



**City of Seattle**

# **STANDARD PLANS for MUNICIPAL CONSTRUCTION**

**2023 EDITION**



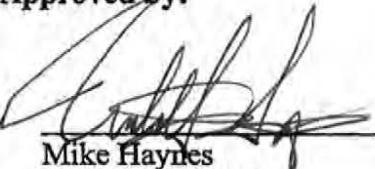
**CITY OF SEATTLE**  
**2023 Edition**  
**STANDARD PLANS**  
**FOR**  
**MUNICIPAL CONSTRUCTION**

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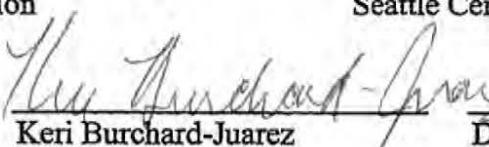
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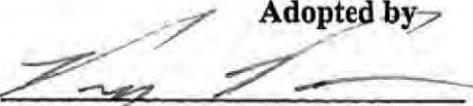
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## 2023 Edition City of Seattle Standard Plans for Municipal Construction

### PREFACE

The 2023 Edition City of Seattle Standard Plans for Municipal Construction (2023 Standard Plans) have been prepared by Seattle Public Utilities in cooperation with the Department of Facilities and Administrative Services, Seattle Department of Transportation, Seattle Parks and Recreation, Seattle City Light, and the Seattle Center. These Plans have been coordinated with the 2023 Edition City of Seattle Standard Specifications for Road, Bridge, and Municipal Construction.

The 2023 Standard Plans apply whenever any public or private construction is performed within the City of Seattle Right of Way, including work performed by private parties at their own expense under authority granted by ordinance of the City Council or by permit from the Seattle Department of Transportation's Street Use section.

For the convenience of our users, the table of contents entries shown in **BOLD TEXT** with a vertical line in the margin (as shown here) indicate where 2023 Editions Standard Plans were revised from the corresponding 2020 Edition Standard Plans. A revision date, located in the upper right corner of each Standard Plan, also indicates when Standard Plans were created or last updated.

Our sincere thanks and appreciation to all who participated in the effort of producing this 2023 Edition of our Standard Plans, and to the many other City personnel who provided review and submitted comments.

In particular, thanks to the following stakeholders who shouldered most of the work in authoring and reviewing changes, coordinating among their departments' subject matter experts, meeting deadlines, and cooperatively resolving inconsistencies within and between the Standard Specifications and the Standard Plans:

Department of Facilities and Administrative Services: Mark Nakagawara and Pam Honma

Seattle Public Utilities: Charles Oppelt, Pat Schreibe, Bill Duyungan, Shaunie Vail, Jason Miller, Mark Fredrickson and Adam Currie

Seattle Department of Transportation: Erich Ellis, Abner Gallardo, Tom Le, Ben Hansen, Nick Shrope, Lok Chan, Jocelyn Mamchur, Stephen Wilson, Mario Macias, Oli Frenchowicz, Ross Brazzale, Stuart Vitagliano, Ainalem Molla, Patty Jenkins and Katey Bean

Seattle Parks and Recreation: Scott Stevens and Narinna Kay

Seattle City Light: Michael Danielsen and Bob Stewart

Seattle Center: Stephen Levingood and Jae Lee

The hardcopy version of this document is available at the Department of Facilities and Administrative Services Treasury Services cashier counter located in the Seattle Municipal Tower, 700 Fifth Avenue, Suite 4200, Seattle, Washington 98104, 206-684-5214. The 2023 Standard Plans may also be ordered on-line from the website listed below. Additional features on the website include an archive of previous editions of our Standards dating back to 1910, CAD files of our Standard Plans, and proposed amendments to this edition (including pdf redline markups showing what has changed).

<https://www.seattle.gov/utilities/construction-resources/standards-and-guidelines/standard-specs-and-plans>

Despite considerable efforts to produce a completely error-free document, minor errors will inevitably be included in this 2023 Edition of our Standard Plans. If you discover errors in this document, please alert us by sending an email to the City's Construction Standards Engineer at [City\\_Standards\\_Engineer@Seattle.gov](mailto:City_Standards_Engineer@Seattle.gov).

If conflicts are discovered between this copy of the 2023 Standard Plans and any version of the 2023 Standard Specifications, the current edition of the 2023 Standard Specifications takes precedence.

This preface is for informational purposes only and is not to be used to interpret or affect the terms of the Contract between the City of Seattle as the Owner and the Contractor.

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# 2023 Edition City of Seattle Standard Plans for Municipal Construction

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**Vertical Datums within the City of Seattle:**

The National Geodetic Survey (NGS) Benchmark 944 7130 TIDAL 7 PID SY0289 is a disk set 3.0 feet above the concrete sidewalk in the SW granite cornerstone of the National Building located on the NE corner of the intersection of the Western Avenue and Madison Street, Seattle, Washington.

The following elevations are values for that benchmark in different datums.

NAVD 88 = 19.26 feet

NGVD 29 = 15.67 feet

King Co & Metro = 115.67

Obsolete COS Datum = 9.54 feet

USACOE = 22.51 feet

MLLW = 21.59 feet

NAVD88 = The North American Vertical Datum of 1988 (Official City of Seattle Datum per Ordinance #121291 of October 9, 2003)

NGVD 29 = The National Geodetic Vertical Datum of 1929

King Co & Metro = Add 100 feet to NGVD 29

Obsolete COS = The Old City of Seattle Elevation. Plans, profiles and records prior to 2004 use this datum. Add 9.7 feet to this datum to get to NAVD88.

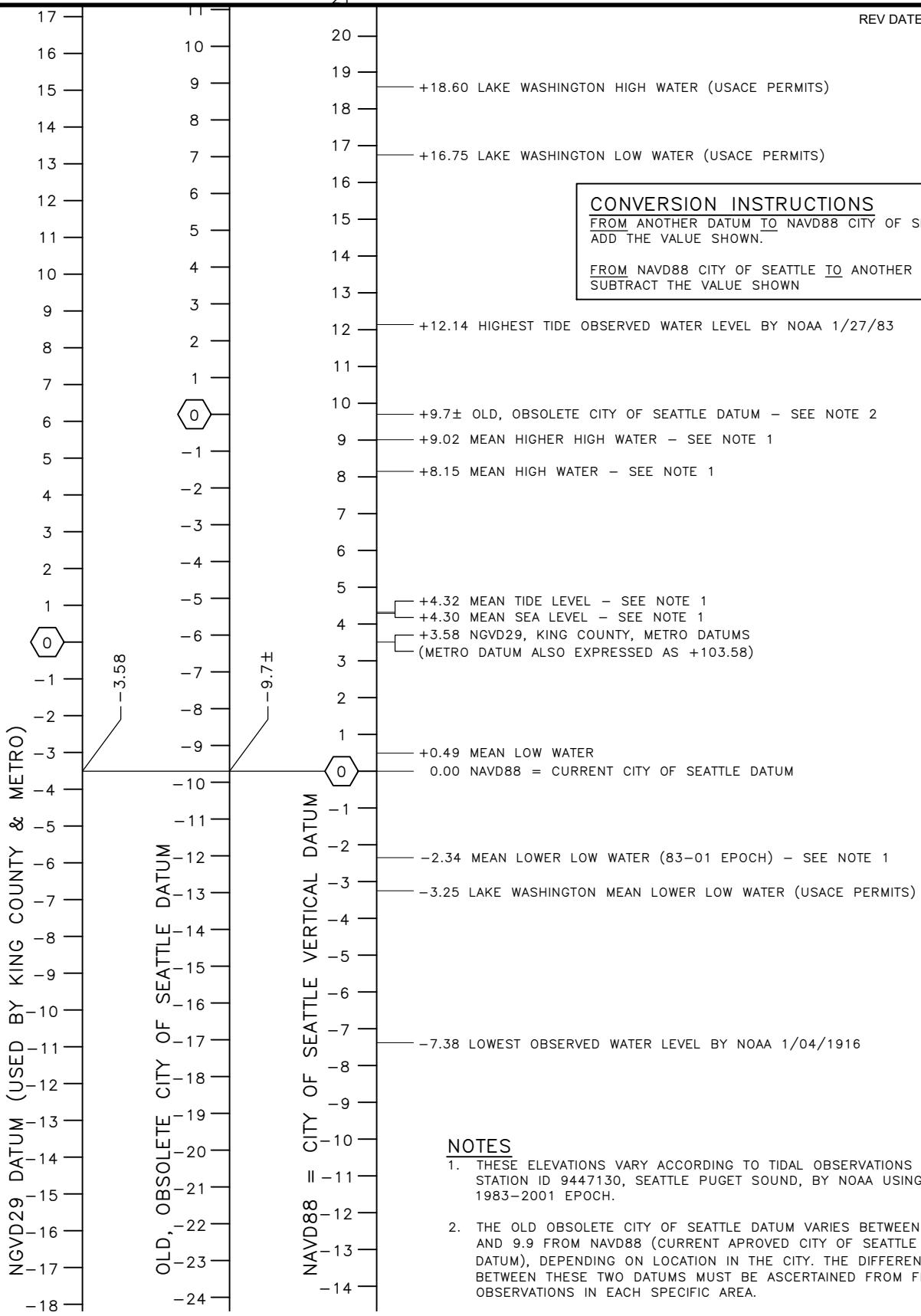
USACOE = US Army Corps of Engineers Lake Washington & Lake Union Datum

MLLW = Mean Lower Low Water Datum (TIDAL EPOCH 1983 TO 2001)

**NOTES**

1. Tidal elevations vary according to tidal observations in 18 year epochs.
2. The Old (Obsolete) City of Seattle Datum varies between 9.1 and 9.9 feet below NAVD88 depending on the location in the City. The difference between these two datums must be ascertained from field observations in each specific area. Add approximately 9.7 feet to the old COS Datum to get to the NAVD elevation.





City of Seattle

NOT TO SCALE

ELEVATIONS &amp; DATUMS

ABAN	Abandon(ed)
ABW	Asphalt Bike Way
ACV	Automatic Control Valve
ACP	Asphalt Concrete Pavement
ADA	Americans with Disabilities Act
ADJ	Adjust
AHD	Ahead
AIC	Aerial Interconnect Cable
AL	Aluminum
AP	Angle Point
APP	Approved
APPROX	Approximate
APWA	American Public Works Association
ASPH	Asphalt
ATB	Asphalt Treated Base
AV	Air Valve
AVB	Automatic Vacuum Breaker
AVE	Avenue
AVG	Average
AW	Asphalt Walk
AWG	American Wire Gage
AWWA	American Water Works Assoc.
BAT	Backflow Assembly Tester
B&B	Ball & Burlap
BC	Bolt Circle, Back of Curb
BF	Bottom Face
BFV	Butterfly Valve
BK	Back
BLDG	Building
BLK	Block
BLKG	Blocking
BLKHD	Bulkhead
BLRD	Bollard

BLVD	Boulevard
BM	Bench Mark
BO	Blow Off
BOC	Beginning of Curb
BPD	Backflow Prevention Device
BR	Bare Root, Brick
BRG	Bearing
BRKN	Broken
BSMT	Basement
BTW	Between
BV	Ball valve
BVC	Beginning of Vertical Curve
C&G	Curb & Gutter
CAL	Caliper
CALC	Calculation
CB	Cable, Catch Basin
CBW	Concrete Bike Way
C-C	Center to Center
CC	Concrete Culvert
CD	Conduit
CDF	Controlled Density Fill
CEM	Cement
CF	Cubic Feet
CH	Chamber
CIP	Cast Iron Pipe
CL	Center Line or Class
CL	Center Line
CLF	Chain Link Fence
CLR	Clearance
CMP	Corrugated Metal Pipe
CO	Clean Out
COMP	Compression
CONC	Concrete

REF STD SPEC SEC 1-01.2



City of Seattle

NOT TO SCALE

ABBREVIATIONS

COND	Condition
CONN	Connect/Connection
CONSTR	Construction
CONT	Continuous
CORP	Corporation
COS	City of Seattle
CPEP	Corrugated Polyethylene Pipe
CR	Cross, Curb Radius
CSB	Chief Seattle Base
CSECP	Construction Stormwater & Erosion Control Plan
CULV	Culvert
CW	Concrete Walk
CY	Cubic Yard
DB	Direct Burial Cable
DC	Direct Current
DCVA	Double Check Valve Assembly
DEPT	Department
DGV	District Gate Valve
DIA Ø	Diameter
DIP or DI	Ductile Iron Pipe
DIPRA	Ductile Iron Pipe Research Assoc.
DR	Drive
DS	Downspout
DWG	Drawing
DWY	Driveway
E	East
EA	Each
ECB	Electrical Cable
ECC	Eccentric
ECD	Electrical Conduit
ED	Electrical Duct
EL/ELEV	Elevation
ELEC	Electric/Electrical

EMH	Electrical Maintenance Hole
ENCL	Enclosure
ENGR	Engineer
EOC	End of Curb
EQ	Equal
ESAL	Equivalent Single Axle Loads
ESMT	Easement
EV	Electrical Vault
EVC	End of Vertical Curb
EW	Each Way
EX	Existing
EXP	Expansion
FACB	Fire Alarm Cable
FAHH	Fire Alarm Handhole
FC	Face of Curb
FCS	Flow Control Structure
FDN	Foundation
FF	Far Face, Finished Floor
FG	Finished Grade
FIG	Figure
FIPT	Female Iron Pipe Thread
FL	Flow Line
FLG	Flange
FLR	Floor
FLT	Flat Bar
FM	Force Main
FO or FOC	Fiber Optics
FS	Far Side
FT	Feet
FTB	Fluidized Thermal Backfill
FTG	Footing
G	Gas
G REG	Gas Regulator

REF STD SPEC SEC 1-01.2



City of Seattle

NOT TO SCALE

ABBREVIATIONS

GA	Gauge
GAL	Gallon
GALV	Galvanize/Galvanized
GAS V	Gas Valve
GFCI	Ground Fault Circuit Interrupter
GIP	Galvanized Iron Pipe
GM	Gas Meter
GND	Ground
GP	Guy Pole
GPM	Gallons Per Minute
GR	Grade
GRHH	Ground Rod Handhole
GS	Gas Service
GSI	Green Stormwater Infrastructure
GSP	Galvanized Steel Pipe
GV	Gate Valve
GVC	Gate Valve Chamber
GVL	Gravel
HB	Horizontal Bend
HBR	Hose Bib Riser
HDPE	High Density Polyethylene
HEX	Hexagon/Hexagonal
HGL	Hydraulic Grade Line
HH	Handhole
HI	High
HMA	Hot Mix Asphalt
HORIZ	Horizontal
HPG	High Pressure Gas
HPS	High Pressure Sodium
HR	Hour
HSE	House
HT	Height
HYD	Hydrant

ID	Inside Diameter/Dimension
I/D	Incentive/Disincentive
IE	Invert Elevation
IF	Inside Face
IN	Inch(es)
INL	Inlet
INT	Intersection
INV	Invert (Line)
IP(S)	Iron Pipe (Size)
IRC	Irrigation Controller
IRRG	Irrigation
IRRGV	Irrigation Valve
ISO	Isolation Coupling
JB	Junction Box
JT	Joint
K	Kips (1000 lbs)
KSI	Kips Per Square Inch
KV	Kilovolt
LAL	Limited Access Line
LB, LBS	Pound, Pounds
LF	Linear/Lineal Feet
LID	Local Improvement District
LIT	Large Inlet Top (Catch Basin)
LOC	Locate/Location
LONGIT	Longitudinal
LP	Light Pole
LS	Lump Sum
LSCAPE	Landscape, Landscaping
LT	Left
LTG	Lighting
LUM	Luminaire
MA	Mast Arm
MATL	Material

REF STD SPEC SEC 1-01.2



City of Seattle

NOT TO SCALE

ABBREVIATIONS

MAX	Maximum
MB	Mailbox
MCV	Manual Control Valve
MDV	Manual Drain Valve
MH	Maintenance Hole
MIC	Monument in Case
MIN	Minimum
MIPT	Male Iron Pipe Thread
MISC	Miscellaneous
MJ	Mechanical Joint
ML 	Monument Line
MNRL AGG	Mineral Aggregate
MOD	Modify/Modified
MON	Monument
MW	Monitor Well
N	North
NAD	North American Datum
NAVD	North American Vertical Datum
NF	Near Face
NGVD	National Geodetic Vertical Datum
NIC	Not in Contract
NO	Number
NOM	Nominal
NS	Near Side
NTS	Not To Scale
OC	On Center
OD	Outside Diameter/Dimension
OF	Outside Face
OH	Overhead
PAV	Pavement
PC	Point of Curvature
PCC	Point of Compound Curve
PCW	Pervious Concrete Walk

PDP	Perforated Drain Pipe
PE	Plain End
PED	Pedestrian
PG	Performance Grade
PH	Phase
PI	Point of Intersection
PL	Plate, Place, Polyethylene
PL	Property Line
POC	Point on Curve
PP	Power Pole
PPB	Pedestrian Push Button
PR	Pair
PRC	Point of Reverse Curve
PROP	Proposed
PRKG	Parking
PRV	Pressure Reducing Valve
PS	Pipe Sewer Combined
PSD	Pipe Storm Drain
PSDD	Pipe Storm Drain Detention
PSI	Pounds per Square Inch
PSIA	Pounds per Square Inch Absolute
PSIG	Pounds per Square Inch Gauge
PSS	Pipe Sewer Sanitary
PT	Point of Tangency
PVB	Pressure Vacuum Breaker
PVC	Polyvinyl Chloride
PVT	Private
QTY	Quantity
R	Radius
R&R	Remove & Replace
R/W	Right of Way
RCP	Reinforced Concrete Pipe
RD	Roof Drain

REF STD SPEC SEC 1-01.2



City of Seattle

NOT TO SCALE

ABBREVIATIONS

RDWY	Roadway
RECONN	Reconnect
RED	Reducer
REF	Refer/Reference
REINF	Reinforce/Reinforcement
RELOC	Relocate
REM	Remove
REPL	Replace
REQD	Required
RET	Retire/Retired
RET WALL	Retaining Wall
RF	Rock Facing
RGS	Rigid Galvanized Steel
RIT	Round Inlet Top
RJ	Restrained Joint
RLWY	Railway
RP	Rock Pocket
RPBA	Reduced Pressure Backflow Assembly
RR	Railroad
RS	Rigid Steel
RT	Right
S	South
SB	Sandbox
SCH	Schedule
SCL	Seattle City Light
SDCI	Seattle Department of Construction & Inspections
SDS	Street Designation Sign
SD	Service Drain
SDOT	Seattle Department of Transportation
SEC	Section
SHLD	Shield
SHT	Sheet
SL	Sleeve, Street Light

§	Survey Line
SLHH	Street Light Handhole
SNS	Street Name Sign
SP	Strain Pole
SPCS	Spaces
SPEC	Specifications
SPR	Seattle Parks & Recreation
SPU	Seattle Public Utilities
SQ	Square
SS	Stainless Steel, Side Sewer—Combined
SSD	Sub-Surface Drain
SSS	Side Sewer—Sanitary
SSTONE	Sandstone
ST	Street
STA	Station
STD	Standard
STL	Steel
STL P	Steel Pipe
STM LOG	Steam Log
STRUCT	Structure/Structural
SW	Sidewalk
SY	Square Yard
SYS	System
T	Tee
TB	Test Boring
TC	Traffic Control
TCB	Telephone Cable
TCD	Telephone Conduit
TCHH	Traffic Control Handhole
TD	Telephone Duct
TEB	Telephone Enclosure Box
TEL	Telephone
TEMP	Temporary

REF STD SPEC SEC 1-01.2



City of Seattle

NOT TO SCALE

ABBREVIATIONS

TF	Top Face
TH	Test Hole
THH	Telephone Handhole
TJO	Transfer of Jurisdiction Ordinance
TMH	Telephone Manhole
TMT	Treatment
TN	Ton
TOC	Top of Curb
TR	Traffic
TRCB	Traffic Signal Cable
TRCD	Traffic Signal Conduit
TRSCC	Traffic Signal Controller Cabinet
TVCB	Television Cable
TVCD	Television Conduit
TVHH	Television Handhole
TYP	Typical
UG	Underground
UIC	Underground Interconnect
UNC	Unified National Course
UP	Utility Pole
V	Valve, Variable
V/C	Vertical Curve
VAR	Variable/Varies
VB	Vertical Bend
VBOX	Valve Box
VCH or VC	Valve Chamber
VCP	Vitrified Clay Pipe
VEH	Vehicle
VERT	Vertical
VMS	Variable Message Sign
VO	Vacation Ordinance
W	Water, West
W/	With

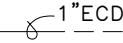
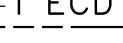
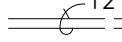
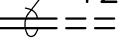
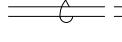
REF STD SPEC SEC 1-01.2



## City of Seattle

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## ABBREVIATIONS

ITEM	EXISTING	PROPOSED
Signal Controller Cabinet		
Electrical Vault		
Electrical Conduit	 ECD"/>	 ECD"/>
Electrical Cable (direct burial)		
Electrical Duct	 X 12\" data-bbox="455 375 530 395"/> ED"/>	 X 12\" data-bbox="740 375 815 395"/> ED"/>
Combined Electrical & Telephone Duct	 X 12\" data-bbox="455 435 530 455"/> ED-TD"/>	 X 12\" data-bbox="720 435 795 455"/> ED-TD"/>
Span Wire		
Aerial Interconnect Cable		
Transmission Pole (steel w/ conc base)		
City Wood Pole		
City Wood Pole w/ HPS		

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
ELECTRICAL

ITEM	EXISTING	PROPOSED
Light Pole (metal) w/ HPS	LP 	
Strain Pole (metal)		
Combined Lighting Strain Pole HPS		
Luminaire		
Mercury Vapor Luminaire		
Double Light Pole		
Utility Wood Pole	○ UP	
Utility Guy Pole	○ GP	GP
Anchor		
Ground		

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
ELECTRICAL

ITEM	EXISTING	PROPOSED
Traffic Signal Mast Arm Pole		
Traffic Signal Mast Arm Pole w/ Luminaire		
Traffic Signal on Span Wire		
Multi-Directional Traffic Signal on Span Wire		
Traffic Signal Conduit		
Traffic Signal Cable		
Detector Loop, Dipole (loop schedule)		
Detector Loop, Quadrapole (loop schedule)		

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
ELECTRICAL

ITEM	EXISTING	PROPOSED
Signal Pedestal	○	●
Vehicle Signal	→	
Vehicle Signal w/ Backplate	→	→
Vehicle Signal (optically programmed)	→○	→●
Pedestrian Signal	↗	↗
Pedestrian Signal (optically programmed)	↗○	↗●
Pedestrian Push Button Post	○	●
Pedestrian Push Button	+	PPB
Illuminated Sign	□→	→
Junction Box	×	
Handhole	□ EHH	■ HH
Traffic Control Handhole	□ TCHH	■ TCHH
Street Light Handhole	□ SLHH	■ SLHH
Ground Rod Handhole	□ GRHH	■ GRHH
Fire Alarm Handhole	□ FAHH	■ FAHH

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
ELECTRICAL

## SIGNALIZATION



Vehicle & Pedestrian Signal Head  
(?=Identification Number)



Traffic Sign (?=Identification Number)



Cable Runs  
(?=Run Number per Wiring Schedule)



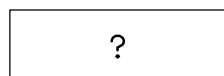
Removal/Relocation Item  
(?=Identification Number per Removal/Relocation Plan)



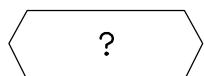
Construction Item  
(?=Identification Number per Signalization Plan)

Signal Poles, Signal Pedestals, Push Button Pedestals & Push Buttons Identified by Number on Signalization Plan.

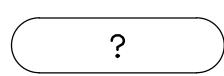
## CHANNELIZATION & SIGNAGE



Install Channelization/Signage  
(?=Channelization / Signage Identified on Plan)



Remove Channelization / Signage  
(?=Channelization / Signage Identified on Plan)



Relocate Signage  
(?=Signage Identified on Plan)

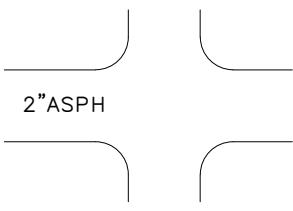
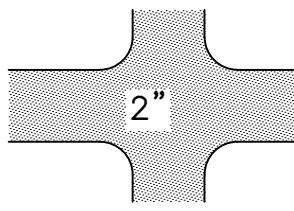
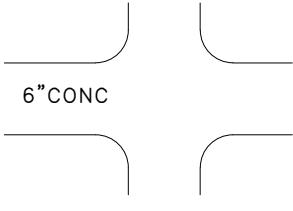
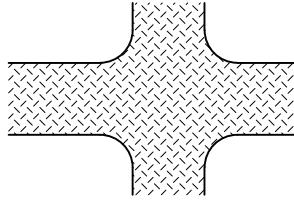
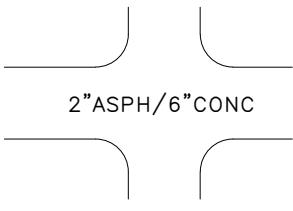
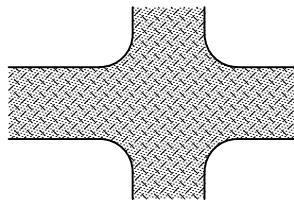
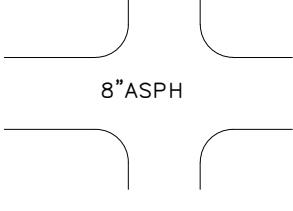
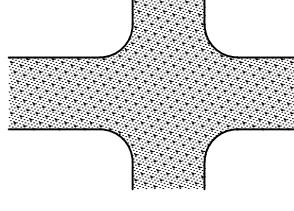
REF STD SPEC SEC



City of Seattle

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**STANDARD SYMBOLS**  
**SIGNALIZATION/CHANNELIZATION**  
**& SIGNAGE**

ITEM	EXISTING	PROPOSED
Pavement, HMA or WMA (CL $\frac{1}{2}$ " )	 2" ASPH	
Roadway Cement Concrete, (type to be shown in drawings)	 6" CONC	
2" HMA or WMA, CL $\frac{1}{2}$ " Over Roadway Cement Concrete Base	 2" ASPH/6" CONC	
2" HMA or WMA, CL $\frac{1}{2}$ " over HMA or WMA, CL 1"	 8" ASPH	

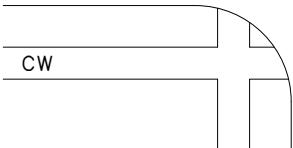
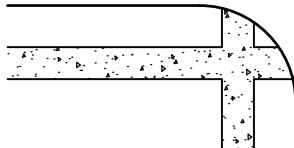
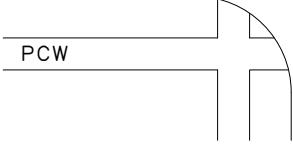
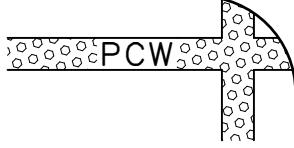
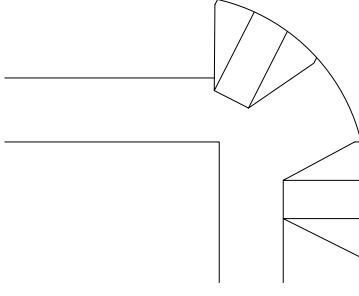
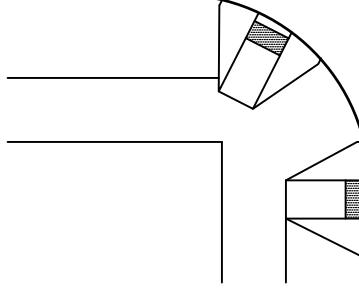
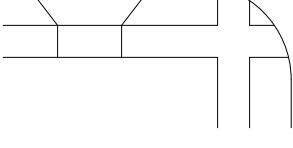
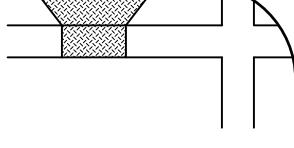
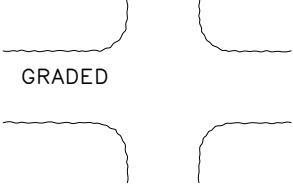
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City of Seattle

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STANDARD SYMBOLS  
PAVING

ITEM	EXISTING	PROPOSED
Type 410b Curb & Gutter	=====	=====
Type 410c Curb	=====	=====
Cement Concrete Walk		
Pervious Concrete Walk		
Curb Ramp		
Type 430a Conc Dwy		
Pervious Concrete Surface		
Grading		

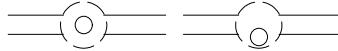
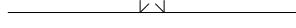
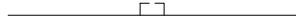
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
PAVING

ITEM	EXISTING	PROPOSED
Maintenance Holes		MH-7
Inlet Type 250A		
Inlet Type 250B		
Inlet Type 252		
Inlet Type 268		
Catch Basin round inlet top		
Private CB & Inlet		
Catch Basin Type 151 (pre 1985)		
Catch Basin Type 240A		
Catch Basin Type 240B		
Catch Basin Type 240C		
Catch Basin Type 240D		
Catch Basin Type 241		
Catch Basin Type 242A		
Catch Basin Type 242B		
Junction Box Type 277A		
Junction Box Type 277B		
Area Drain		

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
SEWER & DRAINAGE

ITEM	EXISTING	PROPOSED
Sand Box	□ +	
Clean Out	○	●
Concrete Culvert	— C 12"CC	— C 12"CC
Pipe Sewer Combined <1'-0"Dia	— Ø 8"PS —	— Ø 8"PS —
Pipe Sewer Combined ≥1'-0"Dia	— C 24"PS —	— C 24"PS —
Side Sewer Combined	— — Ø 6"SS — — —	— Ø 6"SS —
Pipe Sewer Sanitary <1'-0"Dia	— Ø 8"PSS —	— Ø 8"PSS —
Pipe Sewer Sanitary ≥1'-0"Dia	— C 24"PSS —	— C 24"PSS —
Side Sewer Sanitary	— — Ø 6"SSS — — —	— Ø 6"SSS —
Pipe Storm Drain <1'-0"Dia	— Ø 8"PSD —	— Ø 8"PSD —
Pipe Storm Drain ≥1'-0"Dia	— C 24"PSD —	— C 24"PSD —

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
SEWER & DRAINAGE

ITEM	EXISTING	PROPOSED
Service Drain	— — ⚡ 8" SD — — —	— ⚡ 8" SD — — —
Inlet & CB Connection	— — — — —	— ⚡ 8" — — —
Open Ended Pipe	— ⚡ 8" PSD — — —	— ⚡ 8" PSD — — —
Ditch	— — ⚡ ⚡ — — —	— — ⚡ ⚡ — — —
Stream	— — ⚡ ⚡ — — — — — ⚡ ⚡ — — —	— — ⚡ ⚡ — — — — — ⚡ ⚡ — — —

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
SEWER & DRAINAGE

ITEM	EXISTING	PROPOSED
Bench Mark (found or set)		
Brass Plug/Cap (found or set)		
Hub/Tack (found or set)		
Monument in Case (found or set)		
Conc. Mon. (found or set)		
Section Corner (found or set)		
Quarter Corner (found or set)		
Section Corner (calculated)		
Quarter Corner (calculated)		
Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (found or set)		
Tack/Lead, Tack PK Nail, Spike (found or set)		
Bench Mark (not found)		
Brass Plug/Cap (not found)		
MIC. (not found)		
Conc. Mon. (not found)		
Rebar/Cap, Pipe/Cap Rebar, Iron Pipe (not found)		
Tack/Lead, Tack PK Nail, Spike (not found)		
Survey Shot Point		

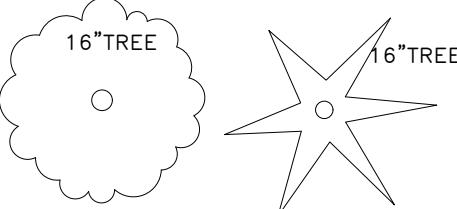
REF STD SPEC SEC



City of Seattle

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STANDARD SYMBOLS  
TOPOGRAPHIC & MISC

ITEM	EXISTING	PROPOSED
Center Line	— C —	— —
Monument Line	— M —	— —
Survey Line	— \$ —	— —
Right of Way Line	— — —	— — —
Lot & Ownership Line	— — — —	— — — —
Permanent Easement Line	.....	.....
Temp Const Easement Line	.....	.....
Vacated Street or Alley	— — — —	— — — —
State Highway Limited Access Line	STATE LAL 	— — — —
Building	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	— — — —
Chain Link Fence	— X — X — X — X —	— X — X — X — X —
Wood Fence	— // — // — // —	— // — // — // —
Guardrail	— □ — □ — □ — □ — □ —	— □ — □ — □ — □ —
Rock Facing	ooooooooooooooooooooooo	ooooooooooooooooooooooo
Rock Facing		
Riprap		
Trees	 16" TREE	PER DRAWINGS

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
TOPOGRAPHIC & MISC

ITEM	EXISTING	PROPOSED
Shrub or Bush		
Ground, Grade Line		
Grade (arrow downhill)		
Rail Road Tracks		
City Limits		
Slope Line		
Contours		
Slope Angle Horiz:Vert		
Vertical Curve		
Depression		
Stump		
Top of Cut Toe of Fill		
Dimension Line		
Match Line		
Test Hole & Number (test boring)		
Bench Mark		

REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
TOPOGRAPHIC & MISC

ITEM	EXISTING	PROPOSED
Monitor Well	○ <sup>MW</sup>	
Street Name Sign	□	■
Traffic Sign	▷	▶
US Mail Box	✉	
Private Mail Box	□	
Bollard	○	●
Posts	□ ○	■ ●
Parking Meter & Pay Station	□ □	
Rectangular Casting	□□	□□
Circular Casting	○○	○○
Column	○	
Jersey Barrier & Eco Block	 	
Tree Pit	□	□
North Arrow horizontal		
North Arrow vertical		

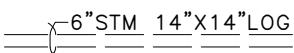
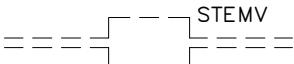
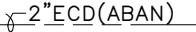
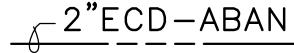
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
TOPOGRAPHIC & MISC

ITEM	EXISTING	PROPOSED
Telephone Cable (direct burial)	_____  TCB	
Telephone Conduit	_____  3" TCD	
Telephone Duct	_____ =  12'X12" TD	
Telephone Enclosure	_____  TEB	
Telephone Maintenance Hole		
Telephone Pole	 TP	
Telephone Handhole	 THH	
Television Cable (direct Burial)	_____  TVCB	
Television Handhole	 TVHH	
Telegraph Maintenance Hole		
Steam Log	 6" STM 14"X14" LOG	
Steam Vault	 STEMV	
Gas Main <1'-0" Dia	_____  4" G	
Gas Main ≥1'-0" Dia	_____ =  12" G	
Gas Valve	_____  X	
Gas Meter	 GM	
Gas Regulator	 G REG	
Petroleum or Oil	_____  OIL	
Abandon(ed)	_____  2" ECD(ABAN)	 2" ECD-ABAN

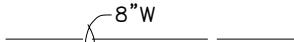
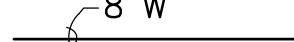
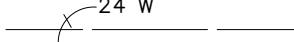
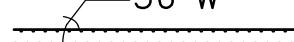
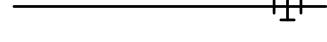
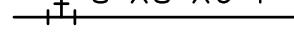
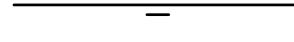
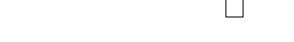
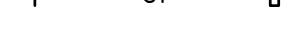
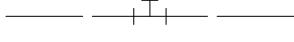
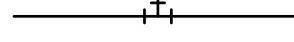
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
PRIVATE UTILITIES

ITEM	EXISTING	PROPOSED
90° Bend w/Conc Blocking		
Plug w/Conc Blocking		
Tee w/Conc Blocking		
Watermain <1'-0" Dia	 8" W	 8" W
Watermain ≥1'-0" Dia	 24" W	 36" W
11 1/4° Bend		 8" - 11 1/4° HBorVB
22 1/2° Bend		 8" - 22 1/2° HBorVB
45° Bend		 8" - 45° HBorVB
90° Bend		 8" - 90° HBorVB
Cross		 8" X 8" X 6" X 6" CR
Tee		 8" X 8" X 6" T
Pipe Sleeve		
Plug		 or 
Hydrant		

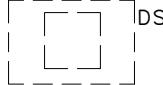
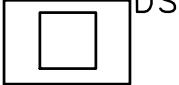
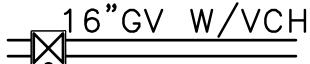
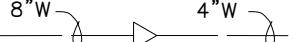
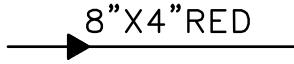
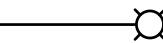
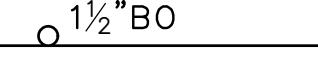
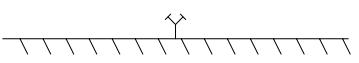
REF STD SPEC SEC



City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
WATER

ITEM	EXISTING	PROPOSED
6" & Larger Domestic Service		
3" & 4" Domestic Service		
4" & Larger Fire Service		
2" & Smaller Water Service		
Valve Box		
Gate Valve		
Gate Valve w/ Chamber		
Gate Valve w/ Vault Chamber		
Reducer		
Air Valve		
Blowoff		
Fire Standpipe		

REF STD SPEC SEC



City of Seattle

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STANDARD SYMBOLS  
WATER

ITEM	EXISTING	PROPOSED
Water Test Station	○	
Water Chamber	□	
Sprinkler Head	⊗	⊗
Irrigation Valve	⊗ <sup>IRRV</sup>	⊗ <sup>IRRV</sup>
Angle Valve	○	○
Butterfly Valve	○	○
Ball Valve	○	○
Check Valve	↖	↖
Cone Valve	↖	↖
Globe Valve	⊗○	⊗○
Needle Valve	↖	↖
Plug Valve	○○	○○
Resilient Seal Gate Valve	↖×	↖
Vertical Bend		
Concrete Blocking		◀

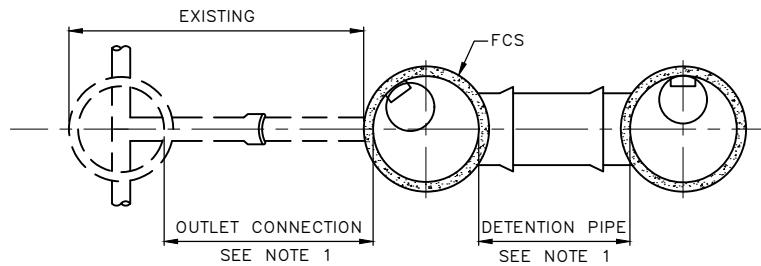
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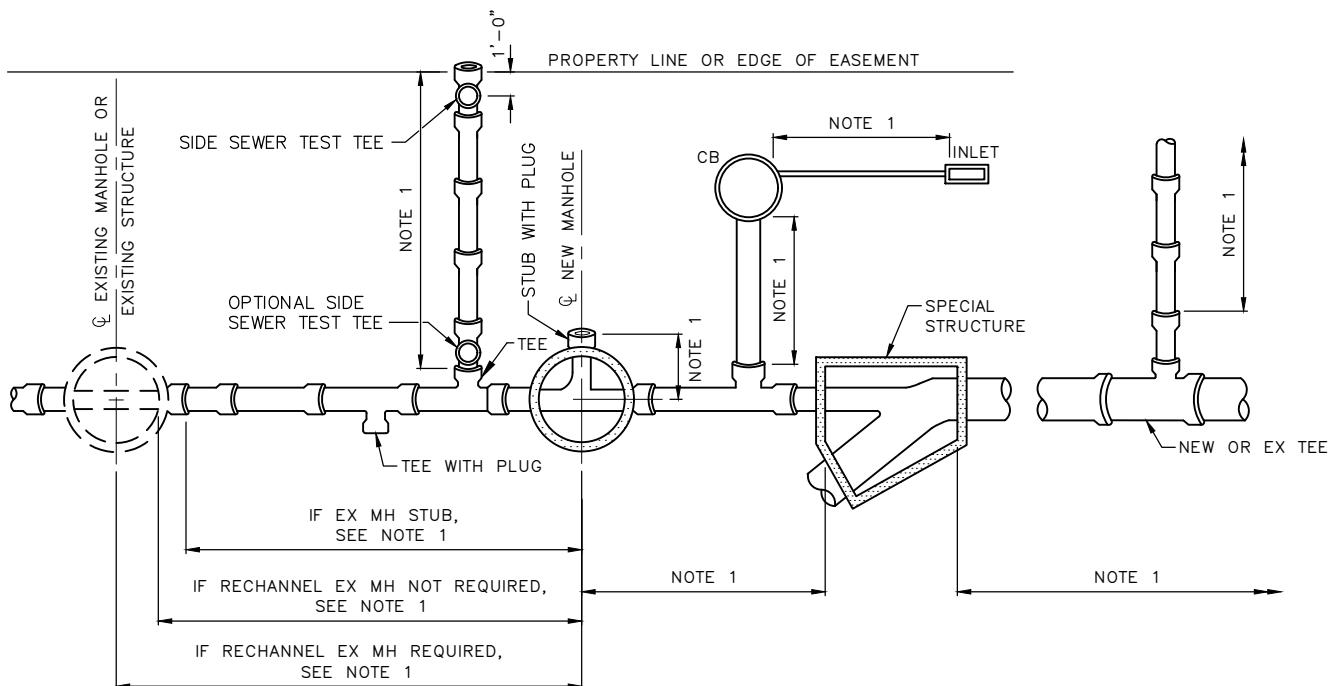
City of Seattle

NOT TO SCALE

STANDARD SYMBOLS  
WATER



PLAN VIEW



PLAN VIEW

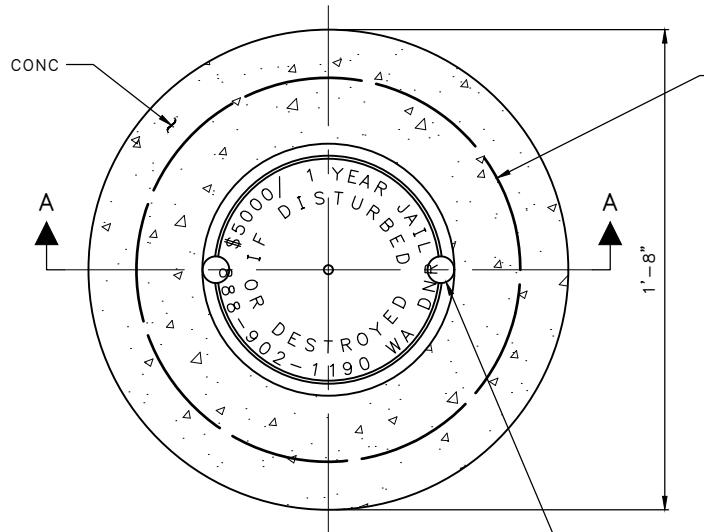
NOTES:

1. MEASUREMENT PER LINEAR FOOT. PIPE ENDING IN STRUCTURE MEASURED TO EITHER INSIDE FACE OR TO CENTERLINE OF STRUCTURE AS INDICATED, OR TO TEE OR WYE AS INDICATED.
2. TEE OR WYE INCLUDING PLUG - UNIT PRICE EACH
3. ALL PIPE MUST BE MEASURED ON THE SLOPE ALONG THE CENTERLINE OF PIPE TO NEAREST 0.10 LF.



NOTES:

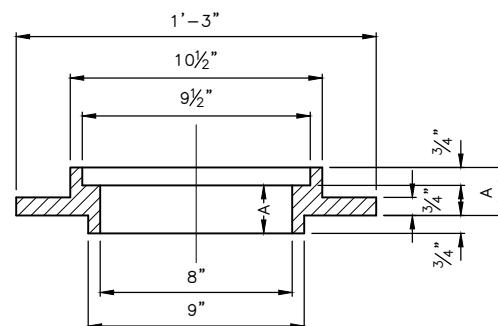
1. MONUMENT CASE TO BE INSTALLED BY CONTRACTOR.
2. BASE TO BE PLACED ON A WELL COMPACTED FOUNDATION.
3. FRAME AND COVER MUST BE TESTED FOR ACCURACY OF FIT AND MUST BE MARKED IN SETS FOR DELIVERY.
4. FRAME AND COVER MUST BE CAST IRON AND HAVE COATING APPLIED TO ALL FACES.
5. CASTINGS IN RIGID PAVEMENT MUST HAVE REINFORCING STEEL IN THE PAVEMENT.
6. USE LOCKING COVER IN R/W. DRILL AND TAP, APPLY ANTI-SEIZE COATING AND BOLT DOWN WITH  $\frac{3}{8}$ "S.S. ALLEN-HEAD BOLTS -2 PLACES.



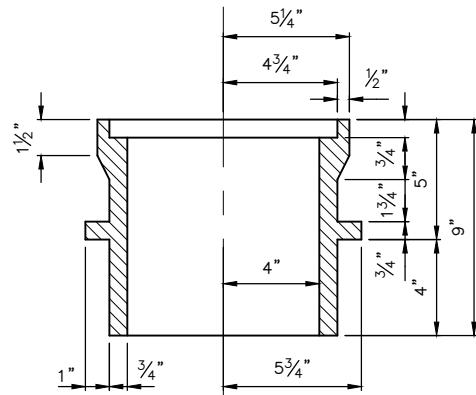
**PLAN**  
SEE SECTION A-A ON  
STD PLAN NO 020c

16" #3 BAR SPIRAL, 3"  
BETWEEN LAYERS (3 LAYERS OF  
BAR)

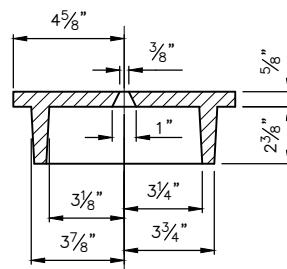
RISER RING DIMENSIONS			
A (SIZE)	1½"	2"	3"



**RISER RING SECTION**



**CASE SECTION**



**COVER SECTION**

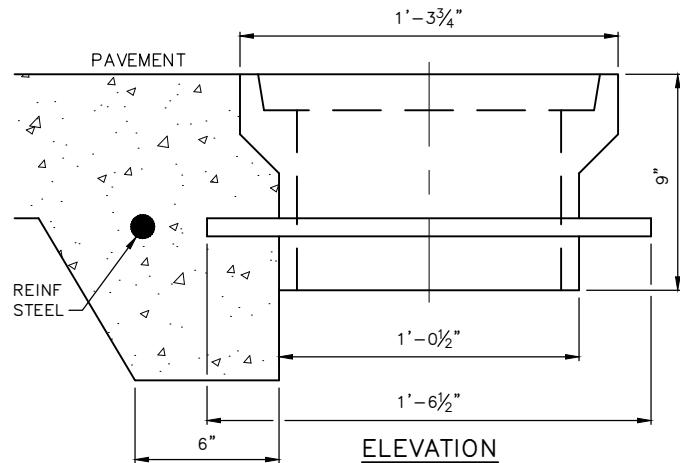
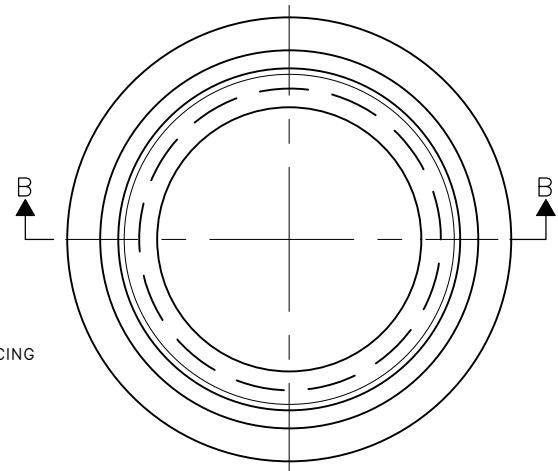
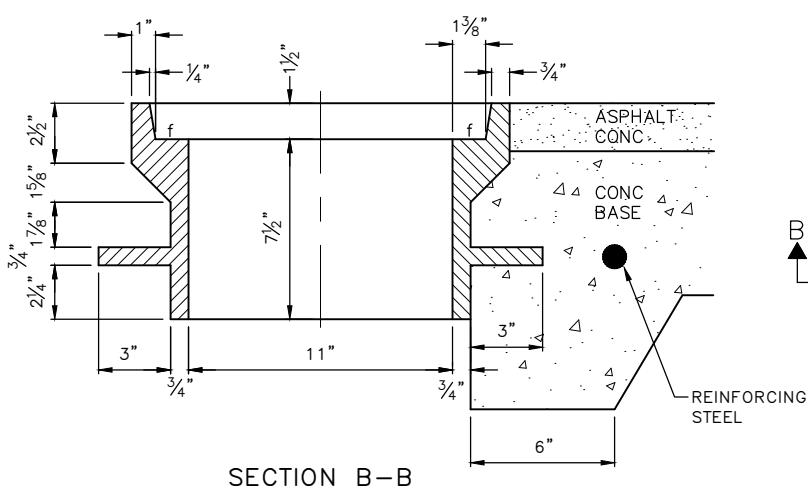
REF STD SPEC SEC 8-13



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NOT TO SCALE

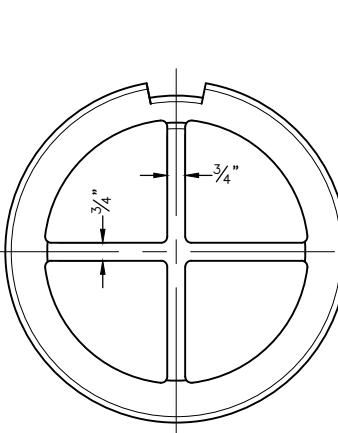
MONUMENT FRAME & COVER



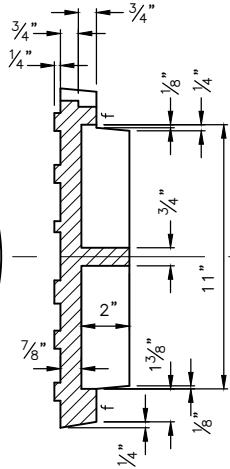
PLAN VIEW

## NOTES:

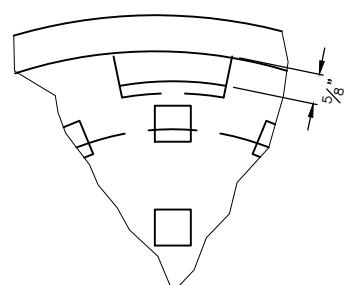
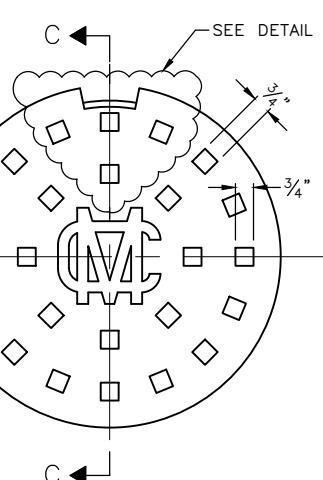
1. FRAME AND COVER MUST BE TESTED FOR ACCURACY OF FIT AND MUST BE MARKED IN SETS FOR DELIVERY
2. FRAME AND COVER SHALL BE CAST IRON
3. "f"=FINISH
4. CASTINGS IN RIGID PAVEMENT MUST HAVE REINFORCING STEEL IN THE PAVEMENT.



BOTTOM VIEW

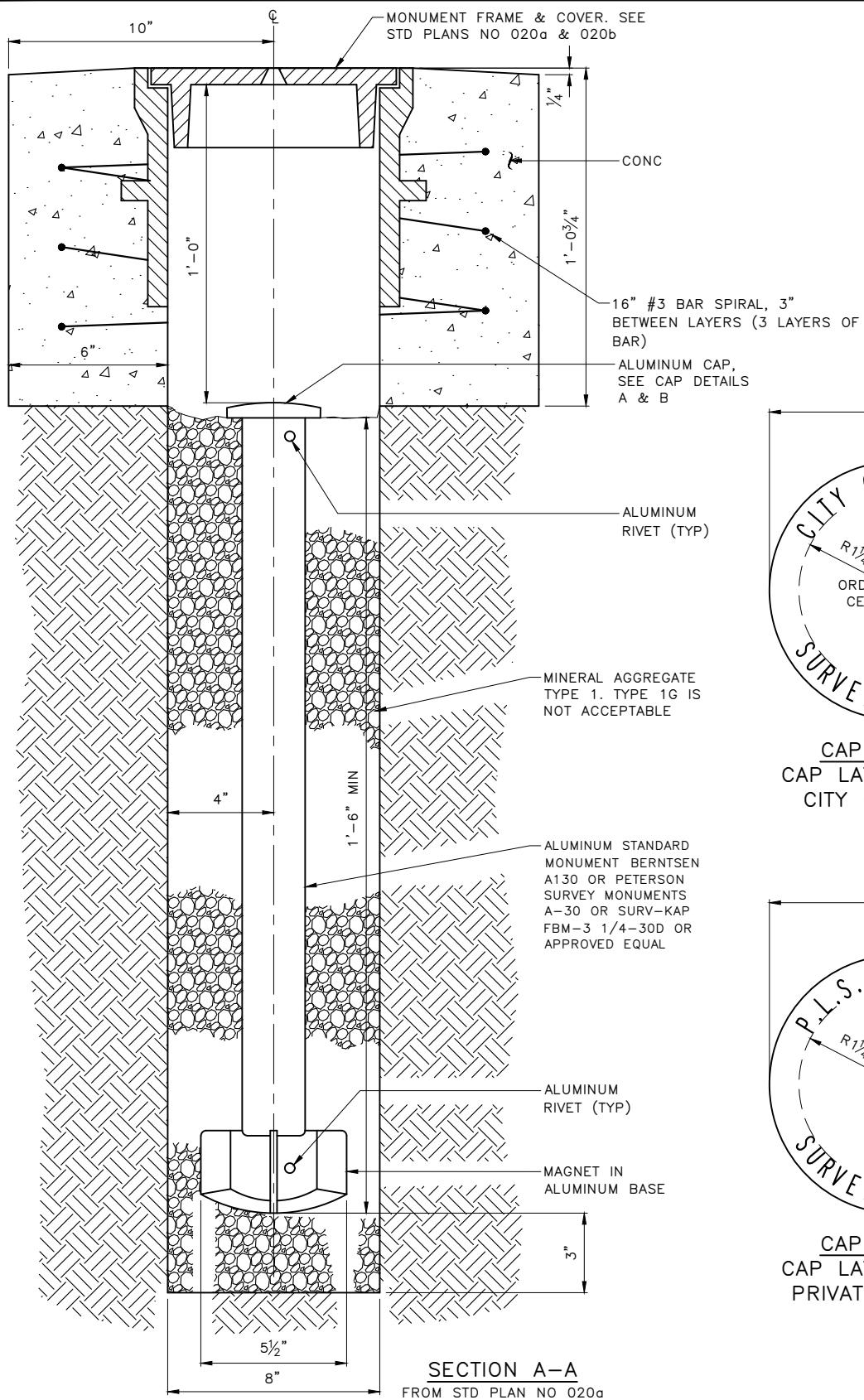


COVER



DETAIL A





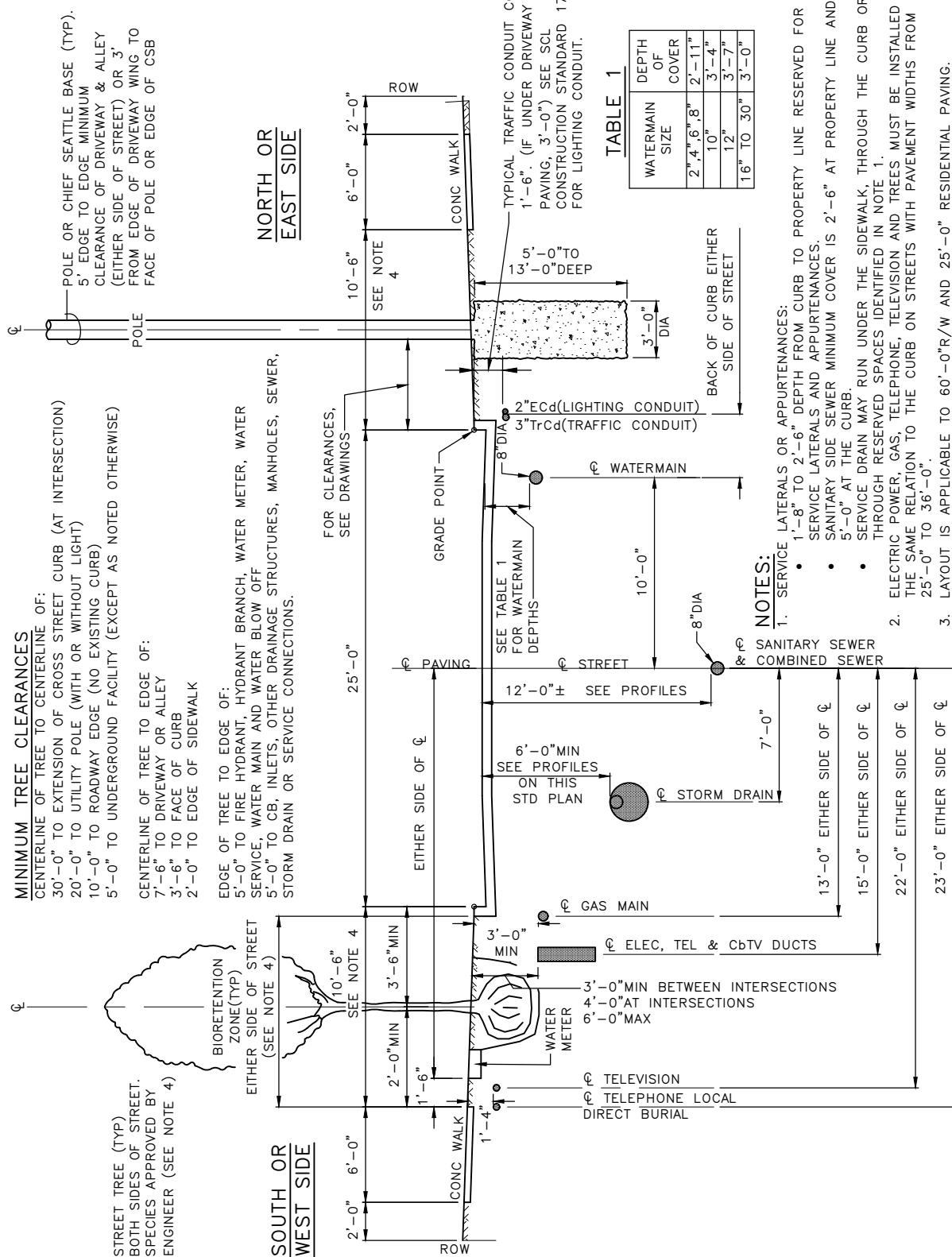
REF STD SPEC SEC 8-13



City of Seattle

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SURVEY MONUMENT



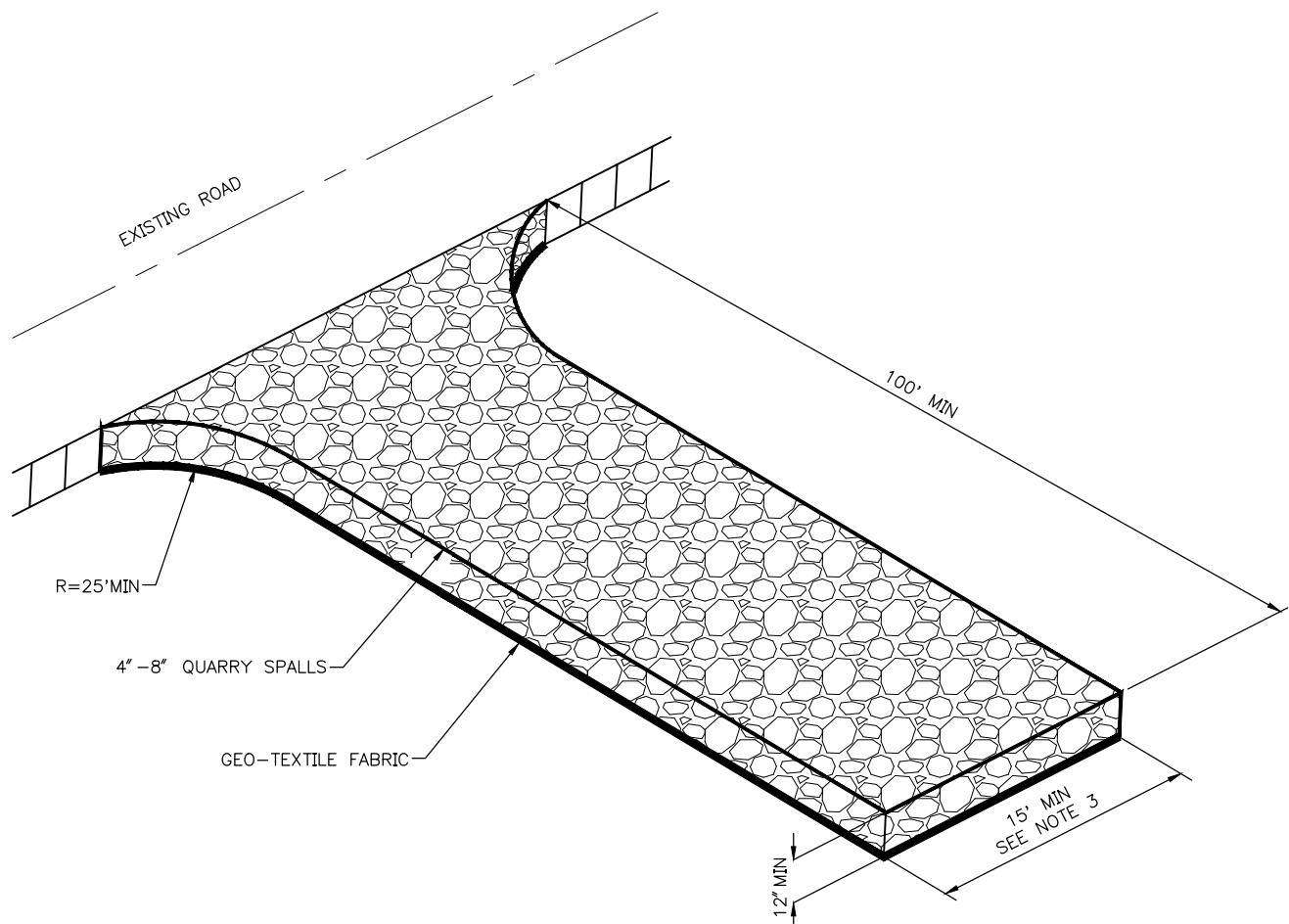
REF STD SPEC SEC 1-07.16, 1-07.17, 1-07.28



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**DESIRABLE LOCATIONS  
FOR UTILITIES  
(RESIDENTIAL STREET)**

**NOTES:**

1. STABILIZED ACCESS MUST BE USED IN ALL AREAS OF THE SITE WITH VEHICLE TRAFFIC AND PARKING, INCLUDING PLANTING STRIPS.
2. SEE SECTION 9-37.2 (TABLE 3) FOR GEOTEXTILE REQUIREMENTS. GEOTEXTILE MODIFICATIONS BASED ON SPECIFIC PROJECT SITE CONDITIONS MAY BE APPROVED BY THE ENGINEER.
3. STABILIZED CONSTRUCTION ENTRANCES ON SEATTLE PARKS & RECREATION PROPERTY ARE LIMITED TO A MAXIMUM WIDTH OF 10 FEET UNLESS DIRECTED OTHERWISE.

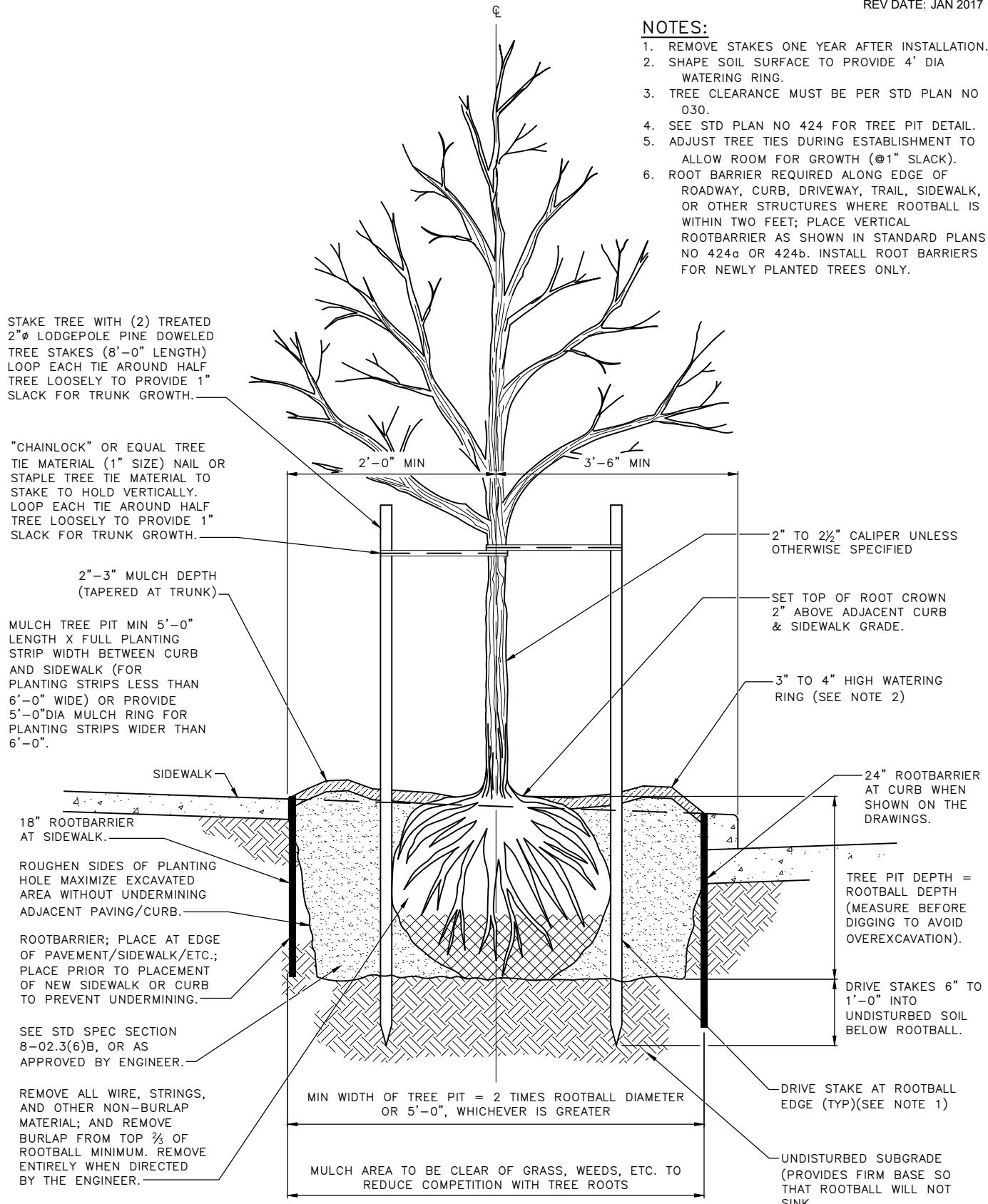
REF STD SPEC SEC 8-01



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STABILIZED CONSTRUCTION  
ENTRANCE



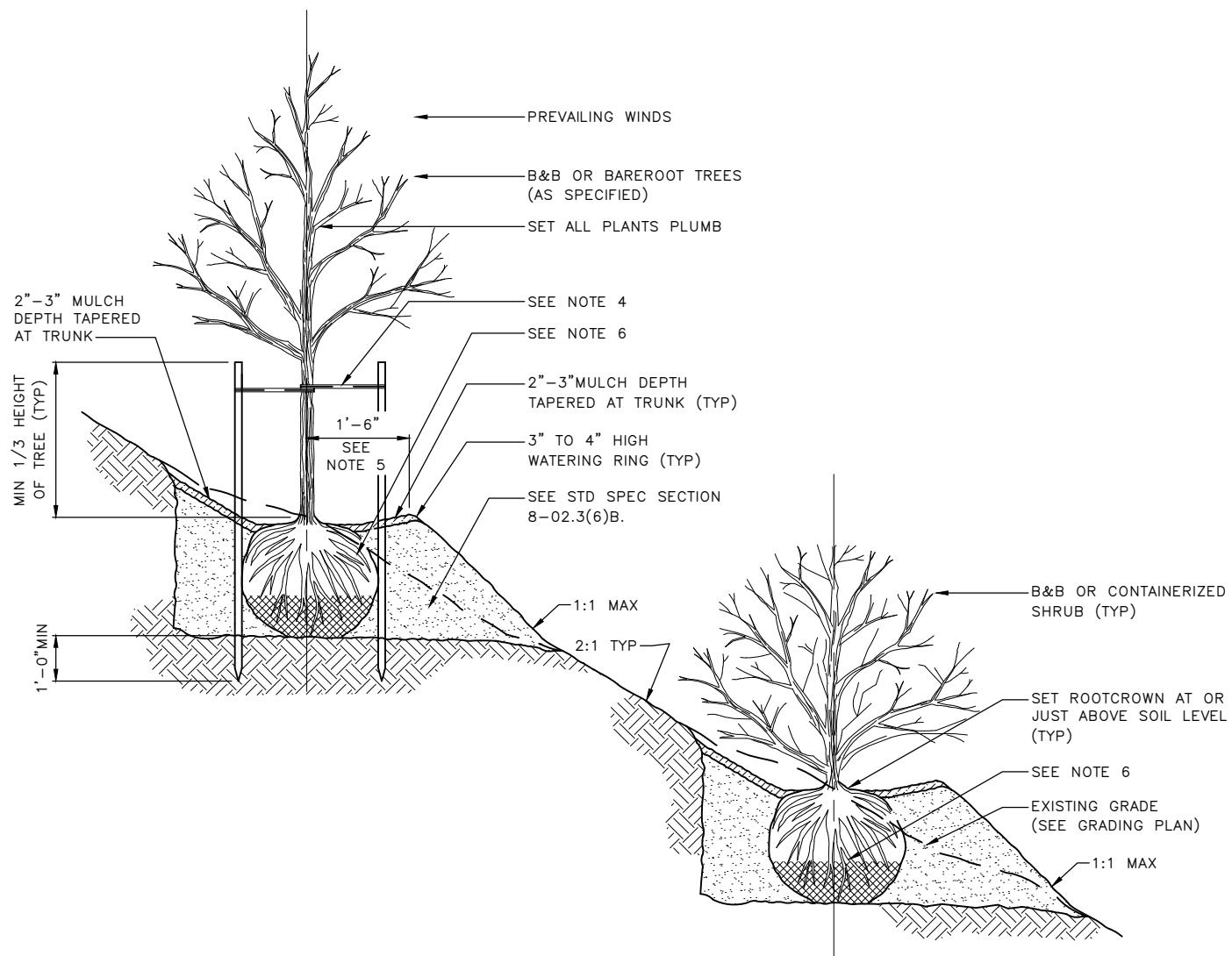
REF STD SPEC SEC 8-02



City of Seattle

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DECIDUOUS TREE PLANTING  
IN PLANTING STRIP

**NOTES:**

1. STAKE TREES PER STD PLAN NO 100a.
2. ONE STAKE PER TREE ON WINDWARD SIDE; SECOND STAKE ON LEeward SIDE.
3. SLOPES STEEPER THAN 2:1 MAY REQUIRE AN APPROVED EMBANKMENT STABILIZATION SYSTEM TO CREATE A LEVEL TREE PIT SUCH AS:
  - ROCK FACING
  - PRECAST CONCRETE WALL UNITS
  - TIMBER WALL
  - MANUFACTURED SLOPE RETENTION UNITS
4. CHAINLOCK TREE TIE. LOOP EACH TIE AROUND TREE LOOSELY TO PROVIDE 1" SLACK FOR DIAMETER GROWTH.
5. SHAPE SOIL TO PROVIDE 3' DIAMETER OR ROOTBALL DIAMETER, WHICHEVER IS GREATER, WATERING RING.
6. REMOVE ALL WIRE, STRINGS AND OTHER NON-BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP 1/3 OF ROOTBALL.

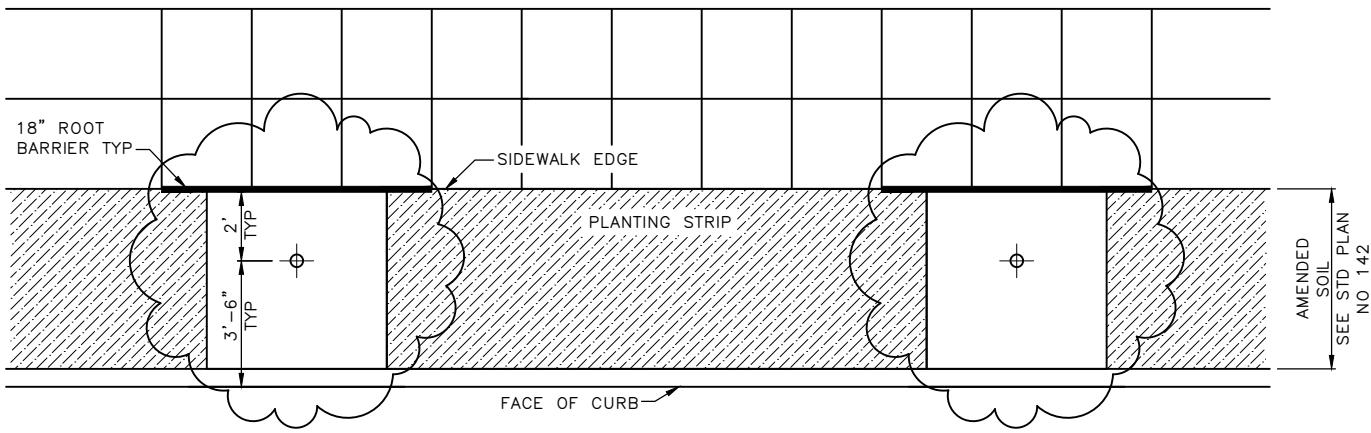
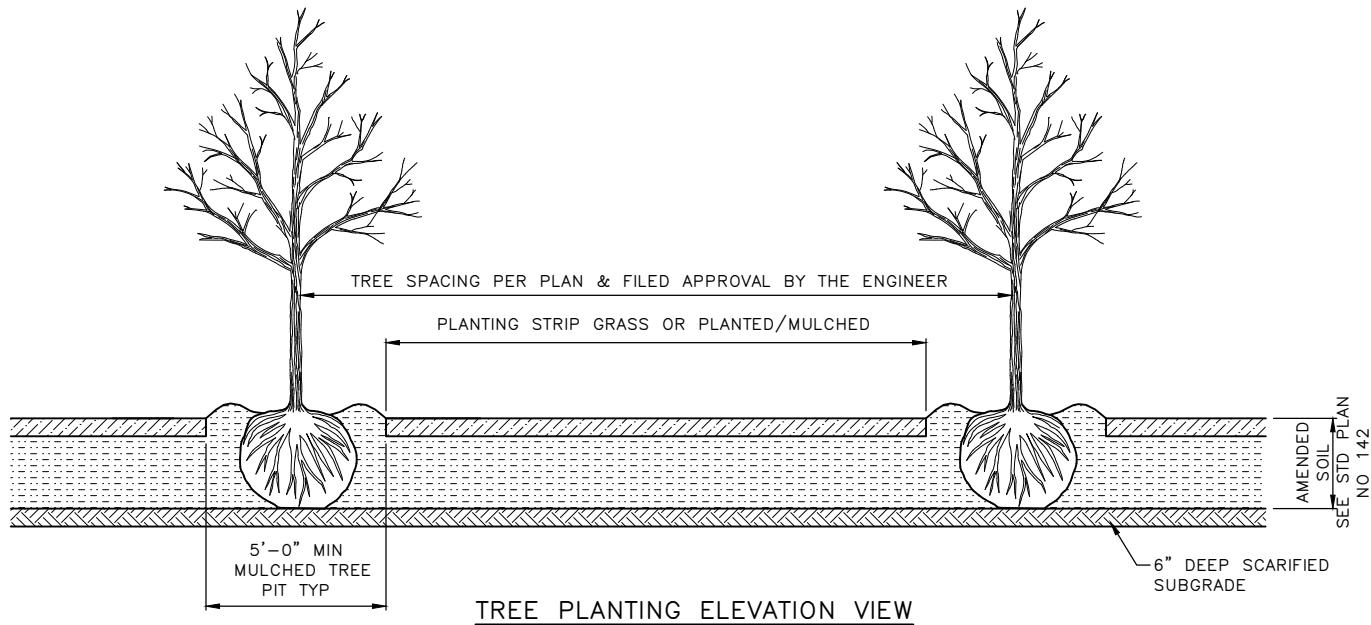
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

TREE & SHRUB PLANTING  
ON SLOPES



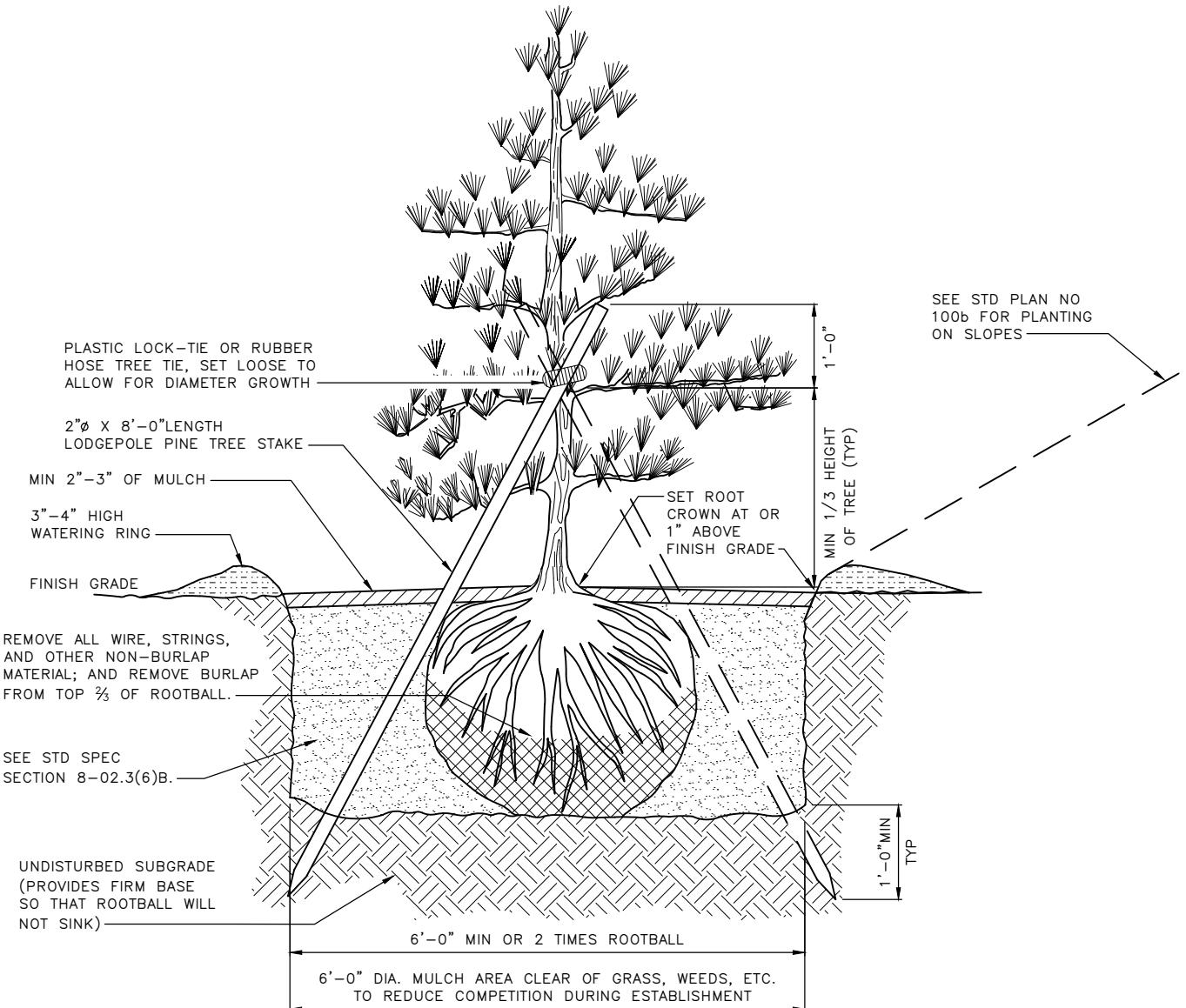
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City of Seattle

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TREE PLANTING IN  
AMENDED TRENCH



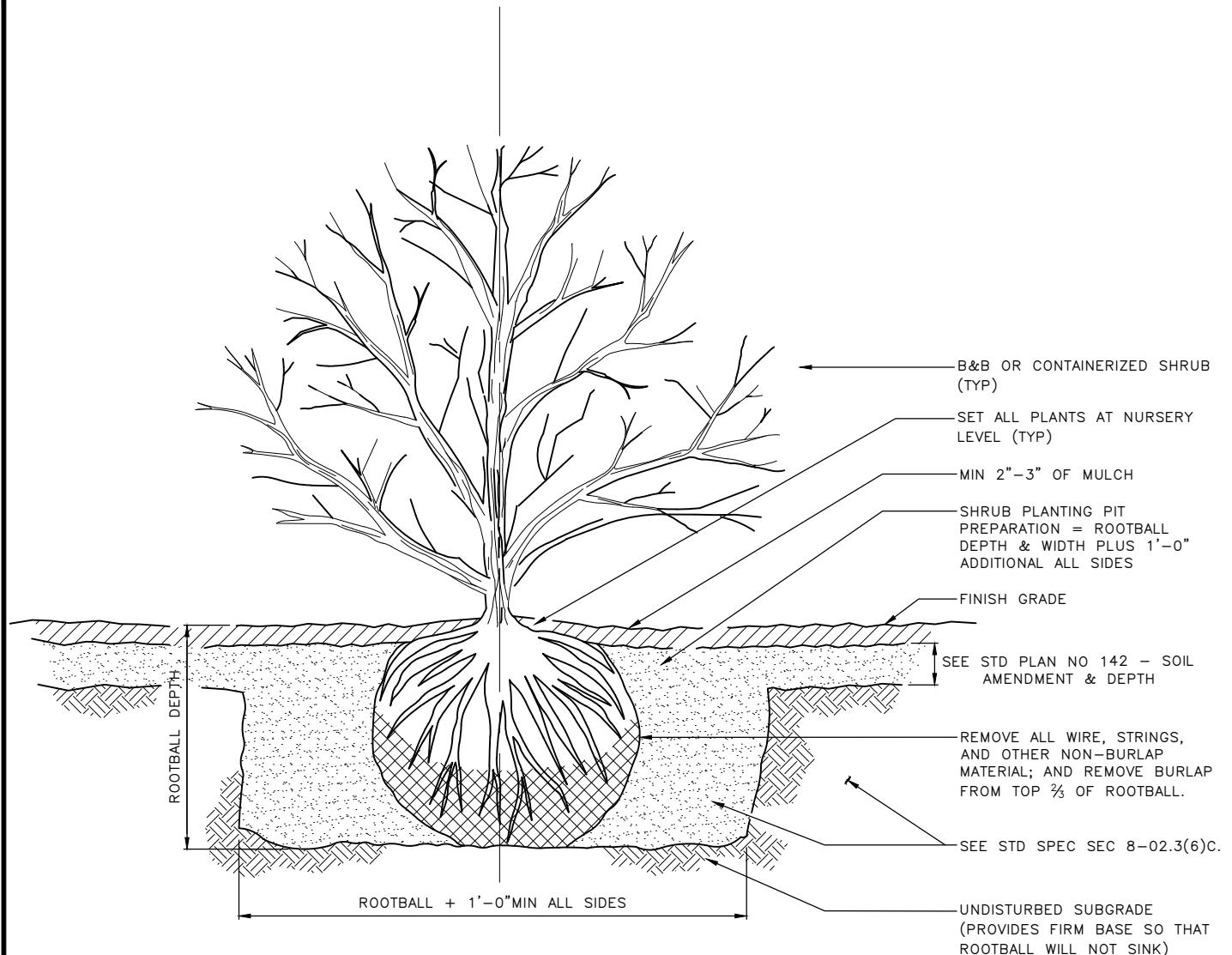
REF STD SPEC SEC 8-02



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CONIFEROUS TREE PLANTING



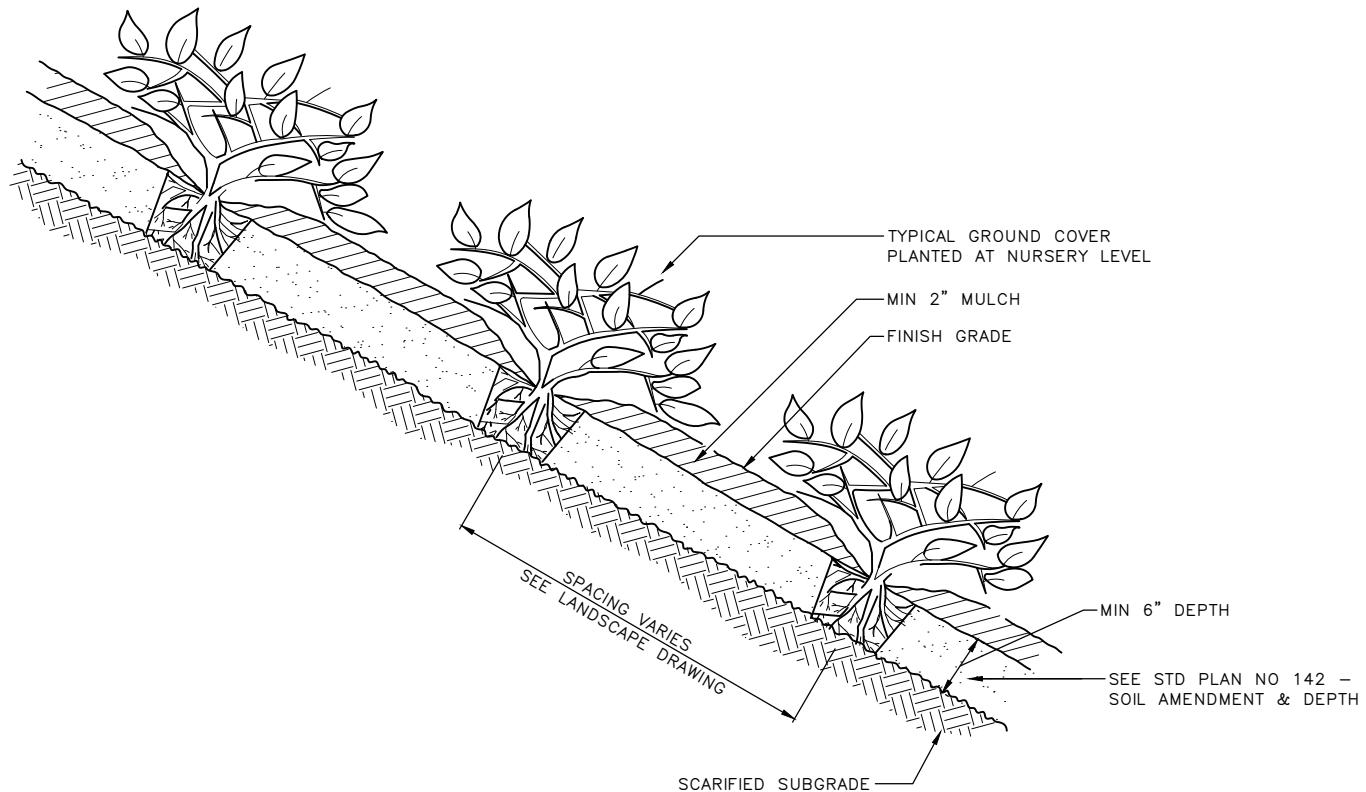
REF STD SPEC SEC 8-02



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SHRUB PLANTING



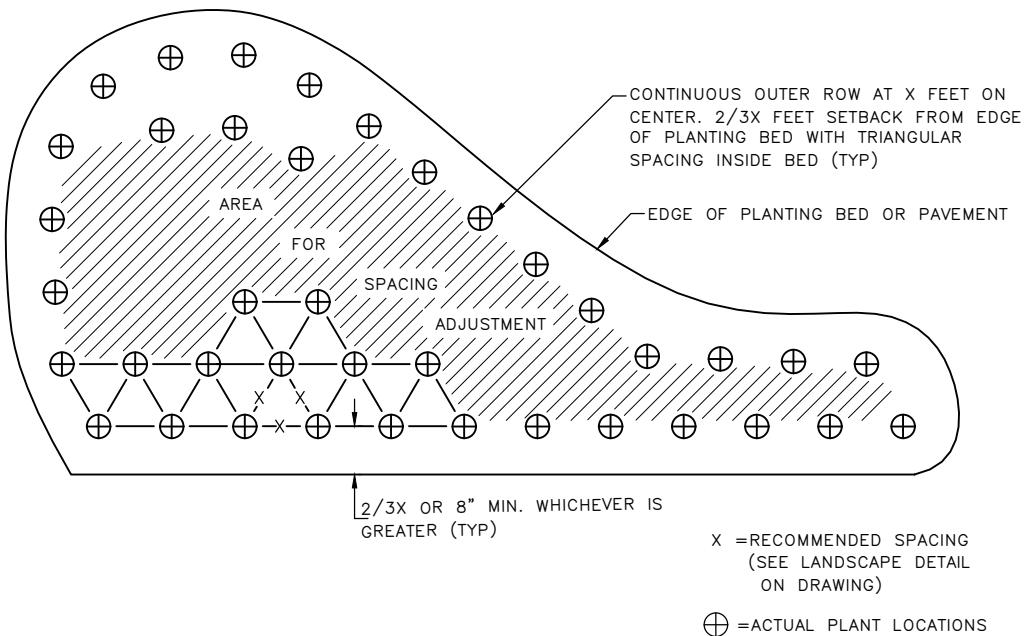
REF STD SPEC SEC 8-02



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GROUND COVER PLANTING



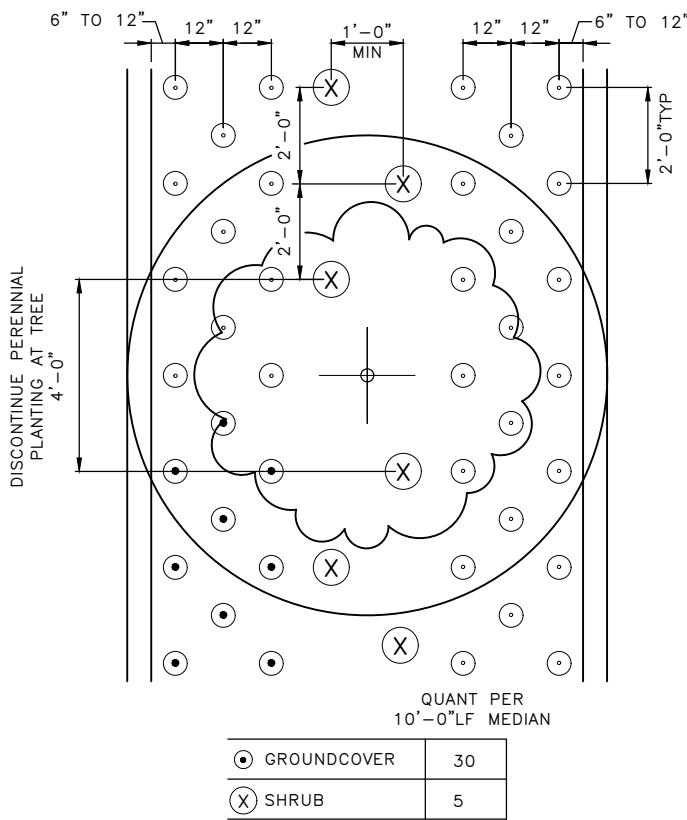
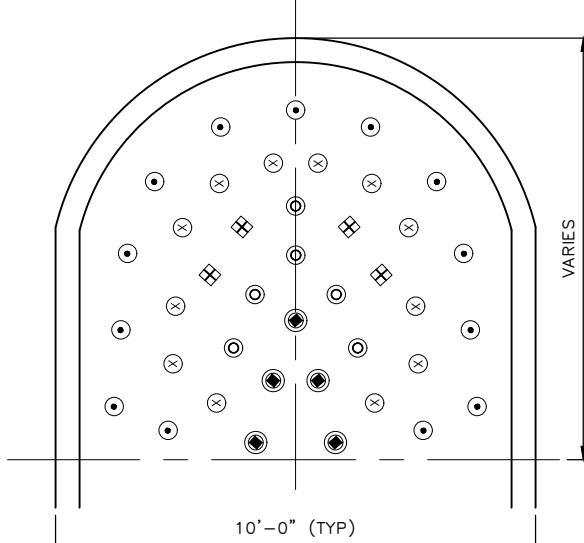
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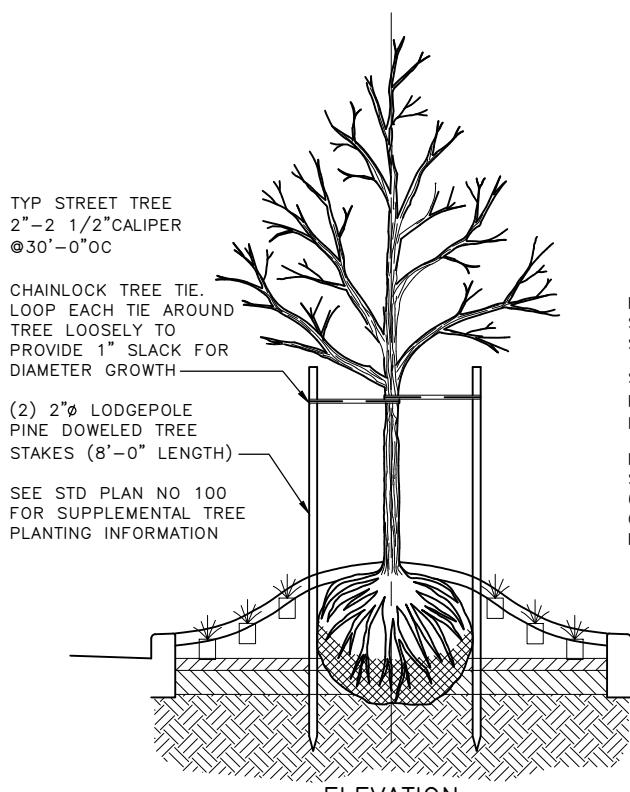
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PLANTING PATTERN

DETAIL AT TREE PLAN

✗ PERENNIAL TYPE 1	4
● PERENNIAL TYPE 2	6
● PERENNIAL TYPE 3	5
● EVERGREEN GROUNDCOVER TYPE 1	13
✗ EVERGREEN GROUNDCOVER TYPE 2	12

END CAP DETAIL

REF STD SPEC SEC 8-02

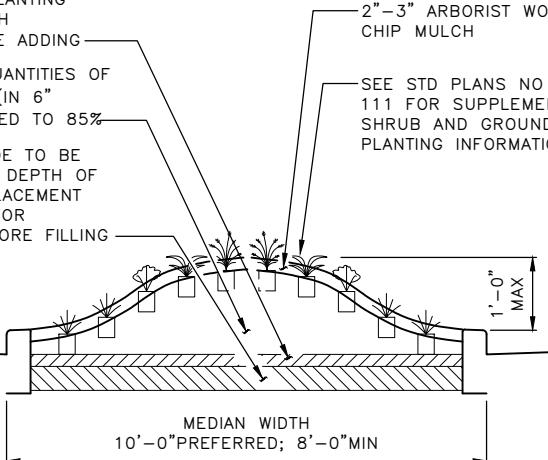
PLACE 3" OF PLANTING SOIL &amp; MIX WITH SUBSOIL BEFORE ADDING

SUBSEQUENT QUANTITIES OF PLANTING SOIL (IN 6" LIFTS) COMPAKTED TO 85%

NATIVE SUBGRADE TO BE SCARIFIED TO A DEPTH OF 6" PRIOR TO PLACEMENT OF FILL. CALL FOR INSPECTION BEFORE FILLING

2"-3" ARBORIST WOOD CHIP MULCH

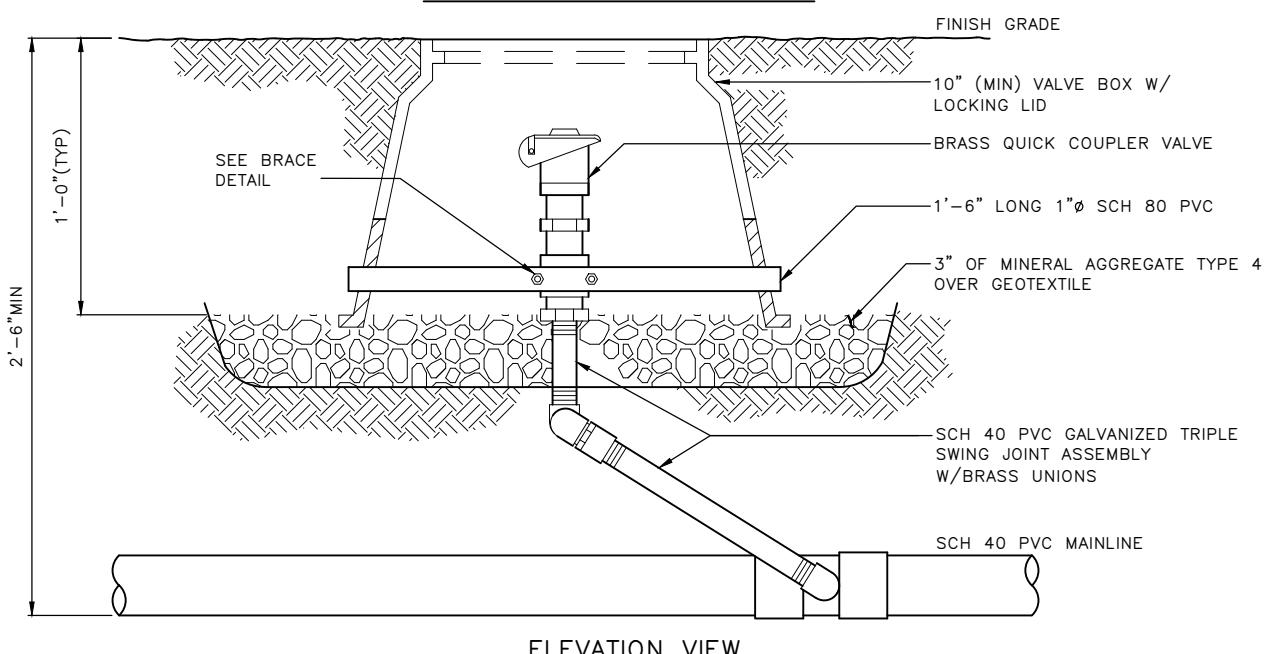
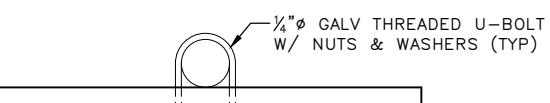
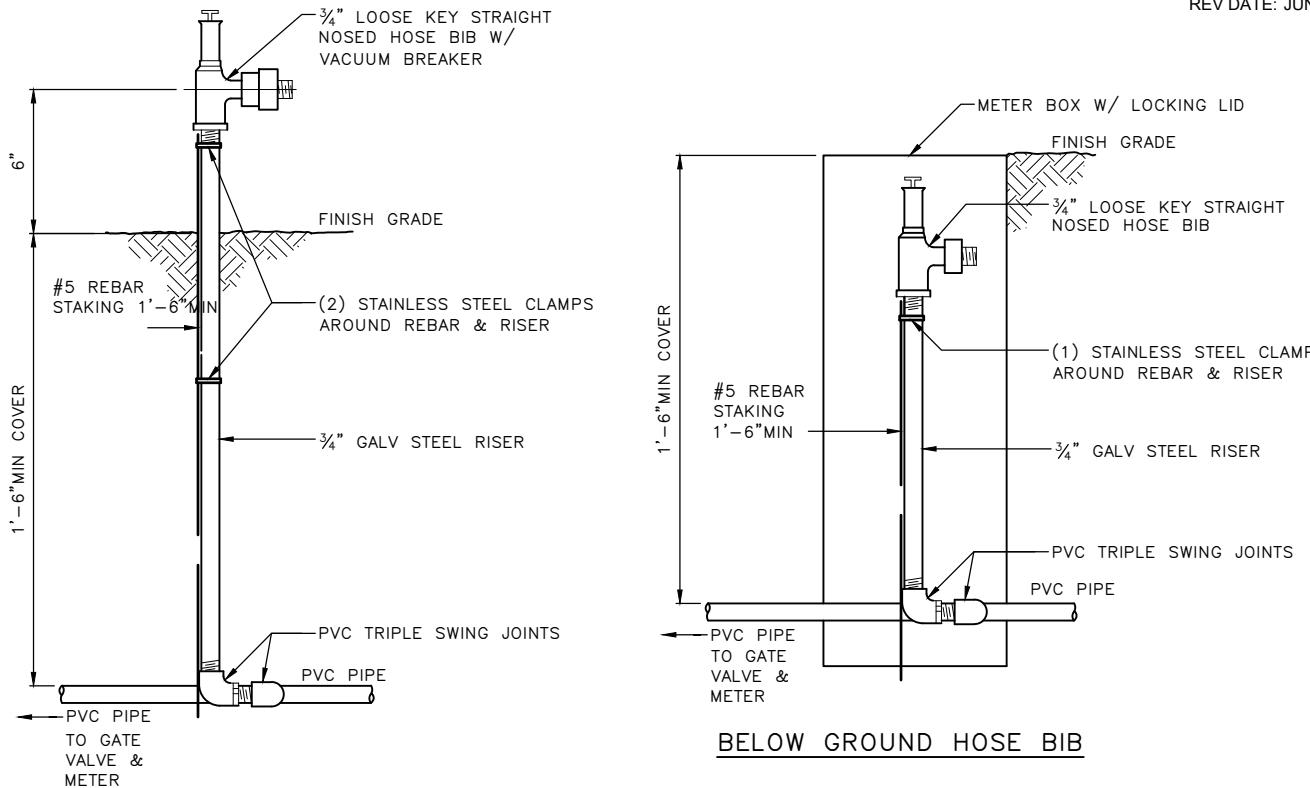
SEE STD PLANS NO 110 &amp; 111 FOR SUPPLEMENTAL SHRUB AND GROUNDCOVER PLANTING INFORMATION

SOIL PREPARATION DETAIL

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MEDIAN PLANTING



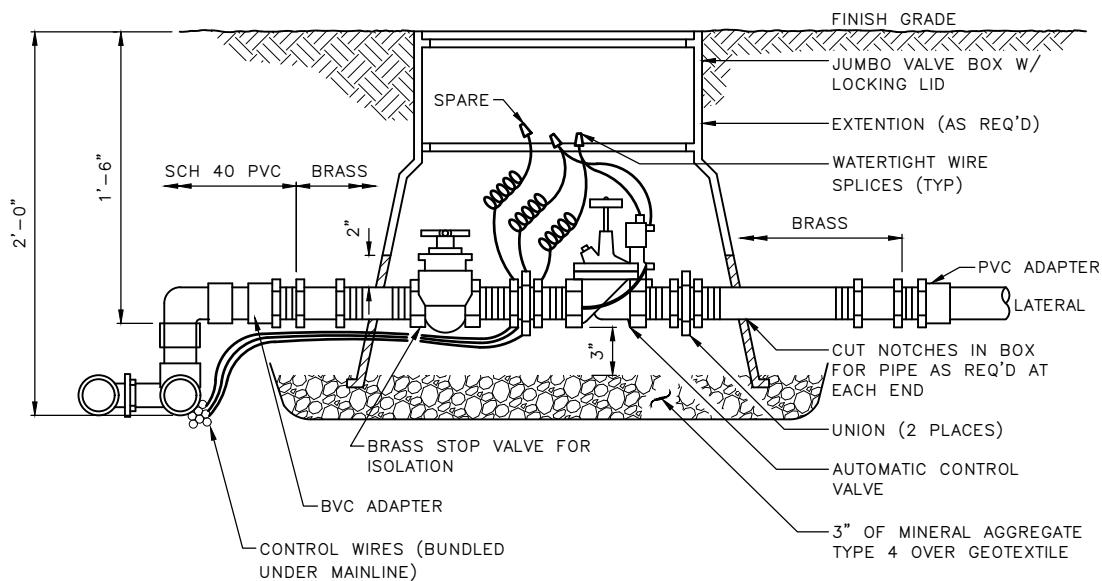
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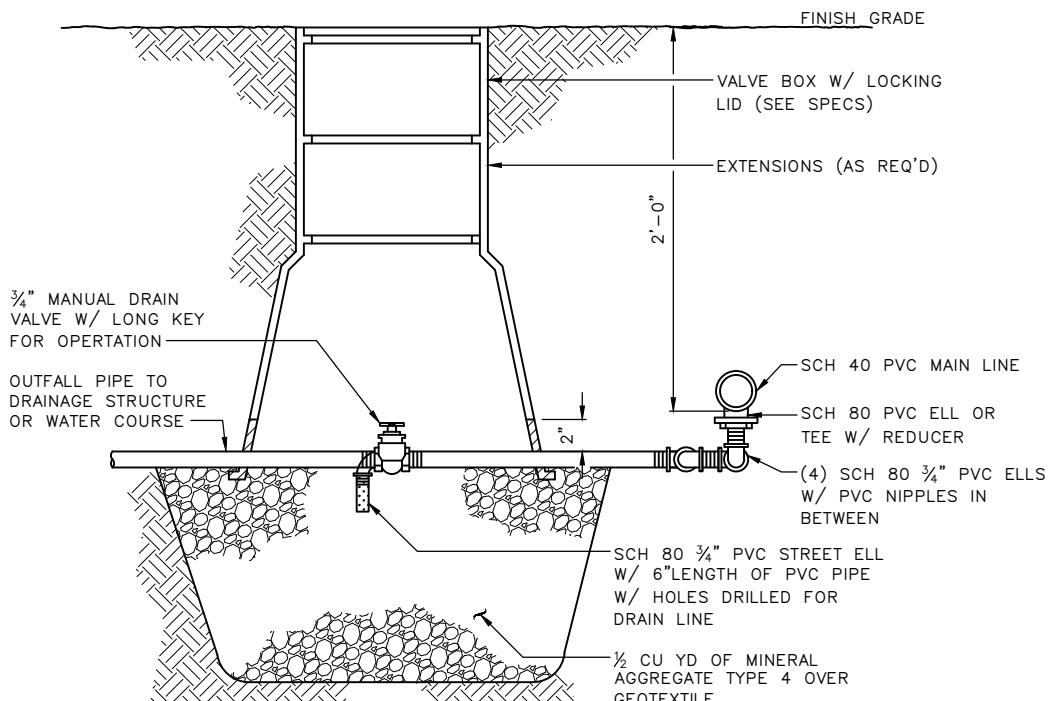
City of Seattle

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HOSE BIB ASSEMBLY AND  
QUICK COUPLER VALVE

**NOTE:**

"U" SHAPED CUT-OUT IN VALVE BOX THAT ALLOWS 2" CLEARANCE FROM TOP OF PIPE TO TOP OF "U"

AUTOMATIC CONTROL VALVEMANUAL DRAIN VALVE

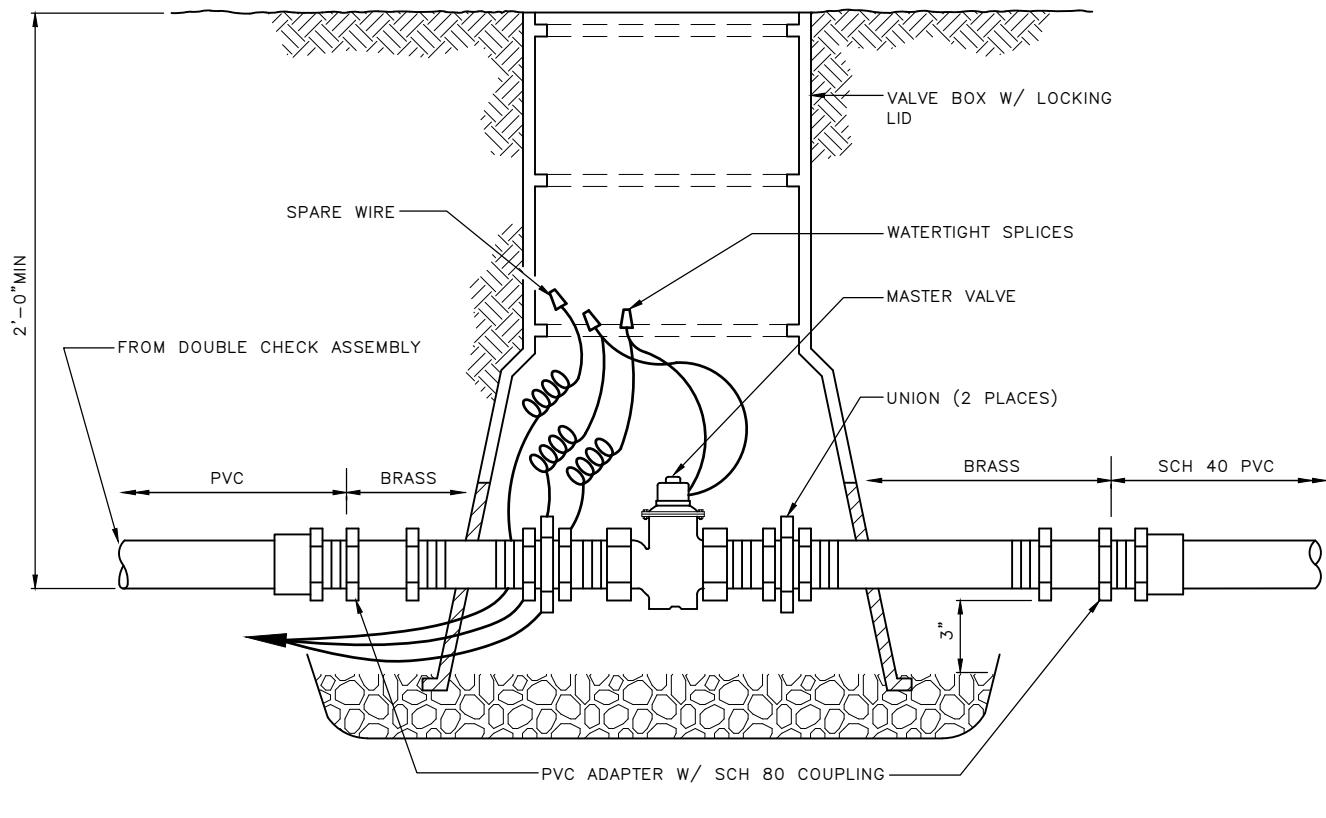
REF STD SPEC SEC 8-03



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IRRIGATION VALVES



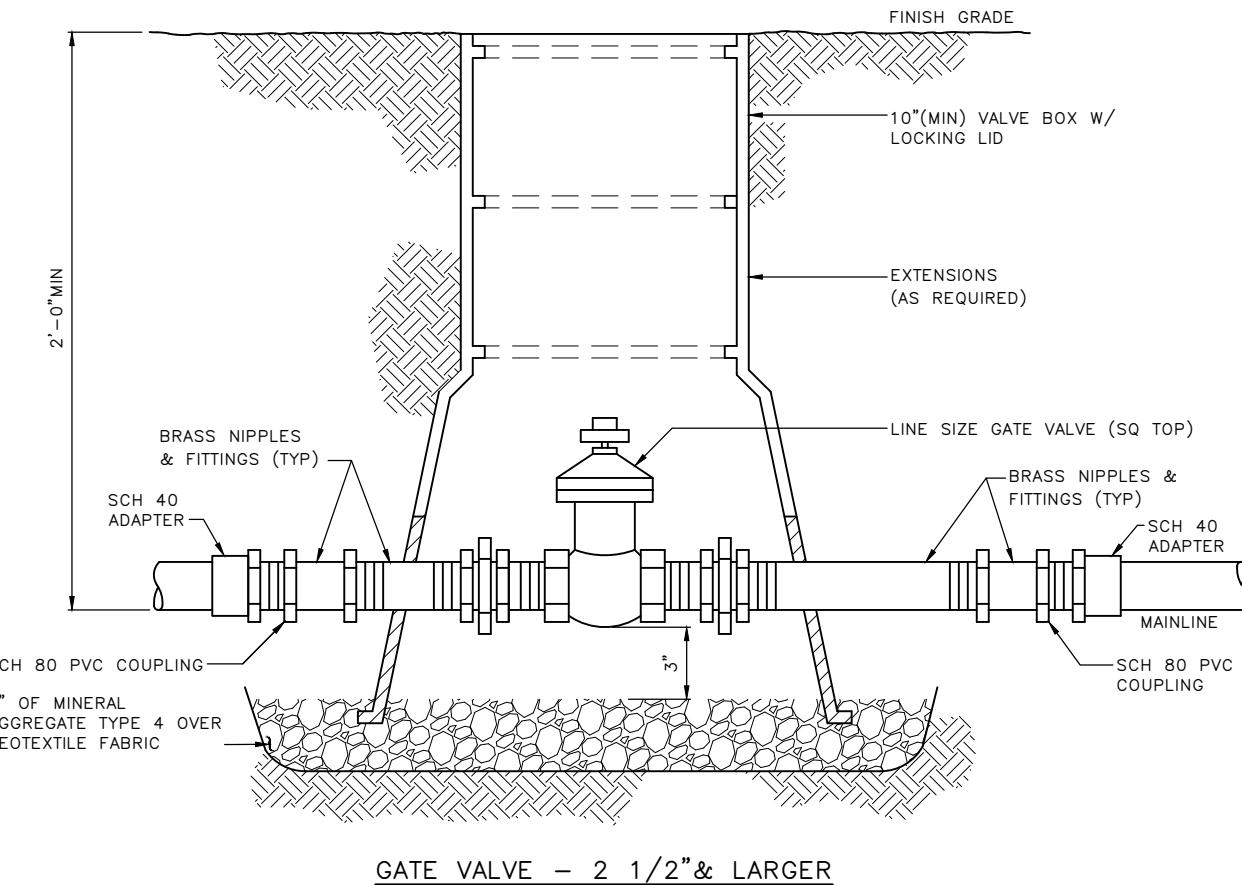
REF STD SPEC SEC 8-03



City of Seattle

NOT TO SCALE

IRRIGATION VALVES

NOTES:

USE TEFLO TAPES ON ALL THREADED FITTINGS

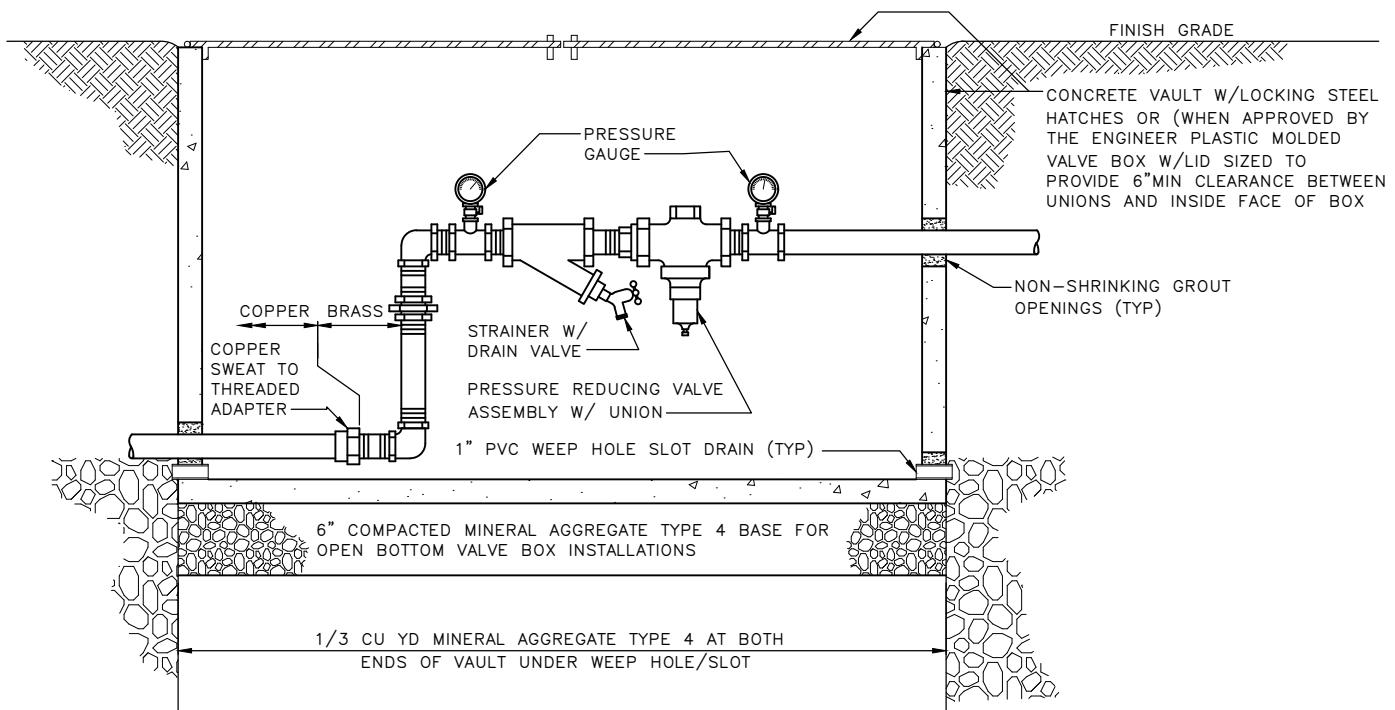
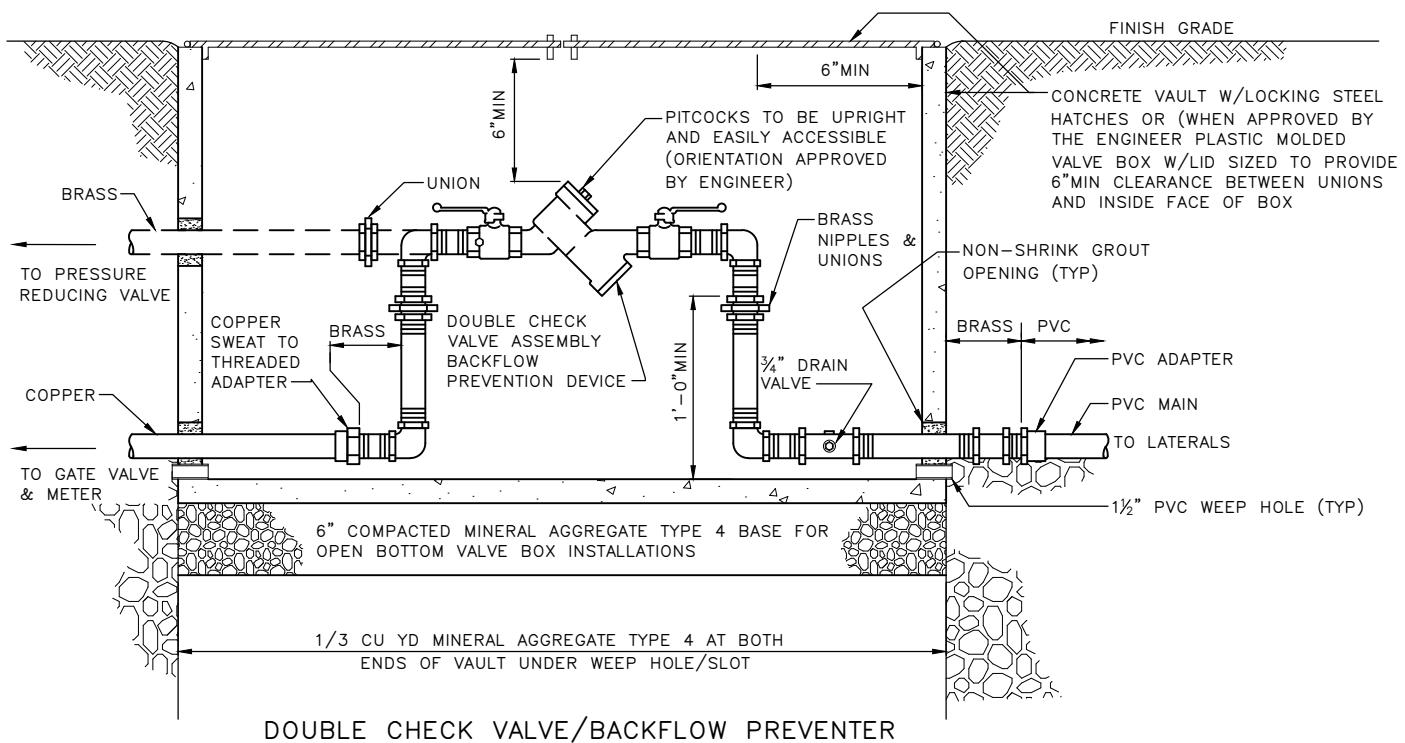
REF STD SPEC SEC 8-03



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IRRIGATION VALVES

**PRESSURE REDUCER STRAINER**

(LOCATE DOWNSTREAM FROM BACKFLOW PREVENTION DEVICE)

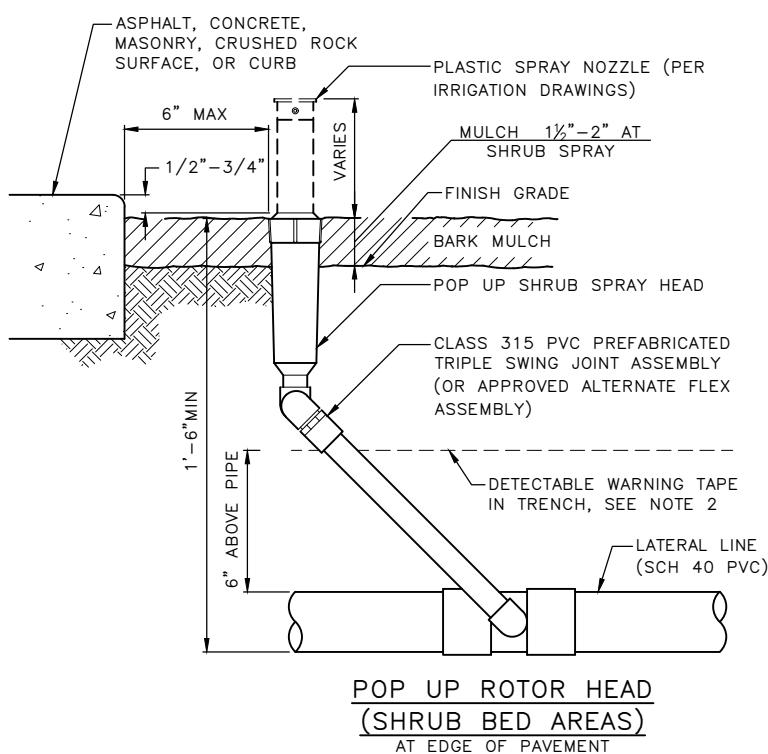
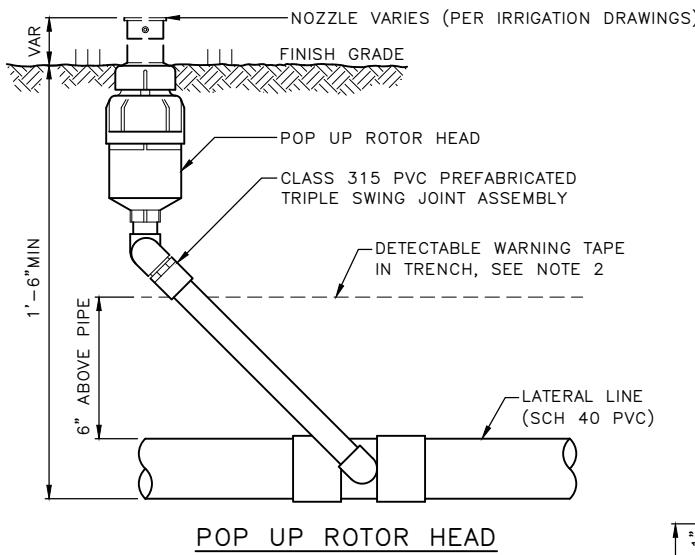
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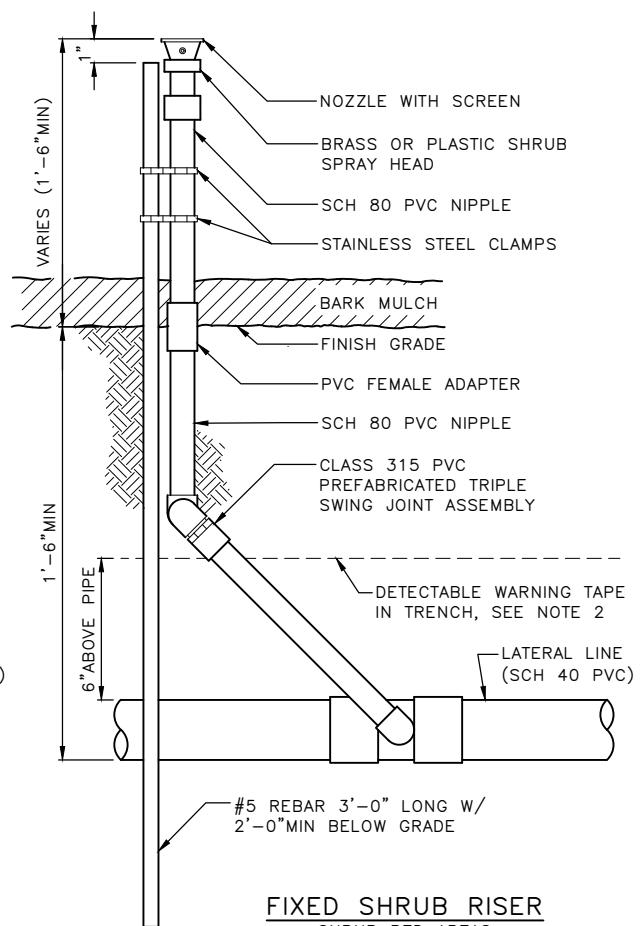
NOT TO SCALE

IRRIGATION VALVES



## NOTE:

1. USE TEFILON TAPE ON ALL THREADED FITTINGS
2. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER



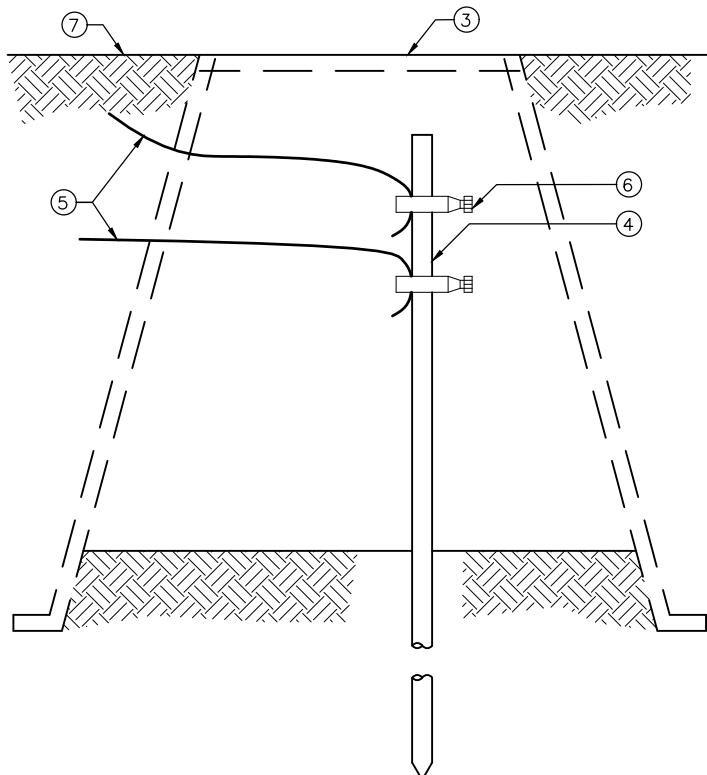
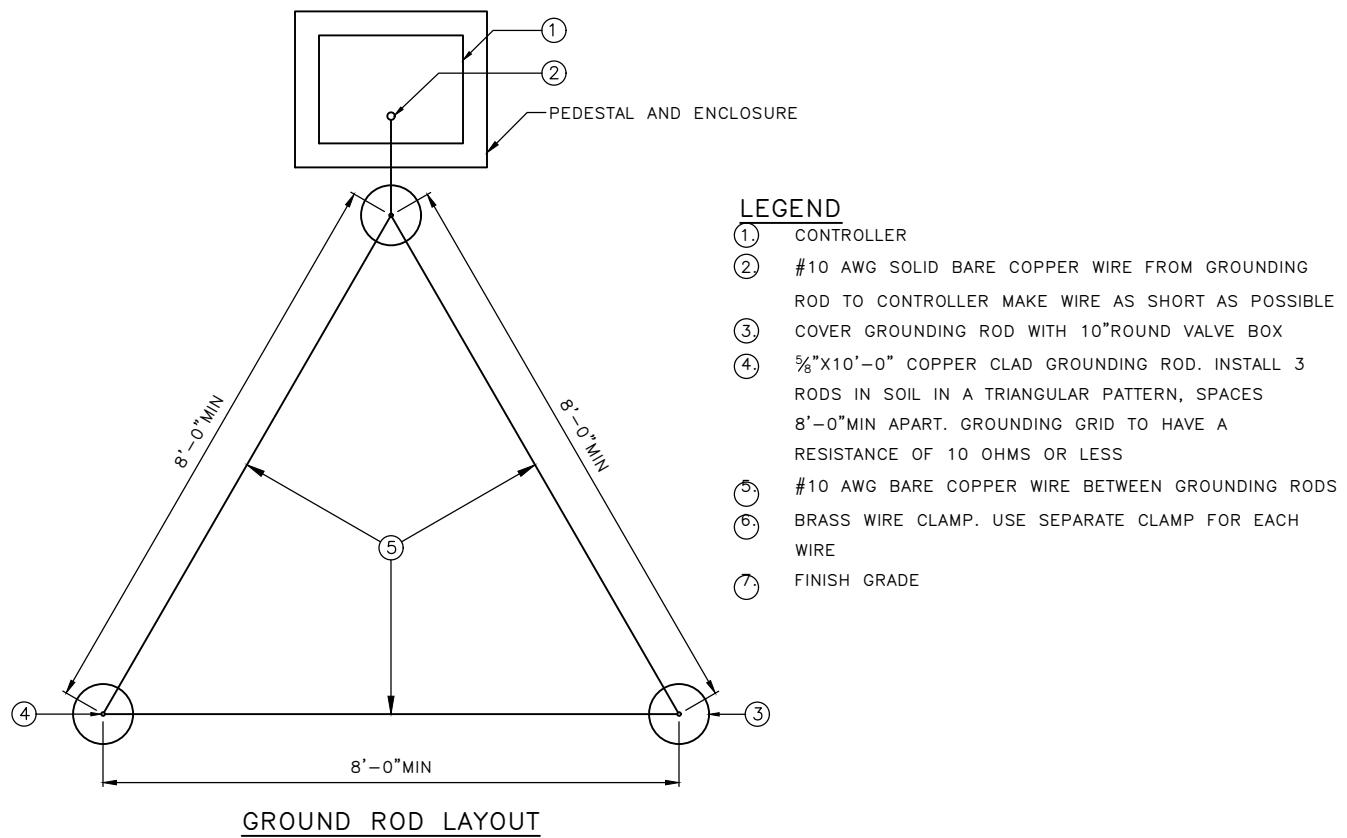
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POP UP & FIXED  
IRRIGATION HEADS



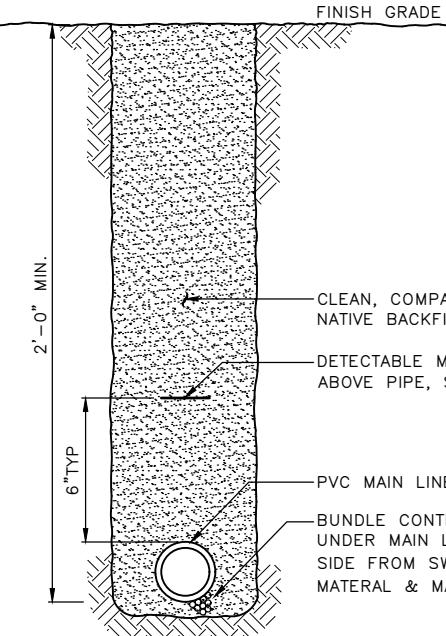
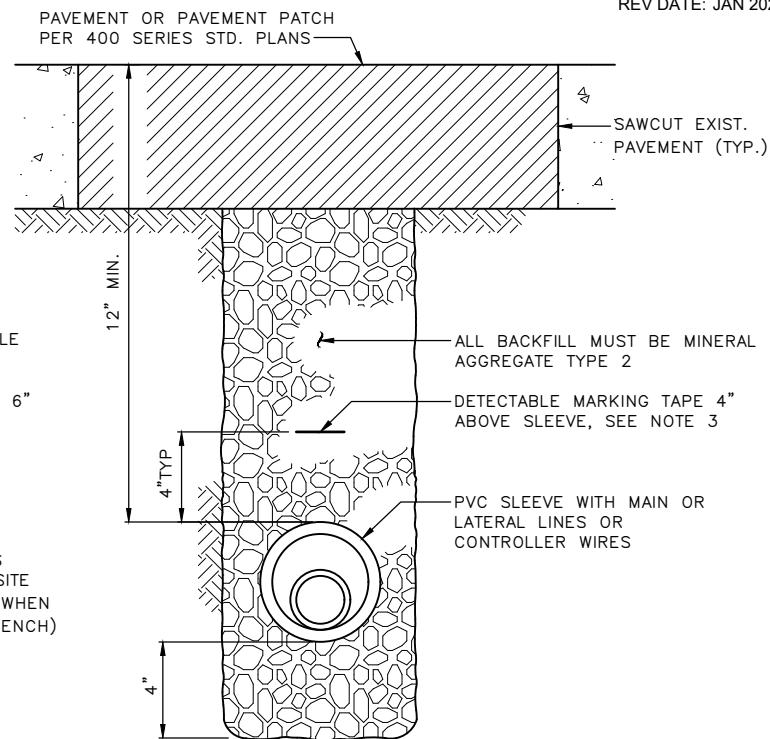
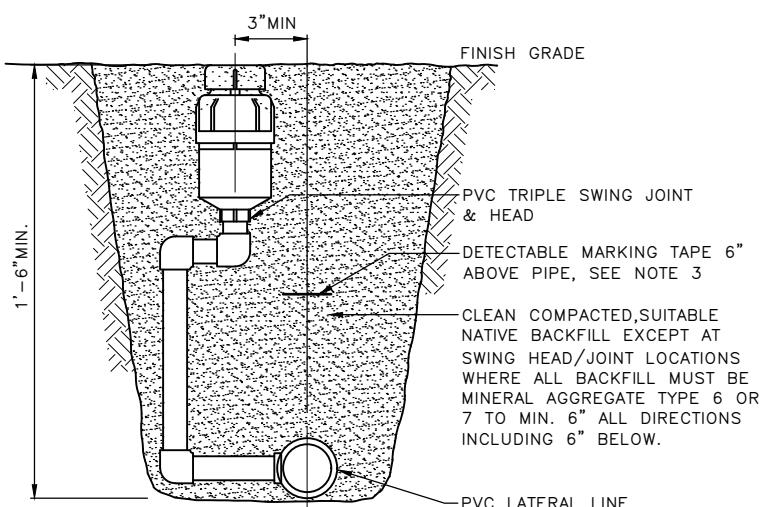
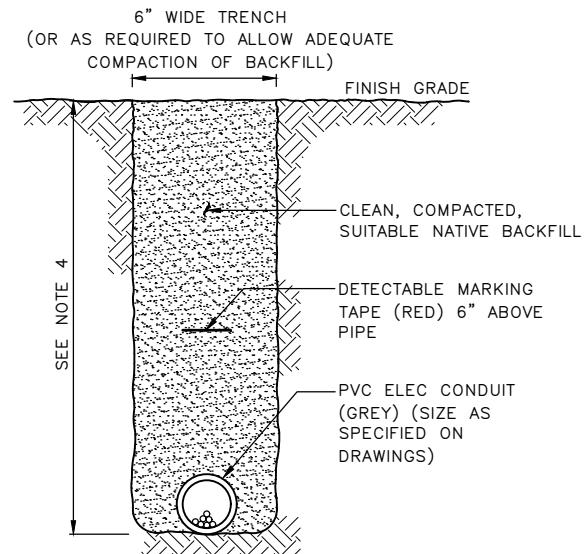
REF STD SPEC SEC 8-03



City of Seattle

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IRRIGATION CONTROLLER  
PEDESTAL AND ENCLOSURE  
GROUNDING

MAIN LINESLEEVE TRENCHINGLATERAL LINEELECTRICAL SUPPLY TRENCH**NOTES:**

1. SLEEVE SIZE AS SHOWN ON DRAWINGS OR ID OF SLEEVE TO BE 1" GREATER THAN OD OF PIPE
2. SLEEVES REQUIRED UNDER ALL PAVED AREAS
3. DETECTABLE MARKING TAPE COLOR PER STANDARD SPECIFICATIONS SECTION 9-15.11 FOR POTABLE OR NON-POTABLE WATER
4. CONDUIT DEPTH MUST BE PER SCL CONSTRUCTION STANDARD 1716.07

REF STD SPEC SEC 8-03



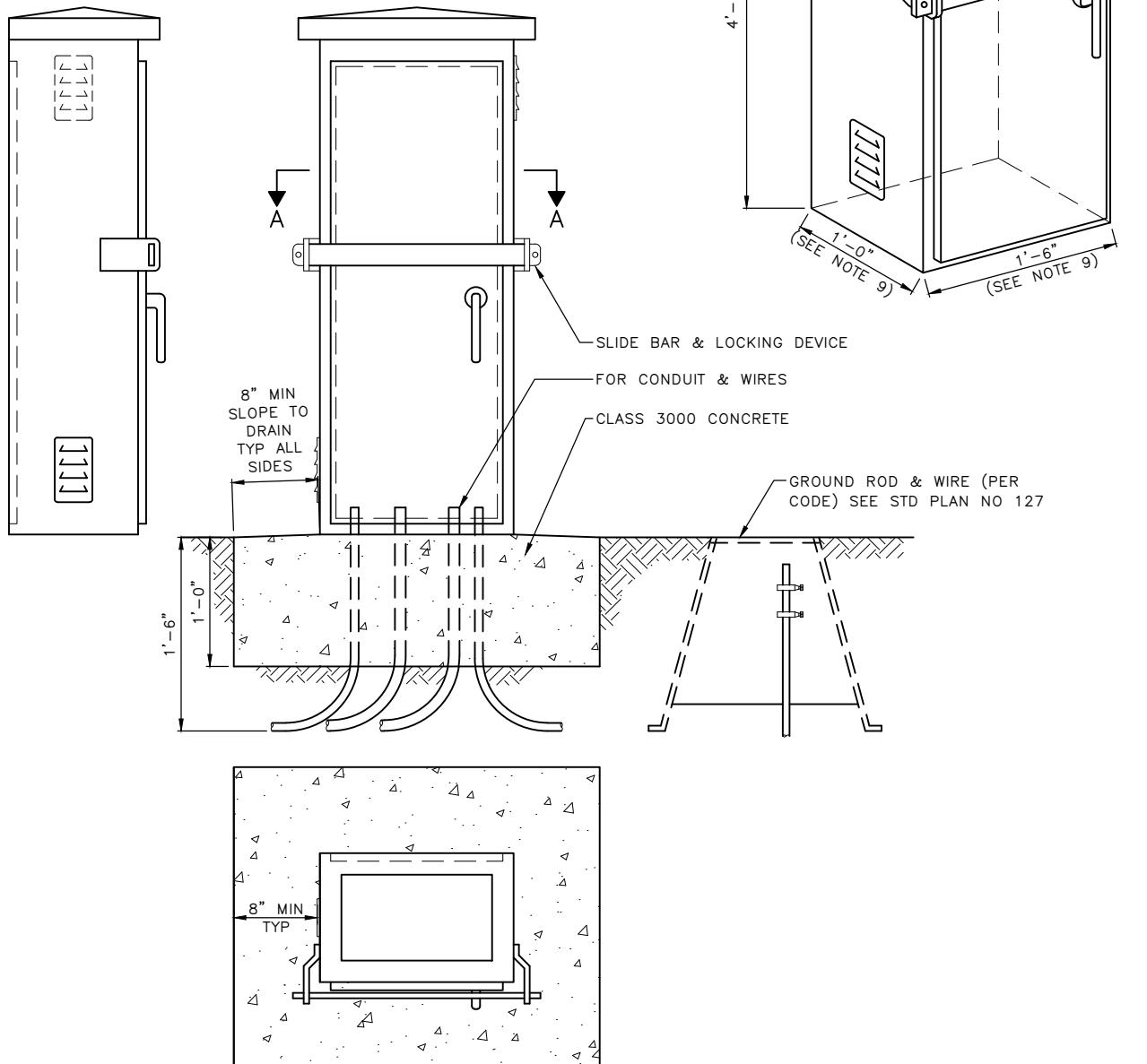
City of Seattle

NOT TO SCALE

IRRIGATION TRENCHES

## NOTES:

1. NEMA 3R RAINPROOF CABINET
2. NO 12 GA PREGALVANIZED STEEL WELDED SEAM CONSTRUCTION
3. TWO SCREENED, GASKETED LOUVERED VENTS
4. REMOVABLE EQUIPMENT MOUNTING PAN
5. VANDALPROOF LOCKABLE SLIDE BAR ACROSS FRONT DOOR
6. PADMOUNT DESIGN WITH 2" INSIDE FLANGE ON BOTTOM
7. DOOR:
  - 3 POINT LATCH
  - CONCEALED HINGE
  - LIFT-OFF TYPE (UPON OPENING)
  - CLOSED CELL NEOPRENE GASKET
8. PAINT:
  - OVEN BAKED ENAMEL
  - DARK GREEN OUTSIDE
  - WHITE INSIDE
  - PREGALVANIZED METAL TREATED WITH COPPER SULFATE PRIOR TO PAINTING
9. ACTUAL CABINET DIMENSIONS ARE PROJECT SPECIFIC AND WILL BE SPECIFIED ON THE DRAWINGS.



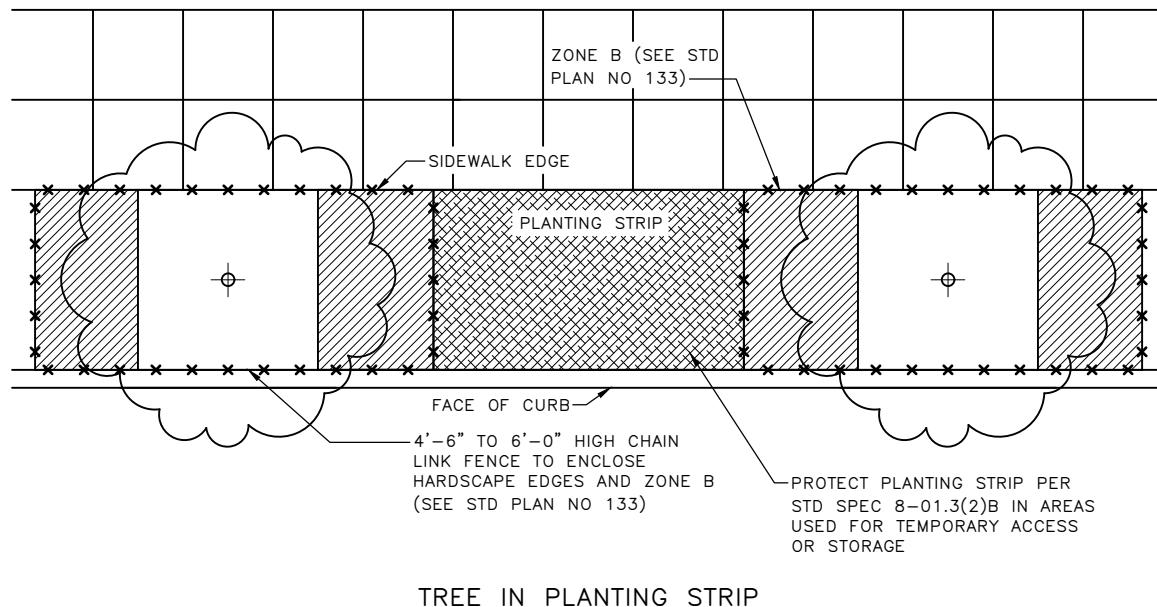
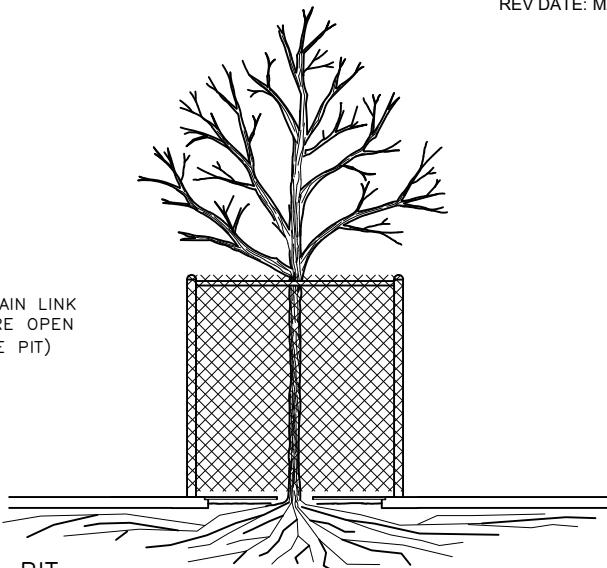
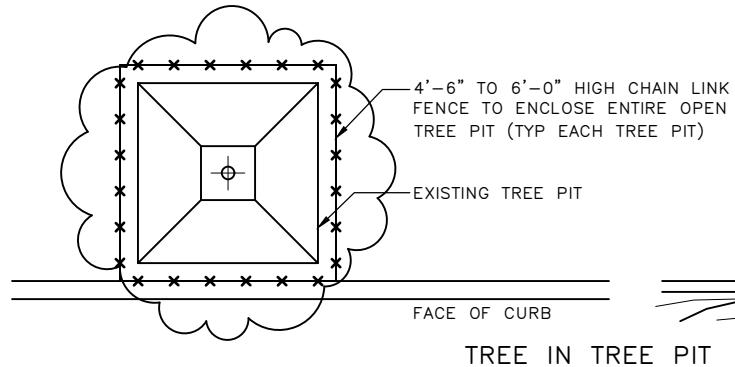
REF STD SPEC SEC 8-03



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IRRIGATION  
CONTROLLER CABINET



## NOTES:

1. CONSIDER TRAFFIC TURNING VISIBILITY AND PEDESTRIAN VISIBILITY WHEN SELECTING FENCE HEIGHT; TYPICALLY SHORTER FENCING AROUND TREE PITS BETWEEN SIDEWALK AND ROADWAY IS DESIRED.
2. TO BE USED FOR TREES IN PLANTING STRIPS AND FOR WORK LASTING 31 CALENDAR DAYS OR MORE. FOR TREES IN TREE PITS AND LASTING 30 CALENDAR DAYS OR LESS, SEE STD PLAN 132b.

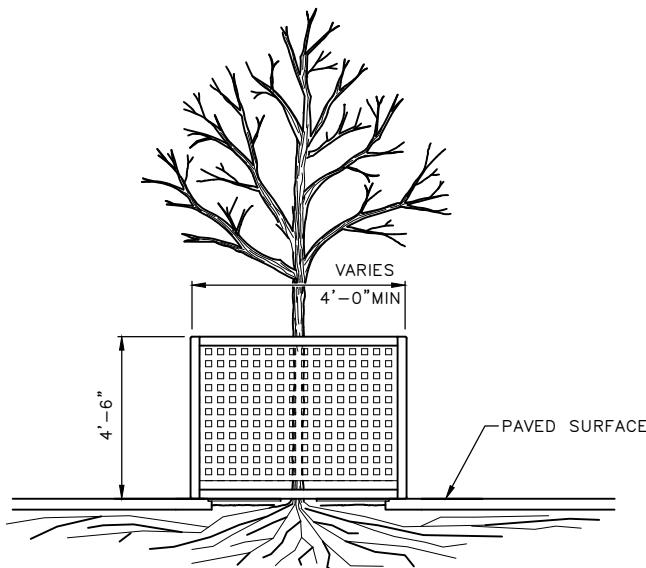
REF STD SPEC SEC 1-07.16(2), 8-01



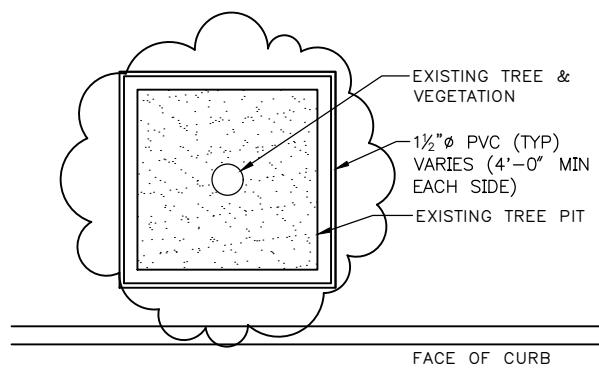
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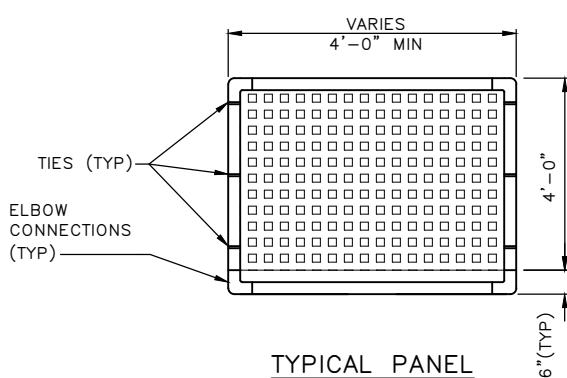
TREE PROTECTION  
DURING CONSTRUCTION



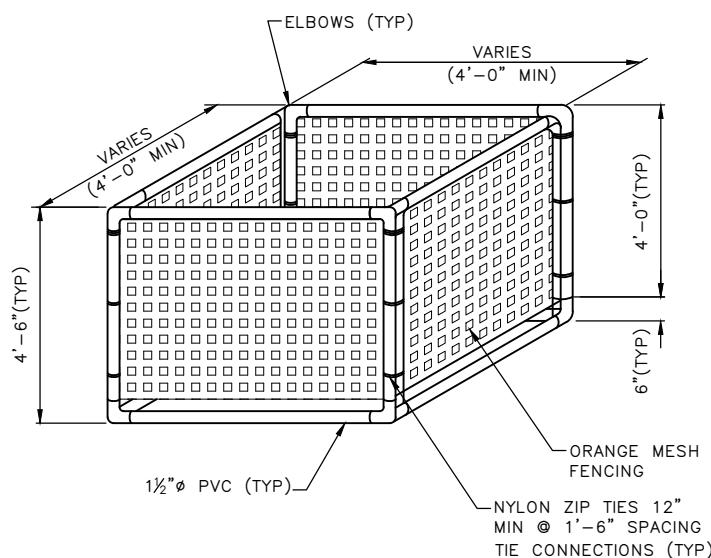
TYPICAL TREE GUARD RAIL



PLAN VIEW



TYPICAL PANEL

NOTES:

1. REUSABLE TEMPORARY PROTECTION FENCING USED TO PROTECT TREES IN TREE PIT AREA MUST SURROUND THE ENTIRE UNPAVED TREE PIT AREA AND BE ANCHORED AND MAINTAINED IN A STABLE UPRIGHT CONDITION. SEE SECTION 8-01.3(2)B.
2. REUSABLE TEMPORARY PROTECTION FENCING USED ONLY FOR TREES IN TREE PITS AND ONLY FOR WORK LASTING 30 DAYS OR LESS. FOR TREES IN THE PLANTING STRIP AND WORK LASTING LONGER THAN 30 DAYS, SEE STD PLAN 132a.

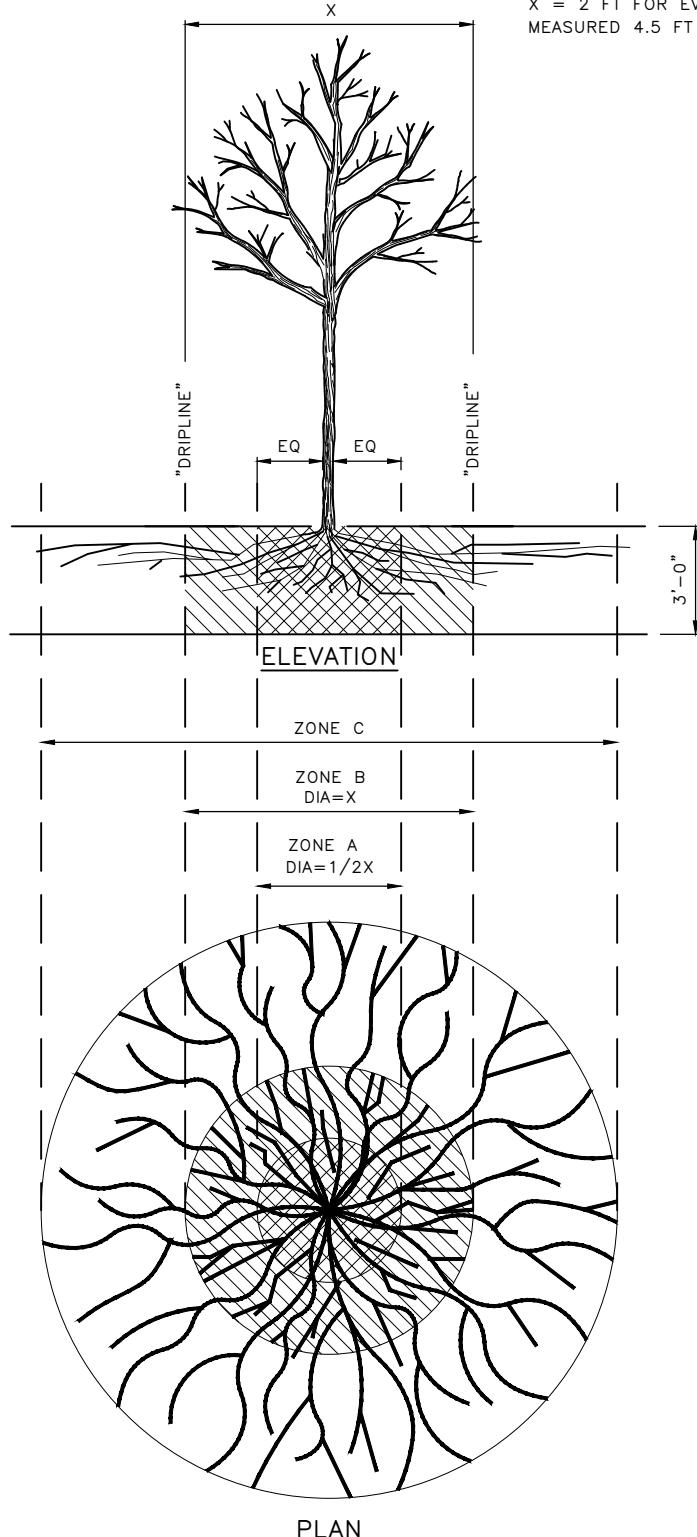
REF STD SPEC SEC 1-07.16(2), 8-01



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REUSABLE TEMPORARY PROTECTION FENCE

TRENCHING/EXCAVATIONZONE A (INTERIOR CRITICAL ROOT ZONE)

1. NO DISTURBANCE ALLOWED WITHOUT SITE VISIT AND APPROVED TVSPP PER SECTION 8-01.3(2)B.
2. TUNNELING REQUIRED TO INSTALL UTILITIES 3'-0" OR DEEPER.

ZONE B (CRITICAL ROOT ZONE)

1. NO DISTURBANCE ALLOWED WITHOUT APPROVAL OF METHODS TO MINIMIZE ROOT DAMAGE.
2. NO MORE THAN 30 PERCENT OF ZONE B SHALL BE DISTURBED.
3. TUNNELING MAY BE REQUIRED FOR BELOW-GRADE IMPROVEMENTS.

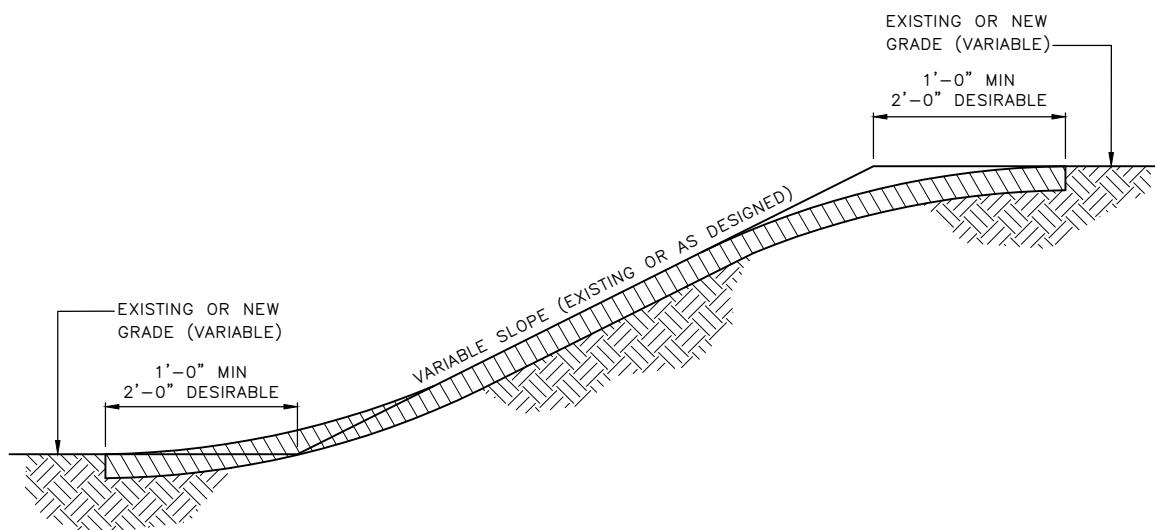
ZONE C (EXTENDED ROOT ZONE)

1. DISTURBANCE ALLOWED BASED ON APPROVED PLANS. SEE NOTE.

NOTE:

SEVERANCE OF ROOTS LARGER THAN 2"  
REQUIRES ENGINEER'S APPROVAL.





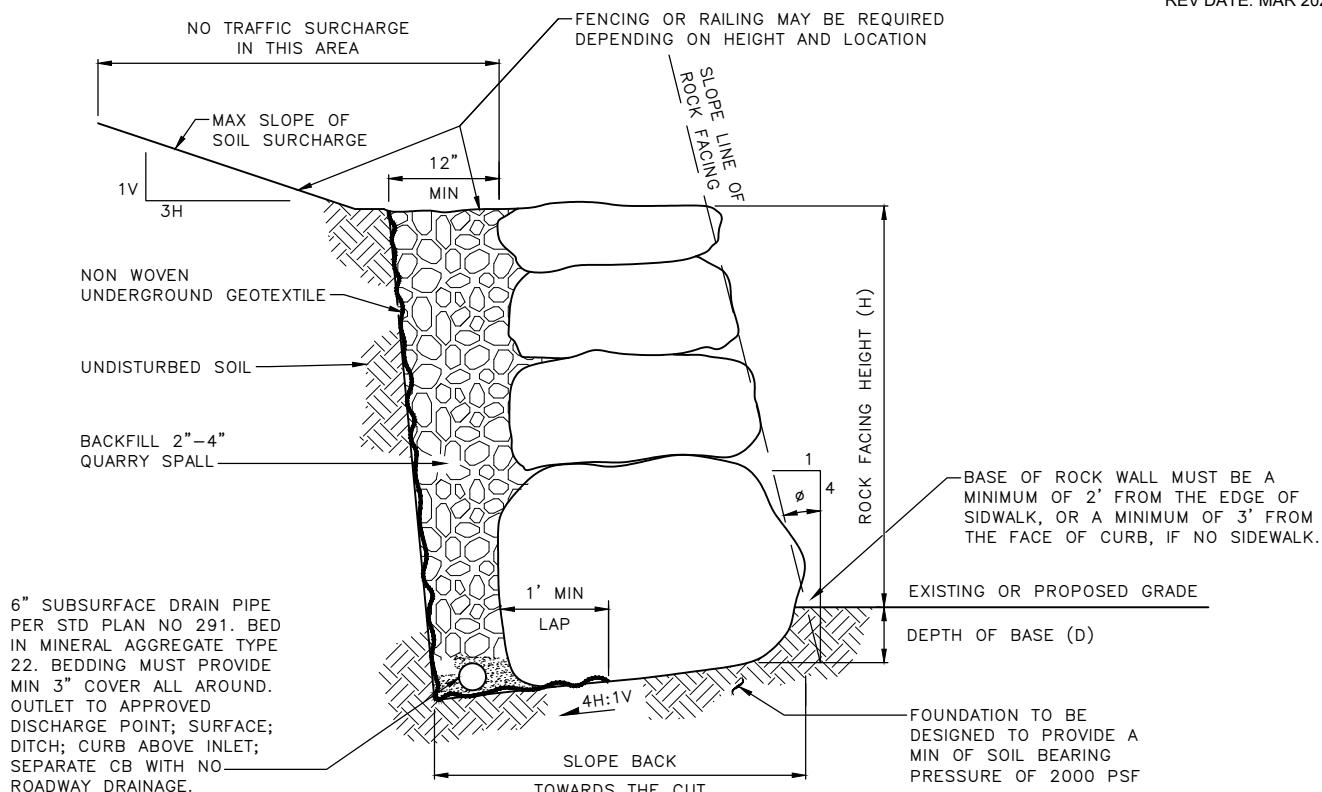
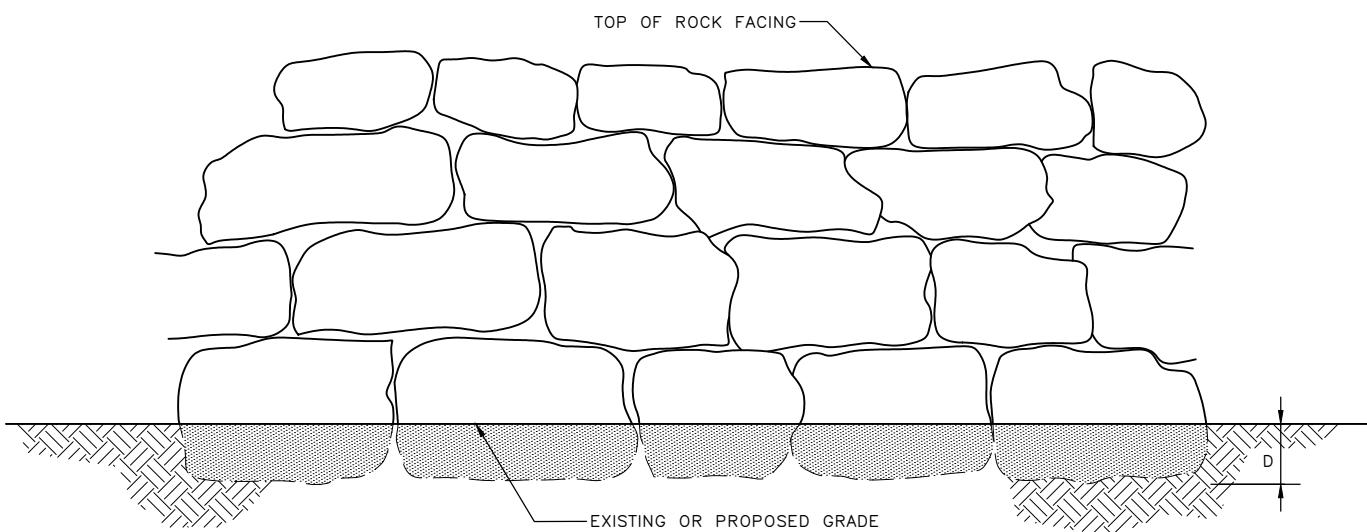
REF STD SPEC SEC 2-04



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SLOPE ROUNDING

SECTIONELEVATION

		MINIMUM ROCK	
(H)	(D)	SIZE(BASE)	SIZE(TOP)
2 FEET	3 INCHES	2-MAN	1-MAN
4 FEET	6 INCHES	3-MAN	2-MAN
6 FEET	9 INCHES	4-MAN	2-MAN
8 FEET	12 INCHES	5-MAN	2-MAN

 $\phi = 14^\circ \pm 1^\circ$ 

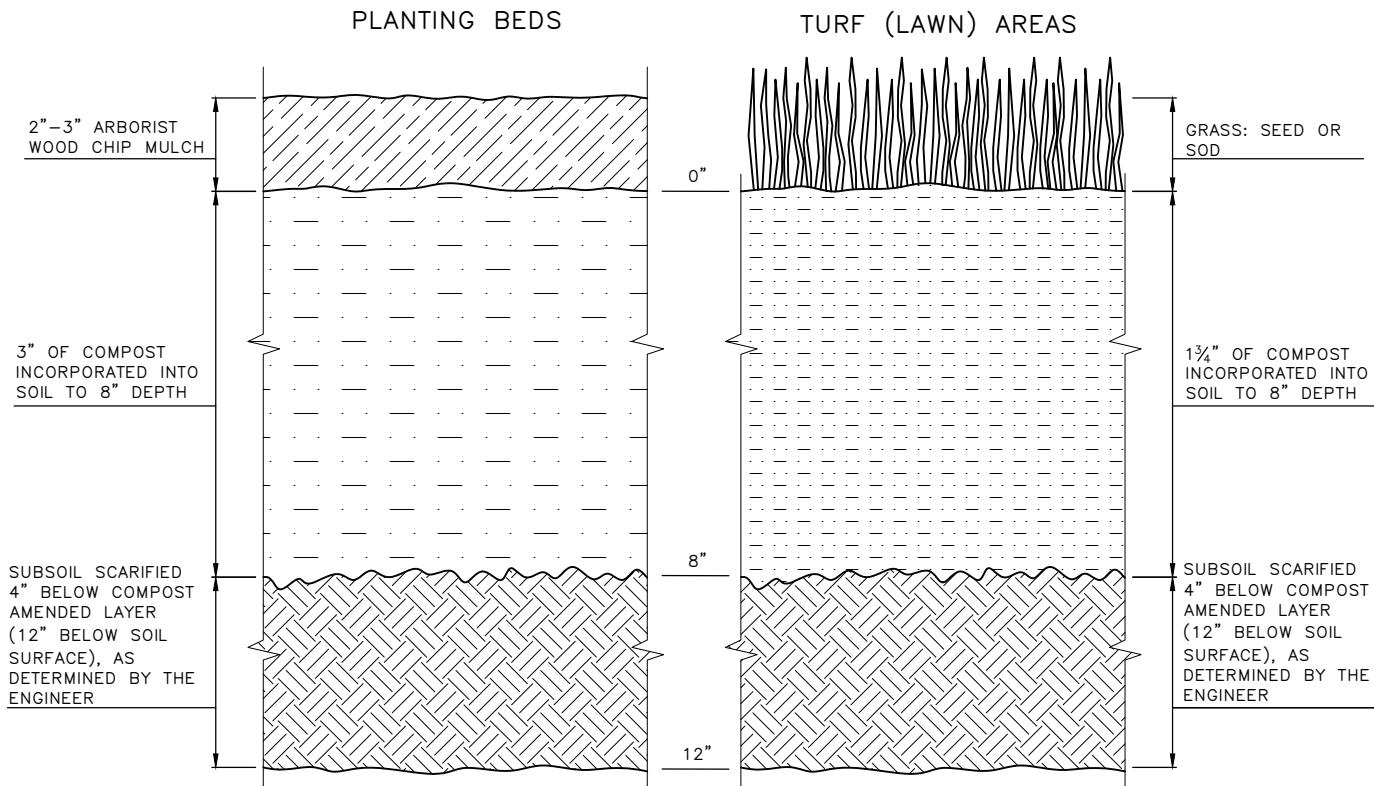
REF STD SPEC SEC 2-13



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ROCK FACING

**NOTES:**

1. ALL SOIL AREAS DISTURBED OR COMPACTED DURING CONSTRUCTION, AND NOT COVERED BY BUILDINGS OR PAVEMENT, MUST BE AMENDED WITH COMPOST AS DESCRIBED BELOW.
2. SUBSOIL SHOULD BE SCARIFIED (LOOSENED) 4 INCHES BELOW AMENDED LAYER, TO PRODUCE 12-INCH DEPTH OF UN-COMPACTED SOIL, EXCEPT WHERE SCARIFICATION WOULD DAMAGE TREE ROOTS OR AS DETERMINED BY THE ENGINEER.
3. COMPOST MUST BE TILLED IN TO 8 INCH DEPTH INTO EXISTING SOIL, OR PLACE 8 INCHES OF COMPOST-AMENDED SOIL, PER SOIL SPECIFICATION.
4. TURF AREAS MUST RECEIVE 1.75 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR MAY SUBSTITUTE 8" OF IMPORTED SOIL CONTAINING 20-25% COMPOST BY VOLUME. THEN PLANT GRASS SEED OR SOD PER SPECIFICATION.
5. PLANTING BEDS MUST RECEIVE 3 INCHES OF COMPOST TILLED IN TO 8-INCH DEPTH, OR MAY SUBSTITUTE 8" OF IMPORTED SOIL CONTAINING 35-40% COMPOST BY VOLUME. MULCH AFTER PLANTING, WITH 2-3 INCHES OF ARBORIST WOOD CHIP MULCH OR APPROVED EQUAL.
6. SETBACKS: TO PREVENT UNEVEN SETTLING, DO NOT COMPOST-AMEND SOILS WITHIN 3 FEET OF UTILITY INFRASTRUCTURES (POLES, VAULTS, METERS ETC.). WITHIN ONE FOOT OF PAVEMENT EDGE, CURBS AND SIDEWALKS SOIL SHOULD BE COMPACTED TO APPROXIMATELY 90% PROCTOR TO ENSURE A FIRM SURFACE.

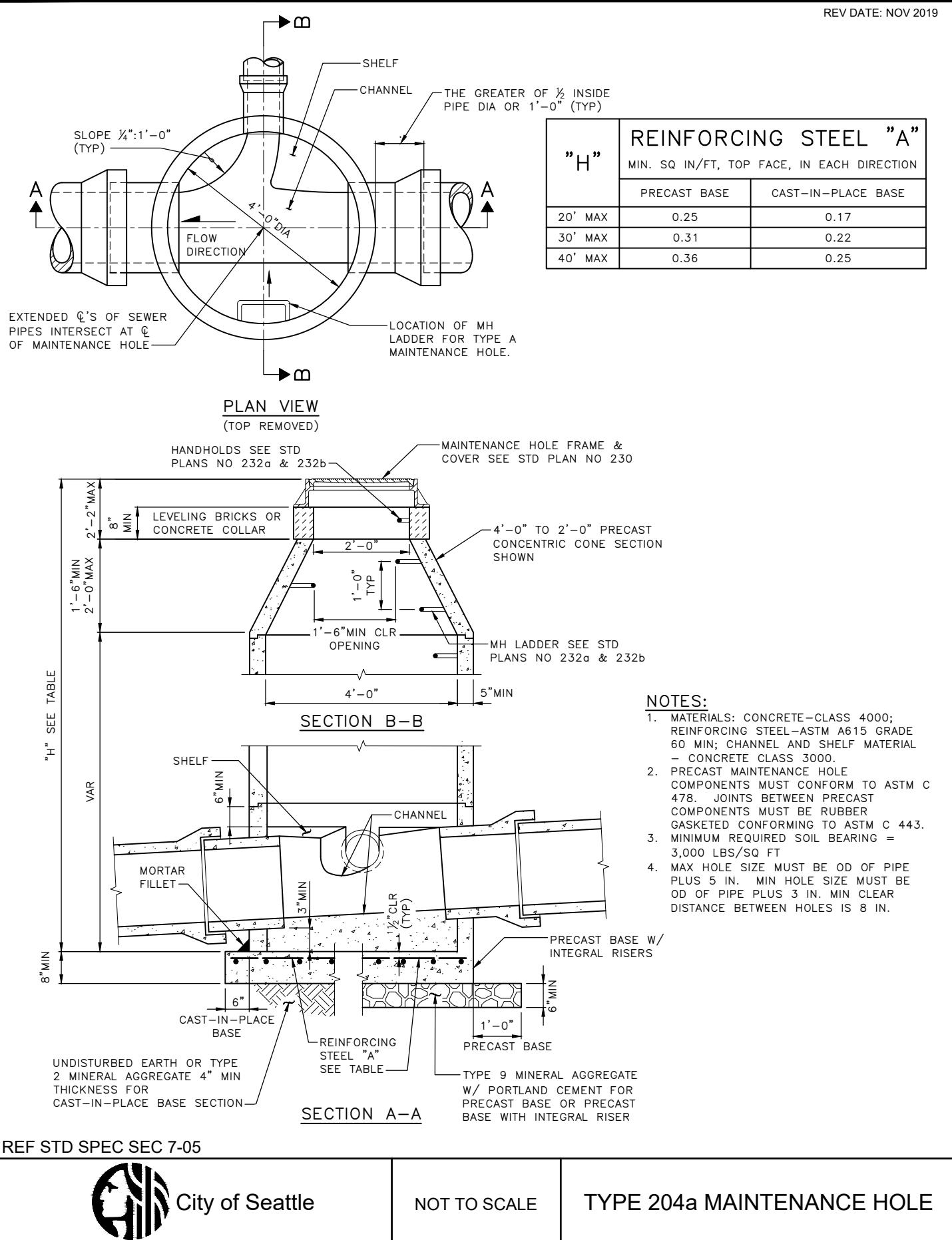
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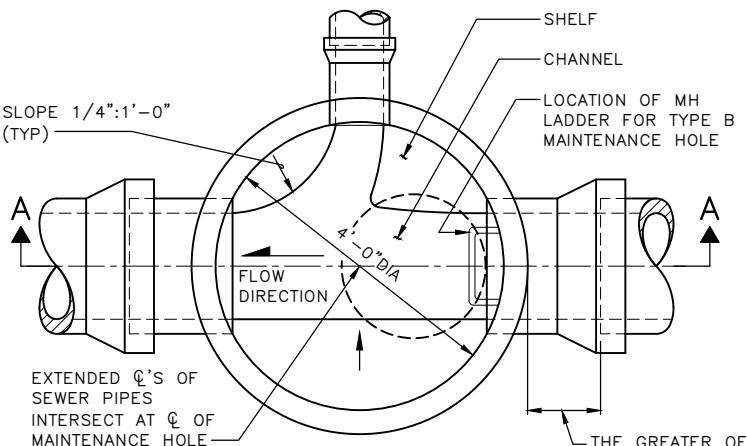
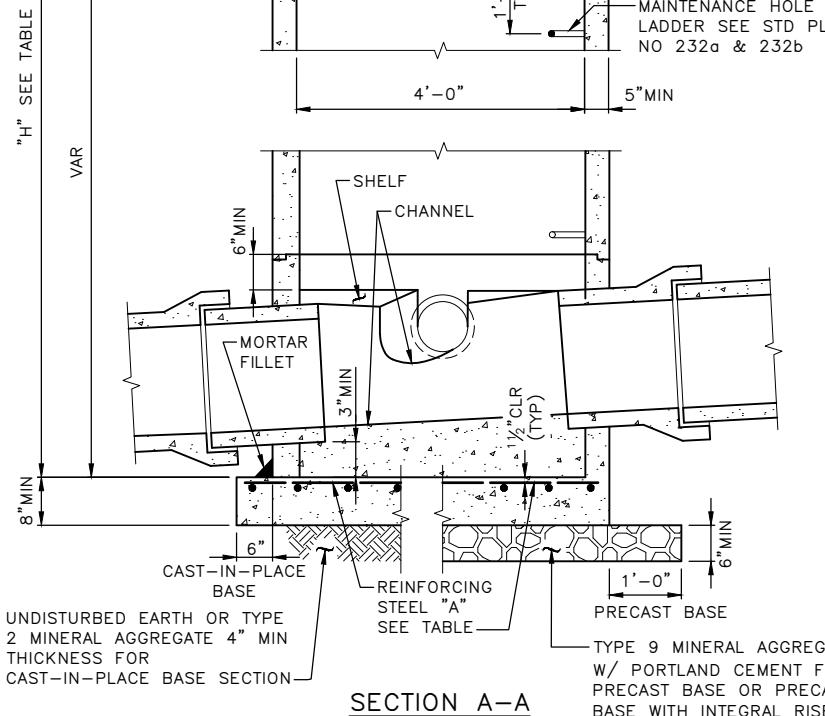
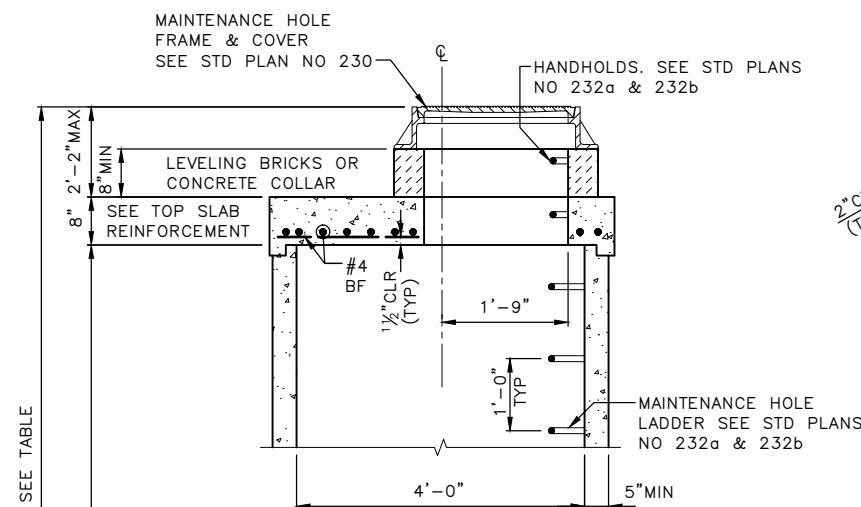


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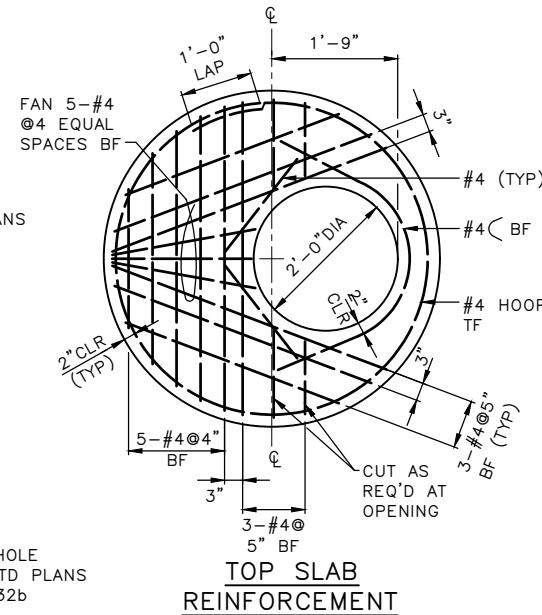
NOT TO SCALE

SOIL AMENDMENT AND DEPTH



PLAN VIEW  
(TOP REMOVED)

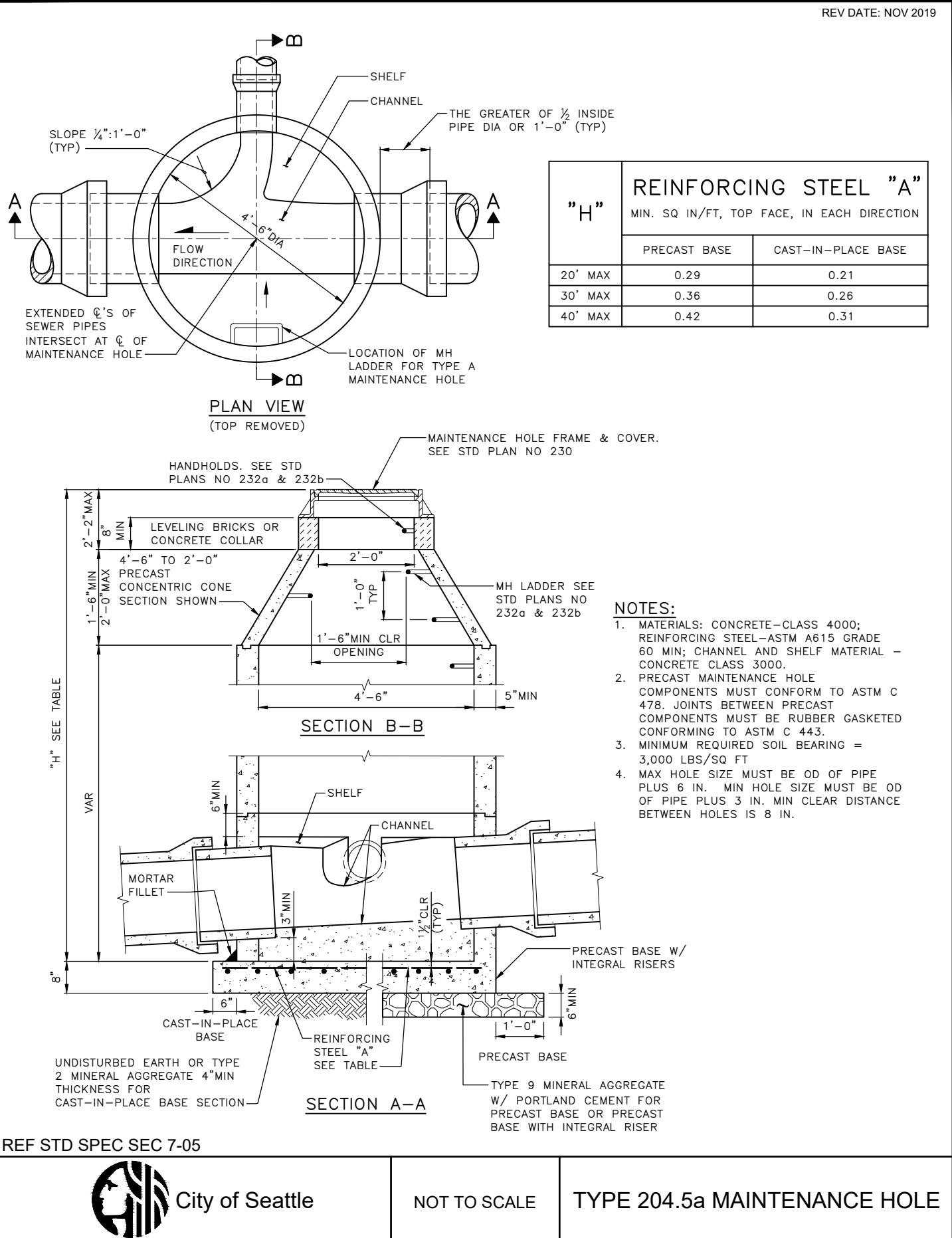
"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	PRECAST BASE
20' MAX	0.25	0.17
30' MAX	0.31	0.22
40' MAX	0.36	0.25

TOP SLAB  
REINFORCEMENT

## NOTES:

1. MATERIALS: CONCRETE-CLASS 4000; REINFORCING STEEL-ASTM A615 GRADE 60 MIN; CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 5 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.





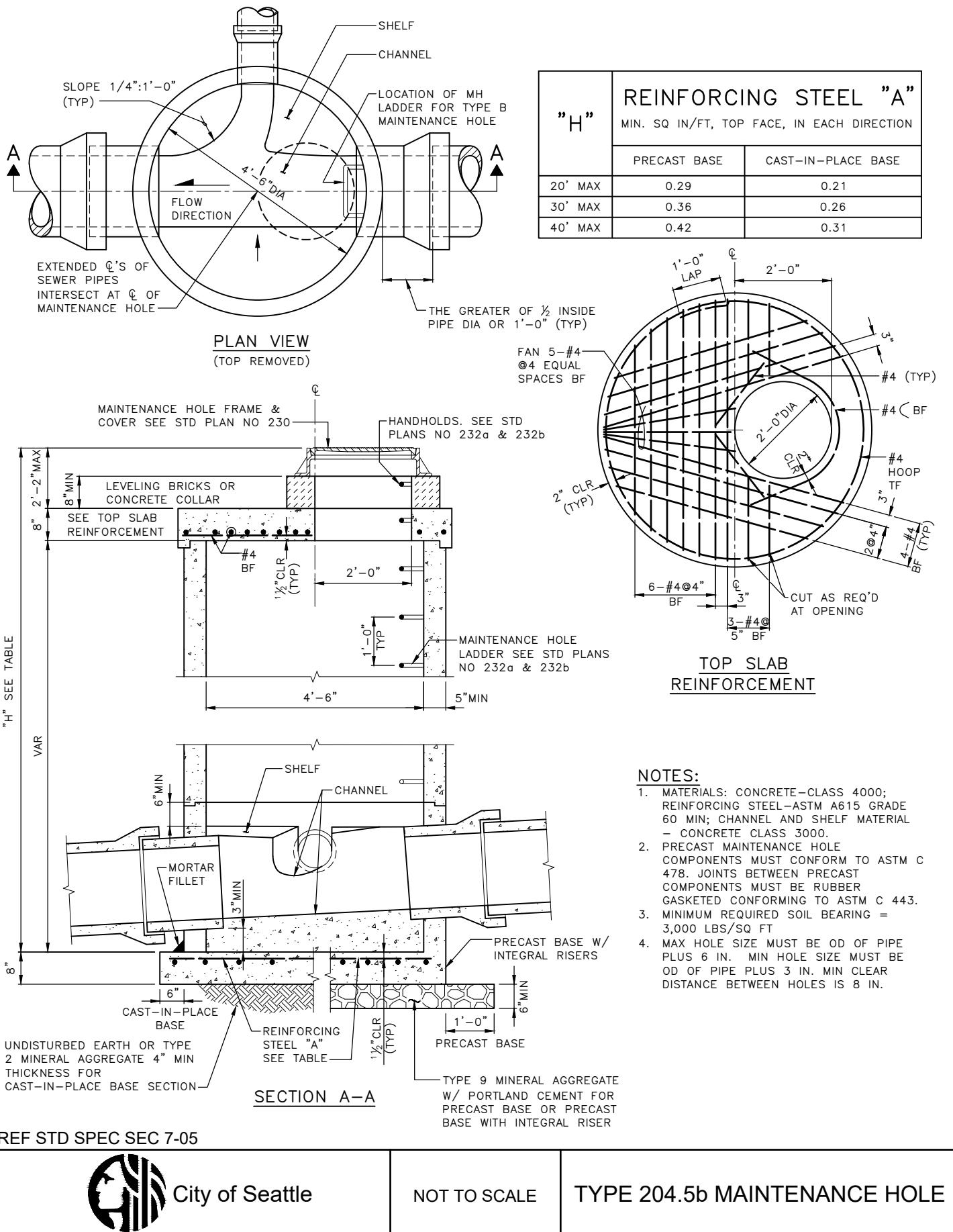
REF STD SPEC SEC 7-05



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TYPE 204.5a MAINTENANCE HOLE



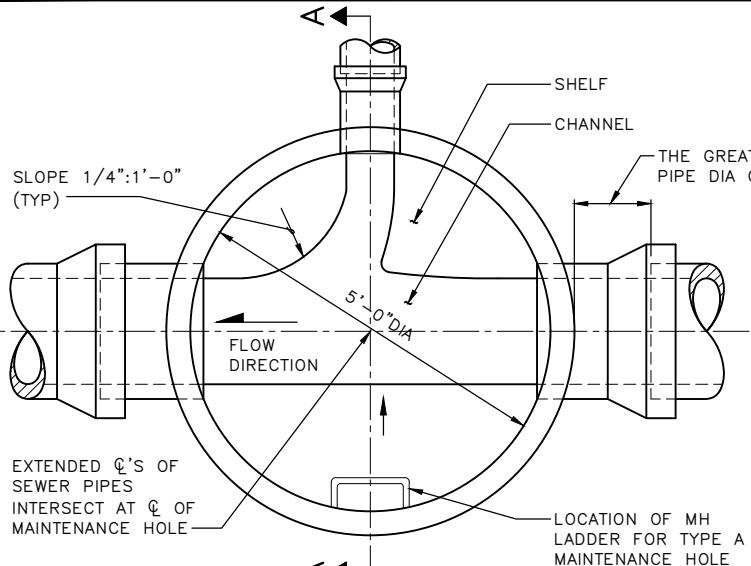
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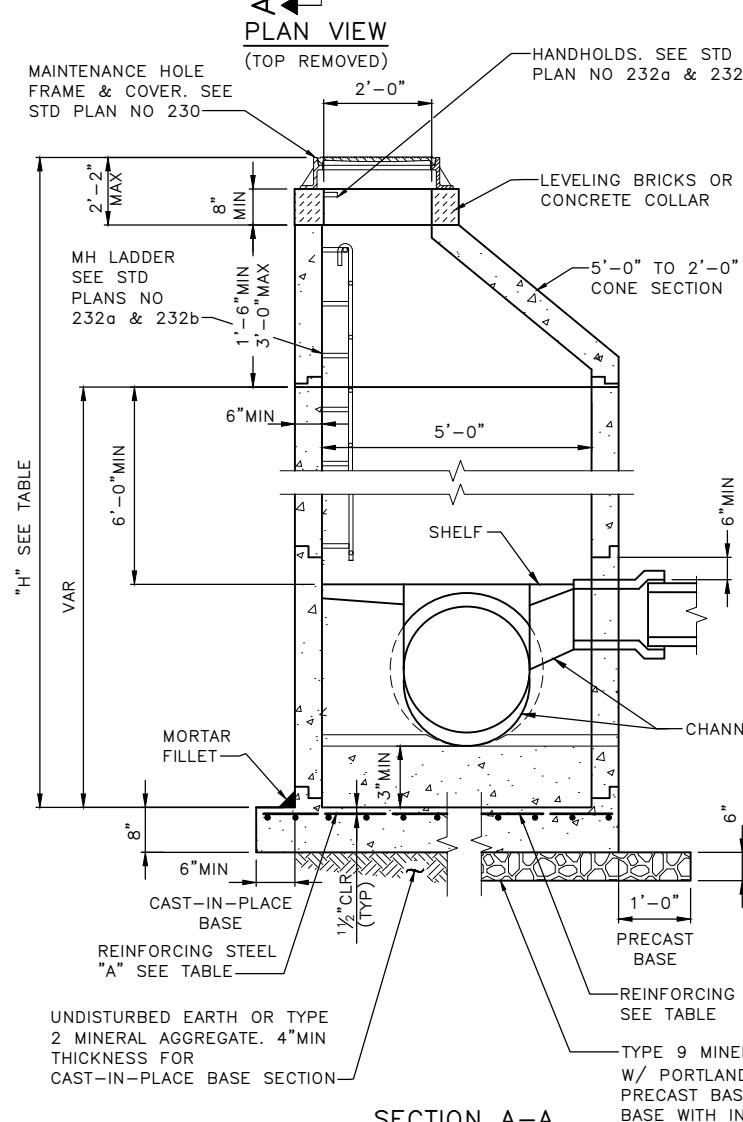
City of Seattle

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TYPE 204.5b MAINTENANCE HOLE



"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
PRECAST BASE	CAST-IN-PLACE BASE	
20' MAX	0.33	0.25
30' MAX	0.41	0.31
40' MAX	0.49	0.37



## NOTES:

1. MATERIALS: CONCRETE-CLASS 4000; REINFORCING STEEL-ASTM A615 GRADE 60 MIN; CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 6 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 8 IN.

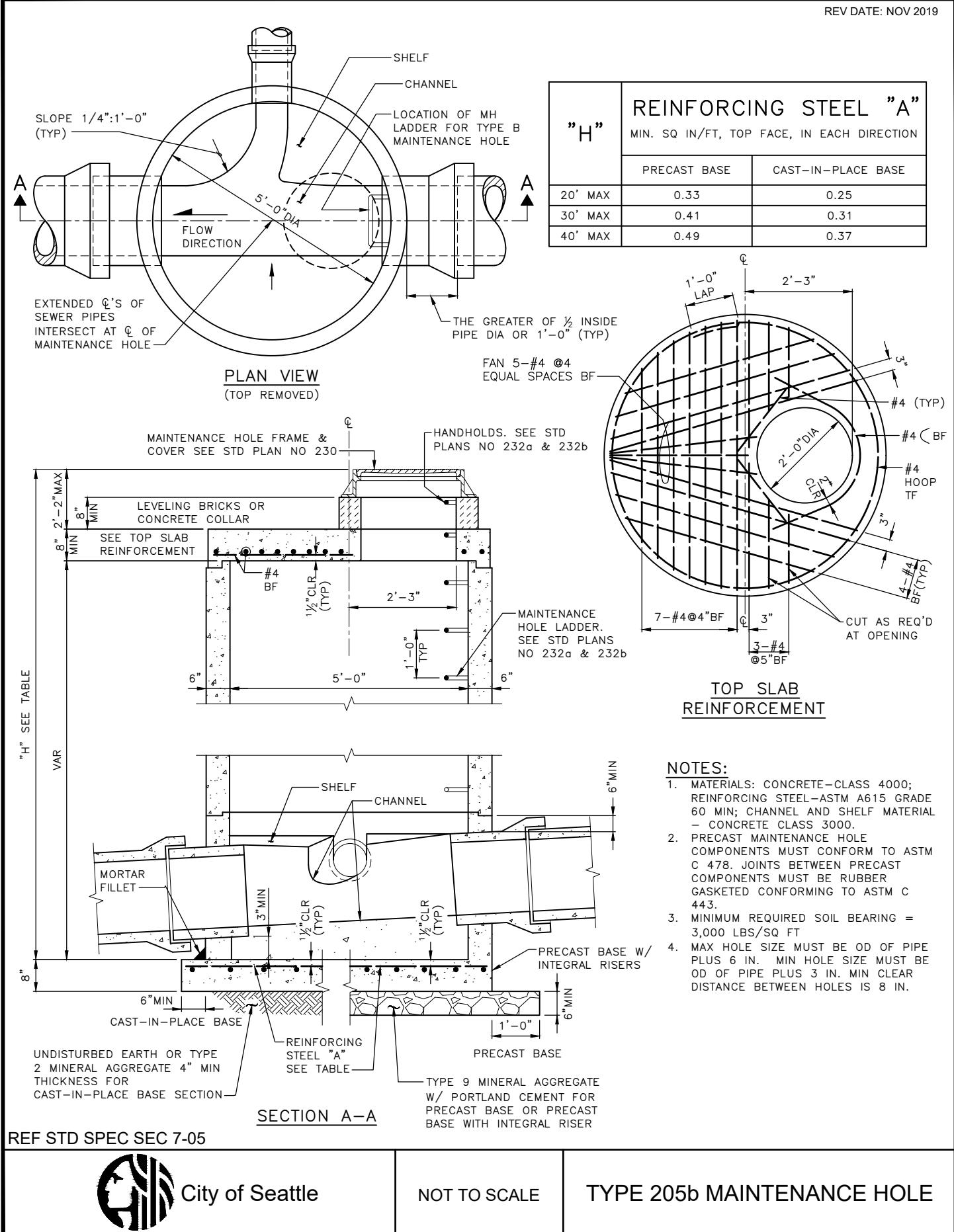
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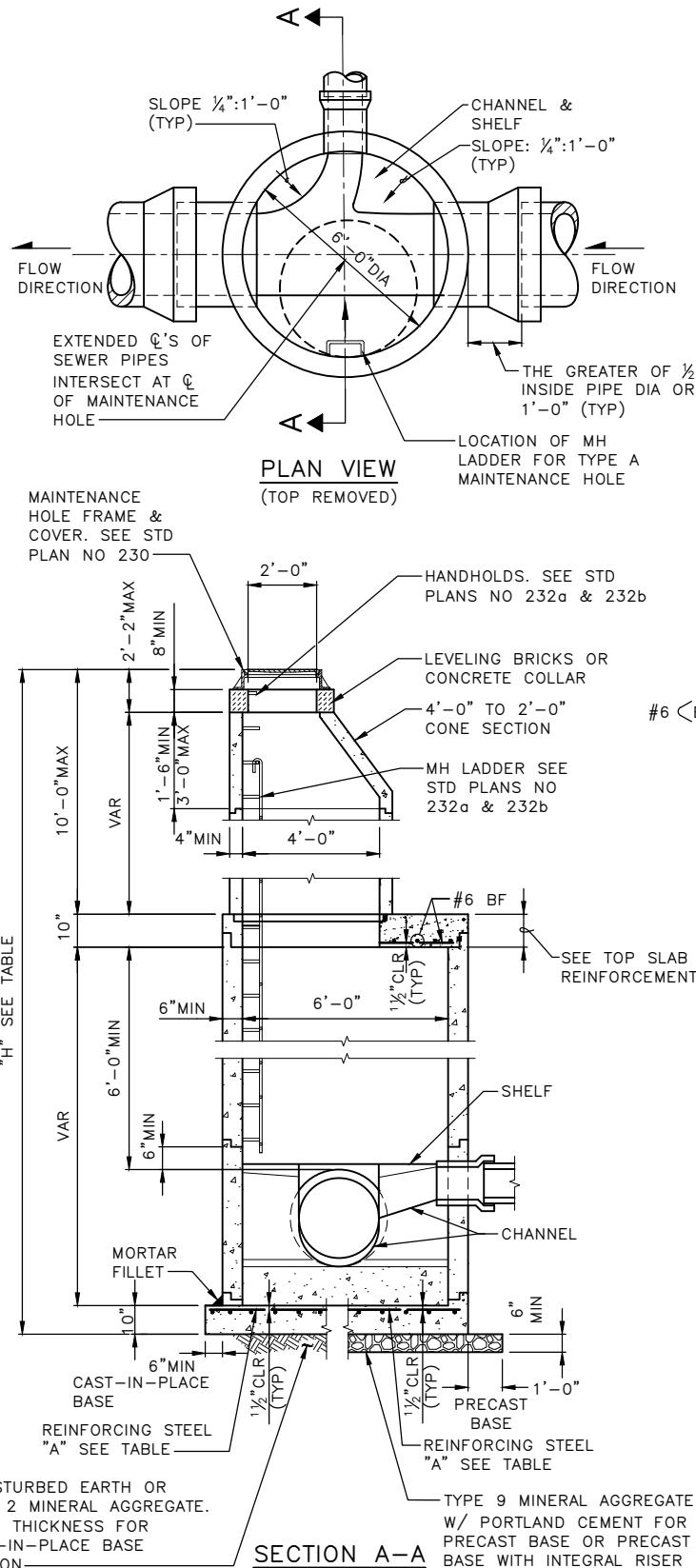


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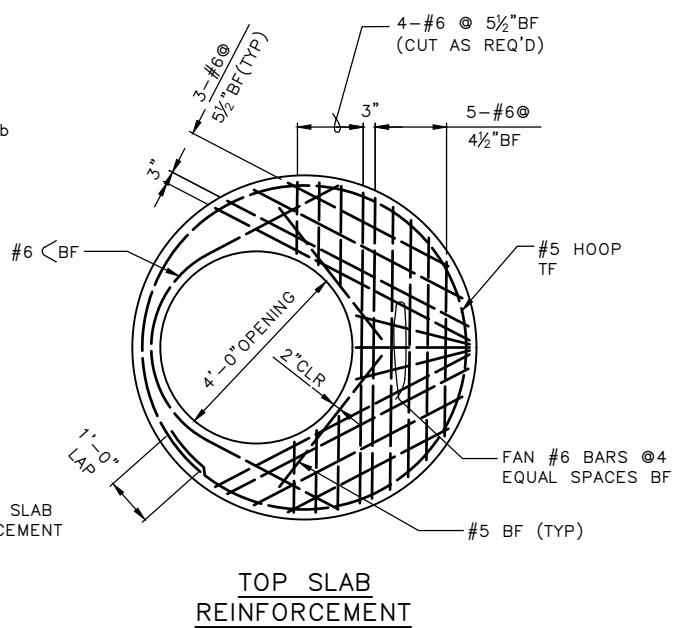
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TYPE 205a MAINTENANCE HOLE





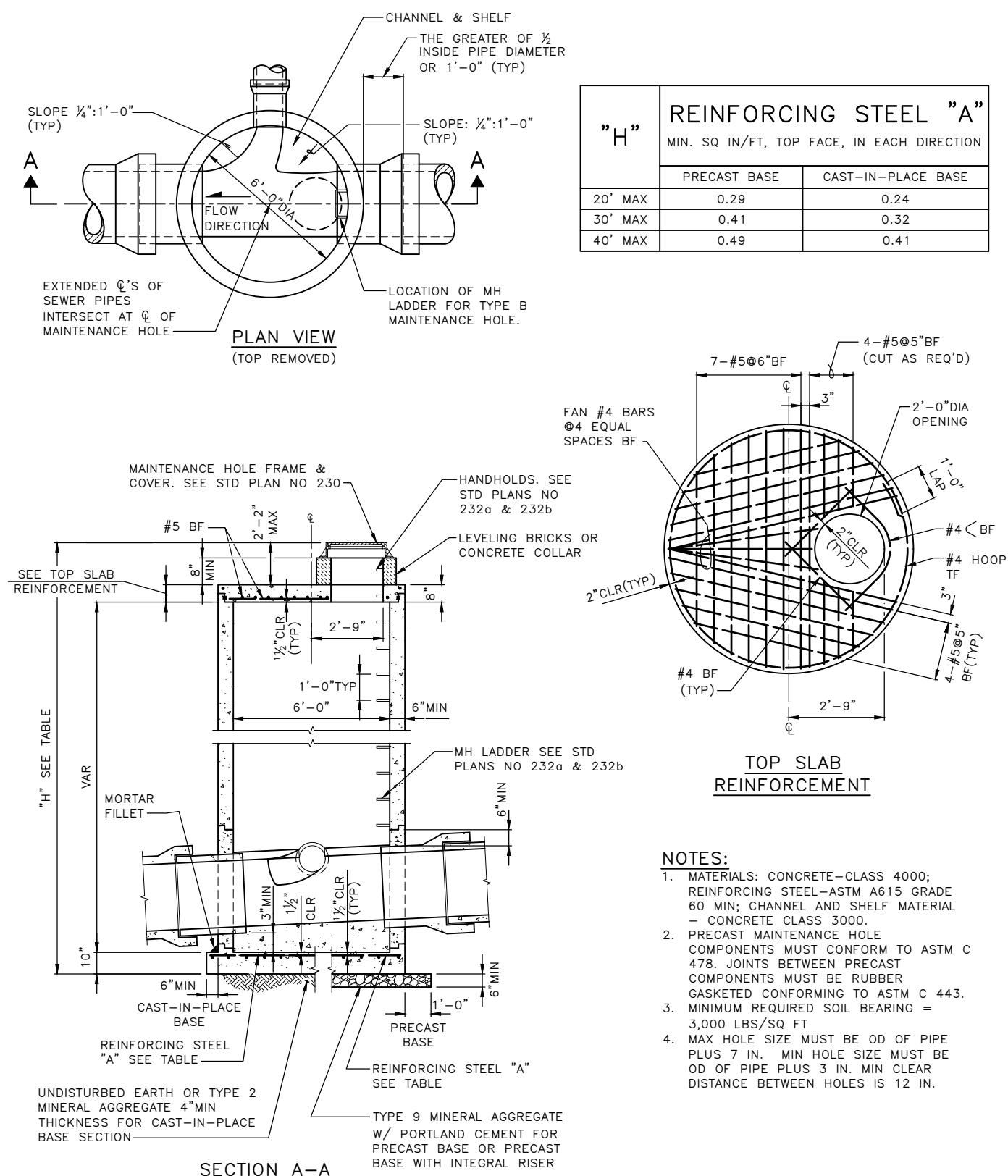
"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
PRECAST BASE	CAST-IN-PLACE BASE	
20' MAX	0.39	
30' MAX	0.47	
40' MAX	0.56	



## NOTES:

1. MATERIALS: CONCRETE-CLASS 4000; REINFORCING STEEL-ASTM A615 GRADE 60 MIN; CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 7 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 12 IN.





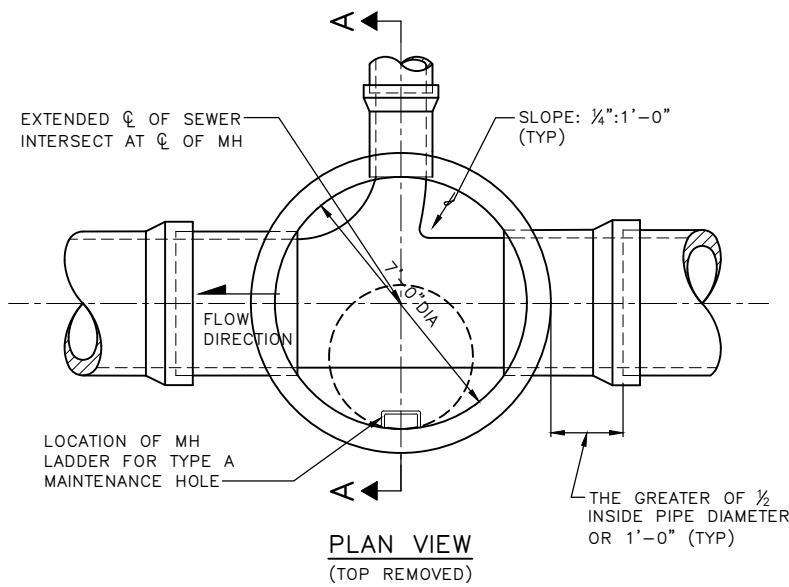
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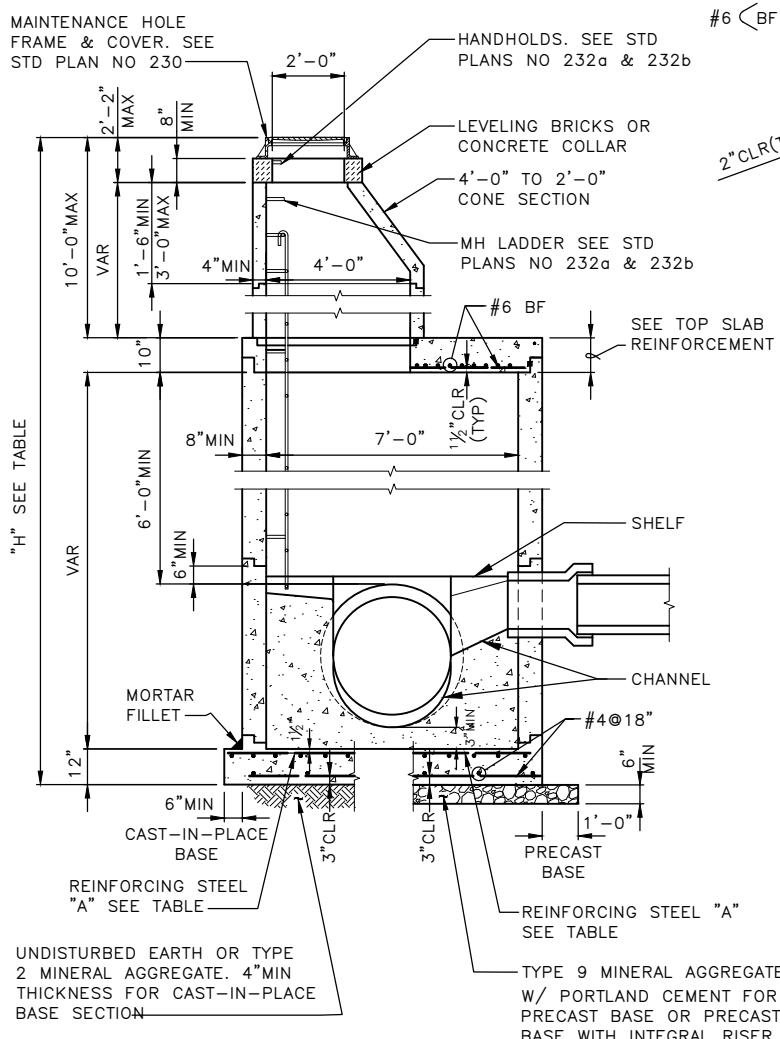
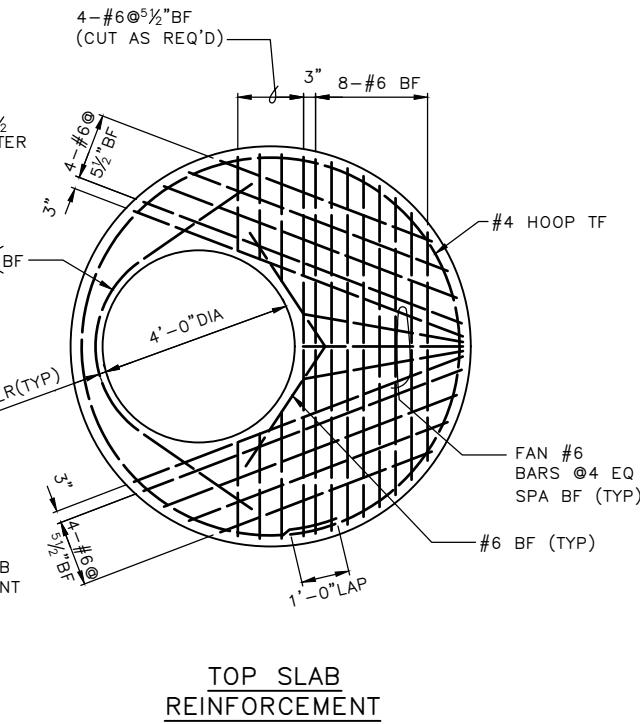
## City of Seattle

NOT TO SCALE

## TYPE 206b MAINTENANCE HOLE



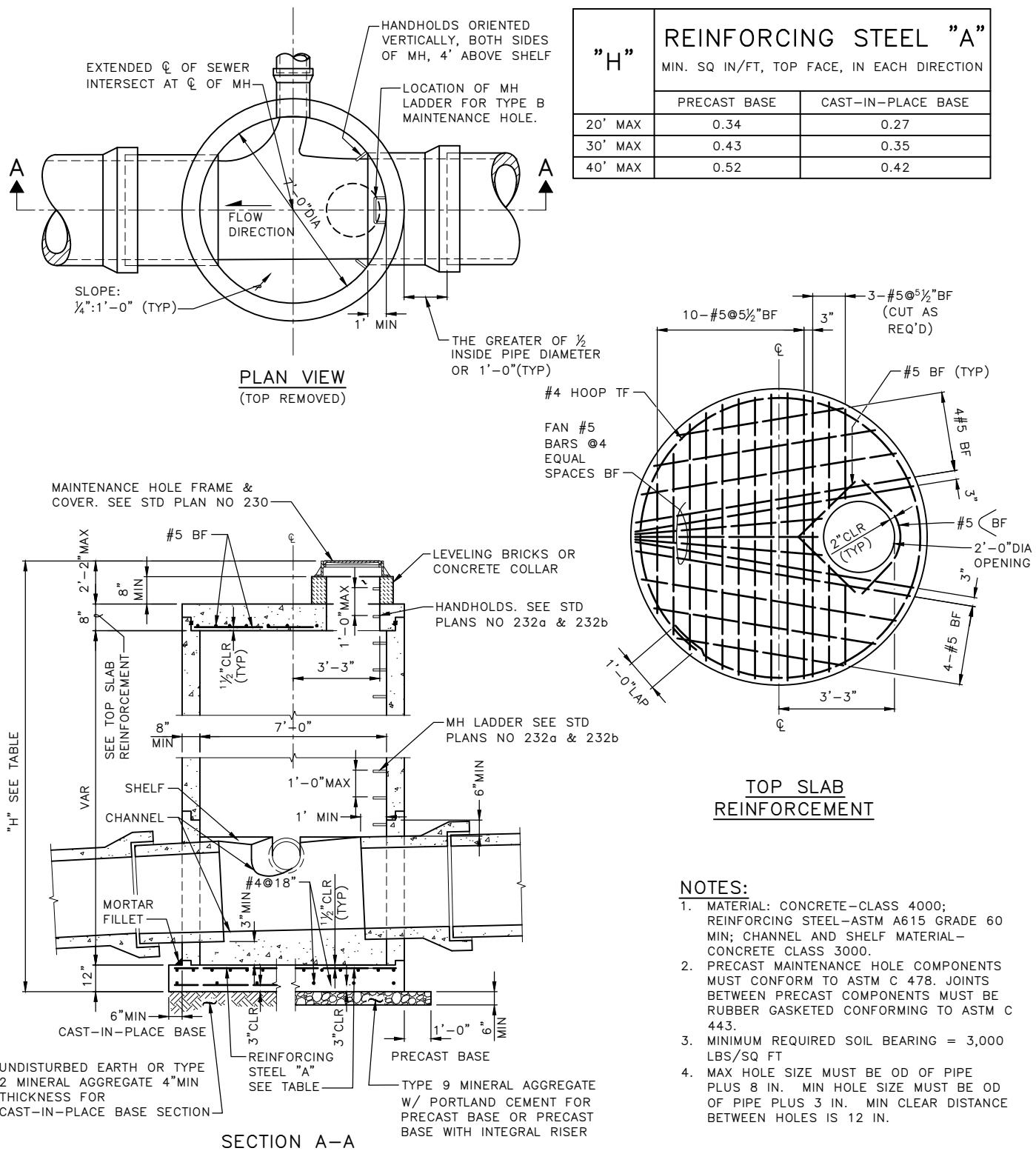
"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	PRECAST BASE      CAST-IN-PLACE BASE
20' MAX	0.42	034
30' MAX	0.51	0.41
40' MAX	0.60	0.48



## NOTES:

1. MATERIALS: CONCRETE-CLASS 4000; REINFORCING STEEL-ASTM A615 GRADE 60 MIN; CHANNEL AND SHELF MATERIAL - CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 8 IN. MIN HOLE SIZE MUST BE OD OF PIPE PLUS 3 IN. MIN CLEAR DISTANCE BETWEEN HOLES IS 12 IN.





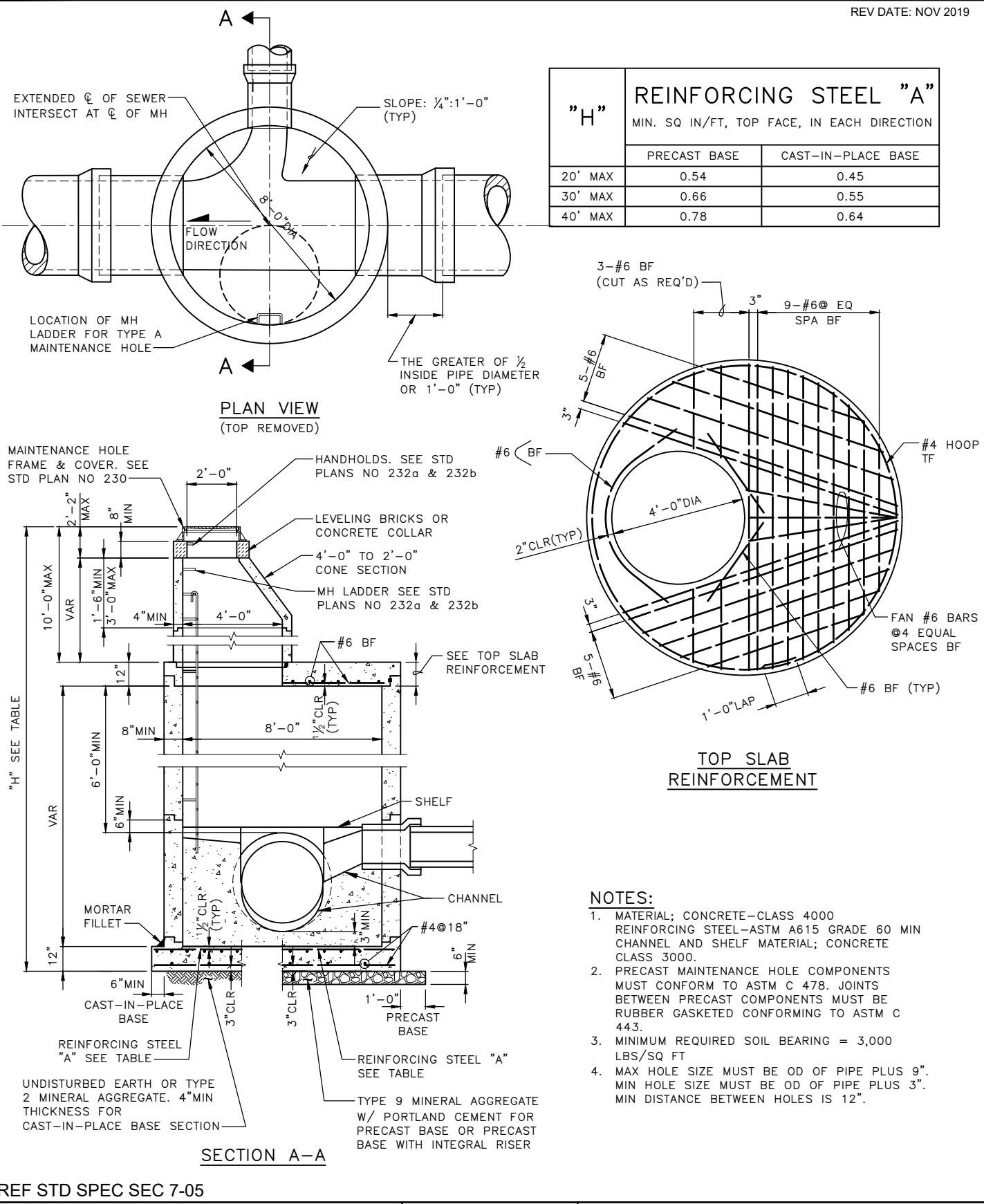
REF STD SPEC SEC 7-05



## City of Seattle

NOT TO SCALE

## TYPE 207b MAINTENANCE HOLE



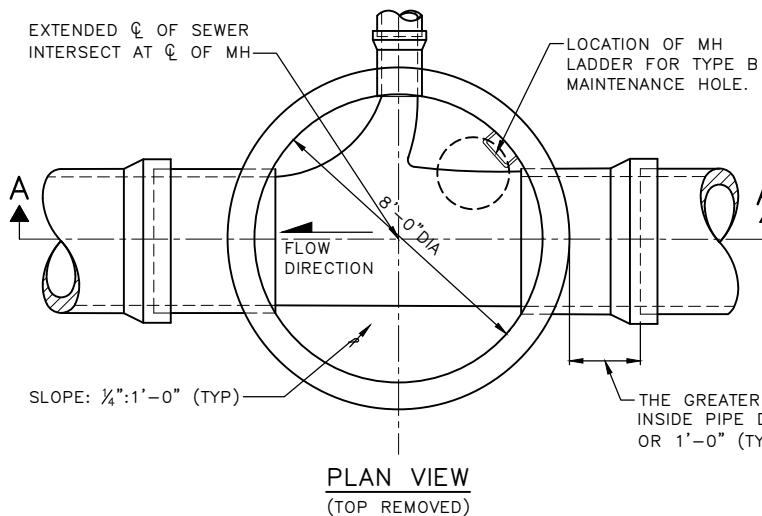
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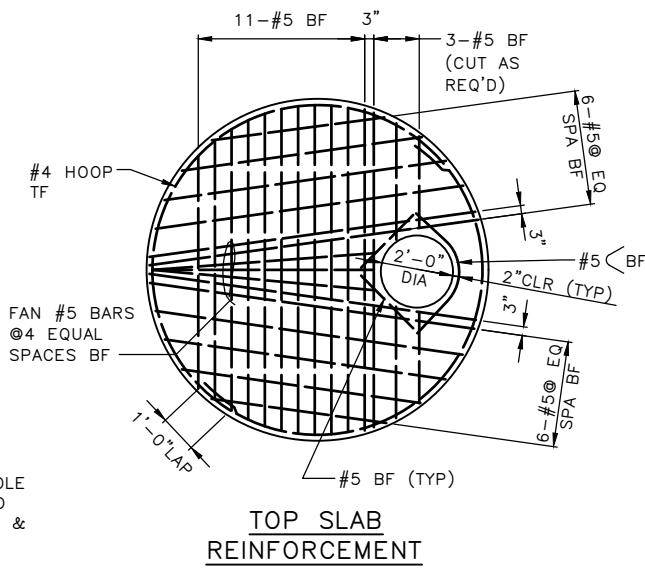
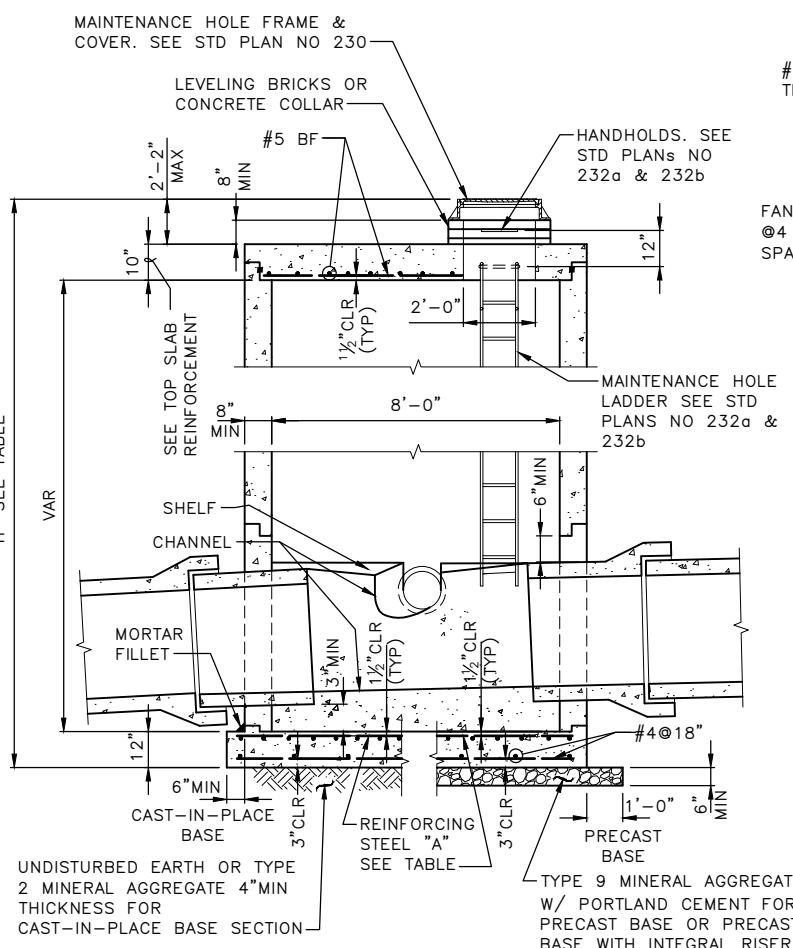
City of Seattle

NOT TO SCALE

TYPE 208a MAINTENANCE HOLE



"H"	REINFORCING STEEL "A"	
	MIN. SQ IN/FT, TOP FACE, IN EACH DIRECTION	
	PRECAST BASE	CAST-IN-PLACE BASE
20' MAX	0.42	0.35
30' MAX	0.53	0.45
40' MAX	0.65	0.54



SECTION A-A

## NOTES:

1. MATERIAL; CONCRETE-CLASS 4000 REINFORCING STEEL-ASTM A615 GRADE 60 MIN CHANNEL AND SHELF MATERIAL; CONCRETE CLASS 3000.
2. PRECAST MAINTENANCE HOLE COMPONENTS MUST CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS MUST BE RUBBER GASKETED CONFORMING TO ASTM C 443.
3. MINIMUM REQUIRED SOIL BEARING = 3,000 LBS/SQ FT
4. MAX HOLE SIZE MUST BE OD OF PIPE PLUS 9" MIN HOLE SIZE MUST BE OD OF PIPE, PLUS 3" MIN DISTANCE BETWEEN HOLES IS 12".

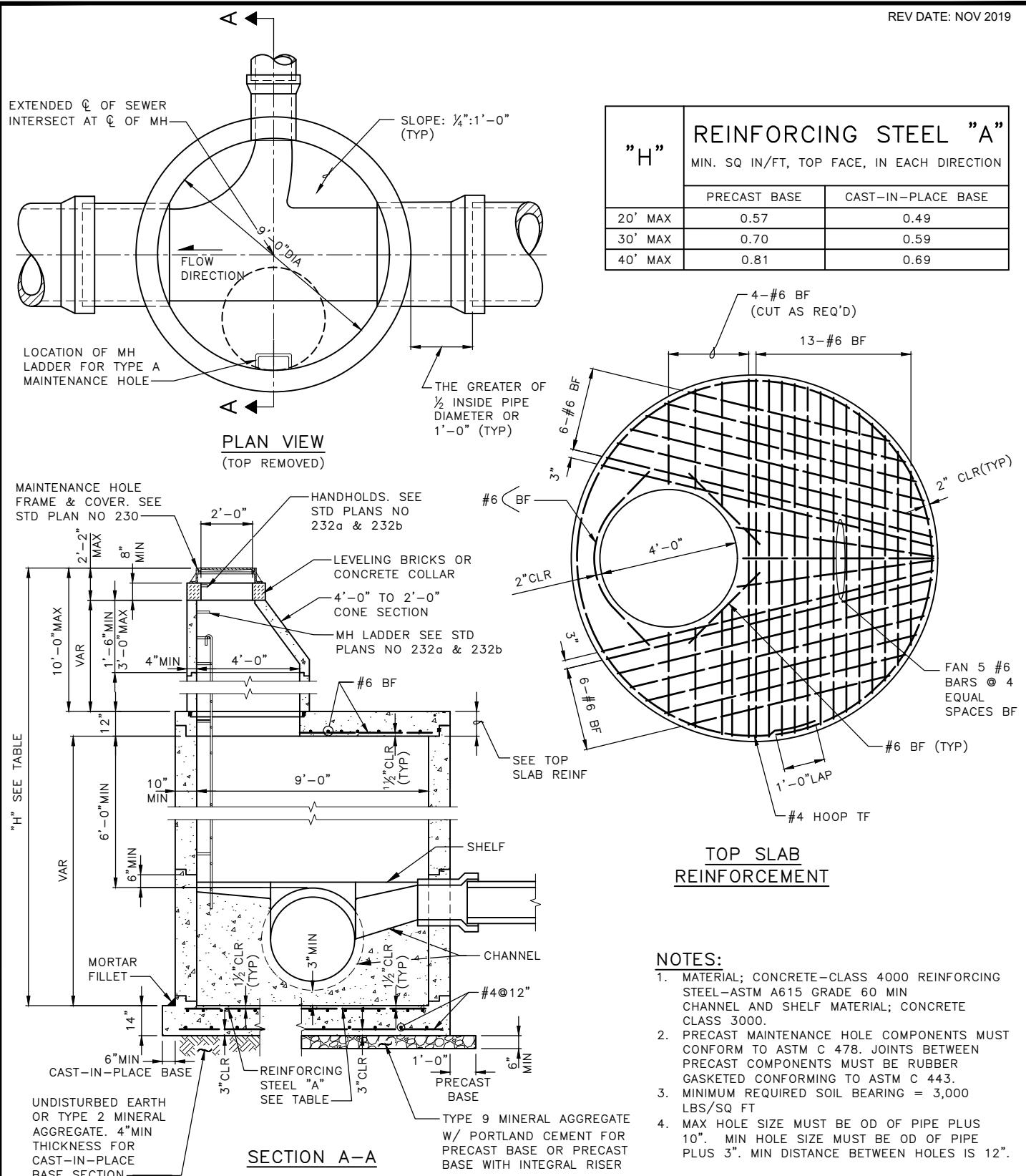
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## City of Seattle

NOT TO SCALE

## TYPE 208b MAINTENANCE HOLE



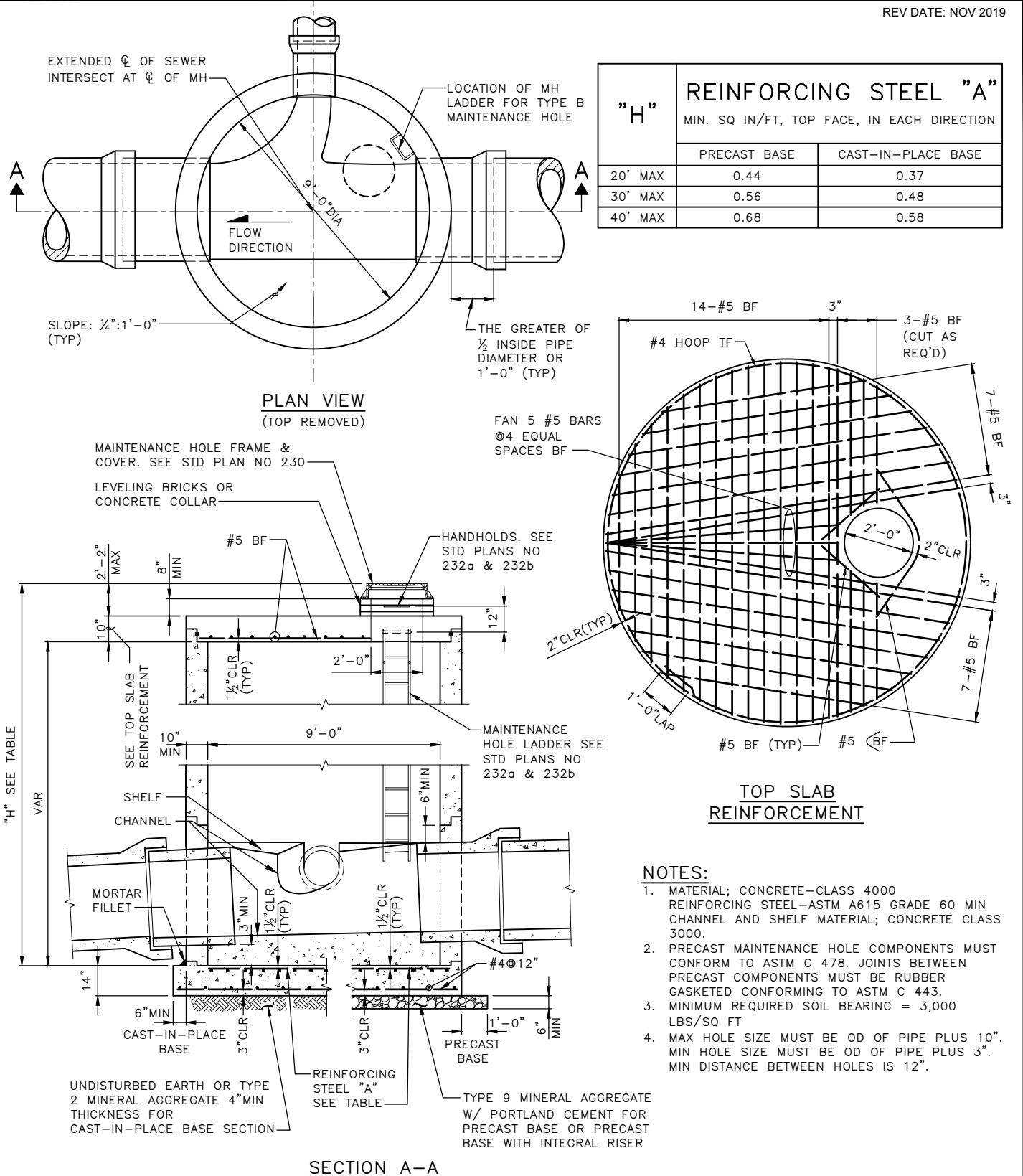
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City of Seattle

NOT TO SCALE

TYPE 209a MAINTENANCE HOLE



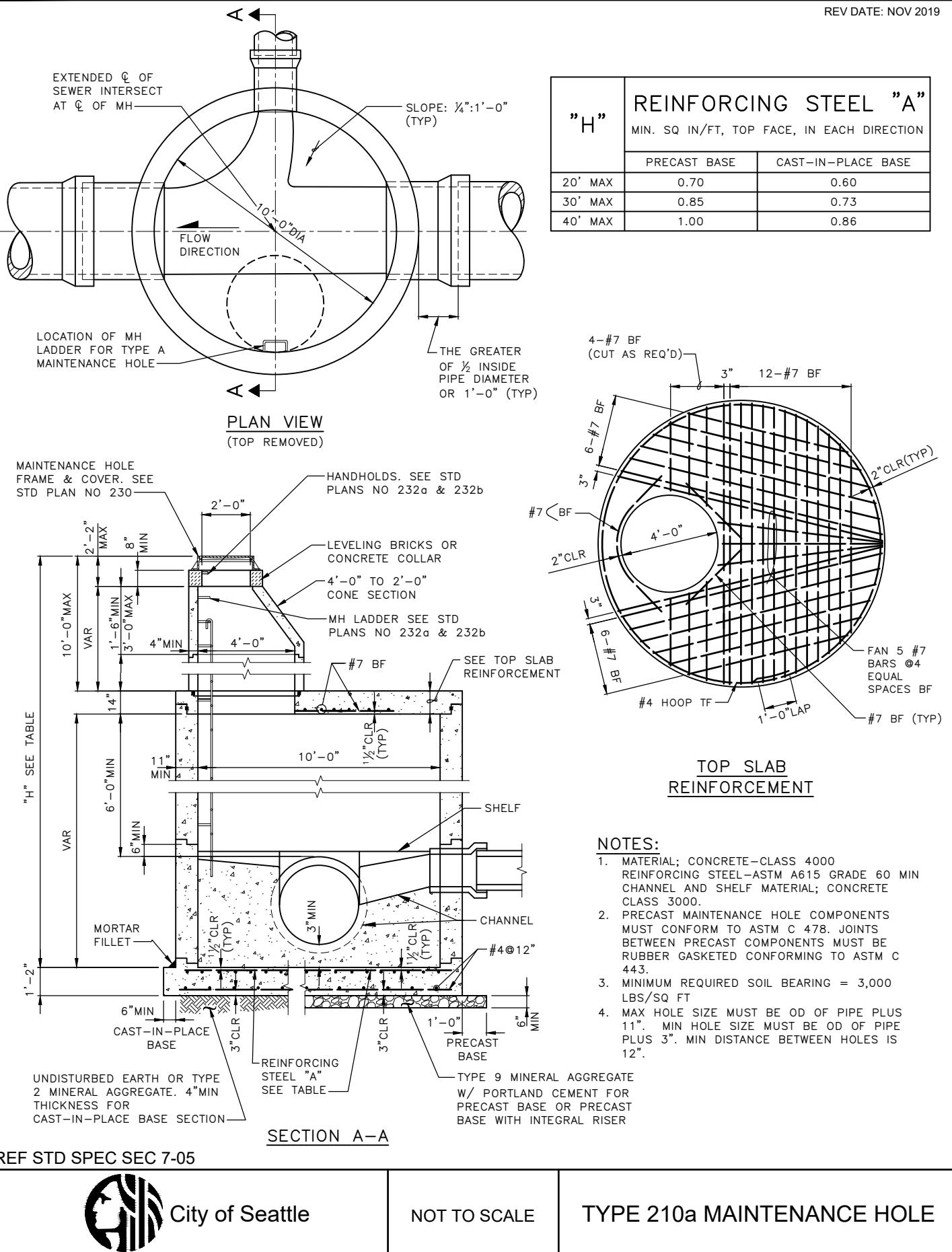
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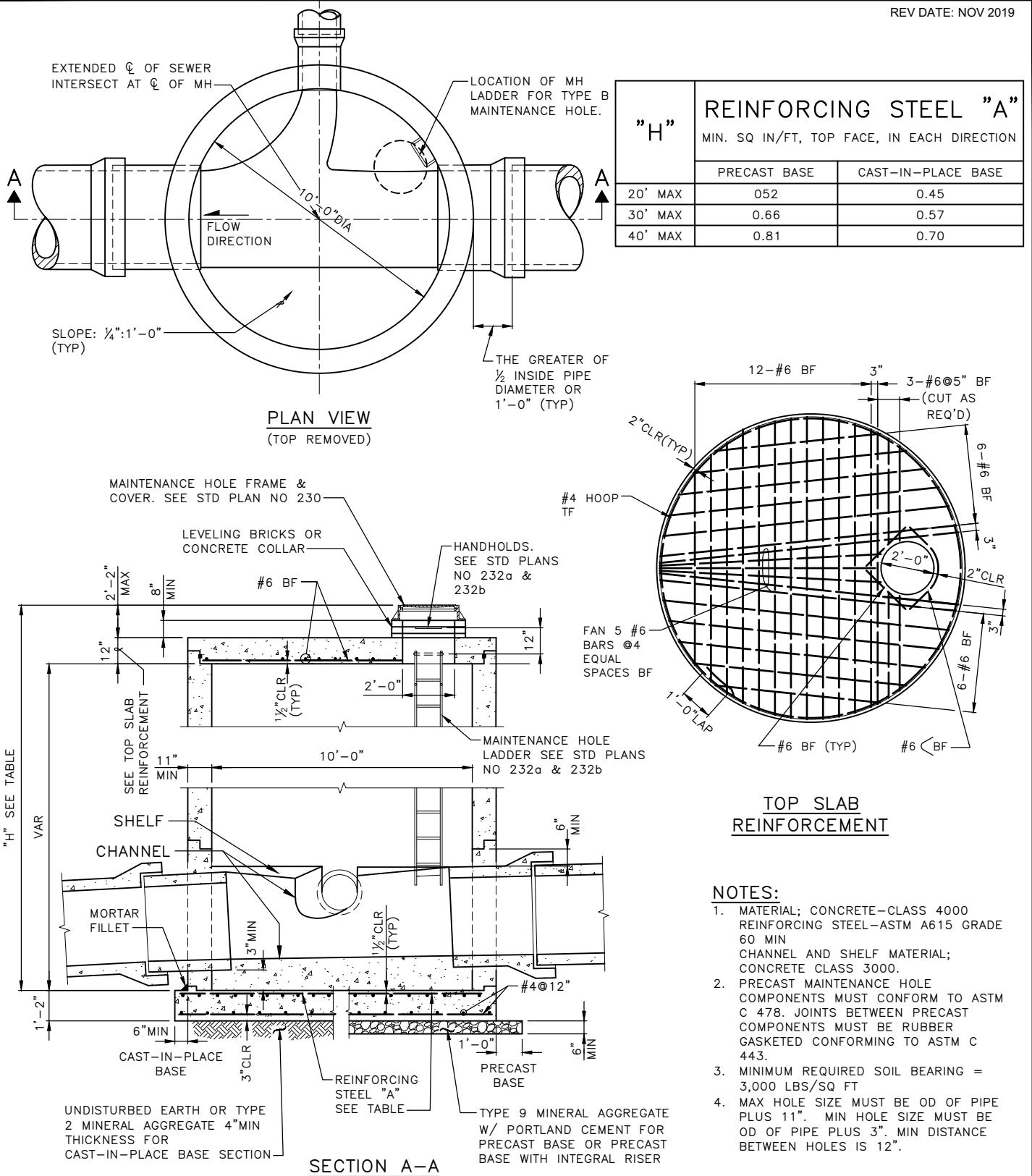


## City of Seattle

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## TYPE 209b MAINTENANCE HOLE





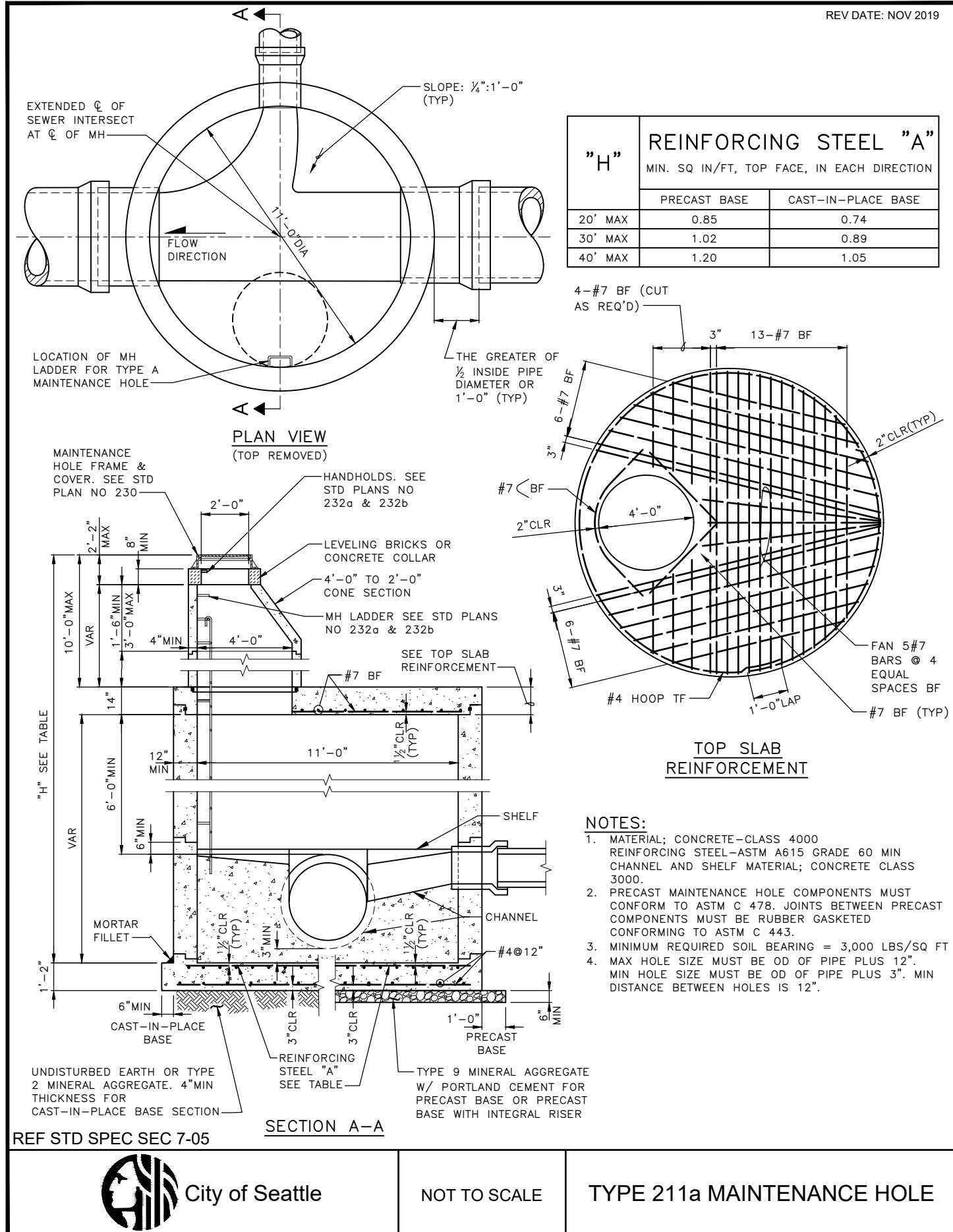
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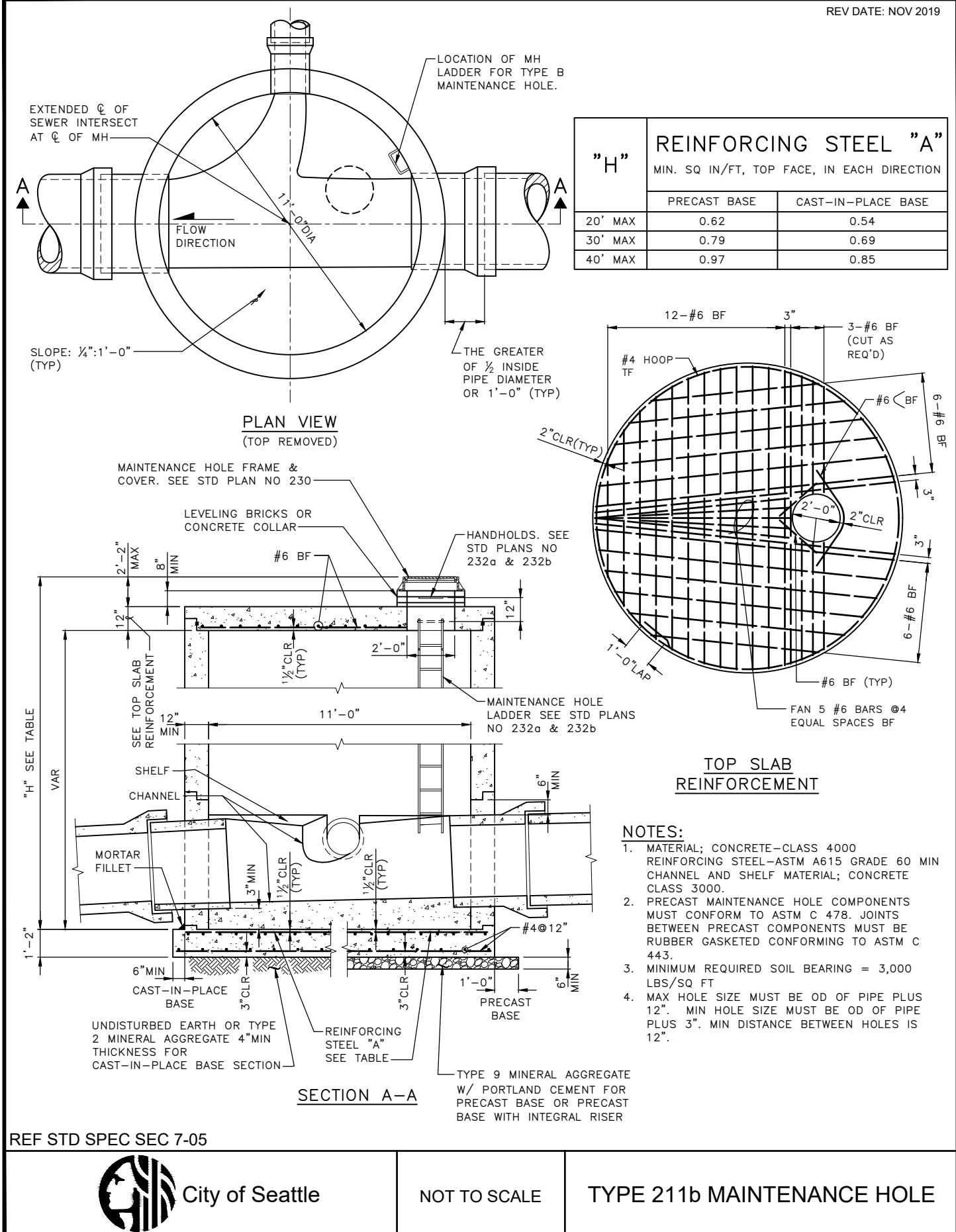


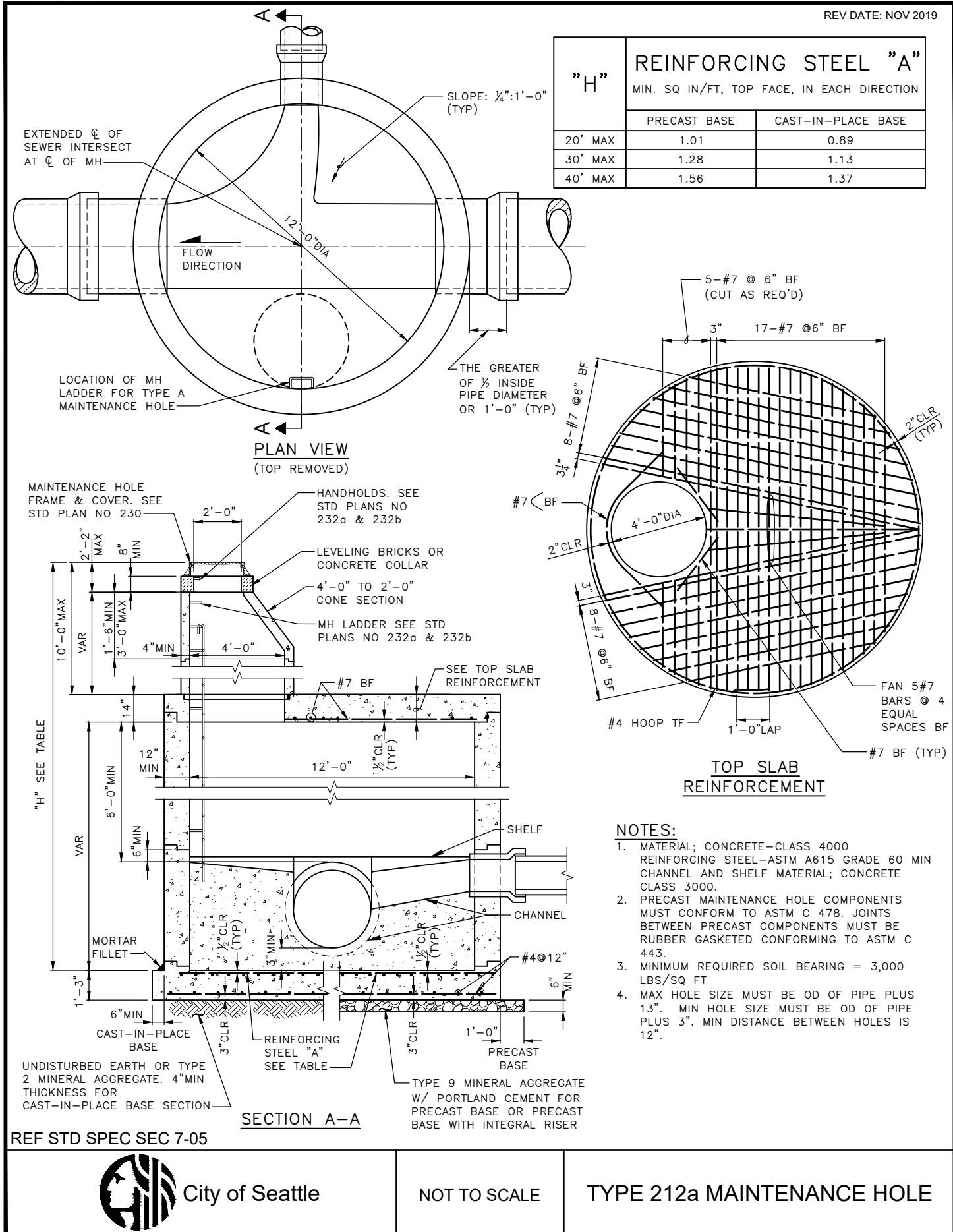
## City of Seattle

NOT TO SCALE

## TYPE 210b MAINTENANCE HOLE







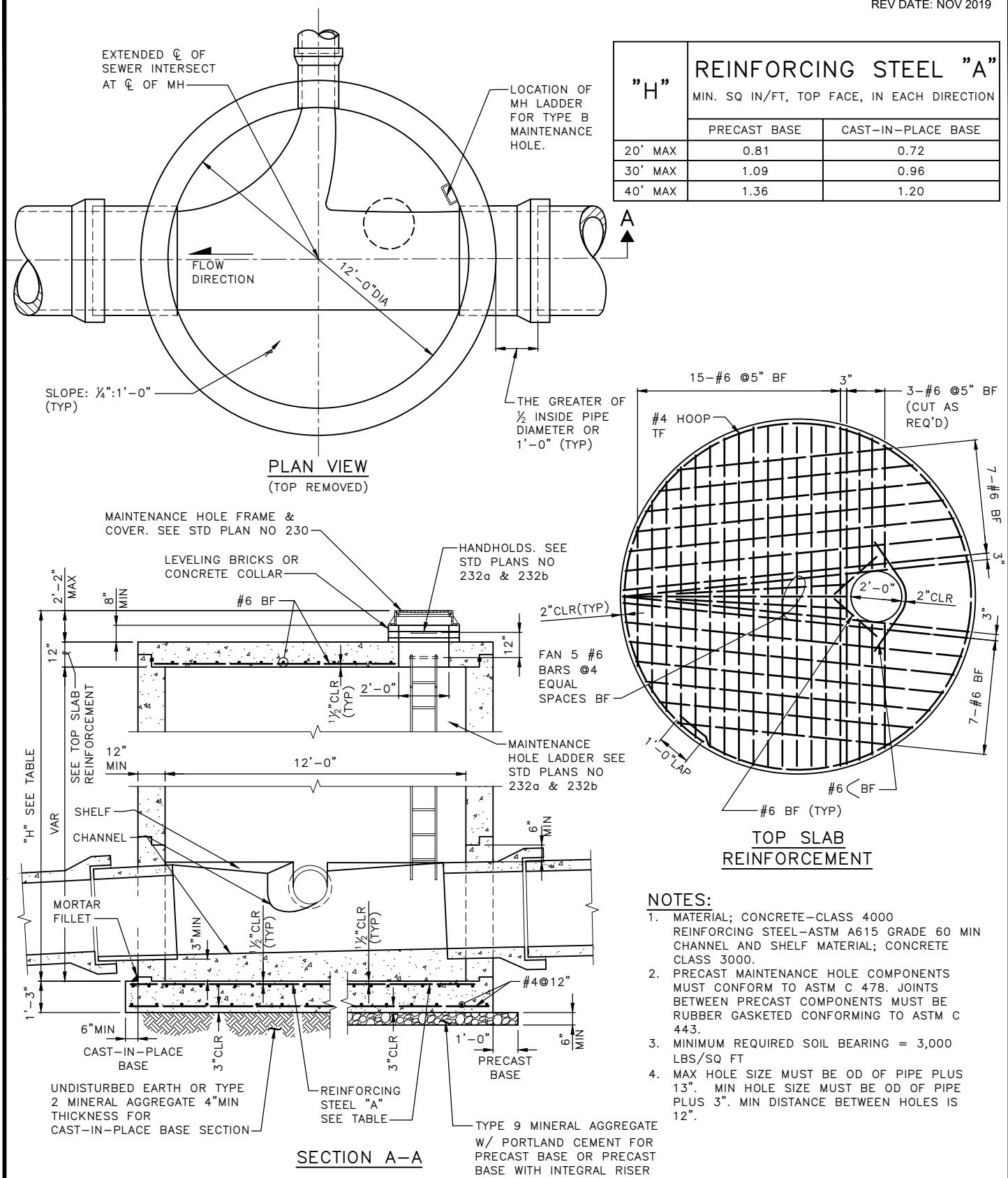
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TYPE 212a MAINTENANCE HOLE



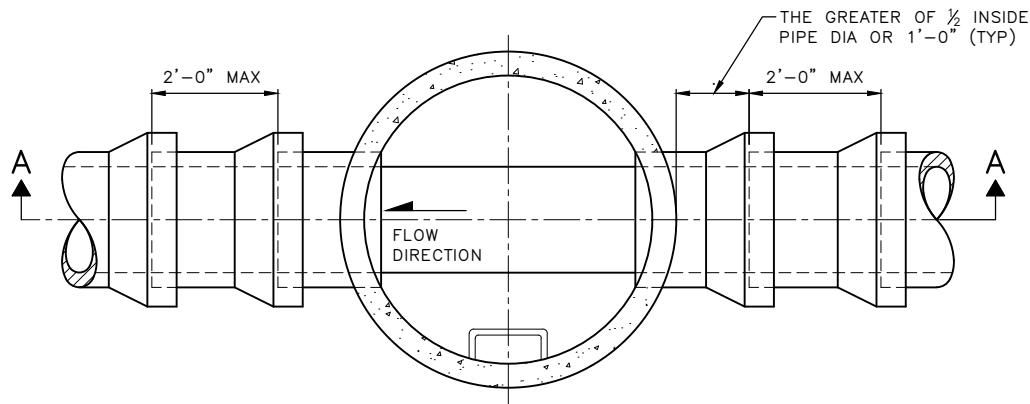
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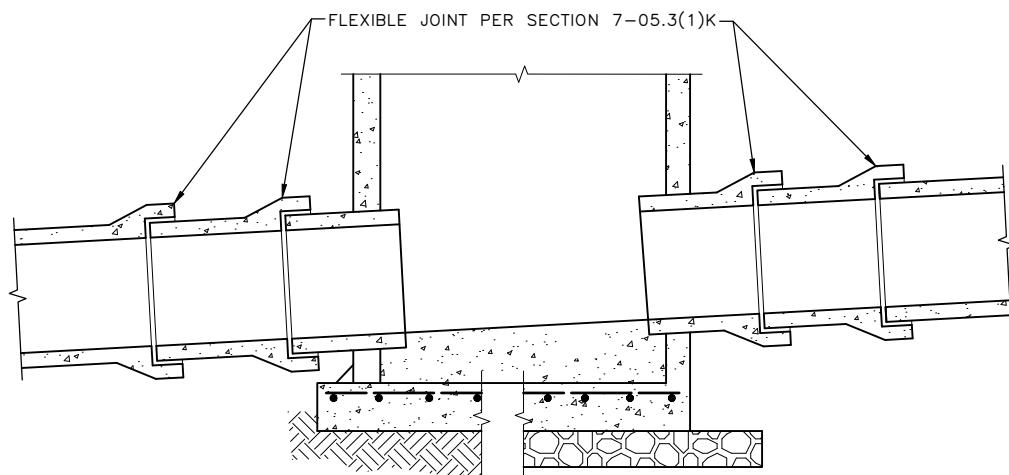
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## TYPE 212b MAINTENANCE HOLE



PLAN VIEW  
(TOP REMOVED)



SECTION A-A

NOTES:

1. SEE STANDARD PLANS NO 204a THROUGH 212b FOR MAINTENANCE HOLE REQUIREMENTS.

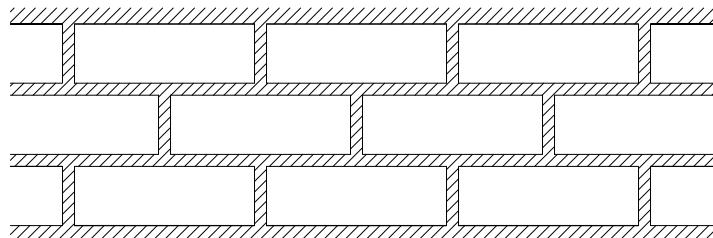
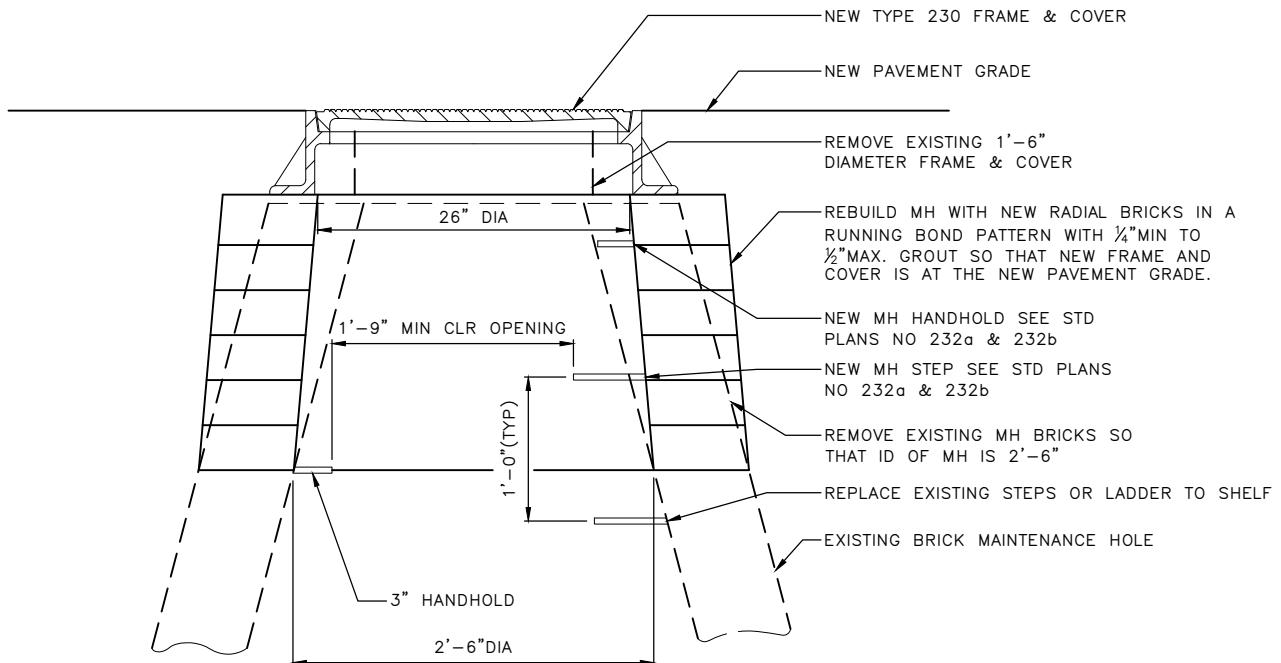
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

FLEXIBLE JOINT FOR VCP  
CONNECTION TO  
MAINTENANCE HOLES



RUNNING BOND PATTERN  
GROUT BETWEEN ALL BRICKS

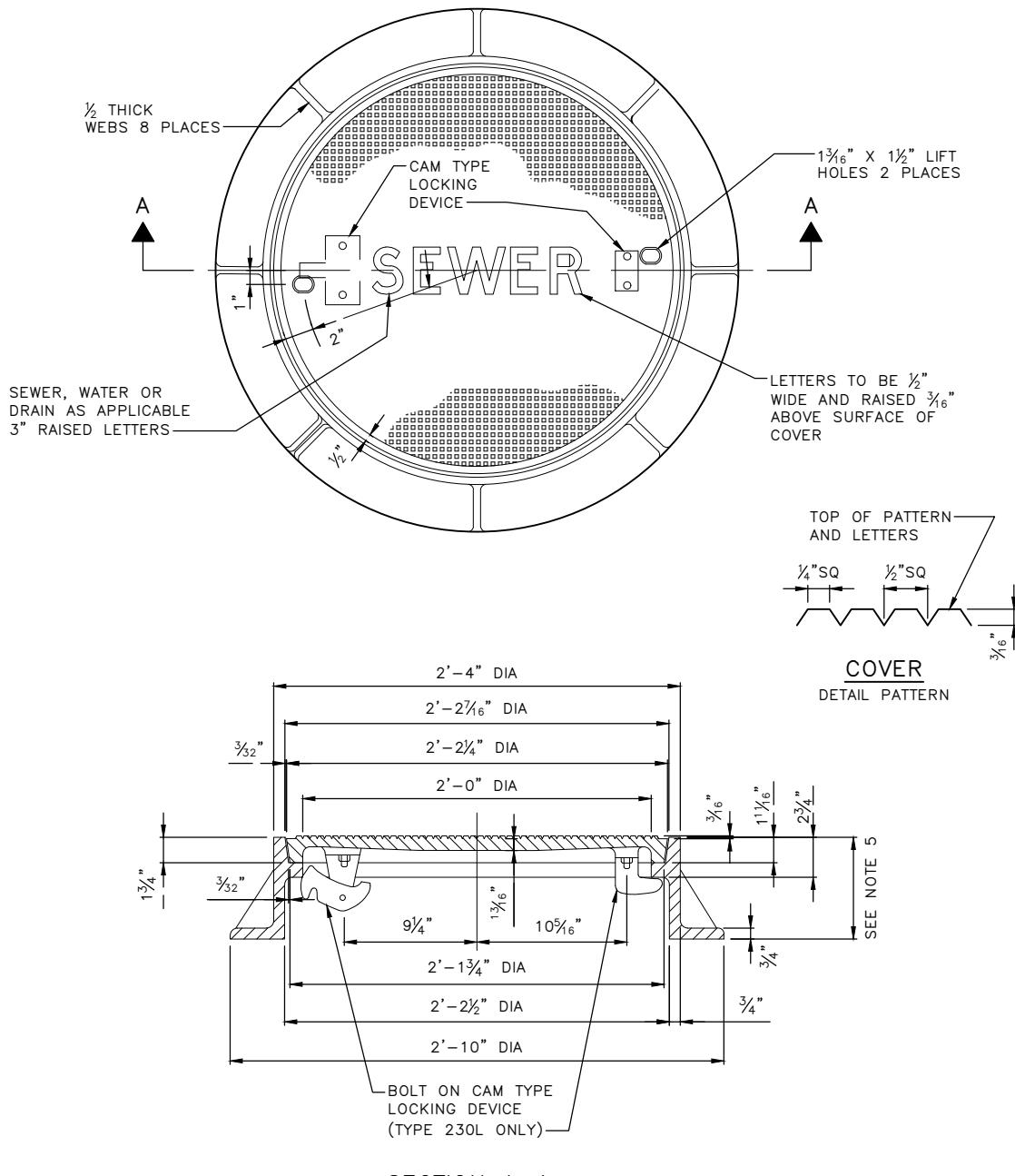
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

REBUILD EXISTING  
BRICK MAINTENANCE HOLE

NOTES:

1. DESIGNATE LOCKING COVER AS TYPE 230L FOR USE IN NON-VEHICULAR TRAFFIC AREAS.
2. COVER THICKNESS IS MEASURED FROM THE BOTTOM OF THE PATTERN.
3. FRAMES MUST BE MANUFACTURED FROM CAST IRON OR DUCTILE IRON.
4. COVERS MUST BE MANUFACTURED FROM DUCTILE IRON.
5. CASTING HEIGHT MUST BE 7" OR 10". WHERE CASTING IS WITHIN ROADWAY, 10" MUST BE USED. SEE ALSO STD PLAN NO. 406.

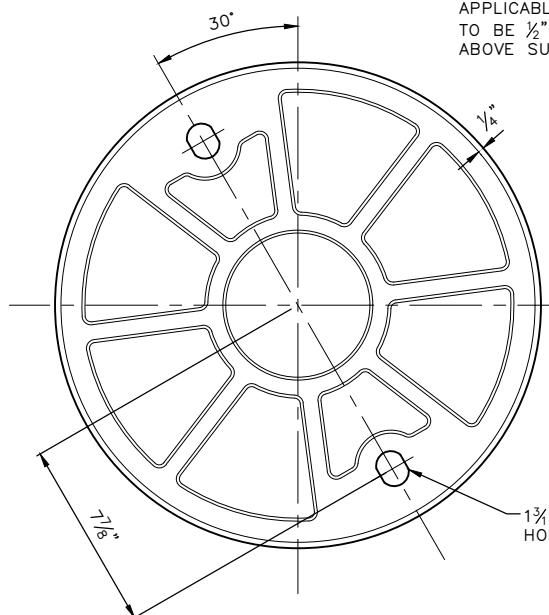
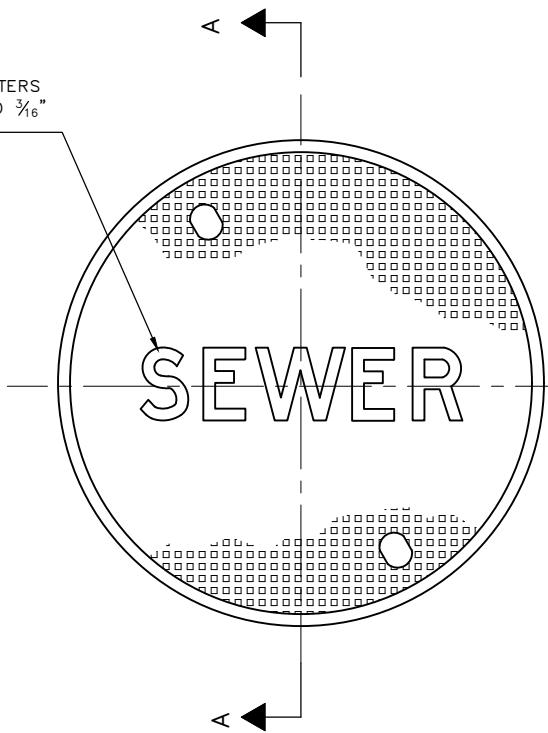
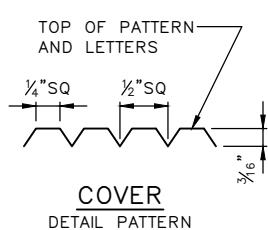
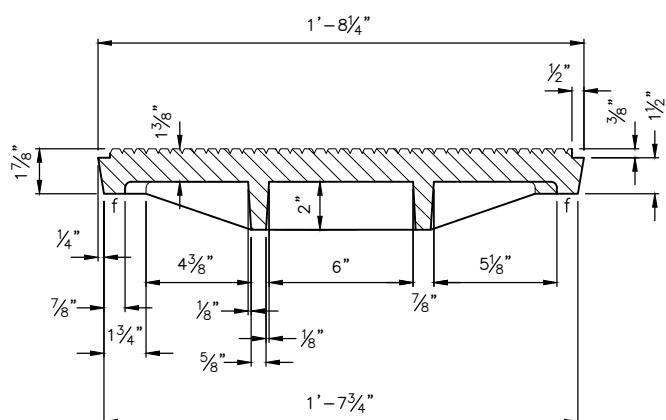
REF STD SPEC SEC 7-05, 9-12



City of Seattle

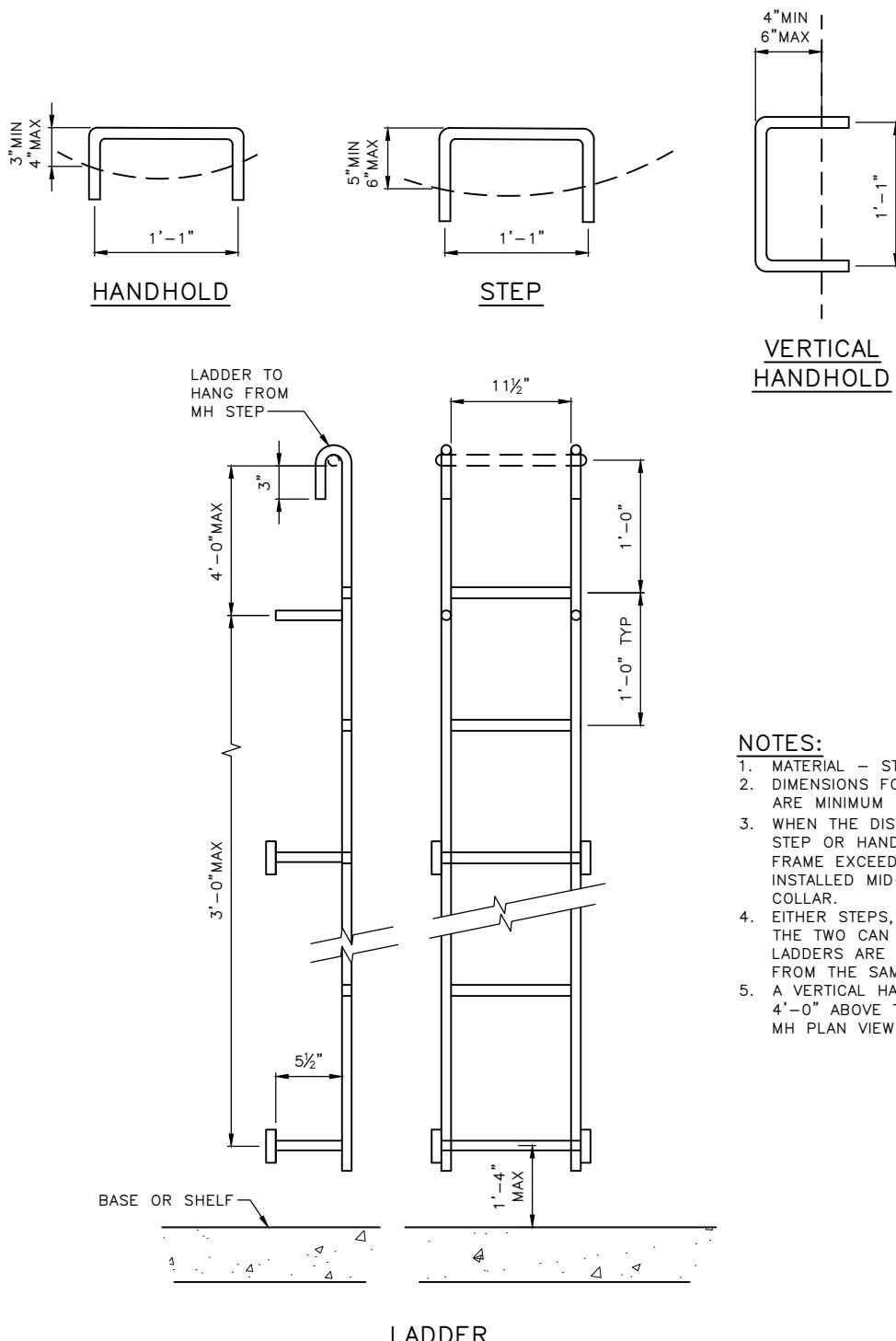
NOT TO SCALE

2'-0" DIAMETER  
FRAME & COVER

BOTTOM VIEWTOP VIEWCOVER  
DETAIL PATTERNSECTION A-A

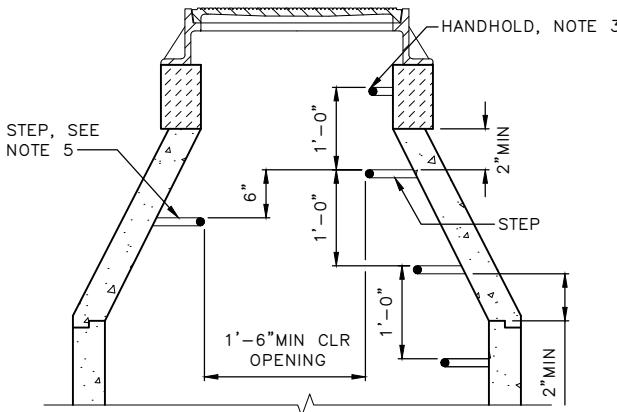
f=MACHINED FINISH



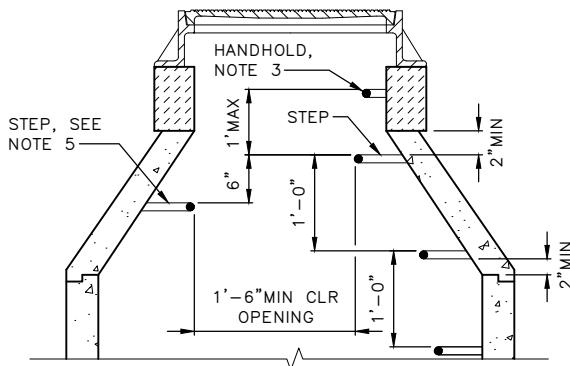
**NOTES:**

1. MATERIAL - STEEL REINFORCED POLYPROPYLENE
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-6", A HANDHOLD MUST BE INSTALLED MID-WAY IN THE LEVELING BRICK OR COLLAR.
4. EITHER STEPS, LADDERS OR A COMBINATION OF THE TWO CAN BE USED. IF BOTH STEPS AND LADDERS ARE USED IN ANY MH, THEY MUST BE FROM THE SAME MANUFACTURER.
5. A VERTICAL HANDHOLD MUST BE INSTALLED 4'-0" ABOVE THE SHELF WHEN INDICATED IN MH PLAN VIEW.

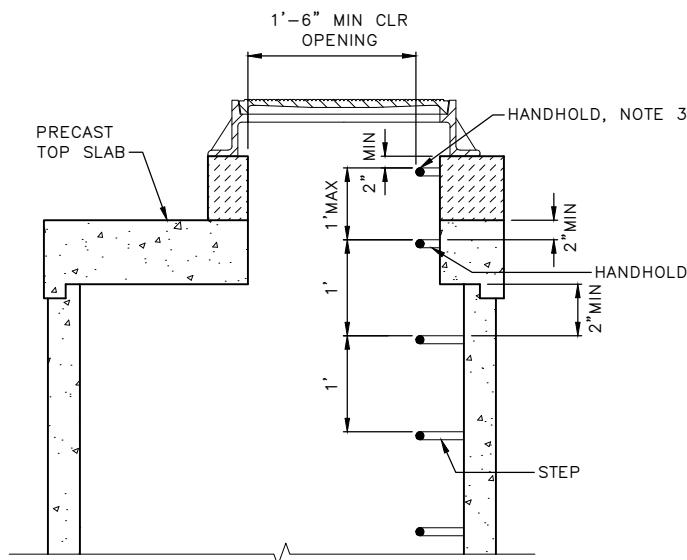




24" HIGH CONCENTRIC CONE



18" HIGH CONCENTRIC CONE

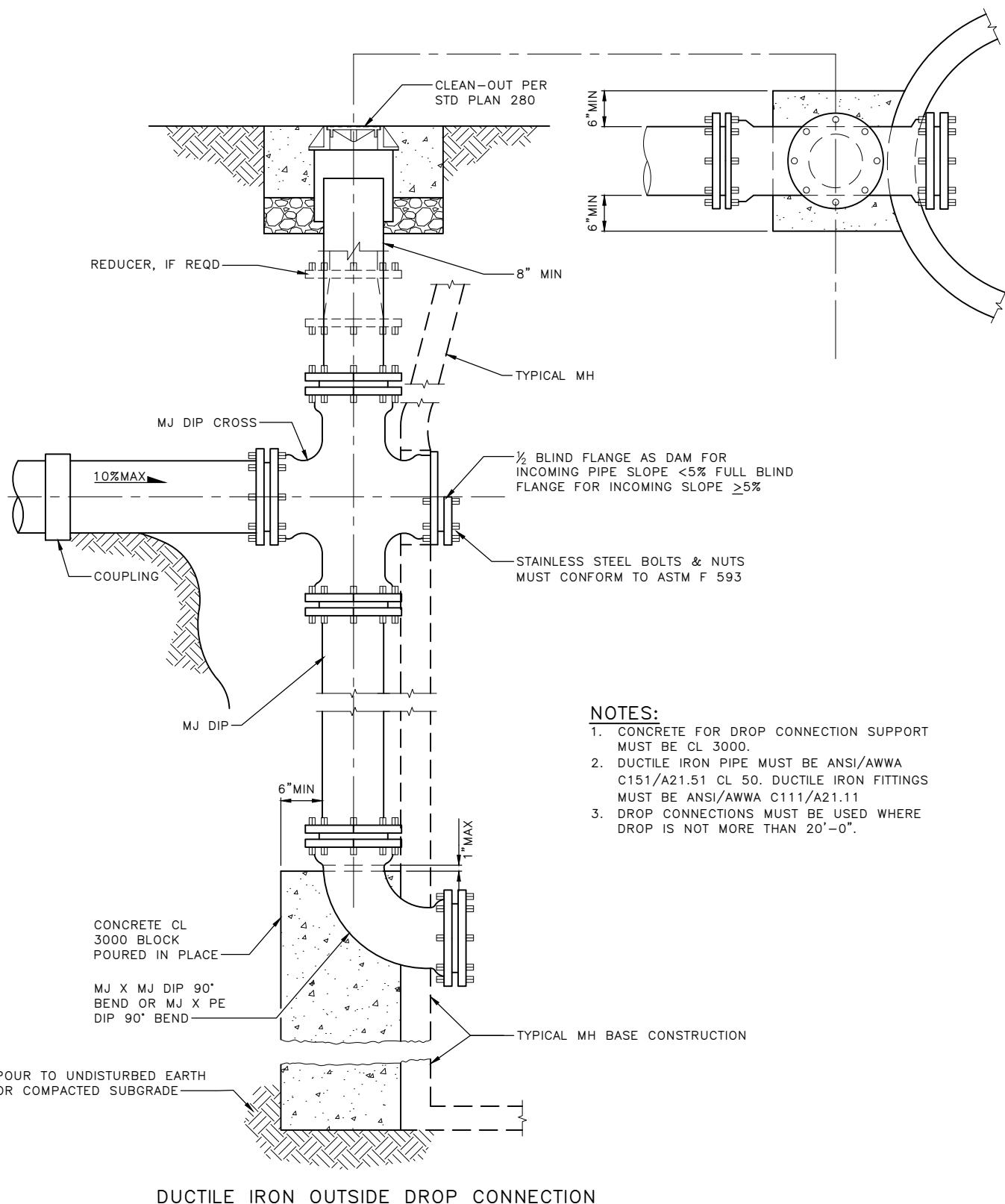


MH WITH PRECAST TOP SLAB

## NOTES:

1. MATERIAL - STEEL REINFORCED POLYPROPYLENE.
2. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
3. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1'-6", A HANDHOLD MUST BE INSTALLED MID-WAY IN THE LEVELING BRICK OR COLLAR.
4. EITHER STEPS, LADDERS OR A COMBINATION OF THE TWO CAN BE USED. IF BOTH STEPS AND LADDERS ARE USED IN ANY MH, THEY MUST BE FROM THE SAME MANUFACTURER.
5. STEP ON OPPOSITE SIDE OF MH MUST BE PLACED MID WAY BETWEEN STEPS ON OPPOSING SIDE.





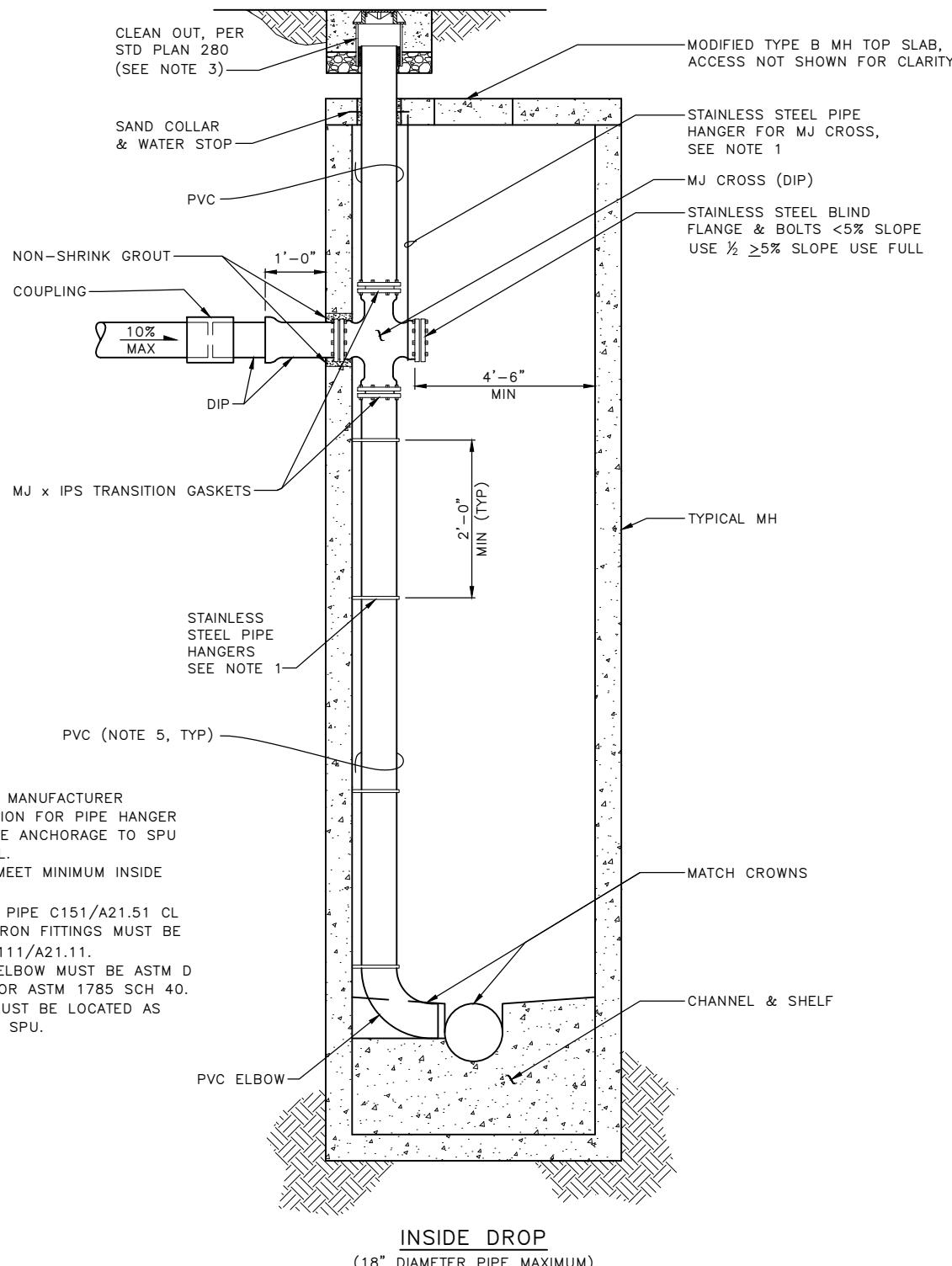
REF STD SPEC SEC 7-08



City of Seattle

NOT TO SCALE

OUTSIDE DROP CONNECTION



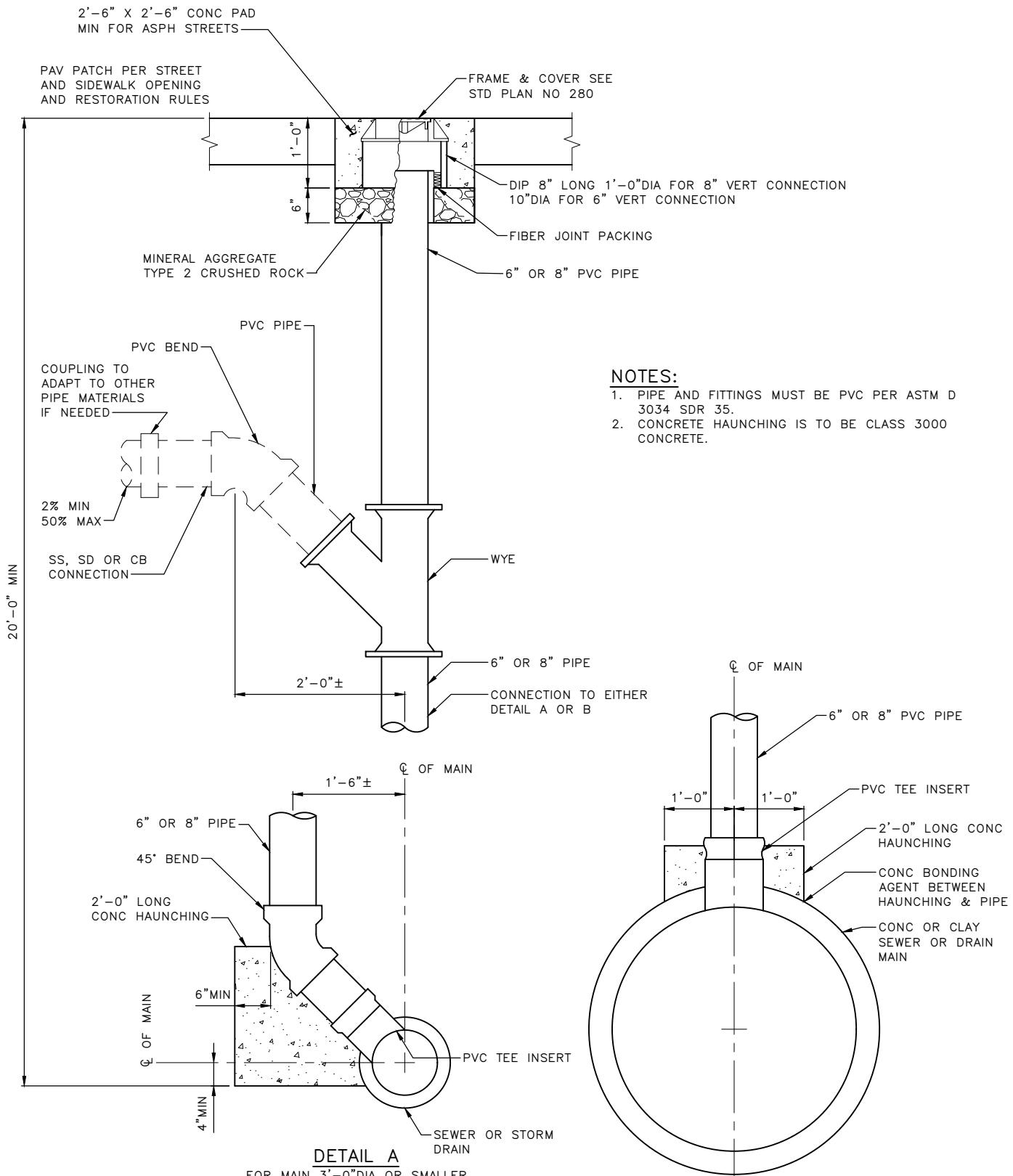
REF STD SPEC SEC 7-08



City of Seattle

NOT TO SCALE

INSIDE DROP CONNECTION



REF STD SPEC SEC 7-08, 7-17

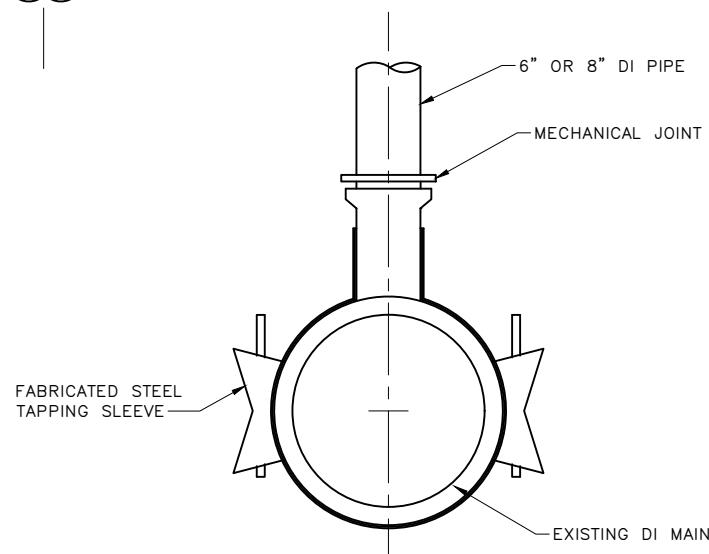
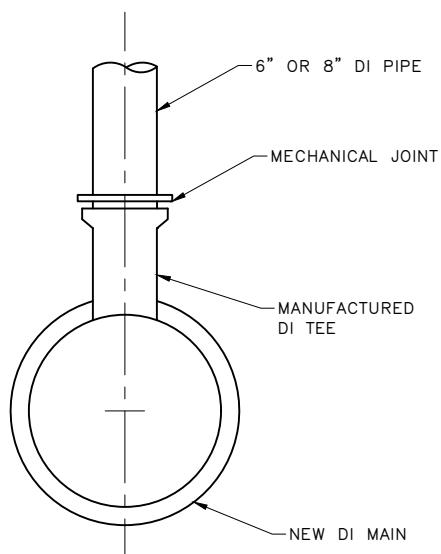
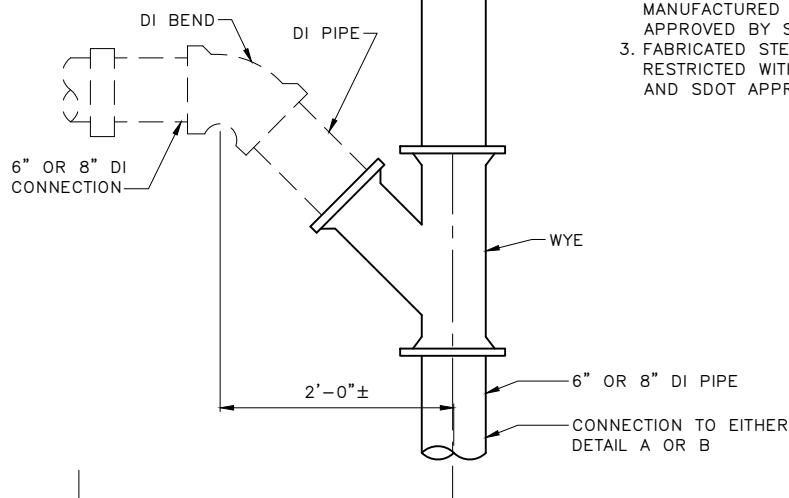
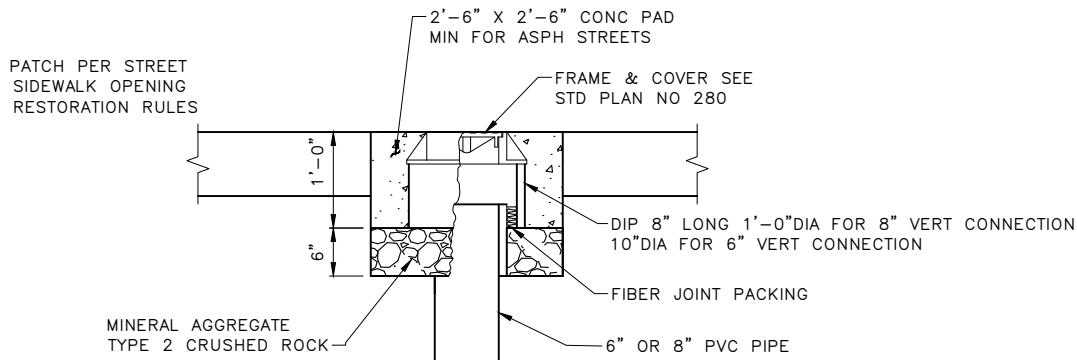


City of Seattle

NOT TO SCALE

6" OR 8" VERTICAL CONNECTION  
TO CONCRETE OR CLAY PIPE

PAV PATCH PER STREET  
AND SIDEWALK OPENING  
AND RESTORATION RULES



**DETAIL A**  
FOR VERTICAL CONNECTIONS TO  
NEW DI MAIN

**DETAIL B**  
FOR VERTICAL CONNECTIONS TO  
EXISTING DI MAIN

REF STD SPEC SEC 7-08, 7-17



City of Seattle

NOT TO SCALE

6" OR 8" VERTICAL CONNECTION  
TO DUCTILE IRON PIPE

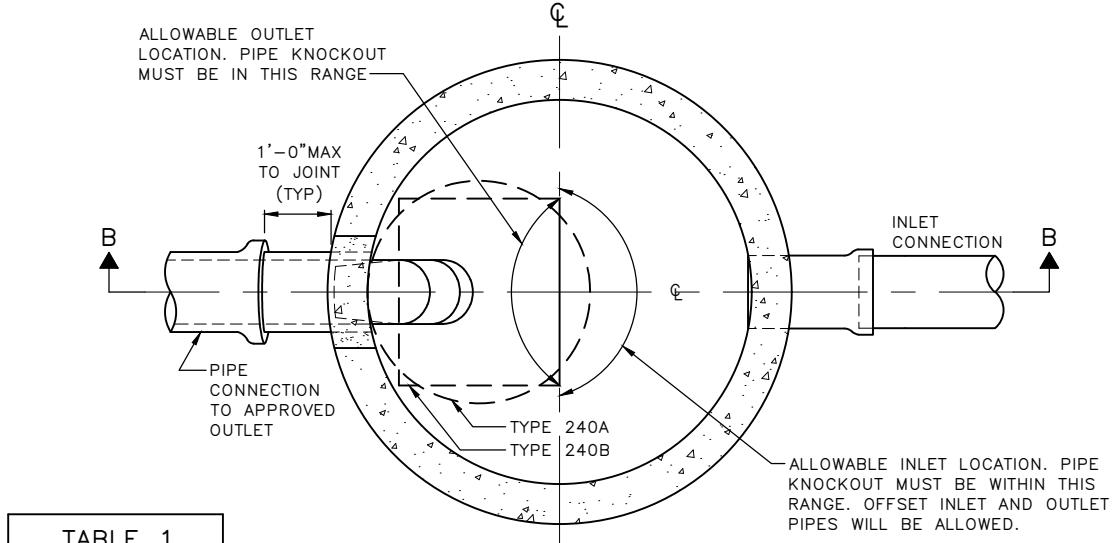
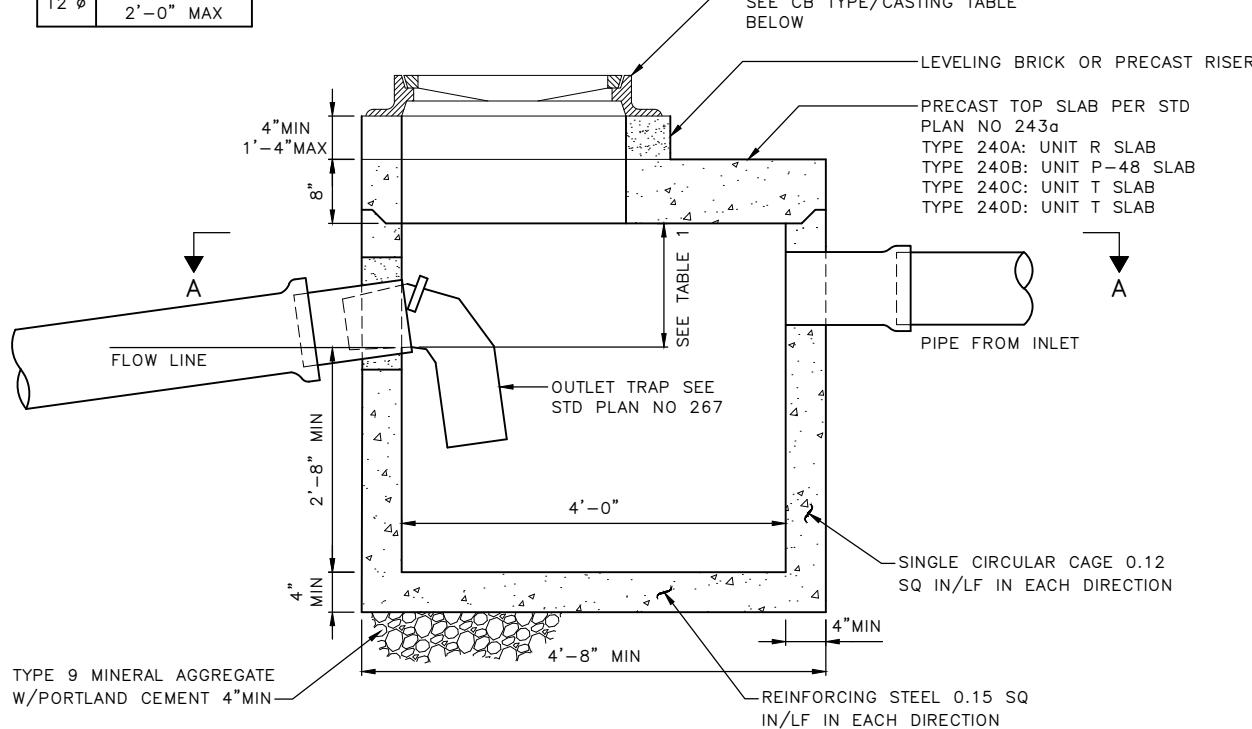


TABLE 1

6"Ø	8" MIN 1'-4" MAX
8"Ø	10" MIN 1'-4" MAX
12"Ø	1'-3" MIN 2'-0" MAX



## NOTES:

1. FRAME & GRATE OR FRAME & COVER MUST BE LOCATED OVER TRAP.
2. INVERT OF INLET PIPE MUST BE 2"MIN ABOVE INVERT OF OUTLET PIPE.
3. SEE STD PLAN 261 FOR ALLOWABLE OUTLET LOCATIONS.

CB TYPE	CASTING	
	FRAME	COVER
240A	PER STD PLAN 230	PER STD PLAN 230
240B	PER STD PLAN 264	PER STD PLAN 264
240C	PER STD PLAN 262	PER STD PLAN 265
240D	PER STD PLAN 263A	PER STD PLAN 265

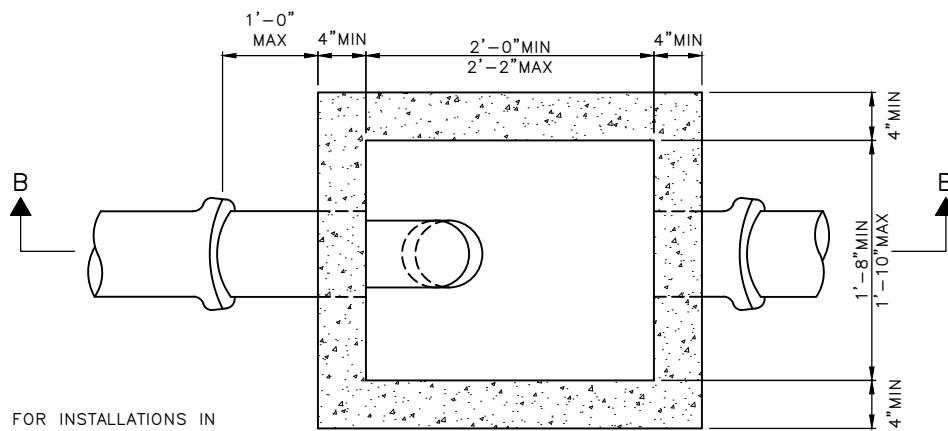
REF STD SPEC SEC 7-05



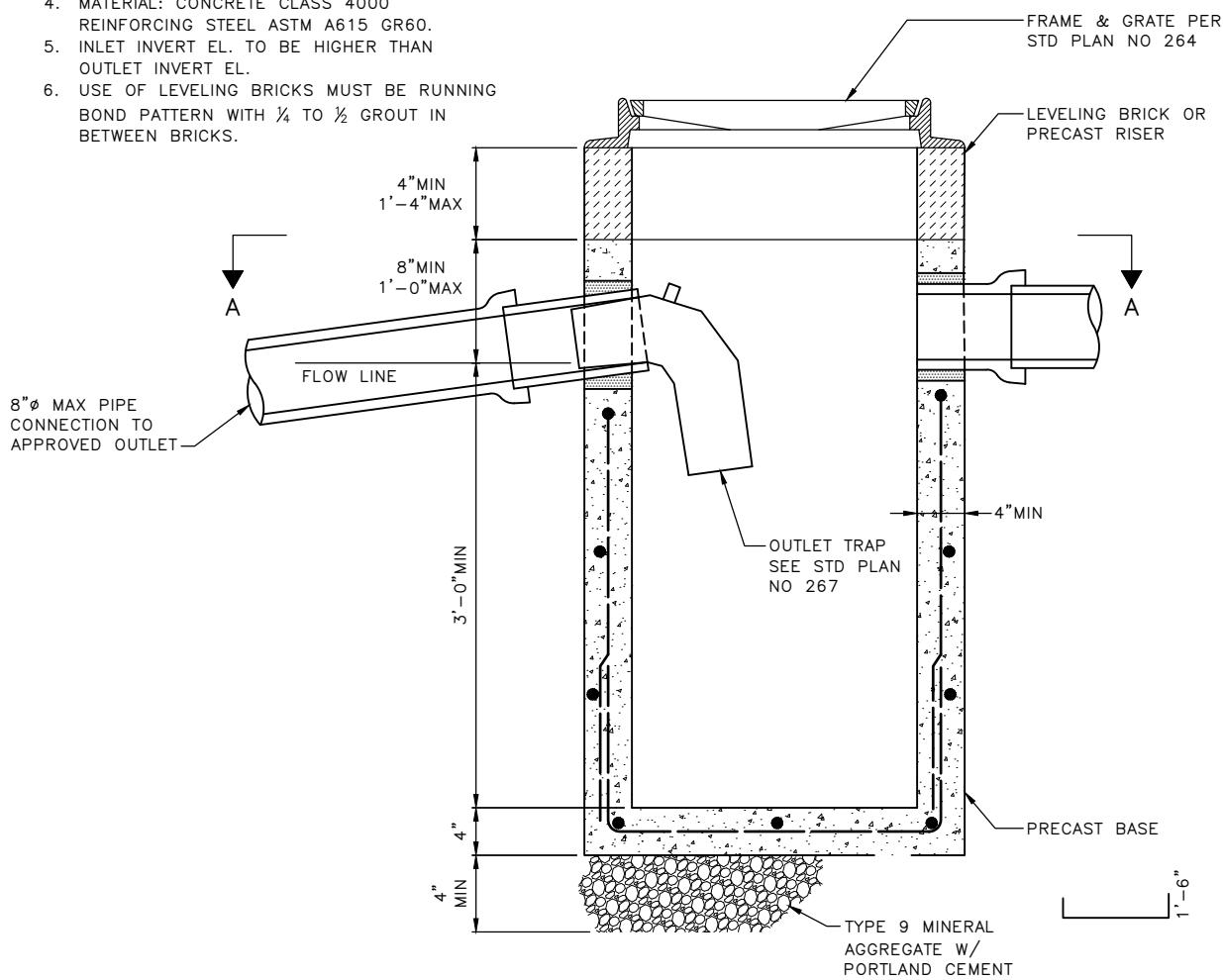
City of Seattle

NOT TO SCALE

TYPE 240 CATCH BASIN

**NOTES:**

1. THIS CATCH BASIN IS FOR INSTALLATIONS IN ALLEYS AND UNPAVED AREAS IN THE RIGHT-OF-WAY. ANY OTHER USE IN THE R/W WILL REQUIRE THE APPROVAL OF SPU.
2. FOR CURB DISCHARGE INSTALLATION SEE STD PLAN NO 241b.
3. INSTALL PER STD PLAN NO 261.
4. MATERIAL: CONCRETE CLASS 4000 REINFORCING STEEL ASTM A615 GR60.
5. INLET INVERT EL. TO BE HIGHER THAN OUTLET INVERT EL.
6. USE OF LEVELING BRICKS MUST BE RUNNING BOND PATTERN WITH  $\frac{1}{4}$  TO  $\frac{1}{2}$  GROUT IN BETWEEN BRICKS.

SECTION A-ASECTION B-B

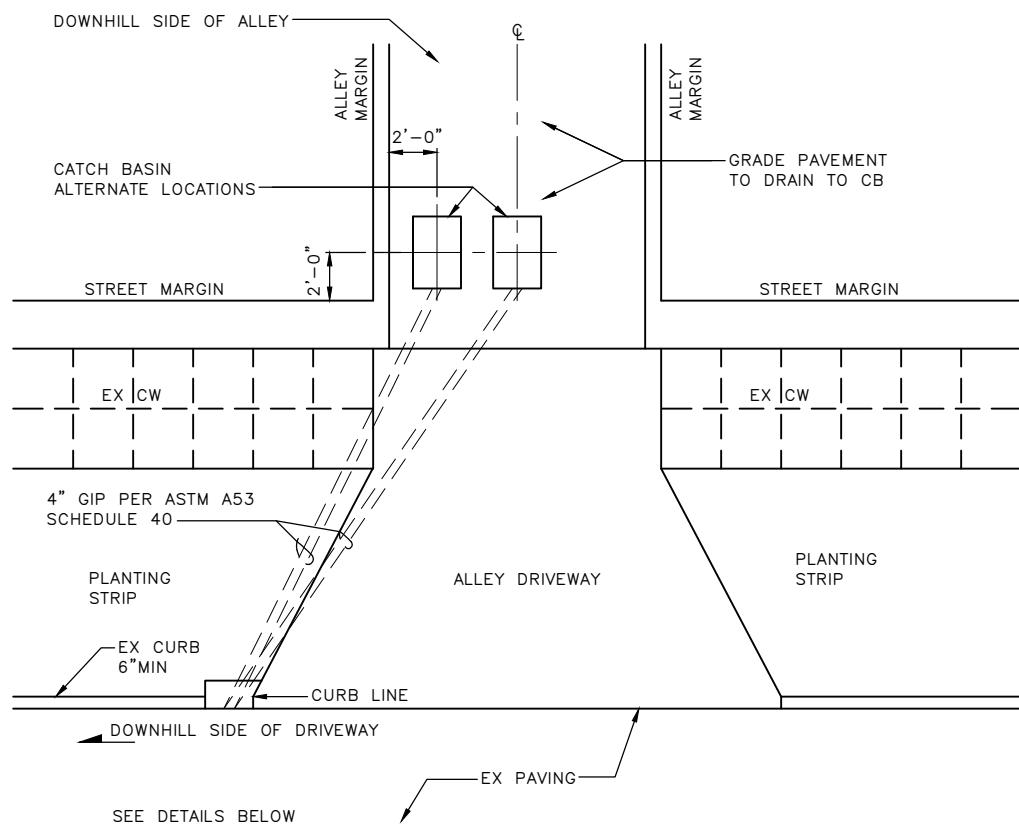
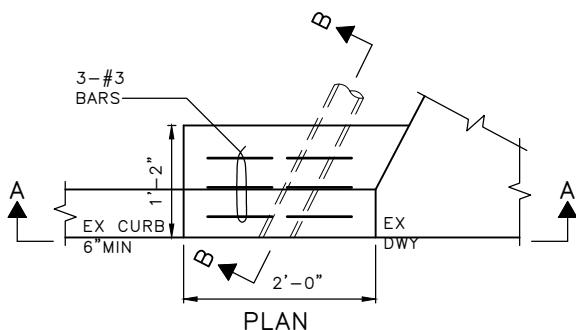
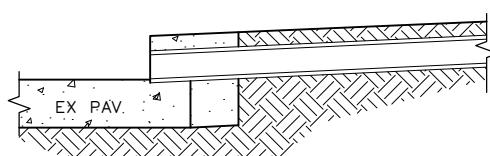
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

TYPE 241 CATCH BASIN

PLANSECTION A-ASECTION B-B

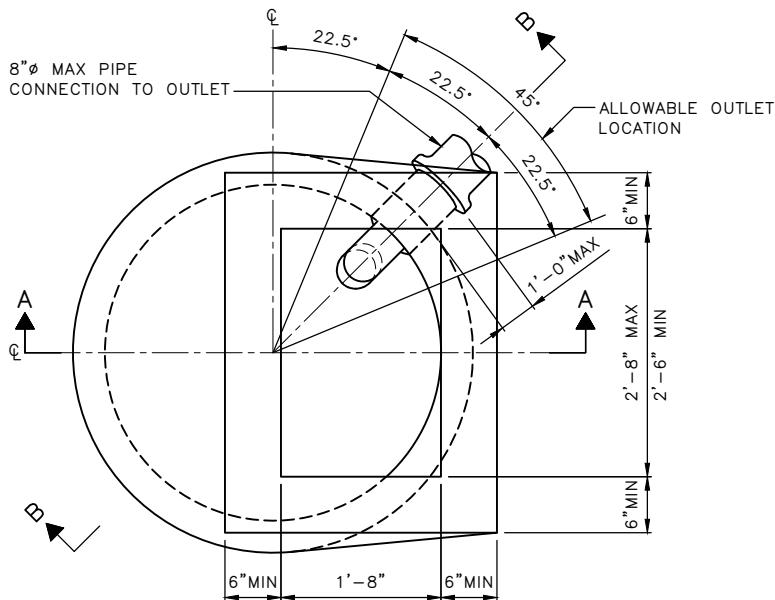
REF STD SPEC SEC 7-05, 7-08



City of Seattle

NOT TO SCALE

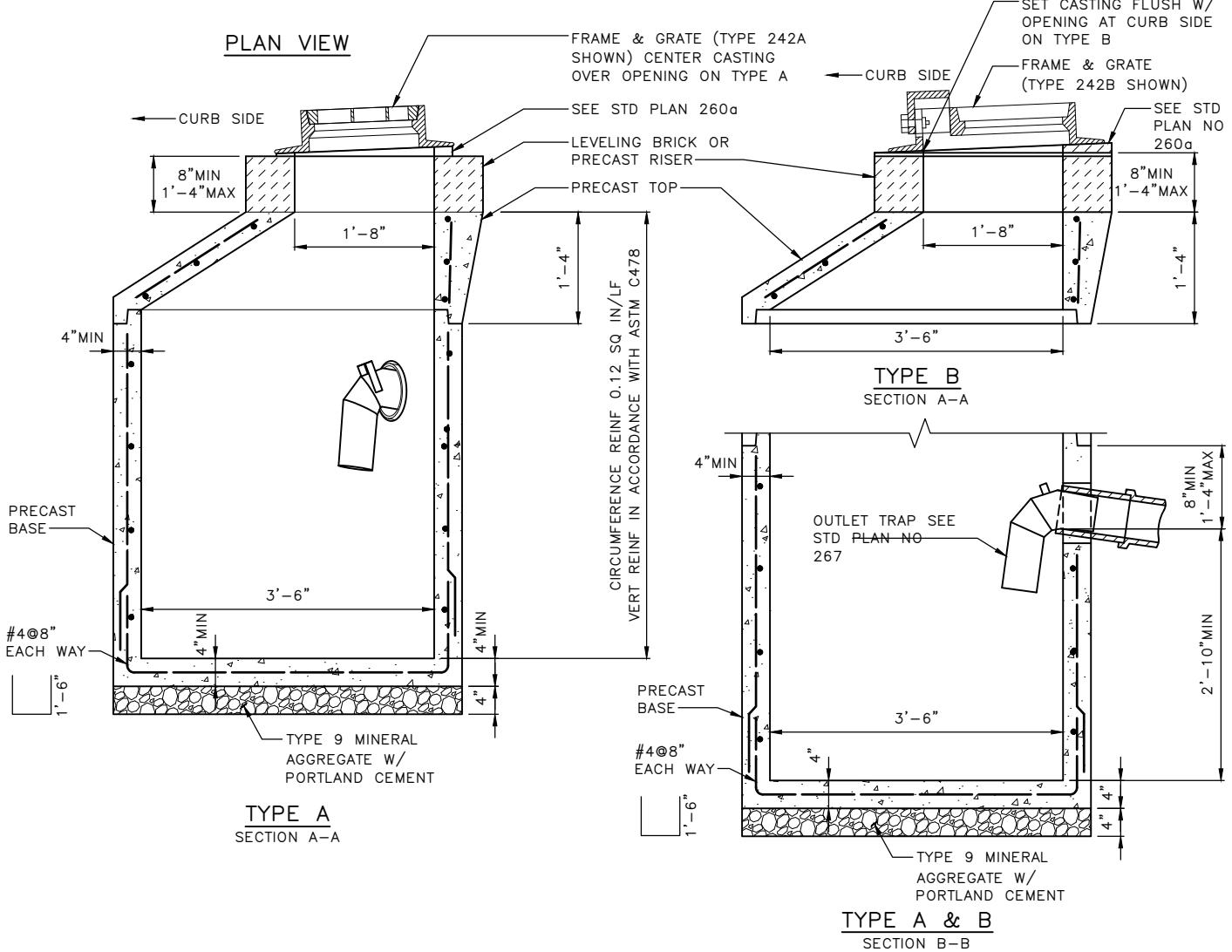
TYPE 241 CATCH BASIN  
INSTALLATIONS



CB TYPE	CASTING		
	FRAME	GRATE	HOOD
A	NO 262	NO 265	NONE
B	NO 263A	NO 265	NO 263A
C	NO 263A	NO 265	NO 263B

## NOTES:

1. MATERIAL: CONCRETE: CLASS 4000  
REINFORCING STEEL: ASTM A 615 GR 60
2. INSTALL & LOCATE PER STD PLANS NO 260 & 261
3. OUTLET TRAP TO BE LOCATED DIRECTLY BELOW FRAME AND GRATE
4. USE OF LEVELING BRICKS MUST BE  
RUNNING BOND PATTERN WITH  $\frac{1}{4}$  TO  $\frac{1}{2}$  GROUT IN BETWEEN BRICKS.



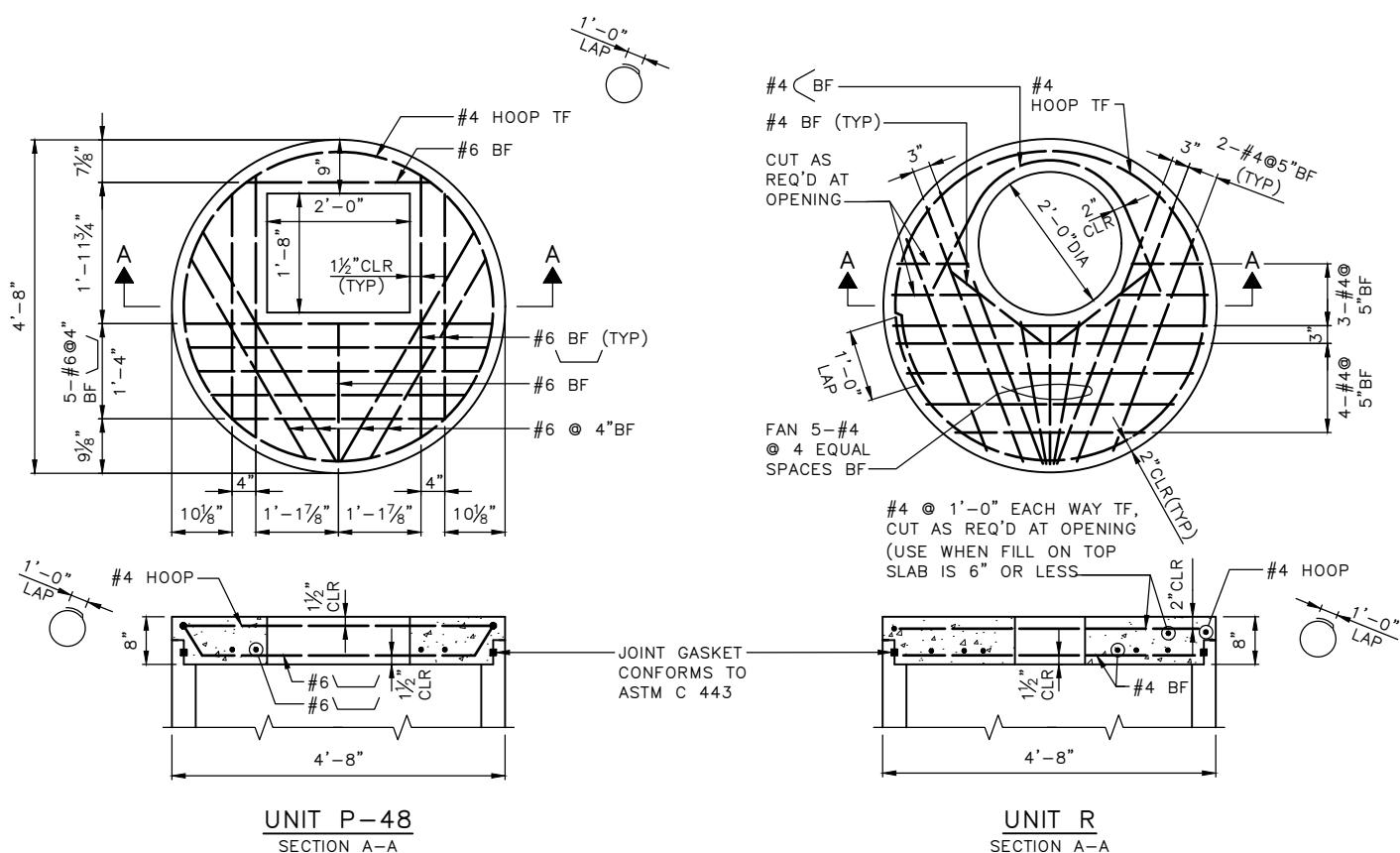
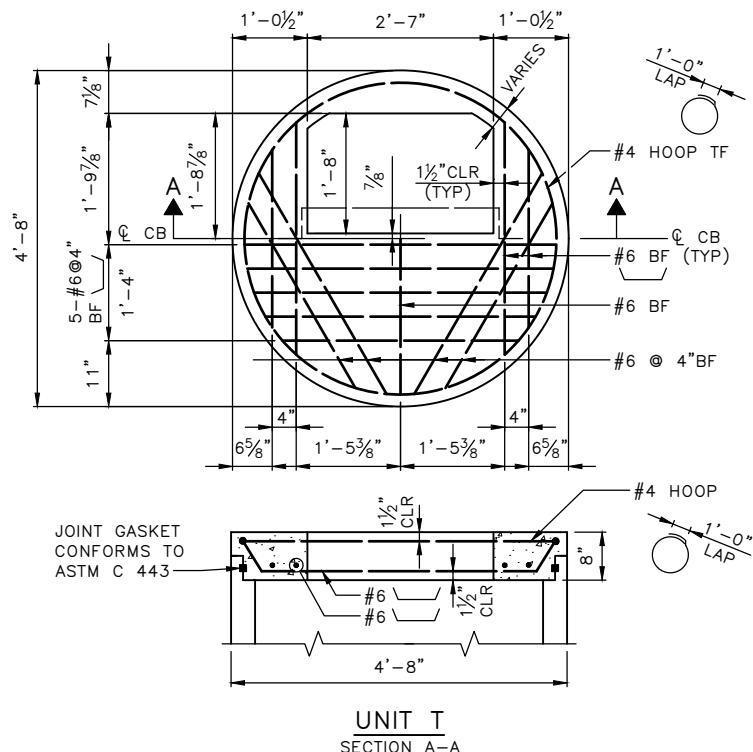
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

TYPE 242 CATCH BASIN



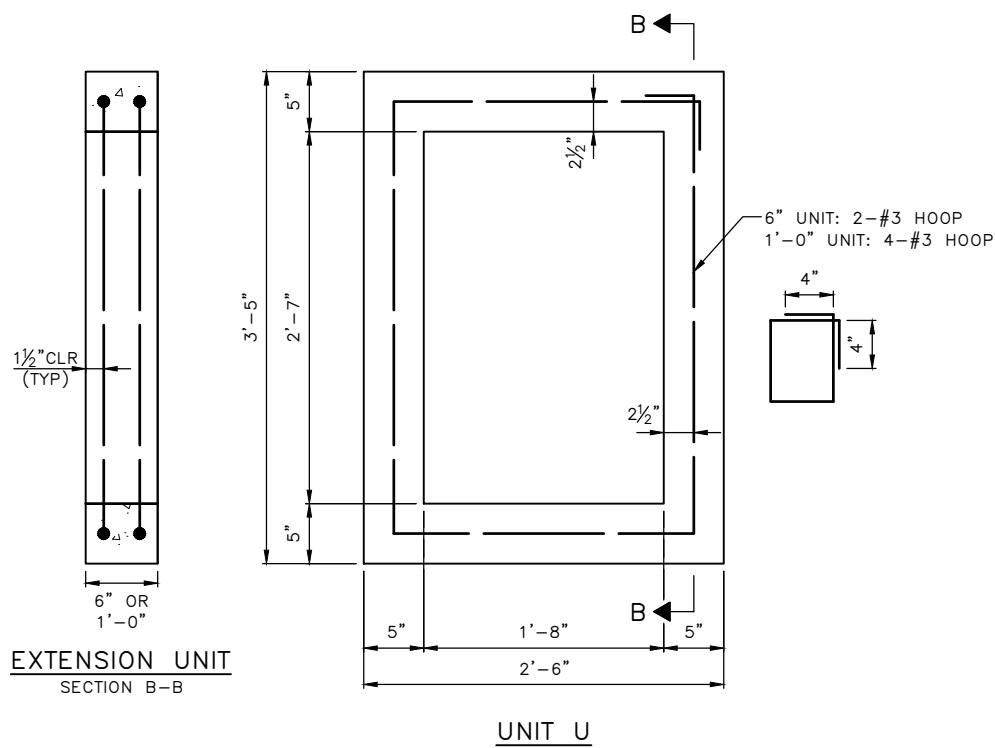
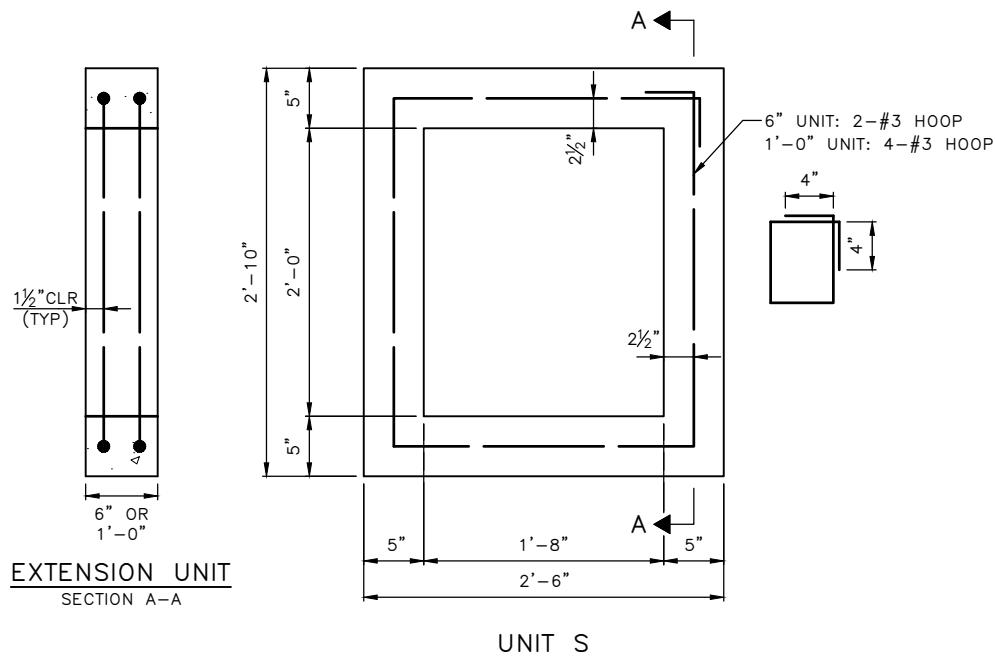
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

PRECAST CATCH BASIN  
TOP SLAB

NOTES:

1. CONCRETE: CLASS 4000
2. REINFORCING STEEL: ASTM A615 GR 60

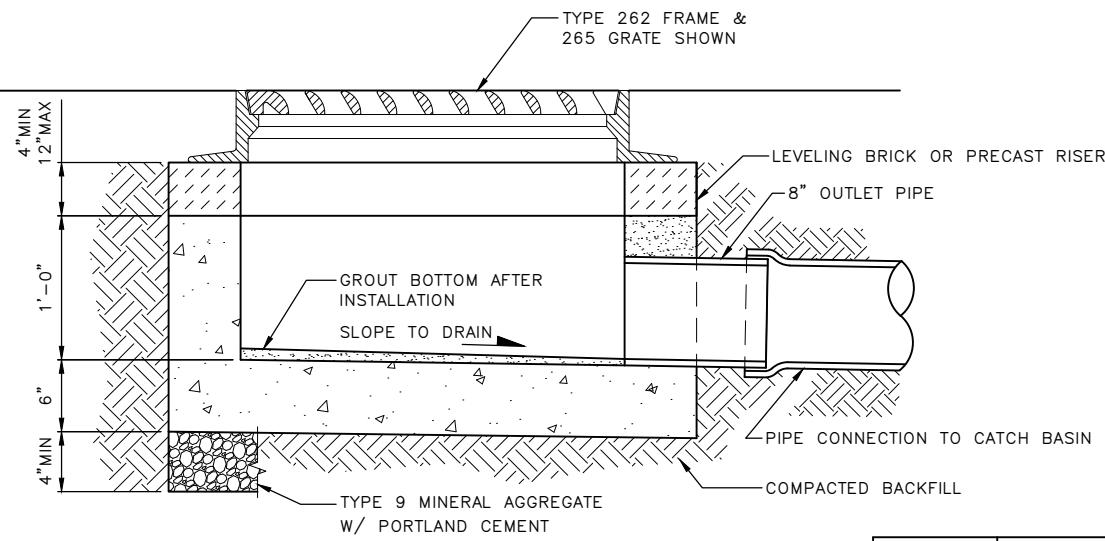
REF STD SPEC SEC 7-05



City of Seattle

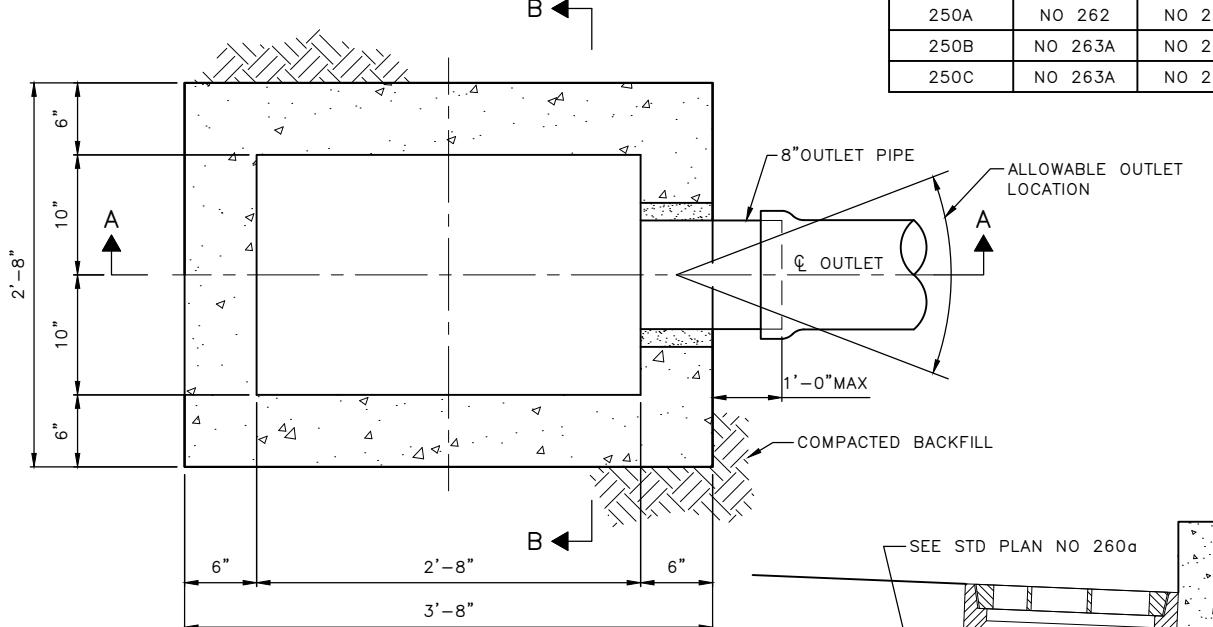
NOT TO SCALE

PRECAST CATCH BASIN  
EXTENSION RISERS

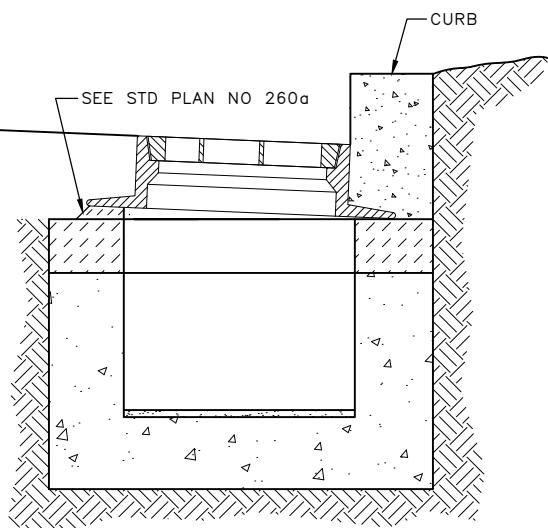


SECTION A-A

INLET TYPE	CASTING		
	FRAME	GRATE	HOOD
250A	NO 262	NO 265	NONE
250B	NO 263A	NO 265	NO 263A
250C	NO 263A	NO 265	NO 263B



PLAN VIEW

SECTION B-B  
TYPE A ONLY

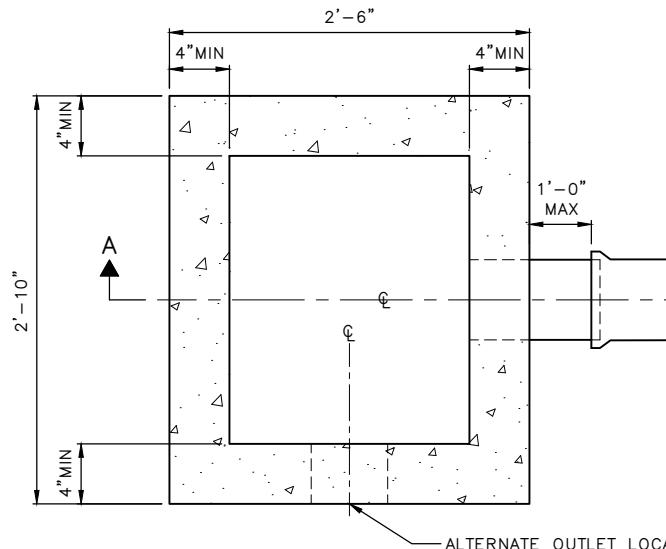
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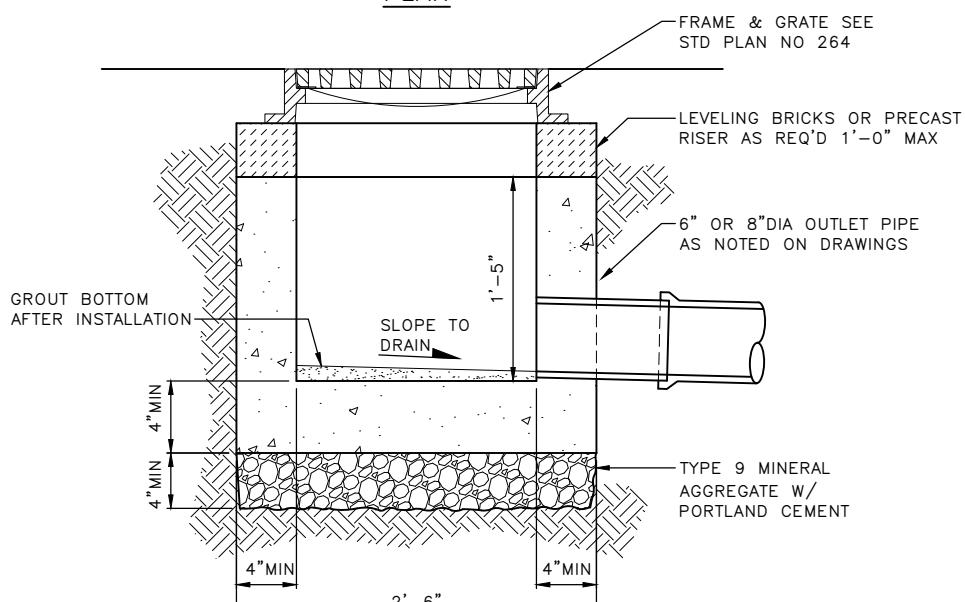
City of Seattle

NOT TO SCALE

TYPE 250 INLET



PLAN



SECTION A-A

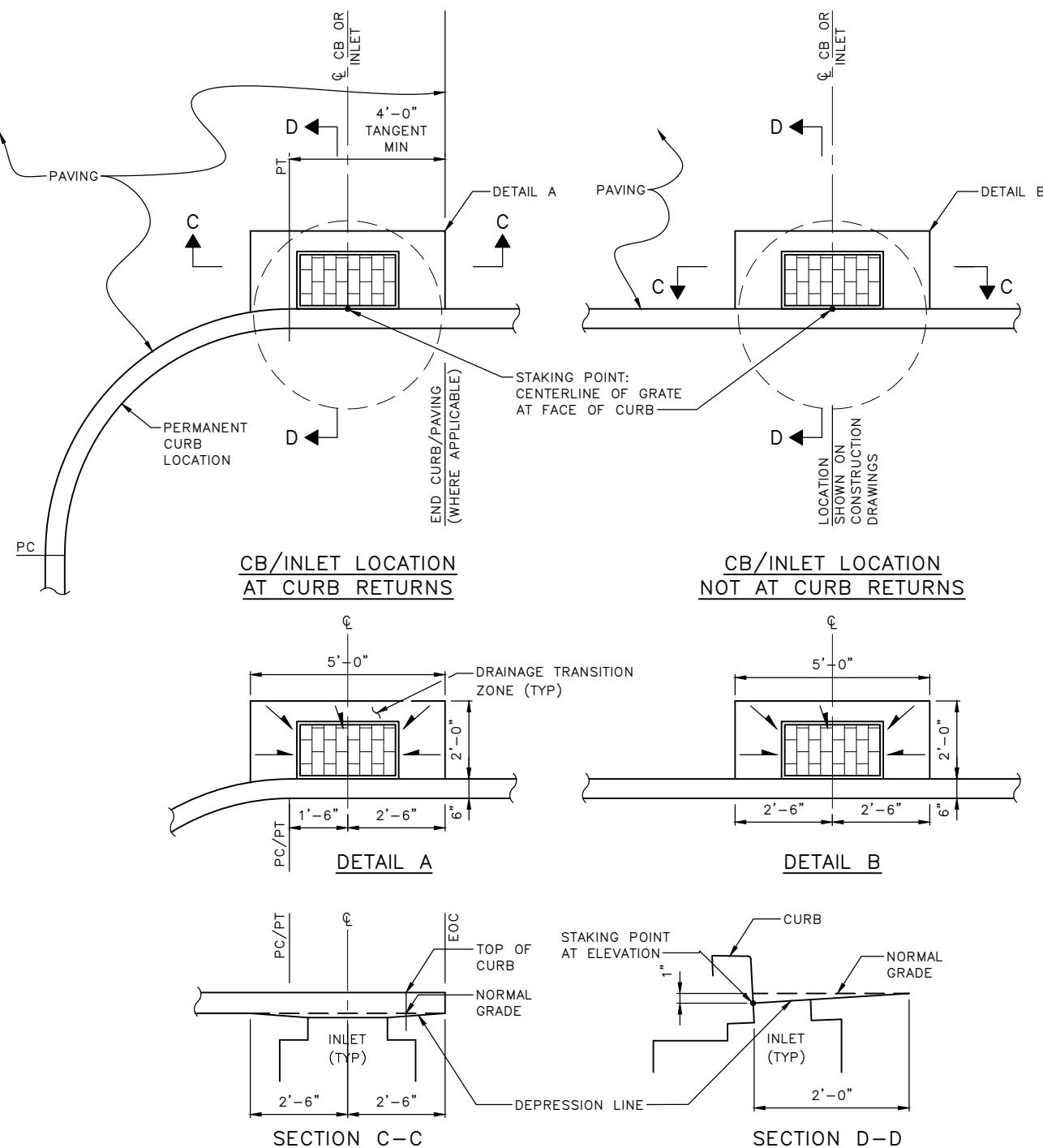
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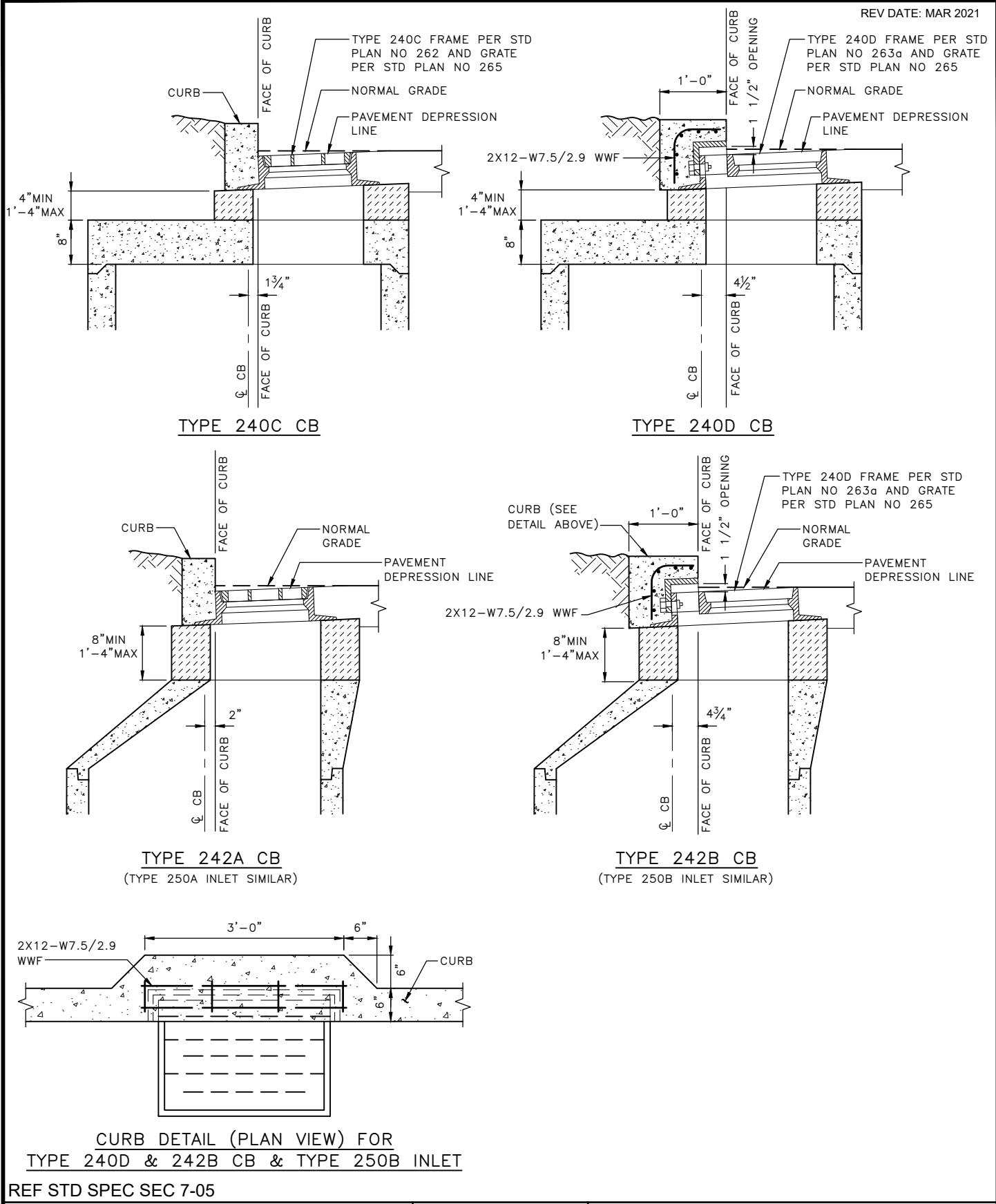
City of Seattle

NOT TO SCALE

TYPE 252 INLET



REV DATE: MAR 2021



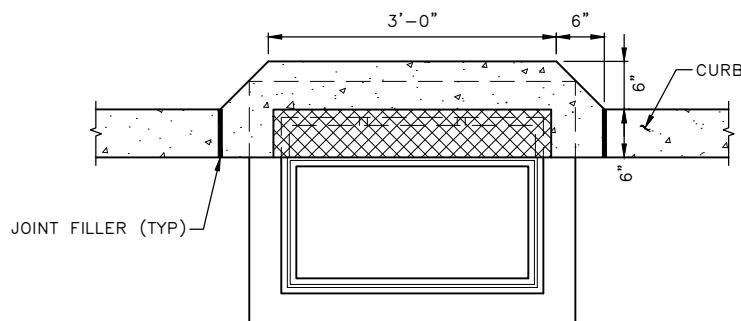
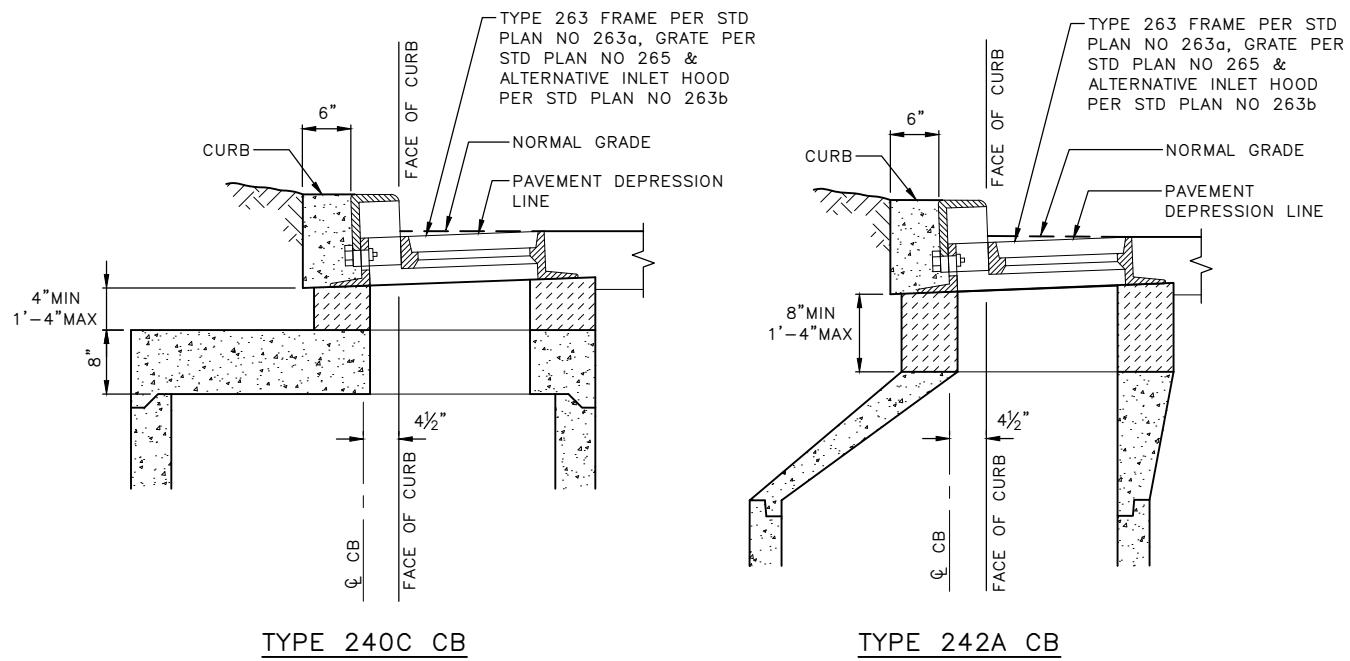
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

CATCH BASIN &  
INLET INSTALLATION



CURB DETAIL (PLAN VIEW) FOR  
TYPE 240D & 242C CB & TYPE 250B INLET

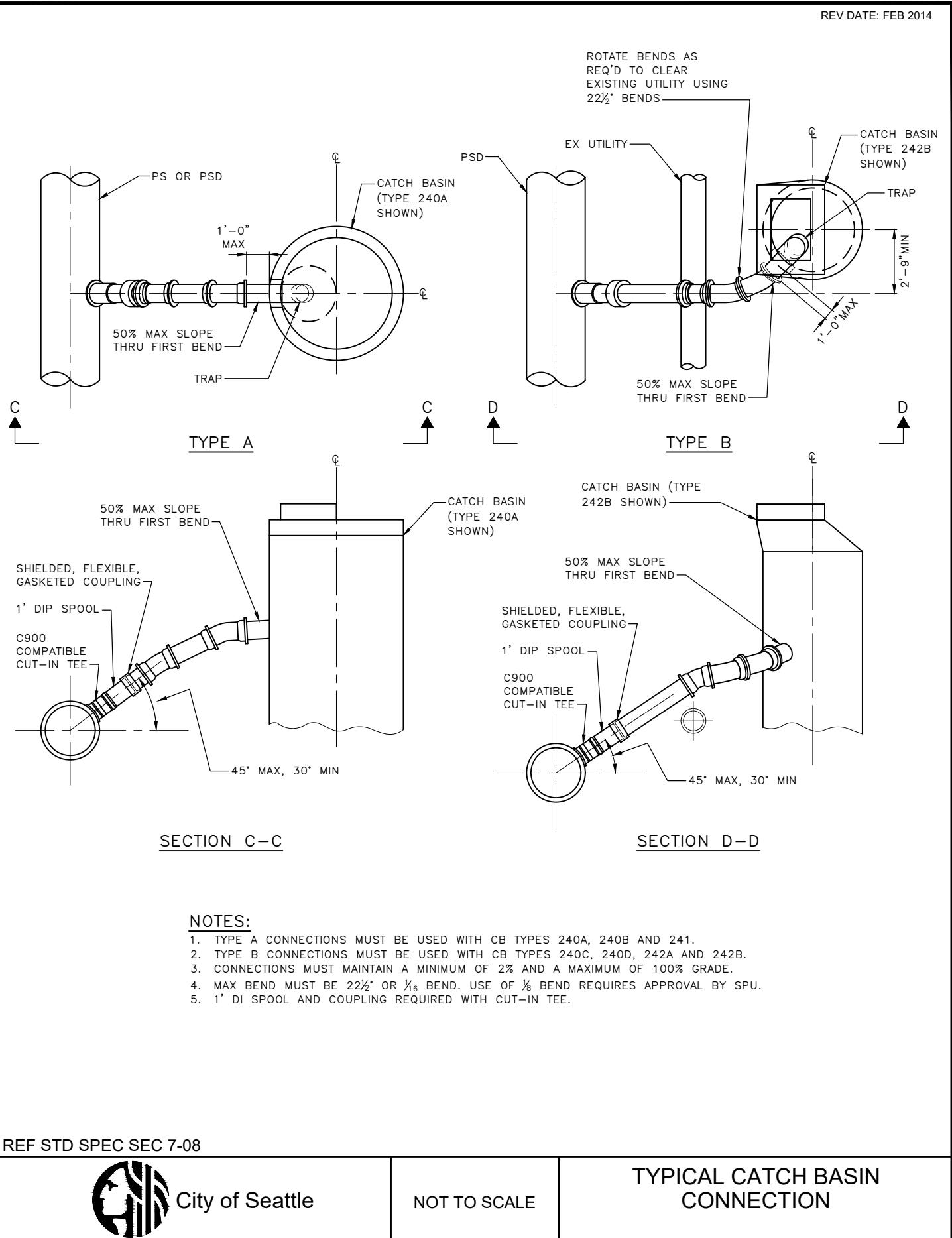
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

CATCH BASIN & INLET  
 INSTALLATION WITH STANDARD  
 PLAN 263B ALTERNATIVE HOOD



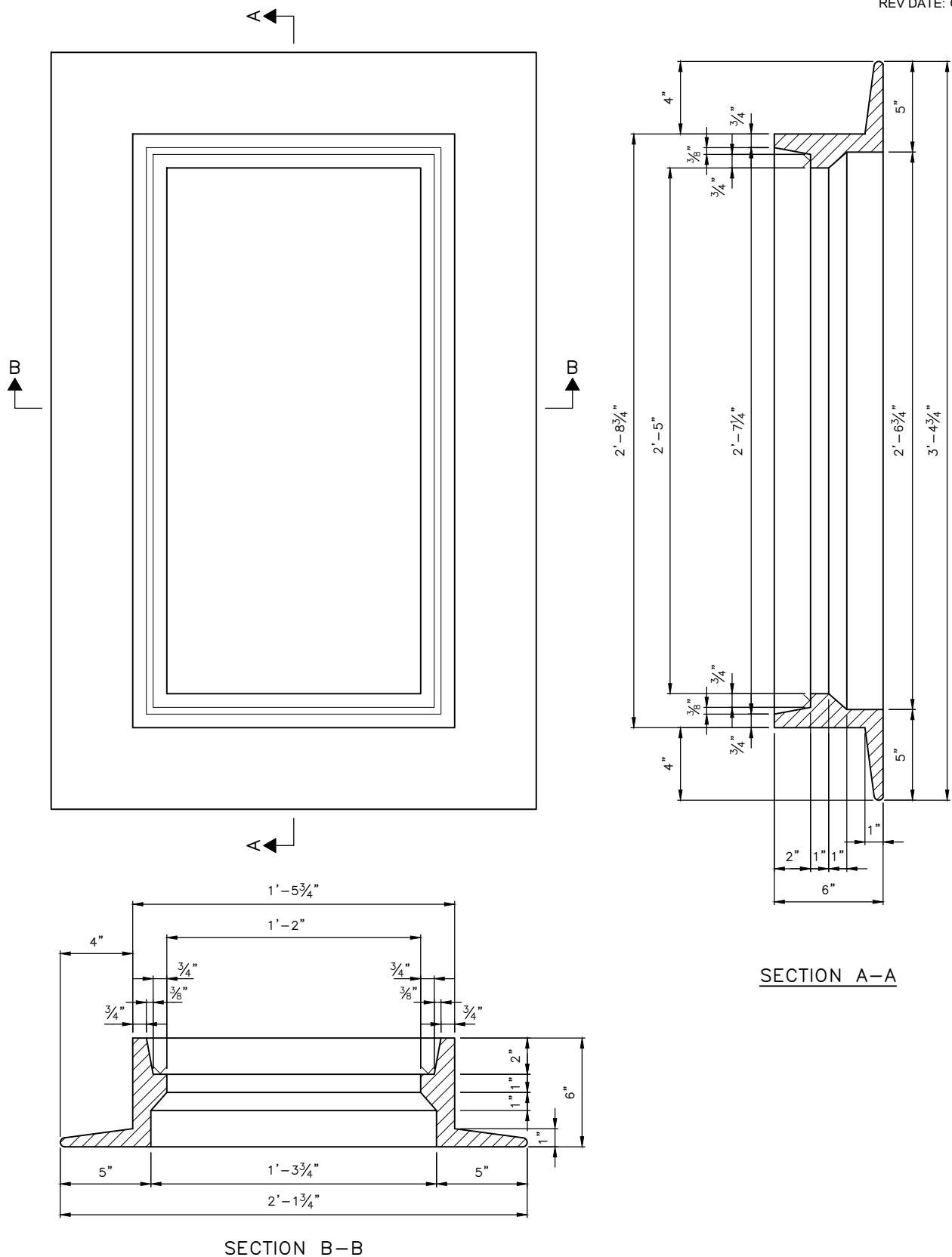
REF STD SPEC SEC 7-08



City of Seattle

NOT TO SCALE

TYPICAL CATCH BASIN CONNECTION



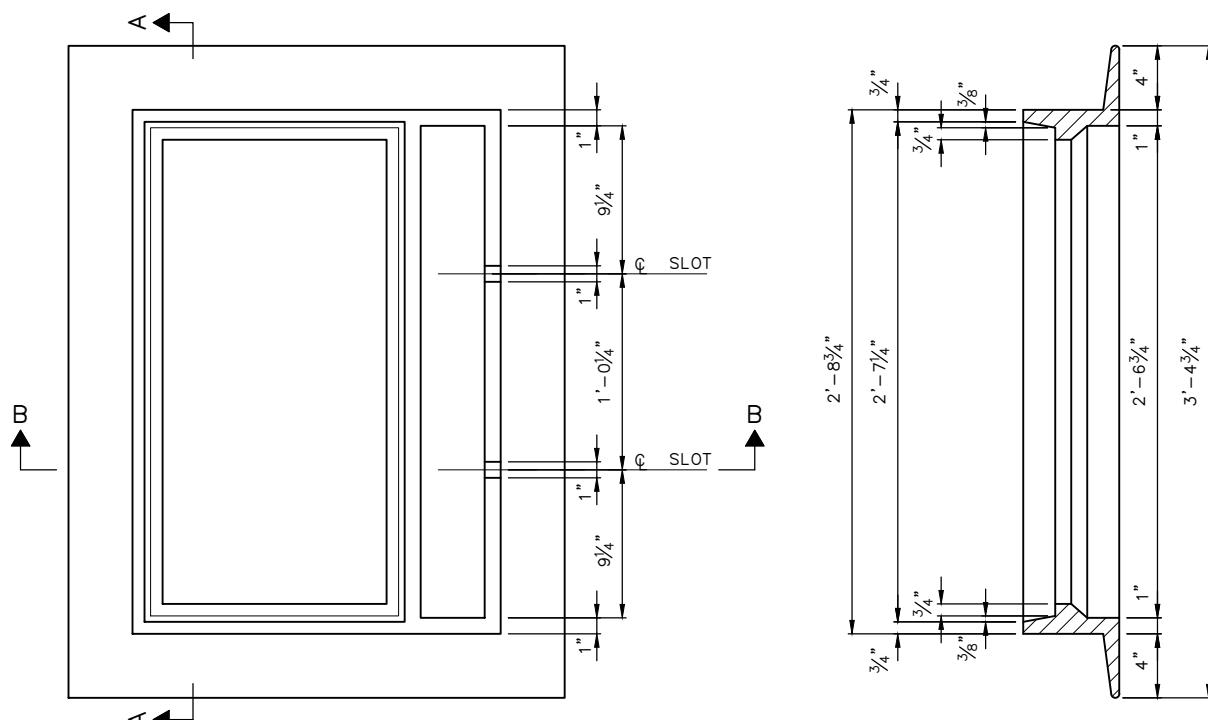
REF STD SPEC SEC 9-12



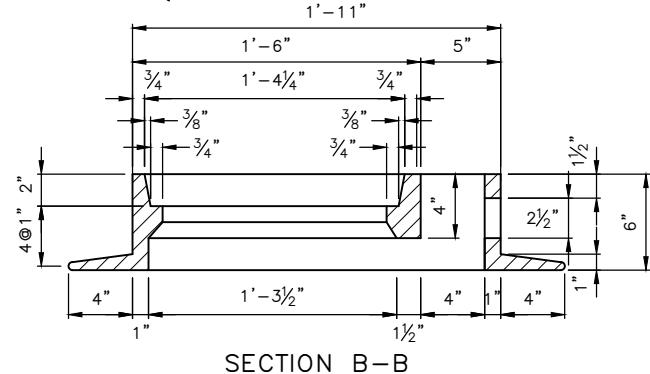
City of Seattle

NOT TO SCALE

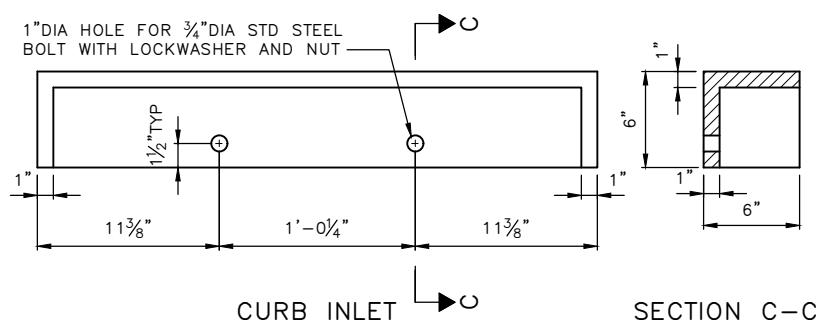
TYPE 262 INLET FRAME



SECTION A-A



SECTION B-B



SECTION C-C

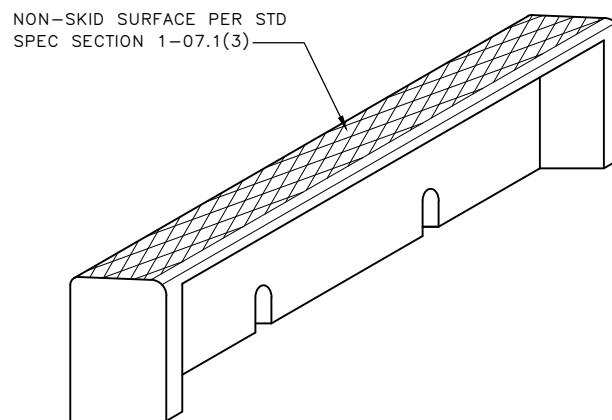
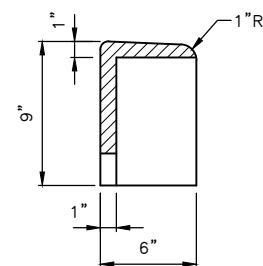
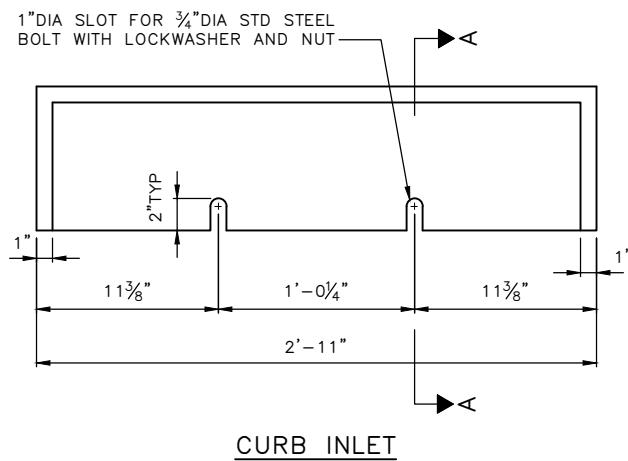
REF STD SPEC SEC 9-12



City of Seattle

NOT TO SCALE

TYPE 263 INLET FRAME  
AND HOOD



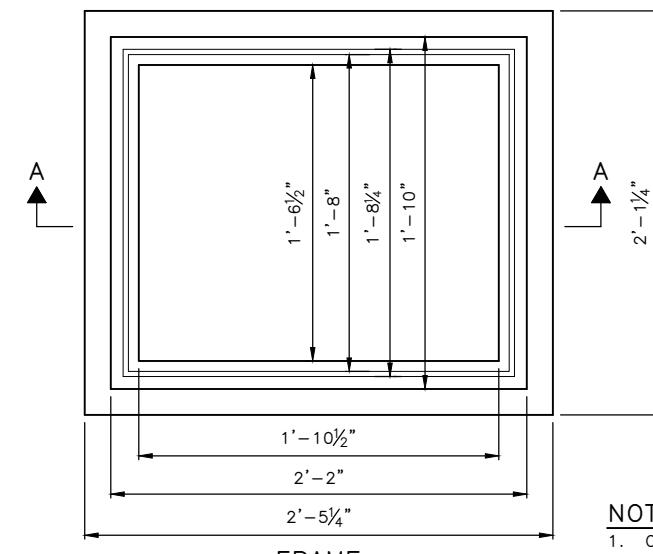
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City of Seattle

NOT TO SCALE

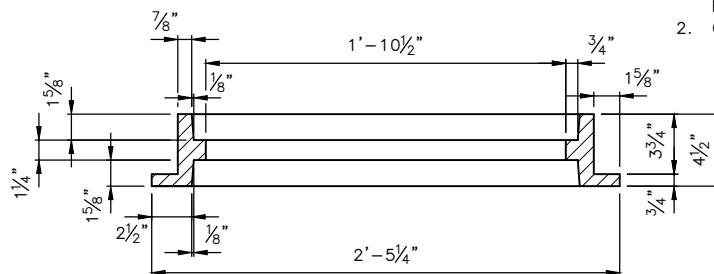
TYPE 263 ALTERNATIVE  
INLET HOOD



FRAME

## NOTES:

1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI-DIRECTIONAL VANE, ADA OR BEEHIVE ON PLANS.
2. GRATE MATERIAL: DUCTILE IRON

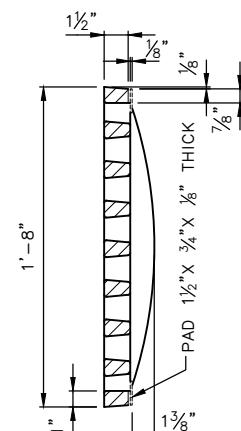
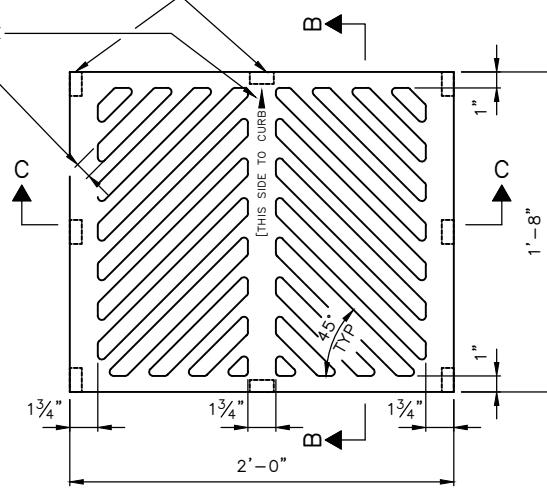


SECTION A-A

PAD  $1\frac{1}{2}'' \times \frac{3}{4}'' \times \frac{1}{8}''$   
THICK (8 OPTIONAL)

EMBOSSED ON GRATE

1" OPENING (TYP)



SECTION B-B

SECTION C-C

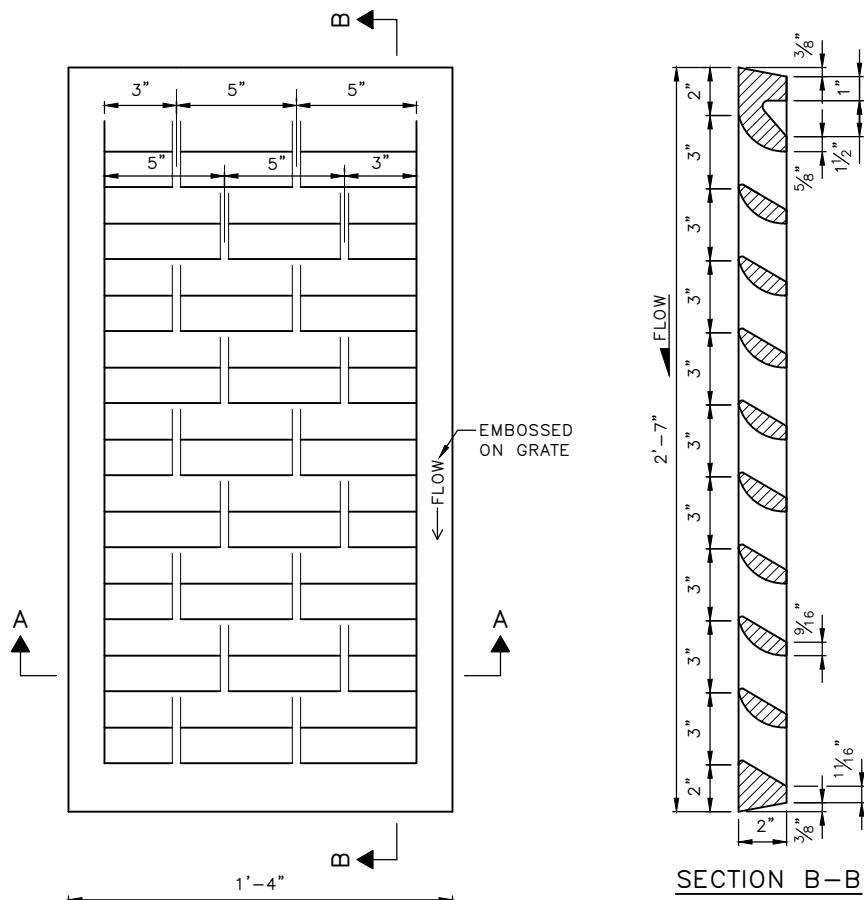
REF STD SPEC SEC 7-05



City of Seattle

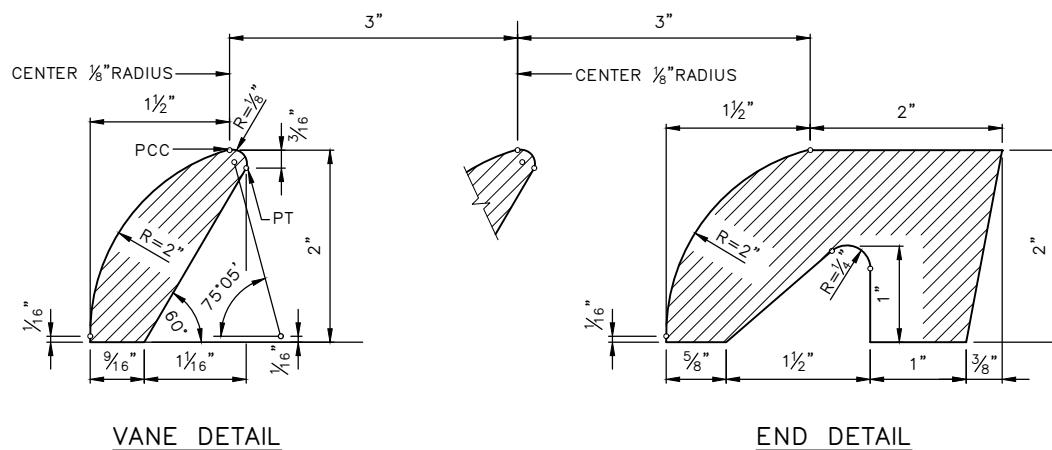
NOT TO SCALE

INLET FRAME &amp; GRATE



## NOTES:

1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI-DIRECTIONAL VANE, ADA OR BEEHIVE ON PLANS.
2. GRATE MATERIAL: DUCTILE IRON
3. FOR USE WITH TYPE 262 & 263 INLET FRAMES.



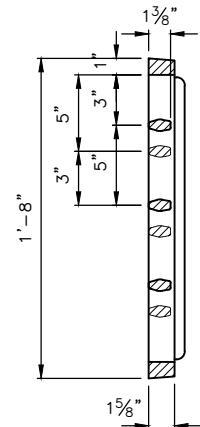
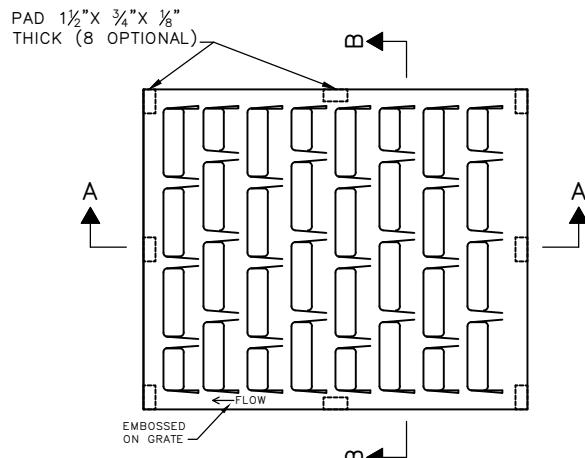
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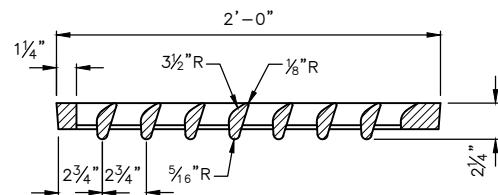
City of Seattle

NOT TO SCALE

VANED GRATE



SECTION B-B



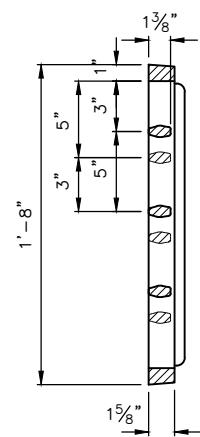
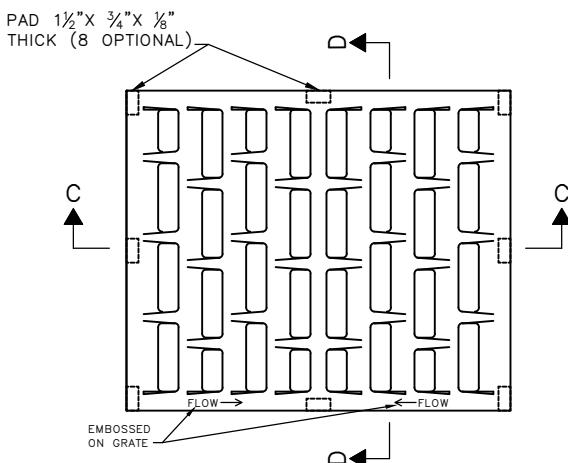
SECTION A-A

DIRECTIONAL VANCED GRATE

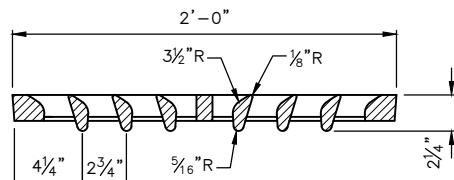
TO BE USED WITH FRAME 264

## NOTES:

1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI-DIRECTIONAL VANE, ADA OR BEEHIVE ON DRAWINGS.
2. GRATE MATERIAL: DUCTILE IRON.
3. FOR USE WITH TYPE 264 INLET FRAMES.



SECTION D-D



SECTION C-C

BI-DIRECTIONAL VANCED GRATE

TO BE USED WITH FRAME 264

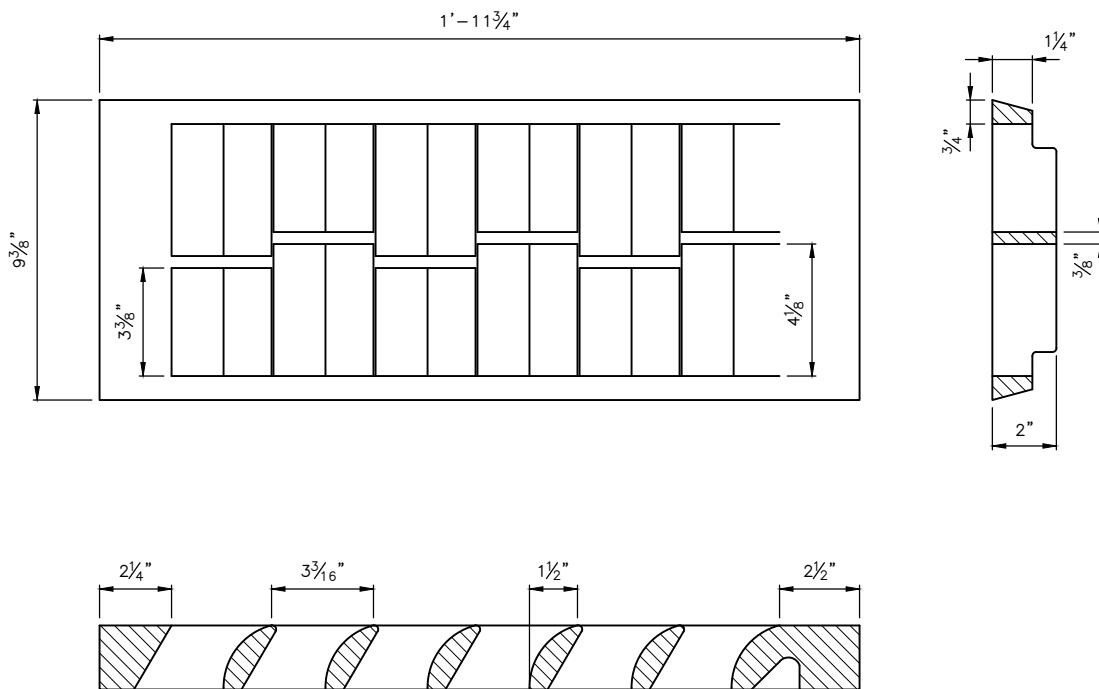
REF STD SPEC SEC 7-05



City of Seattle

NOT TO SCALE

VANED GRATES

**NOTES:**

1. OPEN AREA - 100 SQUARE INCHES.
2. 1. OTHER GRATES ACCEPTABLE; SPECIFY VANE, SOLID COVER, BI-DIRECTIONAL VANE, ADA OR BEEHIVE ON PLANS.
3. SEE STD PLAN NO 265 FOR VANE AND END DETAIL.
4. STD PLAN NO 266 DIMENSIONS GOVERN ON END DETAIL.
5. REPLACEMENT VANED GRATE FOR TYPE 164 INLET FRAMES.

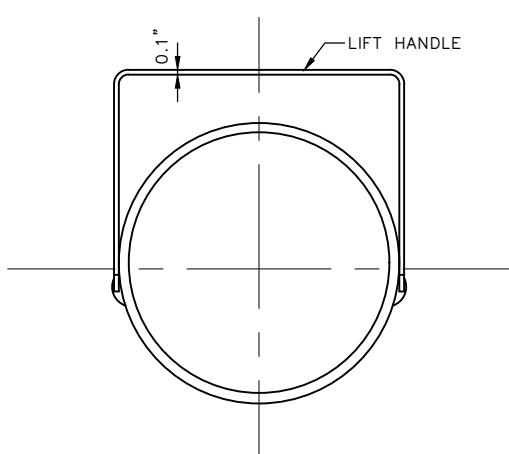
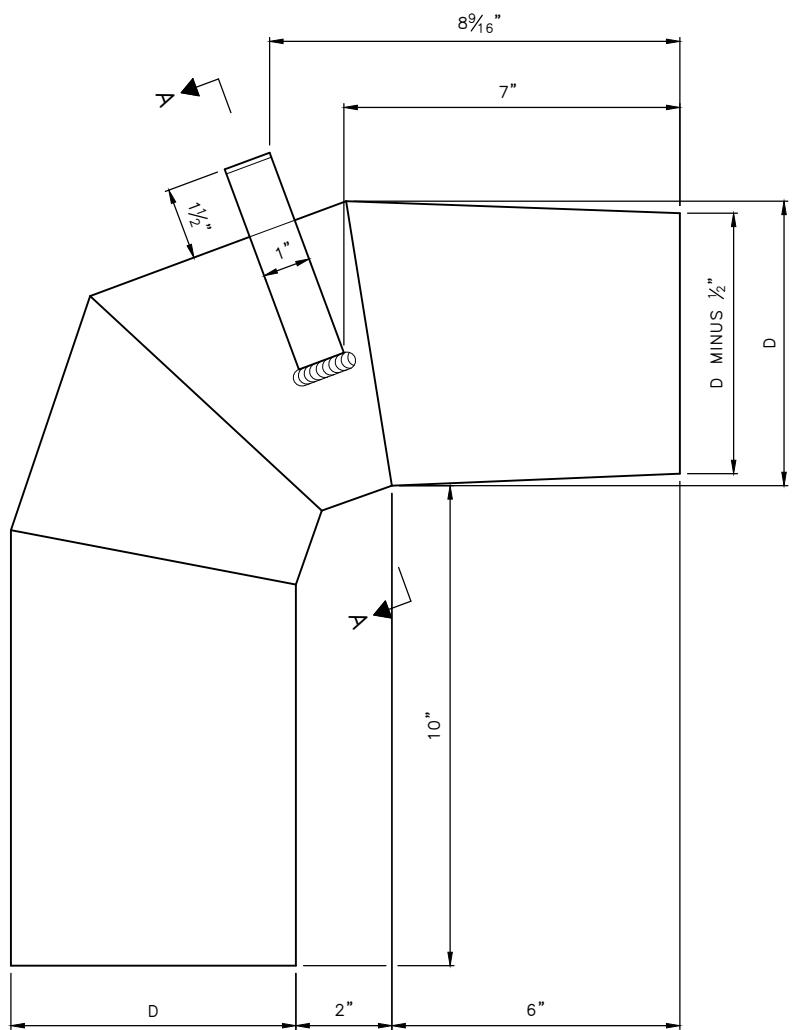
REF STD SPEC SEC 7-20.3(6), 9-12



City of Seattle

NOT TO SCALE

TYPE 266 REPLACEMENT  
VANED GRATE



SECTION A-A  
NTS

## NOTES:

1. TRAP TO BE MADE OF 22 GA SHEET METAL OR 16 GA ALUMINUM
2. ALL JOINTS TO BE SEAMED AND SOLDERED, OR WELDED
3. ALL LONGITUDINAL JOINTS TO BE RIVETED OR WELDED
4. DIAMETER "D" IS NOMINAL DIAMETER OF OUTLET PIPE
5. LIFT HANDLE MUST BE WELDED TO OUTSIDE OF TRAP  
(1" WIDE X 0.1" THICK)

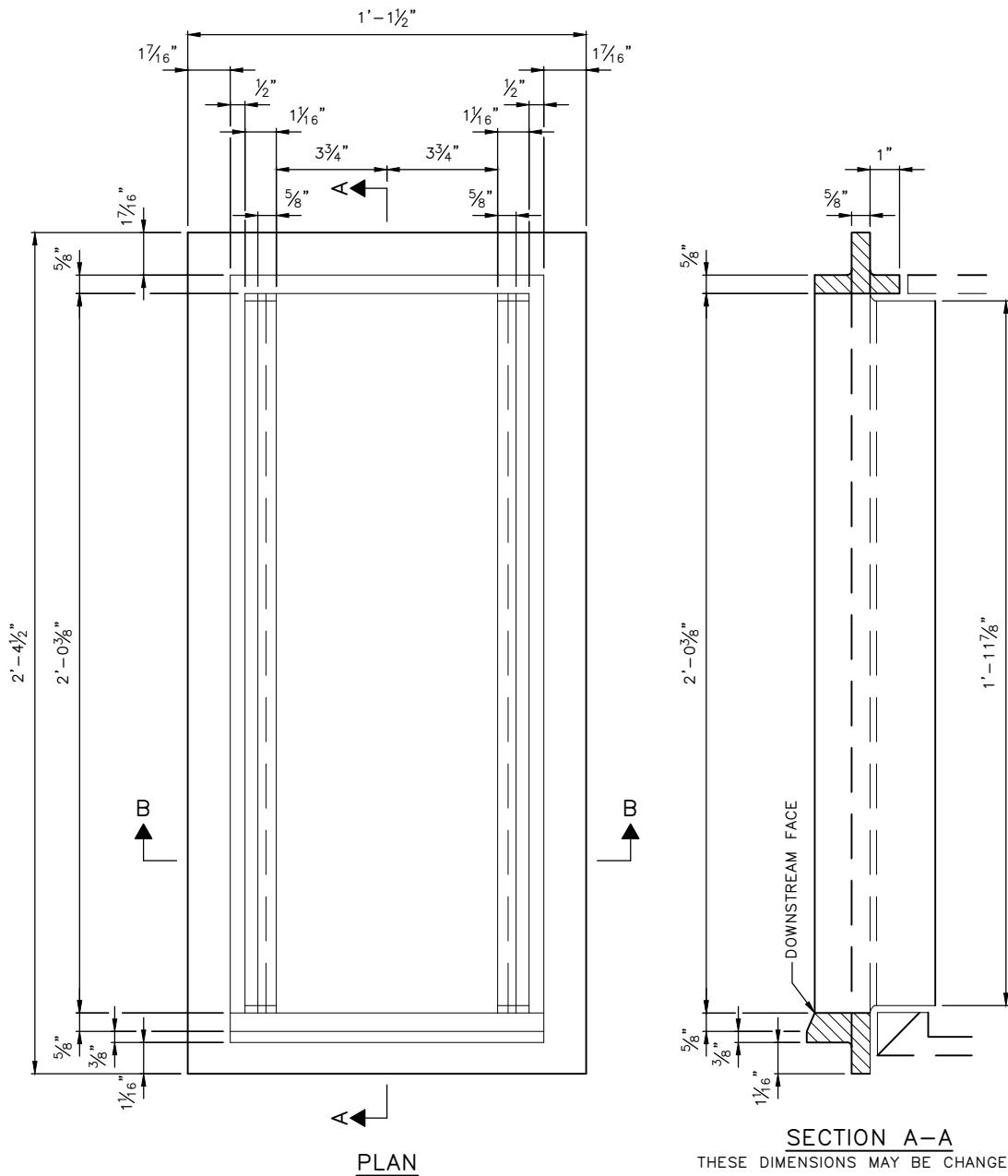
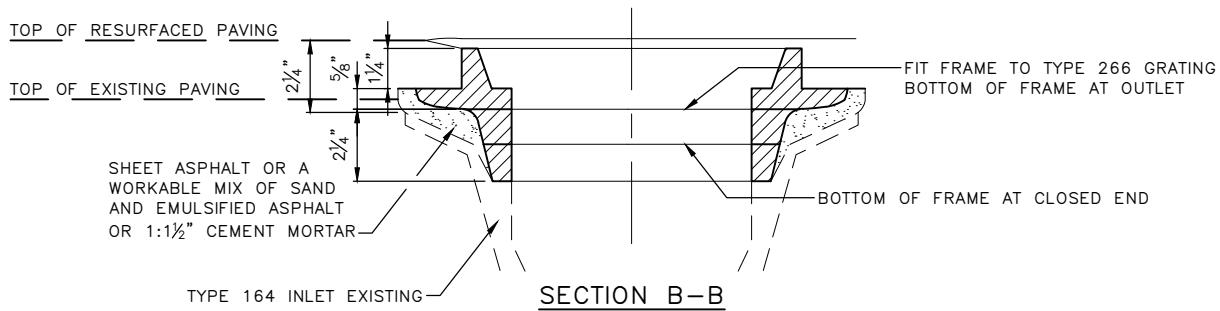
REF STD SPEC SEC 9-12



## City of Seattle

NOT TO SCALE

## OUTLET TRAP



THESE DIMENSIONS MAY BE CHANGED IF  
NECESSARY TO FIT EXISTING CASTINGS

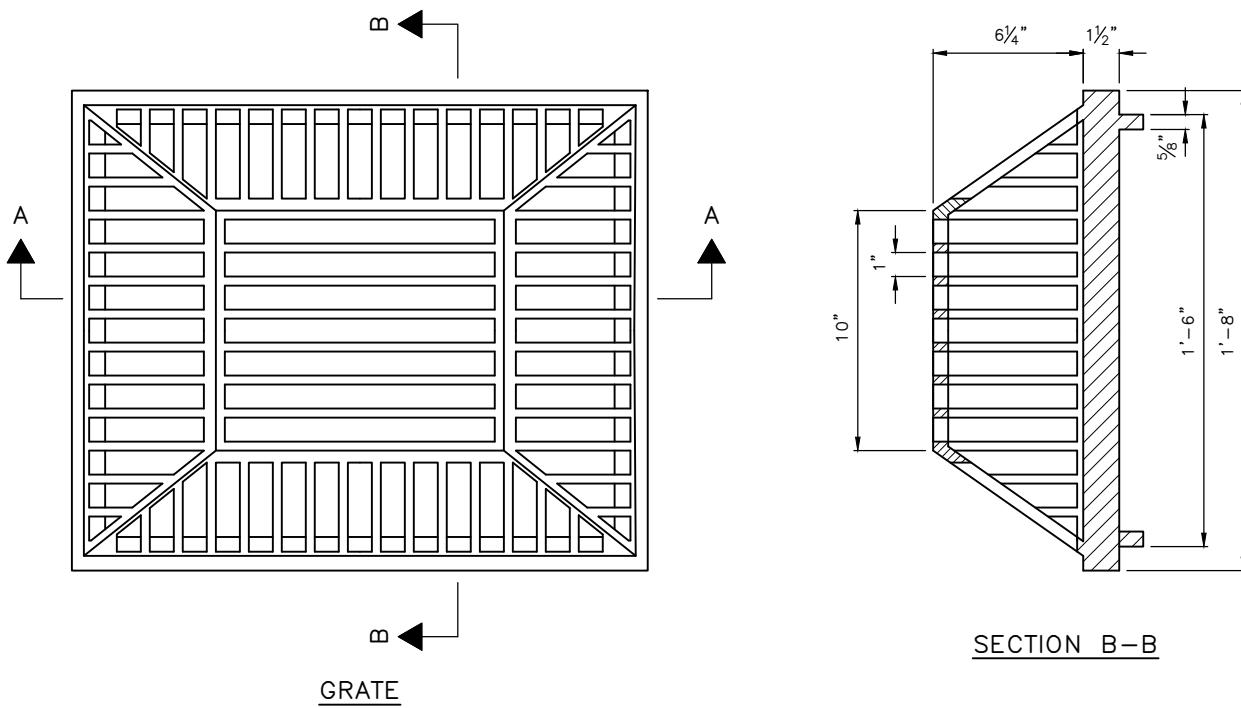
REF STD SPEC SEC 9-05



## City of Seattle

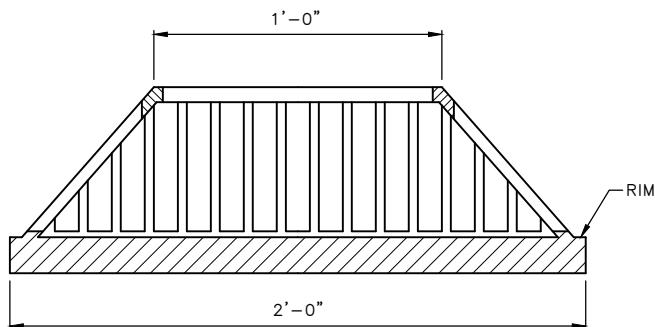
NOT TO SCALE

## EXTENSION FOR INLET



## NOTES:

1. GRATE MATERIAL: DUCTILE IRON
2. FRAME PER STD PLAN NO 264



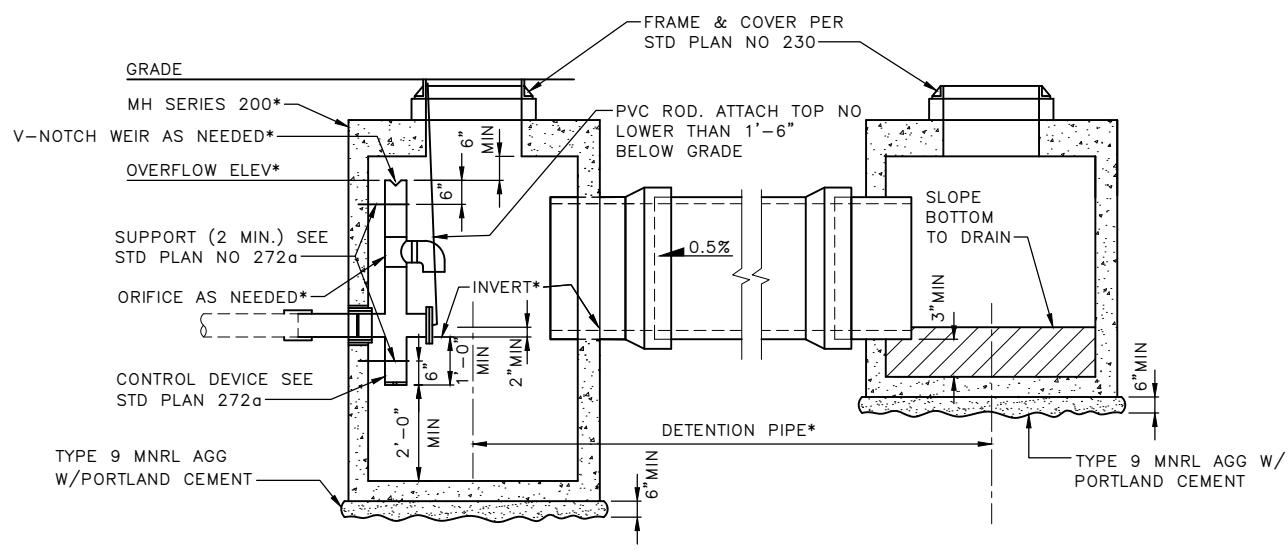
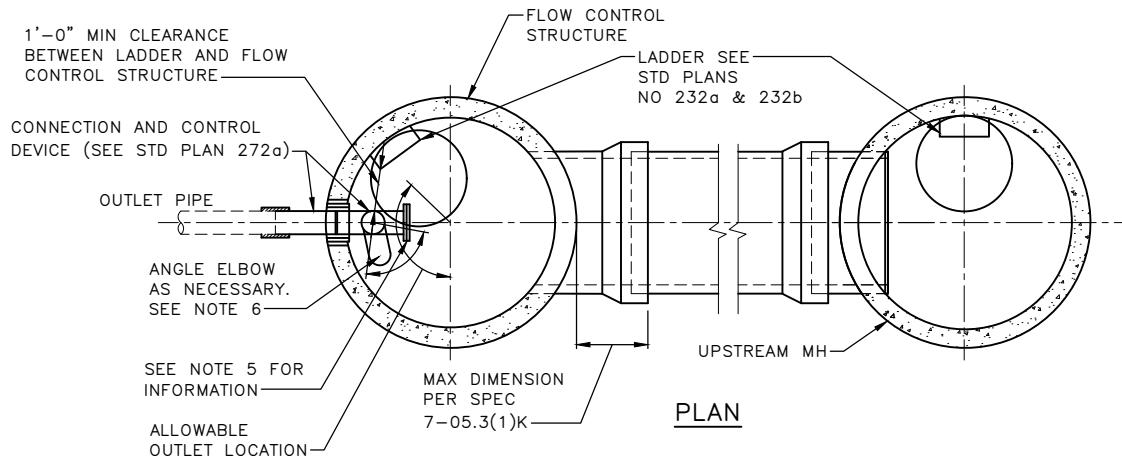
REF STD SPEC SEC 9-12



City of Seattle

NOT TO SCALE

BEEHIVE GRATE FOR  
BIORETENTION



\*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS

NOTES:

- DETENTION PIPE MATERIAL MUST BE AS SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. MATERIALS THAT MAY BE APPROVED FOR USE IN THE ROW INCLUDE:
  - DUCTILE IRON PIPE (DIP)
  - REINFORCED CONCRETE PIPE (RCP)
  - POLYPROPYLENE PIPE (PP DETENTION)
  - STEEL REINFORCED POLYETHYLENE PIPE (STL REINF PE DETENTION). ONLY MANUFACTURER SUPPLIED TEES MUST BE USED FOR CONNECTIONS.
- BEDDING FOR DETENTION PIPE MUST BE CLASS B. DIP AND RCP MUST BE BEDDED IN MINERAL AGGREGATE TYPE 9. FLEXIBLE PIPE MUST BE BEDDED IN MINERAL AGGREGATE TYPE 22.
- INTERMEDIATE MHS WILL BE REQUIRED FOR DETENTION PIPE LENGTHS GREATER THAN 350LF.
- OUTLET PIPE MUST CONNECT TO MH ON MAINLINE.
- STRUCTURE DESIGN MUST BE MODIFIED FOR PRIVATE SYSTEM WITH EXCLUSION OF SHEAR GATE
- ROTATE ELBOW RESTRICTOR CLEAR OF ACCESS OPENING.
- FRAME LADDER AND STEPS OFFSET:
  - CLEAN OUT IS VISIBLE FROM TOP
  - CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
  - MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE
- THE MAINTENANCE HOLES MUST BE SIZED FOR THE OUTSIDE DIAMETER OF THE DETENTION PIPE, WHICH WILL VARY DEPENDING ON THE DETENTION PIPE MATERIAL.

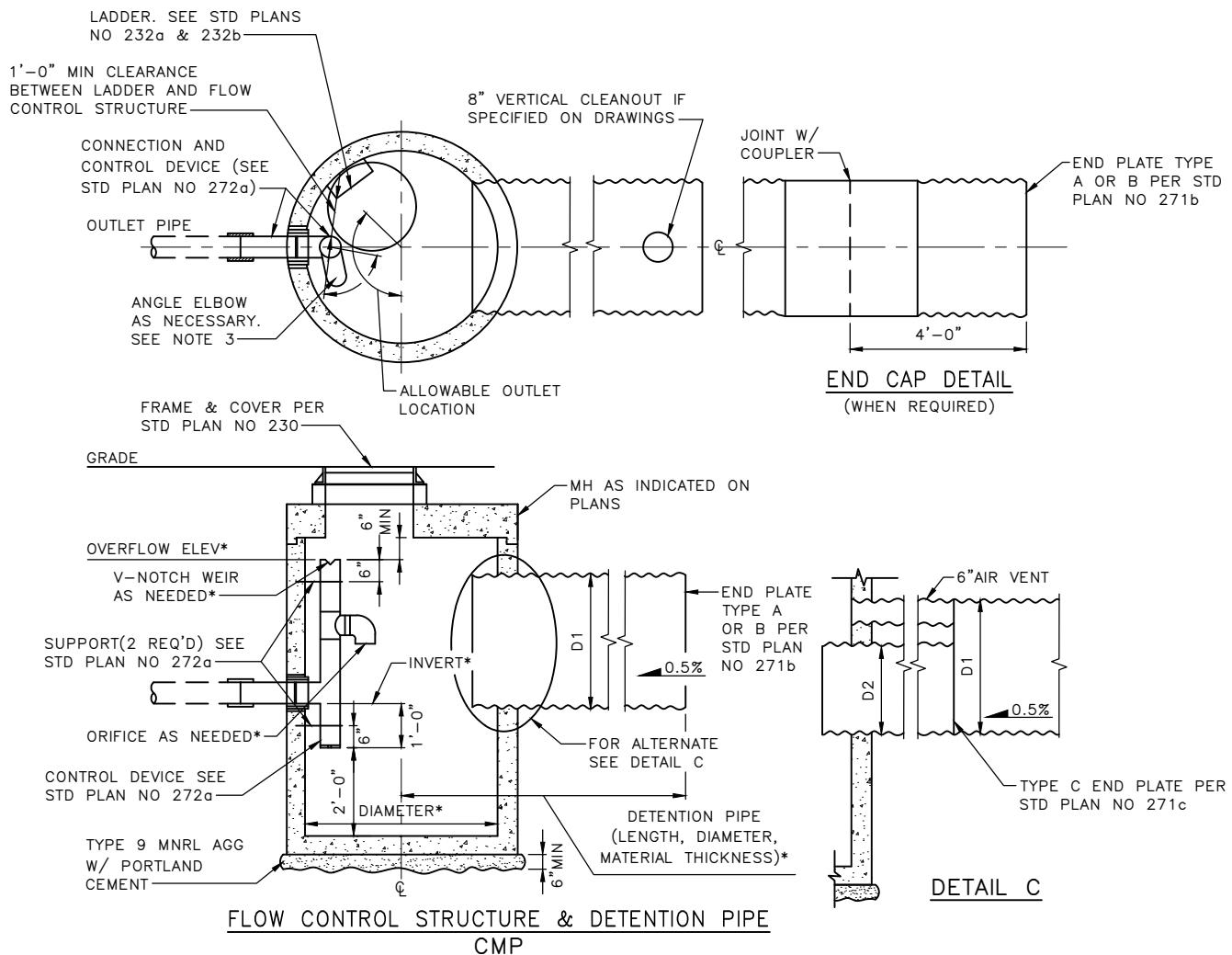
REF STD SPEC SEC 7-16



City of Seattle

NOT TO SCALE

FLOW CONTROL STRUCTURE  
WITH DETENTION PIPE

**NOTES:**

1. INVERT OF DETENTION PIPE TO BE HIGHER THAN INVERT OF OUTLET PIPE
2. \*SPECIFIC DESIGN INFORMATION WILL BE INDICATED ON ACTUAL CONSTRUCTION DRAWINGS
3. ROTATE ELBOW RESTRICTOR CLEAR OF ACCESS OPENING
4. FOR ALTERNATIVE PIPE MATERIALS, REFER TO STD PLAN NO 270
5. FRAME LADDER AND STEPS OFFSET:
  - 5.1. CLEAN OUT IS VISIBLE FROM TOP
  - 5.2. CLIMB DOWN SPACE IS CLEAR OF RISER AND CLEAN OUT GATE
  - 5.3. MH OPENING MUST NOT BE PLACED DIRECTLY OVER THE TOP OF INLET PIPE

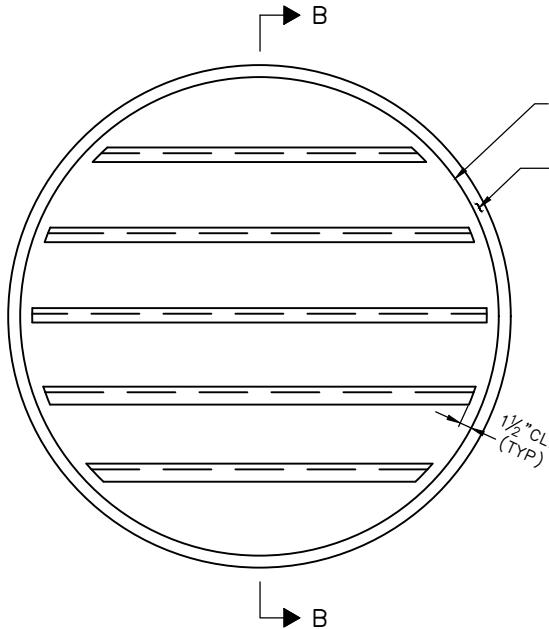
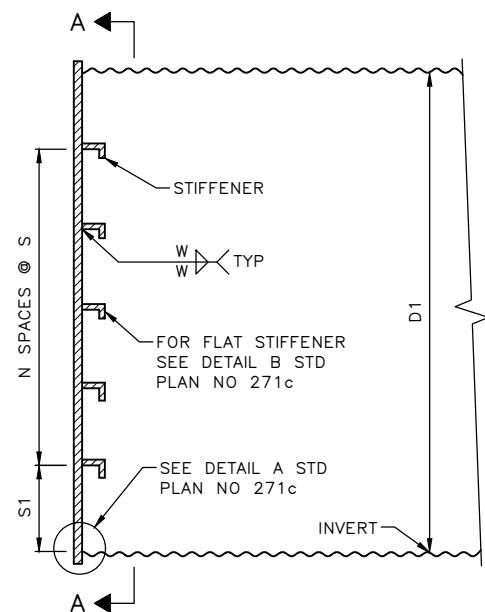
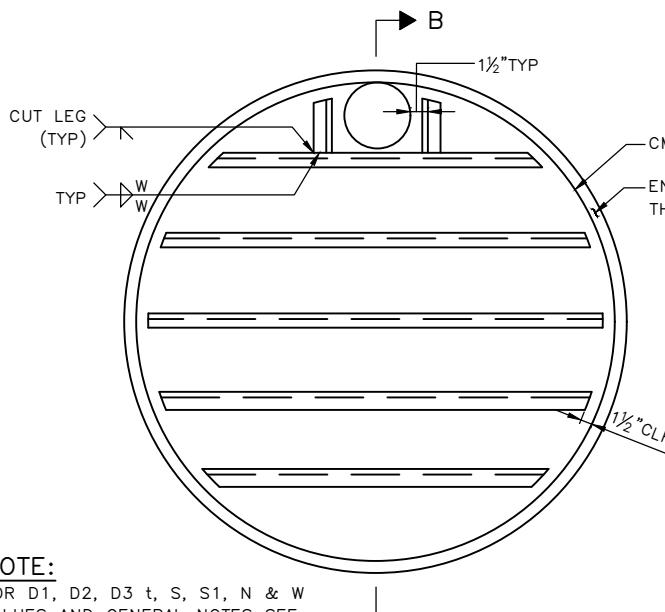
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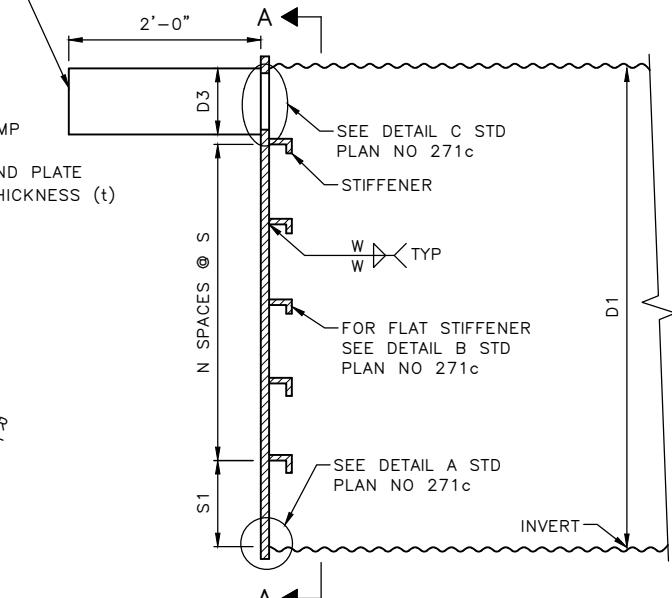
CMP DETENTION PIPE  
PRIVATE SYSTEM ONLY

SECTION A-ASECTION B-BTYPE ANOTE:

FOR D1, D2, D3, t, S, S1, N & W  
VALUES AND GENERAL NOTES SEE  
STD PLAN NO 271d

SECTION A-A

NON-CORRUGATED PIPE 0.135"  
THICK SAME OD AS CONNECTION  
PIPE CONNECT TO CONNECTION  
PIPE W/ STAINLESS STEEL  
FLEXIBLE RIGID WALL COUPLER

SECTION B-BTYPE B

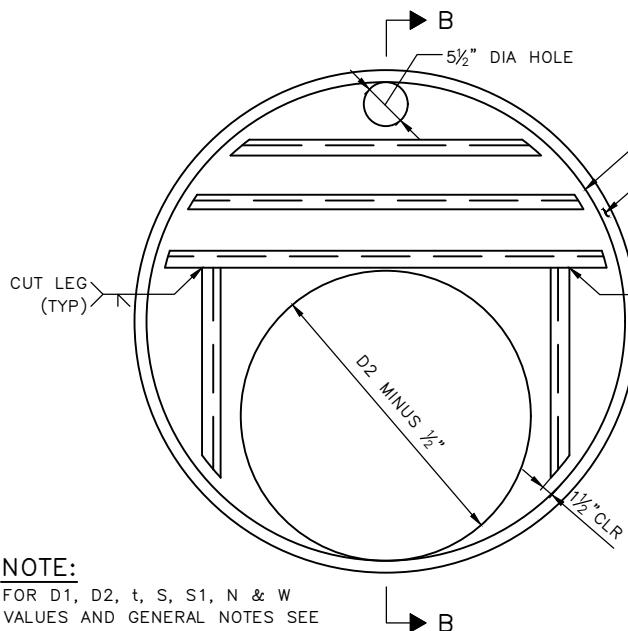
REF STD SPEC SEC 7-16



City of Seattle

NOT TO SCALE

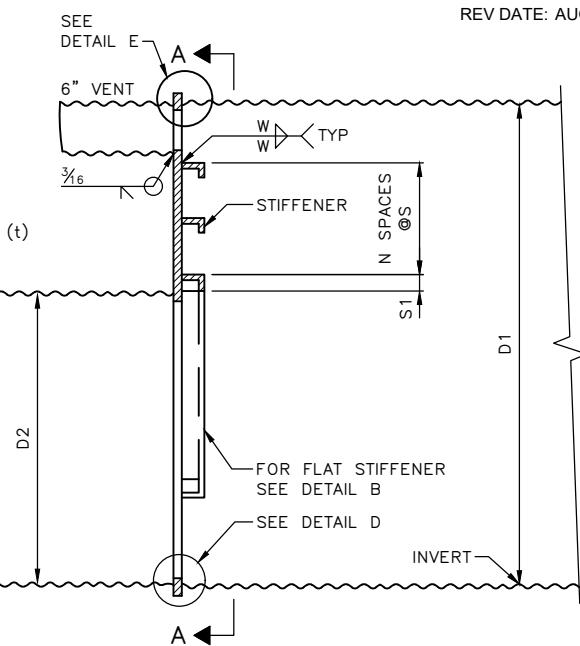
CMP DETENTION STRUCTURE  
END PLATE DETAILS  
TYPES A & B



## NOTE:

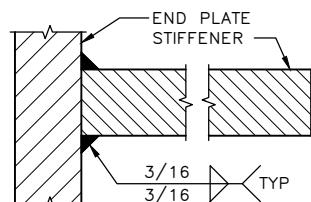
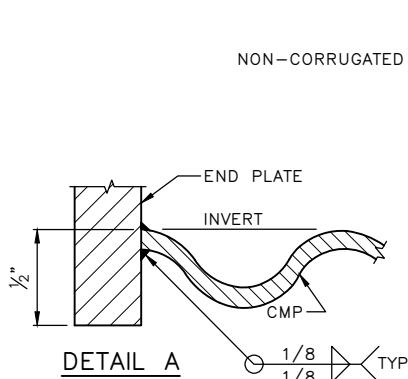
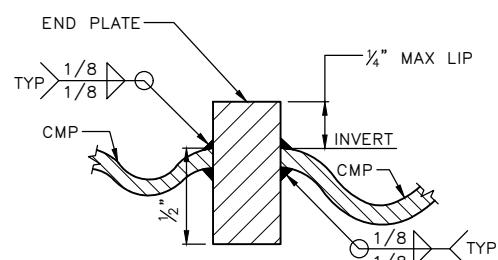
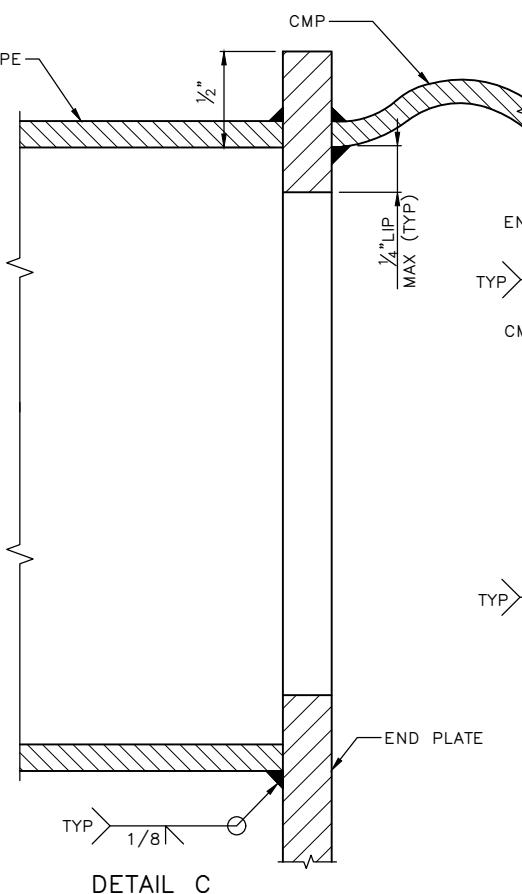
FOR D1, D2, t, S, S1, N & W  
VALUES AND GENERAL NOTES SEE  
STD PLAN NO 271d

SECTION A-A

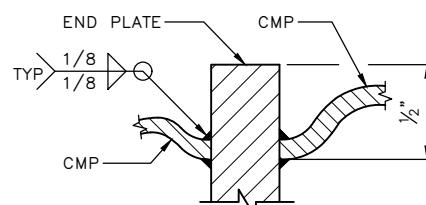


SECTION B-B

## TYPE C

DETAIL B  
FLAT STIFFENER

DETAIL D



DETAIL E

REF STD SPEC SEC 7-16



City of Seattle

NOT TO SCALE

CMP DETENTION STRUCTURE  
END PLATE DETAILS  
TYPE C

PIPE DIAMETER			END PLATE THICKNESS t	STIFFENER TYPE & SIZE	STIFFENER SPACING			SIZE W
D1	D2	D3			S1	S	N	
<b>TYPE A</b>								
30"	-	-	1/4"	FLAT 2 1/2" X 1/4"	6"	6"	3	3/16"
36"	-	-	1/4"	FLAT 3" X 1/4"	6"	6"	4	3/16"
48"	-	-	1/4"	FLAT 4 1/4" X 1/4"	8"	8"	4	3/16"
60"	-	-	3/8"	L 2 1/2" X 2" X 3/8"	10"	10"	4	1/4"
72"	-	-	3/8"	L 3" X 3" X 3/8"	6"	10"	6	1/4"
<b>TYPE B</b>								
30"	-	6"	1/4"	FLAT 2 1/2" X 1/4"	5 1/2"	5 1/2"	3	3/16"
	-	8"			5"	5"	3	
	-	12"			4"	6"	2	
36"	-	6"	1/4"	FLAT 3" X 1/4"	6"	5 1/2"	4	3/16"
	-	8"			6"	5"	4	
	-	12"			5 1/2"	5 1/2"	3	
48"	-	6"	1/4"	FLAT 4 1/4" X 1/4"	8"	8"	4	3/16"
	-	8"			6"	8"	4	
	-	12"			4"	7 1/2"	4	
60"	-	6"	3/8"	L 2 1/2" X 2" X 3/8"	7"	9"	5	1/4"
	-	8"			10"	10"	4	
	-	12"			6"	10"	4	
72"	-	6"	3/8"	L 3" X 3" X 3/8"	8"	8"	7	1/4"
	-	8"			8"	9"	6	
	-	12"			8"	10"	5	
<b>TYPE C</b>								
48"	30"	-	1/4"	FLAT 4 1/4" X 1/4"	2"	8"	1	3/16"
60"	36"	-	3/8"	L 2 1/2" X 2" X 3/8"	2"	7"	2	1/2"
72"	36"	-	3/8"	L 2" X 3" X 3/8"	3"	8 1/2"	3	1/4"

**NOTES:**

1. DESIGNS VALID FOR PIPE INSTALLED WITH 6'-0" OR LESS OF COVER FROM CROWN OF PIPE TO GRADE. MAXIMUM WATER SURCHARGE 3'-0" ABOVE CROWN OF PIPE
2. END PLATE MATERIAL: ALUMINUM 6061-T6
3. DESIGNS MUST BE USED ONLY FOR ALUMINUM CMP

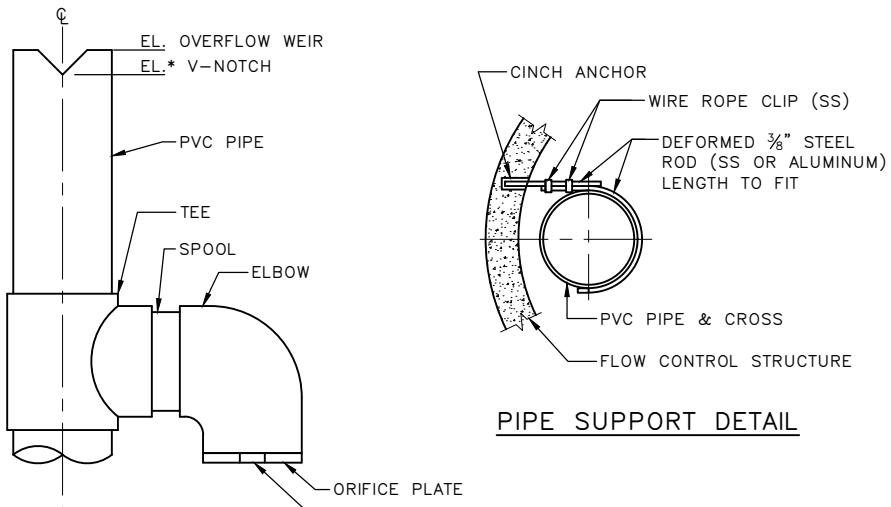
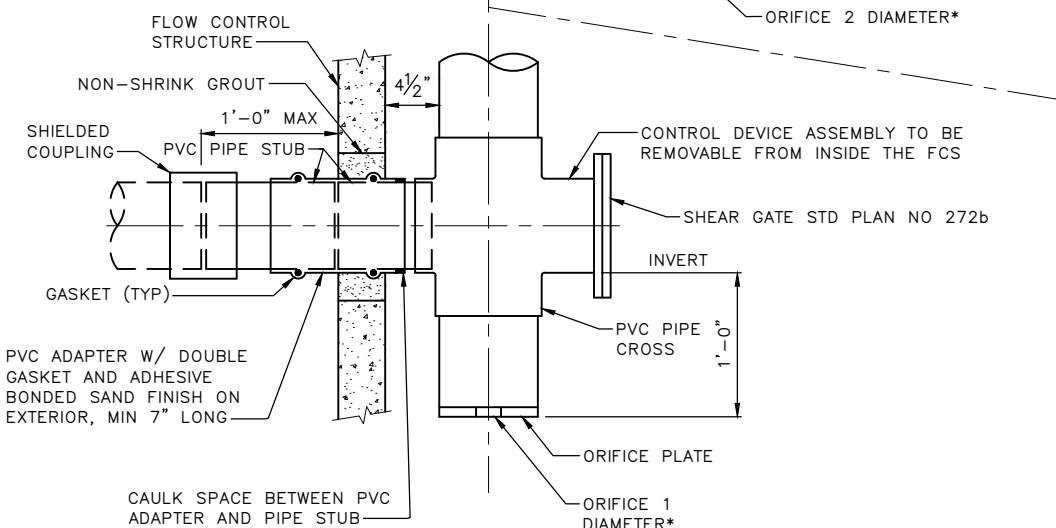
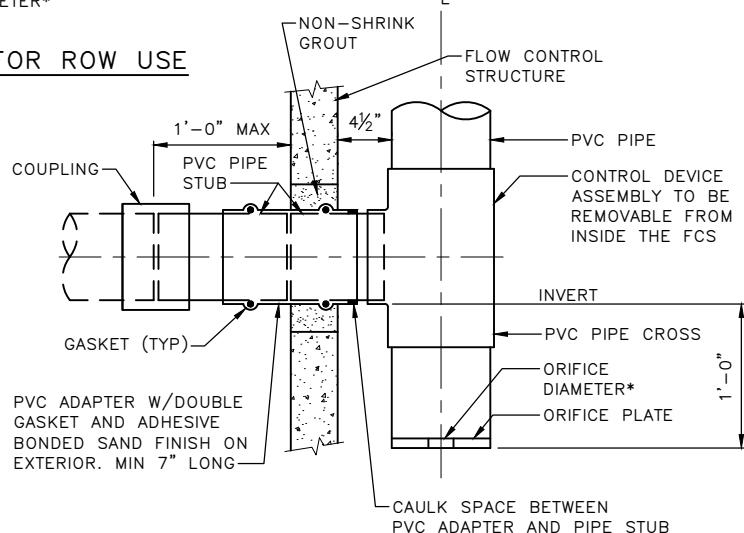
REF STD SPEC SEC 7-16



City of Seattle

NOT TO SCALE

CMP DETENTION STRUCTURE  
END PLATE DIMENSIONS

PIPE SUPPORT DETAILCONNECTION & CONTROL DEVICE FOR ROW USECONNECTION & CONTROL DEVICE FOR PRIVATE SYSTEM

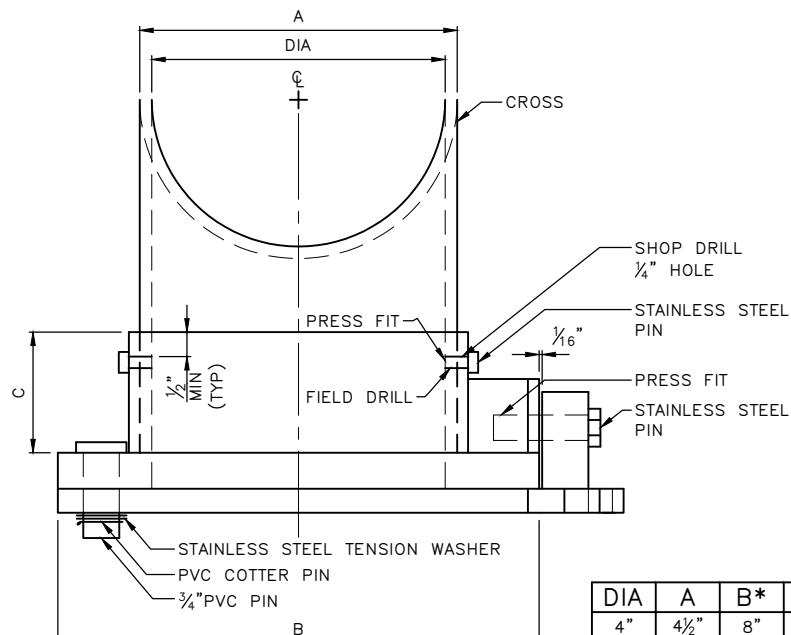
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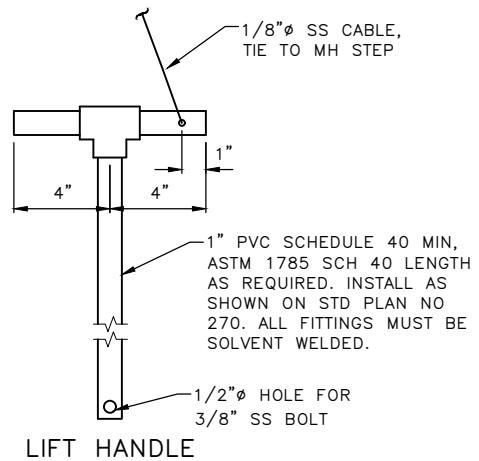
FLOW CONTROL DEVICE  
ASSEMBLY



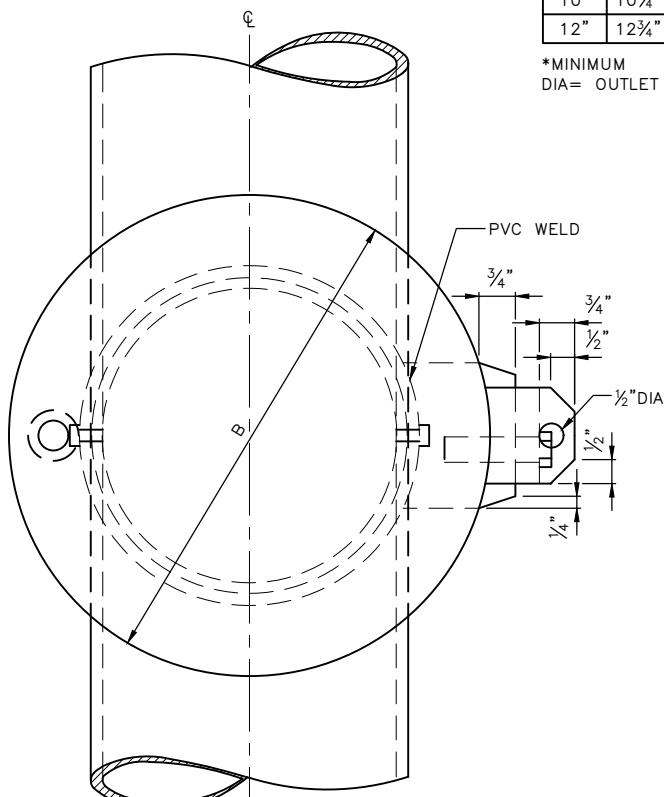
### TOP VIEW

DIA	A	B*	C*
4"	4½"	8"	2"
6"	6½"	10"	2½"
8"	8½"	12"	3"
10"	10¾"	14"	3"
12"	12¾"	16"	3"

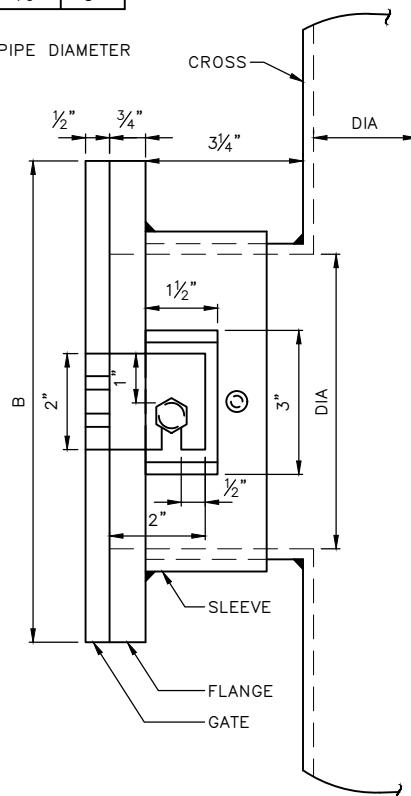
\*MINIMUM  
DIA= OUTLET PIPE DIAMETER



## LIFT HANDLE



## FRONT VIEW



SIDE VIEW

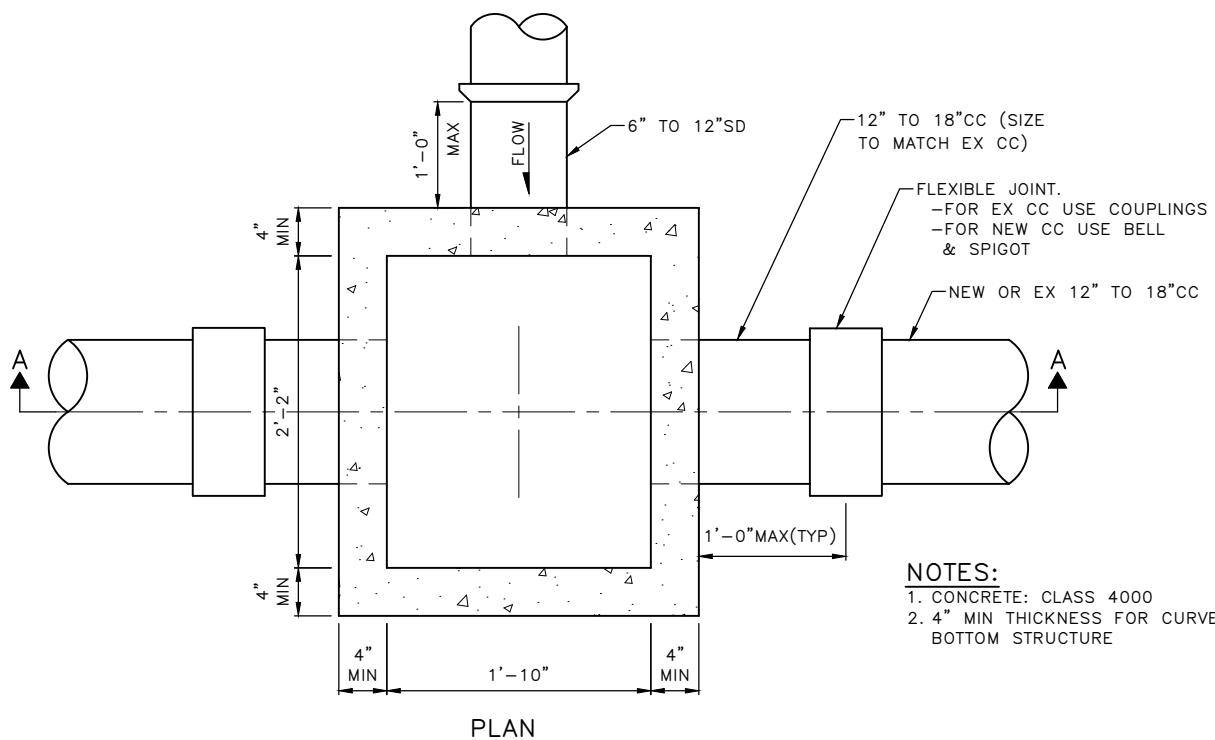
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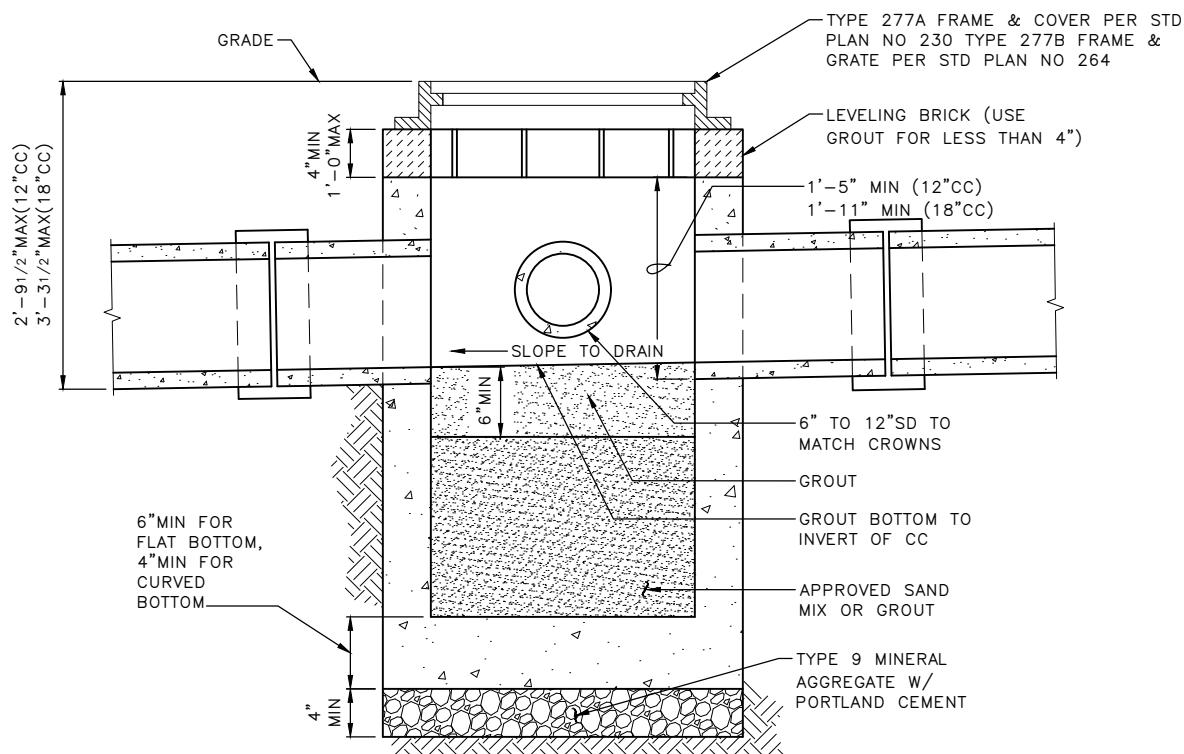
## City of Seattle

NOT TO SCALE

## PVC SHEAR GATE FOR USE IN ROW ONLY



PLAN



SECTION A-A

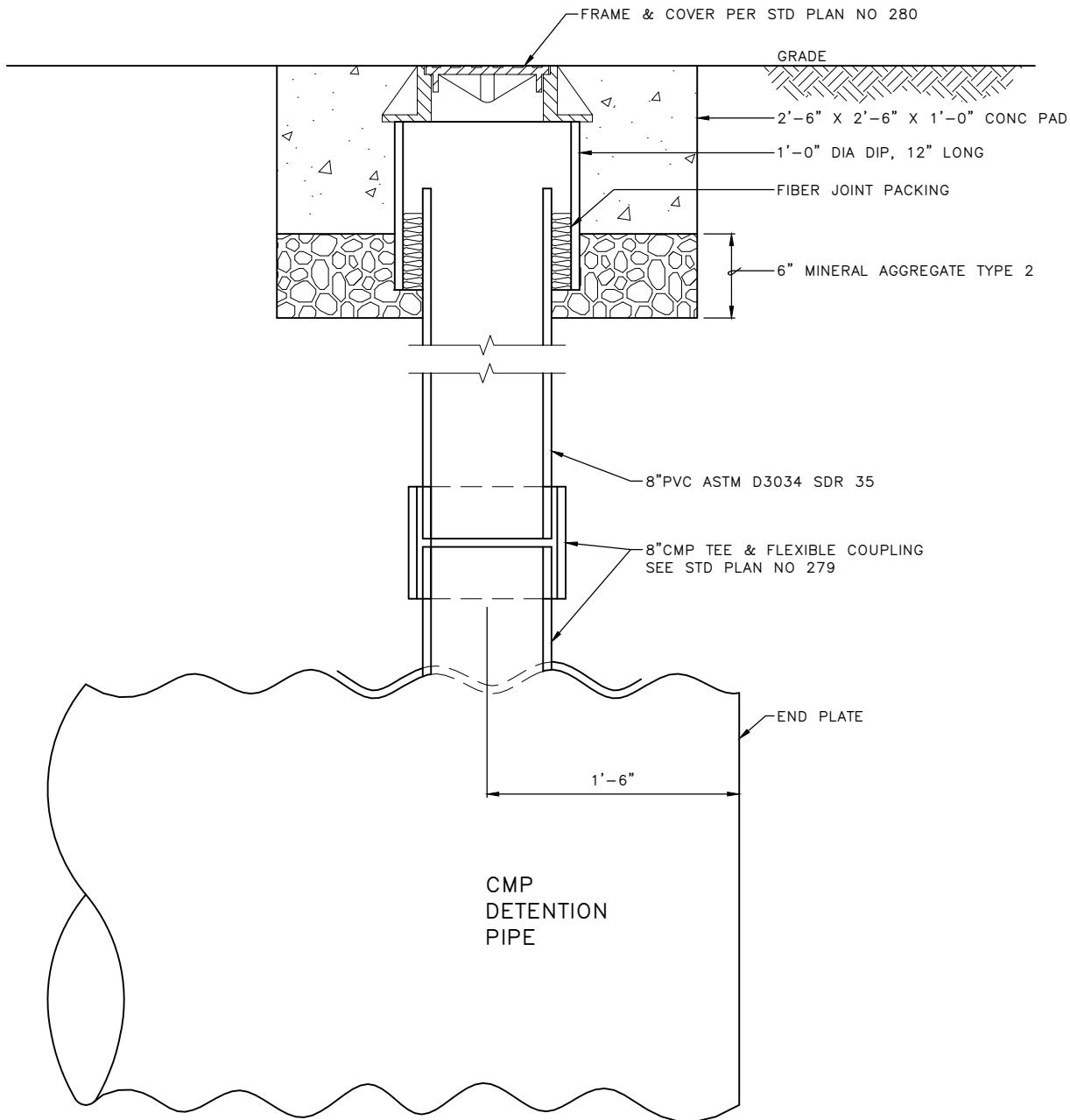
REF STD SPEC SEC 7-05



City of Seattle

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TYPE 277 JUNCTION  
BOX & INSTALLATION



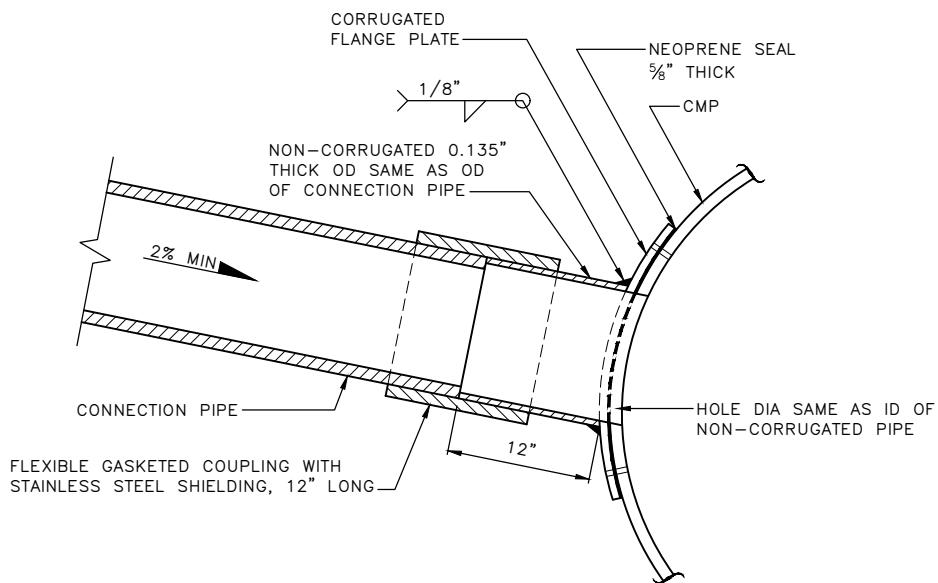
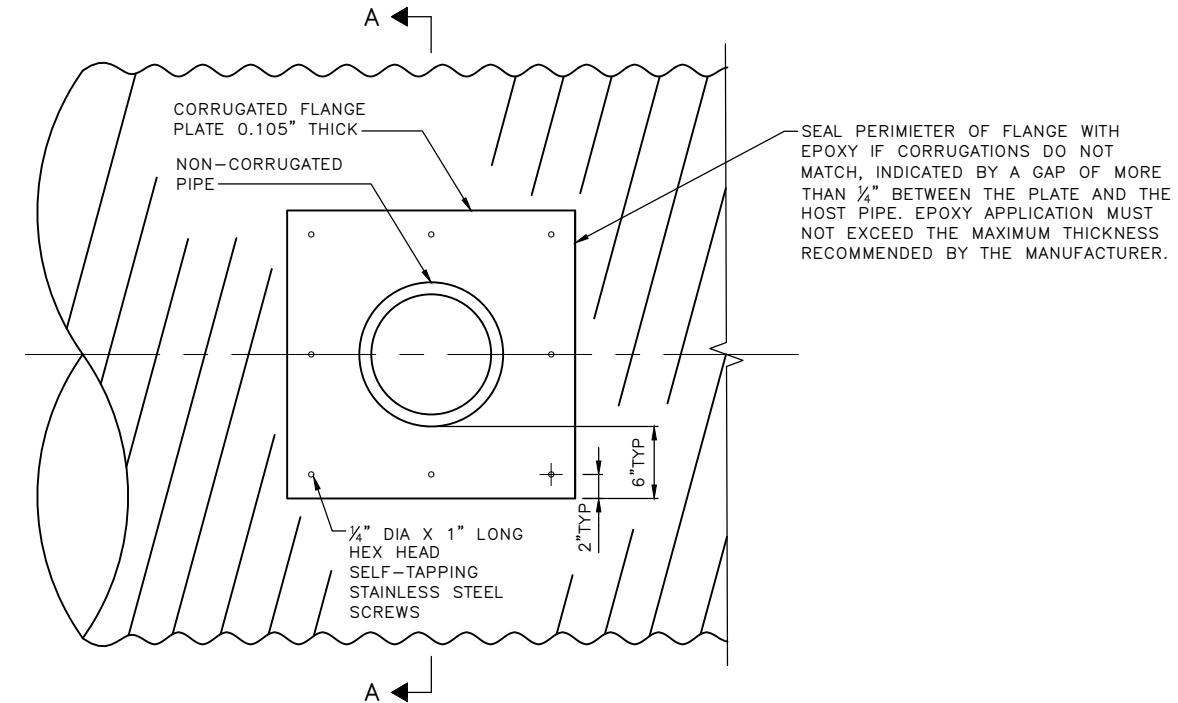
REF STD SPEC SEC 7-19, 7-16.2



City of Seattle

NOT TO SCALE

VERTICAL CLEAN OUT/  
CORRUGATED METAL PIPE



SECTION A-A

NOTES:

1. CORRUGATED FLANGE PLATE AND NON-CORRUGATED PIPE MUST BE ALUMINUM.
2. SELF-TAPPING SCREWS TO BE STAINLESS STEEL MEETING ASTM A 307.

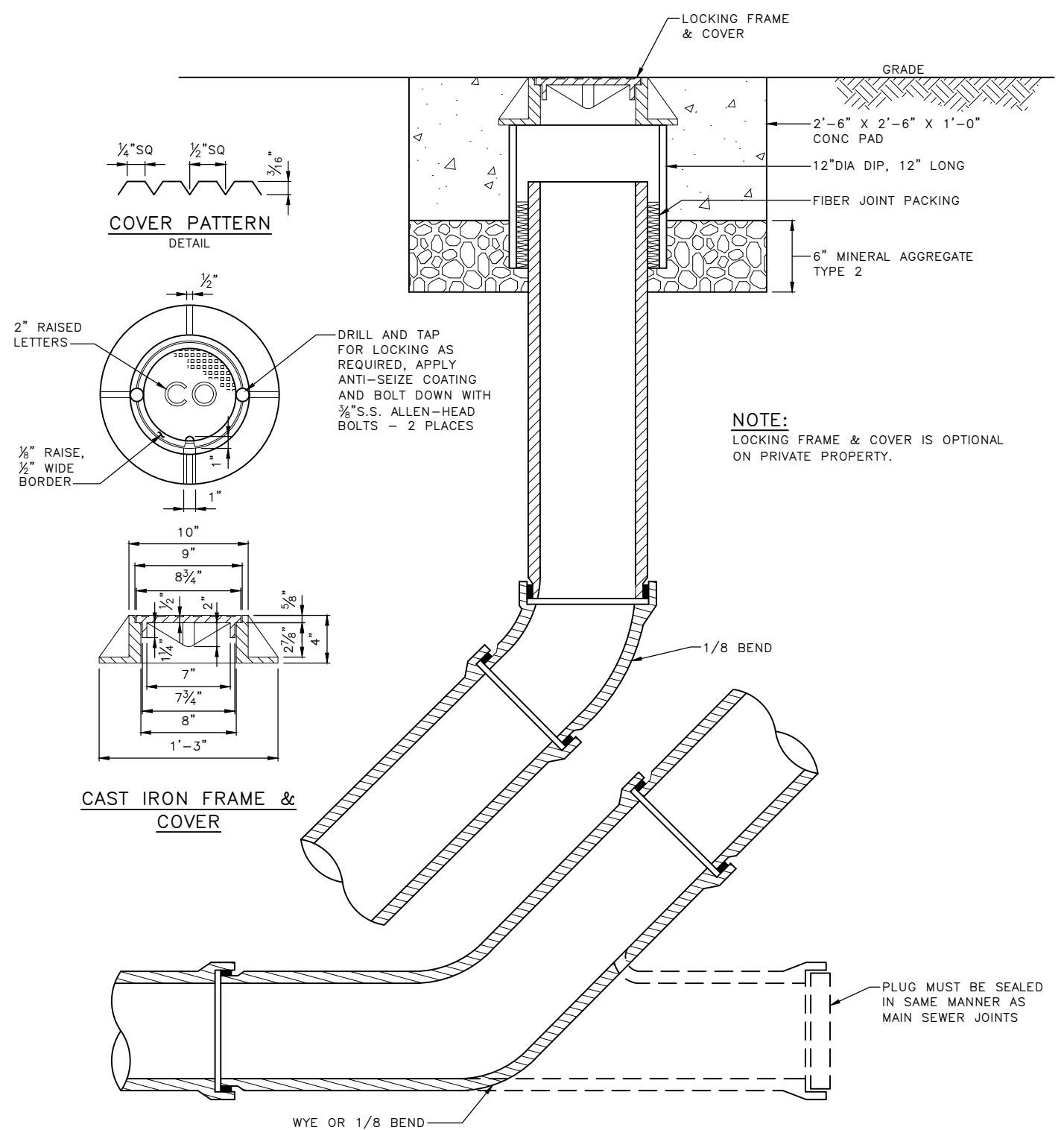
REF STD SPEC SEC 7-17, 7-16.2



City of Seattle

NOT TO SCALE

TEE INSTALLATION  
CORRUGATED METAL PIPE



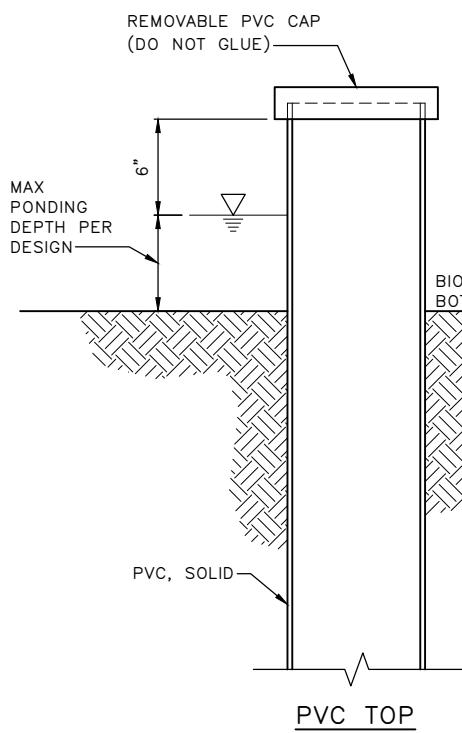
REF STD SPEC SEC 7-19



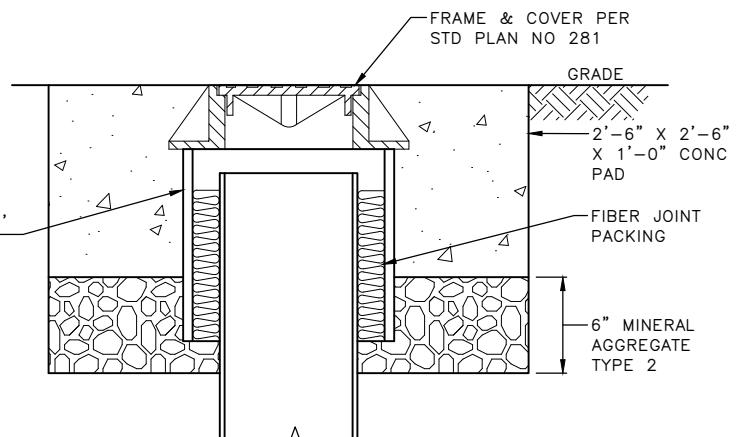
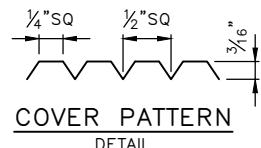
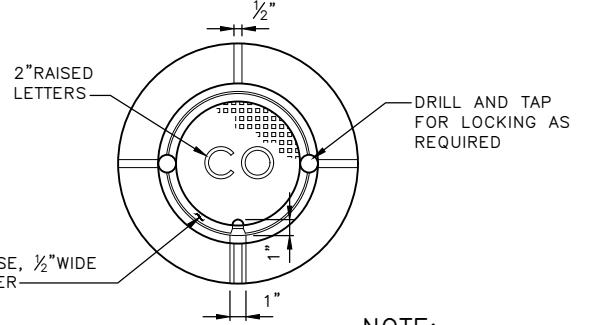
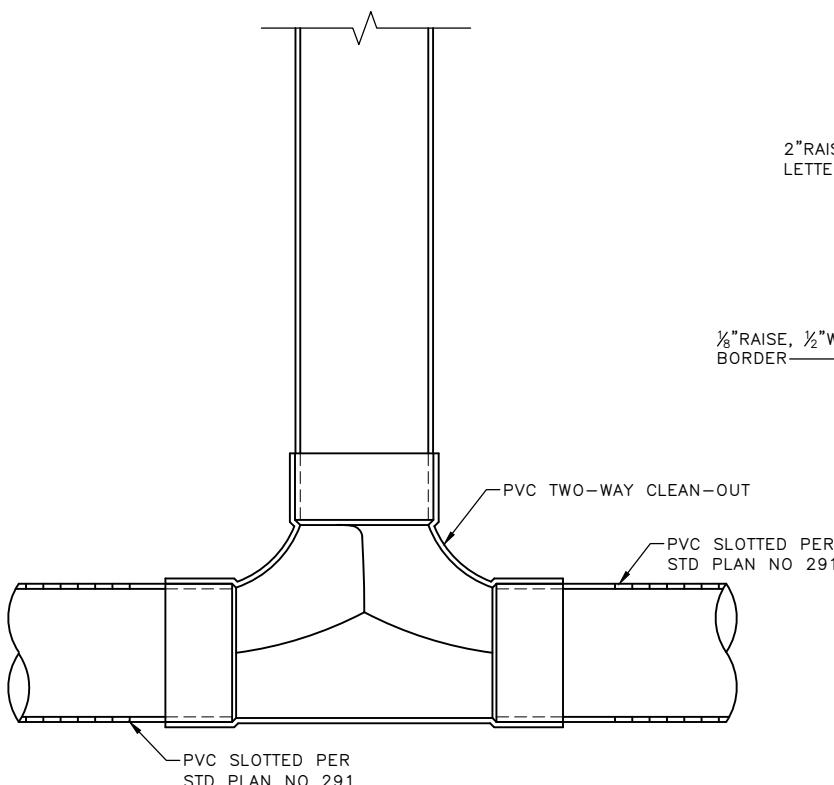
City of Seattle

NOT TO SCALE

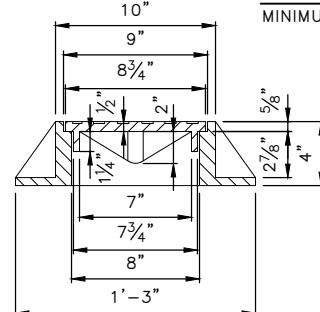
8" CLEAN-OUT

PVC TOPNOTE:

USE LOCKING CLEAN-OUT IN CONCRETE WALK AREAS.  
DRILL AND TAP, APPLY ANTI-SEIZE COATING AND BOLT  
DOWN WITH  $\frac{3}{8}$ "S.S. ALLEN-HEAD BOLTS -2 PLACES.

LOCKING CAST IRON TOPCOVER PATTERN  
DETAIL

NOTE:  
MINIMUM DIAMETER = 6"

CAST IRON FRAME & COVER

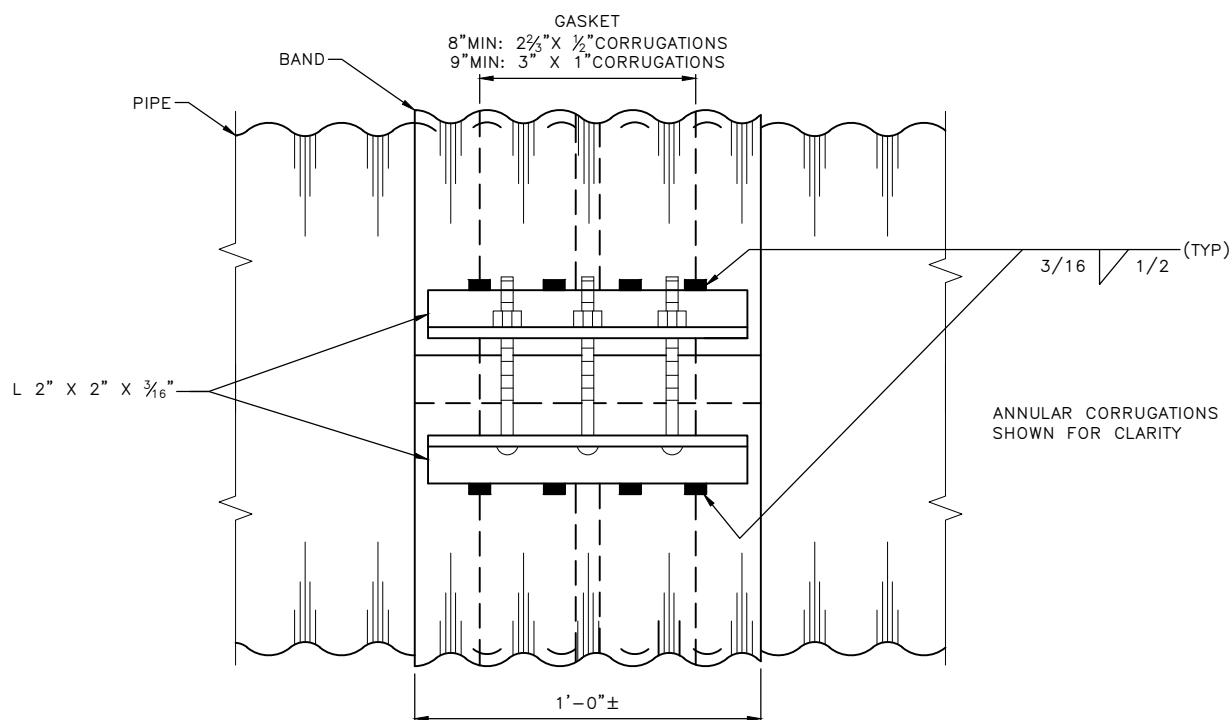
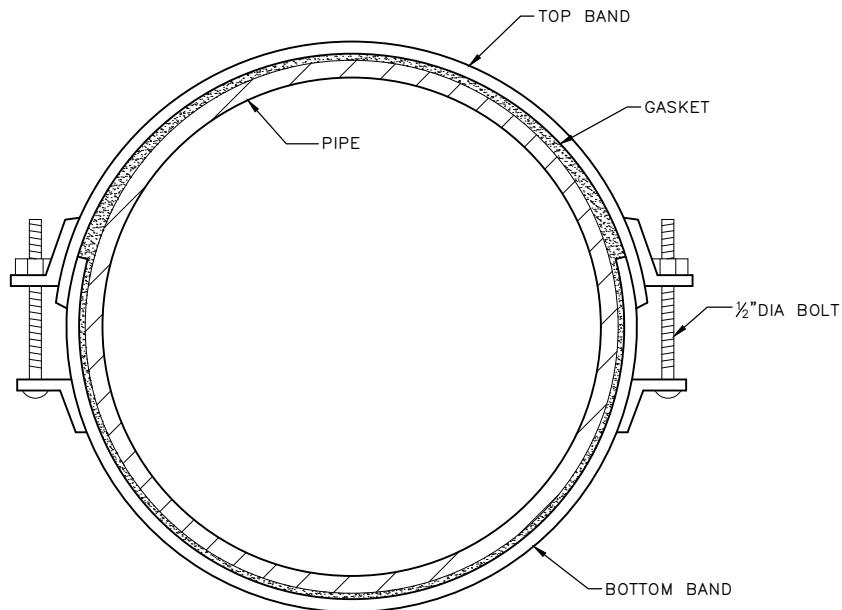
REF STD SPEC SEC 7-19



City of Seattle

NOT TO SCALE

**BIORETENTION UNDER DRAIN  
CLEAN-OUT AND  
OBSERVATION PORT**



FOR PIPES LESS THAN 48" DIAMETER  
(HELICAL OR ANNULAR)

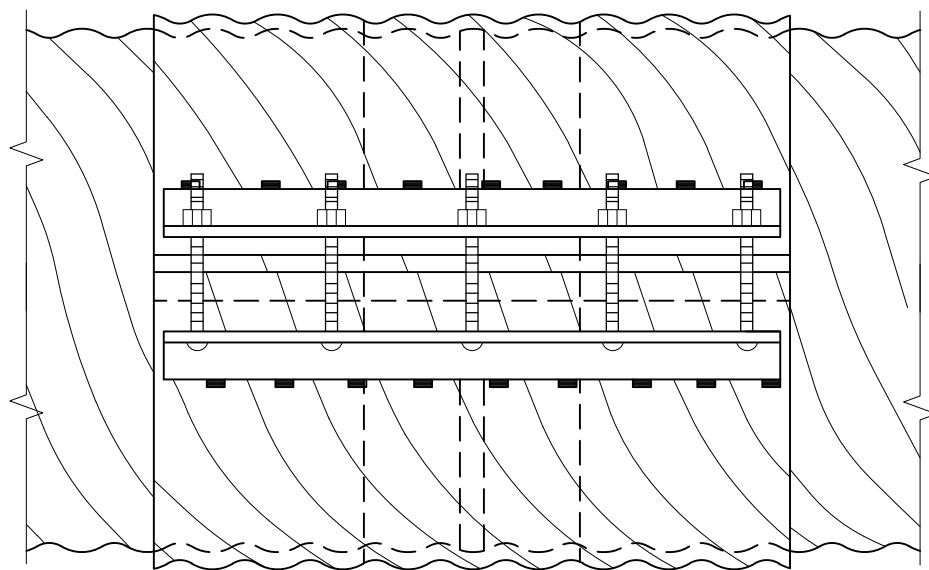
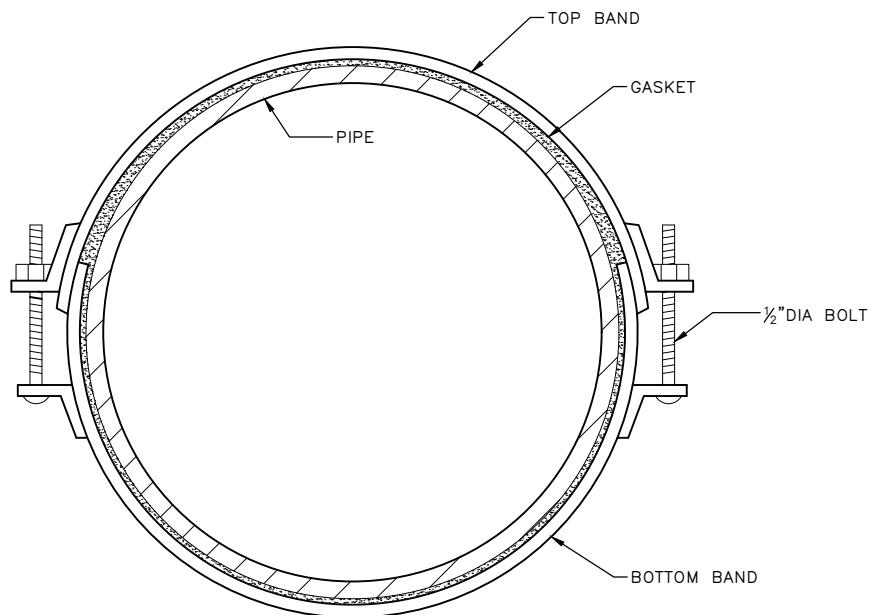
REF STD SPEC SEC 7-16.2, 9-05



City of Seattle

NOT TO SCALE

CORRUGATED METAL  
PIPE COUPLING BANDS



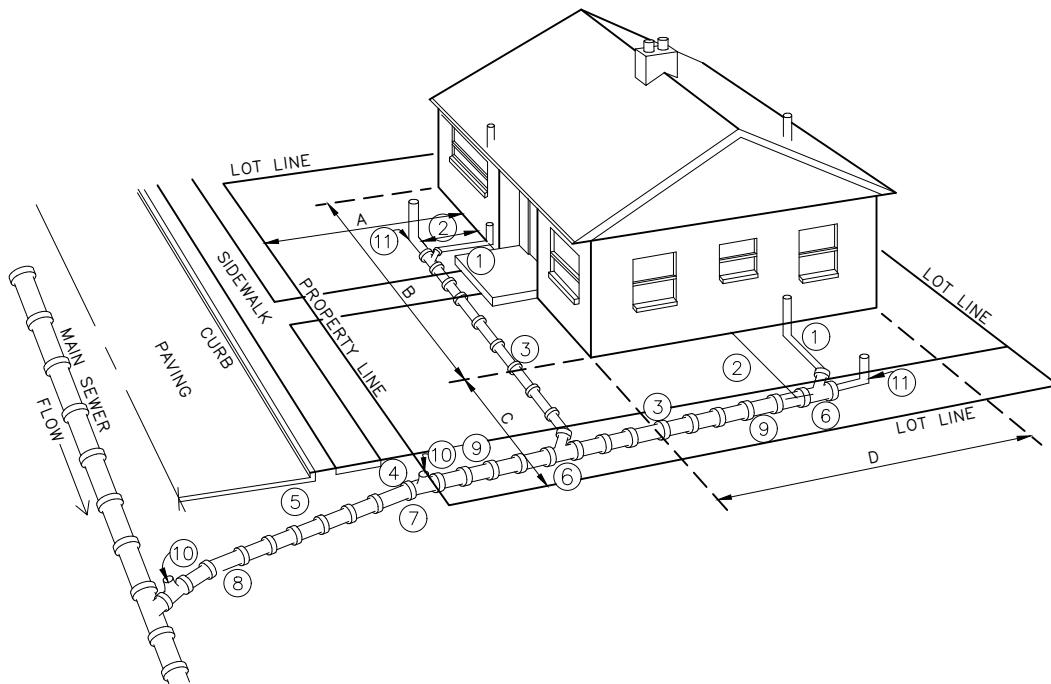
REF STD SPEC SEC 7-16.2, 9-05



City of Seattle

NOT TO SCALE

CORRUGATED METAL  
PIPE COUPLING BANDS

**NOTES:**

1. ALL SANITARY PLUMBING OUTLETS MUST BE CONNECTED TO THE SANITARY SEWER OR COMBINED SEWER.
2. 2'-6"MIN DISTANCE FROM HOUSE, EXCEPT FOR SOIL PIPE CONNECTION.
3. 1'-6"MIN COVER OF PIPE.
4. 2'-6"MIN COVER AT PROPERTY LINE.
5. 5'-0"MIN COVER AT CURB LINE.
6. LAY PIPE IN STRAIGHT LINE BETWEEN BENDS. MAKE ALL CHANGES IN GRADE OR LINE WITH BENDS OR WYES.
7. STANDARD 4" TO 6" INCREASER.
8. 6" SEWER PIPE: MIN SIZE IN STREET, AND ELSEWHERE AS DIRECTED. 2% MIN GRADE, 100% MAX.
9. 4" SEWER PIPE: MIN SIZE ON PROPERTY. 2% MIN GRADE, 100% (45°) MAX.
10. TEST "T" WITH PLUG
11. CLEANOUT AT UPSTREAM END OF SIDE SEWER.
12. CONSTRUCTION IN STREET MUST BE DONE BY A REGISTERED SIDE SEWER CONTRACTOR.
13. ALL CONSTRUCTION MUST BE IN ACCORDANCE WITH THE CURRENT SIDE SEWER ORDINANCE.

**DIMENSIONS:**

A = FRONT YARD SETBACK  
 B = LENGTH OF HOUSE  
 C = SIDE YARD SETBACK  
 D = WIDTH OF HOUSE

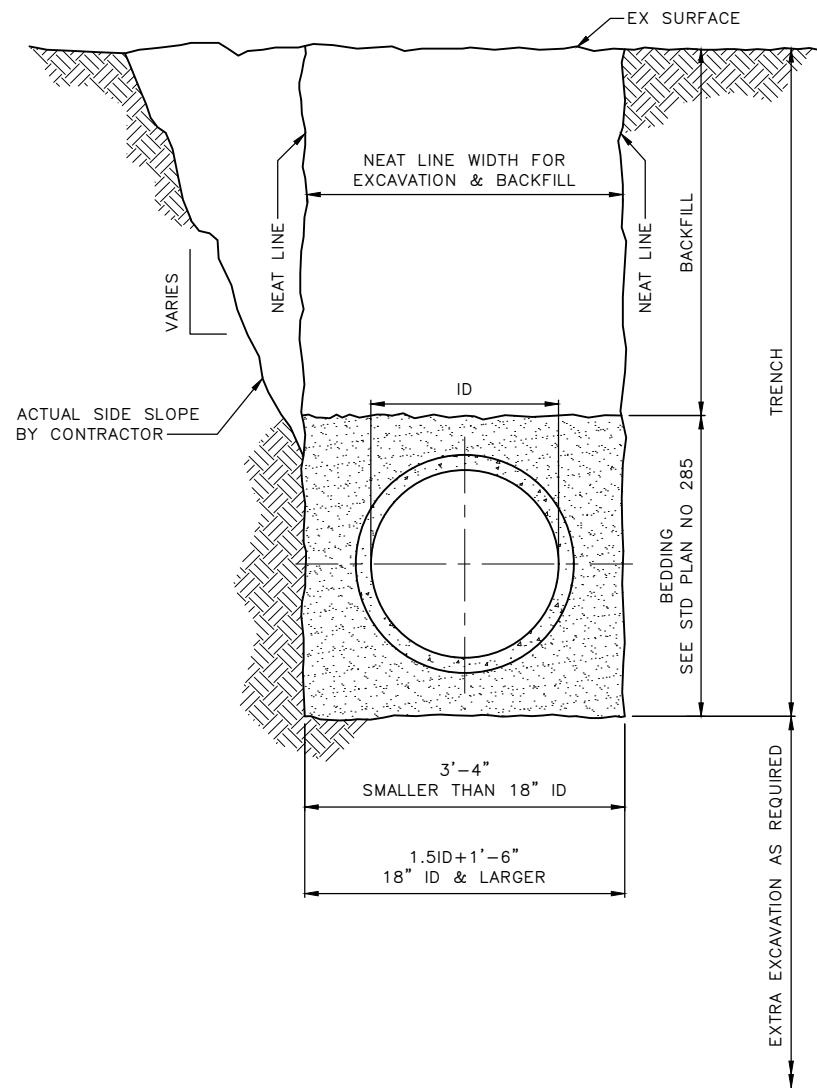
REF STD SPEC SEC 7-18



City of Seattle

NOT TO SCALE

SIDE SEWER INSTALLATION



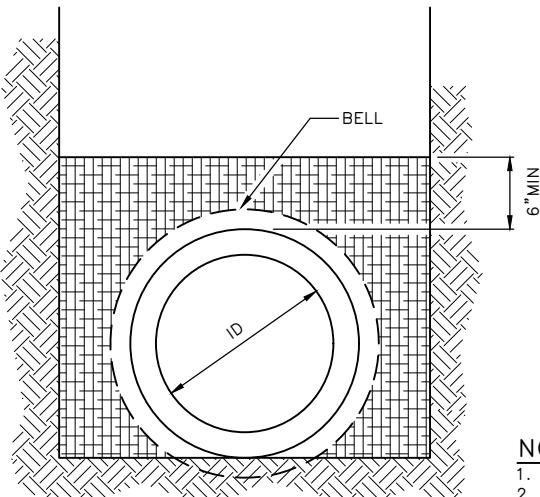
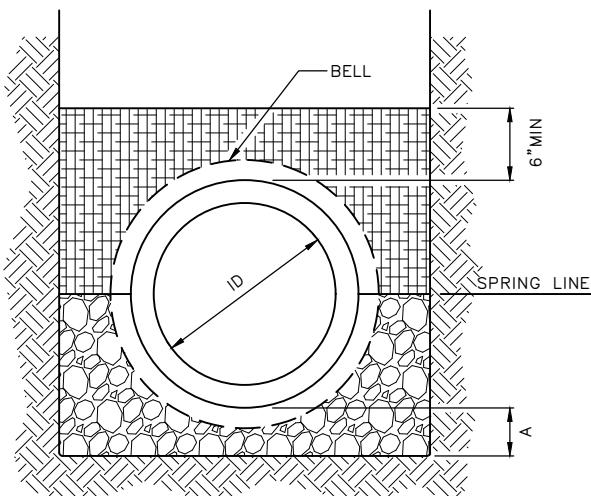
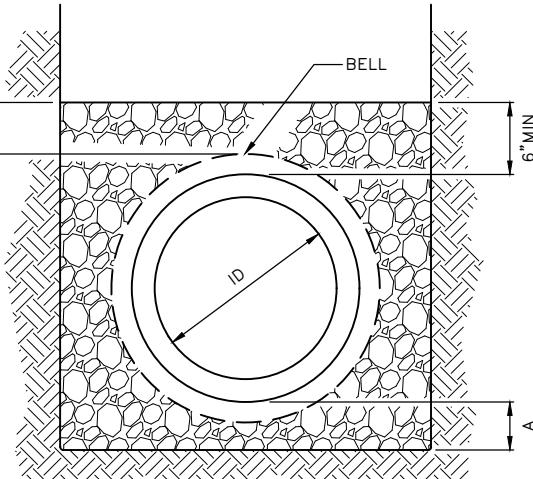
REF STD SPEC SEC 2-07, 7-17



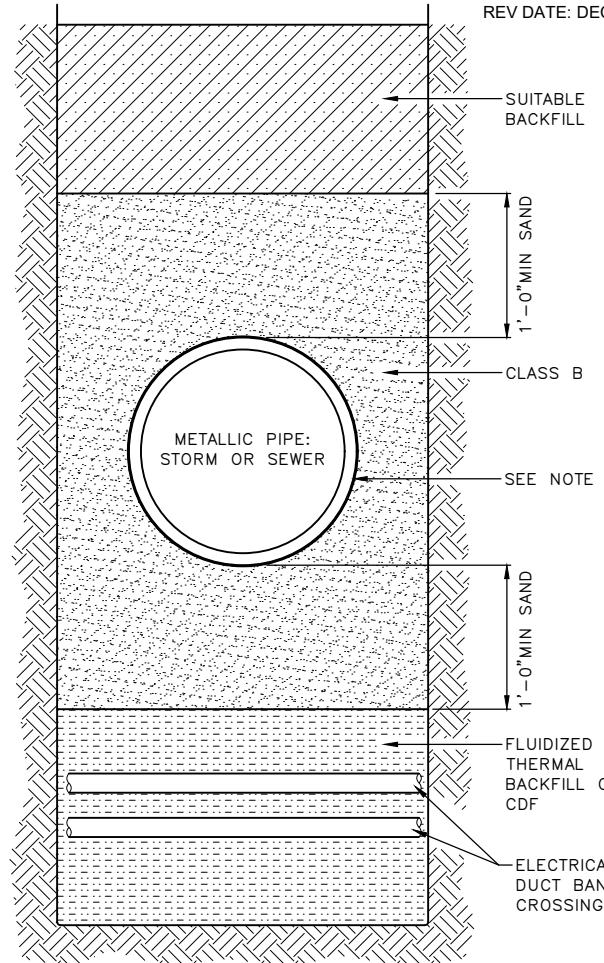
City of Seattle

NOT TO SCALE

TYPICAL TRENCH DETAIL  
FOR SEWER & STORM DRAIN

12" MIN FOR  
VITRIFIED  
CLAY PIPE

REV DATE: DEC 2019



## AT METALLIC PIPE CROSSING OF FLUIDIZED THERMAL BACKFILL OR CDF CONDUIT CROSSINGS

 MINERAL AGGREGATE PER STD SPEC 9-03.14 TYPE 9 FOR DUCTILE IRON WHEN APPLICABLE OR CONCRETE PIPE TYPE 22 FOR VITRIFIED CLAY AND FLEXIBLE PIPE

 SELECTED NATIVE MATERIAL PER STD SPEC 2-10.2(1)

 SUITABLE BACKFILL

 FLUIDIZED THERMAL BACKFILL PER SCL MATERIAL STD 7150.00 OR CDF (SEE CONTRACT DRAWINGS)

 MINERAL AGGREGATE PER STD SPEC 9-03.14, TYPE 6 OR TYPE 7

## NOTES:

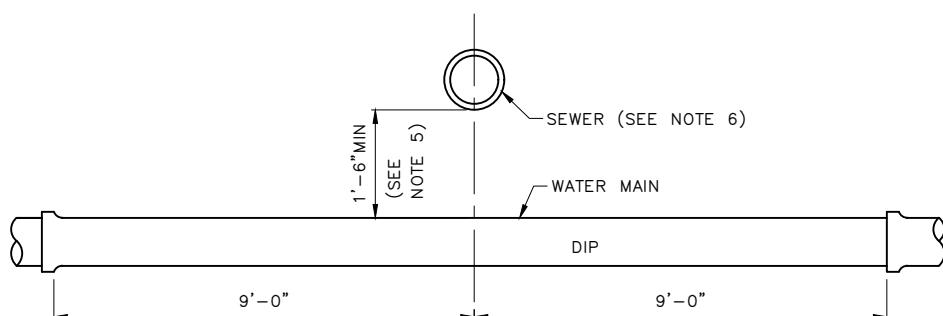
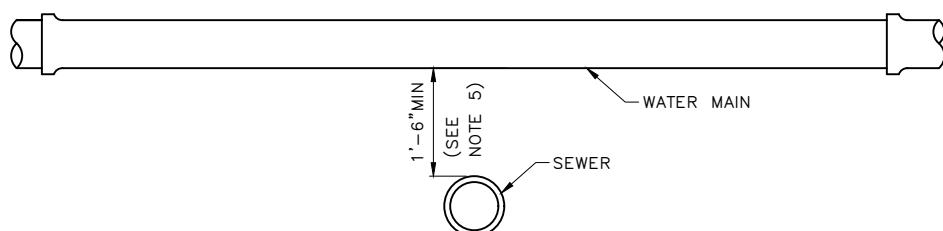
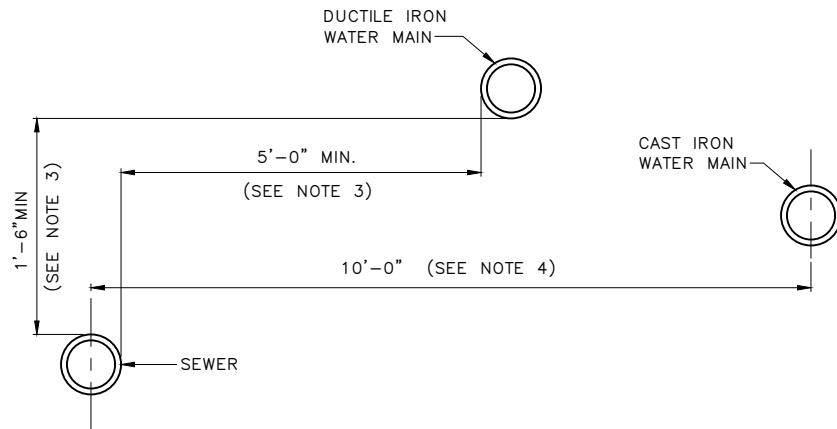
1. FOR TRENCH WIDTH SEE STD PLAN NO 284
2. A=4"WHEN ID IS LESS THAN 2'-6", A=6"WHEN ID IS 2'-6"OR MORE.
3. UNIFORMLY SUPPORT PIPE BARREL. EXCAVATE HOLES FOR BELLS AND COUPLING.
4. FOR FLUIDIZED THERMAL BACKFILL (FTB) OR CDF CROSSINGS OF METALLIC PIPE, WRAP METALLIC PIPE IN 8 MIL POLYETHYLENE ENCASEMENT FOR FULL TRENCH WIDTH.

REF STD SPEC SEC 2-10.2, 7-17



City of Seattle

SEWER/STORM DRAIN



CROSSING WATER UNDER SEWER

NOTES:

1. EXCEPTIONS TO STD PLAN NO 286a & 286b MUST BE APPROVED BY SEATTLE PUBLIC UTILITIES.
2. "SEWER" INCLUDES SANITARY SEWER, COMBINED SEWER AND SIDE SEWER.
3. WHERE MINIMUM CLEARANCES CANNOT BE MET, SEWER MUST BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS INCLUDING WATER MAIN PRESSURE TESTING REQUIREMENTS.
4. NO VERTICAL CLEARANCE REQUIRED.
5. IF MINIMUM VERTICAL SEPARATION CANNOT BE MET, WATER MAIN MUST BE A STANDARD SINGLE 18'-0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING.
6. SEWER MUST HAVE ADEQUATE FOUNDATION SUPPORT TO PREVENT SETTLEMENT ON THE WATER MAIN AND TO PREVENT DEFLECTION OF WATER MAIN JOINTS.
7. CROSSINGS AT AN ANGLE BETWEEN 90° AND 45° MAY OCCUR BETWEEN 9'-0" AND 6'-0" OF WATER MAIN JOINT. FOR CROSSINGS LESS THAN 45°, SEE NOTE 1.

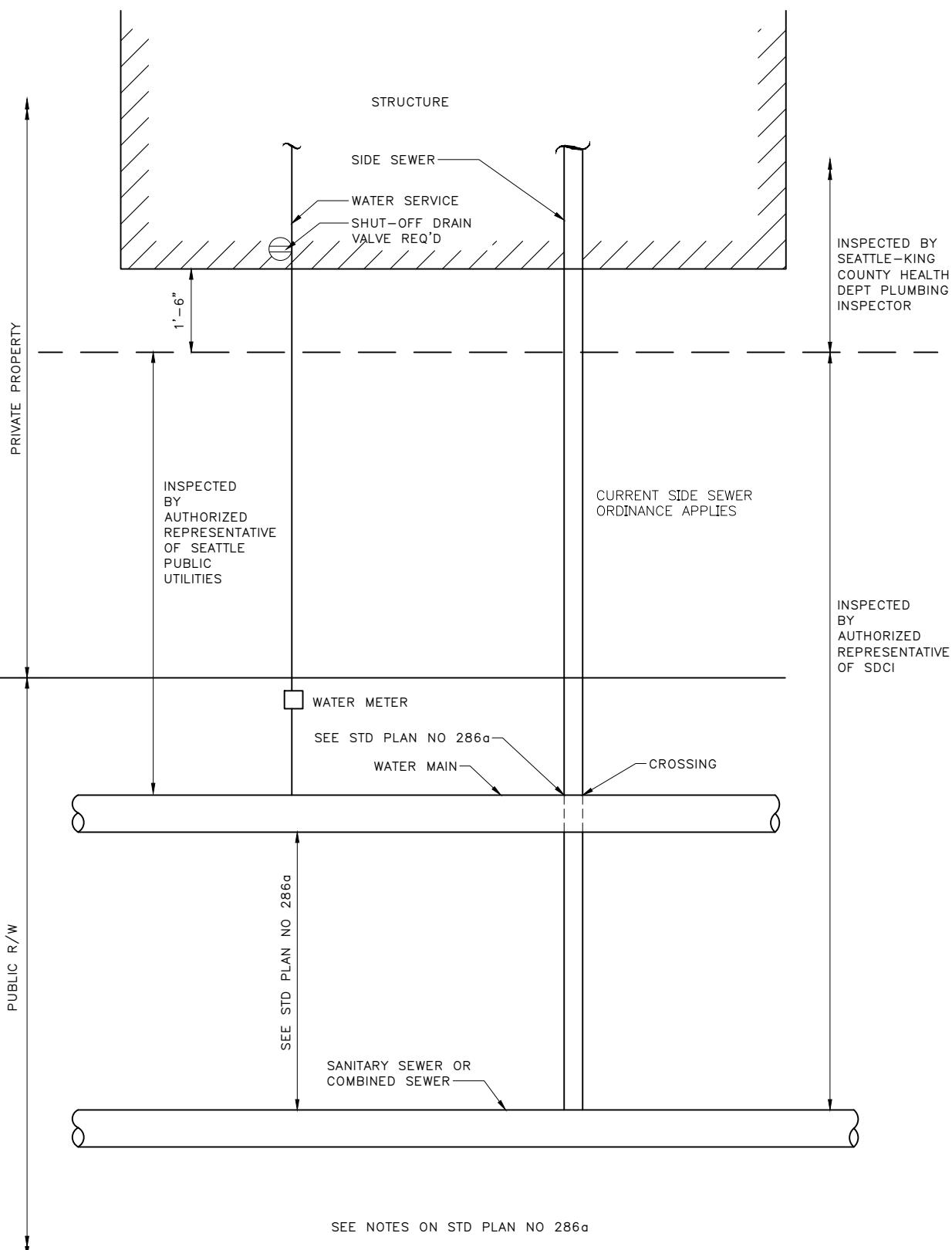
REF STD SPEC SEC 1-07.17, 7-11



City of Seattle

NOT TO SCALE

SEWER & WATER SPACING & CLEARANCES



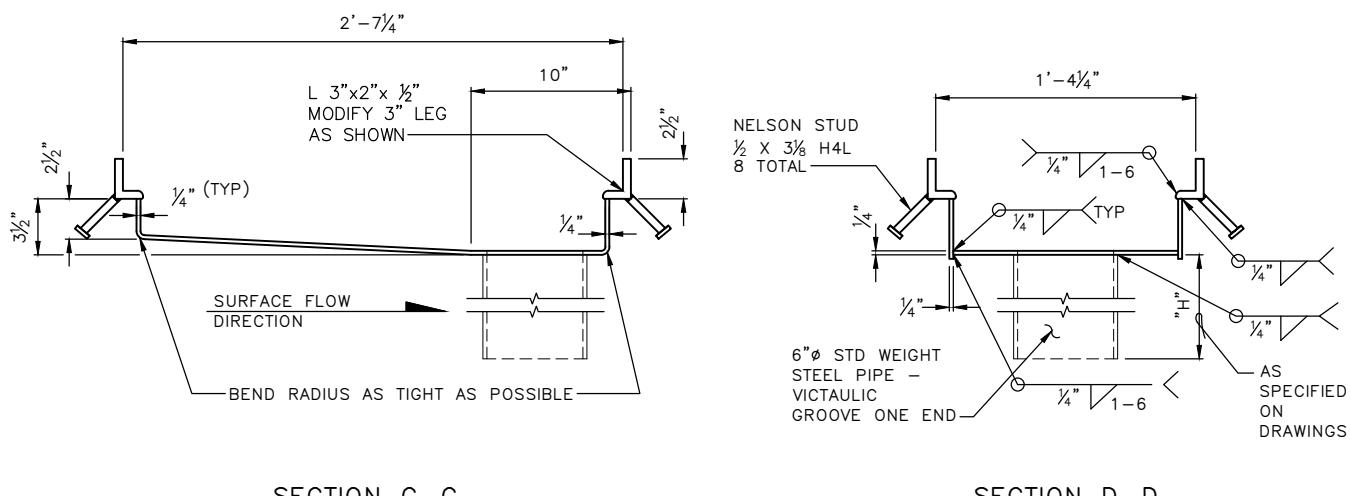
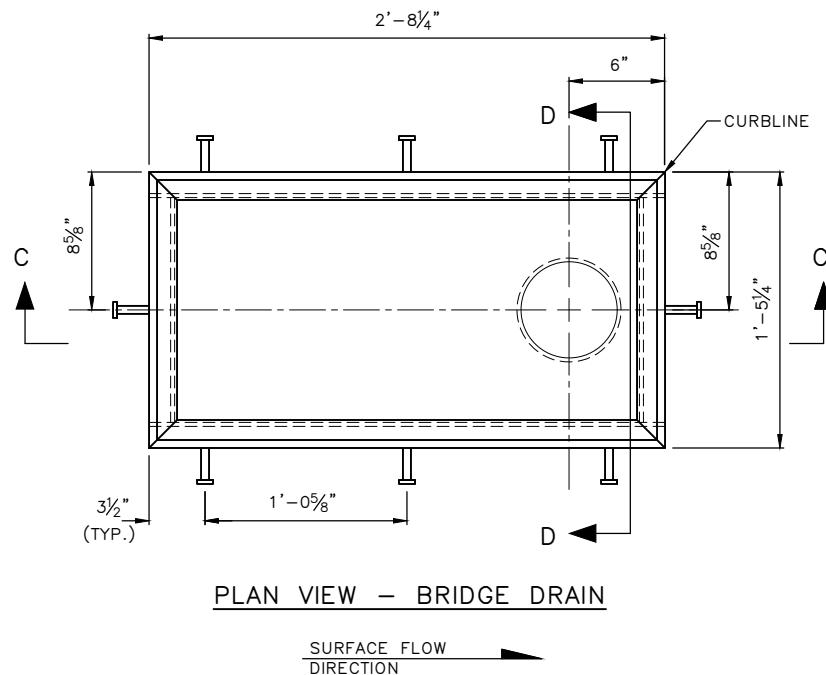
REF STD SPEC SEC 1-07.17, DIV 7



City of Seattle

NOT TO SCALE

SEWER & WATER  
SPACING & CLEARANCES



SECTION C-C

SECTION D-D

## NOTES:

NOTES:

1. ALL  $\frac{1}{2}$ " STEEL & L3" x 2" x  $\frac{1}{2}$ " TO BE A-36.
2. 6"Ø PIPE TO BE STANDARD WEIGHT STEEL.
3. AFTER FABRICATION, DRAIN ASSEMBLY TO BE HOT DIP GALVANIZED.
4. VANCED GRATE TO BE PER STD PLAN NO 265.

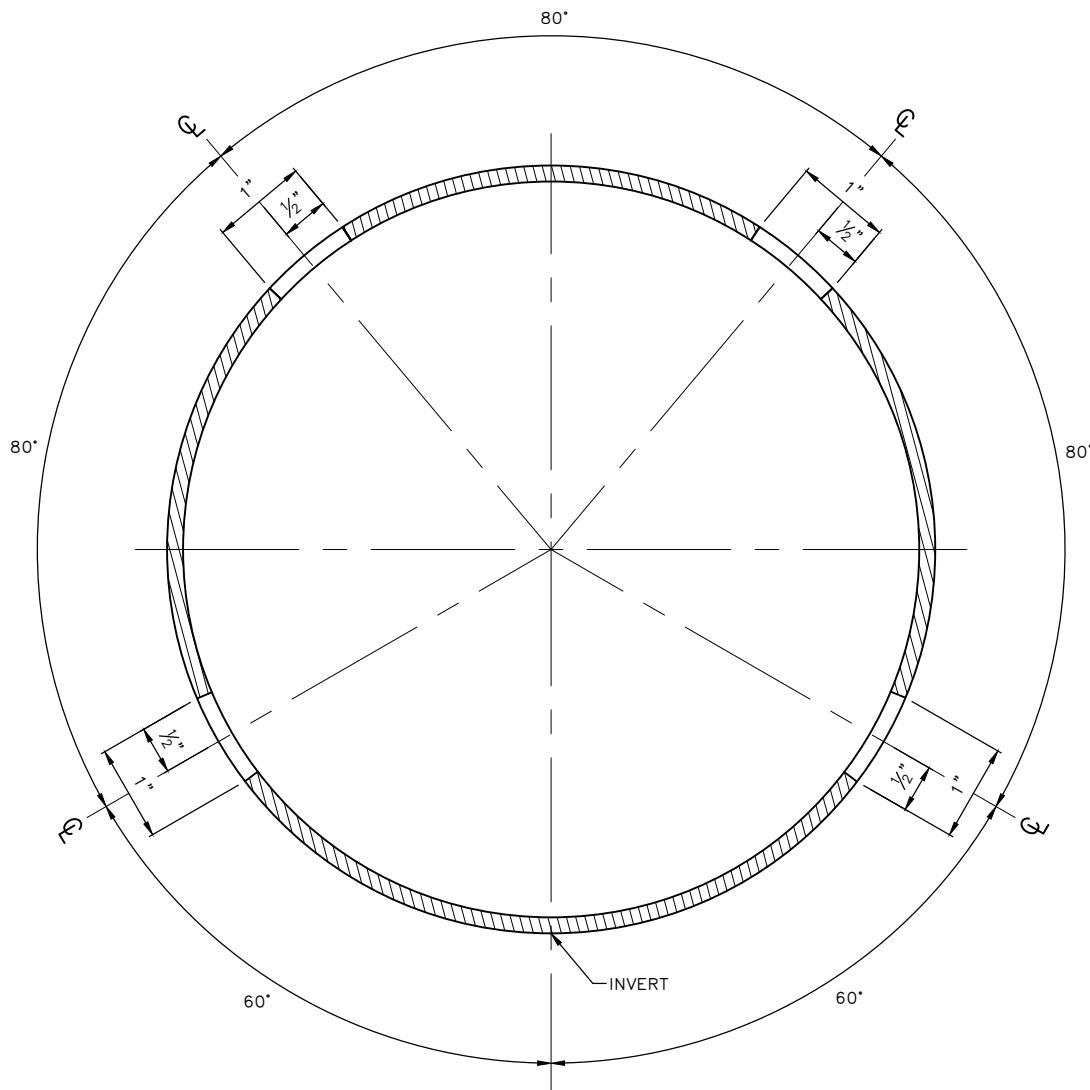
REF STD SPEC SEC 6-01, 7-05



## City of Seattle

NOT TO SCALE

## BRIDGE DRAIN

**NOTES:**

1. ASTM D 2241 SDR 21 CLASS 200 PVC PIPE OR  
ASTM D 1785 SCH 40.
2. SLOT DIMENSIONS ARE 0.064" WIDE X 1.00" LONG  
SPACED ALONG PIPE AT 0.3" ON CENTER.

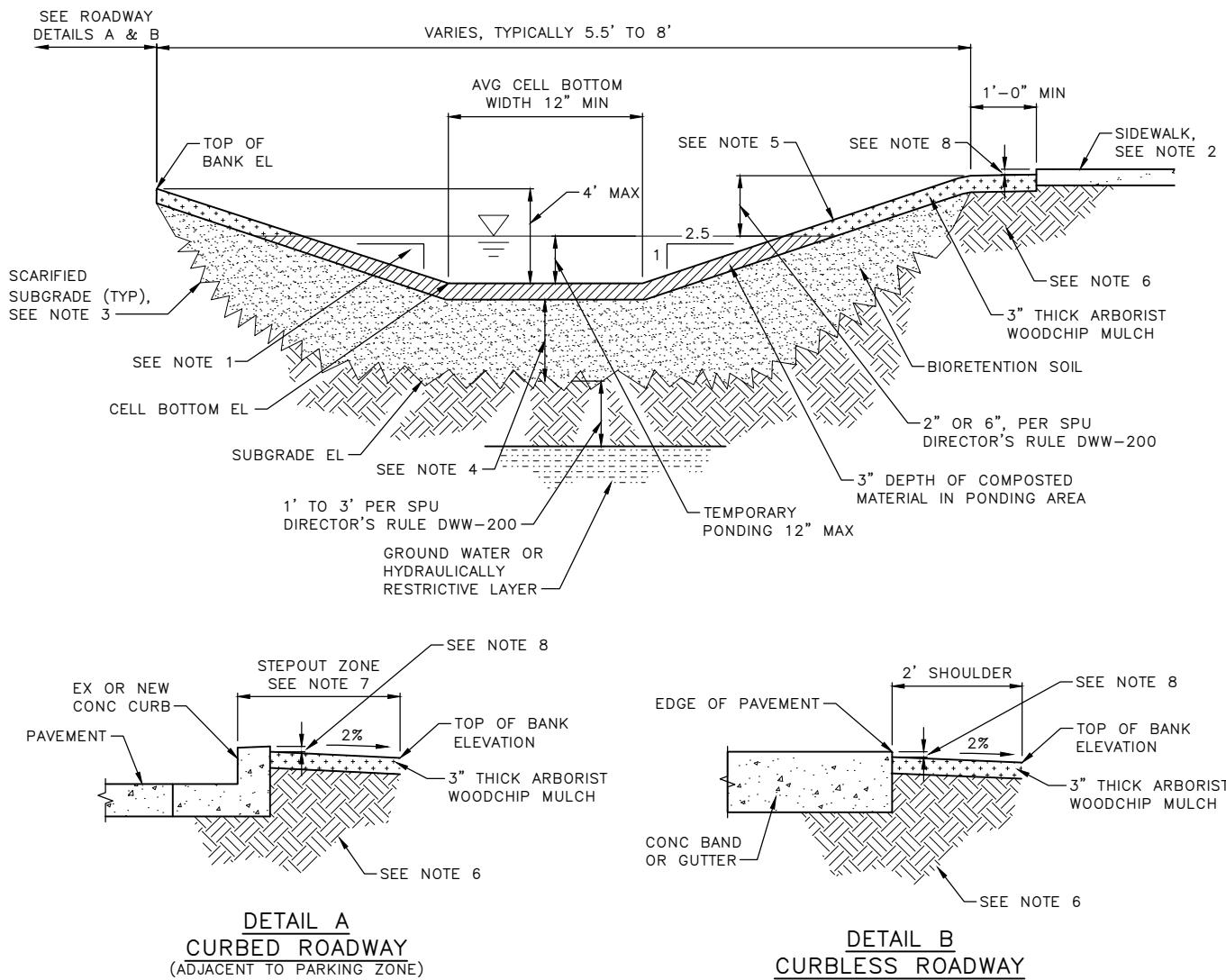
REF STD SPEC SEC 9-05.4(1)



City of Seattle

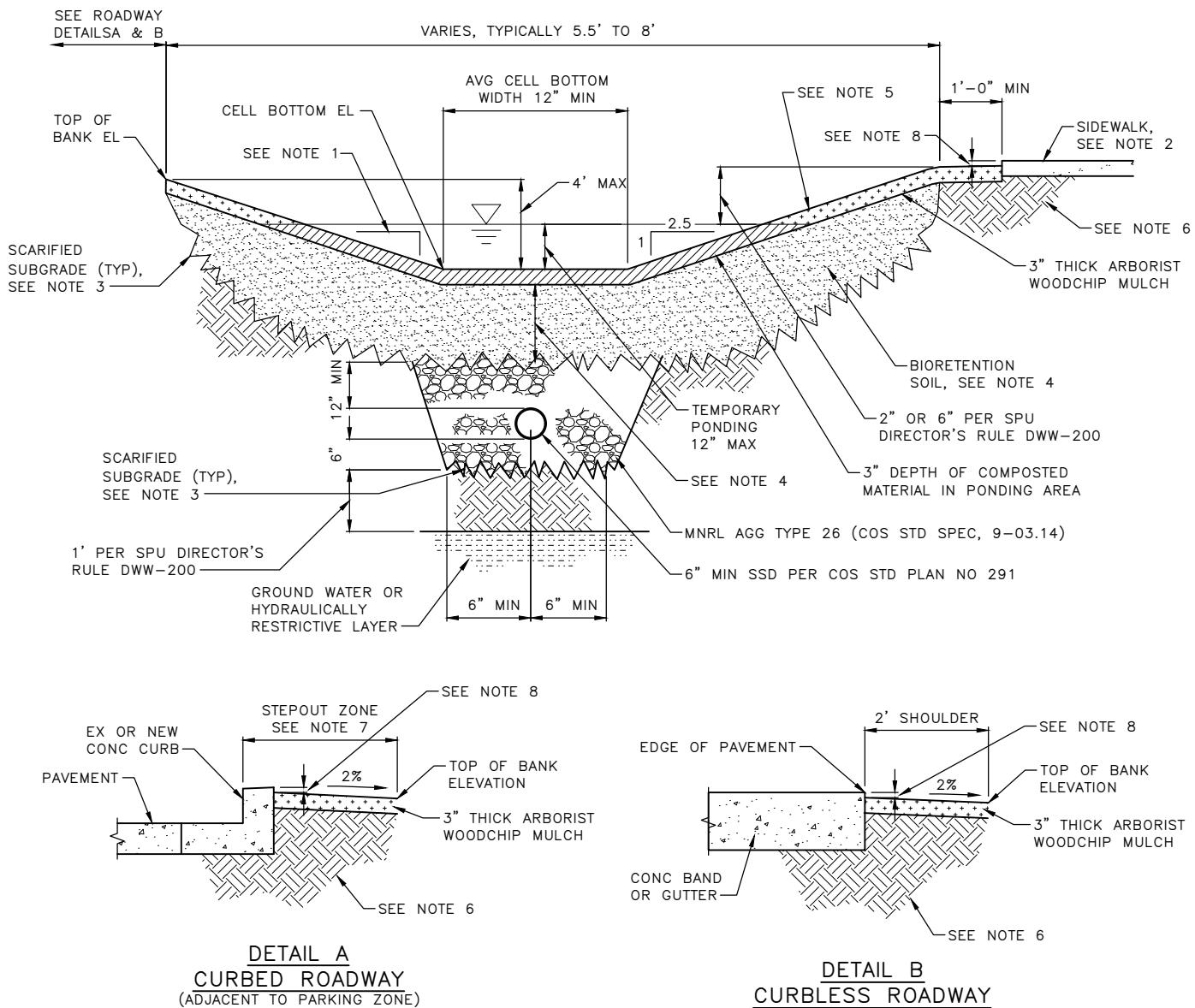
NOT TO SCALE

PVC SUBSURFACE DRAIN PIPE

**NOTES:**

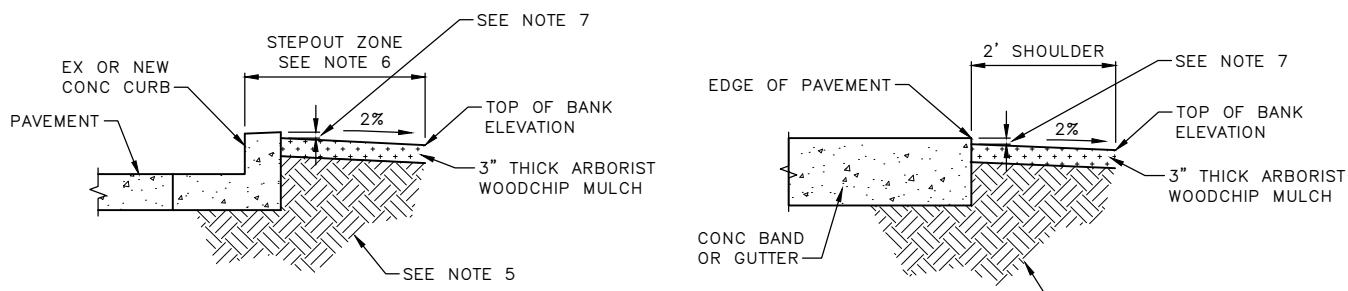
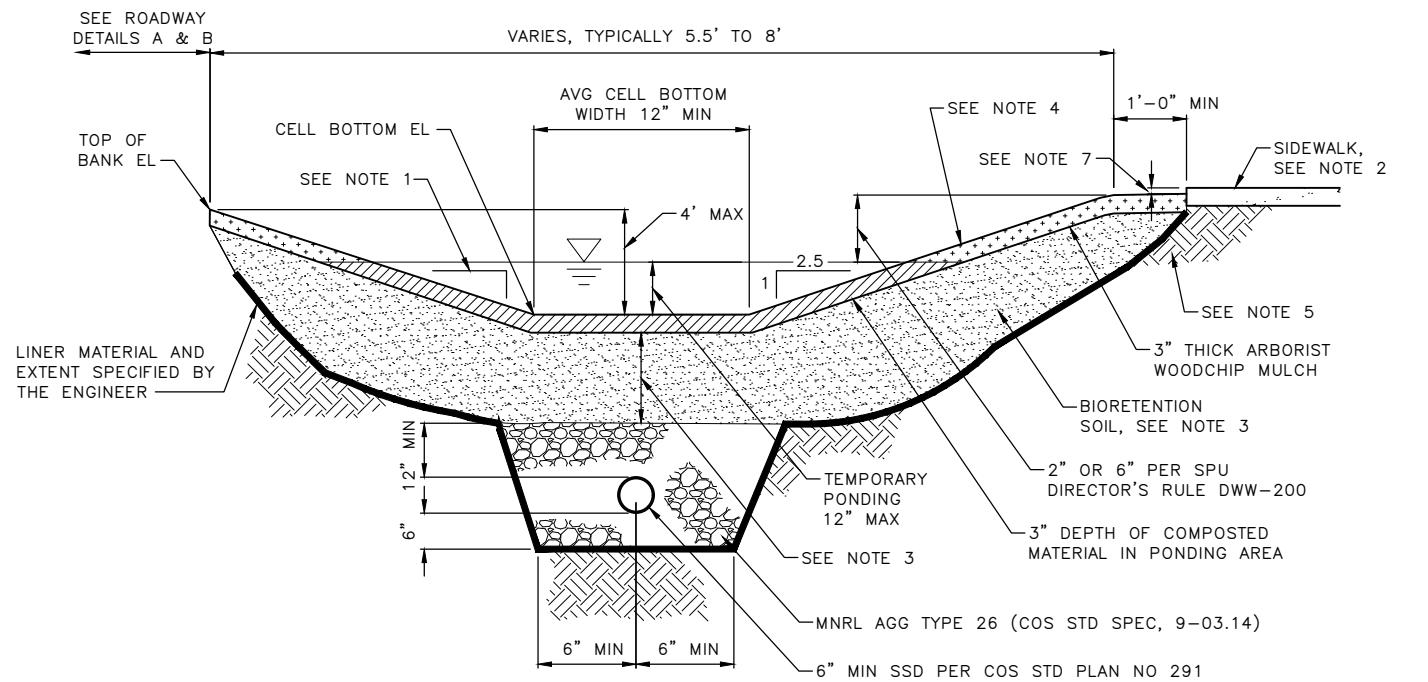
1. TYPICAL MAXIMUM SLOPE ALLOWED IS  $2.5H=1V$ ,  $3H=1V$  MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE AS SPECIFIED IN SPEC SECTION 7-21.3(2)B IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. 12" MIN OR 18" MIN IF WATER QUALITY TREATMENT IS REQUIRED PER STORMWATER CODE REQUIREMENT.
5. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
6. SOIL UNDER SHOULDERS OR PAVED AREAS MUST BE UNDISTURBED NATIVE SOIL OR APPROVED FILL COMPAKTED TO 95% DENSITY.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
8. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.



**NOTES:**

1. TYPICAL MAXIMUM SLOPE ALLOWED IS  $2.5H=1V$ ,  $3H=1V$  MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. SCARIFY SUBGRADE AS SPECIFIED IN SPEC SECTION 7-21.3(2)B IN THE AREA SUBJECT TO TEMPORARY PONDING BEFORE BIORETENTION SOIL INSTALLATION.
4. 12" MIN OR 18" MIN IF WATER QUALITY TREATMENT IS REQUIRED PER STORMWATER CODE REQUIREMENT.
5. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
6. SOIL UNDER SHOULDERS OR PAVED AREAS MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPAKTED TO 95% DENSITY.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
8. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.





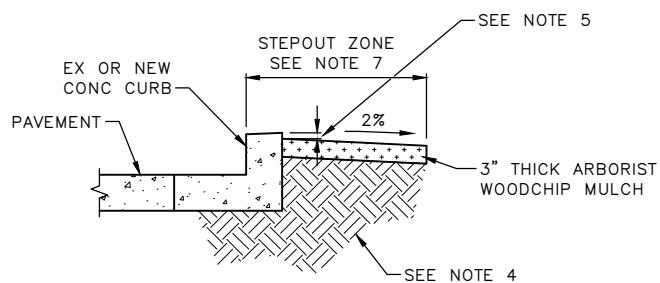
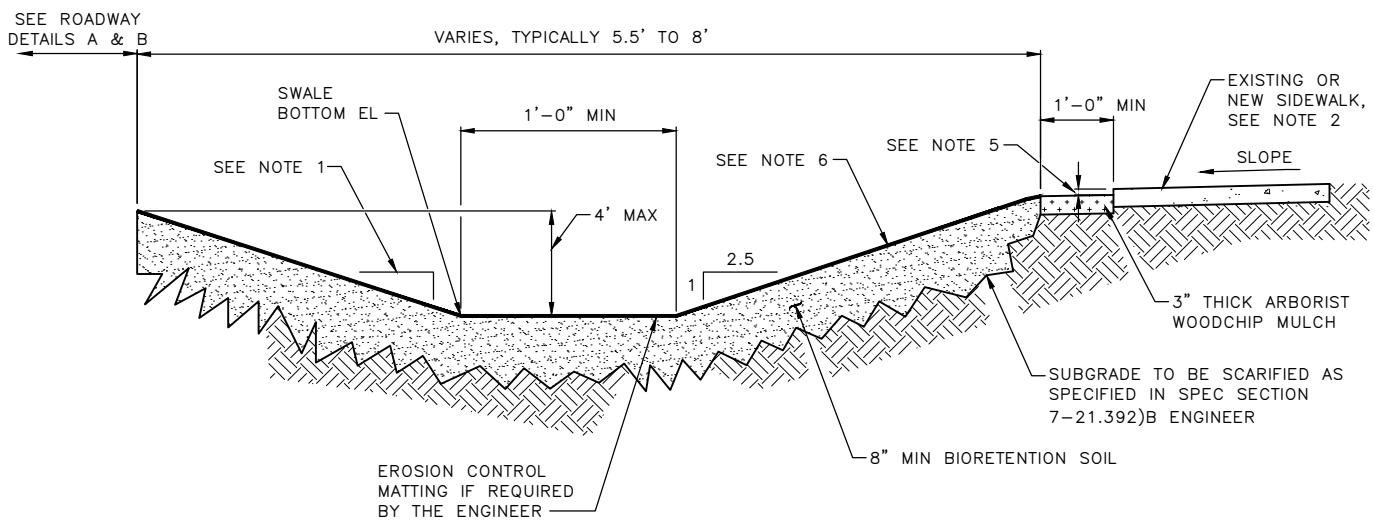
DETAIL A  
CURBED ROADWAY  
(ADJACENT TO PARKING ZONE)

DETAIL B  
CURBLESS ROADWAY

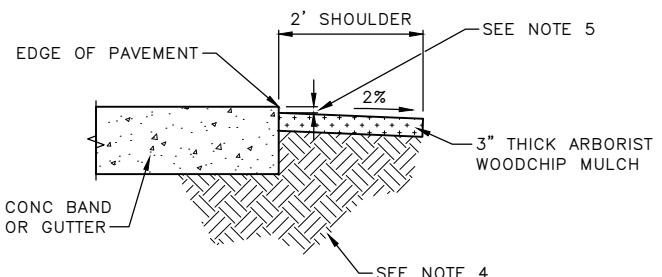
NOTES:

1. TYPICAL MAXIMUM SLOPE ALLOWED IS  $2.5H=1V$ ,  $3H=1V$  MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. BIORETENTION OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. 12"MIN OR 18" MIN IF WATER QUALITY TREATMENT IS REQUIRED PER STORMWATER CODE REQUIREMENT.
4. CELL MUST BE PLANTED PER APPROVED LANDSCAPE PLAN.
5. SOIL UNDER SHOULDERS OR PAVED AREAS MUST BE UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY
6. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREET, MIN 4'-0" FOR MAJOR ARTERIAL STREET.
7. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF ARBORIST WOODCHIP MULCH.





**DETAIL A**  
**CURBED ROADWAY**  
(ADJACENT TO PARKING ZONE)



**DETAIL B**  
**CURBLESS ROADWAY**

**NOTES:**

1. TYPICAL MAXIMUM SLOPE ALLOWED IS  $2.5H=1V$ ,  $3H=1V$  MAX WHEN WITHIN 50-FEET OF INTERSECTIONS OR CURBLESS ROADWAY.
2. CONVEYANCE SWALE OVERFLOW ELEVATIONS MUST BE SET BELOW SIDEWALK ELEVATION.
3. LONGITUDINAL SLOPE GREATER THAN OR EQUAL TO 4%, CHECK DAM REQUIRED.
4. UNDISTURBED NATIVE SOIL OR APPROVED SOIL COMPACTED TO 95% DENSITY.
5. PROVIDE MIN ONE INCH GAP BETWEEN TOP OF WALKS, CURBS, PAVEMENTS AND DRIVEWAYS AND TOP OF TREATMENT LAYER.
6. PLANTING PER APPROVED LANDSCAPE PLAN.
7. FACE OF CURB TO TOP OF SLOPE MUST BE MIN 2'-0" FOR NON-MAJOR ARTERIAL STREETS, MIN 4'-0" FOR MAJOR ARTERIAL STREETS.

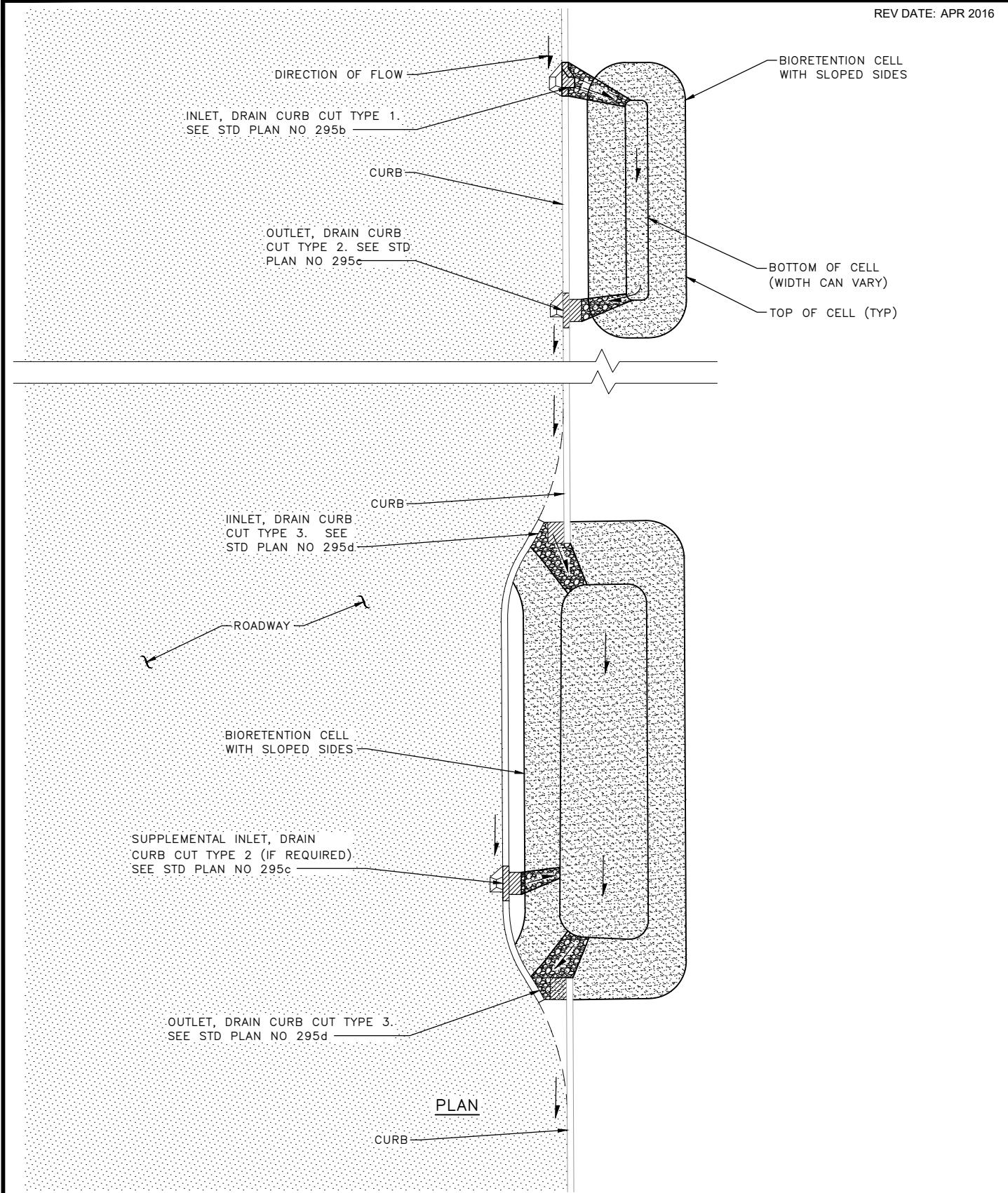
REF STD SPEC SEC 7-21



City of Seattle

NOT TO SCALE

VEGETATED CONVEYANCE SWALE  
(NOT FOR WATER QUALITY  
TREATMENT)



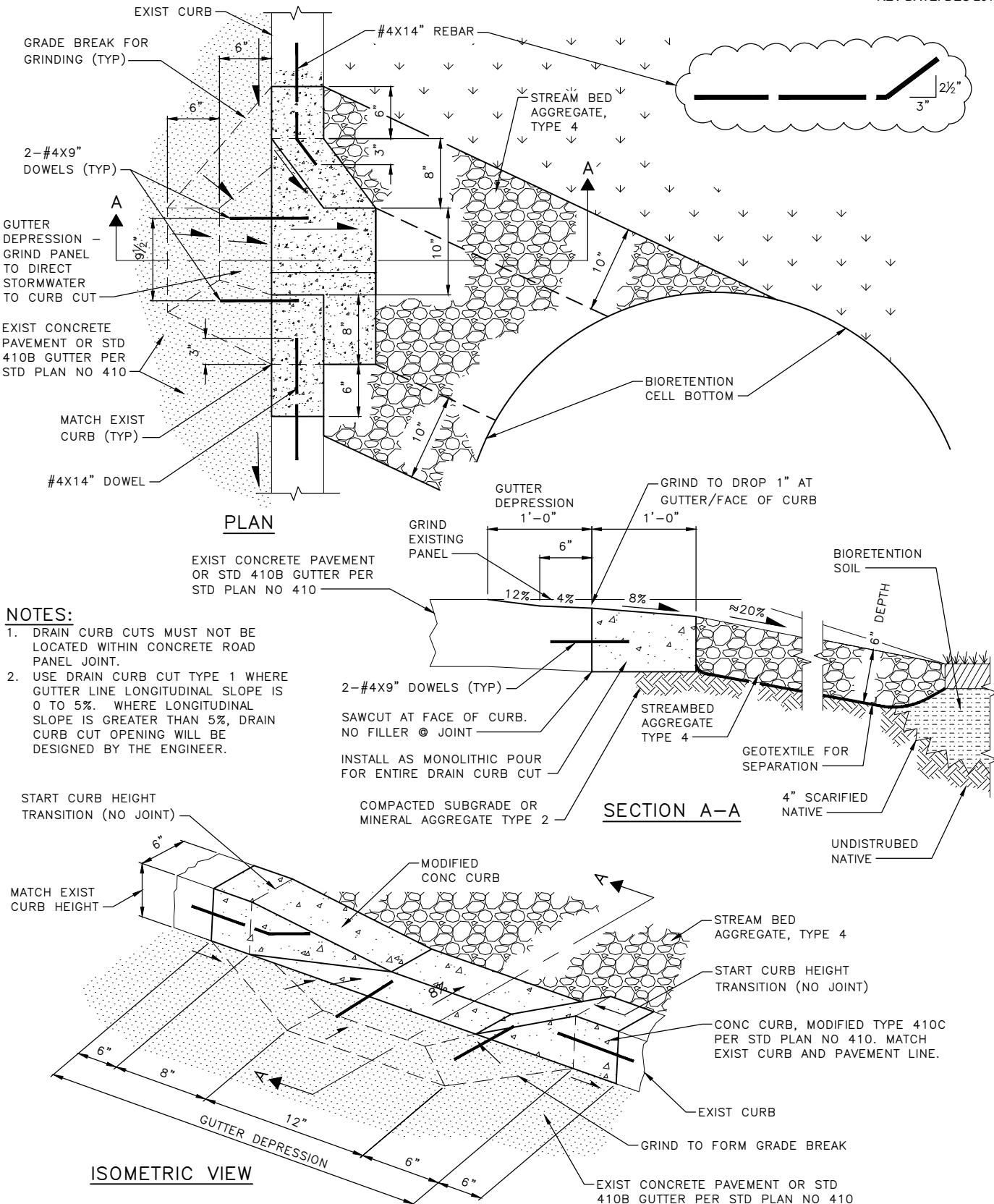
REF STD SPEC SEC 7-21, 9-03



City of Seattle

NOT TO SCALE

TYPICAL DRAIN CURB CUT LOCATION FOR BIORETENTION WITH SLOPED SIDES



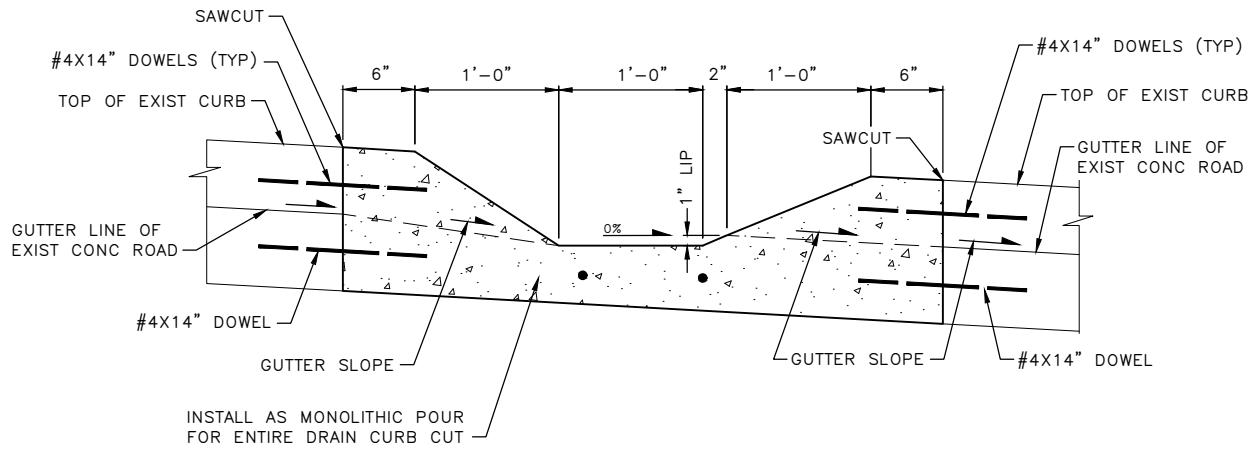
REF STD SPEC SEC 7-21, 9-03



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NOT TO SCALE

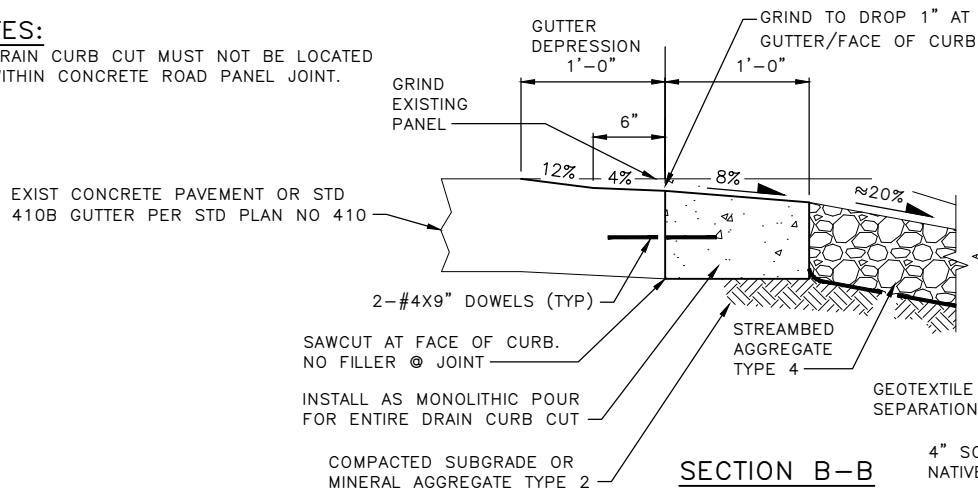
DRAIN CURB CUT TYPE 1



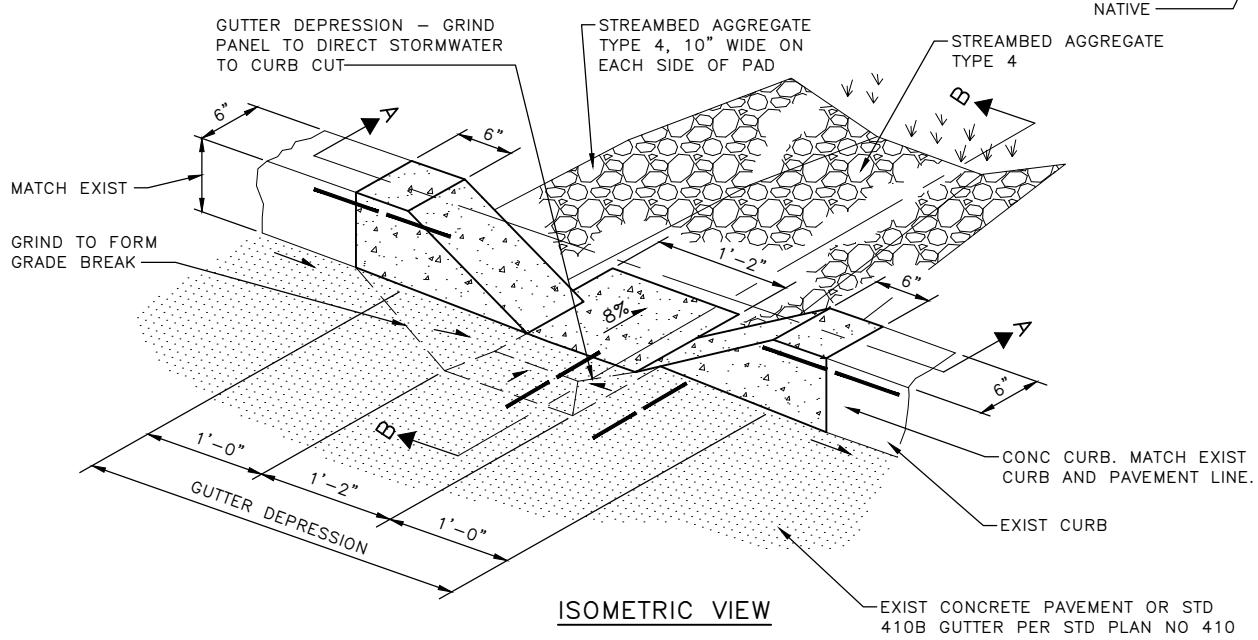
SECTION A-A

## NOTES:

1. DRAIN CURB CUT MUST NOT BE LOCATED WITHIN CONCRETE ROAD PANEL JOINT.



SECTION B-B



ISOMETRIC VIEW

REF STD SPEC SEC 7-21, 9-03

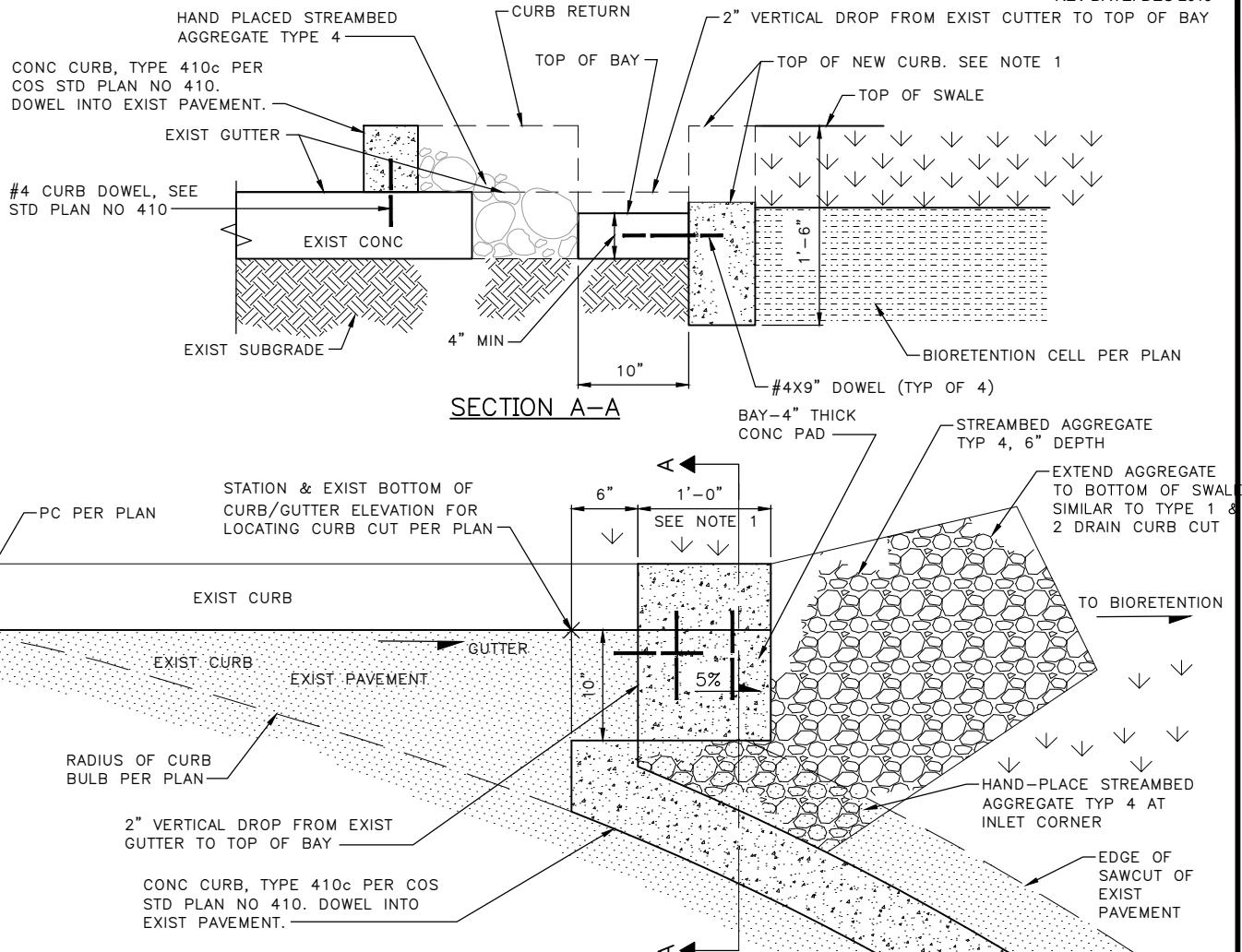


City of Seattle

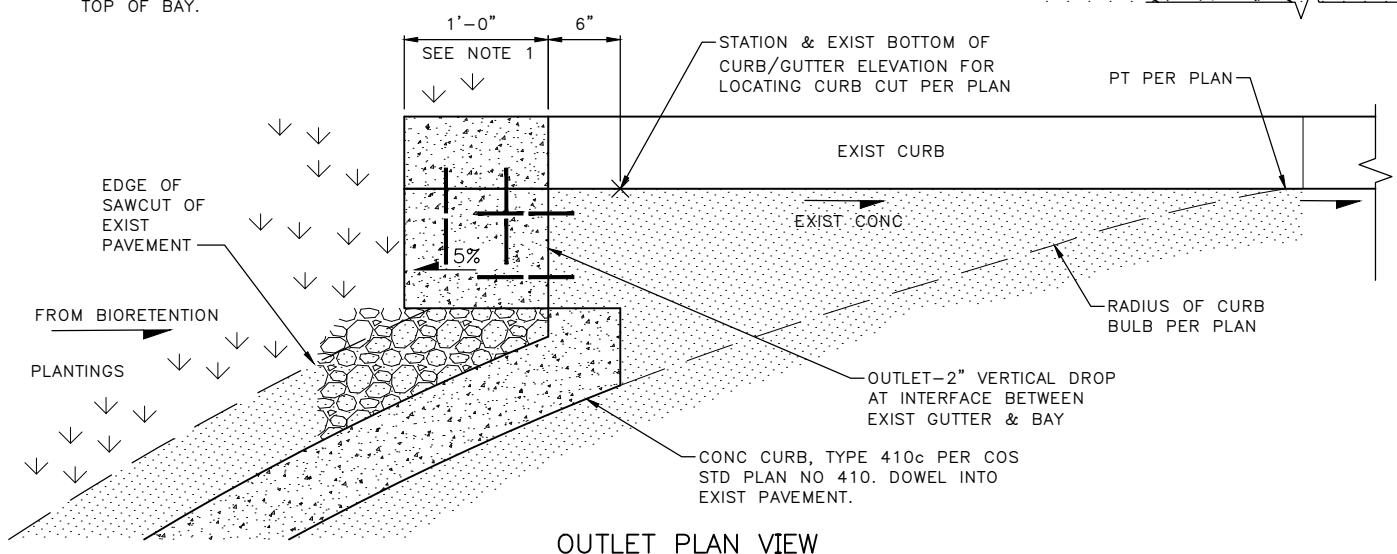
NOT TO SCALE

DRAIN CURB CUT TYPE 2

REV DATE: DEC 2019

**NOTES:**

1. TAPER CURB HEIGHT FROM TOP OF EXISTING CURB TO TOP OF BAY.



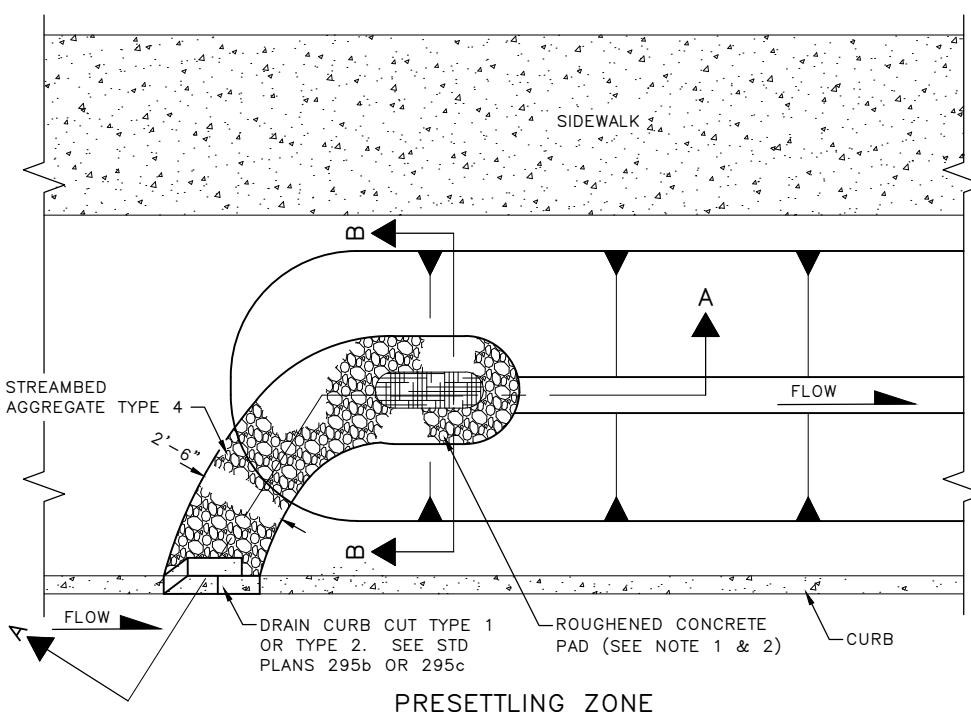
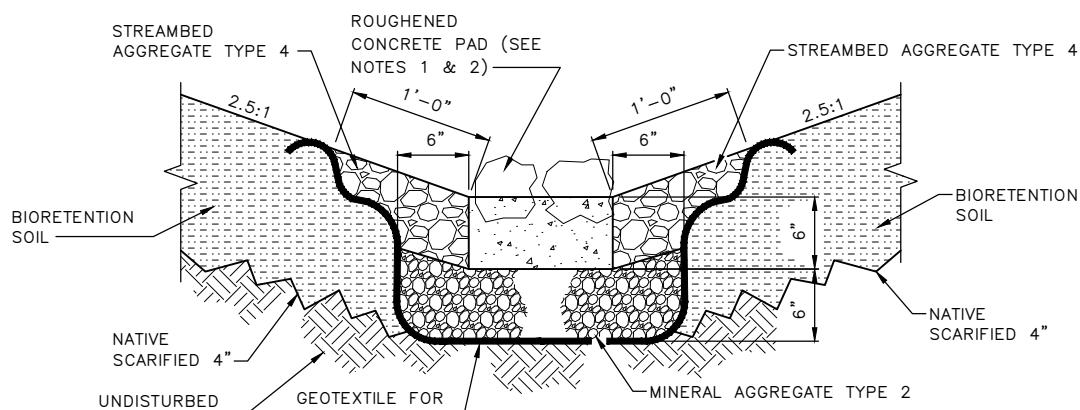
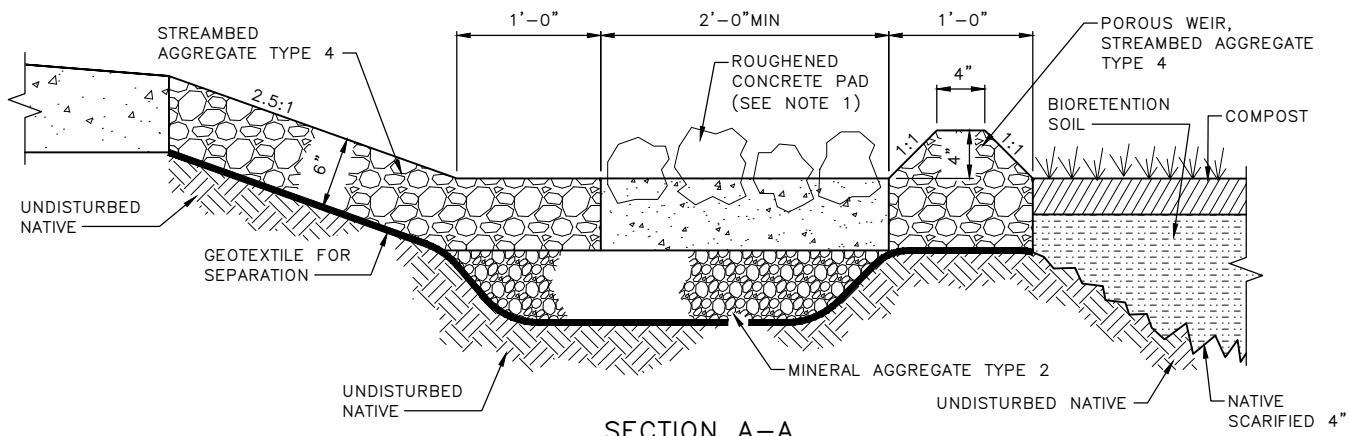
REF STD SPEC SEC 7-21, 9-03



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NOT TO SCALE

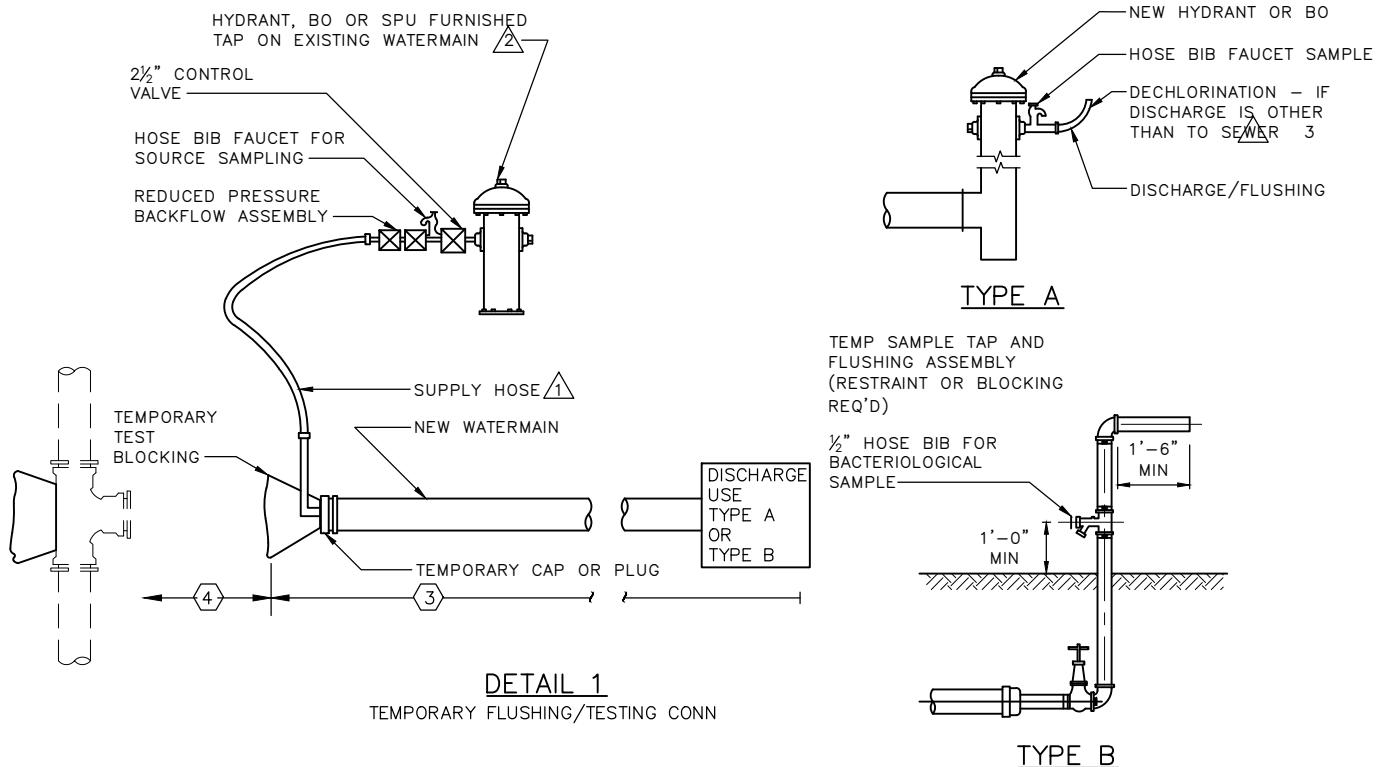
DRAIN CURB CUT TYPE 3



## NOTES:

1. ROUGHENED CONCRETE PAD MUST BE MIN 2' LONG & 2.5 SF OR 5.0SF PER SPU DIRECTOR'S RULE 200
2. ROUGHENED CONCRETE PAD MUST BE CONSTRUCTED WITH COMMERCIAL CONCRETE (STD SPEC 6-02) EMBED WELL MIXED 6"-8" STREAMBED AGGREGATE TO CREATE ROUGHNESS. 50% MIN OF THE SURFACE MUST HAVE PROTRUDING AGGREGATE



**NOTES:**

1. ALL FITTINGS MUST BE DUCTILE IRON
2. ALL EXCAVATION MUST PROVIDE A MINIMUM OF 1'-0" CLEAR AROUND PIPE AND FITTINGS.
3. THESE PLANS ARE FOR DIP AND CIP WATERMAINS 12" OR SMALLER DIA OTHER SIZES AND TYPES SEE PROJECT DRAWINGS
4. REDUCED PRESSURE BACKFLOW ASSEMBLY (RPBA) MUST BE INSTALLED AS A UNIT (TWO SHUT-OFF VALVES, RELIEF PORT, TWO CHECK VALVES AND FOUR TEST COCKS). WHEN RPBA IS CONNECTED TO HYDRANT AND THE HOSE BIB FAUCET SAMPLE THEY MUST BE CAPPED WHEN NOT IN USE. ASSEMBLY MUST BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A CURRENT TEST REPORT MUST BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684-3536.
5. ALL FITTINGS AND MATERIALS FURNISHED BY CONTRACTOR AND TO BE INSTALLED BY SPU MUST BE VERIFIED, INSPECTED AND ON THE JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN. FAILURE TO MEET THIS REQUIREMENT COULD RESULT IN DELAYS.

**LEGEND**

- 1** CLEAN & DISINFECTED POTABLE WATER HOSE ONLY. SIZE FLUSHING RISER PER TABLE IN STD SPEC SEC 7-11.3(12)
- 2** HYDRANT PERMIT REQUIRED
- 3** CHECK WITH SEWER UTILITY BEFORE DISCHARGE TO SEWERS
- 1** CONTRACTOR TO DETERMINE ALIGNMENT, GRADE AND OUTSIDE DIAMETER OF EXISTING PIPE PRIOR TO INSTALLING NEW WATERMAIN. ENGINEER TO DETERMINE OUTSIDE DIAMETER OF EXISTING PIPE WHEN CONTRACTOR EXCAVATES TO DETERMINE ALIGNMENT & GRADE.
- 2** ALL EXCAVATION, PIPE, FITTINGS (EXCEPT AS NOTED BELOW), OTHER MATERIAL, BEDDING, BACKFILL, COMPACTION & STREET RESTORATION BY CONTRACTOR. ALL MATERIALS MUST BE ON JOB SITE PRIOR TO SHUTDOWN OF EXISTING MAIN.
- 3** INSTALLED BY CONTRACTOR
- 4** CONNECTION PIPE: CONTRACTOR FURNISHED, INSTALLED BY SPU
- 5** WATERMAIN WITH PLAIN ENDS
- 6** MECHANICAL JOINT SLEEVE WITH SPACER CUT TO FIT GAP, FURNISHED AND INSERTED AT TIME OF CONNECTION BY SPU
- 7** TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU
- 8** APPLIES TO PIPES 4" THROUGH 12". ALL LARGER SIZES TO BE ADDRESSED ON DRAWINGS
- 9** MECHANICAL JOINT SLEEVE, FURNISHED BY CONTRACTOR AND INSTALLED BY SPU, SPACERS BY SPU WHERE REQUIRED.

REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

CONNECTIONS TO  
EXISTING WATERMAINS

ELEVATIONPLAN

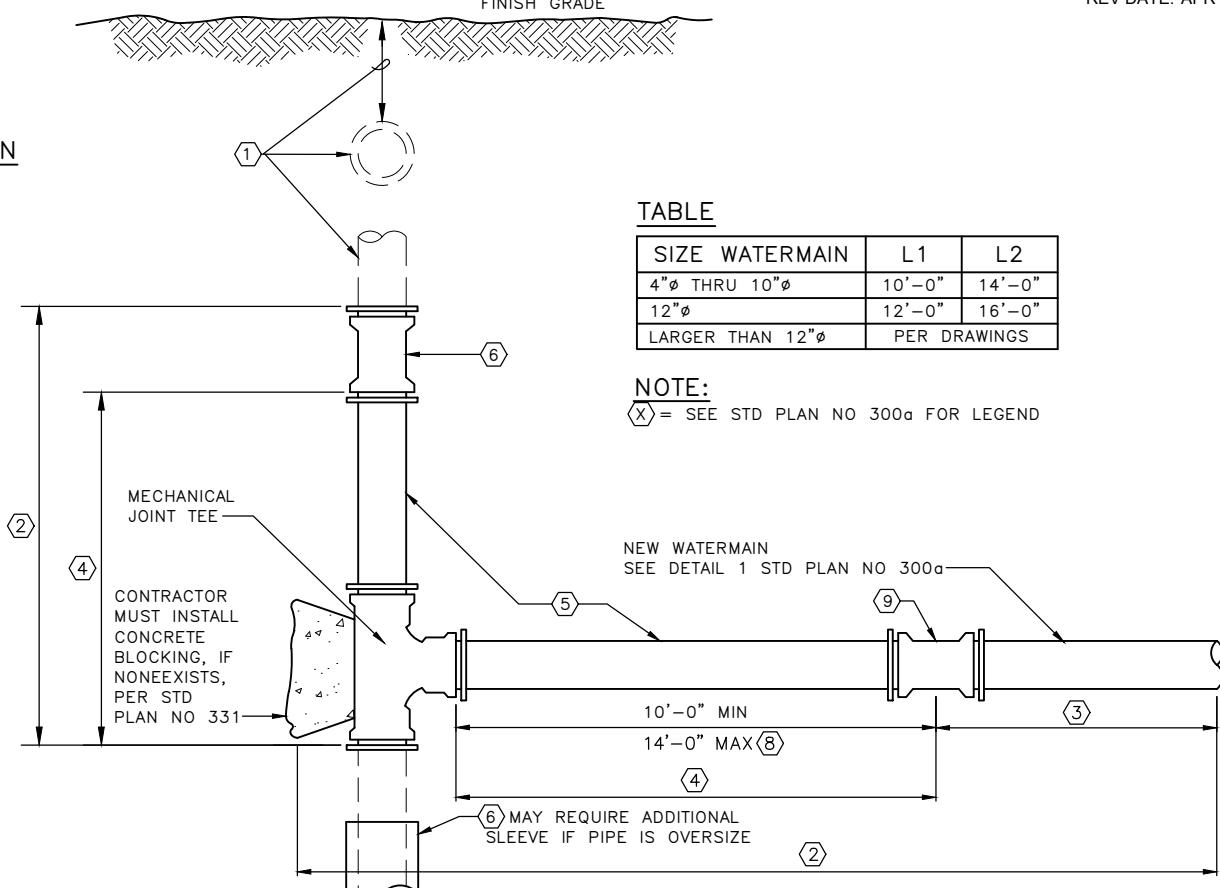
FINISH GRADE

TABLE

SIZE WATERMAIN	L1	L2
4"Ø THRU 10"Ø	10'-0"	14'-0"
12"Ø	12'-0"	16'-0"
LARGER THAN 12"Ø	PER DRAWINGS	

NOTE:

⑧ = SEE STD PLAN NO 300a FOR LEGEND



CONNECTIONS TO EXISTING MAIN, WITH A NEW TEE OR CROSS  
(CUT IN NEW TEE)

ELEVATIONPLAN

L2 MAX ⑧ SEE TABLE

L1 MIN ⑧ SEE TABLE

SAME GRADE ALIGNMENT

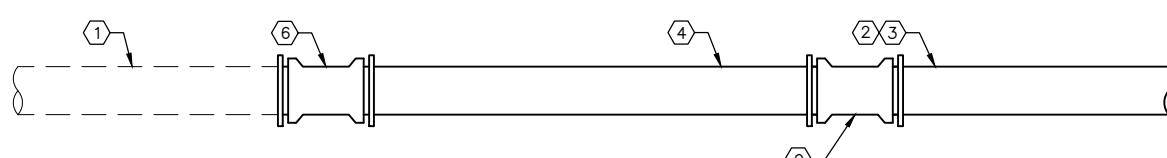
DO NOT DISTURB  
EX BLOCKINGEX CAP OR PLUG  
EX WATERMAINSPIGOT OR BELL  
END-PIPE OR TEE

FLUSHING RISER ③

CAP OR PLUG

TEMP BLOCKING

REMOVE AT TIME OF CONNECTION



CONNECTIONS TO EXISTING MAIN, STUB  
OR END OUTLET OF TEE OR CROSS

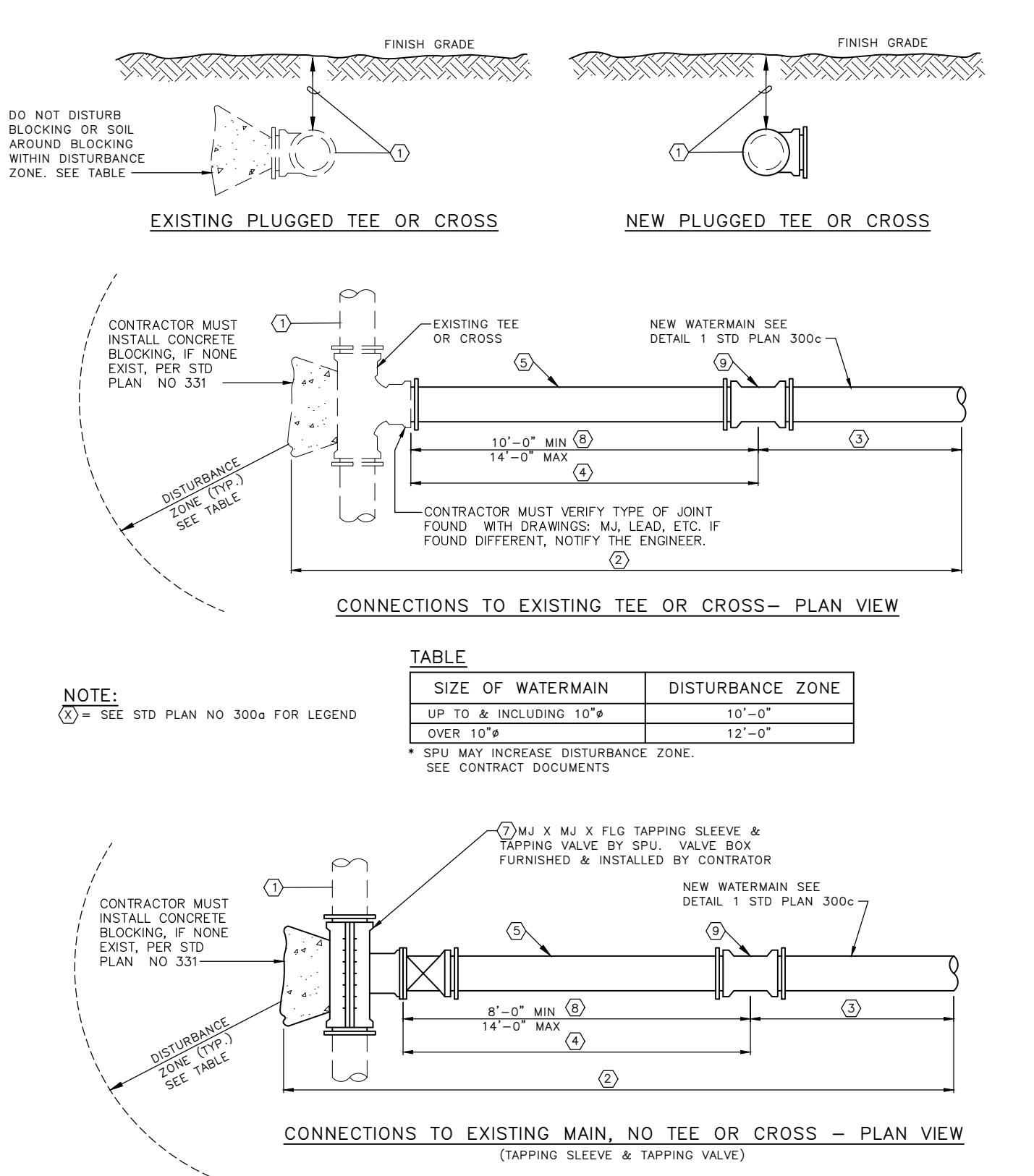
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

CONNECTIONS TO  
EXISTING WATERMAINS



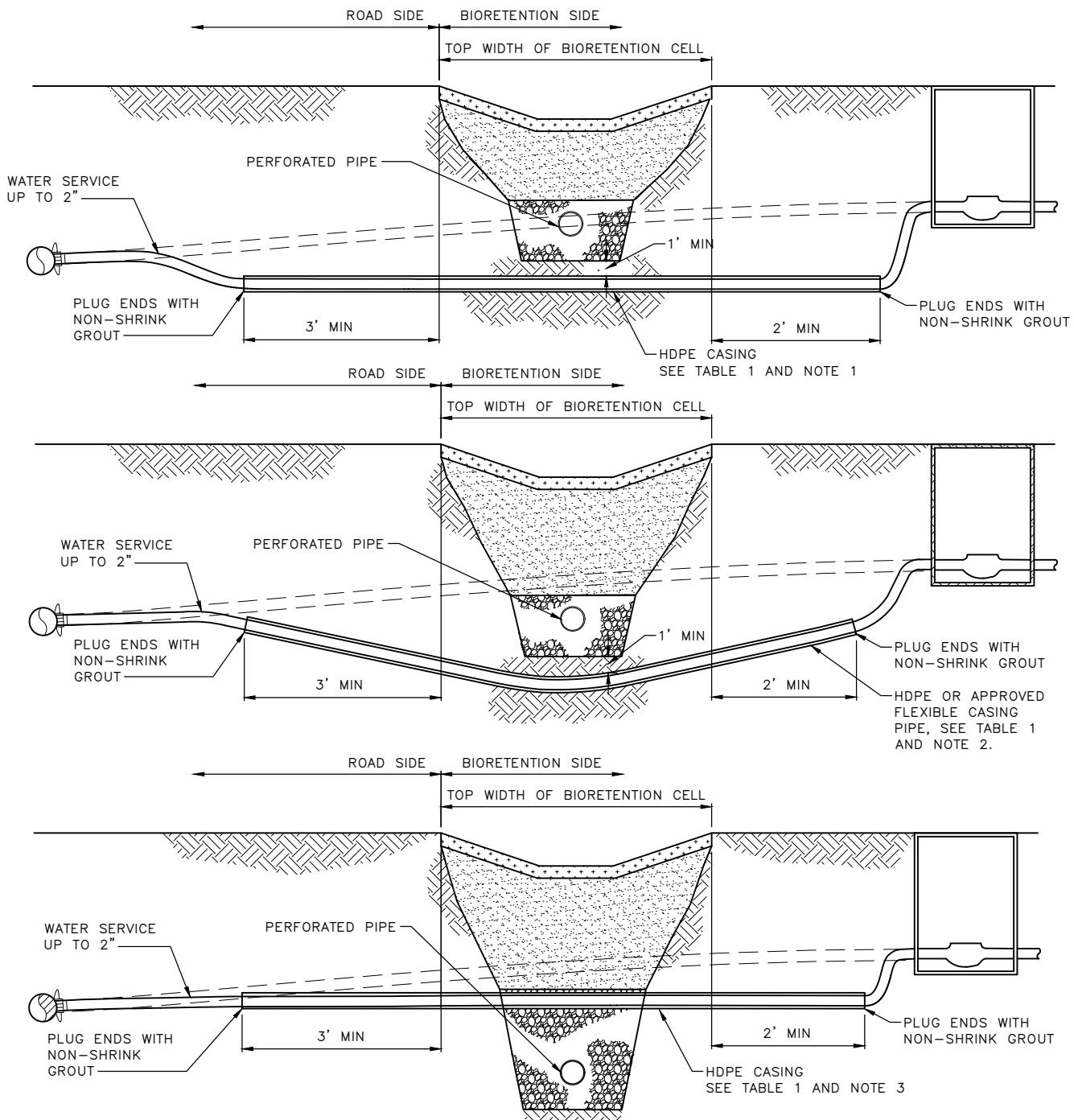
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

CONNECTIONS TO EXISTING WATERMAINS



## NOTES:

1. THIS CONFIGURATION APPLIES TO WATER SERVICE RELOCATION DEPTH 5' OR LESS.
2. THIS CONFIGURATION APPLIES TO WATER SERVICE RELOCATION DEPTH BETWEEN 5' AND 6'
3. THIS CONFIGURATION APPLIES TO WATER SERVICE RELOCATION DEPTH GREATER THAN 6'
4. FOR BIORETENTION CELLS WITH LINERS, ANY PENETRATION OF THE LINER MUST BE SEALED
5. THIS CONFIGURATION ALSO APPLIES TO OTHER UTILITIES UNLESS THE OTHER UTILITY HAS MORE STRINGENT CLEARANCE REQUIREMENTS.

TABLE 1  
CASING SIZE

WATER SERVICE $\phi$	CASING $\phi$
$\frac{3}{4}$ "	2"
1.5"	2"
2"	3"

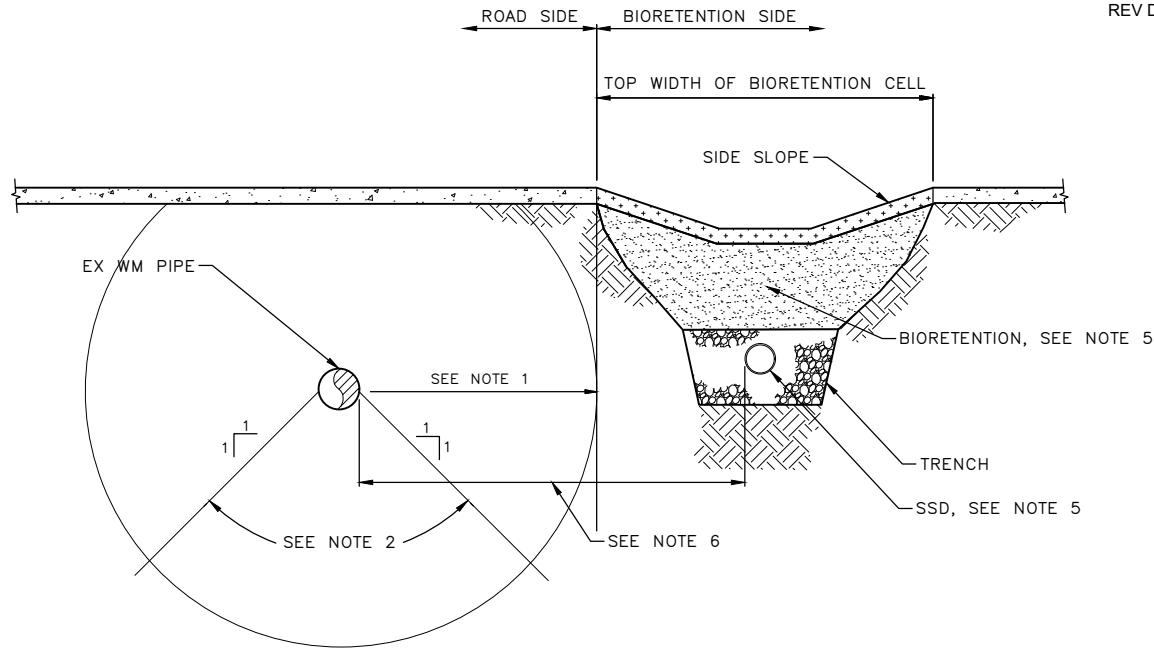
REF STD SPEC SEC 1-07.17



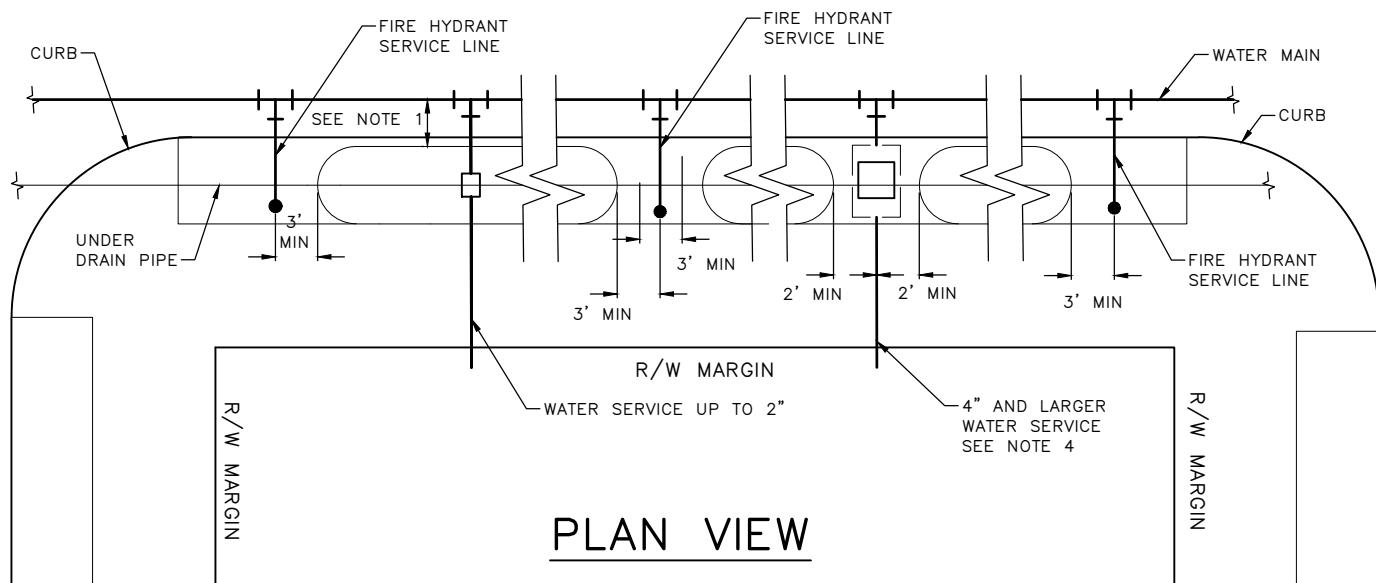
City of Seattle

NOT TO SCALE

WATER SERVICE RELOCATION  
FOR UP TO 2" SERVICE PIPE  
THROUGH BIORETENTION



C STREET



### PLAN VIEW

#### NOTES:

1. HORIZONTAL SETBACK DISTANCE FROM THE EDGE OF THE PIPE TO THE EDGE OF ANY BIORETENTION CELL MUST BE MINIMUM 3.5 FEET FOR WATER MAIN UP TO AND INCLUDING 12"Ø WATER MAIN. WATER MAIN LARGER THAN 12"Ø MUST BE EVALUATED AND APPROVED ON A CASE BY CASE BASIS BY SEATTLE PUBLIC UTILITIES. IF SOIL WITHIN SETBACK IS DISTURBED A SUPPORT PLAN AND SOIL RE-COMPACTATION TO 95% MIN COMPACTION WILL BE REQUIRED. EXCEPTIONS TO THE MINIMUM 3.5' HORIZONTAL SETBACK MUST BE APPROVED BY SEATTLE PUBLIC UTILITIES PLAN REVIEW SECTION AND WATER QUALITY DIVISION.
2. SOIL WITHIN THE ZONE OF INFLUENCE MUST NOT BE DISTURBED IN ORDER TO MAINTAIN STRUCTURAL SUPPORT TO THE WATER MAIN.
3. BIORETENTION CELL MUST MAINTAIN 3' MIN CLEARANCE FROM THE EDGE OF ANY EXISTING FIRE HYDRANT SERVICE LINE TO THE EDGE OF THE BIORETENTION. FOR THE FIRE HYDRANT OPERATION THERE MUST BE A 4' MIN CLEARANCE AROUND THE FIRE HYDRANT WHERE NOTHING CAN BE AS TALL AS THE FIRE HYDRANT OPENING NUT.
4. BIORETENTION CELL MUST MAINTAIN 2' MIN CLEARANCE FROM THE EDGE OF THE BIORETENTION TO THE EDGE OF THE EXISTING 4" OR LARGER WATER SERVICE LINE OR SERVICE VAULT.
5. SEE STANDARD PLAN NO 292, 293A AND 293B FOR BIORETENTION REQUIREMENTS.
6. HORIZONTAL SETBACK DISTANCE BETWEEN EXISTING WATER MAIN AND THE BIORETENTION SSD PIPE MUST COMPLY WITH STD PLAN NO 286A. EXCEPTION TO STD PLAN NO 286A PARALLEL INSTALLATION APPLIES IF THE UNDER DRAIN PIPE ONLY RECEIVES TREATED RUNOFF PER STORMWATER CODE REQUIREMENTS FOR WATER QUALITY TREATMENT.

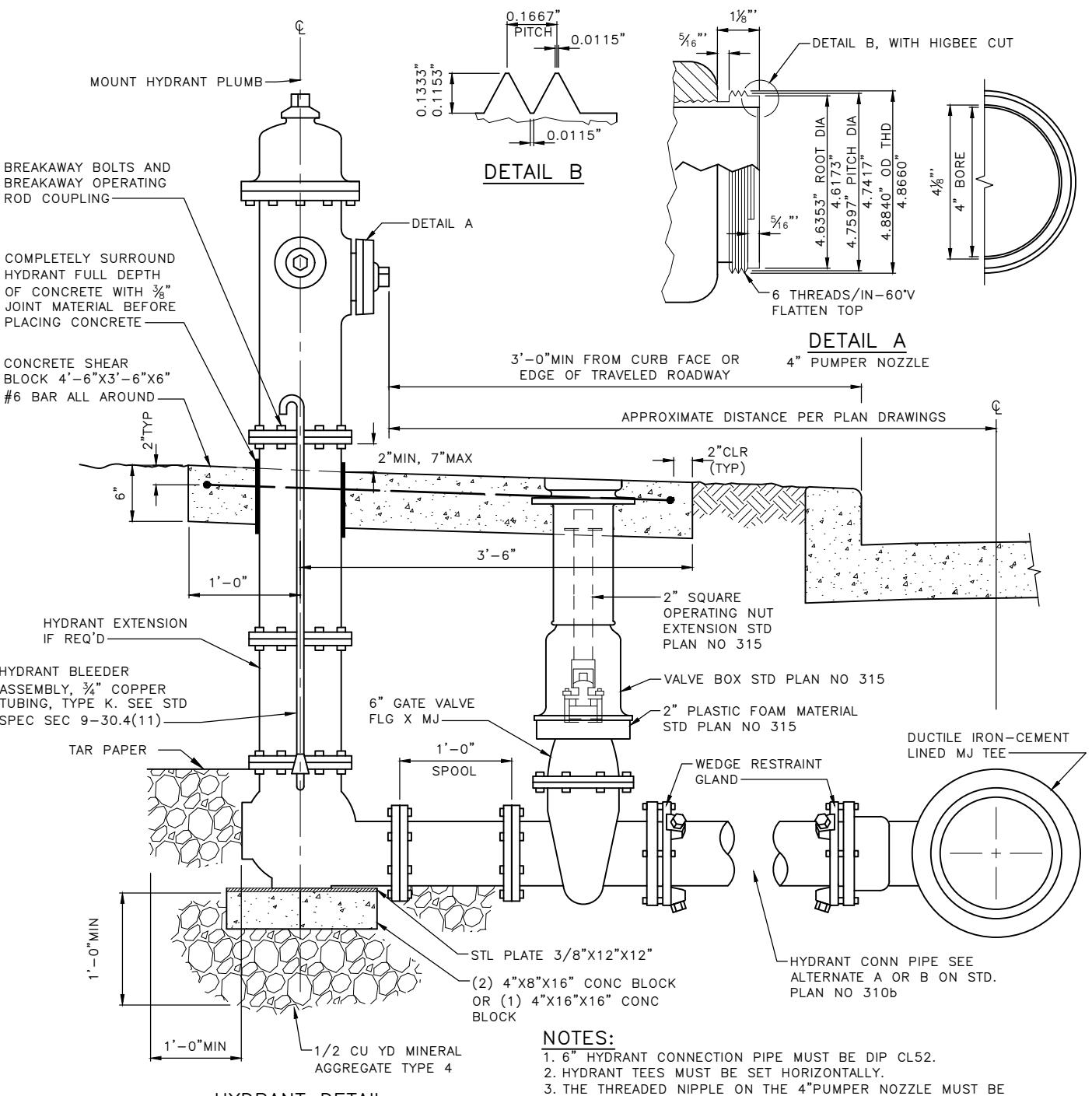
REF STD SPEC SEC 1-07.17



City of Seattle

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WATERMAIN SETBACK  
REQUIREMENT FOR C.I. LEAD  
JOINT AND D.I. SLIP JOINT PIPE



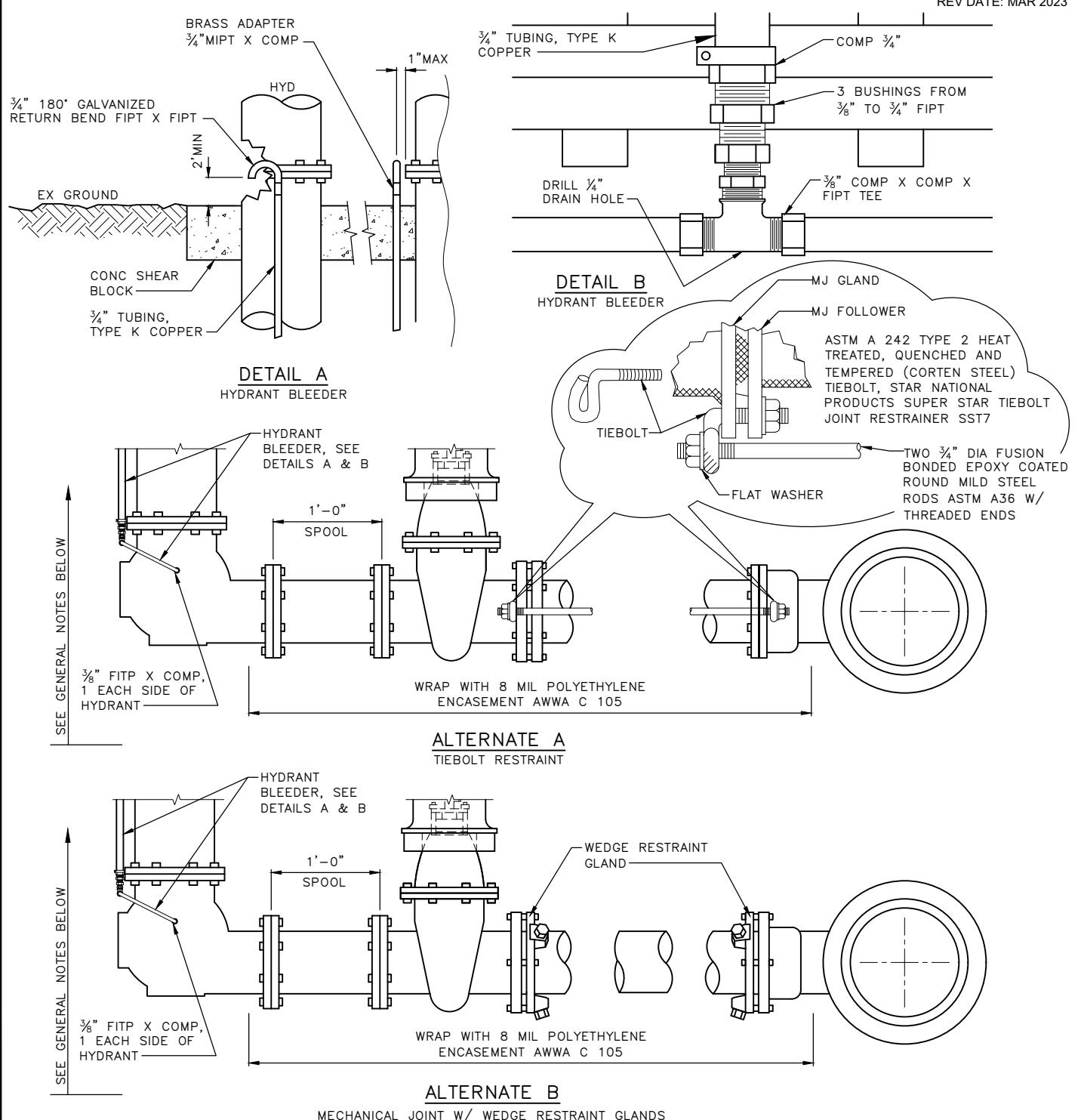
REF STD SPEC SEC 7-14



City of Seattle

NOT TO SCALE

TYPE 310 HYDRANT SETTING DETAIL

**NOTES:**

1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASEMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE MUST BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL MUST BE TAPE COATED
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING-PERMITTED AREA, A SECOND 6" GATE VALVE MUST BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310a

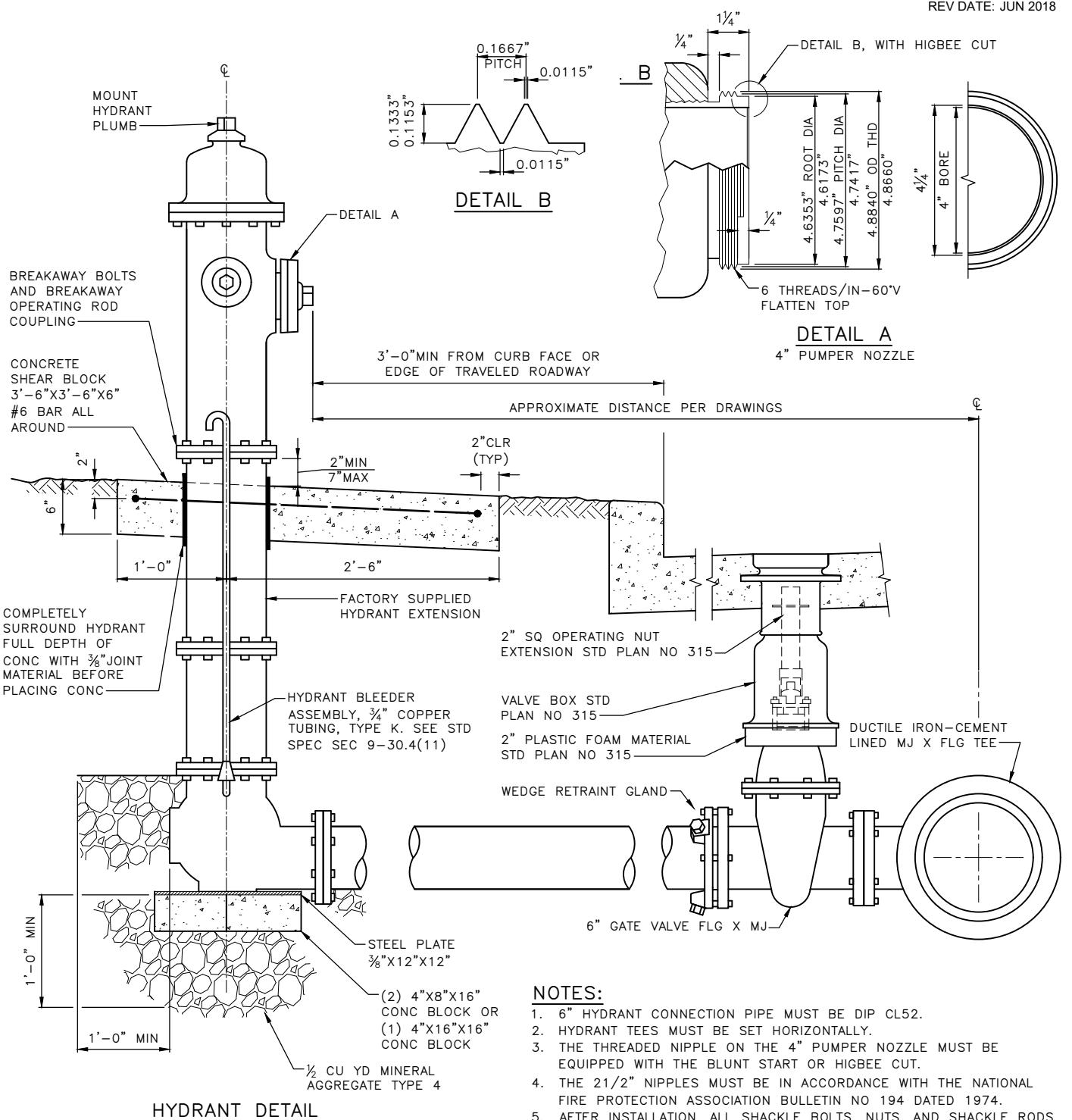
REF STD SPEC SEC 7-14



City of Seattle

NOT TO SCALE

TYPE 310 HYDRANT SETTING  
DETAIL



## NOTES:

1. 6" HYDRANT CONNECTION PIPE MUST BE DIP CL52.
2. HYDRANT TEES MUST BE SET HORIZONTALLY.
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE MUST BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT.
4. THE 21 1/2" NIPPLES MUST BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974.
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, AND SHACKLE RODS MUST BE CLEANED AND COATED WITH TWO COATS OF ASPHALT, ROYSTON ROSKOTE R28.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) MUST BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE 6130-516 CAT YELLOW.
7. PUMPER PORT MUST FACE CURB.
8. RESTRAINT MUST BE BY WEDGE RESTRAINT SYSTEM USCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC SEC 9-30.4(5).

REF STD SPEC SEC 7-14

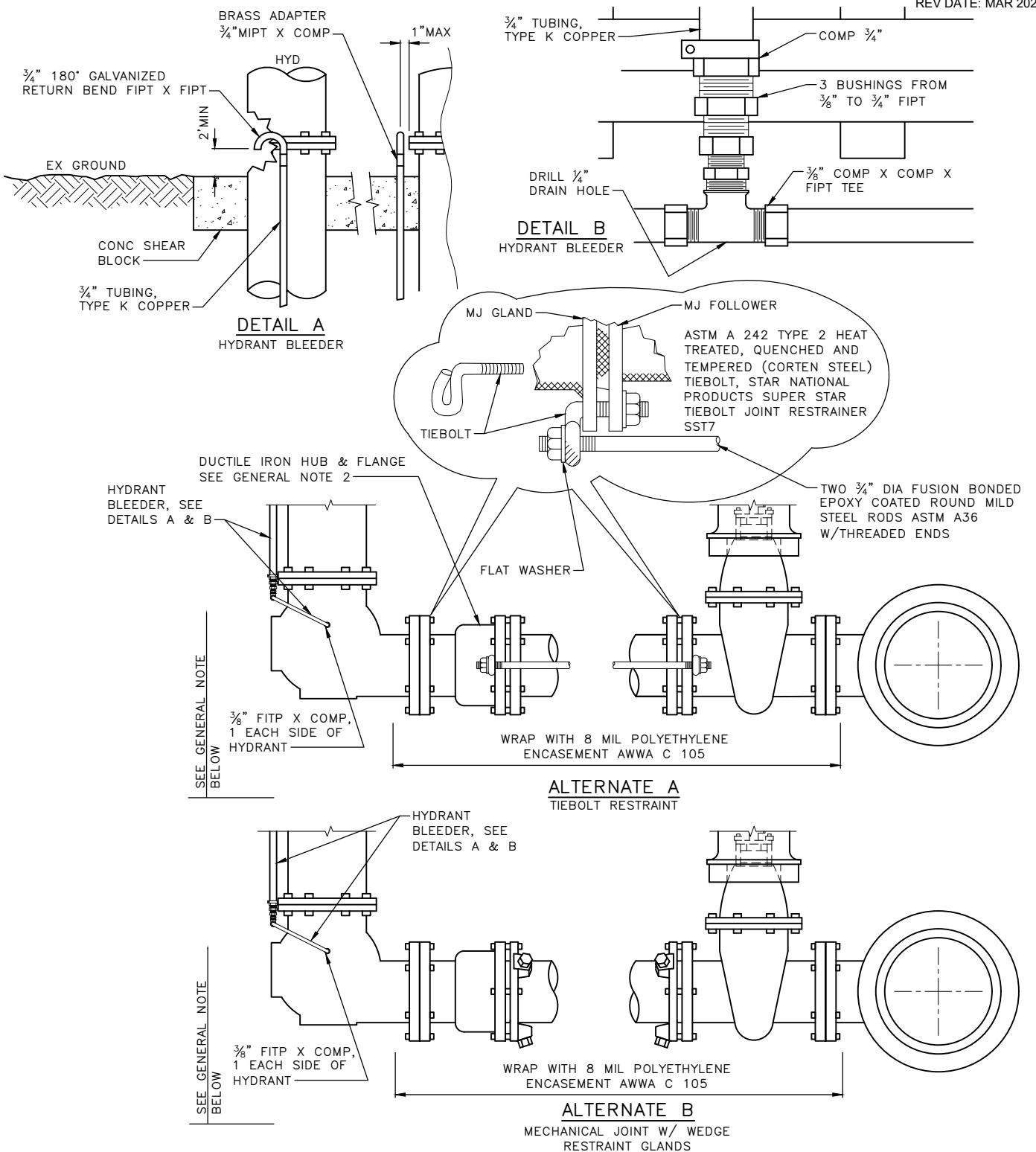


City of Seattle

NOT TO SCALE

TYPE 311 HYDRANT SETTING DETAIL

REV DATE: MAR 2023

**GENERAL NOTES:**

1. WHERE WATERMAINS ARE INSTALLED WITH POLYETHYLENE ENCASEMENT OR TAPE COATINGS, THE HYDRANT BARREL AND VALVE MUST BE SIMILARLY ENCASED, COATED AND/OR JOINTS BONDED. WHERE WATERMAIN IS THERMOPLASTIC COATED, THE HYDRANT BARREL MUST BE TAPE COATED
2. WHERE 6" GATE VALVE IS TO BE LOCATED WITHIN A PARKING-PERMITTED AREA, A SECOND 6" GATE VALVE MUST BE INSTALLED AT THE HYDRANT ASSEMBLY PER STD PLAN NO 310a

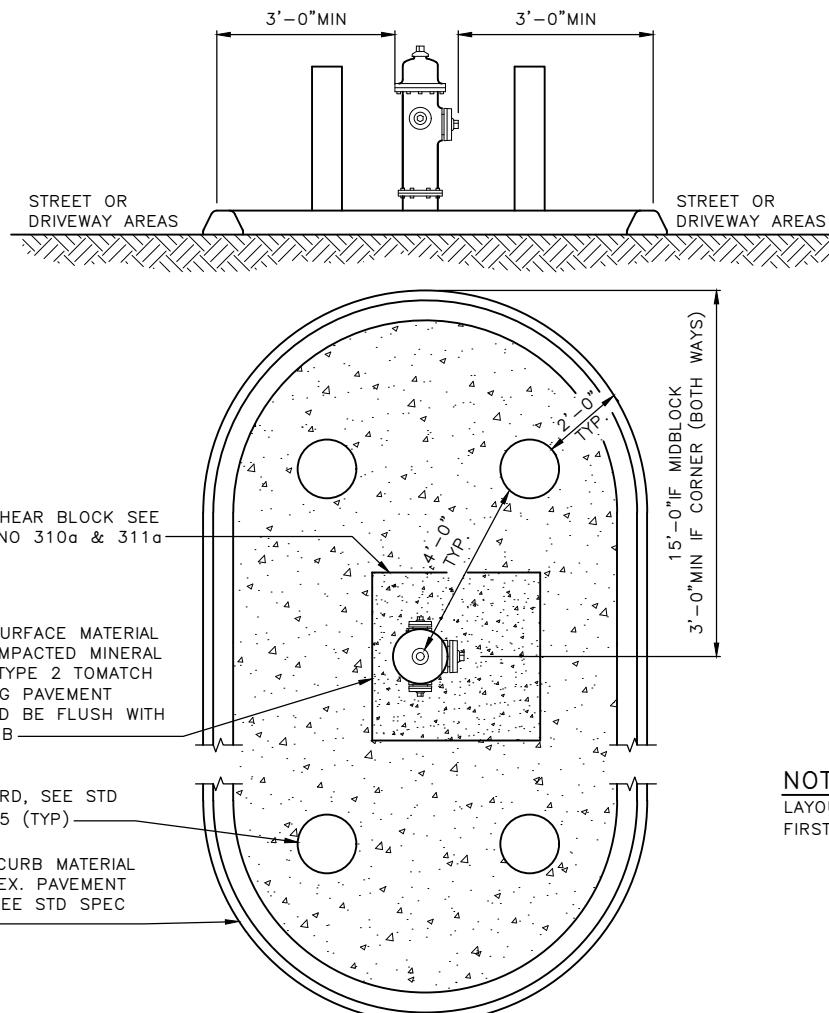
REF STD SPEC SEC 7-14



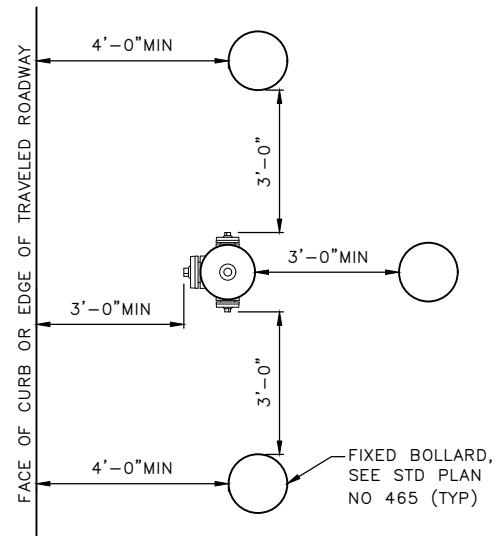
City of Seattle

NOT TO SCALE

TYPE 311 HYDRANT SETTING DETAIL



TRAFFIC ISLAND MARKER POST LAYOUT FOR FIRE HYDRANTS IN PARKING AREAS



MARKER POST LAYOUT FOR FIRE HYDRANTS IN PARKING AREAS

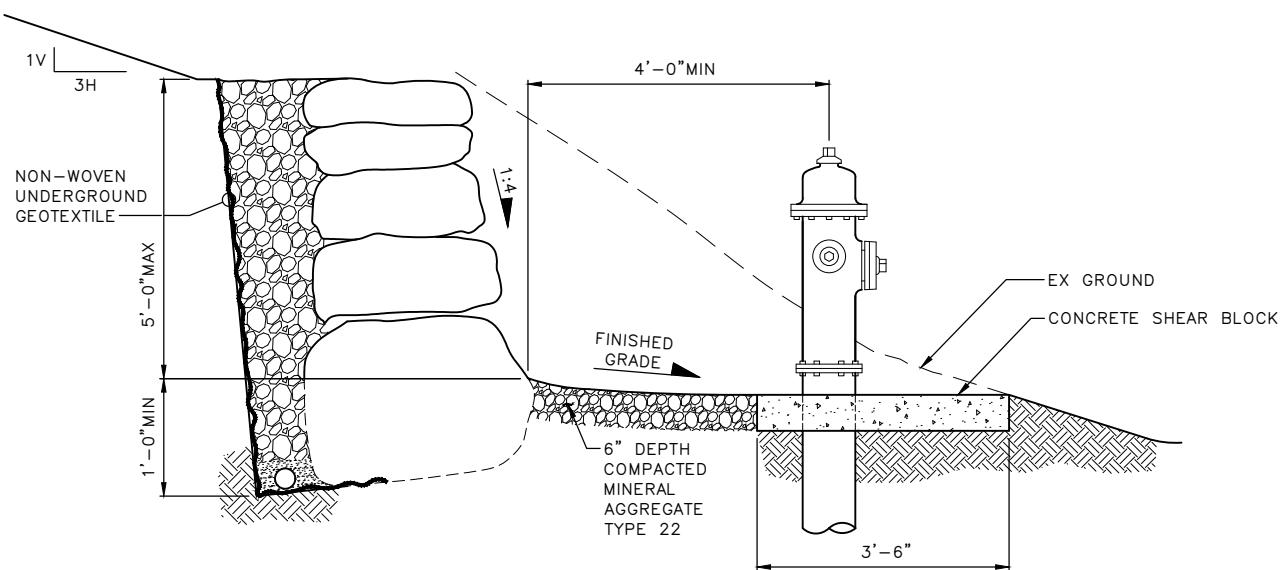
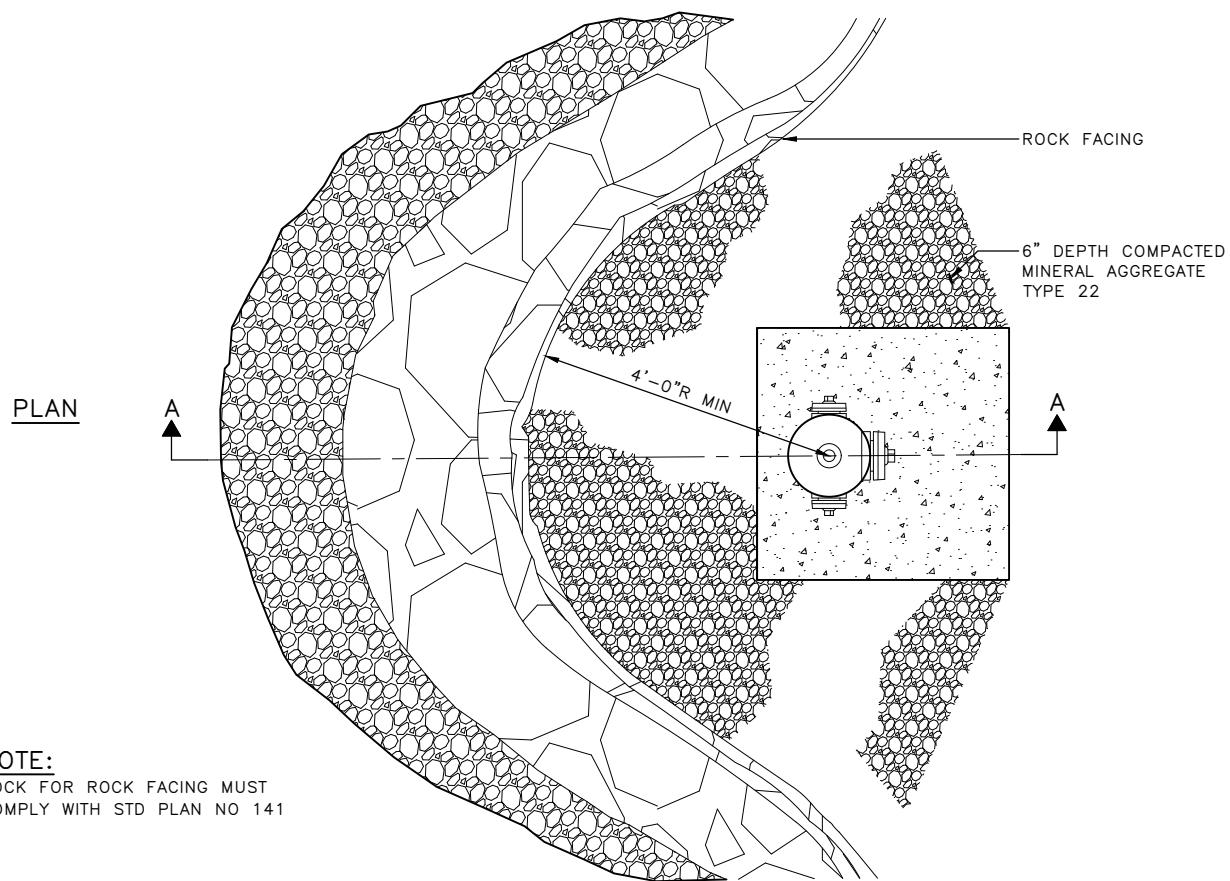
REF STD SPEC SEC 7-14



City of Seattle

NOT TO SCALE

FIRE HYDRANT MARKER LAYOUT

SECTION A-A

REF STD SPEC SEC 2-13



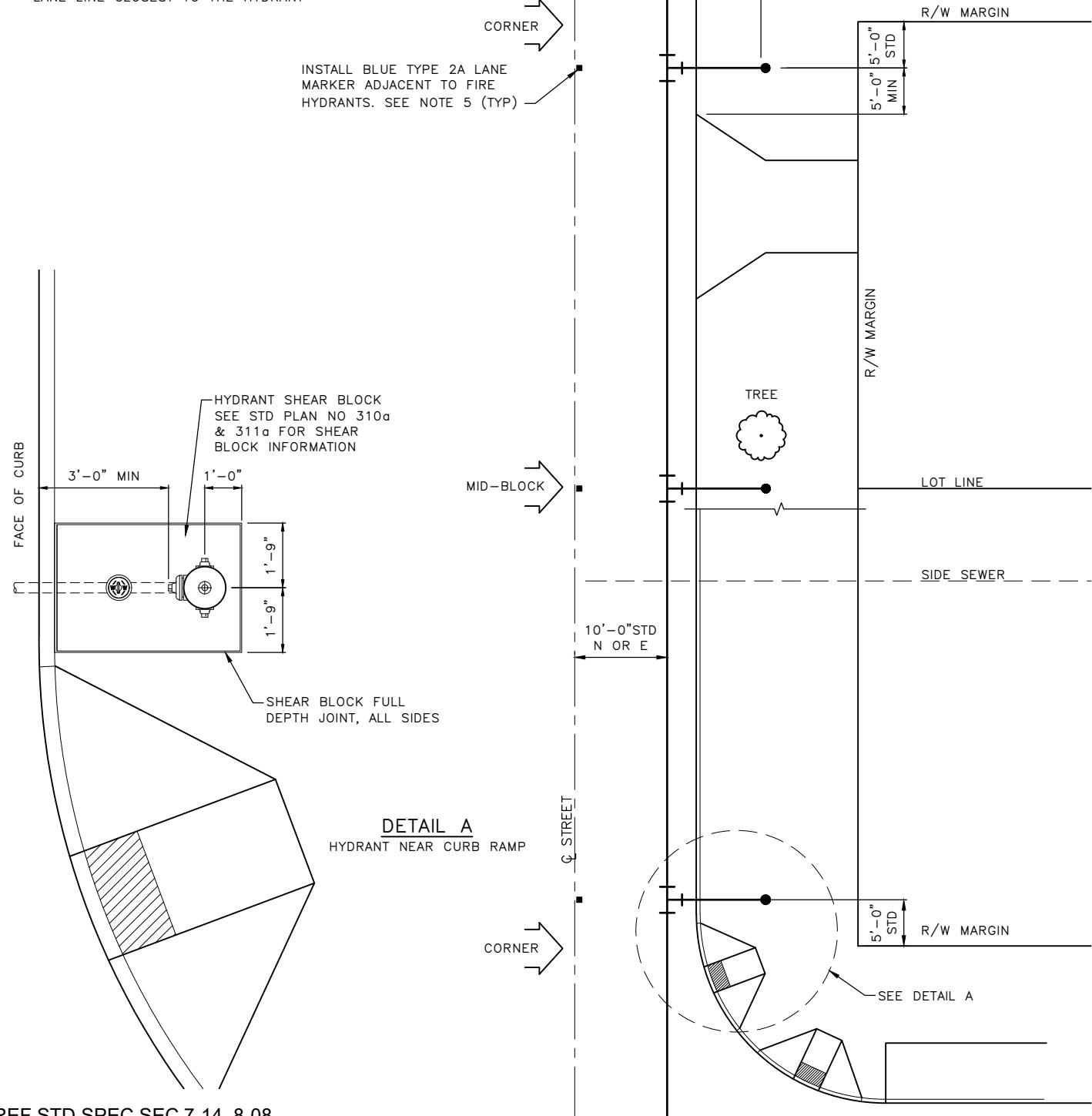
City of Seattle

NOT TO SCALE

WALL REQUIREMENTS  
FOR HYDRANTS

## NOTES:

1. NO PARKING ZONE WITHIN 15'-0" RADIUS OF FIRE HYDRANT.
2. MIN DISTANCE FROM CENTER OF HYDRANT TO FIXED OBJECT 4'.
3. MIN DISTANCE FROM HYDRANT PUMPER PORT TO CURB FACE/ROADWAY 3'.
4. MIN DISTANCE FROM HYDRANT TO ANY PART OF CURB RAMP MUST BE 2'.
5. BLUE LANE MARKER MUST BE 6" OFFSET FROM CENTER OF ROADWAY IF CENTERLINE IS NOT STRIPED, OR 6" OFF STRIPED CENTERLINE. WHERE MEDIAN OR TWO-WAY LEFT TURN LANES EXIST, MARKER MUST BE INSTALLED WITH 6" OFFSET FROM THE LANE LINE CLOSEST TO THE HYDRANT



REF STD SPEC SEC 7-14, 8-08



City of Seattle

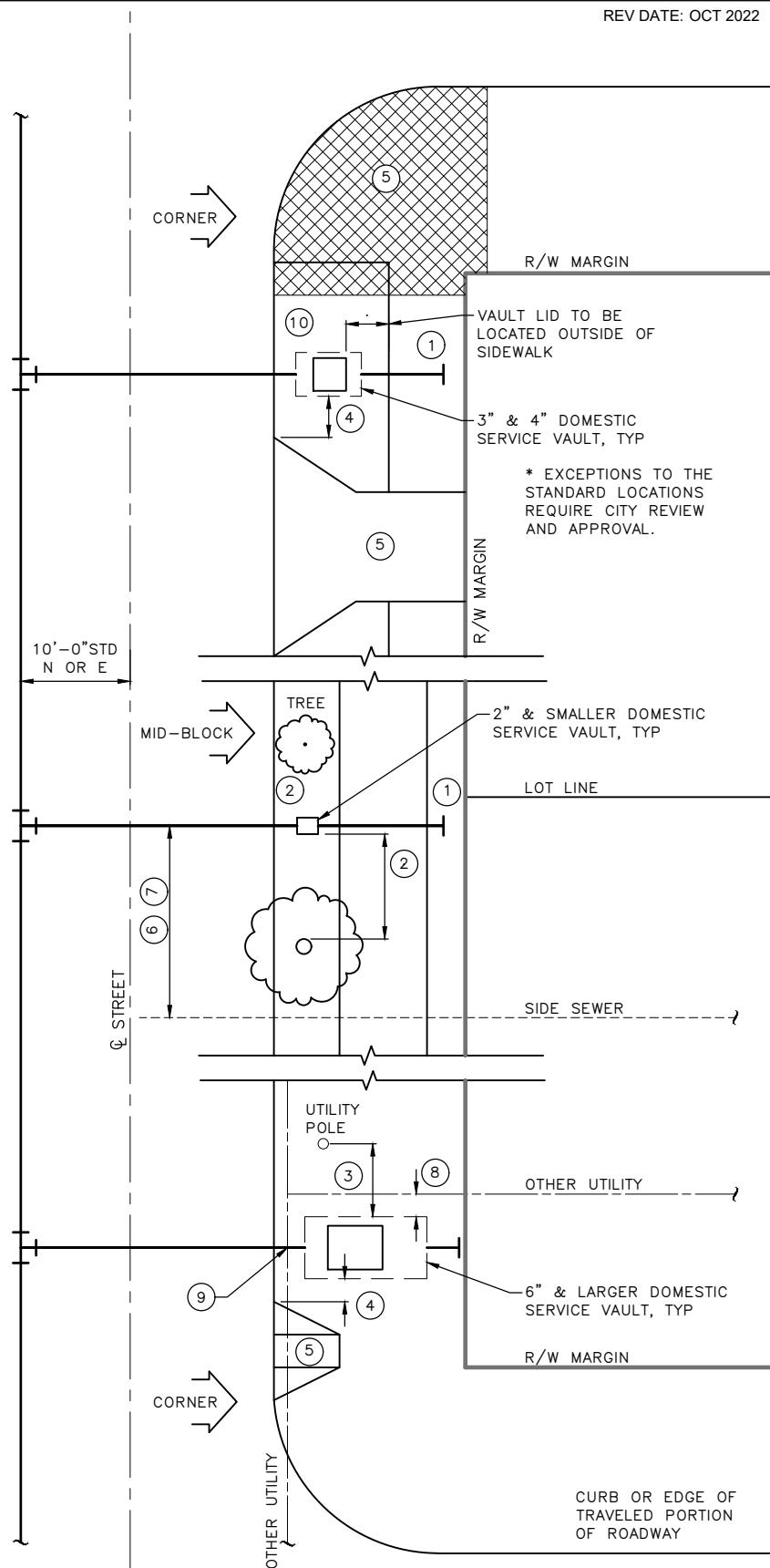
NOT TO SCALE

FIRE HYDRANT  
LOCATIONS & CLEARANCES

NOTES:

- ① UNION POINT 2' OUTSIDE OF VAULT UNLESS OTHERWISE NOTED ON PLANS.
- ② 5' CLEARANCE MINIMUM FROM NEW OR EXISTING TREES. IF EXCAVATION IS REQUIRED WITHIN ROOT ZONE OF EXISTING TREES, THE EXCAVATION MUST BE ACCOMPLISHED BY HAND METHODS, CONDUCTED TO PREVENT DAMAGE TO FEEDER AND SURFACE ROOTS, AND MINIMIZE COMPACTION SOILS.
- ③ 5' CLEAR FROM POLES.
- ④ 2' CLEAR FROM EDGE OF DRIVEWAY OR ADA RAMP.
- ⑤ WATER SERVICE NOT TO BE INSTALLED IN DRIVEWAY, BEHIND ADA RAMP, OR STREET CORNER.
- ⑥ SIDE SEWER HORIZONTAL CLEARANCE 10' FOR CAST IRON WATER PIPE OR 5' FOR DUCTILE IRON WATER PIPE.
- ⑦ SIDE SEWER VERTICAL CLEARANCE 1.5' MIN.
- ⑧ VAULT HORIZONTAL CLEARANCE 3' MIN FROM OTHER UTILITIES. UNLESS OTHERWISE NOTED IN STD SPECS.
- ⑨ VERTICAL CLEARANCE 12" MIN FOR ALL OTHER UTILITY CROSSINGS UNLESS OTHERWISE NOTED IN STD SPECS.
- ⑩ ALLOWABLE LOCATION OF WATER SERVICE VAULT, 2' MINIMUM CLEAR OF CURB.

PERMIT REQUIREMENTS WILL DETERMINE LOCATION AND ORIENTATION OF ALL SERVICE VAULTS IN THE RIGHT OF WAY. VAULTS SHOWN ON THIS STD PLAN ARE FOR GRAPHICAL PURPOSES ONLY.



REF STD SPEC SEC 1-07.17(2)

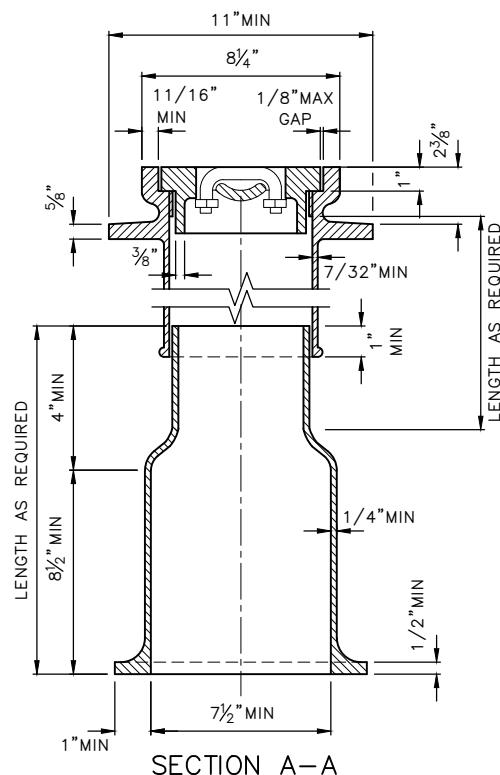
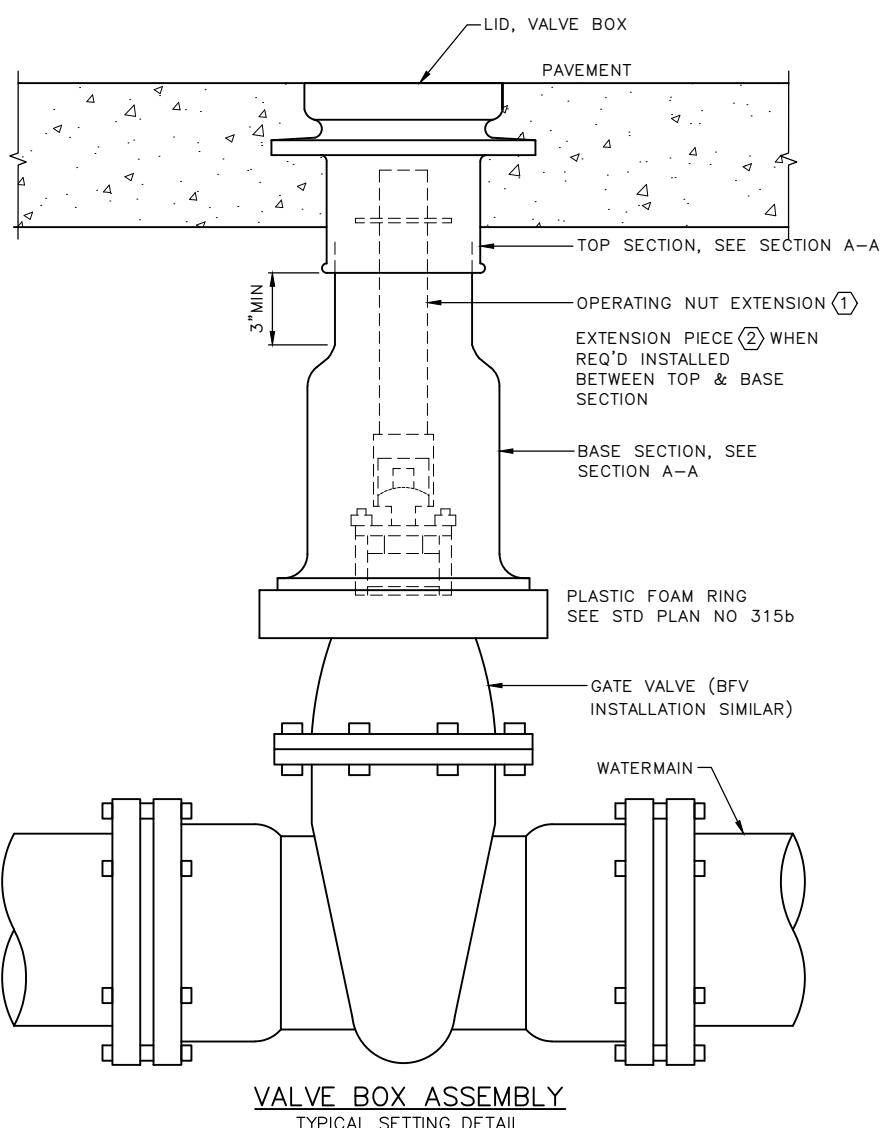
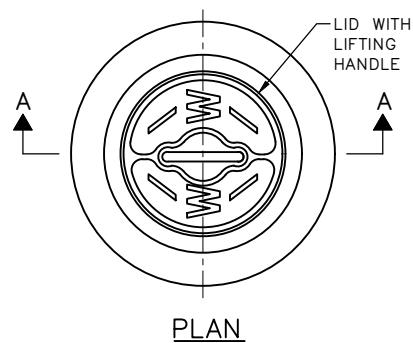


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NOT TO SCALE

CLEARANCES FOR TYPICAL  
WATER SERVICE VAULTS

REV DATE: 2003



## NOTE:

VALVE BOX FOR USE ON 12" OR  
SMALLER VALVE INSTALLATIONS

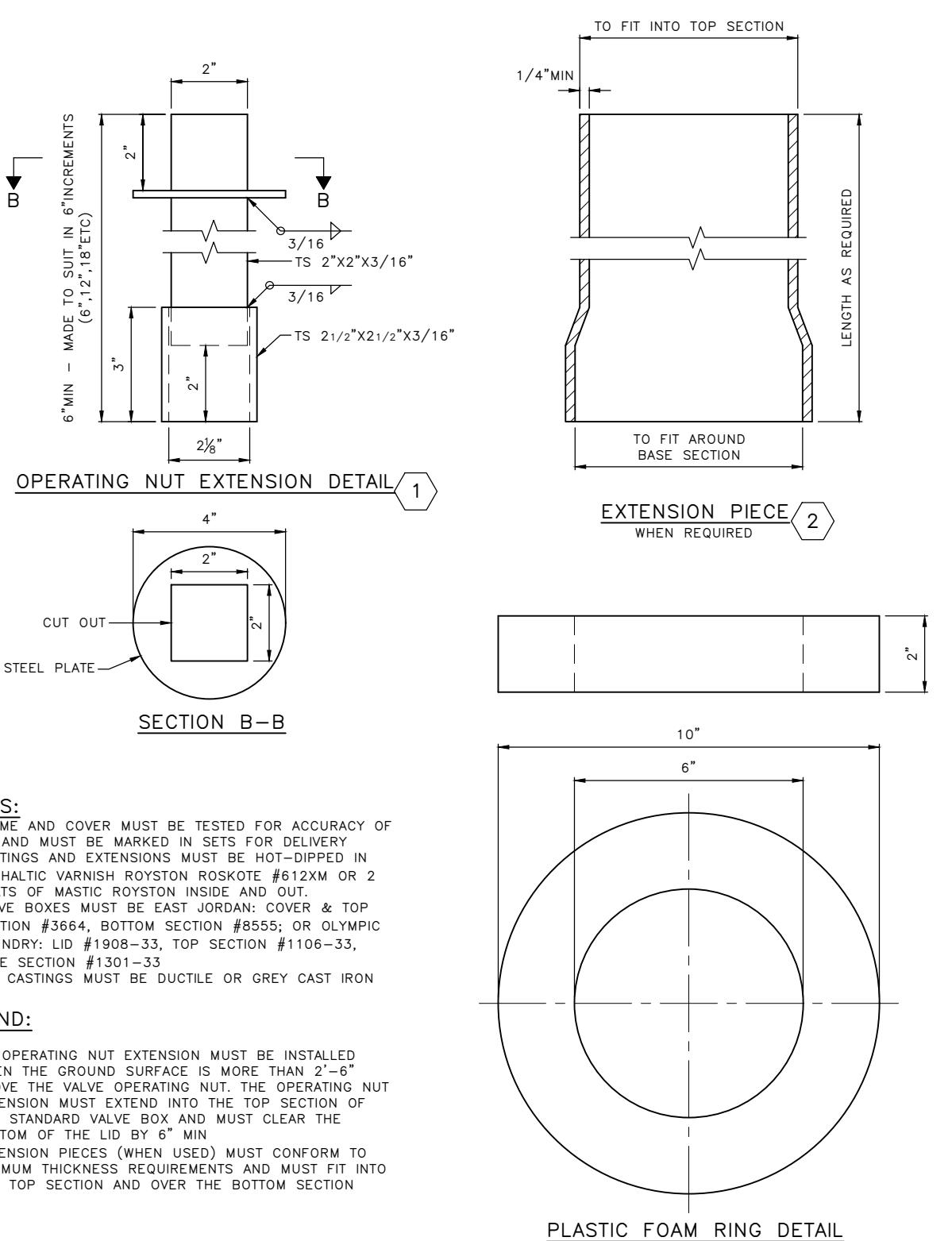
REF STD SPEC SEC 7-12

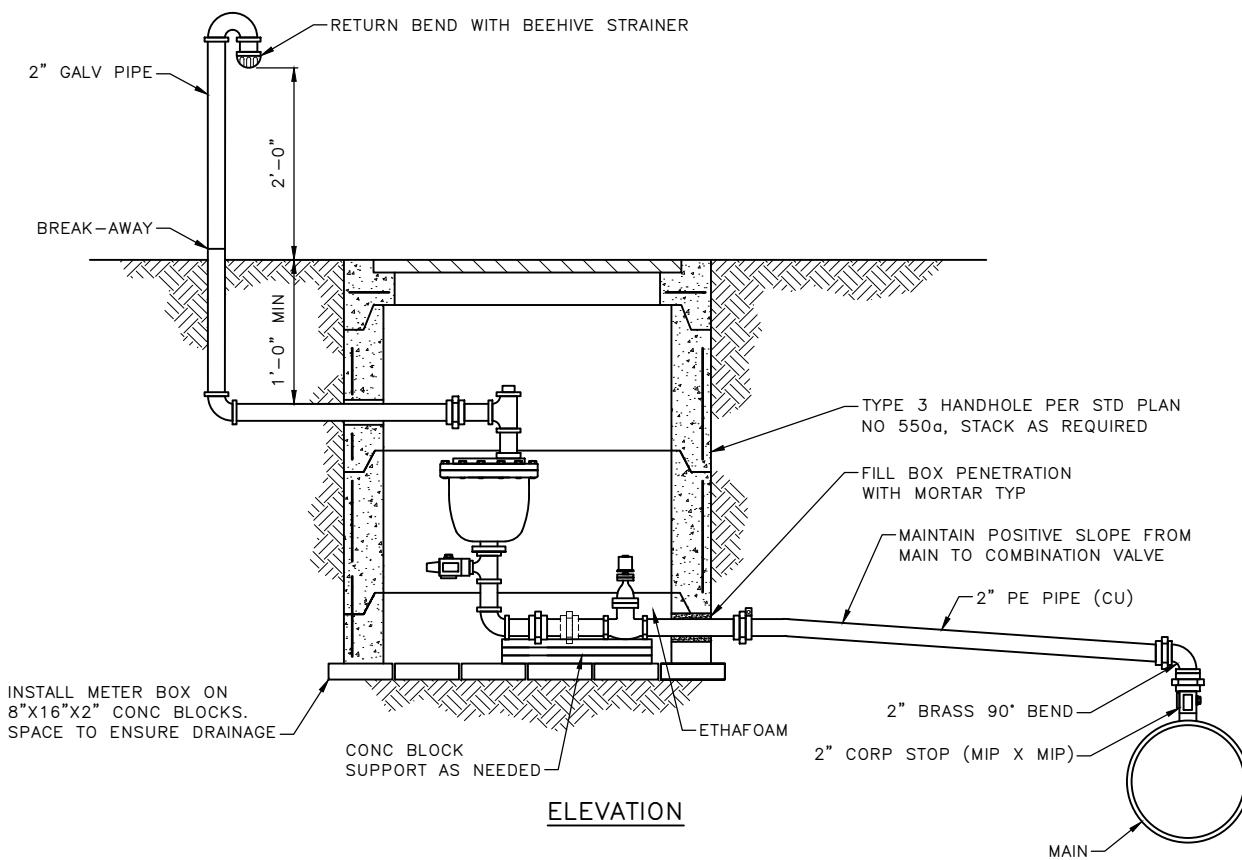


City of Seattle

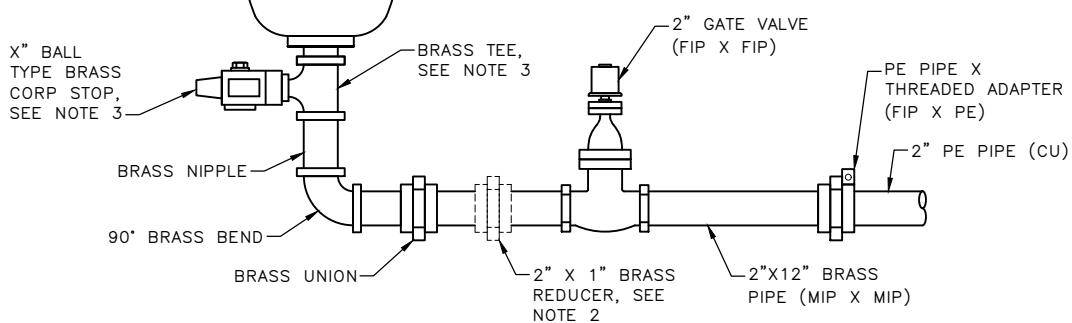
NOT TO SCALE

CAST IRON VALVE BOX &  
OPERATING NUT EXTENSION



NOTES:

1. COMBINATION AIR RELEASE AND VACUUM VALVE MUST BE A 2" SIZE MINIMUM UNLESS OTHERWISE SHOWN IN THE PLANS.
2. FOR 1" COMBINATION VALVE, INSTALL 2" X 1" REDUCER BETWEEN GATE VALVE AND UNION.
3. TEE MUST BE 2"X2"X1" WITH 1" CORP STOP FOR 2" COMBINATION VALVE. TEE MUST BE 2"X2"X $\frac{3}{4}$ " WITH  $\frac{3}{4}$ " CORP STOP FOR 1" COMBINATION VALVE.
4. SET METER BOX WITHIN CITY ROW, FLUSH WITH SIDEWALK OR CURB ELEVATION IF LOCATED IN LAWN AREAS. SET METER BOX APPROXIMATELY 2" ABOVE FINISHED GRADE IF IN LANDSCAPED AREA.

VALVE ASSEMBLY DETAIL

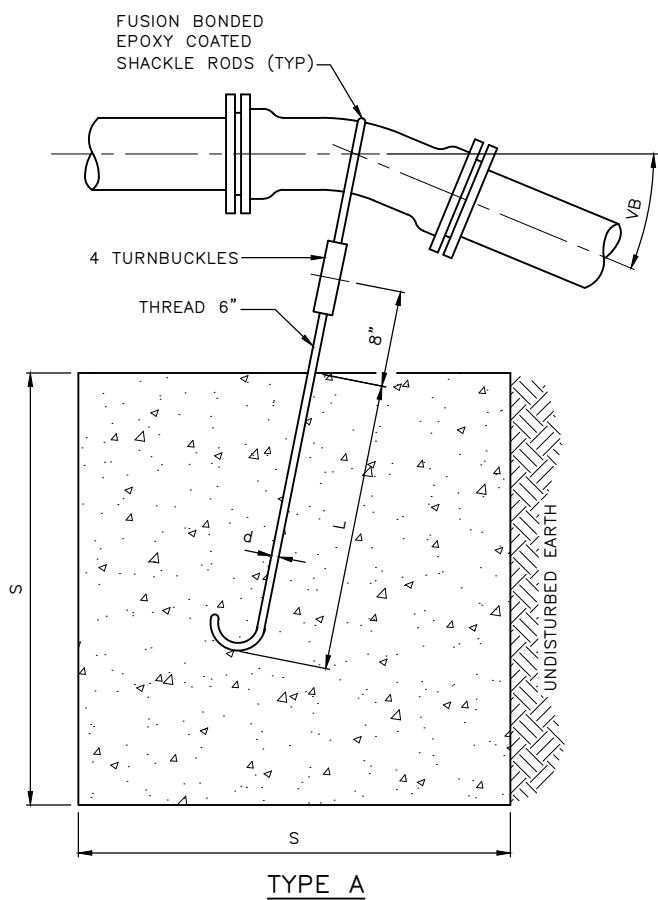
REF STD SPEC SEC 7-12



City of Seattle

NOT TO SCALE

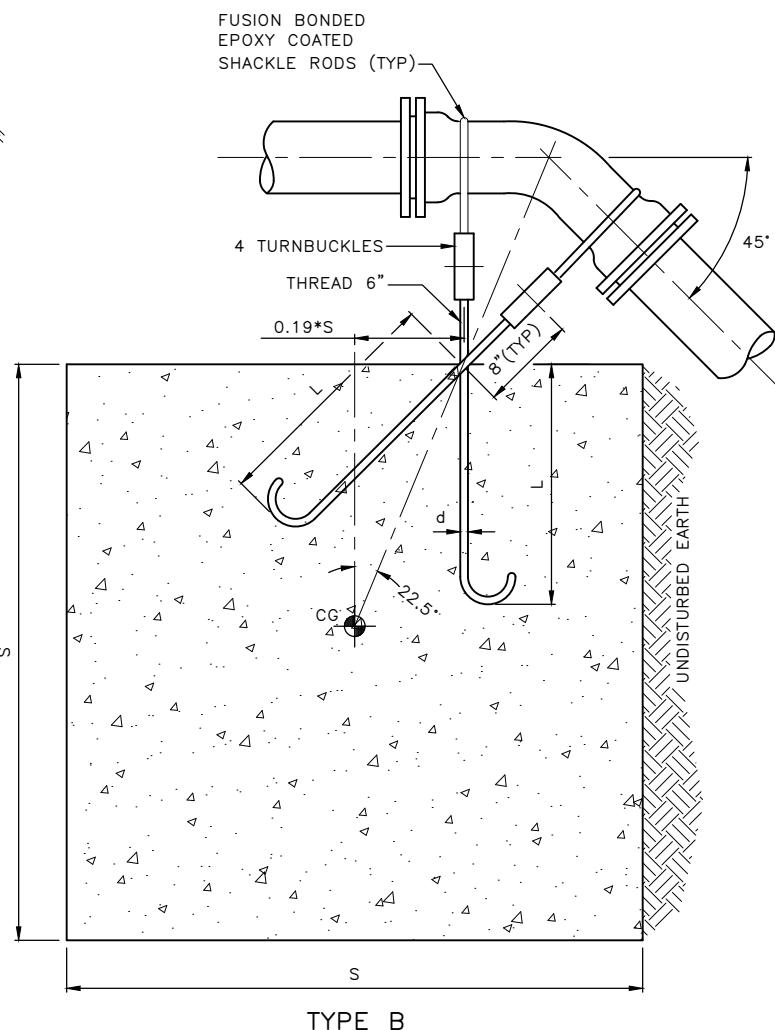
AIR RELEASE  
AIR VACUUM VALVE



TYPE A BLOCKING FOR 11 1/4° & 22 1/2° VERTICAL BENDS					
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VB		S	d
4"	300	11 1/4	8	2	3/4
		22 1/2	12	2 1/4	
6"	300	11 1/4	12	2 1/4	3/4
		22 1/2	27	3	
8"	300	11 1/4	16	2 1/2	3/4
		22 1/2	43	3 1/2	
12"	300	11 1/4	64	4	1
		22 1/2	125	5	1
					24
					36

TYPE B BLOCKING FOR 45° VERTICAL BENDS					
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VB	S	d	L
4"	300	45	NO OF CU FT OF CONC BLOCKING	SIDE OF CUBE FEET	DIA OF SHACKLE RODS (2) INCHES
			27	3	3/4
			64	4	
			125	5	
6"			216	6	1
					30

FOR NOTES SEE STD PLAN NO 330b



TYPE B

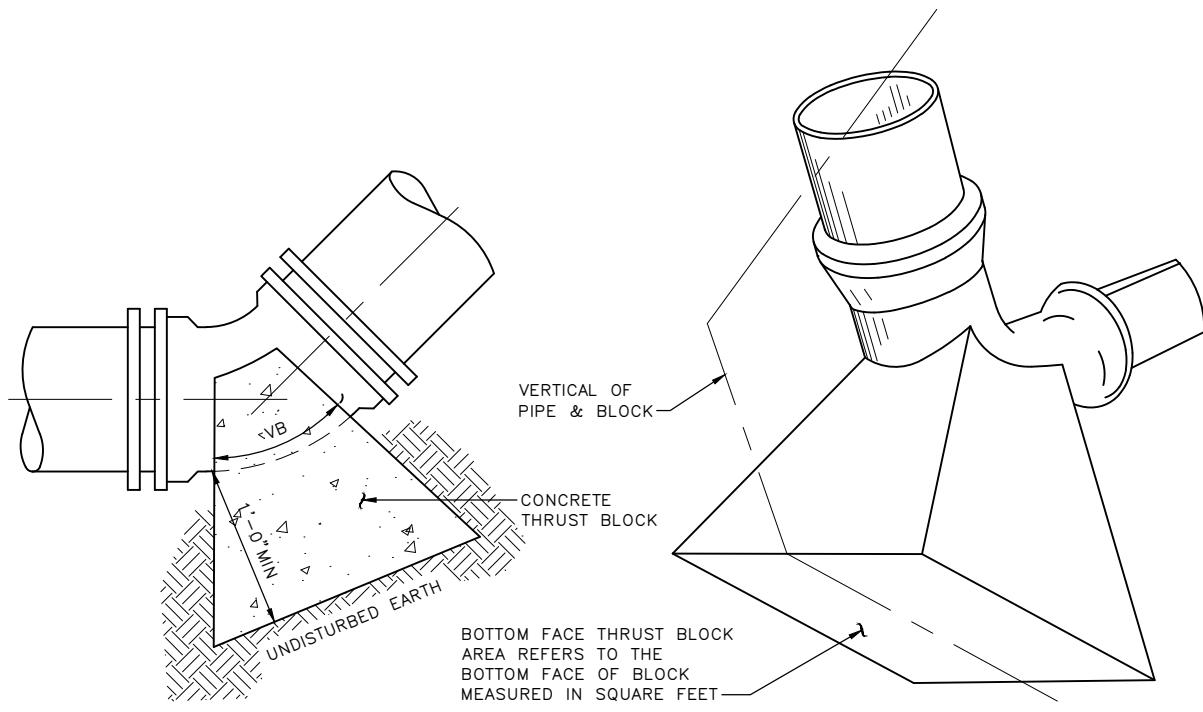
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING VERTICAL FITTINGS



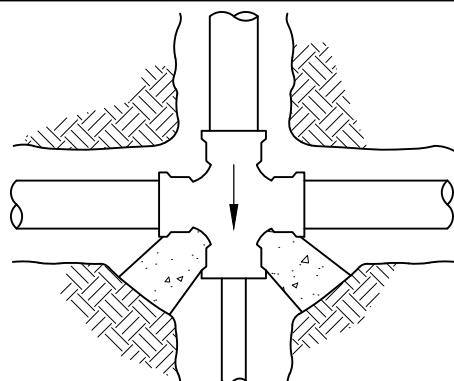
TYPE C

PIPE SIZE	TYPE "C" BLOCKING FOR 11 $\frac{1}{4}$ °, 22 $\frac{1}{2}$ °, 45° AND 90° VERTICAL BENDS THRUST BLOCK AREA IN SQUARE FEET								
	SOIL	FIRM SILT OR FIRM SILTY SAND			COMPACT SAND			COMPACT SAND & GRAVEL	
		FITTING	90° BEND	TEE, 45° BEND & DEAD END	11 $\frac{1}{4}$ ° & 22 $\frac{1}{2}$ ° BEND	90° BEND	TEE, 45° BEND & DEAD END	11 $\frac{1}{4}$ ° & 22 $\frac{1}{2}$ ° BEND	90° BEND
4"	5.8	4.2	1.7	2.9	2.1	1.0	2.2	1.6	1.0
6"	13.3	9.4	3.8	6.7	4.7	1.9	5.0	3.5	1.4
8"	23.3	16.7	6.7	11.7	8.4	3.4	8.8	6.3	2.5
12"	53.0	37.5	15.0	26.5	18.8	7.5	20.0	14.0	5.6
AREAS CALCULATED ON 300 PSI TEST PRESSURE AND 3'-0" MIN COVER OVER WATERMAIN									

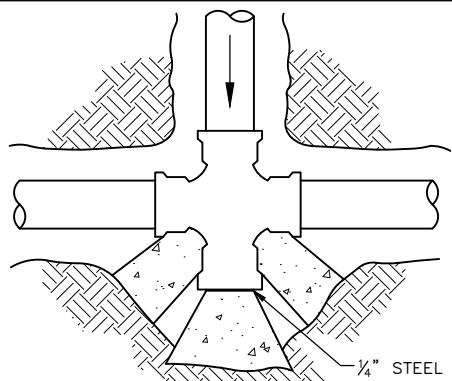
**NOTES:**

1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN MUST BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING FOR VERTICAL FITTINGS (POURED IN PLACE) MUST BEAR AGAINST UNDISTURBED NATIVE GROUND.
3. ALL POURED THRUST BLOCKS MUST BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING MUST OCCUR AFTER CONCRETE HAS REACHED f'c.
4. ALL BLOCKING MUST BE CONCRETE CL 3000.
5. AFTER INSTALLATION, SHACKLE RODS & TURNBUCKLES MUST BE CLEANED AND COATED WITH 2 COATS OF ASPHALTIC VARNISH, ROYSTON ROYKOTE #612M OR APPROVED EQUAL.
6. SHACKLE RODS MUST BE FUSION BONDED EPOXY COATED ROUND MILD STEEL, ASTM A 36, WITH THREADS ON ENDS ONLY.
7. BLOCKING AGAINST FITTINGS MUST BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT MUST NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. REASONABLE ACCESS TO BOLTS AND GLANDS MUST BE PROVIDED.

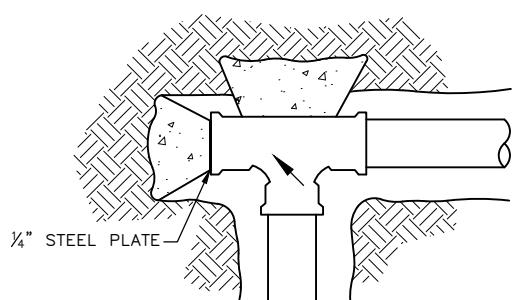




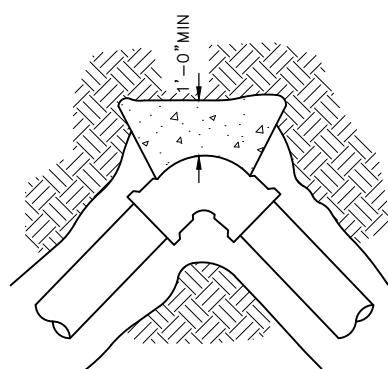
UNBALANCED CROSS



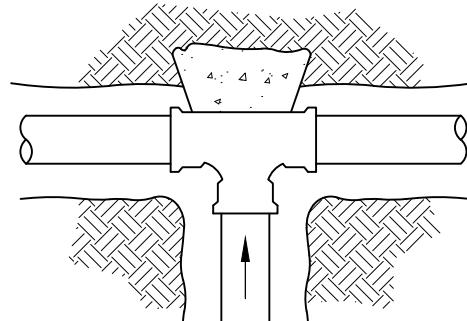
CROSS WITH PLUG



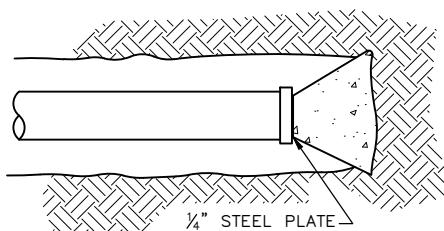
PLUGGED TEE



HORIZONTAL BEND



TEE



PIPE &amp; CAP

THRUST BLOCK AREA IN SQUARE FEET (SEE STD PLAN NO 331B)													
PIPE SIZE	FIRM SILT OR FIRM SILTY SAND				COMPACT SAND				COMPACT SAND & GRAVEL				
	SOIL	90° BEND	TEE	45° BEND CAP OR PLUG	11 1/4° & 22 1/2° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11 1/4° & 22 1/2° BEND	90° BEND	TEE	45° BEND CAP OR PLUG	11 1/4° & 22 1/2° BEND
4"		7.0	4.2	4.2	1.7	2.9	2.1	2.1	1.0	2.2	1.6	1.6	1.0
6"		13.3	9.4	9.4	3.8	6.7	4.7	4.7	1.9	5.0	3.5	3.5	1.4
8"		23.3	16.7	16.7	6.7	11.7	8.4	8.4	3.4	8.8	6.3	6.3	2.5
12"		53.0	37.5	37.5	15.0	26.5	18.8	18.8	7.5	20.0	14.0	14.0	5.6

AREAS CALCULATED ON 300 PSI TEST PRESSURE AND 3'-0" MIN COVER OVER WATERMAIN



ECOLOGY BLOCKS, PER STD PLAN NO 460, MAY BE USED, AT THE DISCRETION OF THE ENGINEER ONLY, IN LIEU OF POURED-IN-PLACE BLOCKING FOR FITTINGS IN HEAVY OUTLINED PORTION OF TABLE. ECOLOGY BLOCKS USED FOR THRUST BLOCKING AT TEES MUST TRANSFER LOAD TO THE PIPE BODY PER SPEC SECTION 7-11.3(13).

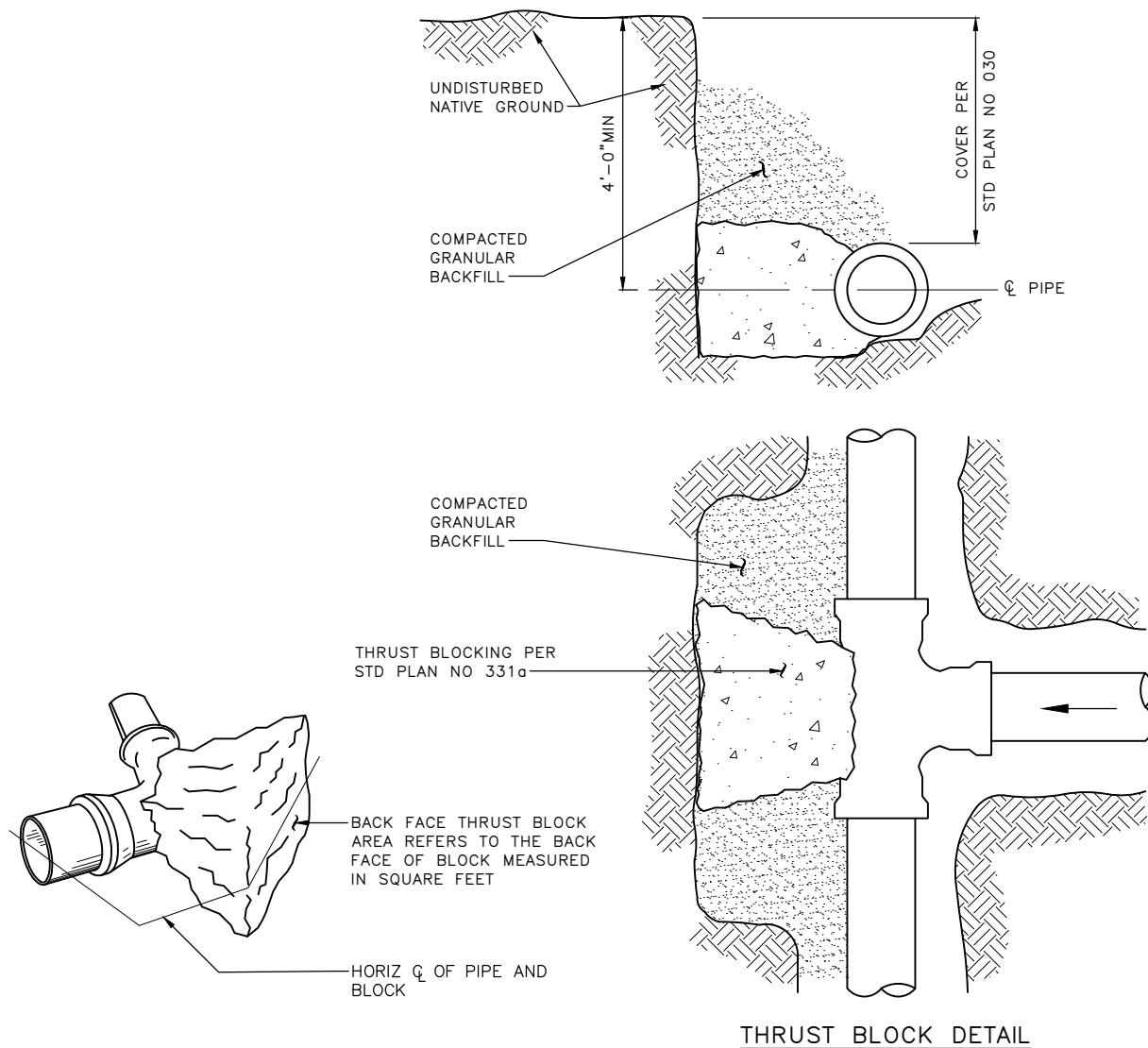
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING  
HORIZONTAL FITTINGS

**NOTES:**

- LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN MUST BE DETERMINED BY THE ENGINEER.
- ALL BLOCKING FOR HORIZONTAL FITTINGS (POURED IN PLACE) MUST BEAR AGAINST UNDISTURBED NATIVE GROUND.
- ALL POURED THRUST BLOCKS MUST BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING MUST OCCUR AFTER CONCRETE HAS REACHED f'c.
- ALL BLOCKING TO BE CONCRETE CL 3000.
- BLOCKING AGAINST FITTINGS MUST BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT MUST NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. ACCESS TO BOLTS AND GLANDS MUST BE PROVIDED.
- ALL HORIZONTAL BLOCKING THRUST AREAS MUST BE CENTERED ON PIPE.
- WHERE POURED-IN-PLACE BLOCKING IS REQUIRED AT A POINT OF CONNECTION TO AN EXISTING WATERMAIN, THE BLOCKING MUST BE INSTALLED PRIOR TO CONNECTION.
- TEMPORARY BLOCKING, IF USED, MUST BE APPROVED BY ENGINEER.

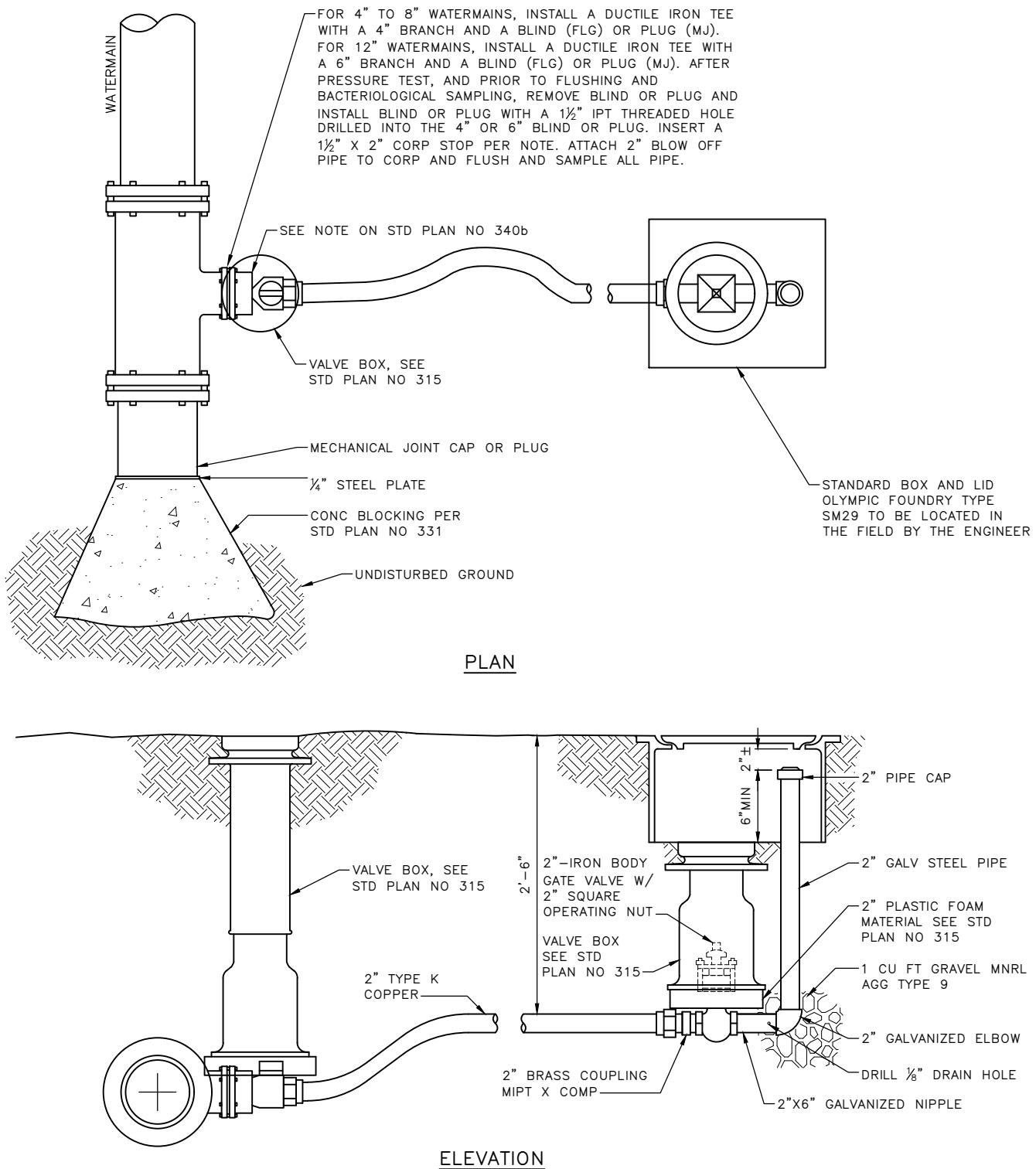
REF STD SPEC SEC 7-11

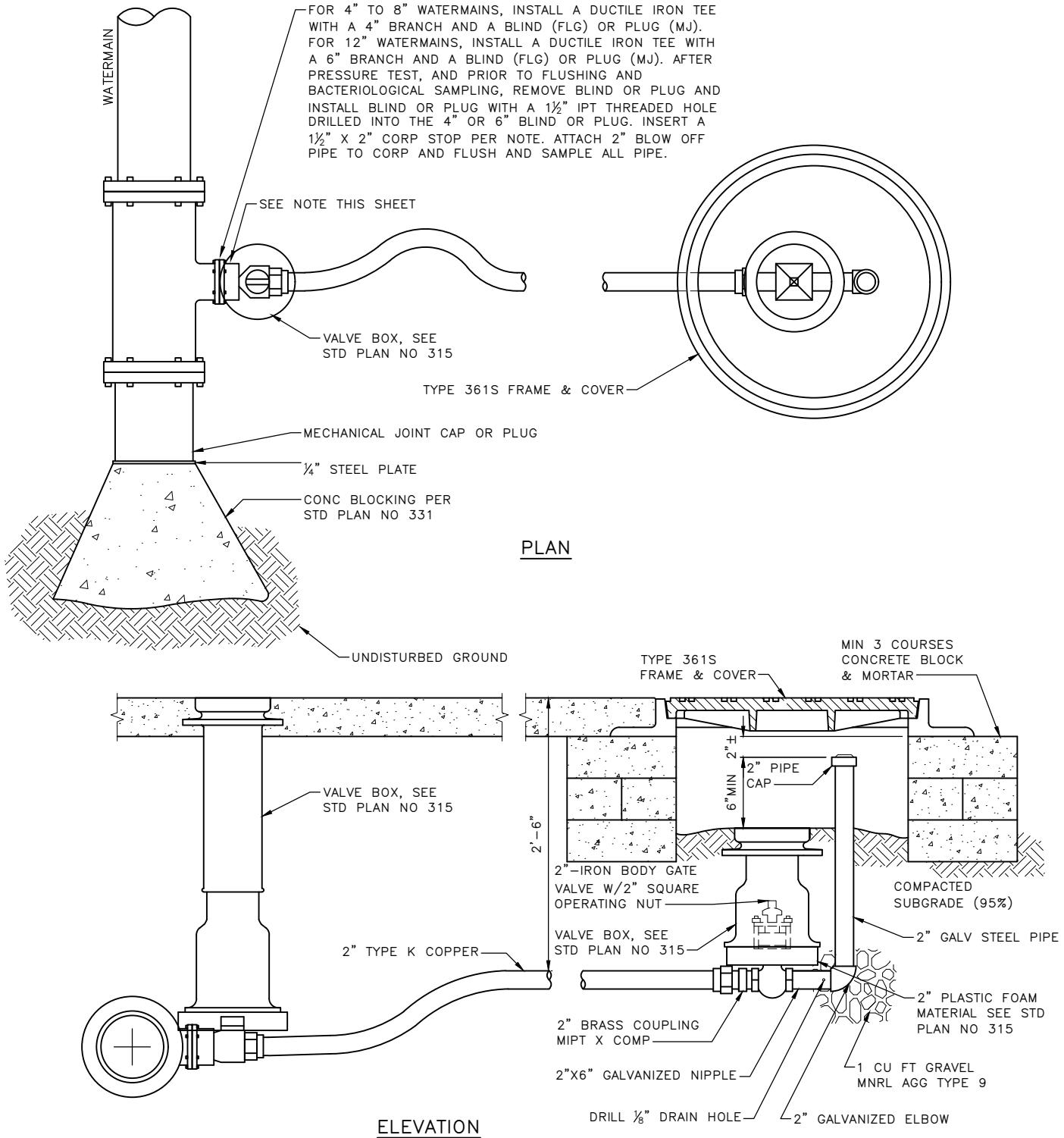


City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING  
HORIZONTAL FITTINGS



NOTE:

1½"X2" CORP STOP, BALL TYPE BRASS BODY AWWA X CORP.  
WHERE COATED DUCTILE IRON PIPE IS USED, THE MECHANICAL JOINT CAP AND CORP MUST BE WAX TAPE PER 7-11.3(8)A AND 9-30.1(4)F.

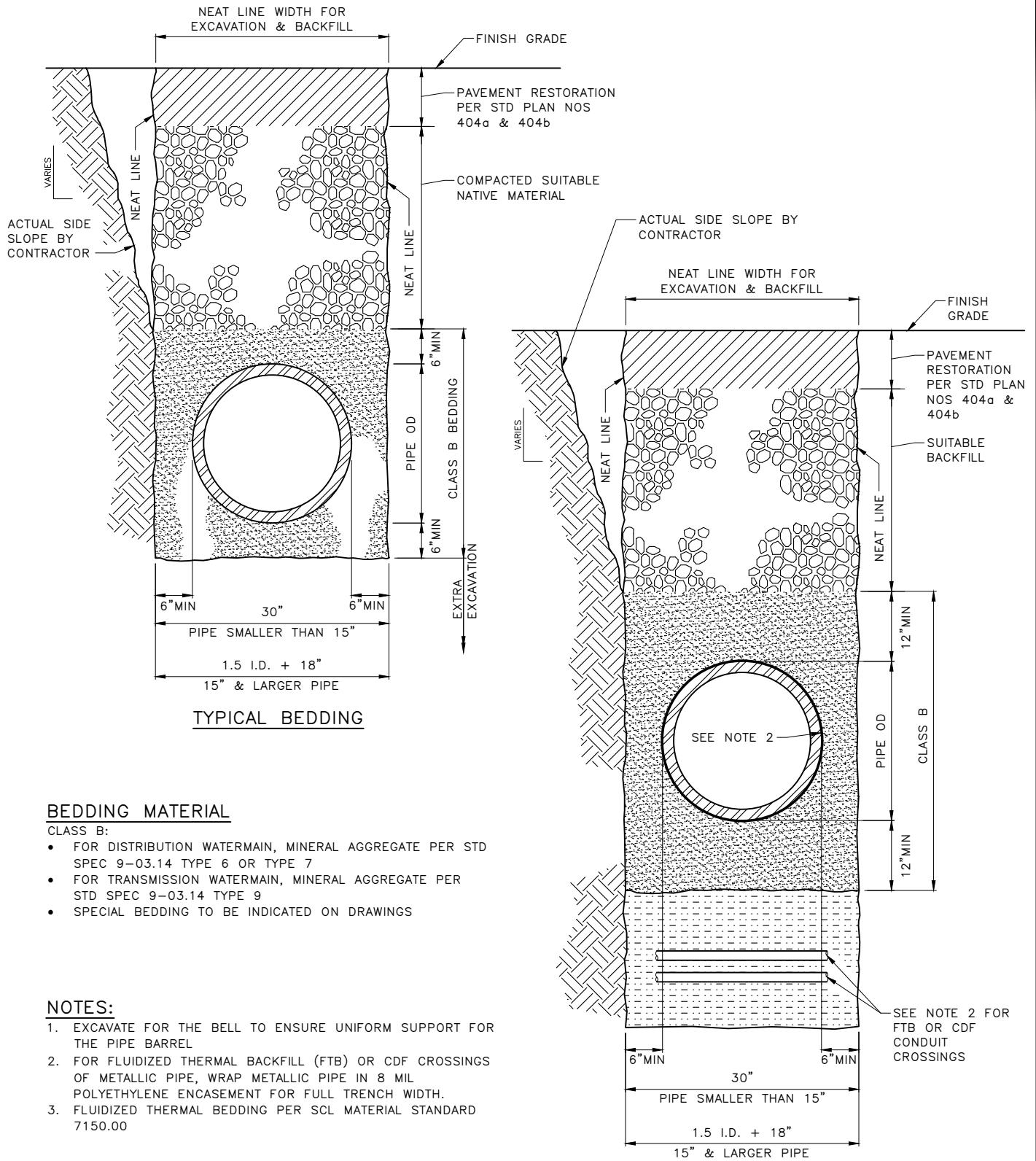
REF STD SPEC SEC 7-11



City of Seattle

NOT TO SCALE

2" BLOW OFF DETAIL TYPE B TRAFFIC INSTALLATION



#### BEDDING MATERIAL

##### CLASS B:

- FOR DISTRIBUTION WATERMAIN, MINERAL AGGREGATE PER STD SPEC 9-03.14 TYPE 6 OR TYPE 7
- FOR TRANSMISSION WATERMAIN, MINERAL AGGREGATE PER STD SPEC 9-03.14 TYPE 9
- SPECIAL BEDDING TO BE INDICATED ON DRAWINGS

#### NOTES:

1. EXCAVATE FOR THE BELL TO ENSURE UNIFORM SUPPORT FOR THE PIPE BARREL
2. FOR FLUIDIZED THERMAL BACKFILL (FTB) OR CDF CROSSINGS OF METALLIC PIPE, WRAP METALLIC PIPE IN 8 MIL POLYETHYLENE ENCASEMENT FOR FULL TRENCH WIDTH.
3. FLUIDIZED THERMAL BEDDING PER SCL MATERIAL STANDARD 7150.00

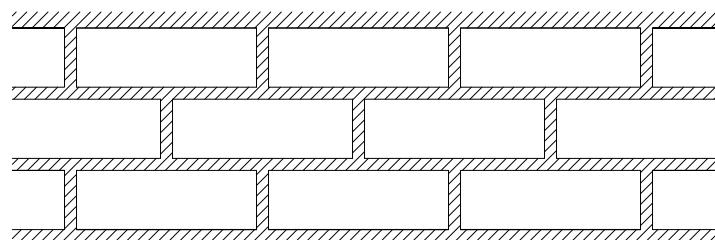
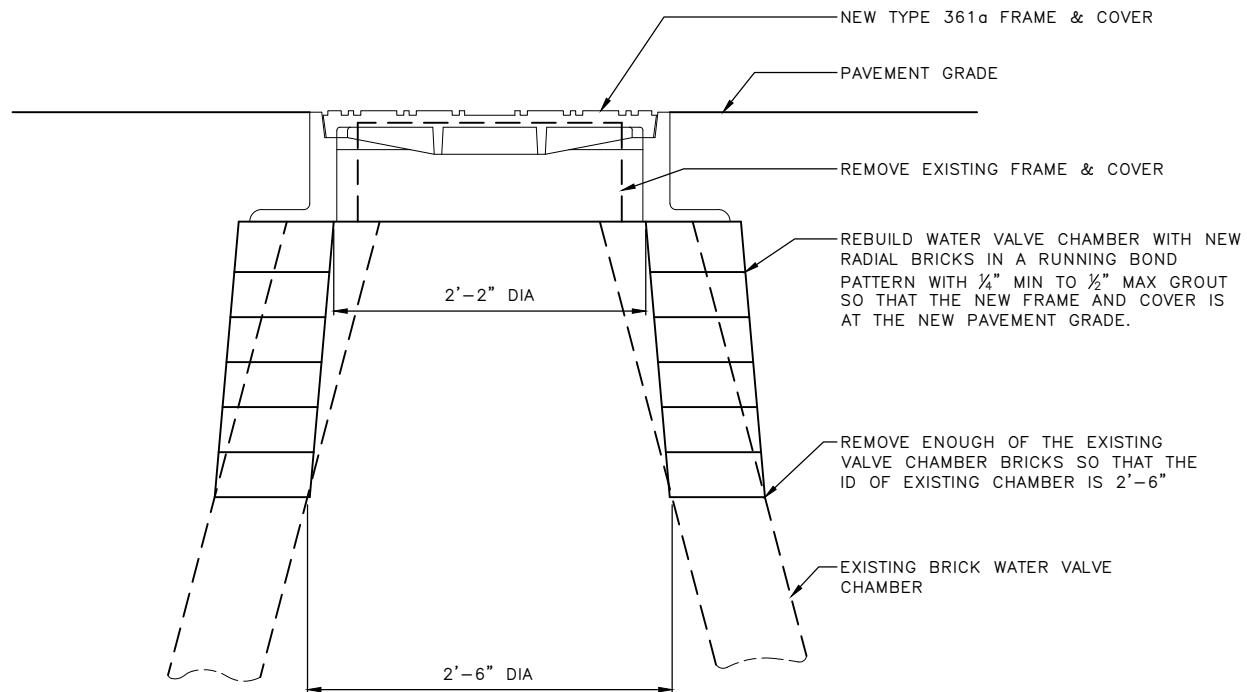
REF STD SPEC SEC 7-11



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WATERMAIN TRENCH  
AND BEDDING



REF STD SPEC SEC 7-20

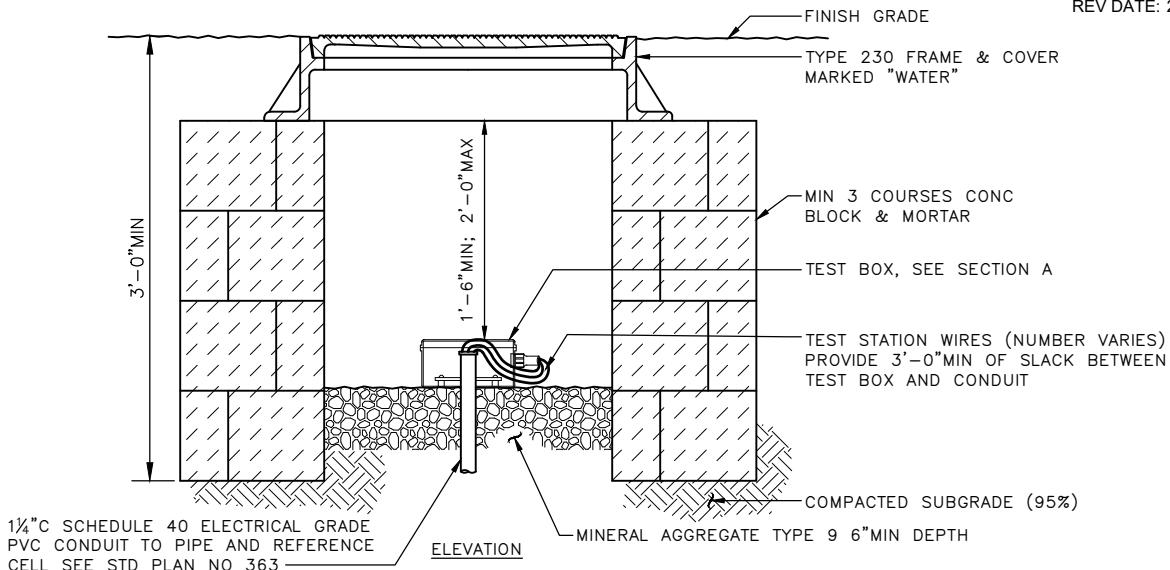
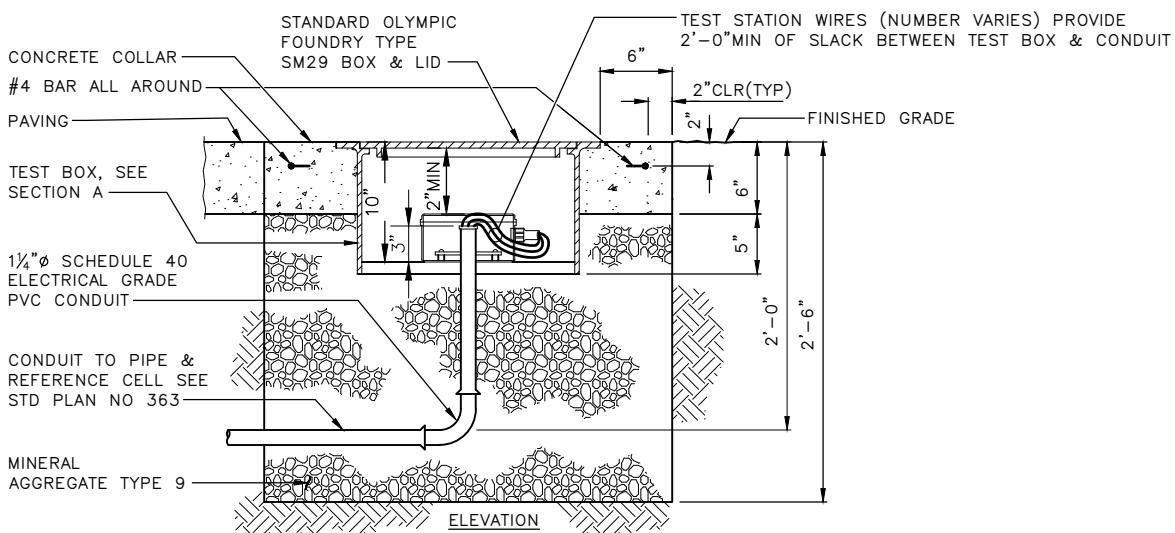
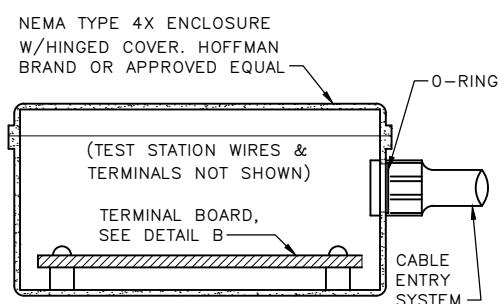
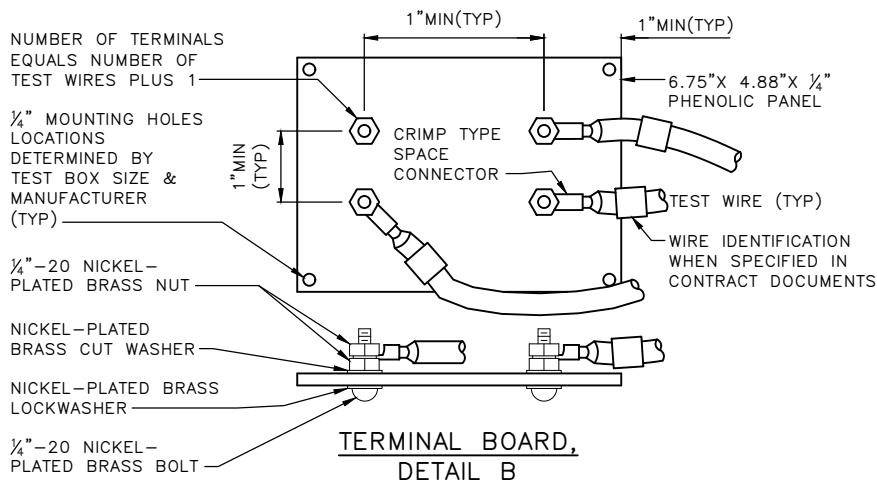


City of Seattle

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REBUILD EXISTING  
BRICK WATER VALVE CHAMBER

REV DATE: 2003

ELECTROLYSIS TEST STATION - TRAFFIC AREAELECTROLYSIS TEST STATION - NON-TRAFFIC AREATEST BOX, SECTION A

REF STD SPEC SEC 7-11

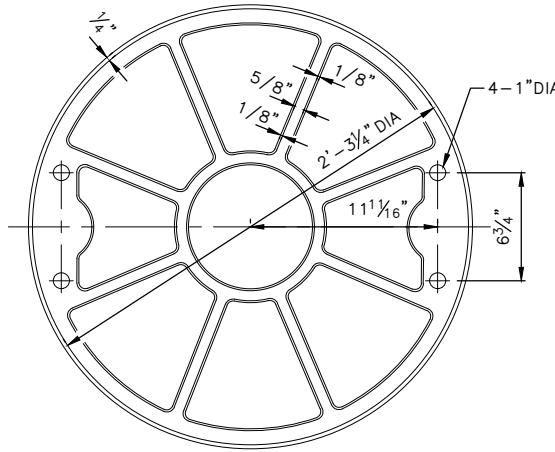


City of Seattle

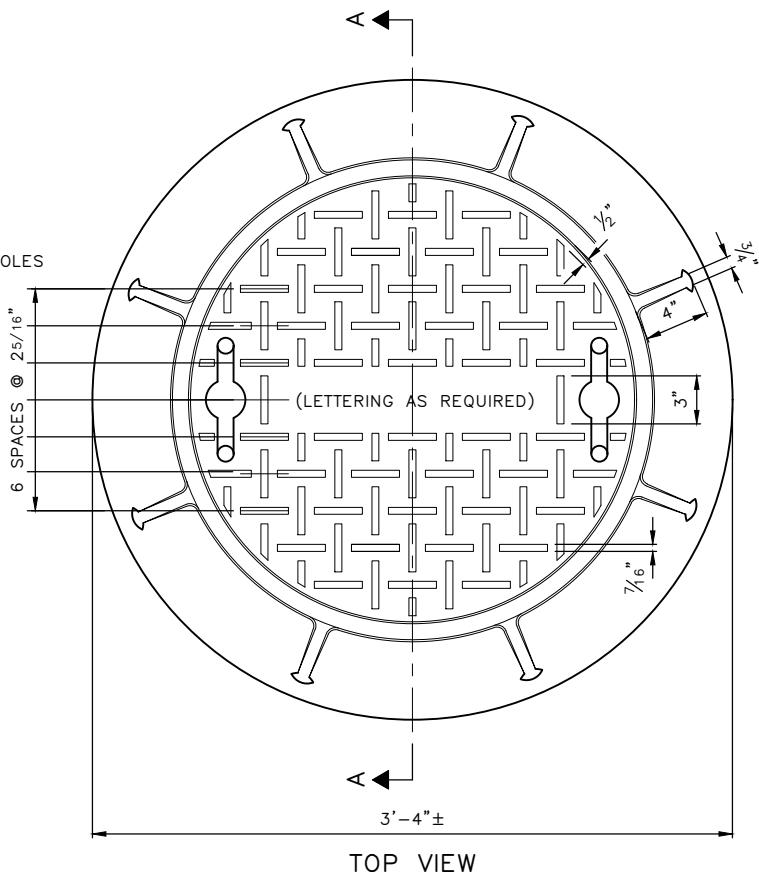
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WATERMAIN ELECTROLYSIS TEST STATION

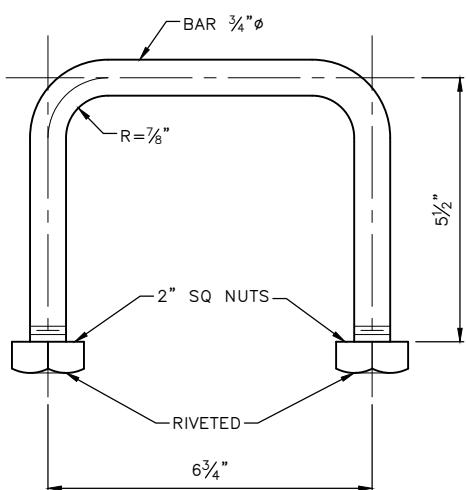
FRAME & COVER MUST BE TESTED  
FOR ACCURACY OF FIT AND MUST BE  
MARKED IN SETS FOR DELIVERY



BOTTOM VIEW



TOP VIEW

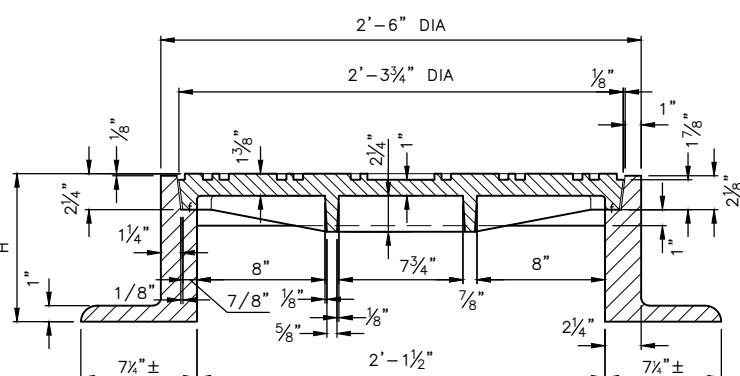


LIFTING HANDLE  
(2 REQUIRED)

TYPE 361  
H = 9 1/4"

DESIGNEE  
SHALLOW  
FRAME AS  
TYPE 361S  
H = 4 1/4"

f = MACHINED  
FINISH



SECTION A-A

REF STD SPEC SEC 7-12

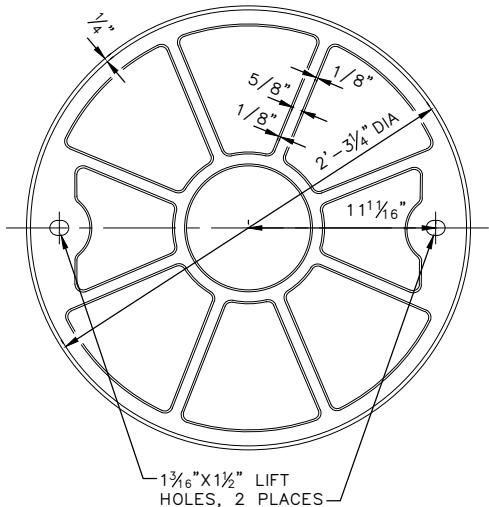


City of Seattle

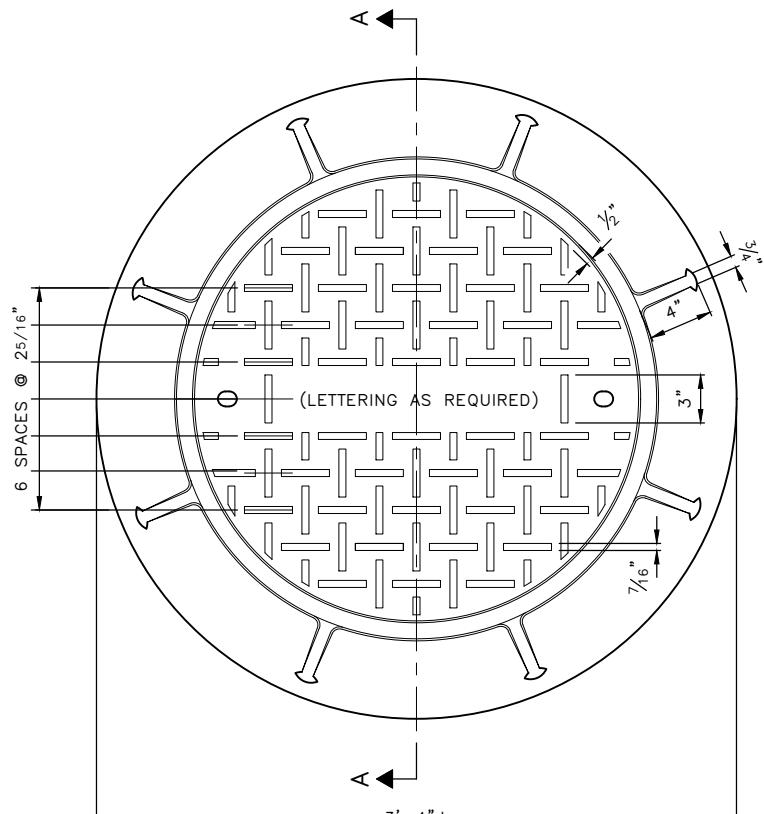
NOT TO SCALE

TYPE 361a VALVE CHAMBER  
FRAME & COVER IN  
VEHICULAR TRAVELWAYS

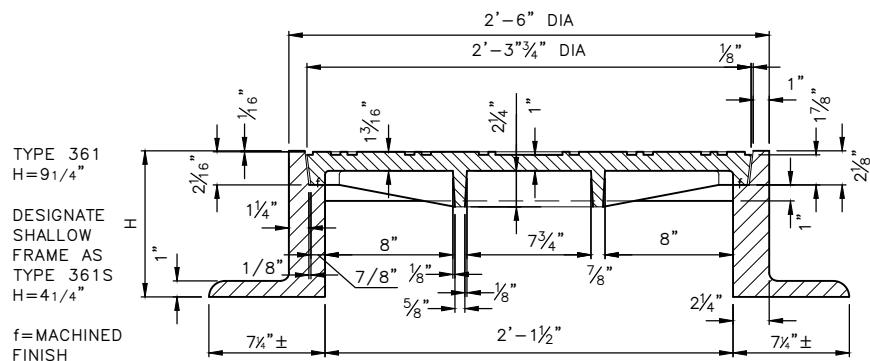
FRAME & COVER MUST BE TESTED  
FOR ACCURACY OF FIT AND MUST BE  
MARKED IN SETS FOR DELIVERY



BOTTOM VIEW



TOP VIEW



SECTION A-A

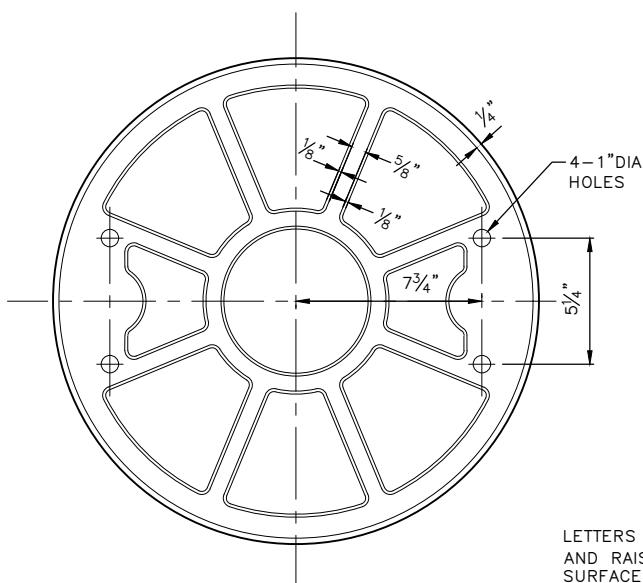
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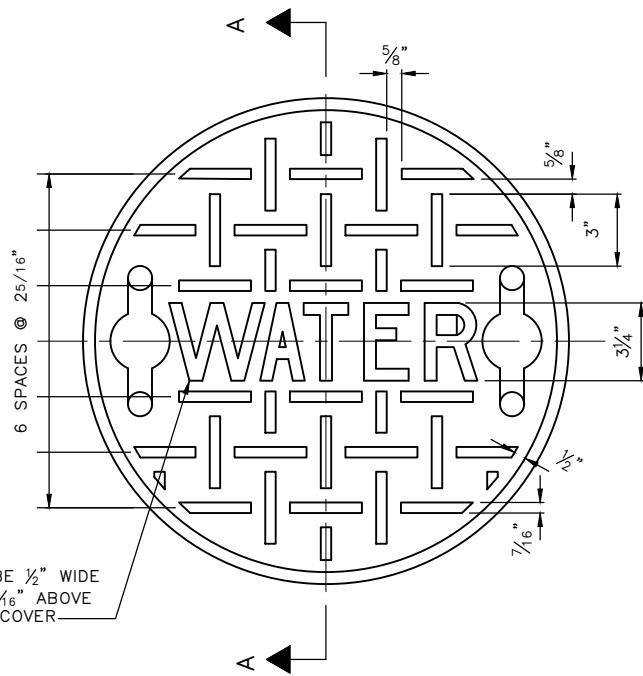
City of Seattle

NOT TO SCALE

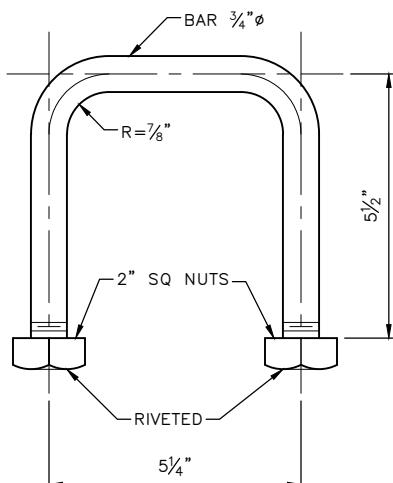
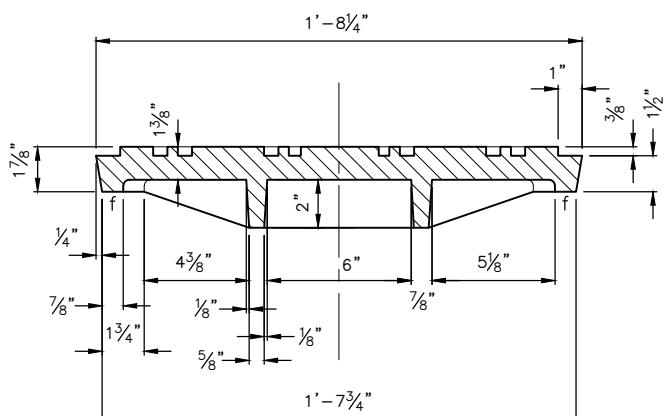
TYPE 361b VALVE CHAMBER  
FRAME & COVER IN  
PEDESTRIAN PATHWAYS



BOTTOM VIEW



TOP VIEW

LIFTING HANDLE  
(2 REQUIRED)

SECTION A-A

f=MACHINED FINISH

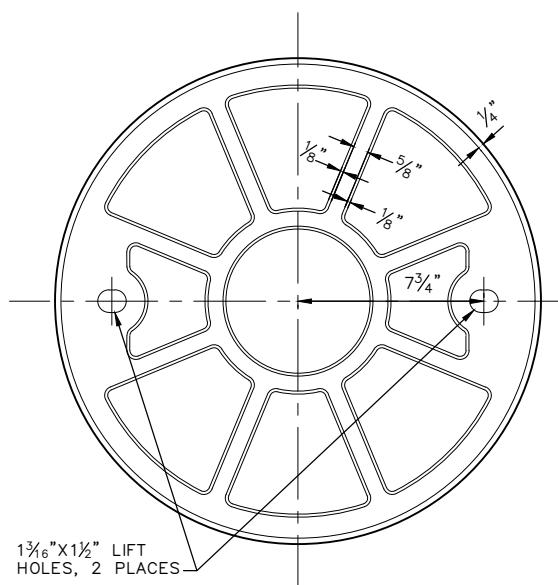
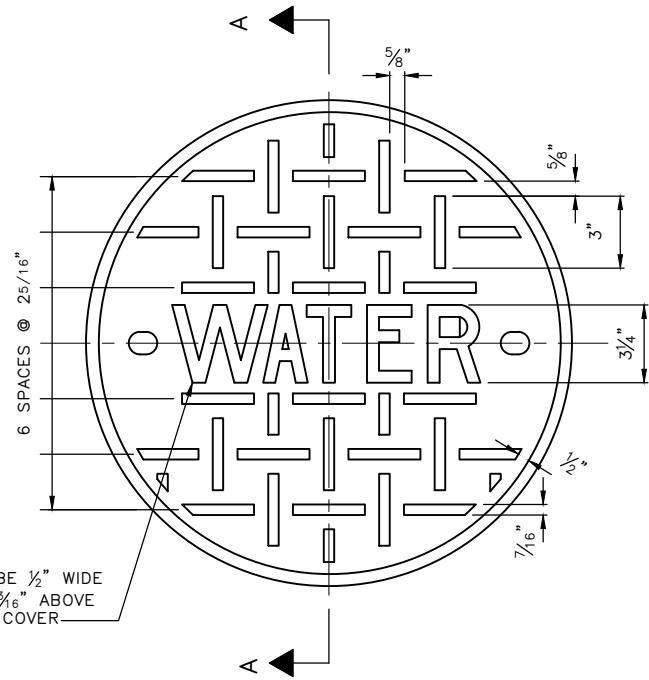
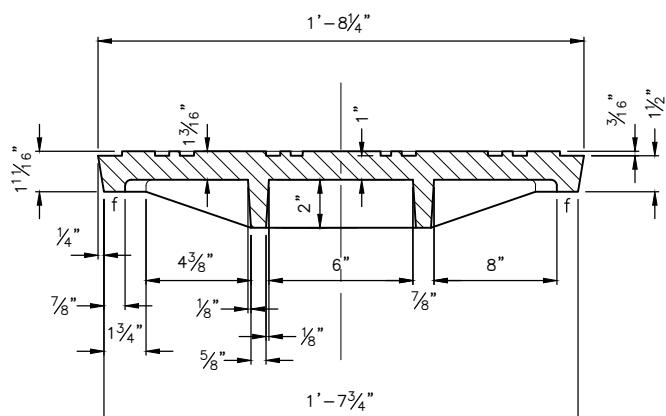
REF STD SPEC SEC 7-12, 7-20



City of Seattle

NOT TO SCALE

TYPE 361c WATER VALVE  
REPLACEMENT COVER IN  
VEHICULAR TRAVELWAYS

BOTTOM VIEWTOP VIEWSECTION A-A

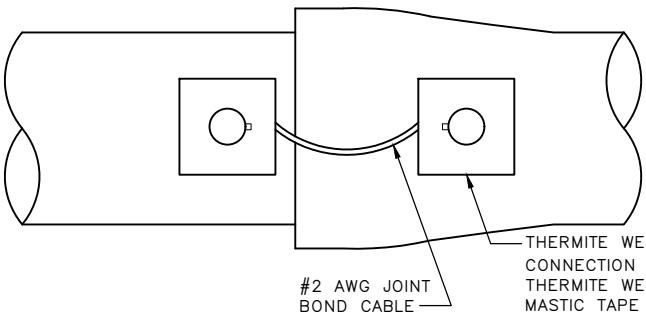
REF STD SPEC SEC 7-12, 7-20



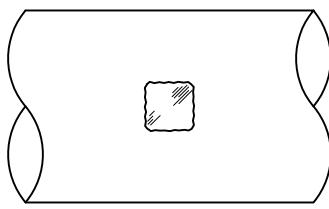
City of Seattle

NOT TO SCALE

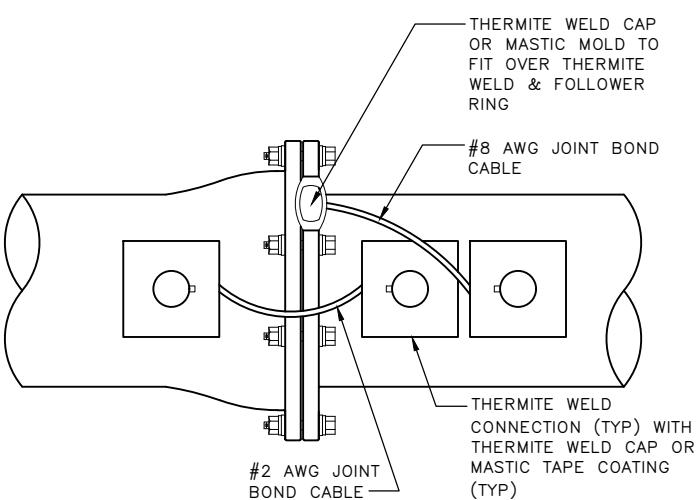
TYPE 361d WATER VALVE  
REPLACEMENT COVER IN  
PEDESTRIAN PATHWAYS



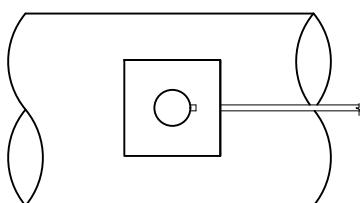
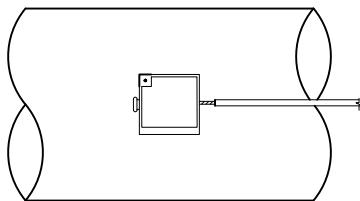
SLIP JOINT BOND CONNECTION


**CONNECTION SEQUENCE:**

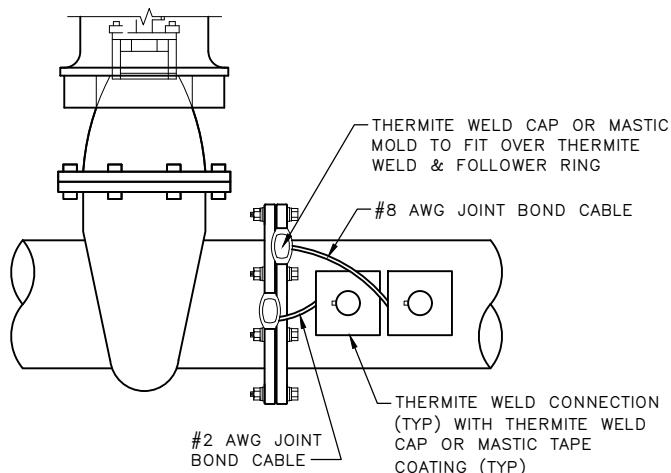
1. REMOVE PIPE COATING TO BRIGHT & CLEAN METAL
2. STRIP INSULATION FROM TEST STATION WIRE, INSTALL ADAPTER SLEEVE
3. HOLD MOLD FIRMLY WITH OPENING AWAY FROM OPERATOR AND IGNITE
4. REMOVE SLAG AND ALLOW TO COOL
5. 16 OUNCE HAMMER TEST PER STD. SPEC SEC 7-11.3(15)D1
6. FINAL CONNECTION TO BE MADE WATERTIGHT WITH MASTIC COATING OR PREFORMED THERMITE WELD CAP



MECHANICAL JOINT BOND CONNECTION



THERMITE WELD CONNECTION



VALVE JOINT BOND CONNECTION

**NOTES:**

1. JOINT BONDS FOR PIPE 16" DIAMETER AND SMALLER.
2. FOR PIPE LARGER THAN 16" DIAMETER OR IMPRESSED SYSTEMS, SEE PROJECT DRAWINGS FOR JOINT BONDING DETAILS.

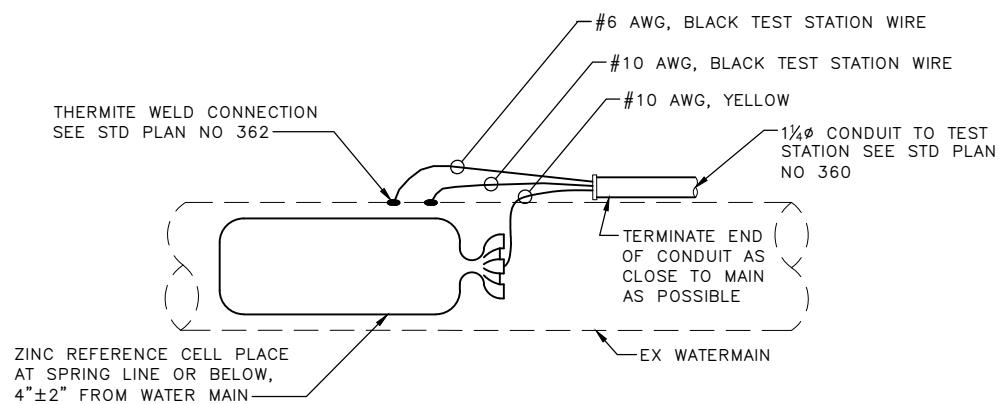
REF STD SPEC SEC 7-11



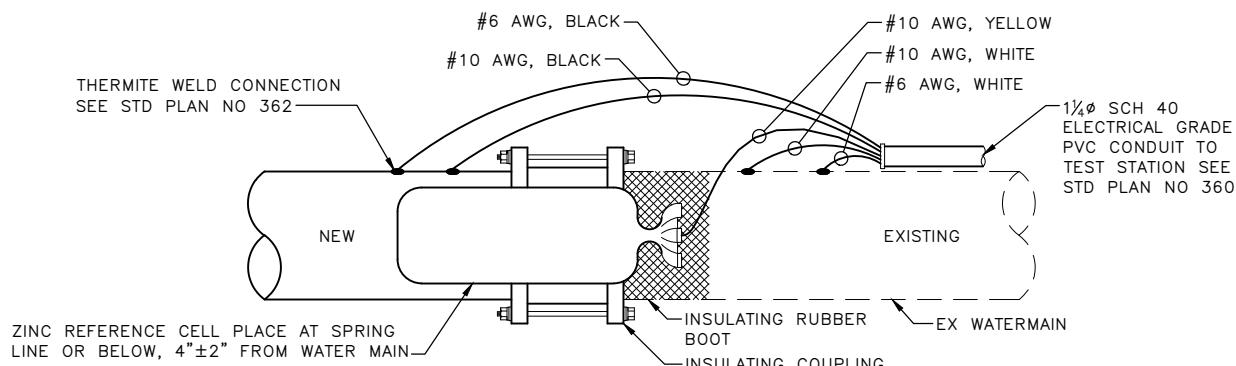
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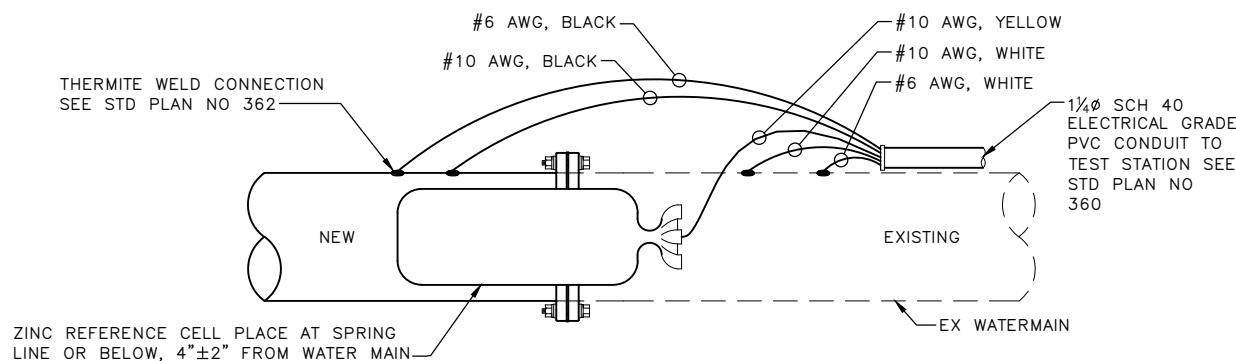
**JOINT BONDING FOR DIP WATERMAINS & JOINT BONDING DETAIL**



### STANDARD 3-WIRE TEST STATION



### INSULATING COUPLING 5-WIRE TEST STATION



### INSULATING FLANGE 5-WIRE TEST STATION

#### NOTE:

WIRE INSTALLATION PER STD SPEC SEC 9-30.12(3)

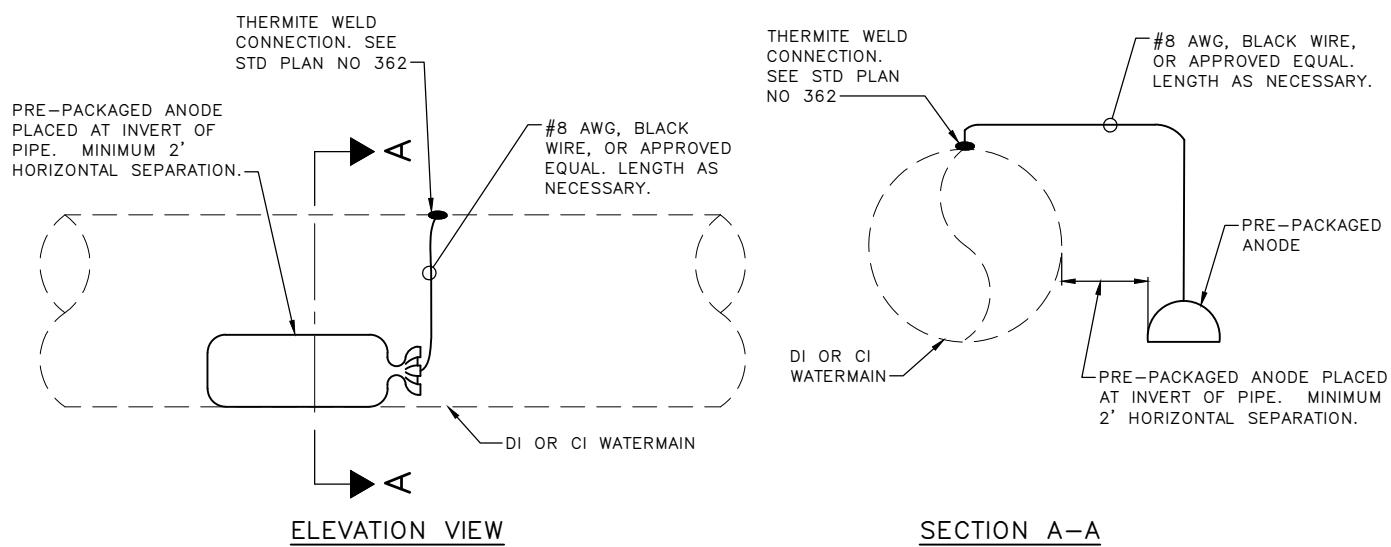
REF STD SPEC SEC 7-11.3(15), 9-30.12



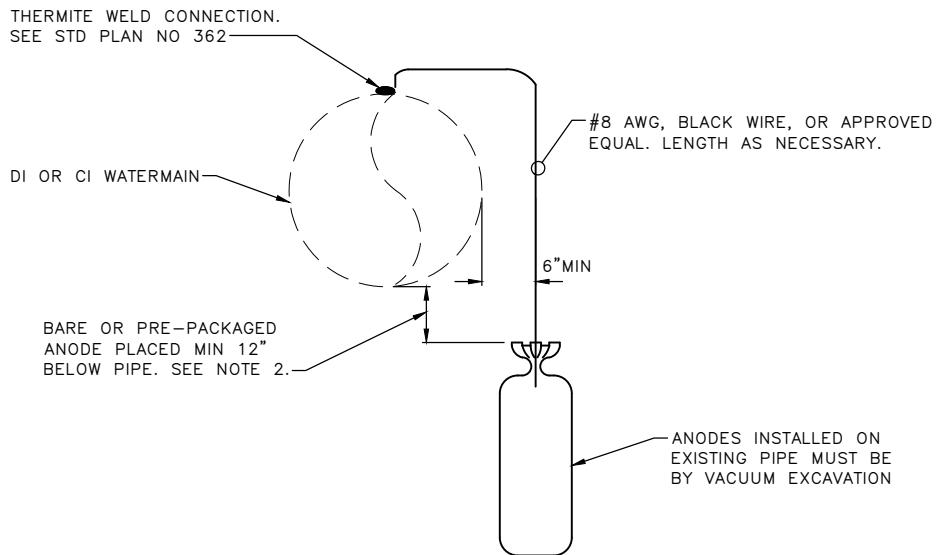
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ELECTROLYSIS TEST STATION  
WIRE INSTALLATION DETAILS



TYPICAL SINGLE  
HORIZONTAL ANODE INSTALLATION



TYPICAL SINGLE  
VERTICAL ANODE INSTALLATION

NOTES:

1. SPU CORROSION PROTECTION MAY SPECIFY TYPE AND REQUIRED SPACING OF ANODE(S) LONGITUDINALLY ALONG WATER MAIN TO BE SHOWN IN DESIGN DRAWINGS. MAXIMUM SPACING MUST BE 36' UNLESS OTHERWISE NOTED ON PLANS.
2. FOR VERTICAL ANODE INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30.(7), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 17LB HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES. TAPE MUST BE MIN 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

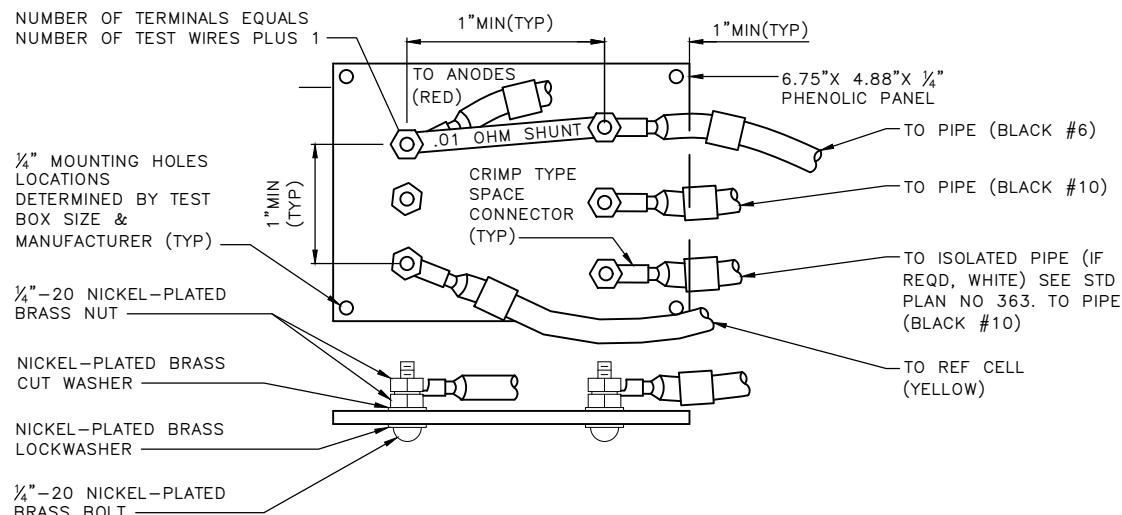
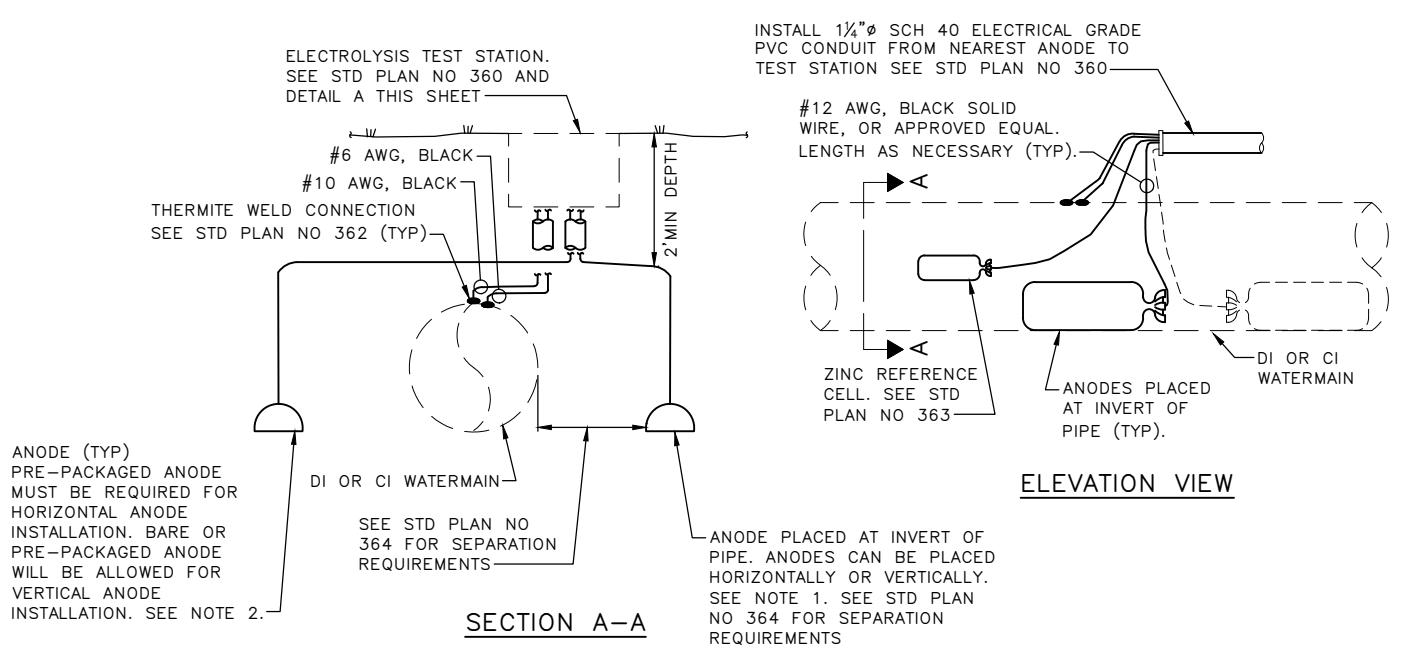
REF STD SPEC SEC 7-11, 9-30



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SACRIFICIAL ANODE  
BONDED TO PIPE  
INSTALLATION DETAILS

**TERMINAL BOARD, DETAIL A****NOTES:**

1. REQUIRED SPACING OF ANODE(S) TO BE SHOWN IN DESIGN DRAWINGS.
2. FOR VERTICAL INSTALLATION, IF ANODE IS NOT PRE-PACKAGED, BARE ANODE MUST BE INSTALLED W/ MIN 6" SACRIFICIAL ANODE BACKFILL PER SPEC SECTION 9-30.9(7), AROUND ALL SIDES OF ANODE.
3. ANODE SIZE MUST BE 17LB HIGH POTENTIAL MAGNESIUM ANODE, UNLESS OTHERWISE NOTED ON THE PLANS.
4. PLACE RED "CAUTION" OR "DANGER" TAPE 6" OVER ANODE WIRES AND CONDUIT. TAPE MUST BE MIN 3" WIDE.
5. BACKFILL OVER ANODE WITH SUITABLE NATIVE MATERIAL OR APPROVED EQUAL.

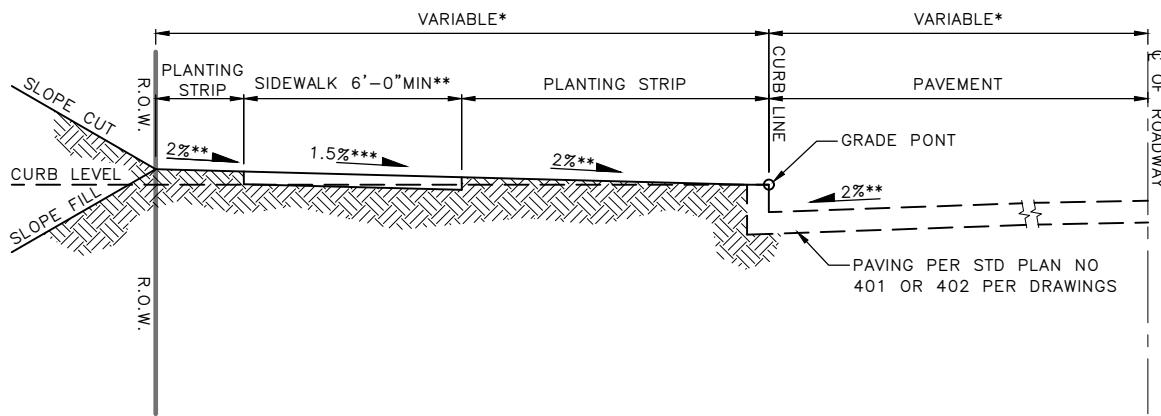
REF STD SPEC SEC 7-11, 9-30



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**SACRIFICIAL ANODE INSTALLATION DETAILS - MULTIPLE ANODES CONNECTED AT TEST STATION**



\* SEE RIGHT OF WAY IMPROVEMENT MANUAL FOR DIMENSIONS.  
\*\* UNLESS OTHERWISE APPROVED BY THE ENGINEER.  
\*\*\* 2% MAXIMUM, 0.5% MINIMUM; USE 1.5% UNLESS OTHERWISE SHOWN IN CONTRACT OR APPROVED BY THE ENGINEER.

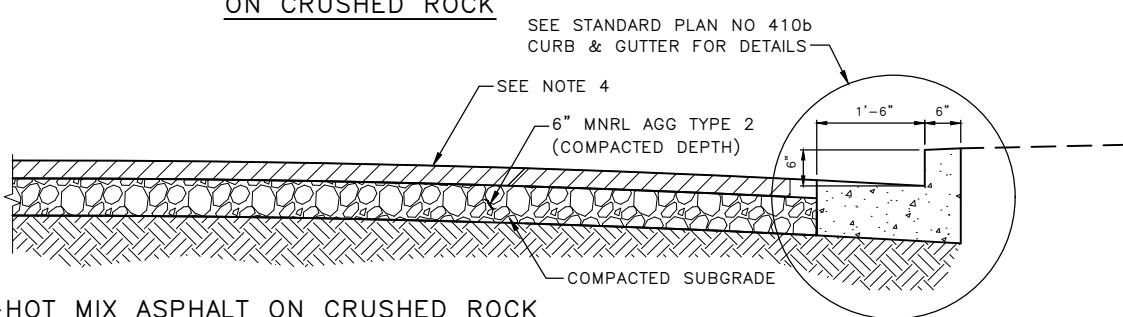
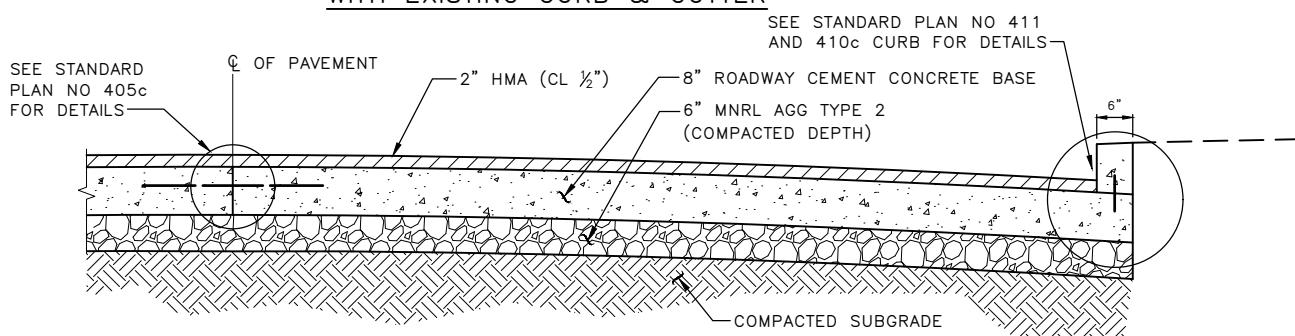
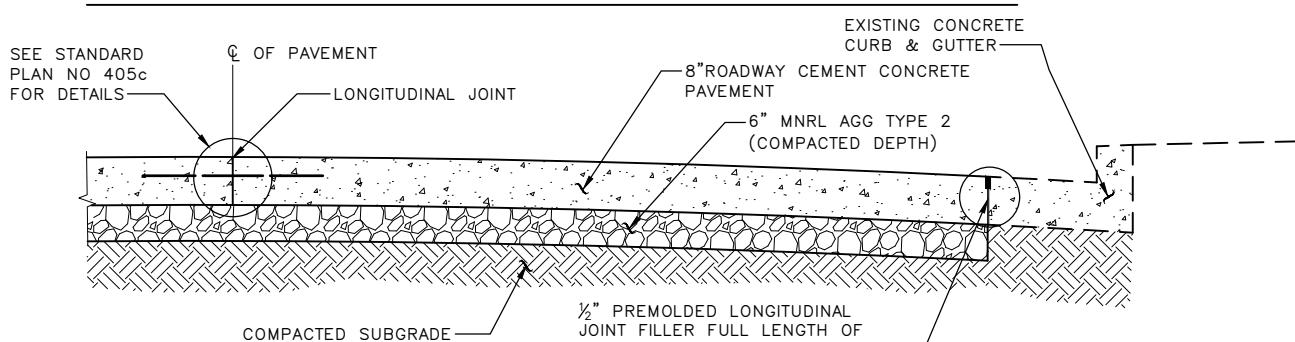
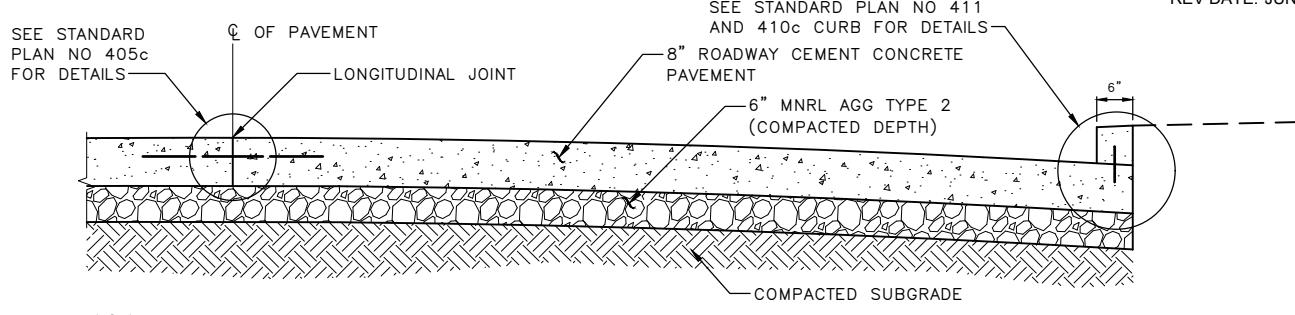
REF STD SPEC SEC 2-04



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HALF SECTION, GRADING



#### HMA DESIGN CRITERIA:

1. 3 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
2. ASPHALT PG 58H-22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS
4. PAVEMENT DEPTH MUST BE 3" HMA (CL 1/2") WHEN REPLACING BITUMINOUS SURFACE TREATED RESIDENTIAL STREETS OR 2" HMA (CL 1/2") OVER 6" HMA (CL 1") FOR ALL OTHER RESIDENTIAL STREETS.
5. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.

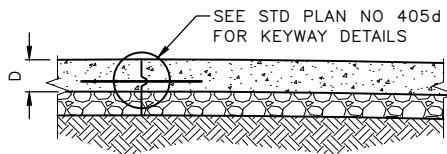
REF STD SPEC SEC 4-04, 5-04, 5-05, 8-04



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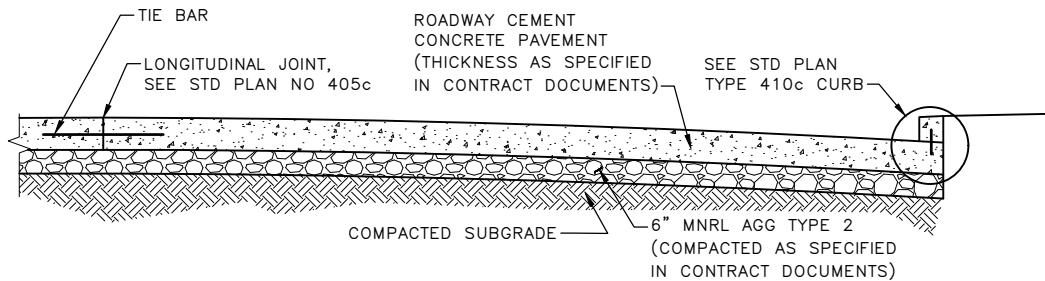
NOT TO SCALE

RESIDENTIAL PAVEMENT SECTIONS

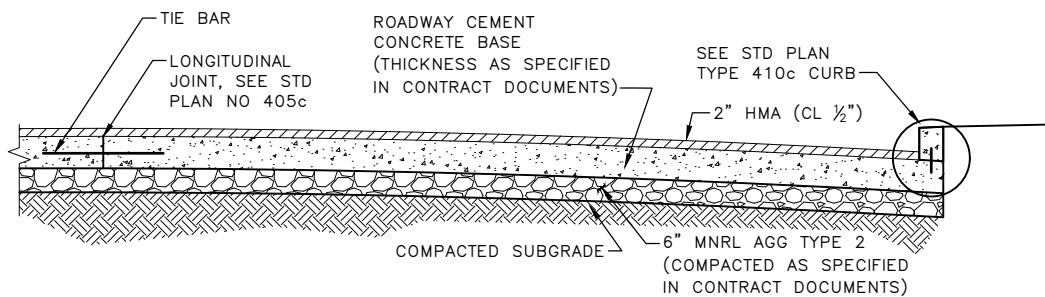


**OPTIONAL KEYWAY**  
FOR LONGITUDINAL JOINT

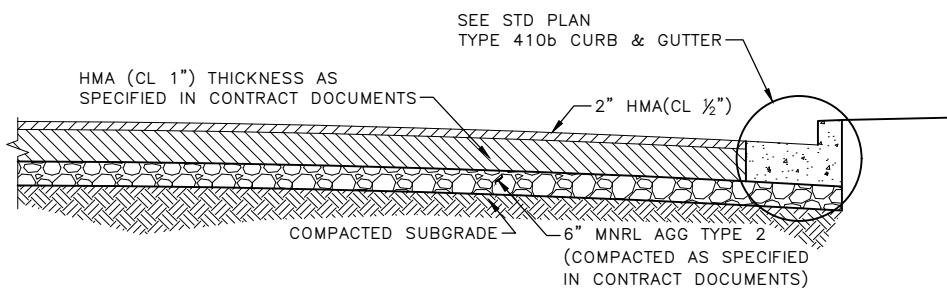
**NOTES:**  
IF CONC THICKNESS IS 9 INCH OR GREATER  
OPTIONAL KEYWAY MAY BE USED SEE STD PLANS  
NO 405c & 405d FOR DETAILS



**402A-ROADWAY CEMENT CONCRETE PAVEMENT ON CRUSHED ROCK**



**402B-HOT MIX ASPHALT ON ROADWAY CEMENT CONCRETE BASE  
ON CRUSHED ROCK**



**402C-HOT MIX ASPHALT ON CRUSHED ROCK**

**HMA DESIGN CRITERIA:**

1. 10 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
2. ASPHALT PG 58H-22 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
3. WARM MIX ASPHALT MAY BE USED IN PLACE OF HMA WHERE SHOWN ON THE DRAWINGS.
4. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.

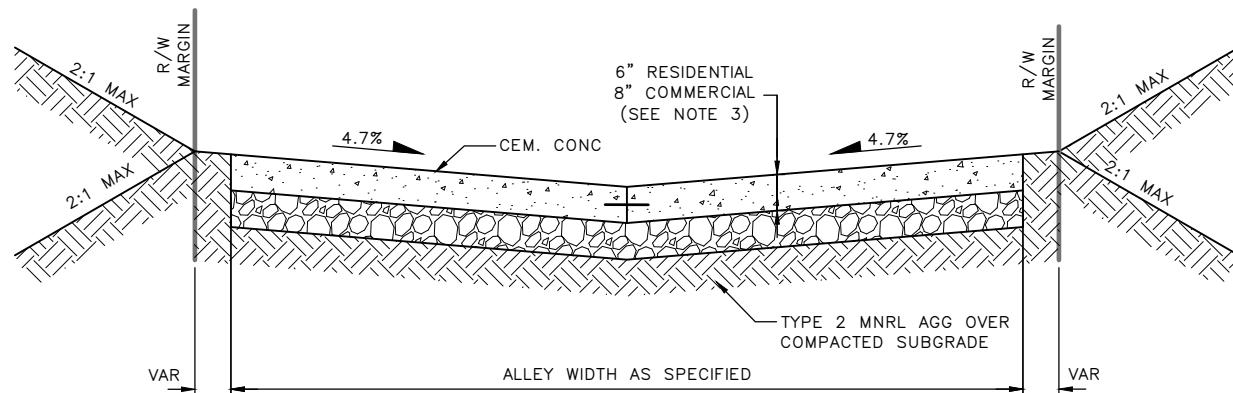
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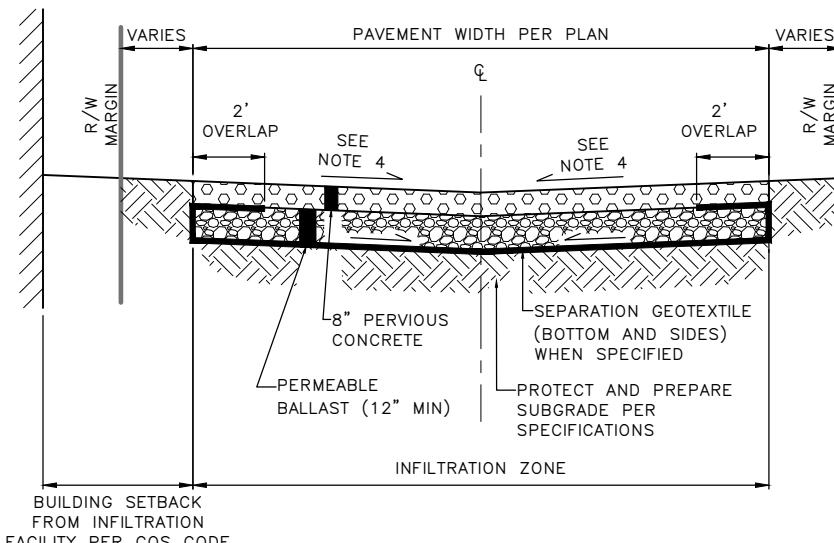
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COMMERCIAL AND  
ARTERIAL PAVEMENT  
SECTIONS



CONCRETE ALLEY PAVEMENT



PERVIOUS CONCRETE PAVEMENT

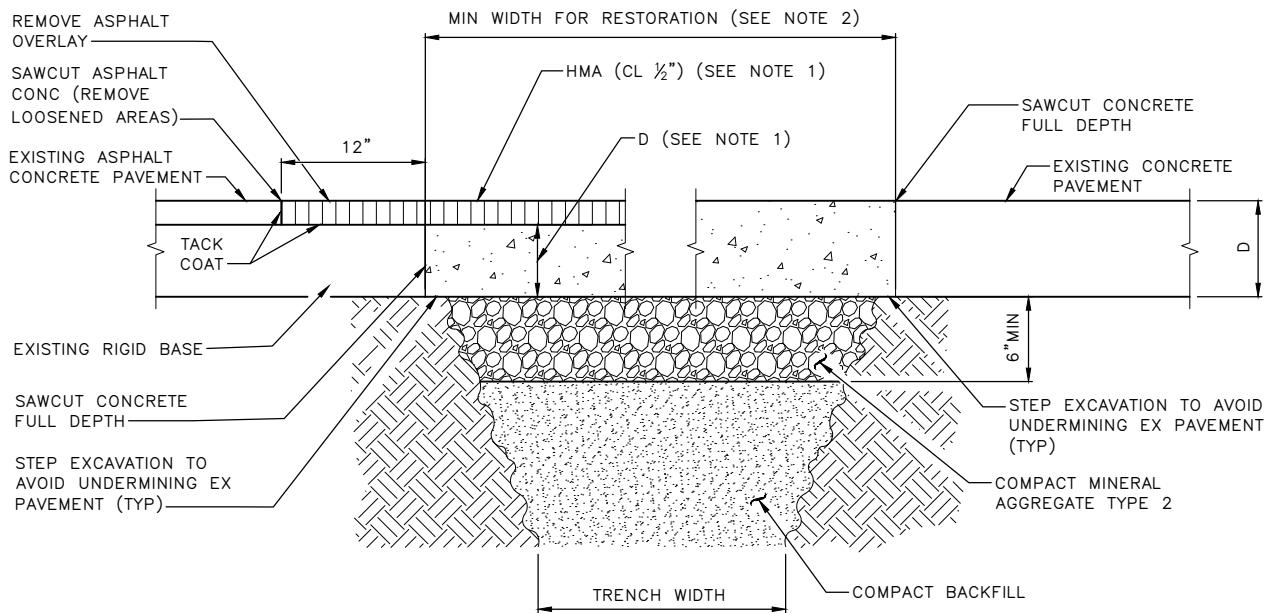
## NOTES:

1. WHEN ALLEY PAVEMENT IS 16'-0" OR WIDER PLACE CONSTRUCTION JOINT WITH TIE BAR PER STD PLAN NO 405 ALONG CENTERLINE OF ALLEY.
2. FOR ADA ACCESSIBLE ACCESS TO ENTRY IN ALLEY CONSIDER ALTERNATIVE DESIGN; SUBJECT TO APPROVAL BY THE ENGINEER.
3. 8" OR AS SHOWN IN CONTRACT OR APPROVAL BY THE ENGINEER.
4. MIN CROSS SLOPE IS 1%. MAX CROSS SLOPE IS 2%.
5. PERMEABLE BALLAST MUST BE MINERAL AGGREGATE TYPE 13, COS STD SPEC 9.03-13, UNLESS DETERMINED OTHERWISE BY ENGINEER.
6. FOR PERVIOUS CONCRETE ALLEYS, CONTRACTION JOINTS MUST NOT EXCEED 12 FT. FOR PAVEMENT THICKNESS OF 9 IN. OR LESS. FOR THICKER PAVEMENT, CONTRACTION JOINTS MAY BE 15 FT.

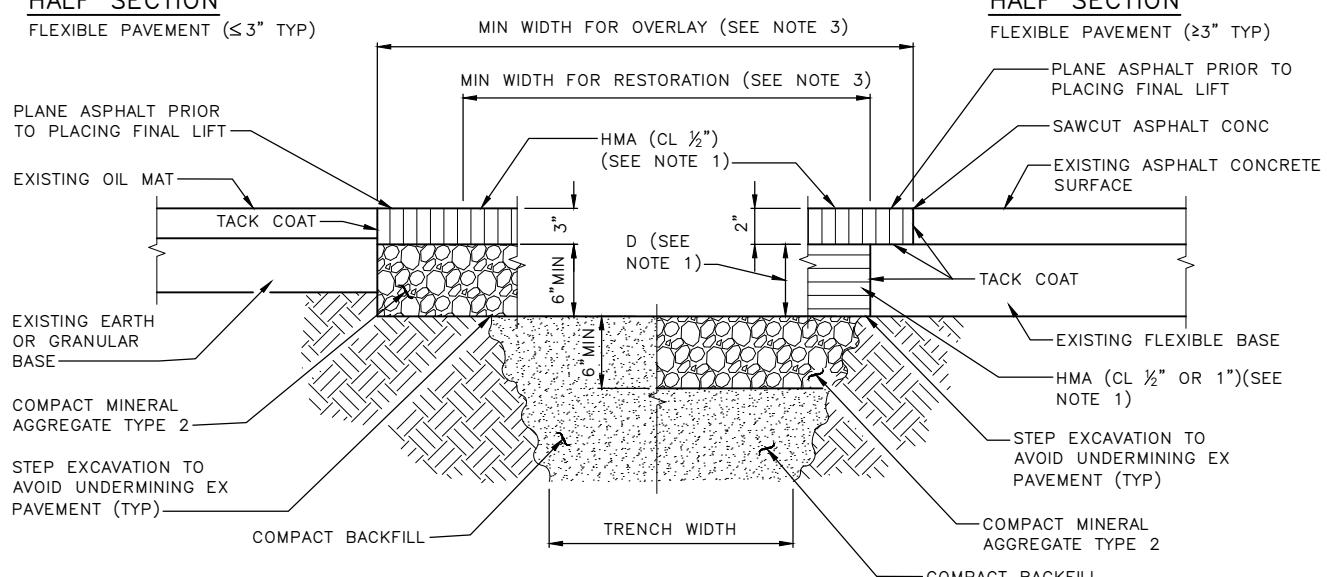


HALF SECTION

RIGID PAVEMENT WITH ASPHALT CONCRETE SURFACE

HALF SECTION

CEMENT CONCRETE PAVEMENT

HALF SECTIONFLEXIBLE PAVEMENT ( $\leq 3"$  TYP)HALF SECTIONFLEXIBLE PAVEMENT ( $\geq 3"$  TYP)TYPICAL PATCH FOR RIGID PAVEMENTTYPICAL PATCH FOR FLEXIBLE PAVEMENT

1. DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF "RIGHT OF WAY OPENING AND RESTORATION RULES".
2. FOR RIGID PAVEMENT (FULL DEPTH), WIDTH OF RESTORATION MUST EXTEND TO FULL PANEL WIDTH, OR AS REQUIRED IN THE "RIGHT OF WAY OPENING AND RESTORATION RULES" FOR OVERSIZED OR NON-STANDARD PANELS.
3. FOR FLEXIBLE PAVEMENT (FULL DEPTH & OVERLAY) RESTORATION WIDTH MUST MEET REQUIREMENTS OF STANDARD PLAN NO 404c AND THE "RIGHT OF WAY OPENING AND RESTORATION RULES".

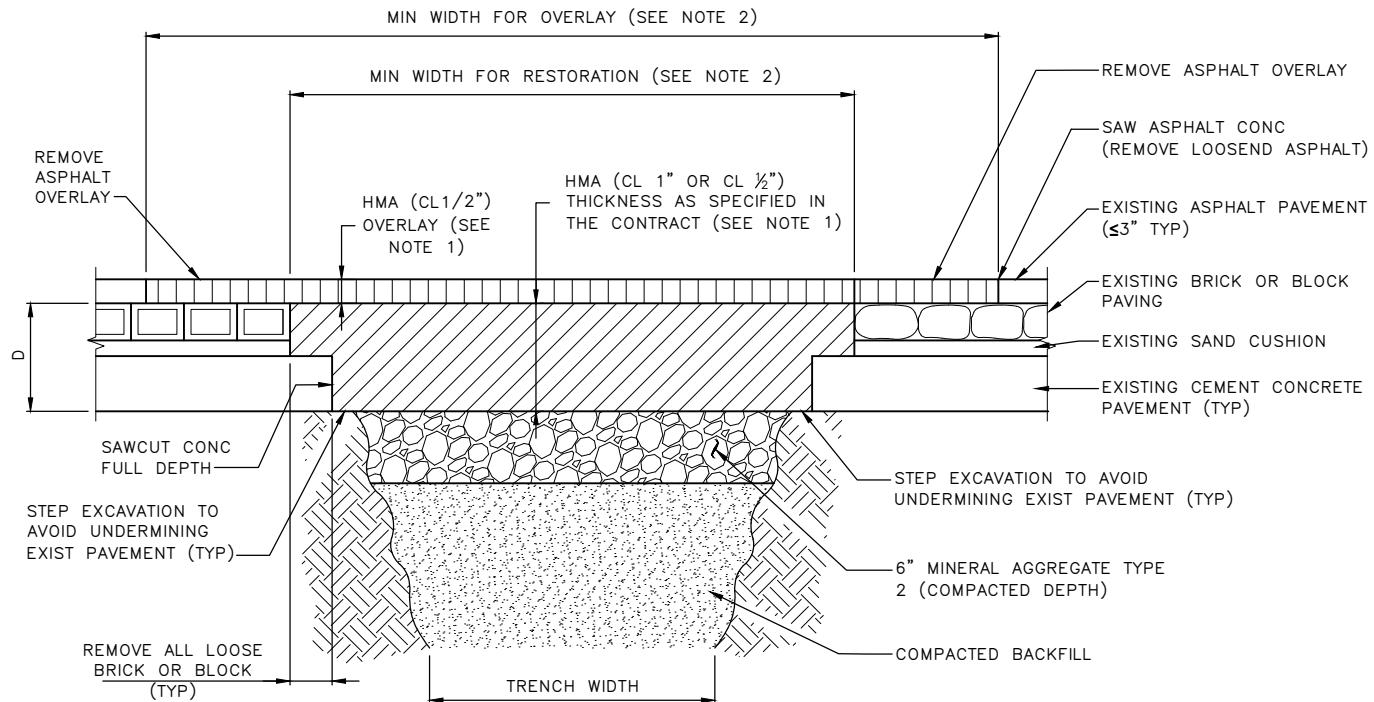
REF STD SPEC SEC 2-02, 5-04, 5-05



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PAVEMENT PATCHING



HOT MIX ASPHALT OVER SHEET ASPHALT, BRICK, OR STONE BLOCK PAVEMENT  
HALF SECTION

1. DEPTH OF RESTORATION MUST MEET THE REQUIREMENTS OF THE "RIGHT OF WAY OPENING AND RESTORATION RULES".
2. WIDTH OF RESTORATION MUST EXTEND TO FULL PANEL WIDTH, OR AS REQUIRED IN THE "RIGHT OF WAY OPENING AND RESTORATION RULES" FOR OVERSIZED OR NON-STANDARD PANELS.

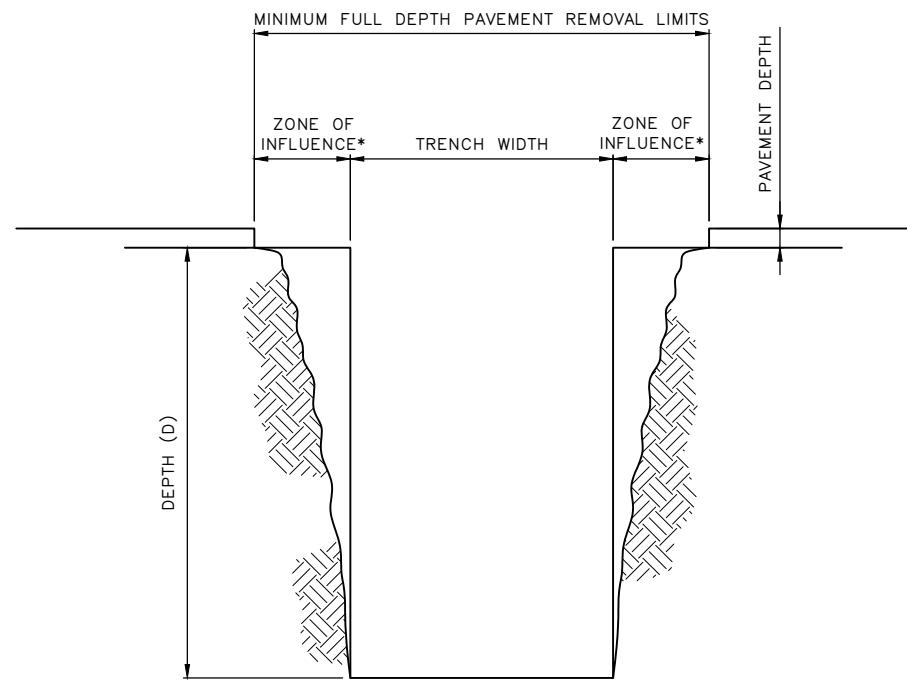
REF STD SPEC SEC 2-02, 5-04, 5-05



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NOT TO SCALE

PAVEMENT PATCHING



\*TYPICALLY D/4

**NOTES:**

1. DUE TO POTENTIAL LOSS OF SOIL STRENGTH IN AREAS ADJACENT TO TRENCH OPENINGS, PAVEMENT REMOVAL MUST BE WIDENED TO INCLUDE THE ZONE OF INFLUENCE.
2. SEE "RIGHT-OF-WAY OPENING AND RESTORATION RULES" FOR MORE INFORMATION ON PAVEMENT OPENINGS ZONE OF INFLUENCE.  
[HTTP://WWW.SEATTLE.GOV/TRANSPORTATION/STUSE\\_PAVEMENTOPEN.HTM](http://WWW.SEATTLE.GOV/TRANSPORTATION/STUSE_PAVEMENTOPEN.HTM)

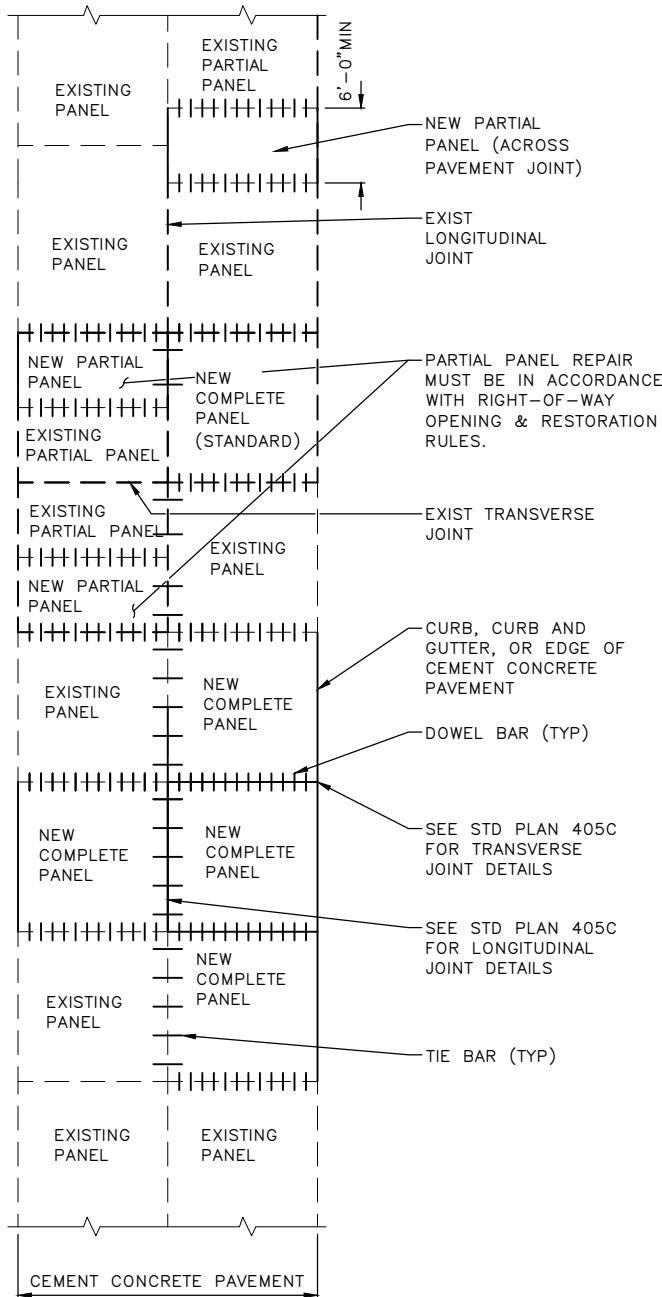
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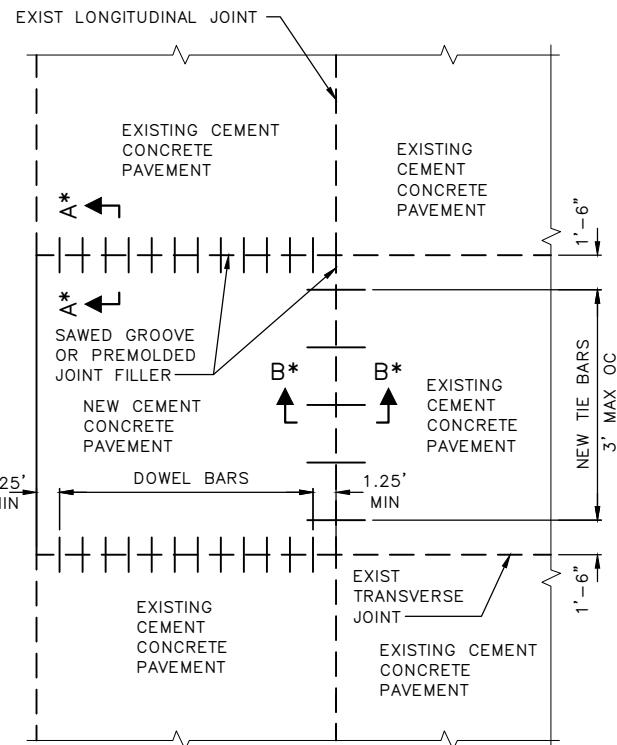
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NOT TO SCALE

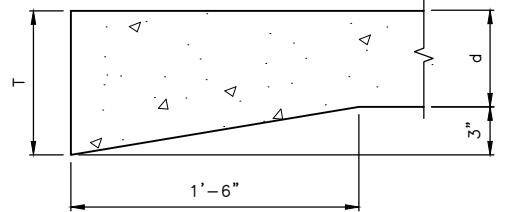
PAVEMENT OPENING  
ZONE OF INFLUENCE



PLAN VIEW  
PANEL REPLACEMENT



PLAN VIEW  
COMPLETE PANEL REPLACEMENT



THICKENED EDGE DETAIL  
(REQUIRED ONLY WHERE SHOWN ON THE DRAWINGS)

NOTES

1. INSTALL TIE BARS ALONG LONGITUDINAL JOINT BETWEEN FULL PANEL REPLACEMENT AND EXIST CEMENT CONC PAVEMENT. TIE BARS ARE NOT INSTALLED BETWEEN CEMENT CONC PAVEMENT AND HOT MIX ASPHALT SHOULDERS.
2. TIE BARS AND DOWELS ARE NOT REQUIRED:
  - 2.1. WHEN INDICATED ON THE DRAWINGS BY "NO TIE BARS" OR "NO DOWEL BARS".
  - 2.2. WHEN EXISTING PAVEMENT IS 8" OR LESS OR WHEN THE ENGINEER DETERMINES THE EXISTING CONC NOT TO BE COMPETENT.
3. DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE LANES.
4. WHEN PAVING ADJACENT TO EXISTING PANELS, THE NEW TRANSVERSE JOINTS MUST BE PLACED TO MATCH JOINT LOCATIONS OF THE EXISTING ADJACENT PAVEMENT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SEE STD PLAN NO 405C FOR MAXIMUM TRANSVERSE JOINT SPACING.

A\* SEE SECTION A-A STANDARD PLAN 405b

B\* SEE SECTION B-B STANDARD PLAN 405b

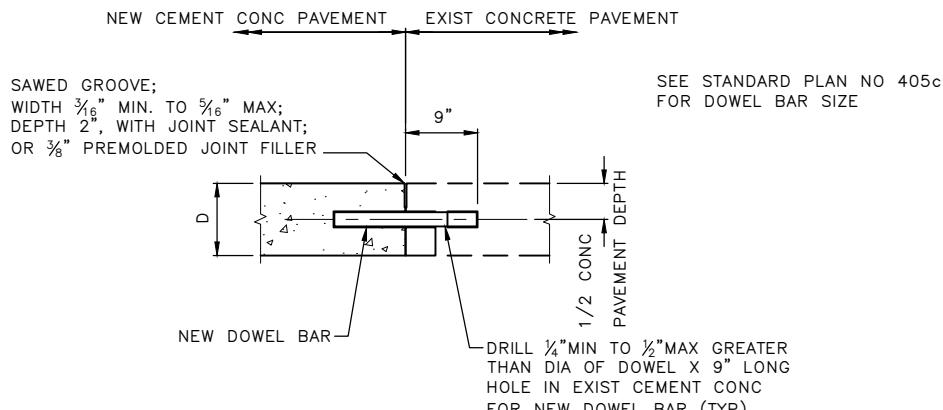
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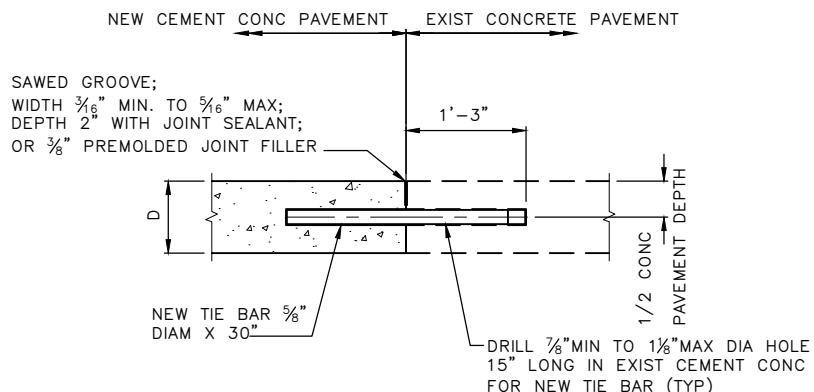
City of Seattle

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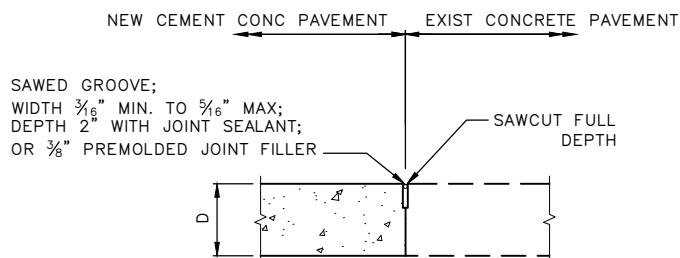
ROADWAY CONCRETE  
PAVEMENT REPAIR



**SECTION A-A**  
DOWEL BAR DETAIL



**SECTION B-B**  
tie bar detail



WITHOUT TIE BAR OR DOWEL  
USE ONLY WHEN SHOWN IN  
CONTRACT OR APPROVED BY  
THE ENGINEER

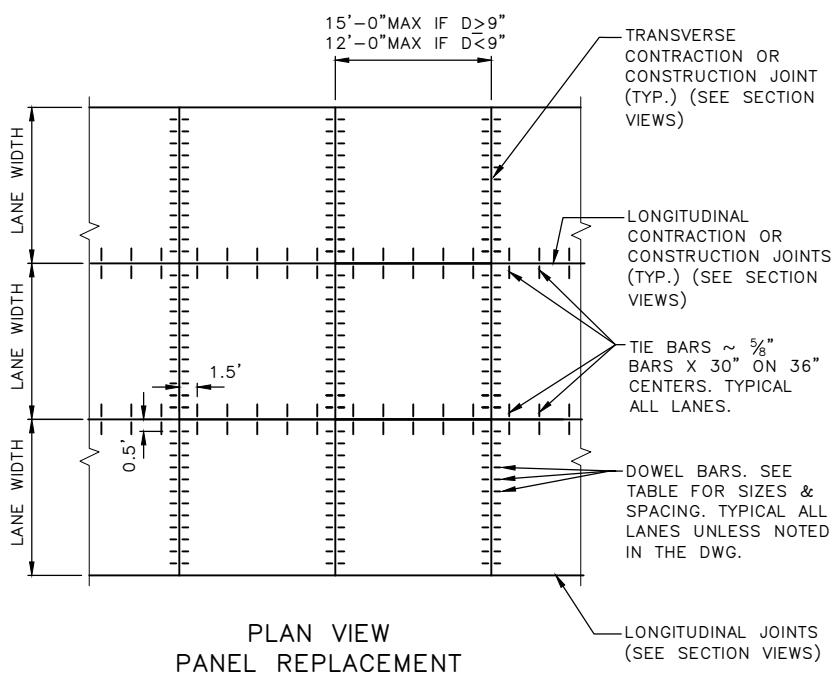
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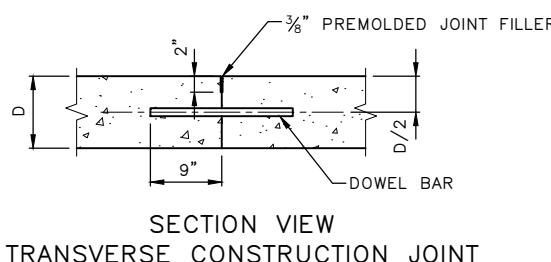
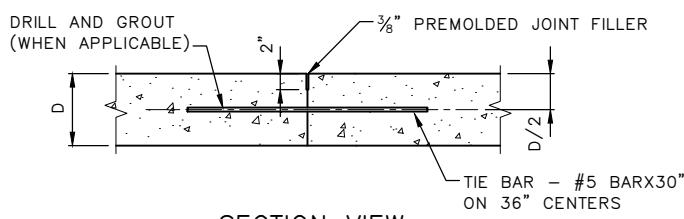
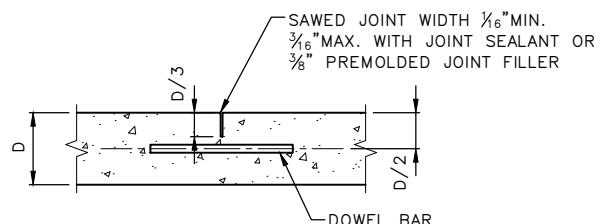
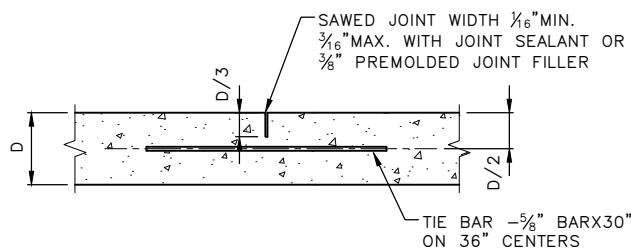
PAVEMENT REPAIR  
DOWEL BAR AND  
TIE BAR DETAILS

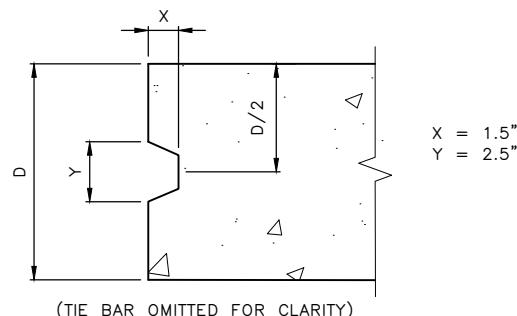
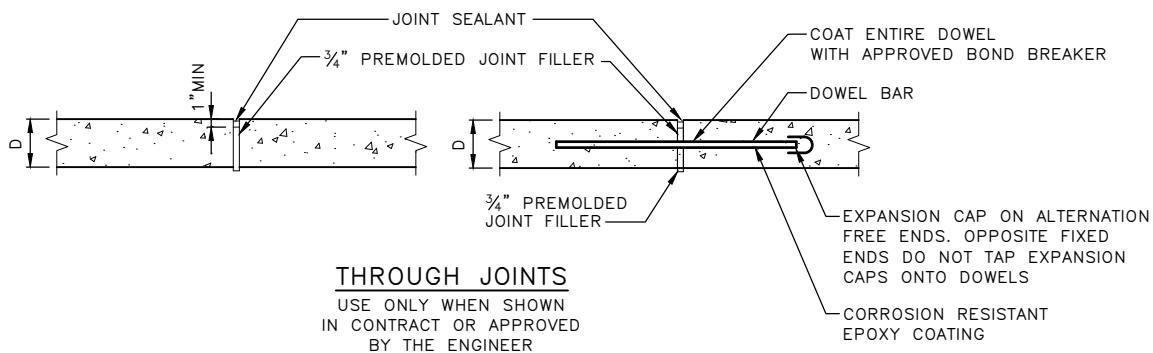


## NOTES:

1. DO NOT PLACE LONGITUDINAL JOINTS OR SKEWED JOINTS WITHIN BIKE LANES.
2. WHEN A JOINT IS WITHIN 18 INCHES OF A CASTING JOINTS SHOULD BE SKEWED TO MEET THE CASTING AT 90 DEGREES UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR SHOWN ON THE DRAWINGS.
3. SEE STD PLAN NO 406 OR DRAWINGS FOR REBAR DETAIL AROUND CASTING 18 INCHES OR GREATER FROM JOINTS.
4. DOWEL BARS MUST NOT BE PLACED WITHIN 15 INCHES OF THE EDGE OF PAVEMENT OR A PARALLEL JOINT.
5. DOWEL BARS NOT REQUIRED FOR RESIDENTIAL PAVEMENT SECTIONS. SEE STD PLAN NO 401.

DEPTH (D) OF RDWY CEM. CONC	SOLID STEEL DOWEL BAR SIZE OUTSIDE DIAMETER (OD) X LENGTH (L) @ ON CENTER (OC)	TUBULAR DOWEL BAR SIZE OUTSIDE DIAMETER (OD), WALL THICKNESS X LENGTH (L) @ ON CENTER (OC)
6" ≤ D < 9"	1.00" OD X 18" L @ 12" OC	1.375" OD, 0.120: MIN X 18" L @ 12" OC
9" ≤ D < 11"	1.25" OD X 18" L @ 12" OC	1.375" OD, 0.120: MIN X 18" L @ 12" OC
11" ≤ D	1.50" OD X 18" L @ 12" OC	1.625" OD, 0.120: MIN X 18" L @ 12" OC



**NOTE:**

USE OF OPTIONAL KEYWAY MAY BE REVOKED BY THE ENGINEER AT ANYTIME DUE TO QUALITY CONTROL ISSUES WITH MAINTAINING PLACEMENT REQUIREMENTS WITHIN  $\pm \frac{1}{8}$  INCH VERTICALLY.

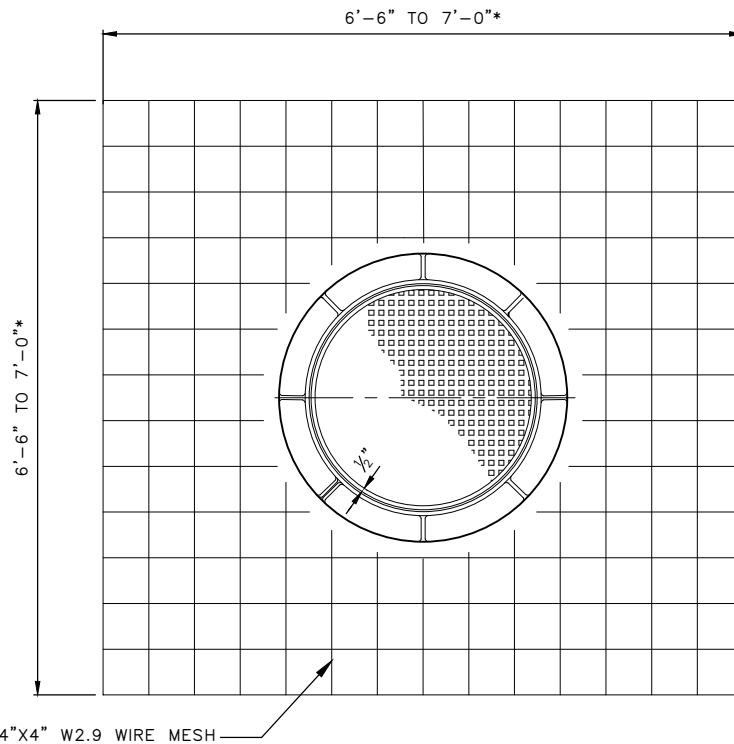
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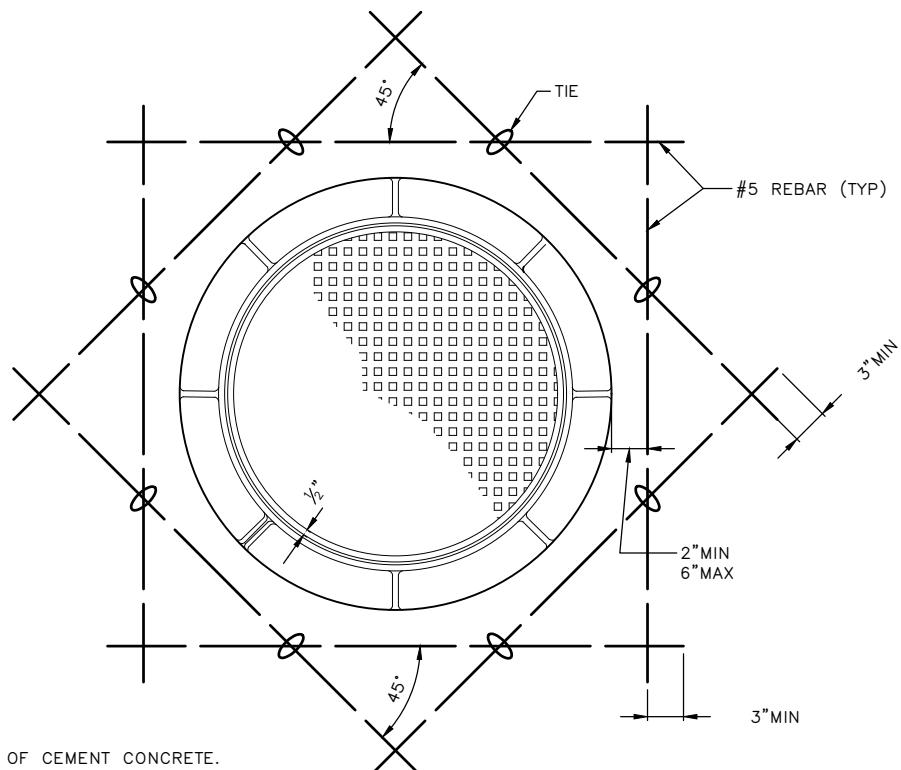
City of Seattle

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**THROUGH JOINTS AND  
OPTIONAL KEYWAYS FOR  
CEMENT CONCRETE ROADWAY**

**NOTES:**

1. PLACE WIRE MESH AT  $\frac{1}{2}$  DEPTH OF CEMENT CONCRETE.
2. \*THE DIMENSIONS OF THE MESH MUST BE ADJUSTED WHERE PAVEMENT JOINTS ARE ENCOUNTERED.
3. NO REINFORCING STEEL MUST BE WITHIN  $2\frac{1}{2}$  INCHES (3 INCHES DESIRED) OF ANY CEMENT CONCRETE SURFACE OR JOINT.

**NOTES:**

1. PLACE REBAR AT  $\frac{1}{2}$  DEPTH OF CEMENT CONCRETE.
2. NO REINFORCING STEEL MUST BE WITHIN  $2\frac{1}{2}$  INCHES (3 INCHES DESIRED) OF ANY CEMENT CONCRETE SURFACE OR JOINT.

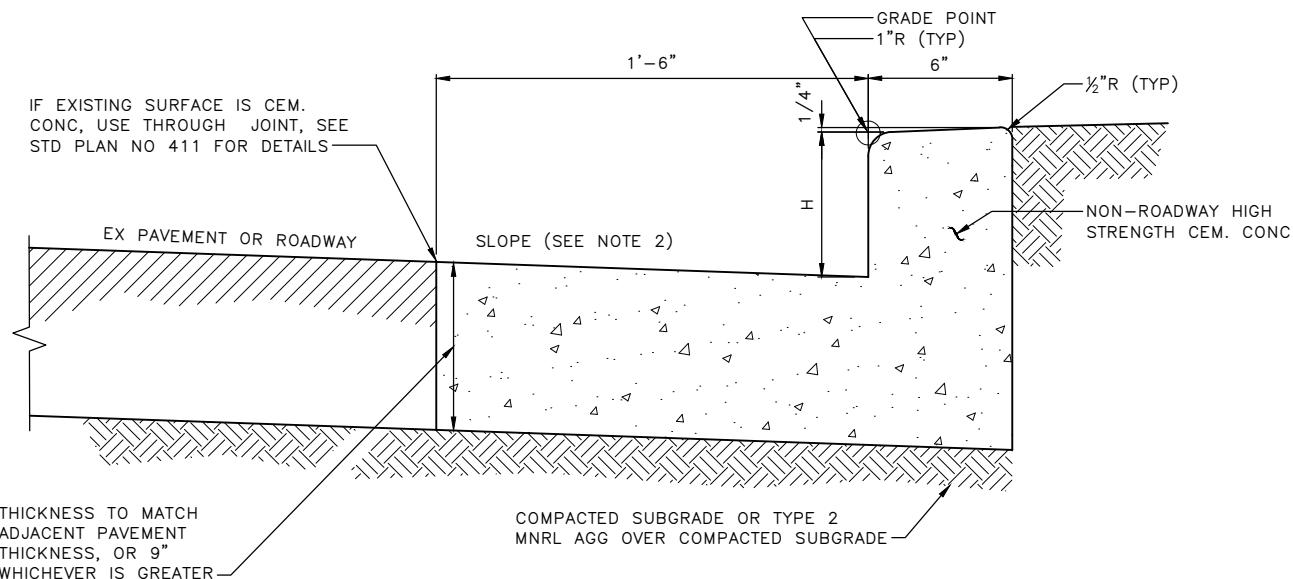
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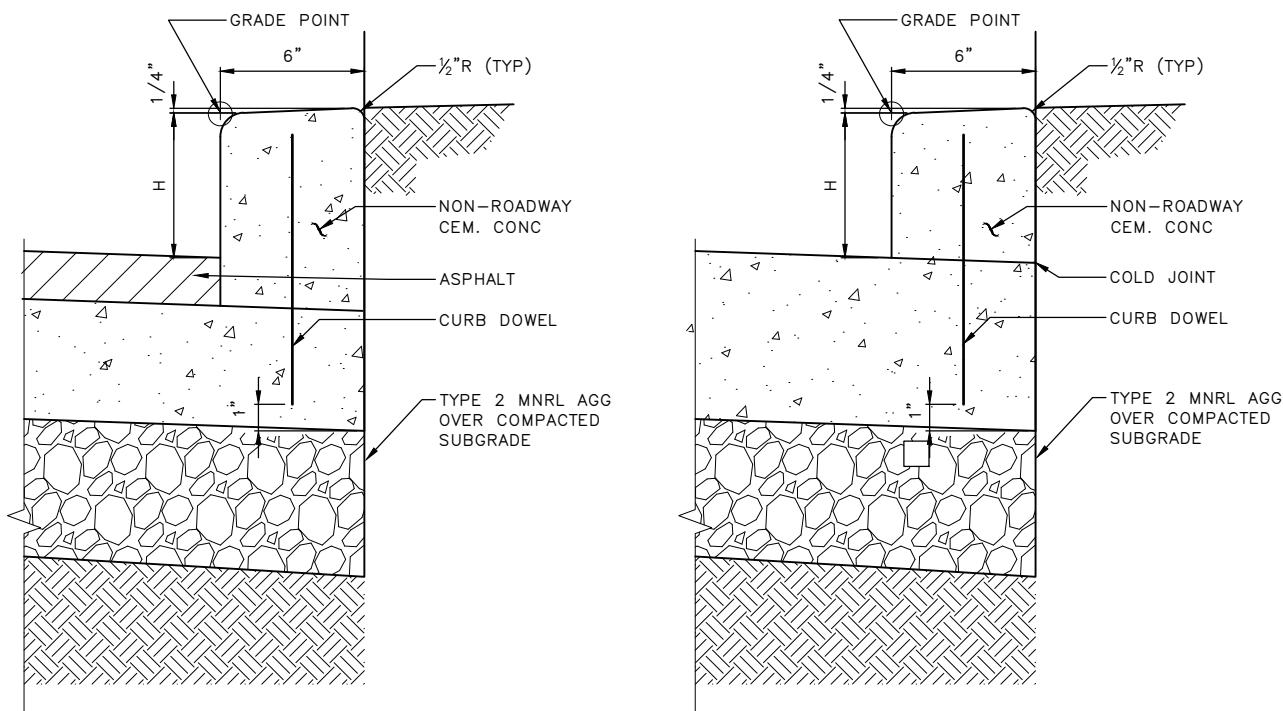
City of Seattle

NOT TO SCALE

FRAME & COVER CEMENT  
CONCRETE REINFORCEMENT  
DETAIL



#### 410B CURB & GUTTER



#### 410C CURB

##### NOTES:

1. "H" MUST BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SHOWN ON DRAWINGS
2. GUTTER MUST BE SLOPED THE SAME AS ADJACENT PAVEMENT OR 2% MIN, WHICHEVER IS GREATER.
3. SEE STD PLAN NO 411 FOR CURB DOWELS

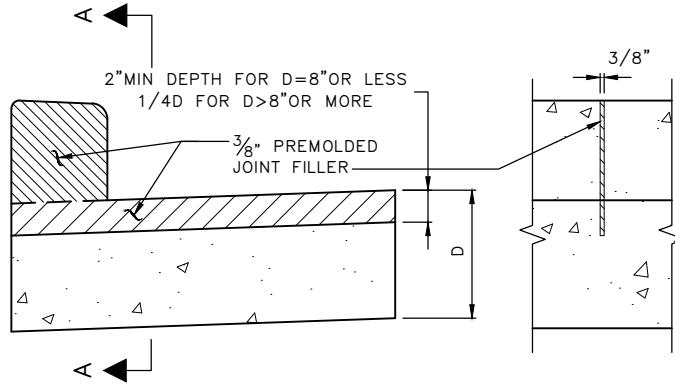
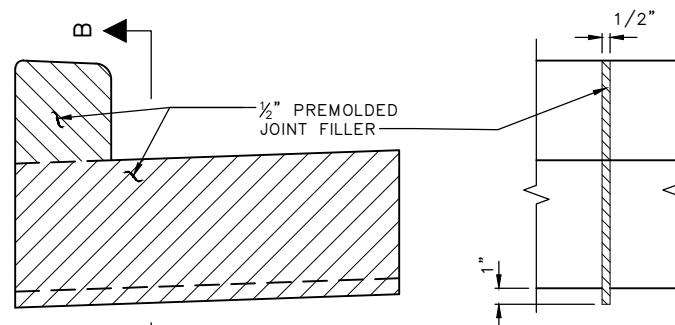
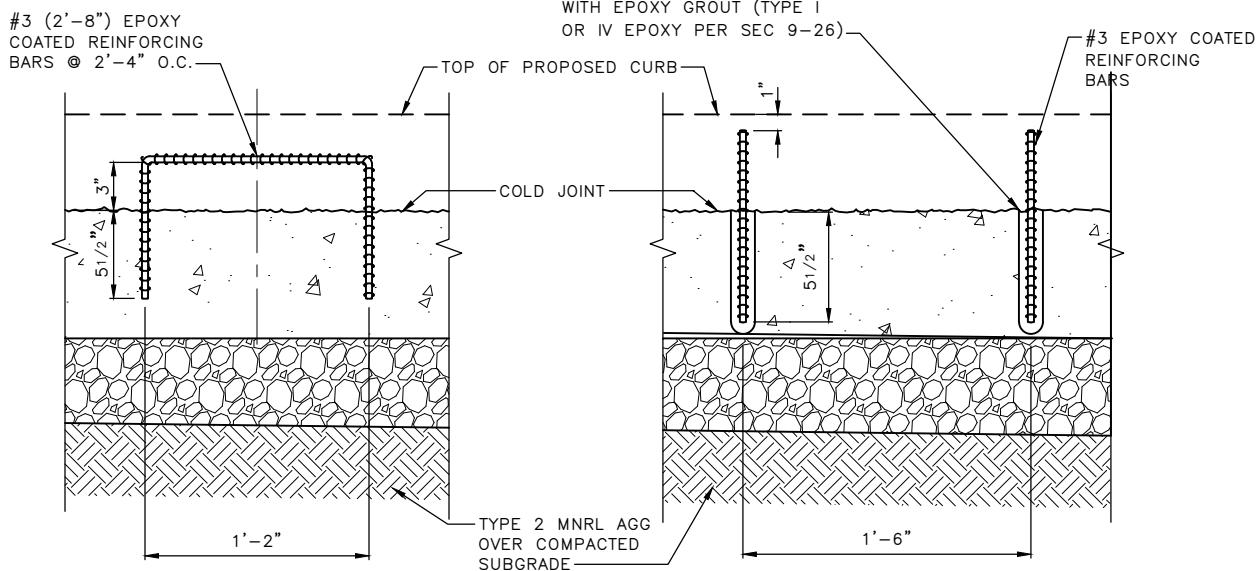
REF STD SPEC SEC 8-04



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TYPE 410 CURB

CONTRACTION JOINT FOR CURB OR CURB & GUTTERSECTION A-ATHROUGH JOINT FOR CURB OR CURB & GUTTERSECTION B-BCURB DOWEL ON NEW PAVEMENTCURB DOWEL PINS ON EXISTING PAVEMENTDOWELS FOR DOWELLED CURB CONSTRUCTION

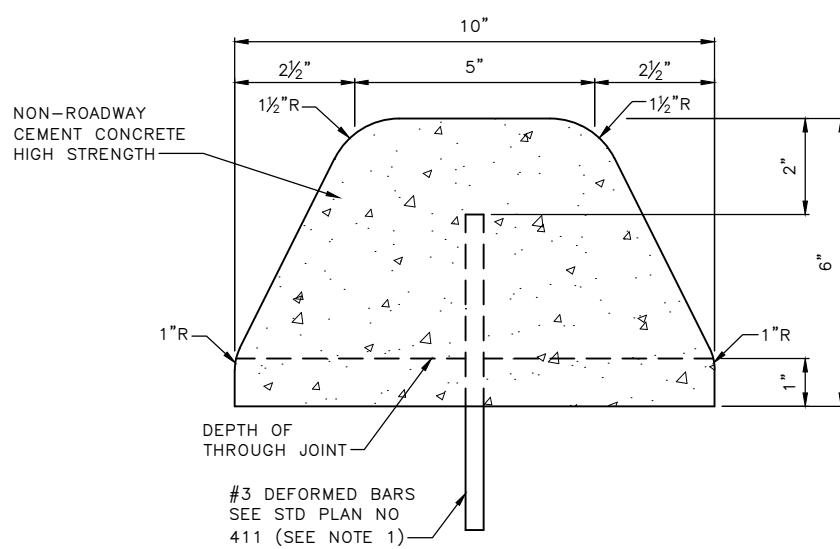
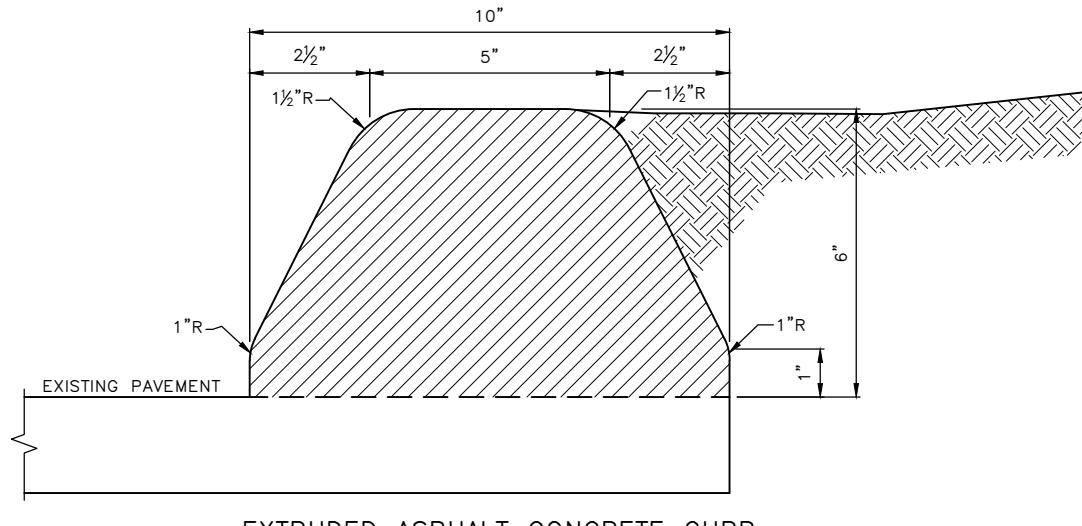
REF STD SPEC SEC 8-04



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CURB JOINTS &amp; DOWELS



EXTRUDED CEMENT CONCRETE CURB

NOTE:

1. ALTERNATELY, THE USE OF EPOXY BONDING AGENT, IN PLACE OF #3 DEFORMED BARS, WILL BE ALLOWED.
2. EXTRUDED CURB MUST NOT BE USED IN SDOT MANAGED PUBLIC RIGHT OF WAY.

REF STD SPEC SEC 8-06

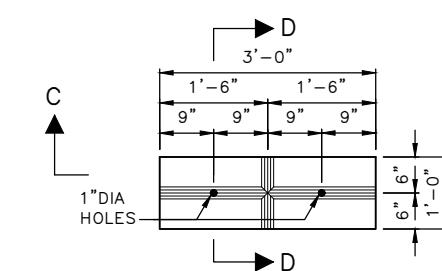


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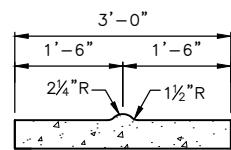
NOT TO SCALE

EXTRUDED CURB

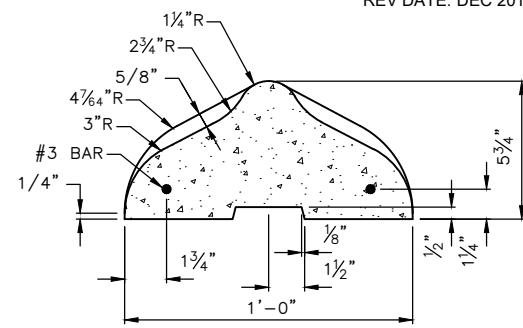
REV DATE: DEC 2013



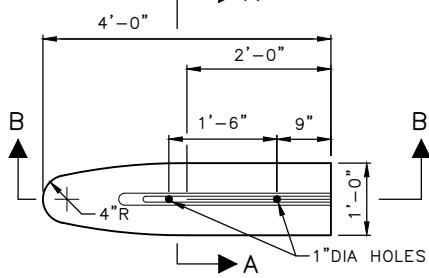
CURB PLAN



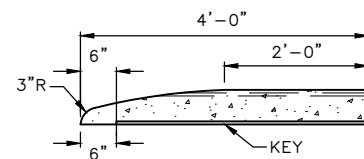
SECTION C-C



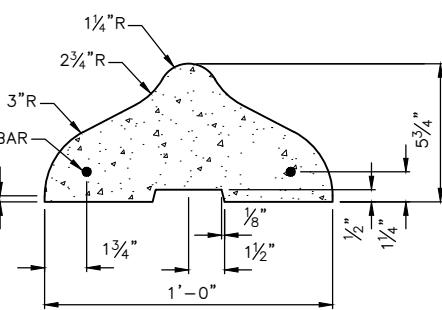
SECTION D-D



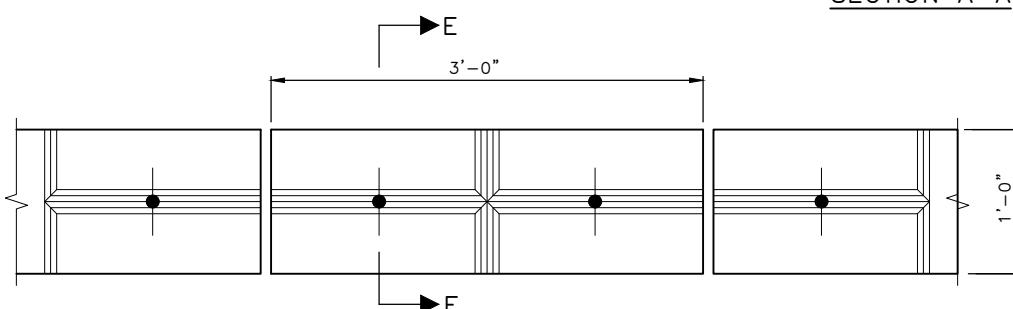
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SECTION B-B



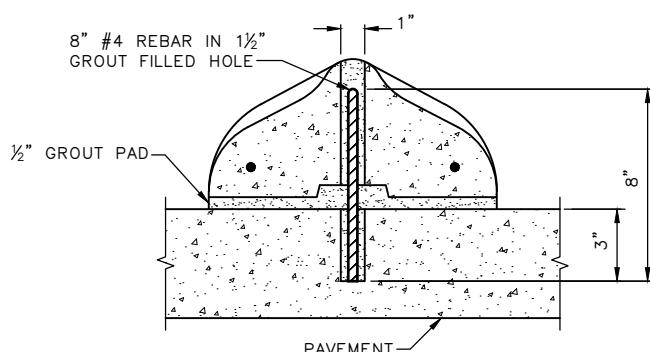
SECTION A-A



INSTALLATION DETAIL FOR STRAIGHT PRECAST TRAFFIC CURB

**NOTE:**

INSTALL 8" #4 REBAR IN EVERY HOLE AND FILL HOLE WITH GROUT



SECTION E-E

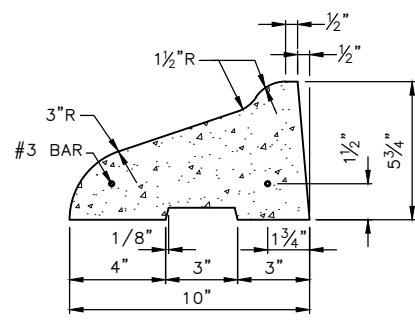
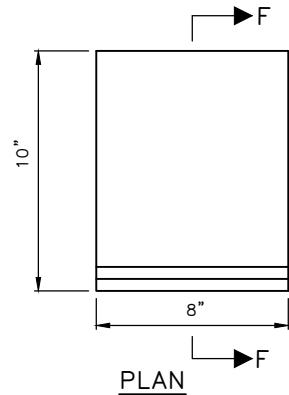
REF STD SPEC SEC 8-07



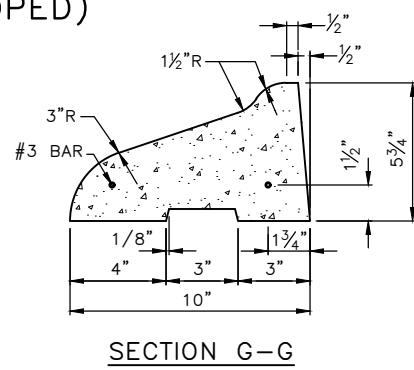
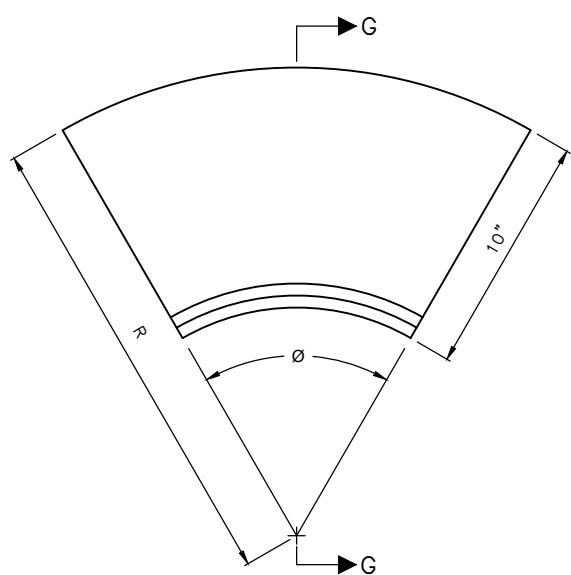
City of Seattle

NOT TO SCALE

3' PRECAST TRAFFIC CURB  
(DUAL SLOPED)



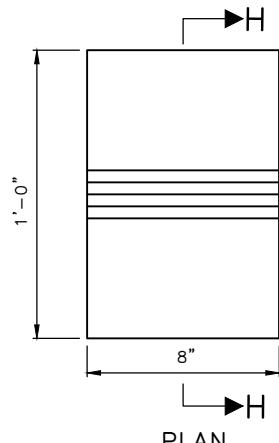
8" STRAIGHT BLOCK CURB  
(SINGLE SLOPED)



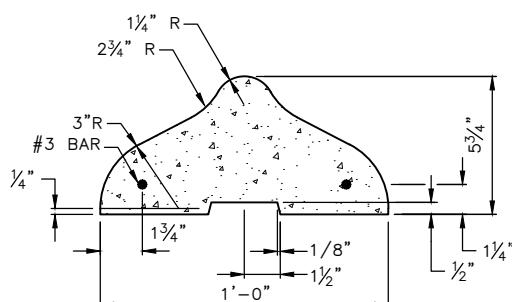
RADIAL CURB

UNIT	RADIUS	CURB RETURN ANGLE( $\phi$ ) MULTIPLE
R1	1'-3"	45°00'
R2	1'-10"	30°00'
R3	2'-6"	22°30'
R4	5'-0"	11°27.54'
R5	10'-0"	5°43.77'

FOR RADII GREATER THAN 10'-0" USE SEGMENTS OF STRAIGHT BLOCK CURB



RADIUS CURB TABLE



8" STRAIGHT BLOCK CURB  
(DUAL SLOPED)

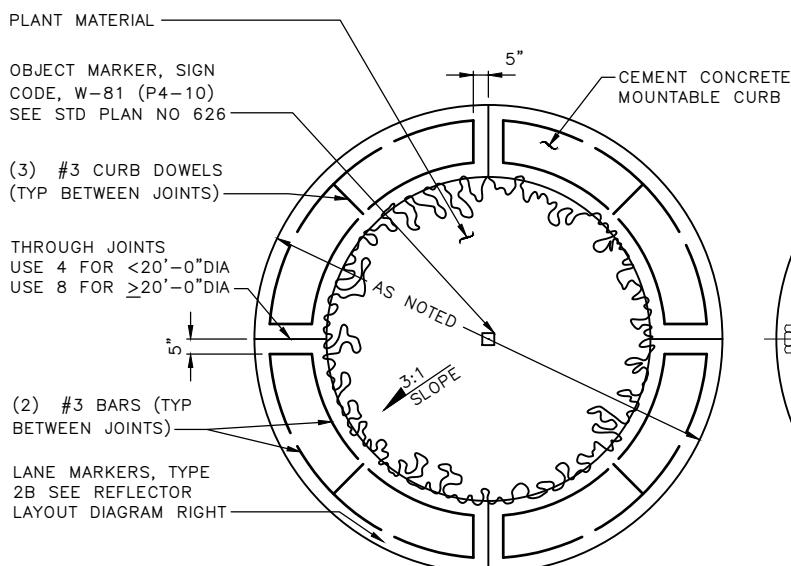
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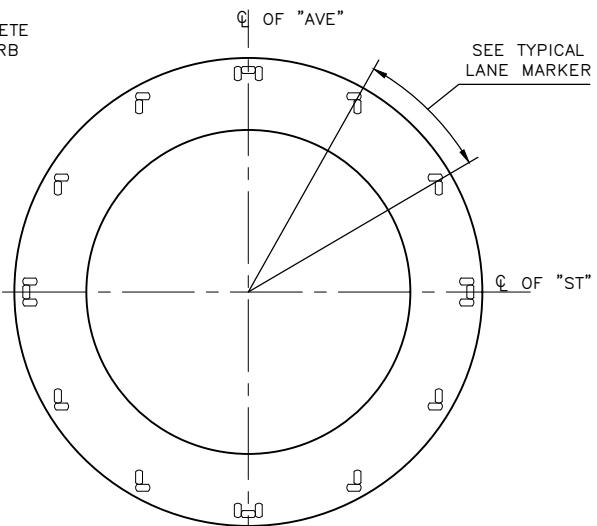
City of Seattle

NOT TO SCALE

8" BLOCK AND RADIAL TRAFFIC CURB



TYPICAL TRAFFIC CIRCLE

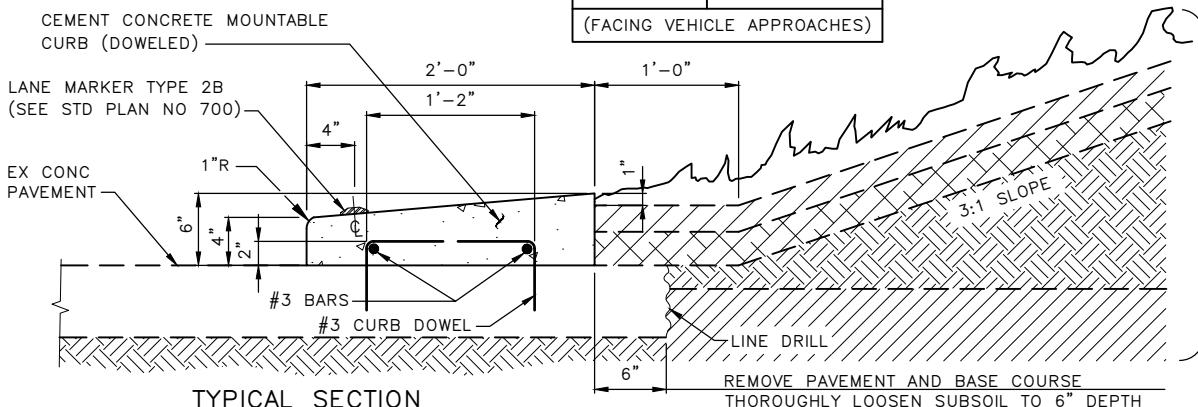


TRAFFIC CIRCLE REFLECTOR LAYOUT

SPACING CHART

DIAMETER OF CIRCLE	DEGREE OF SPACING
≤12'-0"	EVERY 45°
≤20'-0"	EVERY 30°
>20'-0"	EVERY 22 1/2°

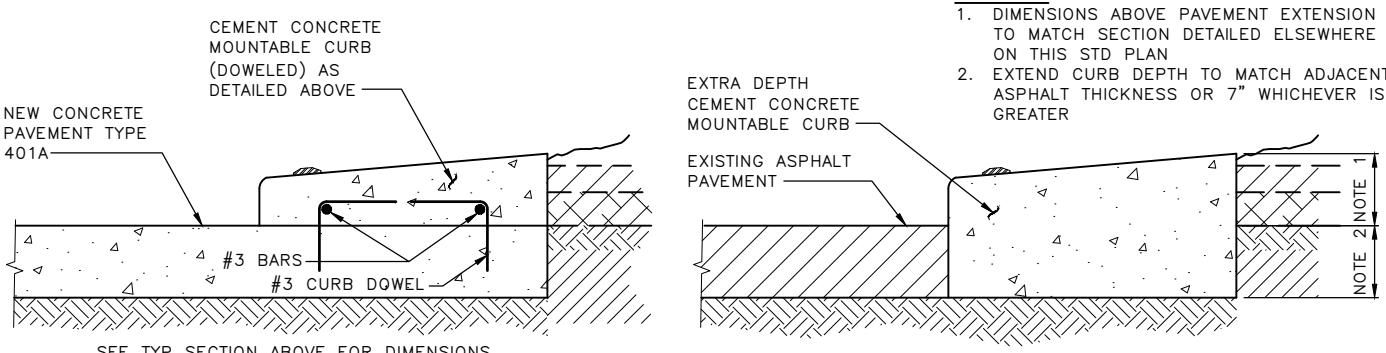
(FACING VEHICLE APPROACHES)



TYPICAL SECTION

## NOTES:

1. DIMENSIONS ABOVE PAVEMENT EXTENSION TO MATCH SECTION DETAILED ELSEWHERE ON THIS STD PLAN
2. EXTEND CURB DEPTH TO MATCH ADJACENT ASPHALT THICKNESS OR 7" WHICHEVER IS GREATER



TYPICAL SECTIONS

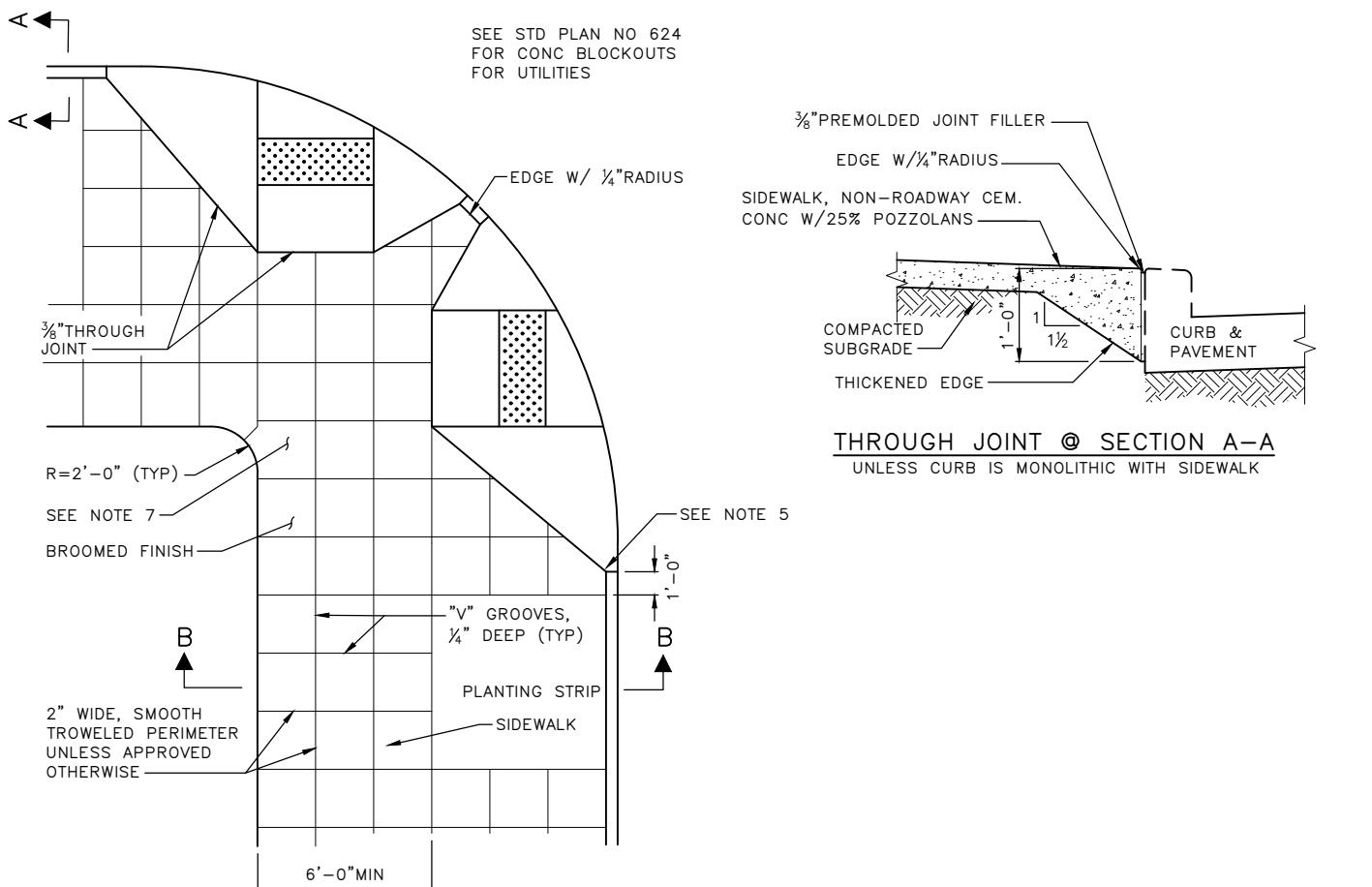
REF STD SPEC SEC 8-02, 8-04, 8-08



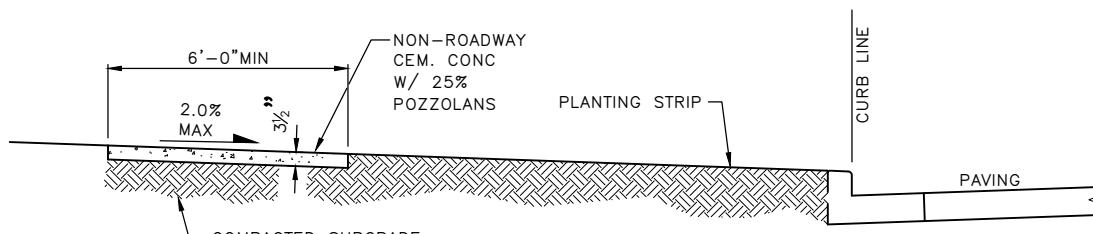
City of Seattle

NOT TO SCALE

TRAFFIC CIRCLE DETAILS



TYPICAL SIDEWALK &amp; CURB RAMP DETAIL



## NOTES:

1.  $\frac{1}{8}$ " THROUGH AND CONTRACTION JOINTS MUST BE LOCATED AS REQUIRED BY SECTION 8-14.3(6).
2. SAWCUT SCORING MUST MATCH PATTERN IN ADJACENT EXISTING SIDEWALK OR MUST BE A 2' SQUARE SCORING PATTERN UNLESS OTHERWISE OTHERWISE APPROVED BY THE ENGINEER.
3. FOR CURB RAMPS, SEE STANDARD PLAN NO 422.
4. FOR TREE PITS, SEE STANDARD PLAN NO 424.
5. 12" MINIMUM BETWEEN EDGE OF RAMP WING AND PLANTING STRIP IS DESIRABLE.
6. ALL SIDEWALK MUST BE NON-ROADWAY CEM CONC W/ 25% POZZOLANS.
7. 6'-0" MINIMUM CONTINUOUS SIDEWALK MUST BE MAINTAINED AROUND CORNERS.

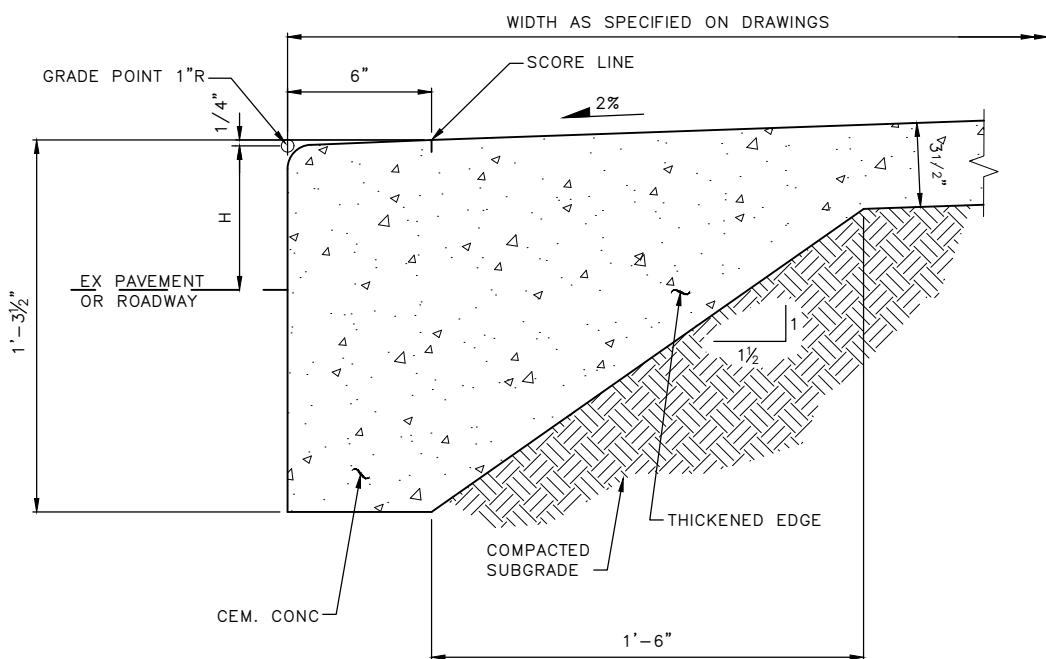
REF STD SPEC SEC 8-14



City of Seattle

NOT TO SCALE

CONCRETE SIDEWALK DETAILS

**NOTE:**

"H" MUST BE 6" FROM FINISHED ROADWAY  
GRADE UNLESS OTHERWISE SPECIFIED

REF STD SPEC SEC 8-14



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NOT TO SCALE

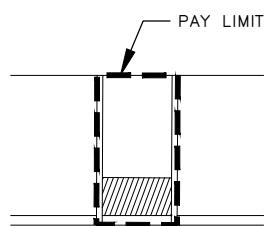
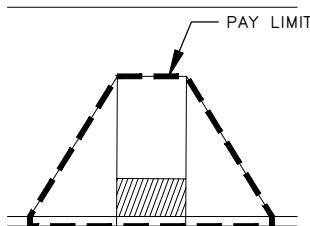
SIDEWALK WITH  
MONOLITHIC CURB

REV DATE: MAR 2023

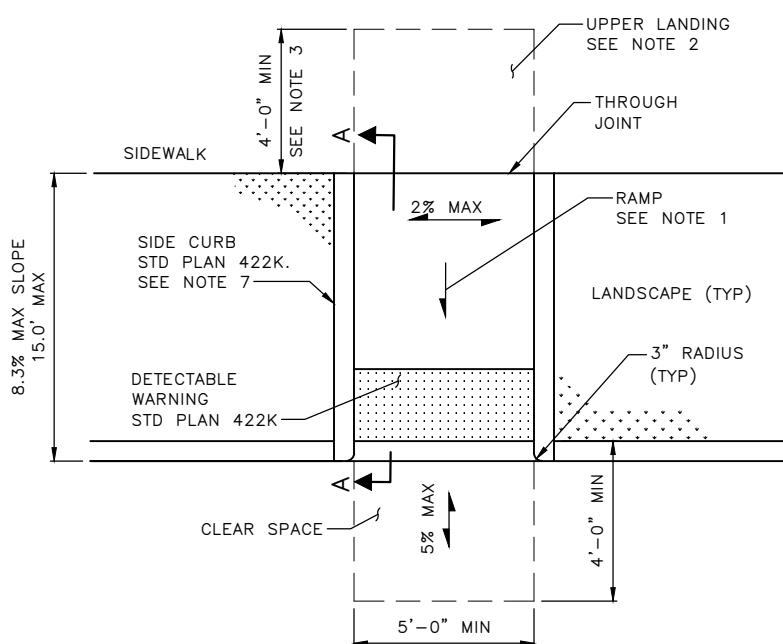
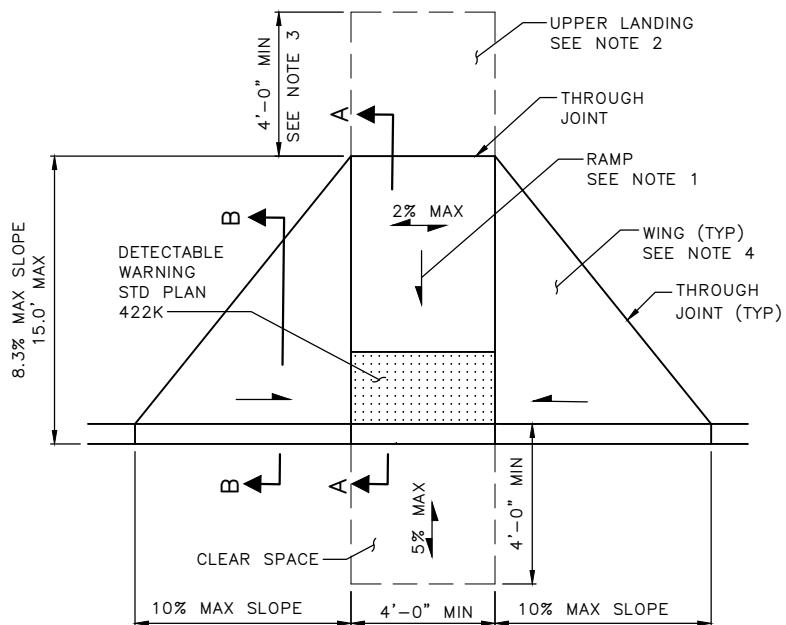
## NOTES:

1. RAMP CENTERLINE MUST BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
2. THE SLOPE ON THE LANDING MUST BE A MINIMUM OF 0.5% IN ANY ONE DIRECTION AND MUST NOT EXCEED 2% IN THE APPLICABLE DIRECTION OF TRAVEL. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0".
3. IF THE LANDING IS LIMITED AT THE BACK-OF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE MUST BE 5'-0" MINIMUM.
4. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING. WINGS MUST BE MONOLITHIC WITH THE CURB RAMP RUN.
5. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.
6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.
7. RAMP WIDTH MUST BE 5'-0" MINIMUM WHEN SIDE CURB IS USED ON BOTH SIDES INSTEAD OF WINGS.

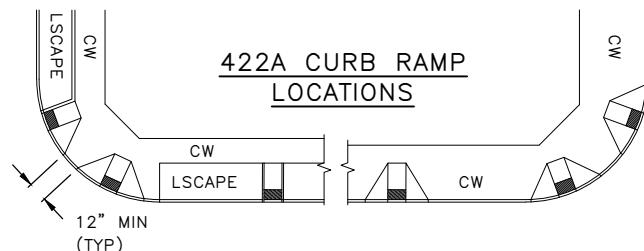
 = MAX SLOPE IN EITHER DIRECTION



PAY LIMITS



PERPENDICULAR CURB RAMPS  
(TYPE 422A)



REF STD SPEC SEC 8-14



City of Seattle

NOT TO SCALE

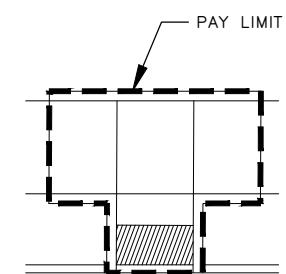
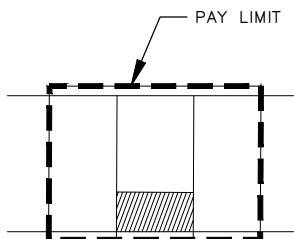
CURB RAMP DETAILS

REV DATE: FEB 2023

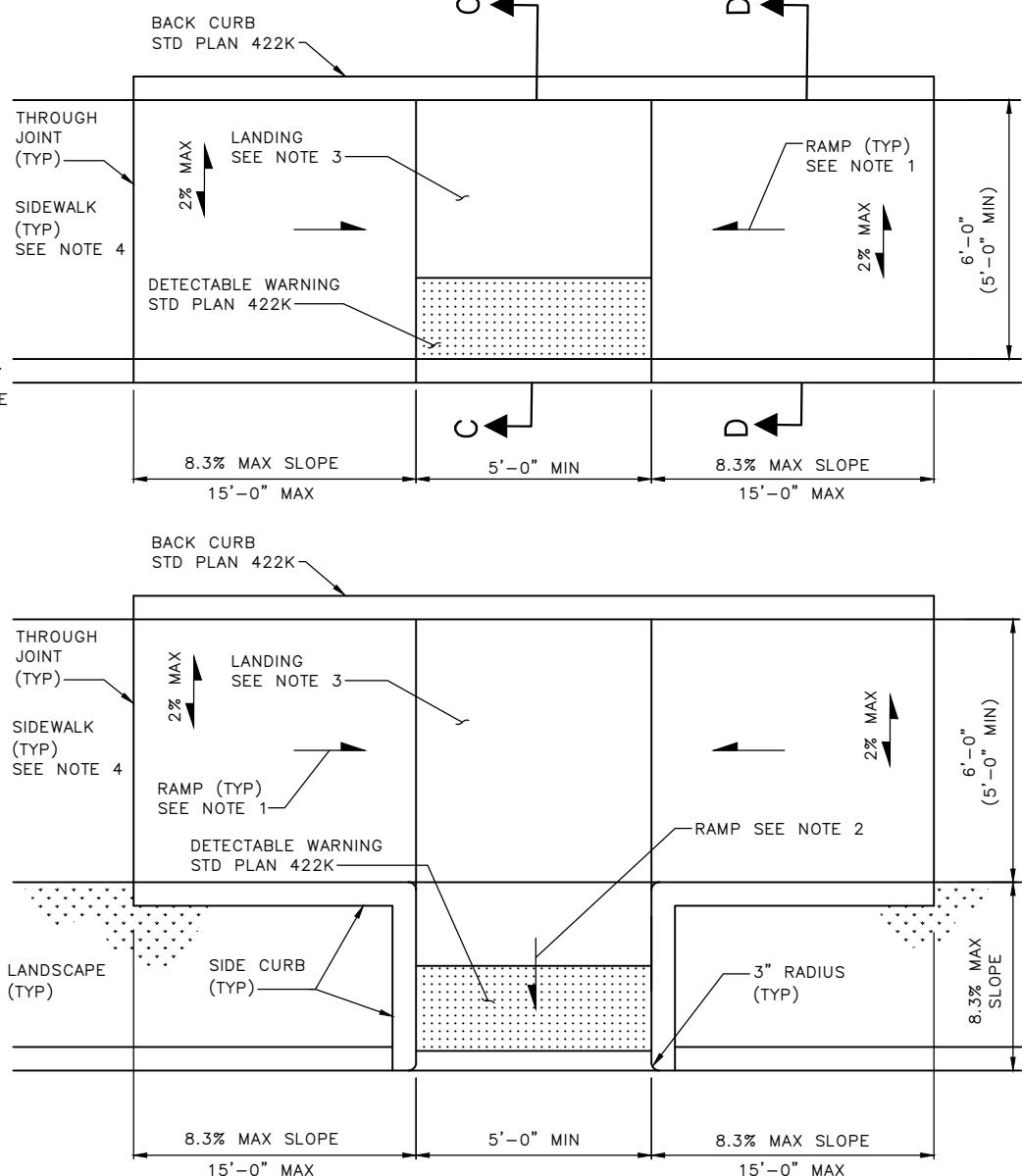
## NOTES:

1. RAMP CENTERLINE(S) MUST BE PARALLEL TO THE ALIGNMENT OF THE FACE OF CURB. THE WIDTH OF THE RAMP MUST BE 6'-0" (5'-0" MINIMUM).
2. RAMP CENTERLINE MUST BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
3. THE SLOPE ON THE LOWER LANDING MUST BE A MINIMUM OF 0.5% IN ANY ONE DIRECTION AND MUST NOT EXCEED 2% IN THE APPLICABLE DIRECTION OF TRAVEL.
4. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0".
5. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

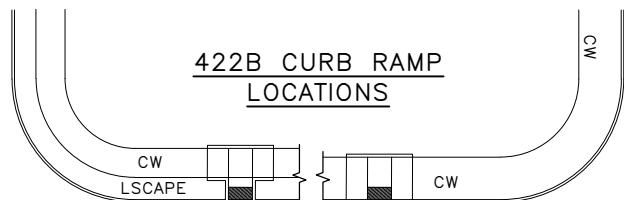
 = MAX SLOPE IN EITHER DIRECTION



PAY LIMITS



PARALLEL CURB RAMPS  
(TYPE 422B)



REF STD SPEC SEC 8-14



City of Seattle

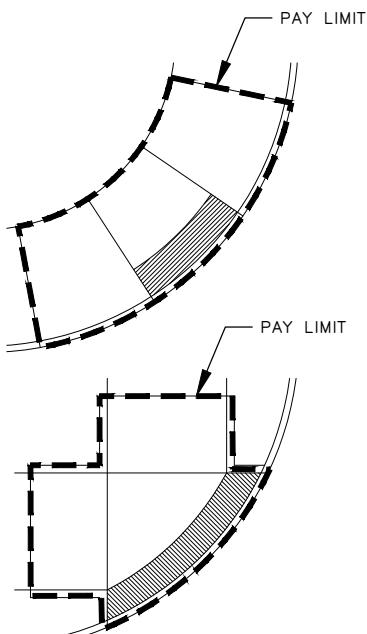
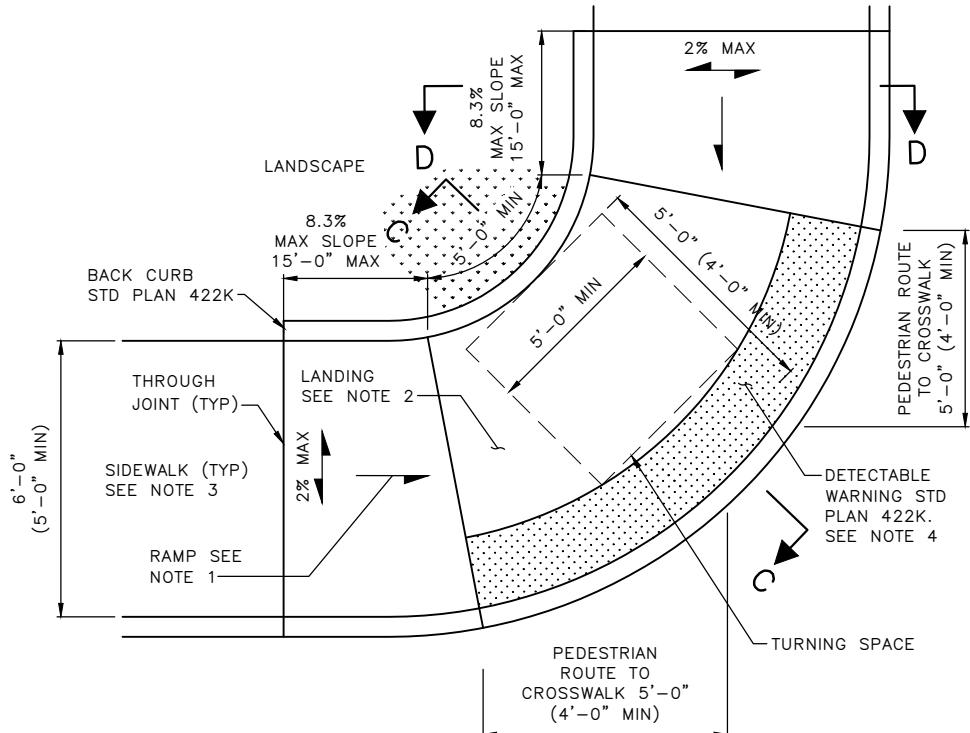
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CURB RAMP DETAILS

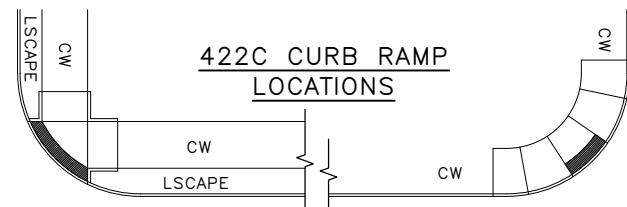
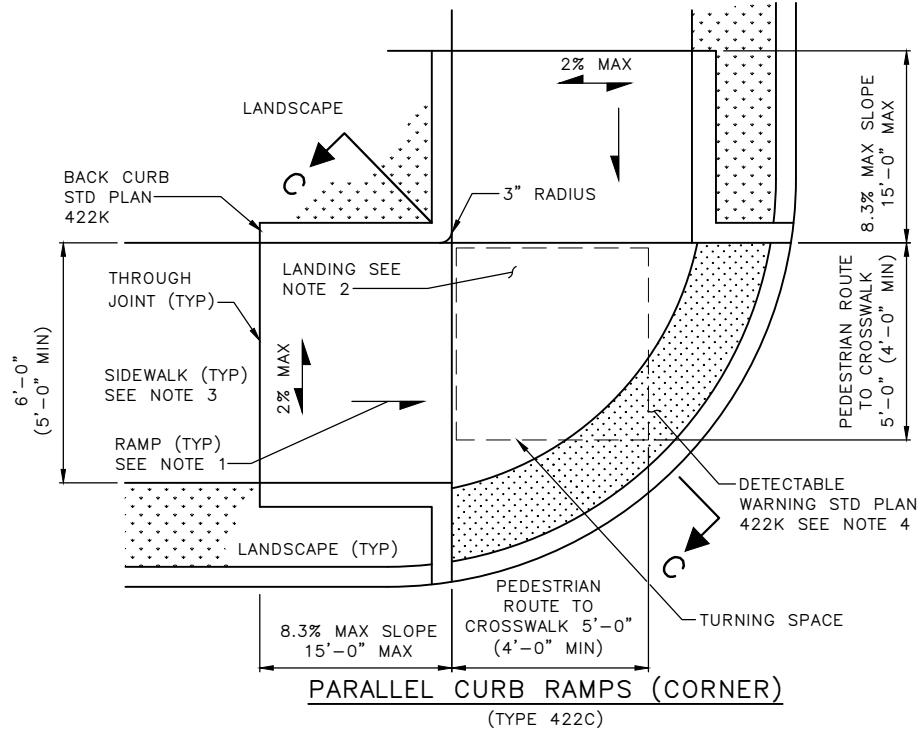
## NOTES:

1. RAMP CENTERLINE MUST BE PARALLEL TO THE ALIGNMENT OF THE FACE OF CURB. THE WIDTH OF THE RAMP MUST BE 6'-0" (5'-0" MINIMUM).
2. THE SLOPE ON THE LOWER LANDING MUST BE A MINIMUM OF 0.5% IN ANY ONE DIRECTION AND MUST NOT EXCEED 2% IN THE APPLICABLE DIRECTION OF TRAVEL.
3. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0".
4. RADIAL TILE MUST BE USED, CUTTING OR ALTERING DETECTABLE WARNING SURFACES MUST BE FIRST APPROVED BY THE ENGINEER.
5. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE, RADIAL/PERPENDICULAR TO THE CURB.
6. REFER TO DETAILS 422K AND 422I FOR GENERAL NOTES AND TYPICAL SECTIONS.

2% MAX = MAX SLOPE IN EITHER DIRECTION



PAY LIMITS



REF STD SPEC SEC 8-14



City of Seattle

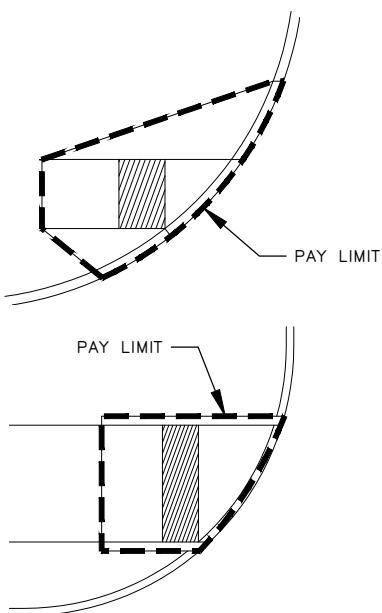
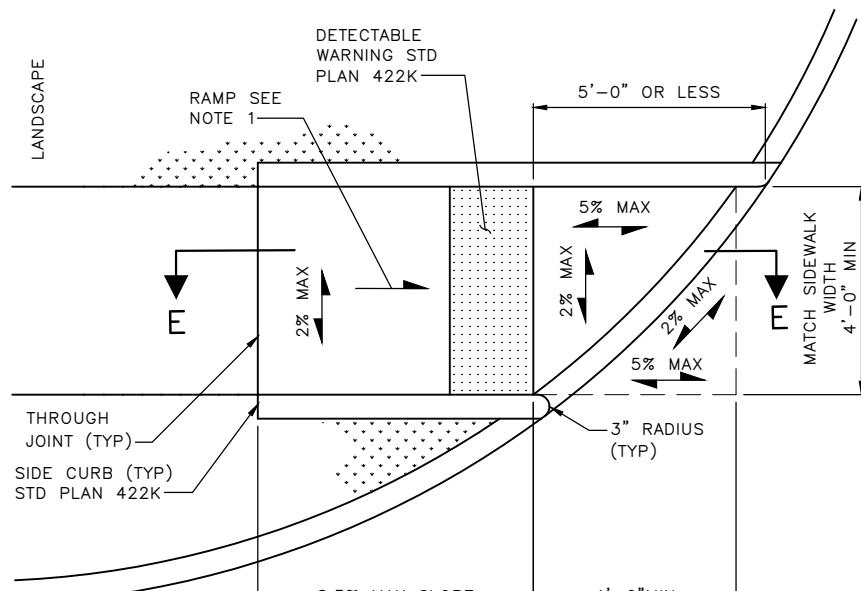
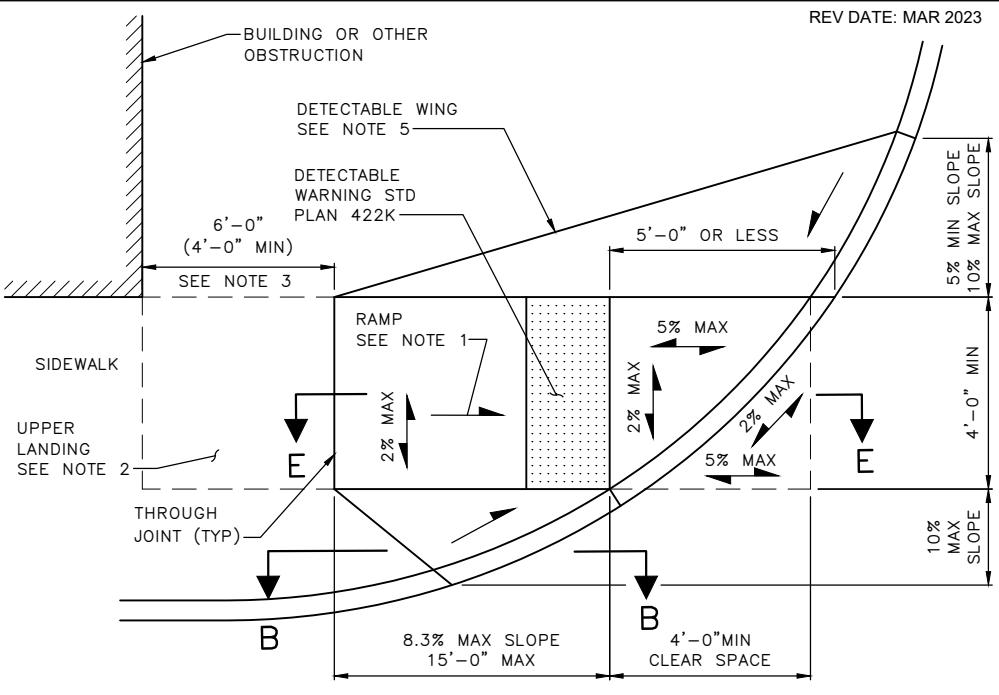
NOT TO SCALE

CURB RAMP DETAILS

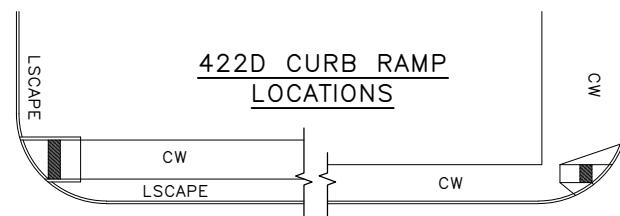
## NOTES:

1. RAMP CENTERLINE MUST BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. THE SLOPE ON THE LANDING MUST BE A MINIMUM OF 0.5% IN ANY ONE DIRECTION AND MUST NOT EXCEED 2% IN THE APPLICABLE DIRECTION OF TRAVEL. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0".
3. IF THE LANDING IS LIMITED AT THE BACK-OF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE MUST BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP.
4. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING. WINGS MUST BE MONOLITHIC WITH THE CURB RAMP RUN.
5. WING ON THE OPEN SIDE OF THE CURB RAMP MUST HAVE A MINIMUM SLOPE OF 5% TO ASSIST PEDESTRIANS WITH VISUAL IMPAIRMENTS WHERE THE DETECTABLE WARNING SURFACE IS OFFSET FROM THE CURB LINE.
6. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
7. REFER TO DETAILS 422k AND 422l FOR GENERAL NOTES AND TYPICAL SECTIONS.

2% MAX  
= MAX SLOPE IN EITHER DIRECTION

PAY LIMITS

DIRECTIONAL CURB RAMPS  
(TYPE 422d)



REF STD SPEC SEC 8-14



City of Seattle

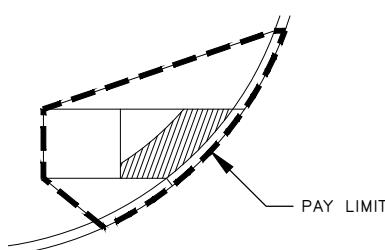
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CURB RAMP DETAILS

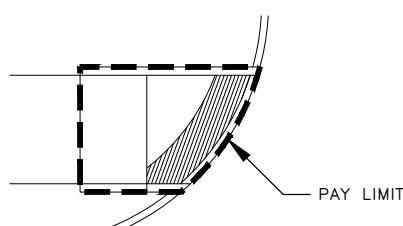
## NOTES:

1. RAMP CENTERLINE MUST BE PARALLEL TO CROSSWALK AND/OR THE SIDEWALK.
2. THE SLOPE ON THE LANDING MUST BE A MINIMUM OF 0.5% IN ANY ONE DIRECTION AND MUST NOT EXCEED 2% IN THE APPLICABLE DIRECTION OF TRAVEL. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0".
3. IF THE LANDING IS LIMITED AT THE BACK-OF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE MUST BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP.
4. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING. WINGS MUST BE MONOLITHIC WITH THE CURB RAMP RUN.
5. WHERE THE SETBACK FROM THE BOTTOM OF THE CURB RAMP TO THE BACK OF CURB LINE EXCEEDS 5'-0", THE DETECTABLE WARNING SURFACE MUST BE INSTALLED AT THE BACK OF CURB (NOT AT THE BOTTOM OF RAMP). RADIAL TILE MUST BE USED. CUTTING OR ALTERING DETECTABLE WARNING SURFACE MUST BE FIRST APPROVED BY THE ENGINEER.
6. DIRECTIONAL CURB RAMPS WITH LARGE SETBACK FROM BACK OF CURB TO BOTTOM OF THE CURB RAMP ARE NOT PREFERRED DESIGNS BUT MAY BE USED IF NECESSARY DUE TO EXISTING SITE CONSTRAINTS.
7. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
8. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

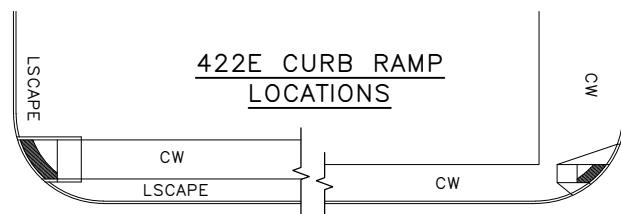
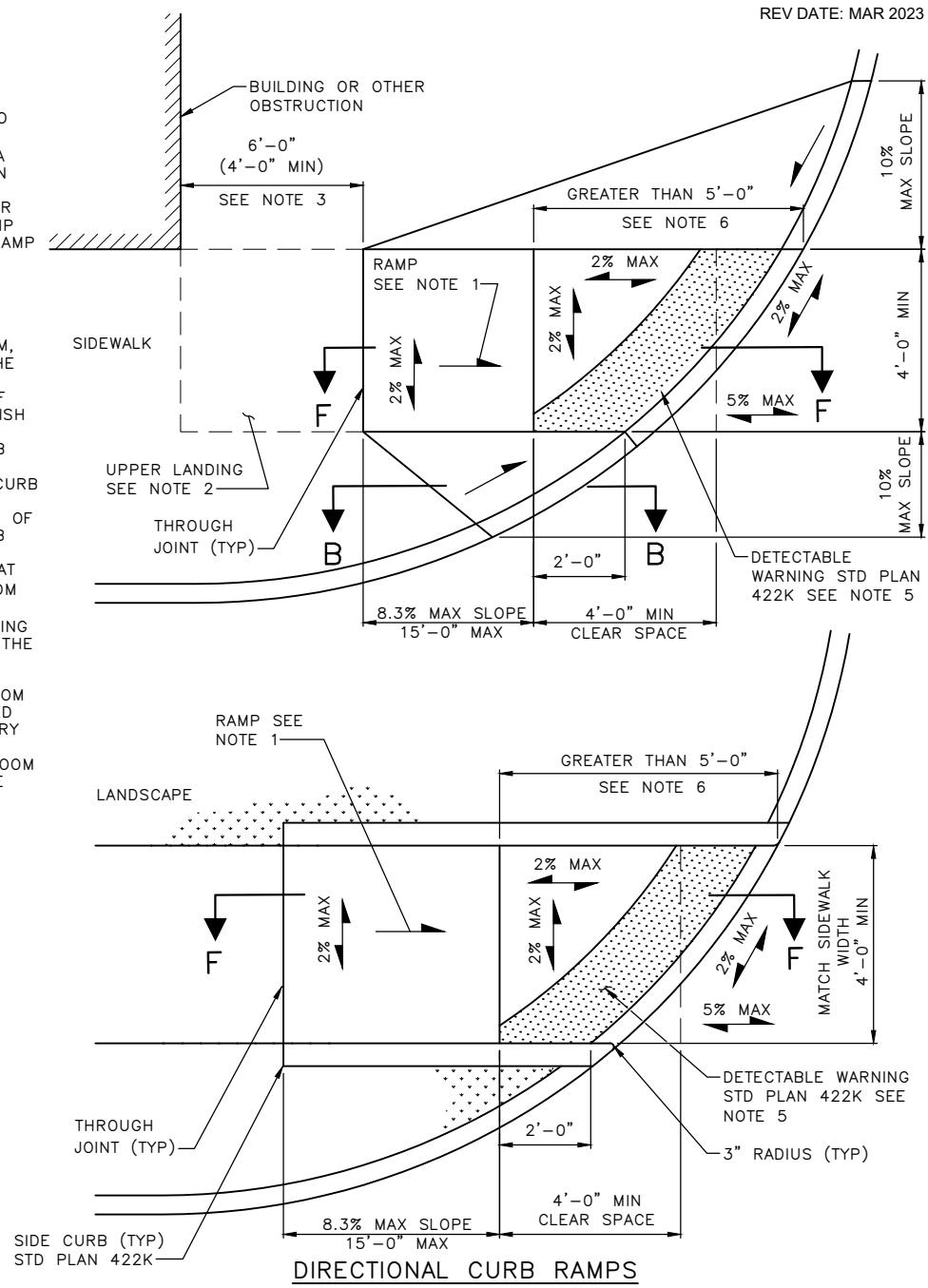
 = MAX SLOPE IN EITHER DIRECTION



PAY LIMIT



PAY LIMITS



REF STD SPEC SEC 8-14



City of Seattle

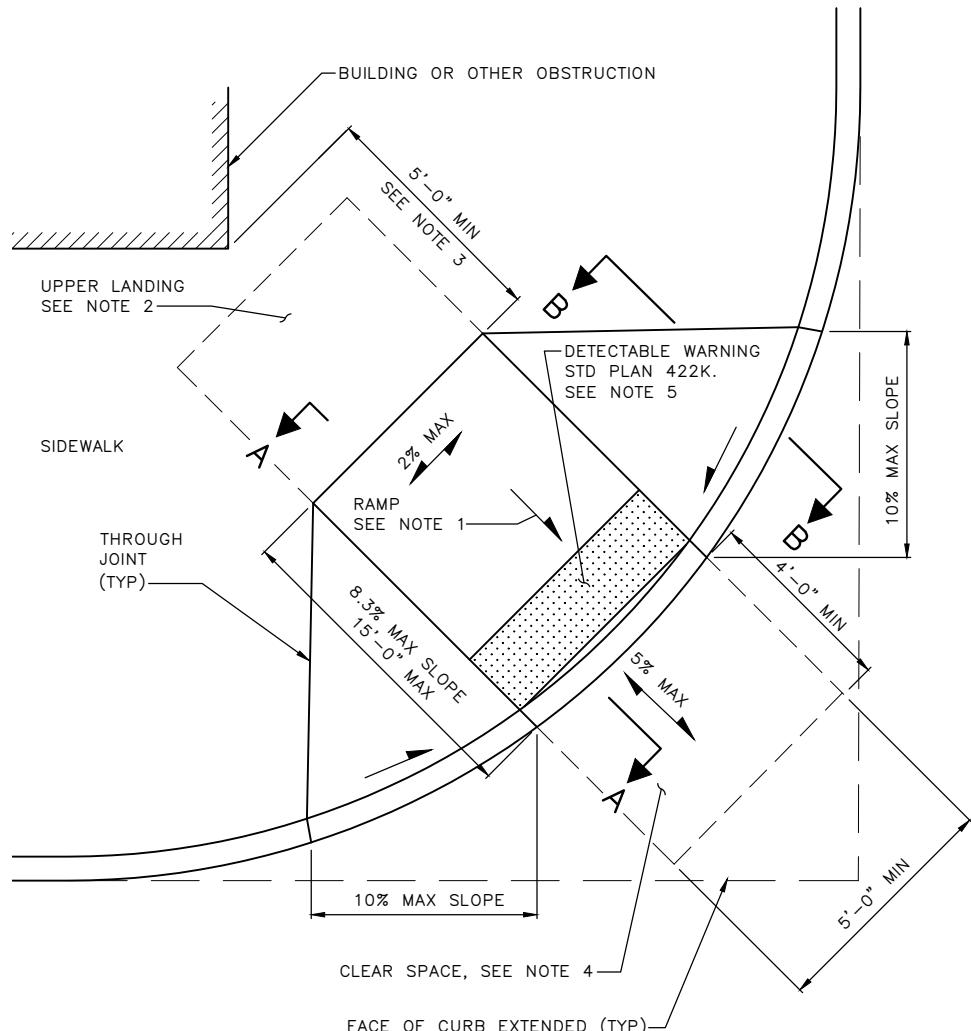
NOT TO SCALE

CURB RAMP DETAILS

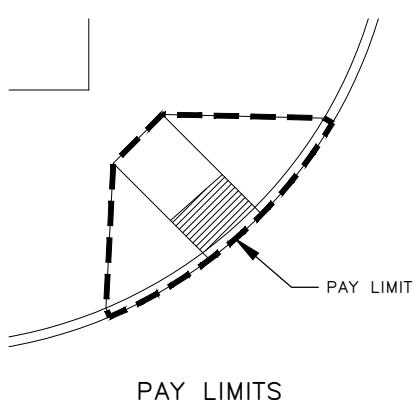
## NOTES:

1. RAMP CENTERLINE MUST BE RADIAL/PERPENDICULAR TO THE ALIGNMENT OF THE FACE OF CURB.
2. THE SLOPE ON THE LANDING MUST BE A MINIMUM OF 0.5% IN ANY ONE DIRECTION AND MUST NOT EXCEED 2% IN THE APPLICABLE DIRECTION OF TRAVEL. UPPER LANDING AT THE TOP OF THE CURB RAMP MUST MATCH THE FULL WIDTH OF THE RAMP AND MUST HAVE A MINIMUM DEPTH OF 4'-0".
3. IF THE LANDING IS LIMITED AT THE BACK-OF-SIDEWALK BY A PERMANENT VERTICAL BARRIER, THE DEPTH OF THE TURNING SPACE MUST BE 5'-0" MINIMUM, MEASURED PARALLEL TO THE RUN OF THE CURB RAMP.
4. CLEAR SPACE AT THE BOTTOM OF THE RAMP MUST BE 5'-0" MINIMUM IN WIDTH AND MUST EXTEND A MINIMUM OF 4'-0" BEYOND THE RAMP LOWER GRADE BREAK. THE CLEAR SPACE MUST FALL WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED. THE CLEAR SPACE MUST FIT BEHIND LINES EXTENDING FROM THE FACE OF CURB RUNNING PARALLEL TO EACH ROADWAY. THERE IS NO ALLOWABLE EXEMPTION FOR MINIMUM CLEAR SPACE REQUIREMENTS AT SHARED DIAGONAL PERPENDICULAR CURB RAMPS.
5. DETECTABLE WARNING SURFACE MUST BE 8" MAXIMUM FROM FACE OF CURB.
6. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING. WINGS MUST BE MONOLITHIC WITH THE CURB RAMP RUN.
7. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PARALLEL TO THE CURB.
8. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTIONS.

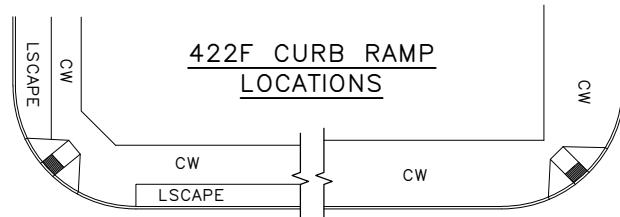
 = MAX SLOPE IN EITHER DIRECTION



SHARED DIAGONAL PERPENDICULAR CURB RAMP  
(TYPE 422f)



PAY LIMITS



REF STD SPEC SEC 8-14



City of Seattle

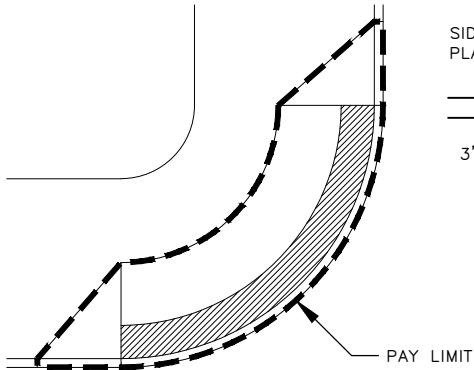
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CURB RAMP DETAILS

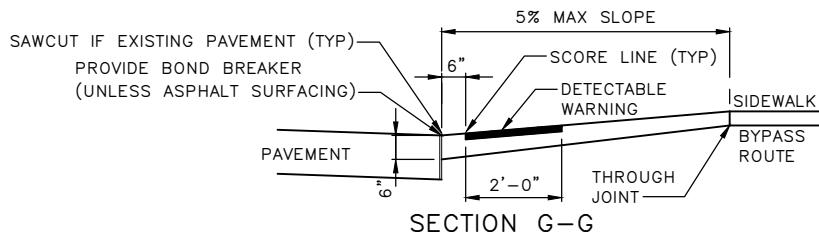
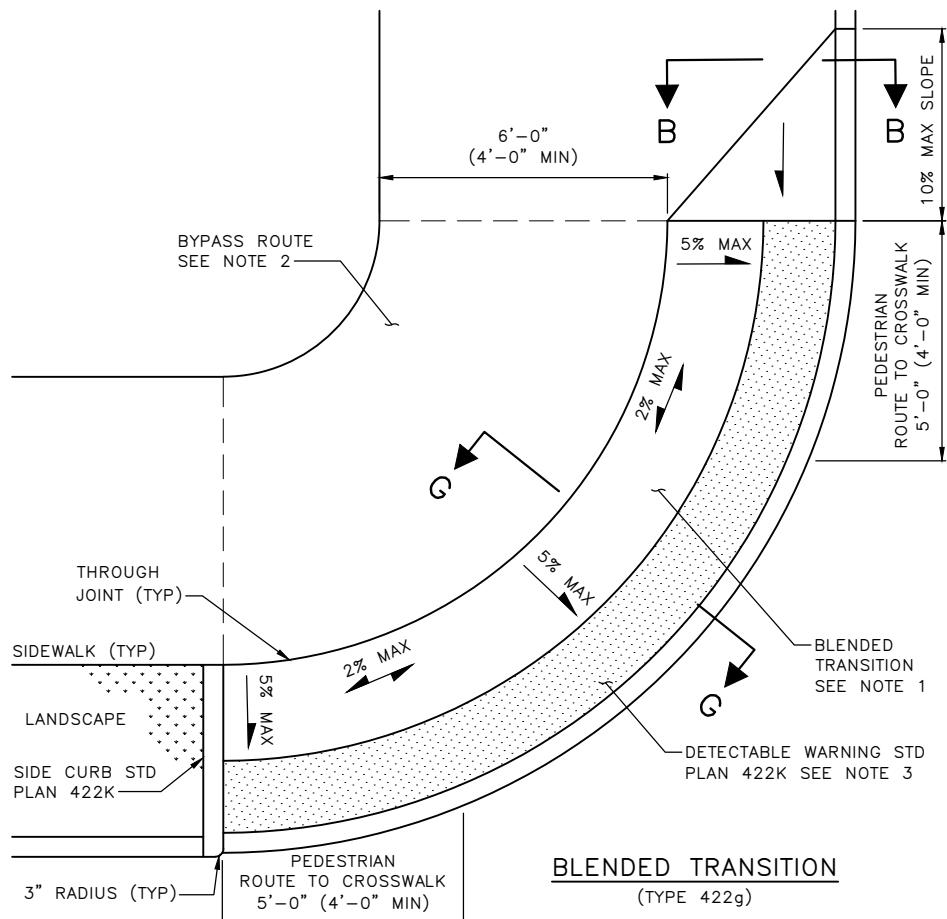
## NOTES:

1. THE SIDEWALK MUST TRANSITION DOWN TO THE ROADWAY WITH A MAXIMUM RUNNING SLOPE OF 5%. THE CROSS SLOPE ON THE TRANSITION MUST NOT EXCEED 2% AT ANY POINT.
2. A BYPASS ROUTE MUST BE PROVIDED AT THE TOP OF THE BLENDED TRANSITION WITH A MINIMUM WIDTH OF 6'-0" (4'-0" MIN). THE CROSS SLOPE OF THE BYPASS ROUTE MUST BE A MINIMUM OF 0.5% IN ANY DIRECTION AND MUST NOT EXCEED 2% IN THE APPLICABLE DIRECTION OF TRAVEL.
3. RADIAL TILE MUST BE USED, CUTTING OR ALTERING DETECTABLE WARNING SURFACES MUST BE FIRST APPROVED BY THE ENGINEER.
4. WINGS MUST HAVE A MAXIMUM SLOPE OF 10%. WINGS MUST HAVE A BRUSHED FINISH PARALLEL TO THE CURB. THE CONCRETE WALK THICKENED EDGE ALONG THE CURB MUST CONTINUE THROUGH EACH WING. WINGS MUST BE MONOLITHIC WITH THE CURB RAMP RUN.
5. BLENDED TRANSITION SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE RADIAL/PERPENDICULAR TO THE CURB.
6. REFER TO DETAILS 422K AND 422L FOR GENERAL NOTES AND TYPICAL SECTION B.

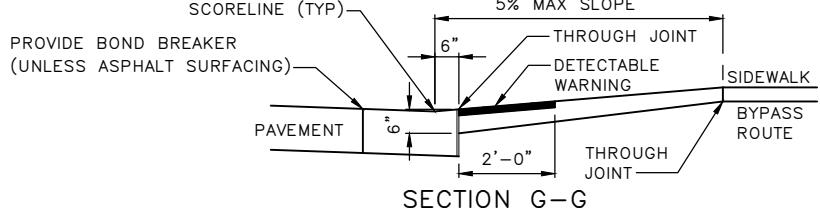
 = MAX SLOPE IN EITHER DIRECTION



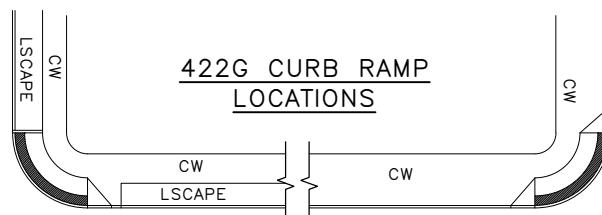
PAY LIMITS



CURB MONOLITHIC WITH RAMP. NEW PAVEMENT BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT REMOVED AT FACE OF CURB



DEPRESSED CURB & GUTTER SEPARATE FROM RAMP.



REF STD SPEC SEC 8-14



City of Seattle

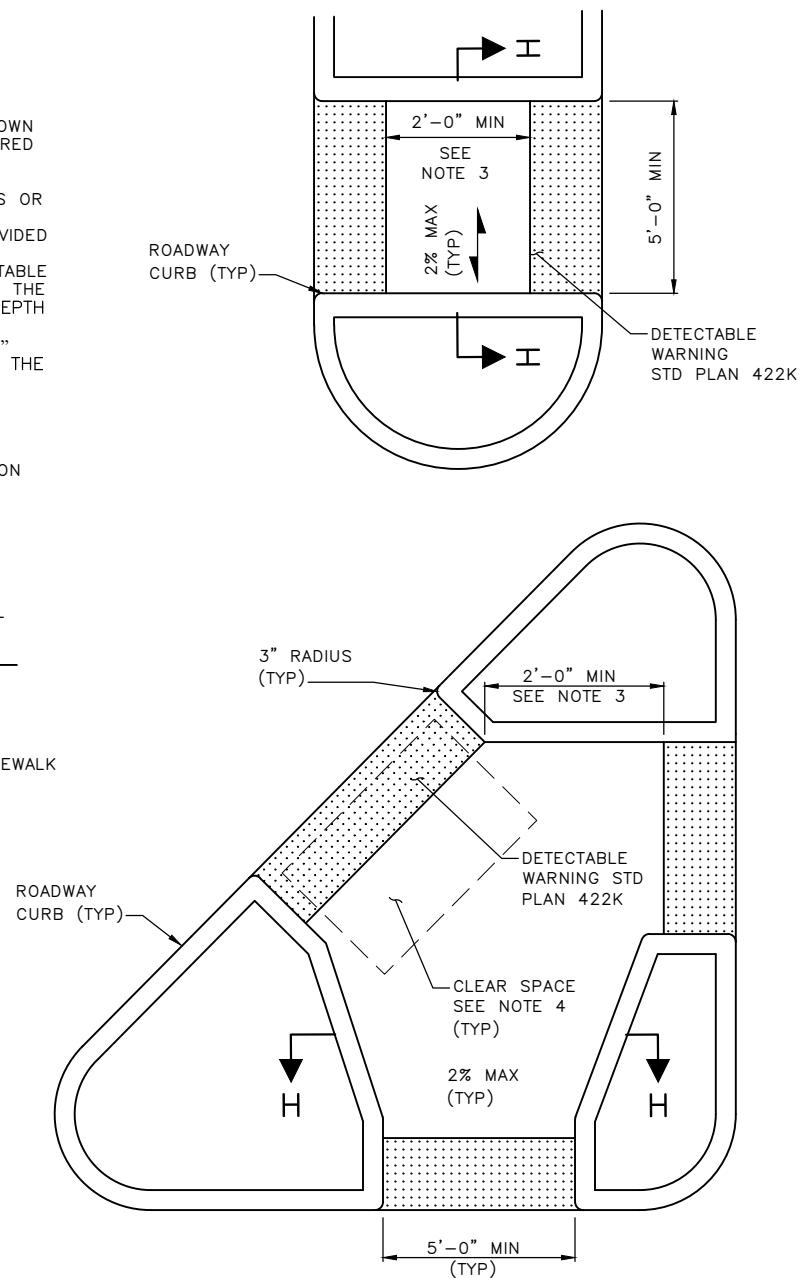
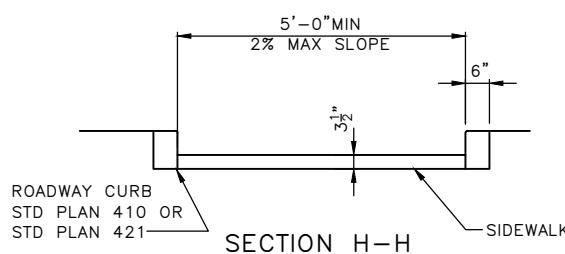
NOT TO SCALE

CURB RAMP DETAILS

**NOTES:**

1. SIZE, SHAPE, AND/OR DIMENSIONS OF CHANNELIZING ISLANDS OR PEDESTRIAN REFUGE ISLANDS MAY VARY. DETAILS SHOWN ARE INTENDED TO SHOW MINIMUM REQUIRED CLEARANCES AND DETECTABLE WARNING SURFACE PLACEMENT LOCATIONS.
2. ACCESS THROUGH CHANNELIZING ISLANDS OR PEDESTRIAN REFUGE ISLANDS MAY BE CUT-THROUGH OR ACCESS MAY BE PROVIDED USING STANDARD CURB RAMP DETAILS.
3. AT PEDESTRIAN REFUGE ISLANDS, DETECTABLE WARNING MUST NOT TO BE INSTALLED IF THE REFUGE AREA IS LESS THAN 6'-0" IN DEPTH (IN THE DIRECTION OF TRAVEL).
4. PROVIDE A MINIMUM 4'-0" WIDTH X 4'-0" DEPTH CLEAR SPACE FOR ACCESS FROM THE CHANNELIZING ISLAND OR PEDESTRIAN REFUGE ISLAND FOR EACH CROSSWALK.

2% MAX  
MAX SLOPE IN EITHER DIRECTION



ISLAND CUT-THROUGHS  
(TYPE 422H)

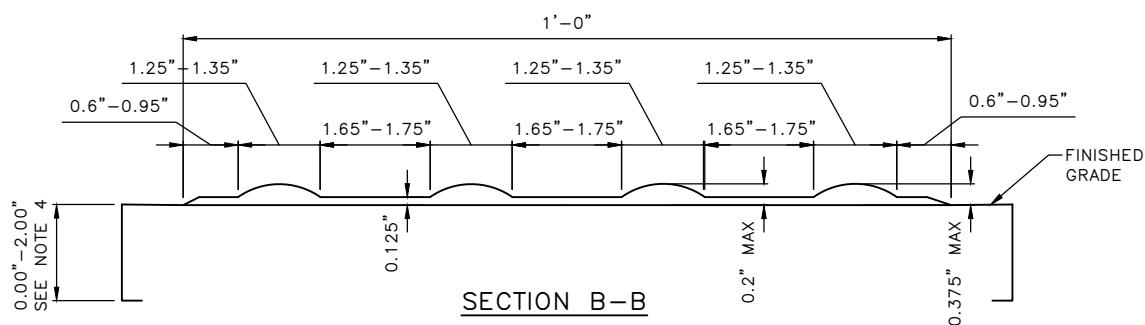
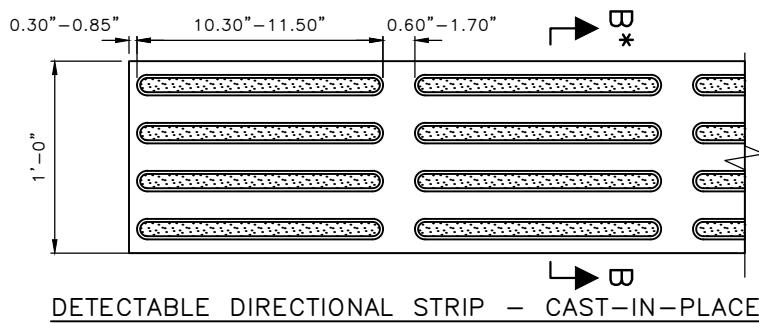
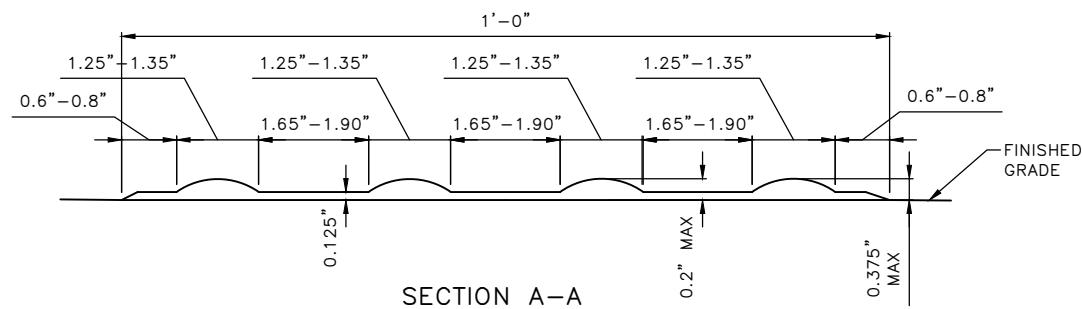
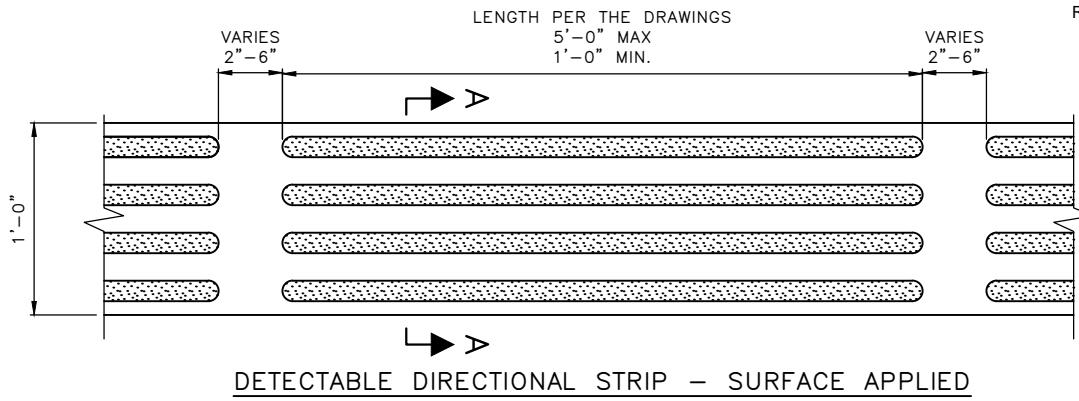
REF STD SPEC SEC 8-14



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CURB RAMP DETAILS

**NOTES:**

1. DETECTABLE DIRECTIONAL STRIP MUST BE "FEDERAL YELLOW", UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. STRIP CENTERLINE MUST BE PARALLEL TO THE ALIGNMENT OF THE PEDESTRIAN ACCESS ROUTE.
3. METHYL METHACRYLATE (MMA) DIRECTIONAL STRIP MUST COMPLY WITH ALL THE DIMENSIONS RANGES SHOWN ON THIS STANDARD PLAN FOR SURFACE APPLIED.
4. CAST-IN-PLACE DIRECTIONAL STRIP MAY BE BOLTED DOWN IF APPROVED BY THE ENGINEER.

REF STD SPEC SEC 8-14, 9-36



City of Seattle

NOT TO SCALE

DETECTABLE DIRECTIONAL STRIP

## CURB RAMP GENERAL NOTES:

1. TWO CURB RAMPS MUST BE INSTALLED AT EACH CORNER UNLESS OTHERWISE DIRECTED BY ENGINEER. SHARED DIAGONAL PERPENDICULAR RAMPS MUST NOT BE INSTALLED UNLESS ALL OTHER DESIGN OPTIONS ARE UNABLE TO BE CONSTRUCTED DUE TO EXISTING SITE CONSTRAINTS.
2. CURB RAMPS MUST BE AS CLOSELY ALIGNED WITH THE SIDEWALK AND THE PEDESTRIAN STREET CROSSING SERVED AS POSSIBLE.
3. CURB RAMP MUST BE CONSTRUCTED WITH COMPANION RAMP ON OPPOSITE SIDE OF THE ROADWAY WHERE NO RAMP IS PROVIDED UNLESS OTHERWISE DIRECTED BY ENGINEER.
4. CURB RAMPS MUST HAVE A MAXIMUM RUNNING SLOPE OF 8.3% AND A MINIMUM WIDTH OF 4'-0" UNLESS OTHERWISE DIRECTED BY ENGINEER. THE CROSS SLOPE OF CURB RAMPS MUST BE A MAXIMUM OF 2%. CURB RAMPS ARE NOT REQUIRED TO EXCEED A LENGTH OF 15 FEET UNLESS OTHERWISE DIRECTED BY ENGINEER.\*
5. GRADE BREAKS AT THE TOP AND THE BOTTOM OF CURB RAMP RUNS MUST BE PERPENDICULAR TO THE PATH OF TRAVEL. CURB RAMP RUNS ARE DEFINED BY RUNNING SLOPES THAT EXCEED 5% BUT ARE NO MORE THAN 8.3%. SURFACES ABUTTING AT CURB RAMP GRADE BREAKS MUST BE FLUSH.
6. AREAS ADJACENT TO CURB RAMPS OR CURB RAMP LANDINGS USABLE BY PEDESTRIANS MUST COMPLY WITH STANDARD PLAN SIDEWALK SLOPE LIMITS OR A CURB RAMP WING MUST BE PROVIDED AS SHOWN IN THE APPLICABLE CURB RAMP DETAILS. THE INSTALLATION OF CURBED EDGES MAY BE USED AT THE SIDES OR BACKS OF CURB RAMPS OR CURB RAMP LANDING WHERE THE ADJACENT SURFACE IS LANDSCAPED OR OTHERWISE NOT USABLE BY PEDESTRIANS.
7. THE COUNTER SLOPE OF THE GUTTER OR THE STREET AT THE BOTTOM OF CURB RAMP RUNS MUST BE 5% MAXIMUM. IF TURNING OR CHANGE OF ORIENTATION IS REQUIRED WITHIN THE PEDESTRIAN CROSSING AT THE BOTTOM OF CURB RAMP RUNS, THE SLOPE MUST BE 2% MAXIMUM IN ANY DIRECTION FOR A MINIMUM 4'-0" WIDTH X 4'-0" DEPTH MEASURED FROM THE RAMP BOTTOM GRADE BREAK.
8. CURB RAMPS WITH RUNS THAT TERMINATE AT THE ENTRANCE TO THE PEDESTRIAN STREET CROSSING MUST HAVE A CLEAR SPACE AT THE BOTTOM OF THE RAMP. "CLEAR SPACE" IS DEFINED AS A NAVIGABLE 4'-0" BY 4'-0" SPACE, EXTENDING FROM THE RAMP LOWER GRADE BREAK, THAT FALLS WHOLLY WITHIN THE LEGAL CROSSWALK, MARKED OR UNMARKED, AND OUTSIDE THE PARALLEL VEHICULAR TRAFFIC LANE.
9. A 4'-0" MINIMUM WIDTH UNOBSTRUCTED PEDESTRIAN ACCESS ROUTE MUST BE PROVIDED FROM EACH CURB RAMP, BLENDED TRANSITION, OF FLUSH TRANSITION TO THE LEGAL CROSSWALK THAT IS SERVED, MARKED OR UNMARKED, AND LOCATED OUTSIDE THE PARALLEL VERTICAL TRAFFIC LANE.
10. DETECTABLE WARNING MUST BE PROVIDED AT CURB RAMPS AND AT LOCATIONS WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE DETECTABLE WARNING SURFACE MUST HAVE A TRUNCATED DOME PATTERN AS SHOWN, WITH A MINIMUM DEPTH OF 2'-0", AND MUST BE PLACED AT THE BACK OF CURB BUT NO MORE THAN 8" FROM THE FACE OF CURB FOR MONOLITHIC CURBS OR ATYPICAL CURB WIDTHS. DETECTABLE WARNING MUST MATCH THE WIDTH OF THE RAMP RUN OR THE OPENING WHERE THE SIDEWALK AND ROADWAY ARE FLUSH. THE TRUNCATED DOMES ON THE

DETECTABLE WARNING SURFACE SHOULD ALIGN WITH THE CURB RAMP RUN OR THE DIRECTION OF TRAVEL. DOMES MAY BE ON A RADIAL GRID PATTERN WHERE RADIAL DETECTABLE WARNING SURFACE IS PLACED AT CURB RADII. DETECTABLE WARNING COLOR MUST BE "FEDERAL SAFETY YELLOW", UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

DETECTABLE WARNING SURFACES MUST NOT BE CUT OR ALTERED TO FIT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. IT APPROVED, CUT OR ALTER THE DETECTABLE WARNING SURFACE PER THE MANUFACTURER'S DIRECTIONS. DETECTABLE WARNING SURFACES PLACED AT CURB RADII MUST MATCH THE CURB RADII WITHOUT GAPS OR INCONSISTENCIES IN PLACEMENT. HANDHOLES, UTILITY CASTINGS, OR ANY OTHER SURFACE OBSTRUCTIONS MUST NOT BE INSTALLED IN THE CURB RAMP RUN(S) OR LANDING(S) UNLESS OTHERWISE DIRECTED BY THE ENGINEER. IF NECESSARY DUE TO EXISTING CONSTRAINTS, HANDHOLES, UTILITY CASTINGS, OR OTHER SURFACE OBSTRUCTIONS MAY BE LOCATED WITHIN A RAMP RUN, LANDING, OR TURNING SPACE BUT MUST ADHERE TO SURFACE REQUIREMENTS. LEVEL CHANGES BETWEEN SURFACES MUST NOT EXCEED 1/4" OR 1/2" WITH A 1:2 BEVEL. GAPS BETWEEN SURFACES OR GRATINGS MAY NOT EXCEED 1/2". SURFACES MUST BE FIRM, STABLE, AND SLIP RESISTANT.

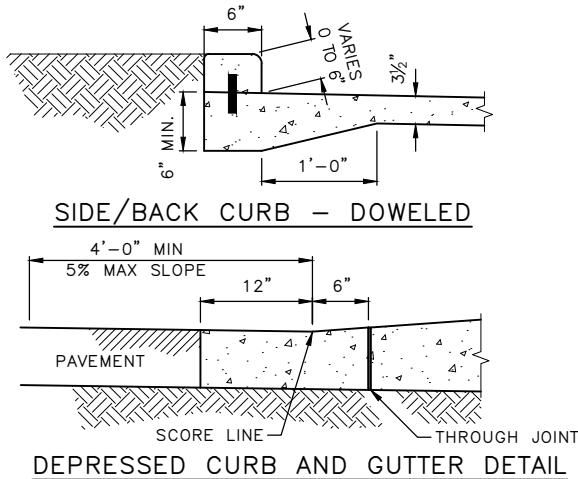
HANDHOLES, UTILITY CASTINGS, OR OTHER SURFACE OBSTRUCTIONS MUST NOT REDUCE THE REQUIRED DEPTH OF DETECTABLE WARNING.

POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTRUCTIONS MUST HAVE A MINIMUM LATERAL CLEARANCE OF 1'-0" FROM RAMP RUN(S) OR LANDING(S). EXCEPT FOR PUSHBUTTON POSTS.

ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH. ANY DIFFERENCE IN ELEVATION OF 3/16 INCH OR GREATER MUST BE REPAIRED OR REPLACED.

CURB RAMPS ARE DESIGNED TO ENSURE THAT WATER DOES NOT ACCUMULATE ON RAMP SURFACES AND IN FRONT OF THE CURB RAMP WHERE IT IS FLUSH WITH THE ROADWAY. THE CONTRACTOR MUST CHECK GRADE LINES AND GUTTER FLOW LINE PRIOR TO CONSTRUCTION. IF THE CHECK REVEALS THAT SITE CONDITIONS WOULD RESULT IN PONDING, OR WOULD CONFLICT WITH OBTAINING THE GRADES AT THE BOTTOM OF CURB RAMPS OR AT CURB RAMP LOWER LANDINGS AS SHOWN ON THE DRAWINGS OR PLANS, THE CONTRACTOR MUST NOTIFY THE ENGINEER IMMEDIATELY AND STOP WORK ON THE CURB RAMP UNTIL DIRECTED TO CONTINUE BY THE ENGINEER.

\*\* IT IS RECOMMENDED THAT CURB RAMPS RUNNING SLOPES BE DESIGNED TO 7.5% MAX. AND CURB RAMP LANDINGS BE DESIGNED TO 1.5% MAX TO ALLOW FOR A LIMITED MARGIN OF ERROR DURING CONSTRUCTION.



REF STD SPEC SEC 8-14

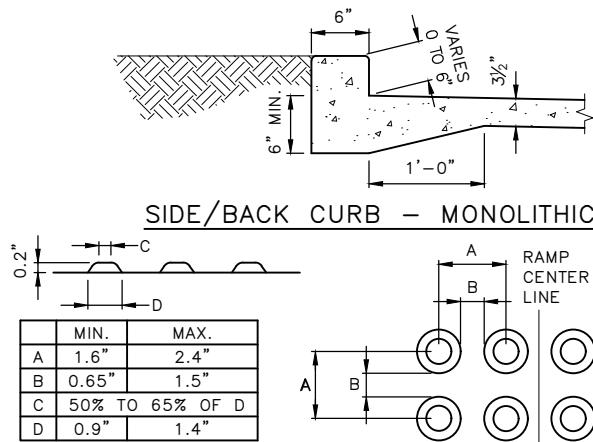


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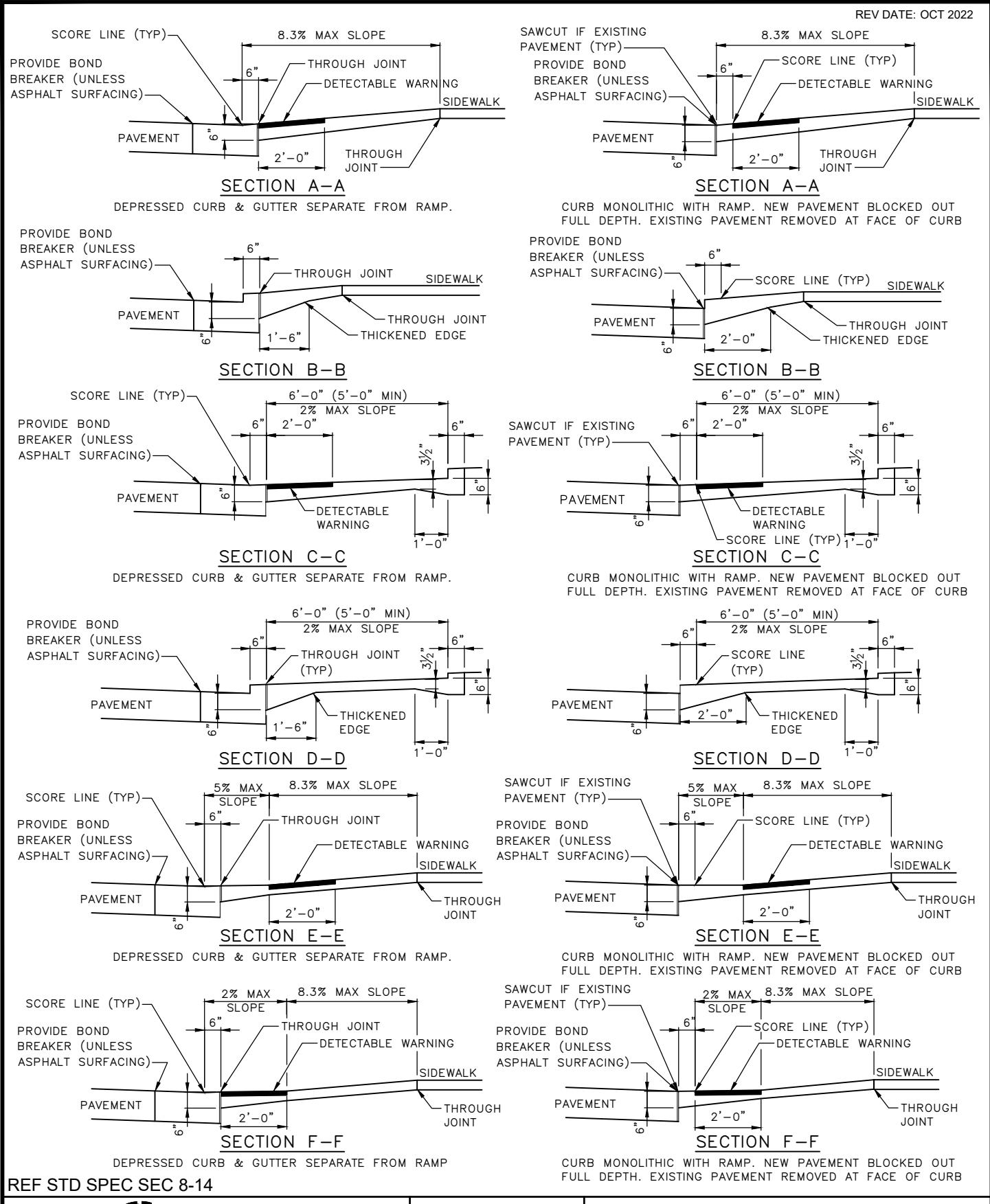
DETECTABLE WARNING TRUNCATED DOMES PATTERN

NOT TO SCALE

CURB RAMP DETAILS



REV DATE: OCT 2022



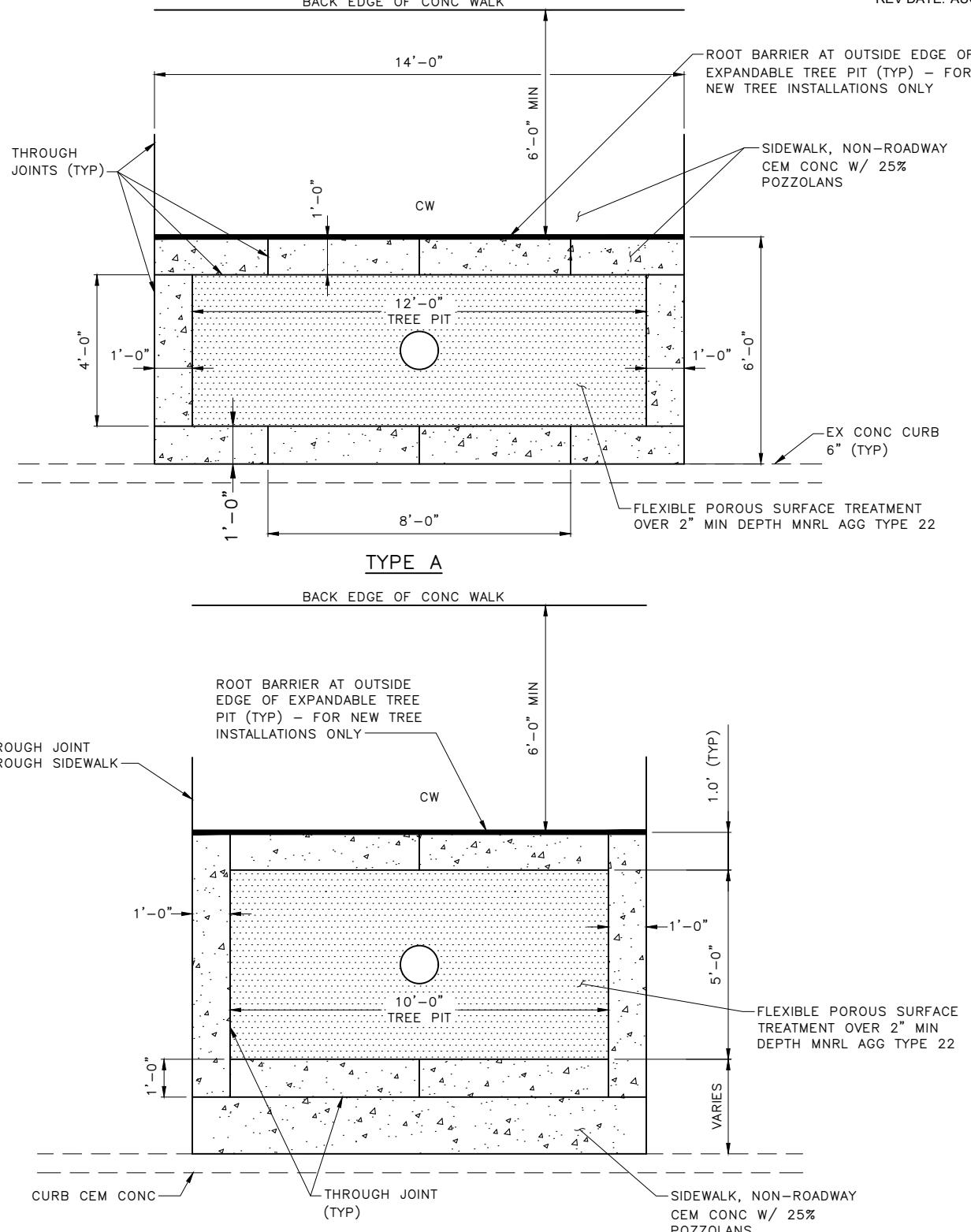
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NOT TO SCALE

CURB RAMP SECTIONS



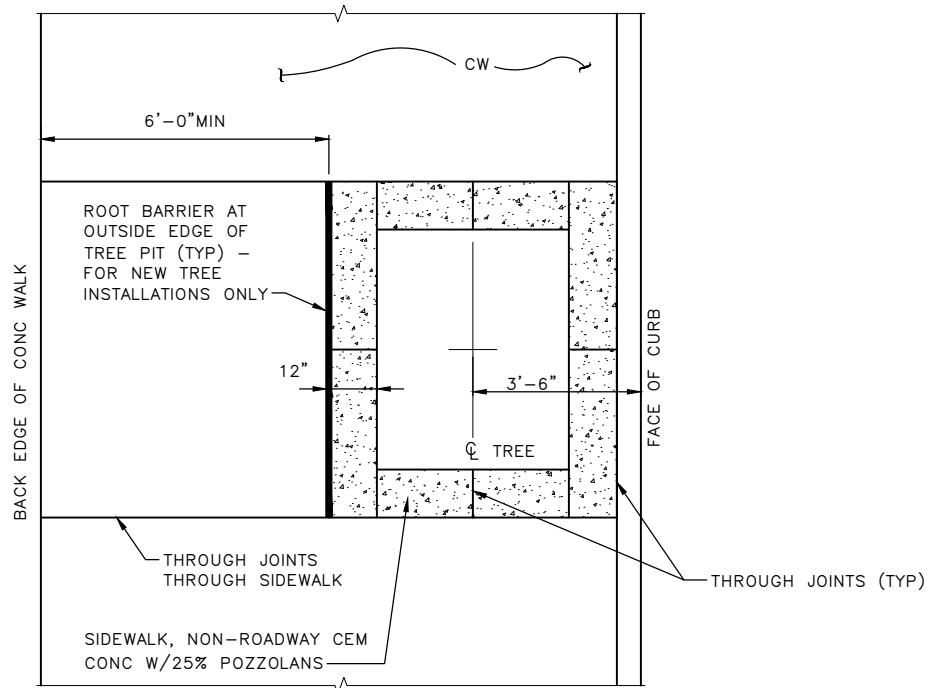
REF STD SPEC SEC 8-02, 8-14



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EXPANDABLE TREE PIT DETAIL



FOR ADDITIONAL SIDEWALK SCORING REQUIREMENTS  
SEE STD PLAN NO 420

#### TYPE C

##### TREE PIT DIMENSIONAL REQUIREMENTS:

- 24 SQ FT MIN TREE PIT SIZE
- 3'-0" MIN REQ'D BETWEEN TREE & FACE OF CURB
- 2'-0" MIN REQ'D BETWEEN TREE & CONC SIDEWALK
- 6'-0" MIN CONC WALKING SURFACE

##### NOTES:

1. INSTALLATIONS REQUIRING LESS THAN STANDARD MIN CLEARANCES MUST BE ALLOWED ONLY WITH APPROVAL BY THE ENGINEER.
2. INSTALL ROOT BARRIER AS NOTED. SEE STANDARD PLAN NO 100a.
3. SEE STD PLAN NO 420 FOR CW SCORING DETAILS.
4. WHEN INSTALLING NEW TREE PITS IN EXISTING SIDEWALK, REMOVE SIDEWALK TO FULL PANE WIDTH. INSTALL TREE PIT AS SHOWN ON THIS DETAIL.

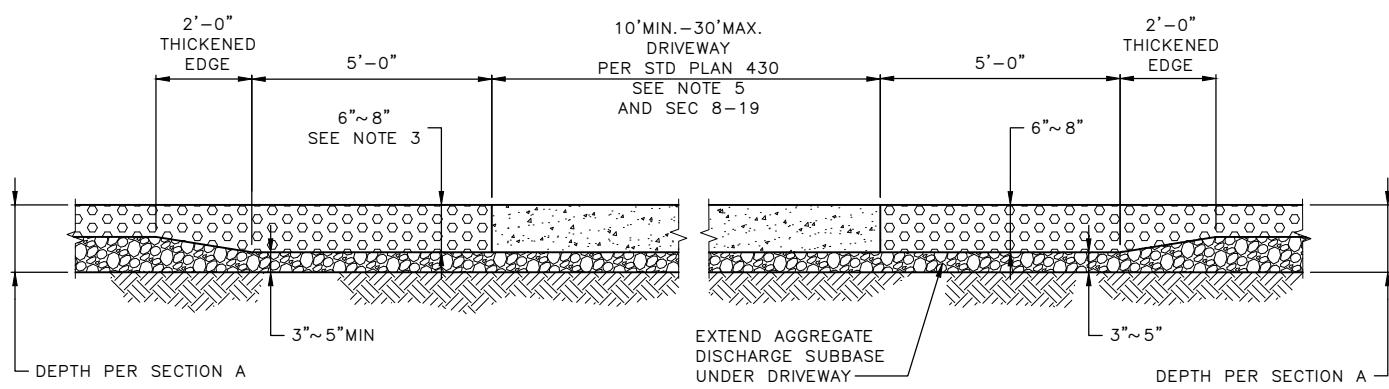
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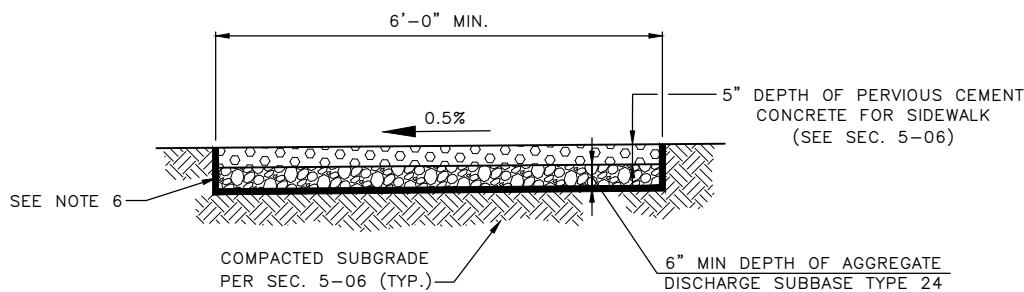
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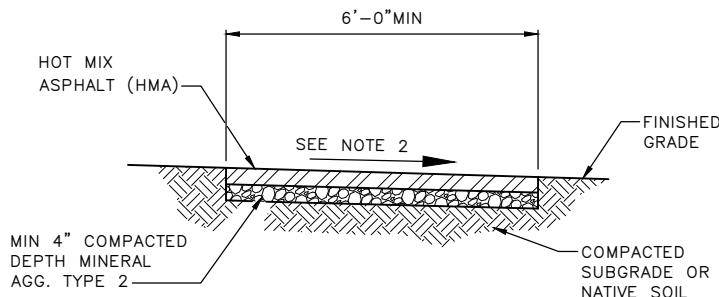
TREE PIT DETAIL



PERVIOUS CONC CEM SIDEWALK DEPTH  
TRANSITION AT DRIVEWAYS PROFILE VIEW



PERVIOUS CONC SECTION A



HOT MIX ASPHALT PAVEMENT SIDEWALK SECTION

NOTES:

1. DEPTHS SHOWN FOR PAVEMENT SECTIONS ARE COMPACTED DEPTH.
2. SIDEWALK DEPTH AT DRIVEWAY TO MATCH DRIVEWAY PAVEMENT DEPTH.
3. DEPTH OF POROUS CEMENT CONCRETE FOR DRIVEWAYS MUST BE 8" MIN.
4. 6% MAX. PERVIOUS CEMENT CONCRETE PROFILE GRADE.
5. WHERE PERVIOUS CONCRETE IS SHOWN ON PLANS FOR ALLEY, PERVIOUS CONCRETE MUST BE 8" WITH 3" AGGREGATE DISCHARGE SUBBASE.
6. APPLY SEPARATION GEOTEXTILE SEC. 9-37, ON BOTTOM AND SIDES. EXTEND GEOTEXTILE ABOVE PERVIOUS CONCRETE FOR SIDEWALK PAVEMENT. AFTER PAVEMENT HAS CURED AND ADJACENT FINISHED GRADE HAS BEEN STABILIZED, CUT SEPARATION GEOTEXTILE AT FINISHED GRADE (TYP.).
7. CONTRACTION JOINTS FOR PERVIOUS CONCRETE SIDEWALKS MUST BE PLACED AT A MAXIMUM OF 15 FT ON CENTER SPACING.

REF STD SPEC SEC 5-04, 5-06



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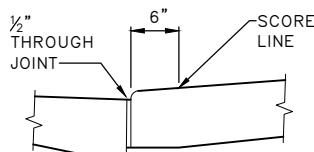
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ALTERNATIVE WALKWAYS

1" ABOVE  
PAVEMENT

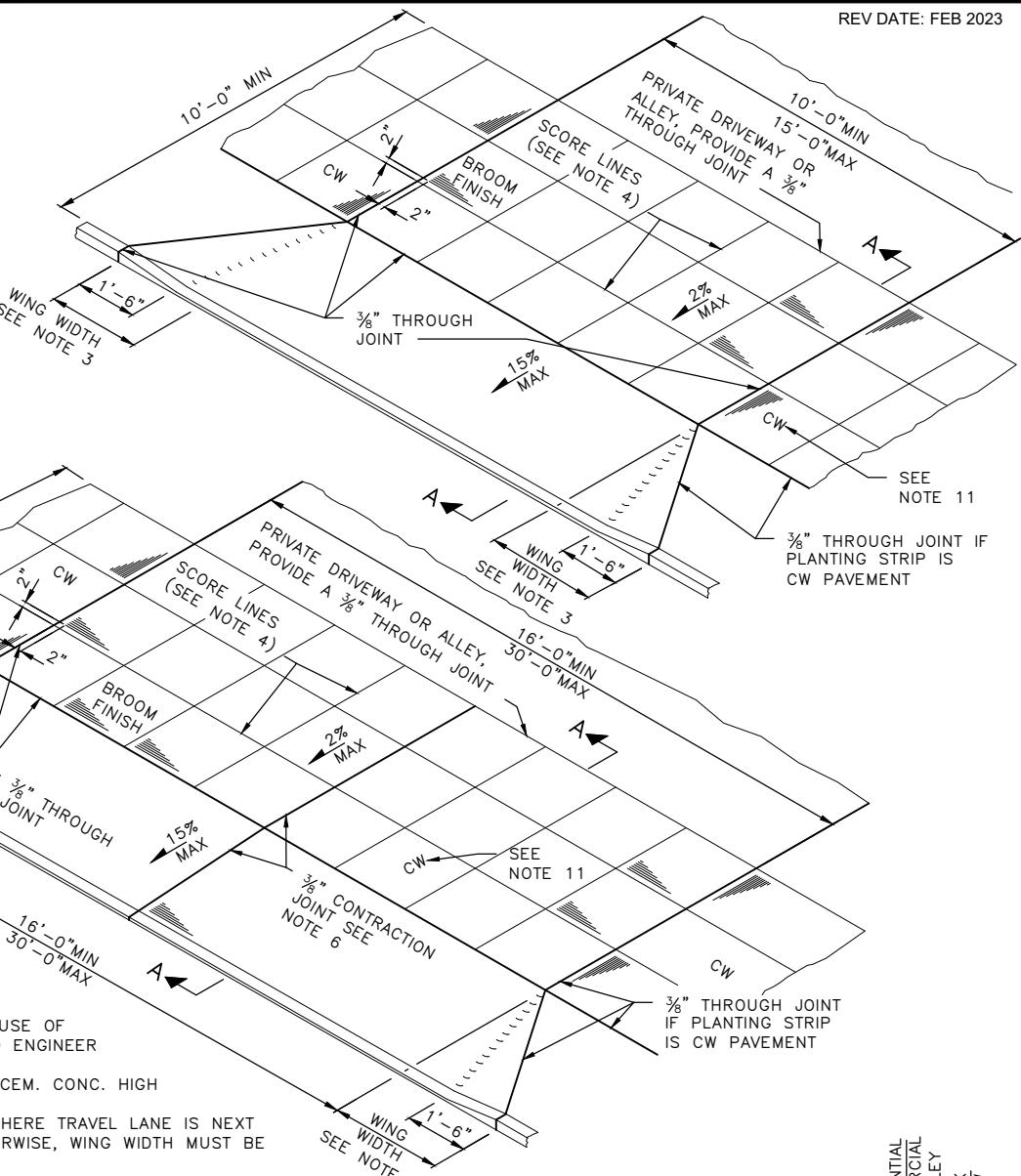
2" ABOVE  
PAVEMENT

DETAIL A



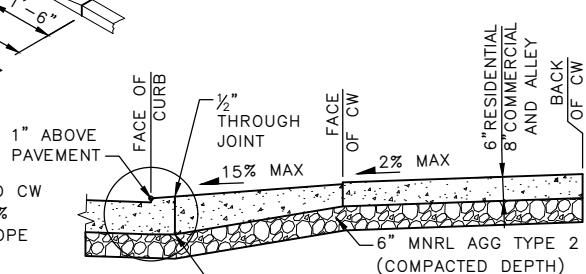
DETAIL B

DRIVEWAY W/ MONOLITHIC  
CURB & APPROACH



## NOTES:

1. TYPE 430A MUST BE USED UNLESS OTHERWISE DIRECTED BY ENGINEER. USE OF DRIVEWAY TYPE 430B IS SUBJECT TO ENGINEER APPROVAL.
2. DRIVEWAYS MUST BE NON-ROADWAY CEM. CONC. HIGH STRENGTH.
3. WING WIDTH ON ARTERIAL STREETS WHERE TRAVEL LANE IS NEXT TO THE CURB MUST BE 5'-0". OTHERWISE, WING WIDTH MUST BE 2'-6".
4. "V" GROOVE SCORING MUST MATCH PATTERN IN ADJACENT EXISTING SIDEWALK.
5. FOR CONCRETE DRIVEWAY CONSTRUCTED WITH CONCRETE SIDEWALK, SEE STANDARD PLAN NO 431.
6. CONCRETE DRIVEWAYS WITH A WIDTH GREATER THAN 15'-0" MUST HAVE A 3/8" TRANSVERSE CONTRACTION JOINT NEAR THE CENTERLINE OF DRIVEWAY.
7. FOR TYPE 430A CROSS-SLOPE IN THE 6'-0" MINIMUM WIDE AREA CONNECTING TO CW ON EACH SIDE OF THE DRIVEWAY MUST BE MAXIMUM 2% AND MINIMUM 0.5% (1.5% DESIRABLE) AND MUST SLOPE TOWARDS THE STREET. FOR TYPE 430B, CROSS-SLOPE OF THE DRIVEWAY BETWEEN THE TWO RAMP SECTIONS MUST BE MAXIMUM 2% AND MINIMUM 0.5%.
8. RAMP MUST HAVE A MAXIMUM SLOPE OF 8.3% AND A MINIMUM WIDTH OF 6'-0". THE CROSS SLOPE OF THE RAMP MUST BE MAXIMUM OF 2.0%. RAMP SURFACE MUST HAVE A HEAVY BROOM BRUSHED SURFACE PERPENDICULAR TO THE CURB.
9. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF 3/16 INCH.
10. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS, ADJUSTMENTS ARE SUBJECT TO ENGINEER APPROVAL.
11. CONCRETE WALKWAY OUTSIDE OF THE DRIVEWAY CROSSING MAY BE PERVIOUS.
12. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.



SEE DETAIL B FOR MONOLITHIC CURB

## SECTION A-A

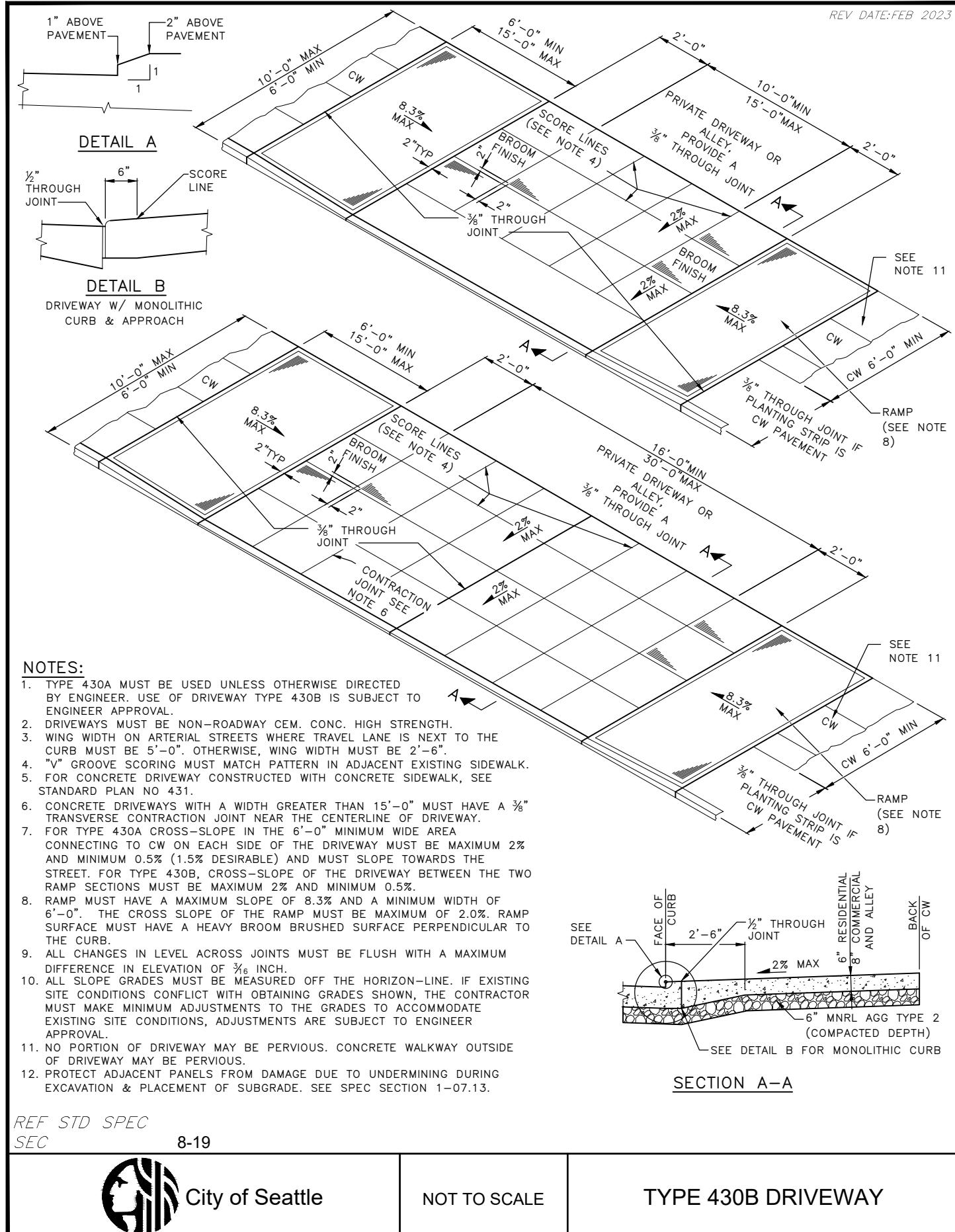
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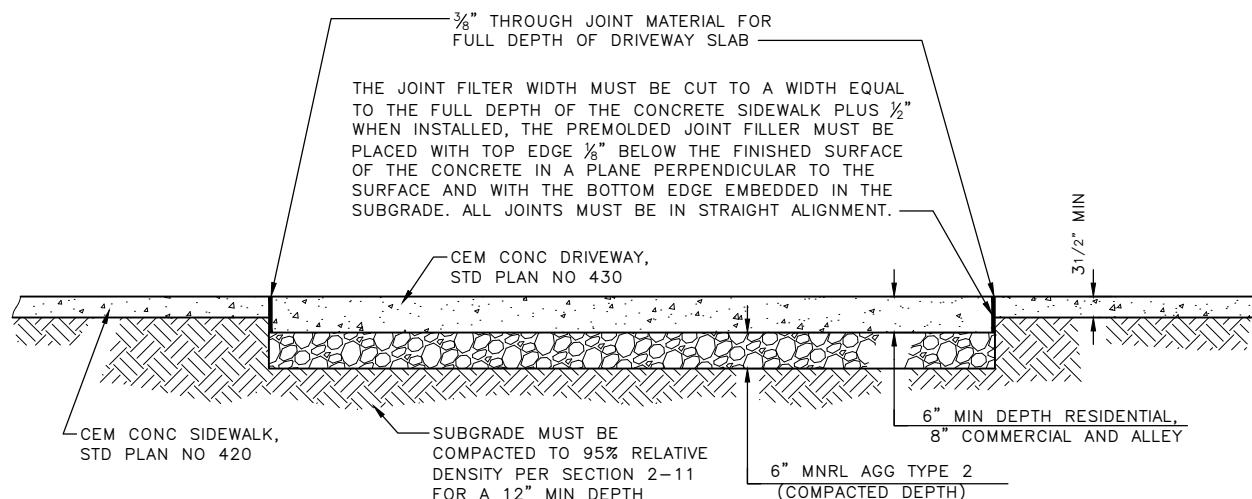
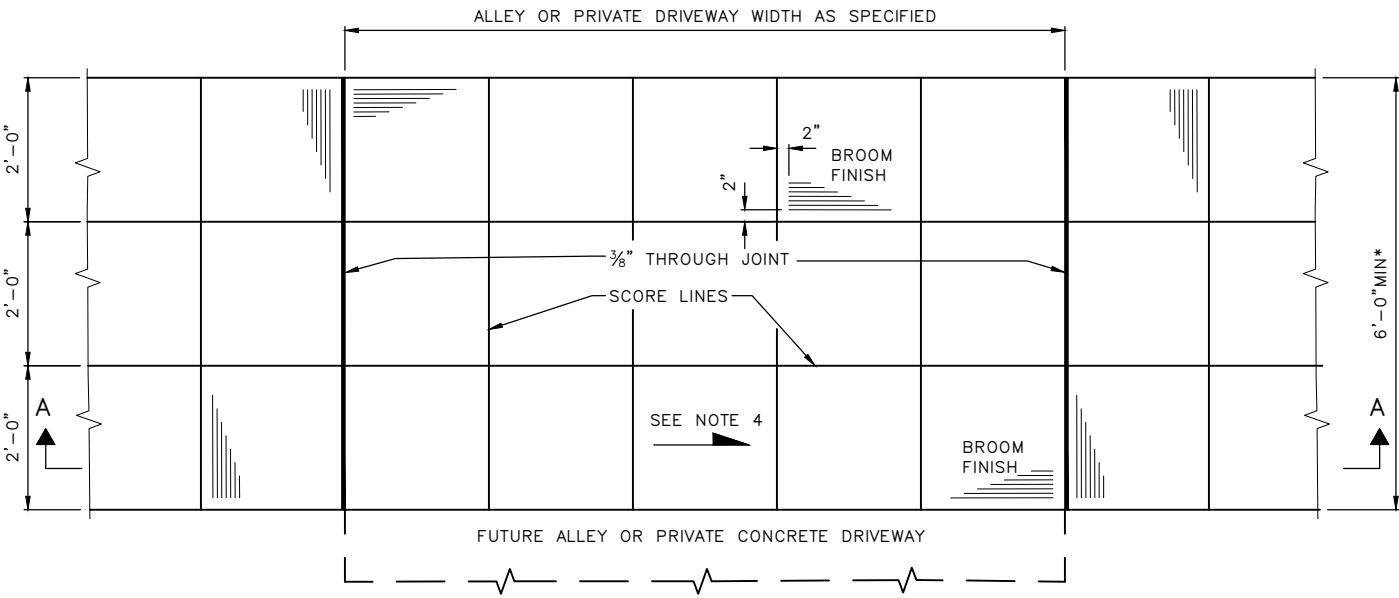


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NOT TO SCALE

TYPE 430A DRIVEWAY





### SECTION A-A

\* UNLESS OTHERWISE APPROVED

#### NOTES:

1. DRIVEWAY WIDTH GREATER THAN 15'-0" MUST HAVE 3/8" TRANSVERSE CONTRACTION JOINT AT OR NEAR ITS CENTER.
2. DRIVEWAY GREATER THAN 30'-0" REQUIRES APPROVAL. SET 3/8" TRANSVERSE CONTRACTION JOINTS AT INTERVALS OF 8' TO 15', UNLESS OTHERWISE SPECIFIED.
3. PROVIDE SCORE LINES PER STD PLAN NO 420 AND THE DRAWINGS.
4. THE SURFACE MUST BE BRUSHED IN THE TRANSVERSE DIRECTION IN RELATION TO THE CENTERLINE OF THE DRIVEWAY OR ALLEY WITH A FIBER HAIR BRUSH OR OTHER APPROVED BRUSH TYPE.
5. PROTECT ADJACENT PANELS FROM DAMAGE DUE TO UNDERMINING DURING EXCAVATION & PLACEMENT OF SUBGRADE. SEE SPEC SECTION 1-07.13.

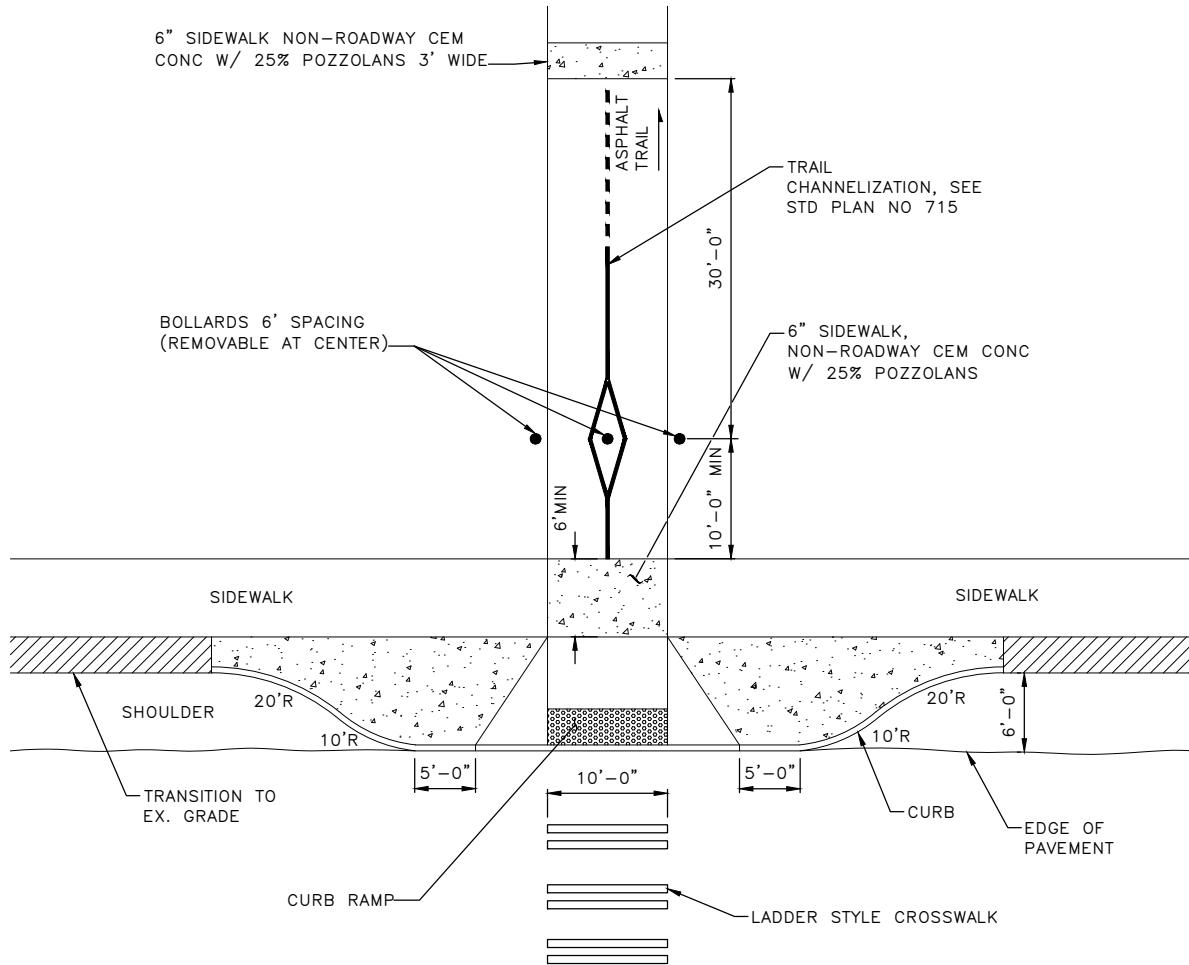
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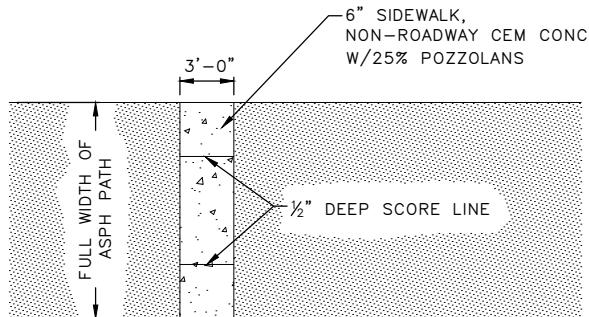
CEMENT CONCRETE DRIVEWAY  
PLACED WITH CEMENT  
CONCRETE SIDEWALK



MULTI PURPOSE TRAIL AT ARTERIAL STREET W/BULB-OUT (TYP)

## NOTES:

1. FOR CURB RAMP AND DETECTABLE WARNING DETAILS SEE STANDARD PLAN NO 422 (SERIES).
2. FOR CROSSWALK DETAILS SEE STANDARD PLAN NO 712.
3. FOR BOLLARD DETAIL SEE STANDARD PLAN NO 463.
4. ASPHALT TRAIL CROSS SLOPE MINIMUM 1%, MAXIMUM 2%.
5. CEMENT CONCRETE WARNING PAD THICKNESS TO MATCH ASPHALT THICKNESS OR MINIMUM 6" THICK WHICHEVER IS GREATER.
6. CRUSHED ROCK ON EDGE OF TRAIL AS NEEDED TO DISBURSE DRAINAGE FLOW.
7. ALL CHANGES IN LEVEL ACROSS JOINTS MUST BE FLUSH WITH A MAXIMUM DIFFERENCE IN ELEVATION OF  $\frac{3}{16}$  INCH.
8. ALL SLOPE GRADES MUST BE MEASURED OFF THE HORIZON-LINE. IF EXISTING SITE CONDITIONS CONFLICT WITH OBTAINING GRADES SHOWN, THE CONTRACTOR MUST MAKE MINIMUM ADJUSTMENTS TO THE GRADES TO ACCOMMODATE EXISTING SITE CONDITIONS. ADJUSTMENTS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
9. ALL CEMENT CONCRETE WARNING PADS MUST BE BRUSHED FINISHED AND "V" GROOVED TO MATCH PATTERN IN ADJACENT OR NEARBY SIDEWALKS.



REF STD SPEC SEC

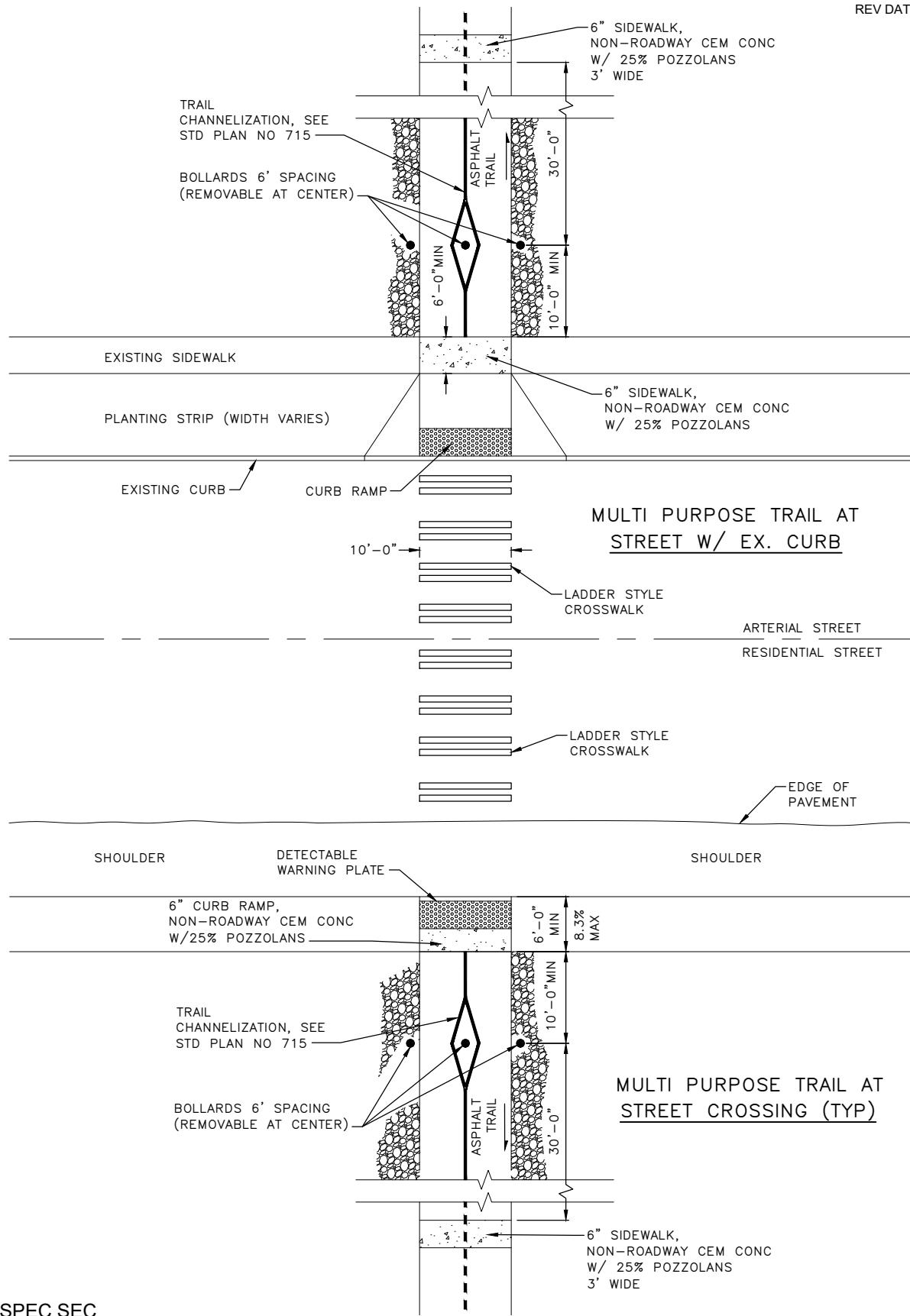


## City of Seattle

NOT TO SCALE

## MULTI-PURPOSE TRAIL AT STREET CROSSING

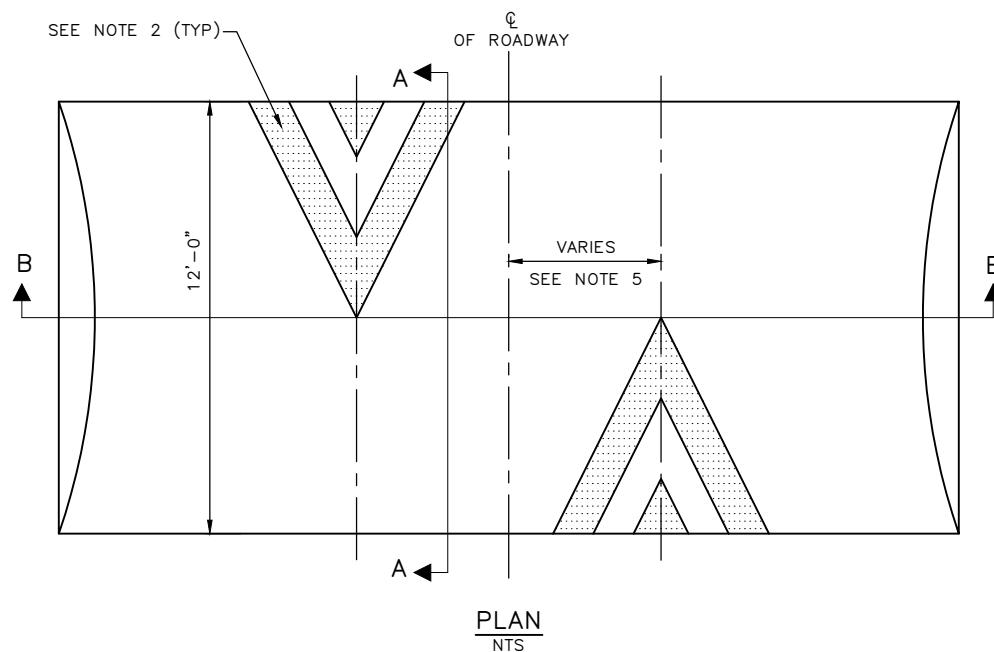
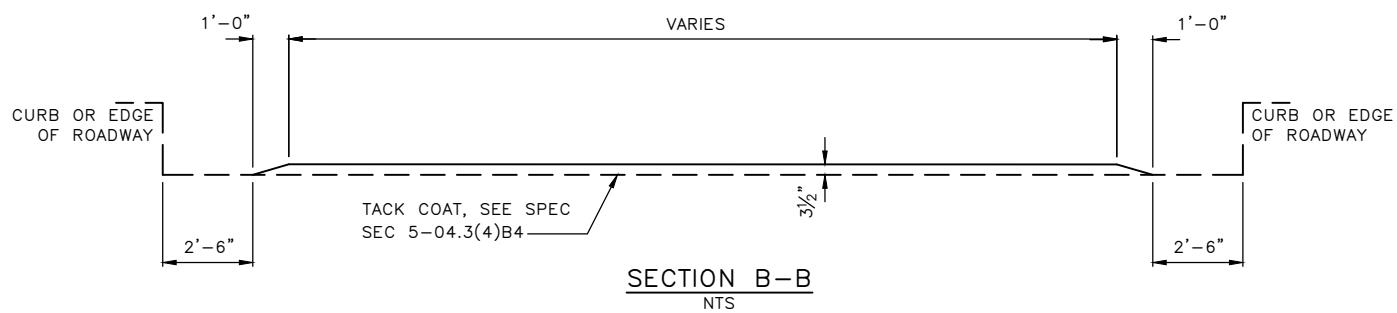
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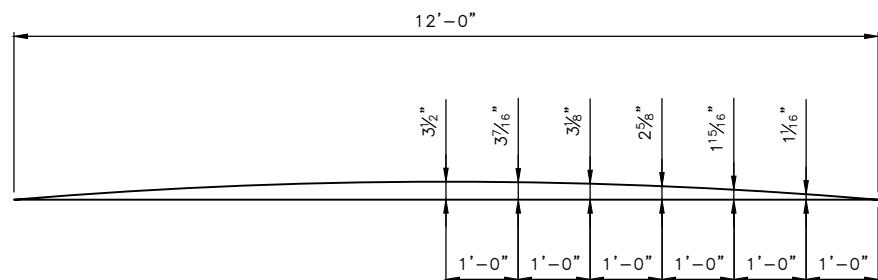
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MULTI-PURPOSE TRAIL AT STREET CROSSING



## NOTES:

1. SPEED HUMP MUST BE HMA CL  $\frac{3}{8}$ "
2. CHEVRON SYMBOL PER STD PLAN NO 728A
3. TOLERANCE AT CENTER IS  $\frac{1}{2}$ "
4. PARABOLIC SHAPE MUST BE MAINTAINED
5. CHEVRON MUST BE CENTERED IN THE TRAVEL WAY AND MISSING THE WHEEL PATH
6. SEAL ALL EDGES WHERE NEW ASPHALT MEETS EXISTING PER 5-04.3(10)B
7. SEALING MATERIALS MUST MEET 9-02.1(8)



SECTION A-A  
NTS

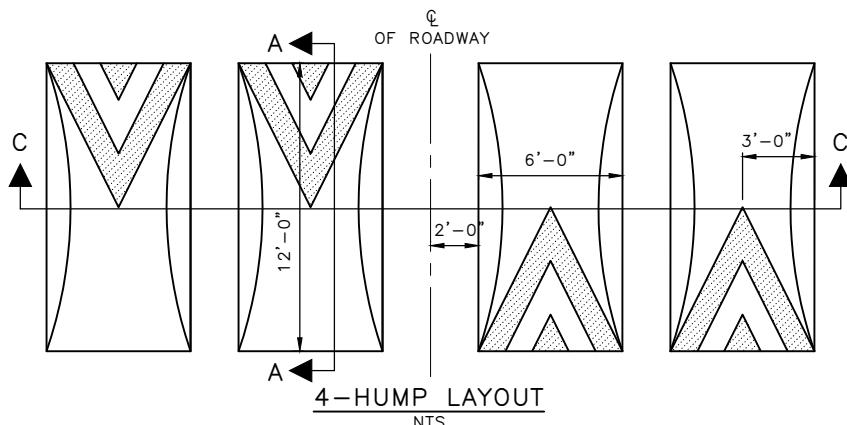
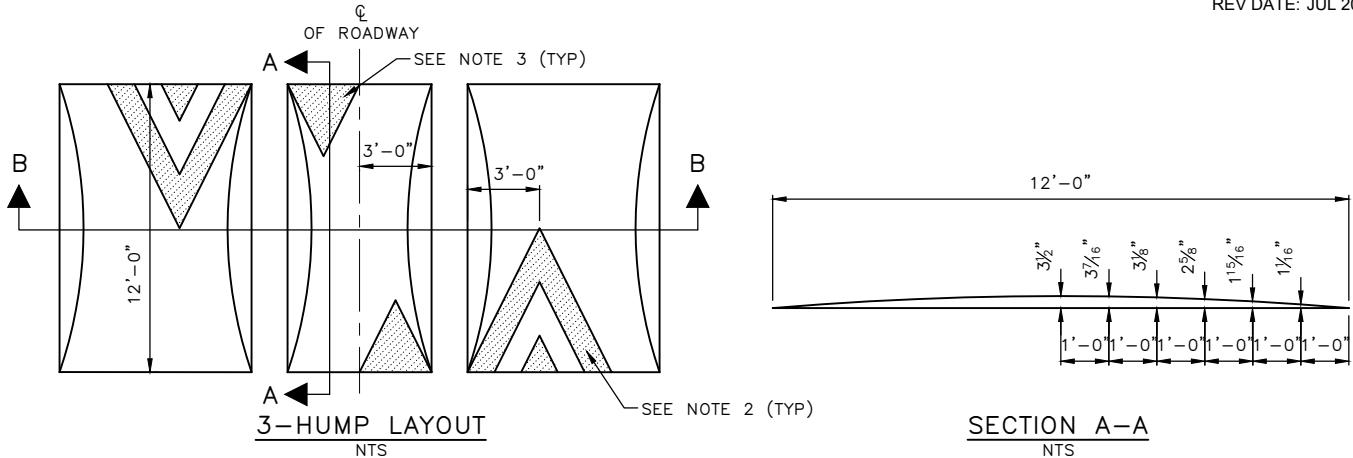
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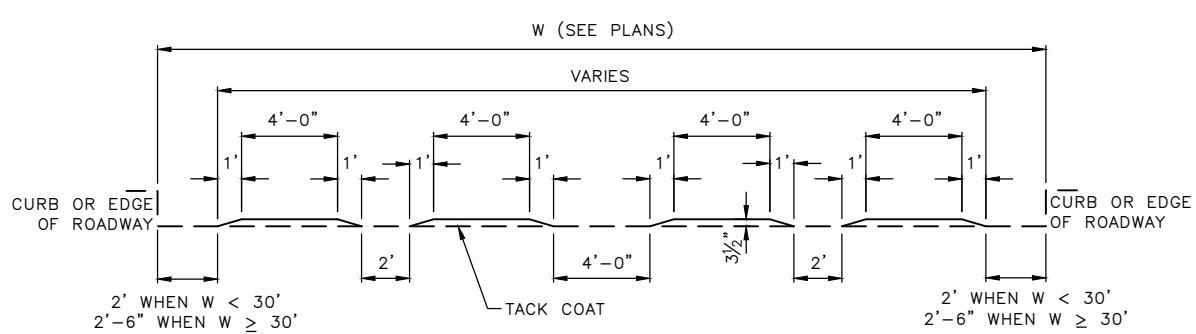
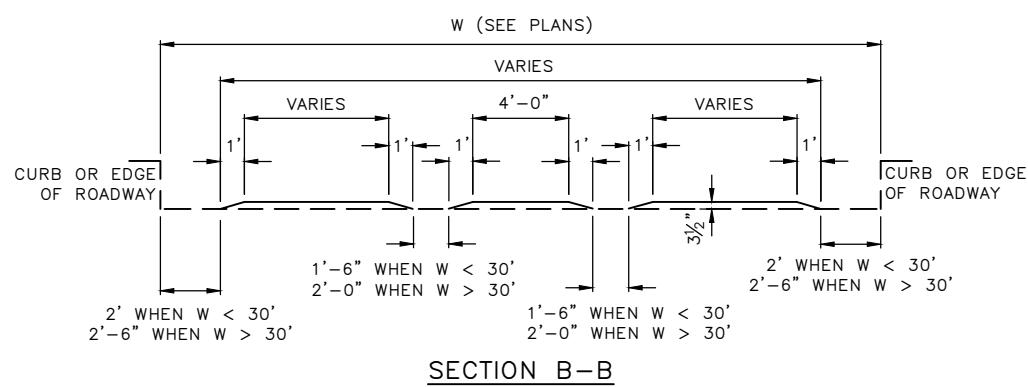
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SPEED HUMP



## NOTES:

1. CUSHION MUST BE HMA CL  $\frac{3}{8}$ ".
2. CHEVRON SYMBOL PER STD PLAN NO 728A
3. TRIANGLE SYMBOL PER STD PLAN NO 728B
4. TOLERANCE AT CENTER IS  $\frac{1}{2}$ "
5. PARABOLIC SHAPE MUST BE MAINTAINED



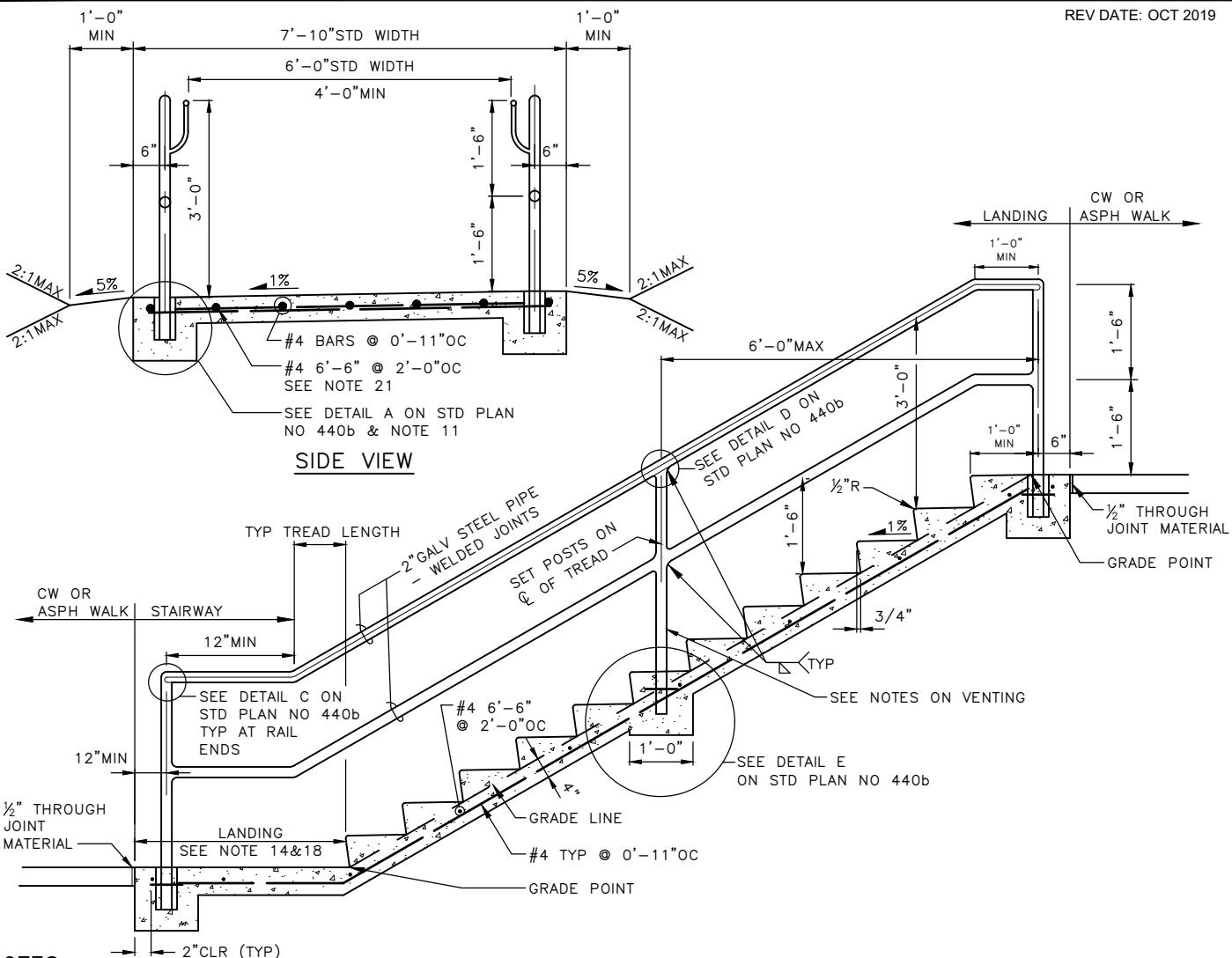
REF STD SPEC SEC 5-04



## City of Seattle

NOT TO SCALE

## SPEED CUSHION



## NOTES:

- FLIGHTS OF STAIRS MUST HAVE MAX VERTICAL RISE OF 12' BEFORE A LANDING.
- AVOID FEWER THAN 2 RISERS PER FLIGHT.
- STEPS IN FLIGHT MUST HAVE UNIFORM TREAD RUNS AND UNIFORM RISER HEIGHTS WITH TOLERANCE OF  $\pm 3/8$ ".
- TREADS MUST BE 11"MIN, 12"MAX. RISERS MUST BE 5"MIN, 7"MAX.
- LANDINGS BETWEEN FLIGHTS OF RISERS MUST HAVE SAME WIDTH AS STEPS AND A MIN LENGTH OF 4'-0".
- STAIRWAYS WITH 1 OR MORE RISERS MUST HAVE HANDRAILS ON BOTH SIDES.
- HANDRAILS MUST BE CONTINUOUS ACROSS LANDINGS BETWEEN FLIGHTS OF STEPS.
- ALL STEEL MUST BE HOT DIPPED GALVANIZED.
- PIPE MATERIAL MUST BE ASTM A53 AND ROUND BAR ASTM A36.
- REINFORCING STEEL MUST BE ASTM A615 GR 60.
- FOR FORMAL DRAINAGE PICK-UP SEE DETAIL B ON STD PLAN NO 440b (THIS IS OPTIONAL AND MUST BE CALLED OUT ON DRAWINGS).
- PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
- CONCRETE CLASS CL3000.
- LANDINGS MUST BE 0.5%MIN FOR A MIN LENGTH OF 4', ADJACENT SIDEWALK MAY BE PART OF LANDING IF SLOPE CRITERIA AND SETBACKS FROM HANDRAILS ARE MET.
- TREAD SURFACE MUST HAVE GROOVES AT THE NOSE FOR TRACTION.
- IF LANDING IS ELEVATED, LANDING MUST HAVE VERTICAL RAILING PER RIGHT OF WAY IMPROVEMENT MANUAL.
- STAIRWAYS DEVIATING FROM STANDARD PLAN TO ACCOMMODATE BICYCLE FEATURES MAY BE USED PER STD PLAN NO 440C OR 440D.
- DIMENSION FROM THE BOTTOM LANDING RAILING TO THE NOSE OF THE TREAD MUST BE 12"MIN + 1 TREAD LENGTH.
- HANDRAIL GRIPPING SURFACE AND ADJACENT SURFACES MUST BE FREE FROM SHARP OR ABRASIVE ELEMENTS AND MUST HAVE ROUNDED EDGES.
- BOTTOM HANDRAIL EXTENSION MUST EXTEND ONE TREAD LENGTH MINIMUM PARALLEL TO THE SLOPE OF THE STAIR BEYOND BOTTOM STAIR NOSING.
- TOP HANDRAIL EXTENSION MUST EXTEND HORIZONTALLY ABOVE LANDING 12" MINIMUM BEYOND TOP STAIR NOSING.
- REBAR SIZING AND SPACING MAY CHANGE FOR WIDER OR NARROWER STAIRWAYS.
- EXTERNAL VENT HOLES MUST BE AS CLOSE TO THE WELD AS POSSIBLE AND MUST BE 25% THE SIZE OF THE I.D. OF THE PIPE, BUT NOT LESS THAN  $\frac{3}{8}$ " IN DIA.
- VENT HOLES IN END SECTIONS OR IN SIMILAR SECTIONS MUST BE  $\frac{1}{2}$ " IN DIA.
- ENDS MUST BE LEFT COMPLETELY OPEN. ANY DEVICE USED FOR FIELD-ERCTION THAT PREVENTS FULL OPENINGS ON ENDS OF HORIZONTAL RAILS AND VERTICAL LEGS MUST BE GALVANIZED SEPARATELY AND ATTACHED AFTER GALVANIZING.

REF STD SPEC SEC 8-18

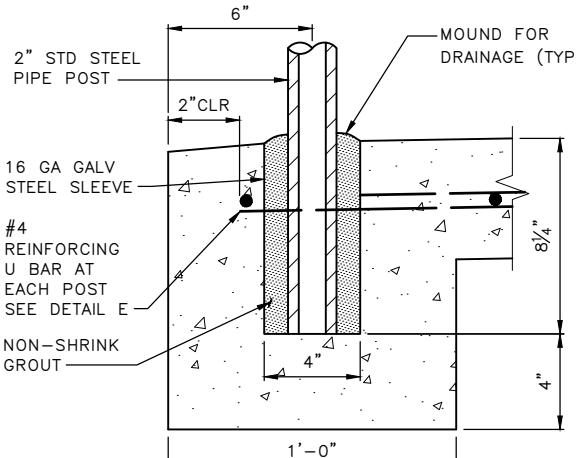


City of Seattle

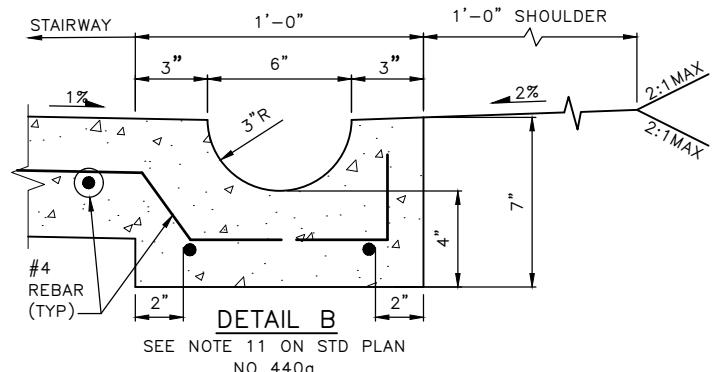
NOT TO SCALE

CEMENT CONCRETE  
STAIRWAY & HANDRAIL

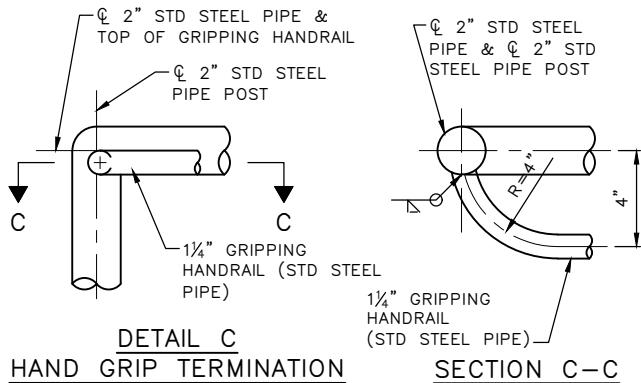
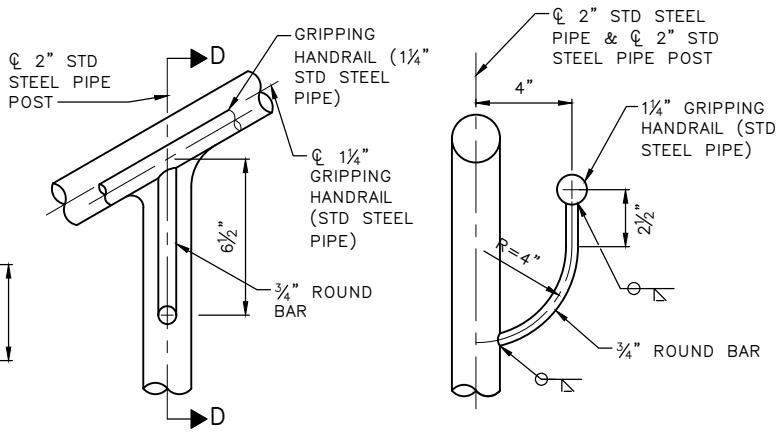
REV DATE: OCT 2022



DETAIL A



SEE NOTE 11 ON STD PLAN NO 440a

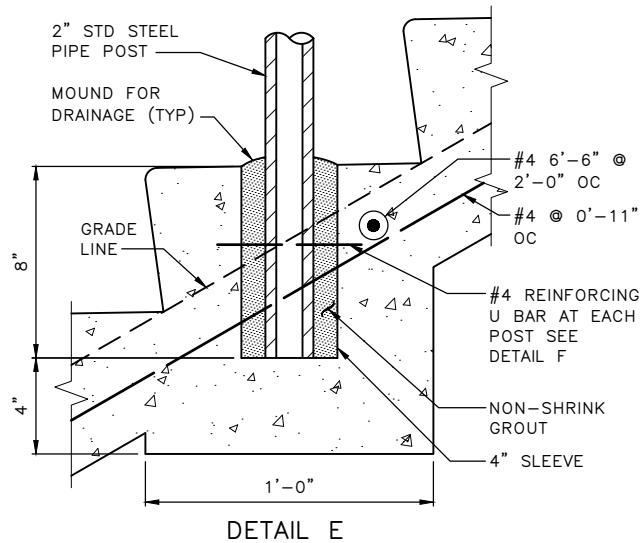
DETAIL C  
HAND GRIP TERMINATION

SECTION D-D

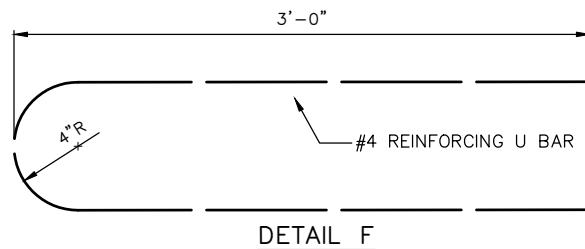
SECTION D-D

## NOTE:

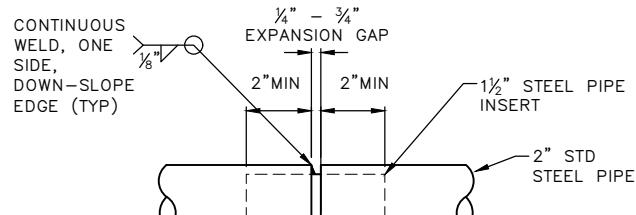
PIPE DIAMETERS SHOWN CORRESPOND TO PIPE "SHAPE" AS DEFINED IN AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.



DETAIL E



DETAIL F

DETAIL G  
SLIP JOINT

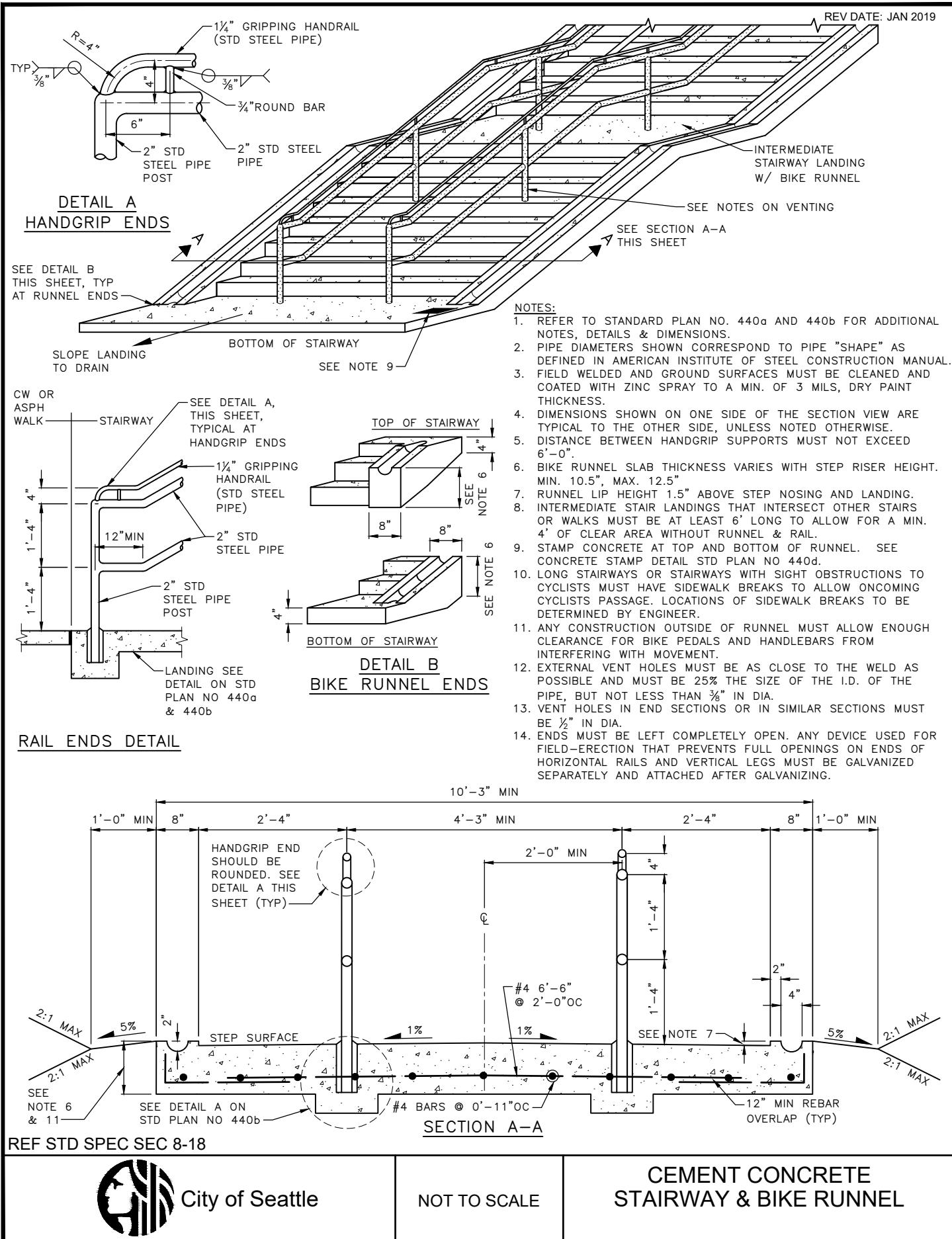
REF STD SPEC SEC 8-18

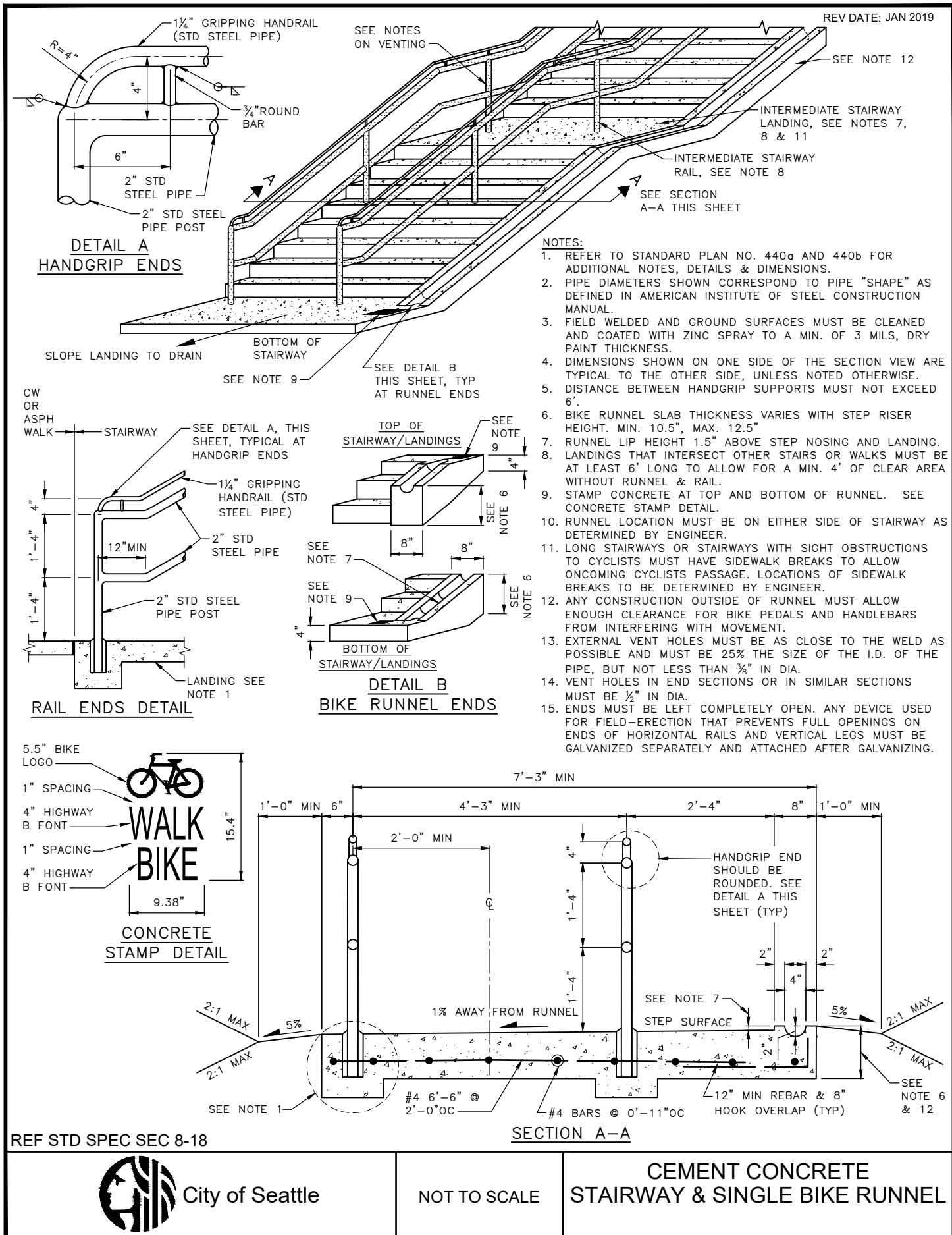


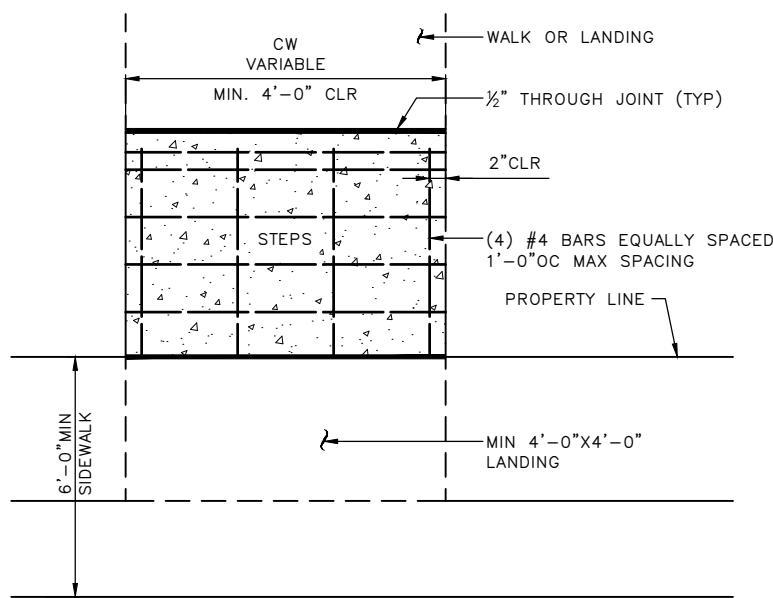
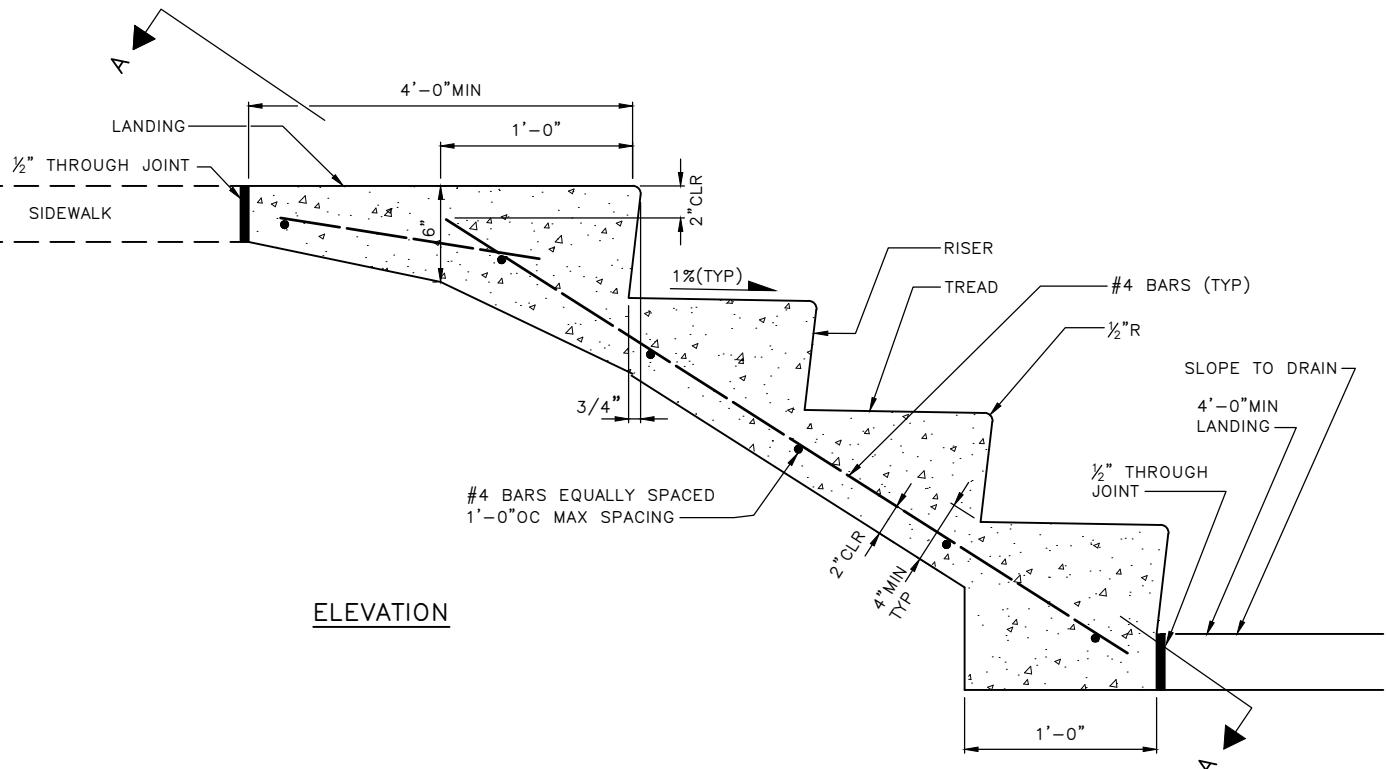
City of Seattle

NOT TO SCALE

CEMENT CONCRETE  
STAIRWAY & HANDRAIL

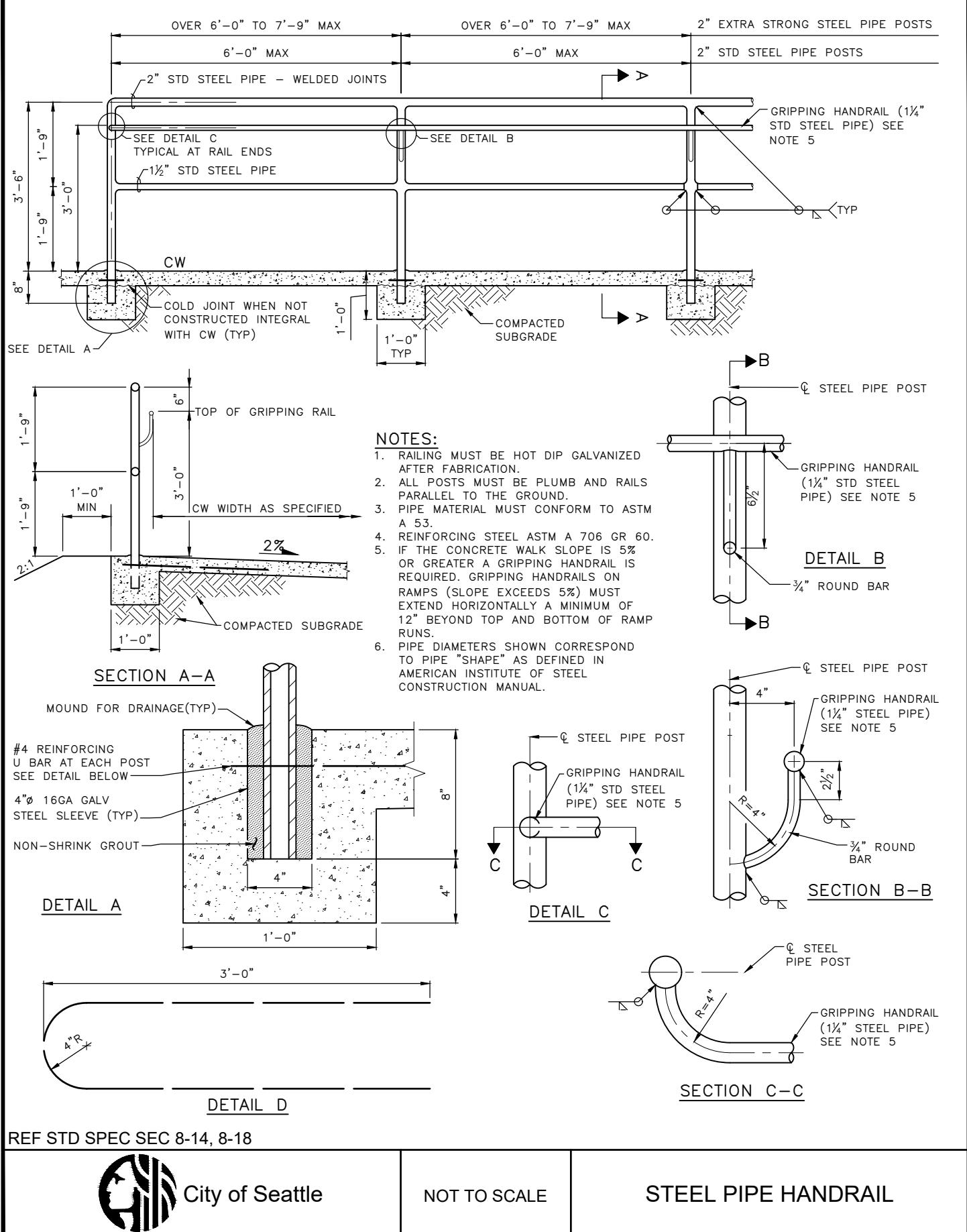


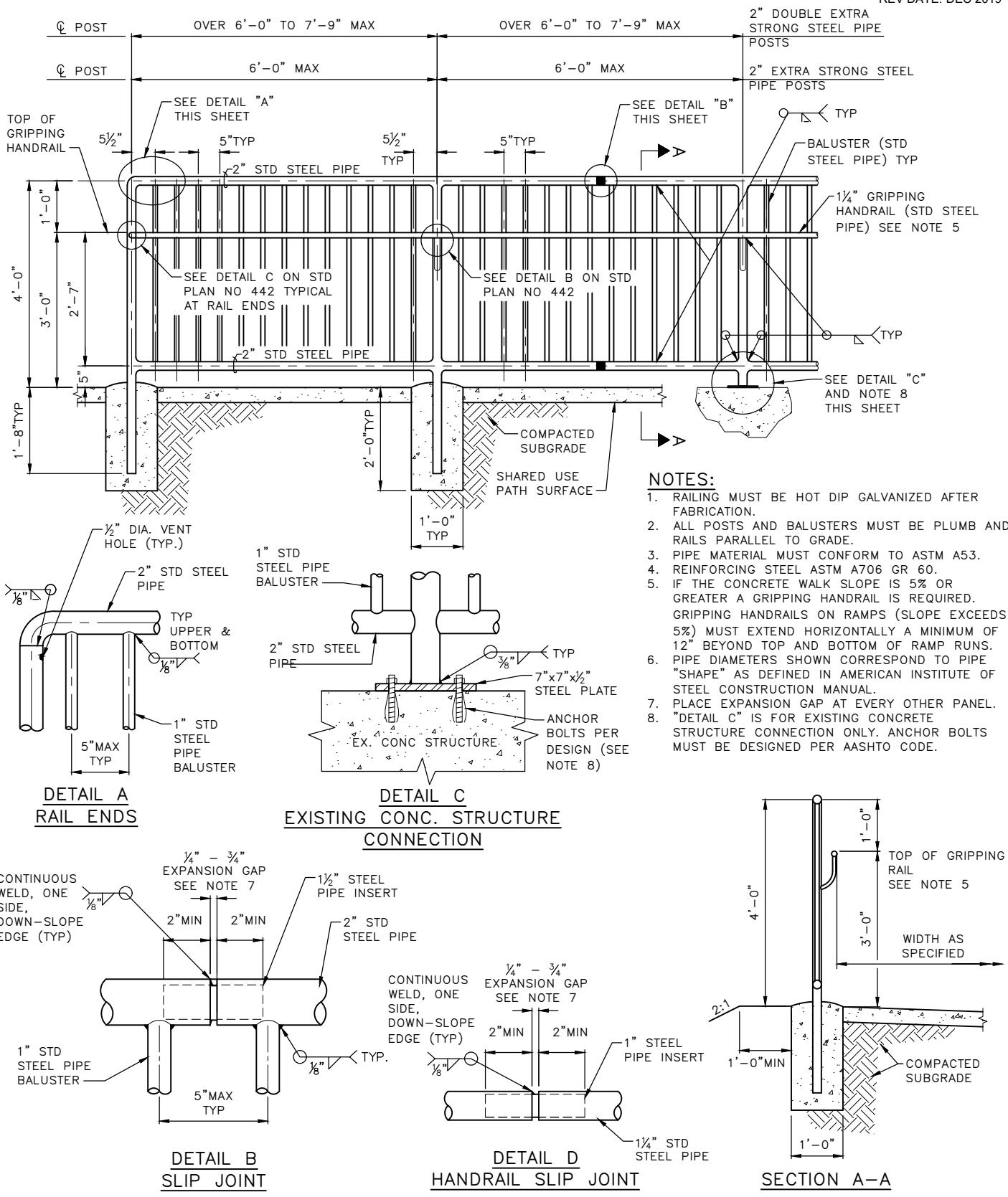


**NOTES:**

1. CEMENT CONCRETE MUST BE CL 3000 TROWEL FINISH
2. NUMBER OF STEPS MUST SUIT INDIVIDUAL CONDITIONS WITH UNIFORM TREAD AND RISER DIMENSIONS AS FOLLOWS: TREADS MUST BE 11"MIN - 1'-0"MAX RISERS MUST BE 5"MIN - 7"MAX
3. STEP WIDTH MUST MATCH WIDTH OF EXISTING WALK, BUT MUST BE NO LESS THAN 2'-6" WIDE
4. STAIRWAYS WITH 1 OR MORE RISERS MUST INCLUDE A HANDRAIL ON BOTH SIDES. SEE STD PLAN NO 440
5. REINFORCING STEEL ASTM A 615 GR60
6. TREAD SLOPES OUTWARD @1%







REF STD SPEC SEC 8-18

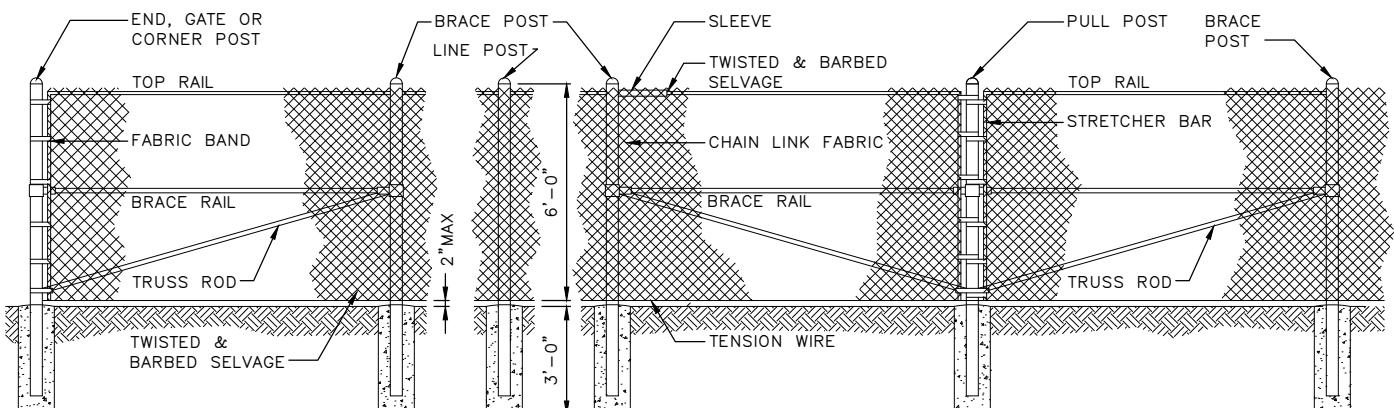


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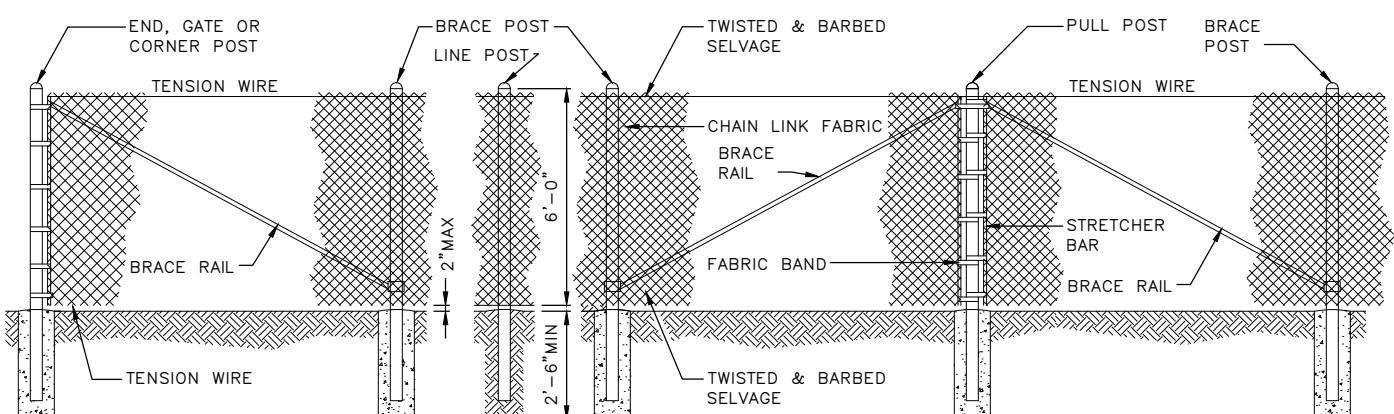
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PEDESTRIAN RAILING

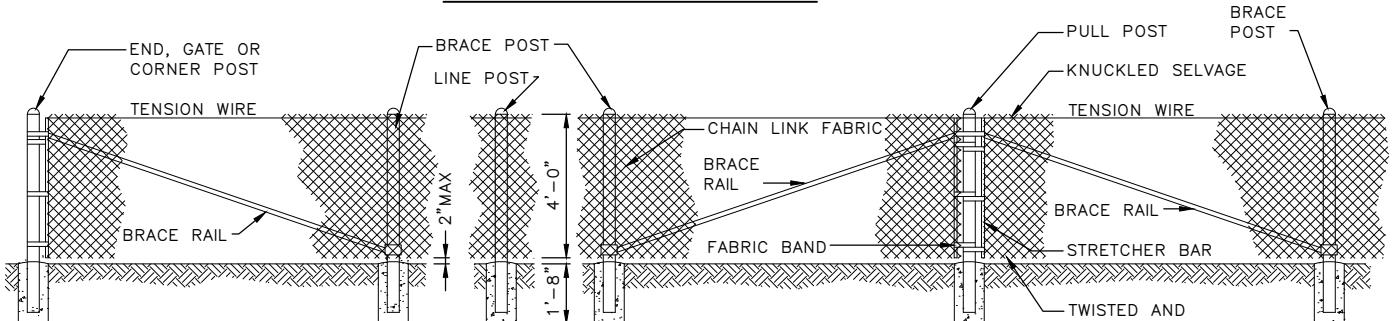
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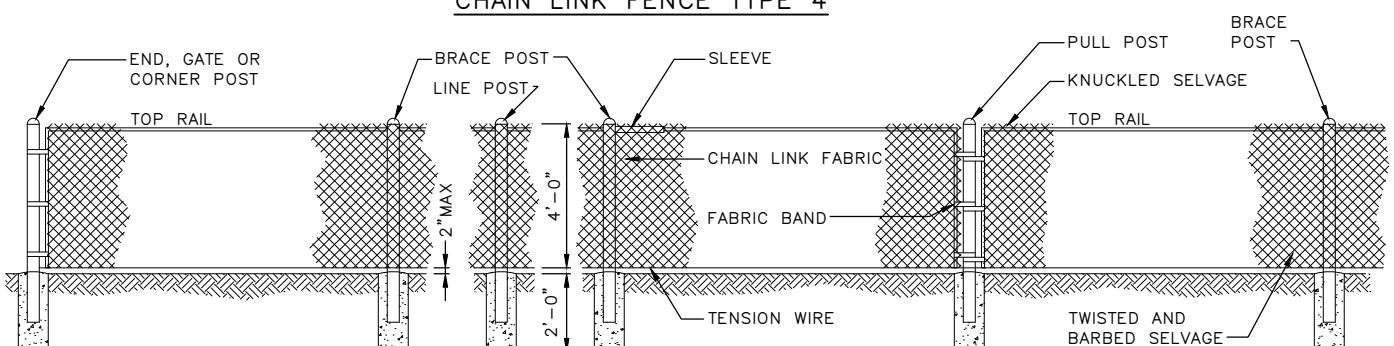
CHAIN LINK FENCE TYPE 1



CHAIN LINK FENCE TYPE 3



CHAIN LINK FENCE TYPE 4



CHAIN LINK FENCE TYPE 6

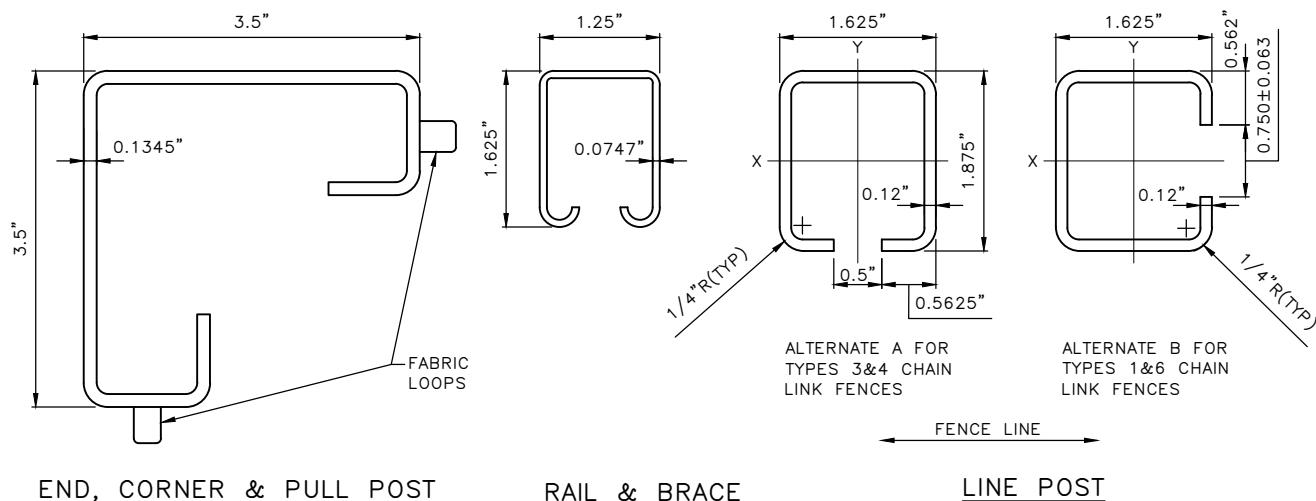
REF STD SPEC SEC 8-12



City of Seattle

NOT TO SCALE

CHAIN LINK FENCE



END, CORNER &amp; PULL POST

RAIL &amp; BRACE

LINE POST

### ROLL FORMED SECTIONS

#### MEMBER

TYPE	BRACE RAIL & TOP RAIL						LINE & BRACE POST					
	ROUND		H-COLUMN		ROLL FORMED		ROUND		H-COLUMN		ROLL FORMED	
	ID PIPE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	ID PIPE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS
1	1.25	2.27	1.25X1.62	1.35	1 5/8X1 1/4	1.35	2	3.65	2 1/4	4.0		
3							1 1/2	2.72	1 7/8	2.72	1 5/8X1 7/8	2.34
4							1 1/2	2.72	1 1/8	2.72	1 5/8X1 1/8	2.34
6			1.25X1.62	1.35			2	3.65	2 1/4	4.0		

#### MEMBER

TYPE	END, CORNER & PULL POSTS				GATE POST ROUND		ALL POSTS	
	ROUND		H-COLUMN		SIZE INCHES	WEIGHT PER FT POUNDS	LENGTH	
	ID PIPE INCHES	WEIGHT PER FT POUNDS	SIZE INCHES	WEIGHT PER FT POUNDS				
1	2 1/2	5.79	3 1/2X3 1/2	5.14	3 1/2	9.1	8'-8"	
3	2	3.65					8'-8"	
4	2	3.65					5'-6"	
6	2 1/2	5.79					5'-6"	

#### NOTES:

- ALL CONCRETE POST BASES MUST BE 10" MINIMUM DIAMETER, CL3000
- POSTS MUST BE SPACED AT 10'-0" MAXIMUM INTERVALS UNLESS OTHERWISE DIRECTED BY THE ENGINEER
- TOP OR BOTTOM TENSION WIRES MUST BE PLACED WITHIN THE LIMITS OF THE FIRST FULL FABRIC WEAVE
- THE ILLUSTRATIVE DETAIL SHOWN HEREON MUST NOT BE CONSTRUED AS LIMITING TO HARDWARE DESIGN OR POST SELECTION FOR ANY PARTICULAR FENCE TYPE
- CONCRETE OR GROUT AROUND POST AT GROUND LINE MUST BE MOUNDED FOR DRAINAGE

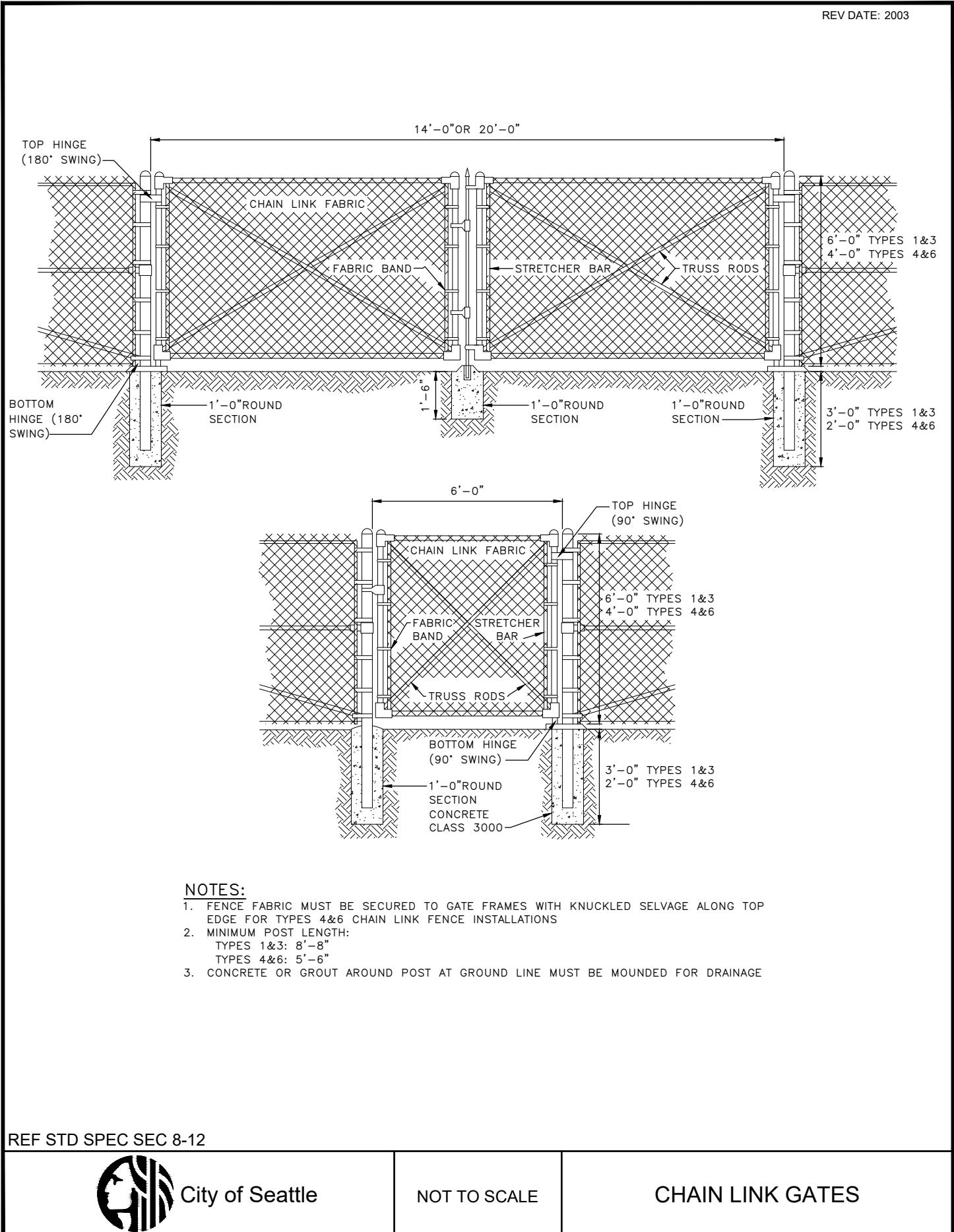
REF STD SPEC SEC 8-12



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NOT TO SCALE

CHAIN LINK FENCE



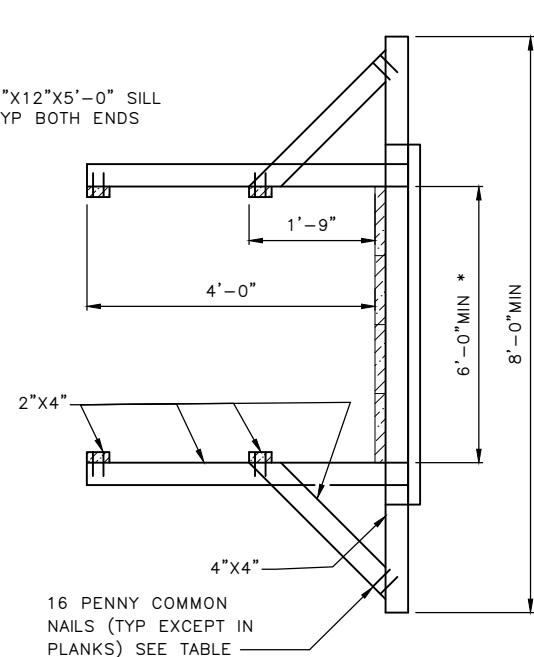
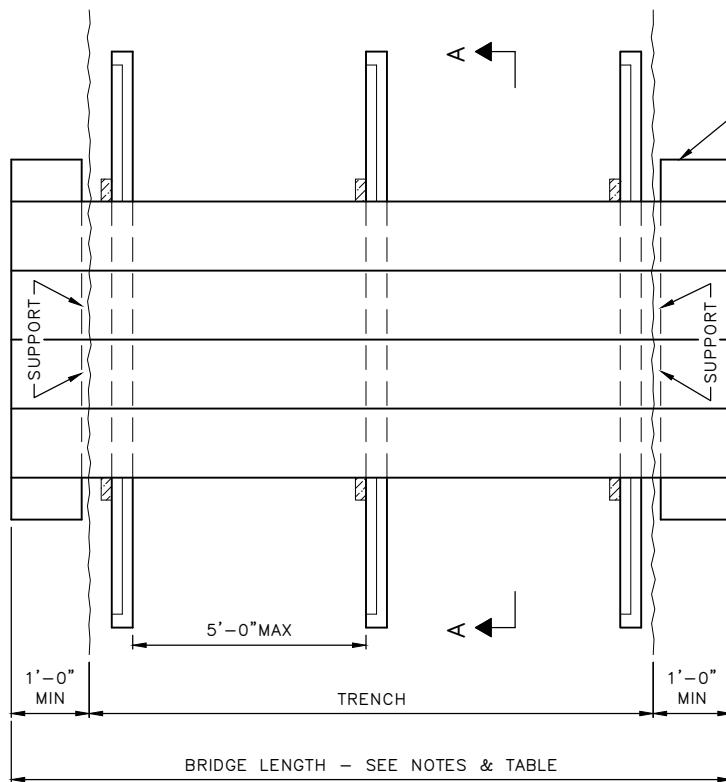
REF STD SPEC SEC 8-12



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NOT TO SCALE

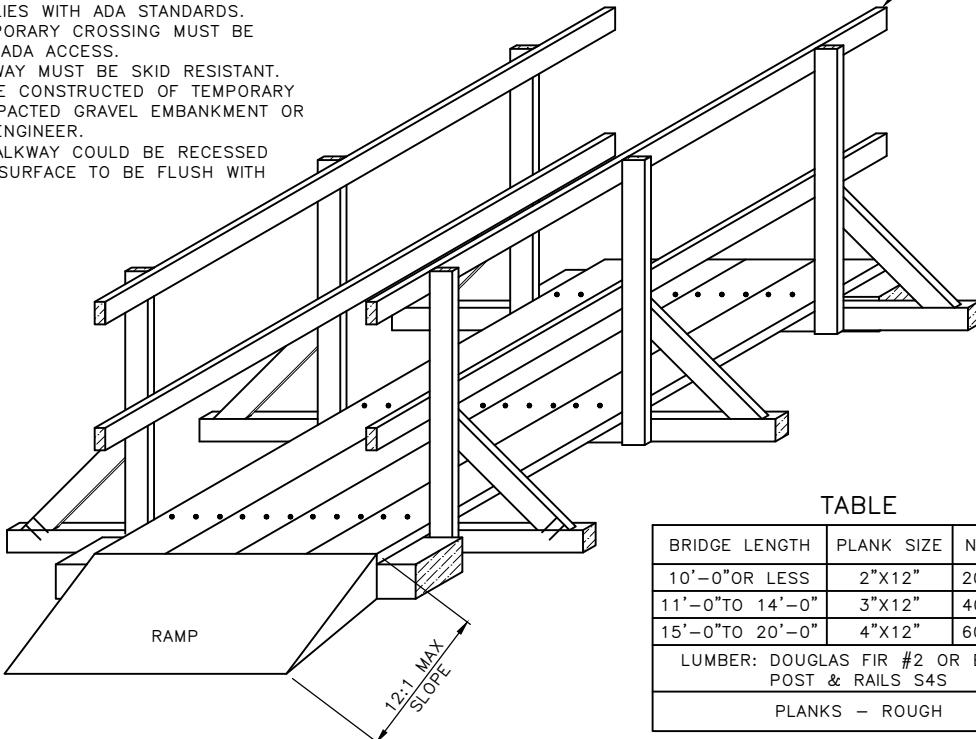
CHAIN LINK GATES

**SECTION A-A**

\* UNLESS APPROVED BY SEATTLE DEPARTMENT OF TRANSPORTATION

**NOTES:**

1. IF THE SLOPE OF THE TEMPORARY CROSSING IS 5% OR GREATER, A GRIPPING HANDRAIL MUST BE ADDED THAT COMPLIES WITH ADA STANDARDS.
2. ENDS OF THE TEMPORARY CROSSING MUST BE SLOPED TO ALLOW ADA ACCESS.
3. SURFACE OF WALKWAY MUST BE SKID RESISTANT.
4. THE RAMP MUST BE CONSTRUCTED OF TEMPORARY PAVEMENT OR COMPACTED GRAVEL EMBANKMENT OR AS APPROVED BY ENGINEER.
5. THE TEMPORARY WALKWAY COULD BE RECESSED FOR THE WALKING SURFACE TO BE FLUSH WITH ADJOINING GRADE.

**TABLE**

BRIDGE LENGTH	PLANK SIZE	NAIL SIZE
10'-0" OR LESS	2''X12''	20 PENNY
11'-0" TO 14'-0"	3''X12''	40 PENNY
15'-0" TO 20'-0"	4''X12''	60 PENNY
LUMBER: DOUGLAS FIR #2 OR BETTER POST & RAILS S4S		
PLANKS - ROUGH		

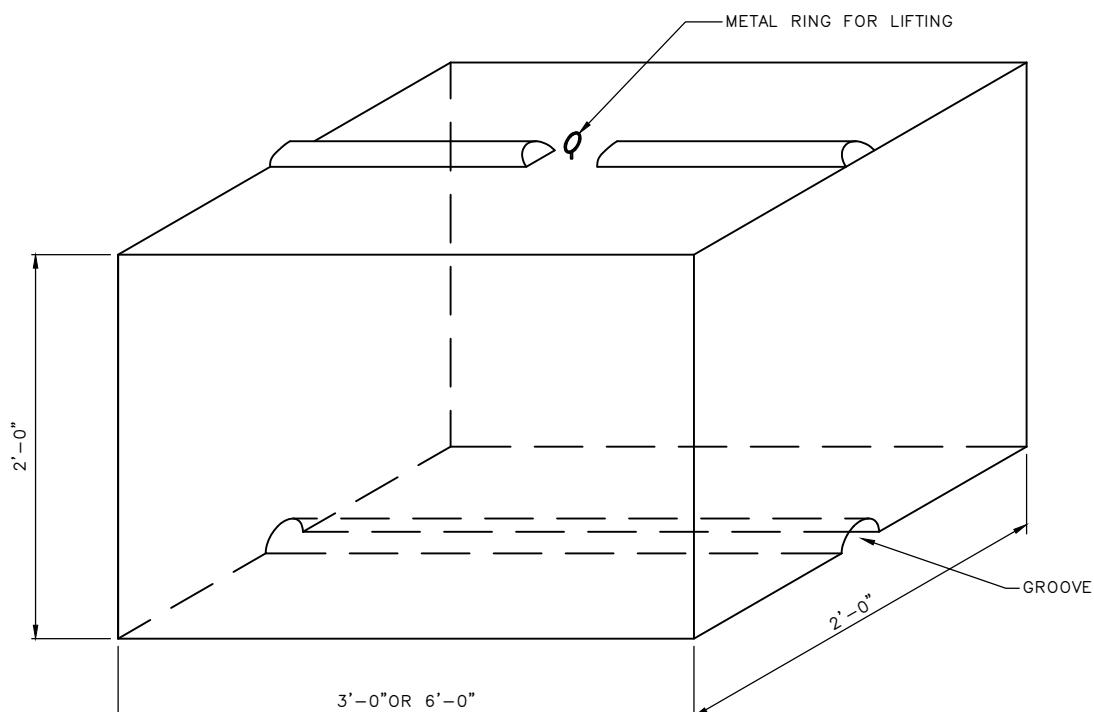
REF STD SPEC SEC 1-07.23



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NOT TO SCALE

**TEMPORARY PEDESTRIAN WALKWAY**



CONCRETE TONGUE & GROOVE BLOCK

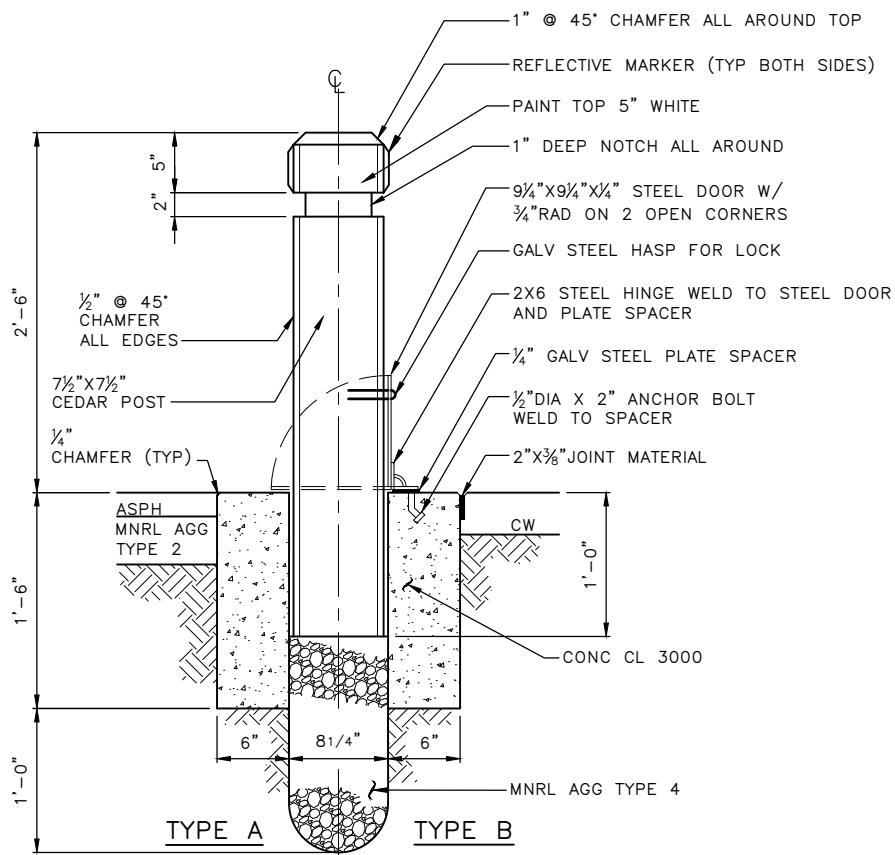
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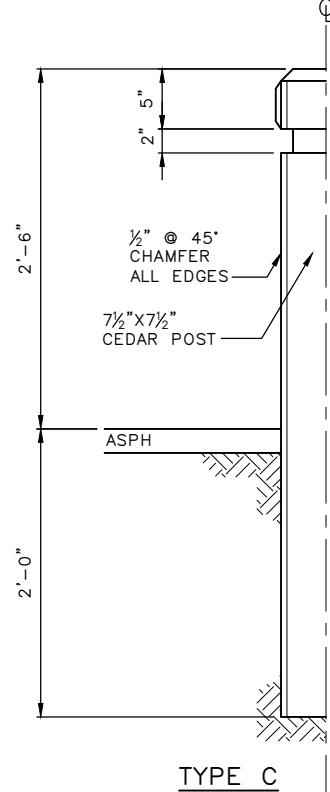
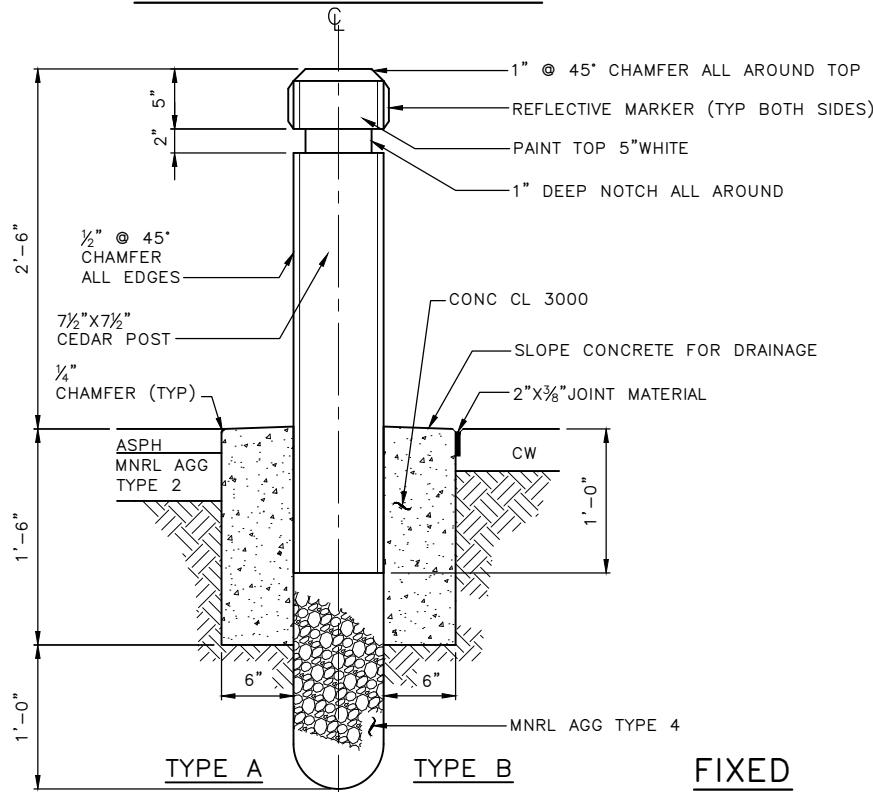
City of Seattle

NOT TO SCALE

ECOLOGY BLOCK, CONCRETE



## REMOVABLE BOLLARDS



REF STD SPEC SEC 8-02

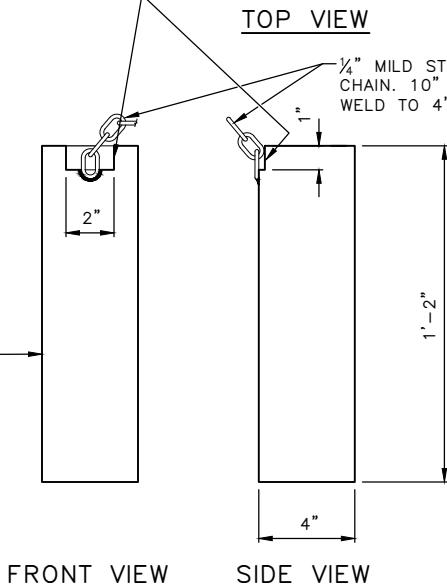
FIXED  
BOLLARDS

City of Seattle

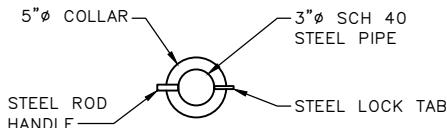
NOT TO SCALE

FIXED & REMOVABLE WOOD  
BOLLARD

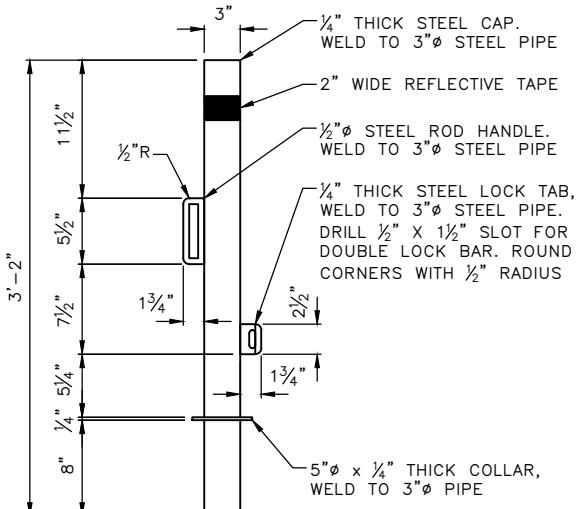
CUT & REMOVE 1" X 2"  
SLOT IN 4"Ø PIPE TO  
ACCOMMODATE CHAIN



### GALVANIZED PIPE SLEEVE



### BOLLARD PLAN VIEW



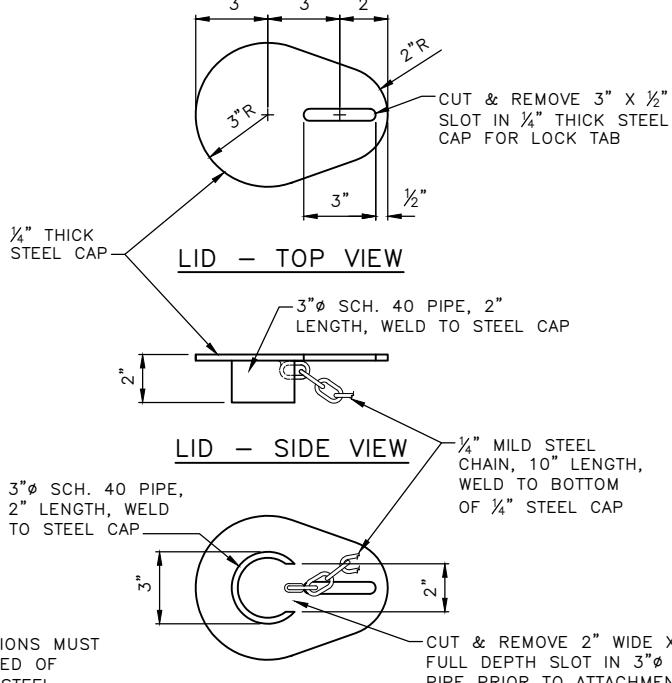
### BOLLARD ELEVATION

### BOLLARD

#### NOTES:

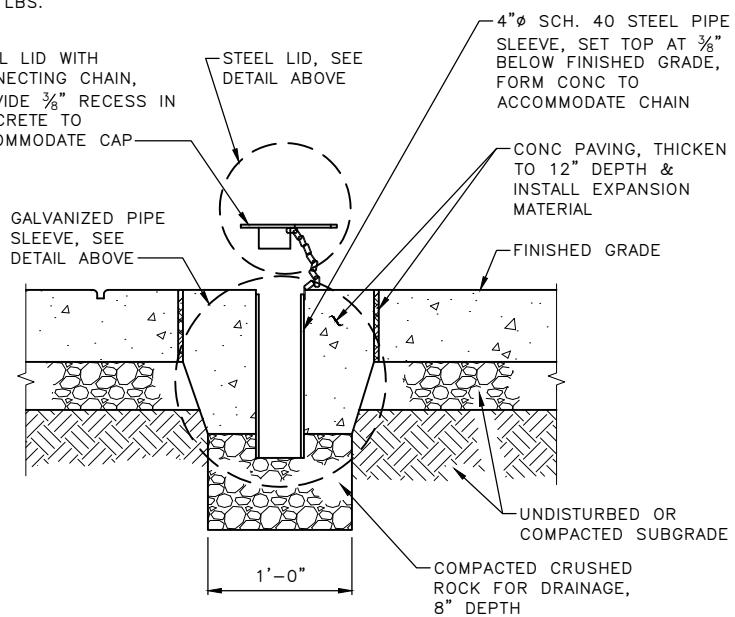
1. ALL PIPE SECTIONS MUST BE CONSTRUCTED OF SCHEDULE 40 STEEL PIPE AND ALL COMPONENTS MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION. BOLLARD MUST NOT EXCEED 50 LBS.
2. 3"Ø SCH. 40 PIPE, 2" LENGTH, WELD TO STEEL CAP

### OPTIONAL DOUBLE LOCK BAR



### LID - BOTTOM VIEW

### STEEL LID



### SLEEVE IN CONCRETE SECTION VIEW

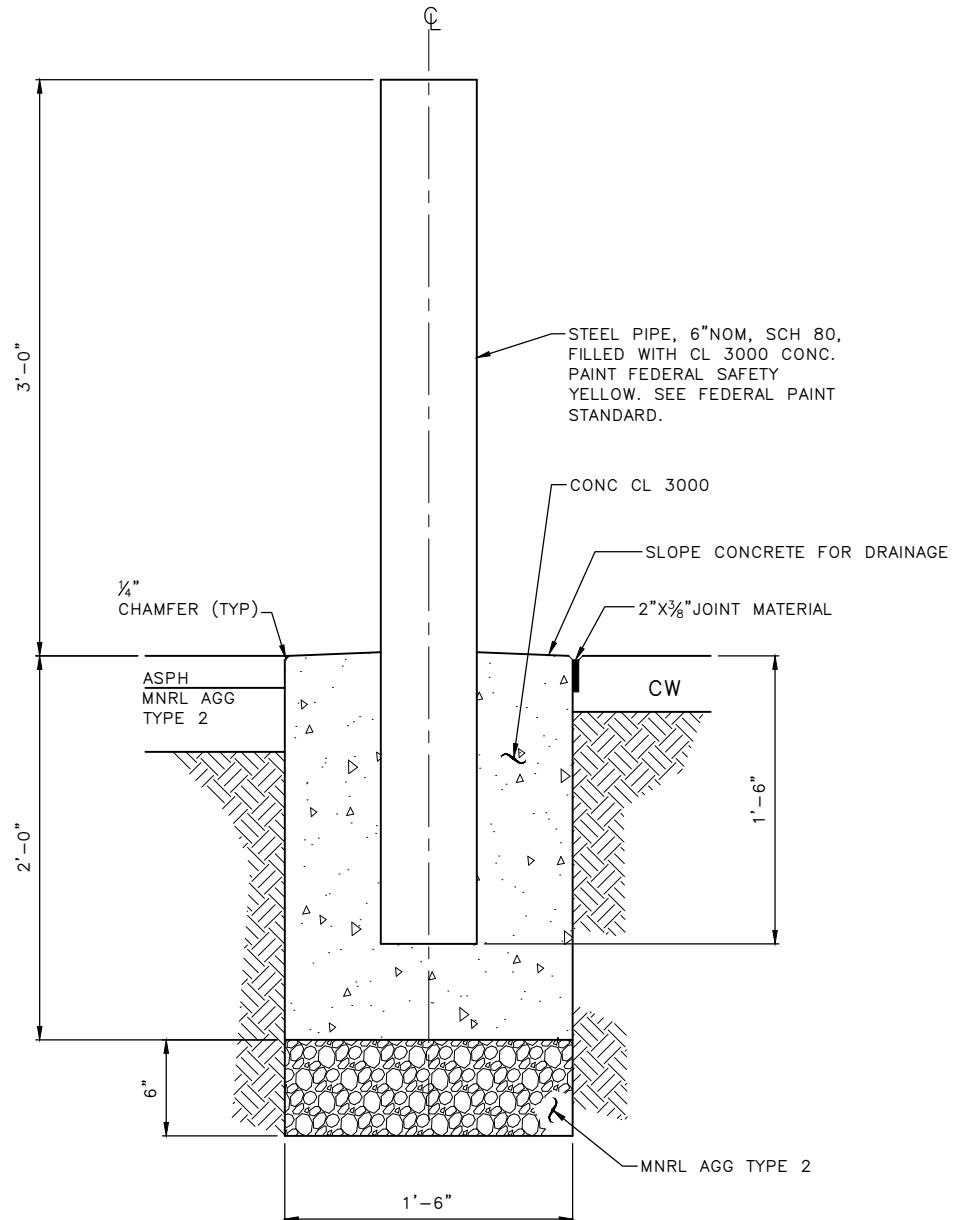
REF STD SPEC SEC 8-02



City of Seattle

NOT TO SCALE

REMOVABLE STEEL BOLLARD



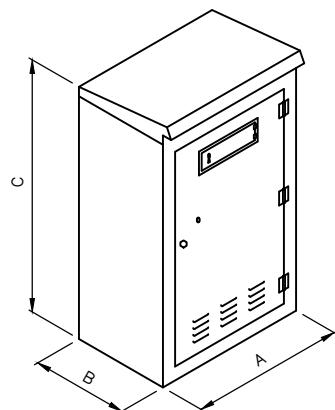
REF STD SPEC SEC 8-02



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NOT TO SCALE

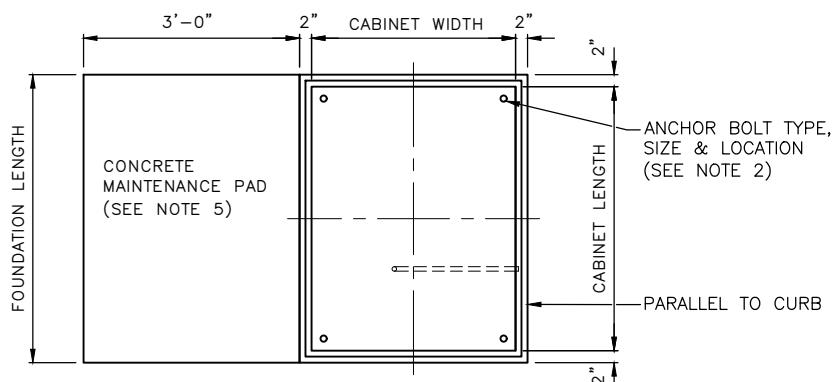
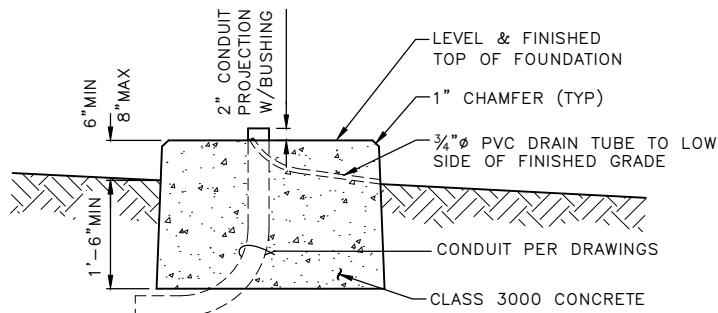
FIXED STEEL BOLLARD



## NOTES:

1. UNLESS OTHERWISE SPECIFIED, TRAFFIC SIGNAL CONTROLLER CABINET MUST BE FURNISHED BY THE CITY
2. UNLESS OTHERWISE SPECIFIED, EXACT CABINET DIMENSIONS & ANCHOR BOLT LOCATIONS MUST BE PROVIDED BY THE TRAFFIC SIGNAL SHOP
3. PLACE CABINET DOOR ON SIDEWALK SIDE OF FOUNDATION
4. SEAL CABINET TO FOUNDATION WITH GREY OR CLEAR SILICONE TO PREVENT MOISTURE FROM ENTERING THE CABINET
5. CABINET FOUNDATIONS INSTALLED IN A LANDSCAPE AREA MUST INCLUDE A CONCRETE SIDEWALK MAINTENANCE PAD ON THE SDOT DOOR SIDE OF THE FOUNDATION, SEE STD SPEC SEC 8-32.3(2)B

DIMENSION	TYPE II	TYPE III	VI
A	30"	44"	44"
B	17"	25 1/2"	25 1/2"
C	38" TO 52"	50" TO 58"	64 3/4" TO 67 1/2"

SIGNAL CONTROLLER CABINET-TYPES II, III, VI

SIGNAL CONTROLLER FOUNDATION  
SEE STD PLANS NO 500b & 500c FOR CONDUIT LAYOUT

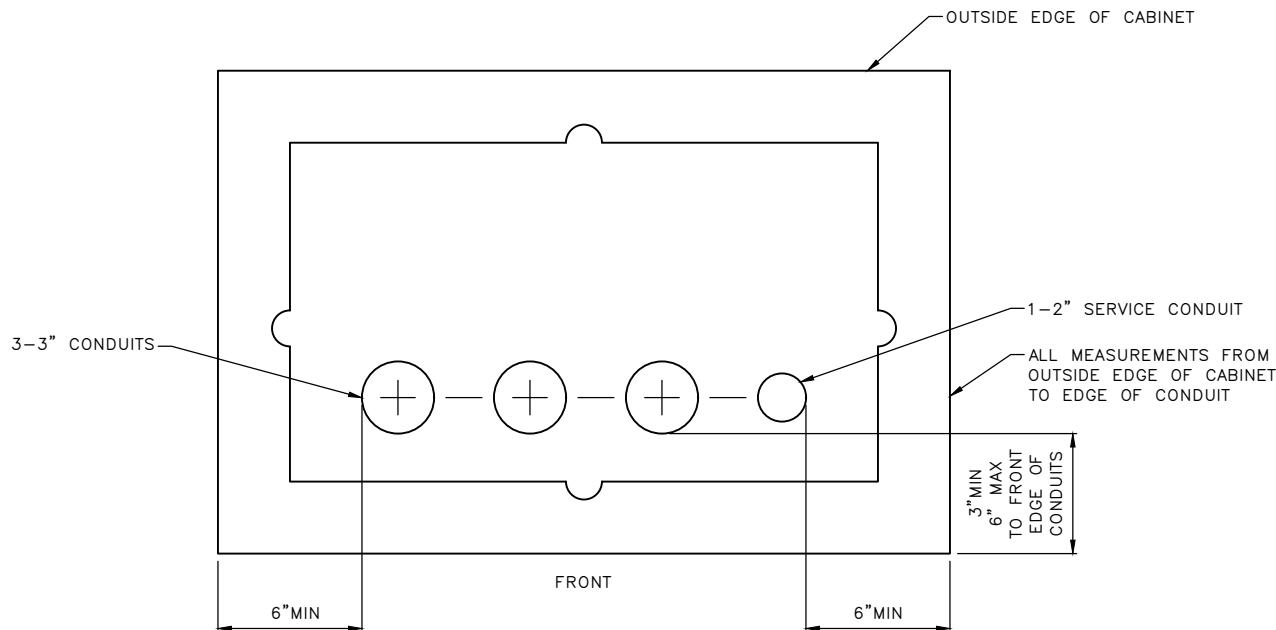
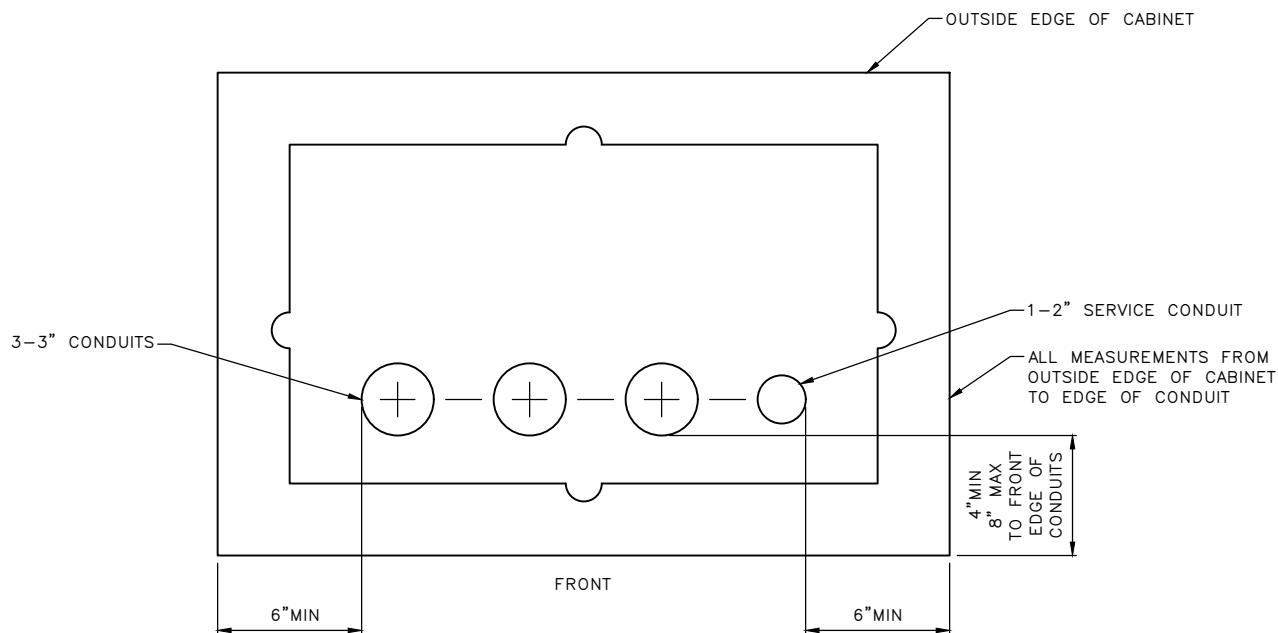
REF STD SPEC SEC 8-31, 8-32



City of Seattle

NOT TO SCALE

SIGNAL CONTROLLER  
CABINET & FOUNDATION

CONDUIT LAYOUT – TYPE II SIGNAL CONTROLLER FOUNDATIONCONDUIT LAYOUT – TYPE III/VI SIGNAL CONTROLLER FOUNDATION

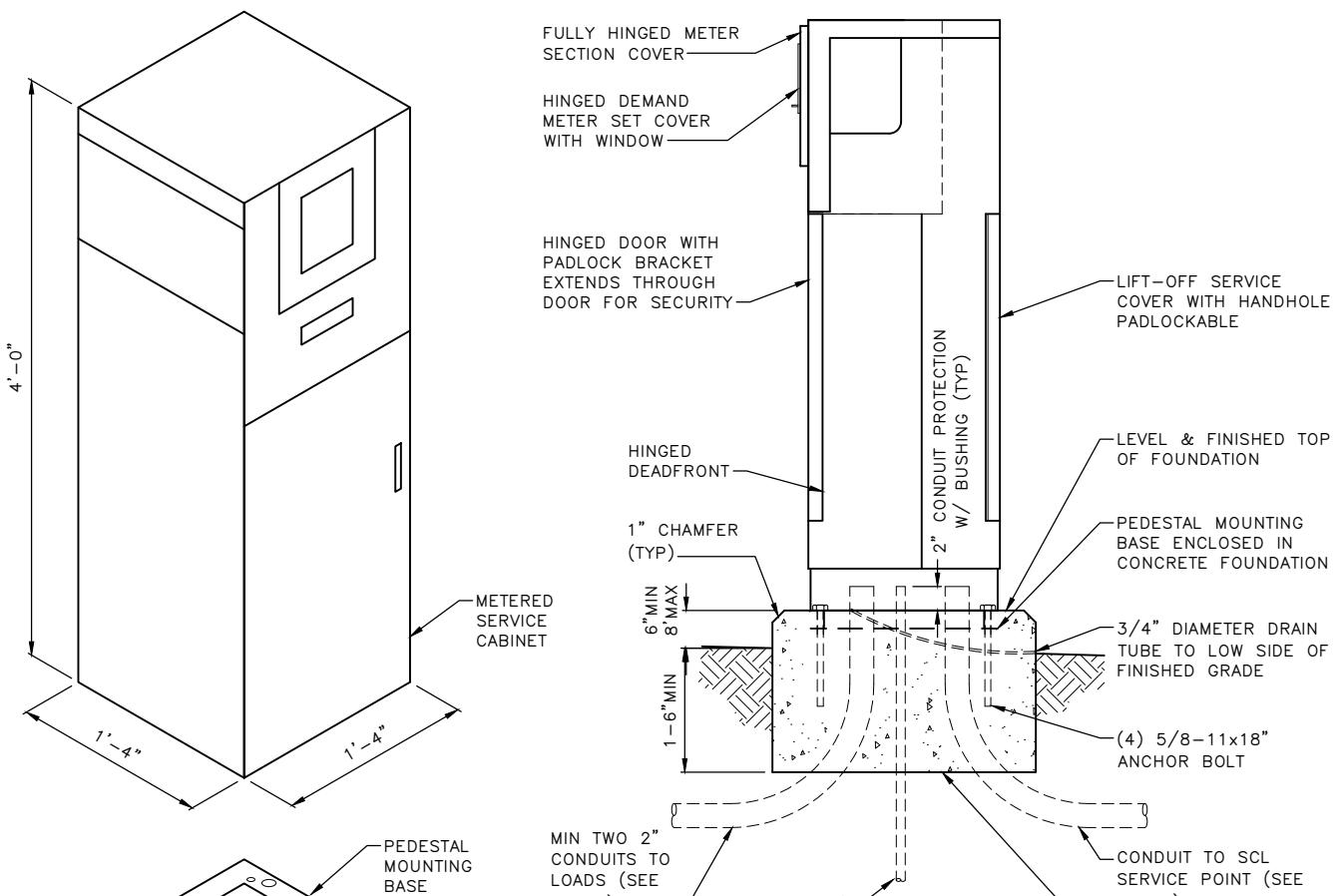
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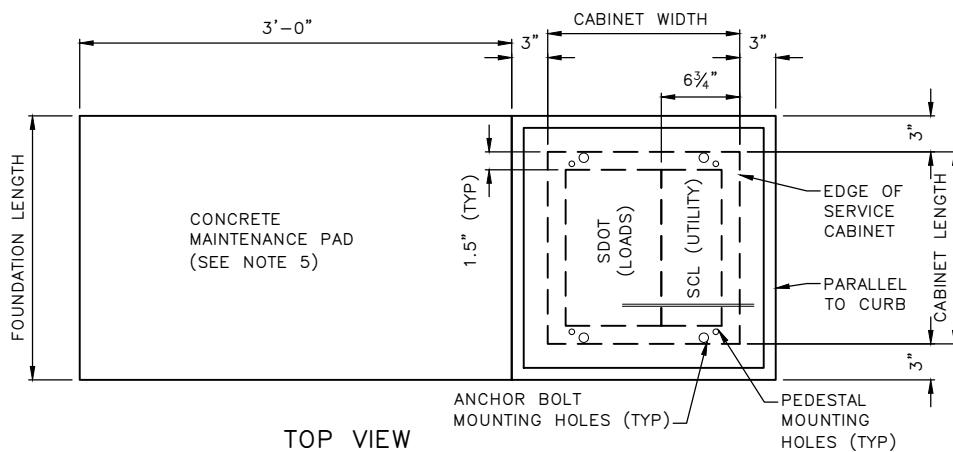
City of Seattle

NOT TO SCALE

SIGNAL CONTROLLER  
FOUNDATION CONDUIT LAYOUT



ISOMETRIC VIEW



REF STD SPEC SEC 8-31, 8-32



City of Seattle

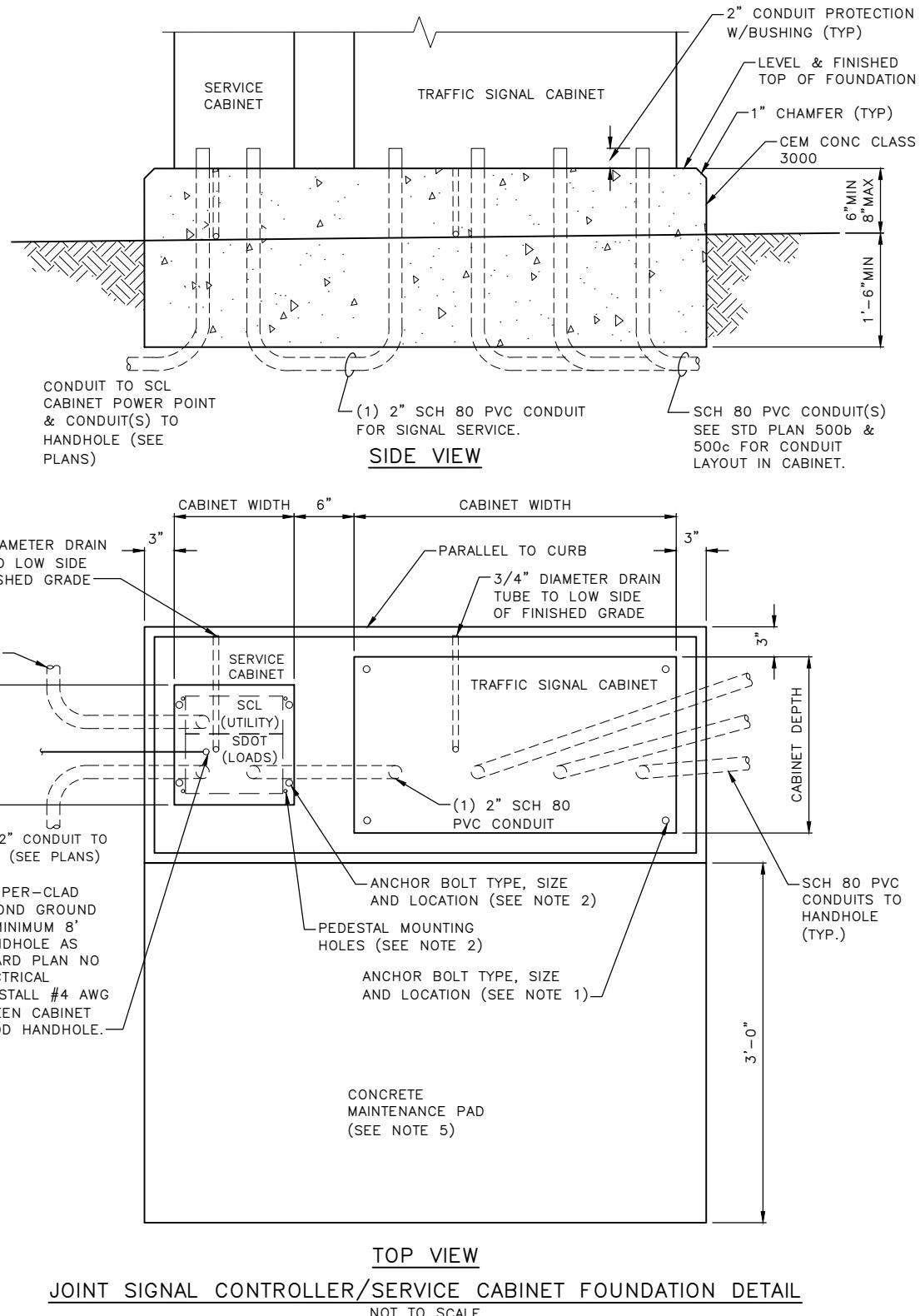
NOT TO SCALE

SERVICE CABINET FOUNDATION DETAIL

## NOTES:

1. FOR SIGNAL CONTROLLER DIMENSIONS AND OTHER REQUIREMENTS, SEE STD PLAN NO. 500a.
2. FOR SERVICE CABINET DIMENSIONS AND OTHER REQUIREMENTS, SEE STD PLAN NO 501a.
3. SEAL CABINETS TO FOUNDATION WITH GREY OR CLEAR SILICON TO PREVENT MOISTURE FROM ENTERING THE CABINET.
4. THE SERVICE CABINET MUST BE PLACED ON THE OPPOSITE SIDE OF THE CONTROLLER CABINET FROM THE UPS.
5. CABINET FOUNDATIONS INSTALLED IN A LANDSCAPE AREA MUST INCLUDE A CONCRETE SIDEWALK MAINTENANCE PAD ON THE SDOT DOOR SIDE OF THE FOUNDATION, SEE STD SPEC SEC 8-32.3(2)B

REV DATE: JAN 2020



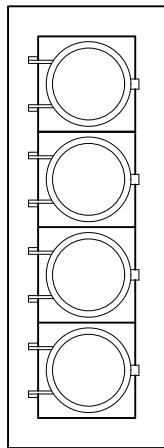
REF STD SPEC SEC 8-31, 8-32



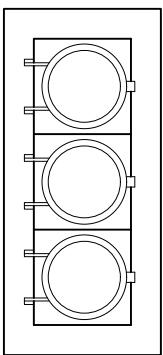
City of Seattle

NOT TO SCALE

JOINT SIGNAL CONTROLLER/  
SERVICE CABINET  
FOUNDATION DETAIL



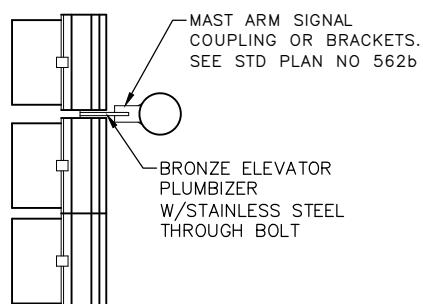
12" HEAD



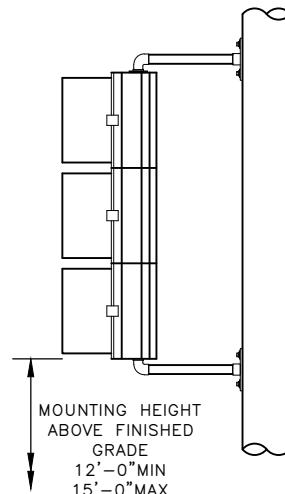
12" HEAD

TYPICAL SIGNAL FACES

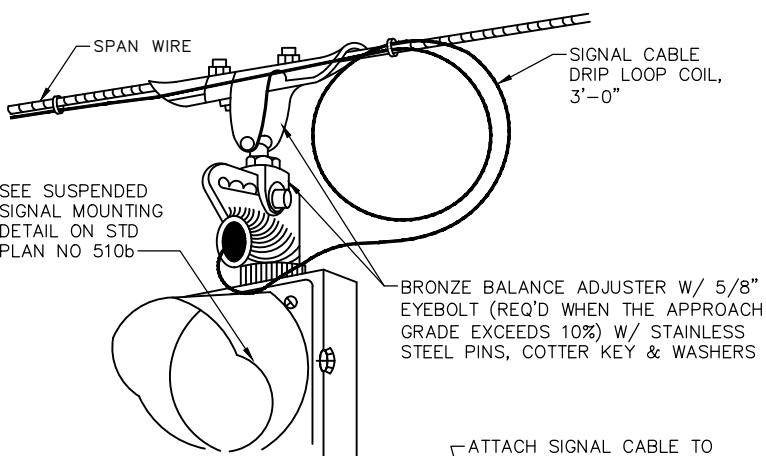
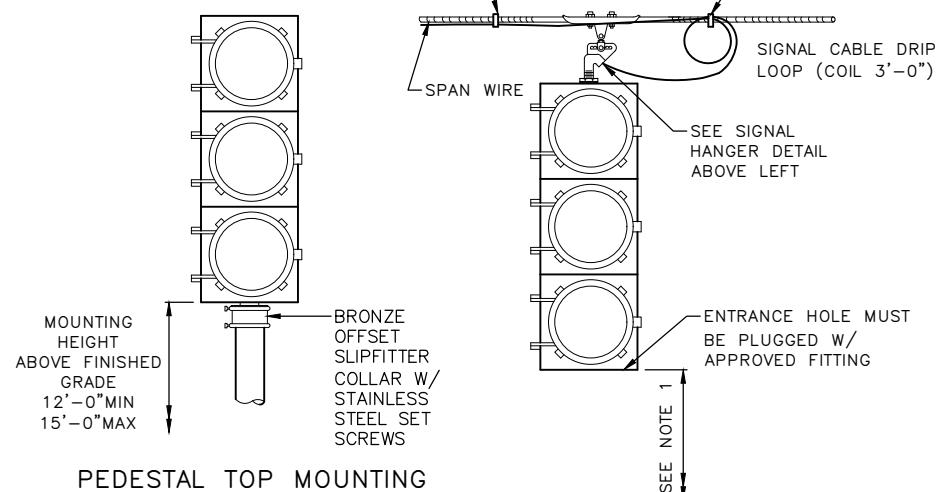
W/ TUNNEL VISORS & 5" BACKPLATE (LOUVERED)  
1" YELLOW, DIAMOND GRADE RETRO REFLECTIVE  
TAPE

MAST ARM MOUNTING USING  
COUPLING OR BRACKET

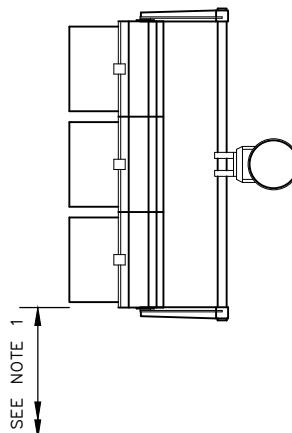
SEE NOTE 1

BRACKET MOUNTING  
FOR POLE MOUNTED

FOR SIGNAL HEAD BRACKET ASSEMBLY  
SEE STD PLAN NO 511

SIGNAL HANGER DETAILPEDESTAL TOP MOUNTING

FOR PEDESTAL SEE STD PLAN NO 524

BRACKET MOUNTING  
FOR MAST ARM MOUNTED

FOR SIGNAL HEAD BRACKET ASSEMBLY

SEE STD PLAN NO 562b

**NOTES:**

1. VERTICAL CLEARANCE: 17' MIN TO ROADWAY 19'-0" MAX (ON TRUCK ROUTES USE 18' TO 19')
2. BACKPLATES HAVE BEEN OMITTED FROM VARIOUS VIEWS FOR CLARITY

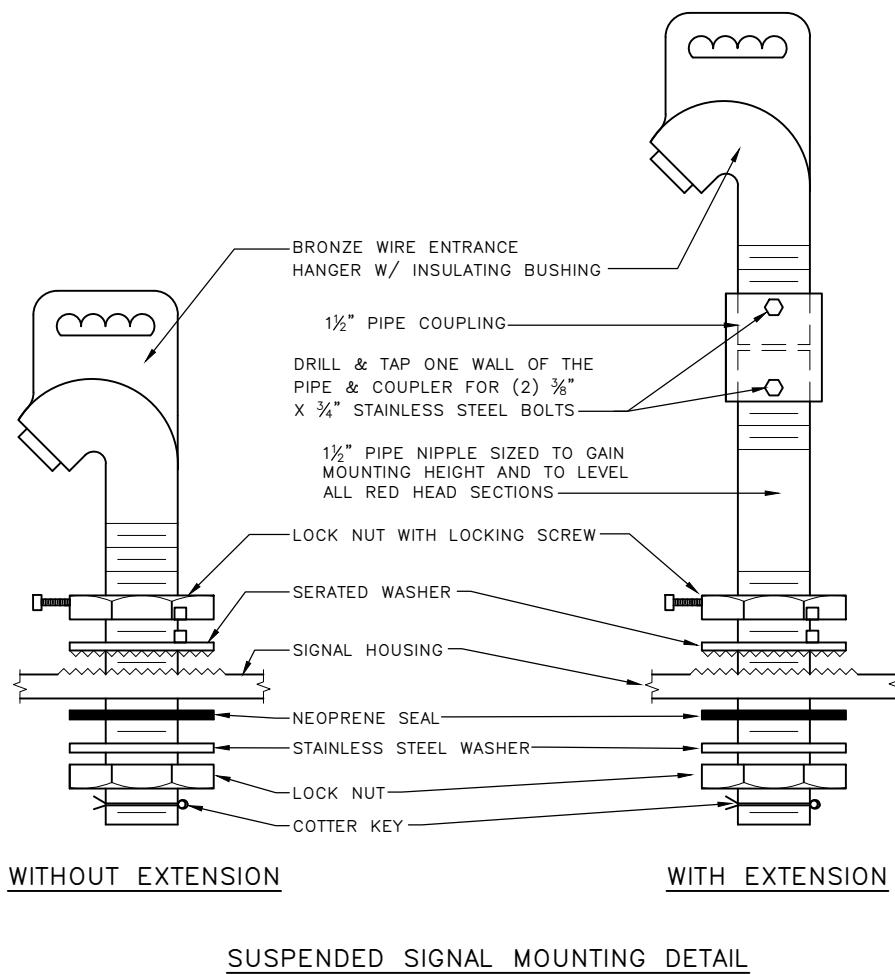
REF STD SPEC SEC 8-31

SPAN MOUNTING

City of Seattle

NOT TO SCALE

VEHICULAR SIGNAL MOUNTING



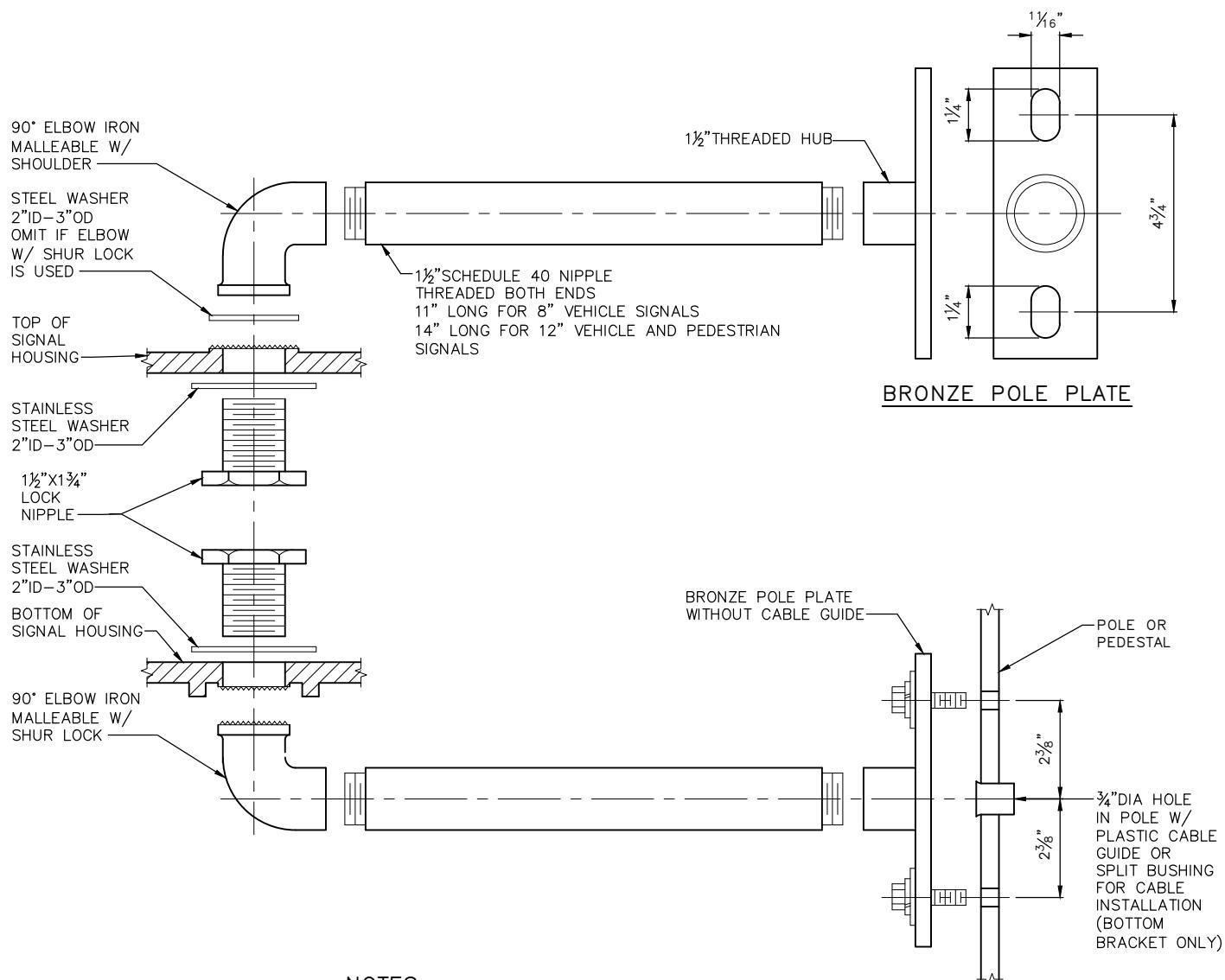
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

VEHICULAR SIGNAL MOUNTING



## NOTES:

1.  $3/8" \times 1\frac{1}{2}"$  BOLT,  $3/8"$  LOCK WASHER,  $7/16" \times 1\frac{3}{8}"$  WASHER 4 OF EACH REQUIRED PER ASSEMBLY; ALL STAINLESS STEEL.
2. MOUNTING MUST BE AS FOLLOWS:
  - ON METAL POLES THINNER THAN 7 GAUGE, USE  $3/8"$  STAINLESS STEEL RIVNUTS.
  - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR  $3/8"$  BOLT (STAINLESS STEEL RIVNUTS OPTIONAL).
  - ON POLES FILLED OR MADE WITH CONCRETE USE  $3/8" \times 2\frac{1}{2}"$  MIN STUD BOLT ANCHORS, SLEEVE TYPE.
  - ON WOOD POLES USE  $1\frac{1}{2} \times 2\frac{1}{2}"$  LAG BOLTS.

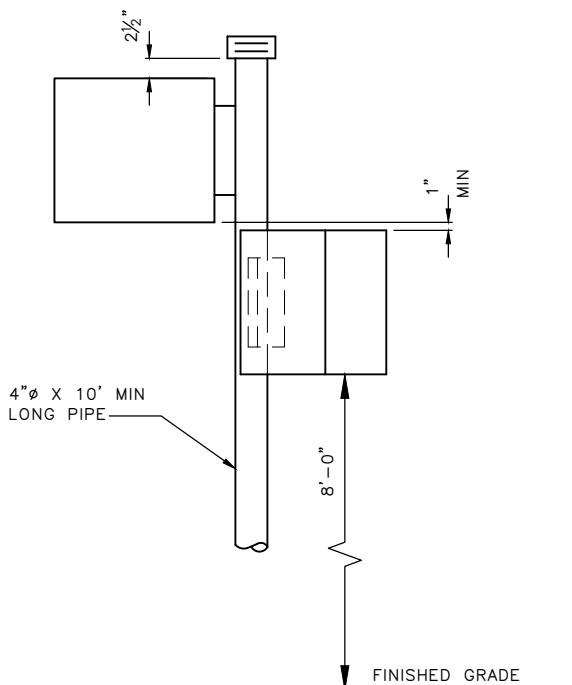
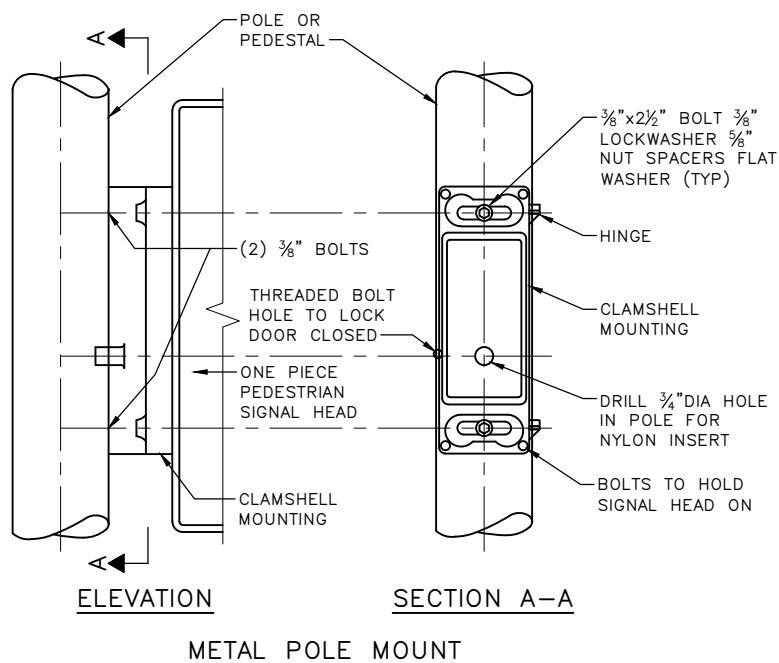
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

SIGNAL HEAD BRACKET ASSEMBLY



PEDESTAL MOUNT

## NOTES:

1. BOLT AND WASHERS MUST BE STAINLESS STEEL PER ASTM A 563 DH AND ASTM F 436
2. MOUNTING MUST BE AS FOLLOWS:
  - ON METAL POLES THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RIVNUTS
  - ON METAL POLES 7 GAUGE OR THICKER, DRILL AND TAP FOR 3/8" BOLT (STAINLESS STEEL RIVNUTS OPTIONAL)
  - ON POLES FILLED WITH OR MADE FROM CONCRETE USE 3/8"X2 1/2" STUD BOLT ANCHORS WITH HEX NUT
3. FOR STREET NAME SIGN PEDESTAL INSTALLATION, SEE STD PLAN NO 623

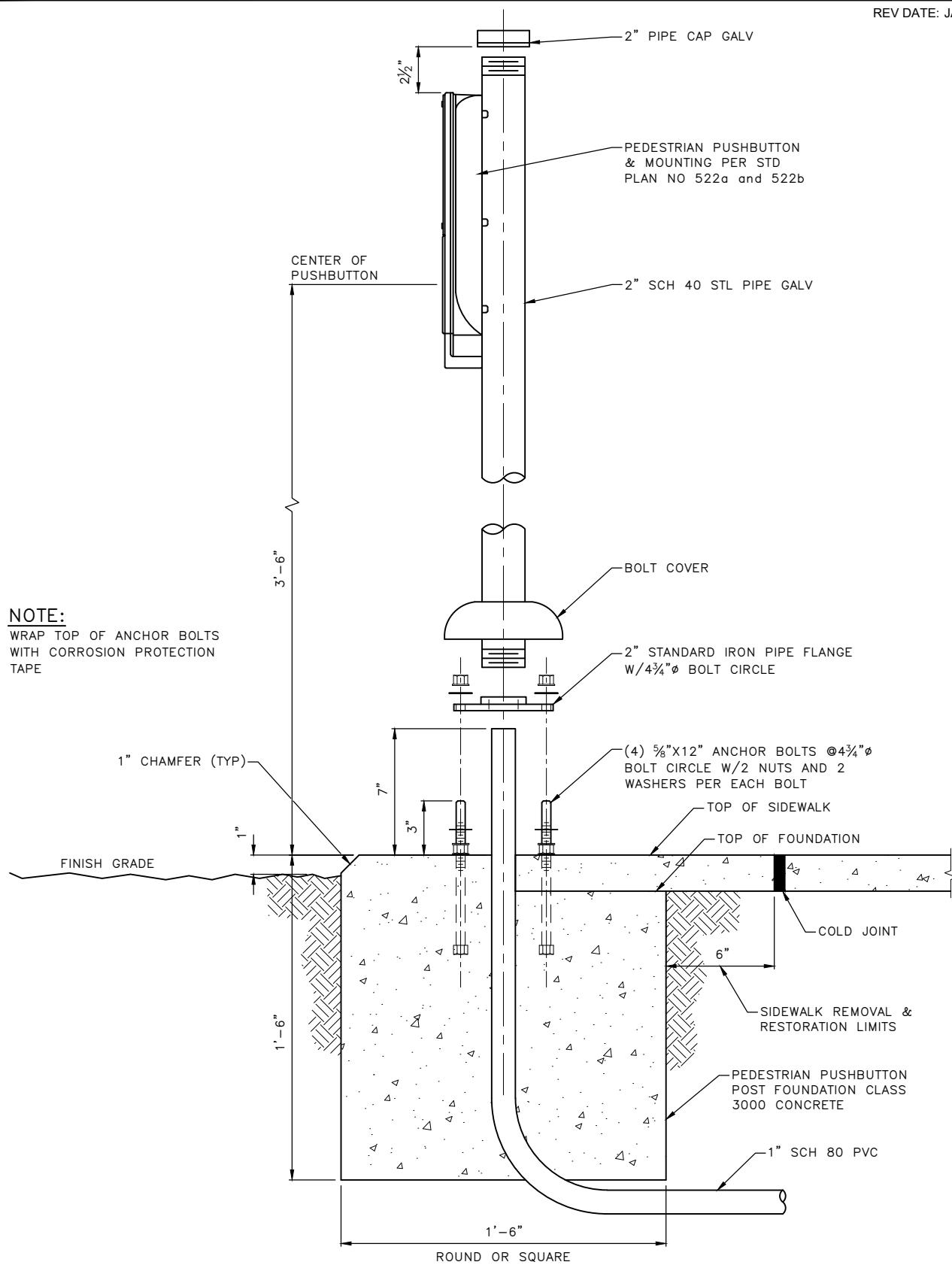
REF STD SPEC SEC 8-31



City of Seattle

NOT TO SCALE

PEDESTRIAN SIGNAL  
CLAMSHELL MOUNTING



REF STD SPEC SEC 8-31, 8-32



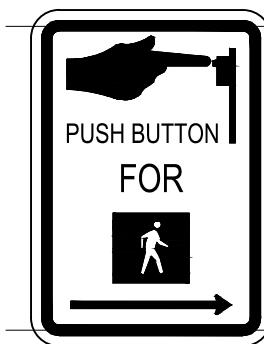
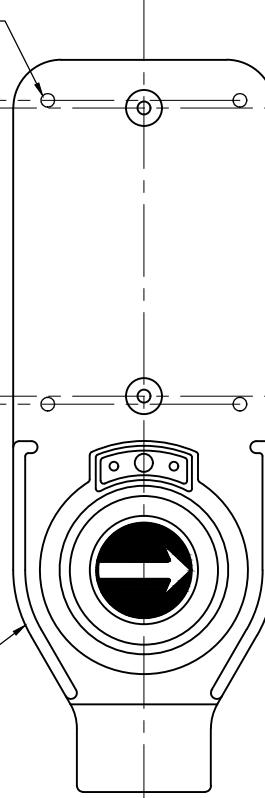
City of Seattle

NOT TO SCALE

PEDESTRIAN PUSHBUTTON  
POST & FOUNDATION

1/4-20 X 3/8" LONG  
STAINLESS STEEL SCREW

REV DATE: JUL 2019

MUTCD R10-3  
5"X7" SIGNPUSHBUTTON  
STATION

FRONT VIEWS

DRILL & TAP  
POLE FOR  
1/4"Ø BOLT

6"

7"

DRILL POLE FOR  
5/8"Ø MIN WIRE  
GUIDE HOLE -  
ADD INSULINER1/4-20 X 3/8" LONG  
STAINLESS STEEL SCREW1/4-20 STAINLESS STEEL  
BOLT WITH WASHER &  
LOCK WASHERMUTCD R10-3  
5"X7" SIGNPUSHBUTTON  
STATION

6"

SIDE VIEW

6"

**NOTES:**

1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4"Ø OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.
4. PUSHBUTTON PLACEMENT MUST MEET MUTCD AND SDOT REQUIREMENTS.

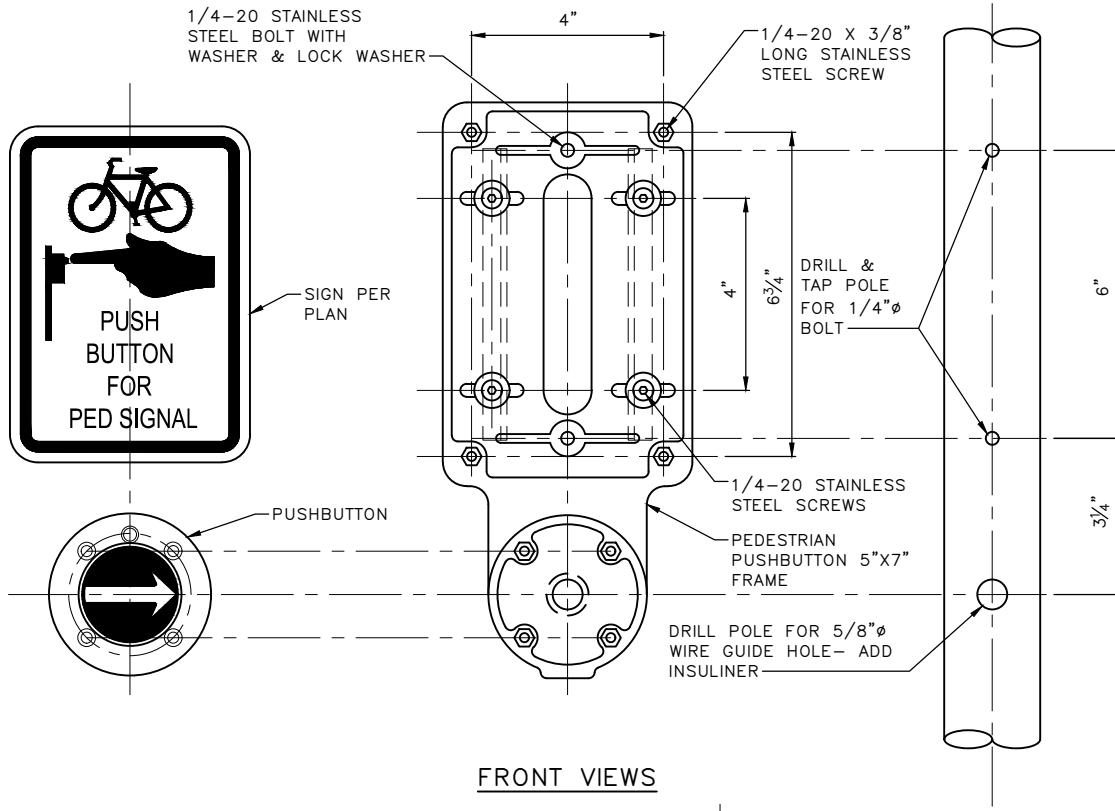
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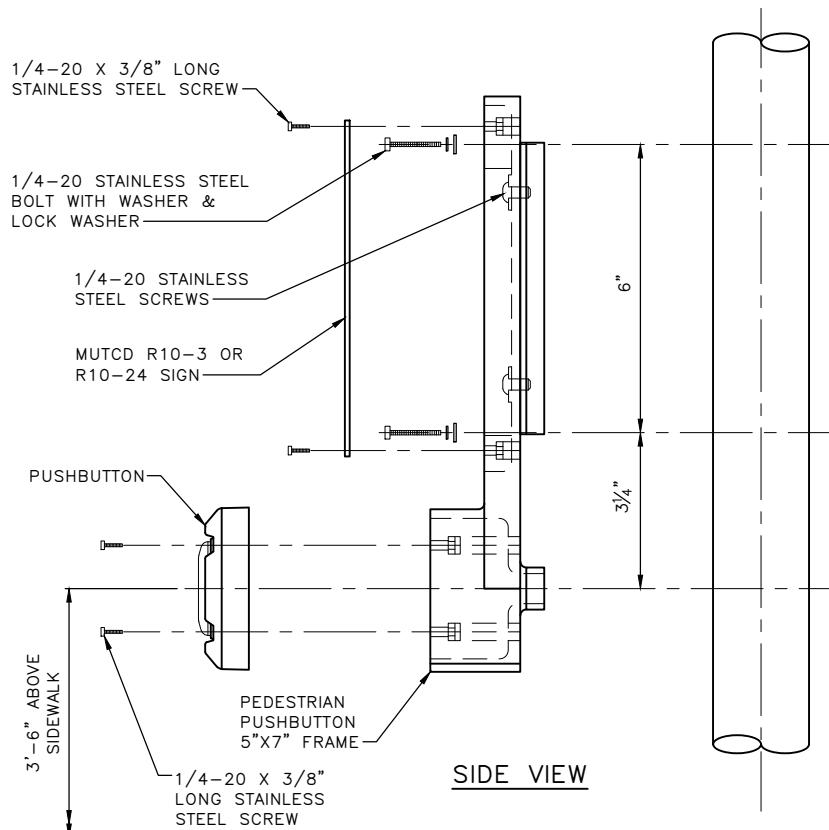
City of Seattle

NOT TO SCALE

ACCESSIBLE PEDESTRIAN  
SIGNAL (APS)  
PED. PUSHBUTTON ASSEM.



FRONT VIEWS



## NOTES:

1. PUSHBUTTON MUST HAVE DIRECTIONAL ARROW AS SPECIFIED ON THE PLANS.
2. INSTALLATION OF TWO PEDESTRIAN PUSHBUTTON ASSEMBLIES MUST BE ON A 4"Ø OR LARGER POLE.
3. DETAIL SHOWS PUSHBUTTON INSTALLED ON METAL POLE. PUSHBUTTON INSTALLED ON OTHER MATERIALS MUST BE PER MANUFACTURER'S RECOMMENDATION.
4. THIS PUSHBUTTON ASSEMBLY MUST NOT BE INSTALLED FOR PEDESTRIAN USE UNLESS APPROVED BY THE ENGINEER.

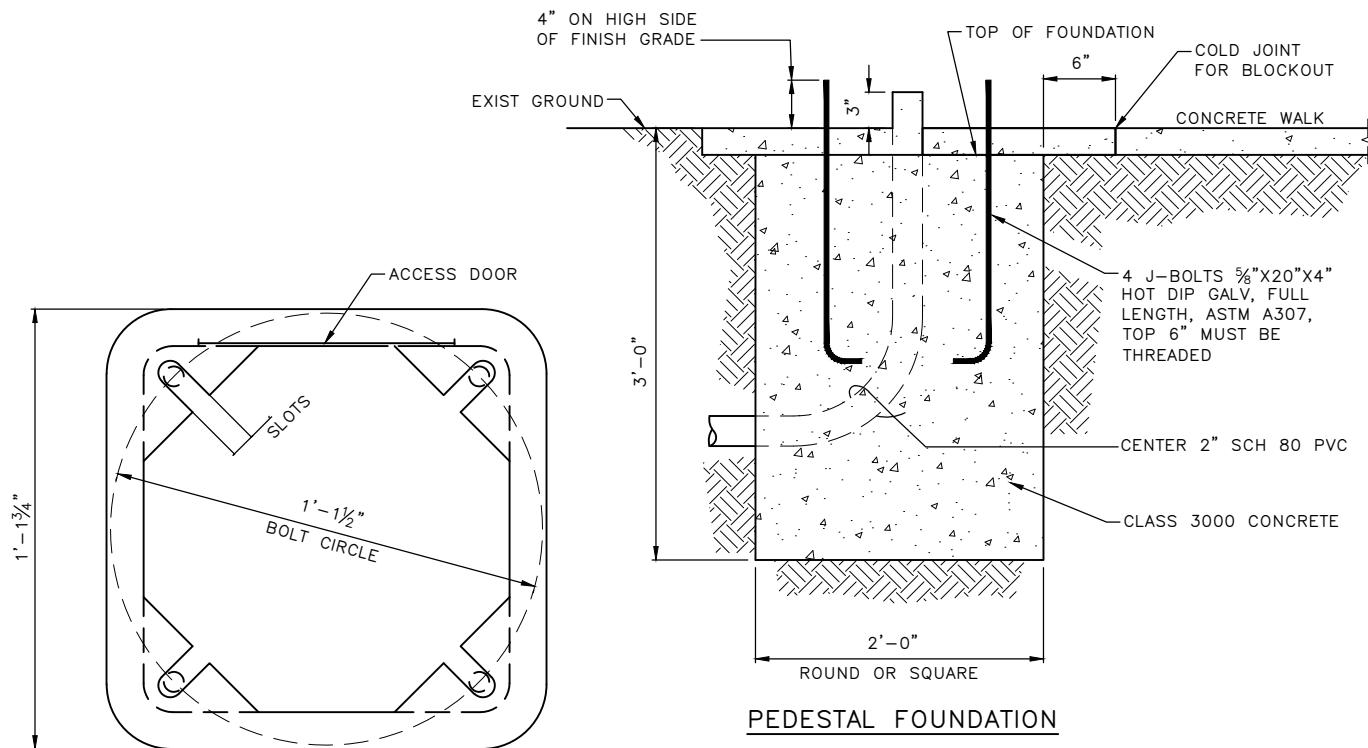
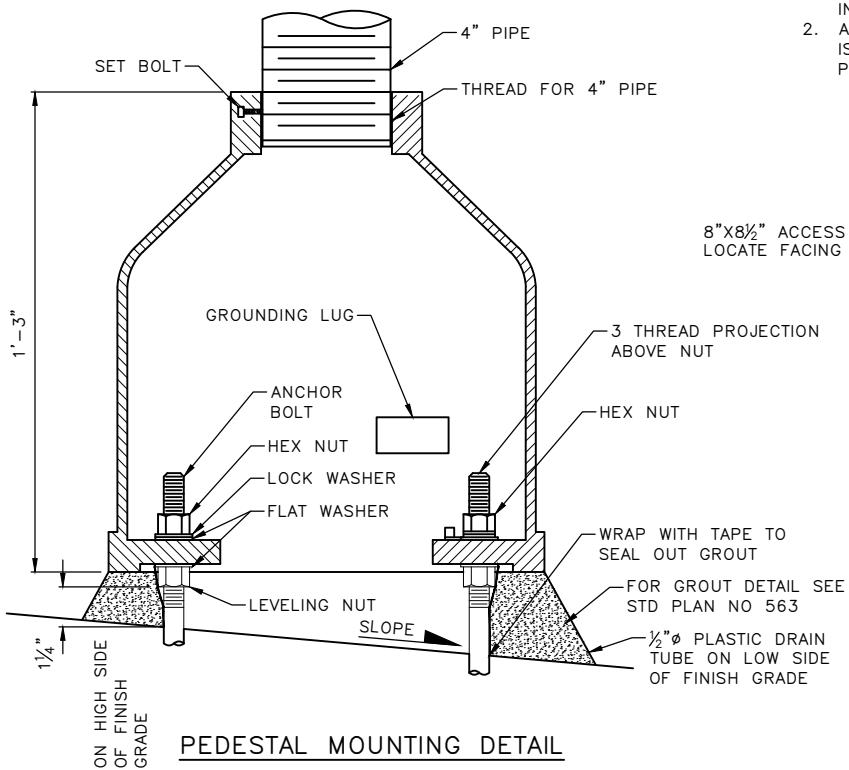
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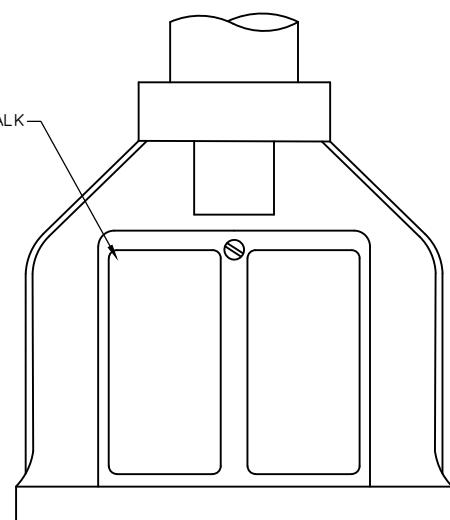
City of Seattle

NOT TO SCALE

BICYCLE PUSHBUTTON ASSEMBLY

**BOTTOM VIEW****NOTES:**

1. 3'-0" MIN CLEARANCE IS REQUIRED IN FRONT OF ACCESS DOOR.
2. A POLE AND BASE COLLAR ASSEMBLY IS REQUIRED FOR ALUMINUM PEDESTAL SHAFTS TALLER THAN 10'.



REF STD SPEC SEC 8-32

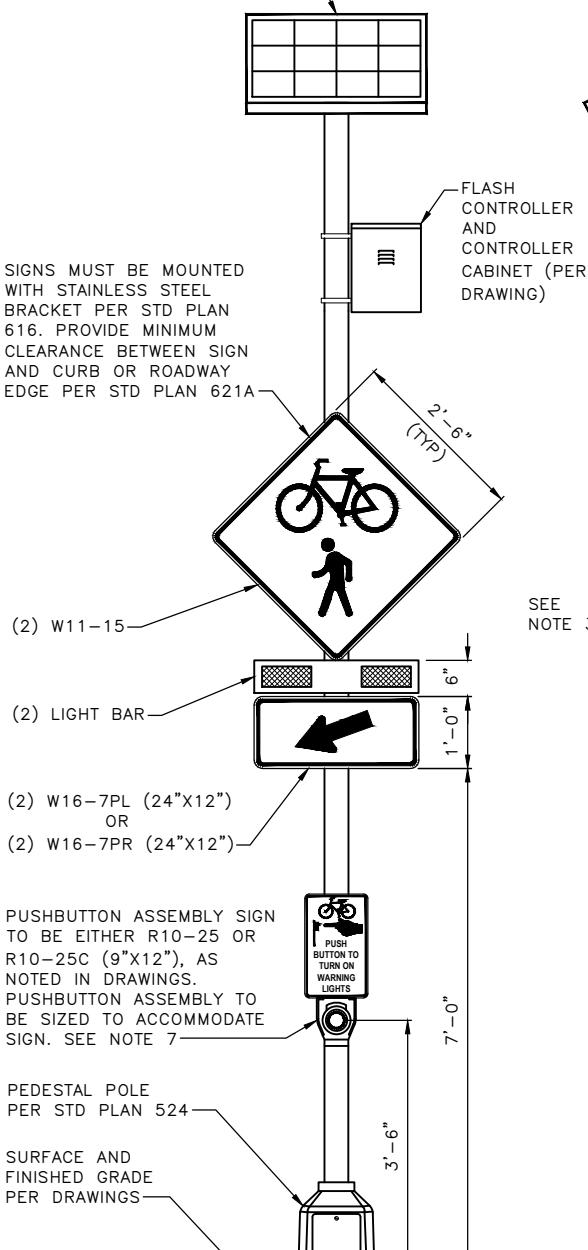


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PEDESTAL &amp; FOUNDATION

TYPICAL SOLAR PANEL LOCATION WHERE SOLAR PANEL IS NOTED IN THE DRAWINGS. SIZE, MOUNTING AND HARDWARE MUST BE PER MANUFACTURER. SEE NOTES 1 & 4.



RECTANGULAR RAPID FLASHING BEACON

SIDE VIEW

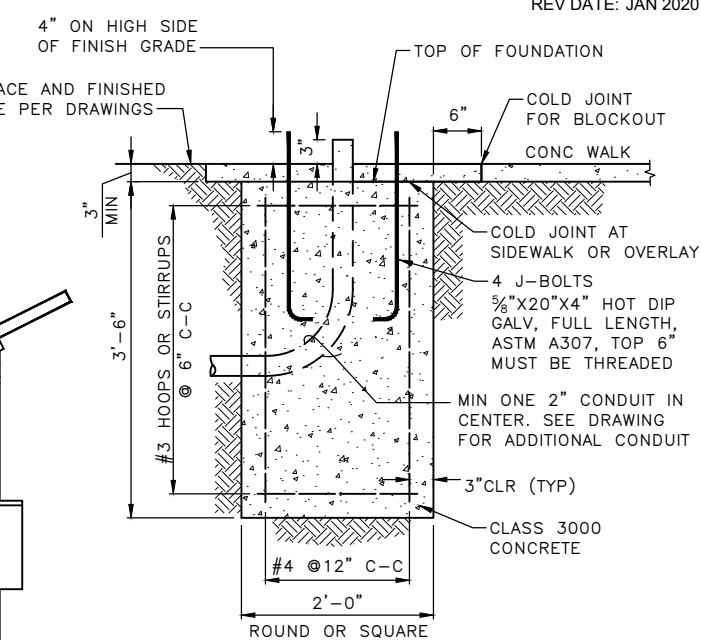
REF STD SPEC SEC



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NOT TO SCALE

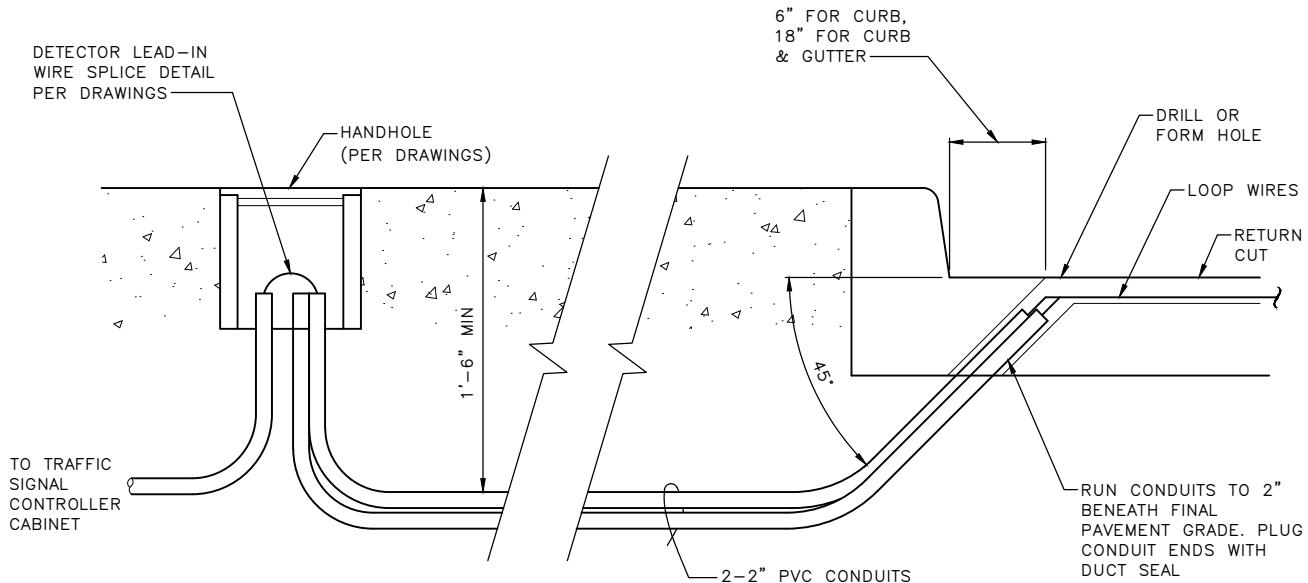
RECTANGULAR RAPID FLASHING BEACON



RRFB FOUNDATION

## NOTES:

1. RECTANGULAR RAPID FLASHING BEACON MUST BE HARDWIRED TO A SERVICE CABINET UNLESS OTHERWISE NOTED IN THE DRAWINGS.
2. RECTANGULAR RAPID FLASHING BEACON MUST HAVE SIGNS AND LIGHT BAR ON BOTH SIDES OF PEDESTAL, AND BE ORIENTED TO FACE ONCOMING VEHICULAR TRAFFIC UNLESS NOTED OTHERWISE IN DRAWINGS.
3. (1) PEDESTRIAN LED INDICATION, 1/2" (MIN) WIDE X 1-3/4" (MIN) HIGH, MUST BE PROVIDED MOUNTED ON SIDE OF THE LIGHT BAR. PEDESTRIAN LED INDICATION MUST BE DIRECTED TOWARD CROSSWALK AND BE VISIBLE TO PEDESTRIANS IN THE CROSSWALK. WHERE RAPID FLASHING BEACON IS LOCATED IN A MEDIAN, OR SERVES MULTIPLE DIRECTIONS OF PEDESTRIAN TRAVEL, PEDESTRIAN LED INDICATION MUST BE PROVIDED ON BOTH SIDES OF LIGHT BAR.
4. IF A SOLAR PANEL IS INCLUDED ON THE POLE, USING THE STANDARD FOUNDATION SHOWN, THEN MOUNTING HEIGHT OF SOLAR PANEL MUST BE NO MORE THAN 17'-6".
5. FOUNDATION SOILS MUST BE FREE OF LANDFILL OR OTHER SETTLEMENT-PRONE MATERIAL AND GROUNDWATER.
6. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
7. PUSHBUTTON TO BE SUPPLIED WITH RECTANGULAR RAPID FLASHING BEACON.



#### CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES

##### NOTES:

1. SHARP EDGE TOOLS MUST NOT BE USED IN PLACING CONDUCTORS IN SAW CUTS
2. EACH PAIR OF LOOP WIRES IN THE RETURN CUT MUST BE TWISTED A MINIMUM OF 3 TURNS PER FOOT AND MAY SHARE COMMON RETURN CUTS WITH OTHER TWISTED PAIRS MAX 3 LOOPS PER CUT.
3. TAPE LOOP WIRE A MINIMUM OF 2 TURNS AT EACH CORNER
4. REMOVE SHARP CORNER EDGES IN SAW CUTS WHERE LOOP WIRE WILL BE BENT AROUND
5. PERFORM RESISTANCE AND CONTINUITY TESTS PRIOR TO SEALING LOOP WIRES
6. COIL 5'-0" OF LOOP WIRE IN HANDHOLE

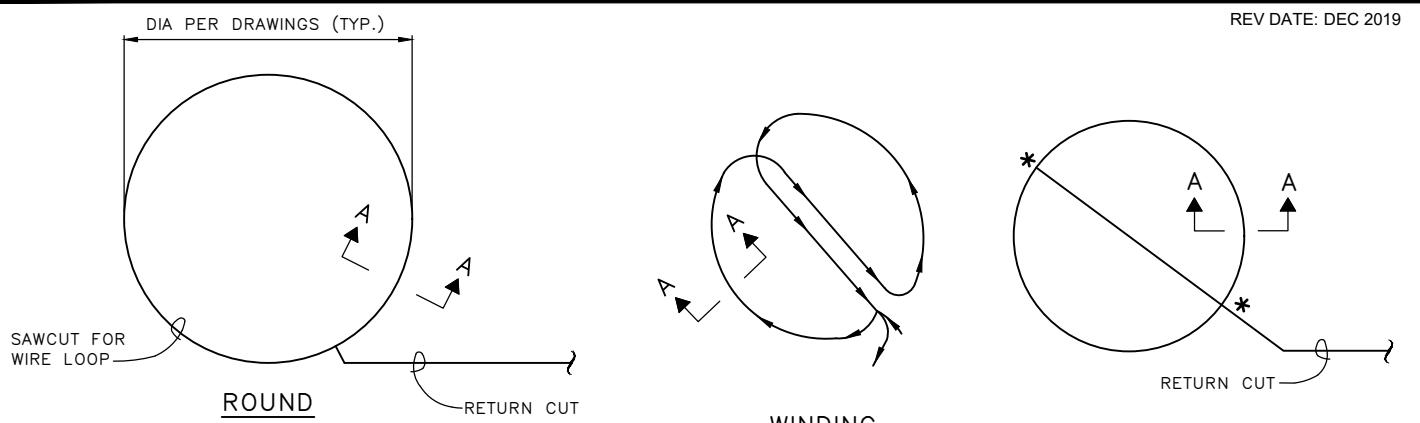
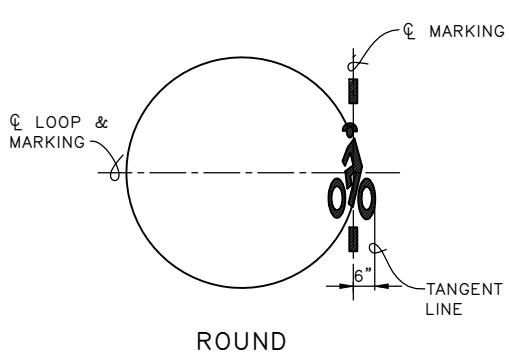
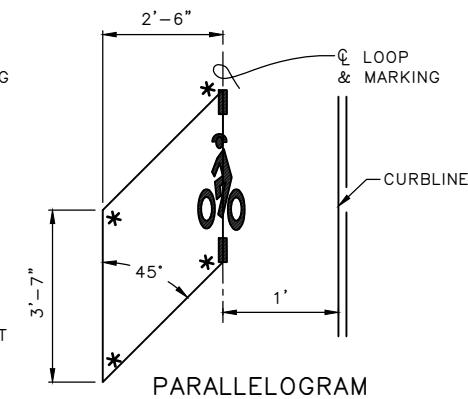
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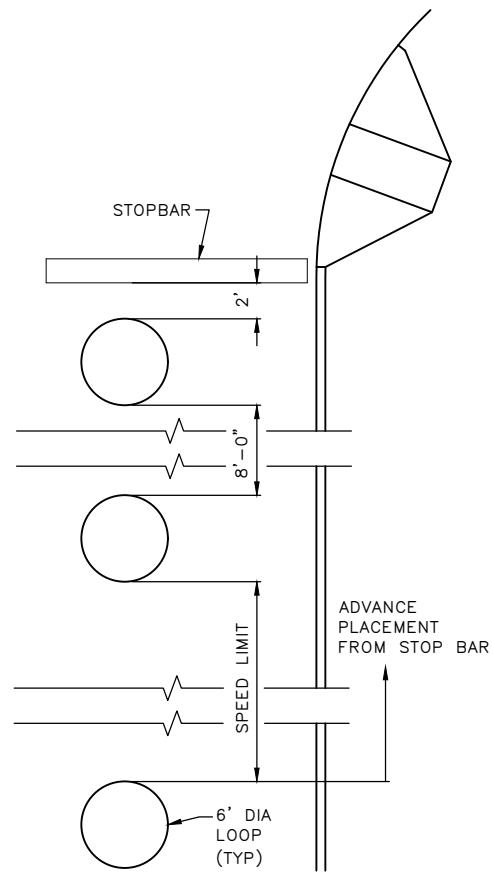
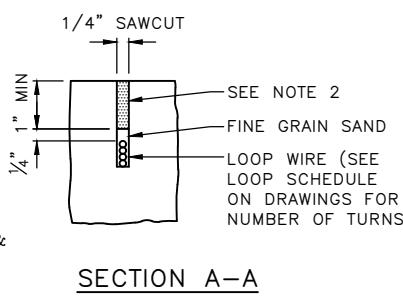
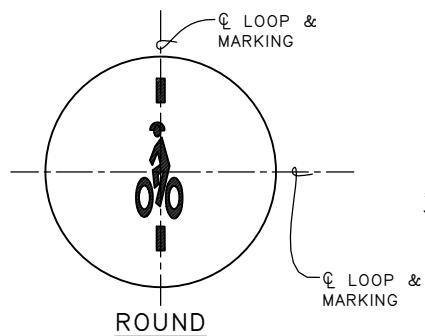
City of Seattle

NOT TO SCALE

DETECTOR LOOP LEAD-IN

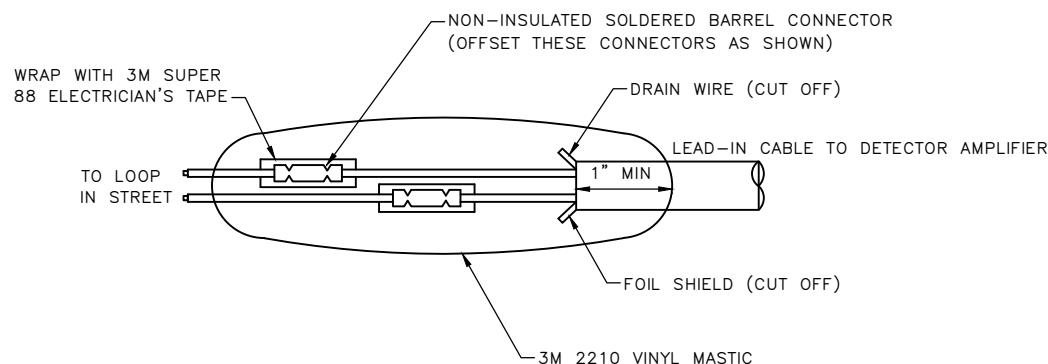
DIPOLE LOOP DETECTORQUADRIPOLE LOOP DETECTORBICYCLE DIPOLE

**\*NOTE:**  
OVERLAP CUT FOR FULL DEPTH AT CORNERS (TYP) CHIP 1" BACK THEN ROUND OFF CORNERS WHERE LOOP WIRE WILL BE BENT 90° OR LESS.

BICYCLE QUADRIPOLE**NOTES:**

1. SEE STD PLAN NO 772 FOR BICYCLE DETECTOR PAVEMENT MARKER DETAIL.
2. FILL CUT AFTER VERTICAL PLACEMENT AND TESTING WITH HOT PAVING GRADE LIQUID ASPHALT ASTM D 312 TYPE III OR QUICK SETTING HIGH STRENGTH GROUT



DETECTOR LEAD-IN WIRE SPLICE DETAILNOTE:

SOLDER CONNECTION AFTER CRIMPING

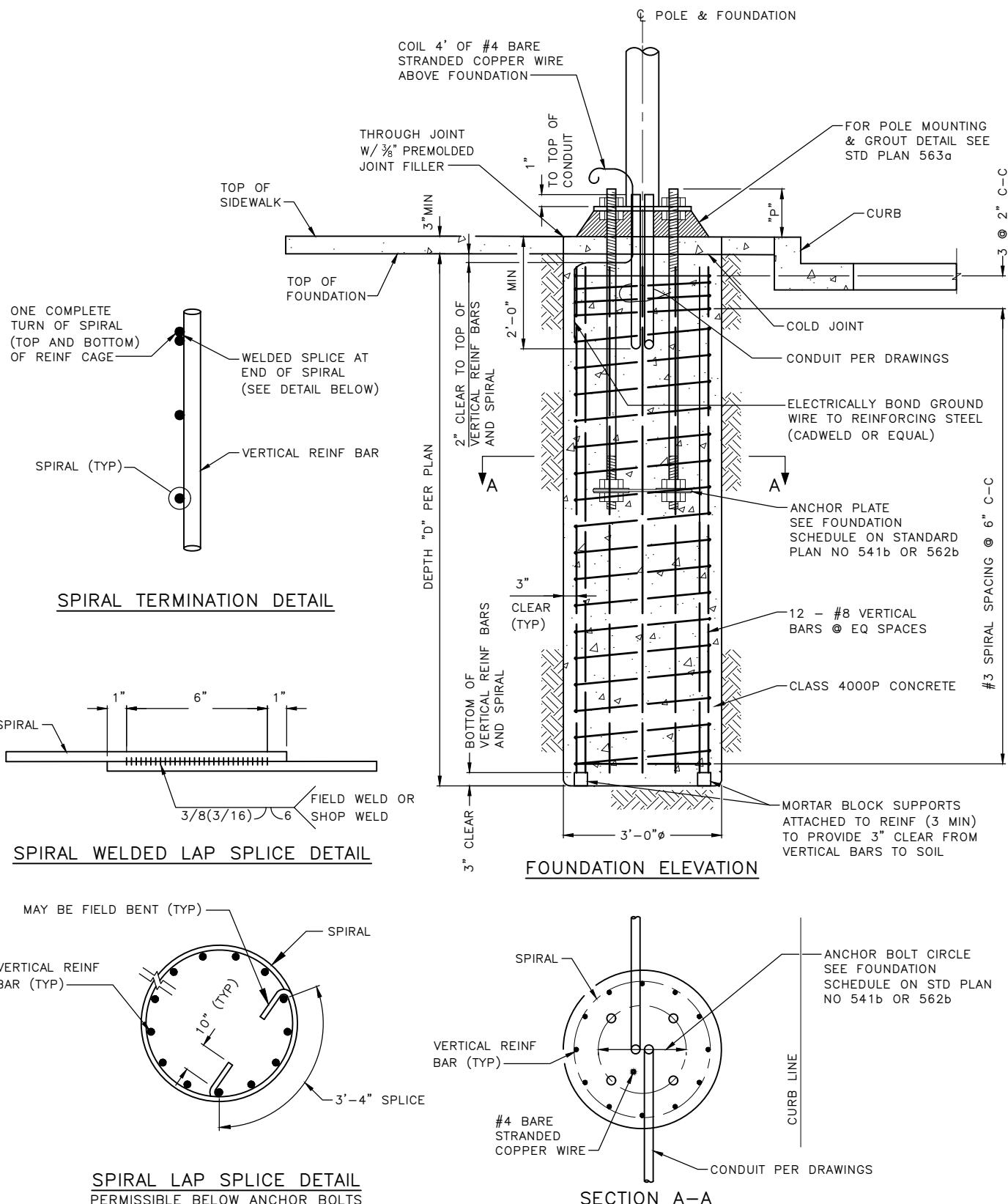
REF STD SPEC SEC 8-31



City of Seattle

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DETECTOR LOOP WIRE &  
SIGNAL CABLE SPLICE



REF STD SPEC SEC 8-32, 6-02



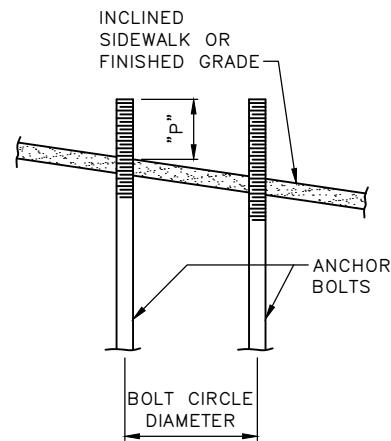
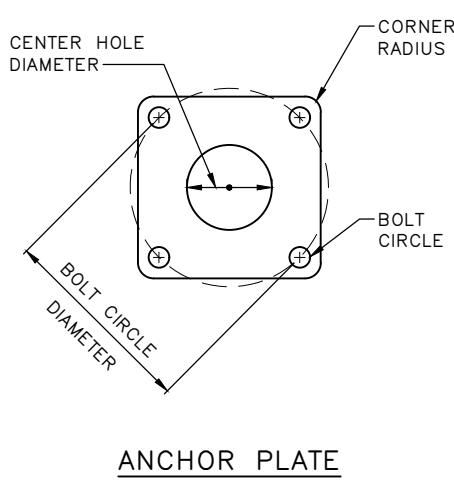
City of Seattle

NOT TO SCALE

TRAFFIC SIGNAL POLE FOUNDATION DETAIL

FOUNDATION SCHEDULE						
POLE TYPE	PROJECTION	ANCHOR BOLTS (TOTAL 4 PER POLE)	ANCHOR PLATE DIMENSIONS			
			BOLT CIRCLE DIA	SIZE	BOLT HOLE	CENTER HOLE
P						CORNER RADIUS
T	7½"	1½" DIA X 60"	14½"	¾" X 16" X 16"	1½"	10"
V	9"	1¾" DIA X 72"	18"	¾" X 16" X 16"	1¾"	12½"
X	10"	2" DIA X 72"	20"	¾" X 18" X 18"	2½"	14"
Z	11½"	2½" DIA X 72"	22"	½" X 20" X 20"	2½"	15"
						2¼"

FOUNDATION PER PLAN. WHERE POLE TYPE OTHER THAN NOTED ABOVE IS REQUIRED, REFER TO PLANS FOR ANCHOR BOLTS AND ANCHOR PLATE DIMENSIONS.



#### NOTES:

1. CONCRETE MUST BE CLASS 4000P.
2. ANCHOR BOLTS FOR TYPE T,V,X AND Z MUST CONFORM TO ASTM F1554 GRADE 105 CLASS 2A THREADS INCLUDING SUPPLEMENTARY REQUIREMENTS S2 THROUGH S4. PROVIDE NUTS ACCORDING TO ASTM A536 HEAVY HEX GRADE DH AND NUTS PER ASTM F436.
3. ANCHOR PLATE: ASTM A36. HOT DIP GALVANIZED PER ASTM A123.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED PER ASTM F2329 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH 18" OF THREADS ON TOP & 12" ON BOTTOM
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8-32.3(2)A PRIOR TO POURING CONCRETE.
7. FOUNDATION DEPTH, REINFORCEMENT AND ANCHOR BOLTS MUST BE IN CONFORMANCE WITH "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" (6TH EDITION, 2013). DESIGN BASIC WIND SPEED IS 85 MPH AND RECURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS

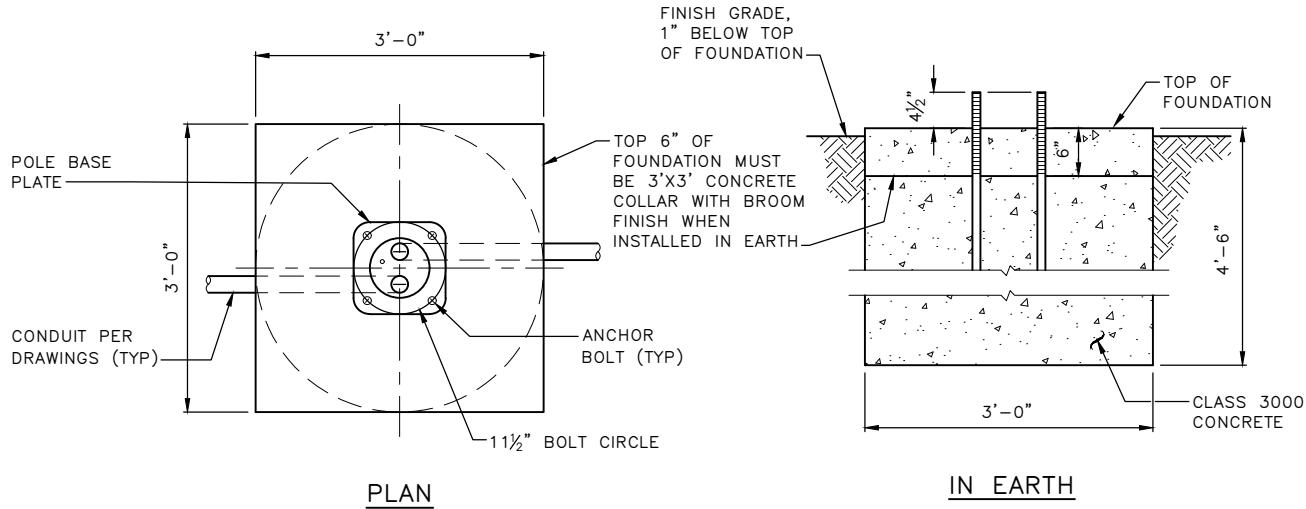
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City of Seattle

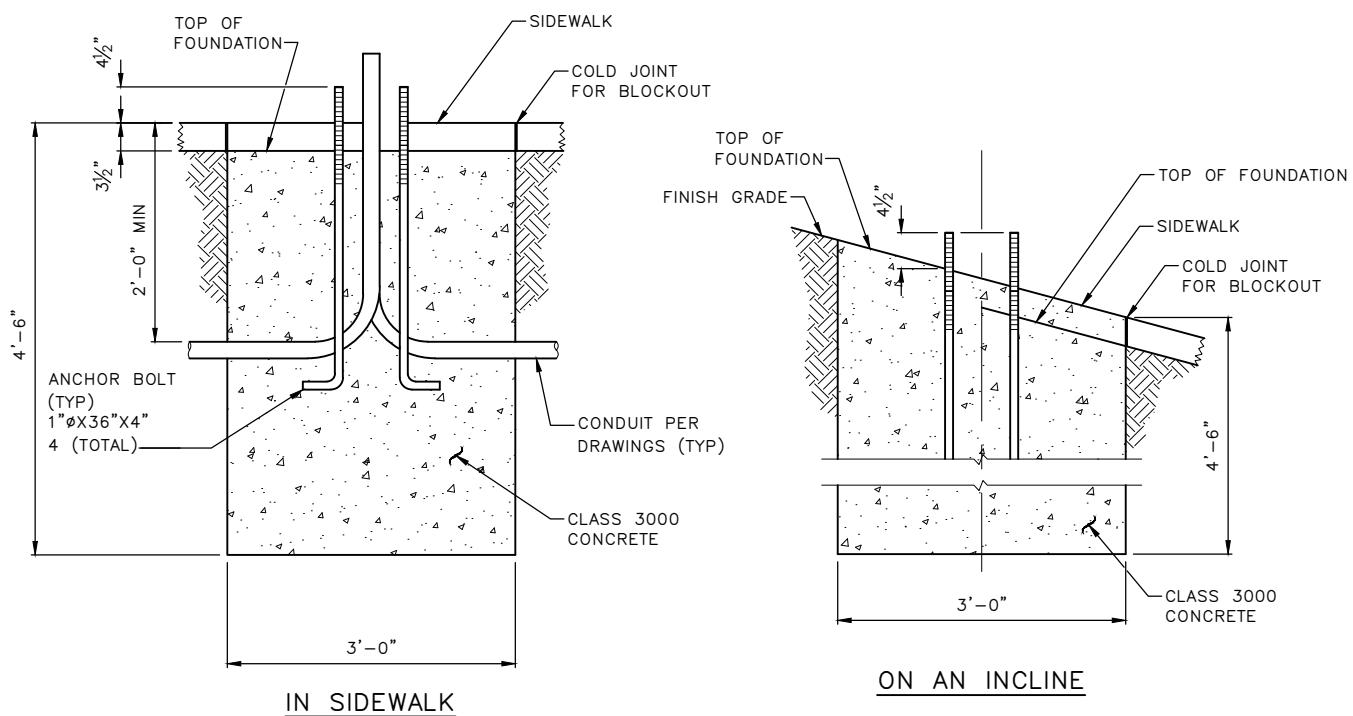
NOT TO SCALE

STRAIN POLE FOUNDATION  
SCHEDULE & NOTES  
(TYPE T, V, X & Z)



PLAN

IN EARTH



## NOTES:

1. SEE SCL CONSTRUCTION STANDARD 1716.34 FOR POLE MOUNTING AND GROUT DETAIL
2. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED ASTM A153 OR F2329, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 12" THREADS ON TOP
3. ALL SHRUBBERY AND FOLIAGE MUST BE PLANTED A MINIMUM OF 2' FROM SCL STRUCTURE PER SCL CONSTRUCTION STANDARD 0214.00

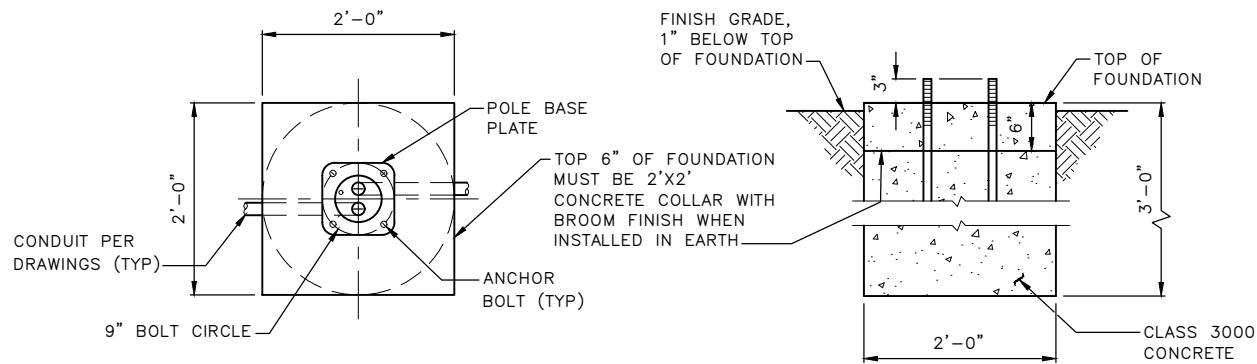
REF STD SPEC SEC 8-32



City of Seattle

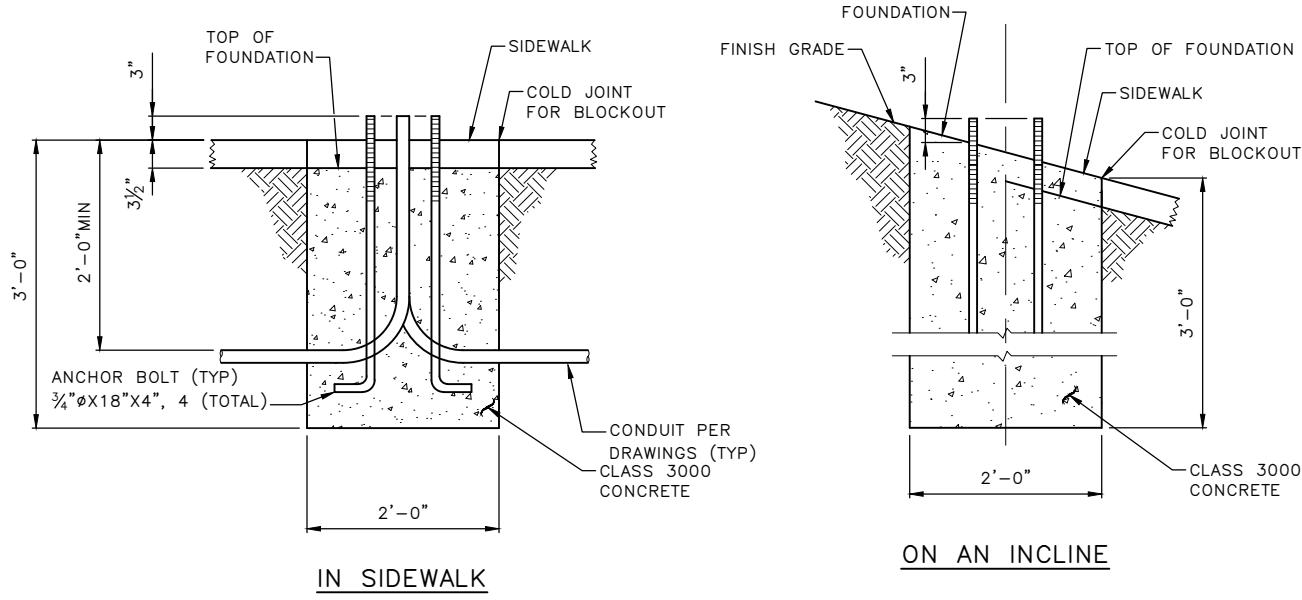
NOT TO SCALE

STREET LIGHT  
POLE FOUNDATIONS



PLAN

IN EARTH

NOTES:

1. SEE SCL CONSTRUCTION STANDARD 1716.34 FOR POLE MOUNTING AND GROUT DETAIL
2. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED TO ASTM A153 OR F2329, FULL LENGTH AND FABRICATED FROM ASTM F1554 OR A576 WITH 8" OF THREADS ON TOP
3. SEE SCL MATERIAL STANDARD 5756.09 FOR POLES
4. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREETLIGHT HANDBOLE AND CONDUIT REQUIREMENTS.
5. ALL SHRUBBERY AND FOLIAGE MUST BE PLANTED A MINIMUM OF 2' FROM SCL STRUCTURE PER SCL CONSTRUCTION STANDARD 0214.00

REF STD SPEC SEC 8-32



City of Seattle

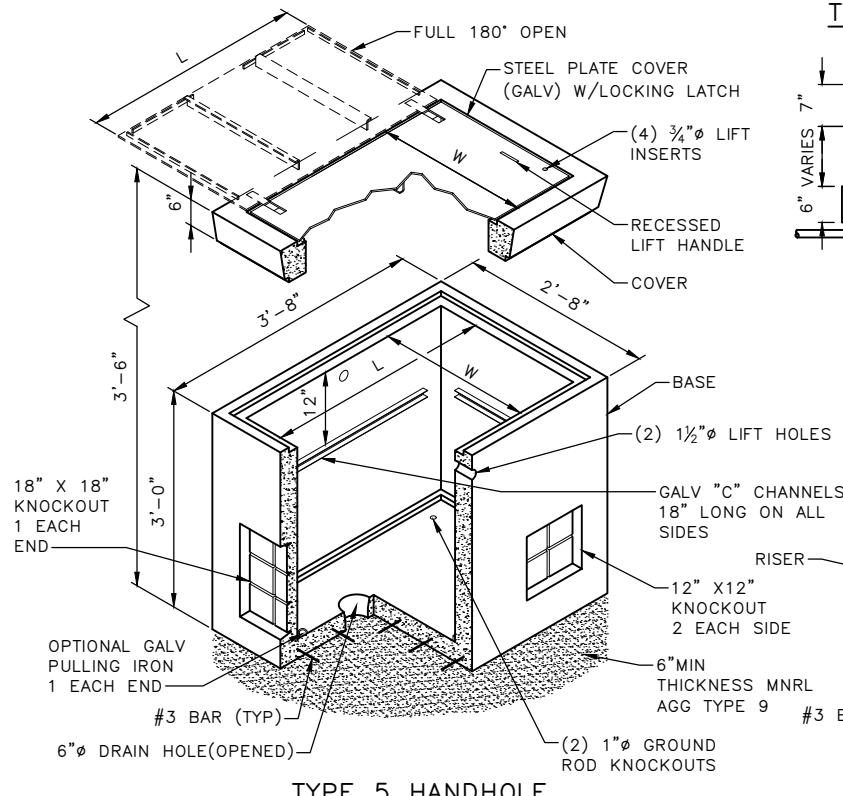
NOT TO SCALE

PEDESTRIAN STREET LIGHT  
POLE FOUNDATIONS

**NOTES:**

1. THE COVER MUST HAVE  $\frac{1}{16}$ " TO  $\frac{1}{8}$ " CLEARANCE ON EACH EDGE WITHIN THE FRAME AFTER GALVANIZING.
2. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANHOLE OR MINERAL AGGREGATE.
3. TYPE 1, 2, 3, 5 & 6 HANHOLE COVERS MUST HAVE "SDOT" OR "SL" ON THEM, AS APPROPRIATE.
4. TYPE 4 HANHOLE MUST BE INSTALLED IN ROADWAYS, PARKING LOTS, ETC.
5. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP THE THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
6. A 4' LENGTH OF #6 THWN OR THHN COPPER WIRE MUST BE SECURED FROM THE HANHOLE COVER TO THE FRAME. BOND FROM FRAME LID, AND LID TO GROUND ROD.
7. ALL HANHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)
8. ALL HANHOLE COVERS MUST HAVE A LOAD RATING OF H20.
9. GROUND ROD REQUIRED IN ALL STREETLIGHT HANHOLE PER SCL CONSTR STD 1714.50
10. SEE SCL CONSTRUCTION STANDARD 1716.07 & SCL MATERIAL STD 7203.10 FOR STREETLIGHT HANHOLE AND CONDUIT REQUIREMENTS.
11. ALL SHRUBBRY AND FOLIAGE MUST BE PLANTED A MINIMUM OF 2' FROM SCL STRUCTURE PER SCL CONSTRUCTION STANDARD 0214.00

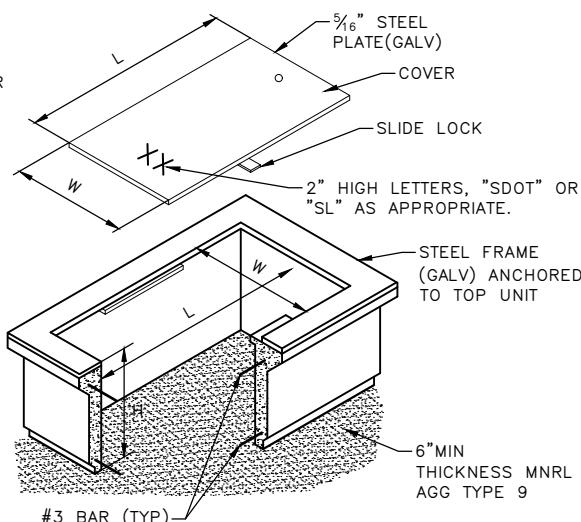
## HANDHOLE INSTALLATION DETAIL



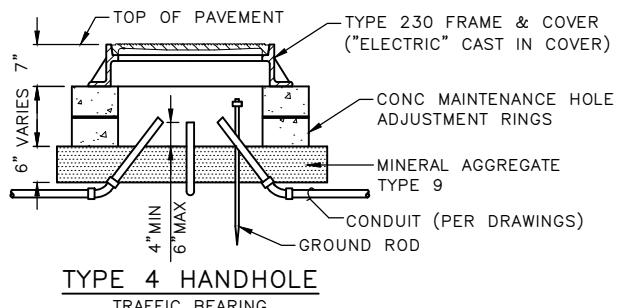
## TYPE 5 HANDHOLE

REF STD SPEC SEC 8-33

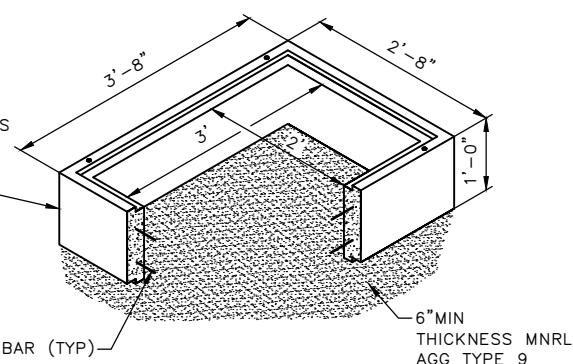
HANDHOLE TYPE	TOP UNIT INSIDE DIMENSION			EXTENSION UNIT(E)	COVER DIMENSIONS	
	L	W	H		H	L
1	22"	17"	12"	12"	17 $\frac{3}{4}$ "	12 $\frac{3}{4}$ "
2	33"	22"	12"	12"	27 $\frac{3}{4}$ "	16 $\frac{3}{4}$ "
3	36"	24"	12"	12"	35"	24"
4	24" $\varnothing$		VAR	NA	NA	NA
5	36"	24"	32"	NA	35"	24"
6	42"	42"	38 $\frac{1}{2}$ "	NA	33 $\frac{1}{2}$ "	33 $\frac{3}{4}$ "
GRHH	8" $\varnothing$		NA			



## TYPE 1 & 2 HANDHOLE



#### TYPE 4 HANHOLE



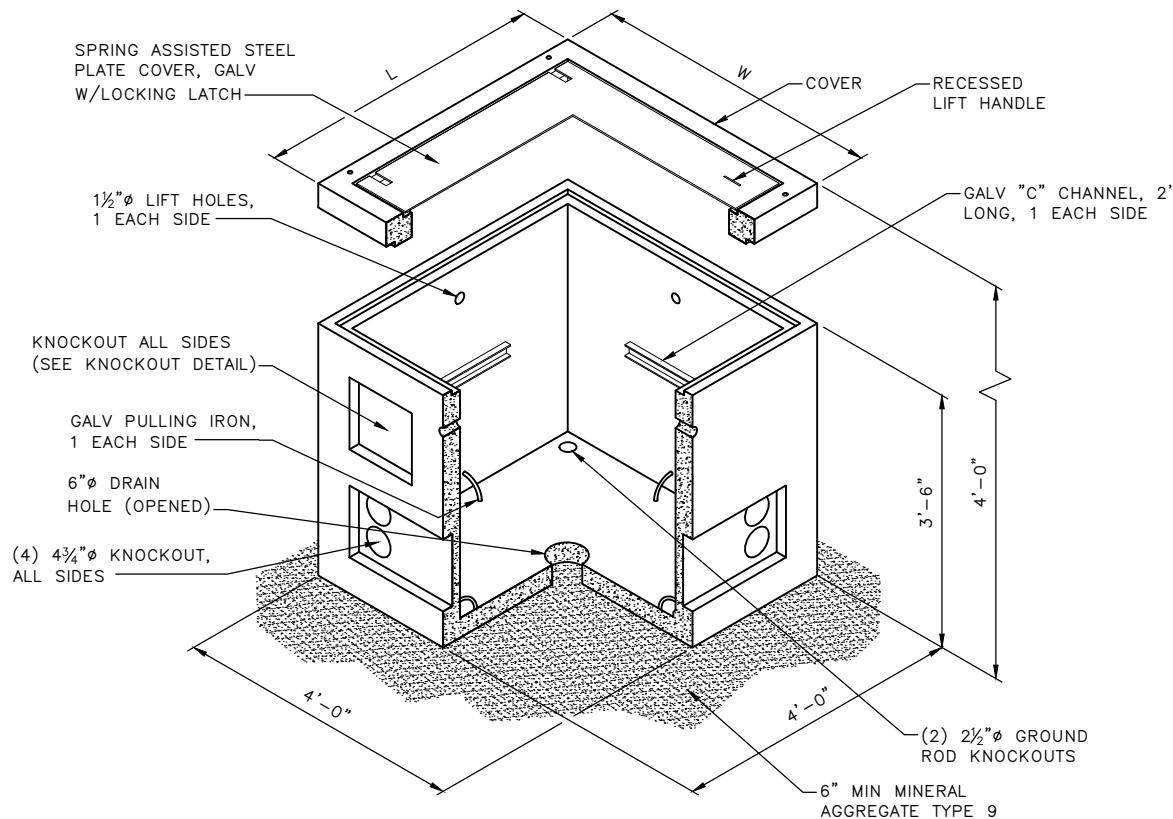
TYPE 3 HANHOLE  
(COVER SAME AS TYPE 5)



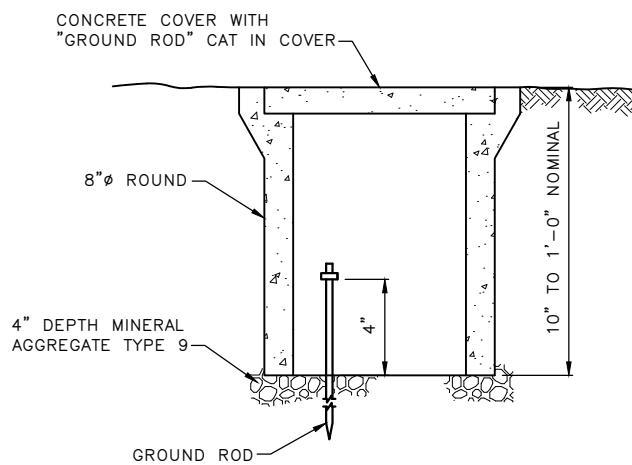
## City of Seattle

NOT TO SCALE

## HANDHOLES



TYPE 6 HANDHOLE



## NOTES:

1. ALL HANDHOLES MUST HAVE A H2O LOAD RATING.
2. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)

GROUND ROD HANDHOLE (GRHH)

REF STD SPEC SEC 8-33



City of Seattle

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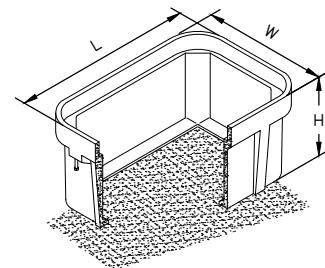
HANDHOLES

## NOTES:

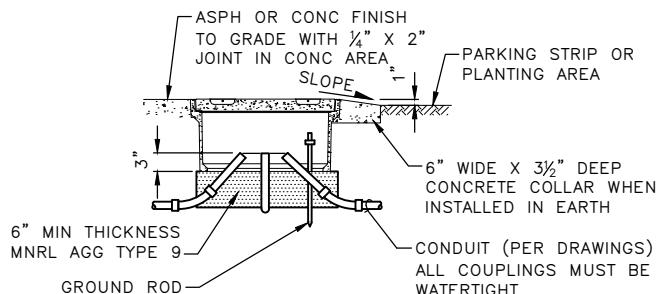
1. ALL NON-DELIBERATE TRAFFIC PULL BOX COVERS MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2010 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 15 APPLICATION. MARKING SHOWING THE TIER 15 RATING MUST BE EMBOSSED IN THE TOP SURFACE OF THE COVER.
2. ALL NON-DELIBERATE TRAFFIC PULL BOXES MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2012 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY", & MUST MEET THE TIER 22 APPLICATION. MARKINGS SHOWING THE TIER 22 RATING MUST BE LABELED OR STENCILED ON THE INSIDE & OUTSIDE OF THE BOX.
3. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE MADE OF POLYMER CONCRETE WITH FIBERGLASS REINFORCEMENT. THE BOX MUST HAVE CONTINUOUS FIBERGLASS CLOTH REINFORCEMENT ON THE INSIDE & OUTSIDE PERIMETERS. THE COVER MUST HAVE A MINIMUM OF TWO LAYERS OF FIBERGLASS CLOTH REINFORCEMENT.
4. ALL NON-DELIBERATE TRAFFIC PULL BOXES & COVERS MUST BE TESTED & CERTIFIED, MEETING ALL TEST PROVISIONS ON THE ANSI/SCTE 77, TO THE 66WF, MEETING ALL TEST PROVISION OF THE LATEST REVISION OF ANSI/SCTE 77.
5. PULL SLOTS MUST BE RATED FOR MINIMUM PULL OUT OF 3,000 POUNDS.
6. TYPE 4 HANDHOLE MUST BE INSTALLED IN ROADWAYS PARKING LOTS, ETC. ALL COVERS MUST BE COMPLETE WITH A MOLDED LOGO, MANUFACTURES NAME & TIER RATING LOGO (NO GLUE IN LOGO). LOGO MUST READ "SDOT" OR "SL" UNLESS STATED OTHERWISE BY THE CITY OF SEATTLE.
7. THE GROUND ROD MUST EXTEND 4" ABOVE THE BOTTOM OF THE HANDHOLE OR MINERAL AGGREGATE.
8. FOR PAVEMENT DEPTH GREATER THAN 7" USE FRAME EXTENSIONS (SEE STD PLAN NO 231) TO BRING THE COVER UP THE THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.
9. A 4' LENGTH OF #6 THWN OR THHN COPPER WIRE MUST BE SECURED FROM THE HANDHOLE COVER TO THE FRAME. WITH A 4'-0" LENGTH FROM FRAME THAT CAN BE HOOKED UP TO A GROUND ROD.
10. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SCL MATERIAL STANDARD 7203.10)
11. SEE SCL CONSTRUCTION STANDARD 1716.07 FOR STREET HANDHOLE AND CONDUIT REQUIREMENTS.

## HANDHOLE SCHEDULE

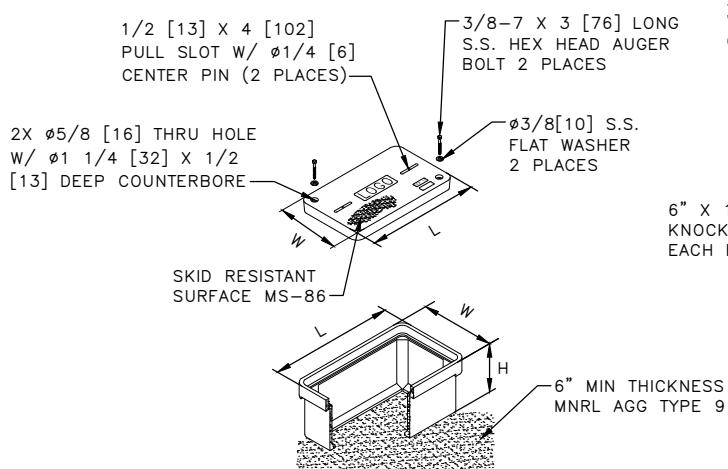
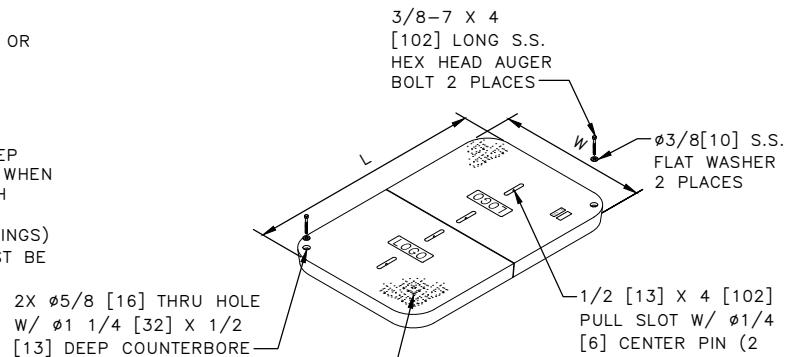
HANDHOLE TYPE	TOP UNIT INSIDE DIMENSION			EXTENSION UNIT(E)	COVER DIMENSIONS	
	L	W	H		L	W
1	24"	13"	12"	12"	24"	13"
2	30"	17"	12"	12"	30"	17"
3	36"	24"	18"	12"	36"	24"
4	24"Ø	VAR	NA	NA	NA	NA
5	30"	48"	36"	NA	30"	48"
6	48"	48"	48"	NA	48"	48"
GRHH	8"Ø		NA			



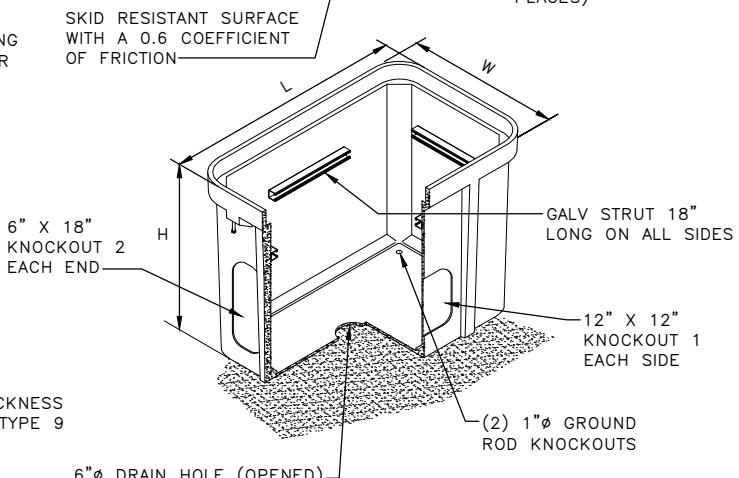
TYPE 3 HANDHOLE  
(COVER SAME AS TYPE 5)



HANDHOLE INSTALLATION DETAIL



TYPE 1 & 2 HANDHOLE



TYPE 5 HANDHOLE

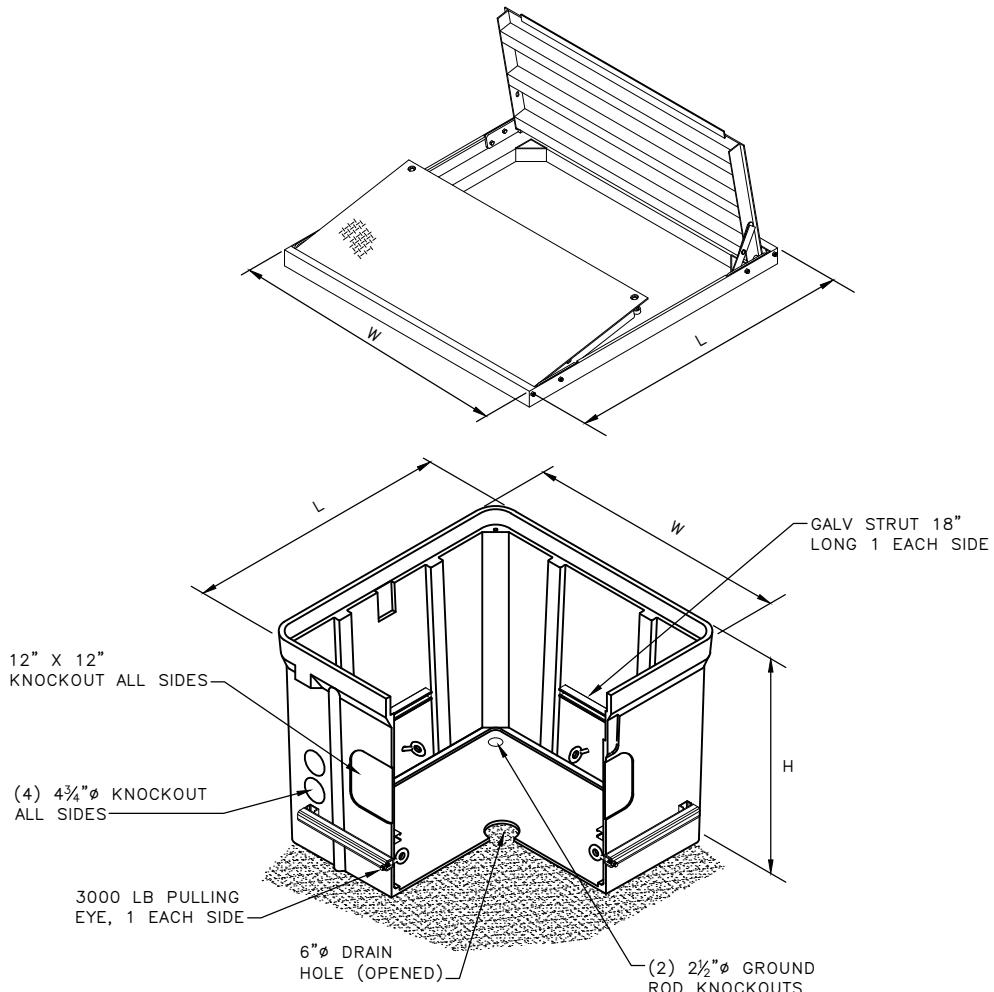
REF STD SPEC SEC 8-33



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NOT TO SCALE

POLYMER CONCRETE  
HANDHOLES



TYPE 6 HANDHOLE

NOTES:

1. FOR DETAILS NOT SHOWN, SEE STD PLAN NO 550b
2. ALL HANDHOLE COVERS AND FRAMES MUST HAVE A NON-SKID SURFACE (SEE STD SPEC SEC 9-34.6)

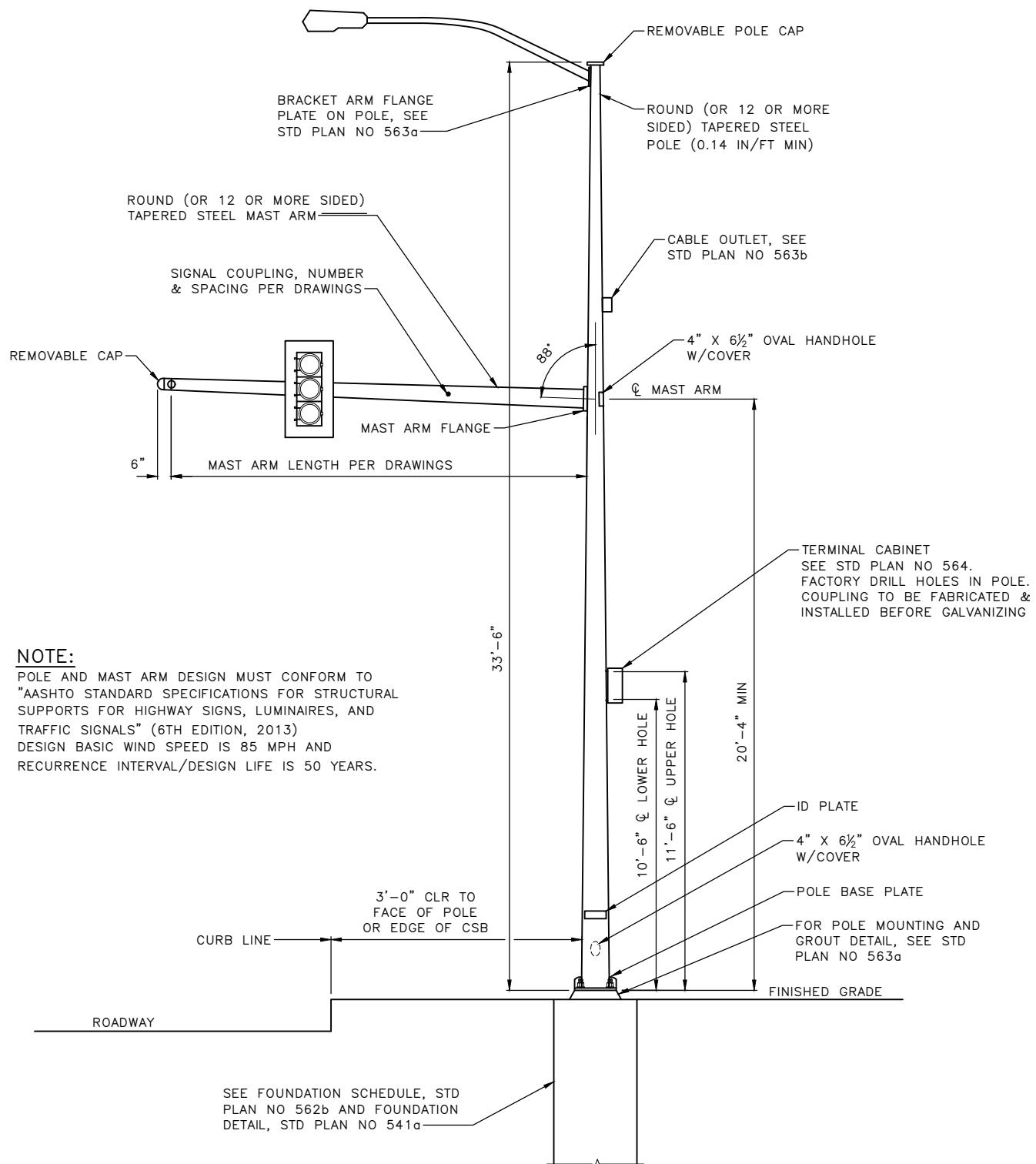
REF STD SPEC SEC 8-33



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POLYMER CONCRETE  
HANDHOLES



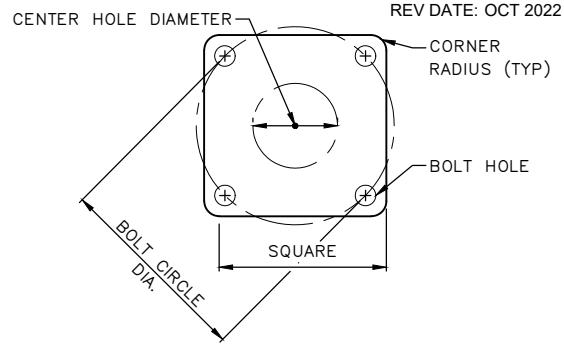
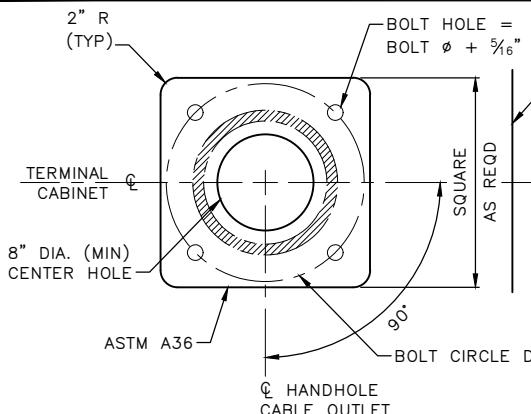
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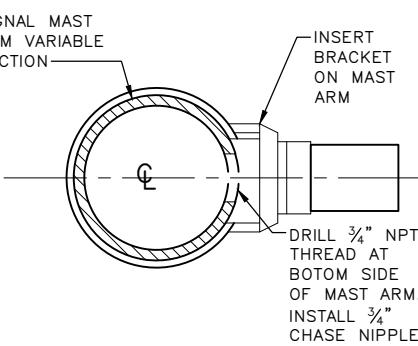
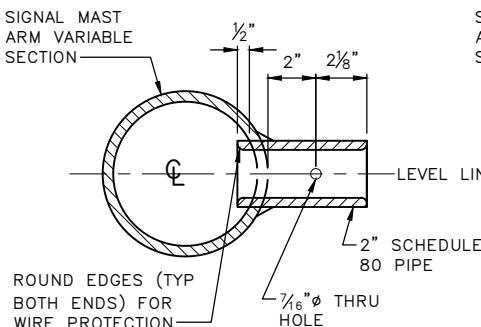
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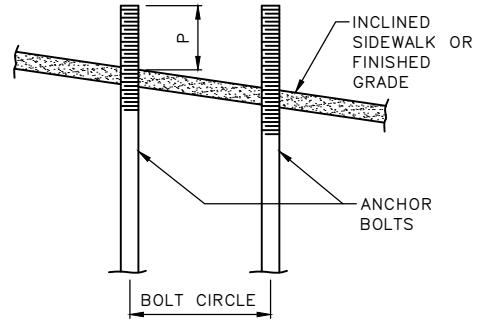
STEEL MAST ARM POLE



### POLE BASE PLATE



### ANCHOR PLATE PER FOUNDATION SCHEDULE



### SIGNAL COUPLING

COUPLING TO BE FABRICATED & INSTALLED BEFORE GALVANIZING

### SIGNAL BRACKET

TO BE DRILLED & TAPPED IN THE FIELD

### POLE FOUNDATION NOTES

1. CONCRETE MUST BE CLASS 4000P.
2. ANCHOR BOLTS MUST BE ASTM F1554 GRADE 105 CLASS 2A THREADS INCLUDING SUPPLEMENTARY REQUIREMENTS S2 THROUGH S4. NUTS: ASTM A563 HEAVY HEX GRADE DH. HARDENED STEEL WASHERS: ASTM F436.
3. BOTTOM ANCHOR PLATE: ASTM A36, HOT DIP GALVANIZED PER ASTM A123.
4. ALL REINFORCING BARS MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM CLASS A706, GRADE 60.
5. ANCHOR BOLTS MUST BE HOT DIP GALVANIZED PER ASTM F2329 INCLUDING NUTS & WASHERS (FULL LENGTH) WITH A MINIMUM OF 18" OF THREADS ON TOP & 12" ON BOTTOM.
6. TAPE THE TOP OF ANCHOR BOLTS WITH CORROSION PROTECTION TAPE PER STD SPEC SEC 8-32.3(2)A PRIOR TO POURING CONCRETE.
7. SEE STD PLAN NO 541a FOR FOUNDATION DETAILS.
8. FOUNDATION DEPTH, REINFORCEMENT AND ANCHOR BOLTS MUST BE IN CONFORMANCE WITH "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" (6TH EDITION, 2013). DESIGN BASIC WIND SPEED IS 85 MPH AND RECURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS

POLE SCHEDULE			
MAST ARM LENGTH	POLE BASE PLATE		
	SQUARE	BOLT CIRCLE 'A'	BOLT HOLE
15'-0" TO 30'-0"	16" X 16"	14 1/2"	11 5/16"
31'-0" TO 40'-0"	18" X 18"	16 1/2"	2 1/16"
41'-0" TO 45'-0"	18" X 18"	18"	2 1/16"
46'-0" TO 60'-0"	20" X 20"	20"	2 5/16"

MAST ARM LENGTH	ANCHOR BOLTS			ANCHOR PLATE DIMENSIONS			
	PROJECTION "P"	BOLT CIRCLE DIA	SIZE	SIZE	BOLT HOLE	CENTER HOLE	CORNER RADIUS
15'-0" TO 30'-0"	7 1/2"	14 1/2"	1 1/2" X 60"	3/8" X 16" X 16"	1 1/8"	10"	1 1/8"
31'-0" TO 40'-0"	9"	16 1/2"	1 3/4" X 72"	3/8" X 16" X 16"	1 1/8"	12 1/2"	1 5/8"
41'-0" TO 45'-0"	9"	18"	1 3/4" X 72"	3/8" X 16" X 16"	1 1/8"	12 1/2"	1 5/8"
46'-0" TO 60'-0"	10"	20"	2" X 72"	3/8" X 18" X 18"	2 1/8"	14"	2"

FOUNDATION DEPTH MUST BE PER PLANS.

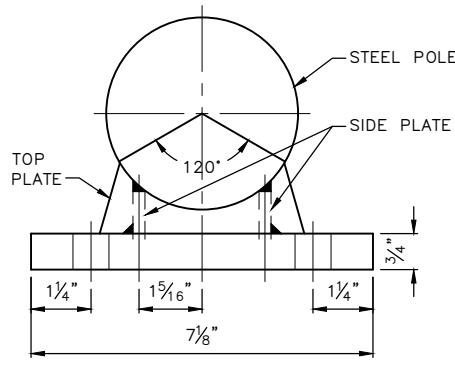
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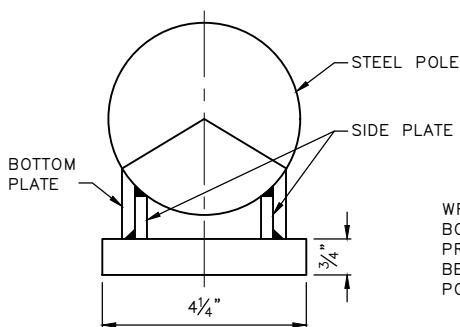
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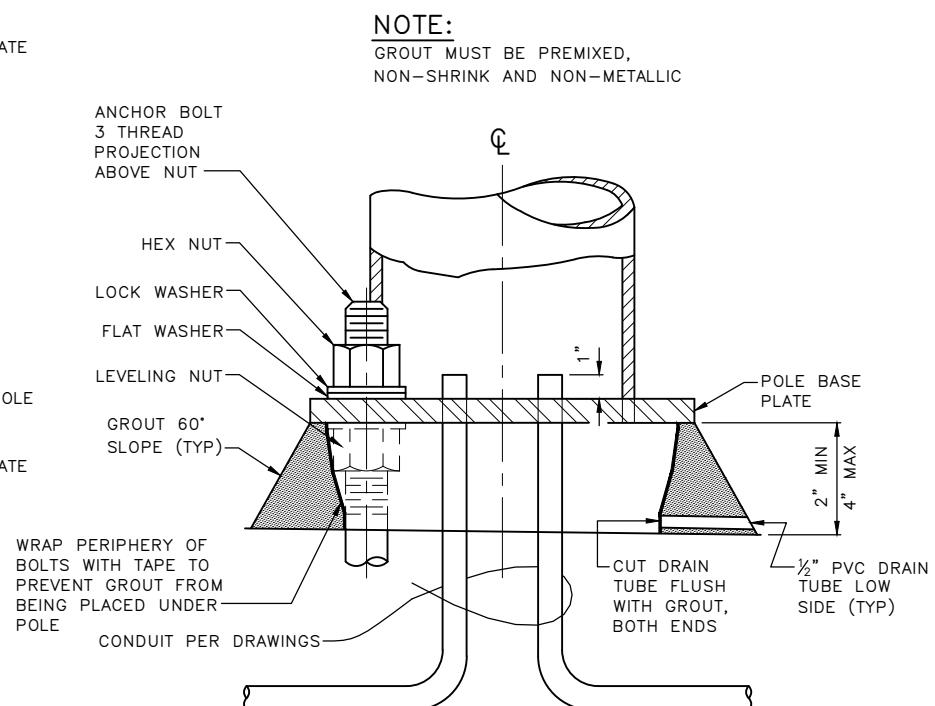
STEEL MAST ARM POLE  
FOUNDATION SCHEDULE & DETAIL  
(W/O METRO TROLLEY LOADS)



SECTION A-A

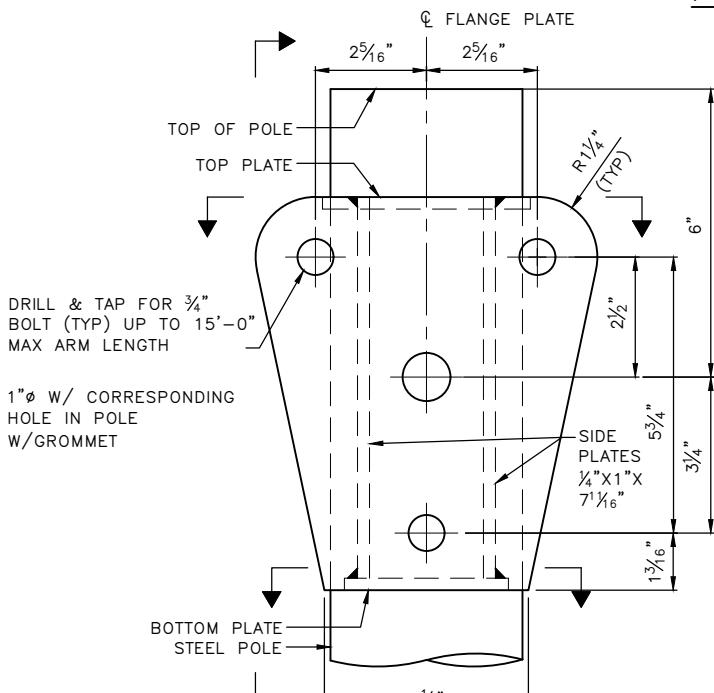
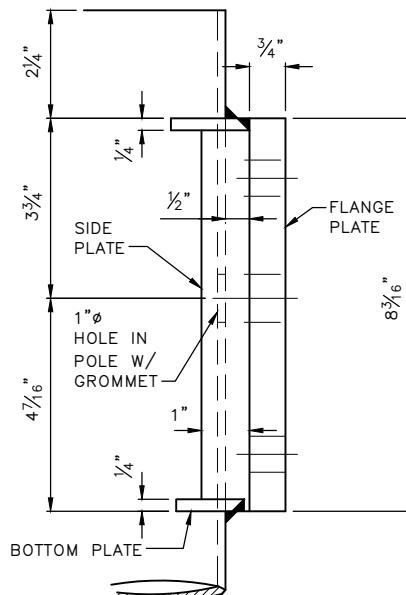


SECTION B-B



## POLE MOUNTING &amp; GROUT DETAIL

(EXCEPT FOR POLES W/CHIEF SEATTLE BASE)

BRACKET ARM FLANGE  
PLATE ON POLE

SECTION C-C

STRUCTURAL CARBON STEEL PLATES  
MUST BE ASTM A36

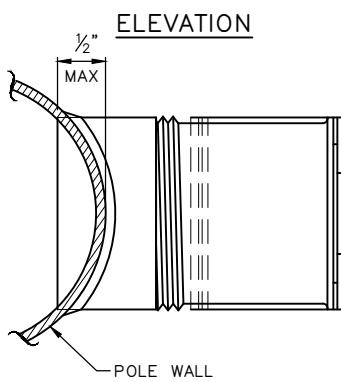
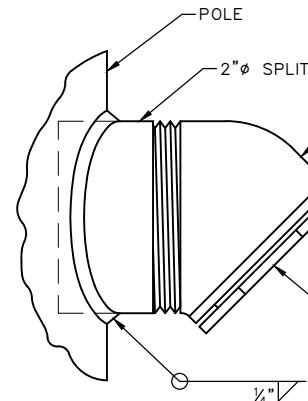
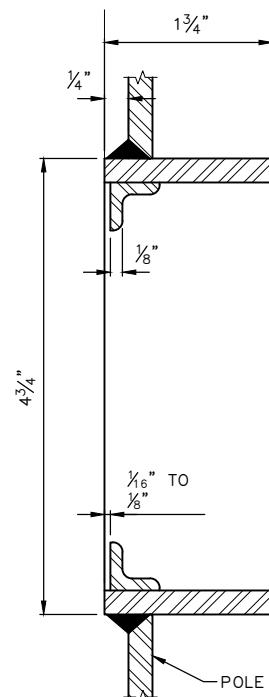
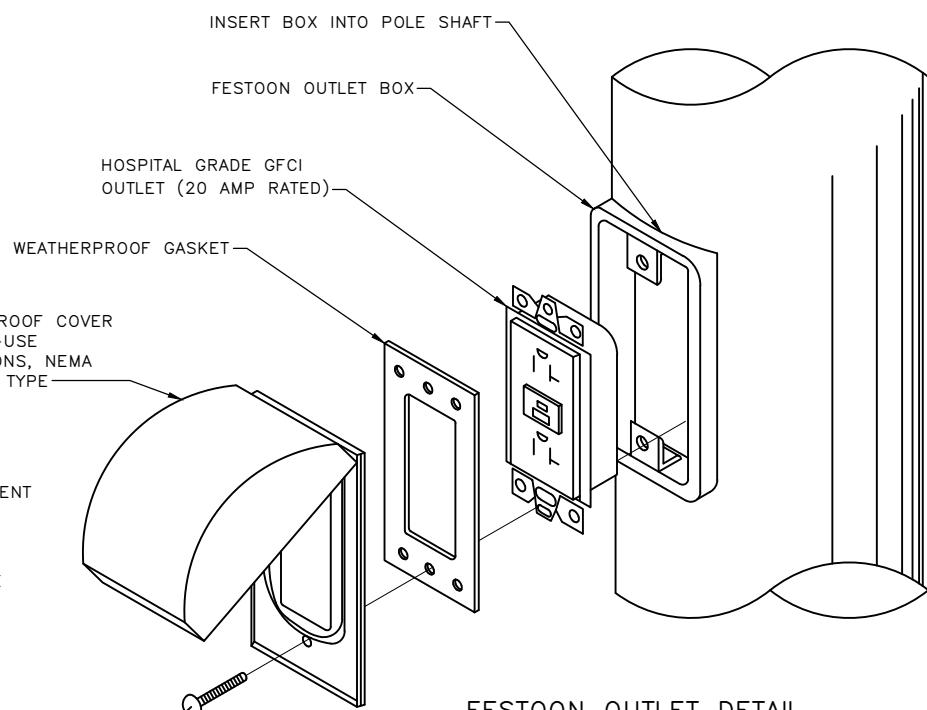
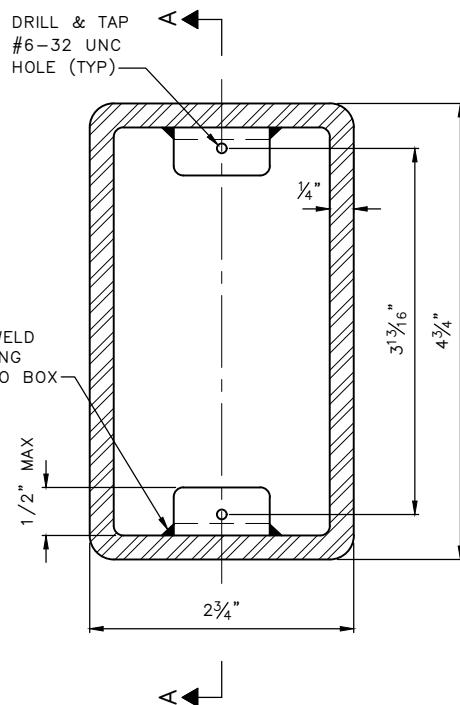
REF STD SPEC SEC 8-32



City of Seattle

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MISCELLANEOUS STEEL  
POLE DETAILS

CABLE OUTLET DETAILSECTION A-AFESTOON OUTLET BOXFESTOON OUTLET DETAIL  
(METAL POLES)

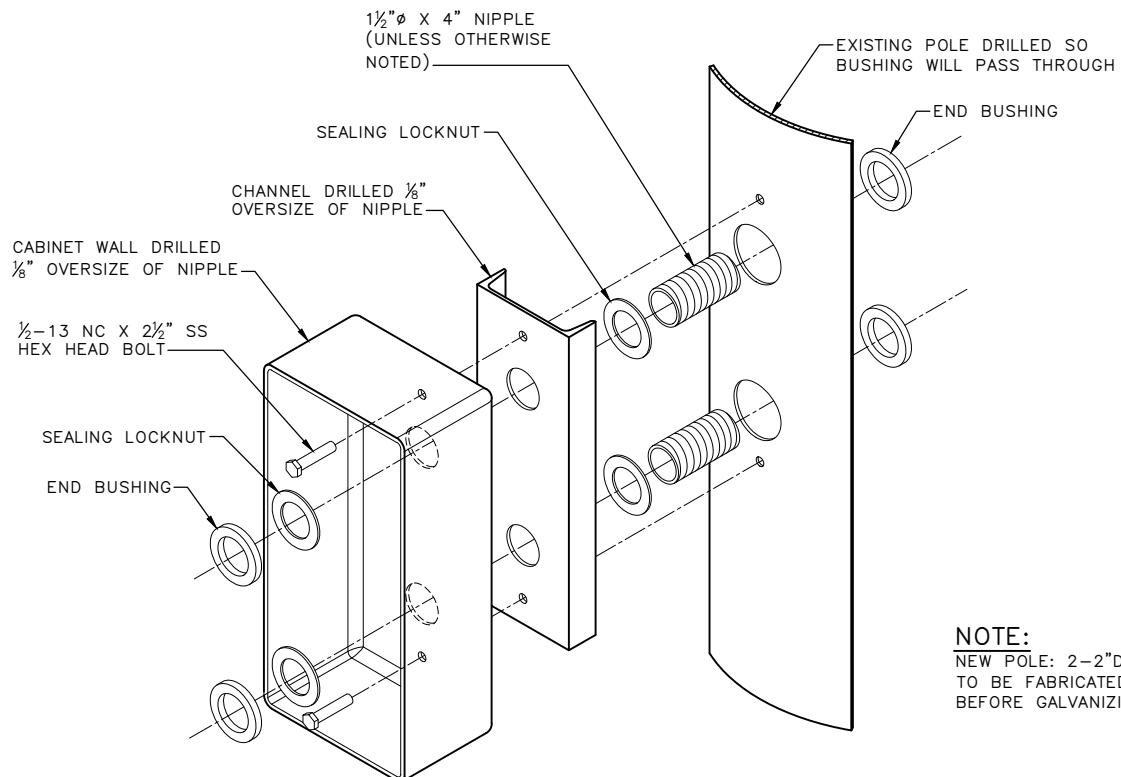
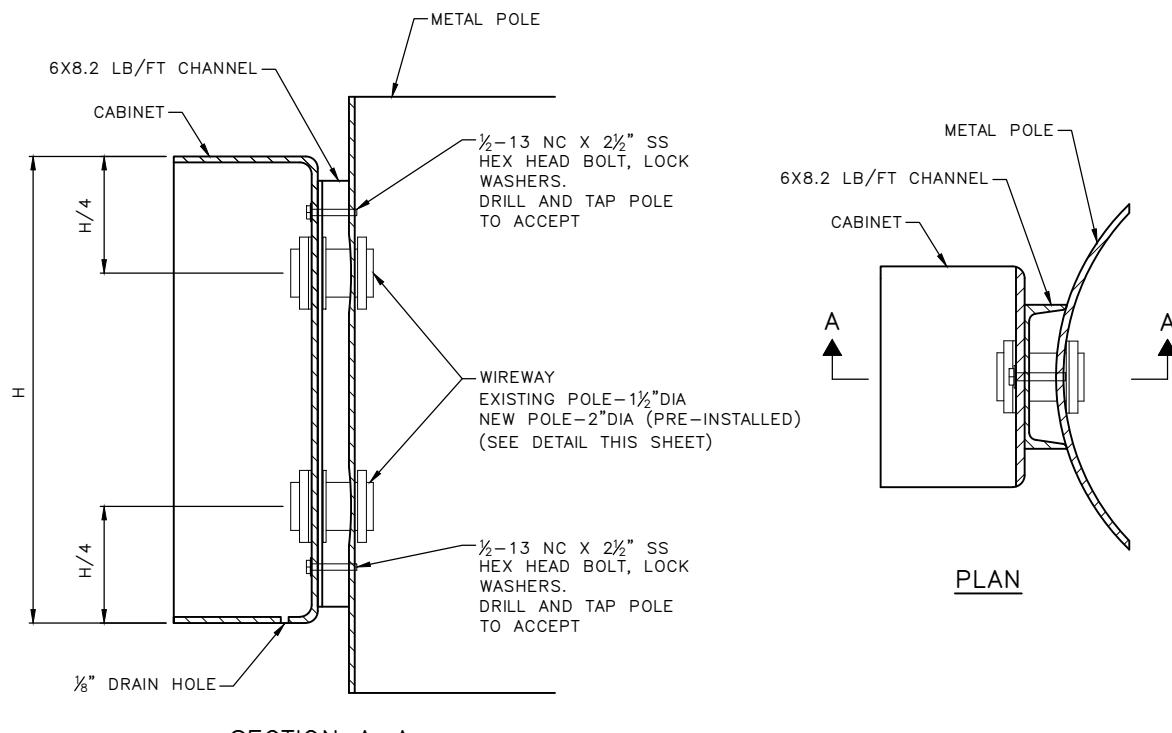
REF STD SPEC SEC 8-30, 8-32



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MISCELLANEOUS STEEL POLE DETAILS

WIREWAY ISOMETRIC DETAIL

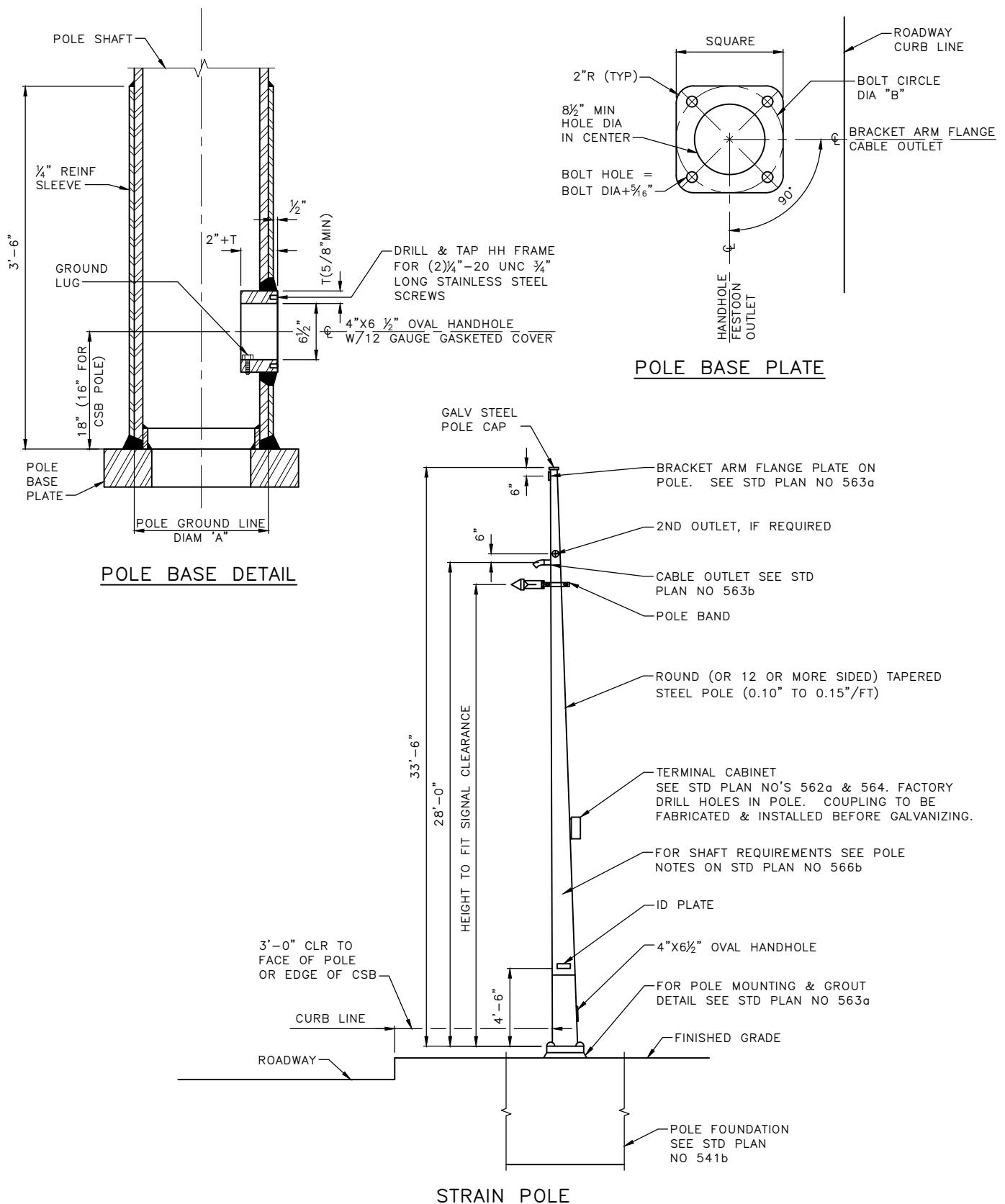
REF STD SPEC SEC 8-32



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NOT TO SCALE

TERMINAL CABINET  
POLE MOUNTING



REF STD SPEC SEC 8-32



City of Seattle

NOT TO SCALE

STRAIN POLE DETAILS  
(TYPE V, X & Z POLES)

POLE TYPE	POLE SCHEDULE						
	GROUND LINE DIA "A"		POLE BASE PLATE SIZE		BOLT CIRCLE DIA "B"	BOLT HOLE	ANCHOR BOLTS
	STD	CSB	STD	CSB			
V	12"	12"	1 $\frac{3}{4}$ "X18"X18"	1 $\frac{3}{4}$ "X23"X23"	18"	2 $\frac{1}{16}$ "	1 $\frac{3}{4}$ "DIA X 72"
X	14"	12 $\frac{1}{2}$ "	2"X20"X20"	2"X23"X23"	20"	2 $\frac{1}{16}$ "	2"DIA X 72"
Z	15"	--	2 $\frac{1}{2}$ "X23"X23"	--	22"	2 $\frac{3}{16}$ "	2 $\frac{1}{2}$ "DIA X 72"

NOTES:

1. POLE SHAFT AND REINFORCING SLEEVE: ASTM A572 GRADE 50, 60 OR 65 (Fy=50, 60 OR 65 KSI RESPECTIVELY) OR ASTM A595 GRADE A OR B (Fy=55 OR 60 KSI RESPECTIVELY).
2. BASE PLATE AND HANDBEVEL REINFORCING RIM: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE Fy>0.65 POLE SHAFT Fy THE BASE PLATE THICKNESS MAY BE REDUCED BY  $\frac{1}{4}$ " IF ASTM A572 GRADE 42 STEEL IS USED.
3. REINFORCING SLEEVE MUST BE FABRICATED FROM THE SAME MATERIAL AND YIELD STRENGTH AS THE POLE SHAFT.
4. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
5. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS NOT INCLUDING THE  $\frac{1}{4}$ " REINFORCING SLEEVE.
6. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
7. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
8. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 25' ABOVE GROUND LINE.
9. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (6TH EDITION, 2013). DESIGN WIND SPEED IS 85 MPH AND RECURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS.

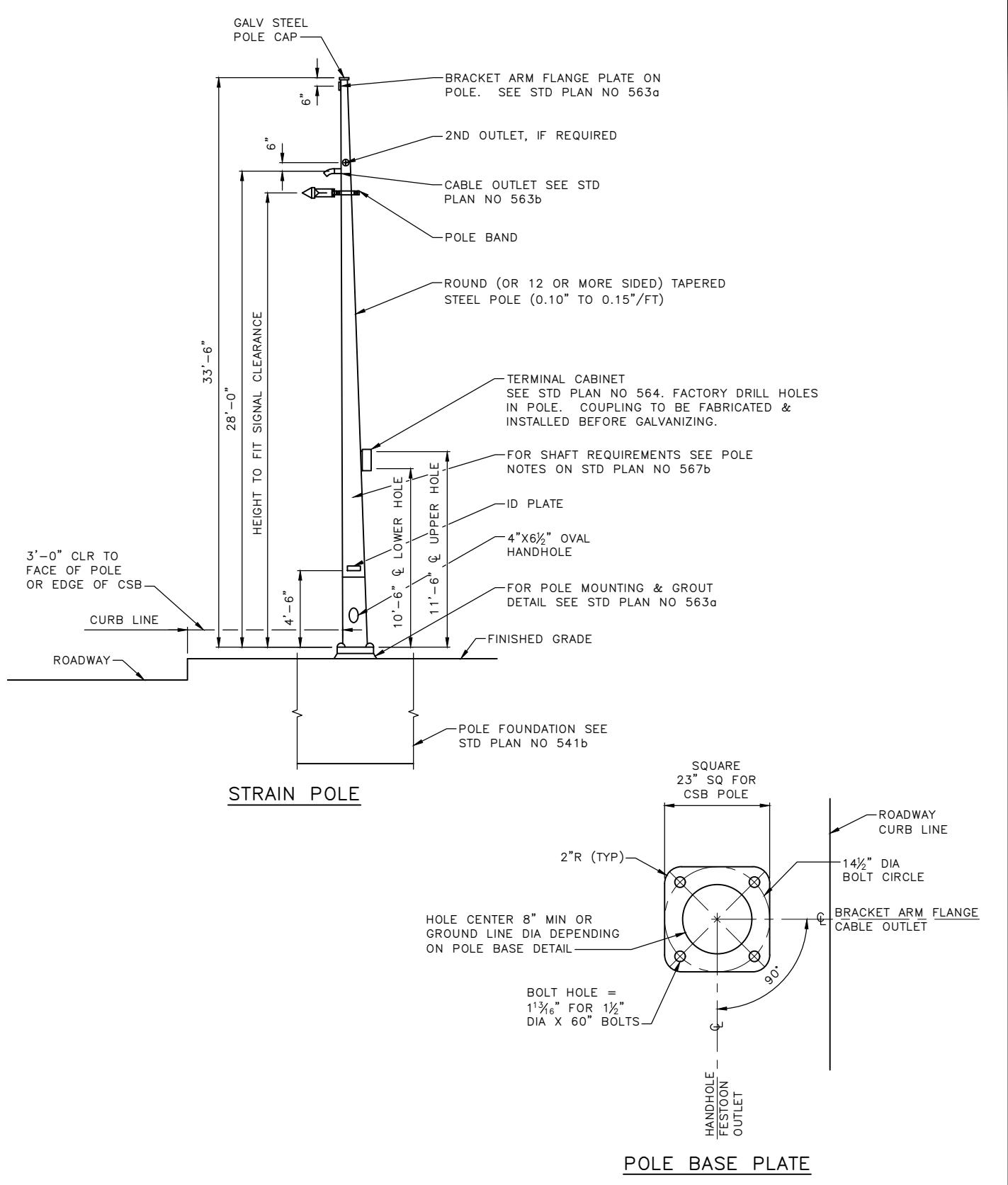
REF STD SPEC SEC 8-32, 9-33



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STRAIN POLE DETAILS  
(TYPE V, X, & Z POLES)



REF STD SPEC SEC 8-32



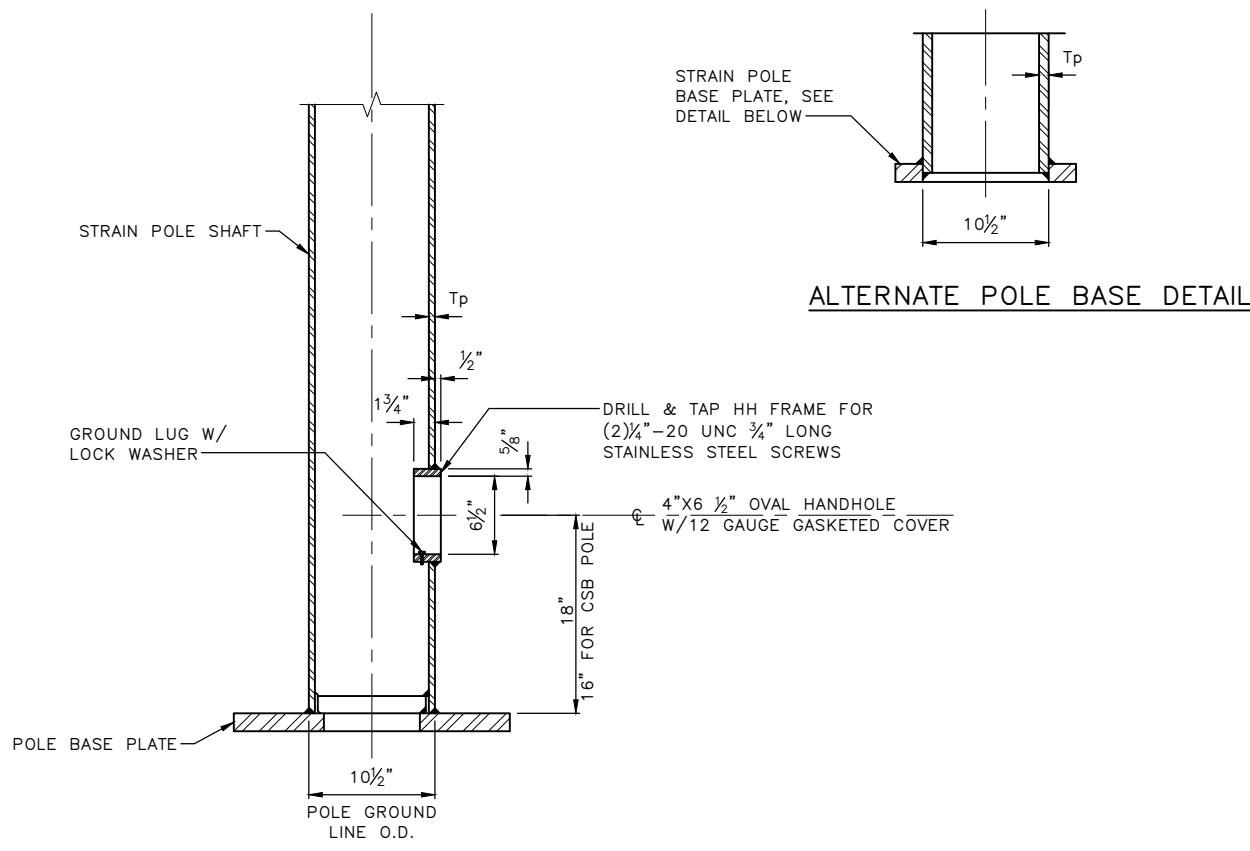
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TYPE T STRAIN POLE DETAILS  
TRAFFIC SIGNAL ONLY

NOTES:

1. POLE STRENGTH MUST MEET REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (6TH EDITION, 2013). DESIGN WIND SPEED IS 85 MPH AND RECURRENCE INTERVAL/DESIGN LIFE IS 50 YEARS.
2. POLE SHAFT: ASTM A572 GRADE 50, 60 OR 65 ( $F_y=50, 60$  OR  $65$  KSI RESPECTIVELY), OR ASTM A595 GRADE A OR B ( $F_y=55$  OR  $60$  KSI RESPECTIVELY)
3. BASE PLATE AND HANHOLE REINFORCING RIM: ASTM A36 OR ASTM A572 GRADE 42. BASE PLATE  $F_y \geq 0.65$  POLE SHAFT  $F_y$  THE BASE PLATE THICKNESS MAY BE REDUCED BY  $\frac{1}{4}$ " IF ASTM A572 GRADE 42 STEEL IS USED.
4. POLE SHAFTS MUST HAVE NO MORE THAN TWO LONGITUDINAL WELDS IN EACH PLY.
5. MINIMUM SHAFT WALL THICKNESS OF EACH PLY MUST BE 0.239" (3 GAUGE). POLE MUST HAVE A MAXIMUM OF TWO PLYS.
6. MAXIMUM SILICON CONTENT IN STEEL MUST BE 0.04%. SEE STD SPEC SECTION 9-33.1(3) FOR GENERAL GALVANIZING REQUIREMENTS.
7. POLE DIAMETER FOR 12 OR MORE SIDED POLES MUST BE MEASURED FROM THE POINT TO POINT DIMENSION.
8. POLES MUST MEET DEFLECTION CRITERIA STATED IN STD SPEC SECTION 9-33.2(2) WITH THE DEAD LOAD APPLIED AT 27' ABOVE GROUND LINE.
9. THE POLES MUST BE COMPACT AND MUST MEET THE REQUIREMENTS IN AASHTO SECTION 4, TABLE 1.4 1B(1).



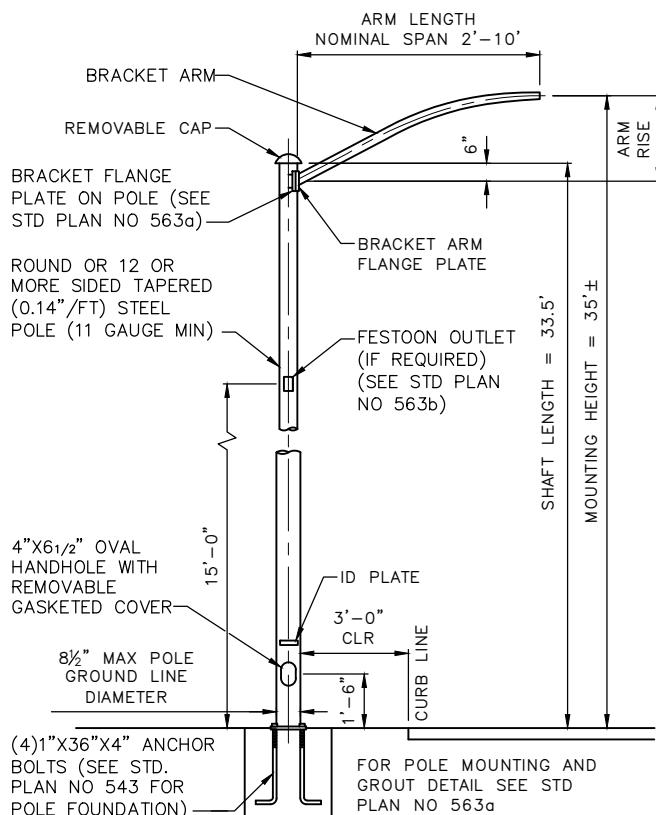
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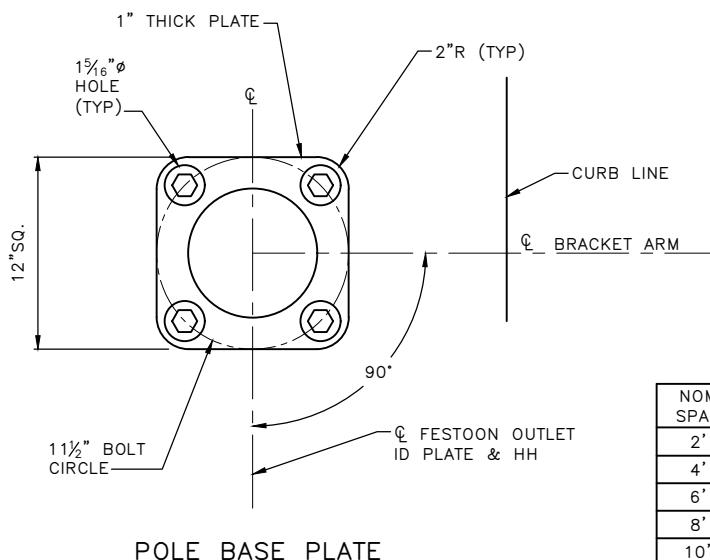
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TYPE T STRAIN POLE DETAILS  
TRAFFIC SIGNAL ONLY



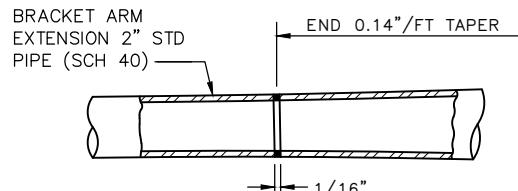
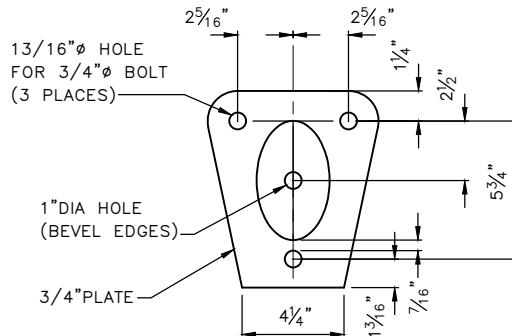
STEEL STREET LIGHT POLE



POLE BASE PLATE

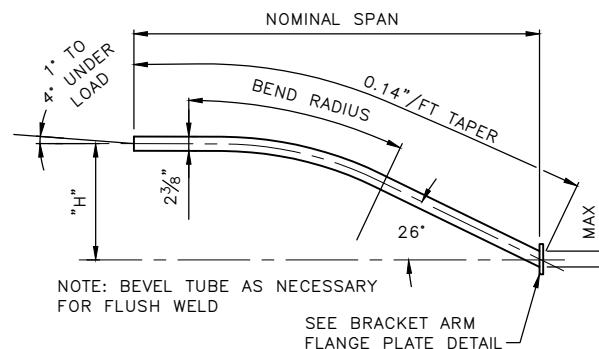
## NOTE:

- ALL OTHER ARM LENGTHS REQUIRE SCL REVIEW AND APPROVAL

BRACKET ARM EXTENSION  
IF REQUIRED

NOTE:  
FLANGE DIMENSIONS AND HOLE LOCATIONS  
MUST MATCH THOSE ON FLANGE PLATE ON  
POLE (SEE STD PLAN NO 563a)

BRACKET ARM FLANGE PLATE



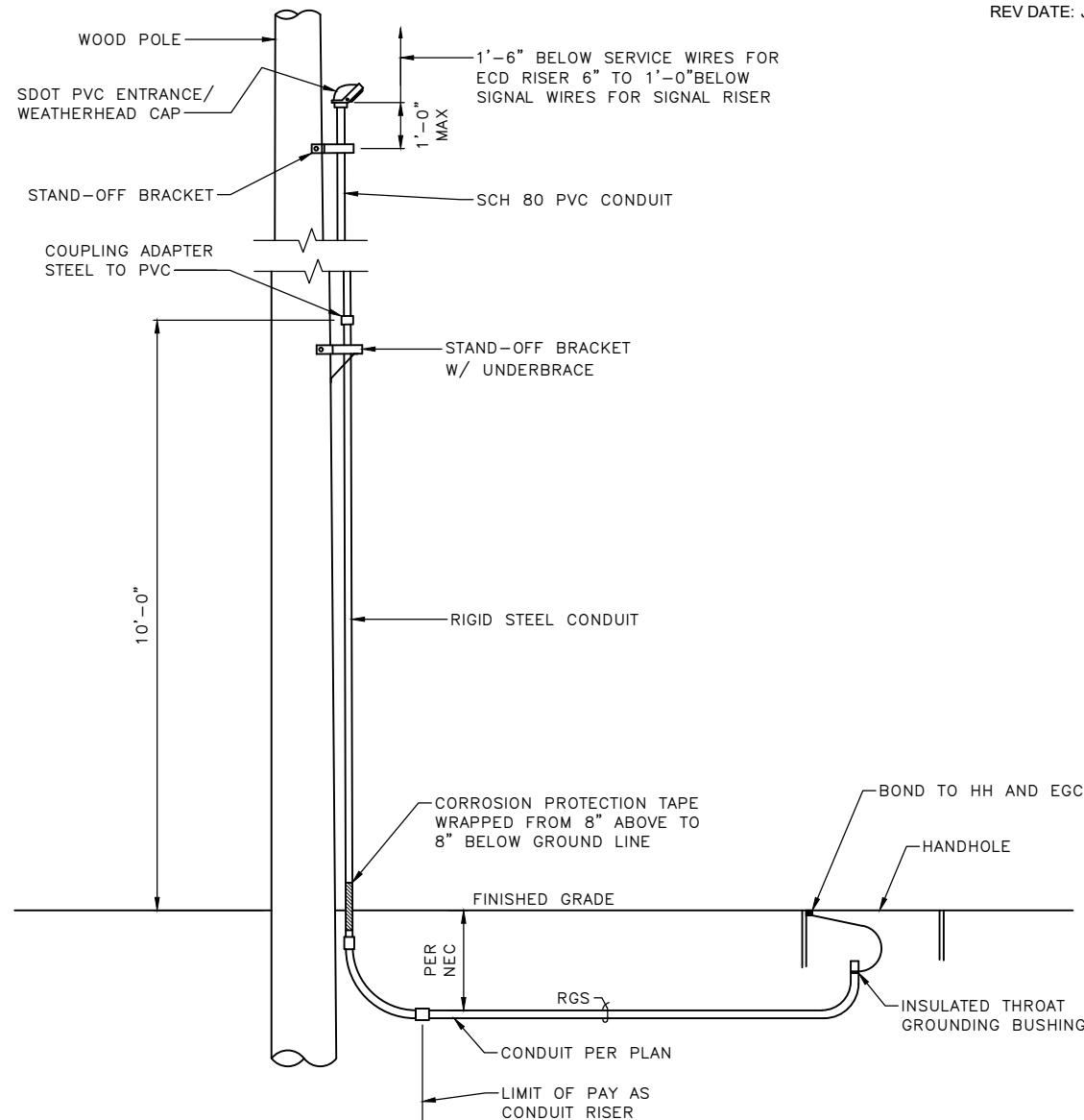
2' THRU 10' BRACKET ARMS

NOM SPAN	H*	BEND RADIUS	TUBE REQUIREMENT
2'	5 1/4"	—	2" STD PIPE
4'	12"	6'	11 GAUGE
6'	18"	9'	11 GAUGE
8'	24"	13'	11 GAUGE
10'	30"	15'	11 GAUGE

MATERIAL SPECIFICATION  
PLATE AND SHAPES:  
ASTM A36  
POLE SHAFTS:  
ASTM A570  
GR 40 MIN.  
ANCHOR BOLTS:  
ASTM A307  
BRACKET ARM FLANGE  
PLATE BOLT: ASTM A325

\* THESE DIMENSIONS ARE ONLY ILLUSTRATIVE OF THE GENERAL OUTLINE  
AND MATERIALS USED IN THE CONSTRUCTION OF THESE ARMS AND ARE  
NOT INTENDED TO EXCLUDE MANUFACTURER'S STANDARD PRODUCTS.





#### CONDUIT RISER (WITH STAND-OFF BRACKET\*)

\*WHEN THERE WILL BE ONLY ONE CONDUIT (1½" OR SMALLER) ON THE POLE, TWO HOLE MALLEABLE IRON CLAMPS WITH DOUBLE HEADED NAILS MUST BE USED TO SECURE THE CONDUIT TO THE POLE IN LIEU OF THE STAND-OFF BRACKETS

#### NOTES:

1. ON POLES WITH EXISTING CONDUITS, NEW CONDUITS MUST BE INSTALLED IN ACCORDANCE WITH THIS STANDARD PLAN.
2. RIGID STEEL CONDUIT MUST BE GROUNDED JUST BELOW COUPLING, APPROXIMATELY 8'-0" TO 10'-0" ABOVE GROUND, AS SHOWN
3. ALL RISERS BONDED IN HH
4. THE GROUND WIRE MUST BE ONE CONTINUOUS LENGTH. INSERT THE GROUND WIRE FORM THE BOTTOM OF THE GROUND CLAMP & BEND OVER THE CLAMP BEFORE TIGHTENING
5. ALL STEEL HARDWARE MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123
6. CONDUIT CLAMP SPACING MUST BE PER THE NEC WITH A MINIMUM OF TWO HOLE CLAMP PER 10'-0" LENGTH OF CONDUIT
7. SERVICE AND SIGNAL CONDUCTORS MUST NOT BE PLACED IN THE SAME CONDUIT.
8. WHEN POSSIBLE, RISER MUST BE INSTALLED ON DOWNSTREAM SIDE OF TRAFFIC
9. SEE SCL CONSTRUCTION STANDARD 1714.50 FOR STREETLIGHT HANDHOLE AND CONDUIT REQUIREMENTS & 0224.34 FOR STREETLIGHT CONDUIT RISERS.

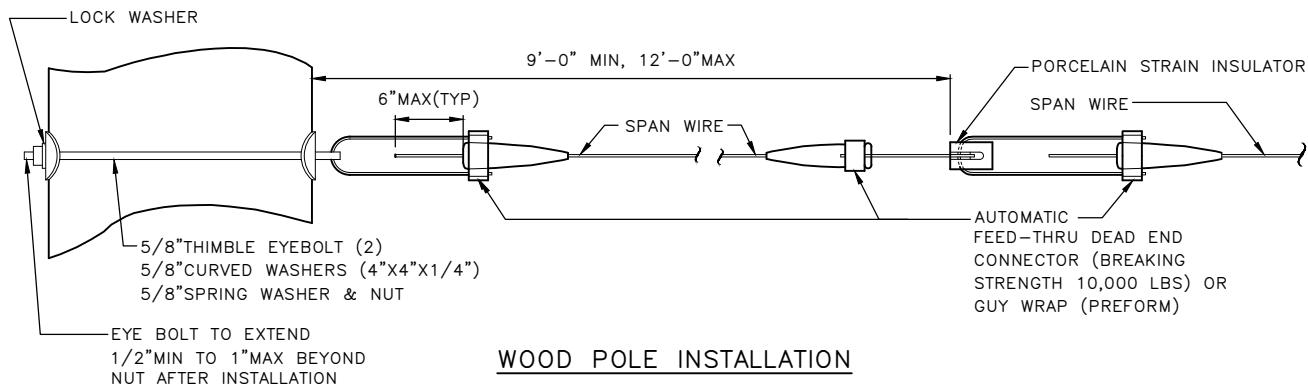
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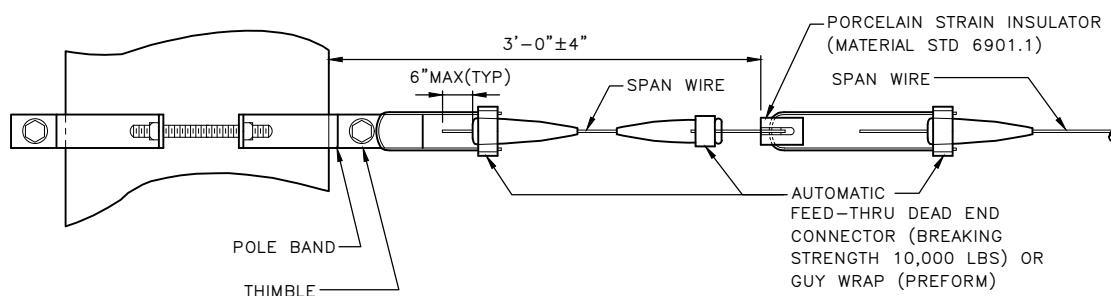
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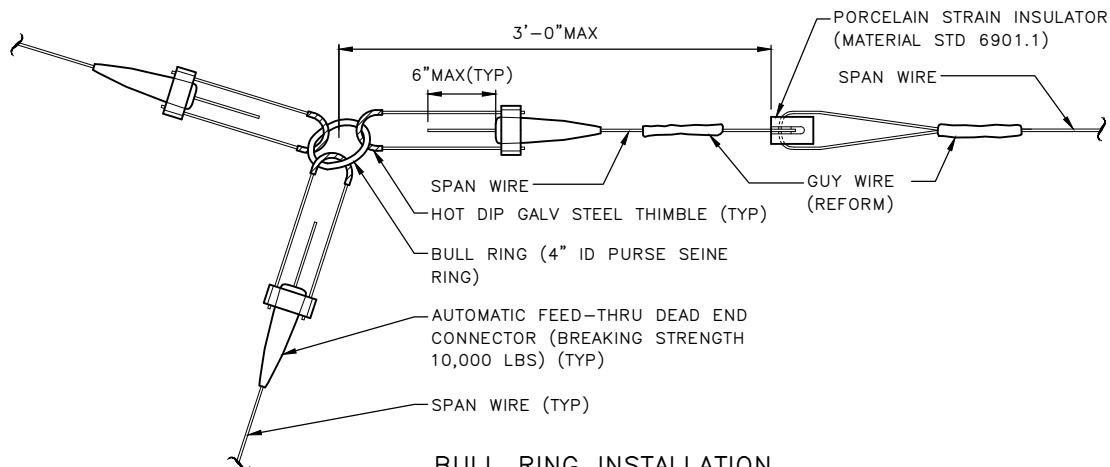
TRAFFIC CONDUIT RISER



### WOOD POLE INSTALLATION



### METAL POLE INSTALLATION



### BULL RING INSTALLATION

#### NOTES:

1. ALL STEEL HARDWARE TO BE HOT DIP GALVANIZED OR STAINLESS STEEL UNLESS OTHERWISE STIPULATED IN THE DRAWINGS.
2. SPAN WIRE MUST BE ALUMINUM COATED STEEL.
3. SPREAD THIMBLE TO FIT THE BAIL OF THE AUTOMATIC DEAD END.

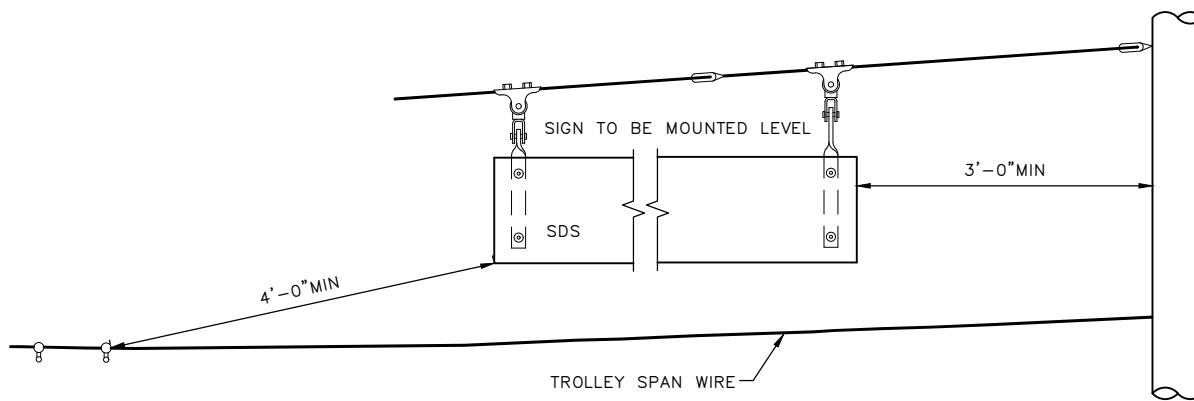
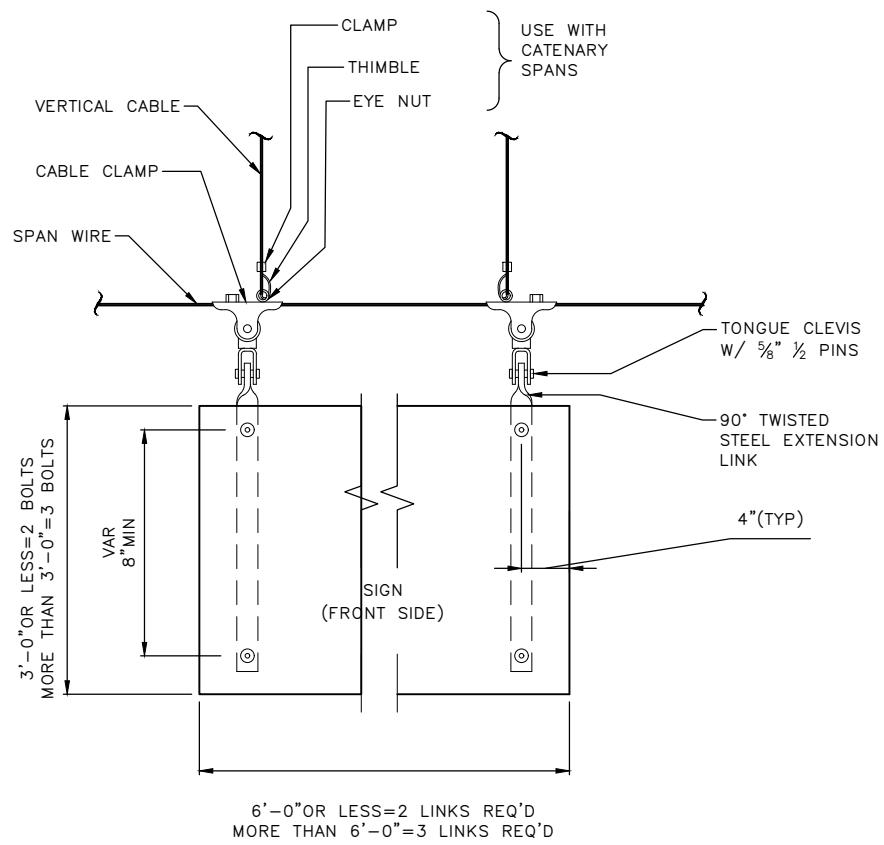
REF STD SPEC SEC 8-21, SCL MATERIAL STANDARD 6901.1



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SPAN WIRE INSTALLATION

STREET DESIGNATION SIGNSPAN WIRE MOUNTED SIGNNOTES:

1. ALL HARDWARE MUST BE STAINLESS STEEL. OTHER THAN HARDWARE MUST BE HOT DIP GALVANIZED.
2. NEOPRENE GASKETS MUST NOT BE USED FOR SPAN WIRE OR AERIAL CONNECTIONS.

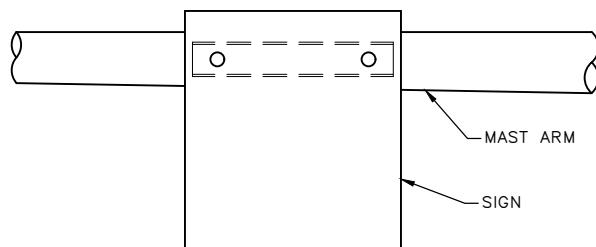
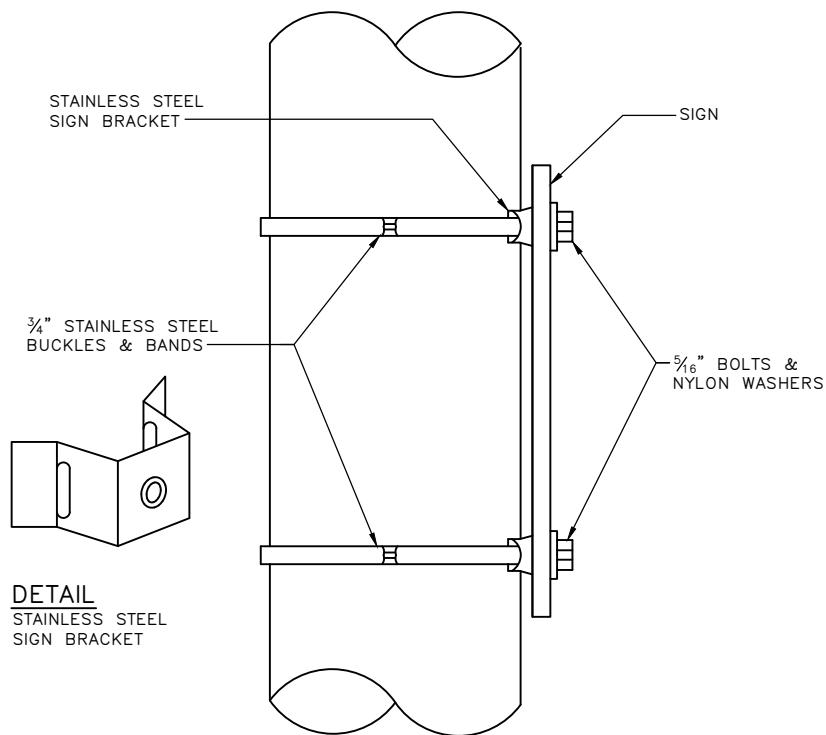
REF STD SPEC SEC 8-21



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OVERHEAD SIGNS  
SPANWIRE MOUNTED

SIGN MOUNTING ON MAST ARMTEMPORARY SIGN MOUNTING ON METAL POLENOTES:

1. EXCEPT AS NOTED OTHERWISE, ALL HARDWARE MUST BE STAINLESS STEEL.
2. MOUNTING OF TRAFFIC SIGNS MUST BE AS FOLLOWS: ON METAL POLE THINNER THAN 7 GAUGE, USE 3/8" STAINLESS STEEL RIVNUTS ON METAL POLES 7 GAUGE OR THICKER, FOR 3/8" BOLT (STAINLESS STEEL RIVNUT OPTIONAL) ON POLES FILLED WITH OR MADE FROM CONCRETE, USE 3/8"X21/2"MIN STUD BOLT ANCHORS WITH HEX NUT.
3. FOR SIGN FEATURE, CONTACT TRAFFIC ENGINEER.

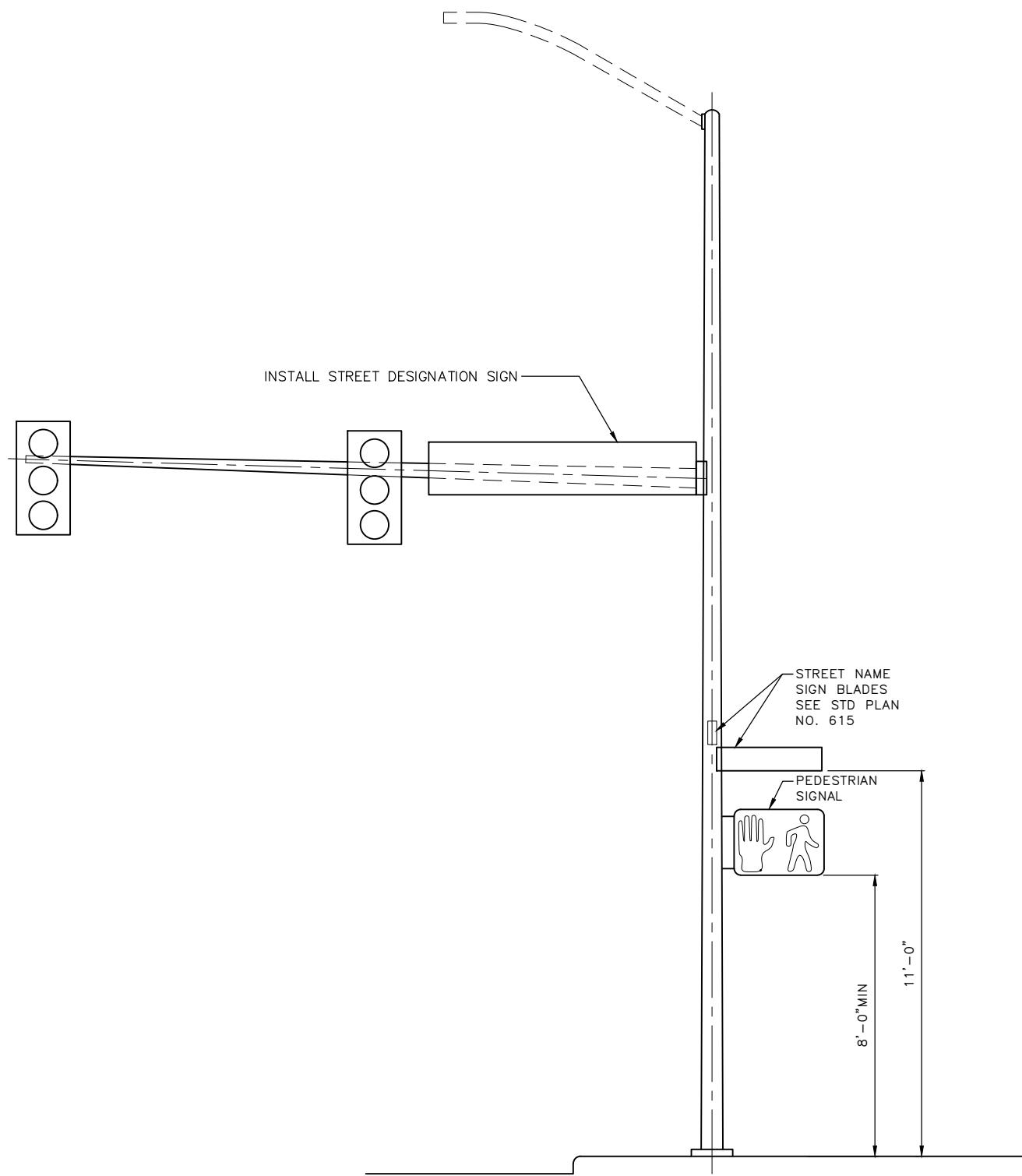
REF STD SPEC SEC 8-21



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SIGN INSTALLATION  
(NON-SPANWIRE MOUNTING)



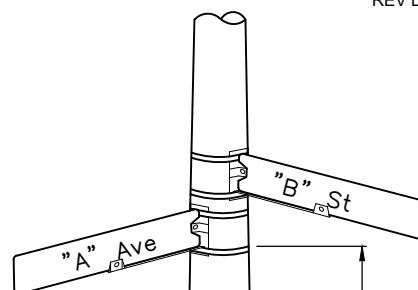
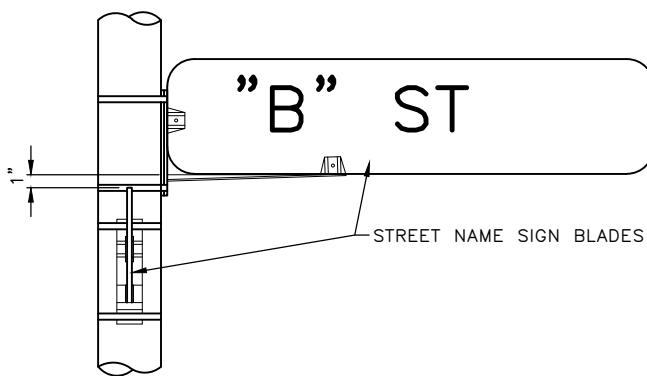
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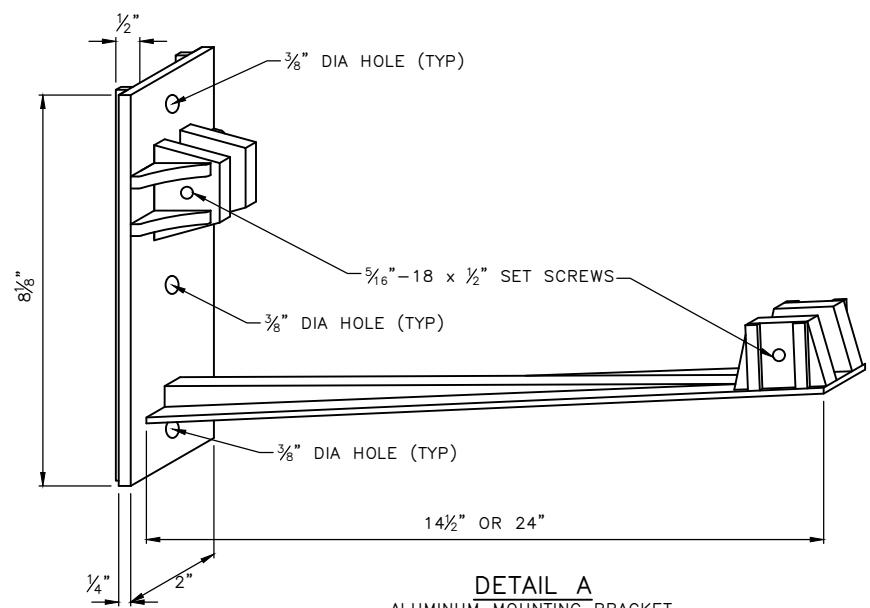
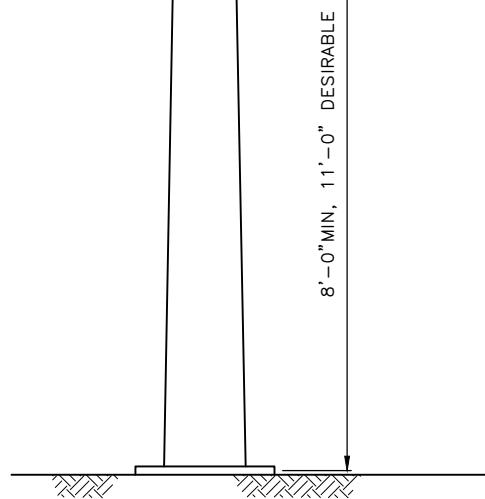
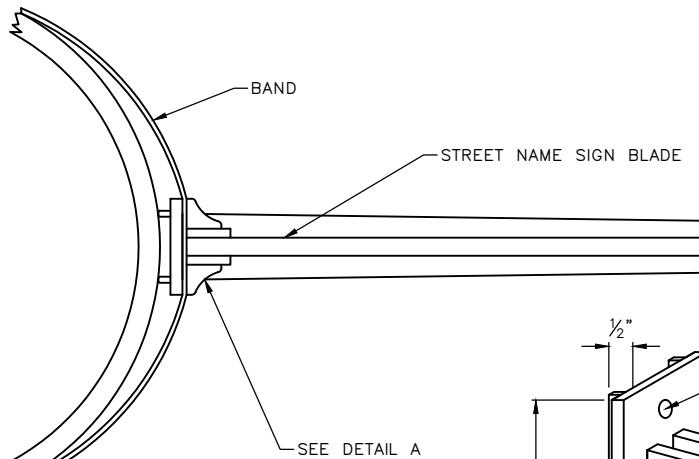
NOT TO SCALE

STANDARD SIGN INSTALLATION  
STEEL POLES



## NOTES:

1. STAGGER SNS BLADES WITH THE "AVENUE" DESIGNATION BLADE BELOW THE "STREET" DESIGNATION BLADE
2. SNS MUST BE INSTALLED PARALLEL TO CORRESPONDING STREET
3. ALL NUTS, BOLTS & WASHERS TO BE STAINLESS STEEL EXCEPT ALUMINUM RIV NUTS ON ALUMINUM POLES.

DETAIL A  
ALUMINUM MOUNTING BRACKET

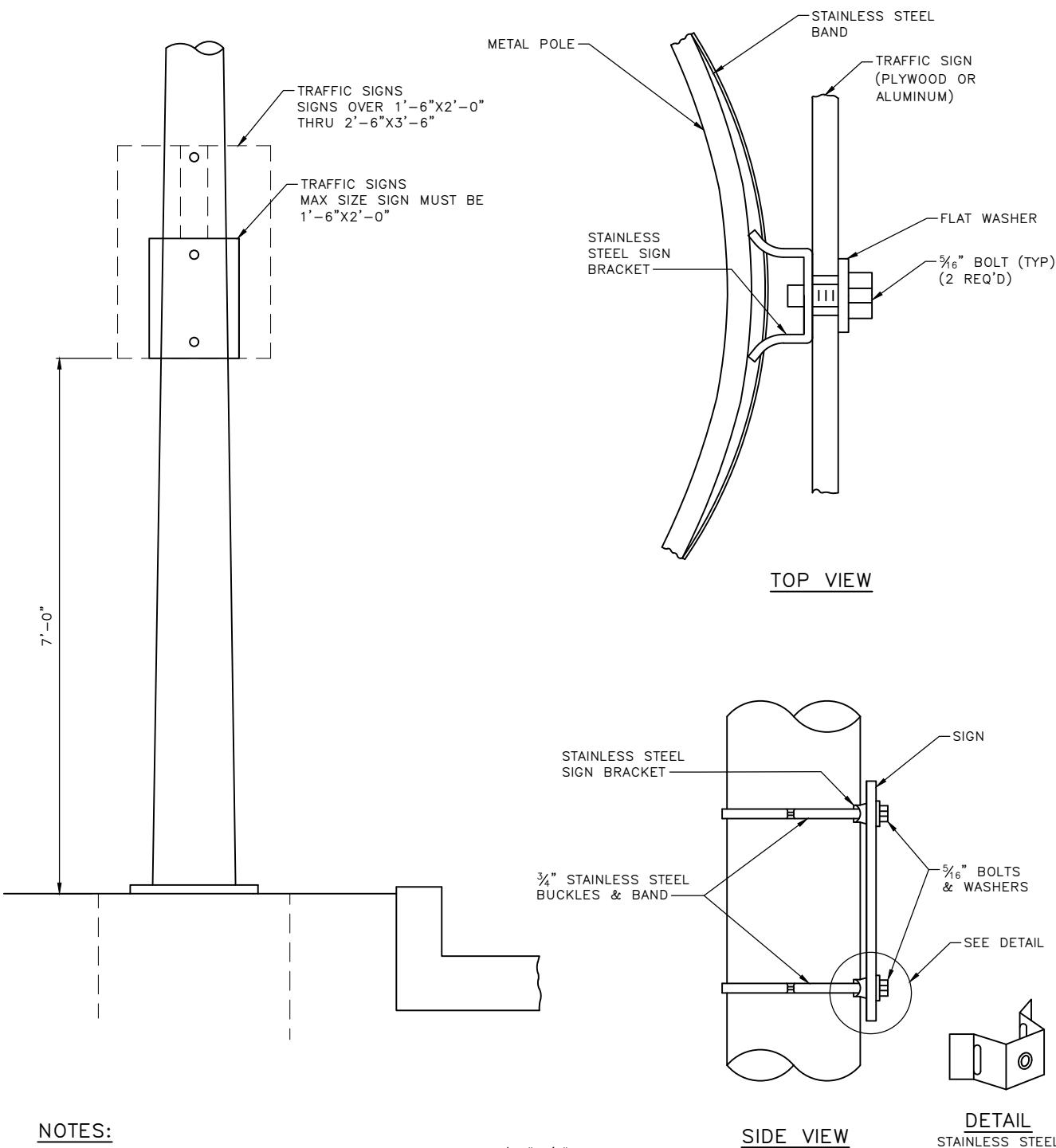
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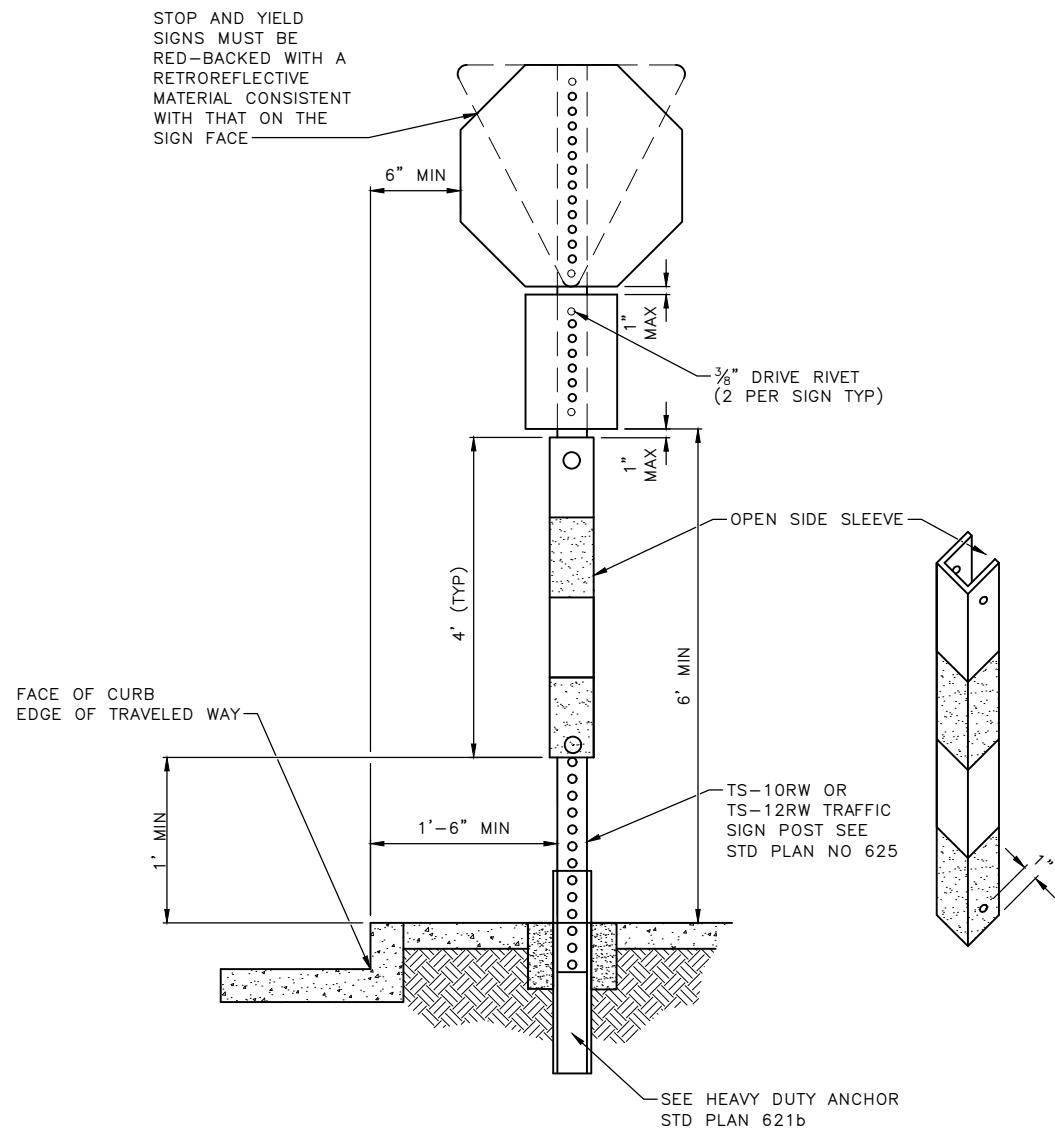


City of Seattle

NOT TO SCALE

SNS BRACKET FOR  
STEEL POLES





#### POST ANCHOR INSTALLATIONS

##### NOTE:

1. CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION (684-5087) FOR DETAILS REGARDING SIGN MESSAGE AND FOUNDATION.
2. STEEL SELF-TAPPING #10 X  $\frac{1}{2}$ " WITH HEX WASHER HEAD ZINC PLATED
3. RED AND WHITE SLEEVE
4. SEE STANDARD 621a FOR OTHER WARNING & REGULATORY SIGN POST

REF STD SPEC SEC 8-21



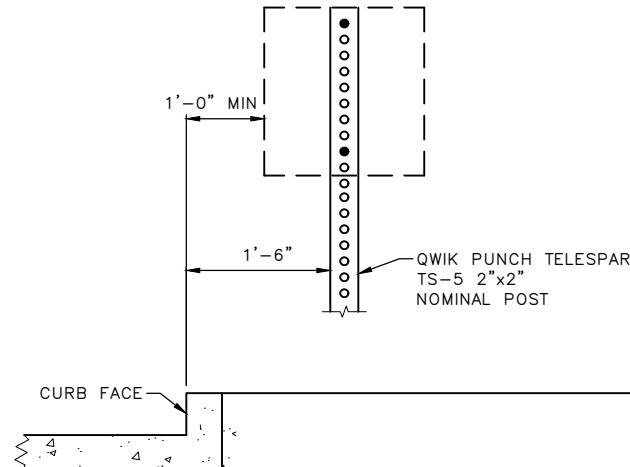
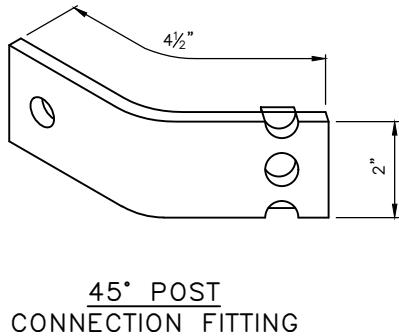
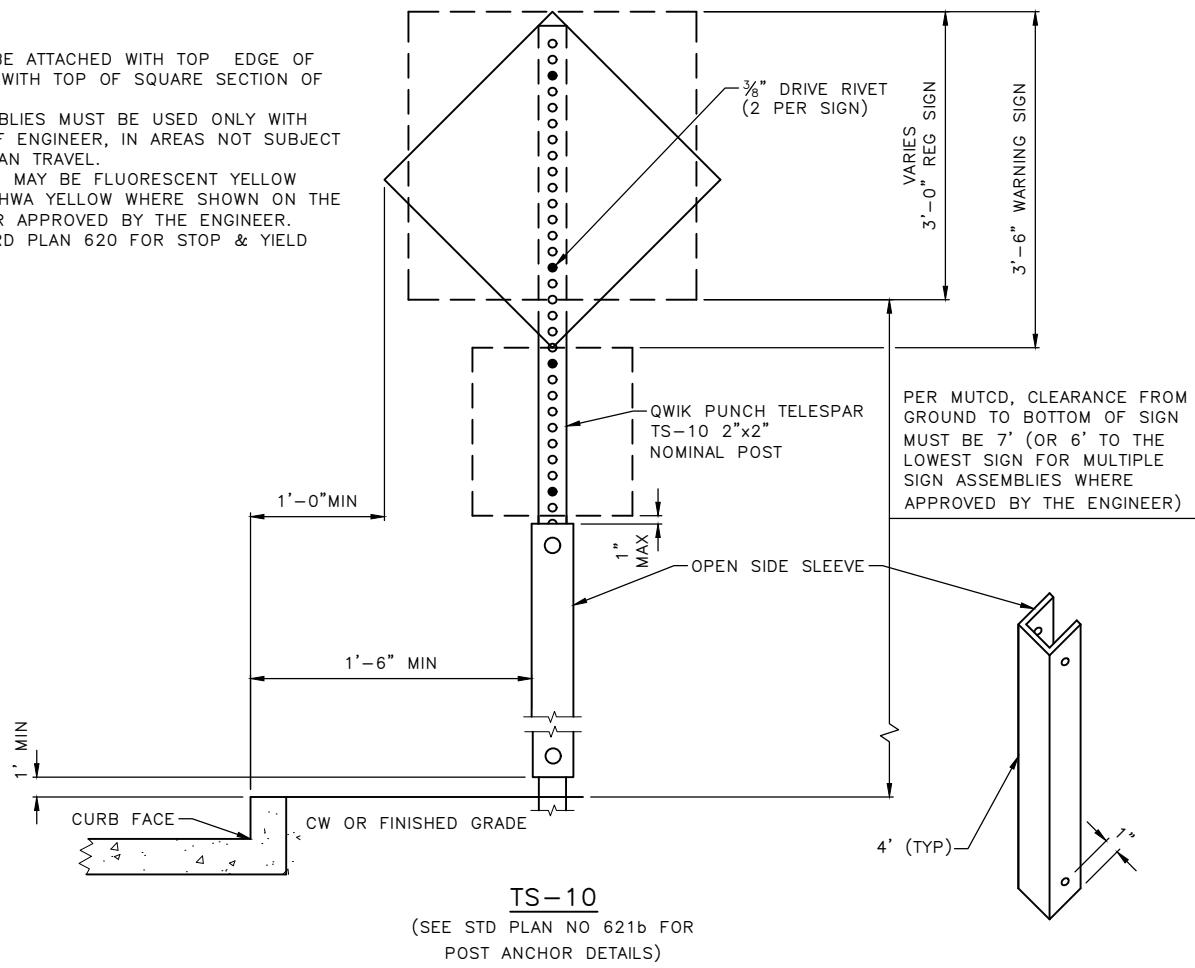
City of Seattle

NOT TO SCALE

STOP AND YIELD SIGN POST  
AND ANCHOR INSTALLATION

**NOTES:**

1. SIGN MUST BE ATTACHED WITH TOP EDGE OF SIGN FLUSH WITH TOP OF SQUARE SECTION OF POST.
2. TS-5 ASSEMBLIES MUST BE USED ONLY WITH APPROVAL OF ENGINEER, IN AREAS NOT SUBJECT TO PEDESTRIAN TRAVEL.
3. POST SLEEVE MAY BE FLUORESCENT YELLOW GREEN OR FHWA YELLOW WHERE SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.
4. SEE STANDARD PLAN 620 FOR STOP & YIELD SIGN POST.



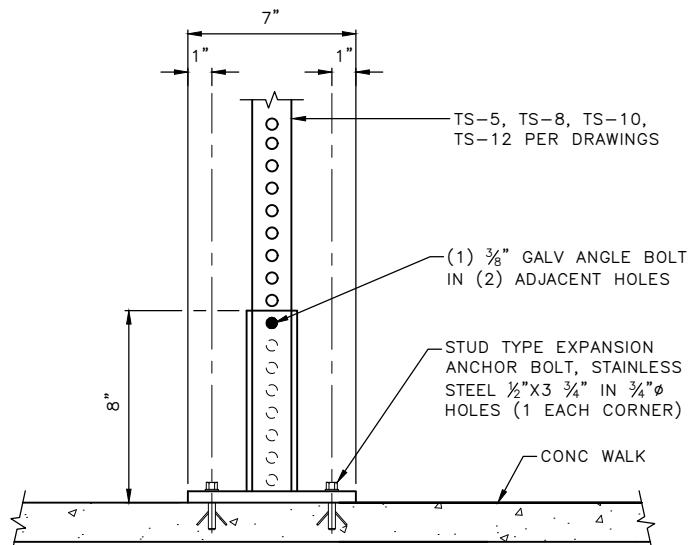
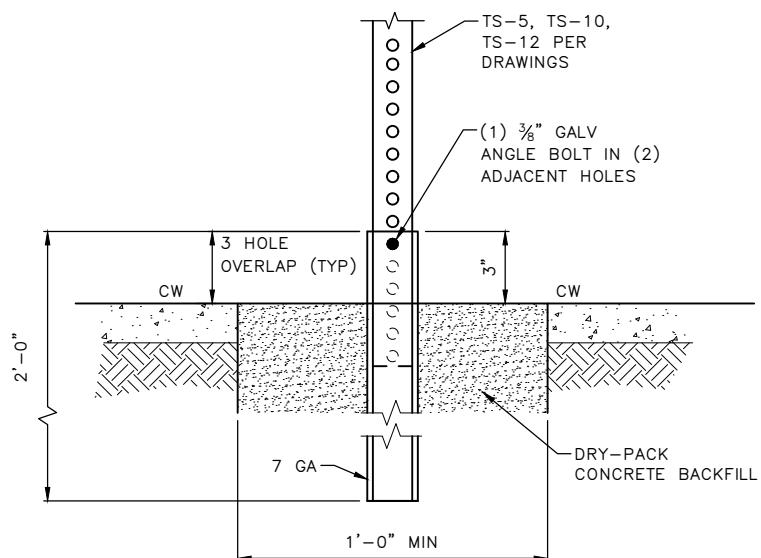
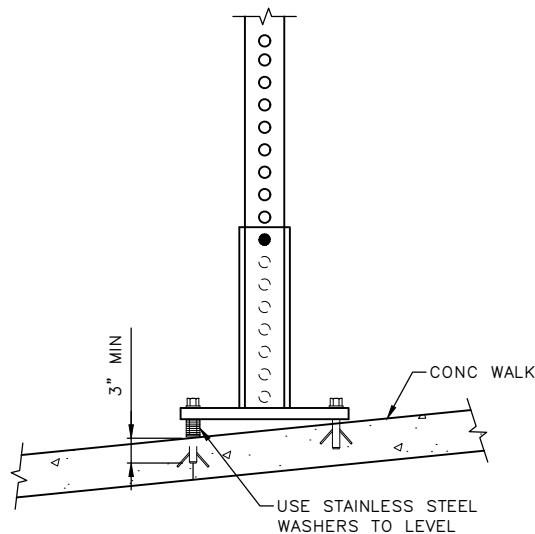
REF STD SPEC SEC 8-21



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WARNING AND REGULATORY  
SIGN POST

SURFACE MOUNTHEAVY DUTY ANCHOR**NOTES:**

1. FOR UNLEVEL SIDEWALKS INSERT WASHERS AS SPACERS BETWEEN PLATE AND SIDEWALK. IF BOLT CANNOT PENETRATE SIDEWALK AT LEAST 3", CONTACT THE ENGINEER.
2. USE CONCRETE FOOTINGS FOR ALL SIGNS LARGER THAN 96 SQUARE INCHES.

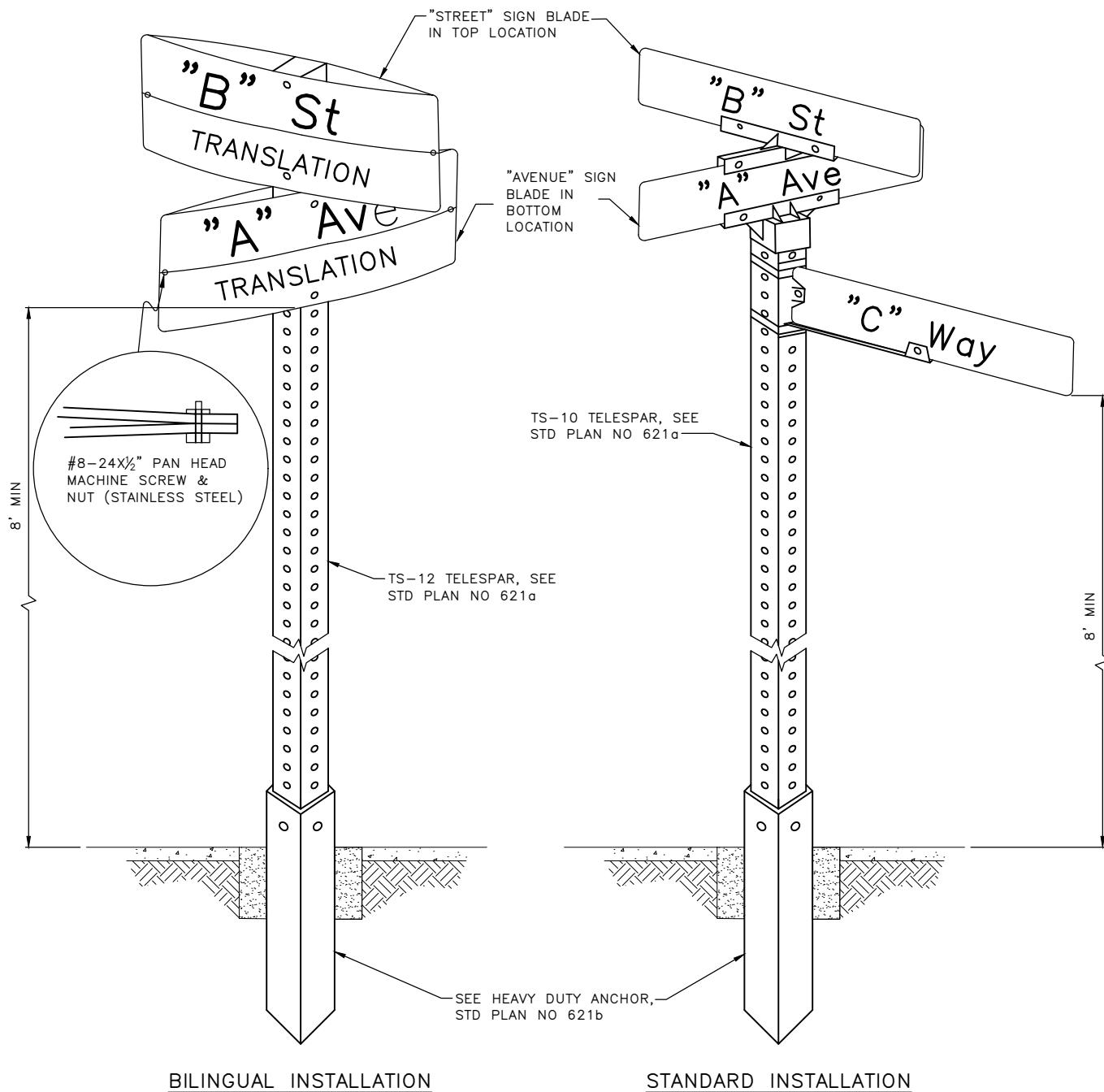
REF STD SPEC SEC 8-21



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**WARNING AND REGULATORY  
SIGN POST ANCHOR  
INSTALLATIONS**

NOTES:

1. SNS BLADE MUST BE INSTALLED PARALLEL TO CORRESPONDING STREET
2. INSTALLATION OF SNS ON ANY OTHER METAL POLE MUST REQUIRE REVIEW AND APPROVAL BY THE ENGINEER
3. SNS/SP RELOCATION: OLD CONCRETE MUST BE REMOVED AND NEW CONCRETE BASE MUST BE CONSTRUCTED
4. ALL STREET NAME SIGNS WILL BE FURNISHED BY THE CITY OF SEATTLE AT PROJECT OR PERMITTEE'S EXPENSE

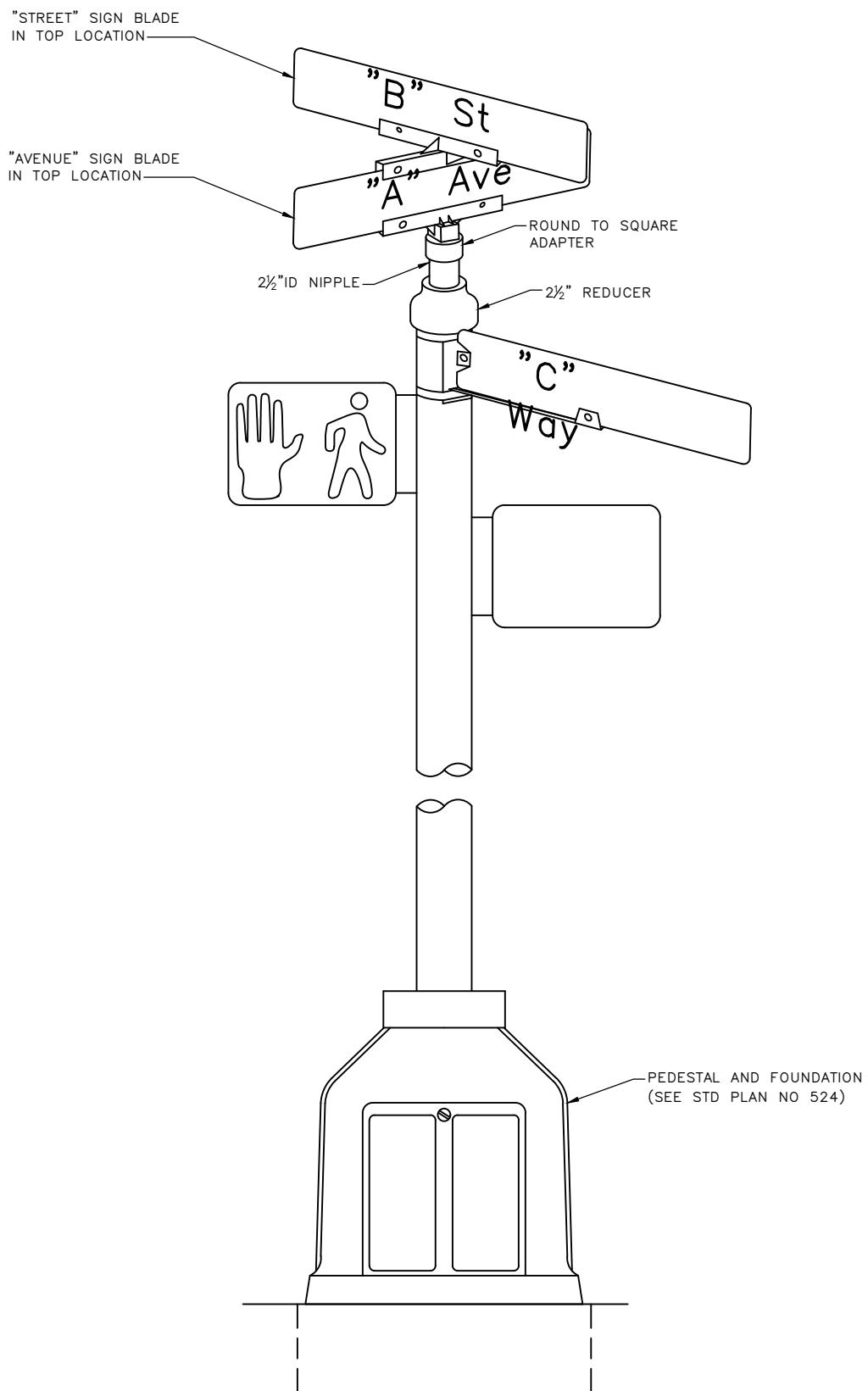
REF STD SPEC SEC 8-21



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STREET NAME SIGN  
INSTALLATION



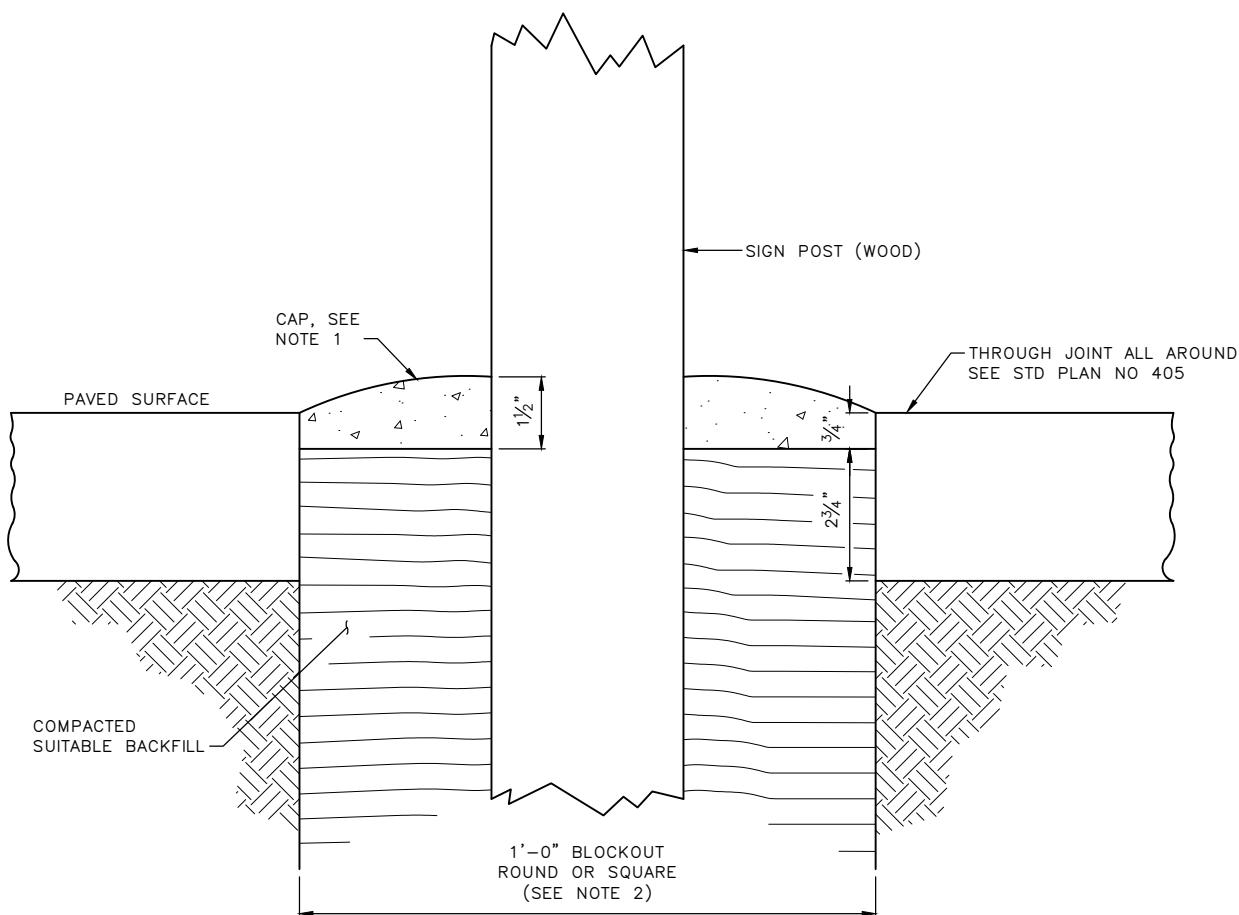
REF STD SPEC SEC 8-21



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STREET NAME SIGN  
PEDESTAL INSTALLATION

**NOTES:**

1. CAP MUST BE MADE OF THE SAME MATERIAL AS THE SURROUNDING PAVED SURFACE AND MUST BE MOUNDED FOR DRAINAGE AWAY FROM POST.
2. BLOCKOUTS MUST BE PROVIDED FOR POST LOCATIONS WHERE NEW CONCRETE PAVEMENT (SIDEWALK, ROADWAY, ETC) IS BEING INSTALLED.
3. WHERE POST IS BEING INSTALLED IN EXISTING PAVED AREAS, HOLE IN PAVED SURFACE MUST NOT EXCEED 1'-0" NOMINAL DIAMETER.

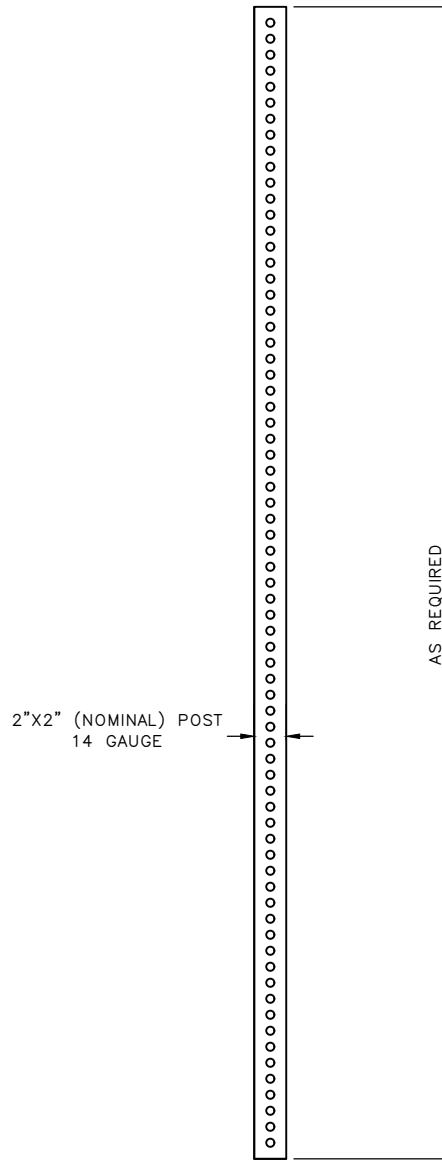
REF STD SPEC SEC 8-21



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NOT TO SCALE

POST CAP



PERFORATED TELESPAR STANDARD SIGN POST  
(TS-5, TS-10, TS-12)(SEE NOTE 2)

NOTES:

1. SEE STD PLANS NO 620 & 621.
2. SUFFIXES ATTACHED TO TELESPAR NAME DESIGNATIONS INDICATE SLEEVE TYPES: RW-RED/WHITE, FYG-FLOURESCENT YELLOW GREEN, Y-FHWA YELLOW.

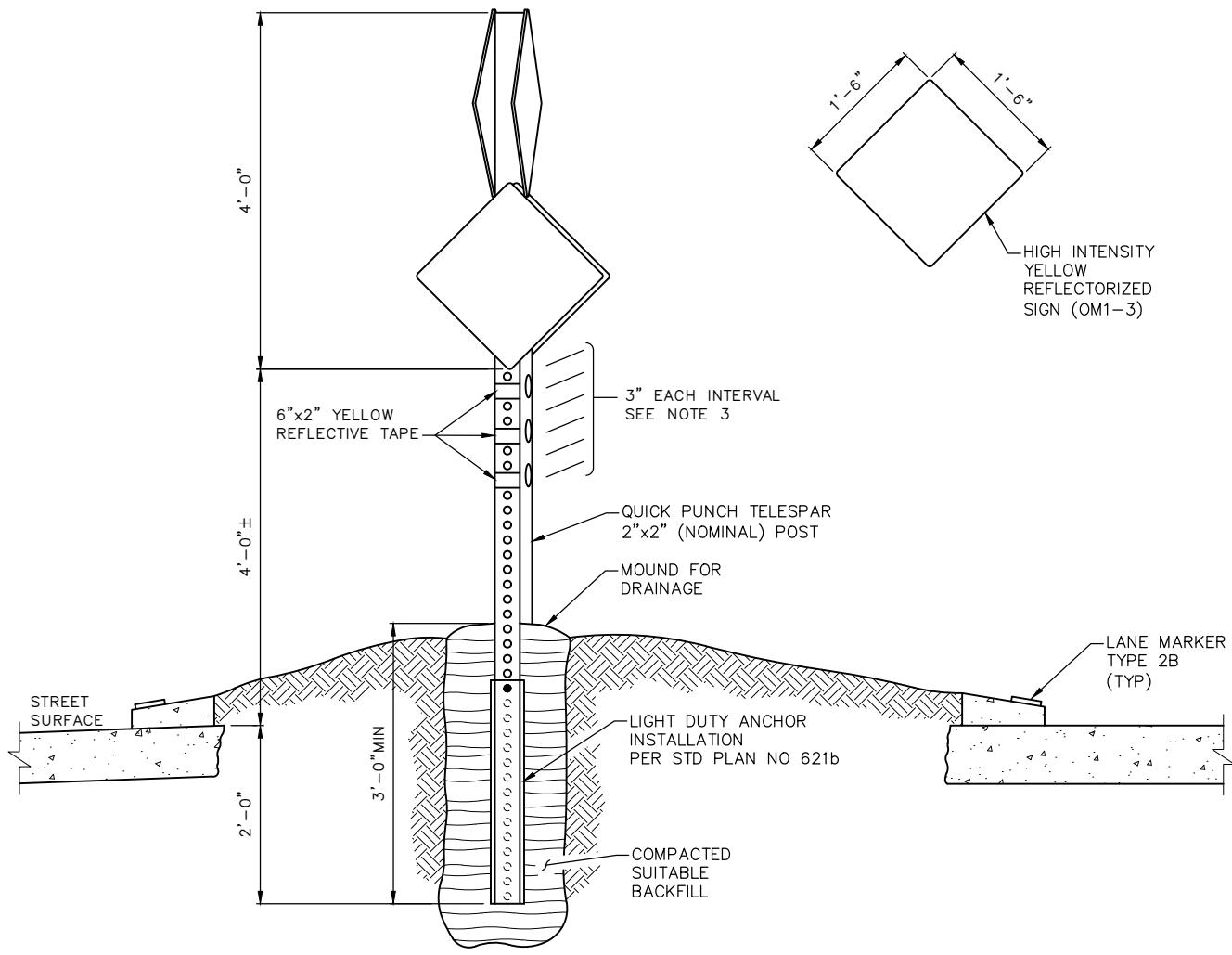
REF STD SPEC SEC 8-21



City of Seattle

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TRAFFIC SIGN POSTS

**NOTES:**

1. IN THE CASE WHERE ALL APPROACHES OF THE INTERSECTION ARE PRIMARY AT THE SAME LEVEL WITH RESPECT TO GRADES (LESS THAN 3%) THE LOWER SET OF SIGNS MUST FACE THE HIGHER TRAFFIC VOLUME STREET
2. IN THE CASE WHERE AN APPROACH HAS A GRADE LARGER THAN 3% THE HIGHER SIGNS WILL FACE THE STEEPEST APPROACH TO ALLOW BETTER SIGHT DISTANCE
3. PLACE A MINIMUM OF THREE (3) REFLECTORS ON EACH AND EVERY SIDE OF POST OR PLACE THREE (3) HIGH INTENSITY REFLECTORIZED STRIPS COMPLETELY AROUND POST

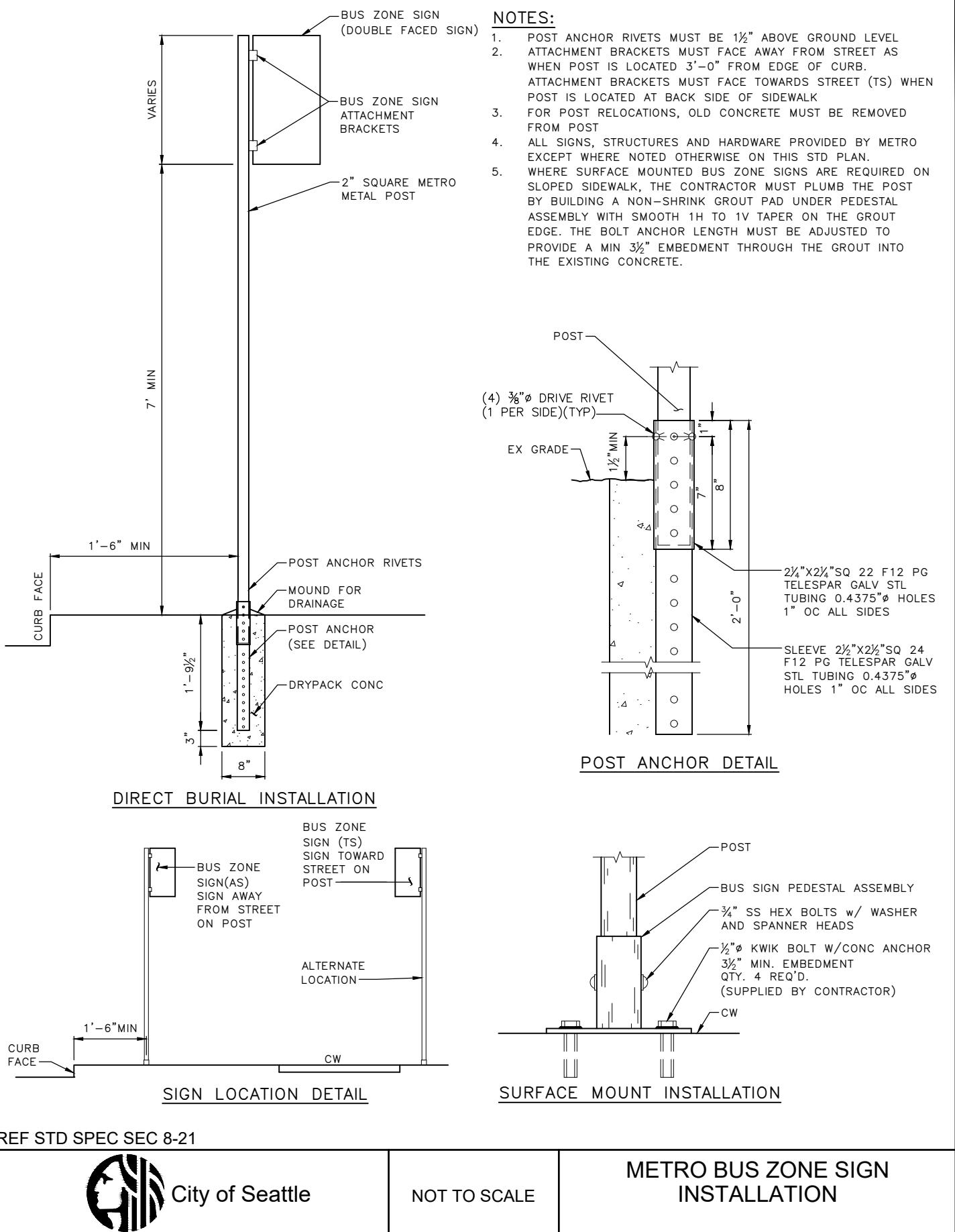
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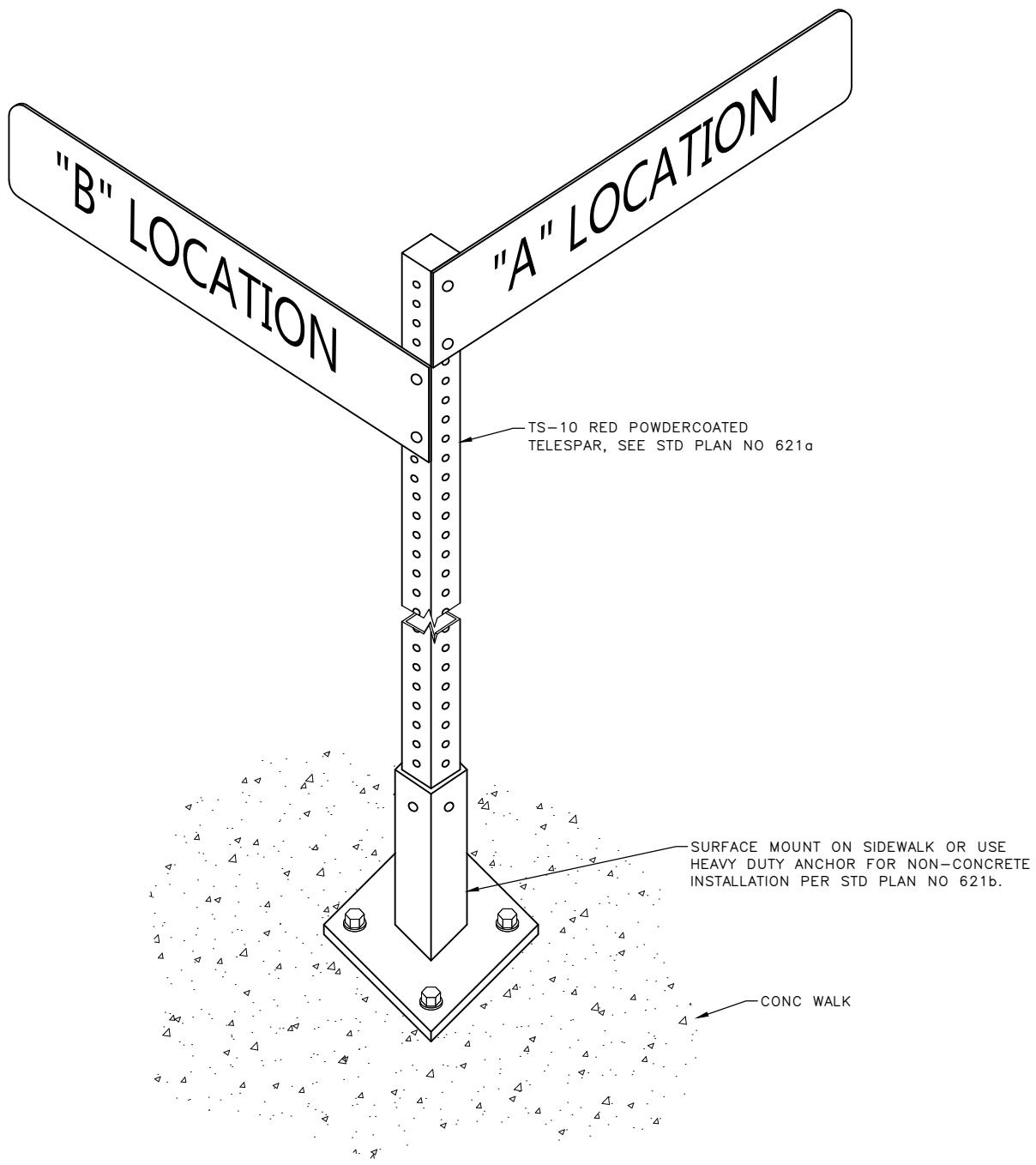


City of Seattle

NOT TO SCALE

OBJECT MARKER INSTALLATION  
IN TRAFFIC CIRCLE



**NOTES:**

1. WAYFINDING BLADE MUST BE INSTALLED POINTING IN THE DIRECTION OF THE LOCATION ON BLADE.
2. CITY OF SEATTLE WILL FABRICATE WAYFINDING SIGNS. CONTRACTOR MUST SUPPLY MOUNTING HARDWARE AND INSTALL SIGNS.
3. MAINTAIN 8 FEET MINIMUM OF VERTICAL CLEARANCE FROM CONCRETE WALK TO THE BOTTOM OF PEDESTRIAN WAYFINDING BLADES.

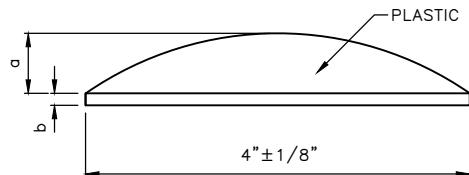
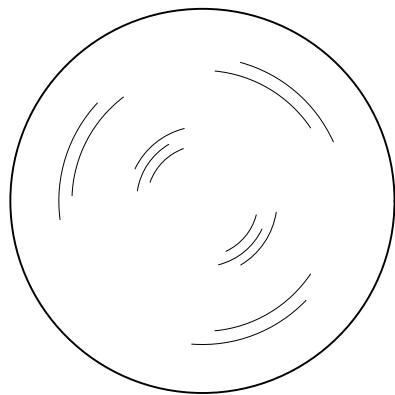
REF STD SPEC SEC 8-21



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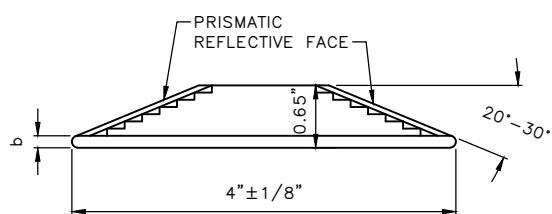
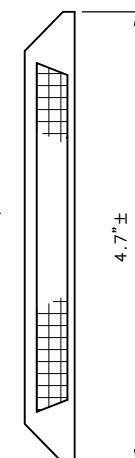
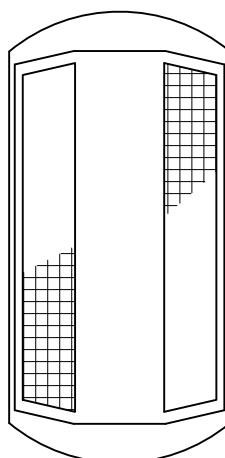
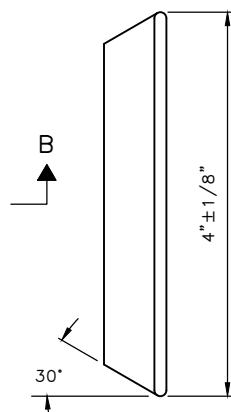
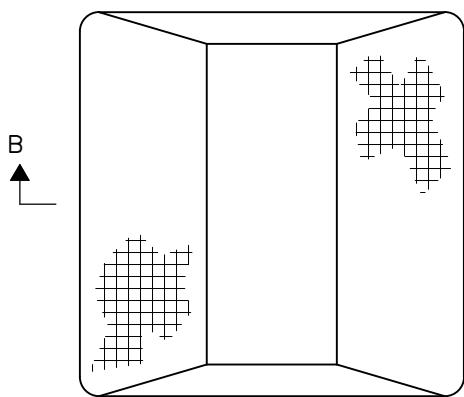
PEDESTRIAN  
WAYFINDING SIGN



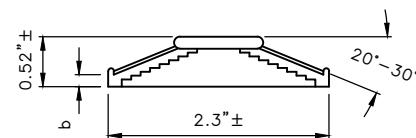
LANE MARKER - TYPE 1

$a=5/8'' \pm 1/8''$   
 $b=1/8'' \pm 1/16''$

DIRECTION OF TRAFFIC



SECTION B-B

LANE MARKER - TYPE 2A  
4" PRISMATIC REFLECTIVE MARKER

SECTION C-C

LANE MARKER - TYPE 2B

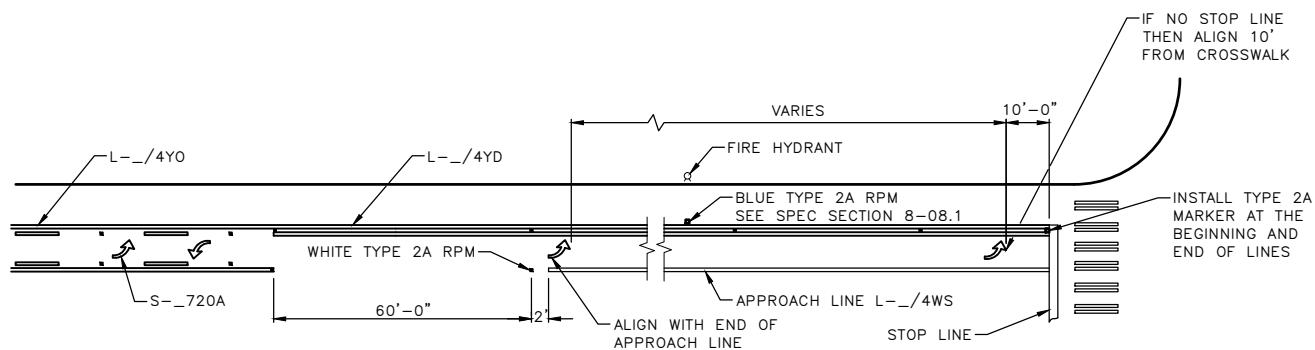
REF STD SPEC SEC 8-08



City of Seattle

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TRAFFIC BUTTONS &  
LANE MARKERS



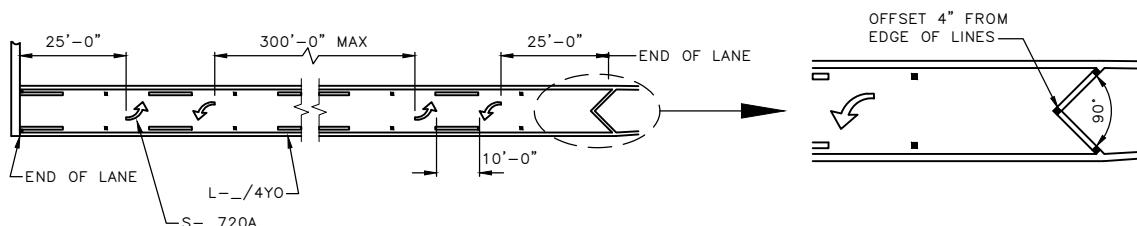
#### TYPICAL TURN LANE CHANNELIZATION

NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF APPROACH LINES

APPROACH LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET AT X-WALK END OF POCKET
50 FEET TO 120 FEET	2 SETS
125 FEET TO 300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS)
OVER 300 FEET	ADDITIONAL SETS SPACED AT APPROX 100 FT INTERVALS BETWEEN FIRST AND LAST SETS

**NOTES:**

LEFT TURN LANE LAYOUT SHOWN ABOVE. SAME LAYOUT APPLIES FOR OTHER TURN LANES.



#### TYPICAL TWO WAY LEFT TURN LANE CHANNELIZATION

NUMBER OF LEGEND SETS REQUIRED BASED ON THE LENGTH OF TYPICAL TWO WAY LEFT TURN LANES

APPROACH LENGTH	LEGEND SETS
LESS THAN 50 FEET	1 SET AT X-WALK END OF POCKET
50 FEET TO 300 FEET	2 SETS
OVER 300 FEET	3 SETS (SECOND LEGEND LOCATED MIDWAY BETWEEN FIRST AND LAST LEGENDS) ADDITIONAL SETS SPACED AT APPROX 300 FT INTERVALS

**NOTE:**

LINE CALLOUTS ARE IDENTIFIED & DESCRIBED IN STD SPEC SEC 8-22.

REF STD SPEC SEC 8-22

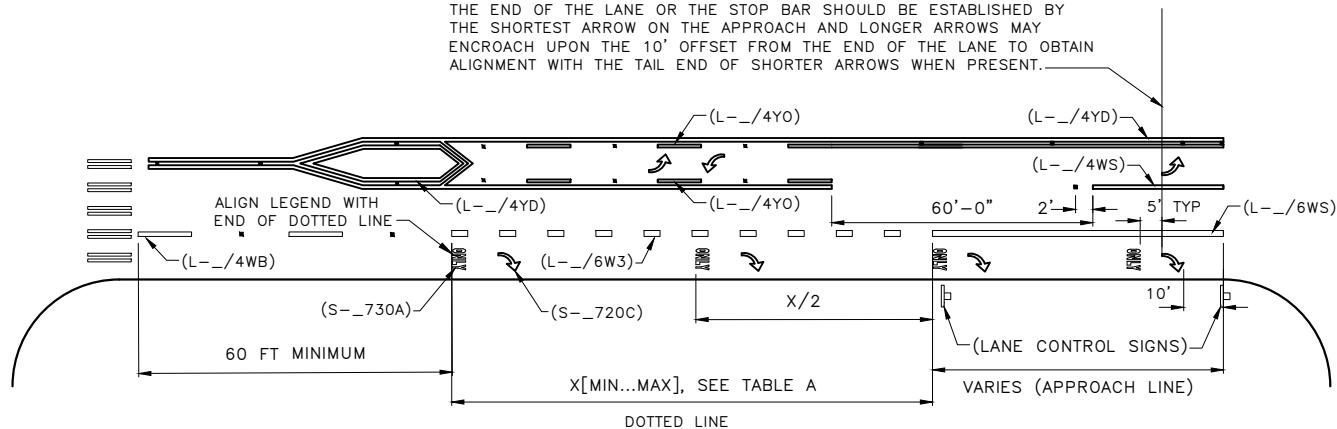


City of Seattle

NOT TO SCALE

TYPICAL TURN LANE  
CHANNELIZATION AND  
LEGEND PLACEMENT

ALIGN TAILS OF APPROACH LANE ARROWS. NOTE: THE 10' OFFSET FROM THE END OF THE LANE OR THE STOP BAR SHOULD BE ESTABLISHED BY THE SHORTEST ARROW ON THE APPROACH AND LONGER ARROWS MAY ENCROACH UPON THE 10' OFFSET FROM THE END OF THE LANE TO OBTAIN ALIGNMENT WITH THE TAIL END OF SHORTER ARROWS WHEN PRESENT.



**NOTE:**

LEGENDS, SYMBOLS & ARROWS MUST BE CENTERED WITHIN THE LANE TO WHICH THEY APPLY, AS SHOWN.

TABLE A

POSTED OR 85TH-PERCENTILE SPEED	X	
	MAX	MIN
MUTCD TABLE 2C-4 CONDITION A		MERGING TAPER
20 MPH	225 FT	75 FT
25 MPH	325 FT	115 FT
30 MPH	460 FT	165 FT
35 MPH	565 FT	225 FT
40 MPH	670 FT	295 FT
45 MPH	775 FT	375 FT

TYPICAL LEGEND AND SYMBOL INSTALLATION DETAILS

LINE LENGTH	LEGEND SETS	
	WITHIN APPROACH LINE	WITHIN DOTTED LINE
LESS THAN 50 FEET	APPROACH LINE (1 TOTAL)	NA
50 FEET TO 120 FEET	ADD 1 SET AT BEGINNING OF APPROACH LINE (2 TOTAL)	ADD 1 SET MIDWAY BETWEEN FIRST SET AND APPROACH LINE (2 TOTAL)
125 FEET TO 300 FEET	ADD 1 SET LOCATED MIDWAY BETWEEN FIRST AND LAST SETS (3 TOTAL)	ADD 1 SET, WITH EQUAL INTERVALS, BETWEEN FIRST SET AND APPROACH LINE (3 TOTAL)
OVER 300 FEET	ADD SETS SPACED AT APPROX. 100 FEET INTERVALS BETWEEN FIRST AND LAST SETS	

**NOTE:**

- SEE MUTCD SECTION 2B.20 FOR GUIDANCE ON SIGNS.
- MANDATORY MOVEMENT LANE CONTROL SIGNS MUST BE PAIRED WITH LEGENDS PLACED WITHIN THE APPROACH LINE

REF STD SPEC SEC 8-22

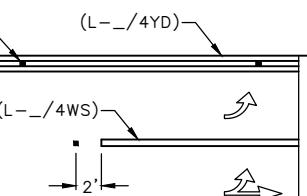


City of Seattle

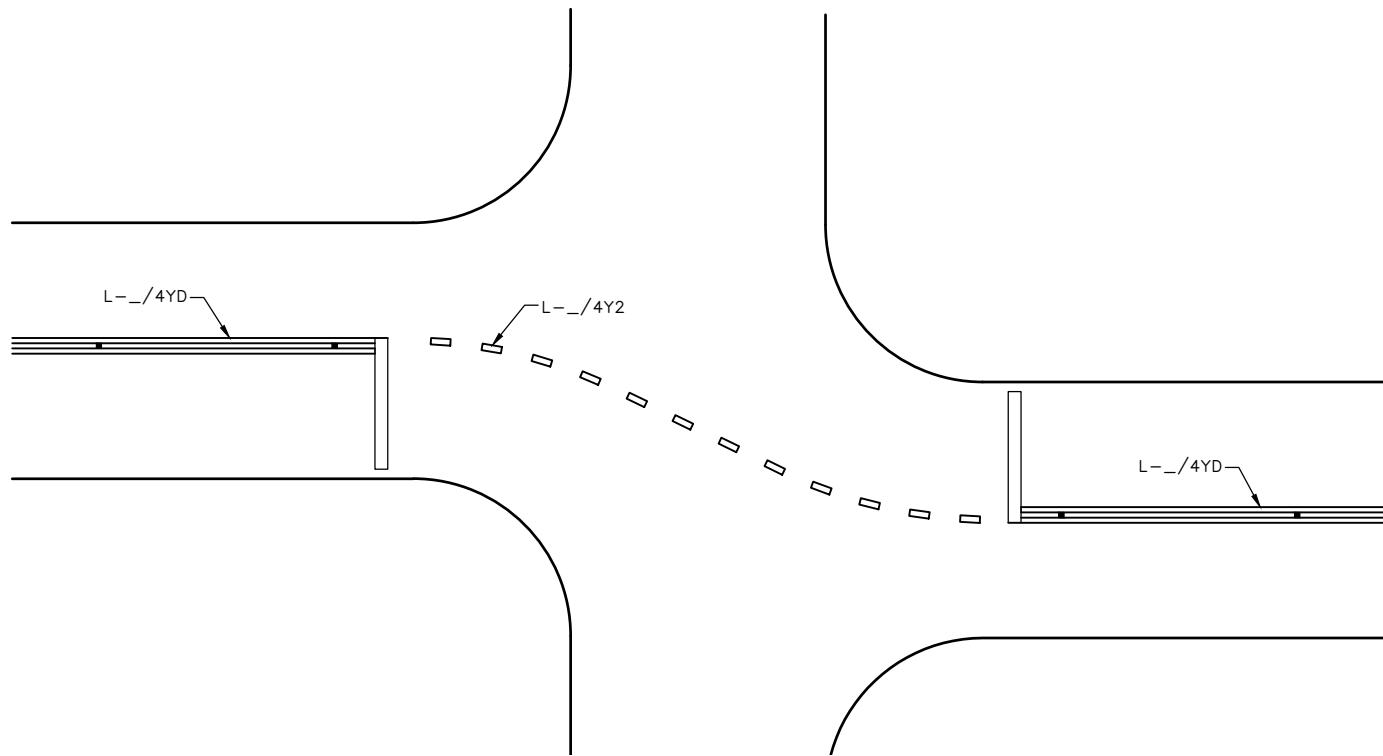
NOT TO SCALE

TYPICAL LANE DROP  
CHANNELIZATION AND  
LEGEND PLACEMENT

(TYP) INSTALL TYPE 2A  
LANE MARKERS IN  
BETWEEN 4" YELLOW LINES



DO NOT INSTALL LANE MARKERS  
WITHIN PEDESTRIAN CROSSWALK  
AREA (SEE STD PLAN NO 712)



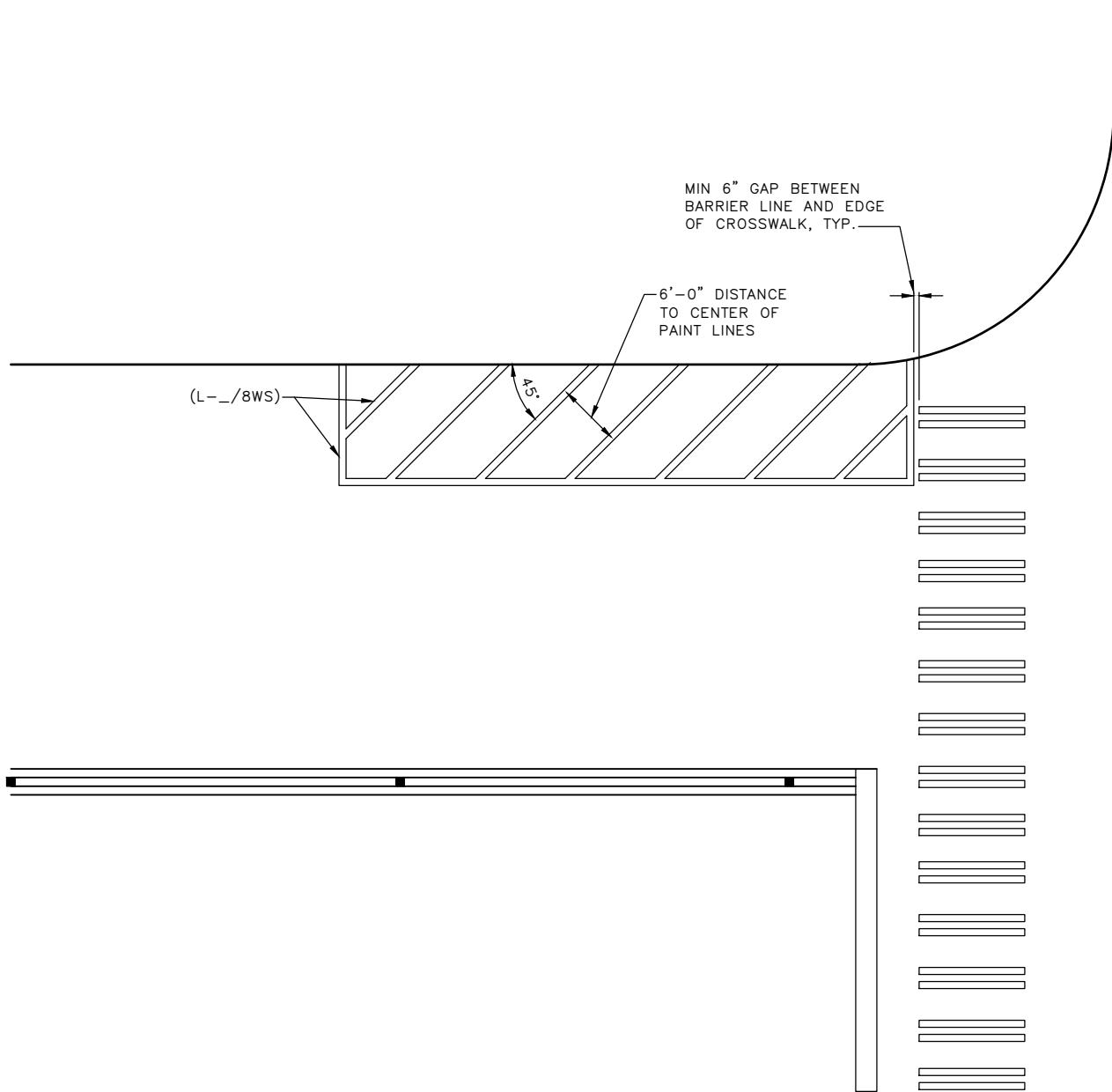
REF STD SPEC SEC 8-22



City of Seattle

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TYPICAL INTERSECTION  
GUIDELINE CHANNELIZATION



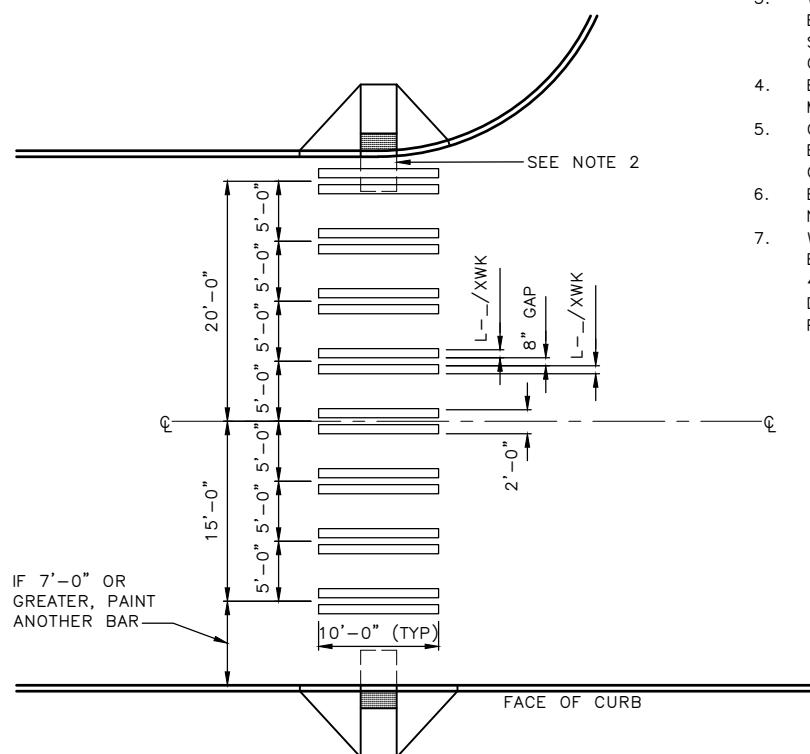
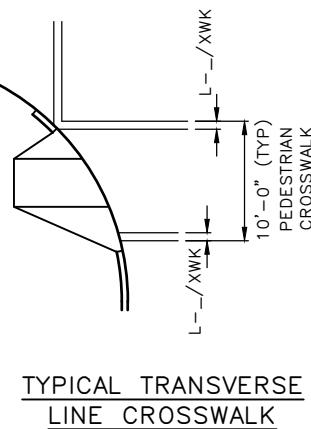
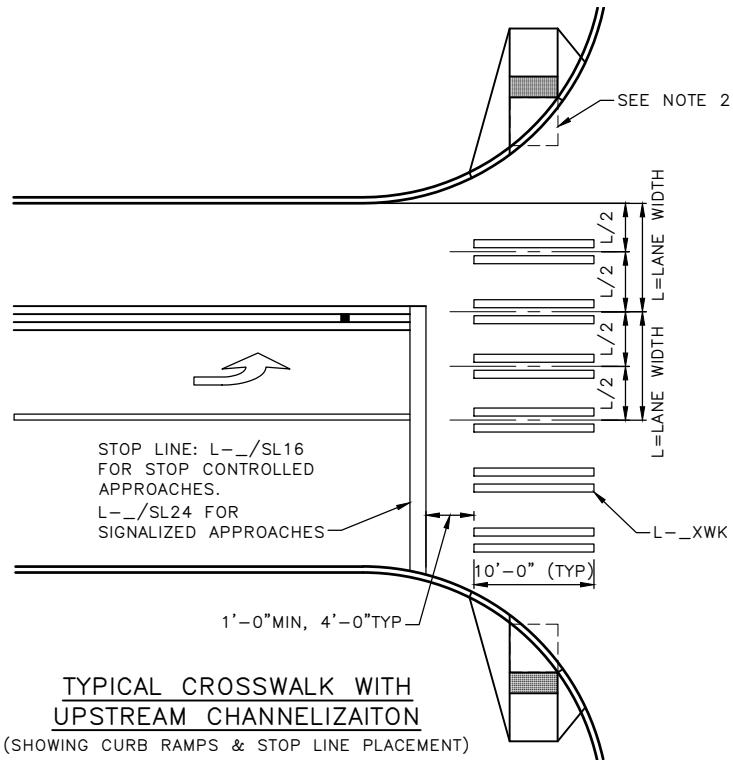
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

TYPICAL WHITE BARRIER  
AREA CHANNELIZATION



WHERE TRAFFIC LANE LINES ARE NOT USED, LADDER BARS MUST BE 5'-0" CENTER TO CENTER, BEGINNING AT THE MARKED CENTERLINE OF THE ROADWAY

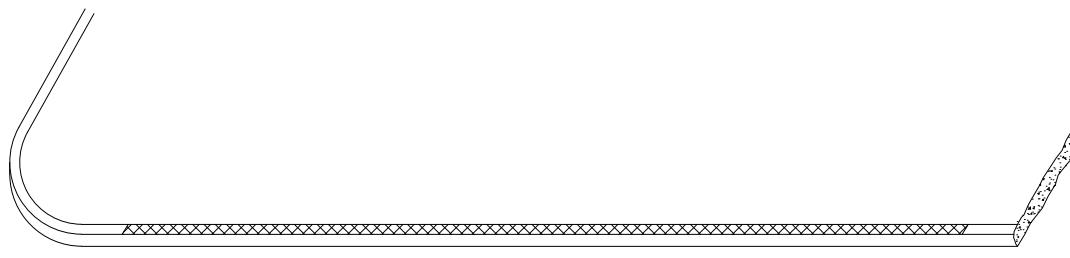
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NOT TO SCALE

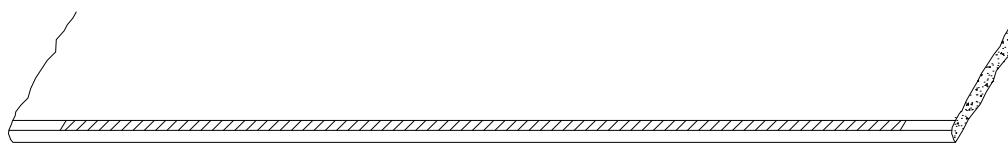
**TYPICAL CROSSWALK & STOP LINE INSTALLATION DETAILS**



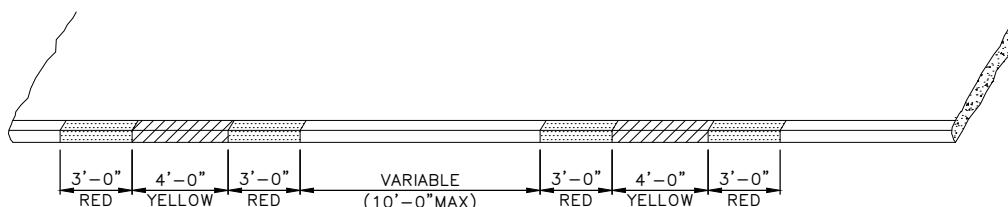
C-\_\_/W  
PASSENGER LOAD ZONE, ETC  
(WHITE)



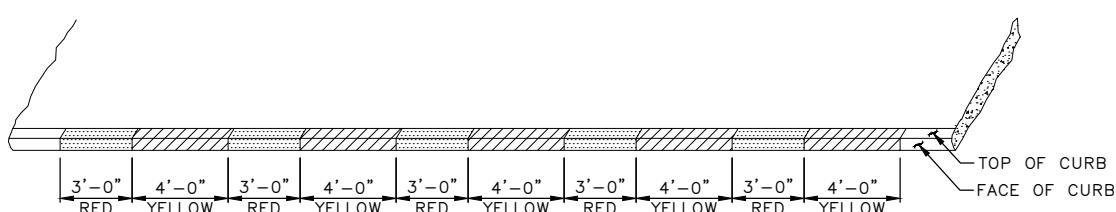
C-\_\_/R  
TOW-AWAY ZONE  
(RED)



C-\_\_/Y  
COMMERCIAL LOAD, TRUCK LOAD, LOAD & UNLOAD ZONE, ETC  
(YELLOW)



C-\_\_/BUS  
BUS ZONE (NON PARKING METERED AREAS)  
BUS ZONES ARE PAINTED ON TOP & FACE OF CURB



C-\_\_/BUSB  
BUS ZONE (PARKING METERED AREAS)  
BUS ZONES ARE PAINTED ON TOP & FACE OF CURB

NOTES:

1. TOTAL LENGTH OF CURB MARKINGS MUST BE AS SHOWN ON DRAWINGS
2. PAINT MUST BE APPLIED NEATLY ON THE CURB AND ALL PAINT SMEARS ON ADJACENT SURFACES MUST BE REMOVED

REF STD SPEC SEC 8-22

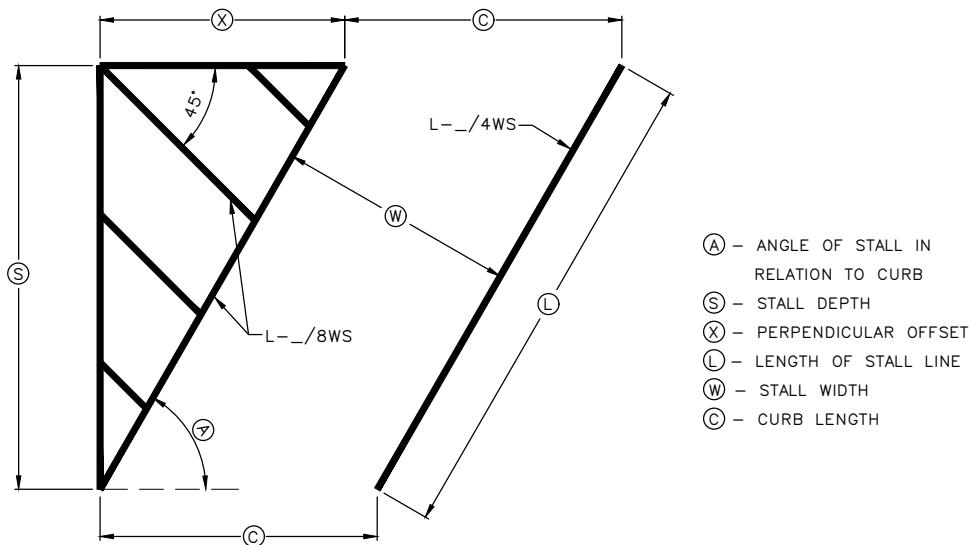


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CURB MARKING DETAILS

A	S	X	L	W	C	A	S	X	L	W	C
45°	15'	15'	21.21'	8.5'	12.02'	60°	15'	8.66'	17.32'	8.5'	9.81'
	15'	15'	21.30'	9.0'	12.75'		15'	8.5'	17.2'	9.0'	10.5'
	16'	16'	22.63'	9.0'	12.73'		16'	9.24'	18.48'	9.0'	10.39'
	17'	17'	24.04'	9.5'	13.44'		17'	9.81'	19.63'	9.5'	10.97'
	18'	18'	25.46'	10.0'	14.14'		18'	10.39'	20.78'	10.0'	11.55'



#### NOTES:

1. THE WIDTH OF THE TRAVEL LANE NEXT TO ANGLED PARKING SPACES MUST BE A MINIMUM OF 12'-6" FOR 45-DEGREE STALLS AND 17'-0" FOR 60-DEGREE STALLS.
2. BARRIER CROSSHATCH LINES MUST BE ALIGNED AS SHOWN, INTERSECTING THE EDGE OF THE PARKING LANE AT 45-DEGREES AND ANGLED AGAINST THE ANGLING OF THE PARKING SPACES

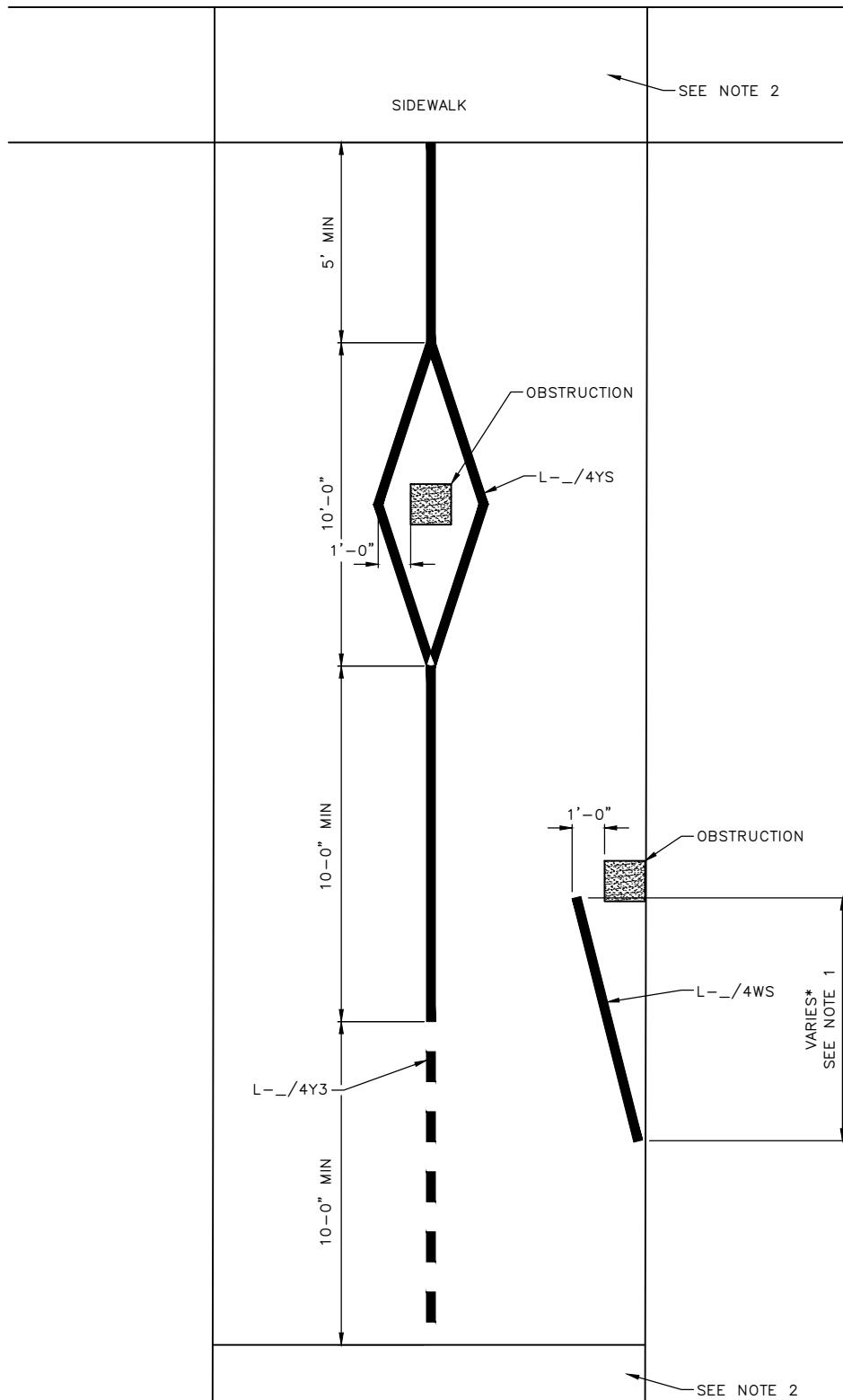
REF STD SPEC SEC 8-22



City of Seattle

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TYPICAL ANGLED PARKING  
STALL CHANNELIZATION

**NOTE:**

1. SEE 2009 MUTCD FIGURE 91-8 FOR TAPER FORMULA.
2. SEE STD PLAN NO'S 432a & 432b FOR MULTI-PURPOSE TRAIL DESIGN PLANS.

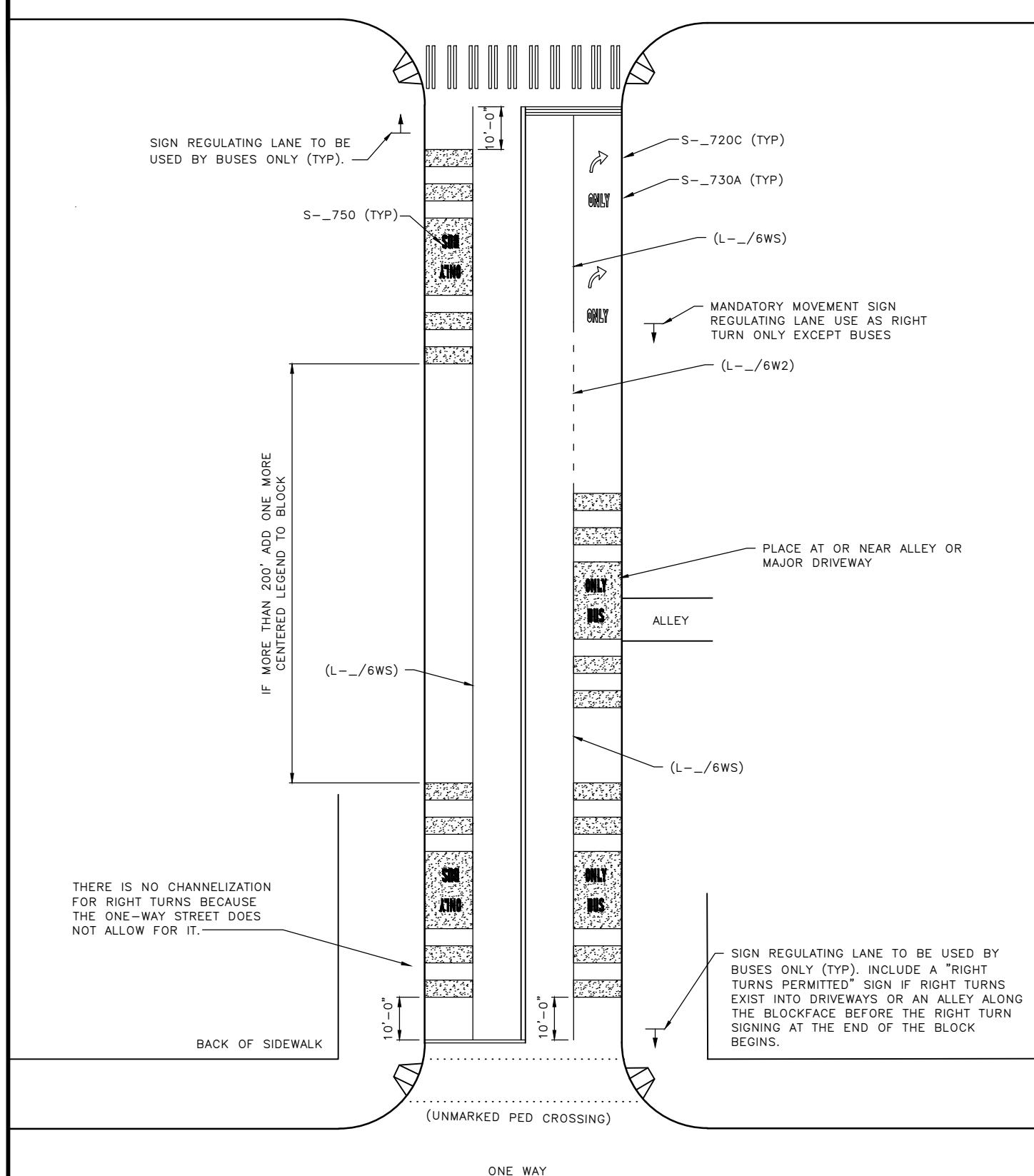
REF STD SPEC SEC 8-22



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TRAIL OBSTRUCTION  
CHANNELIZATION



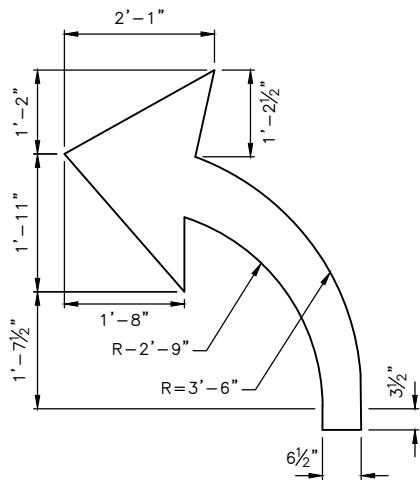
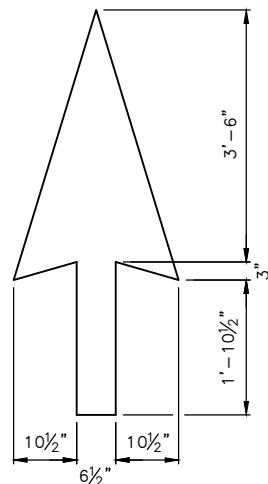
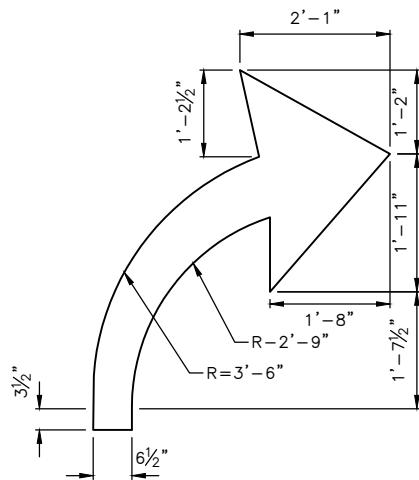
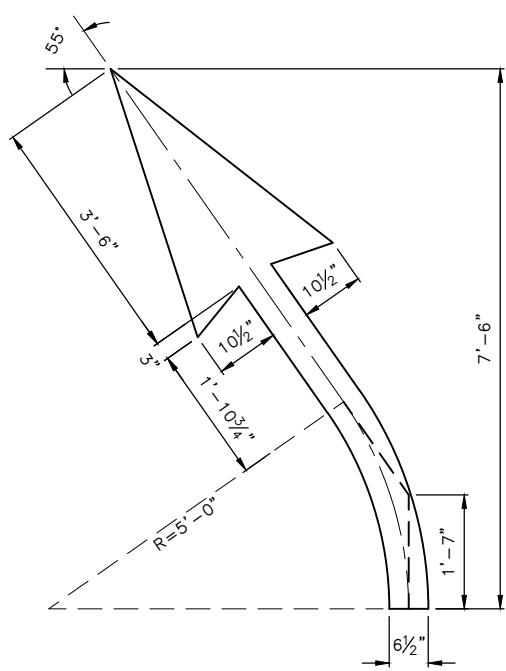
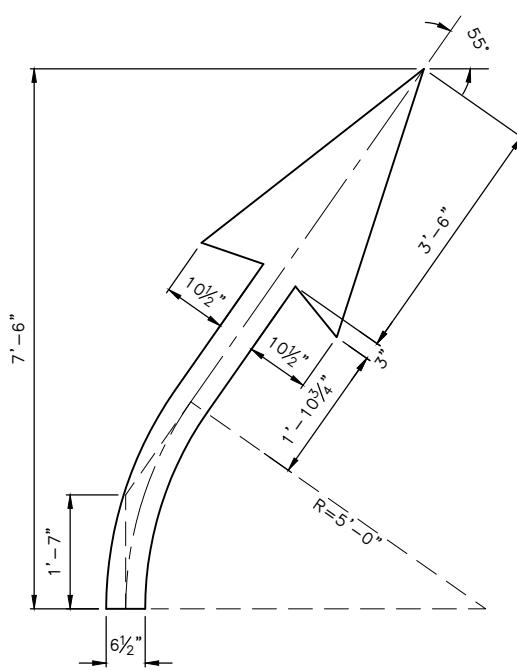
REF STD SPEC SEC 8-22



## City of Seattle

NOT TO SCALE

## TYPICAL CURBSIDE RED BUS LANE LAYOUT

720A  
LEFT ARROW720B  
THROUGH ARROW720C  
RIGHT ARROW720D  
OBLIQUE LEFT ARROW720E  
OBLIQUE RIGHT ARROW

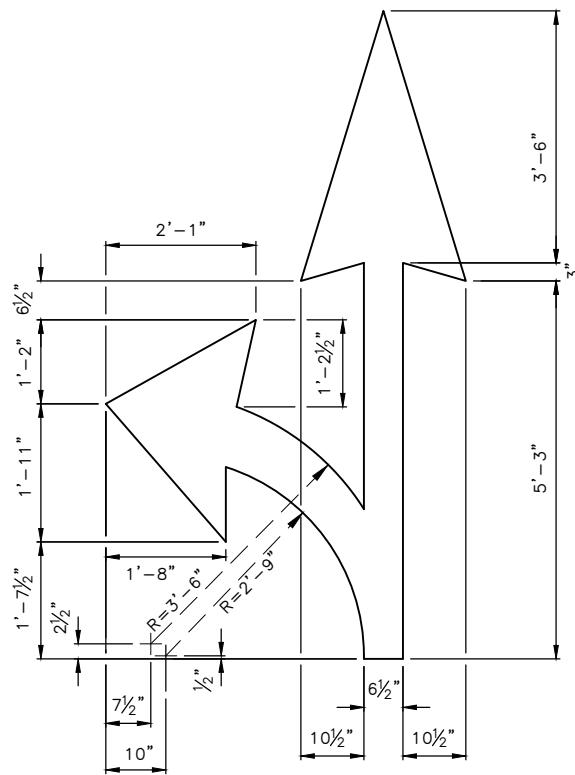
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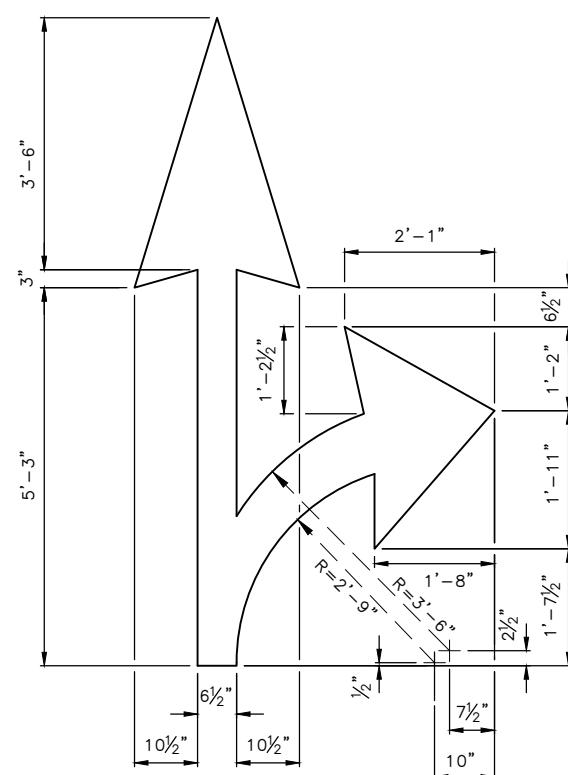
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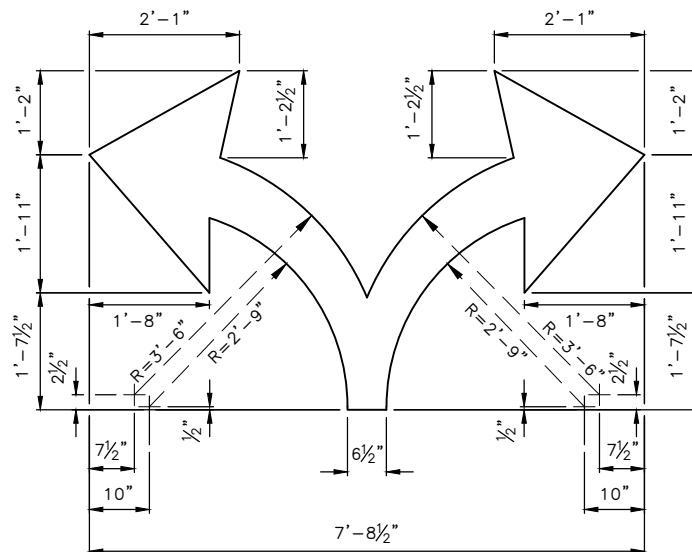
MANDATORY MOVEMENT  
ARROWS



721A  
LEFT & THROUGH ARROWS



721B  
RIGHT & THROUGH ARROWS



721C  
LEFT & RIGHT ARROWS

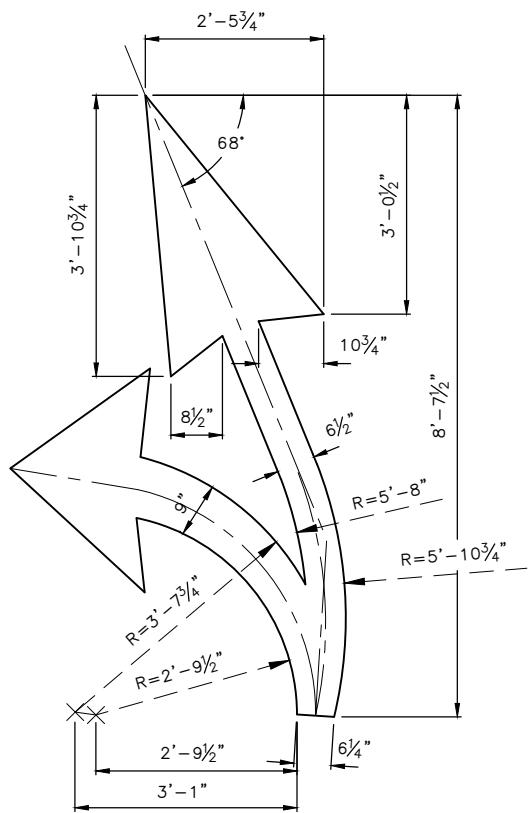
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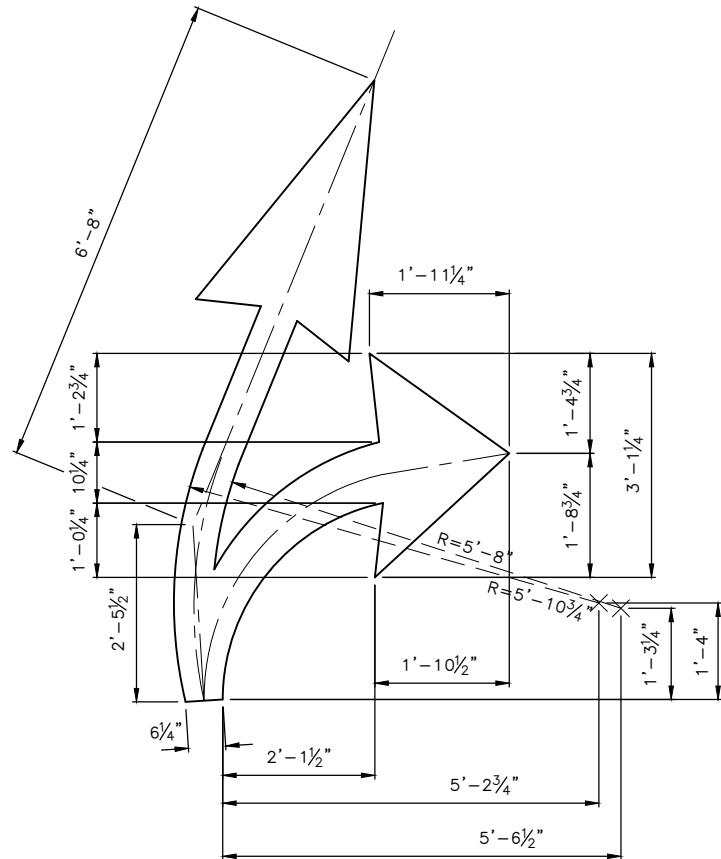
NOT TO SCALE

OPTIONAL MOVEMENT  
ARROWS



722A

## LEFT & OBLIQUE LEFT ARROW



722B

RIGHT & OBLIQUE RIGHT ARROW

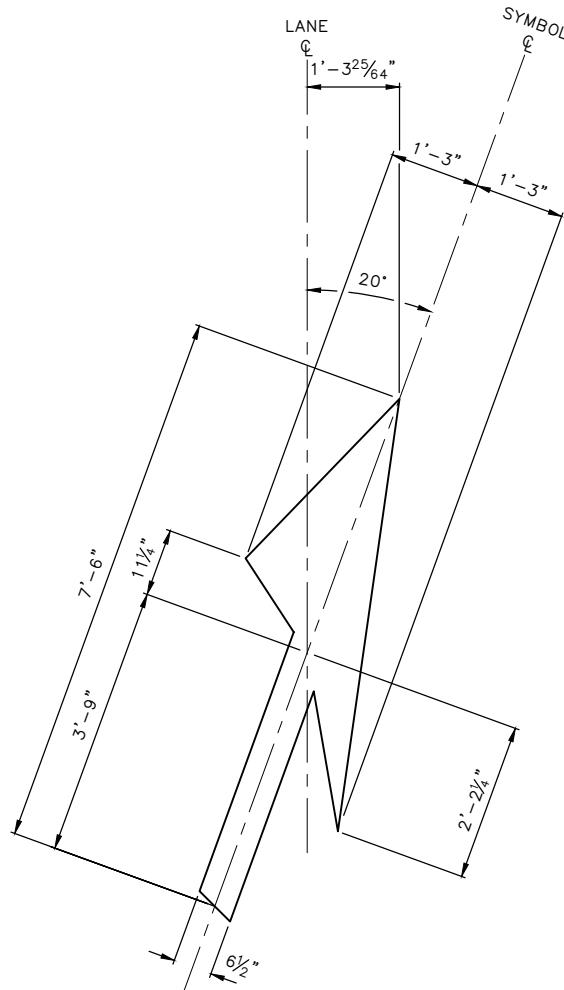
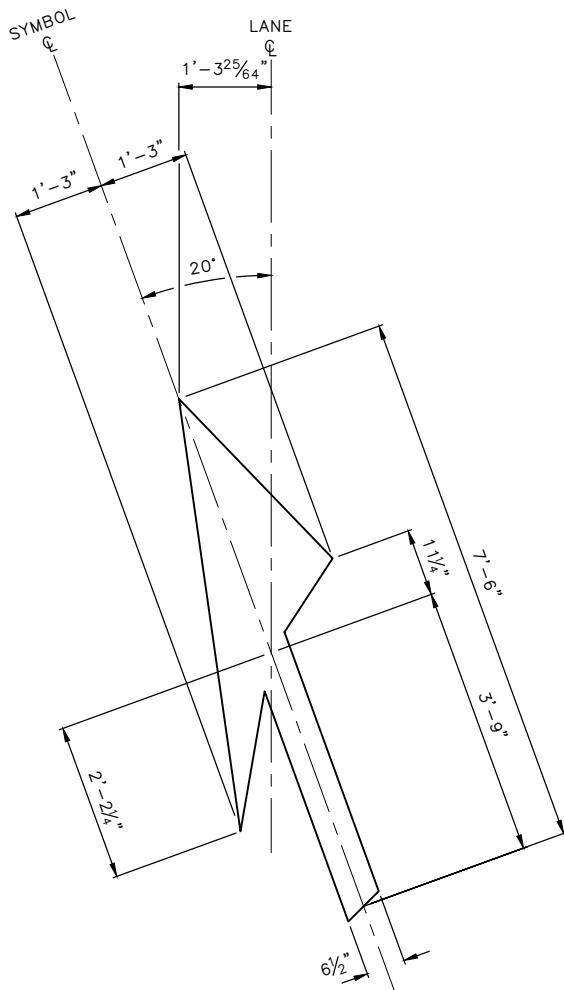
REF STD SPEC SEC 8-22



## City of Seattle

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## OPTIONAL MOVMENT ARROWS WITH OBLIQUE ARROWS



723A

LEFT MERGE/LANE REDUCTION ARROWS

723B

RIGHT MERGE/LANE REDUCTION ARROWS

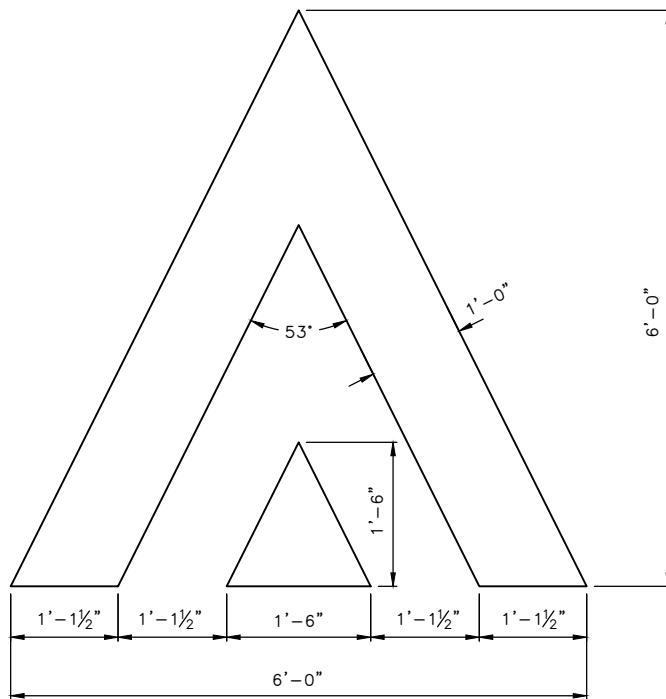
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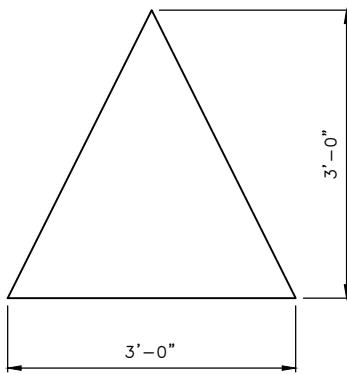
MERGE ARROWS



728A  
CHEVRON WITH TRIANGLE

NOTE:

THIS SYMBOL MAY BE RESIZED FOR BIKE FACILITIES.  
DIMENSIONS IN THOSE INSTANCES MUST BE SHOWN ON  
DESIGN DRAWINGS.



728B  
CENTER CUSHION TRIANGLE

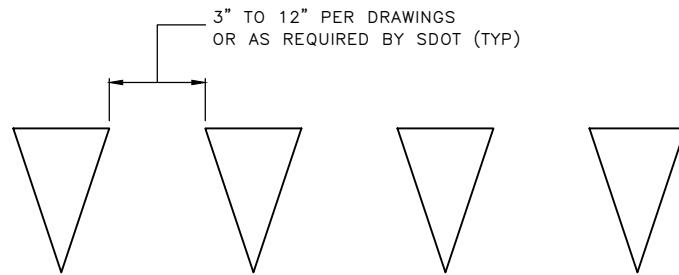
REF STD SPEC SEC 8-22



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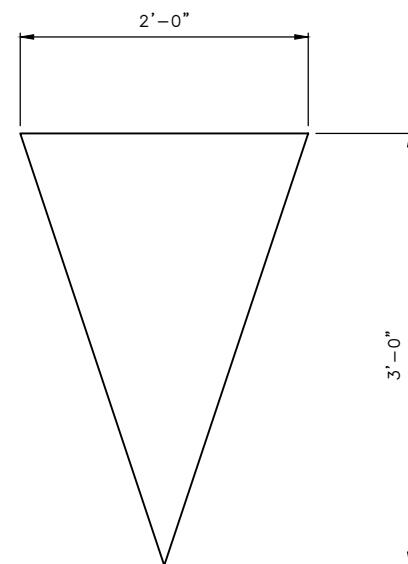
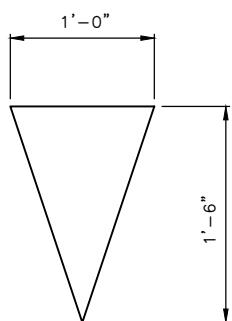
NOT TO SCALE

SPEED HUMP &  
SPEED CUSHION SYMBOL



↑  
DIRECTION  
OF TRAVEL

YIELD LINE LAYOUT



729A  
YIELD LINE WITH 18" TALL TRIANGLES

729B  
YIELD LINE WITH 36" TALL TRIANGLES

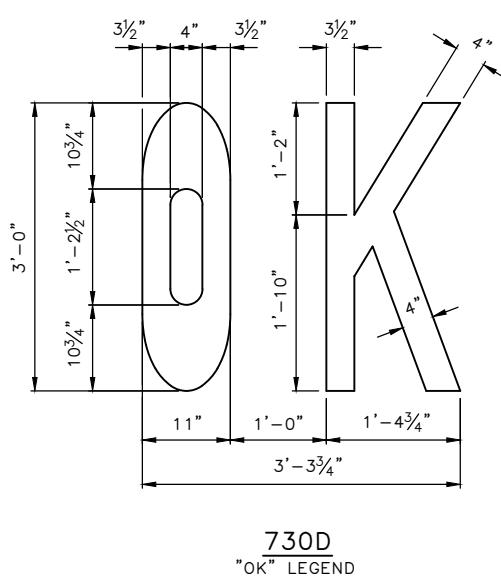
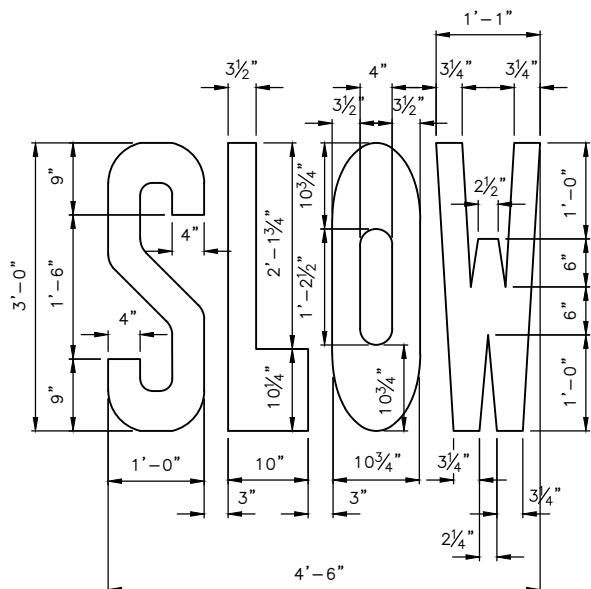
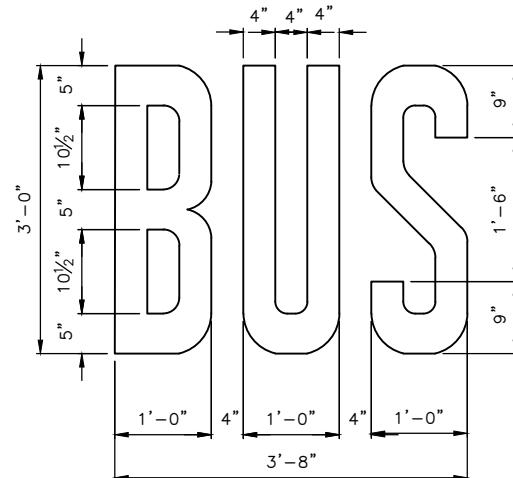
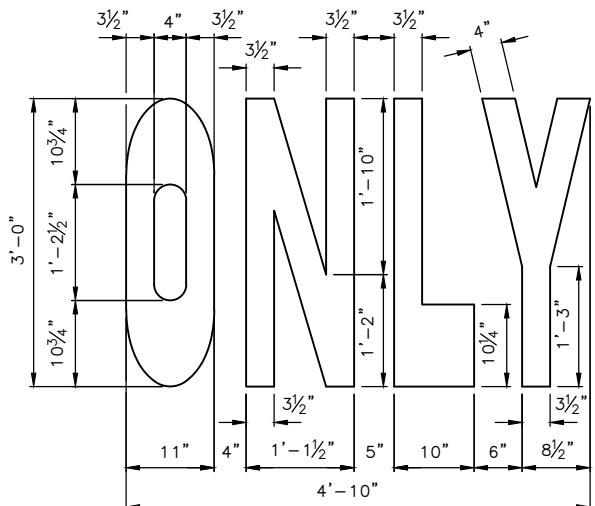
REF STD SPEC SEC 8-22



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NOT TO SCALE

YIELD LINE LAYOUT &  
YIELD LINE TRIANGLE SYMBOLS



**NOTE:**  
THIS SYMBOL MAY BE RESIZED FOR BIKE FACILITIES

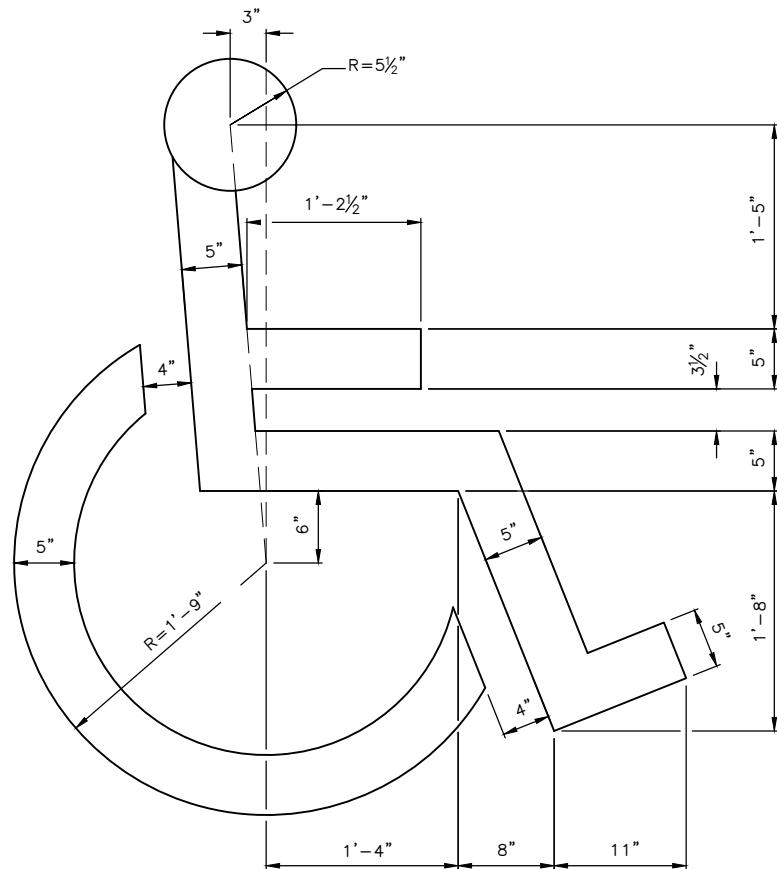
REF STD SPEC SEC 8-22



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NOT TO SCALE

PAVEMENT MARKINGS  
LEGENDS



**740A**  
INTERNATIONAL SYMBOL OF ACCESSIBILITY

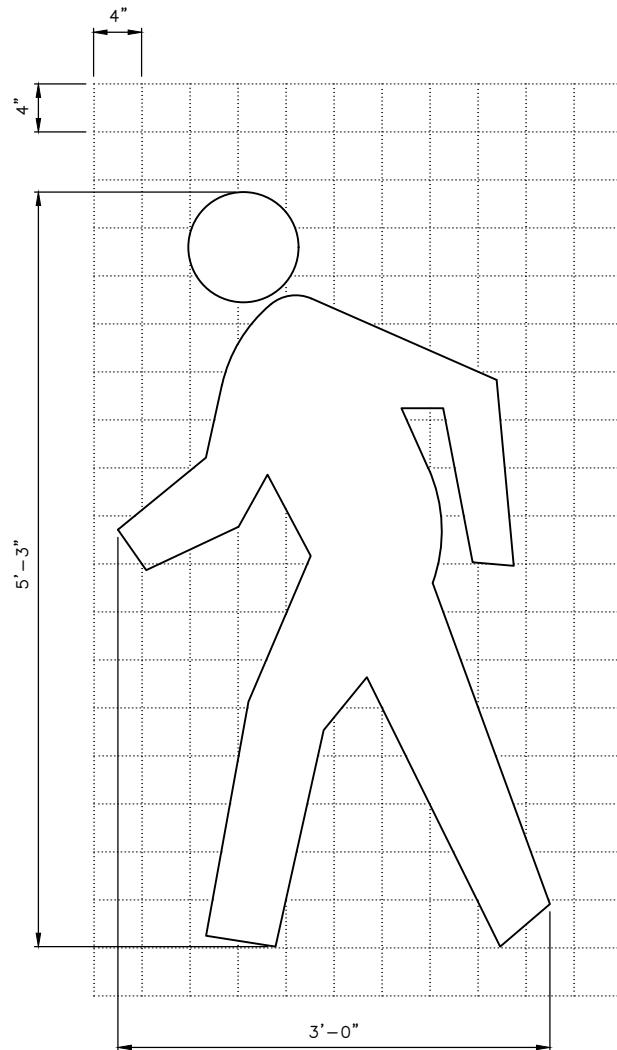
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

INTERNATIONAL SYMBOL  
OF ACCESSIBILITY



**741A**  
PEDESTRIAN SYMBOL

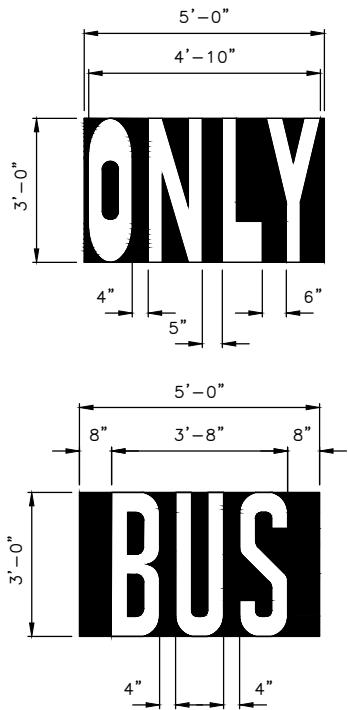
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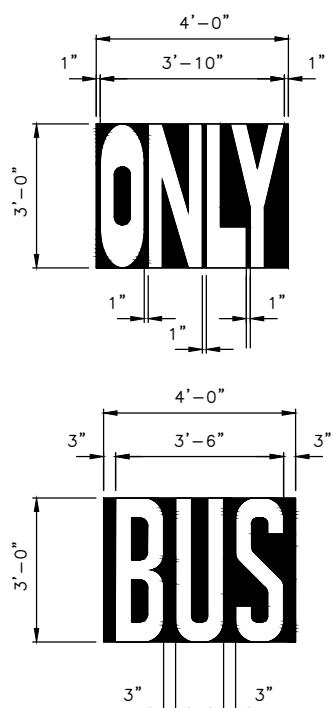
City of Seattle

NOT TO SCALE

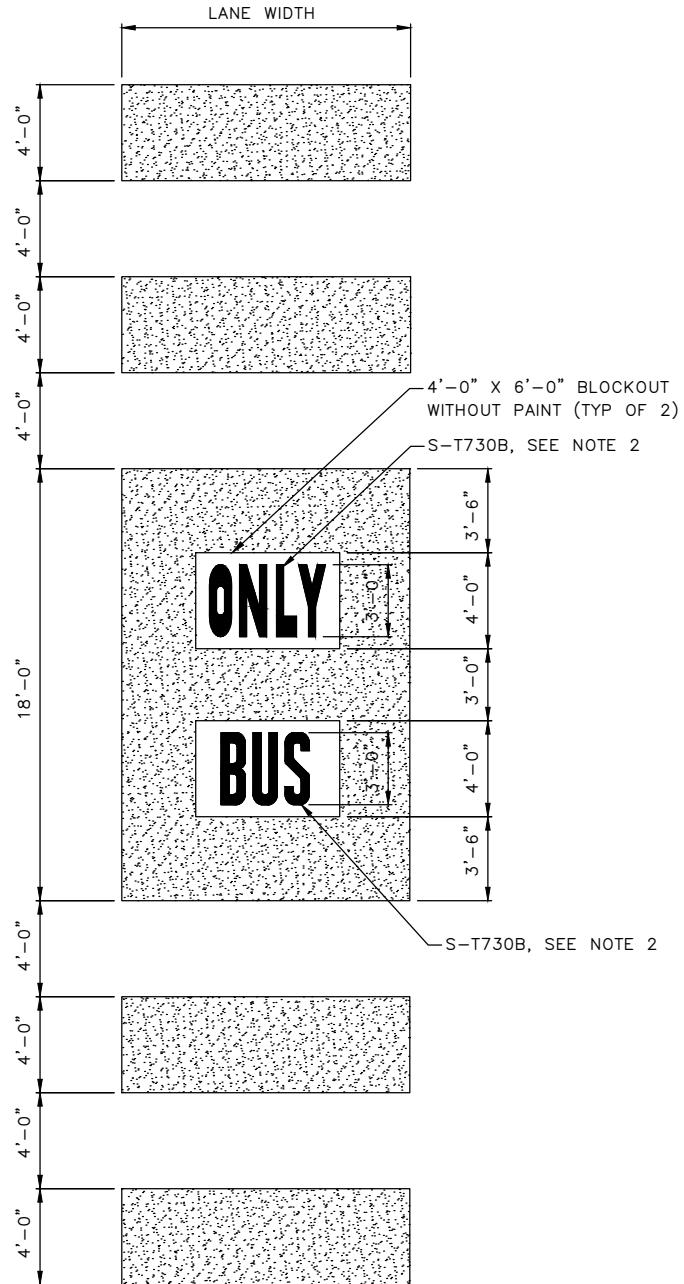
PEDESTRIAN SYMBOL



DETAIL A



DETAIL B



## NOTES:

1. FHWA APPROVED RED COLOR FOR BUS LANES MUST BE USED WITH MMA.
2. FOR APPLICATION ON CEM CONC PVMT, LEGENDS PER STANDARD PLAN 730 MUST HAVE A 5'-0" X 3'-0" COLOR BLACK THERMOPLASTIC BACKGROUND PER DETAIL A. FOR APPLICATION ON CEM CONC PVMT IN A STREET CAR TRACK, LEGENDS PER STANDARD PLAN 730 MUST HAVE A 4'-0" X 3'-0" COLOR BLACK THERMOPLASTIC BACKGROUND PER DETAIL B. PROVIDE 6" MINIMUM GAP BETWEEN THERMO LEGENDS AND RED MMA.

750  
RED BUS LANE MARKINGS

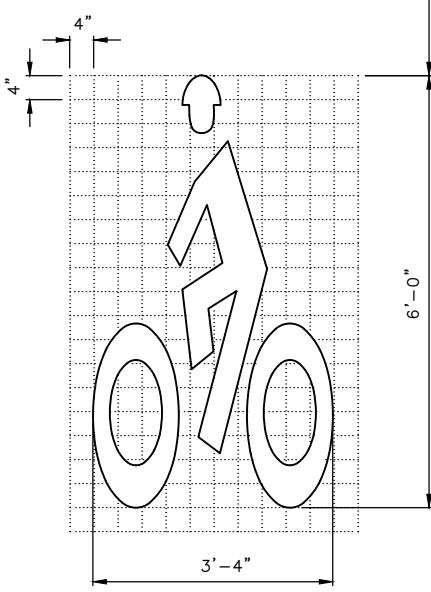
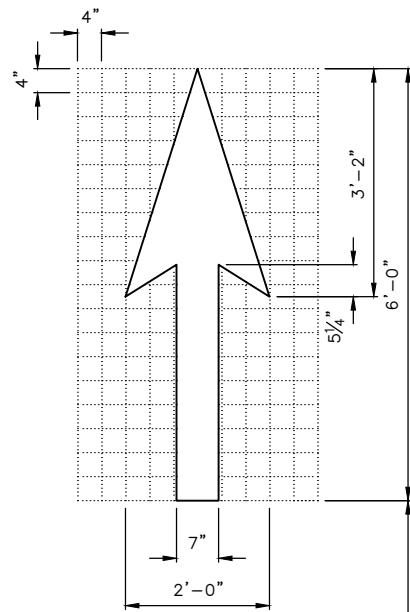
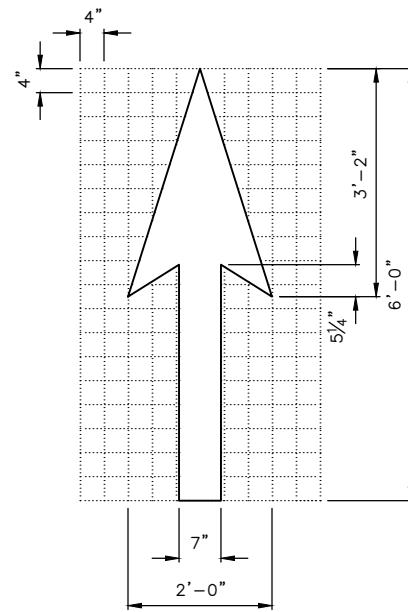
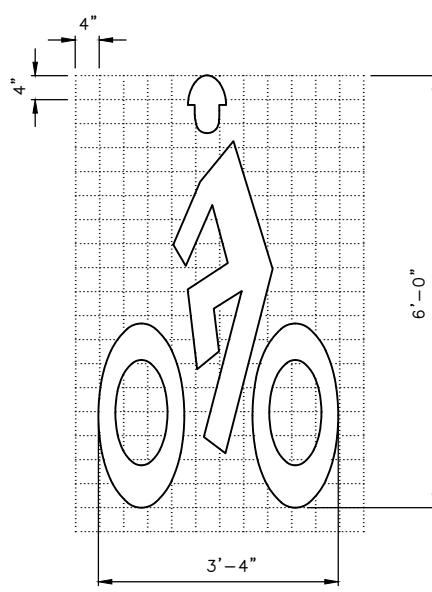
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

RED BUS LANE MARKINGS

770A  
HELMETED BICYCLIST SYMBOL WITH ARROW770B  
BICYCLE LANE THROUGH ARROW770C  
HELMETED BICYCLIST SYMBOL

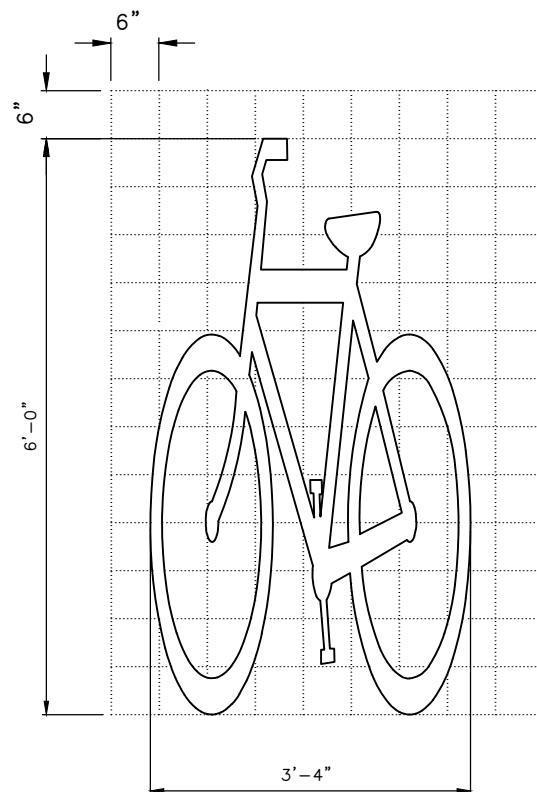
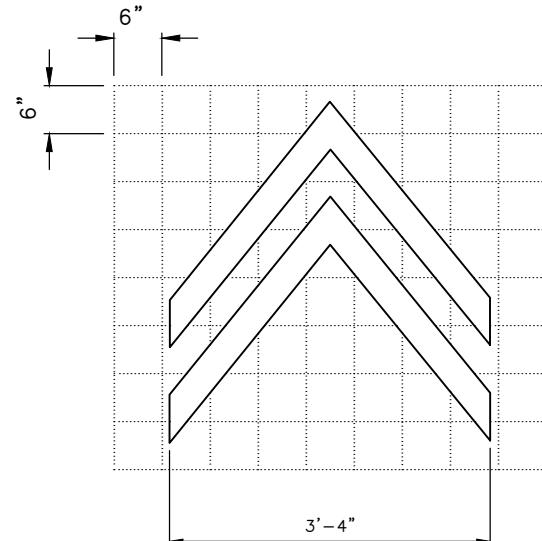
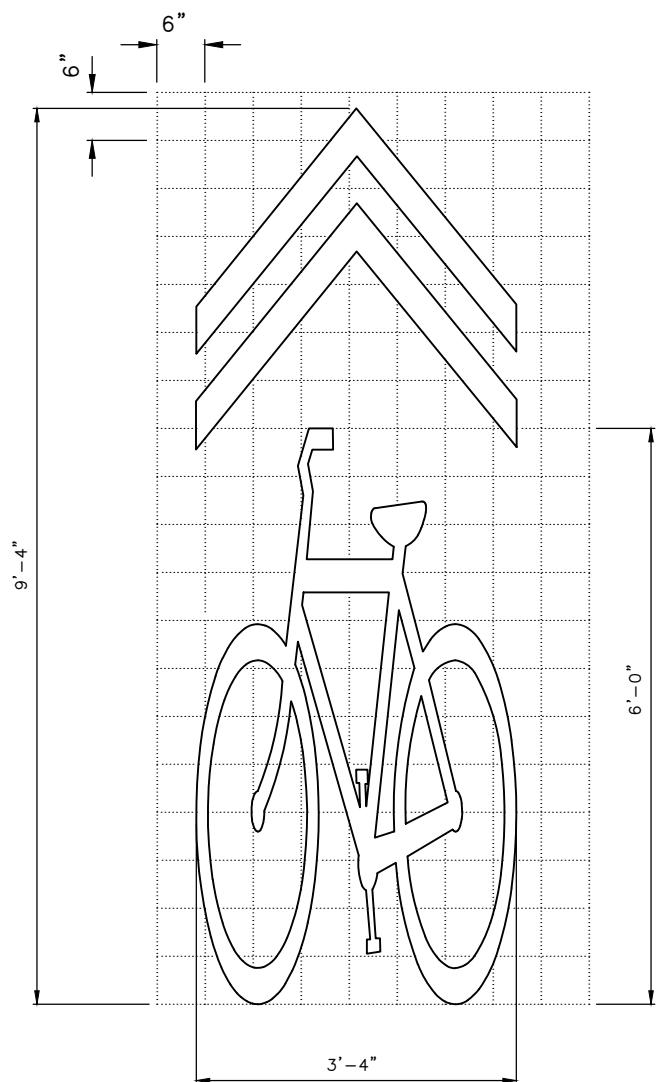
REF STD SPEC SEC 8-22



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NOT TO SCALE

HELMETED BICYCLIST SYMBOL  
WITH ARROW



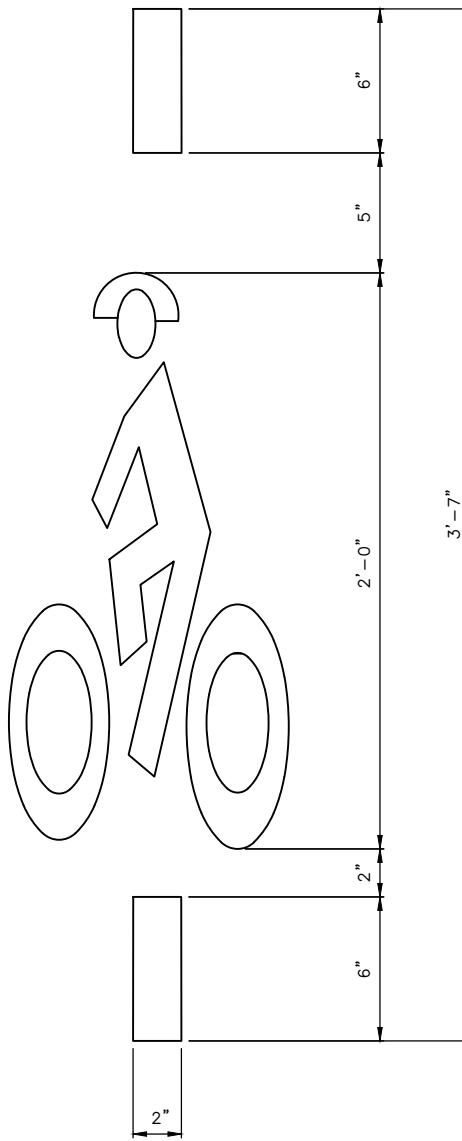
REF STD SPEC SEC 8-22



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NOT TO SCALE

SHARROW &amp; BIKE SYMBOLS



**772**  
BICYCLE DETECTOR SYMBOL

NOTE:  
SEE STD PLAN NO 530b FOR PLACEMENT

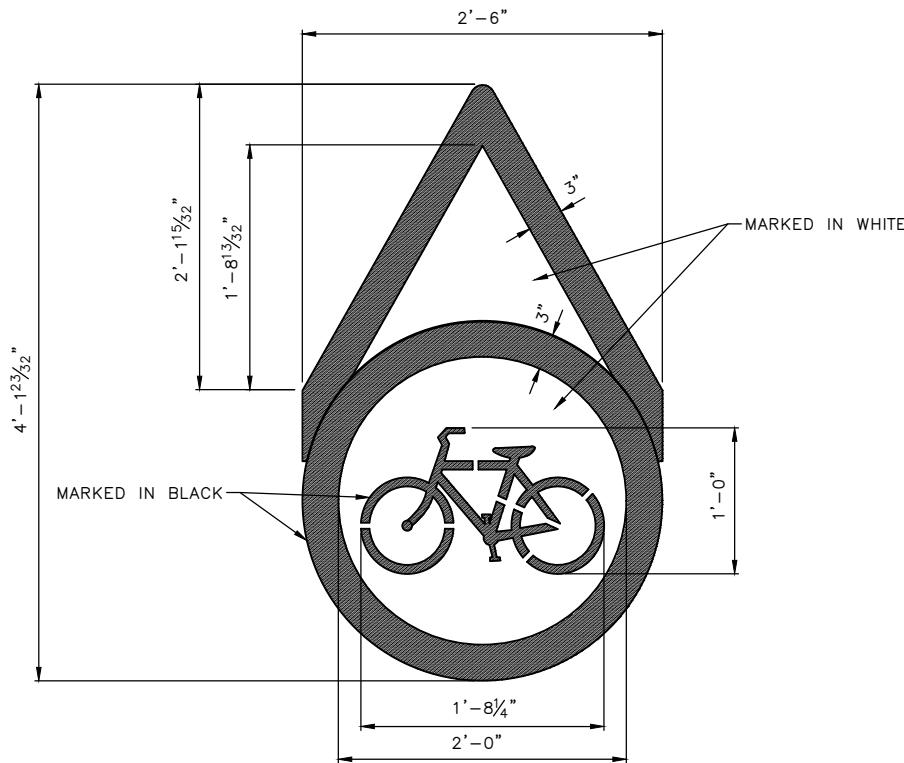
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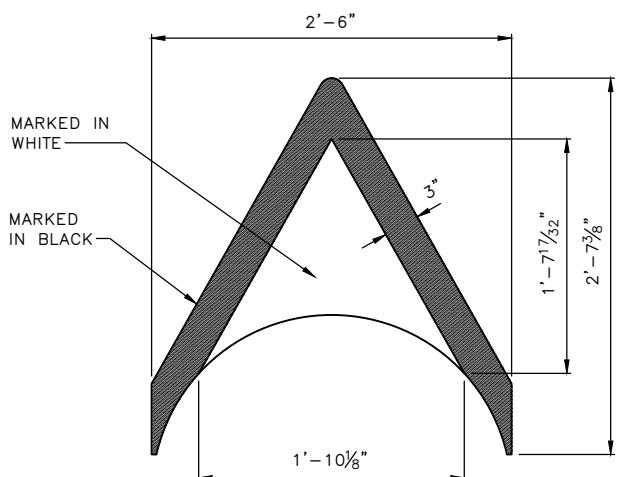
City of Seattle

NOT TO SCALE

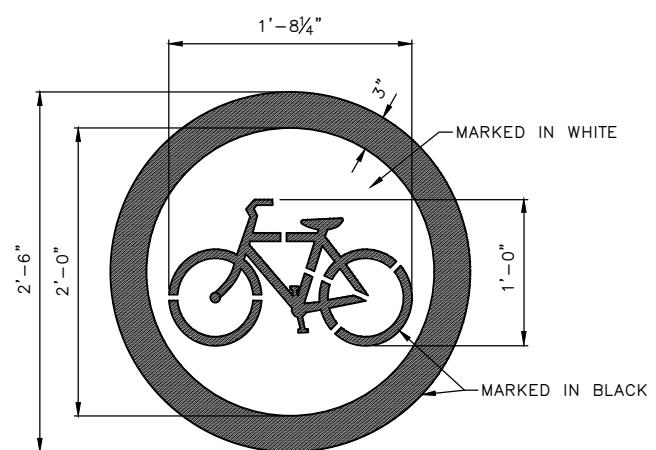
BICYCLE DETECTOR  
SYMBOL



773A  
BIKE DOT SYMBOL WITH ARROW



773B  
BIKE DOT ARROW



773C  
BIKE DOT SYMBOL

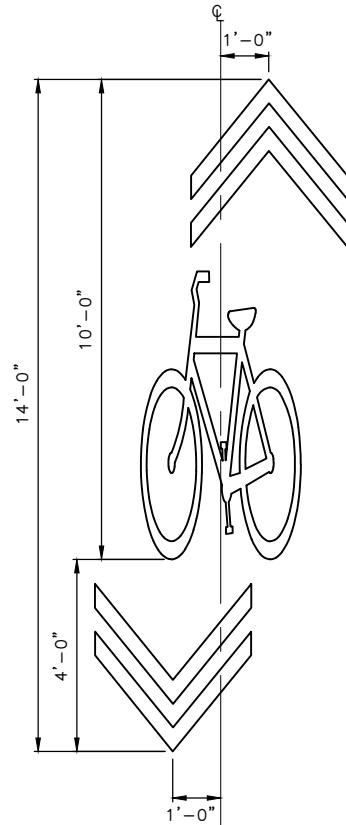
REF STD SPEC SEC 8-22



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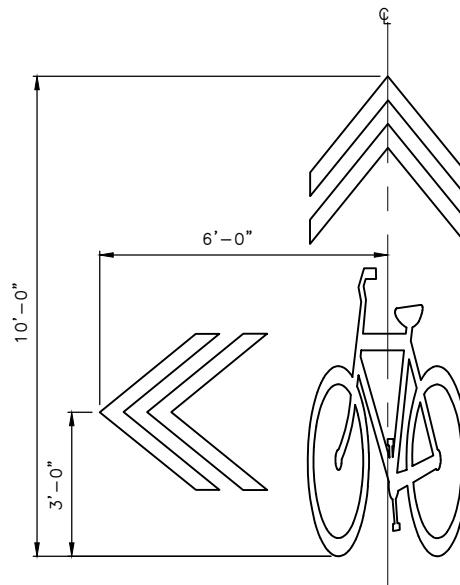
NOT TO SCALE

BIKE DOT SYMBOL  
WITH ARROW

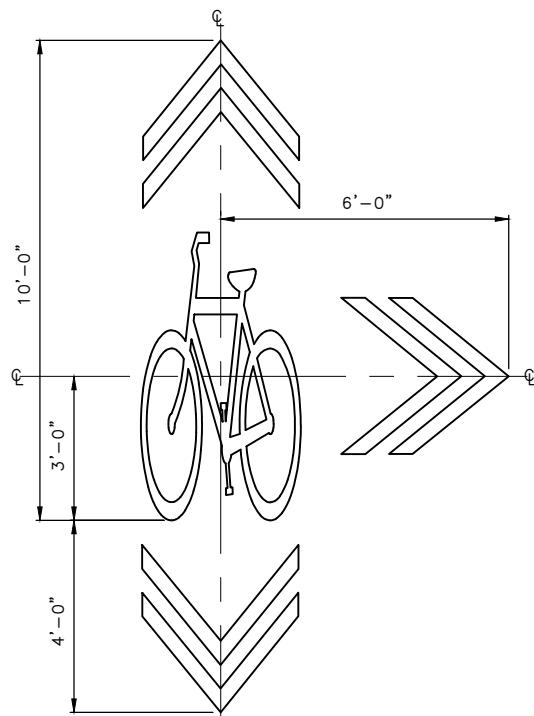


774A  
GREENWAY THROUGH SYMBOL

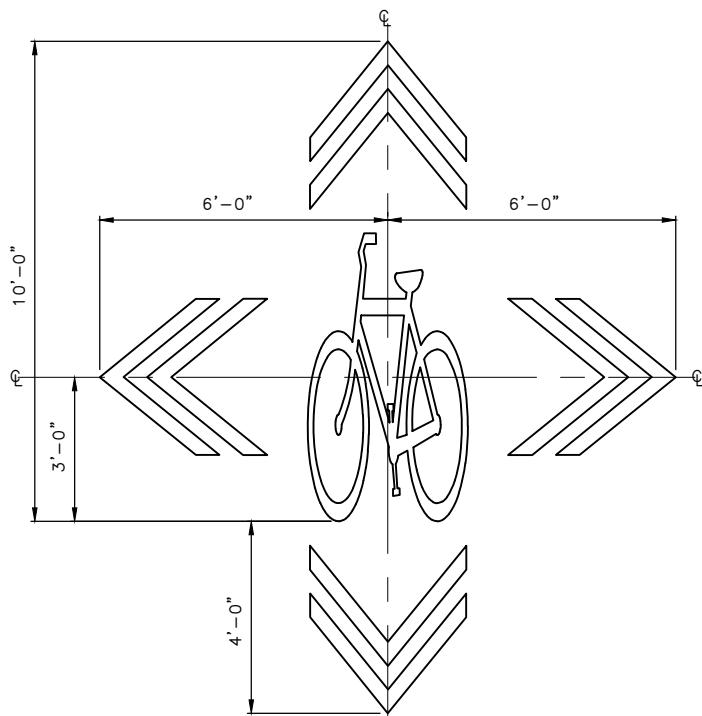
NOTE:  
SEE STD PLAN NO 771 FOR SYMBOL DIMENSIONS.



774B  
GREENWAY ROUTE TURNS SYMBOL



774C  
GREENWAY THREE-ROUTE SYMBOL



774D  
GREENWAY FOUR-ROUTE SYMBOL

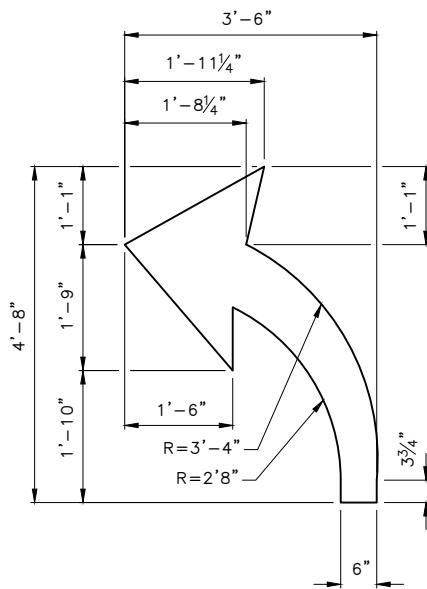
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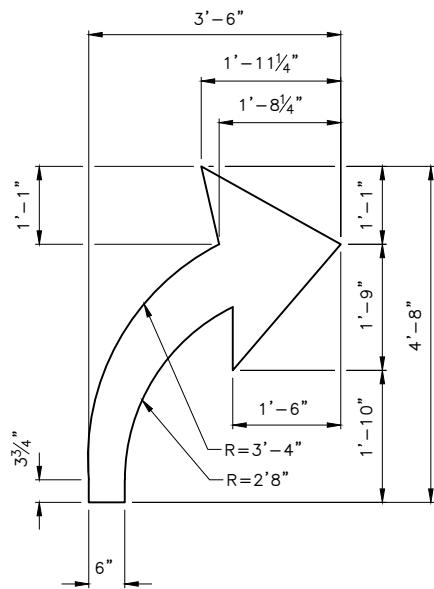
City of Seattle

NOT TO SCALE

GREENWAY MARKINGS



775A  
NARROW BIKE LANE  
LEFT ARROW



775B  
NARROW BIKE LANE  
RIGHT ARROW

NOTES:

1. TURN ARROWS TO BE USED IN BIKE LANES LESS THAN 5' WIDE IN COMBINATION WITH THE HELMETED BICYCLIST SYMBOL 770C.
2. LAYOUT SIMILAR TO 770A WITH 6' SPACING.

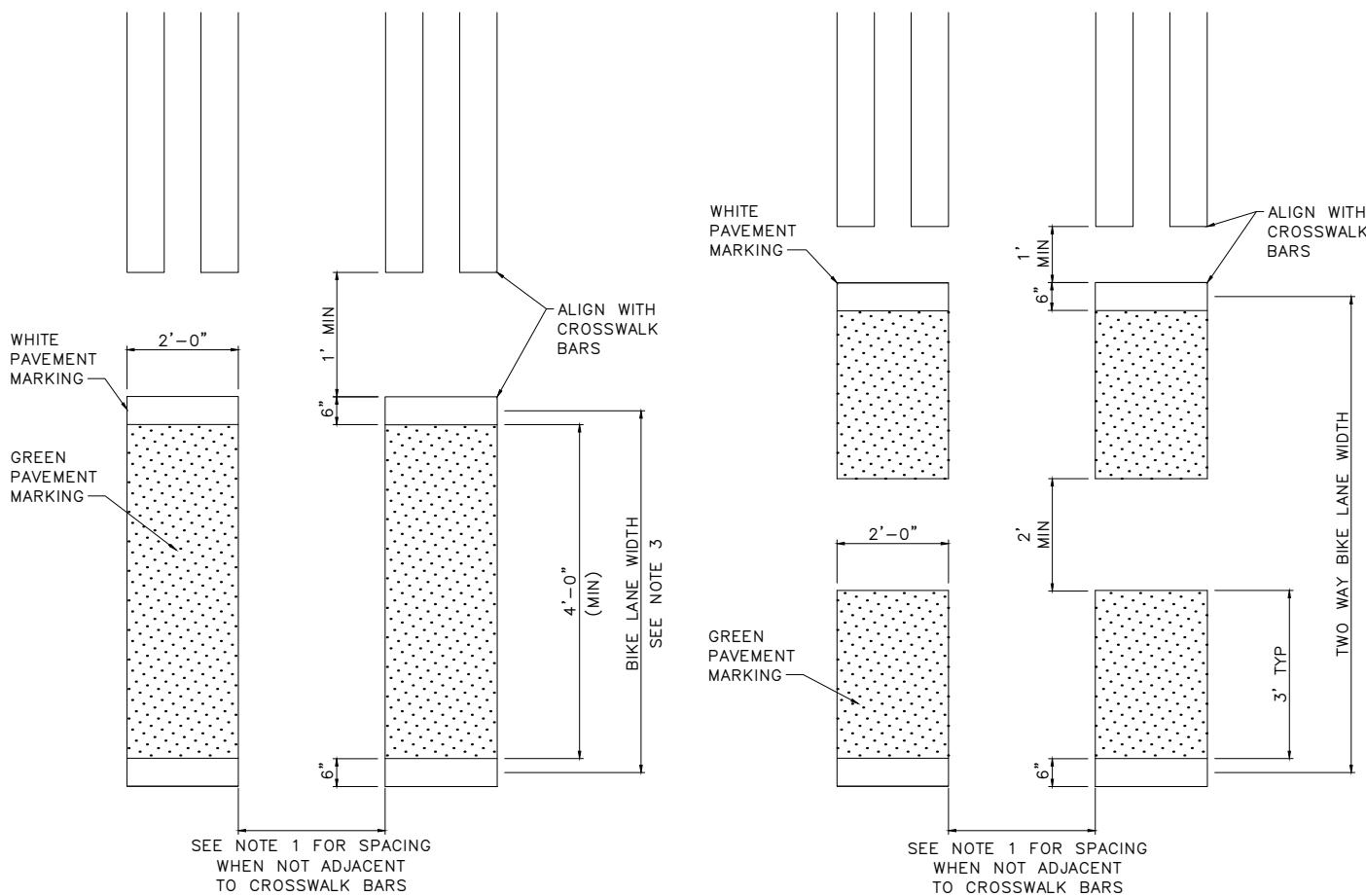
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

NARROW BIKE LANE  
TURN ARROW SYMBOLS

**NOTES:**

1. WHERE STRIPED CROSSWALK DOES NOT EXIST, CROSS BIKE MUST BE PLACED AT LANE LINE AND 1/2 LANE WIDTH CONSISTENT WITH STANDARD PLAN 712. IF NO CROSSWALK OR LANE LINE EXISTS, CROSSBIKE MUST BE PLACED AT 5' ON CENTERS.
2. CROSS BIKE MATERIAL MUST BE MMA OR PRE-FORMED THERMOPLASTIC.
3. WHEN CONNECTING BIKE LANES OF VARYING WIDTH, THE CROSSBIKE WIDTH MUST BE SIZED TO THE NARROWER OF THE TWO FACILITIES.

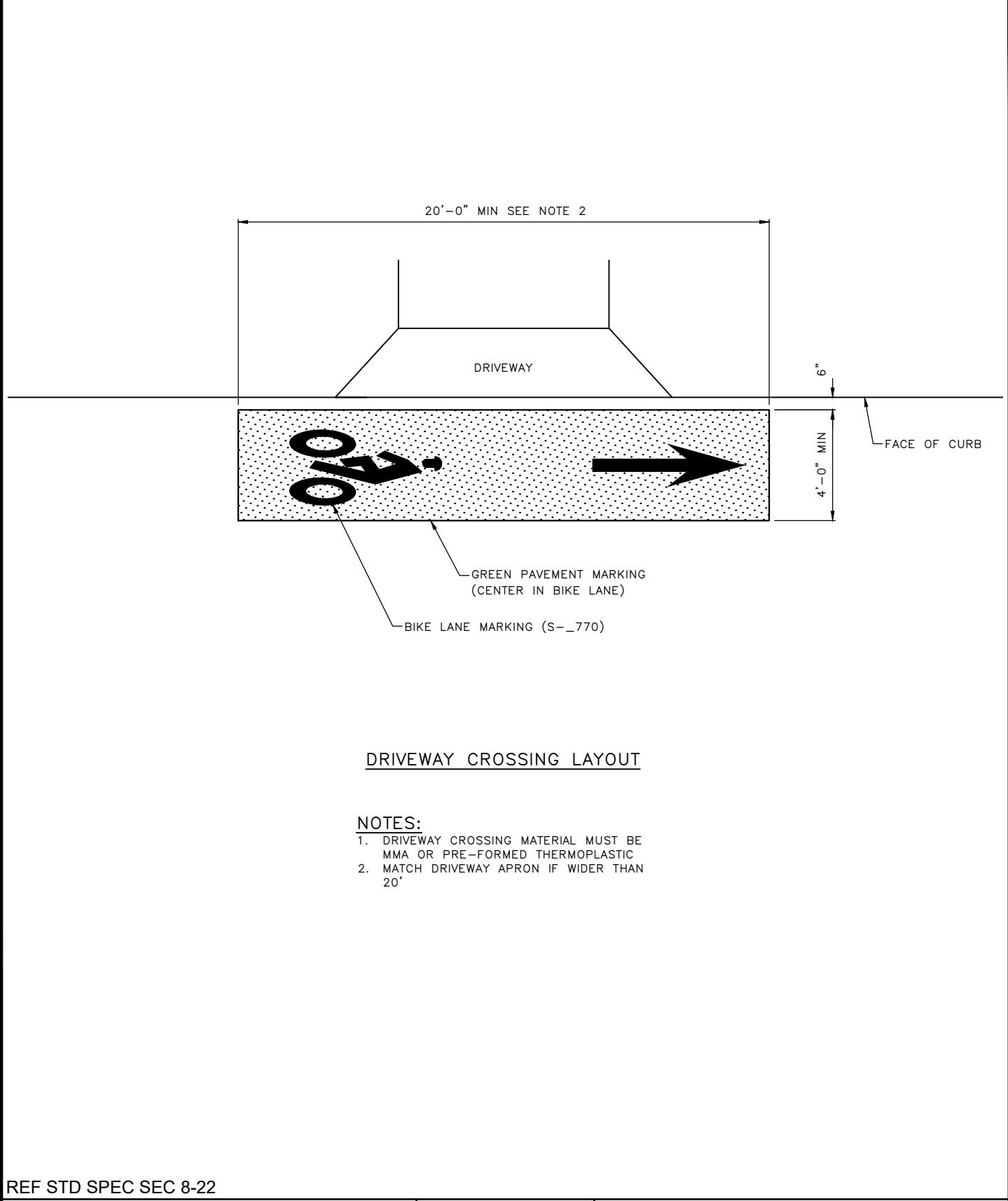
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

CROSS BIKE  
PAVEMENT MARKING

DRIVEWAY CROSSING LAYOUTNOTES:

1. DRIVEWAY CROSSING MATERIAL MUST BE MMA OR PRE-FORMED THERMOPLASTIC
2. MATCH DRIVEWAY APRON IF WIDER THAN 20'

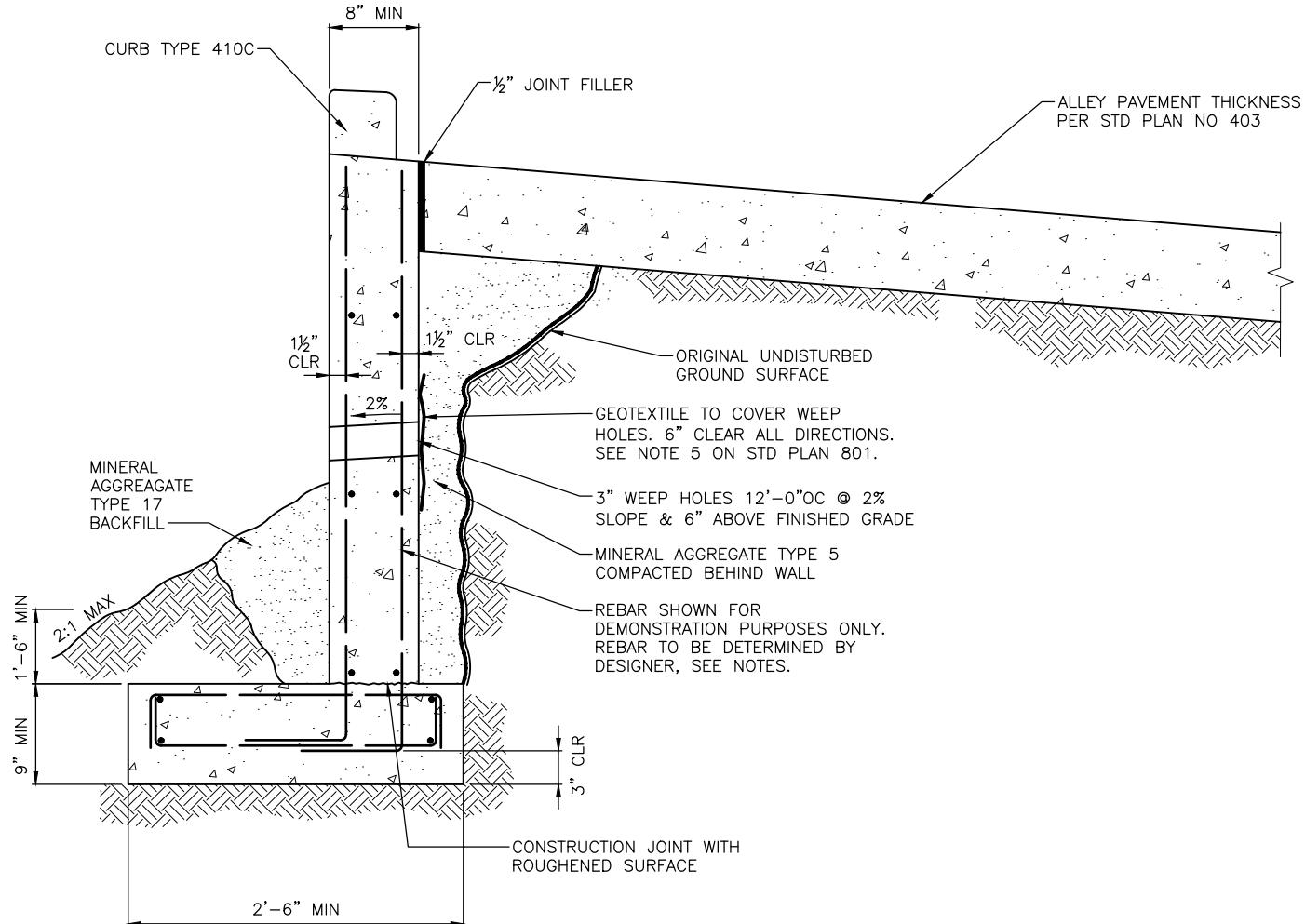
REF STD SPEC SEC 8-22



City of Seattle

NOT TO SCALE

BIKE LANE PAVEMENT MARKING  
AT DRIVEWAY

**NOTES:**

1. THIS PLAN ONLY COVERS MINIMUM GEOMETRIC REQUIREMENTS. FINAL WALL GEOMETRY MUST BE DETERMINED BY THE DESIGNER AND MUST FOLLOW CURRENT EDITION OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. CALCULATIONS AND GEOTECHNICAL INFORMATION SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
2. CONCRETE FOR SUPPORT WALL MUST BE CLASS 4000
3. REINFORCING STEEL ASTM A706 (AASHTO M 31 GRADE 60). MINIMUM SIZE BAR, #4.
4. BASE OF SUPPORT WALL TO BE BEARING ON COMPACTED SUITABLE MATERIAL
5. BACK FORM FOR SUPPORT WALL MAY BE OMITTED AND CONCRETE PLACED AGAINST NATIVE EARTH WHEN GROUND CONDITIONS PERMIT. CLEAR COVER MUST BE 1-1/2" UNLESS NOTED OTHERWISE.
6. WALL MUST BE DESIGNED TO ACCOMODATE VEHICULAR LOADS AND PEDESTRIAN RAILING.

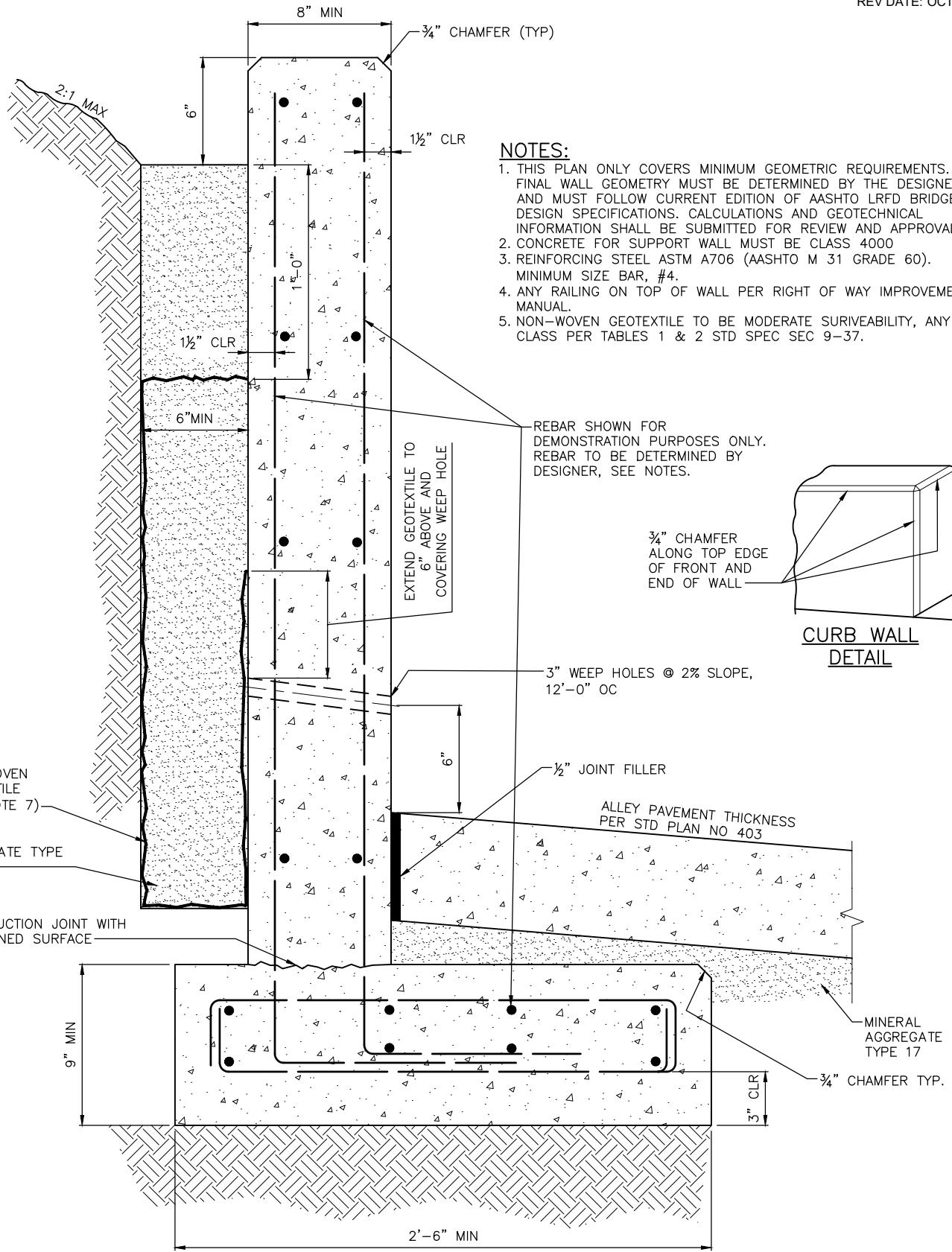
REF STD SPEC SEC 8-17, 8-19



City of Seattle

NOT TO SCALE

SUPPORT WALL



REF STD SPEC SEC 8-17



City of Seattle

NOT TO SCALE

CURB WALL

