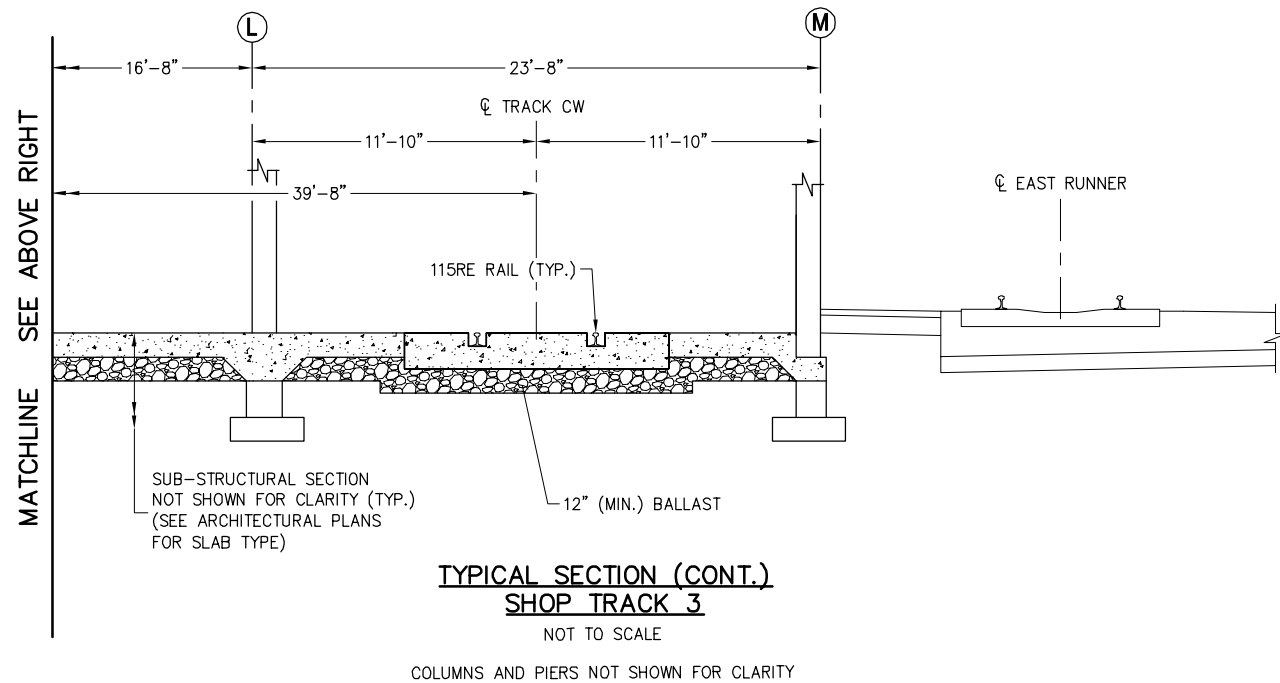
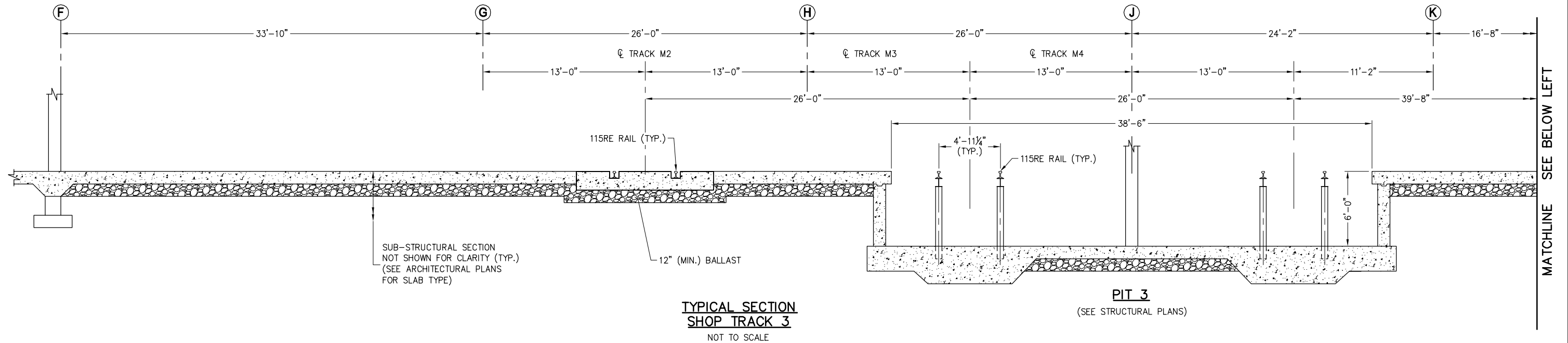


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- NOTES:
1. TYPICAL SECTION LIMITS TO BE DETERMINED.

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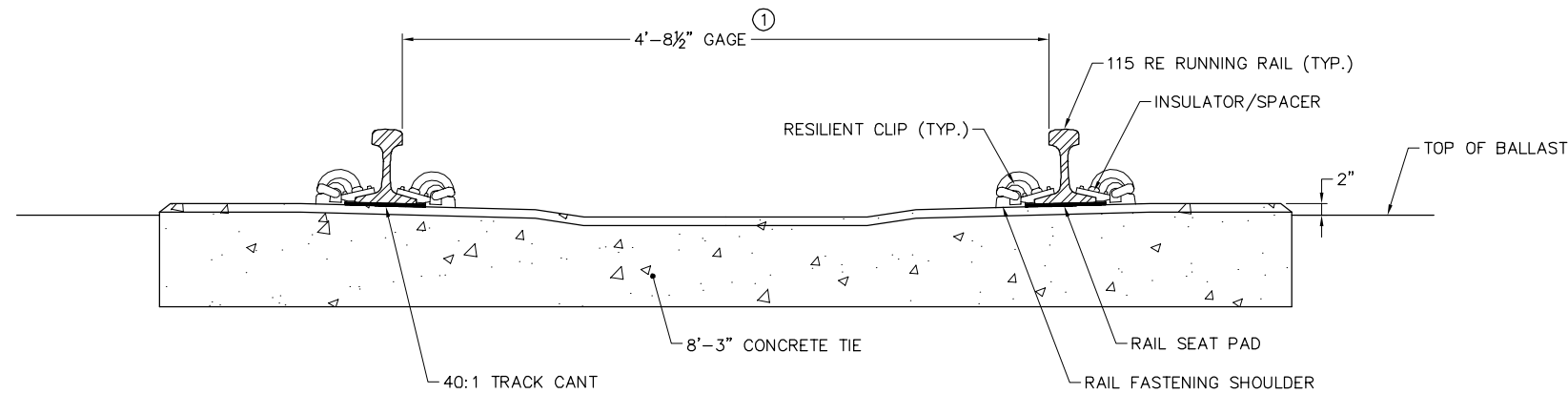
OPERATIONS & MAINTENANCE FACILITY - V1
TRACK TYPICAL SECTIONS
SHEET 5 OF 5

DISCIPLINE: TRACK

SHEET NAME: OMF-TRK-TYP-005

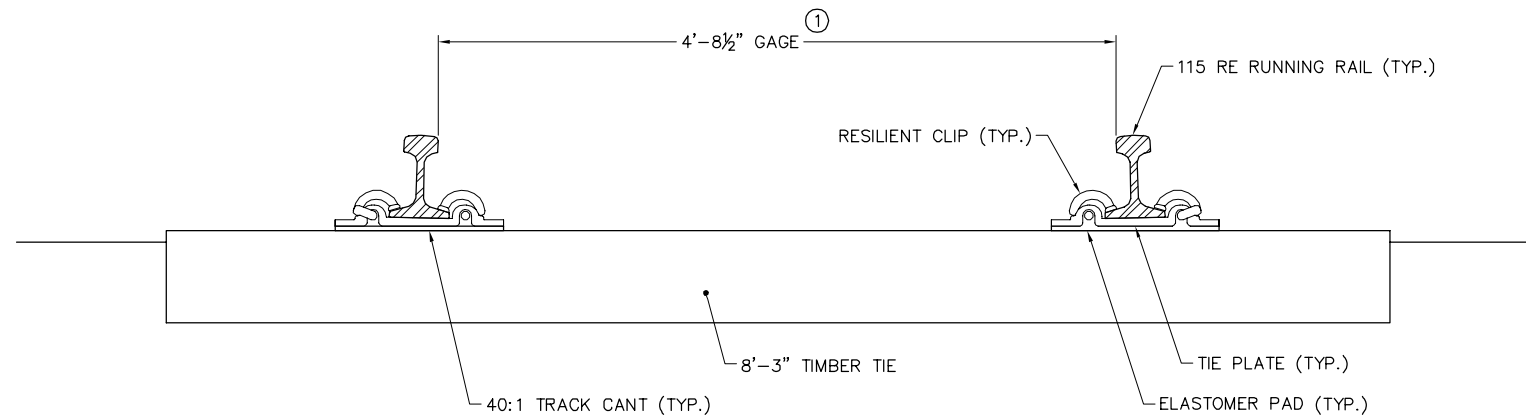
SHEET 019 OF 114

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BALLAST TRACK CONCRETE TIE

NOT TO SCALE



BALLAST TRACK TIMBER TIE

NOT TO SCALE

NOTES:

- ① SEE TRACK SPECIFICATIONS FOR GAGE WIDENING REQUIREMENTS.

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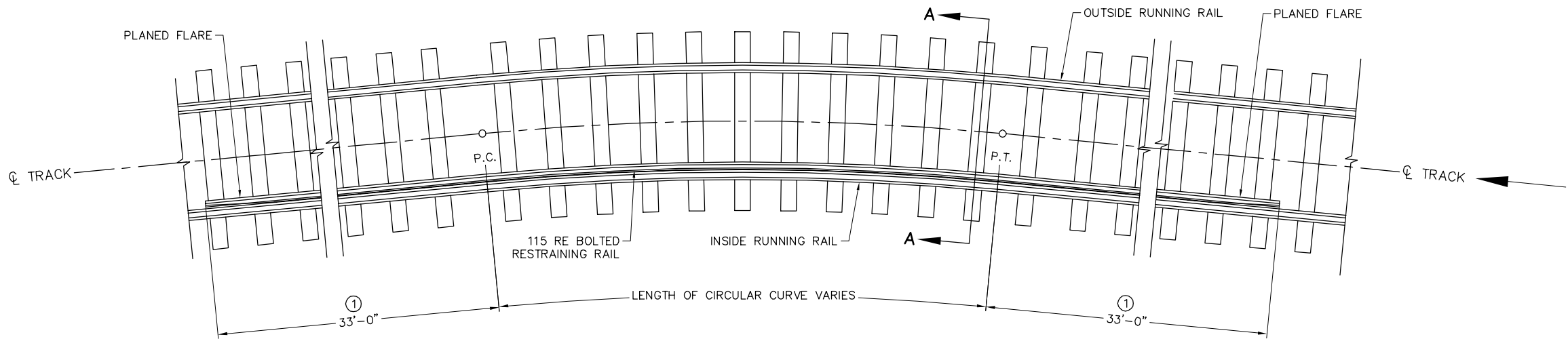
OPERATIONS & MAINTENANCE FACILITY - V1
TRACK DETAILS
BALLASTED TRACK
CROSSTIE DETAILS

DISCIPLINE:
TRACK

SHEET NAME:
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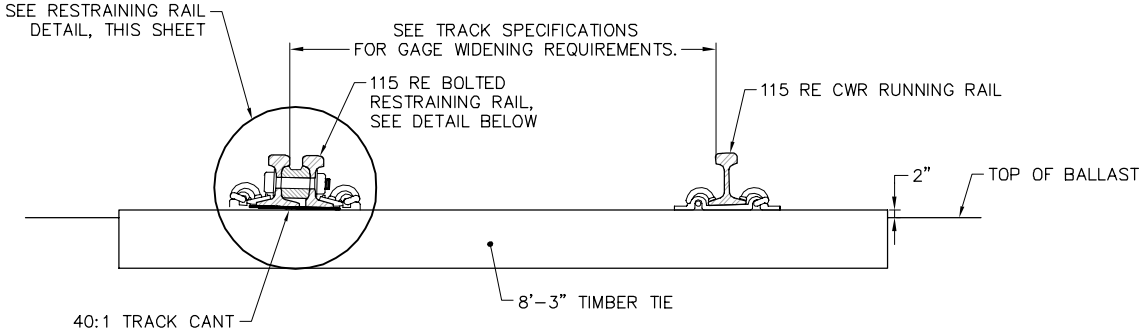
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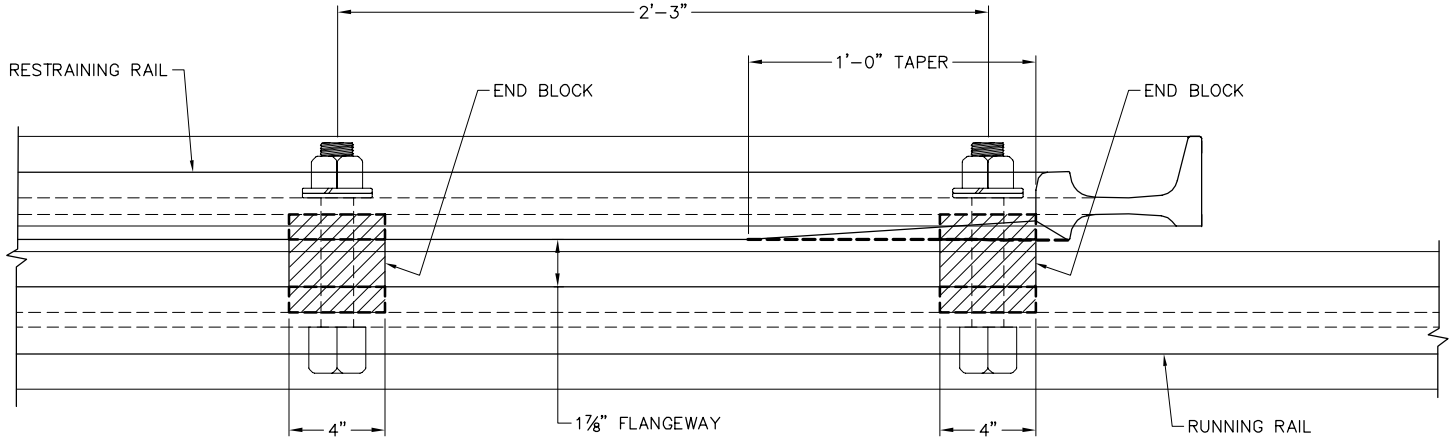
TYPICAL HORIZONTAL CURVE DETAIL

NOT TO SCALE



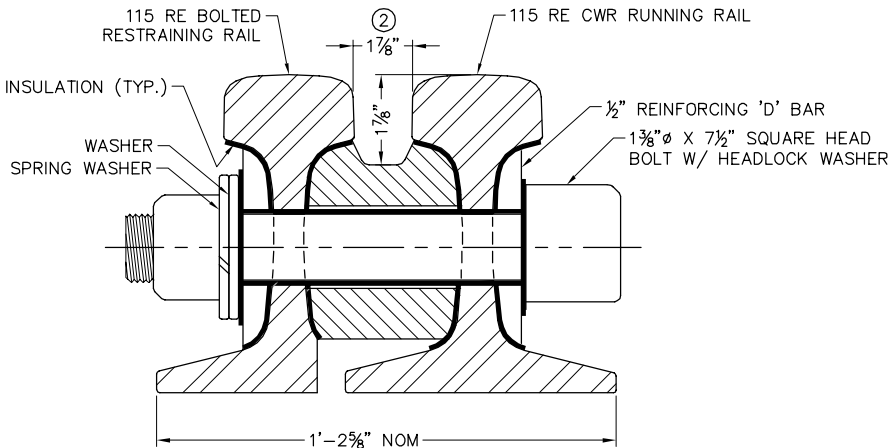
BALLASTED TRACK WITH TIMBER TIE
WITH SINGLE RESTRAINING RAIL
SECTION A-A

NOT TO SCALE



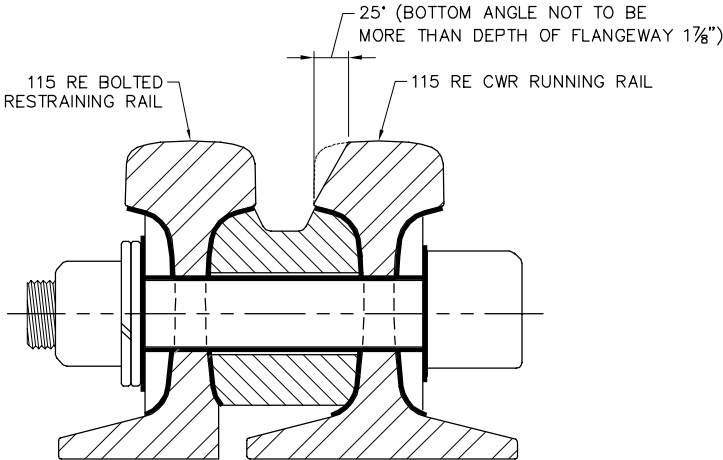
DETAIL OF END CONDITION

NOT TO SCALE



RESTRAINING RAIL DETAIL

NOT TO SCALE



CHAMFER AT END OF TAPER

NOT TO SCALE

NOTES:

- ① RESTRAINING RAIL FOR NON-SPIRALED CURVES, SHALL HAVE 33 FOOT TANGENT EXTENSIONS BEFORE P.C. AND AFTER P.T. UNLESS SPECIFIED OTHERWISE. MODIFY LIMITS OF RESTRAINING RAIL AS REQUIRED WHEN ADJACENT TO SPECIAL TRACKWORK.
- ② FLANGEWAY FOR RESTRAINING RAIL, DRAWN 1 7/8" WIDE AND 1 7/8" DEEP, TO BE VERIFIED DURING CONSTRUCTION.

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TRACK DETAILS

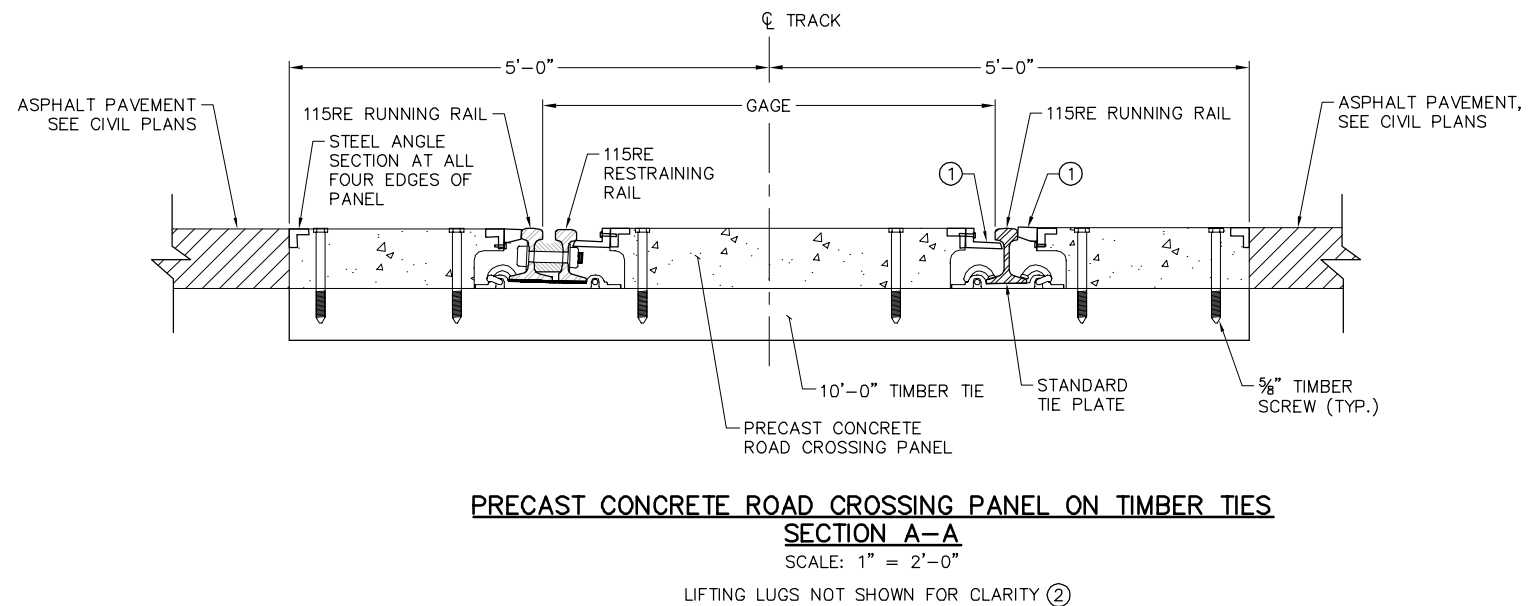
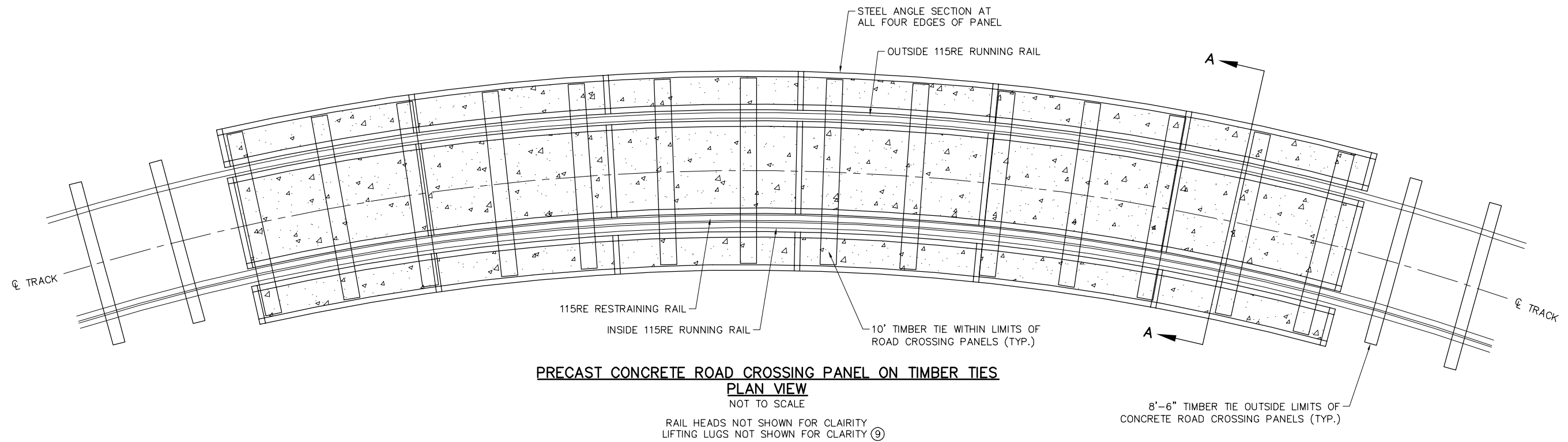
TIE & BALLAST TRACK

SINGLE RESTRAINING RAIL

DISCIPLINE: TRACK

SHEET NAME: OMF-TRK-DTL-002

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NOTES:

- ① RUBBER INTERFACE. PER SPECIFICATION, CONTRACTOR MAY ELECT TO USE A CONCRETE PANEL SYSTEM WHICH INCORPORATES RUBBER SNUBBERS AS AN INTEGRAL PART OF THE PANELS, OR A SEPARATE PREFORMED RUBBER HEADER RECOMMENDED BY THE PANEL MANUFACTURER. SEE TRACK SPECIFICATIONS FOR DETAILS.
- ② LIFTING LUGS - SEE SPECIFICATIONS FOR DETAILS

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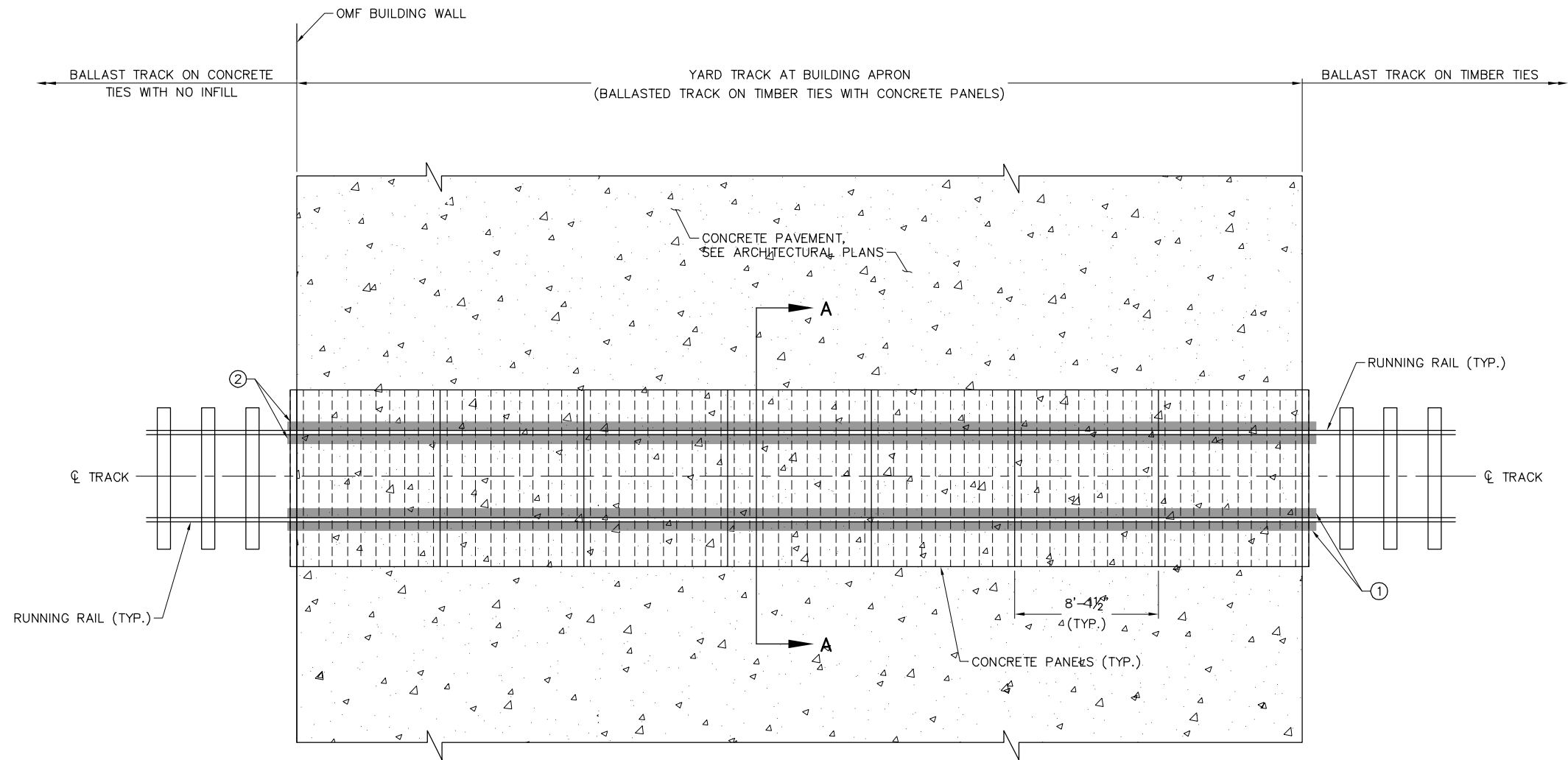
OPERATIONS & MAINTENANCE FACILITY - V1
TRACK DETAILS
PRECAST CONCRETE
GRADE CROSSING PANELS

DISCIPLINE:
TRACK

SHEET NAME:
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- NOTES:
- ① PREFORMED RUBBER FILLER SHALL BE SIZED/POSITIONED TO EXTEND A MIN. 6" BEYOND TRACK GRADE CROSSING PAVEMENT.

OMF STORAGE TRACK AT BUILDING APRON
PLAN VIEW
SCALE: 1" = 8'-0"
NOTE: SEE SHEET OMF-TRK-DTL-005 FOR SECTION.

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OPERATIONS & MAINTENANCE FACILITY - V1
TRACK DETAILS
OMF STORAGE TRACK AT BUILDING APRON
SHEET 1 OF 2

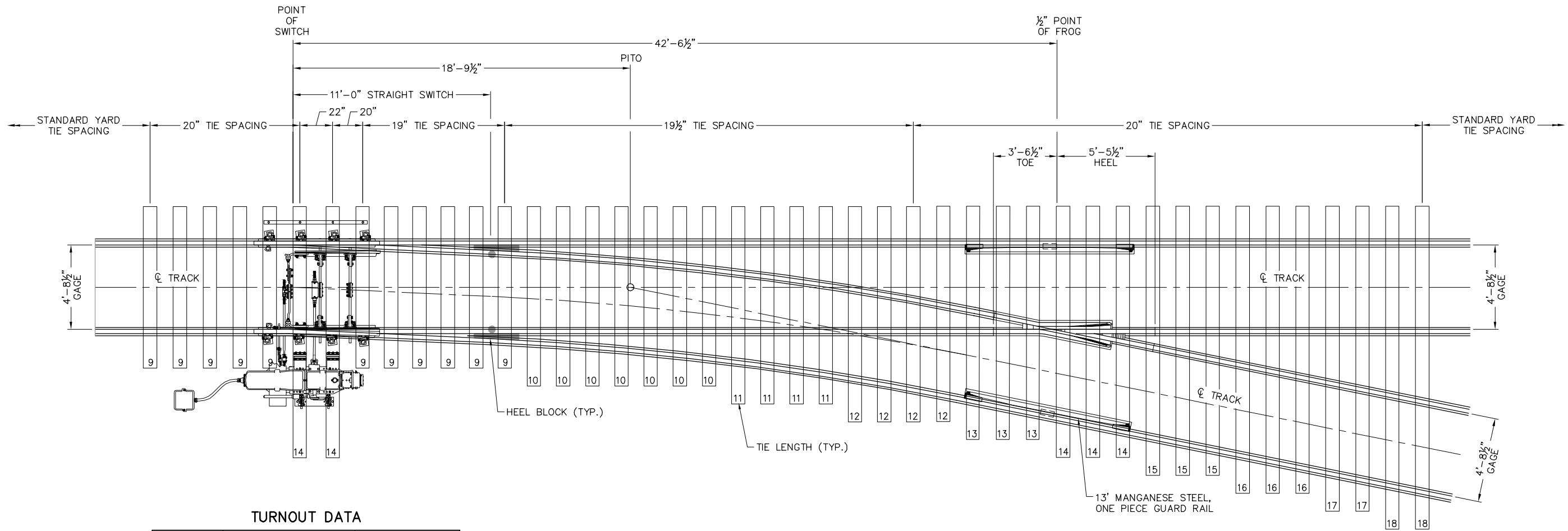
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TURNOUT DATA

FROG	NUMBER	5
	ANGLE	11° 25' 16"
	TOE LENGTH	3'-6½"
	HEEL LENGTH	5'-5½"
	TOTAL LENGTH	9'-0"
	TOE SPREAD	7¾"
	HEEL SPREAD	13¾"
SWITCH POINT	LENGTH OF SWITCH RAIL	11'-0"
	HEEL SPREAD	6¼"
	ANGLE AT POINT	02° 39' 34"
	THICKNESS AT POINT	0'-0"
ACTUAL LEAD		42'-6½"
STRAIGHT CLOSURE RAIL DISTANCE		28'-0"
CURVED CLOSURE RAIL DISTANCE		28'-4⅙"
TURNOUT CURVE	CENTERLINE RADIUS	177'-9⅑½"
	DEGREE OF CURVE	32° 39' 56"
	CENTRAL ANGLE	08° 45' 42"

NO. 5 TURNOUT BALLAST TRACK

SCALE: 1" = 6'-0"

NOTES:

- TURNOUT GEOMETRY IN ACCORDANCE WITH AREMA PLAN 910, EXCEPT AS MODIFIED HEREIN.
- RAIL SCHEDULE IN ACCORDANCE WITH AREMA PLAN 911, TABLES B AND D, EXCEPT AS MODIFIED HERE-IN, OR IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
- TIE LAYOUT FOR SCHEMATIC PURPOSES ONLY. CONTRACTOR'S SPECIAL TRACKWORK FABRICATOR TO DEVELOP FINAL PLATE DESIGN / LAYOUT. CONTRACTOR TO ADJUST TIE LAYOUT TO ACCOMMODATE PLATE LAYOUT.
- ALL JOINTS, EXCEPT SWITCH RAILS AT THE HEEL BLOCK, SHALL BE WELDED.
- STOCK RAIL, CLOSURE RAILS, AND RAILS AHEAD OF STOCK RAIL, TO THE NEXT JOINT BEYOND THE HEEL OF FROG SHALL BE PREMIUM RAIL.

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OPERATIONS & MAINTENANCE FACILITY - V1

TRACK DETAILS

NO. 5 TURNOUT BALLASTED TRACK

DISCIPLINE:

TRACK

SHEET NAME:

OMF-TRK-DTL-007

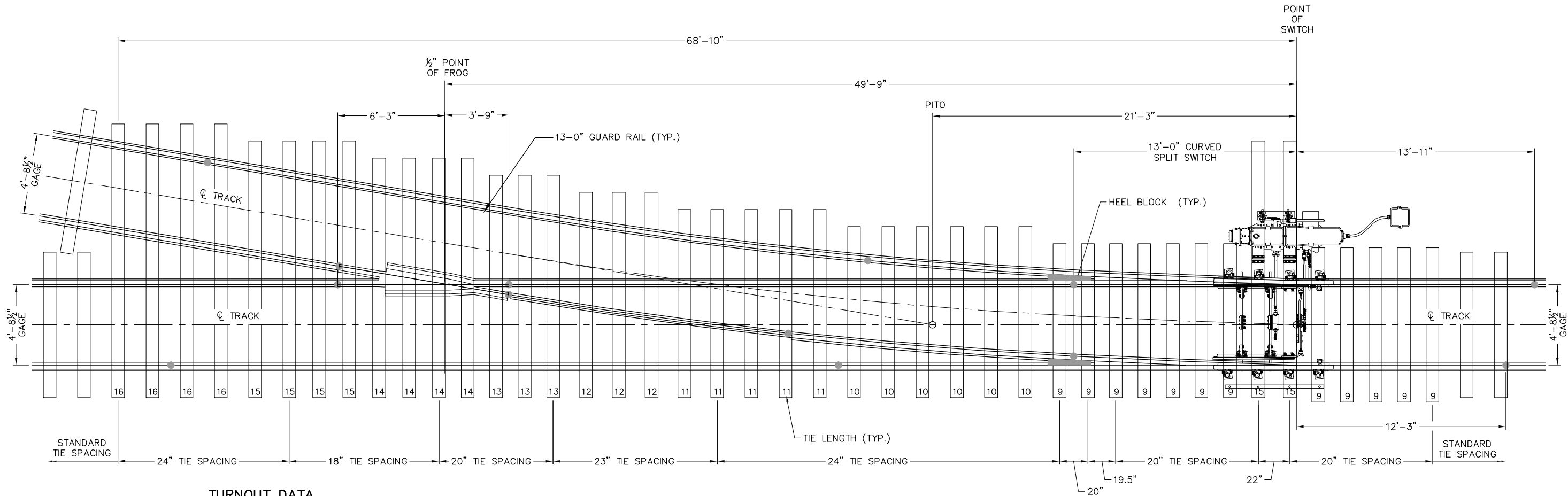
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TURNOUT DATA

FROG	NUMBER	6
	ANGLE	09° 31' 38"
	TOE LENGTH	3'-9"
	HEEL LENGTH	7'-3"
	TOTAL LENGTH	11'-0"
	TOE SPREAD	6 3/32"
	HEEL SPREAD	14 15/16"
SWITCH POINT	LENGTH OF POINT	13'-0"
	HEEL SPREAD	6 1/4"
	HEEL ANGLE	02° 54' 00"
	POINT THICKNESS	0'-0"
	POINT ANGLE	01° 41' 31"
	CENTERLINE RADIUS	616.55'
ACTUAL LEAD		49'-9"
CLOSURE LENGTH		58'-11 1/8"
CENTERLINE RADIUS		283.88'
DEGREE OF CURVE		20° 17' 20"

NO. 6 TURNOUT BALLAST TRACK

SCALE: 1" = 6'-0"

NOTES:

- TURNOUT GEOMETRY IN ACCORDANCE WITH AREMA PLAN 920-02, EXCEPT AS MODIFIED HEREIN.
- RIGHT HAND TURNOUT SHOWN. FOR LEFT HAND TURNOUT, MIRROR IMAGE.
- 11-0" FROG, IN ACCORDANCE WITH AREMA PLAN 617-03, AND THE SPECIFICATIONS.

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OPERATIONS & MAINTENANCE FACILITY - V1	
TRACK DETAILS	
NO. 6 TURNOUT BALLAST TRACK	
DISCIPLINE:	SHEET NAME:
TRACK	OMF-TRK-DTL-008

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EROSION CONTROL NOTES

- 1. PERIMETER EROSION CONTROL AT THE LOCATIONS SHOWN ON THE PLANS PRIOR TO BEGINNING CONSTRUCTION. (HAY BALES ARE NOT AN ACCEPTABLE PERIMETER CONTROL)
- 2. BEFORE BEGINNING CONSTRUCTION, INSTALL A TEMPORARY ROCK CONSTRUCTION ENTRANCE AT EACH POINT WHERE VEHICLES EXIT THE CONSTRUCTION SITE.
- 3. REMOVE ALL SOILS AND SEDIMENTS TRACKED OR OTHERWISE DEPOSITED ONTO PUBLIC AND PRIVATE PAVEMENT AREAS. REMOVAL SHALL BE ON A DAILY BASIS WHEN TRACKING OCCURS. SWEEPING MAY BE ORDERED BY AT ANY TIME IF CONDITIONS WARRANT. SWEEPING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE CONSTRUCTION AND DONE IN A MANNER TO PREVENT DUST BEING BLOWN TO ADJACENT PROPERTIES.
- 4. INSTALL INLET PROTECTION AT ALL PUBLIC AND PRIVATE CATCH BASIN INLETS, WHICH RECEIVE RUNOFF FROM THE DISTURBED AREAS. CATCH BASIN INSERTS ARE REQUIRED IN UNDISTURBED AREAS THAT RECEIVE RUNOFF FROM DISTURBED AREAS.
- 5. LOCATE SOIL OR DIRT STOCKPILES NO LESS THAN 25 FEET FROM ANY PUBLIC OR PRIVATE ROADWAY OR DRAINAGE CHANNEL. IF REMAINING FOR MORE THAN SEVEN DAYS, STABILIZE THE STOCKPILES BY MULCHING, VEGETATIVE COVER, TARPS, OR OTHER MEANS. CONTROL EROSION FROM ALL STOCKPILES BY PLACING SILT BARRIERS AROUND THE PILES. TEMPORARY STOCKPILES LOCATED ON PAVED SURFACES MUST BE NO LESS THAN TWO FEET FROM THE DRAINAGE/GUTTER LINE AND SHALL BE COVERED IF LEFT MORE THAN 24 HOURS.
- 6. MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES IN PLACE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED. INSPECT TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ON A DAILY BASIS AND REPLACE DETERIORATED, DAMAGED, OR ROTTED EROSION CONTROL DEVICES IMMEDIATELY.
- 7. TEMPORARILY OR PERMANENTLY STABILIZE ALL DENUDED AREAS WHICH HAVE BEEN FINISH-GRADED, AND ALL DENUDED AREAS IN WHICH GRADING OR SITE BUILDING CONSTRUCTION OPERATIONS ARE NOT ACTIVELY UNDERWAY AGAINST EROSION DUE TO RAIN, WIND AND RUNNING WATER WITHIN 14 DAYS. USE SEEDING AND MULCHING, EROSION CONTROL MATTING, AND/OR SODDING AND STAKING IN GREEN SPACE AREAS. USE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED.
- 8. REMOVE ALL TEMPORARY SYNTHETIC, STRUCTURAL, NON-BIODEGRADABLE EROSION AND SEDIMENT CONTROL DEVICES AFTER THE SITE HAS UNDERGONE FINAL STABILIZATION AND PERMANENT VEGETATION HAS BEEN ESTABLISHED, MINIMUM VEGETATION ESTABLISHMENT IS 70% COVER, MAINTAIN ALL TEMPORARY EROSION CONTROL DEVICES UNTIL 70% ESTABLISHED COVER IS ACHIEVED.
- 9. READY MIXED CONCRETE AND CONCRETE BATCH PLANTS PROHIBITED WITHIN THE PUBLIC RIGHT OF WAY. UNDER NO CIRCUMSTANCES MAY WASHOUT WATER DRAIN ONTO THE PUBLIC RIGHT OF WAY OR INTO THE PUBLIC STORM SEWER.
- 10. CONTRACTOR TO PREVENT DIRT AND/OR DEBRIS FROM ENTERING STORM SEWER OR BEING TRANSPORTED OFF-SITE IN AN UNCONTROLLED MANNER. CONTRACTOR TO VERIFY AT PROJECT CLOSEOUT THAT STORM SEWER SYSTEM IS CLEAR OF SEDIMENT AND/OR DEBRIS AND IS FULLY FUNCTIONAL.
- 11. CONTRACTOR TO INSTALL EROSION AND SEDIMENT CONTROL ELEMENTS PRIOR TO START OF LAND DISTURBING ACTIVITIES, MAINTAIN IN GOOD CONDITION DURING CONSTRUCTION AND REMOVE FROM THE SITE UPON COMPLETION OF FINAL PAVING AND TURF ESTABLISHMENT.
- 12. CONTRACTOR TO PROVIDE TEMPORARY SEED AND MULCH ON ALL NON-PAVED AREAS WITHIN 7 DAYS AFTER ROUGH GRADING IS COMPLETED.

GENERAL NOTES

- 1. THE INVERTS AND DEPTHS OF EXISTING UTILITIES ARE SHOWN AT ASSUMED ELEVATIONS ON THE PROFILES AND MAY ACTUALLY BE DEEPER OR SHALLOWER THAN SHOWN. NOTIFY CAR OF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE SURVEY.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND THE METHODS AND WILL HAVE TOTAL CONTROL OVER THE TYPES AND DESIGN OF ALL SHORING, SHEETING, BRACING, ANCHORAGES, EXCAVATION SUPPORT WALLS, DIRECTIONAL BORING, AUGER JACKING, SOIL STABILIZATION AND OTHER METHODS OF PROTECTING EXISTING IMPROVEMENTS. SEE SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS.
- 3. STORAGE AND PROTECTION OF EXISTING SITE FEATURES WHICH NEED TO BE REMOVED AND REPLACED FOR CONSTRUCTION OF PROJECT ARE THE RESPONSIBILITY OF THE CONTRACTOR. STORAGE SHALL BE WITHIN THE LIMITS OF APPROVED STAGING AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OR THEFT OF THESE ITEMS.
- 4. ALL BUILDING EXITS SHALL REMAIN UNOBSTRUCTED AND USABLE AT ALL TIMES. IF THERE ARE UNAVOIDABLE EXCEPTIONS, THEN CONTRACTOR SHALL PROVIDE TEMPORARY EXIT PLANS.
- 1. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING LOCATIONS OF EXISTING UTILITIES, AND NOTIFY CAR OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION.
- 2. ALL UTILITY DEMOLITION AND/OR ABANDONMENT TO BE PERFORMED IN ACCORDANCE WITH CITY OF HOPKINS AND STATE OF MINNESOTA REGULATIONS AND STANDARDS.
- 3. EXISTING UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL EXISTING UTILITIES WHICH MAY INCLUDE BUT IS NOT LIMITED TO: ELECTRIC, TELEPHONE, GAS, CABLE TV, COMPUTER CABLE, FIBER OPTIC CABLE, SANITARY SEWER, STORM SEWER AND WATERMAIN. CONTRACTOR TO CONTACT GOPHER ONE-CALL BEFORE EXCAVATING.
- 4. SITE UTILITY CONTRACTOR TO FURNISH AND INSTALL ALL WATERMAIN, SANITARY SEWER AND STORM SEWER FACILITIES AND APPURTENANCES TO WITHIN FIVE FEET OUTSIDE THE BUILDING. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION AND DEPTH OF CONNECTION WITHIN BUILDING.
- 5. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITY TIE IN POINTS PRIOR TO THE START OF CONSTRUCTION.
- 6. PROVIDE THE FOLLOWING MINIMUM COVER OVER THE TOP OF PIPE AS FOLLOWS:
 - A. 8' OVER WATERMAIN
 - B. 7.5' OVER SANITARY SEWER
 - C. 2' OVER STORM SEWER
- 7. ALL EXCAVATIONS MUST COMPLY WITH THE REQUIREMENTS OF OSHA 29 CFR, PART 1926, SUBPART P "EXCAVATIONS AND TRENCHES". THIS DOCUMENT STATES THAT EXCAVATION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 8. CATCH BASINS AND MANHOLES ARE SHOWN ON PLAN LARGER THAN ACTUAL SIZE. COORDINATE LOCATION OF MANHOLE COVER AND CASTING SO THAT IT IS PROPERLY LOCATED AT THE BACK OF CURBLINE FOR THE CURB INLETS OR CENTERED IN THE AREA AS SHOWN ON THE PLAN FOR THE AREA DRAINS AND MANHOLE COVERS.

UTILITY NOTES

LANDSCAPE NOTES

- 1. EXISTING TURF AREAS DISTURBED DE TO CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED WITH SOD OR SEEDED. CIVIL DRAWINGS ILLUSTRATE A TEMPORARY CONSTRUCTION EASEMENT (TCE), WHICH IDENTIFIES THE LIMITS OF CONSTRUCTION ACTIVITIES; HOWEVER, LIMITS OF ACTUAL DISTURBANCE THAT WOULD REQUIRE SOD OR SEED INSTALLATION MAY NOT COINCIDE WITH THE TCE.
- 2. ALL EXISTING VEGETATION WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED UNLESS OTHERWISE NOTED. PROTECT EXISTING VEGETATION NOTED TO REMAIN INCLUDING TREES, SHRUBS, & OTHER PLANTINGS.
- 3. THE LINEWORK OR HATCH PATTERN SHOWN ON THE SIDEWALK IS PROVIDED TO HELP DELINEATE SIDEWALK LOCATIONS AND IS NOT INTENDED TO REPRESENT A JOINTING LAYOUT.
- 4. WHERE REQUIRED, ALL METAL URBAN DESIGN ELEMENTS INCLUDING FENCES, RAILINGS, AND BIKE RACKS ADJACENT TO TRACKWAY SHALL BE GROUNDED.

LANDSCAPE LEGEND

- OVERSTORY DECIDUOUS TREE
- ORNAMENTAL DECIDUOUS TREE
- CONIFEROUS TREE
- SHRUBS AND PERENNIALS
- SEED TYPE 2 – NATIVE SEED
- SEED TYPE 3 – BMP
- SEED TYPE 1 – TURF SEED
- CONCRETE WALK
- WALK – SPECIAL PAVEMENT
- FENCE TYPE A
- FENCE TYPE B
- TABLE WITH SEATS
- BICYCLE LOOP
- TRASH RECEPTACLE
- RECYCLING RECEPTACLE
- BOLLARD
- ROADWAY/PEDESTRIAN LIGHT

PLAN NOTES

- 1. CONTRACTOR TO PROTECT FROM DAMAGE ALL EXISTING IMPROVEMENTS, LANDSCAPING, STRUCTURES AND UTILITIES THAT ARE TO REMAIN. CONTRACTOR TO REPAIR ANY DAMAGE AT THEIR EXPENSE.
- 2. SUBSURFACE GEOTECHNICAL INVESTIGATION BY BRAUN INTERTEC PROJECT BL-13-00213, DATED 08/07/2013.
- 3. ALL WORK TO CONFORM WITH CITY OF HOPKINS AND STATE OF MINNESOTA STANDARDS AND REGULATIONS.

CIVIL LEGEND

- ROADWAY
- TRACK (LRT)
- RETAINING WALL
- CONCRETE CURB AND GUTTER
- TRAIL
- SIDEWALK
- DRIVEWAY
- BRIDGE
- SAWCUT
- FENCE
- DELINEATED WETLAND
- WATER EDGE
- EX ROW
- PROP ROW
- PROP TCE
- PROP PE
- SANITARY SEWER
- STORM SEWER
- WATERMAIN
- ACCESSIBLE PEDESTRIAN CURB RAMP (DESIGN VARIES)
- HANDICAP PARKING STALL
- TPSS BUILDING (TPSS-SW###)
- SIGNAL HOUSE
- SANITARY MANHOLE
- HYDRANT
- WATER VALVE
- STORM CATCH BASIN
- STORM MANHOLE
- FLARED END SECTION
- BITUMINOUS PAVEMENT
- PERVIOUS BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- GRAVEL
- BALLAST
- RIPRAP

ABBREVIATIONS

- AD ALGEBRAIC DIFFERENCE
- AVE AVENUE
- BGN BEGIN
- BP BEGINNING POINT
- BVCE BEGINNING VERTICAL CURVE ELEVATION
- BVCS BEGINNING VERTICAL CURVE STATION
- BLVD BOULEVARD
- C&G CURB AND GUTTER
- CL CENTERLINE
- CIR CIRCLE
- CP CANADIAN PACIFIC
- CPRAIL CANADIAN PACIFIC RAILWAY
- CS CURVE TO SPIRAL
- D&U DRAINAGE AND UTILITY
- DF DIRECT FIXATION
- DIP DUCTILE IRON PIPE
- DR DRIVE
- DTL DETAIL
- DWY DRIVEWAY
- E EAST
- EB EAST BOUND
- EL or ELEV ELEVATION
- EP END POINT
- ESMT EASEMENT
- EVCE ENDING VERTICAL CURVE ELEVATION
- EVCS ENDING VERTICAL CURVE STATION
- EX EXISTING
- FFE FINISHED FLOOR ELEVATION
- HWL 100-YR HIGH WATER LEVEL
- LF LINEAL FEET
- LH LEFT HAND
- LN LANE
- LRT LIGHT RAIL TRANSIT
- Lc CURVE LENGTH (FEET)
- Ls SPIRAL LENGTH (FEET)
- MIN MINIMUM
- MPH MILES PER HOUR
- N NORTH
- NB NORTH BOUND
- NIC NOT IN CONTRACT
- NO NUMBER
- NWL NORMAL WATER LEVEL
- OMF OPERATIONS AND MAINTENANCE FACILITY
- OCS OVERHEAD CONTACT SYSTEM
- OH OVERHEAD
- PC POINT OF CURVE
- PE PERMANENT EASEMENT
- PITO POINT OF INTERSECTION OF TURNOUT
- PKWY PARKWAY
- POT POINT ON TANGENT
- PROP PROPOSED
- PS POINT OF SWITCH
- PT POINT OF TANGENT
- PVC POLYVINYL CHLORIDE
- PVI POINT OF VERTICAL INTERSECTION
- R RADIUS (FEET)
- RD ROAD
- RL RAIL LUBRICATOR
- r RATE OF CHANGE VERTICAL CURVE
- RH RIGHT HAND
- ROW RIGHT OF WAY
- S SOUTH
- SB SOUTH BOUND
- SC SPIRAL TO CURVE
- SIG-COMM SIGNAL COMMUNICATION
- ST STREET
- ST SPIRAL TO TANGENT
- STA STATION
- TCE TEMPORARY CONSTRUCTION EASEMENT
- TOR TOP OF RAIL
- TPSS TRACTION POWER SUBSTATION
- TRK TRACK
- TS TANGENT TO SPIRAL
- TYP TYPICAL
- UG UNDERGROUND
- V DESIGN VELOCITY (MPH)
- VC VERTICAL CURVE
- W WEST
- WB WEST BOUND

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Landscape Architecture

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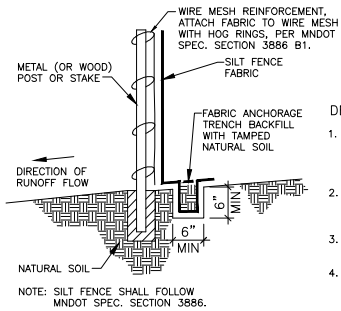
OPERATIONS & MAINTENANCE FACILITY - V1

GENERAL CIVIL NOTES & LEGEND

DISCIPLINE: CIVIL

SHEET NAME: OMF-GEN-NTS-001

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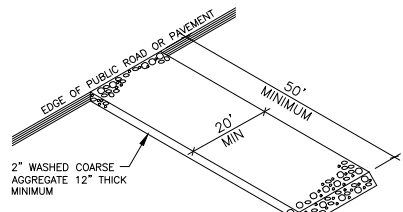
- DESIGN RECOMMENDATIONS**
1. SILT FENCES SHOULD BE INSTALLED ON THE CONTOUR (AS OPPOSED TO UP AND DOWN A HILL) AND CONSTRUCTED SO THAT FLOW CANNOT BYPASS THE ENDS.
 2. ENSURE THAT THE DRAINAGE AREA IS NO GREATER THAN 1/4 ACRE PER 100 FT OF FENCE.
 3. MAKE THE FENCE STABLE FOR THE 10-YEAR PEAK STORM RUNOFF.
 4. WHERE ALL RUNOFF IS TO BE STORED BEHIND THE SILT FENCE, ENSURE THAT THE MAXIMUM SLOPE LENGTH BEHIND THE FENCE DOES NOT EXCEED THE SPECIFICATIONS SHOWN IN TABLE 1.

FIGURE 1 TYPICAL INSTALLATION FOR SILT FENCE

		BY CALCULATION	BY CALCULATION	BY ACCEPTED DESIGN PRACTICES
SLOPE H:V	PERCENT	SILT FENCE STORAGE EQUALS 2 FT FOR A 100-YEAR EVENT	SILT FENCE STORAGE EQUALS 2 FT FOR A 2-YEAR EVENT OR 3 FT FOR A 100-YEAR EVENT	
100:1	1%	400 FT	900 FT	100 FT
50:1	2%	200 FT	450 FT	75 FT
25:1	4%	100 FT	225 FT	75 FT
20:1	5%	80 FT	180 FT	75-50 FT
17:1	6%	67 FT	150 FT	50 FT
12.5:1	8%	50 FT	112 FT	50 FT
10:1	10%	40 FT	90 FT	50-25 FT
5:1	20%	20 FT	45 FT	25-15 FT
4:1	25%	16 FT	36 FT	15 FT
3:1	33%	12 FT	27 FT	15 FT
2:1	50%	8 FT	18 FT	15 FT

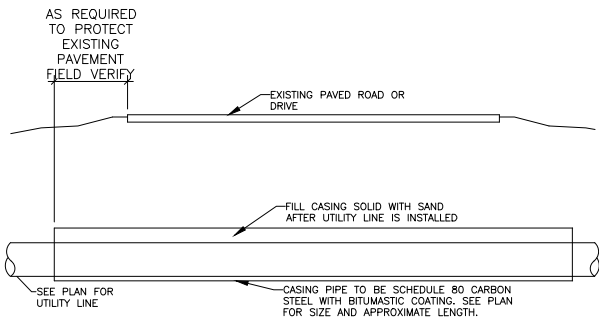
1 HEAVY DUTY SILT FENCE DETAIL

001 NO SCALE



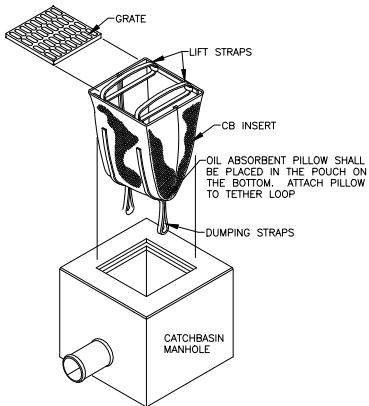
5 GRAVEL CONSTRUCTION ENTRANCE

001 NO SCALE



8 CASING DETAIL

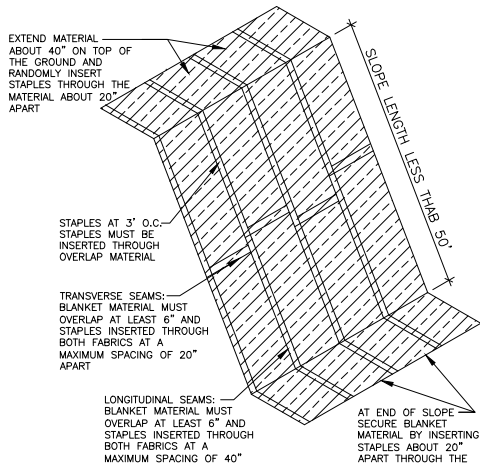
001 NO SCALE



1. OIL ABSORBENT PILLOW SHALL BE REMOVED AND REPLACED WHEN NEAR SATURATION.
2. USE DANDY BAG 11\"/>

2 CB INSERT EROSION CONTROL

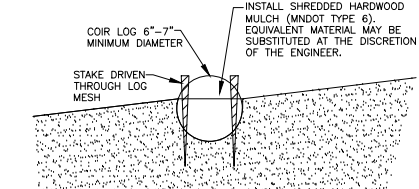
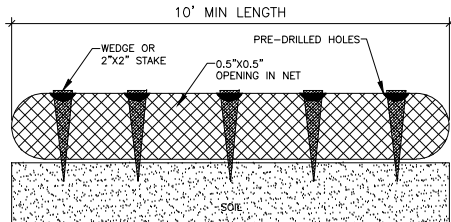
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- NOTES:
1. EROSION CONTROL BLANKET TO BE CATEGORY 4-COCONUT 25 FOR SLOPES GREATER THAN 5:1 AND SIDES AND BOTTOM OF ALL DRAINAGE SWALES AND PONDING AREAS AND CATEGORY 2-STRAW 25 FOR ALL SLOPES LESS THAN 5:1 PER MNDOT SPEC. SECTION 3885
 2. INSTALL PER MNDOT SPEC. SECTION 2575

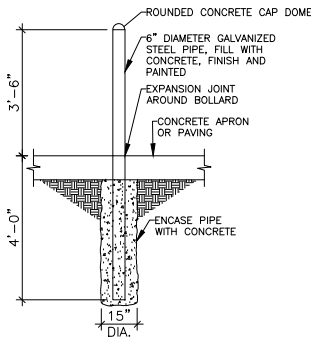
3 EROSION CONTROL BLANKET

001 NO SCALE



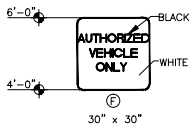
4 COIR LOG

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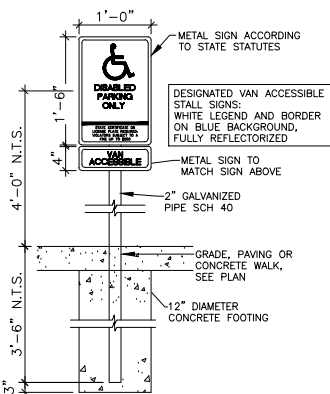
7 BOLLARD DETAIL

001 NO SCALE



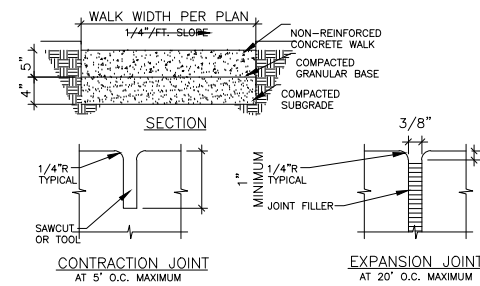
6 AUTHORIZED VEHICLES ONLY SIGN

001 NO SCALE



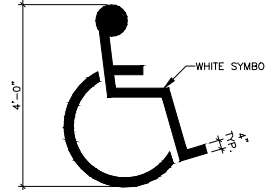
9 ACCESSIBLE PARKING SIGN

001 NO SCALE



10 CONCRETE WALK & JOINT DETAILS

001 NO SCALE



11 HC PARKING SYMBOL

001 NO SCALE

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AECOM

HTP Engineering • Surveying
Landscape Architecture

60% SUBMISSION - 09/28/15

METROPOLITAN
C O U N C I L

SOUTHWEST
Green Line LRT Extension



OPERATIONS & MAINTENANCE FACILITY - V1
CIVIL DETAILS
SHEET 1 OF 3

DISCIPLINE:
CIVIL

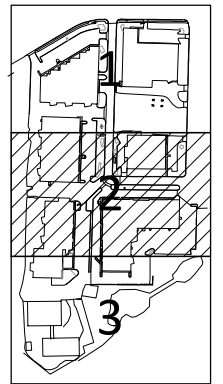
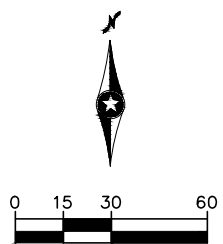
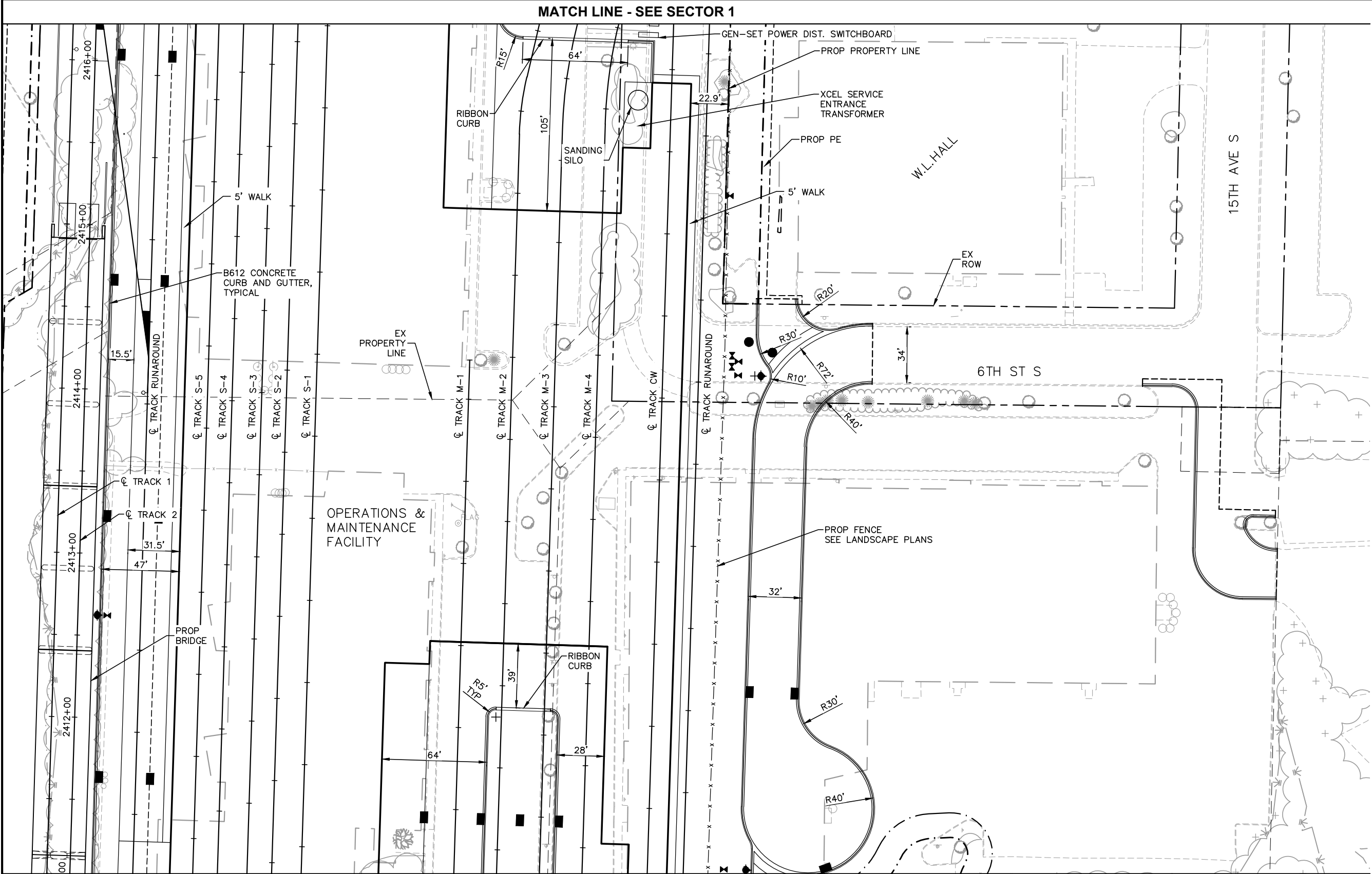
SHEET NAME:
OMF-CIV-DTL-001

SHEET
29
OF
114

The image contains two logos. On the left is the Metropolitan Council logo, featuring a stylized triangle with a diagonal line through it, and the text "METROPOLITAN COUNCIL" below it. On the right is the Southwest Green Line LRT Extension logo, featuring a stylized train and the text "SOUTHWEST Green Line LRT Extension" below it.

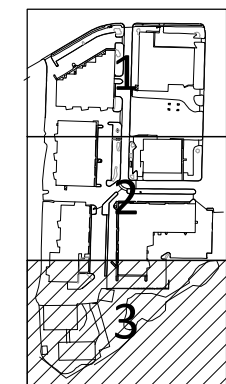
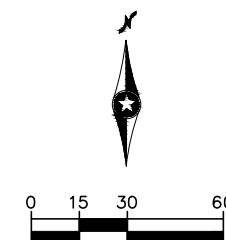
OPERATIONS & MAINTENANCE FACILITY - V1 SITE PLAN OVERALL		SHEET 32 OF 114
DISCIPLINE: CIVIL	SHEET NAME: OMF-CIV-PLN-001	

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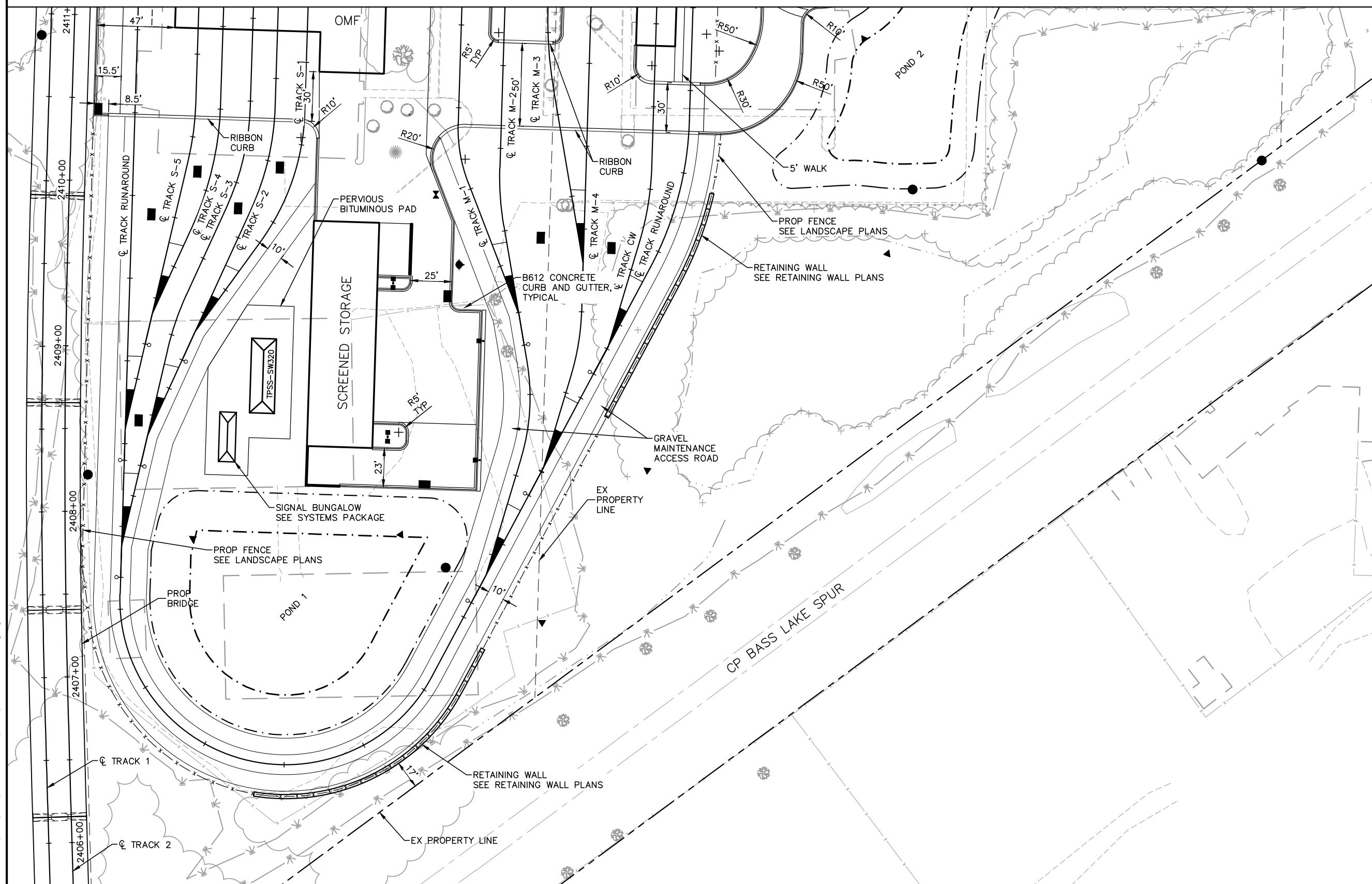


LEGEND: SECTORS

MATCH LINE - SEE SECTOR 3						60% SUBMISSION - 09/28/15		Engineering • Surveying Landscape Architecture		METROPOLITAN COUNCIL		SOUTHWEST Green Line LRT Extension		OPERATIONS & MAINTENANCE FACILITY - V1 SITE PLAN SECTOR 2		SHEET 34 OF 114	
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HT Engineering • Surveying
PO Landscape Architecture

60% SUBMISSION - 09/28/15

SOUTHWEST

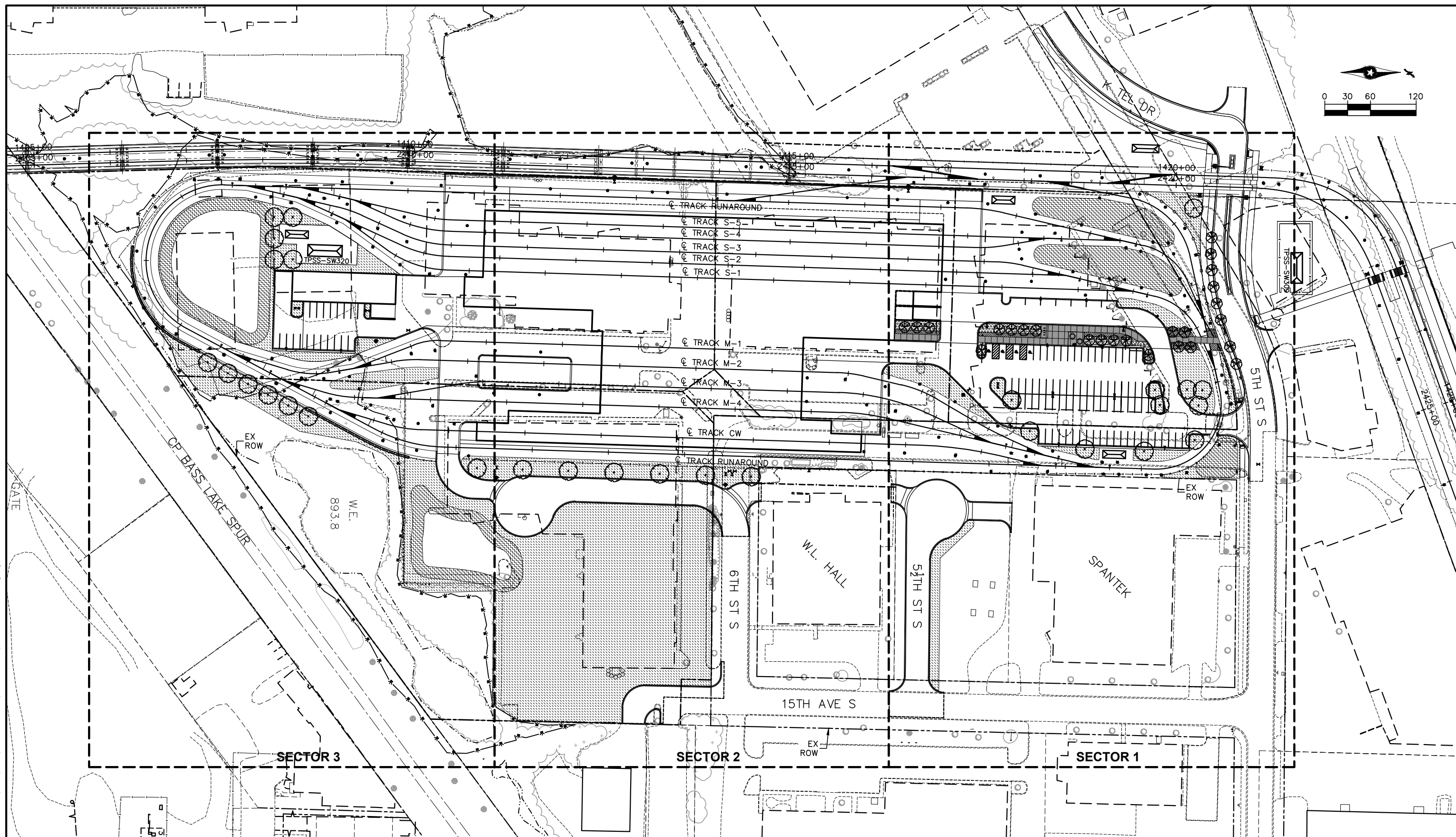


OPERATIONS & MAINTENANCE FACILITY - V1
SITE PLAN
SECTOR 3

DISCIPLINE: **CIVIL**

SHEET NAME:	OMF-CIV-PLN-004
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	OF
	114

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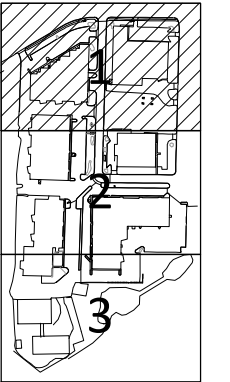
SRE
Consulting Group, Inc.

SOUTHWEST

Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
LANDSCAPE PLAN
OVERALL

DISCIPLINE: **LANDSCAPE ARCH**



LEGEND: SECTORS

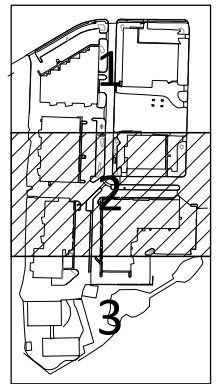
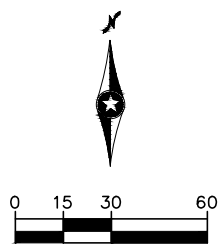
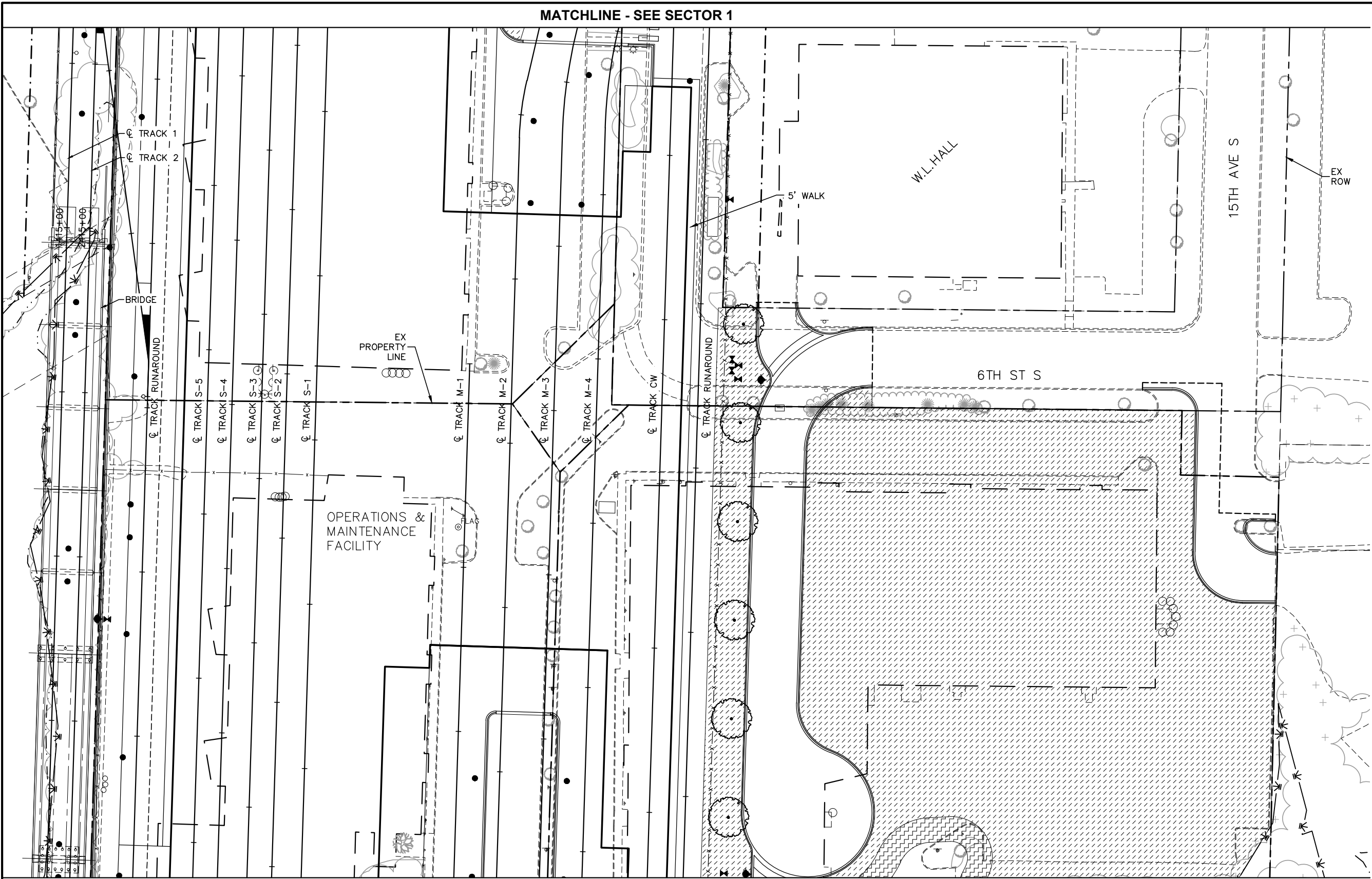
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OPERATIONS & MAINTENANCE FACILITY - V1
LANDSCAPE PLAN
SECTOR 1

SHEET NAME:	OMF-LAN-PLN - 002
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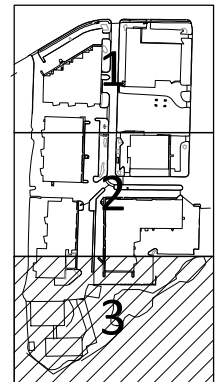
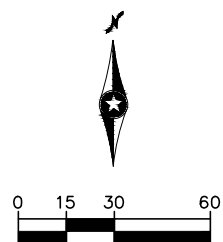
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LEGEND: SECTORS

NO. DATE BY CHECK DESIGN REVISION / SUBMITTAL						MATCHLINE - SEE SECTOR 3										OPERATIONS & MAINTENANCE FACILITY - V1										SHEET
						AECOM SRI Consulting Group, Inc.										METROPOLITAN COUNCIL SOUTHWEST Green Line LRT Extension										38
						60% SUBMISSION - 09/28/15										LANDSCAPE PLAN										OF
																SECTOR 2										114
																DISCIPLINE: LANDSCAPE ARCH					SHEET NAME: OMF-LAN-PLN - 003					



LEGEND: SECTORS

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60% SUBMISSION - 09/28/15

OPERATIONS & MAINTENANCE FACILITY - V1
LANDSCAPE PLAN
SECTOR 3

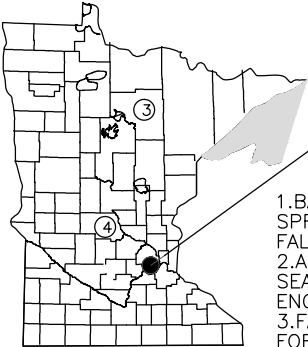
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GENERAL NOTES		
SEE SPECIAL PROVISIONS FOR SPECIFIC PROJECT REQUIREMENTS.		
REFER TO MnDOT SPECIFICATIONS 2571, 3861, AND THE "2016 INSPECTION AND CONTRACT ADMINISTRATION MANUAL FOR MnDOT LANDSCAPE PROJECTS" FOR GENERAL REQUIREMENTS.		
COMPLETE PREPARATORY 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 2571.3D2 STEP 4)		
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 (C)	
FERTILIZER	SEE SPECIAL PROVISIONS	
COMPOST	MnDOT 3890 GRADE 2 UNLESS OTHERWISE SPECIFIED.	
MULCH MATERIAL	MnDOT 3882 TYPE 6 UNLESS OTHERWISE SPECIFIED.	
MASS PLANTING BEDS	PREPARE MASS PLANTING BEDS FOR PLANTS PLACED AT 6' 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 (C)	
TREE PAINTING (FROST CRACK PREVENTION)	NO PAINTING OF TREE STEMS SHALL BE REQUIRED.	
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.		



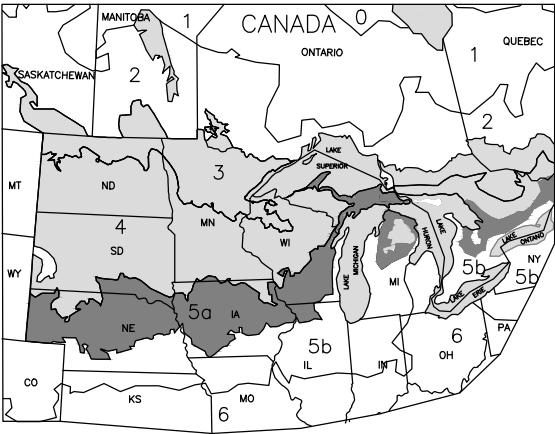
PROJECT LOCATION

- 1.BARE ROOT PERENNIALS MUST BE INSTALLED 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 INSTALLED DURING THE MONTH OF MAY DURING THE FIRST YEAR OF THE PLANT ESTABLISHMENT PERIOD.

PLANTING DATES BY ZONE						
KEY	SPRING				FALL	
	DECIDUOUS	CONIFEROUS	PERENNIALS	SEEDLINGS	DECIDUOUS	CONIFEROUS
③	APRIL 21 TO JUNE 1	APRIL 21 TO JUNE 1	MAY 1 TO JUNE 15	APRIL 21 TO JUNE 1	OCT. 1 TO NOV. 1	AUG. 25 TO SEPT. 15
④	APRIL 7 TO JUNE 1	APRIL 7 TO MAY 17	MAY 1 TO JUNE 15	APRIL 7 TO MAY 17	OCT. 10 TO NOV. 15	AUG. 25 TO SEPT. 15

PLANT INSTALLATION PERIOD

(MnDOT 2571.3F2)



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.

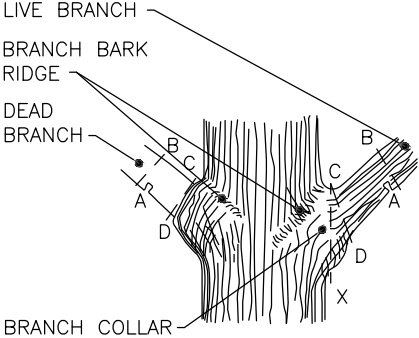
OR

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)

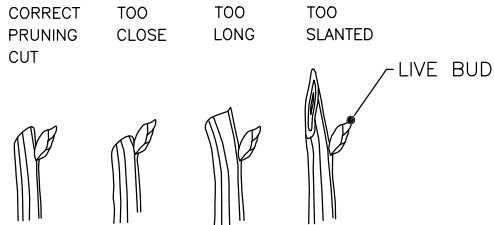


BRANCHES PRUNED AT TRUNK (SHIGO METHOD)

- 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.

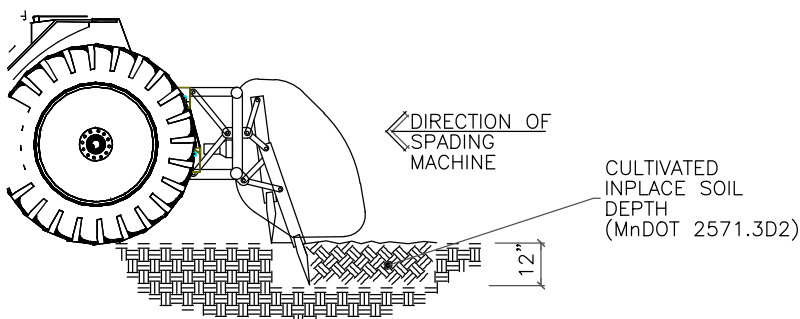


BRANCHES PRUNED TO LIVE BUD

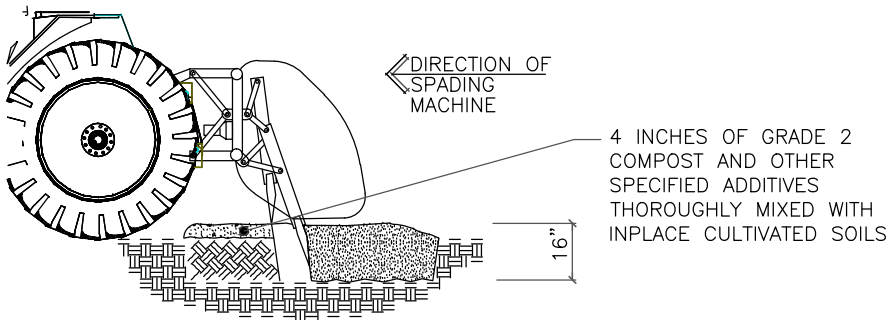
PRUNING

- 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.

(MnDOT 2571.3K2a9 and 2571.3E1)



PRIMARY TILLAGE - PASS 1



INCORPORATION TILLAGE - PASS 2

PLANTING SOIL

(MnDOT 2571.3D2)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 09/28/15

OPERATIONS & MAINTENANCE FACILITY - V1
LANDSCAPE DETAILS 1

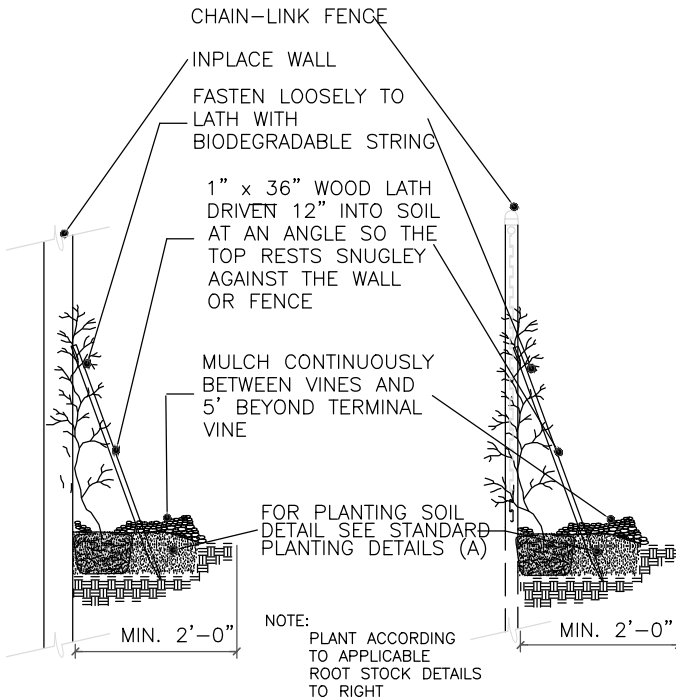
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SHEET NAME:
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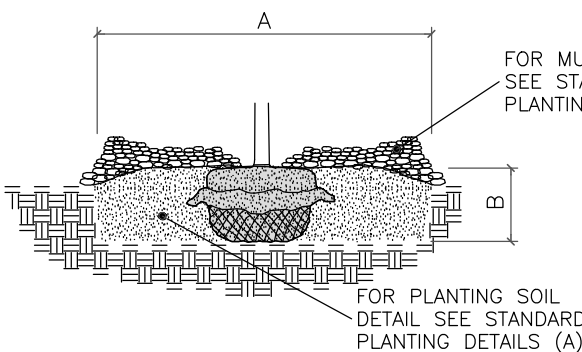
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PLANTING HOLE DIMENSIONS			
HOLE DEPTH FOR B&B AND CONTAINER PLANTS SHALL NOT EXCEED MEASUREMENT FROM ROOT FLAIR TO BOTTOM OF SOIL BALL.			
PLANT TYPE	PLANT SIZE UP TO AND INCLUDING	(A) MINIMUM HOLE WIDTH	(B) APPROXIMATE HOLE DEPTH
DECIDUOUS & ORNAMENTAL 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"
DECIDUOUS SHRUBS, ROSES AND PERENNIALS	2.5" B.B.	84"	19"
	3" B.B.	96"	20"
	3.5" B.B.	114"	23"
	4" B.B.	126"	25"
	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"
PERENNIAL HOLE DEPTH AND WIDTH SHALL BE BASED UPON ON-CENTER SPACING IN A CONTINUOUS TRENCH.	5' B.R.	54"	14"
	6' B.R.	60"	14"
	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

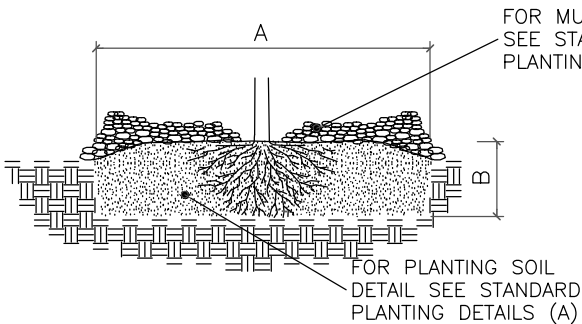
INSTALLATION OF VINES



- 1.SCARIFY SIDES AND BOTTOM OF HOLE.
- 2.PROCEED WITH CORRECTIVE PRUNING.
- 3.SET PLANT ON UNDISTURBED NATIVE SOIL OR THOROUGHLY COMPACTED PLANTING SOIL. INSTALL 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.

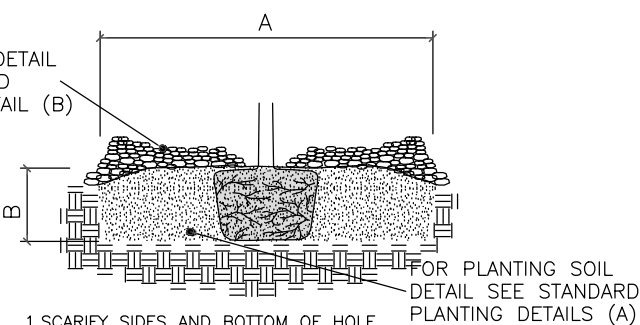
BALLED & BURLAPPED STOCK



- 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

INSTALLATION OF PLANTS

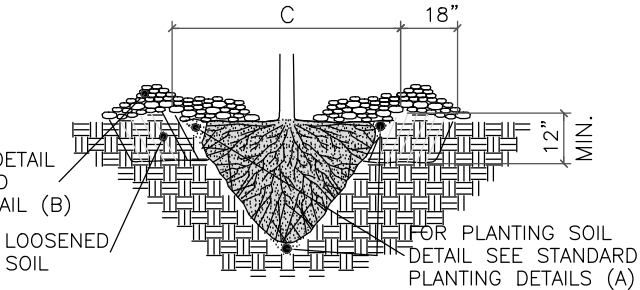


- 1.SCARIFY SIDES AND BOTTOM OF HOLE.
- 2.PROCEED WITH CORRECTIVE PRUNING OF TOP AND ROOT.
- 3.REMOVE CONTAINER AND SCORE OUTSIDE OF SOIL MASS TO REDIRECT AND PREVENT CIRCLING FIBROUS ROOTS. REMOVE OR CORRECT STEM GIRDLING ROOTS.

- 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



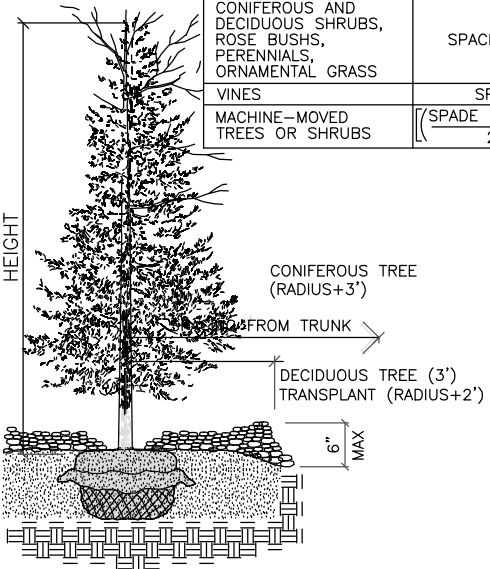
- 1.SCARIFY SIDES AND BOTTOM OF HOLE.
- 2.PROCEED WITH CORRECTIVE PRUNING.
- 3.SET PLANT ON NATIVE SOIL AT SAME DEPTH AS IT WAS PREVIOUSLY GROWN.
- 4.PLUMB AND BACKFILL WITH PLANTING SOIL.
- 5.AFTER PLANTING, LOOSEN THE SOIL IMMEDIATELY ADJACENT TO THE ROOT BALL TO A MINIMUM DISTANCE OF 18" AND A MINIMUM 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

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"
	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"
	18" B.B.	24"	7"
	3' B.B.	48"	12"
CONIFEROUS SHRUBS (UPRIGHT)			
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"
	12" SEEDLING	18"	14"
	18" SEEDLING	23"	16"
	2' 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	$\left[\left(\frac{3}{2} \times \text{HEIGHT}\right) + 3\right]^2 \times \pi$
DECIDUOUS AND ORNAMENTAL TREES	$3^2 \times \pi$
CONIFEROUS AND DECIDUOUS SHRUBS, ROSE BUSHES, PERENNIALS, ORNAMENTAL GRASS	SPACING x SPACING
VINES	SPACING x 2
MACHINE-MOVED TREES OR SHRUBS	$\left[\left(\frac{\text{SPADE DIAMETER}}{2}\right) + 1\right]^2 \times \pi$
	$\pi = 3.1416$



MULCH PLACEMENT

(MnDOT 2571.3H)

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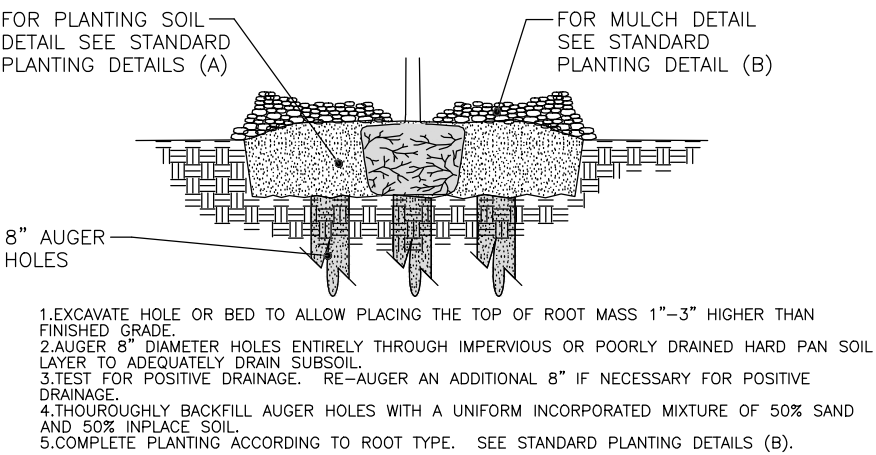
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LANDSCAPE DETAILS 2

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LANDSCAPE ARCH

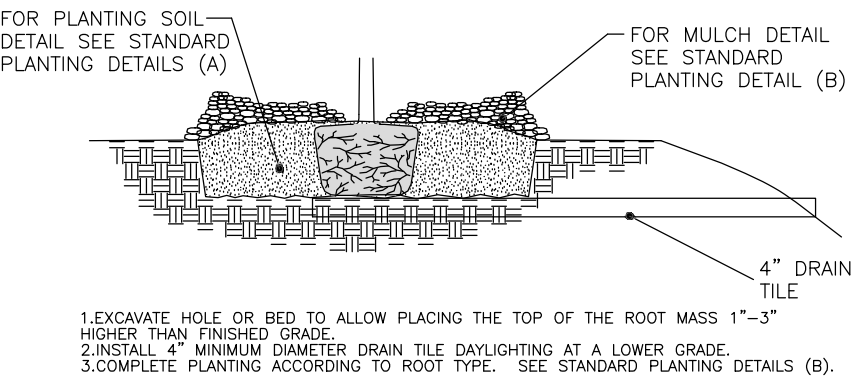
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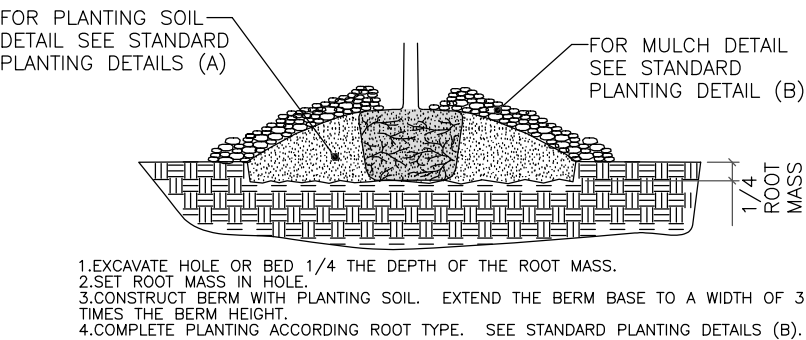
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INSTALL GRANULAR FILTER



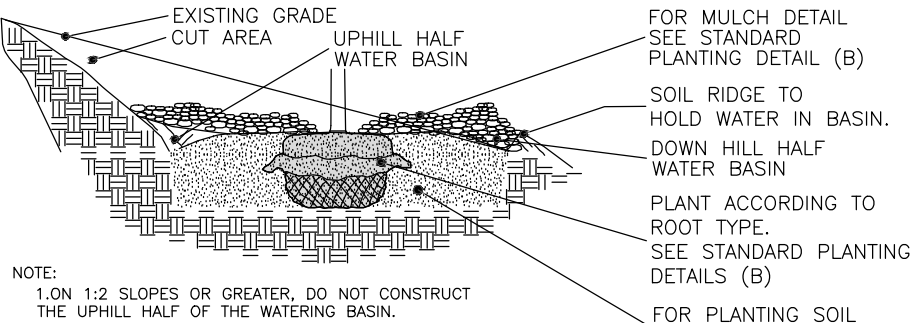
INSTALL TILE DRAINAGE



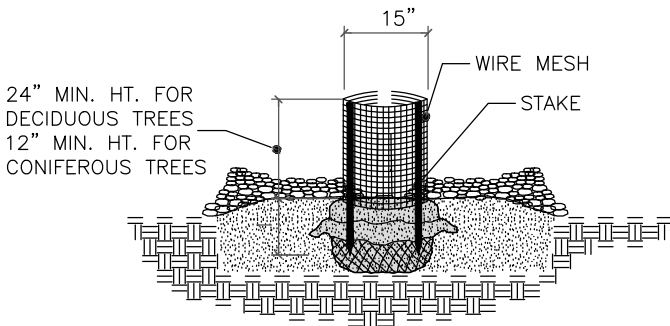
INSTALL MINI-BERM

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 2571.3D2 (STEP 8))



PLANTING ON SLOPES

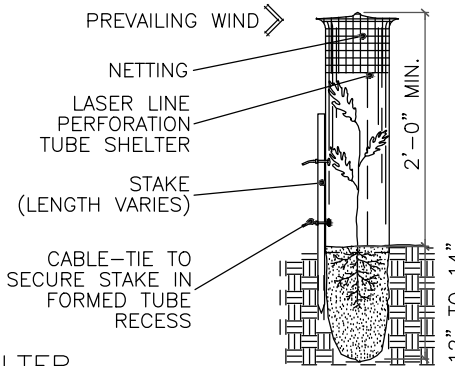


- 1.FORM A DOUBLE-LAYERED CYLINDER USING 0.25" GRID GALVANIZED WELDED WIRE MESH (HARDWARE CLOTH). OVERLAP THE CUT END 2".
- 2.DRIVE TWO 1" x 1" OPPOSING HEARTWOOD WHITE OAK STAKES INTO THE GROUND, 7" FROM THE CENTER OF THE TREE STEM.
- 3.SECURE THE MESH CYLINDER TO THE OUTSIDE OF THE STAKES, USING EITHER, 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

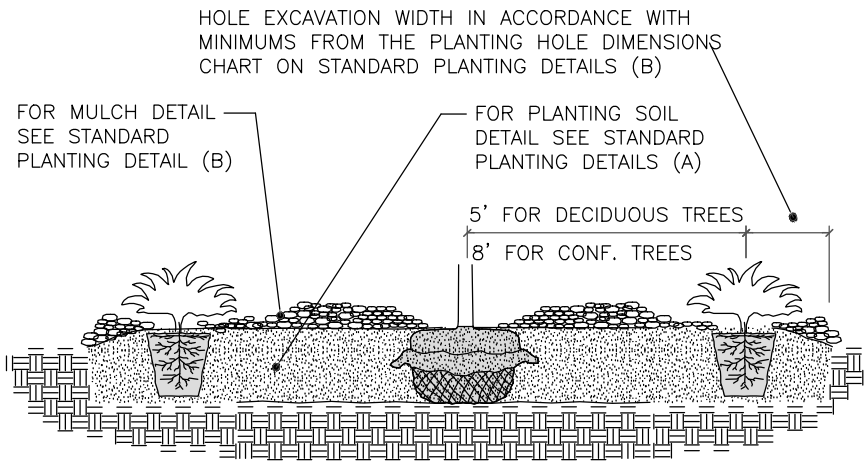
(MnDOT 2571.3I2)

- 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.INSTALL A PLASTIC PHOTODEGRADABLE NETTING COVER AND SLEEVE OVER THE TOP OF THE TUBE. PULL NETTING DOWN AS SHOWN.

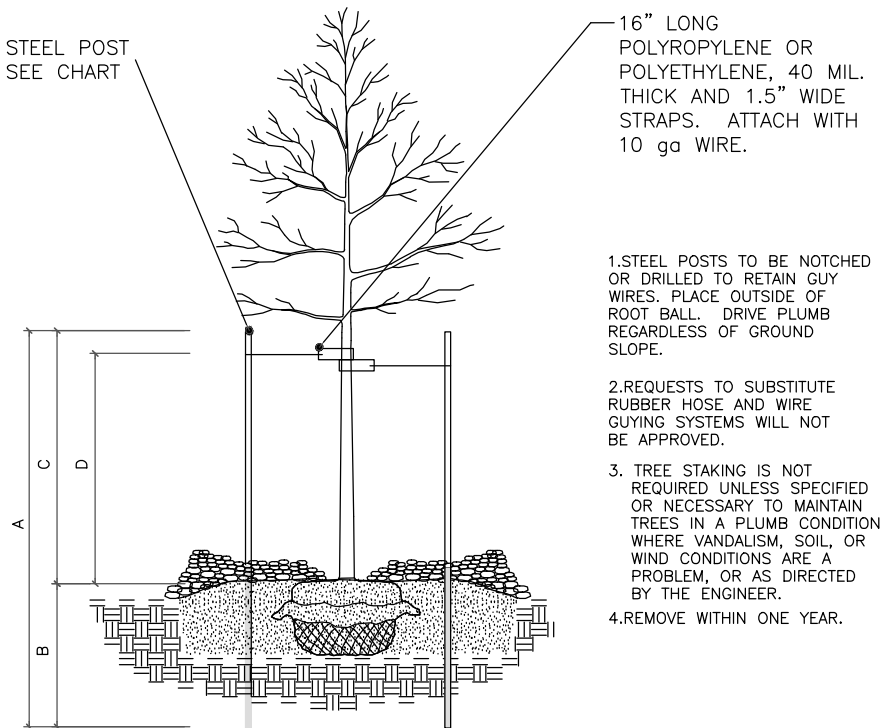


SEEDLING TREE SHELTER

(MnDOT 2571.3I4)



PLANT SPACING IN MASS BEDS



STEEL POST SIZING				
CALIPER	STEEL POST TYPE	A	B	C
LESS THEN 4 INCHES	ROLLED STEEL FENCE POST (MnDOT 3403) OR APPROVED EQUAL.	7'-0"	3'-0" MIN.	4'-0" 3'-0"
GREATER THEN 4 INCHES	10", 2.2 LB. FLANGED CHANNEL STEEL SIGN POST (MnDOT 3401) OR APPROVED EQUAL.	10'-0"	4'-0" MIN.	6'-0" 5'-0"

STAKING AND GUYING

(MnDOT 2571.3I1)

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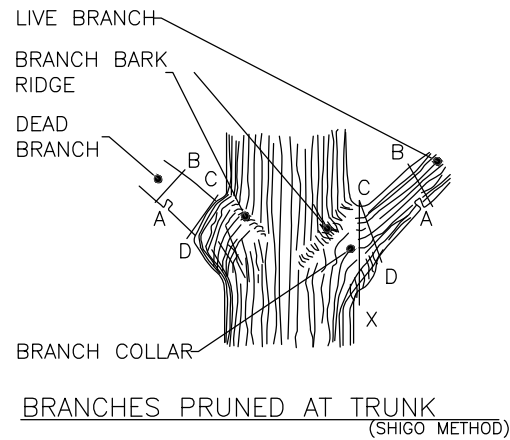
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OPERATIONS & MAINTENANCE FACILITY - V1
LANDSCAPE DETAILS 3

DISCIPLINE: LANDSCAPE ARCH
SHEET NAME: OMF-LAN-DTLS - 003

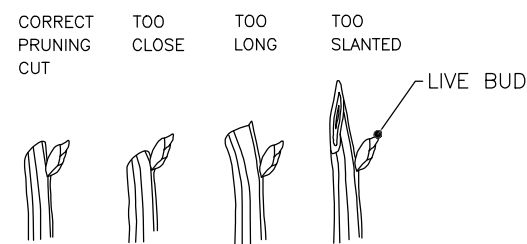
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STEPS TO PRUNING WITH PRUNING SAW:
1.CUT PART WAY THROUGH THE BRANCH AT POINT A.
2.CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3.AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

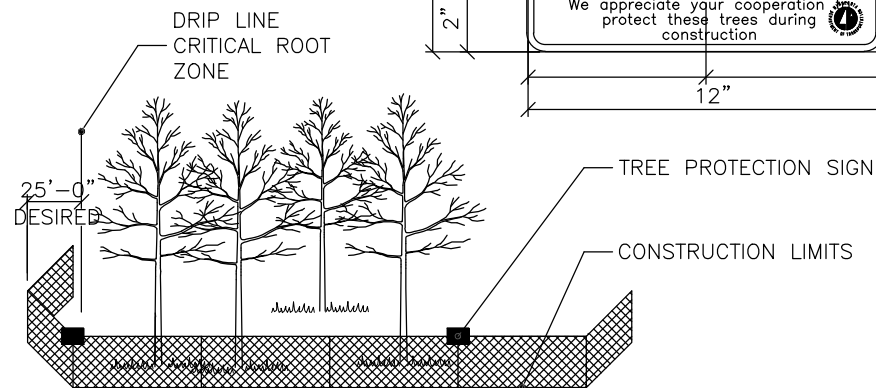
CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.



BRANCHES PRUNED TO LIVE BUD
PRUNING

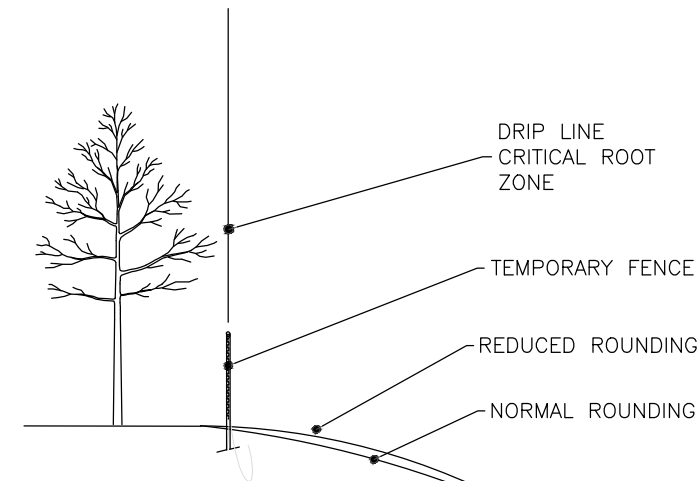
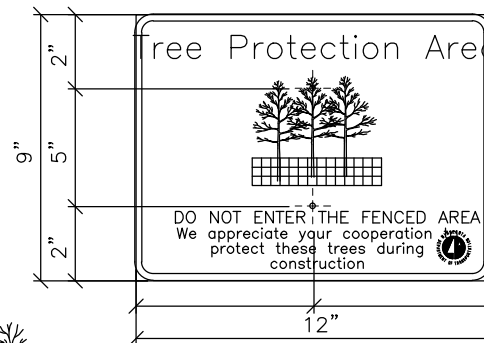
PRUNING NOTES:
1.PRUNE USING CLEAN AND SHARP SCISSOR-TYPE PRUNER OR PRUNING SAW.
2.THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3.AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4.IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

1.FABRICATE 12" X 9" X 3/8" SIGN WITH 0.75" RADIUS CORNERS.
2.SIGN SHALL BE WHITE WITH BLACK LETTERING.
3.ATTACH SIGN TO POST USING 1" LENGTH WOOD SCREWS.



1.FURNISH AND INSTALL TEMPORARY FENCE AT THE TREE'S DRIPLINE OR CONSTRUCTION LIMITS AS SPECIFIED, PRIOR TO ANY CONSTRUCTION.
2.WHEN POSSIBLE PLACE FENCE 25 FEET BEYOND THE DRIPLINE.
3.PLACE TREE PROTECTION SIGNS ALONG FENCE AT 50' INTERVALS.

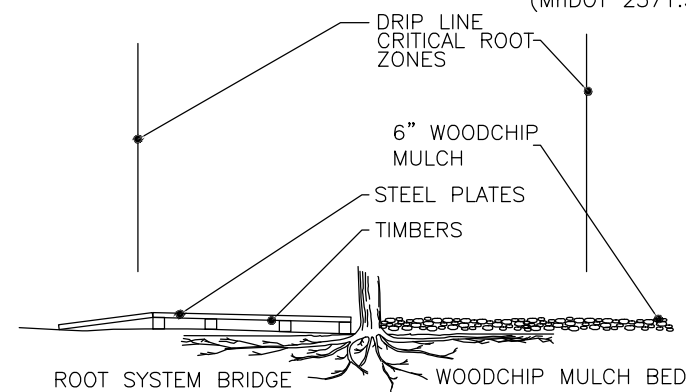
TEMPORARY FENCE



SIGNIFICANT TREES NEAR THE PROPOSED CONSTRUCTION LIMITS WILL BE IDENTIFIED IN THE PLAN OR BY THE ENGINEER AND WILL BE PRESERVED BY THE CONTRACTOR.

1.PLACE THE TEMPORARY FENCE.
2.REDUCE SLOPE ROUNDING WHERE ROOT ZONES ARE DISTURBED BY NORMAL SLOPE ROUNDING.
3.VARY BACKSLOPE STEEPNESS TO AVOID TREE LOSS OR UNNECESSARY ROOT DAMAGE.

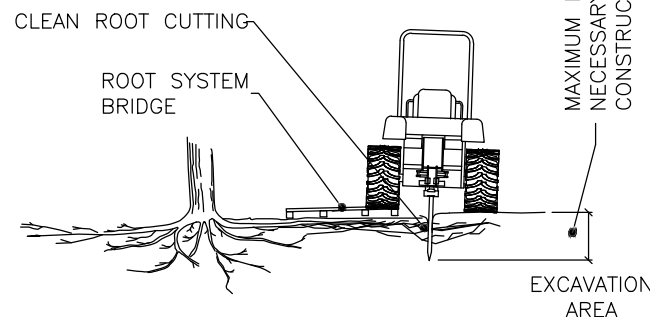
SLOPE ROUNDING



IF CONSTRUCTION VEHICLES MUST PASS OVER ROOT ZONES, THE CONTRACTOR MUST EITHER:

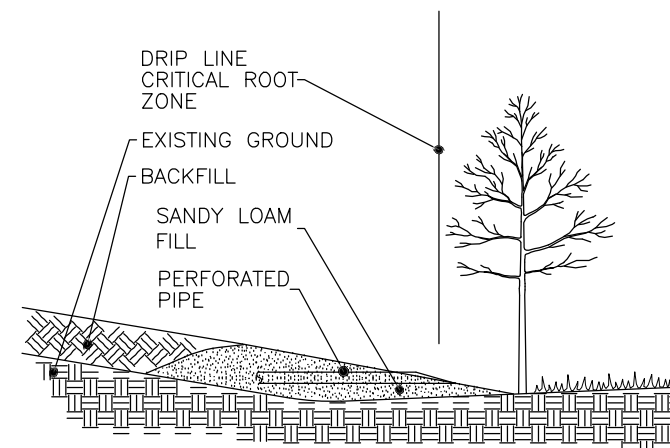
- 1.CONSTRUCT ROOT SYSTEM BRIDGES WITH STEEL PLATE SUPPORTED ON WOOD TIMBERS PLACED RADially TO THE TREE TRUNK.
- OR
- 2.PLACE A 6 INCH LAYER OF WOODCHIP MULCH OVER A TYPE III GEOTEXTILE (MnDOT 3733)..

OTHER VEGETATION PROTECTION MEASURES



1.WHEN DESIGNATED IN THE PLAN OR DIRECTED BY THE ENGINEER, PRIOR TO EXCAVATION, ALL TREE ROOTS WILL BE CLEANLY CUT BY A VIBRATORY PLOW OR OTHER APPROVED ROOT CUTTER.
2.THE TREE ROOTS WILL BE CUT CLEANLY TO THE MAXIMUM DEPTH NECESSARY FOR CONSTRUCTION.
3.IMMEDIATELY, AND CLEANLY CUT DAMAGED AND EXPOSED ROOTS.
4.ROOT ENDS EXPOSED BY EXCAVATION ACTIVITIES SHALL BE IMMEDIATELY COVERED WITH A 6" LAYER OF ADJACENT SOIL.

CLEAN ROOT CUTTING



1.ANY FILL REQUIRED WITHIN THE DRIPLINE OF TREES, IS UNCOMPACTED SANDY LOAM TOPSOIL (WITH A COARSE SAND COMPONENT).
2.EXCESSIVE FILL MAY REQUIRE INSTALLING PERFORATED PIPE WITH AT LEAST ONE DAYLIGHTED END OPENING AS AN AERATION SYSTEM.

SANDY LOAM TOPSOIL

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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OPERATIONS & MAINTENANCE FACILITY - V1
LANDSCAPE DETAILS 4

DISCIPLINE:
LANDSCAPE ARCH

SHEET NAME:
OMF-LAN-DTLS - 004

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DECIDUOUS TREES

BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
<i>Acer platanoides 'Crimson Sentry'</i>	CRIMSON SENTRY MAPLE	2.5" CAL.	B&B	
<i>Acer x freemani 'Scarsen'</i>	SCARLET SENTINEL MAPLE	2.5" CAL.	B&B	
<i>Gleditsia tricanthos 'Harve'</i>	NORTHERN ACCLAIM HONEY LOCUST	2.5" CAL.	B&B	
<i>Gleditsia tricanthos 'Imperial'</i>	IMPERIAL HONEY LOCUST	2.5" CAL.	B&B	
<i>Gleditsia tricanthos inermis 'Skycole'</i>	SKYLINE HONEYLOCUST	2.5" CAL.	B&B	
<i>Populus tremuloides</i>	QUAKING ASPEN	#25	CONT.	

CONIFEROUS TREES

BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
<i>Picea glauca 'Densata'</i>	BLACK HILLS SPRUCE	8' HT.	B&B	

ORNAMENTAL TREES

BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
<i>Betula populifolia 'Whitespire'</i>	WHITESPIRE BIRCH	6' HT.	B&B	CLUMP MULTISTEM

CONIFEROUS SHRUBS

BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
<i>Juniperus chinensis 'Maney'</i>	MANEY JUNIPER	18" SPRD.	CONT.	
<i>Juniperus squamata 'Blue Star'</i>	BLUE STAR JUNIPER	#3	CONT.	
<i>Taxus x media 'Taunton'</i>	TAUNTON YEW	#3	CONT.	

VINES

BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
<i>Parthenocissus tricuspidata 'Robusta'</i>	BOSTON IVY	#1	CONT.	SPACING PER PLANS
<i>Clematis</i> sp.	CLEMATIS	#1	CONT.	SPACING PER PLANS

DECIDUOUS SHRUBS

BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
<i>Rosa rugosa 'Pavement Purple'</i>	PURPLE PAVEMENT ROSE	#5	CONT.	
<i>Sorbaria sorbifolia 'Sem'</i>	SEM FALSE SPIREA	#5	CONT.	
<i>Spiraea japonica 'Alpina'</i>	DAPHNE SPIREA	#5	CONT.	
<i>Spiraea x bumalda 'Goldflame'</i>	GOLDFLAME SPIREA	#5	CONT.	
<i>Forsythia 'Nimbus'</i>	SHOW OFF SUGAR BABY FORSYTHIA	#5	CONT.	
<i>Cornus sericea 'Baileyi'</i>	RED-TWIG DOGWOOD	#5	CONT.	

PERENNIALS AND ORNAMENTAL GRASSES

BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
<i>Ajuga reptans 'Burgundy Gold'</i>	BUGLEWEED	#1	CONT.	PLANT 24" O.C.
<i>Aster novae-angliae 'Purple Dome'</i>	PURPLE DOME ASTER	#1	CONT.	PLANT 24" O.C.
<i>Aster 'Woods Glow'</i>	WOODS GLOW ASTER	#1	CONT.	PLANT 24" O.C.
<i>Calamagrostis acutifolia</i>	FEATHER REED GRASS	#1	CONT.	PLANT 24" O.C.
<i>Calamagrostis x 'Karl Foerster'</i>	KARL FOERSTER GRASS	#1	CONT.	PLANT 30" O.C.
<i>Echinacea 'Big Sky Twilight'</i>	BIG SKY PURPLE CONEFLOWER	#1	CONT.	PLANT 24" O.C.
<i>Echinacea purpurea</i>	PURPLE CONEFLOWER	#1	CONT.	PLANT 24" O.C.
<i>Hemerocallis 'Happy Returns'</i>	HAPPY RETURNS DAYLILY	#1	CONT.	PLANT 24" O.C.
<i>Hemerocallis 'Rosy Returns'</i>	ROSY RETURNS DAYLILY	#1	CONT.	PLANT 24" O.C.
<i>Hemerocallis 'Stella d' Oro'</i>	STELLA D'ORO DAYLILY	#1	CONT.	PLANT 24" O.C.
<i>Iris sibirica 'Caesar's Brother'</i>	CAESAR'S BROTHER IRIS	#1	CONT.	PLANT 24" O.C.
<i>Miscanthus sinsensis 'Purpurascens'</i>	FLAME MAIDEN GRASS	#1	CONT.	PLANT 24" O.C.
<i>Miscanthus sinsensis 'Variegatus'</i>	VARIEGATED MAIDEN GRASS	#1	CONT.	PLANT 24" O.C.
<i>Nepeta 'Walker's Low'</i>	WALKER'S LOW CATMINT	#1	CONT.	PLANT 24" O.C.
<i>Pachysandra terminalis</i>	PACHYSANDRA	#1	CONT.	PLANT 24" O.C.
<i>Panicum virgatum 'Shenandoah'</i>	SHENANDOAH SWITCH GRASS	#1	CONT.	PLANT 24" O.C.
<i>Perovskia 'Filigran'</i>	FILIGRAN RUSSIAN SAGE	#1	CONT.	PLANT 24" O.C.
<i>Rudbeckia fulgida 'Goldsturm'</i>	GOLDSTURM BLACK-EYED SUSAN	#1	CONT.	PLANT 24" O.C.
<i>Rudbeckia hirta 'Indian Summer'</i>	INDIAN SUMMER RUDBECKIA	#1	CONT.	PLANT 24" O.C.
<i>Schizachyrium scoparium 'Blue Heaven'</i>	BLUE HEAVEN LITTLE BLUESTEM	#1	CONT.	PLANT 24" O.C.
<i>Sedum x 'Autumn Joy'</i>	AUTUMN JOY SEDUM	#1	CONT.	PLANT 24" O.C.
<i>Sporobolus heterolepis</i>	PRAIRIE DROPSEED GRASS	#1	CONT.	PLANT 24" O.C.

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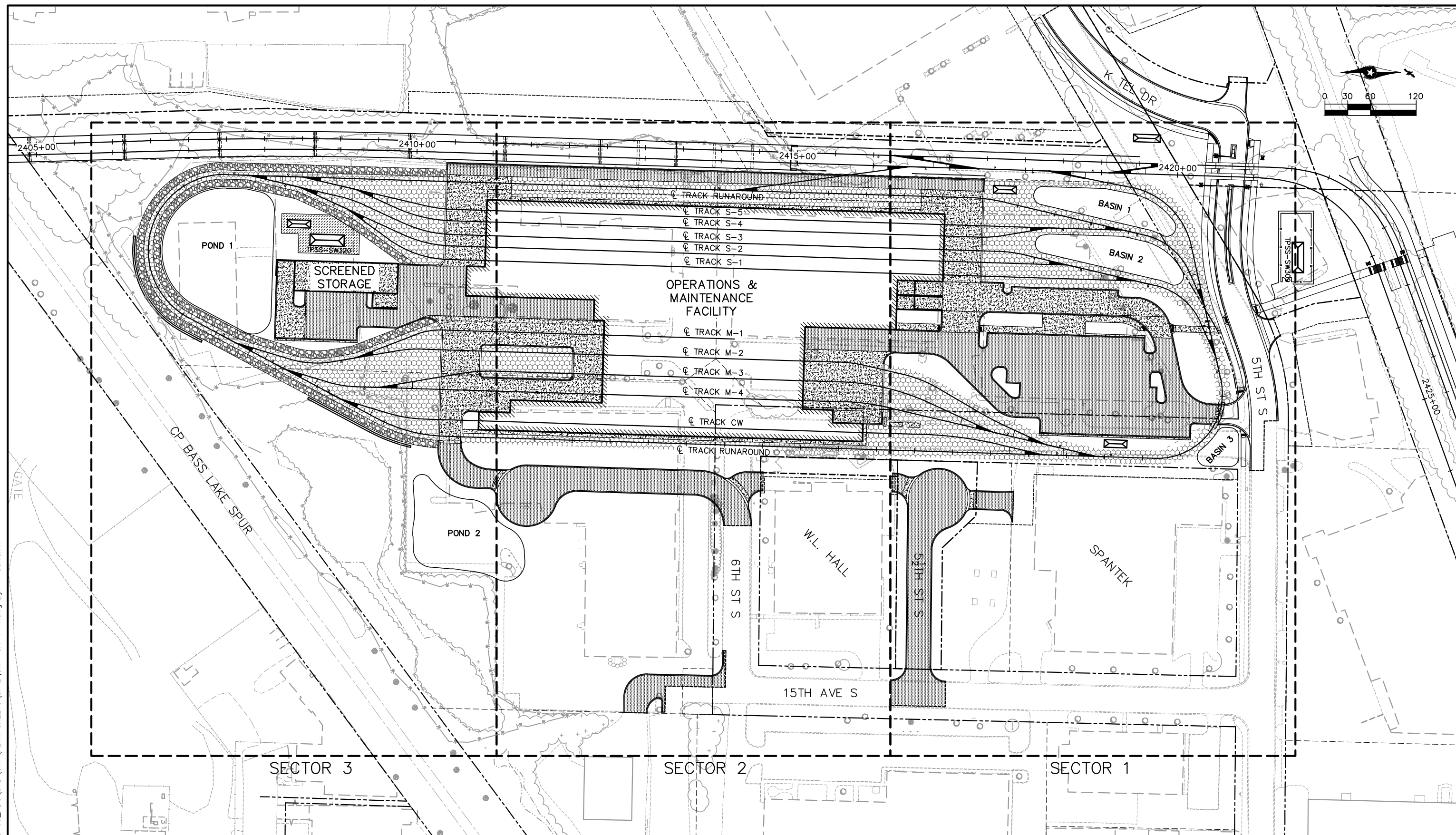
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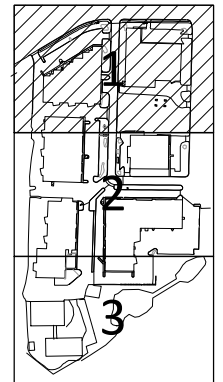
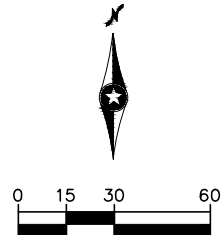
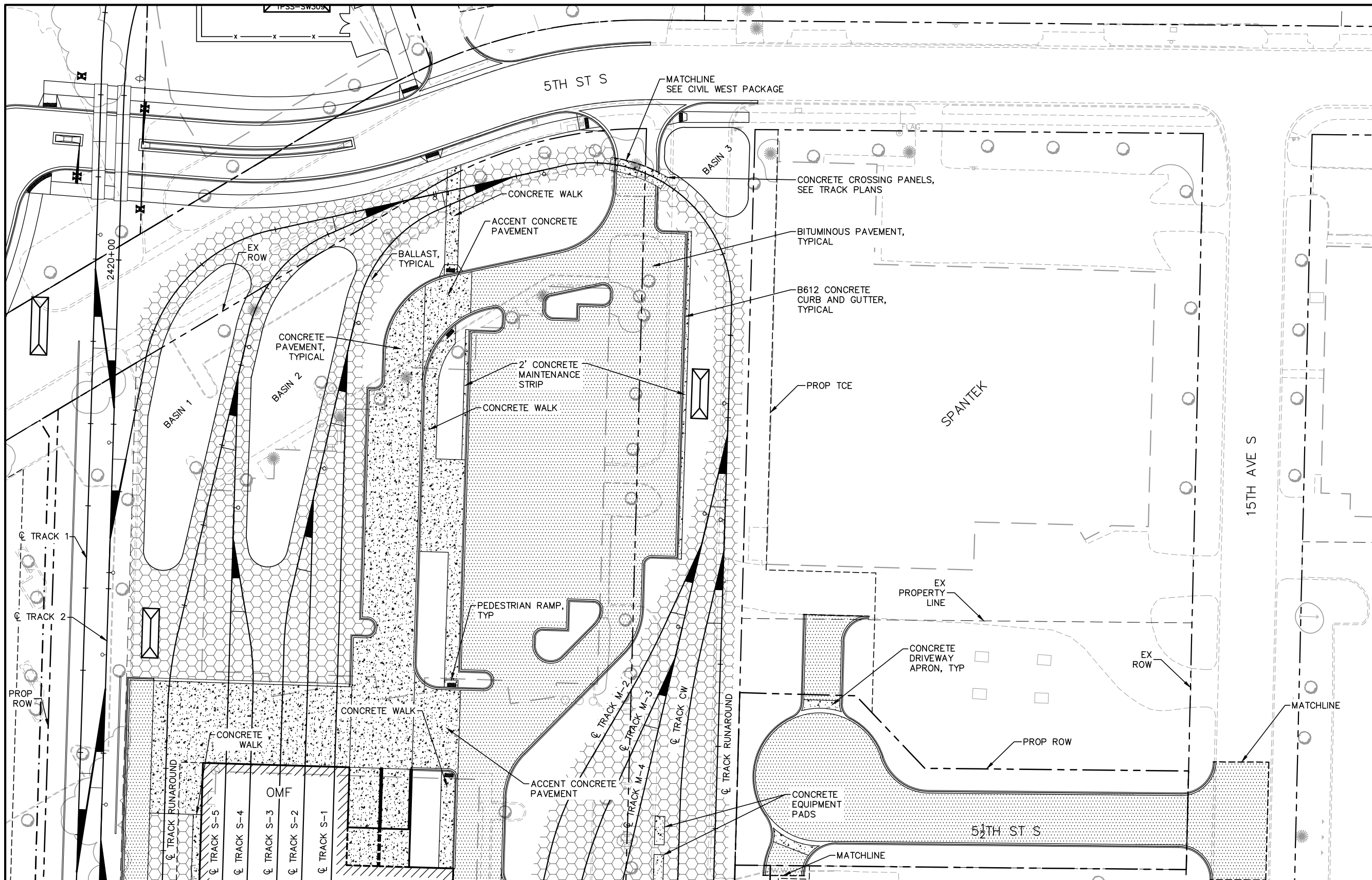
OPERATIONS & MAINTENANCE FACILITY - V1
PRELIMINARY PLANT PALETTE

DISCIPLINE:
LANDSCAPE ARCH

SHEET NAME:
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MATCH LINE - SEE SECTOR 2

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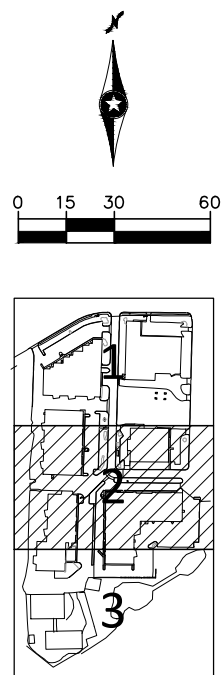


OPERATIONS & MAINTENANCE FACILITY - V1
PAVING PLAN
SECTOR 1

DISCIPLINE:
CIVIL

SHEET NAME:
OMF-CIV-PAV-002

SHEET
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114



LEGEND: SECTORS

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COUNCIL

SOUTHWEST
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1 PAVING PLAN SECTOR 2

DISCIPLINE:

CIVIL

SHEET NAME:

OMF-CIV-PAV-003

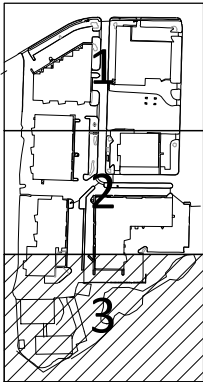
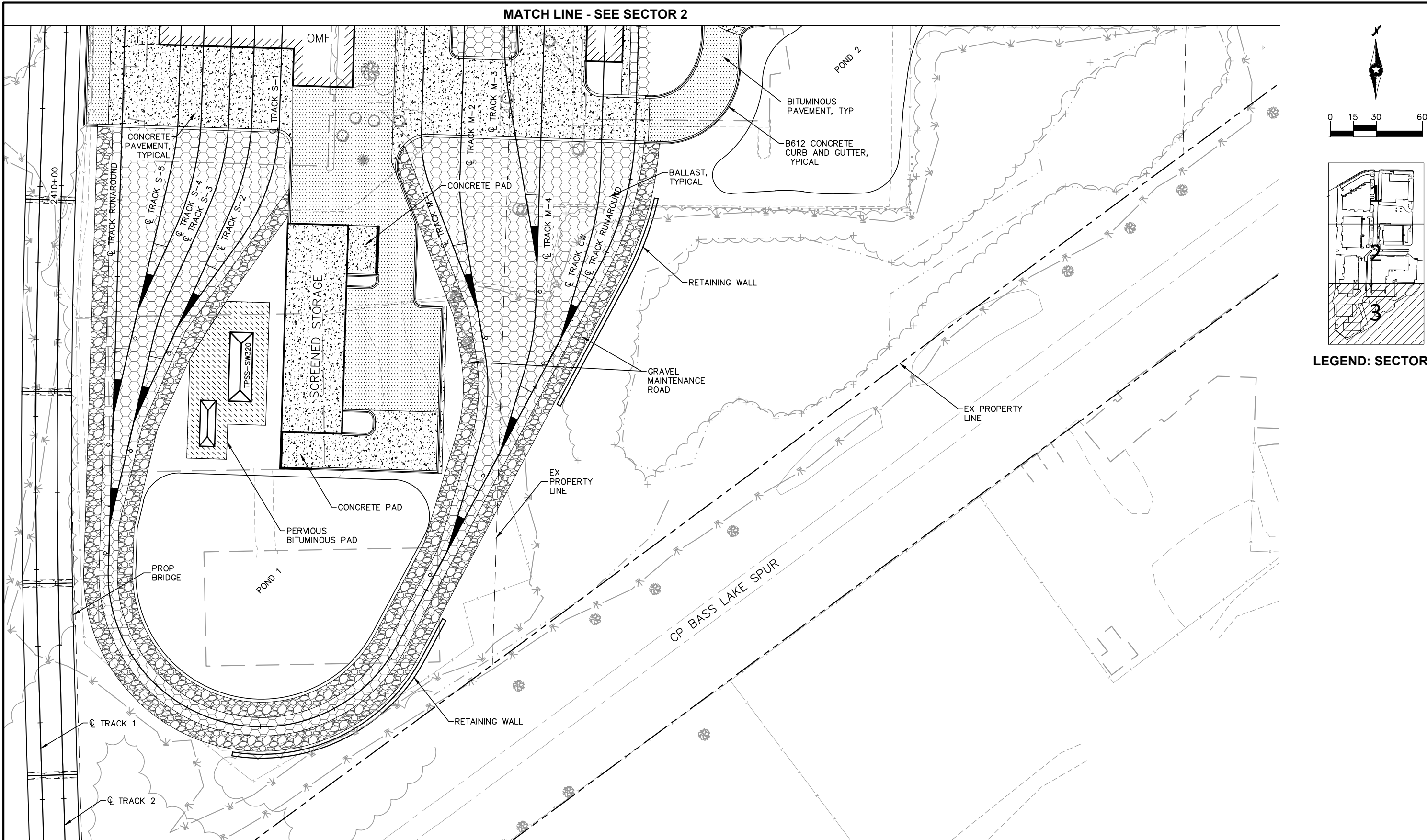
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LEGEND: SECTORS

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**SOUTHWEST**
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
PAVING PLAN
SECTOR 3

DISCIPLINE: **CIVIL**

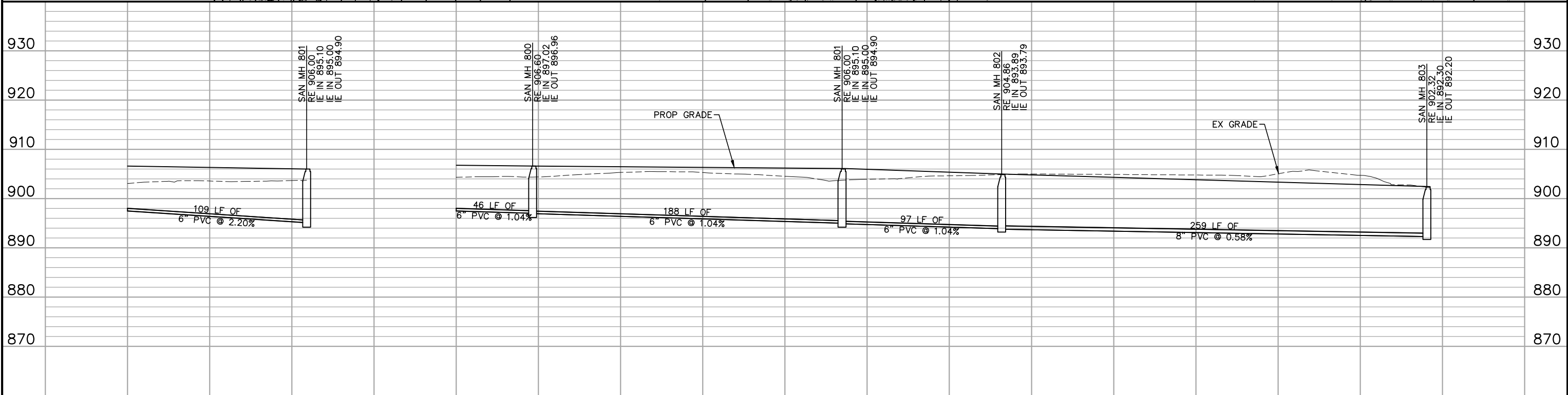
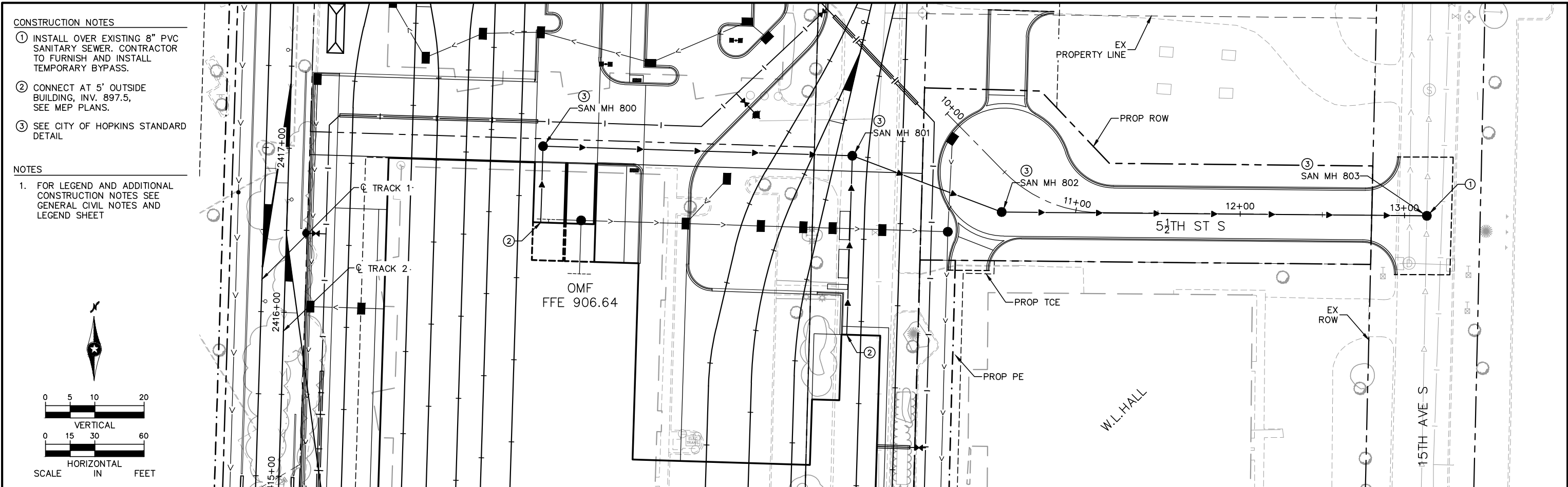
SHEET NAME: **OMF-CIV-PAV-004**

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OF
114

The image contains two logos. On the left is the Metropolitan Council logo, featuring a stylized triangle with a diagonal line through it, and the text "METROPOLITAN COUNCIL" below. On the right is the Southwest Green Line LRT Extension logo, featuring a stylized train and the text "SOUTHWEST Green Line LRT Extension".

OPERATIONS & MAINTENANCE FACILITY - V1 UTILITY PLAN OVERALL		SHEET
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		OF
DISCIPLINE:	SHEET NAME:	114
CIVIL	OMF-CIV-UTL-001	

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Green Line LRT Extension

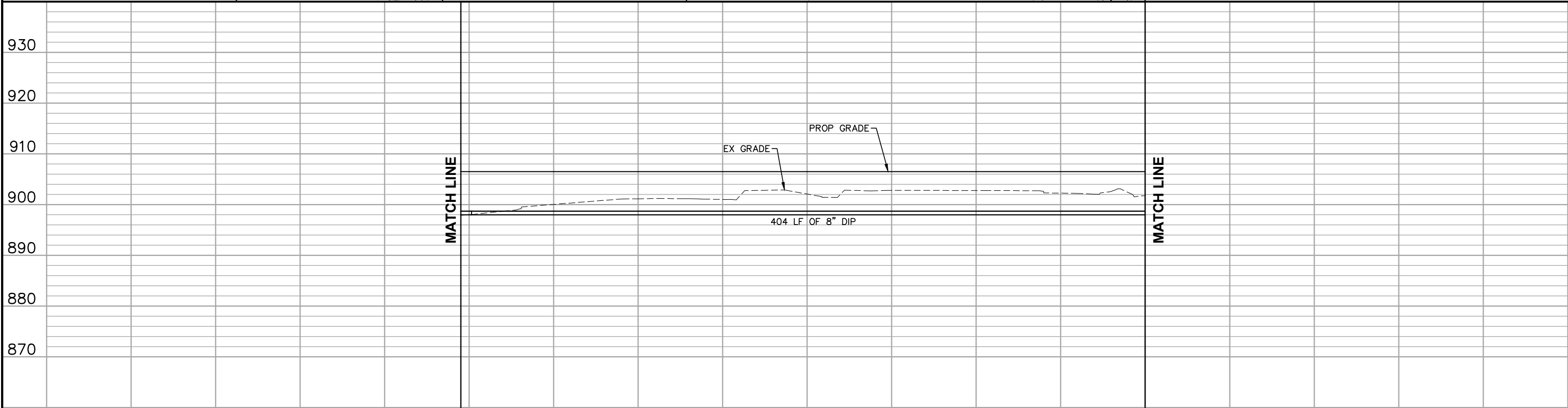
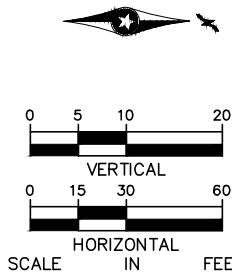
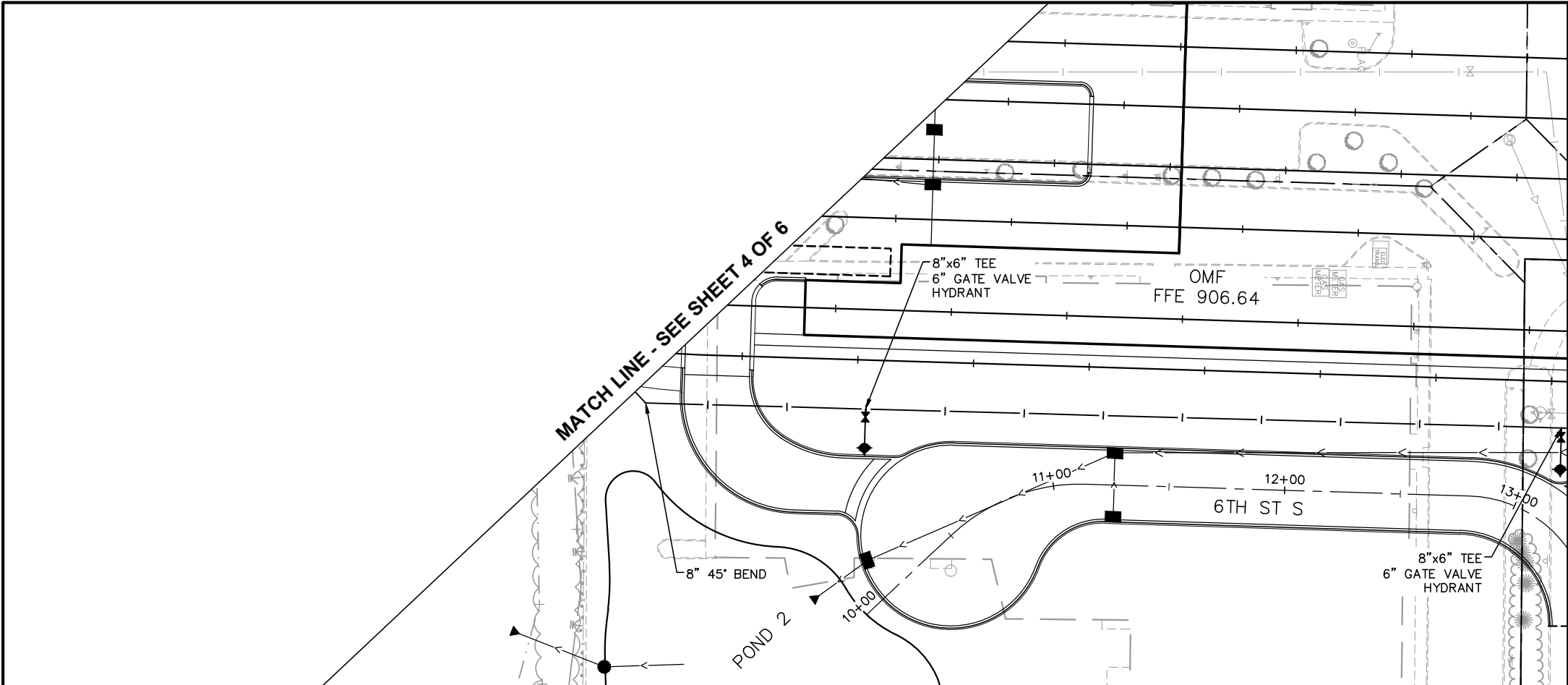
60% SUBMISSION - 09/28/15

OPERATIONS & MAINTENANCE FACILITY - V1
UTILITY PLAN
SHEET 1 OF 6

DISCIPLINE: CIVIL
SHEET NAME: OMF-CIV-UTL-002

SHEET 50 OF 114

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**METROPOLITAN**
COUNCIL

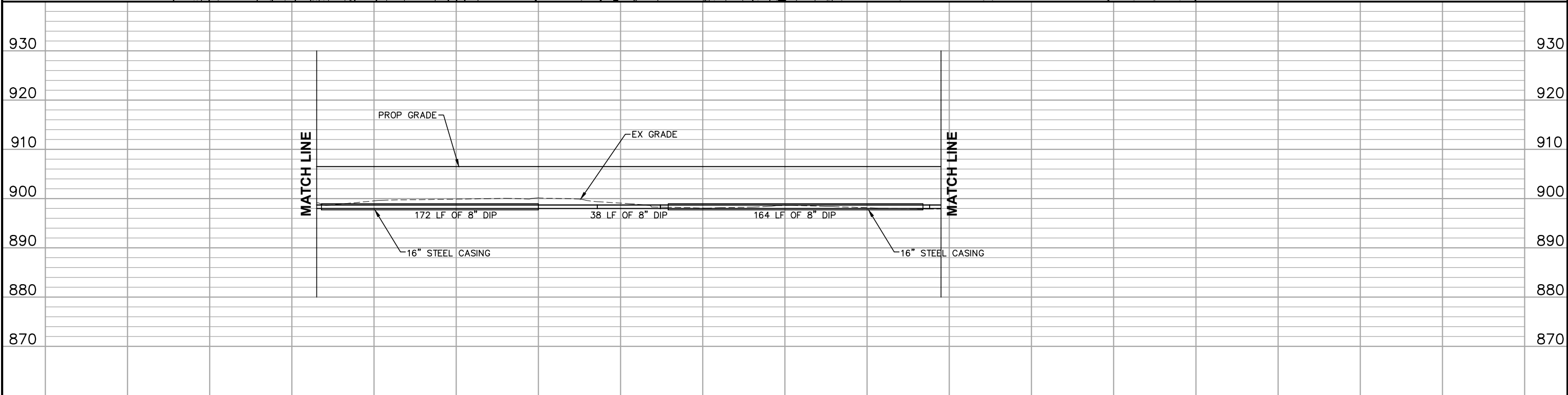
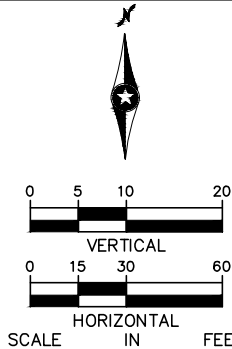
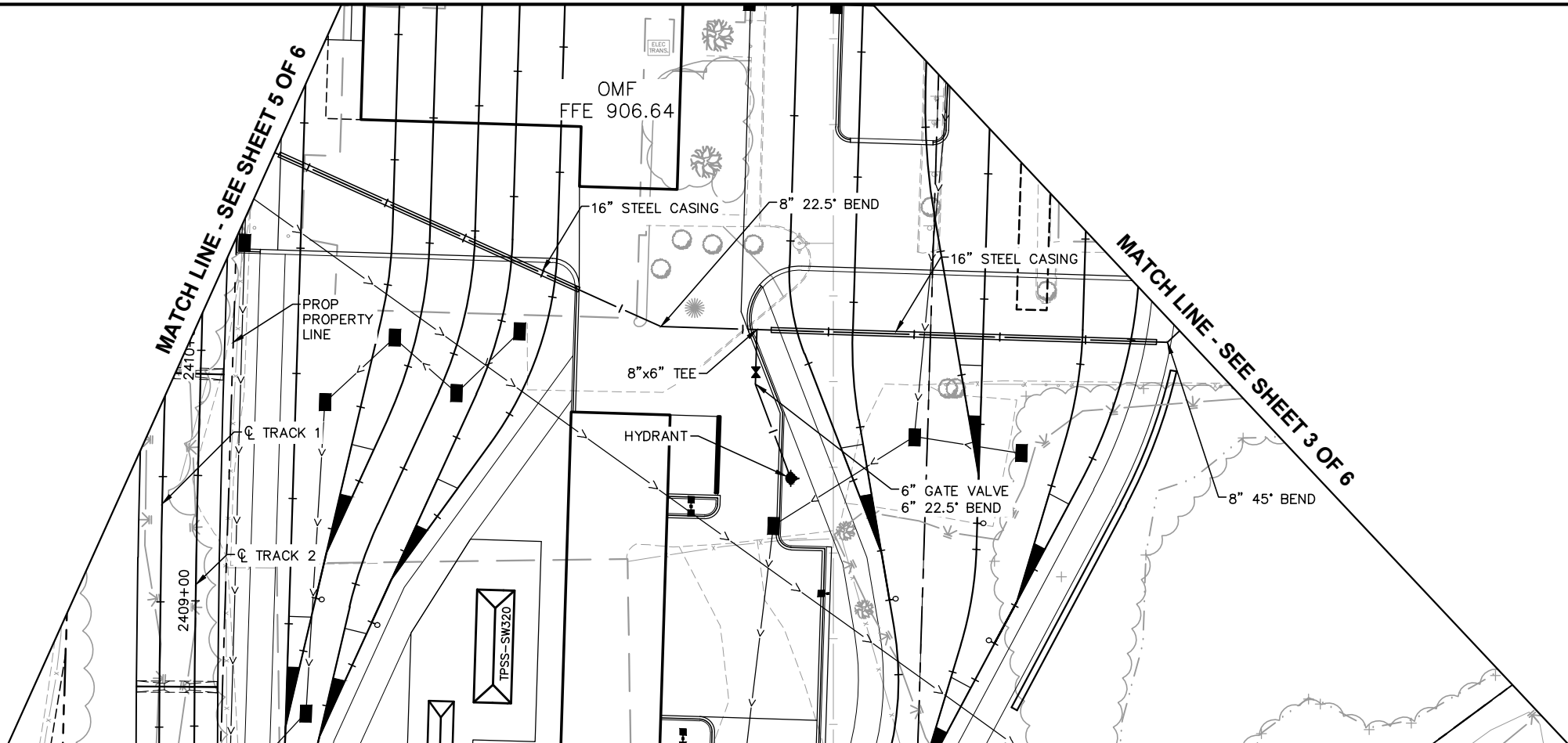
**SOUTHWEST**
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
UTILITY PLAN
SHEET 3 OF 6

DISCIPLINE: **CIVIL**

SHEET NAME: **OMF-CIV-UTL-004**

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Green Line Light Extension

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OPERATIONS & MAINTENANCE FACILITY - V1

UTILITY PLAN

SHEET 4 OF 6

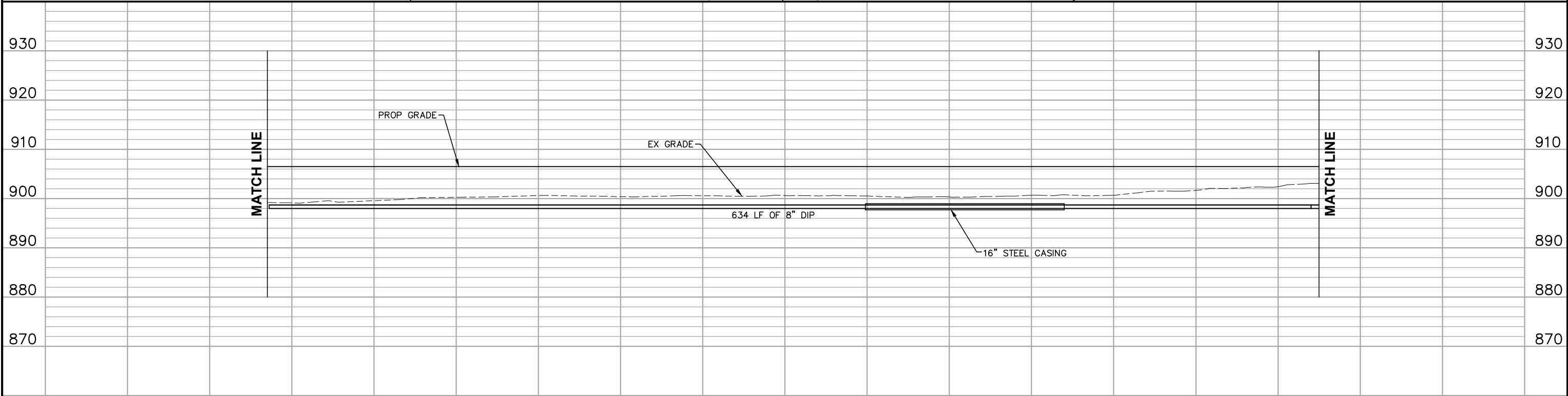
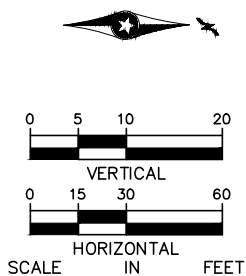
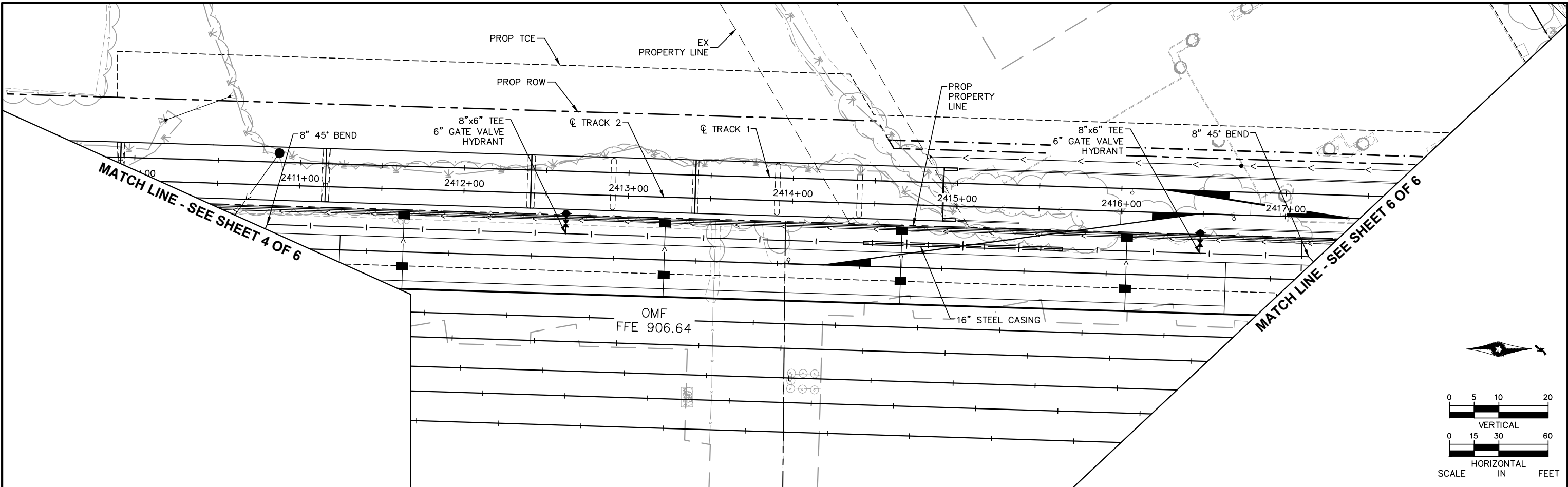
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SHEET NAME: OMF-CIV-UTL-005

SHEET 53

OF 114

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METROPOLITAN
COUNCIL

SOUTHWEST
Green Line LRT Extension

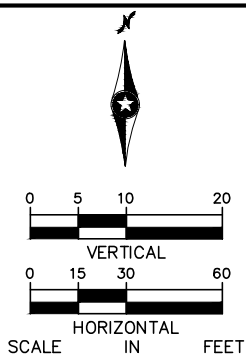
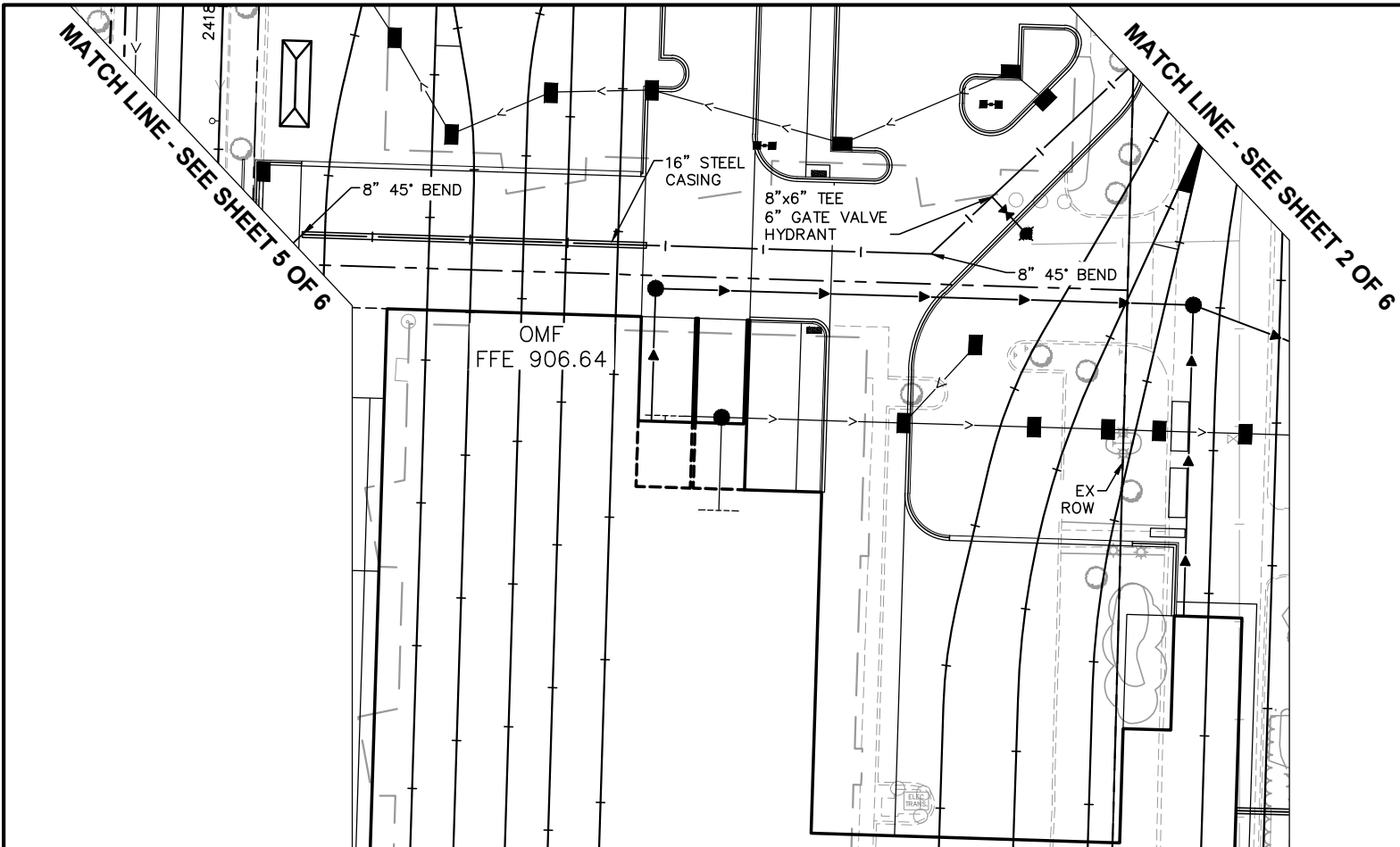
OPERATIONS & MAINTENANCE FACILITY - V1
UTILITY PLAN
SHEET 5 OF 6

DISCIPLINE: CIVIL

SHEET NAME: OMF-CIV-UTL-006

SHEET 54 OF 114

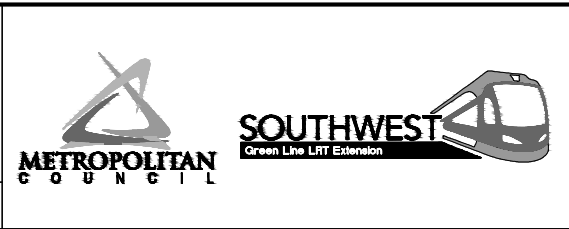
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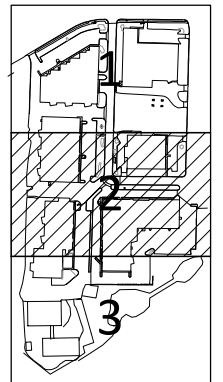
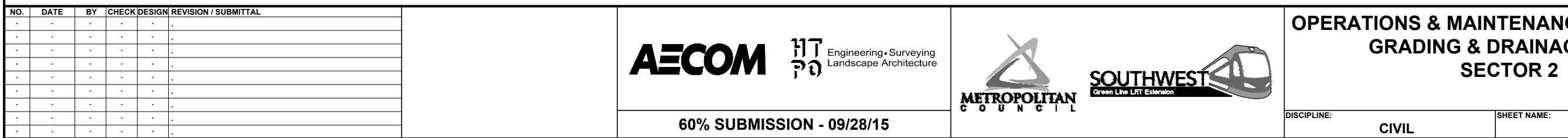
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60% SUBMISSION - 09/28/15



OPERATIONS & MAINTENANCE FACILITY - V1 UTILITY PLAN SHEET 6 OF 6		SHEET 55 OF 114
DISCIPLINE:	SHEET NAME:	
CIVIL	OMF-CIV-UTL-007	



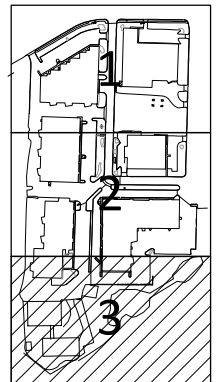
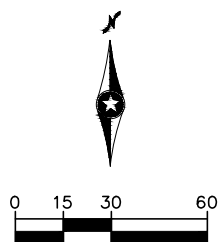
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OPERATIONS & MAINTENANCE FACILITY - V1
GRADING & DRAINAGE PLAN
SECTOR 2

DISCIPLINE: **CIVIL**

SHEET NAME: **OMF-CIV-GRD-003**



LEGEND: SECTORS

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SOUTHWEST

Green Line LRT Extension



OPERATIONS & MAINTENANCE FACILITY - V1

GRADING & DRAINAGE PLAN

SECTOR 3

DISCIPLINE:

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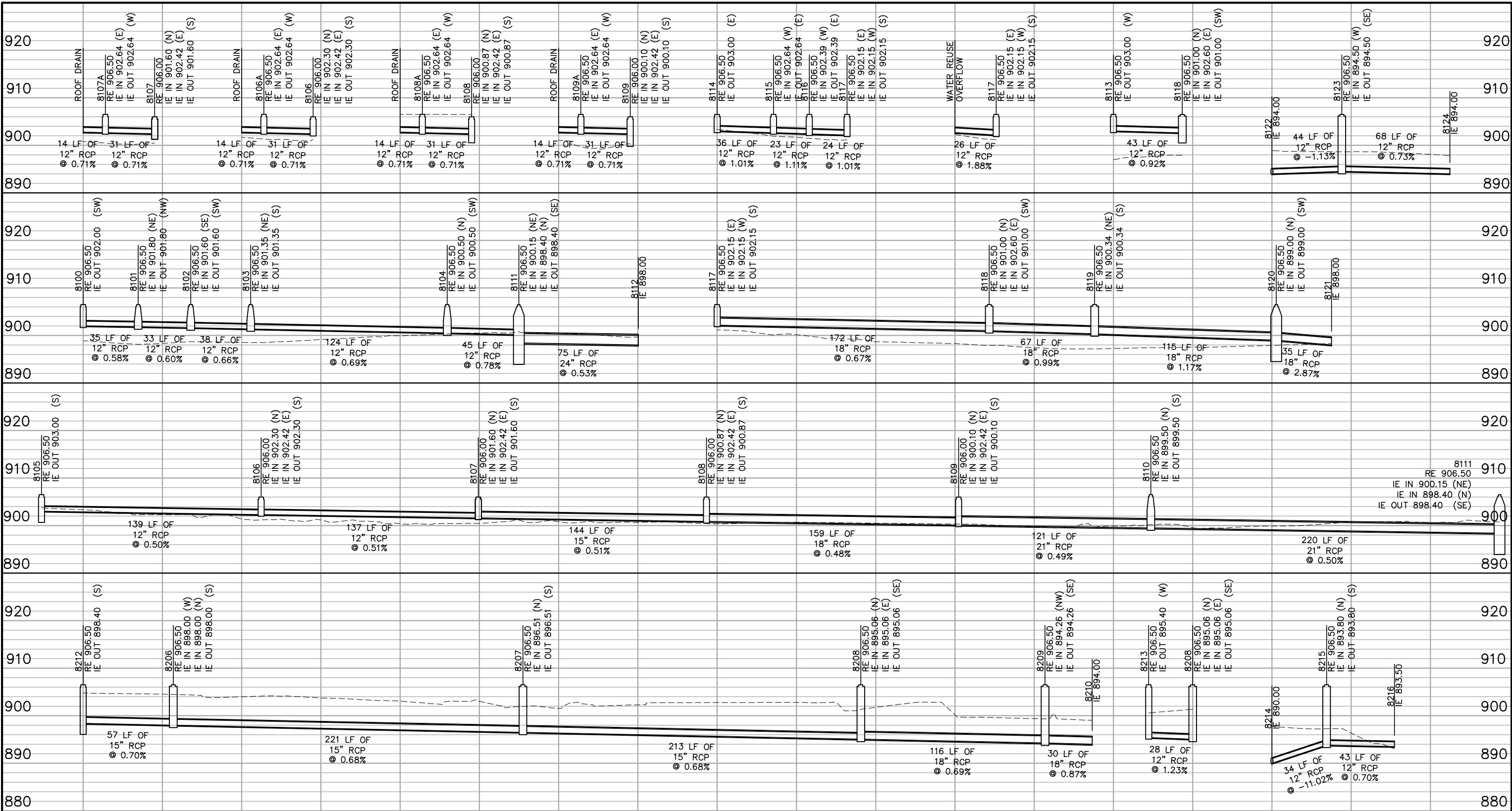
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114

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**METROPOLITAN**
C O U N C I L

**SOUTHWEST**
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
STORM SEWER PROFILES
SHEET 1 OF 2

DISCIPLINE: CIVIL

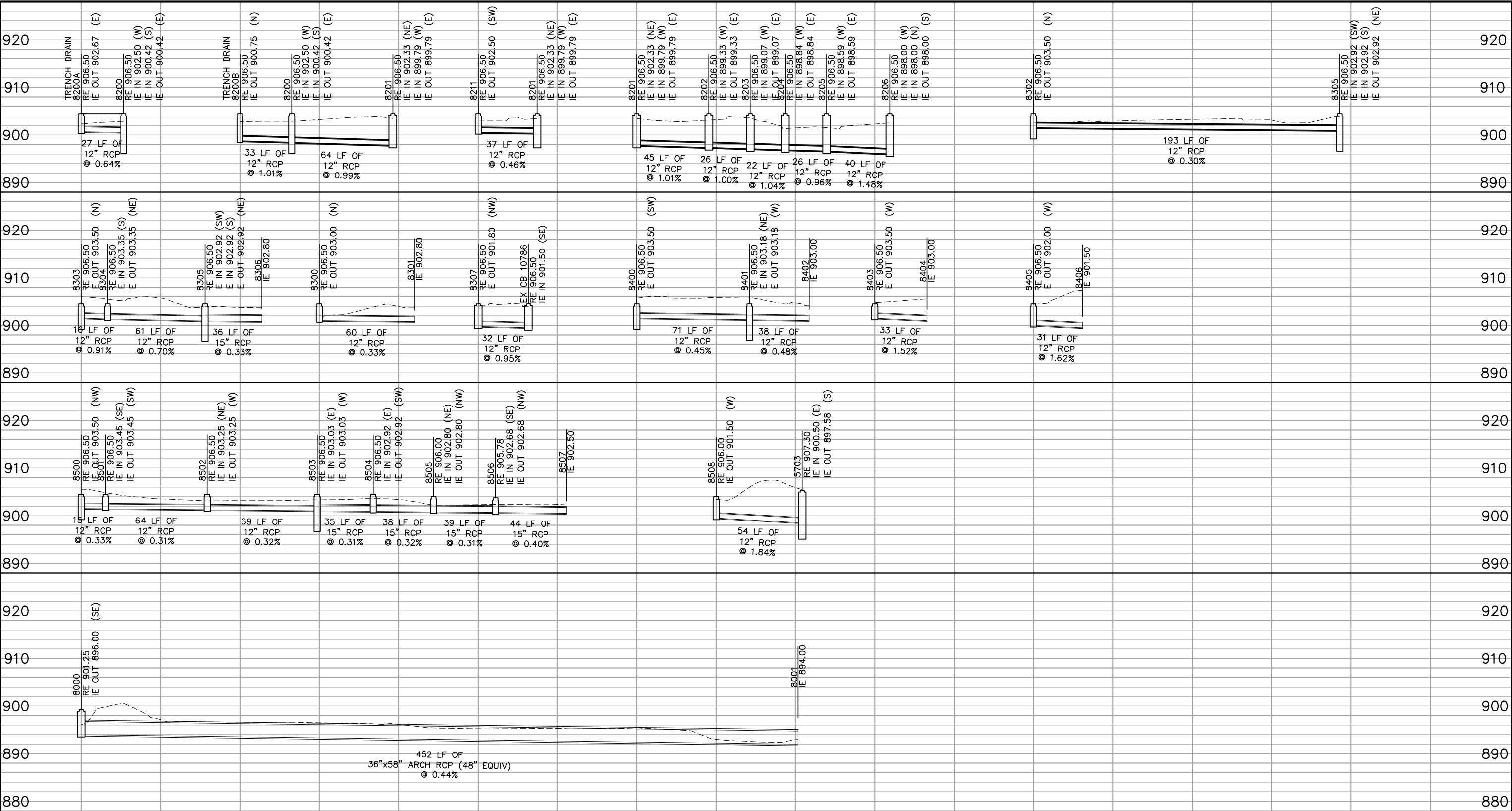
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SHEET 60

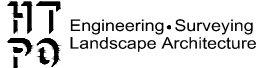
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60% SUBMISSION - 09/28/15



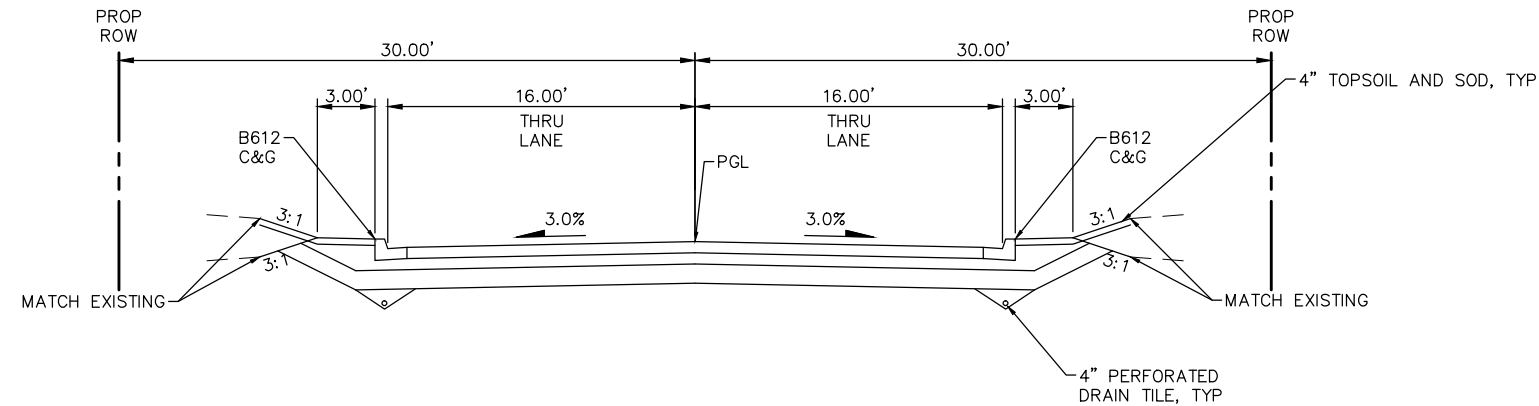
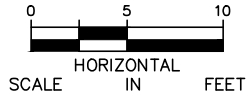
OPERATIONS & MAINTENANCE FACILITY - V1
STORM SEWER PROFILES
SHEET 2 OF 2

DISCIPLINE:
CIVIL

SHEET NAME:
OMF-STM-PRF-002

SHEET
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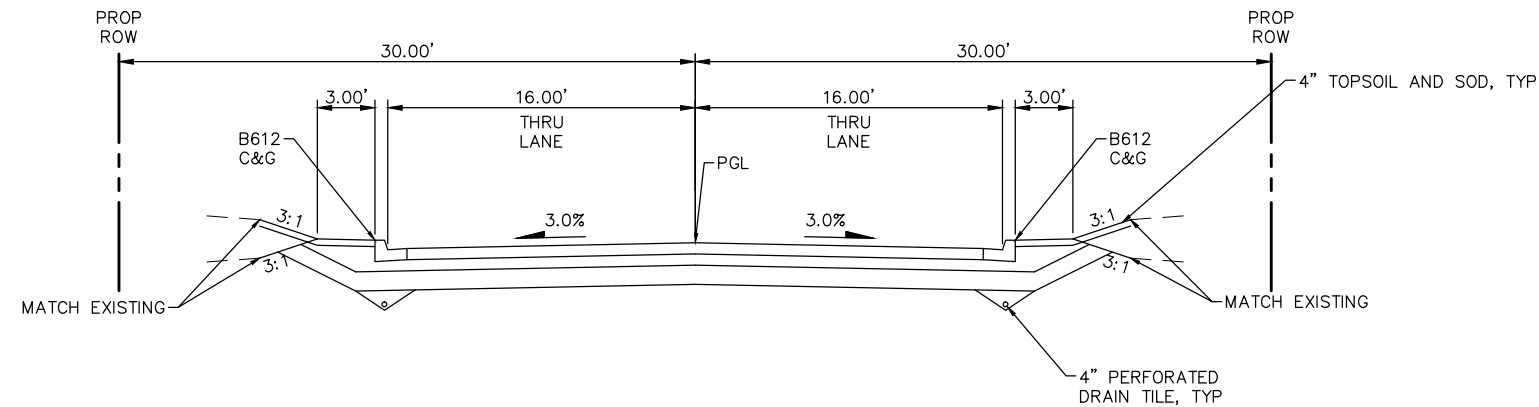
NOTES:

① NOT USED

NOTES:

INTERSECTIONS ARE NOT INCLUDED IN TYPICAL SECTIONS.

5-1/2TH ST S
STA 11+22.87 TO STA. 12+74.85



6TH ST S
STA 11+22.87 TO STA. 13+65.52

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Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
TYPICAL SECTIONS
5-1/2TH & 6TH ST S

DISCIPLINE: **CIVIL**

SHEET NAME: **OMF-CIV-TYP-001**

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ALIGNMENT DATA 5-1/2TH ST S														
SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L1	10+00.00	10+50.00							50.00	145557.87	490330.86	145522.17	490365.87	135°34'19"
C1	10+50.00	11+14.36	10+83.94		45°00'00"	69°55'22.28"	81.94	33.94	64.36	145522.17	490365.87	145497.59	490423.56	135°34'19" 90°34'19"
L2	11+14.36	13+13.09							198.74	145497.59	490423.56	145495.61	490622.29	90°34'19"

ALIGNMENT DATA 6TH ST S														
SEGMENT NUMBER	BEGINNING STATION	ENDING STATION	PI STATION	NOTES	DELTA	DEGREE	RADIUS (FT)	TANGENT (FT)	LENGTH (FT)	BEGINNING COORDINATES NORTHING	BEGINNING COORDINATES EASTING	ENDING COORDINATES NORTHING	ENDING COORDINATES EASTING	AZIMUTH
L3	10+00.00	10+50.00							50.00	144944.85	490395.53	144981.28	490361.29	316°46'36"
C2	10+50.00	11+14.36	10+83.94		45°00'00"	69°55'23.18"	81.94	33.94	64.36	144981.28	490361.29	145039.94	490339.10	316°46'36" 1°46'36"
L4	11+14.36	12+80.03							165.67	145039.94	490339.10	145205.53	490344.24	1°46'36"
C3	12+80.03	13+63.72	13+32.91		88°47'44"	106°06'11.86"	54.00	52.88	83.69	145205.53	490344.24	145257.85	490398.75	1°46'36" 90°34'20"
L5	13+63.72	15+81.64							217.92	145257.85	490398.75	145255.68	490616.66	90°34'20"

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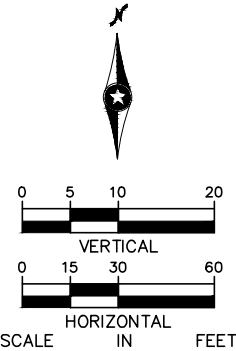
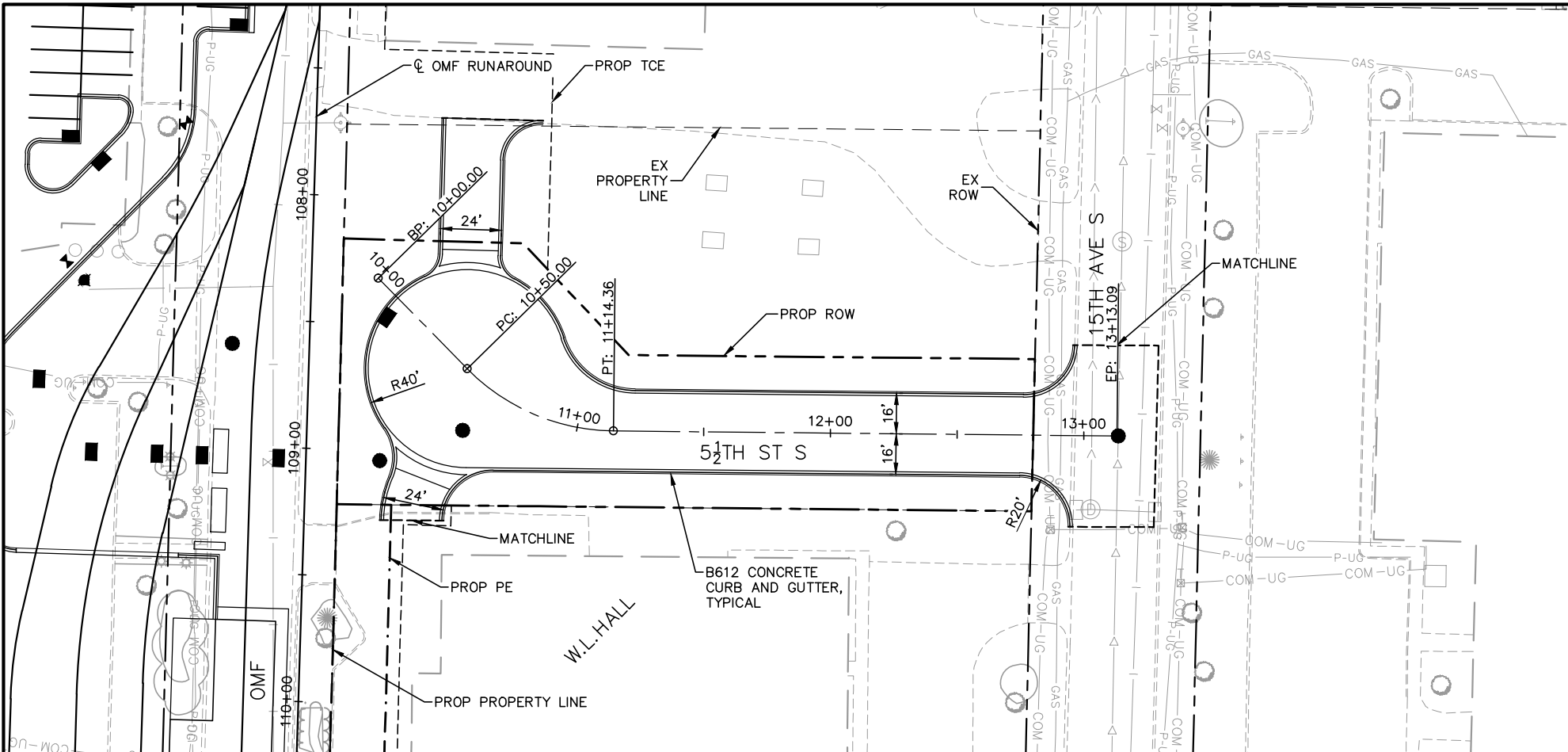


OPERATIONS & MAINTENANCE FACILITY - V1
ALIGNMENT PLAN
5-1/2TH & 6TH ST S

DISCIPLINE:
CIVIL

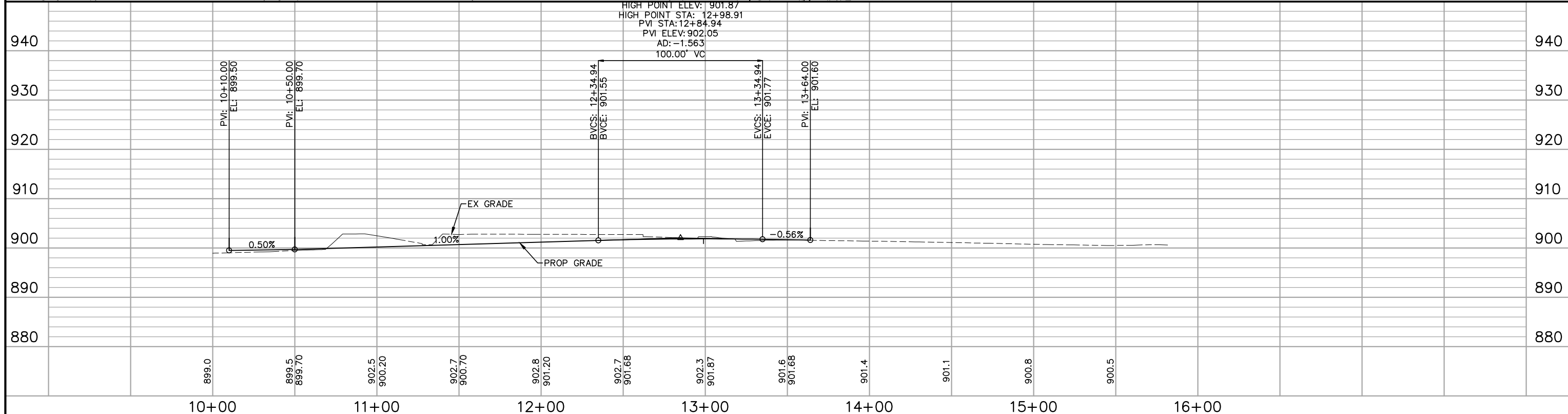
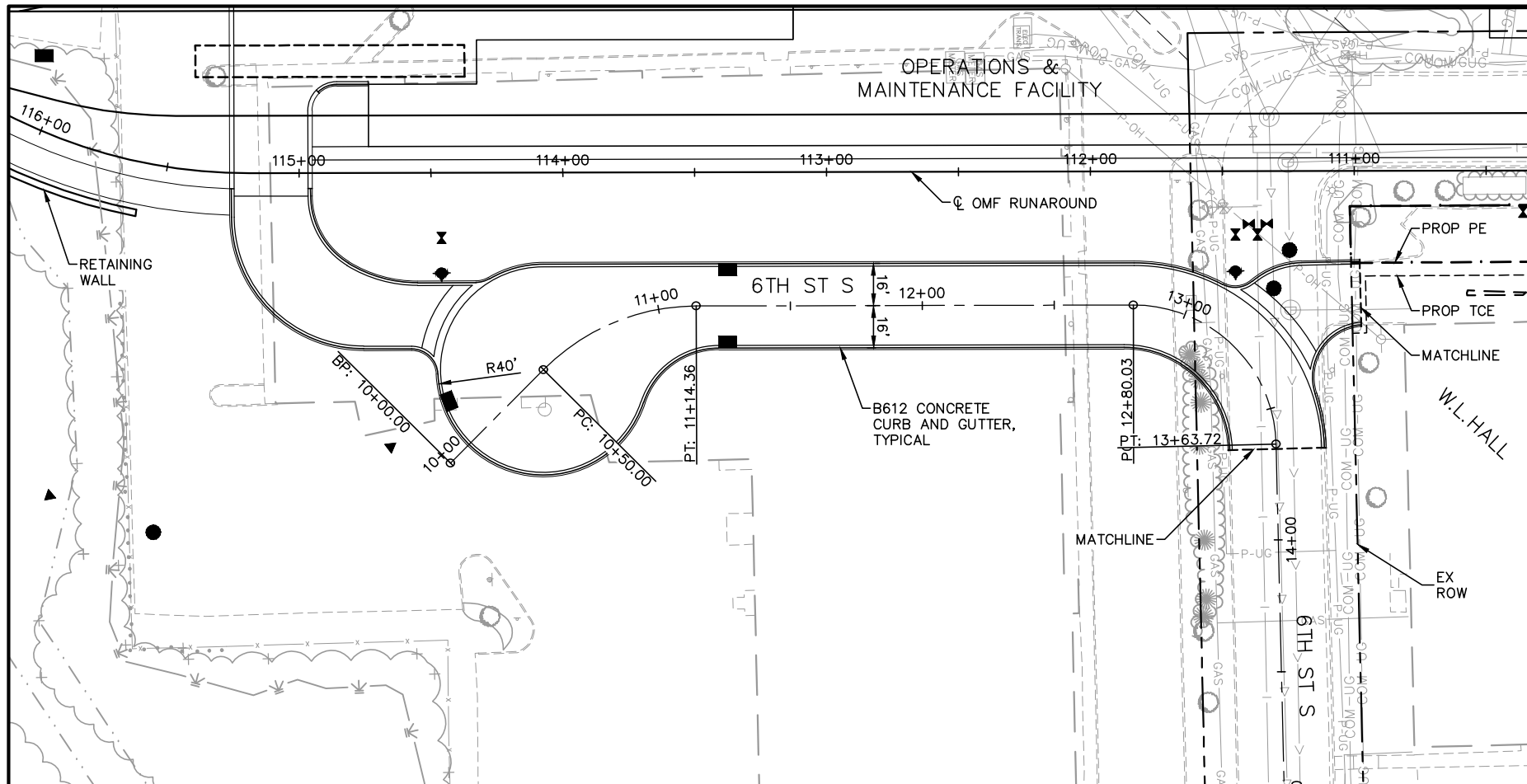
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10+00						11+00						12+00						13+00						14+00						OPERATIONS & MAINTENANCE FACILITY - V1 PLAN & PROFILE 5-1/2TH ST S						SHEET	
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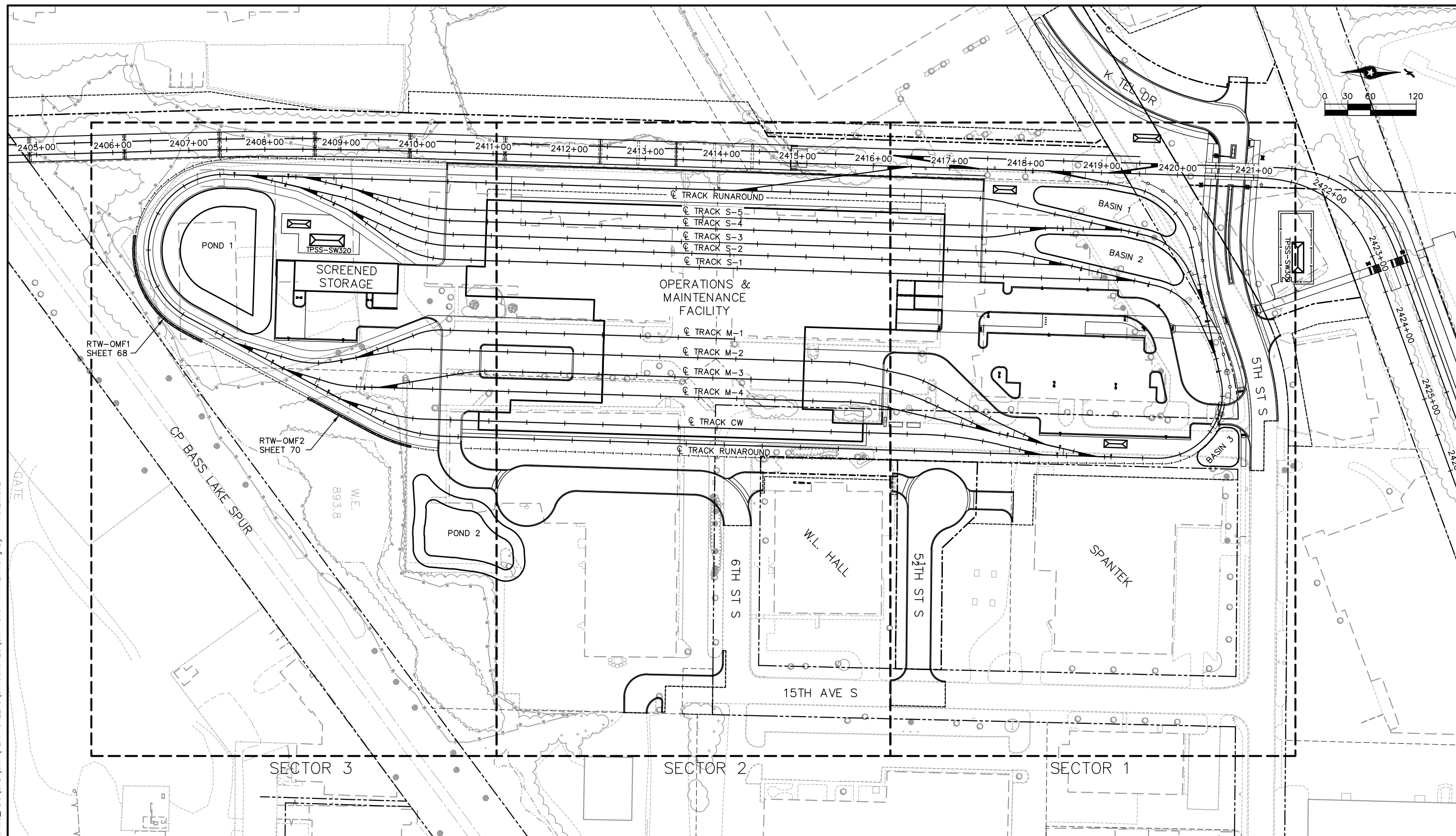
**METROPOLITAN**
COUNCIL

**SOUTHWEST**
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
PLAN & PROFILE
6TH ST S

DISCIPLINE: **CIVIL**
SHEET NAME: **OMF-CIV-PRF-002**

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114

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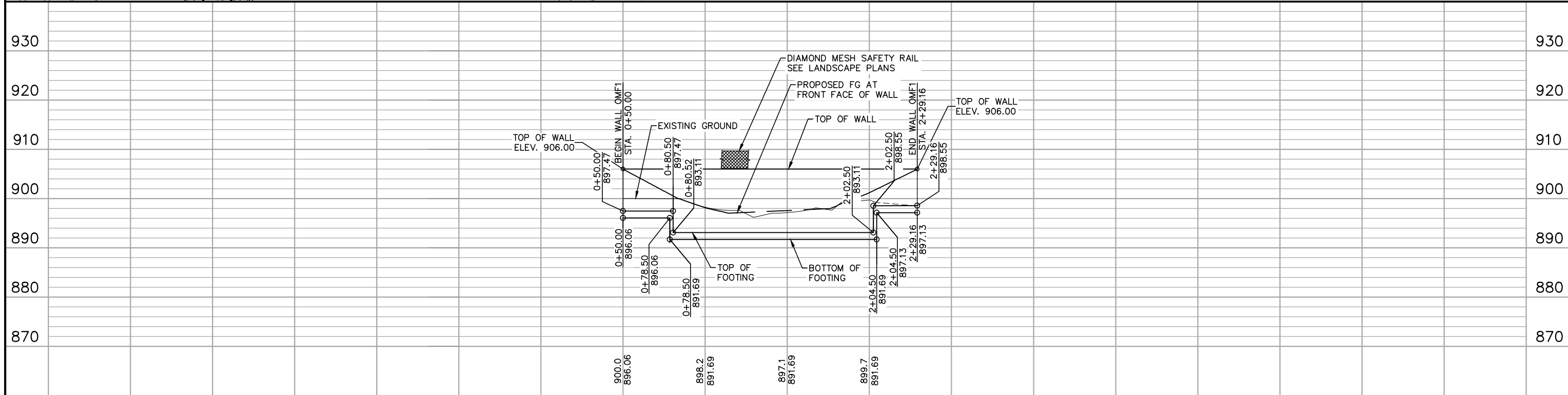
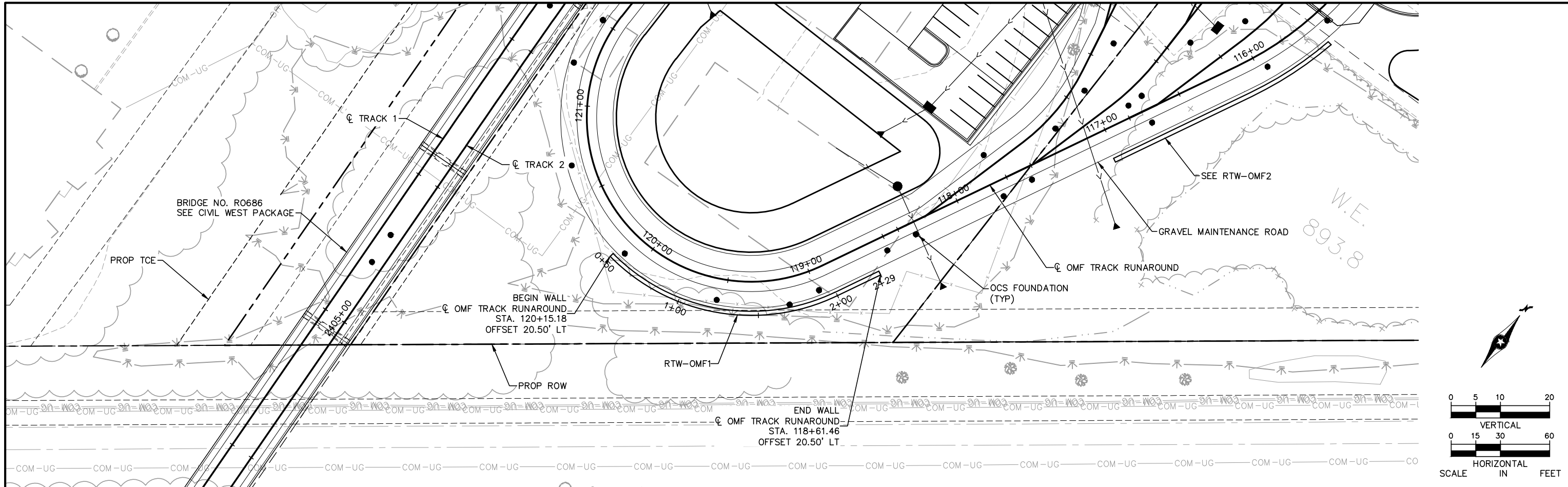
OMF RETAINING WALLS RETAINING WALLS PLAN SHEET LAYOUT

DISCIPLINE: **STRUCTURES**

SHEET NAME:	OMF-STU-RTW-LAY
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114

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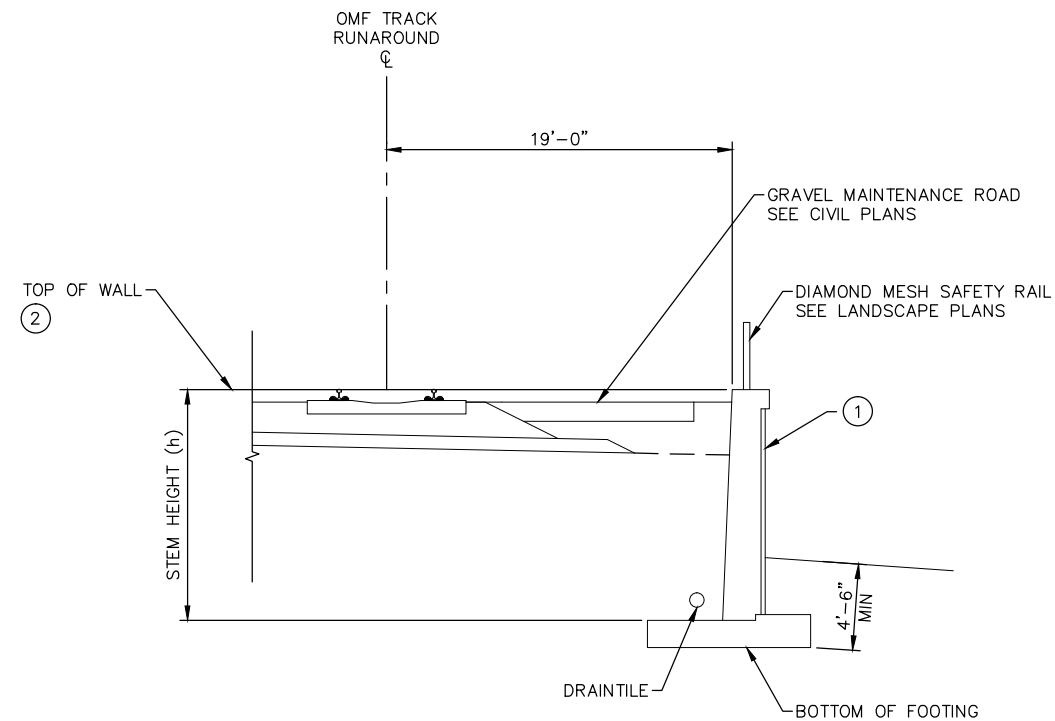
**SOUTHWEST**
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
RETAINING WALLS
RTW-OMF1 PLAN AND ELEVATION

DISCIPLINE: **STRUCTURES**
SHEET NAME: **OMF-STU-RTW-OMF1-PL**

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114

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- NOTE:
- ① ARCHITECTURAL CONCRETE TEXTURE
 - ② TOP OF WALL = TOP OF RAIL
 - 3. WALL TYPE MAY CHANGE BASED ON FINAL GEOTECHNICAL RECOMMENDATION

RTW-OMF1 SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





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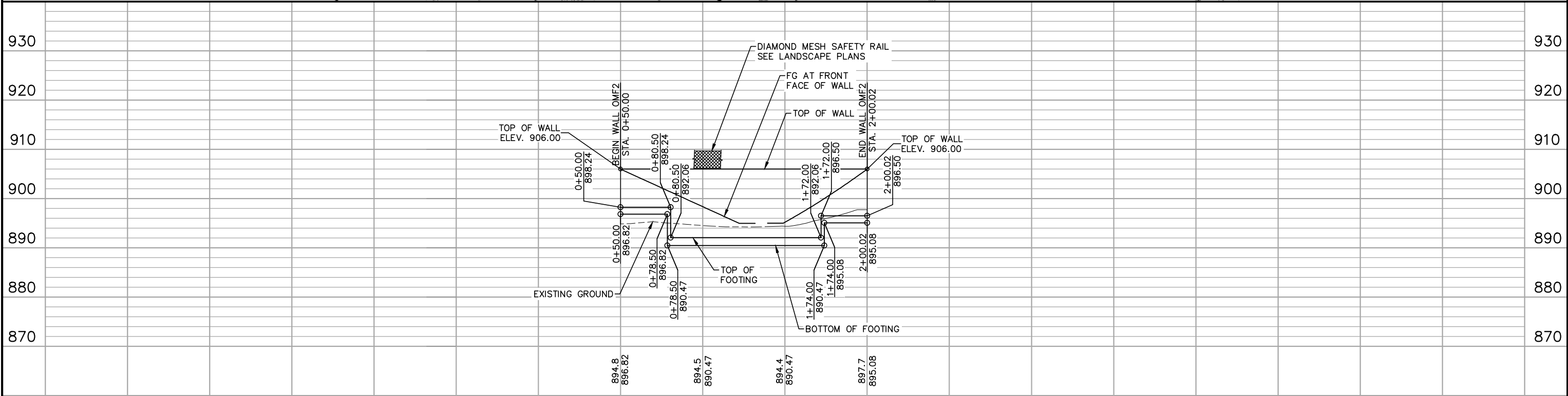
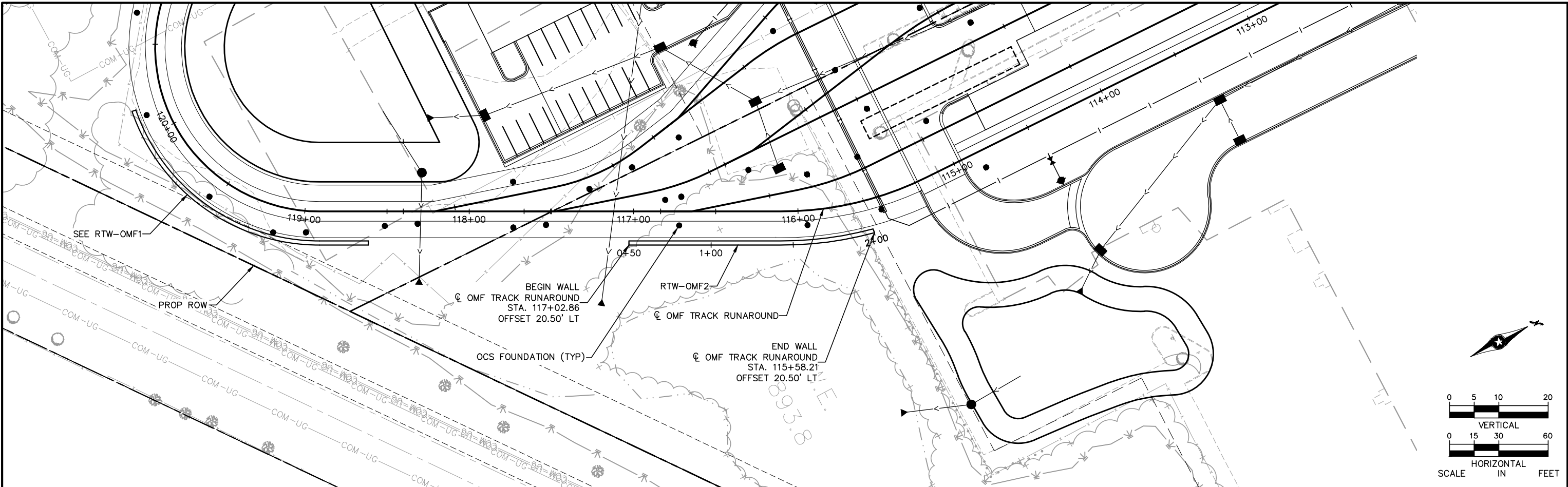


OPERATIONS & MAINTENANCE FACILITY - V1
RETAINING WALLS
RTW-OMF1 GEOMETRY

DISCIPLINE: STRUCTURES

SHEET NAME: OMF-STU-RTW-OMF1-DTL

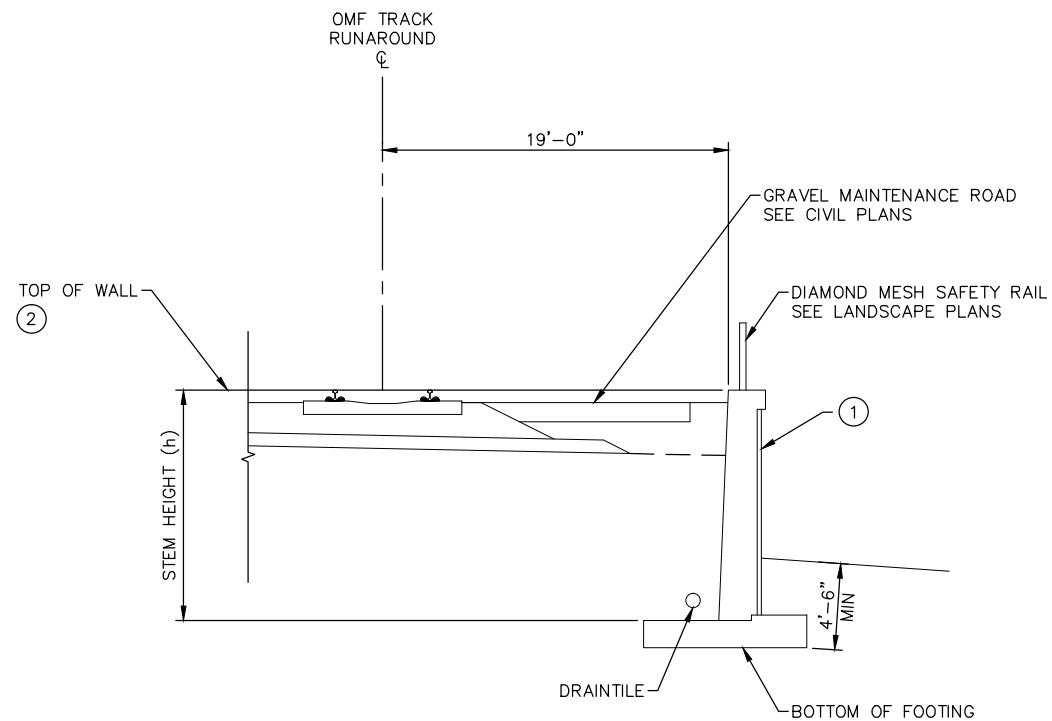
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NO.						DATE		BY		CHECK/DESIGN		REVISION / SUBMITTAL	

60% SUBMISSION - 09/28/15		OPERATIONS & MAINTENANCE FACILITY - V1 RETAINING WALLS RTW-OMF2 PLAN AND ELEVATION		SHEET 70 OF 114
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Sep. 21 2015 11:10 am V:\3400_ADC\CAD\CAD\OMF\PLAN SHEETS\STRUCTURES\RTW-OMF2.dwg By: V-NutzmaML



- NOTE:
- ① ARCHITECTURAL CONCRETE TEXTURE
 - ② TOP OF WALL = TOP OF RAIL
 - 3. WALL TYPE MAY CHANGE BASED ON FINAL GEOTECHNICAL RECOMMENDATION

RTW-OMF2 SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 09/28/15

OPERATIONS & MAINTENANCE FACILITY - V1
RETAINING WALLS
RTW-OMF2 GEOMETRY

DISCIPLINE: STRUCTURES

SHEET NAME: OMF-STU-RTW-OMF2-DTL

SYSTEMWIDE ELECTRICAL SYMBOLS & GENERAL NOTES

SYMBOLS:

SC-MH-XXXX

SC MANHOLE XXXX ID

TE-MH-XXXX

TE MANHOLE XXXX ID

SC-HH-XXXX

SC HANDHOLE XXXX ID

ET-XXXX

MAINLINE EXPRESS TROUGH XXXX ID

SC-XXXX

MAINLINE SC DUCTBANK XXXX ID

TE-XXXX

MAINLINE TE DUCTBANK XXXX ID

SC-XXXX

SC CONDUIT/DUCTBANK XXXX ID

TE-XXXX

TE CONDUIT/DUCTBANK XXXX ID

LV-XXXX

LV CONDUIT/DUCTBANK XXXX ID

BURIED CONDUIT CONTINUED IN ANOTHER DESIGN PACKAGE AS SPECIFIED

CONCEALED CONDUIT OR DUCTBANK

CONDUIT STUBBED OUT HORIZONTALLY AND CAPPED

CSO-XXXX

CONDUIT, TURNED AWAY FROM OBSERVER

CONDUIT, TURNED TOWARDS OBSERVER (STUB-UP)

CSU-XXXX

EXPOSED CONDUIT

TPSS BUILDING (NIC)

LRT SIGNAL/COMM HOUSE (NIC)

WAYSIDE SIGNAL POLE FOUNDATION AND STUB-UP

SF-XXXX

IMPEDANCE BOND RAIL ACCESS

ZB-XXXX

SWITCH MACHINE (NIC)

TWC ANTENNA-BALASTED AND DF TRACK, JUNCTION BOX ONLY

JB-XXXX

TWC ANTENNA-EMBEDDED TRACK

TWC-XXXX

TYPICAL OCS POLE FOUNDATION

CONDUIT STUB-UP

CSU-XXXX

JUNCTION BOX

JB-XXXX

FOUNDATION

FDN-XXXX

GENERAL NOTES:

1. ITEMS SHOWN SCREENED ARE EITHER NOT-IN-CONTRACT (NIC) OR ARE PART OF ANOTHER DESIGN PACKAGE.
2. DEPTH OF CONDUITS MAY VARY SLIGHTLY IN ORDER TO ACHIEVE ADEQUATE DRAINAGE INTO MANHOLES, HANDHOLES AND PULLBOXES. SEE SPECIFICATIONS.
3. ALL HANDHOLES AND MANHOLES SHALL BE LOCATED WITH LONG SIDE PARALLEL TO TRACKS UNLESS OTHERWISE NOTED.
4. COORDINATE INSTALLATION OF DUCTBANKS AT TRACK DRAINS AND BELOW TRACK SLABS.
5. LOCATION OF KNOWN EXISTING UNDERGROUND UTILITIES IS INDICATED ON UTILITY DRAWINGS. FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING INSTALLATION OF THIS WORK.
6. PROVIDE CORROSION PROTECTION FOR ALL DIRECT-BURIED OR ENCASED GRS PER SPECIFICATIONS.
7. FOR OCS FOUNDATION DETAILS SEE SHEETS OMF-SYS-OCS-FDN-001 TO OMF-SYS-OCS-FDN-003.
8. SEE VOLUME 1 FOR CIVIL, TRACKWORK, & DRAINAGE DESIGN.
9. SEE VOLUME 2A & 2B FOR OMF BUILDING DESIGN.
10. SEE SYSTEMS & TUNNEL FACILITIES CONTRACT FOR SYSTEMS DESIGN.

A

SECTION

SCALE: NTS

SECTION A

1

XXXX

←

DETAIL No. 1 ON XXXX = SHEET NO.

1

DETAIL

SCALE: NTS

DETAIL No. 1 (WHERE INDICATED OR SHOWN)

A

SECTION CROSS SECTION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 9/28/15

OPERATIONS & MAINTENANCE FACILITY - V1

SYSTEMWIDE ELECTRICAL

SYMBOLS AND GENERAL NOTES

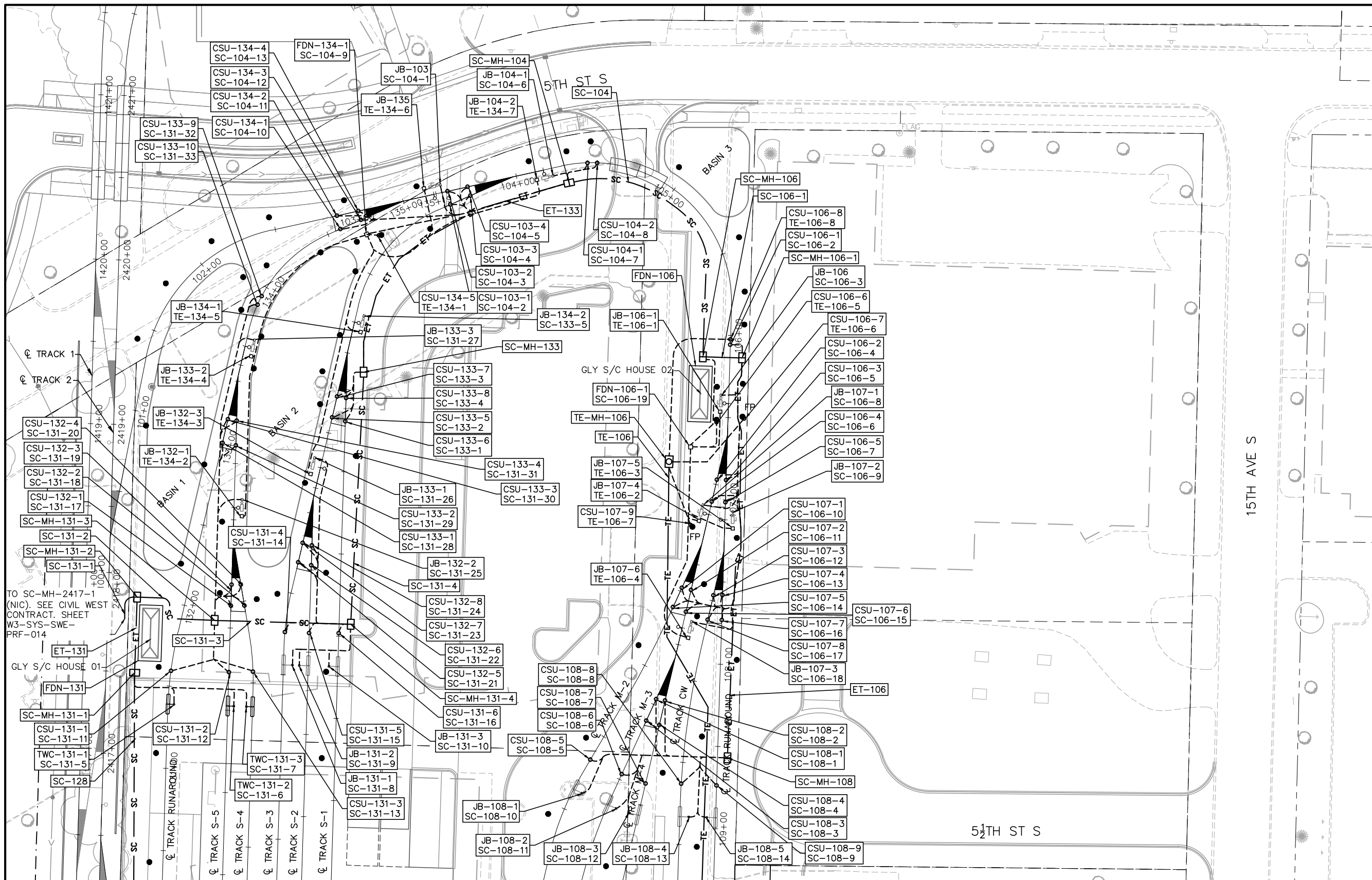
DISCIPLINE: SYSTEMS

SHEET NAME: OMF-SYS-SWE-LGD-001

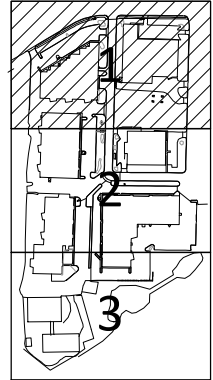
A	ABD	ABANDON, ABANDONED	CONT	CONTINUATION, CONTINUOUS	HDPE	HIGH DENSITY POLYETHYLENE	NIC	NOT IN CONTRACT	SI	SECTION INSULATOR	X	
	ABUT	ABUTMENT	CR	CONDUIT RISER	HEX	HEXAGONAL	No	NUMBER	SIG	SIGNAL	XB	CROSS BOND
	ABV	ABOVE	CSAH	COUNTY-STATE-AID HIGHWAY	HH	HANDHOLE	NOM	NOMINAL	SOP	SET OUT POINT	XFMR	TRANSFORMER
	AC	ALTERNATING CURRENT	CSO	CONDUIT STUB OUT	HORIZ	HORIZONTAL	NR	NOT REGISTERED/	SP	SURGE PROTECTION	X-ING	CROSSING
	ACSR	ALUMINUM CONDUCTOR	CSU	CONDUIT STUB UP	HRL	HIGH RAIL LEVEL		NEGATIVE RETURN	SPEC	SPECIFICATION	XOVER	CROSSOVER
		STEEL REINFORCED	CTR	CENTER	H-SPAN	HEAD SPAN	NS	NEAR SIDE/	SQ	SQUARE	XPASS	CROSS PASSAGE
	ADJ	ADJACENT	CU	COPPER	HT	HEIGHT		NOT SUPPORTED	SQ FT	SQUARE FEET	X-SECT	CROSS SECTION
	A/G	AT GRADE	C/W	CONTACT WIRE	HV	HIGH VOLTAGE	NSR	NOT SUPPORTED OR	SQ IN	SQUARE INCHES	Z	
	AH	AHEAD	CWA	COUNTER WEIGHT ASSEMBLY	HWY	HIGHWAY	NTS	NOT TO SCALE	S-SPAN	STEADY SPAN	Z	IMPEDANCE
	AISC	AMERICAN INSTITUTE OF STEEL	CY	CUBIC YARD	I		O		STA	STATION, STATIONING	ZB	IMPEDANCE BOND
		CONSTRUCTION	D		IC	INSTRUMENT CASE	OC	ON CENTER	STD	STANDARD	ZBF	IMPEDANCE BOND
	AL	ALUMINUM	D	DEPTH	ID	INSIDE DIAMETER/ INTRUSION	OCS	OVERHEAD CONTACT SYSTEM	STRUCT	STRUCTURE		FOUNDATION
	AP	APPROACH	DB	DIRECT BURIAL		DETECTION	OD	OUTSIDE DIAMETER	SU	STUB-UP		
	APPROX	APPROXIMATE	DC	DIRECT CURRENT	IDF	INTRUSION DETECTION	OH	OVERHEAD	SUSP	SUSPENDED		
	APT	AUXILIARY POWER	DEG	DEGREE		FUNDATION	OHB	OVERHEAD BRIDGE	SW	SWITCH		
		TRANSFORMER	DF	DIRECT FIXATION	IEEE	INSTITUTE OF ELECTRICAL AND	O/L	OVERLAP	SWA	SINGLE WIRE ANCHOR		
	AREMA	AMERICAN RAILWAY	DGA	DOWN GUY ANCHOR		ELECTRONICS ENGINEERS	OMF	OPERATIONS & MAINTENANCE	SWH	SWITCH HEATER		
		ENGINEERING & MAINTENANCE	DIA	DIAMETER	IJ	INSULATED JOINT		FACILITY	SWHC	SWITCH HEATER CABINET		
		OF WAY ASSOCIATION	DIM	DIMENSION	IN	INCH, INCHES	O/R	OUT OF RUNNING (NON-RIDING	SWLRT	SOUTHWEST LIGHT RAIL		
			DISC	DISCONNECT	INC	INCOMING		CONTACT WIRE)		TRANSIT		
	ASSY	ASSEMBLY	DISC SW	DISCONNECT SWITCH	INCL	INCLUDE, INCLUDING	P		T			
	ASTM	AMERICAN SOCIETY OF TESTING	DIST	DISTRIBUTION	INSUL	INSULATION	PAN	PANTOGRAPH	T	TIE SWITCH		
		& MATERIAL	DR	DRIVE	IPT	INTERFACE PHASE	PB	PULLBOX	TB	TAP BOX, TERMINAL BLOCK		
	ATM	ALONG TRACK MOVEMENT	DTL	DETAIL	J		PED	PEDESTRIAN	TBD	TO BE DETERMINED		
	ATR	ABOVE TOP OF RAIL	DWG	DRAWING	J	JUMPER	PF	PEDESTRIAN FLASHER	TBR	TO BE REMOVED		
	AVG	AVERAGE	E		JB	JUNCTION BOX	PGRS	PVC COATED GRSC	TBX	TRANSITION BOX		
	AXC	AXLE COUNTER	E	EAST	JCT	JUNCTION	PH	PHASE	TE	TRACTION ELECTRIFICATION		
B			EA	EACH	K		PI	POINT OF INTERSECTION	TEMP	TEMPERATURE OR TEMPORARY		
BARR	BARRIER		EB	EASTBOUND	kV	KILOVOLT	PITO	POINT OF INTERSECTION OF	TERM	TERMINAL, TERMINATION		
B/B	BACK TO BACK		ELEC	ELECTRICAL	kVA	KILOVOLT AMPERE		TURNOUT	TH	TRUNK HIGHWAY		
BC	BOLT CIRCLE/BATTERY CHARGER		ELEV	ELEVATION	kW	KILOWATT	PL	PLATE	THK	THICK		
BFA	BY-PASS FEEDER ANCHOR		EPR	ETHYLENE PROPYLENE RUBBER	L		PLAT	PLATFORM	T/F	TOP OF FOUNDATION		
BIL	BASIC INSULATION LEVEL		EQ	EQUAL	LA	LIGHTING ARRESTER	POS	POSITIVE	T/G	TOP OF GROUND LINE		
BK	BACK		EQN	EQUATION	LB	POUND, POUNDS	PRE-C	PRE-CAST CONCRETE	TL	TENSION LENGTH OR TRACK		
BLDG	BUILDING		EQPT	EQUIPMENT	LB /FT	POUND PER FOOT	PROP	PROPOSED		LIGHTING		
BL	BASELINE/ BLUE LINE		ET	EXPRESS TROUGH	LC	LINE CURRENT	PSF	POUNDS PER SQUARE FEET	TOLR	TOP OF LOW RAIL		
BM	BEAM		ETS	EMERGENCY TRIP STATION	LF	LINEAR FEET	PSI	POUNDS PER SQUARE INCH	TO	TURNOUT		
BOBP	BOTTOM OF BASE PLATE		EX	EXISTING	LG	LONG, LENGTH	P/T	POCKET TRACK	TOC	TOP OF CONCRETE		
BOS	BOTTOM OF STEEL		EXT	EXTERNAL	LGTS	LIGHTS	PUC	PUBLIC UTILITY COMMISSION	TOR	TOP OF RAIL		
BR	BRIDGE		F		LOC	LOCATION	PVC	POLYVINYL CHLORIDE CONDUIT	TORW	TOP OF RETAINING WALL		
BRKT	BRACKET		FA	FIXED ANCHOR	LTG	LIGHTING	PWR	POWER	TPSS	TRACTION POWER SUBSTATION		
BSF	BAR SIGNAL FOUNDATION		FAC	FACULTY	LPT	LOW POINT	PX	PEDESTRIAN CROSSING	TP	TRACTION POWER		
B-SPAN	BODY SPAN		FAC	FACULTY	LRT	LIGHT RAIL TRANSIT	Q		TRANSF	TRANSFORMER		
BTM	BOTTOM		FDN	FOUNDATION	LS	LUMP SUMLINE SECTION/ LINE	QTY	QUANTITY	TRK	TRACK		
BTWN	BETWEEN		FDR	FEEDER		SEGMENT	R		TS	TANGENT TO SPIRAL		
B/W	BALANCE WEIGHT		FJ	FEEDER JUMPER	LV	LOW VOLTAGE	RAB	RAIL ACCESS BOX	TSH	TUNNEL SYSTEM HOUSE		
BWA	BALANCE WEIGHT ANCHOR		FM	FRICTION MODIFIER	M		RCC	RAIL CONTROL CENTER	TTC	TELEPHONE TERMINAL CABINET		
BZ	BRONZE		FOP	FACE OF POLE	M	METER	RD	ROAD	TVM	TICKET VENDING MACHINE		
C			FOS	FACTOR OF SAFETY	MAX	MAXIMUM	RE	RUNNING EDGE OF RAIL	TWA	TIE WIRE ANCHOR		
C	CELSIUS, SIGNAL		FP	FEEDER POLE	MC	MOTOR CONTROL	REF	REFERENCE	TWC	TRAIN-TO-WAYSIDE		
CAB	CABINET		FREQ	FREQUENCY	MH	MANHOLE	REV	REVISE/REVISION		COMMUNICATIONS		
CANT	CANTILEVER		FS	FAR SIDE	MIN	MINIMUM	REQD	REQUIRED	TYP	TYPICAL		
CB	CIRCUIT BREAKER		FT	FEET, FOOT	MISC	MISCELLANEOUS	ROW	RIGHT OF WAY	U			
CF	CUBIC FEET		F/T	FIXED TERMINATION	M/L	MAIN LINE	RT	RIGHT	UG	UNDERGROUND		
CG	CROSSING GATE		FTG	FOOTING	MnDOT	MINNESOTA DEPARTMENT OF	RTU	REMOTE TERMINAL UNIT	UGB	UNDERGRADE BRIDGE		
CHAM	CHAMFER		G			TRANSPORTATION	RR	RAILROAD	U/S	UNDERSIDE		
CHGR	CHARGER		GALV	GALVANIZED	MOP	MOTOR OPERATED	RRX	RAILROAD GRADE CROSSING	UTIL	UTILITY		
CIP	CAST-IN-PLACE		GB	GROUND BUS	MP	MILE POST	RW	RETAINING WALL	V			
CISP	CAST IRON SEWER PIPE		GF	GATE FOUNDATION	MPA	MID POINT ANCHOR	S		V	VOLT		
CKT	CIRCUIT		G/L	GROUND LINE	MPH	MILES PER HOUR	S	SOUTH	VA	VOLT AMPS		
CL TO CL	CENTERLINE TO CENTERLINE		GLY	GREEN LINE YARD	MTG	MOUNTING	SA	SURGE ARRESTOR	VERT	VERTICAL		
CLR	CLEARANCE, CLEAR		GND	GROUND	MT	METRO TRANSIT	SB	SOUTHBOUND OR SPLICE BOX	W			
CND	CONDUIT		GRS	GALVANIZED RIGID STEEL	M/W	MESSANGER WIRE	SC	SIGNAL/COMMUNICATION	W	WATT, WIDTH OR WIRE		
COMM	COMMUNICATIONS		GRSC	GALVANIZED RIGID	N		SCADA	SUPERVISORY CONTROL AND	W/	WITH		
COMPT	COMPARTMENT			STEEL CONDUIT	N	NORTH, NEUTRAL		DATA ACQUISITION	WB	WESTBOUND		
CONC	CONCRETE		GRX	GRADE CROSSING	NEC	NATIONAL ELECTRICAL CODE	SECT	SECTION	WF	WIDE FLANGE		
COND	CONDUCTOR		H		NEG	NEGATIVE	SEG	SEGMENT	W/O	WITHOUT		
	COND	CONDUCTOR	HDG	HOT DIPPED GALVANIZED								

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL							
												</

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0 15 30 60
HORIZONTAL
SCALE IN FEET


LEGEND: SECTORS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

MATCH LINE - SEE SHEET 79 - OMF-SYS-SWE-PLN-003

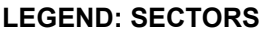

60% SUBMISSION - 9/28/15


SOUTHWEST
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
PLAN
SECTOR 1 SHEET 1

DISCIPLINE: **SYSTEMS**
SHEET NAME: **OMF-SYS-SWE-PLN-001**

SHEET
75
OF
114

[illegible]

SHEET NAME:	OMF-SYS-SWE-PLN-002
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SYSTEMS DEVICE SCHEDULE				
DEVICE ID	TRACK 2 CL STATIONING	TRACK 2 CL OFFSET	DEVICE DETAIL# / REFERENCE DRAWING	SPECIAL NOTES
SC-MH-104			SWE-DTL-003	SC MANHOLE
SC-MH-106			SWE-DTL-003	SC MANHOLE
SC-MH-106-1			SWE-DTL-003	SC MANHOLE
SC-MH-108			SWE-DTL-003	SC MANHOLE
SC-MH-131-1			SWE-DTL-003	SC MANHOLE
SC-MH-131-2			SWE-DTL-003	SC MANHOLE
SC-MH-131-3			SWE-DTL-003	SC MANHOLE
SC-MH-131-4			SWE-DTL-003	SC MANHOLE
SC-MH-133			SWE-DTL-003	SC MANHOLE
FDN-106			SWE-DTL-011 & 012	SC HOUSE FOUNDATION
FDN-106-1			SWE-DTL-013	SWITCH HEATER FOUNDATION AND STUB UP
FDN-131			SWE-DTL-011 & 012	SC HOUSE FOUNDATION
FDN-134-1			SWE-DTL-013	SWITCH HEATER FOUNDATION AND STUB UP
JB-103			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-104-1			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-104-2				SWITCH HEATER JUNCTION BOX
JB-106			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-106-1				SWITCH HEATER JUNCTION BOX
JB-107-1			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-107-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-107-3			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-107-4				SWITCH HEATER JUNCTION BOX
JB-107-5				SWITCH HEATER JUNCTION BOX
JB-107-6				SWITCH HEATER JUNCTION BOX
JB-108-1			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-108-2			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-108-3			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-108-4			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-108-5			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-131-1			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-131-2			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-131-3			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-132-1				SWITCH HEATER JUNCTION BOX
JB-132-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-132-3				SWITCH HEATER JUNCTION BOX
JB-133-1			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-133-2				SWITCH HEATER JUNCTION BOX
JB-133-3			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-134-1				SWITCH HEATER JUNCTION BOX
JB-134-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-135				SWITCH HEATER JUNCTION BOX
TWC-131-1			SWE-DTL-009	TWC ANTENNA
TWC-131-2			SWE-DTL-009	TWC ANTENNA
TWC-131-3			SWE-DTL-009	TWC ANTENNA
CSU-103-1				TRACK CIRCUIT CONDUIT STUB UP
CSU-103-2				TRACK CIRCUIT CONDUIT STUB UP
CSU-103-3				TRACK CIRCUIT CONDUIT STUB UP
CSU-103-4				TRACK CIRCUIT CONDUIT STUB UP
CSU-104-1				TRACK CIRCUIT CONDUIT STUB UP
CSU-104-2				TRACK CIRCUIT CONDUIT STUB UP
CSU-106-1				TRACK CIRCUIT CONDUIT STUB UP
CSU-106-2				TRACK CIRCUIT CONDUIT STUB UP
CSU-106-3				TRACK CIRCUIT CONDUIT STUB UP
CSU-106-4				TRACK CIRCUIT CONDUIT STUB UP
CSU-106-5				TRACK CIRCUIT CONDUIT STUB UP
CSU-106-6				SWITCH HEATER CASE OCS POLE CONDUIT STUB UP
CSU-106-7				FEEDER POLE CONDUIT STUB UP
CSU-106-8				NEGATIVE RETURN CONDUIT STUB UP
CSU-107-1				TRACK CIRCUIT CONDUIT STUB UP
CSU-107-2				TRACK CIRCUIT CONDUIT STUB UP
CSU-107-3				TRACK CIRCUIT CONDUIT STUB UP
CSU-107-4				TRACK CIRCUIT CONDUIT STUB UP
CSU-107-5				TRACK CIRCUIT CONDUIT STUB UP
CSU-107-6				TRACK CIRCUIT CONDUIT STUB UP

DUCTBANKS/ EXPRESS TROUGH/ CONDUITS					
DUCTBANK, EXPRESS TROUGH OR CONDUIT ID	FROM	TO	CONDUIT QTY-SIZE	DUCTBANK DETAIL # / REFERENCE DRAWING	NOTES
SC-104	SC-MH-104	SC-MH-106	16-4	STU-DTL-001	SC DUCTBANK
SC-106-1	SC-MH-106	SC-MH-106-1	16-4	STU-DTL-001	SC DUCTBANK
SC-128	SC-HH-128	SC-MH-131-1	16-4	STU-DTL-001	SC DUCTBANK
SC-131-1	SC-MH-131-2	SC-MH-2417-1 (NIC)	9-4	STU-DTL-001	SC DUCTBANK
SC-131-2	SC-MH-131-2	SC-MH-131-3	16-4	STU-DTL-001	SC DUCTBANK
SC-131-3	SC-MH-131-3	SC-MH-131-4	16-4	STU-DTL-001	SC DUCTBANK
SC-131-4	SC-MH-131-4	SC-MH-133	16-4	STU-DTL-001	SC DUCTBANK
ET-106	SC-MH-106-1	SC-MH-108	TYPE 3	SWE-DTL-008	EXPRESS TROUGH
ET-131	SC-MH-131-1	SC-MH-131-2	TYPE 3	SWE-DTL-008	EXPRESS TROUGH
ET-133	SC-MH-133	SC-MH-104	TYPE 3	SWE-DTL-008	EXPRESS TROUGH
SC-104-1	SC-MH-104	JB-103	1-3		SC CONDUIT
SC-104-2	SC-MH-104	CSU-103-1	1-2		SC CONDUIT
SC-104-3	SC-MH-104	CSU-103-2	1-2		SC CONDUIT
SC-104-4	SC-MH-104	CSU-103-3	1-2		SC CONDUIT
SC-104-5	SC-MH-104	CSU-103-4	1-2		SC CONDUIT
SC-104-6	SC-MH-104	JB-104-1	1-3		SC CONDUIT
SC-104-7	SC-MH-104	CSU-104-1	1-2		SC CONDUIT
SC-104-8	SC-MH-104	CSU-104-2	1-2		SC CONDUIT
SC-104-9	SC-MH-104	FDN-134-1	1-3		SC CONDUIT
SC-104-10	SC-MH-104	CSU-134-1	1-2		SC CONDUIT
SC-104-11	SC-MH-104	CSU-134-2	1-2		SC CONDUIT
SC-104-12	SC-MH-104	CSU-134-3	1-2		SC CONDUIT
SC-104-13	SC-MH-104	CSU-134-4	1-2		SC CONDUIT
SC-106-2	SC-MH-106-1	CSU-106-1	1-2		SC CONDUIT
SC-106-3	SC-MH-106-1	JB-106	1-3		SC CONDUIT
SC-106-4	SC-MH-106-1	CSU-106-2	1-2		SC CONDUIT
SC-106-5	SC-MH-106-1	CSU-106-3	1-2		SC CONDUIT
SC-106-6	SC-MH-106-1	CSU-106-4	1-2		SC CONDUIT
SC-106-7	SC-MH-106-1	CSU-106-5	1-2		SC CONDUIT
SC-106-8	SC-MH-106-1	JB-107-1	1-3		SC CONDUIT
SC-106-9	SC-MH-106-1	JB-107-2	1-3		SC CONDUIT
SC-106-10	SC-MH-106-1	CSU-107-1	1-2		SC CONDUIT
SC-106-11	SC-MH-106-1	CSU-107-2	1-2		SC CONDUIT
SC-106-12	SC-MH-106-1	CSU-107-3	1-2		SC CONDUIT
SC-106-13	SC-MH-106-1	CSU-107-4	1-2		SC CONDUIT
SC-106-14	SC-MH-106-1	CSU-107-5	1-2		SC CONDUIT
SC-106-15	SC-MH-106-1	CSU-107-6	1-2		SC CONDUIT
SC-106-16	SC-MH-106-1	CSU-107-7	1-2		SC CONDUIT
SC-106-17	SC-MH-106-1	CSU-107-8	1-2		SC CONDUIT
SC-106-18	SC-MH-106-1	JB-107-3	1-3		SC CONDUIT
SC-106-19	SC-MH-106	FDN-106-1	1-3		SC CONDUIT
SC-108-1	SC-MH-108	CSU-108-1	1-2		SC CONDUIT
SC-108-2	SC-MH-108	CSU-108-2	1-2		SC CONDUIT
SC-108-3	SC-MH-108	CSU-108-3	1-2		SC CONDUIT
SC-108-4	SC-MH-108	CSU-108-4	1-2		SC CONDUIT
SC-108-5	SC-MH-108	CSU-108-5	1-2		SC CONDUIT
SC-108-6	SC-MH-108	CSU-108-6	1-2		SC CONDUIT
SC-108-7	SC-MH-108	CSU-108-7	1-2		SC CONDUIT
SC-108-8	SC-MH-108	CSU-108-8	1-2		SC CONDUIT
SC-108-9	SC-MH-108	CSU-108-9	1-2		SC CONDUIT
SC-108-10	SC-MH-108	JB-108-1	1-2		SC CONDUIT
SC-108-11	SC-MH-108	JB-108-2	1-2		SC CONDUIT
SC-108-12	SC-MH-108	JB-108-3	1-2		SC CONDUIT
SC-108-13	SC-MH-108	JB-108-4	1-2		SC CONDUIT
SC-108-14	SC-MH-108	JB-108-5	1-2		SC CONDUIT
SC-131-5	SC-MH-131-1	TWC-131-1	1-2		SC CONDUIT
SC-131-6	SC-MH-131-1	TWC-131-2	1-2		SC CONDUIT
SC-131-7	SC-MH-131-1	TWC-131-3	1-2		SC CONDUIT
SC-131-8	SC-MH-131-4	JB-131-1	1-2		SC CONDUIT
SC-131-9	SC-MH-131-4	JB-131-2	1-2		SC CONDUIT
SC-131-10	SC-MH-131-4	JB-131-3	1-2		SC CONDUIT
SC-131-11	SC-MH-131-3	CSU-131-1	1-2		SC CONDUIT
SC-131-12	SC-MH-131-3	CSU-131-2	1-2		SC CONDUIT
SC-131-13	SC-MH-131-3	CSU-131-3	1-2		SC CONDUIT
SC-131-14	SC-MH-131-4	CSU-131-4	1-2		SC CONDUIT
SC-131-15	SC-MH-131-4	CSU-131-5	1-2		SC CONDUIT

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 9/28/15





OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
SCHEDULE
SECTOR 1 SHEET 1

DISCIPLINE:
SYSTEMS

SHEET NAME:
OMF-SYS-SWE-SCH-001A

SHEET
77
OF
114

[illegible]

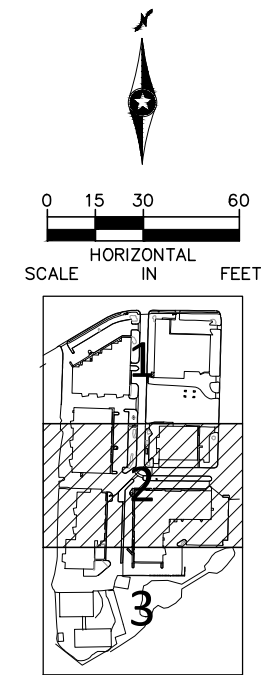
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AECOM

60% SUBMISSION - 9/28/15



OPERATIONS & MAINTENANCE FACILITY - V1 SYSTEMWIDE ELECTRICAL SCHEDULE SECTOR 1 SHEET 2	
DISCIPLINE: SYSTEMS	SHEET NAME: OMF-SYS-SWE-SCH-001B



LEGEND: SECTORS

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60% SUBMISSION - 9/28/15



SOUTHWEST



OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
PLAN
SECTOR 2 SHEET 1

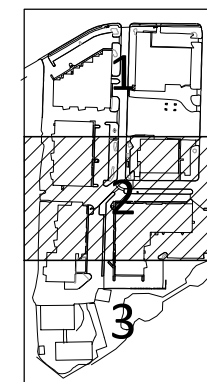
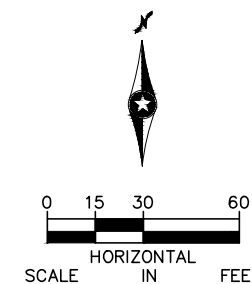
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SYSTEMS

SHEET NAME:

OMF-SYS-SWE-PLN-003

SHEET
79
OF
114



LEGEND: SECTORS

MATCH LINE - SEE SHEET 83 - OMF-SYS-SWE-PLN-006

[illegible]**AECOM**

60% SUBMISSION - 9/28/15



SOUTHWEST



**OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
PLAN
SECTOR 2 SHEET 2**

DISCIPLINE:

SYSTEMS

	SHEET NAME:
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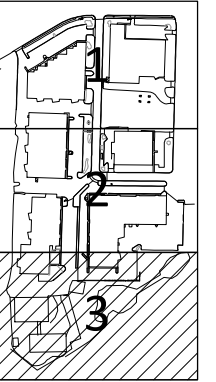
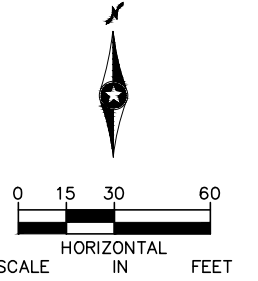
OMF-SYS-SWE-PLN-004

1	SHEET
	80
	OF
	114

[illegible]

DISCIPLINE: **SYSTEMS**

SHEET NAME: **OMF-SYS-SWE-SCH-003**



LEGEND: SECTORS

[illegible]**AECOM**

60% SUBMISSION - 9/28/15



SOUTHWEST



OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
PLAN
SECTOR 3 SHEET 1

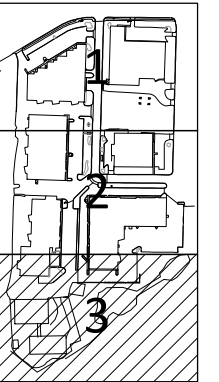
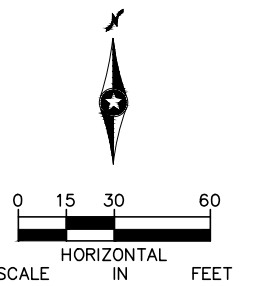
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SHEET NAME:

OMF-SYS-SWE-PLN-005 | 1

HEET
82
OF
114



LEGEND: SECTORS

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60% SUBMISSION - 9/28/15



SOUTHWEST



OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
PLAN
SECTOR 3 SHEET 2

DISCIPLINE:

SYSTEMS

SHEET NAME:

OMF-SYS-SWE-PLN-006

HEET
83
OF
114

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SYSTEMS DEVICE SCHEDULE				
DEVICE ID	TRACK 2 CL STATIONING	TRACK 2 CL OFFSET	DEVICE DETAIL# / REFERENCE DRAWING	SPECIAL NOTES
SC-MH-115			SWE-DTL-003	SC MANHOLE
SC-MH-116			SWE-DTL-003	SC MANHOLE
SC-MH-117			SWE-DTL-003	SC MANHOLE
SC-MH-122			SWE-DTL-003	SC MANHOLE
SC-MH-122-1			SWE-DTL-003	SC MANHOLE
SC-MH-124			SWE-DTL-003	SC MANHOLE
FDN-117			SWE-DTL-013	SWITCH HEATER FOUNDATION AND STUB UP
FDN-122-1			SWE-DTL-011 & 012	SC HOUSE FOUNDATION
FDN-122-2			SWE-DTL-013	SWITCH HEATER FOUNDATION AND STUB UP
JB-115-1			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-115-2			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-115-3			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-115-4			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-116-1				SWITCH HEATER JUNCTION BOX
JB-116-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-116-3				SWITCH HEATER JUNCTION BOX
JB-116-4			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-116-5				SWITCH HEATER JUNCTION BOX
JB-116-6			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-117-1				SWITCH HEATER JUNCTION BOX
JB-117-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-118-1				SWITCH HEATER JUNCTION BOX
JB-118-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-121-1			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-121-2				SWITCH HEATER JUNCTION BOX
JB-122-1			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-122-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-122-3				SWITCH HEATER JUNCTION BOX
JB-122-4				SWITCH HEATER JUNCTION BOX
JB-123-1			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-123-2			SWE-DTL-016	SWITCH MACHINE JUNCTION BOX
JB-123-3				SWITCH HEATER JUNCTION BOX
JB-123-4				SWITCH HEATER JUNCTION BOX
JB-124-1			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-124-2			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-124-3			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-124-4			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-124-5			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
JB-124-6			SWE-DTL-010	TWC ANTENNA JUNCTION BOX
TWC-115-1			SWE-DTL-009	TWC ANTENNA
TWC-115-2			SWE-DTL-009	TWC ANTENNA
CSU-115-1				TRACK CIRCUIT CONDUIT STUB UP
CSU-115-2				TRACK CIRCUIT CONDUIT STUB UP
CSU-115-3				TRACK CIRCUIT CONDUIT STUB UP
CSU-115-4				TRACK CIRCUIT CONDUIT STUB UP
CSU-115-5				TRACK CIRCUIT CONDUIT STUB UP
CSU-115-6				TRACK CIRCUIT CONDUIT STUB UP
CSU-115-7				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-1				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-2				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-3				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-4				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-5				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-6				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-7				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-8				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-9				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-10				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-11				TRACK CIRCUIT CONDUIT STUB UP
CSU-116-12				FEEDER POLE CONDUIT STUB UP
CSU-117-1				TRACK CIRCUIT CONDUIT STUB UP
CSU-117-2				TRACK CIRCUIT CONDUIT STUB UP
CSU-117-3				TRACK CIRCUIT CONDUIT STUB UP
CSU-117-4				TRACK CIRCUIT CONDUIT STUB UP

DUCTBANKS/ EXPRESS TROUGH/ CONDUITS					
DUCTBANK, EXPRESS TROUGH OR CONDUIT ID	FROM	TO	CONDUIT QTY-SIZE	DUCTBANK DETAIL # / REFERENCE DRAWING	NOTES
SC-116	SC-MH-116	SC-MH-117	16-4	STU-DTL-001	SC DUCTBANK
SC-122	SC-MH-122-1	SC-MH-122	16-4	STU-DTL-001	SC DUCTBANK
SC-124	SC-MH-124	SC-HH-128	6-4	STU-DTL-001	SC DUCTBANK
ET-115	SC-MH-115	SC-MH-116	TYPE 3	SWE-DTL-008	EXPRESS TROUGH
ET-117	SC-MH-117	SC-MH-122-1	TYPE 3	SWE-DTL-008	EXPRESS TROUGH
ET-122	SC-MH-122	SC-MH-124	TYPE 3	SWE-DTL-008	EXPRESS TROUGH
SC-115-1	SC-MH-115	TWC-115-1	1-2		SC CONDUIT
SC-115-2	SC-MH-115	TWC-115-2	1-2		SC CONDUIT
SC-115-3	SC-MH-115	CSU-115-1	1-2		SC CONDUIT
SC-115-4	SC-MH-115	CSU-115-2	1-2		SC CONDUIT
SC-115-5	SC-MH-115	JB-115-1	1-2		SC CONDUIT
SC-115-6	SC-MH-115	JB-115-2	1-2		SC CONDUIT
SC-115-7	SC-MH-115	CSU-116-1	1-2		SC CONDUIT
SC-115-8	SC-MH-115	CSU-116-2	1-2		SC CONDUIT
SC-115-9	SC-MH-115	JB-115-3	1-2		SC CONDUIT
SC-115-10	SC-MH-115	JB-115-4	1-2		SC CONDUIT
SC-115-11	SC-MH-115	CSU-115-3	1-2		SC CONDUIT
SC-115-12	SC-MH-115	CSU-115-4	1-2		SC CONDUIT
SC-115-13	SC-MH-115	CSU-115-5	1-2		SC CONDUIT
SC-115-14	SC-MH-115	CSU-115-6	1-2		SC CONDUIT
SC-115-15	SC-MH-115	CSU-116-3	1-2		SC CONDUIT
SC-115-16	SC-MH-115	CSU-115-7	1-2		SC CONDUIT
SC-115-17	SC-MH-115	CSU-116-8	1-2		SC CONDUIT
SC-115-18	SC-MH-115	CSU-116-9	1-2		SC CONDUIT
SC-115-19	SC-MH-115	CSU-116-10	1-2		SC CONDUIT
SC-115-20	SC-MH-115	CSU-116-11	1-2		SC CONDUIT
SC-116-1	SC-MH-116	CSU-116-4	1-2		SC CONDUIT
SC-116-2	SC-MH-116	CSU-116-5	1-2		SC CONDUIT
SC-116-3	SC-MH-116	CSU-116-6	1-2		SC CONDUIT
SC-116-4	SC-MH-116	CSU-116-7	1-2		SC CONDUIT
SC-116-5	SC-MH-116	JB-116-2	1-3		SC CONDUIT
SC-116-6	SC-MH-116	JB-116-4	1-3		SC CONDUIT
SC-116-7	SC-MH-116	JB-116-6	1-3		SC CONDUIT
SC-116-8	SC-MH-116	CSU-117-1	1-2		SC CONDUIT
SC-116-9	SC-MH-116	CSU-117-2	1-2		SC CONDUIT
SC-116-10	SC-MH-116	CSU-117-3	1-2		SC CONDUIT
SC-116-11	SC-MH-116	CSU-117-4	1-2		SC CONDUIT
SC-116-12	SC-MH-116	CSU-117-5	1-2		SC CONDUIT
SC-116-13	SC-MH-116	CSU-117-6	1-2		SC CONDUIT
SC-117-1	SC-MH-117	FDN-117	1-3		SC CONDUIT
SC-117-2	SC-MH-117	JB-117-2	1-3		SC CONDUIT
SC-117-3	SC-MH-117	CSU-117-7	1-2		SC CONDUIT
SC-117-4	SC-MH-117	CSU-117-8	1-2		SC CONDUIT
SC-117-5	SC-MH-117	CSU-117-9	1-2		SC CONDUIT
SC-117-6	SC-MH-117	CSU-117-10	1-2		SC CONDUIT
SC-117-7	SC-MH-117	JB-118-2	1-3		SC CONDUIT
SC-117-8	SC-MH-117	CSU-118-1	1-2		SC CONDUIT
SC-117-9	SC-MH-117	CSU-118-2	1-2		SC CONDUIT
SC-122-1	SC-MH-122	CSU-121-1	1-2		SC CONDUIT
SC-122-2	SC-MH-122	CSU-121-2	1-2		SC CONDUIT
SC-122-3	SC-MH-122	JB-121-1	1-3		SC CONDUIT
SC-122-4	SC-MH-122	CSU-122-1	1-2		SC CONDUIT
SC-122-5	SC-MH-122	CSU-122-2	1-2		SC CONDUIT
SC-122-6	SC-MH-122	CSU-122-3	1-2		SC CONDUIT
SC-122-7	SC-MH-122	CSU-122-4	1-2		SC CONDUIT
SC-122-8	SC-MH-122	JB-122-1	1-3		SC CONDUIT
SC-122-9	SC-MH-122	JB-122-2	1-3		SC CONDUIT
SC-122-10	ET-122	CSU-122-5	1-2		SC CONDUIT
SC-122-11	ET-122	CSU-122-6	1-2		SC CONDUIT
SC-122-12	ET-122	CSU-122-7	1-2		SC CONDUIT
SC-122-13	ET-122	CSU-122-8	1-2		SC CONDUIT
SC-122-14	ET-122	CSU-122-9	1-2		SC CONDUIT
SC-122-15	ET-122	CSU-122-10	1-2		SC CONDUIT
SC-122-16	ET-122	CSU-122-11	1-2		SC CONDUIT
SC-122-17	ET-122	CSU-122-12	1-2		SC CONDUIT
SC-122-18	ET-122	JB-123-1	1-3		SC CONDUIT

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



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OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
SCHEDULE
SECTOR 3 SHEET 1

DISCIPLINE: SYSTEMS
SHEET NAME: OMF-SYS-SWE-SCH-005A

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60% SUBMISSION - 9/28/15

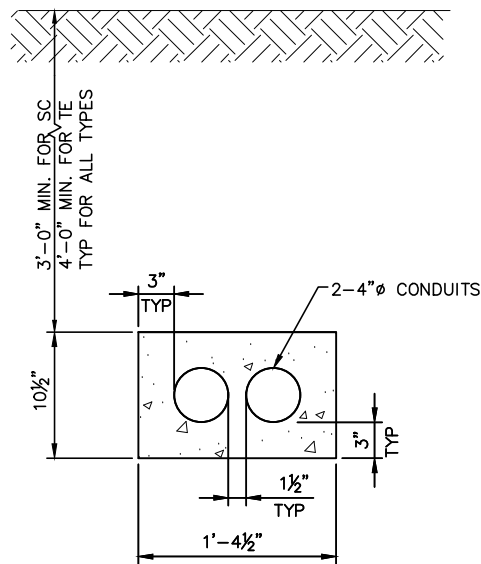


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SECTOR 3 SHEET 2**

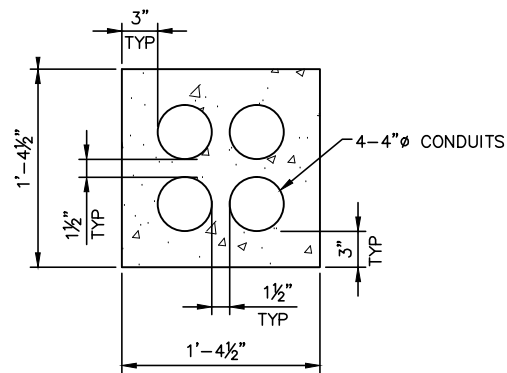
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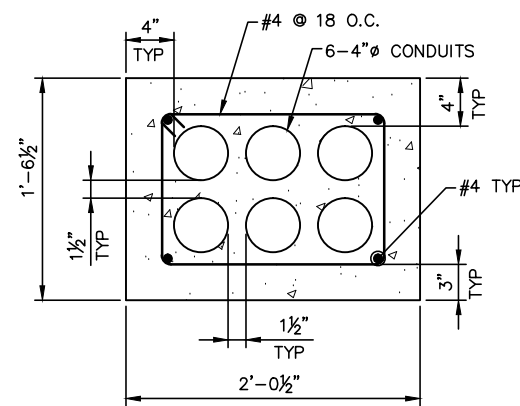
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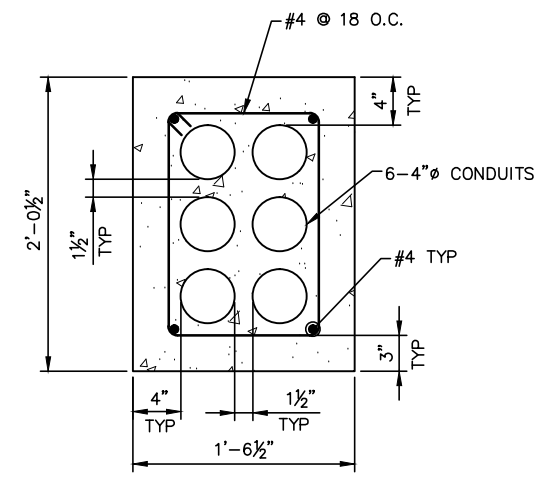
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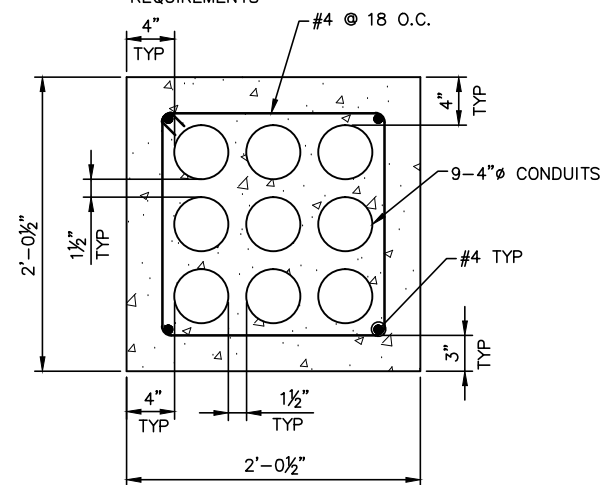
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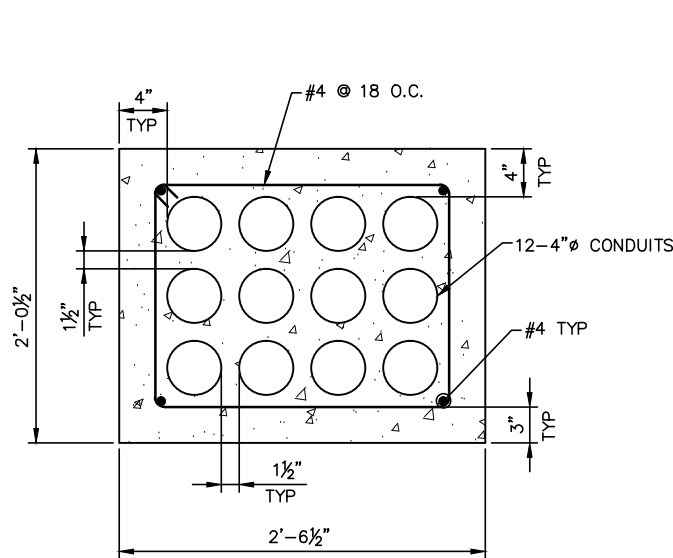
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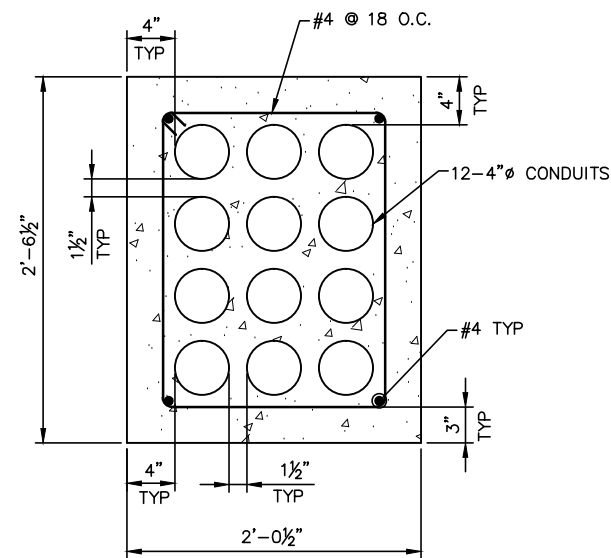
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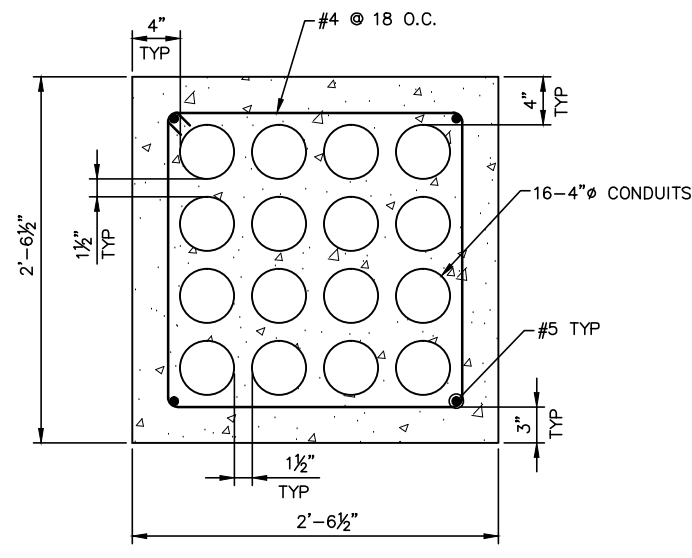
9 TYPE 9
SCALE: 1 1/2"=1'-0"



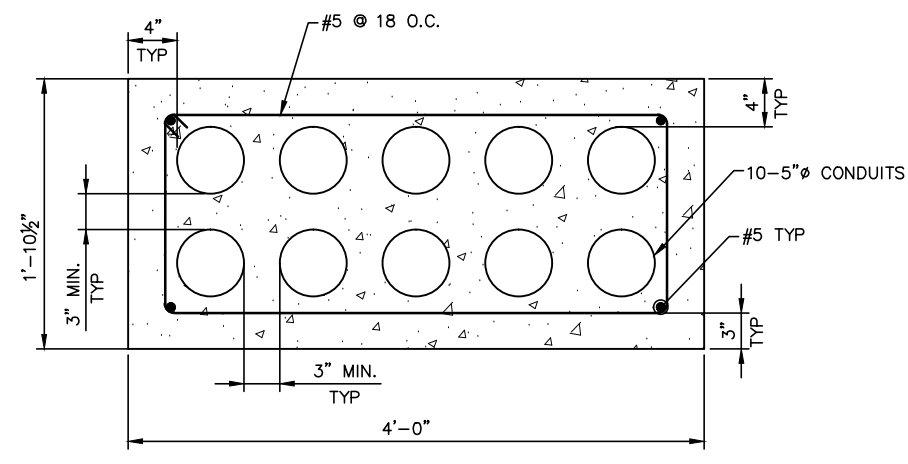
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SCALE: 1 1/2"=1'-0"



12V TYPE 12V
SCALE: 1 1/2"=1'-0"



16 TYPE 16
SCALE: 1 1/2"=1'-0"



10 TYPE 10
SCALE: 1 1/2"=1'-0"

NOTES:

1. TOP OF DUCTBANK IS 3'-0" MIN. BELOW FINISHED GRADE FOR SC AND 4'-0" MIN. BELOW FINISHED GRADE FOR TE
2. MINIMUM 3000 PSI CONCRETE COMPRESSIVE STRENGTH WITH ASTM A-615 GRADE 60 REINFORCING BARS
3. LAP SPLICE LENGTH PER ACI 318-11 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
4. SEE SPECIFICATIONS FOR MORE DETAILED CONCRETE REQUIREMENTS

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

60% SUBMISSION - 09/28/15



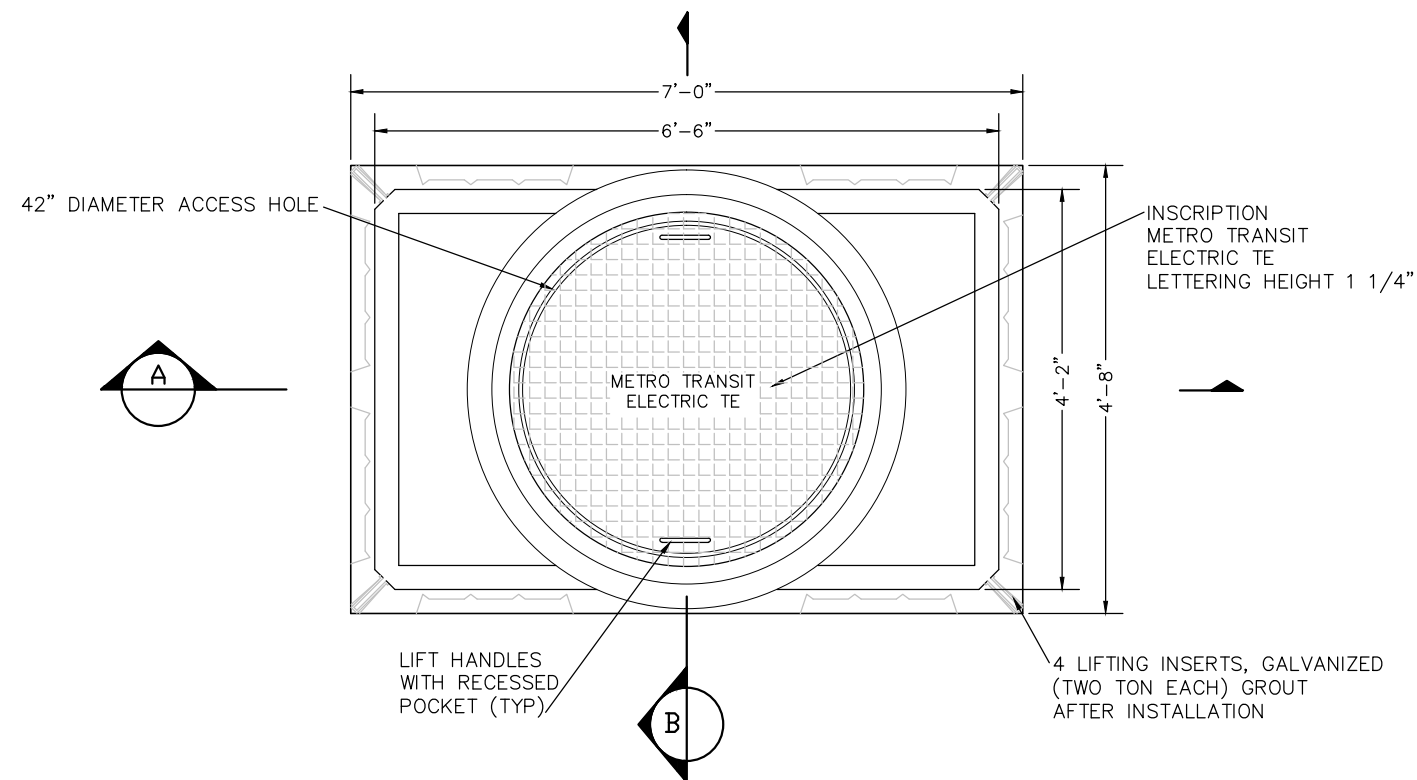
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SYSTEMWIDE ELECTRICAL
DETAILS
DUCTBANK SECTIONS

DISCIPLINE: STRUCTURAL

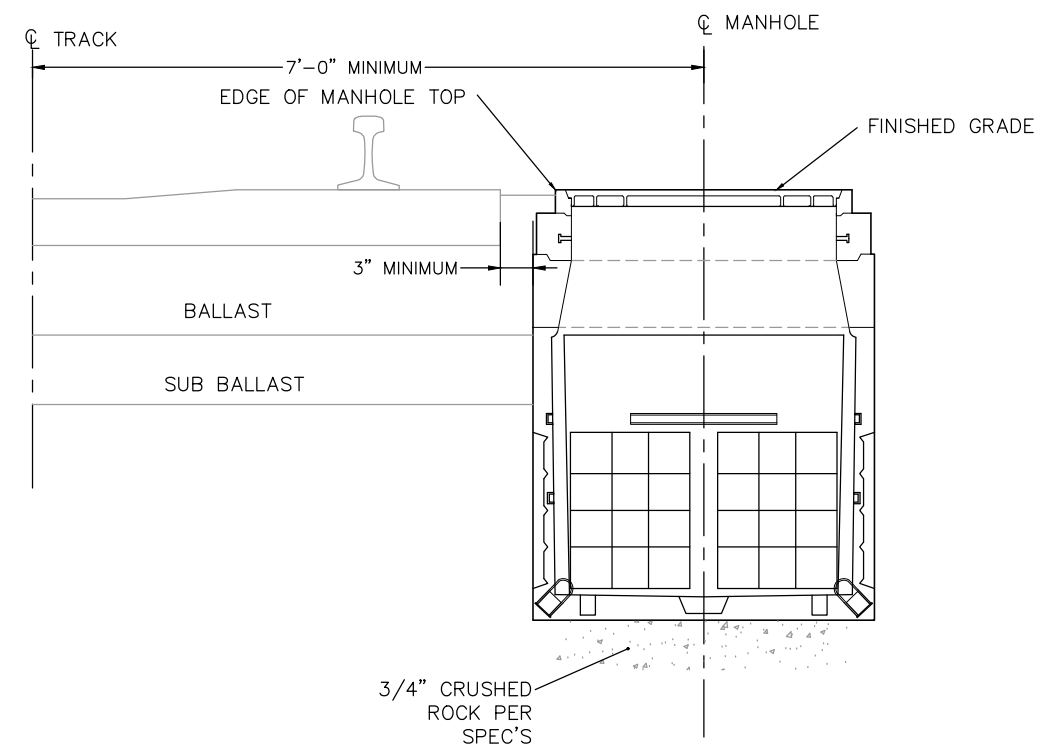
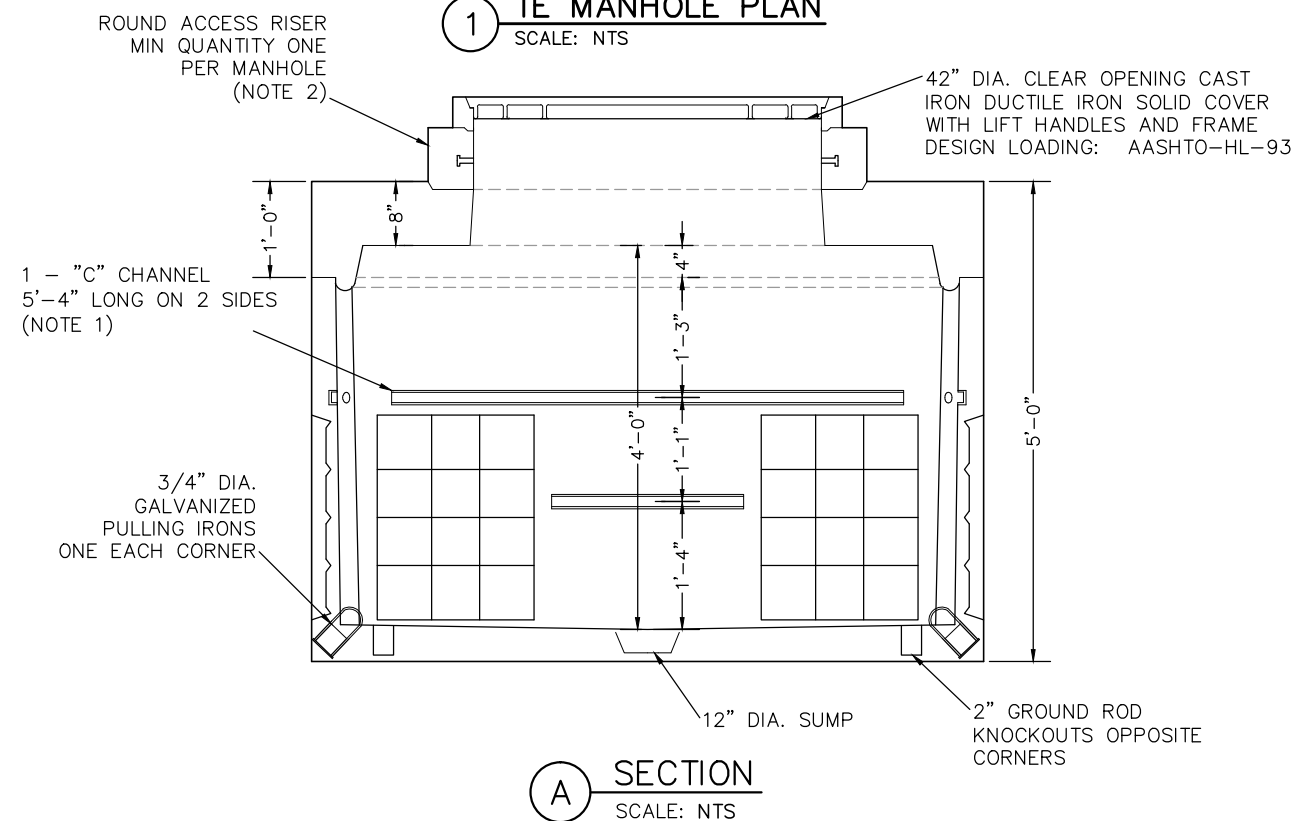
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OF
114

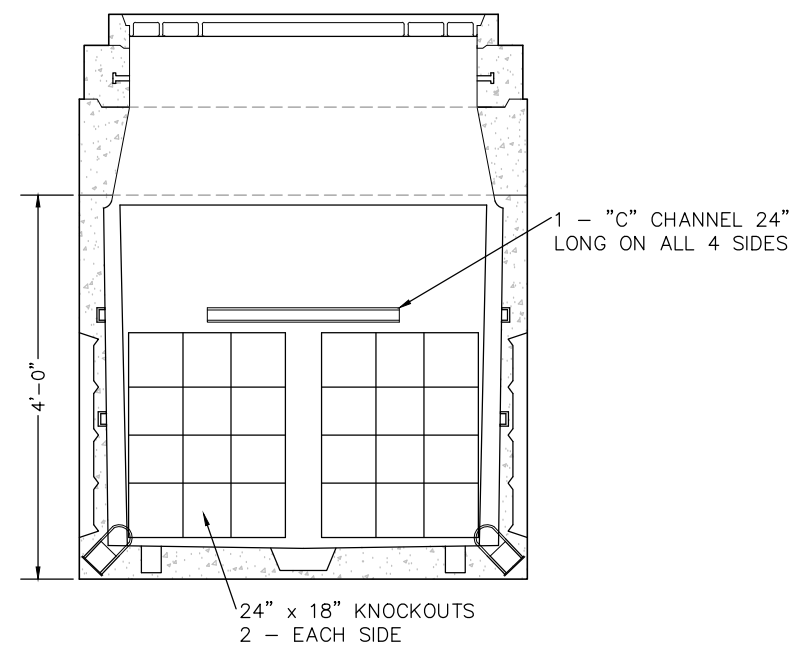
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1 TE MANHOLE PLAN
SCALE: NTS



2 TE MANHOLE TYPICAL INSTALLATION
SCALE: NTS



- NOTE:
1. INSTALL SIX CABLE RACKS WITH TWELVE INSULATORS PER MANHOLE.
 2. USE ROUND ACCESS RISERS (30" MAX) TO ACHIEVE FINAL ELEVATION.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

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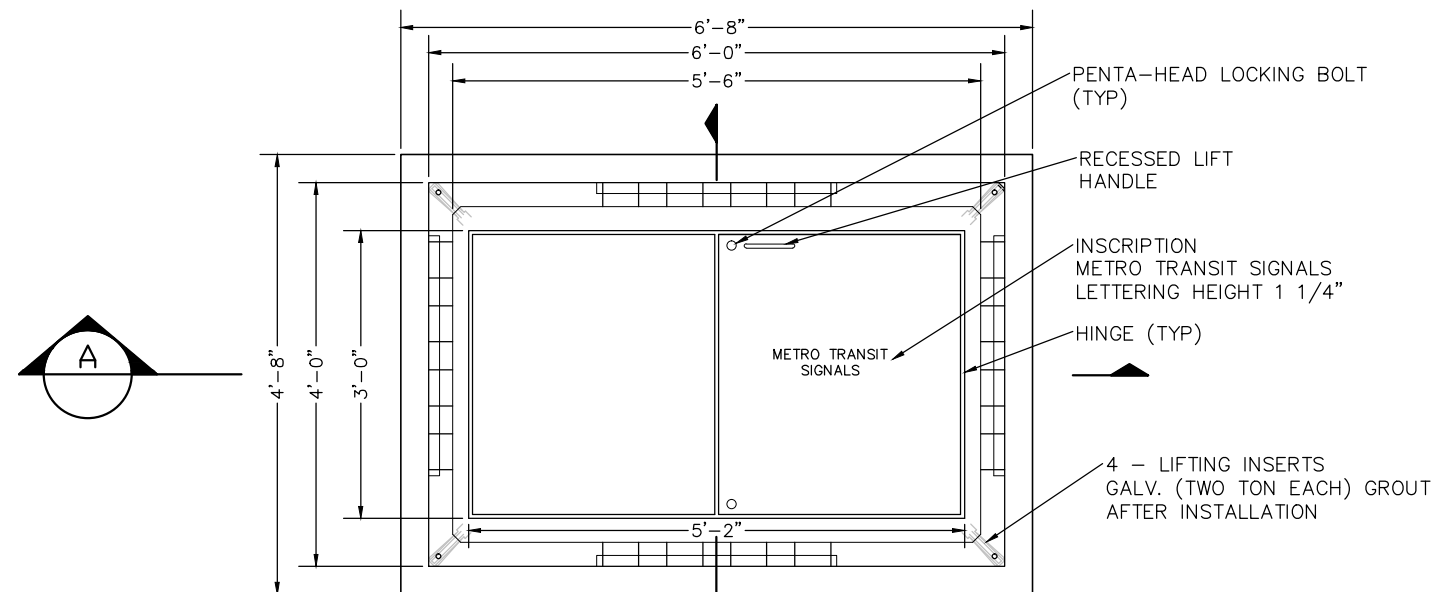
OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
DETAILS
TE MANHOLE

DISCIPLINE:
SYSTEMS

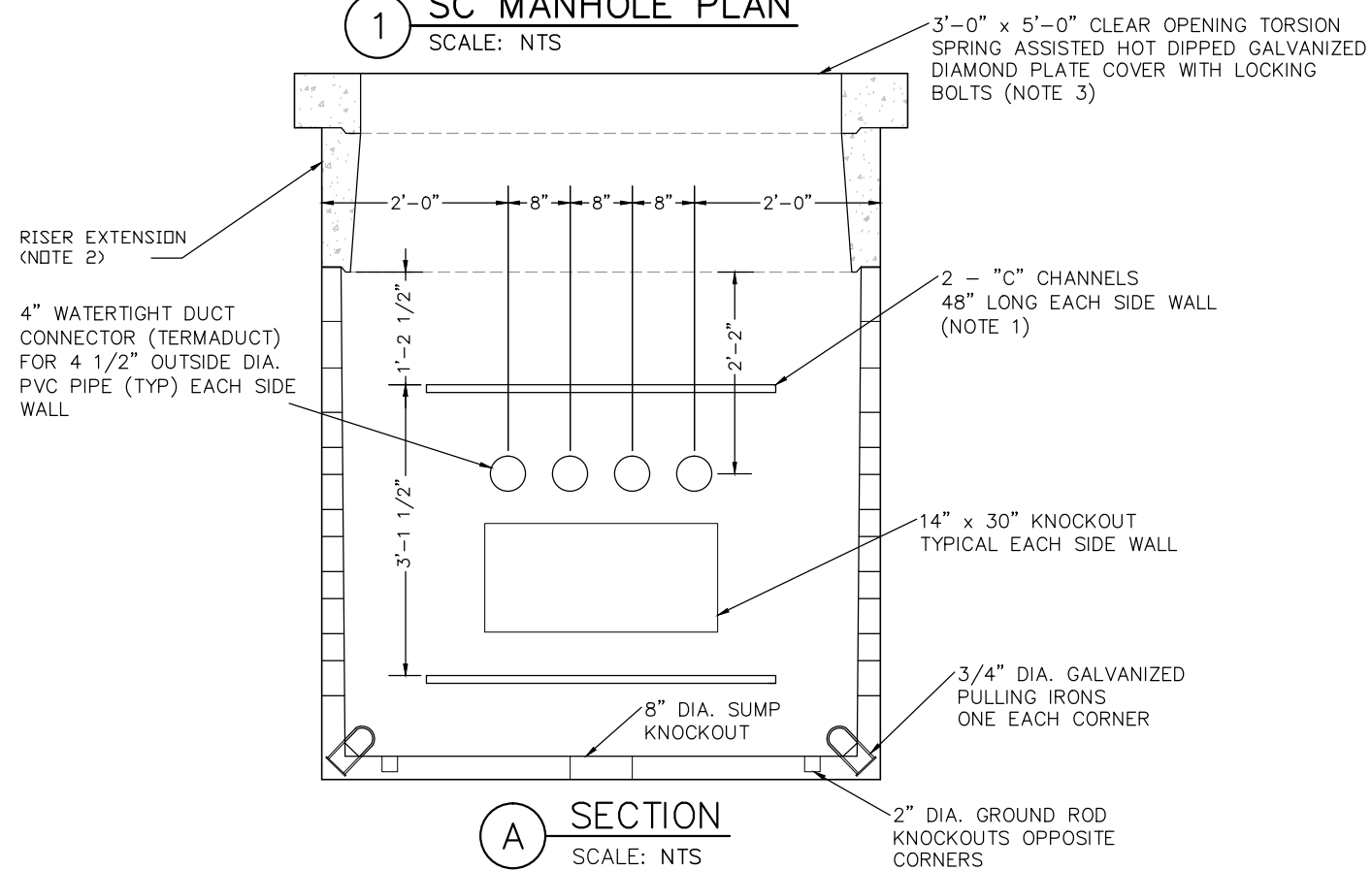
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87
OF
114

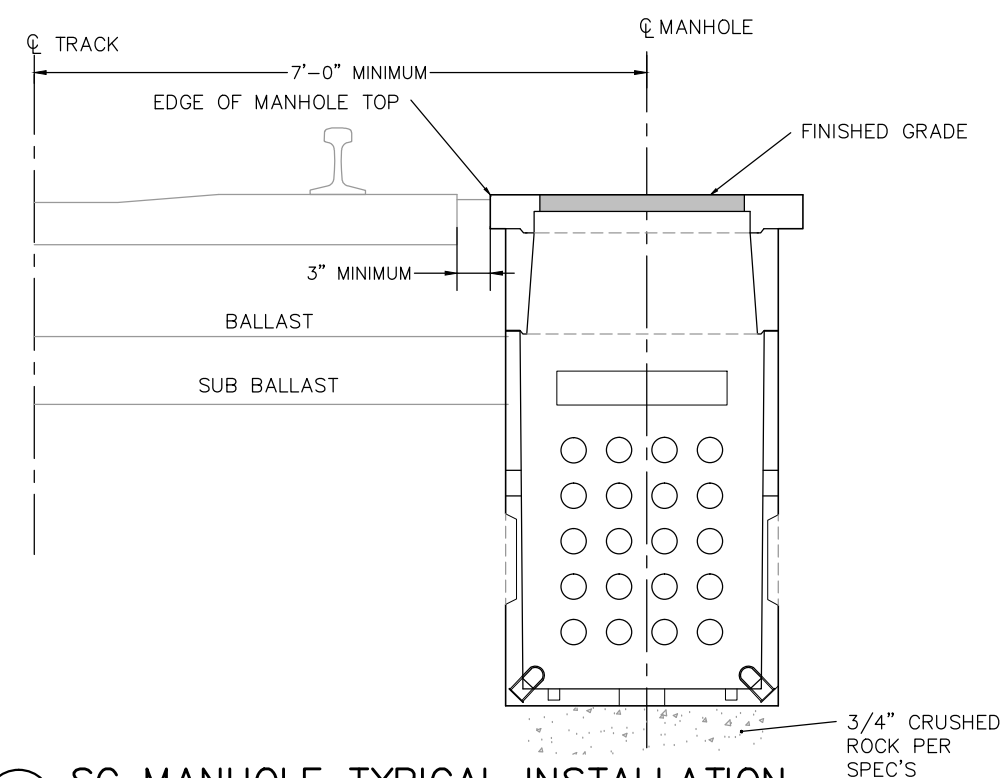
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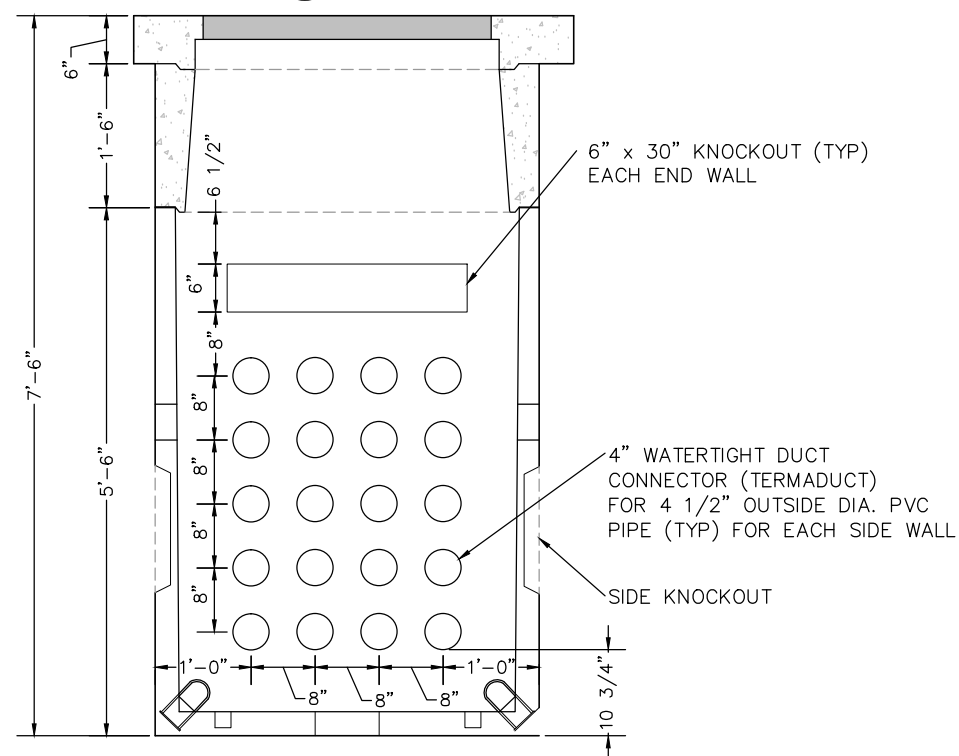
1 SC MANHOLE PLAN
SCALE: NTS



A SECTION
SCALE: NTS



2 SC MANHOLE TYPICAL INSTALLATION
SCALE: NTS



B SECTION
SCALE: NTS

- NOTE:
1. INSTALL EIGHT CABLE RACKS WITH SIXTEEN INSULATORS PER MANHOLE.
 2. USE RISER EXTENSIONS TO ACHIEVE FINAL ELEVATION.
 3. COVERS SHALL BE DESIGNED TO WITHSTAND AASHTO HL-93 WHEEL LOADINGS. SUITABLE FOR USE IN OFF STREET LOCATIONS.

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SOUTHWEST
Green Line LRT Extension



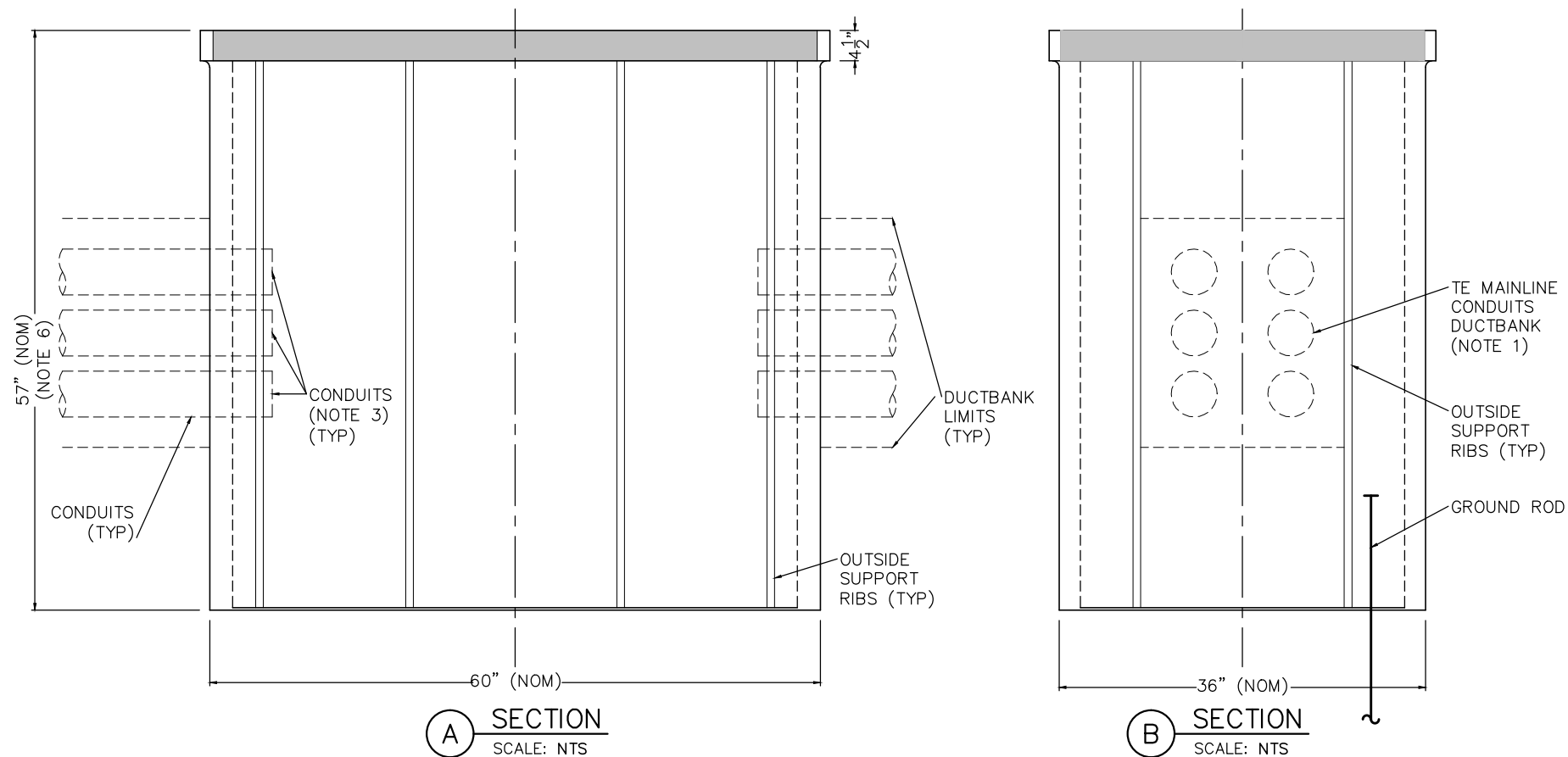
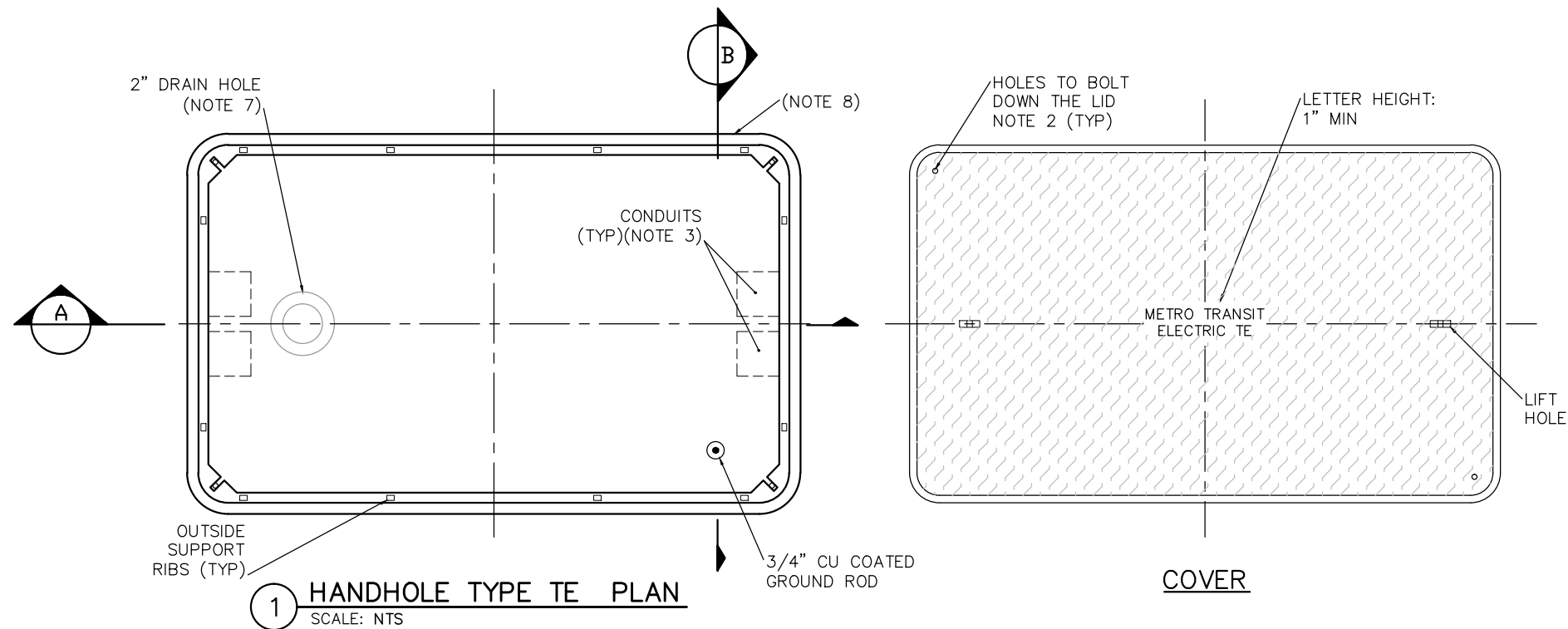
OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
DETAILS
SC MANHOLE

DISCIPLINE:
SYSTEMS

SHEET NAME:
OMF-SYS-SWE-DTL-003

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NOTES:

1. CONDUITS SHOWN ARE FOR EXAMPLE ONLY. ADDITIONAL CONDUITS MAY BE REQUIRED AS SHOWN ON THE PLAN SHEETS.
2. SEE SPECIFICATIONS REGARDING HOLD-DOWN BOLTS FOR COVERS.
3. CONDUITS SHALL EXTEND INTO THE HANDHOLE A MAXIMUM OF 1" FROM THE INSIDE WALL AND TERMINATE WITH BELL END FITTINGS.
4. INSTALL GROUND ROD CAUTIOUSLY TO AVOID DAMAGE TO POSSIBLE UTILITY INSTALLATIONS.
5. ADJUST CONDUIT ENTRY INTO THE HANDHOLE TO CREATE POSITIVE CONDUIT DRAINAGE AND TO ENTER CENTER OF HANDHOLE.
6. ADJUST DEPTH OF HANDHOLE TO ASSURE THAT COVER IS FLUSH WITH FINISHED GRADE. FOR LOCATIONS ON BRIDGES AND LAND BRIDGES TOP OF HANDHOLE IS TO BE AT THE SAME ELEVATION AS TOP OF RAIL.
7. LOCATE DRAIN HOLE ON LOWER END OF HANDHOLE AND PROVIDE STAINLESS STEEL SNAP-IN TYPE GRATE.
8. HANDHOLE MANUFACTURER IS SYNERTECH, MODEL NO. S3660C60FA OR APPROVED EQUAL.
9. SPECIAL HANDHOLE TYPES MAY BE REQUIRED AT SOME LOCATIONS.
10. HANDHOLE OFFSET DIMENSION IS VARIABLE. FINAL PLACEMENT OF HANDHOLE SHALL ASSURE THAT HANDHOLE TOP DOES NOT CONFLICT WITH TRACK CONSTRUCTION.

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SOUTHWEST
Green Line Light Extension



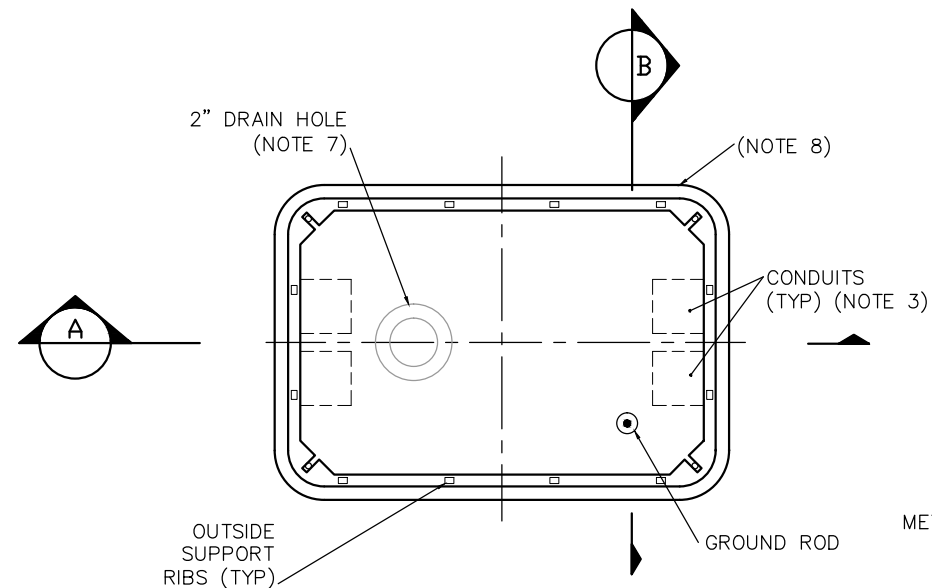
OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
DETAILS
TE HANDHOLE

DISCIPLINE: **SYSTEMS**

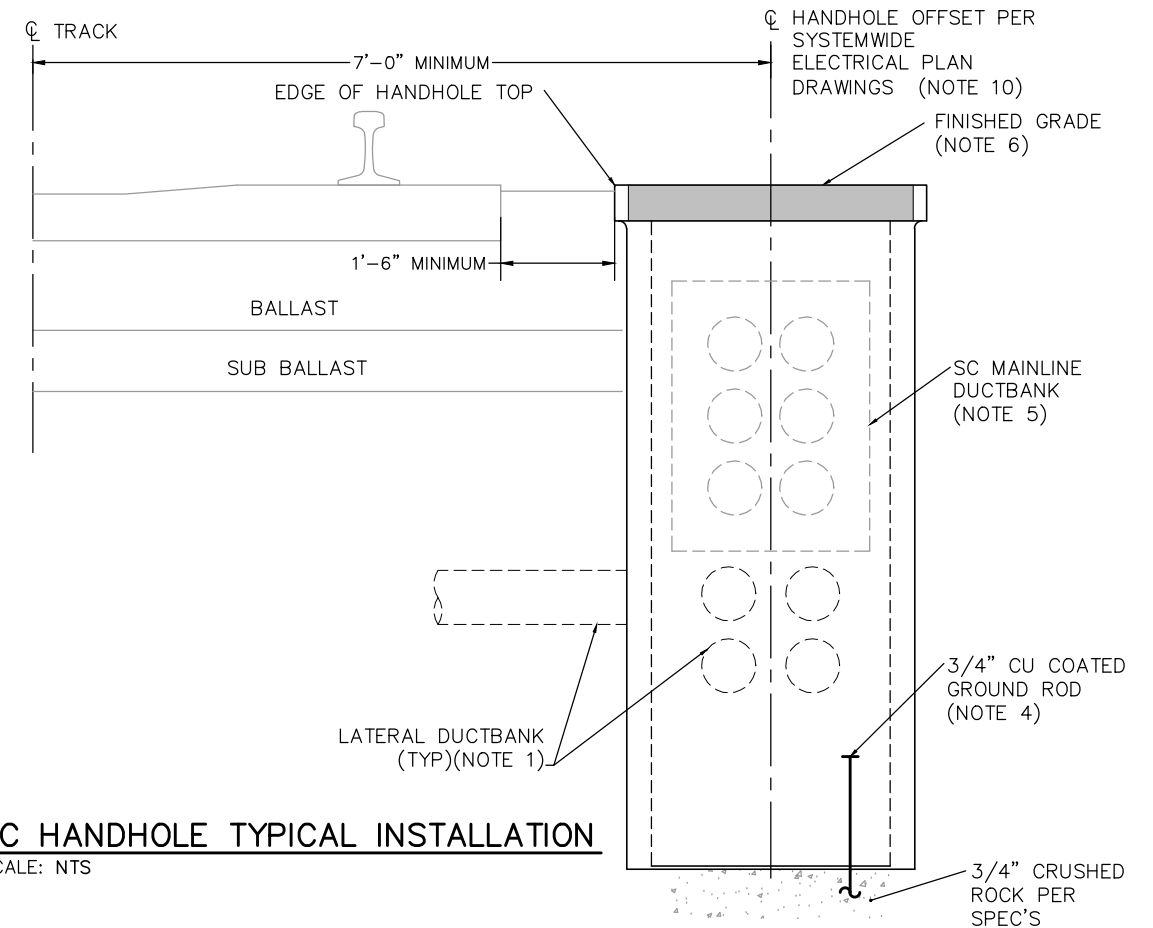
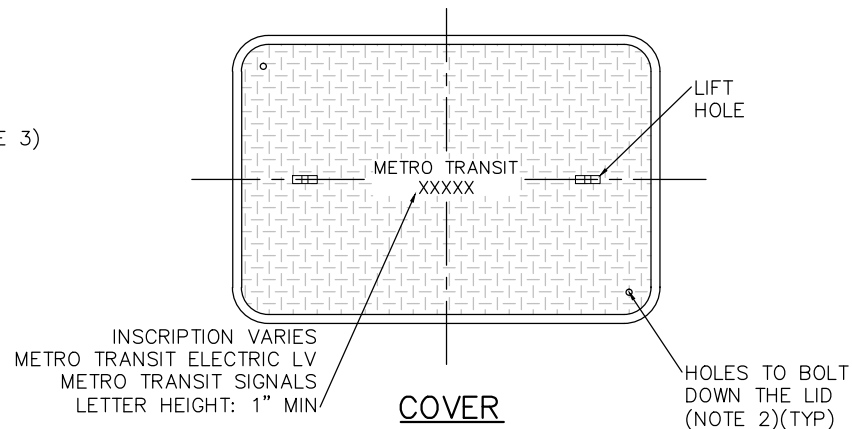
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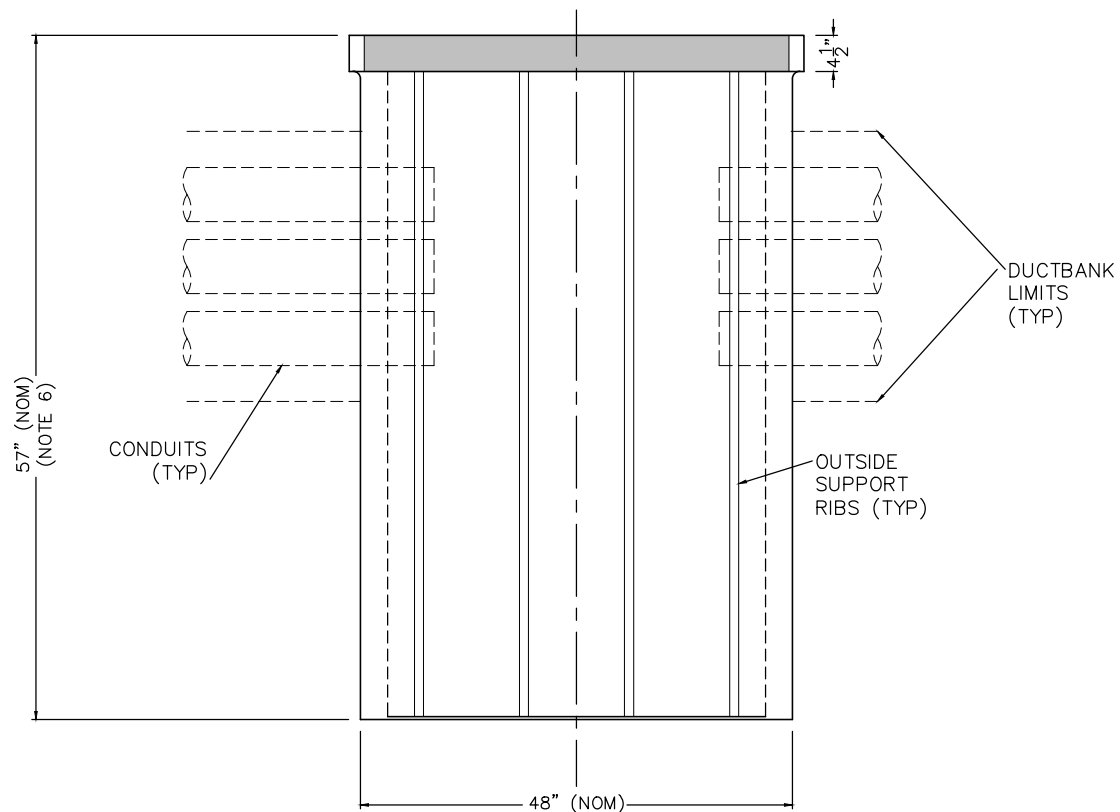
1 HANDHOLE TYPE SC PLAN
SCALE: NTS



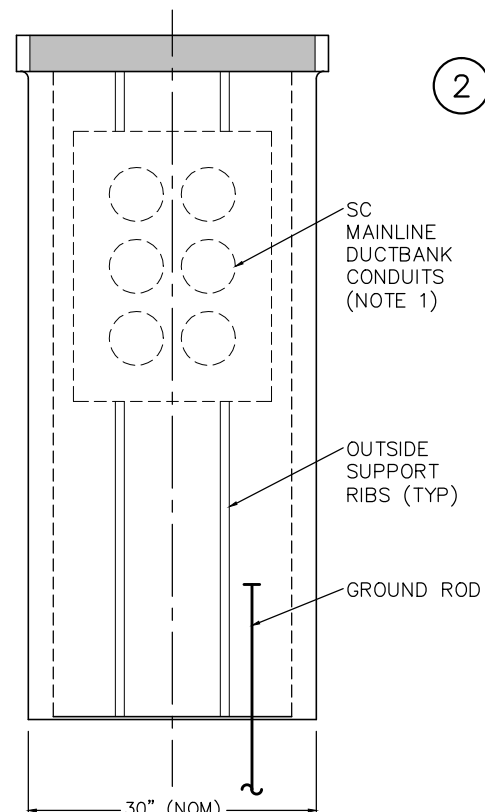
2 SC HANDHOLE TYPICAL INSTALLATION
SCALE: NTS

NOTES:

1. CONDUITS SHOWN ARE FOR EXAMPLE ONLY. ADDITIONAL CONDUITS MAY BE REQUIRED AS SHOWN ON THE PLAN SHEETS.
2. SEE SPECIFICATIONS REGARDING HOLD-DOWN BOLTS FOR COVERS.
3. CONDUITS SHALL EXTEND INTO THE HANDHOLE A MAXIMUM OF 1" FROM THE INSIDE WALL AND TERMINATE WITH BELL END FITTINGS.
4. INSTALL GROUND ROD CAUTIOUSLY TO AVOID DAMAGE TO POSSIBLE UTILITY INSTALLATIONS.
5. ADJUST CONDUIT ENTRY INTO THE HANDHOLE TO CREATE POSITIVE CONDUIT DRAINAGE AND TO ENTER CENTER OF HANDHOLE.
6. ADJUST DEPTH OF HANDHOLE TO ASSURE THAT COVER IS FLUSH WITH FINISHED GRADE. FOR LOCATIONS ON BRIDGES AND LAND BRIDGES TOP OF HANDHOLE IS TO BE AT THE SAME ELEVATION AS TOP OF RAIL.
7. LOCATE DRAIN HOLE ON LOWER END OF HANDHOLE AND PROVIDE STAINLESS STEEL SNAP-IN TYPE GRATE.
8. HANDHOLE MANUFACTURER IS SYNERTECH, MODEL NO. S3048C60FA OR APPROVED EQUAL.
9. SPECIAL HANDHOLE TYPES MAY BE REQUIRED FOR SOME LAYOUTS.
10. HANDHOLE OFFSET DIMENSION IS VARIABLE. FINAL PLACEMENT OF HANDHOLE SHALL ASSURE THAT HANDHOLE TOP DOES NOT CONFLICT WITH TRACK CONSTRUCTION.



A SECTION
SCALE: NTS



B SECTION
SCALE: NTS

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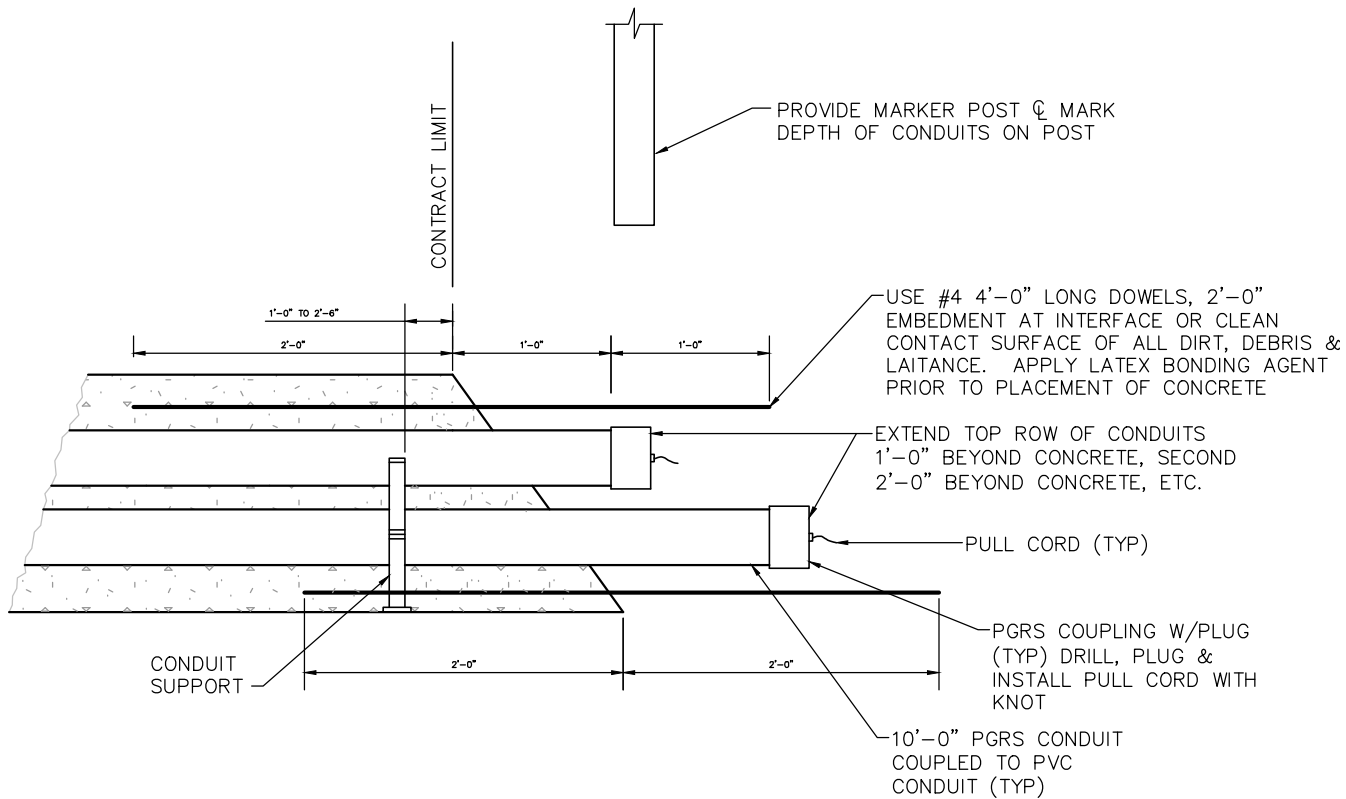
OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
DETAILS
SC HANDHOLE

DISCIPLINE:
SYSTEMS

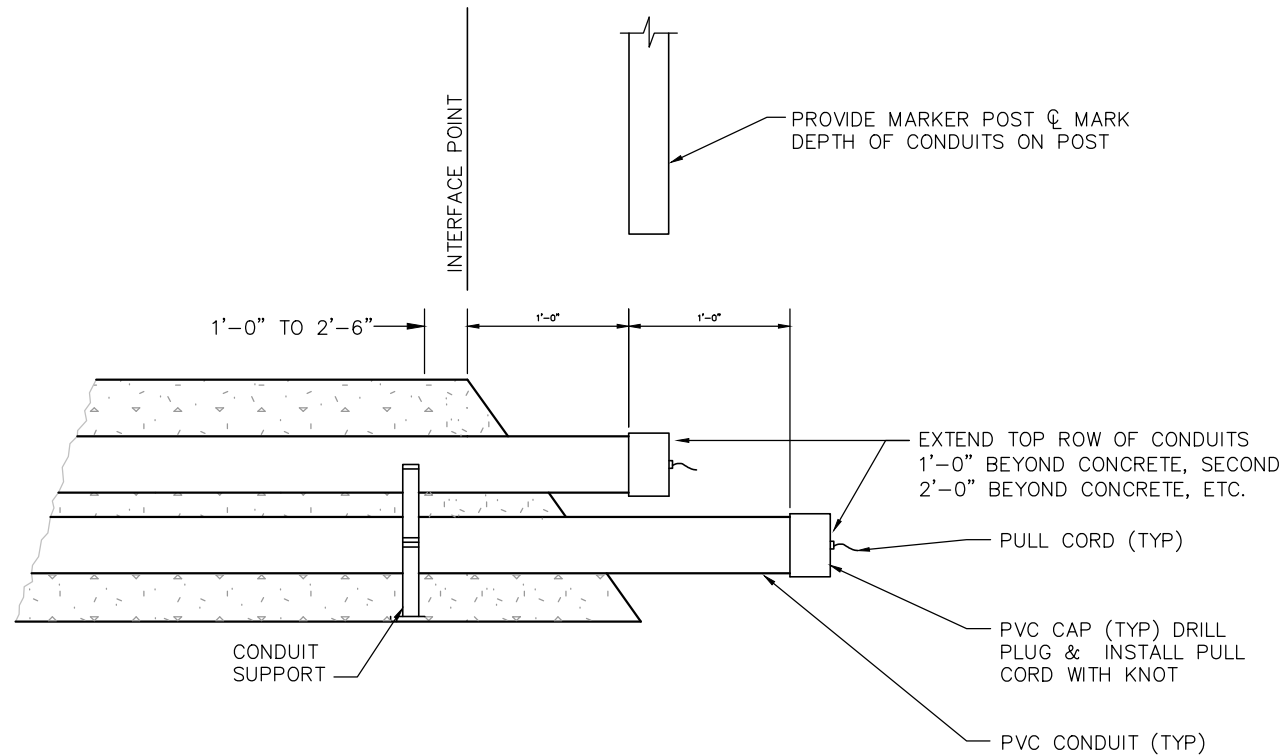
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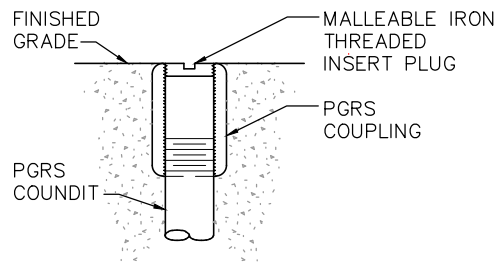
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1 TYPICAL DUCTBANK CONDUIT STUB-OUT AT CONTRACT LIMIT
SCALE: NTS



2 CONDUIT STUB-OUT AT INTERFACE
SCALE: NTS



3 FLUSH CONDUIT STUB-UP
SCALE: NTS

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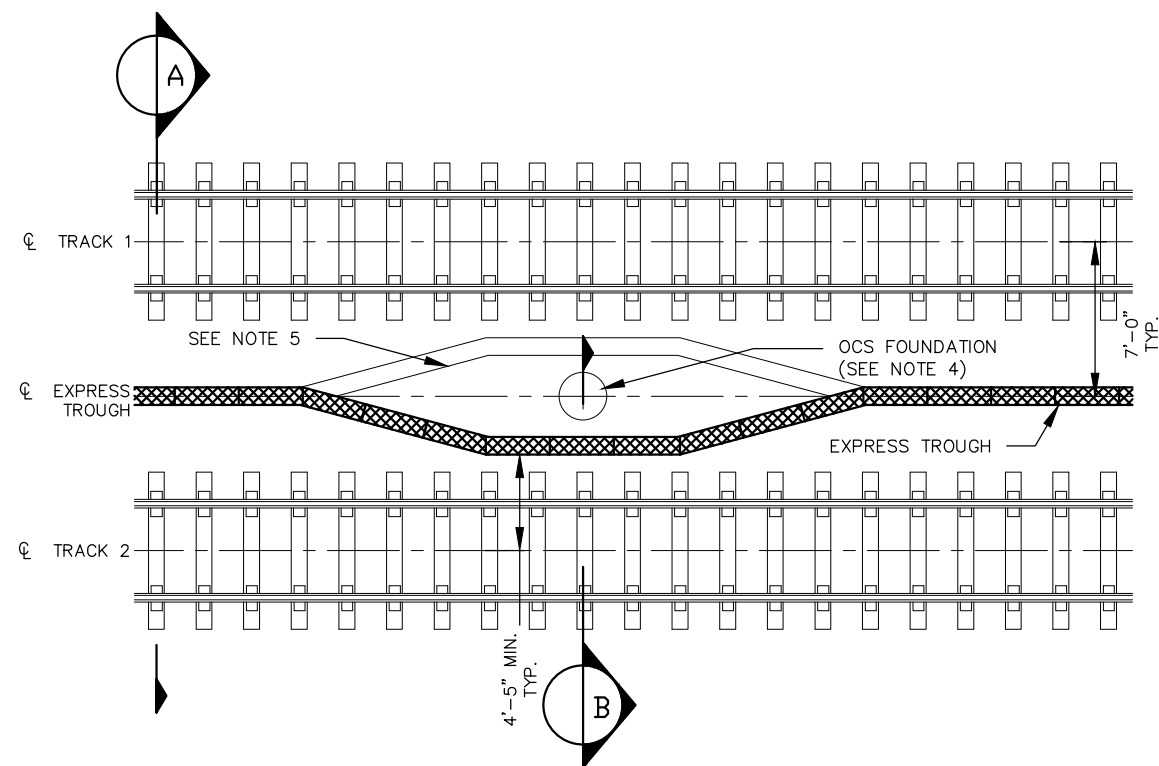


OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
DETAILS
CONDUIT STUB-OUT AND STUB-UP

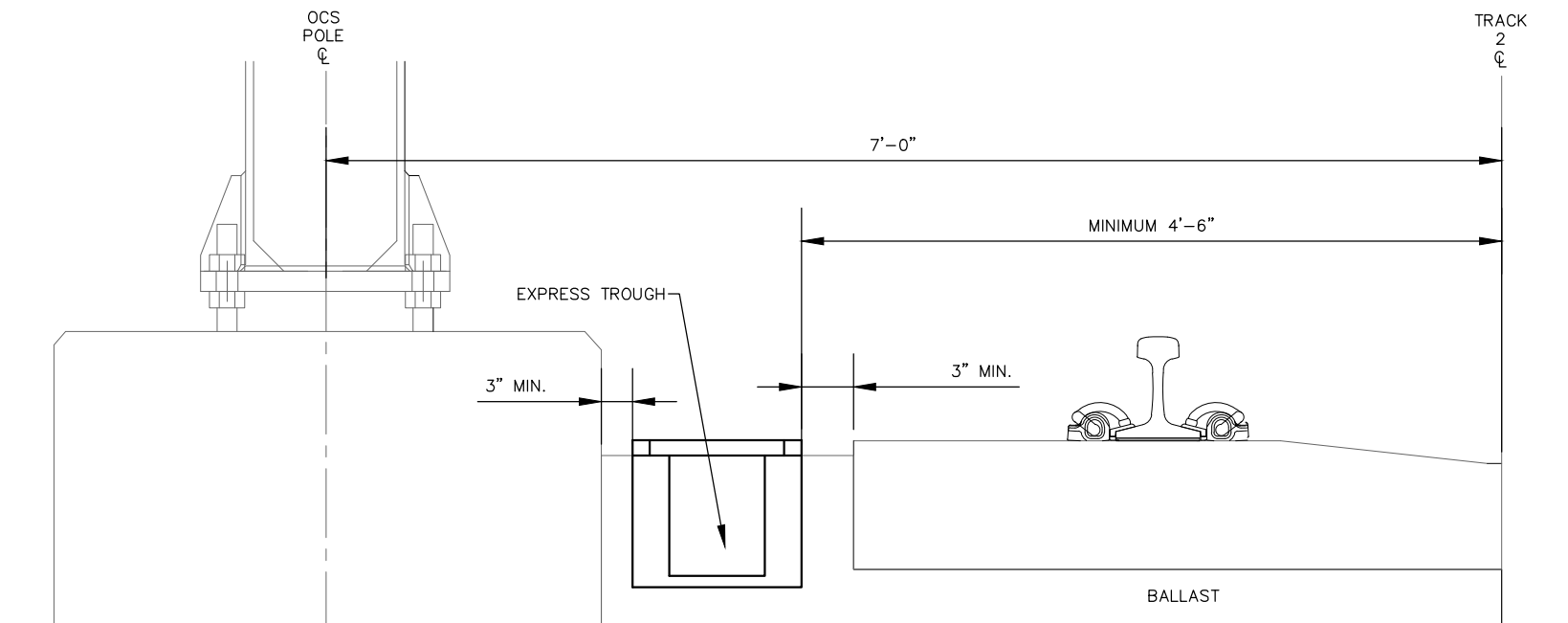
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SYSTEMS

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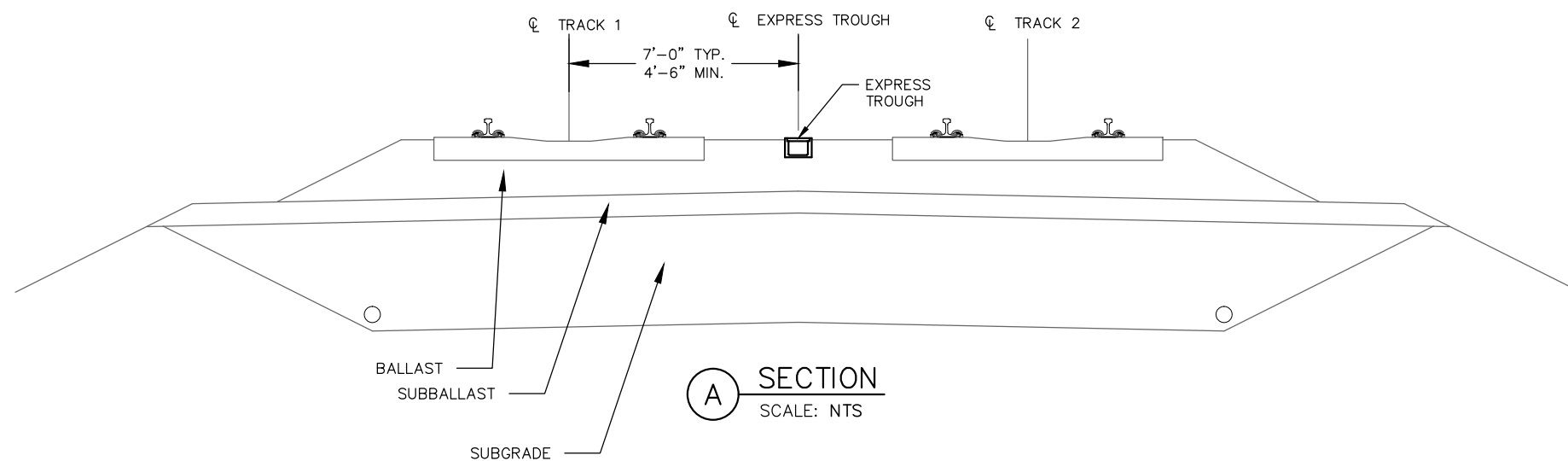
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91
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1 TYPICAL EXPRESS TROUGH LAYOUT



(B) TYPICAL EXPRESS TROUGH LAYOUT INSTALLATION
NTS



A SECTION
SCALE: NTS

- NOTES:

1. THE CONTRACTOR SHALL SECURE THE TROUGH IN-PLACE, SO THERE IS NO MOVEMENT WHILE THE BALLAST IS BEING LAYED AROUND THE TROUGH.
2. THE EXPRESS TROUGH SHALL BE INSTALLED 7 FEET OFF THE CENTERLINE OF THE TROUGH UNLESS NOTED OTHERWISE. AT OCS AND SIGNAL FOUNDATIONS OR OTHER STRUCTURE, THE CONTRACTOR SHALL OFFSET THE TROUGH SECTIONS IN EQUAL INCREMENTS TOWARD THE TRACK SO THAT THE TROUGH WILL PASS THE OCS FOUNDATION AT 4'-5" FROM THE CENTERLINE OF THE TRACK TO THE CLOSEST EDGE OF THE TROUGH. (SEE TYPICAL EXPRESS TROUGH LAYOUT INSTALLATION DETAIL 1).
3. THE CONTRACTOR SHALL INSTALL THE TROUGH TO INTERSECT THE MANHOLE AT A 90° ANGLE.
4. THE DISTANCE BETWEEN THE EDGE OF THE TIE AND THE OCS FOUNDATION WILL VARY DUE TO THE SIZING AND OFFSET OF THE FOUNDATION FOR THE OCS POLES.
5. BASED ON VERIFIED FIELD CONDITIONS, THE CONTRACTOR SHALL DETERMINE ON WHICH SIDE OF THE OCS FOUNDATION TO INSTALL EXPRESS TROUGH.

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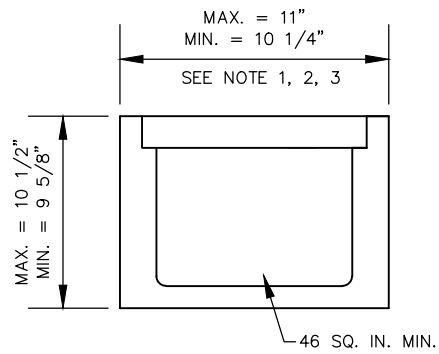
OPERATIONS & MAINTENANCE FACILITY - V1 SYSTEMWIDE ELECTRICAL DETAILS EXPRESS TROUGH INSTALLATION SHEET 1		S
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DISCIPLINE: **SYSTEMS**

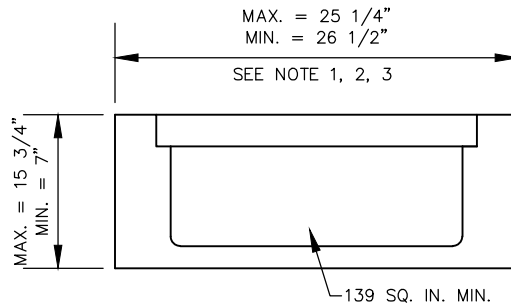
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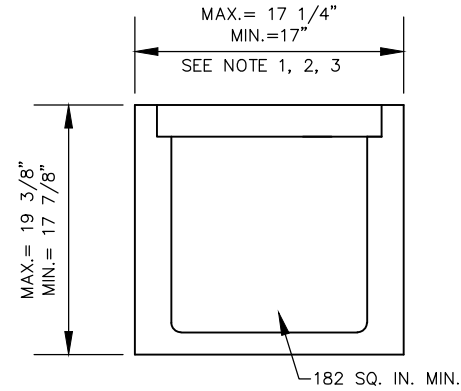
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1 TYPE I
EXPRESS TROUGH
SCALE: NTS



2 TYPE II
EXPRESS TROUGH
SCALE: NTS



3 TYPE III
EXPRESS TROUGH
SCALE: NTS

- NOTES:
1. THE CONTRACTOR SHALL SECURE THE TROUGH IN-PLACE, SO THERE IS NO MOVEMENT WHILE THE BALLAST IS BEING LAYED AROUND THE TROUGH.
 2. THE EXPRESS TROUGH SHALL BE INSTALLED 7 FEET OFF THE CENTERLINE OF THE TROUGH UNLESS NOTED OTHERWISE. AT OCS AND SIGNAL FOUNDATIONS OR OTHER STRUCTURE, THE CONTRACTOR SHALL OFFSET THE TROUGH SECTIONS IN EQUAL INCREMENTS TOWARD THE TRACK SO THAT THE TROUGH WILL PASS THE OCS FOUNDATION AT 4'-5" FROM THE CENTERLINE OF THE TRACK TO THE CLOSEST EDGE OF THE TROUGH. (SEE TYPICAL EXPRESS TROUGH LAYOUT INSTALLATION DETAIL 1).
 3. THE CONTRACTOR SHALL INSTALL THE TROUGH TO INTERSECT THE MANHOLE AT A 90° ANGLE.
 4. THE DISTANCE BETWEEN THE EDGE OF THE TIE AND THE OCS FOUNDATION WILL VARY DUE TO THE SIZING AND OFFSET OF THE FOUNDATION FOR THE OCS POLES.
 5. BASED ON VERIFIED FIELD CONDITIONS, THE CONTRACTOR SHALL DETERMINE ON WHICH SIDE OF THE OCS FOUNDATION TO INSTALL EXPRESS TROUGH.

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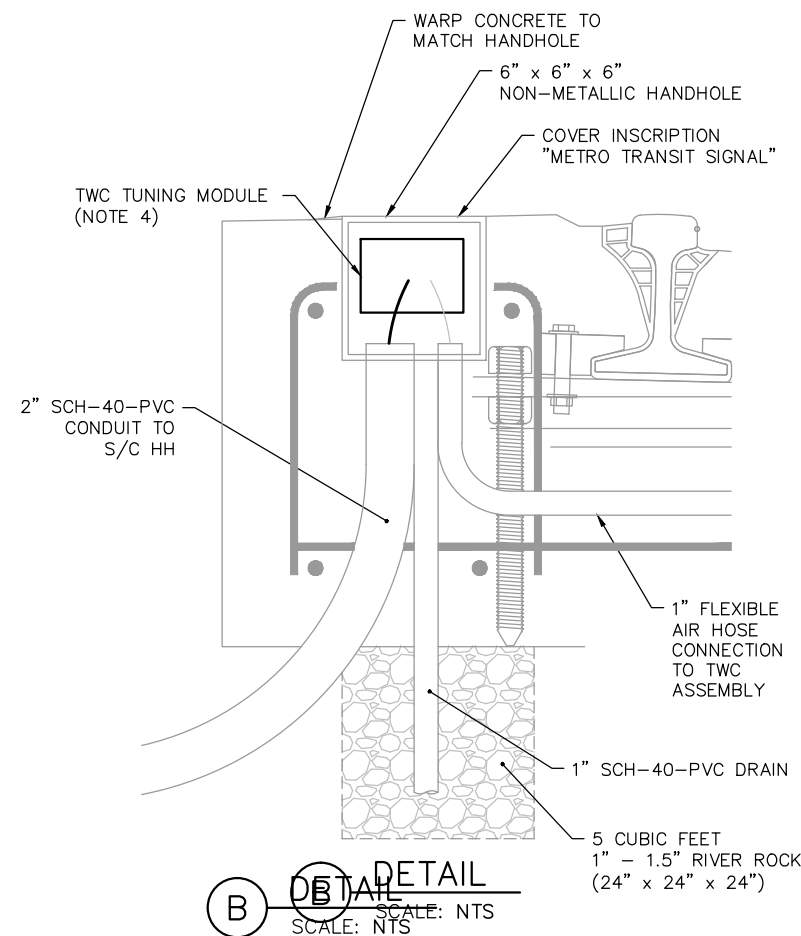
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OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
DETAILS
EXPRESS TROUGH INSTALLATION SHEET 2

DISCIPLINE: SYSTEMS

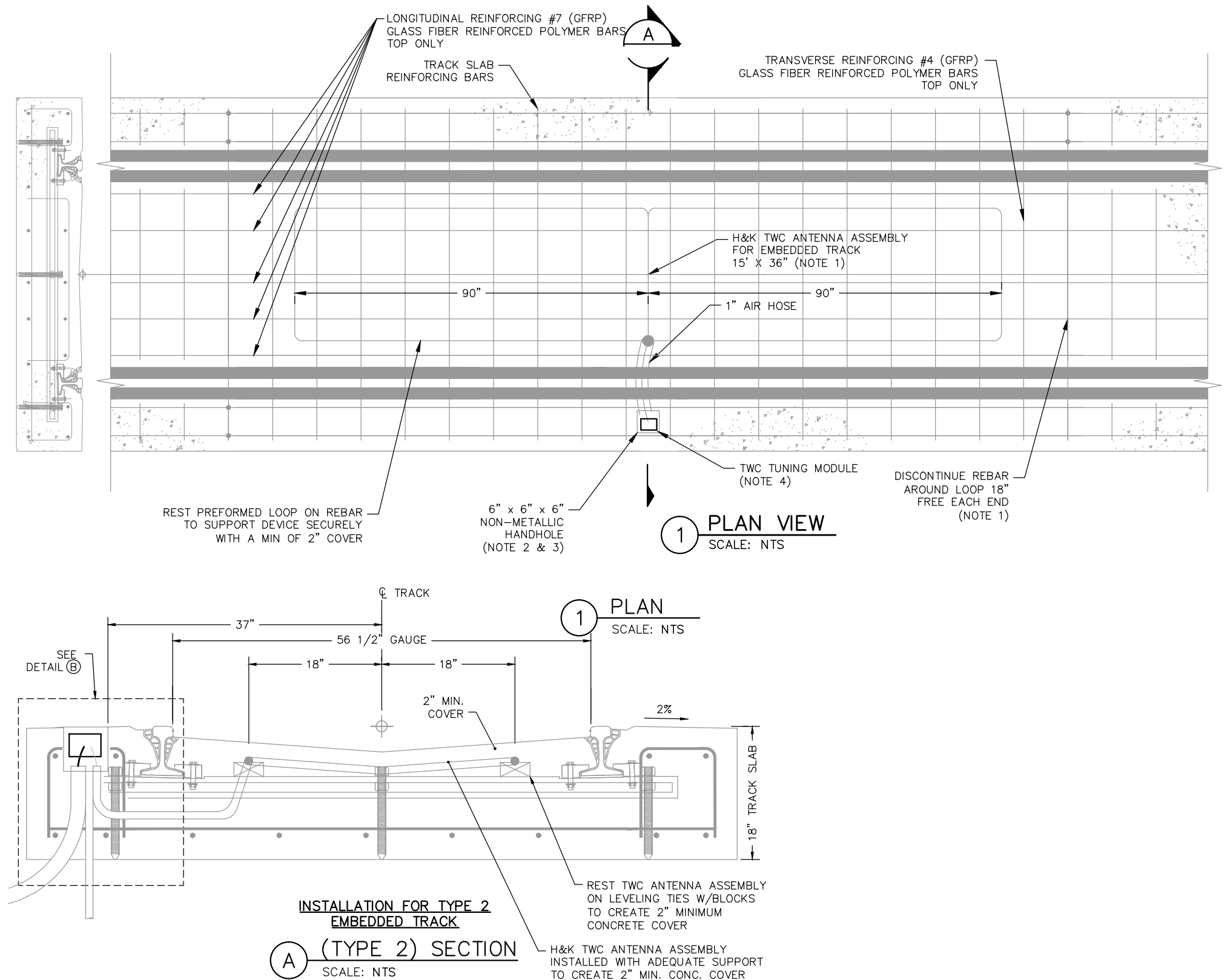
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NOTES:

1. FACTORY MADE LOOP IS AN H & K P/N 4.930.013. THIS DEVICE MAY REQUIRE ADDITIONAL SUPPORT TO HOLD SHAPE AND POSITION DURING CONCRETE INSTALLATION
2. PLACE HANDHOLE PULL BOX ON THE FIELD SIDE OF TRACK SLAB FOR COORDINATION WITH THE NEAREST SWE HH LOCATION
3. HANDHOLE IS LOCATED AS A PULL BOX AND A LOCATION FOR TWC TUNING MODULE. NO GROUNDING OR TERMINALS ARE REQUIRED



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BRINCKERHOFF**



SOUTHWEST
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**OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
TWC ANTENNA
EMBEDDED TRACK INSTALLATION**

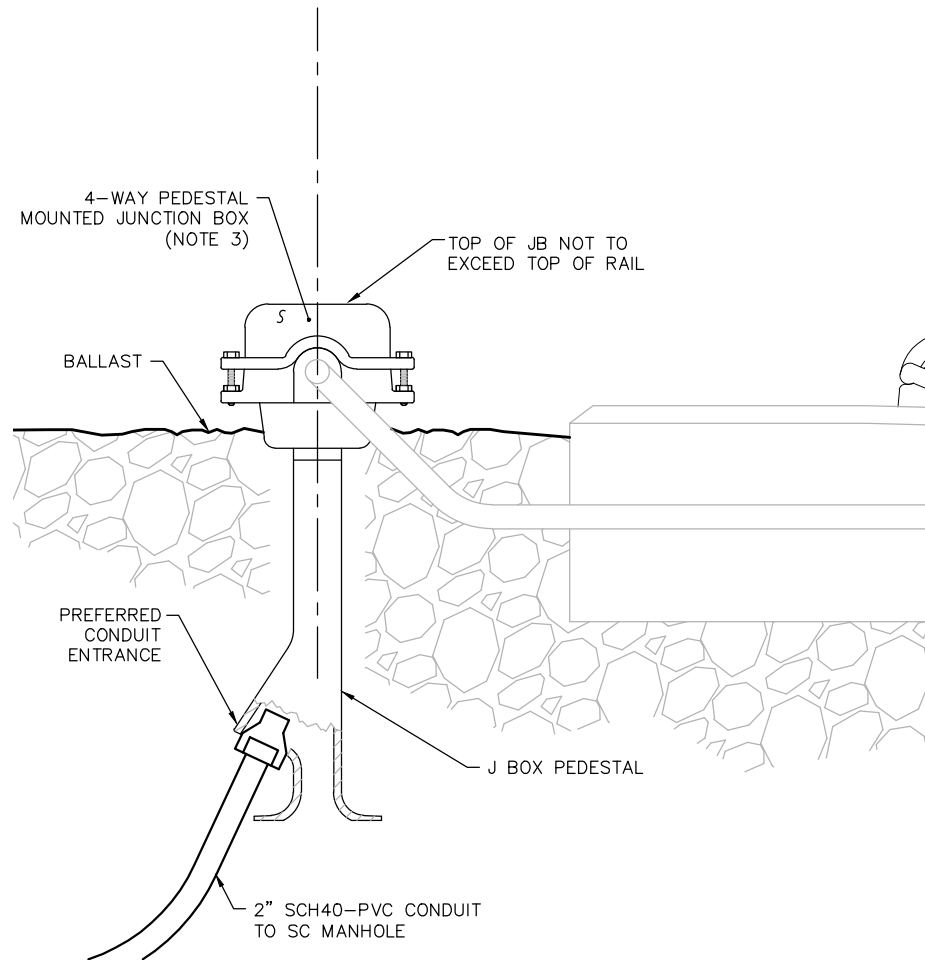
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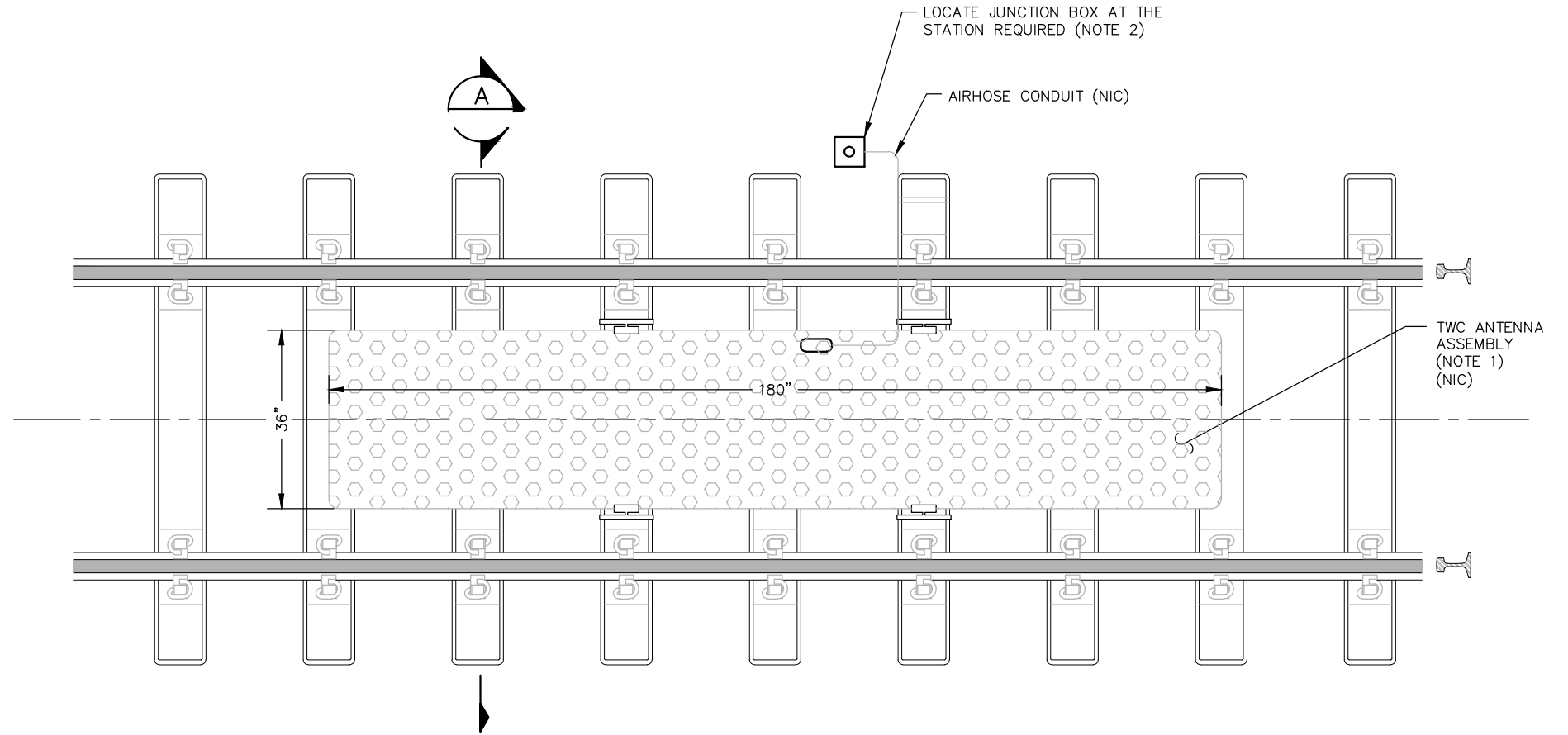
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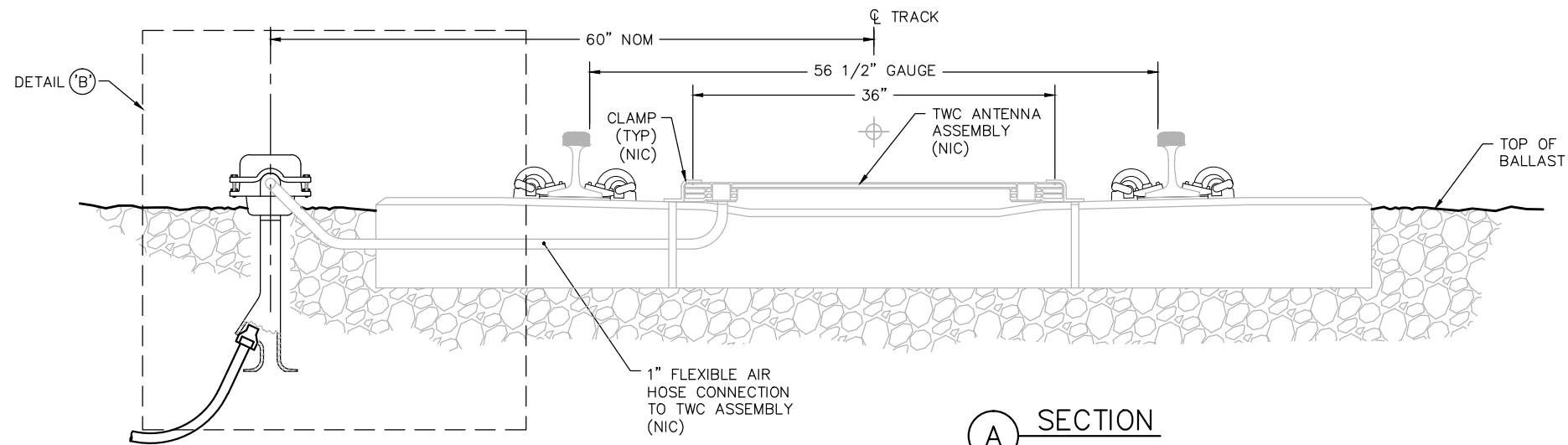
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B DETAIL
SCALE: NTS



1 PLAN
SCALE: NTS



A SECTION
SCALE: NTS

NOTES:

1. FOR BALLASTED TRACK, ALL TWC DEVICES ARE SHOWN FOR REFERENCE ONLY. ONLY CONDUIT & JUNCTION BOX ARE INCLUDED IN THIS CONTRACT
2. PLACE JUNCTION BOX ON THE FIELD SIDE OF TRACK FOR COORDINATION WITH THE NEAREST SC HH LOCATION
3. JUNCTION BOX IS LOCATED AS A PULL BOX AND A LOCATION FOR TWC TUNING MODULE. NO GROUNDING OR TERMINALS ARE REQUIRED

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Green Line LRT Extension



**OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
TWC ANTENNA
BALLASTED TRACK INSTALLATION**

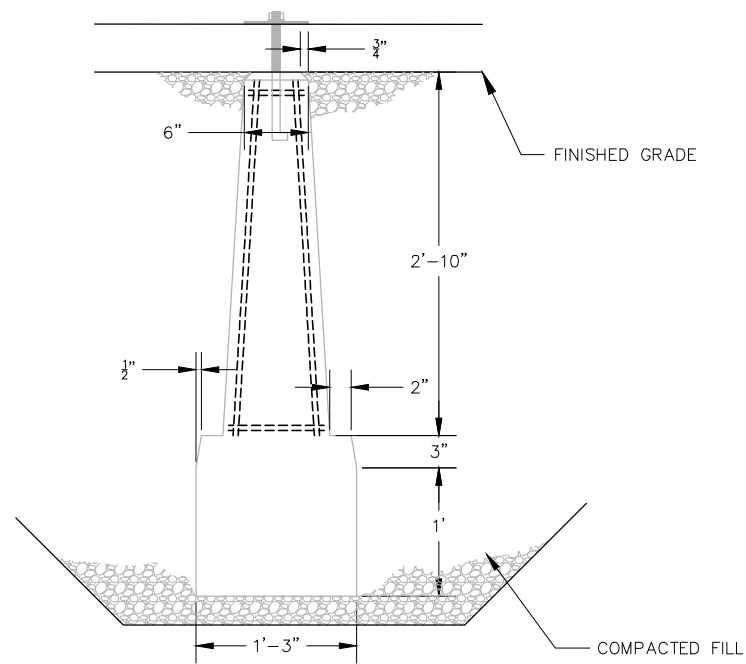
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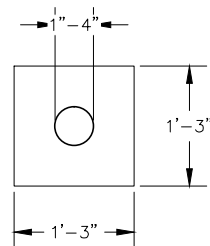
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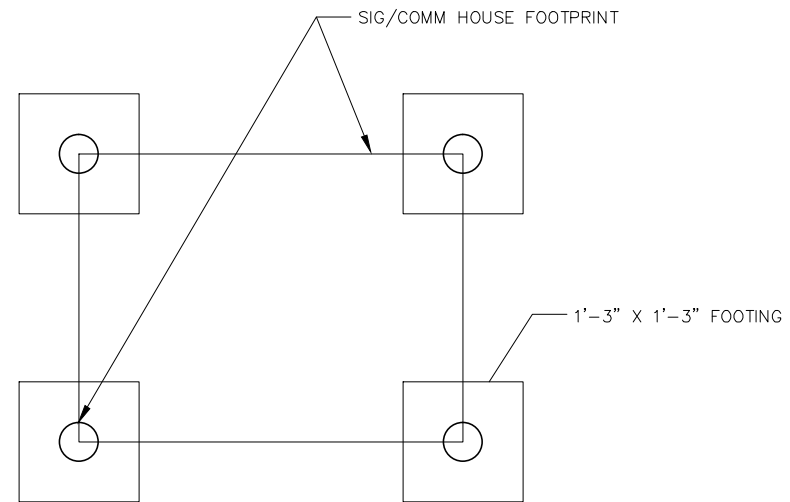
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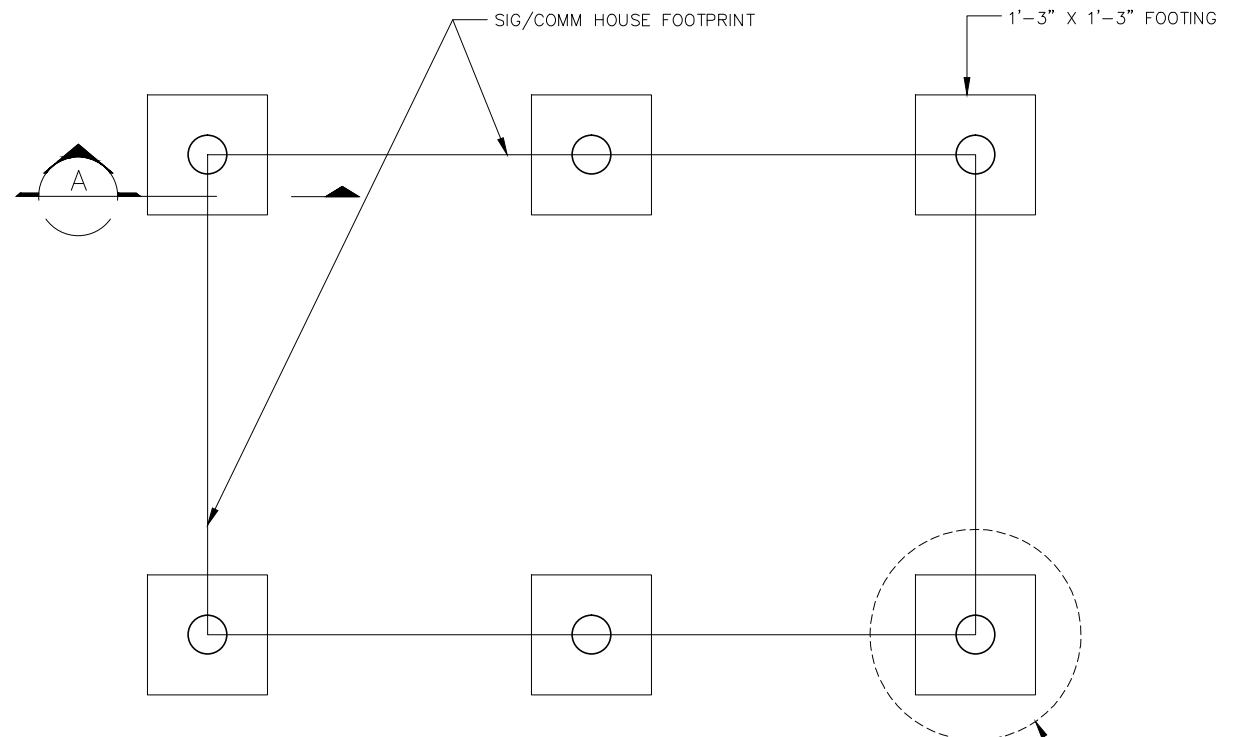
1 SECTION A-A
SCALE: NTS



3 DETAIL-1
SCALE: NTS



2 FOUNDATION PLAN
6'x8' SIGNAL ENCLOSURE
SCALE: NTS



4 FOUNDATION PLAN
10'x16' SIGNAL ENCLOSURE
SCALE: NTS

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OPERATIONS & MAINTENANCE FACILITY - V1

SYSTEMWIDE ELECTRICAL

SIGNAL HOUSE TYPICAL FOUNDATION

INSTALLATION PAGE 1 OF 2

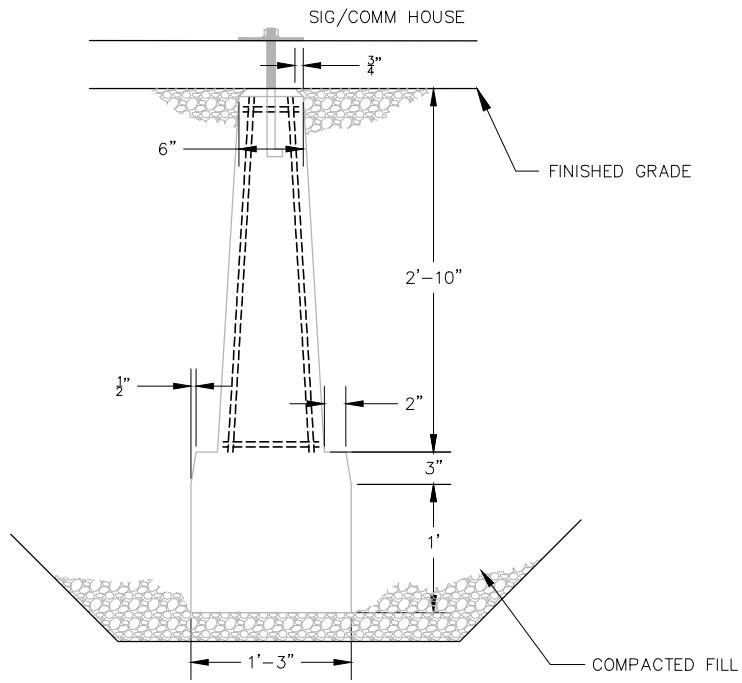
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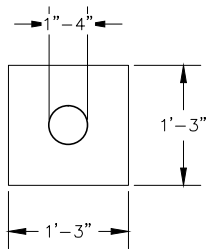
SHEET 96

OF 114

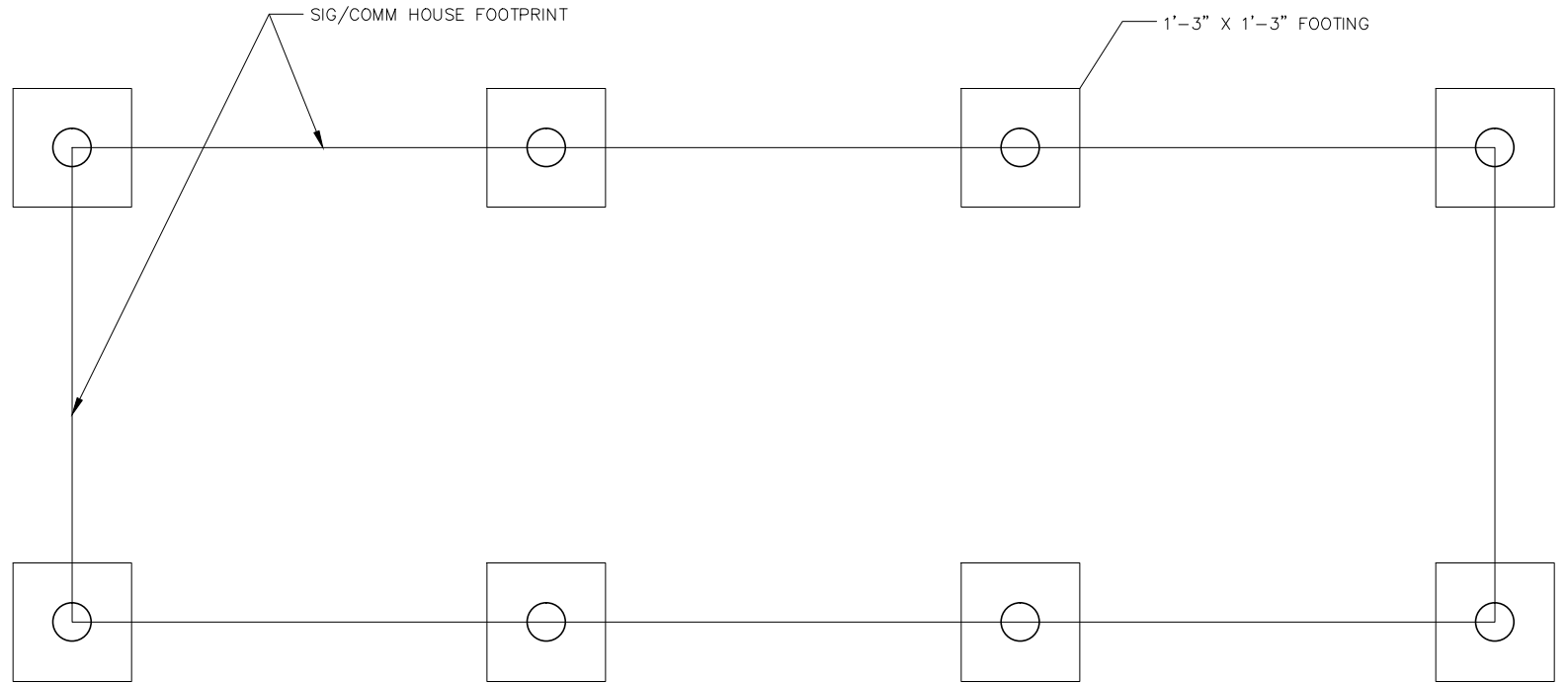
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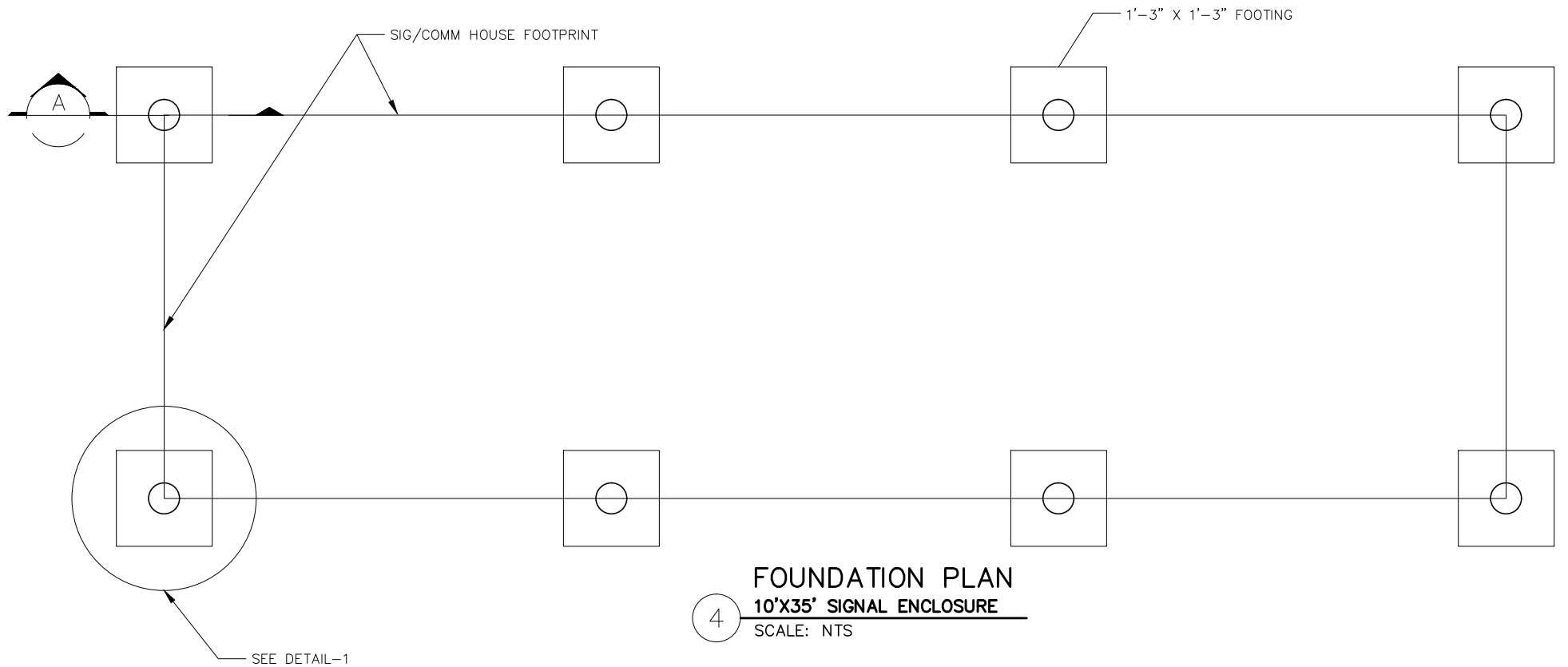
1 SECTION A-A
SCALE: NTS



3 DETAIL-1
SCALE: NTS



2 FOUNDATION PLAN
10'X30' SIGNAL ENCLOSURE
SCALE: NTS



4 FOUNDATION PLAN
10'X35' SIGNAL ENCLOSURE
SCALE: NTS

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BRINCKERHOFF**



SOUTHWEST
Green Line LRT Extension



**OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
SIGNAL HOUSE TYPICAL FOUNDATION
INSTALLATION PAGE 2 OF 2**

DISCIPLINE:
SYSTEMS

SHEET NAME:
OMF-SYS-SWE-DTL-012

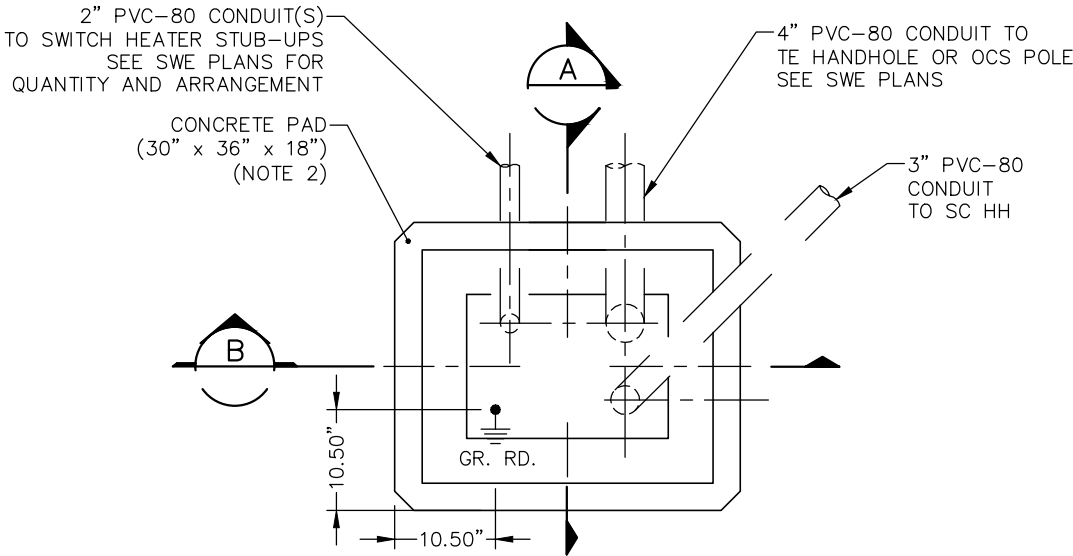
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60% SUBMISSION - 09/28/2015

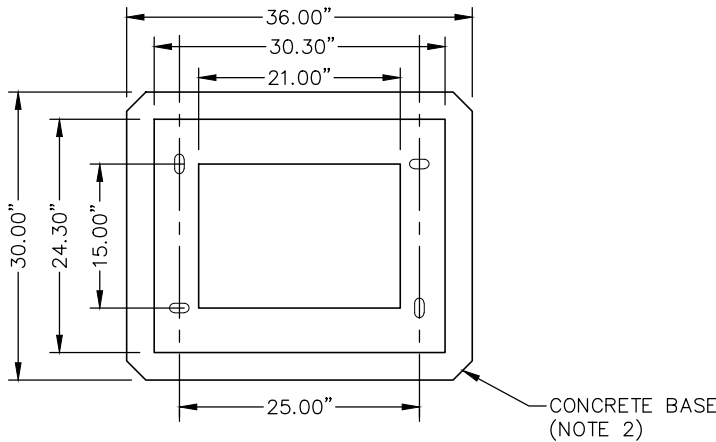
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NOTES:

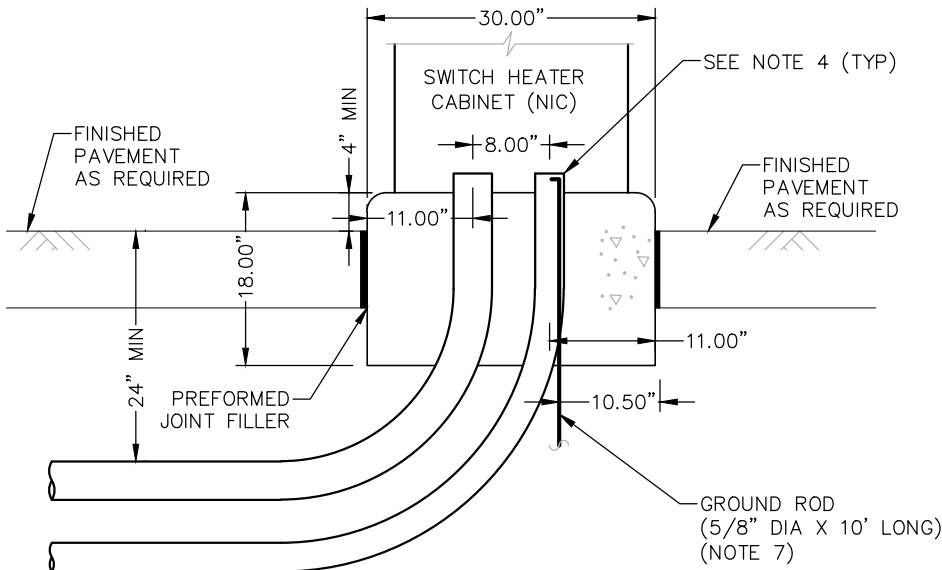
1. THE ANCHOR BOLTS, NUTS AND WASHERS FOR THE CONTROLLER CABINET SHALL BE FURNISHED ACCORDING TO THE CABINET MFGR SPECIFICATIONS. ANCHOR BOLTS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) (NIC)
2. THE UPPER PART OF THE EQUIPMENT PAD SHALL BE BEVELED OR CHAMFERED IN A NEAT MANNER
3. THE TOP OF THE CONDUITS SHALL BE CAPPED AFTER INSTALLATION.
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE THE CONCRETE AND SHALL BE LOCATED INSIDE THE CABINET AS NECESSARY AND SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.) OR WITH THE BASE DIMENSIONS OF THE CABINET.
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD IN ACCORDANCE WITH Mn/DOT STANDARD CONCRETE DESIGNS.
6. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED IN THE FIELD, AND WILL PROJECT ENTIRELY WITHIN THE BASE OPENING OF THE CABINET.
7. ATTACH TO GROUND ROD TO INTERNAL GROUND LUG WITH #2/0 GROUNDING CONDUCTOR FOR FOUNDATIONS LESS THAN 15' FROM $\varnothing$ TRACK. USE #6 BARE COPPER GROUNDING CONDUCTOR FOR FOUNDATIONS BEYOND 15' FROM $\varnothing$ TRACK. (NIC)
8. USE AN ADEQUATE POST-INSTALLED CHEMICAL SET ANCHOR BOLT OF A DESIGN SUBMITTED FOR APPROVAL. (NIC)



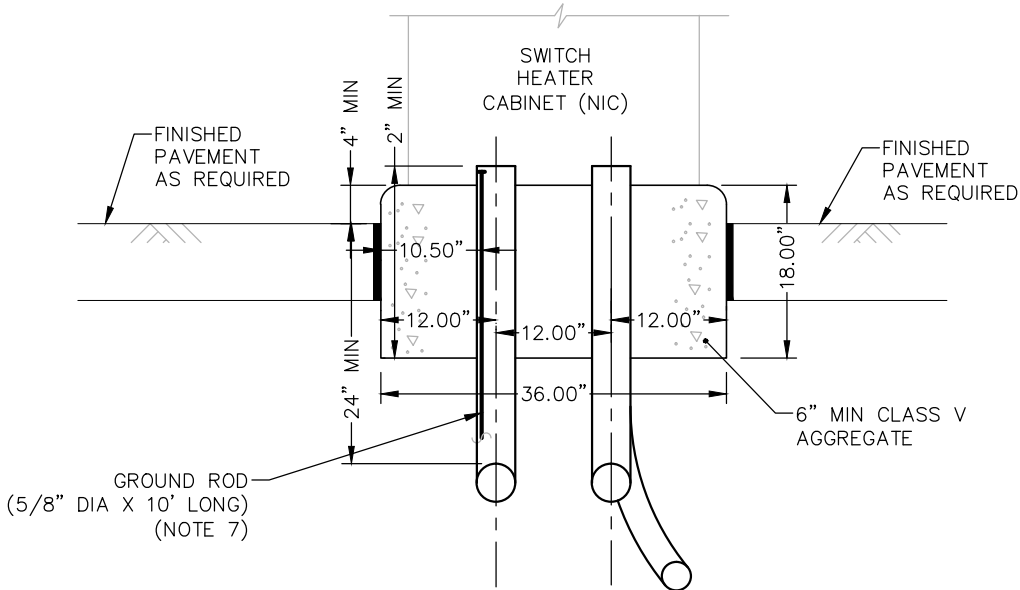
1 FOUNDATION PLAN
SCALE: NTS



2 SWITCH HEATER CONTROLLER CABINET BASE DETAIL
SCALE: NTS



A SECTION
SCALE: NTS



B SECTION
SCALE: NTS

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PARSONS
BRINCKERHOFF

METROPOLITAN
COUNCIL

SOUTHWEST
Green Line LRT Extension

OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
SWITCH HEATER CASE
TYPICAL FOUNDATION INSTALLATION

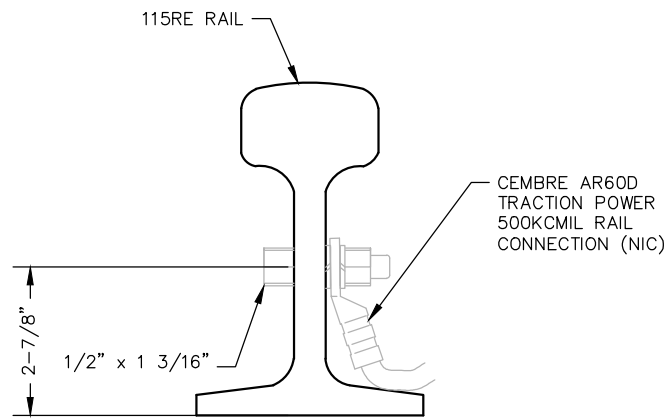
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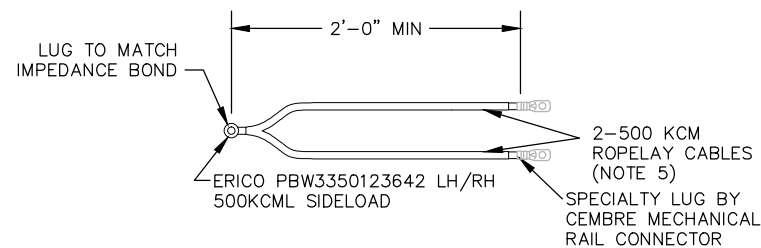
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60% SUBMISSION - 09/28/2015

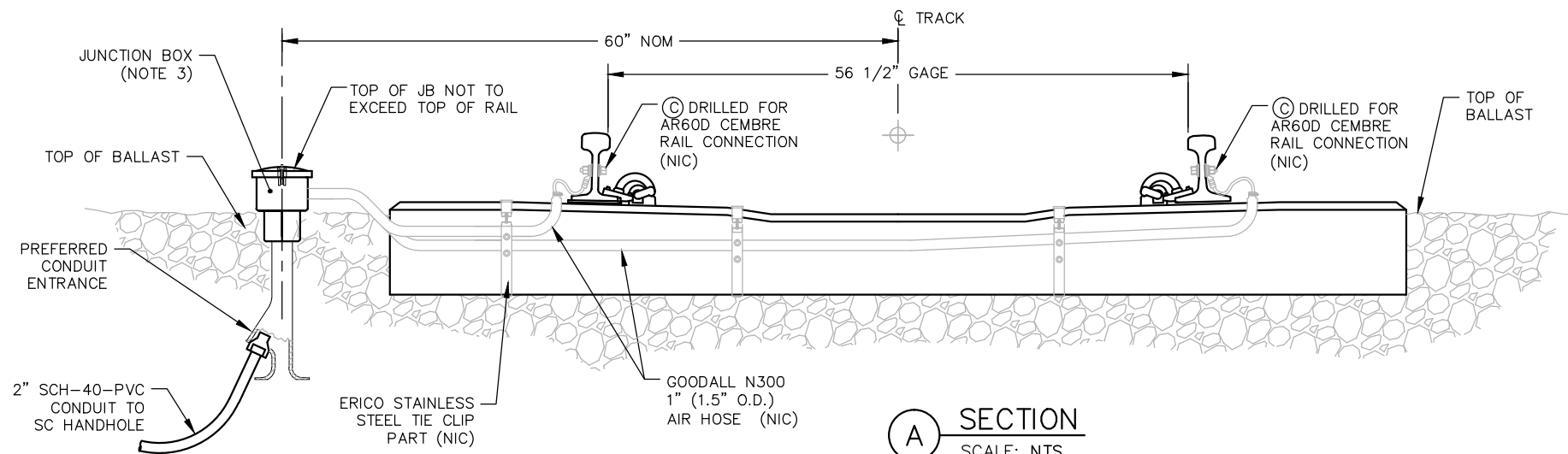
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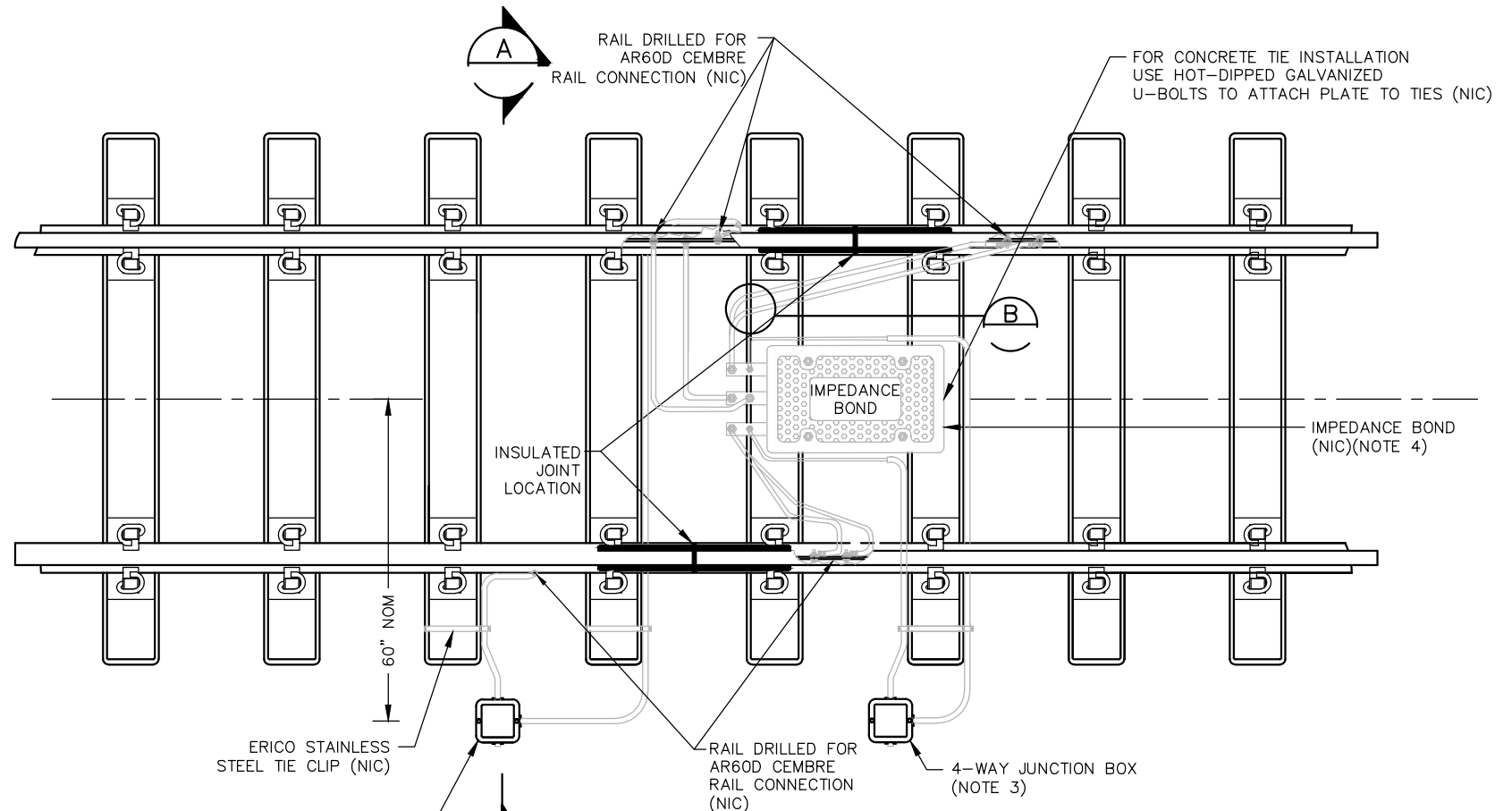
C SECTION (NIC)
SCALE: NTS



B DEVICE DETAIL (NIC)
SCALE: NTS



A SECTION
SCALE: NTS



1 PLAN VIEW
SCALE: NTS

NOTES:

1. USE THIS DETAIL FOR BALLASTED TRACK BOND INSTALLATIONS WHERE DOUBLE RAIL TRACK CIRCUITS ARE ADJACENT TO SINGLE RAIL AC TRACK CIRCUITS.
2. PLACE PEDESTAL MOUNTED JUNCTION BOX ON THE FIELD SIDE OF TRACK FOR COORDINATION WITH DUCT BANK OR THE NEAREST HANDHOLE LOCATION.
3. PEDESTAL MOUNTED JUNCTION BOX SHALL BE WESTERN CULLEN HAYES 1155 OR APPROVED EQUAL.
4. NUTS, BOLTS AND WASHERS USED FOR CONNECTIONS TO THE IMPEDANCE BOND LUGS SHALL BE BRASS. (NIC)
5. CABLES SHALL BE ALL "ROPE LAY". TRACTION POWER CABLES SHALL BE INSULATED WITH RATING OF 2KV. (NIC)
6. PLACEMENT OF 500 KCML CABLES SHALL NOT INTERFERE WITH NORMAL TRACK TAMPING OPERATION.
7. SUFFICIENT SLACK SHALL BE PROVIDED IN CROSS BONDING CABLES TO PREVENT STRESS AT CONNECTIONS AND "BIRD CAGING", TWISTING OR OTHERWISE DAMAGING THE CABLES.
8. LOCAL CONDUIT SHALL BE NON-METALLIC, U.V. RESISTANT, LIQUID-TIGHT CONDUIT, BLACK OR GRAY PVC JACKET (UV RESISTANT) WITH REINFORCED NYLON BRAID WITH STRAIN RELIEF FITTING WHERE POSSIBLE OR AIR HOSE WITH NIPPLE CONNECTION TO JUNCTION BOX. (NIC)

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

AECOM

**PARSONS
BRINCKERHOFF**



SOUTHWEST
Green Line LRT Extension



OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
SINGLE IMPEDANCE BOND
BALLASTED TRACK INSTALLATION

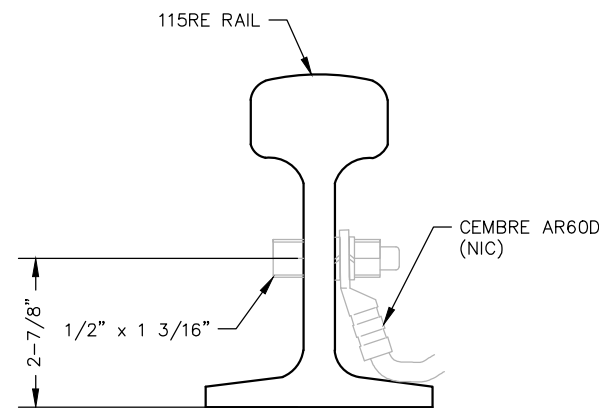
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SHEET NAME: **OMF-SYS-SWE-DTL-014**

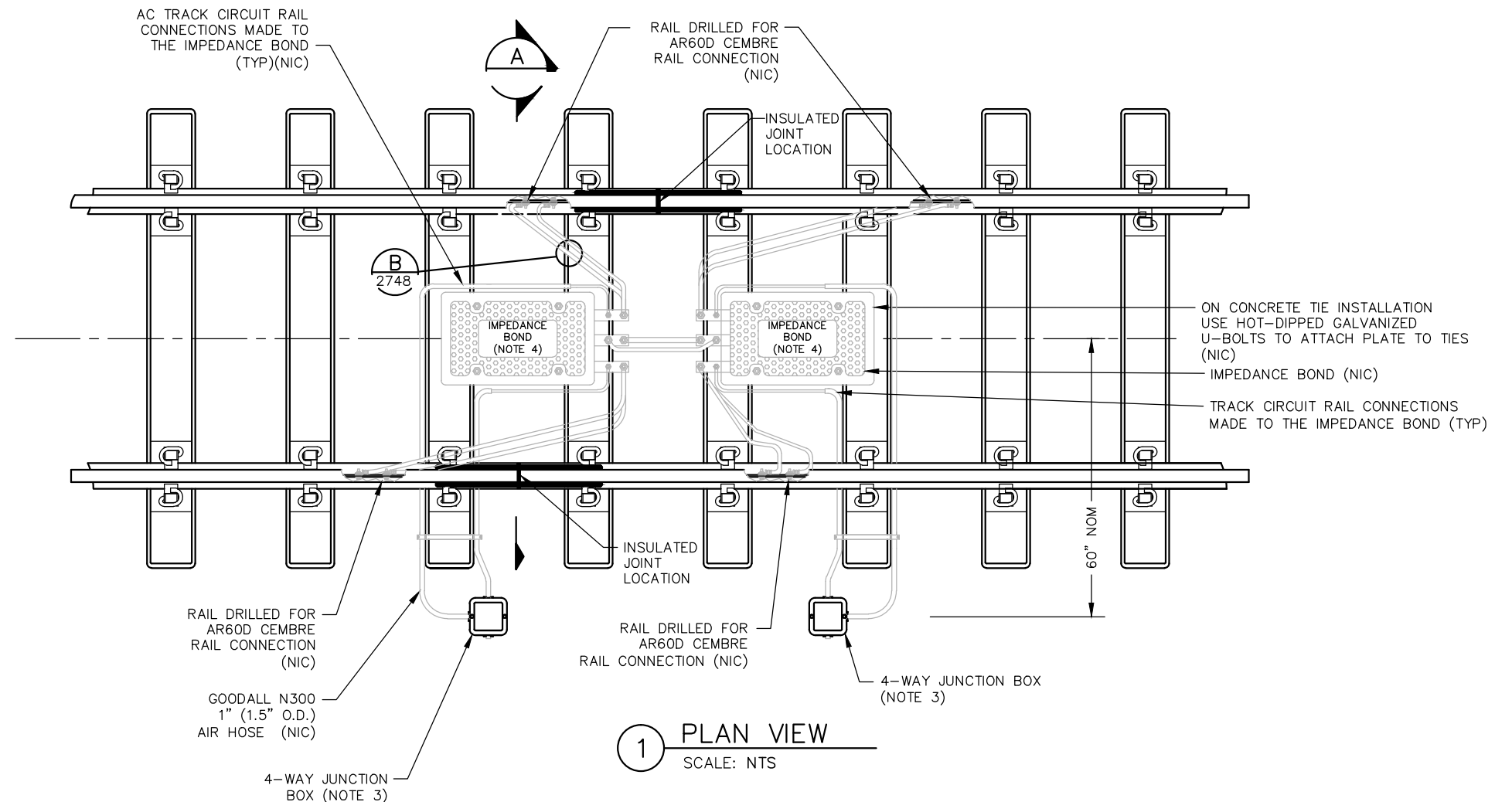
SHEET
99
OF
114

60% SUBMISSION - 09/28/2015

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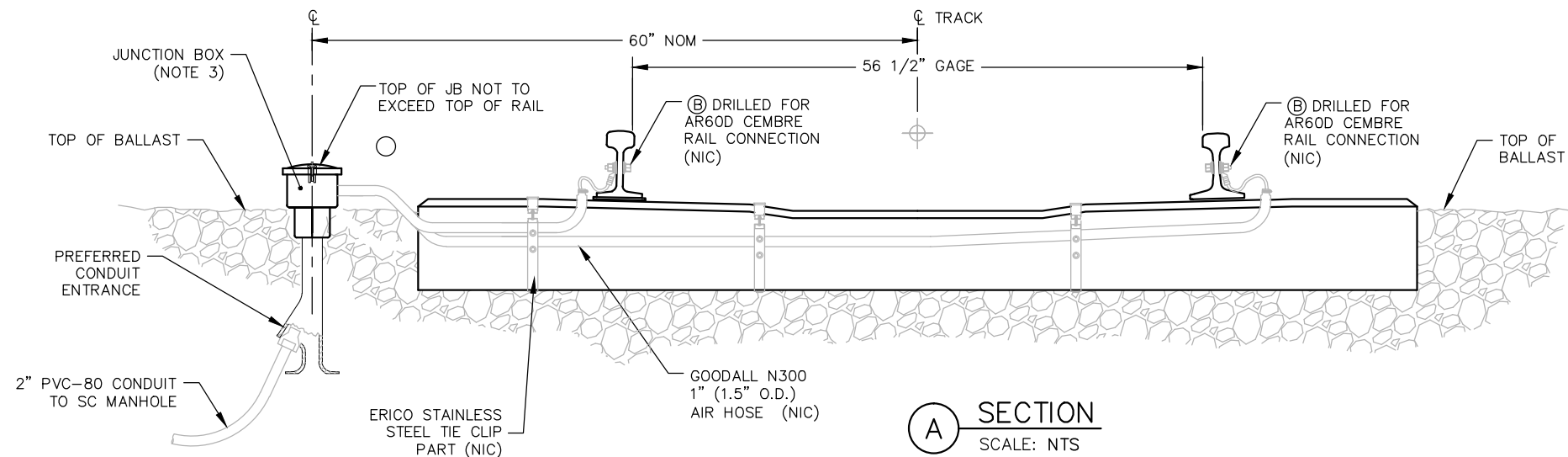
B SECTION (NIC)
SCALE: NTS



1 PLAN VIEW
SCALE: NTS

NOTES:

1. USE THIS DETAIL FOR BALLASTED TRACK BOND INSTALLATIONS WHERE DOUBLE RAIL TRACK CIRCUITS ARE ADJACENT TO DOUBLE RAIL TRACK CIRCUITS SEPARATED BY DOUBLE, STAGGERED INSULATED JOINTS.
2. PLACE PEDESTAL MOUNTED JUNCTION BOXES ON THE FIELD SIDE OF TRACK FOR COORDINATION WITH DUCT BANK OR THE NEAREST SWE HH LOCATION.
3. PEDESTAL MOUNTED JUNCTION BOX SHALL BE WESTERN CULLEN HAYES 1155 OR APPROVED EQUAL.
4. NUTS, BOLTS AND WASHERS USED FOR CONNECTIONS TO THE IMPEDANCE BOND LUGS SHALL BE BRASS. (NIC)
5. CABLES SHALL BE ALL "ROPE LAY". TRACTION POWER CABLES SHALL BE INSULATED WITH RATING OF 2KV. (NIC)
6. PLACEMENT OF 500 KCMIL CABLES SHALL NOT INTERFERE WITH NORMAL TRACK TAMPING OPERATION.
7. SUFFICIENT SLACK SHALL BE PROVIDED IN CROSS BONDING CABLES TO PREVENT STRESS AT CONNECTIONS AND "BIRD CAGING", TWISTING OR OTHERWISE DAMAGING THE CABLES.
8. LOCAL CONDUIT SHALL BE NON-METALLIC, U.V. RESISTANT, LIQUID-TIGHT CONDUIT, BLACK OR GRAY PVC JACKET (UV RESISTANT) WITH REINFORCED NYLON BRAID WITH STRAIN RELIEF FITTING WHERE POSSIBLE. (NIC)



A SECTION
SCALE: NTS

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SOUTHWEST
Green Line LRT Extension



60% SUBMISSION - 09/28/2015

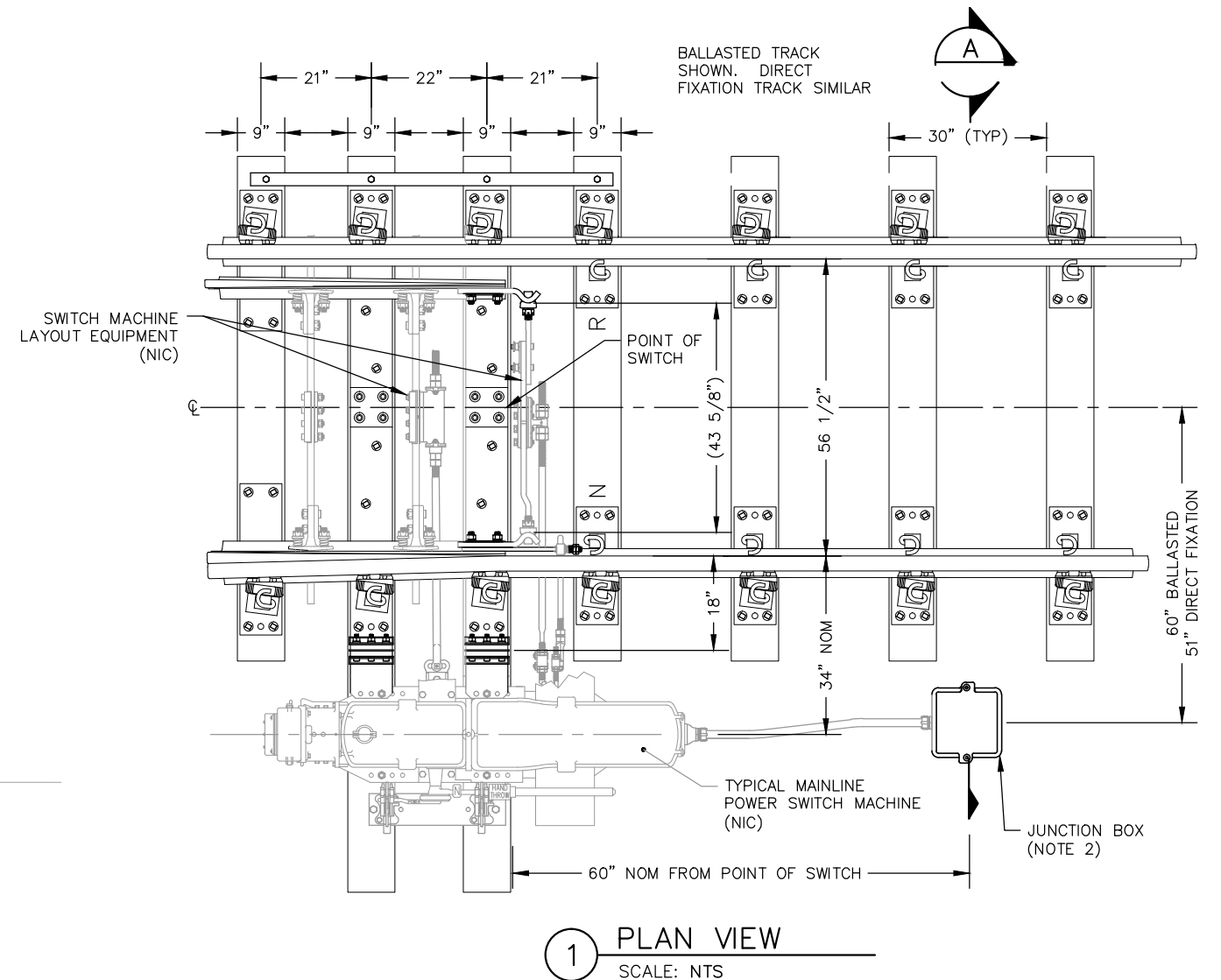
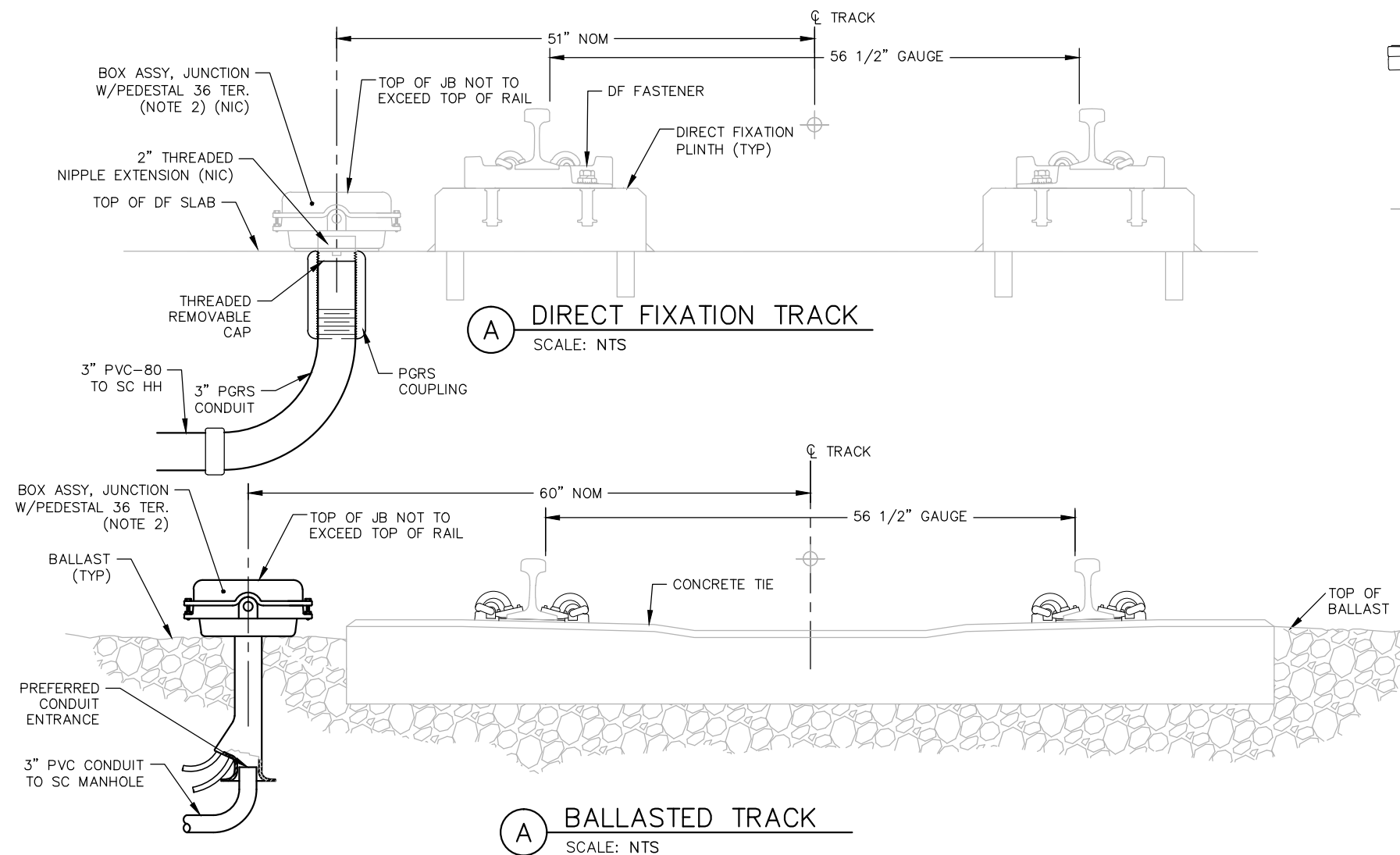
OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
DOUBLE IMPEDANCE BOND
BALLASTED TRACK INSTALLATION

DISCIPLINE:
SYSTEMS

SHEET NAME:
OMF-SYS-SWE-DTL-015

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NOTES:

1. SWITCH MACHINE SHOWN FOR REFERENCE ONLY. FOR BALLASTED TRACK ONLY PEDESTAL JUNCTION BOX AND RELATED CONDUIT EQUIPMENT IS INCLUDED IN THIS CONTRACT. FOR DF TRACK ONLY CONDUIT STUB-UP IS INCLUDED IN THIS CONTRACT.
2. PLACE PEDESTAL JUNCTION BOX OR STUB-UP ON THE SWITCH MACHINE SIDE OF THE RAILS FOR COORDINATION WITH THE SWITCH MACHINE AND RELATED EQUIPMENT.
3. PEDESTAL JUNCTION BOX MUST BE SUBMITTED FOR APPROVAL

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BRINCKERHOFF**

**METROPOLITAN
COUNCIL**

SOUTHWEST
Green Line LRT Extension

**OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
MAINLINE SWITCH MACHINE
DIRECT FIXATION & BALLASTED TRACK**

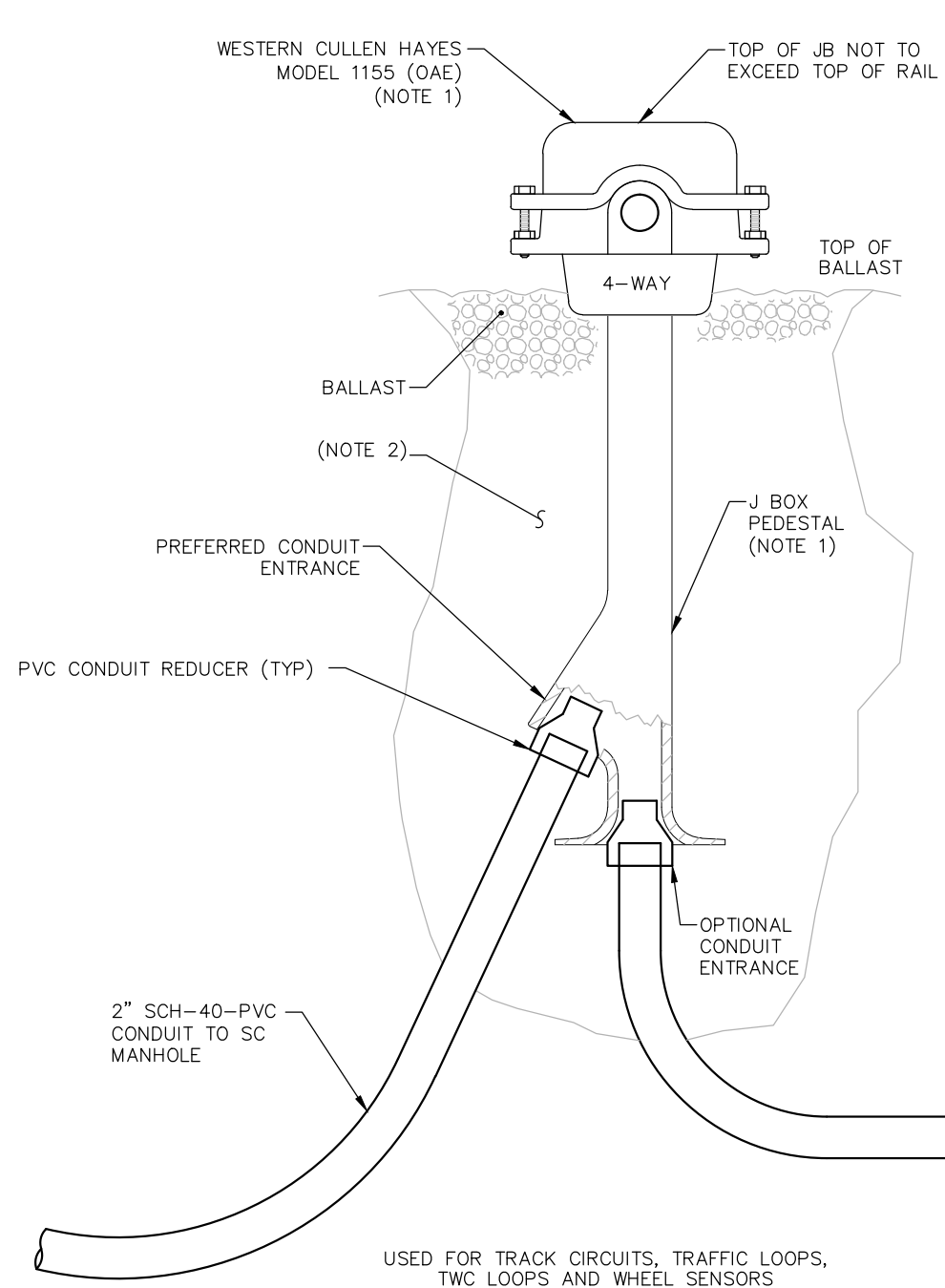
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SYSTEMS

SHEET NAME:
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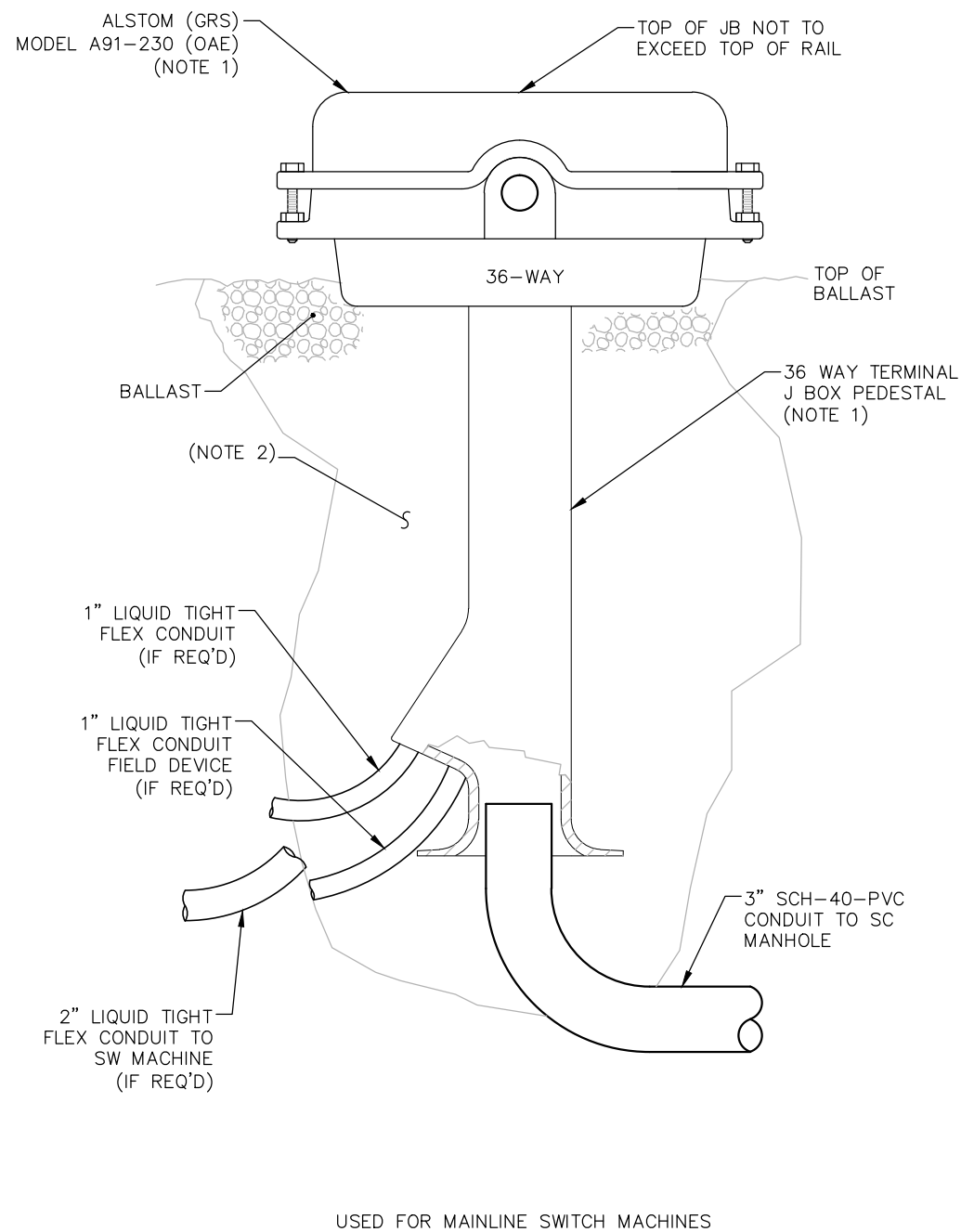
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60% SUBMISSION - 09/28/2015

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1 4-WAY BOOTLEG JUNCTION BOX DETAIL
SCALE: NTS



2 36-WAY BOOTLEG JUNCTION BOX DETAIL
SCALE: NTS

NOTES:

1. EQUIPMENT DETAILS SHALL BE SUBMITTED FOR APPROVAL
2. EXCAVATION FOR BOOTLEG AND JUNCTION BOX INSTALLATION WILL REQUIRE REMOVAL OF BALLAST, SUB-BALLAST AND NATIVE SOIL OR BACKFILL MATERIALS. THESE MATERIALS MUST BE KEPT SEPARATED AND NOT MIXED TOGETHER WHEN BACKFILLING
3. THE CONTRACTOR SHALL EQUIP EACH JUNCTION BOX PROVIDED WITH A COMPLETE SET OF GOLD NUT TEST LINKS AND APPROPRIATE STRAPS FOR ALL TERMINALS.

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BRINCKERHOFF**



SOUTHWEST
Green Line LRT Extension



**OPERATIONS & MAINTENANCE FACILITY - V1
SYSTEMWIDE ELECTRICAL
BOOTLEG JUNCTION BOX INSTALLATION**

DISCIPLINE: **SYSTEMS**

SHEET NAME: **OMF-SYS-SWE-DTL-017**

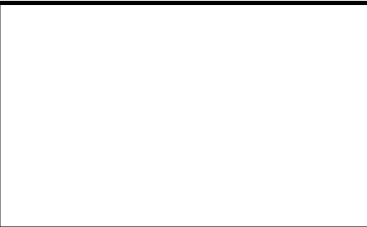
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60% SUBMISSION - 09/28/2015

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STRUCTURE NUMBER	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
OMF001	145735.8860	489956.4737	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF002	145788.6621	489951.2769	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF003	145822.3148	489968.5099	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF004	145847.9593	489996.2913	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF005	145862.4469	490031.1937	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF006	145881.2856	490120.8446	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF007	145896.5673	490189.0413	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF008	145902.5842	490211.9440	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF009	145908.5965	490226.7074	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF010	145892.9617	490280.3188	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF011	145850.3354	490316.8343	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF012	145817.2939	490320.2802	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF013	145797.2950	490320.0617	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF014	145761.2409	490319.1220	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF015	145741.2421	490318.9035	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF016	145667.5755	490315.4820	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF017	145593.4259	490315.4820	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF018	145546.8375	490294.2647	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF019	145479.8611	490291.1333	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF020	145426.5120	490289.4784	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF021	144907.4033	490294.9694	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF022	144839.1910	490287.5152	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF023	144795.0162	490274.7753	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF024	144725.9996	490238.1637	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF025	144654.7472	490199.6856	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF026	144636.4005	490191.7231	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF027	144586.1415	490162.2951	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF028	144567.9211	490154.0478	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF029	144523.8125	490134.8649	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF030	144506.1299	490125.5201	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF031	144482.1839	490088.0299	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF032	144471.9156	490026.2113	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF033	144496.1031	489968.4505	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF034	144547.4321	489932.4569	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF035	144578.7491	489931.4593	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF036	144607.4155	489931.4555	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF037	144680.4697	489933.7217	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF038	144806.6371	489936.5885	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF039	144871.5392	489939.9367	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF040	144942.9860	489942.1530	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF041	145014.9141	489944.3684	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF042	145089.9368	489946.6755	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF043	145148.7922	489948.6185	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF044	145168.7810	489949.1572	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF045	145246.6996	489951.4427	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF046	145404.5968	489955.9511	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF047	145470.5504	489958.5181	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF048	145536.8370	489962.5753	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF049	145589.1342	489964.1976	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF050	145651.8925	489977.7489	FD2A	FLUSH WITH GRADE	-	FND-002	-	-

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



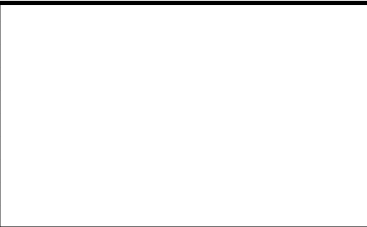
OPERATIONS & MAINTENANCE FACILITY - V1
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 1 OF 3

DISCIPLINE: OCS SHEET NAME: OMF-SYS-OCS-PFS-001

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STRUCTURE NUMBER	NORTHING	EASTING	FND TYPE	REFERENCE TOP OF FOUNDATION	EMBEDMENT DEPTH (FT)	FOUNDATION DRAWING NUMBER	CONDUIT NUMBER-SIZE	COMMENTS
OMF051	145806.1648	490014.3708	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF052	145826.1271	490015.5323	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF053	145833.2429	490029.7683	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF054	145841.1437	490062.6148	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF055	145855.4563	490129.1968	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF056	145851.7115	490099.4924	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF057	145847.5927	490084.5983	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF058	145829.6122	490083.7595	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF059	145790.8993	490074.3270	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF060	145790.0541	490026.5276	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF061	145770.5834	490021.9739	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF062	145701.0281	490053.1091	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF063	145646.4025	490065.8944	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF064	145677.4519	490002.7044	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF065	145633.5738	490036.3022	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF066	145586.1982	490065.9088	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF067	145533.7359	490063.2775	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF068	144905.6819	489992.7707	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF069	144903.6474	490056.8726	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF070	144867.4923	489972.5769	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF071	144856.2434	490056.2916	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF072	144822.9444	489981.3615	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF073	144826.4469	490013.8174	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF074	144817.5143	490044.1448	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF075	144748.1121	489964.6016	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF076	144734.3452	489988.8883	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF077	144717.9937	489956.9861	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF078	144698.5000	489952.5140	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF079	144674.4296	489962.6354	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF080	144647.8934	489954.7756	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF081	144627.8995	489955.2704	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF082	144688.3121	490192.8522	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF083	144717.3994	490193.5031	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF084	144751.0396	490190.7858	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF085	144832.1912	490160.6712	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF086	144863.4219	490156.6460	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF087	144942.3312	490156.8192	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF088	145002.1892	490158.6760	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF089	145352.1797	490192.5493	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF090	145402.1370	490194.4184	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF091	145454.5639	490204.0645	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF092	145499.8105	490200.8359	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF093	145546.1512	490223.8832	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF094	145602.3936	490255.7662	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF095	145674.3538	490288.4958	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF096	145739.4351	490303.1688	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF097	145759.4339	490303.3872	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF098	145639.4968	490295.5570	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF099	145619.9486	490291.3302	FD2A	FLUSH WITH GRADE	-	FND-002	-	-
OMF100	145524.8383	490270.4309	FD2A	FLUSH WITH GRADE	-	FND-002	-	-

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL





60% SUBMISSION - 09/28/15



OPERATIONS & MAINTENANCE FACILITY - V1
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION SCHEDULE
SHEET 2 OF 3

DISCIPLINE: OCS
SHEET NAME: OMF-SYS-OCS-PFS-002

60% SUBMISSION - 09/28/15

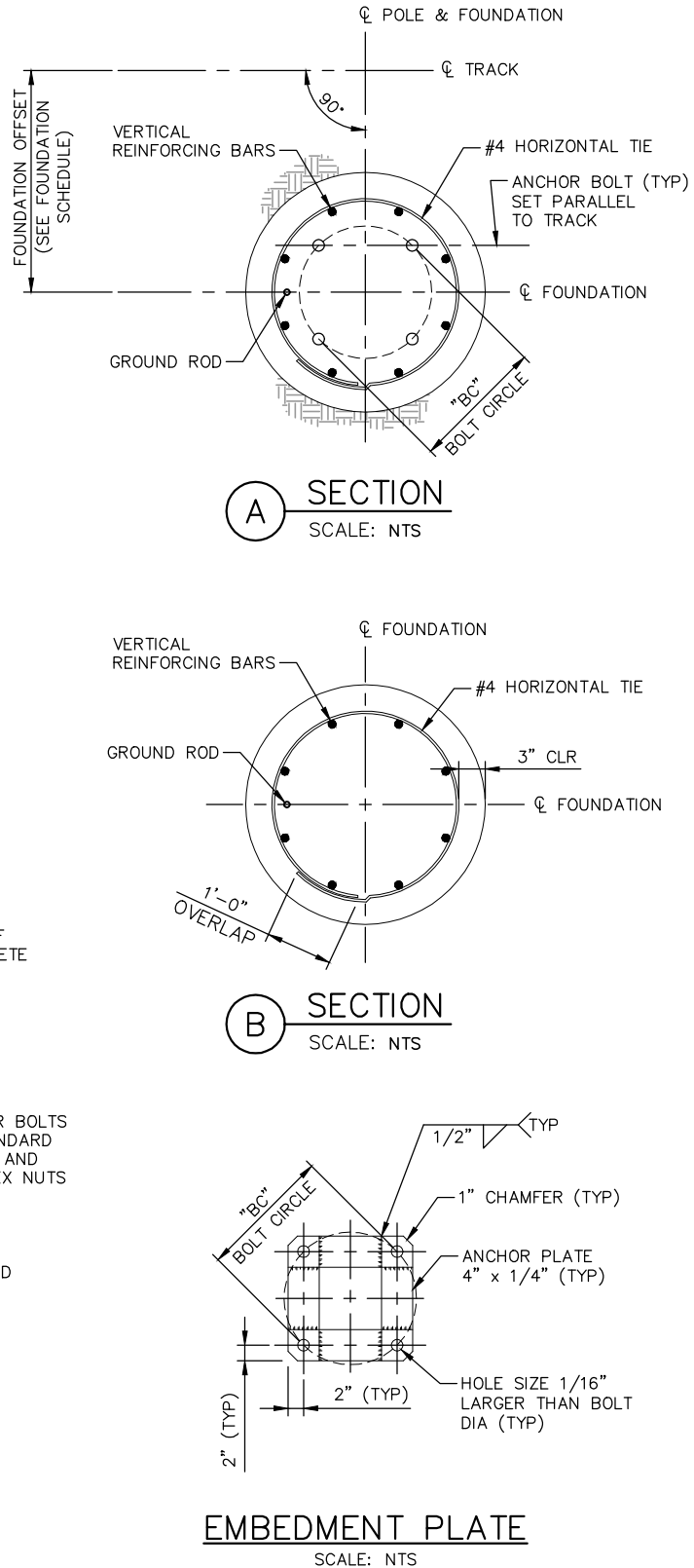
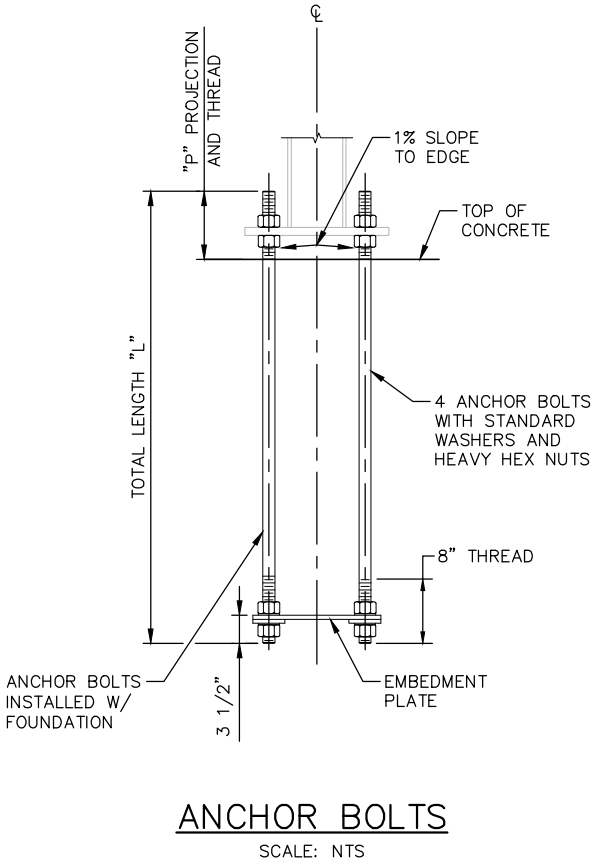
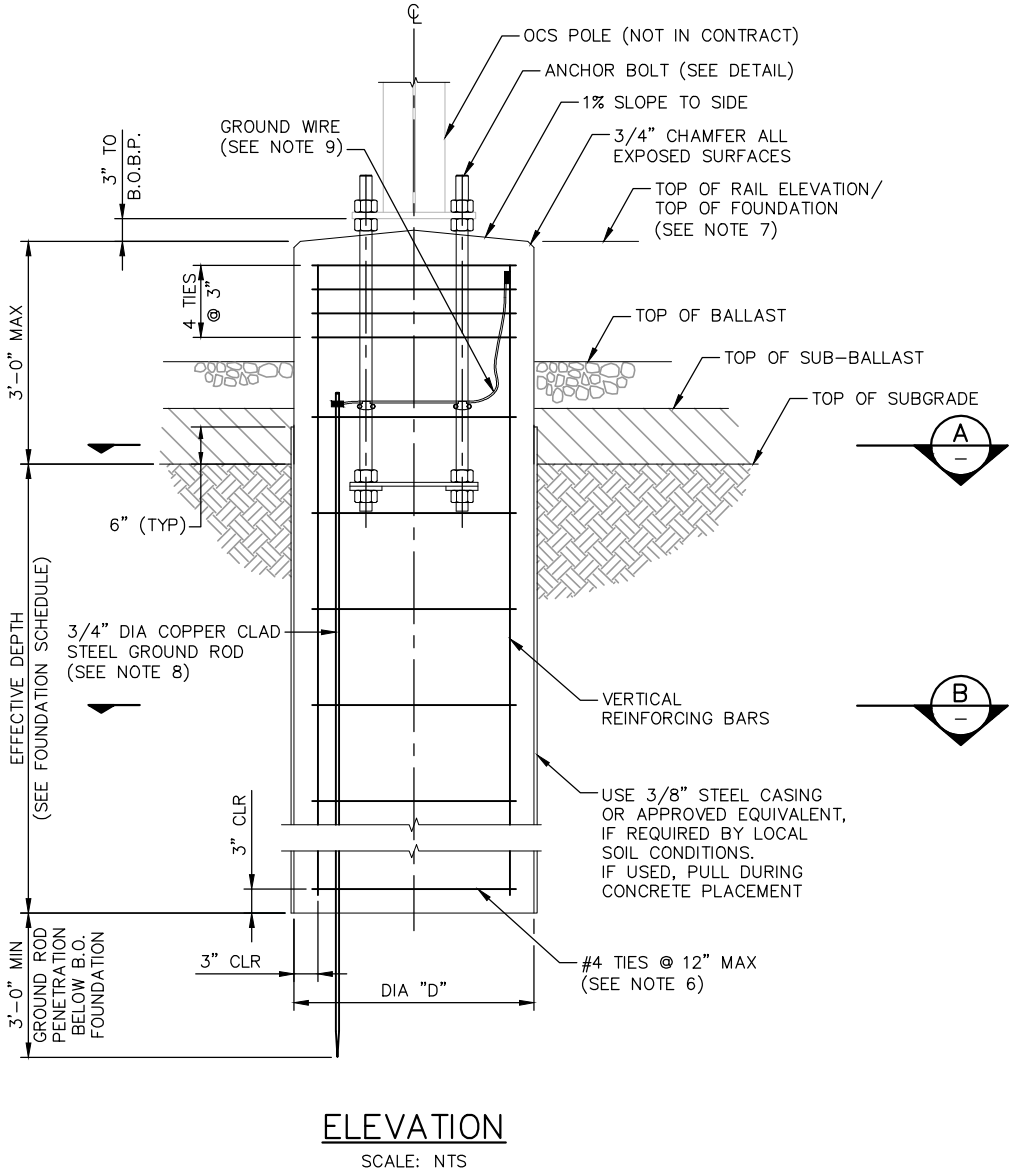


DISCIPLINE: **OCS**

SHEET NAME: **OMF-SYS-OCS-PFS-003**

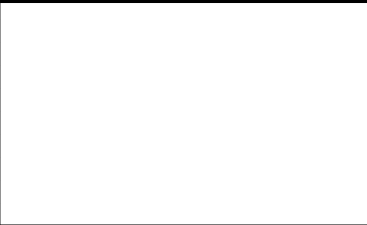
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BOLT AND REINFORCING SCHEDULE							
TYPE	D DIA (IN)	REINFORCEMENT		ANCHOR BOLT DIMENSIONS			
		SIZE	QUANTITY	BC (IN)	DIA (IN)	L (IN)	P (IN)
FD1A	30	#8	8	16	1.25	48	10
FD1B	36	#8	8	18	1.50	54	10
FD1C	36	#8	8	22	2.00	60	10
FD1D	30	#8	8	15	1.25	48	10
FD1E	36	#8	8	19	1.50	54	10
FD1F	36	#8	8	23	1.75	60	10



- NOTES:
1. MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS AND THE SPECIFICATIONS.
 2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
 3. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 SPECIFICATIONS, LATEST EDITION.
 4. PROVIDE BOLT PATTERN TEMPLATE FOR ANCHOR BOLT INSTALLATION.
 5. ROTATE REINFORCEMENT CAGE TO AVOID CONFLICT WITH ANCHOR BOLTS AND EMBEDMENT PLATE.
 6. NO. 4 SPIRALS AT 4 INCHES (MAXIMUM) PITCH MAY BE SUBSTITUTED FOR REBAR TIES.
 7. SEE FOUNDATION SCHEDULE FOR REFERENCE TOP OF FOUNDATION, CONDUIT LOCATIONS AND NUMBERS, FOUNDATION TYPES, OFFSETS AND EFFECTIVE DEPTH. CONDUIT LOCATIONS AND NUMBERS MUST BE COORDINATED WITH SYSTEMWIDE ELECTRICAL PLAN AND DETAILS, TRAFFIC AND LRT SIGNALS DRAWINGS.
 8. INSTALL A 3/4" DIA COPPER CLAD STEEL GROUND ROD IN EACH FOUNDATION AS SHOWN, DRIVEN VERTICALLY.
 9. EXOTHERMICALLY WELD 4/0 GROUND WIRE TO REBAR CAGE AND GROUND ROD, AND CLAMP TO ANCHOR BOLTS USING A BURNDY GAR GROUND CONNECTOR, OR APPROVED EQUAL.
 10. POLE TO GROUND RESISTANCE SHALL NOT EXCEED 25 OHMS. USE ADDITIONAL GROUND RODS AS REQUIRED.
 11. REFER TO SYSTEMWIDE ELECTRICAL PLAN AND DETAILS FOR DUCT BANK LAYOUT, CONDUIT LAYOUT AND CONDUIT DETAILS AT OCS FOUNDATIONS.
 12. TACK WELD TOP AND BOTTOM TIES OF REINFORCEMENT CAGE TO VERTICAL REINFORCEMENT.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



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DISCIPLINE: OCS

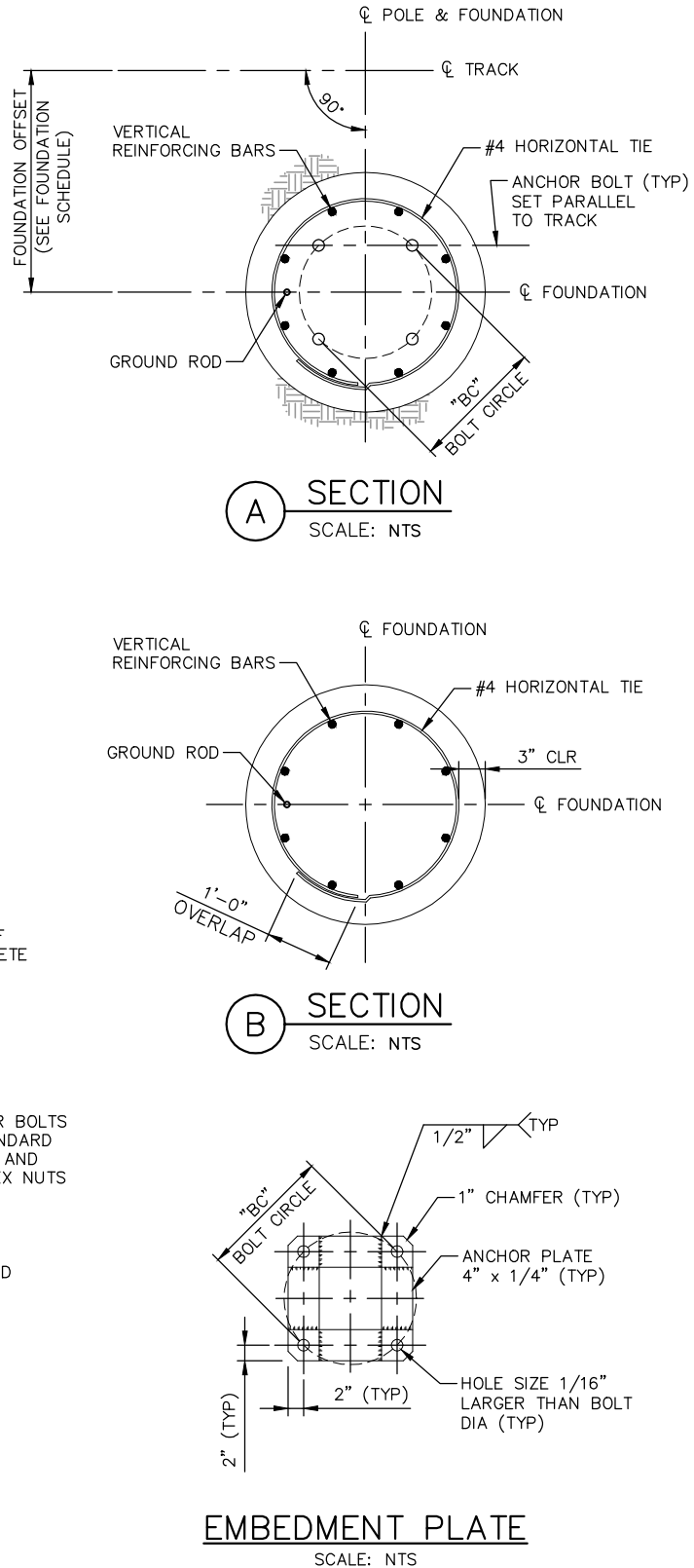
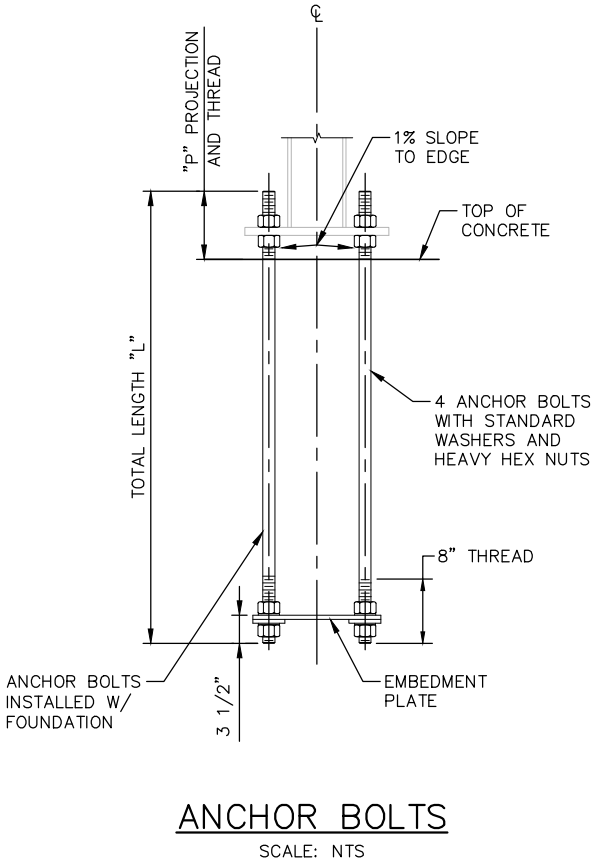
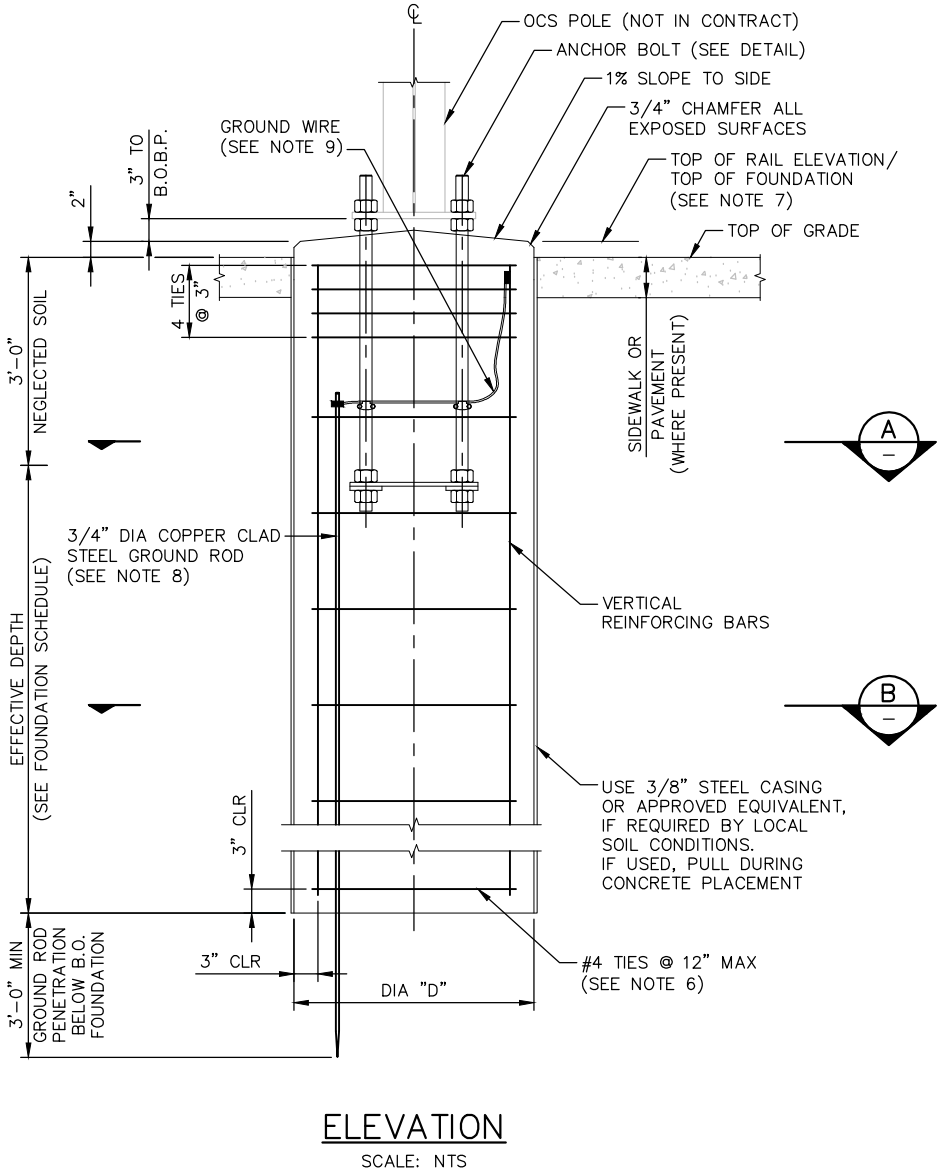
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OPERATIONS & MAINTENANCE FACILITY - V1
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION ASSEMBLY
BALLASTED TRACK

106
OF
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BOLT AND REINFORCING SCHEDULE							
TYPE	D DIA (IN)	REINFORCEMENT		ANCHOR BOLT DIMENSIONS			
		SIZE	QUANTITY	BC (IN)	DIA (IN)	L (IN)	P (IN)
FD2A	30	#8	8	16	1.25	48	10
FD2B	36	#8	8	18	1.50	54	10
FD2C	36	#8	8	22	2.00	60	10
FD2D	30	#8	8	15	1.25	48	10
FD2E	36	#8	8	19	1.50	54	10
FD2F	36	#8	8	23	1.75	60	10



- NOTES:
1. MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS AND THE SPECIFICATIONS.
 2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
 3. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 SPECIFICATIONS, LATEST EDITION.
 4. PROVIDE BOLT PATTERN TEMPLATE FOR ANCHOR BOLT INSTALLATION.
 5. ROTATE REINFORCEMENT CAGE TO AVOID CONFLICT WITH ANCHOR BOLTS AND EMBEDMENT PLATE.
 6. NO. 4 SPIRALS AT 4 INCHES (MAXIMUM) PITCH MAY BE SUBSTITUTED FOR REBAR TIES.
 7. SEE FOUNDATION SCHEDULE FOR REFERENCE TOP OF FOUNDATION, CONDUIT LOCATIONS AND NUMBERS, FOUNDATION TYPES, OFFSETS AND EFFECTIVE DEPTH. CONDUIT LOCATIONS AND NUMBERS MUST BE COORDINATED WITH SYSTEMWIDE ELECTRICAL PLAN AND DETAILS, TRAFFIC AND LRT SIGNALS DRAWINGS.
 8. INSTALL A 3/4" DIA COPPER CLAD STEEL GROUND ROD IN EACH FOUNDATION AS SHOWN, DRIVEN VERTICALLY.
 9. EXOTHERMICALLY WELD 4/0 GROUND WIRE TO REBAR CAGE AND GROUND ROD, AND CLAMP TO ANCHOR BOLTS USING A BURNDY GAR GROUND CONNECTOR, OR APPROVED EQUAL.
 10. POLE TO GROUND RESISTANCE SHALL NOT EXCEED 25 OHMS. USE ADDITIONAL GROUND RODS AS REQUIRED.
 11. REFER TO SYSTEMWIDE ELECTRICAL PLAN AND DETAILS FOR DUCT BANK LAYOUT, CONDUIT LAYOUT AND CONDUIT DETAILS AT OCS FOUNDATIONS.
 12. TACK WELD TOP AND BOTTOM TIES OF REINFORCEMENT CAGE TO VERTICAL REINFORCEMENT.

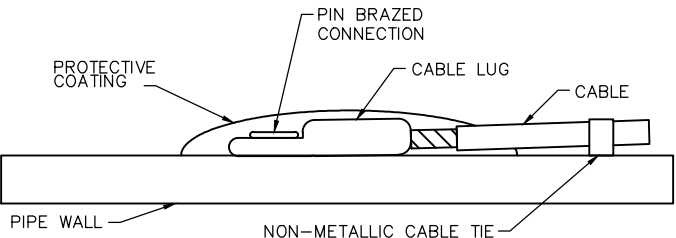
NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

60% SUBMISSION - 09/28/15

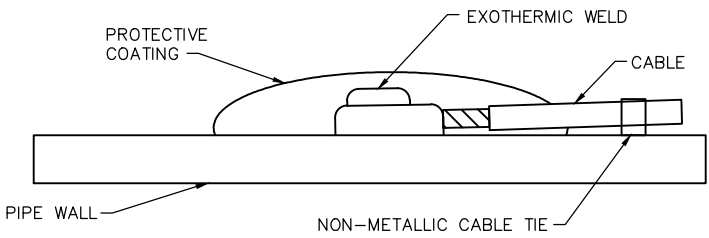
OPERATIONS & MAINTENANCE FACILITY - V1
OVERHEAD CONTACT SYSTEM
POLE FOUNDATION ASSEMBLY
EMBEDDED TRACK

DISCIPLINE: OCS
SHEET NAME: OMF-SYS-OCS-FND-002

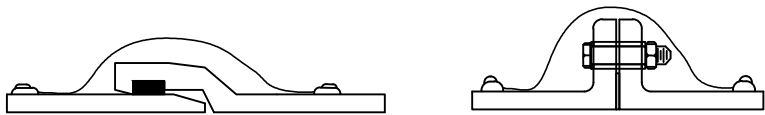
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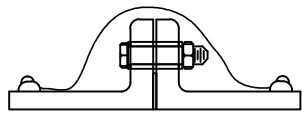
TYPICAL PIN BRAZED CABLE CONNECTION



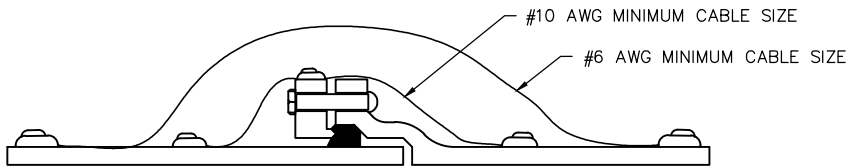
TYPICAL EXOTHERMICALLY WELDED CABLE CONNECTION



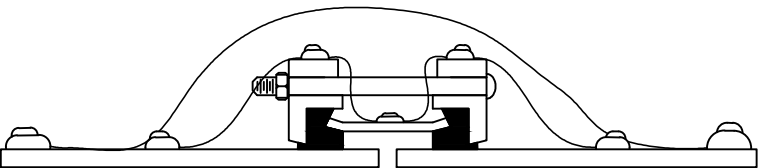
PUSH-ON JOINT



NON-INSULATED FLANGE



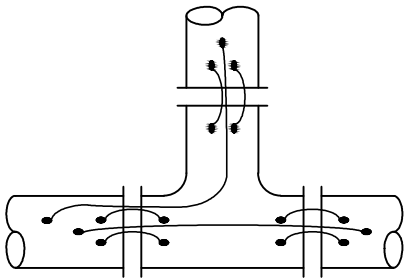
MECHANICAL JOINT



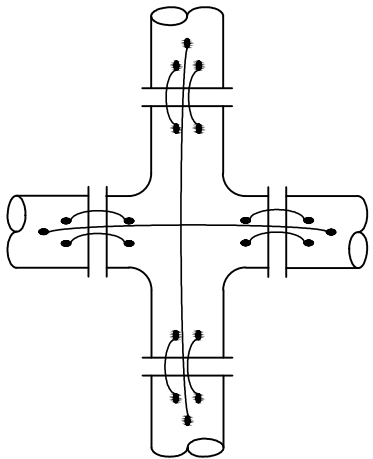
FLEXIBLE SLEEVE COUPLING WITHOUT RESTRAINT

BONDING NOTES

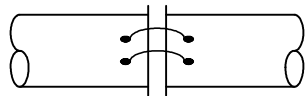
1. REINFORCED CONCRETE NON-PRESSURE PIPE DOES NOT REQUIRE ELECTRICAL CONTINUITY OF THE REINFORCING STEEL OR BONDING OF THE PIPE JOINTS. REINFORCED CONCRETE NON-PRESSURE PIPE AND ASSOCIATED MANHOLES SHALL BE COATED ON THE EXTERNAL SURFACES WITH AN APPROVED EPOXY.
2. PRESTRESSED CONCRETE CYLINDER PIPE, IF SPECIFICALLY APPROVED BY THE MBTA, REQUIRES ELECTRICAL CONTINUITY BETWEEN THE STEEL CYLINDER AND PRESTRESSING WIRES. EACH PIPE JOINT SHALL BE PROVIDED WITH ELECTRICAL BONDING PLATES ON EACH END. THE CONTRACTOR SHALL PROVIDE PROPOSED DETAILS FOR THE BONDING PLATES AND THE NUMBER OF PLATES TO BE ATTACHED TO EACH PIPE JOINT.
3. A MINIMUM OF TWO #6 AWG BOND WIRES PER BONDED JOINT ARE REQUIRED. THE CONTRACTOR SHALL DETERMINE IF ADDITIONAL OR LARGER BOND WIRES ARE NECESSARY TO MINIMIZE CURRENT ATTENUATION AND ACHIEVE THE MAXIMUM ALLOWABLE RESISTANCE CRITERIA.
4. ALL EXOTHERMIC WELDS SHALL BE CLEANED OF ALL WELD SLAG WITH A STIFF WIRE BRUSH. WELDS FOR PIPE JOINT AND FITTING BONDS SHALL BE COATED WITH AN APPROVED EPOXY OR WITH A PETROLATUM WAX COATING SYSTEM PRIOR TO BACKFILLING.



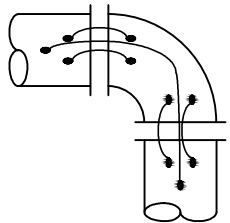
TEE



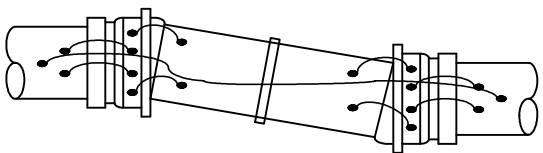
CROSS



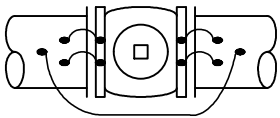
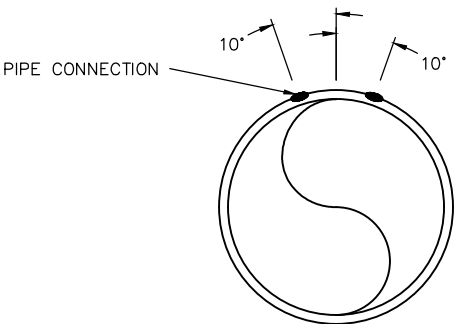
PIPE JOINT



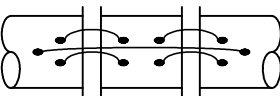
ELBOW



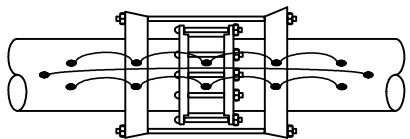
FLEXIBLE JOINT



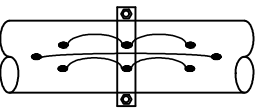
VALVE



ADAPTER



FLEXIBLE COUPLING WITH RESTRAINT



VICTAULIC COUPLING

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

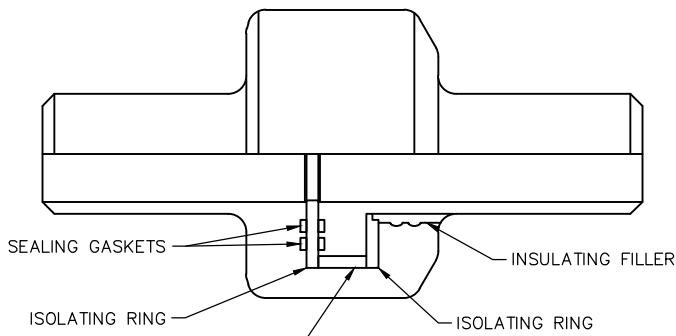
AECOM
60% SUBMISSION - 09/28/15

 METROPOLITAN COUNCIL	 SOUTHWEST Green Line LRT Extension
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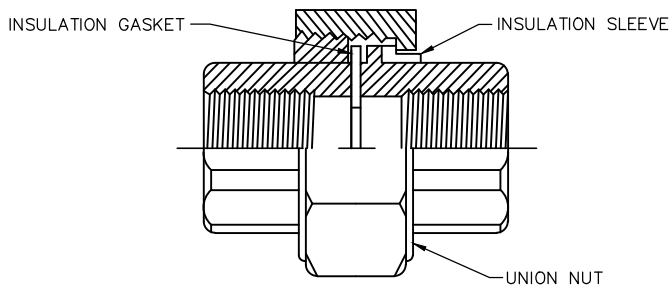
OPERATIONS & MAINTENANCE FACILITY - V1	
CORROSION CONTROL	
STRAY CURRENT CONTROL DETAILS 1	
DISCIPLINE:	SHEET NAME:
CORR	OMF-SYS-CORR-DTL-01

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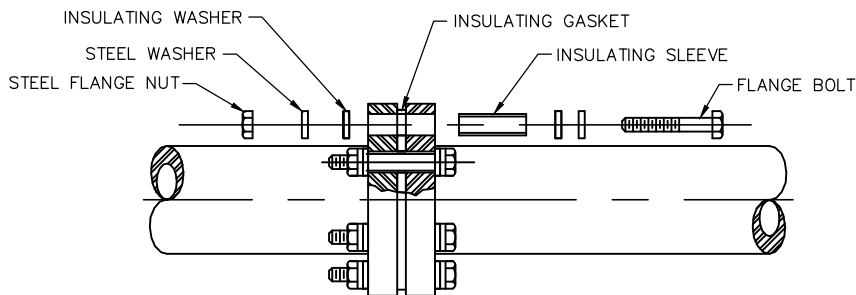


MONOLITHIC ISOLATION JOINT



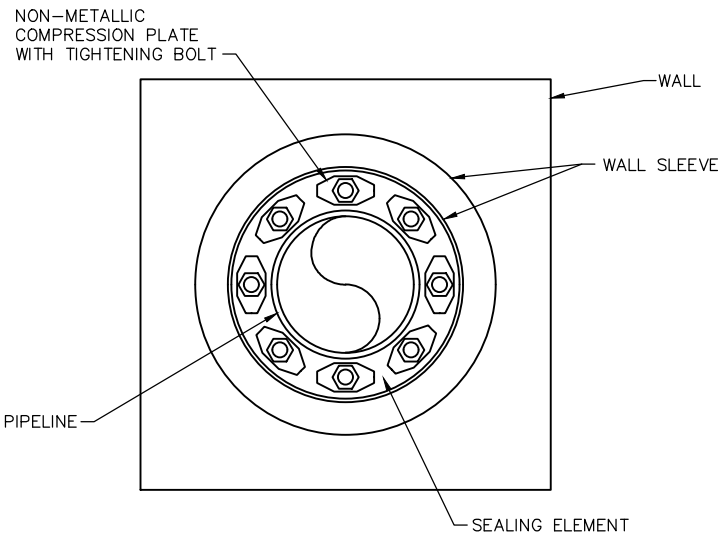
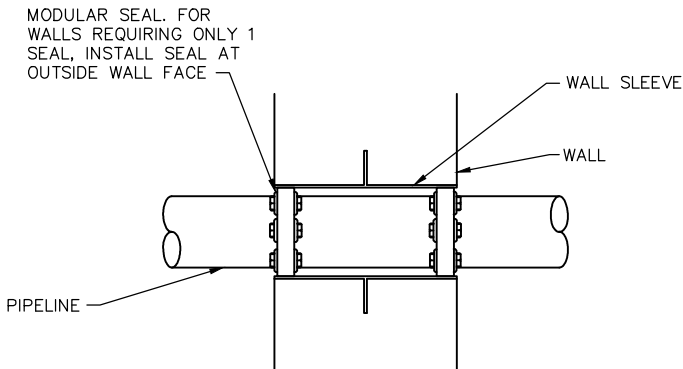
INSULATED UNION

DIELECTRIC ISOLATION ABOVE 150° F SPECIFY HIGH TEMPERATURE

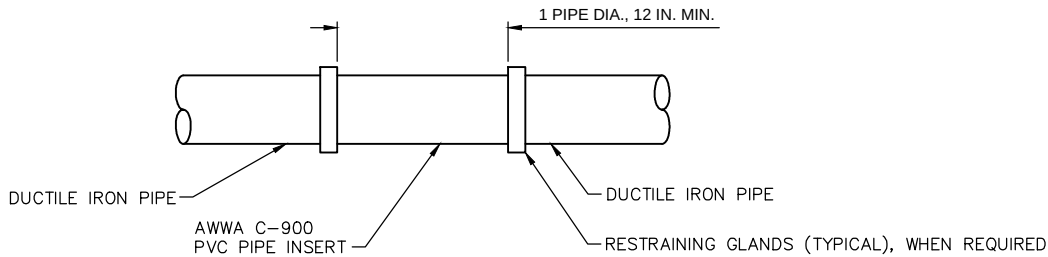


INSULATED FLANGE

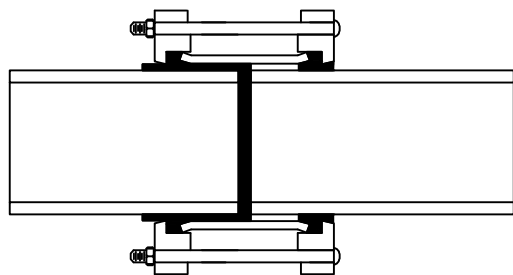
- NOTES:
1. FOR FLANGES INSTALLED ABOVE GRADE, INSTALL TWO INSULATING WASHERS AS SHOWN. FOR FLANGES INSTALLED BELOW GRADE IN CONJUNCTION WITH CATHODIC PROTECTION, OMIT THE INSULATING WASHER ON THE CATHODICALLY PROTECTED SIDE OF THE FLANGE.
 2. FOR STEEL PIPELINES MONOLITHIC ISOLATION JOINTS ARE PREFERRED OVER INSULATED FLANGES FOR BELOW GRADE INSTALLATIONS.
 3. IF AN INSULATED FLANGE IS INSTALLED BELOW GRADE, APPLY AN EXTERNAL PROTECTIVE COATING CONSISTING OF PRIMER, FILLER, PETROLATUM IMPREGNATED TAPE, AND OUTER PROTECTIVE WRAP AS MANUFACTURED BY TRENTON CORPORATION, DENSO NORTH AMERICA, OR APPROVED EQUAL. FOR BARE STRUCTURES THE EXTERNAL PROTECTIVE COATING SHALL EXTEND FOR A LENGTH OF A MINIMUM OF 3 PIPE DIAMETERS FROM THE CENTER OF THE FLANGE.
 4. FLANGE BOLTS SHALL EXTEND COMPLETELY THROUGH THE FLANGE NUTS WITH A MINIMUM OF THREE THREADS EXPOSED.
 5. AN INTERNAL POLYAMIDE EPOXY COATING SHALL BE APPLIED ON EACH SIDE OF THE ISOLATION FITTING FOR A MINIMUM DISTANCE OF 2 TIMES THE PIPE DIAMETER. WHERE THE TRANSPORTED FLUID RESISTIVITY IS LESS THAN 2000 OHM-CM THE CONTRACTOR SHALL DETERMINE THE MINIMUM COATING DISTANCE REQUIRED TO ACHIEVE A CURRENT LEAKAGE OF 2% OR LESS ACROSS THE FITTING. INTERNAL COATING FOR PIPELINES TRANSPORTING POTABLE WATER SHALL MEET THE REQUIREMENTS OF NSF-61.



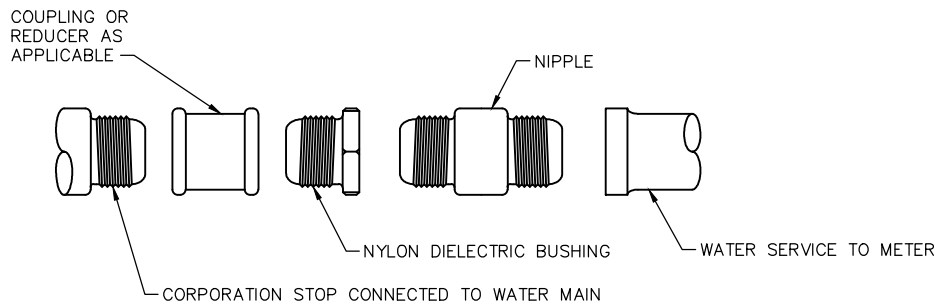
PIPELINE WALL PENETRATION



PVC INSERT ISOLATION JOINT



ISOLATION COUPLING



WATER SERVICE ISOLATION

- NOTES:
1. ALL METALLIC VALVES AND FITTINGS IN NON-METALLIC PIPELINE SECTIONS SHALL BE COATED WITH A FUSION BONDED EPOXY COATING SYSTEM IN ACCORDANCE WITH ANSI/AWWA C116.
 2. ALL NUTS AND BOLTS OF MECHANICAL FITTINGS SHALL BE PROTECTED WITH A PETROLATUM WAX COATING.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

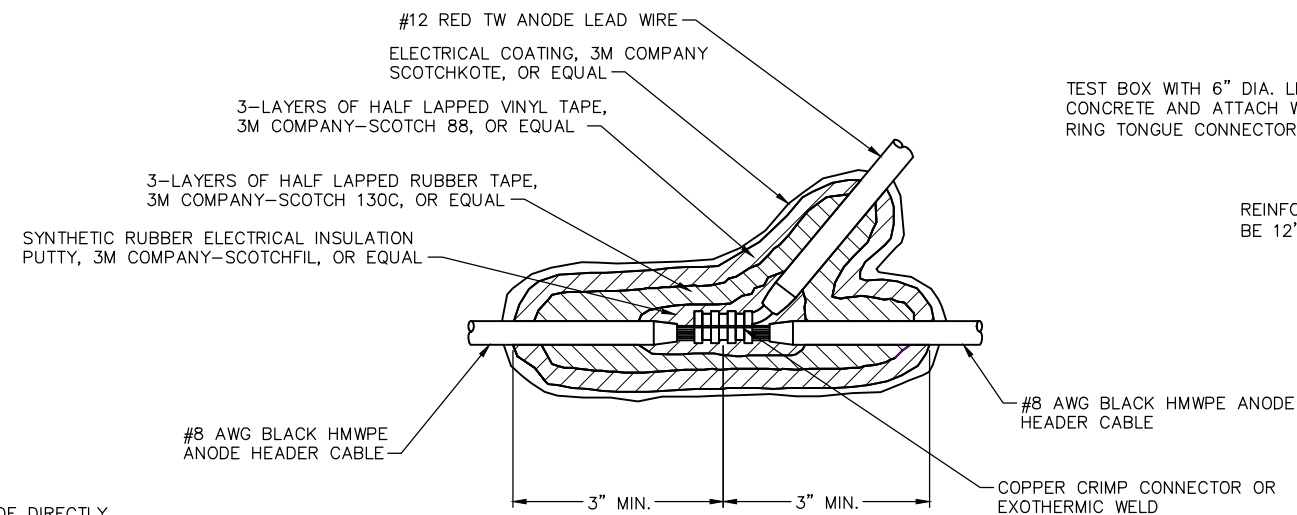
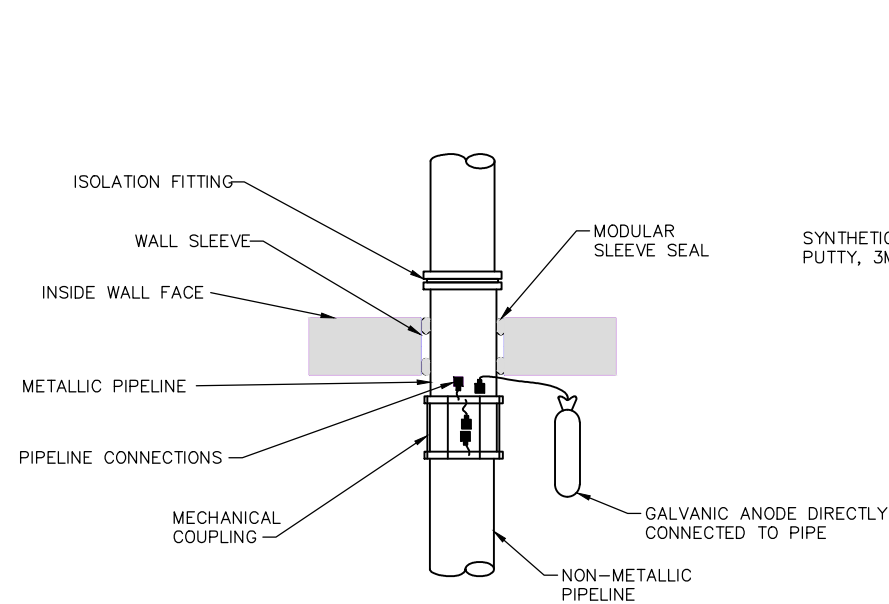
AECOM
60% SUBMISSION - 09/28/15

 METROPOLITAN COUNCIL	 SOUTHWEST Green Line LRT Extension
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OPERATIONS & MAINTENANCE FACILITY - V1	
CORROSION CONTROL	
STRAY CURRENT CONTROL DETAILS 2	
DISCIPLINE:	SHEET NAME:
CORR	OMF-SYS-CORR-DTL-02

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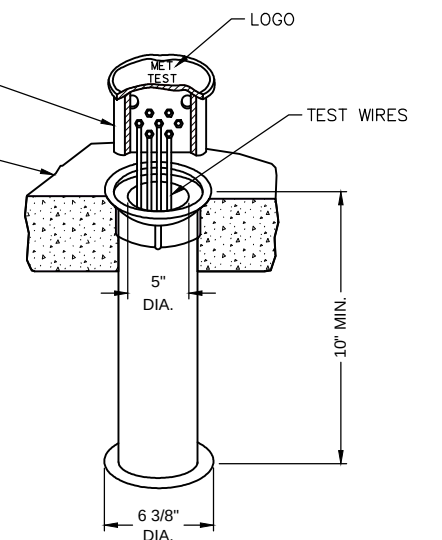
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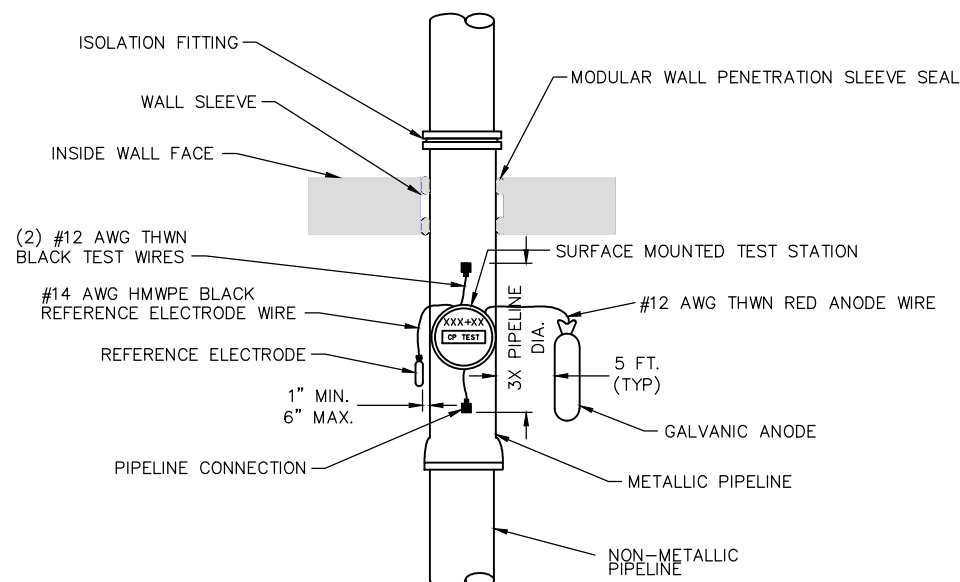
WYE SPLICE INSULATION

TEST BOX WITH 6" DIA. LID, SET BOX IN CONCRETE AND ATTACH WIRES TO TERMINALS WITH RING TONGUE CONNECTOR. LEAVE 18" SLACK

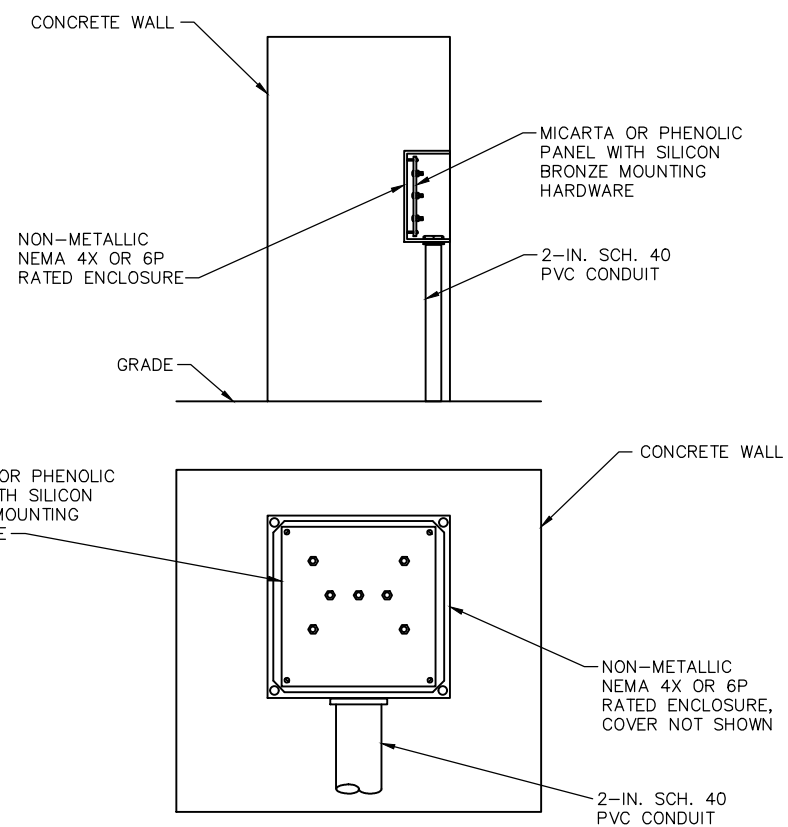
REINFORCED CONCRETE PAD TO BE 12" SQUARE x 4" DEEP MIN.



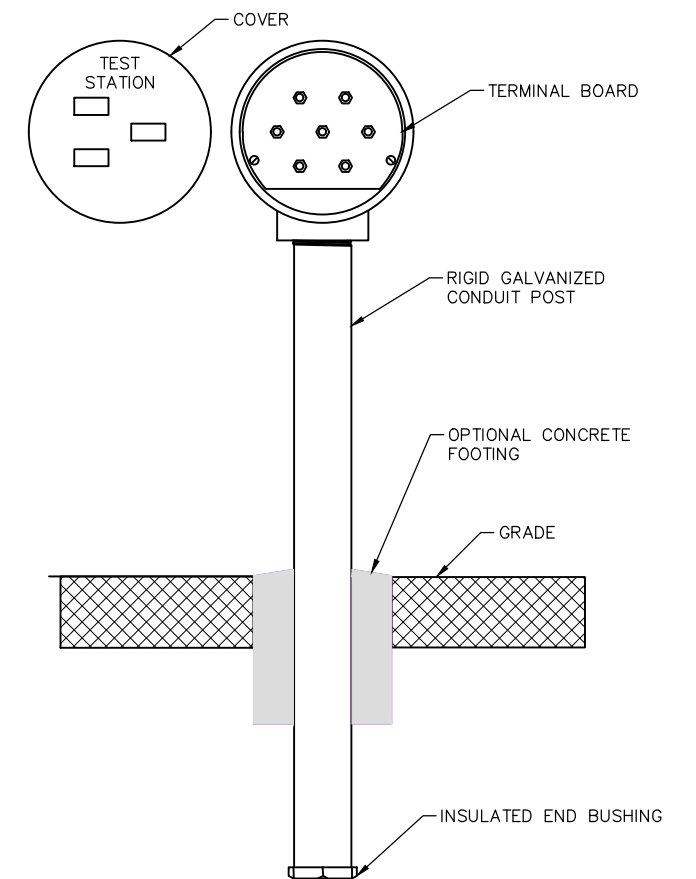
AT-GRADE BOX



METALLIC PIPE STUB-IN CATHODIC PROTECTION



CAST-IN-PLACE FLUSH MOUNT TEST STATION/JUNCTION BOX



POST MOUNTED TEST STATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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SOUTHWEST
Green Line LRT Extension



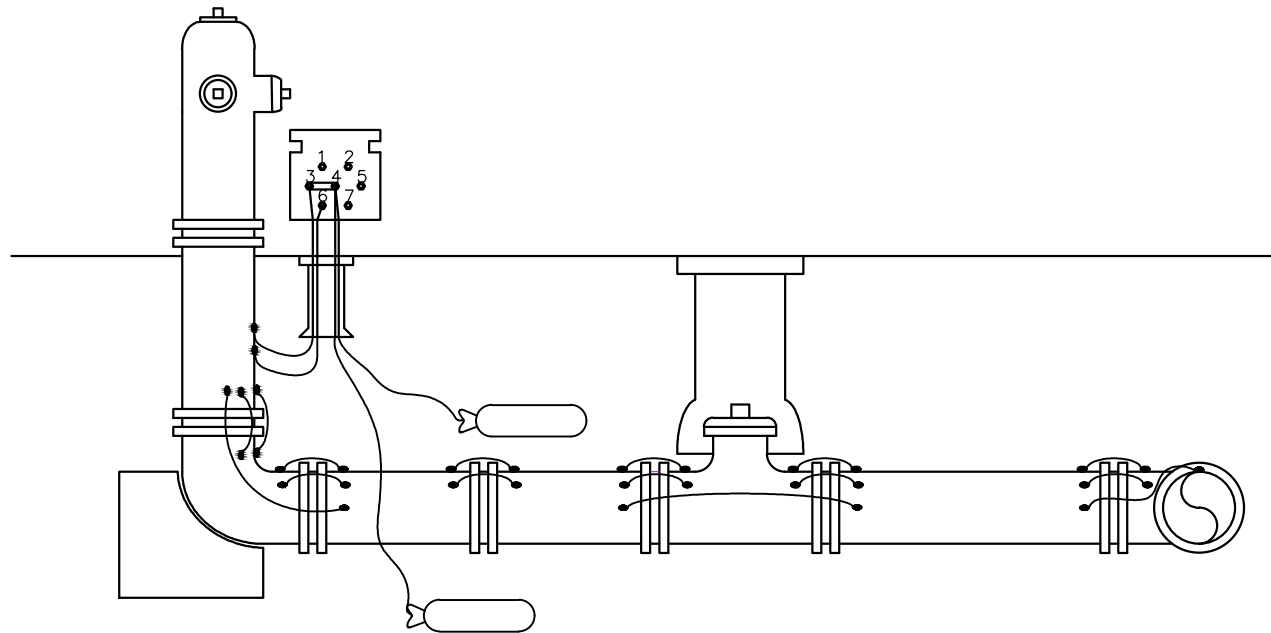
OPERATIONS & MAINTENANCE FACILITY - V1
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 3

DISCIPLINE: CORR

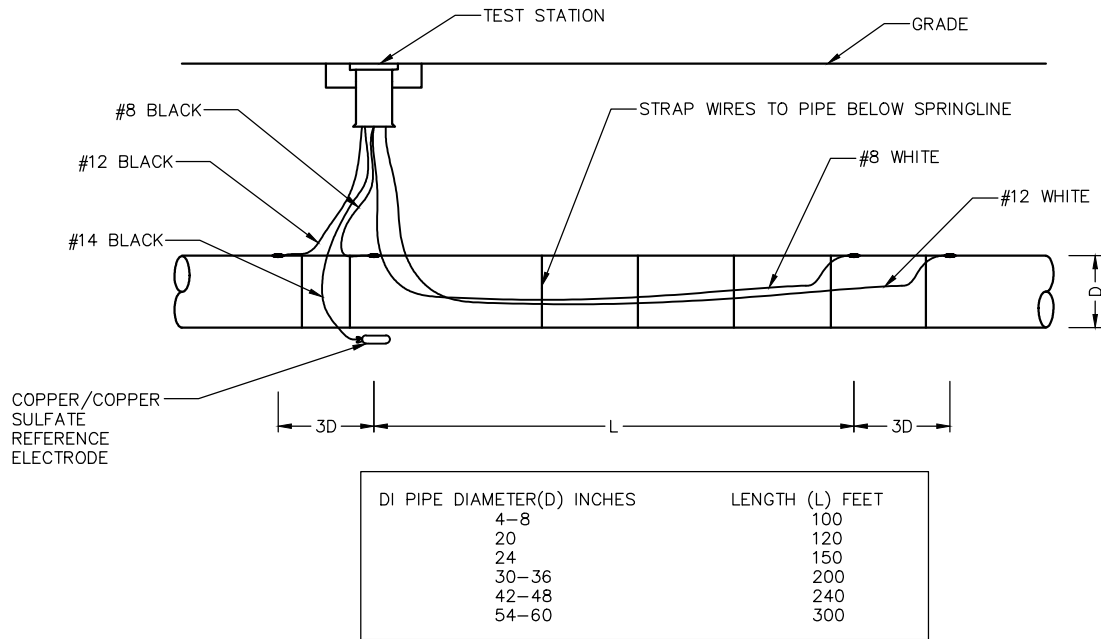
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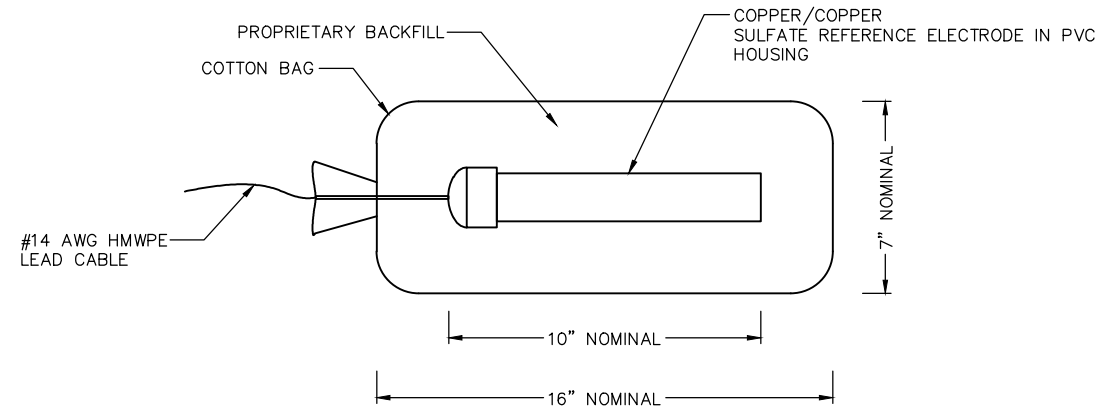
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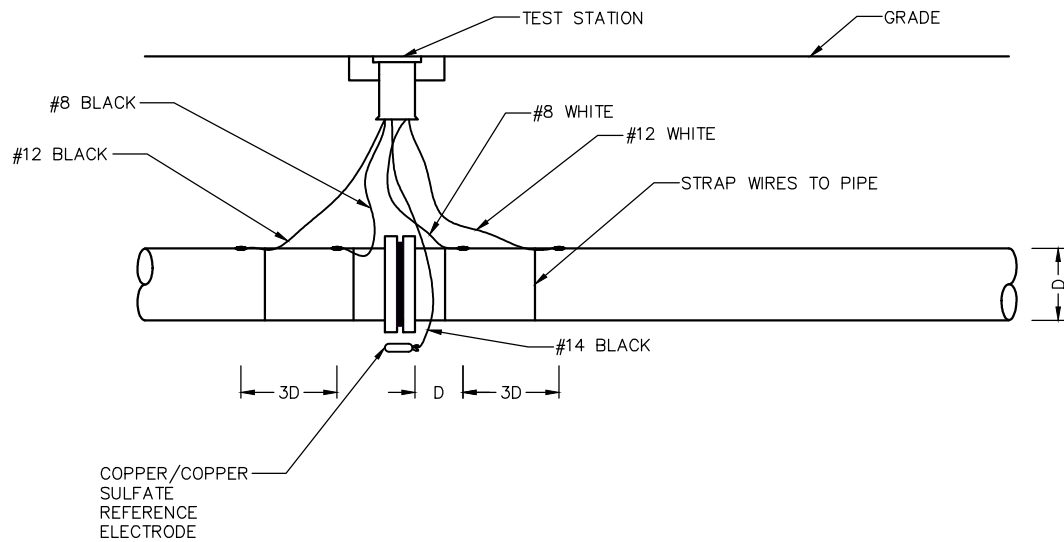
FIRE HYDRANT STRAY CURRENT AND CATHODIC PROTECTION BONDING



IR DROP TEST STATION

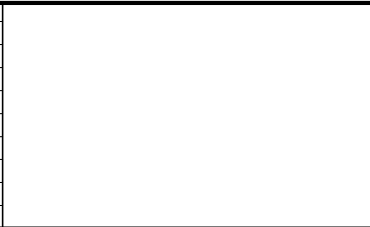


COPPER/COPPER SULFATE REFERENCE ELECTRODE



ISOLATION JOINT TEST STATION

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



60% SUBMISSION - 09/28/15

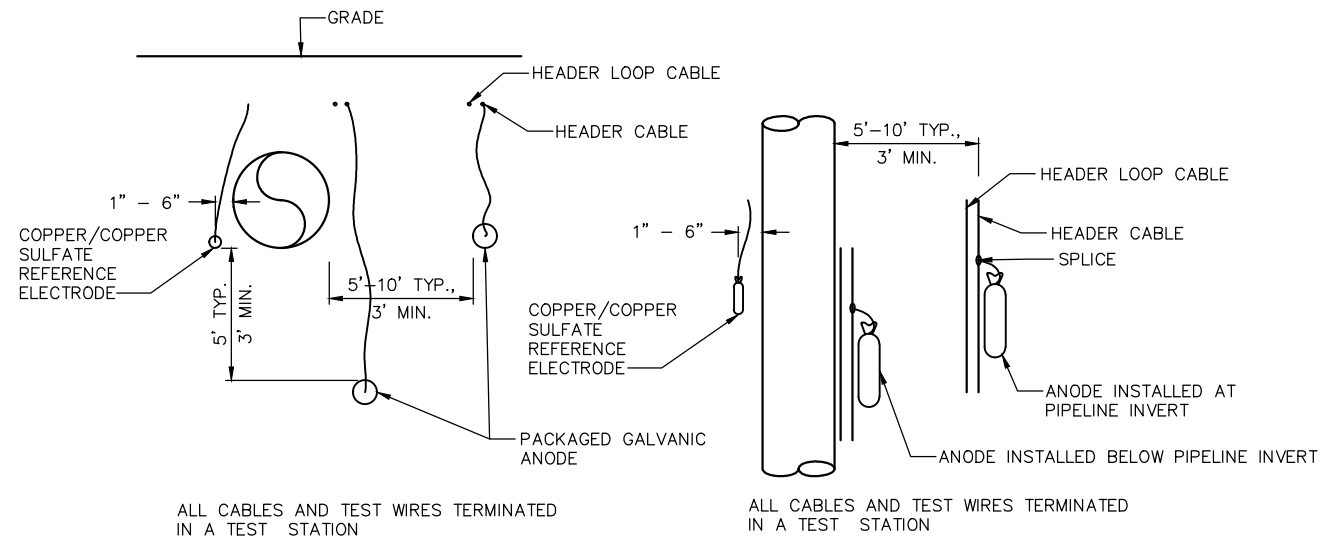


OPERATIONS & MAINTENANCE FACILITY - V1
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 4

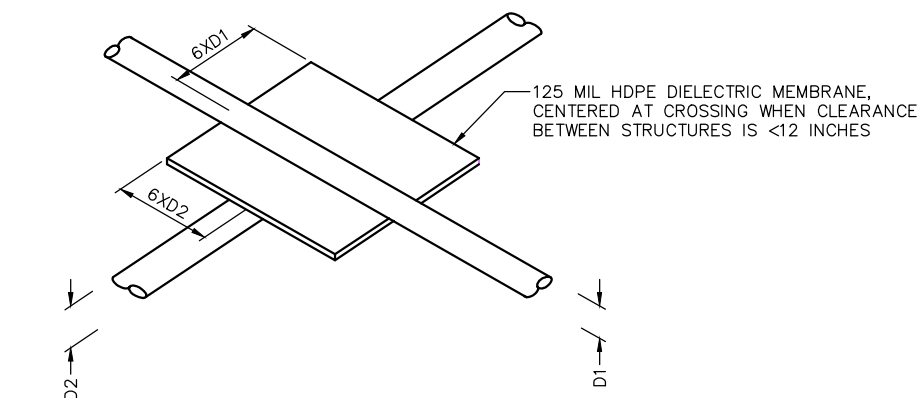
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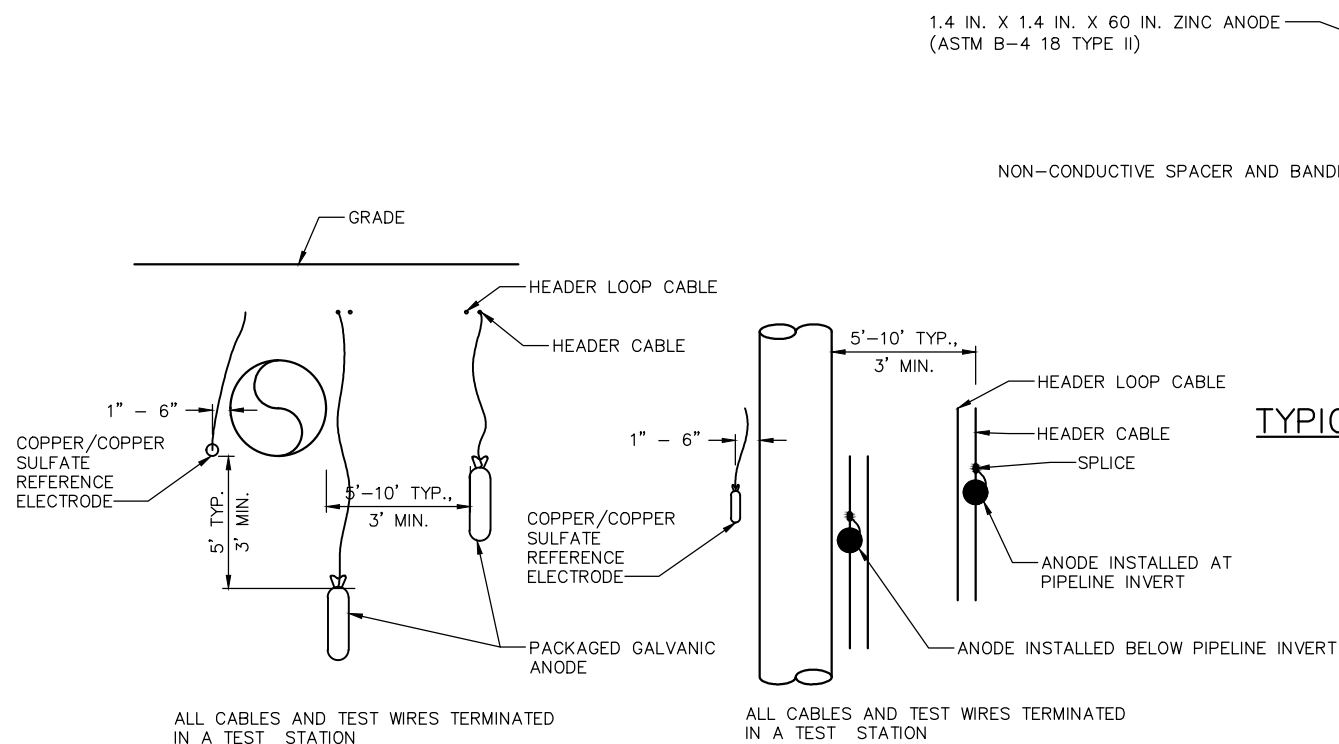
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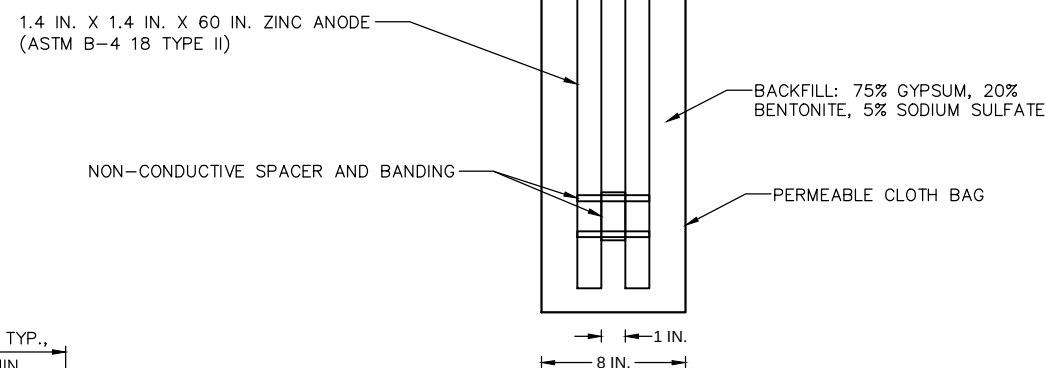
HORIZONTAL GALVANIC ANODE INSTALLATION



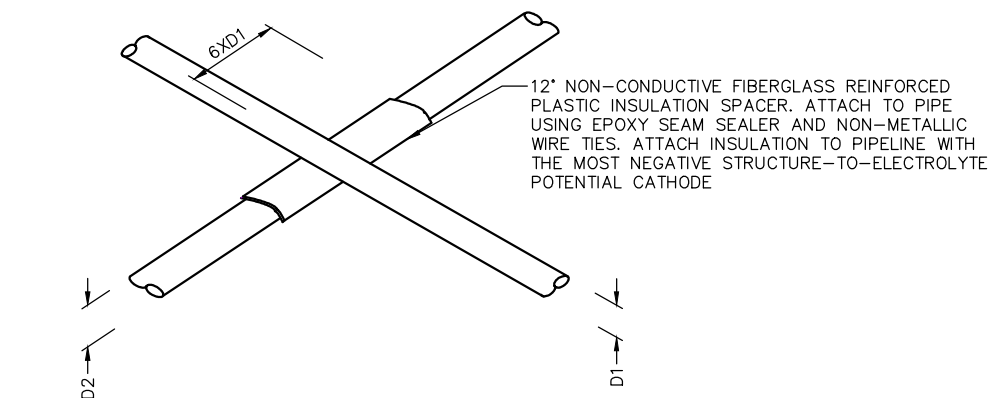
STRUCTURE ISOLATION AT CROSSING WITH MEMBRANE



VERTICAL GALVANIC ANODE INSTALLATION



TYPICAL ZINC GROUNDING CELL



STRUCTURE ISOLATION AT CROSSING WITH SHIELD

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL



AECOM

60% SUBMISSION - 09/28/15

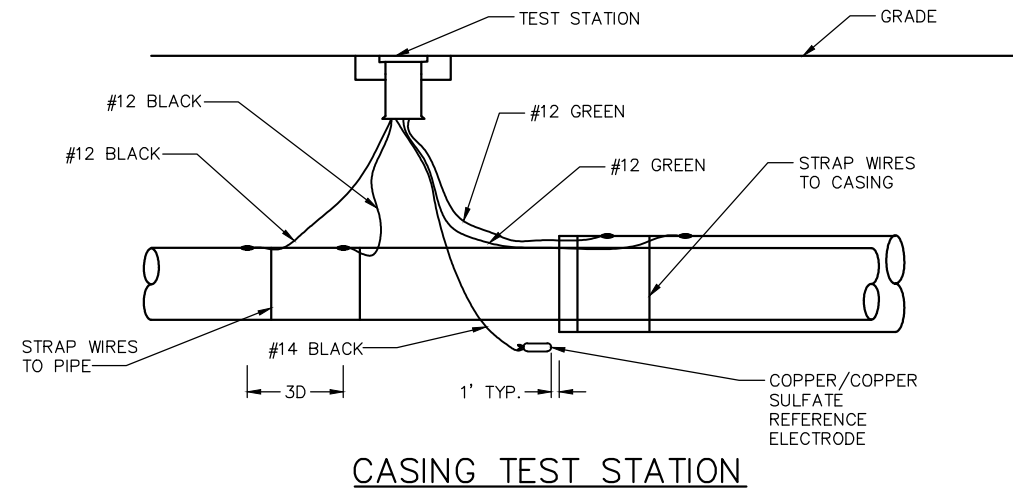


OPERATIONS & MAINTENANCE FACILITY - V1
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 5

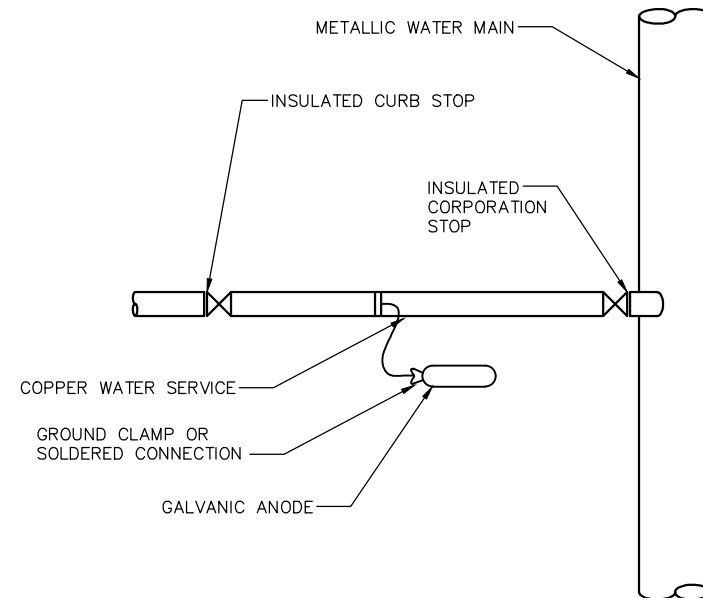
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113
OF
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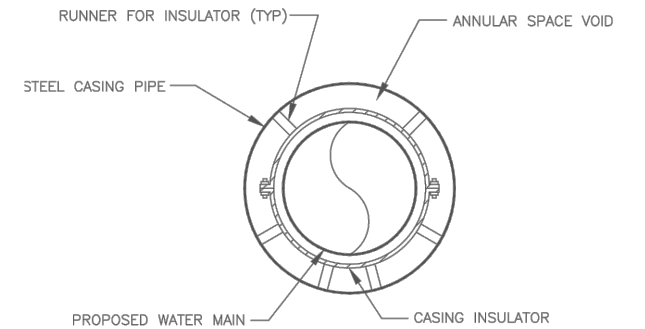
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CASING TEST STATION

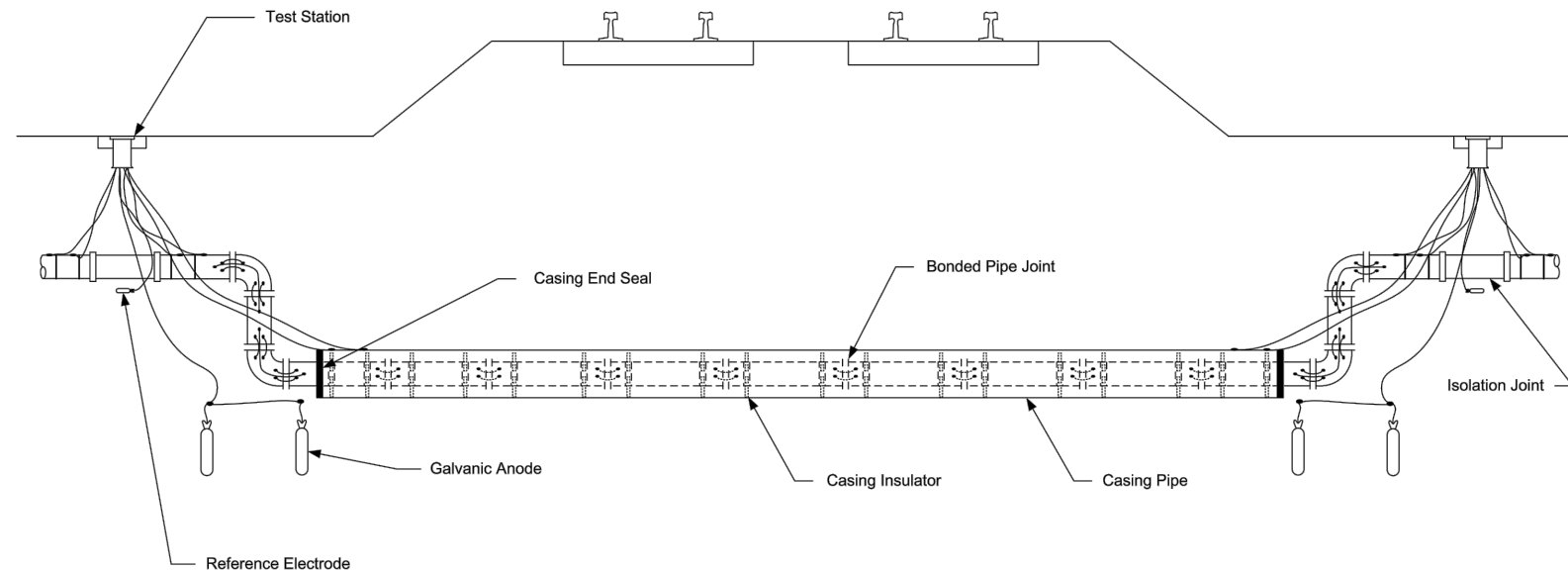


COPPER WATER SERVICE CATHODIC PROTECTION DETAIL



CASING PIPE SIZES		
WATER MAIN PIPE SIZE (INCHES)	CASING PIPE SIZE (INCHES)	CASING THICKNESS (INCHES)
6	16	0.375
8	20	0.375
12	24	0.375
16	30	0.375
20	36	0.375
24	42	0.500
30	48	0.500
36	54	0.500

TYPICAL CASING DETAIL



UTILITY CROSSING TYPICAL DETAIL

NOTES:

1. CASING PIPE SIZES SHOWN ARE TYPICAL TO ALLOW CLEARANCE OF BELL AND SPIGOT OR MECHANICAL COUPLINGS. REFER TO UTILITY OWNER'S STANDARDS FOR FINAL SIZING OF CASING PIPE.
2. THE UTILITY CROSSING SHOWN IS TYPICAL TO DEMONSTRATE THE REQUIRED JOINT BONDING, CASING ISOLATOR INSTALLATIONS, ISOLATION JOINTS AND TEST STATIONS. THE ACTUAL CROSSING LAYOUT WILL BE SHOWN IN THE UTILITY RELOCATION/INSTALLATION DRAWINGS.

NO.	DATE	BY	CHECK	DESIGN	REVISION / SUBMITTAL

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SOUTHWEST
Green Line LRT Extension



OPERATIONS & MAINTENANCE FACILITY - V1
CORROSION CONTROL
STRAY CURRENT CONTROL DETAILS 6

DISCIPLINE:
CORR

SHEET NAME:
OMF-SYS-CORR-DTL-06

SHEET
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