PROJECT SPECIAL PROVISIONS

KING COUNTY, WA

SOUTH PARK BRIDGE #3179 REPLACEMENT

VOLUME 3 OF 3

APPENDICES

King County CIP 300197

FINAL SUBMITTAL

(NOT FOR CONSTRUCTION)

KING COUNTY DEPARTMENT OF TRANSPORTATION

NOVEMBER 18,, 2010

Contract No. C00497C10
Project No. 300197

SPECIAL PROVISIONS

Table of Contents

King County

SPECIAL PROVISIONS

SOUTH PARK BRIDGE NO. 3179 REPLACEMENT

(14th/16th Avenue south over Duwamish Waterway)

Contract No. C00497C10
Project No. 300197
Fed. Aid No. _____

GENERAL REQUIREMENTS

INTRODUCTION

The following Special Provisions in conjunction with the 2010 *Standard Specifications for Road, Bridge and Municipal Construction*, issued by the Washington State Department of Transportation and the American Public Works Association, Washington State Chapter (Standard Specifications), and the 2007 King County *Road Design and Construction Standards* (KCRDCS), which were adopted by the King County Council, govern this Contract. These Special Provisions supersede the referenced portions of Standard Specifications. Where any provision of Standard Specifications is modified or deleted by these Special Provisions, the unaltered, remaining portions remain in full force and effect.

Copies of the Standard Specifications and KCRDCS are on file in the office of the County Road Engineer, Department of Transportation, Road Services Division, 2nd Floor, 201 South Jackson Street, Seattle, Washington, 98104-3856 where they may be examined

Wherever reference is made in the Standard Specifications to the Secretary of Transportation or Engineer, such reference shall be construed to mean the King County Road Engineer or the County Road Engineer's duly authorized assistants.

Wherever reference is made to the "State Materials Lab" or WSDOT Materials Laboratory" in the Standard Specifications such reference shall be revised to read "King County Materials Lab (Renton, WA.)".

DESCRIPTION OF WORK

This project provides for the replacement of South Park Bridge over the Duwamish Waterway in King County by constructing a new drawbridge downriver and parallel to the existing South Park Bridge, intersection improvements, roadway, drainage, and utility construction, approach spans and retaining wall construction, riverbank mitigation, incorporation of historic and art elements, illumination, demolition of existing bridge, and other work, all in accordance with the attached

Plans, these Special Provisions, the Standard Specifications, the KCRDCS, and the APWA/WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

APPENDICES

The following appendices are attached and made a part of this Contract:

APPENDIX A:

King County Department of Transportation – Transit Division Standards for Construction of Transit Passenger Facilities Drawing No. D103 and D111

APPENDIX B:

Applicable City of Seattle Standard Plans

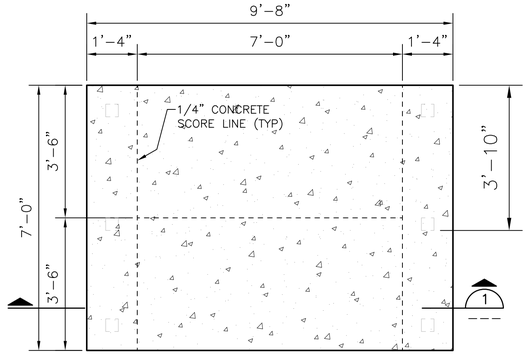
SOUTH PARK BRIDGE NO. 3179
(14th/16th Avenue South over Duwamish Waterway)

APPENDIX A
to the
SPECIAL PROVISIONS

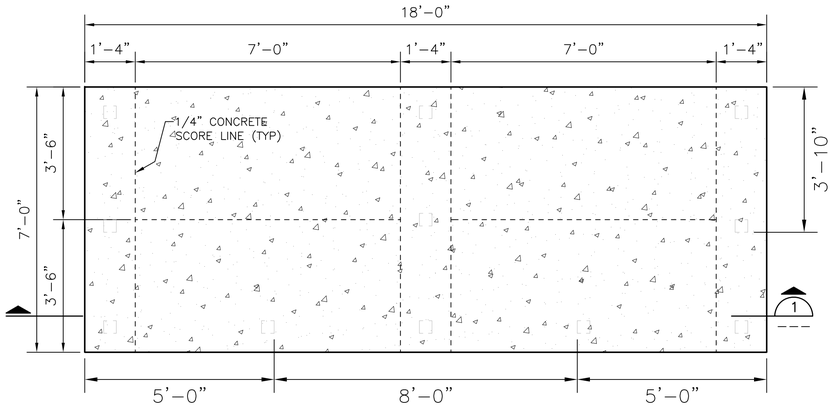
King County Department of Transportation – Transit Division
Standards for Construction of Transit Passenger Facilities

Drawing No. D103 – Footing Plans, Section, Details, Notes, and Schedule

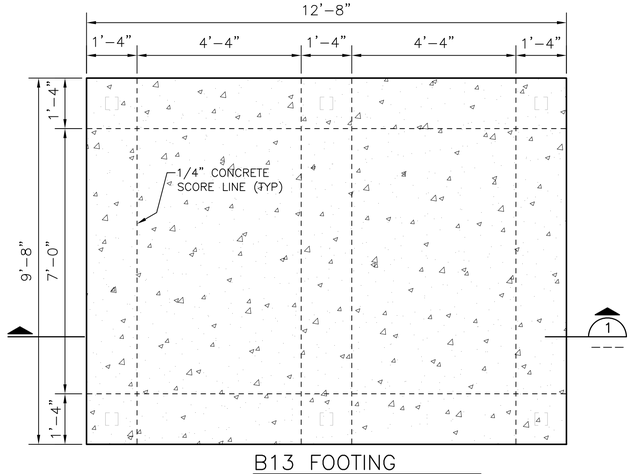
Drawing No. D111 – Internal Solar Bus Shelter Lighting



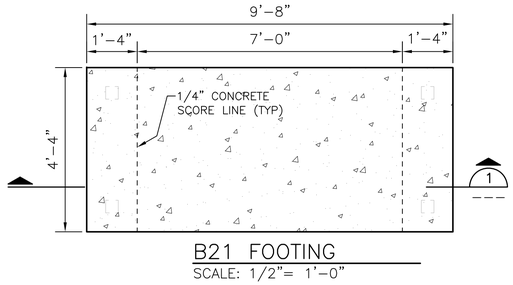
B11 FOOTING
SCALE: 1/2"= 1'-0"



B12 FOOTING
SCALE: 1/2"= 1'-0"



B13 FOOTING
SCALE: 1/2"= 1'-0"



B21 FOOTING
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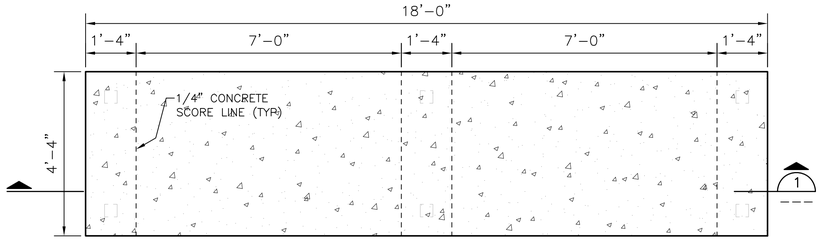

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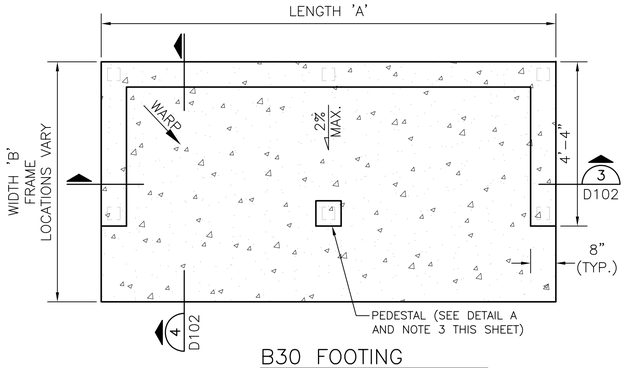
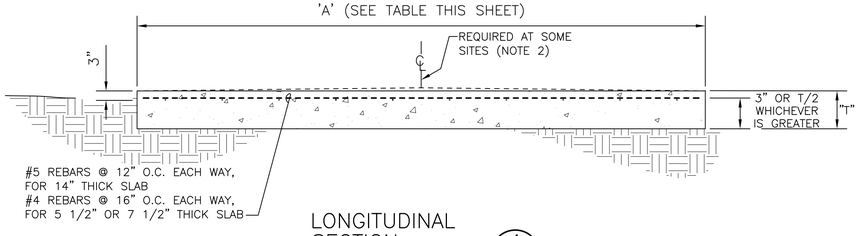


B30 FOOTING
SCALE: 1/2"= 1'-0"

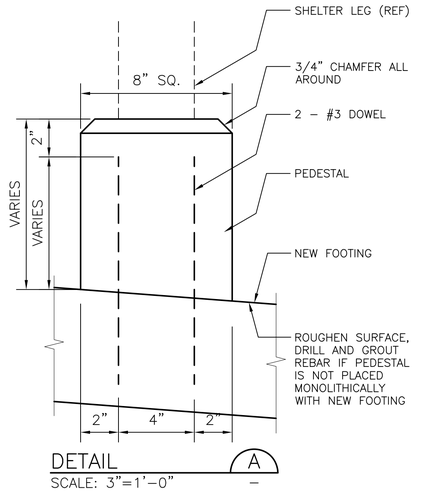


LONGITUDINAL SECTION 1
SCALE: 1/2"=1'-0"

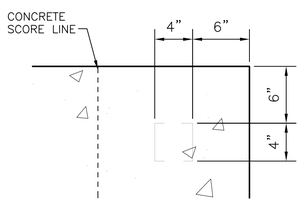
FOOTING DIMENSIONS				
FOOTING TYPE	SHELTER FRAME TYPE	LENGTH 'A'	WIDTH 'B'	SLAB THICKNESS 'T'
B11	PER PLAN	9'-8"	7'-0"	7 1/2"
B12	PER PLAN	18'-0"	7'-0"	7 1/2"
B13	PER PLAN	12'-8"	9'-8"	7 1/2"
B21	PER PLAN	9'-8"	4'-4"	14"
B22	PER PLAN	18'-0"	4'-4"	14"
B31	F11	9'-0"	6'-4"	7 1/2"
B31	F21	9'-0"	4'-4"	14"
B31	F31 OR F51	9'-0"	4'-4"	14"
B32	F12	17'-4"	6'-4"	7 1/2"
B32	F13	12'-0"	9'-0"	7 1/2"
B32	F14	17'-4"	6'-4"	7 1/2"
B32	F22 OR F52	17'-4"	4'-4"	14"
B32	F32	17'-4"	4'-4"	14"

NOTES:

1. "t" INDICATES AREAS FOR FUTURE SHELTER LEGS. AVOID PLACING REINFORCEMENT IN THESE AREAS.
2. FOR SITES WITH SLOPES LESS THAN 0.5% IN 'A' DIMENSION, INCREASE DIMENSION AT MIDDLE OF FOOTING BY 1" TO ASSURE PROPER DRAINAGE OF SURFACE WATER.
3. WHEN USING B-32 FOOTING WITH DOUBLE FRAMES, SUPPORT FRONT MIDDLE LEG OR LEGS OF FRAME AS REQUIRED TO PROVIDE THE SAME TOP ELEVATION AS THE PERIMETER WALL.



DETAIL A
SCALE: 3"=1'-0"



TYPICAL LEG DETAIL @ CORNER

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

TYPICAL CONDITION FOR ALL EXCEPT B30, B31, AND B32 SERIES FOOTING

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

No.	REVISION	BY	APP'D	DATE
1				
2				
3				
4				
5				
6				

NOT FOR CONSTRUCTION

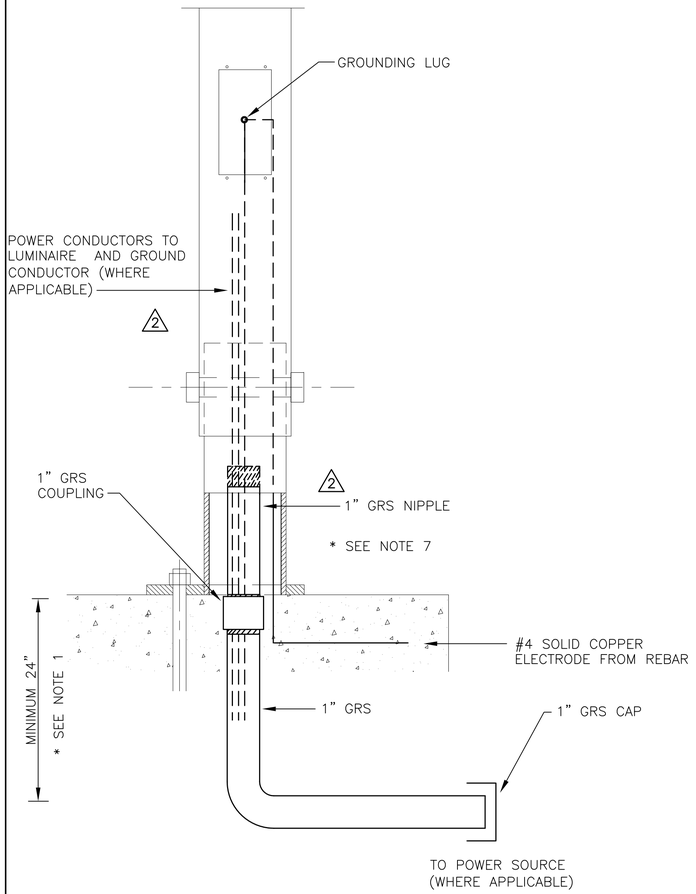
DESIGNED: C ASQUITH
DRAWN: H SCHMITT
RECOMMENDED: D CRIPPEN
APPROVED: R ISLER
CHECKED: P ENG
SCALE: NOTED
CONTRACT NO: C00256C07

King County

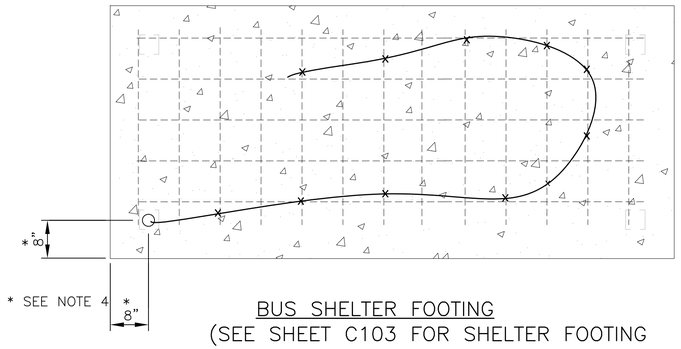
Department of Transportation - Transit Division
STANDARDS FOR CONSTRUCTION OF TRANSIT PASSENGER FACILITIES

FOOTING PLANS, SECTION, DETAILS, NOTES, AND SCHEDULE

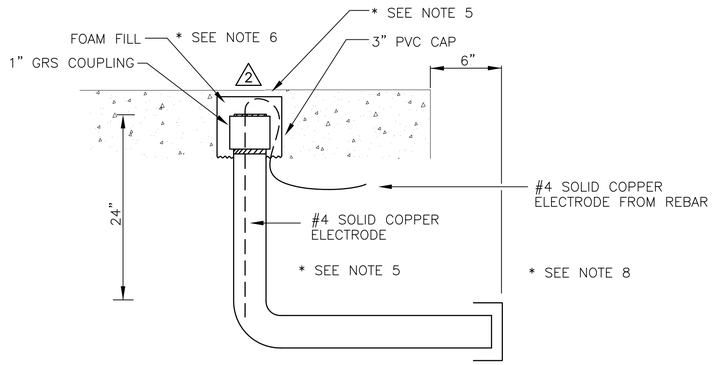
DATE: JAN 08
FILE NO: D103C
DRAWING NO: D103
SHEET NO: 3 OF 12



INTERNAL SHELTER SOLAR LIGHTING
SCALE: NTS



BUS SHELTER FOOTING
(SEE SHEET C103 FOR SHELTER FOOTING DETAILS AND DIMENSION)



DETAIL "1"
INTERNAL SHELTER LIGHTING
BURIED CONDUIT AND GROUNDING ELECTRODE
SCALE: NTS

NOTES:

**THE CONTRACTOR SHALL GROUND THE 12 VOLT SOLAR LIGHTING SYSTEM BY THE FOLLOWING:

*1. ALL NEW CONDUIT UNDERGROUND SHALL HAVE A MINIMUM COVER OF 24 INCHES FROM FINISHED GRADE OR 30 INCHES FROM TOP OF THE SHELTER PAD.

2. 2. USING TIE–WIRE THE CONTRACTOR SHALL TIE 23 FEET OF THE #4 SOLID COPPER GROUNDING ELECTRODE TO THE SHELTER PAD REBAR, LEAVING 2 FEET FROM GRADE LEVEL TO ATTACH TO THE GROUNDING LUG IN THE SHELTER LEG.

3. THE #4 SOLID COPPER GROUNDING ELECTRODE SHALL BE ENCLOSED BY AT LEAST 2" OF CONCRETE IN ACCORDANCE WITH NEC 250.52 (A) (3).

*4. AT THE BACK SHELTER LEG OF HIGHEST ELEVATION THE CONTRACTOR SHALL INSTALL THE 1 INCH GRS CONDUIT AND THE #4 SOLID COPPER ELECTRODE.

2 *5. THE CONTRACTOR SHALL LEAVE THE #4 SOLID COPPER ELECTRODE AND THE CONDUIT CAPPED AND BURIED APPROXIMATELY 1/4" BENEATH THE CONCRETE SURFACE. PLACE TWO FEET OF THE #4 SOLID COPPER ELECTRODE INSIDE CONDUIT LEAVING A SMALL ARC AT THE TOP OF THE ENTRANCE INTO THE CONDUIT. (SEE DETAIL 1)

*6. TO KEEP CONCRETE FROM ENTERING THE CONDUIT AND CAP SPACE, THE CONTRACTOR AFTER PLACING THE 2 FEET OF #4 SOLID COPPER ELECTRODE IN THE CONDUIT, SHALL USE A FOAM FILL OR MATERIAL INSIDE THE 3 INCH PVC CAP, ALLOWING THE INSTRUCTED TIME TO DRY BEFORE POURING THE CONCRETE.

*7. KING COUNTY METRO SHALL REMOVE 3 INCH PVC CAP, PULL OUT THE #4 SOLID COPPER ELECTRODE, INSTALL A 1 INCH THREADED GRS NIPPLE AND CONNECT THE #4 SOLID COPPER ELECTRODE (AND FIXTURE GROUND IF APPLICABLE) TO THE GROUNDING LUG IN THE SHELTER LEG.

*8. IF THERE IS NO SPECIFIED CONNECTION TO A POWER SOURCE, 1" GRS CONDUIT SHALL BE EXTENDED 6 INCHES BEYOND THE EDGE OF SHELTER FOOTING AND CAPPED. OTHERWISE THE CONTRACTOR SHALL RUN THE CONDUIT TO THE SPECIFIED LOCATION.

*9. THE CONTRACTOR SHALL PREPARE AN AS–BUILT DRAWING FOR EACH SHELTER LOCATION. A COPY OF THE AS–BUILT DRAWING SHALL BE DELIVERED TO THE KING COUNTY METRO TRANSIT PROJECT REPRESENTATIVE FOR EACH SHELTER PAD LOCATION.

EQUIPMENT:

1. 1–INCH GRS CONDUIT
2. #4 SOLID COPPER ELECTRODE
3. 1–INCH GRS CAP
4. 1–INCH GRS PLUG
5. 1–INCH GRS NIPPLE
6. 1–INCH GRS COUPLING
7. 4–INCH PVC CAP
8. FOAM FILL

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

No.	REVISION	BY	APP'D	DATE
3				
2				
1				
0				
2	ADDENDA	KLW	CDR	8/15/05
1	ADDENDA	KLW	CDR	5/4/05

NOT FOR CONSTRUCTION

DESIGNED: K WATKINS
DRAWN: K WATKINS
RECOMMENDED: C REYNOLDS
APPROVED:
CHECKED: C REYNOLDS
SCALE: NOT TO SCALE
CONTRACT NO: C00256C07

King County

Department of Transportation - Transit Division
STANDARDS FOR CONSTRUCTION OF TRANSIT PASSENGER FACILITIES
INTERNAL SOLAR BUS SHELTER LIGHTING

DATE: JAN 08
FILE NO: C111C
DRAWING NO: D111
SHEET NO: 11 OF 12

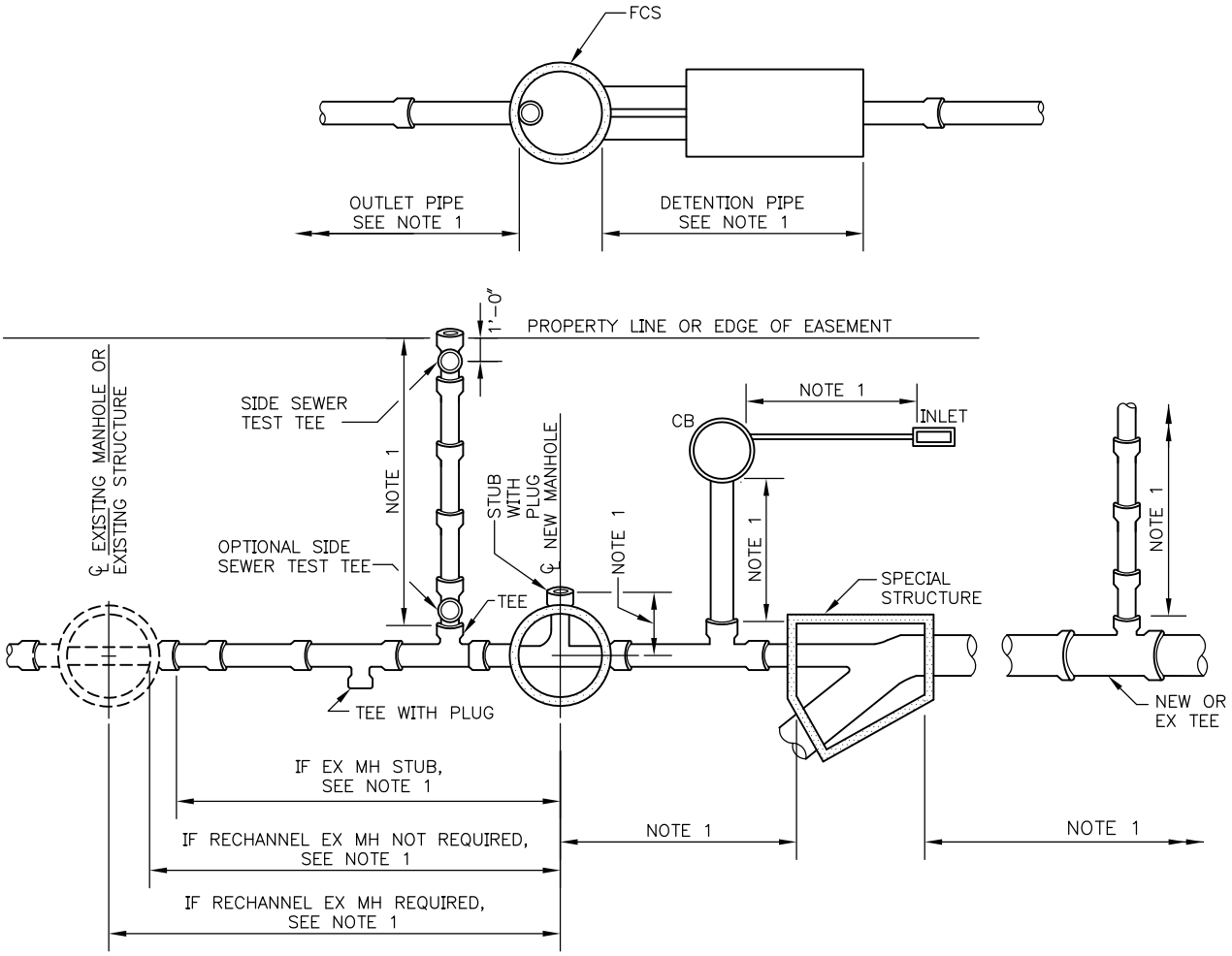
V:\Library & Standards\Standards\PFPMetro\PFP Standard Construction Set\D111C.dwg | Layout: D111
PLOTTED: Jan 02, 2008–09:32:02am By suterj
XREFS:
IMAGES:

SOUTH PARK BRIDGE NO. 3179
(14th/16th Avenue South over Duwamish Waterway)

APPENDIX B
to the
SPECIAL PROVISIONS

City of Seattle Applicable Standard Plans

REV DATE: 2003



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 SHALL BE MEASURED ON THE SLOPE ALONG THE CENTERLINE OF PIPE TO NEAREST 0.10 LF.

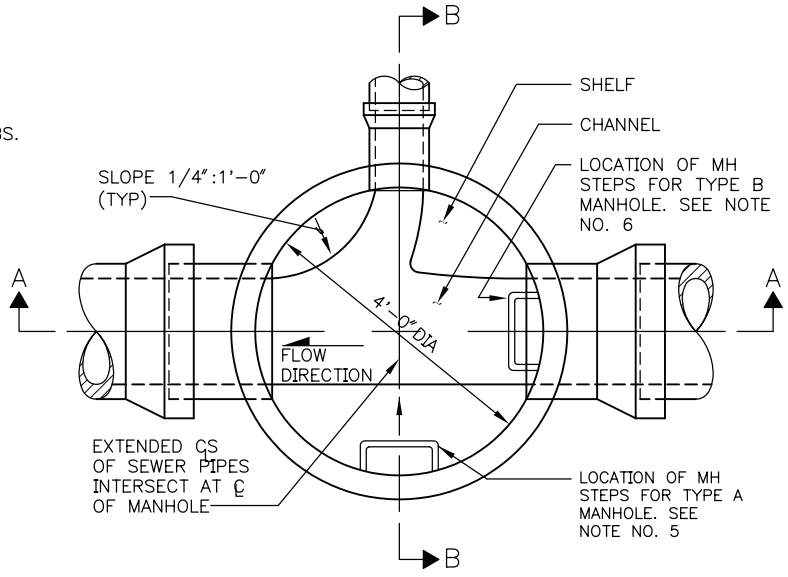
City of Seattle	NOT TO SCALE	SEWER/DRAINAGE MEASUREMENT DIAGRAM

STANDARD PLAN NO 200a

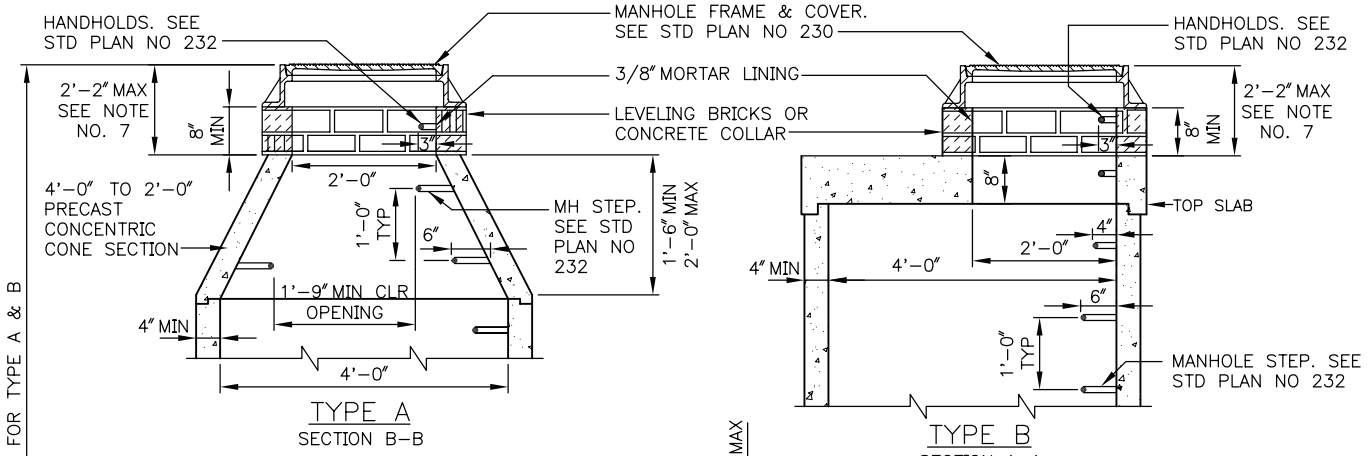
REV DATE: 2003

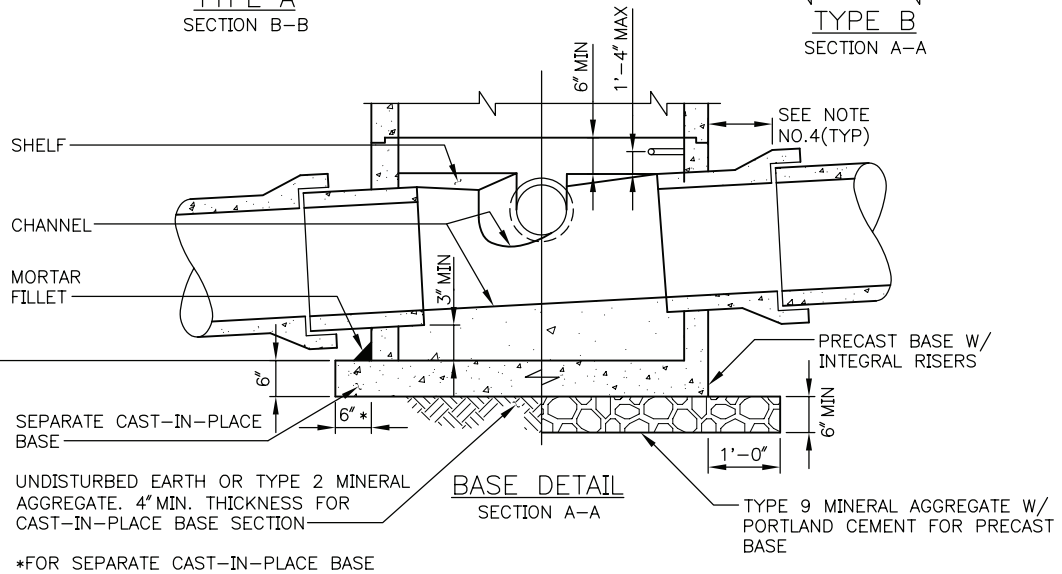
NOTES:

1. TYPE A MANHOLE DESIGNATES MANHOLES WITH PRECAST CONCENTRIC CONE SECTIONS.
2. TYPE B MANHOLE DESIGNATES MANHOLES WITH TOP SLABS.
3. TOP SLAB AND BASE SECTION DETAILS, SEE STANDARD PLAN NO 200b.
4. MAXIMUM DIMENSION FROM OUTSIDE MANHOLE WALL TO THE FIRST PIPE JOINT, THE GREATER OF 1/2 INSIDE PIPE DIAMETER OR 1'–0".
5. FOR TYPE A MANHOLE, LOCATE MANHOLE STEPS ON THE SIDE PERPENDICULAR TO THE DIRECTION OF THE FLOW IN THE CHANNEL.
6. FOR TYPE B MANHOLE, LOCATE MANHOLE STEPS OPPOSITE TO THE DOWNSTREAM OPENING.
7. TOTAL HEIGHT OF AN EXTENSION, MANHOLE FRAME AND LEVELING BRICKS SHALL NOT EXCEED 2'–2".
8. MANHOLE BASE SECTIONS SHOWN IN SECTION A–A AND SECTION B–B ARE TYPICAL FOR TYPE A AND TYPE B MANHOLES.
9. THE MAXIMUM HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS THE MANHOLE WALL THICKNESS. THE MINIMUM HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 4 INCHES. MINIMUM DISTANCE BETWEEN HOLES IS 8 INCHES.
10. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.



PLAN VIEW
(TOP REMOVED)

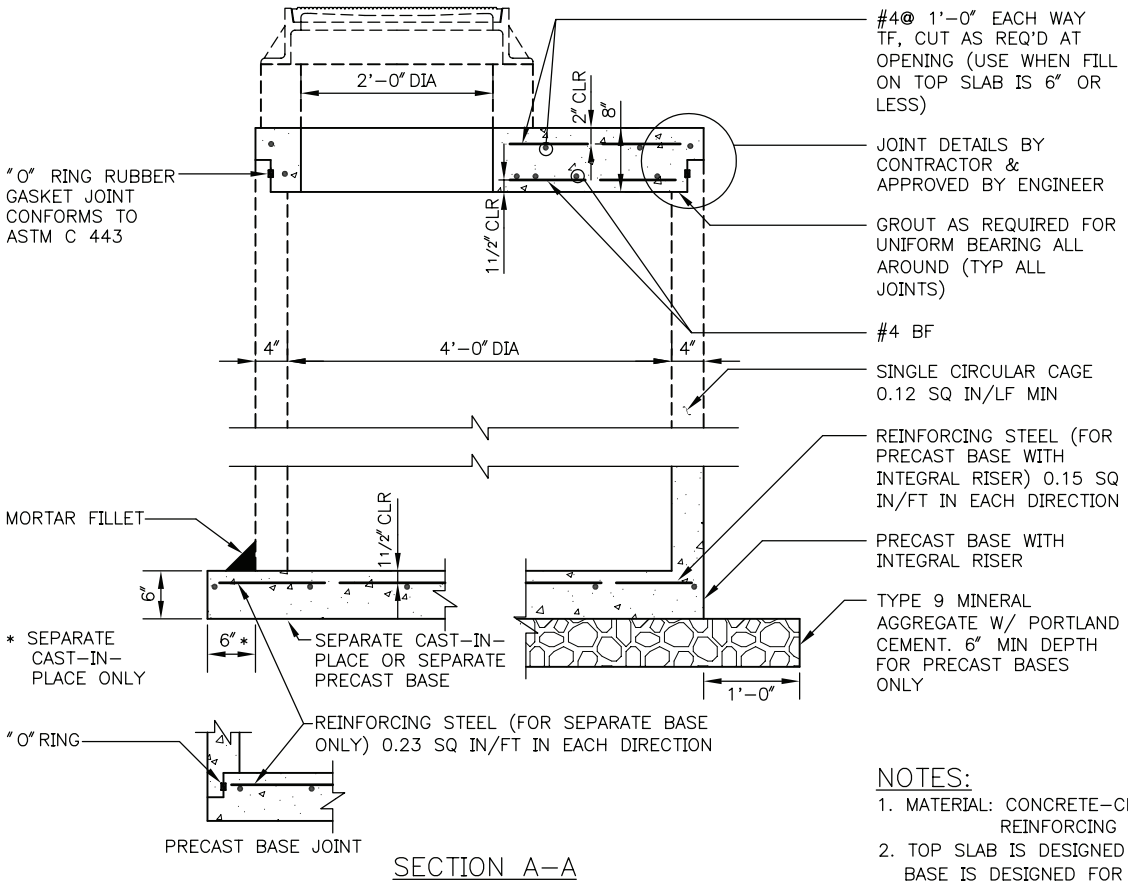




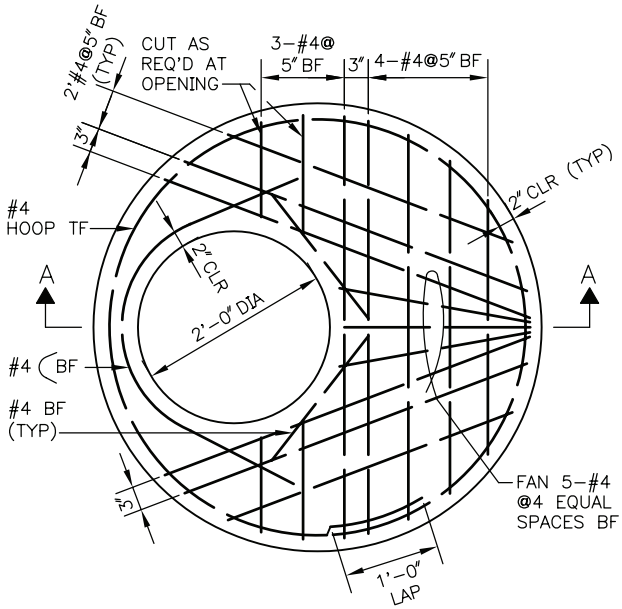
*FOR SEPARATE CAST–IN–PLACE BASE

City of Seattle	NOT TO SCALE	TYPE 200 MANHOLE

REV DATE: 2003



SECTION A-A



TYPE 200 MH-TOP SLAB

NOTES:

1. MATERIAL: CONCRETE-CLASS AX
   REINFORCING STEEL-ASTM A 615 GR 60
2. TOP SLAB IS DESIGNED FOR 3'-0" MAX COVER
   BASE IS DESIGNED FOR 20'-0" MAX COVER
3. HEIGHT 8'-0" TO 12'-0":
   MIN. REQUIRED SOIL BEARING = 3300 LBS/SQ FT
4. HEIGHT 12'-0" TO 20'-0":
   MIN. REQUIRED SOIL BEARING = 3800 LBS/SQ FT

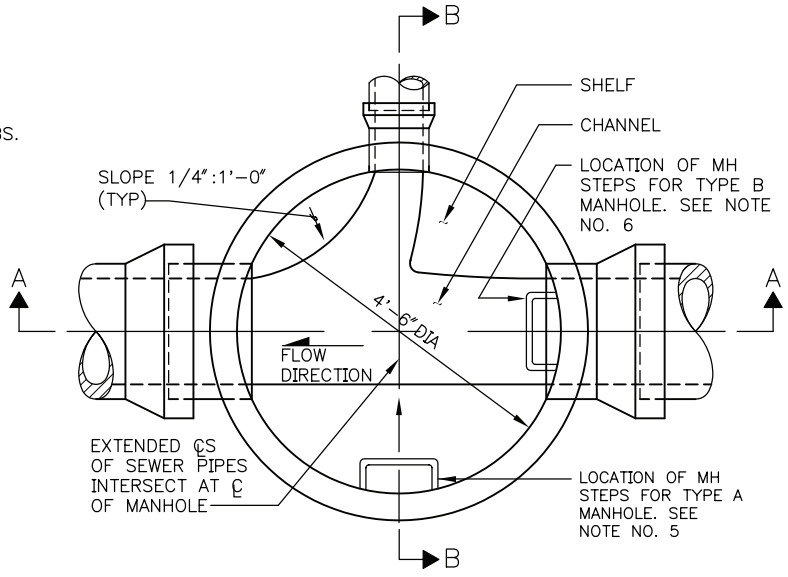
City of Seattle	NOT TO SCALE	TYPE 200 MANHOLE TOP & BOTTOM SLABS

STANDARD PLAN NO 201a

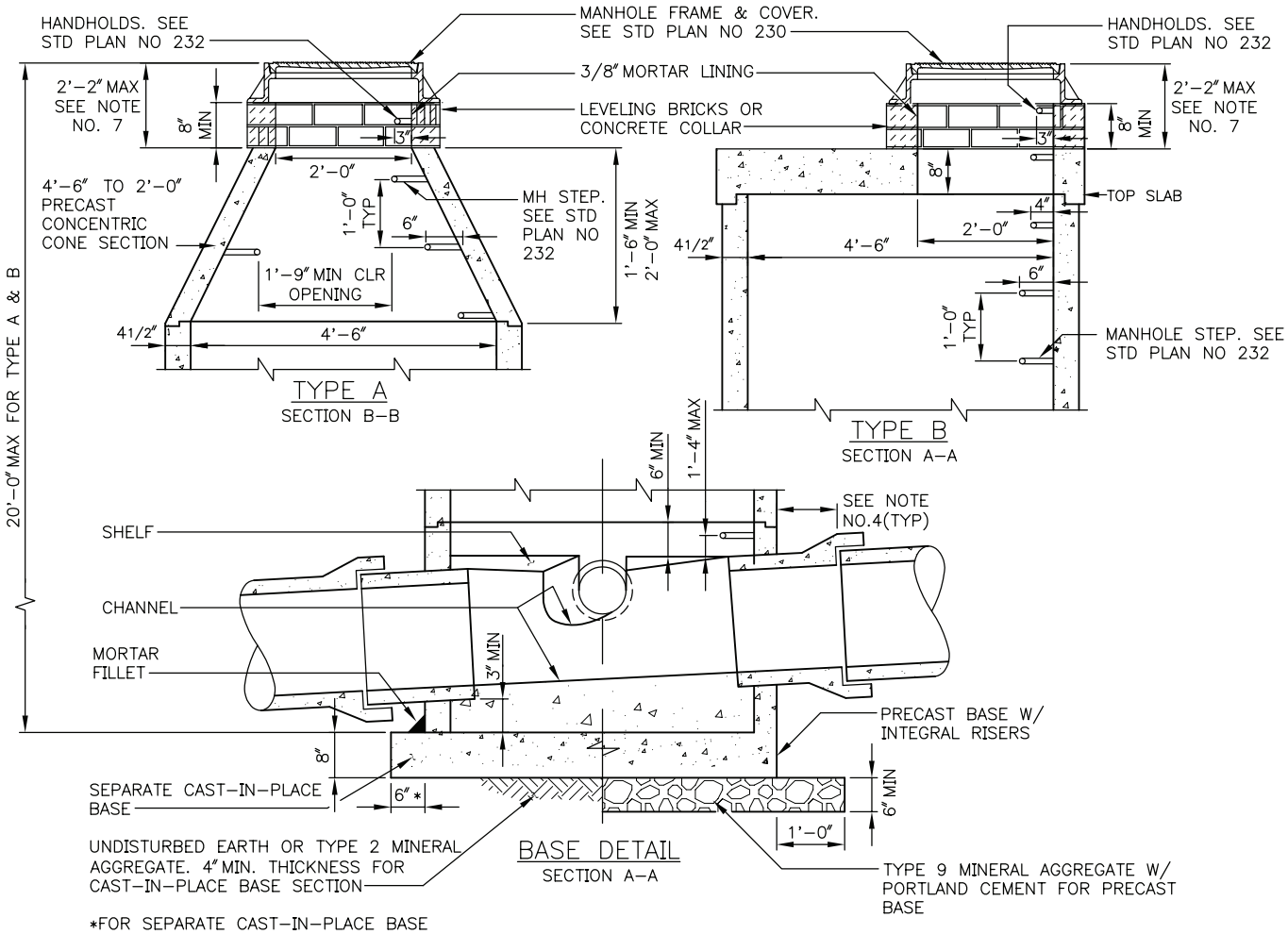
REV DATE: 2003

NOTES:

1. TYPE A MANHOLE DESIGNATES MANHOLES WITH PRECAST CONCENTRIC CONE SECTIONS.
2. TYPE B MANHOLE DESIGNATES MANHOLES WITH TOP SLABS.
3. TOP SLAB AND BASE SECTION DETAILS, SEE STANDARD PLAN NO 201b.
4. MAXIMUM DIMENSION FROM OUTSIDE MANHOLE WALL TO THE FIRST PIPE JOINT, THE GREATER OF 1/2 INSIDE PIPE DIAMETER OR 1'–0".
5. FOR TYPE A MANHOLE, LOCATE MANHOLE STEPS ON THE SIDE PERPENDICULAR TO THE DIRECTION OF THE FLOW IN THE CHANNEL.
6. FOR TYPE B MANHOLE, LOCATE MANHOLE STEPS OPPOSITE TO THE DOWNSTREAM OPENING.
7. TOTAL HEIGHT OF AN EXTENSION, MANHOLE FRAME AND LEVELING BRICKS SHALL NOT EXCEED 2'–2".
8. MANHOLE BASE SECTIONS SHOWN IN SECTION A–A AND SECTION B–B ARE TYPICAL FOR TYPE A AND TYPE B MANHOLES.
9. THE MAXIMUM HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS THE MANHOLE WALL THICKNESS. THE MINIMUM HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 4 INCHES. MINIMUM DISTANCE BETWEEN HOLES IS 8 INCHES.
10. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.



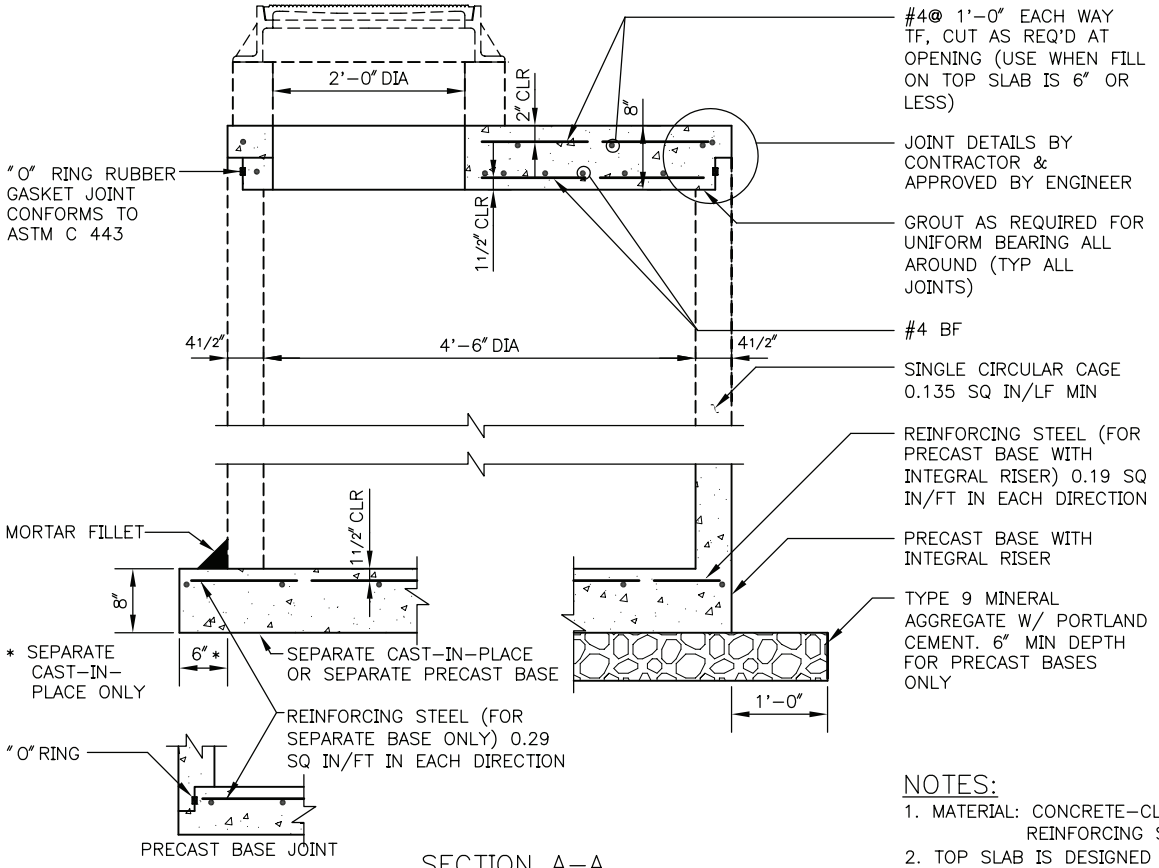
PLAN VIEW
(TOP REMOVED)



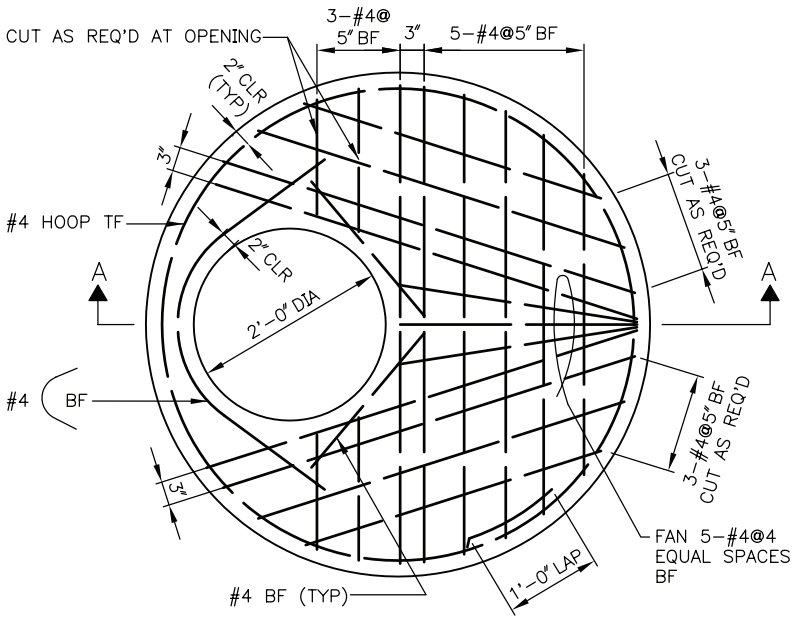
*FOR SEPARATE CAST–IN–PLACE BASE

City of Seattle	NOT TO SCALE	TYPE 201 MANHOLE

REV DATE: 2003



SECTION A–A



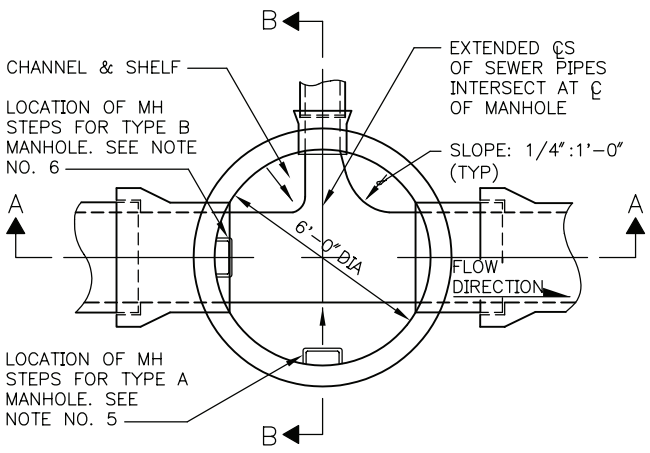
TYPE 201 MH–TOP SLAB

NOTES:

1. MATERIAL: CONCRETE–CLASS AX
   REINFORCING STEEL–ASTM A 615 GR 60
2. TOP SLAB IS DESIGNED FOR 3'–0" MAX COVER
   BASE IS DESIGNED FOR 20'–0" MAX COVER
3. HEIGHT 8'–0" TO 12'–0":
   MIN. REQUIRED SOIL BEARING = 3300 LBS/SQ FT
4. HEIGHT 12'–0" TO 20'–0":
   MIN. REQUIRED SOIL BEARING = 3800 LBS/SQ FT

City of Seattle	NOT TO SCALE	TYPE 201 MANHOLE TOP & BOTTOM SLABS

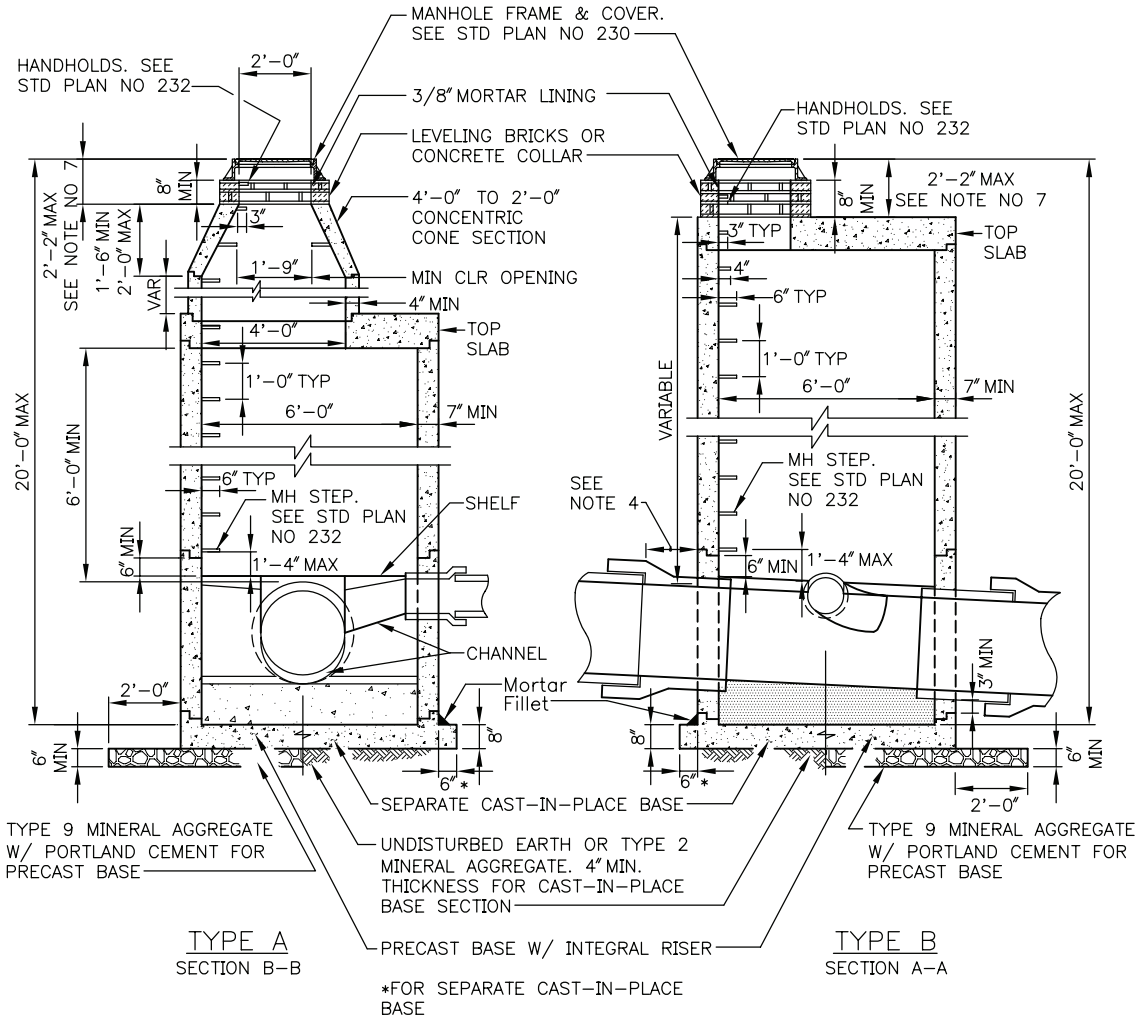
REV DATE: 2003



PLAN VIEW
(TOP REMOVED)

NOTES:

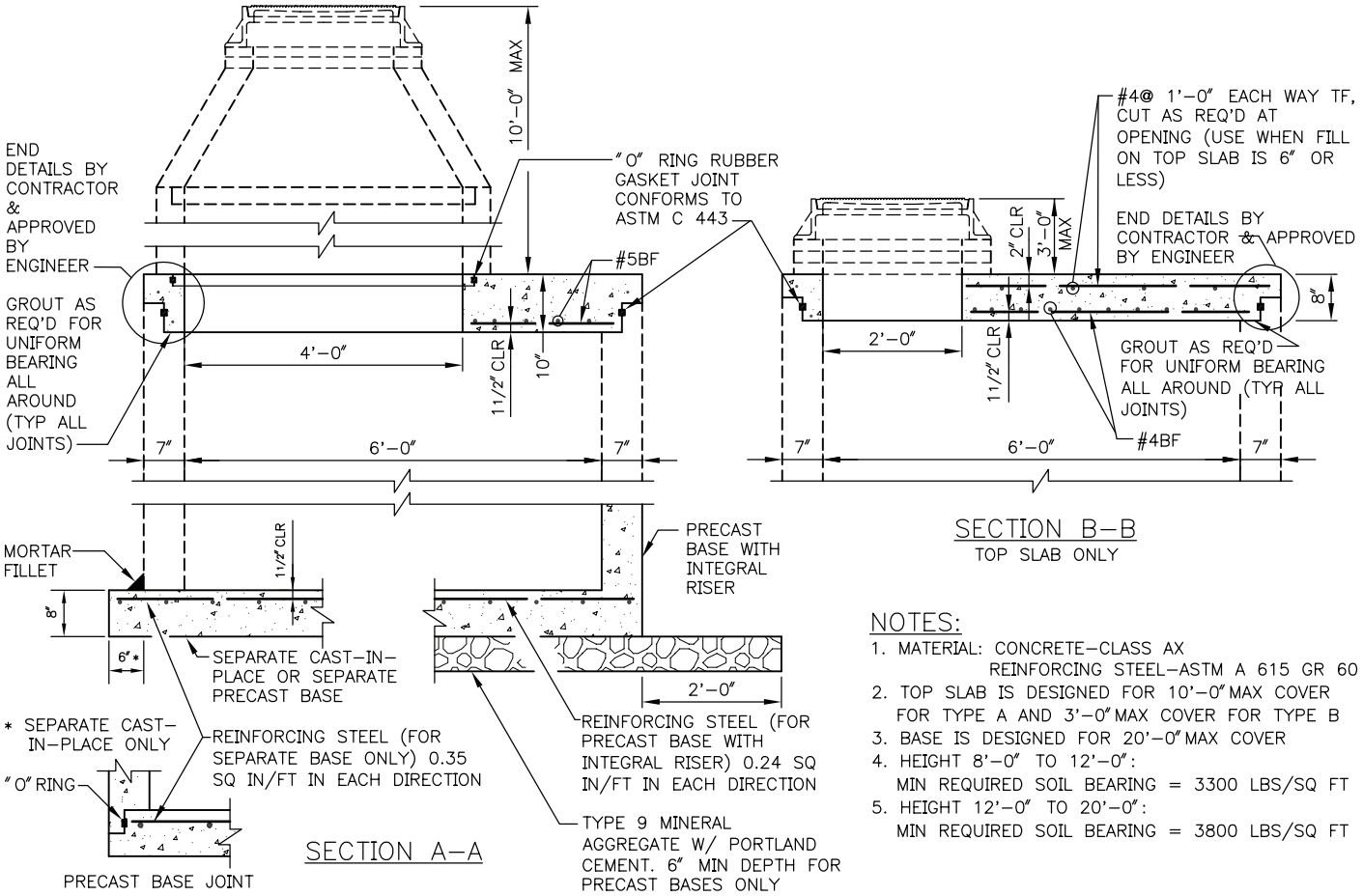
1. MH 202 TYPE A DESIGNATES A MANHOLE TOP SLAB WITH A 4'–0" DIA ACCESS.
2. MH 202 TYPE B DESIGNATES A MANHOLE TOP SLAB WITH A 2'–0" DIA ACCESS.
3. TOP SLAB AND BASE SECTION DETAILS, SEE STANDARD PLAN NO 202b.
4. MAXIMUM DIMENSION FROM OUTSIDE MANHOLE WALL TO THE FIRST PIPE JOINT. THE GREATER OF 1/2 INSIDE PIPE DIAMETER OR 1'–0".
5. FOR TYPE A MANHOLE, LOCATE MANHOLE STEPS ON THE SIDE PERPENDICULAR TO THE DIRECTION OF THE FLOW IN THE CHANNEL.
6. FOR TYPE B MANHOLE, LOCATE MANHOLE STEPS OPPOSITE TO THE DOWNSTREAM OPENING.
7. TOTAL HEIGHT OF AN EXTENSION, MANHOLE FRAME & COVER AND LEVELING BRICKS SHALL NOT EXCEED 2'–2".
8. MANHOLE BASE SECTIONS SHOWN IN SECTION A–A AND SECTION B–B ARE TYPICAL FOR TYPE A AND TYPE B MANHOLES.
9. THE MAXIMUM HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS THE MANHOLE WALL THICKNESS. THE MINIMUM HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 4 INCHES. MINIMUM DISTANCE BETWEEN HOLES IS 1'–0" INCHES.
10. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.



City of Seattle	NOT TO SCALE	TYPE 202 MANHOLE

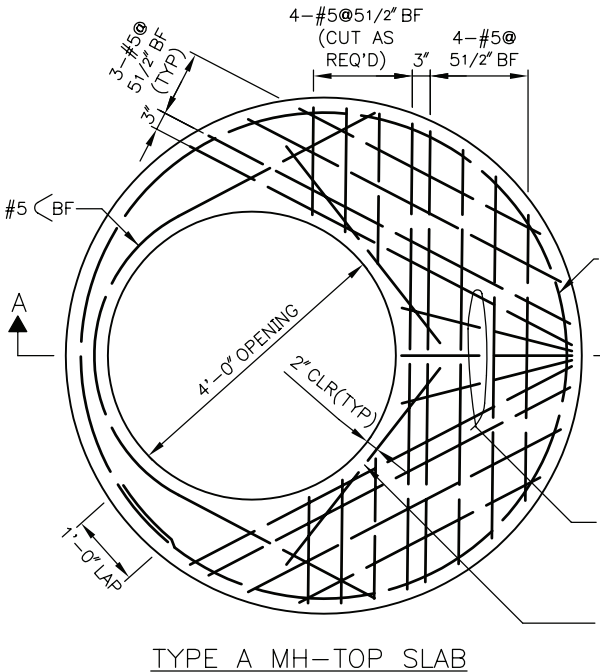
STANDARD PLAN NO 202b

REV DATE: 2003

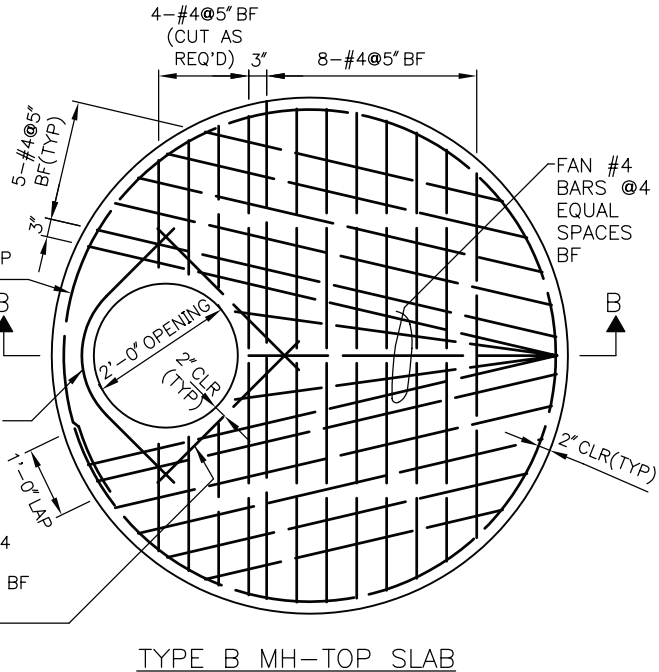


NOTES:

1. MATERIAL: CONCRETE-CLASS AX
   REINFORCING STEEL-ASTM A 615 GR 60
2. TOP SLAB IS DESIGNED FOR 10'-0" MAX COVER FOR TYPE A AND 3'-0" MAX COVER FOR TYPE B
3. BASE IS DESIGNED FOR 20'-0" MAX COVER
4. HEIGHT 8'-0" TO 12'-0":
   MIN REQUIRED SOIL BEARING = 3300 LBS/SQ FT
5. HEIGHT 12'-0" TO 20'-0":
   MIN REQUIRED SOIL BEARING = 3800 LBS/SQ FT



TYPE A MH-TOP SLAB

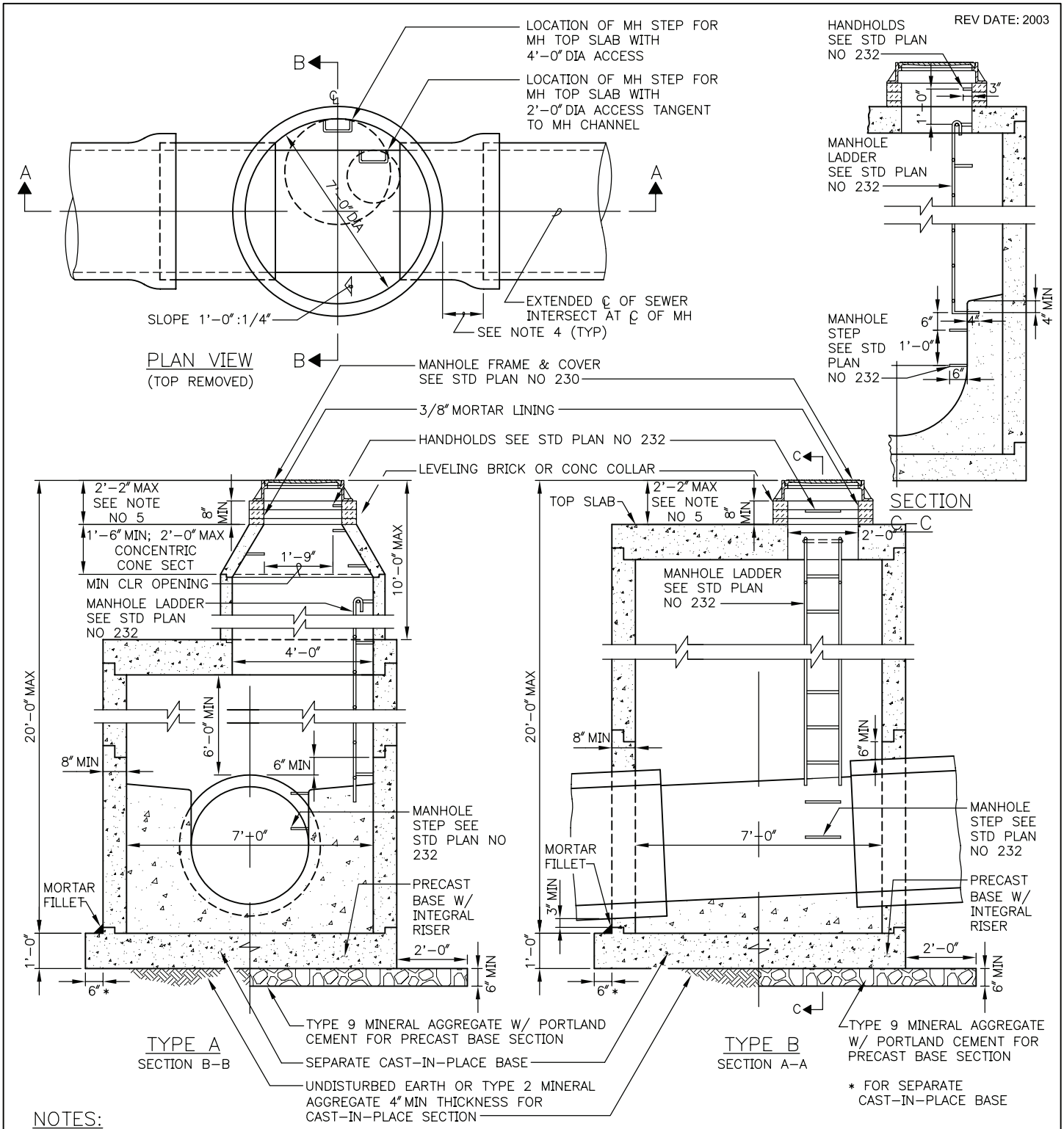


TYPE B MH-TOP SLAB

City of Seattle	NOT TO SCALE	TYPE 202 MANHOLE TOP & BOTTOM SLABS

STANDARD PLAN NO 203a

REV DATE: 2003



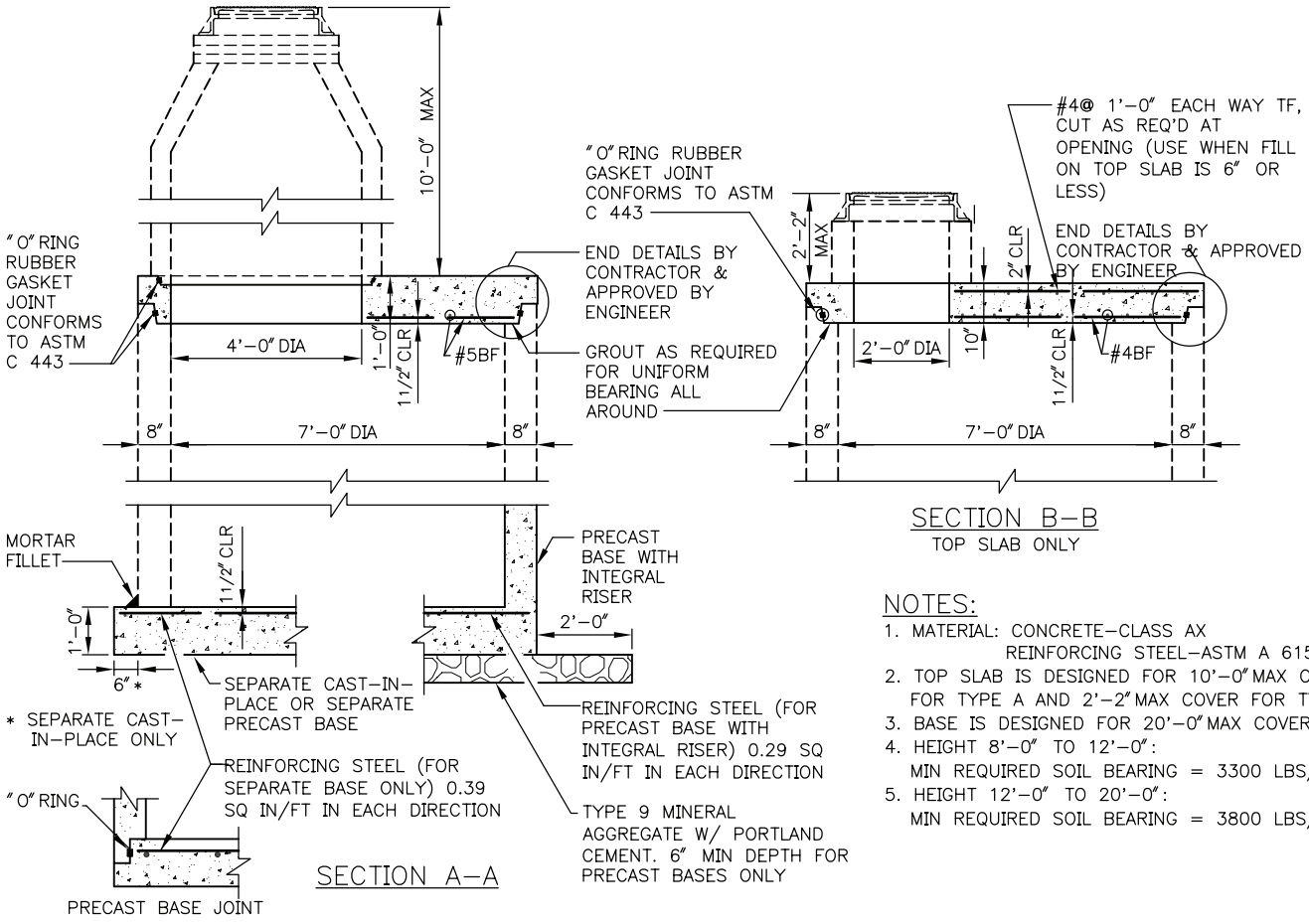
NOTES:

1. TYPE A MH DESIGNATES A MH TOP SLAB WITH A 4'-0" DIA ACCESS.
2. TYPE B MH DESIGNATES A MH TOP SLAB WITH A 2'-0" DIA ACCESS.
3. TOP SLAB AND BASE SECTION DETAILS, SEE STD PLAN NO 203b.
4. MAX DIMENSION FROM OUTSIDE MH WALL TO THE FIRST PIPE FLEX JOINT. THE GREATER OF 1/2 INSIDE PIPE DIAMETER OR 1'-0".
5. TOTAL HEIGHT OF FRAME EXTENSIONS, MH FRAME AND COVER, AND LEVELING BRICKS SHALL NOT EXCEED 2'-2".
6. MH BASE SECTIONS SHOWN IN SECTION A-A AND SECTION B-B ARE TYPICAL FOR TYPE A AND TYPE B MHS.
7. MAX HOLE SIZE IS EQUAL TO THE OUTSIDE DIAMETER OF THE PIPE PLUS THE MH WALL THICKNESS. MIN DISTANCE BETWEEN HOLES IS 1'-0".
8. PRECAST MH COMPONENTS SHALL CONFORM TO ASTM C 478. JOINTS BETWEEN PRECAST COMPONENTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C 443.

City of Seattle	NOT TO SCALE	TYPE 203 MANHOLE

STANDARD PLAN NO 203b

REV DATE: 2008

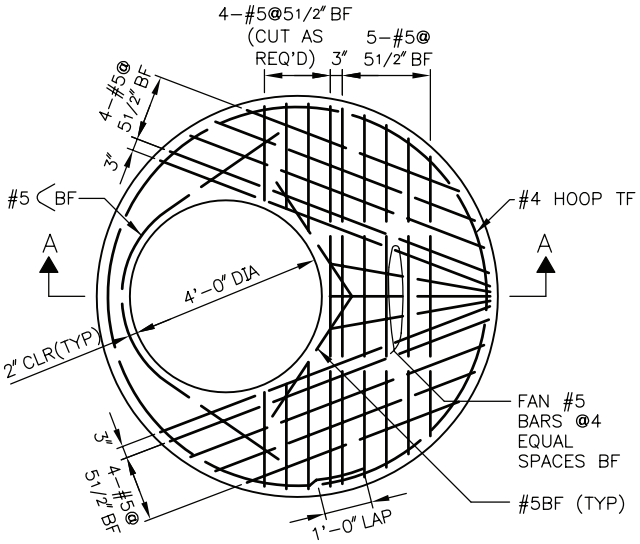


SECTION A–A

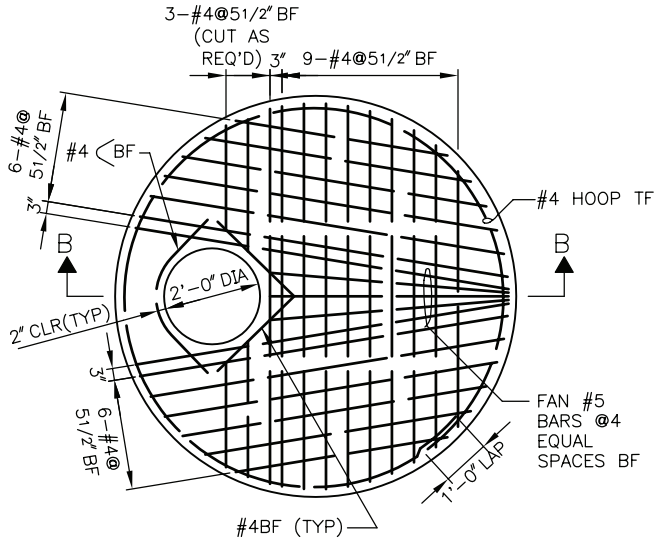
SECTION B–B
TOP SLAB ONLY

NOTES:

1. MATERIAL: CONCRETE–CLASS AX
   REINFORCING STEEL–ASTM A 615 GR 60
2. TOP SLAB IS DESIGNED FOR 10'–0" MAX COVER FOR TYPE A AND 2'–2" MAX COVER FOR TYPE B
3. BASE IS DESIGNED FOR 20'–0" MAX COVER
4. HEIGHT 8'–0" TO 12'–0":
   MIN REQUIRED SOIL BEARING = 3300 LBS/SQ FT
5. HEIGHT 12'–0" TO 20'–0":
   MIN REQUIRED SOIL BEARING = 3800 LBS/SQ FT



TYPE A MH–TOP SLAB

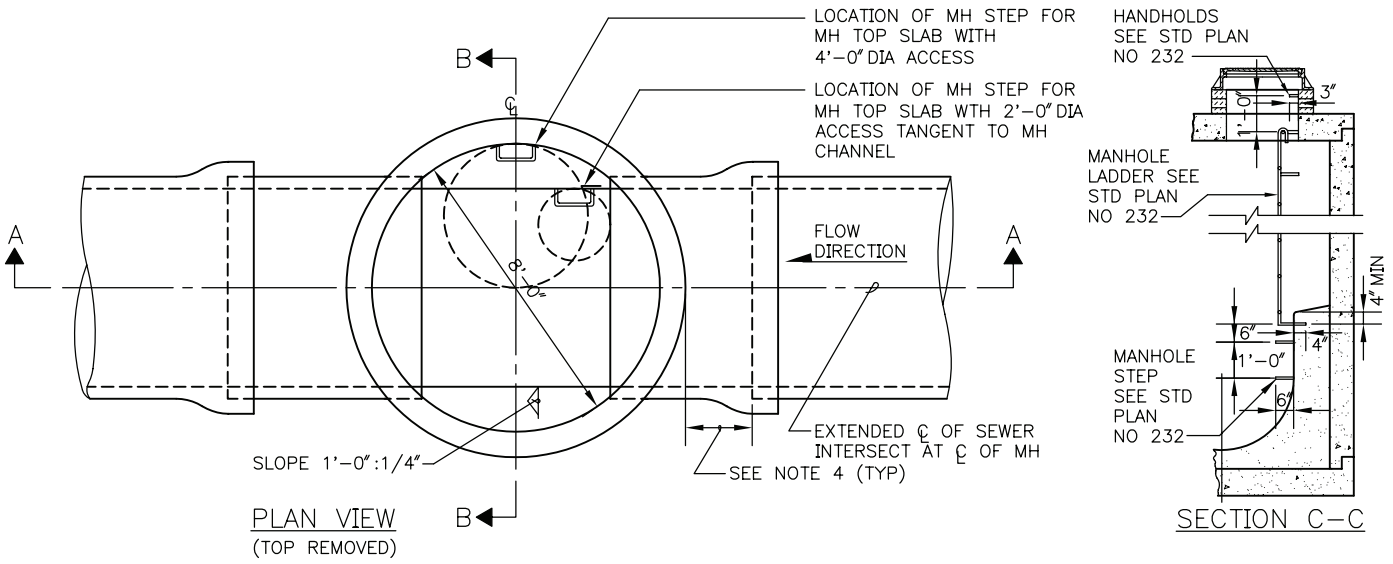


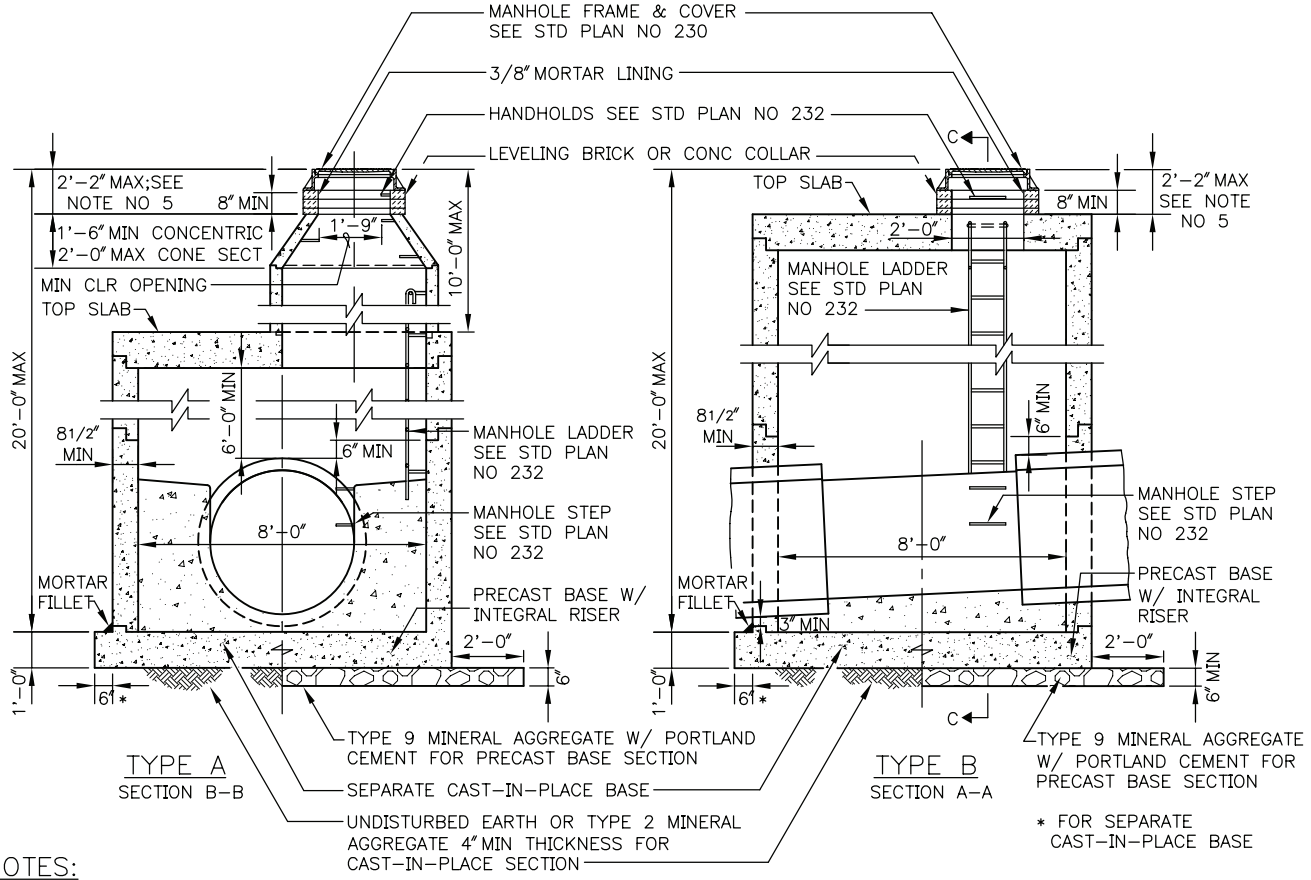
TYPE B MH–TOP SLAB

City of Seattle	NOT TO SCALE	TYPE 203 MANHOLE TOP & BOTTOM SLABS

STANDARD PLAN NO 204a

REV DATE: 2003





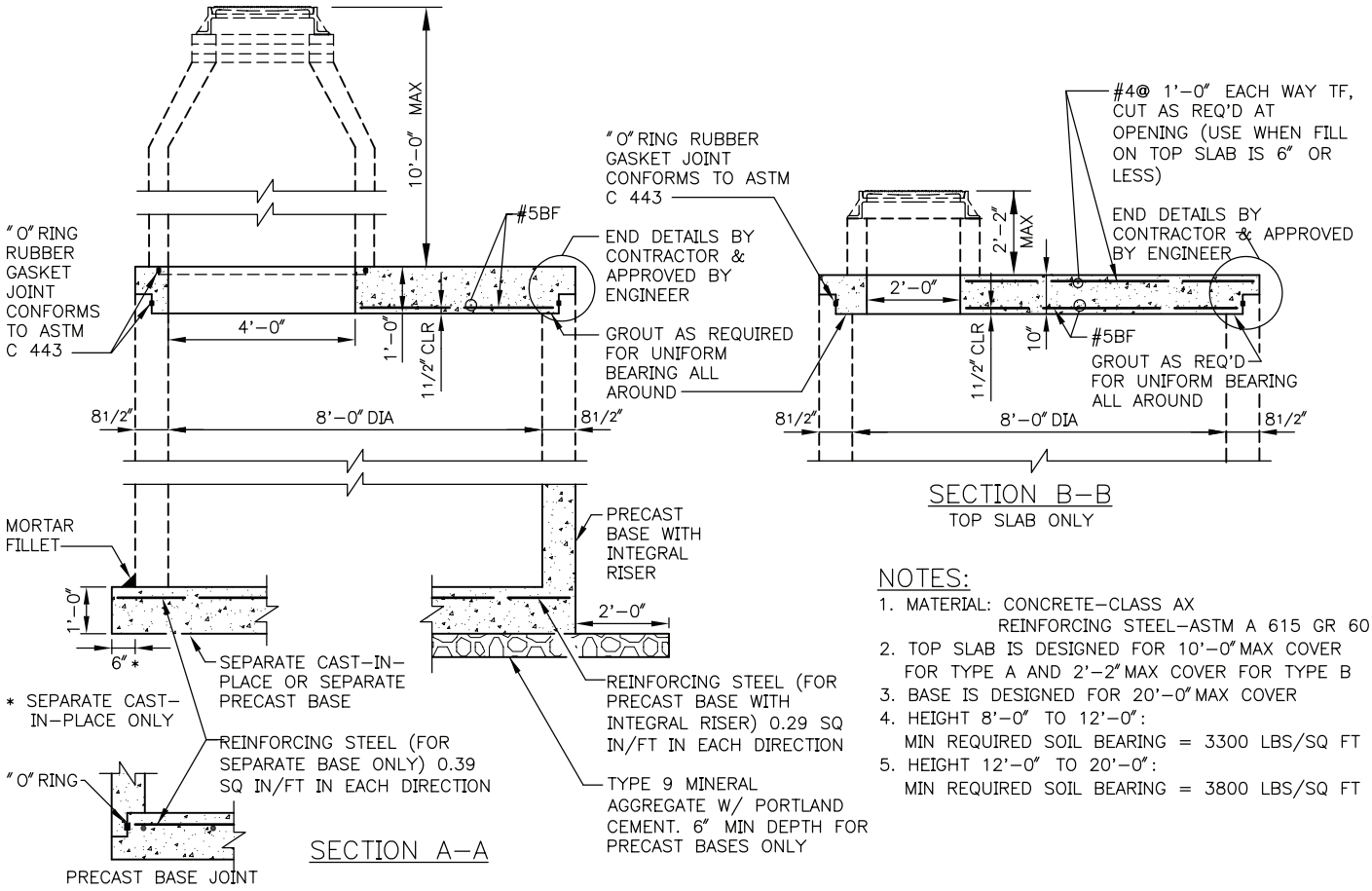
NOTES:

1. TYPE A MH DESIGNATES A MH TOP SLAB WITH A 4'–0" DIA ACCESS.
2. TYPE B MH DESIGNATES A MH TOP SLAB WITH A 2'–0" DIA ACCESS.
3. TOP SLAB AND BASE SECTION DETAILS, SEE STD PLAN NO 204.B.
4. MAX DIMENSION FROM OUTSIDE MH WALL TO THE FIRST PIPE JOINT. THE GREATER OF 1/2 INSIDE PIPE DIAMETER OR 1'–0".
5. TOTAL HEIGHT OF FRAME EXTENSIONS, MH FRAME AND COVER, AND LEVELING BRICKS SHALL NOT EXCEED 2'–2".
6. MH BASE SECTIONS SHOWN IN SECTION A–A AND SECTION B–B ARE TYPICAL FOR TYPE A AND TYPE B MHS.
7. MAX HOLE SIZE IS EQUAL TO THE OUTSIDE DIAMETER OF THE PIPE PLUS THE MH WALL THICKNESS. MIN DISTANCE BETWEEN HOLES IS 1'–0".

City of Seattle	NOT TO SCALE	TYPE 204 MANHOLE

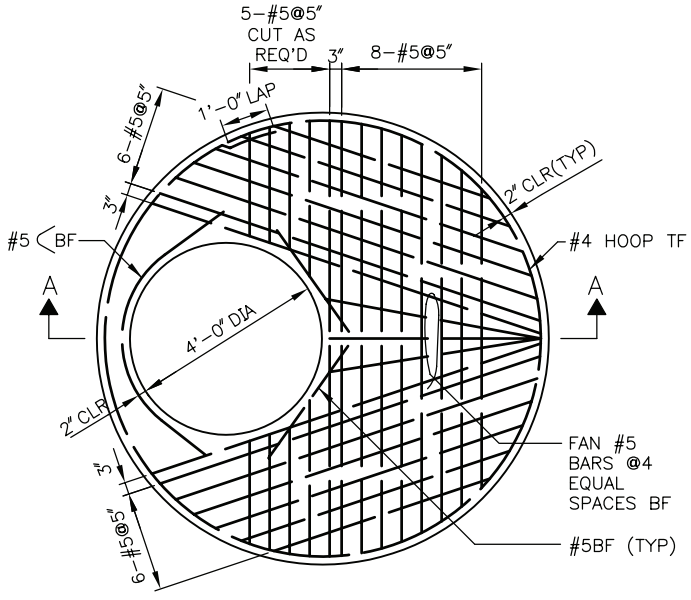
STANDARD PLAN NO 204b

REV DATE: 2008

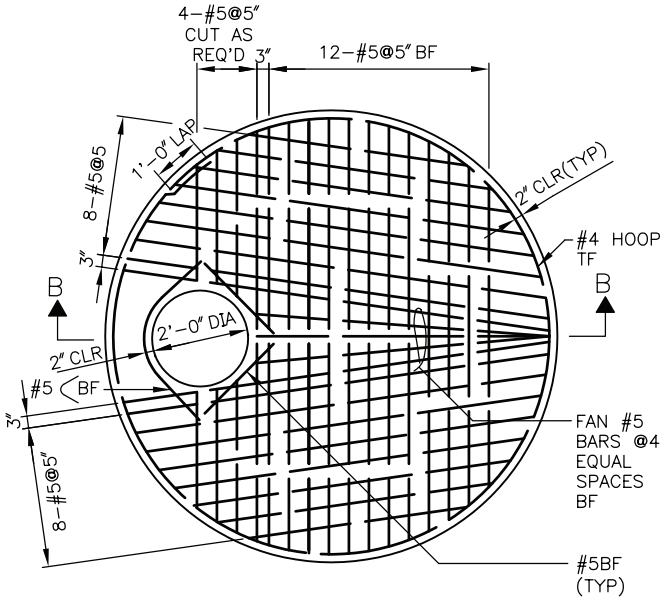


NOTES:

1. MATERIAL: CONCRETE-CLASS AX
   REINFORCING STEEL-ASTM A 615 GR 60
2. TOP SLAB IS DESIGNED FOR 10'-0" MAX COVER FOR TYPE A AND 2'-2" MAX COVER FOR TYPE B
3. BASE IS DESIGNED FOR 20'-0" MAX COVER
4. HEIGHT 8'-0" TO 12'-0":
   MIN REQUIRED SOIL BEARING = 3300 LBS/SQ FT
5. HEIGHT 12'-0" TO 20'-0":
   MIN REQUIRED SOIL BEARING = 3800 LBS/SQ FT



TYPE A MH-TOP SLAB

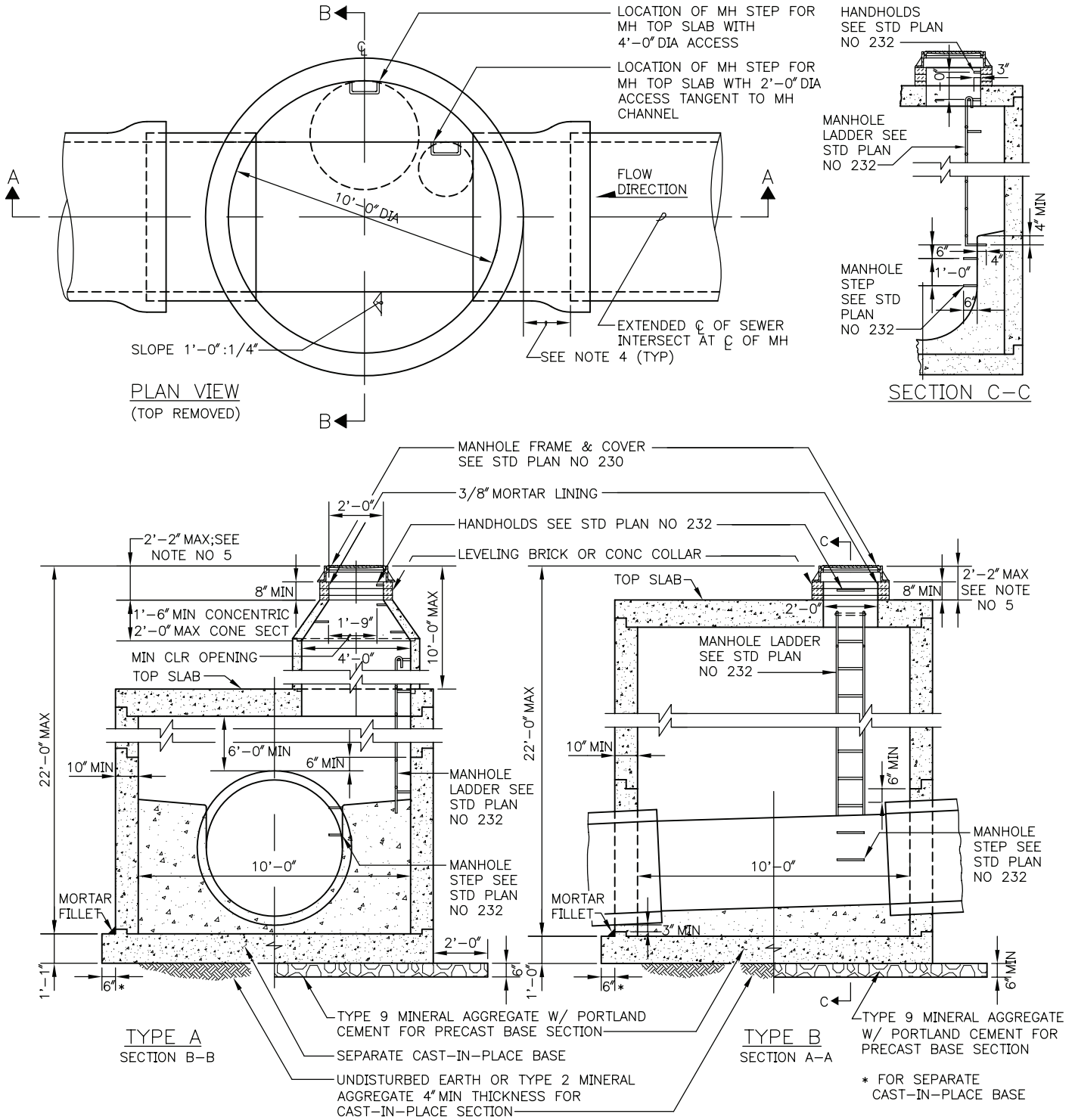


TYPE B MH-TOP SLAB

City of Seattle	NOT TO SCALE	TYPE 204 MANHOLE TOP & BOTTOM SLABS

STANDARD PLAN NO 205a

REV DATE: 2003

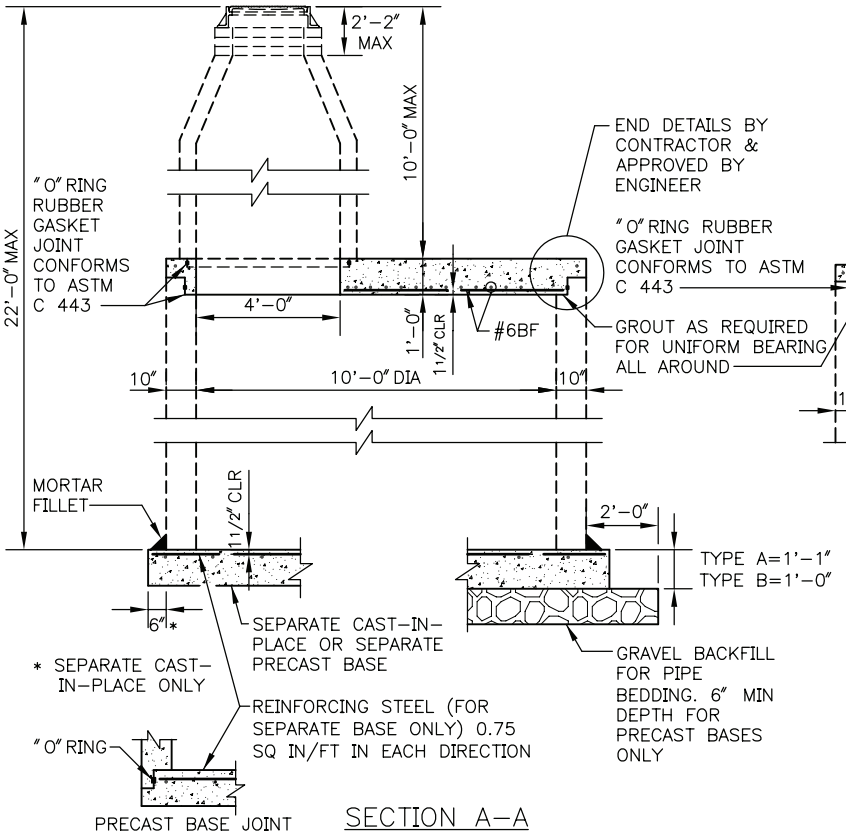


NOTES:

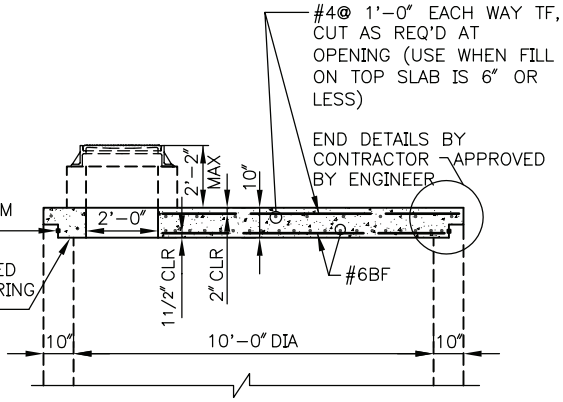
1. TYPE A MH DESIGNATES A MH TOP SLAB WITH A 4'–0" DIA ACCESS.
2. TYPE B MH DESIGNATES A MH TOP SLAB WITH A 2'–0" DIA ACCESS.
3. TOP SLAB AND BASE SECTION DETAILS, SEE STD PLAN NO 205b.
4. MAX DIMENSION FROM OUTSIDE MH WALL TO THE FIRST PIPE JOINT. THE GREATER OF 1/2 INSIDE PIPE DIAMETER OR 1'–0".
5. TOTAL HEIGHT OF FRAME EXTENSIONS, MH FRAME AND COVER, AND LEVELING BRICKS SHALL NOT EXCEED 2'–2".
6. MH BASE SECTIONS SHOWN IN SECTION A–A AND SECTION B–B ARE TYPICAL FOR TYPE A AND TYPE B MHS.
7. MAX HOLE SIZE IS EQUAL TO THE OUTSIDE DIAMETER OF THE PIPE PLUS THE MH WALL THICKNESS. MIN DISTANCE BETWEEN HOLES IS 1'–0".

City of Seattle	NOT TO SCALE	TYPE 205 MANHOLE

REV DATE: 2008



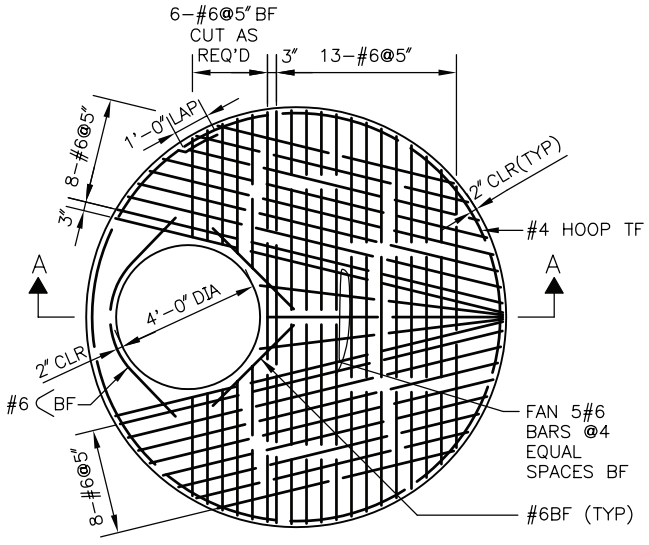
SECTION A-A



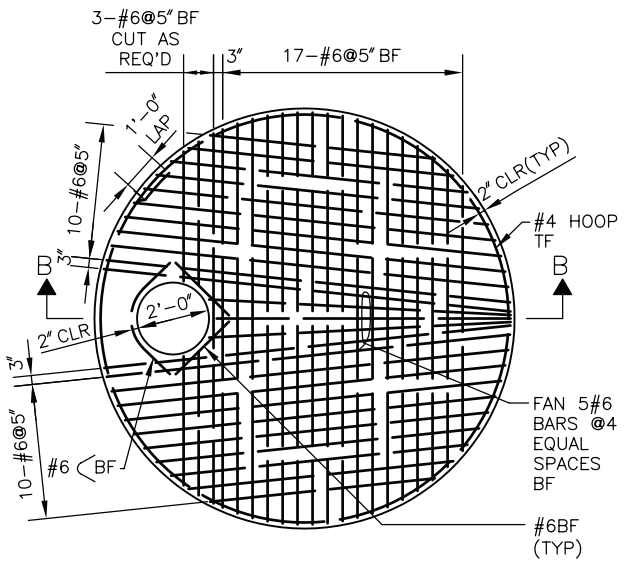
SECTION B-B
TOP SLAB ONLY

NOTES:

1. MATERIAL: CONCRETE-CLASS AX
   REINFORCING STEEL-ASTM A 615 GR 60
2. 10'-0" MAX FILL ON TOP SLAB - TYPE A
3. 2'-2" MAX FILL ON TOP SLAB - TYPE B
4. HEIGHT 8'-0" TO 12'-0":
   MIN REQUIRED SOIL BEARING = 3300 LBS/SQ FT
5. HEIGHT 12'-0" TO 22'-0":
   MIN REQUIRED SOIL BEARING = 3800 LBS/SQ FT



TYPE A MH-TOP SLAB

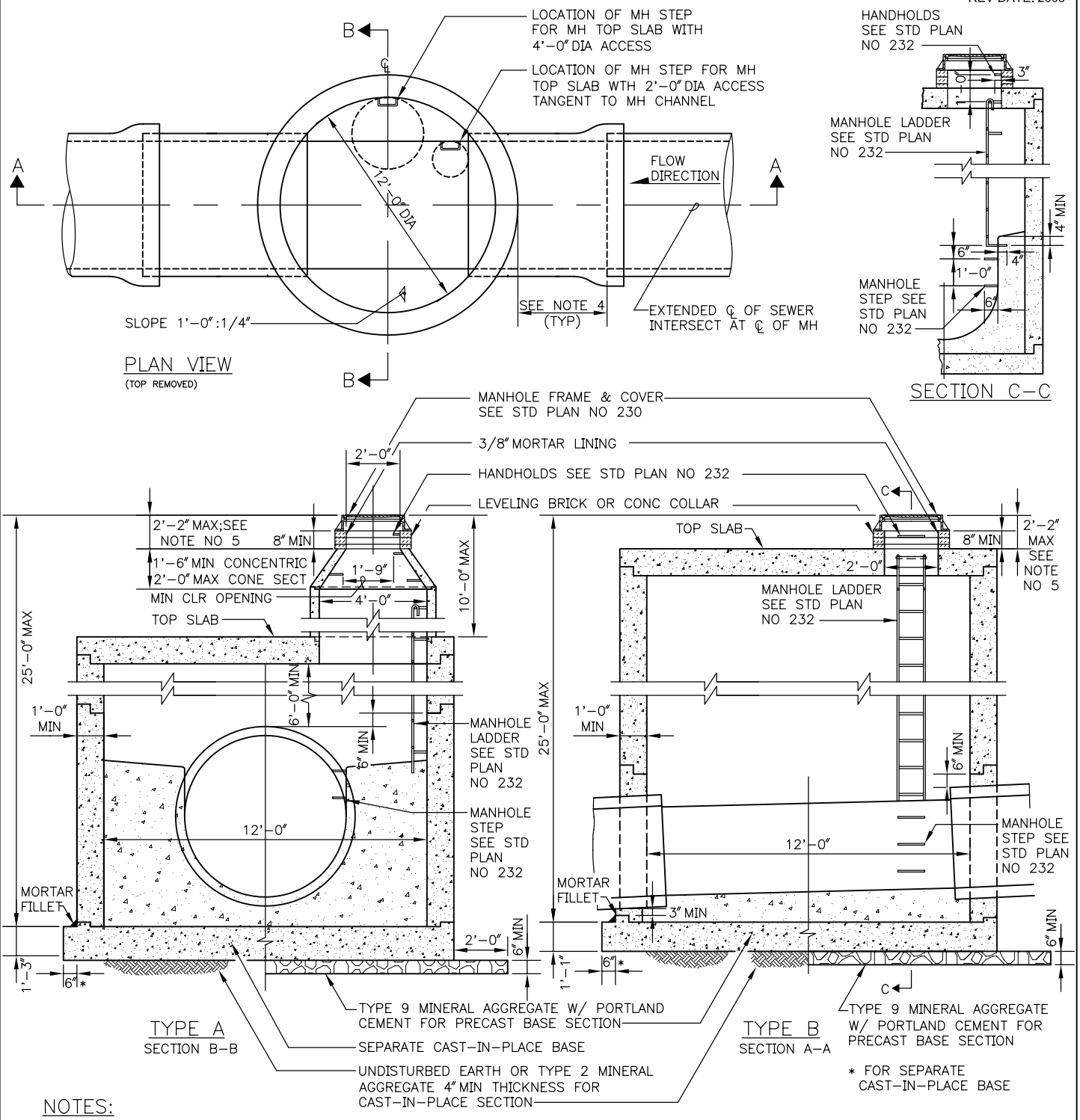


TYPE B MH-TOP SLAB

City of Seattle	NOT TO SCALE	TYPE 205 MANHOLE TOP & BOTTOM SLABS

STANDARD PLAN NO 206a

REV DATE: 2003



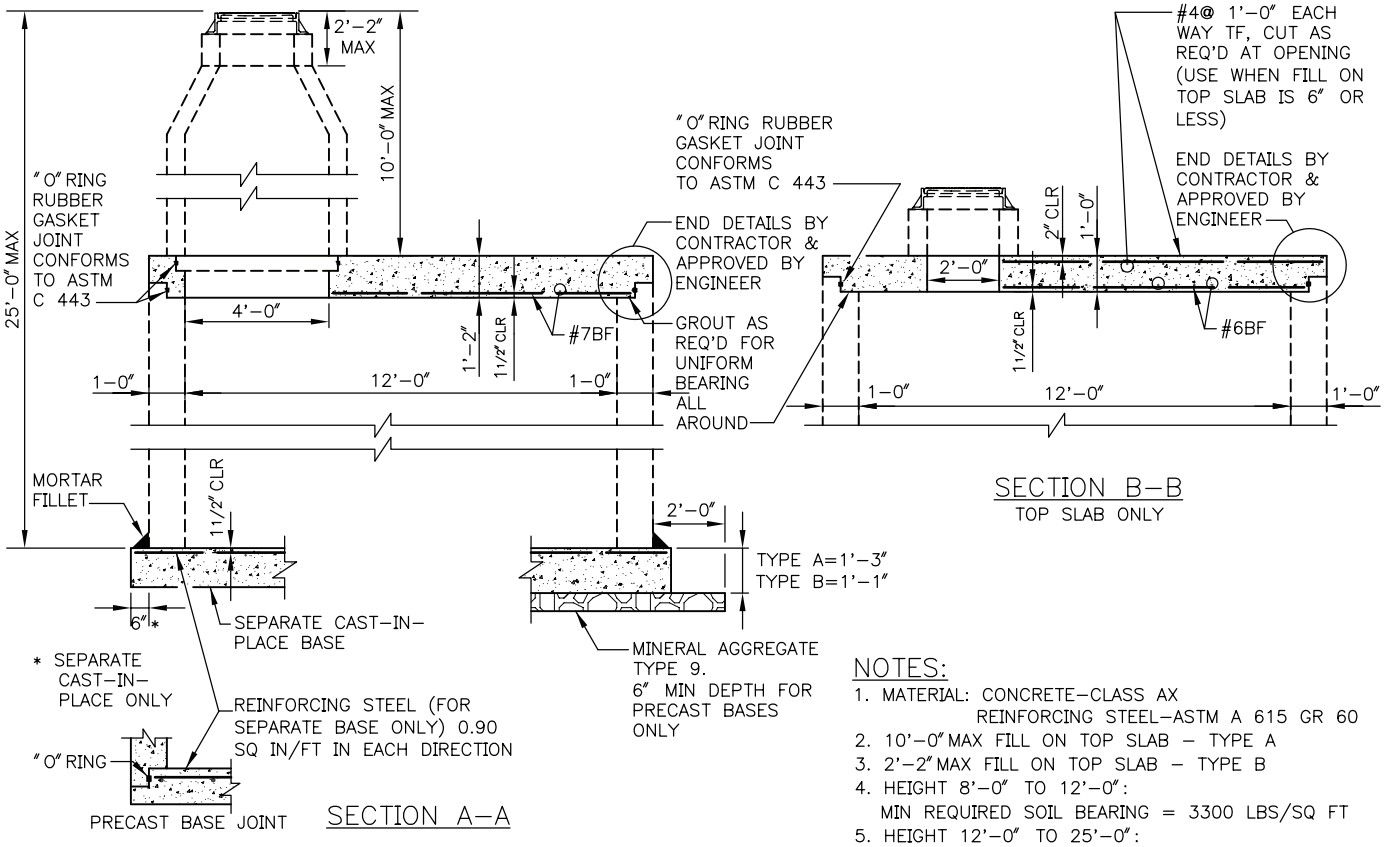
NOTES:

1. TYPE A MH DESIGNATES A MH TOP SLAB WITH A 4'–0" DIA ACCESS.
2. TYPE B MH DESIGNATES A MH TOP SLAB WITH A 2'–0" DIA ACCESS.
3. TOP SLAB AND BASE SECTION DETAILS, SEE STD PLAN NO 206b.
4. MAX DIMENSION FROM OUTSIDE MH WALL TO THE FIRST PIPE JOINT, THE GREATER OF 1/2 INSIDE PIPE DIAMETER OR 1'–0" EXCEPT PVC AND CMP.
5. TOTAL HEIGHT OF FRAME EXTENSIONS, MH FRAME AND COVER, AND LEVELING BRICKS SHALL NOT EXCEED 2'–2".
6. MH BASE SECTIONS SHOWN IN SECTION A–A AND SECTION B–B ARE TYPICAL FOR TYPE A AND TYPE B MHS.
7. MAX HOLE SIZE IS EQUAL TO THE OUTSIDE DIAMETER OF THE PIPE PLUS THE MH WALL THICKNESS. MIN DISTANCE BETWEEN HOLES IS 1'–0".

City of Seattle	NOT TO SCALE	TYPE 206 MANHOLE

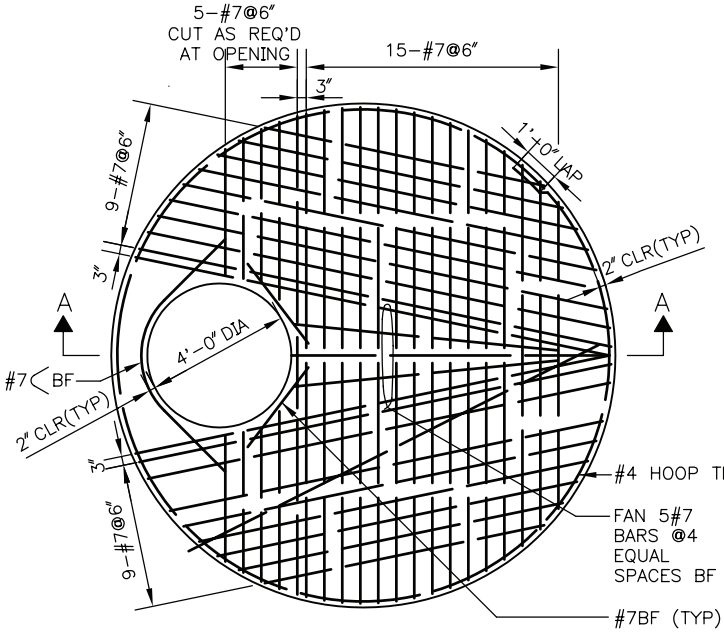
STANDARD PLAN NO 206b

REV DATE: 2008

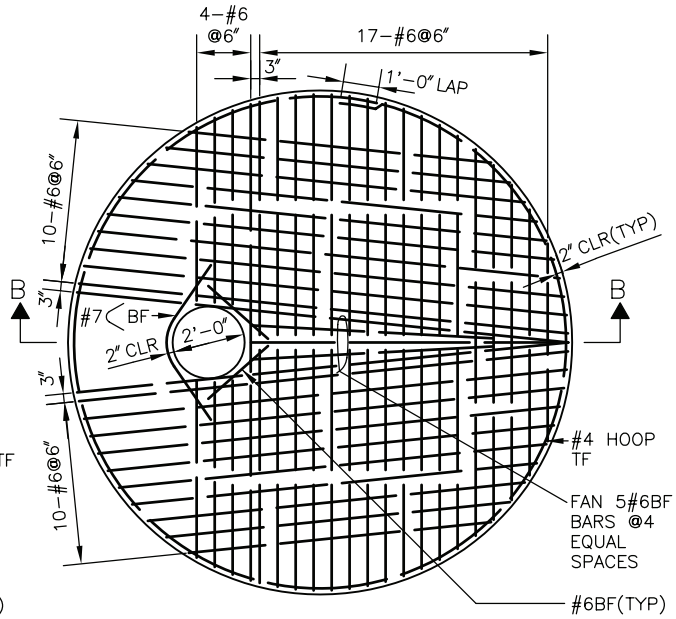


NOTES:

1. MATERIAL: CONCRETE-CLASS AX
   REINFORCING STEEL-ASTM A 615 GR 60
2. 10'-0" MAX FILL ON TOP SLAB - TYPE A
3. 2'-2" MAX FILL ON TOP SLAB - TYPE B
4. HEIGHT 8'-0" TO 12'-0":
   MIN REQUIRED SOIL BEARING = 3300 LBS/SQ FT
5. HEIGHT 12'-0" TO 25'-0":
   MIN REQUIRED SOIL BEARING = 3800 LBS/SQ FT



TYPE A MH-TOP SLAB

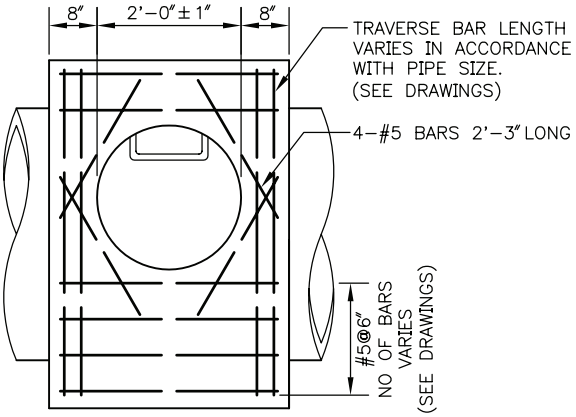


TYPE B MH-TOP SLAB

City of Seattle	NOT TO SCALE	TYPE 206 MANHOLE TOP & BOTTOM SLABS

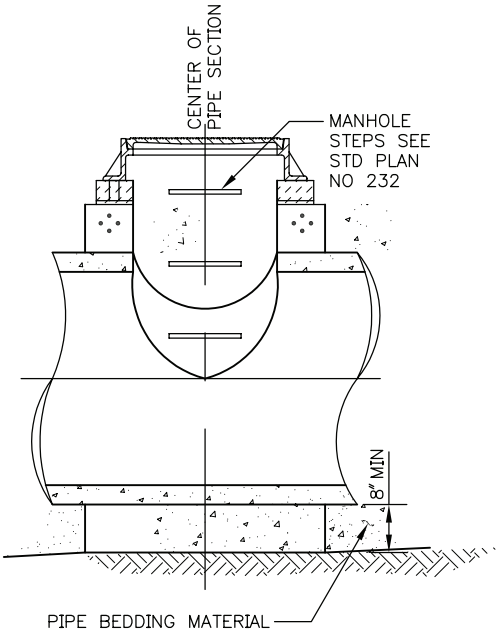
STANDARD PLAN NO 207

REV DATE: 2003

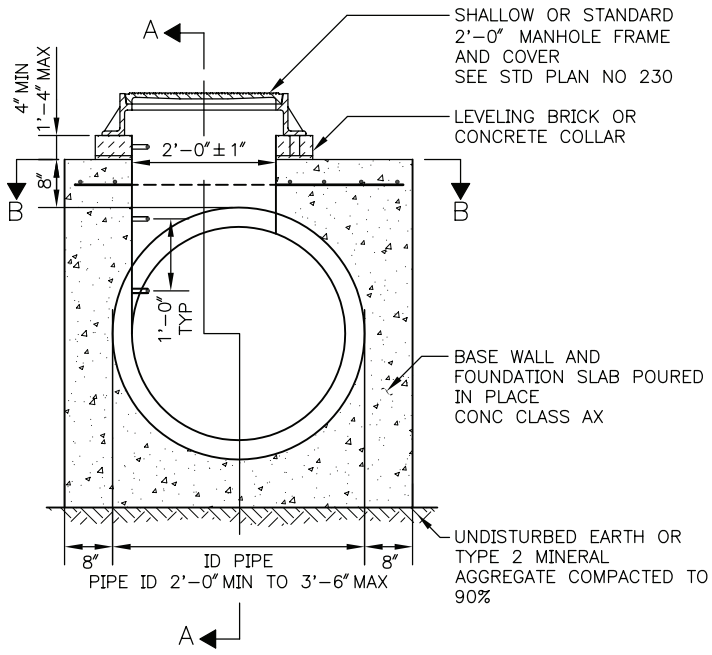


SECTION B–B

NOTE:
REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A 615 GR 60 AND SHALL HAVE A MIN COVER OF 2″



SECTION A–A

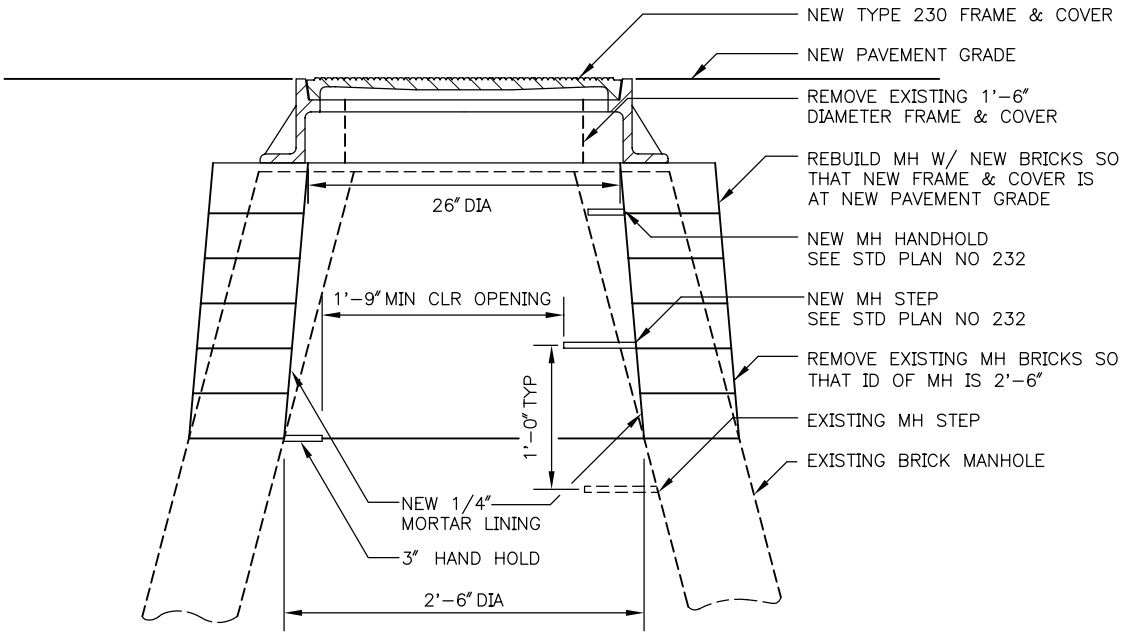


SECTION THRU ℄

City of Seattle	NOT TO SCALE	TYPE 207 MANHOLE

STANDARD PLAN NO 208

REV DATE: 2003

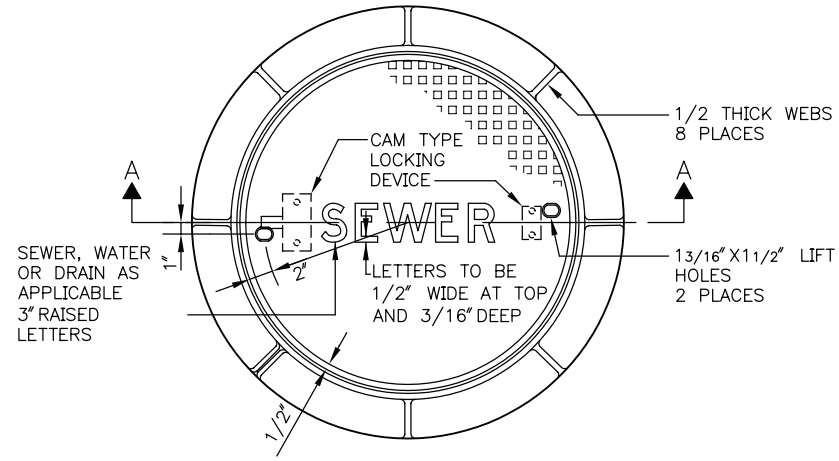


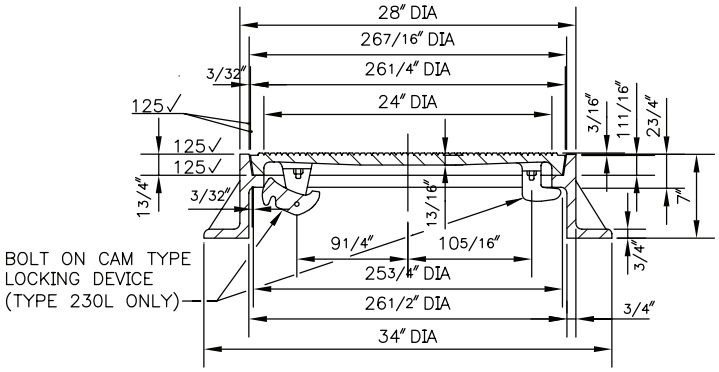
NOTES:

1. NEW MANHOLE STEPS AND HANDHOLDS SHALL BE INSTALLED AND LOCATED 1'–0" OC FROM THE FIRST EXISTING STEP IN THE MANHOLE AND SHALL MATCH THE EXISTING TYPE OF STEP. ANY SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEER. A MINIMUM 1'–9" CLEAR OPENING SHALL BE MAINTAINED.
2. FOR 7" RIGID PAVEMENT, THE RING AND COVER SHALL BE CONSTRUCTED TO THE FINISHED GRADE OF THE PAVEMENT. REINFORCEMENT SHALL BE PLACED AROUND THE CASTING AT MID–POINT BETWEEN THE FINISH GRADE OF THE RIGID PAVEMENT AND THE TOP OF THE FLANGE. #4 REINFORCING BARS SHALL BE USED IN THE CONFIGURATION OF 2 SEPARATE SQUARES OFF–ROTATED 45 DEGREES FROM EACH OTHER AND GIVING A MINIMUM CLEARANCE OF 2" AT THE SHORTEST DISTANCE WITH THE FRAME.
3. FOR PAVEMENT DEPTH GREATER THAN 7", USE FRAME EXTENSION(S) AS SHOWN IN STANDARD PLAN NO 231 TO BRING THE COVER UP TO THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT.

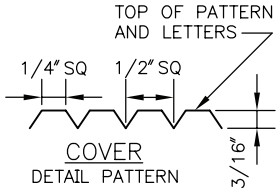
City of Seattle	NOT TO SCALE	REBUILD EXISTING BRICK MANHOLE

REV DATE: 2005





SECTION
A–A



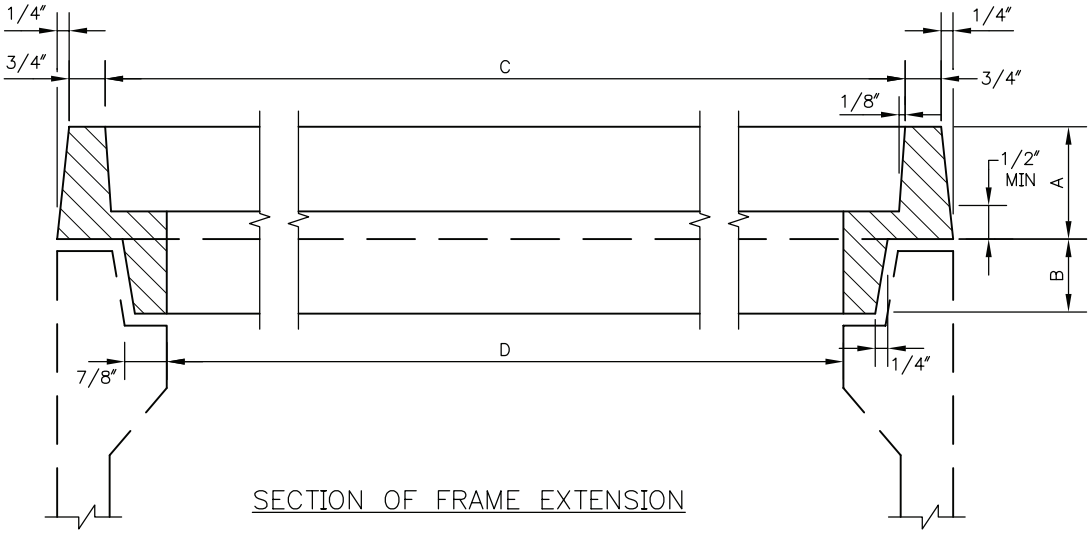
COVER
DETAIL PATTERN

NOTES:

1. DESIGNATE LOCKING COVER AS TYPE 230L FOR USE IN NON–VEHICULAR TRAFFIC AREAS.
2. FOR 7" RIGID PAVEMENT, THE FRAME AND COVER SHALL BE CONSTRUCTED TO THE FINISHED GRADE OF THE PAVEMENT. REINFORCEMENT SHALL BE PLACED AROUND THE CASTING AT MID–POINT BETWEEN THE FINISHED GRADE OF THE PAVEMENT AND THE TOP OF THE FLANGE. #4 REINFORCING BARS SHALL BE USED IN THE CONFIGURATION OF 2 SEPARATE SQUARES OFF–ROTATED 45 DEGREES FROM EACH OTHER AND GIVING A CLEARANCE OF 2 INCHES AT THE SHORTEST DISTANCE WITH THE FRAME
3. FOR RIGID PAVEMENT DEPTH GREATER THAN 7", USE FRAME EXTENSION(S) (STANDARD PLAN NO 231) TO BRING THE COVER UP TO THE LEVEL OF THE FINISHED PAVEMENT WITHOUT EMBEDDING THE BOTTOM FLANGE OF THE CASTING IN THE PAVEMENT
4. COVER THICKNESS IS MEASURED FROM THE BOTTOM OF THE PATTERN
5. REFER TO SECTION 5–05 FOR OTHER REQUIREMENTS FOR REINFORCING BARS
6. FRAMES SHALL BE MANUFACTURED FROM CAST IRON OR DUCTILE IRON
7. COVERS SHALL BE MANUFACTURED FROM DUCTILE IRON

City of Seattle	NOT TO SCALE	2'-0" DIAMETER FRAME & COVER

REV DATE: 2003



SECTION OF FRAME EXTENSION

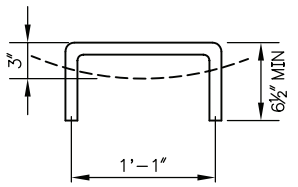
NOTES:

1. DIMENSION "A" REFERS TO HEIGHT OF FRAME EXTENSION ABOVE MANHOLE FRAME
2. DIMENSIONS "B", "C" AND "D" SHALL MATCH THE MANHOLE FRAME AND COVER THAT THE FRAME EXTENSION TO BE USED ON
3. WHEN FRAME EXTENSIONS ARE USED ON A NEW MANHOLE FRAME AND COVER, THE FRAME EXTENSION SHALL BE PERMANENTLY ATTACHED TO THE MANHOLE FRAME AT THE FACTORY, NOT IN THE FIELD. APPROVAL OF ATTACHMENT METHOD IS REQUIRED
4. FRAME EXTENSIONS SHALL BE DUCTILE OR CAST IRON

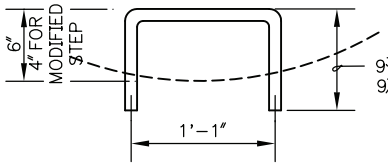
City of Seattle	NOT TO SCALE	FRAME EXTENSIONS

STANDARD PLAN NO 232

REV DATE: 2005

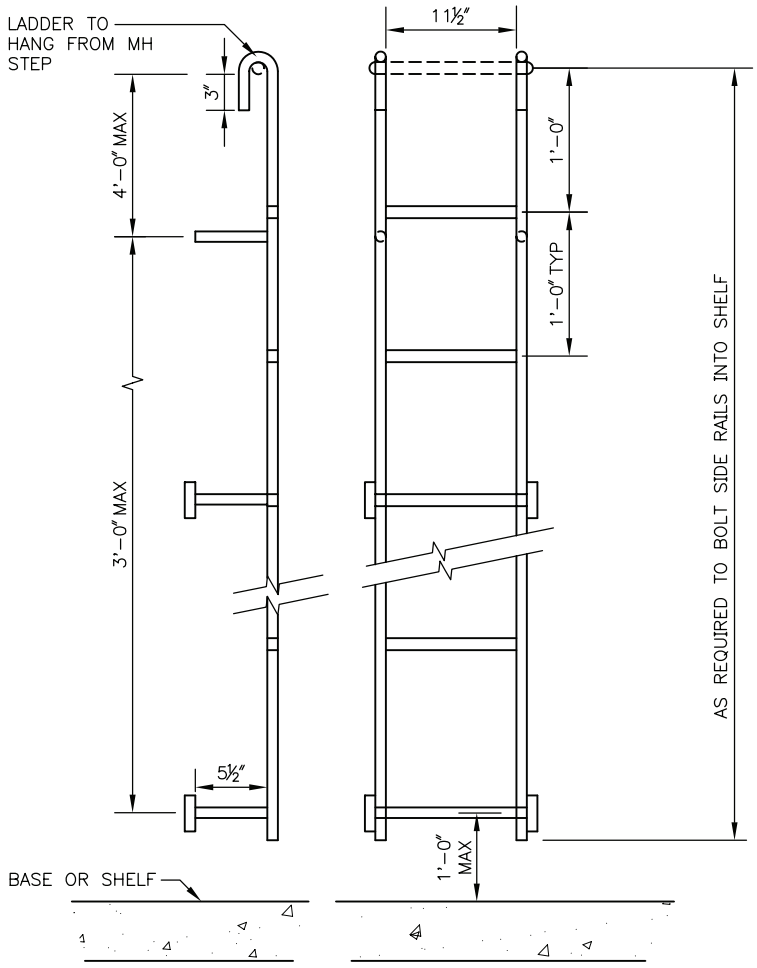


HANDHOLD



STEP

9⅜″ FOR BLOCK OR BRICK MH SECTION
9½″ FOR PRECAST MH SECTION
7″ FOR MODIFIED STEP FOR PRECAST MH SECTION



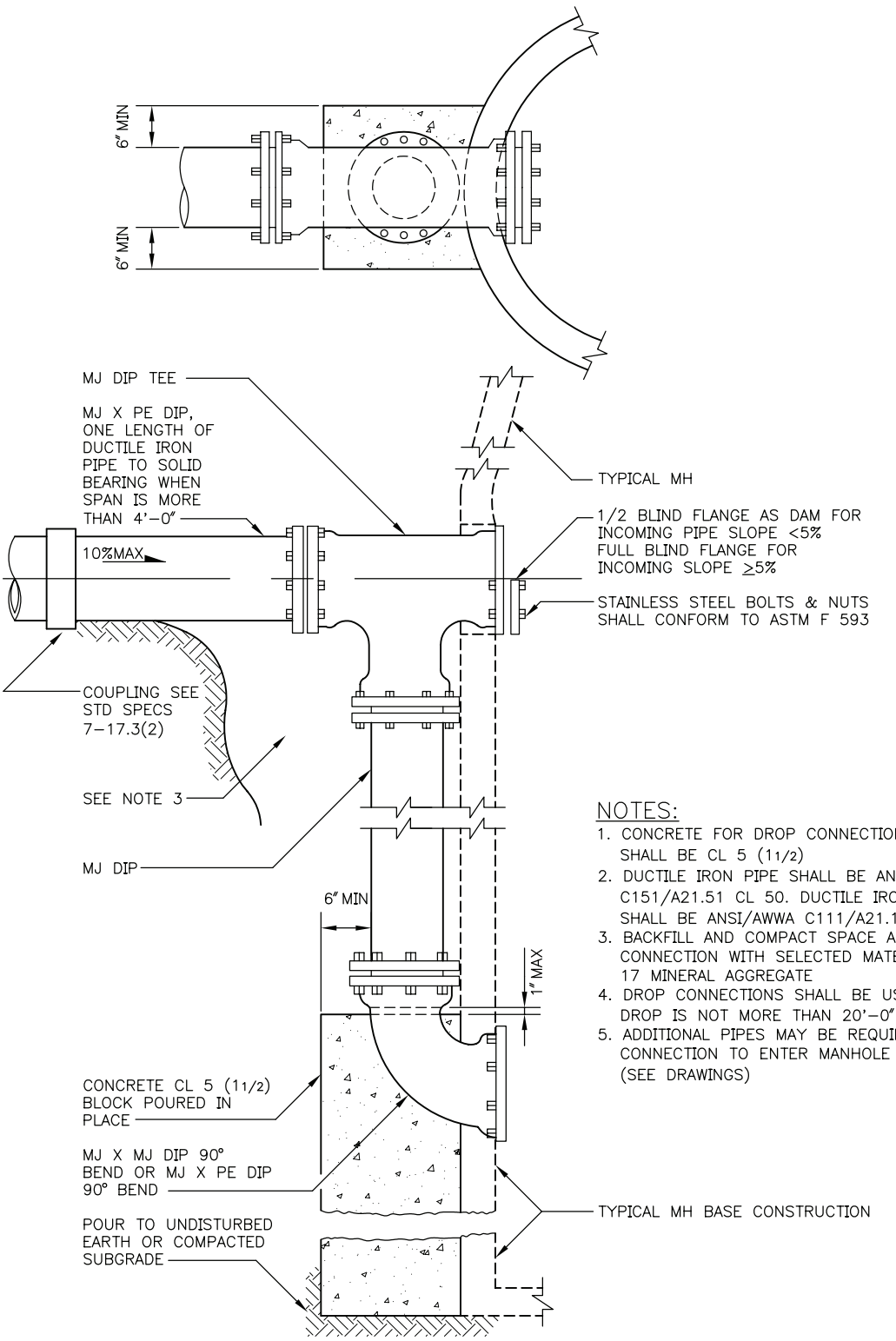
LADDER

NOTE:

1. DIMENSIONS FOR THE MH LADDER AND STEP ARE MINIMUM REQUIREMENTS ONLY.
2. STEPS AND HANDHOLDS SHALL BE INSTALLED AT 1′–0″ SPACING. WHEN THE DISTANCE FROM THE LAST (HIGHEST) STEP OR HANDHOLD TO THE TOP OF THE MH FRAME EXCEEDS 1′–0″ AND ANOTHER STEP OR HANDHOLD CANNOT BE INSTALLED BECAUSE OF THE LOCATION OF THE MH FRAME, A HANDHOLD SHALL BE INSTALLED BETWEEN THE TOP 2 LAYERS OF BRICK.
3. IF BOTH STEPS AND LADDER ARE REQ'D IN ANY MH, THEY SHALL BE FROM THE SAME MANUFACTURER.

City of Seattle	NOT TO SCALE	MANHOLE LADDER, STEP AND HANDHOLD

REV DATE: 2005



NOTES:

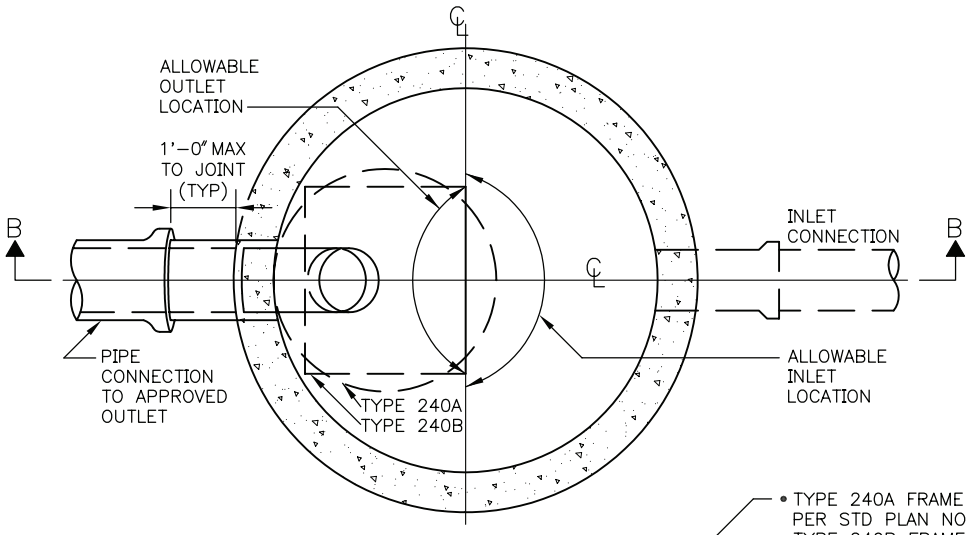
1. CONCRETE FOR DROP CONNECTION SUPPORT SHALL BE CL 5 (1 1/2)
2. DUCTILE IRON PIPE SHALL BE ANSI/AWWA C151/A21.51 CL 50. DUCTILE IRON FITTINGS SHALL BE ANSI/AWWA C111/A21.11
3. BACKFILL AND COMPACT SPACE AROUND DROP CONNECTION WITH SELECTED MATERIAL OR TYPE 17 MINERAL AGGREGATE
4. DROP CONNECTIONS SHALL BE USED WHERE DROP IS NOT MORE THAN 20'-0"
5. ADDITIONAL PIPES MAY BE REQUIRED FOR DROP CONNECTION TO ENTER MANHOLE STRUCTURE (SEE DRAWINGS)

DUCTILE IRON OUTSIDE DROP CONNECTION

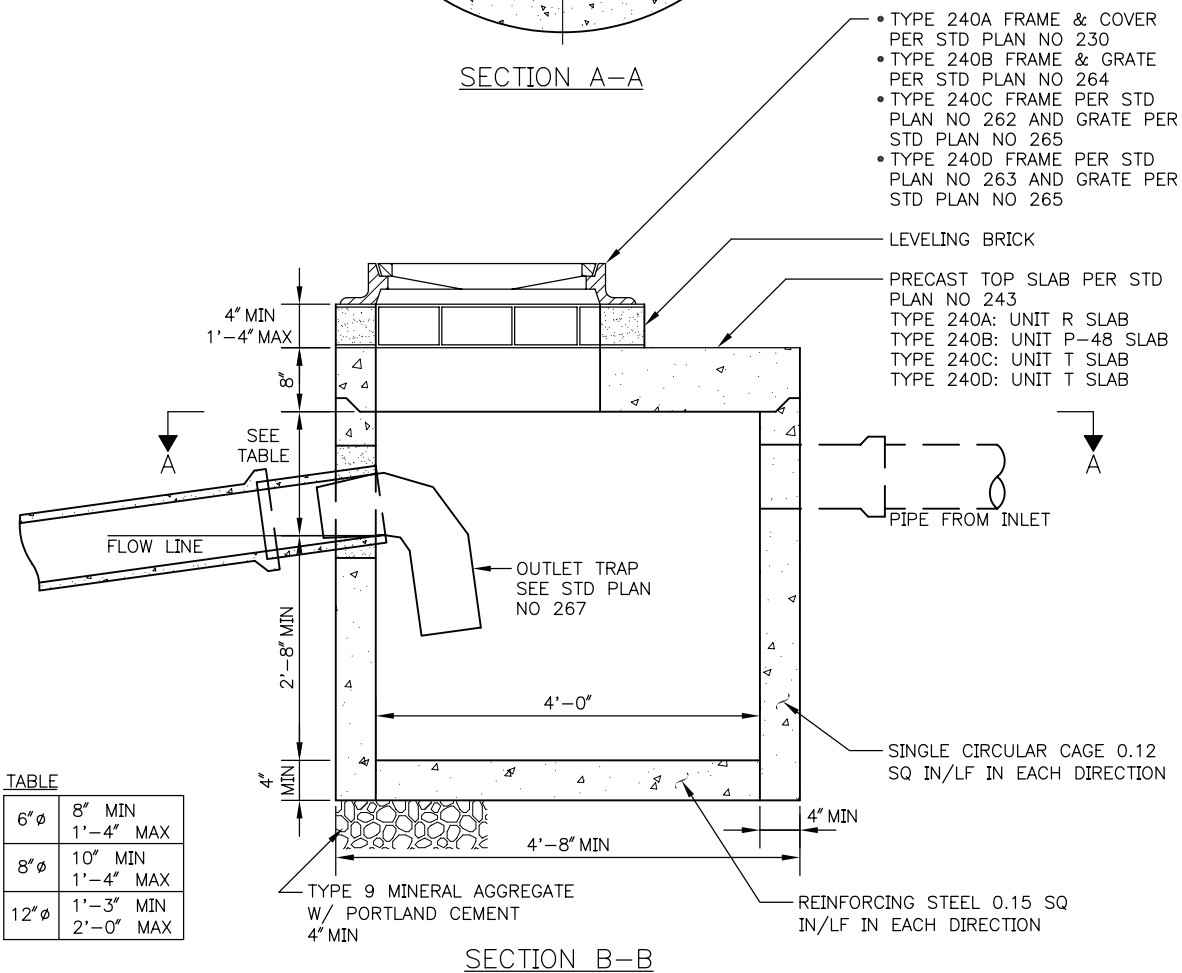
City of Seattle	NOT TO SCALE	OUTSIDE DROP CONNECTION

STANDARD PLAN NO 240

REV DATE: 2008



SECTION A–A



TABLE

6"ø	8" MIN 1'–4" MAX
8"ø	10" MIN 1'–4" MAX
12"ø	1'–3" MIN 2'–0" MAX

SECTION B–B

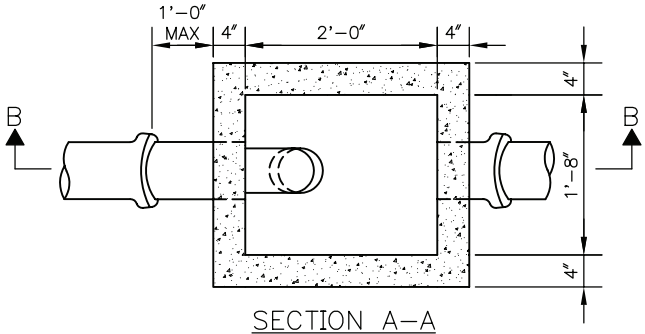
NOTES:

1. FRAME & GRATE OR FRAME & COVER SHALL BE LOCATED OVER TRAP
2. INVERT OF INLET PIPE SHALL BE 2" MIN ABOVE INVERT OF OUTLET PIPE
3. FRAME AND GRATE SHALL BE LOCATED OVER OUTLET TRAP

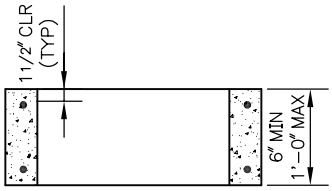
City of Seattle	NOT TO SCALE	TYPE 240 CATCH BASIN

STANDARD PLAN NO 241a

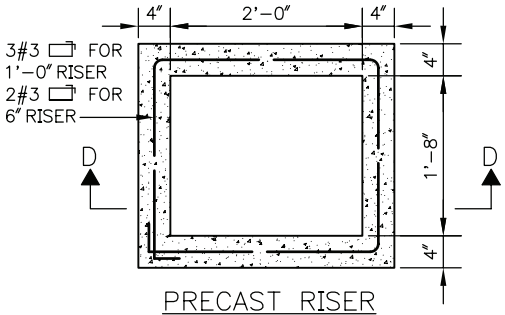
REV DATE: 2005



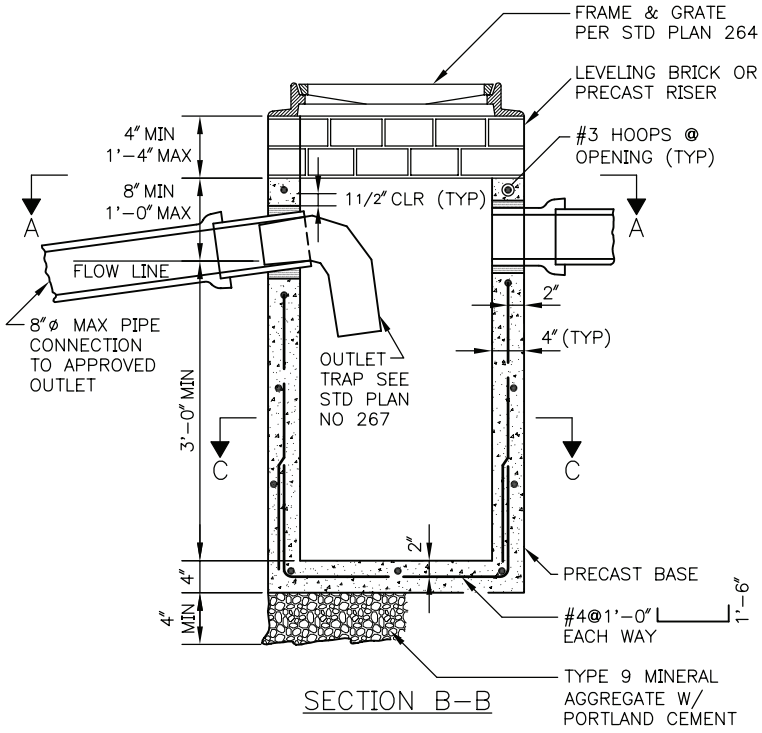
SECTION A-A



SECTION D-D



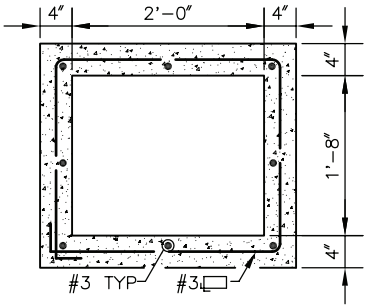
PRECAST RISER REINFORCING



SECTION B-B

NOTES:

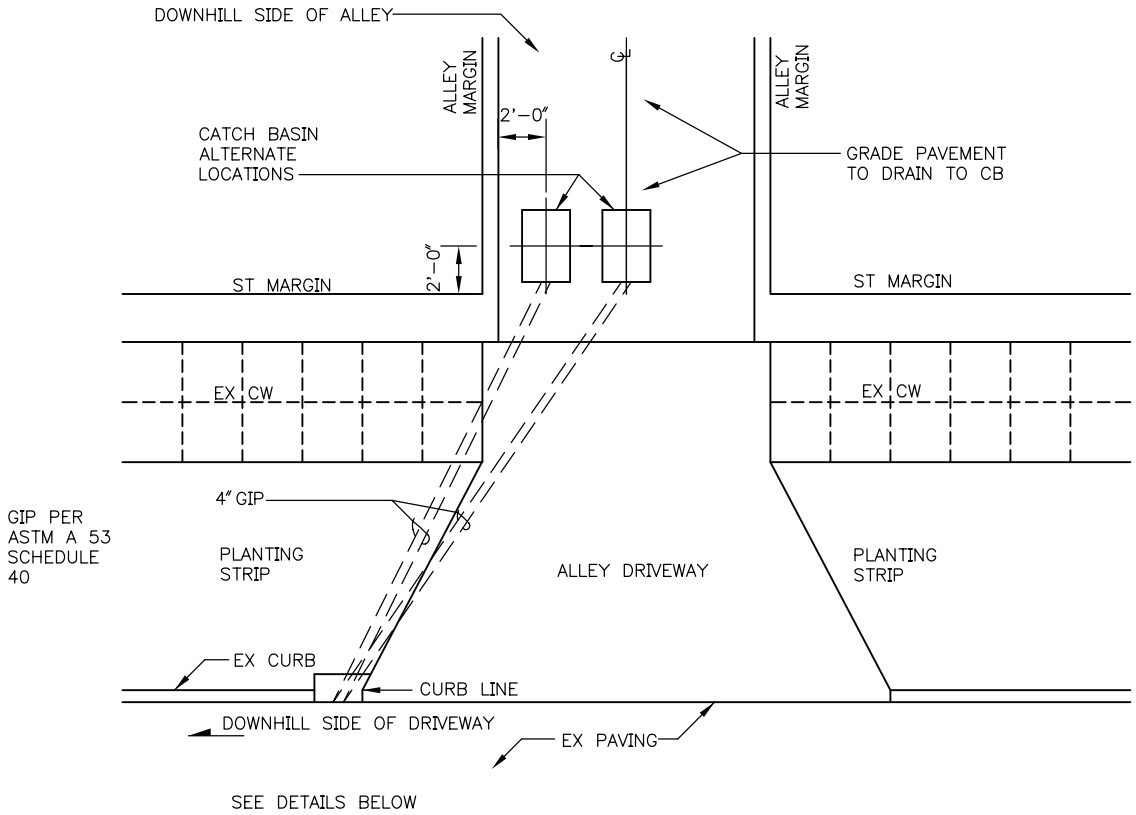
1. THIS CATCH BASIN IS FOR INSTALLATIONS IN ALLEYS AND UNPAVED AREAS IN THE RIGHT-OF-WAY. ANY OTHER USE IN THE R/W WILL REQUIRE APPROVAL OF SPU
2. FOR CURB DISCHARGE INSTALLATION SEE STD PLAN NO 241b
3. INSTALL PER STD PLAN NO 261
4. MATERIAL: CONCRETE CLASS AX REINFORCING STEEL ASTM A615 GR60
5. INLET INVERT EL. TO BE HIGHER THAN OUTLET INVERT EL.



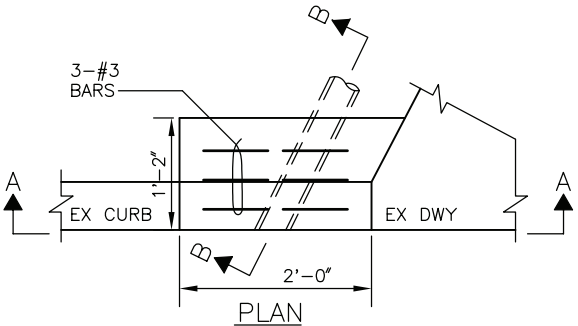
SECTION C-C

City of Seattle	NOT TO SCALE	TYPE 241 CATCH BASIN

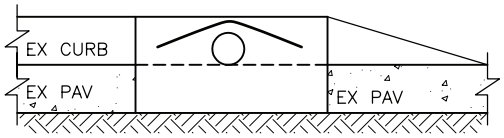
REV DATE: 2005



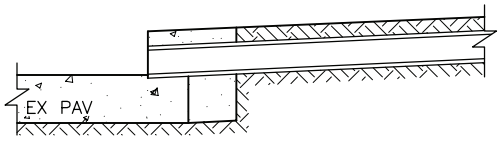
PLAN



PLAN



SECTION A-A

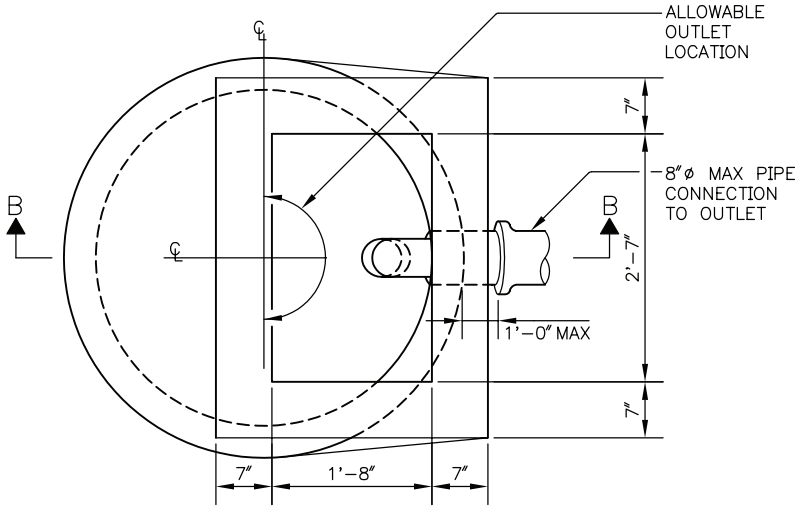


SECTION B-B

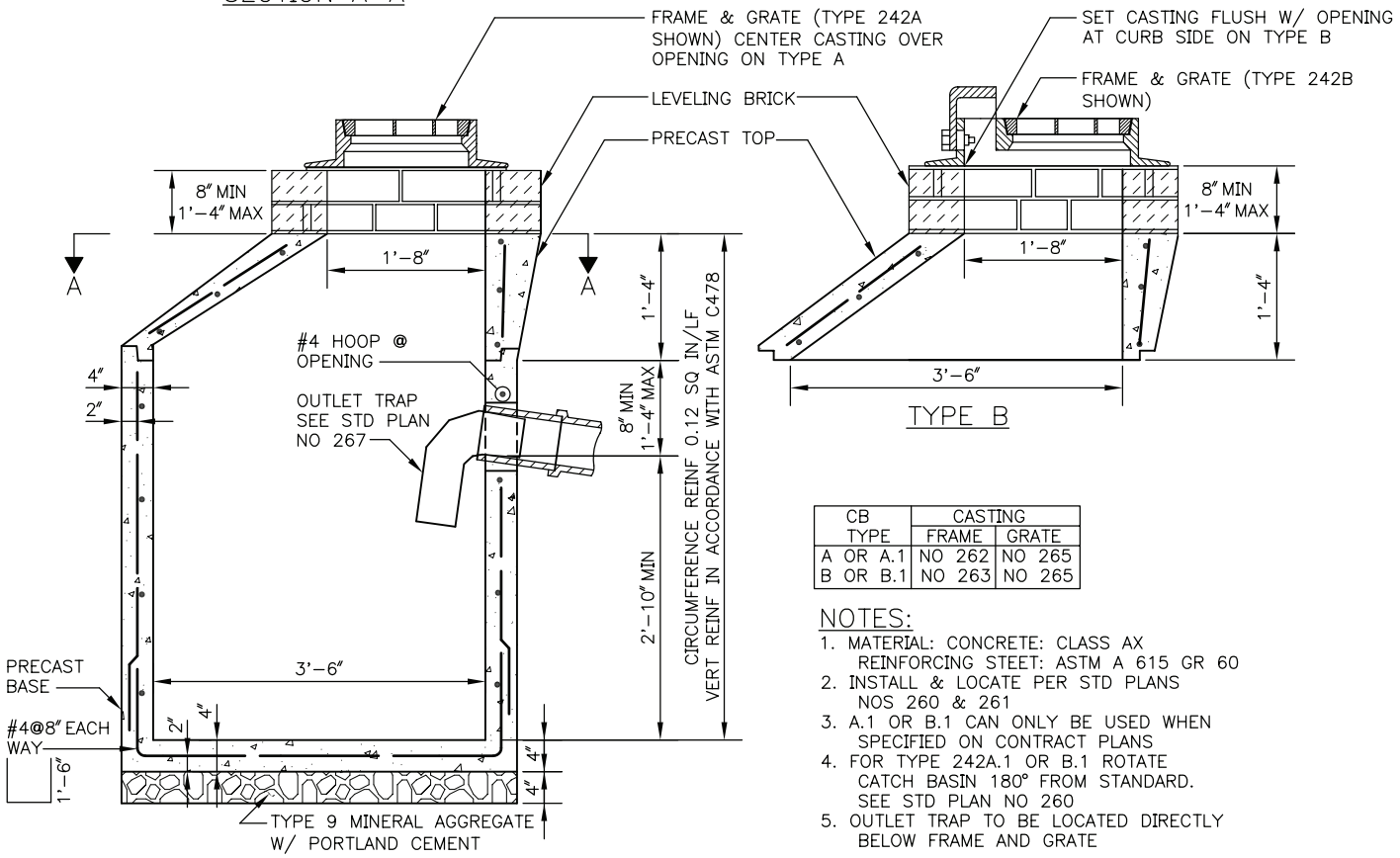
City of Seattle	NOT TO SCALE	TYPE 241 CATCH BASIN INSTALLATIONS

STANDARD PLAN NO 242

REV DATE: 2005



SECTION A-A



TYPE A
SECTION B-B

TYPE B

CB TYPE	CASTING	
	FRAME	GRATE
A OR A.1	NO 262	NO 265
B OR B.1	NO 263	NO 265

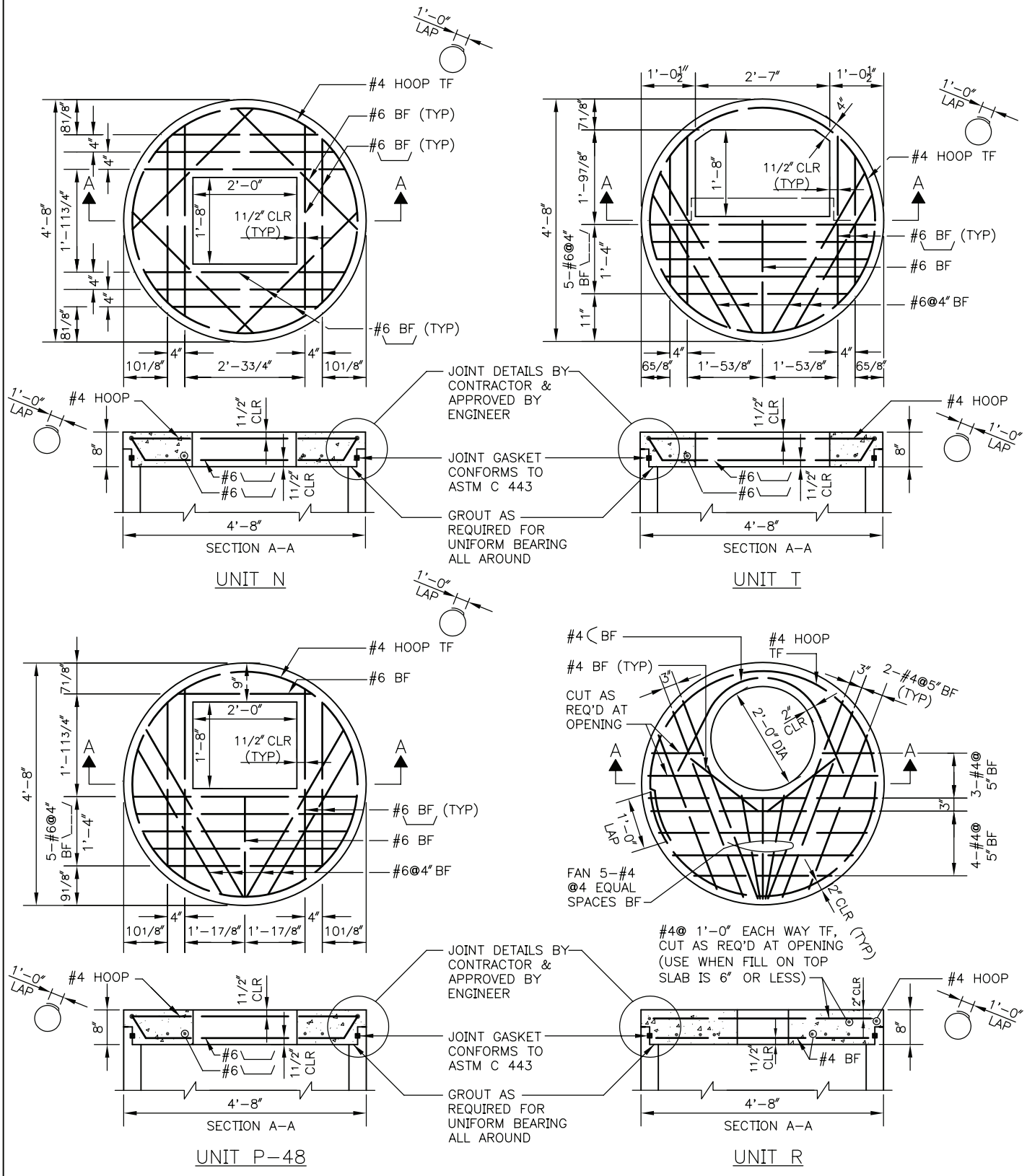
NOTES:

1. MATERIAL: CONCRETE: CLASS AX
   REINFORCING STEET: ASTM A 615 GR 60
2. INSTALL & LOCATE PER STD PLANS
   NOS 260 & 261
3. A.1 OR B.1 CAN ONLY BE USED WHEN
   SPECIFIED ON CONTRACT PLANS
4. FOR TYPE 242A.1 OR B.1 ROTATE
   CATCH BASIN 180° FROM STANDARD.
   SEE STD PLAN NO 260
5. OUTLET TRAP TO BE LOCATED DIRECTLY
   BELOW FRAME AND GRATE

City of Seattle	NOT TO SCALE	TYPE 242 CATCH BASIN

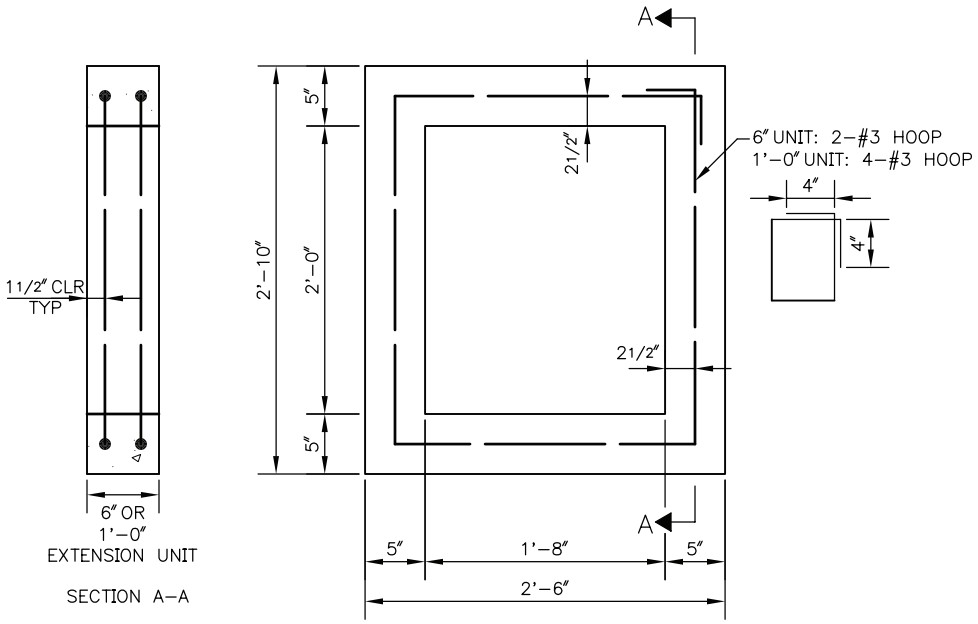
STANDARD PLAN NO 243a

REV DATE: 2003



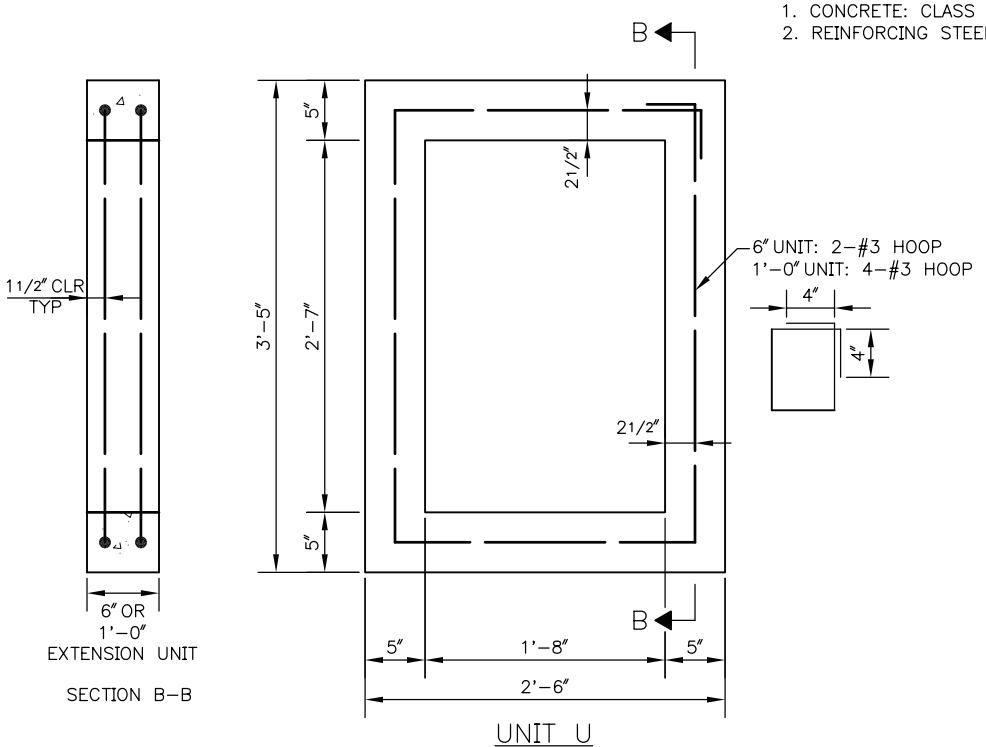
City of Seattle	NOT TO SCALE	PRECAST CATCH BASIN TOP SLAB

REV DATE: 2003



UNIT S

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

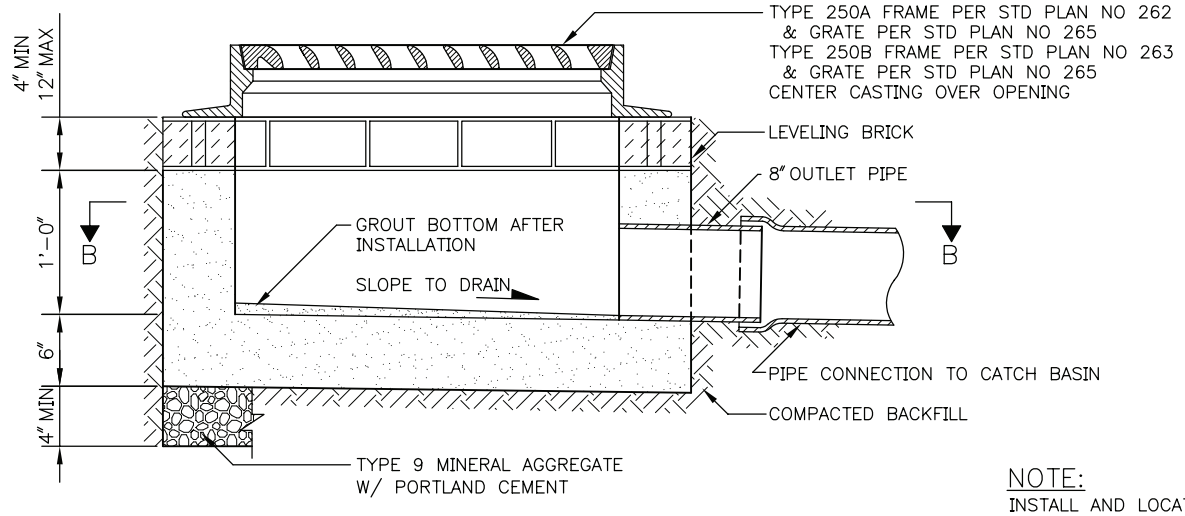


UNIT U

City of Seattle	NOT TO SCALE	PRECAST CATCH BASIN EXTENSION RISERS

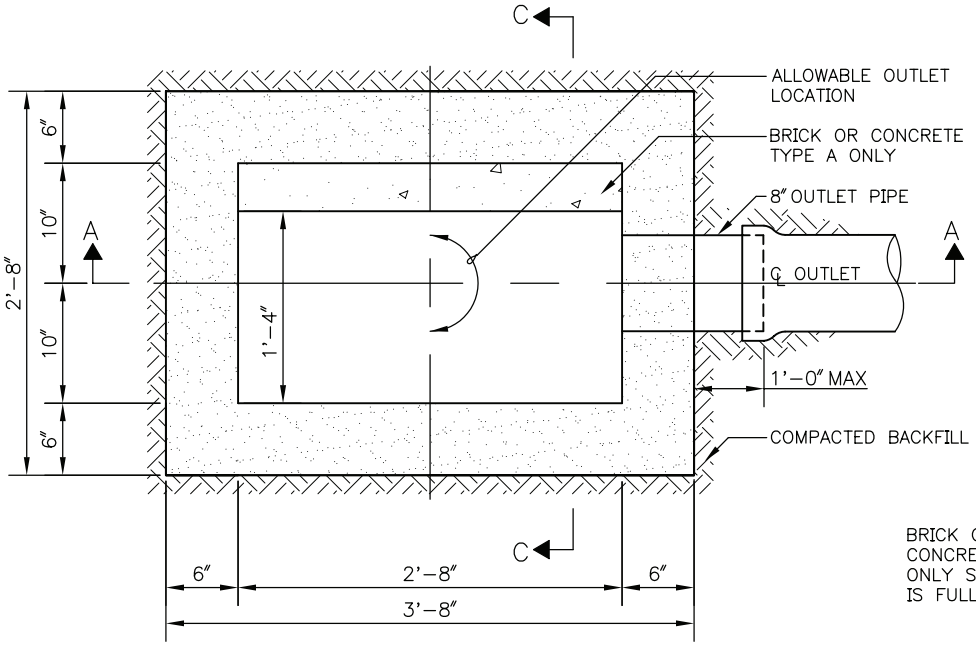
STANDARD PLAN NO 250

REV DATE: 2008

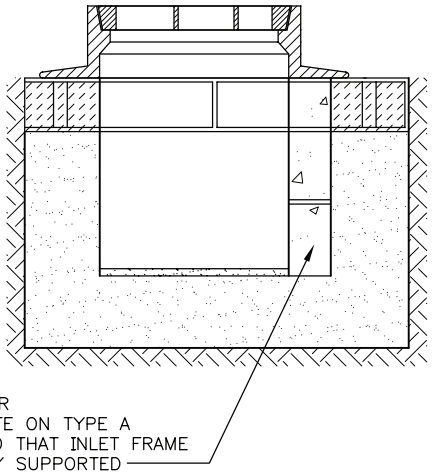


SECTION A–A

NOTE:
INSTALL AND LOCATE
PER STD PLAN NO 260



SECTION B–B

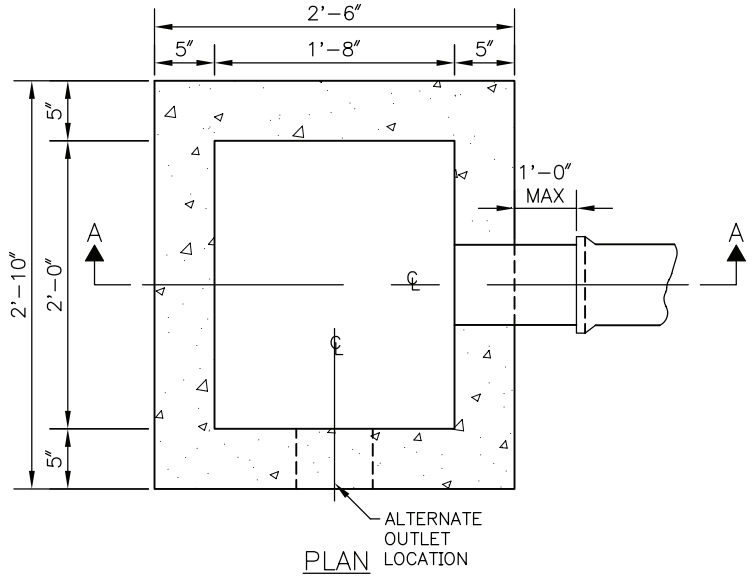


SECTION C–C
TYPE A ONLY

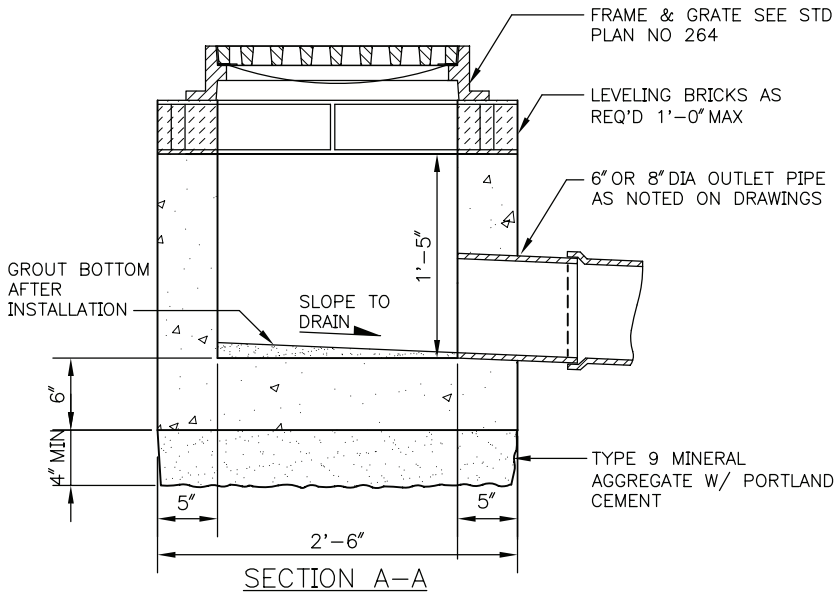
NOTE:
PROVIDE MINIMUM REINFORCING STEEL AS REQUIRED BY AASHTO.

City of Seattle	NOT TO SCALE	TYPE 250 INLET

REV DATE: 2008



PLAN

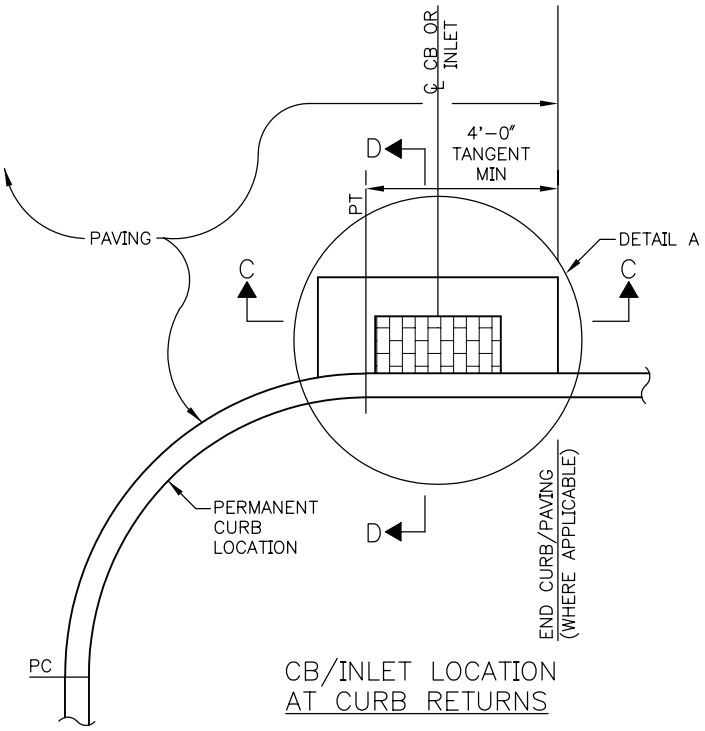


SECTION A–A

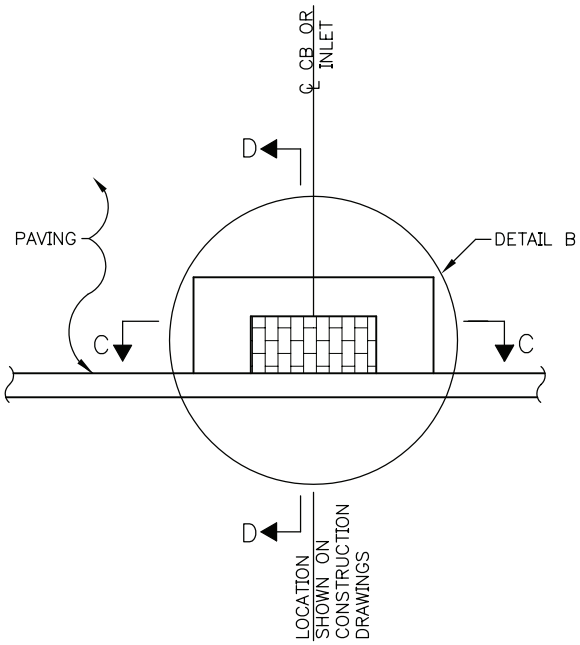
NOTE:
PROVIDE MINIMUM REINFORCING STEEL AS REQUIRED BY AASHTO.

City of Seattle	NOT TO SCALE	TYPE 252 INLET

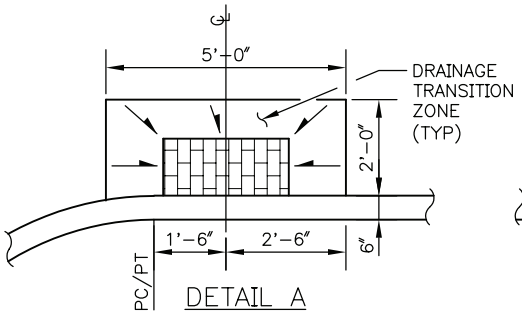
REV DATE: 2005



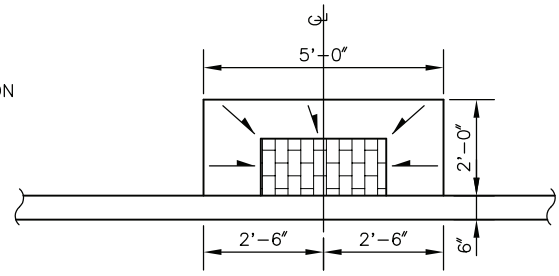
CB/INLET LOCATION
AT CURB RETURNS



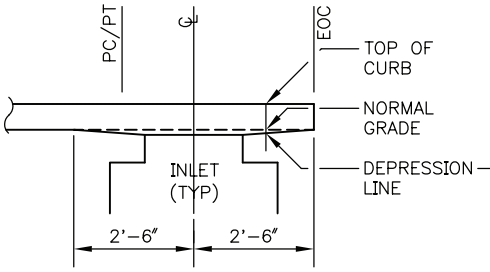
CB/INLET LOCATION
NOT AT CURB RETURNS



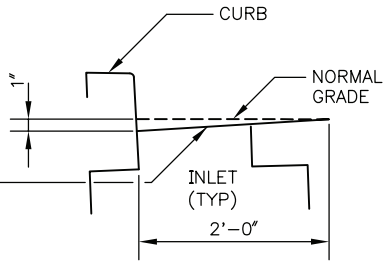
DETAIL A



DETAIL B



SECTION C–C



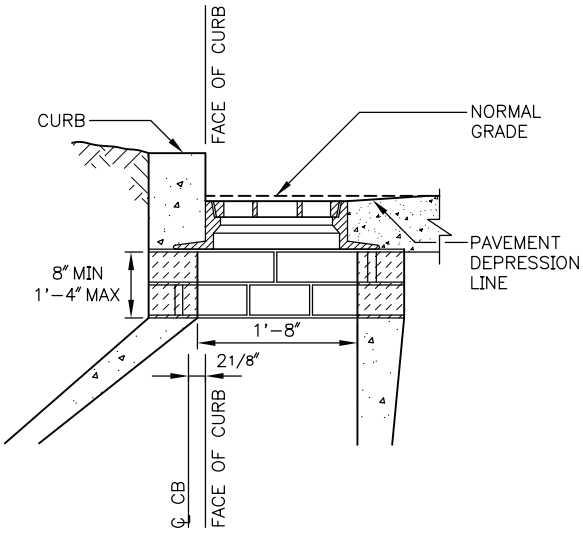
SECTION D–D

NOTE

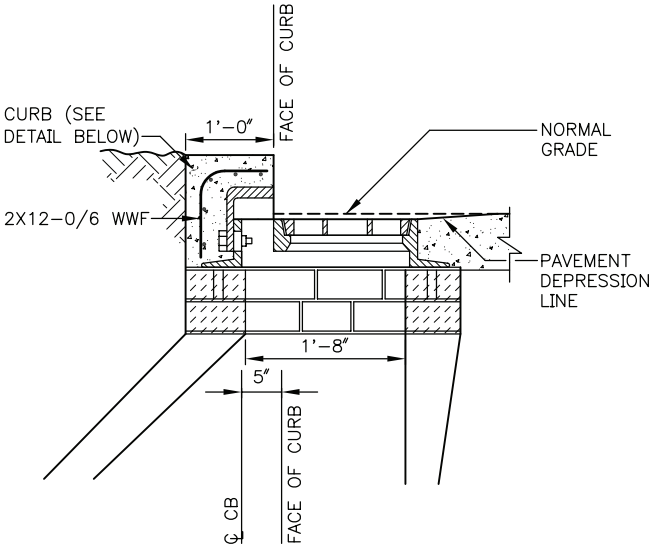
INLET/CB SHALL NOT BE PLACED IN CROSSWALKS OR IN FRONT OF WHEELCHAIR RAMPS

City of Seattle	NOT TO SCALE	INLET / CATCH BASIN LOCATION & INSTALLATION

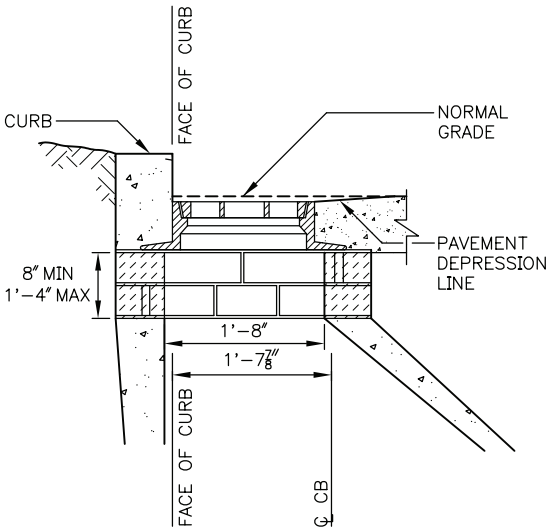
REV DATE: 2005



TYPE 242A CB
(TYPE 250A INLET SIMILAR)
NOTE – TYPE 240C GRATE

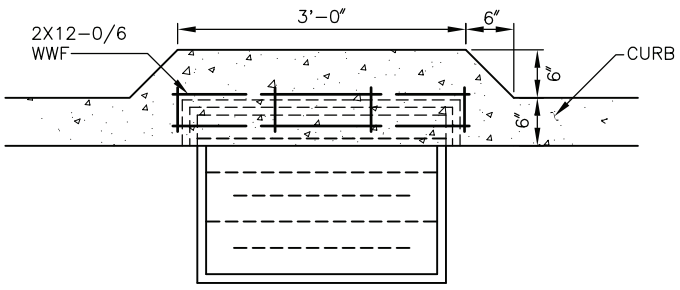


TYPE 242B CB
(TYPE 250B INLET SIMILAR)



TYPE 242A.1 CB

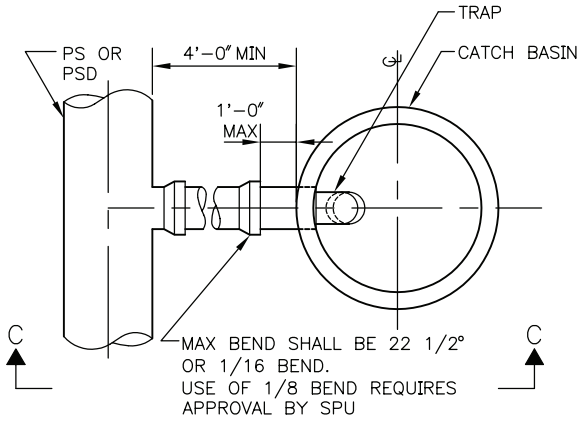
NOTES:
1. TYPE 242A.1 OR B.1 INSTALLATION IS ROTATED 180° FROM TYPE 242A OR 242B
2. A.1 IS SHOWN, B.1 IS SIMILAR
3. A.1 OR B.1 CAN ONLY BE USED WHEN SPECIFIED ON DRAWINGS



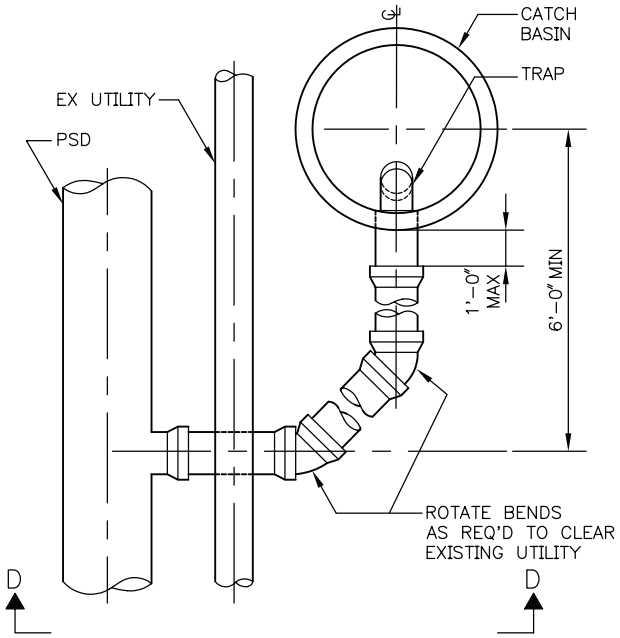
CURB DETAIL (PLAN VIEW) FOR
TYPE 242B CB & TYPE 250B INLET

City of Seattle	NOT TO SCALE	CATCH BASIN & INLET INSTALLATION

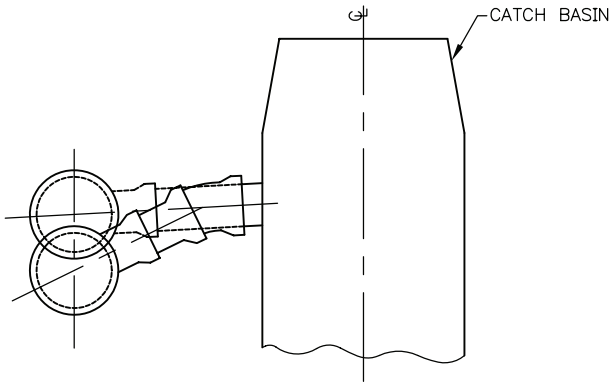
REV DATE: 2003



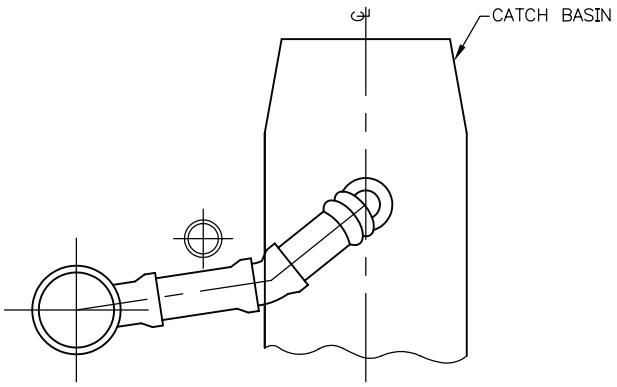
TYPE A



TYPE B



SECTION C–C



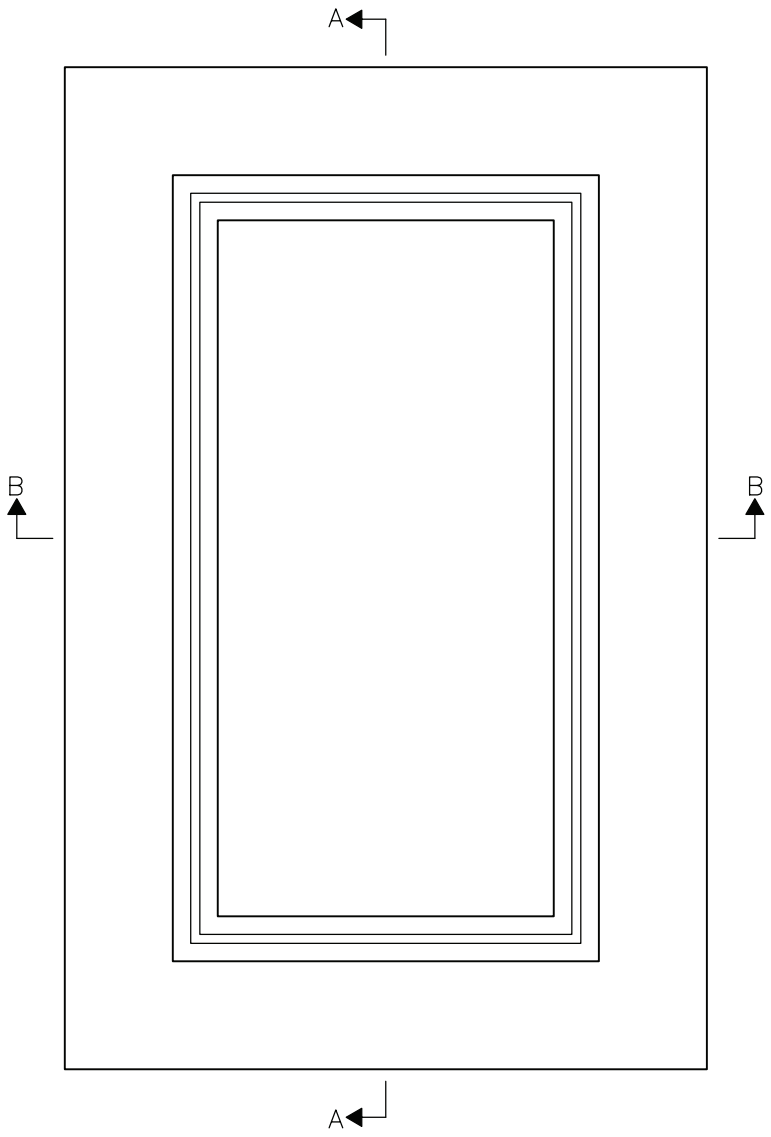
SECTION D–D

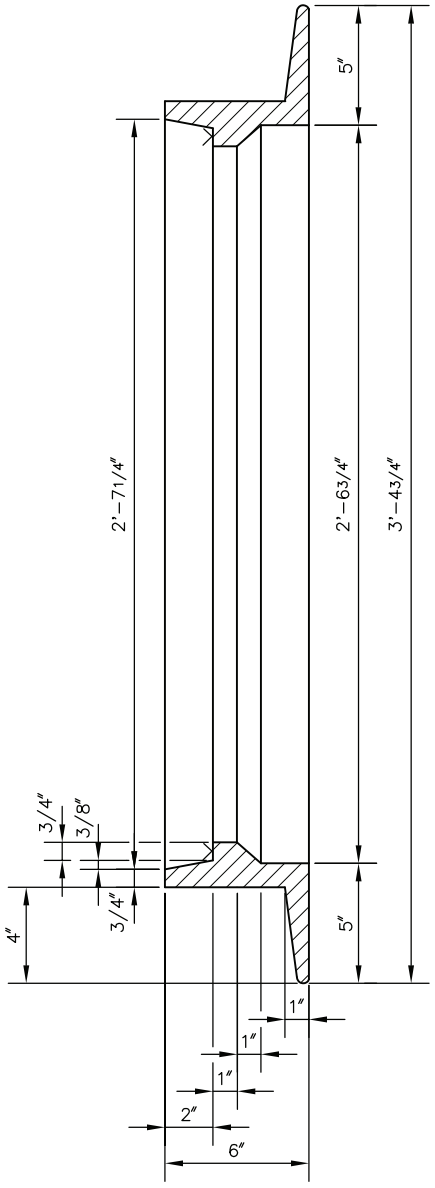
NOTES:

1. CONNECTIONS SHALL MAINTAIN A MINIMUM OF 2% AND A MAXIMUM OF 50% GRADE
2. TYPE A CONNECTION MAY BE USED UNDER THE FOLLOWING CIRCUMSTANCES:
   A. THE MAXIMUM OF 50% GRADE IS NOT EXCEEDED
   B. THERE IS NO INTERFERENCE WITH EXISTING OR PROPOSED UTILITIES

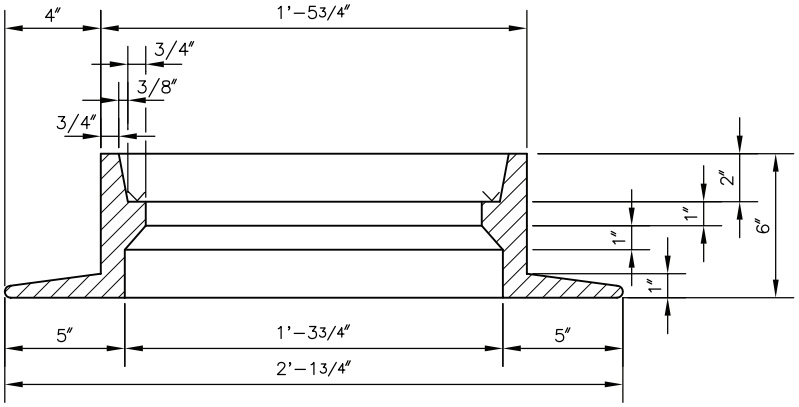
City of Seattle	NOT TO SCALE	TYPICAL CATCH BASIN CONNECTION

REV DATE: 2003





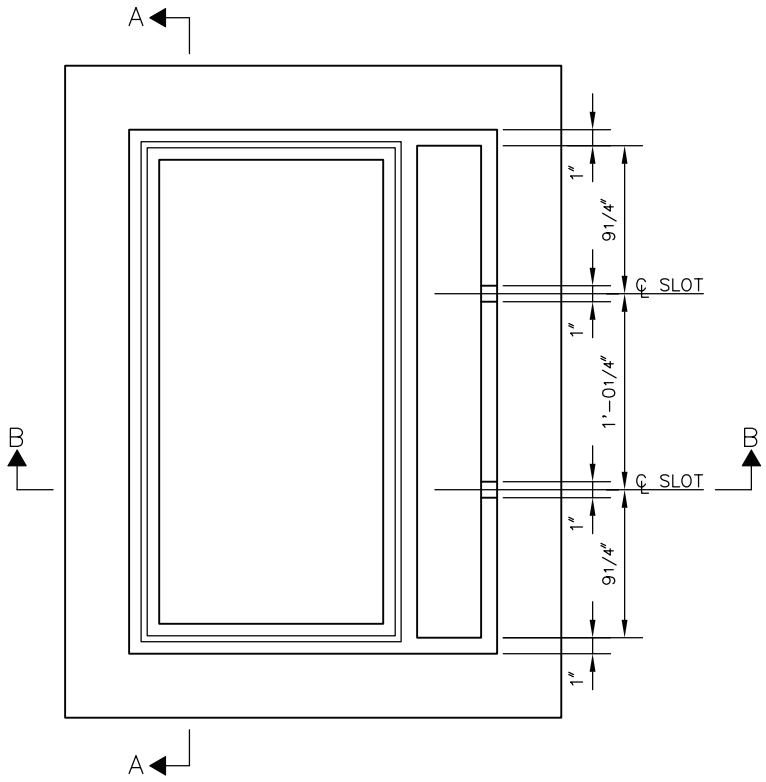
SECTION A–A

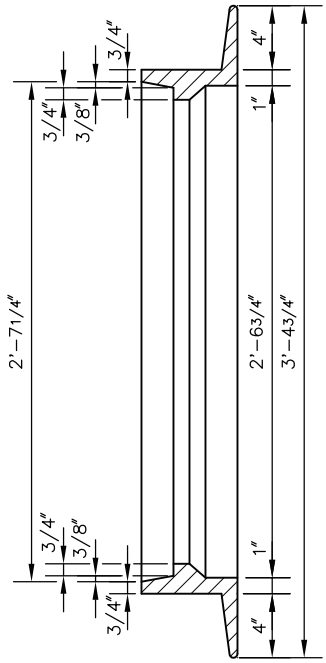


SECTION B–B

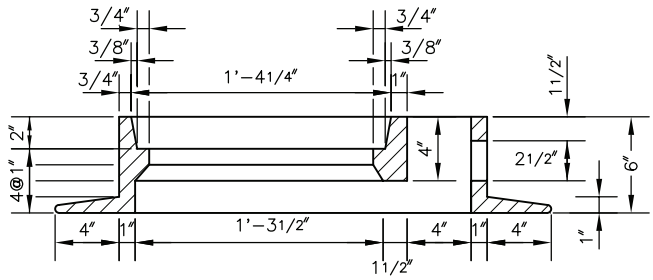
City of Seattle	NOT TO SCALE	TYPE 262 INLET FRAME

REV DATE: 2003

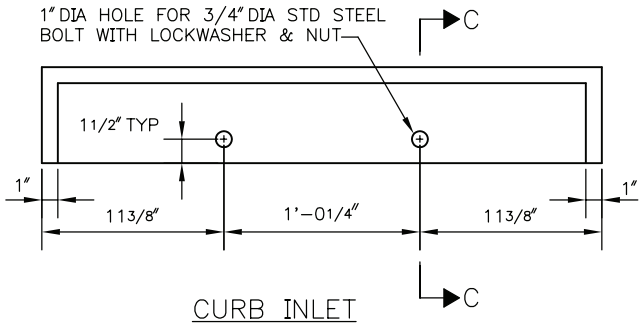




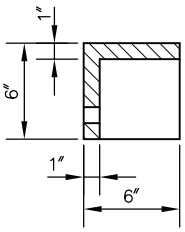
SECTION A–A



SECTION B–B



CURB INLET

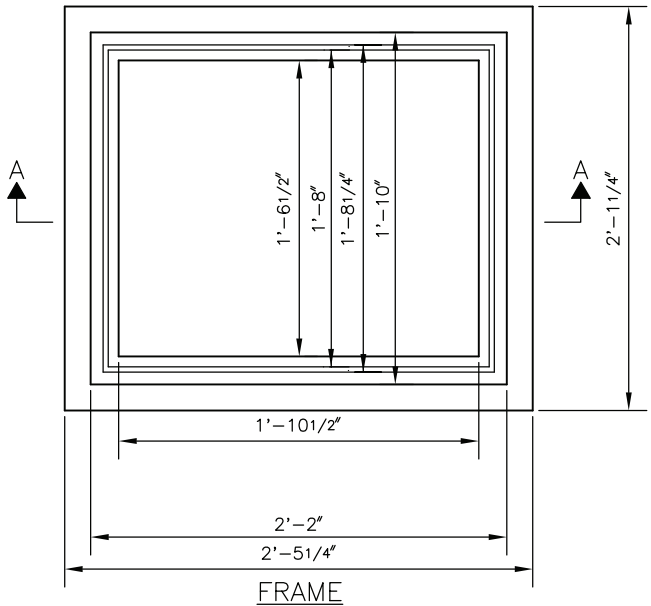


SECTION C–C

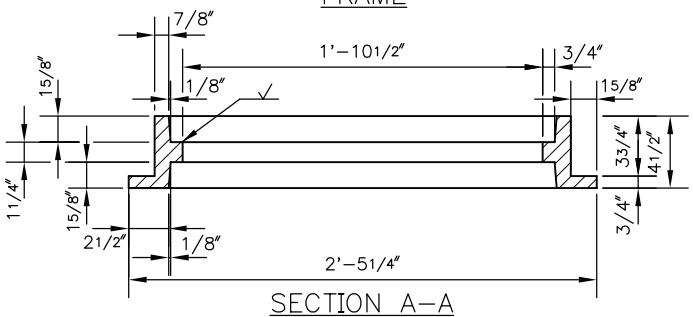
City of Seattle	NOT TO SCALE	TYPE 263 INLET FRAME

STANDARD PLAN NO 264

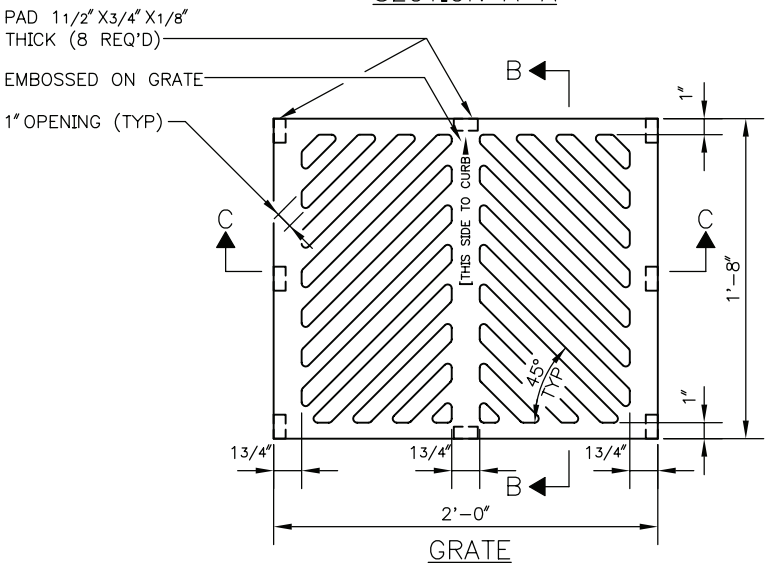
REV DATE: 2003



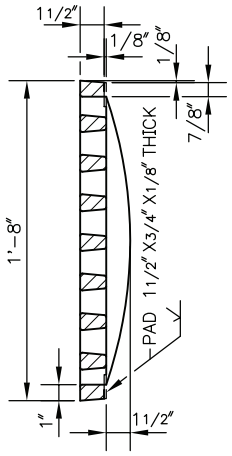
FRAME



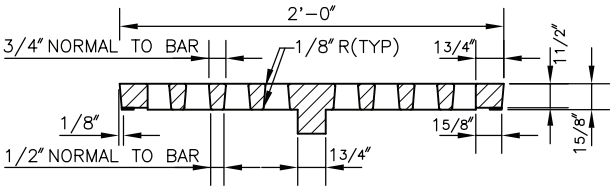
SECTION A–A



GRATE



SECTION B–B

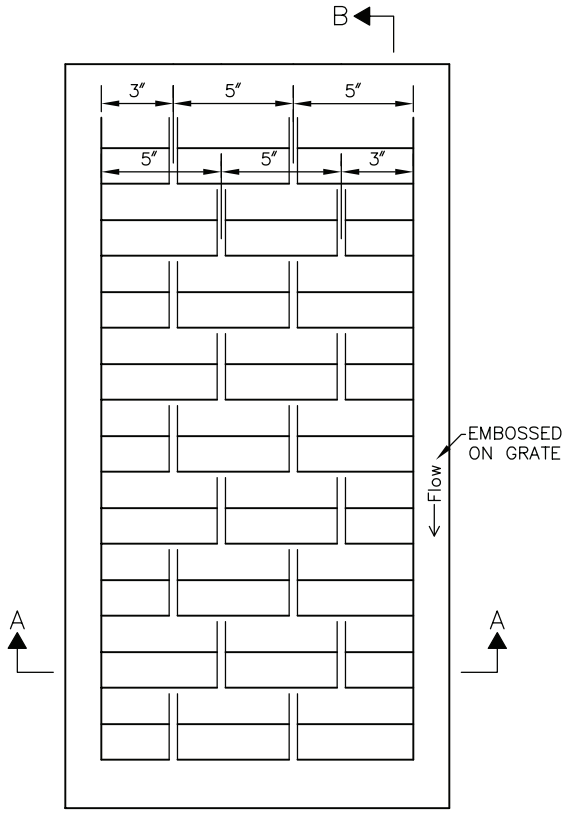


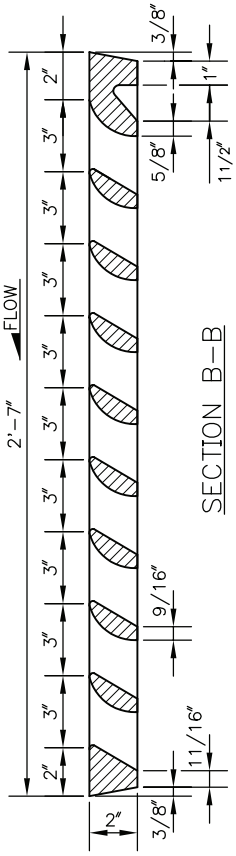
SECTION C–C

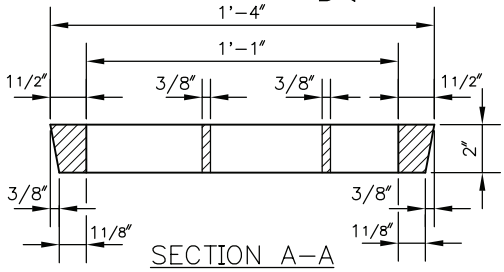
GRATE MATERIAL: DUCTILE IRON

City of Seattle	NOT TO SCALE	INLET FRAME & GRATE

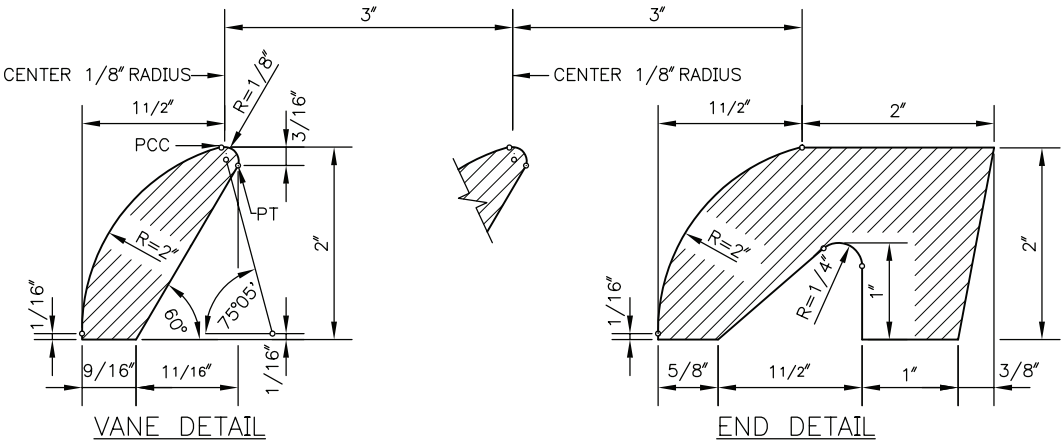
REV DATE: 2003





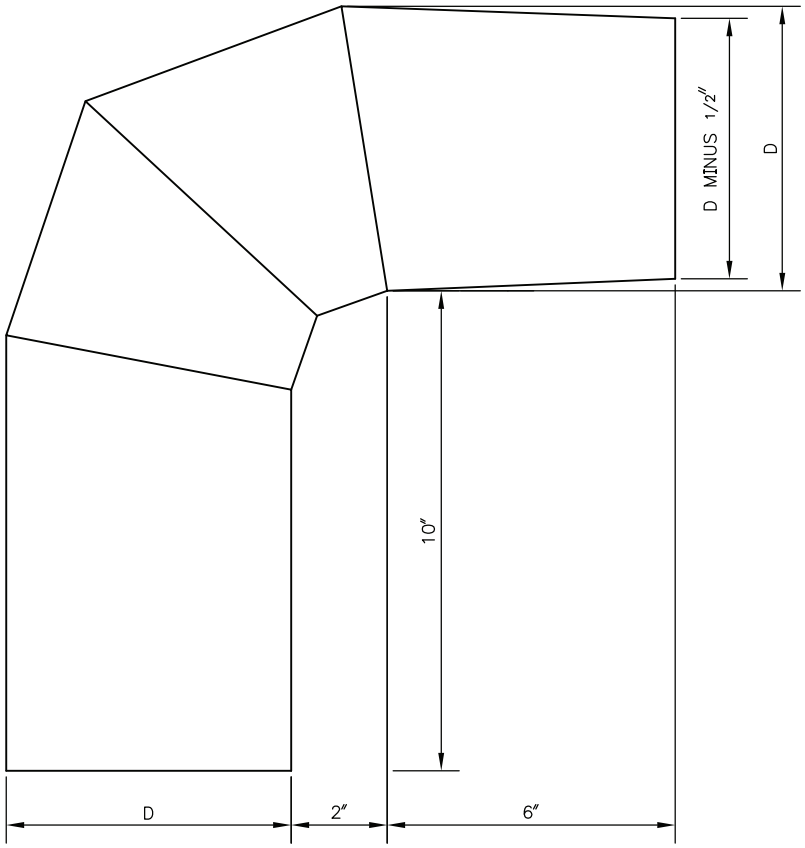


GRATE MATERIAL:
DUCTILE IRON



City of Seattle	NOT TO SCALE	VANED GRATE

REV DATE: 2008



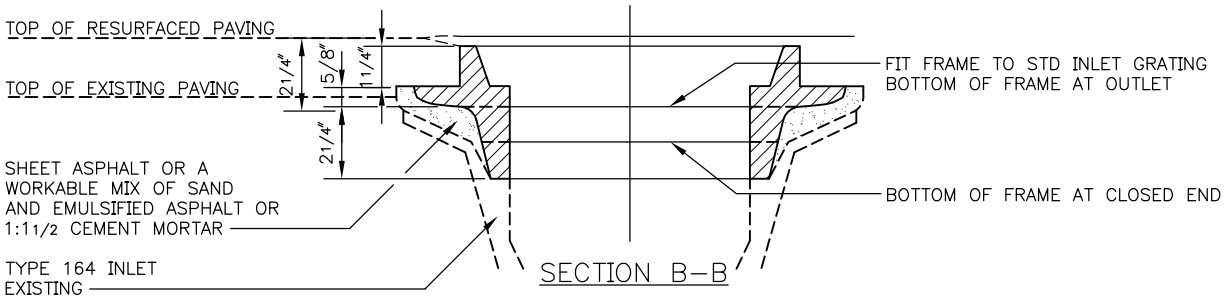
NOTES:

1. 1. TRAP TO BE MADE OF 22 GA (0.0336″) SHEET METAL OR 18GA (0.05″) 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

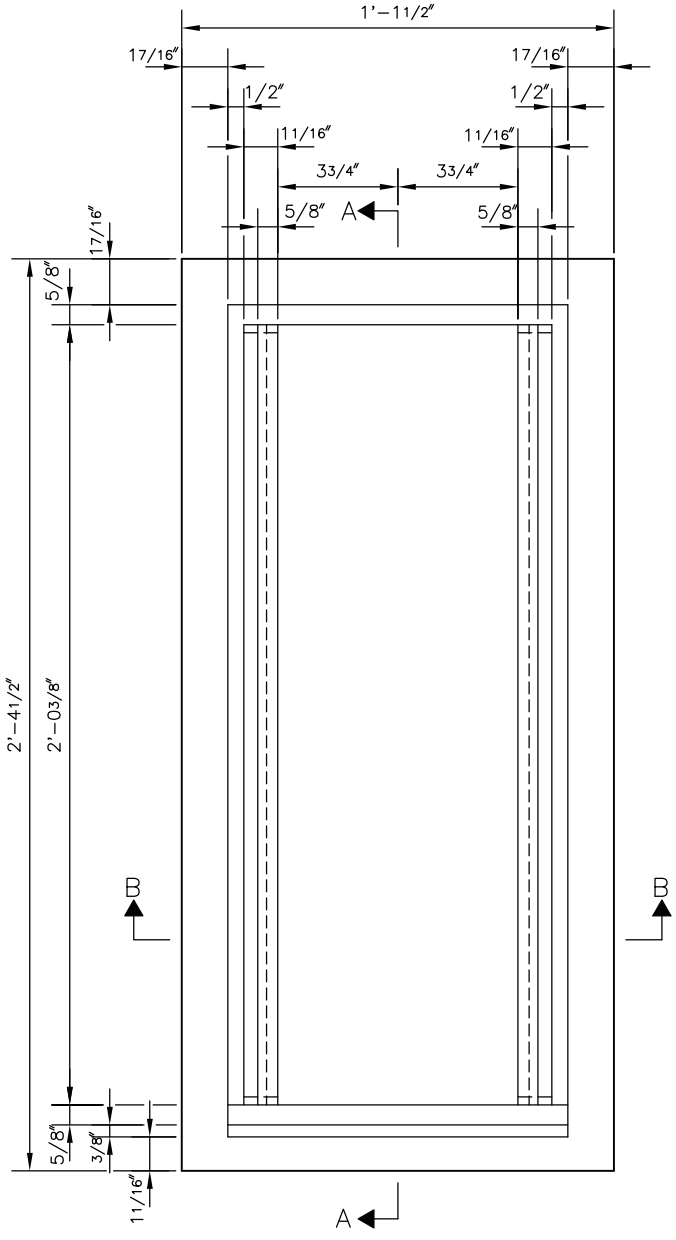
City of Seattle	NOT TO SCALE	OUTLET TRAP

STANDARD PLAN NO 268

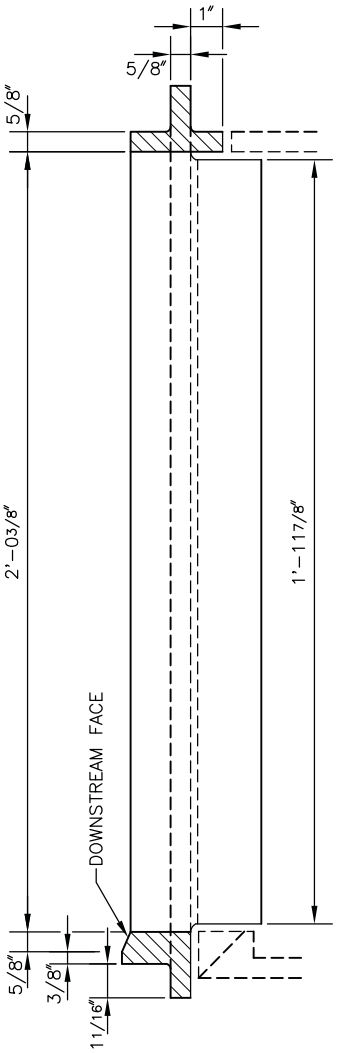
REV DATE: 2008



SECTION B–B



PLAN



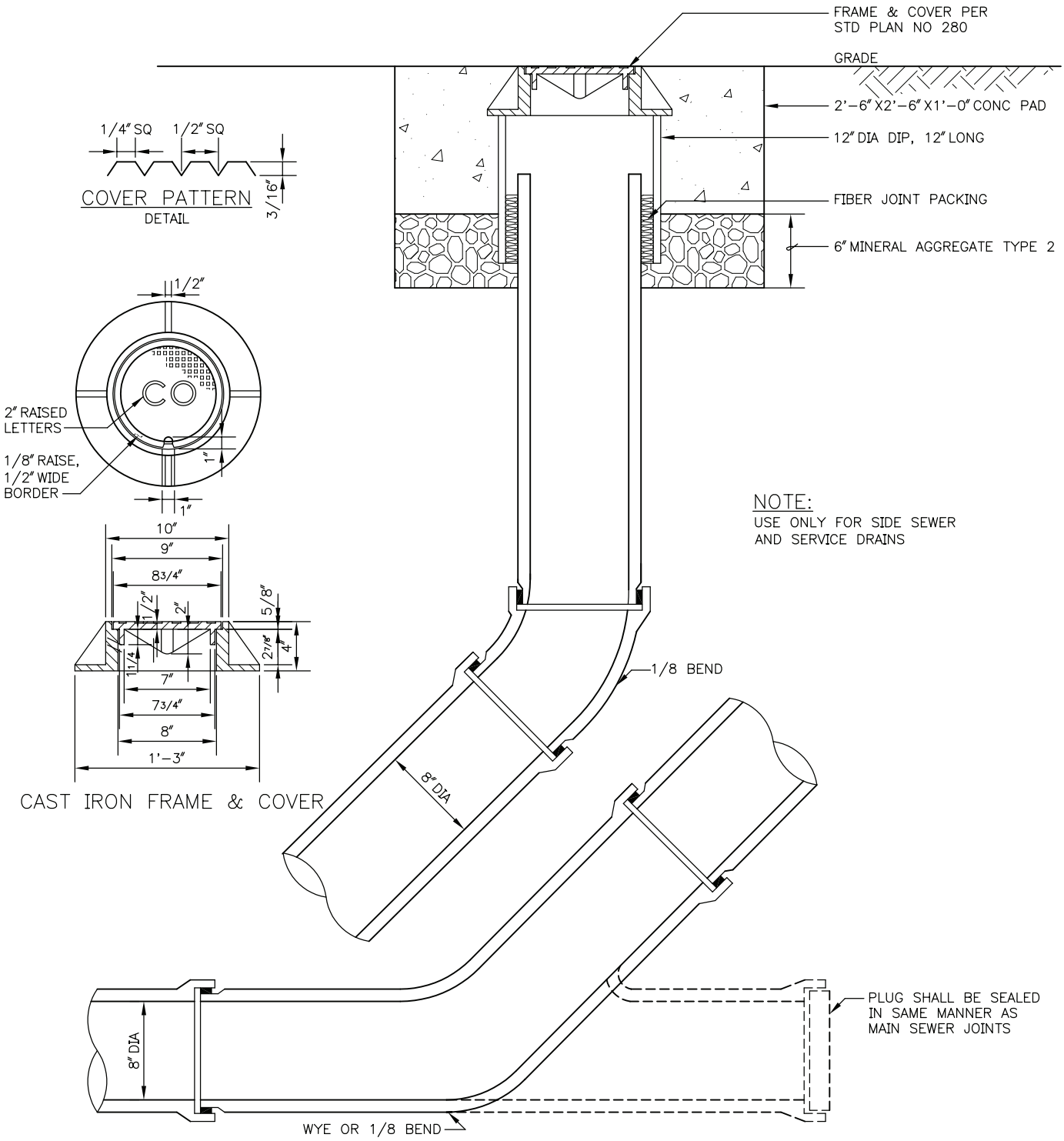
SECTION A–A

THESE DIMENSIONS MAY BE CHANGED IF NECESSARY TO FIT EXISTING CASTINGS

City of Seattle	NOT TO SCALE	EXTENSION FOR INLET

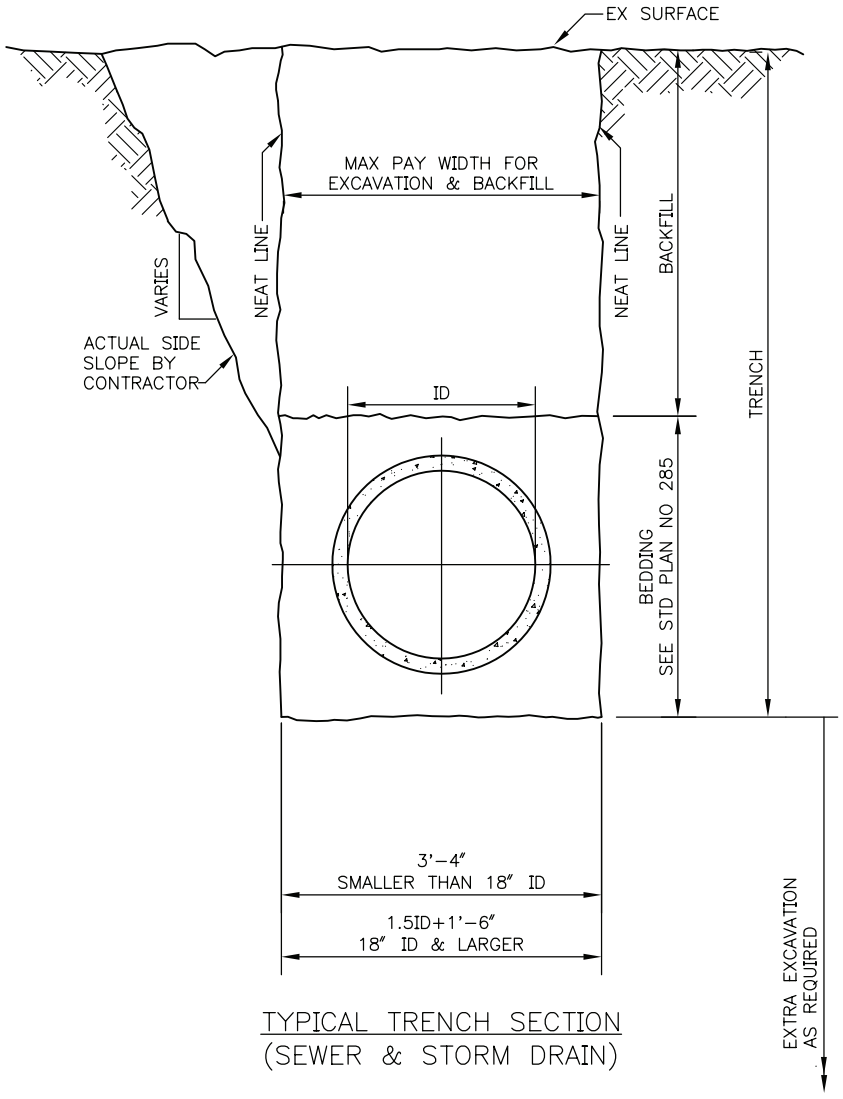
STANDARD PLAN NO 280

REV DATE: 2003



City of Seattle	NOT TO SCALE	8" CLEAN-OUT

REV DATE: 2003



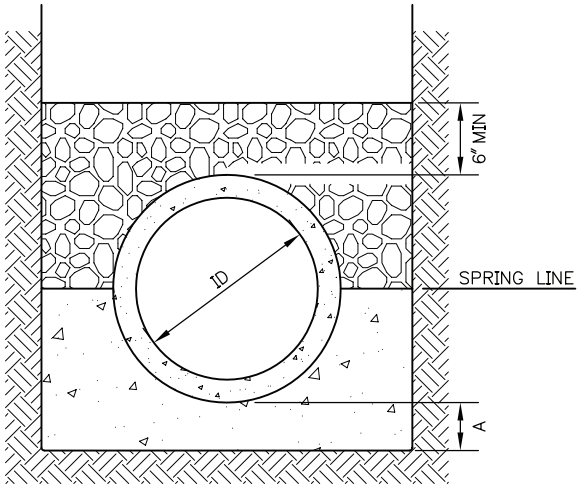
TYPICAL TRENCH SECTION
(SEWER & STORM DRAIN)

NOTE:
FOR PAVEMENT REMOVAL
AND RESTORATION SEE
STD PLAN NO 404

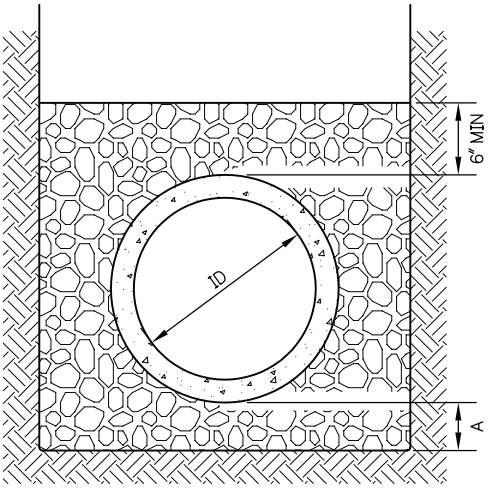
City of Seattle	NOT TO SCALE	TYPICAL SEWER TRENCH SECTION

STANDARD PLAN NO 285

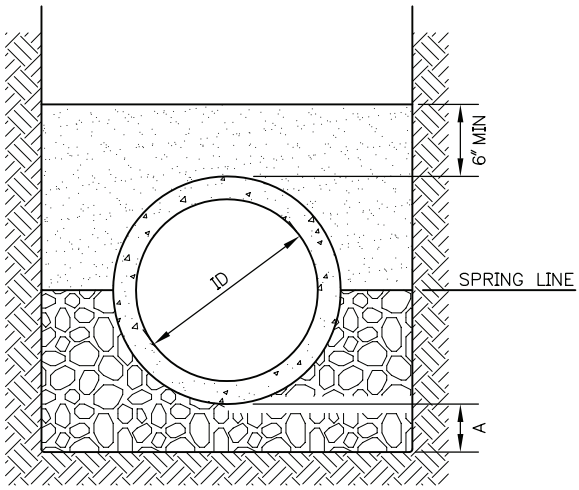
REV DATE: 2003



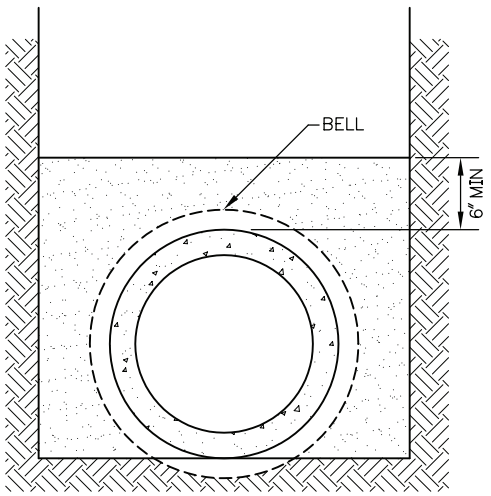
CLASS A BEDDING
(CONCRETE BEDDING)



CLASS B BEDDING



CLASS C BEDDING



CLASS D BEDDING

MINERAL AGGREGATE PER STD SPEC 4-01
TYPE 9 FOR RIGID PIPE
TYPE 22 FOR FLEXIBLE PIPE

CONCRETE
(4 SACK MIN 1 1/2" MAX AGGREGATE)

SELECTED NATIVE MATERIAL

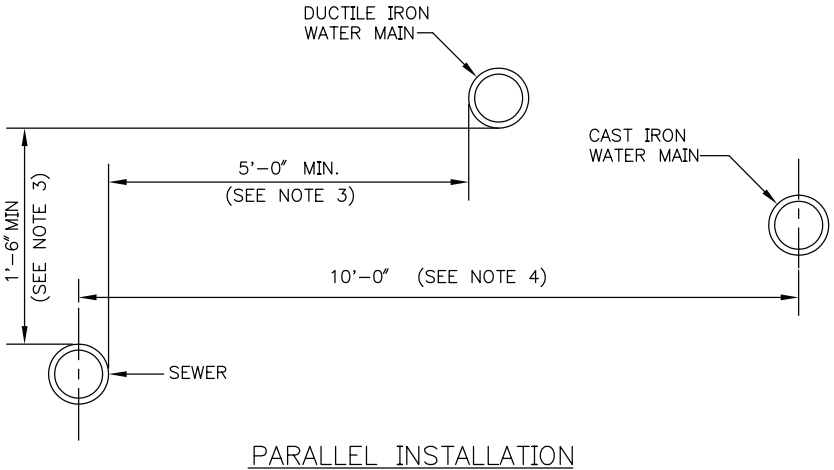
NOTES:
1. FOR TRENCH WIDTH SEE STD PLAN NO 284
2. A=4" WHEN ID IS LESS THAN 2'-6"
   A=6" WHEN ID IS 2'-6" OR MORE
3. FOR CLASS D BEDDING EXCAVATE FOR BELL

City of Seattle	NOT TO SCALE	PIPE BEDDING SEWER / STORM DRAIN

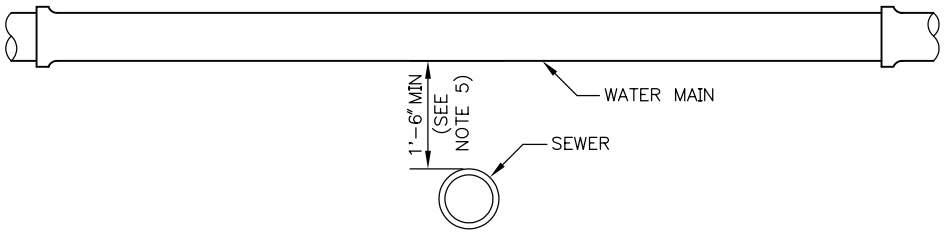
REV DATE: 2005

NOTES

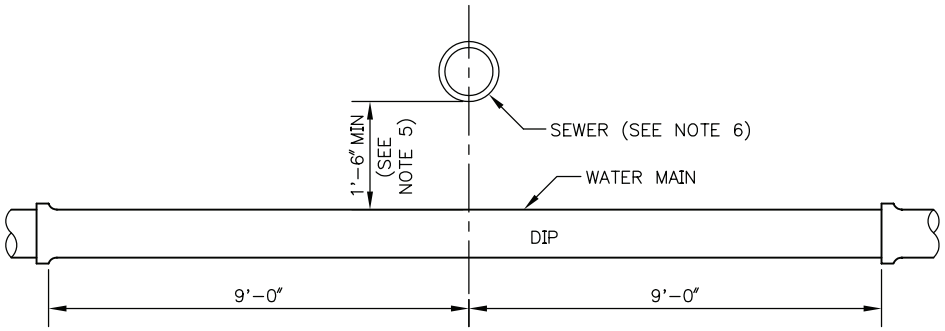
1. EXCEPTIONS TO STD PLAN NO. 286 SHALL BE APPROVED BY SEATTLE PUBLIC UTILITIES, WATER QUALITY DIVISION.
2. "SEWER" INCLUDES SANITARY SEWER, COMBINED SEWER AND SIDE SEWER.
3. WHERE MINIMUM CLEARANCES CANNOT BE MET, SEWER SHALL BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS INCLUDING WATER MAIN PRESSURE TESTING REQUIREMENTS.
4. NO VERTICAL CLEARANCE REQUIRED.
5. IF MINIMUM VERTICAL SEPARATION CANNOT BE MET, WATER MAIN SHALL BE A STANDARD SINGLE 18'–0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING.
6. SEWER SHALL 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.
8. ORDINANCE 97016 APPLIES TO SIDE SEWERS. SEE STD SPEC SEC 1–07.17(2)A.



PARALLEL INSTALLATION



CROSSING WATER OVER SEWER



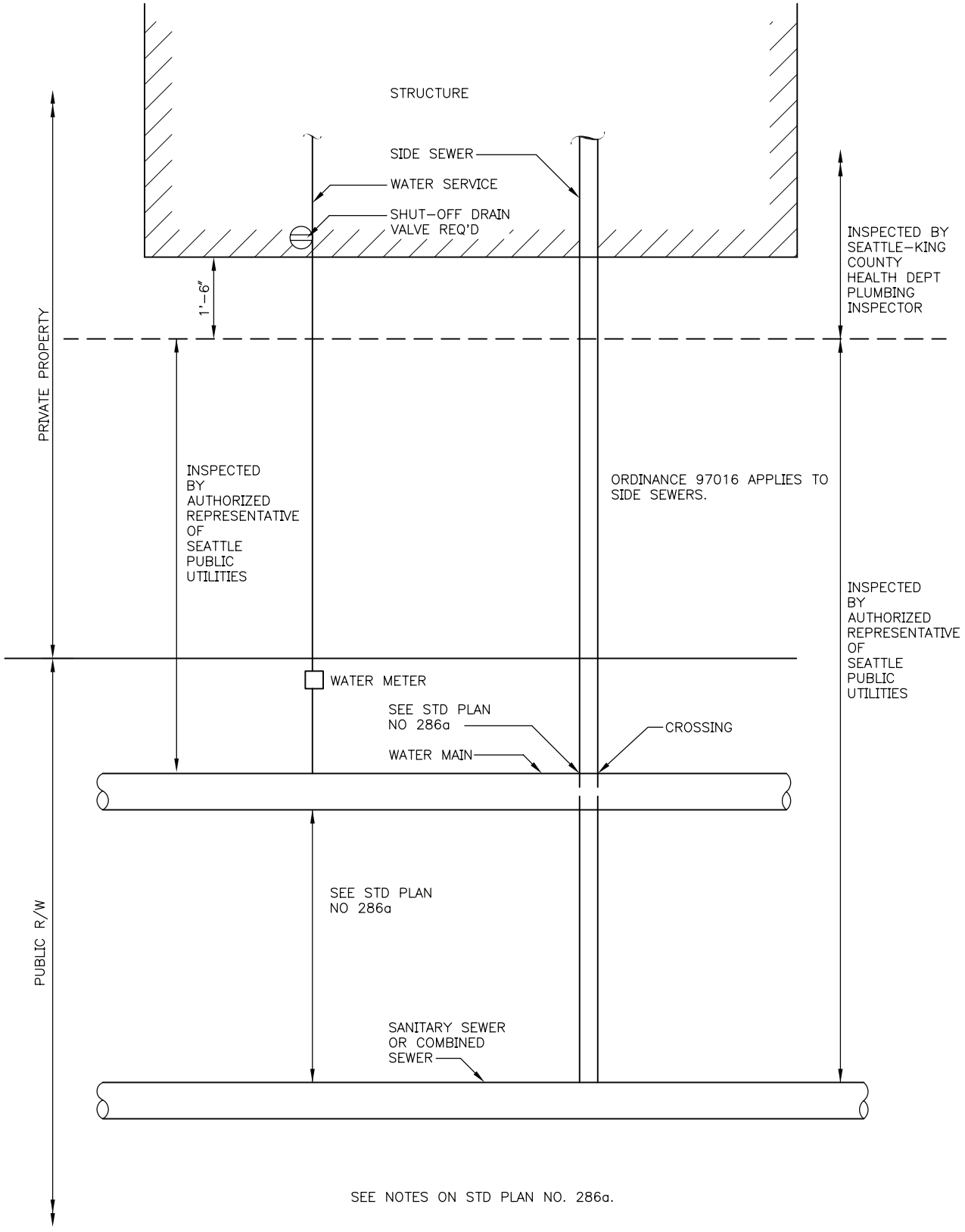
STANDARD SINGLE 18'–0" NOMINAL LENGTH DUCTILE IRON WATER MAIN SECTION CENTERED AT THE POINT OF CROSSING

CROSSING WATER UNDER SEWER

City of Seattle	NOT TO SCALE	SEWER & WATER SPACING & CLEARANCES

STANDARD PLAN NO 286b

REV DATE: 2003

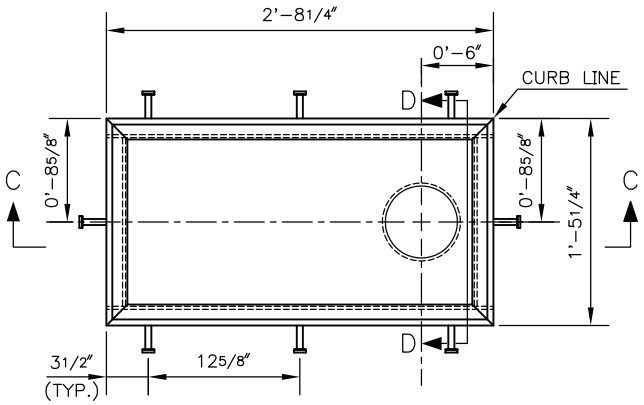


SEE NOTES ON STD PLAN NO. 286a.

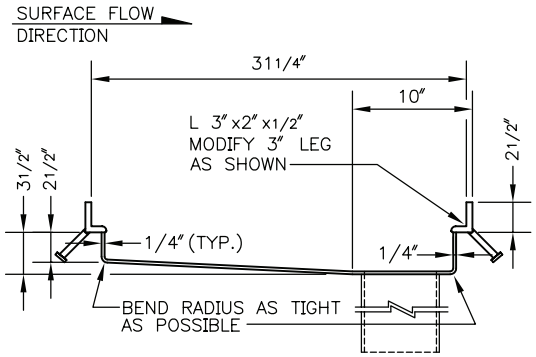
City of Seattle	NOT TO SCALE	SEWER & WATER SPACING & CLEARANCES

STANDARD PLAN NO 290

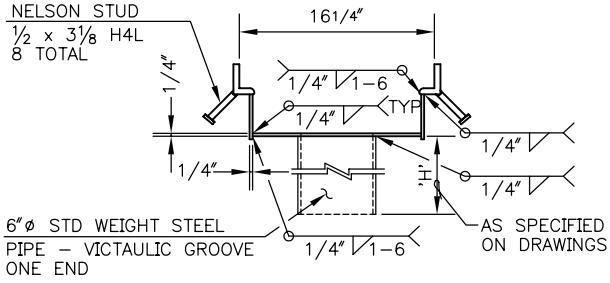
REV DATE: 2003



PLAN VIEW – BRIDGE DRAIN



SECTION C–C



SECTION D–D

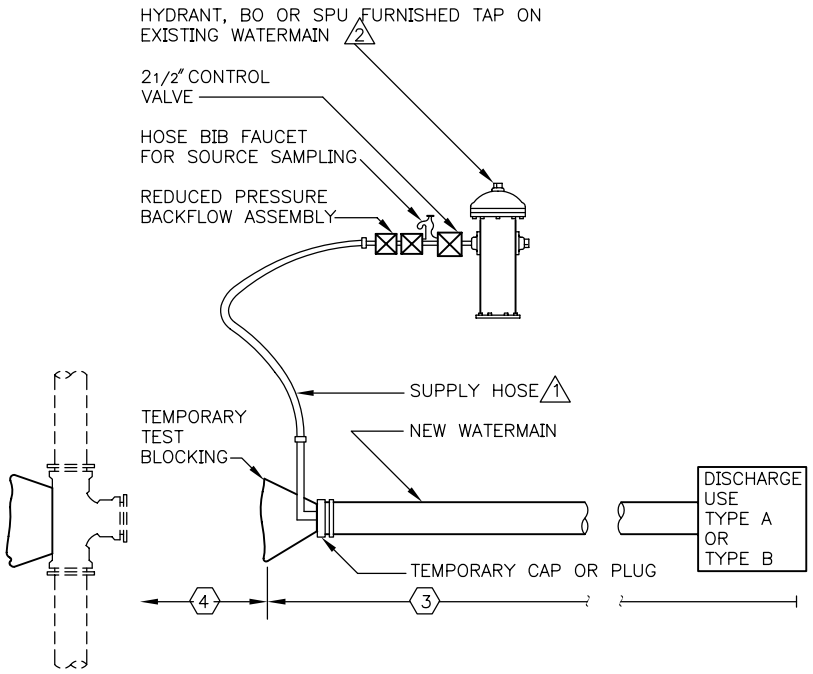
NOTES:

1. ALL 1/4" STEEL & L3" x 2" x 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. VANED GRATE TO BE PER STD PLAN NO 265.

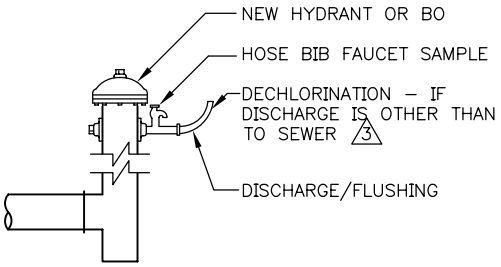
City of Seattle	NOT TO SCALE	BRIDGE DRAIN

STANDARD PLAN NO 300a

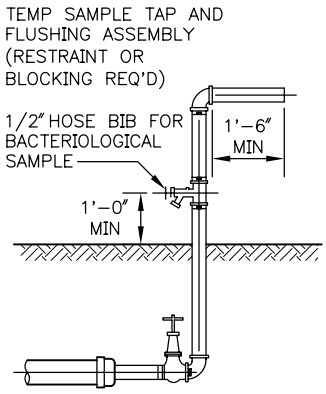
REV DATE: 2003



DETAIL 1
TEMPORARY
FLUSHING/TESTING CONN



TYPE A



TYPE B

NOTES

1. ALL FITTINGS SHALL BE DUCTILE IRON
2. ALL EXCAVATION SHALL 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) SHALL 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 SHALL BE CAPPED WHEN NOT IN USE. ASSEMBLY SHALL BE TESTED WHEN INSTALLED BY A WASHINGTON STATE CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A CURRENT TEST REPORT SHALL BE ON SITE. FOR INSTALLATION PROCEDURES CALL 684–3536.

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 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 SHALL 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

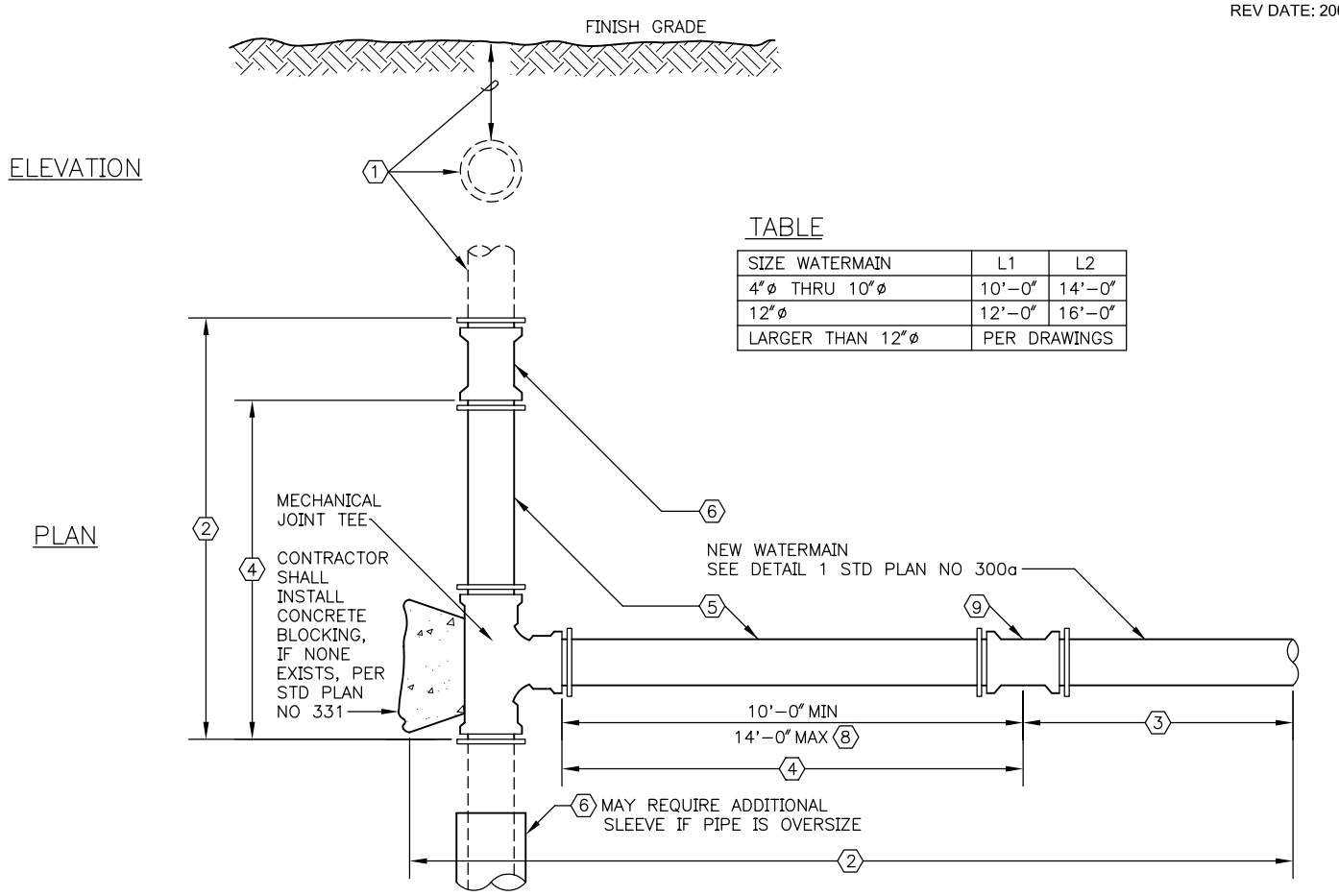
⟨7⟩ TAPPING SLEEVE & TAPPING VALVE FURNISHED AND INSTALLED BY SPU

⟨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

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

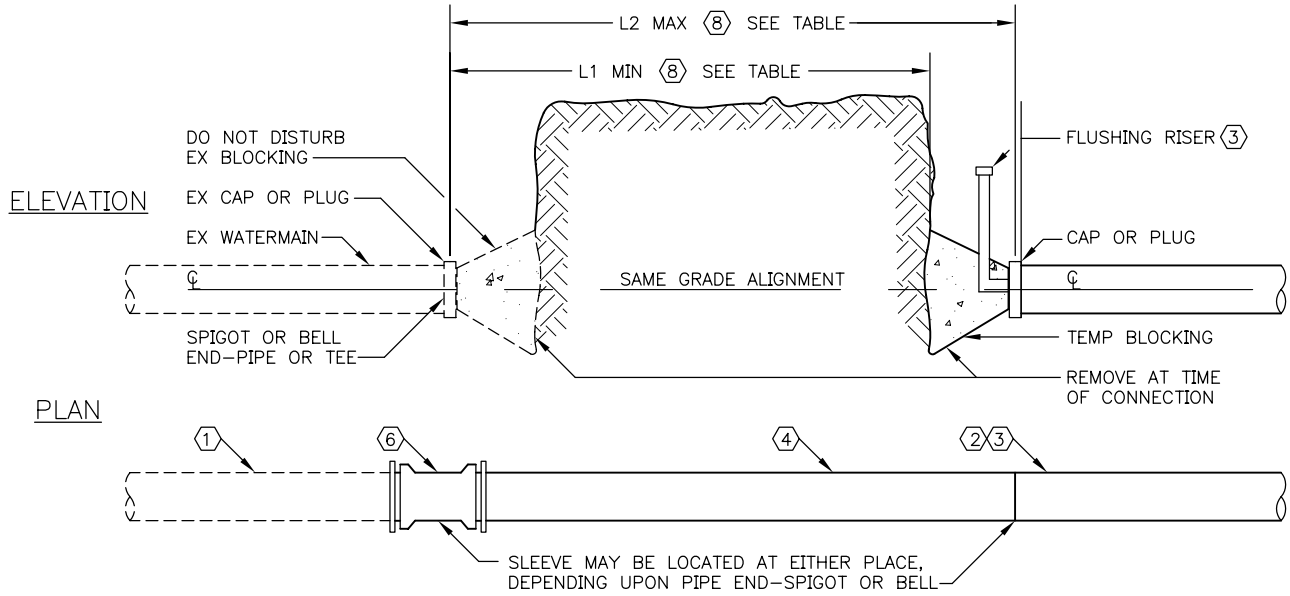
REV DATE: 2003



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	

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

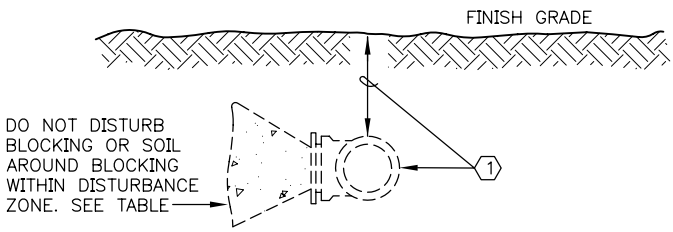


CONNECTIONS TO EXISTING MAIN, STUB OR END OUTLET OF TEE OR CROSS

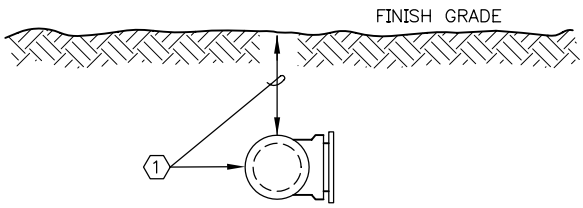
FOR LEGEND ⬡ AND NOTES SEE STD PLAN NO 300a

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

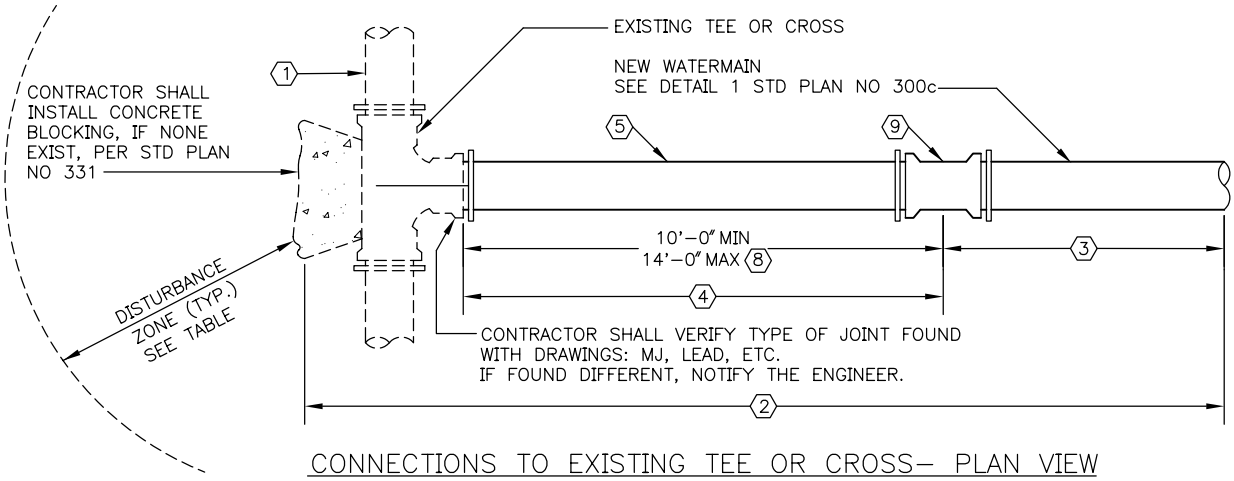
REV DATE: 2003



EXISTING PLUGGED TEE OR CROSS



NEW PLUGGED TEE OR CROSS

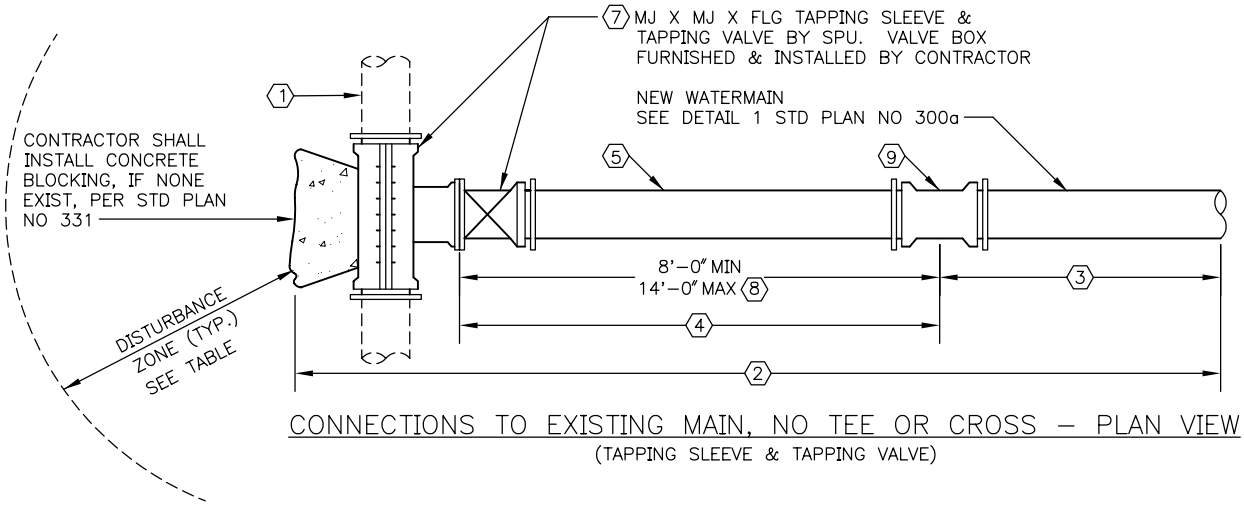


CONNECTIONS TO EXISTING TEE OR CROSS– PLAN VIEW

TABLE

SIZE WATERMAIN	DISTURBANCE ZONE
UP TO & INCLUDING 10"ø	10'–0"
OVER 10"ø	12'–0"

* SPU MAY INCREASE DISTURBANCE ZONE.
SEE CONTRACT DOCUMENTS



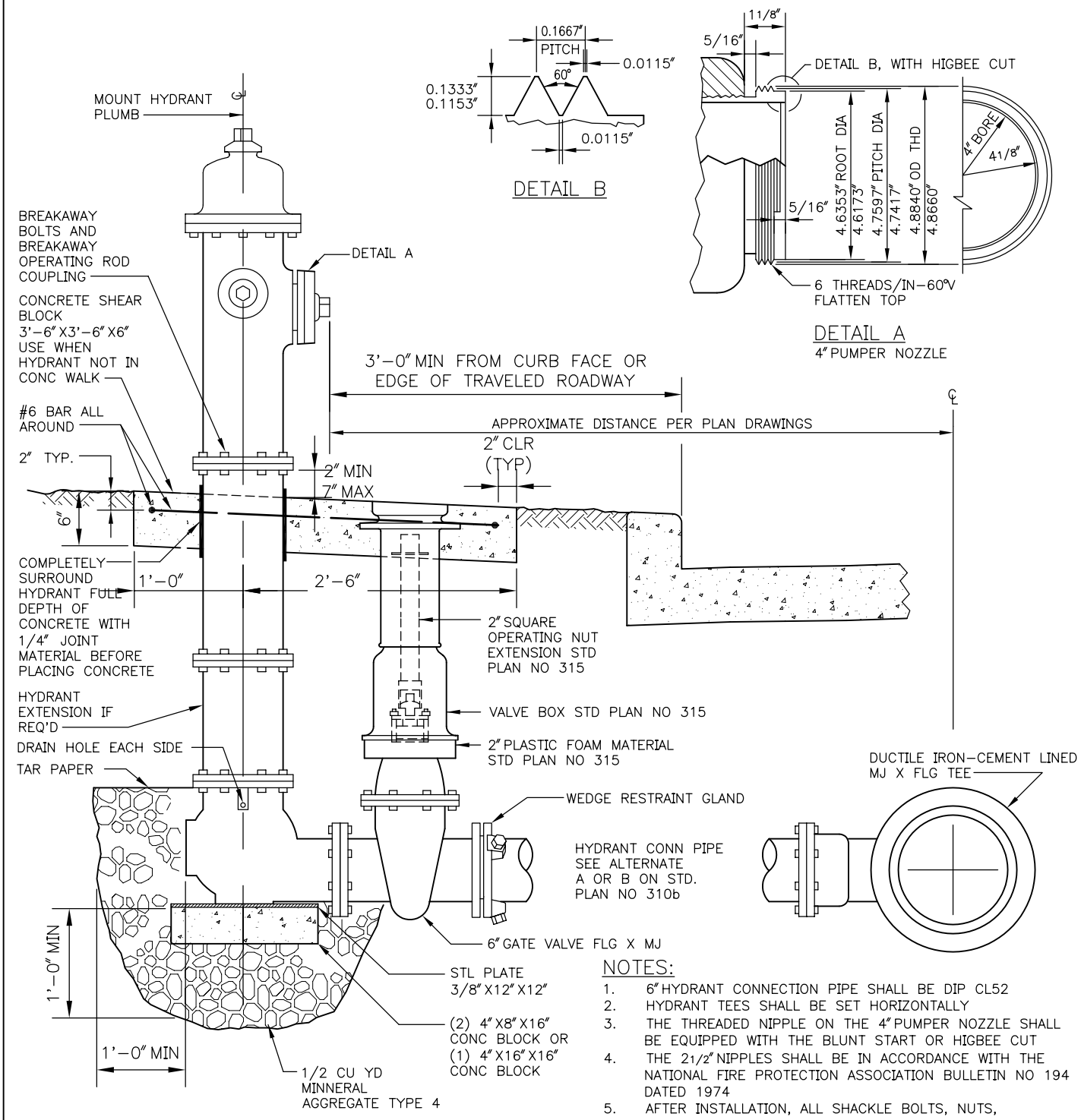
CONNECTIONS TO EXISTING MAIN, NO TEE OR CROSS – PLAN VIEW
(TAPPING SLEEVE & TAPPING VALVE)

FOR LEGEND ⬡ AND NOTES SEE STD PLAN NO 300a

City of Seattle	NOT TO SCALE	CONNECTIONS TO EXISTING WATERMAINS

STANDARD PLAN NO 310a

REV DATE: 2008



HYDRANT DETAIL

DETAIL B

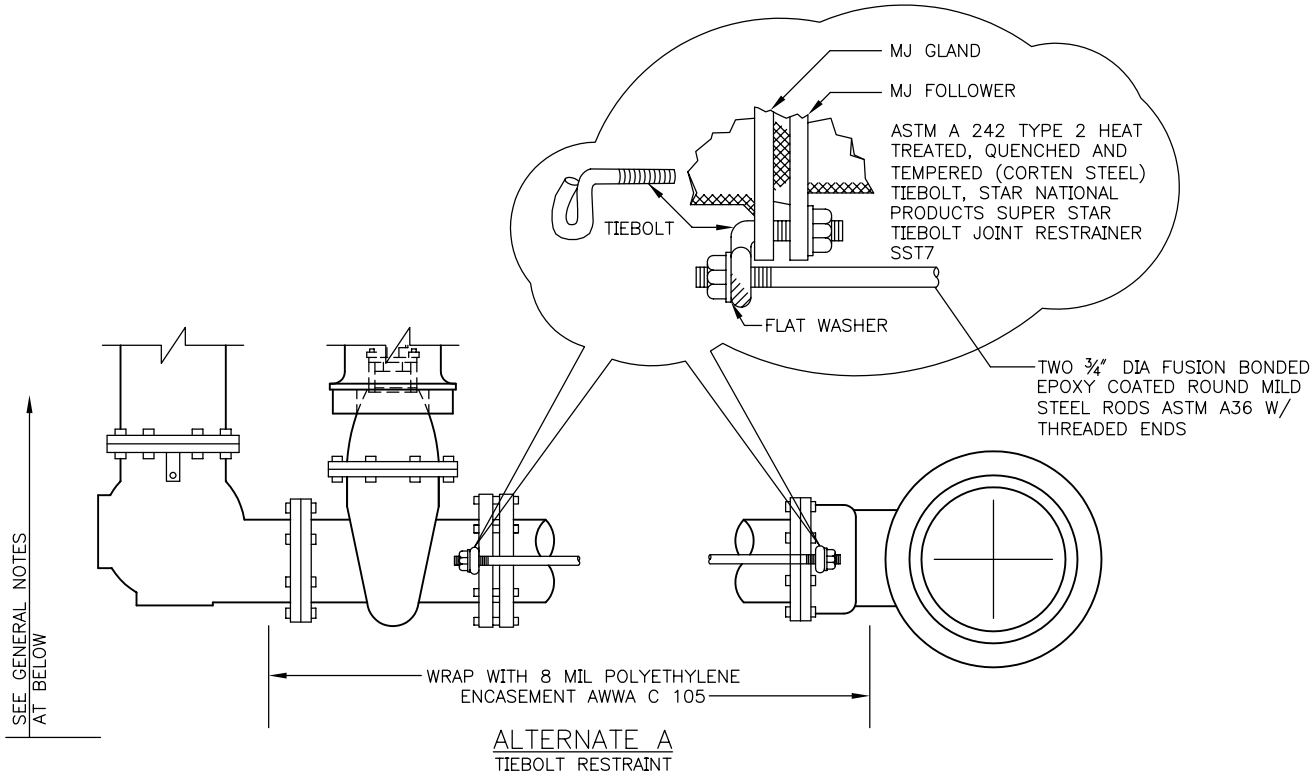
DETAIL A
4" PUMPER NOZZLE

NOTES:

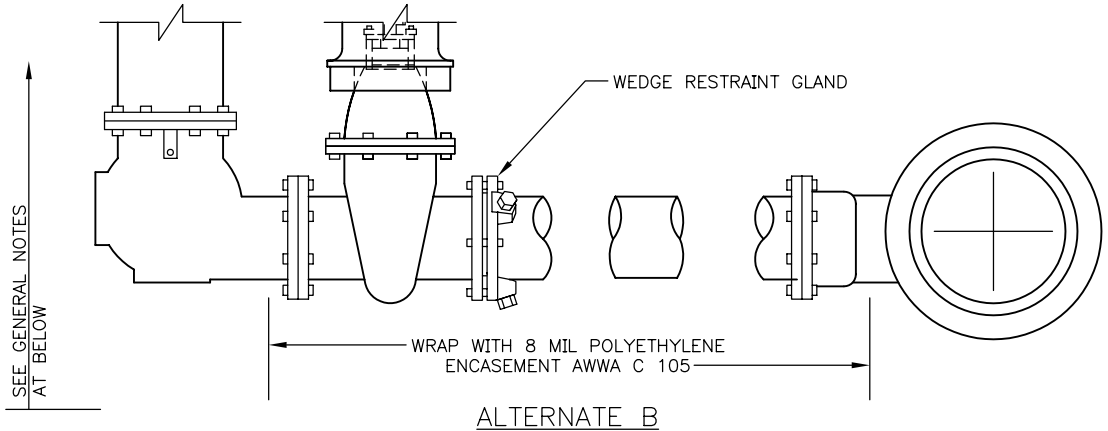
1. 6" HYDRANT CONNECTION PIPE SHALL BE DIP CL52
2. HYDRANT TEES SHALL BE SET HORIZONTALLY
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE SHALL BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT
4. THE 2 1/2" NIPPLES SHALL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, MECHANICAL JOINT GLANDS AND SHACKLE RODS SHALL BE CLEANED AND COATED WITH TWO COATS OF ROYSTON R28 MASTIC.
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) SHALL BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE LUXLITE 43-616 CAT YELLOW
7. PUMPER PORT TO FACE CURB
8. RESTRAINT SHALL BE BY WEDGE RESTRAINT SYSTEM SUCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC 9-30.5(5)

City of Seattle	NOT TO SCALE	TYPE 310 HYDRANT SETTING DETAIL

REV DATE: 2008



ALTERNATE A
TIEBOLT RESTRAINT



ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

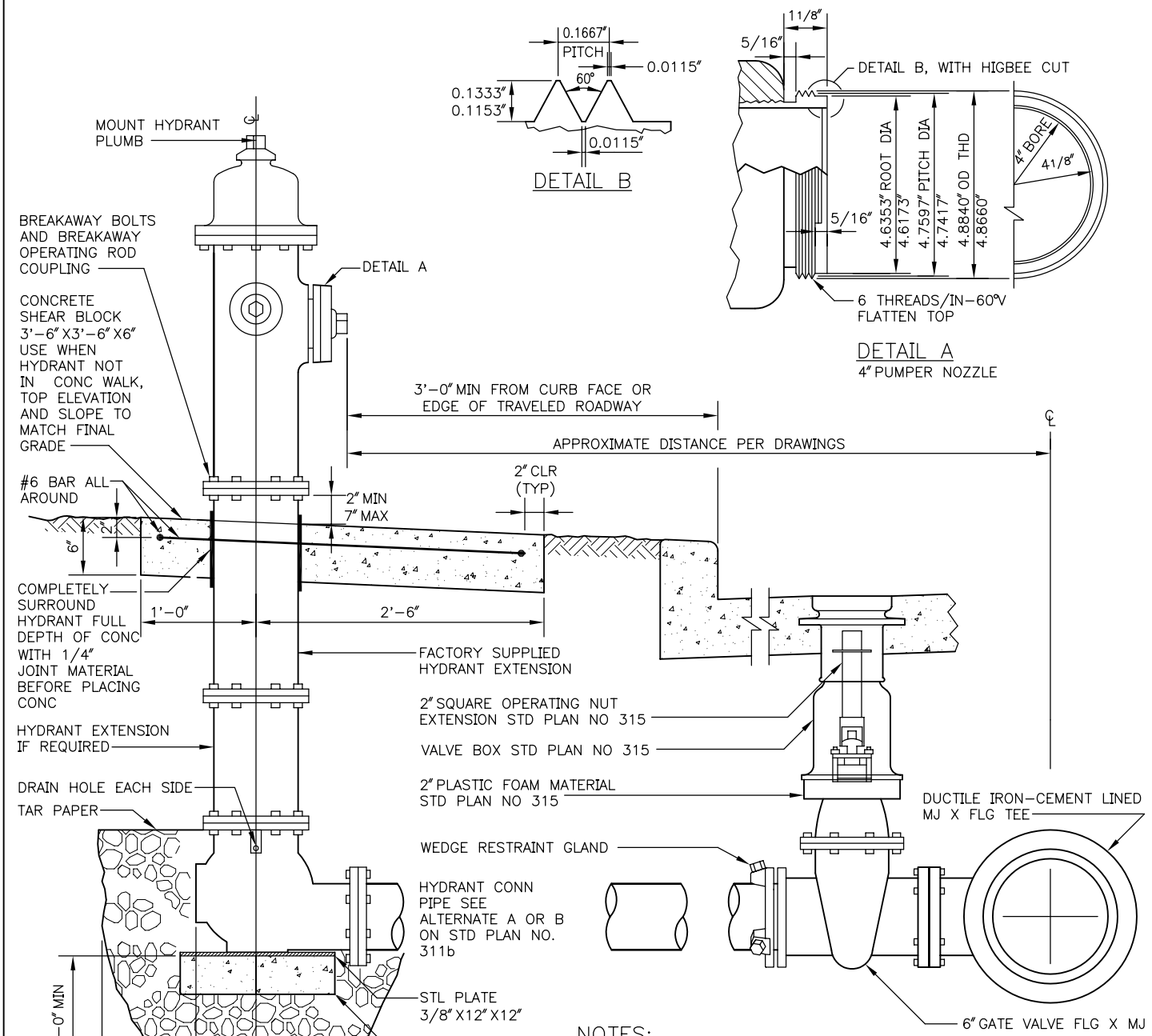
GENERAL NOTES:

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

City of Seattle	NOT TO SCALE	TYPE 310 HYDRANT SETTING DETAIL

STANDARD PLAN NO 311a

REV DATE: 2008



HYDRANT DETAIL

DETAIL B

DETAIL A
4" PUMPER NOZZLE

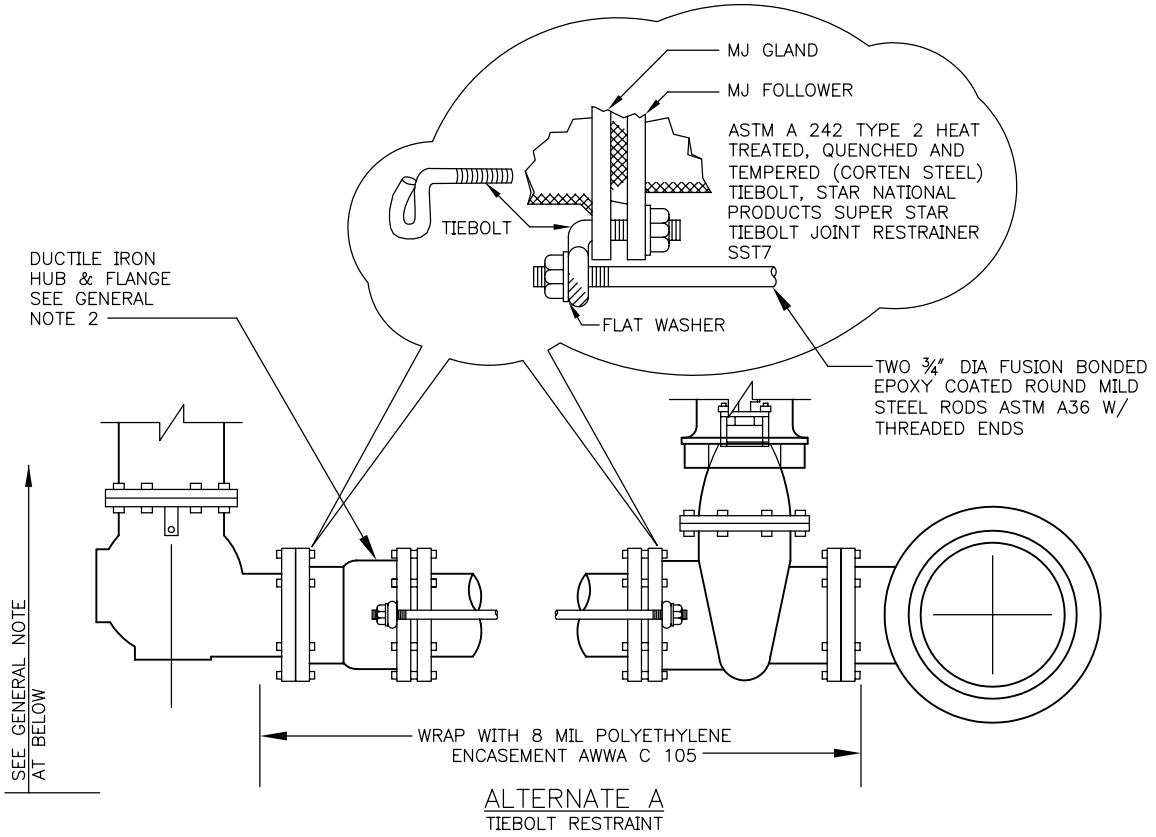
NOTES:

1. 6" HYDRANT CONNECTION PIPE SHALL BE DIP CL52
2. HYDRANT TEES SHALL BE SET HORIZONTALLY
3. THE THREADED NIPPLE ON THE 4" PUMPER NOZZLE SHALL BE EQUIPPED WITH THE BLUNT START OR HIGBEE CUT
4. THE 2 1/2" NIPPLES SHALL BE IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION BULLETIN NO 194 DATED 1974
5. AFTER INSTALLATION, ALL SHACKLE BOLTS, NUTS, AND SHACKLE RODS SHALL BE CLEANED AND COATED WITH TWO COATS OF ASPHALT, ROYSTON ROSKOTE R28
6. AFTER BACKFILLING, THE OUTSIDE OF THE HYDRANT (ABOVE THE GROUND LINE) SHALL BE THOROUGHLY CLEANED AND PAINTED WITH TWO COATS OF KELLY-MOORE LUXLITE 43-616 CAT YELLOW
7. PUMPER PORT TO FACE CURB
8. PUMPER PORT TO BE FITTED WITH QUICK CONNECT ADAPTOR PER FIRE MARSHAL
9. RESTRAINT SHALL BE BY WEDGE RESTRAINT SYSTEM USCH AS MEGALUG OR UNIFLANGE. SEE STD SPEC SEC 9-30.5(5).

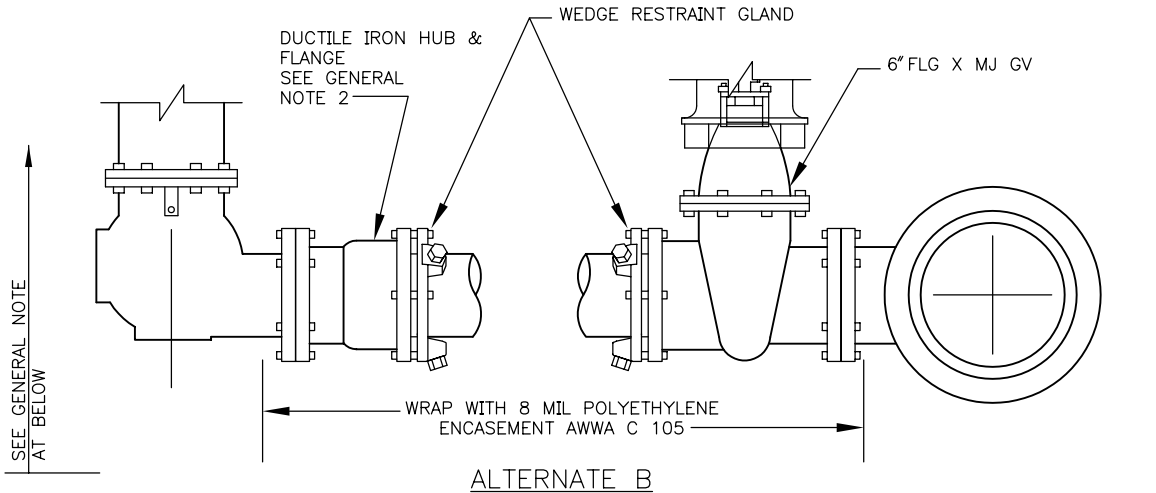
City of Seattle	NOT TO SCALE	TYPE 311 HYDRANT SETTING DETAIL

STANDARD PLAN NO 311b

REV DATE: 2008



ALTERNATE A
TIEBOLT RESTRAINT



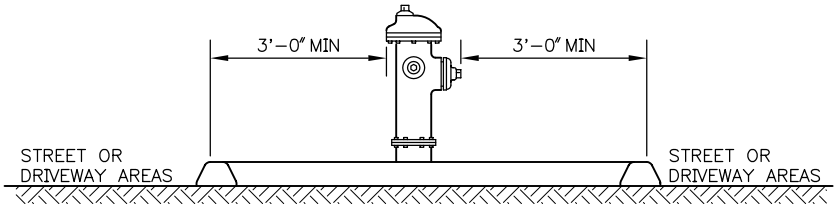
ALTERNATE B
MECHANICAL JOINT W/ WEDGE RESTRAINT GLANDS

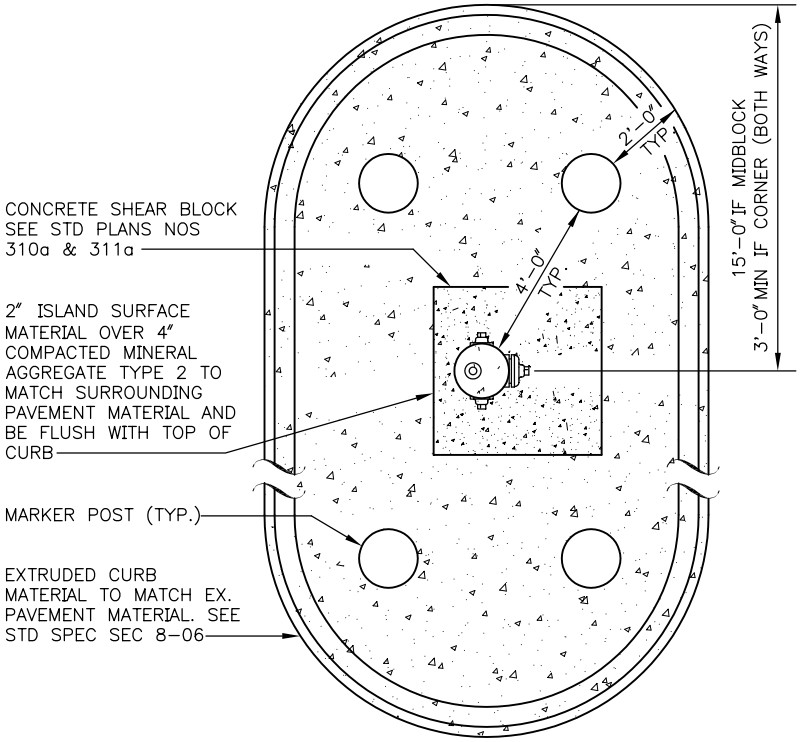
GENERAL NOTES:

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

City of Seattle	NOT TO SCALE	TYPE 311 HYDRANT SETTING DETAIL

REV DATE: 2008

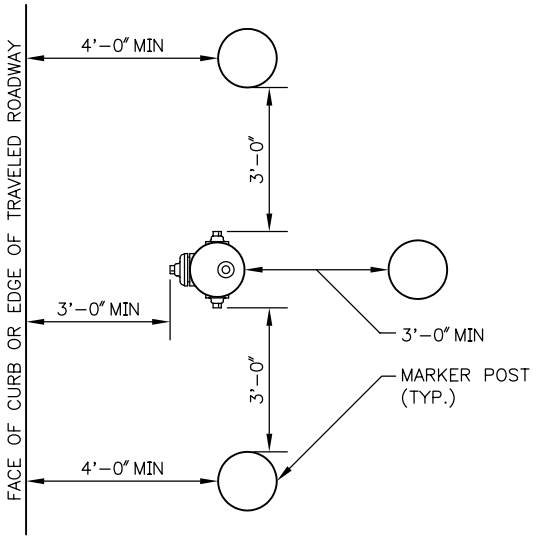




TRAFFIC ISLAND MARKER POST LAYOUT FOR
FIRE HYDRANTS IN PARKING AREAS

NOTES

1. LAYOUT OF MARKER POST SHALL BE VERIFIED FIRST WITH SPU AND SDOT
2. MARKER POST WITH HIGH INTENSITY REFLECTORIZED BANDS PROVIDED BY SPU

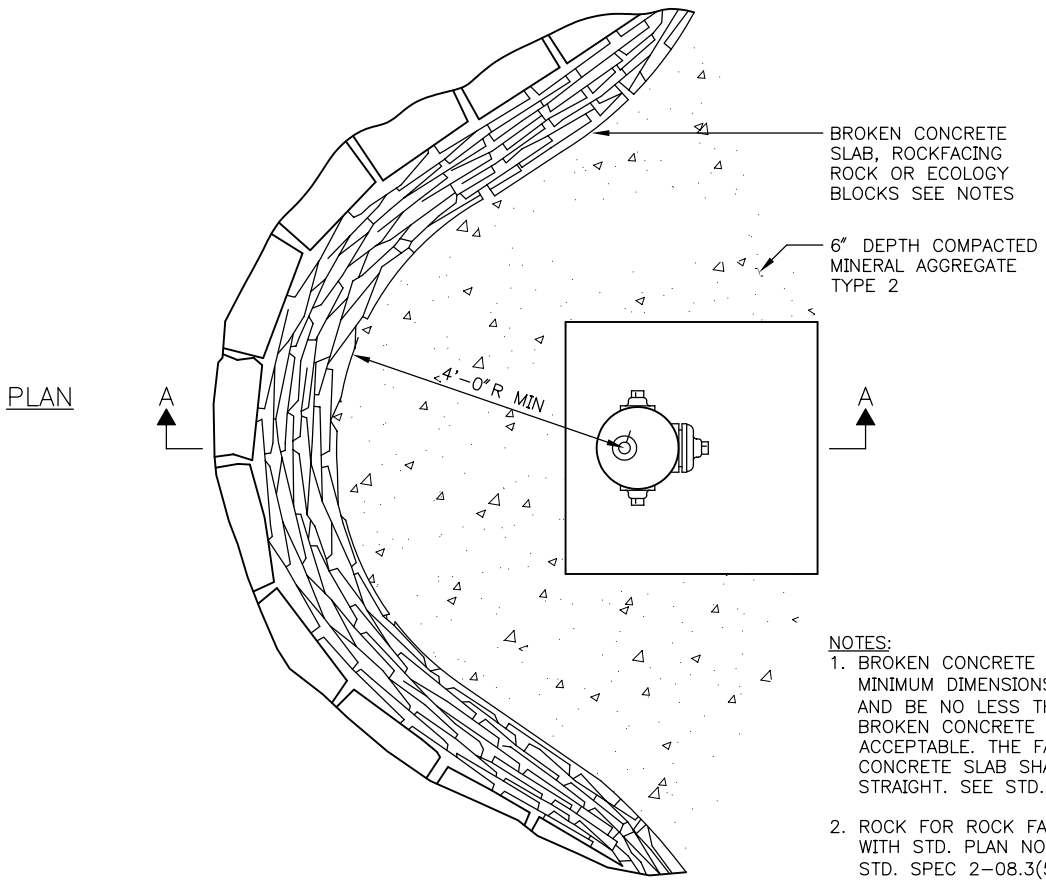


MARKER POST LAYOUT FOR
FIRE HYDRANTS IN PARKING AREAS

City of Seattle	NOT TO SCALE	FIRE HYDRANT MARKER LAYOUT

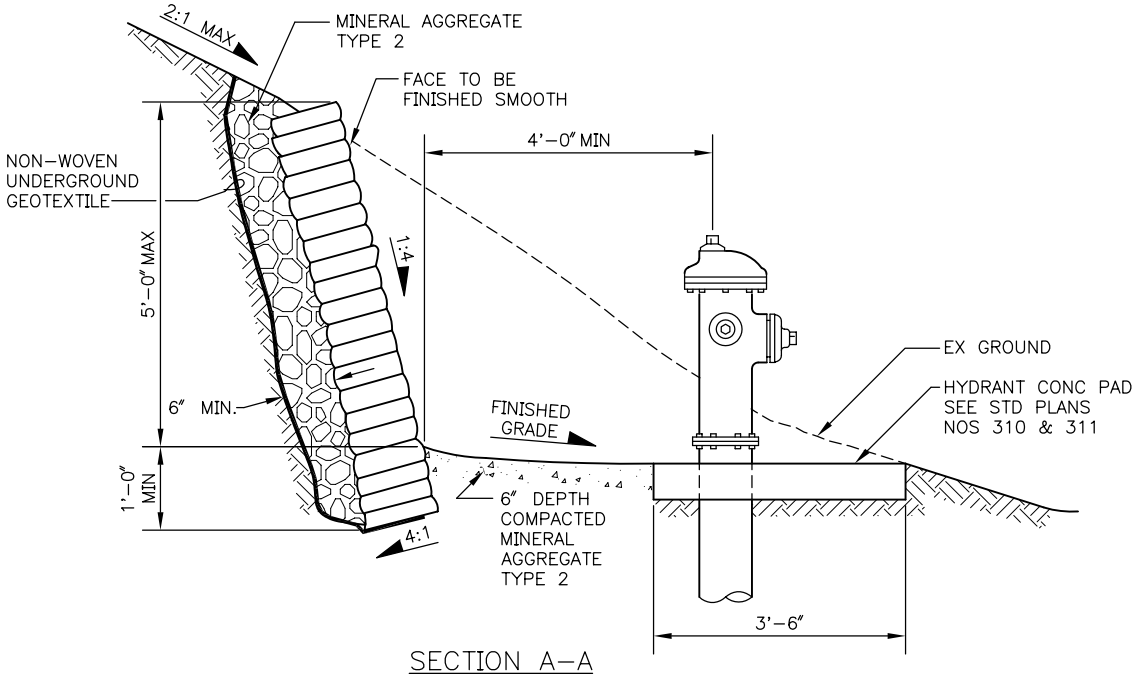
STANDARD PLAN NO 313

REV DATE: 2003



NOTES:

1. BROKEN CONCRETE SLABS SHALL HAVE MINIMUM DIMENSIONS OF 3'-0" x 1'-6" AND BE NO LESS THAN 3 1/2" THICK. BROKEN CONCRETE SIDEWALK IS ACCEPTABLE. THE FACE SIDE OF CONCRETE SLAB SHALL BE STRAIGHT. SEE STD. SPEC SEC 8-15.3(5)A
2. ROCK FOR ROCK FACING SHALL COMPLY WITH STD. PLAN NO. 141 SEE STD. SPEC 2-08.3(5)

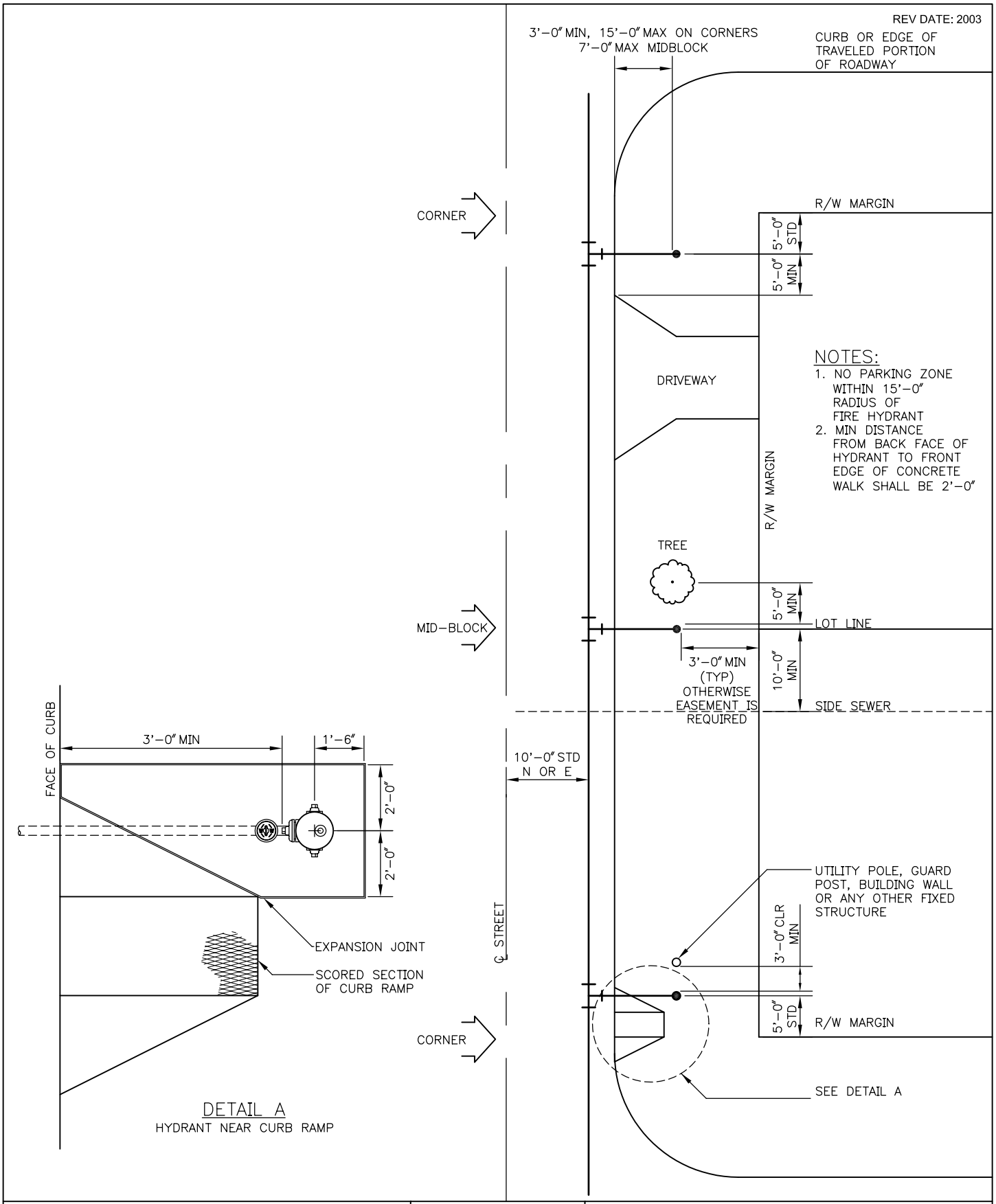


SECTION A-A

City of Seattle	NOT TO SCALE	WALL REQUIREMENTS FOR HYDRANTS

STANDARD PLAN NO 314

REV DATE: 2003



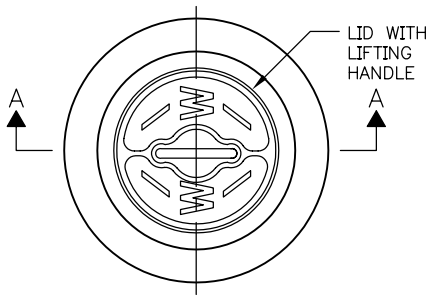
City of Seattle

NOT TO SCALE

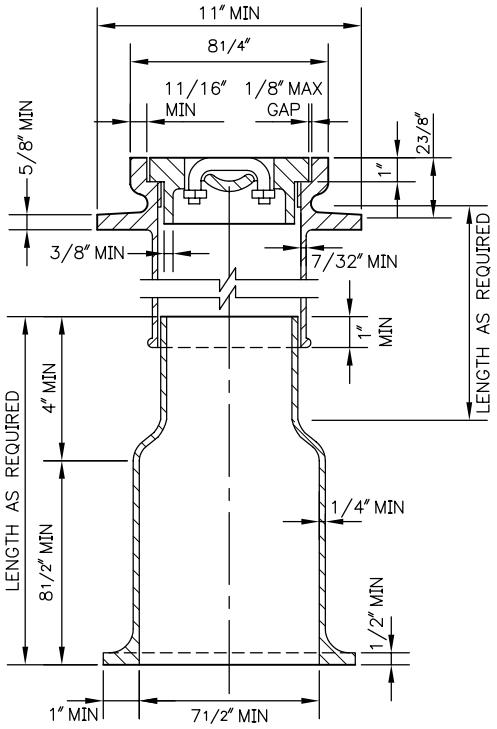
FIRE HYDRANT
LOCATIONS & CLEARANCES

STANDARD PLAN NO 315a

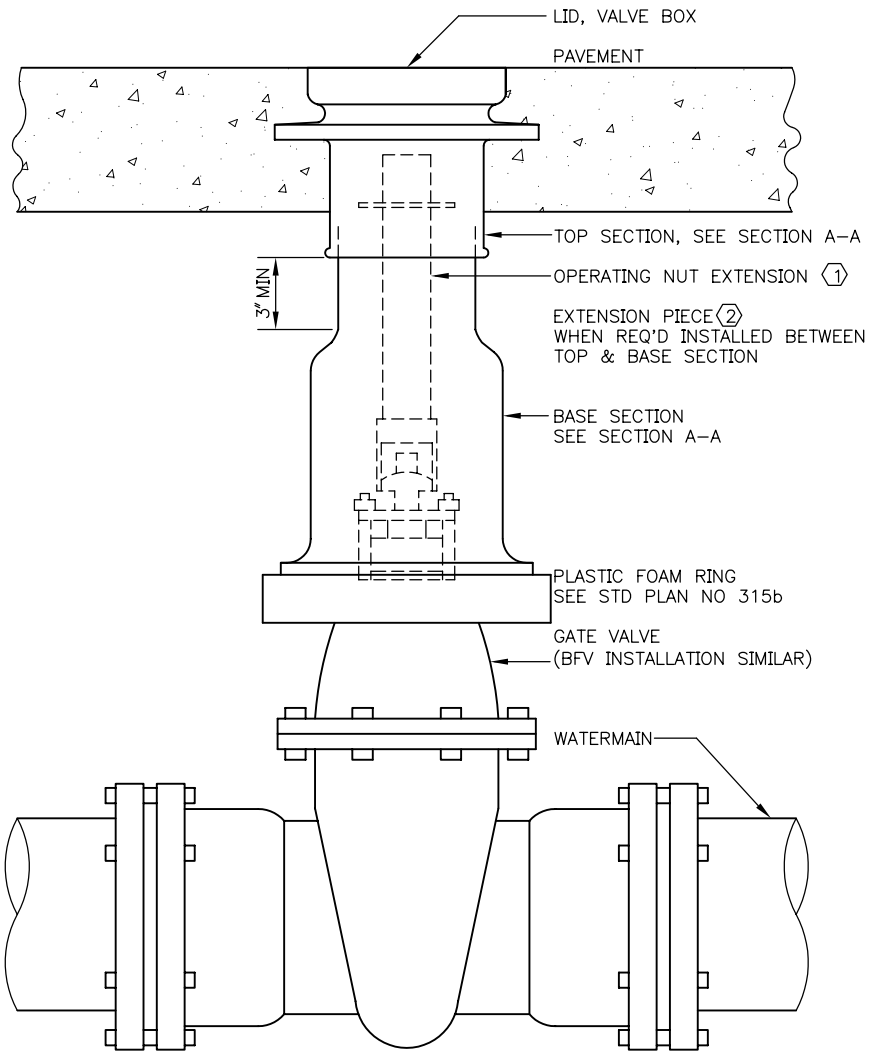
REV DATE: 2003



PLAN



SECTION A–A



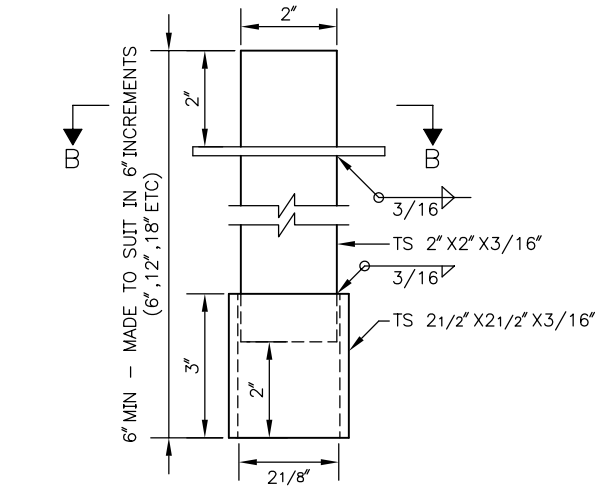
VALVE BOX ASSEMBLY
TYPICAL SETTING DETAIL

NOTE:
VALVE BOX FOR USE ON 12" OR SMALLER VALVE INSTALLATIONS

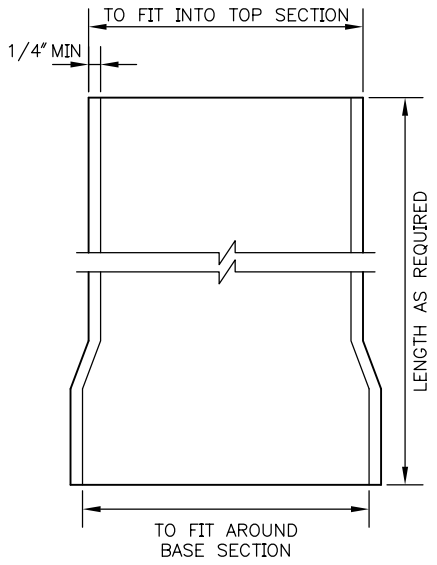
FOR LEGEND ⬡ AND NOTES SEE STD PLAN NO 315b

City of Seattle	NOT TO SCALE	CAST IRON VALVE BOX & OPERATING NUT EXTENSION

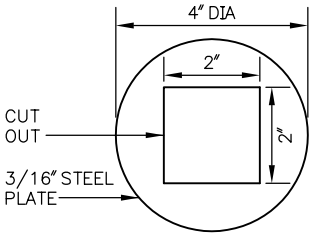
REV DATE: 2003



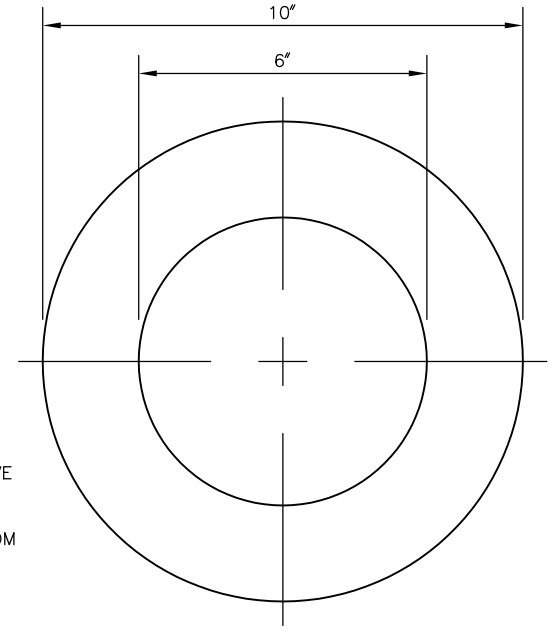
OPERATING NUT EXTENSION DETAIL 1



EXTENSION PIECE 2
WHEN REQUIRED



SECTION B–B



PLASTIC FOAM RING DETAIL

NOTES:

1. FRAME AND COVER SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS FOR DELIVERY
2. CASTINGS AND EXTENSIONS SHALL BE HOT–DIPPED IN ASPHALTIC VARNISH ROYSTON ROSKOTE #612XM OR 2 COATS OF MASTIC ROYSTON INSIDE AND OUT.
3. VALVE BOXES SHALL BE RICH #045: TOP SECTION, LID AND BASE; OR OLYMPIC FOUNDRY: LID #1908–33, TOP SECTION #1106–33, BASE SECTION #1301–33
4. ALL CASTINGS SHALL BE DUCTILE OR GREY CAST IRON

LEGEND:

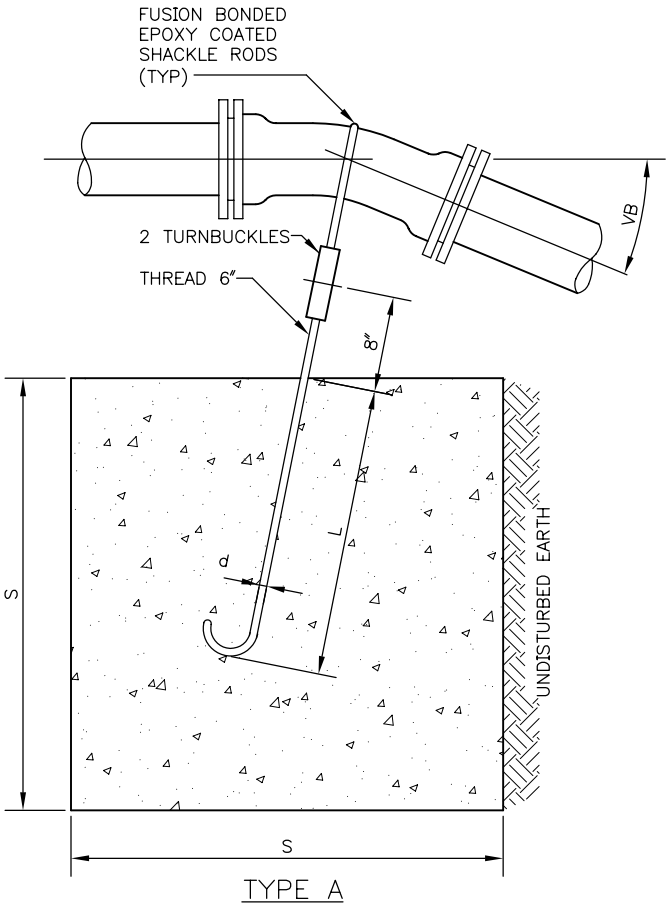
(1) AN OPERATING NUT EXTENSION SHALL BE INSTALLED WHEN THE GROUND SURFACE IS MORE THAN 2′–6″ ABOVE THE VALVE OPERATING NUT. THE OPERATING NUT EXTENSION SHALL EXTEND INTO THE TOP SECTION OF THE STANDARD VALVE BOX AND SHALL CLEAR THE BOTTOM OF THE LID BY 6″ MIN

(2) EXTENSION PIECES (WHEN USED) SHALL CONFORM TO MINIMUM THICKNESS REQUIREMENTS AND SHALL FIT INTO THE TOP SECTION AND OVER THE BOTTOM SECTION

City of Seattle	NOT TO SCALE	CAST IRON VALVE BOX & OPERATING NUT EXTENSIONS

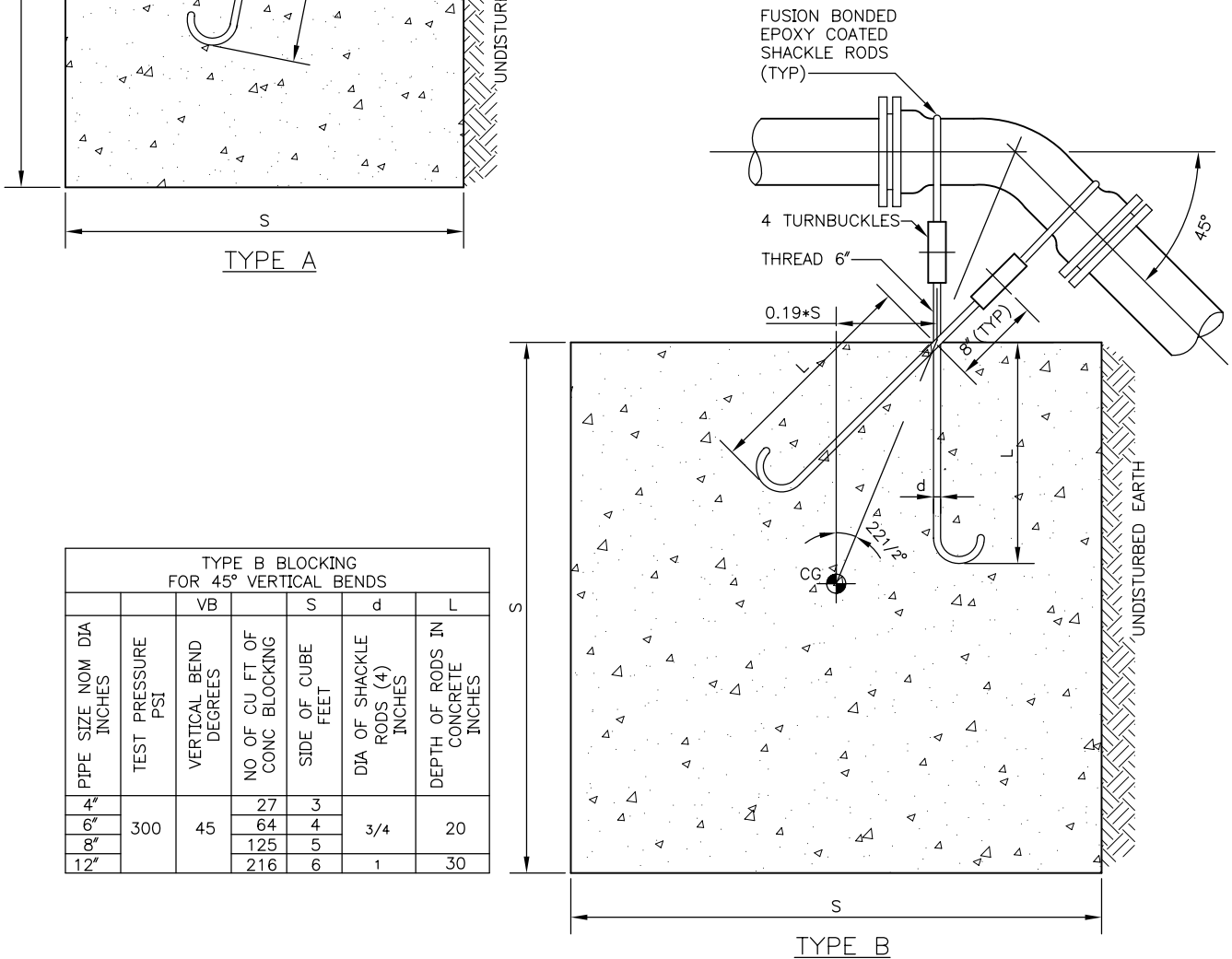
STANDARD PLAN NO 330a

REV DATE: 2003



TYPE A

TYPE A BLOCKING FOR 11 1/4° & 22 1/2° VERTICAL BENDS						
		VB		S	d	L
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES	NO OF CU FT OF CONC BLOCKING	SIDE OF CUBE FEET	DIA OF SHACKLE RODS (2) INCHES	DEPTH OF RODS IN CONCRETE INCHES
4"	300	11 1/4	8	2	3/4	18
		22 1/2	12	2 1/4		24
6"	300	11 1/4	12	2 1/4	3/4	24
		22 1/2	27	3		
8"	300	11 1/4	16	2 1/2	3/4	24
		22 1/2	43	3 1/2		
12"	300	11 1/4	64	4	1	24
		22 1/2	125	5	1	36



TYPE B

TYPE B BLOCKING FOR 45° VERTICAL BENDS						
		VB		S	d	L
PIPE SIZE NOM DIA INCHES	TEST PRESSURE PSI	VERTICAL BEND DEGREES	NO OF CU FT OF CONC BLOCKING	SIDE OF CUBE FEET	DIA OF SHACKLE RODS (4) INCHES	DEPTH OF RODS IN CONCRETE INCHES
4"	300	45	27	3	3/4	20
6"			64	4		
8"			125	5		
12"			216	6	1	30

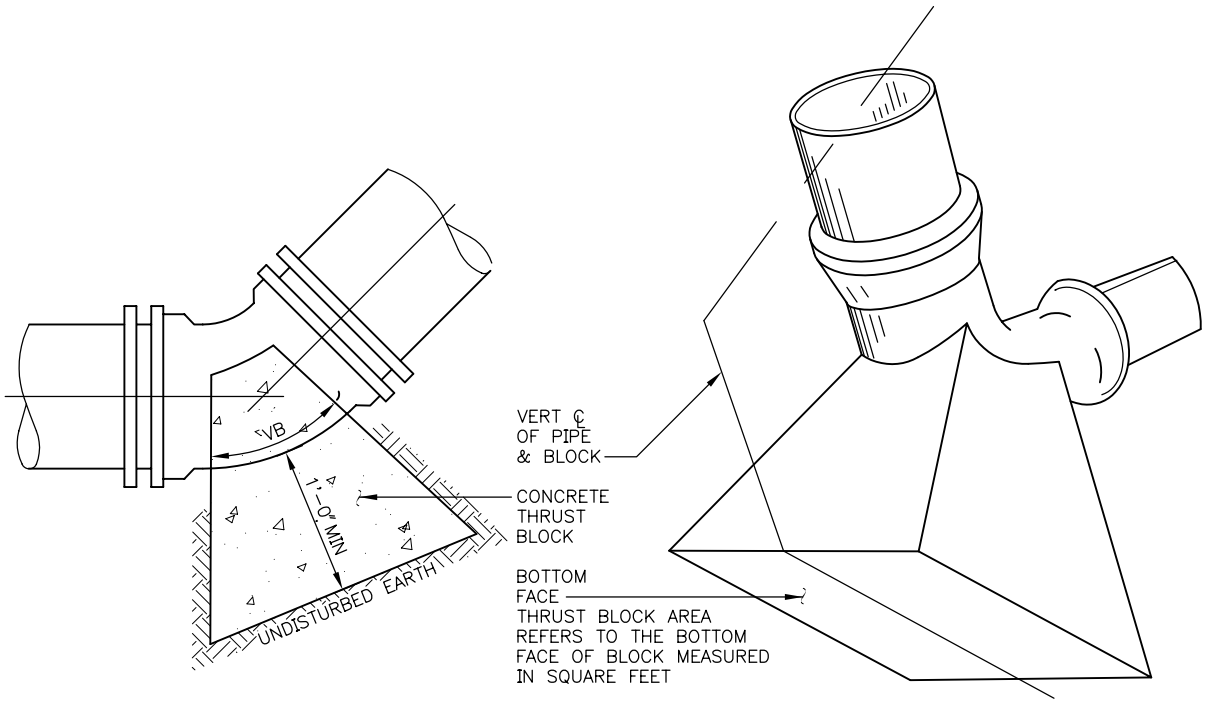
FOR NOTES SEE STD PLAN NO 330b

City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING
VERTICAL FITTINGS

REV DATE: 2003



TYPE C

TYPE "C" BLOCKING FOR 11 1/4°, 22 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		
PIPE SIZE / FITTING	90° BEND	TEE 45°BEND & DEAD END	11 1/4° & 22 1/2° BEND	90° BEND	TEE 45°BEND & DEAD END	11 1/4° & 22 1/2° BEND	90° BEND	TEE 45°BEND & DEAD END	11 1/4° & 22 1/2° 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									

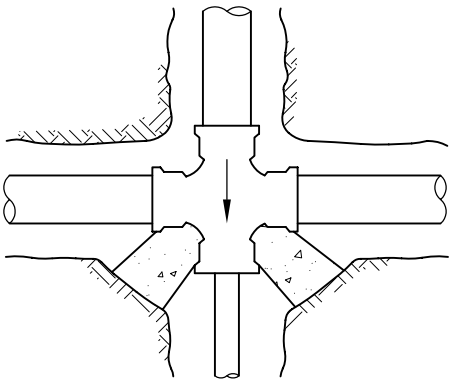
NOTES:

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

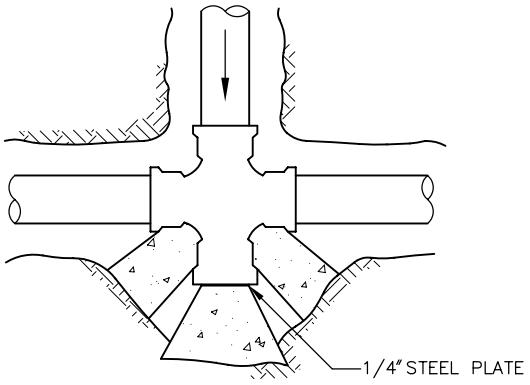
City of Seattle	NOT TO SCALE	WATERMAIN THRUST BLOCKING VERTICAL FITIINGS

STANDARD PLAN NO 331a

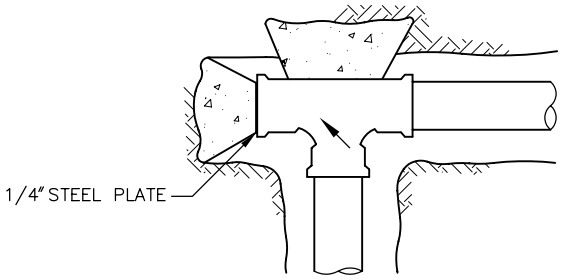
REV DATE: 2003



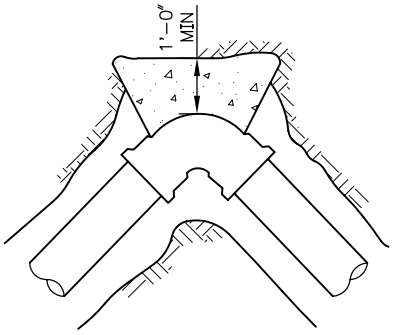
UNBALANCED CROSS



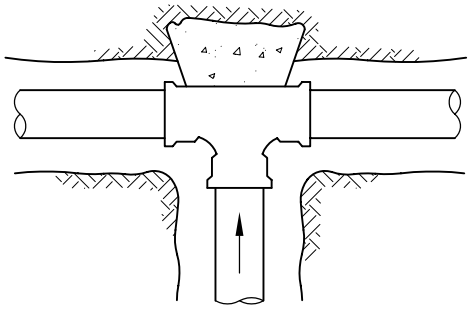
CROSS WITH PLUG



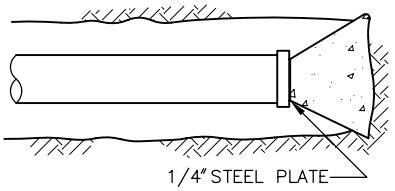
PLUGGED TEE



HORIZONTAL BEND



TEE



PIPE & CAP

PIPE SIZE	THRUST BLOCK AREA IN SQUARE FEET (SEE STD PLAN NO 331b)													
	SOIL	FIRM SILT OR FIRM SILTY SAND				COMPACT SAND				COMPACT SAND & GRAVEL			
	FITTING	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 IN LIEU OF POURED-IN-PLACE BLOCKING FOR FITTINGS IN SHADED PORTION OF TABLE

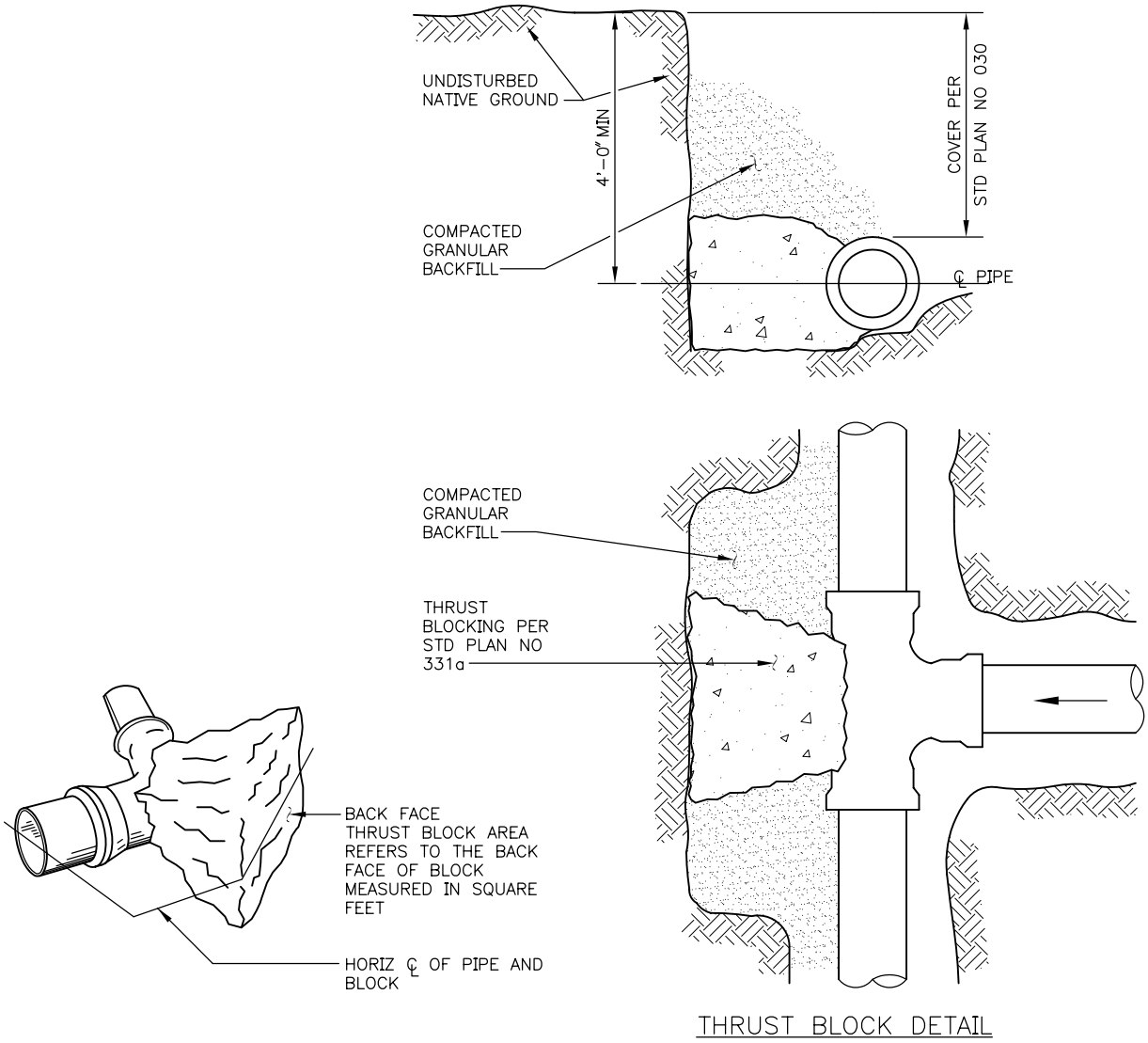
FOR NOTES SEE STD PLAN NO 331b

City of Seattle

NOT TO SCALE

WATERMAIN THRUST BLOCKING
HORIZONTAL FITTINGS

REV DATE: 2003



THRUST BLOCK DETAIL

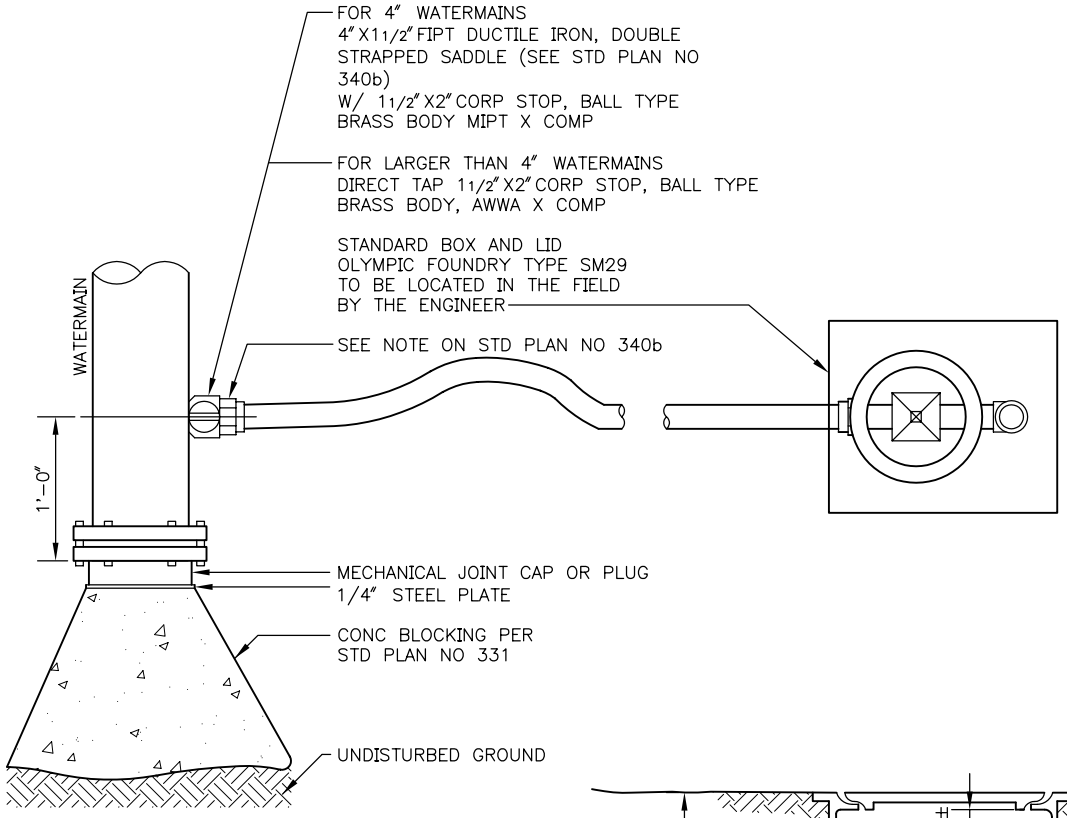
NOTES:

1. LOCATION AND SIZE OF BLOCKING FOR PIPE LARGER THAN 12" DIAMETER AND FOR SOIL TYPES DIFFERENT THAN SHOWN SHALL BE DETERMINED BY THE ENGINEER.
2. ALL BLOCKING FOR HORIZONTAL FITTINGS (POURED IN PLACE) SHALL BEAR AGAINST UNDISTURBED NATIVE GROUND.
3. ALL POURED THRUST BLOCKS SHALL BE BACKFILLED AFTER MIN. 1 DAY. PRESSURE TESTING SHALL OCCUR AFTER CONCRETE HAS REACHED f'c.
4. ALL BLOCKING TO BE CONCRETE CL 5 (1 1/2).
5. BLOCKING AGAINST FITTINGS SHALL BEAR AGAINST THE GREATEST FITTING SURFACE AREA POSSIBLE, BUT SHALL NOT COVER OR ENCLOSE BELL ENDS, JOINT BOLTS OR GLANDS. ACCESS TO BOLTS AND GLANDS SHALL BE PROVIDED.
6. ALL HORIZONTAL BLOCKING THRUST AREAS SHALL BE CENTERED ON PIPE.
7. WHERE POURED-IN-PLACE BLOCKING IS REQUIRED AT A POINT OF CONNECTION TO AN EXISTING WATERMAIN, THE BLOCKING SHALL BE INSTALLED PRIOR TO CONNECTION.
8. TEMPORARY BLOCKING, IF USED, SHALL BE APPROVED BY ENGINEER.

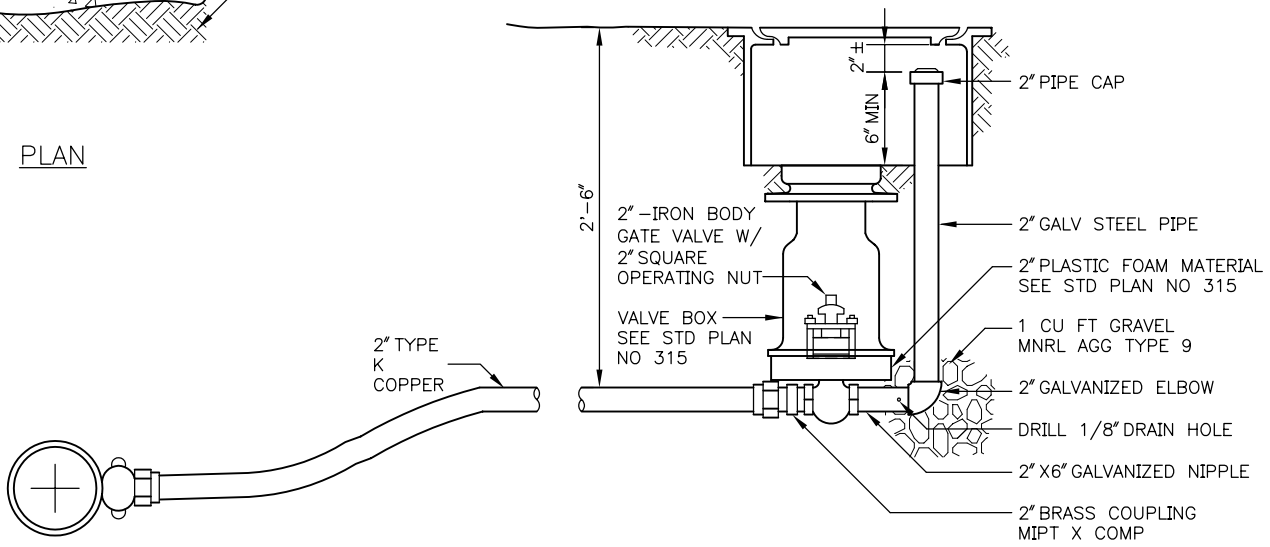
City of Seattle	NOT TO SCALE	WATERMAIN THRUST BLOCKING HORIZONTAL FITTINGS

STANDARD PLAN NO 340a

REV DATE: 2003



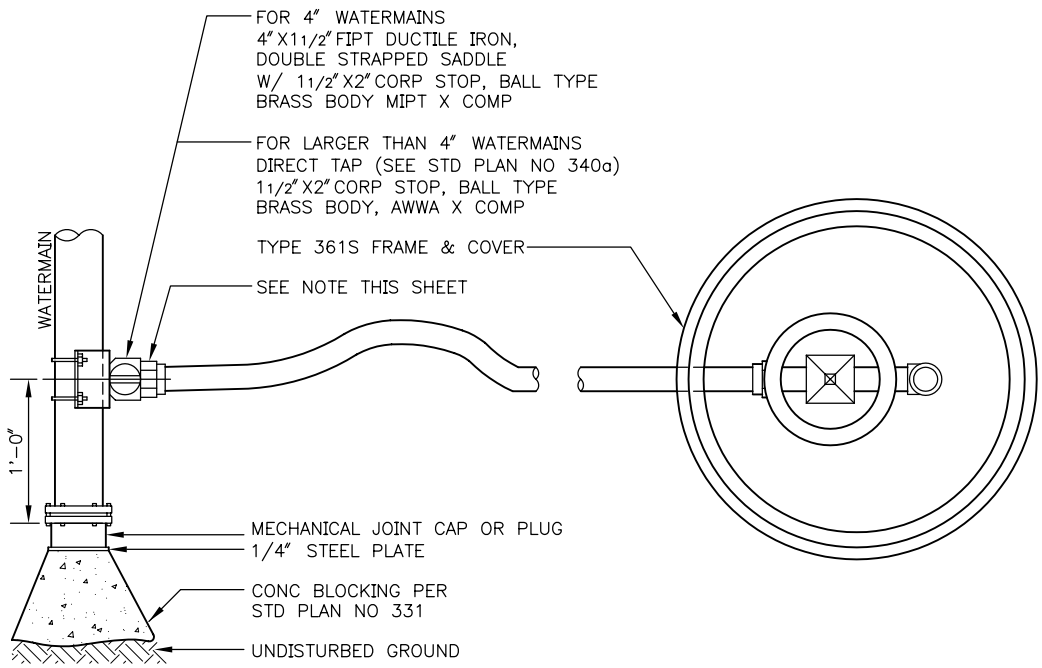
PLAN



ELEVATION

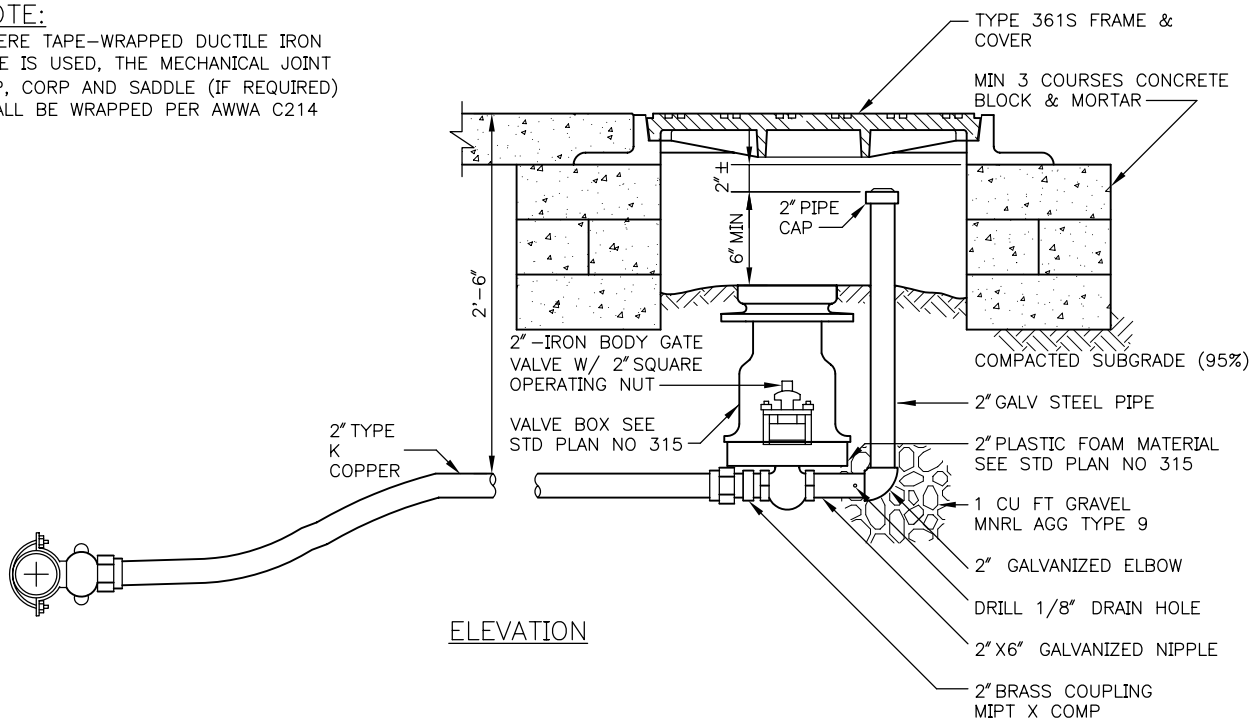
City of Seattle	NOT TO SCALE	2" BLOW OFF TYPE A NON TRAFFIC INSTALLATION

REV DATE: 2003



PLAN

NOTE:
WHERE TAPE-WRAPPED DUCTILE IRON PIPE IS USED, THE MECHANICAL JOINT CAP, CORP AND SADDLE (IF REQUIRED) SHALL BE WRAPPED PER AWWA C214

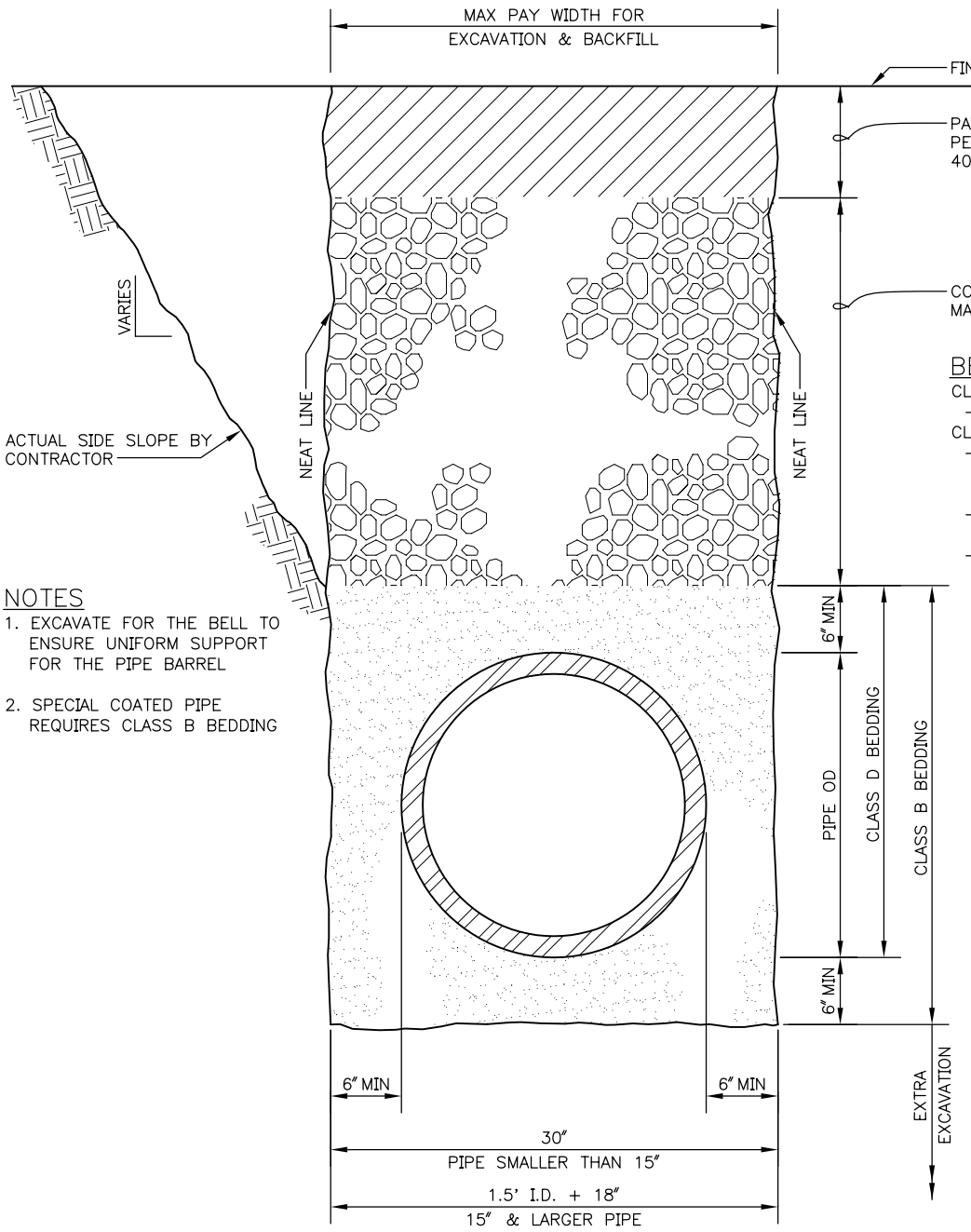


ELEVATION

City of Seattle	NOT TO SCALE	2" BLOW OFF DETAIL TYPE B TRAFFIC INSTALLATION

STANDARD PLAN NO 350

REV DATE: 2003



BEDDING MATERIAL

CLASS D:
- SUITABLE NATIVE MATERIAL

CLASS B:
- FOR DISTRIBUTION WATERMAIN, MINERAL AGGREGATE TYPE 6 OR TYPE 7
- FOR TRANSMISSION WATERMAIN, MINERAL AGGREGATE TYPE 9
- SPECIAL BEDDING TO BE INDICATED ON DRAWINGS

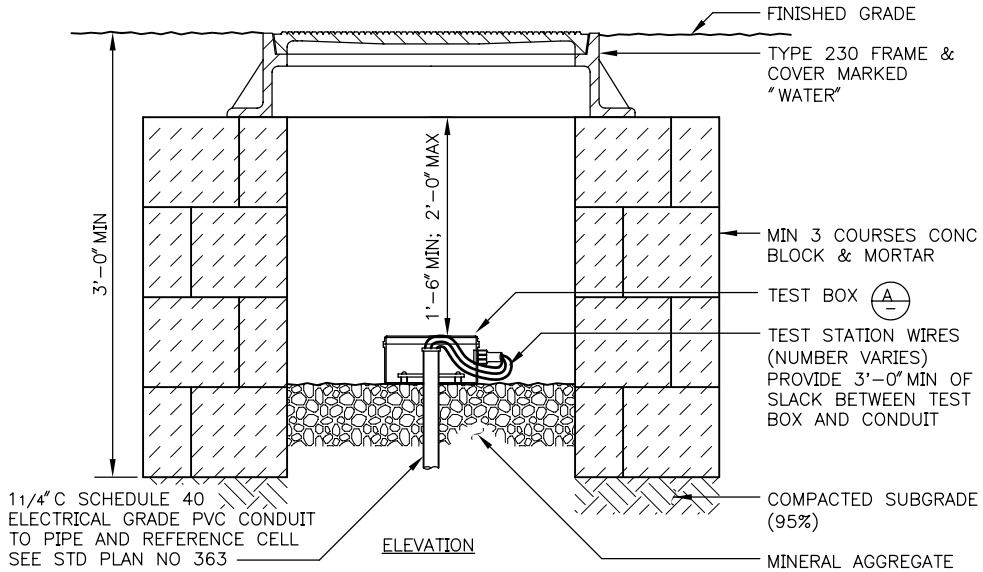
NOTES

1. EXCAVATE FOR THE BELL TO ENSURE UNIFORM SUPPORT FOR THE PIPE BARREL
2. SPECIAL COATED PIPE REQUIRES CLASS B BEDDING

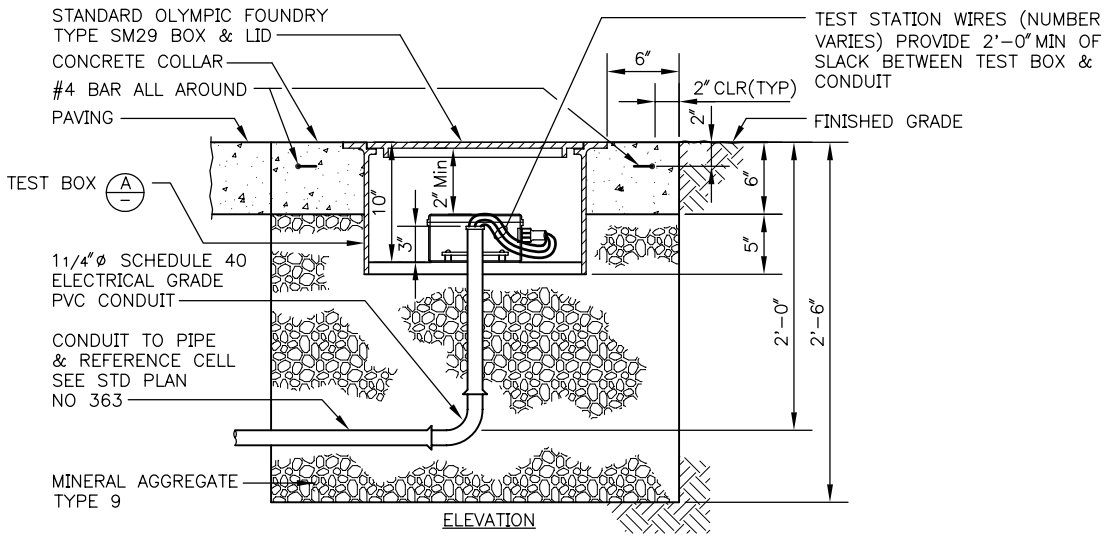
City of Seattle	NOT TO SCALE	WATERMAIN TRENCH AND BEDDING

STANDARD PLAN NO 360

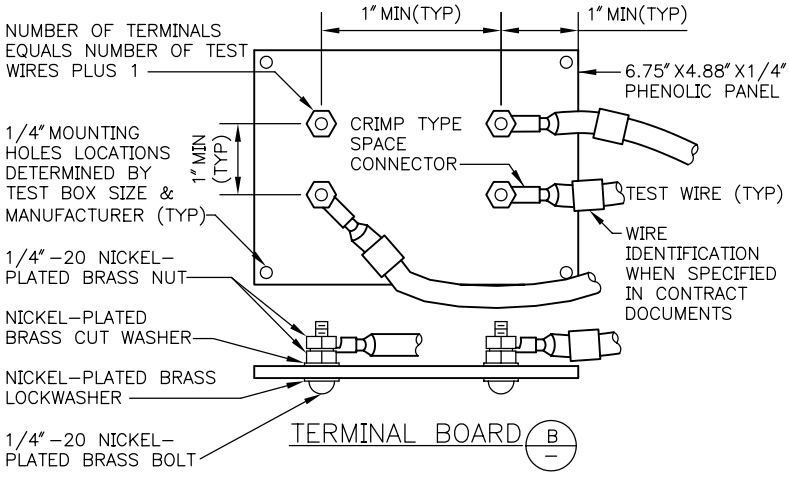
REV DATE: 2003



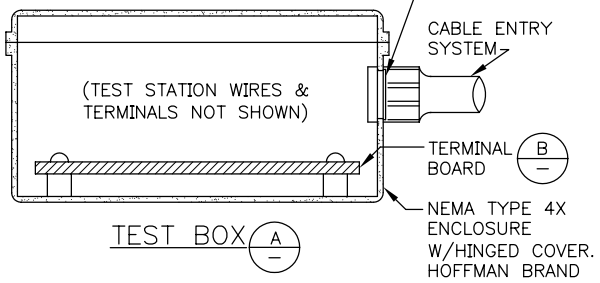
ELECTROLYSIS TEST STATION – TRAFFIC AREA



ELECTROLYSIS TEST STATION – NON-TRAFFIC AREA



TERMINAL BOARD B

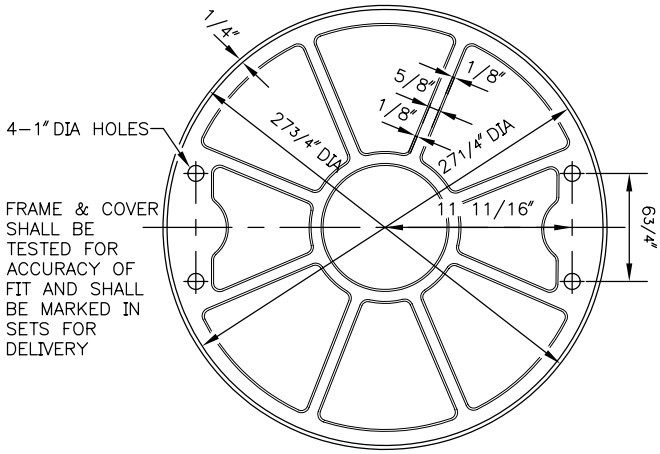


TEST BOX A

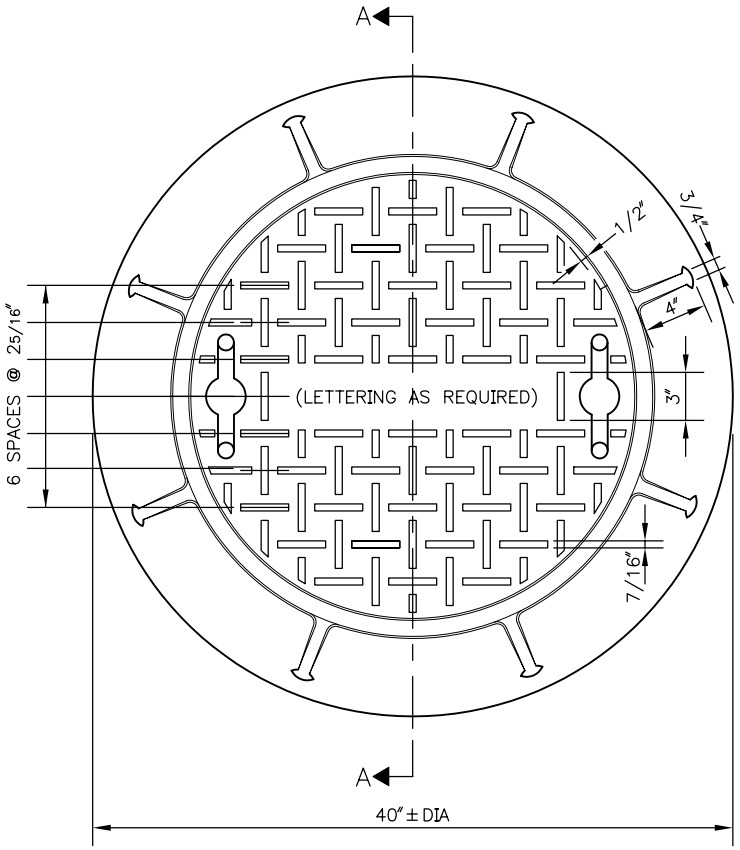
City of Seattle	NOT TO SCALE	WATERMAIN ELECTROLYSIS TEST STATION

STANDARD PLAN NO 361

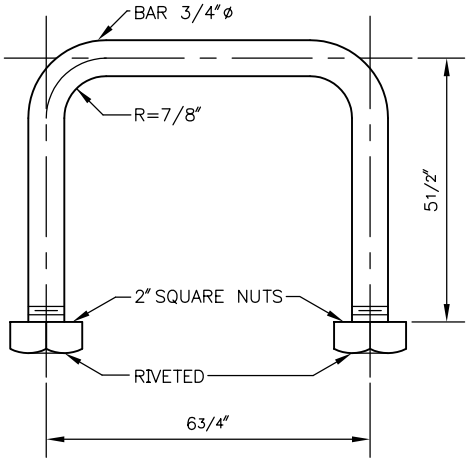
REV DATE: 2003



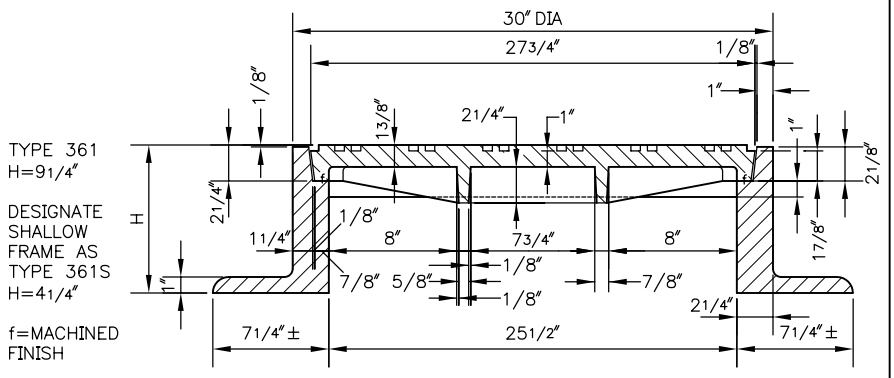
BOTTOM VIEW



TOP VIEW



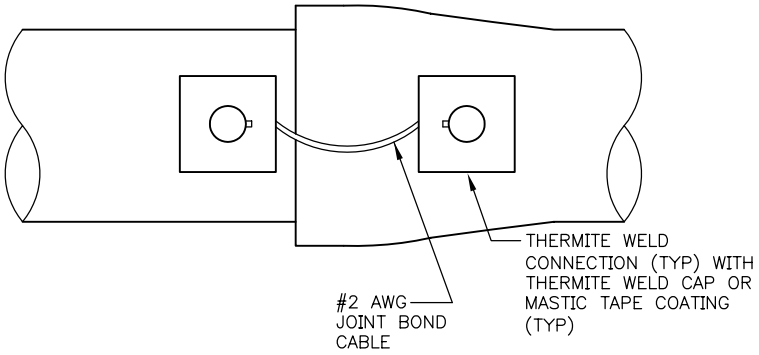
LIFTING HANDLE
(2 REQUIRED)



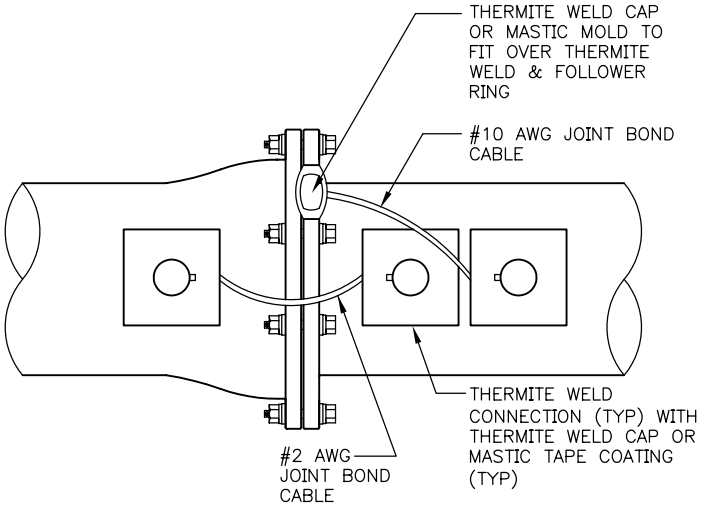
SECTION A–A

City of Seattle	NOT TO SCALE	TYPE 361 VALVE CHAMBER FRAME & COVER

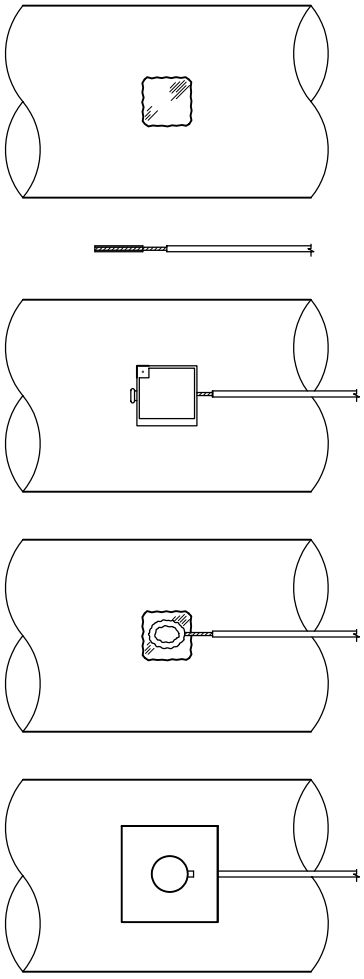
REV DATE: 2003



SLIP JOINT BOND CONNECTION



MECHANICAL 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)01
6. FINAL CONNECTION TO BE MADE WATERTIGHT WITH MASTIC COATING OR PREFORMED THERMITE WELD CAP

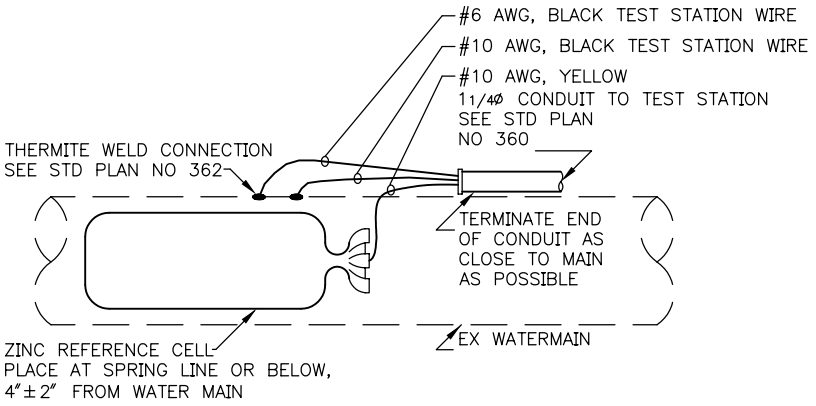
THERMITE WELD CONNECTION

City of Seattle	NOT TO SCALE	JOINT BONDING FOR DIP WATERMAINS & JOINTS BONDING DETAIL

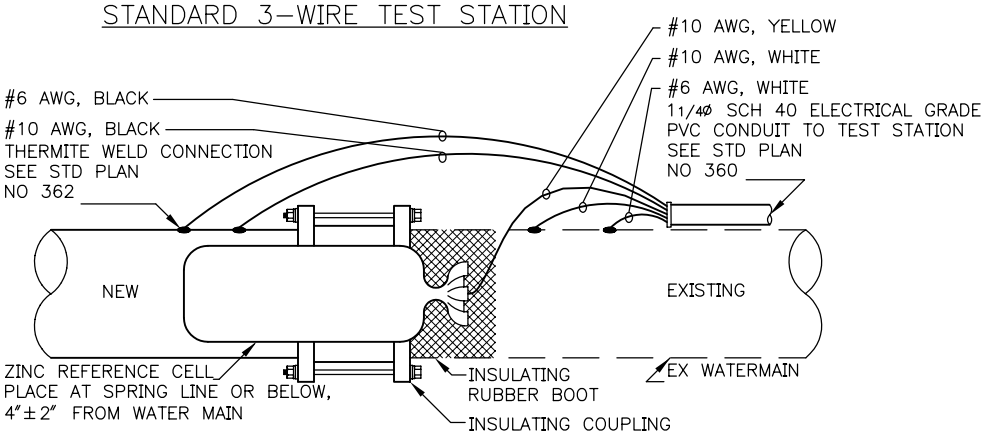
STANDARD PLAN NO 363

REV DATE: 2003

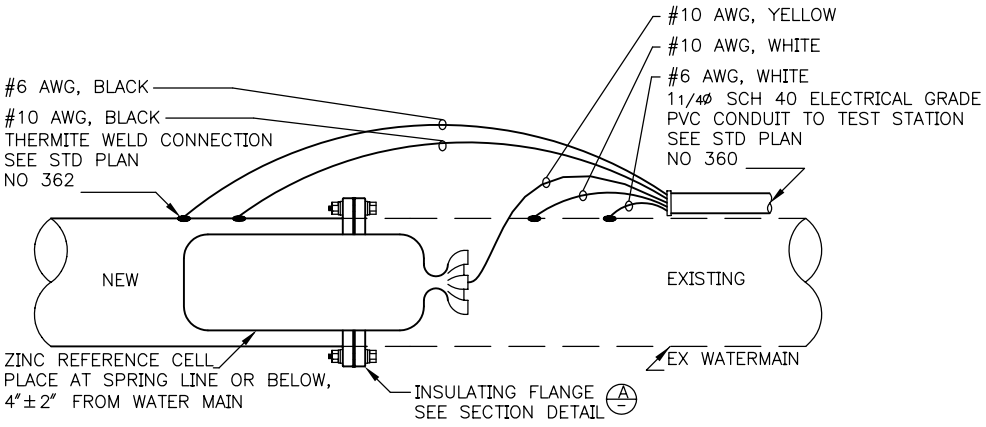
NOTE:
WIRE INSTALLATION PER
STD SPEC SEC 9-30.12(3)



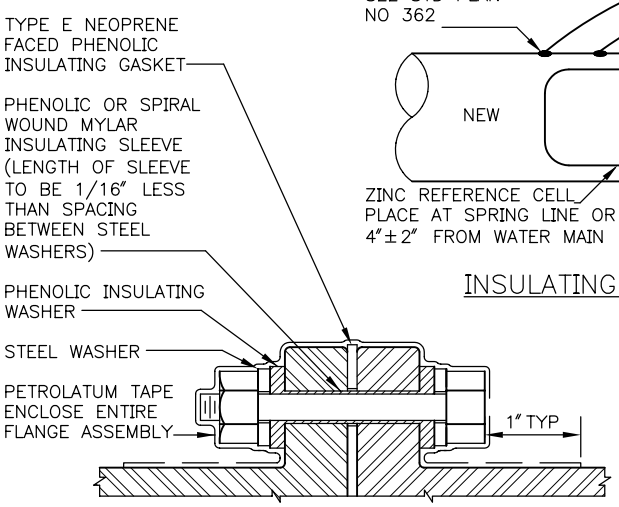
STANDARD 3-WIRE TEST STATION



INSULATING COUPLING 5-WIRE TEST STATION



INSULATING FLANGE 5-WIRE TEST STATION

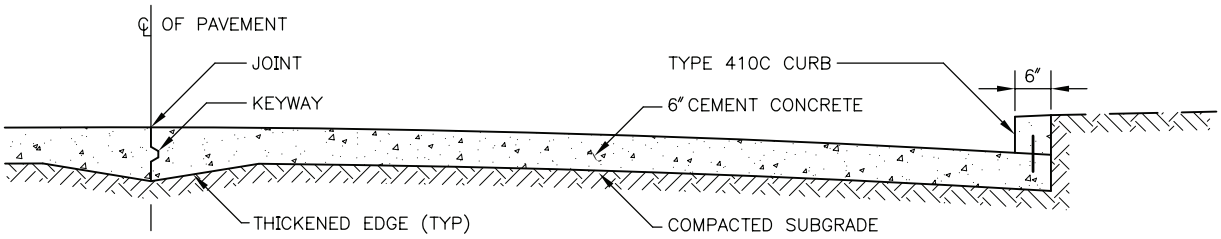


A
INSULATING FLANGE SECTION DETAIL

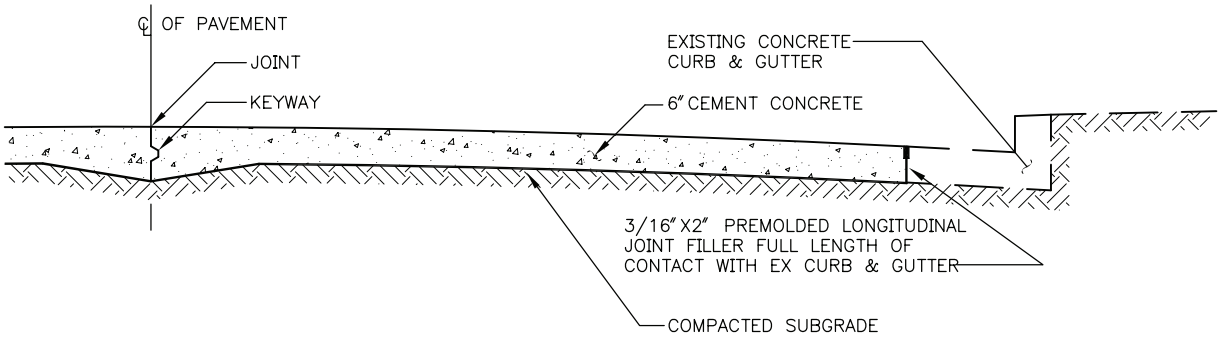
City of Seattle	NOT TO SCALE	ELECTROLYSIS TEST STATION WIRE INSTALLATION DETAILS

STANDARD PLAN NO 401

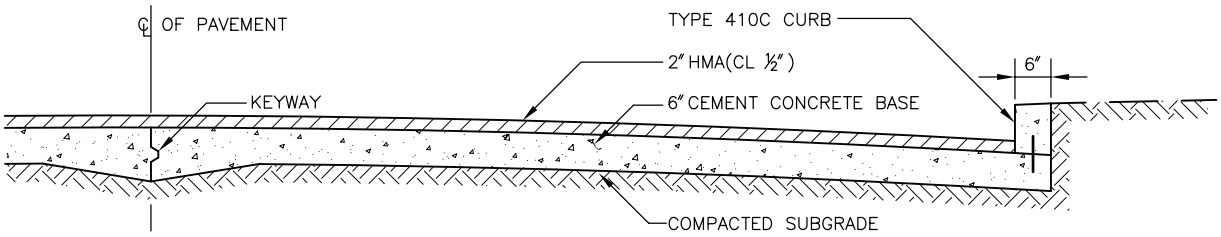
REV DATE: 2008



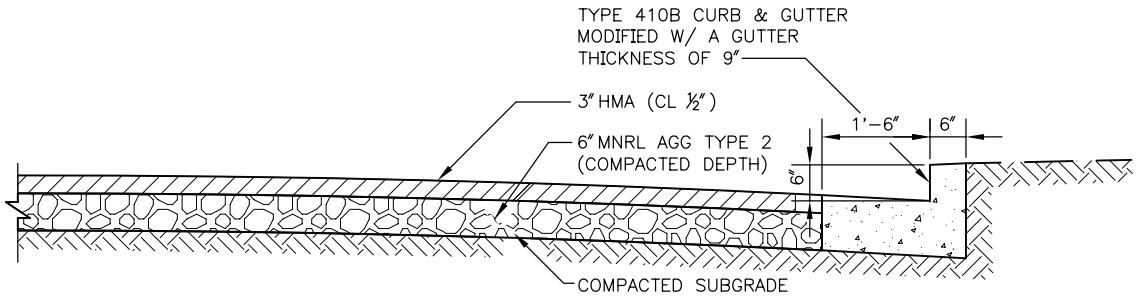
401A–CEMENT CONCRETE PAVEMENT WITH INTEGRAL CURB



401B–CEMENT CONCRETE PAVEMENT WITH EXISTING CURB & GUTTER



401C–HOT MIX ASPHALT ON CEMENT CONCRETE BASE



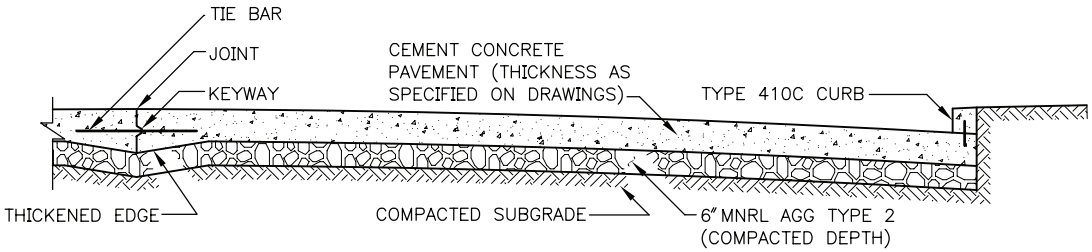
401D–HOT MIX ASPHALT OVER CRUSHED ROCK BASE

NOTES:

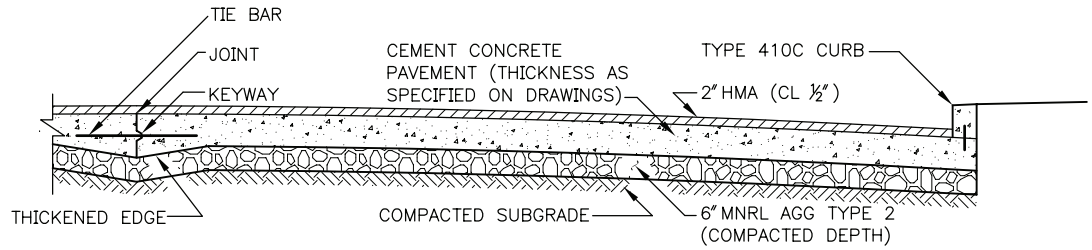
1. CONC CL 6 (1 1/2) UNLESS OTHERWISE SPECIFIED ON DRAWINGS
2. FOR JOINT DETAILS, SEE STD PLAN NO 405
3. 3 MILLION EASL'S UNLESS OTHERWISE SPECIFIED ON DRAWINGS
4. USE ASPHALT PG 64–22 UNLESS OTHERWISE SPECIFIED ON DRAWINGS

City of Seattle	NOT TO SCALE	RESIDENTIAL PAVEMENT SECTIONS

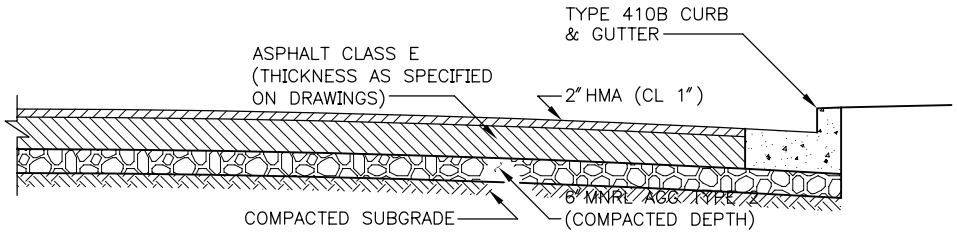
REV DATE: 2008



402A–CEMENT CONCRETE PAVEMENT ON CRUSHED ROCK



402B–HOT MIX ASPHALT ON CEMENT CONCRETE ON CRUSHED ROCK



402D–HOT MIX ASPHALT ON CRUSHED ROCK BASE

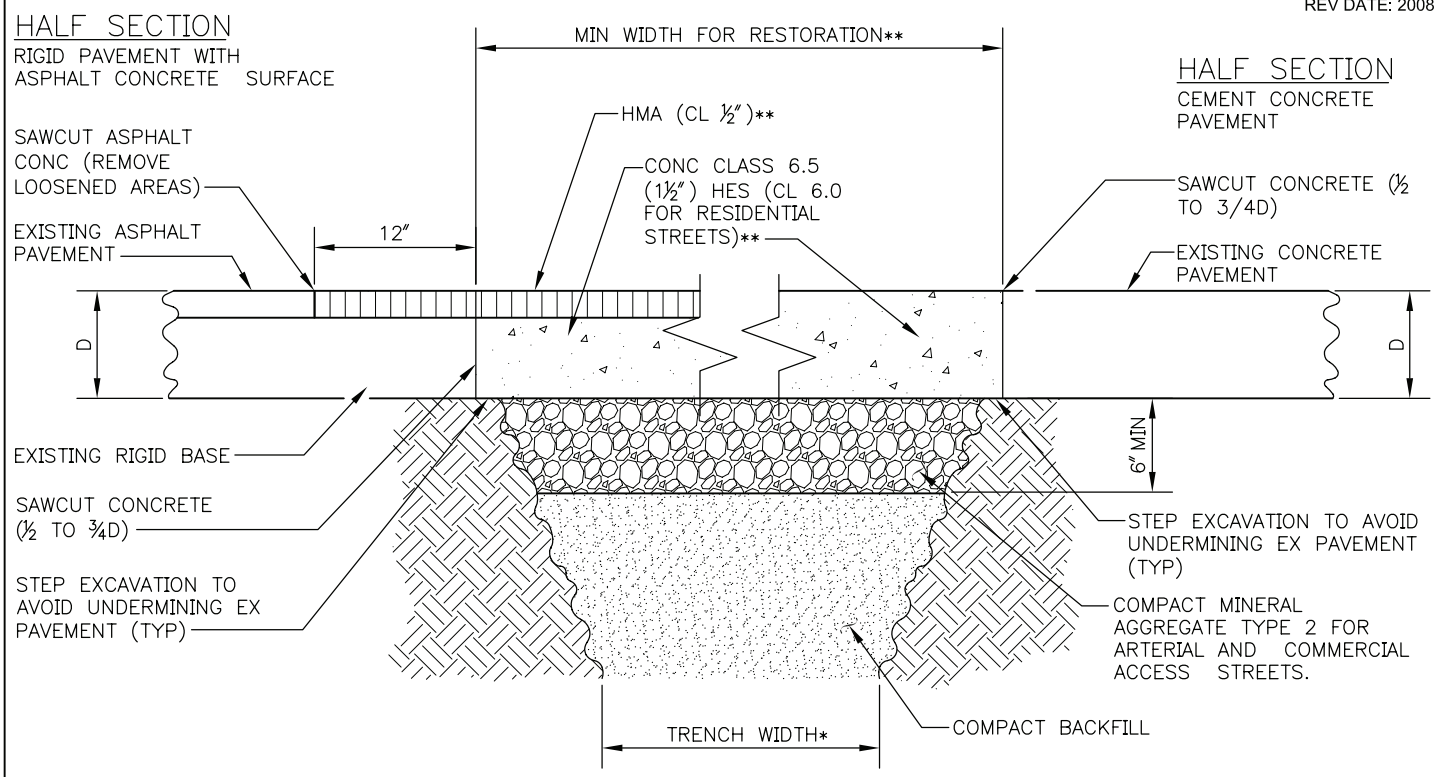
NOTES:

1. PAVEMENT WIDTH AND THICKNESS AS SPECIFIED ON DRAWINGS
2. CONC CL 6.5 (1 1/2) UNLESS OTHERWISE SPECIFIED ON DRAWINGS
3. TIE BARS AND DOWELL BARS ARE REQUIRED FOR CEMENT CONCRETE PAVEMENT AND BASE (SEE STD PLAN NO 405)
4. FOR THICKENED EDGE AND JOINT DETAILS, SEE STD PLAN NO 405
5. 10 MILLION ESAL'S UNLESS OTHERWISE SPECIFIED ON DRAWINGS
6. USE ASPHALT PG 64–22 UNLESS OTHERWISE SPECIFIED ON DRAWINGS

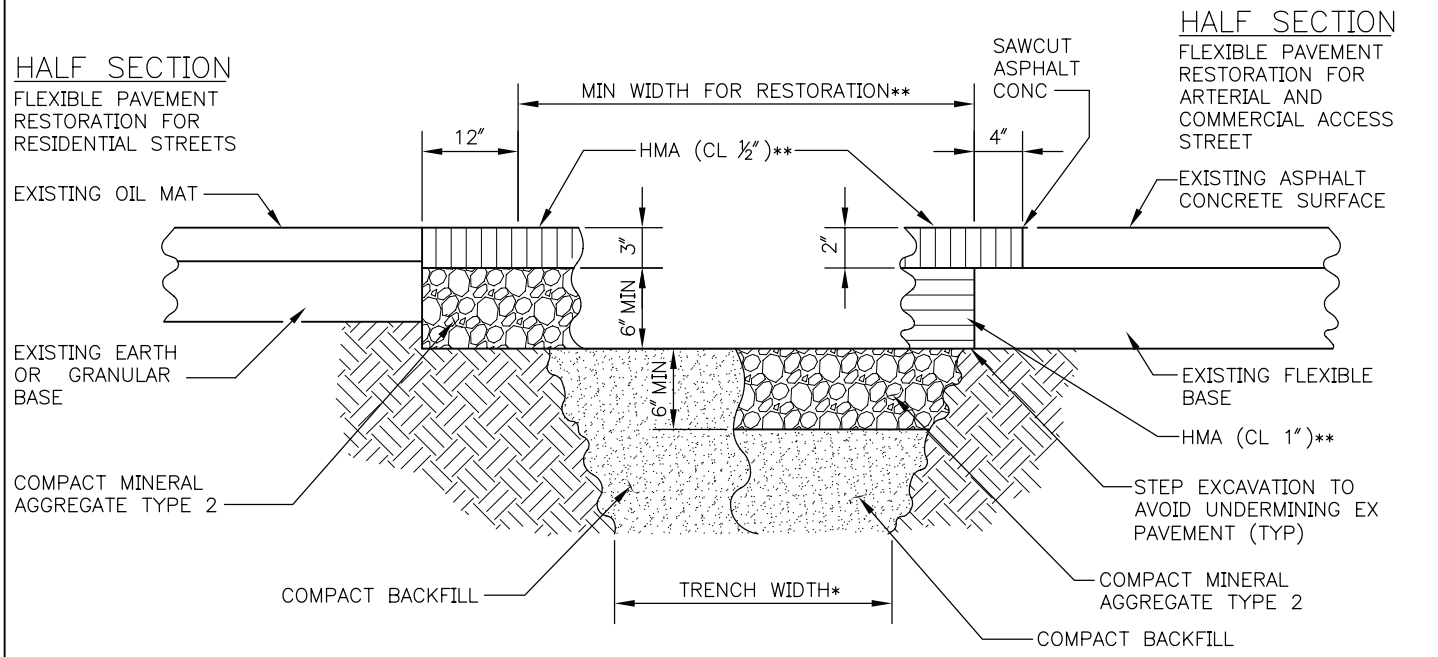
City of Seattle	NOT TO SCALE	COMMERCIAL AND ARTERIAL PAVEMENT SECTIONS

STANDARD PLAN NO 404a

REV DATE: 2008



TYPICAL PATCH FOR RIGID PAVEMENT



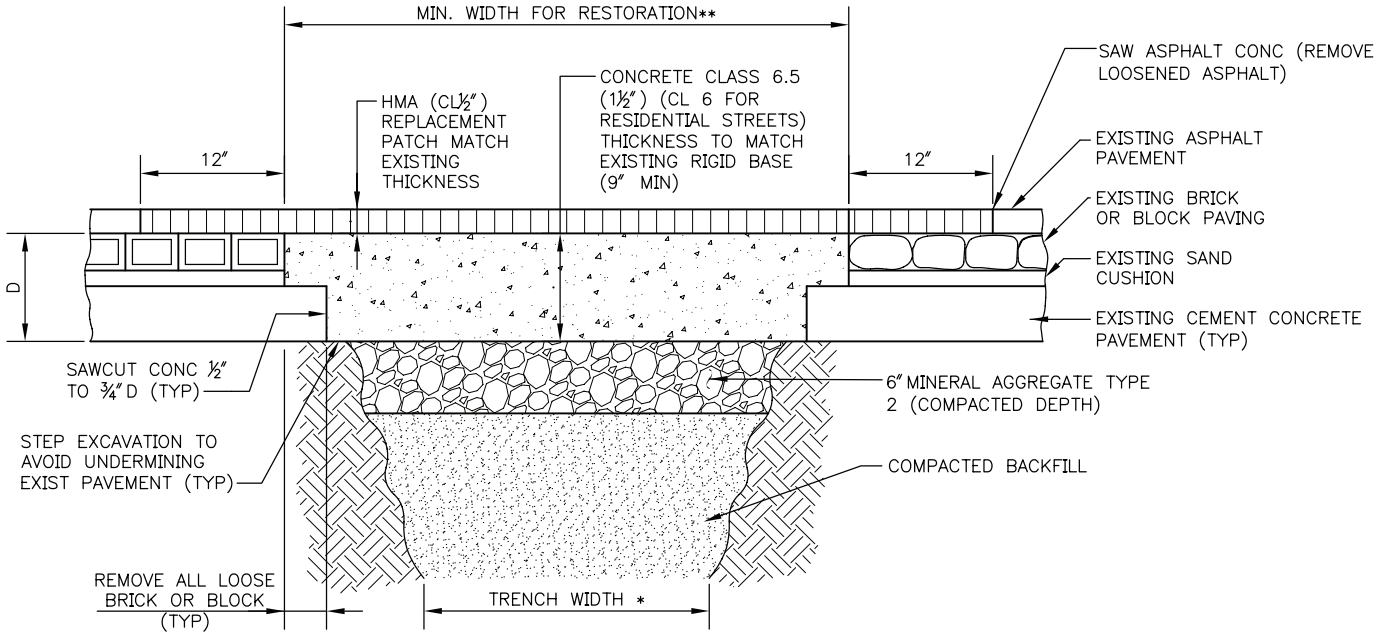
TYPICAL PATCH FOR FLEXIBLE PAVEMENT

* TRENCH WIDTH SHALL MEET THE MAX PAY TRENCH WIDTH AS CALLED OUT ON STD PLAN NOS 284 & 350

** MIN WIDTH AND DEPTH OF RESTORATION SHALL BE INCREASED TO MEET THE REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES"

City of Seattle	NOT TO SCALE	PAVEMENT PATCHING

REV DATE: 2008



ASPHALT OVER RIGID BASE OF BRICK OR STONE BLOCK PAVEMENT

NOTES:

1. WHEN A STONE OR BRICK PAVEMENT IS OVERLAYED WITH HMA, THE STREET SURFACE PAVEMENT BECOMES AN ASPHALT CONC STREET OVER RIGID BASE
2. IF A STONE OR BRICK PAVEMENT IS NOT OVERLAYED, THE METHOD OF RESTORATION IS IN KIND

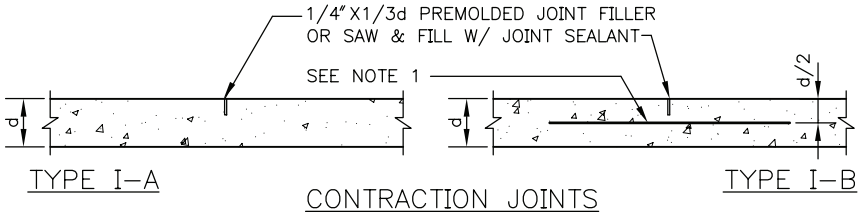
* MIN. TRENCH WIDTH SHALL MEET THE MAX PAY TRENCH WIDTH AS CALLED OUT ON STD PLAN NOS. 284 & 350

** ACTUAL WIDTH AND DEPTH OF RESTORATION SHALL MEET REQUIREMENTS OF "STREET AND SIDEWALK PAVEMENT OPENING AND RESTORATION RULES"

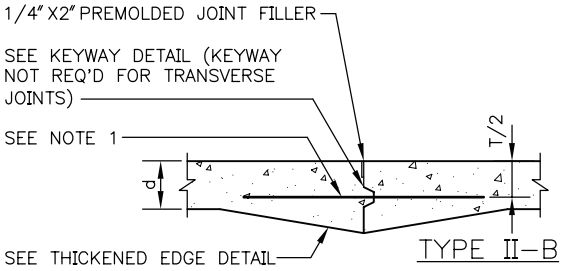
City of Seattle	NOT TO SCALE	PAVEMENT PATCHING

STANDARD PLAN NO 405

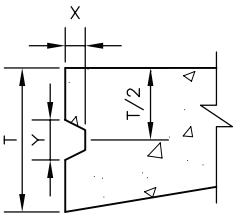
REV DATE: 2003



CONTRACTION JOINTS



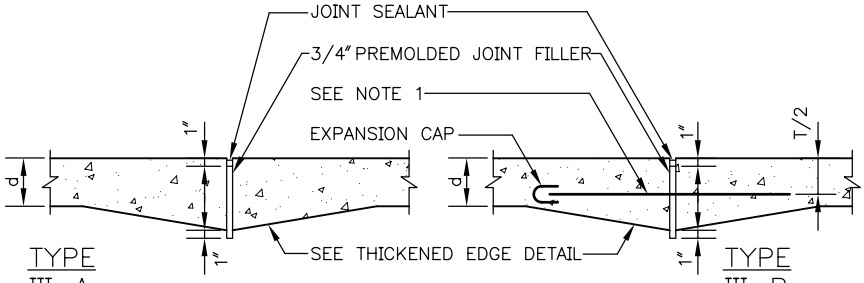
CONSTRUCTION JOINTS



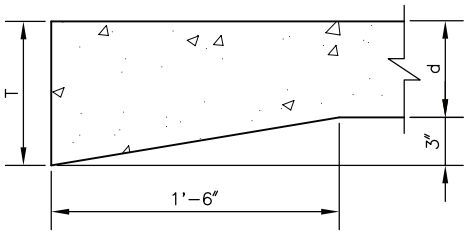
FOR	X	Y
d≤9"	1.25"	2.5"
d≥10"	1.5"	3.5"

KEYWAY DETAIL

FOR JOINTS WITH THICKENED EDGE T=d+3"
OTHERWISE T=d

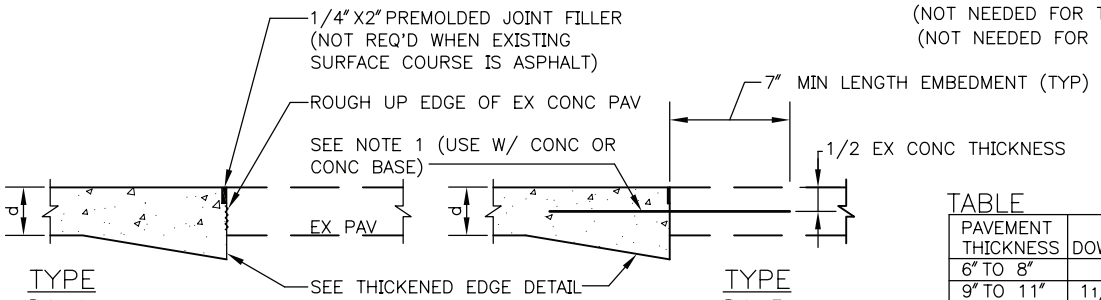


THROUGH JOINTS



THICKENED EDGE DETAIL

(NOT NEEDED FOR TYPE A JOINTS WIDTH d≥10")
(NOT NEEDED FOR TYPE B JOINTS WIDTH d≥9")



NEW TO OLD JOINTS

TABLE

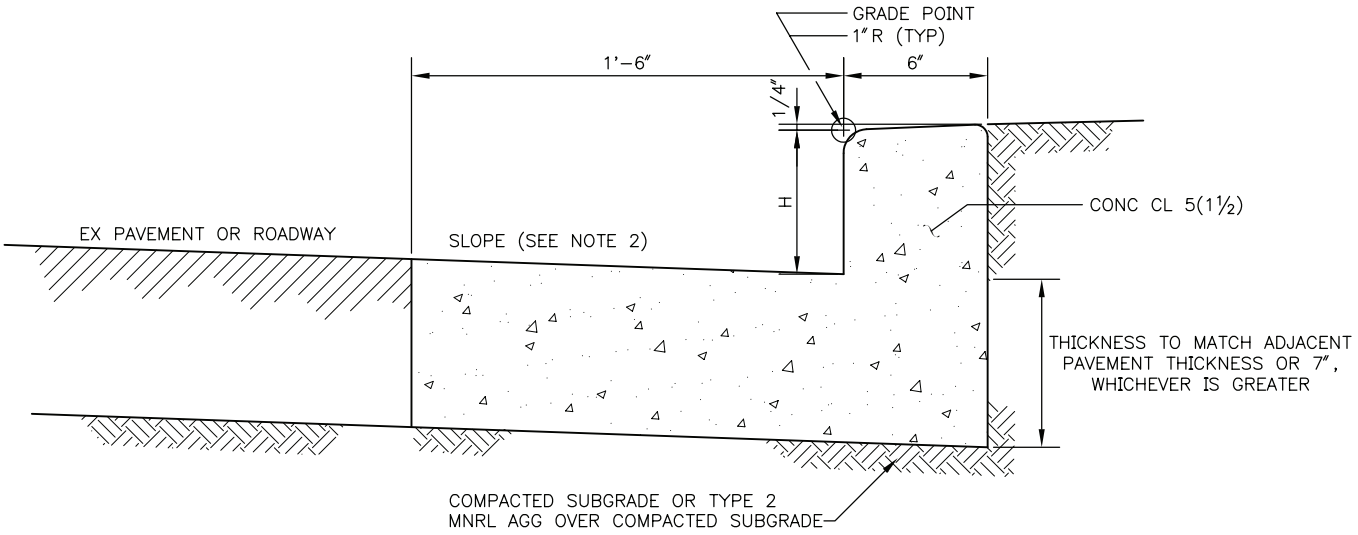
PAVEMENT THICKNESS	DOWEL BAR SIZE
6" TO 8"	1" X18" @12"
9" TO 11"	1 1/4" X18" @12"
12" & OVER	1 1/2" X18" @12"

NOTES:

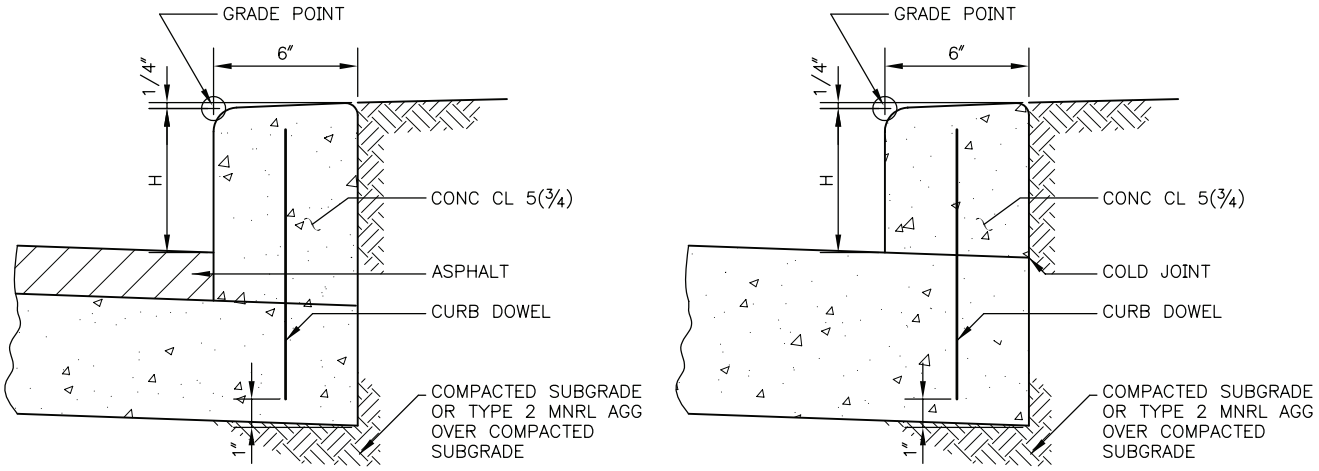
1. WHERE REQUIRED AT LONGITUDINAL JOINTS, TIE BARS SHALL BE 5/8" X2'–6" @ 3'–0", DEFORMED GRADE 40 OR BETTER, EPOXY COATED. WHERE REQUIRED AT TRANSVERSE JOINTS, DOWEL BARS SHALL BE SIZED AS SHOWN IN THE TABLE, SMOOTH ROUND GRADE 60 OR BETTER, EPOXY COATED AND GREASED
2. LONGITUDINAL JOINT SPACING SHOULD NOT EXCEED 15'–6" (TO BACK OF CURB). TRANSVERSE JOINT SPACE SHALL NOT EXCEED 15'–0". THE AREA OF THE PANEL SHALL NOT EXCEED 225 SQUARE FEET
3. JOINT OFFSETS AT RADIUS POINTS SHOULD BE AT LEAST 1'–6" LONG
4. JOINT INTERSECTION ANGLES OF LESS THAN 60 DEGREES SHALL BE USED
5. WHEN A JOINT IS CLOSER THAN 1'–0" TO A CASTING, THEN A MINOR ADJUSTMENT IN THE JOINT LOCATION SHOULD BE MADE BY SKEWING OR SHIFTING THE JOINT ALIGNMENT TO MEET THE CASTING AT 90° OR NORMAL TO THE CASTING.
6. WHERE POSSIBLE, LONGITUDINAL JOINTS SHOULD MATCH LANE MARKINGS
7. LONGITUDINAL JOINTS ARE TO BE CONSTRUCTION JOINTS UNLESS PAVED BY MACHINE CAPABLE OF PLACING AND FINISHING CONCRETE FOR TWO OR MORE PANEL WIDTHS (IN WHICH CASE A CONTRACTION JOINT IS ALLOWED)
8. DOWEL BARS SHALL NOT BE PLACED WITHIN 1'–0" OF THE EDGE OF PAVEMENT OR A PARALLEL JOINT

City of Seattle	NOT TO SCALE	TYPES OF JOINTS FOR CONCRETE PAVEMENT

REV DATE: 2005



410B CURB & GUTTER



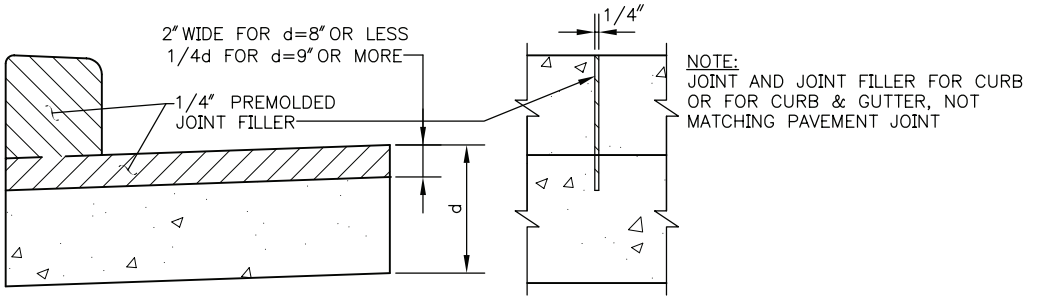
410C CURB

NOTES:

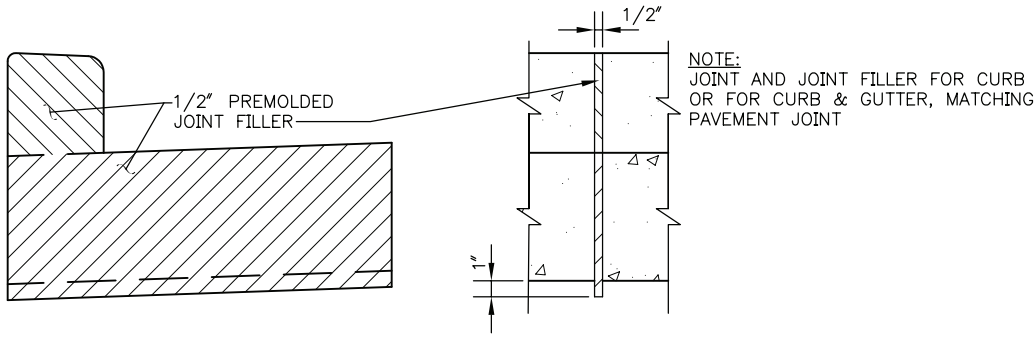
1. "H" SHALL BE 6" FROM FINISHED ROADWAY GRADE UNLESS OTHERWISE SHOWN ON DRAWINGS
2. GUTTER SHALL BE SLOPED THE SAME AS ADJACENT PAVEMENT OR 2% MIN, WHICHEVER IS GREATER.
3. SEE STD PLAN NO 411 FOR CURB DOWELS

City of Seattle	NOT TO SCALE	TYPE 410 CURB

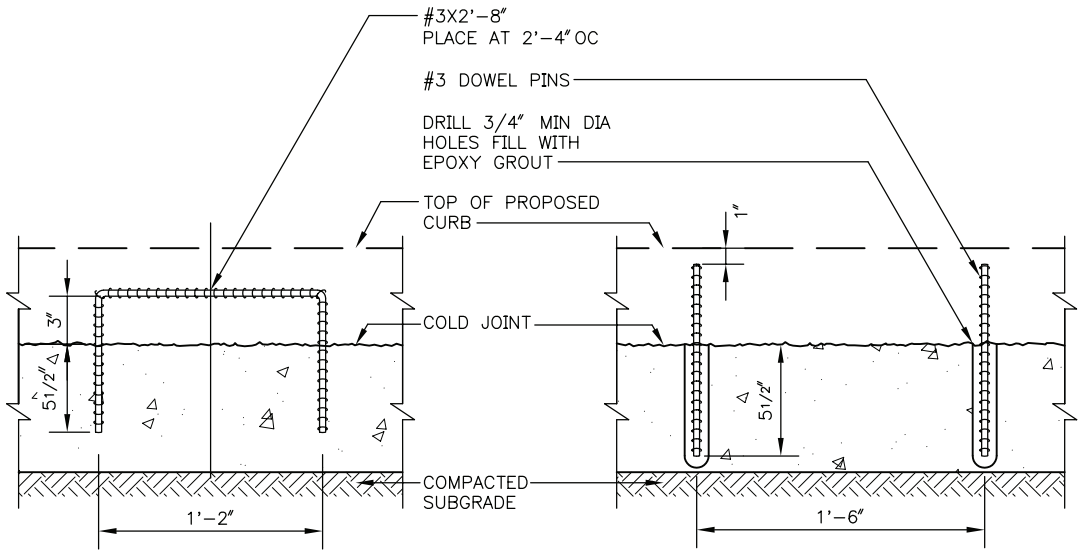
REV DATE: 2003



CONTRACTION JOINT FOR
CURB OR CURB & GUTTER



THROUGH JOINT FOR
CURB OR CURB & GUTTER

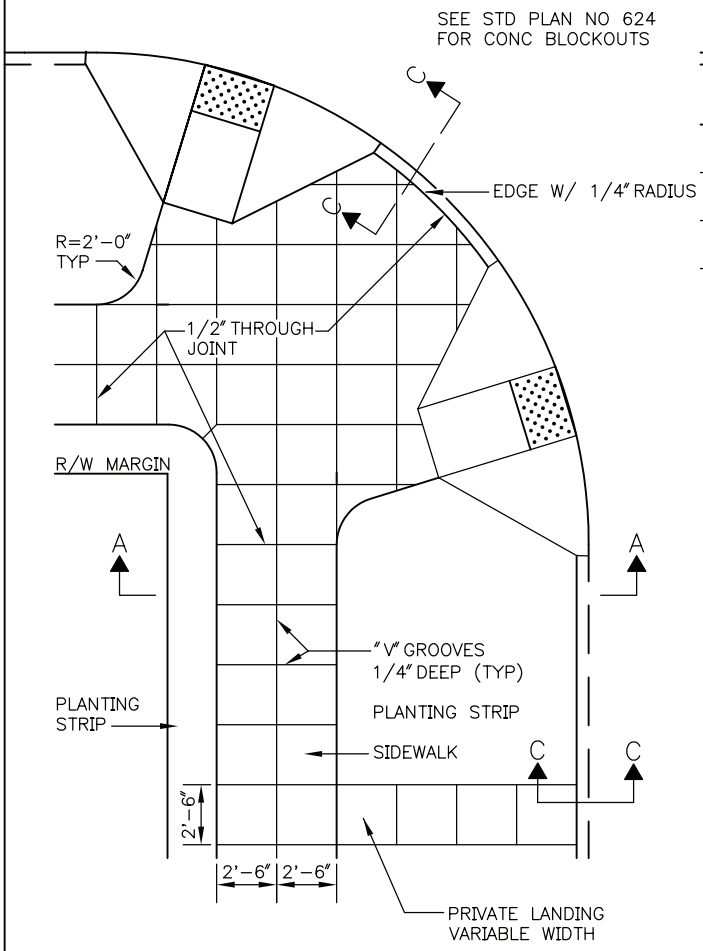


DOWELS FOR DOWELLED CURB CONSTRUCTION

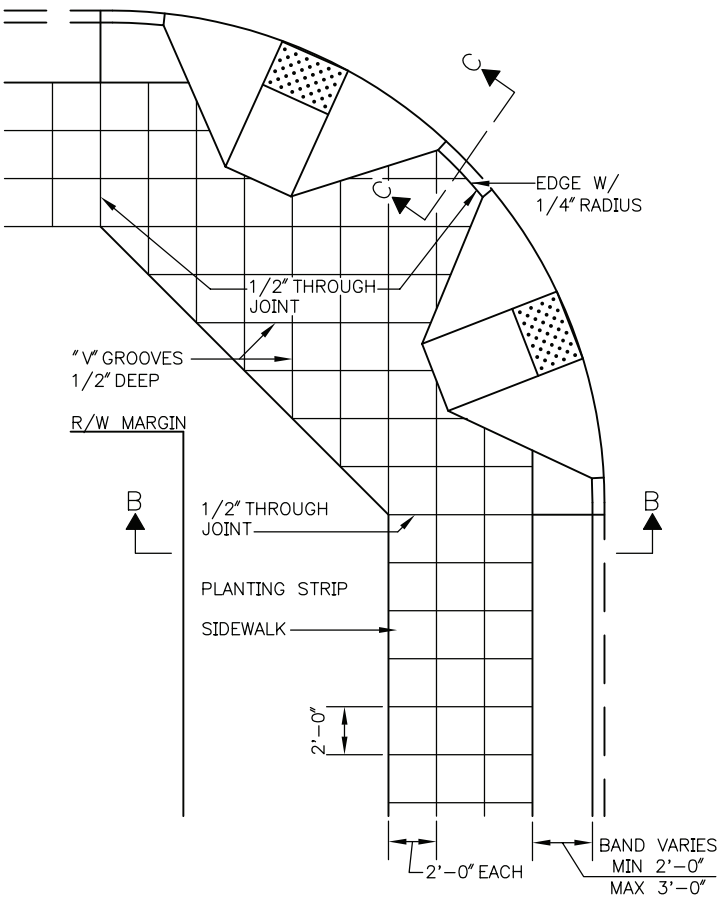
City of Seattle	NOT TO SCALE	CURB JOINTS & DOWELS

STANDARD PLAN NO 420

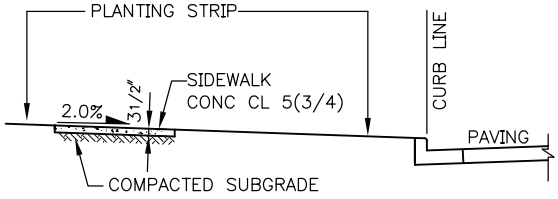
REV DATE: 2005



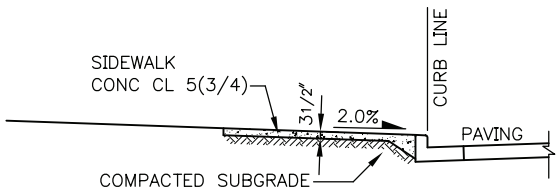
SIDEWALK
5'-0" WIDE



SIDEWALK
GREATER THAN
5'-0" WIDE



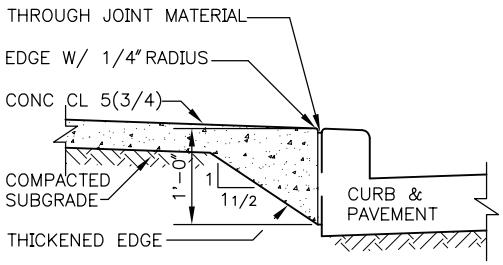
SECTION A–A



SECTION B–B

NOTES:

1. WHEN PLANTING STRIP PAVEMENT IS APPROVED, JOINT MATERIAL WILL BE REQUIRED AT THE PERIMETER OF THE PLANTING STRIP PAVEMENT
2. WHEN EXISTING PARKING METERS ARE TO BE REMOVED FOR NEW SIDEWALK CONSTRUCTION, CONTACT SEATTLE DEPARTMENT OF TRANSPORTATION A MINIMUM OF 2 WORKING DAYS PRIOR TO SCHEDULED WORK TO COORDINATE REMOVAL OF METER HEADS

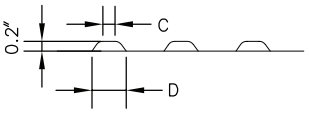


SECTION C–C

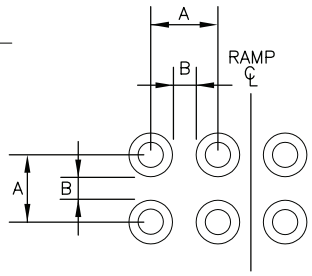
City of Seattle	NOT TO SCALE	CONCRETE SIDEWALK DETAILS

STANDARD PLAN NO 422a

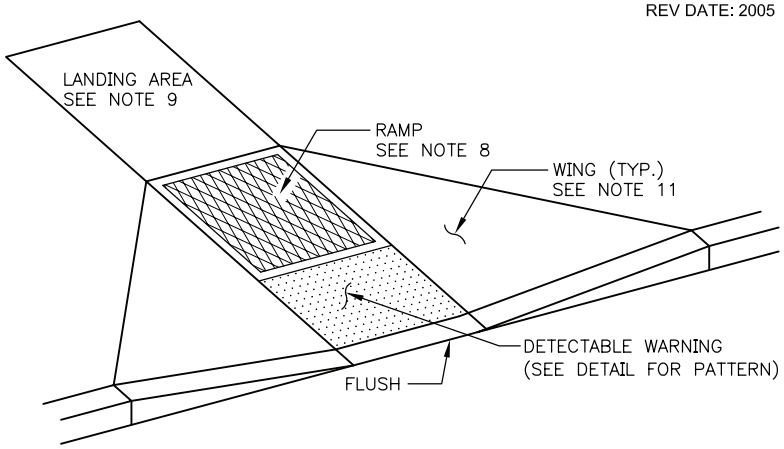
REV DATE: 2005

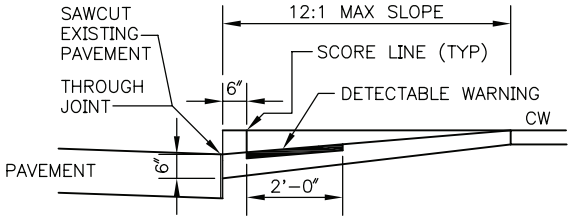


	MIN.	MAX.
A	1.6 ″	2.4 ″
B	0.65 ″	1.5 ″
C	50% TO 65% OF D	
D	0.9 ″	1.4 ″



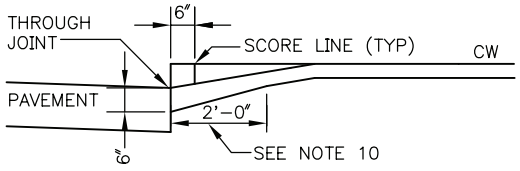
TRUNCATED DOMES PATTERN –DETECTABLE WARNING



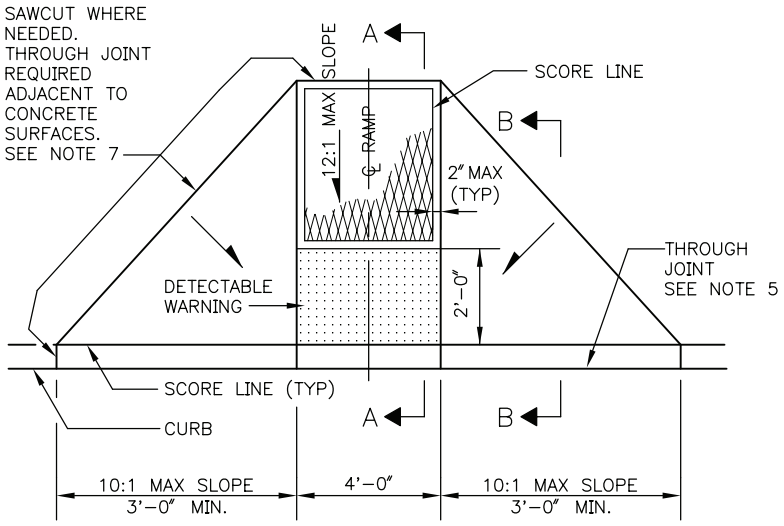


SECTION A–A

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



SECTION B–B



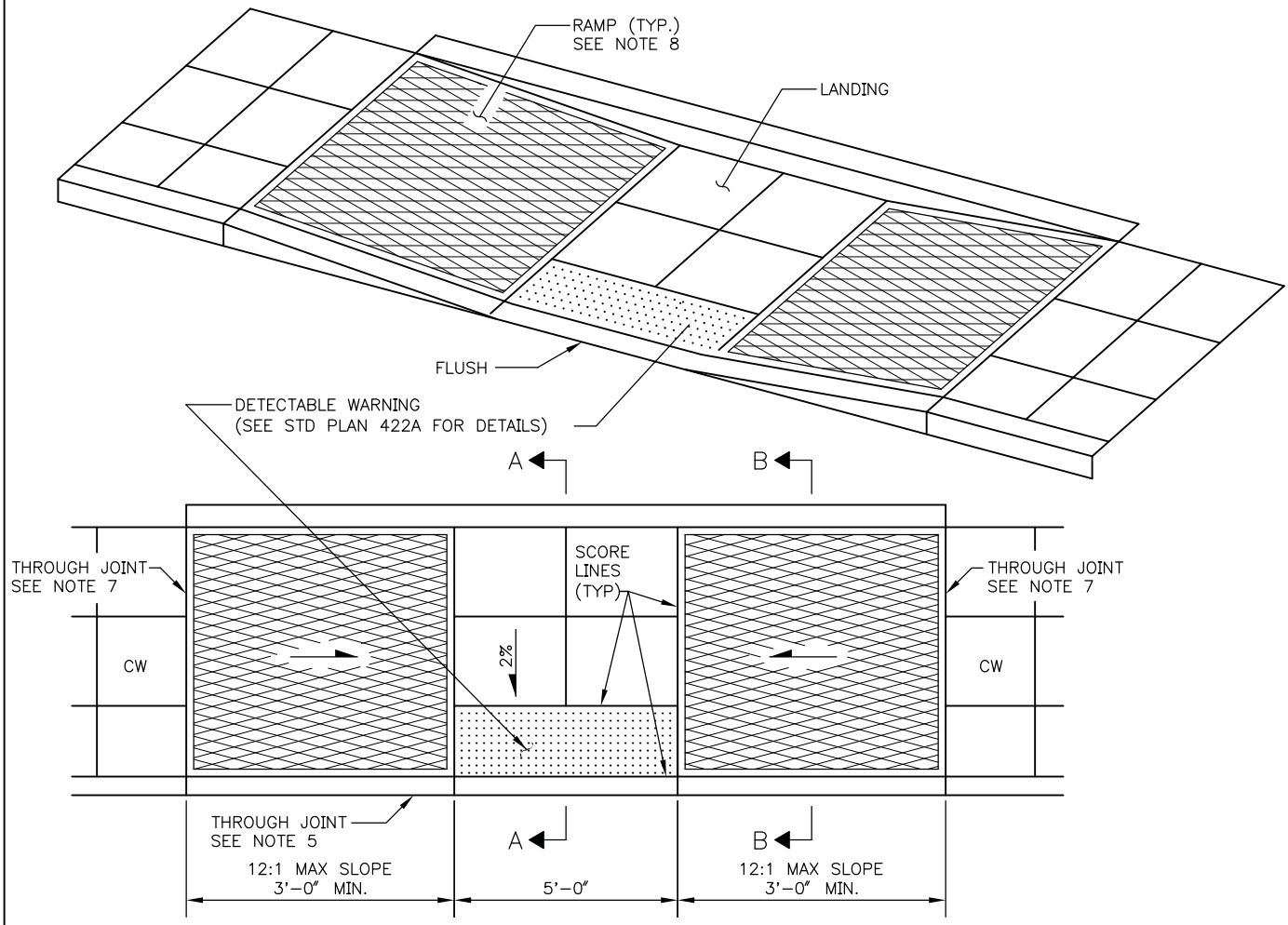
NOTES:

1. TWO CURB RAMPS SHALL BE INSTALLED AT EACH CORNER UNLESS DIRECTED OTHERWISE BY SDOT. SEE STD PLAN NO 422b.
2. CURB RAMPS SHALL BE CONSTRUCTED WITH COMPANION RAMPS ON OPPOSITE SIDES OF THE STREET UNLESS DIRECTED OTHERWISE BY SDOT
3. WHERE CURB IS INSTALLED AT A LOCATION WITH NO SIDEWALK, CURB SHALL BE DEPRESSED FOR FUTURE CURB RAMP INSTALLATION.
4. TYPE 422a CURB RAMP SHALL BE USED. HOWEVER IF NOT FEASIBLE, THEN TYPE 422b CURB RAMP MAY BE INSTALLED WITH THE APPROVAL OF SDOT
5. NEW PAVEMENT SHALL BE BLOCKED OUT FULL DEPTH. EXISTING PAVEMENT SHALL BE REMOVED AT THE FACE OF THE CURB.
6. MIN DISTANCE BETWEEN ADJACENT CURB RAMPS SHOULD BE 3′–0″.
7. CURB RAMPS SHALL BE ISOLATED FROM ALL OTHER CONCRETE BY THROUGH JOINTS.
8. RAMPS SHALL HAVE A COARSE TEXTURED SURFACE OBTAINED WITH A 3/4″ 9–11 FLATTENED EXPANDED METAL MESH BEING PRESSED INTO THE STILL FRESH CONCRETE. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE ALIGNED WITH THE SLOPE OF THE RAMP.
9. ADDITIONAL SIDEWALK PAVING MAY BE NECESSARY IN THE PLANTING STRIP OR AT THE BACK OF SIDEWALK TO ACCOMODATE ACCESS TO THE RAMP. A MINIMUM 4′–0″x 4′–0″ 2% GRADE LANDING SHALL BE PROVIDED AT THE TOP OF RAMP ON TYPE 422a.
10. THE SIDEWALK THICKENED EDGE SHALL BE CONTINUED THROUGH BOTH WINGS ON TYPE 422a AND BOTH RAMPS ON TYPE 422b. SEE STD. PLAN NO 420.
11. THE WINGS ON TYPE 422a SHALL HAVE A SLIGHTLY BRUSHED FINISH PARALLEL TO THE CURB.
12. MIN LATERAL CLEARANCE FROM INLETS, POLES, HYDRANTS AND OTHER ABOVE GROUND OBSTACLES SHALL BE 1′–0″ MINIMUM FROM THE SCORED AND THE DETECTABLE WARNING PORTIONS OF THE CURB RAMP.
13. INLETS SHALL BE SO LOCATED THAT GUTTER FLOW DOES NOT FLOW PAST THE CURB RAMP.
14. DECTECTABLE WARNING SURFACE SHALL BE "CITY OF SEATTLE SAFETY YELLOW", AND SHALL BE LOCATED 6 INCHES OFF THE CURB FACE. SEE STD SPEC SEC 8–3(7)A.
15. CURB RAMP SHALL BE PERPENDICULAR TO THE CURB.
16. THE RAMP PORTION OF THE TYPE 422a CURB RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKED CROSSING (SEE STD PLAN NO. 422b)

City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

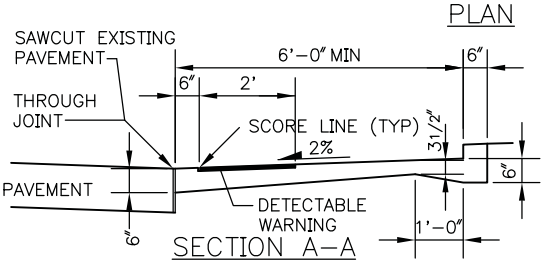
STANDARD PLAN NO 422b

REV DATE: 2005



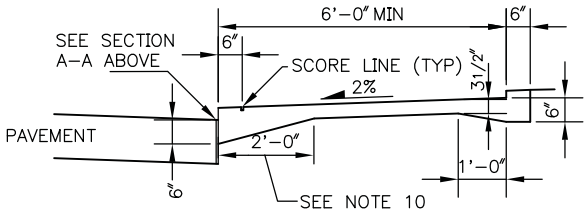
THE LANDING PORTON OF THE TYPE 422b CURB RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKED CROSSING

PLAN



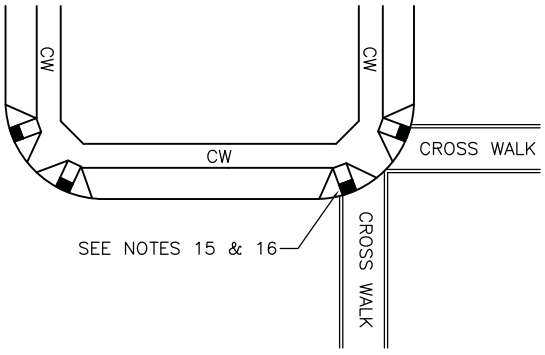
SECTION A–A

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



SECTION B–B

SEE STD PLAN NO 422a FOR NOTES

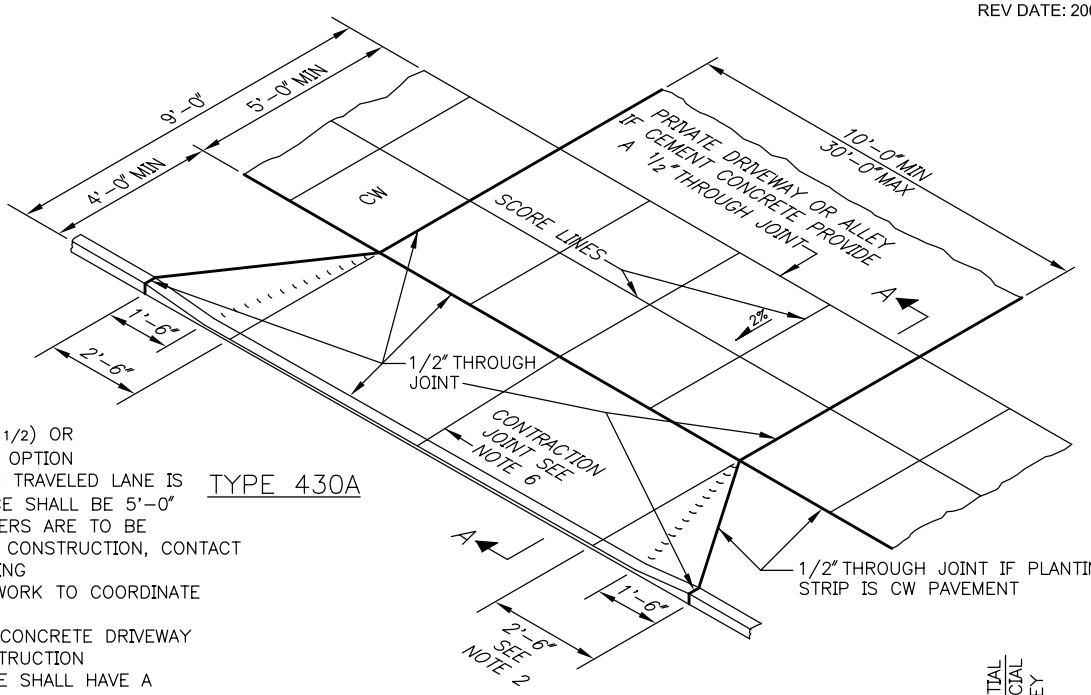


TYPICAL CURB RAMP LOCATIONS

City of Seattle	NOT TO SCALE	CURB RAMP DETAILS

STANDARD PLAN NO 430

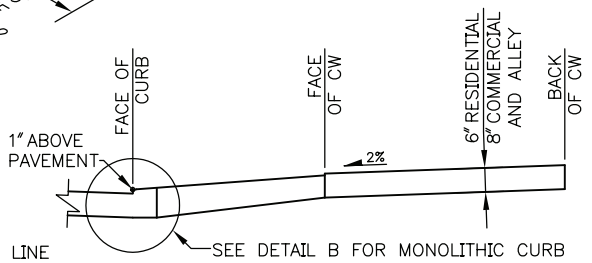
REV DATE: 2005



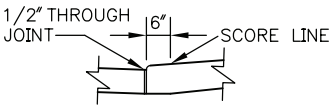
TYPE 430A

NOTES:

1. CONCRETE SHALL BE CL 6 (1 1/2) OR CL 6 (3/4) AT CONTRACTOR'S OPTION
2. ON ARTERIAL STREETS WHERE TRAVELED LANE IS NEXT TO CURB, THIS DISTANCE SHALL BE 5'–0"
3. WHEN EXISTING PARKING METERS ARE TO BE REMOVED FOR NEW DRIVEWAY CONSTRUCTION, CONTACT SDOT A MINIMUM OF 2 WORKING DAYS PRIOR TO SCHEDULED WORK TO COORDINATE REMOVAL OF METER HEADS
4. REF STD PLAN NO 431 FOR CONCRETE DRIVEWAY PLACED WITH SIDEWALK CONSTRUCTION
5. THE RAMP SECTION CONCRETE SHALL HAVE A COARSE TEXTURED SURFACE OBTAINED BY A 3/4" 9–11 FLATTENED EXPANDED METAL MESH BEING PRESSED INTO THE STILL FRESH CONCRETE. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE ALIGNED WITH THE SLOPE OF THE RAMP
6. DRIVEWAY WIDTH GREATER THAN 15'–0" SHALL HAVE A TRANSVERSE CONTRACTION JOINT AT OR NEAR CENTER
7. THIS DISTANCE IS 1'–0", HOWEVER ON ARTERIALS AND COMMERCIAL STREETS WHERE THE LANE OF TRAVEL IS ADJACENT TO CURB THIS DISTANCE SHALL BE 3'–6"

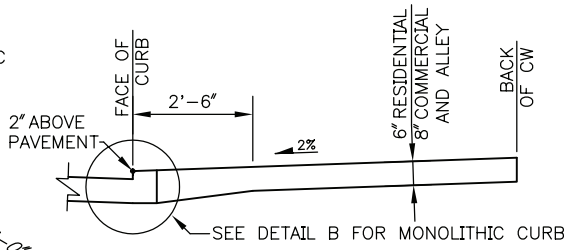


SECTION A–A

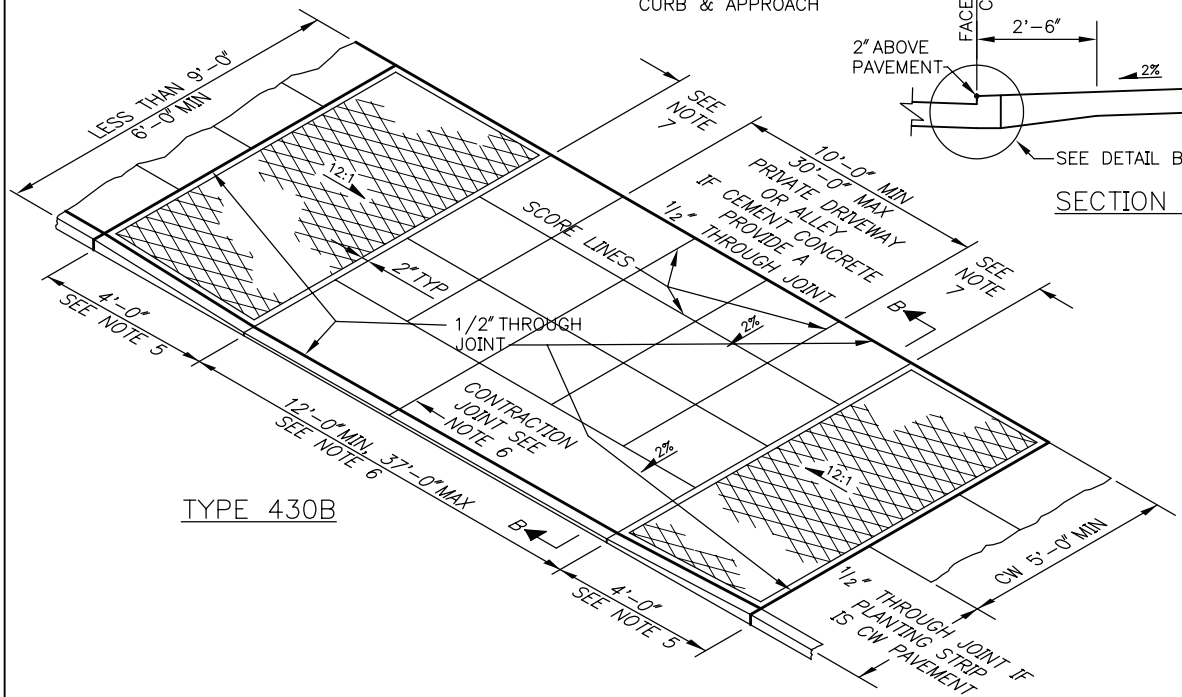


DETAIL B

DRIVEWAY W/ MONOLITHIC CURB & APPROACH



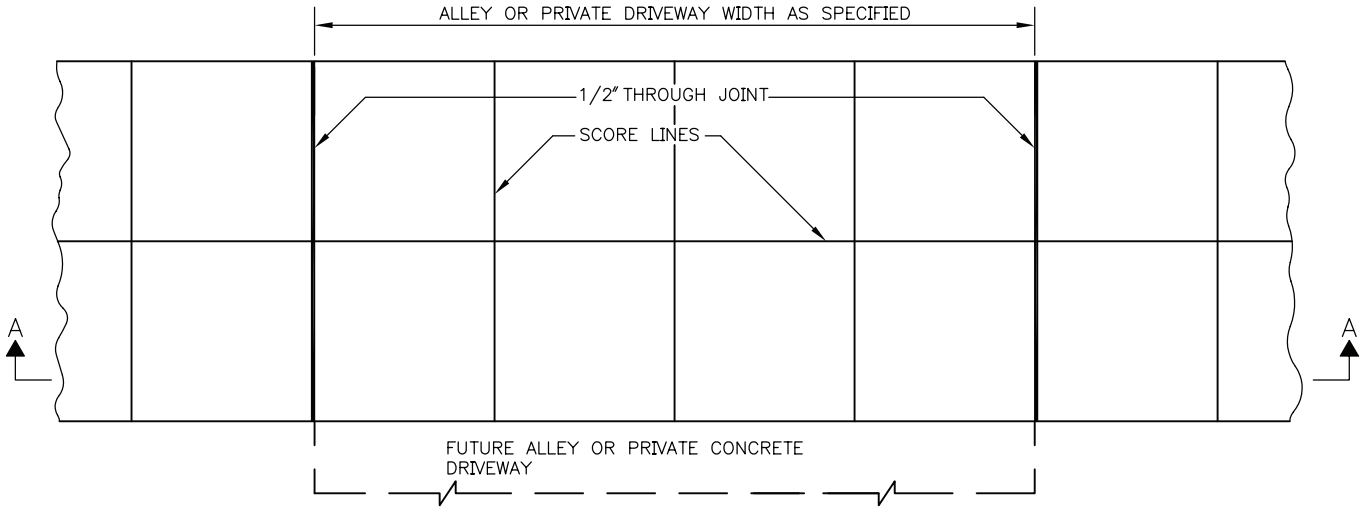
SECTION B–B

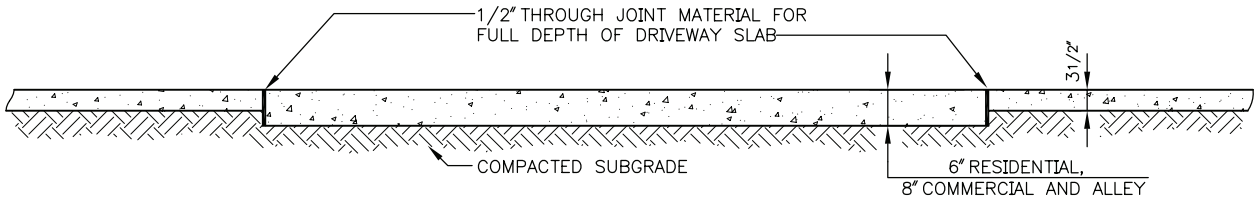


TYPE 430B

City of Seattle	NOT TO SCALE	TYPE 430 DRIVEWAY

REV DATE: 2003





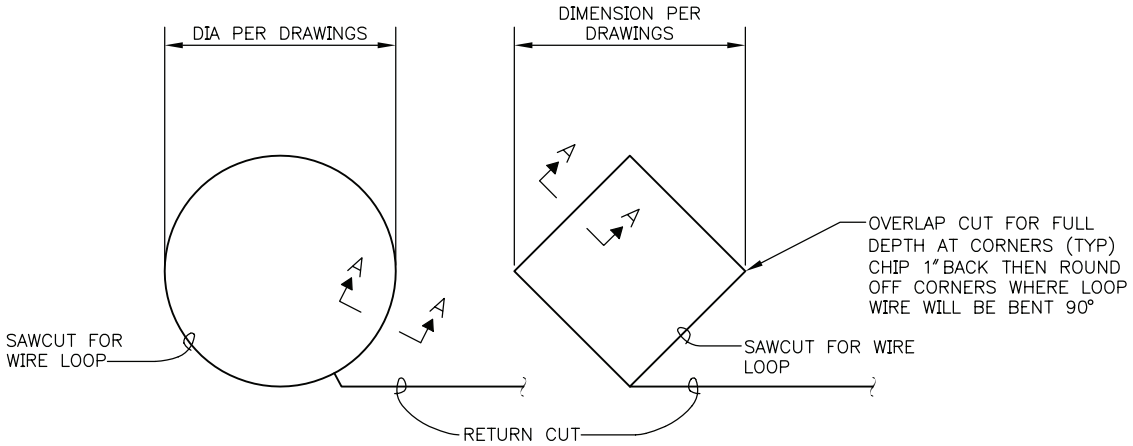
SECTION A–A

NOTES:

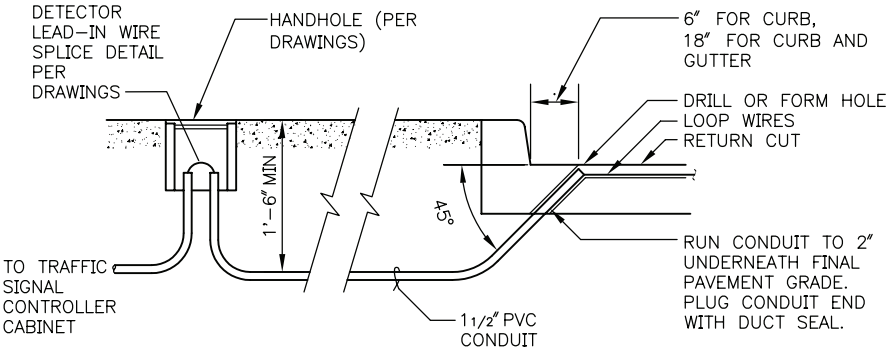
1. DRIVEWAY WIDTH GREATER THAN 15'–0" SHALL HAVE TRANSVERSE CONTRACTION JOINT AT ITS CENTER
2. DRIVEWAY CONCRETE SHALL BE CLASS 6(3/4) OR 6(1½) AT CONTRACTOR'S OPTION
3. SIDEWALK CONCRETE SHALL BE CLASS 5(3/4)

City of Seattle	NOT TO SCALE	CONCRETE DRIVEWAY PLACED WITH SIDEWALK CONSTRUCTION

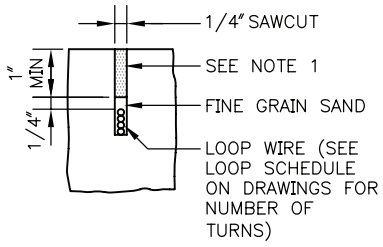
REV DATE: 2008



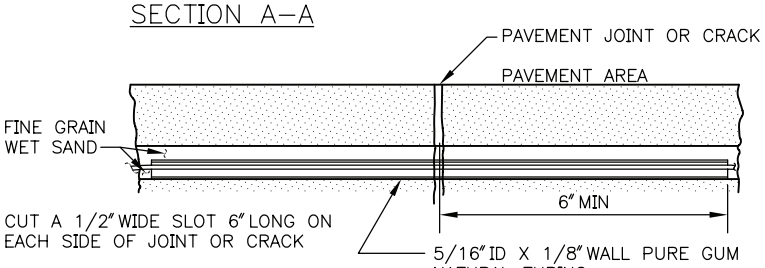
DIPOLE LOOP DETECTORS



CURB/PAVEMENT ENTRANCE FOR DETECTOR LOOP WIRES



SECTION A-A



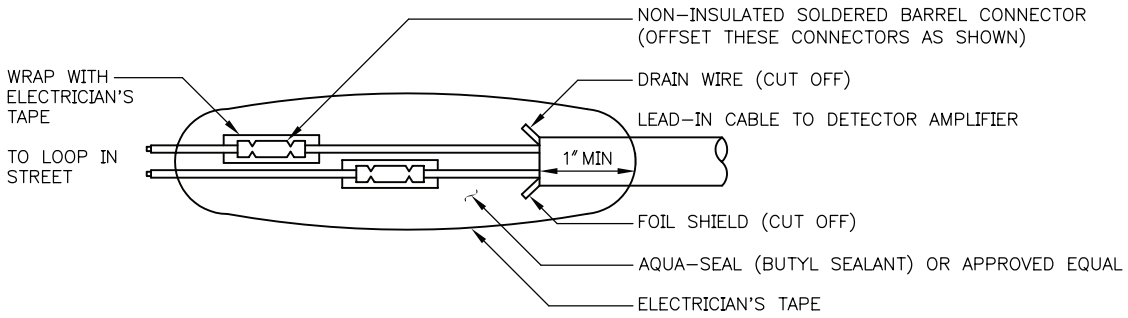
PAVEMENT JOINT OR CRACK DETAIL

NOTES:

1. FILL CUT AFTER VERTICAL PLACEMENT AND TESTING WITH HOT PAVING GRADE LIQUID ASPHALT ASTM D 312 TYPE III OR QUICK SETTING HIGH STRENGTH GROUT
2. SHARP EDGE TOOLS SHALL NOT BE USED IN PLACING CONDUCTORS IN SAW CUTS
3. EACH PAIR OF LOOP WIRES IN THE RETURN CUT SHALL BE TWISTED A MINIMUM OF 3 TURNS PER FOOT AND MAY SHARE COMMON RETURN CUTS WITH OTHER TWISTED PAIRS
4. TAPE LOOP WIRE A MINIMUM OF 2 TURNS AT EACH CORNER
5. REMOVE SHARP CORNER EDGES IN SAW CUTS WHERE LOOP WIRE WILL BE BENT AROUND
6. PERFORM RESISTANCE AND CONTINUITY TESTS PRIOR TO SEALING LOOP WIRES
7. COIL 5'-0" OF LOOP WIRE IN HANDHOLE

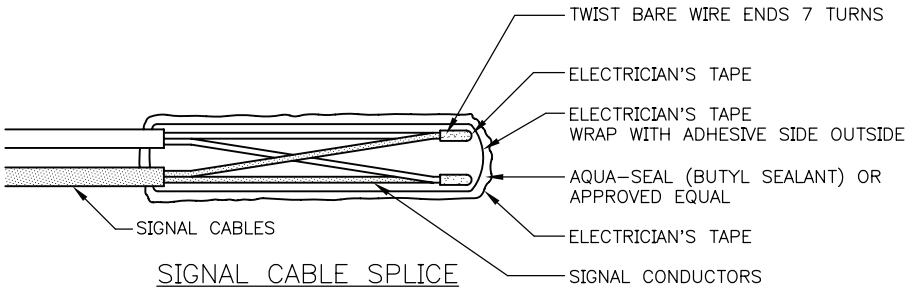
City of Seattle	NOT TO SCALE	LOOP DETECTORS

REV DATE: 2003



DETECTOR LEAD–IN WIRE SPLICE DETAIL

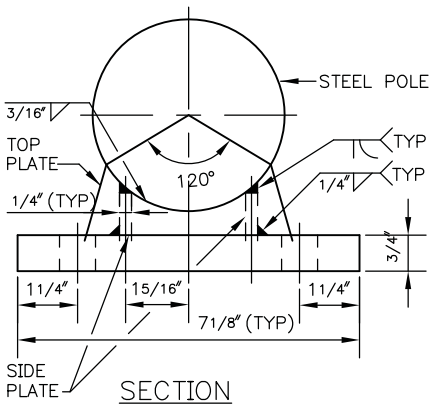
NOTE:
SOLDER CONNECTION AFTER CRIMPING



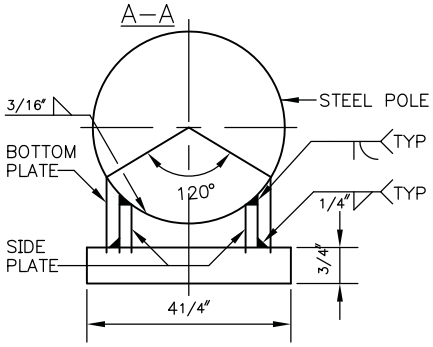
SIGNAL CABLE SPLICE

City of Seattle	NOT TO SCALE	DETECTOR LOOP WIRE AND SIGNAL CABLE SPLICE

REV DATE: 2008

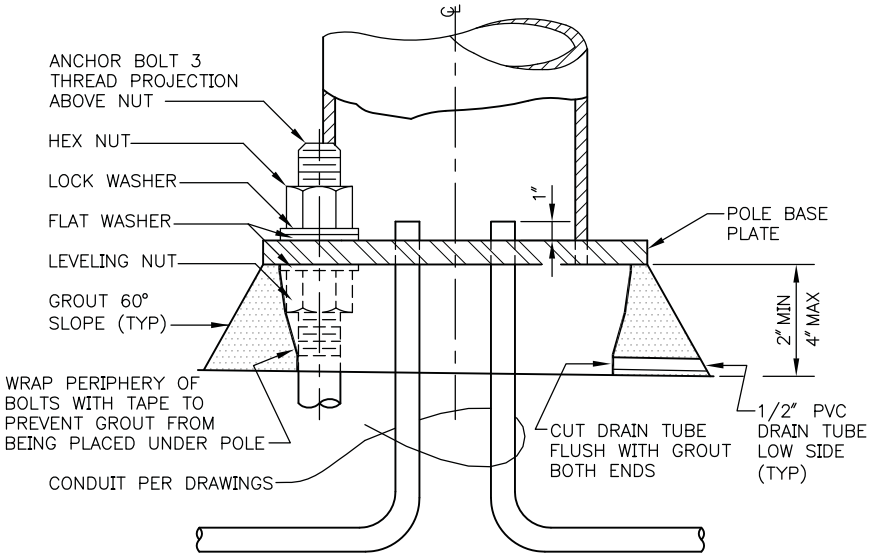


SECTION A–A



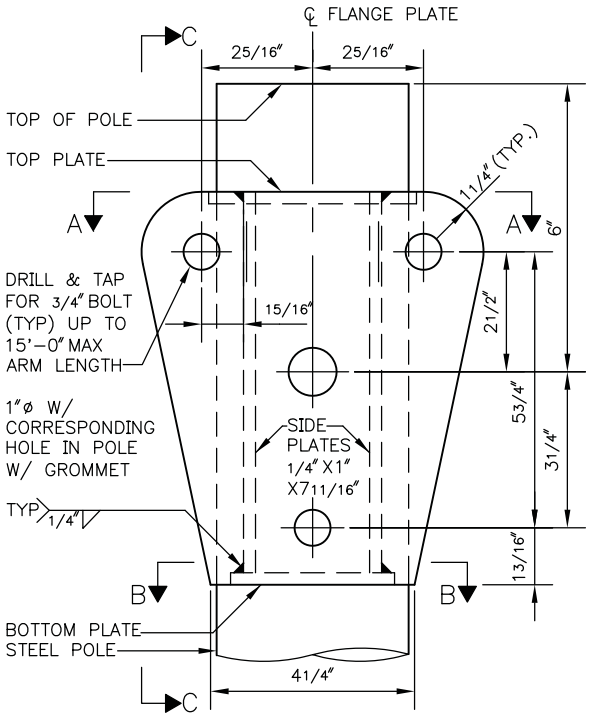
SECTION B–B

NOTE:
GROUT SHALL BE PREMIXED, NON–SHRINK AND NON–METALLIC

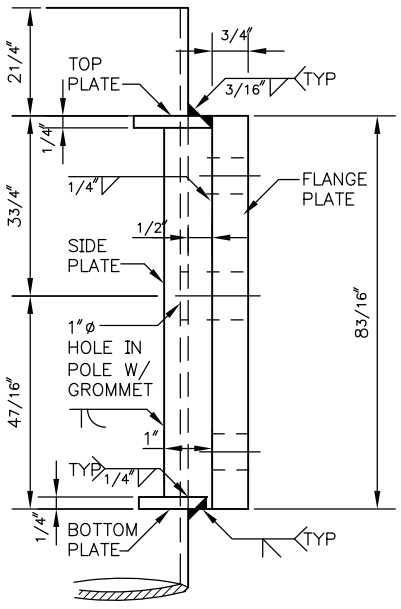


POLE MOUNTING & GROUT DETAIL

(EXCEPT FOR POLES W/ CHIEF SEATTLE BASE SEE STANDARD PLAN NO 542a)



BRACKET ARM FLANGE PLATE ON POLE



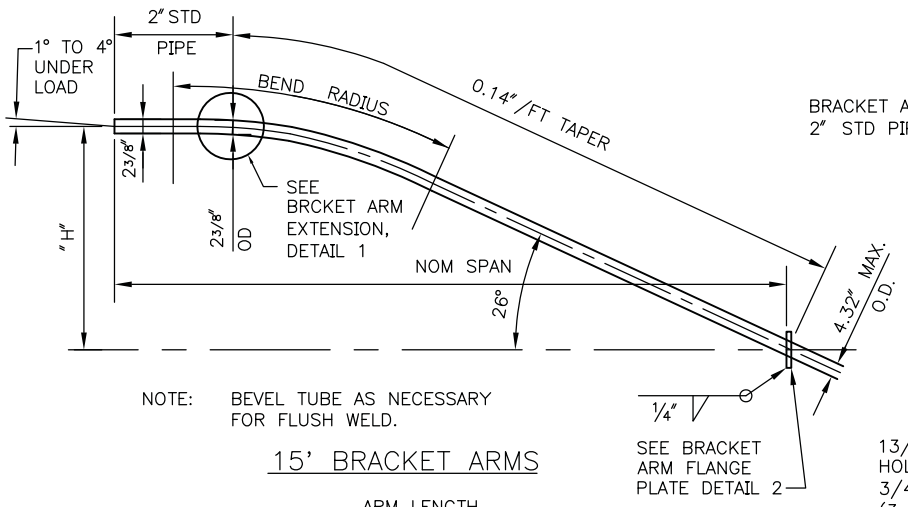
SECTION C–C

STRUCTURAL CARBON STEEL PLATES SHALL BE ASTM A36

City of Seattle	NOT TO SCALE	MISCELLANEOUS STEEL POLE DETAILS

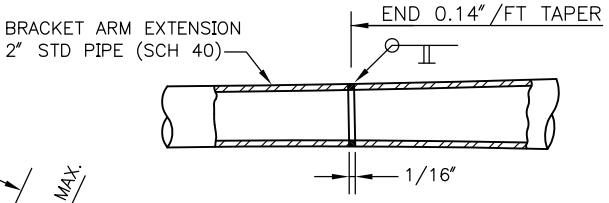
STANDARD PLAN NO 572

REV DATE: 2008

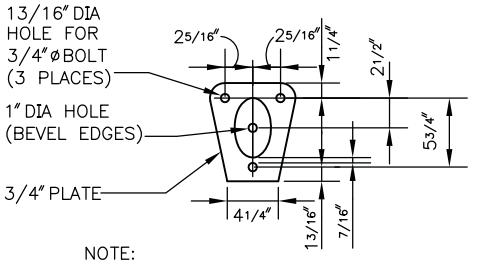


NOTE: BEVEL TUBE AS NECESSARY FOR FLUSH WELD.

15' BRACKET ARMS

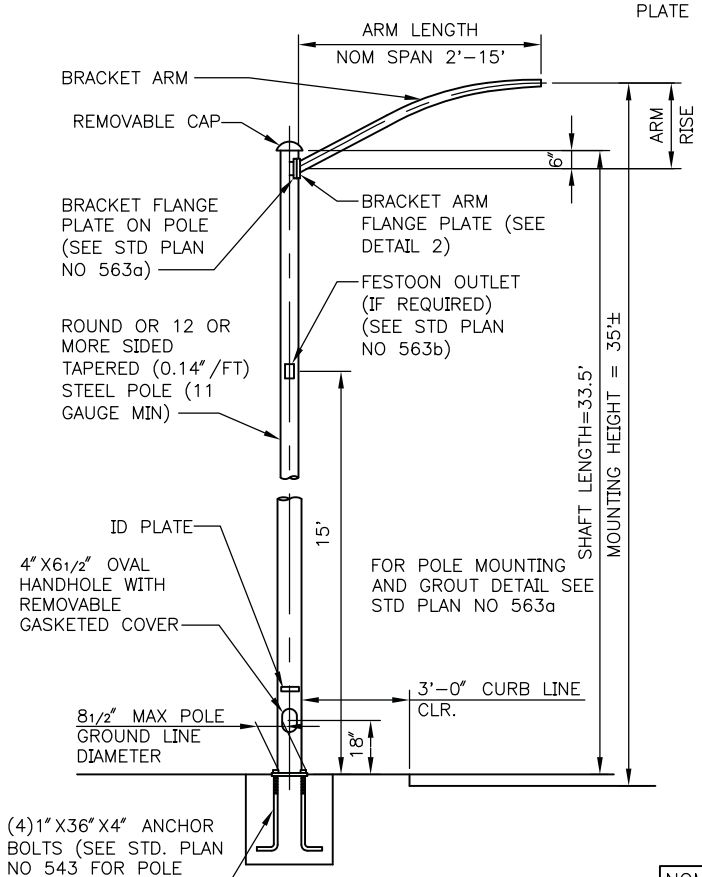


BRACKET ARM EXTENSION DETAIL 1

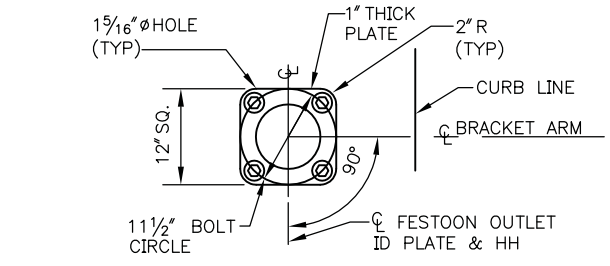


NOTE:
FLANGE DIMENSIONS AND HOLE LOCATIONS MUST MATCH THOSE ON FLANGE PLATE ON POLE (SEE STD PLAN NO 563a)

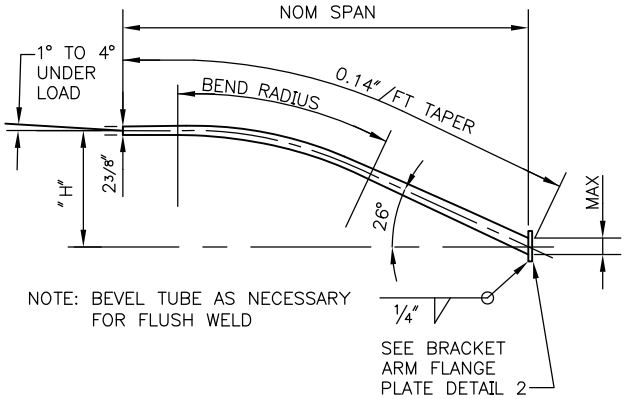
BRACKET ARM FLANGE PLATE DETAIL 2



STEEL STREET LIGHT POLE



POLE BASE PLATE



2' THRU 12' BRACKET ARMS

NOM. SPAN	H*	BEND RADIUS	TUBE REQUIREMENT
2'	51/4"	—	2" STD PIPE
4'	12"	6'	11 GAUGE
6'	18"	9'	11 GAUGE
8'	24"	13'	11 GAUGE
10'	30"	15'	11 GAUGE
12'	33'	17'	11 GAUGE
15'	36"	17'	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.

City of Seattle	NOT TO SCALE	STEEL STREET LIGHT POLE WITH BRACKET ARM