5. PLACE POLYETHYLENE BETWEEN CONCRETE AND PIPE.

BUTTRESS DIMENSIONS

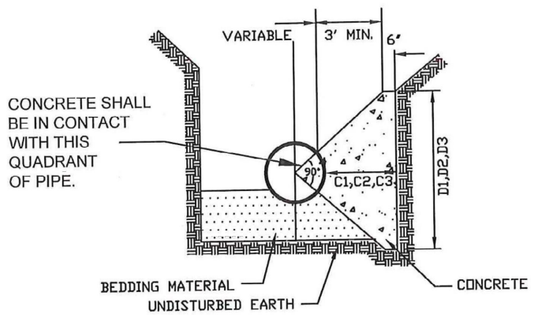
PIPE SIZE	22½° BEND		45° BEND		90° BEND	
	B_1	D_1	B_2	D_2	B_3	D_3
6"	1'-5"	1'-5"	1'-5"	1'-5"	2'-1"	1'-5"
8"	1'-5"	1'-5"	2'-1"	1'-6"	2'-8"	2'-0"
12"	1'-10"	1'-10"	3'-4"	2'-0"	4'-9"	2'-6"
16"	3'-0"	2'-0"	3'-10"	3'-0"	6'-2"	3'-6"
20"	3'-6"	2'-8"	5'-6"	3'-4"	8'-4"	4'-0"
24"	4'-4"	3'-0"	6'-10"	3'-10"	9'-8"	5'-0"
30"	----	----	9'-3"	6'-0"	17'-0"	6'-0"



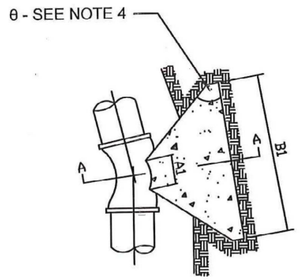
PLAN 90° BENDS



PLAN 45° BENDS

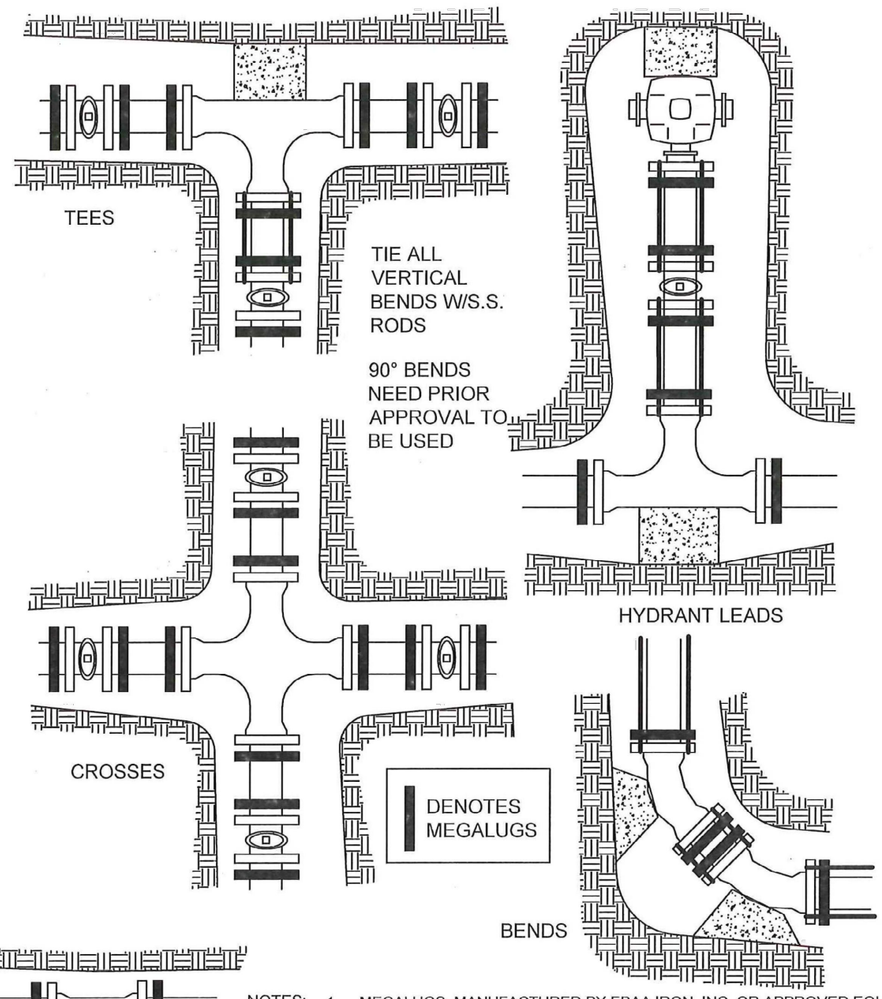


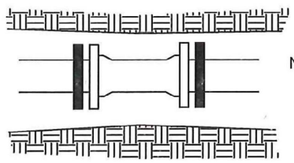
SECTION A-A



PLAN 22½° BENDS

STANDARD DETAIL NO. WTR-09	CONCRETE THRUST BLOCK	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION





SLEEVES

NOTES:

1. MEGALUGS, MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL, SHALL BE USED AT ALL MECHANICAL JOINTS.
2. PLACE CONCRETE BLOCK UNDER ALL GATE VALVES AND HYDRANTS.
3. THRUST BLOCKING REQUIRED BEHIND ALL TEES, BENDS AND HYDRANTS.
4. ALL BOLTS, EYE-BOLTS, T-BOLTS, WASHERS, NUTS AND RODDING INSTALLED BELOW GRADE SHALL BE ASTM F593 STAINLESS STEEL.
5. ALL NUTS AND BOLTS ON MJ FITTINGS SHALL BE COR-BLUE OR APPROVED EQUAL.
6. RODDING SHALL MEET APPROVAL OF CITY ENGINEER OR INSPECTOR.
7. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT.

STANDARD DETAIL NO. WTR-11	TYPICAL MEGALUG/ ROD LOCATIONS	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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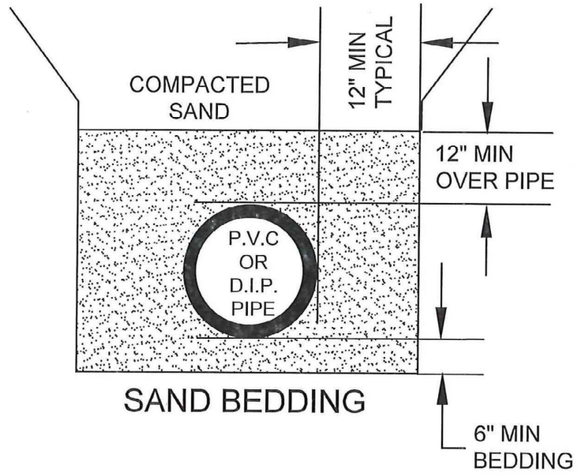
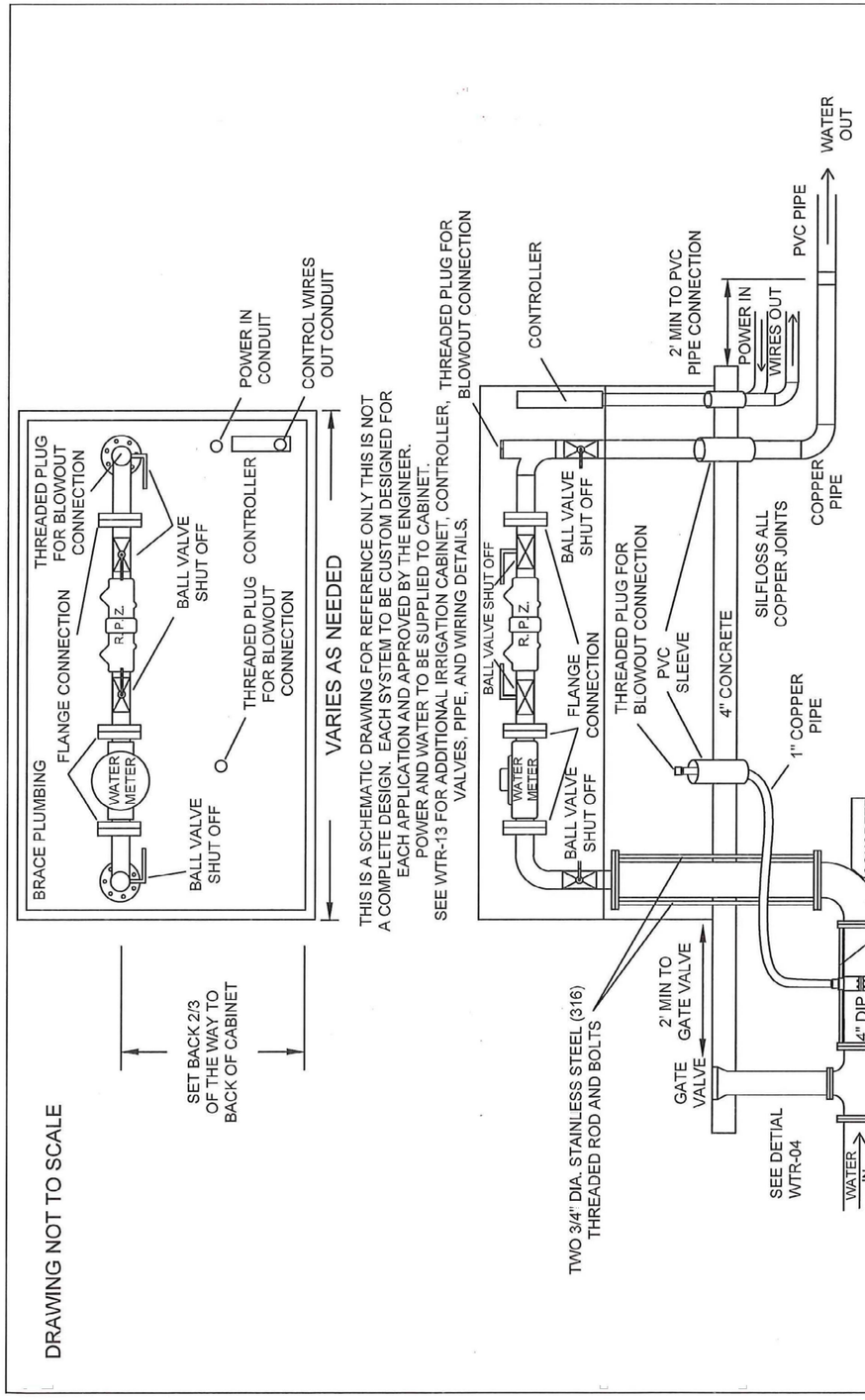
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.16



NOTES: 1. BEDDING SHALL BE CONSIDERED INCIDENTAL TO THE PIPE UNLESS MODIFIED IN THE CONTRACT DOCUMENTS.

STANDARD DETAIL NO. WTR-12	WATERMAIN BEDDING	APPROVAL 12/7 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



STANDARD DETAIL NO. WTR-13B	IRRIGATION SYSTEM (DIP)	APPROVAL 12/6 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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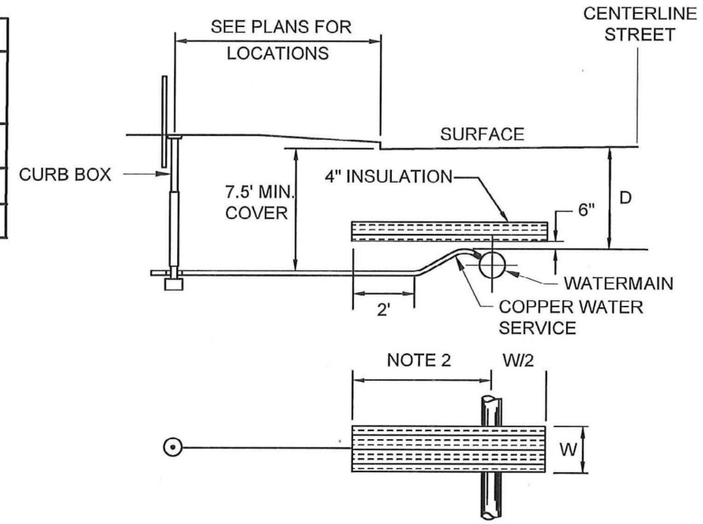
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.17

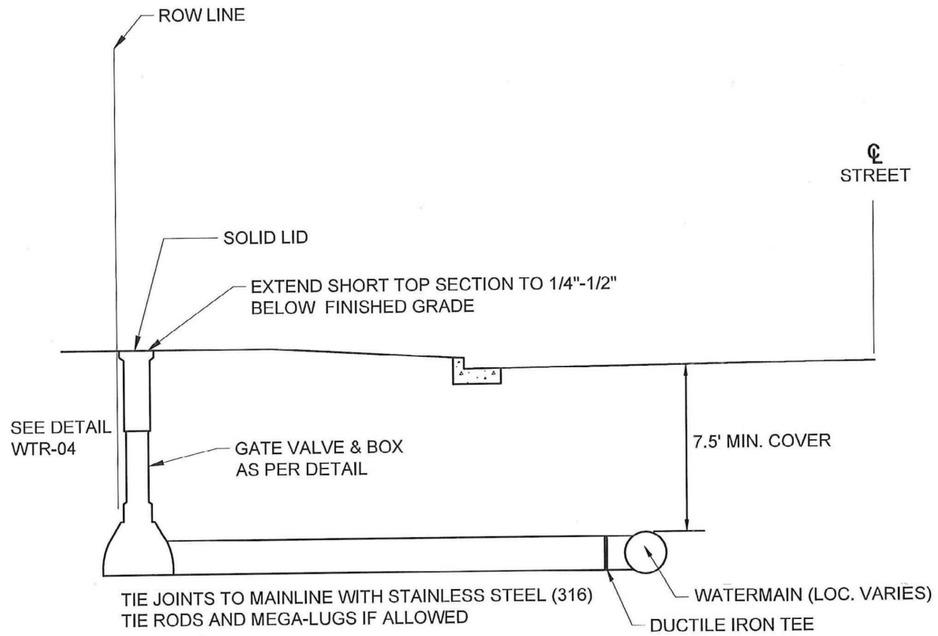
TABLE 1	
COVER D	WIDTH W
4.0'-4.9'	8'
5.0'-5.9'	6'
6.0'-7.5'	4'



NOTE S:

1. WATERMAIN AND SERVICE LINES SHALL BE INSTALLED WITH 7.5' OF COVER. WHERE THE PLANS REQUIRE OR THE ENGINEER ORDERS AN INSTALLATION WITH LESS THAN 7.5' OF COVER, TABLE 1 SHALL BE USED TO DETERMINE THE WIDTH OF INSULATION REQUIRED.
2. INSULATION SHALL BE CARRIED OUT 2' BEYOND THE POINT WHERE 7.5' OF COVER HAS BEEN RE-ESTABLISHED.
3. INSULATING MATERIAL SHALL BE PLACED ON A SMOOTH, LEVEL FOUNDATION WHICH HAS BEEN FIRMLY COMPACTED WITH A HAND-OPERATED, VIBRATORY COMPACTOR. SEPARATE LAYERS USED TO MAKE UP THE 4" THICKNESS SHALL HAVE STAGGERED JOINTS TO ENSURE CONTINUITY. AFTER PLACING THE INSULATION, BACKFILL WITH 12" OF LOOSE MATERIAL AND COMPACT WITH A NON-VIBRATORY ROLLER THEN RETURN TO STANDARD BACKFILL PROCEDURES OUTLINED IN THE SPECIFICATIONS. USE EXTREME CAUTION WHEN WORKING NEAR THE CORPORATION STOP TO ENSURE THE CONNECTION TO THE MAIN IS NOT DAMAGED.
4. INSULATION SHALL BE EXTRUDED POLYSTYRENE (XEPS) INSULATION BOARD. INSULATION BOARD SHALL BE "CERTIFOAM 40", OR "STYROFOAM HI-35 OR HI-40", OR EQUIVALENT.
5. BASIS FOR PAYMENT: WHERE THERE IS NO BID ITEM TO FURNISH AND INSTALL INSULATION, PAYMENT WILL BE MADE FOR MATERIAL COST ONLY BASED ON APPROVED INVOICES. INSTALLATION SHALL BE INCIDENTAL.

STANDARD DETAIL NO. WTR-14	WATER SERVICE INSTALLATION	APPROVAL 12/7 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION



NOTES:

1. SEE PLANS FOR SIZE & TYPE OF MATERIALS.
2. MAINTAIN 18" VERTICAL & 24" HORIZONTAL SEPERATION BETWEEN SEWER AND WATER SERVICES LINES.
3. WATER SERVICES SHALL NOT BE MORE THAN 10' DEEP. PROVIDE EXTENSION PIECES AS REQUIRED. PAYMENT FOR EXTENSION PIECES SHALL BE FOR MATERIALS ONLY, BASED ON APPROVED CHOICES.
4. PROVIDE GATE VALVE BOX WITH LID MARKED "WATER".
5. ALL COMPONENTS OF PIPE FITTINGS, VALVES, HYDRANTS, ETC. SHALL BE CERTIFIED AS LEAD-FREE AS PER SECTION 1417 OF THE FEDERAL SAFE DRINKING WATER ACT.

STANDARD DETAIL NO. WTR-15	COMMERCIAL WATER SERVICE CONNECTION	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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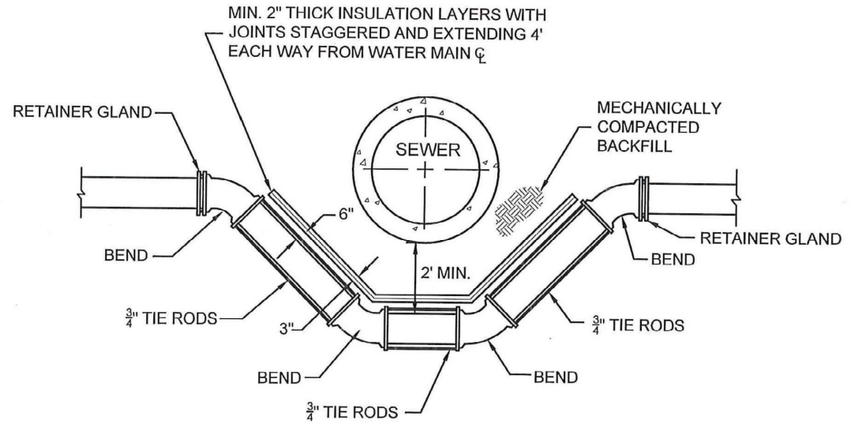
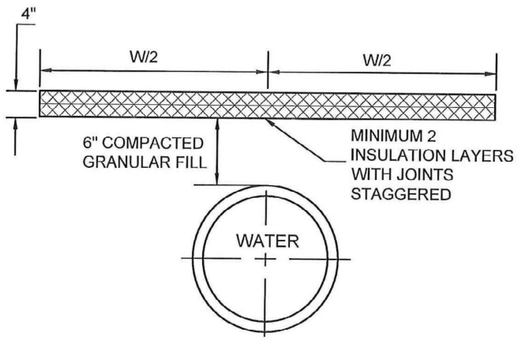
CLIENT PROJ. NO.	T16114541

NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.18



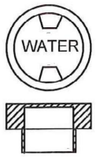


COVER	WIDTH W
4.0'- 4.9'	8'
5.0'- 5.9'	6'
6.0'- 7.5'	4'

NOTES:
1. INSULATION SHALL BE EXTRUDED POLYSYRENE (XEPS) INSULATION BOARD. INSULATION BOARD SHALL BE "CERTIFOAM 40" OR "STYROFOAM HI-35 OR HI-40" OR EQUIVALENT.
2. INSULATION MATERIAL SHALL BE PLACED ON A SMOOTH, LEVEL FOUNDATION WHICH HAS BEEN FIRMLY COMPACTED WITH A HAND-OPERATED, VIBRATORY COMPACTOR. SEPARATE LAYERS USED TO MAKE UP THE 4" THICKNESS SHALL HAVE STAGGERED JOINTS TO ENSURE CONTINUITY. AFTER PLACING THE INSULATION, BACKFILL WITH 12" OF LOOSE MATERIAL AND COMPACT WITH A NON-VIBRATORY ROLLER THEN RETURN TO STANDARD BACKFILL PROCEDURES OUTLINED IN THE SPECIFICATIONS. USE EXTREME CAUTION WHEN WORKING NEAR THE CORPORATION STOP TO ENSURE THE CONNECTION TO THE MAIN IS NOT DAMAGED.
3. LENGTH AND WIDTH OF INSULATION SHOWN ON PLANS IS APPROXIMATE. SEE TABLE 1 FOR ACTUAL WIDTH REQUIRED ONCE THE ACTUAL DEPTH OF WATER MAIN IS KNOWN.

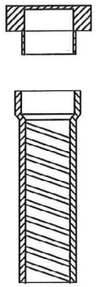
STANDARD DETAIL NO. WTR-17	WATER MAIN INSULATION	APPROVAL 12/7 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

NOTE:
ALL WATERMAIN BOLTS ARE TO BE CORE-BLUE OR APPROVED EQUAL



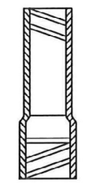
DROP LID

TYLER 6860



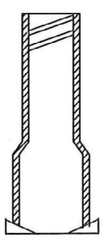
TOP- C.I.P.

TYLER NO. 6860 16"



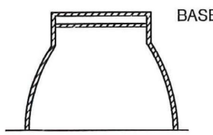
EXTENSION- D.I.P.

TYLER NO. 58 14"
NO. 59 18"
NO. 60 24"

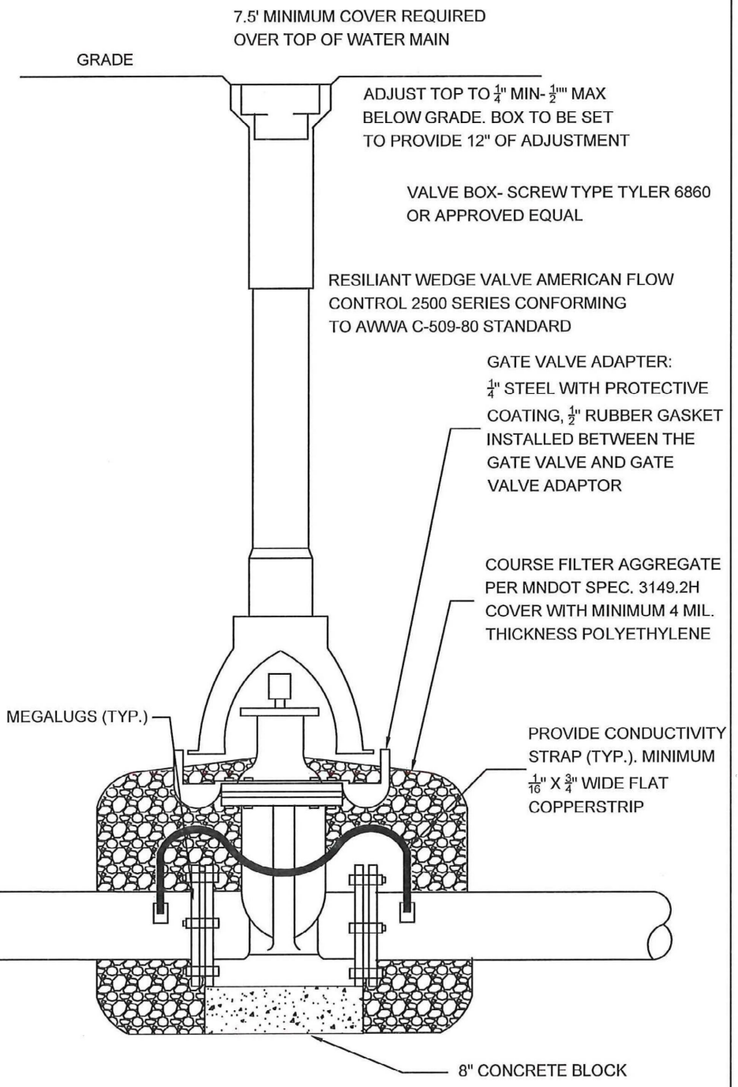


BOTTOM- D.I.P.

TYLER NO. 6860 65"



BASE



STANDARD DETAIL NO. WTR-18	VALVE BOX INSTALLATION (14" AND ABOVE)	APPROVAL 12/7 20 17 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
TIM LAMKIN JR.
LIC. NO. 47099 DATE 2/19/19

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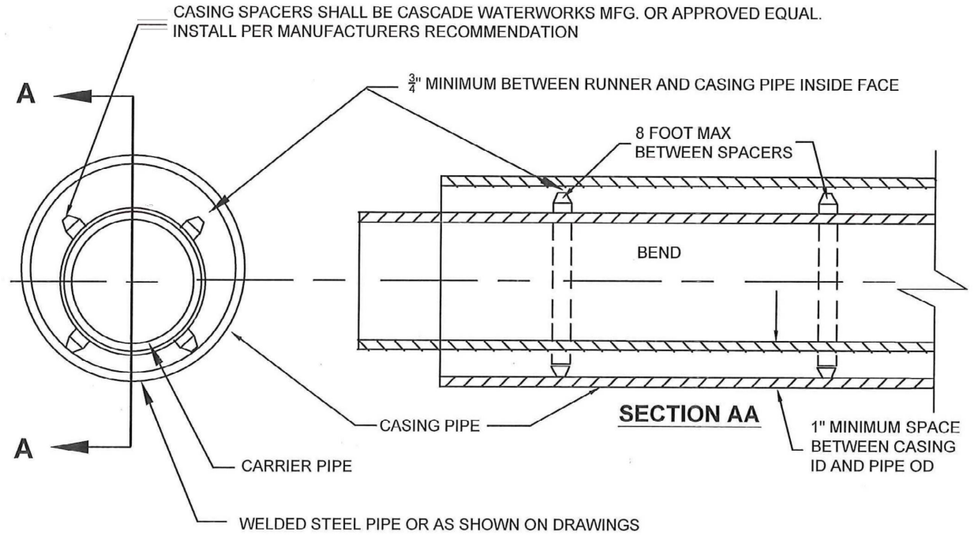
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.19



NOTES:

1. CASING PIPE SHALL BE WELDED STEEL PIPE, AND GAUGE SHALL BE AS SHOWN ON DRAWINGS. CASING PIPE SHALL BE DESIGNED FOR ALL LOADS FOR EACH APPLICATION.
2. INSTALL CASING SPACERS A MAXIMUM OF ONE FOOT (1') FROM EACH SIDE OF EACH PIPE JOINT. CASING SPACERS SHALL BE CASCADE WATERWORKS MFG. STAINLESS STEEL WITH POLYETHYLENE RUNNERS OR APPROVED EQUAL.
3. ENDS OF CASING PIPE SHALL BE GROUTED WITH 4" BLOW PIPE. CASING SHALL BE WATERTIGHT. END CAPS MAY BE DELETED BY THE ENGINEER.
4. CARRIER PIPE SHALL BE RESTRAINED ENTIRE LENGTH OF CASING PIPE AND AT A MINIMUM SHALL EXTEND ONE FULL PIPE LENGTH BEYOND END OF CASING.
5. JOINT BONDS OR THAW WIRES SHALL BE INSTALLED THE ENTIRE LENGTH OF CARRIER PIPE.
6. CORROSION ANALYSIS SHALL BE PERFORMED FOR CASING PIPE.
7. PARTIALLY FILL ANNULAR SPACE BETWEEN CASING AND CARRIER PIPE WITH DRY BLOWN SAND. SPACE SHALL BE CONSIDERED FILLED WHEN DRY SAND BLOWS OUT OF OPPOSITE END OF CASING PIPE.
8. SEAL EACH END OF THE CASING WITH A CONCRETE BULKHEAD AFTER THE SAND HAS BEEN DEPOSITED.
9. VOIDS CREATED BY CASING INSTALLATION ON OUTSIDE OF CASING SHALL BE PRESSURE GROUTED.

STANDARD DETAIL NO. WTR-19	PIPE ENCASEMENT	APPROVAL 12/6 2017 CITY ENGINEER	CITY OF RICHFIELD ENGINEERING DIVISION

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CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
STANDARD PLAN

SHEET C8.20

MODULAR BLOCK RETAINING WALLS

ROADWAY	WALL	STATION TO STATION			LOCATION	2411 PREFABRICATED MODULAR BLOCK WALL	2411 STRUCTURE EXCAVATION CLASS U	2451 STRUCTURAL BACKFILL	2557 WIRE FENCE DESIGN W-1 VINYL COATED
						SQ FT	CU YD	CU YD	LIN FT
LYNDALE AVENUE	WALL 1	246+01.82	TO	246+96.55	LT	663	223	200	95
	WALL 2	248+53.88	TO	249+75.33	LT	426	161	143	121
	WALL 3	251+98.83	TO	255+97.82	LT	2264	845	756	400
	WALL 4	257+10.24	TO	262+79.18	LT	4019	1438	1290	569
TOTALS						**7372**	**2667**	**2389**	**1185**

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CITY OF RICHFIELD, MINNESOTA
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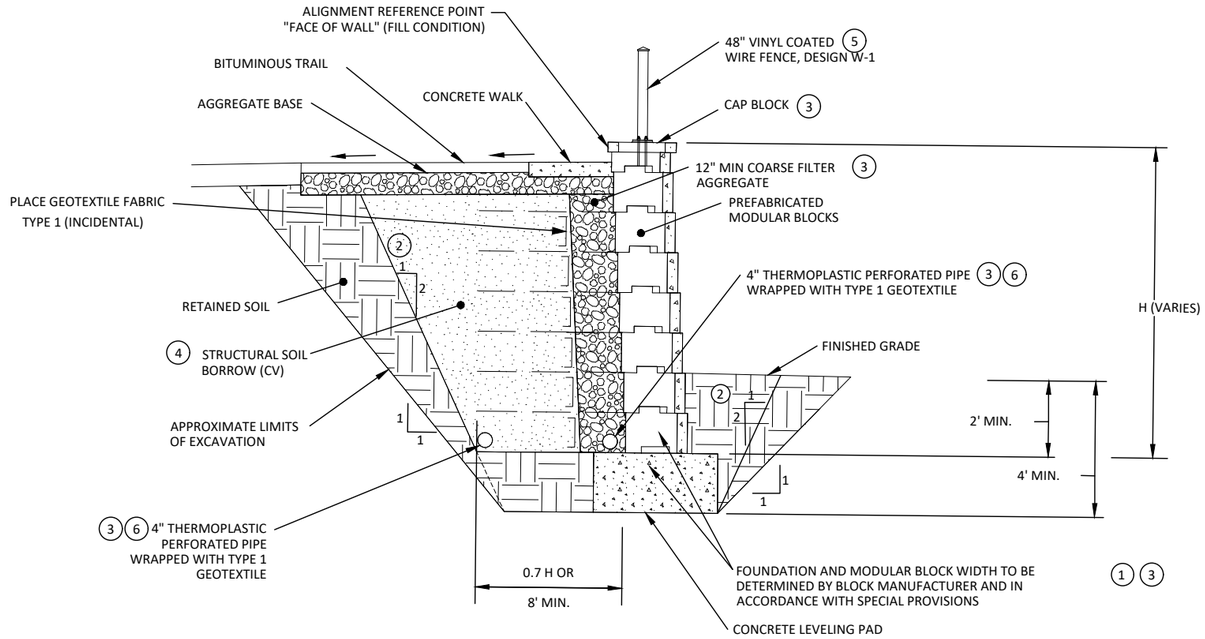
RETAINING WALL PLAN & PROFILE

SHEET C9.01



TYPICAL MODULAR BLOCK WALL (PMBW) WITH SOIL REINFORCEMENT

SPECIFIC NOTES:

1. DIMENSION MAY VARY DEPENDING ON ACTUAL MODULAR BLOCK MANUFACTURER. CENTER WALL ON FOOTING. FOOTING TO BE INCLUDED IN PRICE BID FOR ITEM "PREFABRICATED MODULAR BLOCK WALL" (FOOTING AREA IS NOT MEASURED OR INCLUDED IN PAYMENT QUANTITY)
2. LINE REPRESENTS THE MINIMUM EXCAVATION LIMITS AND THE PAY LIMITS FOR STRUCTURE EXCAVATION CLASS U AND EMBANKMENT AND IS NOT MEANT TO BE ACTUAL EXCAVATION LIMITS. ACTUAL EXCAVATION LIMITS SHALL BE DETERMINED BY THE CONTRACTOR BASED ON EXISTING SOIL CHARACTERISTICS AND OSHA SAFETY REQUIREMENTS. EXCAVATION AND EMBANKMENT BEYOND THE PAY LIMIT LINE IS INCIDENTAL.
3. TO BE INCLUDED IN PRICE BID FOR ITEM "PREFABRICATED MODULAR BLOCK WALL" CAP BLOCK IS INCLUDED IN SQ FT PAY AREA.
4. MATERIAL SHALL MEET "REINFORCED AND BACKFILL SOIL" REQUIREMENTS IN PROJECT PMBW SPECIAL PROVISIONS.
5. FENCE TO BE ATTACHED TO CENTER OF CAP. ALL WORK ASSOCIATED WITH ATTACHING THE FENCE TO THE CAP TO BE INCLUDED IN PRICE BID FOR ITEM "WIRE FENCE DESIGN W-1 VINYL COATED."
6. CONNECT TO DRAINAGE SYSTEM OR OUTLET THROUGH WALL USING 6" T.P.-NON-PERFORATED PIPE WITH RODENT SCREEN. ALL WORK INCIDENTAL.

DETAILS NOT TO SCALE

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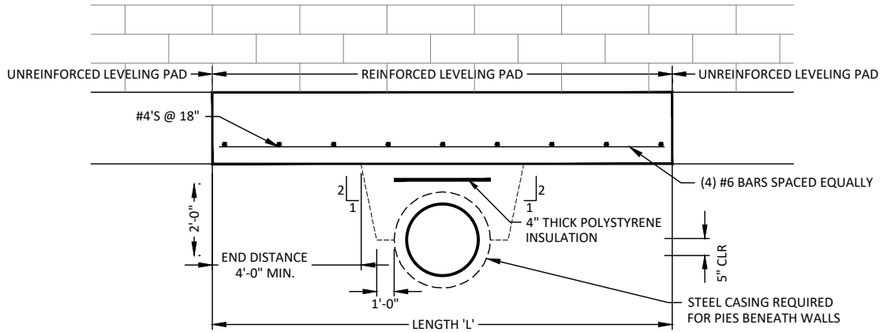
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

RETAINING WALL PLAN & PROFILE

SHEET C9.02



REINFORCED LEVELING PAD DETAIL

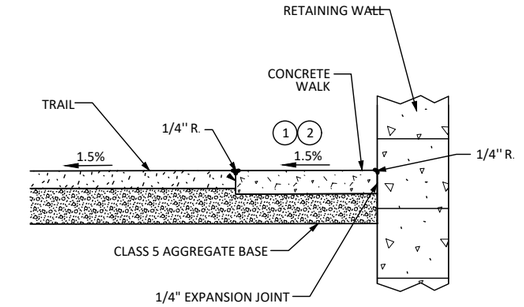
FOR PIPES WITHIN 5' OF FOOTING

NOTES:
THIS DETAIL SHALL BE USED FOR ALL LOCATIONS WHERE A PIPE TRAVERSES A WALL FOUNDATION (WITHIN 5' OF BOTTOM OF FOOTING). ALL ADDITIONAL COSTS ASSOCIATED WITH PLACING THE REINFORCED LEVELING PAD, INCLUDING OBTAINING AND PLACING REINFORCEMENT, SHALL BE CONSIDERED INCIDENTAL TO THE PRICE BID FOR 'PREFABRICATED MODULAR BLOCK WALL'.

FOOTING SHALL BE FULL-DEPTH CONCRETE AS SHOWN. STRUCTURAL CONCRETE MIX NO. 1G52 SHALL BE USED.

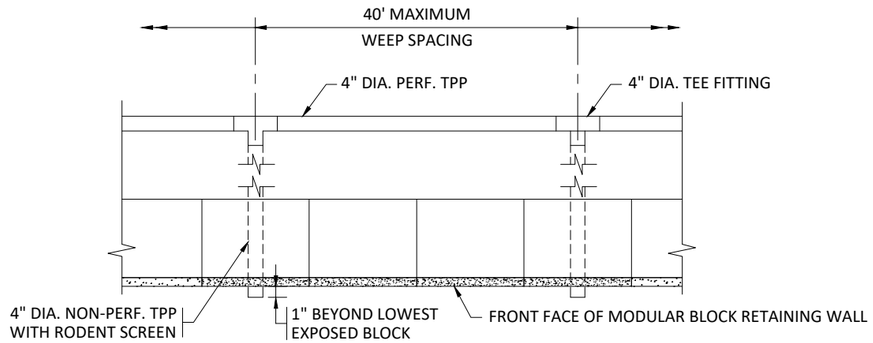
REINFORCEMENT SHALL BE GRADE 60. PROVIDE BENT BARS AS NEEDED FOR LOCATIONS WITH LONGITUDINAL FOOTING STEPS.

TOTAL MIN. LENGTH 'L' REQUIRED SHALL BE BASED ON DEPTH OF PIPE TO PROVIDE THE MINIMUM END DISTANCE SHOWN, WITH THE EXCEPTION OF FOOTINGS LOCATED AT END OF WALL.



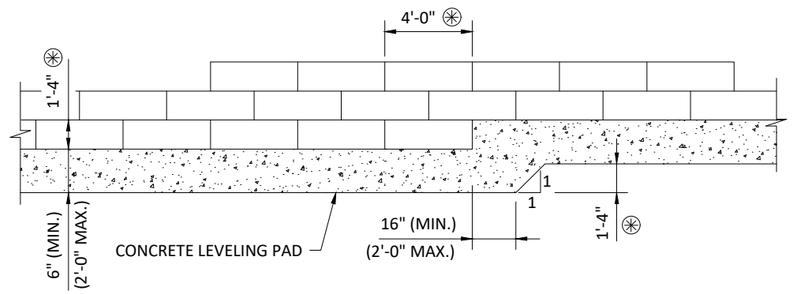
NOTES:
1. ALL LONGITUDINAL JOINTS SHALL BE TROWELED WHILE THE RATIO OF TRANSVERSE JOINT SPACING TO LONGITUDINAL SPACING SHOULD NOT EXCEED 1.5
2. PAID FOR AS CONCRETE WALK

CONCRETE STRIP-BETWEEN WALK AND RETAINING WALL



WALL DRAINAGE DETAIL

NOTE:
USE THIS DETAIL IF WALL DRAINAGE CANNOT TIE INTO A DRAINAGE SYSTEM



WALL BASE STEP DETAIL

✳ DIMENSIONS MAY VARY DEPENDING ON ACTUAL BLOCK MANUFACTURER

DETAILS NOT TO SCALE

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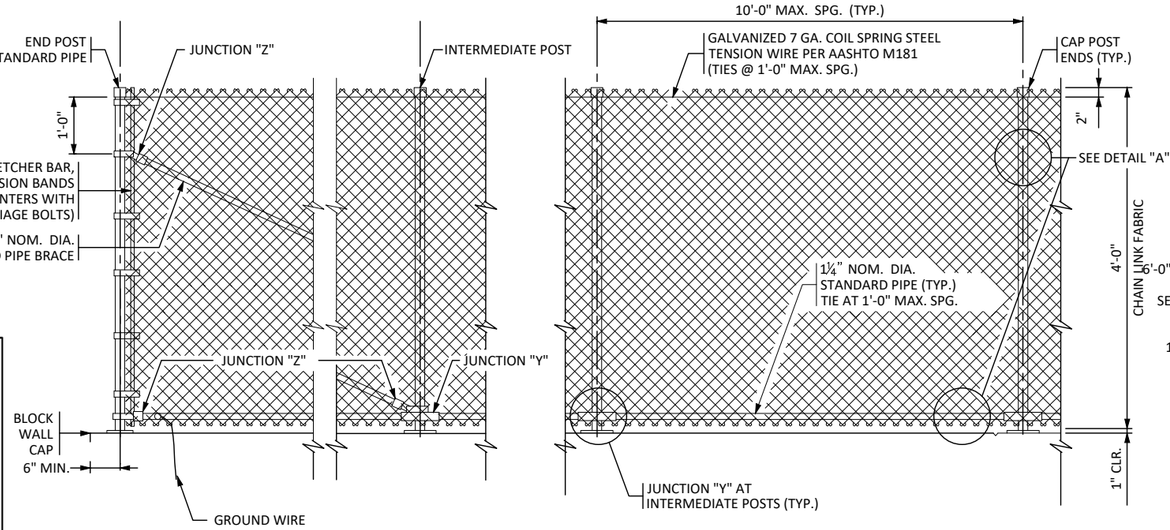
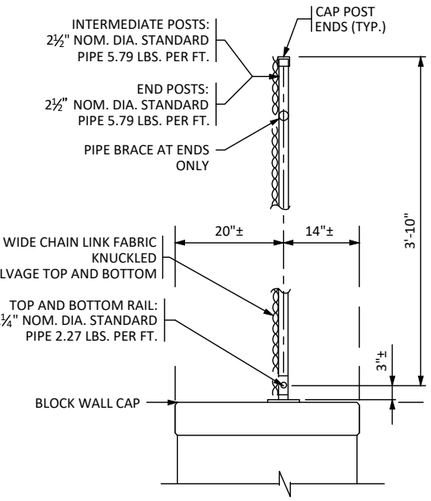
RETAINING WALL PLAN & PROFILE

SHEET C9.03

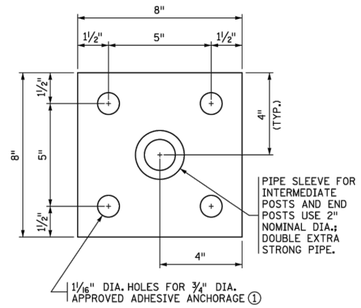


INSIDE ELEVATION OF RAILING



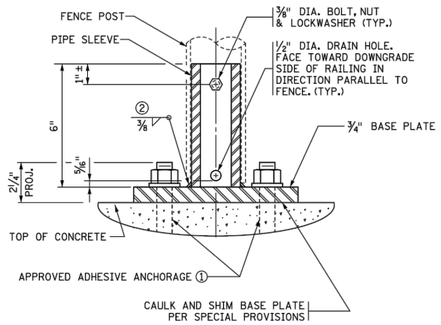
TYPICAL SECTION THROUGH FENCE

INTERMEDIATE POST SHOWN



PLAN VIEW - TYPE A

ESTIMATED WEIGHT = 18 LBS.



TYPICAL SECTION

NOTES:

ALL PIPE DIAMETERS ARE NOMINAL.

SEE SPECIAL PROVISIONS FOR REQUIREMENTS NOT INCLUDED ON THIS SHEET.

STRUCTURAL STEEL PER SPEC. 3306

STRUCTURAL PIPE PER SPEC. 3362

GALVANIZE THE FENCE POST ANCHORAGE AFTER FABRICATION PER SPEC. 3394. GALVANIZE THE FASTENERS PER SPEC. 3392.

FURNISHING AND INSTALLING FENCE POST ANCHORAGES IS INCIDENTAL TO THE WIRE FENCE.

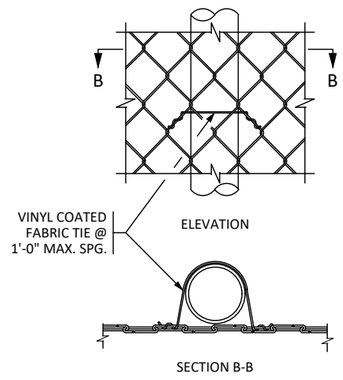
① ADHESIVE ANCHORAGE WITH ¾" DIA. ANCHOR ROD PER SPEC. 3385, TYPE A WITH HEX NUT AND WASHER. PROVIDE AN ADHESIVE WITH A MINIMUM CHARACTERISTIC BOND STRENGTH IN UNCRACKED CONCRETE OF 1.5 KSI. EMBED THE ANCHORAGE NO LESS THAN 5" REGARDLESS OF CHARACTERISTIC BOND STRENGTH. DRILL THROUGH REINFORCEMENT (IF ENCOUNTERED) TO ACHIEVE MINIMUM EMBEDMENT. ENSURE HEX NUT IS IN CONTACT WITH THE ADJACENT SURFACE AND TORQUE TO 60 FT-LBS UNLESS A HIGHER TORQUE IS RECOMMENDED BY THE MANUFACTURER. PROOF LOAD TO 7.8 KIPS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.

② E70X ELECTRODES FOR ⅜" POST TO BASE PLATE WELD.

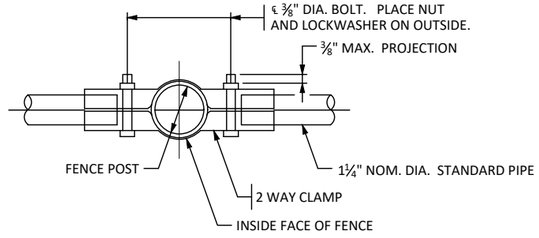
DOUBLE EXTRA STRONG PIPE WEIGHTS;
2" NOMINAL DIA. = 9.03 LBS./FT.

APPROVED: JANUARY 05, 2017	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Kevin Western STATE BRIDGE ENGINEER	FENCE POST ANCHORAGE (TYPE A)		B905

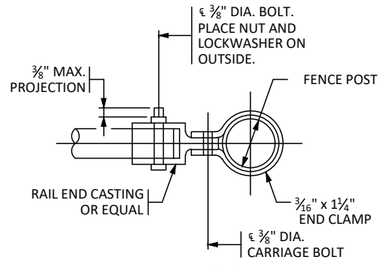
2 WAY CLAMP BENDING TABLE	
GRADE OF FENCE	Ø
0° TO 2°	0°
2° TO 6°	4°
6° TO 10°	8°



DETAIL "A"



JUNCTION "Y"



JUNCTION "Z"

GENERAL NOTES

1. REFER TO SPEC. 2557 AND SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND BASIS OF PAYMENT.
2. MEASURE THE LENGTH OF "WIRE FENCE, DESIGN W-1" FOR PAYMENT BETWEEN THE CENTERS OF END RAILPOSTS.
3. CONTINUOUSLY GROUND ALL METAL FENCE.
4. FURNISH AND INSTALL TYPE A FENCE POST ANCHORAGE PER B905 FENCE POST ANCHORAGE PLAN SHEET. INSTALL FENCE POSTS AND ANCHORAGES PLUMB UNLESS OTHERWISE NOTED. INSTALL END POSTS AND BRACING AT 500 FT. MAXIMUM INTERVALS.
5. INSTALL ALL POSTS WITH A MEANS TO SECURELY HOLD THE TOP TENSION WIRE IN POSITION AND ALLOW FOR THE REMOVAL AND REPLACEMENT OF A POST WITHOUT DAMAGING THE TOP TENSION WIRE.
6. PROVIDE WIRE TIES WITH 9 GA. (0.148" CORE) ALUMINUM PER ASTM B 211, ALLOY 1100 H18 WITH VINYL COATING (6 GA. AFTER COATING) OR 10 GA. (0.135" CORE) STEEL CL. 3 GALV. WIRE WITH FUSION BONDED VINYL COATING (9 GA. AFTER COATING). USE SAME VINYL THICKNESS COATING REQUIREMENTS AS VINYL COATED FABRIC.
7. USE 12 GA. GALVANIZED STEEL OR 9 GA. ALUMINUM ALLOY 1350-H19 HOG RINGS FOR TENSION WIRE TIES.

WIRE FENCE (DESIGN W-1)

DETAILS NOT TO SCALE

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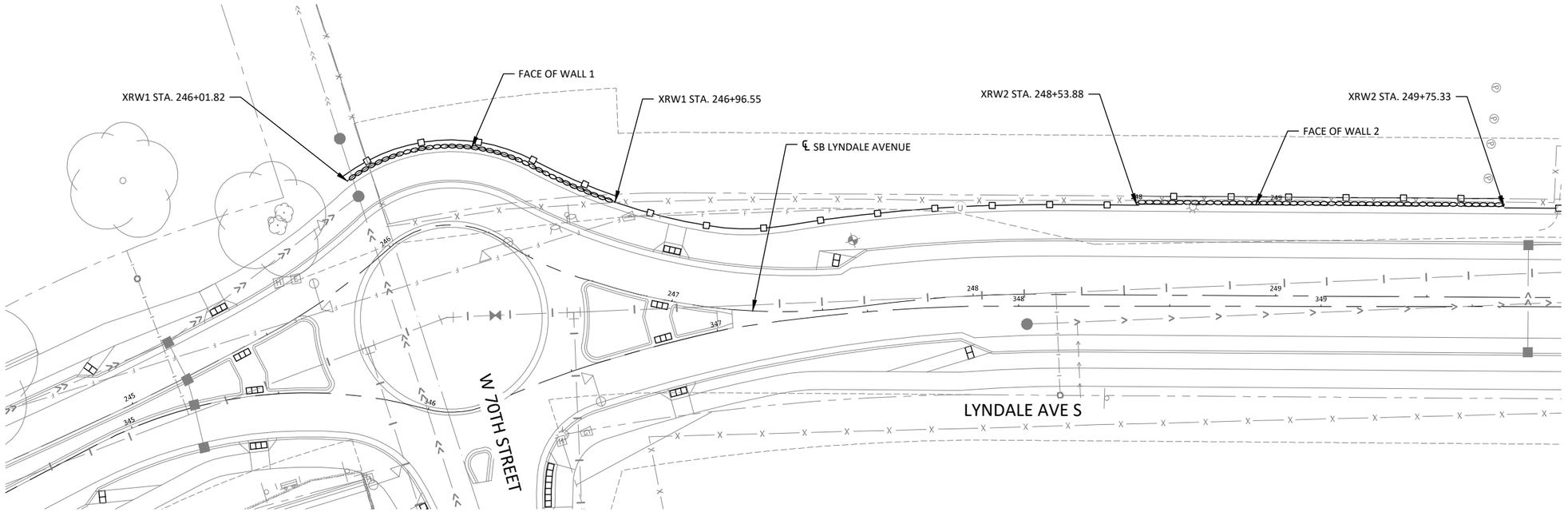
CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

RETAINING WALL PLAN & PROFILE

SHEET C9.04



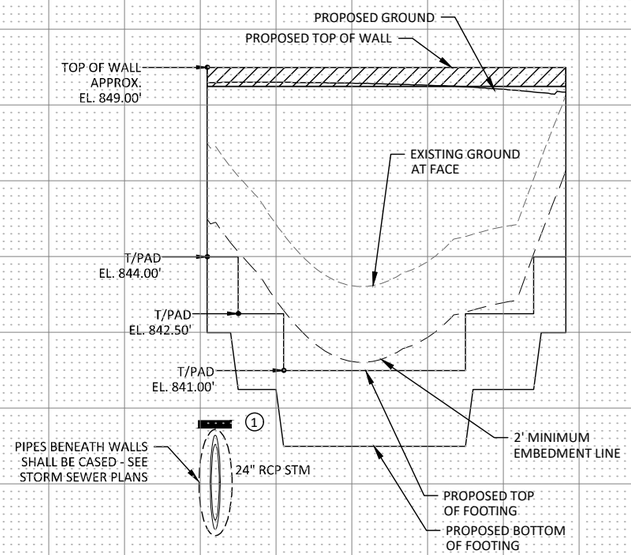
GENERAL NOTES:

1. ACTUAL SIZES AND LAYOUT OF BLOCKS AND FOOTING TO BE DETERMINED BY RETAINING WALL DESIGNER BASED ON RETAINING WALL PRODUCT.
2. ELEVATIONS IN PROFILE ARE APPROXIMATE. ACTUAL DESIGNED WALL ELEVATIONS MAY BE DIFFERENT.
3. THE SQ FT QUANTITY OF ITEM "PREFABRICATED MODULAR BLOCK WALL" INCLUDES CAP BLOCK AND 2 FEET OF BURIED BLOCK.
4. ALL EXPOSED BLOCK FACES TO BE TEXTURED. THE ENTIRE TIER BELOW THE CAP BLOCK TO BE TEXTURED ON BOTH THE FRONT AND BACK SIDE FACES.
5. REGRADE ENDS OF WALL AS NEEDED TO MATCH SLOPE.
6. CONNECT WALL DRAINAGE SYSTEM TO NEARBY DRAINAGE STRUCTURE WHEN FEASIBLE.
7. DRAINAGE PER MNDOT SPECIFICATION 2502 TO BE INCLUDED IN PRICE BID FOR ITEM "PREFABRICATED MODULAR BLOCK WALL".
8. INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY ENGINEER.
9. ALL PMBW WALLS WILL HAVE A CHAIN LINK FENCE ATTACHED TO THE TOP OF CAP. (NOT SHOWN)
10. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SLOPE STABILIZATION INCLUDING THE POTENTIAL USE OF SHEET PILE OR OTHER STABILIZATION METHODS THAT MAY BECOME NECESSARY TO CONSTRUCT WALLS WITHIN RIGHT-OF-WAY. TEMPORARY SLOPE STABILIZATION IS INCIDENTAL.

= CAP BLOCK (IN PROFILE)

= 4" THICK POLYSTYRENE INSULATION (4'X8')

PMBW - FILL CONDITION REINFORCED WALL

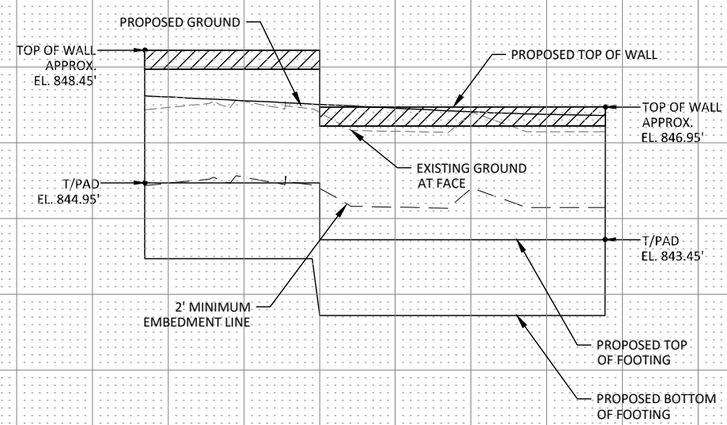


1 INCLUDE 4" THICK LAYER OF POLYSTYRENE ABOVE PIPE AND PROVIDE REINFORCED LEVELING PAD SEGMENT AS SHOWN ON SHEET C9.03

WALL 1

244+80 245+00 246+00 247+00 247+20

PMBW - FILL CONDITION REINFORCED WALL



WALL 2

248+00 249+00 250+00 250+80

HORZ. SCALE 0 20 40 FEET

VERT. SCALE 0 2 4 FEET

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RYAN R. EVANS
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Richfield The Urban Hometown

DESIGNED	RRE
DRAWN	JMB
CHECKED	RRE
CLIENT PROJ. NO.	T16.114541

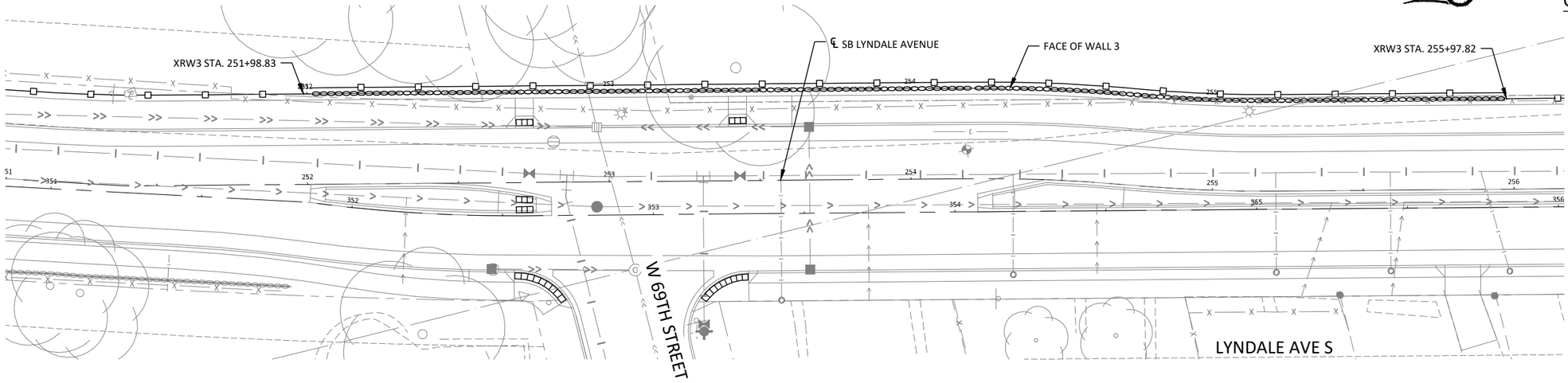
NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA

S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

RETAINING WALL PLAN & PROFILE

SHEET C9.05

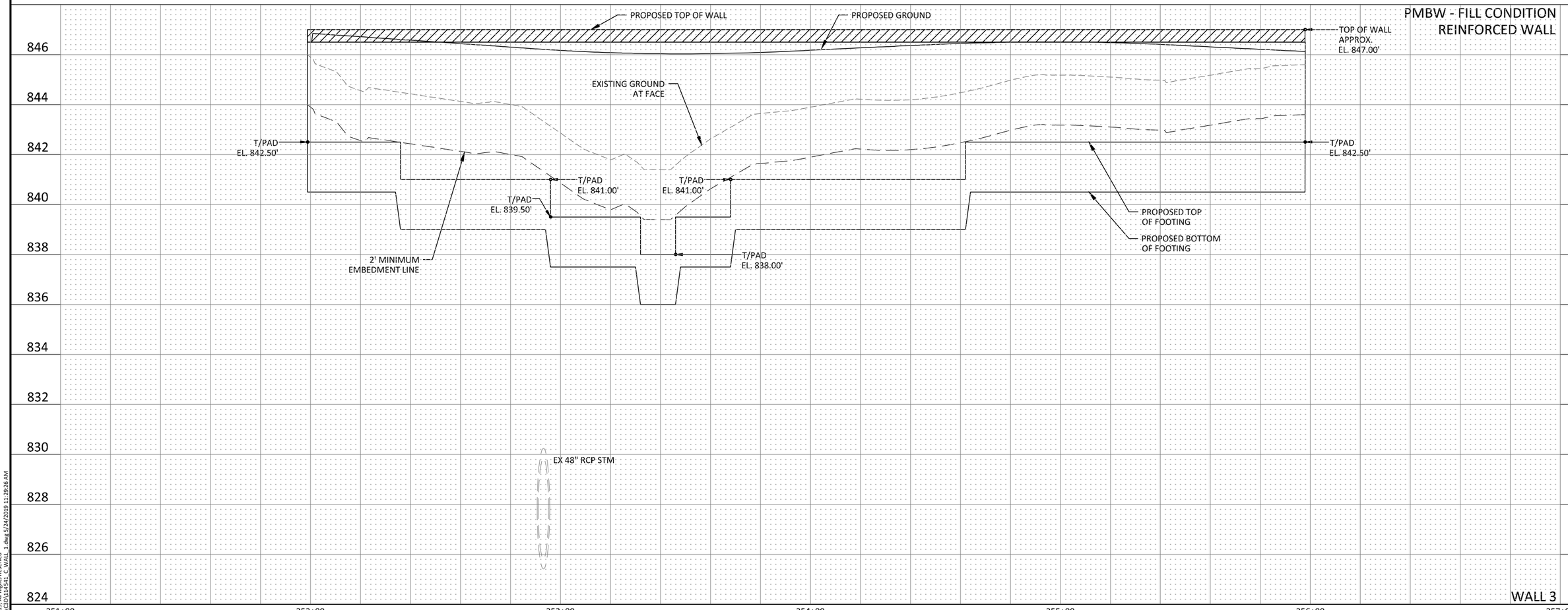


GENERAL NOTES:

1. ACTUAL SIZES AND LAYOUT OF BLOCKS AND FOOTING TO BE DETERMINED BY RETAINING WALL DESIGNER BASED ON RETAINING WALL PRODUCT.
2. ELEVATIONS IN PROFILE ARE APPROXIMATE. ACTUAL DESIGNED WALL ELEVATIONS MAY BE DIFFERENT.
3. THE SQ FT QUANTITY OF ITEM "PREFABRICATED MODULAR BLOCK WALL" INCLUDES CAP BLOCK AND 2 FEET OF BURIED BLOCK.
4. ALL EXPOSED BLOCK FACES TO BE TEXTURED. THE ENTIRE TIER BELOW THE CAP BLOCK TO BE TEXTURED ON BOTH THE FRONT AND BACK SIDE FACES.
5. REGRADE ENDS OF WALL AS NEEDED TO MATCH SLOPE.
6. CONNECT WALL DRAINAGE SYSTEM TO NEARBY DRAINAGE STRUCTURE WHEN FEASIBLE.
7. DRAINAGE PER MNDOT SPECIFICATION 2502 TO BE INCLUDED IN PRICE BID FOR ITEM "PREFABRICATED MODULAR BLOCK WALL".
8. INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY ENGINEER.
9. ALL PMBW WALLS WILL HAVE A CHAIN LINK FENCE ATTACHED TO THE TOP OF CAP. (NOT SHOWN)
10. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SLOPE STABILIZATION INCLUDING THE POTENTIAL USE OF SHEET PILE OR OTHER STABILIZATION METHODS THAT MAY BECOME NECESSARY TO CONSTRUCT WALLS WITHIN RIGHT-OF-WAY. TEMPORARY SLOPE STABILIZATION IS INCIDENTAL.

= CAP BLOCK (IN PROFILE)

PMBW - FILL CONDITION REINFORCED WALL



HORZ. SCALE 0 20 40 FEET
VERT. SCALE 0 2 4 FEET

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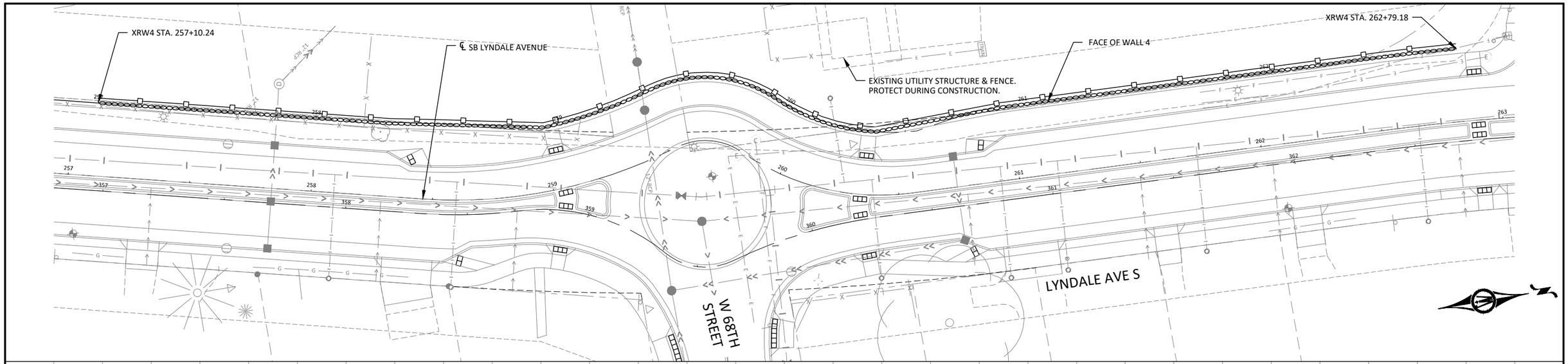
Richfield The Urban Hometown

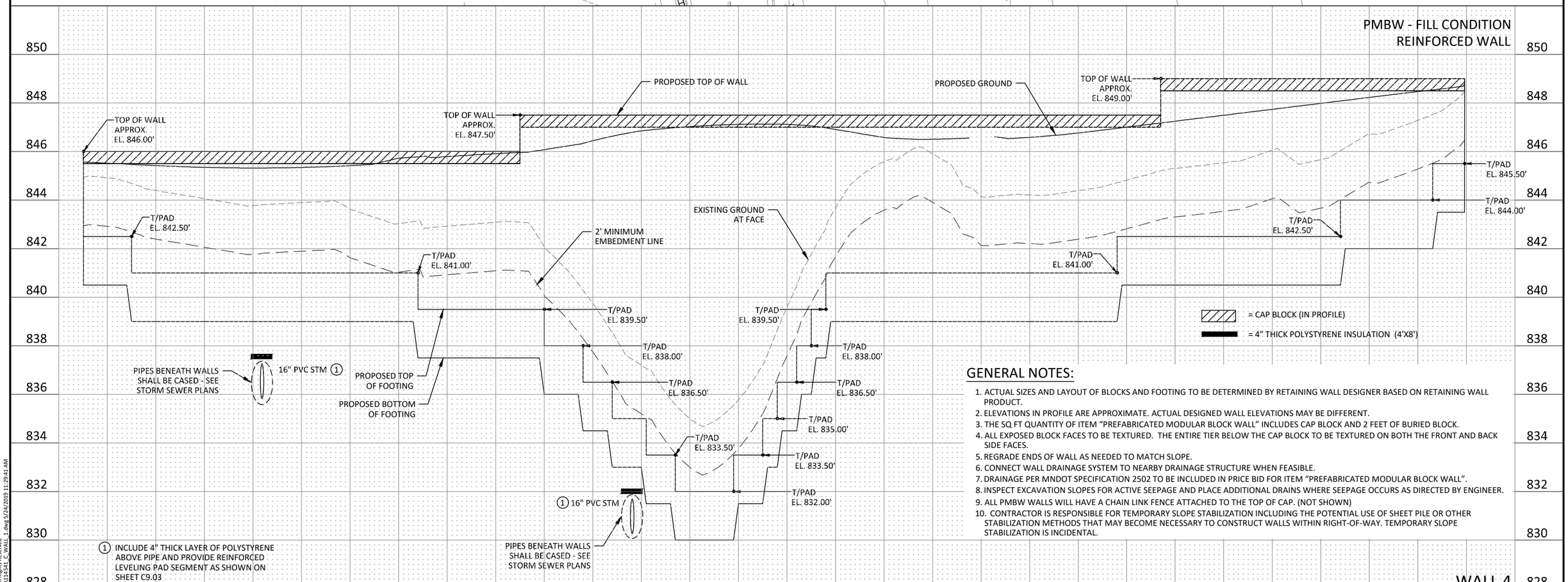
DESIGNED	RRE
DRAWN	JMB
CHECKED	RRE
CLIENT PROJ. NO.	T16.114541

NO.	ISSUED FOR	DATE

CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
RETAINING WALL PLAN & PROFILE

SHEET C9.06





(1) INCLUDE 4" THICK LAYER OF POLYSTYRENE ABOVE PIPE AND PROVIDE REINFORCED LEVELING PAD SEGMENT AS SHOWN ON SHEET C9.03

GENERAL NOTES:

1. ACTUAL SIZES AND LAYOUT OF BLOCKS AND FOOTING TO BE DETERMINED BY RETAINING WALL DESIGNER BASED ON RETAINING WALL PRODUCT.
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3. THE SQ FT QUANTITY OF ITEM "PREFABRICATED MODULAR BLOCK WALL" INCLUDES CAP BLOCK AND 2 FEET OF BURIED BLOCK.
4. ALL EXPOSED BLOCK FACES TO BE TEXTURED. THE ENTIRE TIER BELOW THE CAP BLOCK TO BE TEXTURED ON BOTH THE FRONT AND BACK SIDE FACES.
5. REGRADE ENDS OF WALL AS NEEDED TO MATCH SLOPE.
6. CONNECT WALL DRAINAGE SYSTEM TO NEARBY DRAINAGE STRUCTURE WHEN FEASIBLE.
7. DRAINAGE PER MNDOT SPECIFICATION 2502 TO BE INCLUDED IN PRICE BID FOR ITEM "PREFABRICATED MODULAR BLOCK WALL".
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WALL 4

HORZ. SCALE 0 20 40 FEET
VERT. SCALE 0 2 4 FEET

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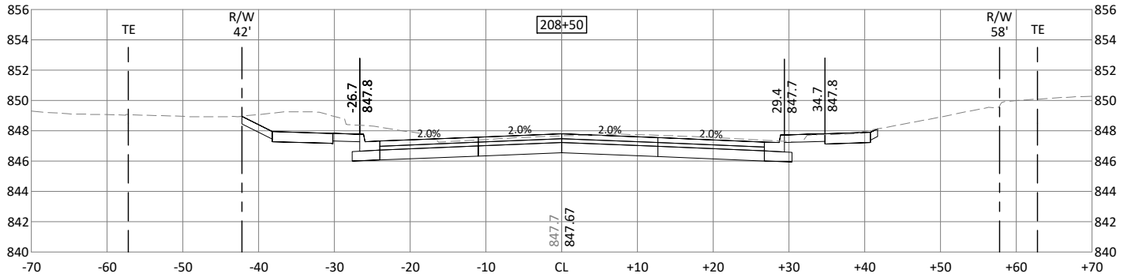
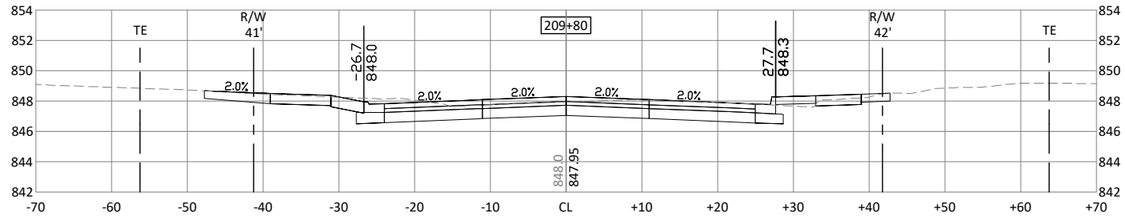
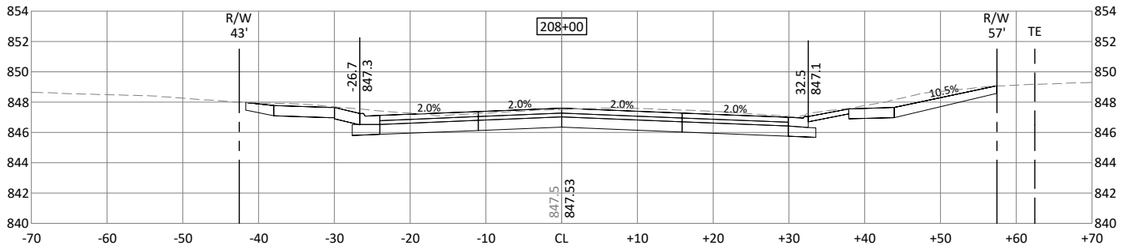
RRE			
DRAWN			
JMB			
CHECKED			
RRE			
CLIENT PROJ. NO.			
T16.114541			

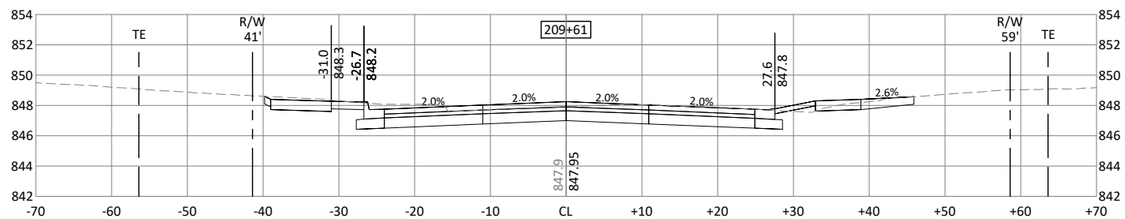
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
RETAINING WALL PLAN & PROFILE

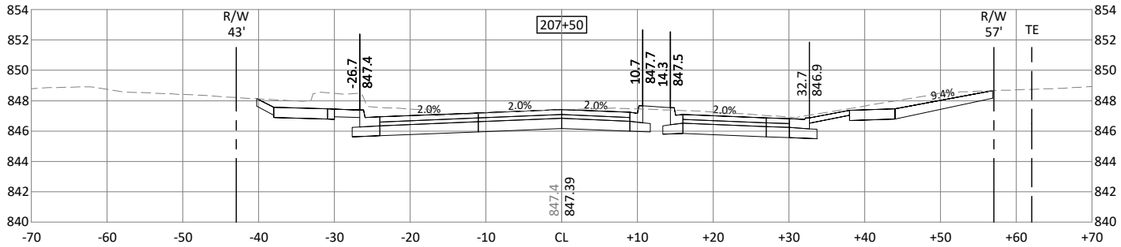
SHEET C9.07

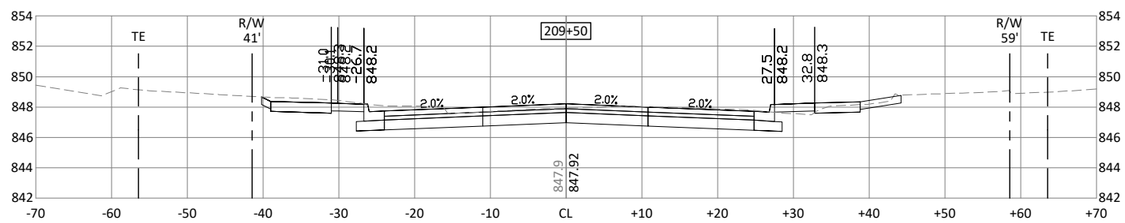


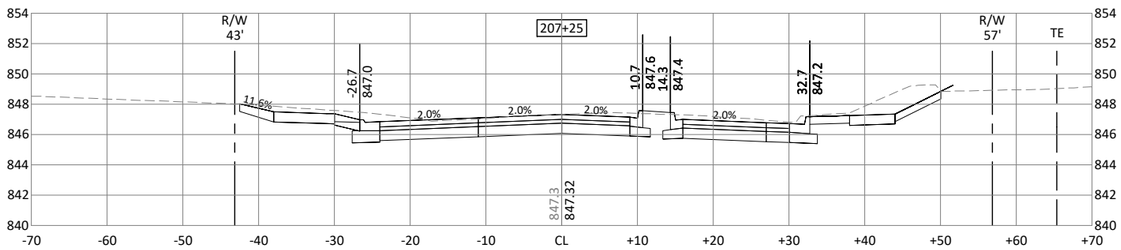


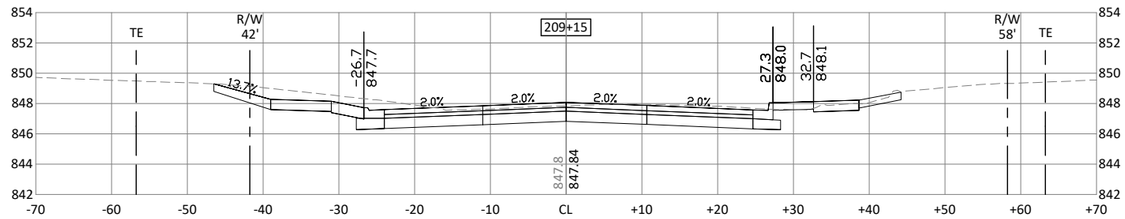


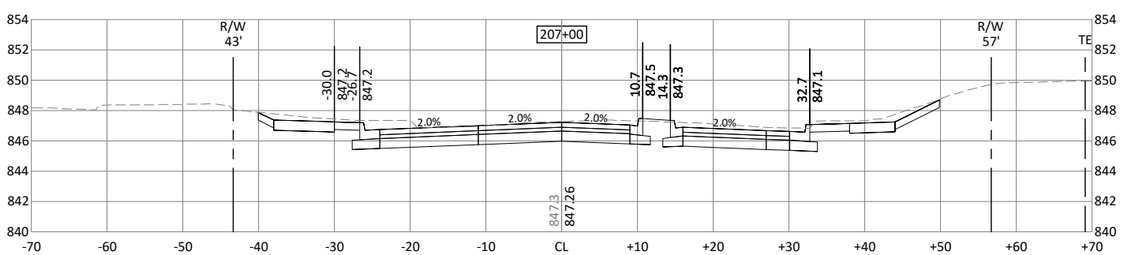


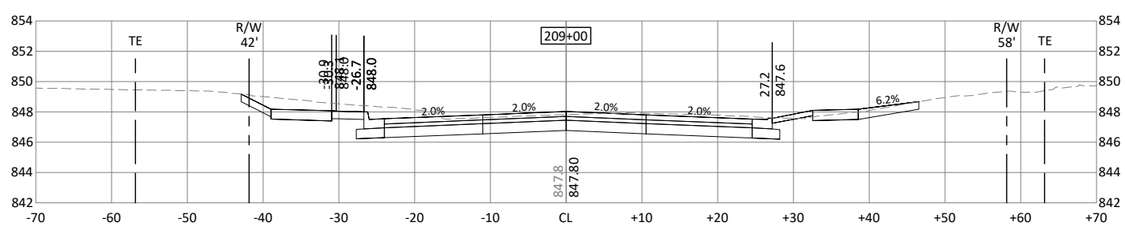












HORZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

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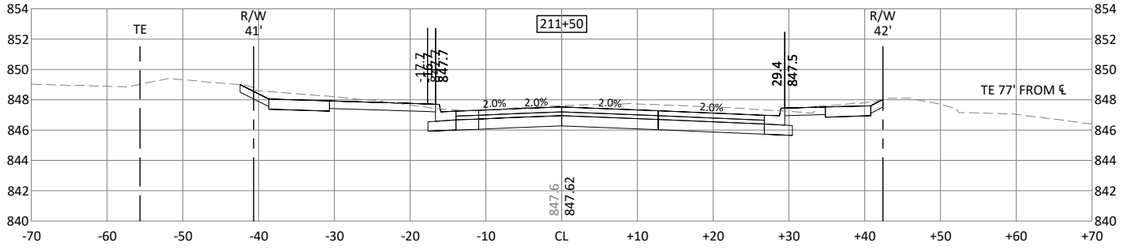
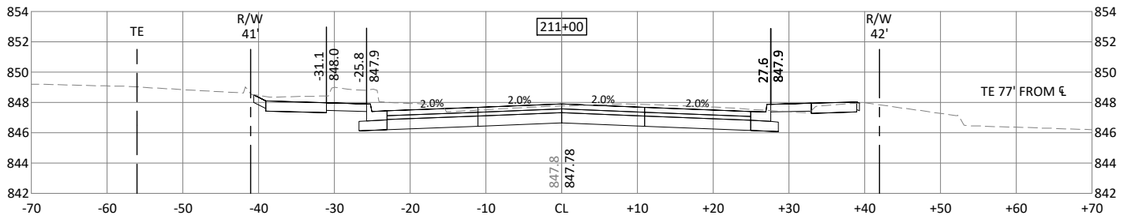
DESIGNED	ZAP
DRAWN	KME
CHECKED	TL
CLIENT PROJ. NO.	T16114541

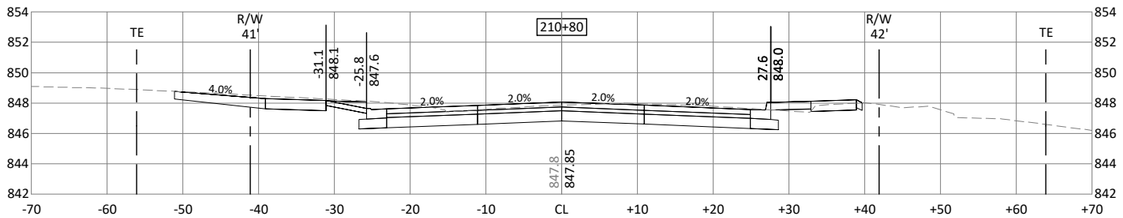
NO.	REVISION	DATE

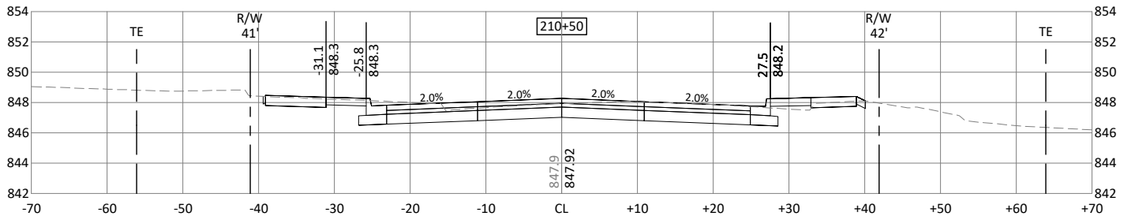
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
CROSS SECTIONS

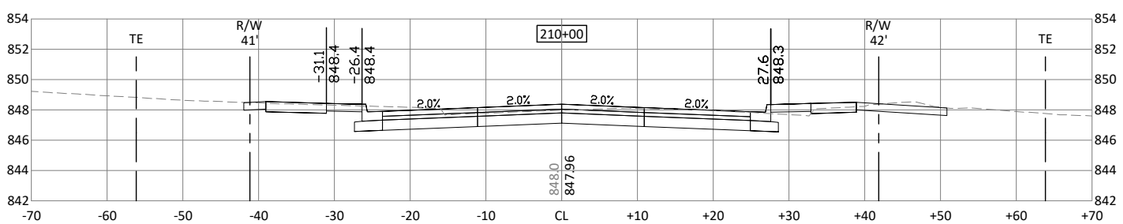
SHEET C9.08

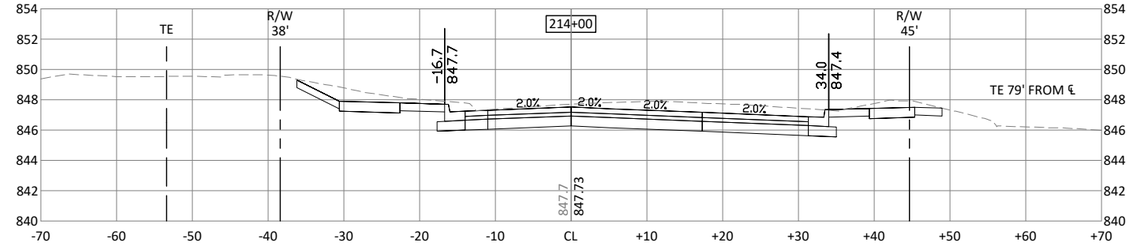


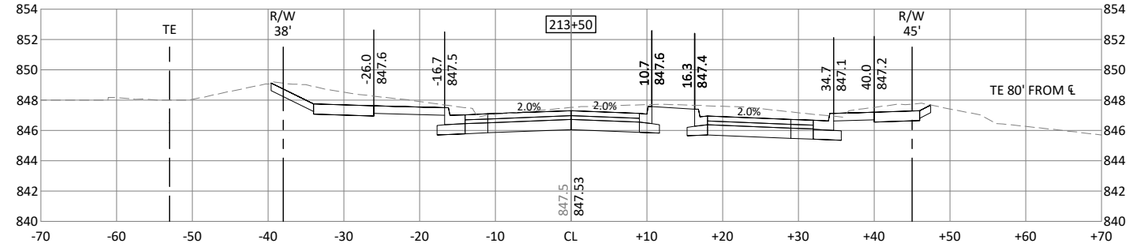


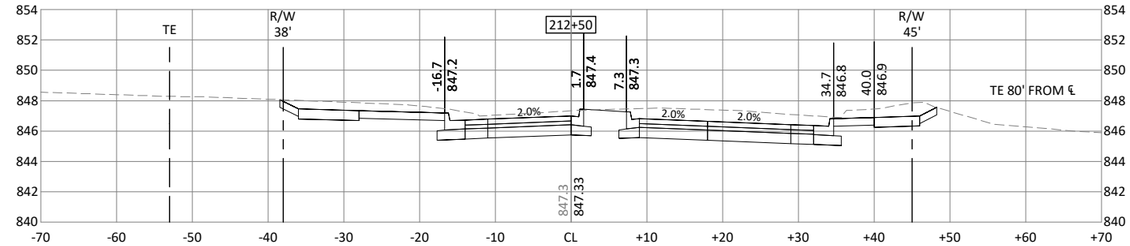


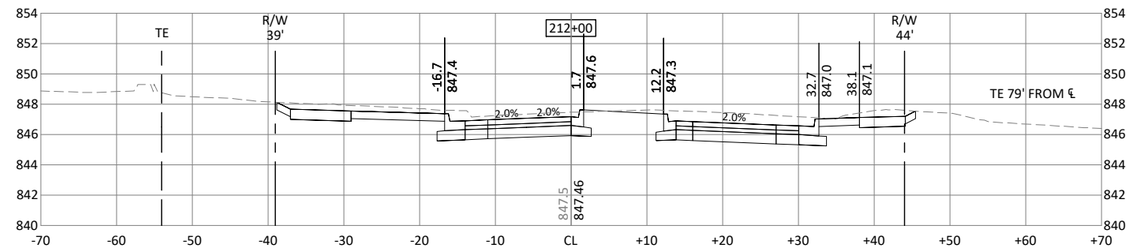


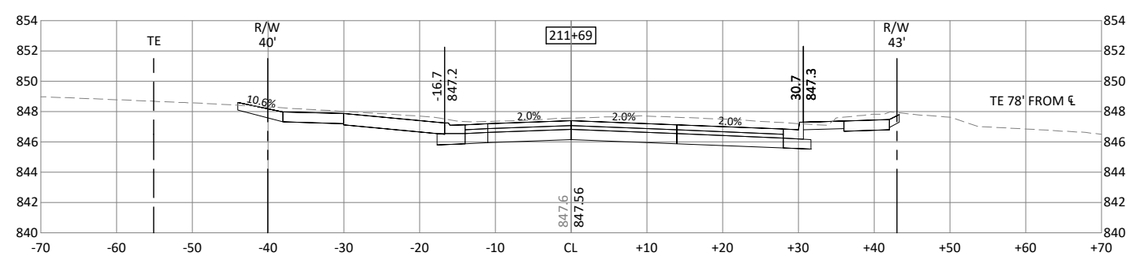












HORZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

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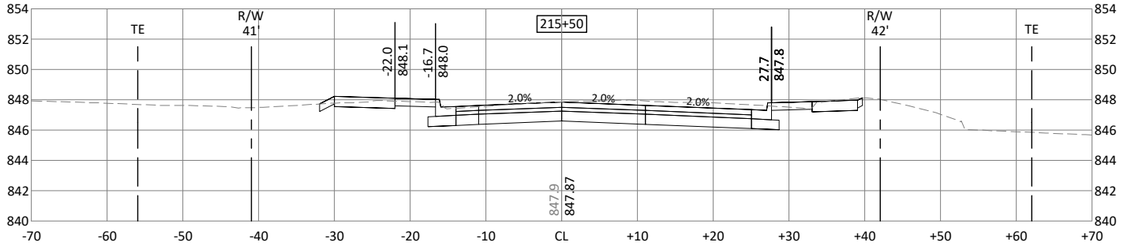
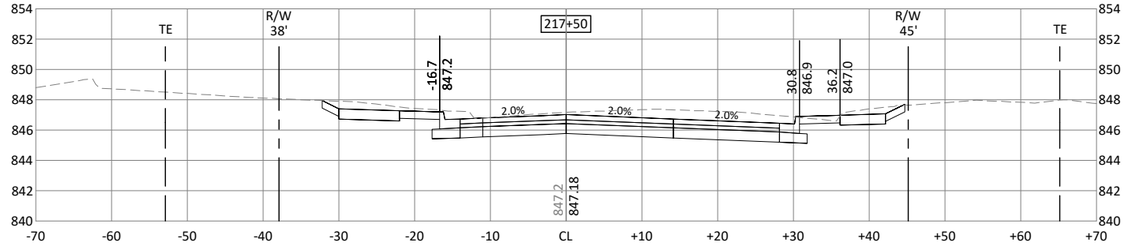
CITY OF RICHFIELD, MINNESOTA

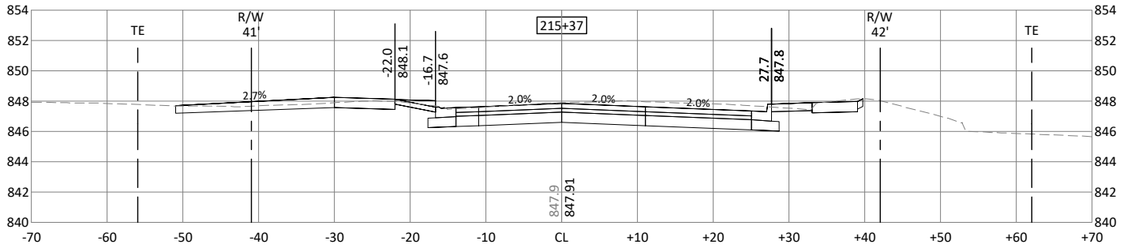
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

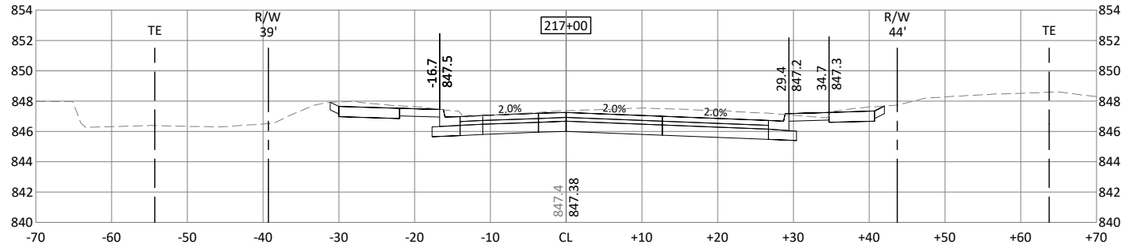
CROSS SECTIONS

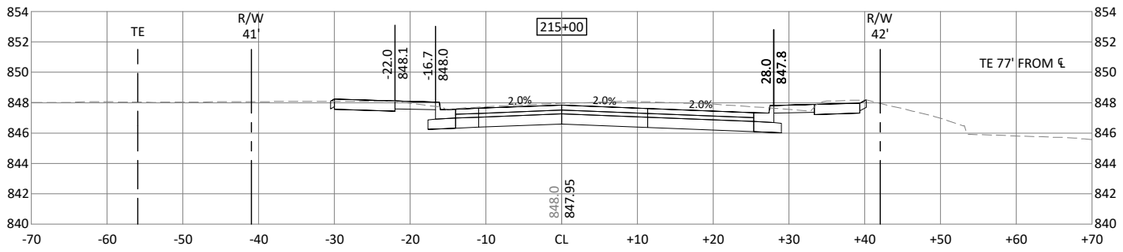
SHEET C9.09

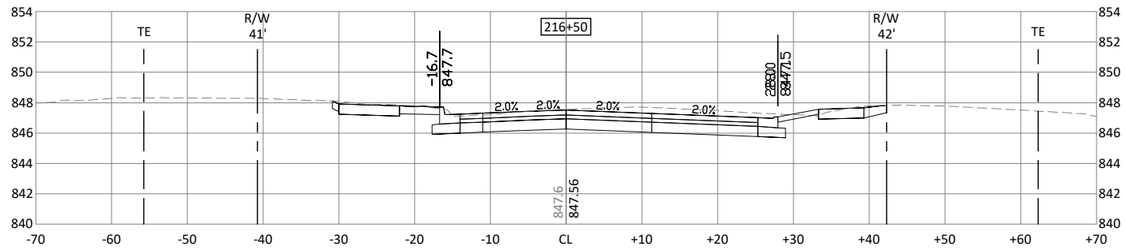


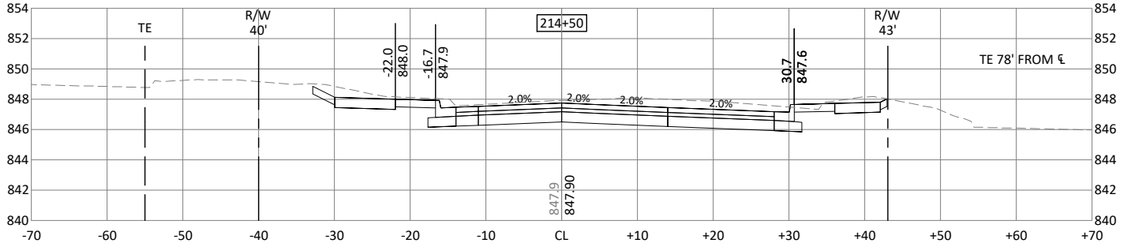


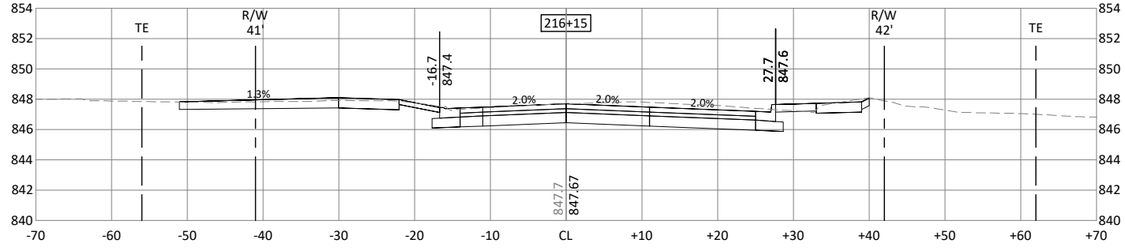


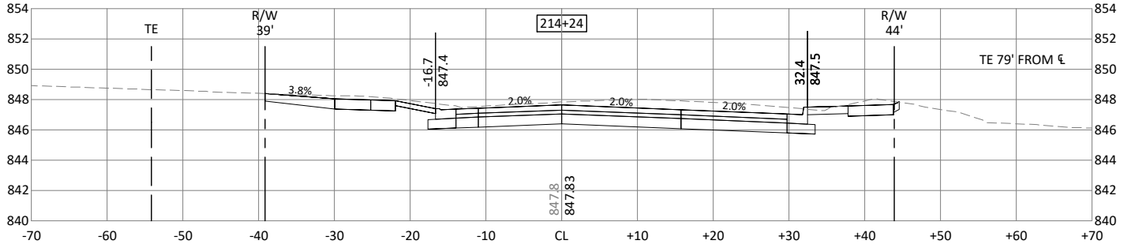


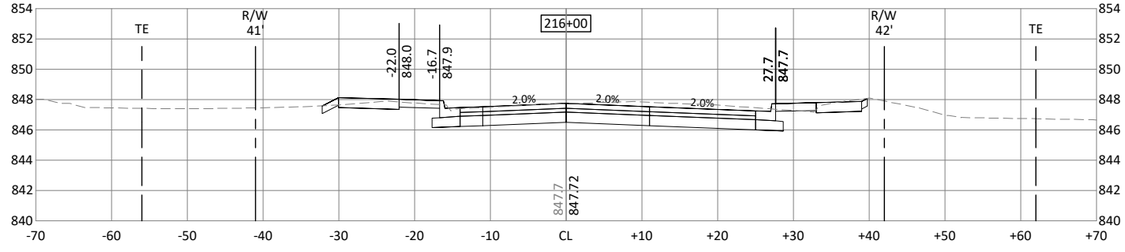












HORZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

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DRAWN	KME
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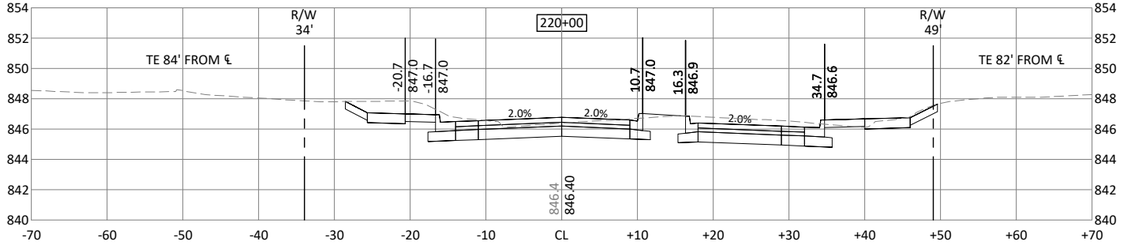
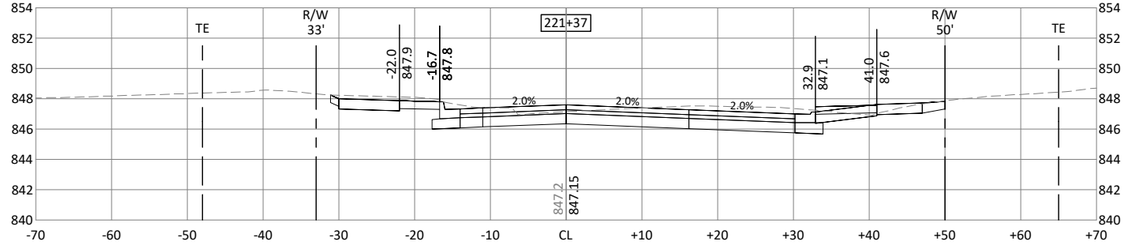
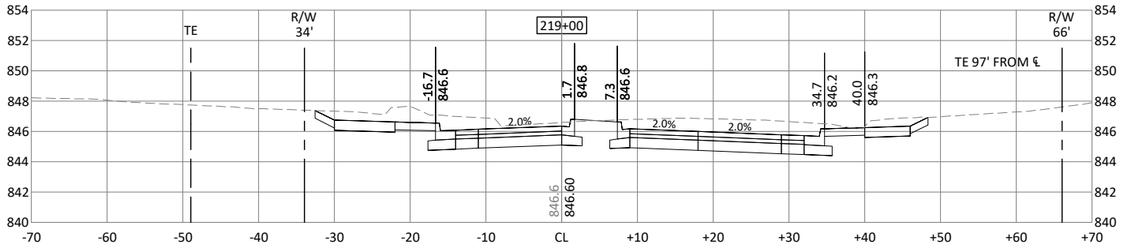
NO.	REVISION	DATE

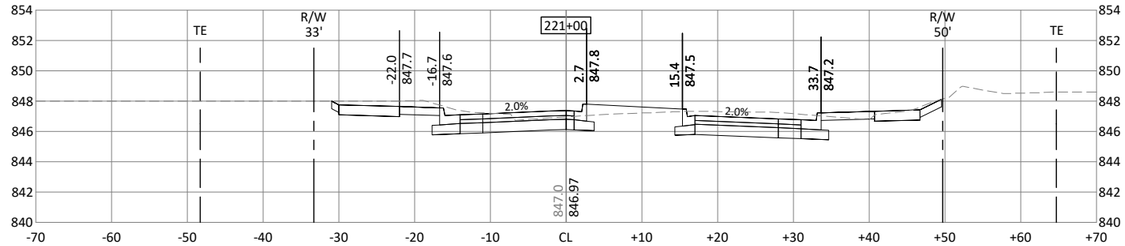
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
CROSS SECTIONS

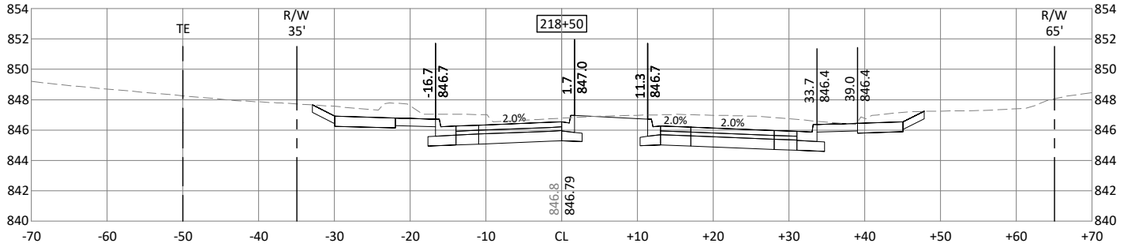
SHEET C9.10

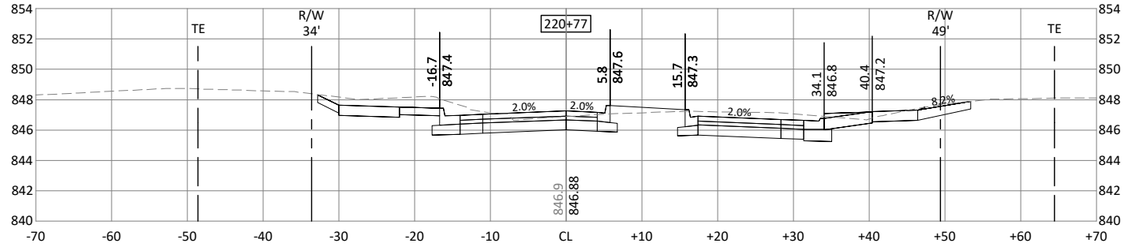


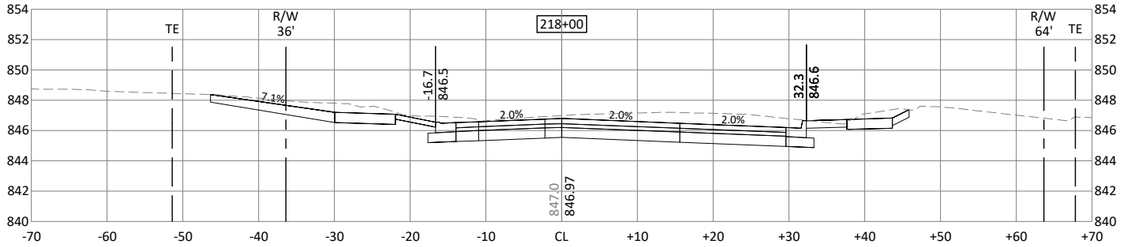


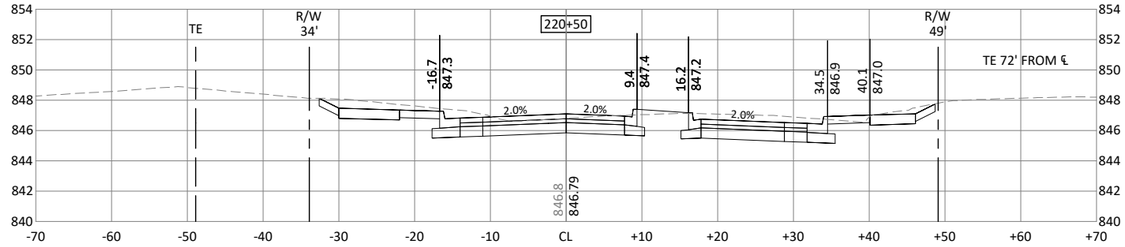


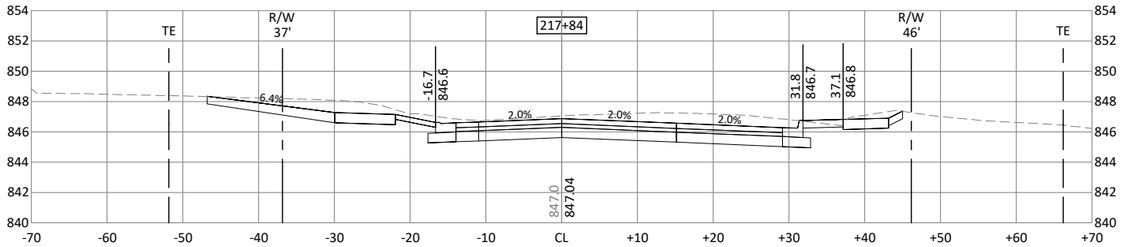


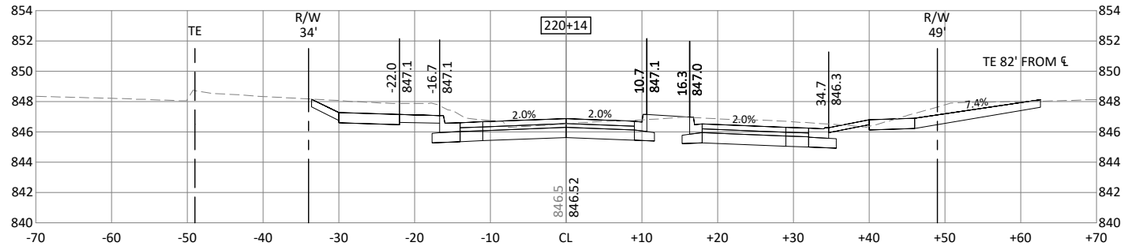












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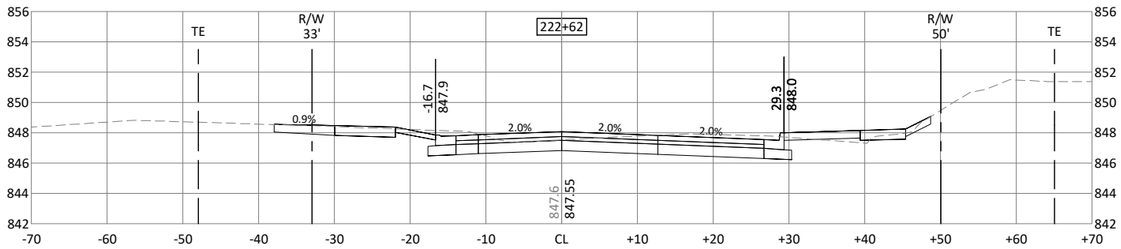
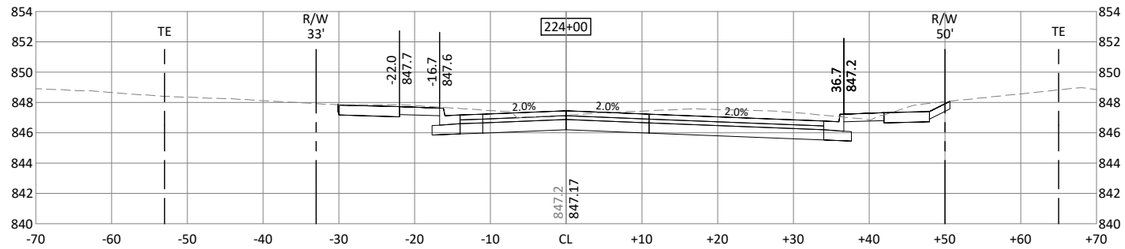
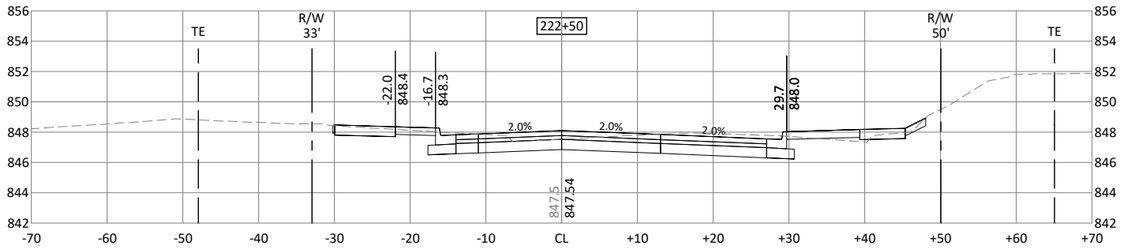
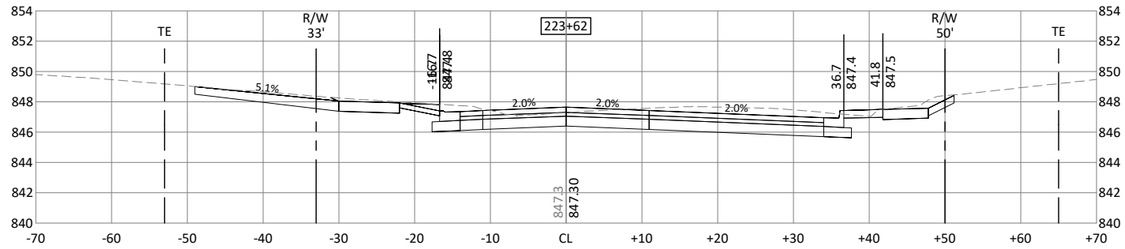
CROSS SECTIONS

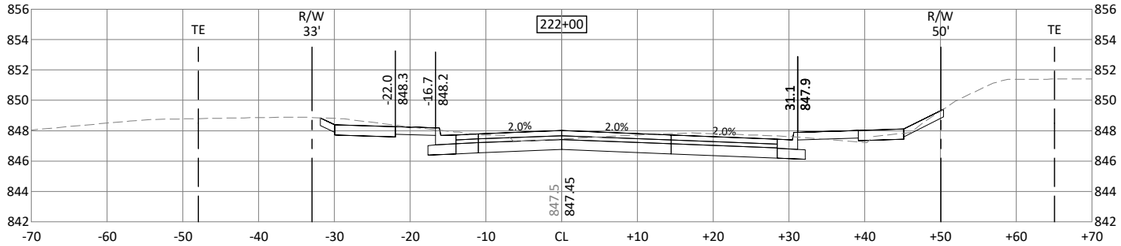
SHEET C9.11

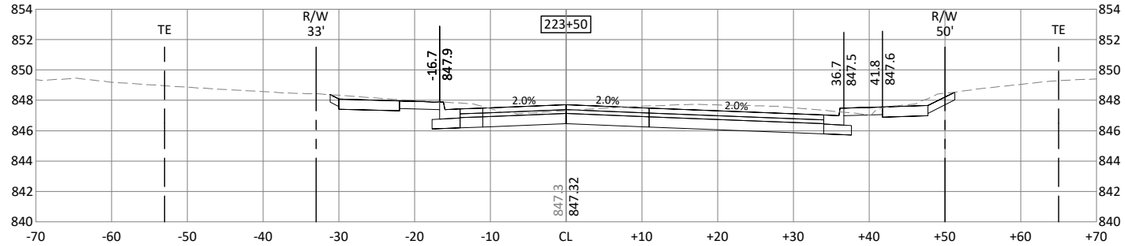


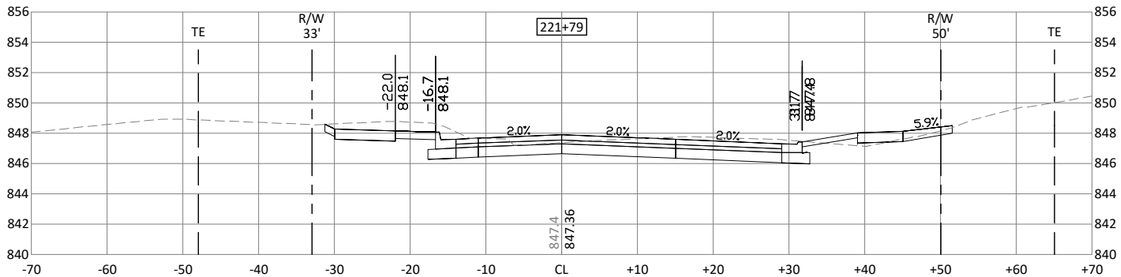


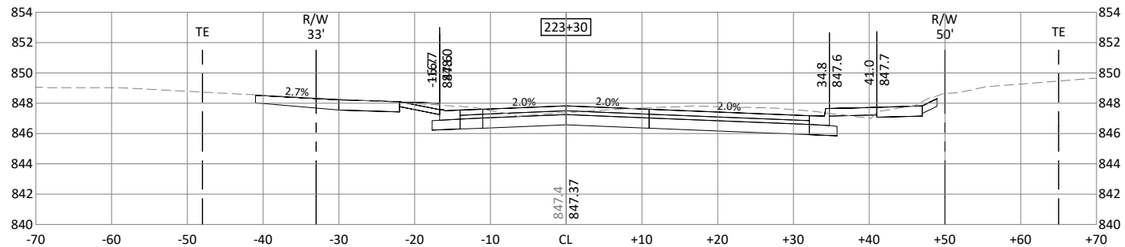


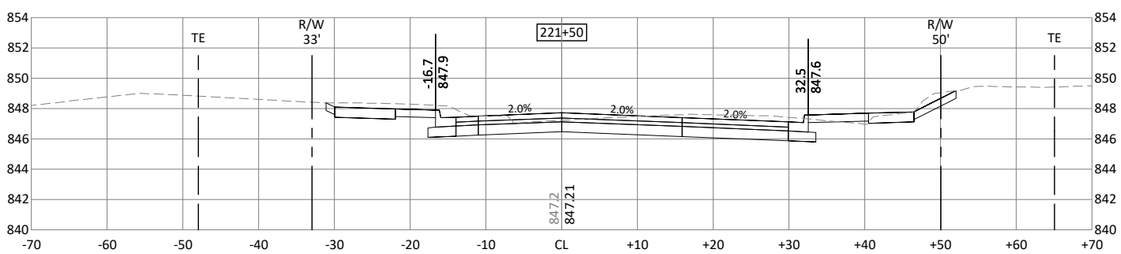


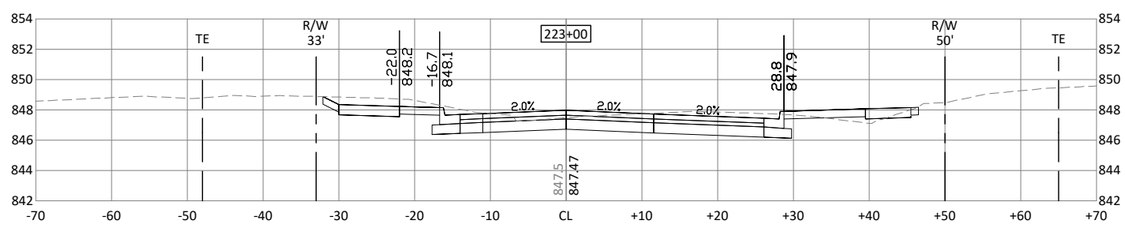












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CROSS SECTIONS

SHEET C9.12

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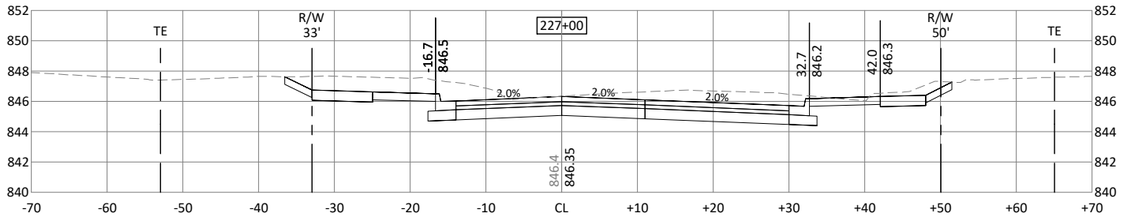

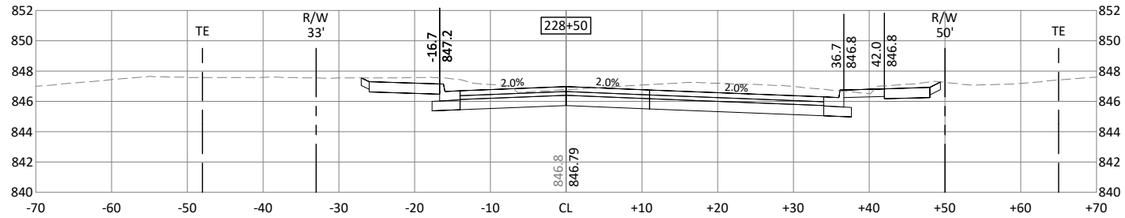

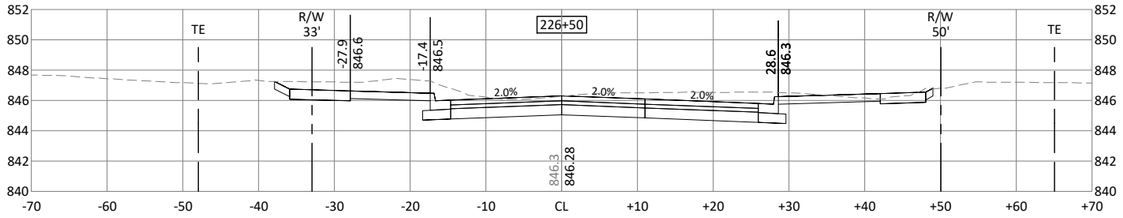

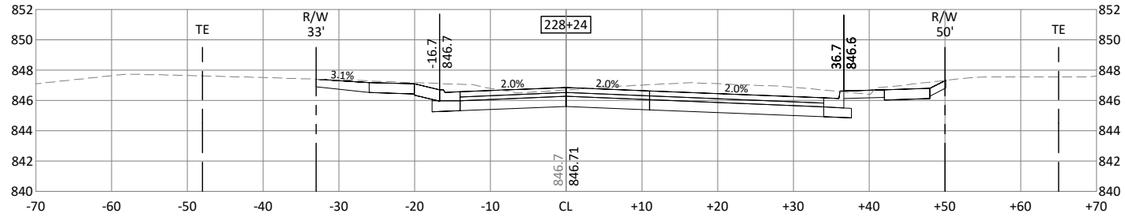

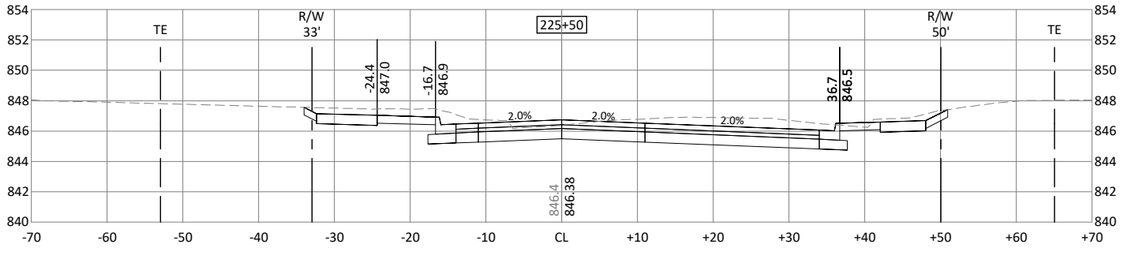

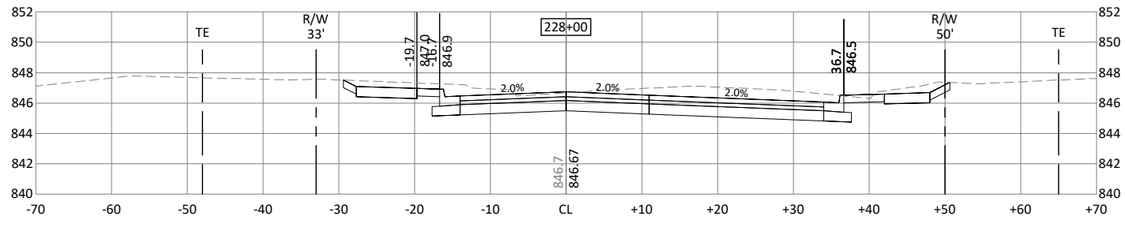

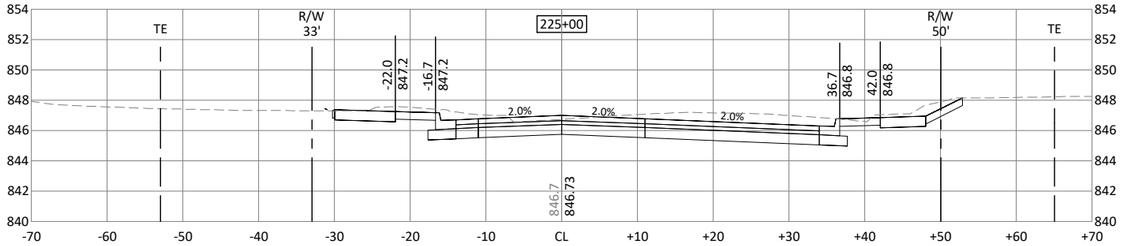

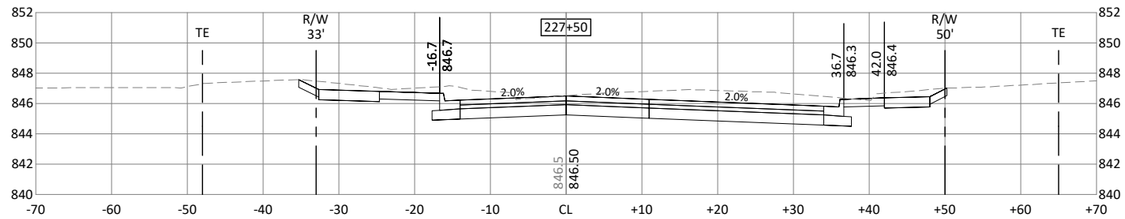

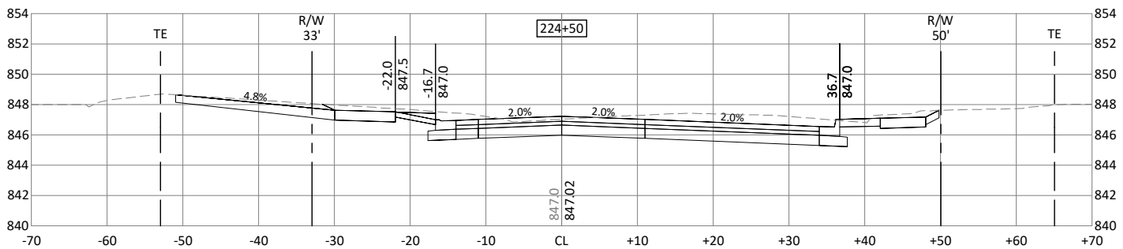

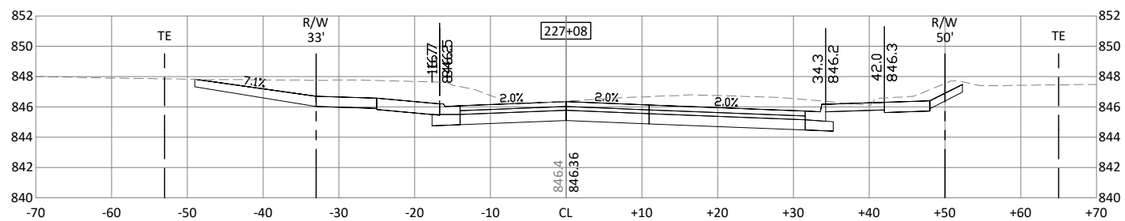

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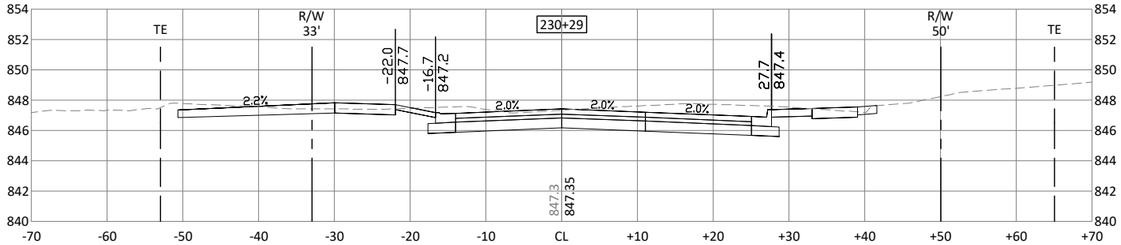
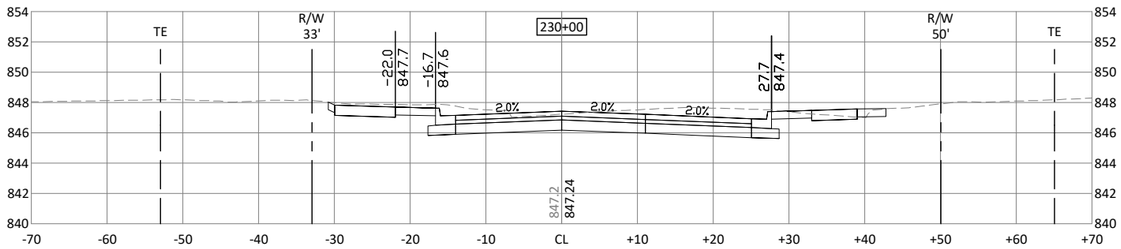
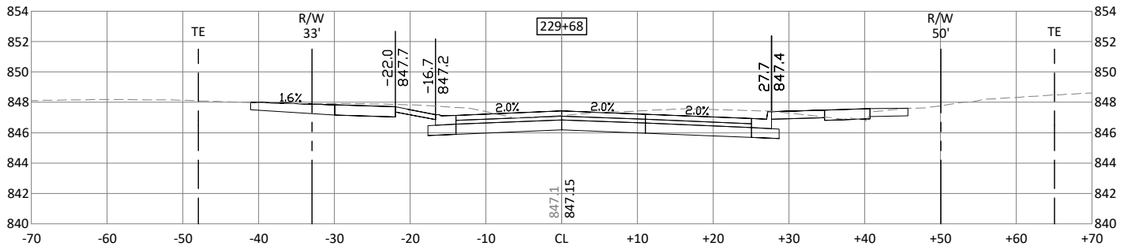
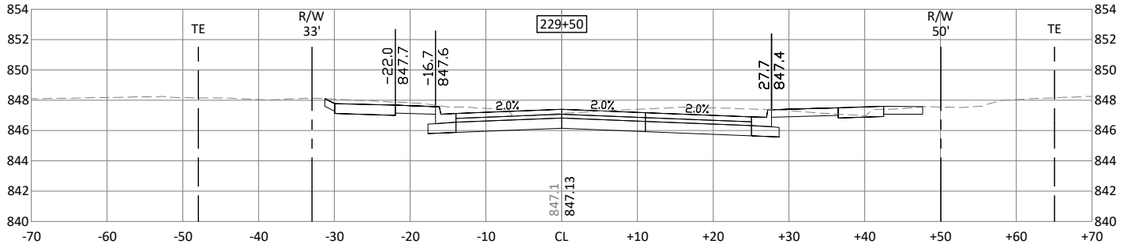
CROSS SECTIONS

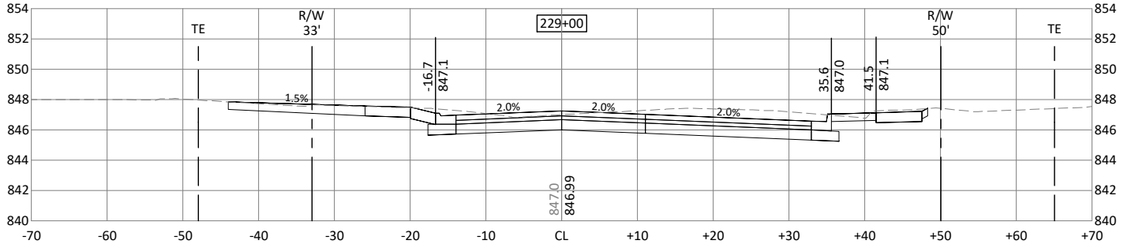
SHEET C9.13

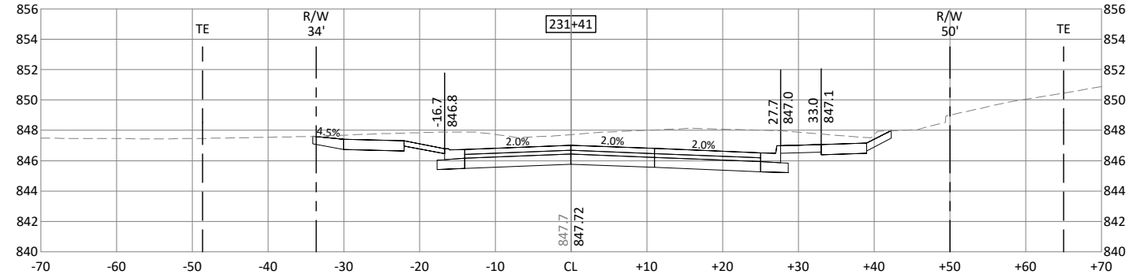


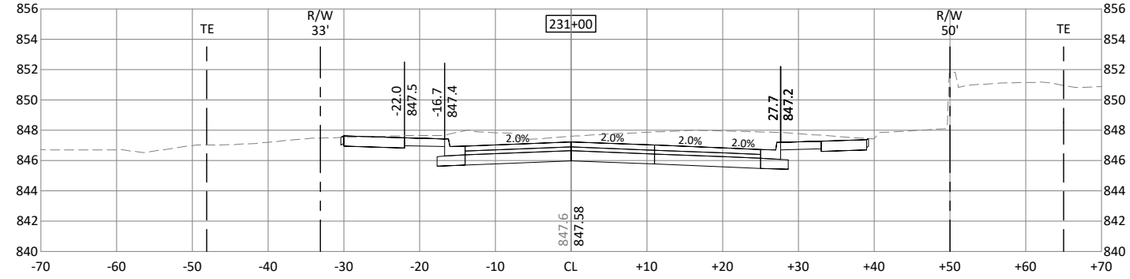


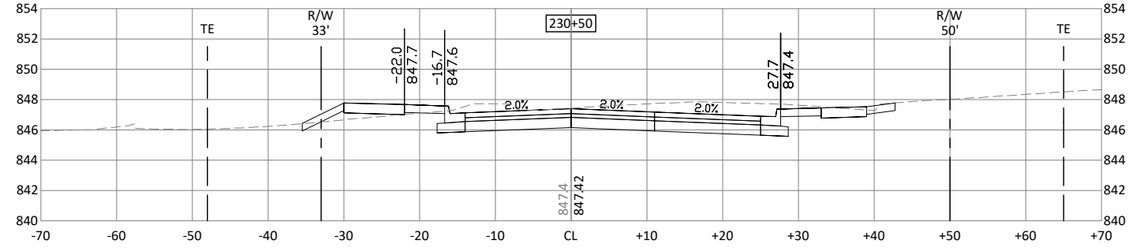












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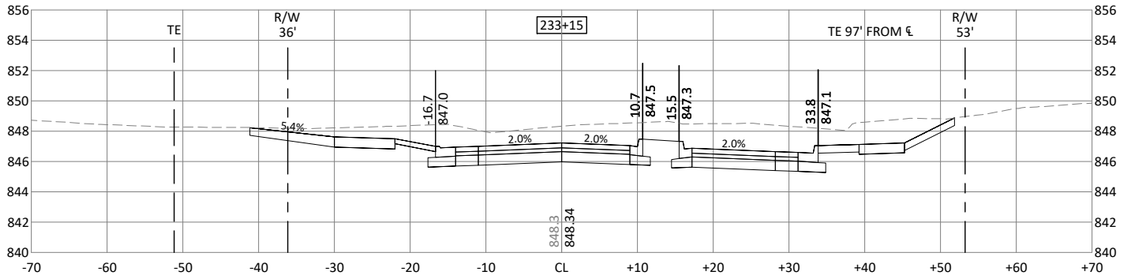
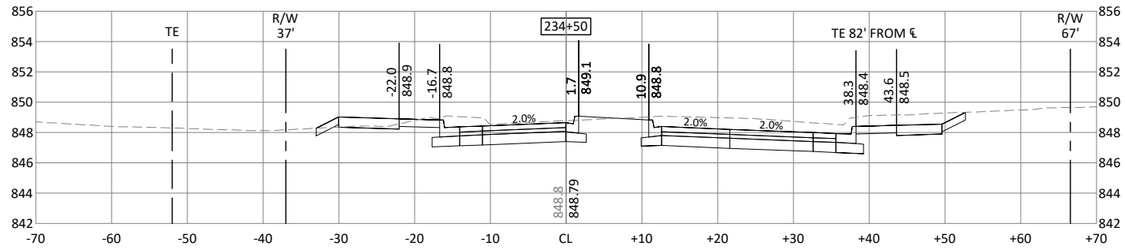
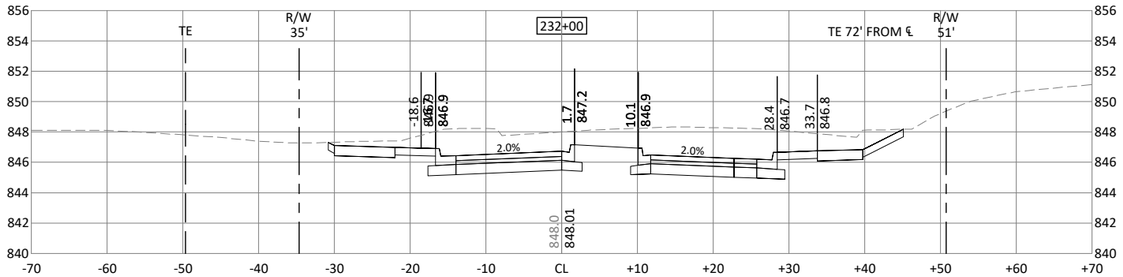
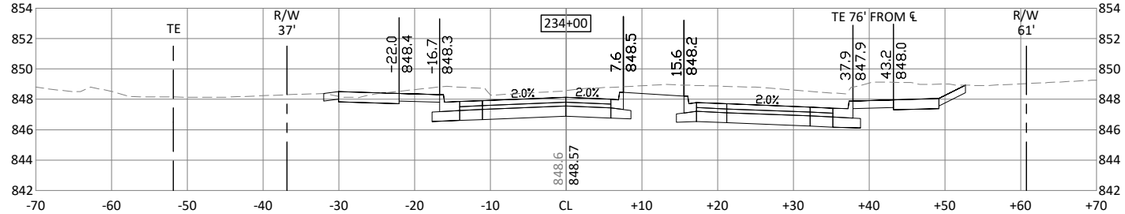
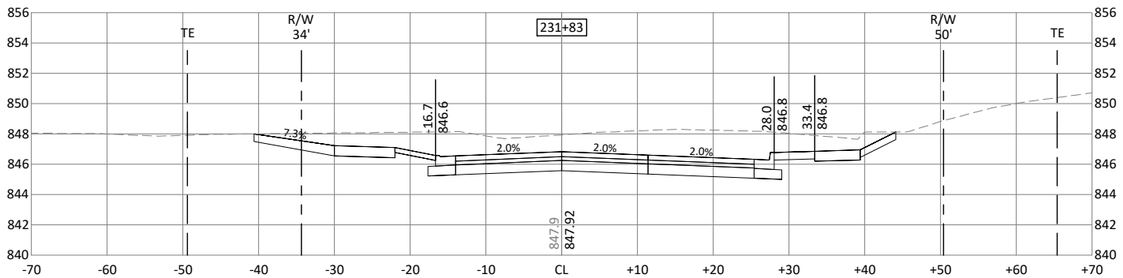
SHEET C9.14

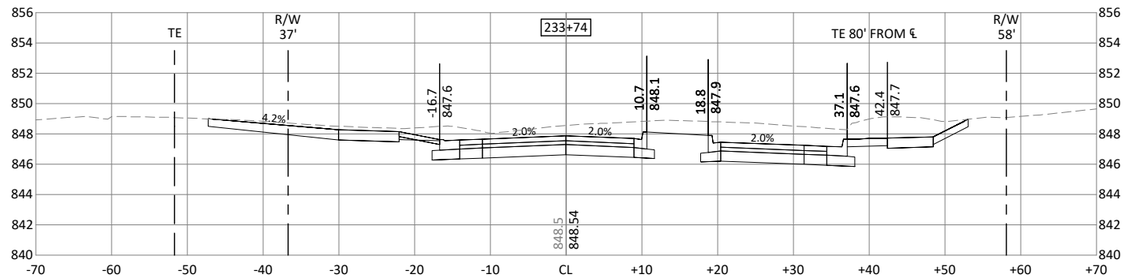


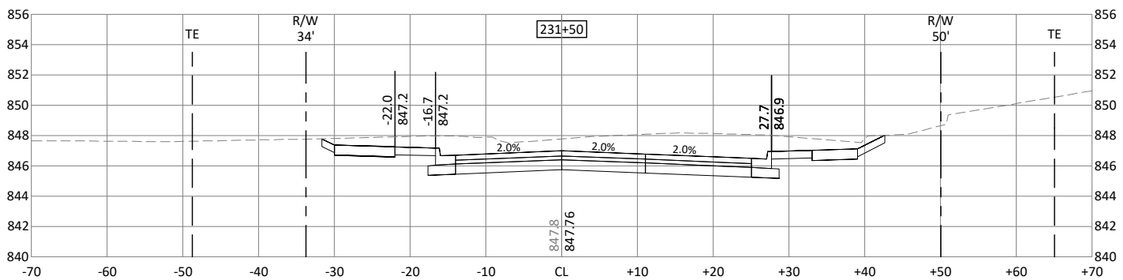


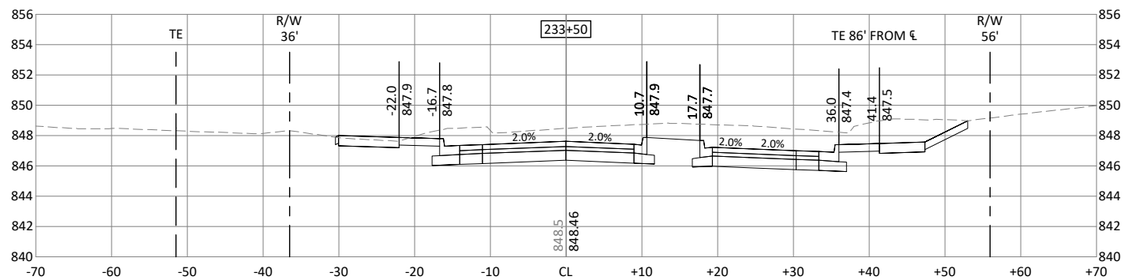












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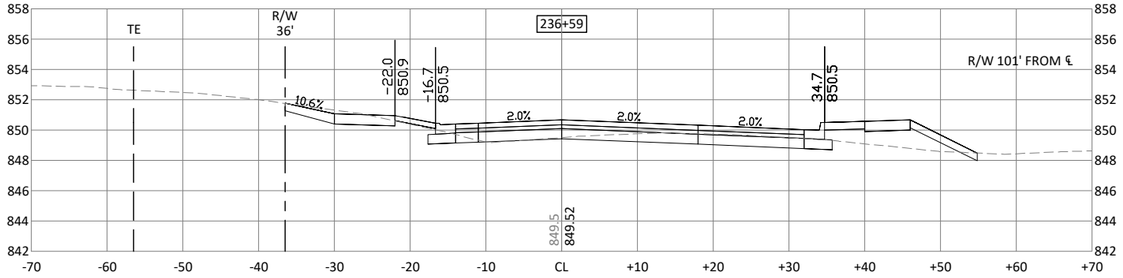
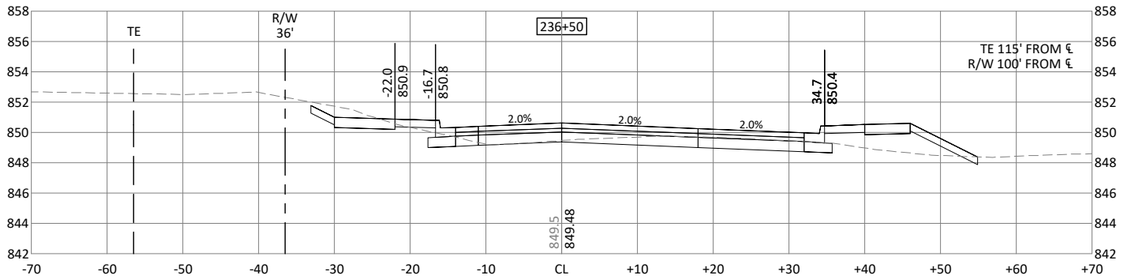
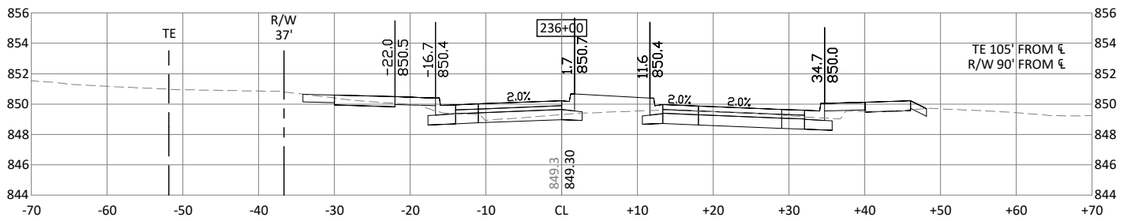
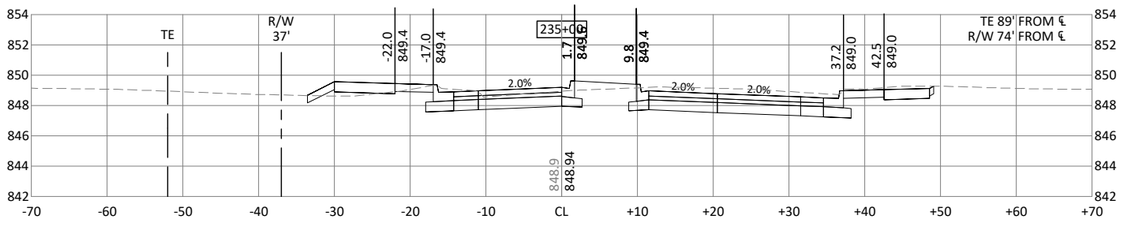
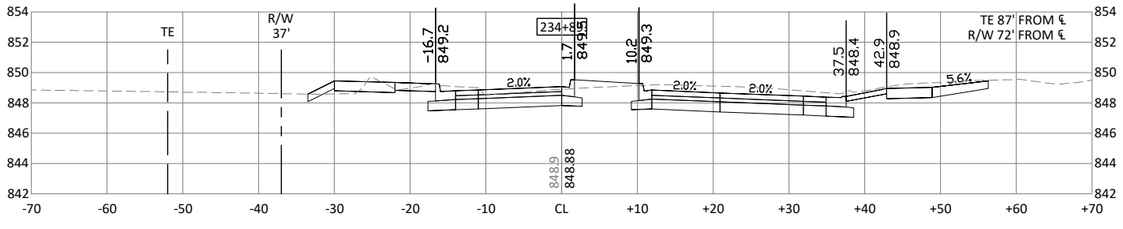
SHEET C9.15

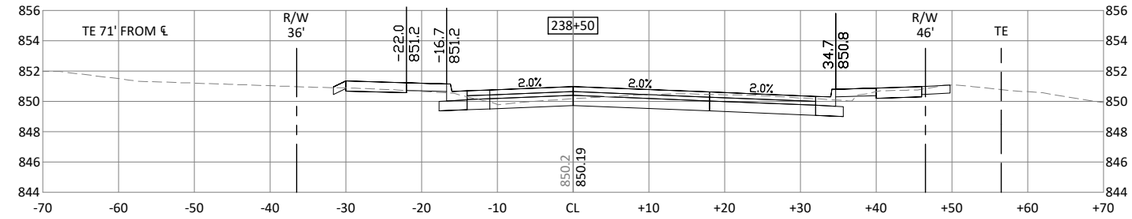


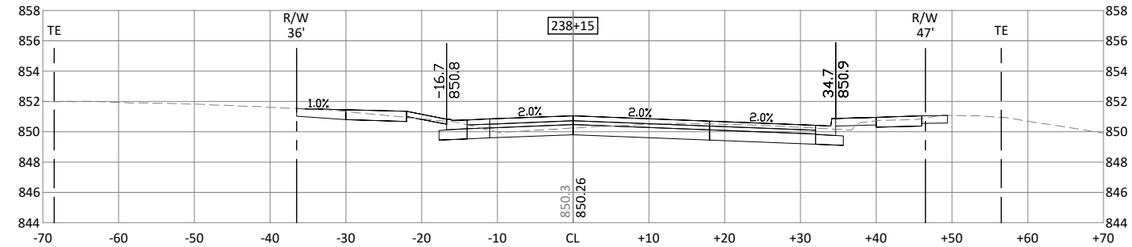


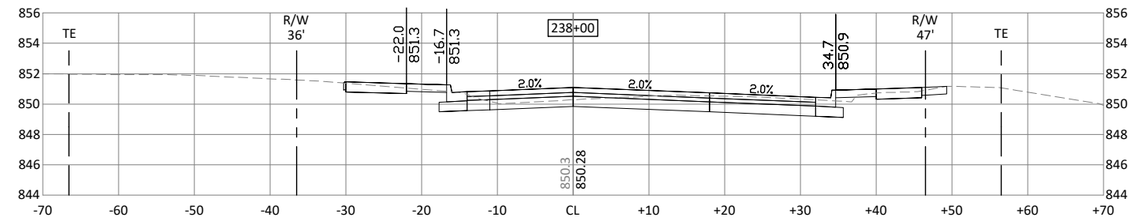


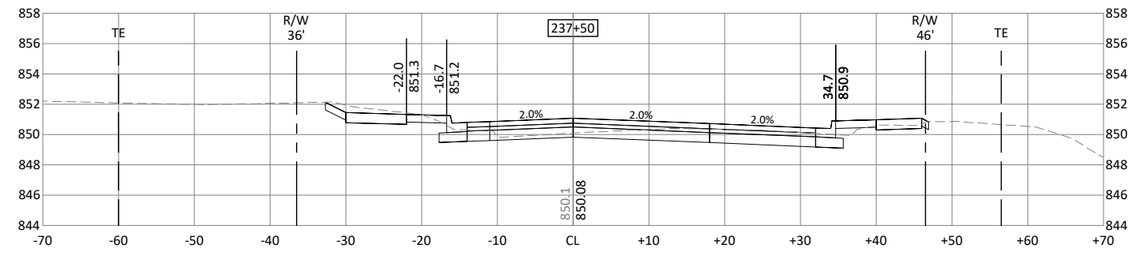


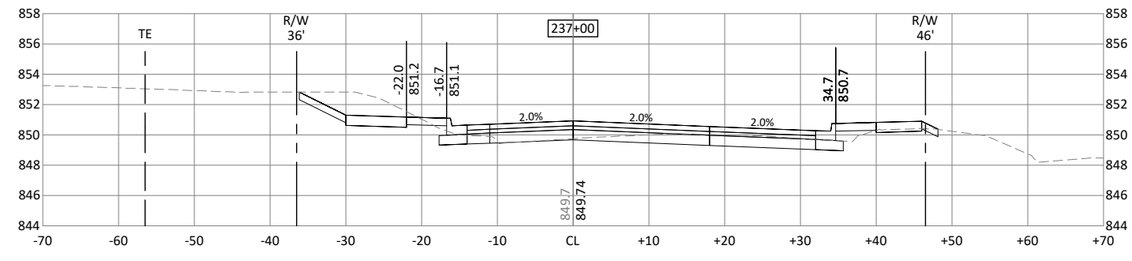












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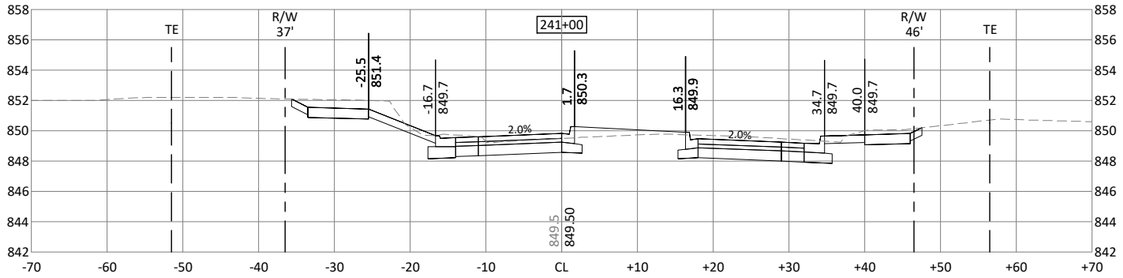
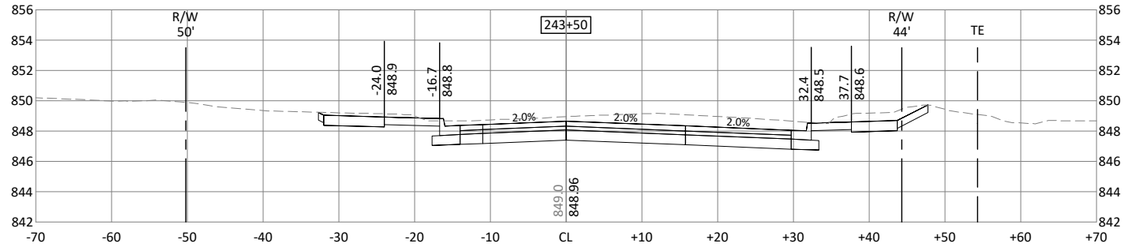
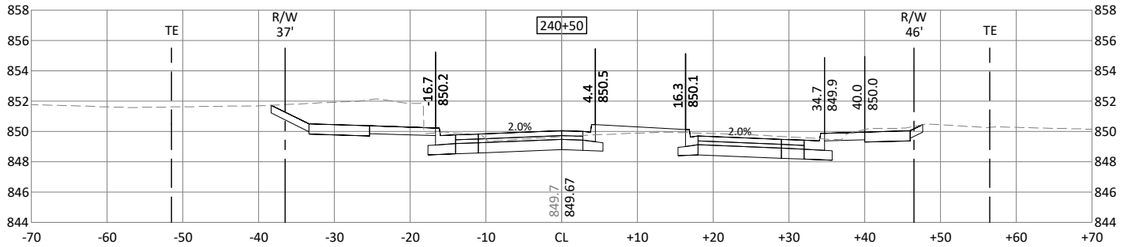
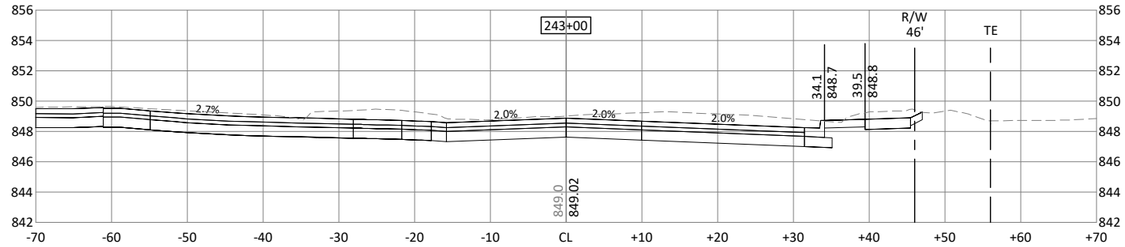
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
CROSS SECTIONS

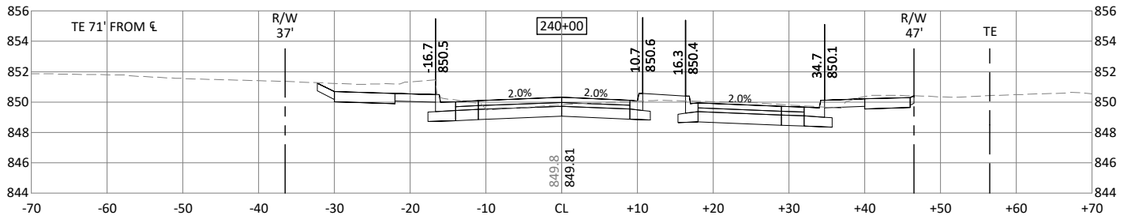
SHEET C9.16

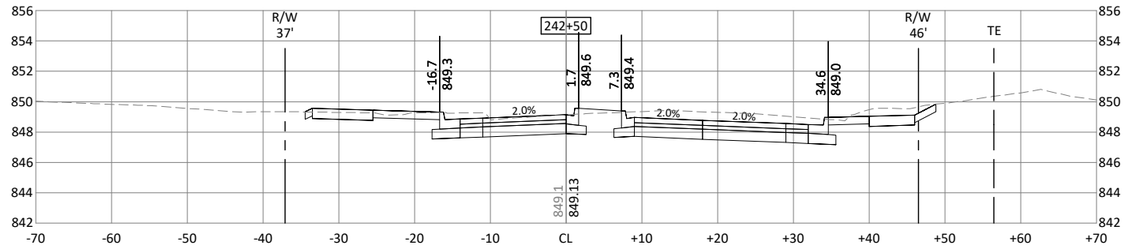


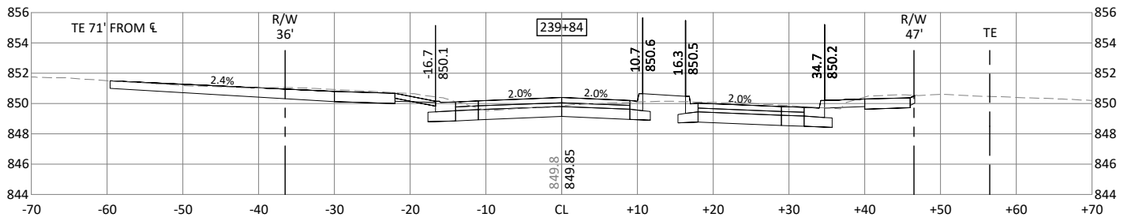


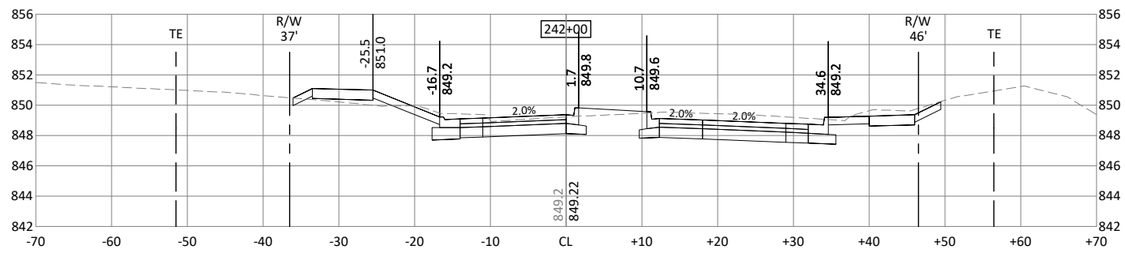


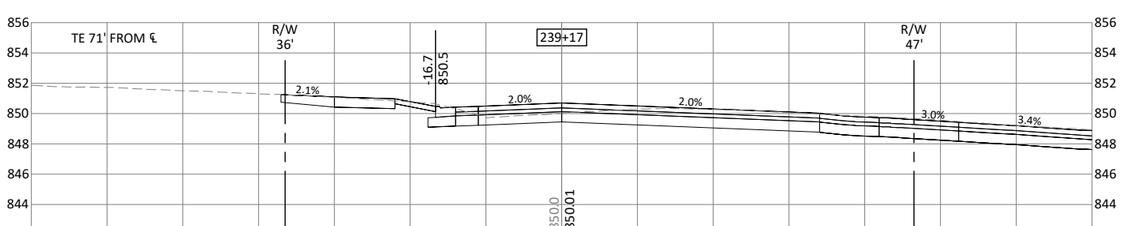


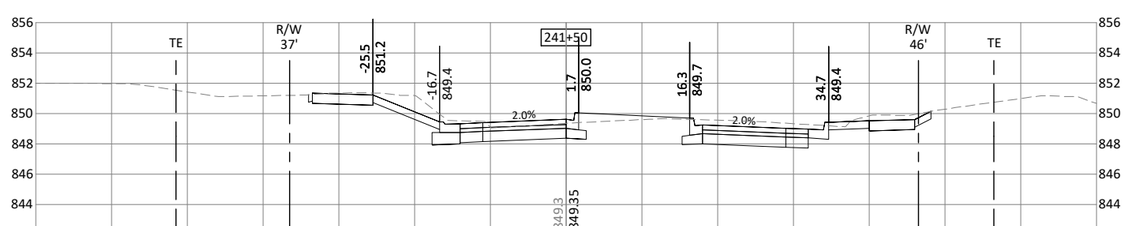












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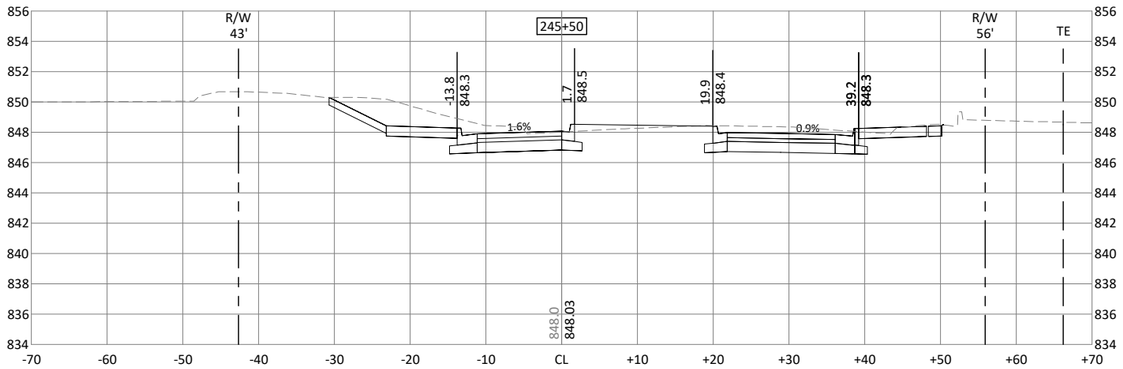
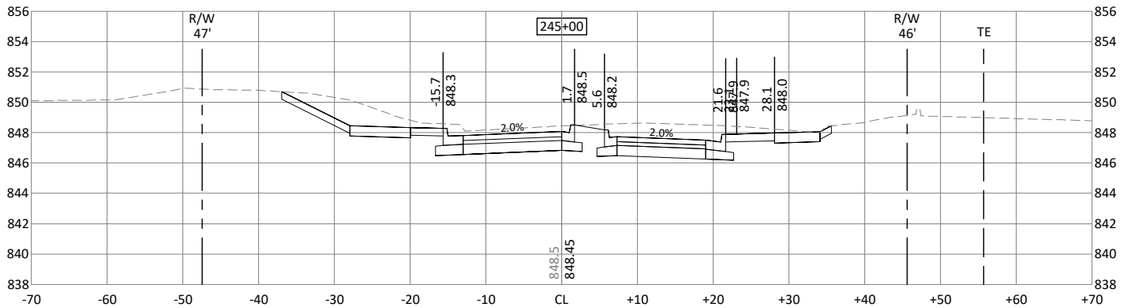
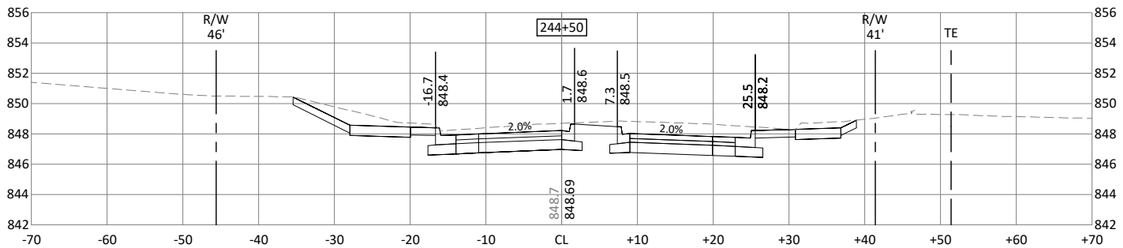
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

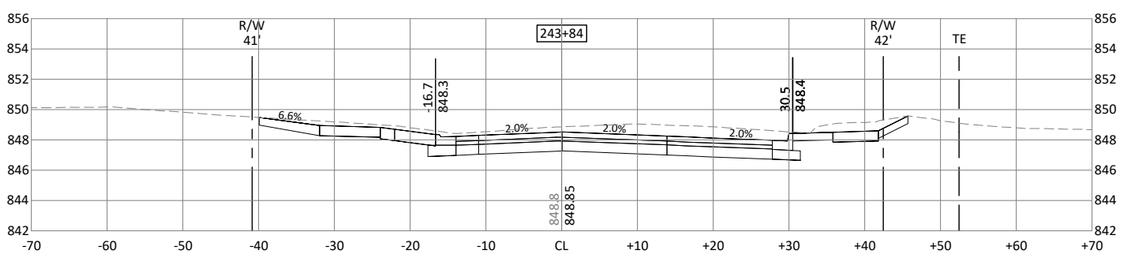
CROSS SECTIONS

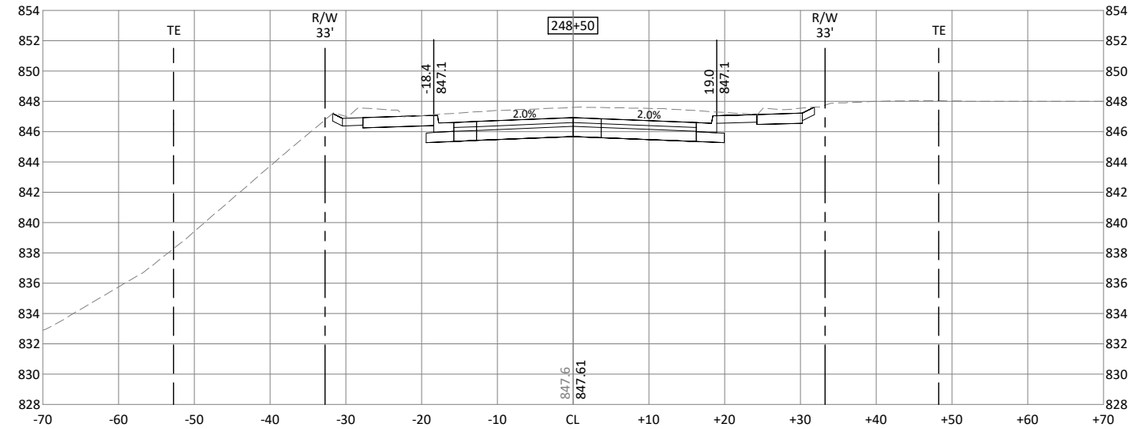
SHEET C9.17

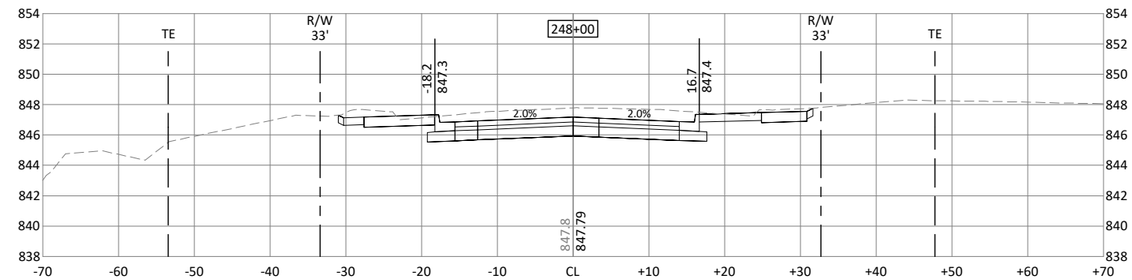


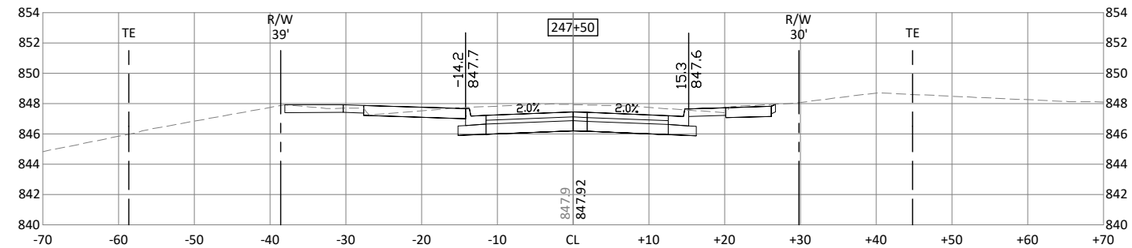


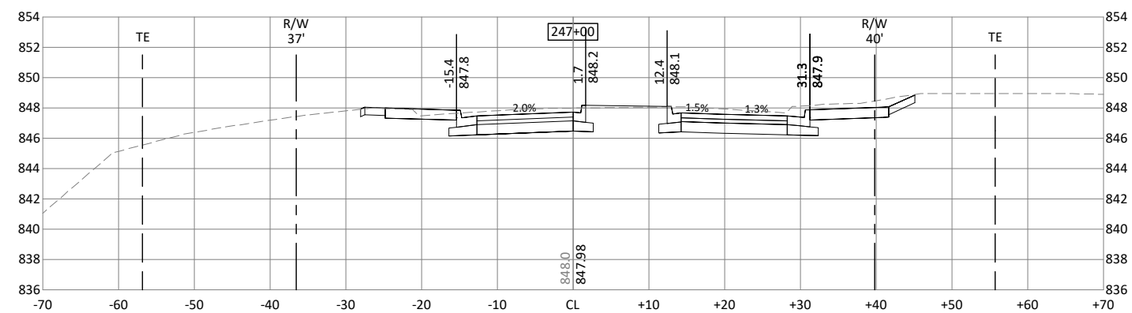












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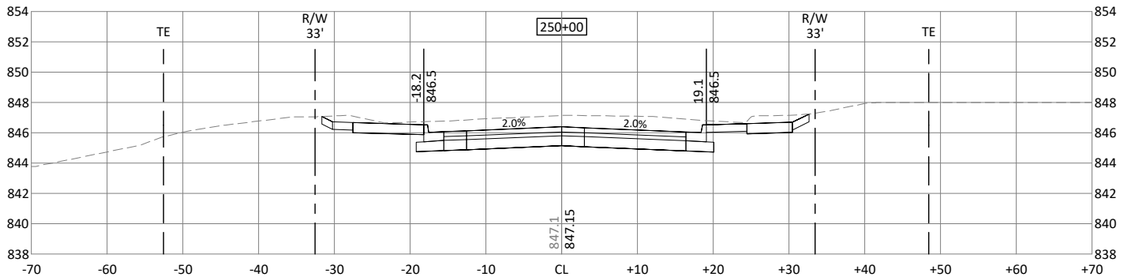
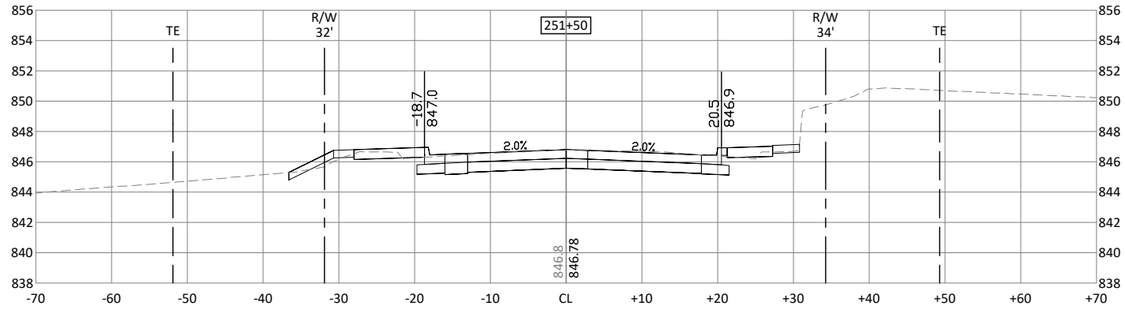
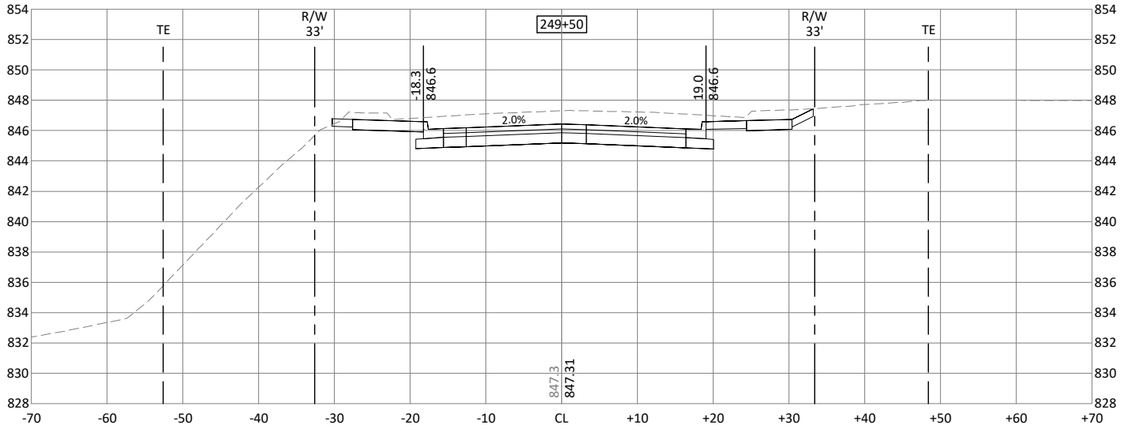
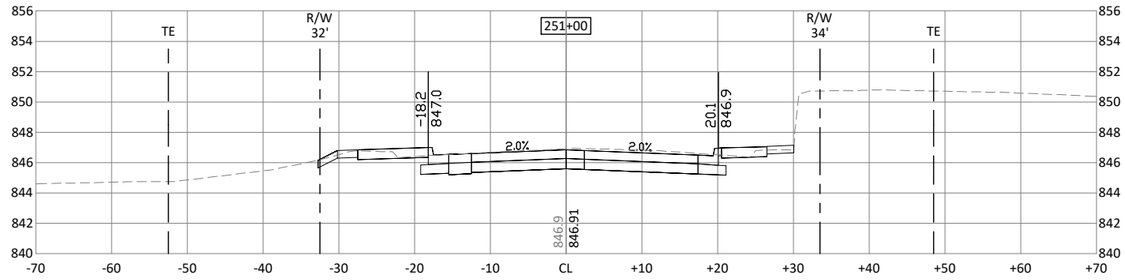
CROSS SECTIONS

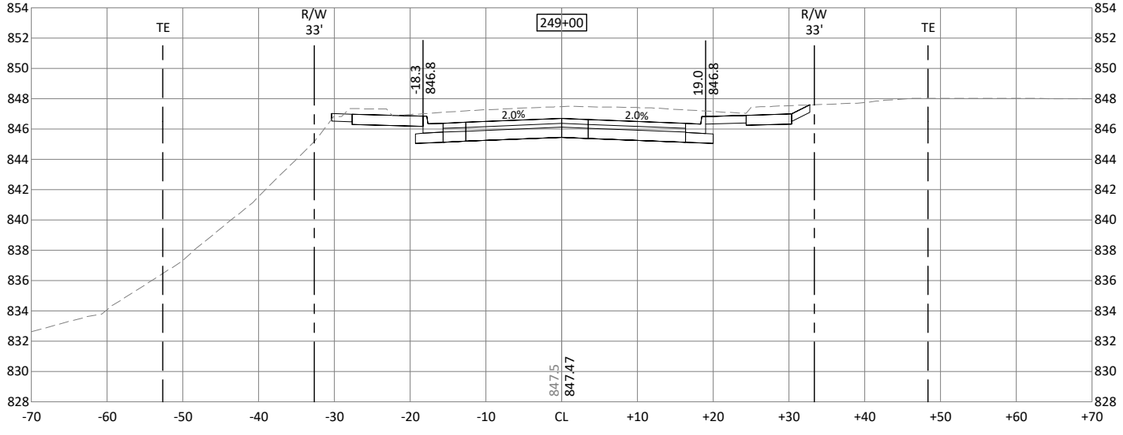
SHEET C9.18

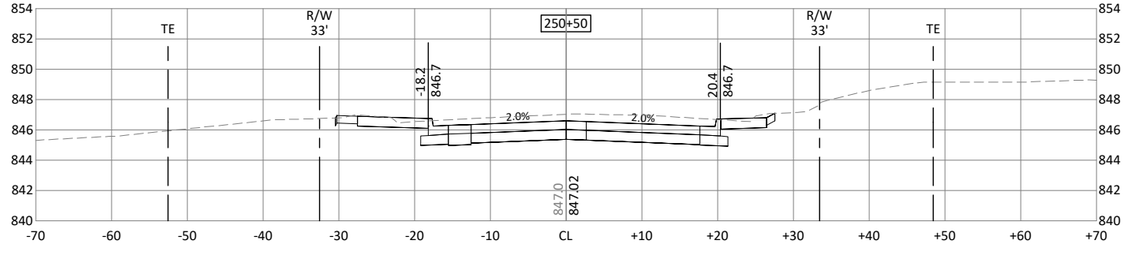












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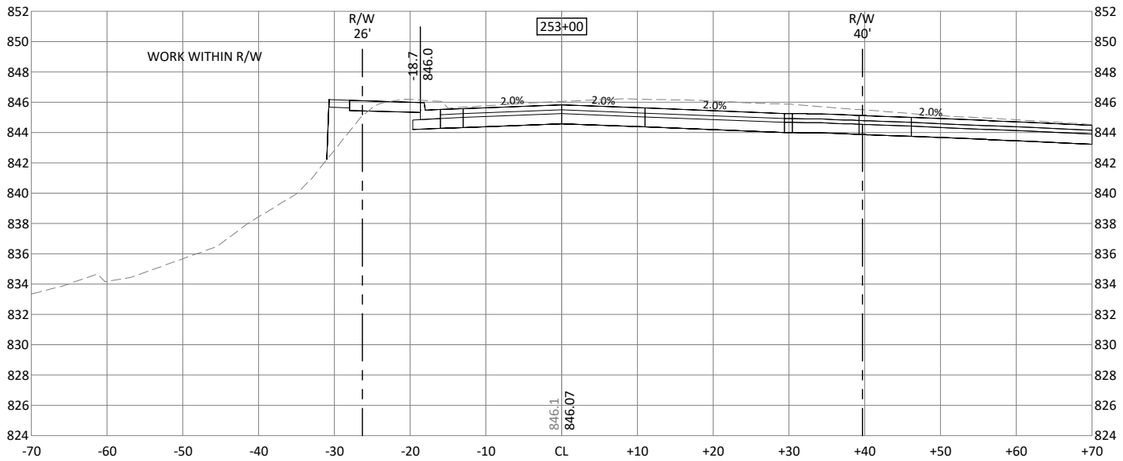
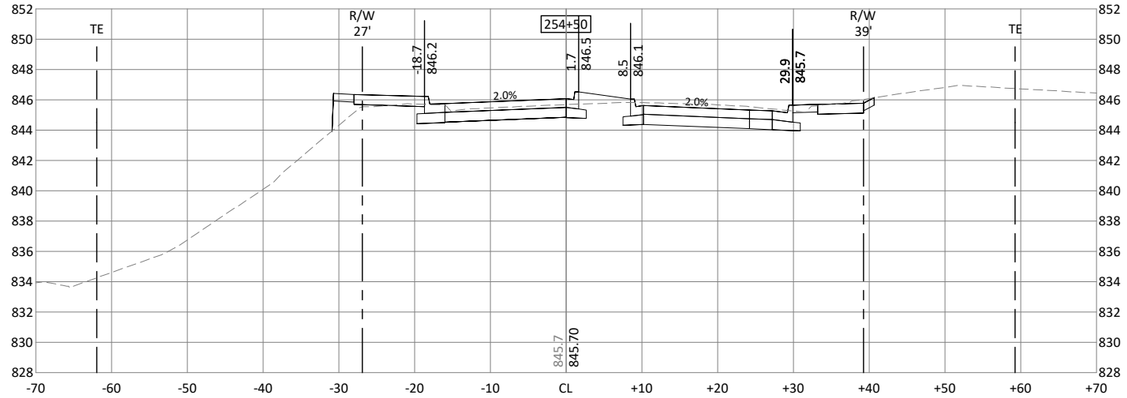
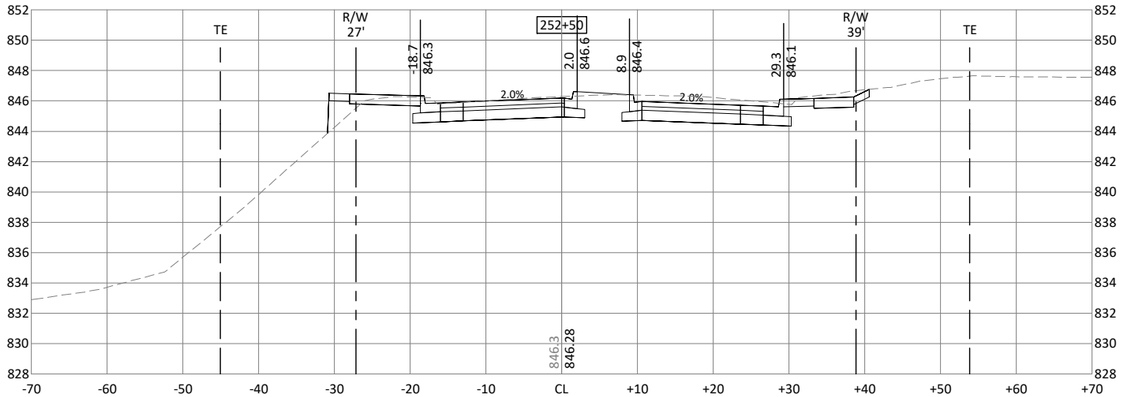
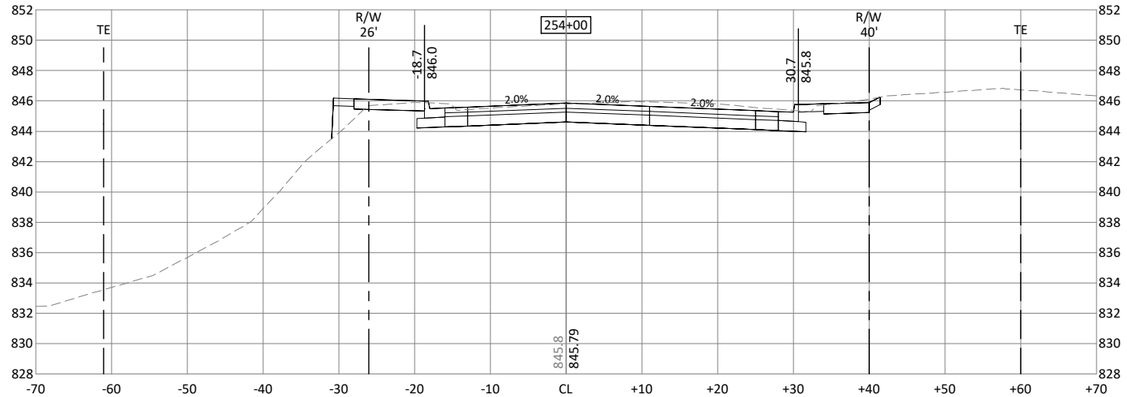
CROSS SECTIONS

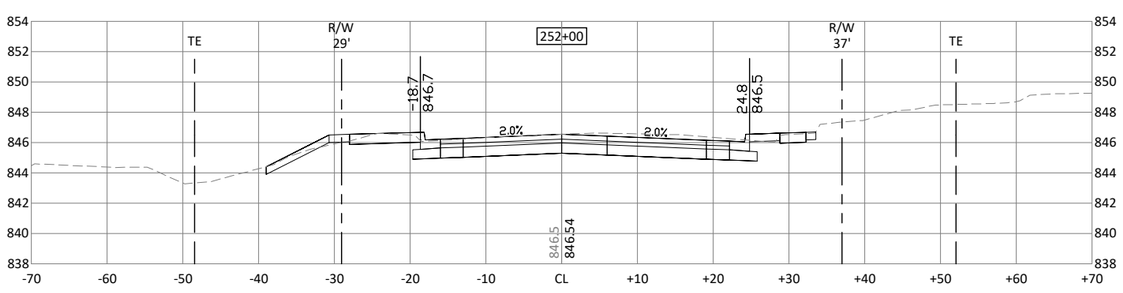
SHEET C9.19

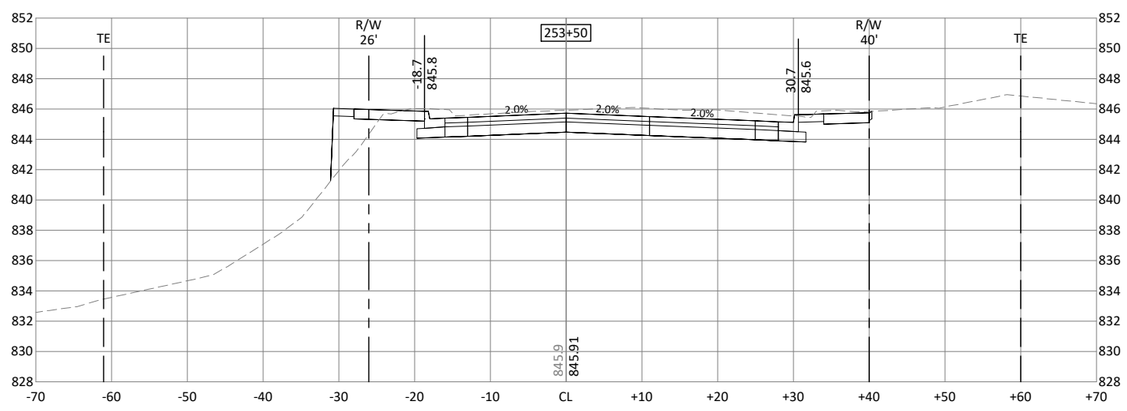












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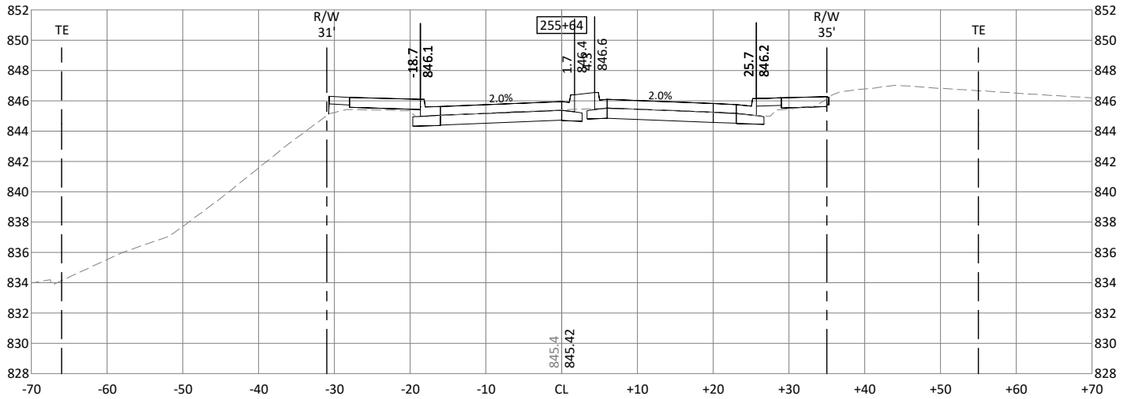
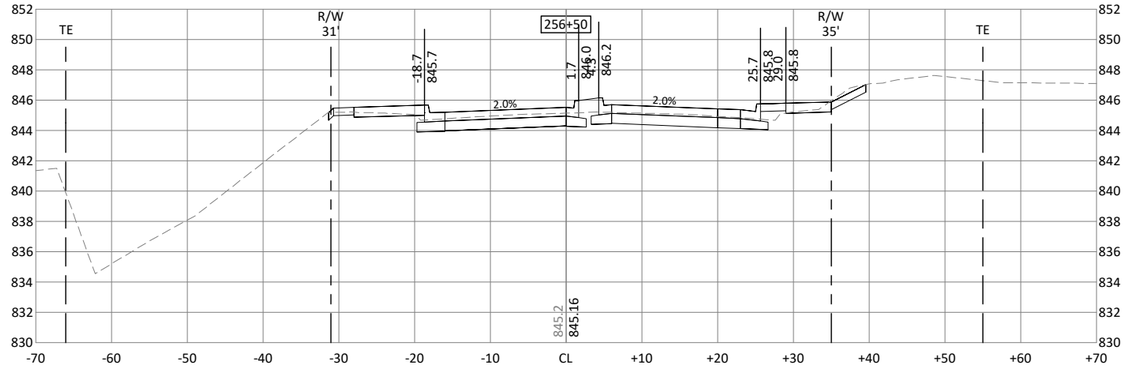
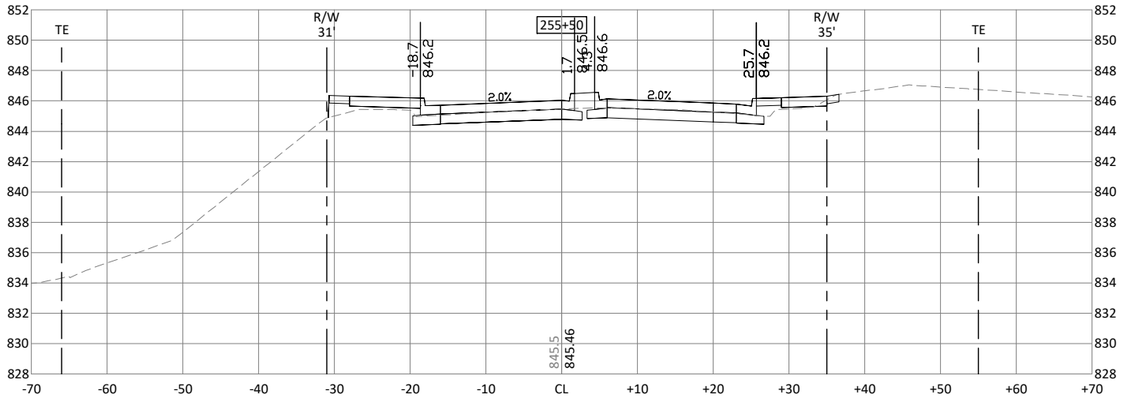
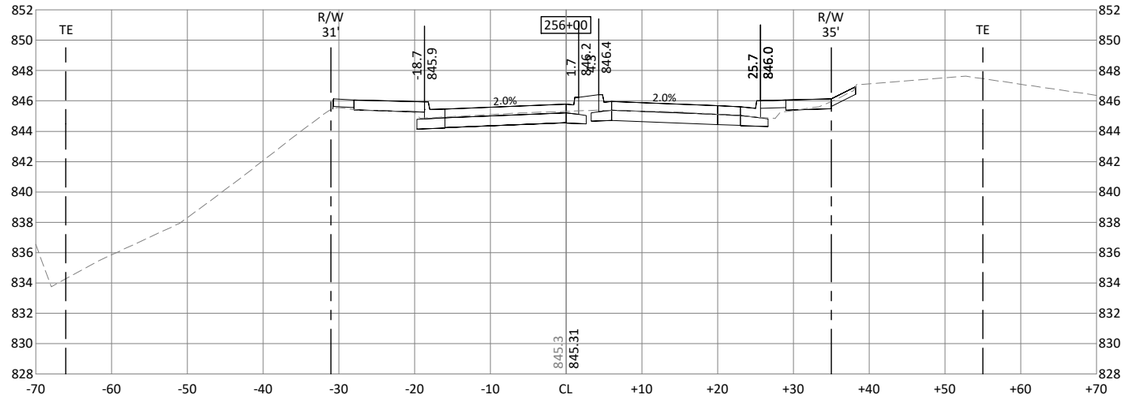
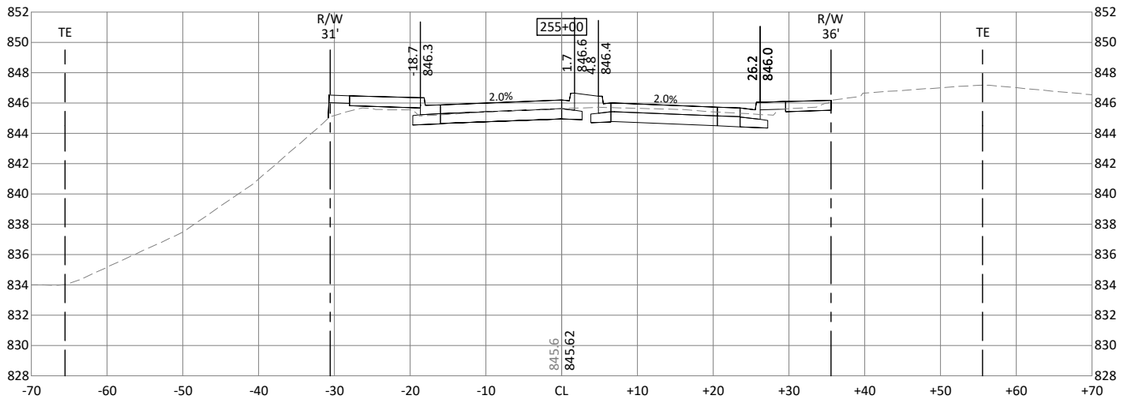
SHEET C9.20

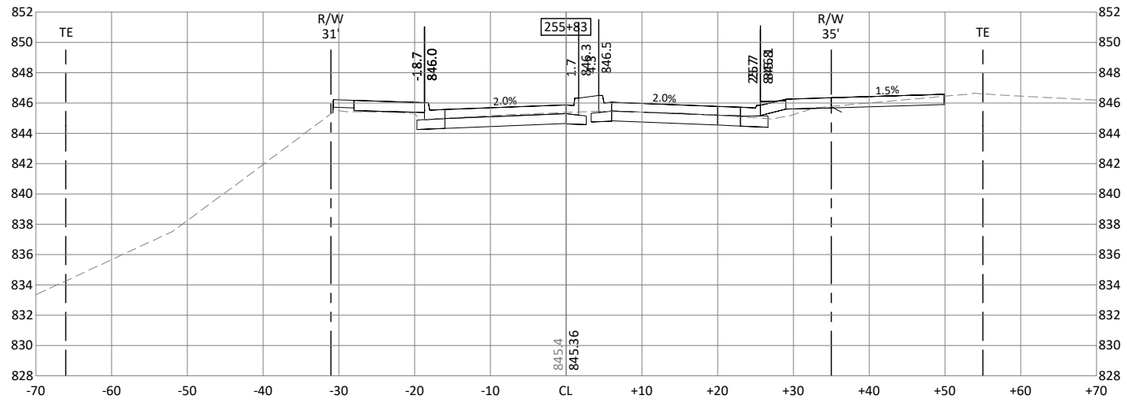












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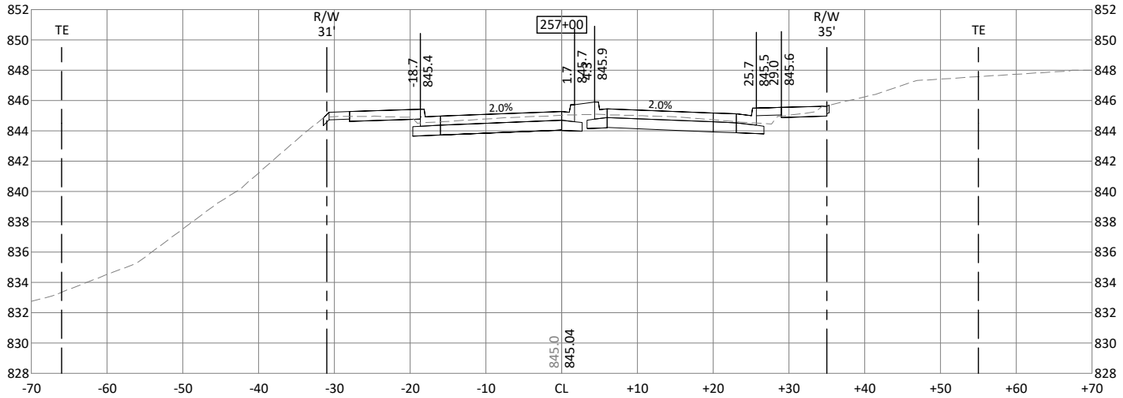
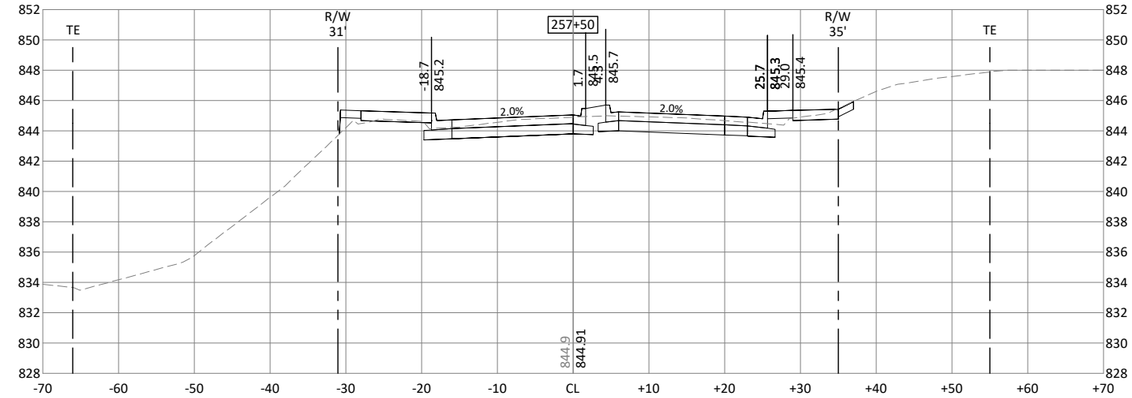
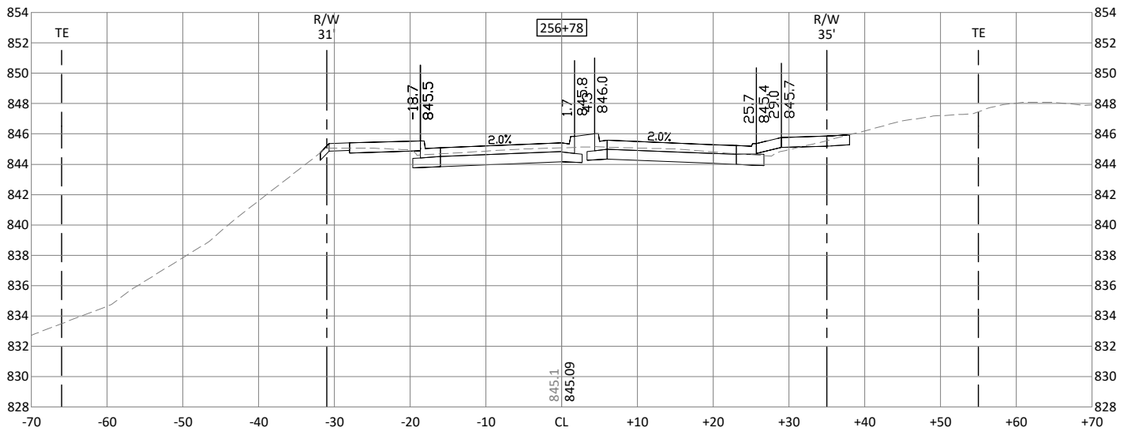
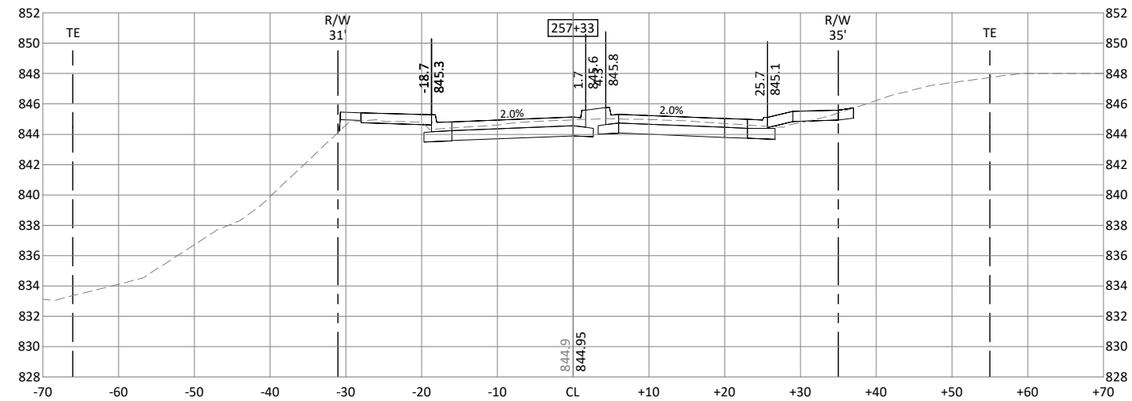
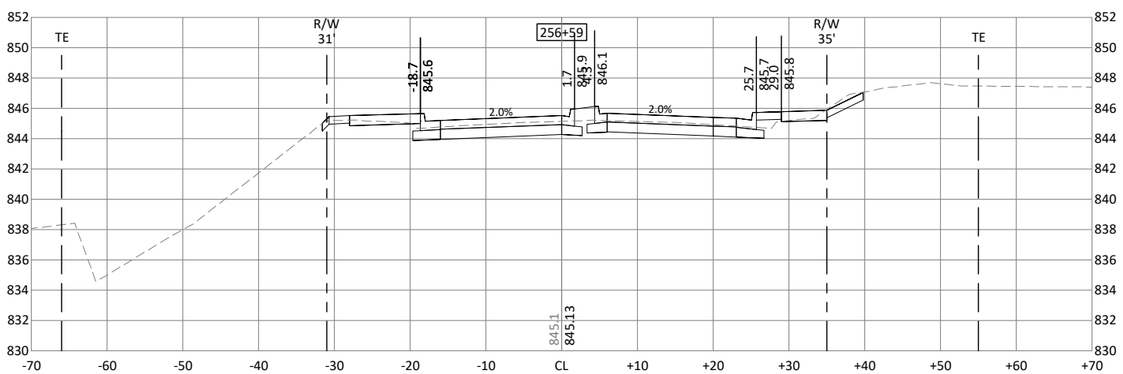
SHEET C9.21

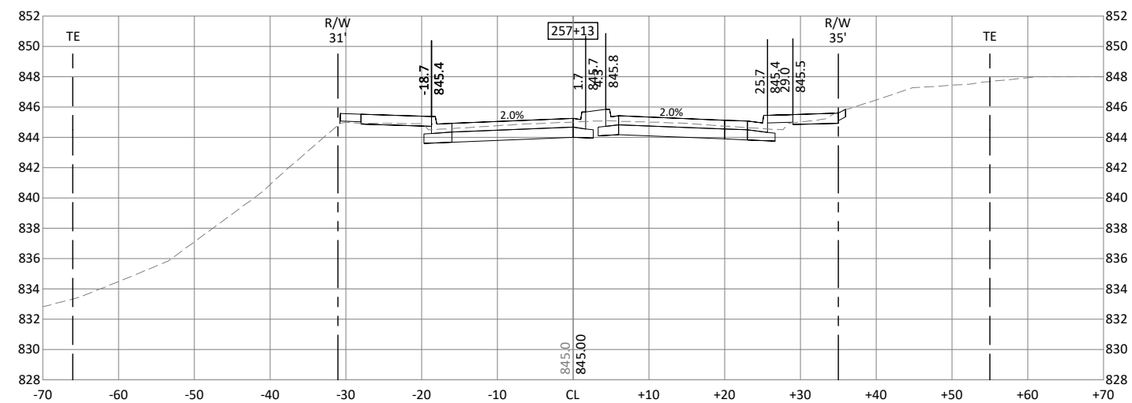












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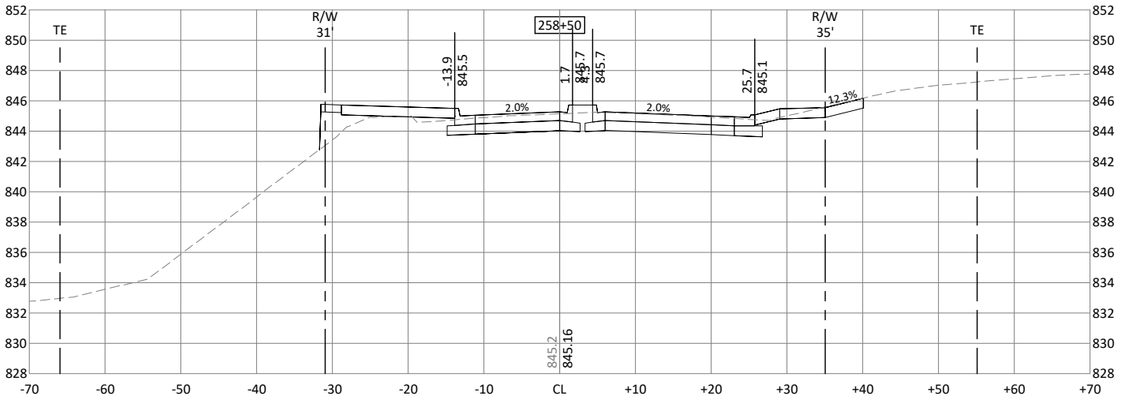
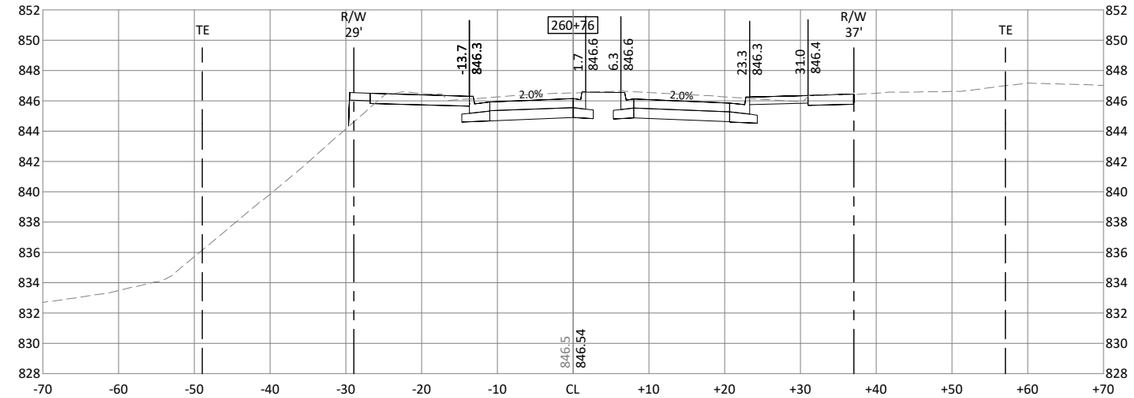
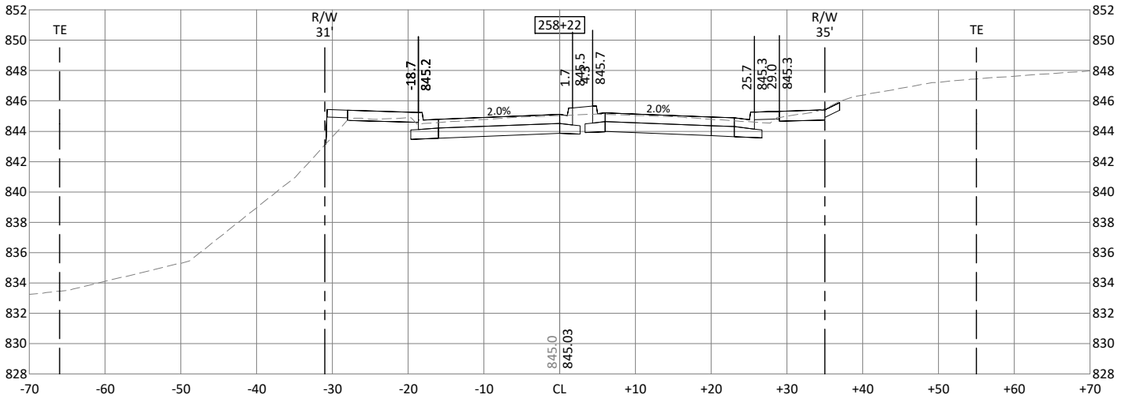
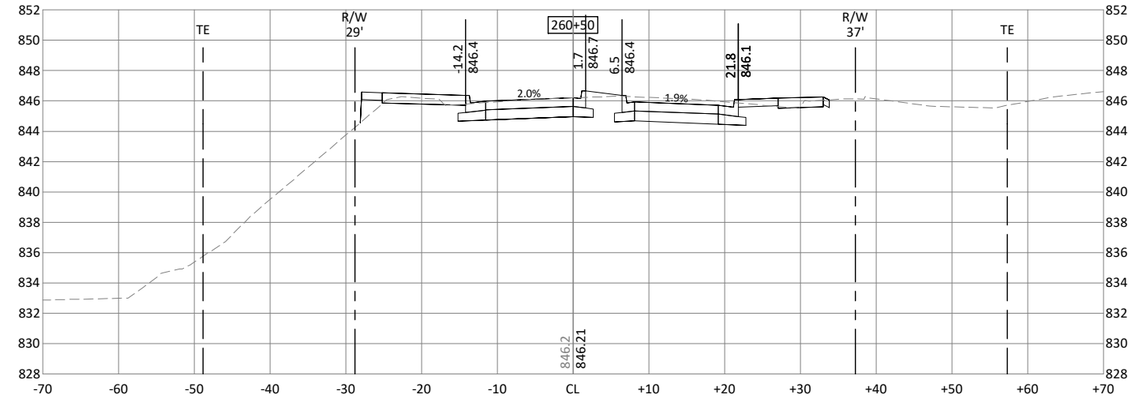
CROSS SECTIONS

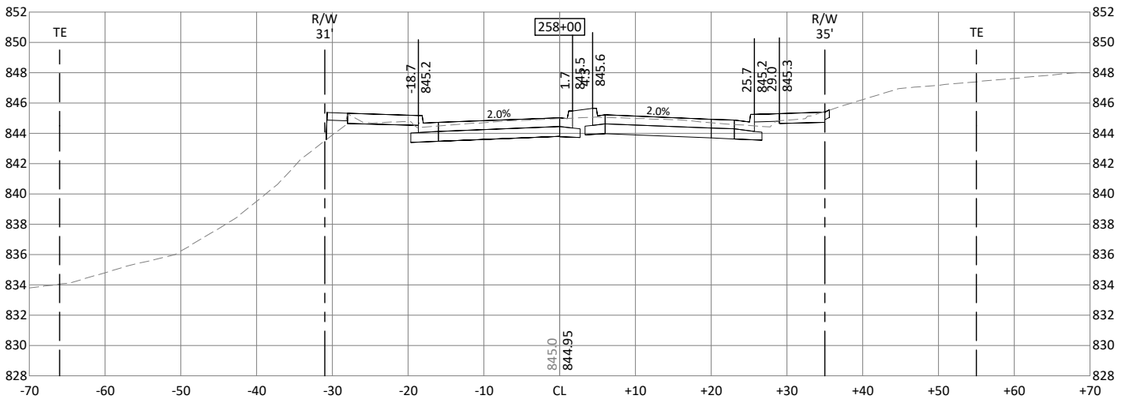
SHEET C9.22

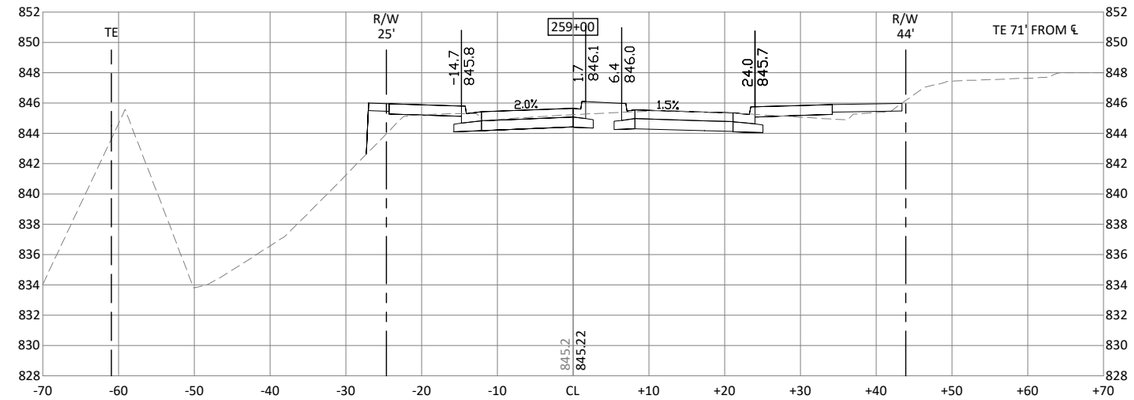












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TIM LAMKIN JR.

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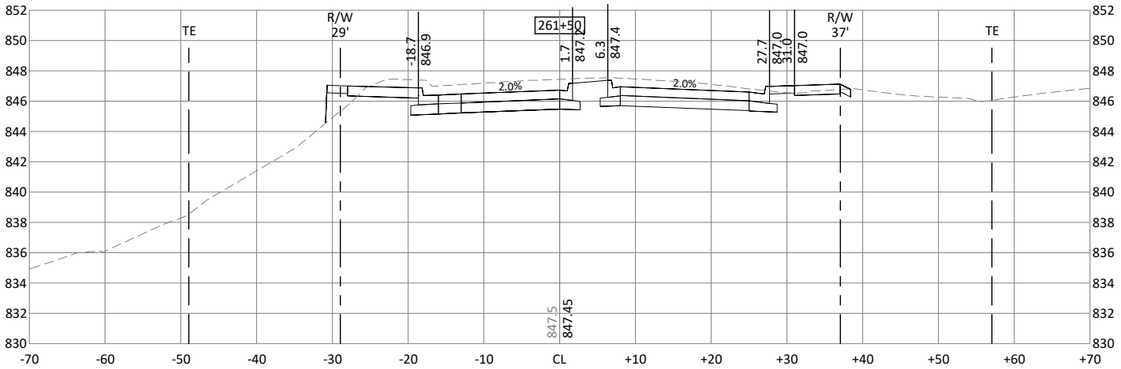
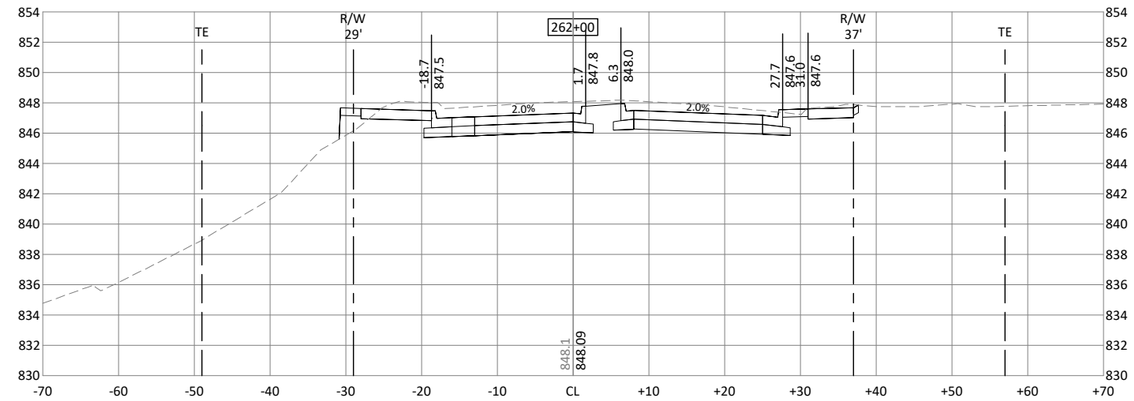
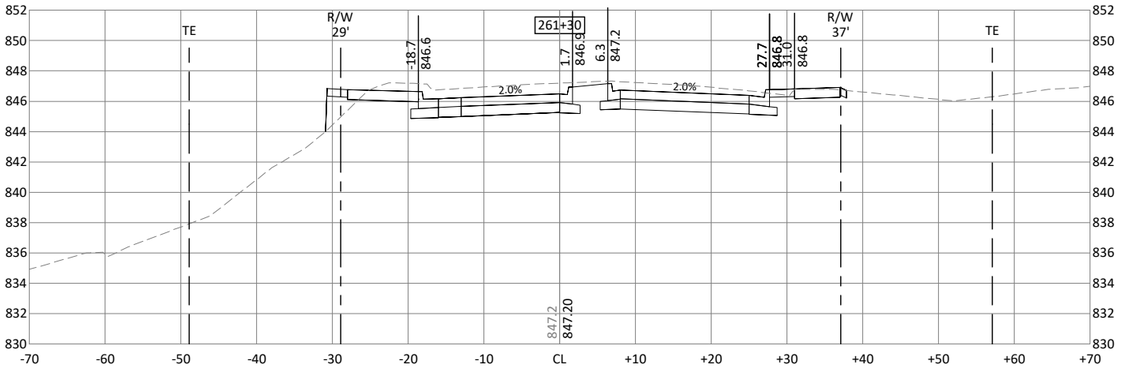
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

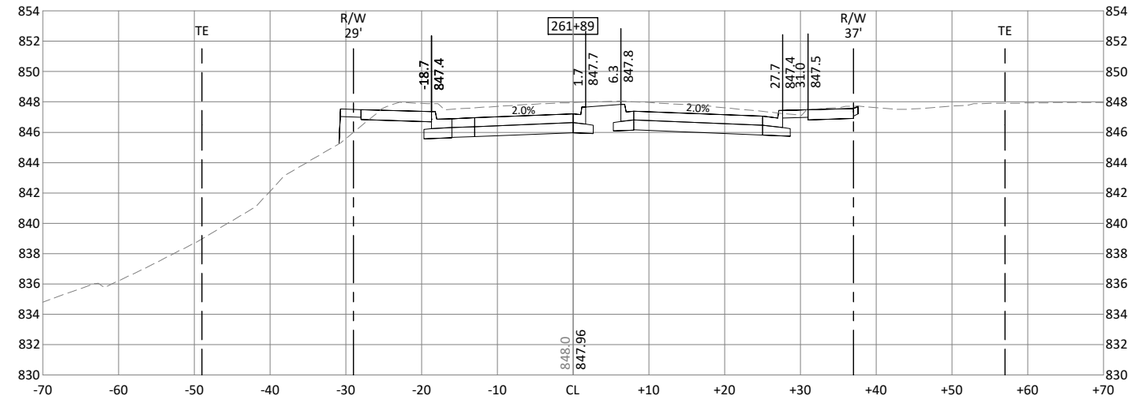
CROSS SECTIONS

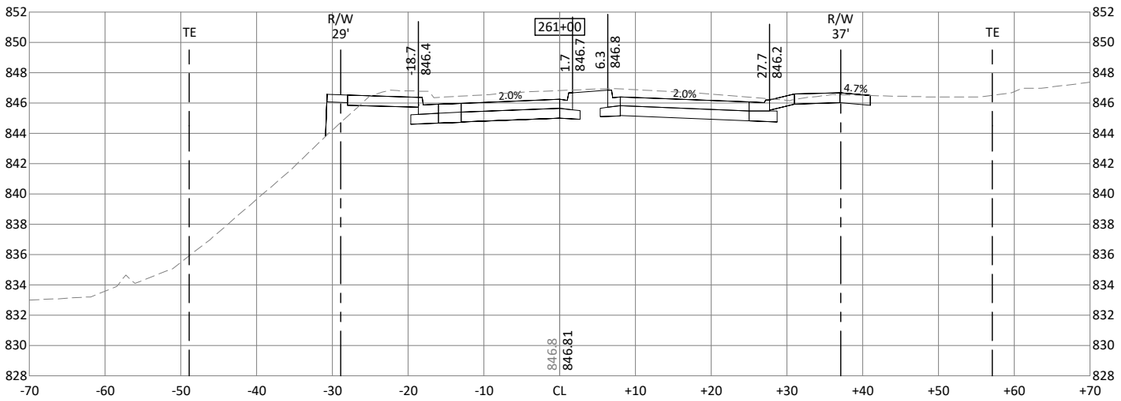
SHEET C9.23

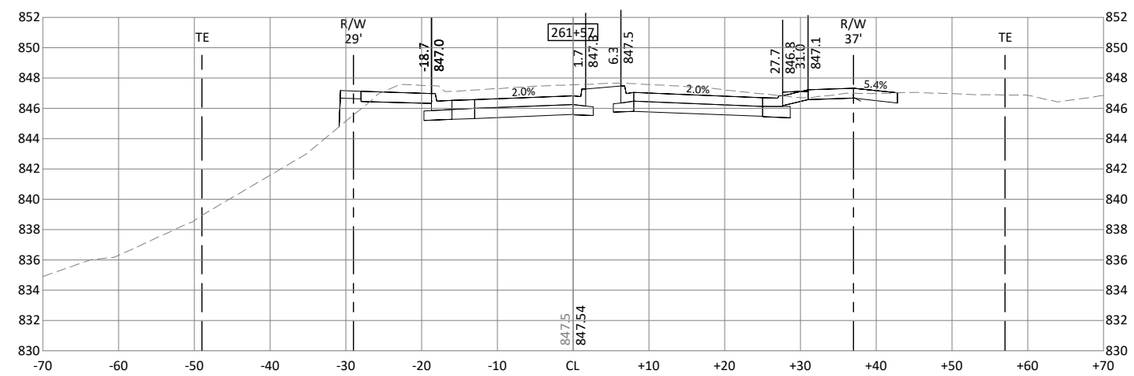












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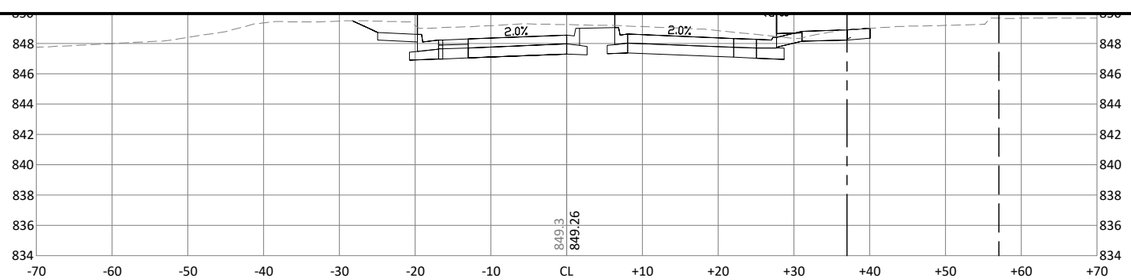
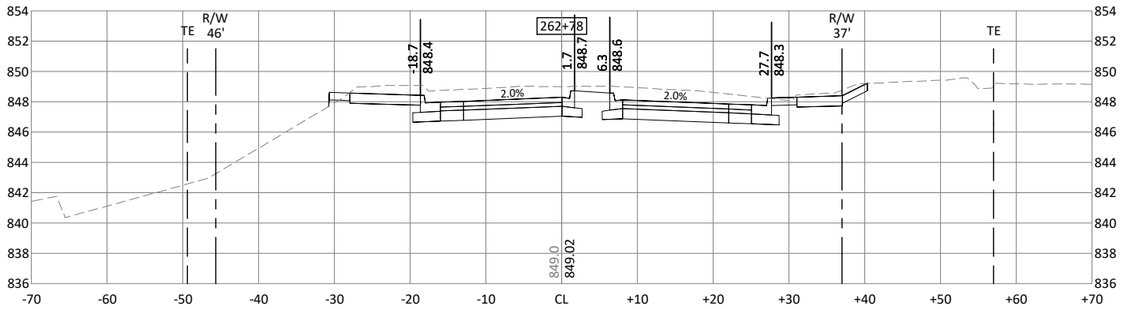
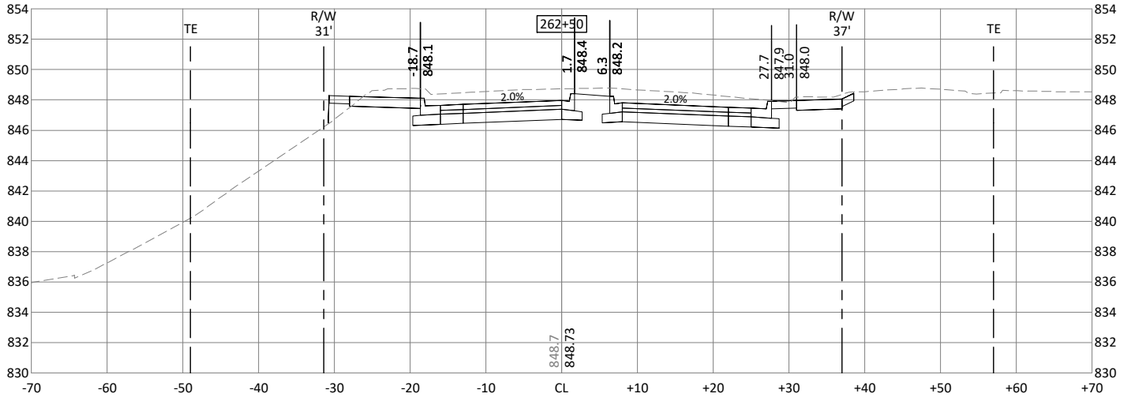
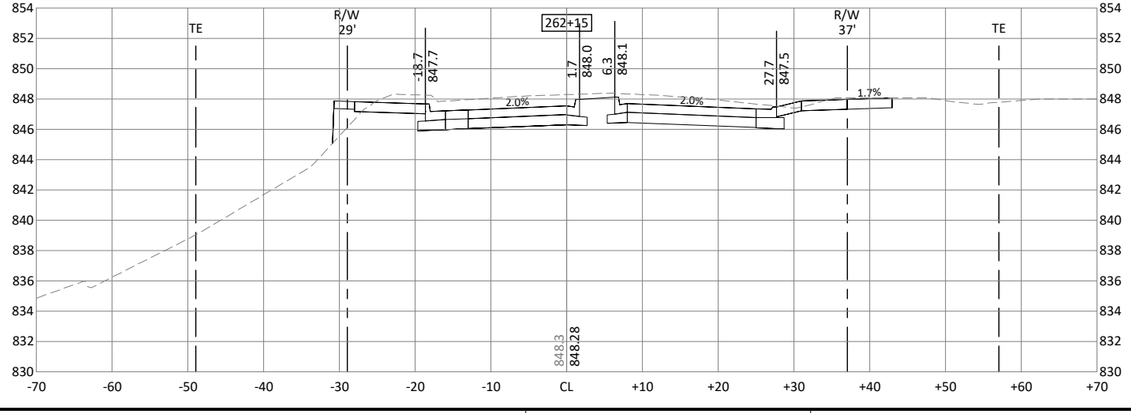
CITY OF RICHFIELD, MINNESOTA
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION
CROSS SECTIONS

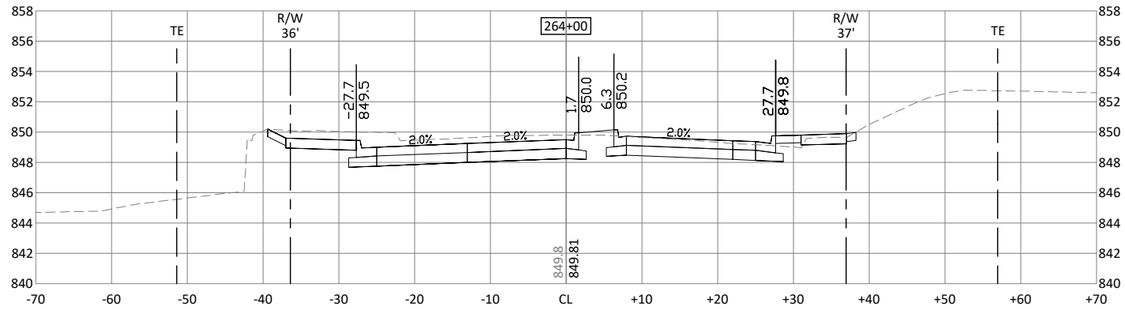
SHEET C9.24

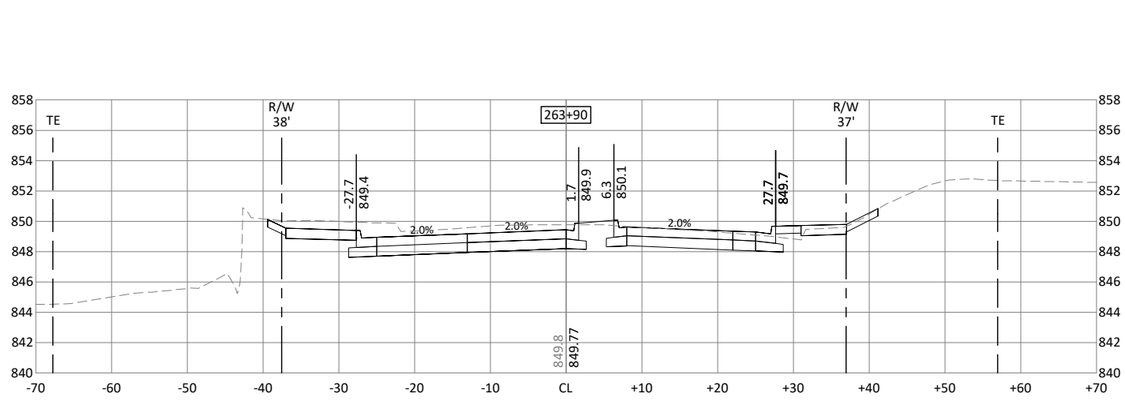


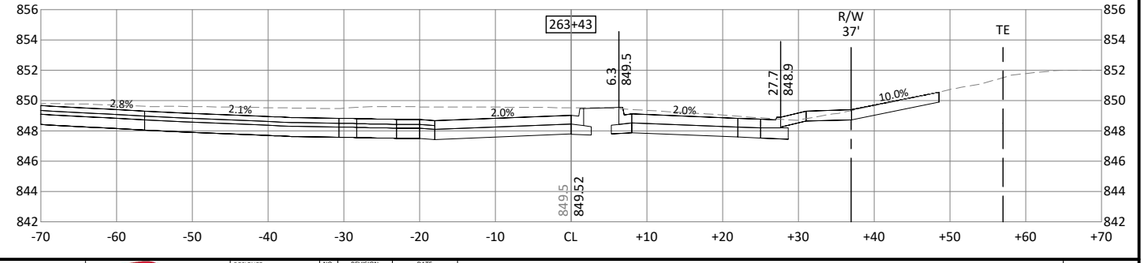












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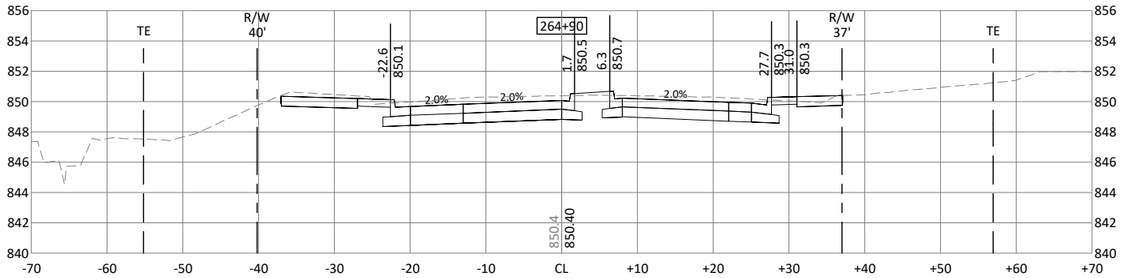
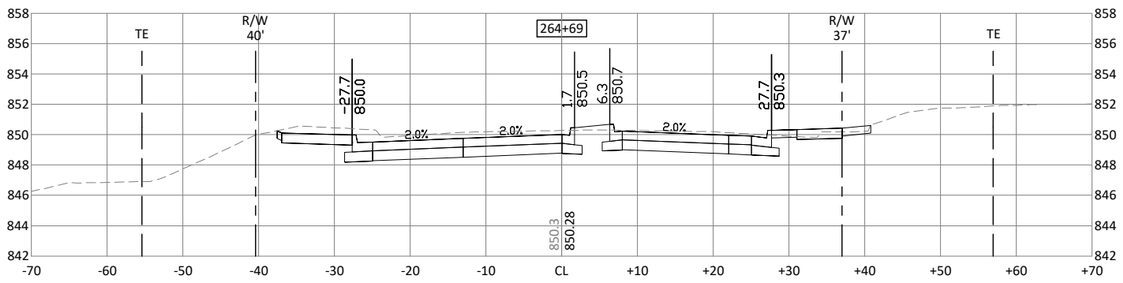
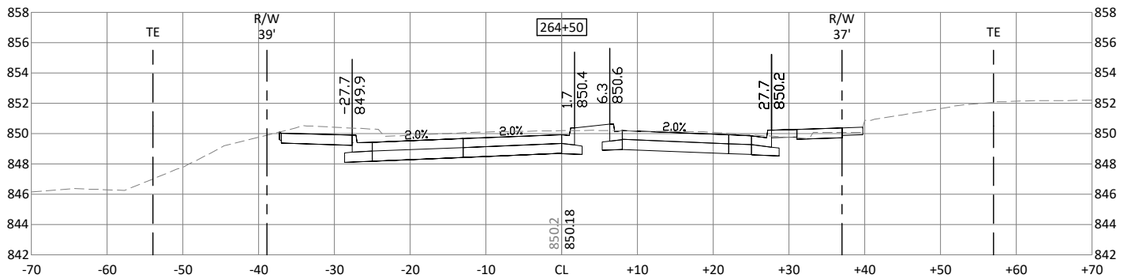
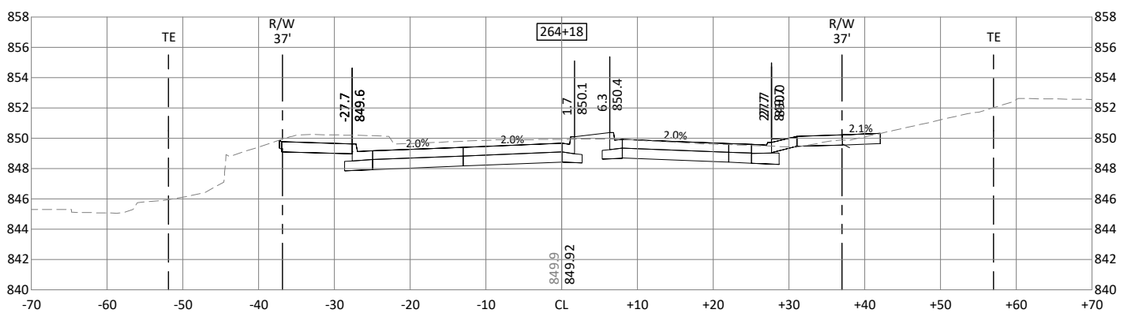
CROSS SECTIONS

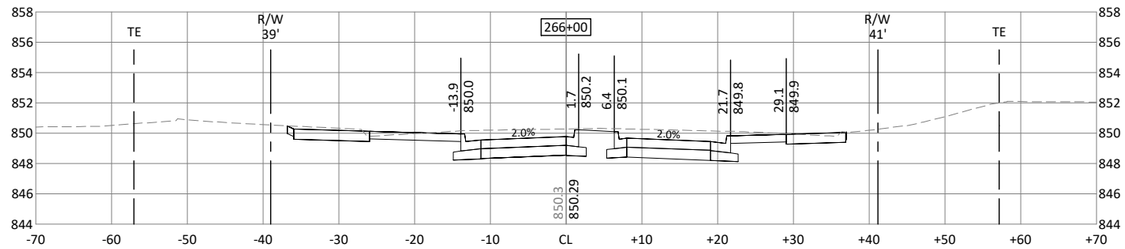
SHEET C9.25

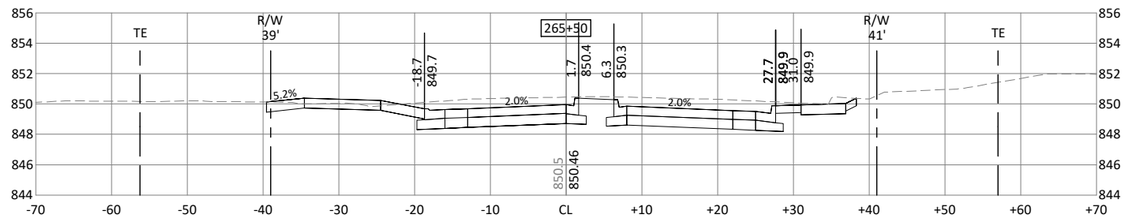


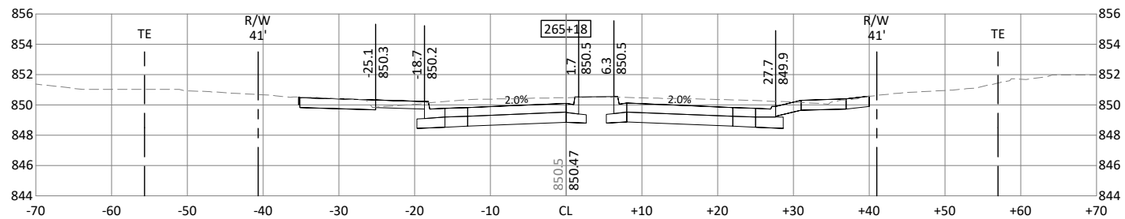


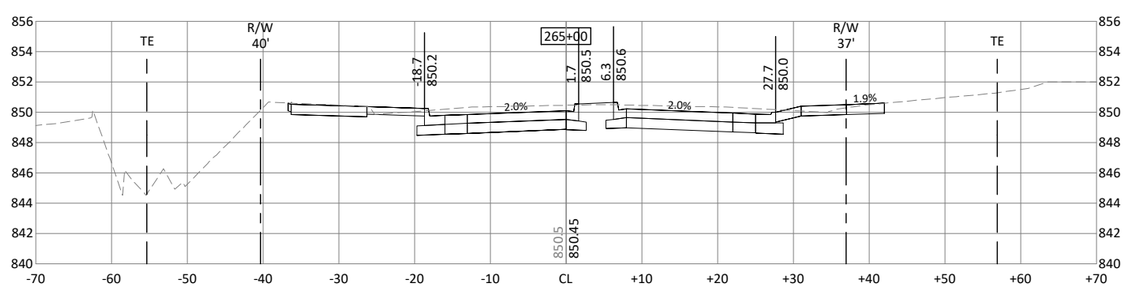












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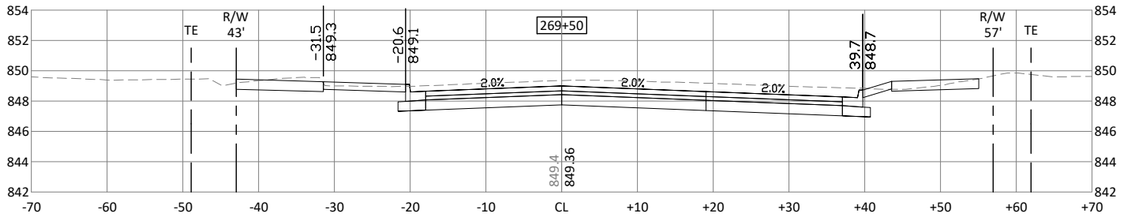
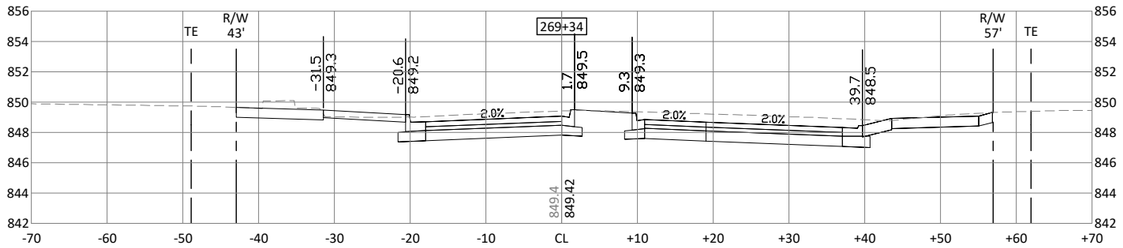
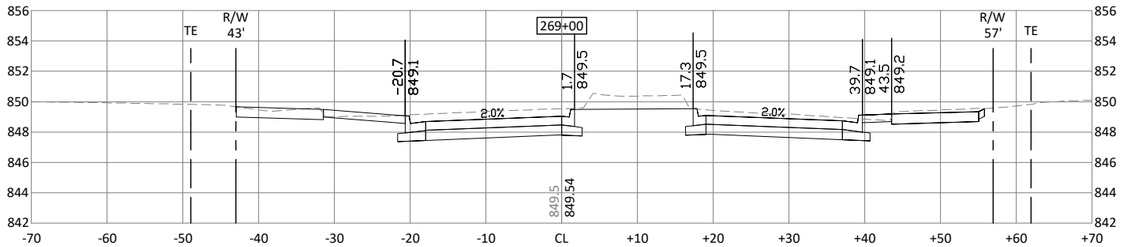
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

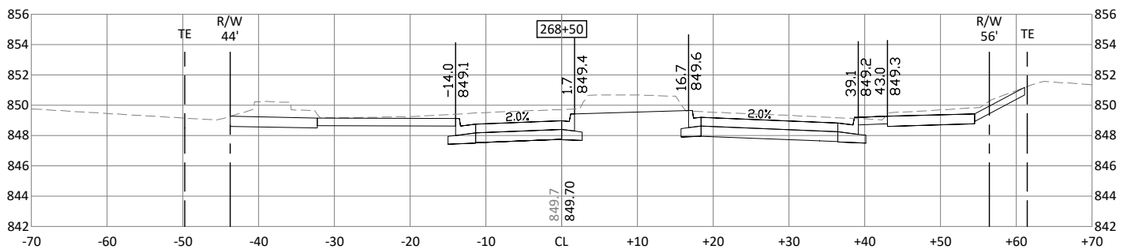
CROSS SECTIONS

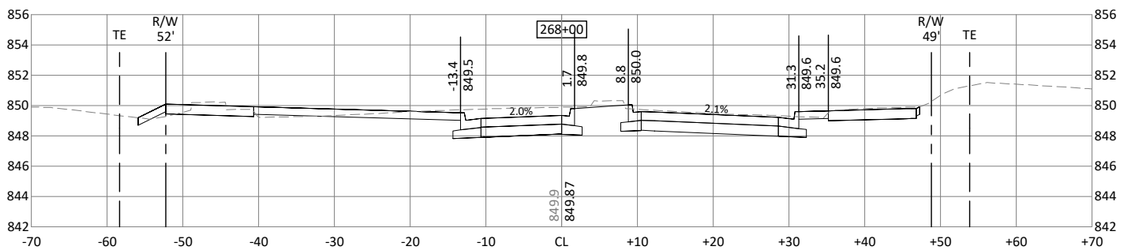
SHEET C9.26

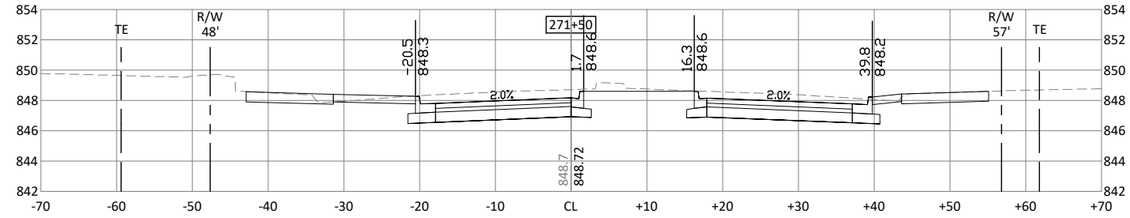


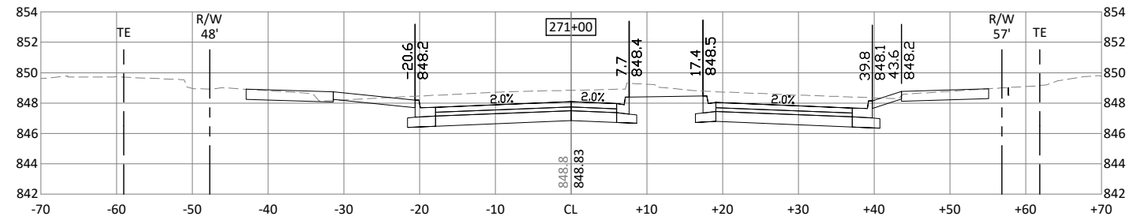


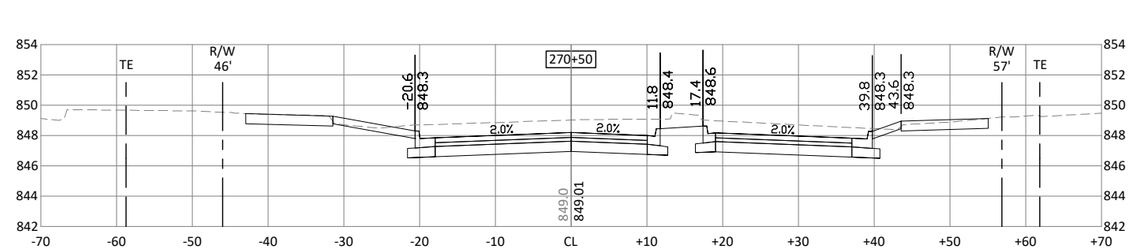


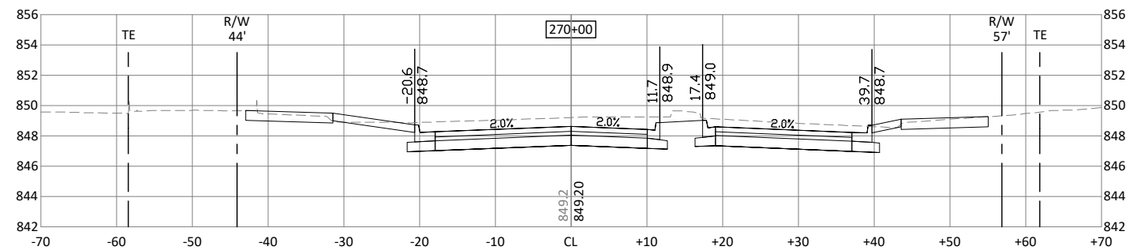












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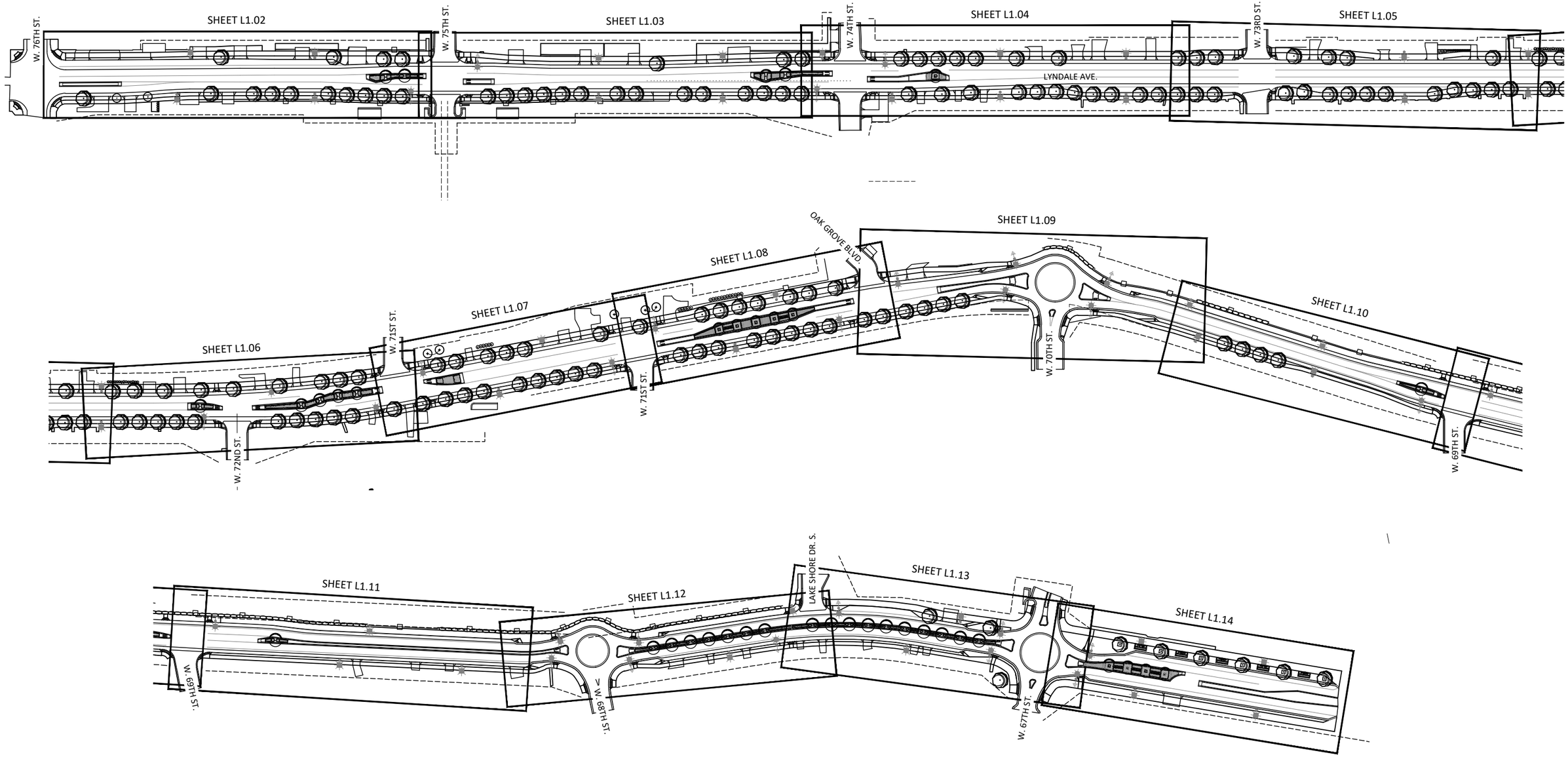
S.A.P. 157-363-032, LYNDALE AVENUE RECONSTRUCTION

CROSS SECTIONS

SHEET C9.27



0 80 160
SCALE FEET

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JONATHAN D. NELSEN
LIC. NO. 83433 DATE 2/19/19

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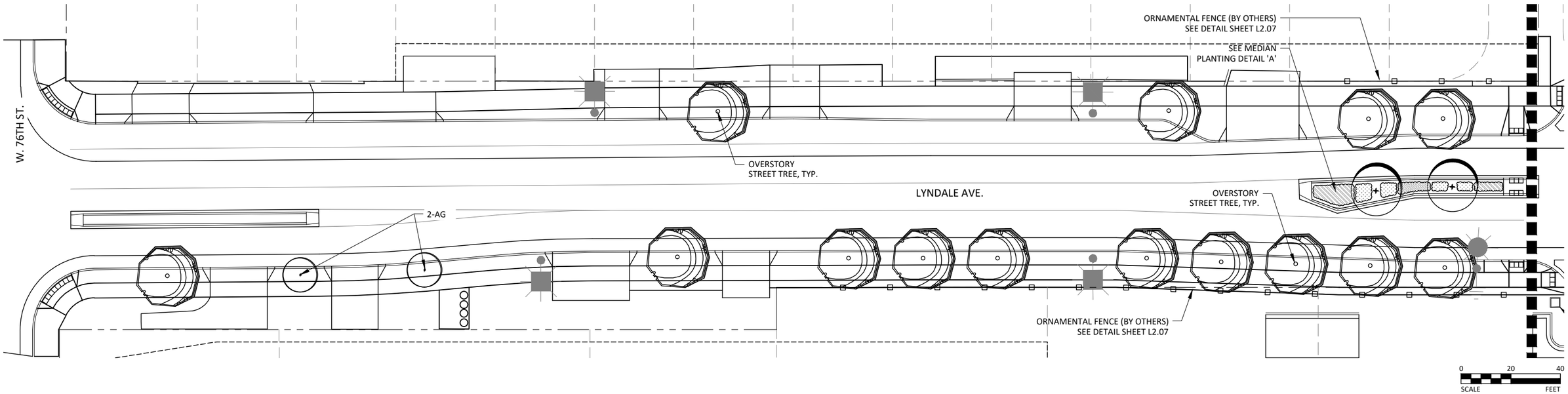
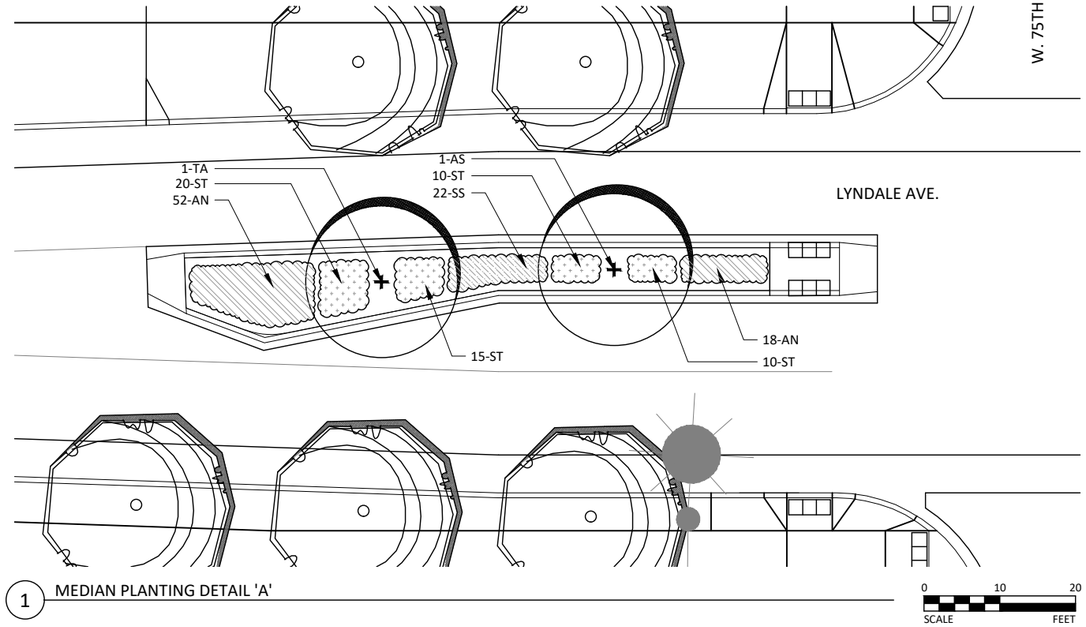
CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE PLAN

SHEET
L1.01





1 MEDIAN PLANTING DETAIL 'A'

0 10 20
SCALE FEET

NOTES:

1. LOCATION AND VARIETY OF TREE PLANTINGS TO BE VERIFIED IN FIELD BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION
2. CENTER BOULEVARD TREES BETWEEN THE BACK OF CURB AND EDGE OF SIDEWALK
3. CONTRACTOR TO VERIFY UTILITY LOCATIONS PRIOR TO PLANTING
4. ALL DISTURBED PERVIOUS AREAS (EXCLUDING PLANTED MEDIANS AND SELECT BOULEVARD AREAS AS SHOWN ON PLANS) SHALL RECEIVE TURF ESTABLISHMENT AS DIRECTED IN SPECIFICATIONS

LEGEND:

PLANTED MEDIAN AREA

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

JONATHAN D. NELSEN
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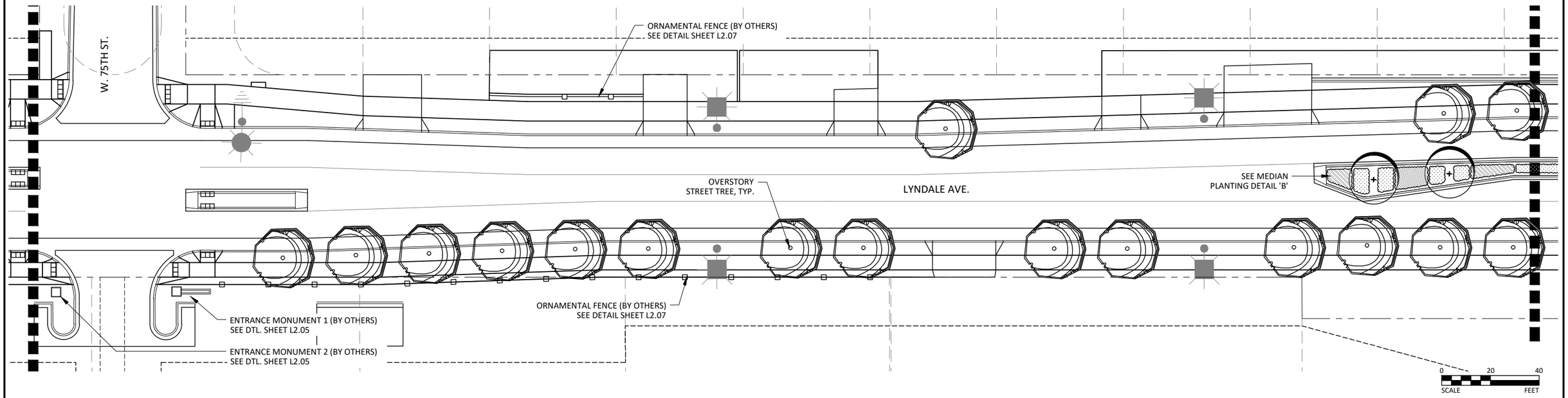
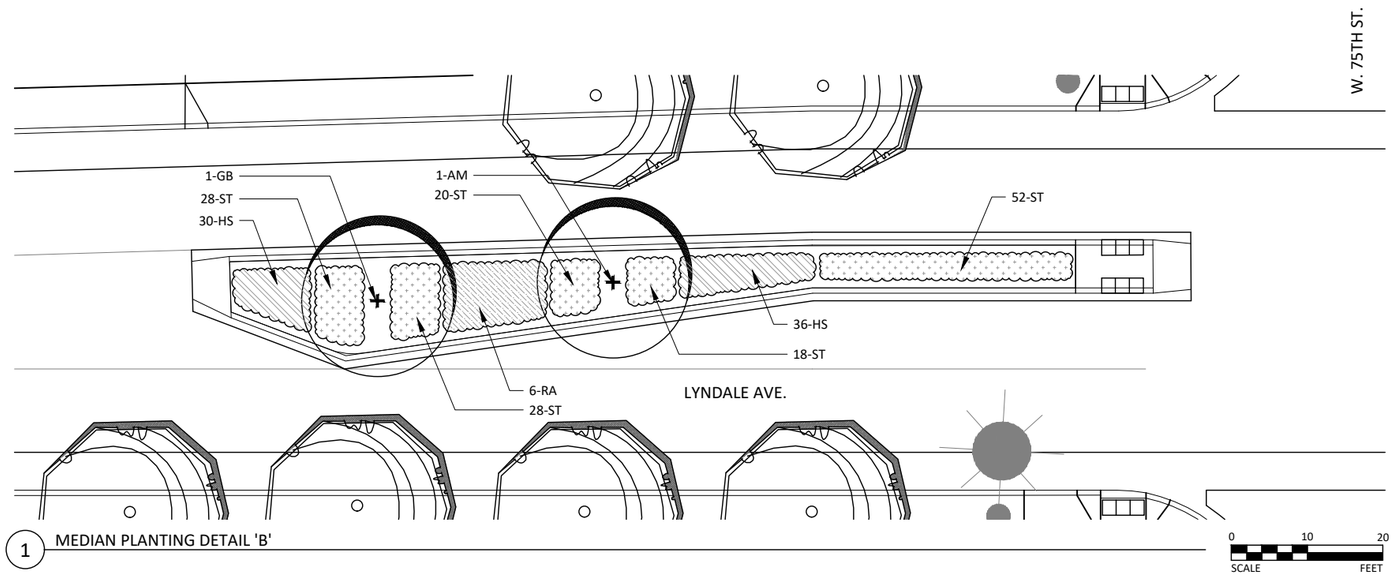
CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE PLAN

SHEET
L1.02





1 MEDIAN PLANTING DETAIL 'B'

NOTES:

1. LOCATION AND VARIETY OF TREE PLANTINGS TO BE VERIFIED IN FIELD BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION
2. CENTER BOULEVARD TREES BETWEEN THE BACK OF CURB AND EDGE OF SIDEWALK
3. CONTRACTOR TO VERIFY UTILITY LOCATIONS PRIOR TO PLANTING
4. ALL DISTURBED PERVIOUS AREAS (EXCLUDING PLANTED MEDIANS AND SELECT BOULEVARD AREAS AS SHOWN ON PLANS) SHALL RECEIVE TURF ESTABLISHMENT AS DIRECTED IN SPECIFICATIONS

LEGEND:

PLANTED MEDIAN AREA

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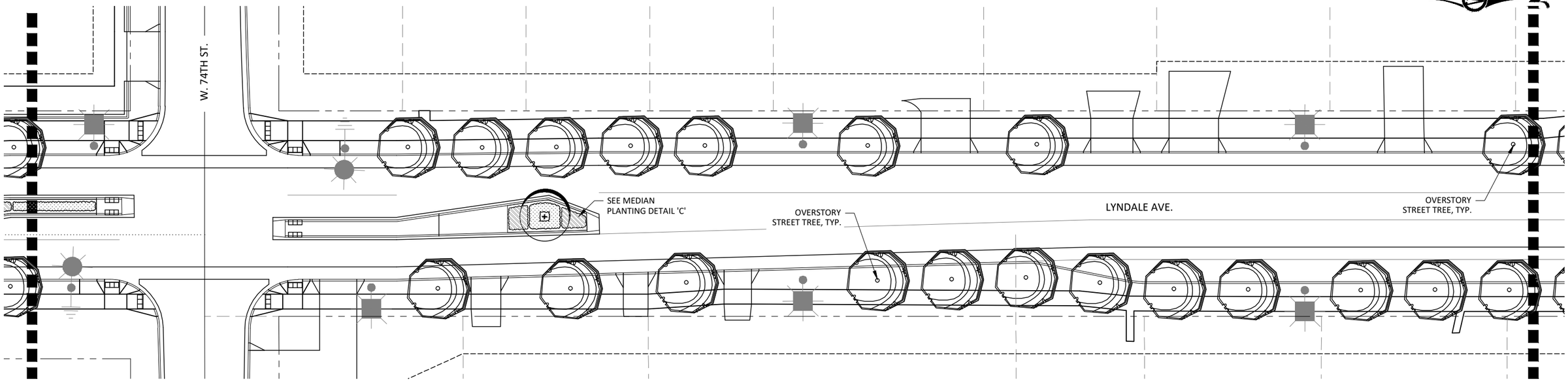
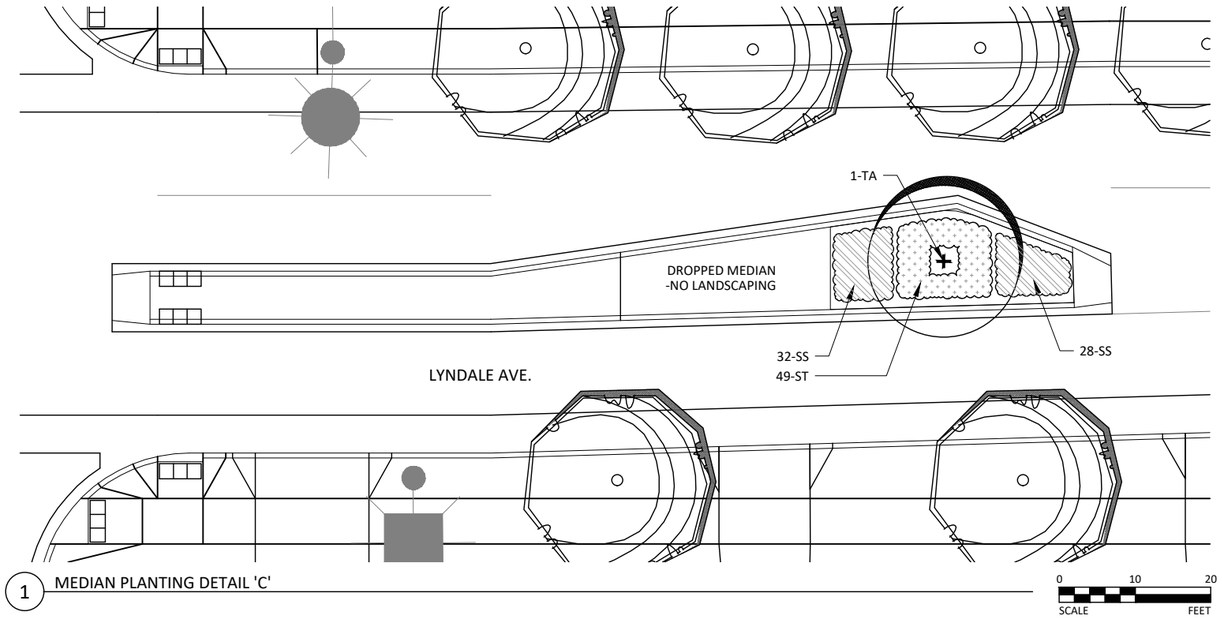
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE PLAN

SHEET
L1.03





1 MEDIAN PLANTING DETAIL 'C'

NOTES:

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4. ALL DISTURBED PERVIOUS AREAS (EXCLUDING PLANTED MEDIANS AND SELECT BOULEVARD AREAS AS SHOWN ON PLANS) SHALL RECEIVE TURF ESTABLISHMENT AS DIRECTED IN SPECIFICATIONS

LEGEND:

PLANTED MEDIAN AREA

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JONATHAN D. NELSEN
LIC. NO. 83433 DATE 2/19/19

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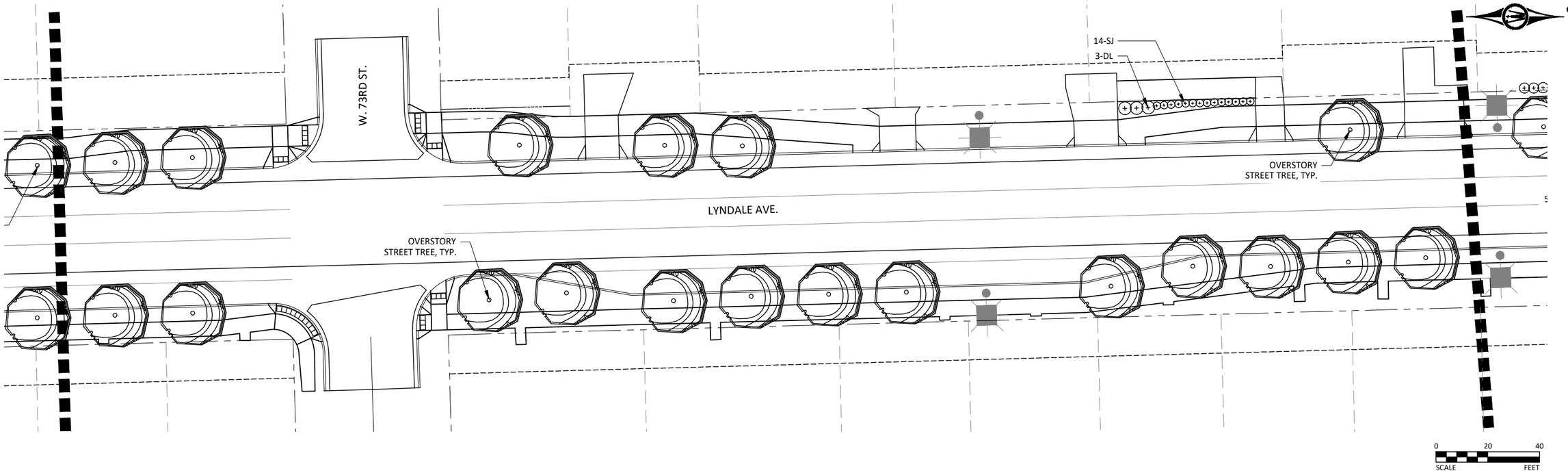
CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE PLAN

SHEET L1.04



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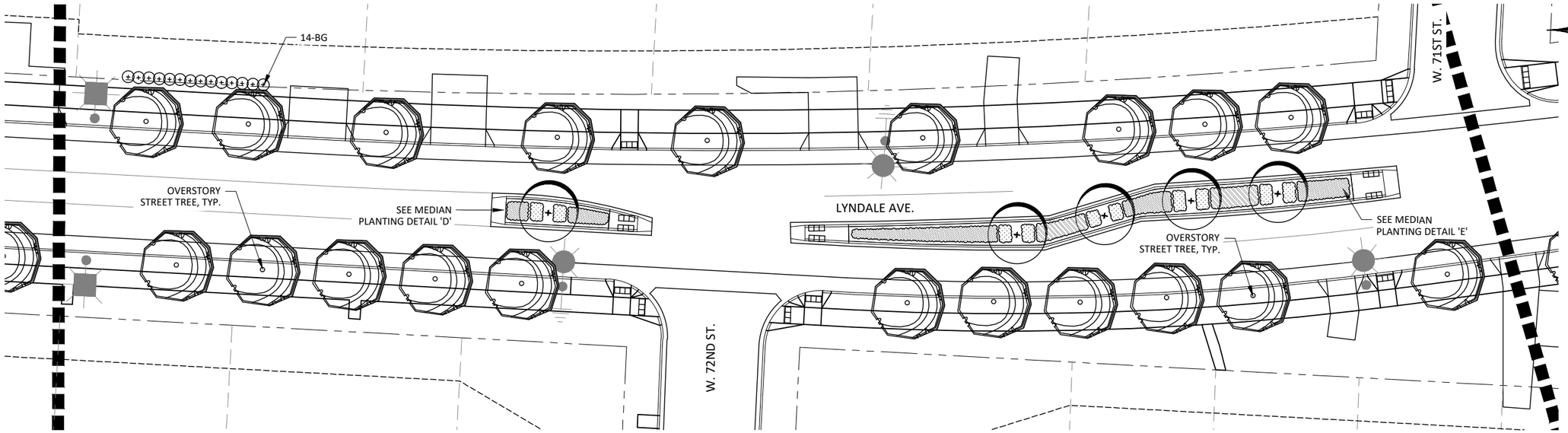
LANDSCAPE PLAN

SHEET
L1.05



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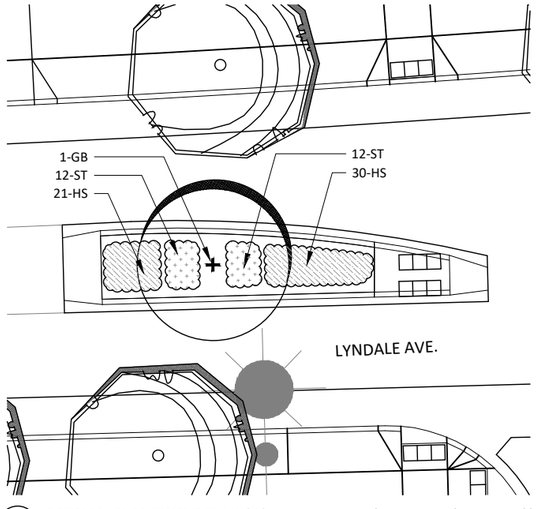
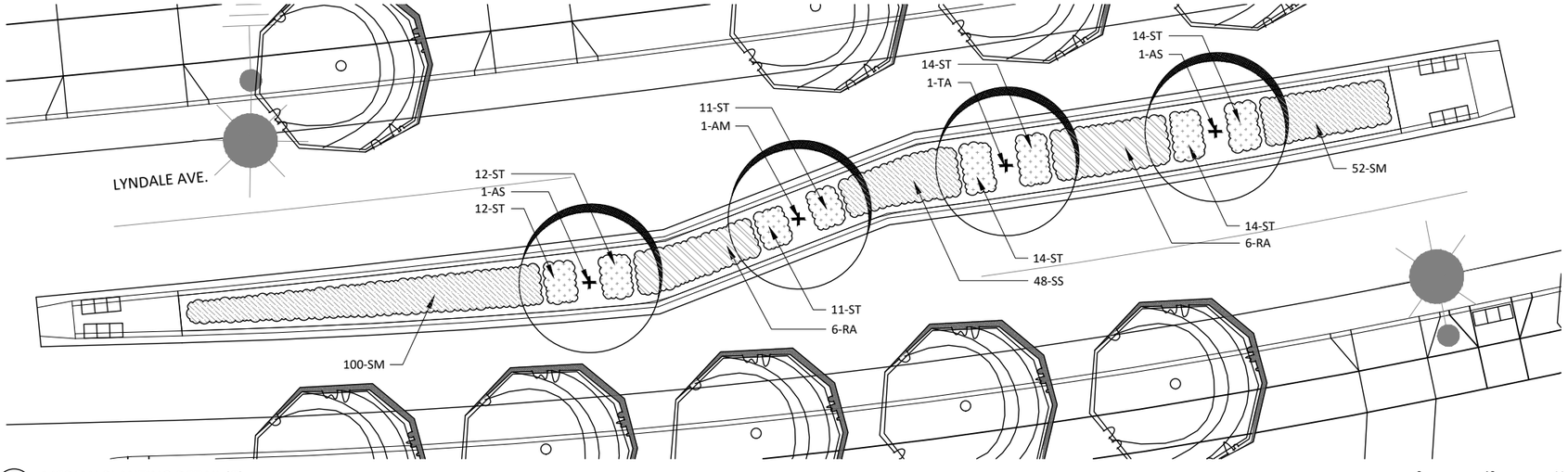


1 MEDIAN PLANTING DETAIL 'D'

0 10 20
SCALE FEET



2 MEDIAN PLANTING DETAIL 'E'

0 10 20
SCALE FEET

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CITY OF RICHFIELD, MINNESOTA
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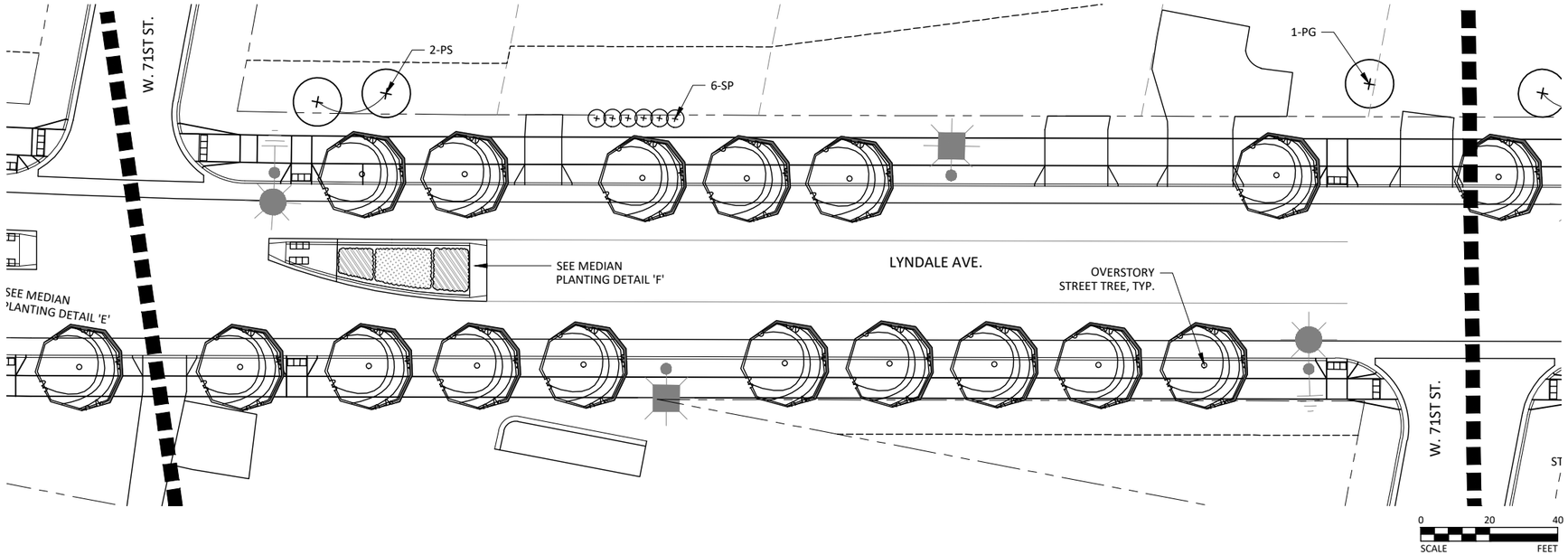
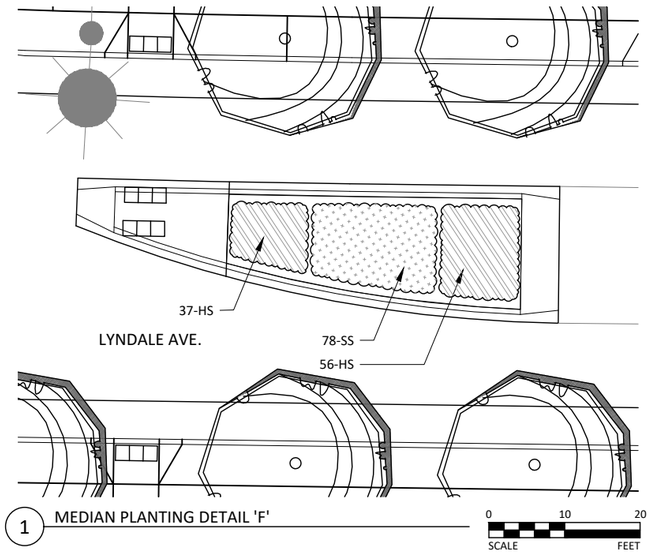
LANDSCAPE PLAN

SHEET
L1.06





1 MEDIAN PLANTING DETAIL 'F'

0 10 20
SCALE FEET

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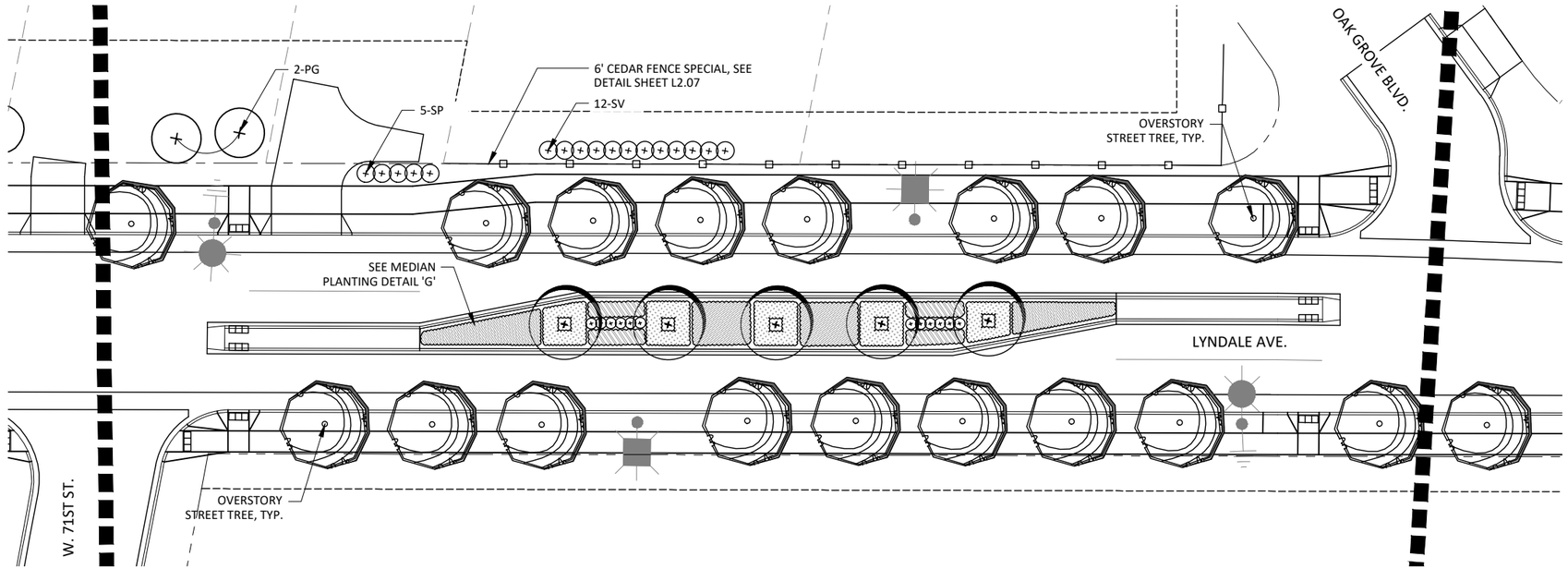
LANDSCAPE PLAN

SHEET
L1.07



0 20 40
SCALE FEET

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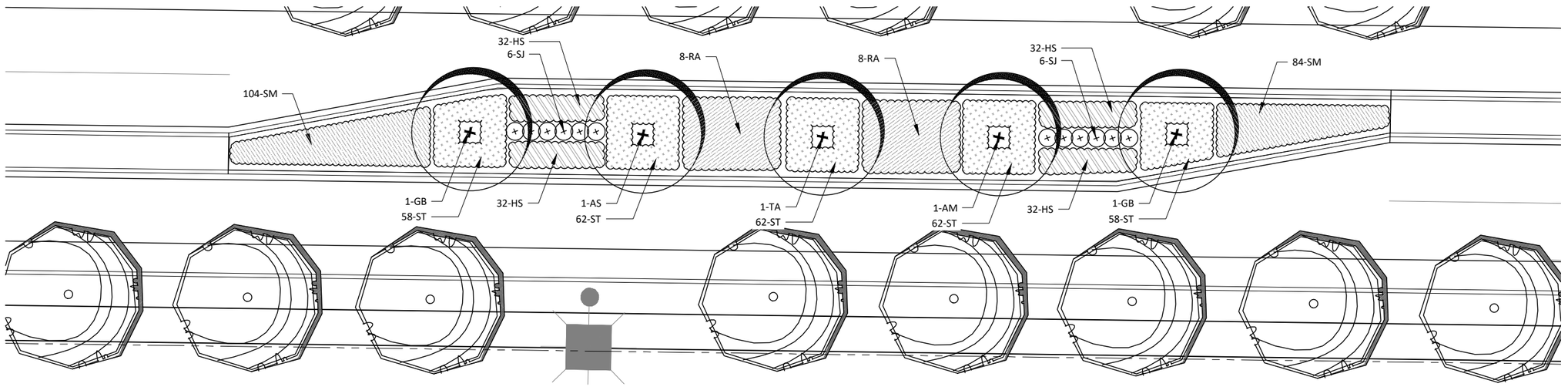

1 MEDIAN PLANTING DETAIL 'G'

0 10 20
SCALE FEET

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CITY OF RICHFIELD, MINNESOTA
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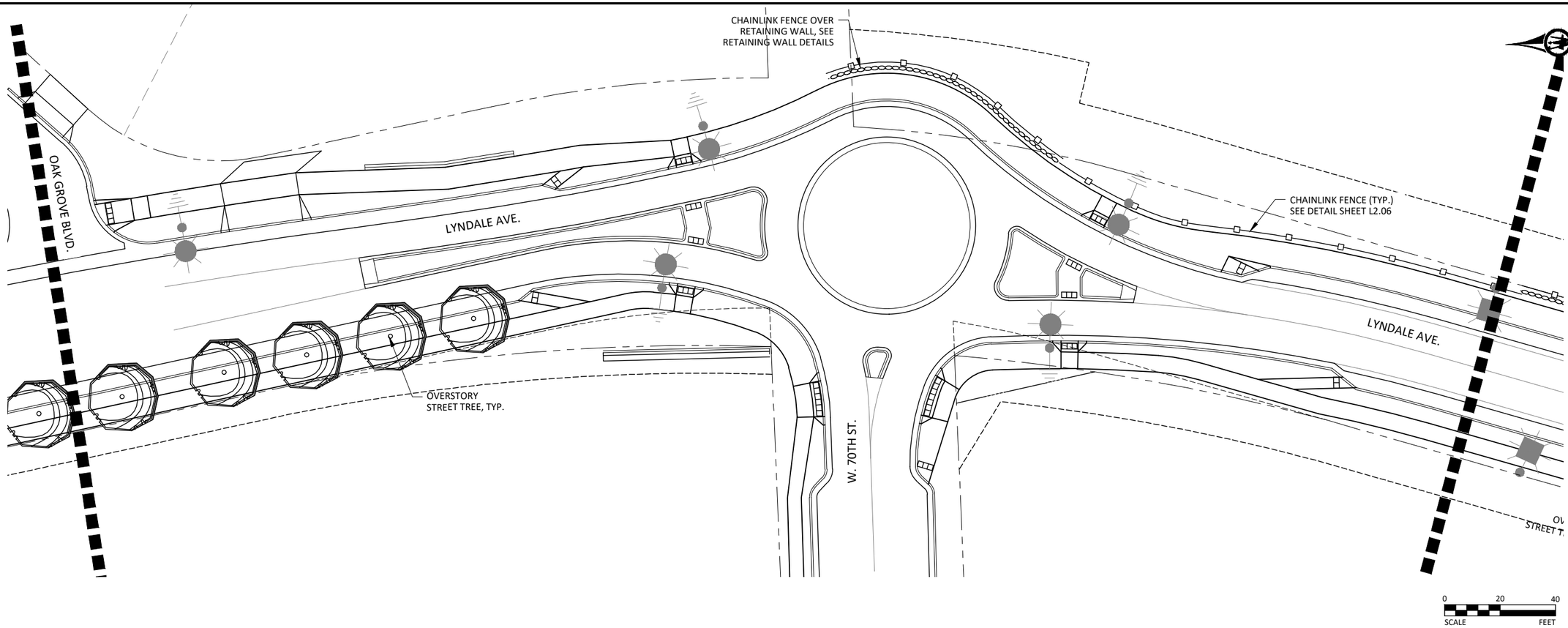
LANDSCAPE PLAN

SHEET L1.08



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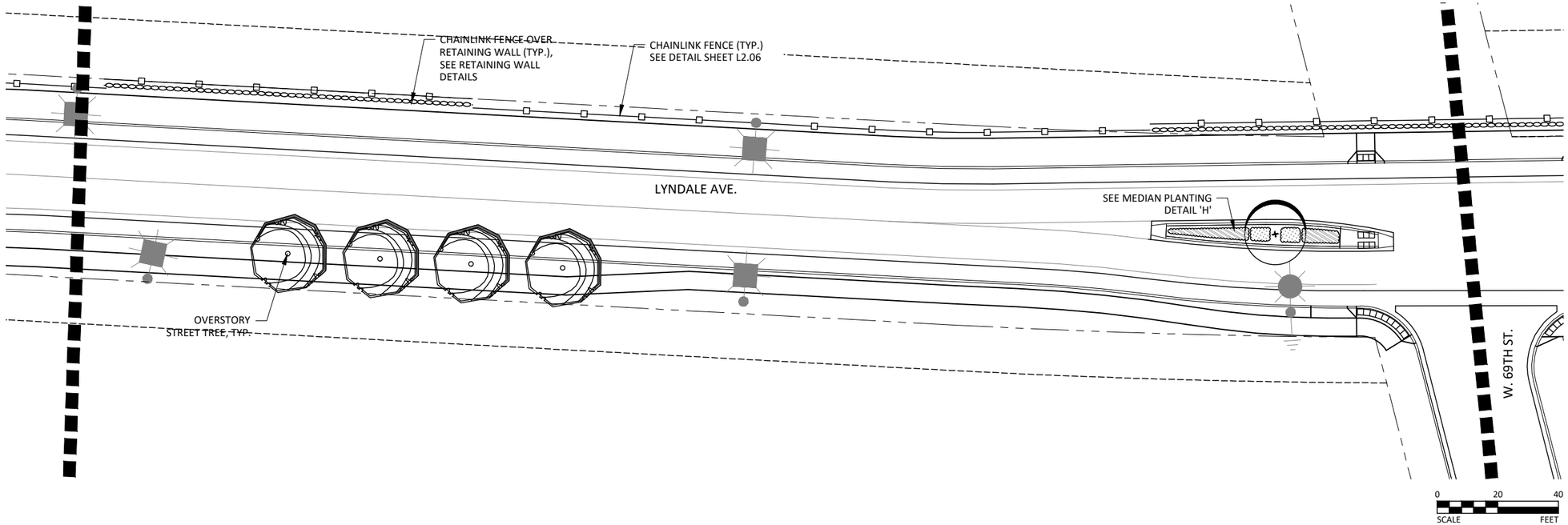
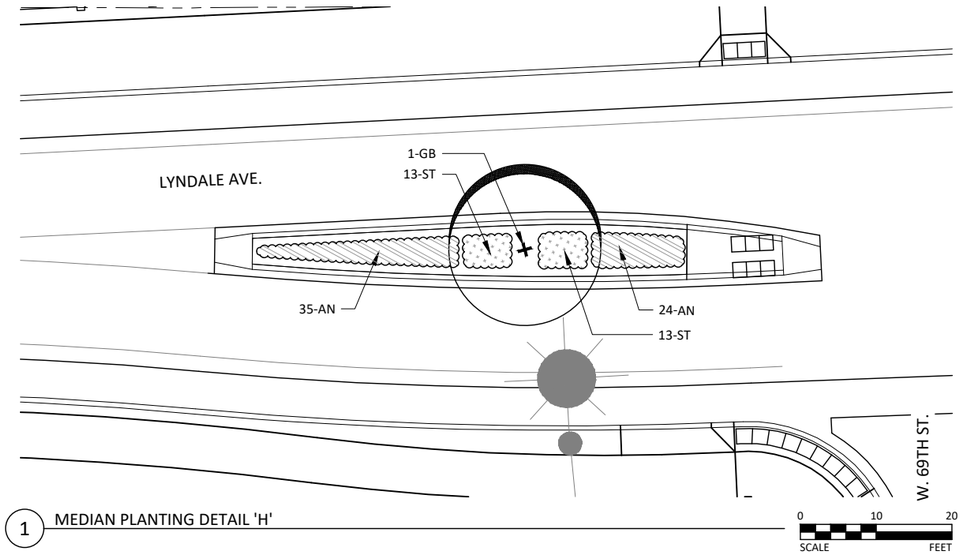
SHEET
L1.09





1 MEDIAN PLANTING DETAIL 'H'

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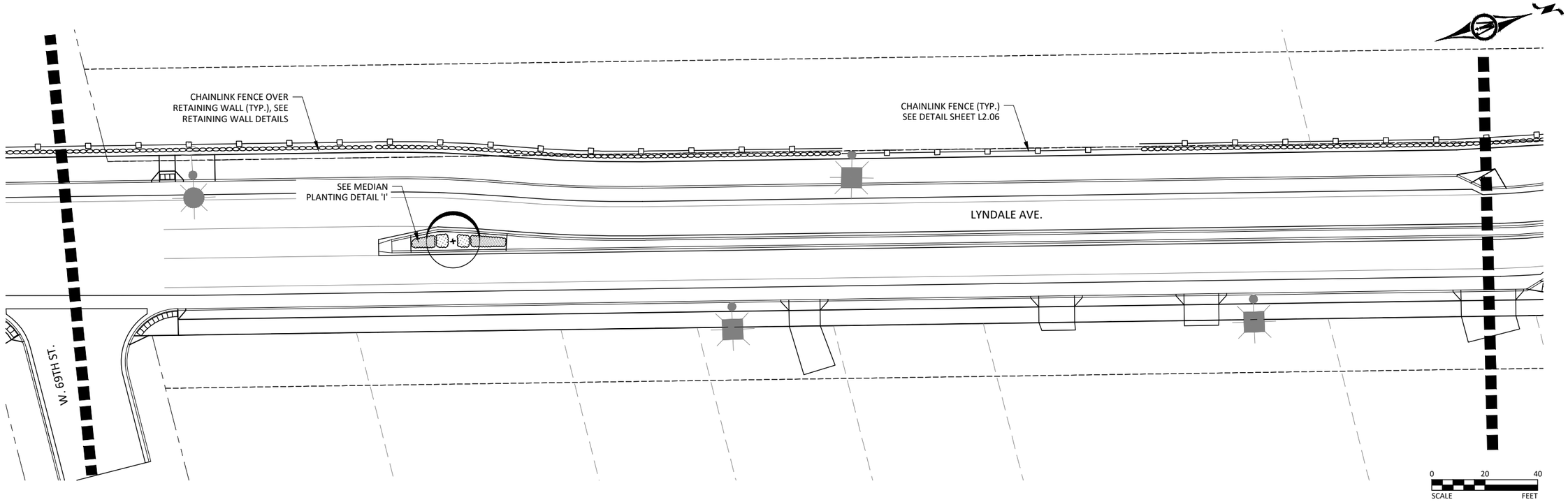
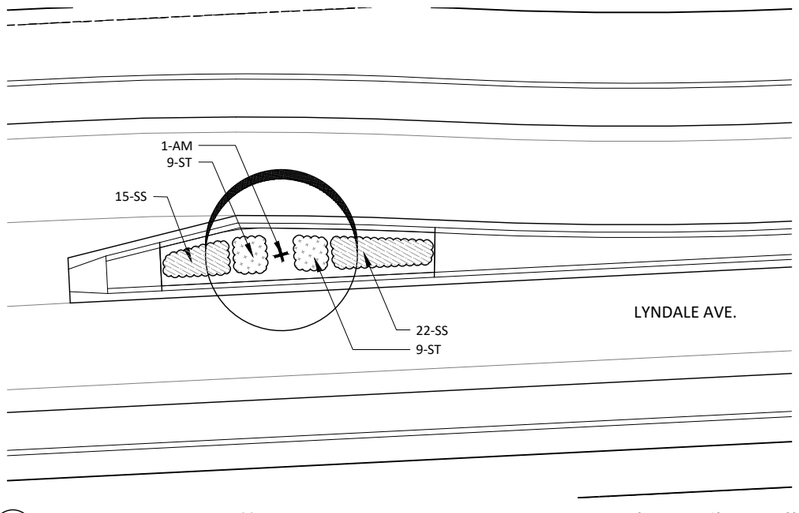
LANDSCAPE PLAN

SHEET L1.10





1 MEDIAN PLANTING DETAIL 'I'

0 10 20
SCALE FEET

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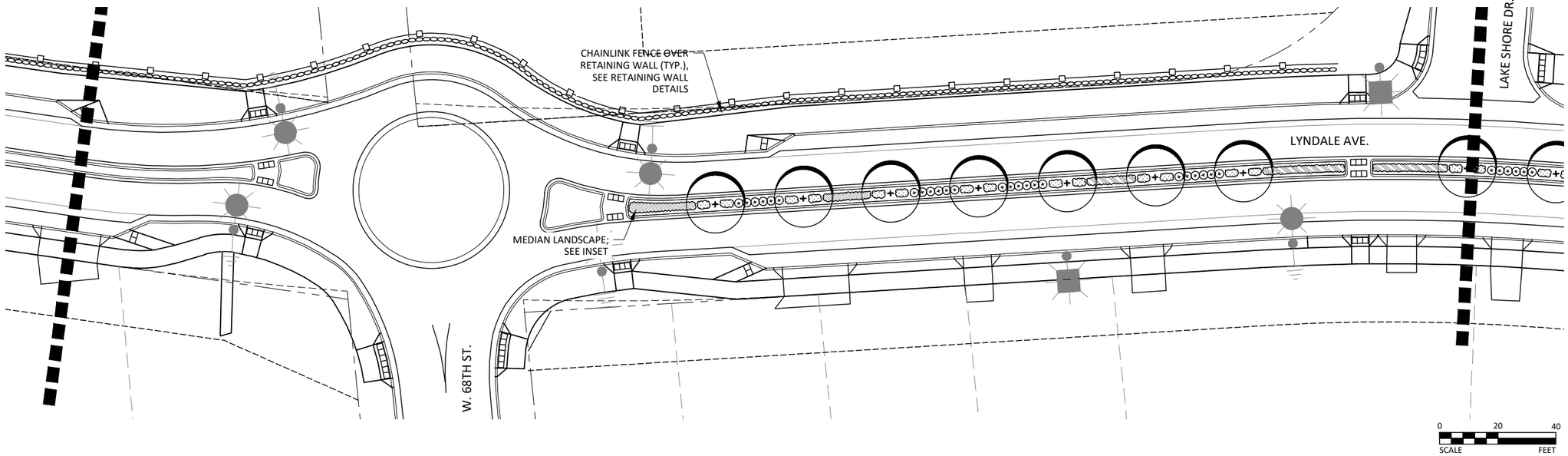
LANDSCAPE PLAN

SHEET L1.11



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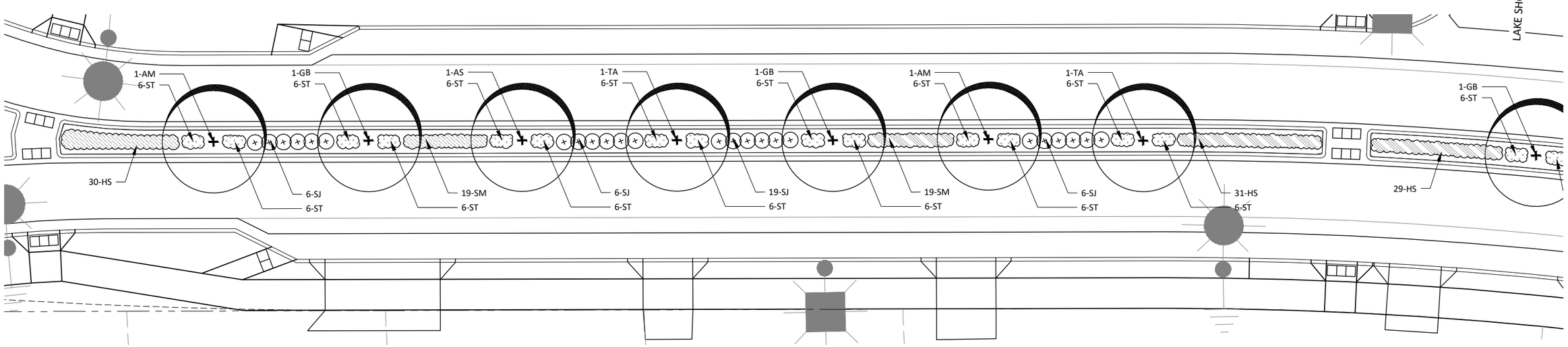

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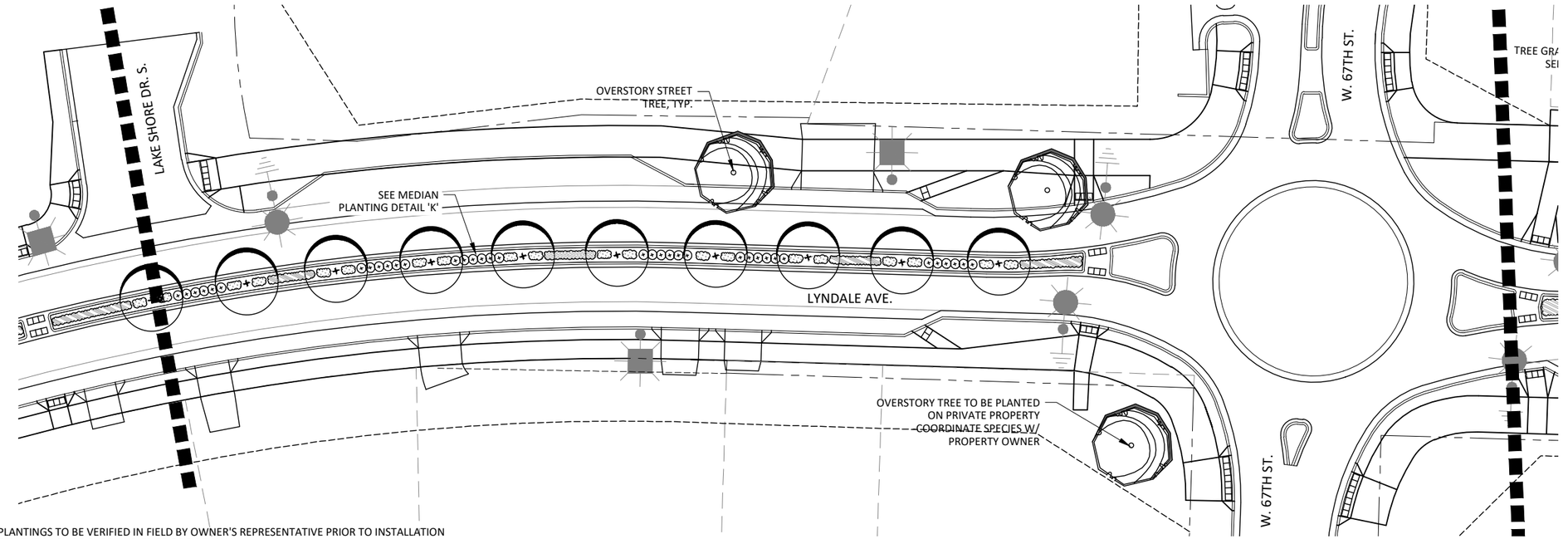
LANDSCAPE PLAN

SHEET L1.12



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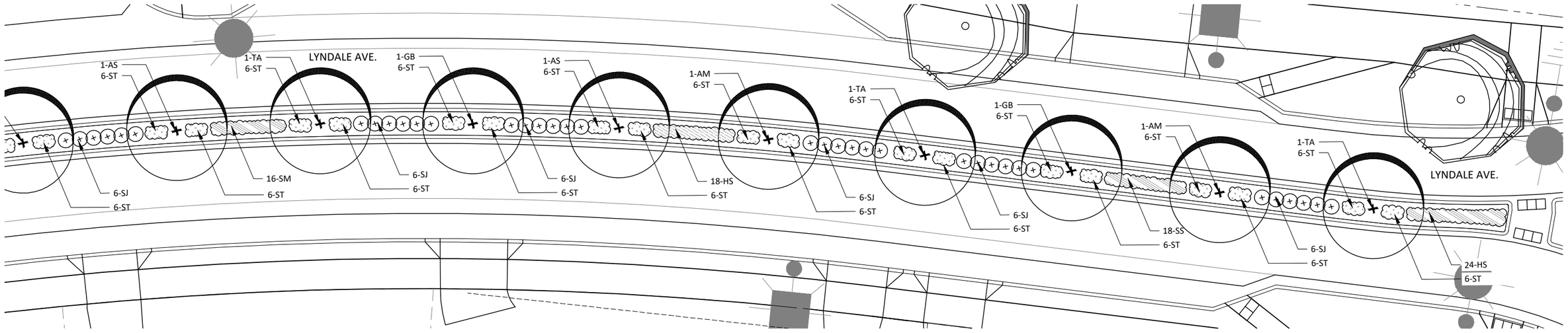

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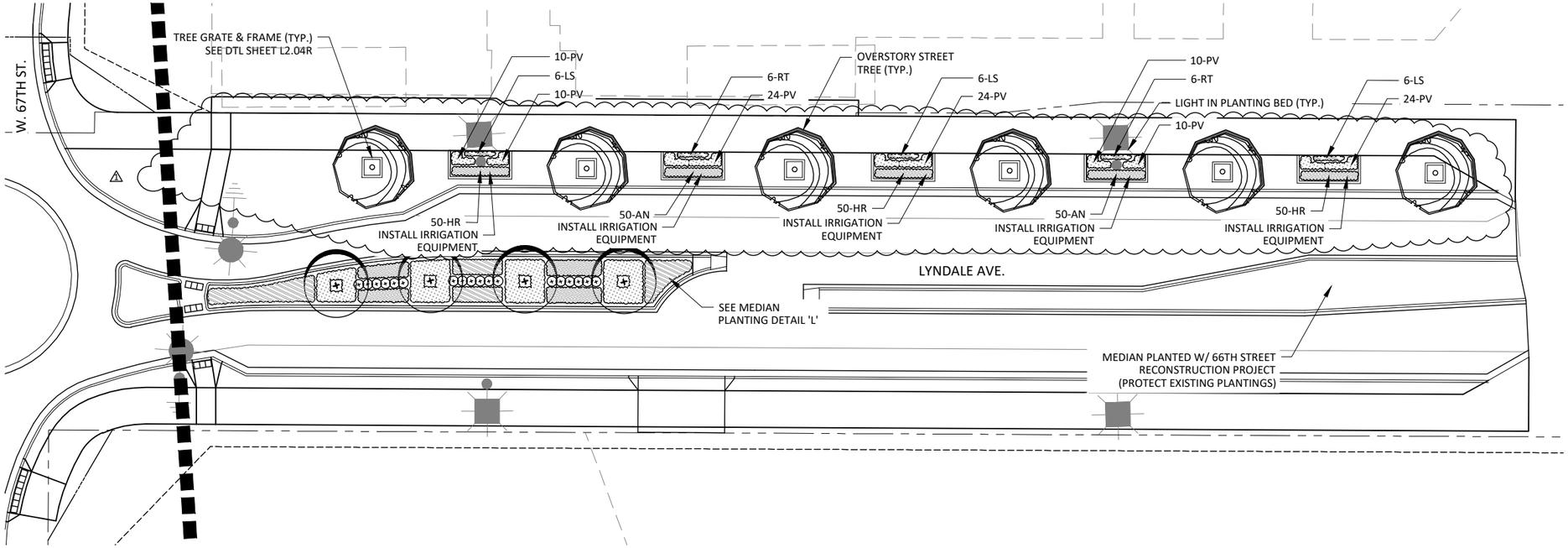
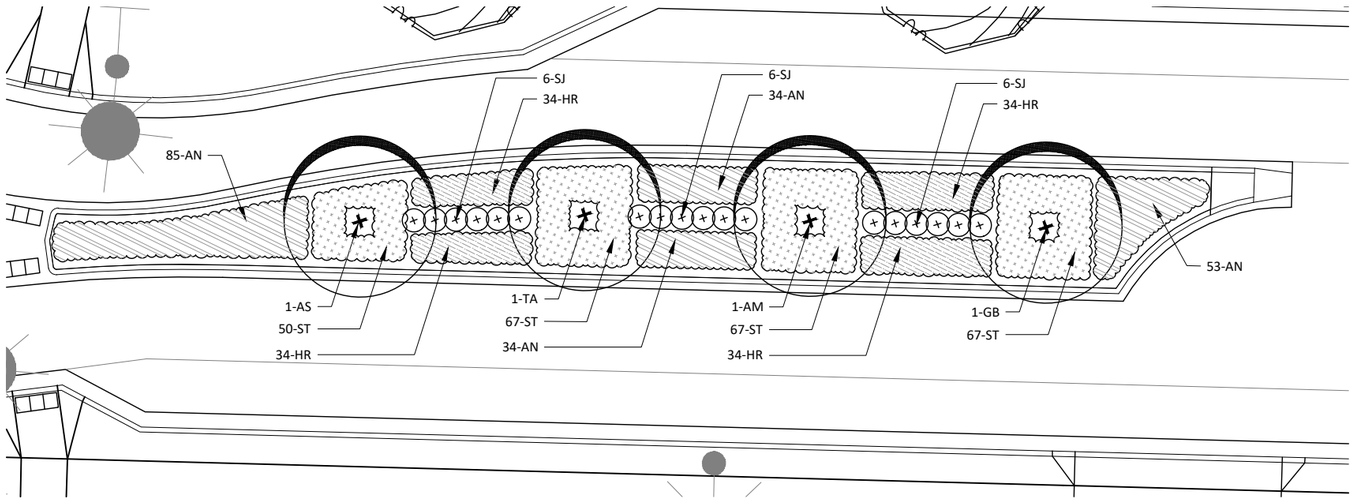
LANDSCAPE PLAN

SHEET L1.13





1 MEDIAN PLANTING DETAIL 'L'

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CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE PLAN

SHEET
L1.14R

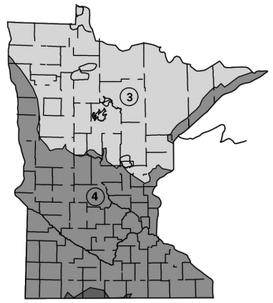
GENERAL NOTES

SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS.	
REFER TO MnDOT SPECIFICATIONS 2571, 2572, 3861, FOR GENERAL REQUIREMENTS.	
COMPLETE PREPARATORY WORK BEFORE STARTING INITIAL PLANTING OPERATIONS.	
ACCEPT ALL PLANT STOCK IN ACCORDANCE WITH (MnDOT 3861) PRIOR TO PLANTING.	
THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR SOIL CULTIVATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3D.2)	
THE CONTRACTOR WILL DEMONSTRATE COMPETENCY FOR ALL PLANT INSTALLATION OPERATIONS IN ACCORDANCE WITH (MnDOT 2571.3F1)	
RODENT PROTECTION	SEE SPECIAL PROVISIONS AND STANDARD PLANTING DETAILS (3 OF 3)
FERTILIZER	SEE SPECIAL PROVISIONS
COMPOST	MnDOT 3890 COMPOST GRADE 2 UNLESS OTHERWISE SPECIFIED.
MULCH MATERIAL	MnDOT 3882 MULCH MATERIAL TYPE 6 UNLESS OTHERWISE SPECIFIED.
MASS PLANTING BEDS	PREPARE MASS PLANTING BEDS FOR PLANTS PLACED AT 15′ OR LESS, UNLESS OTHERWISE SPECIFIED ON SHEETS. PLANT BEDS IN STAGGERED ROWS ON THE PERIMETER FIRST, THEN UNIFORMLY FILL IN WITH REMAINING PLANTS. USE TRIANGULAR SPACING, UNLESS SPECIFIED OTHERWISE. PROVIDE 5′ RADIUS CLEAR OF SHRUBS AROUND EACH DECIDUOUS TREE AND 8′ CLEAR RADIUS AROUND EACH CONIFER TREE. RADIUS WILL BE MEASURED FROM THE CENTER OF THE TREE TO THE CENTER OF THE SHRUB. NOTIFY ENGINEER OF GROSS PLANT QUANTITY SURPLUS OR DEFICIENCY IMMEDIATELY. MULCH ENTIRE MASS PLANTING BED. SEE STANDARD PLANTING DETAILS (3 OF 3)
TREE PAINTING (FROST CRACK PREVENTION)	PAINT OAK, LINDEN, LOCUST, MAPLE, CRABAPPLE AND MOUNTAIN ASH. ONLY UNDILUTED EXTERIOR WHITE LATEX PAINT IS ACCEPTABLE. PAINT TREE CIRCUMFERENCE FROM GROUND LINE TO FIRST MAJOR BRANCH.
PLANTING PLAN DIMENSIONS	STATED DIMENSIONS SUPERCEDE SCALING FROM PLAN.

WATERING GUIDELINES (MnDOT 2571.3G)

PLANT TYPE	AVERAGE GALLONS OF WATER PER APPLICATION
MACHINE TRANSPLANTED TREES	50–100
BALLED AND BURLAPPED TREES	20
BARE ROOT AND CONTAINER TREES	15
BALLED AND BURLAPPED SHRUBS	10
BARE ROOT AND CONTAINER SHRUBS	7
WOODY SEEDLINGS	4
PERENNIALS AND VINES	3

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MONITOR AND MAINTAIN SOIL MOISTURE AT ADEQUATE BUT NOT EXCESSIVE LEVELS. THE AMOUNTS LISTED ABOVE ARE GUIDELINES, NOT REQUIREMENTS.

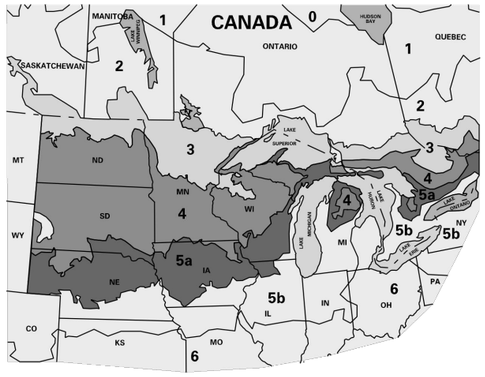


1. BARE ROOT PERENNIALS MUST BE PLACED IN THE SPRING NO LATER THAN JUNE 1ST OR FOLLOW THE FALL DECIDUOUS PLANTING DATES.
2. ACTUAL DATES MAY CHANGE DEPENDING UPON SEASONAL CONDITIONS, AS DETERMINED BY THE ENGINEER.
3. FALL PLANTING IS NOT ALLOWED FOR BARE ROOT FORM OF THE FOLLOWING SPECIES: HAWTHORN, DOGWOOD, POPLAR, HACKBERRY, LINDEN, IRONWOOD, HONEYLOCUST, BIRCH, MOUNTAIN ASH, MAPLE, WILLOW, CRABAPPLE, PLUM/CHERRY, OAKS, AND SUMAC.
4. ALL REPLACEMENT PLANTS MUST BE PLACED DURING THE MONTH OF MAY (SPRING PLANTING) AND SEPTEMBER (FALL PLANTING) DURING THE FIRST YEAR OF THE PLANT ESTABLISHMENT PERIOD.
5. MACHINE MOVED PLANTING DATES WILL BE SPECIFIED IN THE SPECIAL PROVISIONS.

PLANTING DATES BY ZONE

			③	④
SPRING	DECIDUOUS	BARE ROOT	APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
		CONTAINER B&B	APRIL 21 TO JUNE 30	APRIL 7 TO JUNE 30
	CONIFEROUS		APRIL 21 TO JUNE 1	APRIL 7 TO MAY 17
	PERENNIALS		MAY 1 TO JUNE 30	MAY 1 TO JUNE 30
	SEEDLINGS		APRIL 21 TO JUNE 1	APRIL 7 TO JUNE 1
FALL	DECIDUOUS	BARE ROOT	OCT. 1 TO NOV. 1	OCT. 10 TO NOV. 15
		CONTAINER B&B	AUG. 25 TO OCT. 15	AUG. 25 TO NOV. 1
	CONIFEROUS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15
	PERENNIALS		AUG. 25 TO SEPT. 15	AUG. 25 TO SEPT. 15

PLANT INSTALLATION PERIOD



ACCEPTABLE ZONES		
ZONES	LEGEND	MIN. TEMP.
3		–34.4° TO –40 F
4		–28.9° TO –34.4 F
5a		–26.1° TO –28.9 F

UNACCEPTABLE ZONES	
ZONES	LEGEND
0, 1, 2, 5b and 6	

FOR ALL PLANT STOCK, DOCUMENT ACCEPTABILITY FOR HARDINESS IN THE MINNESOTA ZONE WHERE THE PROJECT SITE IS LOCATED, AS FOLLOWS:

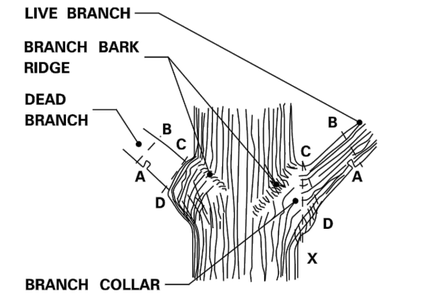
A. PLANT STOCK CONTINUOUSLY GROWN FOR AT LEAST THE LAST TWO YEARS WITHIN THE ACCEPTABLE LIMITS SHOWN.

OR

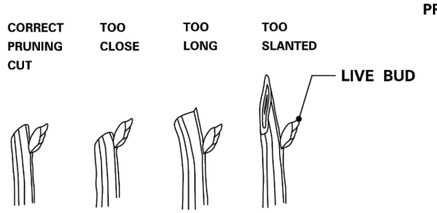
B. PLANT STOCK, GROWN OUTSIDE THE ACCEPTABLE GROWING RANGE LIMITS, HAVING SEED SOURCE OR ROOT AND GRAFT STOCK ORIGINATING FROM THE ACCEPTABLE LIMITS SHOWN.

ACCEPTABLE PLANT STOCK GROWING RANGE LIMITS

SOURCE: USDA PLANT HARDINESS ZONE MAP (MnDOT 3861.2C)



BRANCHES PRUNED AT TRUNK
(SHIGO METHOD)



BRANCHES PRUNED TO LIVE BUD

STEPS TO PRUNING WITH PRUNING SAW:
1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

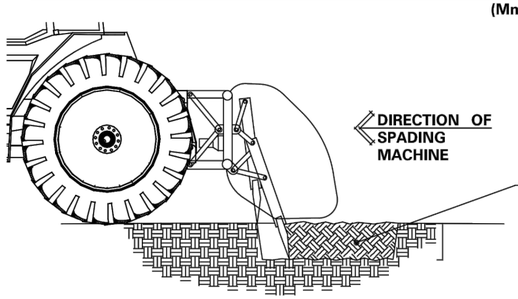
INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

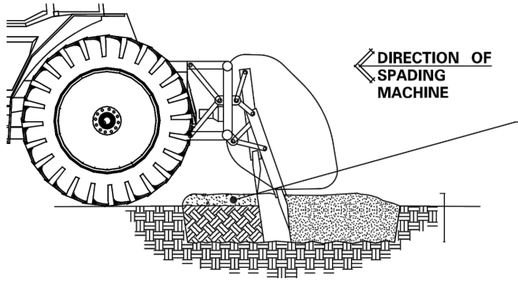
PRUNING NOTES:
1. PRUNE USING CLEAN AND SHARP SCISSOR–TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING

(MnDOT 2571.3E.1 and 2571.3K.2.a(9))



PRIMARY TILLAGE – PASS 1



INCORPORATION TILLAGE – PASS 2

PLANTING SOIL

(MnDOT 2571.3D)

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

JONATHAN D. NIELSEN
LIC. NO. 53433 DATE 2/19/19

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DESIGNED	NO.	REVISION	DATE
JDN			
DRAWN JDN			
CHECKED JDN/JCO			
CLIENT PROJ. NO. T16.114541			

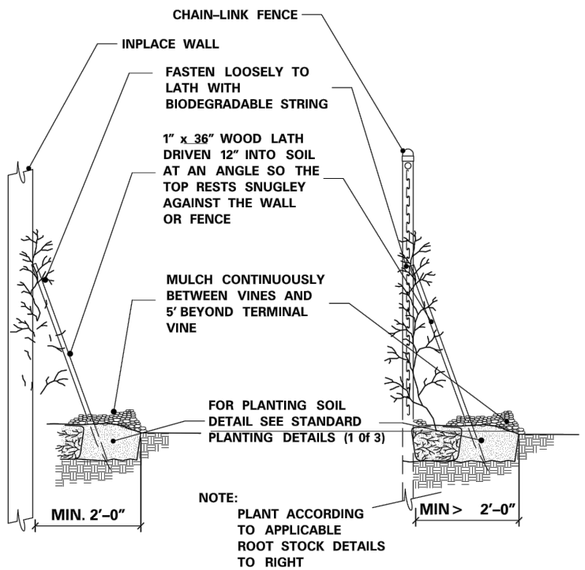
CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE DETAILS

SHEET L2.01

PLANTING HOLE DIMENSIONS

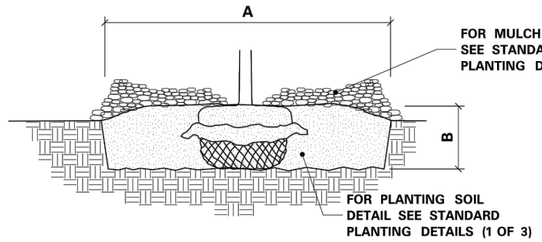
HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL.

PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
DECIDUOUS & ORNAMENTAL TREES	3' B.R.	46"	13"
	4' B.R	46"	14"
	5' B.R.	48"	14"
	6' B.R.	54"	15"
	7' B.R	60"	16"
	8' B.R.	66"	19"
	0.75" B.R.	48"	12"
	1" B.R.	54"	14"
	1.25" B.R.	60"	14"
	1.5 B.R.	66"	15"
	1.75" B.R	72"	16"
	2" B.R.	84"	19"
	4' B.B.	42"	11"
	5' B.B.	48"	12"
	6' B.B.	52"	14"
	8' B.B.	66"	16"
	10' B.B.	66"	16"
	12' B.B.	48"	16"
	1" B.B.	54"	14"
	1.25" B.B.	56"	15"
	1.5" B.B.	61"	15"
	1.75" B.B.	66"	16"
	2" B.B.	72"	16"
	2.5" B.B.	84"	19"
	3" B.B.	96"	20"
	3.5" B.B.	114"	23"
	4" B.B.	126"	25"
DECIDUOUS SHRUBS, ROSES AND PERENNIALS	12" B.R.	24"	7"
	15" B.R.	28"	8"
	18" B.R.	30"	8"
	2' B.R.	33"	9"
	3' B.R.	42"	11"
	4' B.B.	48"	12"
	5' B.R.	54"	14"
	6' B.R.	60"	14"
PERENNIAL HOLE DEPTH AND WIDTH SHALL BE BASED UPON ON-CENTER SPACING IN A CONTINUOUS TRENCH.	18" B.B.	27"	7"
	2' B.B.	30"	8"
	3' B.B.	36"	9"
	4' B.B.	42"	11"
	5' B.B.	48"	12"
	6' B.B.	54"	14"



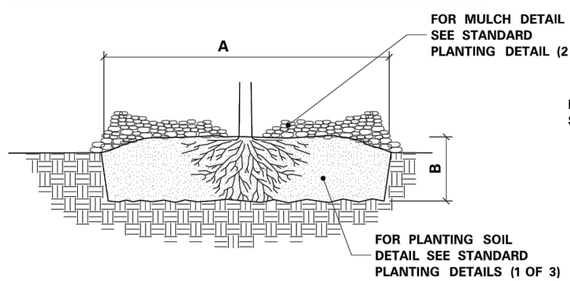
WALL INSTALLATION **FENCE INSTALLATION**

INSTALLATION OF VINES



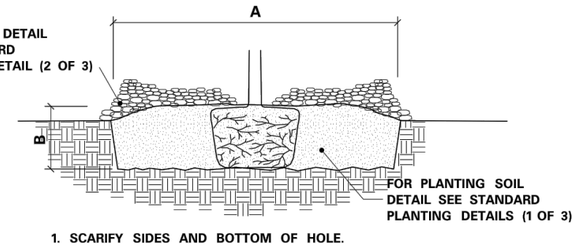
1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING.
3. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. PLACE PLANT SO THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE WITH BURLAP AND WIRE BASKET, (IF USED), INTACT.
4. SLIT REMAINING TREATED BURLAP AT 6" INTERVALS.
5. BACKFILL TO WITHIN APPROXIMATELY 12" OF THE TOP OF THE ROOTBALL, THEN WATER PLANT.
6. REMOVE THE TOP 1/3 OF THE BASKET OR THE TOP TWO HORIZONTAL RINGS WHICHEVER IS GREATER. REMOVE ALL BURLAP AND NAILS FROM THE TOP 1/3 OF THE BALL. REMOVE ALL TWINE. REMOVE OR CORRECT STEM GIRDLING ROOTS.
7. PLUMB AND BACKFILL WITH PLANTING SOIL.
8. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
9. BACK FILL VOIDS AND WATER A SECOND TIME.
10. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

BALLED & BURLAPPED STOCK



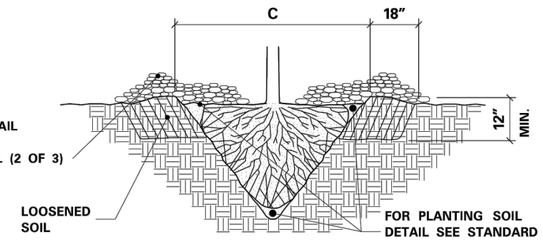
1. SOAK ROOTS IN WATER FOR AT LEAST ONE HOUR BUT NOT MORE THAN 24 HOURS PRIOR TO PLANTING.
2. SCARIFY SIDES AND BOTTOM OF HOLE.
3. PROCEED WITH CORRECTIVE PRUNING OF THE TOP AND ROOTS.
4. TRANSFER PLANT DIRECTLY FROM WATER TO HOLE. SET PLANT SO THE ROOT FLARE IS AT THE FINISHED SOIL ELEVATION. SPREAD ROOTS OUT EVENLY. PLUMB AND IMMEDIATELY BACKFILL WITH PLANTING SOIL.
5. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANTS AND FILL VOIDS.
6. BACK FILL VOIDS AND WATER A SECOND TIME.
7. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

BARE ROOT STOCK



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING OF TOP AND ROOT.
3. REMOVE CONTAINER AND SCORE OUTSIDE OF SOIL MASS TO REDIRECT AND PREVENT CIRCLING FIBROUS ROOTS. REMOVE OR CORRECT STEM GIRDLING ROOTS.
4. SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. INSTALL PLANT SO THE TOP OF THE ROOT FLARE IS AT OR UP TO 2" ABOVE THE FINISHED GRADE.
5. PLUMB AND BACKFILL WITH PLANTING SOIL.
6. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANT AND FILL VOIDS.
7. BACK FILL VOIDS AND WATER A SECOND TIME.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

CONTAINER STOCK



1. SCARIFY SIDES AND BOTTOM OF HOLE.
2. PROCEED WITH CORRECTIVE PRUNING.
3. SET PLANT ON NATIVE SOIL AT SAME DEPTH AS IT WAS PREVIOUSLY GROWN.
4. PLUMB AND BACKFILL WITH PLANTING SOIL.
5. AFTER PLANTING, LOOSEN THE SOIL IMMEDIATELY ADJACENT TO THE ROOT BALL TO A MINIMUM DISTANCE OF 18" AND A MINIMUM DEPTH OF 12".
6. WATER THOROUGHLY WITHIN 2 HOURS TO SETTLE PLANT AND FILL VOIDS.
7. BACK FILL VOIDS AND WATER A SECOND TIME.
8. PLACE MULCH WITHIN 48 HOURS OF THE SECOND WATERING UNLESS SOIL MOISTURE IS EXCESSIVE.

MINIMUM TREE SPADE SIZE REQUIREMENTS

(C) SPADE DIAMETER SIZE	OAK TREE, CALIPER	DECIDUOUS / ORNAMENTAL TREE,CALIPER	CONIFEROUS TREE, HEIGHT
42"	1" to 1.5"	2" to 3"	5' to 7'
60"	1.5" to 2.5"	3" to 4"	7' to 9'
78"	2.5" to 3.5"	4" to 6"	9' to 14'
85"	3.5" to 5"	6" to 8"	14' to 18'

MACHINE MOVED STOCK

INSTALLATION OF PLANTS

(MnDOT 2571.3F)

PLANTING HOLE DIMENSIONS

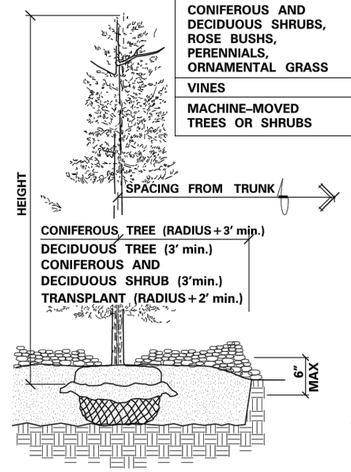
HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL.

PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
CONIFEROUS TREES	2' B.B	36"	10"
	3' B.B	42"	11"
	4' B.B	51"	13"
	5' B.B	60"	13"
	6' B.B	66"	15"
AT LEAST 2/3 OF ALL CONIFER BRANCHES WILL CONTAIN TERMINAL BUDS	7' B.B	72"	16"
	8' B.B	81"	18"
	9' B.B	90"	20"
	10' B.B	102"	21"
	12' B.B	114"	24"
CONIFEROUS SHRUBS (UPRIGHT)	18" B.B.	24"	7"
	3' B.B.	48"	12"
CONIFEROUS SHRUBS (SPREADING)	18" SPR B.B.	30"	8"
	2' SPR B.B.	36"	9"
CONTAINER GROWN PLANTS	CELLPACKS / PLUGS	6"	2.5"
	2.25" CONT.	7"	3"
	3.5" CONT.	10"	3"
	4" CONT.	11"	4"
	4.5" CONT.	13"	4"
	6"/1 QT CONT.	15"	5.5"
	1# CONT.	18"	6"
	2# CONT.	23"	7.5"
	3# CONT.	29"	8.5"
	5# CONT.	30"	11"
	7# CONT.	37"	11"
	15# CONT.	44"	14"
	10# CONT.	45"	15"
	20# CONT.	60"	16"
	25# CONT.	72"	17"
SEEDLINGS	6" SEEDLING	15"	14"
	9" SEEDLING	18"	14"
	12" SEEDLING	23"	16"
	18" SEEDLING	30"	16"
	2' SEEDLING	36"	18"
VINES	1 YR. MED B.R.	15"	11"
	1 YR. NO. 1 B.R.	17"	14'
	2 YR. MED. B.R.	33"	12"
	2 YR. NO. 1 B.R.	42"	15"

MULCH AREA CALCULATOR

TYPE OF PLANT	SQ. FT. PER PLANT
CONIFEROUS TREES	$\left[\left(\frac{3/5 \times \text{HEIGHT}}{2}\right)+3\right]^2 \times \pi$
DECIDUOUS AND ORNAMENTAL TREES	$3^2 \times \pi$
CONIFEROUS AND DECIDUOUS SHRUBS, ROSE BUSHS, PERENNIALS, ORNAMENTAL GRASS	SPACING x SPACING
VINES	SPACING x 2
MACHINE–MOVED TREES OR SHRUBS	$\left[\left(\frac{\text{SPADE DIAMETER}}{2}\right)+1\right]^2 \times \pi$

π = 3.1416



1. PULL MULCH BACK NO LESS THAN 3" AND NO MORE THAN 6" FROM TREES AND SHRUBS AT THE TRUNK OR MAIN STEM.
2. SUBSIDING OR DETERIORATING MULCH IS ACCEPTABLE THROUGHOUT THE ESTABLISHED PERIOD IF THE MULCH DEPTH IS MAINTAINED AT A MINIMUM 3" DEPTH.
3. ADD MULCH WHEN BELOW THE 3" MINIMUM DEPTH; DO NOT EXCEED THE 6" MAXIMUM DEPTH.
4. MULCH CONTAMINATED WITH SOIL MUST BE REMOVED AND REPLACED.

MULCH

(MnDOT 2571.3H)

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

JONATHAN D. NELSEN
LIC. NO. 53433 DATE 2/19/19

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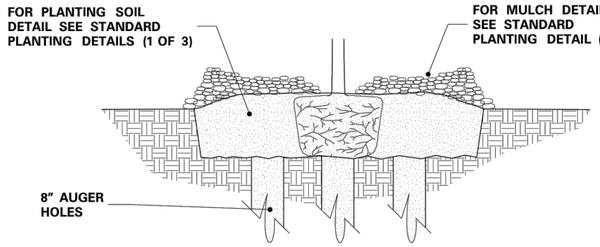
Richfield The Urban Hometown

DESIGNED	JDN
DRAWN	JDN
CHECKED	JDN/JCO
CLIENT PROJ. NO.	T16.114541

NO.	REVISION	DATE

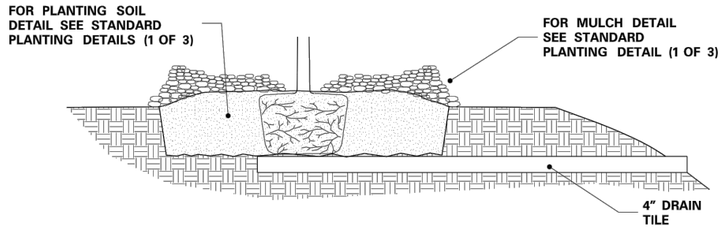
CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE DETAILS

SHEET L2.02



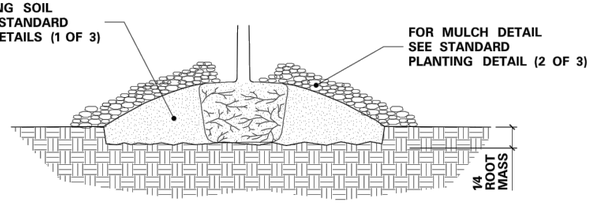
1. EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2. AUGER 8" DIAMETER HOLES ENTIRELY THROUGH IMPERVIOUS OR POORLY DRAINED HARD PAN SOIL LAYER TO ADEQUATELY DRAIN SUBSOIL.
3. TEST FOR POSITIVE DRAINAGE. RE–AUGER AN ADDITIONAL 8" IF NECESSARY FOR POSITIVE DRAINAGE.
4. THOROUGHLY BACKFILL AUGER HOLES WITH A UNIFORM INCORPORATED MIXTURE OF 50% SAND AND 50% INPLACE SOIL.
5. COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

GRANULAR FILTER



1. EXCAVATE HOLE OR BED TO ALLOW PLACING THE TOP OF THE ROOT MASS 1"–3" HIGHER THAN FINISHED GRADE.
2. INSTALL 4" MINIMUM DIAMETER DRAIN TILE DAYLIGHTING AT A LOWER GRADE.
3. COMPLETE PLANTING ACCORDING TO ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

TILE DRAINAGE



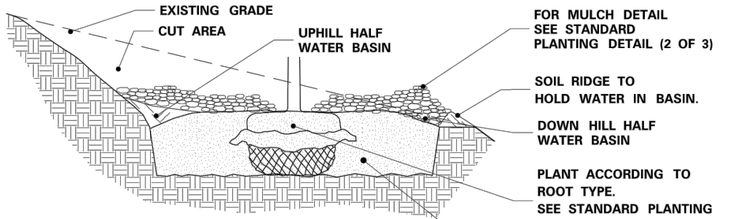
1. EXCAVATE HOLE OR BED 1/4 THE DEPTH OF THE ROOT MASS.
2. SET ROOT MASS IN HOLE.
3. CONSTRUCT BERM WITH PLANTING SOIL. EXTEND THE BERM BASE TO A WIDTH OF 3 TIMES THE BERM HEIGHT.
4. COMPLETE PLANTING ACCORDING ROOT TYPE. SEE STANDARD PLANTING DETAILS (2 OF 3).

MINI–BERM

NOTE:
1. THE NEED FOR USING PLANTING DETAILS FOR POORLY DRAINED SOILS AND WHICH TYPE TO USE ARE DETERMINED BY THE CONTRACTOR, SUBJECT TO ENGINEER APPROVAL.

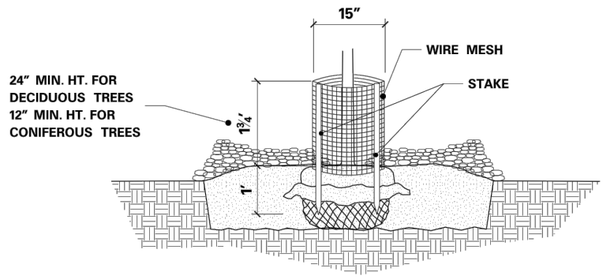
PLANTING DETAIL FOR POORLY DRAINED SOILS

(MnDOT 2571.3D.2(8))



NOTE:
1. ON 1:2 SLOPES OR GREATER, DO NOT CONSTRUCT THE UPHILL HALF OF THE WATERING BASIN.

PLANTING ON SLOPES

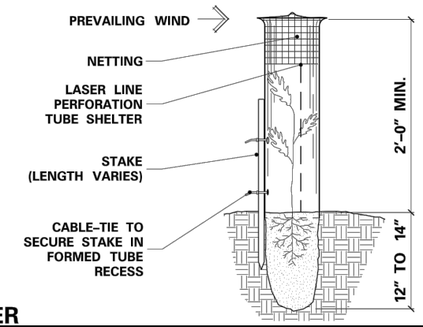


1. FORM A DOUBLE–LAYERED CYLINDER USING 0.25" GRID GALVANIZED WELDED WIRE MESH (HARDWARE CLOTH). OVERLAP THE CUT END 2".
2. DRIVE TWO 1" x 1" OPPOSING HEARTWOOD WHITE OAK STAKES INTO THE GROUND, 7" FROM THE CENTER OF THE TREE STEM.
3. SECURE THE MESH CYLINDER TO THE OUTSIDE OF THE STAKES USING EITHER, SCREWS AND WASHERS OR CABLE–TIES ALONG THE OVERLAP. SPACE APPROXIMATELY 4" ON CENTER ALONG THE OVERLAP.
   a. SCREWS SHALL BE ROUND HEAD GALVANIZED 1/8" DIA. x 3/4" LONG WITH WASHERS.
   OR
   b. CABLE–TIES SHALL BE NYLON, AT LEAST 8" LONG AND BETWEEN 75LB TO 120LB TENSILE STRENGTH.
4. EMBED THE LOWER EDGE OF THE MESH CYLINDER 1" BELOW THE SOIL SURFACE WITHOUT DISTURBING THE TREE ROOTS.
5. CUT EDGES WILL NOT BE PERMITTED AT THE TOP OF THE CYLINDER. STAKE WILL BE FLUSH WITH THE TOP OF THE CYLINDER.
6. MULCH WITHIN THE CYLINDER SHALL NOT EXCEED 3" DEPTH AND SHALL BE PULLED BACK FROM THE TRUNK AS SPECIFIED IN MULCH PLACEMENT DETAIL.
7. THE BOTTOM WHORL OF PINE AND LARCH BRANCHES MAY HAVE TO BE REMOVED TO PERMIT INSTALLATION OF 12" MIN. HEIGHT RODENT GUARDS.
8. INSTALL ON ALL DECIDUOUS, PINE AND LARCH TREES, DO NOT PLACE ON SPRUCE TREES.

RODENT PROTECTION

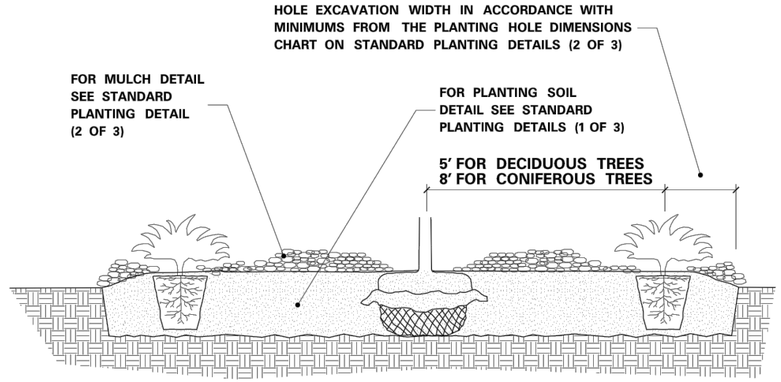
(MnDOT 2571.3I.2)

1. USE SEAMLESS, EXTRUDED, TWIN–WALL, RIGID AND SEMI TRANSLUCENT POLYPROPYLENE TUBES WITH A LASER LINE PERFORATION AND AN OUTWARD–FLARED TOP RIM.
2. SECURE SHELTER WITH NYLON CABLE–TIES ATTACHED TO A 1" x 1" WHITE OAK STAKE TO PREVENT DISLODGING OR TWISTING.
3. EMBED THE BOTTOM OF THE TUBE A MINIMUM OF 1" BELOW THE SOIL SURFACE WITHOUT DISTURBING THE TREE ROOTS.
4. PLACE A PLASTIC PHOTODEGRADABLE NETTING COVER AND SLEEVE OVER THE TOP OF THE TUBE. PULL NETTING DOWN AS SHOWN.

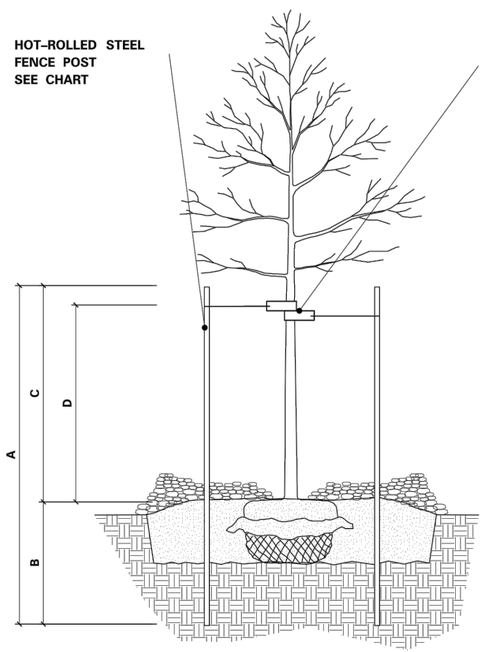


SEEDLING TREE SHELTER

(MnDOT 2571.3I.4)



PLANT SPACING IN MASS BEDS



1. STEEL POSTS TO BE NOTCHED OR DRILLED TO RETAIN GUY WIRES. PLACE OUTSIDE OF ROOT BALL. DRIVE PLUMB REGARDLESS OF GROUND SLOPE.
2. REQUESTS TO SUBSTITUTE RUBBER HOSE AND WIRE GUYING SYSTEMS WILL NOT BE APPROVED.
3. TREE STAKING IS NOT REQUIRED UNLESS SPECIFIED OR NECESSARY TO MAINTAIN TREES IN A PLUMB CONDITION WHERE VANDALISM, SOIL, OR WIND CONDITIONS ARE A PROBLEM, OR AS DIRECTED BY THE ENGINEER.
4. REMOVE WITHIN ONE YEAR.

STEEL POST SIZING

CALIPER	STEEL POST TYPE	A	B	C	D
LESS THAN 4 INCHES	HOT–ROLLED STEEL FENCE POST (MnDOT 3403) OR APPROVED EQUAL.	7'–0"	3'–0" MIN.	4'–0"	3'–0"
GREATER THAN 4 INCHES	10', 2.2 LB. FLANGED CHANNEL SIGN POST (MnDOT 3401) OR APPROVED EQUAL.	10'–0"	4'–0" MIN.	6'–0"	5'–0"

STAKING AND GUYING

(MnDOT 2571.3I.1)

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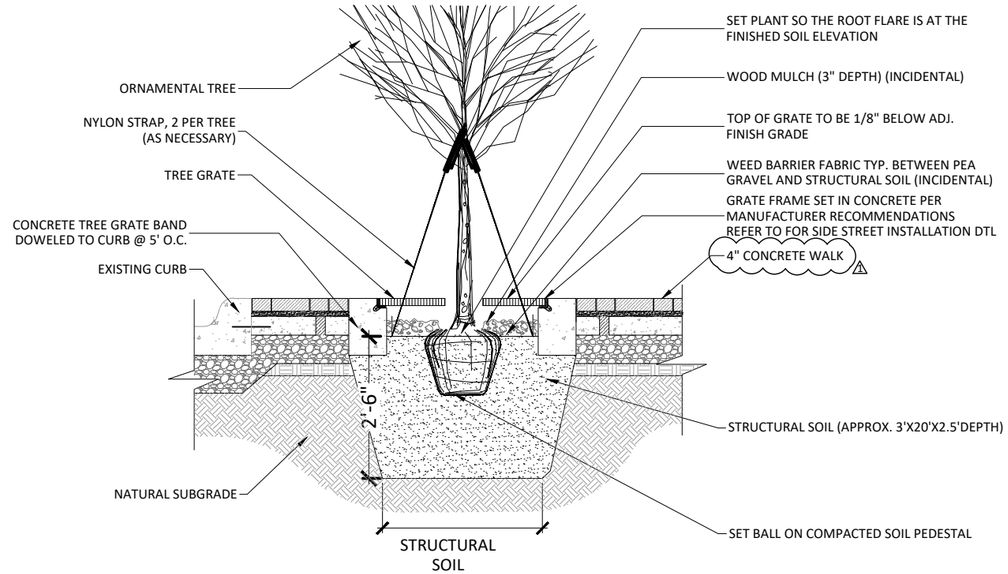
CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE DETAILS

SHEET
L2.03

MASTER PLANT SCHEDULE								
QTY.	SYM.	SCIENTIFIC NAME	COMMON NAME	SIZE	HABIT/FORM	SPREAD	HEIGHT	NOTES
		DECIDUOUS MEDIAN TREES						
9	AM	ACER MIYABE 'MORTON'	STATE STREET MAPLE	2.5" CAL. B&B	UPRIGHT/OVAL	15'-20'	40'	YELLOW FALL COLOR
8	AS	ACER SACCHARUM 'BARRETT COLE'	APOLLO SUGAR MAPLE	2.5" CAL. B&B	UPRIGHT/OVAL	10'-15'	25'	ORANGE FALL COLOR
11	GB	GINKGO BILOBA 'PRINCETON SENTRY'	PRINCETON SENTRY GINKGO	2.5" CAL. B&B	UPRIGHT/OVAL	15'-20'	60'	YELLOW FALL COLOR
10	TA	TILIA AMERICANA 'MCKSENTRY'	AMERICAN SENTRY LINDEN	2.5" CAL. B&B	UPRIGHT/OVAL	15'-20'	40'	YELLOW FALL COLOR
		DECIDUOUS BOULEVARD TREES						
17	AF	ACER X FREEMANII 'AF #1'	FIREFALL MAPLE*	2.5" CAL. B&B	UPRIGHT/OVAL	25'-35'	45'	ORANGE/RED FALL COLOR
18	CO	CELTIS OCCIDENTALIS	COMMON HACKBERRY	2.5" CAL. B&B	BROAD/UPRIGHT	40'-50'	50'	YELLOW FALL COLOR
18	GD	GYMNOCLADUS DIOICUS	ESPRESSO KENTUCKY COFFEETREE	2.5" CAL. B&B	BROAD/UPRIGHT	40'-50'	50'	GREEN FALL COLOR
17	GT	GLEDITISIA TRIACANTHOS VAR. INERMIS 'SKYCOLE'	SKYLINE HONEYLOCUST*	2.5" CAL. B&B	BROAD/UPRIGHT	30'-35'	45'	GOLD FALL COLOR
17	GT	GLEDITISIA TRIACANTHOS VAR. INERMIS 'SUNCOLE'	SUNBURST HONEYLOCUST*	2.5" CAL. B&B	BROAD/UPRIGHT	30'-35'	40'	YELLOW FALL COLOR
18	QB	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5" CAL. B&B	BROAD/UPRIGHT			ORANGE FALL COLOR
18	QR	QUERCUS RUBRA	RED OAK*	2.5" CAL. B&B	BROAD/UPRIGHT	40'-50'	70'	RED FALL COLOR
17	TF	TILIA X FLAVESCENS 'GLENLEVEN'	GLENLEVEN LINDEN*	2.5" CAL. B&B	BROAD/UPRIGHT	25'-35'	60'	YELLOW FALL COLOR
		ORNAMENTAL TREES						
2	AG	AMELANCHIER X GRANDIFOLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	2.5" CAL. B&B	UPRIGHT/ROUNDED	15'	20'	WHITE FLOWERS IN SPRING
		EVERGREEN TREES						
3	PG	PICEA GLAUCA VAR. DENSATA	BLACK HILLS SPRUCE	6' HT. B&B	-	15'	30'	
2	PS	PINUS STROBUS	WHITE PINE	6' HT. B&B	-	30'	60'	
		SHRUBS						
14	BG	BUXUS 'GLENCOE'	CHICAGOLAND GREEN BOXWOOD	#5 CONT.	-	3'	3'	EVERGREEN
3	DL	DIERVILLA LONICERA	DWARF BUSH HONEYSUCKLE	#5 CONT.	-	5'	3'-4'	RED FALL COLOR
44	RA	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	#5 CONT.	-	4'	2'-3'	ORANGE FALL COLOR
117	SJ	SPIRAEA JAPONICA 'LITTLE PRINCESS'	LITTLE PRINCESS SPIREA	#5 CONT.	-	3'	2'	BRONZE FALL COLOR
11	SP	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC	#5 CONT.	-	6'	6'	PINK FLOWER
12	SV	SYRINGA VULGARIS 'ALBA'	COMMON WHITE LILAC	#5 CONT.	-	6'-8'	8'-10'	WHITE FLOWERS (MAY)
		PERENNIALS						
449	AN	ASTER NOVAE-ANGLIAEA 'PURPLE DOME'	PURPLE DOME ASTER	#1 CONT.	-	2'	15"	PURPLE FLOWER (FALL)
286	HR	HEMEROCALLIS 'RUBY STELLA'	RUBY STELLA DAYLILY*	#1 CONT.	-	18"	24"	RED FLOWER (SUMMER)
470	HS	HEMEROCALLIS 'STELLA DE ORO'	STELLA DE ORO DAYLILY	#1 CONT.	-	18"	12"	YELLOW FLOWER (SUMMER/FALL)
18	LS	LIATRIS SPICATA	BLAZING STAR	#1 CONT.	-	24"	2'-4'	PURPLE FLOWER (SUMMER)
12	RT	RUDBECKIA TRILOBA	BROWN EYED SUSAN	#1 CONT.	-	2'	2'-3'	YELLOW FLOWER
394	SM	SALVIA 'MAY NIGHT'	MAY NIGHT SALVIA	#1 CONT.	-	18"	18"	PURPLE FLOWER (SPRING/SUMMER)
263	SS	SEDUM SPECTABILE 'AUTUMN FIRE'	AUTUMN FIRE SEDUM	#1 CONT.	-	18"	30"	PINK FLOWER (FALL)
		ORNAMENTAL GRASSES						
102	PV	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCHGRASS	#1 CONT.	-	36"	3'-4'	YELLOW/ORANGE FALL COLOR
1185	ST	SPOROBOLUS HETEROLEPIS 'TARA'	TARA PRAIRIE DROPSEED	#1 CONT.	-	18"	12"	

PLANT MATERIAL NOTES

1. MASTER PLANT SCHEDULE: ALL TREES, SHRUBS AND PERENNIALS ARE LISTED IN THE MASTER PLANT SCHEDULE. IF THERE IS A CONFLICT BETWEEN THE QUANTITIES SHOWN ON THE DRAWING AND THE QUANTITIES SHOWN IN THE PLANT SCHEDULE, THE PLAN QUANTITIES SHALL PREVAIL.
2. ALL TREE LOCATIONS AND SPECIES TO BE STAKED IN THE FIELD BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
3. PLANTING LAYOUT: CONTRACTOR TO STAKE A TYPICAL SHRUB AND PERENNIAL BED LAYOUT, AND OBTAIN APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
4. SHRUB AND PERENNIAL GROUPINGS SHALL BE PLANTED AND MULCHED IN ONE CONTINUOUSLY MULCHED BED, TREES SHALL BE MULCHED TO 18 INCHES FROM TRUNK IN ALL DIRECTIONS.
5. CONTRACTOR TO PRESERVE AND PROTECT EXISTING PLANT MATERIAL OTHER THAN THOSE INDICATED FOR REMOVAL ON REMOVAL PLANS. PLANT MATERIAL THAT IS DAMAGED SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.



TREE GRATE PLANTING NOTES:

1. TREE GRATE - NEENAH METROPOLITAN COLLECTION R-8707 TREE GRATE AND FRAME OR APPROVED (5'X5') EQUAL
2. CAST IRON / NATURAL FINISH
3. NO OPENINGS GREATER THAN 1/4"
4. REFER TO MANUFACTURERS SPECIFICATIONS FOR INSTALLATION DETAILS
5. CONTRACTOR TO USE CONCRETE IMBEDDED "L" FRAME ON ALL SIDES OF GRATE ADJACENT TO CONCRETE. SECURE PER MANUFACTURER RECOMMENDATIONS
6. EACH NEW TREE PIT SHALL CONTAIN APPROXIMATELY 9.5 CY OF STRUCTURAL SOIL (10'x10'x2.5' DEEP)

1 TYPICAL SECTION: TREE GRATE
SCALE: N.T.S.

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CITY OF RICHFIELD, MINNESOTA
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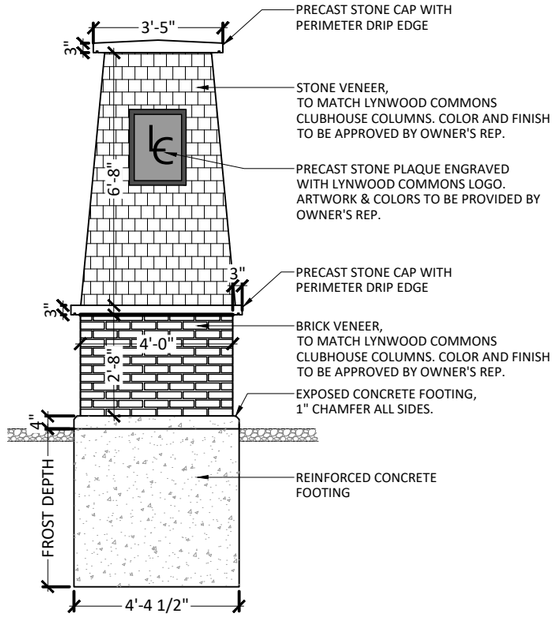
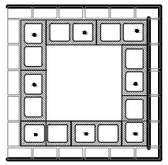
SHEET L2.04R



1 ELEVATION: LYNWOOD COMMONS ENTRY COLUMN
SCALE: N.T.S.

ENTRY MONUMENT AND COLUMN NOTES:
- FOOTING DESIGN IS FOR BIDDING PURPOSES ONLY
- ALL HARDWARE AND FASTENERS SHALL BE STAINLESS STEEL
- SIGNED STRUCTURAL ENGINEERED FOOTING DRAWINGS ARE TO BE PROVIDED BY CONTRACTOR FOR CONSTRUCTION
- ALL REBAR TO BE EPOXY COATED
- SUBMIT SHOP DRAWINGS FOR ALL MONUMENT AND COLUMN COMPONENTS FOR REVIEW



PLAN: ENTRY COLUMN CMU CORE

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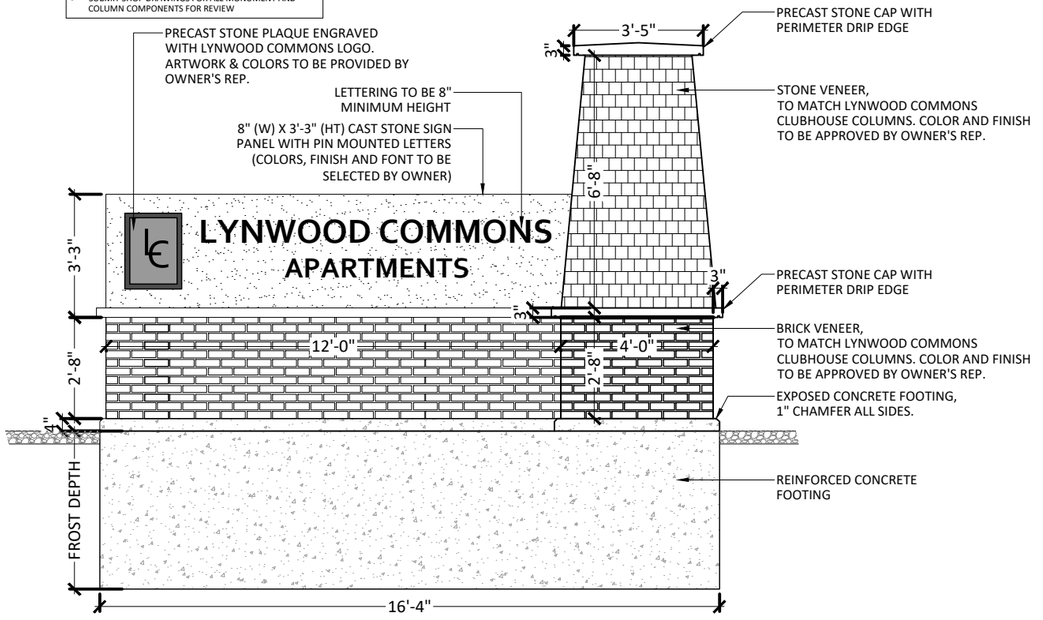
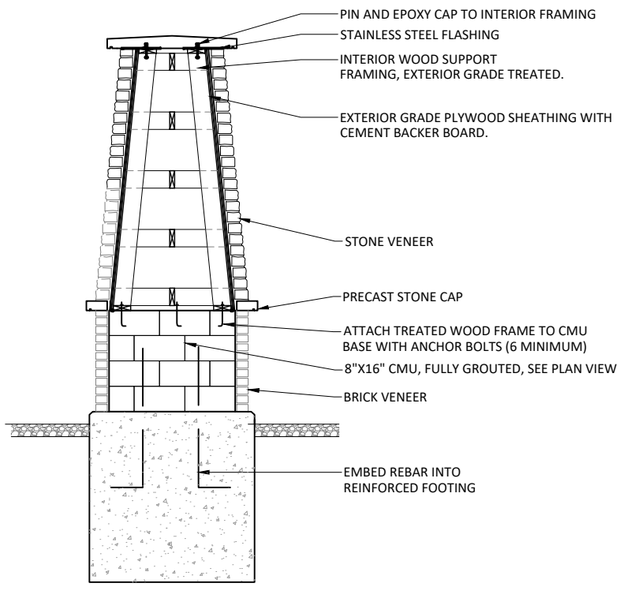
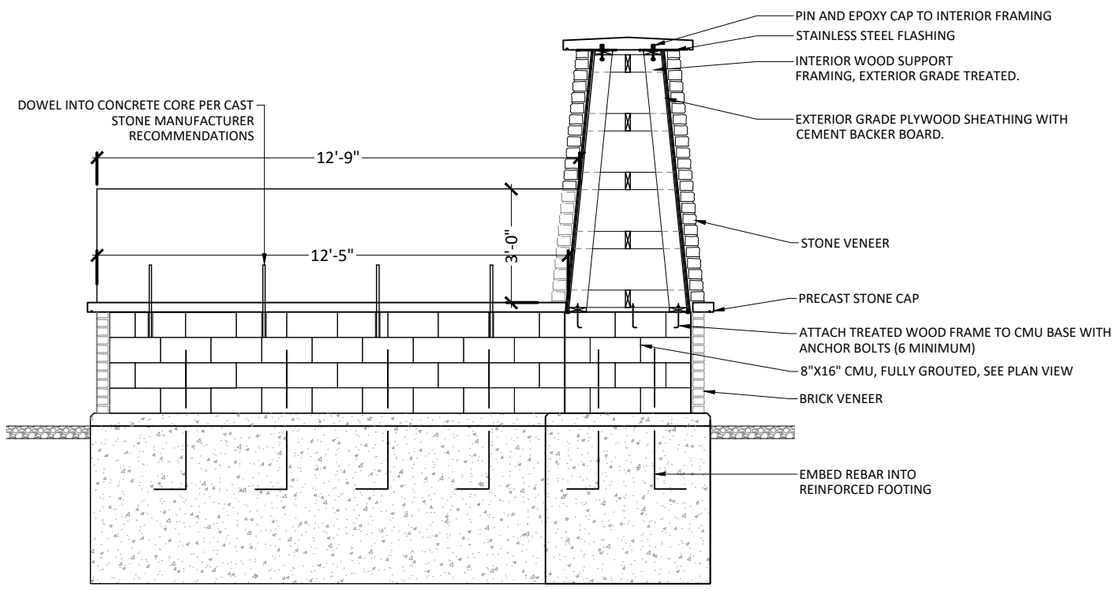


2 SECTION/ELEVATION: LYNWOOD COMMONS ENTRY MONUMENT
SCALE: N.T.S.



3 SECTION: LYNWOOD COMMONS ENTRY COLUMN
SCALE: N.T.S.



4 SECTION: LYNWOOD COMMONS ENTRY MONUMENT - CORE AND FRAMING
SCALE: N.T.S.

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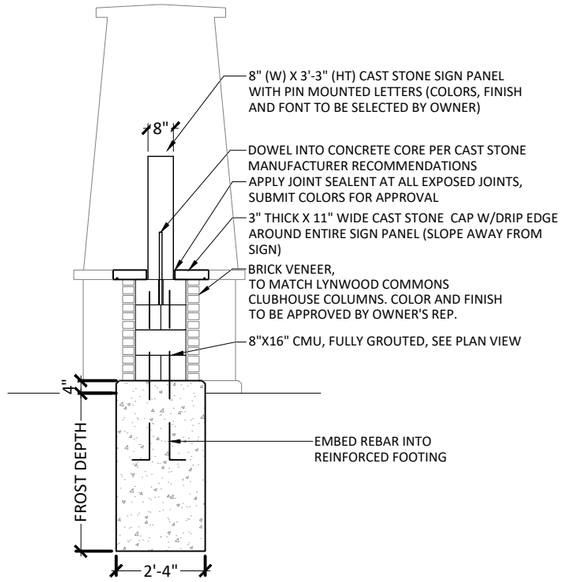
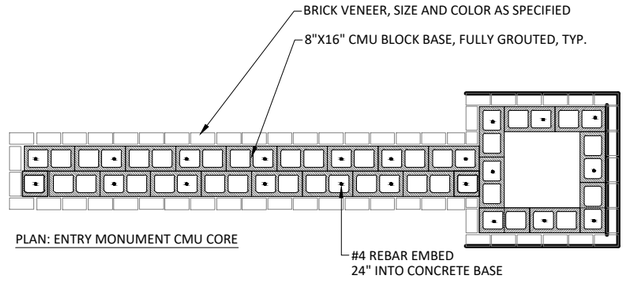
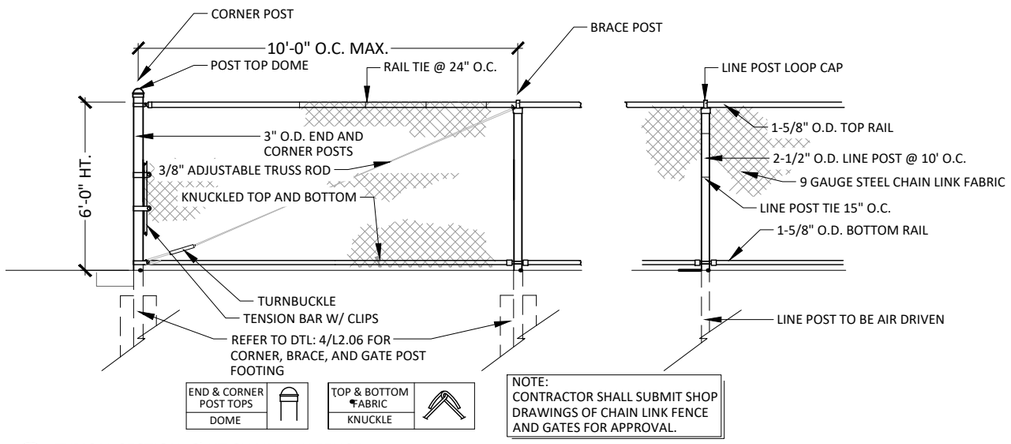
SHEET L2.05



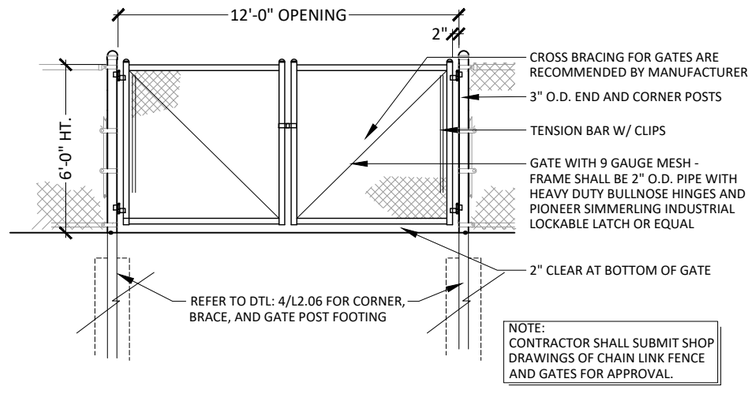
1 SECTION: LYNWOOD COMMONS ENTRY COLUMN - SIGN PANEL
SCALE: N.T.S.



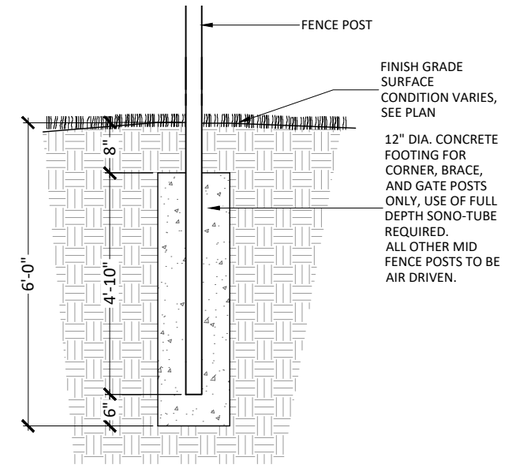
2 PLAN: LYNWOOD COMMONS ENTRY COLUMN
SCALE: N.T.S.



3 TYPICAL SECTION: 6' HT CHAINLINK FENCE
SCALE: N.T.S.



5 TYPICAL SECTION: 6' HT DOUBLE GATE
SCALE: N.T.S.



4 TYPICAL SECTION: CORNER, BRACE, AND GATE POSTS AND FOOTINGS
SCALE: N.T.S.

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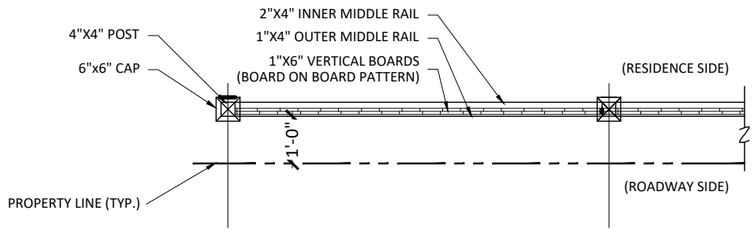
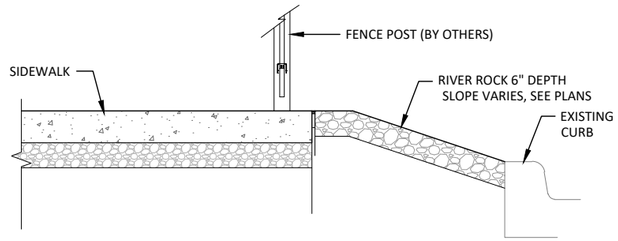
SHEET L2.06

NOTES:

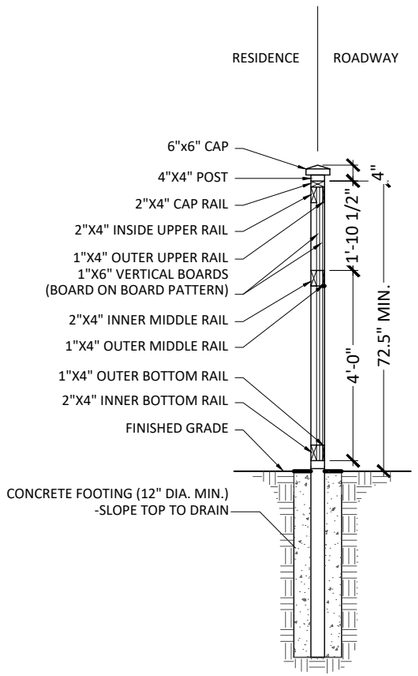
1. ALL FINAL FENCING DETAILS, DIMENSIONS AND STAKING SHALL BE VERIFIED AND COORDINATED WITH THE ADJACENT HOME OWNER AND CITY REPRESENTATIVE
2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE TYPICAL FENCE AND GATE DETAILS, INCLUDING HARDWARE TYPES AND SIZES
3. ALL LUMBER SHALL BE GRADE 'A' CEDAR LUMBER
4. FENCE SHALL BE STAINED. COLOR TO BE APPROVED BY CITY REPRESENTATIVE
5. CEDAR FENCE SHALL BE SEALED WITH A MINIMUM OF TWO COATS OF CLEAR WATER-BASED SEALER
6. FENCE SHALL BE CONSTRUCTED 1'-0" ONTO PRIVATE PROPERTY, UNLESS OTHERWISE NOTED



2 TYPICAL PLAN: WOODEN FENCE
SCALE: N.T.S.

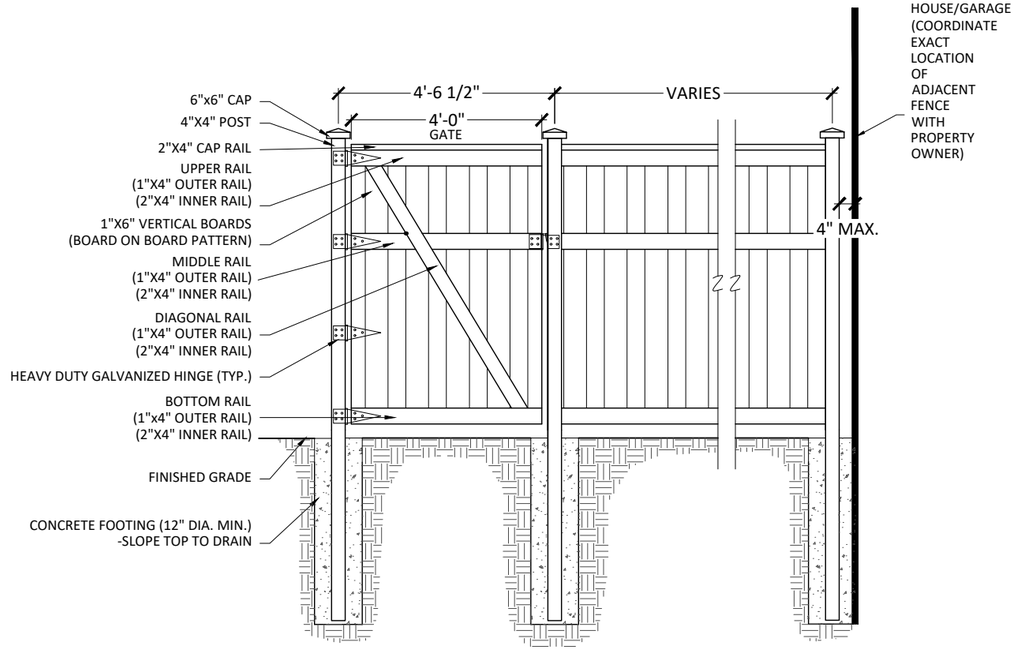


4 TYPICAL SECTION: ORNAMENTAL FENCE AT LYNWOOD COMMONS
SCALE: N.T.S.



1 TYPICAL SECTION: WOODEN FENCE POST
SCALE: N.T.S.

3 TYPICAL SECTION: WOODEN FENCE
SCALE: N.T.S.



5 TYPICAL SECTION: WOODEN GATE
SCALE: N.T.S.

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NO.	REVISION	DATE

CITY OF RICHFIELD, MINNESOTA
LYNDALE AVENUE RECONSTRUCTION
LANDSCAPE DETAILS

SHEET L2.07