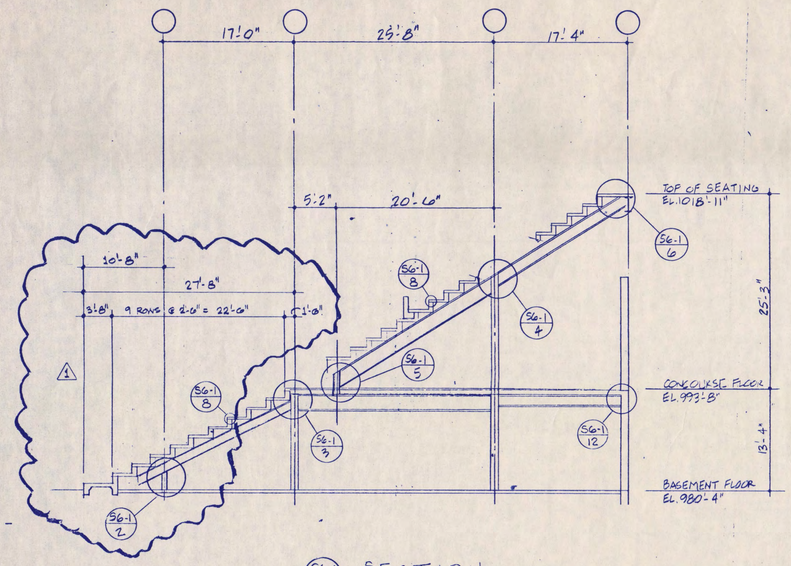
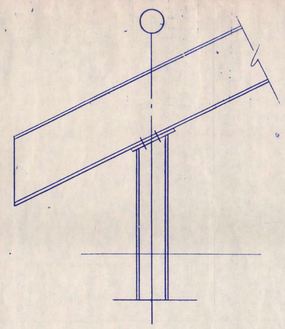
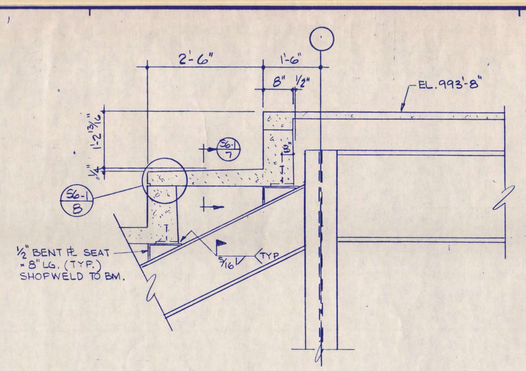


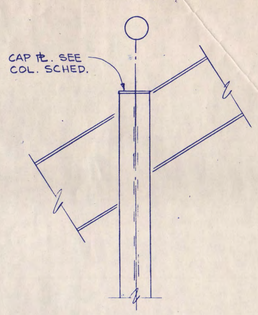
S6-1 / 1 SECTION
1/8"=1'-0"



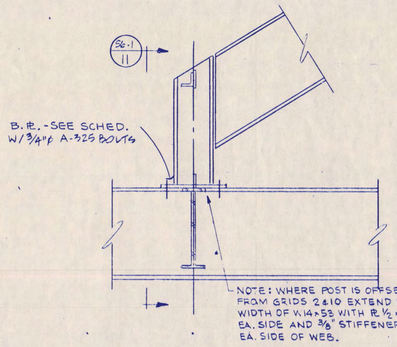
S6-1 / 2 SECTION
3/4"=1'-0"



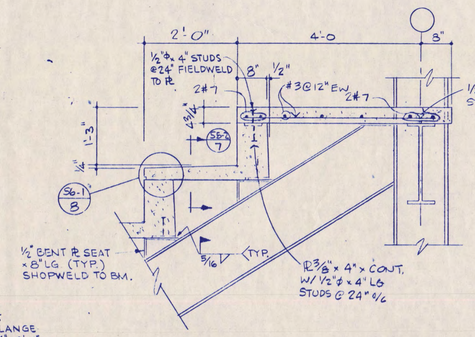
S6-1 / 3 SECTION
3/4"=1'-0"



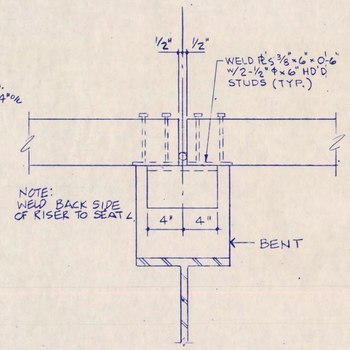
S6-1 / 4 SECTION
3/4"=1'-0"



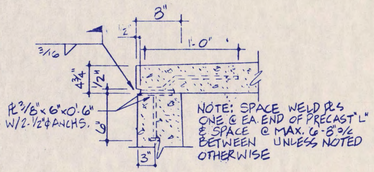
S6-1 / 5 SECTION
3/4"=1'-0"



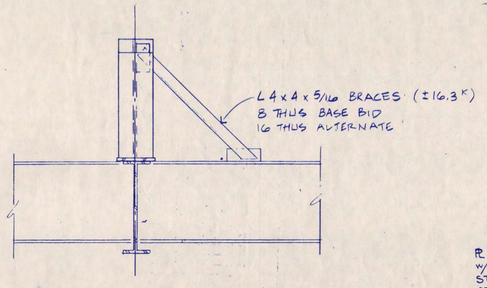
S6-1 / 6 SECTION
3/4"=1'-0"



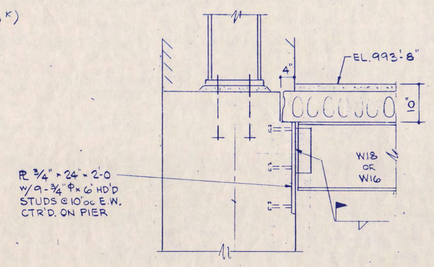
S6-1 / 7 SECTION
1 1/2"=1'-0"



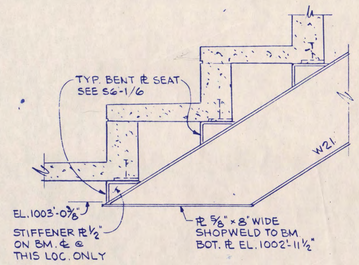
S6-1 / 8 DETAIL
1 1/2"=1'-0"



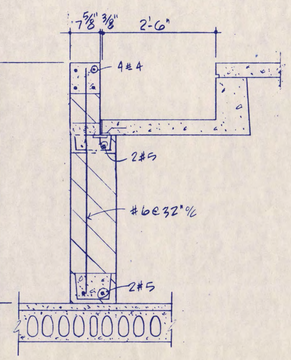
S6-1 / 11 ELEVATION
3/4"=1'-0"



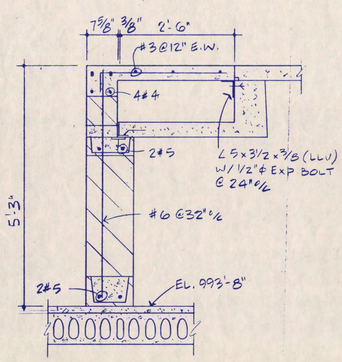
S6-1 / 12 DETAIL
3/4"=1'-0



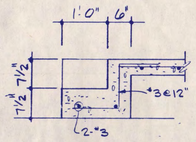
S6-1 / 13 DETAIL
3/4"=1'-0



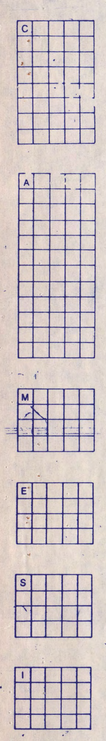
S6-1 / 9 SECTION
3/4"=1'-0"



S6-1 / 10 SECTION
3/4"=1'-0"



S6-1 / 14 SECTION
3/4"=1'-0"



Revision	Date	No.
CD REVIEW ISSUE	7/12/88	
ISSUED FOR BIDDING	9-9-88	
BULLETIN NO. 2	4-12-89	1

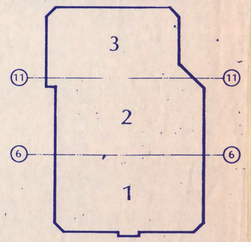
SHEET NOTES

1. FOR DESIGN OF PRECAST SEATING ELL'S SEE GEN. STRUCT. NOTE NO. 6

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Scott E. Saunders

Date 7/12/88 Reg. No. 10889



KEY PLAN

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55425
(612) 853-2000

©Ellerbe 1988

FRAMING SECTIONS & DETAILS

Scale AS NOTED

Date SEP. 9, 1988 Comm. No. 8766-871

In Charge SES

Drawn By JTL

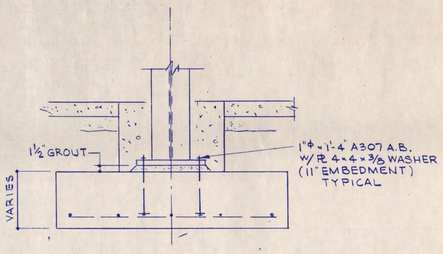
Checked By SES

S6-1

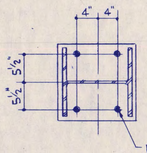
E-1392-1188

COLUMN SCHEDULE (BASE BID)

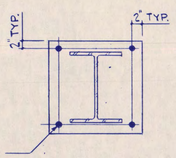
COLUMN MARK		B-2, M-2 B-3, M-3 B-4, M-4 B-5, M-5 B-6, M-6 B-7, M-7 B-8, M-8 B-9, M-9 B-10, M-10	C-2	C-3 C-4 C-5 C-7 C-8 C-9	C-6	C-10	C.8-2 C.8-3 C.8-4 C.8-5 C.8-7 C.8-8 C.8-9	C.8-10	E-2 E-10 G-2	F-2 F-10 H-2 H-10	G-10 J-2 J-10	H.6-3 H.6-4 H.6-5 H.6-7 H.6-8 H.6-9	K-2 K-10	K-3 K-4 K-5 K-6 K-7 K-8 K-9	K-11	K.3-2 K.3-3 K.3-4 K.3-5 K.3-7 K.3-8 K.3-9 K.3-10	L-2 L-3 L-4 L-5 L-7 L-8 L-9 L-10	L-6
TOP OF COL. OR CAP PL ELEV.		VARIES	1008'-6"	1008'-6"	SLOPED	1008'-6"	—	—	VARIES	1024'-9"	VARIES	SLOPED	992'-10"	992'-10"	—	—	1008'-6"	SLOPED
CAP PL		3/4"	3/4"	3/4"	3/4"	3/4"	—	—	—	—	—	3/4"	3/4"	3/4"	—	—	3/4"	3/4"×16"×1'-4"
UPPER SEATING OR LOW ROOF LEVEL	SIZE	W14×90	W14×61	W14×43	W14×43	W14×61	W10×49	W10×49	W14×90	60"Φ	W14×90	W10×49	W14×61	W14×43	W8×48	W10×49	W14×61	W14×61
	VERT.									23-#11								
	TIES									#4@12" HOOPS								
										1008'-2"								
CONCOURSE LEVEL EL. 993'-8"	SIZE									60"Φ								
	VERT.									46-#11								
	TIES									#4@12" HOOPS								
										993'-6"								
BASEMENT LEVEL EL. 980'-4"	SIZE	32"×34½"				24×24		24×24	24×24	60"Φ								
	VERT.	8-#10				8-#8		8-#8	8-#8	46-#11								
	TIES	#4@12"				#4@12"		#4@12"	#4@12"	#4@12" HOOPS								
	DOWELS	8-#10	—	—	—	8-#8	—	8-#8	8-#8	46-#11	—	—	—	—	—	—	—	—
BASE PL SIZE		1½"×15"×1'-3"	1¾"×18"×1'-6"	1½"×18"×1'-6"	1½"×18"×1'-6"	1¾"×18"×1'-6"	1¼"×18"×1'-6"	1¼"×18"×1'-6"	1¾"×21"×1'-9"	—	1¾"×21"×1'-9"	1¼"×18"×1'-6"	1¾"×18"×1'-6"	1¾"×18"×1'-6"	1¼"×14"×1'-2"	¾"×11"×1'-6"	1¾"×18"×1'-6"	1¾"×18"×1'-6"
BOT. OF BASE PL ELEV.		993'-7½"	992'-3½"	992'-3½"	992'-3½"	992'-11½"	992'-3½"	992'-11½"	992'-11½"	—	979'-5½"	979'-5½"	979'-5½"	979'-5½"	978'-3½"	992'-10"	VARIES	979'-5½"
ANCHOR BOLTS		4-1"Φ	4-1"Φ	4-1"Φ	4-1"Φ	4-1"Φ	4-1"Φ	4-1"Φ	4-1"Φ	—	4-1"Φ	4-1"Φ	4-1"Φ	4-1"Φ	4-1"Φ	—	4-1"Φ	4-1"Φ
BASE PL DETAIL		'A'	'B'	'B'	'B'	'B'	'B'	'B'	'B'	—	'B'	'B'	'B'	'B'	'B'	'C'	'B'	'B'



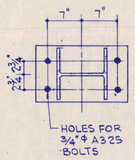
TYPICAL COLUMN FOOTING



BASE PL DETAIL 'A'



BASE PL DETAIL 'B'



BASE PL DETAIL 'C'

COLUMN SCHEDULE (ALTERNATE NO. 1)

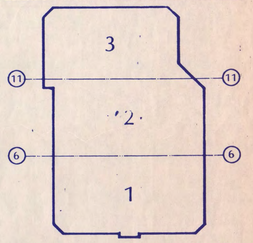
COLUMN MARK		B-2, M-2 B-3, M-3 B-4, M-4 B-5, M-5 B-6, M-6 B-7, M-7 B-8, M-8 B-9, M-9 B-10, M-10	C-2, L-2 C-3, L-3 C-4, L-4 C-5, L-5 C-7, L-7 C-8, L-8 C-9, L-9 C-10, L-10	C-6 L-6	C.8-2, K.3-2 C.8-3, K.3-3 C.8-4, K.3-4 C.8-5, K.3-5 C.8-7, K.3-7 C.8-8, K.3-8 C.8-9, K.3-9 C.8-10, K.3-10	D-2, D-10 K-2, K-10	D-3, K-3 D-4, K-4 D-5, K-5 D-6, K-6 D-7, K-7 D-8, K-8 D-9, K-9	E-2 E-10 G-2 G-10 J-2 J-10	F-2 F-10 H-2 H-10	E.3-3, H.6-3 E.3-4, H.6-4 E.3-5, H.6-5 E.3-7, H.6-7 E.3-8, H.6-8 E.3-9, H.6-9	K-11
TOP OF COL. OR CAP PL ELEV.		VARIES	1008'-6"	SLOPED	—	992'-10"	992'-10"	VARIES	1024'-9"	SLOPED	—
CAP PL		3/4"	3/4"	3/4"×16"×1'-4"	—	3/4"	3/4"	—	—	3/4"	—
UPPER SEATING OR LOW ROOF LEVEL	SIZE	W14×90	W14×61	W14×61	W10×49	W14×61	W14×43	W14×90	60"Φ	W14×61	W8×48
	VERT.								23-#11		
	TIES								#4@12" HOOPS		
									1008'-2"		
CONCOURSE LEVEL EL. 993'-8"	SIZE								60"Φ		
	VERT.								46-#11		
	TIES								#4@12" HOOPS		
									993'-8"		
BASEMENT LEVEL EL. 980'-4"	SIZE	32"×34½"							60"Φ		
	VERT.	8-#10							46-#11		
	TIES	#4@12"							#4@12" HOOPS		
	DOWELS	8-#10	—	—	—	—	—	—	46-#11	—	—
BASE PL SIZE		1½"×15"×1'-3"	1¾"×18"×1'-6"	1½"×18"×1'-6"	¾"×11"×0'-11"	1¾"×18"×1'-6"	1¾"×18"×1'-6"	1¾"×21"×1'-9"	—	1¼"×18"×1'-6"	1¼"×14"×1'-2"
BOT. OF BASE PL ELEV.		993'-7½"	VARIES	978'-11½"	992'-10"	979'-5½"	979'-5½"	978'-11½"	—	979'-5½"	978'-3½"
ANCHOR BOLTS		4-1"Φ	4-1"Φ	4-1"Φ	—	4-1"Φ	4-1"Φ	4-1"Φ	—	4-1"Φ	4-1"Φ
BASE PL DETAIL		'A'	'B'	'B'	'C'	'B'	'B'	'B'	—	'B'	'B'

Revision	Date	No.
C.D. REVIEW ISSUE	7-12-88	
ISSUED FOR BIDDING	9-9-88	

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Scott E. Saunders

Date 7/12/88 Reg. No. 10889



KEY PLAN

N

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55425
(612) 853-2000

©Ellerbe 1988

COLUMN SCHEDULES & DETAILS
BASE BID & ALTERNATE NO. 1

Scale NONE

Date SEP. 9, 1988 Comm. No. 8766-871

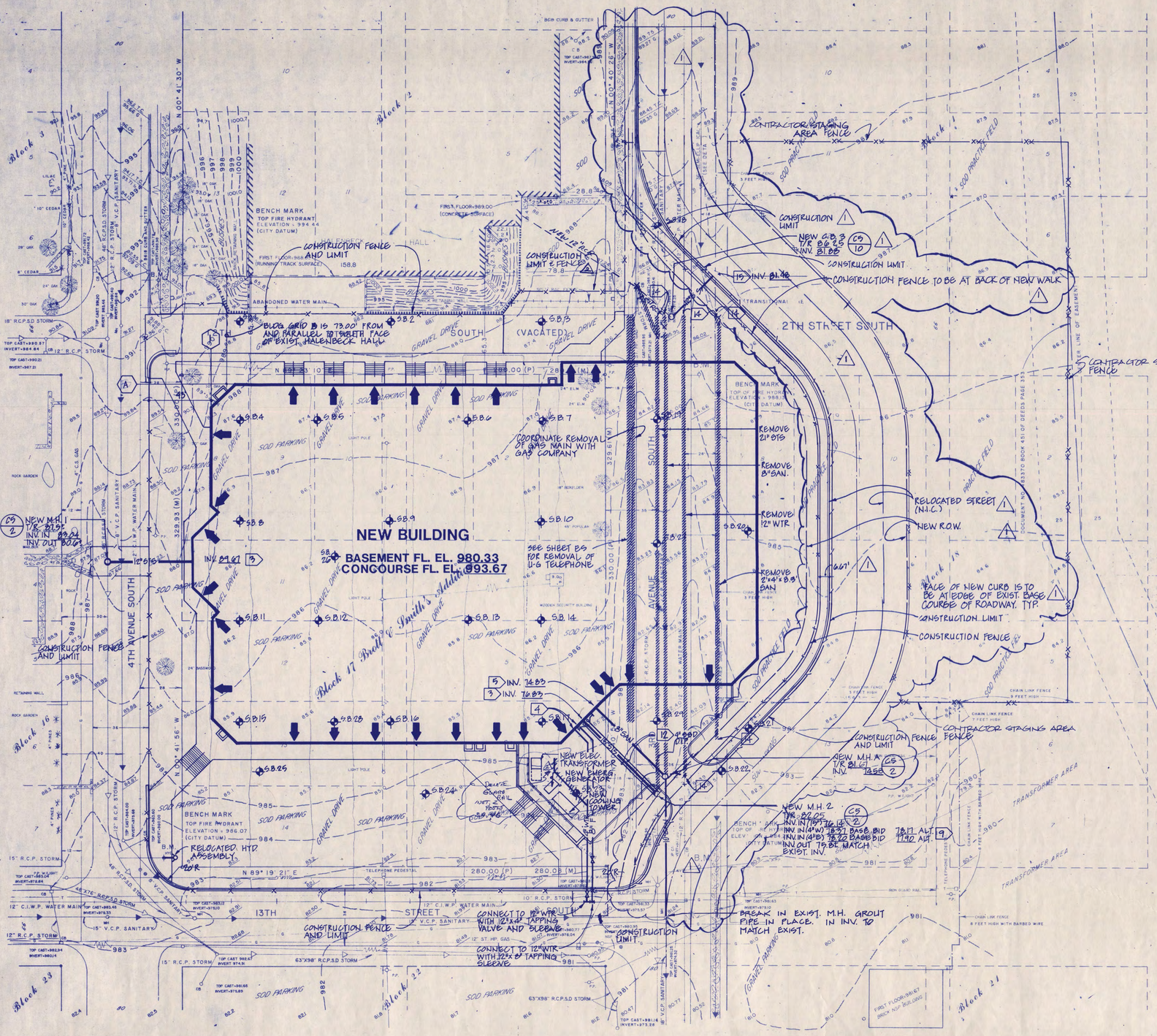
In Charge SES

Drawn By RAS

Checked By SES

S7

E-1392-1/88



SITE SYMBOLS

EXISTING	NEW	DESCRIPTION
IRON	IRON	PROPERTY LINE
		EASEMENT LINE
		CONSTRUCTION LIMIT
10	10	CONTOUR
X100	X100	SPOT ELEVATION
		BUILDING
		UNDERGROUND STRUCTURE
		RAILROAD
SIZE, TYPE	SIZE, TYPE	CULVERT & END SECTION
		CONCRETE
		BITUMINOUS PAVING
		SLOPE DIRECTION
HEIGHT, TYPE	HEIGHT, TYPE	FENCE
		GUARD RAIL
SIZE, TYPE		TREE—SAVE
#10		SOIL BORING
		DOORWAY
BM		BENCHMARK LOCATION
		HAY BALES
	C.B.	TEMPORARY SEDIMENT CONTROL (C4/5)
	LT.	LIGHT STANDARD
	P.P.	POWER POLE
	5	NOTE REFERENCE
	8	PARKING STALL COUNT
		REMOVE CB/MH
		REMOVE UTILITY
		REMOVE CURB AND GUTTER
		CONSTRUCTION FENCE
		CONTRACTOR STAGING AREA FENCE

UTILITIES SYMBOLS

EXISTING	NEW	DESCRIPTION
12" STS	12" STS	STORM SEWER
8" SAN	8" SAN	SANITARY SEWER-WASTE
6" IW	6" IW	INDUSTRIAL WASTE
18" CS	18" CS	COMBINED SEWER
6" FM	6" FM	FORCE MAIN
VALVE 6" WTR	VALVE 6" WTR	WATER LINE
6" F HYD	6" F HYD	FIRE LINE
4" G	4" G	GAS LINE
1½" O	1½" O	OXYGEN LINE
2" FOS	2" FOS	FUEL OIL SUPPLY
1" FOR	1" FOR	FUEL OIL RETURN
1" FOV	1" FOV	FUEL OIL VENT
2" GASO	2" GASO	GASOLINE LINE
ELEC	ELEC	ELECTRIC-OVERHEAD
ELEC U-G	ELEC U-G	ELECTRIC-UNDERGROUND
TEL	TEL	TELEPHONE-OVERHEAD
TEL U-G	TEL U-G	TELEPHONE-UNDERGROUND
CO 4" SSD	CO 4" SSD	SOIL SUBDRAIN
1" LS	1" LS	LAWNSPRINKLER LINE
8" STM	8" STM	STEAM
3" RET	3" RET	PUMPED CONDENSATE
8" CHWS	8" CHWS	CHILLED WATER SUPPLY
8" CHWR	8" CHWR	CHILLED WATER RETURN
4" CWS	4" CWS	CONDENSER WATER SUPPLY
4" CWR	4" CWR	CONDENSER WATER RETURN

NOTE: ITEMS SHOWN ON THIS LEGEND MAY NOT APPLY TO THIS PROJECT.

Revision	Date	No.
C.D. REVIEW ISSUE	7.12.88	
ISSUED FOR BIDDING	9.9.88	
BULL. NO. 1	1.28.89	1
AS BUILTS	10-31-90	2

NOTES:

1. FOR BENCH MARK INFORMATION, SEE NOTE 1 ON SHEET C2.
2. FOR WALK AND STAIR LAYOUT AND JOINTING, SEE SHEET A9-2.
3. FOR CONTINUATION OF 15" STS AND 12" STS, SEE INSIDE BUILDING, SEE SHEET M2 AND M3.
4. FOR CONTINUATION OF 4" WTR AND 8"F INSIDE BUILDING, SEE SHEET M2. SEE DETAIL C5/5 FOR FLOOR PENETRATION DETAIL.
5. FOR CONTINUATION OF 8" SAN. INSIDE BUILDING, SEE SHEET M2.
6. FOR ELECTRICAL SITE PLAN, SEE SHEET E5.
7. PROVIDE CLASS B BEDDING SYSTEM ON ALL NEW PIPES. SEE DETAIL C5/3.
8. PROVIDE 7.5' MIN. COVER ON ALL NEW WATERMAINS.
9. PROVIDE FLAP VALVES ON THE 4" SSD (D.I.P.) ENTERING MANHOLE UNDER THE BASE BID AND ALTERNATE BID.
10. FOR DEMOLITION, SEE SHEET C2.
11. FOR CONSTRUCTION LIMITS AND FENCE LOCATION, SEE SHEET C2.
12. SEE SHEET C6 FOR PERIMETER SUBDRAIN DRAIN SYSTEM.
13. FOR SITE DEMOLITION, SEE SHEET C2.
14. REMOVE EXISTING UTILITIES IN THIRD AVENUE. COORDINATE REMOVAL LIMITS WITH APPROPRIATE AGENCY RELOCATING UTILITIES IN PROPOSED THIRD AVENUE. ALL EXISTING UTILITIES ARE TO REMAIN IN SERVICE UNTIL NEW UTILITIES ARE IN SERVICE.
15. NEW 12" STS FROM CONSTRUCTION LIMIT LINE OUT TO RELOCATED STORM SEWER IN THIRD AVENUE IS N.I.C.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 7-15-88 Reg. No. 9722

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55420
(612) 853-2000

©Ellerbe 1988

SITE LAYOUT AND UTILITY PLAN

Scale 1" = 30'

Date SEP 9, 1988 Comm. No. 8766-871

In Charge R.T.B.

Drawn By L.T.J.

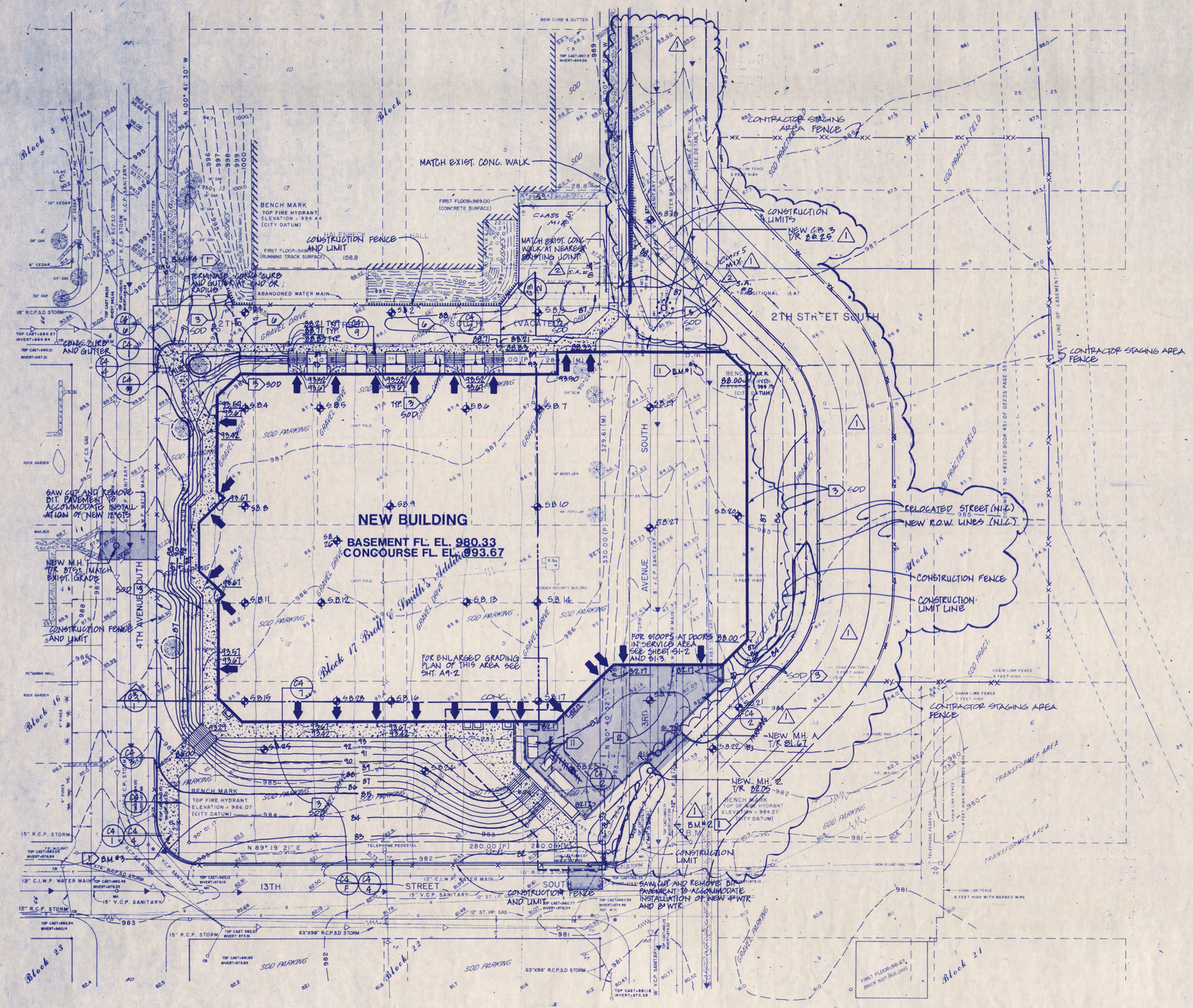
Checked By J.R.M.

C1

SCALE: 1" = 30'

E-3320-787

Revision	Date	No.
C.D REVIEW ISSUE	7-12-88	
ISSUED FOR BIDDING	9-9-88	
BULL. NO. 1	1-28-89	1
AS BUILTS	10-31-90	2



NOTES:

1. BENCH MARK
   B.M. #1 TOP OF FIRE HYDRANT ELEVTION 988.13
   B.M. #2 TOP OF FIRE HYDRANT ELEVATION 984.27
   B.M. #3 TOP OF FIRE HYDRANT ELEVATION 986.07
   B.M. #4 TOP OF FIRE HYDRANT ELEVATION 994.44

   ALL BENCH MARK ELEVATIONS ARE ON CITY OF ST. CLOUD DATUM

2. NEW BIT. PAVEMENT SECTIONS
   - 1-1/2" MIN. BIT. SURFACE COURSE
   - 1-1/2" MIN. BIT. BINDER COURSE
   - 8" MIN. AGG. BASE
   - COMPACTED SUBGRADE

3. PROVIDE TOPSOIL AS SPECIFIED ON ALL NEW AND DISTURBED PLANTING AREAS. PROVIDE SOD AS SHOWN ON PLANS.

4. FOR STRUCTURAL STOOPS AT DOORS. SEE SHEET A9-2.

5. FOR ALL EXTERIOR STAIRS, SEE SHEET A9-2.

6. NEW BIT. PAVEMENT
   1½" MIN. BIT. SURFACE COURSE
   1½" MIN. BIT. BINDER COURSE
   6" MIN. AGG. BASE
   COMPACTED SUBGRADE

7. GATE LOCATIONS ON CONSTRUCTION FENCE TO BE NEGOTIATED BETWEEN OWNER AND CONTRACTOR.

8. REMOVE ALL TREES WITHIN CONSTRUCTION LIMIT UNLESS INDICATED OTHERWISE.

9. PROTECT ALL UTILITIES WITHIN CONSTRUCTION FENCE AND LIMIT AREA UNLESS NOTED OTHERWISE. SEE SHEET C1 FOR REMOVAL.

10. FOR DEMOLITION OF SITE ELECTRICAL FEATURES, SEE SHEET ES.

11. FOR NEW RETAINING WALLS, RAMP, COOLING TOWERS AND ELEC. TRANS. AREA, SEE SHEET A9-2.

12. SEE SHEET C1 FOR SITE SYMBOLS LEGEND.

13. REMOVE ALL EXISTING ON GRADE SITE FEATURES AND MATERIALS WITHIN CONSTRUCTION LIMIT UNLESS NOTED OTHERWISE.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 7-15-88 Reg. No. 9722

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55420
(612) 853-2000

©Ellerbe 1988

GRADING PLAN

Scale 1" = 30'

Date SEP 9, 1988 Comm. No. 8766-871

In Charge R.T.B.

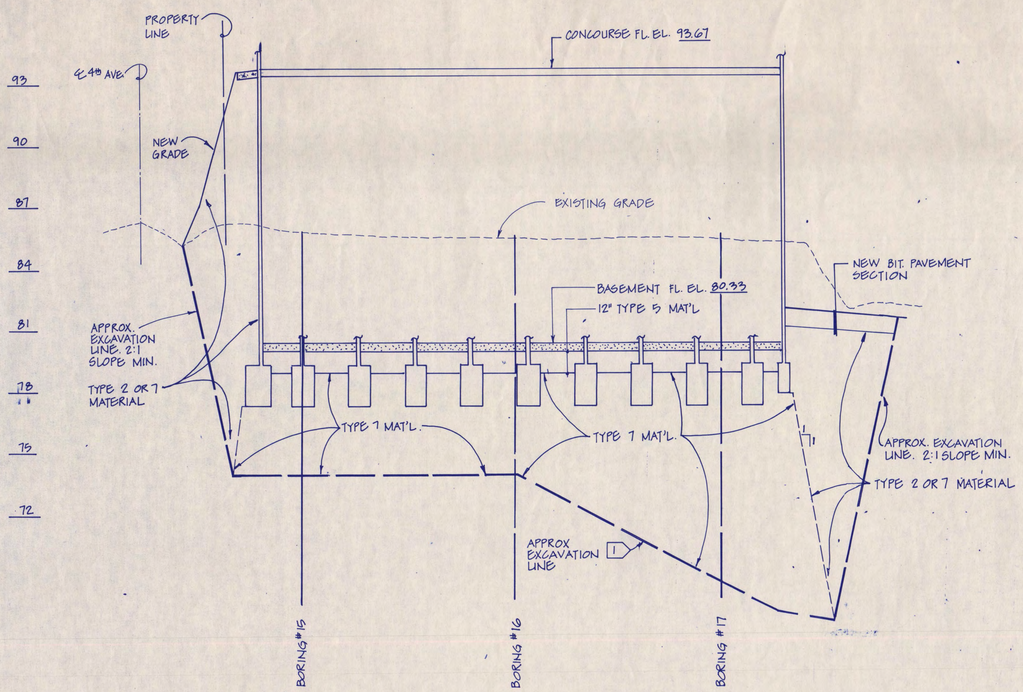
Drawn By L.T.J.

Checked By J.R.M.

C2

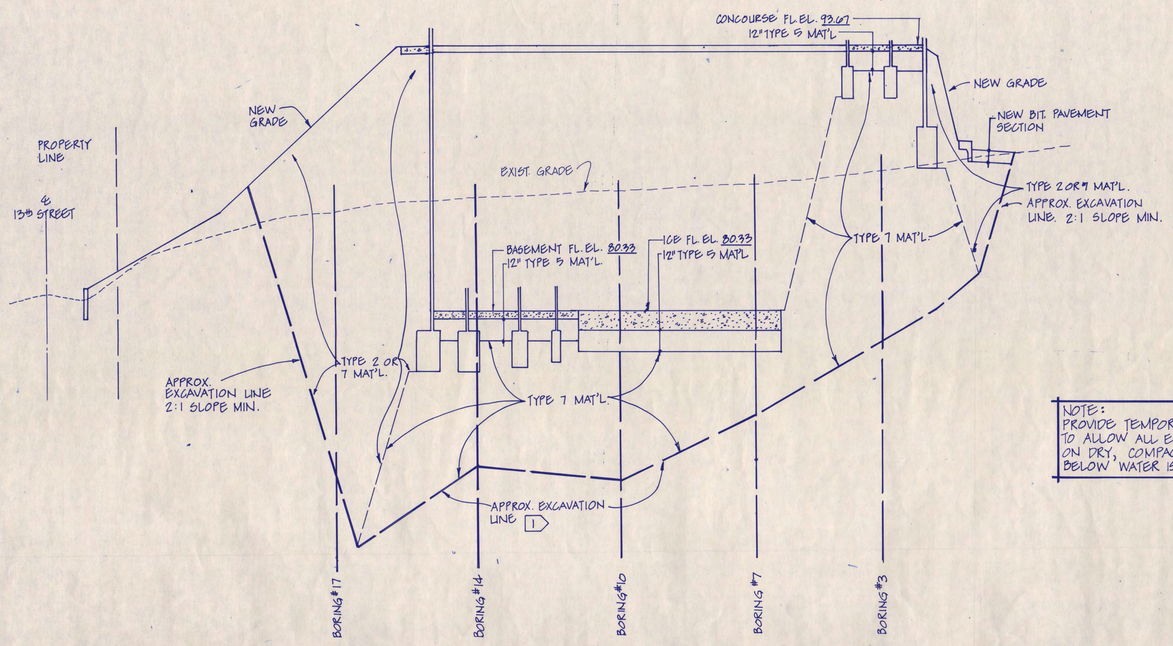
SCALE: 1" = 30'

E-9320-787



C3 / 1 SECTION: WEST-EAST THRU NEW BUILDING

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'



NOTE:
PROVIDE TEMPORARY DEWATERING AS NECESSARY TO ALLOW ALL ENGINEERED FILL TO BE PLACED ON DRY, COMPACTED SUBGRADE. NO FILLING BELOW WATER IS ACCEPTABLE.

C3 / 2 SECTION: SOUTH-NORTH THRU NEW BUILDING

HORIZONTAL SCALE: 1"=30'
VERTICAL SCALE: 1"=3'

Revision	Date	No.
C.D. REVIEW ISSUE	7.12.88	
ISSUED FOR BIDDING	9.9.88	

NOTES:

1. EXCAVATION LINE IS APPROX. AND ONLY DIRECTLY APPLICABLE AT THE NOTED SOIL BORING LOCATIONS. ALL UNSUITABLE MATERIAL (FILL AND SWAMP DEPOSITS) SHALL BE REMOVED.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 7-15-88 Reg. No. 9722

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55420
(612) 853-2000

©Ellerbe 1988

SECTIONS AND DETAILS

Scale AS NOTED

Date SEP 9, 1988 Comm. No. 8766-871

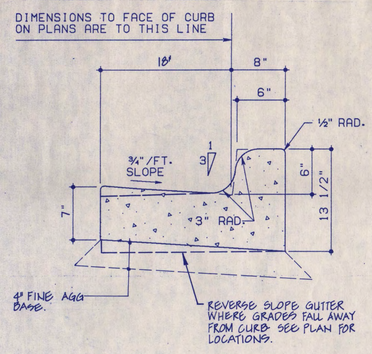
In Charge R.T.B.

Drawn By L.T.J.

Checked By J.R.M.

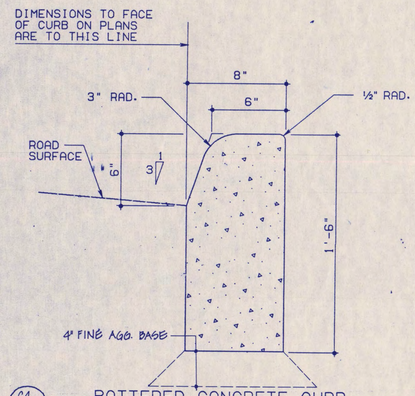
C3

E-1520-787

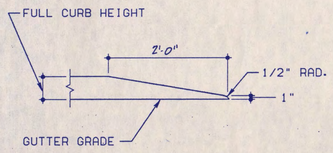


C4 / 1 — BATTERED CONCRETE CURB AND GUTTER

CSD004



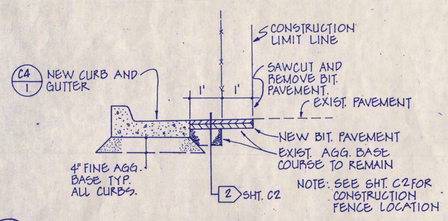
C4 / 2 — BATTERED CONCRETE CURB



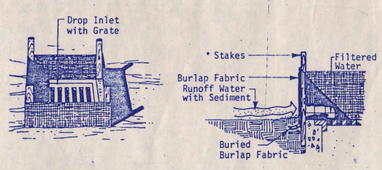
ELEVATION

C4 / 3 — NOSE DOWN CURB

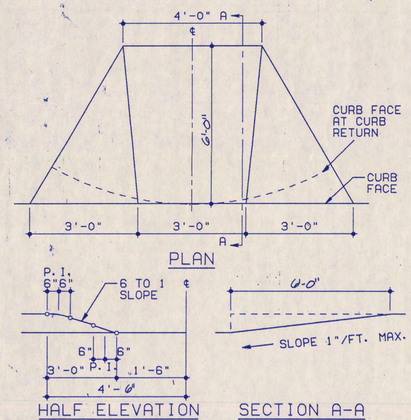
CSD010



C4 / 4 — SECTION: TIE IN FOR NEW CURB AND GUTTER TO EXISTING PAVEMENT

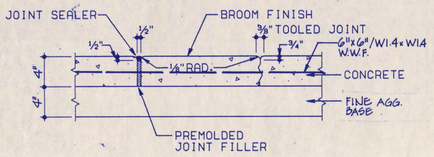


C4 / 5 — TEMP. SEDIMENT TRAP



C4 / 6 — PEDESTRIAN CURB FOR THE HANDICAPPED

CSD013

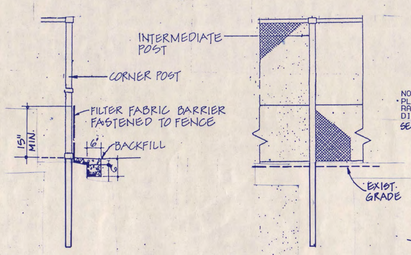


TOOLED JOINTS:
1. AS SHOWN ON PLANS.

EXPANSION JOINTS:
1. WHERE WALK BUTTS ANY FIXED OBJECT SUCH AS WALLS, CURBS, MANHOLES, ETC.
2. 45' ON CENTER MAXIMUM OR AS SHOWN ON PLANS.

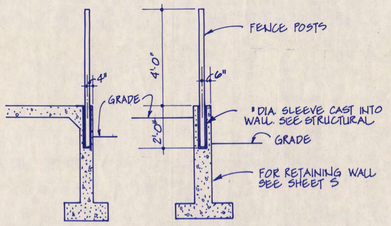
C4 / 7 — CONCRETE SIDEWALK AND SIDEWALK JOINTING

CSD012

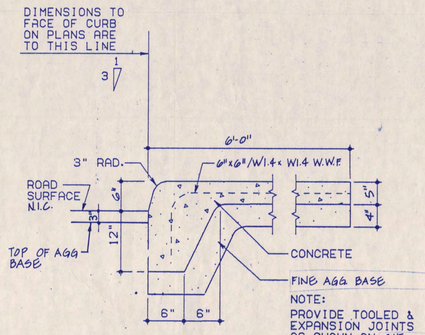


C4 / 8 — CONSTRUCTION FENCE WITH FILTER FABRIC BARRIER

C4 / 9 — NOT USED



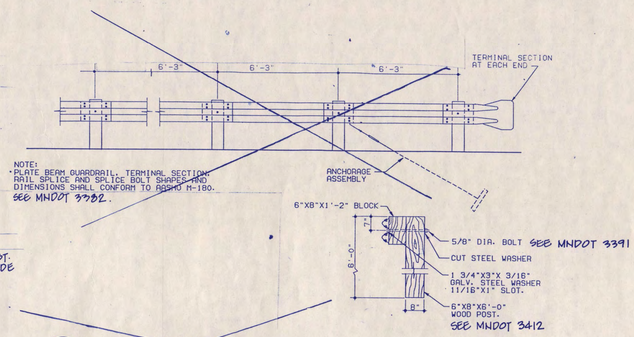
C4 / 10 — FENCE AT LOADING DOCK



NOTE:
PROVIDE TOOLED & EXPANSION JOINTS AS SHOWN ON SHT. A9-2.

C4 / 11 — BATTERED INTEGRAL CONCRETE CURB AND WALK

CSD003



C4 / 12 — GUARDRAIL

DELETED PER S.A. #46

Revision	Date	No.
CD REVIEW ISSUE	7.12.88	
ISSUED FOR BIDDING	9.9.88	
AS BUILTS	10-31-90	1

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 7.15.88 Reg. No. 9722

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55420
(612) 853-2000

©Ellerbe 1988

SITE DETAILS

Scale AS NOTED

Date SEP 7, 1988 Comm. No. 8766-871

In Charge R.T.B.

Drawn By L.T.J.

Checked By J.R.M.

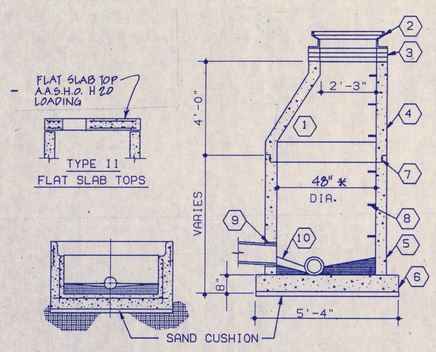
C4

E-1320-787

MANHOLE AND CATCH BASIN NOTES

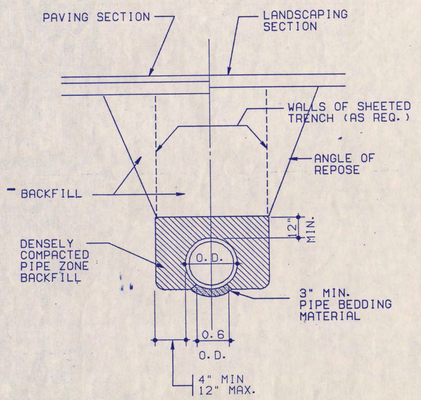
1. REFER TO SPECIFICATIONS FOR ALL MATERIALS AND ADDITIONAL STRUCTURE REQUIREMENTS.
2. FOR STRUCTURE LOCATION, ELEVATION AND DETAIL REF. SEE SHT. C1.
3. DO NOT USE MORE THAN 3-2" THICK CONCRETE ADJUSTING RINGS. SET ALL RINGS AND CASTINGS IN MORTAR SEAT.
4. USE 27" OPENING ECCENTRIC CONE SECTION UNLESS OTHERWISE NOTED.
5. BOTTOM BARREL SECTION MAY BE CONSTRUCTED WITH PRECAST BASIN SECTION OR CONCRETE MANHOLE BLOCKS. ON SHALLOW STRUCTURES, BLOCK MAY BE USED FOR COMPLETE BARREL SECTION.
6. MANHOLE BASES MAY BE REINFORCED, POURED IN PLACE. SEPARATE PRECAST ITEM OR INTEGRALLY CAST BASE SECTIONS.
7. USE RUBBER GASKETS CONFORMING TO ASTM C361 OR BUTYL-TITE SEALING STRIPS BY BLUE RIDGE RUBBER OR APPROVED EQUAL FOR ALL JOINTS BETWEEN CIRCULAR PRECAST STRUCTURE SECTIONS.
8. PROVIDE ALUMINUM STEPS @ 16" O.C. STEPS TO COMPLY WITH OSHA 1910.27 AND HAVE EMBEDDED ENDS COATED WITH BITUMASTIC MATERIAL PRIOR TO CASTING SECTION.
9. FILL ALL SPACE BETWEEN PIPES AND MANHOLE AND/OR CATCH BASINS WITH NON-SHRINK GROUT. LARGE SPACES MAY BE PARTIALLY FILLED WITH BRICKS PRIOR TO GROUTING.
10. GROUT SEMI-CIRCULAR SMOOTH INVERT SECTION IN ALL MANHOLES AND CATCH BASINS. SLOPE BENCH AT MINIMUM OF 1" PER FOOT FOR ST.S. MANHOLES AND 3" PER FOOT FOR SAN. MANHOLES.
11. CASTING SCHEDULE:
    M.H. #1 R-1733 NON-VENTED LID
    M.H. #2 R-1733 NON-VENTED LID
    C.B. # 3 R-2560-E1
    M.H. A R-1733 NON-VENTED LID

CS 1 CUD002 MANHOLE AND CATCH BASIN NOTES

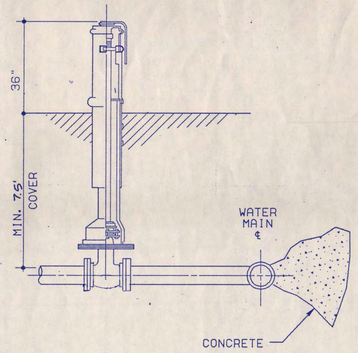


MONOLITHIC BASE UNIT SEE STANDARD DETAIL CS/1 FOR APPLICABLE NOTES.
* M.H.1 IS TO BE 72" DIA BARREL WITH FLAT SLAB TOP.

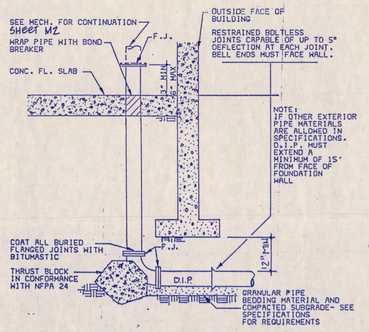
CS 2 CUD003 MANHOLE OR CATCH BASIN



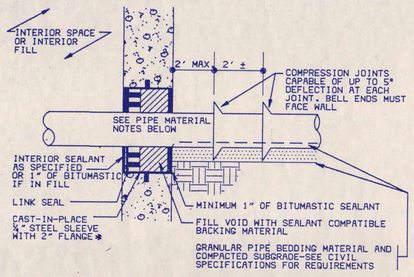
CS 3 CUD018 GRANULAR (CLASS 'B') PIPE BEDDING



CS 4 CUD024 TYPICAL POST INDICATOR VALVE SETTING



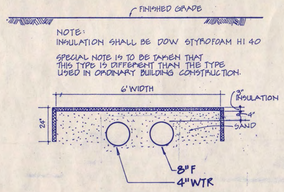
CS 5 PRESSURE PIPE EXTERIOR WALL PENETRATION DETAIL



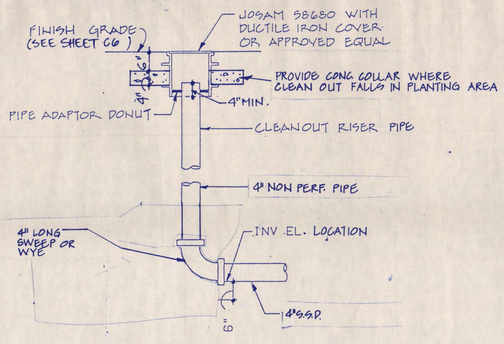
* CORE DRILLED HOLE IS AN ACCEPTABLE ALTERNATE TO CAST-IN-PLACE STEEL SLEEVE. BOXING OUT FOR INSTALLATION OF SLEEVE AFTER WALL CONSTRUCTION IS NOT ACCEPTABLE.

- INTERIOR PIPE MATERIALS: SECTION 15060
- EXTERIOR PIPE MATERIALS: SECTION 02700
- IF INTERIOR AND EXTERIOR MATERIAL ARE DIFFERENT, TRANSITION SHALL BE MADE EITHER INSIDE OF BUILDING OR APPROXIMATELY 8 FEET DOWNSTREAM OF FACE OF FOUNDATION. ANY TRANSITION SHALL BE MADE WITH APPROPRIATE ADAPTERS. IF ADAPTORS ARE NOT AVAILABLE, TRANSITION JOINT SHALL BE ENCASED IN CONCRETE.

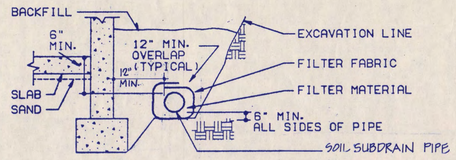
CS 6 CUD037 NON-PRESSURE PIPE-EXTERIOR WALL PENETRATION DETAIL



CS 7 PIPE INSULATION



CS 8 CLEAN OUT

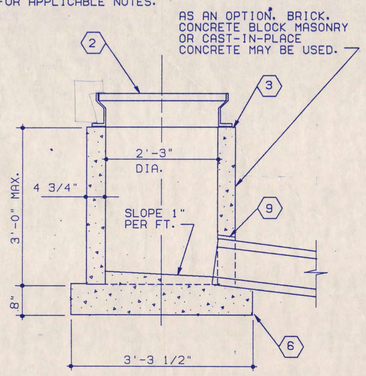


SECTION THRU EXTERIOR WALL

1. SEE SHT. C6 FOR INVERT ELEVATIONS.
2. SEE SPECIFICATION FOR FILTER FABRIC, FILTER MATERIAL AND SUBDRAIN PIPING MATERIAL.

CS 9 SOIL SUBDRAIN DETAILS

SEE STANDARD DETAIL CS/1 FOR APPLICABLE NOTES.



CS 10 CUD005 SHALLOW CATCH BASIN

Revision	Date	No.
C.D. REVIEW ISSUE	7.12.88	
ISSUED FOR BIDDING	9.9.88	

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 7.15.88 Reg. No. 9722

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55425
(612) 853-2000

©Ellerbe 1988

UTILITY DETAILS

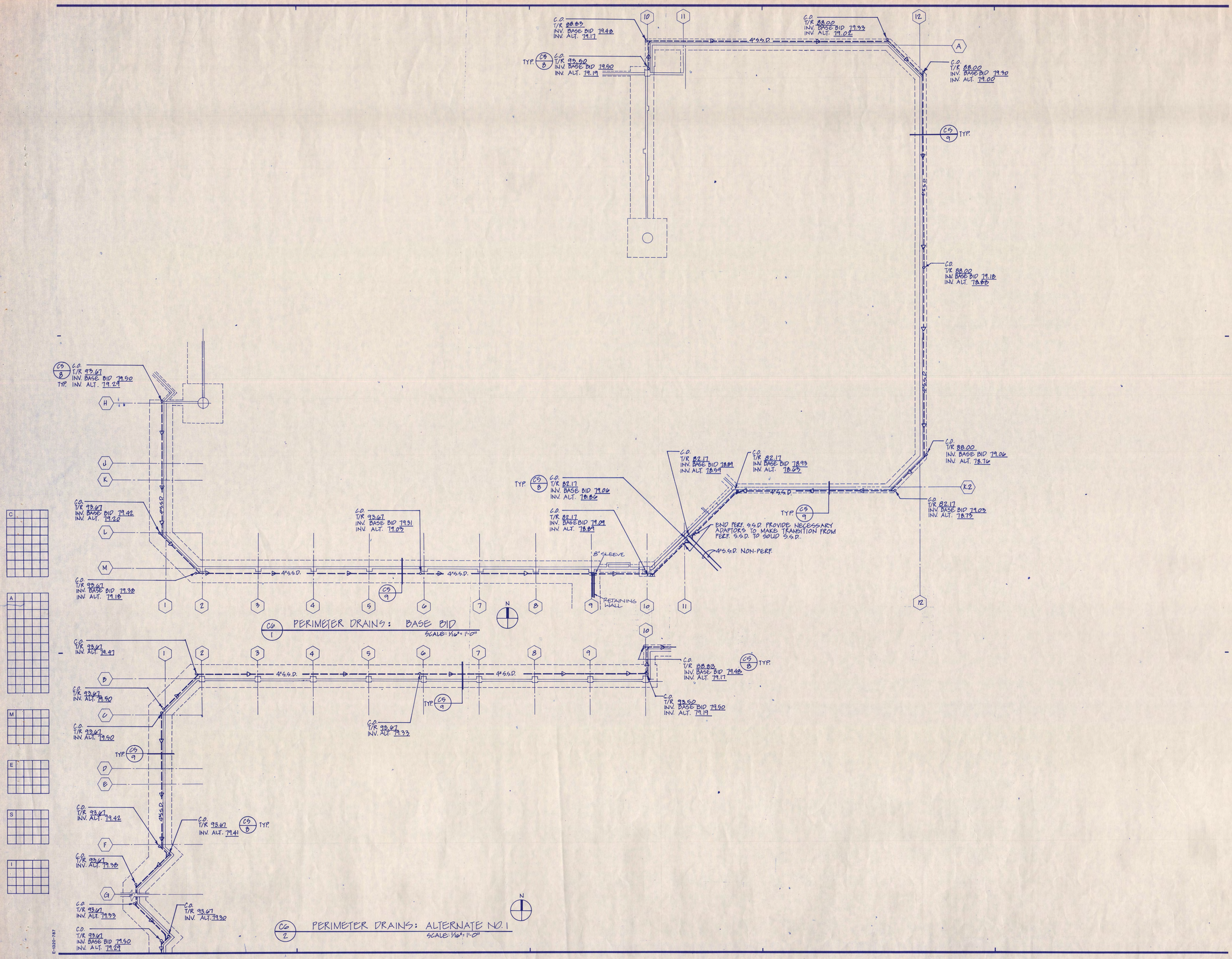
Scale AS NOTED

Date SEP 9, 1988 Comm. No. 8766-871
In Charge R.T.B.
Drawn By L.T.J.
Checked By J.R.M.

C5

E-1386-1/88

Revision	Date	No.
C.D. REVIEW ISSUE	7.12.88	
ISSUED FOR BIDDING	9.9.88	



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 7.15.88 Reg. No. 9722

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55420
(612) 853-2000

©Ellerbe 1988

PERIMETER SUBDRAINS

Scale AS NOTED

Date SEP 9, 1988 Comm. No. 8766-871

In Charge R.T.B.

Drawn By L.T.J.

Checked By J.R.M.

C6

Revision	Date	No.
C.D. REVIEW ISSUE	7-12-88	
ISSUED FOR BIDDING	9-9-88	

CONVENTIONS, SYMBOLS AND ABBREVIATIONS

MTA012

INTERPRETATIONS OF DRAWINGS

THE MECHANICAL DRAWINGS CANNOT BE FULLY AND CORRECTLY INTERPRETED WITHOUT REFERENCE TO SYMBOLS, SCHEDULES, ABBREVIATIONS AND SPECIFICATIONS.

IT IS THE INTENT OF THE DRAWINGS TO SHOW THE INSTALLATION, AS DETAILED BY THE TYPICAL ARRANGEMENTS. ITEMS SHOWN ONCE ON FLOOR PLANS, ELEVATIONS, DETAILS OR DIAGRAMS MAY NOT BE REPEATED IN FULL FOR OTHER TYPICAL INSTANCES.

THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE CAPACITY, SIZE, APPROXIMATE LOCATION AND GENERAL ARRANGEMENT, NOT THE SPECIFIC DETAILS OF CONSTRUCTION.

PLUMBING SYMBOLS

MTA011

SYMBOL	DESCRIPTION
F.D.	FLOOR DRAIN
R.D.	ROOF DRAIN
O.R.D.	OVERFLOW ROOF DRAIN
C.F.R.D.	CONTROLLED FLOW ROOF DRAIN
S.R.D.	SCUPPER ROOF DRAIN
A.D.	AREA DRAIN
S.D.	SHOWER DRAIN
F.S.	FLOOR SINK
R.W.C	RAINWATER CONDUCTOR
H.B.	HOSE BIB
W.H.	WALL HYDRANT
	SHOWER HEAD
S.A. ( )	SHOCK ABSORBER
Z.V.	ZONE VALVE
M.G.A.	MEDICAL GAS ALARM
P / 14	PLUMBING SERVICES / RISER NO.
F.C.O.	FLOOR CLEAN OUT

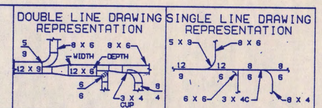
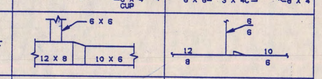
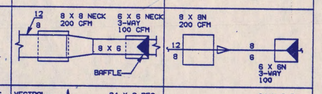
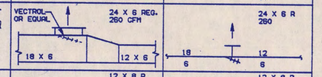
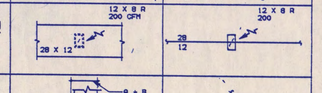
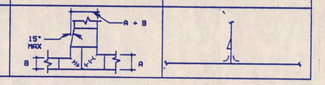
PLUMBING SYMBOLS

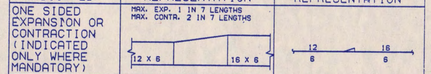
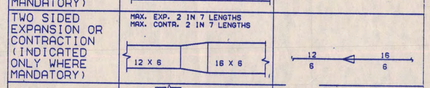
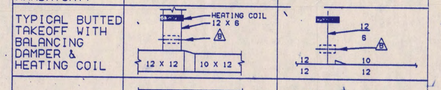
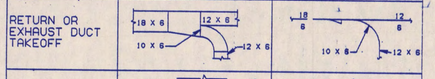
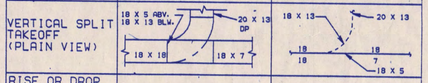
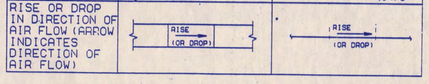
MTA002

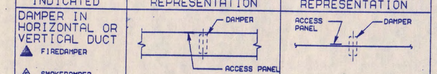
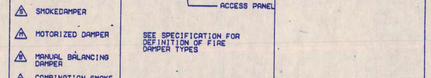
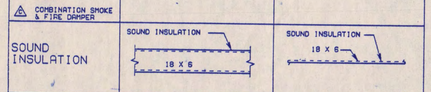
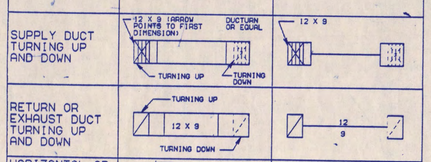
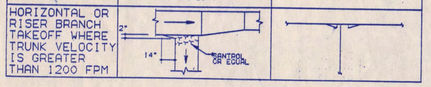
SYMBOL IN PLAN	PIPING ABBR.	DESCRIPTION
	CW	COLD WATER
	HW	HOT WATER
	RHW	RECIRCULATING HOT WATER
	W	SOIL OR WASTE
	V	VENT
	RWC	RAIN WATER CONDUCTOR/STORM
	SSD	SOIL SUBDRAIN
	ARW	ACID RESISTANT WASTE
	ARV	ACID RESISTANT VENT
180°	180°HW	180° HOT WATER(OR AS INDICATED ON PLAN)
180°	180°RHW	180° RECIRCULATING HOT WATER (OR AS INDICATED ON PLAN)
TW	TW	TEMPERED WATER
O GR	O GA. CW	ZERO GRAIN COLD WATER
DW	DW	DEIONIZED WATER
DSW	DSW	DISTILLED WATER
VV	VV	VAPOR VENT
D	D	INDIRECT DRAIN
LPG	LPG	LIQUEFIED PETROLEUM GAS
90A	90A	NINETY POUND AIR (OR PRESSURE AS INDICATED)
MA	MA	MEDICAL AIR (50 PSIG)
LA	LA	LABORATORY AIR (20 PSIG)
G	G	GAS-NATURAL
V	VAC	MEDICAL VACUUM
O	OXY	OXYGEN
H	H	HYDROGEN
N_2O	N_2O	NITROUS OXIDE
N	N	NITROGEN
P	P	PROPANE
PD	PD	POWER DETERGENT WASH
WV	WV	WET VACUUM CLEANING
DV	DV	DRY VACUUM CLEANING
TG	TG	ANESTHESIA TRACE GAS EVACUATION
PDL	PDL	PUMP DISCHARGE LINE
		POINT OF CONNECTION BETWEEN NEW AND EXISTING SERVICES

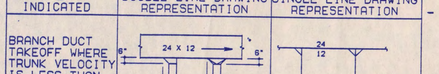
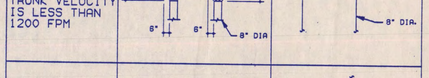
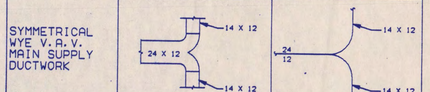
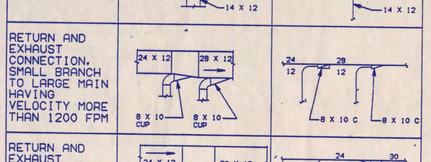
MECHANICAL DRAWING LIST

MT	Mechanical Title Sheet
M1	Underground Plumbing Plan, Area 1
M2	Underground Plumbing Plan, Area 2
M3	Basement Plumbing Plan, Area 1
M4	Basement Plumbing Plan, Area 2
M5	Basement Level Plumbing / HVAC Plan Area 3
M6	Basement HVAC Plan, Area 1
M7	Basement HVAC Plan, Area 2
M8	Concourse Plumbing / HVAC Plan, Area 1
M9	Concourse Plumbing / HVAC Plan, Area 2
M10	Upper Level Plumbing / HVAC Plan, Area 1
M11	Upper Level Plumbing / HVAC Plan, Area 2
M12	Mechanical Roof Plan
M13	Plumbing Riser and Detail Plan
M14	Mechanical Detail Plan

ITEM INDICATED	DOUBLE LINE DRAWING REPRESENTATION	SINGLE LINE DRAWING REPRESENTATION
CUP. ELBOW OR DUCTURN TAKEOFFS IN SUPPLY DUCTS		
BUTTED TAKEOFF		
DIFFUSERS		
BUTTED TAKEOFF TO REGISTER OR GRILLE WITH VECTROL OR EQUAL		
RETURN OR EXH. REG. OR GR. IN BOTTOM OF DUCT CENTERED ON DUCT		
DUCT SPLIT USING MITERED ELBOWS WITH DUCT TURNS		

ITEM INDICATED	DOUBLE LINE DRAWING REPRESENTATION	SINGLE LINE DRAWING REPRESENTATION
ONE SIDED EXPANSION OR CONTRACTION (INDICATED ONLY WHERE MANDATORY)		
TWO SIDED EXPANSION OR CONTRACTION (INDICATED ONLY WHERE MANDATORY)		
TYPICAL BUTTED TAKEOFF WITH BALANCING DAMPER & HEATING COIL		
RETURN OR EXHAUST DUCT TAKEOFF		
VERTICAL SPLIT TAKEOFF (PLAIN VIEW)		
RISE OR DROP IN DIRECTION OF AIR FLOW (ARROW INDICATES DIRECTION OF AIR FLOW)		

ITEM INDICATED	DOUBLE LINE DRAWING REPRESENTATION	SINGLE LINE DRAWING REPRESENTATION
DAMPER IN HORIZONTAL OR VERTICAL DUCT FIREDAMPER SMOKEDAMPER MOTORIZED DAMPER MANUAL BALANCING DAMPER COMBINATION SMOKE & FIRE DAMPER		
SOUND INSULATION		
SUPPLY DUCT TURNING UP AND DOWN		
RETURN OR EXHAUST DUCT TURNING UP AND DOWN		
HORIZONTAL OR RISER BRANCH TAKEOFF WHERE TRUNK VELOCITY IS GREATER THAN 1200 FPM		

ITEM INDICATED	DOUBLE LINE DRAWING REPRESENTATION	SINGLE LINE DRAWING REPRESENTATION
BRANCH DUCT TAKEOFF WHERE TRUNK VELOCITY IS LESS THAN 1200 FPM		
SYMMETRICAL WYE V.A.V. MAIN SUPPLY DUCTWORK		
RETURN AND EXHAUST CONNECTION, SMALL BRANCH TO LARGE MAIN HAVING VELOCITY MORE THAN 1200 FPM		
RETURN AND EXHAUST CONNECTION, WHERE MAIN DUCT VELOCITY IS LESS THAN 1200 FPM.		

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Date 7-12-88 Reg. No. 16697

NATIONAL HOCKEY CENTER

ST. CLOUD STATE UNIVERSITY

ST. CLOUD, MINNESOTA

Ellerbe

One Appletree Square
Minneapolis, MN 55425
(612) 853-2000

©Ellerbe

MECHANICAL TITLE SHEET

Scale NONE

Date SEP 9, 1988 Comm. No. 8746-871

In Charge JDM

Drawn By MDT

Checked By JTS/SP

MT

E-1388-6/88