CONSTRUCTION PLANS FOR
CITYWIDE LIFT STATION IMPROVEMENTS
FRANCIS HILLS RELIEF SEWER AND VENSEL CREEK LIFT STATION
PROJECT NO. ES 2019-01
ACCOUNT NO. 193320017Z.SEWERTREAT.75003122.541101
ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA

INDEX TO DRAWINGS

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>COVER SHEET</td>
</tr>
<tr>
<td>2</td>
<td>LOCATION MAP &amp; SUMMARY OF PAY ITEMS</td>
</tr>
<tr>
<td>3</td>
<td>GENERAL NOTES</td>
</tr>
<tr>
<td>4</td>
<td>SYMBOLS &amp; LEGEND</td>
</tr>
<tr>
<td>5</td>
<td>FRANCIS HILLS RELIEF SEWER STORMWATER MANAGEMENT PLAN</td>
</tr>
<tr>
<td>6</td>
<td>FRANCIS HILLS RELIEF SEWER STORMWATER CADDY</td>
</tr>
<tr>
<td>7</td>
<td>FRANCIS HILLS RELIEF SEWER RIGHT-OF-WAY PLAN</td>
</tr>
<tr>
<td>8</td>
<td>FRANCIS HILLS RELIEF SEWER SURVEY DATA</td>
</tr>
<tr>
<td>9</td>
<td>FRANCIS HILLS EXISTING LIFT STATION DEMOLITION PLAN</td>
</tr>
<tr>
<td>10-11</td>
<td>FRANCIS HILLS RELIEF SEWER PLAN &amp; PROFILE</td>
</tr>
<tr>
<td>12</td>
<td>FRANCIS HILLS RELIEF SEWER MAHONIE DETAILS</td>
</tr>
<tr>
<td>13</td>
<td>VENSEL CREEK LIFT STATION DEMOLITION PLAN</td>
</tr>
<tr>
<td>14</td>
<td>VENSEL CREEK LIFT STATION SITE PLAN</td>
</tr>
<tr>
<td>15</td>
<td>VENSEL CREEK LIFT STATION PAYMENT DEMOLITION PLAN</td>
</tr>
<tr>
<td>16</td>
<td>VENSEL CREEK LIFT STATION PAYMENT SITE PLAN</td>
</tr>
<tr>
<td>17</td>
<td>VENSEL CREEK LIFT STATION PLANT &amp; SECTION</td>
</tr>
<tr>
<td>18</td>
<td>VENSEL CREEK LIFT STATION GRINDER PLANT &amp; SECTION</td>
</tr>
<tr>
<td>19</td>
<td>VENSEL CREEK LIFT STATION BASKET SCREEN</td>
</tr>
<tr>
<td>20-21</td>
<td>MISCELLANEOUS DETAILS</td>
</tr>
</tbody>
</table>

EQUIPMENT
E1    LEGEND & ABBREVIATIONS
E2    SITE PLAN

APPROVED BY

Carrol Fournier
WATER AND SEWER DIRECTOR

DATE

City Engineer

DATE

Stephen Tolar, P.E.
HOLLOWAY, UPDEKE & BELL INC.

DATE

UTILITY COORDINATION BOX

<table>
<thead>
<tr>
<th>NUMBER NOTIFIED</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGINEERING SERVICES DEPARTMENT (918) 596-9504</td>
</tr>
<tr>
<td>WATER DESIGN (918) 596-9564</td>
</tr>
<tr>
<td>WASTEWATER DESIGN (918) 596-9564</td>
</tr>
<tr>
<td>TRANSPORTATION DESIGN (918) 596-9560</td>
</tr>
<tr>
<td>TRAFFIC ENGINEERING DESIGN (918) 596-9741</td>
</tr>
<tr>
<td>STORMWATER DESIGN (918) 596-9496</td>
</tr>
<tr>
<td>COTT NETWORK SERVICES (918) 596-7070</td>
</tr>
<tr>
<td>OKLAHOMA GAS &amp; ELECTRIC</td>
</tr>
<tr>
<td>OKLAHOMA NATURAL GAS CO. (918) 631-8261</td>
</tr>
<tr>
<td>NATURAL SYSTEMS INC (Oklahoma)</td>
</tr>
<tr>
<td>CONEX COMMUNICATIONS (918) 596-4806</td>
</tr>
<tr>
<td>PUBLIC SERVICE CO. (918) 596-2737</td>
</tr>
<tr>
<td>SOUTHWESTERN BELL TELEPHONE (918) 596-4702</td>
</tr>
<tr>
<td>FIRST</td>
</tr>
<tr>
<td>ITEM NO.</td>
</tr>
<tr>
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</tr>
<tr>
<td>1</td>
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<tr>
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<td>20</td>
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<tr>
<td>21</td>
</tr>
<tr>
<td>22</td>
</tr>
</tbody>
</table>

**ADDITIVE ALTERNATE #1**

**ADDITIVE ALTERNATE #2**

**ADDITIVE ALTERNATE #3**

**PAY ITEM NOTES - LIFT STATION REHABILITATION:**

1. INCLUDES THE COST OF ALL SURVEYING AND STAKING NECESSARY TO COMPLETE THE ENTIRE PROJECT. WORK SHALL BE PERFORMED BY AN OKLAHOMA REGISTERED LAND SURVEYOR.

2. INCLUDES DEMOLITION OF EXISTING LIFT STATION AND SITE RESTORATION. SEE DEMOLITION PLAN SHEETS FOR ADDITIONAL REQUIREMENTS.

3. PIPE SHALL BE INSTALLED PER THE CITY OF TULSA'S STANDARD SPECIFICATIONS.

4. INCLUDES RIGHT-OFF-WAY CLEARING AND RESTORATION FOR GRAVITY SEWER AND FORCE MAIN. EXISTING FRAMES DISTURBED DUE TO CONSTRUCTION SHALL BE REPLACED WITH NEW MATERIALS AND SHALL BE INCLUDED IN THE COST FOR RIGHT-OFF-WAY CLEARING AND RESTORATION FOR LURES 4" AND LARGER. NO ADDITIONAL PAYMENT SHALL BE MADE.

5. INCLUDES ALL COSTS FOR UNCLASSIFIED EXCAVATION AND BACKFILL FOR THE PROPOSED GRAVITY SEWER AND FORCE MAIN. THE ITEM INCLUDES PAYMENT FOR COMPACTED CLASS "A" AGGREGATE BASE, WHERE REQUIRED UNDER PAVEMENT IN ACCORDANCE WITH STANDARD SPECIFICATION 202. THIS ITEM DOES NOT INCLUDE COSTS FOR LIFT STATION DEMOLITION. BLOWING WILL NOT BE PERMITTED. ALL BACKFILL SHALL BE COMPACTED TO 95% STANDARD DENSITY UNLESS NOTED SPECIFICALLY OTHERWISE.

6. ALLOWANCE SHALL BE USED FOR THE COST OF MATERIALS, LABOR, INSTALLATION, OVERHEAD AND PROFIT IN ACCORDANCE WITH GC-28. FOR ADDITIONAL MECHANICAL, ELECTRICAL, AND PLUMBING WORK THAT IS NOT IDENTIFIED IN THE CONSTRUCTION DOCUMENTS/PLANS, REFER TO SPECIFICATION SECTION SPL-1 - ALLOWANCE FOR REQUIREMENTS.

7. PAYMENT IS BASED ON THE UNITS OF CITY LS SITE EASEMENT AND UTILITY EASEMENT. OTHER DISTURBED AREAS ARE NOT INCLUDED IN THESE QUANTITIES.

8. ADDITIONAL DEPTH IN A MANHOLE SHALL BE MEASURED FROM SFT BELOW THE TOP OF RIM TO THE LOWEST FLOODED LEVEL.

9. ALL MANHOLES SHALL BE COMPLETE IN PLACE. THIS PAY ITEM INCLUDES FRAME, COVER, CONCRETE AND ALL OTHER INCIDENTALS REQUIRED FOR PLACEMENT.

10. ADDITIVE ALTERNATE INCLUDES ALL WORK NECESSARY TO REMOVE EXISTING BASKET AND GUIDE RAILS. REPAIR CONCRETE AND INSTALL A NEW BASKET AND EAGLE ENSURE COMPLETE. ALSO INCLUDED IN THIS WORK IS THE EAGLE CONTROL, SYSTEM RELACEMENT IMPROVEMENTS AND HATCH.

11. ADDITIVE ALTERNATE INCLUDES PAYING DEMOLITION AND REPLACEMENT OF THE PAVING SURFACE AREAS AT THE VENEL CREEK LS WORK ALSO INCLUDES A 3'-0" WIDE PERIMETER SIDEWALK AROUND THE LIFT STATION, BASE ROAD, ASPHALT PAVING AND DRAINAGE IMPROVEMENTS.

12. ADDITIVE ALTERNATE INCLUDES PAYING DEMOLITION AND REPLACEMENT OF THE PAVING SURFACE AREAS AT THE VENEL CREEK LS WORK INCLUDES ASPHALT, CONCRETE PAVING, SAW CUTTING, JOINT SEALING OF JOINTS AND DRAINAGE IMPROVEMENTS.
GENERAL NOTES

1. The contractor shall call one at 1-800-522-5693 prior to any excavation to determine location of existing utilities.

2. The contractor shall, at his expense, uncover and determine the depth of pipe lines and other utilities which, in his opinion, could interfere with the construction.

3. The city of Tulsa Engineering Services Department standard specifications and standard detail, October 2013, are hereby adopted as part of these specifications where reference is made. Said specifications will be hereinafter referred to as the "standard specifications".

4. Contractor shall have one (1) executed copy of the contract documents, specifications and drawings at the jobsite all times.

5. Contractor shall maintain sanitary facilities for the construction workers and other on-site visitors at the project site at all times.

6. Contractor shall maintain a clean construction site at all times. Trash, spent pallets, container remnants, binders, etc., shall be picked up when no longer in use and deposited in trash containers.

7. Contractor shall remove and dispose of all cleared debris, brush and timber at contractor's expense.

8. All stainless steel shall be minimum type 316 suitable for sanitary applications, unless otherwise noted.

9. All dimensions shown with ± shall be confirmed by the contractor according to actual field conditions or equipment requirements.

10. Dissimilar metals shall be separated by gasket to prevent galvanic corrosion.

11. Any existing items, equipment, structures or surfaces disturbed or damaged by contractor shall be repaired or replaced to original condition or better, at no additional cost to the owner.

12. Contractor shall verify existing utilities in the vicinity of proposed construction prior to construction. Notify engineer of discrepancies from drawings.

13. Contractor shall confirm all dimensions with equipment suppliers prior to construction and notify engineer of discrepancies.

14. Construction staking shall be provided by the contractor.

15. The improvements set forth in the plans shall not prohibit on-site traffic and/or related tasks required in the treatment and discharge of wastewater.

16. Topsoil (minimum 8") in the disturbed areas shall be removed, stockpiled and replaced after construction operations.

17. All construction to be in strict accordance with current city of Tulsa engineering services department standards and specifications.

18. All workmanship shall be neat, plumb, square and constructed in a professional manner.

19. All electrical construction shall be in strict accordance with all NEC and city of Tulsa electrical codes. Electrical, mechanical, and plumbing inspections are required at both rough and final stages of the project.

20. Compile all product and data sheets, of any and all equipment installed in each lift station, to form a usable O&M Manual. Provide the city of Tulsa (3) five hard copies and one digital copy in PDF format of these O&M Manuals (10) ten days prior to the requested final acceptance date. Manuals shall be tabbed and an index sheet provided to allow owner to quickly find individual sections and equipment. Copies of all electrical and equipment testing information shall be included in the O&M Manuals.

21. Shut down times for all lift stations shall be (4) four hours during low flow periods (8PM to 4AM). All shut downs shall be coordinated with the City of Tulsa sewer operations and maintenance group, at least (40) forty hours in advance of shut down. Longer shut down periods will require bypass pumping to be provided and operated by the contractor at no additional cost to the city. Contact number for Joshua Driscoll is 918-586-6938 (Mr).

22. Any by-pass pumping and/or by-pass piping installed shall be operated and maintained by the contractor. The contractor is responsible for preventing unauthorized discharges.

23. Contractor is responsible for any de-watering required to construct foundations in dry conditions and to protect excavation side slopes.

24. All burned construction, including but not limited to pipe and conduit, shall be photographed prior to cover. Equipment data tags shall also be photographed with equipment. Submit in a digital JPEG format on USB drive as part of contractors construction photograph records.

25. All construction shall be in accordance with standards established by the city of Tulsa sewer operation and maintenance group. Lift station standards are available sewer operations & maintenance.

GENERAL PIPING NOTES

1. Lay pipe to uniform grade between indicated elevation points.

2. Size of fittings shown on the plans shall correspond to adjacent straight run of pipe, unless otherwise indicated.

3. All buried S.D.P., C.U.P. and PVC pipe shall utilize D.I. mechanical joint fittings at all connections unless otherwise depicted on the plans. Push on joints shall be utilized only for straight segments unless otherwise noted.

4. All unreinforced, buried fittings such as bends, tees, wyes, etc., shall be blocked for thrust blocks as shown on standard details. All requirements include both gravity and pressure piping.

5. A minimum of 10 feet of horizontal separation for parallel lines and 2 feet of vertical separation (for lines crossing) shall be maintained between water and sanitary sewer lines in accordance with Oklahoma Department of Environmental Quality.

6. Contractor shall remove and reconstruct inlets where new connections are made to existing manholes.

7. All flange coupling adapters shown on the construction drawings shall be restrained type, male/female series 2000, or equal.

8. Contractor is required to vacuum test all manholes according to city of Tulsa engineering services standards and specifications.
STORMWATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS:
FRANKS HILLS 3513 E 102ND STREET SOUTH

PROJECT DESCRIPTION:
STRUCTURE DECOMICTION, EXCAVATION, GRADING, YARD PAVING

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:
1. CLEAR AND GRUB AREA AROUND IMPROVEMENTS
2. STRIP, STOCKPILE AND STABILIZE TOPSOIL
3. IMBED SAVAGED TOPSOIL AND SEEDS PRIOR TO INSTALLATION OF PERMANENT SOD AND SEEDING
4. AS SITE CONDITIONS WARRANT, THE CONTRACTOR MAY CHOOSE TO MODIFY THE TYPE OR ARRANGEMENT OF SPECIFIED PRACTICES TO IMPROVE THEIR EFFECTIVENESS AS APPROVED BY THE ENGINEER
5. THE CONTRACTOR SHALL MAINTAIN A LOG OF DATES OF MAJOR SOIL DISTURBANCE ACTIVITIES AND ALSO THE DATES OF INSTALLATION OF EROSION CONTROL MEASURES

AREA TO BE DISTURBED:
0.29 AC

OFFSITE AREA TO BE DISTURBED:
(FOREST OR CONTRACTOR USE)

WEIGHTED RUNOFF COEFFICIENT
Before Construction: 0.0
After Construction: 0.0

NAME OF RECEIVING WATERS:

NOTE: THIS SHEET SHOULD BE USED IN CONJUNCTION WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- PERMANENT SEEDING, SPRING OR SEEDING
- VEGETATIVE MULCHING
- SOIL RETENTION BLANKET
- PRESCRIPTION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 21 DAYS. METHODS USED WILL BE AS SHOWN ON DRAWINGS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- TEMPORARY BRUSH SEDIMENT BARRIERS
- TEMPORARY SILT FENCE
- TEMPORARY SILT DYES
- TEMPORARY BALE BARRIERS
- DIVERSION, INTERCEPTOR OR PERIMETER DYES
- INTERCEPTOR OR PERIMETER SWALES
- SANDBAG BARRIERS
- ROCK FILTER DAMS
- TEMPORARY SLOPE STABILIZATION
- PAVED EYTON W/ EYTON UMBER PROTECTION
- TEMPORARY DIVERSION CHANNELS
- RIP RAP
- TEMPORARY STREAM CROSSINGS
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- INLET SEDIMENT FILTER
- STABILIZED CONSTRUCTION EXIT

OFFSITE VEHICLE TRACKING:

- HAUL ROADS DAMPED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARP
- EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:
1. THERE ARE NO ENDANGERED OR THREATENED SPECIES OR CRITICAL HABITAT FOUND IN THE PROXIMITY OF THE PROJECT. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF SUCH SPECIES LISTED ON THE U.S. FISH AND WILDLIFE’S LIST OF THREATENED OR ENDANGERED SPECIES ARE ENCOUNTERED.
2. THERE ARE NO PROTECTED PROPERTIES SUCH AS FEDERAL, STATE OR LOCAL HISTORIC PRESERVATION SITES IMPACTED BY THIS PROJECT.

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 IN (12.5 CM) AS RECORDED BY A NON-PRESSURE RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY IRREVERSIBLE AREAS, DRAINAGES, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

WASTE MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, GIBBS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

HAZARDOUS MATERIALS:
PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER’S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACRYLS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

GENERAL NOTES:
A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE. IT SHOULD BE DISTRIBUTED TO ALL WORKERS AND MAINTAINED ON-SITE.

REFERENCES:
1. "OEED" SPECIAL PROVISION 220-1 MANAGEMENT OF EROSION SEEDING, AND STORMWATER POLLUTION PREVENTION AND CONTROL.

THE FOLLOWING SUBSECTIONS OF ODOD’S STANDARD SPECIFICATIONS BOOK SHOULD BE NOTED:

104.04 FINAL CLEARING UP
104.14 CONTRACTOR’S RESPONSIBILITY FOR WORK
106.08 STORAGE OF MATERIALS
107.01 LANDS TO BE OBSERVED
107.15 STORMWATER MANAGEMENT
220.01-05 STORMWATER POLLUTION PREVENTION AND CONTROL

IN ADDITION:
SALVAGE ITEM SCHEDULE

1. PUMPS
2. VALVES
3. TRANSFER SWITCH
4. SCADA SYSTEM
5. AREA LIGHT
6. BOYCE & PALLETT

DELIVER & TRANSPORT TO SEWER OPERATIONS MAINTENANCE FACILITY

PHOTO @ EXISTING STEEL WET WELL

PHOTO @ EXISTING LIFT STATION

NOTES:

1. ABANDON EXISTING FORCEMAIN IN PLACE, INSTALL 2" OD LONG CONCRETE PLUG AT BOTH ENDS, REPAIR DOWNSTREAM MANHOLE, AS REQUIRED AT DOWNSTREAM PLUG LOCATION.

2. REMOVE EXISTING LIFT STATION EQUIPMENT ENTIRELY, EXCEPT ITEMS SPECIFICALLY NOTED IN SALVAGE ITEM SCHEDULE. ALL EQUIPMENT NOT SALVAGED BY OWNER SHALL BE PROPERLY DISPOSED OF BY CONTRACTOR.

3. DEMOLISH EXISTING STEEL LIFT STATION WET WELL AND DRY WELL 6'-0" BELOW GRADE. BREAK OUT 2'-0" HOLE IN BOTTOM OF BOTH STRUCTURES. BACK FILL WITH COMPACTED SELECT WASHED ROCK. PROVIDE 6" MINIMUM OF TOPSOIL.

4. GRADE ENTIRE LIFT STATION SITE TO DRAIN.

5. SLAB 880' ENTIRE DEMOLISHED AREA AND ESTABLISH WALL VEGETATIVE COVER. COSTS FOR SODDING DEMOLITION AREA SHALL BE INCLUDED IN LIFT STATION UPLANDarium.

6. BEFORE DEMOLITION, OR REMOVAL OF ANY USEFUL EQUIPMENT FROM THE LIFT STATION, GIVE THE CITY OF TULSA SEWER OPERATIONS & MAINTENANCE A WEEK NOTICE. GRAVITY SEWER MUST BE IN SERVICE PRIOR TO DEMOLITION OF LIFT STATION. PALLETTIZE & TRANSMIT SALVAGE ITEMS TO SEWER OPERATIONS MAINTENANCE YARD.

7. CONTRACTOR TO PROTECT EXISTING UTILITY LINES DURING CONSTRUCTION AND DEMOLITION ACTIVITIES.

8. REMOVE ELECTRICAL SERVICE BACK TO SOURCE SERVICE POLE, COORDINATE WITH SOM AND POWER COMPANY AS REQUIRED. DEMOLITION INCLUDES BUT NOT LIMITED TO: WIRE, CONTROLS, PHONE, POWER POLES AND RELATED SERVICES TO EXISTING LIFT STATION BEING DEMOLISHED. BOTH PUBLIC (COT) & PRIVATE (PSO)
**MANHOLE - 118HC - 0353**

**MANHOLE - "A"**

**MANHOLE - "B"**

**DROP MANHOLE - "C"**

**MANHOLE - "D"**

**MANHOLE - "E"**

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**NOTES**

1. REFER TO CITY OF TULSA STANDARD SPECIFICATIONS & DRAWINGS OCTOBER 2013

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**PRECAST CONCRETE MANHOLE**

Top of manhole shall be 1" above final grade unless in street or otherwise noted on plans.

12" x 9" PVC manhole steps at approximate 16" O.C.

Pre-Cast cone section.

Rubber gasket.

Jacket O-Ring.

Pre-fabricated O-Ring seal around each pipe through manhole wall.

A-Lok or approved equal.

Pre-Cast base.

CLASS "A" LIMESTONE AGGREGATE.

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**CONCRETE DROP MANHOLE**

When drop is 2'-0" or more

Detail notes:

1. See City of Tulsa Standard Details & Specifications for requirements.
**PHOTO @ VENSEL CREEK LS GRINDER CONTROL PANEL**

**PHOTO @ EXISTING BASKET & RAILS**

**PHOTO @ EXISTING VENSEL CREEK PIPE GALLERY**

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**PLAN AT GRINDER**

- **SCALE: 1/2" = 1'-0"**
- **CONTRACTOR SHALL PROVIDE SPARE BASKET SCREEN SEE NOTES**

1. **CONTRACTOR SHALL FABRICATE AND SUPPLY A NEW 316 S.S. BASKET AND SCREEN BUILT TO BE INSTALLED IN THE PROPOSED GRINDER'S GUIDE RAILS. THE SCREEN IS INTENDED TO BE USED IN PLACE OF THE GRINDER WHEN IT IS NECESSARY TO REMOVE THE GRINDER FOR MAINTENANCE. THE SCREEN SHALL BE SIMILAR IN CONSTRUCTION TO THE EXISTING SCREEN USING 3" HDG AND 3" E.I.**
2. **THE GRINDER SHALL BE RETRIEVABLE THROUGH THE HATCH FOR REMOVAL WITH A MINIMUM OF 3' CLEARANCE.**
3. **GUIDE RAILING & SUPPORT FRAME INSTALLATION IS REQUIRED FOR GRINDER.**

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**SECTION AT GRINDER**

- **SCALE: 1/2" = 1'-0"**

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**REVISION**

**BP**

**DATE**

**FRANCES HILLS RELIEF SEWER & VENSEL CREEK LIFT STATION IMPROVEMENTS**

**TEDYA PROJECT NO. ES 2019-01**

**VENSELF CREEK LIFT STATION**

**GRINDER PLAN & SECTION**

**ENGINEERING SERVICES DEPARTMENT**

**CITY OF TULSA, OKLAHOMA**

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**ADDITIVE ALTERNATE #1**

**GRINDER & ODOR CONTROL SYSTEM**