SANITARY SEWER EXTENSION

TO SERVE PART OF Lots 1 & 2, THE DUGAN CENTRE FOR

GOLDEN CORRAL

LOCATED AT RIDGE ROAD CIRCLE

WICHITA, KANSAS

COW PRIV. PROJ. NO. 1004 PPS(607861)

MIKE LINDEBAK, P.E., CITY ENGINEER

MAY 2000

GENERAL NOTES

1. ALL ELEVATIONS SHOWN ARE BASED ON CITY OF WICHITA DATUM(MEAN SEA LEVEL ELEV-1187.4=CITY DATUM).

2. CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF FORTY-EIGHT(48)HOURS TO UTILITY COMPANIES PRIOR TO STARTING ANY EXCAVATION AS FOLLOWS:

KANSAS ONE CALL 687-2470 or 1-800-344-7233

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF AN EMERGENCY:

CABLEVISION	262-4270 OR 262-0661
KG&E-GAS	263-7511
KG&E-ELECTRIC	264-1141
PEOPLES NATURAL GAS	942-8811
SOUTHWESTERN BELL TELEPHONE	1-571-2611
CITY OF WICHITA WATER DEPARTMENT	268-4908

THE CONTRACTOR SHALL NOTIFY PIPELINE COMPANIES AT LEAST 24 HOURS IN ADVANCE OF ANY WORK BEING PERFORMED ACROSS AND/OR ADJACENT TO PIPELINES.

3. THE CONTRACTOR SHALL NOT START WORK ON THE PROJECT UNTIL THE PROJECT INSPECTOR IS ASSIGNED TO THE PROJECT AND IS PRESENT ON THE SITE. ANY WORK DONE WITHOUT INSPECTION WILL BE REQUIRED TO BE UNCOVERED FOR INSPECTION.

4. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY DIRECTLY ABUTTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN(10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.

6. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, ENTRANCES AND BANK LINES TO THEIR ORIGINAL SLOPES AND GRADES EXCEPT AS SHOWN OTHERWISE.

7. NO SERVICES WILL BE INSTALLED AS PART OF THIS PROJECT.

8. INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA SHALL NOT BE CARRIED THROUGH CONSTRUCTION. LOCAL RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA SHALL BE CARRIED THROUGH CONSTRUCTION AS FURTHER PROMULGATED BY PROJECT SPECIAL PROVISIONS.

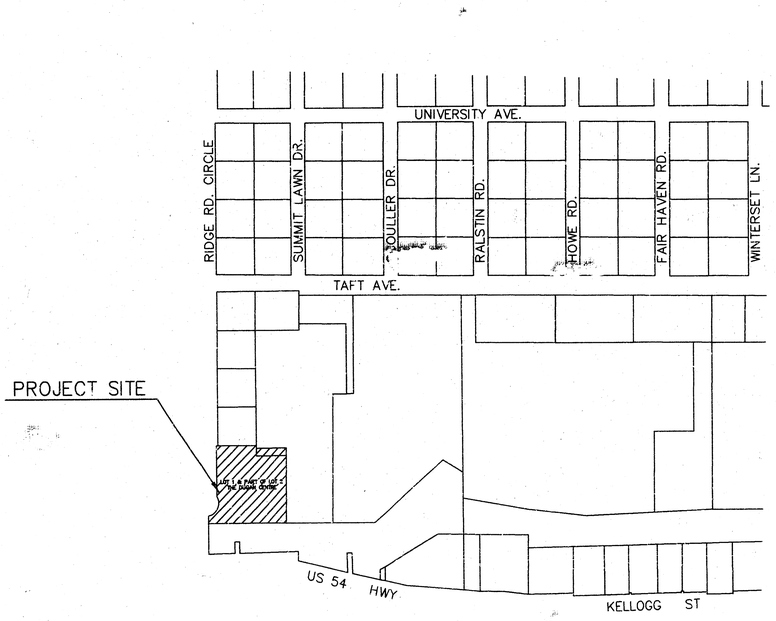
9. UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.

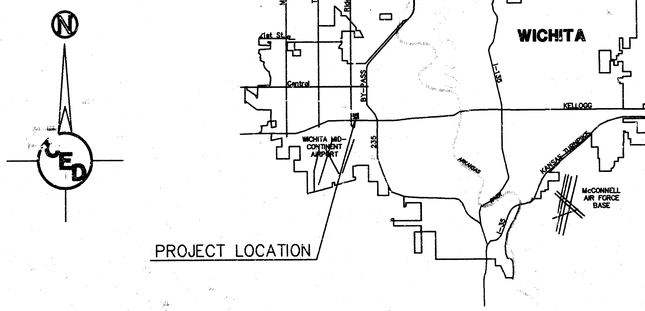
10. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS, THAT IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOODPLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

11. PROPERTIES WITHIN THE PROJECT LIMITS MAY HAVE UNDERGROUND SPRINKLER SYSTEMS IN THE PUBLIC RIGHT-OF-WAY WHICH CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REMOVE SUCH IMPROVEMENTS SHOULD THEY NOT BE REMOVED BY THEIR OWNER AT THE TIME OF CONSTRUCTION OF THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO SALVAGE ALL SPRINKLER HEADS AND/OR VALVES AND GIVE SUCH MATERIAL TO THEIR OWNER. PORTIONS OF UNDERGROUND SPRINKLER SYSTEMS NOT IN CONFLICT WITH NEW CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND SHALL REMAIN IN PLACE. ALL WORK IN CONNECTION WITH UNDERGROUND SPRINKLER SYSTEMS SHALL BE CONSIDERED AS SUBSIDIARY TO THE CONTRACT PAY ITEMS OF WORK.

12. THE WATER DEPARTMENT SHALL FIELD LOCATE WATER VALVES ONE TIME DURING CONSTRUCTION WHEN REQUESTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE SUCH FIELD LOCATIONS DURING THE CONSTRUCTION PROCESS. WATER VALVES, WATER VALVE BOXES OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

13. THE CONTRACTOR MUST EXAMINE THE CONSTRUCTION SITE PRIOR TO BIDDING AND BE SATISFIED AS TO THE WORK SHOWN FOR COMPLETION. AFTER BIDS HAVE BEEN RECEIVED, THE CONTRACTOR SHALL NOT ASSERT THAT THERE WAS A MISUNDERSTANDING OF THE QUANTITIES OF WORK OR OF THE NATURE FOR THE WORK TO BE COMPLETED.





LOCATION MAP

Booked
P-167
3-20-01
R. Loomis

APPROVED AS NOTED
By CITY ENGINEER OF WICHITA

Sanitary Sewers VRH 9/20/00
Storm Sewers
Driveway Approaches
Water Mains
Paving

NOTE TO CONTRACTOR

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM UNDER CONTRACT WITH THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR THE PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR WITHOUT SUCH INSPECTION NOR SHALL ANY WORK BE COMMENCED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER.

9-18-2000
As Built 11-1-2000 HOF

PROJECT LOCATED IN THE
N.W.1/4, SEC. 27, T.27S., R.1W.
WICHITA, SEDGWICK COUNTY, KANSAS

INDEX OF SHEETS

PROJ. NO. 1004 PPS(607861)

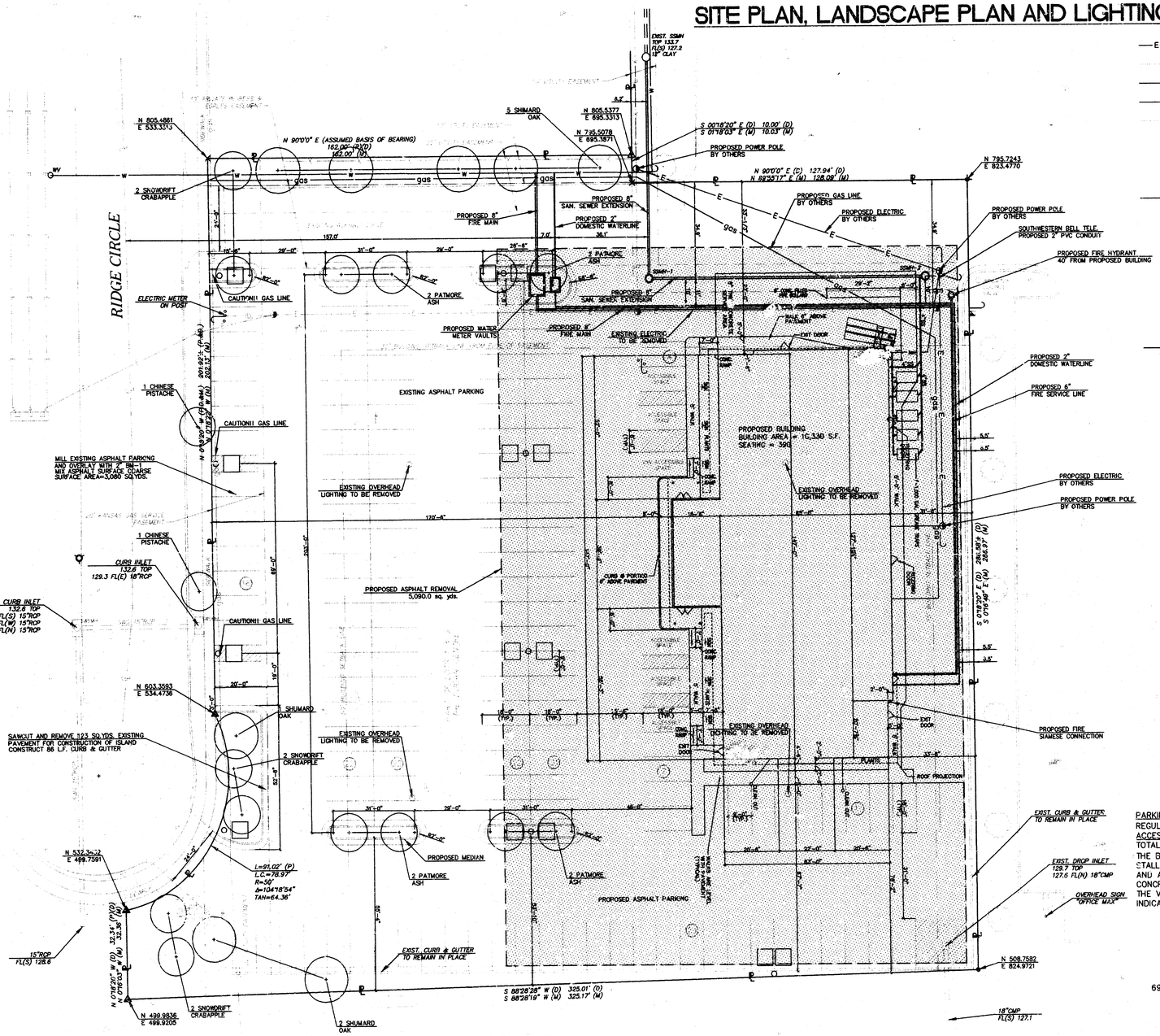
CERTIFIED ENGINEERING DESIGN

CED
436 NORTH OHIO
WICHITA, KANSAS 67214
PH#(316)262-8808 FAX#(316)262-0080

SHEET 1
TOTAL 5

McCullough Excavation 18-05-02-04
As-Built 11-1-2000 HOF

SITE PLAN, LANDSCAPE PLAN AND LIGHTING PLAN

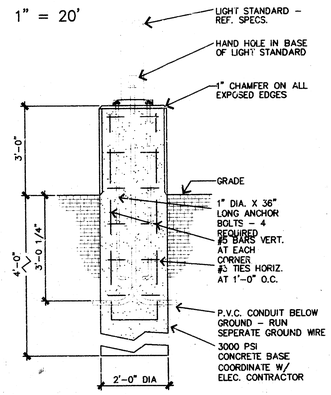


FLOODWAY

LEGEND

E E	=OVERHEAD ELECTRIC	▲	=1/2" ø BAR L.S. #950 (SET)
E E	=UNDERGROUND ELECTRIC	▲	=1/2" ø PIPE (FOUND)
gas	=GAS	○	=1/2" ø BAR "BAUGHMAN" (FOUND)
W	=WATERLINE	+	=NAIL
	=FENCE	X	=CHISELED "X"
	=CENTERLINE	(D)	=DEEDED
℄	=PROPERTY LINE	(P)	=PLATTED
	=NUMBER OF PARKING SPACES	(M)	=MEASURED
tele tele	=TELEPHONE LINE		=TPEE
○ □	=1000 WATT SUPER METAL HALIDE CUTOFF FLOODLIGHT WITH FORWARD OPTICS ON 25' SQUARE STEEL POLE RATED 90MPH		=LIGHT POLE
			=GUY ANCHOR
			=POWER POLE
			=TELEPHONE RISER
		WV	=WATER VALVE
			=FIRE HYDRANT
		SWS	=STORM WATER SEWER
		SS	=SANITARY SEWER
		MH	=MANHOLE

1" = 20'



LIGHT POLE BASE

NOT TO SCALE

LANDSCAPE CALCULATIONS

LANDSCAPED STREET YARD:
AVG. LOT DEPTH: 325'
AVG. LOT LENGTH: 287'
287'x15=4,305□REQUIRED
6,112 LANDSCAPED STREETYARD PROVIDED

STREETYARD TREES:
6,112□/500□=13 SHADE TREES REQUIRED

PARKING LOT TREES:
156 PARKING STALLS
156/20=8 SHADE TREES REQUIRED
1/2 STREETYARD REQUIREMENT USED TO FULLFILL PARKING LOT TREE REQUIREMENT)

TOTAL TREES REQUIRED:
13/2=6.5(6)
6+8=14 TREES

TOTAL TREES PROVIDED
11 SHADE TREES
8 ORNAMENTAL TREES
15 TOTAL.

BUFFER REQUIREMENT
1 TREE 140 L.F.
162 L.F./40=4.05 OR 5 TREES

PARKING STALLS SUMMARY:
REGULAR STALLS: 148
ACCESSIBLE STALLS: 6
TOTAL STALLS: 154

THE BOTTOM OF THE ACCESSIBLE PARKING STALL SIGNS SHALL BE A MINIMUM OF 5 FT. AND A MAXIMUM OF 6 FT. ABOVE THE CONCRETE SIDEWALK.
THE VAN ACCESSIBLE PARKING STALL SIGN SHALL INDICATE 'VAN ACCESSIBLE' ON IT.

PLANTING SCHEDULE

QTY.	BOT. NAME	COMMON NAME	SIZE	CONDITION	REMARKS
8	FRAXINUS PENNSYLVANICA	PATMORE ASH	2 1/2" CAL.	B & B	SINGLE STEM
8	QUERCUS SHUMARDII	SHUMARD OAK	2 1/2" CAL.	B & B	SINGLE STEM
2	PISTACIA CHINENSIS	CHINESE PISTACHE	1 1/2" CAL.	B & B	SINGLE STEM
6	MALUS SP.	SNOWDRIFT CRAB	1 1/2" CAL.	B & B	SINGLE STEM
6	BERBERIS THUNBERGI	GOLDEN BARBERRY	2 GAL.	B & B	SINGLE STEM
43	JUNIPERUS CHINENSIS	PFITZER COMPACT JUMPER	5 GAL.	B & B	SINGLE STEM
41	LIGUSTRUM X. VICARYI	GOLDEN VICARI PRIVET	5 GAL.	B & B	SINGLE STEM
12	RHUS AROMATIC	FRAGRANT SUMAC	5 GAL.	B & B	SINGLE STEM

BENCHMARK:

RIDGE ROAD & MAPLE, C.O.W. BM
SW COR. INTERSECTION.
69' SOUTH & 97' WEST OF CNTR LINE BOTH.
10.5' NORTH OF FACE SIDEWALK.
ELEV. 142.07 (CITY DATUM)
(MSL -- 1187.4 = CITY DATUM)

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

8-21-00	REV.	REVISE TO 5-1,000 GAL. GREASE TRAP TANKS
8-3-00	REV.	CITY OF WICHITA COMMENTS DATED 7-27-2000
6-20-00	REV.	STATE REGULATION NO. 8.1.125 & ADA SEC. 4.1.2(1), 4.1.2(5)(c), 4.1.2(b)

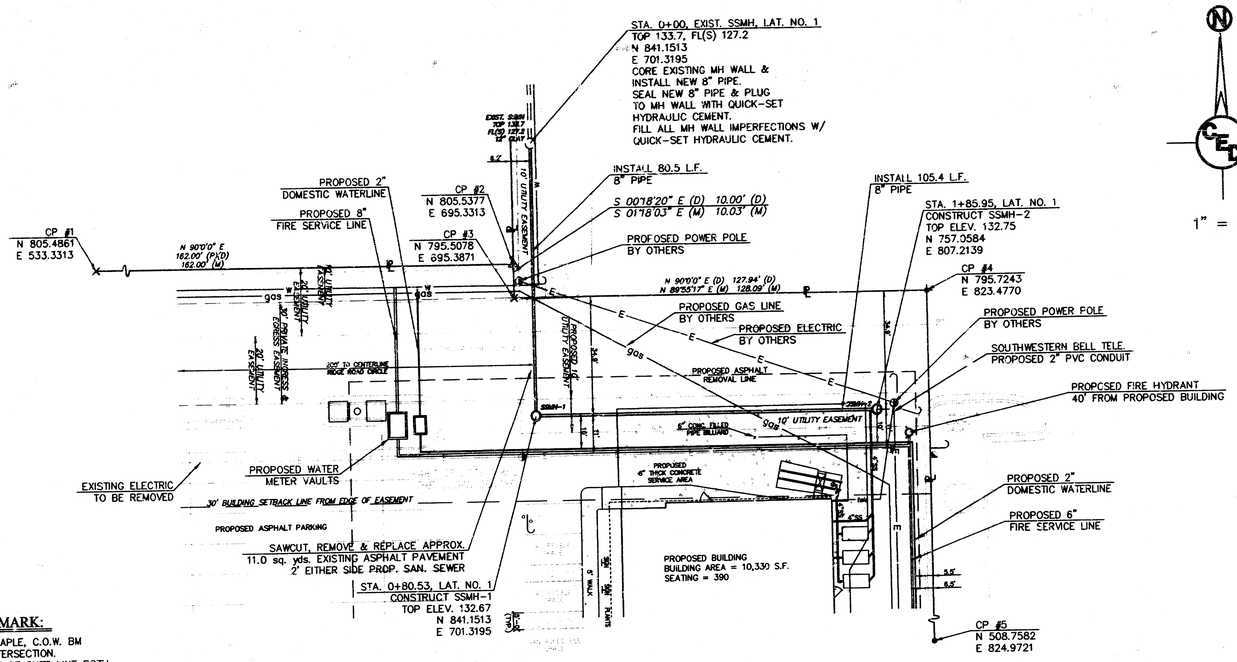
SITE PLAN, LANDSCAPE PLAN AND LIGHTING PLAN FOR
GOLDEN CORRAL RESTAURANT
RIDGE CIRCLE, WICHITA, KS

PROJ. NO.: 1004 PPS(607861)

CERTIFIED ENGINEERING DESIGN
438 NORTH OHIO
WICHITA, KANSAS 67214
(316) 262-8808

DESIGNED: HDF	SCALE: 1"=20'	SHEET 2
DRAWN: AEE	DATE: 05-2000	
CHECKED: HDF	CED FILE: gc_base-sp2	TOTAL 5

AS-BUILT 11-1-2000 HDF



1" = 20'

BENCHMARK:

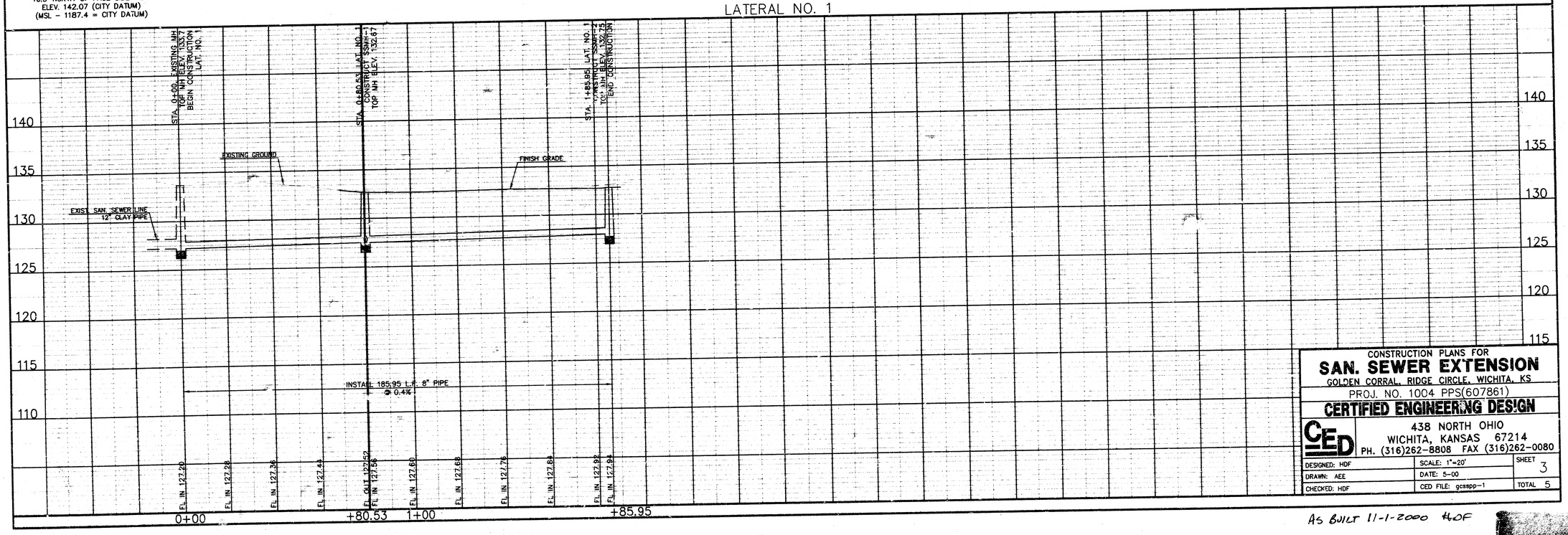
RIDGE ROAD & MAPLE, C.O.W. BM
SW COR. INTERSECTION.
69' SOUTH & 97' WEST OF CNTR LINE BOTH.
10.5' NORTH OF FACE SIDEWALK.
ELEV. 142.07 (CITY DATUM)
(MSL – 1187.4 = CITY DATUM)

HORIZONTAL CONTROL TABLE

CP#1	N 805.4861 E 533.3313	CHISELED 'X'
CP#2	N 805.5377 E 695.3313	1/2" ø BAR L.S. 950 (SET)
CP#3	N 795.5078 E 695.3871	CHISELED 'X'
CP#4	N 795.7243 E 823.4770	NAIL
CP#5	N 508.7582 E 824.9721	1/2" ø BAR 'BAUGHMAN' (FOUND)

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

LATERAL NO. 1



CONSTRUCTION PLANS FOR
SAN. SEWER EXTENSION
GOLDEN CORRAL, RIDGE CIRCLE, WICHITA, KS
PROJ. NO. 1004 PPS(607861)
CERTIFIED ENGINEERING DESIGN

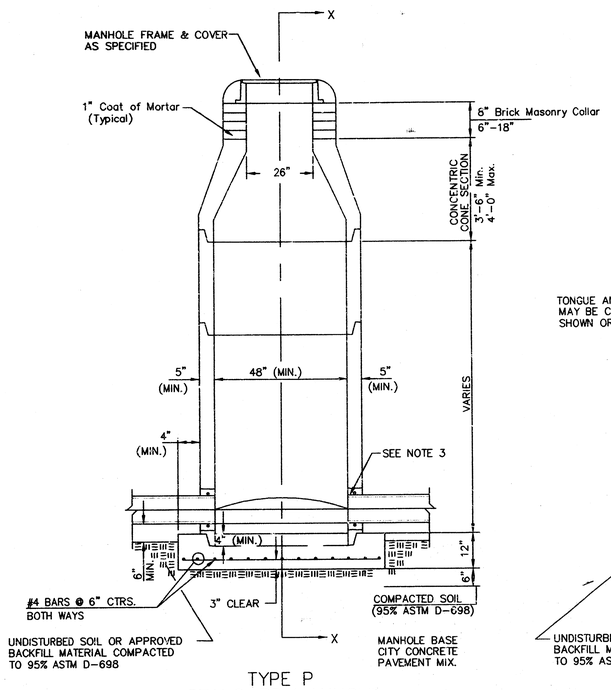
CED
438 NORTH OHIO
WICHITA, KANSAS 67214
PH. (316)262-8808 FAX (316)262-0080

DESIGNED: HDF	SCALE: 1"=20'	SHEET 3
DRAWN: AEE	DATE: 5-00	
CHECKED: HDF	CED FILE: gcsspp-1	TOTAL 5

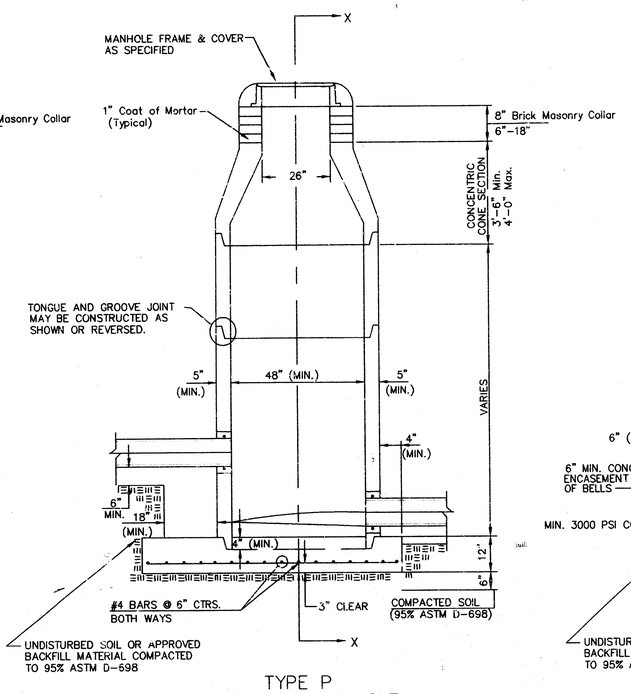
AS BUILT 11-1-2000 HDF

SEWER APPURTENANCES DETAILS

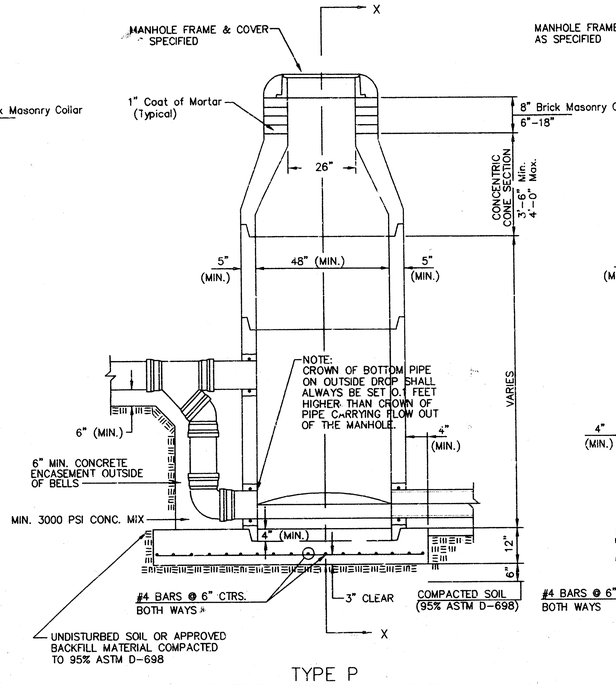
Sheet No.	Total Sheets
4	5



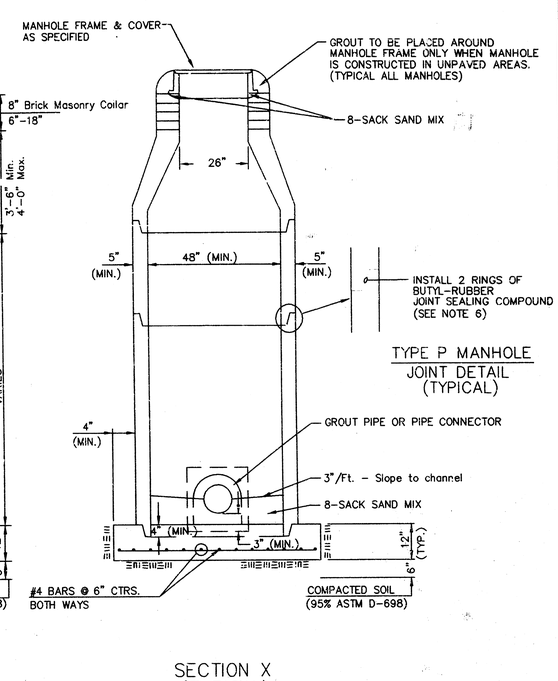
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



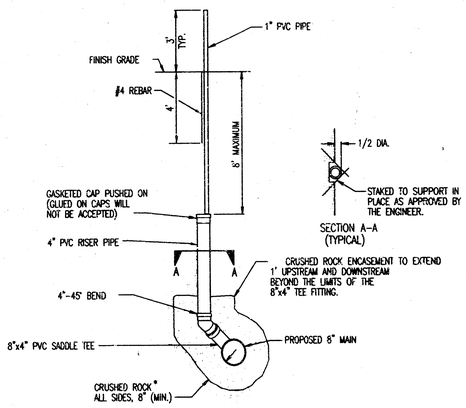
TYPE P MANHOLE
JOINT DETAIL
(TYPICAL)

SECTION X
(TYPICAL)

GENERAL NOTES

PRECAST MANHOLE NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNEMEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
9. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4'. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
14. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MAHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
15. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.



TEE SERVICE CONNECTION DETAIL

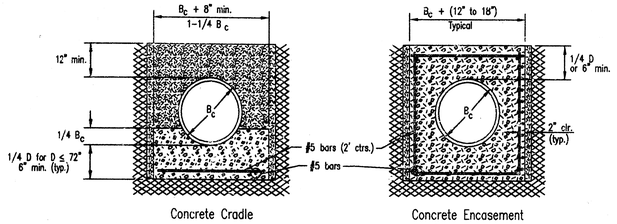
SERVICE CONNECTIONS ARE TO BE INSTALLED WHERE PROPOSED SEWER MAIN IS 12' OR MORE BELOW PROPOSED GROUND OR AS SHOWN IN THE PLANS.

* CRUSHED ROCK SHALL MEET THE REQUIREMENTS FOR GRANULAR BEDDING MATERIAL, AS OUTLINED IN THE SPECIFICATIONS.

STANDARD TYPE "P"
MANHOLE DETAILS

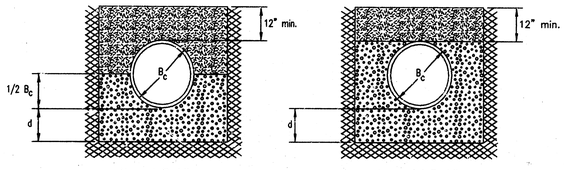
AS BUILT 11-1-2005 HOF

Sheet No.	Total Sheets
5	5



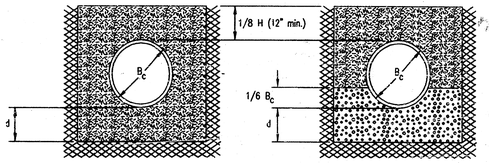
Concrete Cradle — Concrete Encasement

CLASS A



Normal Bedding — Improved Bedding

CLASS B



Ordinary Bedding — Improved Bedding

CLASS C

PIPE ZONE BACKFILLING

B_c = Outside Pipe Diameter

H = Backfill from Top of Pipe to Existing Ground

D = Inside Pipe Diameter

d = Depth of Bedding Material Below Pipe

= Granular Bedding Material or Sand-Gravel Bedding

= Compacted Embedment

= Concrete

Depth of Bedding Material Below Pipe		
D	d(min) Soil	d(min) Rock
27" & smaller	4"	6"
30" to 60"	5"	9"
66" & larger	6"	12"

Granular Bedding Material shall be an approved material consisting of durable crushed rock conforming with the requirements of the latest revision of ASTM C-33 Size No. 67 (3/4" to No. 4); to be placed in not more than 6" layers and compacted by slicing with a shovel or vibrating. Soundness, abrasion, and absorption limits shall be as required for coarse aggregates in Section 03010-Concrete Work in the specifications.

Sand-Gravel Bedding Material - sand-gravel mix meeting Type UD-1 of the 1990 Kansas Standard Specifications for State Road and Bridge Construction.

Compacted Embedment shall be an approved sand material free from debris, organic material, and stones with 100% passing the 3/4" sieve to be placed in uniform layers not more than 6" thick and compacted to 95 percent maximum density as determined by ASTM D698. Granular Bedding Material may be substituted for all or part of Compacted Embedment Materials.

Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

Class B Bedding shall be used for all flexible pipe.

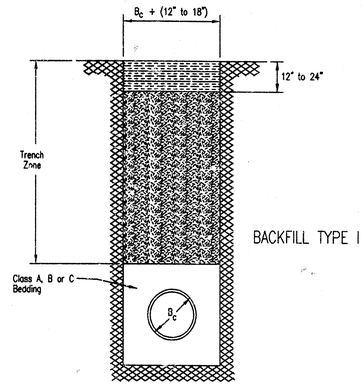
a. Class B Normal Bedding shall be used for PVC Pipe unless wet conditions are encountered.

b. Class B Improved Bedding shall be used for other flexible pipe, and for PVC pipe in wet conditions.

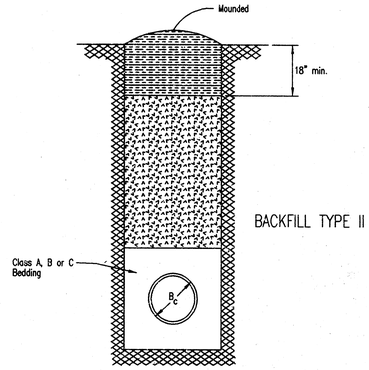
Class C Bedding shall be used for all rigid pipe.

a. Class C Ordinary Bedding shall be used for all rigid pipe unless wet conditions are encountered.

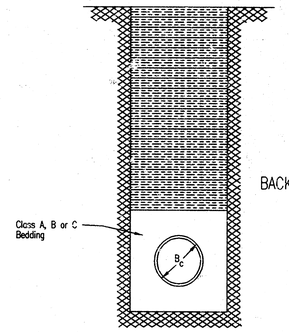
b. Class C Improved Bedding shall be used for wet conditions existing in the trench, as directed by the Engineer, at no additional cost to the Owner. The dimensions shall be equal to that required for "rock" excavation (see specifications).



BACKFILL TYPE I



BACKFILL TYPE II



BACKFILL TYPE III

TRENCH ZONE BACKFILLING

B_c = Outside Pipe Diameter

= Compacted Granular Backfill

= Uncompacted Earth Backfill

= Compacted Earth Backfill

Compacted Granular Backfill material shall be an approved sand material free from debris, organic material and stones with 100% passing the 3/4" sieve and not more than 15% passing a No. 200 sieve; to be jetted and mechanically vibrated into place and compacted to 95% density as determined by ASTM D698.

Uncompacted Earth Backfill material may be natural soil free from large clods or stones, brush, roots more than 2 inches in diameter, debris, and junk. Flooding with water shall be provided as directed by the Engineer.

Compacted Earth Backfill shall consist of material existing prior to trenching or selected material as directed by the Engineer, and shall be compacted to 90% density as determined by ASTM D698.

Backfill: Backfill material and compaction requirements shall conform to either Type I, Type II or Type III as specified in the plans. One years maintenance will be required on all backfill.

Backfilling Through Rock: Backfilling through rock shall be performed as specified in the paragraph Backfill above, except that the Pipe Zone is increased to provide eighteen (18) inches of cover over the pipe. When approved by the Engineer the remainder of the backfill may be excavated rock provided the excavated rock has been broken up so that earth and rock will thoroughly mix and not result in voids around the larger pieces of rock. Any excess rock remaining after the trench has been backfilled shall be removed or wasted as directed by the Engineer.

Backfilling Under Pavement: Backfilling under existing or proposed pavement shall be performed as Backfill Type I to a level of two (2) feet from the bottom of the pavement. The remainder of the trench shall be backfilled with selected material, sufficiently damp to be properly compacted in layers not exceeding six (6) inches in depth, compaction shall be performed with mechanical tampers and continued until a relative density of 100 percent of standard density, in conformance with ASTM D698 is attained.

Backfilling Under Gravel Streets: Where the trench crosses or is in existing gravel surfaced streets, the backfill shall be compacted as provided in the paragraph "Backfilling Under Pavement".

BACKFILL DETAILS

AS BUILT 11-2000 HOF

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