

DRAWING LIST				
SHEET NO.	SHEET TITLE			
C0.00	COVER SHEET			
C0.01	ABBREVIATIONS, LEGEND, AND GENERAL NOTES			
C0.50	EXISTING CONDITIONS AND DEMOLITION PLAN			
C1.00	SITE PLAN			
C2.00	GRADING AND DRAINAGE PLAN			
C3.00	SITE UTILITY PLAN			
C4.00	EROSION AND SEDIMENT CONTROL			
C5.00	CIVIL DETAILS - SHEET 1			
C5.01	CIVIL DETAILS - SHEET 2			
C5.02	CIVIL DETAILS - SHEET 3			
C6.00	SPECIFICATIONS - SHEET 1			
C6.01	SPECIFICATIONS - SHEET 2			
C6.02	SPECIFICATIONS - SHEET 3			
C6.03	SPECIFICATIONS - SHEET 4			
C6.04	SPECIFICATIONS - SHEET 5			

GREAT LAKES CHEESE WASTEWATER TREATMENT BUILDING 2200 ENTERPRISE AVENUE LA CROSSE, WI 54603

PLANNING REVIEW RELEASED: MAY 23, 2018



VICINITY MAP SCALE: NTS

TRUE

NORTH



ALL CONTRACTORS SHALL NOTIFY UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING OF THE INTENT TO EXCAVATE NO LESS THAN 72 HOURS PRIOR TO SUCH EXCAVATION (EXCLUSIVE OF SATURDAYS, SUNDAYS, AND HOLIDAYS). EXISTING UTILITY LOCATIONS SHOWN SHALL

BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. LOCATIONS OF UNDERGROUND UTILITIES ON THESE DRAWINGS ARE APPROXIMATE ONLY AND BASED ON ACTUAL FIELD LOCATIONS OF VISIBLE STRUCTURES AND PLAN COMPUTATIONS.

DESIGN TEAM

ARCHITECT

THE DENNIS GROUP, LLC

PLANNING LENGINEERING CONSTRUCTION MANAGEME

CIVIL ENGINEER

THE DENNIS GROUP, LLC

LANNING LENGINEERING CONSTRUCTION MANAGEME

STRUCTURAL ENGINEER

THE DENNIS GROUP, LLC

PLANNING • ENGINEERING • CONSTRUCTION MANAGEMENT

MECHANICAL ENGINEER

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PLUMBING ENGINEER

THE DENNIS GROUP, LLC

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FIRE PROTECTION ENGINEER THE DENNIS GROUP, LLC

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GREAT LAKES CHEESE 2200 ENTERPRISE AVENUE	LA CROSSE, WISCONSIN			COVER SHEEL			
INIS GROUP		jn • Engineer • Build • Start-Up		dennisaroup.com	atac , Darati , Dortinaal		
DEN		Plan • Design			Lloitad Cto		
drawing no.							

CIVIL ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS MAY BE USED.

TRENCH DRAIN

TOP OF FRAME

VERIFY IN FIELD

UNLESS OTHERWISE NOTED

TOP OF WALL

TYPICAL

WITH

WITHOUT

YARD DRAIN

TW

TYP

UON VIF

W/

YD

W/O

TELEPHONE

CIVIL LEGEND

NOTE: NOT ALL SYMBOLS MAY BE USED.

ACCMP	ASPHALT COATED CORRUGATED METAL PIPE		
ADA	AMERICANS WITH DISABILITIES ACT	EXISTING	
ARCH	ARCHITECTURAL		
BC	BOTTOM OF CURB		
BLDG	BUILDING		EASEMENT LINE
BWA	BEST MANAGEMENT PRACTICE		
BW	BOTTOM OF WALL		KAILKOAD
BWL	BRUKEN WHITE LINE		WATER
Ψ CD	CATCH DASIN		LIMIT OF WETLANDS
	CHURIC EEET DER SECOND	1/1	WETLANDS
	CODIC FEEL FER SECOND CAST IRON	E	
CIP	CAST IRON PIPE		
CMP	CORRUGATED METAL PIPE	EP	ELECTRIC PRIMART
CMU	CONCRETE MASONRY UNIT	OH	OVERHEAD LINE
CO	CLEAN OUT	———— T ————	TELEPHONE LINE
CONC	CONCRETE	G	GAS LINE
CONST.	CONSTRUCTION		WATER LINE
CONT	CONTINUOUS		
DEP	DEPARTMENT OF ENVIRONMENTAL PROTECTION	——————————————————————————————————————	FIRE WATER LINE
DI	DUCTILE IRON	S	SANITARY SEWER
	DUCTILE IRUN PIPE DRAINAGE MANUOLE	SFM	SANITARY FORCE MAIN
	DRAINAGE MANHULE DEDADTMENT OF TRANSDORTATION		
FCR	EROSION CONTROL BLANKET	O ^{WV}	WATER VALVE
FLEC	FI FCTRICAI	0 ^{WM}	WATER METER
FLEV	FLEVATION	GV	
EPA	ENVIRONMENTAL PROTECTION AGENCY	000	GAS VALVE
EPSC	EROSION PROTECTION AND SEDIMENTATION CONTROL	Lower Law	SHRUB
EX	EXISTING		SINOB
EXST	EXISTING	Joseph Land	
FD	FOUNDATION DRAIN	(° <u>}</u>	
FDC	FIRE DEPARTMENT CONNECTION		IREL
FDN	FOUNDATION		
FES	FLARED END SECTION		CONIFEROUS
	ELEVATION		IREE
FTG	FOOTING		TREE LINE
HC	HANDICAP		
HDPF	HIGH DENSITY POLYETHYLENE	_515.75	SPOT FLEVATION
HYD	HYDRANT	Т	
INV	INVERT	301	CONTOUR (1' INTERVAL)
MEP	MECHANICAL, ELECTRICAL, AND PLUMBING		
MEG	MATCH EXISTING GRADE		CATCH BASIN
МН	MANHOLE		
MIN	MINIMUM		
N/A	NOT APPLICABLE		
NIC	NOT IN CONTRACT		
NIS	NUT TU SCALE		
DC			
PF			
PFRF	PERFORATED		
PIV	POST INDICATOR VALVE		
PROP.	PROPOSED		
PVC	POLYVINYL CHLORIDE		
PW	PROCESS WASTE (INDUSTRIAL WASTE)		
PVMT	PAVEMENT		
R	RADIUS		
RCP	REINFORCED CONCRETE PIPE		
RECP	ROLLED EROSION CONTROL PRODUCT		
REQ'D	REQUIRED		
RUW			
SDAI			
SF	SQUARE FEET		
SIM	SIMILAR		
STL	STEEL		
STM	STORM		
STRUCT	STRUCTURAL		
SWL	SOLID WHITE LINE		
SYL	SOLID YELLOW LINE		
IC	ION OF COKR		

PROPOSED	
	EXISTING PIPE TO BE CUT/CAPPED
	EXISTING FEATURE TO BE REMOVED
<u> </u>	EXISTING FEATURE TO BE ABANDONED-IN-PLACE
	PAVEMENT SAWCUT LINE
80	CONCRETE CURB AND GUTTER
	CURB OR WALL
v	
~	CHAIN LINK FENCE
XX	CHAIN LINK FENCE WITH BARBED WIRE
**	DECORATIVE METAL FENCE
//	ORANGE CONSTRUCTION FENCE
//	CHAIN LINK CONSTRUCTION FENCE
///	CHAIN LINK CONSTRUCTION FENCE WITH WINDSCREEN
· · · · · · · · · · · · · · · · · · ·	METAL BEAM RAIL
	TIMBER GUIDE RAIL
	SIGN WITH SCHEDULE DESIGNATION
$\begin{pmatrix} 14 \end{pmatrix}$	PARKING STALL COUNT
Ø	UTILITY POLE
\$	LIGHT POLE
•	BOLLARD
\bullet^{B-OI}	SOIL BORING
TP-01	SOIL TEST PIT
$\odot \odot $	SHRUBS
	TREES
	TREE LINE
<-₩	SURFACE DRAINAGE DIRECTION
0.5 %	PERCENT GRADE AND DIRECTION
3:1	SLOPE (HORIZONTAL:VERTICAL) AND DIRECTION
t	FLUSH CONDITION BETWEEN ADJACENT
• ×[301.58]	SURFACES SPOT FLEVATION
301	
CB−01	
 DMH−01	
FES-01	
I	FLARED END SECTION
	WINGWALL OR HEADWALL/ENDWALL
	- NOMINAL DIAMETER
6" F DI	- PIPE MATERIAL (OPTIONAL)
12" F DI	NOMINAL PIPE DIAMETER <12 INCHES
6" W	NOMINAL PIPE DIAMETER ≥12 INCHES
<u> </u>	DOMESTIC WATER PIPE
6" S EM	SANITARY SEWER PIPE (GRAVITY)
6" DW	SANITARY SEWER FORCE MAIN
	PROCESS WASTE PIPE (GRAVITY)
	PROCESS WASTE FORCE MAIN
SMH-01	SANITARY SEWER MANHOLE
©PMH-01	PROCESS WASTE MANHOLE
∽—⊗—	WATER VALVE
*	HYDRANT
∽ ,	REDUCER
sites the the the	FITTINGS (TEE, 90, 45, 22.5, 11.25)
8 - 24 1 - 1 1 - 1	INLET PROTECTION
	CONSTRUCTION ENTRANCE
	SILT FENCE
<u></u>	CHECK DAM
- <u>(••]••]••]••]••]••]••]••]••]+</u> -	STRAW BALE BARRIER

1. EXISTING CONDITIONS PLAN AND TOPOGRAPHY FROM FIELD SURVEY PERFORMED BY PARAGON ASSOCIATES OF LA CROSSE, WI IN FALL 2015. TEMPORARY BENCHMARKS ARE LOCATED ON THE PLANS WITH DESCRIPTIONS AND ELEVATIONS. 2. ELEVATIONS ON ALL SHEETS AREA BASED ON LA CROSSE COUNTY GPS HARN POINT LA CROSSE ELEVATION 716.19 (NAVD88 DATUM).

3. ALL CONSTRUCTION SHALL COMPLY WITH THE PROJECT SPECIFICATIONS, CITY OF LA CROSSE SPECIFICATIONS, AND WISCONSIN DOT SPECIFICATIONS IN THE ABOVE REFERENCED HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MOST STRINGENT SPECIFICATION SHALL APPLY.

4. THE OWNER SHALL ENGAGE THE SERVICES OF A THIRD-PARTY MATERIALS TESTING AGENCY AND GEOTECHNICAL ENGINEER TO CONDUCT INSPECTIONS AND TESTING. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTIONS THROUGH THE CONSTRUCTION MANAGER OR OWNER'S REPRESENTATIVE, AND PROVIDE 48 HOURS NOTICE FOR TESTS AND INSPECTIONS. IF MATERIALS PLACED BY CONTRACTOR FAIL INSPECTION, THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH SUBSEQUENT TESTING AND INSPECTION UNTIL MATERIAL PASSES.

5. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS REQUIRED BY THE AHJ PRIOR TO CONSTRUCTION, INCLUDING WORK WITHIN COUNTY OR STATE ROADWAYS AND/OR RIGHT-OF-WAYS. CONTRACTOR SHALL OBTAIN PERMITS AND PAY ASSOCIATED FEES TO PERFORM ALL WORK, INCLUDING FOR STREET REPAIR AND REPLACEMENT, TRENCHING, AND CONNECTION TO EXISTING UTILITIES. CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE, AND PROVIDE MAINTENANCE AND PROTECTION OF TRAFFIC IN ACCORDANCE WITH THE REQUIREMENTS OF THE AHJ.

6. THE CONTRACTOR IS HEREBY ADVISED THAT ALL LOCATIONS OF EXISTING PIPES, CONDUITS, UTILITIES, FOUNDATIONS, AND UNDERGROUND STRUCTURES ARE NOT WARRANTED TO BE CORRECT NOR ACCURATE AND THE CONTRACTOR SHALL HAVE NO CLAIM ON THAT ACCOUNT SHOULD THEY BE OTHER THAN SHOWN. LOCATIONS OF EXISTING UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS AS REPRESENTED BY UTILITY DRAWINGS, THEREFORE THEIR ACTUAL LOCATIONS MAY VARY. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR SHALL MAKE EXAMINATIONS IN THE FIELD BY VARIOUS AVAILABLE METHODS AND SHALL OBTAIN INFORMATION FROM UTILITY COMPANIES AND INDIVIDUALS AS TO THE LOCATION OF ALL SUB-SURFACE STRUCTURES. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR EXCAVATE IN ANY AREA PRIOR TO A SIGNED CONTRACT AND NOTICE TO PROCEED.

7. THE CONTRACTOR IS HEREBY REMINDED THAT "CALL BEFORE YOU DIG" MARK-OUTS BY THE APPROPRIATE UTILITY COMPANY ARE REQUIRED. CONTRACTOR SHALL CALL DIGGERS HOTLINE, INC. 1-800-242-8511 AT LEAST 72 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

COMPANY. CONTRACTOR SHALL BEAR ALL COSTS FOR UTILITY LOCATING. 9. <u>"UTILITY IDENTIFICATION TAPE"</u>: AFTER PLACING APPROXIMATELY 2 FEET OF BACKFILL MATERIAL OVER ALL UTILITY PIPING, INCLUDING EXISTING PIPING, THE CONTRACTOR SHALL PLACE A 6-INCH WIDE NON-DETECTABLE STRIP OR DURABLE, COLOR CODED (RED FOR ELECTRIC: YELLOW FOR GAS OR OIL; ORANGE FOR COMMUNICATIONS; BLUE FOR WATER; GREEN FOR SANITARY AND STORM SEWER) UNDERGROUND UTILITY IDENTIFICATION TAPE IMPRINTED WITH AN APPROPRIATE WARNING INDICATING THE PRESENCE OF THE BURIED UTILITY.

COVER FOR PIPES GREATER THAN TWELVE (12) INCHES, UNLESS SHOWN OTHERWISE. INSTALLATION FOR SUSPECT GAS MAIN AND SERVICE CONFLICTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL UTILITY RELOCATION WORK. CLAIMS FOR EXTRAS WILL NOT BE ALLOWED FOR DELAY OR WORK DUE TO UTILITY COMPANY COORDINATION OR UTILITY RELOCATION WORK.

DRAWINGS THAT IS ENCOUNTERED DURING CONSTRUCTION. HORIZONTAL LOCATION AND ELEVATION SHALL BE ELECTRONICALLY SURVEYED, AND SUBMITTED TO ENGINEER IN THE SAME COORDINATE SYSTEM THAT THE CONTRACT DRAWINGS WERE PRODUCED. 16. CONTRACTOR AND THEIR PERSONNEL SHALL FOLLOW ALL FEDERAL, STATE AND LOCAL REQUIREMENTS FOR SAFETY WHEN IN CONFINED SPACES. ALSO REFER TO RECOMMENDATIONS IN THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH PUBLICATION NO. 80-106, "WORKING IN CONFINED SPACES". 17. CONTRACTOR SHALL COMPLY WITH CFR29 PART 1926 FOR EXCAVATION, TRENCHING, AND TRENCH PROTECTION REQUIREMENTS. 18. EXCAVATION EXCEEDING 20-FEET IN DEPTH REQUIRES THE DESIGN OF A TRENCH SAFETY SYSTEM DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE IN WHICH THE WORK IS TO BE PERFORMED.

19. CONTRACTOR SHALL ADHERE TO ALL OSHA, FEDERAL, AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN PROXIMITY OF OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES CONTACT ELECTRIC COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. CONTRACTOR SHALL PAY ANY ASSOCIATED FEES CHARGED BY THE ELECTRIC COMPANY.

OBTAINING ALL PERMITS. AS SPECIFIED. 21. ALL DEWATERING SHALL BE DIRECTED TO COMBINED OR SANITARY SEWERS AT LOCATIONS AS APPROVED BY THE ENGINEER. DO NOT DISCHARGE GROUND WATER TO STORM DRAINS. ALL DEWATERING ACTIVITIES SHALL COMPLY WITH THE TECHNICAL SPECIFICATIONS AND STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS. THE CONTRACTOR SHALL NOT COMMENCE DEWATERING DISCHARGE WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE ENGINEER OR OWNER, AS SPECIFIED. 22. NOT ALL TEST PIT LOCATIONS ARE SHOWN ON THE PLANS. EXCAVATE TEST PITS IN LOCATIONS AS DIRECTED BY THE ENGINEER. TEST PITS SHALL BE DUG TO ADJUST PIPING AS REQUIRED BY THE ENGINEER. 23. ALL PIPE SECTIONS SHOWING LENGTHS IN LINEAR FEET ARE TWO-DIMENSIONAL MEASUREMENTS TAKEN FROM CENTER TO CENTER OF EACH ADJOINING MANHOLE OR STRUCTURE. 24. UNLESS OTHERWISE NOTED, PVC PIPE SHALL BE SDR 35, DI PIPE FOR SEWER SHALL BE CLASS 52 LINED WITH PROTECTO 401 INTERIOR COATING, DI PIPE FOR WATER SHALL BE CLASS 54 AND RC PIPE SHALL BE CLASS IV. 25. SILT SACKS SHALL BE PLACED AROUND ALL CATCH BASINS SUBJECT TO RUNOFF FROM CONSTRUCTION AREAS. 26. AT CONNECTION BETWEEN EXISTING AND NEW PIPES, SLEEVES, NIPPLES AND ACCESSORIES NECESSARY FOR MAKING CONNECTIONS MAY NOT BE SHOWN IN THE DETAILS. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS AS NECESSARY FOR CONNECTING TO EXISTING PIPES AND AS INDICATED IN THE SPECIFICATIONS. 27. CONTRACTOR SHALL PROVIDE THE OWNER, LOCAL FIRE/POLICE AUTHORITIES, SCHOOL DEPARTMENT, LOCAL BUSINESSES AND PUBLIC TRANSPORTATION AGENCIES A DETAILED PLAN OF APPROACH INDICATING METHODS OF PROPOSED TRAFFIC ROUTING WHEN WORKING IN THE PUBLIC WAY. COMMUNICATION WITH DEPARTMENTS, LOCAL BUSINESSES AND PUBLIC TRANSPORTATION AGENCIES SHALL BE MAINTAINED THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. 28. CONTRACTOR SHALL RESTORE ANY UTILITY STRUCTURE, UTILITY, PIPE, PAVEMENT, CURBS, SIDEWALKS, DRAINAGE STRUCTURE, SWALE, OR LANDSCAPED AREAS DISTURBED BY CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE OWNER, MUNICIPALITY, OR STATE DOT. 29. CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES, AND UNIFORMED TRAFFIC CONTROLLERS AS REQUIRED OR ORDERED BY THE ENGINEER OR

APPROVAL FROM THE APPROPRIATE GOVERNING AGENCY IS GRANTED. AT THE END OF CONSTRUCTION.

GENERAL NOTES

8. UTILITIES IN AREAS OUTSIDE THE LIMITS OF "CALL BEFORE YOU DIG" MARK-OUTS SHALL BE LOCATED BY PRIVATE UTILITY LOCATING

10. GAS MAINS AND TELEPHONE LINES ARE ASSUMED TO HAVE THREE (3) FEET OF COVER UNLESS SHOWN OTHERWISE. 11. WATER MAINS ARE ASSUMED TO HAVE SEVEN (7) FEET OF COVER FOR PIPES TWELVE (12) INCHES OR LESS, AND SIX (6) FEET OF

12. GAS MAIN AND SERVICE RELOCATION WORK, IF NECESSARY, WILL BE COORDINATED WITH ENGINEER AND CONTRACTOR, AND WILL BE PERFORMED BY CONNECTICUT NATURAL GAS COMPANY AT THE OWNERS EXPENSE. TEST PITS SHALL BE PERFORMED PRIOR TO PIPE

13. CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORT AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES, AS WELL ANY REPAIR AND/OR REPLACEMENT COSTS OF UTILITIES DAMAGED DURING CONSTRUCTION WHETHER ABOVE OR BELOW GRADE.

15. CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER OF ANY SUBSURFACE UTILITY OR OTHER PIPE NOT SHOWN ON THE

20. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EXISTING FLOWS IN SANITARY SEWERS, STORM DRAINAGE SYSTEMS, AND FOR

REQUIRED BY THE AHJ. CONTRACTOR SHALL MAINTAIN ALL TRAFFIC LANES AND PEDESTRIAN WALKWAYS AT ALL TIMES UNLESS WRITTEN

30. CONTRACTOR SHALL PROTECT ALL IRON PINS, MONUMENTS, AND PROPERTY CORNERS DURING CONSTRUCTION. ANY DISTURBED BOUNDARY MARKERS SHALL BE RESET BY A LICENSED LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.

31. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS OF ALL CONSTRUCTION, INCLUDING UNDERGROUND UTILITIES, TO THE ENGINEER

S GENEI Ш \Box \mathbf{O} ິທ∠zz LEGEND, NOTES LAKE PRISE AVEN **NIS** Щ Ч Ч Ч Ч S BREVIATION ، ^{للل} ک Ш С Ž Ž ب ۲ 20 ۲ 20 В



DRAWING NO

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SITE PLAN NOTES

- 1. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS AND PLAN SPECIFICATIONS TO THE OWNER AND SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.
- 2. ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.
- 3. TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE STATE DOT STANDARD DETAIL SHEETS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION. SIGNS SHALL BE INSTALLED PLUMB WITH 2-FEET HORIZONTAL CLEARANCE FROM THE EDGE OF SIGN TO FACE OF THE CURB OR EDGE OF TRAVEL WAY, 7-FEET VERTICAL CLEARANCE FROM EXISTING GRADE UNLESS OTHERWISE DETAILED OR NOTED.
- 4. THE CONTRACT LIMIT IS THE PROPERTY LINE UNLESS OTHERWISE SPECIFIED.
- 5. THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PAINT MIXTURE PRIOR TO STRIPING. 6. PAVEMENT MARKING KEY:
- a. 4" SDYL = 4-INCH WDE SOLID DOUBLE YELLOW LINE
- b. 4" SYL = 4-INCH WIDE SOLID YELLOW LINE
- c. 4" SWL = 4-INCH WIDE SOLID WHITE LINE
- d. 12" SWSB = 12-INCH SOLID WHITE STOP BAR
- e. 4" BWL = 4" WIDE WHITE LINE 10' STRIPE, 30' SPACE
- 7. FIRE LANES SHALL BE ESTABLISHED AND PROPERLY DESIGNATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PROJECT CITY DISTRICT FIRE MARSHAL.
- 8. ALL HANDICAP ACCESSIBLE SITE FEATURES SHALL BE CONSTRUCTED TO MEET ALL FEDERAL, STATE, AND LOCAL CODES.
- 9. DO NOT SCALE DRAWINGS AS THEY ARE REPRODUCTIONS AND SUBJECT TO DISTORTION.
- 10.LANDSCAPE PLANTINGS AND SITE SIGN LOCATIONS AT ENTRANCES/EXITS SHALL BE INSTALLED AND MAINTAINED SO AS NOT TO INTERFERE WITH SIGHT DISTANCE NEEDS OF DRIVERS IN THE PARKING AREA AND AT ENTRANCES/EXITS LOCATIONS, PER STATE AND LOCAL STANDARDS.

11. ANY AND ALL QUANTITIES SHOWN OR IMPLIED ON THESE DRAWINGS ARE FOR ESTIMATION PURPOSES ONLY. 12. SEE SHEET C0.01 FOR GENERAL NOTES.



GRADING AND DRAINAGE NOTES

- 1. EARTH MOVING SHALL CONFORM TO THE REQUIREMENTS OF THE GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS.
- 2. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS AT ALL LOCATIONS.
- 3. WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT, MEET LINE AND GRADE OF EXISTING PAVEMENT.
- 4. CONTRACTOR SHALL BLEND NEW GRADES SMOOTHLY INTO EXISTING GRADES.
- 5. PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/8" PER FOOT UNLESS OTHERWISE NOTED. 6. ALL PROPOSED TOP OF CURB ELEVATIONS ARE 6-INCHES ABOVE BOTTOM OF CURB UNLESS OTHERWISE NOTED. REFER TO DRAWINGS FOR LENGTHS OF FLUSH (DEPRESSED) CURB, TRANSITION CURB, MOUNTABLE CURB, AND STANDARD VERTICAL CURB.
- 7. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING.
- 8. ALTERATIONS TO THE GRADING AND DRAINAGE SHOWN ON DRAWINGS SHALL BE DOCUMENTED IN THE "AS-BUILT" DRAWINGS, WHICH ARE TO BE MAINTAINED BY THE CONTRACTOR.



SITE UTILITY NOTES

- 1. CONTRACTOR SHALL FIELD VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE SEWERS CROSS-EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE ENGINEER IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.
- 2. DRAWINGS SHOW PIPES UP TO 5-FEET FROM THE FACE OF BUILDING. REFER TO DRAWINGS BY OTHERS FOR BUILDING CONNECTIONS. CONTRACTOR SHALL SUPPLY AND INSTALL PIPE ADAPTERS AS NECESSARY AT BUILDING CONNECTION POINT OR AT EXISTING UTILITY OR PIPE CONNECTION POINT.
- 3. UTILITY CONNECTION DESIGN AS REFLECTED ON THE PLAN MAY CHANGE SUBJECT TO UTILITY COMPANY AND AHJ STAFF REVIEW.
- 4. CONTRACTOR SHALL ENSURE THAT ALL UTILITY COMPANIES AND CITY OF LA CROSSE STANDARDS FOR MATERIALS AND CONSTRUCTION METHODS ARE MET. THE CONTRACTOR SHALL PERFORM PROPER COORDINATION WITH THE RESPECTIVE UTILITY COMPANY.
- 5. CONTRACTOR SHALL ARRANGE FOR AND COORDINATE SERVICE INSTALLATIONS AND CONNECTIONS WITH THE RESPECTIVE UTILITY COMPANIES. THE CONTRACTOR SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, REMOVALS, RELOCATIONS, AND INSPECTIONS.
- 6. SANITARY SEWER PIPING SHALL MAINTAIN 10' MIN. HORIZONTAL 1.5' VERTICAL MIN. SEPARATION DISTANCE FROM POTABLE WATER LINES, OR ADDITIONAL PROTECTION MEASURES WILL BE REQUIRED WHERE PERMITTED.
- 7. RELOCATION OF UTILITY COMPANY INFRASTRUCTURE SUCH AS POLES, HANDHOLES, VAULTS, ETC., SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH WORK TO BE PERFORMED BY UTILITY COMPANY.
- 8. CONTRACTOR TO PROVIDE SLEEVES UNDER FOOTINGS FOR UTILITY CONNECTIONS.
- 9. UTILITY PENETRATIONS AND LOCATIONS ARE SHOWN FOR THE CONTRACTOR'S INFORMATION AND SHALL BE VERIFIED WITH THE MEP DRAWINGS AND CONSTRUCTION MANAGER.
- 10.ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANY AND/OR THE LOCAL MUNICIPALITIES' REQUIREMENTS.
- 11.A ONE-FOOT MINIMUM CLEARANCE BETWEEN WATER, GAS, ELECTRICAL, AND TELEPHONE LINES AND STORM SEWERS SHALL BE PROVIDED. A SIX-INCH MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN STORM AND SANITARY SEWER WITH A CONCRETE ENCASEMENT.
- 12.CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, ADAPTERS, ETC., AS REQUIRED FOR PIPE CONNECTIONS TO BUILDING STUB OUTS, INCLUDING ROOF/FOOTING DRAIN CONNECTIONS TO ROOF LEADERS AND TO STORM DRAINAGE SYSTEM.
- 13.MANHOLE FRAMES AND COVERS, DRAINAGE INLET FRAMES AND GRATES, VALVE BOXES, AND CLEANOUT FRAMES AND COVERS SHALL BE RESET TO BE FLUSH WITH FINISHED GRADES.
- 14.THE CONTRACTOR SHALL ARRANGE AND COORDINATE WITH UTILITY COMPANIES AND THE CITY OF LA CROSSE FOR WORK TO BE PERFORMED BY UTILITY COMPANIES OR BY THE CITY OF LA CROSSE. THE CONTRACTOR SHALL PAY ALL UTILITY FEES AND REPAIR PAVEMENT AS NECESSARY.
- 15.ALL WATER LINES TO HAVE A MINIMUM COVER OF FIVE (5) FEET.
- 16.ALL WATER MAINS, WATER SERVICES AND SANITARY SEWER LATERAL SHALL CONFORM TO THE LA CROSSE WATER AND SEWER COMMISSION SPECIFICATIONS, AS WELL AS TO OTHER APPLICABLE CODES AND SPECIFICATIONS FOR POTABLE WATER SYSTEMS.
- 17.ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, ENGINEER, AND APPROPRIATE REGULATORY AGENCIES PRIOR TO INSTALLATION.
- 18.THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDINGS WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE OWNER, ENGINEER, UTILITY COMPANY OR AHJ. 19.MINIMUM SANITARY SEWER SLOPES SHALL BE -1/4" PER FOOT FOR 4" DIAMETER SERVICES AND SMALLER AND -1/8" PER
- FOOT FOR 6" DIAMETER SERVICES AND LARGER, UNLESS MORE STRINGENT REGULATIONS APPLY. 20. SEWAGE CONTAINING FATS, OILS, OR GREASE IS NOT ALLOWED TO BYPASS A GREASE TRAP.
- 21. CONTRACTOR SHALL GUARANTEE, FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE OF THE SYSTEM BY THE OWNER, EACH AND EVERY PIECE OF MATERIAL OR EQUIPMENT WHICH HAS BEEN INSTALLED UNDER THIS CONTRACT.



EROSION CONTROL NOTES

- 1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED, STATE, AND LOCAL APPROVAL DOCUMENS PERTAINING TO THIS PROJECT.
- 2. EROSION CONTROLS TO BE INSTALLED AT THE EDGE OF PROPOSED WORK. EROSION CONTROLS TO ACT AS A LIMIT OF WORK LINE TO ENSURE THAT NO EQUIPMENT ENCROACHES ON TO ADJACENT PROPERTIES.
- 3. EROSION CONTROLS SHALL REMAIN IN PLACE AND BE MAINTAINED FOR THE DURATION OF THE PROJECT TO LIMIT THE MOVEMENT OF SILTATION AND SEDIMENTS FROM ENTERING EXISTING DRAINAGE SYSTEMS OR FROM LEAVING THE PARCEL. ANY ACCUMULATED SEDIMENTS ARE TO BE REMOVED FROM THE EROSION CONTROLS AND DISPOSED TO PROPERLY. ADDITIONALLY, ALL EROSION CONTROLS ARE TO BE INSPECTED AFTER A STORM EVENT AND THE CONTROLS REPLACED OR ARMORED AS NECESSARY AND ACCUMULATED SEDIMENTS REMOVED.
- 4. ADDITIONAL EROSION CONTROLS ARE TO BE UTILIZED AS NECESSARY AND AS DIRECTED BY THE ENGINEER TO LIMIT SEDIMENTS FROM DISCHARGING TO ADJACENT PROPERTIES OR INTO EXISTING STORM DRAIN SYSTEMS.
- 5. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT EROSION SHALL NOT AFFECT ON-SITE REGULATED AREAS (WETLANDS, ETC) AND OFF-SITE AREAS, WHETHER SUCH EROSION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
- 6. A RESERVE AMOUNT OF EROSION CONTROL MATERIALS ARE TO BE KEPT WITHIN EASY ACCESS ON SITE AT ALL TIMES.
- 7. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
- 8. TEMPORARY STOCKPILING OF MATERIALS RELATED TO THE CONSTRUCTION ACTIVITIES ARE TO BE PROPERLY STABILIZED, PROTECTED AND DEMARCATED TO LIMIT MOVEMENT OF MATERIAL INTO STORM DRAIN SYSTEM OR ON TO ADJACENT PARCELS.
- 9. REFUELING AND ANY WORK ASSOCIATED WITH THE MAINTENANCE OF CONSTRUCTION EQUIPMENT TO BE PERFORMED IN COMPLIANCE WITH APPLICABLE REGULATIONS.
- 10. THE AREAS OF CONSTRUCTION SHALL REMAIN IN A STABLE CONDITION AT THE CLOSE OF EACH CONSTRUCTION DAY. EROSION CONTROLS SHALL BE CHECKED AT THIS TIME AND MAINTAINED OR REINFORCED IF NECESSARY.
- 11. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED WITH PAVEMENT, PLANTINGS, OR WITH AN ESTABLISHED STAND OF GRASS. EROSION CONTROLS SHALL NOT BE REMOVED UNTIL SITE STABILIZATION IS COMPLETE. CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS AS DIRECTED BY THE ENGINEER, DPW AND/OR SWSC.















SCALE: NTS

- 12 ALL EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER PROOFING MATERIAL
- (13) 12" (MINIMUM) ABOVE HIGHEST CROWN

(11) COMPACTED SUBGRADE OR COMPACTED

IN ACCORDANCE WITH THE GEOTECH

NOTES:

PRECAST CONCRETE SANITARY MANHOLE

JOINT SEALANT

- 1. PRECAST CONCRETE STRUCTURES AND CASTINGS SHALL BE SUITABLE FOR HS20 LOADINGS.
- 2. PRECAST CONCRETE STRUCTURES SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM-C-478.

- (1) UNPAVED SURFACE
- 2 PIPE CONNECTION W/KOR-N-SEAL FLEXIBLE BOOT JOINT OR APPROVED EQUAL

3 CAST IRON MANHOLE FRAME & COVER TO BE SET IN FULL BED OF

MORTAR WITH 30"Ø CLEAR OPENING

(5) FRAME TO BE SET IN FULL MORTAR BED

PRECAST CONCRETE RINGS: MAX. 8"

MANHOLE STEP @ 12" O.C. (TYP) AND

8 BRICK SHELF ELEVATION SAME AS CROWN OF HIGHEST PIPE (SHELF SLOPE 1"/FT)

(6) ADJUST TO GRADE WITH BRICK OR

(7) STEEL REINFORCED POLYPROPYLENE

SHALL MEET ASTM-478

(10) 12" PIPE BEDDING OR STONE

(4) PAVED SURFACE

ADJUSTMENT

9 4000 psi CONCRETE

STRUCTURAL FILL

REPORT









XXXXXXX DEAD END FOR FUTURE EXTENSION (CAP END) MAIN HEIGHT = 2'-0''THIS BRANCH HYDRANT FOR BLOWOFF

	CONCRETE THRUST BLOCKING SCHEDULE							
Fitting	Min. Blo	cking Are	ea (ft.)	2	Min. Cor	ncrete Re	eq'd.()	yd. 3
Size	Tee	90°	45°	22 ½ 11 ¾	TEE	90°	45°	22 ½ 11 ¼
4	1	2	1	1	0.1	0.1	0.1	0.1
6	2	3	2	1	0.1	0.1	0.1	0.1
8	4	5	3	2	0.1	0.2	0.1	0.1
10	6	8	4	2	0.2	0.3	0.1	0.1
12	8	11	6	3	0.3	0.5	0.2	0.1
14	11	15	8	4	0.5	0.8	0.3	0.1
16	14	19	11	6	0.7	1.1	0.5	0.2
18	17	24	13	7	0.9	1.5	0.6	0.3
20	21	30	16	9	1.2	2.1	0.8	0.4
24	31	43	23	12	2.2	3.5	1.4	0.6
30	48	67	36	19	4.2	6.8	2.7	1.1
36	68	96	52	27	7.0	11.7	4.7	1.8

INCREASE BLOCKING AREA AND CONCRETE QUANTITY FOR PRESSURES ABOVE 200 P.S.I. OR POOR SOIL CONDITIONS. KEEP CONCRETE AWAY FROM JOINTS. PLACE CONCRETE FAIRLY DRY AND FORM IF

REQUIRED FOR MAXIMUM AREA AGAINST UNDISTURBED SOIL. ALL FITTINGS AND ACCESSORIES TO BE WRAPPED WITH 10 MIL POLYETHYLENE PRIOR TO POURING BLOCKING. USE 3000 P.S.I. CONCRETE.







31 14 00 - TOPSOIL AND SALVAGED TOPSO 31 10 00 - SITE AND SURFACE RESTORATION SECTION 31 10 00 - SITE AND SURFACE RESTORATION SECTION 31 14 00 - TOPSOIL AND SALVAGED TOPSOIL PART 1 - GENERAL PART 1 - GENERAL

1.01 SCOPE OF WORK:

A. THIS SECTION PROVIDES FOR RESTORATION FOLLOWING CONSTRUCTION OF UNDERGROUND UTILITIES. PART 2 - PRODUCTS

NONE

PART 3 - EXECUTION

- 3.01 DAMAGED IMPROVEMENTS AND IMPROVEMENTS REMOVED AS NEEDED FOR CONSTRUCTION:
- A. THE CONTRACTOR SHALL RESTORE ANY SIDEWALK, DRIVEWAY, CURB AND GUTTER, LAWN, SHRUB OR TREE THAT IS DAMAGED OR DESTROYED THROUGH CARELESSNESS OF THE CONTRACTOR DURING CONSTRUCTION OR AS REQUIRED FOR CONSTRUCTION TO PROCEED. EXISTING PAVEMENTS SHALL BE SAW CUT IN A STRAIGHT LINE. OLD PAVEMENT SHALL BE EXPOSED TO FULL DEPTH OF THICKNESS. RESTORATION AND REPLACEMENT SHALL BE APPROVED BY THE ENGINEER AND SHALL BE INCIDENTAL TO THE CONTRACT PRICE. 3.02 GRASS AREAS:
- A. RESTORATION IN GRASS AREAS AND LAWNS SHALL INCLUDE THE PLACEMENT OF A MINIMUM OF SIX INCHES OF GOOD QUALITY TOPSOIL. THE TOPSOIL SHALL BE RAKED TO PROVIDE A SMOOTH SURFACE, FERTILIZED WITH 20-10-10 OR 10-10-10 FERTILIZER AT A RATE OF 0.5 POUNDS NITROGEN PER 1,000 SQUARE FEET AND SEEDED AT A RATE OF FOUR POUNDS PER 1000 SQUARE FEET. SEED SHALL BE A GOOD QUALITY MIX HAVING A MINIMUM OF 40% KENTUCKY BLUE GRASS. SEEDS SHALL BE COVERED WITH 1/4 INCH OF SOIL AND ROLLED LIGHTLY. SEEDED AREAS SHALL BE MULCHED WITH HAY OR STRAW TO A THICKNESS OF 1". MULCH SHALL BE ANCHORED BY PUNCHING TWO INCHES INTO THE SOIL WITH A DULL WEIGHTED DISK OR BY USING NETTING OR OTHER MEANS ON STEEP SLOPES.

END OF SECTION 31 10 00

- 1.01 SCOPE OF WORK:
- A. APPLICABLE PROVISIONS OF DIVISIONS 0 AND 1 SHALL GOVERN WORK UNDER THIS SECTION B. THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY F COMPLETION OF THE TOPSOIL OR SALVAGED TOPSOIL WORK AS CALLED FOR ON THE PLAN HEREWITHIN.

PART 2 - PRODUCTS AND MATERIALS

2.01 <u>TOPSOIL:</u>

A. TOPSOIL SHALL CONSIST OF THE NATURAL LOAM, SANDY LOAM SILT LOAM, SILTY CLAY LOAM HUMUS-BEARING SOILS ADAPTED TO THE SUSTENANCE OF PLANT LIFE, AND SUCH TOPSOIL EXCESSIVELY ACID NOR EXCESSIVELY ALKALINE.

2.02 SALVAGED TOPSOIL:

A. SALVAGED TOPSOIL SHALL CONSIST OF THE NATURAL LOAM, SANDY LOAM, SILT LOAM, SILT LOAM HUMUS-BEARING SOILS AVAILABLE FROM THE OVERLYING PORTIONS OF THE AREAS (PLANS OR CONTRACT TO BE OCCUPIED BY THE COMPLETED WORK.

PART 3 - CONSTRUCTION METHODS 3.01 PREPARATION FOR TOPSOILING:

- A. ALL AREAS DESIGNATED TO BE COVERED WITH TOPSOIL SHALL BE UNDERCUT OR UNDERFI THAT WHEN COVERED TO THE REQUIRED DEPTH WITH TOPSOIL THE FINISHED WORK WILL E THE REQUIRED LINES, GRADES, SLOPES AND CROSS SECTIONS.
- B. SUCH WORK WILL BE CONSIDERED SUBSIDIARY TO THE ITEMS OF TOPSOIL OR SALVAGED TO ADDITIONAL COMPENSATION WILL BE MADE THEREFORE, NOR WILL ALLOWANCE BE MADE T MEASUREMENT FOR QUANTITIES OF THE SEVERAL TYPES OF CLASSES OF EXCAVATION.

3.02 PROCESSING TOPSOIL OR SALVAGED TOPSOIL:

- A. ALL AREAS FROM WHICH TOPSOIL IS PROCURED SHALL BE CLEARED, IF NECESSARY, BY ME OR OTHER VEGETATION TO A HEIGHT OF APPROXIMATELY SIX INCHES AND FREED FROM AN ROCK OR FOREIGN MATERIAL OF OBJECTIONABLE SIZE OR QUANTITY.
- B. THE HUMUS-BEARING SOIL SHALL THEN BE STRIPPED OFF TO SUCH DEPTH AS AVAILABLE O PRODUCE SUFFICIENT VOLUMES TO COVER THE DESIGNATED AREAS TO THE REQUIRED DE PRACTICABLE CARE TO AVOID INCORPORATION OF ANY OF THE UNDERLYING STERILE SOIL
- C. THE TOPSOIL THUS STRIPPED FROM THESE AREAS MAY BE STOCKPILED ON ANY CONVENIE PROJECT LIMITS SO THAT IT CAN BE RECLAIMED AND SPREAD ON THE AREAS DESIGNATED, DIRECTLY ON THE DESIGNATED AREAS PROVIDED THEY HAVE BEEN PREPARED TO RECEIVE
- D. ANY APPRECIABLE VOLUMES EXCAVATED IN EXCESS OF THE AMOUNTS REQUIRED TO ACCO REQUIREMENTS SHALL BE DISPOSED OF BY THE CONTRACTOR WITH NO ADDITIONAL COMPE 3.03 PLACING:
- A. AFTER THE AREAS UPON WHICH THE TOPSOIL IS TO BE PLACED HAVE BEEN PREPARED AND REQUIRED LINES, GRADES, SLOPES AND CROSS SECTION, THE TOPSOIL SHALL BE PLACED A A UNIFORM DEPTH AS SHOWN ON THE PLANS OR REQUIRED IN THE CONTRACT, OR IF NONE OF SIX INCHES OR SUCH GREATER DEPTH AS DESIGNATED BY THE ENGINEER.
- B. AREAS OF SALVAGED TOPSOIL WASHED OUT OR DAMAGED DUE TO EROSION AFTER PARTIA SALVAGE TOPSOIL AND ALL ASSOCIATED EROSION CONTROL WORK SHALL BE RESTORED B RESTORATION OF SUCH AREAS WILL BE CONSIDERED INCIDENTAL TO THE WORK.

END OF SECTION 31 14 00

DIL	31 22 00 - GRADING	31 23 00 - TRENCHING, BEDDING, BACKFILLING AND COMPACTION OF PIPE WORK	
	SECTION 31 22 00 - GRADING	SECTION 31 23 33 - TRENCHING, BEDDING, BACKFILLING & COMPACTION OF PIPE WORK	
	PART 1 - GENERAL	PART 1 - GENERAL	
	1.01 SECTION INCLUDES:	1.01 SECTION INCLUDES:	
ON.	A. REMOVING TOPSOIL FROM AREAS TO BE EXCAVATED, AND STOCKPILING ON SITE FOR FUTURE USE.	A. WORK UNDER THIS SECTION SHALL INCLUDE EXCAVATION AND TRENCHING, BACKFILLING FOR ALL UTILITY WORK OUTSIDE OF BUILDINGS, AS REQUIRED BY THE PLANS AND SPECIFICATIONS.	SO S
FOR THE PROPER N OR SPECIFIED	PART 2 - PRODUCTS	PART 2 - PRODUCTS	
	PART 3 - EXECUTION	2.01 <u>GRANULAR BACKFILL:</u> A WHEN UNSTABLE SOIL ROCK EXCAVATION OR FIRM CLAY SOIL ARE ENCOUNTERED IN THE TRENCH THE ENGINEER MAY	
	3.01 <u>REMOVAL OF TOPSOIL:</u>	REQUIRE THE PLACEMENT OF GRANULAR BACKFILL MATERIAL. GRANULAR BACKFILL SHALL BE APPROVED BY THE ENGINEER AND SHALL BE FREE OF ALL STONE, WOOD AND OTHER VEGETATION.	PLAN
	A. AREAS FROM WHICH TOPSOIL IS PROCURED SHALL BE CLEARED BY MOWING WEEDS OR OTHER VEGETATION TO A	B. GRANULAR BACKFILL SHALL BE TAKEN FROM EXCAVATED MATERIAL WHEN AVAILABLE WITHIN 300 FEET OF THE PLACE USED. BACKEILL TAKEN FROM THE TRENCH WITHIN 300 FEET OF THE PLACE USED WILL BE CONSIDERED INCIDENTAL TO THE WORK	
IL SHALL BE NEITHER	OBJECTIONABLE SIZE OR QUANTITY.	2.02 <u>STONE BEDDING:</u>	AP
	B. REMOVE TOPSOIL OF HORTICULTURE VALUE FROM AREAS TO BE EXCAVATED AND REGRADED AND STOCKPILE IN AREA DESIGNATED BY THE ENGINEER.	A. WHEN THE TRENCH BOTTOM IS UNSTABLE BECAUSE OF GROUND WATER OR WET SOIL, THE CONTRACTOR SHALL NOTIFY THE	BY BR
TY CLAY LOAM OR CLAY CONTEMPLATED BY THE	C. DO NOT PERMIT TOPSOIL TO BE MIXED WITH SUBSOIL.	6.43.2(A) OF THE "STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN, 5TH EDITION".	
	D. DO NOT STRIP TOPSOIL WHEN WET.	PART 3 - EXECUTION	
	E. DO NOT STOCKPILE TOPSOIL TO DEPTHS EXCEEDING 8 FEET. DO NOT DRIVE HEAVY EQUIPMENT OVER STOCKPILED TOPSOIL.	A. OBSTRUCTIONS SUCH AS FENCES, MAIL BOXES, CULVERTS AND STREET SIGNS WHICH ARE IN THE WAY OF NEW CONSTRUCTION	D ⁽²⁾
FILLED TO SUCH A DEGREE	3.02 ROUGH GRADING:	SHALL BE REMOVED WITHOUT DAMAGE. ITEMS THAT PROVIDE ESSENTIAL SERVICE SHALL BE TEMPORARILY RELOCATED AND NONESSENTIAL ITEMS SHALL BE PROPERLY STORED FOR THE DURATION OF CONSTRUCTION. UPON COMPLETION OF THE WORK, ALL SUCH ITEMS SHALL BE REPLACED IN THEIR PROPER SETTING AT THE SOLE EXPENSE OF THE CONTRACTOR AS DIRECTED BY	ASE
BE IN ACCORDANCE WITH	A. ROUGH GRADE SITE TO REQUIRED LEVELS, PROFILES, CONTOURS, DITCHES AND ELEVATIONS READY FOR FINISH GRADING AND SURFACE TREATMENT	THE ENGINEER.	SELE A L L L L L L L L L L L L L L L L L
TOPSOIL AND NO THEREFORE IN THE FINAL	3.03 FINISH GRADING:	B. THE LOCATION AND SIZE OF PIPES, WIRES, CULVERTS, CONDUITS, AND OTHER UNDERGROUND IMPROVEMENTS ARE SHOWN ON THE DRAWINGS INSOFAR AS RECORDS ARE AVAILABLE AT THE OWNER'S OFFICE OR SURFACE MARKINGS INDICATE. THE CONTRACTOR SHALL USE CAUTION SO THAT THE EXACT LOCATION OF UNDERGROUND STRUCTURES, BOTH KNOWN AND	
	A. USE PREVIOUSLY STOCKPILED TOPSOIL TO FORM A 6" SEEDING BASE.	UNKNOWN, MAY BE DETERMINED, AND HE SHALL BE HELD RESPONSIBLE FOR REPAIR OF STRUCTURES WHEN DAMAGED DURING CONSTRUCTION.	
IEANS OF MOWING WEEDS	END OF SECTION 31 22 00	C. EXISTING WALKS, PAVEMENTS, TREES AND OTHER SITE IMPROVEMENTS SHALL BE REMOVED ONLY AS NECESSARY FOR CONSTRUCTION AND AS DIRECTED BY THE ENGINEER ANY OTHER IMPROVEMENTS DAMAGED BY THE CONTRACTOR CHALL BE	lμ
NY LITTER SUCH AS BRUSH,		PAID FOR BY THE CONTRACTOR.	I N
OR AS NECESSARY TO		D. WHEN AN EXISTING UNDERGROUND STRUCTURE OCCUPIES THE SPACE REQUIRED FOR THE PROPOSED UTILITY, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. IF NECESSARY, THE ENGINEER WILL DIRECT A CHANGE IN LOCATION OF THE PROPOSED IMPROVEMENT OF AUTHORIZE FOR CONTRACTOR SHALL NOTIFY THE ENGINEER.	
EPTHS, TAKING ALL L THEREWITH.		ALL RELOCATIONS, AND UNLESS STATED OTHERWISE ON THE PLANS OR IN THE SPECIFICATIONS, THE CONTRACTOR WILL BE PAID FOR SAID RELOCATION AS EXTRA WORK.	T 1
ENT PLACE WITHIN THE D, OR IT MAY BE PLACED		E. WHEN THE ENGINEER DIRECTS A CHANGE IN LOCATION OF THE PROPOSED UTILITY TO AVOID EXISTING STRUCTURES, THE	
/E THE SAME.		ENGINEER WILL DETERMINE WHETHER THE CHANGE CONSTITUTES EXTRA WORK. F. ANY UNDERGROUND STRUCTURES OR UTILITIES WHICH DO NOT OCCUPY THE SPACE REQUIRED FOR THE PROPOSED UTILITY	S Z Z S
COMPLISH THESE PENSATION.		WHICH ARE RELOCATED FOR CONVENIENCE OF THE CONTRACTOR SHALL BE PAID FOR BY THE CONTRACTOR.	IS - S
		G. WHEN THE PROPOSED UTILITY IS INSTALLED OR CROSSES BELOW AN EXISTING STRUCTURE, THE CONTRACTOR SHALL BACKFILL THE AREA WITH GRANULAR FILL AND COMPACT THE FILL WITH A MECHANICAL COMPACTOR IN LAYERS NOT TO EXCEED 6 INCHES IN DEPTH TO THE DENSITY OF THE UNDISTURBED SOIL.	
ID FINISHED TO THE) AND SPREAD THEREON TO		H. ANY FAILURES OF EXISTING UTILITIES WITHIN ONE (1) YEAR OF THE COMPLETION OF THE PROJECT BECAUSE OF SETTLEMENT	XAT WIS
IE IS SO SHOWN, TO A DEPTH		SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. 3.02 TRENCHING:	
IAL ACCEPTANCE OF THE		A. ALL EXCAVATING AND TRENCHING SHALL BE DONE IN ACCORDANCE WITH SAFETY PRACTICES FORMULATED AND ENFORCED BY	
		THE WISCONSIN DEPARTMENT OF INDUSTRY, LABOR AND HUMAN RELATIONS, AND THE U.S. OCCUPATIONAL SAFETY AND HEALTH REVIEW COMMISSION.	S C R H
		B. TRENCHING SHALL INCLUDE REMOVAL AND SALVAGE OF TOPSOIL OR OTHER SURFACE UNLESS OTHERWISE STATED IN THE PLANS OR SPECIFICATIONS.	LA C
		C. TRENCHES SHALL BE OF ADEQUATE WIDTH AND DEPTH TO ALLOW PROPER CONSTRUCTION OF PROPOSED UTILITIES. THE	
		D. TRENCHING SHALL PROCEED IN A MANNER APPROVED BY THE ENGINEER, AND CONFORM TO LINE AND GRADE SHOWN ON THE	
		PLANS AND ESTABLISHED BY THE ENGINEER.	S I
		TRENCHES WHERE THE TOP OF THE PIPE IS MORE THAN 12 FEET BELOW THE FINISHED GROUND SURFACE, THE WIDTH OF EXCAVATION BELOW THE TOP OF THE PIPE SHALL BE NO MORE THAN 2 FEET WIDER THAN THE OUTSIDE DIAMETER OF THE PIPE,	
		EXCEPT THAT THE MINIMUM TRENCH WIDTH SHALL BE 30 INCHES. THE EXCAVATION SHALL BE MADE TO CONFORM TO THE CONTOUR OF THE BOTTOM ONE_THIRD OF THE PIPE AND BELL HOLES SHALL BE MADE SUFFICIENT IN SIZE TO ELIMINATE ANY EXCESSIVE ON THE RELLS.	
		F. EVERY EFFORT SHALL BE MADE TO LIMIT THE DEPTH OF EXCAVATION TO THE REQUIRED DEPTH. EXCESS EXCAVATION BELOW	1910
		THE REQUIRED LEVEL SHALL BE BACKFILLED AT THE CONTRACTOR'S EXPENSE WITH EARTH, SAND, GRAVEL OR CONCRETE, AS DIRECTED BY THE ENGINEER, AND SHALL BE COMPACTED BY A MEANS APPROVED BY THE ENGINEER TO THE DENSITY OF THE LINDISTURDED SOL	
		3.03 LIMITS OF OPEN TRENCH:	
		A. IN NO CASE SHALL THE CONTRACTOR BE ALLOWED TO OPEN ANY TRENCH MORE THAN 100 FEET IN ADVANCE OF THE PIPE	
		THE COMPLETED PIPELAYING.	d D
		3.04 UNSTABLE SOIL & EXTRA EXCAVATION:	
		A. ANY TIME UNSTABLE SOLS OR MATERIALS SUCH AS MUCK, SAWDUST, OR PEAT ARE ENCOUNTERED IN THE TRENCH THE CONTRACTOR SHALL NOTIFY THE ENGINEER. THE ENGINEER WILL DIRECT ADDITIONAL EXCAVATION AS REQUIRED AND PLACEMENT OF GRANULAR BACKFILL IN ACCORDANCE WITH SECTION 02221.	gal J
		B. EXTRA EXCAVATION WITHIN 12 INCHES OF THE BOTTOM OF THE PIPE SHALL BE CONSIDERED INCIDENTAL TO THE TRENCHING.	P. S.
		3.05 EXCAVATION FOR STRUCTURES:	
		A. EXCAVATION FOR STRUCTURES SHALL BE SUFFICIENT TO PROVIDE ADEQUATE WORKING SPACE. CARE SHALL BE TAKEN NOT TO	
		ISTORE THE SOIL BENEATH THE STRUCTURE. FINAL EXCAVATION TRIMMING SHALL BE DONE BY HAND. IF EXCESS EXCAVATION IS MADE OR THE MATERIAL BECOMES DISTURBED, THE SOIL BELOW THE STRUCTURE SHALL BE REPLACED AND COMPACTED WITH A MECHANICAL COMPACTOR IN LAYERS NOT TO EXCEED 6 INCHES.	
		3.06 ROCK EXCAVATION AND BLASTING:	
		A. ROCK SHALL BE DEFINED AS ANY MATERIAL GEOLOGICALLY IN PLACE, AND OF A HARDNESS WHEN JUST EXPOSED TO PREVENT REMOVAL WITH A BACKHOE OF MODERN DESIGN. IN GOOD CONDITION AND NOT LESS THAN 1 1/2 CUBIC YARD CAPACITY	ee oup
		BURIED BOULDERS OR CONCRETE GREATER THAN 1_1/2 CUBIC YARD IN SIZE WILL BE CONSIDERED ROCK.	gin sgr
		B. THE CUNTRACTOR SHALL CONTACT THE ENGINEER WHEN ROCK IS ENCOUNTERED. THE ENGINEER WILL DETERMINE WHETHER THE MATERIAL IS ROCK.	
		C. WHERE ROCK OF EITHER LEDGE OR BOULDER FORMATION IS ENCOUNTERED, IT SHALL BE REMOVED BELOW THE BOTTOM OF THE PIPE AND REPLACED WITH SUITABLE MATERIAL PROPERLY COMPACTED. THE THICKNESS OF THE EARTH CUSHION SHALL BE 6. INCLESS MINIMUM. THE TRENCH SUPCODE CIVILIES OF DEPLACES ADDRESS FOR THE EARTH CUSHION SHALL BE	
		6 INCHES MINIMUM. THE TRENCH SUBGRADE SHALL THEN BE PREPARED ACCURATELY WITH HAND TOOLS. IN ROCK EXCAVATION, THE BOTTOM OF THE TRENCH SHALL NOT BE LESS THAN 30 INCHES WIDE OR EIGHTEEN (18) INCHES WIDER THAN INSIDE DIAMETER OF THE PIPE.	
		D. BLASTING FOR EXCAVATION WILL BE PERMITTED ONLY AFTER SECURING THE APPROVAL OF THE ENGINEER AND ONLY WHEN	sig sig
		PROPER PRECAUTIONS TO PROTECT ADJACENT COMPLETED WORK, PERSONS, AND ADJACENT PROPERTY HAVE BEEN TAKEN. THE HOURS OF BLASTING WILL BE FIXED BY THE ENGINEER. ANY DAMAGES CAUSED BY BLASTING SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE. THE CONTRACTOR'S METHOD OF BLASTING SHALL CONFORM TO STATE LAWS AND	iteo 0 (T)
		MUNICIPAL ORDINANCES INCLUDING THE WISCONSIN DIVISION OF INDUSTRY, LABOR AND HUMAN RELATIONS. A CERTIFIED, LICENSED BLASTER SHALL BE PRESENT FOR ALL BLASTING OPERATIONS.	
		E. ALL NECESSARY PERMITS SHALL BE ACQUIRED BY THE CONTRACTOR PRIOR TO BLASTING.	
		3.07 <u>PAYMENT:</u>	
		A. KOCK EXCAVATION SHALL BE MEASURED BY THE CONTRACTOR AS ENCOUNTERED AT 20-FOOT INTERVALS. MEASUREMENTS SHALL BE RECORDED ON THE AS_BUILT PLANS. THE ENGINEER WILL MAKE MEASUREMENTS AS NECESSARY TO VERIFY THE QUANTITY OF ROCK. THE QUANTITY OF WORK FOR WHICH PAYMENT WILL BE MADE SHALL BE DETERMINED BY MULTIPLYING THE	
		WIDTH OF THE TRENCH OUTSIDE OF ANY SHEETING BY THE DEPTH REMOVED FROM THE SURFACE OF THE ROCK TO THE REQUIRED DEPTH BELOW PIPE INVERT. IN UNSHEETED TRENCHES, THE WIDTH PAID SHALL BE EIGHTEEN (18) INCHES GREATER	
		I HAN THE INSIDE DIAMETER OF THE PIPE BUT NOT LESS THAN THIRTY (30) INCHES. B. THE PRICE BID FOR ROCK PER CUBIC YARD SHALL BE FULL COMPENSATION FOR ALL DRIFTING. REASTING LOADING HALLING	
		AND ALL LABOR AND INCIDENTALS NECESSARY TO REMOVE AND DISPOSE OF ROCK AND THE FURNISHING AND PLACING OF A SAND BEDDING. IF NO PRICE IS STATED IN THE CONTRACT, ROCK EXCAVATION SHALL BE CONSIDERED EXTRA WORK.	
		3.08 DEWATERING TRENCHES:	
		A. ALL PROJECTS WHERE DEWATERING IS NEEDED REQUIRE A WPDES DISCHARGE PERMIT. UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS, THIS PERMIT WILL BE OBTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL ABIDE BY ALL	
		CONDITIONS AND REQUIRMENTS OF THE WPDES DISCHARGE PERMIT.	
		SEEPING INTO THE TRENCHES BY THE EMPLOYMENT OF SUITABLE FLUMES FOR THE CONDUCTING OF THE WATER AWAY FROM THE WORK AND BY DOING ALL NECESSARY PUMPING AND BAILING. NO SAND, WATER, EARTH OR OTHER MATERIAL SHALL BE	
		ALLOWED TO ENTER THE PIPE. NO BRICKWORK, CONCRETE, SEWER PIPE, OR WATERMAINS SHALL BE LAID IN WATER OR WHEN, IN THE OPINION OF THE ENGINEER, TRENCH CONDITIONS ARE UNSUITABLE.	
		C. THE DISCHARGE FROM TRENCH DEWATERING PUMPS SHALL BE CONDUCTED TO NATURAL DRAINAGE CHANNELS, STORM SEWER DRAINS OR AS REQUIRED BY THE WPDES DISCHARGE PERMIT.	DRAWING NO
		D. DEWATERING OTHER THAN WELL POINTING OR WELLS APPROVED IN LIEU OF WELL POINTING SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION	
		(CONTINUED)	
			5590
			0000

COMPACTION OF PIPE WORK (CONTINUED)	ST 25 00 - EROSION CONTROL
WELL POINTING:	SECTION 31 25 00 - EROSION CONTROL
A. WHERE, IN THE OPINION OF THE ENGINEER, THE TRENCH CANNOT BE KEPT DRY BY OTHER EFFECTIVE MEANS, A WELL POINT SYSTEM SHALL BE EMPLOYED TO EFFECTIVELY DEWATER THE TRENCH. PAYMENT WILL BE MADE AT THE CONTRACT LUMP SUM PRICE FOR "DEWATERING".	PART 1_GENERAL 1.01 SECTION INCLUDES:
B. WHEN WELL POINTING IS REQUIRED, THE CONTRACTOR MAY USE WELLS INCLUDING A CASING AND PUMP IF APPROVED BY THE ENGINEER.	A. EROSION AND SEDIMENT CONTROL MEASURES.
C. WHEN NECESSARY TO PUMP MORE THAN 70 GPM, WELLS ARE CONSIDERED HIGH CAPACITY WELLS, AND SHALL BE SUBJECT TO APPROVAL AS DESCRIBED IN NR 112.16, WISCONSIN ADMINISTRATIVE CODE. IT SHALL BE THE	1.02 <u>REFERENCE</u> : A. WISCONSIN DNR STORM WATER TECHNICAL STANDARDS
CONTRACTOR'S RESPONSIBILITY TO OBTAIN PERMITS FROM THE DNR SHOULD HIGH CAPACITY WELLS BE NECESSARY. DEWATERING PERMITS CAN BE OBTAINED FROM: WISCONSIN DEPARTMENT OF NATURAL RESOURCES, PRIVATE WATER SUPPLY SECTION, P. O. BOX 7921, MADISON, WISCONSIN 53707.	PART 2 _ PRODUCTS
D. REQUIREMENTS OF THE PREVIOUS SECTION REGARDING WPDES DISCHARGE PERMITS SHALL ALSO APPLY TO THIS SECTION.	2.01 <u>MATERIALS:</u> A. MATERIALS USED SHALL CONFORM TO THE REQUIREMENTS AS SPECIFIED IN THE WISCONS
SHEETING:	TECHNICAL STANDARDS.
A. WHERE IT IS NECESSARY TO PROTECT NEARBY FACILITIES OR PAVEMENT SURFACE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TIGHT SHEETING. THE CONTRACTOR SHALL INFORM THE ENGINEER WHEN SOME	2.02 EROSION BLANKET:
UNFORSEEN CONDITION APPEARS WHICH MIGHT REQUIRE THE USE OF SHEETING.	PART 3 EXECUTION
B. PREVENT SOIL FROM ENTERING THE TRENCH EITHER BELOW OR THROUGH SUCH SHEETING. ANY VOIDS BEHIND THE SHEETING SHALL BE IMMEDIATELY FILLED WITH GRAVEL BACKFILL. REMOVE SHEETING AFTER THE TRENCH IS BACKEILLED	3.01 ALL CONTRACTORS INSTALLING PIPELINE SHALL OBTAIN THE WISCONSIN DNR STORM WATER
	3.02 ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED THE WISCONSIN DNR STORM WATER TECHNICAL STANDARDS .
BEDDING: A. CLASS "B" BEDDING SHALL NORMALLY BE USED FOR ALL FLEXIBLE PIPE AND SHALL BE CONSIDERED INCIDENTAL.	3.03 ALL SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE AND INSTALLED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL.
CLASS "B" BEDDING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 3.2.6(B) OF THE "STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN, 6TH EDITION".	3.04 PERIODIC INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES SHALL E INTENDED PURPOSE IS ACCOMPLISHED. SEDIMENT CONTROL MEASURES ARE TO BE IN WORK END OF EACH WORKING DAY.
"C" BEDDING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 3.2.6(A) OF THE "STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN, 6TH EDITION".	3.05 AFTER ANY SIGNIFICANT RAINFALL, SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED DAMAGED STRUCTURES SHALL BE CORRECTED FOR INTEGRITY.
	3.06 SEDIMENT CONTROL MEASURES SHALL NOT BE REMOVED UNTIL THE AREAS SERVED HAVE EN
B. BACKFILLING MAY BE COMPLETED BY MECHANICAL MEANS. DEBRIS, FROZEN MATERIAL, LARGE CLODS OR STONES,	3.07 GRAVEL MATS SHALL BE INSTALLED AT ALL CONSTRUCTION SITE EXITS TO PREVENT TRACKIN
ORGANIC MATTER, OR OTHER UNSTABLE MATERIALS MAY NOT BE USED FOR BACKFILL WITHIN 2 FEET OF THE TOP OF THE PIPE. BACKFILL SHALL BE PLACED IN SUCH A MANNER AS NOT TO DISTURB THE ALIGNMENT OF THE PIPE.	3.08 TRACKED SOIL SHALL BE COLLECTED FROM PAVED ROADS LOCATED NEAR THE CONSTRUCTION
TRENCH COMPACTION:	3.09 ALL TRENCH WATER SHALL BE DISCHARGED INTO A SETTLING BASIN OR FILTERING DEVICE PF STORM SEWER.
A. COMPACT ALL TRENCHES BY MECHANICAL COMPACTION.	3.10 STORM SEWER COLLECTION BASINS SHALL BE PROTECTED FROM RUNOFF BY ENCLOSING CO
B. MECHANICAL COMPACTION SHALL CONSIST OF MECHANICALLY COMPACTING THE BACKFILL IN SIX-INCH LAYERS, FROM A DISTANCE OF ONE FOOT ABOVE THE PIPE TO THE SURFACE. THE TRENCH COMPACTION SHALL BE AT LEAST TO THE ORIGINAL DENSITY OF THE UNDISTURBED SOIL, OR 95% OF MODIFIED PROCTOR DENSITY.	STRAW BALE OR FABRIC FILTER FENCING. 3.11 OVERLAND FLOW SHALL BE PREVENTED FROM LEAVING THE WORK SITE UNTREATED BY INST
C. TRENCH COMPACTION WILL BE CONSIDERED INCIDENTAL TO THE PRICE OF THE CONTRACT AND NO EXTRA PAYMENT	FABRIC FILTER FENCING PARALLEL TO THE CONTOURS LOCATED DOWNHILL FROM THE WORK 3.12 SEDIMENT CONTROL FOR PIPELINE CONSTRUCTION.
D. THE CONTRACTOR SHALL PROVIDE TWO COMPACTION TESTS FOR EVERY 300 FEET OF TRENCH. THE FIRST TEST	A. EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
SHALL BE TAKEN WHEN THE TRENCH IS BACKFILLED 1/2 OF THE WAY, AND THE SECOND SHALL BE TAKEN WHEN THE TRENCH HAS BEEN COMPLETELY BACKFILLED. THE CONTRACTOR SHALL PROVIDE COPIES OF ALL COMPACTION TEST RESULTS AND PROCTOR DENSITY TESTS TO THE ENGINEER. ALL AREAS THAT FAIL THE COMPACTION TESTS SHALL BE RE_EXCAVATED, RECOMPACTED, AND RETESTED AT THE CONTRACTOR'S EXPENSE.	B. IMMEDIATELY FOLLOWING PIPE INSTALLATION, THE TRENCH SHALL BE BACKFILLED, COMPATHE END OF EACH WORKING DAY.
E. MECHANICAL COMPACTION WILL BE REQUIRED FOR TRENCHES IN EXISTING STREETS AND WHERE BITUMINOUS PAVEMENT AND CONCRETE IMPROVEMENTS WILL BE INSTALLED FOLLOWING CONSTRUCTION. REQUIRED COMPACTION UNDER EXISTING UTILITIES AND UTILITIES BEING INSTALLED SHALL BE CONSIDERED INCIDENTAL TO	END OF SECTION 31 25 00
EXCESS MATERIAL:	
A. EXCESS MATERIAL FOLLOWING BACKFILLING SHALL BE DISPOSED OF BY THE CONTRACTOR AT A SITE DIRECTED BY THE ENGINEER. DISPOSAL OF EXCESS MATERIAL SHALL BE CONSIDERED INCIDENTAL TO THE WORK. EXCESS EXCAVATED MATERIAL SHALL NOT BE DISPOSED OF IN ANY WETLANDS OR WATERS OF THE STATE OF WISCONSIN WITHOUT WRITTEN APPROVAL OF THE DEPARTMENT OF NATURAL RESOURCES AND THE U.S. ARMY CORPS OF ENGINEERS. DISPOSAL OF EXCESS MATERIAL SHALL BE CONSIDERED INCIDENTAL TO THE WORK.	
DF SECTION 31 23 33	
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	32 11 16 - GRANULAR SUBBASE COURSE	32 11 23 - CRUSHED AGGREGATE BASE CO
	SECTION 32 11 16 - GRANULAR SUBBASE COURSE	SECTION 32 11 23 - CRUSHED AGGREGATE BASE COURSE
	PART 1- GENERAL	PART 1 - GENERAL
	 1.01 <u>SCOPE OF WORK:</u> A. APPLICABLE PROVISIONS OF DIVISIONS 0 AND 1 SHALL GOVERN WORK UNDER THIS SECTION. B. THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF A FOUNDATION COURSE OF GRANULAR MATERIAL CONSISTING OF NATURAL SANDS OR A MIXTURE OF SAND WITH GRAVEL, CRUSHED GRAVEL, CRUSHED STONE OR OTHER BROKEN OR FRAGMENTED MATERIAL CONSTRUCTED ON THE PREPARED FOUNDATION IN ACCORDANCE WITH THE 	 1.01 <u>SECTION INCLUDES:</u> A. THIS ITEM SHALL CONSIST OF A DENSE COMPACTED BASE COURSE COMPOSED OF ONE OR M LAYERS OF COARSE AGGREGATE, EITHER CRUSHED GRAVEL OR CRUSHED STONE, FINE AGG FILLER BLENDED AS NECESSARY TO PRODUCE AN INTIMATE MIXTURE OF THE REQUIRED GRA CONSTRUCTED ON THE PREPARED FOUNDATION IN ACCORDANCE WITH THE SPECIFICATIONS CLOSE CONFORMITY WITH THE LINES, GRADES, THICKNESSES AND TYPICAL CROSS SECTION
	SPECIFICATIONS AND IN REASONABLE CLOSE CONFORMITY WITH THE LINES, GRADES, THICKNESS AND TYPICAL CROSS-SECTIONS SHOWN ON THE PLANS OR ESTABLISHED BY THE ENGINEER.	OR ESTABLISHED BY THE ENGINEER. <u>PART 2 - PRODUCTS</u>
NSIN DNR STORM WATER	PART 2 - PRODUCTS 2.01 GENERAL:	2.01 <u>GENERAL:</u>
	A. AGGREGATES FURNISHED FOR OR USED IN THE WORK SHALL CONFORM TO THE QUALITY AND GRADATION REQUIREMENTS HEREINAFTER SET FORTH.	A. AGGREGATES FURNISHED FOR OR USED IN THE WORK SHALL CONFORM TO THE QUALITY AN REQUIREMENTS HEREINAFTER SET FORTH.
	2.02 <u>GRADATION:</u>	2.02 <u>PERCENT OF WEAR:</u> A UNI ESS OTHERWISE SPECIFIED IN THE CONTRACT. THE AGGREGATE SHALL HAVE A PERCENT
R TECHNICAL STANDARDS	B. THE MAXIMUM SIZE OF ANY GRAVEL, STONE OR OTHER BROKEN OR FRAGMENTED MATERIAL USED FOR SUBBASE COURSE SHALL NOT BE GREATER IN ANY DIMENSION THAN THREE-QUARTERS OF THE THICKNESS OF SUCH SUBBASE COURSE OR LAYER BEING PLACED. AT LEAST 25 PERCENT OF THE MATERIAL BY WEIGHT SHALL PASS A NO. 4 SIEVE	MORE THAN 50, AS DETERMINED BY AASHTO DESIGNATION T 96.
IED IN ACCORDANCE WITH	PART 3 - EXECUTION	A. THE AGGREGATE, INCLUDING ANY BLENDED FILLER, SHALL HAVE A LIQUID LIMIT OF NOT MOR
HE TIME OF CONSTRUCTION	3.01 PREPARATION OF FOUNDATION:	BETWEEN OLD AND NEW PAVEMENT WHERE THE PLASTICITY INDEX SHALL NOT EXCEED 3.
L. BE PROVIDED TO ENSURE	A. THE SUBGRADE STALE BE CONSTRUCTED TO COMPLETE ORM. TO THE LINES AND GRADES NEEDES AND FILL AND GRADE STALE BE FILLED TO GRADE WITH COMPACTED NATIVE MATERIAL, UNLESS SUCH MATERIAL IS DEEMED UNSUITABLE BY THE ENGINEER IN WHICH CASE SUITABLE MATERIAL SHALL BE SUBSTITUTED AND COMPACTED AT OPTIMIUM MOISTURE TO AT LEAST	 A. AT LEAST 45 PERCENT, BY COUNT, OF THE NUMBER OF PARTICLES OF AGGREGATE RETAINED SHALL HAVE AT LEAST ONE FRACTURED FACE
	95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD METHOD FOR MOISTURE-DENSITY RELATIONS OF SOILS, AASHTO DESIGNATION T 180-74.	2.05 <u>SOUNDNESS:</u>
	B. AREAS OF YIELDING OR UNSTABLE MATERIALS SHALL BE EXCAVATED TO SUCH DEPTH AND BACKFILLED WITH SUITABLE MATERIAL AS ORDERED BY THE ENGINEER.	A. WHEN THE FRACTION OF THE AGGREGATES ON THE NO. 4 SIEVE IS SUBJECTED TO 5 CYCLES SOUNDNESS TEST (AASHTO DESIGNATION T 104), THE WEIGHTED LOSS SHALL NOT EXCEED 1
	3.02 <u>SPREADING:</u>	OF DEPOSITION IN A QUARRY OR DEPOSIT ARE SUCH AS TO MAKE QUESTIONABLE THE CONT WITH THIS SOUNDNESS REQUIREMENT, THE ENGINEER RESERVES THE RIGHT TO REQUIRE M STOCKELLE OR STOCKELLES OF DEPODUCED MATERIAL SUFFICIENT VI ARCE AS TO RECLUDE
TION SITE.	WITH ICE OR SNOW.	WHICH HAS NOT BEEN PREVIOUSLY APPROVED BY TEST.
PRIOR TO RELEASE INTO	SOILS, NOR SHALL IT DISTURB THE SUBBASE MATERIAL ALREADY IN PLACE. SUBBASE MATERIAL SHALL NOT BE PLACED ON A DRY OR DUSTY FOUNDATION WHERE THE EXISTING CONDITION WOULD CAUSE RAPID DISSIPATION OF MOISTURE FORM THE SUBBASE MATERIAL ALREADY UNDER ON PROPER CONDUCTION FOR THE SUBBASE AND UNDER ON THE SUBBASE	A. CRUSHED AGGREGATE BASE COURSE:
COLLECTION BASINS WITH	FOUNDATIONS SHALL HAVE WATER APPLIED TO THEM, AND SHALL BE REWORKED OR RECOMPACITOR. SOME DRY SOURDATIONS SHALL HAVE WATER APPLIED TO THEM, AND SHALL BE REWORKED OR RECOMPACTED IF NECESSARY. SUCCESSIVE LIFTS SHALL NOT EXCEED 8 INCHES BEFORE COMPACTION, AND SHALL BE PLACED ONLY AFTER THE	THE AGGREGATES SHALL BE WELL BETWEEN THE LIMITS SPECIFIED AND CONFORM TO THE F REQUIREMENTS:
STALLING STRAW BALE OR RK AREA.	PRECEDING LIFT HAS BEEN COMPACTED TO THE SPECIFIED REQUIREMENTS. THE ENGINEER MAY DIRECT OTHERWISE FOR CERTAIN SUBGRADE CONDITIONS. ROCKS AND OTHER FRAGMENTS IN EXCESS OF THE PERMITTED MAXIMUM SIZE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AND NOT MEASURED FOR PAYMENT.	GRADATION REQUIREMENTS SIEVE SIZE PERCENTAGE BY WEIGHT PASSING
		1½ INCH 1 INCH 100
PACTED AND STABILIZED AT	A. THE COMPACTION SHALL BE PERFORMED BY SPECIALIZED COMPACTION EQUIPMENT, SUPPLEMENTED BY HAULING AND LEVELING EQUIPMENT. EQUIPMENT USED FOR COMPACTION SHALL BE OF THE ROLLING TYPE, VIBRATING TYPE, OR A COMBINATION OF BOTH TYPES AND SHALL BE OF SUFFICIENT WEIGHT AND SUCH CHARACTER TO ACCOMPLISH THE DECLIDEMENTS HEREINAGTED SET FORTH.	3/4 INCH 3/8 INCH 50 - 85 NO. 4 35 - 65 NO. 10 25 - 50
	B. THE GRANULAR SUBBASE COURSE SHALL BE COMPACTED AT OPTIMUM MOISTURE TO AT LEAST 95% OF THE MAXIMUM	NO. 10 25 30 NO. 40 10 - 30 NO. 200 3 - 10
	AASHTO DESIGNATION T 180-74.	B. <u>BREAKER RUN:</u> THIS MATERIAL SHALL BE USED WHEN SHOWN ON TYPICAL SECTIONS OR CALLED FOR IN THE
	ARE PRESENT. THE SUBGRADE SHALL BE COMPACTED TO A DEPTH OF AT LEAST 6 INCHES TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE ABOVE TEST.	THE MATERIAL SHALL COMPLY WITH THE FOLLOWING GRADATION REQUIREMENTS WITH MAX OF 3 INCHES.
	3.04 <u>TOLERANCE:</u>	SIEVE SIZE PERCENTAGE BY WEIGHT PASSING 3" 100
	STRINGLINE PARALLEL WITH AND PERPENDICULAR TO THE CENTERLINE, IT SHALL NOT BE MORE THAN 0.04 FOOT FROM TRUE GRADE AS ESTABLISHED BY GRADE STAKES.	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
	3.05 <u>TEST ROLLING:</u>	#200 0 - 2
	A. THE ENGINEER RESERVES THE RIGHT TO ORDER ALL OR ANY PORTION OF THE SUBGRADE TO BE TEST-ROLLED WITH APPROPRIATE EQUIPMENT OR TESTED BY OTHER MEANS.	3.01 PREPARATION OF FOUNDATION:
	 3.06 <u>DUST ABATEMENT:</u> A. THE CONTRACTOR SHALL MINIMIZE BLOWING DUST BY APPLICATION OF WATER OR OTHER DUST CONTROL AGENTS APPROVED BY THE ENGINEER. THIS SHALL BE DONE THROUGHOUT THE PROJECT AREA UNTIL SEEDING AND PAVING WORK IS COMPLETED. 	A. THE SUBGRADE SHALL BE CONSTRUCTED TO CONFORM TO THE LINES AND GRADES NECESS. PAVEMENT CROSS SECTION SPECIFIED ON THE PLANS. ALL HOLES, RUTS, AND FILL AREAS SI GRADE WITH COMPACTED NATIVE MATERIAL, UNLESS SUCH MATERIAL IS DEEMED UNSUITABI WHICH CASE SUITABLE MATERIAL SHALL BE SUBSTITUTED, AND COMPACTED AT OPTIMUM MO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD METHOD FOR MOIST RELATIONS OF SOILS, AASHTO DESIGNATION T 180-74.
	END OF SECTION 32 11 16	B. AREAS OF YIELDING OR UNSTABLE MATERIALS SHALL BE EXCAVATED TO SUCH DEPTH AND B SUITABLE MATERIAL AS ORDERED BY THE ENGINEER.
		3.02 <u>SPREADING:</u>
		A. CRUSHED AGGREGATE BASE MATERIAL SHALL NOT BE PLACED ON A SUBGRADE THAT IS SOF COVERED WITH ICE OR SNOW.
		B. THE SPREADING OPERATION SHALL NOT CAUSE DISTURBANCE OR RUTTING OF THE SUBGRAT SOILS, NOR SHALL IT DISTURB THE BASE MATERIAL ALREADY IN PLACE. BASE MATERIAL SHA DRY OR DUSTY FOUNDATION WHERE THE EXISTING CONDITION WOULD CAUSE RAPID DISSIPA FROM THE BASE MATERIAL AND HINDER OR PRECLUDE ITS PROPER COMPACTION. SOME DR' HAVE WATER APPLIED TO THEM, AND SHALL BE REWORKED OR RECOMPACTED IF NECESSAR
		C. SUCCESSIVE LIFTS SHALL NOT EXCEED 6 INCHES IN COMPACTED THICKNESS, AND SHALL BE THE PRECEDING LIFT HAS BEEN COMPACTED TO THE SPECIFIED REQUIREMENTS. THE ENGIN OTHERWISE FOR CERTAIN SUBGRADE CONDITIONS.
		3.03 <u>COMPACTION:</u>
		A. EQUIPMENT USED FOR COMPACTION SHALL BE OF THE ROLLING TYPE, VIBRATORY TYPE, OR TYPES, AND SHALL BE OF SUFFICIENT WEIGHT AND SUCH CHARACTER TO ACCOMPLISH THE F HEREINAFTER SET FORTH.
		B. THE CRUSHED AGGREGATE BASE MATERIAL SHALL BE COMPACTED AT OPTIMUM MOISTURE T MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD METHOD OF TEST FOR MOISTURE SOULS AAGUED DESIGNATION I 199 74
		C. THE SUBGRADE SHALL BE COMPACTED BY THE ABOVE METHODS, OR BY A SHEEPS FOOT ROL
		DRY DENSITY AS DETERMINED BY THE ABOVE TEST.
		A. THE TOP OF THE BASE COURSE SHALL BE OF SUCH SMOOTHNESS THAT WHEN TESTED WITH WITH AND PERPENDICULAR TO THE CENTERLINE IT SHALL NOT BE MORE THAN 0.04 FOOT FR
		ESTABLISHED BY GRADE STAKES.
		A. THE ENGINEER RESERVES THE RIGHT TO ORDER ALL OR ANY PORTION OF THE SUBGRADE TO APPROPRIATE EQUIPMENT OR TESTED BY OTHER MEANS.
		3.06 DUST ABATEMENT:
		A. THE CONTRACTOR SHALL MINIMIZE BLOWING DUST BY APPLICATION OF WATER OR OTHER DU APPROVED BY THE ENGINEER. THIS SHALL BE DONE THROUGHOUT THE PROJECT AREA UNTI WORK IS COMPLETED.
		END OF SECTION 32 11 23

ATE BASE COURSE	32 13 00 - CONCRETE WORK				
URSE COMPOSED OF ONE OR MORE COURSES OR OR CRUSHED STONE, FINE AGGREGATE AND BINDER OR IIXTURE OF THE REQUIRED GRADATION AND STABILITY, NCE WITH THE SPECIFICATIONS AND IN REASONABLE 3 AND TYPICAL CROSS SECTIONS SHOWN ON THE PLANS CONFORM TO THE QUALITY AND GRADATION REGATE SHALL HAVE A PERCENTAGE OF WEAR OF NOT 16. WE A LIQUID LIMIT OF NOT MORE THAN 25 AND A E OF AGGREGATES FOR BASE COURSES PLACED NDEX SHALL NOT EXCEED 3.	 SECTION 32 13 00 - CONCRETE WORK PART 1 - GENERAL 1.01 DESCRIPTION OF WORK: A. THE EXTENT OF THE CONCRETE WORK IS AS SHOWN ON THE PLANS AND AS STATED IN THE SPECIFICATIONS. 1.02 QUALITY ASSURANCE: A. CODES AND STANDARDS: COMPLY WITH PROVISIONS OF FOLLOWING CODES, SPECIFICATIONS AND STANDARDS, EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED. i. ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS". i. ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE". ii. CONCRETE REINFORCING STEEL INSTITUTE, "MANUAL OF STANDARD PRACTICE. iv. WISCONSIN BUILDING CODE; CHAPTER IND. 53 "STRUCTURAL REQUIREMENTS". B. CONCRETE TESTING SERVICE: THE CONTRACTOR SHALL, AT HIS EXPENSE, EMPLOY A TESTING LABORATORY ACCEPTABLE TO THE ENGINEER TO PERFORM MATERIAL EVALUATION TESTS AND TO DESIGN CONCRETE MIXES, MATERIALS AND INSTALLED WORK MAY REQUIRE TESTING AND RETESTING, AS DIRECTED BY THE ENGINEER AT ANY TIME DURING PROGRESS OF THE WORK. ALLOW FREE ACCESS TO MATERIALS CONCRETE MIXES, MATERIALS AND INSTALLED WORK MAY REQUIRE TESTING AND RETESTING, AS DIRECTED BY THE ENGINEER AT ANY TIME DURING PROGRESS OF THE WORK. ALLOW FREE ACCESS TO MATERIALS OKAPLES, AND FACILITIES. TEST NOT SPECIFICALLY INDICATED TO BE DONE AT THE CONTRACTOR'S EXPENSE, EMPLOY A TESTING OF REJECTED MATERIALS AND INSTALLED WORK, SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. PART 2 - PRODUCTS A. FORMS FOR EXPOSED FINISH CONCRETE: UNLESS OTHERWISE INDICATED, CONSTRUCT FORMWORK FOR EXPOSED ON THERALS AND ENTERS INCLOATED, CONSTRUCT FORMWORK FOR EXPOSED ON METAL METAL FEASAMED PLYWOOD. EACED OR OTHER ACCEPTABLE FOR THE WORD METAL METAL FEASAMED PLYWOOD. EACED OR OTHER ACCEPTABLE. 				A 05/23/2018 BSF CGJ PLANNING REVIEW ELEASE DATE BY APP. RELEASED FOR
VE IS SUBJECTED TO 5 CYCLES OF THE SODIUM SULFATE TED LOSS SHALL NOT EXCEED 18 PERCENT BY WEIGHT, ENT THAT THE QUALITY OF MATERIAL OR CONDITIONS AKE QUESTIONABLE THE CONTINUOUS COMPLIANCE RVES THE RIGHT TO REQUIRE MAINTENANCE OF A IENTLY LARGE AS TO PRECLUDE USE OF MATERIAL	 CONCRETE SURFACES WITTPET WOOD, METAL, METAL RAMED FETWOOD, FACED OR OTHER ACCEPTABLE PANEL-TYPE MATERIALS TO PROVIDE CONTINUOUS, STRAIGHT, SMOOTH, EXPOSED SURFACES. FURNISH IN LARGEST PRACTICABLE SIZES TO MINIMIZE NUMBER OF JOINTS AND TO CONFORM TO JOINT SYSTEM SHOWN ON DRAWINGS. FORM MATERIAL SHALL BE OF SUFFICIENT THICKNESS TO WITHSTAND PRESSURE OF NEWLY PLACED CONCRETE WITHOUT BOWING OR DEFLECTION. B. FORMS FOR UNEXPOSED FINISH CONCRETE: PLYWOOD, LUMBER, METAL OR OTHER MATERIAL APPROVED BY ENGINEER. LUMBER SHALL BE DRESSED ON AT LEAST TWO EDGES AND ONE SIDE FOR TIGHT FIT. 2.02 REINFORCED MATERIALS: 				
CIFIED AND CONFORM TO THE FOLLOWING GRADATION REMENTS ERCENTAGE BY #CIGHT PASSING RUSHED GRAVEL 100 100 50 - 85 35 - 65 25 - 50 10 - 30 3 - 10 CTIONS OR CALLED FOR IN THE SPECIAL CONDITIONS. TON REQUIREMENTS WITH MAXIMUM AGGREGATE SIZE ERC ENTAGE BY (EIGHT PASSING 100 50 15 2 - 10 0 - 2	 A. REINFORCING BARS (REBAR): ANSI/ASTM A 615, GRADE 60, DEFORMED. B. WELDED WIRE FABRIC: ASTM A 185 C. SUPPORTS FOR REINFORCEMENT: PROVIDE SUPPORTS FOR REINFORCEMENT INCLUDING BOLSTERS, CHAIRS, SPACERS AND OTHER DEVICES FOR SPACING, SUPPORTIS COMPLYING AND FASTENING REINFORCING BARS AND WELDED WIRE FABRIC IN PLACE. USE WIRE BAR TYPE SUPPORTS COMPLYING WITH CRSI RECOMMENDATIONS, UNLESS OTHERWISE APPROVED BY THE ENGINEER. 2.03 CONCRETE MATERIALS: A. PORTLAND CEMENT: ANSI/ASTM C 150, TYPE 1, UNLESS OTHERWISE ACCEPTABLE BY THE ENGINEER B. NORMAL WEIGHT AGGREGATES: ANSI/ASTM C 33, AND AS HEREIN SPECIFIED. PROVIDE AGGREGATES FROM A SINGLE SOURCE FOR EXPOSED CONCRETE. C. WATER: POTABLE. D. AIR-ENTRAINING ADMIXTURE: ANSI/ASTM C 260. 2.04 PORPORTIONING AND DESIGN OF CONCRETE MIXES: A. DESIGN MIXES TO PROVIDE NORMAL WEIGHT CONCRETE WITH THE FOLLOWING PROPERTIES, AS INDICATED ON DRAWINGS AND SCHEDULES: i. 4000 PSI, 28 DAY COMPRESSIVE STRENGTH; 564 LBS. CEMENT PER CUBIC YARD MINIMUM; WIC RATIO - 0.44 MAXIMUM. B. ADMIXTURES: I. USE AIR-ENTRAINING ADMIXTURE IN EXTERIOR EXPOSED CONCRETE, UNLESS OTHERWISE INDICATED. ADD AIR-ENTRINING ADMIXTURE AT MANUFACTURER'S PRESCRIBED RATE TO RESULT IN CONCRETE AT POINT OF PLACEMENT HAVING AMIXTURE AT MANUFACTURE'S PRESCRIBED RATE TO RESULT IN CONCRETE AT POINT OF PLACEMENT HAVING AMIXTURE AT MANUFACTURE'S PRESCRIBED RATE TO RESULT IN CONCRETE AT POINT OF PLACEMENT HAVING AMIXTURE AT MANUFACTURE'S PRESCRIBED RATE TO RESULT IN CONCRETE AT POINT OF PLACEMENT HAVING AMIXTURE AT MANUFACTURE'S PRESCRIBED RATE TO RESULT IN CONCRETE AT POINT OF PLACEMENT HAVING AMIXMUM 3/* AGGREGATE. C. SLUMP LIMITS: PROPORTION AND DESIGN MIXES TO RESULT IN CONCRETE SLUMP AT POINT OF PLACEMENT AS 	GREAT LAKES CALCAL LANE O CHER GREAT LAKES 2200 ENTERPRISE AVENUE C H E E S E LA CROSSE, WISCONSIN		SPECIFICATIONS - SHEET 2	
HE LINES AND GRADES NECESSARY TO COMPLETE THE OLES, RUTS, AND FILL AREAS SHALL BE FILLED TO ATERIAL IS DEEMED UNSUITABLE BY THE ENGINEER IN ID COMPACTED AT OPTIMUM MOISTURE TO AT LEAST STANDARD METHOD FOR MOISTURE-DENSITY AVATED TO SUCH DEPTH AND BACKFILLED WITH D ON A SUBGRADE THAT IS SOFT OR SPONGY OR E OR RUTTING OF THE SUBGRADE OR FOUNDATION IN PLACE. BASE MATERIAL SHALL NOT BE PLACED ON A N WOULD CAUSE RAPID DISSIPATION OF MOISTURE OPER COMPACTION. SOME DRY FOUNDATIONS SHALL R RECOMPACTED IF NECESSARY. TED THICKNESS, AND SHALL BE PLACED ONLY AFTER ED REQUIREMENTS. THE ENGINEER MAY DIRECT NG TYPE, VIBRATORY TYPE, OR A COMBINATION OF BOTH RACTER TO ACCOMPLISH THE REQUIREMENTS ACTED AT OPTIMUM MOISTURE TO AT LEAST 95% OF THE IETHOD OF TEST FOR MOISTURE-DENSITY RELATIONS OF DDS, OR BY A SHEEPS FOOT ROLLER IF COHESIVE SOILS DEPTH OF AT LEAST 6 INCHES TO 95% OF THE MAXIMUM ESS THAT WHEN TESTED WITH A STRINGLINE PARALLEL IT BE MORE THAN 0.04 FOOT FROM TRUE GRADE AS	 i.NOT LESS THAN 1' AND NOT MORE THAN 4'. D. WATER REDUCING ADMIXTURES AND FLYASH MAY BE USED IF APPROVED BY THE ENGINEER IN WRITING. 2.05 EXPANSION JOINT MATERIAL: A. EXPANSION JOINT MATERIAL B. ALTARNSION JOINT MATERIAL CURING COMPOUND A. CURING COMPOUND A. CURING AND SEALING COMPOUND SHALL BE ACHRO SEAL 0800 OR APPROVED EQUAL. PART 3 - EXECUTION 3.01 FORMS: A. DESIGN, ERECT, SUPPORT, BRACE AND MAINTAIN FORMWORK TO SUPPORT VERTICAL AND LATERAL LOADS THAT MIGHT BE APPLIED UNTIL SUCH LOADS CAN BE SUPPORTED BY CONCRETE STRUCTURE. CONSTRUCT FORMWORK SO CONCRETE MEMBERS AND STRUCTURES ARE OF CORRECT SIZE, SHAPE, ALIGAMENT, ELEVATION AND POSITION. B. DESIGN FRAMEWORK TO BE READILY REMOVABLE WITHOUT IMPACT, SHOCK OR DAMAGE TO CAST-IN-PLACE CONCRETE SUFFACES AND ADJACENT MATERIALS. C. CONSTRUCT FORMS TO SIZES, SHAPES, LINES AND DIMENSIONS SHOWN, AND TO OBTAIN ACCURATE ALIGNMENT, LOCATON, GRADES, LEVEL AND PLUIMB WORK, INT INMISHED STRUCTURES, PROVIDE FOR OPENINGS, OFFSETS, SINKAGES, KEYWAYS, RECESSES, MOLDINGS, RESTICATIONS, REGLETS, CHAMFERS, BLOCKING, SCREEDS, BULKHERS, SOLIDLY BUIT JOINTS AND PROVIDE BACKUP AT JOINTS TO PREVENT LEAKAGE OF CEMENT PASTE. 3.02 PLACING REINFORCEMENT: A. COMPLY WITH CONCRETE REINFORCING STEEL INSTITUTE'S RECOMMENDED PRACTICE FOR "PLACING REINFORCING BARS", FOR DETAILS AND METHORS OF REINFORCEMENT FUNCTION. SUPPORT, AND AS HEREIN SPECIFIED. B. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCEMENT FUNCTIONE DISUPPORT, RAND AS HEREIN SPECIFIED. B. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCEMENT AGAINST DISPLACEMENT BY FORMWORK, CONCRETE WHICH HAS HARDENED SUFFICION. UNDERS THAT NO CONCRETE WILL CHAIRS, RUNNERS, BOLSTERS, SALDELY END MARGERS, AS REQUIRED. 3.03 CONCRETE PLACEMENT: A. COMPLY WITH ACI 304, AND AS HEREIN SPECIFIED. B. DEPOSIT CONCRETE	an - Design - Engineer - Build - Start-I In		dennisgroup.com	United States • Canada • Brazil • Portugal
PORTION OF THE SUBGRADE TO BE TEST-ROLLED WITH	 IF A SECTION CANNOT BE PLACED CONTINUOUSLY, PROVIDE CONSTRUCTION JOINTS AS HEREIN SPECIFIED. DEPOSIT CONCRETE AS NEARLY AS PRACTICABLE TO ITS FINAL LOCATION TO AVOID SEGREGATION. C. COLD WEATHER PLACING: PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH WHICH COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR LOW TEMPERATURES, IN COMPLIANCE WITH ACI 306 AS HEREIN SPECIFIED. D. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40F (27C) AT POINT OF PLACEMENT. E. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS. F. DO NOT USE CALCIUM CHLORIDE, SALT AND OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS, UNLESS OTHERWISE ACCEPTED IN MIX DESIGNS. 3.04 FINISH OF FORMED SURFACES: A. SMOOTH FORM FINISH (SMFM-FN): FOR FORMED CONCRETE SURFACES EXPOSED -TO-VIEW, OR THAT ARE TO BE COVERED WITH A COATING MATERIAL APPLIED DIRECTLY TO CONCRETE, OR A COVERING MATERIAL APPLIED DIRECTLY TO CONCRETE, SUCH AS WATERPROOFING, DAMPPROOFING, PAINTING OR OTHER SIMILAR SYSTEM. THIS IS AS-CAST CONCRETE, SUCH AS WATERPROOFING, DAMPPROOFING, PAINTING OR OTHER SIMILAR SYSTEM. THIS IS AS-CAST CONCRETE SURFACE OBTAINED WITH SELECTED FORM FACING MATERIAL, ARRANGED ORDERLY AND WITH A COATINE WITH A COATINE WITH DE OFFINE OFFINE OFFINE TORM FACING MATERIAL, ARRANGED ORDERLY AND WITH A COATING WITH A SUBCED OFFINE OFFINE FACING MATERIAL, ARRANGED ORDERLY AND WITH A COATING WITH A SUBCED OFFINE OFFINE FACING MATERIAL APPLIED DIRECTLY AND WITH A COATING MATERIAL APPLIED WITH A COATING MATERIAL APPLIED				
	SYMME IRICALLY WITH A MINIMUM OF SEAMS. REPAIR AND PATCH DEFECTIVE AREAS WITH FINS OR OTHER PROJECTIONS COMPLETELY REMOVED AND SMOOTHED. B. NON-SLIP BROOM FINISH: APPLY NON-SLIP BROOM FINISH TO EXTERIOR CONCRETE PLATFORMS, STEPS AND RAMPS, AND ELSEWHERE AS INDICATED. C. IMMEDIATELY AFTER TROWEL FINISHING, SLIGHTLY ROUGHEN CONCRETE SURFACE BY BROOMING WITH FIBER BRISTLE BROOM PERPENDICULAR TO MAIN TRAFFIC ROUTE. COORDINATE REQUIRED FINAL FINISH WITH ARCHITECT BEFORE APPLICATION. (CONTINUED)	0RAWI C6	NG .C	3 N()1	Э.

32 13 00 - CONCRETE WORK (CONTINUED)	32 16 00 - CURB AND GUTTER DRIVEWAYS
3.05 CONCRETE CURING AND PROTECTION:	SECTION 32 16 00 - CURB & GUTTER, DRIVEWAYS
A. GENERAL: PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES.	PART 1 - GENERAL 1.01 SCOPE OF WORK:
 B. START INITIAL CURING AS SOON AS FREE WATER HAS DISAPPEARED FROM CONCRETE SURFACE AFTER PLACING AND FINISHING. C. WEATHER PERMITTING, KEEP CONTINUOUSLY MOIST FOR NOT LESS THAN SEVEN (7) DAYS 	A. THIS WORK SHALL CONSIST OF CONSTRUCTING PORTLAND CEMENT CONCRETE CURB AND GU REINFORCEMENT, OF THE DIMENSIONS AND DESIGNS AS INDICATED, AND PLACED IN ONE COU
 D. BEGIN FINAL CURING PROCEDURES IMMEDIATELY FOLLOWING INITIAL CURING AND BEFORE CONCRETE HAS DRIED. CONTINUE FINAL CURING FOR AT LEAST SEVEN (7) DAYS IN ACCORDANCE WITH ACI 301 PROCEDURES. AVOID RAPID 	FOUNDATION OR BASE, AT THE LOCATIONS AND DESIGNS AS INDICATED, AND FACED IN ONE COU FOUNDATION OR BASE, AT THE LOCATIONS AND TO THE REQUIRED LINES AND GRADES; ALL AS AND IN CONFORMANCE WITH THESE SPECIFICATIONS.
E. CURING METHODS: PERFORM CURING OF CONCRETE BY MOIST CURING, BY MOISTURE-RETAINING COVER CURING, BY	B. THIS WORK SHALL CONSIST OF CONSTRUCTING ONE COURSE CONCRETE PAVEMENT DRIVEWA FOUNDATION, TO THE LINES, GRADES AND SECTION SHOWN ON THE PLANS OR AS DIRECTED B
CURING COMPOUND, AND BY COMBINATIONS THEREOF, HEREIN SPECIFIED. F. PROVIDE MOISTURE CURING AS FOLLOWS: COVER CONCRETE WITH MOISTURE-RETAINING COVER FOR CURING	PART 2 - PRODUCTS AND MATERIALS 2.01 GENERAL:
CONCRETE, PLACED IN WIDEST PRACTICABLE WIDTH WITH SIDES AND ENDS LAPPED AT LEAST 3 INCHES AND SEALED BY WATERPROOF TAPE OR ADHESIVE. IMMEDIATELY REPAIR ANY HOLES OR TEARS DURING CURING PERIOD USING COVER MATERIAL AND WATERPROOF TAPE.	A. MATERIALS FURNISHED AND USED IN THE WORK SHALL CONFORM TO THE REQUIREMENTS FOR MATERIAL USED.
G. PROVIDE CURING COMPOUND TO SLABS AS FOLLOWS: APPLY SPECIFIED CURING AND SEALING COMPOUND TO CONCRETE SLABS AS SOON AS FINAL FINISHING OPERATIONS ARE COMPLETE (WITHIN TWO HOURS). APPLY	2.02 CONCRETE MASONRY:
UNIFORMLY IN CONTINUOUS OPERATION BY POWER-SPRAY OR ROLLER IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS. RECOAT AREAS SUBJECTED TO HEAVY RAINFALL WITHIN 3 HOURS AFTER INITIAL APPLICATION. MAINTAIN CONTINUITY OF COATING AND REPAIR DAMAGE DURING CURING PERIOD.	A. CONCRETE MASONRY SHALL CONFORM TO THE REQUIREMENTS AS SET FORTH IN SECTION 33 MASONRY.
3.06 <u>REMOVAL OF FORMS:</u>	2.03 EXPANSION JOINT FILLER: A EXPANSION JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS F
A. FORMWORK NOT SUPPORTING WEIGHT OF CONCRETE, SUCH AS SIDES OF BEAMS, WALLS, COLUMNS, AND SIMILAR PARTS OF THE WORK, MAY BE REMOVED AFTER CUMULATIVELY CURING AT NOT LESS THAN 50F (10C) FOR 24 HOURS	SPONGE RUBBER AND CORK EXPANSION JOINT FILLERS FOR CONCRETE PAVING AND STRUCT AASHTO DESIGNATION: M 153, TYPES I, II OR III, OR THE SPECIFICATION FOR PREFORMED EXP FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION AASUTO DESIGNATION: M 212
AFTER PLACING CONCRETE, PROVIDED CONCRETE IS SUFFICIENTLY HARD TO NOT BE DAMAGED BY FORM REMOVAL OPERATIONS, AND PROVIDED CURING AND PROTECTION OPERATIONS ARE MAINTAINED.	2.04 CONCRETE JOINT FILLER:
207 <u>QUALITY CONTROL TESTING DURING CONSTRUCTION:</u> A SAMPLING AND TESTING FOR QUALITY CONTROL DURING PLACEMENT OF CONCRETE MAY INCLUDE THE FOLLOWING	A. CONCRETE JOINT SEALER SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION: D DESIGNATION: M 173 FOR HOT POURED ELASTIC TYPE CONCRETE JOINT SEALER.
AS DIRECTED BY THE ENGINEER.	2.05 CURING MEMBRANE:
B. SAMPLING FRESH CONCRETE: ASTM C 172, EXCEPT MODIFIED FOR SLUMP TO COMPLY WITH ASTM C 94. C. SLUMP: ASTM C 143; ONE TEST FOR EACH CONCRETE LOAD AT POINT OF DISCHARGE, AND ONE TEST FOR EACH SET	A. CURING MEMBRANE SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION: C 309, DESIGNATION: M 148, TYPE 2, WHITE PIGMENTED FOR LIQUID MEMBRANE - FORMING COMPOUND
OF COMPRESSIVE STRENGTH TEST SPECIMENS.	CONCRETE. PART 3 - CONSTRUCTION METHODS
PRESSURE FOR NORMAL WEIGHT CONCRETE; ONE FOR EACH SET OF COMPRESSIVE STRENGTH TEST SPECIMENS.	3.01 EQUIPMENT:
E. COMPRESSIVE STRENGTH TESTS: ASTM C 39; ONE FOR EACH 100 CU. YDS. OR FRACTION THEREOF, OF EACH CONCRETE CLASS PLACED IN ANY ONE AREA OR FOR EACH 5,000 SQ. FT. OF SURFACE AREA PLACED; 2 SPECIMENS TESTED AT 7 DAYS, 3 SPECIMENS TESTED AT 28 DAYS, AND ONE SPECIMEN RETAINED FOR LATER TESTING IF REQUIRED.	A. EQUIPMENT AND TOOLS NECESSARY FOR PERFORMING ALL PARTS OF THE WORK SHALL BE SUDESIGN, CAPACITY, AND MECHANICAL CONDITION FOR THE PURPOSES INTENDED, AND ANY ECOMAINTAINED IN FULL WORKING ORDER, OR WHICH AS USED BY THE CONTRACTOR IS PROVEN RESULTS PRESCRIBED, SHALL BE REPAIRED, IMPROVED, REPLACED OR SUPPLEMENTED TO O
F. WHEN THE TOTAL QUANTITY OF A GIVEN CLASS OF CONCRETE IS LESS THAN 50 CU. YDS., STRENGTH TESTS MAY BE WAIVED BY ENGINEER IF, IN HIS JUDGEMENT, ADEQUATE EVIDENCE OF SATISFACTORY STRENGTH IS PROVIDED.	AND WORKMANSHIP CONTEMPLATED BY THE CONTRACT.
G. TEST RESULTS SHALL BE REPORTED IN WRITING TO THE ENGINEER AND THE CONTRACTOR. REPORTS OF COMPRESSIVE STRENGTH TESTS SHALL CONTAIN THE PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING SERVICE, CONCRETE TYPE AND CLASS, LOCATION OF CONCRETE BATCH IN STRUCTURE, DESIGN COMPRESSIVE STRENGTH AT 29 DAYS, CONCRETE MIX PROPORTIONS AND MATERIALS; COMPRESSIVE BREAKING STRENGTH AND TYPE OF BREAK FOR BOTH 7-DAY TESTS AND 28-DAY TESTS.	A. THE FOUNDATION SHALL BE PREPARED BY EXCAVATING OR FILLING TO THE LINES, GRADES AN SHOWN ON THE PLANS AND REQUIRED FOR PLACING THE CONCRETE MASONRY. ALL SOFT OF SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL, AND THE FOUNDATION OR MA THE PROPOSED CURB AND GUTTER SHALL BE COMPACTED THOROUGHLY AND FINISHED TO A
H. ADDITIONAL TESTS: THE TESTING SERVICE WILL MAKE ADDITIONAL TESTS OF IN-PLACE CONCRETE WHEN TEST RESULTS INDICATE SPECIFIED CONCRETE STRENGTHS AND OTHER CHARACTERISTICS HAVE NOT BEEN ATTAINED IN THE STRUCTURE, AS DIRECTED BY ENGINEER. TESTING SERVICE MAY CONDUCT TESTS TO DETERMINE ADEQUACY OF CONCRETE BY CORED CYLINDERS COMPLYING WITH ASTM C 42, OR BY OTHER METHODS AS DIRECTED. CONTRACTOR SHALL PAY FOR SUCH TESTS CONDUCTED AND AND AND ADDITIONAL TESTING AS MAY BE PEOLURED. WHEN	B. ALL FILLS SHALL BE INSTALLED IN SIX INCH (6") LAYERS, OF SUITABLE MATERIALS APPROVED E EACH LAYER THOROUGHLY COMPACTED TO AT LEAST 95% OF THE MAXIMUM DENSITY AT OPT DETERMINED BY THE STANDARD METHOD OF TEST FOR MOISTURE-DENSITY RELATIONS OF SO DESIGNATION R 180-74
SHALL PAY FOR SUCH TESTS CONDUCTED AND ANY OTHER ADDITIONAL TESTING AS MAY BE REQUIRED, WHEN ACCEPTABLE CONCRETE IS VERIFIED. DF SECTION 32 13 00	C. THE PREPARATION OF FOUNDATION SHALL INCLUDE REMOVAL OF TREES, ROOTS, STUMPS, CO DRIVE APPROACHES, EXISTING CURB AND GUTTER, OR OTHER PHYSICAL OBJECTS WHICH WO CONSTRUCTION OF THIS MASONRY STRUCTURE.
	 D. WHEN ROCK REQUIRING BLASTING IS ENCOUNTERED, THE CONTRACTOR SHALL STOP WORK A ENGINEER FOR A CHANGE ORDER. AFTER BLASTING OPERATIONS HAVE BEEN COMPLETED, TH FILL TO LINE AND GRADE AS SPECIFIED ABOVE. 3.03 SLIP FORMING - CURB AND GUTTER:
	A. THE CONTRACTOR MAY UTILIZE A SLIP-FORM CONCRETE PAVING MACHINE FOR ALL CURB AND
	3.04 FORMS:
	A. FORMS SHALL BE OF WOOD OR METAL, AND SHALL BE STRAIGHT AND OF SUFFICIENT STRENG SPRINGING, TIPPING, OR DISPLACEMENT DURING THE PROCESS OF DEPOSITION AND CONSOL CONCRETE. IF OF WOOD, FORMS SHALL BE SURFACED PLANK OF AT LEAST TWO-INCH NOMIN/ EXCEPT FOR SHARPLY CURVED SECTIONS; AND IF OF METAL, THEY SHALL BE OF APPROVED S SHALL BE OF THE FULL DEPTH OF THE REQUIRED SECTION AND GUTTER SECTIONS, AND SHAL AS TO PERMIT SECURE FASTENING. FACE BOARDS, IF USED, SHALL BE SO CONSTRUCTED AND LOWER EDGE CONFORMS TO THE LINES AND RADIUS INDICATED BY THE CROSS SECTION FOR STRUCTURE AS SHOWN ON THE PLANS. ALL FORMS SHALL BE CLEANED THOROUGHLY AND ON CONCRETE IS PLACED AGAINST THEM.
	B. ALL FORMS SHALL BE CHECKED AND APPROVED BY THE ENGINEER PRIOR TO BEING USED. FO APPROVAL SHALL BE IMMEDIATELY REMOVED FROM THE JOB SITE.
	3.05 SETTING OF FORMS AND STRINGLINES FOR CURB AND GUTTER:
	A. AFTER SETTING OF FORMS AND STRINGLINES TO LINE AND GRADE AS SHOWN ON THE PLANS, THE CONCRETE, THE FOLLOWING CONDITIONS IN RELATION TO THE SETTING OF FORMS AND S
	B. COMPLETE FORM PLACING SHALL BE CHECKED AND APPROVED BY THE ENGINEER OR HIS REF
	C. COMPLETE FINAL STRINGLINE FOR BOTH LINE AND GRADE SHALL BE APPROVED BY THE ENGIN REPRESENTATIVE.
	3.06 CONTRACTION JOINTS:
	A. CONTRACTION JOINTS SHALL BE PLACED IN EACH MONOLITHIC CURB AND GUTTER SECTION N FOOT INTERVALS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
	3.07 EXPANSION JOINTS: A. WHERE CURB AND GUTTER ABUTS CONCRETE DRIVE APPROACHES EXPANSION JOINTS SHALL CURB, GUTTER. IN ALL CONSTRUCTION, JOINTS SHALL BE SET AT RIGHT ANGLES TO THE FACE AND AT RIGHT ANGLES TO THE FLOW LINE AND SURFACE OF GUTTERS. A ¾ INCH EXPANSION IN THE CURB AND GUTTER AT A MAXIMUM SPACING OF 300 FEET.
	B. THE JOINT SHALL FIT SNUGLY AGAINST THE SUBGRADE AND SHALL EXTEND UPWARD TO AN EL BELOW THE FINISHED SURFACE OF THE CURB AND GUTTER. THE JOINT FILLER SHALL CONFOR CONTOUR OF THE CURB AND GUTTER SECTION.
	 3.08 JOINT SEALER: A. WHERE CURB AND GUTTER ABUT CONCRETE, ALL EXPANSION, CONTRACTION AND CONTRACT CLEANED THOROUGHLY OF ALL TEMPORARY FILLER, DIRT, WATER AND OTHER FOREIGN MATE A HOT POURED ELASTIC MATERIAL CONFORMING TO THE REQUIREMENTS OF THESE SPECIFIC SURFACE SHALL BE FINISHED SMOOTH AND EVEN
	3.09 FINISHING:
	A. THE FACE SURFACES OF THE CURB AND GUTTER SHALL BE THOROUGHLY FINISHED AND BRUS OTHERWISE PROVIDED, THE BACK EDGE OF THE CURBS, THE EDGE OF THE GUTTER ADJACEN AND EDGES ADJACENT TO EXPANSION JOINTS OR CONTRACTION JOINTS FORMED BY SEPARA ROUNDED WITH AN EDGER OF ¼-INCH RADIUS. ANY HONEYCOMBED AREAS OCCURRING ALON CURBS OR EDGES OF GUTTERS SHALL BE POINTED WITH PORTLAND CEMENT MORTAR.
	 3.10 PROTECTION AND CURING: A. AS SOON AFTER FINISHING OPERATIONS AS THE FREE WATER HAS DISAPPEARED, THE CONCESEALED BY SPRAYING ON IT A UNIFORM COATING OF CURING MATERIAL, MEETING THE REQUIR SPECIFICATIONS IN SUCH A MANNER AS TO PROVIDE A CONTINUOUS WATER-IMPERMEABLE FI
	CONCRETE SURFACE. B. IN ORDER TO ENSURE UNIFORM CONSISTENCY AND DISPERSION OF PIGMENT IN THE CURING I WELL AGITATED IN THE SUPPLY DRUM IMMEDIATELY BEFORE TRANSFER TO THE DISTRIBUTOR THORNWAY A OUTPUT DEVELOPMENT OF THE DISTRIBUTOR
	C. THE CURING COMPOUND MAY BE APPLICATION. C. THE CURING COMPOUND MAY BE APPLIED IN EITHER ONE OR TWO APPLICATIONS IN ACCORDA DIRECTIONS OF THE MANUFACTURER. HOWEVER, IF APPLIED IN TWO COATINGS, THE SECOND LATER THAN 30 MINUTES AFTER THE FIRST.

D. IN THE EVENT THE COATING IS DAMAGED WITHIN 72 HOURS AFTER BEING APPLIED DUE TO JO OPERATIONS OR OTHERWISE, THE AFFECTED AREAS SHALL BE RECOATED WITHOUT DELAY A AS PRESCRIBED ABOVE FOR THE ORIGINAL APPLICATION.

E. SHOULD THE SPRAYING EQUIPMENT FAIL AND DUPLICATE SPRAYING EQUIPMENT IS NOT IMME FURTHER PLACING OF CONCRETE SHALL BE SUSPENDED UNTIL PROPERLY OPERATING SPRAY PROVIDED, AND THE PORTION OF FINISHED CONCRETE NOT SATISFACTORY TO THE ENGINEER

	32 16 00 - CURB AND GUTTER DRIVEWAYS	33 00 00 - CONSTRUCTION OF SANITARY SEW
	F. WITHIN 30 MINUTES AFTER THE FORMS HAVE BEEN REMOVED, THE EDGES OF CONCRETE SHALL BE COATED WITH THE CURING COMPOUND, APPLIED AT THE SAME RATE AS ON THE SURFACE. HAND OPERATED SPRAYERS MAY BE USED FOR SPRAYING THE EDGES.	SECTION 33 00 00 - CONSTRUCTION OF SANITARY SEWER, PROCESS WASTEWATER DRAIN, WATER MAIN AN PART 1 GENERAL
) GUTTER, WITHOUT COURSE ON THE PREPARED L AS SHOWN ON THE PLANS	G. JOINTS WHICH HAVE BEEN SAWED PRIOR TO THE EXPIRATION OF THE 72-HOUR DURING PERIOD SHALL BE CURED DURING THE REMAINDER OF THE CURING PERIOD. CURING SHALL BE ACCOMPLISHED BY THE APPLICATION OF POLYETHYLENE CURING TAPE AT LEAST 2½ INCHES WIDE WITH ADHESIVE NEAR EACH EDGE WHICH WILL SEAL THE TAPE TO THE PAVEMENT WHEN PLACE OVER THE JOINT. ALTERNATIVE METHODS MAY BE USED WHEN APPROVED BY THE ENGINEER.	1.01 SCOPE OF WORK: A. THIS SECTION COVERS THE CONSTRUCTION OF SANITARY SEWER, WATER MAIN AND STORM SEWER PART 2 PRODUCTS
EWAYS ON THE PREPARED ED BY THE ENGINEER.	 3.11 PROTECTION DURING COLD WEATHER: A. EXCEPT BY SPECIFIC WRITTEN AUTHORIZATION BY THE ENGINEER, CONCRETE OPERATIONS SHALL NOT BE CONTINUED WHEN A DESCENDING AIR TEMPERATURE IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT FALLS BELOW 40F., NOR RESUMED UNTIL ASCENDING AIR TEMPERATURE IN THE SHADE AND AWAY FROM ARTIFICIAL HEAT REACHES 	2.01 <u>TRACING WIRE:</u> A. TRACING WIRE SHALL BE AWG 12 GAUGE THHN SOLID CONDUCTOR COPPER WIRE WITH PLASTIC CO PART 3 EXECUTION
FOR THE CLASS OF	 35F. 3.12 BACKFILLING AND RESTORATION OF THE SITE OF THE WORK: A. WHEN THE CURB AND GUTTER HAS BEEN CURED THE SPACES ALONG THE BACK OF CURB, BETWEEN THE CURB OR BETWEEN THE CURB AND THE STREET PROPERTY LINE, IF SIDEWALK IS NOT EXISTING, SHALL BE BACKFILLED WITH 	3.01 <u>WORK UNDER THIS CONTRACT:</u> THE CONTRACTOR SHALL BE REQUIRED TO: A. MAKE THE NECESSARY EXCAVATION FOR THE CONSTRUCTION OF SEWER OR WATER MAINS, INCLU
N 3301 - CONCRETE	MATERIALS SATISFACTORY TO THE ENGINEER, AND SHALL BE THOROUGHLY COMPACTED TO AT LEAST 85% OF MAXIMUM DENSITY WAS DETERMINED BY THE STANDARD METHOD OF TEST, AASHTO DESIGNATION T 180-74. THE BACKFILL SHALL BE INSTALLED TO NEAT LINES FROM THE TOP OF THE CURB TO TOP EDGE OF EXISTING/PROPOSED SIDEWALK OR FROM THE TOP OF THE CURB TO THE EXISTING GRADE AT THE STREET PROPERTY LINE WHERE THE SIDEWALK DOES NOT EXIST. THE CONTRACTOR SALL SALVAGE OR PROVIDE SUFFICIENT TOPPOSIL SO THAT THE TOP	 CLEARING AND GRUBBING, EXCAVATING, DEWATERING, BLASTING, DIKING, PUMPING, DRAINAGE SY AND SHORING NECESSARY TO PROVIDE AN ADEQUATE AND SAFE TRENCH. B. LAY THE PIPE ON A PROPERLY PREPARED FOUNDATION, INCLUDING SHAPING THE TRENCH BOTTOM COMPACTING BEDDING AND INITIAL BACKFILL MATERIALS, STABILIZING THE TRENCH BOTTOM IF NE INITIAL INC. ALL DECIMIENT CITIZED AND ADDITIONANCES.
NS FOR PREFORMED JCTURAL CONSTRUCTION, EXPANSION JOINT FILLERS	 FOUR (4) INCHES OF THE BACKFILL IS TOPSOIL. THE CONTRACTOR SHALL DISPOSE OF SURPLUS EXCAVATION AS DIRECTED BY THE ENGINEER AND SHALL RESTORE THE SITE OF THE WORK TO THE SATISFACTION OF THE ENGINEER. 3.13 CLEANUP: A. THE CONTRACTOR SHALL AT ALL TIMES KEEP ONE LANE OF TRAFFIC OPEN AND ALL PRIVATE DRIVEWAYS OPEN 	C. MAINTAIN THE SAFETY OF THE PUBLIC DURING CONSTRUCTION, INCLUDING PLACEMENT OF PROTE CAUTION LIGHTS, BARRICADES, FLAGMEN, TRAFFIC WARNING SIGNS, AND MAINTAINING BOTH VEHIC PEDESTRIAN TRAFFIC AS REQUIRED.
N: D 1190 OR AASHTO	 (EXCEPTFOR FRESHLY POURED DRIVEWAYS) AND KEEP THE TRAVEL-WAY FREE OF ROCKS, PILES OF EARTH, EQUIPMENT, MACHINERY, OTHER OBSTRUCTIONS. B. FINAL CLEANUP SHALL CONSIST OF REMOVAL OF ALL CONCRETE RUBBLE, EXCESS FILL, ANY AND ALL FOREIGN MATERIAL RESULTING FROM THE CURB AND GUTTER CONSTRUCTION. DISPOSAL SHALL BE AS DIRECTED BY THE ENGINEER. CLEANUP SHALL BE COMPLETED WITHIN 24-HOURS AFTER THE FORMS HAVE BEEN REMOVED. 	 D. MAINTAIN AND PROTECT BUILDINGS AND EXISTING UTILITY INSTALLATIONS, INCLUDING GAS, ELECT SEWER, AND TELEPHONE SYSTEMS, BOTH UNDER AND ABOVE THE SURFACE AND IMMEDIATELY RE REPAIR TO BE MADE SHOULD ANY DAMAGE OCCUR. E. MAINTAIN THE SITE OF THE WORK AT ALL TIMES, INCLUDING CLEAN-UP OF ALL LOOSE AND WINDBLO PROMPT REMOVAL OF ALL UNWANTED OR UNUSED MATERIAL, AND RESTORATION OF THE SITE AS S
309, TYPE 2 OR AASHTO OUNDS FOR CURING	C. PARTIAL PAYMENTS WILL NOT BE MADE ON BLOCKS NOT COMPLETED, INCLUDING INTERSECTION RADII, ALLEY AND PRIVATE DRIVEWAY APPROACHES AND CLEANUP. END OF SECTION 32 16 00	TO A NEAT CONDITION. F. PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS TO ACCOMPLISH THE WORK UNDER THIS CONTF EXPEDITIOUS AND WORKMANLIKE MANNER, AND TO COMPLETE THE WORK IN ACCORDANCE WITH T THESE SPECIFICATIONS.
E SATISFACTORY AS TO Y EQUIPMENT WHICH IS NOT EN INADEQUATE TO OBTAIN		 3.02 <u>CONTRACTOR'S WORK FORCE AND EQUIPMENT:</u> A. THE CONTRACTOR SHALL HAVE ON THE JOB SUFFICIENT MEN, EQUIPMENT, AND MATERIALS TO ENS BY THE SPECIFIED DATE. IF THE CONTRACTOR FAILS TO MAINTAIN HIS PROPOSED SCHEDULE, THE ORDER THE CONTRACTOR TO SUPPLY ADDITIONAL LABOR, EQUIPMENT, AND MATERIALS TO THE JO ADDITIONAL HOURS PER DAY OR DAYS PER WEEK.
S AND CROSS SECTION		A. THE LOCATION OF UNDERGROUND OBSTRUCTIONS: A. THE LOCATION OF PIPES AND OTHER UNDERGROUND OBJECTS ARE APPROXIMATELY CORRECT AS PLANS, BUT SHOULD THEY BE FOUND TO BE OTHERWISE, OR SHOULD THE CONTRACTOR ENCOUNT ROCK NOT INDICATED, SPRINGS, OR OTHER DIFFICULTIES, HE SHALL HAVE NO CLAIM ON THAT ACC UNDERSTOOD THAT THE OWNER AND THE ENGINEER DO NOT WARRANT THE PLOT OF UNDERGROU CORRECT.
THE CONCRETE. D A FIRM, TRUE SURFACE. F THE CONCRETE. ED BY THE ENGINEER, AND PTIMUM MOISTURE AS F SOILS, AASHTO		 3.04 <u>PRIVATE LANDS:</u> A. THE CONTRACTOR SHALL NOT, UNLESS WRITTEN CONSENT HAS BEEN GIVEN BY THE PROPER PARTOCCUPY WITH MEN, TOOLS OR MATERIAL, ANY LAND ADJOINING WORK. A COPY OF THE WRITTEN CONSENT TO THE ENGINEER'S REPRESENTATIVE.
5, CONCRETE OR ASPHALT WOULD PROHIBIT THE		 3.05 <u>TEMPORARY BRIDGES AND CROSSROADS:</u> A. WHENEVER IT IS NECESSARY TO CROSS ROADS OR RAILWAYS, AND IF REQUIRED, THE CONTRACTO OWN EXPENSE, PROVIDE SUITABLE AND SAFE BRIDGES OR OTHER SUFFICIENT CROSSINGS FOR TH ACCOMMODATION OF TRAVEL ON THE SAID ROAD, AND SHALL MAINTAIN THE SAME IN GOOD AND SA
RK AND NOTIFY THE), THE CONTRACTOR SHALL		AND RESTORE SAID ROADS TO A CONDITION SUITABLE FOR USE. THE CONTRACTOR SHALL GIVE R NOTICE TO THE OWNERS OF THE RAILROADS AND PRIVATE WAYS BEFORE INTERFERING WITH THE PROVIDE WATCHMEN, WARNING LIGHTS AND FENCES AT HIS OWN EXPENSE, AND TAKE SUCH OTHE AS MAY BE NECESSARY TO PROTECT LIFE AND PROPERTY; AND HE SHALL BE LIABLE FOR ALL DAM/ IN ANY WAY BY HIS ACTS OF NEGLECT, OR THAT OF HIS AGENTS, EMPLOYEES, OR WORKMEN.
AND GUTTER OPERATIONS. RDANCE WITH THE DETAILS.		3.06 <u>LINE AND GRADE:</u> THE CONTRACTOR IS RESPONSIBLE TO HIRE A REGISTERED LAND SURVEYOR TO SET LINE AND GR. INSTALLATION OF UNDERGROUND PIPING.
NGTH TO RESIST SOLIDATING THE MINAL THICKNESS STOCK D SECTION. THE FORMS HALL BE OF SUCH DESIGN AND SHAPED THAT THEIR OR THE PERTINENT D OILED BEFORE THE		 3.07 ASSISTANCE WITH MEASUREMENTS: THE CONTRACTOR SHALL PROVIDE ASSISTANCE TO THE INSPECTOR OR THE ENGINEER ON REQUE NECESSARY MEASUREMENTS DURING THE CONSTRUCTION. 3.08 <u>ROCK EXCAVATION:</u> A DEFINITION:
FORMS NOT MEETING		A. DEFINITION: WHEREVER THE WORD "ROCK" OCCURS IN THESE SPECIFICATIONS IT SHALL BE INTERPRETED TO M MATERIAL GEOLOGICALLY IN PLACE, AND OF THE HARDNESS WHEN FIRST EXPOSED, OF THREE OR MOHS SCALE OF MINERAL HARDNESS. SUCH MATERIAL SHALL INCLUDE ALL HARD, SOLID ROCK IN I DEPOSITS AND UNSTRATIFIED MASSES; AND ALL NATURAL CONGLOMERATE DEPOSITS SO FIRMLY (PRESENT ALL CHARACTERISTICS OF SOLID ROCK; AND WHICH MATERIAL IS SO HARD AND FIRMLY (
NS, AND PRIOR TO PLACING ND STRINGLINES SHALL BE ITATIVE. REPRESENTATIVE.		THE OPINION OF THE ENGINEER, IT IS NOT PRACTICAL TO EXCAVATE AND REMOVE WITH A BACKHO ½ CUBIC YARDS CAPACITY AND 225 HP EXCEPT AFTER CONTINUOUS DRILLING AND BLASTING OR DI WEDGING. OTHER MINERAL DEPOSITS SHALL NOT BE CLASSIFIED AS ROCK, ALTHOUGH IT MAY BE I TO REMOVE THE SAME BY BLASTING. ALL INDIVIDUAL BOULDERS, HARD HEARTS, AND STONES OR DEPOSITS, LESS THAN ONE CUBIC YARD IN VOLUME, SHALL NOT BE CLASSIFIED AS ROCK.
IGINEER OR HIS N NO GREATER THAN 10		B. CONSTRUCTION METHODS: THE CONTRACTOR MAY USE SINGLE TRENCH CONSTRUCTION IN SOLID ROCK AREAS REQUIRING BL ONLY THREE FEET HORIZONTAL CLEARANCE BETWEEN THE SANITARY SEWER AND THE WATERMAI BETWEEN SANITARY AND STORM SEWERS AS SHOWN ON THE PLANS.
ALL BE PLACED BEHIND THE ACE AND TOP OF THE CURB ON JOINT SHALL BE PLACED		 3.09 <u>BLASTING REQUIREMENTS:</u> A. ROCK, OR ANY OTHER MATERIALS TO BE BLASTED SHALL BE CAREFULLY COVERED WITH STEEL CA TIRE BLASTING MATS MADE ESPECIALLY FOR THAT PURPOSE; ALL INJURIES OR LOSSES TO PERSOI SHALL BE BORNE BY THE CONTRACTOR. THE CONTRACTOR MUST TAKE ALL PRECAUTIONS NECES: LIFE AND PROPERTY. THE CONTRACTOR PRIOR TO BLASTING, SHALL VISUALLY INSPECT AND RECC APPROPRIATE PHOTOGRAPHS. NOTES, ETC. ALL WALLS, BASEMENTS FOUNDATIONS, ETC. OF ADIA
N ELEVATION OF 1/2-INCH FORM TO THE TRUE		COPY OF THESE RECORDS SHALL BE GIVEN TO THE ENGINEER AS A RECORD AGAINST POSSIBLE FU B. ALL EXPLOSIVE AND BLASTING PROCEDURES SHALL FULLY COMPLY WITH THE "WISCONSIN ADMINI: CHAPTER IND. 5 <u>EXPLOSIVES AND BLASTING AGENTS</u> . A CLASS IV BLASTER SHALL BE REQUIRED. T BLASTER, HIS LICENSE IDENTIFICATION NUMBER, AND HIS BLASTING CLASSIFICATION SHALL BE SU ENGINEER OR HIS REPRESENTATIVE PRIOR TO COMMENCING BLASTING OPERATION. IT SHALL BE T
ACT JOINTS SHALL BE ATERIAL, AND SEALED WITH IFICATIONS. THE EXPOSED		RESPONSIBILITY TO NOTIFY THE FIRE DEPARTMENT PURSUANT TO THE "WISCONSIN ADMINISTRATI CONTRACTOR'S INSURANCE AS REQUIRED IN THE GENERAL CONDITIONS, MUST INCLUDE BLASTING (CONTINUED)
RUSHED. UNLESS ENT TO THE PAVEMENT, RATOR PLATES SHALL BE LONG FORMS ON BACK OF		
NCRETE SURFACE SHALL BE QUIREMENTS OF THESE E FILM ON THE ENTIRE		
NG MATERIAL, IT SHALL BE TOR AND KEPT		
RDANCE WITH THE DND SHALL BE APPLIED NOT		
JOINT SAWING Y AND AT THE SAME RATE		
RAY EQUIPMENT IS EER.		

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	TER MAIN AND STORM SEWER	
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	H PLASTIC COATING.	
	MAINS, INCLUDING ALL DRAINAGE SYSTEMS, SHEETING	
	G GAS, ELECTRIC, WATER,	
	AND WINDBLOWN DEBRIS,	
Reconcerned of the second of t	R THIS CONTRACT IN A NEAT,	ш
	JANUE WITH THE PLANS AND	Ш Ш
	RIALS TO ENSURE COMPLETION HEDULE, THE ENGINEER MAY LS TO THE JOB SITE, OR WORK	
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REPORTED TAILS OF REAL AND THE REPORT OF REAL	PROPER PARTIES, ENTER OR HE WRITTEN CONSENT SHALL BE	ECIFIC SSSE,
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33 00 00 - CONSTRUCTION OF SANITARY SEWER, PROCESS WASTE. WATER MAIN AND STORM SEWER	33 10 00 - WATER SYSTEM
3.10 TRENCH EXCAVATION:	SECTION 33 10 00 - WATER SYSTEM
A. ALL SURFACING MATERIAL OR TOPSOIL WITHIN THE LOCATION OF THE TRENCH EXCAVATION INCLUDING PAVEMENT, PAVING GRAVEL, BROKEN STONE, ETC., SHALL BE REMOVED FOR A SUITABLE DISTANCE IN ADVANCE OF THE TRENCH, AND KEPT SEPARATE IF THIS MATERIAL IS TO BE USED IN REPAVING OR RESURFACING THE STREET, ROAD, OR GROUND.	PART 1 - GENERAL 1.01 SECTION INCLUDES:
B. THE CONTRACTOR SHALL FURNISH, PUT IN PLACE AND MAINTAIN SUCH SHEETING, BRACING, TRENCH SHIELD, ETC., REQUIRED BY APPLICABLE FEDERAL AND STATE OF WISCONSIN CODES PERTAINING TO WORK OF THIS CLASS AND MAY BE NECESSARY TO SUPPORT THE SIDES OF EXCAVATION ABOVE AND/OR BELOW THE GRADE OF THE SEWER, AND PREVENT ANY MOVEMENT WHICH COULD IN ANY WAY DAMAGE THE WORK, DIMINISH THE WIDTH NECESSARY FOR PROPER DRAINAGE, OR OTHERWISE DELAY THE WORK OR CAUSE INJURY TO WORKMEN.	 A. WATER MAIN, WATER SERVICES, VALVES AND APPURTENANCES. 1.02 REFERENCE: A. "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN" DEFEDITION, INCLUDING ADDENDUM NO. 1 DATED DECEMBER 22, 2004.
C. ALL SLIDES AND CAVE-INS SHALL BE REPAIRED AT THE EXPENSE AND COST OF THE CONTRACTOR. ALL SHEETING OR TRENCH SHIELD COSTS TO BE INCLUDED IN THE COST FOR LAYING PIPE, AND NO ADDITIONAL PAYMENT SHALL BE MADE	B. AWWA - AMERICAN WATER WORKS ASSOCIATION STANDARDS
D. OPEN CUT BACKCASTING IS PERMITTED WHEN SPECIFIED ON THE PLANS OR APPROVED BY THE ENGINEER. THIS PROVISION DOES NOT REMOVE OR ALTER THE CONTRACTOR'S LIABILITY FOR DAMAGE IN ANY RESPECT.	A. MANUFACTURERS: FIRMS REGULARLY ENGAGED IN THE MANUFACTURE OF WATER SYSTE AND SIZES REQUIRED, WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR S
E. IF THE ENGINEER IS OF THE OPINION THAT SUFFICIENT OR PROPER SUPPORTS HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS SHALL NOT RELIEVE OR RELEASE THE CONTRACTOR FROM HIS RESPONSIBILITY FOR THE SUFFICIENCY OF SUCH SUPPORTS	THAN 5 YEARS. B. INSTALLER: A FIRM WITH AT LEAST TWO YEARS OF SUCCESSFUL INSTALLATION EXPERIEN PROJECTS SIMILAR TO THIS PROJECT.
F. THE BOTTOM OF THE TRENCH IS IN GENERAL TO BE EXCAVATED TO A SIZE AND SHAPE AS SHOWN IN THE "TYPICAL TRENCH SECTION DETAILS".	C. LOCAL FIRE DEPARTMENT REGULATIONS: COMPLY WITH GOVERNING REGULATIONS PERT INCLUDING HOSE UNIT THREADING AND SIMILAR MATCHING OF CONNECTIONS.
G. ALL MATERIAL SHALL BE SO PLACED AS NOT TO ENDANGER THE WORK AND SO FREE ACCESS MAY BE HAD ANY TIME TO ALL PARTS OF THE TRENCH AND ALL HYDRANTS AND WATER VALVES IN THE VICINITY. REASONABLE PROVISIONS SHALL BE MADE FOR TRAVEL ON THE STREETS, ROADS, RAILROAD AND PRIVATE WAYS, LIMITING INCONVENIENCE TO ADJOINING PROPERTIES AS MUCH AS POSSIBLE.	 1.04 SUBMITTALS: A. PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DATA AND INSTALLATION INSTRUCT FITTINGS, VALVES, HYDRANTS AND ACCESSORIES.
H. THE CONTRACTOR IS TO FURNISH A SUFFICIENT PUMPING PLANT AND TO PROVIDE AND MAINTAIN ALL NECESSARY DRAINAGE IN THE TRENCH. ALL COSTS FOR PUMPING TO BE INCLUDED IN THE COST FOR LAYING PIPE, AND NO	PART 2 - PRODUCTS 2.01 WATER MAIN:
ADDITIONAL PAYMENT SHALL BE MADE. I. WATER IS NOT TO BE ALLOWED TO RISE OVER ANY CONCRETE UNTIL IT IS SET, AND NO STREAM OF WATER SHALL BE ALLOWED TO FLOW OVER ANY CONCRETE UNTIL SUCH TIME AS THE ENGINEER MAY DIRECT. THIS ESPECIALLY INCLUDES THE POURED CONCRETE MANHOLE INVERTS AND DROPS	A. WATER MAIN SHALL BE DUCTILE IRON, PRESSURE CLASS 350, THICKNESS CLASS 52, AWWA DUCTILE IRON FITTINGS COMPLYING WITH AWWA C153, RUBBER GASKETS COMPLYING WIT CEMENT MORTAR LINING COMPLYING WITH AWWA C104.
3.11 TRACING WIRE:	2.02 PIPE JOINTS:
A. A CONTINUOUS TRACING WIRE SHALL BE INSTALLED DIRECTLY ABOVE THE CENTERLINE OF ALL NON-METALLIC UNDERGROUND PIPELINES UNLESS STRAIGHT IN LINE BETWEEN MANHOLES.	A. DUCTILE IRON PIPE JOINTS SHALL BE APPROVED BY THE ENGINEER AND SHALL BE MECHA LEAD TIPPED GASKETS SHALL NOT BE USED FOR MECHANICAL JOINT PIPE. CONDUCTIVITY GASKETS, NOT WEDGES. ALL JOINTS AND FITTINGS SHALL BE MECHANICAL JOINT COMPA-
B. SPLICES IN TRACING WIRE SHALL BE SOLDERED AND WRAPPED WITH ELECTRICAL TAPE.	WITH MEGALUG ANCHORING RETAINING GLAND AS MANUFACTURED BY EBBA IRON, INC.
C. TRACING WIRES SHALL BE WELDED TO MAINLINE VALVE BODIES NEAREST THE BEGINNING AND ENDING POINTS OF A NON-METALLIC WATER MAIN EXTENSION	A. POLYETHYLENE FILM ENVELOPE IS NOT REQUIRED.
D. TRACING WIRES SHALL BE EXTENDED ABOVE FINISHED GRADE IN A 1/2" DIAMETER PVC CONDUIT ALONGSIDE ALL FIRE	2.04 COPPER WATER SERVICE TUBING:
HYDRANTS ON A NON-METALLIC WATER MAIN EXTENSION. E. WHEN EXTENDING A PIPELINE WHICH WAS INSTALLED WITH A TRACING WIRE, THE NEW TRACING WIRE SHALL BE SPLICED TO THE END OF THE EXISTING TRACING WIRE.	A. COPPER WATER SERVICE TUBING SHALL BE TYPE K ASTM B-88 AND SHALL MEET REQUIRE OF STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION. COPPER WATE BE SIZED AS SHOWN ON THE PLANS.
F. TRACING WIRE SHALL BE EXTENDED ABOVE GRADE AT BOTH ENDS ON A PIPELINE IN A ½" DIAMETER PVC CONDUIT OR	2.05 CORPORATION STOPS - 1 1/2":
AS OTHERWISE APPROVED BY THE ENGINEER.	A. MUELLER 300 BALL CORPORATION VALVE WITH AN AWWA TAPER (MUELLER "CC") THREAD MUELLER 110 CONDUCTIVE COMPRESSION CONNECTION OUTLET FOR THE 1 1/2" TYPE 'K' (
END OF SECTION 33 00 00	2.06 CURB STOPS - 1 1/2":
	A. MUELLER 300 BALL VALVE CURB STOP WITH A MUELLER 110 COMPRESSION CONNECTION TUBING ON BOTH ENDS.
	2.07 CURB STOP BOXES:
	A. MUELLER EXTENSION TYPE WITH MINNEAPOLIS PATTERN BASE ADJUSTABLE FOR A DEPTH
	2.08 SADDLES FOR DUCTILE IRON WATER MAIN: A. 8" X 2" MUELLER BRONZE SERVICE SADDLE - DOUBLE STRAP WITH THE 2" OUTLET TAPPED
	TAPER "CC" THREADS.
	1. WATEROUS "PACER", MODEL WB-67 WITH 16-INCH BREAKOFF, 7'-0" BURY DEPTH
	B. PROVIDE TRAFFIC TYPE HYDRANT WITH BREAK-OFF COUPLING ON BOTH STANDPIPE AND
	C. EQUIP HYDRANTS WITH 6" INLET AND 5-1/4" VALVE OPENING, ONE 4-1/2" PUMP NOZZLE, AN WITH NATIONAL STANDARD THREADS AND 1-1/2" PENTAGONAL OPERATING NUT OPENING
	D. PROVIDE O-RING PACKING.
	E. FACTORY-PAINT HYDRANT SAFETY YELLOW. PAINT SHALL BE SHERWIN WILLIAMS B54Y37 ENAMEL OR EQUAL.
	 F. PROVIDE IN LENGTHS REQUIRED FOR DEPTH OF TRENCH SHOWN ON DRAWINGS AND IN A FOLLOWING: 1. PROVIDE EXTENSION SECTIONS FOR HYDRANT STANDPIPE OF SUCH LENGTH THAT HYDR APPROXIMATELY 2" ABOVE FINISHED GRADE OR EXISTING GRADE WHICHEVER APPLIES
	G. THE HYDRANT DRAIN HOLE AT THE BOTTOM SHALL HAVE A FACTORY INSTALLED PLUG.
	2.10 HYDRANT BRANCH:
	A. 6" DUCTILE IRON WATER PIPE, CLASS 52.
	2.11 GATE VALVES:
	A. ACCEPTABLE MANUFACTURERS: 1. KENNEDY 2. MUELLER A2370-20 3. WATEROUS
	B. GATE VALVE REQUIREMENTS

- GATE VALVE REQUIREMENTS
 VALVES SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C509-87.
 VALVES SHALL BE DESIGNED FOR A WORKING PRESSURE OF 200 P.S.I.
 PROVIDE WITH CLEAR WATERWAY EQUAL TO FULL NOMINAL DIAMETER OF VALVE.
- FROVIDE WITH CELER WATERWATE GOAL TO THE NOMINAL DIAMETER OF VALVE.
 PROVIDE RESILIENT SEATED WEDGE TYPE VALVE WITH NONRISING STEMS.
 VALVES SHALL BE SUITABLE FOR DIRECT BURIAL TYPE INSTALLATION ON DISTRIBUTION MA
 THE VALVE BONNET SHALL BE PROVIDED WITH A 1/2" OR 3/8" DIAMETER THREADED, SOLID, SOLID, SOLID, SOLID.
- IRON TEST PLUG.
- THE VALVE STEM SEAL SHALL BE O-RINGS. THE COMPOUND SHALL BE OF BUNA N OR NBR F DUROMETER HARDNESS OF 70+5 WHEN TESTED IN ACCORDANCE WITH ASTM DESIGNATION
 THE VALVE SHALL BE EQUIPPED WITH A STANDARD 2" SQUARE OPERATING NUT WITH CAST ARROW.

C. GATE VALVES SHALL MEET THE REQUIREMENTS OF CHAPTER 8.27.0 OF STANDARD SPECIFICA

- 2.12 CAST IRON VALVE BOXES:
- A. ACCEPTABLE MANUFACTURERS: 1. TYLER 2. MUELLER
- B. PROVIDE 3-PIECE, SCREW TYPE BOXES WITH 5-1/4" SHAFT AND NO-TILT DROP COVER MARKE
- C. VALVE BOXES SHALL MEET THE REQUIREMENTS OF CHAPTER 8.29.0 OF STANDARD SPECIFIC
- D. CONTRACTOR SHALL FURNISH EXTENSION IF REQUIRED TO MEET EXISTING SURFACE OR FIN
- 2.13 CUT-IN SLEEVE FOR CONNECTION TO MAIN:
- A. CUT-IN SLEEVE SHALL BE OF DUCTILE IRON CONSTRUCTION.
- B. IN-LINE MAIN CONNECTION SHALL BE WITH 12" DUCTILE IRON SOLID LONG (12") SLEEVE.
- 2.14 CONDUCTORS:
- A. COPPER STRAP CONDUCTORS AND CONDUCTIVE GASKETS SHALL BE PROVIDED FOR DUCTILE
- B. CONDUCTIVE GASKETS SHALL BE PROVIDED WITH DUCTILE IRON FITTINGS.
- 2.15 CONCRETE BUTTRESSES:
- A. READY-MIXED CONCRETE SHALL BE USED.
- B. CONCRETE SHALL HAVE FOLLOWING CHARACTERISTICS: 1. BUTTRESSES
- 2. 28 DAY COMPRESSIVE STRENGTH 2000 3. MAXIMUM SLUMP 5"
- 3. MAXIMUM SLUMP 5" 4. AIR-ENTRAINMENT BY VOLUME 4% 7% 5. MINIMUM CEMENT CONTENT 4 BAGS 6. MAXIMUM AGGREGATE 3/4"

PART 3 - EXECUTION

	33 10 00 - WATER SYSTEM	33 10 00 - WATER SYSTEM
	 3.01 INSTALLATION OF MAINS: A. GENERAL: ALL PIPE, HYDRANTS, VALVES AND FITTINGS SHALL BE INSTALLED TO THE LINE AND GRADE SHOWN ON THE PLANS. NO DEVIATION FROM LINE OR GRADE SHALL BE MADE EXCEPT AS PERMITTED IN WRITING BY THE ENGINEER. ANY WORK THAT HAS IN ANY WAY BEEN DISTURBED OR DOES NOT CONFORM TO SAID LINE AND GRADE SHALL BE REMOVED AND RE-LAID BY THE CONTRACTOR AT HIS EXPENSE. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL SUBMIT A COMPLETE LIST OF MANUFACTURERS AND MODEL NUMBERS FOR ALL PIPE, HYDRANTS, VALVES, AND FUTURED WILL OF WALL OF THE FUELD FOR TO THE FUELD FOR THE FUEL FOR FOR FOR FOR FOR FOR FOR FOR FOR FOR	L =ND(P).5 7400 IN WHICH L IS THE ALLOWABLE LEAKAGE, IN GALLONS PER HOUR; N IS THE NUMBER OF PIPELINE TESTED; D IS THE NOMINAL DIAMETER OF THE PIPE, IN INCHES; AND P IS THE DURING THE LEAKAGE TEST, IN POUNDS PER SQUARE INCH GAGE. IF ANY TEST OF PIP GREATER THAN THAT SPECIFIED, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOO DEFECTIVE MATERIAL UNTIL THE LEAKAGE IS WITHIN THE SPECIFIED ALLOWANCE. ALL REPAIRED REGARDLESS OF THE AMOUNT OF LEAKAGE.
EMBER 22, 2003, 6TH	 FITTINGS WHICH WILL BE USED ON THE PROJECT. B. WATER MAIN AND HYDRANT BRANCH INSTALLATION SHALL MEET REQUIREMENTS OF CHAPTER 4.3.0 OF STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION. C. SERVICE INSTALLATION SHALL MEET REQUIREMENTS OF CHAPTER 5.5.0 OF STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION. 	 3.11 <u>DISINFECTION OF MAINS:</u> A. DISINFECTION SHALL BE IN ACCORDANCE WITH AWWA C651 USING CALCIUM HYPOCHLO ("PORCHLORON", HTH, ETC.) TO PRODUCE AT LEAST 50 PARTS PER MILLION OF FREE CI ATTACHED TO THE TOP OF THE MAIN BY THE USE OF AN ADHESIVE IN EACH SECTION C HYDRANTS, HYDRANT BRANCHES AND OTHER APPURTENANCES.
M MATERIALS OF TYPES RVICE FOR NOT LESS DE ON WATER SYSTEM	 D. HYDRANT AND VALVE INSTALLATION SHALL MEET REQUIREMENTS OF CHAPTER 4.8.0 OF STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION. E. WATER MAIN SHALL HAVE MINIMUM OF 6'-6" OF COVER AS MEASURED FROM TOP OF PIPE TO FINAL GRADE UNLESS SPECIFICALLY INDICATED OTHERWISE ON THE DRAWINGS. F. LAY PIPE WITH BELL ENDS FACING IN THE DIRECTION OF LAYING, UNLESS DIRECTED OTHERWISE BY THE ENGINEER. DEFLECTION SHALL NOT EXCEED THAT RECOMMENDED FOR THE JOINT, AND SHALL BE APPROVED BY THE ENGINEER. 	 B. ONE POUND OF COMMERCIAL (70%) CALCIUM HYPOCHLORITE TO 1,680 GALLONS OF WARK OF C. MAINS SHALL BE FILLED WITH WATER AT A VELOCITY OF LESS THAT 1 FOOT PER SECON SHALL BE ISOLATED FROM THE REMAINDER OF SYSTEM. D. CHLORINATE PIPE FOR 24 HOURS. FLUSH MAINS AFTER CHLORINATION. THE CONTRACT FOR COLIFORM BACTERIA. IF TESTS SHOW THE PRESENCE OF COLIFORM BACTERIA, TRECHLORINATE THE MAINS UNTIL THEY ARE FREE OF COLIFORM BACTERIA.
ONS FOR PIPE AND	 G. USE PROPER IMPLEMENTS, TOOLS AND FACILITIES FOR INSTALLATION. ALL PIPE, FITTINGS, VALVES AND HYDRANTS SHALL BE CAREFULLY LOWERED INTO THE TRENCH WITH SUITABLE TOOLS OR EQUIPMENT, TO PREVENT DAMAGE TO WATER MAIN MATERIALS, COATINGS, AND LININGS. WATER MAIN MATERIALS SHALL NOT BE DROPPED INTO THE TRENCH. H. PIPE AND FITTINGS SHALL BE INSPECTED FOR DEFECTS AND, WHILE SUSPENDED ABOVE GRADE, BE RUNG WITH A LIGHT HAMMER TO DETECT CRACKS. 	END OF SECTION 33 10 00
C151, WITH COMPACT HAWWA C111, AND	 THE OUTSIDE OF THE SPIGOT AND THE INSIDE OF THE BELL SHALL BE WIRE BRUSHED AND WIPED UNTIL CLEAN, DRY AND FREE FROM OIL AND GREASE BEFORE THE PIPE IS LAID. J. PAINT THE JOINT AND RUBBER GASKET WITH A SOAP SOLUTION PRIOR TO JOINING THE PIPE. K. BOLTS ON MECHANICAL JOINT PIPE SHALL BE TIGHTENED IN A MANNER WHICH PROVIDES EVEN PRESSURE ON THE FLANGE. 	
IICAL JOINT ANSI A21.11. SHALL BE STRAPS OR T DUCTILE IRON CLASS 350	 L. TORQUE SHALL BE CHECKED WITH A TORQUE WRENCH IF NECESSARY. APPLIED TORQUE SHALL BE APPROXIMATELY 85 FOOT POUNDS. M. ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE INSTALLATION. N. A HEAVY, TIGHTLY WOVEN CANVAS BAG OF SUITABLE SIZE MAY BE REQUIRED OVER EACH END OF THE PIPE UNTIL CONNECTION IS MADE TO THE ADJACENT PIPE. NO DEBRIS, TOOLS, CLOTHING OR OTHER MATERIALS SHALL BE PLACED IN THE PIPE. 	
IENTS OF CHAPTER 6.24.0 SERVICE TUBING SHALL	 O. WHEN THE PIPE IS IN THE TRENCH, THE SPIGOT END SHALL BE CENTERED IN THE BELL AND THE PIPE FORCED HOME TO THE CORRECT LINE AND GRADE. SECURE PIPE IN PLACE WITH APPROVED BACKFILL MATERIAL TAMPED UNDER IT EXCEPT AT THE BELL. PIPE AND FITTINGS SHALL ALLOW SUFFICIENT AND UNIFORM SPACE FOR JOINTS. PREVENT DIRT FROM ENTERING THE JOINT SPACE. P. OPEN ENDS OF PIPE SHALL BE CLOSED DURING NON-WORKING PERIODS BY A WATER TIGHT PLUG OR OTHER MEANS APPROVED BY THE ENGINEER. IF WATER IS IN THE TRENCH, THE SEAL SHALL REMAIN IN PLACE UNTIL THE TRENCH IS 	
D INLET AND A DPPER TUBING.	PUMPED COMPLETELY DRY. Q. NO PIPE SHALL BE LAID IN WATER, OR WHEN IN THE OPINION OF THE ENGINEER, TRENCH CONDITIONS ARE UNSUITABLE.	
OR 1 1/2" TYPE 'K' COPPER	 R. THRUST BLOCKS SHALL BE INSTALLED AT HYDRANTS, BENDS, AND ANY OTHER LOCATIONS WHERE WATER PRESSURE IN THE PIPE MAY MOVE THE JOINTS OF THE COMPLETED WORK. WOOD BLOCKING MAY NOT BE USED. S. CUTTING PIPE SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER WITHOUT CAUSING DAMAGE TO THE PIPE. 	
OF 6'-7'.	 3.02 CONCRETE BUTTRESSES: A. CONCRETE BUTTRESSES SHALL MEET REQUIREMENTS OF ARTICLE 4.3.13 OF STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION. WATER MAIN JOINTS SHALL BE KEPT FREE OF CONCRETE. 	
VITH AWWA	 3.03 TRENCH LENGTH: A. TRENCH SHALL BE BACKFILLED EVERY DAY. NO OPEN TRENCH EXCEPT AT THE START OF NEXT DAY'S DAY WORK WILL BE ALLOWED TO REMAIN OPEN OVERNIGHT. BACKFILL MATERIAL SHALL BE INSTALLED TO SHED WATER. 3.04 SNOW FENCE: A. EXCAVATIONS LEET OPEN OVERNIGHT SHALL BE ENCLOSED WITH SNOW FENCE. BARBICADES WITH ELASHING LICHTS 	
OD.	 3.05 WATER SERVICES: 	
TWO 2-1/2" HOSE NOZZLE OUNTER-CLOCKWISE.	 A. WATER SERVICES SHALL BE LAID TO INDIVIDUAL BUILDINGS AS DIRECTED. UNLESS OTHERWISE STATED, THE CONTRACTOR SHALL MAKE THE NECESSARY TAPS OF THE MAIN AND INSTALL THE CORPORATION COCK. B. THE CONTRACTOR SHALL FURNISH AND INSTALL COPPER SERVICE PIPE FROM THE CORPORATION STOP TO 5 FEET FROM THE BUILDING. THE CURB VALVE AND BOX SHALL BE LOCATED AS DIRECTED BY THE ENGINEER WITH A BRICK 	
17-4072 INDUSTRIAL CORDANCE WITH THE	SET CAREFULLY UNDER THE VALVE. THE TRENCH SHALL NOT BE BACKFILLED UNTIL THE SERVICE PIPING IS INSPECTED BY THE CONSTRUCTION MANAGER. C. CARE SHALL BE EXERCISED IN LAYING AND BACKFILLING THE COPPER PIPE SO THAT IT IS REASONABLY STRAIGHT AND FREE FROM KINKS OR FLATTENED PLACES	
ANT FLANGE SHALL BE	 D. WATER SERVICES SHALL BE PLACED AT LEAST SIX AND ONE HALF (6.5) FEET BELOW THE PROPOSED FINISHED GRADE. DURING THE BACKFILLING, THE SERVICE BOX SHALL BE SUPPORTED IN A VERTICAL POSITION. E. WATER SERVICES SHALL HAVE A MINIMUM HORIZONTAL SEPARATION DISTANCE FROM SANITARY BUILDING SEWERS OF 30 INCHES. 	
	 3.06 VALVES AND BOXES: A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND AWWA C600. B. VALVES AND BOXES SHALL BE INSTALLED WHERE INDICATED ON THE PLANS WITH JOINTS MADE AS SPECIFIED FOR THE PIPE. A VALVE BOX SHALL BE PROVIDED IN EACH CASE, EXCEPT WHERE THE PLANS SHOW TO INSTALL A MANHOLE. THE BOX SHALL NOT TRANSMIT SHOCK OR STRESS TO THE VALVE AND SHALL BE CENTERED AND PLUMB OVER THE WRENCH NUT ON THE VALVE WITH THE BOX COVER FLUSH WITH THE SURFACE OF THE FINISHED PAVEMENT OR AS DIRECTED BY THE CONSTRUCTION MANAGER. SET BOX ON COMPACTED BACKFILL. CLEAN ALL DIRT FROM VALVE BEFORE CONNECTING TO PIPE. PROVIDE SUFFICIENT QUANTITIES OF CRUSHED STONE OR ROCK CONFORMING TO REQUIREMENTS OF ASTM C33, GRADUATION NO. 2 OVER AND AROUND VALVE TO PREVENT SAND BLOCKAGES OF VALVE BONNET AND BOX. 	
MAINS. D, MALLEABLE OR CAST R RUBBER AND HAVE A ON D-2240. ST-ON DIRECTIONAL CATIONS.	 3.07 HYDRANTS: A. INSTALL IN ACCORDANCE WITH AWWA C600. B. HYDRANTS SHALL BE VERTICAL AND SET TO LINE AND GRADE. ONE-HALF CUBIC YARD OF WASHED GRAVEL SHALL BE PLACED UNDER THE HYDRANT BASE FOR DRAINAGE WITH BLOCKING AS SHOWN ON PLANS. HYDRANTS SHALL BE THOROUGHLY CLEANED OF DIRT OR OTHER FOREIGN MATERIAL. HYDRANTS SHALL BE PLUMB WITH NOZZLES, PARALLEL WITH, AND AT RIGHT ANGLES TO THE STREET, WITH THE PUMPER NOZZLE FACING THE STREET. BRACE TO PREVENT DISTURBANCE DURING THE BACKFILLING. 	
ED "WATER".	 3.08 WATER SHUT-OFF AND MANIPULATION OF EXISTING WATER MAIN VALVES: A. ALL HOMES AND OTHER OCCUPIED BUILDINGS AFFECTED BY A WATER SHUT-OFF SHALL BE NOTIFIED BY THE CONTRACTOR 24 HOURS IN ADVANCE. NO SHUT-OFF WILL BE ALLOWED UNTIL TRENCHING HAS BEEN COMPLETED, PIPE HAS BEEN CUT, ALL NECESSARY FITTINGS ARE ON SITE AND AUTHORIZATION HAS BEEN GIVEN BY THE WATER UTILITY, WATER WORKS & LIGHTING COMMISSION (WW&LC). B. MANIPULATION OF EXISTING WATER MAIN VALVES IN ORDER TO CONSTRUCT THE WORK SHALL ONLY BE PERFORMED DX MUMBLE. CONTACT WINKLE TO COODDINATE AND SQUEDULE DECUMPED VALVE MANDUL ATION. 	
CATIONS. INISHED GRADES.	 BY WW&LC. CONTACT WW&LC TO COORDINATE AND SCHEDULE REQUIRED VALVE MANIPULATION. 3.09 TAPPING EXISTING WATER MAINS: A. THE CITY OF WISCONSIN RAPIDS WATER WORKS & LIGHTING COMMISSION WILL INSTALL THE CUT-IN SLEEVE, TEE AND VALVE ON INDUSTRIAL STREET. 3.10 HYDROSTATIC TESTS: A. HYDROSTATIC TESTING SHALL BE IN ACCORDANCE WITH AWWA C600. THE CONTRACTOR SHALL FURNISH ALL 	
ILE IRON WATER MAINS.	 EQUIPMENT AND LABOR FOR THE TESTS. B. PRESSURE TEST: ALL WATERMAIN SHALL BE PRESSURE TESTED AS SOON AS POSSIBLE AFTER ITS CONSTRUCTION. EACH VALVED SECTION SHALL BE SLOWLY FILLED WITH WATER AND THE SPECIFIED TEST PRESSURE SHALL BE HYDROSTATIC PRESSURE OF NOT LESS THAN 150 POUNDS PER SQUARE INCH FOR WATER-SUPPLY WATER MAIN AND 250 POUNDS PER SQUARE INCH FOR FIRE-SUPPLY WATER MAIN, MEASURED AT THE LOWEST POINT OF ELEVATION, SHALL BE APPLIED BY MEANS OF A PUMP CONNECTED TO THE PIPE IN A SATISFACTORY MANNER. C. THE SPECIFIED PRESSURE SHALL BE HELD FOR A MINIMUM DURATION OF ONE HOUR. NO DROP IN PRESSURE WILL BE ALLOWED. D. IF IT IS FOUND UNNECESSARY TO ADD WATER DURING THE PRESSURE TEST, THE LEAKAGE TEST MAY BE WAIVED AT THE DISCRETION OF THE ENGINEER. E. LEAKAGE TEST: LEAKAGE SHALL BE DEFINED AS THE QUANTITY OF WATER THAT MUST BE SUPPLIED INTO THE NEWLY LAID PIPE, OR ANY VALVED SECTION THEREOF, TO MAINTAIN PRESSURE WITHIN 5 PSI OF THE SPECIFIED TEST PRESSURE AFTER THE AIR IN THE PIPELINE HAS BEEN EXPELLED AND THE PIPE HAS BEEN FILLED WITH WATER F. PRESSURE SHALL BE 150 PSI FOR A 1 HOUR DURATION. NO PIPE INSTALLATION WILL BE ACCEPTED IF THE LEAKAGE IS GREATER THAN THAT DETERMINED BY THE FOLLOWING FORMULA: 	

	33 30 00 - SANITARY SEWERAGE SYSTEM								
IOINTS IN THE LENGTH OF VERAGE TEST PRESSURE LAID DISCLOSES LEAKAGE	SECTION 33 30 00 - SANITARY SEWERAGE SYSTEMS PART 1 - GENERAL 1.01 SECTION INCLUDES:								
ATE AND REPAIR THE /ISIBLE LEAKS SHALL BE	 A. SANITARY SEWERS, FORCE MAINS, MANHOLES, BUILDING SEWERS, SANITARY SEWER RISERS, PROCESS WASTEWATER DRAINS, BEDDING, AND APPURTENANCES. B. CONNECTION TO EXISTING MUNICIPAL SANITARY SEWER SYSTEM. 								EVIEW D FOR
RITE TABLETS LORINE. TABLETS SHALL BE PIPE, AND ALSO IN	 1.02 REFERENCE: A. "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN" DECEMBER 22, 2003, 6TH EDITION, INCLUDING ADDENDUM NO. 1 DATED DECEMBER 22, 2004. 		1	-	1				PLANNING RI RELEASE
TER MAY BE USED. D. SECTIONS BEING TESTED	PART 2 - PRODUCTS 2.01 SANITARY SEWER PIPE:				,		+		л Б С
FOR SHALL TEST THE WATER E CONTRACTOR SHALL	 A. TYPE PSM PS46 OR PVC SDR-35 D-3034 SEWER PIPE MEETING REQUIREMENTS OF CHAPTER 8.10.0 OF "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN". 2.02 SANITARY BUILDING SEWERS: 	┃┠	1	1	1				BSF (
	A. TYPE PSM PS46 OR PVC SDR-35 D-3034 SEWER PIPE MEETING REQUIREMENTS OF CHAPTER 8.10.0 OF "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION"	lt					+		018 1
	B. FITTINGS FOR SANITARY BUILDING SEWERS SHALL MEET THE REQUIREMENTS OF CHAPTER 8.10.0 "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION".		I	1			'	1	05/23/2
	 2.03 MANHOLES: A. MANHOLES SHALL BE PRECAST AND MEET REQUIREMENTS OF CHAPTER 8.39.0 OF "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN" AND DRAWINGS. PRECAST MANHOLES SHALL INCLUDE AN A-LOC RUBBER GASKET OR EQUAL INTEGRALLY CAST INTO PIPE OPENING AT TIME OF MANUFACTURE. 		I	1	1		1	I	A RELEASE
	2.04 CASTINGS:						T		
	A. LIDS AND FRAMES: i. NEENAH FOUNDRY R-1710 WITH MACHINED BEARING SURFACE, TYPE "B" SELF-SEALING LID, WITH CONCEALED PICKHOLES.		L	Ц Л					
	B. MANHOLE STEPS:		L						
	I. NEENAH FUUNDRY R-1981-I, UR EQUAL. 2.05 STONE BEDDING:			Ĺ				<u>=</u> T 4	
	A. STONE FOR CLASS "B" BEDDING SHALL MEET REQUIREMENTS OF SECTION 8.43.2(A) OF "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN.		(ШО.	_		ШЩ	
	2.06 PVC SEWER PIPE BEDDING: A. SAND FOR PVC SEWER PIPE CLASS "B" BEDDING SHALL MEET REQUIREMENTS OF TABLE 35. SECTION 8.43.2 OF		L		AVEN			NS - S	
	"STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN". 2.07 PROCESS WASTEWATER DRAINS:		<	Ż		ארר		TION	
	A. PROCESS WASTEWATER DRAIN PIPE AND FITTINGS SHALL BE POLYPROPYLENE PIPE, SCH. 40, CONFORMING TO ASTM D4101. PIPE AND FITTINGS MAY BE NON FLAME RETARDANT.		ŀ		ERPR	К Ч К		IFICA	
	B. PIPE JOINTS SHALL BE FUSION WELDED.		L	Ц		ñ C		ЯС	
	PART 3 - EXECUTION			<u>к</u>		r C A		S	
	3.01 INSTALLATION:		C		2.7	Ĺ			
	A. SEWER PIPE INSTALLATION SHALL MEET REQUIREMENTS OF CHAPTER 3.2 OF "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN".				S	L GR	1		
	B. LAY SEWER PIPE BEGINNING AT THE LOW POINT WITH BELL ENDS FACING IN THE DIRECTION OF LAYING.3.02 EXCAVATION:		6		LAKE	ESI			
	 A. TRENCH SHIELD MAY BE USED TO MINIMIZE TRENCH WIDTH. B. SHEATHING AND BRACING MAY BE USED TO MAINTAIN MAXIMUM TRENCH WIDTH OR PROTECT STRUCTURES AND DESIGNATED TREES WITHIN EASEMENTS. 		C		GREAT	CHE			
	 C. SOIL STABILIZATION METHODS MAY BE USED IN LIEU OF SHEATHING AND BRACING IF APPROVED BY THE ENGINEER. D. TRENCH SHALL BE BACKFILLED EVERY DAY. NO OPEN TRENCH EXCEPT AT START OF THE NEXT DAY'S WORK WILL BE ALLOWED TO REMAIN OPEN OVERNIGHT. 						1		
	E. EXCAVATIONS LEFT OPEN OVERNIGHT SHALL BE ENCLOSED WITH SNOW FENCE. BARRICADES WITH FLASHING LIGHTS SHALL BE PLACED AROUND THE FENCE.					0			
	 3.03 CLASS "B" STONE BEDDING: A. CLASS "B" STONE BEDDING SHALL BE USED FOR BEDDING PVC PIPE THAT IS WITHIN THE ROCK EXCAVATION, BELOW GROUND WATER LEVEL OR IN UNSTABLE SOIL CONDITIONS. 		F			Irt-U			
	3.04 CLASS "B" SAND BEDDING: A. CLASS "B" SAND BEDDING SHALL BE USED ON PVC SEWER PIPE WHERE A DRY AND FIRM TRENCH BOTTOM EXISTS.					• Sta			rtugal
	 3.05 MANHOLE PLUG: A. THE PROPOSED SEWER SHALL BE PLUGGED IN THE DOWNSTREAM MANHOLE DURING CONSTRUCTION TO PREVENT CLEAR WATER FROM ENTERING THE OWNER'S SANITARY SEWER SYSTEM. WATER COLLECTED IN THE SEWER SHALL BE IMPED OUT AT THE END OF THE PROJECT. 		(Build			ril • Po
	3.06 SEWER CONNECTIONS:				┨	•		COM	Braz
	A. NEW SEWERS SHALL BE CONNECTED TO EXISTING SEWERS WITH FERNCO COUPLINGS. 3.07 BUILDING SEWERS:				4	eer		and	·
	A. PVC SANITARY BUILDING SEWERS SHALL BE CONNECTED TO PVC SEWER MAIN BY STANDARD PVC WYE FITTINGS MEETING REQUIREMENTS OF CHAPTER 8.10.0 AND INSTALLED IN ACCORDANCE WITH CHAPTER 5.3.0 OF THE "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN.			1		ngin)	nisara	Canac
	B. SANITARY BUILDING SEWER PIPE SHALL BE LAID WITH THE BELL-END FACING UPGRADE. C. CURVES IN SANITARY BUILDING SEWERS SHALL BE LIMITED TO STANDARD FITTINGS OF 45 DEGREES OR LESS.					•		der	• B
	D. THE SLOPE OF SANITARY BUILDING SEWERS SHALL BE AS INDICATED ON THE PLANS.		F			ign)		Stat
	3.08 SANITARY BUILDING SEWER RISERS: A. THE CONTRACTOR SHALL INSTALL A TEE FITTING IN THE SEWER MAIN IN PLACE OF A WYE FITTING WHERE RISERS			T		Des			ted
	ARE TO BE INSTALLED. B. RISERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 3.2.26 OF THE "STANDARD SPECIFICATIONS FOR SEWER					•			Uni
	AND WATER CONSTRUCTION IN WISCONSIN". 3.09 FIELD QUALITY CONTROL:					lan			
	A. SEWERS AND BUILDING SEWERS SHALL PASS A LOW PRESSURE AIR TEST MEETING REQUIREMENTS OF SECTION 3.7.3 AND SECTION 5.4.3 OF "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN".					С_			
	B. SEWERS SHALL MEET REQUIREMENTS OF DEFLECTION TEST OF SECTION 3.2.6(I)(4) OF "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN".								
	END OF SECTION 33 30 00	[
		l L							

drawing no.

33 40 00 - STORM SEWER COLLECTION SYSTEM	33 40 00 - STORM SEWER COLLECTION SYS
SECTION 33 40 00 - STORM SEWER COLLECTION SYSTEM	ii. CLOSE OPEN ENDS OF CONCRETE OR MASONRY UTILITIES WITH NOT LESS THAN 8" THIC BULKHEADS.
PART 1_GENERAL	iii. CLOSE OPEN ENDS OF PIPE WITH THREADED METAL CAPS, PLASTIC PLUGS, OR OTHER A
A. EXTENT OF STORM SEWER COLLECTION SYSTEM WORK IS SHOWN ON THE DRAWINGS, AND INCLUDES, BUT IS NOT	3.02 INSTALLATION OF MANHOLES AND INLETS:
	A. GENERAL: MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLAN DETAILS. N
ii. INLETS, FRAMES AND GRATINGS iii. CULVERTS	BASE.
1.02 QUALITY ASSURANCE:	B. THE CONTRACTOR SHALL MORTAR ALL PIPE HOLES AND JOINTS ON PRECAST MANHOLES. AL CONSTRUCTED WATER TIGHT.
A. INSTALLER: A FIRM SPECIALIZING AND EXPERIENCED IN SEWER COLLECTION SYSTEM WORK FOR NOT LESS THAN TWO YEARS.	C. INVERT CHANNELS SHALL BE SMOOTH AND CONFORM TO THE GRADE OF THE PIPE. WHENEVE SHALL BE LAID THROUGH THE MANHOLE AND THE TOP OF THE PIPE BROKEN OUT AFTER THE
1.03 SHOP DRAWINGS:	
A. SUBMIT SHOP DRAWINGS FOR UNDERGROUND STRUCTURES, ACCESSORIES, FITTINGS, AND CONNECTIONS.	3.03 PRECAST CONCRETE MANHOLES:
	A. PLACE PRECAST CONCRETE SECTIONS AS SHOWN ON DRAWINGS. USE EPOXY BONDING COM
A. PIPE SUPPLIER SHALL VERIFY THAT PIPE IS OF ADEQUATE STRENGTH FOR PROJECT CONDITIONS.	SEAL NO. 2 OR RAM_NEK RUBBER GASKET JOINTS.
2.01 PIPE MATERIALS:	B. INLETS: CONSTRUCT INLETS TO THE SIZES AND SHAPES INDICATED ON PLANS AND DETAILS. MANHOLE SPECIFICATIONS SHALL APPLY TO INLET.
A. GENERAL: FURNISH ELLS, TEES, REDUCING TEES, WYES, COUPLINGS, INCREASERS, CROSSES, TRANSITIONS AND END CAPS OF THE SAME TYPE AND CLASS OF MATERIAL AS CONDUIT, OR OF MATERIAL HAVING EQUAL OR SUPERIOR	C. SET CAST IRON FRAMES AND GRATINGS TO ELEVATIONS SHOWN ON THE PLANS OR AS SET BY
PHYSICAL AND CHEMICAL PROPERTIES AS ACCEPTABLE TO THE ENGINEER.	3.04 INSPECTION AND TESTING:
2.02 STORM SEWER MATERIALS: THE FOLLOWING STORM SEWER MATERIALS ARE ACCEPTABLE ON THIS PROJECT:	A. INSPECTION: UPON COMPLETION OF EACH SECTION OF SEWER IN THE PROJECT, THE CONTR. AND TEST THE SEWER IN THE PRESENCE OF THE ENGINEER OR INSPECTOR.
A. REINFORCED CONCRETE PIPE (RCP): ASTM C 76, CLASS IV, WITH MODIFIED TONGUE_AND_GROOVE COMPRESSION	B. ALL STORM SEWERS SHALL BE TESTED FOR EXCESSIVE INFILTRATION AND SAND LEAKAGE. A LEAKS SAND SHALL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE. IF, IN THE JUDGEMI
GASKET JOINTS COMPLYING WITH ASTM C 443.	THE INFILTRATION WILL CAUSE A CONTINUED MAINTENANCE PROBLEM, THE SEWER SHALL BE CONTRACTOR AT HIS EXPENSE.
B. SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE:	C. ALIGNMENT: WHEN A LIGHT IS PLACED AT THE INVERT IN ONE MANHOLE, A CIRCLE OF LIGHT S THE ADJACENT MANHOLE. ANY SEWER WHICH DOES NOT MEET THIS REQUIREMENT SHALL B
I. PIPE AND FITTINGS SHALL BE MADE OF POLYETHYLENE (PE) COMPOUNDS WHICH CONFORM WITH THE REQUIREMENTS OF CELL CLASS 324420C (MIN.) AS DEFINED AND DESCRIBED IN ASTM D3350, EXCEPT THAT THE	AND SHALL BE TELEVISED AT THE CONTRACTOR'S EXPENSE WITHIN ONE YEAR OF THE COMPL THE SEWER SHALL BE REPAIRED BY THE CONTRACTOR SO THAT IT IS ACCEPTABLE.
CARBON BLACK CONTENT SHALL NOT EXCEED 5%. PIPE SHALL BE ADS N-12 OR APPROVED EQUAL.	END OF SECTION 33 40 00
ii. MINIMUM PARALLEL PLATE PIPE STIFFNESS SHALL BE 50 PSI FOR STORM SEWERS 12" OR LESS IN DIAMETER PER ASTM TEST METHOD D-2412.	
iii. JOINTS SHALL BE MADE WITH SPLIT COUPLINGS, CORRUGATED TO ENGAGE THE PIPE CORRUGATIONS, AND SHALL ENGAGE A MINIMUM OF 4 CORRUGATIONS, 2 ON EACH SIDE OF THE PIPE JOINT. A NEOPRENE GASKET SHALL	
BE UTILIZED WITH THE COUPLING TO PROVIDE A SOIL-TIGHT JOINT.	
 INSTALLATION STALL DE IN ACCORDANCE WITH ASTM RECOMMENDED PRACTICE D-2321. STORM SEWERS UP TO 10" DIAMETER SHALL CONFORM TO AASHTO STANDARD M 252-90. STORM SEWERS 12" 	
TO 36" DIAMETER SHALL CONFORM TO AASHTO STANDARD M 294-90.	
i. PVC SEWER PIPE: PVC STORM SEWER PIPE SHALL BE A CONTECH A-2000 FOR DIAMETERS 12" TO 18".	
ii. PVC STORM SEWER PIPE AND FILLINGS SHALL CONFORM TO ASTM F949.	
iii. INSTALLATION SHALL CONFORM TO ASTM D-2321-83A.	
2.03 CONCRETE MANHOLES AND INLETS:	
A. MANHOLES GENERAL: USE PRECAST CONCRETE MANHOLES EXCEPT WHEN PRECAST SHAPES ARE NOT AVAILABLE TO CONFORM TO THE NEEDS OF THE PROJECT. FURNISH LIFTING INSERTS. FURNISH BOOTS FOR PIPE 12" OR LESS.	
B. CONCRETE BASE: USE PRECAST OR CAST_IN_PLACE BASES. USE CONCRETE WHICH WILL ATTAIN A 28_DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 3500 PSI.	
C. ADJUSTING RINGS: ALL MANHOLES AND INLETS SHALL HAVE A MINIMUM OF 6 INCHES OF ADJUSTING RINGS WITH THE CASTING AT PLAN GRADE	
D. PRECAST CONCRETE MANHOLES: THESE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 478 OR AASHTO M199,	
AND IN ACCORDANCE WITH STANDARD DETAILS ON PLANS. TOPS SHALL BE ECCENTRIC CONES. TOP SECTION OF A PRECAST MANHOLE BELOW THE CONE SHALL BE AN 18 INCH HIGH SECTION.	
E. PRECAST MANHOLE JOINTS: JOINTS IN PRECAST MANHOLES SHALL BE SEALED WITH KENT SEAL #2 OR RAM_NEK RUBBER GASKET. MORTAR JOINTS MAY BE USED ONLY IF APPROVED BY THE ENGINEER IN WRITING.	
F. INLETS: PROVIDE INLETS OF SIZES AND SHAPES INDICATED ON THE DETAIL DRAWINGS. SIZE INLETS AS PER PLAN.	
PRECAST SECTIONS SHALL MEET ASTM C478 OR AASHTO M199.	
2.04 METAL ACCESSORIES:	
SPECIFIED IN THE PLAN DETAILS AND SCHEDULES, OR APPROVED EQUAL.	
B. MANHOLE STEPS: DUCTILE IRON NEENAH FOUNDRY R-1981-W OR APPROVED EQUAL, INTEGRALLY CAST INTO MANHOLE SIDEWALLS.	
C. INLET FRAMES AND GRATINGS: AS SPECIFIED ON THE DETAIL DRAWINGS AND SCHEDULES.	
3.01 INSTALLATION OF CONDUIT:	
INSTALL CONDUIT IN ACCORDANCE WITH STATE OF WISCONSIN CODES, EXCEPT WHERE MORE STRINGENT	
REQUIREMENTS ARE INDICATED.	
CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSFERRING LINE AND GRADE TO THE PIPE.	
I. A LASER MAY BE USED TO TRANSFER LINE AND GRADE, PROVIDING A CHECK ON GRADE IS MADE AT MAXIMUM L00 FOOT INTERVALS.	
ii. PIPE GRADE SHALL CONFORM TO PLAN GRADE UNLESS MODIFIED BY ENGINEER.	
III. NOTIFY ENGINEER OF ANY INCONSISTENT GRADES.	
PAINT AND PROMPTLY REMOVE FROM SITE.	
C. LAY PIPE BEGINNING AT LOW POINT OF A SYSTEM, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT.	
I. PIPE SHALL BE LAID ON SOLID MATERIAL SHAPED TO THE CONTOUR OF THE PIPE. THE BELL ENDS OF ALL PIPES ARE TO BE LAID UP GRADE. ALL PIPES SHALL BE LAID WITH ENDS ABUTTING AND TRUE TO LINE AND GRADE.	
GRADE WHICH HAS IN ANY WAY BEEN DISTURBED OR WHICH DOES NOT CONFORM TO SAID LINE AND GRADE BEFORE FINAL ACCEPTANCE SHALL BE REMOVED AND RELAID BY THE CONTRACTOR AT HIS EXPENSE.	
ii. GRADE VARIATION OF 0.1 FEET OR MORE WILL REQUIRE REPLACEMENT OF PIPE AT PROPER GRADE.	
iii. PIPES SHALL BE FITTED TOGETHER AND MATCHED SO WHEN LAID THEY WILL FORM A SEWER WITH A SMOOTH AND UNIFORM INVERT.	
D. INSTALL GASKETS AND FORMS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR USE OF LUBRICANTS, CEMENTS, AND OTHER SPECIAL INSTALLATION REQUIREMENTS	
E. PIPE PLUGS: THE ENDS OF THE PIPE LINE MUST BE PROTECTED FROM THE ENTRANCE OF ALL EARTH OR OTHER	
MATERIALS. THE INSIDE OF THE SEWER MUST BE KEPT FREE FROM ALL SUBSTANCES BY MEANS APPROVED BY THE ENGINEER. EACH SECTION OF PIPE MUST BE LAID CONTINUOUSLY BETWEEN MANHOLES.	
F. CONCRETE PIPE:	
i. INSTALL IN ACCORDANCE WITH APPLICABLE PROVISIONS OF AMERICAN CONCRETE PIPE ASSOCIATION "CONCRETE PIPE FIELD MANUAL", UNLESS OTHERWISE INDICATED.	
ii. PLACE CIRCULAR CONCRETE PIPE WITH ELLIPTICAL REINFORCING SO THAT REFERENCE LINES INDICATING TOP OF PIPE ARE NOT MORE THAN FIVE DEGREES FROM VERTICAL PLANE THROUGH LONGITI IDINAL AXIS OF PIPE	
G. CLEANING CONDUIT: CLEAN INTERIOR OF CONDUIT OF DIRT AND OTHER SUPERFLUOUS MATERIAL AS WORK	
PROGRESSES. MAINTAIN SWAB OR DRAG IN LINE AND PULL PAST EACH JOINT AS IT IS COMPLETED, IF REQUIRED. IN LARGE, ACCESSIBLE CONDUIT, BRUSHES AND BROOMS MAY BE USED FOR CLEANING. PLACE PLUGS IN ENDS OF UNCOMPLETED CONDUIT AT END OF DAY OR WHENEVER WORK STORS. FULLEL UNES DETWICEN MANUAL TO AND	
REMOVE ALL DEBRIS IF REQUIRED TO CLEAN PIPE. WHEN CLEANING, NO SOLID MATERIAL WILL BE ALLOWED TO ENTER THE EXISTING COLLECTION SYSTEM OR TREATMENT FACILITY WITHOUT WRITTEN AUTHORIZATION BY THE	
II. CLOSING ADAINDONED UTILITIES:	
PROVIDE SUFFICIENTLY STRONG CLOSURES TO WITHSTAND HYDRO_STATIC OR EARTH PRESSURE WHICH MAY RESULT AFTER ENDS OF ABANDONED UTILITIES HAVE BEEN CLOSED.	

′STEM	
THICK BRICK MASONRY	
ER ACCEPTABLE METHODS ABLE.	
S. MANHOLE BASES SHALL BED PRIOR TO PLACING THE	
ALL MANHOLES SHALL BE	
EVER POSSIBLE, THE PIPE HE CONCRETE HAS	
ENGINEER.	
COMPOUND WHERE OOF JOINTS USING KENT	
.S. ALL APPLICABLE	
T BY THE ENGINEER.	
ITRACTOR SHALL CLEAN	
E. ANY SEWER WHICH EMENT OF THE ENGINEER, . BE REPAIRED BY THE	
HT SHALL BE VISIBLE FROM L BE DEEMED IMPERFECT MPLETION OF THE SEWER.	

