

SURVEY CONTROL DATA

1. THE BEARINGS USED FOR THIS SURVEY ARE BASED ON THE OKLAHOMA STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD83.
2. ADS #1:TUL 7-3"ALUMINUM CAP-FLUSH-SET "TUL 7, SET IN CETNETR MEDIAN OF RIVERSIDE EXPY, APPROX. 150' SOUTH OF ON-OFF RAMP TO CREEK TURNPIKE, 1.0' NORTH OF ORANGE CARSONITE WITNESS POST, AND ON THE SOUTH SIDE OF CREEK TURNPIKE 0.30' BELOW GROUND.
3. ADS #2:TC08-THE STATION IS LOCATED ABOUT 0.1 MI WEST-SOUTHWEST OF BROKEN ARROW, 5.3 MI NORTHWEST OF BIXBY AND 2.0 MI SOUTHEAST OF JENKS. TO REACH THIS STATION FROM THE INTERSECTION OF DELAWARE AVENUE AND GREEK TURNPIKE, GO SOUTH FOR 1.23 MI TO STATION ON THE LEFT. STATION MARKER IS AN ALUMINUM CAP SET ON A BRIDGE ABUTMENT. IT IS LOCATED 17.7 FT EAST OF THE RIVERSIDE DRIVE CENTERLINE, 28.3 FT NORTHWEST OF THE NORTHWEST CORNER OF AN AREA INLET, 10.7 NORTH-NORTHEAST OF THE SOUTHEAST CORNER OF A CONCRETE BANISTER.

GENERAL NOTES

1. FLOOD ZONE:
FIRM PANEL NO. 40143C0368L DATED OCTOBER 16, 2012 CLASSIFIES THE PROPERTY DESCRIBED HEREON AS ZONE "X". ZONE "X" IS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% CHANCE FLOODPLAIN.

TOPOGRAPHIC UTILITY NOTES

1. PRIOR TO THE FIELD SURVEY CALL OKIE 811 WAS CONTACTED TO MARK UTILITIES ALL MARKED UTILITIES AND VISIBLE UTILITIES WERE LOCATED DURING THE SURVEY. HOWEVER, CEC ASSUMES NO LIABILITY FOR UTILITIES THAT WERE NOT MARKED OR INCORRECTLY MARKED. THE CONTRACTOR FOR CONSTRUCTION IS RESPONSIBLE FOR GETTING THE UTILITIES RE-MARKED BEFORE PERFORMING DIGGING OPERATIONS.
2. MULTIPLE ATTEMPTS WERE MADE TO HAVE UTILITY LINES MARKED AT THE PROJECT SITE HOWEVER SOME UTILITIES APPEAR TO HAVE NOT BEEN MARKED. ATTEMPTS WERE MADE TO OBTAIN UTILITY ATLASES OR DATA FROM THEIR RESPECTIVE UTILITY OWNERS. MULTIPLE UTILITY LINES SHOWN ON THIS SURVEY WERE DERIVED FROM A PROVIDED ATLAS. ATLAS DERIVED LINE LOCATIONS ARE APPROXIMATE. ADDITIONALLY, SOME UTILITY LINEWORK WAS DERIVED FROM SHP FILES PROVIDED TO CEC BY THE CITY OF TULSA ENGINEERING DEPT. ATLAS DERIVED UTILITIES AND SHP DERIVED UTILITIES ARE NOTED ACCORDINGLY AND ARE ALSO DIFFERENTIATED BY THEIR CAD LAYER NAMING CONVENTION.
3. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION, SHP FILES, AND EXISTING UTILITY ATLASES THAT WERE AVAILABLE. UNDERGROUND FEATURES ARE IDENTIFIED BY THEIR PERTINENT SURFACE MARKINGS. THERE IS NO WARRANTY MADE THAT THIS SURVEY REPRESENTS A COMPLETE INVENTORY OF UNDERGROUND UTILITIES, EITHER IN SERVICE OR ABANDONED ON OR NEAR THE PREMISES. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THERE HAS BEEN NO UNDERGROUND.
4. INVESTIGATION PERFORMED ON THE PREMISES IN CONJUNCTION WITH THIS SURVEY AND THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

UTILITY COORDINATION

COMPANY	NUMBER	CONTACT
CITY OF TULSA	918-598-9649	CHRIS KDVAC
COX COMMUNICATIONS	918-285-4716	BRANDON WADE
AEP/PUBLIC SERVICE CO.	918-250-6257	ADAM FIELDS
OKLAHOMA NATURAL GAS CO.	918-534-6261	CRAIG DOWELL
AT&T	918-598-4237	AL NICHOLS
OKIE	811	

GOVERNING SPECIFICATIONS

ROADWAY 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-ENGLISH, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 1, 2019, SHALL GOVERN. WATER AND SEWER STANDARD SPECIFICATIONS AND STANDARD DETAILS, CITY OF TULSA PUBLIC WORKS DEPARTMENT SHALL GOVERN.

ENTIRE PROJECT IS WITHIN THE CORPORATE LIMITS OF THE CITY OF TULSA (COT). THIS PROJECT COMPLIES WITH ALL OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REQUIREMENTS.



PLANS PREPARED BY FREESE AND NICHOLS, INC.
4200 EAST SKELLY DRIVE SUITE 410 TULSA, OK 74135
PHONE - (539) 444-8677 WEB - WWW.FREESE.COM
CERTIFICATE OF AUTHORIZATION: CA#511
EXPIRATION DATE: 06/30/24

PRELIMINARY

THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

CONSTRUCTION PLANS FOR CITY OF TULSA

108TH STREET RCB EXTENSION PROJECT NO. SW-2020-01-05-TO1 CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT

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16	HEADWALL DETAILS
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CITY OF TULSA STANDARDS

102.	PROJECT SIGN
751.	PIPE BEDDING FOR STORM SEWER
780.	STANDARD BAFFLE BLOCK ENERGY DISSIPATOR
784.	VERTICAL WALL CHANNEL

ODOT STANDARDS

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B-501-503	REFERENCE GUIDE TO RCB CULVERT STANDARDS
B-513	RCB CULVERT BARREL DETAILS 8'-0" SPAN
B-812	RCB CULVERT CURTAIN WALL DETAILS

PROJECT LOCATION
N.T.S.



APPROVED:

CITY ENGINEER

ENGINEER'S CERTIFICATION

KEITH BEATTY, PE #29905

DATE

DATE

PROJECT NO. (SW-2020-01-05) 108TH STREET RCB EXTENSION (3815 E. 108TH STREET)

PAY ITEM NOTES EARTHWORK / EROSION CONTROL / SITE PREPARATION (E1-E11)

- ALL COSTS FOR REMOVING TREES, SHRUBS, STUMPS, POSTS, AND ALL OTHER DEBRIS AND/OR OBSTRUCTIONS NOT COVERED BY A SEPARATE PAY ITEM ARE INCLUDED IN THE PRICE BID.
- ALL EXISTING DRAINAGE STRUCTURES SHALL BE CLEANED AND CLEARED OF ALL SEDIMENTATION AND DEBRIS TO THE RIGHT OF WAY. COST OF CLEARING SHALL BE INCLUDED IN THE PRICE BID.
- THE CONTRACTOR SHALL BE PAID FOR UNCLASSIFIED EXCAVATION ON THE BASIS OF PLAN QUANTITY. ANY ADDITIONAL EXCAVATION REQUIRED OR OVERRUN OF PLAN QUANTITY WILL BE PAID FOR ON THE BASIS OF UNIT PRICE BID FOR THE ITEM. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SURVEY TO VERIFY ANY ADDITIONAL QUANTITIES.
- UNCLASSIFIED EXCAVATION INCLUDES REMOVAL OF AGGREGATE BASE AND MODIFIED SUBGRADE UNDER EXISTING PAVEMENT TO BE REPAIRED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- THE PAY ITEM FOR SOLID SLAB SODDING INCLUDES QUANTITIES FOR PLACEMENT AND COMPACTION OF SUITABLE BACKFILL AND SOD EXISTING GRASS AREAS WHICH MAY BE DAMAGED DURING CONSTRUCTION OF CURBS, SIDEWALKS, DRIVEWAYS, AND OTHER MISCELLANEOUS ITEMS. THE QUANTITIES ARE BASED ON UTILIZING A 3 FOOT WIDE STRIP IN THESE AREAS. THE SOD SHALL BE OF LIKE KIND TO THE EXISTING SOD. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF DAMAGE TO THE EXISTING GRASS THAT EXCEEDS THESE LIMITS.
- NOT USED.

PAY ITEM NOTES SURFACING / STRUCTURES (S1-S21)

- NOT USED.
- NOT USED.
- SEPARATOR FABRIC SHALL BE USED AT ALL PAVEMENT PATCHES AND RECONSTRUCTION SECTIONS. THE SEPARATOR FABRIC SHALL BE CUT AND OVERLAPPED A MINIMUM OF 2 FT AT ALL EDGES OF THE REPAIR.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- THE USE OF FLY-ASH IN CONCRETE IS PROHIBITED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- CONTRACTOR SHALL PROVIDE CERTIFIED STRUCTURAL INSPECTIONS PRIOR TO CONSTRUCTION AND POST CONSTRUCTION STRUCTURES.

PAY ITEM NOTES REMOVAL/ADJUSTMENT (R1-R6)

- WASTE MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE IN A MANNER APPROVED BY THE ENGINEER.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.

PAY ITEM NOTES GENERAL (G1-G10)

- NOT USED.
- MAXIMUM OVERALL DOLLAR AMOUNT AND SCHEDULE OF PAYMENTS SHALL BE IN ACCORDANCE SECTION 641 OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION. EXCLUDES MOBILIZATION FOR WATERLINE WORK.
- CONSTRUCTION STAKING SHALL INCLUDE SURVEYING AND THE FURNISHING, PLACING, AND MAINTAINING OF THE CONSTRUCTION LAYOUT STAKES NECESSARY FOR THE PROPER COMPLETION AND INSPECTION OF THE ENTIRE PROJECT.
- THE COST TO REPLACE REMOVED OR DAMAGED SECTION CORNERS AND ALL OTHER PERMANENT RIGHT OF WAY MARKERS SHALL BE INCLUDED IN THE PRICE BID FOR THIS ITEM. NO ADDITIONAL PAYMENT WILL BE MADE.
- CONTRACTOR SHALL REPAIR ANY IRRIGATION SYSTEMS DAMAGED OR REQUIRING RELOCATION DURING THE CONSTRUCTION OF THIS PROJECT TO THE SATISFACTION OF THE PROPERTY OWNER AND CITY ARBORIST. COST SHALL BE INCLUDED IN THE PRICE BID.
- ALL HOUSE NUMBERS SHALL BE REPLACED/ REESTABLISHED THROUGHOUT PROJECT LIMITS. COST TO BE INCLUDED IN URBAN RIGHT OF WAY RESTORATION. CONTRACTOR SHALL REESTABLISH DRAINS, ROOF DRAINS AND OTHER DRAINAGE THROUGH THE CURBS IN ACCORDANCE WITH CITY OF TULSA STANDARD 736. NO NEW CURB OUTLETS SHALL BE CONSTRUCTED WITHOUT APPROVAL OF THE ENGINEER.
- AN INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) CERTIFIED ARBORIST SHALL OVERSEE ALL PLANTINGS AND/OR REMOVAL OF TREES. CONTACT CITY ARBORIST TO ACCEPT FINAL PLANTINGS. CONTACT # : 918-596-2548
- TREE GRATES ARE NOT ACCEPTABLE PER CITY ARBORIST. CONCRETE PAVERS ARE TO BE USED AS NECESSARY AROUND TREES.
- CONTRACTOR SHALL COORDINATE WITH HOMEOWNERS TO RESET ALL PAVERS, LANDSCAPE STONE, PRIVATE SIDEWALKS AND FENCES THAT ARE DISTURBED DURING CONSTRUCTION OPERATIONS. ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR RESETTling OF SUCH ITEMS IS TO BE INCLUDED IN PRICE BID FOR URBAN RIGHT OF WAY RESTORATION.
- PAY ITEM INCLUDES ALL MOVING WITHIN THE RIGHT-OF-WAY AS DIRECTED DURING CONSTRUCTION.

PAY ITEM NOTES DRAINAGE (D1-D15)

- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.

PAY ITEM NOTES TRAFFIC (T1-T7)

- NOT USED.
- NOT USED.
- NOT USED.
- PAYMENT SHALL BE MADE ON A SIGN-DAY BASIS ONLY FOR TRAFFIC CONTROL DEVICES THAT ARE PROPERLY INSTALLED AND IN GOOD WORKING ORDER. COSTS FOR DELIVERY, INSTALLATION, RELOCATION, MAINTENANCE REMOVAL AND REPLACEMENT, AS NEEDED AT THE DISCRETION OF THE ENGINEER, INCLUDED IN UNIT PRICE BID. ALL TRAFFIC CONTROL SHALL MEET THE MUTCD.
- NOT USED.
- NOT USED.
- NOT USED.

ITEM	SPEC. NO.	DESCRIPTION	QUANTITY	UNIT
1	201(A)	CLEARING AND GRUBBING	E-1, 2	ACRE
2	202(A)	UNCLASSIFIED EXCAVATION	E-3, 4, 5, R-1	CY
3	202(B)	MUCK EXCAVATION		CY
4	202(D)	UNCLASSIFIED BORROW		CY
5	220	SWPPP DOCUMENTATION AND MANAGEMENT	1	LS
6	230(A)	SOLID SLAB SODDING	E-10	SY
7	303(A)	AGGREGATE BASE TYPE A	20	CY
8	325	SEPARATOR FABRIC	S-3	SY
9	509(C)	CLASS A CONCRETE, SMALL STRUCTURES	S-12	CY
10	511(A)	REINFORCING STEEL	32100	LB
11	601(A)	TYPE I PLAIN RIPRAP		TON
12	601(I)	FILTER FABRIC (RIPRAP)		SY
13	602(C)	FILTER FABRIC (TRENCH)		SY
14	619(B)	REMOVAL OF EXISTING RIPRAP	R-1, 5, 6	SY
15	619(B)	REMOVAL OF EXISTING OUTFALL STRUCTURE	R-1, 5, 6	EA
16	625(B)	REMOVE AND RECONSTRUCT FENCE		LF
17	625(D)	FENCE-STYLE BLACK VINYL CLP (4" HIGH, CLASS A)	40	LF
18	641	MOBILIZATION	G-2	EA
19	642	CONSTRUCTION STAKING	G-3, 4	EA
20	880(J)	CONSTRUCTION TRAFFIC CONTROL	T-4	SD
21	SPECIAL	OWNER ALLOWANCE		EA
22	SPECIAL	PROTECTION (CITY OF TULSA)	T-7	EA
23	COT 334	CONSTRUCTION AS-BUILT	1	LSUM
24	COT 335	CONTRACTOR'S QUALITY CONTROL	1	LSUM
25	SPECIAL	URBAN RIGHT-OF-WAY RESTORATION	G-5, 6, 7, 8, 9, 10	LSUM
26	SPECIAL	STRUCTURAL INSPECTIONS	S-21	EA



PAY ITEM & GENERAL NOTES

PROJECT NO. SW-2020-01-05

VENSEL TRIBUTARY
108TH STREET RCB EXTENSION

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: 4200 E. SKELLY DRIVE SUITE 410
FREESE AND NICHOLS, INC. TULSA, OK 74135 (535) 444-8877

REVISION	BY	DATE	PLAN SCALE	DRAWN	CHK	DATE	APPROVED
			1"=10'	DESIGNED	KCB	05/2022	
				SURVEY	SDC	07/2019	
			PROFILE SCALE:	PROJ. MGR.	For	08/2022	
				LEAD ENGR.	08/2022		
			HORIZONTAL	FIELD MGR.	08/2022		
			1"=10'	RECOMMENDATIONS	08/2022		
			VERTICAL	DESIGN MANAGER	08/2022		
			1"=10'	DRAWING			
			ATLAS PAGE NO. 1078				



GENERAL CONSTRUCTION NOTES (VERSION 09/12/2016)

GENERAL CONSTRUCTION NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE CURRENT CITY OF TULSA ENGINEERING SERVICES DEPARTMENT'S STANDARD SPECIFICATIONS AND STANDARD DETAILS AND STANDARD DRAWINGS AND CITY OF TULSA SPECIAL PROVISIONS.
2. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS GOVERNING SAFETY, HEALTH AND SANITATION. THE CONTRACTOR SHALL PROVIDE ALL SAFEGUARDS, SAFETY DEVICES AND PROTECTIVE EQUIPMENT, AND TAKE ANY OTHER NEEDED ACTION ON HIS OWN RESPONSIBILITY OR AS THE ENGINEER MAY DETERMINE REASONABLY NECESSARY TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT.
3. PAY ITEMS SHALL BE AS SPECIFIED ON THE CITY OF TULSA OR ON THE ODOT STANDARD DRAWINGS EXCEPT AS MODIFIED BY THE CONTRACT.
4. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.
5. THE LOCATIONS OF THE UTILITIES ARE SHOWN ACCORDING TO ALL AVAILABLE INFORMATION. THE CONTRACTOR SHALL NOTIFY EACH UTILITY OWNER PRIOR TO COMMENCEMENT OF WORK TO VERIFY BOTH HORIZONTAL AND VERTICAL LOCATIONS. THE FOLLOWING IS A LIST OF UTILITY OWNERS: AT&T, PUBLIC SERVICE COMPANY OF OKLAHOMA (AEP), OKLAHOMA NATURAL GAS (ONG), COX COMMUNICATIONS, MCIVERIZON, EASYTEL COMMUNICATIONS, WELLSCO VALLOR TELECOM, CITY OF TULSA-WATER AND SEWER, CITY OF TULSA-TRAFFIC OPERATIONS. SEE TITLE SHEET FOR CONTACT INFORMATION.
6. THE CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF OKLAHOMA ONE-CALL SYSTEM, INC. NOTICE OF ANY EXCAVATION NO SOONER THAN TEN DAYS NOR LATER THAN 48 HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, PRIOR TO THE COMMENCEMENT OF WORK. PHONE 1-800-522-6543.
7. THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PREVENT EXCESS MOISTURE FROM INCLEMENT WEATHER OR OTHER SOURCES FROM ENTERING ANY STREET EXCAVATION. IF EXCESS MOISTURE DOES ENTER THE EXCAVATION THROUGH THE NEGLIGENCE OF THE CONTRACTOR AND THE ADJOINING PAVEMENT IS ADVERSELY AFFECTED BY THE EXCESS MOISTURE, THE CONTRACTOR SHALL REPLACE THE ADJOINING PAVEMENT AND SUBBASE AT HIS SOLE EXPENSE.
8. THE CONTRACTOR SHALL PRESERVE THE INTEGRITY OF THE SANITARY SEWER STRUCTURES AND ALL OTHER UTILITY STRUCTURES WITHIN THE PROJECT EXTENTS.
9. THE CONTRACTOR SHALL WORK IN COOPERATION WITH THE CITY OF TULSA TO ESTABLISH, INSTALL, MAINTAIN, AND OPERATE COMPLETE, ADEQUATE, AND SAFE TRAFFIC CONTROLS DURING THE ENTIRE CONSTRUCTION PERIOD. ALL FLAGMEN, BARRICADES, AND TRAFFIC CONTROL DEVICES SHALL BE APPROVED BY THE FIELD ENGINEERING REPRESENTATIVE.
10. CONSTRUCTION SIGNAGE WILL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT ADDITION, AND APPLICABLE ODOT STANDARD DRAWINGS. THE CONTRACTOR SHALL PROVIDE A PROPOSED TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER PRIOR TO BEGINNING WORK.
11. THE CONTRACTOR SHALL NOTIFY THE CITY OF TULSA FIELD ENGINEERING, 918-596-9404, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK OR PRIOR TO REMOVING TRAFFIC SIGNS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ALL EXISTING TRAFFIC SIGNS AND MARKINGS REMOVED OR DAMAGED AS LISTED IN THE SIGNAGE SCHEDULE FOR THE PROJECT. ALL SIGNS AND POLES PROVIDED SHALL BE NEW AND UNDAMAGED AND SHALL MEET THE REQUIREMENTS OF DOT SPECIFICATION 608 TRAFFIC SIGNS. ALL TRAFFIC MATERIALS REMOVED SHALL BE HANDLED PER DOT SPECIFICATION 625 REMOVAL OF TRAFFIC ITEMS.
13. THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARATION AND DISTRIBUTION OF A WRITTEN NOTICE TO RESIDENTS 48 HOURS PRIOR TO BEGINNING PAVEMENT REMOVAL AND MILLING AND OVERLAY OPERATIONS.
14. LOCAL AND THROUGH TRAFFIC SHALL BE MAINTAINED THROUGH THE PROJECT AT ALL TIMES.
15. ALL PUBLIC AND PRIVATE STREETS AND DRIVES SHALL BE ACCESSIBLE AT ALL TIMES.
16. ALL BROKEN CONCRETE, WASTE MATERIAL, AND OTHER DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.
17. ALL EXCAVATED MATERIAL NOT REQUIRED IN THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER ACCEPTABLE TO THE ENGINEER WITHOUT COST TO THE CITY. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN AN EARTH CHANGE PERMIT IF ANY MATERIAL IS STORED ON THE PROJECT SITE AND/OR DISPOSED OF WITHIN THE CITY LIMITS.
18. ALL TREES, BRUSH AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER IS TO BE CLEANED OUT TO THE RIGHT-OF-WAY LINE IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK. TREES OUTSIDE THE FILL SLOPES AND THE TOP OF CUT SLOPES SHALL NOT BE DISTURBED EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.
19. WHERE MATERIALS ARE TRANSPORTED IN THE PROSECUTION OF WORK, VEHICLES SHALL NOT BE LOADED BEYOND THE CAPACITY RECOMMENDED BY THE VEHICLE MANUFACTURER OR AS PRESCRIBED BY ANY FEDERAL, STATE OR LOCAL LAW OR REGULATION.
20. ANY DAMAGE TO THE ROADWAY PAVEMENT, CURB, DRIVEWAYS OR SIDEWALK CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED TO THE ENGINEER'S SATISFACTION AND SHALL BE ACCOMPLISHED AT THE CONTRACTOR'S SOLE EXPENSE. ALL DISTURBED ITEMS SHALL BE REPAIRED TO MATCH EXISTING MATERIALS AND PATTERNING.
21. IF THE CONTRACTOR ENCOUNTERS VOIDS WHEN PATCHING STREETS, THE CONTRACTOR SHALL CALL FIELD ENGINEERING AT 918-596-7814 FOR AN INSPECTION BEFORE PROCEEDING WITH WORK.
22. THE PROJECT SHALL BE CONSTRUCTED WITH CONTINUOUS FLOW OF MATERIAL SUPPLIED TO THE PROJECT SUCH THAT THE LAYDOWN MACHINE WILL REMAIN IN MOTION. ANY DELAY IN FORWARD PROGRESSION OF THE LAYDOWN MACHINE MAY REQUIRE A TRANSVERSE JOINT AS DIRECTED BY THE ENGINEER.
23. NO FLY ASH IS ALLOWED TO BE USED ON THIS PROJECT.
24. PHYSICAL TESTING FOR QUALITY ASSURANCE SHALL BE FURNISHED BY THE CITY.
25. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY QUALITY CONTROL TESTING TO ENSURE THAT PROJECT REQUIREMENTS ARE MET.
26. MASONRY STRUCTURES SHALL NOT BE CONSTRUCTED WITHIN THE STREET RIGHT-OF-WAY.
27. ALL CONCRETE CURB AND GUTTERS SHALL BE MONOLITHIC POURS. DOWELED-ON CURBS WILL NOT BE ALLOWED.
28. NO LIFTING HOLES WILL BE ALLOWED ON ANY REINFORCED CONCRETE PIPES OR REINFORCED CONCRETE BOXES.
29. CURB RAMP CONSTRUCTION SHALL COMPLY WITH THE CURRENT AMERICANS WITH DISABILITIES ACT STANDARDS.
30. REFLECTORIZED SHEETING ON SIGNS AND BARRICADES SHALL BE OF A CUBIC PRISMATIC TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE IX RETROREFLECTIVE SHEETING. REFLECTORIZED SHEETING ON DRUMS AND TUBE CHANNELIZERS SHALL BE OF A HIGH-INTENSITY TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE III RETROREFLECTIVE SHEETING.
31. ALL SANITARY AND STORM SEWER MANHOLE CASTINGS AND LIDS THAT ARE LOCATED IN THE STREET AND ARE DISTURBED BY THE CONTRACTOR SHALL BE REPLACED WITH NEW LIDS AND CASTINGS AND THE OLD ONES SHALL BE SALVAGED AND DELIVERED TO THE METAL RECYCLE BINS IN THE STOOKROOM AREA AT SEWER OPERATIONS AND MAINTENANCE, 9319 E. 42ND STREET NORTH, BETWEEN THE HOURS OF 7:30 AM AND 3:00 PM MONDAY THROUGH FRIDAY.

32. THE SIGN PLACEMENT STATIONING AND LOCATIONS SHOWN ON THE PLAN SHEETS AND SUMMARY SHEETS ARE APPROXIMATE. EXACT STATIONING AND LOCATIONS SHALL BE VERIFIED BY THE CONTRACTOR SO THAT THE SIGN IS INSTALLED IN ACCORDANCE WITH CITY OF TULSA STANDARDS, CURRENT AMERICANS WITH DISABILITIES ACT STANDARDS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES IN ORDER TO PROVIDE OPTIMUM VISIBILITY TO THE ONCOMING/APPROACHING MOTORIST. IF A PROPOSED LOCATION CONFLICTS WITH OTHER SIGNS, UTILITIES, OR OTHER ROADWAY FEATURES, THE ENGINEER SHALL BE NOTIFIED.
33. POST LENGTHS SHOWN ON SIGN SUMMARY ARE APPROXIMATE. EXACT LENGTHS SHALL BE DETERMINED BY A FIELD SURVEY CONDUCTED BY THE CONTRACTOR.
34. ALL ASPHALT STREETS THAT ARE TO BE RECONSTRUCTED SHALL BE LEFT WITH A DRIVABLE SURFACE AT ALL TIMES. THE CONTRACTOR WILL NOT BE ALLOWED TO MILL OFF ALL THE ASPHALT BEFORE EXCAVATION BEGINS.
35. THE CONTRACTOR SHALL REPLACE ANY SECTION CORNERS OR OTHER PERMANENT RIGHT OF WAY MARKERS REMOVED OR DISTURBED AS A RESULT OF THE CONSTRUCTION OF THIS PROJECT. REPLACEMENT OF SECTION CORNERS OR ANY OTHER MONUMENTS SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR AUTHORIZED TO PERFORM WORK IN THE STATE OF OKLAHOMA.
36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL AND MAINTENANCE OF THE STORMWATER DRAINAGE. STORMWATER PONDING ON THE CONSTRUCTION SITE THAT IS THE RESULT OF CONSTRUCTION WILL NOT BE ALLOWED.
37. STRAW OR HAY BALES AS STORMWATER BEST MANAGEMENT PRACTICES ARE NO LONGER ALLOWED ON CONSTRUCTION PROJECTS.
38. THE CONTRACTOR MUST CALL 1-800-458-4251 IMMEDIATELY IF A NATURAL GAS PIPELINE IS CUT, DAMAGED, OR OTHERWISE DISTURBED.
39. PRIOR TO FINAL ACCEPTANCE, ALL EXPOSED CURB SURFACES SHALL BE CLEANED OF ALL DISCOLORATION SUCH AS ASPHALT STAIN, TIRE MARKS, OR OTHER DISFIGUREMENT.
40. ALL FEATURES OF THIS PROJECT INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, CURB RAMPS, AND CROSSWALKS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT, ACCESSIBILITY GUIDELINES, AND THE PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY, PUBLISHED ON JULY 26, 2011 BY THE U.S. ACCESS BOARD. WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THIS ACT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURES. THE CONTRACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK, WHICH IS NOT IN FULL COMPLIANCE WITH THE ADA WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. ANY WORK, WHICH IS NOT PERFORMED WITHIN THE GUIDELINES OF THE ADA, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
41. ALL TRENCH WIDTHS & BEDDING MATERIAL SHALL BE AS SHOWN ON DOT STANDARD PIPE BEDDING DETAIL, STANDARD NO. 751. SPECIFIED TRENCH WIDTHS SHALL BE MAINTAINED FULL DEPTH FROM THE FLOWLINE TO THE GRADING TEMPLATE. THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED.
42. THE CONTRACTOR SHALL NOTIFY THE METROPOLITAN TULSA TRANSIT AUTHORITY (MTA), ERIC SMITH 918-830-0024, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK, LANE CLOSURES OR PRIOR TO DETOURING TRAFFIC.
43. CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN.
44. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST SUBMIT A STORMWATER MANAGEMENT PLAN (SWMP) TO BE APPROVED BY THE CITY OF TULSA. THE CONTRACTOR IS ALSO RESPONSIBLE FOR EROSION CONTROL DURING THE DURATION OF CONSTRUCTION.



REVISION	BY	DATE	PLAN SCALE:	BY	DATE	APPROVED:
			1"=4' A	DESIGNED	KDB	05/20/22
				SURVEY	SEC	07/20/19
			PROFILE SCALE:	PROJ. MGR.	Fog	02/10/21
				LEAD ENGR.	Byg	08/03/20
			HORIZONTAL	FIELD MGR.	Ben	08/02/20
			1"=4' A	RECOMMENDED	HAS B. B.	
			VERTICAL	DESIGN MANAGER		
			1"=4' A			
			FILE: TUL20776 PAY ITEMS	DRAWING:		CITY ENGINEER
			ATLAS PAGE NO: 1578			DATE:
						SHEET 3 OF 17 SHEETS



GENERAL CONSTRUCTION NOTES

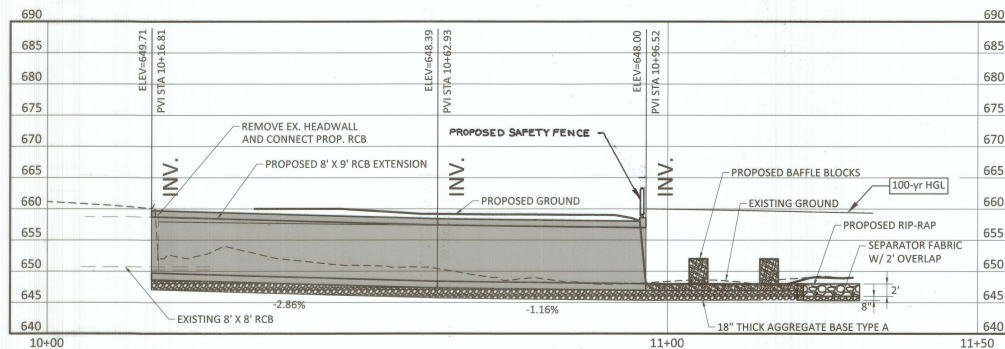
PROJECT NO. SW-2020-01-05

VENSEL TRIBUTARY
108TH STREET RCB EXTENSION

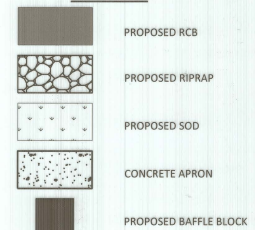
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: 4200 E. SHELLEY DRIVE SUITE 410
FREESE AND NICHOLS, INC. TULSA, OK 74135 (535) 444-8877

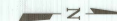




LEGEND



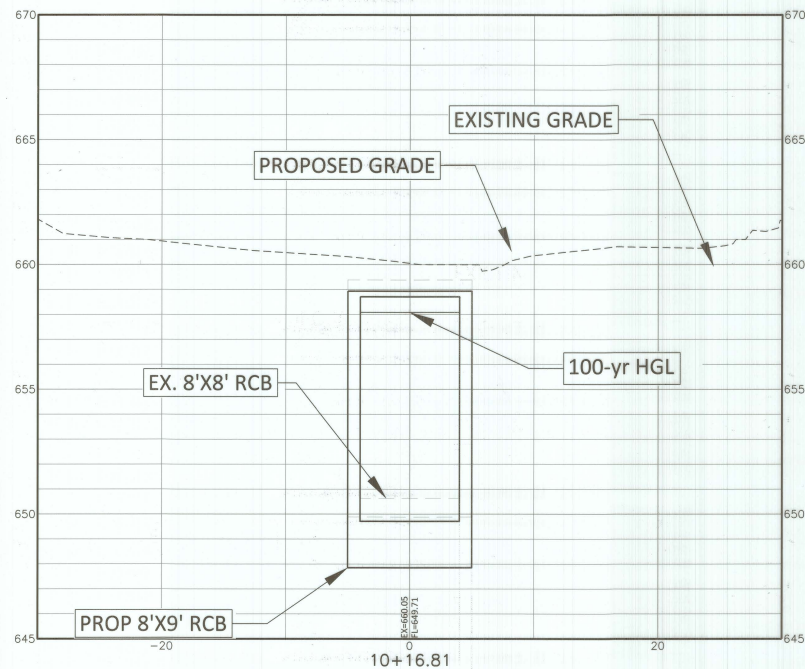
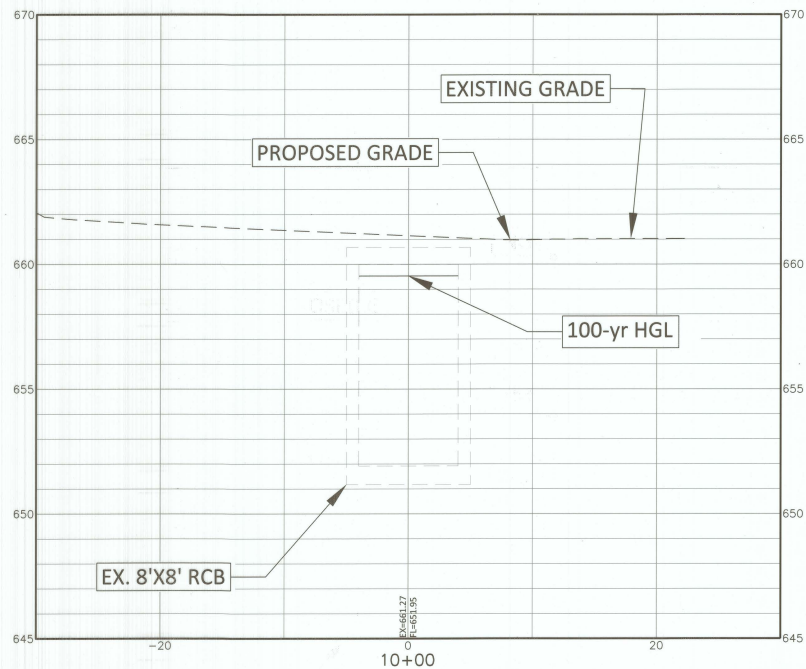
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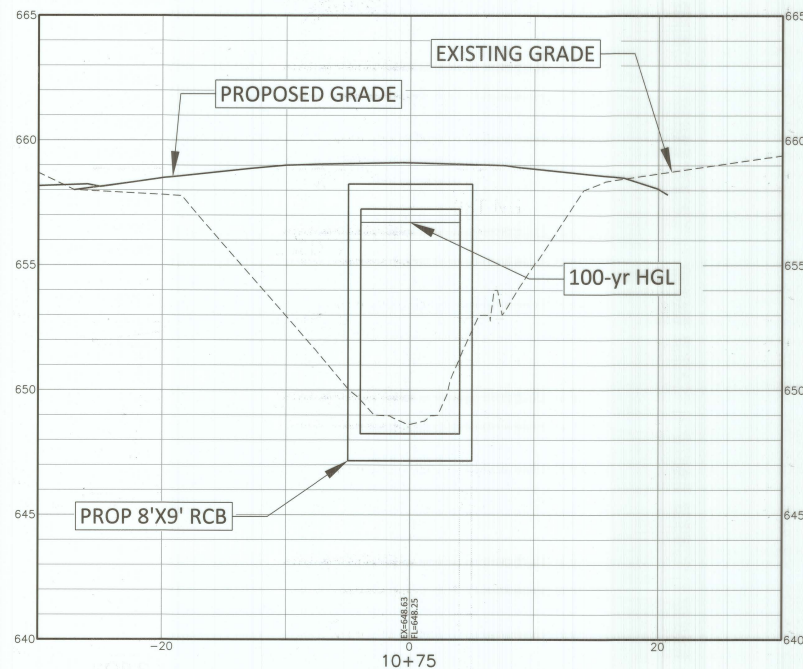
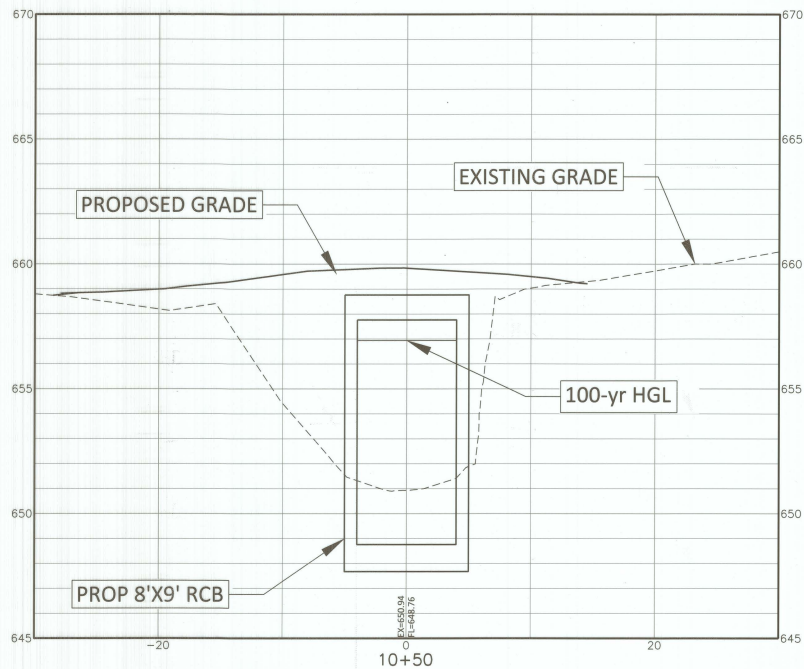
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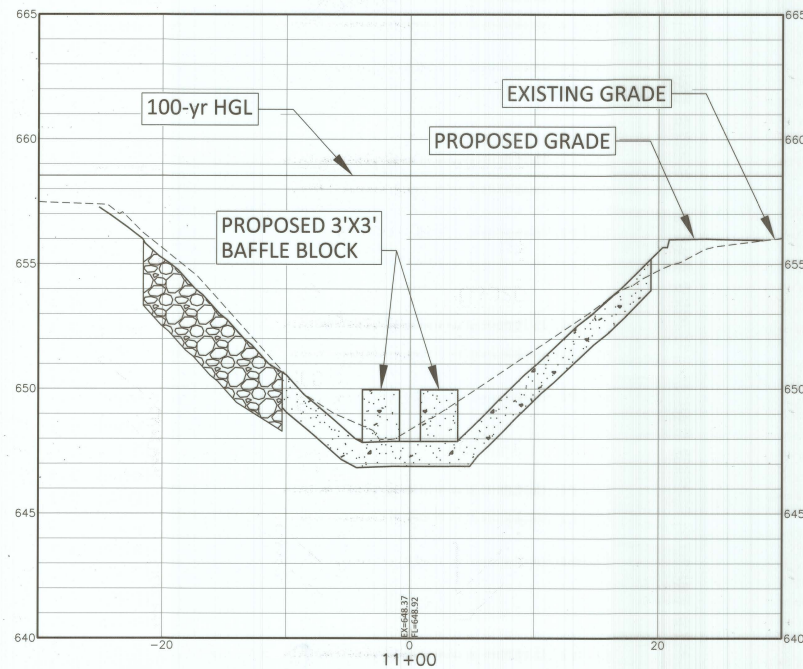
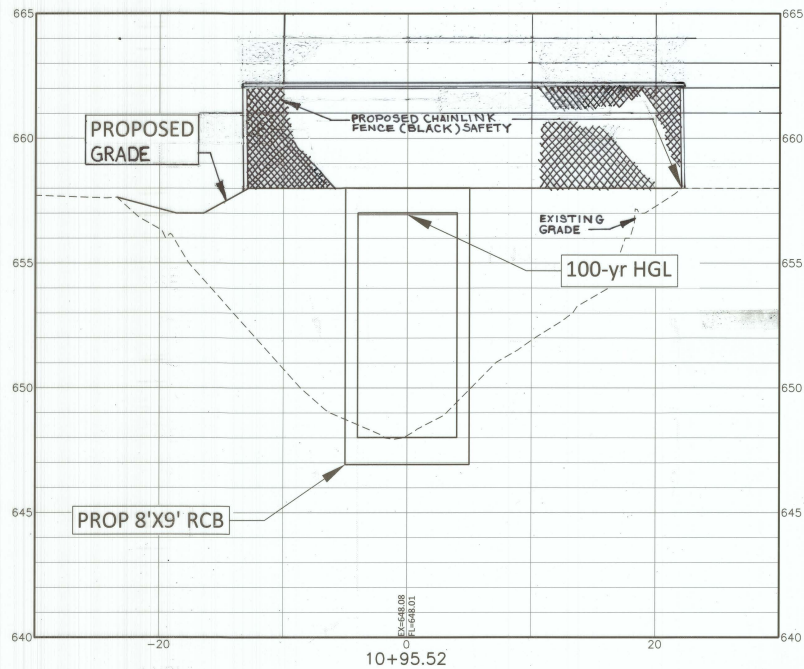
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					SURVEYED	SDC	07/09/19	
				PROFILE SCALE:	PROJ. MGR.	FID	10/18/22	
				HORIZONTAL 1"=60'	LEAD ENGR.	JOC	04-22	
					FIELD MGR.	LGA	8/6	
				VERTICAL 1"=10'	RECOMMENDED:	HSA	8-22	
					DESIGN MANAGER			CITY ENGINEER
				FILE: TUL30776.RP/SHEETS	DRAWING:			DATE:
				ATLAS PAGE NO. 1578				SHEET 6 OF 15 SHEETS




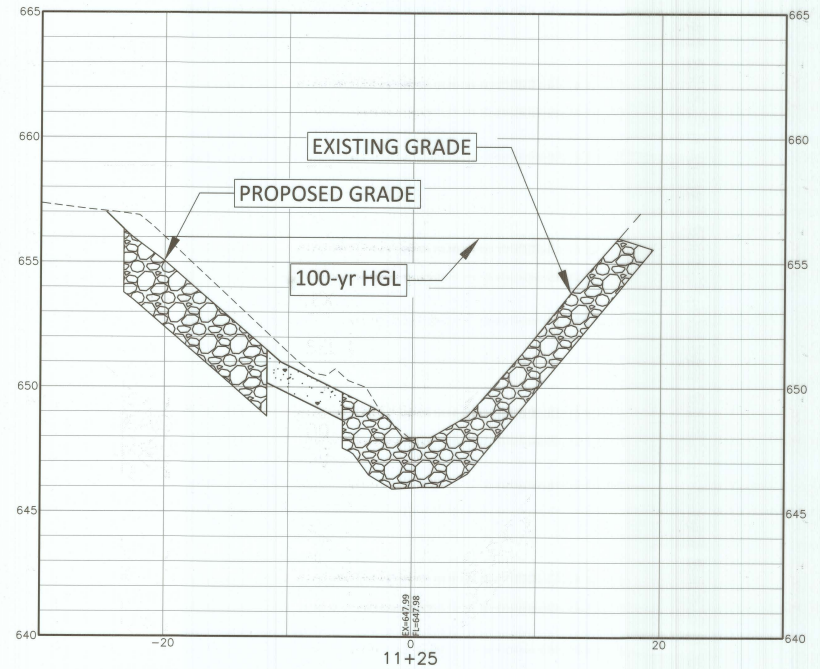
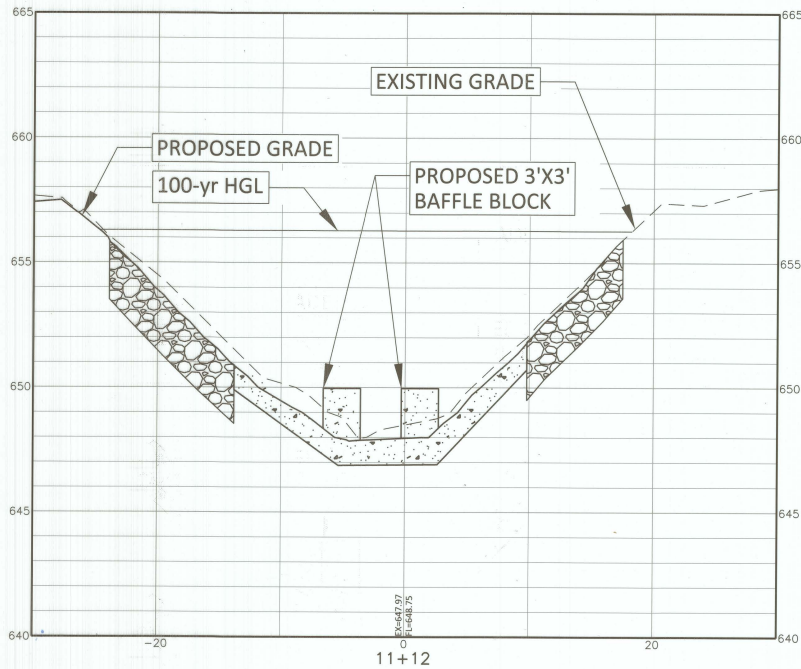
CROSS SECTIONS	
PROJECT NO. SW-2020-01-05	
VENSEL TRIBUTARY 108TH STREET RCB EXTENSION	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: FREESSE AND NICHOLS, INC.	
4200 E. SKELLY DRIVE SUITE 410 TULSA, OK 74135 (918) 444-9577	
REVISION	BY DATE
PLAN SCALE:	DRAWN: BHT 05/2022
1" = 10'	DESIGNED: KDB 05/2022
PROF. SCALE:	SURVEY: SDC 07/2019
1" = 10'	PROJ. MGR: RFP 05/2022
LEAD ENGR: BHT 05/22	FIELD MGR: RFP 05/22
RECOMMENDED:	DESIGN MANAGER: RFP 05/22
FILE:	DRAWING:
ATLAS PAGE NO. 1576	SHEET 8 OF 17 SHEETS



OK 811 any work before Call 811			
CROSS SECTIONS			
PROJECT NO. SW-2020-01-05			
VENSEL TRIBUTARY 108TH STREET RCB EXTENSION			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: FREESE AND NICHOLS, INC.		4209 E. SKELLY DRIVE SUITE 410 TULSA, OK 74135 (530) 444-8877	
REVISION	BY	DATE	APPROVED
PLAN SCALE: 1" = 10'	DRAWN: DESIGNED: SURVEY:	BHT HOB SDC	05/2022 07/2019
PROFILE SCALE: HORIZONTAL 1" = 10'	PROJ. MGR. LEAD ENGR. FIELD MGR. RECOMMENDED:	Pop BHT BHT HNS	08/2022 08/2022 08/2022 08/2022
VERTICAL 1" = 10'	DESIGN MANAGER	CITY ENGINEER	DATE:
FILE:		DRAWING:	
ATLAS PAGE NO. 1578		SHEET 9 OF 17 SHEETS	

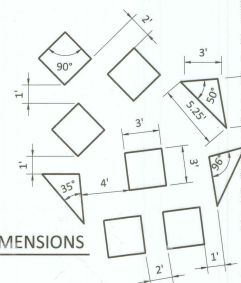
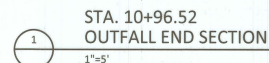


CROSS SECTIONS									
PROJECT NO. SW-2020-01-05									
VENSEL TRIBUTARY 108TH STREET RETB ECB EXTENSION									
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT									
PLANS AND ESTIMATES PREPARED BY: FREESE AND NICHOLS, INC.					4209 E. SKELLY DRIVE SUITE 410 TULSA, OK 74133 (530) 444-8877				
REVISION	PLAN SCALE:	DRAWN		SHT		APPROVED:			
		DESIGNED		XDB					
		SURVEY		SDC					
		PROFILE SCALE:		PROJ. MGR.					
		HORIZONTAL:		LEAD ENGR.					
VERTICAL:	1" = 10'	FIELD MGR.		2019/8/22					
		RECOMMENDED:		RAS 8-22					
		DESIGN MANAGER		FILE:					
ATLAS PAGE NO. 1578		DRAWING:		DATE:		SHEET 10 OF 17 SHEETS			



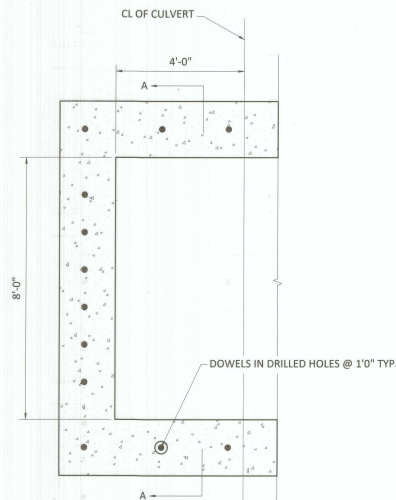
CROSS SECTIONS			
PROJECT NO. SW-2020-01-05			
VENSEL TRIBUTARY 108TH STREET RCB EXTENSION			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: FREESE AND NICHOLS, INC.		4200 E. SKELLY DRIVE SUITE 410 TULSA, OK 74130 (918) 444-8877	
PLAN SCALE:	DRAWN	BHT	08/2022
DESIGNED	KDB	08/2022	
SURVEY	SDC	07/2019	
PROFILE SCALE:	PROJ. MGR.	FWP	08/2022
HORIZONTAL	LEAD ENGR.	BDC	09/22
FIELD MGR.	RECOMMENDED	JAN	08/22
DESIGN MANAGER	DATE:	DATE:	
FILE:	DRAWING:	DATE:	
ATLAS PAGE NO. 1578	SHEET 11 OF 17 SHEETS		





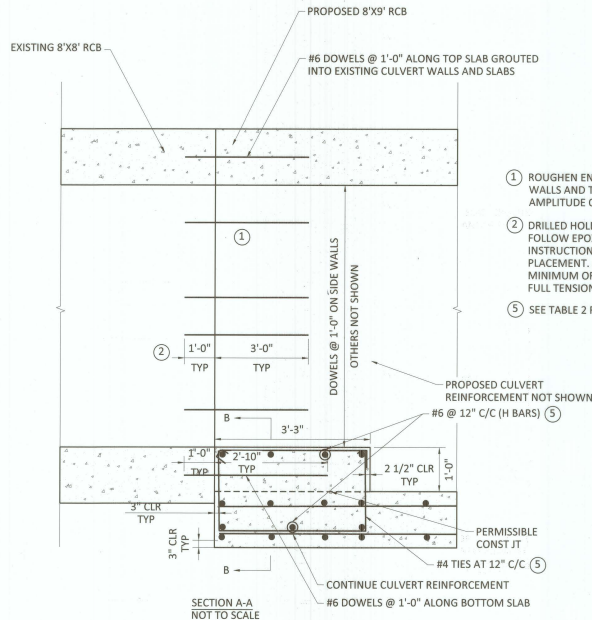
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			HORIZONTAL	LEAD ENGR.	<i>Doc</i>	01/21/02	
			1"=1/4"	FIELD MGR.	<i>for</i>	8/22/02	
			VERTICAL	RECOMMENDED:	<i>for</i>	8-22	
			1"=1/4"	DESIGN MANAGER			
				DRAWING:			CITY ENGINEER
			FILE: TUL2079 DETAILS				DATE:
			ATLAS PAGE NO: 1579				SHEET 12 OF 17 SHEETS

Filename: N:\IF\Drawings\1. General\TUL20776 DETAILS.dwg

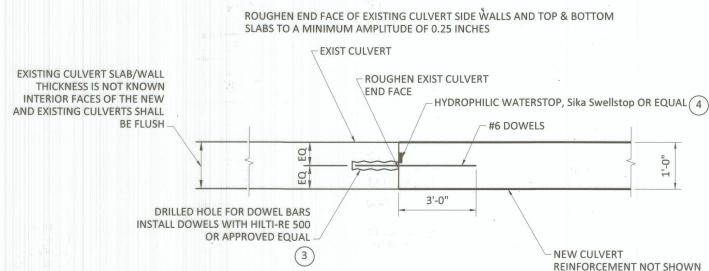


**EXISTING CULVERT
CROSS SECTION VIEW**
NOT TO SCALE

NOTES:
1. DOWELLING IS SYMMETRICAL ABOUT THE CENTERLINE

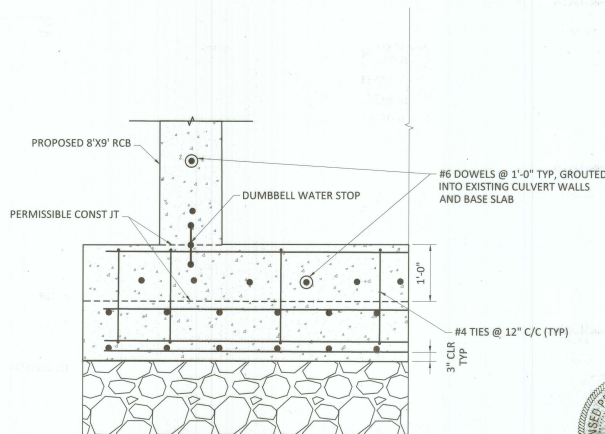


- ① ROUGHEN END FACE OF EXISTING CULVERT SIDE WALLS AND TOP AND BOTTOM SLABS TO A MINIMUM AMPLITUDE OF 0.25 INCHES
- ② DRILLED HOLES SHALL BE THOROUGHLY CLEANED, FOLLOW EPOXY ADHESIVE MANUFACTURERS INSTRUCTIONS FOR ANCHOR INSTALLATIONS AND PLACEMENT. ANCHORS SHALL BE EMBEDDED A MINIMUM OF 1'-0" OR AS REQUIRED TO DEVELOP FULL TENSION CAPACITY.
- ⑤ SEE TABLE 2 FOR ADDITIONAL H AND S BARS



- ③ FOLLOW ADHESIVE MANUFACTURER'S DIRECTIONS FOR INSTALLATIONS TO DEVELOP FULL TENSILE STRENGTH OF THE DOWEL BAR
- ④ PLACE HYDROPHILIC WATERSTOP ALL AROUND ON EXISTING CONCRETE

CULVERT CONNECTION DETAIL
NOT TO SCALE



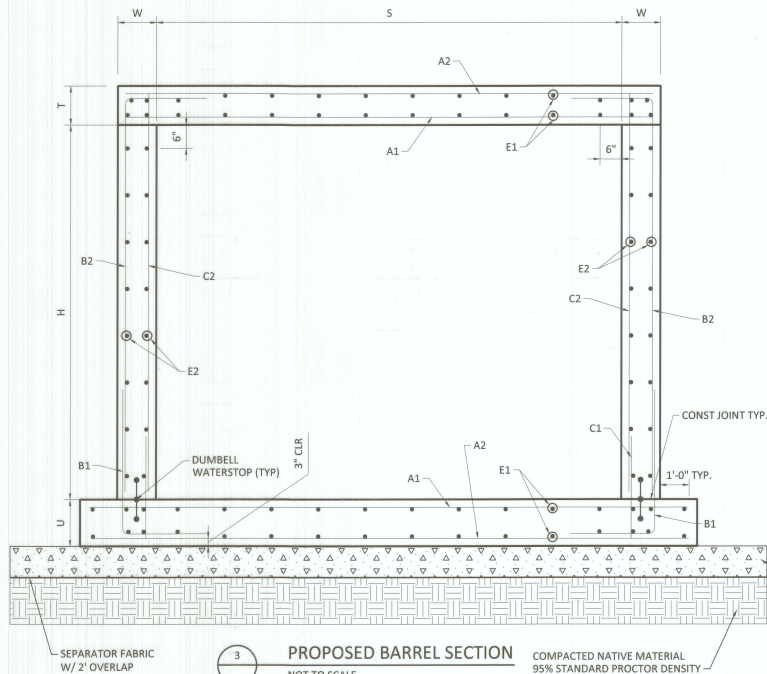
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				SURVEY:	SDC	07/20/19	
			PROFILE SCALE:	PROJ. MGR:	Fry	01/20/22	
				LEAD ENGR:	Walt	01/20/22	
			HORIZONTAL	FIELD MGR:	Walt	01/20/22	
			1"-N/A				
			VERTICAL				
			1"-N/A				
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			DRAWING:				
			ATLAS PAGE NO: 1578				



EXISTING RCB DETAIL			
PROJECT NO. SW-2020-01-05			
VENSEL TRIBUTARY 108TH STREET RCB EXTENSION			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY:		4205 E. SKELLY DRIVE SUITE 410 TULSA, OK 74135 (530) 484-8877	
FREEBIE AND NICHOLS, INC.			
SHEET 13 OF 17 SHEETS			

E	PLAN SCALE:	DRAWN	BHT	05/20/22	APPROVED:
	1"=4'	DESIGNED	KOB	05/20/22	
		SURVEY	SCD	07/20/19	
	PROFILE SCALE:	PROJ. MGR.	Fmg	05/20/22	
		LEAD ENGR.	DDG	05/22	
	HORIZONTAL 1"=40'	FIELD MGR.	HAU	8/7/22	
		RECOMMENDED:	HAU	8-2-22	
	VERTICAL 1"=4'	DESIGN MANAGER			
	FILE: TUL20776 DETAILS	DRAWING:			
	ATLAS PAGE NO: 1578				

	DATE:	CITY ENGINEER
	SHEET 13 OF 17 SHEETS	



3 PROPOSED BARREL SECTION
NOT TO SCALE

DESIGN DATA:

- DESIGNED IN ACCORDANCE WITH 2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- DESIGNED FOR HL-93 LOADING AND ODOT OVERLOAD TRUCK.
- MATERIALS:
CONCRETE (CLASS AA) $f_c = 4$ KSI
REINFORCING STEEL $f_y = 60$ KSI

GENERAL NOTES:

- ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- ALL CONCRETE EDGES SHALL HAVE A 1 1/2" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER.
- ALL REINFORCING STEEL SHALL HAVE A 2" MINIMUM CLEAR COVER UNLESS OTHERWISE SHOWN.
- ALL BAR DIMENSIONS ARE OUT TO OUT OF THE BAR U.N.O.
- THE QUANTITY FOR REINFORCING STEEL DOES NOT INCLUDE LAP SPLICES OR E1-BARS OR E2-BARS IN THE LENGTH OF THE BARREL OR AT TRANSVERSE CONSTRUCTION JOINTS. THE SPLICE LENGTH FOR E-BARS SHALL BE 24" MINIMUM. THE NUMBER OF SPLICES USED TO BE APPROVED BY THE ENGINEER. REINFORCING STEEL FOR SPLICES SHALL NOT BE MEASURED FOR PAYMENT, AND ALL COSTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR REINFORCING STEEL.
- TRANSVERSE CONSTRUCTION JOINTS SHALL BE PLACED IN ALL CULVERTS 100 FT. OR MORE IN LENGTHS. JOINTS SHALL BE SPACED AT 60 FT. MAX.
- REINFORCING STEEL SHALL BE CONTINUED THROUGH THE TRANSVERSE CONSTRUCTION JOINT AND EXTEND A MIN. OF 24" INTO ADJACENT SECTION.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS, ELEVATIONS AND LOCATIONS OF ALL UTILITIES PRIOR TO PURCHASE OF ANY MATERIAL AND EXECUTION OF ANY WORK. NOTIFY THE ENGINEER IN CASE OF ANY DISCREPANCIES AND/OR CONFLICTS.
- BACKFILL FOR PROPOSED CULVERT SHALL BE GRANULAR BACKFILL UNDER 2019 ODOT STANDARD SPECIFICATIONS 703.07

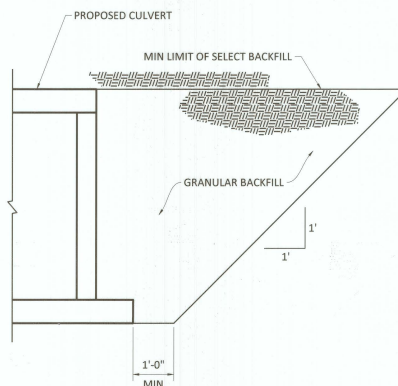
TABLE 1

MARK	BAR SIZE	SPACING INCHES	LENGTH FT	WEIGHT PER FT
A1	#8	6"	11'-8"	124.6
A2	#4	12"	11'-8"	15.9
B1	#6	6"	7'-0"	37.4
B2	#6	6"	13'-4"	71.2
C1	#4	12"	2'-7"	3.5
C2	#4	12"	9'-10"	13.1
E1	#4	12"		32.1
E2	#4	12"		34.7
TOTAL	REINFORCING STEEL, LB			332.5
	CLASS AA CONCRETE, CY			1.45

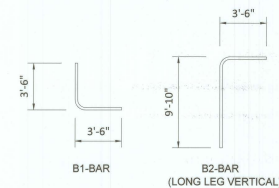
① QUANTITIES SHOWN ARE FOR ONE FOOT LENGTH OF CULVERT BARREL

S	8'-0"
H	9'-0"
T	1'-0"
U	1'-1"
W	1'-0"

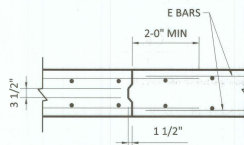
ITEM NO.	ITEM	UNIT
804 (A)	STRUCTURAL CONCRETE	CY
804 (B)	REINFORCING STEEL	LB



8 BACKFILL DETAIL
NOT TO SCALE



4 BAR BEND DIAGRAMS
NOT TO SCALE



7 TRANSV CONSTR JOINT
NOT TO SCALE

5 S-1 BAR DIAGRAM
NOT TO SCALE

6 S-2 BAR DIAGRAM
NOT TO SCALE

TABLE 2

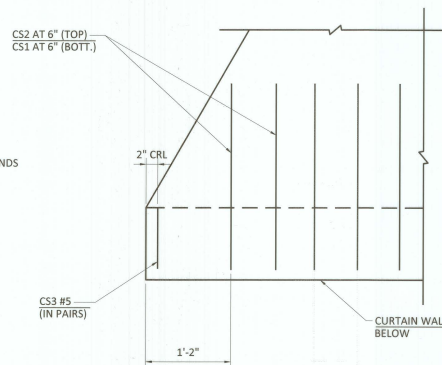
MARK	BAR SIZE	SPACING INCHES	LENGTH FT	TOTAL WEIGHT
H	#6	12"	9'-8"	206.5
S1	#4	12"	3'-10"	28.2
S2	#4	12"	7'-3"	53.3

② QUANTITIES SHOWN ARE FOR ADDITIONAL BARS AT CROSS SECTION WHERE PROPOSED CULVERT CONNECTS TO EXISTING



PROPOSED RCB DETAILS			
PROJECT NO. SW-2020-01-05			
VENSEL TRIBUTARY 108TH STREET RCB EXTENSION			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: FREESE AND NICHOLS, INC.		4200 E. SKELLY DRIVE SUITE 410 TULSA, OK 74135 (530) 444-8877	
REVISION	BY	DATE	APPROVED:
1	W/A		
DESIGNED	KDB	05/2022	
SURVEY	SDC	07/2019	
PROFILE SCALE	PROJ. MGR.	PROP. 01/2022	
HORIZONTAL	LEAD ENGR.	PROP. 01/22	
VERTICAL	FIELD MGR.	PROP. 01/22	
DESIGN MANAGER	RECOMMENDED	HAZ 8-22	
FILE: 10120776 DETAILS	DRAWING:	DATE:	
ATLAS PAGE NO. 1578			SHEET 14 OF 17 SHEETS



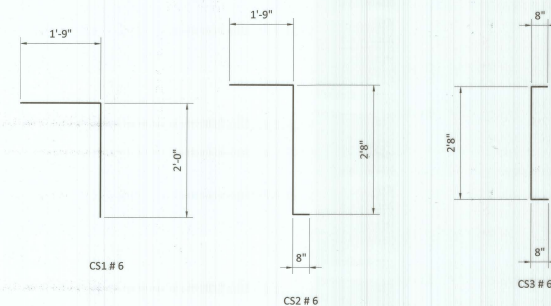


3 CURTAIN WALL-APRON PLAN
NOT TO SCALE

1. SEE RCB CULVERTS - BARREL DETAILS FOR ADDITIONAL INFORMATION.
2. NUMBER & SPACING OF CT1 BARS SHOWN IN DETAIL MAY NOT BE REPRESENTATIVE OF ACTUAL CURTAIN WALL SECTION. SEE SCHEDULE FOR NUMBER AND SPACING OF CT1 BARS.
3. CS1 AND CS2 BARS ALIGN WITH AL BARS IN APRON SLAB.
4. INCLUDES 2'-6" LAP.

MARK	BAR SIZE	SPACING INCHES	LENGTH FT	WEIGHT PER FT
CS1	#5	6"	3'9"	11.7
CS2	#5	6"	5'1"	15.9
CS3	#5	6"	4'0"	12.5
CT1	#4	12"		4.0
AT1	#4	12"		89.5

② QUANTITIES SHOWN ARE FOR ONE FOOT LENGTH OF CURTAIN WALL



4 BAR BEND DIAGRAM
NOT TO SCALE



CURTAIN WALL DETAILS			
PROJECT NO. SW-2020-01-05			
VENSEL TRIBUTARY 108TH STREET RCB EXTENSION			
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY: FREESE AND NICHOLS, INC.		4200 E. SKELLEY DRIVE SUITE 417 TULSA, OK 74119 (339) 444-8870	
PLAN SCALE:	DRAWN	BY/IT	APPROVED:
1"=4'X4'	DESIGNED	KDB 06/20/22	
	REVIEWED	SDC 07/29/21	
PROFILE SCALE:	PROJ. MGR.	FWD 08/19/22	
HORIZONTAL	LEAD ENGR.	200 09/12/22	
1"=4'X4'	FIELD MGR.	200 8/16/22	
VERTICAL	RECOMMENDED:	HA 8-72	
1"=4'X4'	DESIGN MANAGER		
FILE: TUL202776 DETAILS	DRAWING:	DATE:	CITY ENGINEER
ATLAS PAGE NO: 1579		SHEET 15 OF 17 SHEETS	



TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)												
Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing (2~wings) (SEE NOTE 2)	Estimated Quantities per ft of Toewall (1~toewall)		
Maximum Wingwall Height Hw	Ww	X	Y	Z	Bars J1		Bars J2					
					Size	Spa	Size	Spa				
10'-6"	6'-5"	3'-0"	2'-5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117

TABLE OF WINGWALL REINFORCING (2" wings)				
Bar	Size	No.	Spa	
D1	#6	~	1'-0"	
D2	#6	~	1'-0"	
E1	#4	~	1'-0"	
F	#4	~	1'-0"	
G	#6	~	8"	
M1	#4	4	~	
P	#4	~	1'-0"	
V	#4	~	1'-0"	

TABLE OF TOE WALL REINFORCING				
Bar	Size	No.	Spa	
J3	#4	~	1'-0"	
M2	#4	2	~	
E2	#4	~	1'-0"	

WING DIMENSION FORMULAS:

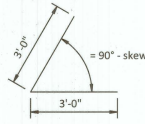
(All values are in feet.)

$$Hw = H + T + C$$

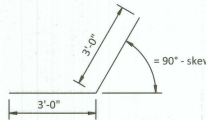
$$Lw = (Hw) (SL) \div \cosine (\theta) \text{ for Type PW-1}$$

For cast-in-place culverts:
 $Ltw = [(N) (S) + (N + 1) (U)] \div \cosine (\theta)$

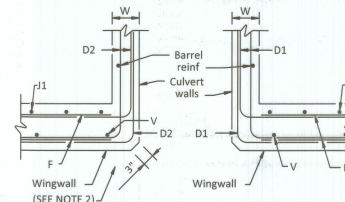
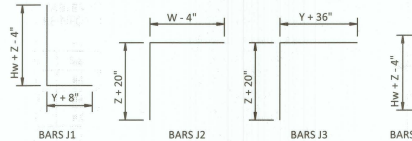
For precast culverts:
 $Ltw = [(N) (2 U + S) + (N - 1) (0.5')] \div \cosine (\theta)$
 Total Wingwall Area (two wings ~ SF)
 $= (2)(Hw)(Lw) \text{ for Type PW-1}$



BARS D1



BARS D2



SECTION C-C - PW-1

- At discharge end, chamfer may be 3/4" minimum.
- Quantities shown are for two Type PW-1 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.
- Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.
- Extend Bars E2 1'-6" minimum into the wingwall footing.
- Lap Bars M1 1'-6" minimum with Bars M2.
- Place Bars G as shown, equally spaced at 8" maximum. Provide at least two pairs of Bars G per wing.
- For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade.
- Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- 1'-0" typical, 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
- SKEW = 0 DEG

DESIGNER NOTES:

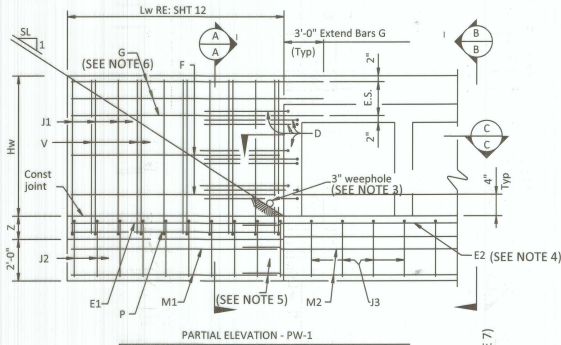
Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.

MATERIAL NOTES:

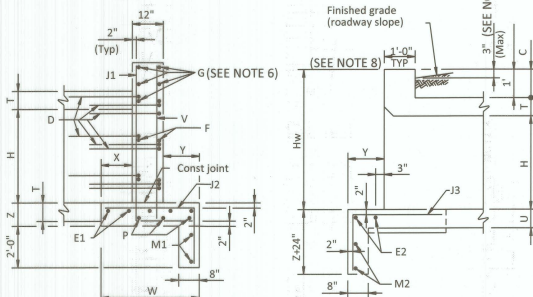
Provide Class C concrete (f'c=3,600 psi).
 Provide Grade 60 reinforcing steel.
 Provide galvanized reinforcing steel if required elsewhere in the plans.

GENERAL NOTES:

Designed in accordance with AASHTO LRFD Bridge Design Specifications.
 Depth of toe walls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
 See Box Culvert Supplement (BCS) standard sheet for wingwall type and additional dimensions and information.
 Quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

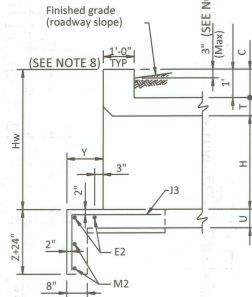


PARTIAL ELEVATION - PW-1



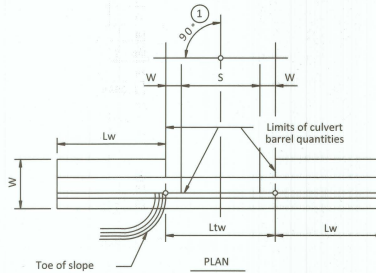
SECTION A-A

(Showing wing reinforcement.)



SECTION B-B

(Showing wing reinforcement.)



DETAILS FOR NON-SKEWED BOX CULVERTS



REVISION				BY				DATE			
PLAN SCALE:				DRAWN:				BHT			
1"=4'-0"				DESIGNED:				HDB			
PROFILE SCALE:				SURVEY:				SDC			
HORIZONTAL:				FIELD MGR:				JAC			
1"=4'-0"				RECOMMENDED:				HAC			
VERTICAL:				DESIGN MANAGER:				HAC			
1"=4'-0"				FILE:				TUL20776 DETAILS			
ATLAS PAGE NO: 1578				DRAWING:				DATE:			
								SHEET 16 OF 17 SHEETS			



HEADWALL DETAILS	
PROJECT NO. SW-2020-01-05	
VENSEL TRIBUTARY	
108TH STREET RCB EXTENSION	
CITY OF TULSA, OKLAHOMA	
ENGINEERING SERVICES DEPARTMENT	

PLANS AND ESTIMATES PREPARED BY: FRIESE AND NICHOLS, INC. 4200 E. SKELLY DRIVE SUITE 410 TULSA, OK 74135 (339) 444-8877



LEGEND

	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED RCB
	PROPOSED RIPRAP
	CONCRETE APRON
	PROPOSED BAFFLE BLOCK
	EASEMENT AREA

NOTES:

- CONTRACTOR WILL ACCESS THE SITE FROM 108TH.
- CONTRACTOR SHALL STAY WITHIN EASEMENT WITH ALL EQUIPMENT AND MATERIALS.
- CONTRACTOR SHALL REPAIR ALL DISTURBED AREAS.
- ALL TRAFFIC CONTROL SHALL MEET OR EXCEED MUTCD.



HORIZONTAL SCALE 1"=10'
0 10' 20'
SCALE IN FEET



ACCESS CONTROL PLAN

PROJECT NO. SW-2020-01-05

VENSEL TRIBUTARY
108TH STREET RCB EXTENSION

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY: 4200 E. SKELLY DRIVE SUITE 410
FREESE AND NICHOLS, INC. TULSA, OK 74116 (505) 444-8577

REVISION	BY	DATE	DESIGNED	BY	DATE	APPROVED
			DESIGNED	RCB	05/20/22	
			SURVEY	SDC	07/20/19	
			PROJ. MGR.	For 01/22		
			LEAD ENGR.	For 08/22		
			FIELD MGR.	For 08/22		
			RECOMMENDED	HA 8-22		
			DESIGN MANAGER			
			FILE			
			DRAWING			
			ATLAS PAGE NO. 1578			

