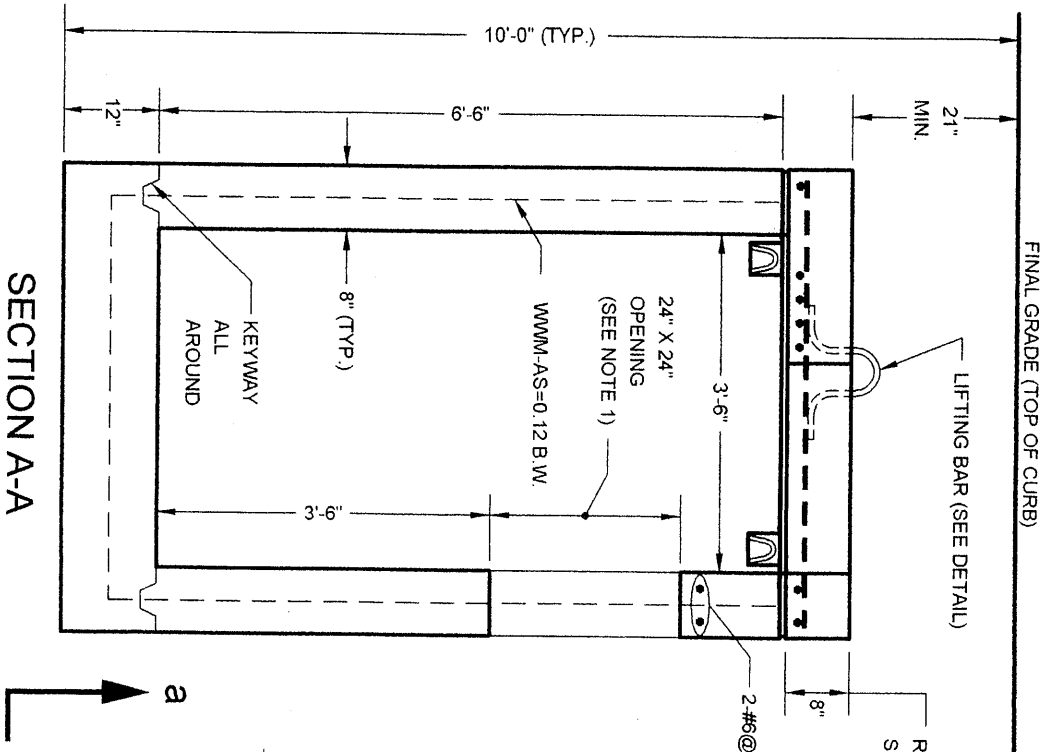
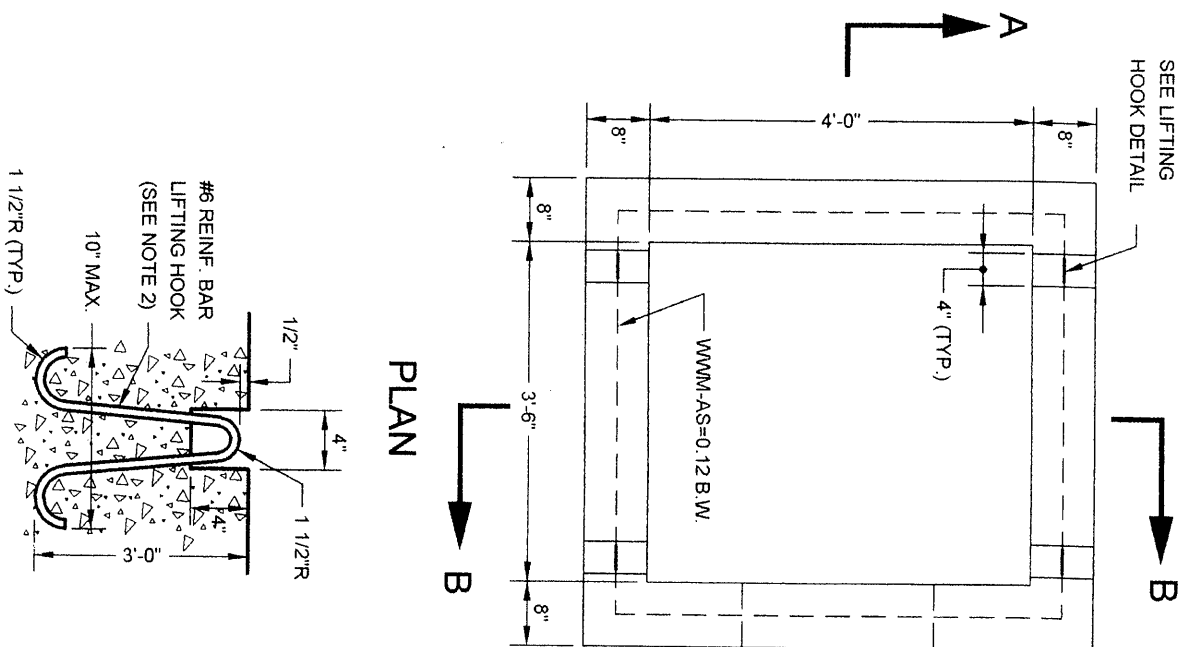
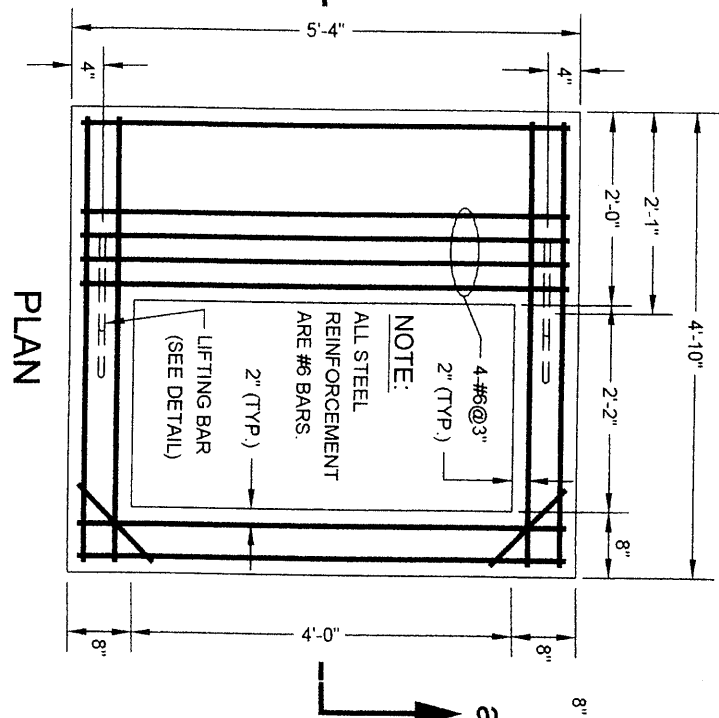
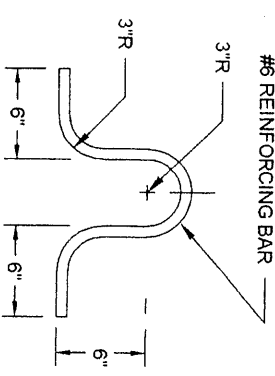


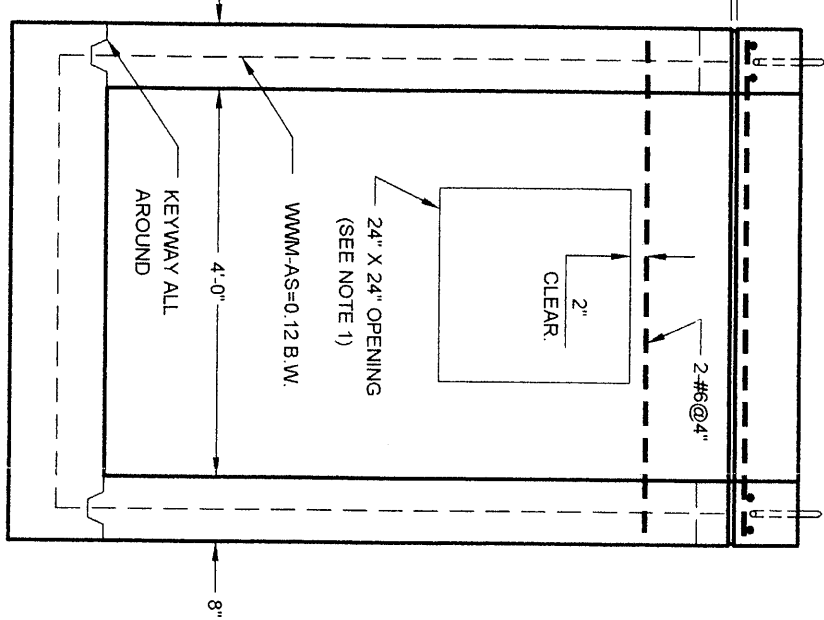
STANDARD FOR PRECAST TYPE 2 CATCH BASIN



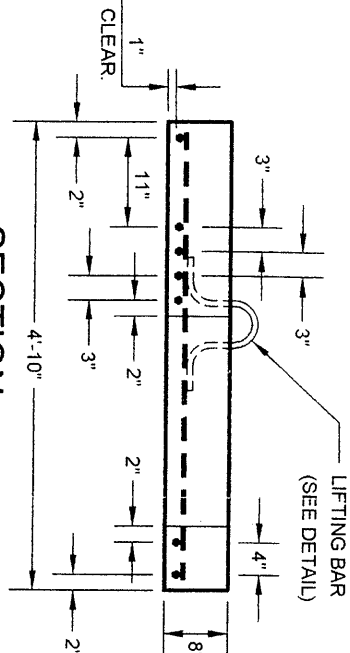
LIFTING BAR DETAIL



SECTION B-B



SECTION a-a



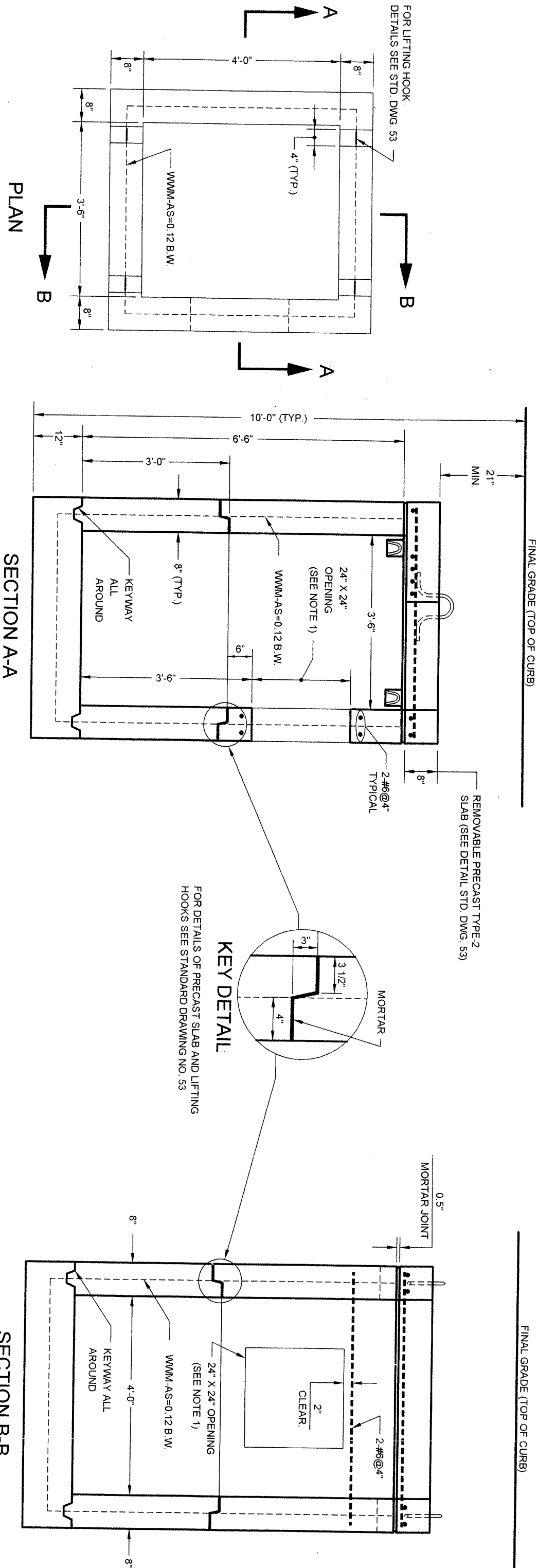
NOTES:

- (1) LOCATION OF OPENING SHALL BE DETERMINED PRIOR TO MANUFACTURE OF BASIN BY LOCATION AND ANGLE OF BASIN CONNECTION REQUIRED DUE TO FIELD CONDITIONS AND OPENING SHALL BE PLACED IN THE PROPER WALL AT THE TIME OF MANUFACTURE.
- (2) LIFTING HOOKS SHALL BE LOCATED IN THE SECTION AS PER MANUFACTURERS RECOMMENDATIONS AND GROUTED PRIOR TO BACKFILLING. (FOUR (4) LIFTING HOOKS SHALL BE PROVIDED FOR EACH SECTION AND SHALL BE PLACED SYMMETRICALLY AND IN SUCH A MANNER AS TO PROVIDE FOR THE EVEN LIFTING OF THE SECTION.)
- (3) CONCRETE IS TO BE CLASS 40 AND 5% AIR ENTRAINED. REBARS- GRADE 60. WMM-FS=65,000 PSI.

Joseph M. Lavan P.E. 7/9/07
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION

Mehdi Farooqi P.E. 8/10/07
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION

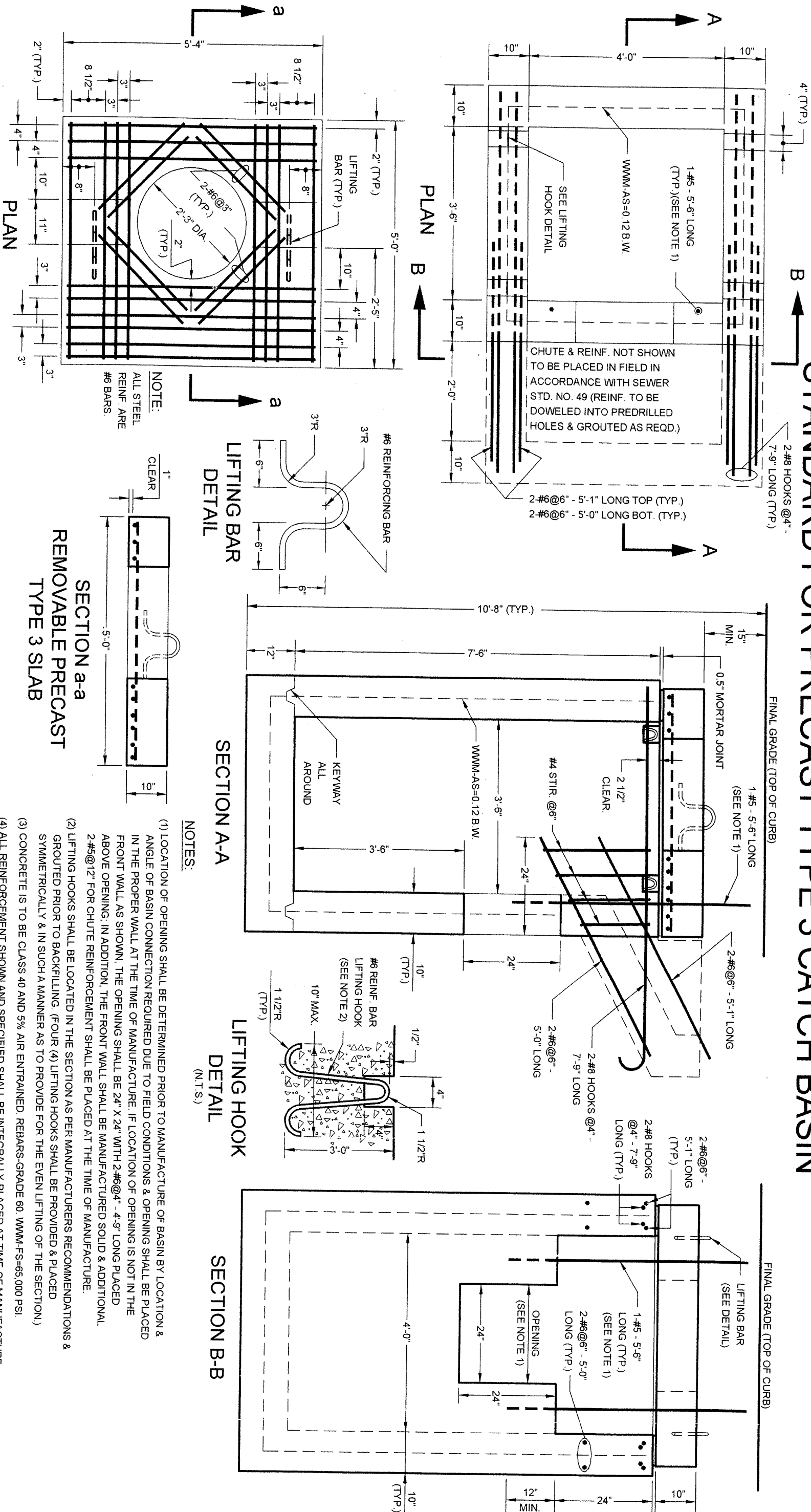
STANDARD FOR SPLIT PRECAST TYPE 2 CATCH BASIN



Assistant Commissioner, Design
Department of Design and Construction
Greg M. Lavar P.E.
7/9/07
DATE

Director of Engineering
Department of Environmental Protection
Moe Di Taro P.E.
8/10/07
DATE

STANDARD FOR PRECAST TYPE 3 CATCH BASIN



NOTES:

- (1) LOCATION OF OPENING SHALL BE DETERMINED PRIOR TO MANUFACTURE OF BASIN BY LOCATION & ANGLE OF BASIN CONNECTION REQUIRED DUE TO FIELD CONDITIONS & OPENING SHALL BE PLACED IN THE PROPER WALL AT THE TIME OF MANUFACTURE. IF LOCATION OF OPENING IS NOT IN THE FRONT WALL AS SHOWN, THE OPENING SHALL BE 24" X 24" WITH 2 #6 @ 4" - 4'-9" LONG PLACED ABOVE OPENING. IN ADDITION, THE FRONT WALL SHALL BE MANUFACTURED SOLID & ADDITIONAL 2 #5 @ 12" FOR CHUTE REINFORCEMENT SHALL BE PLACED AT THE TIME OF MANUFACTURE.
- (2) LIFTING HOOKS SHALL BE LOCATED IN THE SECTION AS PER MANUFACTURERS RECOMMENDATIONS & GROUTED PRIOR TO BACKFILLING. (FOUR (4) LIFTING HOOKS SHALL BE PROVIDED & PLACED SYMMETRICALLY & IN SUCH A MANNER AS TO PROVIDE FOR THE EVEN LIFTING OF THE SECTION)
- (3) CONCRETE IS TO BE CLASS 40 AND 5% AIR ENTRAINED. REBARS- GRADE 60. WMM-FS-65,000 PSI.
- (4) ALL REINFORCEMENT SHOWN AND SPECIFIED SHALL BE INTEGRALLY PLACED AT TIME OF MANUFACTURE.

Jose M. Loran

P.E.

DATE

7/9/07

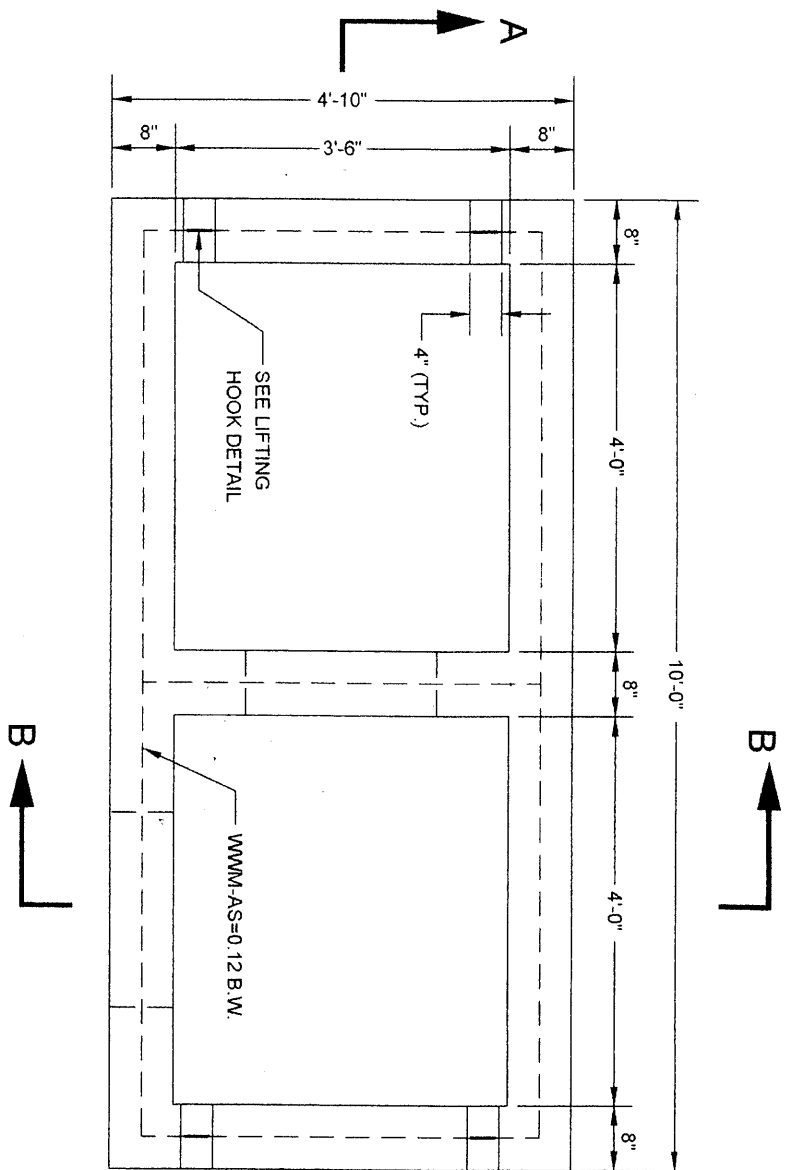
Madi Farooq

P.E.

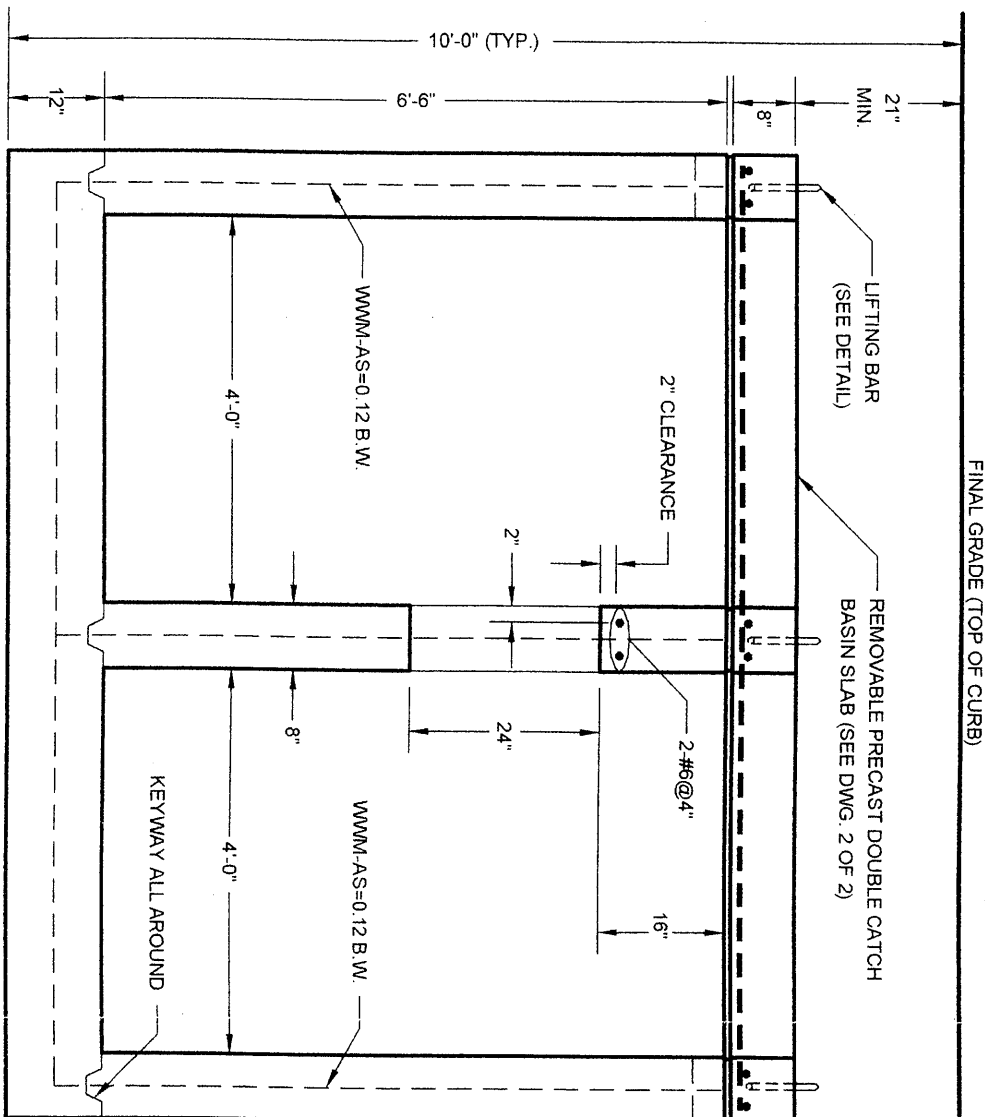
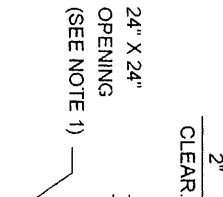
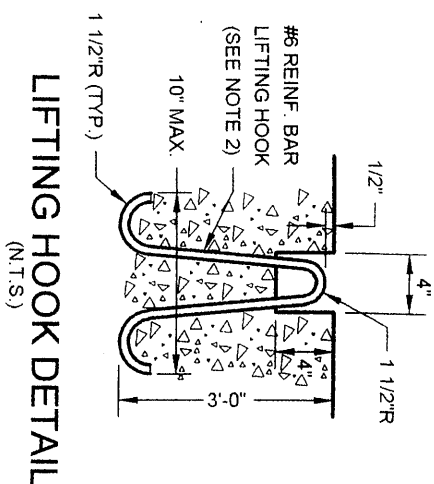
DATE

8/10/07

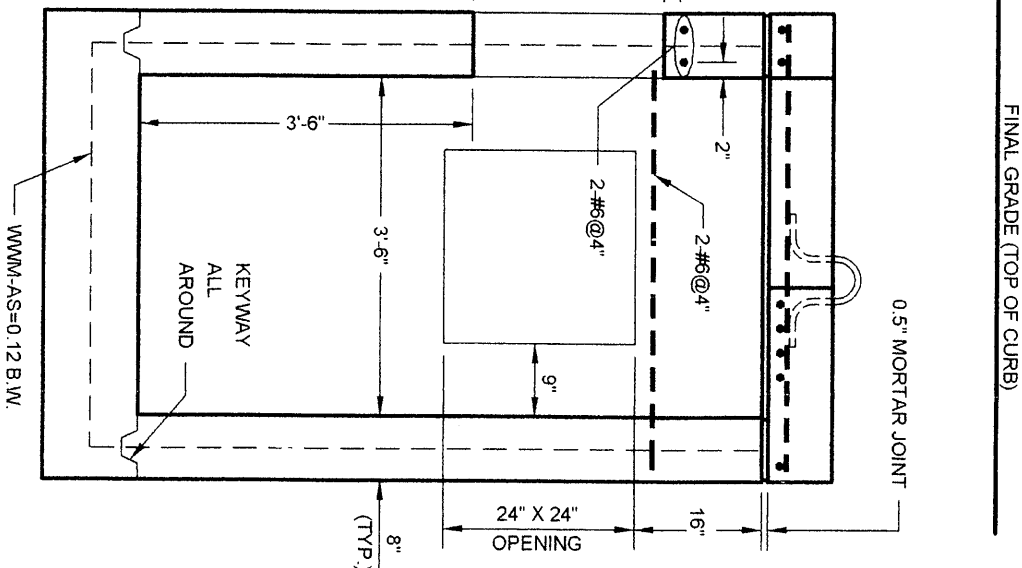
STANDARD FOR PRECAST DOUBLE CATCH BASIN (DWG. 1 OF 2)



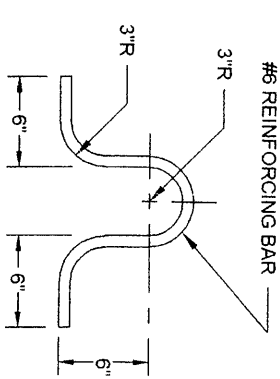
PLAN



SECTION A-A



SECTION B-B



LIFTING BAR DETAIL

NOTES:

- (1) LOCATION OF OPENING SHALL BE DETERMINED PRIOR TO MANUFACTURE OF BASIN BY LOCATION AND ANGLE OF BASIN CONNECTION REQUIRED DUE TO FIELD CONDITIONS AND OPENING SHALL BE PLACED IN THE PROPER WALL AT THE TIME OF MANUFACTURE.
- (2) LIFTING HOOKS SHALL BE LOCATED IN THE SECTION AS PER MANUFACTURERS RECOMMENDATIONS AND GROUTED PRIOR TO BACKFILLING. (FOUR (4) LIFTING HOOKS SHALL BE PROVIDED FOR EACH SECTION AND SHALL BE PLACED SYMMETRICALLY AND IN SUCH A MANNER AS TO PROVIDE FOR THE EVEN LIFTING OF THE SECTIONS.)
- (3) CONCRETE IS TO BE CLASS 40 AND 5% AIR ENTRAINED. REBARS: GRADE 60. WMM-FS=65,000 PSI.

Paul M. Levan
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION

P.E.

DATE

7/19/07

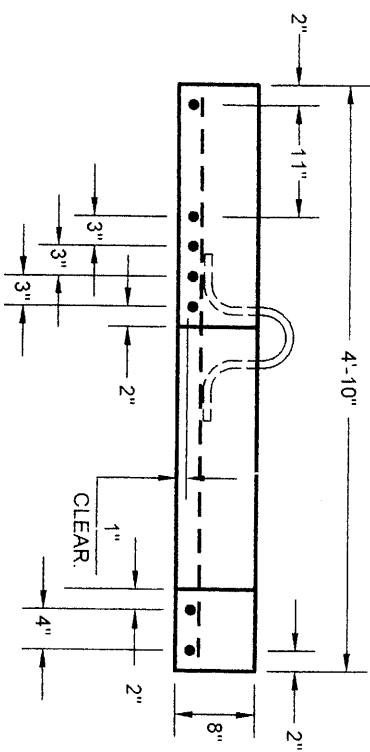
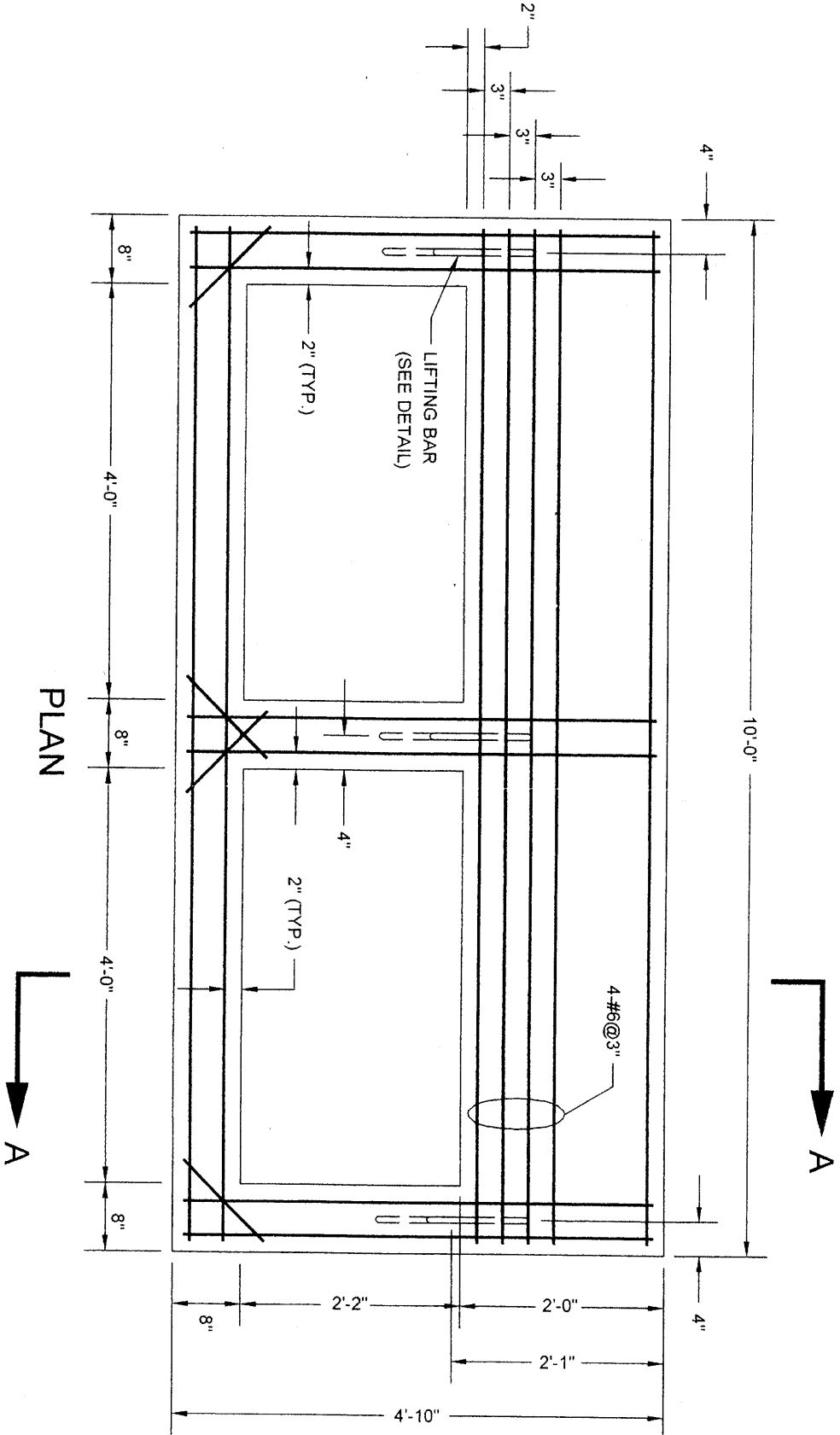
Medi Farid
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

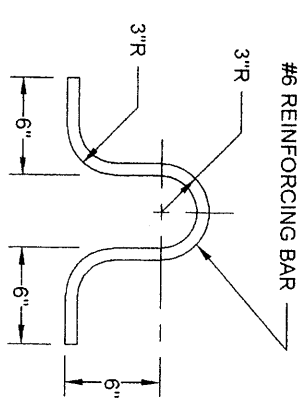
DATE

8/10/07

STANDARD FOR PRECAST DOUBLE CATCH BASIN (DWG. 2 OF 2)
(REMOVABLE PRECAST DOUBLE CATCH BASIN SLAB)



SECTION A-A



LIFTING BAR DETAIL

NOTES:

- (1) ALL STEEL REINFORCEMENT ARE #6 BARS.
- (2) CONCRETE IS TO BE CLASS 40. REBARS-GRADE 60.

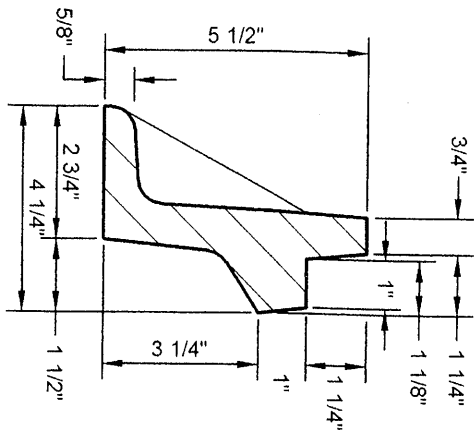
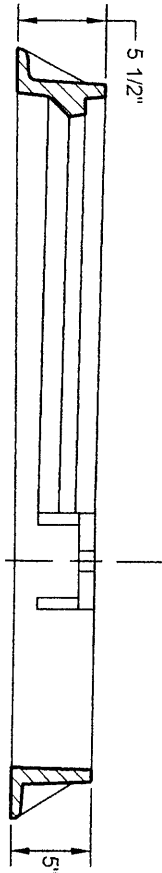
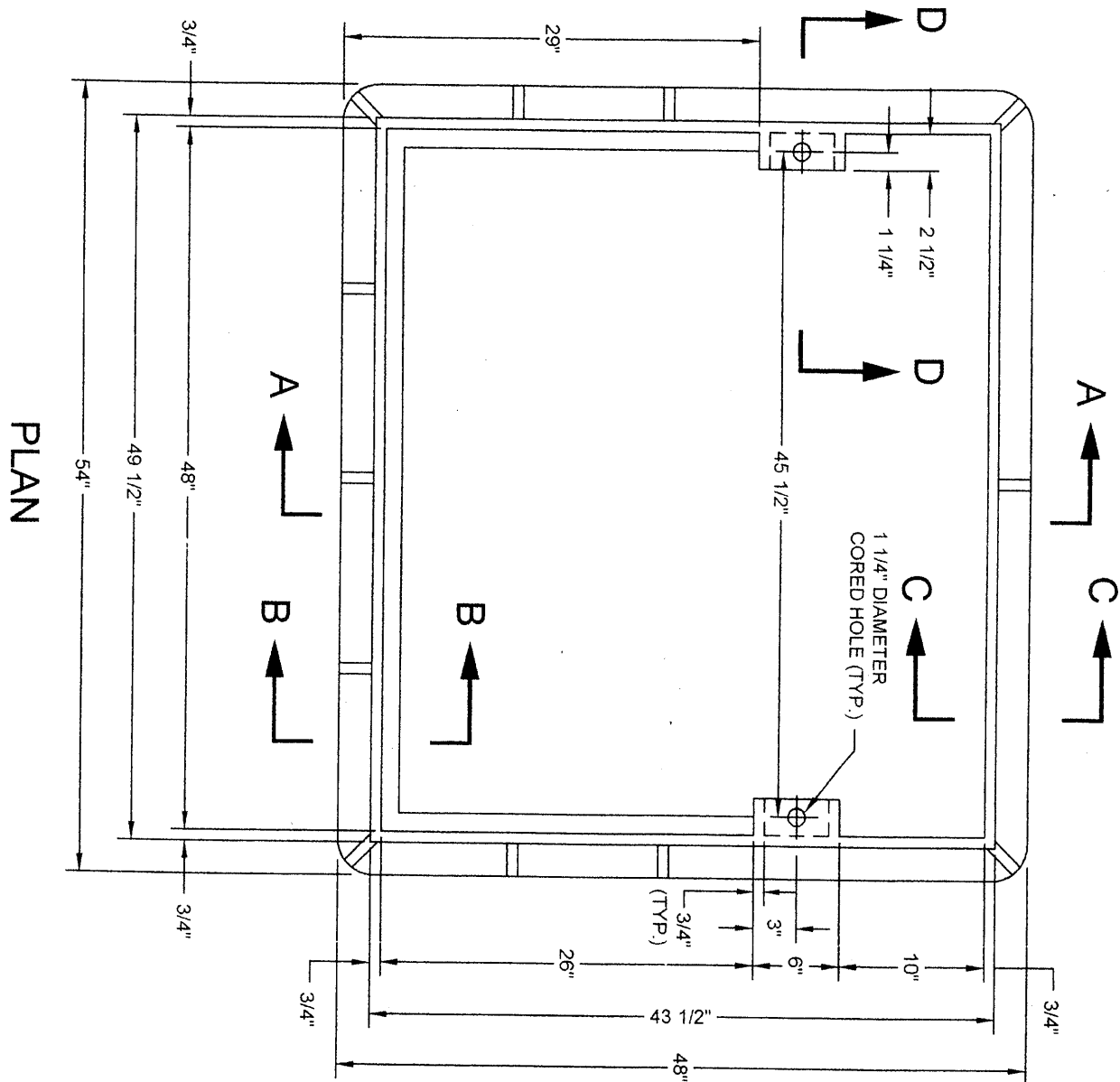
John M. Lane
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION
P.E.

7/9/07
DATE

Maeddi Fung
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
P.E.

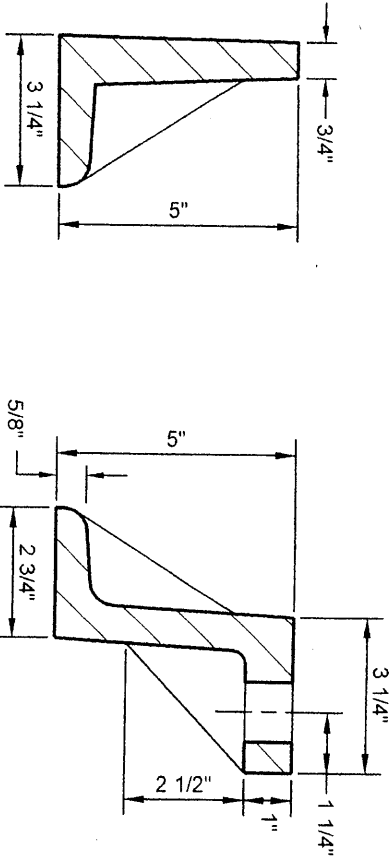
8/10/07
DATE

STANDARD FOR CAST IRON FRAME FOR CATCH BASINS
(WITH CURB PIECE)



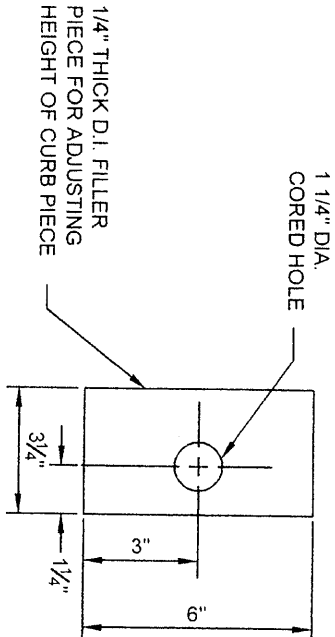
SECTION A-A

SECTION B-B



SECTION C-C

SECTION D-D



FILLER PIECE

NOTES:

- (1) MATERIAL: GRAY CAST IRON ASTM A-48 CLASS 35B. MINIMUM WEIGHT OF FRAME IS 360 LBS.
- (2) DESIGN LOADING: HS20-44 HIGHWAY LOADING.
- (3) TWO (2) - 3/4" DIA. CARBON STEEL BOLTS ASTM 307 GRADE - 3 1/2" LONG WITH HEXAGONAL HEAD AND NUT WITH TWO (2) FLAT WASHERS PER BOLT TO BE FURNISHED WITH EACH FRAME TOGETHER WITH 6" CURB PIECE OR 8" CURB PIECE. LONGER BOLTS TO BE FURNISHED FOR CURB HEIGHTS GREATER THAN 6" WHERE FILLER PIECES ARE USED.
- (4) ALL CATCH BASIN FRAMES SHALL HAVE THE MANUFACTURER'S IDENTIFICATION, CAST DATE OR HEAT NUMBER AND COUNTRY OF ORIGIN INTEGRALLY CAST INDIVIDUAL PIECES AT THE TIME OF MANUFACTURE IN ACCORDANCE WITH THE DEP SPECIFICATION.

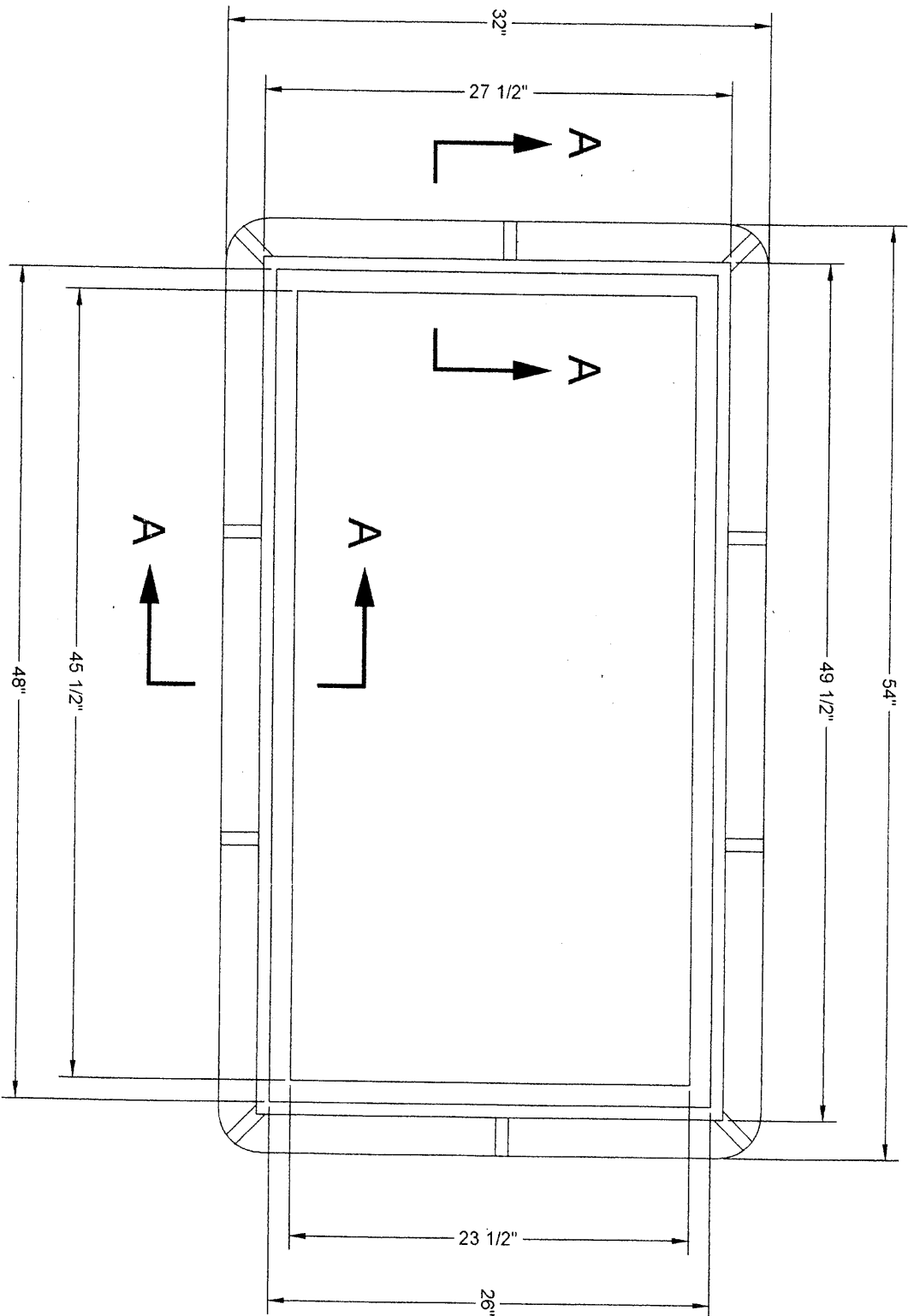
Greg M. Loran P.E.
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION

7/9/07
DATE

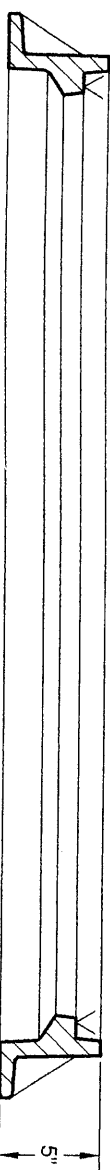
Maedi Faruqi P.E.
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION

8/10/07
DATE

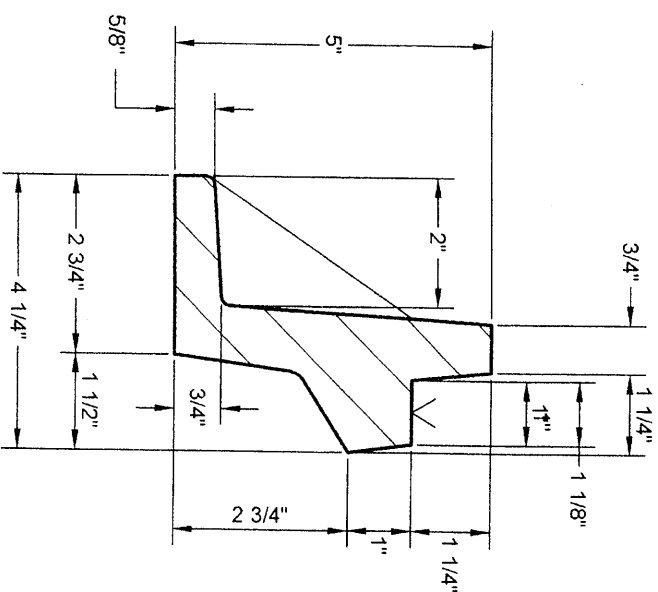
STANDARD FOR CAST IRON FRAME FOR CATCH BASINS
(WITHOUT CURB PIECE)



PLAN



SECTION



SECTION A-A

NOTES:

- (1) MATERIAL: GRAY CAST IRON ASTM A-48 CLASS 35B. MINIMUM WEIGHT OF FRAME IS 275 LBS.
- (2) DESIGN LOADING: HS20-44 HIGHWAY LOADING.
- (3) ALL FRAMES SHALL HAVE THE MANUFACTURER'S IDENTIFICATION, CAST DATE OR HEAT NUMBER AND COUNTRY OF ORIGIN INTEGRALLY CAST ON INDIVIDUAL PIECES AT THE TIME OF MANUFACTURE IN ACCORDANCE WITH THE DEP SPECIFICATION.

ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION

Jeff M. Brown

P.E.

DATE

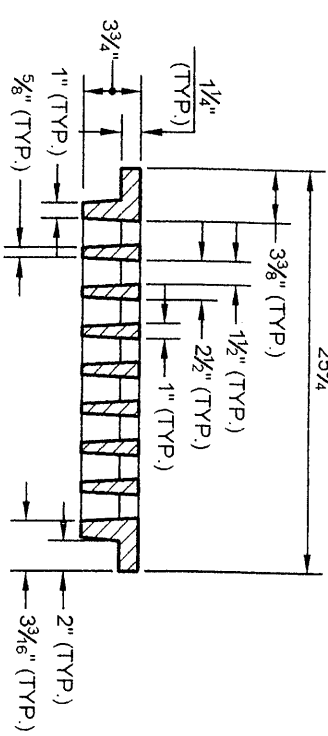
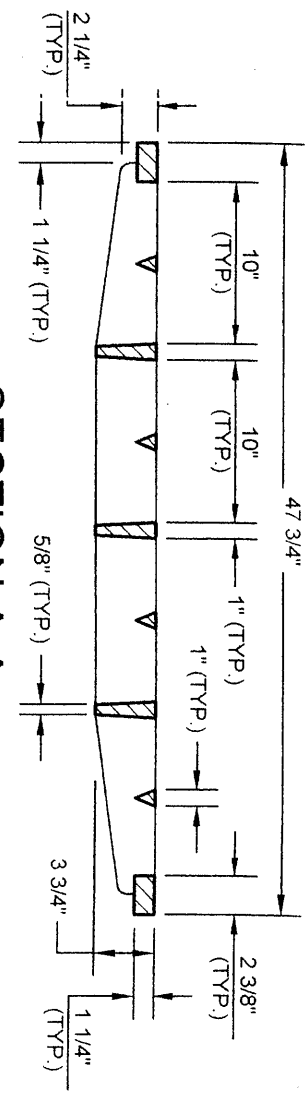
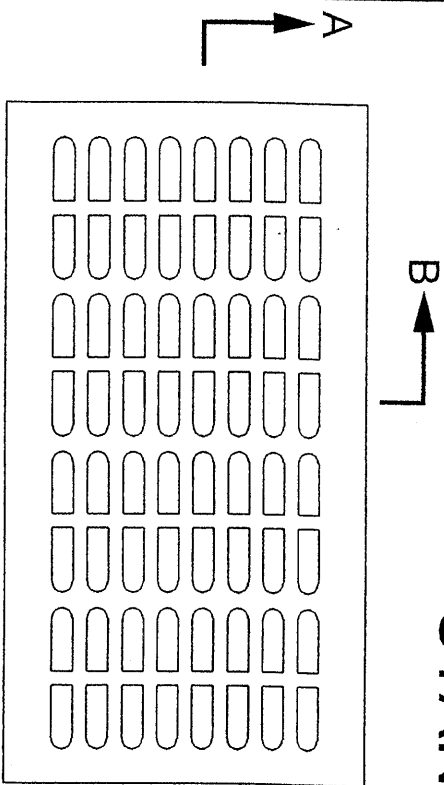
Maedi Feroz

P.E.

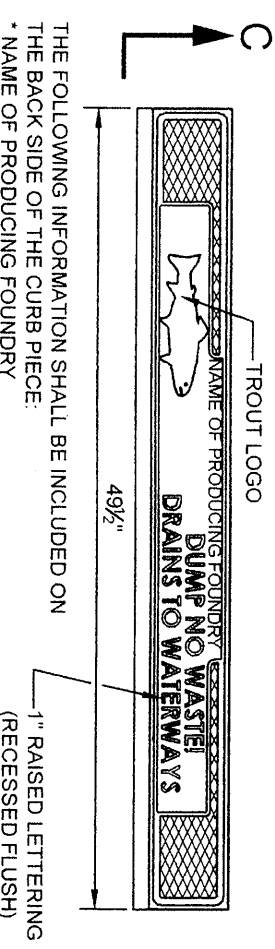
8/10/07

DATE

STANDARD FOR CAST IRON GRATING, BACK PLATE, AND CURB PIECE FOR CATCH BASINS



PLAN OF GRATING

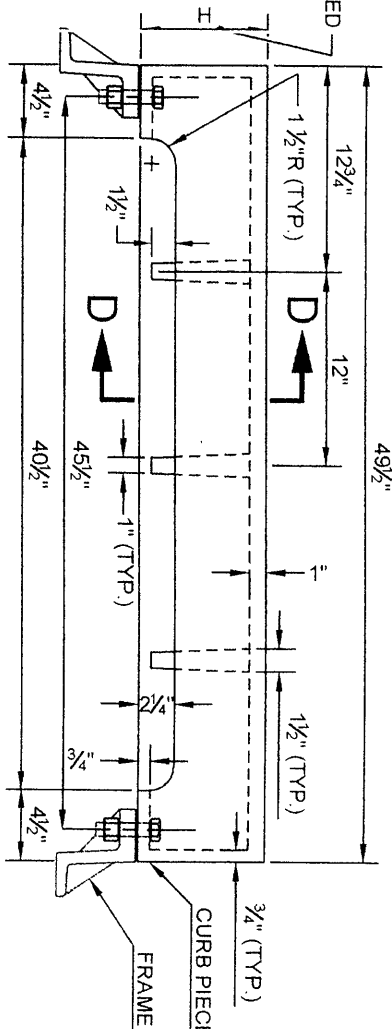


PLAN OF CURB PIECE

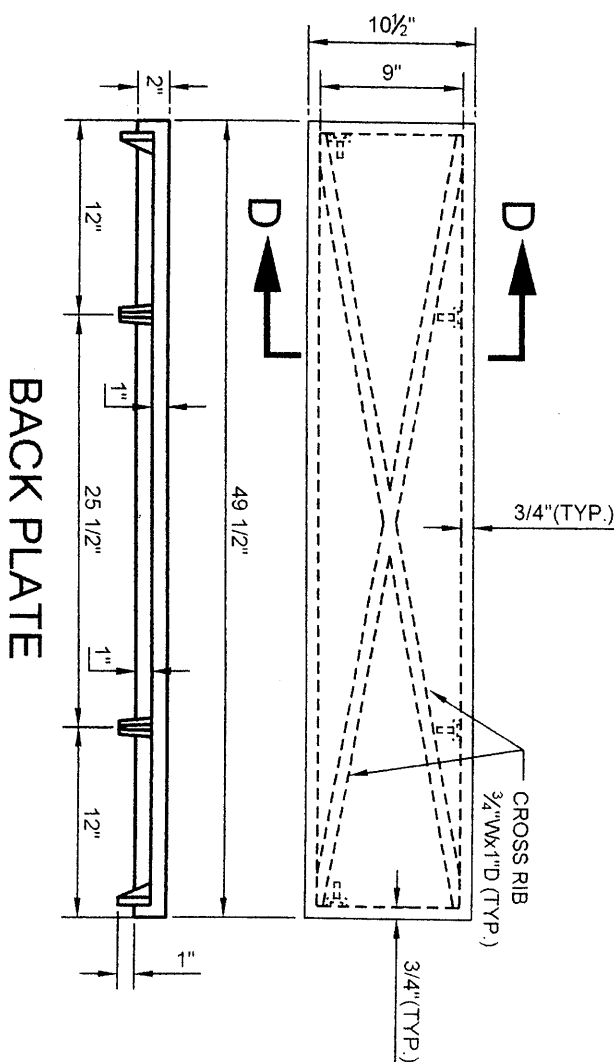
NOTES:

- (1) GRATING MATERIAL: GRAY CAST IRON ASTM A-48 CLASS 35B. MINIMUM WEIGHT OF TYPE R GRATING IS 425 LBS.
- (2) CURB PIECE MATERIAL: GRAY CAST IRON ASTM A-48 CLASS 35B. MINIMUM WEIGHT OF 6\"/>
- (3) BACK PLATE MATERIAL: GRAY CAST IRON ASTM A-48 CLASS 35B. MINIMUM WEIGHT IS 178 LBS.
- (4) DESIGN LOADING: HS20-44 HIGHWAY LOADING.
- (5) ALL MANHOLE FRAMES AND COVERS SHALL HAVE THE MANUFACTURERS IDENTIFICATION, CAST DATE OR HEAT NUMBER AND COUNTRY OF ORIGIN INTEGRALLY CAST ON INDIVIDUAL PIECES AT THE TIME OF MANUFACTURE IN ACCORDANCE WITH THE DEP SPECIFICATION.
- (6) TWO (2) - 3/4\"/>

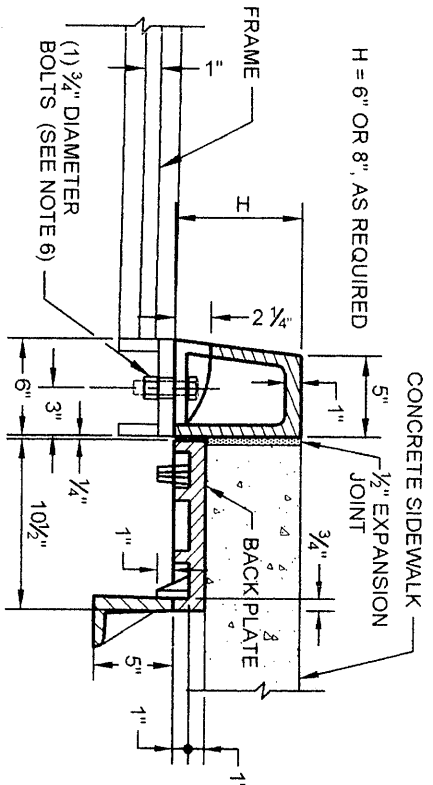
SECTION C-C ELEVATION OF CURB PIECE



SECTION A-A



SECTION D-D



SECTION B-B

THE FOLLOWING INFORMATION SHALL BE INCLUDED ON THE TOP SIDE OF THE BACK PLATE:

- * NAME OF PRODUCING FOUNDRY
- * DATE OF MANUFACTURE
- * PRODUCT NUMBER
- * CAST IRON ASTM A-48

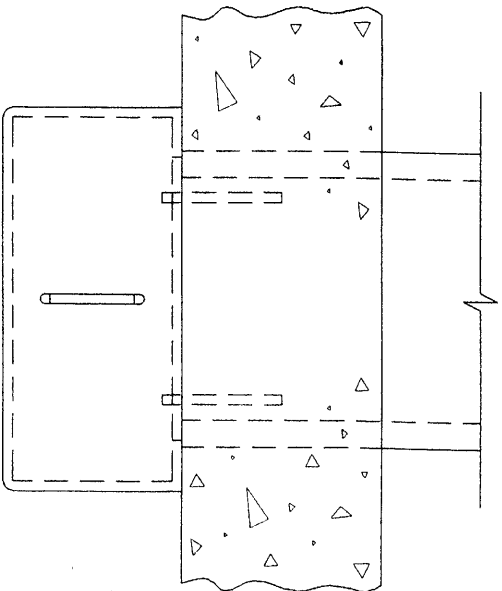
Luc M. Lamm
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION
P.E.

7/9/07
DATE

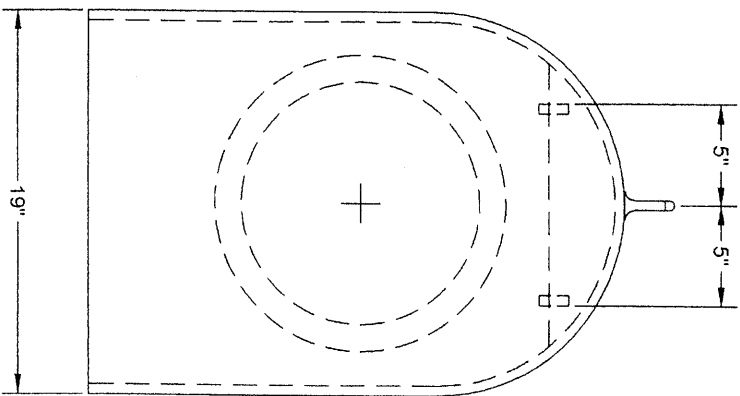
Mehdi Farah
P.E.

8/10/07
DATE

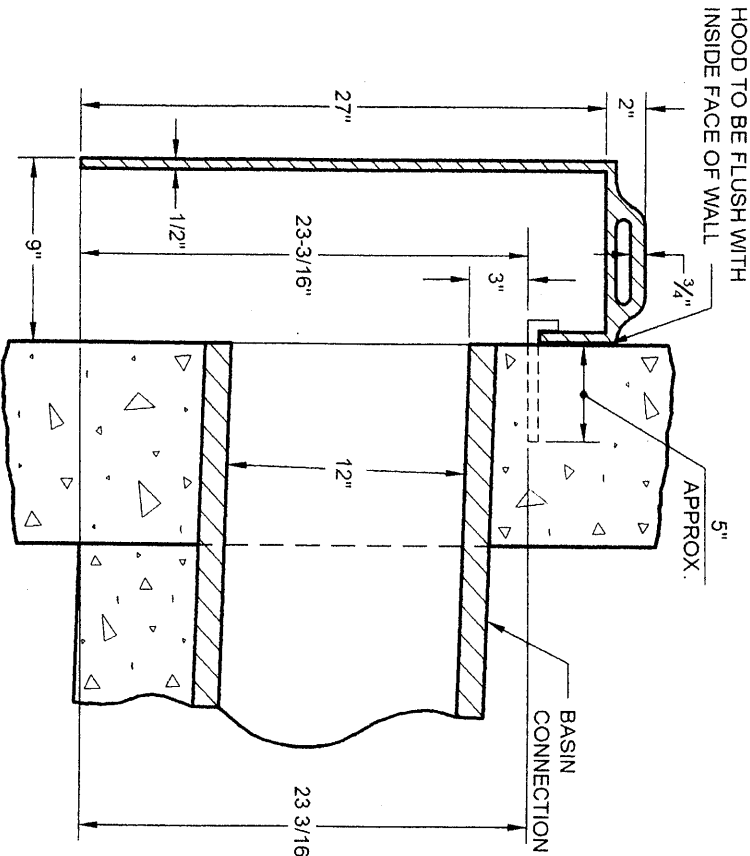
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
**STANDARD FOR CAST IRON
HOOD AND HOOKS FOR CATCH BASINS**



PLAN OF HOOD
IN PLACE



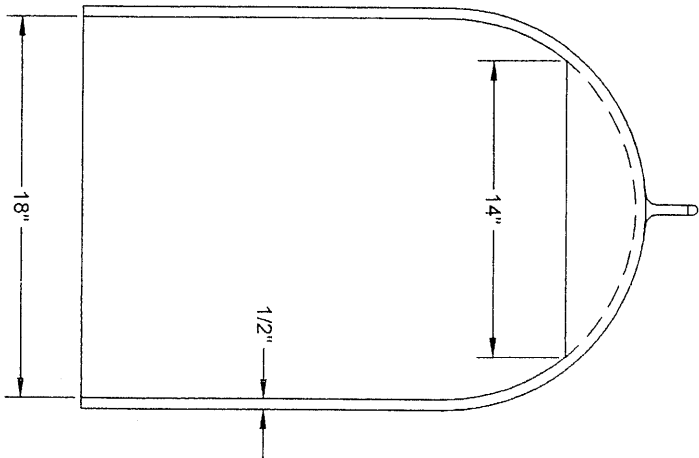
REAR ELEVATION
OF HOOD IN PLACE



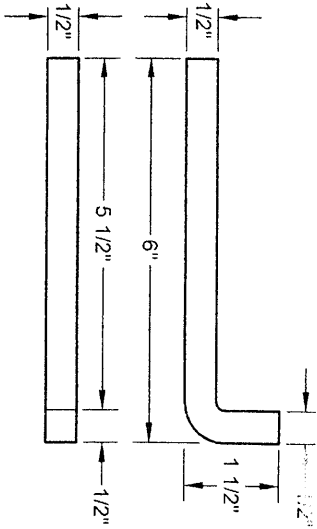
SECTION OF HOOD
IN PLACE

NOTES:

- (1) MATERIAL FOR HOOD: GRAY CAST IRON ASTM A-48 CLASS 35B. MINIMUM WEIGHT OF HOOD IS 140 LBS.
- (2) MATERIAL FOR HOOK: 18-8 STAINLESS STEEL 1/2" SQUARE BAR STOCK TYPE 303 ASTM A-582.
- (3) ALL CATCH BASIN HOODS SHALL HAVE THE MANUFACTURER'S IDENTIFICATION, CAST DATE OR HEAT NUMBER AND COUNTRY OF ORIGIN INTEGRALLY CAST ON INDIVIDUAL PIECES AT THE TIME OF MANUFACTURE IN ACCORDANCE WITH THE DEP SPECIFICATION.



FRONT ELEVATION
OF HOOD



HOOK DETAIL
(2 REQUIRED)

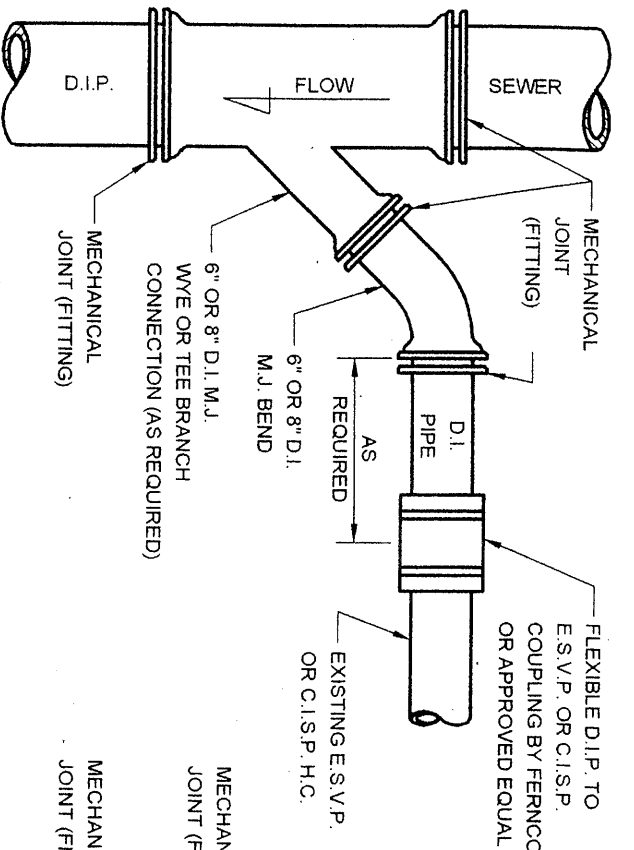
Agel M. Leann P.E.
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION

DATE
7/9/07

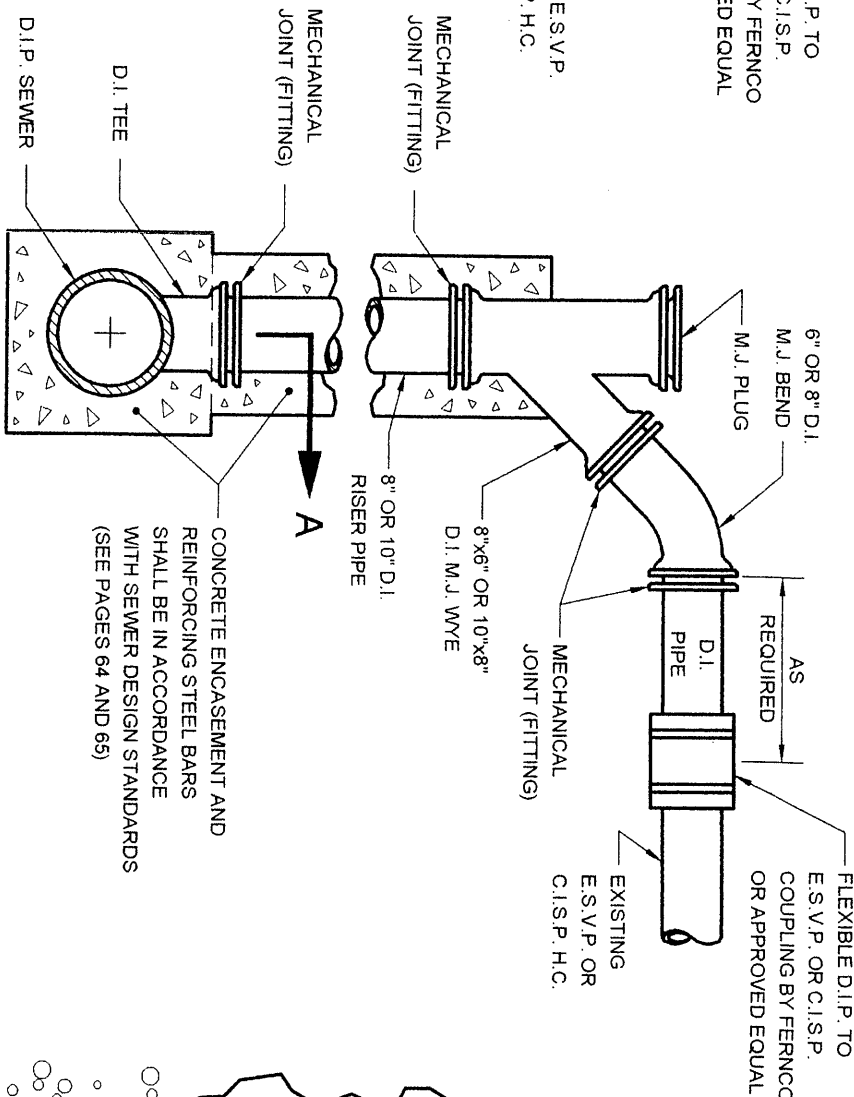
Imedi Farooq P.E.
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DATE
8/10/07

STANDARD FOR DUCTILE IRON PIPE ALTERNATE



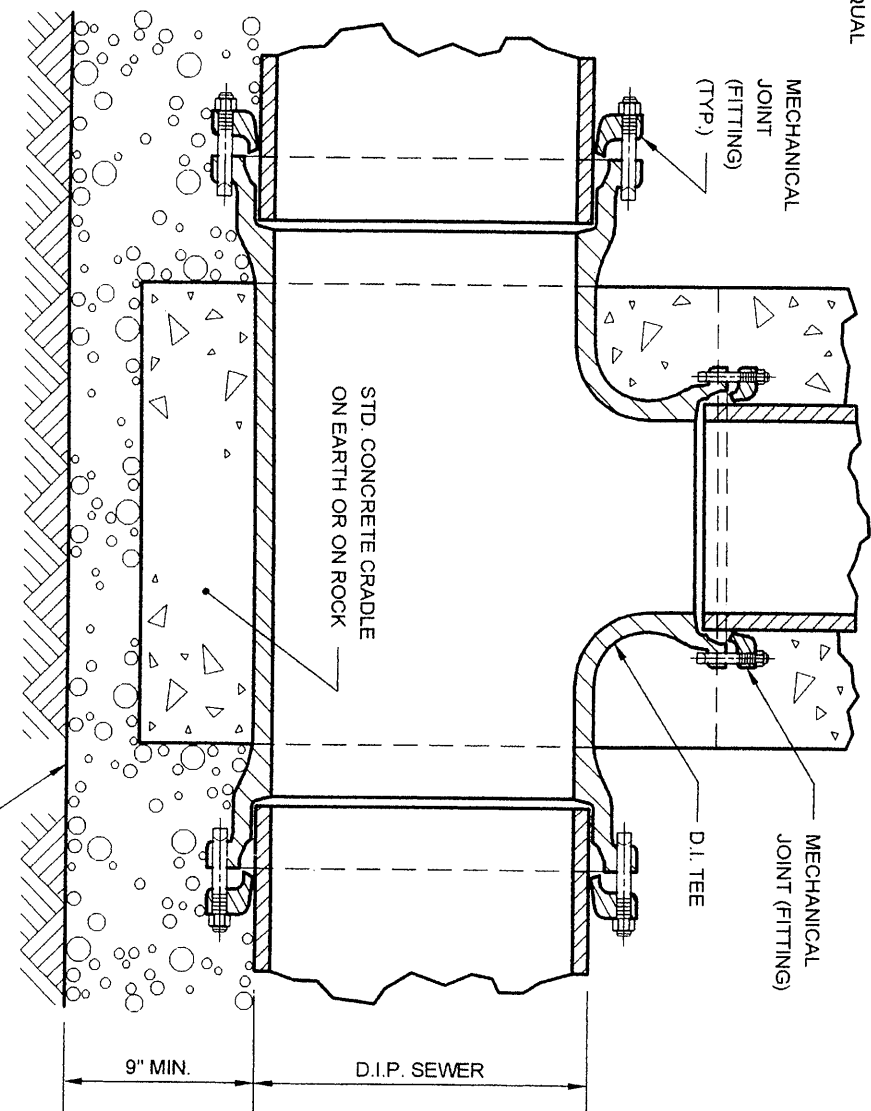
PLAN
TYPICAL HOUSE CONNECTION
(D.I.P.) OFF D.I.P. SEWER



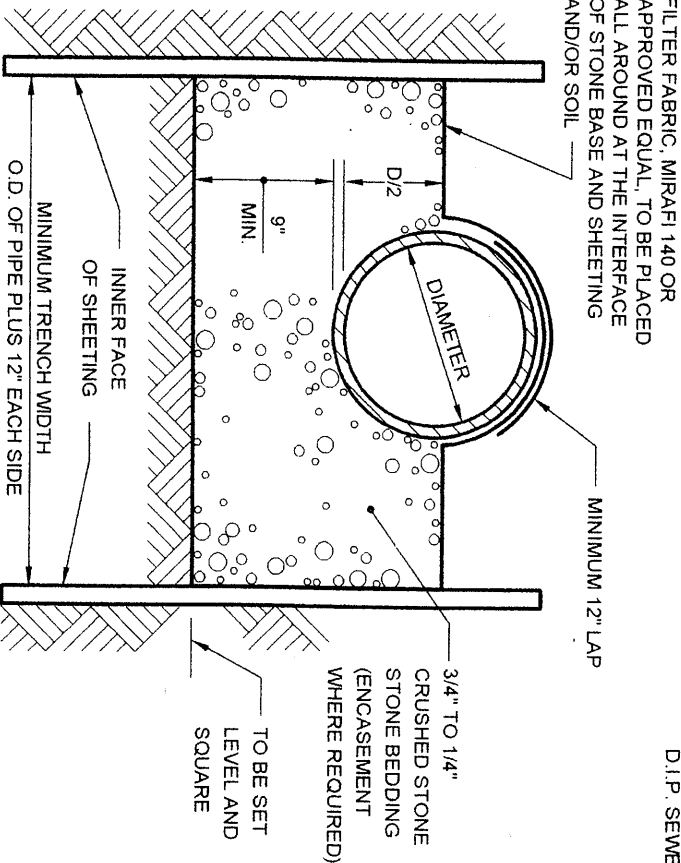
TYPICAL D.I.P. RISER FOR HOUSE
CONNECTION OFF D.I.P. SEWER

NOTES:

- (1) THIS ALTERNATE WILL BE PERMITTED ONLY WHEN SO STATED IN THE SPECIFICATIONS.
- (2) MATERIAL: THE DUCTILE IRON PIPE SHALL BE 60-42-10 GRADE AND CLASS 56, UNLESS OTHERWISE SPECIFIED. THE DUCTILE IRON PIPE SHALL BE LINED WITH CERAMIC EPOXY.
- (3) JOINTS: (A) ALL JOINTS FOR DUCTILE IRON PIPE SEWERS SHALL BE "PUSH-ON" JOINT TYPE, EXCEPT AS NOTED ABOVE FOR SPUR AND RISER PIPE WHICH SHALL BE MECHANICAL JOINT TYPE, MEETING THE REQUIREMENTS OF ANSI STANDARD A.21.11, LATEST REVISION.
(B) JOINTS SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS FOR ASSEMBLING THE TYPE OF JOINT FURNISHED.
(C) FITTINGS SHALL BE DUCTILE IRON OR GRAY IRON (250 PSI) MECHANICAL JOINTS IN ACCORDANCE WITH THE LATEST REVISIONS OF ANSI/AWWA C110/A21.10 AND ANSI/AWWA C111/A21.11.
- (4) LEVELING BLOCKS ARE NOT PERMITTED.



SECTION A-A



SUBSTITUTION
CHART

PIPE DIA.	
FOR	USE
E.S.V.P.	D.I.P.
15"	16"

Legi M. Loran

P.E.

DATE

7/9/07

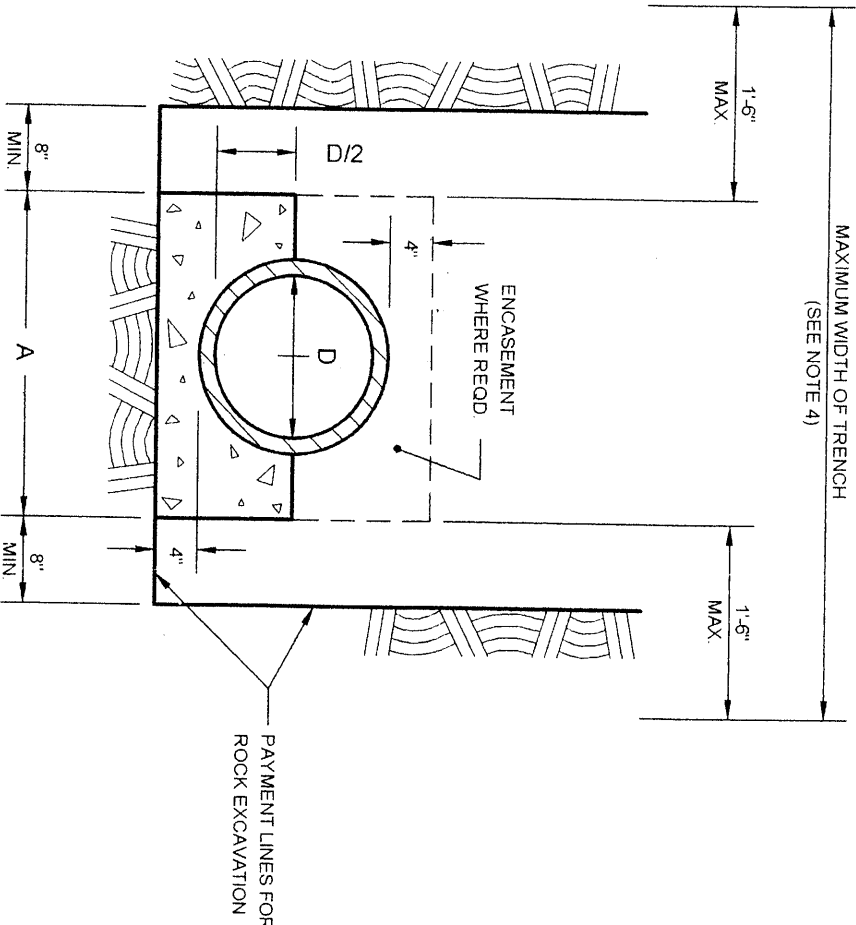
Maedi Fara

P.E.

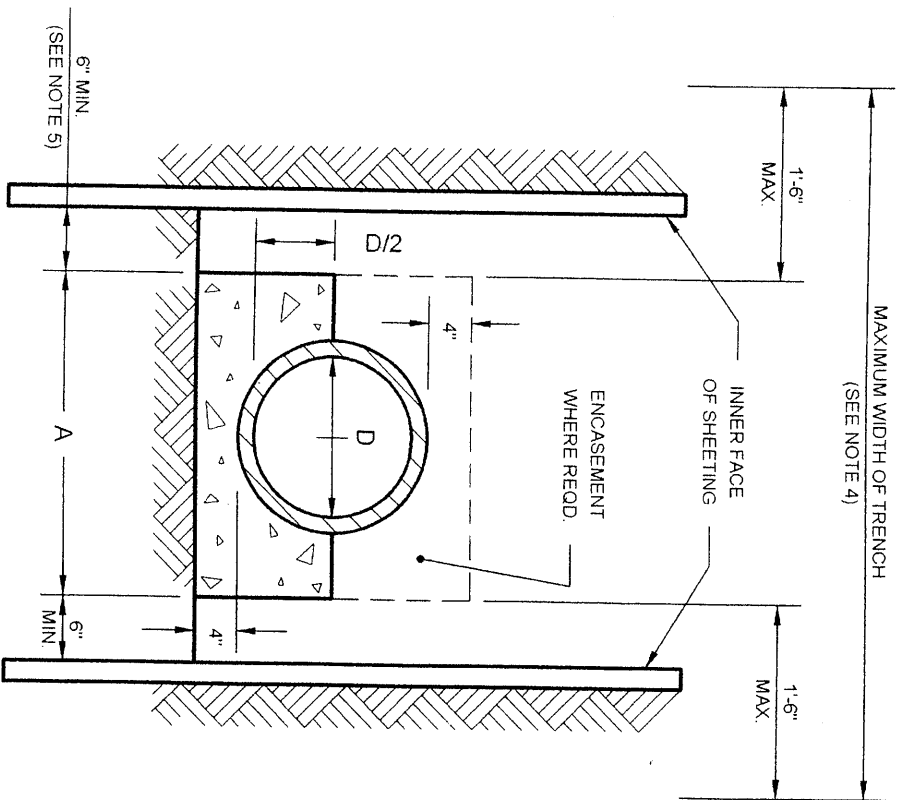
DATE

8/10/07

STANDARD FOR HOUSE CONNECTIONS
(FOR 6" AND 8" DIA. CAST IRON SOIL PIPE OR VITRIFIED CLAY PIPE
ON CONCRETE CRADLE OR ENCASED IN CONCRETE ON EARTH OR ON ROCK)



SECTION ON ROCK



SECTION ON EARTH

NOTES:

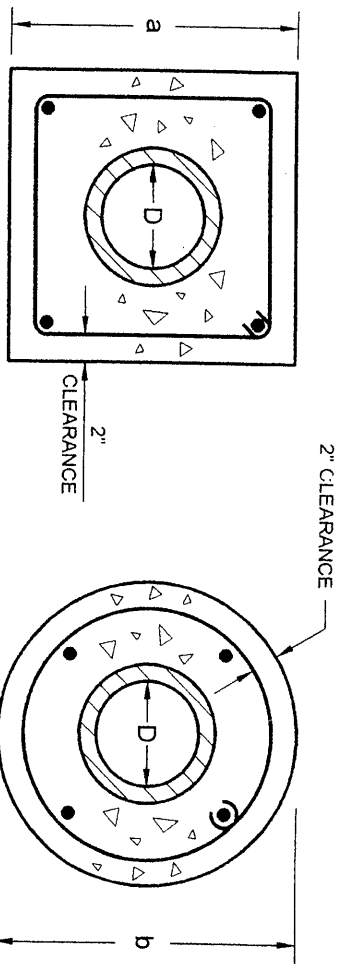
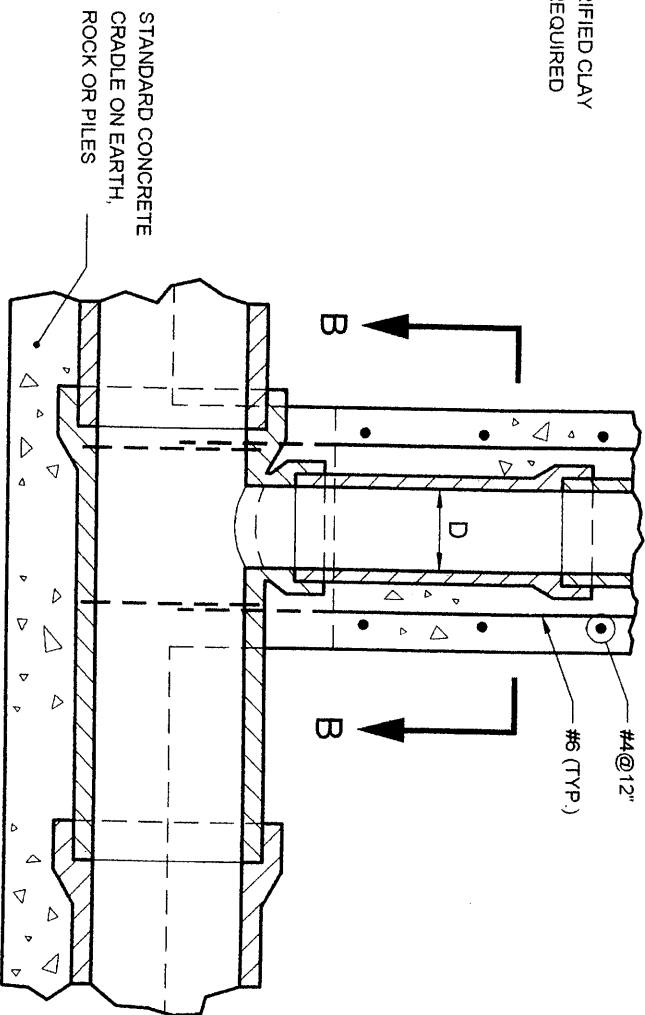
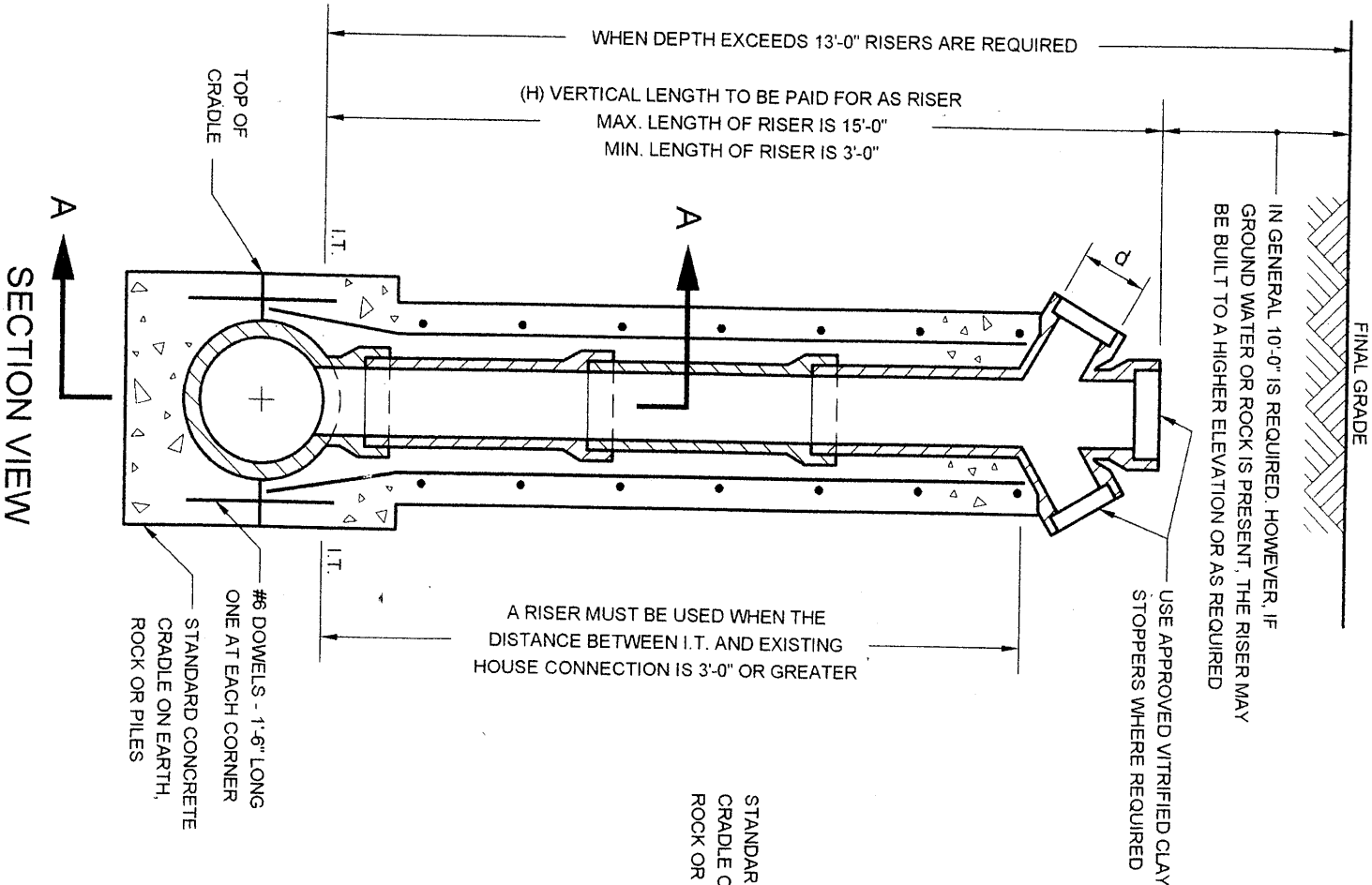
- (1) CRADLE AND ENCASEMENT ARE CLASS 40 CONCRETE FOR ALL HOUSE CONNECTIONS.
- (2) ENTIRE CRADLE OR ENCASEMENT IS TO BE PLACED MONOLITHICALLY.
- (3) ENCASEMENT REQUIRED ON H.C. PIPE WHICH HAS A COVER, FROM FINAL GRADE TO THE OUTER TOP OF THE PIPE, OF LESS THAN THREE (3) FEET OR WHEN THE UPPER LIMIT OF COVER IS EXCEEDED.
- (4) UNLESS OTHERWISE APPROVED BY THE ENGINEER, THE MAXIMUM WIDTH OF TRENCH BETWEEN INNER FACES OF THE LOWEST STAGE OF SHEETING OR ROCK CUT LINES, FROM SUBGRADE OF TRENCH TO A MINIMUM HEIGHT OF TWO (2) FEET ABOVE THE OUTER TOP OF THE PIPE, SHALL NOT EXCEED THE WIDTH OF THE CRADLE BY MORE THAN THREE (3) FEET (1'-6" MAXIMUM EACH SIDE OF CRADLE).
- (5) SIX (6) INCH MINIMUM SHALL BE MAINTAINED AT ALL TIMES, EXCEPT WHERE SHEETING IS TO BE USED AS FORMWORK.

D	A	MAX COVER WITHOUT ENCSMT.	CONC. CRADLE CU. YD./L.F.	CONC. ENCSMT. CU. YD./L.F.
6"	1'-4"	20'	0.0262	0.0523
8"	1'-6"	22'	0.0315	0.0630

Agat M. Savan
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION
P.E.
7/9/07
DATE

Madi Faruqi
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
P.E.
8/10/07
DATE

STANDARD FOR RISER ON 10" DIA. TO 18" DIA.
VITRIFIED CLAY PIPE SEWERS ON CONCRETE CRADLE



SECTION A-A

SECTION B-B

SHAPE OF ENCASEMENT TO BE OPTIONAL

NOTES:

- (1) ALL PIPES AND FITTINGS SHALL BE EXTRA STRENGTH FULL DIAMETER VITRIFIED CLAY.
- (2) THE COST OF ADDITIONAL CONCRETE, STEEL REINFORCEMENT BARS AND VITRIFIED CLAY RISER PIPE AND FITTINGS REQUIRED SHALL BE INCLUDED IN THE PRICE BID FOR RISERS.
- (3) KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POURS.
- (4) USE STANDARD "Y" OR "DOUBLE Y" FITTING AS REQUIRED.
- (5) CONCRETE IS TO BE CLASS 40, REBARS- GRADE 60.

D	d	a	b
8"	6"	22"	23"
10"	8"	24"	25"

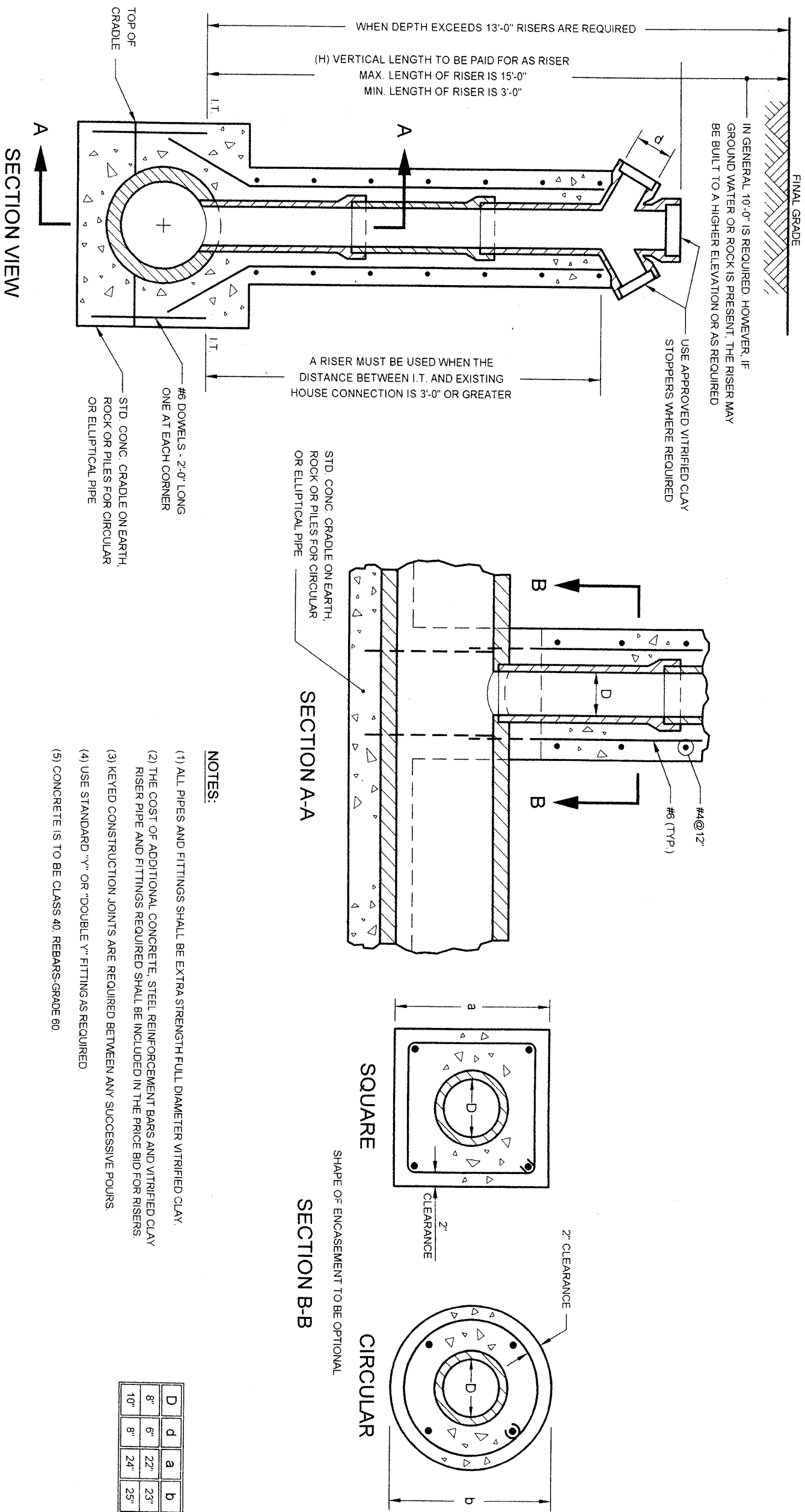
Paul M. Lanan
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION
P.E.

7/9/07
DATE

Wesley J. Fung
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
P.E.

8/10/07
DATE

STANDARD FOR RISER ON PRECAST REINFORCED
CONCRETE PIPE SEWERS ON CONCRETE CRADLE



NOTES:

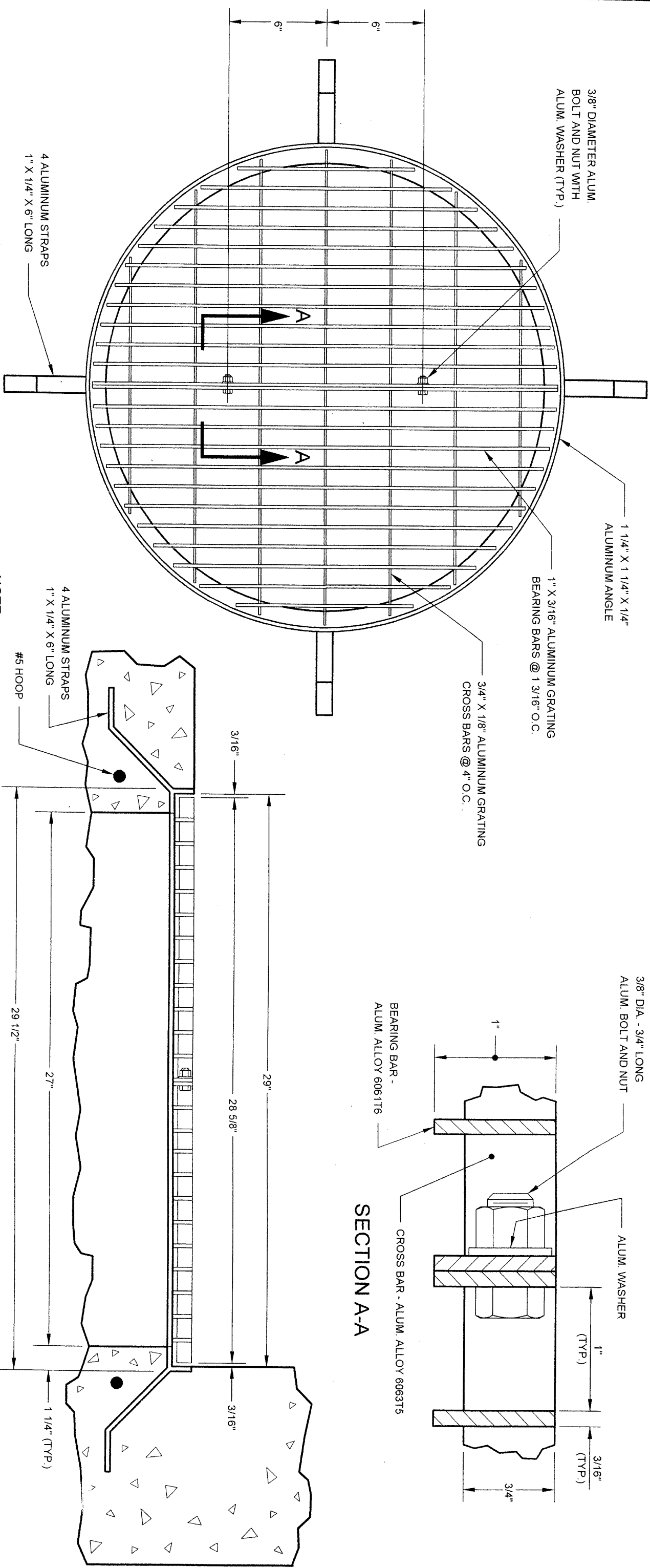
- (1) ALL PIPES AND FITTINGS SHALL BE EXTRA STRENGTH FULL DIAMETER VITRIFIED CLAY.
- (2) THE COST OF ADDITIONAL CONCRETE, STEEL REINFORCEMENT BARS AND VITRIFIED CLAY RISER PIPE AND FITTINGS REQUIRED SHALL BE INCLUDED IN THE PRICE BID FOR RISERS.
- (3) KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POURS.
- (4) USE STANDARD "Y" OR "DOUBLE Y" FITTINGS AS REQUIRED
- (5) CONCRETE IS TO BE CLASS 40, REBARS-GRADE 60

D	d	a	b
8"	6"	22"	23"
10"	8"	24"	25"

Jose M. Loran
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION
P.E.
7/9/07
DATE

Maedi Fawad
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
P.E.

8/10/07
DATE

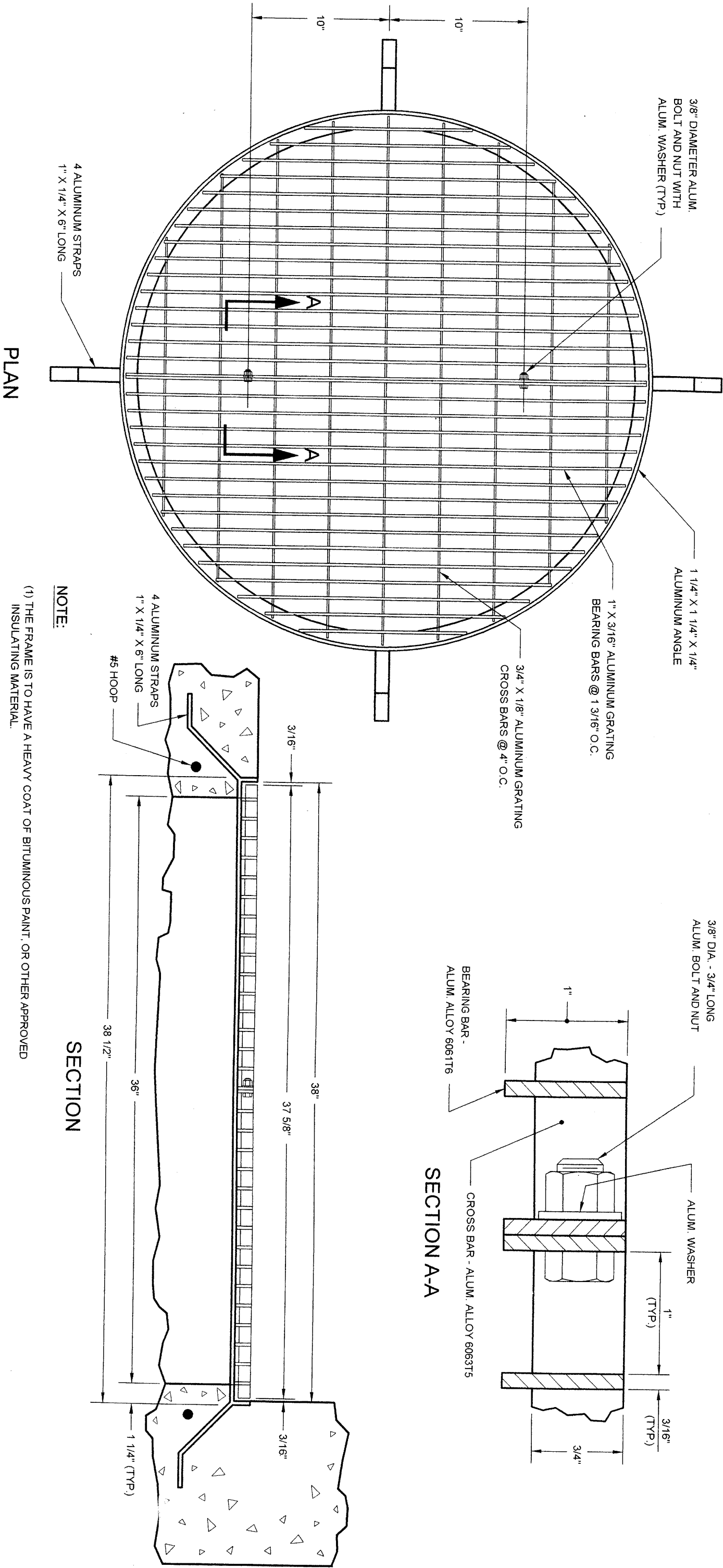


SECTION

- (1) THE FRAME IS TO HAVE A HEAVY COAT OF BITUMINOUS PAINT, OR OTHER APPROVED INSULATING MATERIAL.
- (2) TYPE "A" OR TYPE "B" ALUMINUM GRATINGS MAY BE USED. HOWEVER, ONE TYPE OF GRATING SHALL BE USED EXCLUSIVELY THROUGHOUT ANY PROJECT.

DATE _____

STANDARD FOR 36" DIAMETER ALUMINUM FLOOR GRATING



NOTE:

- (1) THE FRAME IS TO HAVE A HEAVY COAT OF BITUMINOUS PAINT, OR OTHER APPROVED INSULATING MATERIAL.
- (2) TYPE "A" OR TYPE "B" ALUMINUM GRATINGS MAY BE USED, HOWEVER, ONE TYPE OF GRATING SHALL BE USED EXCLUSIVELY THROUGHOUT ANY PROJECT.

SECTION

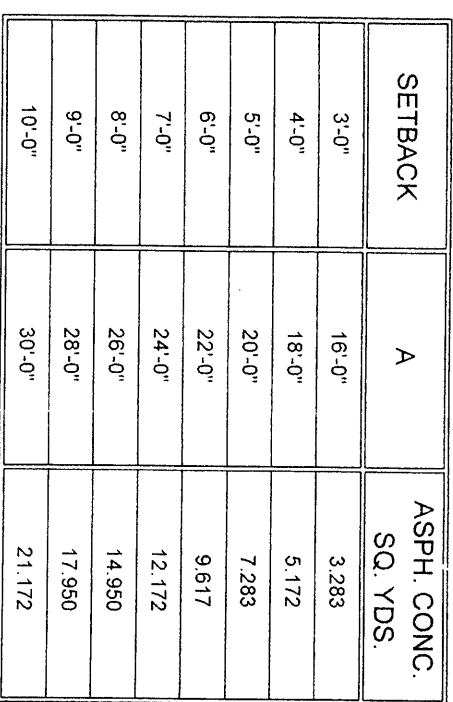
SECTION A-A

Joseph M. Lavan

7/9/07

Wadei Fane

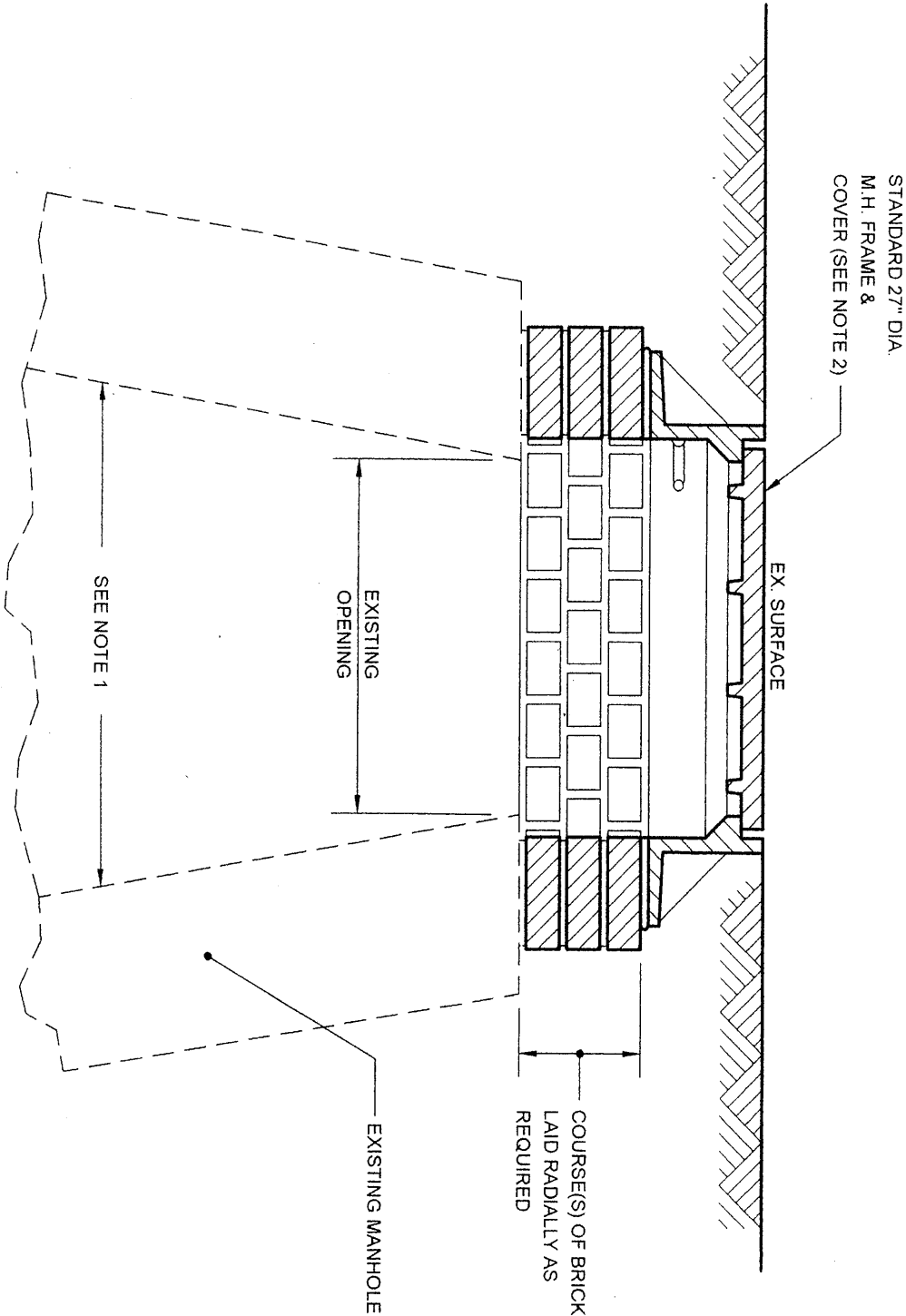
8/10/07



DATE _____

8/10/07

STANDARD FOR RECONSTRUCTION OF EXISTING MANHOLE
AND REPLACEMENT OF EXISTING M.H. FRAME AND COVER



NOTES:

(1) AT ALL LOCATIONS SHOWN ON THE PLANS, SPECIFIED IN THE CONTRACT DOCUMENTS OR ORDERED BY THE RESIDENT ENGINEER REQUIRING THE RECONSTRUCTION OF EXISTING MANHOLES, THE FOLLOWING WORK SHALL BE PERFORMED:

(A) ON GUNTED SEWERS:

FROM THE INNER TOP OF THE LARGEST SEWER TO THE BOTTOM OF THE CASTING, ALL LOOSE AND MISSING BRICK, MASONRY OR CONCRETE SHALL BE REPAIRED AND/OR REMOVED AS DIRECTED BY THE RESIDENT ENGINEER AND ALL DEBRIS, EXCESS MORTAR, ETC. SHALL BE REMOVED SO THAT THE FACE OF THE MANHOLE WALLS IS LEFT SMOOTH AND CLEAN. IF ANY STEP(S) IS DAMAGED OR UNSAFE, ALL THE STEPS IN THE MANHOLE CHIMNEY SHALL BE REMOVED AND NOT REPLACED. FINALLY, THE WHOLE AREA SHALL BE PARGED OR FLASHED (RECEIVE A ONE HALF (1/2) INCH MINIMUM FINISHING COAT OF MORTAR WITH A FLOAT FINISH).

(B) ON LINED SEWERS:

FROM THE INVERT OF THE MANHOLE TO THE BOTTOM OF THE CASTING, ALL LOOSE AND MISSING BRICK, MASONRY OR CONCRETE SHALL BE REPAIRED AND/OR REMOVED AS DIRECTED BY THE RESIDENT ENGINEER AND ALL DEBRIS, EXCESS MORTAR, ETC. SHALL BE REMOVED SO THAT THE FACES OF THE MANHOLE WALLS AND THE INVERT ARE LEFT SMOOTH AND CLEAN. IF ANY STEP(S) IS DAMAGED OR UNSAFE, ALL STEPS IN THE MANHOLE CHIMNEY SHALL BE REMOVED AND NOT REPLACED. FINALLY, THE WHOLE AREA SHALL BE PARGED OR FLASHED (RECEIVE A ONE HALF (1/2) INCH MINIMUM FINISHING COAT OF MORTAR WITH A FLOAT FINISH). (THE INVERT DISH SHALL RECEIVE A PROPORTIONATELY THICKER FINISH COAT SO AS TO PROVIDE A SMOOTH TRANSITION FROM EXISTING SEWER TO THE INSIDE SURFACE OF THE LINER.)

(2) AT ALL LOCATIONS SHOWN ON THE PLANS, SPECIFIED IN THE CONTRACT DOCUMENTS OR ORDERED BY THE RESIDENT ENGINEER REQUIRING THE REPLACEMENT OF EXISTING MANHOLE FRAMES AND COVERS, THE CONTRACTOR SHALL REMOVE EXISTING MANHOLE FRAMES AND COVERS WHICH ARE TWENTY FOUR (24) INCHES IN DIAMETER OR OTHERWISE DAMAGED, DEFECTIVE OR NONSTANDARD AND REPLACE THEM WITH NEW STANDARD TWENTY SEVEN (27) INCH CAST IRON MANHOLE FRAMES AND COVERS.

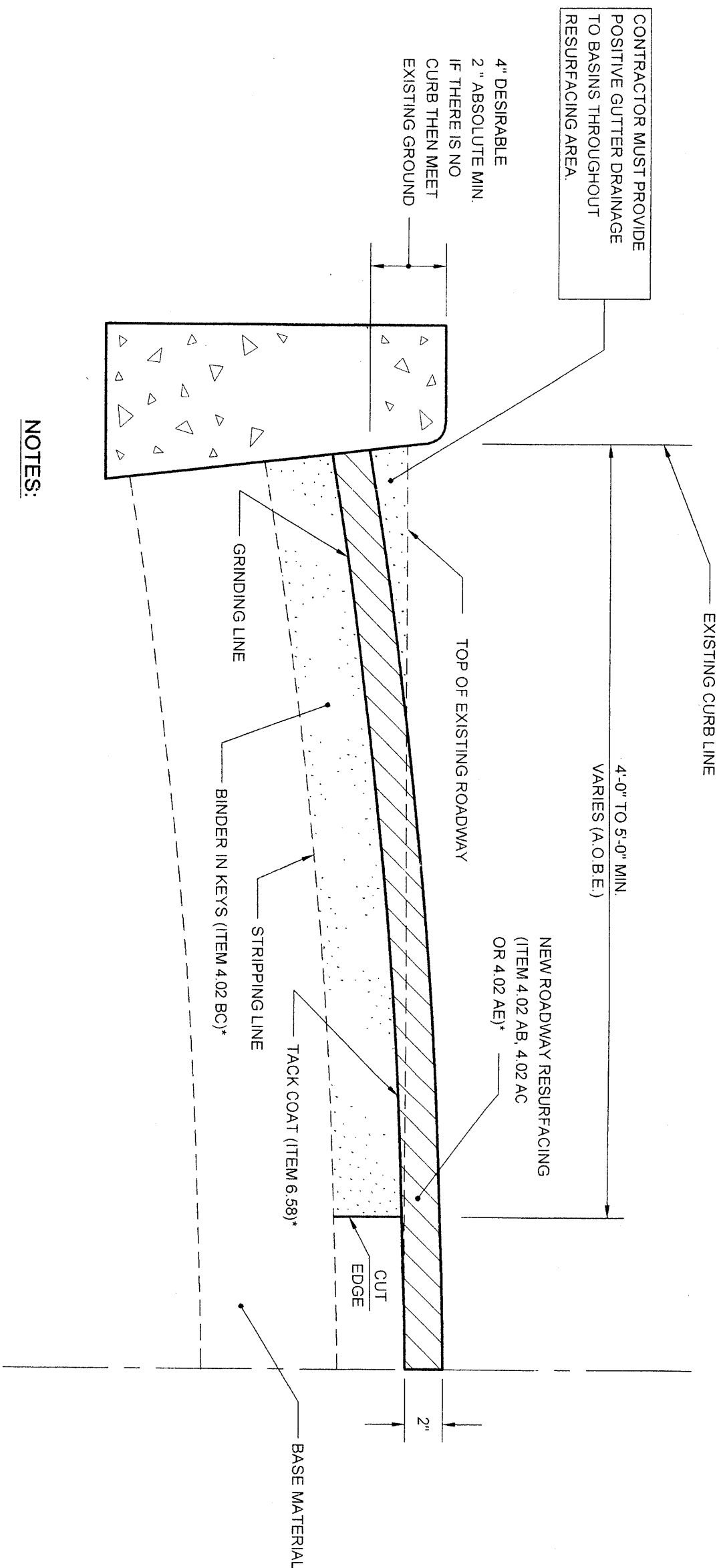
[Signature]
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION
P.E.

DATE
7/9/07

[Signature]
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
P.E.

DATE
8/10/07

STANDARD FOR ROADWAY RESURFACING
(PAVEMENT KEY - TYPE B)



NOTES:

- (1) CONTRACTOR MAY AT HIS OPTION EITHER STRIP OR GRIND THE AREA TO THE REQUIRED DEPTH.
- (2) ALL CITY OWNED CASTINGS TO BE ADJUSTED TO MATCH NEW ROADWAY.
- (3) PAVEMENT KEY IS TYPE B (6.51)*.
- (4) (A.O.B.E.) - AS ORDERED BY ENGINEER.
- (5) * - REFER TO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS. (6) ALL COSTS REQUIRED TO PERFORM THIS WORK SHALL BE DEEMED INCLUDED IN THE PRICE BID PER TON FOR ASPHALT CONCRETE MIXTURE. NO SEPARATE OR ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.

John W. Loran
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION
P.E.

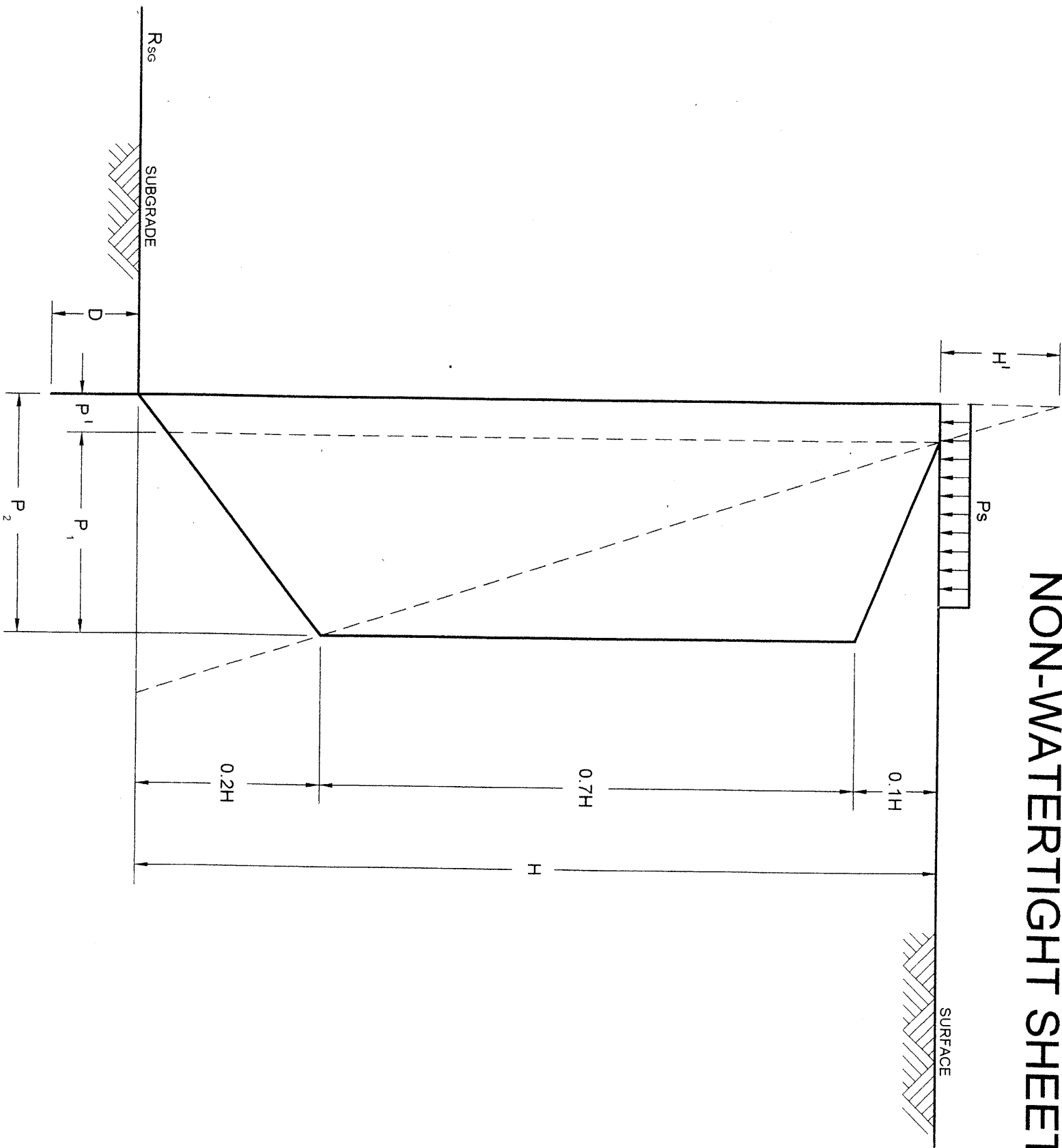
DATE
7/9/07

Maedi Faruqi
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

DATE
8/10/07

STANDARD FOR MINIMUM LOAD DIAGRAM FOR
NON-WATERTIGHT SHEETING DESIGN



DESIGN CRITERIA:

γ = UNIT WEIGHT OF SOIL

γ_w = UNIT WEIGHT OF WATER

γ_s = UNIT WEIGHT OF SUBMERGED SOIL

\emptyset = ANGLE OF INTERNAL FRICTION OF SOIL

$K_{ra} = \frac{(1-\sin\emptyset)}{(1+\sin\emptyset)}$ FOR ACTIVE EARTH PRESSURE

$K_{rp} = \frac{(1+\sin\emptyset)}{(1-\sin\emptyset)}$ FOR PASSIVE EARTH PRESSURE

$H' = 3$ FEET MINIMUM

$P_s = \gamma \times H' =$ SURCHARGE-MIN. 300 PSF

$P_1 = K_{ra} \times P_s$

$P_1 = (0.8K_{ra}) \times \gamma \times H$

$P_2 = P_1 + P_1$

$$D = \sqrt{\frac{2R_{sg}}{\gamma (K_{rp} - K_{ra})}}$$

NOTES:

(1) THIS CRITERIA IS FOR BRACED SHEETING ONLY.

(2) FOR FACTOR OF SAFETY FOR TOE PENETRATION
SEE SECTION 4.05.6 - "DESIGN CRITERIA".

Greg M. Lamm
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION

P.E.

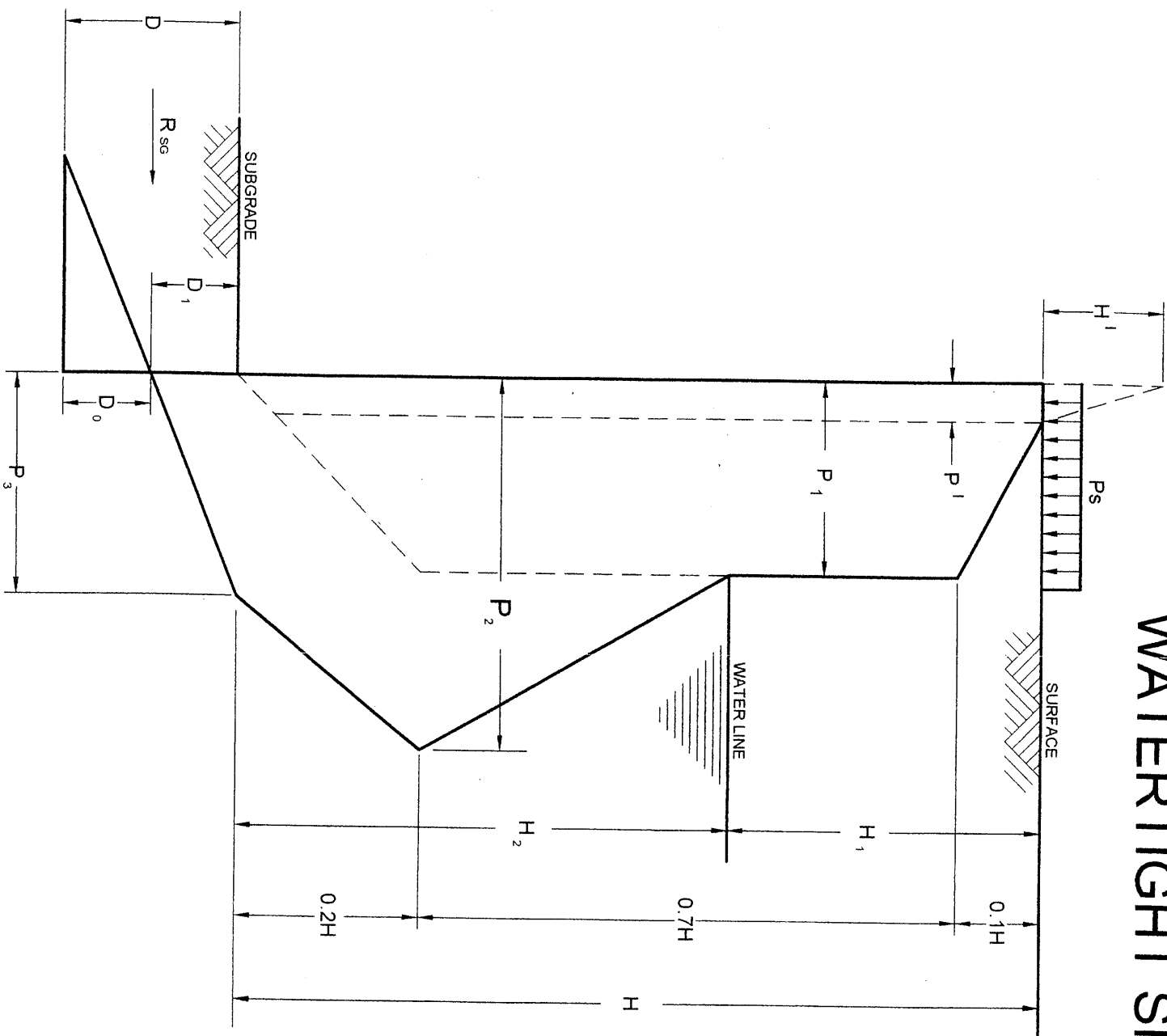
DATE *7/19/07*

Wade D. Fong
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

DATE *8/10/07*

STANDARD FOR MINIMUM LOAD DIAGRAM FOR WATERTIGHT SHEETING DESIGN



DESIGN CRITERIA:

- γ = UNIT WEIGHT OF SOIL
- γ_w = UNIT WEIGHT OF WATER
- γ_s = UNIT WEIGHT OF SUBMERGED SOIL
- \emptyset = ANGLE OF INTERNAL FRICTION OF SOIL
- $K_{ra} = \frac{(1-\sin\emptyset)}{(1+\sin\emptyset)}$ FOR ACTIVE EARTH PRESSURE
- $K_{rp} = \frac{(1+\sin\emptyset)}{(1-\sin\emptyset)}$ FOR PASSIVE EARTH PRESSURE
- $H' = 3$ FEET MINIMUM
- $P_s = \gamma \times H' =$ SURCHARGE-MIN. 300 PSF
- $P_1 = K_{ra} \times P_s$
- $P_1 = P_1' + (0.8K_{ra}) \times (\gamma H_1 + \gamma_s H_2)$
- $P_2 = P_1 + \gamma_w (H_2 - 0.2H)$
- $P_3 = \gamma_w \times H_2$
- $D_1 = \frac{P_3}{\gamma_s (K_{rp} - K_{ra})}$
- $D_0 = \sqrt{\frac{2R_{sg}}{\gamma_s (K_{rp} - K_{ra})}}$
- $D = D_1 + D_0$

NOTES:

- (1) THIS CRITERIA IS FOR BRACED SHEETING ONLY.
- (2) FOR FACTOR OF SAFETY FOR TOE PENETRATION SEE SECTION 4.05.6 - "DESIGN CRITERIA".

Ray M. Lamm
ASSISTANT COMMISSIONER, DESIGN
DEPARTMENT OF DESIGN AND CONSTRUCTION

P.E.

DATE

Maedi Lamm
DIRECTOR OF ENGINEERING
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

DATE