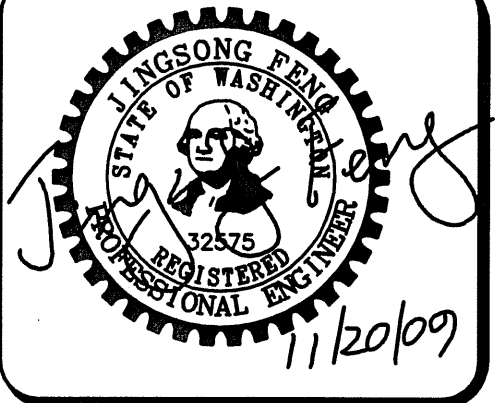


N.W. 1/4, SEC. 26, T. 21 N., R. 4 E., W.M.



15445 59RD AVE. S.  
SEATTLE, WA 98188  
PHONE: (206) 431-7970  
FAX: (206) 388-1648  
WEB SITE: PACENG.COM

Pacific  
Engineering  
Design, LLC  
Civil Engineering and  
Planning Consultants

PEPPER HILL ESTATES  
KING COUNTY, WA.

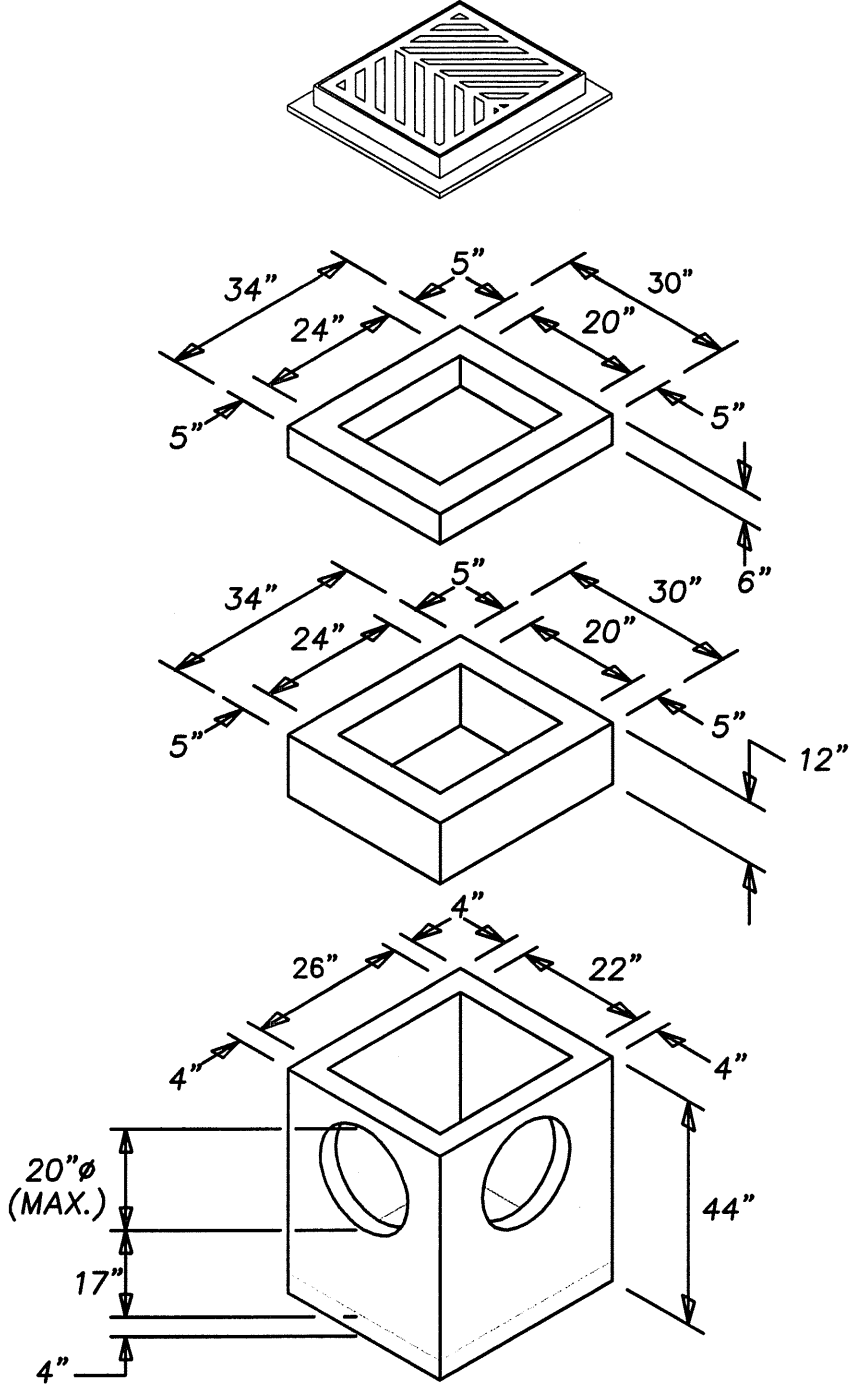
FOR:  
PACIFIC HOUSING GROUP I, LLC  
1420 5TH AVE, SUITE 2200  
SEATTLE, WA 98101-3246  
PHONE: (206) 521-9979 FAX: (206) 224-2880

PROJECT NO.: 05052  
DRAWN BY: JGC/RRJ  
ISSUE DATE: 06-22-07  
SHEET REV.: 11-20-09

DETAILS  
(STORM DRAINAGE)

05052D202-RW21-RW22.DWG

R21



FRAME GRATE  
(SEE SEC. 7.05 AND APPLICABLE DWG.'S)

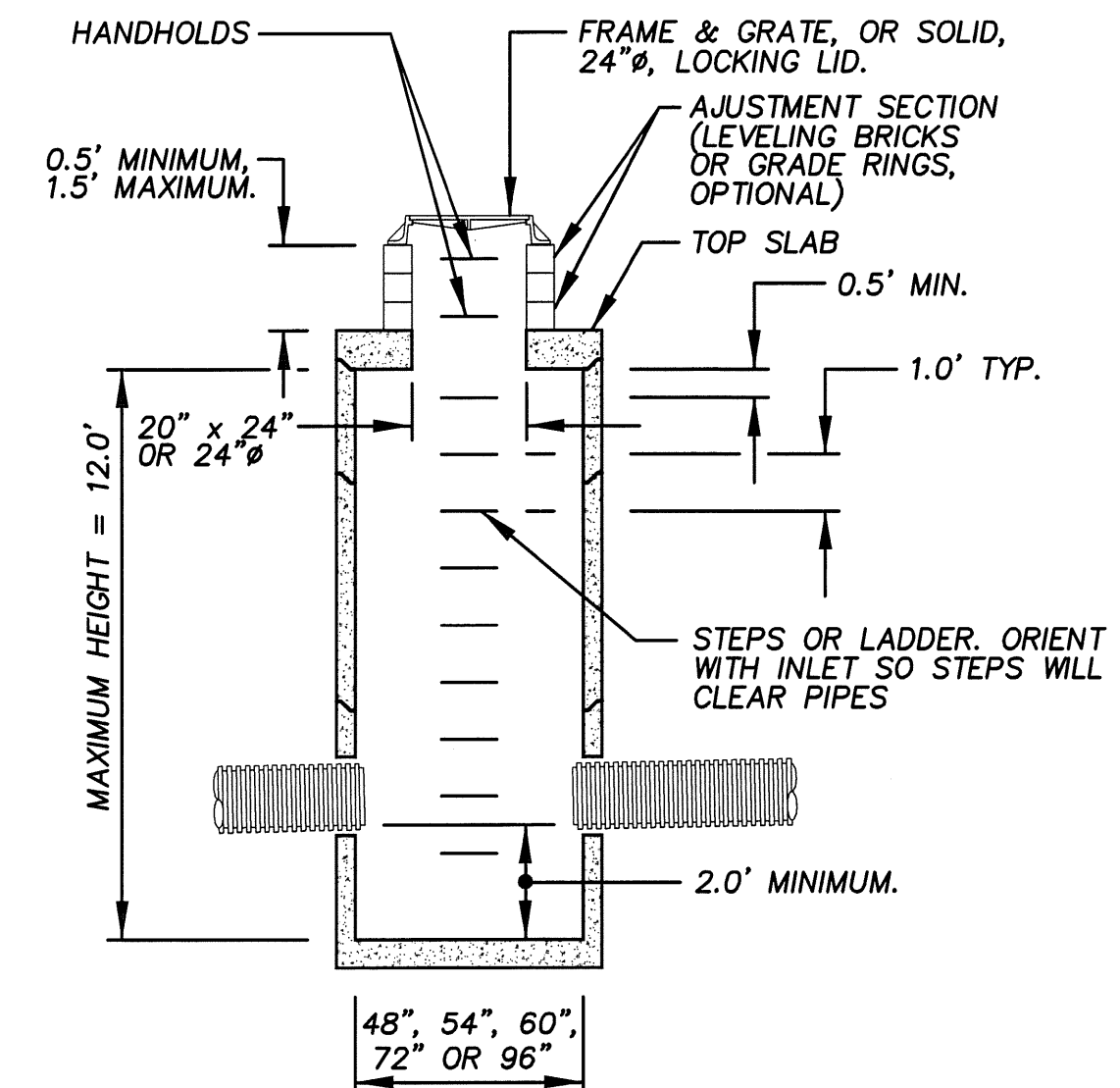
6" RISER SECTION

12" RISER SECTION

PRECAST BASE SECTION  
(MEASURED AT THE TOP OF THE BASE)

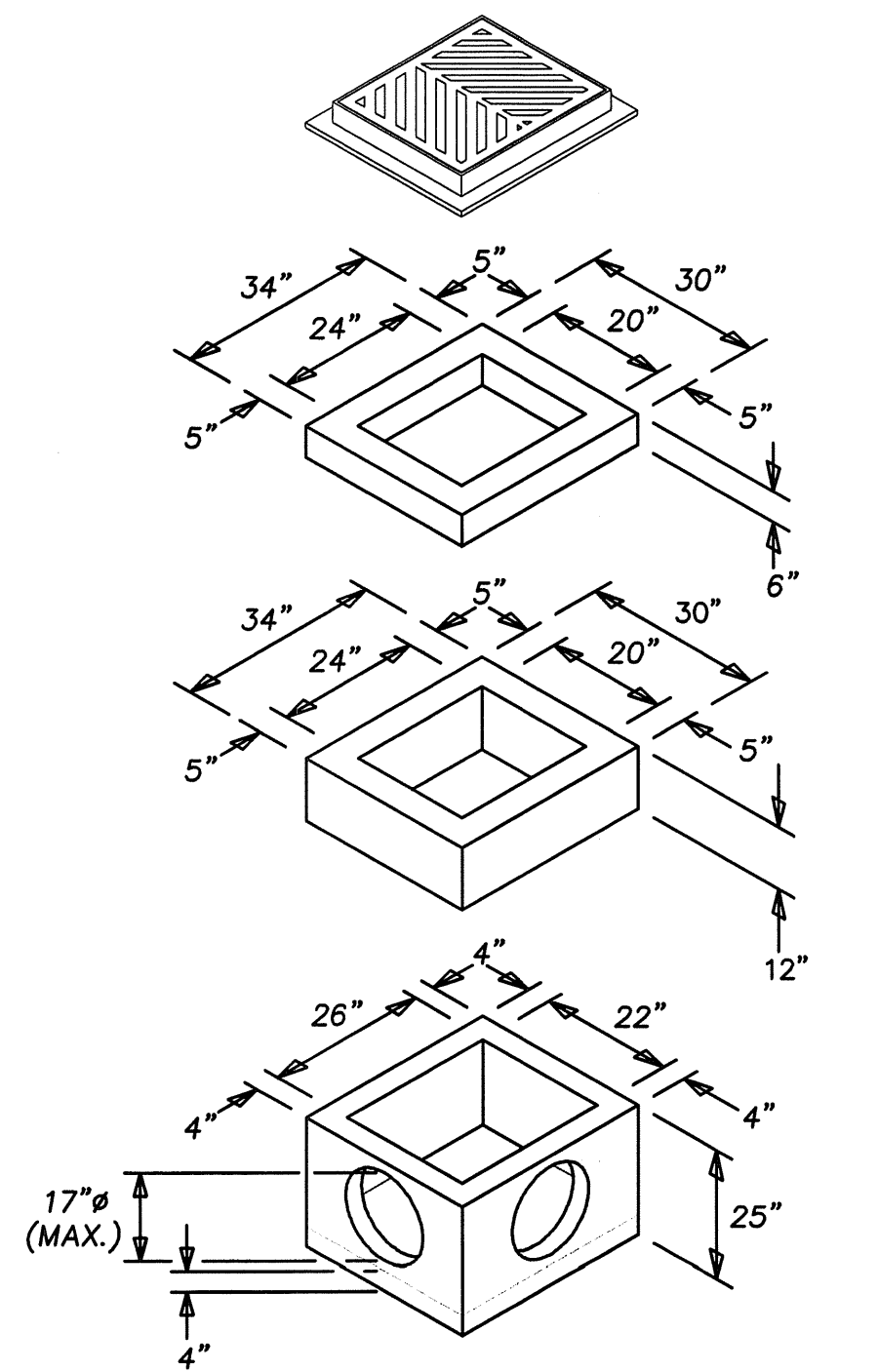
- CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
- AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCK-OUTS.
- ALL REINFORCED CAST-IN-PLACE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN.. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIA. PLUS CATCH BASIN WALL THICKNESS.
- ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIA. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPED.
- THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5.0'.
- THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION & RISER SECTION SHALL NOT EXCEED 1/2" /FT.
- CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH AND COVER POSITION.
- FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
- FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. B1-b.
- EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

CATCH BASIN TYPE I



- CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
- HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCHBASIN SHALL HAVE 6" MIN. CLEARANCE. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE RINGS OR LEVELING BRICK COURSE WITH A MIN. OF ONE HANDHOLE BETWEEN THE LAST STEP AND TOP OF THE MANHOLE.
- ALL REINFORCED CAST-IN-PLACE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN.. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIA. PLUS CATCHBASIN WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" CB'S, 42" FOR 54" CB'S, 48" FOR 60" CB'S, 60" FOR 72" CB'S AND 84" FOR 96" CB'S. MIN. DISTANCE BETWEEN HOLES SHALL BE 8" FOR 48" CB'S, 54" CB'S AND 60" CB'S. 12" FOR 72" CB'S AND 96" CB'S CATCHBASINS.
- CATCHBASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH SEC 7.05 AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
- ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 P.S.I. AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
- MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
- SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 7-05.3 FOR JOINT SPECIFICATIONS.

TYPE II CATCHBASIN



FRAME GRATE  
(SEE SEC. 7.05 AND APPLICABLE DWG.'S)

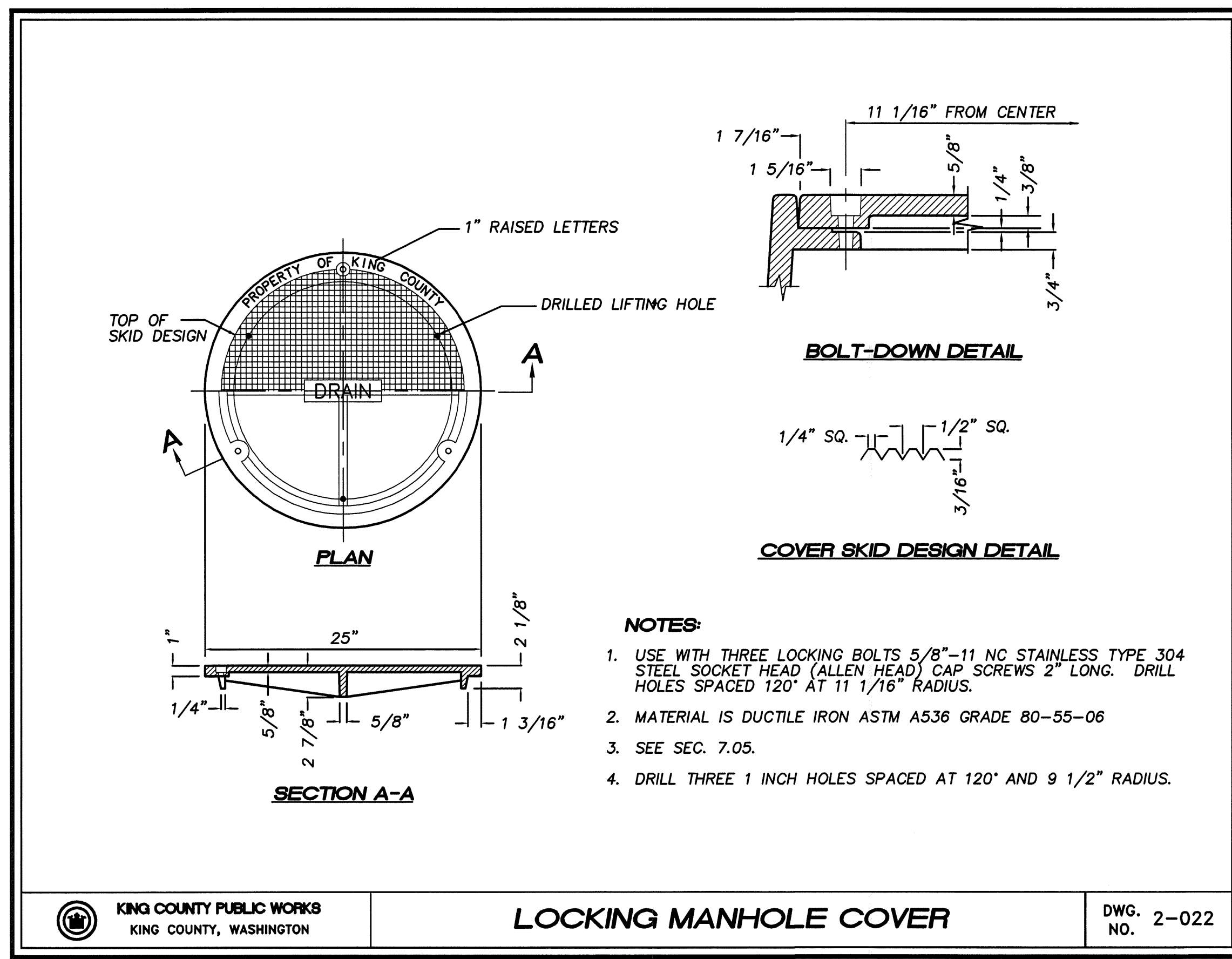
6" RISER SECTION

12" RISER SECTION

PRECAST BASE SECTION  
(MEASURED AT THE TOP OF THE BASE)

- CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
- AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCK-OUTS.
- THE BOTTOM OF THE PRECAST BASE SECTION MAY BE ROUNDED.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIA. PLUS CATCH BASIN WALL THICKNESS.
- ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIA. OF 17". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPED. PIPE TO BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.
- THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5.0'.
- CONCRETE INLET FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.
- THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION & RISER SECTION SHALL NOT EXCEED 1/2" /FT.
- FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.

CURB INLET



KING COUNTY PUBLIC WORKS  
KING COUNTY, WASHINGTON  
**LOCKING MANHOLE COVER**  
DWG. NO. 2-022

- NOTES:
- USE WITH THREE LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG. DRILL HOLES SPACED 120" AT 11 1/16" RADIUS.
  - MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80-55-06
  - SEE SEC. 7.05.
  - DRILL THREE 1 INCH HOLES SPACED AT 120" AND 9 1/2" RADIUS.

KING COUNTY D.D.E.S.	
Review Engineer	Completion Date
Senior Engineer	Completion Date
MOLLY A. JOHNSON, P.E. DEVELOPMENT ENGINEER	Approval Date
Comments:	